BALTIMORE COUNTY GRADING \ EROSION AND SEDIMENT CONTROL PLAN COLUMBIA GAS TRANSMISSION, LLC LINE MB EXTENSION PROJECT-PHASE 2

BALTIMORE & HARFORD COUNTIES, MARYLAND

GENERAL LEGEND

600	EX. CONTOUR
600	PROP. CONTOUR
SD	EX. STORM DRAIN
S	EX. SANITARY LINE
CO.	EX. CLEANOUT
W	EX. WATER LINE
FO	EX. FIBER OPTIC LINE
//	EX. FOREIGN PIPELINE
OH	EX. OVERHEAD ELECTRIC
E	EX. UNDERGROUND ELECTRIC
T	EX. UNDERGROUND TELEPHONE
B	EX. FOREIGN UTILITY
MA	EX. LINE MA GAS LINE
MB	PROPOSED LINE MB NATURAL GAS PIPELINE
	EX. WOODS LINE
	EX. FENCE
	EX. GUARDRAIL
	EX. TREES
	EX. STREAM
	PROPERTY LINE
	EX. EASEMENT
	LINE MB PERMANENT RIGHT-OF-WAY
	LINE MB TEMPORARY WORKSPACE
	LINE MB ADDITIONAL TEMPORARY WORKSPACE
	EXISTING LINE MA RIGHT-OF-WAY
	PROPOSED ACCESS ROAD CENTERLINE
	PROPOSED CONTRACTOR STAGING AREA
	100 YEAR FEMA FLOODPLAIN
MbB2-B	SOILS DELINEATION - HSG
	SLOPES 15-25%
	SLOPES 25% OR GREATER
WUS	FIELD DELINEATED WATERS OF THE U.S.
NRD	NATURAL RESOURCE DISTRICT
	NON-TIDAL WETLAND
	25' MDE REGULATED WETLAND BUFFER
WB	FOREST STAND TREE LINE
	FOREST BUFFER
FB	EXPANDED RIPARIAN BUFFER
XB	EX. EDGE OF PAVEMENT
LOD	LIMIT OF DISTURBANCE
	HIGHLY ERODIBLE SOILS
	EX. BUILDING
LNMAW0000	WETLAND ID
LNMAS0000	STREAM ID
AR-0000	ACCESS ROAD ID
MP 0	MILEPOST
MD-BA-000.00	PROPERTY TRACT NUMBER

SHEET INDEX

T-1.0	TITLE SHEET - BALTIMORE COUNTY - PHASE 2
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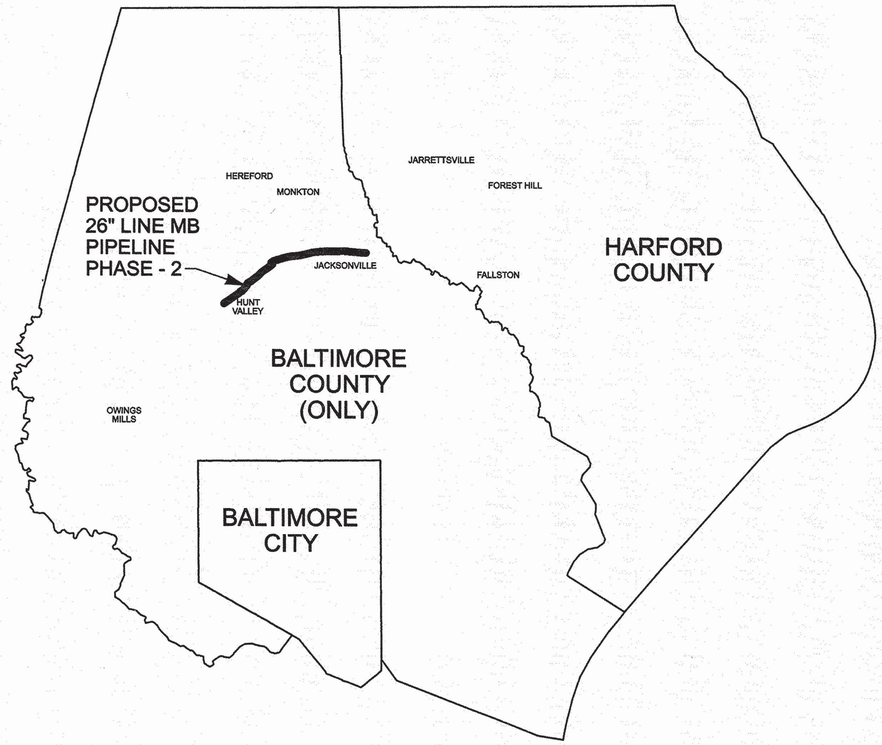
PP-07 TO PP-14	LINE MB PROFILE AT STREAM CROSSINGS - BALTIMORE COUNTY - PHASE 2
ECN-1.0	EROSION AND SEDIMENT CONTROL NOTES - BALTIMORE COUNTY - PHASE 2
ECD-1.00 TO ECD-1.14	EROSION AND SEDIMENT CONTROL DETAILS - BALTIMORE COUNTY - PHASE 2
PO-1.1 TO PO-1.3	PROPERTY OWNERS CHART - BALTIMORE COUNTY - PHASE 2



LOCATION MAP

N.T.S.

GENERAL NOTES

1. TOPOGRAPHICAL SURVEY DATA WAS PROVIDED BY BALTIMORE AND HARFORD COUNTIES IN 2012 (BALTIMORE COUNTY TOPOGRAPHIC CONTOUR DATA FROM 2005) (HARFORD COUNTY TOPOGRAPHIC CONTOUR DATA FROM 2008).
2. BASE MAPPING SHOWN IS FROM A COMBINATION OF SOURCES BY OTHER FIRMS RESPONSIBLE FOR THE DESIGN OF THE PIPELINE. PROFESSIONAL RESPONSIBILITY OF KCI TECHNOLOGIES, INC. IS SOLEY THE CONSISTENCY OF THE EROSION CONTROL PLAN WITH THE BASE FILES PROVIDED, AND NOT THE ACCURACY OF THE BASE FILES THEMSELVES.
3. ALL DISTURBED AREA FROM APPROXIMATELY OLD YORK ROAD EAST TO MANOR ROAD IS INCLUDED WITHIN A TIER II WATERSHED AS NOTED ON THE GRADING/EROSION AND SEDIMENT CONTROL PLAN DWG NO. EC-48 THROUGH EC-53.
4. ALL DISTURBED AREA WITHIN THE EXPANDED RIPARIAN BUFFER IS WITHIN THE STREAMSIDE MANAGEMENT ZONE AS NOTED ON THE GRADING/EROSION AND SEDIMENT CONTROL PLAN DWG. NO. EC-26 THROUGH EC-53.
5. EROSION AND SEDIMENT CONTROL PLANS FOR 2015 CONSTRUCTION WERE PREPARED PER THE DIRECTION OF COLUMBIA GAS TRANSMISSION, LLC.
6. PROPERTY TRACT NUMBERS ARE SHOWN ON THE GRADING/EROSION AND SEDIMENT CONTROL PLAN DWG NO. EC-26 THROUGH EC-53. DETAILED INFORMATION FOR INDIVIDUAL PROPERTIES IS PROVIDED ON THE PROPERTY OWNER'S CHART, DWG NO. PO-1.1 THROUGH PO-1.3.

NOTES

1. 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.
2. ALL SWALES HAVE BEEN DESIGNED BY THE ENGINEER TO CONVEY RUNOFF ACCORDING TO BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS DESIGN STANDARDS.
3. THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION IN FOREST BUFFER EASEMENT OR OTHER FOREST RETENTION AREAS, EXCEPT AS PERMITTED BY BALTIMORE COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND SUSTAINABILITY.
4. STORMWATER MANAGEMENT HAS BEEN ADDRESSED/APPROVED BY/THROUGH (PAYMENT OF A FEE IN LIEU TO THE BALTIMORE COUNTY STORMWATER MANAGEMENT FUND/ STORMWATER MANAGEMENT VARIANCE/STORMWATER MANAGEMENT EXEMPTION/ENVIRONMENTAL SITE DESIGN).

OWNER/APPLICANT

NISOURCE / COLUMBIA GAS TRANSMISSION, LLC
1700 MacCORKLE AVE, SE
CHARLESTON, WV 25314
TELE: (304) 357-2040
CONTACT: JENNIFER L. CANNON

AREA DISTURBED IN BALTIMORE COUNTY: 4,359,545 SF. / 100.08 AC.

-A. 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 RESOURCE MANAGEMENT AND WITH THE REQUIREMENTS SPECIFIED IN ARTICLE 33, TITLE 5 OF THE BALTIMORE COUNTY CODE.

OWERS/DEVELOPER'S CERTIFI — TITLE: NRP PROJECT MANAGER — DATE: 2·13·15

PRINT NAME: JENNIFER CANNON

-B. OWNER'S/DEVELOPER'S CERTIFICATION - AIR QUALITY

I ACKNOWLEDGE THAT I AM RESPONSIBLE UNDER THE CODE OF MARYLAND REGULATIONS(26.1106.03) TO PREVENT PARTICULATE MATTER FROM BECOMING AIRBORNE DUE TO GRADING, LAND CLEARING, EXCAVATION, CONSTRUCTION OR OTHER RELATED ACTIVITIES. I WILL CONTACT THE ENVIRONMENTAL HEALTH SECTION AT 887-4065 AT LEAST THREE DAYS PRIOR TO BEGINNING WORK.

OWERS/DEVELOPER'S CERTIFICATION — TITLE: NRP PROJECT MANAGER — DATE: 2·13·15

PRINT NAME: JENNIFER CANNON

OWNER'S / DEVELOPER'S CERTIFICATION

I/WE 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 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 EVALUATIONS BY THE BALTIMORE COUNTY SOIL CONSERVATION DISTRICT BOARD OF SUPERVISORS OR THEIR AUTHORIZED AGENTS.

OWERS/DEVELOPER'S SIGNATURE — DATE: 2·13·15

PRINT NAME: JENNIFER CANNON — TITLE: NRP PROJECT MANAGER

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 THAT 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 — DATE: 2-13-2015

PRINT NAME: KAREN POWELL — MD LICENSE NO.: 14942

STORMWATER MANAGEMENT PERMIT NOT REQUIRED

BALTIMORE COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND SUSTAINABILITY
APPROVED FOR GRADING — DATE: 2/24/15

BALTIMORE COUNTY SOIL CONSERVATION DISTRICT
APPROVED FOR SEDIMENT CONTROL — DATE: 2-17-15
025-1882-15 — PLAN NO.
DISTRICT OFFICIAL
TECHNICAL REVIEW FOR THE DISTRICT BY:
IF A GRADING PERMIT HAS NOT BEEN OBTAINED WITHIN TWO YEARS OF THIS APPROVAL, THIS PLAN SHALL BE RE-SUBMMITTED TO THE DISTRICT.

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM – HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

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.: 14942 EXPIRATION DATE: 6/01/2016

SEAL — STATE OF MARYLAND — KAREN R. POWELL — 2-13-15

KCI TECHNOLOGIES — ENGINEERS, PLANNERS, SCIENTISTS, CONSTRUCTION MANAGERS — 936 RIDGEBROOK ROAD, SPARKS, MARYLAND 21152 — TELEPHONE: (410) 316-7800 — FAX: (410) 316-7818

Columbia Gas Transmission — A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE: JAN. 2015
SCALE: AS SHOWN
DESIGNED BY: CW
DRAWN BY: KP

BALTIMORE COUNTY
GRADING / EROSION AND SEDIMENT CONTROL PLAN
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO. T-1.0
SHEET 1 OF 61
KCI JOB NUMBER 16-121849

PLOTTED: "11:06 AM on Friday, January 23, 2015"
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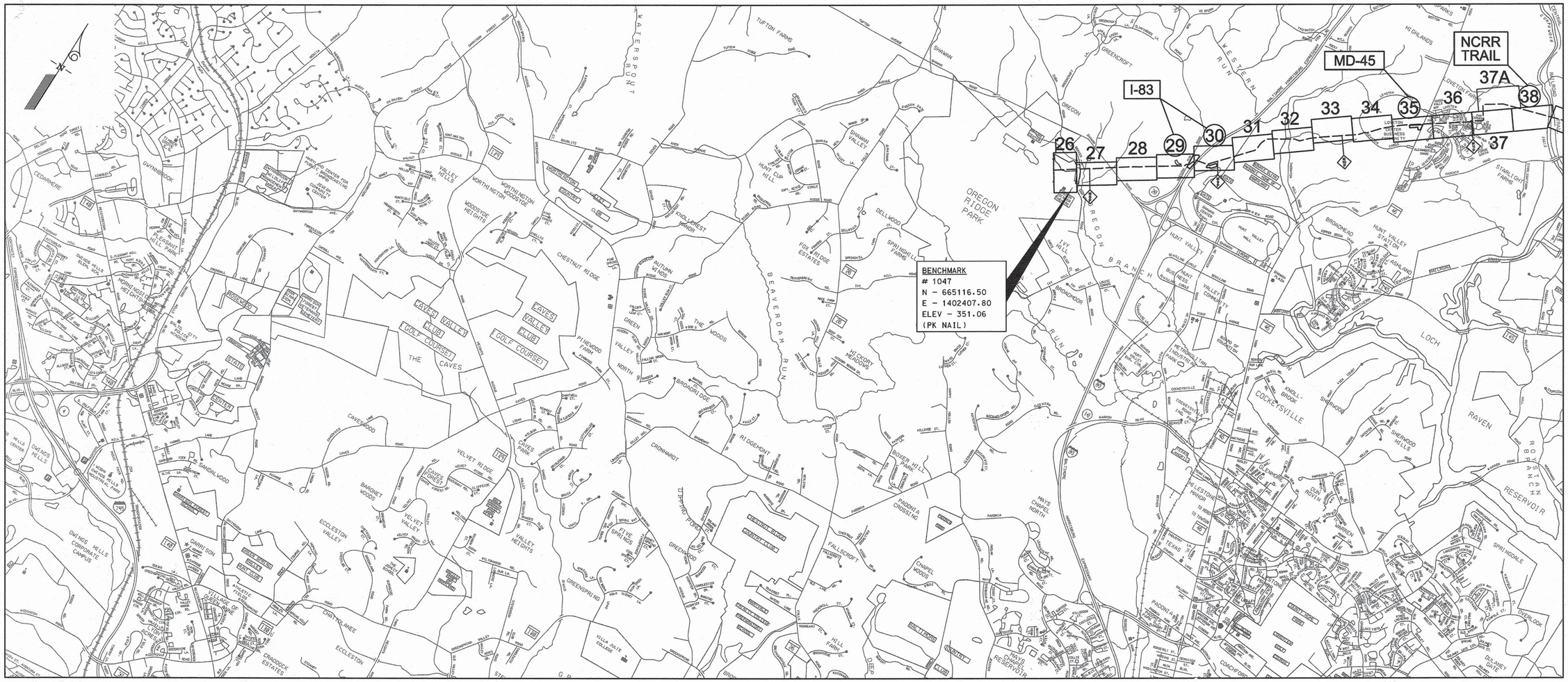

NOTE:
PLEASE REFER TO PLAN SHEETS EC-26 THROUGH EC-38 WHEN USING THE SHEET REFERENCE NUMBERS LISTED ABOVE.

VICINITY MAP

1" = 2000'

LEGEND

PROPOSED LINE MB NATURAL GAS PIPELINE

1 PLAN SHEET INCLUDES BOTH STATE AND COUNTY PROPERTY

2 PLAN SHEET INCLUDES COUNTY PROPERTY ONLY

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM - HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

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.: 14942
EXPIRATION DATE: 6/01/2016

SEAL

STATE OF MARYLAND · KAREN R. POWELL · 14942 · PROFESSIONAL ENGINEER · 2-13-15

KCI TECHNOLOGIES
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818

Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE: JAN. 2015
SCALE: 1"= 2000'
DESIGNED BY: CW
DRAWN BY: KP

BALTIMORE COUNTY
VICINITY MAP
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO.
VIC-1.0
SHEET 2 OF 61
KCI JOB NUMBER
16-121849

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BY: CHRISTOPHER WEAVER, DN=cn=CHRISTOPHER WEAVER, o=KCI Technologies, Inc., c=US
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Q1	P	Q	Q1	Q2	R	R1	S	ID
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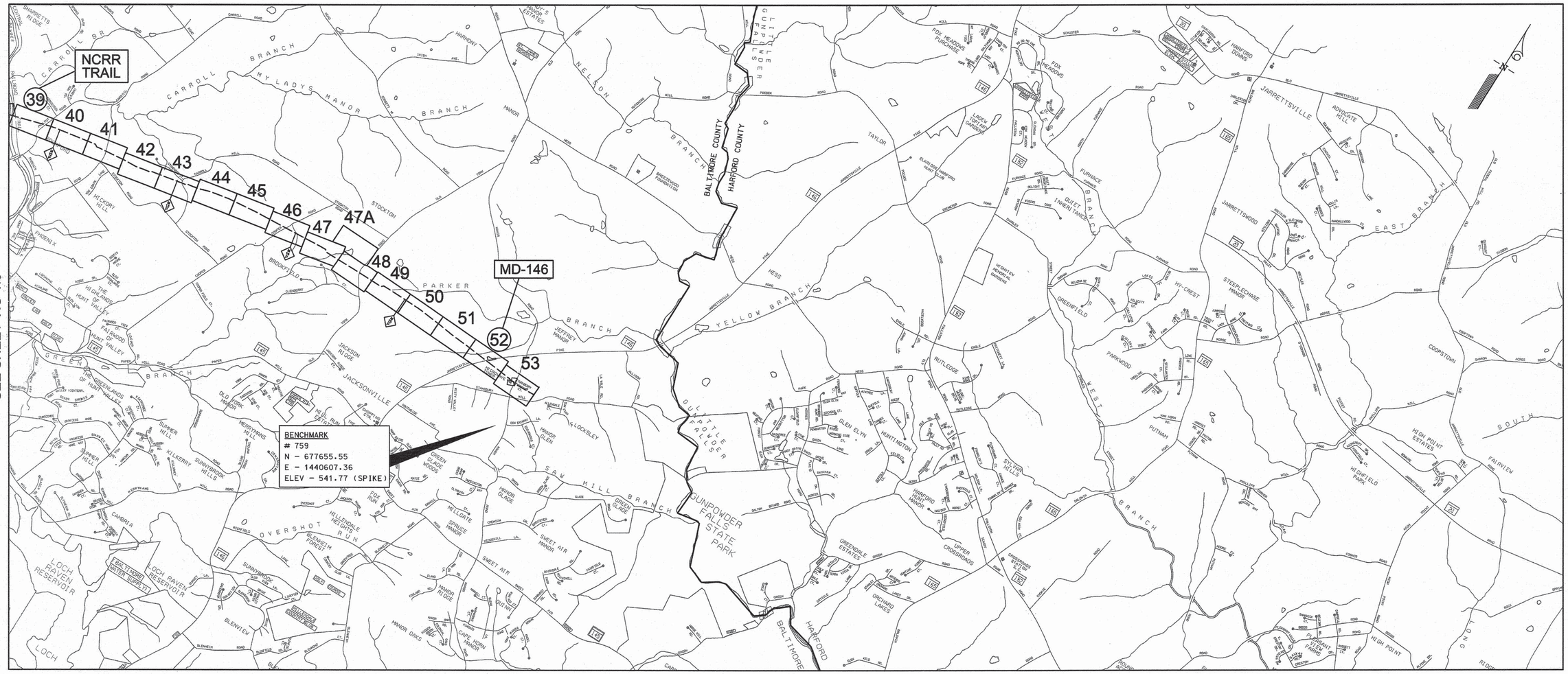

NOTE:
PLEASE REFER TO PLAN SHEETS EC-39 THROUGH EC-53 WHEN USING THE SHEET REFERENCE NUMBERS LISTED ABOVE.

VICINITY MAP

1" = 2000'

LEGEND

PROPOSED LINE MB NATURAL GAS PIPELINE

1 PLAN SHEET INCLUDES BOTH STATE AND COUNTY PROPERTY

2 PLAN SHEET INCLUDES COUNTY PROPERTY ONLY

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM -- HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

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LICENSE NO.: 14942
EXPIRATION DATE: 6/01/2016

SEAL — STATE OF MARYLAND — KAREN R. POWELL — 14942 — PROFESSIONAL ENGINEER — 2-13-15

KCI TECHNOLOGIES
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CONSTRUCTION MANAGERS
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Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE: JAN. 2015
SCALE: 1"= 2000'
DESIGNED BY: CW
DRAWN BY: KP

BALTIMORE COUNTY
VICINITY MAP
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO. VIC-1.1
SHEET 3 OF 61
KCI JOB NUMBER 16-121849

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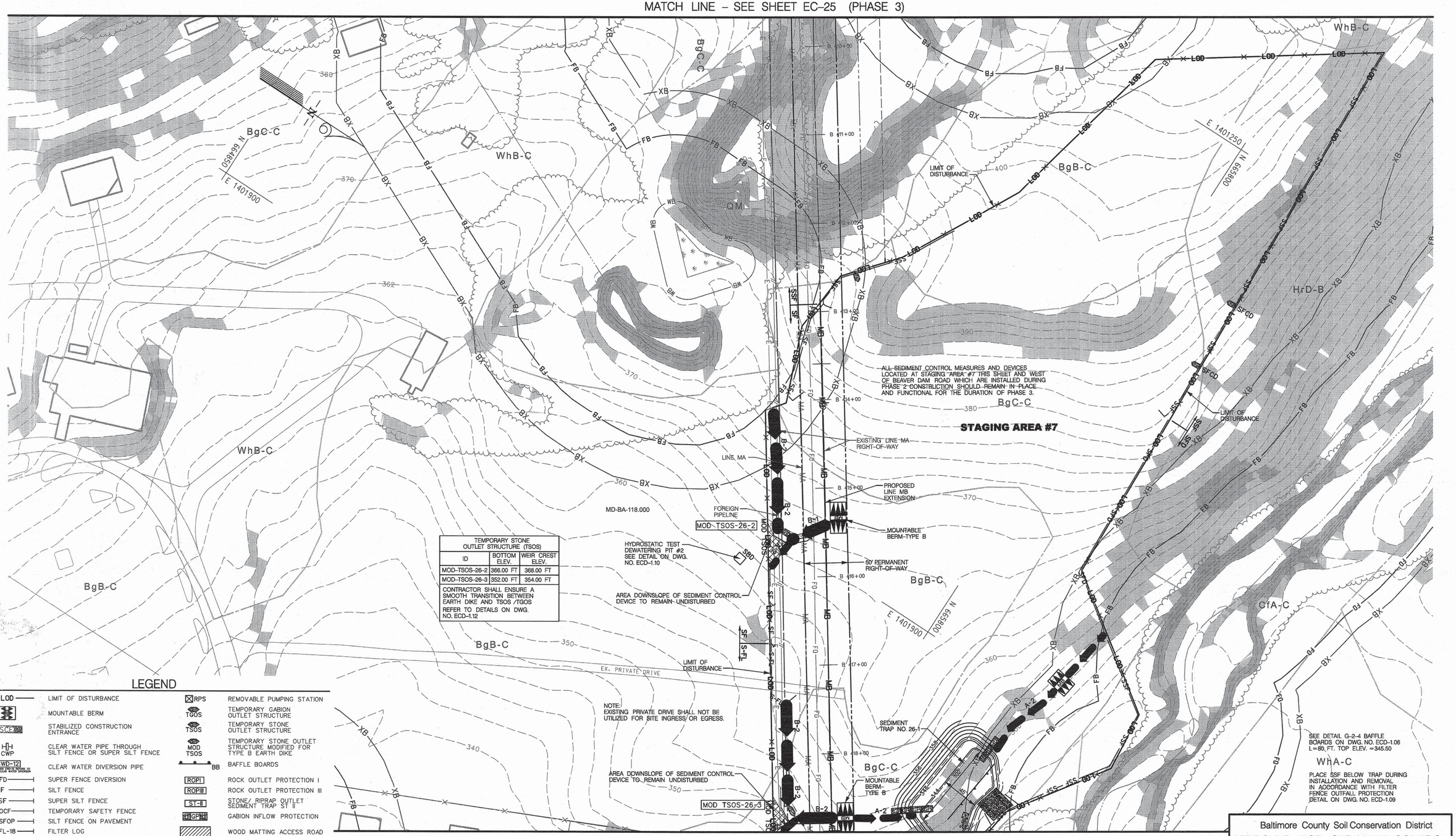
MATCH LINE – SEE SHEET EC-25 (PHASE 3)



TEMPORARY STONE OUTLET STRUCTURE (TSOS)		
ID	BOTTOM ELEV.	WEIR CREST ELEV.
MOD-TSOS-26-2	366.00 FT	368.00 FT
MOD-TSOS-26-3	352.00 FT	354.00 FT
CONTRACTOR SHALL ENSURE A SMOOTH TRANSITION BETWEEN EARTH DIKE AND TSOS /TGOS REFER TO DETAILS ON DWG. NO. ECD-1.12		

MATCH LINE – SEE SHEET EC-27

LEGEND

LOD	LIMIT OF DISTURBANCE	RPS	REMOVABLE PUMPING STATION
	MOUNTABLE BERM	TGOS	TEMPORARY GABION OUTLET STRUCTURE
SCE	STABILIZED CONSTRUCTION ENTRANCE	TSOS	TEMPORARY STONE OUTLET STRUCTURE
CWP	CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE	MOD TSOS	TEMPORARY STONE OUTLET STRUCTURE MODIFIED FOR TYPE B EARTH DIKE
CWD-12	CLEAR WATER DIVERSION PIPE (DIMENSION AND/OR REFERS TO 12 INCH CLEAR WATER DIVERSION)	BB	BAFFLE BOARDS
SFD	SUPER FENCE DIVERSION	ROPI	ROCK OUTLET PROTECTION I
SF	SILT FENCE	ROPIII	ROCK OUTLET PROTECTION III
SSF	SUPER SILT FENCE	ST-II	STONE/ RIPRAP OUTLET SEDIMENT TRAP ST II
OCF	TEMPORARY SAFETY FENCE	GP	GABION INFLOW PROTECTION
SFOP	SILT FENCE ON PAVEMENT		WOOD MATTING ACCESS ROAD
FL-18	FILTER LOG		TEMPORARY ACCESS BRIDGE
S-FL	STACKED FILTER LOG	A-2	TEMPORARY SWALE
SBD	HYDROSTATIC TEST DEWATERING PIT	SFCD	SILT FENCE CHECK DAM
	SANDBAGS	SIP	STANDARD INLET PROTECTION
	SANDBAG DAM	COIP	COMBINATION INLET PROTECTION
P	PUMP	SB SSF FB	FILTER BAG WITH STRAW BALE AND SUPER SILT FENCE
FB	FILTER BAG	MOD COIP	COMBINATION INLET PROTECTION MODIFIED FOR SUMP
PDS-1	PERIMETER DIKE/ SWALE		
A-1	EARTH DIKE (PLACE DEPRESSION SLOP OUT ON FLOW CHANNEL SIDE OF DIKE)		
TAB	TEMPORARY ASPHALT BERM		

GRAPHIC SCALE
50 0 25 50 100
(IN FEET)
1 inch = 50 ft.

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. 14942 EXPIRATION DATE: 6/01/2016

SEAL: STATE OF MARYLAND KAREN R. POPELKA 14942 PROFESSIONAL ENGINEER 2-13-15

KCI TECHNOLOGIES
ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818

Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE: JAN. 2015
SCALE: 1"= 50'
DESIGNED BY: CW
DRAWN BY: KP

BALTIMORE COUNTY
GRADING / EROSION AND SEDIMENT CONTROL PLAN
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO. EC-26
SHEET 4 OF 61
KCI JOB NUMBER 16-121849

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM – HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

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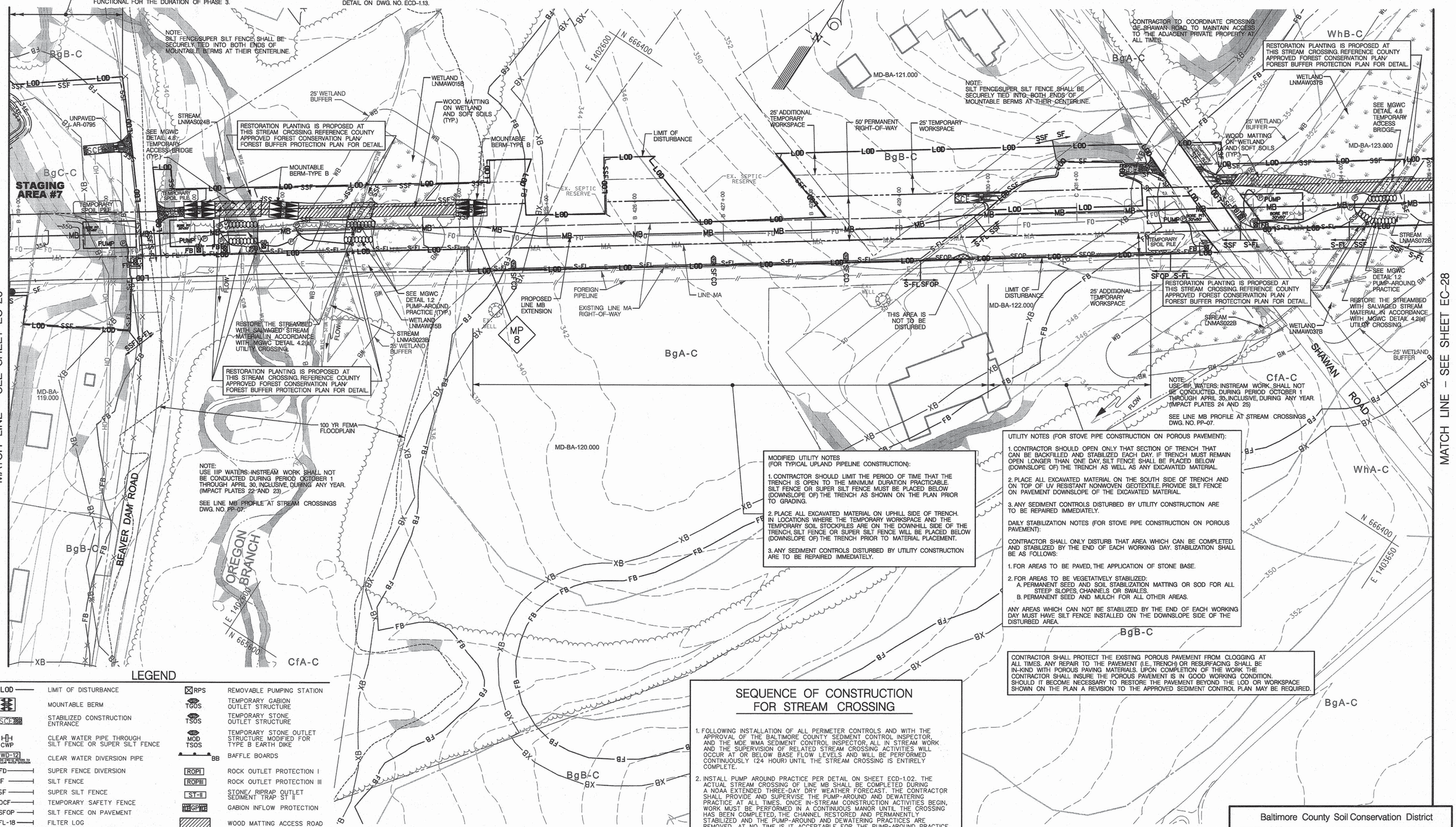

LEGEND

LOD	LIMIT OF DISTURBANCE	RPS	REMOVABLE PUMPING STATION
	MOUNTABLE BERM	TGOS	TEMPORARY GABION OUTLET STRUCTURE
SCE	STABILIZED CONSTRUCTION ENTRANCE	TSOS	TEMPORARY STONE OUTLET STRUCTURE
CWP	CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE	MOD TSOS	TEMPORARY STONE OUTLET STRUCTURE MODIFIED FOR TYPE B EARTH DIKE
CWD-12	CLEAR WATER DIVERSION PIPE	BB	BAFFLE BOARDS
SFD	SUPER FENCE DIVERSION	ROPI	ROCK OUTLET PROTECTION I
SF	SILT FENCE	ROPIII	ROCK OUTLET PROTECTION III
SSF	SUPER SILT FENCE	ST-II	STONE/ RIPRAP OUTLET SEDIMENT TRAP ST II
OCF	TEMPORARY SAFETY FENCE	GPI	GABION INFLOW PROTECTION
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FL-18	FILTER LOG		TEMPORARY ACCESS BRIDGE
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P	PUMP	SB FB SSF	FILTER BAG WITH STRAW BALE AND SUPER SILT FENCE
FB	FILTER BAG	MOD COIP	COMBINATION INLET PROTECTION MODIFIED FOR SUMP
PDS-1	PERIMETER DIKE/ SWALE		
A-1	EARTH DIKE		
TAB	TEMPORARY ASPHALT BERM		

GRAPHIC SCALE
50 0 25 50 100
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A NiSource Company

SEQUENCE OF CONSTRUCTION FOR STREAM CROSSING

1. FOLLOWING INSTALLATION OF ALL PERIMETER CONTROLS AND WITH THE APPROVAL OF THE BALTIMORE COUNTY SEDIMENT CONTROL INSPECTOR, AND THE MDE WMA SEDIMENT CONTROL INSPECTOR, ALL IN STREAM WORK AND THE SUPERVISION OF RELATED STREAM CROSSING ACTIVITIES WILL OCCUR AT OR BELOW BASE FLOW LEVELS AND WILL BE PERFORMED CONTINUOUSLY (24 HOUR) UNTIL THE STREAM CROSSING IS ENTIRELY COMPLETE.
2. INSTALL PUMP AROUND PRACTICE PER DETAIL ON SHEET ECD-1.02. THE ACTUAL STREAM CROSSING OF LINE MB SHALL BE COMPLETED DURING A NOAA EXTENDED THREE-DAY DRY WEATHER FORECAST. THE CONTRACTOR SHALL PROVIDE AND SUPERVISE THE PUMP-AROUND AND DEWATERING PRACTICE AT ALL TIMES. ONCE IN-STREAM CONSTRUCTION ACTIVITIES BEGIN, WORK MUST BE PERFORMED IN A CONTINUOUS MANOR UNTIL THE CROSSING HAS BEEN COMPLETED, THE CHANNEL RESTORED AND PERMANENTLY STABILIZED AND THE PUMP-AROUND AND DEWATERING PRACTICES ARE REMOVED. AT NO TIME IS IT ACCEPTABLE FOR THE PUMP-AROUND PRACTICE TO REMAIN UNATTENDED. ALL DISCHARGE MUST BE ACCOMPLISHED IN A NON-EROSIVE MANNER. NO SEDIMENT LADEN DISCHARGE IS PERMITTED.
3. UPON COMPLETION OF THE STREAM CROSSING, INSTALL THE REMAINDER OF LINE MB.

MODIFIED UTILITY NOTES
(FOR TYPICAL UPLAND PIPELINE CONSTRUCTION):

1. CONTRACTOR SHOULD LIMIT THE PERIOD OF TIME THAT THE TRENCH IS OPEN TO THE MINIMUM DURATION PRACTICABLE. SILT FENCE OR SUPER SILT FENCE MUST BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH AS SHOWN ON THE PLAN PRIOR TO GRADING.
2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH. IN LOCATIONS WHERE THE TEMPORARY WORKSPACE AND THE TEMPORARY SOIL STOCKPILES ARE ON THE DOWNHILL SIDE OF THE TRENCH, SILT FENCE OR SUPER SILT FENCE WILL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH PRIOR TO MATERIAL PLACEMENT.
3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

UTILITY NOTES (FOR STOVE PIPE CONSTRUCTION ON POROUS PAVEMENT):

1. CONTRACTOR SHOULD OPEN ONLY THAT SECTION OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF TRENCH MUST REMAIN OPEN LONGER THAN ONE DAY, SILT FENCE SHALL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH AS WELL AS ANY EXCAVATED MATERIAL.
2. PLACE ALL EXCAVATED MATERIAL ON THE SOUTH SIDE OF TRENCH AND ON TOP OF UV RESISTANT NONWOVEN GEOTEXTILE. PROVIDE SILT FENCE ON PAVEMENT DOWNSLOPE OF THE EXCAVATED MATERIAL.
3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

DAILY STABILIZATION NOTES (FOR STOVE PIPE CONSTRUCTION ON POROUS PAVEMENT):

CONTRACTOR SHALL ONLY DISTURB THAT AREA WHICH CAN BE COMPLETED AND STABILIZED BY THE END OF EACH WORKING DAY. STABILIZATION SHALL BE AS FOLLOWS:

1. FOR AREAS TO BE PAVED, THE APPLICATION OF STONE BASE.
2. FOR AREAS TO BE VEGETATIVELY STABILIZED:
   A. PERMANENT SEED AND SOIL STABILIZATION MATTING OR SOD FOR ALL STEEP SLOPES, CHANNELS OR SWALES.
   B. PERMANENT SEED AND MULCH FOR ALL OTHER AREAS.

ANY AREAS WHICH CAN NOT BE STABILIZED BY THE END OF EACH WORKING DAY MUST HAVE SILT FENCE INSTALLED ON THE DOWNSLOPE SIDE OF THE DISTURBED AREA.

CONTRACTOR SHALL PROTECT THE EXISTING POROUS PAVEMENT FROM CLOGGING AT ALL TIMES. ANY REPAIR TO THE PAVEMENT (I.E., TRENCH) OR RESURFACING SHALL BE IN-KIND WITH POROUS PAVING MATERIALS. UPON COMPLETION OF THE WORK THE CONTRACTOR SHALL INSURE THE POROUS PAVEMENT IS IN GOOD WORKING CONDITION. SHOULD IT BECOME NECESSARY TO RESTORE THE PAVEMENT BEYOND THE LOD OR WORKSPACE SHOWN ON THE PLAN A REVISION TO THE APPROVED SEDIMENT CONTROL PLAN MAY BE REQUIRED.

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM - HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

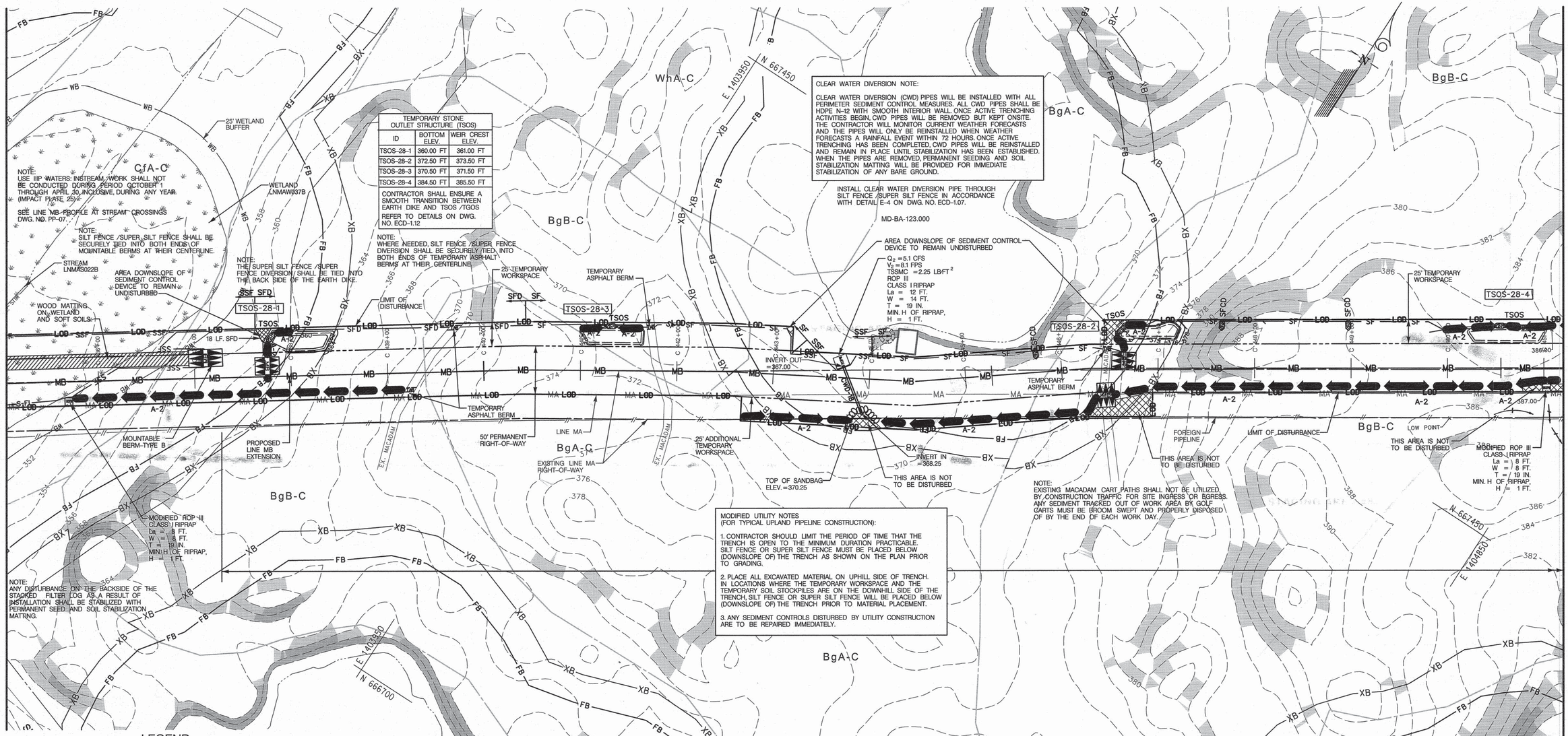
REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE: JAN. 2015
SCALE: 1"= 50'
DESIGNED BY: CW
DRAWN BY: KP

BALTIMORE COUNTY
GRADING / EROSION AND SEDIMENT CONTROL PLAN
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO.
EC-27
SHEET 5 OF 61
KCI JOB NUMBER 16-121849

PLOTTED: "01:34 PM on Friday, January 23, 2015"
FILE: M:\2012\16121849\drawings\WR\ESC-PLAN_27.dgn



TEMPORARY STONE OUTLET STRUCTURE (TSOS)		
ID	BOTTOM ELEV.	WEIR CREST ELEV.
TSOS-28-1	360.00 FT	361.00 FT
TSOS-28-2	372.50 FT	373.50 FT
TSOS-28-3	370.50 FT	371.50 FT
TSOS-28-4	384.50 FT	385.50 FT

CONTRACTOR SHALL ENSURE A SMOOTH TRANSITION BETWEEN EARTH DIKE AND TSOS /TGOS

REFER TO DETAILS ON DWG. NO. ECD-1.12

CLEAR WATER DIVERSION NOTE:

CLEAR WATER DIVERSION (CWD) PIPES WILL BE INSTALLED WITH ALL PERIMETER SEDIMENT CONTROL MEASURES. ALL CWD PIPES SHALL BE HDPE N-12 WITH SMOOTH INTERIOR WALL. ONCE ACTIVE TRENCHING ACTIVITIES BEGIN, CWD PIPES WILL BE REMOVED BUT KEPT ONSITE. THE CONTRACTOR WILL MONITOR CURRENT WEATHER FORECASTS AND THE PIPES WILL ONLY BE REINSTALLED WHEN WEATHER FORECASTS A RAINFALL EVENT WITHIN 72 HOURS. ONCE ACTIVE TRENCHING HAS BEEN COMPLETED, CWD PIPES WILL BE REINSTALLED AND REMAIN IN PLACE UNTIL STABILIZATION HAS BEEN ESTABLISHED. WHEN THE PIPES ARE REMOVED, PERMANENT SEEDING AND SOIL STABILIZATION MATTING WILL BE PROVIDED FOR IMMEDIATE STABILIZATION OF ANY BARE GROUND.

INSTALL CLEAR WATER DIVERSION PIPE THROUGH SILT FENCE /SUPER SILT FENCE IN ACCORDANCE WITH DETAIL E-4 ON DWG. NO. ECD-1.07.

MODIFIED UTILITY NOTES
(FOR TYPICAL UPLAND PIPELINE CONSTRUCTION):

1. CONTRACTOR SHOULD LIMIT THE PERIOD OF TIME THAT THE TRENCH IS OPEN TO THE MINIMUM DURATION PRACTICABLE. SILT FENCE OR SUPER SILT FENCE MUST BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH AS SHOWN ON THE PLAN PRIOR TO GRADING.

2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH. IN LOCATIONS WHERE THE TEMPORARY WORKSPACE AND THE TEMPORARY SOIL STOCKPILES ARE ON THE DOWNHILL SIDE OF THE TRENCH, SILT FENCE OR SUPER SILT FENCE WILL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH PRIOR TO MATERIAL PLACEMENT.

3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

LEGEND

LOD	LIMIT OF DISTURBANCE	RPS	REMOVABLE PUMPING STATION
	MOUNTABLE BERM	TGOS	TEMPORARY GABION OUTLET STRUCTURE
SCE	STABILIZED CONSTRUCTION ENTRANCE	TSOS	TEMPORARY STONE OUTLET STRUCTURE
CWP	CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE	MOD TSOS	TEMPORARY STONE OUTLET STRUCTURE MODIFIED FOR TYPE B EARTH DIKE
CWD-12	CLEAR WATER DIVERSION PIPE	BB	BAFFLE BOARDS
SFD	SUPER FENCE DIVERSION	ROPI	ROCK OUTLET PROTECTION I
SF	SILT FENCE	ROPIII	ROCK OUTLET PROTECTION III
SSF	SUPER SILT FENCE	ST-II	STONE/ RIPRAP OUTLET SEDIMENT TRAP ST II
OCF	TEMPORARY SAFETY FENCE	GP-II	GABION INFLOW PROTECTION
SFOP	SILT FENCE ON PAVEMENT		WOOD MATTING ACCESS ROAD
FL-18	FILTER LOG		TEMPORARY ACCESS BRIDGE
S-FL	STACKED FILTER LOG	A-2	TEMPORARY SWALE
SBD	HYDROSTATIC TEST DEWATERING PIT	SFCD	SILT FENCE CHECK DAM
	SANDBAGS	SIP	STANDARD INLET PROTECTION
	SANDBAG DAM	COIP	COMBINATION INLET PROTECTION
P	PUMP	SB SSF FB	FILTER BAG WITH STRAW BALE AND SUPER SILT FENCE
FB	FILTER BAG	MOD COIP	COMBINATION INLET PROTECTION MODIFIED FOR SUMP
PDS-1	PERIMETER DIKE/ SWALE		
A-1	EARTH DIKE		
TAB	TEMPORARY ASPHALT BERM		

SEQUENCE OF CONSTRUCTION FOR STREAM CROSSING

1. FOLLOWING INSTALLATION OF ALL PERIMETER CONTROLS AND WITH THE APPROVAL OF THE BALTIMORE COUNTY SEDIMENT CONTROL INSPECTOR, AND THE MDE WMA SEDIMENT CONTROL INSPECTOR, ALL IN STREAM WORK AND THE SUPERVISION OF RELATED STREAM CROSSING ACTIVITIES WILL OCCUR AT OR BELOW BASE FLOW LEVELS AND WILL BE PERFORMED CONTINUOUSLY (24 HOUR) UNTIL THE STREAM CROSSING IS ENTIRELY COMPLETE.

2. INSTALL PUMP AROUND PRACTICE PER DETAIL ON SHEET ECD-1.02. THE ACTUAL STREAM CROSSING OF LINE MB SHALL BE COMPLETED DURING A NOAA EXTENDED THREE-DAY DRY WEATHER FORECAST. THE CONTRACTOR SHALL PROVIDE AND SUPERVISE THE PUMP-AROUND AND DEWATERING PRACTICE AT ALL TIMES. ONCE IN-STREAM CONSTRUCTION ACTIVITIES BEGIN, WORK MUST BE PERFORMED IN A CONTINUOUS MANOR UNTIL THE CROSSING HAS BEEN COMPLETED, THE CHANNEL RESTORED AND PERMANENTLY STABILIZED AND THE PUMP-AROUND AND DEWATERING PRACTICES ARE REMOVED. AT NO TIME IS IT ACCEPTABLE FOR THE PUMP-AROUND PRACTICE TO REMAIN UNATTENDED. ALL DISCHARGE MUST BE ACCOMPLISHED IN A NON-EROSIVE MANNER. NO SEDIMENT LADEN DISCHARGE IS PERMITTED.

3. UPON COMPLETION OF THE STREAM CROSSING, INSTALL THE REMAINDER OF LINE MB.

GRAPHIC SCALE
50 0 25 50 100
(IN FEET)
1 inch = 50 ft.

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM – HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

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. 14942 EXPIRATION DATE: 6/01/2016

STATE OF MARYLAND · KAREN R. POLLACK · No. 14942 · PROFESSIONAL ENGINEER
SEAL
2-13-15

KCI TECHNOLOGIES
ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818

Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE JAN. 2015
SCALE 1"= 50'
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BALTIMORE COUNTY
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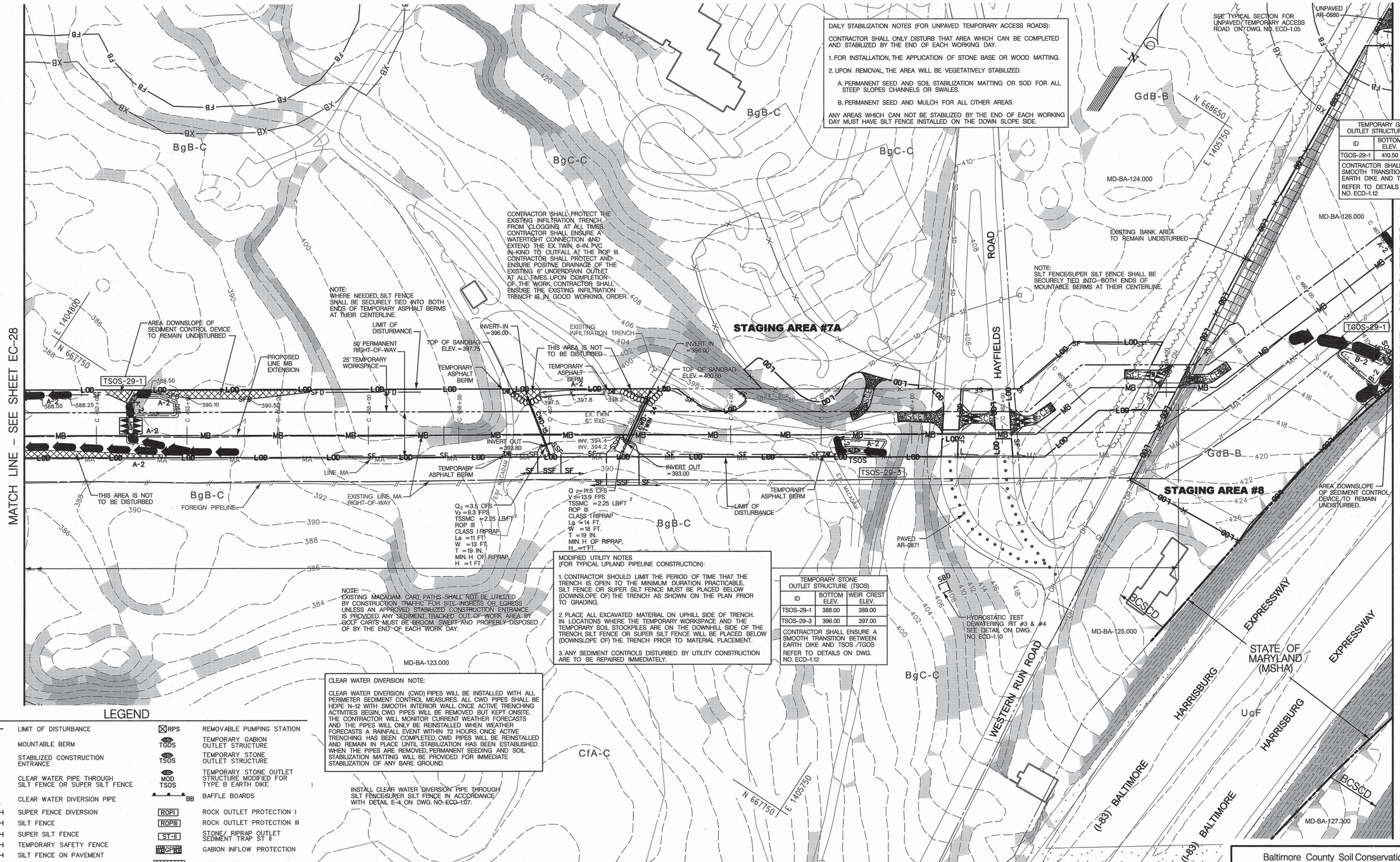
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO.
EC-28
SHEET 6 OF 61
KCI JOB NUMBER
16-121849

PLOTTED: "11:33 AM on Friday, February 13, 2015"
FILE: M:\2012\16121849\drawings\WRLE-SC-PLAN_28.dgn



DAILY STABILIZATION NOTES (FOR UNPAVED TEMPORARY ACCESS ROADS):

CONTRACTOR SHALL ONLY DISTURB THAT AREA WHICH CAN BE COMPLETED AND STABILIZED BY THE END OF EACH WORKING DAY.

1. FOR INSTALLATION, THE APPLICATION OF STONE BASE OR WOOD MATTING.
2. UPON REMOVAL, THE AREA WILL BE VEGETATIVELY STABILIZED.
   A. PERMANENT SEED AND SOIL STABILIZATION MATTING OR SOD FOR ALL STEEP SLOPES CHANNELS OR SWALES.
   B. PERMANENT SEED AND MULCH FOR ALL OTHER AREAS.

ANY AREAS WHICH CAN NOT BE STABILIZED BY THE END OF EACH WORKING DAY MUST HAVE SILT FENCE INSTALLED ON THE DOWN SLOPE SIDE.

NOTE:
WHERE NEEDED, SILT FENCE SHALL BE SECURELY TIED INTO BOTH ENDS OF TEMPORARY ASPHALT BERMS AT THEIR CENTERLINE.

CONTRACTOR SHALL PROTECT THE EXISTING INFILTRATION TRENCH FROM CLOGGING AT ALL TIMES. CONTRACTOR SHALL ENSURE A WATERTIGHT CONNECTION AND EXTEND THE EX. TWIN 6-IN. PVC IN-KIND TO OUTFALL AT THE ROP III. CONTRACTOR SHALL PROTECT AND ENSURE POSITIVE DRAINAGE OF THE EXISTING 6" UNDERDRAIN OUTLET AT ALL TIMES. UPON COMPLETION OF THE WORK CONTRACTOR SHALL ENSURE THE EXISTING INFILTRATION TRENCH IS IN GOOD WORKING ORDER.

NOTE:
SILT FENCE/SUPER SILT FENCE SHALL BE SECURELY TIED INTO BOTH ENDS OF MOUNTABLE BERMS AT THEIR CENTERLINE.

NOTE:
EXISTING MACADAM CART PATHS SHALL NOT BE UTILIZED BY CONSTRUCTION TRAFFIC FOR SITE INGRESS OR EGRESS UNLESS AN APPROVED STABILIZED CONSTRUCTION ENTRANCE IS PROVIDED. ANY SEDIMENT TRACKED OUT OF WORK AREA BY GOLF CARTS MUST BE BROOM SWEPT AND PROPERLY DISPOSED OF BY THE END OF EACH WORK DAY.

MODIFIED UTILITY NOTES
(FOR TYPICAL UPLAND PIPELINE CONSTRUCTION):

1. CONTRACTOR SHOULD LIMIT THE PERIOD OF TIME THAT THE TRENCH IS OPEN TO THE MINIMUM DURATION PRACTICABLE. SILT FENCE OR SUPER SILT FENCE MUST BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH AS SHOWN ON THE PLAN PRIOR TO GRADING.

2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH. IN LOCATIONS WHERE THE TEMPORARY WORKSPACE AND THE TEMPORARY SOIL STOCKPILES ARE ON THE DOWNHILL SIDE OF THE TRENCH, SILT FENCE OR SUPER SILT FENCE WILL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH PRIOR TO MATERIAL PLACEMENT.

3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

TEMPORARY STONE OUTLET STRUCTURE (TSOS)

ID	BOTTOM ELEV.	WEIR CREST ELEV.
TSOS-29-1	388.00	389.00
TSOS-29-3	396.00	397.00

CONTRACTOR SHALL ENSURE A SMOOTH TRANSITION BETWEEN EARTH DIKE AND TSOS /TGOS
REFER TO DETAILS ON DWG. NO. ECD-1.12

TEMPORARY GABION OUTLET STRUCTURE (TGOS)

ID	BOTTOM ELEV.	WEIR CREST ELEV.
TGOS-29-1	410.50	412.75

CONTRACTOR SHALL ENSURE A SMOOTH TRANSITION BETWEEN EARTH DIKE AND TSOS /TGOS
REFER TO DETAILS ON DWG. NO. ECD-1.12

CLEAR WATER DIVERSION NOTE:

CLEAR WATER DIVERSION (CWD) PIPES WILL BE INSTALLED WITH ALL PERIMETER SEDIMENT CONTROL MEASURES. ALL CWD PIPES SHALL BE HDPE N-12 WITH SMOOTH INTERIOR WALL. ONCE ACTIVE TRENCHING ACTIVITIES BEGIN, CWD PIPES WILL BE REMOVED BUT KEPT ONSITE. THE CONTRACTOR WILL MONITOR CURRENT WEATHER FORECASTS AND THE PIPES WILL ONLY BE REINSTALLED WHEN WEATHER FORECASTS A RAINFALL EVENT WITHIN 72 HOURS. ONCE ACTIVE TRENCHING HAS BEEN COMPLETED, CWD PIPES WILL BE REINSTALLED AND REMAIN IN PLACE UNTIL STABILIZATION HAS BEEN ESTABLISHED. WHEN THE PIPES ARE REMOVED, PERMANENT SEEDING AND SOIL STABILIZATION MATTING WILL BE PROVIDED FOR IMMEDIATE STABILIZATION OF ANY BARE GROUND.

INSTALL CLEAR WATER DIVERSION PIPE THROUGH SILT FENCE/SUPER SILT FENCE IN ACCORDANCE WITH DETAIL E-4 ON DWG. NO. ECD-1.07.

LEGEND

LOD	LIMIT OF DISTURBANCE
	MOUNTABLE BERM
SCE	STABILIZED CONSTRUCTION ENTRANCE
CWP	CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE
CWD-12	CLEAR WATER DIVERSION PIPE
SFD	SUPER FENCE DIVERSION
SF	SILT FENCE
SSF	SUPER SILT FENCE
OCF	TEMPORARY SAFETY FENCE
SFOP	SILT FENCE ON PAVEMENT
FL-18	FILTER LOG
S-FL	STACKED FILTER LOG
SBD	HYDROSTATIC TEST DEWATERING PIT
	SANDBAGS
	SANDBAG DAM
P	PUMP
FB	FILTER BAG
PDS-1	PERIMETER DIKE/ SWALE
A-1	EARTH DIKE
TAB	TEMPORARY ASPHALT BERM
RPS	REMOVABLE PUMPING STATION
TGOS	TEMPORARY GABION OUTLET STRUCTURE
TSOS	TEMPORARY STONE OUTLET STRUCTURE
MOD TSOS	TEMPORARY STONE OUTLET STRUCTURE MODIFIED FOR TYPE B EARTH DIKE
BB	BAFFLE BOARDS
ROPI	ROCK OUTLET PROTECTION I
ROPIII	ROCK OUTLET PROTECTION III
ST-II	STONE/ RIPRAP OUTLET SEDIMENT TRAP ST II
GP#1	GABION INFLOW PROTECTION
	WOOD MATTING ACCESS ROAD
	TEMPORARY ACCESS BRIDGE
A-2	TEMPORARY SWALE
SFCD	SILT FENCE CHECK DAM
SIP	STANDARD INLET PROTECTION
COIP	COMBINATION INLET PROTECTION
SB SSF FB	FILTER BAG WITH STRAW BALE AND SUPER SILT FENCE
MOD COIP	COMBINATION INLET PROTECTION MODIFIED FOR SUMP

GRAPHIC SCALE
50 0 25 50 100
(IN FEET)
1 inch = 50 ft.

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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. 14942
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STATE OF MARYLAND KAREN R. POWELL 14942 PROFESSIONAL ENGINEER
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KCI TECHNOLOGIES
ENGINEERS
PLANNERS
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CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD
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TELEPHONE: (410) 316-7800
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Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE JAN. 2015
SCALE 1"= 50'
DESIGNED BY CW
DRAWN BY KP

BALTIMORE COUNTY
GRADING / EROSION AND SEDIMENT CONTROL PLAN
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO.
EC-29
SHEET 7 OF 61
KCI JOB NUMBER
16-121849

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM - HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

PLOTTED: 11:35 AM on Friday, February 13, 2015
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SEQUENCE OF CONSTRUCTION FOR ACTIVITIES AT NORTHBOUND I-83

1. CONTRACTOR SHOULD APPROACH I-83 FROM THE EAST SIDE.
2. COMPLETE CLEARING ACTIVITIES. CLEARING ACTIVITIES ARE LIMITED TO ABOVE GROUND VEGETATION REMOVAL THAT DOES NOT RESULT IN DISTURBANCE OF THE ROOT ZONE. ANY DISTURBANCE SHALL BE STABILIZED AT THE END OF EACH WORKING DAY.
3. GRUB AS NECESSARY FOR THE INSTALLATION OF PERIMETER CONTROLS.
4. INSTALL PERIMETER CONTROLS AND NOTIFY THE BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS, SEDIMENT CONTROL (DPAI, SC) UPON COMPLETION OF SAID INSTALLATION.
5. WITH THE APPROVAL OF THE BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS, SEDIMENT CONTROL, AND THE SEDIMENT CONTROL INSPECTOR, GRUB FOR AND INSTALL ALL REMAINING EROSION AND SEDIMENT CONTROL MEASURES AND DEVICES. ALL DISTURBED AREAS ON THE SLOPE SHOULD BE STABILIZED DAILY. STABILIZE THE TRAVEL LANE WITH STONE IN ACCORDANCE WITH THE TYPICAL SECTION FOR UNPAVED TEMPORARY ACCESS ROADS ON DWG. NO. ECD-1.05.
6. NOTIFY THE BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS, SEDIMENT CONTROL (DPAI, SC) UPON COMPLETION OF SAID INSTALLATION.
7. WITH THE APPROVAL OF THE BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS, SEDIMENT CONTROL, AND THE SEDIMENT CONTROL INSPECTOR, INSTALL PIPE:
   a. BRING PIPE TO CREST OF THE SLOPE.
   b. WELD THE PIPE ON THE CREST OF THE SLOPE.
   c. EXCAVATE THE TRENCH.
   d. BRING THE PIPE DOWN THE SLOPE AND PLACE IN THE EXCAVATED TRENCH.
   e. BACKFILL THE TRENCH AND PERFORM DAILY STABILIZATION OF THE DISTURBED AREAS.
8. THE SITE SHOULD BE REVIEWED DAILY TO ENSURE THATALL SEDIMENT CONTROL MEASURES ARE FUNCTIONING ADEQUATELY AND THAT ALL DISTURBED AREAS ARE STABILIZED.
9. FINAL RESTORATION OF THE SLOPE SHALL INCLUDE:
   a. IMPLEMENTATION OF THE SOIL COMPACTION MITIGATION NOTES ON DWG. NO. ECN-1.0
   b. REAPPLICATION OF TOPSOIL AND PERMANENT STABILIZATION IN ACCORDANCE WITH ENHANCED BEST MANAGEMENT PRACTICES FOR WORKING ON THE LINE MB EXTENSION PROJECT NOTE 10 ON DWG. NO. ECN-1.0.

LEGEND

LOD	LIMIT OF DISTURBANCE	RPS	REMOVABLE PUMPING STATION
	MOUNTABLE BERM	TGOS	TEMPORARY GABION OUTLET STRUCTURE
SCE	STABILIZED CONSTRUCTION ENTRANCE	TSOS	TEMPORARY STONE OUTLET STRUCTURE
CWP	CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE	MOD TSOS	TEMPORARY STONE OUTLET STRUCTURE MODIFIED FOR TYPE B EARTH DIKE
CWD-12	CLEAR WATER DIVERSION PIPE	BB	BAFFLE BOARDS
SFD	SUPER FENCE DIVERSION	ROP I	ROCK OUTLET PROTECTION I
SF	SILT FENCE	ROP III	ROCK OUTLET PROTECTION III
SSF	SUPER SILT FENCE	ST-II	STONE/ RIPRAP OUTLET SEDIMENT TRAP ST II
OCF	TEMPORARY SAFETY FENCE	GP	GABION INFLOW PROTECTION
SFOP	SILT FENCE ON PAVEMENT		WOOD MATTING ACCESS ROAD
FL-18	FILTER LOG		TEMPORARY ACCESS BRIDGE
S-FL	STACKED FILTER LOG		
SBD	HYDROSTATIC TEST DEWATERING PIT	A-2	TEMPORARY SWALE
	SANDBAGS	SFCD	SILT FENCE CHECK DAM
	SANDBAG DAM	SIP	STANDARD INLET PROTECTION
P	PUMP	COIP	COMBINATION INLET PROTECTION
FB	FILTER BAG	SB FB SSF	FILTER BAG WITH STRAW BALE AND SUPER SILT FENCE
PDS-1	PERIMETER DIKE/ SWALE	MOD COIP	COMBINATION INLET PROTECTION MODIFIED FOR SUMP
A-1	EARTH DIKE		
TAB	TEMPORARY ASPHALT BERM		

DAILY STABILIZATION NOTES (FOR UNPAVED TEMPORARY ACCESS ROADS):

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(FOR TYPICAL UPLAND PIPELINE CONSTRUCTION):

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3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

TEMPORARY GABION OUTLET STRUCTURE (TGOS)

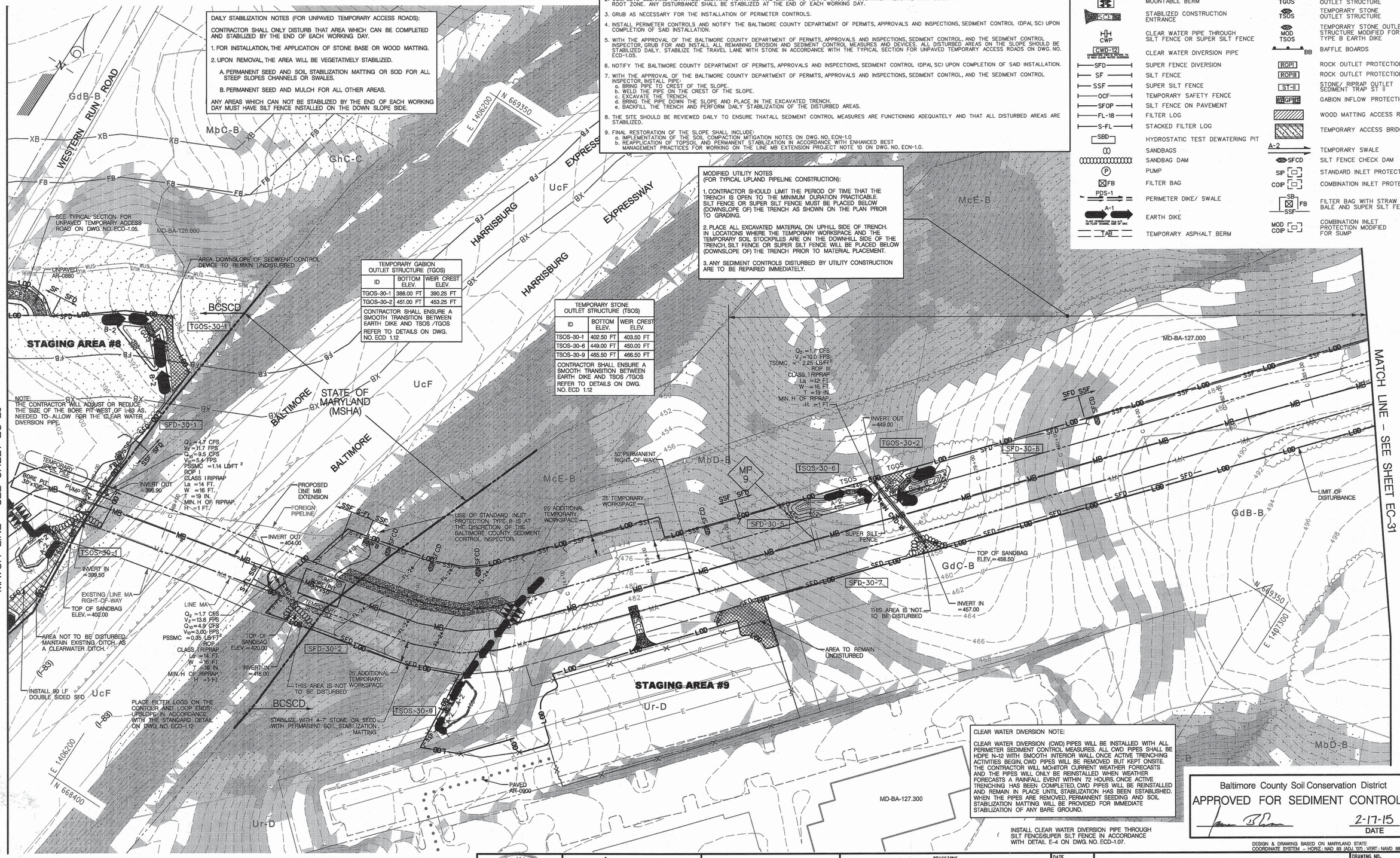
ID	BOTTOM ELEV.	WEIR CREST ELEV.
TGOS-30-1	388.00 FT	390.25 FT
TGOS-30-2	451.00 FT	453.25 FT

CONTRACTOR SHALL ENSURE A SMOOTH TRANSITION BETWEEN EARTH DIKE AND TSOS /TGOS
REFER TO DETAILS ON DWG. NO. ECD 1.12

TEMPORARY STONE OUTLET STRUCTURE (TSOS)

ID	BOTTOM ELEV.	WEIR CREST ELEV.
TSOS-30-1	402.50 FT	403.50 FT
TSOS-30-6	449.00 FT	450.00 FT
TSOS-30-9	465.50 FT	466.50 FT

CONTRACTOR SHALL ENSURE A SMOOTH TRANSITION BETWEEN EARTH DIKE AND TSOS /TGOS
REFER TO DETAILS ON DWG. NO. ECD 1.12



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INSTALL CLEAR WATER DIVERSION PIPE THROUGH SILT FENCESUPER SILT FENCE IN ACCORDANCE WITH DETAIL E-4 ON DWG. NO. ECD-1.07.

Baltimore County Soil Conservation District
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Columbia Gas Transmission
A NiSource Company

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LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO.
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SHEET 8 OF 61
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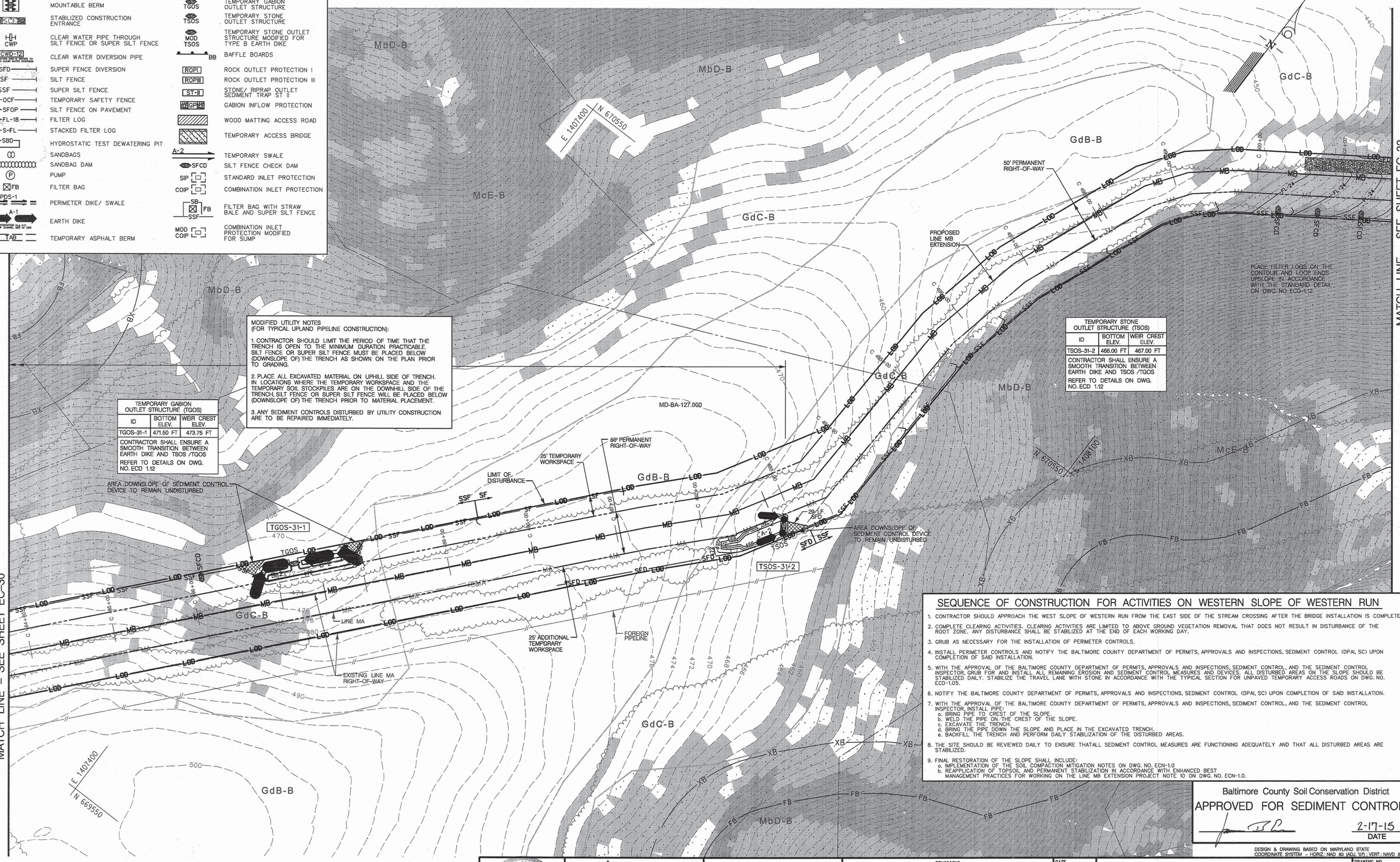
LEGEND

LOD	LIMIT OF DISTURBANCE	RPS	REMOVABLE PUMPING STATION
	MOUNTABLE BERM	TGOS	TEMPORARY GABION OUTLET STRUCTURE
SCE	STABILIZED CONSTRUCTION ENTRANCE	TSOS	TEMPORARY STONE OUTLET STRUCTURE
CWP	CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE	MOD TSOS	TEMPORARY STONE OUTLET STRUCTURE MODIFIED FOR TYPE B EARTH DIKE
CWD-12	CLEAR WATER DIVERSION PIPE	BB	BAFFLE BOARDS
SFD	SUPER FENCE DIVERSION	ROPI	ROCK OUTLET PROTECTION I
SF	SILT FENCE	ROPIII	ROCK OUTLET PROTECTION III
SSF	SUPER SILT FENCE	ST-II	STONE/ RIPRAP OUTLET SEDIMENT TRAP ST II
OCF	TEMPORARY SAFETY FENCE	GPII	GABION INFLOW PROTECTION
SFOP	SILT FENCE ON PAVEMENT		WOOD MATTING ACCESS ROAD
FL-1B	FILTER LOG		TEMPORARY ACCESS BRIDGE
S-FL	STACKED FILTER LOG		
SBD	HYDROSTATIC TEST DEWATERING PIT	A-2	TEMPORARY SWALE
	SANDBAGS	SFCD	SILT FENCE CHECK DAM
	SANDBAG DAM	SIP	STANDARD INLET PROTECTION
P	PUMP	COIP	COMBINATION INLET PROTECTION
FB	FILTER BAG	SB FB SSF	FILTER BAG WITH STRAW BALE AND SUPER SILT FENCE
PDS-1	PERIMETER DIKE/ SWALE	MOD COIP	COMBINATION INLET PROTECTION MODIFIED FOR SUMP
A-1	EARTH DIKE		
TAB	TEMPORARY ASPHALT BERM		



MODIFIED UTILITY NOTES
(FOR TYPICAL UPLAND PIPELINE CONSTRUCTION):

1. CONTRACTOR SHOULD LIMIT THE PERIOD OF TIME THAT THE TRENCH IS OPEN TO THE MINIMUM DURATION PRACTICABLE. SILT FENCE OR SUPER SILT FENCE MUST BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH AS SHOWN ON THE PLAN PRIOR TO GRADING.

2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH. IN LOCATIONS WHERE THE TEMPORARY WORKSPACE AND THE TEMPORARY SOIL STOCKPILES ARE ON THE DOWNHILL SIDE OF THE TRENCH, SILT FENCE OR SUPER SILT FENCE WILL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH PRIOR TO MATERIAL PLACEMENT.

3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

TEMPORARY GABION OUTLET STRUCTURE (TGOS)

ID	BOTTOM ELEV.	WEIR CREST ELEV.
TGOS-31-1	471.50 FT	473.75 FT

CONTRACTOR SHALL ENSURE A SMOOTH TRANSITION BETWEEN EARTH DIKE AND TSOS /TGOS

REFER TO DETAILS ON DWG. NO. ECD 1.12

TEMPORARY STONE OUTLET STRUCTURE (TSOS)

ID	BOTTOM ELEV.	WEIR CREST ELEV.
TSOS-31-2	466.00 FT	467.00 FT

CONTRACTOR SHALL ENSURE A SMOOTH TRANSITION BETWEEN EARTH DIKE AND TSOS /TGOS

REFER TO DETAILS ON DWG. NO. ECD 1.12

SEQUENCE OF CONSTRUCTION FOR ACTIVITIES ON WESTERN SLOPE OF WESTERN RUN

1. CONTRACTOR SHOULD APPROACH THE WEST SLOPE OF WESTERN RUN FROM THE EAST SIDE OF THE STREAM CROSSING AFTER THE BRIDGE INSTALLATION IS COMPLETE.
2. COMPLETE CLEARING ACTIVITIES. CLEARING ACTIVITIES ARE LIMITED TO ABOVE GROUND VEGETATION REMOVAL THAT DOES NOT RESULT IN DISTURBANCE OF THE ROOT ZONE. ANY DISTURBANCE SHALL BE STABILIZED AT THE END OF EACH WORKING DAY.
3. GRUB AS NECESSARY FOR THE INSTALLATION OF PERIMETER CONTROLS.
4. INSTALL PERIMETER CONTROLS AND NOTIFY THE BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS, SEDIMENT CONTROL (DPAI, SC) UPON COMPLETION OF SAID INSTALLATION.
5. WITH THE APPROVAL OF THE BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS, SEDIMENT CONTROL, AND THE SEDIMENT CONTROL INSPECTOR, GRUB FOR AND INSTALL ALL REMAINING EROSION AND SEDIMENT CONTROL MEASURES AND DEVICES. ALL DISTURBED AREAS ON THE SLOPE SHOULD BE STABILIZED DAILY. STABILIZE THE TRAVEL LANE WITH STONE IN ACCORDANCE WITH THE TYPICAL SECTION FOR UNPAVED TEMPORARY ACCESS ROADS ON DWG. NO. ECD-1.05.
6. NOTIFY THE BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS, SEDIMENT CONTROL (DPAI, SC) UPON COMPLETION OF SAID INSTALLATION.
7. WITH THE APPROVAL OF THE BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS, SEDIMENT CONTROL, AND THE SEDIMENT CONTROL INSPECTOR, INSTALL PIPE:
   a. BRING PIPE TO CREST OF THE SLOPE.
   b. WELD THE PIPE ON THE CREST OF THE SLOPE.
   c. EXCAVATE THE TRENCH.
   d. BRING THE PIPE DOWN THE SLOPE AND PLACE IN THE EXCAVATED TRENCH.
   e. BACKFILL THE TRENCH AND PERFORM DAILY STABILIZATION OF THE DISTURBED AREAS.
8. THE SITE SHOULD BE REVIEWED DAILY TO ENSURE THATALL SEDIMENT CONTROL MEASURES ARE FUNCTIONING ADEQUATELY AND THAT ALL DISTURBED AREAS ARE STABILIZED.
9. FINAL RESTORATION OF THE SLOPE SHALL INCLUDE:
   a. IMPLEMENTATION OF THE SOIL COMPACTION MITIGATION NOTES ON DWG. NO. ECN-1.0
   b. REAPPLICATION OF TOPSOIL AND PERMANENT STABILIZATION IN ACCORDANCE WITH ENHANCED BEST MANAGEMENT PRACTICES FOR WORKING ON THE LINE MB EXTENSION PROJECT NOTE 10 ON DWG. NO. ECN-1.0.

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM – HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

GRAPHIC SCALE
50 0 25 50 100
(IN FEET)
1 inch = 50 ft.

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: 14942 EXPIRATION DATE: 6/01/2016

SEAL

KCI TECHNOLOGIES
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818

Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE JAN. 2015
SCALE 1"= 50'
DESIGNED BY CW
DRAWN BY KP

BALTIMORE COUNTY
GRADING / EROSION AND SEDIMENT CONTROL PLAN
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO. EC-31
SHEET 9 OF 61
KCI JOB NUMBER 16-121849

PLOTTED: "01:36 PM on Friday, January 23, 2015"
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CLEAR WATER DIVERSION NOTE:

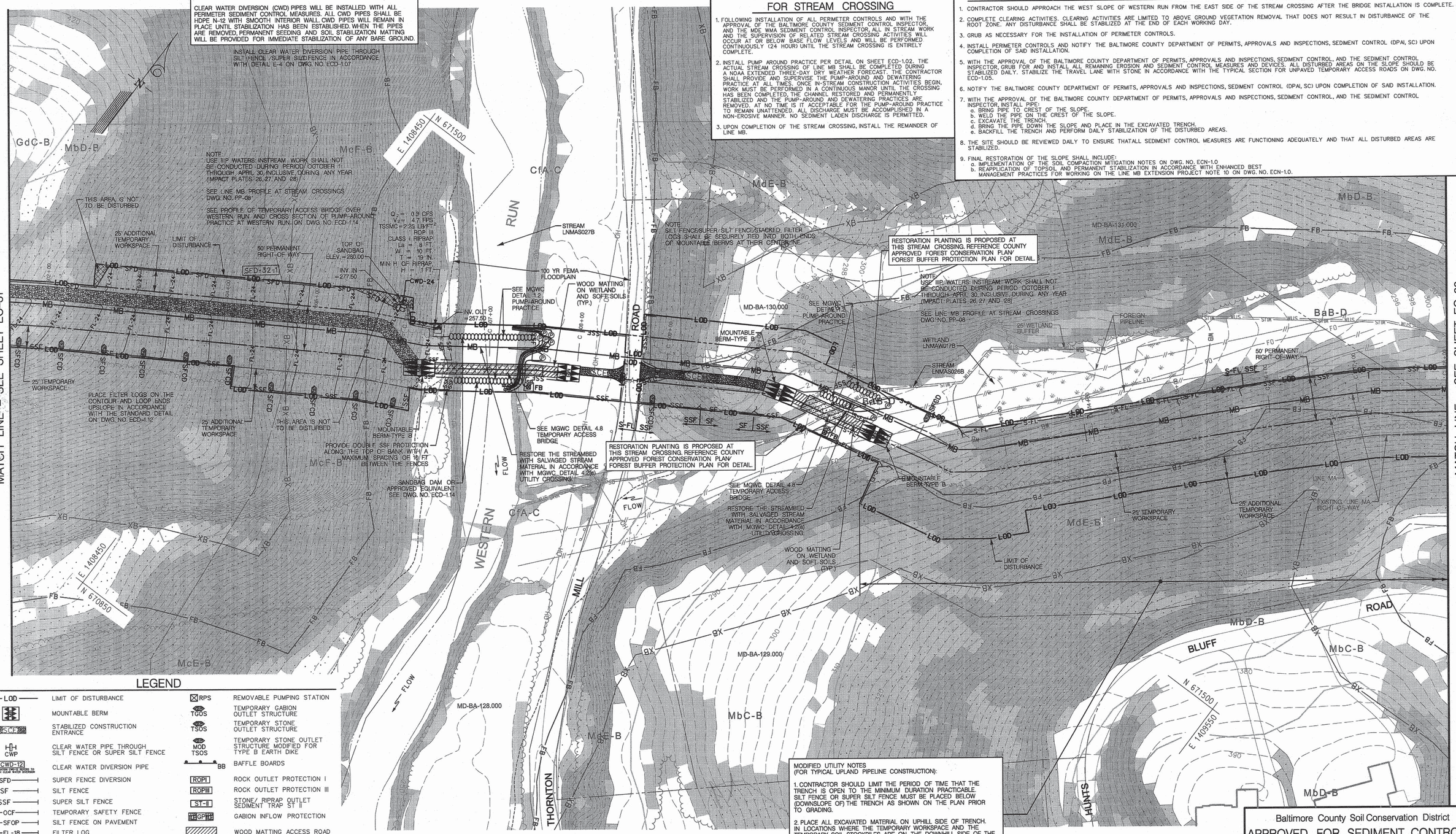
CLEAR WATER DIVERSION (CWD) PIPES WILL BE INSTALLED WITH ALL PERIMETER SEDIMENT CONTROL MEASURES. ALL CWD PIPES SHALL BE HDPE N-12 WITH SMOOTH INTERIOR WALL. CWD PIPES WILL REMAIN IN PLACE UNTIL STABILIZATION HAS BEEN ESTABLISHED. WHEN THE PIPES ARE REMOVED, PERMANENT SEEDING AND SOIL STABILIZATION MATTING WILL BE PROVIDED FOR IMMEDIATE STABILIZATION OF ANY BARE GROUND.

SEQUENCE OF CONSTRUCTION FOR STREAM CROSSING

1. FOLLOWING INSTALLATION OF ALL PERIMETER CONTROLS AND WITH THE APPROVAL OF THE BALTIMORE COUNTY SEDIMENT CONTROL INSPECTOR, AND THE MDE WMA SEDIMENT CONTROL INSPECTOR, ALL IN STREAM WORK AND THE SUPERVISION OF RELATED STREAM CROSSING ACTIVITIES WILL OCCUR AT OR BELOW BASE FLOW LEVELS AND WILL BE PERFORMED CONTINUOUSLY (24 HOUR) UNTIL THE STREAM CROSSING IS ENTIRELY COMPLETE.
2. INSTALL PUMP AROUND PRACTICE PER DETAIL ON SHEET ECD-1.02. THE ACTUAL STREAM CROSSING OF LINE MB SHALL BE COMPLETED DURING A NOAA EXTENDED THREE-DAY DRY WEATHER FORECAST. THE CONTRACTOR SHALL PROVIDE AND SUPERVISE THE PUMP-AROUND AND DEWATERING PRACTICE AT ALL TIMES. ONCE IN-STREAM CONSTRUCTION ACTIVITIES BEGIN, WORK MUST BE PERFORMED IN A CONTINUOUS MANOR UNTIL THE CROSSING HAS BEEN COMPLETED, THE CHANNEL RESTORED AND PERMANENTLY STABILIZED AND THE PUMP-AROUND AND DEWATERING PRACTICES ARE REMOVED. AT NO TIME IS IT ACCEPTABLE FOR THE PUMP-AROUND PRACTICE TO REMAIN UNATTENDED. ALL DISCHARGE MUST BE ACCOMPLISHED IN A NON-EROSIVE MANNER. NO SEDIMENT LADEN DISCHARGE IS PERMITTED.
3. UPON COMPLETION OF THE STREAM CROSSING, INSTALL THE REMAINDER OF LINE MB.

SEQUENCE OF CONSTRUCTION FOR ACTIVITIES ON WESTERN SLOPE OF WESTERN RUN

1. CONTRACTOR SHOULD APPROACH THE WEST SLOPE OF WESTERN RUN FROM THE EAST SIDE OF THE STREAM CROSSING AFTER THE BRIDGE INSTALLATION IS COMPLETE.
2. COMPLETE CLEARING ACTIVITIES. CLEARING ACTIVITIES ARE LIMITED TO ABOVE GROUND VEGETATION REMOVAL THAT DOES NOT RESULT IN DISTURBANCE OF THE ROOT ZONE. ANY DISTURBANCE SHALL BE STABILIZED AT THE END OF EACH WORKING DAY.
3. GRUB AS NECESSARY FOR THE INSTALLATION OF PERIMETER CONTROLS.
4. INSTALL PERIMETER CONTROLS AND NOTIFY THE BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS, SEDIMENT CONTROL (DPAI, SC) UPON COMPLETION OF SAID INSTALLATION.
5. WITH THE APPROVAL OF THE BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS, SEDIMENT CONTROL, AND THE SEDIMENT CONTROL INSPECTOR, GRUB FOR AND INSTALL ALL REMAINING EROSION AND SEDIMENT CONTROL MEASURES AND DEVICES. ALL DISTURBED AREAS ON THE SLOPE SHOULD BE STABILIZED DAILY. STABILIZE THE TRAVEL LANE WITH STONE IN ACCORDANCE WITH THE TYPICAL SECTION FOR UNPAVED TEMPORARY ACCESS ROADS ON DWG. NO. ECD-1.05.
6. NOTIFY THE BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS, SEDIMENT CONTROL (DPAI, SC) UPON COMPLETION OF SAID INSTALLATION.
7. WITH THE APPROVAL OF THE BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS, SEDIMENT CONTROL, AND THE SEDIMENT CONTROL INSPECTOR, INSTALL PIPE:
   a. BRING PIPE TO CREST OF THE SLOPE.
   b. WELD THE PIPE ON THE CREST OF THE SLOPE.
   c. EXCAVATE THE TRENCH.
   d. BRING THE PIPE DOWN THE SLOPE AND PLACE IN THE EXCAVATED TRENCH.
   e. BACKFILL THE TRENCH AND PERFORM DAILY STABILIZATION OF THE DISTURBED AREAS.
8. THE SITE SHOULD BE REVIEWED DAILY TO ENSURE THATALL SEDIMENT CONTROL MEASURES ARE FUNCTIONING ADEQUATELY AND THAT ALL DISTURBED AREAS ARE STABILIZED.
9. FINAL RESTORATION OF THE SLOPE SHALL INCLUDE:
   a. IMPLEMENTATION OF THE SOIL COMPACTION MITIGATION NOTES ON DWG. NO. ECN-1.0
   b. REAPPLICATION OF TOPSOIL AND PERMANENT STABILIZATION IN ACCORDANCE WITH ENHANCED BEST MANAGEMENT PRACTICES FOR WORKING ON THE LINE MB EXTENSION PROJECT NOTE 10 ON DWG. NO. ECN-1.0.



LEGEND

LOD	LIMIT OF DISTURBANCE	RPS	REMOVABLE PUMPING STATION
	MOUNTABLE BERM	TGOS	TEMPORARY GABION OUTLET STRUCTURE
SCE	STABILIZED CONSTRUCTION ENTRANCE	TSOS	TEMPORARY STONE OUTLET STRUCTURE
CWP	CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE	MOD TSOS	TEMPORARY STONE OUTLET STRUCTURE MODIFIED FOR TYPE B EARTH DIKE
CWD-12	CLEAR WATER DIVERSION PIPE	BB	BAFFLE BOARDS
SFD	SUPER FENCE DIVERSION	ROPI	ROCK OUTLET PROTECTION I
SF	SILT FENCE	ROPIII	ROCK OUTLET PROTECTION III
SSF	SUPER SILT FENCE	ST-II	STONE/ RIPRAP OUTLET SEDIMENT TRAP ST II
OCF	TEMPORARY SAFETY FENCE	GPI	GABION INFLOW PROTECTION
SFOP	SILT FENCE ON PAVEMENT		WOOD MATTING ACCESS ROAD
FL-18	FILTER LOG		TEMPORARY ACCESS BRIDGE
S-FL	STACKED FILTER LOG	A-2	TEMPORARY SWALE
SBD	HYDROSTATIC TEST DEWATERING PIT	SFCD	SILT FENCE CHECK DAM
	SANDBAGS	SIP	STANDARD INLET PROTECTION
	SANDBAG DAM	COIP	COMBINATION INLET PROTECTION
P	PUMP	SB SSF FB	FILTER BAG WITH STRAW BALE AND SUPER SILT FENCE
FB	FILTER BAG	MOD COIP	COMBINATION INLET PROTECTION MODIFIED FOR SUMP
PDS-1	PERIMETER DIKE/ SWALE		
A-1	EARTH DIKE		
TAB	TEMPORARY ASPHALT BERM		

MODIFIED UTILITY NOTES
(FOR TYPICAL UPLAND PIPELINE CONSTRUCTION):

1. CONTRACTOR SHOULD LIMIT THE PERIOD OF TIME THAT THE TRENCH IS OPEN TO THE MINIMUM DURATION PRACTICABLE. SILT FENCE OR SUPER SILT FENCE MUST BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH AS SHOWN ON THE PLAN PRIOR TO GRADING.
2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH. IN LOCATIONS WHERE THE TEMPORARY WORKSPACE AND THE TEMPORARY SOIL STOCKPILES ARE ON THE DOWNHILL SIDE OF THE TRENCH, SILT FENCE OR SUPER SILT FENCE WILL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH PRIOR TO MATERIAL PLACEMENT.
3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM - HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

GRAPHIC SCALE
50 0 25 50 100
(IN FEET)
1 inch = 50 ft.

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. 14942 EXPIRATION DATE: 6/01/2016

STATE OF MARYLAND KAREN R. POWELL 14942 PROFESSIONAL ENGINEER
SEAL
2-13-15

KCI TECHNOLOGIES
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818

Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE: JAN. 2015
SCALE: 1" = 50'
DESIGNED BY: CW
DRAWN BY: KP

BALTIMORE COUNTY
GRADING / EROSION AND SEDIMENT CONTROL PLAN
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO.
EC-32
SHEET 10 OF 61
KCI JOB NUMBER 16-121849

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LEGEND

LOD	LIMIT OF DISTURBANCE	RPS	REMOVABLE PUMPING STATION
	MOUNTABLE BERM	TGOS	TEMPORARY GABION OUTLET STRUCTURE
SCE	STABILIZED CONSTRUCTION ENTRANCE	TSOS	TEMPORARY STONE OUTLET STRUCTURE
CWP	CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE	MOD TSOS	TEMPORARY STONE OUTLET STRUCTURE MODIFIED FOR TYPE B EARTH DIKE
CWD-12	CLEAR WATER DIVERSION PIPE	BB	BAFFLE BOARDS
SFD	SUPER FENCE DIVERSION	ROP I	ROCK OUTLET PROTECTION I
SF	SILT FENCE	ROP III	ROCK OUTLET PROTECTION III
SSF	SUPER SILT FENCE	ST-II	STONE/ RIPRAP OUTLET SEDIMENT TRAP ST II
OCF	TEMPORARY SAFETY FENCE	GP	GABION INFLOW PROTECTION
SFOP	SILT FENCE ON PAVEMENT		WOOD MATTING ACCESS ROAD
FL-18	FILTER LOG		TEMPORARY ACCESS BRIDGE
S-FL	STACKED FILTER LOG	A-2	TEMPORARY SWALE
SBD	HYDROSTATIC TEST DEWATERING PIT	SFCD	SILT FENCE CHECK DAM
	SANDBAGS	SIP	STANDARD INLET PROTECTION
	SANDBAG DAM	COIP	COMBINATION INLET PROTECTION
P	PUMP	SB FB SSF	FILTER BAG WITH STRAW BALE AND SUPER SILT FENCE
FB	FILTER BAG	MOD COIP	COMBINATION INLET PROTECTION MODIFIED FOR SUMP
PDS-1	PERIMETER DIKE/ SWALE		
A-1	EARTH DIKE		
TAB	TEMPORARY ASPHALT BERM		

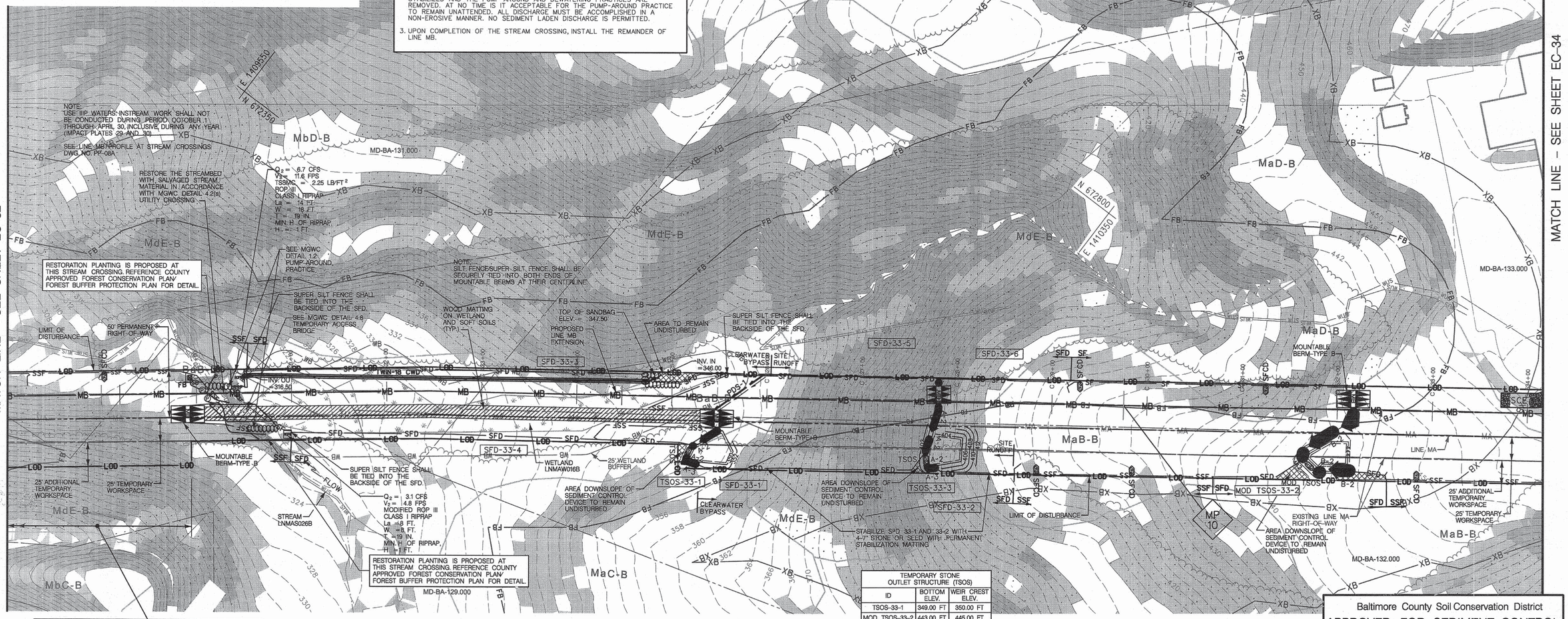
SEQUENCE OF CONSTRUCTION FOR STREAM CROSSING

1. FOLLOWING INSTALLATION OF ALL PERIMETER CONTROLS AND WITH THE APPROVAL OF THE BALTIMORE COUNTY SEDIMENT CONTROL INSPECTOR, AND THE MDE WMA SEDIMENT CONTROL INSPECTOR, ALL IN STREAM WORK AND THE SUPERVISION OF RELATED STREAM CROSSING ACTIVITIES WILL OCCUR AT OR BELOW BASE FLOW LEVELS AND WILL BE PERFORMED CONTINUOUSLY (24 HOUR) UNTIL THE STREAM CROSSING IS ENTIRELY COMPLETE.
2. INSTALL PUMP AROUND PRACTICE PER DETAIL ON SHEET ECD-1.02. THE ACTUAL STREAM CROSSING OF LINE MB SHALL BE COMPLETED DURING A NOAA EXTENDED THREE-DAY DRY WEATHER FORECAST. THE CONTRACTOR SHALL PROVIDE AND SUPERVISE THE PUMP-AROUND AND DEWATERING PRACTICE AT ALL TIMES. ONCE IN-STREAM CONSTRUCTION ACTIVITIES BEGIN, WORK MUST BE PERFORMED IN A CONTINUOUS MANOR UNTIL THE CROSSING HAS BEEN COMPLETED, THE CHANNEL RESTORED AND PERMANENTLY STABILIZED AND THE PUMP-AROUND AND DEWATERING PRACTICES ARE REMOVED. AT NO TIME IS IT ACCEPTABLE FOR THE PUMP-AROUND PRACTICE TO REMAIN UNATTENDED. ALL DISCHARGE MUST BE ACCOMPLISHED IN A NON-EROSIVE MANNER. NO SEDIMENT LADEN DISCHARGE IS PERMITTED.
3. UPON COMPLETION OF THE STREAM CROSSING, INSTALL THE REMAINDER OF LINE MB.

CLEAR WATER DIVERSION NOTE:

CLEAR WATER DIVERSION (CWD) PIPES WILL BE INSTALLED WITH ALL PERIMETER SEDIMENT CONTROL MEASURES. ALL CWD PIPES SHALL BE HDPE N-12 WITH SMOOTH INTERIOR WALL. CWD PIPES WILL REMAIN IN PLACE UNTIL STABILIZATION HAS BEEN ESTABLISHED. WHEN THE PIPES ARE REMOVED, PERMANENT SEEDING AND SOIL STABILIZATION MATTING WILL BE PROVIDED FOR IMMEDIATE STABILIZATION OF ANY BARE GROUND.

INSTALL CLEAR WATER DIVERSION PIPE THROUGH SILT FENCE /SUPER SILT FENCE IN ACCORDANCE WITH DETAIL E-4 ON DWG.NO.ECD-1.07.



TEMPORARY STONE OUTLET STRUCTURE (TSOS)		
ID	BOTTOM ELEV.	WEIR CREST ELEV.
TSOS-33-1	349.00 FT	350.00 FT
MOD TSOS-33-2	443.00 FT	445.00 FT
TSOS-33-3	403.00 FT	404.00 FT

CONTRACTOR SHALL ENSURE A SMOOTH TRANSITION BETWEEN EARTH DIKE AND TSOS /TGOS

REFER TO DETAILS ON DWG. NO. ECD 1.12

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM - HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

MODIFIED UTILITY NOTES
(FOR TYPICAL UPLAND PIPELINE CONSTRUCTION):

1. CONTRACTOR SHOULD LIMIT THE PERIOD OF TIME THAT THE TRENCH IS OPEN TO THE MINIMUM DURATION PRACTICABLE. SILT FENCE OR SUPER SILT FENCE MUST BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH AS SHOWN ON THE PLAN PRIOR TO GRADING.
2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH. IN LOCATIONS WHERE THE TEMPORARY WORKSPACE AND THE TEMPORARY SOIL STOCKPILES ARE ON THE DOWNHILL SIDE OF THE TRENCH, SILT FENCE OR SUPER SILT FENCE WILL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH PRIOR TO MATERIAL PLACEMENT.
3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

GRAPHIC SCALE
50 0 25 50 100
(IN FEET)
1 inch = 50 ft.

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. 14842
EXPIRATION DATE: 6/01/2016

STATE OF MARYLAND KAREN R. POWELL 14842 PROFESSIONAL ENGINEER
SEAL 2-13-15

KCI TECHNOLOGIES
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Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE JAN. 2015
SCALE 1"= 50'
DESIGNED BY CW
DRAWN BY KP

BALTIMORE COUNTY
GRADING / EROSION AND SEDIMENT CONTROL PLAN
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO.
EC-33
SHEET 11 OF 61
KCI JOB NUMBER 16-121849

PLOTTED: "01:39 PM on Friday, January 23, 2015"
FILE: M:\2012\16121849\drawings\WR\ESC-PLAN_33.dgn

MATCH LINE – SEE SHEET EC-33

MATCH LINE – SEE SHEET EC-35

NOTE:
CONTRACTOR SHALL ENSURE THE EXISTING STORM DRAINS NEAR THE BORE PIT EAST OF LOVETON CIRCLE REMAIN FUNCTIONAL THROUGHOUT THE CONSTRUCTION OF THE LINE MB. THE CONTRACTOR SHALL PROTECT THE EXISTING STORM DRAINS FROM BOTH DAMAGE AND CLOGGING. THE CONTRACTOR WILL ADJUST OR REDUCE THE SIZE OF THE BORE PIT AS NEEDED. UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL ENSURE THE STORM DRAINS ARE IN GOOD WORKING ORDER.

NOTE:
A STABILIZED CONSTRUCTION ENTRANCE SHALL BE PROVIDED AT ALL TIMES DURING WHICH THE BORE PIT IS NOT ACTIVE. THE ENTRANCE WILL BE REMOVED AND GAP IN SSF CLOSED TO ALLOW COMPLETION OF THE ROADWAY CROSSING. THE STABILIZED CONSTRUCTION ENTRANCE WILL BE REPLACED.

TEMPORARY STONE OUTLET STRUCTURE (TSOS)		
ID	BOTTOM ELEV.	WEIR CREST ELEV.
TSOS-34-1	444.25 FT	445.25 FT
CONTRACTOR SHALL ENSURE A SMOOTH TRANSITION BETWEEN EARTH DIKE AND TSOS /TGOS REFER TO DETAILS ON DWG. NO. ECD 1.12		

MODIFIED UTILITY NOTES
(FOR TYPICAL UPLAND PIPELINE CONSTRUCTION):

1. CONTRACTOR SHOULD LIMIT THE PERIOD OF TIME THAT THE TRENCH IS OPEN TO THE MINIMUM DURATION PRACTICABLE. SILT FENCE OR SUPER SILT FENCE MUST BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH AS SHOWN ON THE PLAN PRIOR TO GRADING.

2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH. IN LOCATIONS WHERE THE TEMPORARY WORKSPACE AND THE TEMPORARY SOIL STOCKPILES ARE ON THE DOWNHILL SIDE OF THE TRENCH, SILT FENCE OR SUPER SILT FENCE WILL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH PRIOR TO MATERIAL PLACEMENT.

3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

NOTE:
SILT FENCE /SUPER SILT FENCE /STACKED FILTER LOG SHALL BE SECURELY TIED INTO BOTH ENDS OF MOUNTABLE BERMS AT THEIR CENTERLINE

NOTE:
TIE SFD TO EARTH DIKE. ANY DISTURBANCE ON CLEAR WATER SIDE OF SFD SHALL BE STABILIZED WITH PERMANENT SEED AND SOIL STABILIZATION MATTING.

UTILITY NOTES (FOR STOVE PIPE CONSTRUCTION):

1. CONTRACTOR SHOULD OPEN ONLY THAT SECTION OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF TRENCH MUST REMAIN OPEN LONGER THAN ONE DAY, SILT FENCE SHALL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH.

2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH.

3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

DAILY STABILIZATION NOTES (FOR STOVE PIPE CONSTRUCTION):

CONTRACTOR SHALL ONLY DISTURB THAT AREA WHICH CAN BE COMPLETED AND STABILIZED BY THE END OF EACH WORKING DAY. STABILIZATION SHALL BE AS FOLLOWS:

1. FOR AREAS TO BE PAVED, THE APPLICATION OF STONE BASE.

2. FOR AREAS TO BE VEGETATIVELY STABILIZED:
   A. PERMANENT SEED AND SOIL STABILIZATION MATTING OR SOD FOR ALL STEEP SLOPES, CHANNELS OR SWALES.
   B. PERMANENT SEED AND MULCH FOR ALL OTHER AREAS.

ANY AREAS WHICH CAN NOT BE STABILIZED BY THE END OF EACH WORKING DAY MUST HAVE SILT FENCE INSTALLED ON THE DOWNSLOPE SIDE OF THE DISTURBED AREA.

LEGEND

LOD	LIMIT OF DISTURBANCE
	MOUNTABLE BERM
SCE	STABILIZED CONSTRUCTION ENTRANCE
CWP	CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE
CWD-12	CLEAR WATER DIVERSION PIPE (DIMENSIONS FOLLOW REFER TO 12 INCH CLEAR WATER DIVERSION)
SFD	SUPER FENCE DIVERSION
SF	SILT FENCE
SSF	SUPER SILT FENCE
OCF	TEMPORARY SAFETY FENCE
SFOP	SILT FENCE ON PAVEMENT
FL-18	FILTER LOG
S-FL	STACKED FILTER LOG
SBD	HYDROSTATIC TEST DEWATERING PIT
	SANDBAGS
	SANDBAG DAM
P	PUMP
FB	FILTER BAG
PDS-1	PERIMETER DIKE/ SWALE
A-1 (PLACE INFORMATION SUCH AS SIZE OR FLOW CHANNEL SIDE OF DIKE)	EARTH DIKE
TAB	TEMPORARY ASPHALT BERM
RPS	REMOVABLE PUMPING STATION
TGOS	TEMPORARY GABION OUTLET STRUCTURE
TSOS	TEMPORARY STONE OUTLET STRUCTURE
MOD TSOS	TEMPORARY STONE OUTLET STRUCTURE MODIFIED FOR TYPE B EARTH DIKE
BB	BAFFLE BOARDS
ROPI	ROCK OUTLET PROTECTION I
ROPIII	ROCK OUTLET PROTECTION III
ST-II	STONE/ RIPRAP OUTLET SEDIMENT TRAP ST II
GP	GABION INFLOW PROTECTION
	WOOD MATTING ACCESS ROAD
	TEMPORARY ACCESS BRIDGE
A-2	TEMPORARY SWALE
SFCD	SILT FENCE CHECK DAM
SIP	STANDARD INLET PROTECTION
COIP	COMBINATION INLET PROTECTION
SB SSF FB	FILTER BAG WITH STRAW BALE AND SUPER SILT FENCE
MOD COIP	COMBINATION INLET PROTECTION MODIFIED FOR SUMP

GRAPHIC SCALE
50 0 25 50 100
(IN FEET)
1 inch = 50 ft.

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.: 14942
EXPIRATION DATE: 6/01/2016

STATE OF MARYLAND KAREN R. POWELL 14942 PROFESSIONAL ENGINEER
SEAL
2-13-15

KCI TECHNOLOGIES
ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818

Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE JAN. 2015
SCALE 1"= 50'
DESIGNED BY CW
DRAWN BY KP

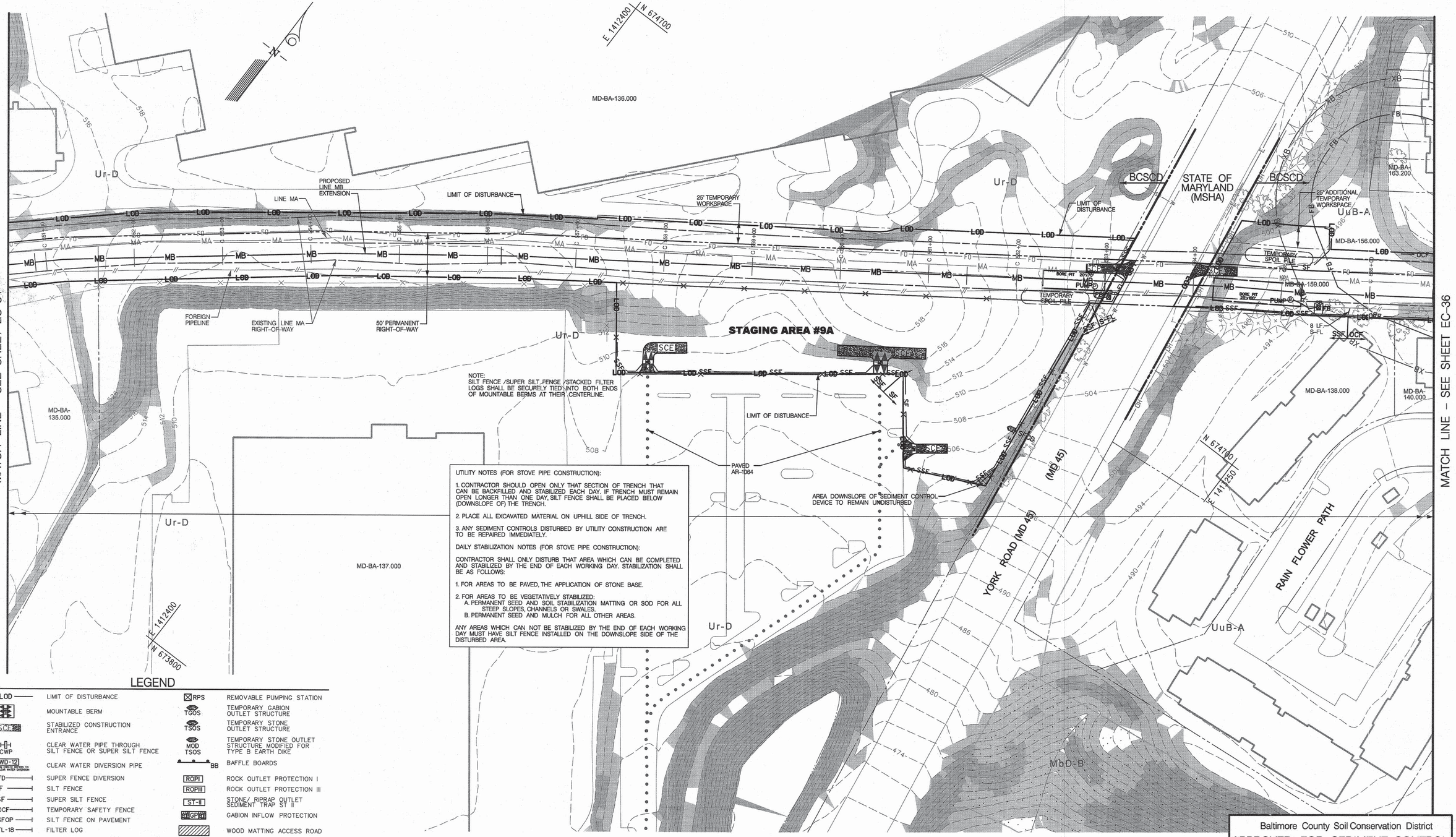
Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM – HORIZ.: NAD 83 (ADJ. '07) VERT.: NAVD 88

BALTIMORE COUNTY
GRADING / EROSION AND SEDIMENT CONTROL PLAN
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO.
EC-34
SHEET 12 OF 61
KCI JOB NUMBER 16-121849

PLOTTED: "01:39 PM on Friday, January 23, 2015"
FILE: M:\2012\121849\drawings\WR\ESC-PLAN_34.dgn



UTILITY NOTES (FOR STOVE PIPE CONSTRUCTION):

1. CONTRACTOR SHOULD OPEN ONLY THAT SECTION OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF TRENCH MUST REMAIN OPEN LONGER THAN ONE DAY, SILT FENCE SHALL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH.

2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH.

3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

DAILY STABILIZATION NOTES (FOR STOVE PIPE CONSTRUCTION):

CONTRACTOR SHALL ONLY DISTURB THAT AREA WHICH CAN BE COMPLETED AND STABILIZED BY THE END OF EACH WORKING DAY. STABILIZATION SHALL BE AS FOLLOWS:

1. FOR AREAS TO BE PAVED, THE APPLICATION OF STONE BASE.

2. FOR AREAS TO BE VEGETATIVELY STABILIZED:
   A. PERMANENT SEED AND SOIL STABILIZATION MATTING OR SOD FOR ALL STEEP SLOPES, CHANNELS OR SWALES.
   B. PERMANENT SEED AND MULCH FOR ALL OTHER AREAS.

ANY AREAS WHICH CAN NOT BE STABILIZED BY THE END OF EACH WORKING DAY MUST HAVE SILT FENCE INSTALLED ON THE DOWNSLOPE SIDE OF THE DISTURBED AREA.

LEGEND

LOD	LIMIT OF DISTURBANCE	RPS	REMOVABLE PUMPING STATION
	MOUNTABLE BERM	TGOS	TEMPORARY GABION OUTLET STRUCTURE
SCE	STABILIZED CONSTRUCTION ENTRANCE	TSOS	TEMPORARY STONE OUTLET STRUCTURE
CWP	CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE	MOD TSOS	TEMPORARY STONE OUTLET STRUCTURE MODIFIED FOR TYPE B EARTH DIKE
CWD-12	CLEAR WATER DIVERSION PIPE	BB	BAFFLE BOARDS
SFD	SUPER FENCE DIVERSION	ROPI	ROCK OUTLET PROTECTION I
SF	SILT FENCE	ROPIII	ROCK OUTLET PROTECTION III
SSF	SUPER SILT FENCE	ST-II	STONE/ RIPRAP OUTLET SEDIMENT TRAP ST II
OCF	TEMPORARY SAFETY FENCE	GP	GABION INFLOW PROTECTION
SFOP	SILT FENCE ON PAVEMENT		WOOD MATTING ACCESS ROAD
FL-18	FILTER LOG		TEMPORARY ACCESS BRIDGE
S-FL	STACKED FILTER LOG		
SBD	HYDROSTATIC TEST DEWATERING PIT	A-2	TEMPORARY SWALE
	SANDBAGS	SFCD	SILT FENCE CHECK DAM
	SANDBAG DAM	SIP	STANDARD INLET PROTECTION
P	PUMP	COIP	COMBINATION INLET PROTECTION
FB	FILTER BAG	SB SSF FB	FILTER BAG WITH STRAW BALE AND SUPER SILT FENCE
PDS-1	PERIMETER DIKE/ SWALE	MOD COIP	COMBINATION INLET PROTECTION MODIFIED FOR SUMP
A-1	EARTH DIKE		
TAB	TEMPORARY ASPHALT BERM		

GRAPHIC SCALE
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SEAL — STATE OF MARYLAND — KAREN R. POWELL — 14942 — PROFESSIONAL ENGINEER
Karen R. Powell 2-13-15

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Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE: JAN. 2015
SCALE: 1"= 50'
DESIGNED BY: CW
DRAWN BY: KP

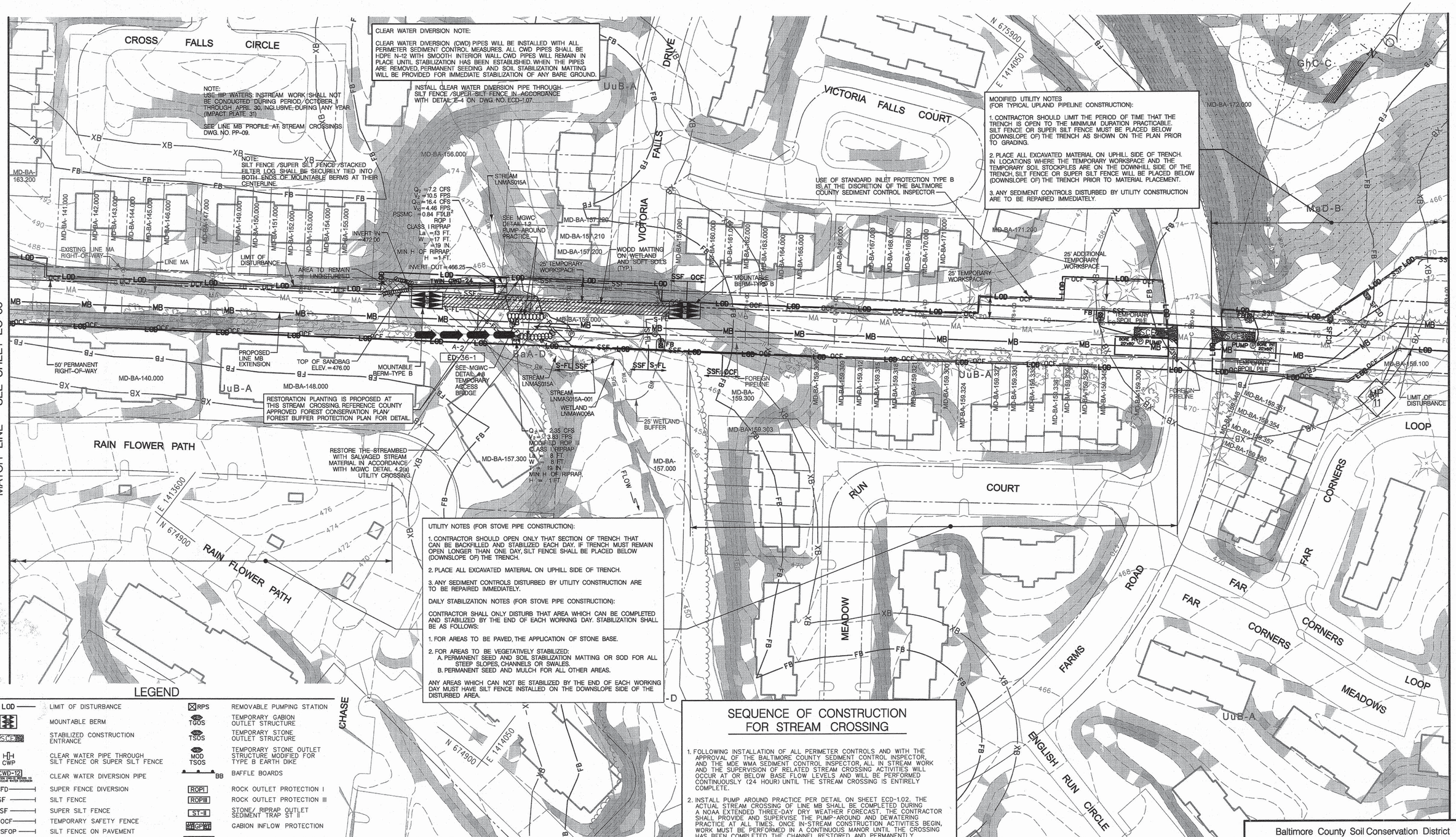
BALTIMORE COUNTY
GRADING / EROSION AND SEDIMENT CONTROL PLAN
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO.
EC-35
SHEET 13 OF 61
KCI JOB NUMBER
16-121849

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM – HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

PLOTTED: "01:40 PM on Friday, January 23, 2015"
FILE: M:\2012\16121849\drawings\WR\EC-PLAN_35.dgn



LEGEND

LOD	LIMIT OF DISTURBANCE	RPS	REMOVABLE PUMPING STATION
	MOUNTABLE BERM	TGOS	TEMPORARY GABION OUTLET STRUCTURE
SCE	STABILIZED CONSTRUCTION ENTRANCE	TSOS	TEMPORARY STONE OUTLET STRUCTURE
CWP	CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE	MOD TSOS	TEMPORARY STONE OUTLET STRUCTURE MODIFIED FOR TYPE B EARTH DIKE
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OCF	TEMPORARY SAFETY FENCE	GP	GABION INFLOW PROTECTION
SFOP	SILT FENCE ON PAVEMENT		WOOD MATTING ACCESS ROAD
FL-18	FILTER LOG		TEMPORARY ACCESS BRIDGE
S-FL	STACKED FILTER LOG		
SBD	HYDROSTATIC TEST DEWATERING PIPE	A-2	TEMPORARY SWALE
	SANDBAGS	SFCD	SILT FENCE CHECK DAM
	SANDBAG DAM	SIP	STANDARD INLET PROTECTION
P	PUMP	COIP	COMBINATION INLET PROTECTION
FB	FILTER BAG	SB FB SSF	FILTER BAG WITH STRAW BALE AND SUPER SILT FENCE
PDS-1	PERIMETER DIKE/ SWALE	MOD COIP	COMBINATION INLET PROTECTION MODIFIED FOR SUMP
A-1	EARTH DIKE		
TAB	TEMPORARY ASPHALT BERM		

SEQUENCE OF CONSTRUCTION FOR STREAM CROSSING

1. FOLLOWING INSTALLATION OF ALL PERIMETER CONTROLS AND WITH THE APPROVAL OF THE BALTIMORE COUNTY SEDIMENT CONTROL INSPECTOR, AND THE MDE WMA SEDIMENT CONTROL INSPECTOR, ALL IN STREAM WORK AND THE SUPERVISION OF RELATED STREAM CROSSING ACTIVITIES WILL OCCUR AT OR BELOW BASE FLOW LEVELS AND WILL BE PERFORMED CONTINUOUSLY (24 HOUR) UNTIL THE STREAM CROSSING IS ENTIRELY COMPLETE.
2. INSTALL PUMP AROUND PRACTICE PER DETAIL ON SHEET ECD-1.02. THE ACTUAL STREAM CROSSING OF LINE MB SHALL BE COMPLETED DURING A NOAA EXTENDED THREE-DAY DRY WEATHER FORECAST. THE CONTRACTOR SHALL PROVIDE AND SUPERVISE THE PUMP-AROUND AND DEWATERING PRACTICE AT ALL TIMES. ONCE IN-STREAM CONSTRUCTION ACTIVITIES BEGIN, WORK MUST BE PERFORMED IN A CONTINUOUS MANOR UNTIL THE CROSSING HAS BEEN COMPLETED, THE CHANNEL RESTORED AND PERMANENTLY STABILIZED AND THE PUMP-AROUND AND DEWATERING PRACTICES ARE REMOVED. AT NO TIME IS IT ACCEPTABLE FOR THE PUMP-AROUND PRACTICE TO REMAIN UNATTENDED. ALL DISCHARGE MUST BE ACCOMPLISHED IN A NON-EROSIVE MANNER. NO SEDIMENT LADEN DISCHARGE IS PERMITTED.
3. UPON COMPLETION OF THE STREAM CROSSING, INSTALL THE REMAINDER OF LINE MB.

GRAPHIC SCALE
50 0 25 50 100
(IN FEET)
1 inch = 50 ft.

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

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LICENSE NO.: 14942
EXPIRATION DATE: 6/01/2016

STATE OF MARYLAND KAREN R. POWERS 14942 PROFESSIONAL ENGINEER
SEAL
2-13-15

KCI TECHNOLOGIES
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CONSTRUCTION MANAGERS
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SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818

Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE JAN. 2015
SCALE 1"= 50'
DESIGNED BY CW
DRAWN BY KP

BALTIMORE COUNTY
GRADING / EROSION AND SEDIMENT CONTROL PLAN
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO.
EC-36
SHEET 14 OF 61
KCI JOB NUMBER
16-121849

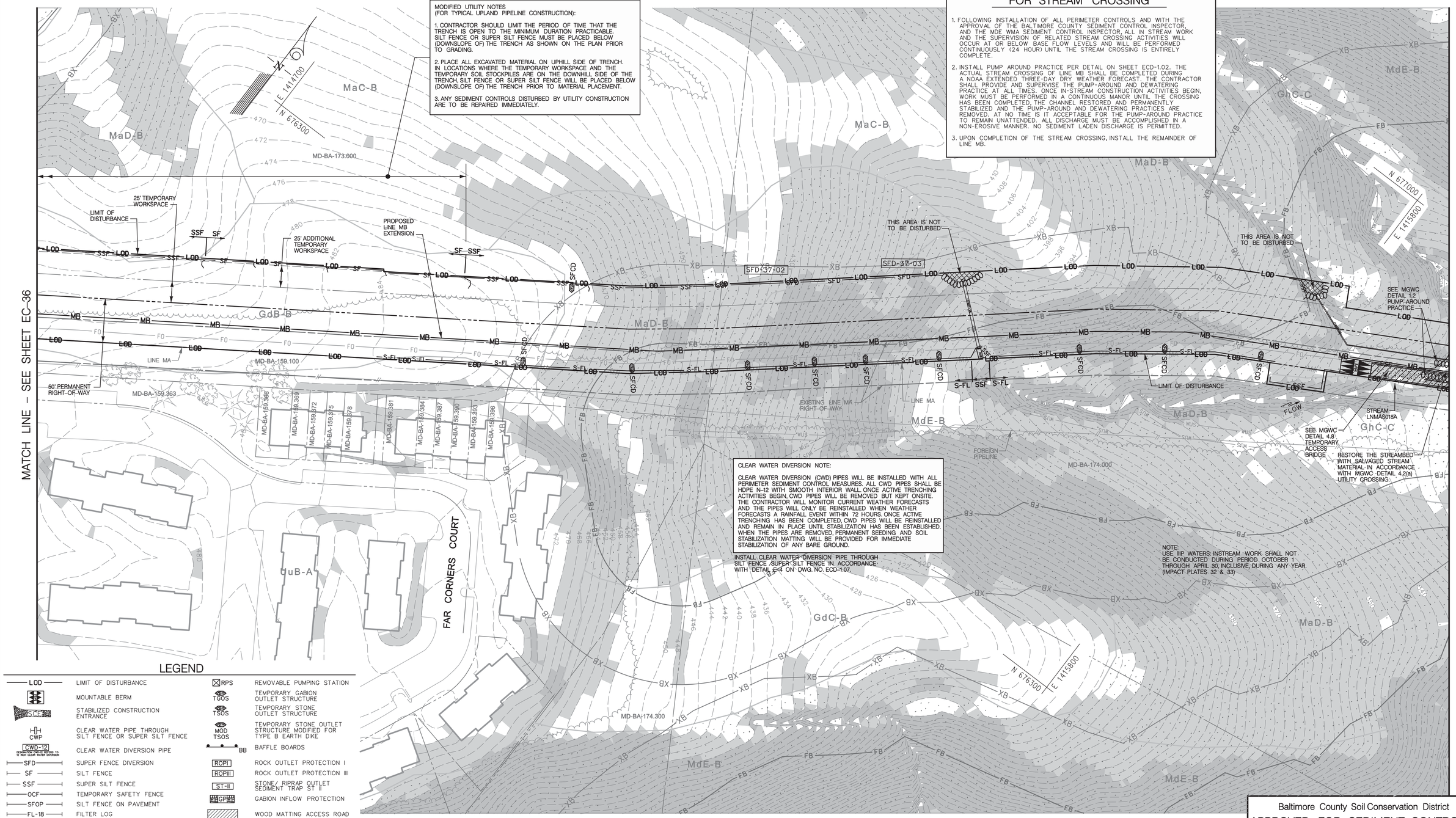
PLOTTED "01:40 PM on Friday, January 23, 2015"
FILE: M:\2012\16121849\drawings\WRK\ESC-PLAN_36.dgn

SEQUENCE OF CONSTRUCTION FOR STREAM CROSSING

1. FOLLOWING INSTALLATION OF ALL PERIMETER CONTROLS AND WITH THE APPROVAL OF THE BALTIMORE COUNTY SEDIMENT CONTROL INSPECTOR, AND THE MDE WMA SEDIMENT CONTROL INSPECTOR, ALL IN STREAM WORK AND THE SUPERVISION OF RELATED STREAM CROSSING ACTIVITIES WILL OCCUR AT OR BELOW BASE FLOW LEVELS AND WILL BE PERFORMED CONTINUOUSLY (24 HOUR) UNTIL THE STREAM CROSSING IS ENTIRELY COMPLETE.
2. INSTALL PUMP AROUND PRACTICE PER DETAIL ON SHEET ECD-1.02. THE ACTUAL STREAM CROSSING OF LINE MB SHALL BE COMPLETED DURING A NOAA EXTENDED THREE-DAY DRY WEATHER FORECAST. THE CONTRACTOR SHALL PROVIDE AND SUPERVISE THE PUMP-AROUND AND DEWATERING PRACTICE AT ALL TIMES. ONCE IN-STREAM CONSTRUCTION ACTIVITIES BEGIN, WORK MUST BE PERFORMED IN A CONTINUOUS MANOR UNTIL THE CROSSING HAS BEEN COMPLETED, THE CHANNEL RESTORED AND PERMANENTLY STABILIZED AND THE PUMP-AROUND AND DEWATERING PRACTICES ARE REMOVED. AT NO TIME IS IT ACCEPTABLE FOR THE PUMP-AROUND PRACTICE TO REMAIN UNATTENDED. ALL DISCHARGE MUST BE ACCOMPLISHED IN A NON-EROSIVE MANNER. NO SEDIMENT LADEN DISCHARGE IS PERMITTED.
3. UPON COMPLETION OF THE STREAM CROSSING, INSTALL THE REMAINDER OF LINE MB.

MODIFIED UTILITY NOTES
(FOR TYPICAL UPLAND PIPELINE CONSTRUCTION):

1. CONTRACTOR SHOULD LIMIT THE PERIOD OF TIME THAT THE TRENCH IS OPEN TO THE MINIMUM DURATION PRACTICABLE. SILT FENCE OR SUPER SILT FENCE MUST BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH AS SHOWN ON THE PLAN PRIOR TO GRADING.
2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH. IN LOCATIONS WHERE THE TEMPORARY WORKSPACE AND THE TEMPORARY SOIL STOCKPILES ARE ON THE DOWNHILL SIDE OF THE TRENCH, SILT FENCE OR SUPER SILT FENCE WILL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH PRIOR TO MATERIAL PLACEMENT.
3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.



CLEAR WATER DIVERSION NOTE:

CLEAR WATER DIVERSION (CWD) PIPES WILL BE INSTALLED WITH ALL PERIMETER SEDIMENT CONTROL MEASURES. ALL CWD PIPES SHALL BE HDPE N-12 WITH SMOOTH INTERIOR WALL. ONCE ACTIVE TRENCHING ACTIVITIES BEGIN, CWD PIPES WILL BE REMOVED BUT KEPT ONSITE. THE CONTRACTOR WILL MONITOR CURRENT WEATHER FORECASTS AND THE PIPES WILL ONLY BE REINSTALLED WHEN WEATHER FORECASTS A RAINFALL EVENT WITHIN 72 HOURS. ONCE ACTIVE TRENCHING HAS BEEN COMPLETED, CWD PIPES WILL BE REINSTALLED AND REMAIN IN PLACE UNTIL STABILIZATION HAS BEEN ESTABLISHED. WHEN THE PIPES ARE REMOVED, PERMANENT SEEDING AND SOIL STABILIZATION MATTING WILL BE PROVIDED FOR IMMEDIATE STABILIZATION OF ANY BARE GROUND.

INSTALL CLEAR WATER DIVERSION PIPE THROUGH SILT FENCE /SUPER SILT FENCE IN ACCORDANCE WITH DETAIL EC-4 ON DWG. NO. ECD-1.07.

NOTE:
USE IIIP WATERS: INSTREAM WORK SHALL NOT BE CONDUCTED DURING PERIOD OCTOBER 1 THROUGH APRIL 30, INCLUSIVE, DURING ANY YEAR. (IMPACT PLATES 32 & 33)

LEGEND

LOD	LIMIT OF DISTURBANCE	RPS	REMOVABLE PUMPING STATION
	MOUNTABLE BERM	TGOS	TEMPORARY GABION OUTLET STRUCTURE
SCE	STABILIZED CONSTRUCTION ENTRANCE	TSOS	TEMPORARY STONE OUTLET STRUCTURE
CWP	CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE	MOD TSOS	TEMPORARY STONE OUTLET STRUCTURE MODIFIED FOR TYPE B EARTH DIKE
CWD-12	CLEAR WATER DIVERSION PIPE (DESIGNATION CWD-12 REFERS TO 12 INCH CLEAR WATER DIVERSION)	BB	BAFFLE BOARDS
SFD	SUPER FENCE DIVERSION	ROPI	ROCK OUTLET PROTECTION I
SF	SILT FENCE	ROPIII	ROCK OUTLET PROTECTION III
SSF	SUPER SILT FENCE	ST-II	STONE/ RIPRAP OUTLET SEDIMENT TRAP ST II
OCF	TEMPORARY SAFETY FENCE	GP	GABION INFLOW PROTECTION
SFOP	SILT FENCE ON PAVEMENT		WOOD MATTING ACCESS ROAD
FL-18	FILTER LOG		TEMPORARY ACCESS BRIDGE
S-FL	STACKED FILTER LOG	A-2	TEMPORARY SWALE
SBD	HYDROSTATIC TEST DEWATERING PIT	SFCD	SILT FENCE CHECK DAM
	SANDBAGS	SIP	STANDARD INLET PROTECTION
	SANDBAG DAM	COIP	COMBINATION INLET PROTECTION
P	PUMP	SB SSF FB	FILTER BAG WITH STRAW BALE AND SUPER SILT FENCE
FB	FILTER BAG	MOD COIP	COMBINATION INLET PROTECTION MODIFIED FOR SUMP
PDS-1	PERIMETER DIKE/ SWALE		
A-1	EARTH DIKE (PLACE DEPRESSION SLIP OUT ON FLOW CHANNEL SIDE OF DIKE)		
TAB	TEMPORARY ASPHALT BERM		

GRAPHIC SCALE
50 0 25 50 100
(IN FEET)
1 inch = 50 ft.

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Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY
2	07/2015	REPLACE HDD WITH OPENCUT (EC-37 THROUGH EC-41)	

DATE JAN. 2015
SCALE 1"= 50'
DESIGNED BY CW
DRAWN BY KP

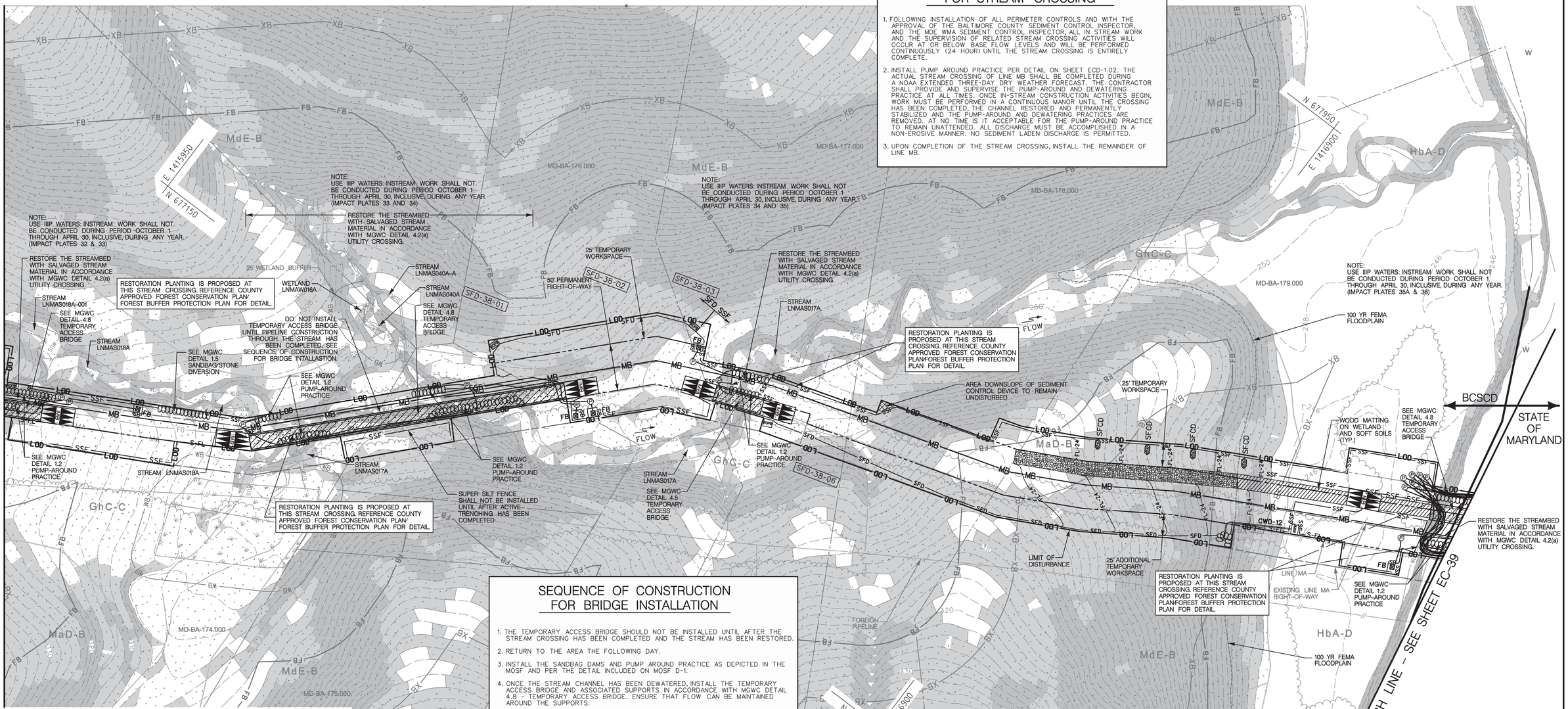
BALTIMORE COUNTY
GRADING / EROSION AND SEDIMENT CONTROL PLAN
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO. EC-37
SHEET 15 OF 61
KCI JOB NUMBER 16-121849

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM – HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

PLOTTED: "12:15 PM on Thursday, July 23, 2015"
FILE: M:\2012\16121849\drawings\WR\ESC-PLAN_37_TEMP2.dgn



SEQUENCE OF CONSTRUCTION FOR STREAM CROSSING

1. FOLLOWING INSTALLATION OF ALL PERIMETER CONTROLS AND WITH THE APPROVAL OF THE BALTIMORE COUNTY SEDIMENT CONTROL INSPECTOR, AND THE MDE WMA SEDIMENT CONTROL INSPECTOR, ALL IN STREAM WORK AND THE SUPERVISION OF RELATED STREAM CROSSING ACTIVITIES WILL OCCUR AT OR BELOW BASE FLOW LEVELS AND WILL BE PERFORMED CONTINUOUSLY (24 HOUR) UNTIL THE STREAM CROSSING IS ENTIRELY COMPLETE.
2. INSTALL PUMP AROUND PRACTICE PER DETAIL ON SHEET ECD-1.02. THE ACTUAL STREAM CROSSING OF LINE MB SHALL BE COMPLETED DURING A NOAA EXTENDED THREE-DAY DRY WEATHER FORECAST. THE CONTRACTOR SHALL PROVIDE AND SUPERVISE THE PUMP-AROUND AND DEWATERING PRACTICE AT ALL TIMES. ONCE IN-STREAM CONSTRUCTION ACTIVITIES BEGIN, WORK MUST BE PERFORMED IN A CONTINUOUS MANOR UNTIL THE CROSSING HAS BEEN COMPLETED, THE CHANNEL RESTORED AND PERMANENTLY STABILIZED AND THE PUMP-AROUND AND DEWATERING PRACTICES ARE REMOVED. AT NO TIME IS IT ACCEPTABLE FOR THE PUMP-AROUND PRACTICE TO REMAIN UNATTENDED. ALL DISCHARGE MUST BE ACCOMPLISHED IN A NON-EROSIVE MANNER. NO SEDIMENT LADEN DISCHARGE IS PERMITTED.
3. UPON COMPLETION OF THE STREAM CROSSING, INSTALL THE REMAINDER OF LINE MB.

SEQUENCE OF CONSTRUCTION FOR BRIDGE INSTALLATION

1. THE TEMPORARY ACCESS BRIDGE SHOULD NOT BE INSTALLED UNTIL AFTER THE STREAM CROSSING HAS BEEN COMPLETED AND THE STREAM HAS BEEN RESTORED.
2. RETURN TO THE AREA THE FOLLOWING DAY.
3. INSTALL THE SANDBAG DAMS AND PUMP AROUND PRACTICE AS DEPICTED IN THE MOSF AND PER THE DETAIL INCLUDED ON MOSF D-1.
4. ONCE THE STREAM CHANNEL HAS BEEN DEWATERED, INSTALL THE TEMPORARY ACCESS BRIDGE AND ASSOCIATED SUPPORTS IN ACCORDANCE WITH MGWC DETAIL 4.8 - TEMPORARY ACCESS BRIDGE. ENSURE THAT FLOW CAN BE MAINTAINED AROUND THE SUPPORTS.
5. REMOVE THE SANDAG DAMS AND PUMP AROUND PRACTICE AND RETURN FLOW TO THE STREAM CHANNEL.

SEQUENCE OF CONSTRUCTION FOR BRIDGE REMOVAL

1. THE TEMPORARY ACCESS BRIDGE SHALL NOT BE REMOVED UNTIL CONSTRUCTION AND FINAL RESTORATION HAVE BEEN COMPLETED AND ACCESS THROUGH THE AREA IS NO LONGER NECESSARY.
2. INSTALL THE SANDBAG DAMS AND PUMP AROUND PRACTICE AS DEPICTED IN THE MOSF AND PER THE DETAIL INCLUDED ON MOSF D-1.
3. ONCE THE STREAM CHANNEL HAS BEEN DEWATERED, REMOVE THE TEMPORARY ACCESS BRIDGE AND ASSOCIATED SUPPORTS.
4. RESTORE THE STREAM TO PRE-EXISTING CONDITIONS.
5. REMOVE THE SANDAG DAMS AND PUMP AROUND PRACTICE AND RESTORE FLOW TO THE STREAM CHANNEL.

LEGEND

LOD	LIMIT OF DISTURBANCE
	MOUNTABLE BERM
SCE	STABILIZED CONSTRUCTION ENTRANCE
CWP	CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE
CWD-12	CLEAR WATER DIVERSION PIPE (DENOTES PIPE SIZE, REFER TO 12 INCH CLEAR WATER DIVERSION)
SFD	SUPER FENCE DIVERSION
SF	SILT FENCE
SSF	SUPER SILT FENCE
OCF	TEMPORARY SAFETY FENCE
SFOP	SILT FENCE ON PAVEMENT
FL-18	FILTER LOG
S-FL	STACKED FILTER LOG
SBD	HYDROSTATIC TEST DEWATERING PIT
	SANDBAGS
	SANDBAG DAM
P	PUMP
FB	FILTER BAG
PDS-1	PERIMETER DIKE/ SWALE
A-1 (PLACE DEFORMATION BLA N.T. ON FLOW CHANNEL SIDE OF DIKE)	EARTH DIKE
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	WOOD MATTING ACCESS ROAD
	TEMPORARY ACCESS BRIDGE
A-2	TEMPORARY SWALE
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REVISIONS			
NO.	DATE	DESCRIPTION	BY
2	07/2015	REPLACE HDD WITH OPENCUT (EC-37 THROUGH EC-41)	

DATE JAN. 2015
SCALE 1"= 50'
DESIGNED BY CW
DRAWN BY KP

BALTIMORE COUNTY
GRADING / EROSION AND SEDIMENT CONTROL PLAN
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO.
EC-38
SHEET 17 OF 61
KCI JOB NUMBER 16-121849

CLEAR WATER DIVERSION NOTE:

CLEAR WATER DIVERSION (CWD) PIPES WILL BE INSTALLED WITH ALL PERIMETER SEDIMENT CONTROL MEASURES. ALL CWD PIPES SHALL BE HDPE N-12 WITH SMOOTH INTERIOR WALL. ONCE ACTIVE TRENCHING ACTIVITIES BEGIN, CWD PIPES WILL BE REMOVED BUT KEPT ONSITE. THE CONTRACTOR WILL MONITOR CURRENT WEATHER FORECASTS AND THE PIPES WILL ONLY BE REINSTALLED WHEN WEATHER FORECASTS A RAINFALL EVENT WITHIN 72 HOURS. ONCE ACTIVE TRENCHING HAS BEEN COMPLETED, CWD PIPES WILL BE REINSTALLED AND REMAIN IN PLACE UNTIL STABILIZATION HAS BEEN ESTABLISHED. WHEN THE PIPES ARE REMOVED, PERMANENT SEEDING AND SOIL STABILIZATION MATTING WILL BE PROVIDED FOR IMMEDIATE STABILIZATION OF ANY BARE GROUND.

INSTALL CLEAR WATER DIVERSION PIPE THROUGH SILT FENCE/SUPER SILT FENCE IN ACCORDANCE WITH DETAIL E-4 ON DWG. NO. ECD-1.07.

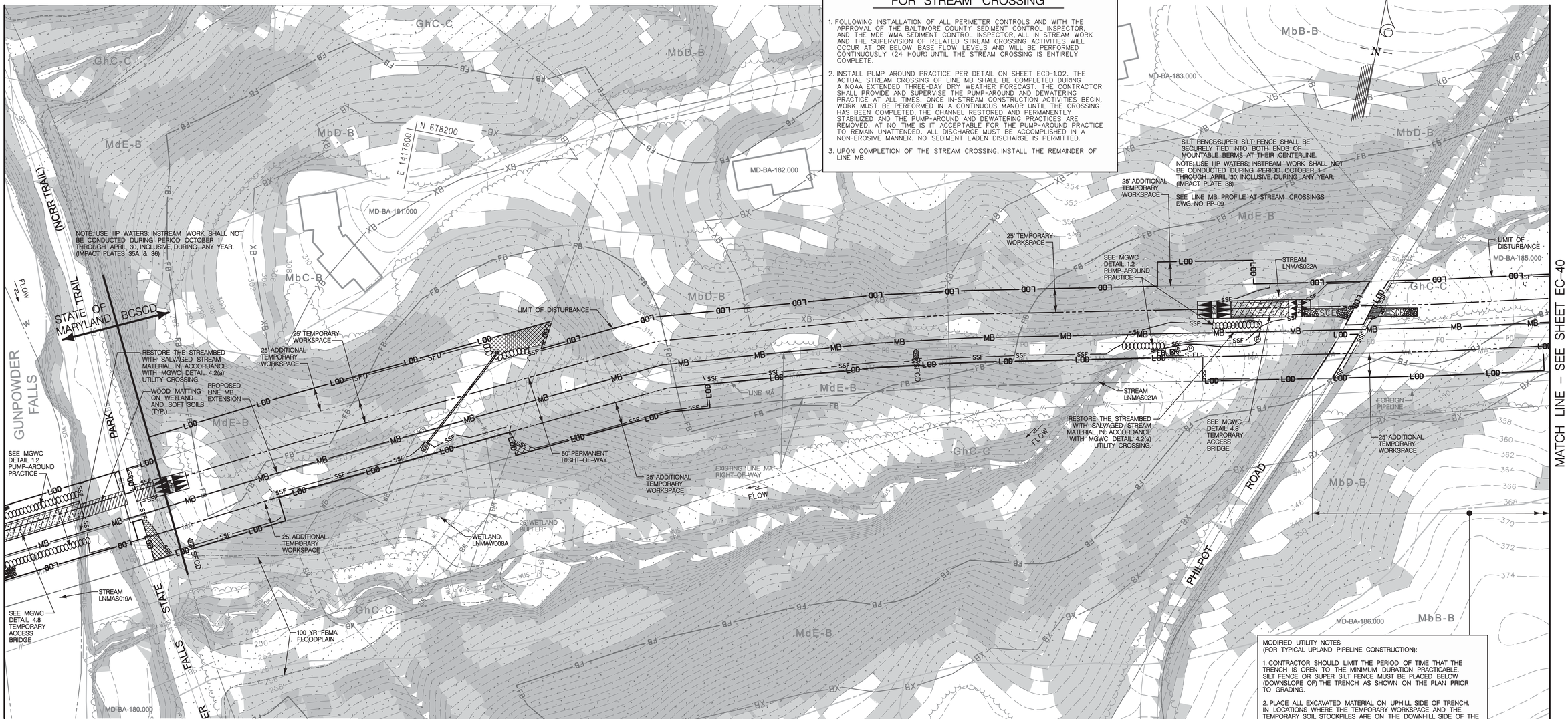
Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM – HORIZ.: NAD 83 (ADJ. '07); VERT.: NAVD 88

PLOTTED: "02:59 PM on Monday, July 27, 2015"
FILE: M:\2012\16\121849\drawings\WR\ESC-PLAN_38_TEMP2.dgn

SEQUENCE OF CONSTRUCTION FOR STREAM CROSSING

1. FOLLOWING INSTALLATION OF ALL PERIMETER CONTROLS AND WITH THE APPROVAL OF THE BALTIMORE COUNTY SEDIMENT CONTROL INSPECTOR, AND THE MDE WMA SEDIMENT CONTROL INSPECTOR, ALL IN STREAM WORK AND THE SUPERVISION OF RELATED STREAM CROSSING ACTIVITIES WILL OCCUR AT OR BELOW BASE FLOW LEVELS AND WILL BE PERFORMED CONTINUOUSLY (24 HOUR) UNTIL THE STREAM CROSSING IS ENTIRELY COMPLETE.
2. INSTALL PUMP AROUND PRACTICE PER DETAIL ON SHEET ECD-1.02. THE ACTUAL STREAM CROSSING OF LINE MB SHALL BE COMPLETED DURING A NOAA EXTENDED THREE-DAY DRY WEATHER FORECAST. THE CONTRACTOR SHALL PROVIDE AND SUPERVISE THE PUMP-AROUND AND DEWATERING PRACTICE AT ALL TIMES. ONCE IN-STREAM CONSTRUCTION ACTIVITIES BEGIN, WORK MUST BE PERFORMED IN A CONTINUOUS MANOR UNTIL THE CROSSING HAS BEEN COMPLETED, THE CHANNEL RESTORED AND PERMANENTLY STABILIZED AND THE PUMP-AROUND AND DEWATERING PRACTICES ARE REMOVED. AT NO TIME IS IT ACCEPTABLE FOR THE PUMP-AROUND PRACTICE TO REMAIN UNATTENDED. ALL DISCHARGE MUST BE ACCOMPLISHED IN A NON-EROSIVE MANNER. NO SEDIMENT LADEN DISCHARGE IS PERMITTED.
3. UPON COMPLETION OF THE STREAM CROSSING, INSTALL THE REMAINDER OF LINE MB.



MODIFIED UTILITY NOTES
(FOR TYPICAL UPLAND PIPELINE CONSTRUCTION):

1. CONTRACTOR SHOULD LIMIT THE PERIOD OF TIME THAT THE TRENCH IS OPEN TO THE MINIMUM DURATION PRACTICABLE. SILT FENCE OR SUPER SILT FENCE MUST BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH AS SHOWN ON THE PLAN PRIOR TO GRADING.

2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH. IN LOCATIONS WHERE THE TEMPORARY WORKSPACE AND THE TEMPORARY SOIL STOCKPILES ARE ON THE DOWNHILL SIDE OF THE TRENCH, SILT FENCE OR SUPER SILT FENCE WILL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH PRIOR TO MATERIAL PLACEMENT.

3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

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LEGEND

LOD	LIMIT OF DISTURBANCE
	MOUNTABLE BERM
SCE	STABILIZED CONSTRUCTION ENTRANCE
CWP	CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE
CWD-12	CLEAR WATER DIVERSION PIPE (DESIGNATION CWD-12 REFERS TO 12 INCH CLEAR WATER DIVERSION)
SFD	SUPER FENCE DIVERSION
SF	SILT FENCE
SSF	SUPER SILT FENCE
OCF	TEMPORARY SAFETY FENCE
SFOP	SILT FENCE ON PAVEMENT
FL-18	FILTER LOG
S-FL	STACKED FILTER LOG
SBD	HYDROSTATIC TEST DEWATERING PIT
	SANDBAGS
	SANDBAG DAM
P	PUMP
FB	FILTER BAG
PDS-1	PERIMETER DIKE/ SWALE
A-1	EARTH DIKE (PLACE DESIGNATION SIDE UP ON FLOW CHANNEL SIDE OF DIKE)
TAB	TEMPORARY ASPHALT BERM
RPS	REMOVABLE PUMPING STATION
TGOS	TEMPORARY GABION OUTLET STRUCTURE
TSOS	TEMPORARY STONE OUTLET STRUCTURE
MOD TSOS	TEMPORARY STONE OUTLET STRUCTURE MODIFIED FOR TYPE B EARTH DIKE
BB	BAFFLE BOARDS
ROPI	ROCK OUTLET PROTECTION I
ROPIII	ROCK OUTLET PROTECTION III
ST-II	STONE/ RIPRAP OUTLET SEDIMENT TRAP ST II
GOPIII	GABION INFLOW PROTECTION
	WOOD MATTING ACCESS ROAD
	TEMPORARY ACCESS BRIDGE
A-2	TEMPORARY SWALE
SFCD	SILT FENCE CHECK DAM
SIP	STANDARD INLET PROTECTION
COIP	COMBINATION INLET PROTECTION
SB-SSF-FB	FILTER BAG WITH STRAW BALE AND SUPER SILT FENCE
MOD COIP	COMBINATION INLET PROTECTION MODIFIED FOR SUMP

GRAPHIC SCALE
50 0 25 50 100
(IN FEET)
1 inch = 50 ft.

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM – HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

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.: 14942 EXPIRATION DATE: 6/01/2016

SEAL

KCI TECHNOLOGIES
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818

Columbia Gas Transmission
A NiSource Company

REVISIONS

NO.	DATE	DESCRIPTION	BY
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DATE JAN. 2015
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BALTIMORE COUNTY GRADING / EROSION AND SEDIMENT CONTROL PLAN FOR COLUMBIA GAS TRANSMISSION, LLC LINE MB EXTENSION PROJECT - PHASE 2

BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO.
EC-39
SHEET 17A OF 61
KCI JOB NUMBER 16-121849

PLOTTED: "01:11 PM on Thursday, July 23, 2015"
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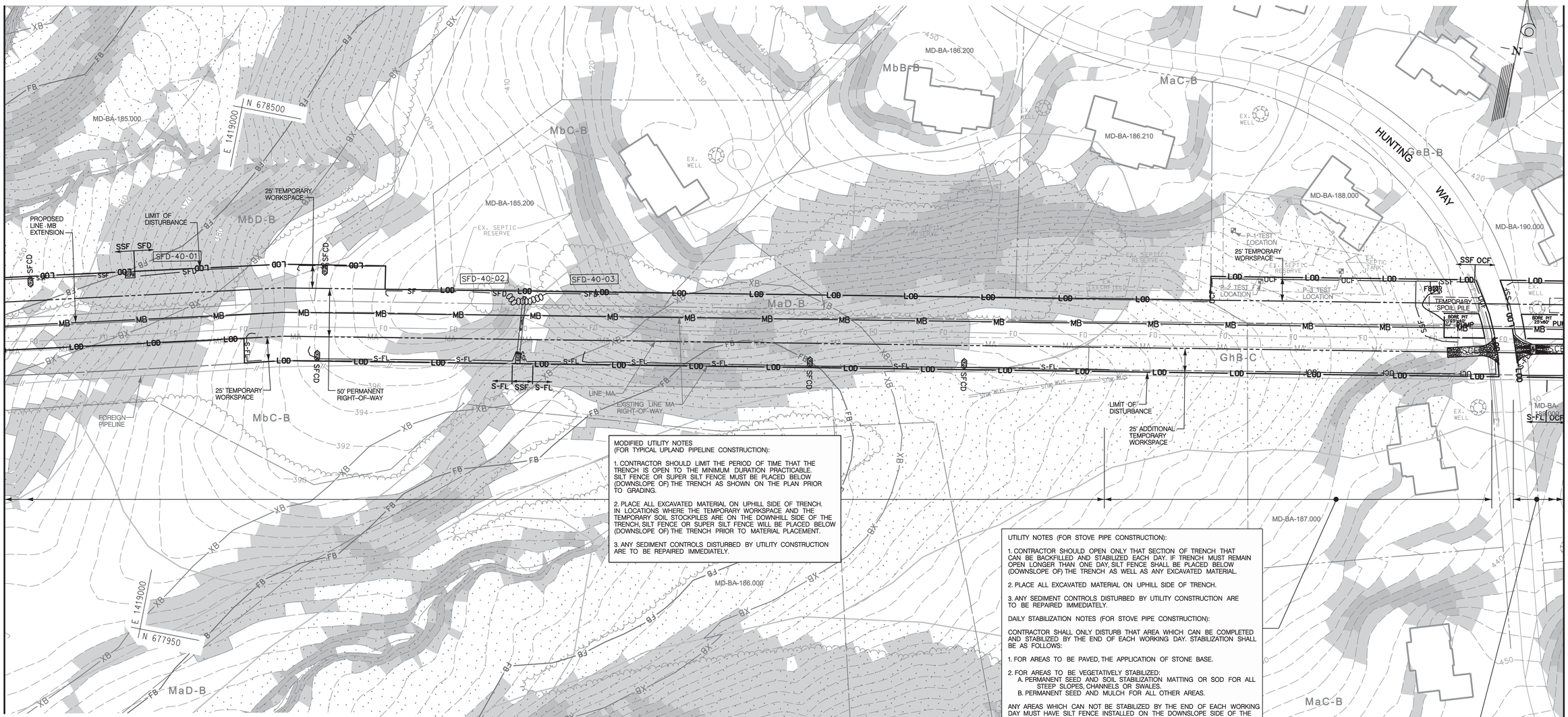

MODIFIED UTILITY NOTES
(FOR TYPICAL UPLAND PIPELINE CONSTRUCTION):

1. CONTRACTOR SHOULD LIMIT THE PERIOD OF TIME THAT THE TRENCH IS OPEN TO THE MINIMUM DURATION PRACTICABLE. SILT FENCE OR SUPER SILT FENCE MUST BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH AS SHOWN ON THE PLAN PRIOR TO GRADING.

2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH. IN LOCATIONS WHERE THE TEMPORARY WORKSPACE AND THE TEMPORARY SOIL STOCKPILES ARE ON THE DOWNHILL SIDE OF THE TRENCH, SILT FENCE OR SUPER SILT FENCE WILL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH PRIOR TO MATERIAL PLACEMENT.

3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

UTILITY NOTES (FOR STOVE PIPE CONSTRUCTION):

1. CONTRACTOR SHOULD OPEN ONLY THAT SECTION OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF TRENCH MUST REMAIN OPEN LONGER THAN ONE DAY, SILT FENCE SHALL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH AS WELL AS ANY EXCAVATED MATERIAL.

2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH.

3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

DAILY STABILIZATION NOTES (FOR STOVE PIPE CONSTRUCTION):

CONTRACTOR SHALL ONLY DISTURB THAT AREA WHICH CAN BE COMPLETED AND STABILIZED BY THE END OF EACH WORKING DAY. STABILIZATION SHALL BE AS FOLLOWS:

1. FOR AREAS TO BE PAVED, THE APPLICATION OF STONE BASE.

2. FOR AREAS TO BE VEGETATIVELY STABILIZED:
   A. PERMANENT SEED AND SOIL STABILIZATION MATTING OR SOD FOR ALL STEEP SLOPES, CHANNELS OR SWALES.
   B. PERMANENT SEED AND MULCH FOR ALL OTHER AREAS.

ANY AREAS WHICH CAN NOT BE STABILIZED BY THE END OF EACH WORKING DAY MUST HAVE SILT FENCE INSTALLED ON THE DOWNSLOPE SIDE OF THE DISTURBED AREA.

MODIFIED UTILITY NOTES
(FOR TYPICAL UPLAND PIPELINE CONSTRUCTION):

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INSTALL CLEAR WATER DIVERSION PIPE THROUGH SILT FENCE/SUPER SILT FENCE IN ACCORDANCE WITH DETAIL E-4 ON DWG. NO. ECD-1.07.

LEGEND

LOD	LIMIT OF DISTURBANCE	RPS	REMOVABLE PUMPING STATION
	MOUNTABLE BERM	TGOS	TEMPORARY GABION OUTLET STRUCTURE
SCE	STABILIZED CONSTRUCTION ENTRANCE	TSOS	TEMPORARY STONE OUTLET STRUCTURE
CWP	CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE	MOD TSOS	TEMPORARY STONE OUTLET STRUCTURE MODIFIED FOR TYPE B EARTH DIKE
CWD-12	CLEAR WATER DIVERSION PIPE (DIAMETER (INCH) REFERS TO 12 INCH CLEAR WATER DIVERSION)	BB	BAFFLE BOARDS
SFD	SUPER FENCE DIVERSION	ROPI	ROCK OUTLET PROTECTION I
SF	SILT FENCE	ROPIII	ROCK OUTLET PROTECTION III
SSF	SUPER SILT FENCE	ST-II	STONE/ RIPRAP OUTLET SEDIMENT TRAP ST II
OCF	TEMPORARY SAFETY FENCE	GPI	GABION INFLOW PROTECTION
SFOP	SILT FENCE ON PAVEMENT		WOOD MATTING ACCESS ROAD
FL-18	FILTER LOG		TEMPORARY ACCESS BRIDGE
S-FL	STACKED FILTER LOG	A-2	TEMPORARY SWALE
SBD	HYDROSTATIC TEST DEWATERING PIT	SFCD	SILT FENCE CHECK DAM
	SANDBAGS	SIP	STANDARD INLET PROTECTION
	SANDBAG DAM	COIP	COMBINATION INLET PROTECTION
P	PUMP	SB FB SSF	FILTER BAG WITH STRAW BALE AND SUPER SILT FENCE
FB	FILTER BAG	MOD COIP	COMBINATION INLET PROTECTION MODIFIED FOR SUMP
PDS-1	PERIMETER DIKE/ SWALE		
A-1 (PLACE DESIGNATION BLB 5.0' ON FLOW CHANNEL SIDE OF DIKE)	EARTH DIKE		
TAB	TEMPORARY ASPHALT BERM		

GRAPHIC SCALE
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DATE JAN. 2015
SCALE 1"= 50'
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BALTIMORE COUNTY
GRADING / EROSION AND SEDIMENT CONTROL PLAN
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO.
EC-40
SHEET 18A OF 61
KCI JOB NUMBER 16-121849

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM – HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

PLOTTED:"10:45 AM on Thursday, July 23, 2015"
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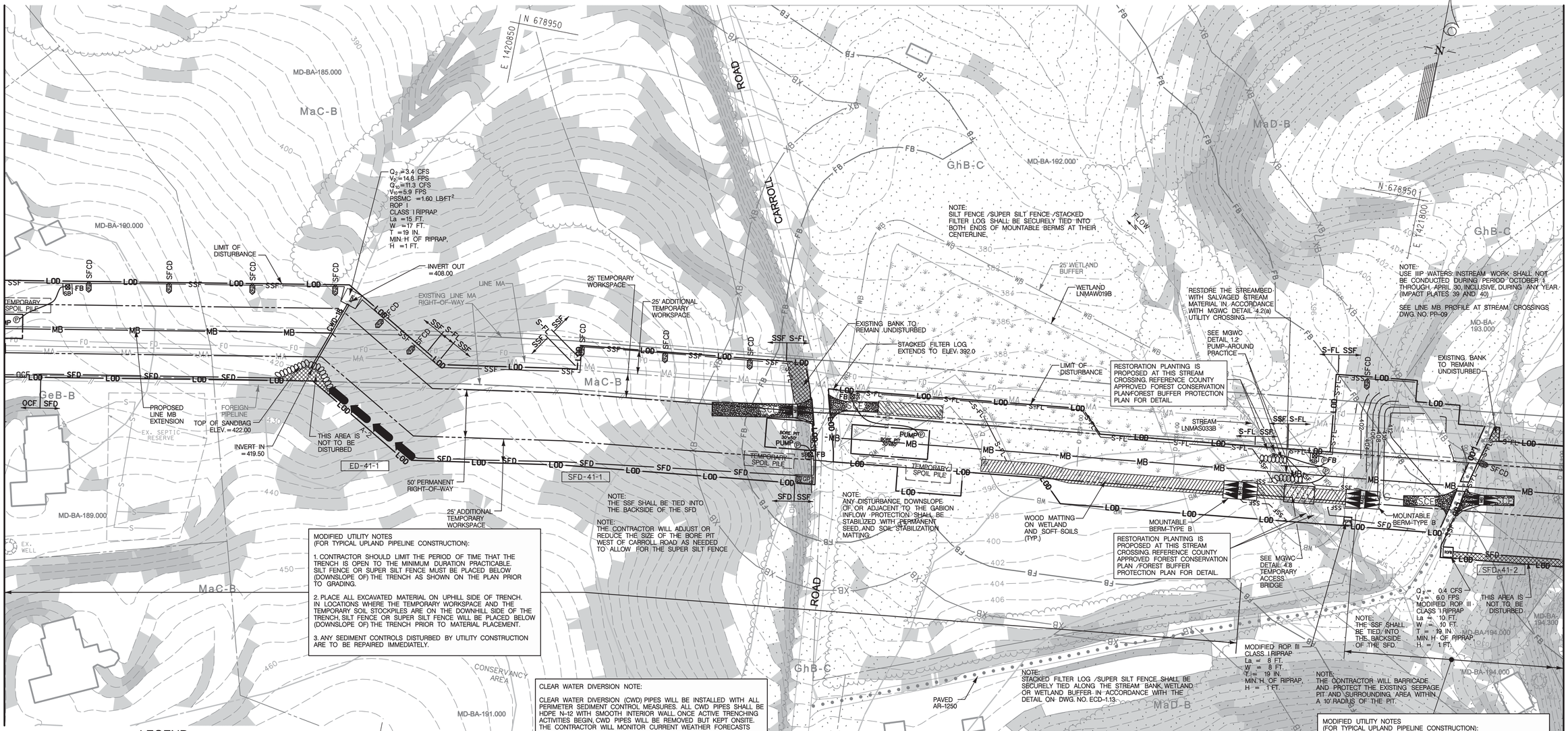

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INSTALL CLEAR WATER DIVERSION PIPE THROUGH SILT FENCE/SUPER SILT FENCE IN ACCORDANCE WITH DETAIL E-4 ON DWG. NO. ECD-1.07.

LEGEND

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Baltimore County Soil Conservation District
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DRAWING NO.
EC-41
SHEET 19A OF 61
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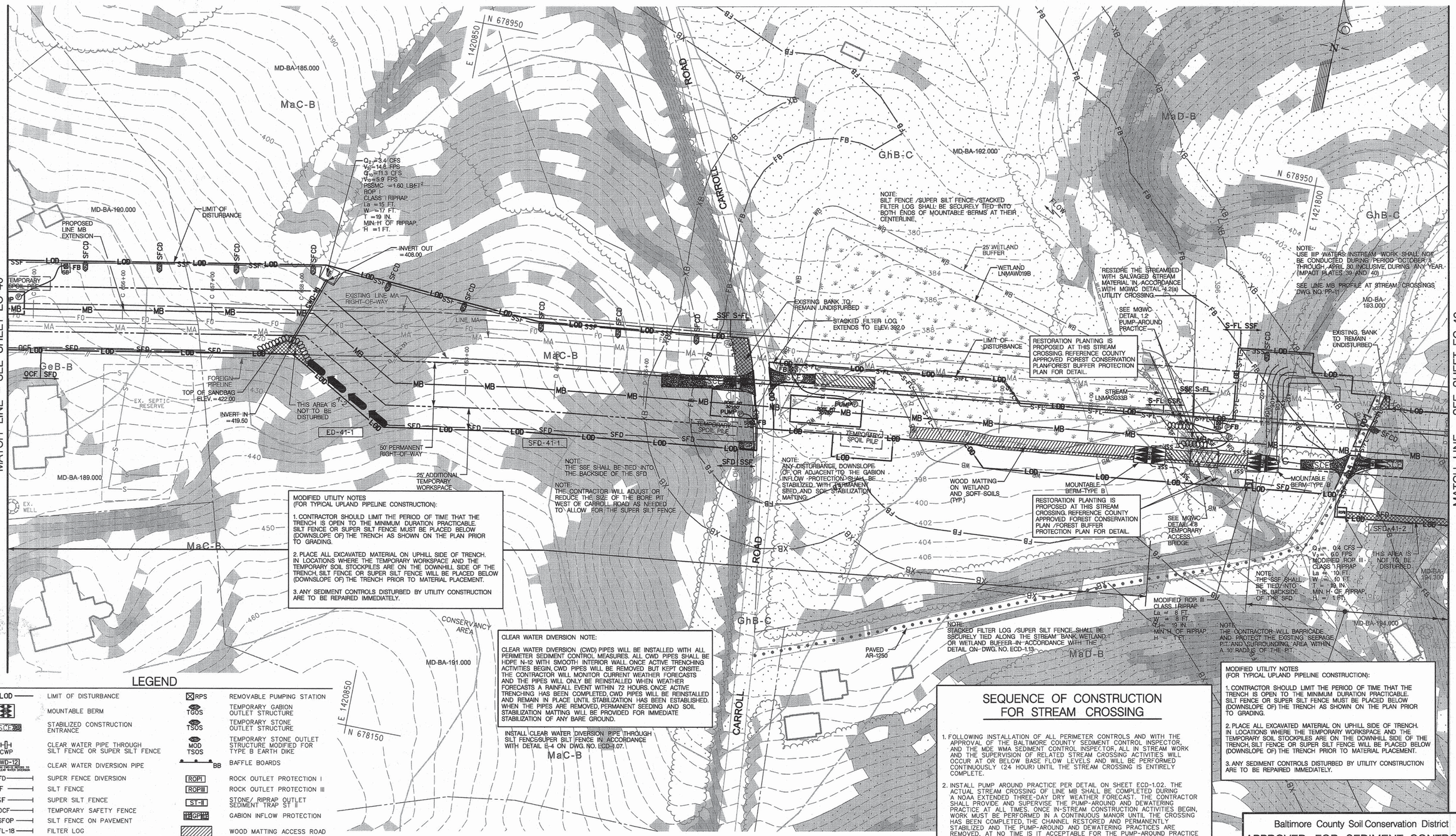
PLOTTED: "10:46 AM on Thursday, July 23, 2015"
FILE: M:\2012\16121849\drawings\WR\ESC-PLAN_41_TEMP2.dgn



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CWP	CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE
CWD-12	CLEAR WATER DIVERSION PIPE (DESIGNATION SIZE REFERS TO 12 INCH DIA. WATER DIVERSION)
SFD	SUPER FENCE DIVERSION
SF	SILT FENCE
SSF	SUPER SILT FENCE
OCF	TEMPORARY SAFETY FENCE
SFOP	SILT FENCE ON PAVEMENT
FL-18	FILTER LOG
S-FL	STACKED FILTER LOG
SBD	HYDROSTATIC TEST DEWATERING PIT
	SANDBAGS
	SANDBAG DAM
P	PUMP
FB	FILTER BAG
PDS-1	PERIMETER DIKE/ SWALE
A-1	EARTH DIKE (PLACE EXTRAVATION SILT OUT ON SLOW CHANNEL SIDE OF DIKE)
TAB	TEMPORARY ASPHALT BERM
RPS	REMOVABLE PUMPING STATION
TGOS	TEMPORARY GABION OUTLET STRUCTURE
TSOS	TEMPORARY STONE OUTLET STRUCTURE
MOD TSOS	TEMPORARY STONE OUTLET STRUCTURE MODIFIED FOR TYPE B EARTH DIKE
BB	BAFFLE BOARDS
ROP I	ROCK OUTLET PROTECTION I
ROP III	ROCK OUTLET PROTECTION III
ST-II	STONE/ RIPRAP OUTLET SEDIMENT TRAP ST II
GP-II	GABION INFLOW PROTECTION
	WOOD MATTING ACCESS ROAD
	TEMPORARY ACCESS BRIDGE
A-2	TEMPORARY SWALE
SFCD	SILT FENCE CHECK DAM
SIP	STANDARD INLET PROTECTION
COIP	COMBINATION INLET PROTECTION
SB SSF FB	FILTER BAG WITH STRAW BALE AND SUPER SILT FENCE
MOD COIP	COMBINATION INLET PROTECTION MODIFIED FOR SUMP

SEQUENCE OF CONSTRUCTION FOR STREAM CROSSING

1. FOLLOWING INSTALLATION OF ALL PERIMETER CONTROLS AND WITH THE APPROVAL OF THE BALTIMORE COUNTY SEDIMENT CONTROL INSPECTOR, AND THE MDE WMA SEDIMENT CONTROL INSPECTOR, ALL IN STREAM WORK AND THE SUPERVISION OF RELATED STREAM CROSSING ACTIVITIES WILL OCCUR AT OR BELOW BASE FLOW LEVELS AND WILL BE PERFORMED CONTINUOUSLY (24 HOUR) UNTIL THE STREAM CROSSING IS ENTIRELY COMPLETE.

2. INSTALL PUMP AROUND PRACTICE PER DETAIL ON SHEET ECD-1.02. THE ACTUAL STREAM CROSSING OF LINE MB SHALL BE COMPLETED DURING A NOAA EXTENDED THREE-DAY DRY WEATHER FORECAST. THE CONTRACTOR SHALL PROVIDE AND SUPERVISE THE PUMP-AROUND AND DEWATERING PRACTICE AT ALL TIMES. ONCE IN-STREAM CONSTRUCTION ACTIVITIES BEGIN, WORK MUST BE PERFORMED IN A CONTINUOUS MANOR UNTIL THE CROSSING HAS BEEN COMPLETED. THE CHANNEL RESTORED AND PERMANENTLY STABILIZED AND THE PUMP-AROUND AND DEWATERING PRACTICES ARE REMOVED. AT NO TIME IS IT ACCEPTABLE FOR THE PUMP-AROUND PRACTICE TO REMAIN UNATTENDED. ALL DISCHARGE MUST BE ACCOMPLISHED IN A NON-EROSIVE MANNER. NO SEDIMENT LADEN DISCHARGE IS PERMITTED.

3. UPON COMPLETION OF THE STREAM CROSSING, INSTALL THE REMAINDER OF LINE MB.

MODIFIED UTILITY NOTES
(FOR TYPICAL UPLAND PIPELINE CONSTRUCTION):

1. CONTRACTOR SHOULD LIMIT THE PERIOD OF TIME THAT THE TRENCH IS OPEN TO THE MINIMUM DURATION PRACTICABLE. SILT FENCE OR SUPER SILT FENCE MUST BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH AS SHOWN ON THE PLAN PRIOR TO GRADING.

2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH. IN LOCATIONS WHERE THE TEMPORARY WORKSPACE AND THE TEMPORARY SOIL STOCKPILES ARE ON THE DOWNHILL SIDE OF THE TRENCH, SILT FENCE OR SUPER SILT FENCE WILL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH PRIOR TO MATERIAL PLACEMENT.

3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM - HORZ.: NAD 83 (ADJ. '07) VERT.: NAVD 88

PROFESSIONAL CERTIFICATIONS: 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: 14942 EXPIRATION DATE: 6/01/2016

SEAL — 2-13-15

KCI TECHNOLOGIES
ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818

Columbia Gas Transmission
A NiSource Company

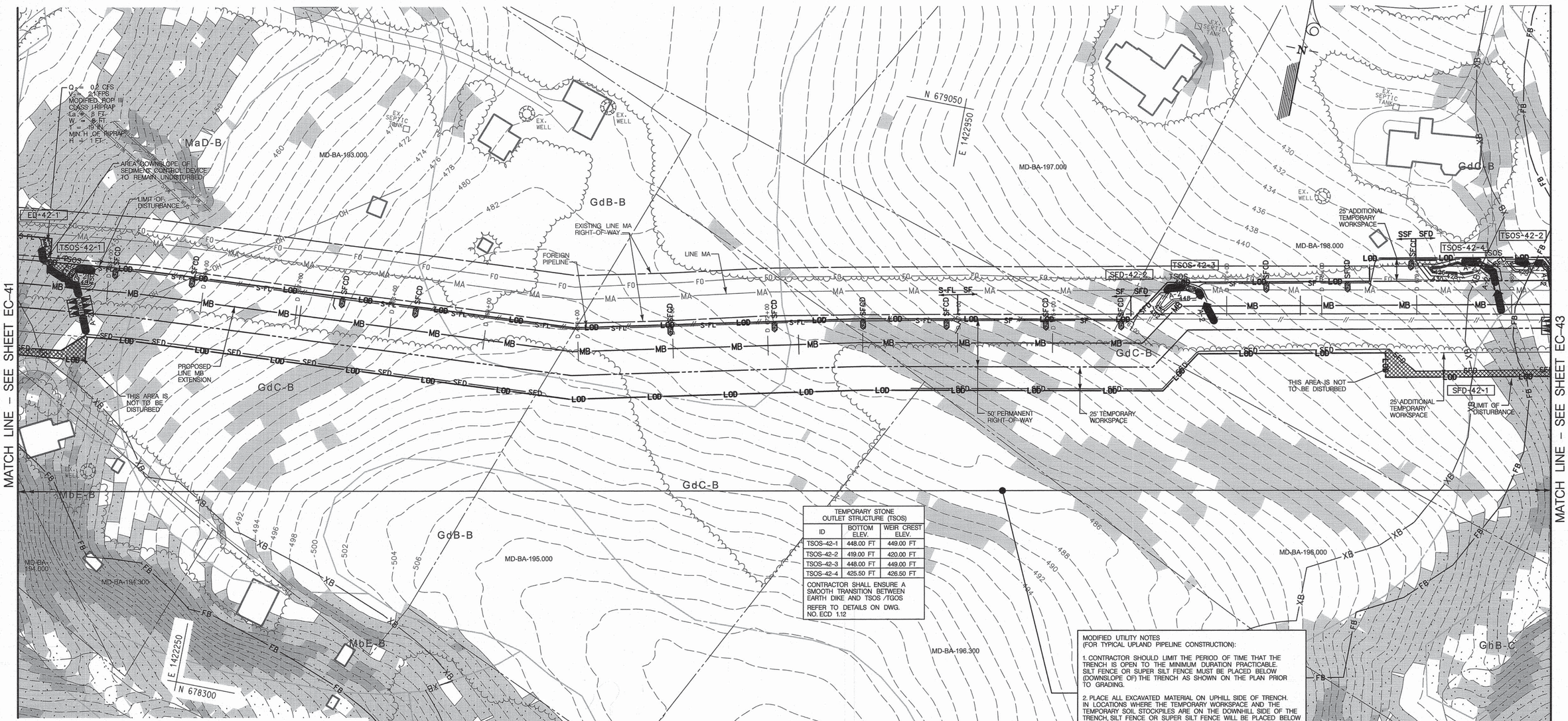
REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE: JAN. 2015
SCALE: 1"= 50'
DESIGNED BY: CW
DRAWN BY: KP

BALTIMORE COUNTY
GRADING / EROSION AND SEDIMENT CONTROL PLAN
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO. EC-41
SHEET 20 OF 61
KCI JOB NUMBER 16-121849

PLOTTED: "01:49 PM on Friday, January 23, 2015"
FILE: M:\2012\16121849\drawings\WRV\ESC-PLAN_41.dgn



TEMPORARY STONE OUTLET STRUCTURE (TSOS)		
ID	BOTTOM ELEV.	WEIR CREST ELEV.
TSOS–42–1	448.00 FT	449.00 FT
TSOS–42–2	419.00 FT	420.00 FT
TSOS–42–3	448.00 FT	449.00 FT
TSOS–42–4	425.50 FT	426.50 FT

CONTRACTOR SHALL ENSURE A SMOOTH TRANSITION BETWEEN EARTH DIKE AND TSOS /TGOS

REFER TO DETAILS ON DWG. NO. ECD 1.12

MODIFIED UTILITY NOTES
(FOR TYPICAL UPLAND PIPELINE CONSTRUCTION):

1. CONTRACTOR SHOULD LIMIT THE PERIOD OF TIME THAT THE TRENCH IS OPEN TO THE MINIMUM DURATION PRACTICABLE. SILT FENCE OR SUPER SILT FENCE MUST BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH AS SHOWN ON THE PLAN PRIOR TO GRADING.

2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH. IN LOCATIONS WHERE THE TEMPORARY WORKSPACE AND THE TEMPORARY SOIL STOCKPILES ARE ON THE DOWNHILL SIDE OF THE TRENCH, SILT FENCE OR SUPER SILT FENCE WILL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH PRIOR TO MATERIAL PLACEMENT.

3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

LEGEND

LOD	LIMIT OF DISTURBANCE	RPS	REMOVABLE PUMPING STATION
	MOUNTABLE BERM	TGOS	TEMPORARY GABION OUTLET STRUCTURE
SCE	STABILIZED CONSTRUCTION ENTRANCE	TSOS	TEMPORARY STONE OUTLET STRUCTURE
CWP	CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE	MOD TSOS	TEMPORARY STONE OUTLET STRUCTURE MODIFIED FOR TYPE B EARTH DIKE
CWD-12	CLEAR WATER DIVERSION PIPE	BB	BAFFLE BOARDS
SFD	SUPER FENCE DIVERSION	ROPI	ROCK OUTLET PROTECTION I
SF	SILT FENCE	ROPIII	ROCK OUTLET PROTECTION III
SSF	SUPER SILT FENCE	ST-II	STONE/ RIPRAP OUTLET SEDIMENT TRAP ST II
OCF	TEMPORARY SAFETY FENCE	GPIP	GABION INFLOW PROTECTION
SFOP	SILT FENCE ON PAVEMENT		WOOD MATTING ACCESS ROAD
FL-18	FILTER LOG		TEMPORARY ACCESS BRIDGE
S-FL	STACKED FILTER LOG		
SBD	HYDROSTATIC TEST DEWATERING PIT	A-2	TEMPORARY SWALE
	SANDBAGS	SFCD	SILT FENCE CHECK DAM
	SANDBAG DAM	SIP	STANDARD INLET PROTECTION
P	PUMP	COIP	COMBINATION INLET PROTECTION
FB	FILTER BAG	SB FB SSF	FILTER BAG WITH STRAW BALE AND SUPER SILT FENCE
PDS-1	PERIMETER DIKE/ SWALE	MOD COIP	COMBINATION INLET PROTECTION MODIFIED FOR SUMP
A-1	EARTH DIKE		
TAB	TEMPORARY ASPHALT BERM		

GRAPHIC SCALE
50 0 25 50 100
(IN FEET)
1 inch = 50 ft.

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. 14942 EXPIRATION DATE: 6/01/2016

STATE OF MARYLAND · KARSA R. POWELL · 14942 · PROFESSIONAL ENGINEER
SEAL
2-13-15

KCI TECHNOLOGIES
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818

Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE: JAN. 2015
SCALE: 1"= 50'
DESIGNED BY: CW
DRAWN BY: KP

BALTIMORE COUNTY
GRADING / EROSION AND SEDIMENT CONTROL PLAN
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO.
EC-42
SHEET 21 OF 61
KCI JOB NUMBER
16-121849

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM – HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

PLOTTED: "11:53 AM on Thursday, February 12, 2015"
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UTILITY NOTES (FOR STOVE PIPE CONSTRUCTION):

1. CONTRACTOR SHOULD OPEN ONLY THAT SECTION OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF TRENCH MUST REMAIN OPEN LONGER THAN ONE DAY, SILT FENCE SHALL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH.

2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH.

3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

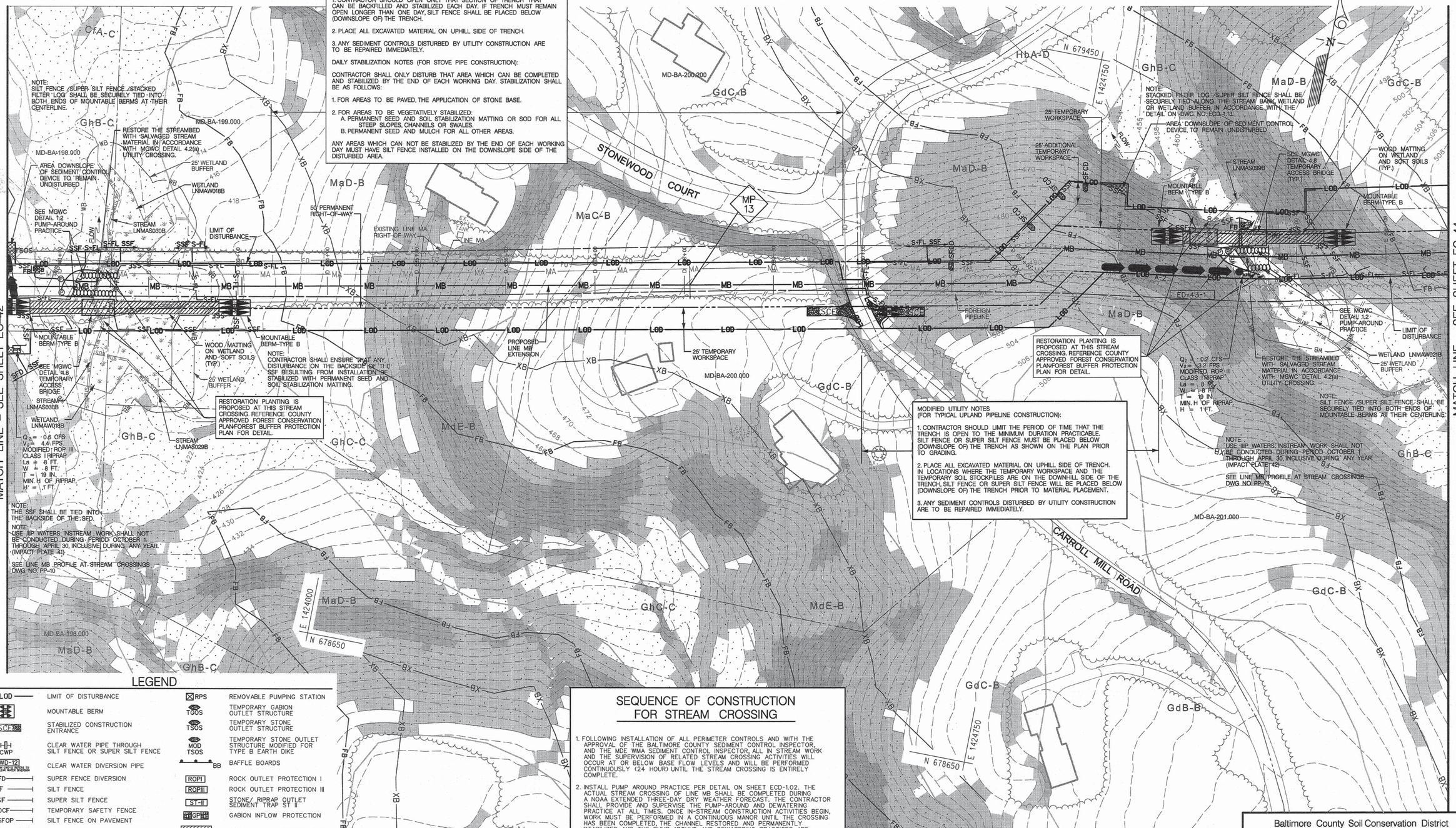
DAILY STABILIZATION NOTES (FOR STOVE PIPE CONSTRUCTION):

CONTRACTOR SHALL ONLY DISTURB THAT AREA WHICH CAN BE COMPLETED AND STABILIZED BY THE END OF EACH WORKING DAY. STABILIZATION SHALL BE AS FOLLOWS:

1. FOR AREAS TO BE PAVED, THE APPLICATION OF STONE BASE.

2. FOR AREAS TO BE VEGETATIVELY STABILIZED:
   A. PERMANENT SEED AND SOIL STABILIZATION MATTING OR SOD FOR ALL STEEP SLOPES, CHANNELS OR SWALES.
   B. PERMANENT SEED AND MULCH FOR ALL OTHER AREAS.

ANY AREAS WHICH CAN NOT BE STABILIZED BY THE END OF EACH WORKING DAY MUST HAVE SILT FENCE INSTALLED ON THE DOWNSLOPE SIDE OF THE DISTURBED AREA.



MODIFIED UTILITY NOTES
(FOR TYPICAL UPLAND PIPELINE CONSTRUCTION):

1. CONTRACTOR SHOULD LIMIT THE PERIOD OF TIME THAT THE TRENCH IS OPEN TO THE MINIMUM DURATION PRACTICABLE. SILT FENCE OR SUPER SILT FENCE MUST BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH AS SHOWN ON THE PLAN PRIOR TO GRADING.

2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH. IN LOCATIONS WHERE THE TEMPORARY WORKSPACE AND THE TEMPORARY SOIL STOCKPILES ARE ON THE DOWNHILL SIDE OF THE TRENCH, SILT FENCE OR SUPER SILT FENCE WILL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH PRIOR TO MATERIAL PLACEMENT.

3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

LEGEND

LOD	LIMIT OF DISTURBANCE	RPS	REMOVABLE PUMPING STATION
	MOUNTABLE BERM	TGOS	TEMPORARY GABION OUTLET STRUCTURE
SCE	STABILIZED CONSTRUCTION ENTRANCE	TSOS	TEMPORARY STONE OUTLET STRUCTURE
CWP	CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE	MOD TSOS	TEMPORARY STONE OUTLET STRUCTURE MODIFIED FOR TYPE B EARTH DIKE
CWD-12	CLEAR WATER DIVERSION PIPE (DIMENSION CWD-12 REFERS TO 12 INCH CLEAR WATER DIVERSION)	BB	BAFFLE BOARDS
SFD	SUPER FENCE DIVERSION	ROPI	ROCK OUTLET PROTECTION I
SF	SILT FENCE	ROPIII	ROCK OUTLET PROTECTION III
SSF	SUPER SILT FENCE	ST-II	STONE/ RIPRAP OUTLET SEDIMENT TRAP ST II
OCF	TEMPORARY SAFETY FENCE	GP	GABION INFLOW PROTECTION
SFOP	SILT FENCE ON PAVEMENT		WOOD MATTING ACCESS ROAD
FL-18	FILTER LOG		TEMPORARY ACCESS BRIDGE
S-FL	STACKED FILTER LOG	A-2	TEMPORARY SWALE
SBD	HYDROSTATIC TEST DEWATERING PIT	SFCD	SILT FENCE CHECK DAM
	SANDBAGS	SIP	STANDARD INLET PROTECTION
	SANDBAG DAM	COIP	COMBINATION INLET PROTECTION
P	PUMP	SB FB SSF	FILTER BAG WITH STRAW BALE AND SUPER SILT FENCE
FB	FILTER BAG	MOD COIP	COMBINATION INLET PROTECTION MODIFIED FOR SUMP
PDS-1	PERIMETER DIKE/ SWALE		
A-1	EARTH DIKE (PLACE DETENTION BASIN OUTLET ON FLOW CHANNEL SIDE OF DIKE)		
TAB	TEMPORARY ASPHALT BERM		

GRAPHIC SCALE
50 0 25 50 100
(IN FEET)
1 inch = 50 ft.

SEQUENCE OF CONSTRUCTION FOR STREAM CROSSING

1. FOLLOWING INSTALLATION OF ALL PERIMETER CONTROLS AND WITH THE APPROVAL OF THE BALTIMORE COUNTY SEDIMENT CONTROL INSPECTOR, AND THE MDE WMA SEDIMENT CONTROL INSPECTOR, ALL IN STREAM WORK AND THE SUPERVISION OF RELATED STREAM CROSSING ACTIVITIES WILL OCCUR AT OR BELOW BASE FLOW LEVELS AND WILL BE PERFORMED CONTINUOUSLY (24 HOUR) UNTIL THE STREAM CROSSING IS ENTIRELY COMPLETE.

2. INSTALL PUMP AROUND PRACTICE PER DETAIL ON SHEET ECD-1.02. THE ACTUAL STREAM CROSSING OF LINE MB SHALL BE COMPLETED DURING A NOAA EXTENDED THREE-DAY DRY WEATHER FORECAST. THE CONTRACTOR SHALL PROVIDE AND SUPERVISE THE PUMP-AROUND AND DEWATERING PRACTICE AT ALL TIMES. ONCE IN-STREAM CONSTRUCTION ACTIVITIES BEGIN, WORK MUST BE PERFORMED IN A CONTINUOUS MANOR UNTIL THE CROSSING HAS BEEN COMPLETED, THE CHANNEL RESTORED AND PERMANENTLY STABILIZED AND THE PUMP-AROUND AND DEWATERING PRACTICES ARE REMOVED. AT NO TIME IS IT ACCEPTABLE FOR THE PUMP-AROUND PRACTICE TO REMAIN UNATTENDED. ALL DISCHARGE MUST BE ACCOMPLISHED IN A NON-EROSIVE MANNER. NO SEDIMENT LADEN DISCHARGE IS PERMITTED.

3. UPON COMPLETION OF THE STREAM CROSSING, INSTALL THE REMAINDER OF LINE MB.

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM – HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

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. 14942 EXPIRATION DATE: 6/01/2016

SEAL: STATE OF MARYLAND KAREN R. POWELL 14942 PROFESSIONAL ENGINEER 2-18-15

KCI TECHNOLOGIES
ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800 FAX: (410) 316-7818

Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE: JAN. 2015
SCALE: 1"= 50'
DESIGNED BY: CW
DRAWN BY: KP

BALTIMORE COUNTY
GRADING / EROSION AND SEDIMENT CONTROL PLAN
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO. EC-43
SHEET 22 OF 61
KCI JOB NUMBER 16-121849

PLOTTED: "01:50 PM on Friday, January 23, 2015"
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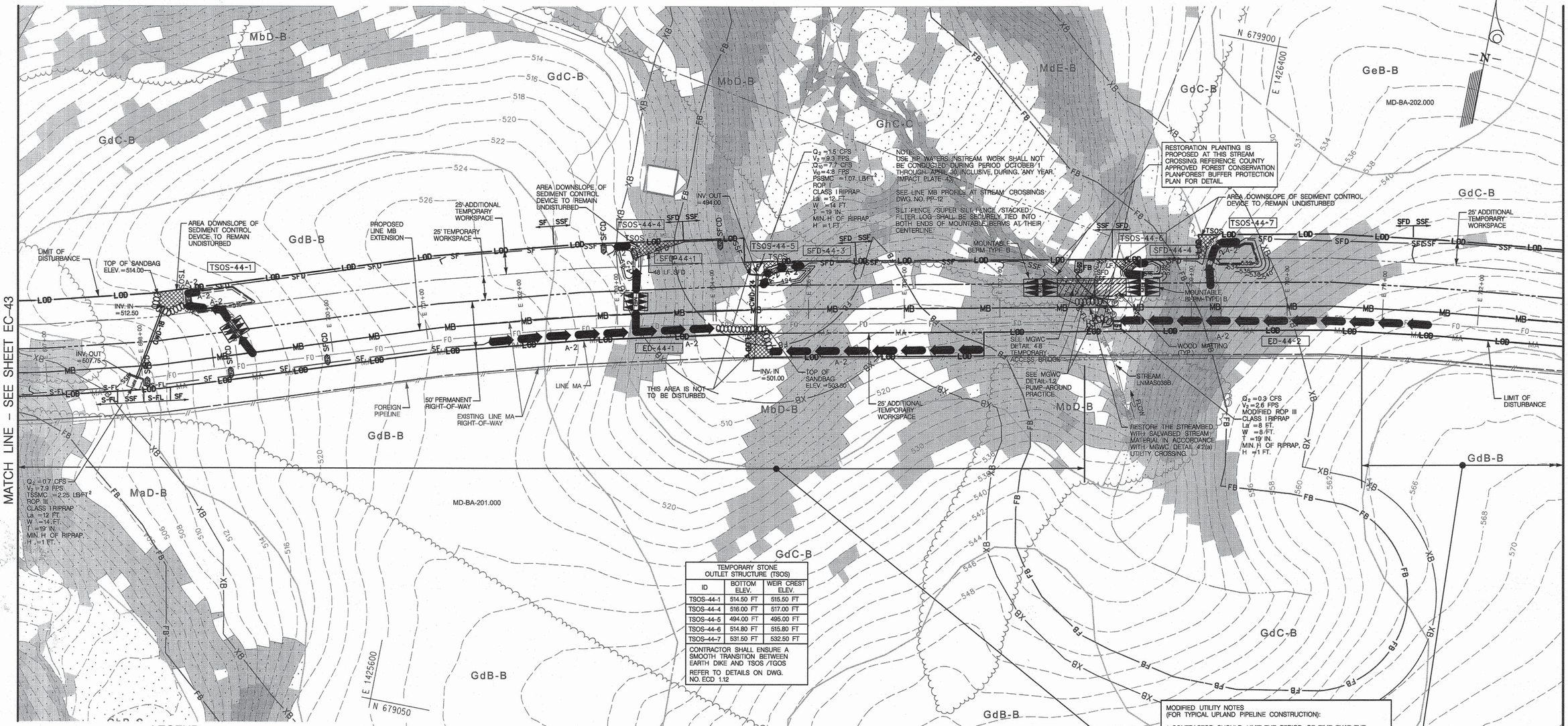

TEMPORARY STONE OUTLET STRUCTURE (TSOS)		
ID	BOTTOM ELEV.	WEIR CREST ELEV.
TSOS-44-1	514.50 FT	515.50 FT
TSOS-44-4	516.00 FT	517.00 FT
TSOS-44-5	494.00 FT	495.00 FT
TSOS-44-6	514.80 FT	515.80 FT
TSOS-44-7	531.50 FT	532.50 FT

CONTRACTOR SHALL ENSURE A SMOOTH TRANSITION BETWEEN EARTH DIKE AND TSOS /TGOS

REFER TO DETAILS ON DWG. NO. ECD 1.12

LEGEND

LOD	LIMIT OF DISTURBANCE	RPS	REMOVABLE PUMPING STATION
	MOUNTABLE BERM	TGOS	TEMPORARY GABION OUTLET STRUCTURE
SCE	STABILIZED CONSTRUCTION ENTRANCE	TSOS	TEMPORARY STONE OUTLET STRUCTURE
CWP	CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE	MOD TSOS	TEMPORARY STONE OUTLET STRUCTURE MODIFIED FOR TYPE B EARTH DIKE
CWD-12	CLEAR WATER DIVERSION PIPE (STRAIGHT SINGLE PIPES TO BE MOD CLEAR WATER DIVERSION)	BB	BAFFLE BOARDS
SFD	SUPER FENCE DIVERSION	ROPI	ROCK OUTLET PROTECTION I
SF	SILT FENCE	ROPIII	ROCK OUTLET PROTECTION III
SSF	SUPER SILT FENCE	ST-II	STONE/ RIPRAP OUTLET SEDIMENT TRAP ST II
OCF	TEMPORARY SAFETY FENCE	GP	GABION INFLOW PROTECTION
SFOP	SILT FENCE ON PAVEMENT		WOOD MATTING ACCESS ROAD
FL-18	FILTER LOG		TEMPORARY ACCESS BRIDGE
S-FL	STACKED FILTER LOG	A-2	TEMPORARY SWALE
SBD	HYDROSTATIC TEST DEWATERING PIT	SFCD	SILT FENCE CHECK DAM
	SANDBAGS	SIP	STANDARD INLET PROTECTION
	SANDBAG DAM	COIP	COMBINATION INLET PROTECTION
P	PUMP	SB FB SSF	FILTER BAG WITH STRAW BALE AND SUPER SILT FENCE
FB	FILTER BAG	MOD COIP	COMBINATION INLET PROTECTION MODIFIED FOR SUMP
PDS-1	PERIMETER DIKE/ SWALE		
A-1	EARTH DIKE (PLACE EXTRAPOLATION SILB 50' ONE OR FLOW CHANNEL 100' 50' ONE)		
TAB	TEMPORARY ASPHALT BERM		

CLEAR WATER DIVERSION NOTE:

CLEAR WATER DIVERSION (CWD) PIPES WILL BE INSTALLED WITH ALL PERIMETER SEDIMENT CONTROL MEASURES. ALL CWD PIPES SHALL BE HDPE N-12 WITH SMOOTH INTERIOR WALL. ONCE ACTIVE TRENCHING ACTIVITIES BEGIN, CWD PIPES WILL BE REMOVED BUT KEPT ONSITE. THE CONTRACTOR WILL MONITOR CURRENT WEATHER FORECASTS AND THE PIPES WILL ONLY BE REINSTALLED WHEN WEATHER FORECASTS A RAINFALL EVENT WITHIN 72 HOURS. ONCE ACTIVE TRENCHING HAS BEEN COMPLETED, CWD PIPES WILL BE REINSTALLED AND REMAIN IN PLACE UNTIL STABILIZATION HAS BEEN ESTABLISHED. WHEN THE PIPES ARE REMOVED, PERMANENT SEEDING AND SOIL STABILIZATION MATTING WILL BE PROVIDED FOR IMMEDIATE STABILIZATION OF ANY BARE GROUND.

INSTALL CLEAR WATER DIVERSION PIPE THROUGH SILT FENCE/SUPER SILT FENCE IN ACCORDANCE WITH DETAIL E-4 ON DWG. NO. ECD-1.07.

GRAPHIC SCALE

50 0 25 50 100

(IN FEET)
1 inch = 50 ft.

SEQUENCE OF CONSTRUCTION FOR STREAM CROSSING

1. FOLLOWING INSTALLATION OF ALL PERIMETER CONTROLS AND WITH THE APPROVAL OF THE BALTIMORE COUNTY SEDIMENT CONTROL INSPECTOR, AND THE MDE WMA SEDIMENT CONTROL INSPECTOR, ALL IN STREAM WORK AND THE SUPERVISION OF RELATED STREAM CROSSING ACTIVITIES WILL OCCUR AT OR BELOW BASE FLOW LEVELS AND WILL BE PERFORMED CONTINUOUSLY (24 HOUR) UNTIL THE STREAM CROSSING IS ENTIRELY COMPLETE.
2. INSTALL PUMP AROUND PRACTICE PER DETAIL ON SHEET ECD-1.02. THE ACTUAL STREAM CROSSING OF LINE MB SHALL BE COMPLETED DURING A NOAA EXTENDED THREE-DAY DRY WEATHER FORECAST. THE CONTRACTOR SHALL PROVIDE AND SUPERVISE THE PUMP-AROUND AND DEWATERING PRACTICE AT ALL TIMES. ONCE IN-STREAM CONSTRUCTION ACTIVITIES BEGIN, WORK MUST BE PERFORMED IN A CONTINUOUS MANOR UNTIL THE CROSSING HAS BEEN COMPLETED, THE CHANNEL RESTORED AND PERMANENTLY STABILIZED AND THE PUMP-AROUND AND DEWATERING PRACTICES ARE REMOVED. AT NO TIME IS IT ACCEPTABLE FOR THE PUMP-AROUND PRACTICE TO REMAIN UNATTENDED. ALL DISCHARGE MUST BE ACCOMPLISHED IN A NON-EROSIVE MANNER. NO SEDIMENT LADEN DISCHARGE IS PERMITTED.
3. UPON COMPLETION OF THE STREAM CROSSING, INSTALL THE REMAINDER OF LINE MB.

MODIFIED UTILITY NOTES
(FOR TYPICAL UPLAND PIPELINE CONSTRUCTION):

1. CONTRACTOR SHOULD LIMIT THE PERIOD OF TIME THAT THE TRENCH IS OPEN TO THE MINIMUM DURATION PRACTICABLE. SILT FENCE OR SUPER SILT FENCE MUST BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH AS SHOWN ON THE PLAN PRIOR TO GRADING.
2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH. IN LOCATIONS WHERE THE TEMPORARY WORKSPACE AND THE TEMPORARY SOIL STOCKPILES ARE ON THE DOWNHILL SIDE OF THE TRENCH, SILT FENCE OR SUPER SILT FENCE WILL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH PRIOR TO MATERIAL PLACEMENT.
3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM - HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

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LICENSE NO.: 14942
EXPIRATION DATE: 6/01/2016

STATE OF MARYLAND · KAREN R. POWELL · 14942 · PROFESSIONAL ENGINEER · 2-13-15
SEAL

KCI TECHNOLOGIES
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
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Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE JAN. 2015
SCALE 1"= 50'
DESIGNED BY CW
DRAWN BY KP

BALTIMORE COUNTY
GRADING / EROSION AND SEDIMENT CONTROL PLAN
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO.
EC-44
SHEET 23 OF 61
KCI JOB NUMBER 16-121849

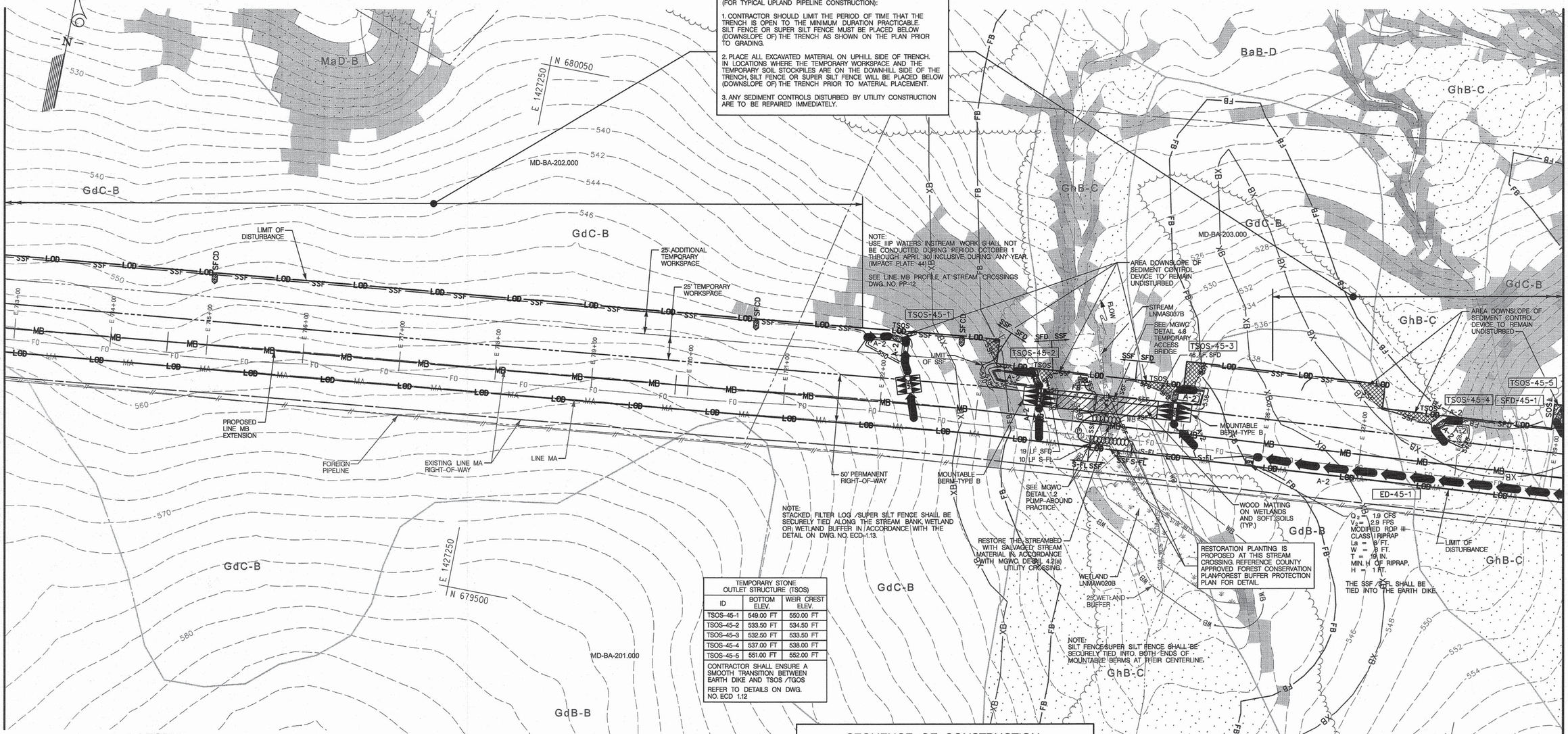
PLOTTED: "01:51 PM on Friday, January 23, 2015"
FILE: M:\2012\16121849\drawings\WR\ESC-PLAN_44.dgn

MODIFIED UTILITY NOTES
(FOR TYPICAL UPLAND PIPELINE CONSTRUCTION):

1. CONTRACTOR SHOULD LIMIT THE PERIOD OF TIME THAT THE TRENCH IS OPEN TO THE MINIMUM DURATION PRACTICABLE. SILT FENCE OR SUPER SILT FENCE MUST BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH AS SHOWN ON THE PLAN PRIOR TO GRADING.

2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH. IN LOCATIONS WHERE THE TEMPORARY WORKSPACE AND THE TEMPORARY SOIL STOCKPILES ARE ON THE DOWNHILL SIDE OF THE TRENCH, SILT FENCE OR SUPER SILT FENCE WILL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH PRIOR TO MATERIAL PLACEMENT.

3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.



TEMPORARY STONE OUTLET STRUCTURE (TSOS)		
ID	BOTTOM ELEV.	WEIR CREST ELEV.
TSOS-45-1	549.00 FT	550.00 FT
TSOS-45-2	533.50 FT	534.50 FT
TSOS-45-3	532.50 FT	533.50 FT
TSOS-45-4	537.00 FT	538.00 FT
TSOS-45-5	551.00 FT	552.00 FT

CONTRACTOR SHALL ENSURE A SMOOTH TRANSITION BETWEEN EARTH DIKE AND TSOS /TGOS

REFER TO DETAILS ON DWG. NO. ECD 1.12

LEGEND

LOD	LIMIT OF DISTURBANCE	RPS	REMOVABLE PUMPING STATION
	MOUNTABLE BERM	TGOS	TEMPORARY GABION OUTLET STRUCTURE
SCE	STABILIZED CONSTRUCTION ENTRANCE	TSOS	TEMPORARY STONE OUTLET STRUCTURE
CWP	CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE	MOD TSOS	TEMPORARY STONE OUTLET STRUCTURE MODIFIED FOR TYPE B EARTH DIKE
CWD-12	CLEAR WATER DIVERSION PIPE (REPLACE WITH PIPE TO 12 INCH DIA. WATER DIVERSION)	BB	BAFFLE BOARDS
SFD	SUPER FENCE DIVERSION	ROP I	ROCK OUTLET PROTECTION I
SF	SILT FENCE	ROP III	ROCK OUTLET PROTECTION III
SSF	SUPER SILT FENCE	ST-II	STONE/ RIPRAP OUTLET SEDIMENT TRAP ST II
OCF	TEMPORARY SAFETY FENCE	GP	GABION INFLOW PROTECTION
SFOP	SILT FENCE ON PAVEMENT		WOOD MATTING ACCESS ROAD
FL-18	FILTER LOG		TEMPORARY ACCESS BRIDGE
S-FL	STACKED FILTER LOG	A-2	TEMPORARY SWALE
SBD	HYDROSTATIC TEST DEWATERING PIT	SFCD	SILT FENCE CHECK DAM
	SANDBAGS	SIP	STANDARD INLET PROTECTION
	SANDBAG DAM	COIP	COMBINATION INLET PROTECTION
P	PUMP	SB FB SSF	FILTER BAG WITH STRAW BALE AND SUPER SILT FENCE
FB	FILTER BAG	MOD COIP	COMBINATION INLET PROTECTION MODIFIED FOR SUMP
PDS-1	PERIMETER DIKE/ SWALE		
A-1	EARTH DIKE (FLOW DIRECTION SIDE OF DIKE OR FLOW CHANNEL SIDE OF DIKE)		
TAB	TEMPORARY ASPHALT BERM		

GRAPHIC SCALE
50 0 25 50 100
(IN FEET)
1 inch = 50 ft.

SEQUENCE OF CONSTRUCTION FOR STREAM CROSSING

1. FOLLOWING INSTALLATION OF ALL PERIMETER CONTROLS AND WITH THE APPROVAL OF THE BALTIMORE COUNTY SEDIMENT CONTROL INSPECTOR, AND THE MDE WMA SEDIMENT CONTROL INSPECTOR, ALL IN STREAM WORK AND THE SUPERVISION OF RELATED STREAM CROSSING ACTIVITIES WILL OCCUR AT OR BELOW BASE FLOW LEVELS AND WILL BE PERFORMED CONTINUOUSLY (24 HOUR) UNTIL THE STREAM CROSSING IS ENTIRELY COMPLETE.

2. INSTALL PUMP AROUND PRACTICE PER DETAIL ON SHEET ECD-1.02. THE ACTUAL STREAM CROSSING OF LINE MB SHALL BE COMPLETED DURING A NOAA EXTENDED THREE-DAY DRY WEATHER FORECAST. THE CONTRACTOR SHALL PROVIDE AND SUPERVISE THE PUMP-AROUND AND DEWATERING PRACTICE AT ALL TIMES. ONCE IN-STREAM CONSTRUCTION ACTIVITIES BEGIN, WORK MUST BE PERFORMED IN A CONTINUOUS MANOR UNTIL THE CROSSING HAS BEEN COMPLETED, THE CHANNEL RESTORED AND PERMANENTLY STABILIZED AND THE PUMP-AROUND AND DEWATERING PRACTICES ARE REMOVED. AT NO TIME IS IT ACCEPTABLE FOR THE PUMP-AROUND PRACTICE TO REMAIN UNATTENDED. ALL DISCHARGE MUST BE ACCOMPLISHED IN A NON-EROSIVE MANNER. NO SEDIMENT LADEN DISCHARGE IS PERMITTED.

3. UPON COMPLETION OF THE STREAM CROSSING, INSTALL THE REMAINDER OF LINE MB.

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM – HORIZ.: NAD 83 (ADJ. '07), VERT.: NAVD 88

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: 14942 EXPIRATION DATE: 6/01/2016

SEAL — STATE OF MARYLAND — KAREN R. POND — 14942 — PROFESSIONAL ENGINEER — 2-13-15

KCI TECHNOLOGIES
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818

Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE JAN. 2015
SCALE 1"= 50'
DESIGNED BY CW
DRAWN BY KP

BALTIMORE COUNTY
GRADING / EROSION AND SEDIMENT CONTROL PLAN
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO. EC-45
SHEET 24 OF 61
KCI JOB NUMBER 16-121849

PLOTTED: 01:52 PM, on Friday, January 23, 2015
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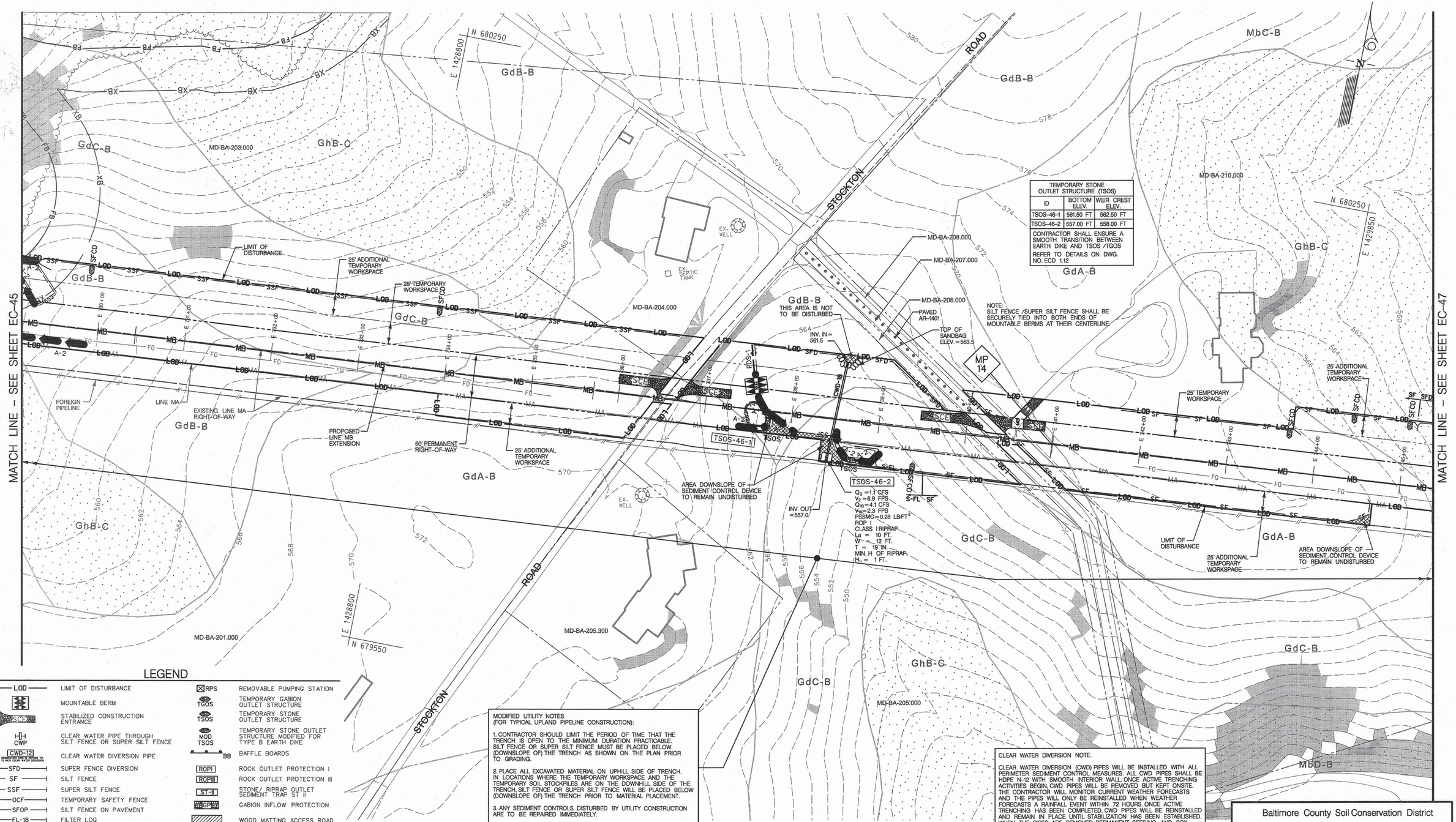

TEMPORARY STONE OUTLET STRUCTURE (TSOS)		
ID	BOTTOM ELEV.	WEIR CREST ELEV.
TSOS-46-1	561.50 FT	562.50 FT
TSOS-46-2	557.00 FT	558.00 FT
CONTRACTOR SHALL ENSURE A SMOOTH TRANSITION BETWEEN EARTH DIKE AND TSOS /TGOS REFER TO DETAILS ON DWG. NO. ECD 1.12		

LEGEND

LOD	LIMIT OF DISTURBANCE	RPS	REMOVABLE PUMPING STATION
	MOUNTABLE BERM	TGOS	TEMPORARY GABION OUTLET STRUCTURE
SCE	STABILIZED CONSTRUCTION ENTRANCE	TSOS	TEMPORARY STONE OUTLET STRUCTURE
CWP	CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE	MOD TSOS	TEMPORARY STONE OUTLET STRUCTURE MODIFIED FOR TYPE B EARTH DIKE
CWD-12	CLEAR WATER DIVERSION PIPE (DESIGNATION CWD-12 REFERS TO 12 INCH CLEAR WATER DIVERSION)	BB	BAFFLE BOARDS
SFD	SUPER FENCE DIVERSION	ROP I	ROCK OUTLET PROTECTION I
SF	SILT FENCE	ROP III	ROCK OUTLET PROTECTION III
SSF	SUPER SILT FENCE	ST-II	STONE/ RIPRAP OUTLET SEDIMENT TRAP ST II
OCF	TEMPORARY SAFETY FENCE	GIP	GABION INFLOW PROTECTION
SFOP	SILT FENCE ON PAVEMENT		WOOD MATTING ACCESS ROAD
FL-18	FILTER LOG		TEMPORARY ACCESS BRIDGE
S-FL	STACKED FILTER LOG	A-2	TEMPORARY SWALE
SBD	HYDROSTATIC TEST DEWATERING PIT	SFCD	SILT FENCE CHECK DAM
	SANDBAGS	SIP	STANDARD INLET PROTECTION
	SANDBAG DAM	COIP	COMBINATION INLET PROTECTION
P	PUMP	SB SSF FB	FILTER BAG WITH STRAW BALE AND SUPER SILT FENCE
FB	FILTER BAG	MOD COIP	COMBINATION INLET PROTECTION MODIFIED FOR SUMP
PDS-1	PERIMETER DIKE/ SWALE		
A-1	EARTH DIKE (PLACE DEPRESSION SIDE OF DIKE ON FLOW CHANNEL SIDE OF DIKE)		
TAB	TEMPORARY ASPHALT BERM		

MODIFIED UTILITY NOTES
(FOR TYPICAL UPLAND PIPELINE CONSTRUCTION):

1. CONTRACTOR SHOULD LIMIT THE PERIOD OF TIME THAT THE TRENCH IS OPEN TO THE MINIMUM DURATION PRACTICABLE. SILT FENCE OR SUPER SILT FENCE MUST BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH AS SHOWN ON THE PLAN PRIOR TO GRADING.

2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH. IN LOCATIONS WHERE THE TEMPORARY WORKSPACE AND THE TEMPORARY SOIL STOCKPILES ARE ON THE DOWNHILL SIDE OF THE TRENCH, SILT FENCE OR SUPER SILT FENCE WILL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH PRIOR TO MATERIAL PLACEMENT.

3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

CLEAR WATER DIVERSION NOTE.

CLEAR WATER DIVERSION (CWD) PIPES WILL BE INSTALLED WITH ALL PERIMETER SEDIMENT CONTROL MEASURES. ALL CWD PIPES SHALL BE HDPE N-12 WITH SMOOTH INTERIOR WALL. ONCE ACTIVE TRENCHING ACTIVITIES BEGIN, CWD PIPES WILL BE REMOVED BUT KEPT ONSITE. THE CONTRACTOR WILL MONITOR CURRENT WEATHER FORECASTS AND THE PIPES WILL ONLY BE REINSTALLED WHEN WEATHER FORECASTS A RAINFALL EVENT WITHIN 72 HOURS. ONCE ACTIVE TRENCHING HAS BEEN COMPLETED, CWD PIPES WILL BE REINSTALLED AND REMAIN IN PLACE UNTIL STABILIZATION HAS BEEN ESTABLISHED. WHEN THE PIPES ARE REMOVED, PERMANENT SEEDING AND SOIL STABILIZATION MATTING WILL BE PROVIDED FOR IMMEDIATE STABILIZATION OF ANY BARE GROUND.

INSTALL CLEAR WATER DIVERSION PIPE THROUGH SILT FENCE/SUPER SILT FENCE IN ACCORDANCE WITH DETAIL E-4 ON DWG. NO. ECD-1.07.

GRAPHIC SCALE
50 0 25 50 100
(IN FEET)
1 inch = 50 ft.

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM – HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

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.: 14942 EXPIRATION DATE: 6/01/2016

STATE OF MARYLAND KAREN R. POWELL 14942 PROFESSIONAL ENGINEER
Karen R. Powell 2-18-15
SEAL

KCI TECHNOLOGIES
ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD
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TELEPHONE: (410) 316-7800
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Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE JAN. 2015
SCALE 1"= 50'
DESIGNED BY CW
DRAWN BY KP

BALTIMORE COUNTY
GRADING / EROSION AND SEDIMENT CONTROL PLAN
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO.
EC-46
SHEET 25 OF 61
KCI JOB NUMBER 16-121849

PLOTTED: "01:52 PM on Friday, January 23, 2015"
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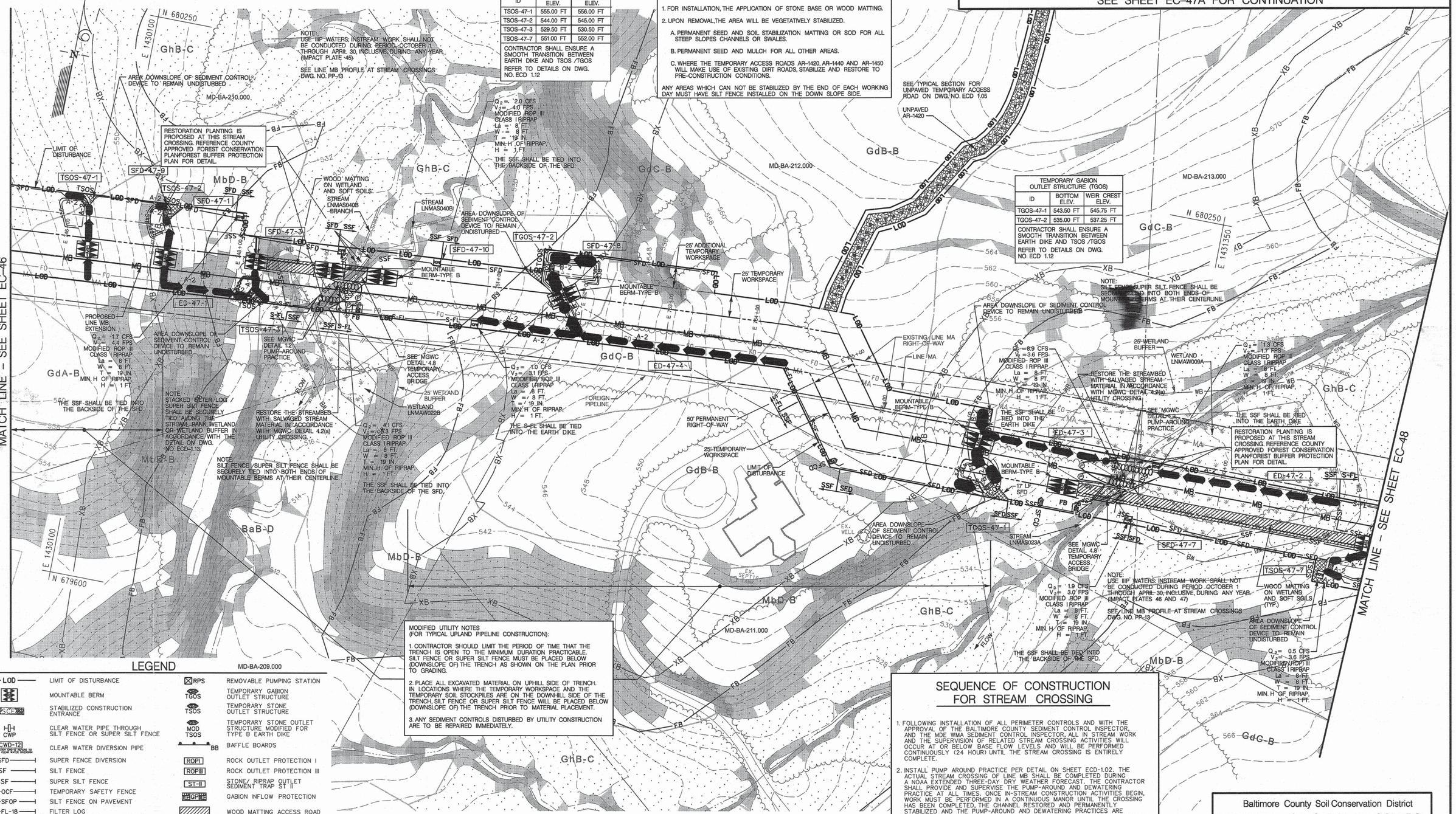

TEMPORARY STONE OUTLET STRUCTURE (TSOS)		
ID	BOTTOM ELEV.	WEIR CREST ELEV.
TSOS-47-1	555.00 FT	556.00 FT
TSOS-47-2	544.00 FT	545.00 FT
TSOS-47-3	529.50 FT	530.50 FT
TSOS-47-7	551.00 FT	552.00 FT

CONTRACTOR SHALL ENSURE A SMOOTH TRANSITION BETWEEN EARTH DIKE AND TSOS /TGOS

REFER TO DETAILS ON DWG. NO. ECD 1.12

DAILY STABILIZATION NOTES (FOR UNPAVED TEMPORARY ACCESS ROADS AR-1420, AR-1440 AND AR-1450):

CONTRACTOR SHALL ONLY DISTURB THAT AREA WHICH CAN BE COMPLETED AND STABILIZED BY THE END OF EACH WORKING DAY.

1. FOR INSTALLATION, THE APPLICATION OF STONE BASE OR WOOD MATTING.
2. UPON REMOVAL, THE AREA WILL BE VEGETATIVELY STABILIZED.
   A. PERMANENT SEED AND SOIL STABILIZATION MATTING OR SOD FOR ALL STEEP SLOPES CHANNELS OR SWALES.
   B. PERMANENT SEED AND MULCH FOR ALL OTHER AREAS.
   C. WHERE THE TEMPORARY ACCESS ROADS AR-1420, AR-1440 AND AR-1450 WILL MAKE USE OF EXISTING DIRT ROADS, STABILIZE AND RESTORE TO PRE-CONSTRUCTION CONDITIONS.

ANY AREAS WHICH CAN NOT BE STABILIZED BY THE END OF EACH WORKING DAY MUST HAVE SILT FENCE INSTALLED ON THE DOWN SLOPE SIDE.

TEMPORARY GABION OUTLET STRUCTURE (TGOS)		
ID	BOTTOM ELEV.	WEIR CREST ELEV.
TGOS-47-1	543.50 FT	545.75 FT
TGOS-47-2	535.00 FT	537.25 FT

CONTRACTOR SHALL ENSURE A SMOOTH TRANSITION BETWEEN EARTH DIKE AND TSOS /TGOS

REFER TO DETAILS ON DWG. NO. ECD 1.12

MODIFIED UTILITY NOTES
(FOR TYPICAL UPLAND PIPELINE CONSTRUCTION):

1. CONTRACTOR SHOULD LIMIT THE PERIOD OF TIME THAT THE TRENCH IS OPEN TO THE MINIMUM DURATION PRACTICABLE. SILT FENCE OR SUPER SILT FENCE MUST BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH AS SHOWN ON THE PLAN PRIOR TO GRADING.
2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH. IN LOCATIONS WHERE THE TEMPORARY WORKSPACE AND THE TEMPORARY SOIL STOCKPILES ARE ON THE DOWNHILL SIDE OF THE TRENCH, SILT FENCE OR SUPER SILT FENCE WILL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH PRIOR TO MATERIAL PLACEMENT.
3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

SEQUENCE OF CONSTRUCTION FOR STREAM CROSSING

1. FOLLOWING INSTALLATION OF ALL PERIMETER CONTROLS AND WITH THE APPROVAL OF THE BALTIMORE COUNTY SEDIMENT CONTROL INSPECTOR, AND THE MDE WMA SEDIMENT CONTROL INSPECTOR, ALL IN STREAM WORK AND THE SUPERVISION OF RELATED STREAM CROSSING ACTIVITIES WILL OCCUR AT OR BELOW BASE FLOW LEVELS AND WILL BE PERFORMED CONTINUOUSLY (24 HOUR) UNTIL THE STREAM CROSSING IS ENTIRELY COMPLETE.
2. INSTALL PUMP AROUND PRACTICE PER DETAIL ON SHEET ECD-1.02. THE ACTUAL STREAM CROSSING OF LINE MB SHALL BE COMPLETED DURING A NOAA EXTENDED THREE-DAY DRY WEATHER FORECAST. THE CONTRACTOR SHALL PROVIDE AND SUPERVISE THE PUMP-AROUND AND DEWATERING PRACTICE AT ALL TIMES. ONCE IN-STREAM CONSTRUCTION ACTIVITIES BEGIN, WORK MUST BE PERFORMED IN A CONTINUOUS MANOR UNTIL THE CROSSING HAS BEEN COMPLETED, THE CHANNEL RESTORED AND PERMANENTLY STABILIZED AND THE PUMP-AROUND AND DEWATERING PRACTICES ARE REMOVED. AT NO TIME IS IT ACCEPTABLE FOR THE PUMP-AROUND PRACTICE TO REMAIN UNATTENDED. ALL DISCHARGE MUST BE ACCOMPLISHED IN A NON-EROSIVE MANNER. NO SEDIMENT LADEN DISCHARGE IS PERMITTED.
3. UPON COMPLETION OF THE STREAM CROSSING, INSTALL THE REMAINDER OF LINE MB.

LEGEND

LOD	LIMIT OF DISTURBANCE
	MOUNTABLE BERM
SCE	STABILIZED CONSTRUCTION ENTRANCE
CWP	CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE
CWD-12	CLEAR WATER DIVERSION PIPE (DIAMETER SHOWN IN INCHES TO MEET CLEAR WATER DESIGN)
SFD	SUPER FENCE DIVERSION
SF	SILT FENCE
SSF	SUPER SILT FENCE
OCF	TEMPORARY SAFETY FENCE
SFOP	SILT FENCE ON PAVEMENT
FL-18	FILTER LOG
S-FL	STACKED FILTER LOG
SBD	HYDROSTATIC TEST DEWATERING PIT
	SANDBAGS
	SANDBAG DAM
P	PUMP
FB	FILTER BAG
PDS-1	PERIMETER DIKE/ SWALE
A-1	EARTH DIKE (PLACE DESIGNATION ON A SLOPE OR FLOW CHANNEL SIDE OF DIKE)
TAB	TEMPORARY ASPHALT BERM
RPS	REMOVABLE PUMPING STATION
TGOS	TEMPORARY GABION OUTLET STRUCTURE
TSOS	TEMPORARY STONE OUTLET STRUCTURE
MOD TSOS	TEMPORARY STONE OUTLET STRUCTURE MODIFIED FOR TYPE B EARTH DIKE
BB	BAFFLE BOARDS
ROPI	ROCK OUTLET PROTECTION I
ROPIII	ROCK OUTLET PROTECTION III
ST-II	STONE/ RIPRAP OUTLET SEDIMENT TRAP ST II
GP	GABION INFLOW PROTECTION
	WOOD MATTING ACCESS ROAD
	TEMPORARY ACCESS BRIDGE
A-2	TEMPORARY SWALE
SFCD	SILT FENCE CHECK DAM
SIP	STANDARD INLET PROTECTION
COIP	COMBINATION INLET PROTECTION
SB-FB-SSF	FILTER BAG WITH STRAW BALE AND SUPER SILT FENCE
MOD COIP	COMBINATION INLET PROTECTION MODIFIED FOR SUMP

GRAPHIC SCALE
50 0 25 50 100
(IN FEET)
1 inch = 50 ft.

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.: 14942 EXPIRATION DATE: 6/01/2016

STATE OF MARYLAND KAREN R. POWELL 14942 PROFESSIONAL ENGINEER
SEAL 2-13-15

KCI TECHNOLOGIES
ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818

Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE: JAN. 2015
SCALE: 1"= 50'
DESIGNED BY: CW
DRAWN BY: KP

BALTIMORE COUNTY
GRADING / EROSION AND SEDIMENT CONTROL PLAN
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO. EC-47
SHEET 26 OF 61
KCI JOB NUMBER 16-121849

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM - HORIZ.: NAD 83 (ADJ. '07) VERT.: NAVD 88

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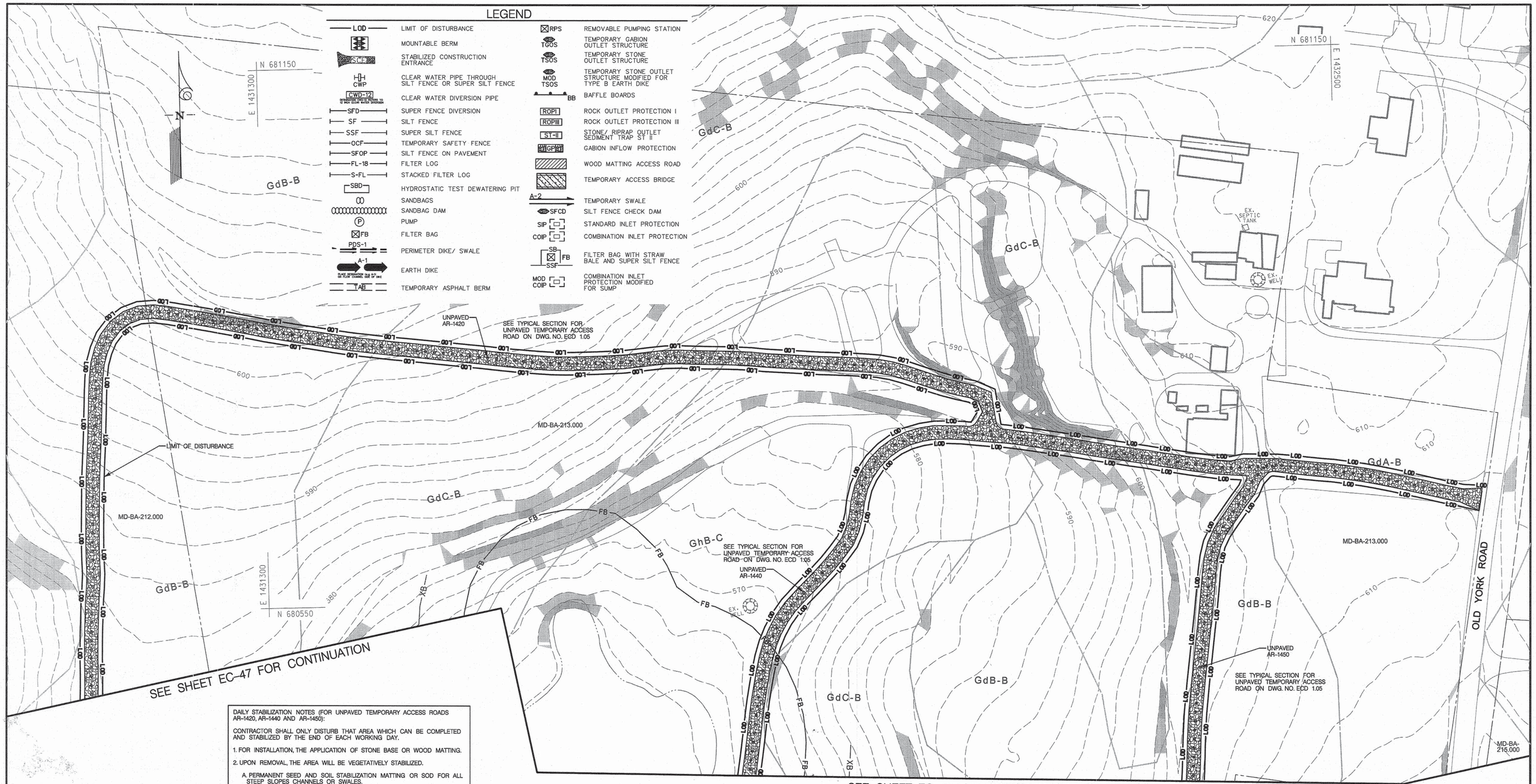
LEGEND

LOD	LIMIT OF DISTURBANCE
	MOUNTABLE BERM
SCE	STABILIZED CONSTRUCTION ENTRANCE
CWP	CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE
CWD-12 (DIMENSION CWD-12 REFERS TO 12 INCH CLEAR WATER DIVERSION)	CLEAR WATER DIVERSION PIPE
SFD	SUPER FENCE DIVERSION
SF	SILT FENCE
SSF	SUPER SILT FENCE
OCF	TEMPORARY SAFETY FENCE
SFOP	SILT FENCE ON PAVEMENT
FL-18	FILTER LOG
S-FL	STACKED FILTER LOG
SBD	HYDROSTATIC TEST DEWATERING PIT
	SANDBAGS
	SANDBAG DAM
P	PUMP
FB	FILTER BAG
PDS-1	PERIMETER DIKE/ SWALE
A-1 (PLACE INTERCEPTOR DIKE ON FLOW CHANNEL SIDE OF DIKE)	EARTH DIKE
TAB	TEMPORARY ASPHALT BERM
RPS	REMOVABLE PUMPING STATION
TGOS	TEMPORARY GABION OUTLET STRUCTURE
TSOS	TEMPORARY STONE OUTLET STRUCTURE
MOD TSOS	TEMPORARY STONE OUTLET STRUCTURE MODIFIED FOR TYPE B EARTH DIKE
BB	BAFFLE BOARDS
ROPI	ROCK OUTLET PROTECTION I
ROPIII	ROCK OUTLET PROTECTION III
ST-II	STONE/ RIPRAP OUTLET SEDIMENT TRAP ST II
GIP	GABION INFLOW PROTECTION
	WOOD MATTING ACCESS ROAD
	TEMPORARY ACCESS BRIDGE
A-2	TEMPORARY SWALE
SFCD	SILT FENCE CHECK DAM
SIP	STANDARD INLET PROTECTION
COIP	COMBINATION INLET PROTECTION
SB FB SSF	FILTER BAG WITH STRAW BALE AND SUPER SILT FENCE
MOD COIP	COMBINATION INLET PROTECTION MODIFIED FOR SUMP



DAILY STABILIZATION NOTES (FOR UNPAVED TEMPORARY ACCESS ROADS AR-1420, AR-1440 AND AR-1450):

CONTRACTOR SHALL ONLY DISTURB THAT AREA WHICH CAN BE COMPLETED AND STABILIZED BY THE END OF EACH WORKING DAY.

1. FOR INSTALLATION, THE APPLICATION OF STONE BASE OR WOOD MATTING.
2. UPON REMOVAL, THE AREA WILL BE VEGETATIVELY STABILIZED.
   - A. PERMANENT SEED AND SOIL STABILIZATION MATTING OR SOD FOR ALL STEEP SLOPES CHANNELS OR SWALES.
   - B. PERMANENT SEED AND MULCH FOR ALL OTHER AREAS.
   - C. WHERE THE TEMPORARY ACCESS ROADS AR-1420, AR-1440 AND AR-1450 WILL MAKE USE OF EXISTING DIRT ROADS, STABILIZE AND RESTORE TO PRE-CONSTRUCTION CONDITIONS.

ANY AREAS WHICH CAN NOT BE STABILIZED BY THE END OF EACH WORKING DAY MUST HAVE SILT FENCE INSTALLED ON THE DOWN SLOPE SIDE.

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM - HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

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1 inch = 50 ft.

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Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE JAN. 2015
SCALE 1"= 50'
DESIGNED BY CW
DRAWN BY KP

BALTIMORE COUNTY
GRADING / EROSION AND SEDIMENT CONTROL PLAN
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO.
EC-47A
SHEET 27 OF 61
KCI JOB NUMBER 16-121849

PLOTTED: 10:15:3 PM on Friday, January 23, 2015"
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SEE SHEET EC-47A FOR CONTINUATION

DAILY STABILIZATION NOTES (FOR UNPAVED TEMPORARY ACCESS ROADS AR-1420, AR-1440 AND AR-1450):

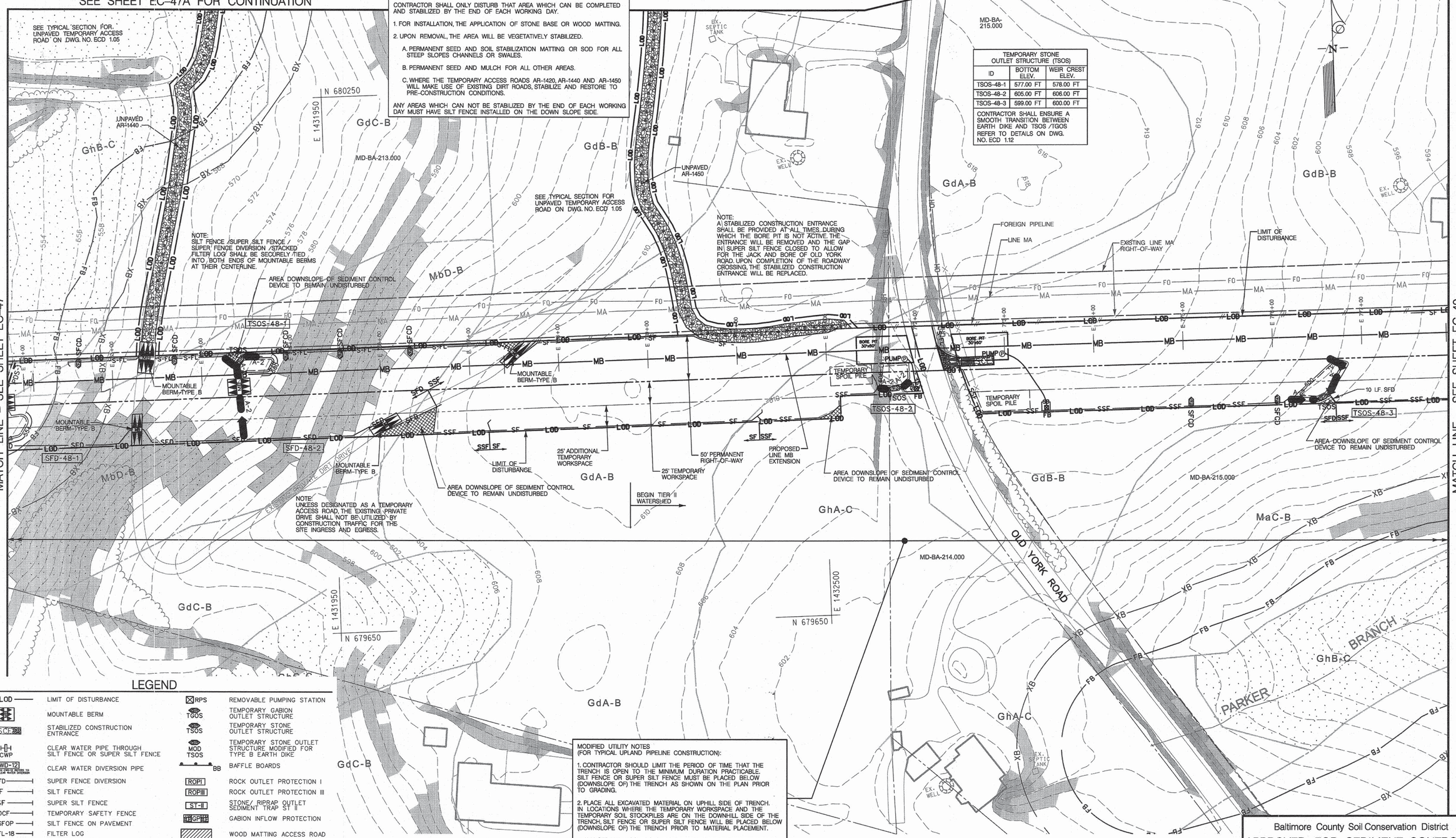
CONTRACTOR SHALL ONLY DISTURB THAT AREA WHICH CAN BE COMPLETED AND STABILIZED BY THE END OF EACH WORKING DAY.

1. FOR INSTALLATION, THE APPLICATION OF STONE BASE OR WOOD MATTING.
2. UPON REMOVAL, THE AREA WILL BE VEGETATIVELY STABILIZED.
   A. PERMANENT SEED AND SOIL STABILIZATION MATTING OR SOD FOR ALL STEEP SLOPES CHANNELS OR SWALES.
   B. PERMANENT SEED AND MULCH FOR ALL OTHER AREAS.
   C. WHERE THE TEMPORARY ACCESS ROADS AR-1420, AR-1440 AND AR-1450 WILL MAKE USE OF EXISTING DIRT ROADS, STABILIZE AND RESTORE TO PRE-CONSTRUCTION CONDITIONS.

ANY AREAS WHICH CAN NOT BE STABILIZED BY THE END OF EACH WORKING DAY MUST HAVE SILT FENCE INSTALLED ON THE DOWN SLOPE SIDE.

TEMPORARY STONE OUTLET STRUCTURE (TSOS)		
ID	BOTTOM ELEV.	WEIR CREST ELEV.
TSOS-48-1	577.00 FT	578.00 FT
TSOS-48-2	605.00 FT	606.00 FT
TSOS-48-3	599.00 FT	600.00 FT

CONTRACTOR SHALL ENSURE A SMOOTH TRANSITION BETWEEN EARTH DIKE AND TSOS /TGOS REFER TO DETAILS ON DWG. NO. ECD 1.12



LEGEND

LOD	LIMIT OF DISTURBANCE	RPS	REMOVABLE PUMPING STATION
	MOUNTABLE BERM	TGOS	TEMPORARY GABION OUTLET STRUCTURE
SCE	STABILIZED CONSTRUCTION ENTRANCE	TSOS	TEMPORARY STONE OUTLET STRUCTURE
CWP	CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE	MOD TSOS	TEMPORARY STONE OUTLET STRUCTURE MODIFIED FOR TYPE B EARTH DIKE
CWD-12	CLEAR WATER DIVERSION PIPE (DIMENSIONS VARY FROM 12" TO 36" CLEAR WATER DIAMETER)	BB	BAFFLE BOARDS
SFD	SUPER FENCE DIVERSION	ROP I	ROCK OUTLET PROTECTION I
SF	SILT FENCE	ROP III	ROCK OUTLET PROTECTION III
SSF	SUPER SILT FENCE	ST-II	STONE/ RIPRAP OUTLET SEDIMENT TRAP ST II
OCF	TEMPORARY SAFETY FENCE	GP	GABION INFLOW PROTECTION
SFOP	SILT FENCE ON PAVEMENT		WOOD MATTING ACCESS ROAD
FL-18	FILTER LOG		TEMPORARY ACCESS BRIDGE
S-FL	STACKED FILTER LOG	A-2	TEMPORARY SWALE
SBD	HYDROSTATIC TEST DEWATERING PIT	SFCD	SILT FENCE CHECK DAM
	SANDBAGS	SIP	STANDARD INLET PROTECTION
	SANDBAG DAM	COIP	COMBINATION INLET PROTECTION
P	PUMP	SB SSF FB	FILTER BAG WITH STRAW BALE AND SUPER SILT FENCE
FB	FILTER BAG	MOD COIP	COMBINATION INLET PROTECTION MODIFIED FOR SUMP
PDS-1	PERIMETER DIKE/ SWALE		
A-1	EARTH DIKE (PLACE DEPRESSION SLO 5.0' ON FLOW CHANNEL SIDE OF DIKE)		
TAB	TEMPORARY ASPHALT BERM		

MODIFIED UTILITY NOTES (FOR TYPICAL UPLAND PIPELINE CONSTRUCTION):

1. CONTRACTOR SHOULD LIMIT THE PERIOD OF TIME THAT THE TRENCH IS OPEN TO THE MINIMUM DURATION PRACTICABLE. SILT FENCE OR SUPER SILT FENCE MUST BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH AS SHOWN ON THE PLAN PRIOR TO GRADING.
2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH. IN LOCATIONS WHERE THE TEMPORARY WORKSPACE AND THE TEMPORARY SOIL STOCKPILES ARE ON THE DOWNHILL SIDE OF THE TRENCH, SILT FENCE OR SUPER SILT FENCE WILL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH PRIOR TO MATERIAL PLACEMENT.
3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

GRAPHIC SCALE
50 0 25 50 100
(IN FEET)
1 inch = 50 ft.

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM - HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

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.: 14822 EXPIRATION DATE: 6/01/2016

STATE OF MARYLAND KAREN R. POWELL 14822 PROFESSIONAL ENGINEER
SEAL
2-13-15

KCI TECHNOLOGIES
ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818

Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE JAN. 2015
SCALE 1"= 50'
DESIGNED BY CW
DRAWN BY KP

BALTIMORE COUNTY
GRADING / EROSION AND SEDIMENT CONTROL PLAN
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO. EC-48
SHEET 28 OF 61
KCI JOB NUMBER 16-121849

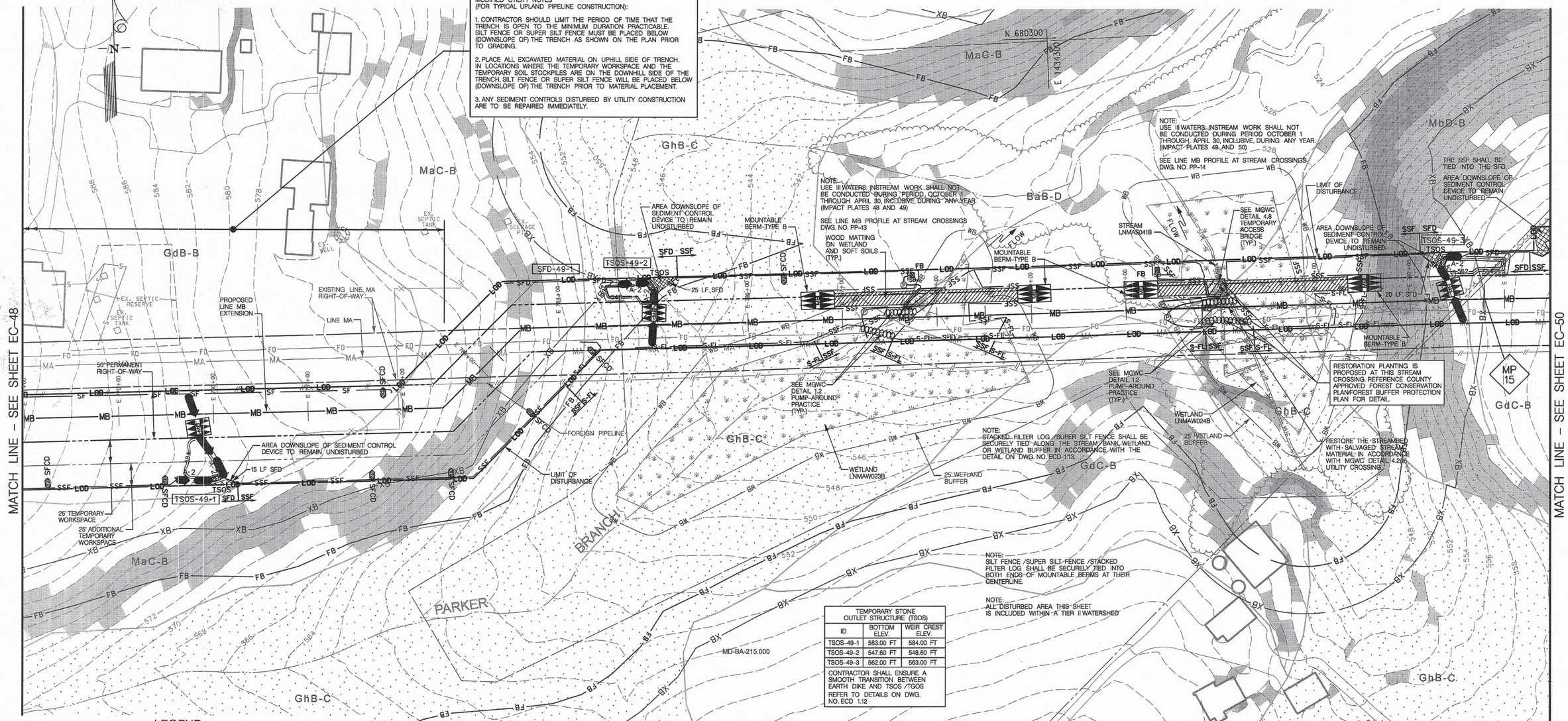
PLOTTED: "10:53 PM on Friday, January 23, 2015"
FILE: M:\2012\16121849\drawings\WR\ESC-PLAN_48.dgn

MODIFIED UTILITY NOTES
(FOR TYPICAL UPLAND PIPELINE CONSTRUCTION):

1. CONTRACTOR SHOULD LIMIT THE PERIOD OF TIME THAT THE TRENCH IS OPEN TO THE MINIMUM DURATION PRACTICABLE. SILT FENCE OR SUPER SILT FENCE MUST BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH AS SHOWN ON THE PLAN PRIOR TO GRADING.

2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH. IN LOCATIONS WHERE THE TEMPORARY WORKSPACE AND THE TEMPORARY SOIL STOCKPILES ARE ON THE DOWNHILL SIDE OF THE TRENCH, SILT FENCE OR SUPER SILT FENCE WILL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH PRIOR TO MATERIAL PLACEMENT.

3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.



TEMPORARY STONE OUTLET STRUCTURE (TSOS)		
ID	BOTTOM ELEV.	WEIR CREST ELEV.
TSOS-49-1	583.00 FT	584.00 FT
TSOS-49-2	547.60 FT	548.60 FT
TSOS-49-3	562.00 FT	563.00 FT

CONTRACTOR SHALL ENSURE A SMOOTH TRANSITION BETWEEN EARTH DIKE AND TSOS /TGOS REFER TO DETAILS ON DWG. NO. ECD 1.12

LEGEND

LOD	LIMIT OF DISTURBANCE	RPS	REMOVABLE PUMPING STATION
	MOUNTABLE BERM	TGOS	TEMPORARY GABION OUTLET STRUCTURE
SCE	STABILIZED CONSTRUCTION ENTRANCE	TSOS	TEMPORARY STONE OUTLET STRUCTURE
CWP	CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE	MOD TSOS	TEMPORARY STONE OUTLET STRUCTURE MODIFIED FOR TYPE B EARTH DIKE
CWD-12	CLEAR WATER DIVERSION PIPE (DIMENSION FOLLOWS REFERS TO 12 INCH CLEAR WATER DIVERSION)	BB	BAFFLE BOARDS
SFD	SUPER FENCE DIVERSION	ROPI	ROCK OUTLET PROTECTION I
SF	SILT FENCE	ROPIII	ROCK OUTLET PROTECTION III
SSF	SUPER SILT FENCE	ST-II	STONE/ RIPRAP OUTLET SEDIMENT TRAP ST II
OCF	TEMPORARY SAFETY FENCE	GIP	GABION INFLOW PROTECTION
SFOP	SILT FENCE ON PAVEMENT		WOOD MATTING ACCESS ROAD
FL-18	FILTER LOG		TEMPORARY ACCESS BRIDGE
S-FL	STACKED FILTER LOG		
SBD	HYDROSTATIC TEST DEWATERING PIT	A-2	TEMPORARY SWALE
	SANDBAGS	SFCD	SILT FENCE CHECK DAM
	SANDBAG DAM	SIP	STANDARD INLET PROTECTION
P	PUMP	COIP	COMBINATION INLET PROTECTION
FB	FILTER BAG	SB SSF FB	FILTER BAG WITH STRAW BALE AND SUPER SILT FENCE
PDS-1	PERIMETER DIKE/ SWALE	MOD COIP	COMBINATION INLET PROTECTION MODIFIED FOR SUMP
A-1	EARTH DIKE (PLACE EXTENSION SIZE 6x7 ON FLOW CHANNEL SIDE OF DIKE)		
TAB	TEMPORARY ASPHALT BERM		

GRAPHIC SCALE
0 25 50 100
(IN FEET)
1 inch = 50 ft.

SEQUENCE OF CONSTRUCTION FOR STREAM CROSSING

1. FOLLOWING INSTALLATION OF ALL PERIMETER CONTROLS AND WITH THE APPROVAL OF THE BALTIMORE COUNTY SEDIMENT CONTROL INSPECTOR, AND THE MDE WMA SEDIMENT CONTROL INSPECTOR, ALL IN STREAM WORK AND THE SUPERVISION OF RELATED STREAM CROSSING ACTIVITIES WILL OCCUR AT OR BELOW BASE FLOW LEVELS AND WILL BE PERFORMED CONTINUOUSLY (24 HOUR) UNTIL THE STREAM CROSSING IS ENTIRELY COMPLETE.

2. INSTALL PUMP AROUND PRACTICE PER DETAIL ON SHEET ECD-1.02. THE ACTUAL STREAM CROSSING OF LINE MB SHALL BE COMPLETED DURING A NOAA EXTENDED THREE-DAY DRY WEATHER FORECAST. THE CONTRACTOR SHALL PROVIDE AND SUPERVISE THE PUMP-AROUND AND DEWATERING PRACTICE AT ALL TIMES. ONCE IN-STREAM CONSTRUCTION ACTIVITIES BEGIN, WORK MUST BE PERFORMED IN A CONTINUOUS MANOR UNTIL THE CROSSING HAS BEEN COMPLETED, THE CHANNEL RESTORED AND PERMANENTLY STABILIZED AND THE PUMP-AROUND AND DEWATERING PRACTICES ARE REMOVED. AT NO TIME IS IT ACCEPTABLE FOR THE PUMP-AROUND PRACTICE TO REMAIN UNATTENDED. ALL DISCHARGE MUST BE ACCOMPLISHED IN A NON-EROSIVE MANNER. NO SEDIMENT LADEN DISCHARGE IS PERMITTED.

3. UPON COMPLETION OF THE STREAM CROSSING, INSTALL THE REMAINDER OF LINE MB.

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM - HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

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.: 14942 EXPIRATION DATE: 6/01/2016

STATE OF MARYLAND · KAREN R. POWELL · 14942 · PROFESSIONAL ENGINEER
SEAL
2-13-15

KCI TECHNOLOGIES
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
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Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE JAN. 2015
SCALE 1"= 50'
DESIGNED BY CW
DRAWN BY KP

BALTIMORE COUNTY
GRADING / EROSION AND SEDIMENT CONTROL PLAN
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

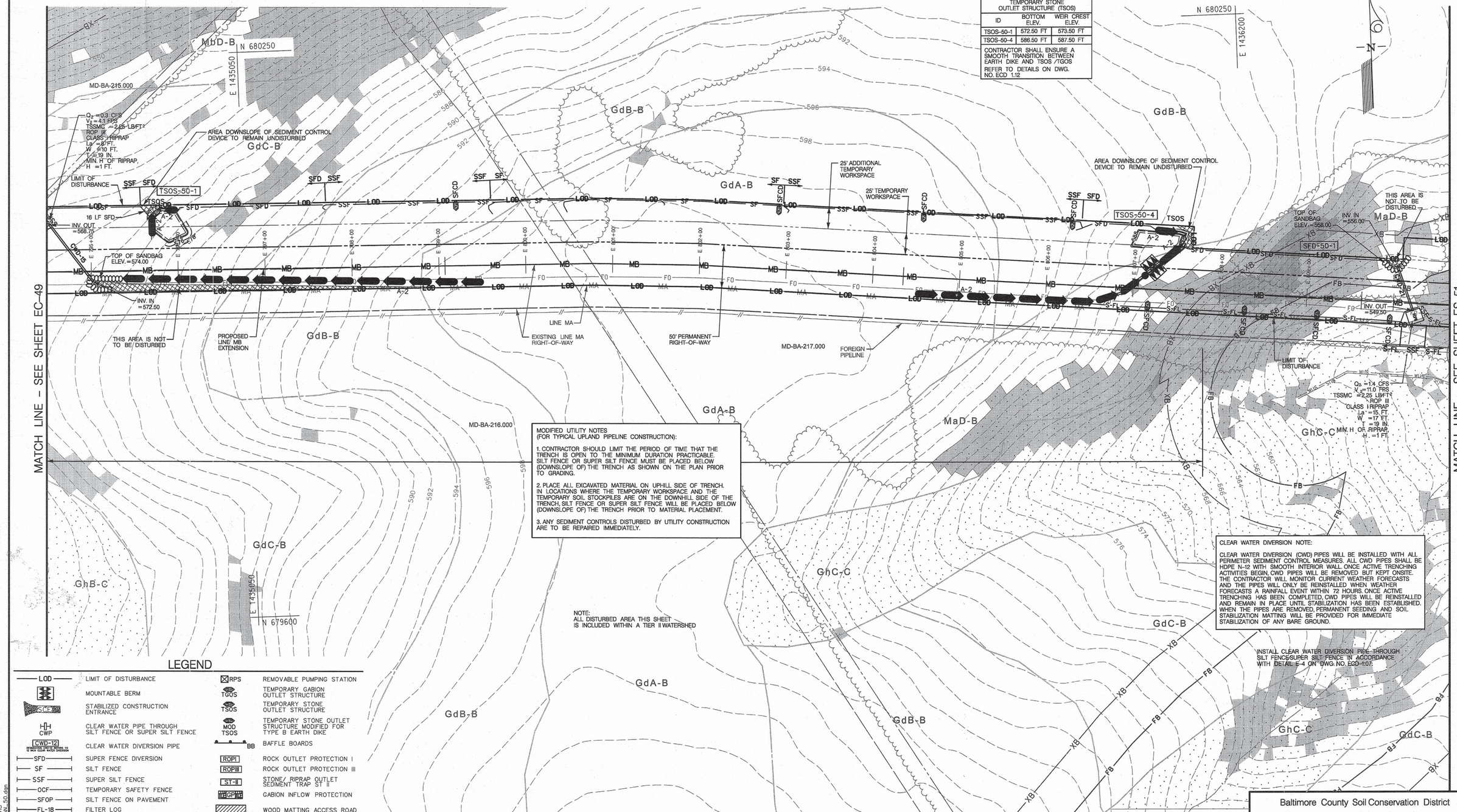
DRAWING NO.
EC-49
SHEET 29 OF 61
KCI JOB NUMBER
16-121849

PLOTTED: "10:54 PM on Friday, January 23, 2015"
FILE: M:\2012\16121849\drawings\WR\ESC-PLAN_49.dgn

TEMPORARY STONE OUTLET STRUCTURE (TSOS)		
ID	BOTTOM ELEV.	WEIR CREST ELEV.
TSOS-50-1	572.50 FT	573.50 FT
TSOS-50-4	586.50 FT	587.50 FT

CONTRACTOR SHALL ENSURE A SMOOTH TRANSITION BETWEEN EARTH DIKE AND TSOS /TGOS

REFER TO DETAILS ON DWG. NO. ECD 1.12



MODIFIED UTILITY NOTES
(FOR TYPICAL UPLAND PIPELINE CONSTRUCTION):

1. CONTRACTOR SHOULD LIMIT THE PERIOD OF TIME THAT THE TRENCH IS OPEN TO THE MINIMUM DURATION PRACTICABLE. SILT FENCE OR SUPER SILT FENCE MUST BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH AS SHOWN ON THE PLAN PRIOR TO GRADING.

2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH. IN LOCATIONS WHERE THE TEMPORARY WORKSPACE AND THE TEMPORARY SOIL STOCKPILES ARE ON THE DOWNHILL SIDE OF THE TRENCH, SILT FENCE OR SUPER SILT FENCE WILL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH PRIOR TO MATERIAL PLACEMENT.

3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

CLEAR WATER DIVERSION NOTE:

CLEAR WATER DIVERSION (CWD) PIPES WILL BE INSTALLED WITH ALL PERIMETER SEDIMENT CONTROL MEASURES. ALL CWD PIPES SHALL BE HDPE N-12 WITH SMOOTH INTERIOR WALL ONCE ACTIVE TRENCHING ACTIVITIES BEGIN, CWD PIPES WILL BE REMOVED BUT KEPT ONSITE. THE CONTRACTOR WILL MONITOR CURRENT WEATHER FORECASTS AND THE PIPES WILL ONLY BE REINSTALLED WHEN WEATHER FORECASTS A RAINFALL EVENT WITHIN 72 HOURS. ONCE ACTIVE TRENCHING HAS BEEN COMPLETED, CWD PIPES WILL BE REINSTALLED AND REMAIN IN PLACE UNTIL STABILIZATION HAS BEEN ESTABLISHED. WHEN THE PIPES ARE REMOVED, PERMANENT SEEDING AND SOIL STABILIZATION MATTING WILL BE PROVIDED FOR IMMEDIATE STABILIZATION OF ANY BARE GROUND.

INSTALL CLEAR WATER DIVERSION PIPE THROUGH SILT FENCE/SUPER SILT FENCE IN ACCORDANCE WITH DETAIL E-4 ON DWG. NO. ECD-1.07.

NOTE:
ALL DISTURBED AREA THIS SHEET IS INCLUDED WITHIN A TIER II WATERSHED

LEGEND

LOD	LIMIT OF DISTURBANCE	RPS	REMOVABLE PUMPING STATION
	MOUNTABLE BERM	TGOS	TEMPORARY GABION OUTLET STRUCTURE
SCE	STABILIZED CONSTRUCTION ENTRANCE	TSOS	TEMPORARY STONE OUTLET STRUCTURE
CWP	CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE	MOD TSOS	TEMPORARY STONE OUTLET STRUCTURE MODIFIED FOR TYPE B EARTH DIKE
CWD-12	CLEAR WATER DIVERSION PIPE (DESIGNATION DENOTES REFERS TO 12 INCH CLEAR WATER DIVERSION)	BB	BAFFLE BOARDS
SFD	SUPER FENCE DIVERSION	ROPI	ROCK OUTLET PROTECTION I
SF	SILT FENCE	ROPIII	ROCK OUTLET PROTECTION III
SSF	SUPER SILT FENCE	ST-II	STONE/ RIPRAP OUTLET SEDIMENT TRAP ST II
OCF	TEMPORARY SAFETY FENCE	GP	GABION INFLOW PROTECTION
SFOP	SILT FENCE ON PAVEMENT		WOOD MATTING ACCESS ROAD
FL-1B	FILTER LOG		TEMPORARY ACCESS BRIDGE
S-FL	STACKED FILTER LOG		
SBD	HYDROSTATIC TEST DEWATERING PIT	A-2	TEMPORARY SWALE
	SANDBAGS	SFCD	SILT FENCE CHECK DAM
	SANDBAG DAM	SIP	STANDARD INLET PROTECTION
P	PUMP	COIP	COMBINATION INLET PROTECTION
FB	FILTER BAG	SB SSF FB	FILTER BAG WITH STRAW BALE AND SUPER SILT FENCE
PDS-1	PERIMETER DIKE/ SWALE	MOD COIP	COMBINATION INLET PROTECTION MODIFIED FOR SUMP
A-1	EARTH DIKE (PLACE DESIGNATION SIZE OUTLET ON FLOW CHANNEL SIDE OF DIKE)		
TAB	TEMPORARY ASPHALT BERM		

GRAPHIC SCALE
50 0 25 50 100
(IN FEET)
1 inch = 50 ft.

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LICENSE NO.: 14942
EXPIRATION DATE: 6/01/2016

STATE OF MARYLAND · KAREN R. POWELL · 14942 · PROFESSIONAL ENGINEER
SEAL 2-13-15

KCI TECHNOLOGIES
ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
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Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE: JAN. 2015
SCALE: 1"= 50'
DESIGNED BY: CW
DRAWN BY: KP

BALTIMORE COUNTY
GRADING / EROSION AND SEDIMENT CONTROL PLAN
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO.
EC-50
SHEET 30 OF 61
KCI JOB NUMBER
16-121849

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM - HORIZ.: NAD 83 (ADJ. '07) - VERT.: NAVD 88

PLOTTED: "01:54 PM on Friday, January 23, 2015"
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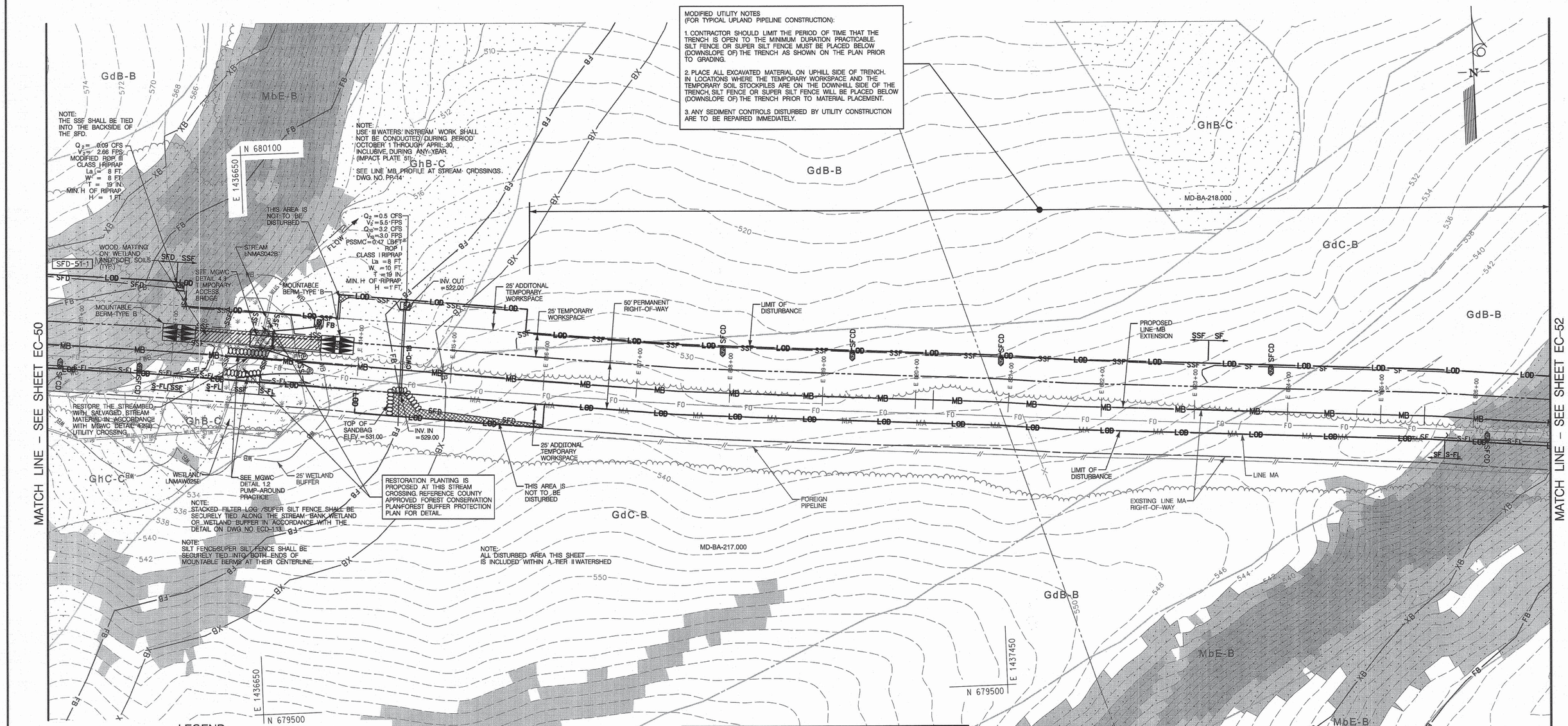
MODIFIED UTILITY NOTES
(FOR TYPICAL UPLAND PIPELINE CONSTRUCTION):

1. CONTRACTOR SHOULD LIMIT THE PERIOD OF TIME THAT THE TRENCH IS OPEN TO THE MINIMUM DURATION PRACTICABLE. SILT FENCE OR SUPER SILT FENCE MUST BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH AS SHOWN ON THE PLAN PRIOR TO GRADING.

2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH. IN LOCATIONS WHERE THE TEMPORARY WORKSPACE AND THE TEMPORARY SOIL STOCKPILES ARE ON THE DOWNHILL SIDE OF THE TRENCH, SILT FENCE OR SUPER SILT FENCE WILL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH PRIOR TO MATERIAL PLACEMENT.

3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.



LEGEND

LOD	LIMIT OF DISTURBANCE
	MOUNTABLE BERM
SCE	STABILIZED CONSTRUCTION ENTRANCE
CWP	CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE
CWD-12	CLEAR WATER DIVERSION PIPE (DESIGNATION CWD-12 REFERS TO 12 INCH CLEAR WATER DIVERSION)
SFD	SUPER FENCE DIVERSION
SF	SILT FENCE
SSF	SUPER SILT FENCE
OCF	TEMPORARY SAFETY FENCE
SFOP	SILT FENCE ON PAVEMENT
FL-1B	FILTER LOG
S-FL	STACKED FILTER LOG
SBD	HYDROSTATIC TEST DEWATERING PIT
	SANDBAGS
	SANDBAG DAM
P	PUMP
FB	FILTER BAG
PDS-1	PERIMETER DIKE/ SWALE
A-1	EARTH DIKE (A-1 DESIGNATION SOLD OUT FLOW CHANNEL SIZE 2' WIDE)
TAB	TEMPORARY ASPHALT BERM
RPS	REMOVABLE PUMPING STATION
TGOS	TEMPORARY GABION OUTLET STRUCTURE
TSOS	TEMPORARY STONE OUTLET STRUCTURE
MOD TSOS	TEMPORARY STONE OUTLET STRUCTURE MODIFIED FOR TYPE B EARTH DIKE
BB	BAFFLE BOARDS
ROPI	ROCK OUTLET PROTECTION I
ROPIII	ROCK OUTLET PROTECTION III
ST-II	STONE/ RIPRAP OUTLET SEDIMENT TRAP ST II
GIP	GABION INFLOW PROTECTION
	WOOD MATTING ACCESS ROAD
	TEMPORARY ACCESS BRIDGE
A-2	TEMPORARY SWALE
SFCD	SILT FENCE CHECK DAM
SIP	STANDARD INLET PROTECTION
COIP	COMBINATION INLET PROTECTION
SB SSF FB	FILTER BAG WITH STRAW BALE AND SUPER SILT FENCE
MOD COIP	COMBINATION INLET PROTECTION MODIFIED FOR SUMP

GRAPHIC SCALE
50 0 25 50 100
(IN FEET)
1 inch = 50 ft.

SEQUENCE OF CONSTRUCTION FOR STREAM CROSSING

1. FOLLOWING INSTALLATION OF ALL PERIMETER CONTROLS AND WITH THE APPROVAL OF THE BALTIMORE COUNTY SEDIMENT CONTROL INSPECTOR, AND THE MDE WMA SEDIMENT CONTROL INSPECTOR, ALL IN STREAM WORK AND THE SUPERVISION OF RELATED STREAM CROSSING ACTIVITIES WILL OCCUR AT OR BELOW BASE FLOW LEVELS AND WILL BE PERFORMED CONTINUOUSLY (24 HOUR) UNTIL THE STREAM CROSSING IS ENTIRELY COMPLETE.

2. INSTALL PUMP AROUND PRACTICE PER DETAIL ON SHEET ECD-1.02. THE ACTUAL STREAM CROSSING OF LINE MB SHALL BE COMPLETED DURING A NOAA EXTENDED THREE-DAY DRY WEATHER FORECAST. THE CONTRACTOR SHALL PROVIDE AND SUPERVISE THE PUMP-AROUND AND DEWATERING PRACTICE AT ALL TIMES. ONCE IN-STREAM CONSTRUCTION ACTIVITIES BEGIN, WORK MUST BE PERFORMED IN A CONTINUOUS MANOR UNTIL THE CROSSING HAS BEEN COMPLETED, THE CHANNEL RESTORED AND PERMANENTLY STABILIZED AND THE PUMP-AROUND AND DEWATERING PRACTICES ARE REMOVED. AT NO TIME IS IT ACCEPTABLE FOR THE PUMP-AROUND PRACTICE TO REMAIN UNATTENDED. ALL DISCHARGE MUST BE ACCOMPLISHED IN A NON-EROSIVE MANNER. NO SEDIMENT LADEN DISCHARGE IS PERMITTED.

3. UPON COMPLETION OF THE STREAM CROSSING, INSTALL THE REMAINDER OF LINE MB.

CLEAR WATER DIVERSION NOTE:

CLEAR WATER DIVERSION (CWD) PIPES WILL BE INSTALLED WITH ALL PERIMETER SEDIMENT CONTROL MEASURES. ALL CWD PIPES SHALL BE HDPE N-12 WITH SMOOTH INTERIOR WALL. ONCE ACTIVE TRENCHING ACTIVITIES BEGIN, CWD PIPES WILL BE REMOVED BUT KEPT ONSITE. THE CONTRACTOR WILL MONITOR CURRENT WEATHER FORECASTS AND THE PIPES WILL ONLY BE REINSTALLED WHEN WEATHER FORECASTS A RAINFALL EVENT WITHIN 72 HOURS. ONCE ACTIVE TRENCHING HAS BEEN COMPLETED, CWD PIPES WILL BE REINSTALLED AND REMAIN IN PLACE UNTIL STABILIZATION HAS BEEN ESTABLISHED. WHEN THE PIPES ARE REMOVED, PERMANENT SEEDING AND SOIL STABILIZATION MATTING WILL BE PROVIDED FOR IMMEDIATE STABILIZATION OF ANY BARE GROUND.

INSTALL CLEAR WATER DIVERSION PIPE THROUGH SILT FENCE/SUPER SILT FENCE IN ACCORDANCE WITH DETAIL E-4 ON DWG. NO. ECD-1.07.

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM – HORIZ.: NAD 83 (ADJ. '07) VERT.: NAVD 88

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LICENSE NO.: 14942
EXPIRATION DATE: 6/01/2016

STATE OF MARYLAND · KAREN R. POWELL · 14942 · PROFESSIONAL ENGINEER
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Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE JAN. 2015
SCALE 1"= 50'
DESIGNED BY CW
DRAWN BY KP

BALTIMORE COUNTY
GRADING / EROSION AND SEDIMENT CONTROL PLAN
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO.
EC-51
SHEET 31 OF 61
KCI JOB NUMBER 16-121849

PLOTTED: "01:54 PM on Friday, January 23, 2015"
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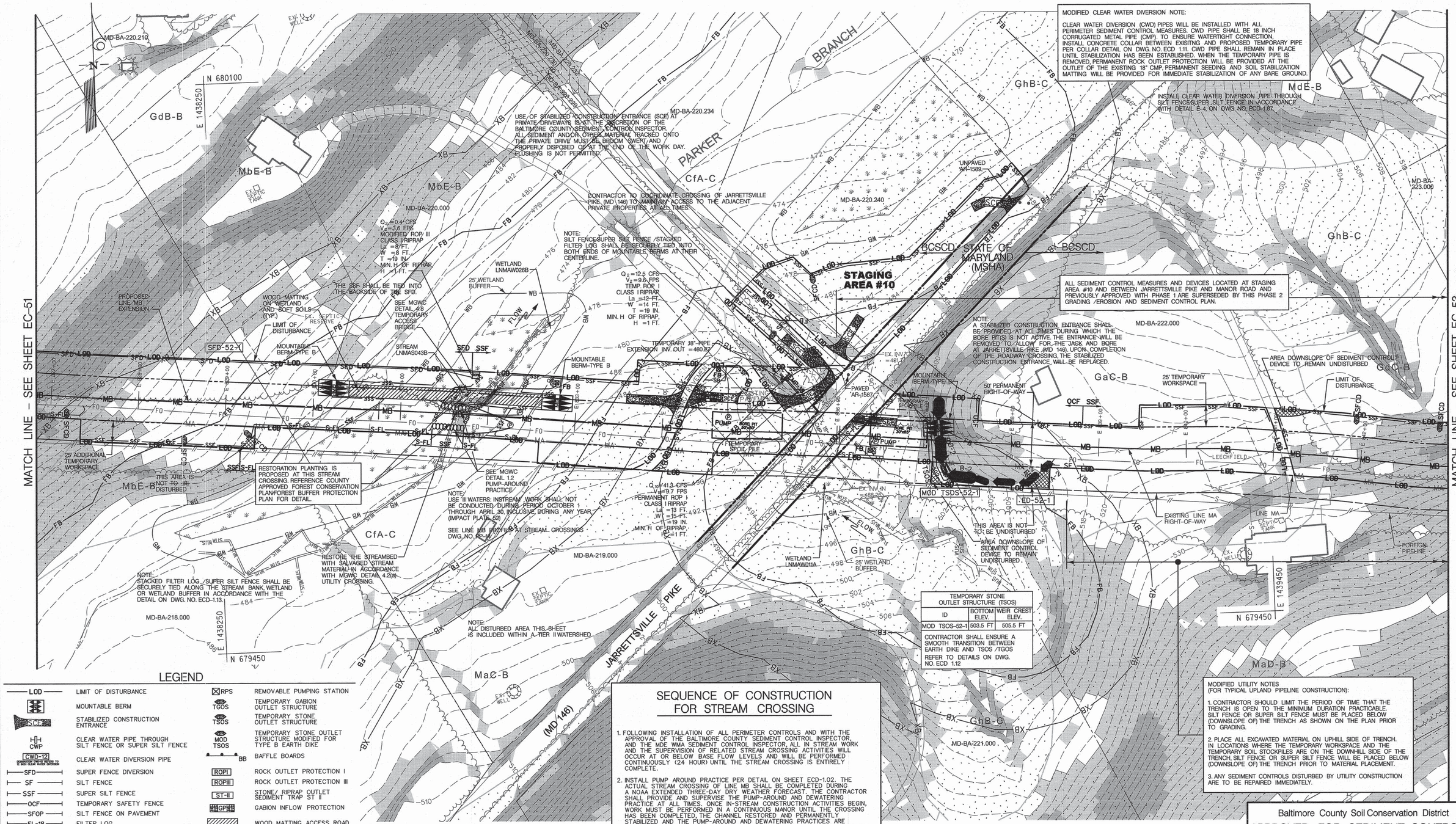


LEGEND

LOD	LIMIT OF DISTURBANCE	RPS	REMOVABLE PUMPING STATION
	MOUNTABLE BERM	TGOS	TEMPORARY GABION OUTLET STRUCTURE
SCE	STABILIZED CONSTRUCTION ENTRANCE	TSOS	TEMPORARY STONE OUTLET STRUCTURE
CWP	CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE	MOD TSOS	TEMPORARY STONE OUTLET STRUCTURE MODIFIED FOR TYPE B EARTH DIKE
CWD-12	CLEAR WATER DIVERSION PIPE (SEQUENCE OF OPERATIONS REFER TO 12 INCH CLEAR WATER DIVERSION)	BB	BAFFLE BOARDS
SFD	SUPER FENCE DIVERSION	ROP I	ROCK OUTLET PROTECTION I
SF	SILT FENCE	ROP III	ROCK OUTLET PROTECTION III
SSF	SUPER SILT FENCE	ST-II	STONE/ RIPRAP OUTLET SEDIMENT TRAP ST II
OCF	TEMPORARY SAFETY FENCE	GPIF	GABION INFLOW PROTECTION
SFOP	SILT FENCE ON PAVEMENT		WOOD MATTING ACCESS ROAD
FL-18	FILTER LOG		TEMPORARY ACCESS BRIDGE
S-FL	STACKED FILTER LOG	A-2	TEMPORARY SWALE
SBD	HYDROSTATIC TEST DEWATERING PIT	SFCD	SILT FENCE CHECK DAM
	SANDBAGS	SIP	STANDARD INLET PROTECTION
	SANDBAG DAM	COIP	COMBINATION INLET PROTECTION
P	PUMP	SB SSF FB	FILTER BAG WITH STRAW BALE AND SUPER SILT FENCE
FB	FILTER BAG	MOD COIP	COMBINATION INLET PROTECTION MODIFIED FOR SUMP
PDS-1	PERIMETER DIKE/ SWALE		
A-1	EARTH DIKE (FLAGS DEMONSTRATE USE OF FLOW CHANNEL SIDE OF DIKE)		
TAB	TEMPORARY ASPHALT BERM		

SEQUENCE OF CONSTRUCTION FOR STREAM CROSSING

1. FOLLOWING INSTALLATION OF ALL PERIMETER CONTROLS AND WITH THE APPROVAL OF THE BALTIMORE COUNTY SEDIMENT CONTROL INSPECTOR AND THE MDE WMA SEDIMENT CONTROL INSPECTOR, ALL IN STREAM WORK AND THE SUPERVISION OF RELATED STREAM CROSSING ACTIVITIES WILL OCCUR AT OR BELOW BASE FLOW LEVELS AND WILL BE PERFORMED CONTINUOUSLY (24 HOUR) UNTIL THE STREAM CROSSING IS ENTIRELY COMPLETE.
2. INSTALL PUMP AROUND PRACTICE PER DETAIL ON SHEET ECD-1.02. THE ACTUAL STREAM CROSSING OF LINE MB SHALL BE COMPLETED DURING A NOAA EXTENDED THREE-DAY DRY WEATHER FORECAST. THE CONTRACTOR SHALL PROVIDE AND SUPERVISE THE PUMP-AROUND AND DEWATERING PRACTICE AT ALL TIMES. ONCE IN-STREAM CONSTRUCTION ACTIVITIES BEGIN, WORK MUST BE PERFORMED IN A CONTINUOUS MANOR UNTIL THE CROSSING HAS BEEN COMPLETED, THE CHANNEL RESTORED AND PERMANENTLY STABILIZED AND THE PUMP-AROUND AND DEWATERING PRACTICES ARE REMOVED. AT NO TIME IS IT ACCEPTABLE FOR THE PUMP-AROUND PRACTICE TO REMAIN UNATTENDED. ALL DISCHARGE MUST BE ACCOMPLISHED IN A NON-EROSIVE MANNER. NO SEDIMENT LADEN DISCHARGE IS PERMITTED.
3. UPON COMPLETION OF THE STREAM CROSSING, INSTALL THE REMAINDER OF LINE MB.

TEMPORARY STONE OUTLET STRUCTURE (TSOS)

ID	BOTTOM ELEV.	WEIR CREST ELEV.
MOD TSOS-52-1	503.5 FT	505.5 FT

CONTRACTOR SHALL ENSURE A SMOOTH TRANSITION BETWEEN EARTH DIKE AND TSOS /TGOS

REFER TO DETAILS ON DWG. NO. ECD 1.12

MODIFIED UTILITY NOTES (FOR TYPICAL UPLAND PIPELINE CONSTRUCTION):

1. CONTRACTOR SHOULD LIMIT THE PERIOD OF TIME THAT THE TRENCH IS OPEN TO THE MINIMUM DURATION PRACTICABLE. SILT FENCE OR SUPER SILT FENCE MUST BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH AS SHOWN ON THE PLAN PRIOR TO GRADING.
2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH. IN LOCATIONS WHERE THE TEMPORARY WORKSPACE AND THE TEMPORARY SOIL STOCKPILES ARE ON THE DOWNHILL SIDE OF THE TRENCH, SILT FENCE OR SUPER SILT FENCE WILL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH PRIOR TO MATERIAL PLACEMENT.
3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM – HORIZ.: NAD 83 (ADJ. '97) ; VERT.: NAVD 88

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: 14942 EXPIRATION DATE: 6/01/2016

STATE OF MARYLAND KAREN R. POWELL 14942 PROFESSIONAL ENGINEER
SEAL 2-13-15

KCI TECHNOLOGIES
ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800 FAX: (410) 316-7818

Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE JAN. 2015
SCALE 1"= 50'
DESIGNED BY CW
DRAWN BY KP

BALTIMORE COUNTY
GRADING / EROSION AND SEDIMENT CONTROL PLAN
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO. EC-52
SHEET 32 OF 61
KCI JOB NUMBER 16-121849

PLOTTED: "1152 AM on Thursday, February 12, 2015"
FILE: M:\2012\1612184\drawings\WR\ESC-PLAN_52.dgn

MODIFIED UTILITY NOTES
(FOR TYPICAL UPLAND PIPELINE CONSTRUCTION):

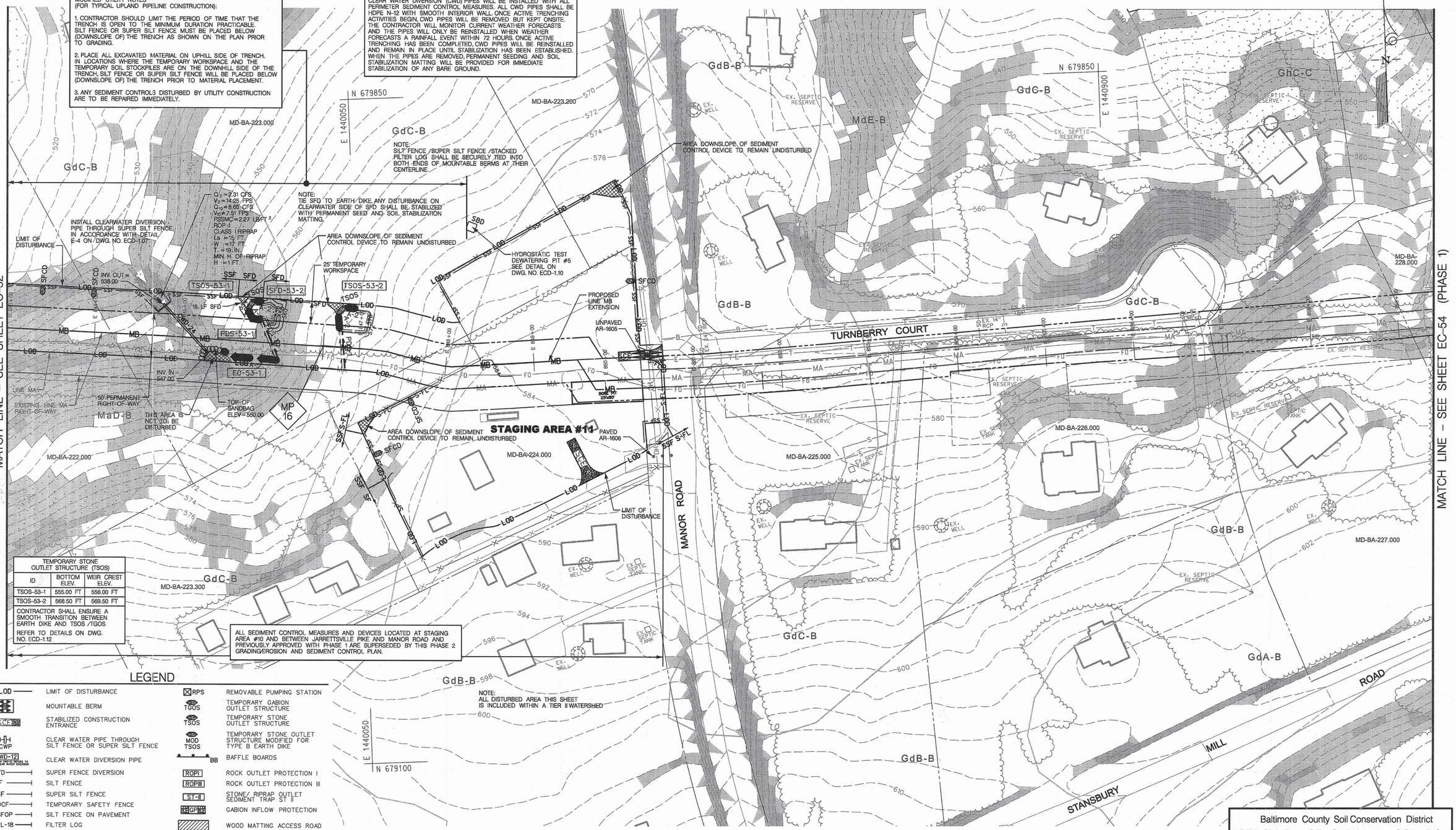
1. CONTRACTOR SHOULD LIMIT THE PERIOD OF TIME THAT THE TRENCH IS OPEN TO THE MINIMUM DURATION PRACTICABLE. SILT FENCE OR SUPER SILT FENCE MUST BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH AS SHOWN ON THE PLAN PRIOR TO GRADING.

2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH. IN LOCATIONS WHERE THE TEMPORARY WORKSPACE AND THE TEMPORARY SOIL STOCKPILES ARE ON THE DOWNHILL SIDE OF THE TRENCH, SILT FENCE OR SUPER SILT FENCE WILL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH PRIOR TO MATERIAL PLACEMENT.

3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

CLEAR WATER DIVERSION NOTE:

CLEAR WATER DIVERSION (CWD) PIPES WILL BE INSTALLED WITH ALL PERIMETER SEDIMENT CONTROL MEASURES. ALL CWD PIPES SHALL BE HDPE N-12 WITH SMOOTH INTERIOR WALL. ONCE ACTIVE TRENCHING ACTIVITIES BEGIN, CWD PIPES WILL BE REMOVED BUT KEPT ONSITE. THE CONTRACTOR WILL MONITOR CURRENT WEATHER FORECASTS AND THE PIPES WILL ONLY BE REINSTALLED WHEN WEATHER FORECASTS A RAINFALL EVENT WITHIN 72 HOURS. ONCE ACTIVE TRENCHING HAS BEEN COMPLETED, CWD PIPES WILL BE REINSTALLED AND REMAIN IN PLACE UNTIL STABILIZATION HAS BEEN ESTABLISHED. WHEN THE PIPES ARE REMOVED, PERMANENT SEEDING AND SOIL STABILIZATION MATTING WILL BE PROVIDED FOR IMMEDIATE STABILIZATION OF ANY BARE GROUND.



TEMPORARY STONE OUTLET STRUCTURE (TSOS)		
ID	BOTTOM ELEV.	WEIR CREST ELEV.
TSOS-53-1	555.00 FT	556.00 FT
TSOS-53-2	568.50 FT	569.50 FT

CONTRACTOR SHALL ENSURE A SMOOTH TRANSITION BETWEEN EARTH DIKE AND TSOS /TGOS

REFER TO DETAILS ON DWG. NO. ECD-1.12

ALL SEDIMENT CONTROL MEASURES AND DEVICES LOCATED AT STAGING AREA #10 AND BETWEEN JARRETTSVILLE PIKE AND MANOR ROAD AND PREVIOUSLY APPROVED WITH PHASE 1 ARE SUPERSEDED BY THIS PHASE 2 GRADING/EROSION AND SEDIMENT CONTROL PLAN.

NOTE:
ALL DISTURBED AREA THIS SHEET IS INCLUDED WITHIN A TIER II WATERSHED

LEGEND

LOD	LIMIT OF DISTURBANCE	RPS	REMOVABLE PUMPING STATION
	MOUNTABLE BERM	TGOS	TEMPORARY GABION OUTLET STRUCTURE
SCE	STABILIZED CONSTRUCTION ENTRANCE	TSOS	TEMPORARY STONE OUTLET STRUCTURE
CWP	CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE	MOD TSOS	TEMPORARY STONE OUTLET STRUCTURE MODIFIED FOR TYPE B EARTH DIKE
CWD-12	CLEAR WATER DIVERSION PIPE (MINIMUM SIZE IS REQUIRED TO 12 INCH CLEAR WATER DIVERSION)	BB	BAFFLE BOARDS
SFD	SUPER FENCE DIVERSION	ROPI	ROCK OUTLET PROTECTION I
SF	SILT FENCE	ROPIII	ROCK OUTLET PROTECTION III
SSF	SUPER SILT FENCE	ST-II	STONE/ RIPRAP OUTLET SEDIMENT TRAP ST II
OCF	TEMPORARY SAFETY FENCE	GP	GABION INFLOW PROTECTION
SFOP	SILT FENCE ON PAVEMENT		WOOD MATTING ACCESS ROAD
FL-18	FILTER LOG		TEMPORARY ACCESS BRIDGE
S-FL	STACKED FILTER LOG		
SBD	HYDROSTATIC TEST DEWATERING PIT	A-2	TEMPORARY SWALE
	SANDBAGS	SFCD	SILT FENCE CHECK DAM
	SANDBAG DAM	SIP	STANDARD INLET PROTECTION
P	PUMP	COIP	COMBINATION INLET PROTECTION
FB	FILTER BAG	SB-SSF FB	FILTER BAG WITH STRAW BALE AND SUPER SILT FENCE
PDS-1	PERIMETER DIKE/ SWALE	MOD COIP	COMBINATION INLET PROTECTION MODIFIED FOR SUMP
A-1	EARTH DIKE (PLACE DETERMINATION MADE BY ON FLOW CHANNEL SIZE OF DIKE)		
TAB	TEMPORARY ASPHALT BERM		

GRAPHIC SCALE
50 0 25 50 100
(IN FEET)
1 inch = 50 ft.

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
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DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM - HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

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STATE OF MARYLAND · KAREN R. POWELL · 14942 · PROFESSIONAL ENGINEER
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DATE: JAN. 2015
SCALE: 1"= 50'
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DRAWN BY: KP

BALTIMORE COUNTY
GRADING / EROSION AND SEDIMENT CONTROL PLAN
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2

BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO.
EC-53
SHEET 33 OF 61
KCI JOB NUMBER
16-121849

PLOTTED: "01:56 PM on Friday, January 23, 2015"
FILE: M:\2012\1612184\drawings\WR\ESC-PLAN_53_Phase2.dgn

GENERAL EROSION AND SEDIMENT CONTROL NOTES

1. REFER TO "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" FOR STANDARD DETAILS AND DETAILED SPECIFICATIONS OF EACH PRACTICE SPECIFIED HEREIN.

2. 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.

3. AT THE END OF EACH WORKING DAY, ALL SEDIMENT CONTROL PRACTICES WILL BE INSPECTED AND LEFT IN OPERATIONAL CONDITION.

4. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN: A.) THREE CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN THREE HORIZONTAL TO ONE VERTICAL (3:1), AND B.) SEVEN CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

5. ANY CHANGE TO THE GRADING PROPOSED ON THIS PLAN REQUIRES RE-SUBMISSION TO BALTIMORE COUNTY SOIL CONSERVATION DISTRICT FOR APPROVAL.

6. 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.

7. 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.

8. EXCESS CUT OR BORROW MATERIAL SHALL GO TO, OR COME FROM, RESPECTIVELY, A SITE WITH AN OPEN GRADING PERMIT AND APPROVED SEDIMENT CONTROL PLAN.

9. THE FOLLOWING ITEM MAY BE USED AS APPLICABLE: REFER TO "MARYLAND'S GUIDELINES TO WATERWAY CONSTRUCTION" BY THE WATER MANAGEMENT ADMINISTRATION (WMA) OF THE MARYLAND DEPARTMENT OF THE ENVIRONMENT DATED, NOVEMBER, 2000, FOR STANDARD DETAILS AND DETAILED SPECIFICATIONS OF EACH PRACTICE SPECIFIED HEREIN FOR WATERWAY CONSTRUCTION.

10. PUMPING SEDIMENT LADEN WATER INTO WATERS OF THE STATE IS STRICTLY PROHIBITED. ANY PORTABLE DEWATERING DEVICE MUST BE LOCATED WITHIN THE LIMIT OF DISTURBANCE.

PROJECT DESCRIPTION

THIS PROJECT IS A LINEAR UNDERGROUND UTILITY INSTALLATION, CONSISTING OF EXTENSION OF A 26-INCH NATURAL GAS PIPELINE(LINE MB) FOR APPROXIMATELY 21 MILES FROM EXISTING OWINGS MILLS METER AND REGULATOR STATION IN BALTIMORE COUNTY, MARYLAND TO THE EXISTING RUTLEDGE COMPRESSOR STATION IN HARFORD COUNTY, MARYLAND. THE PROJECT WILL BE CO-LOCATED WITH EXISTING RIGHT-OF-WAY (ROWS), TO THE GREATEST EXTENT PRACTICABLE, INCLUDING COLUMBIA'S ROW FOR THE EXISTING LINE MA PIPELINE.

EROSION AND SEDIMENT CONTROL NOTES

A. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN. REFERENCE MANUALS INCLUDE: 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, MARYLAND GUIDELINES FOR WATERWAY CONSTRUCTIONS, DATED 2000, AND COLUMBIA GAS TRANSMISSION ENVIRONMENTAL CONSTRUCTION STANDARDS, DATED JANUARY 2009.

B. COLUMBIA SHALL NOT BEGIN CONSTRUCTION ON ANY INDIVIDUAL PARCEL OF LAND UNTIL IT HAS OBTAINED THE LEGAL RIGHTS FOR THAT PARCEL AND HAS RECEIVED NOTICE TO PROCEED AUTHORIZATION FROM THE FEDERAL ENERGY REGULATORY COMMISSION (FERC).

C. SEQUENCE OF CONSTRUCTION

1. A PRE-CONSTRUCTION MEETING SHALL BE HELD WITH BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS (DPAI, SC) (410-887-3226); MARYLAND DEPARTMENT OF THE ENVIRONMENT, COMPLIANCE PROGRAM (410-537-3510) AND NONTIDAL WETLANDS DIVISION (410-537-3911); AND U.S. ARMY CORPS OF ENGINEERS (410-962-6080). NOTIFY BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS (DPAI, SC) (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.
2. THE LIMIT OF DISTURBANCE (LOD) WILL BE CLEARLY DEFINED IN THE FIELD. THIS DEMARCATION SHALL BE INSPECTED AND APPROVED BY BALTIMORE COUNTY PAI AT THE PRE-CONSTRUCTION MEETING.
3. CLEAR AND GRUB AS NECESSARY FOR THE INSTALLATION OF ALL SEDIMENT CONTROL MEASURES OR DEVICES ONLY AT STAGING AREA NOS. 7, 8, 9, 9A, 10 AND 11. SEDIMENT TRAPS MUST BE INSTALLED AND FUNCTIONAL PRIOR TO ANY FLOW DIVERSION MEASURES DIRECTING FLOW TO THEM. INSTALL REMOVABLE PUMPING STATIONS TO BE USED FOR MAINTENANCE, AND AT THE TIME OF TRAP REMOVAL.
4. INSTALL ALL SEDIMENT AND EROSION CONTROL MEASURES AND DEVICES FOR THE STAGING AREAS.
5. NOTIFY BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS, SEDIMENT CONTROL (DPAI, SC) UPON COMPLETION OF SAID INSTALLATION.
6. WITH THE APPROVAL OF BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS, SEDIMENT CONTROL, AND THE SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB THE REMAINDER OF THE STAGING AREAS.
7. CLEAR THE REMAINING WORKSPACE AS NECESSARY. CLEARING ACTIVITIES ARE LIMITED TO ABOVE GROUND VEGETATION REMOVAL THAT DOES NOT RESULT IN DISTURBANCE OF THE ROOT ZONE. ANY DISTURBANCE SHALL BE STABILIZED BY THE END OF EACH WORKING DAY.
8. CLEAR AND GRUB FOR, AND INSTALL ALL REMAINING SEDIMENT AND EROSION CONTROL MEASURES AND DEVICES.
9. NOTIFY BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS, SEDIMENT CONTROL (DPAI, SC) UPON COMPLETION OF SAID INSTALLATION.
10. WITH THE APPROVAL OF BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS, SEDIMENT CONTROL, AND THE SEDIMENT CONTROL INSPECTOR, BEGIN GRUBBING ACTIVITIES, GRADING AND TRENCHING THE REMAINDER OF THE WORKSPACE. TOPSOIL SHALL BE STOCKPILED AND REAPPLIED PRIOR TO PERMANENT STABILIZATION.
11. INSTALL LINE MB. SEE ALL OTHER NOTES /GUIDELINES ON PLAN VIEW SHEETS INCLUDING SEQUENCE OF CONSTRUCTION FOR STREAM CROSSINGS AND STEEP SLOPES AT I-83 AND WESTERN RUN.
12. BACKFILL THE TRENCH, FINE GRADE, REAPPLY TOPSOIL, AND PERMANENTLY STABILIZE ALL DISTURBED AREAS. FINAL RESTORATION INCLUDES THE IMPLEMENTATION OF THE APPROVED FOREST BUFFER PROTECTION PLAN. SEE "SOIL COMPACTION MITIGATION" NOTES ON THIS SHEET.
13. UPON STABILIZATION OF THE SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.

D. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE PROPERLY MAINTAINED AND ADEQUATELY FUNCTIONING AT THE END OF EACH WORKDAY AND AFTER EVERY STORM EVENT. ANY EXISTING MEASURES THAT ARE DAMAGED SHALL BE PROPERLY REPAIRED AT THE END OF EACH WORKDAY. MAINTENANCE SHALL INCLUDE, BUT NOT BE LIMITED TO THE REMOVAL OF ALL ACCUMULATED SEDIMENT. GEOTEXTILE FABRIC SHALL BE REPLACED AS NEEDED TO ENSURE PROPER FUNCTION.

E. EXCAVATED TOPSOIL AND SUBSOIL SHALL BE KEPT SEPARATE AND PROTECTED AS FOLLOWS:
1. TEMPORARY STOCKPILES SHALL BE LOCATED WITHIN THE LIMIT OF DISTURBANCE
2. TEMPORARY STOCKPILES SHALL DRAIN TO A FUNCTIONING SEDIMENT CONTROL DEVICE.
3. TEMPORARY STOCKPILES SHALL BE POSITIONED TO NOT IMPEDE UPON, OR IMPAIR THE FUNCTION OF SAID DEVICE.
4. TEMPORARY STOCKPILES SHALL BE POSITIONED TO NOT ALTER DRAINAGE DIVIDES.

F. POINT OF CONSTRUCTION INGRESS AND EGRESS SHALL BE PROTECTED TO PREVENT THE TRACKING OF SOIL ONTO PUBLIC WAYS BY USING STABILIZED CONSTRUCTION ENTRANCE AT THE INTERFACES WITH PUBLIC ROADWAYS.

G. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
1. THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN THREE HORIZONTAL TO ONE VERTICAL (3:1).
2. SEVEN (7) CALENDAR DAYS FOR ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

H. ANY DEWATERING DISCHARGE SHALL BE PLACED INTO AN APPROVED DEWATERING STRUCTURE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD DETAILS AND DWG. NO. ECD-1.11.

CLEARED TIMBER NOTE

CLEARED TIMBER MAY BE PLACED ON THE ADJACENT LAND OWNER'S PROPERTY, OUTSIDE THE LOD, FOR THE LAND OWNER'S PERSONAL USE, PROVIDED THAT THE TIMBER IS NOT PLACED IN A STREAM, WETLAND, BUFFER, OR EXPANDED BUFFER AND THAT THE PLACEMENT DOES NOT REQUIRE EQUIPMENT TO LEAVE THE LOD.

MOUNTABLE BERM NOTE

MOUNTABLE BERMS CAN BE PLACED OVER WATER CONVEYANCE MEASURES (EARTH DIKE, PDS, CWD, ETC.) IN ACCORDANCE WITH DETAIL C-8 ON DWG. NO. ECD-1.05 AS NECESSARY AT THE DISCRETION OF THE BALTIMORE COUNTY SEDIMENT CONTROL INSPECTOR PROVIDED DRAINAGE AREAS TO THE CONTROL DEVICES ARE PROPERLY MAINTAINED.

INLET PROTECTION NOTE

THE CONTRACTOR IS REQUIRED TO INSTALL INLET PRTECTION ON ALL STORM DRAIN INLETS WITH THE EXCEPTION OF THE FOLLOWING:
*1. ANY INLET OUTFALLING DIRECTLY INTO A SEDIMENT TRAPPING DEVICE.
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.

SUMMARY OF GRADING UNITS

ID	FROM		TO		LOD Area (sf)	LOD Area(ac)	GRADING UNIT (20 ac)	NOTES
I2	Staging Area #7	EC-26	Staging Area #7	EC-27	373,792	8.58	0.43	
J	Beaver Dam Rd	EC-27	Shawan Rd	EC-27	105,229	2.42	0.12	
K	Shawan Rd	EC-27	I-83	EC-30	362,167	8.31	0.42	
L	I-83	EC-30	Loveton Circle	EC-34	671,149	15.41	0.77	
M	Loveton Circle	EC-34	SR 45 (York Rd)	EC-35	242,757	5.57	0.28	
N	SR 45 (York Rd)	EC-35	Loveton Farms Rd	EC-36	109,301	2.51	0.13	
O	Loveton Farms Rd	EC-36	HDD segment	EC-37	244,656	5.62	0.28	
O1	HDD segment	EC-39	Hunting Way	EC-40	212,910	4.89	0.24	
P	Hunting Way	EC-40	Carroll Rd	EC-41	106,871	2.45	0.12	
Q	Carroll Rd	EC-41	Carroll Mill Rd	EC-43	281,134	6.45	0.32	
Q1	Carroll Mill Rd	EC-43	Stockton Rd	EC-46	448,755	10.30	0.52	
Q2	Stockton Rd	EC-46	Old York Rd	EC-48	435,018	9.99	0.50	
R	Old York Rd	EC-48	SR 146 (Jarrettsville Rd)	EC-52	574,173	13.18	0.66	
R1			Staging Area #10	EC-52	22,317	0.51	0.03	
S	SR 146 (Jarrettsville Rd)	EC-52	Manor Rd	EC-53	169,316	3.89	0.19	
			TOTAL		4,359,545	100.08	5.00	

*WITH THE APPROVAL OF THE BALTIMORE COUNTY SEDIMENT CONTROL INSPECTOR, THE CONTRACTOR MAY WORK IN MULTIPLE GRADING UNITS CONCURRENTLY.

SITE INFORMATION	
TOTAL AREA OF FACILITY	113.00 ACRES
AREA DISTURBED	100.08 ACRES (4,359,545 SQ FT)
AREA TO BE ROOFED OR PAVED	0 ACRES
TOTAL CUT	8 CUBIC YARDS
TOTAL FILL	713 CUBIC YARDS
OFF-SITE WASTE /BORROW AREA LOCATION	NONE

SOIL COMPACTION MITIGATION

A. TEST TOPSOIL AND SUBSOIL FOR COMPACTION AT REGULAR INTERVALS IN AREAS OF CONCERN (i.e., HAUL ROADS, ETC.). CONDUCT TESTS ON THE SAME SOIL TYPE UNDER SIMILAR MOISTURE CONDITIONS IN UNDISTURBED AREAS IMMEDIATELY ADJACENT TO THE CONSTRUCTION AREA TO APPROXIMATE PRECONSTRUCTION CONDITIONS. PENETROMETERS OR OTHER APPROPRIATE DEVICES WILL BE USED TO CONDUCT THE TESTS.

B. PLOW ALL SEVERELY COMPACTED AREAS WITHIN THE DISTURBED AREA WITH A PARAPLOW, SUBSOILER, OR OTHER DEEP TILLAGE IMPLEMENT. TILLAGE DEPTH SHALL BE A MINIMUM OF 12 INCHES. IN AREAS WHERE TOPSOIL HAS BEEN SEGREGATED, DEEP TILL THE SUBSOIL BEFORE REPLACING THE SEGREGATED TOPSOIL. IF SUBSEQUENT CONSTRUCTION AND CLEANUP ACTIVITIES RESULT IN FURTHER COMPACTION, CONDUCT ADDITIONAL DEEP TILLING.

STABILIZED CONSTRUCTION ENTRANCE (SCE) NOTE

THE LOCATIONS OF THE STABILIZED CONSTRUCTION ENTRANCES SHOWN ON THE PLAN SHEETS ARE APPROXIMATE. THE CONTRACTOR SHALL DETERMINE EXACT LOCATIONS IN THE FIELD AND RELOCATE AS NEEDED IN ACCORDANCE WITH BALTIMORE COUNTY GENERAL EROSION AND SEDIMENT CONTROL NOTE NO. 2 AND WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR.

ENHANCED BEST MANAGEMENT PRACTICES FOR WORKING ON THE LINE MB EXTENSION PROJECT

1. AT A MINIMUM, THE CONTRACTOR MUST INSPECT ALL SEDIMENT CONTROL MEASURES AND DEVICES ONCE EVERY SEVEN (7) CALENDAR DAYS, AND WITHIN 24 HOURS OF THE OCCURRENCE OF A STORM EVENT OF 0.25 INCHES OR GREATER. THE CONTRACTOR SHALL PREPARE A WRITTEN INSPECTION REPORT FOR EACH INSPECTION, AND MAINTAIN A LOG BOOK FOR ALL REPORTS. ALL CORRECTIVE ACTION SHOULD BE INITIATED WITHIN 24 HOURS AND COMPLETED WITHIN 72 HOURS OF BEING NOTED.

2. THE CONTRACTOR MUST INSPECT ALL SEDIMENT CONTROL MEASURES AND DEVICES PRIOR TO A NOAA FORCASTED EVENT OF 0.25 INCHES OR GREATER. THE CONTRACTOR SHALL PERFORM REPAIRS AND MAINTENANCE TO THE MAXIMUM EXTENT PRACTICABLE TO ASSURE ALL DEVICES ARE IN GOOD WORKING ORDER PRIOR TO THE EVENT.

3. ALL POINTS OF INGRESS AND EGRESS TO THE LINE MB EXTENSION PROJECT WILL BE CLEARLY MARKED AS SUCH.

4. ALL WETLANDS, WATERWAYS, AND 100-YR FLOODPLAINS SHALL BE CLEARLY MARKED AS SUCH. VEHICLES OPERATING WITHIN 100 FT OF THESE AREAS SHALL CARRY EMERGENCY SPILL KITS.

5. ALL FOREST BUFFER AND FOREST CONSERVATION AREAS SHALL BE CLEARLY MARKED AS SUCH.

6. WITHIN THE EXPANDED RIPARIAN BUFFER (XB), CUT VEGETATION OFF JUST ABOVE GROUND LEVEL, LEAVING THE EXISTING ROOT SYSTEMS IN PLACE, AND REMOVE VEGETATION FROM THE XB FOR DISPOSAL. MINIMIZE GRADING WITHIN THE XB TO ONLY WHAT IS REQUIRED TO SAFELY AND EFFICIENTLY OPERATE EQUIPEMENT. LIMIT PULLING OF TREE STUMPS AND GRADING ACTIVITIES TO DIRECTLY OVER THE TRENCHLINE EXCEPT WHERE THE CHIEF INSPECTOR AND ENVIRONMENTAL INSPECTOR DETERMINE THAT SAFETY RELATED CONSTRUCTION CONSTRAINTS REQUIRE REMOVAL OF TREE STUMPS FROM UNDER THE WORKING SIDE OF THE CONSTRUCTION WORK AREA.

7. MULCH DEPTH APPLICATION SHALL NOT EXCEED 6 INCHES.

8. STOCKPILES WILL BE LOCATED WITHIN THE LOD AND SHALL DRAIN TO AN APPROPRIATE EROSION AND SEDIMENT CONTROL DEVICE (I.E., SILT FENCE). STOCKPILES THAT ARE LOCATED WITHIN 100 FT. OF STREAM RESOURCES AND ARE INACTIVE (THOSE UNTOUCHED FOR SEVEN (7) DAYS OR LONGER) WILL BE SEEDED OR COVERED WITH AN IMPERMEABLE COVER WHEN INACTIVE.

9. REDUNDANT CONTROLS SHALL BE USED FOR DEWATERING DISCHARGES WITHIN THE XB (I.E., FILTER BAG SURROUNDED WITH STRAW BALES AND SUPER SILT FENCE – SEE DETAIL ON DWG. NO. ECD-1.11).

10. HYDROSEEDING SHALL BE CONDUCTED WITH FLEXTERRA HIGH PERFORMANCE-FLEXIBLE GROWTH MEDIUM, OR APPROVED EQUIVALENT, USED IN CONJUNCTION WITH FIBER ROLLS IN AREAS OF 15% SLOPE OR GREATER. WITHIN 100-FT OF WETLANDS OR WATERBODIES, THE MEDIUM MUST BE CERTIFIED ENVIRONMENTALLY NON-TOXIC BY THE APPROPRIATE STATE OR FEDERAL AGENCY. THE FIBER ROLLS WILL BE LOCATED IN THE FIELD BY THE CONTRACTOR AND IN ACCORDANCE WITH THE DETAIL ON DWG. NO. ECD-1.08 AND SUBJECT TO APPROVAL BY THE SEDIMENT CONTROL INSPECTOR.

11. TEMPORARY SOIL STABILIZATION MATTING SLOPE APPLICATION (TSSMS 2.25 LB/SF) IN ACCORDANCE WITH DETAIL B-4-6-B ON DWG. NO. ECD-1.08 SHALL BE UTILIZED IN AREAS WITH HIGHLY ERODIBLE SOILS AND LESS THAN 15% SLOPE.

EROSION AND SEDIMENT CONTROL WILL BE STRICTLY ENFORCED.

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM – HORIZ.: NAD 83 (ADJ. '07); VERT.: NAVD 88

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. 14942 EXPIRATION DATE: 6/01/2016

SEAL: STATE OF MARYLAND — KAREN R. POWELL — 14942 — PROFESSIONAL ENGINEER — 2-13-15

KCI TECHNOLOGIES
ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818

Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE: JAN. 2015
SCALE: N.T.S.
DESIGNED BY: CW
DRAWN BY: XP

BALTIMORE COUNTY
EROSION AND SEDIMENT CONTROL NOTES
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO. ECN-1.0
SHEET 43 OF 61
KCI JOB NUMBER 16-121849

PLOTTED: "11:34 AM on Monday, January 19, 2015"
BY: Division:
FILE: M:\2012\16121849\drawings\WR\ESC-Gnotes-01-Phase2.dgn

B-4 STANDARDS AND SPECIFICATIONS

FOR

VEGETATIVE STABILIZATION

Definition

Using vegetation as cover to protect exposed soil from erosion.

Purpose

To promote the establishment of vegetation on exposed soil.

Conditions Where Practice Applies

On all disturbed areas not stabilized by other methods. This specification is divided into sections on incremental stabilization; soil preparation, soil amendments and topsoiling; seeding and mulching; temporary stabilization; and permanent stabilization.

Effects on Water Quality and Quantity

Stabilization practices are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and runoff to downstream areas.

Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, percolation, and groundwater recharge. Over time, vegetation will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth.

Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone.

Sediment control practices must remain in place during grading, seedbed preparation, seeding, mulching, and vegetative establishment.

Adequate Vegetative Establishment

Inspect seeded areas for vegetative establishment and make necessary repairs, replacements, and reseedings within the planting season.

1. Adequate vegetative stabilization requires 95 percent groundcover.
2. If an area has less than 40 percent groundcover, restabilize following the original recommendations for lime, fertilizer, seedbed preparation, and seeding.
3. If an area has between 40 and 94 percent groundcover, over-seed and fertilize using half of the rates originally specified.
4. Maintenance fertilizer rates for permanent seeding are shown in Table B.6.

B-4-1 STANDARDS AND SPECIFICATIONS

FOR

INCREMENTAL STABILIZATION

Definition

Establishment of vegetative cover on cut and fill slopes.

Purpose

To provide timely vegetative cover on cut and fill slopes as work progresses.

Conditions Where Practice Applies

Any cut or fill slope greater than 15 feet in height. This practice also applies to stockpiles.

Criteria

A. Incremental Stabilization - Cut Slopes

1. Excavate and stabilize cut slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all cut slopes as the work progresses.
2. Construction sequence example (Refer to Figure B.1):
   a. Construct and stabilize all temporary swales or dikes that will be used to convey runoff around the excavation.
   b. Perform Phase 1 excavation, prepare seedbed, and stabilize.
   c. Perform Phase 2 excavation, prepare seedbed, and stabilize. Overseed Phase 1 areas as necessary.
   d. Perform final phase excavation, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.

Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

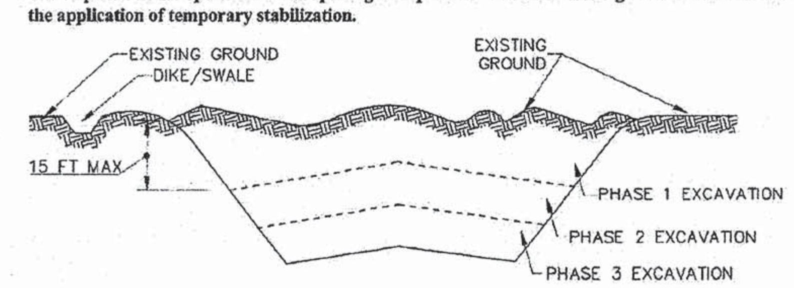

Figure B.1: Incremental Stabilization – Cut

B. Incremental Stabilization - Fill Slopes

1. Construct and stabilize fill slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all slopes as the work progresses.
2. Stabilize slopes immediately when the vertical height of a lift reaches 15 feet, or when the grading operation ceases as prescribed in the plans.
3. At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.
4. Construction sequence example (Refer to Figure B.2):
   a. Construct and stabilize all temporary swales or dikes that will be used to divert runoff around the fill. Construct silt fence on low side of fill unless other methods shown on the plans address this area.
   b. At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.
   c. Place Phase 1 fill, prepare seedbed, and stabilize.
   d. Place Phase 2 fill, prepare seedbed, and stabilize.
   e. Place final phase fill, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.

Note: Once the placement of fill has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

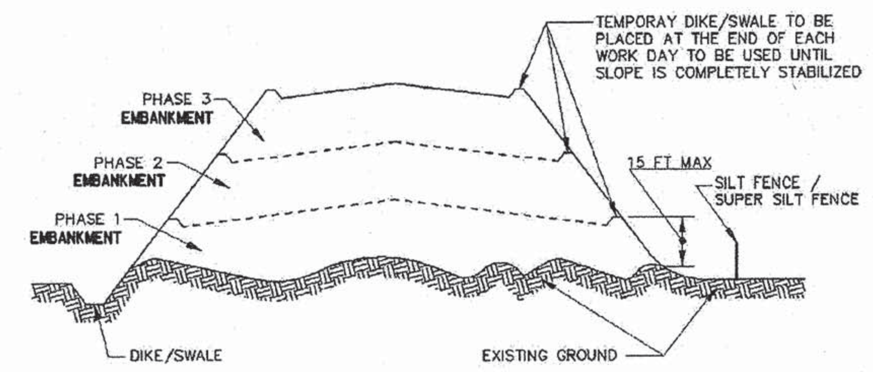

Figure B.2: Incremental Stabilization – Fill

B-4-2 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.

   d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.
   e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

B. Topsoiling

1. 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-4-3 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 phyto-toxic materials.
2. Application
   a. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
      i. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries.
      ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good seed to soil contact.

   b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.
      i. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.
      ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.
   c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).
      i. If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P_2O_5 (phosphorous), 200 pounds per acre; K_2O (potassium), 200 pounds per acre.
      ii. Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
      iii. Mix seed and fertilizer on site and seed immediately and without interruption.
      iv. When hydroseeding do not incorporate seed into the soil.

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, caked, decayed, or excessively dusty. **Note: Use only sterile straw mulch in areas where one species of grass is desired.**
   b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state.
      i. WCFM is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
      ii. WCFM, including dye, must contain no germination or growth inhibiting factors.
      iii. WCFM materials are to be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a blotter-like ground cover, on application, having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
      iv. WCFM material must not contain elements or compounds at concentration levels that will be phyto-toxic.
      v. WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
[signature] 2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM – HORIZ.: NAD 83 (ADJ. '07); VERT.: NAVD 88

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SEAL: STATE OF MARYLAND – KAREN R. POWELL – 14942 – PROFESSIONAL ENGINEER – 2-13-15

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ENGINEERS
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SCIENTISTS
CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818

Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE	JAN. 2015
SCALE	N.T.S.
DESIGNED BY	CW
DRAWN BY	KP

BALTIMORE COUNTY
EROSION AND SEDIMENT CONTROL DETAILS
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO. ECD-1.00
SHEET 44 OF 61
KCI JOB NUMBER 16-121849

PLOTTED: "09:33 AM on Thursday, January 15, 2015"
BY: Christopher Deibel Division: P050 Natural Res Emp
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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.17

B-4-4 STANDARDS AND SPECIFICATIONS

FOR

TEMPORARY STABILIZATION

Definition

To stabilize disturbed soils with vegetation for up to 6 months.

Purpose

To use fast growing vegetation that provides cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

Criteria

1. Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan.

2. For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.

3. When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3.A.1.b and maintain until the next seeding season.

Temporary Seeding Summary

Hardiness Zone (from Figure B.3): 6B Seed Mixture (from Table B.1):					Fertilizer Rate (10-20-20)	Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths		
	Note: See Table B.1	this sheet.			436 lb/ac (10 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)

Hardiness Zone (from Figure B.3): 7A Seed Mixture (from Table B.1):					Fertilizer Rate (10-20-20)	Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths		
	Note: See Table B.1	this sheet.			436 lb/ac (10 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)

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 Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.

b. Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.

c. For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency.

d. For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 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

B.21

rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.

iii. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes; Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.

iv. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes; Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 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

Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a)

Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b)

Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)

d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 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 seedings 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 seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

B.22

Permanent Seeding Summary

Hardiness Zone (from Figure B.3): 6B Seed Mixture (from Table B.3):					Fertilizer Rate (10-20-20)			Lime Rate
No.	Species	Application Rate (lb/ac)	*Seeding Dates	Seeding Depths	N	P_2O_5	K_2O	
Mix #3	Deertongue	20	Mar 1-June 15	1/4-1/2 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)
	Canada Wild Rye	3						
	Redtop	1						
	Common Lespedeza	10						
Mix #10	Orchard Grass	25	Mar 1-May 15 Aug 1-Oct 15	1/4-1/2 in				
	Creeping Red Fescue	10						
	Redtop	1						
	Alsike Clover	3						
	White Clover	3						
Mix #12	Creeping Red Fescue	25	Mar 1-May 15 Aug 1-Oct 15	1/4-1/2 in				
	Hard Fescue	25						
	Sheep Fescue	25						
	White Clover	3						
	Red Clover	3						

*For the period May 16-July 31, add either Foxtail or Pearl Millet to the permanent mix
- 2 lbs./acre to mix #10
- 4 lbs./acre to mix #12

Hardiness Zone (from Figure B.3): 7A Seed Mixture (from Table B.3):					Fertilizer Rate (10-20-20)			Lime Rate
No.	Species	Application Rate (lb/ac)	*Seeding Dates	Seeding Depths	N	P_2O_5	K_2O	
Mix #3	Deertongue	20	Feb 15-May 31	1/4-1/2 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)
	Canada Wild Rye	3						
	Redtop	1						
	Common Lespedeza	10						
Mix #10	Orchard Grass	25	Feb 15-April 30 Aug 15-Nov 30	1/4-1/2 in				
	Creeping Red Fescue	10						
	Redtop	1						
	Alsike Clover	3						
	White Clover	3						
Mix #12	Creeping Red Fescue	25	Feb 15-April 30 Aug 15-Nov 30	1/4-1/2 in				
	Hard Fescue	25						
	Sheep Fescue	25						
	White Clover	3						
	Red Clover	3						

*For the period May 1-August 14, add either Foxtail or Pearl Millet to the permanent mix
- 2 lbs./acre to mix #10
- 4 lbs./acre to mix #12

NOTE: ALSIKE CLOVER CAN BE TOXIC TO HORSES. OMIT ALSIKE CLOVER IF USING MIX #10 FOR PASTURES.

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 subsoil immediately prior to laying the sod.

b. Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tightly wedged against each other. Stagger lateral joints to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.

c. Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints. Roll and tamp, peg or otherwise secure the sod to prevent slippage on slopes. Ensure solid contact exists between sod roots and the underlying soil surface.

d. Water the sod immediately following rolling and tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping and irrigating for any piece of sod within eight hours.

3. Sod Maintenance

a. In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent 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 ⅓ 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.

Table B.1: Temporary Seeding for Site Stabilization

Plant Species	Seeding Rate [1]		Seeding Depth [2] (inches)	Recommended Seeding Dates by Plant Hardiness Zone [3]		
	lb/ac	lb/1000 ft²		5b and 6a	(6b)	(7a) and 7b
Cool-Season Grasses						
Annual Ryegrass (*Lolium perenne ssp. multiflorum*)	40	1.0	0.5	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Barley (*Hordeum vulgare*)	96	2.2	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Oats (*Avena sativa*)	72	1.7	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Wheat (*Triticum aestivum*)	120	2.8	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Cereal Rye (*Secale cereale*)	112	2.8	1.0	Mar 15 to May 31; Aug 1 to Oct 31	Mar 1 to May 15; Aug 1 to Nov 15	Feb 15 to Apr 30; Aug 15 to Dec 15
Warm-Season Grasses						
Foxtail Millet (*Setaria italica*)	30	0.7	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14
Pearl Millet (*Pennisetum glaucum*)	20	0.5	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14

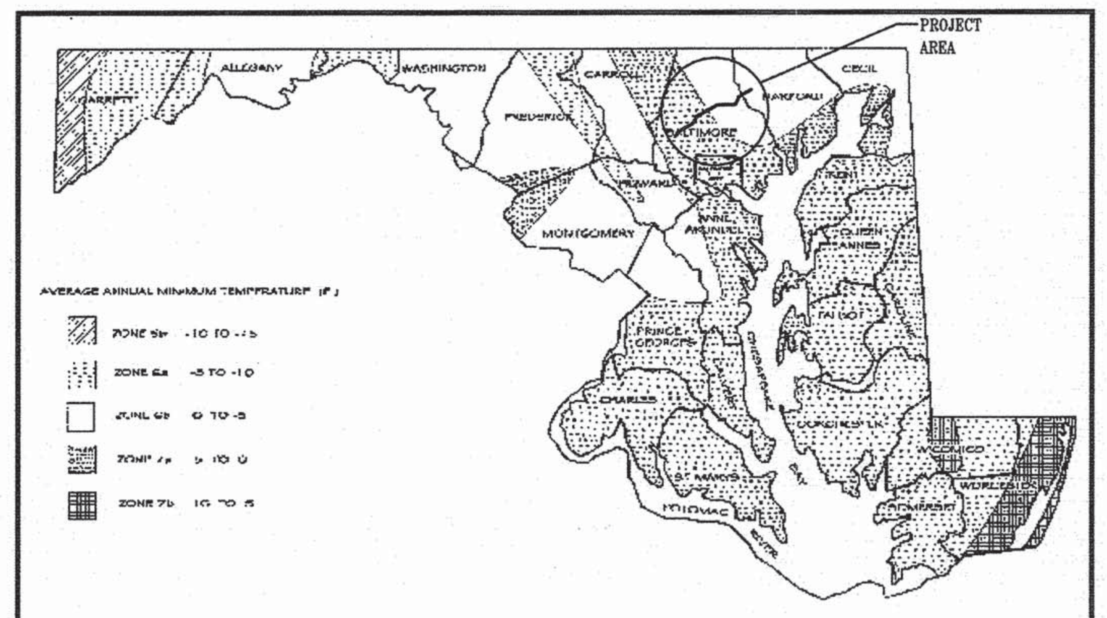
NOTES:
1/ Seeding rates for the warm-season grasses are in pounds of Pure Live Seed (PLS). Actual planting rates shall be adjusted to reflect percent seed germination and purity, as tested. Adjustments are usually not needed for the cool-season grasses.

Seeding rates listed above are for temporary seedings, when planted alone. When planted as a nurse crop with permanent seed mixes, use 1/3 of the seeding rate listed above for barley, oats, and wheat. For smaller-seeded grasses (annual ryegrass, pearl millet, foxtail millet), do not exceed more than 5% (by weight) of the overall permanent seeding mix. Cereal rye generally should not be used as a nurse crop, unless planting will occur in very late fall beyond the seeding dates for other temporary seedings. Cereal rye has allelopathic properties that inhibit the germination and growth of other plants. If it must be used as a nurse crop, seed at 1/3 of the rate listed above.

Oats are the recommended nurse crop for warm-season grasses.

2/ For sandy soils, plant seeds at twice the depth listed above.
3/ The planting dates listed are averages for each Zone and may require adjustment to reflect local conditions, especially near the boundaries of the zone.

B.20



Plant Hardiness Zones delineate areas where a species can be successfully established based on average annual minimum temperatures.

Figure B.3: U.S.D.A. Plant Hardiness Zones

B.19

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM - HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

PLOTTED: "09:33 AM on Thursday, January 15, 2015"
BY: Christopher Deibel Division: P050 Natural Res Emp
FILE: M:\2012\16121849\drawings\WR\ESC-Details-02-BC-phase2.dgn

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. 14942 EXPIRATION DATE: 6/01/2016

SEAL: STATE OF MARYLAND — KAREN R. POWELL — 14942 — PROFESSIONAL ENGINEER — 2-13-15

KCI TECHNOLOGIES
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818

Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE: JAN. 2015
SCALE: N.T.S.
DESIGNED BY: CW
DRAWN BY: KP

BALTIMORE COUNTY
EROSION AND SEDIMENT CONTROL DETAILS
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO. ECD-1.01
SHEET 45 OF 61
KCI JOB NUMBER 16-121849

12-NT-0453/201261660
BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS

1. NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.

2. 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.

3. 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.

4. 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.

5. REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO 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.

6. RECTIFY ANY NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, OR 100-YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.

7. 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 (UNIOLA 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.

8. AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST-CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.

9. 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 OF MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.
USE III WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD OF OCTOBER 1 THROUGH APRIL 30, INCLUSIVE, DURING ANY YEAR.
USE IV WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD OF MARCH 1 THROUGH MAY 31, INCLUSIVE, DURING ANY YEAR.

10. STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.

11. 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.

MGWC 1.2: PUMP-AROUND PRACTICE

Temporary measure for dewatering in-channel construction sites

DESCRIPTION

The work should consist of installing a temporary pump around and supporting measures to divert flow around in-stream construction sites.

IMPLEMENTATION SEQUENCE

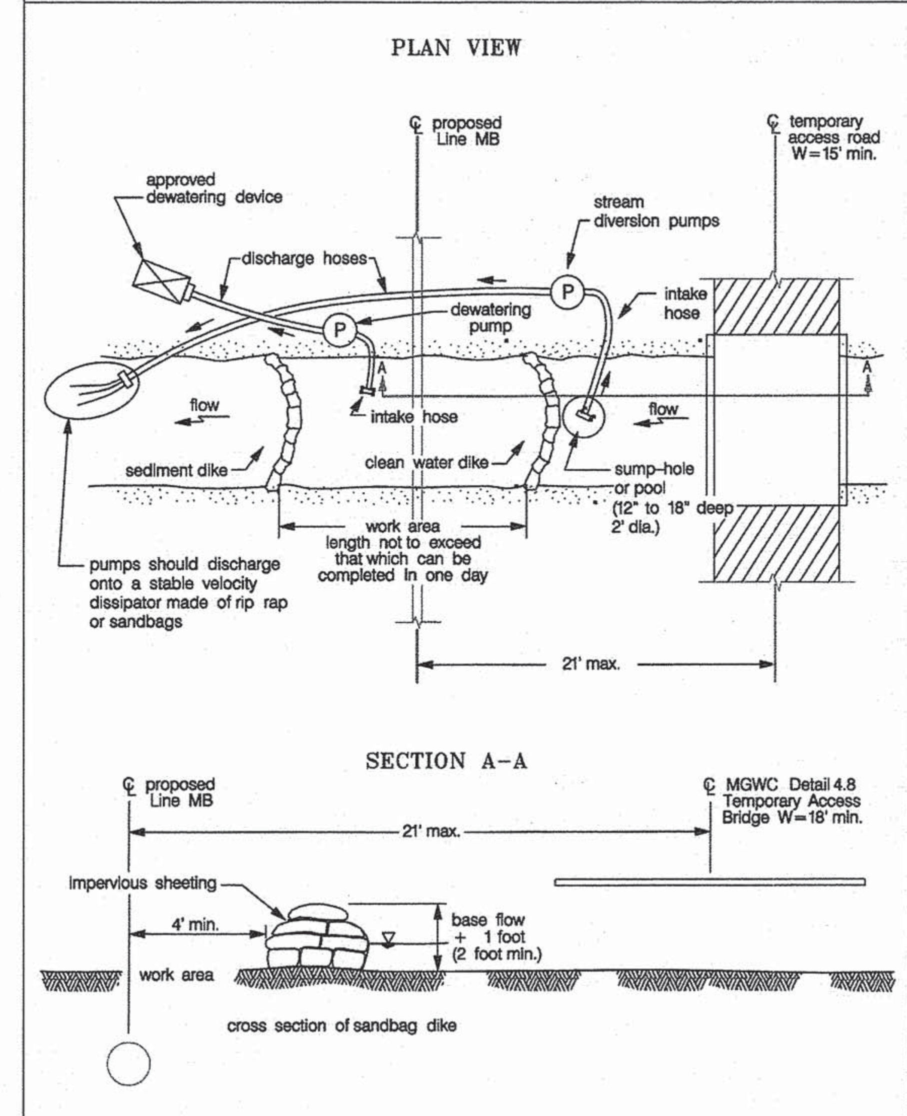
Sediment control measures, pump-around practices, and associated channel and bank construction should be completed in the following sequence (refer to Detail 1.2):

1. Construction activities including the installation of erosion and sediment control measures should not begin until all necessary easements and/or right-of-ways have been acquired. All existing utilities should be marked in the field prior to construction. The contractor is responsible for any damage to existing utilities that may result from construction and should repair the damage at his/her own expense to the county's or utility company's satisfaction.
2. The contractor should notify the Maryland Department of the Environment or WMA sediment control inspector at least 5 days before beginning construction. Additionally, the contractor should inform the local environmental protection and resource management inspection and enforcement division and the provider of local utilities a minimum of 48 hours before starting construction.
3. The contractor should conduct a pre-construction meeting on site with the WMA sediment control inspector, the county project manager, and the engineer to review limits of disturbance, erosion and sediment control requirements, and the sequence of construction. The contractor should stake out all limits of disturbance prior to the pre-construction meeting so they may be reviewed. The participants will also designate the contractor's staging areas and flag all trees within the limit of disturbance which will be removed for construction access. Trees should not be removed within the limit of disturbance without approval from the WMA or local authority.
4. Construction should not begin until all sediment and erosion control measures have been installed and approved by the engineer and the sediment control inspector. The contractor should stay within the limits of the disturbance as shown on the plans and minimize disturbance within the work area whenever possible.
5. Upon installation of all sediment control measures and approval by the sediment control inspector and the local environmental protection and resource management inspection and enforcement division, the contractor should begin work at the upstream section and proceed downstream beginning with the establishment of stabilized construction entrances. In some cases, work may begin downstream if appropriate. The sequence of construction must be followed unless the contractor gets written approval for deviations from the WMA or local authority. The contractor should only begin work in an area which can be completed by the end of the day including grading adjacent to the channel. At the end of each work day, the work area must be stabilized and the pump around removed from the channel. Work should not be conducted in the channel during rain events.
6. Sandbag dikes should be situated at the upstream and downstream ends of the work area as shown on the plans, and stream flow should be pumped around the work area. The pump should discharge onto a stable velocity dissipater made of riprap or sandbags.

MGWC 1.2: PUMP-AROUND PRACTICE

7. Water from the work area should be pumped to a sediment filtering measure such as a dewatering basin, sediment bag, or other approved source. The measure should be located such that the water drains back into the channel below the downstream sandbag dike.
8. Traversing a channel reach with equipment within the work area where no work is proposed should be avoided. If equipment has to traverse such a reach for access to another area, then timber mats or similar measures should be used to minimize disturbance to the channel. Temporary stream crossings should be used only when necessary and only where noted on the plans or specified. (*See Section 4, Stream Crossings, Maryland Guidelines to Waterway Construction*).
9. All stream restoration measures should be installed as indicated by the plans and all banks graded in accordance with the grading plans and typical cross- sections. All grading must be stabilized at the end of each day with seed and mulch or seed and matting as specified on the plans.
10. After an area is completed and stabilized, the clean water dike should be removed. After the first sediment flush, a new clean water dike should be established upstream from the old sediment dike. Finally, upon establishment of a new sediment dike below the old one, the old sediment dike should be removed.
11. A pump around must be installed on any tributary or storm drain outfall which contributes baseflow to the work area. This should be accomplished by locating a sandbag dike at the downstream end of the tributary or storm drain outfall and pumping the stream flow around the work area. This water should discharge onto the same velocity dissipater used for the main stem pump around.
12. If a tributary is to be restored, construction should take place on the tributary before work on the main stem reaches the tributary confluence. Construction in the tributary, including pump around practices, should follow the same sequence as for the main stem of the river or stream. When construction on the tributary is completed, work on the main stem should resume. Water from the tributary should continue to be pumped around the work area in the main stem.
13. The contractor is responsible for providing access to and maintaining all erosion and sediment control devices until the sediment control inspector approves their removal.
14. After construction, all disturbed areas should be regraded and revegetated as per the planting plan.

Maryland's Guidelines To Waterway Construction
DETAIL 1.2: PUMP-AROUND PRACTICE



TEMPORARY INSTREAM CONSTRUCTION MEASURES	MODIFIED N.T.S.	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

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

1. DISCONNECT OR OTHERWISE PROTECT ALL HOSES FROM DAMAGE BY CROSSING EQUIPMENT. FILTER BAG FOR DEWATERING MUST BE PLACED WITHIN THE LOD.

2. STREAMS WITH NO PERCEIVABLE FLOW AT THE TIME OF CROSSING WILL BE CROSSED USING THE OPEN-CUT CROSSING METHOD WITH NO WATER DIVERSION. A DIVERSION PIPE WILL BE KEPT ON SITE AND INSTALLED IN ACCORDANCE WITH MGWC 1.4 IF FLOW BEGINS. THE CONTRACTOR WILL UTILIZE THE DAM AND PUMP (PUMP-AROUND) METHOD FOR ALL PERENNIAL STREAMS AND INTERMITTENT STREAMS WITH SIGNIFICANT FLOW IN ACCORDANCE WITH MGWC 1.2.

3. THE PLACEMENT OF TIMBER MATS WITHIN THE 100-YEAR FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOODPLAIN IS SHOWN ON THE PLAN. HOWEVER, COLUMBIA MAY REQUEST THAT THE APPROVING AGENCIES REDLINE THE PLAN TO INDICATE THAT NO MATTING IS NEEDED.

4. STREAMS IDENTIFIED WITHIN THE LINE MB EXTENSION PROJECT SURVEY CORRIDOR ARE NOT DESIGNATED AS TIER II OR TIER III STREAMS BY THE CODE OF MARYLAND REGULATIONS (COMAR) SECTIONS 26.08.02.04-1. AS OUTLINED IN THE COMAR, ALL WATERBODIES NOT LISTED AS TIER II OR TIER III WATERS ARE TIER I. AS SUCH, ALL WATERBODIES IDENTIFIED WITHIN THE LINE MB EXTENSION PROJECT SURVEY CORRIDOR ARE TIER I STREAMS. HOWEVER, IN ORDER TO LIMIT POTENTIAL IMPACTS, COLUMBIA WILL USE CONSTRUCTION AND EROSION CONTROL METHODS AS SPECIFIED IN THE FERC PLAN AND PROCEDURES AND COLUMBIA'S ECS MANUAL. ADDITIONALLY, COLUMBIA WILL UTILIZE ENHANCED BMPS AS REQUIRED FOR CONSTRUCTION ACTIVITIES IN TIER II WATERSHEDS FOR THE ENTIRE LINE MB EXTENSION PROJECT. EXAMPLES OF ENHANCED BMPS INCLUDE ACCELERATED STABILIZATION, ENHANCED SCHEDULING (E.G., REVIEWING THE WEATHER FORECAST TO AVOID WORK DURING TIMES OF HIGH SEDIMENT TRANSPORT RISK), ENHANCED INSPECTIONS, AND USING SUPER SILT FENCE IN PLACE OF SILT FENCE. ENHANCED BMPS HAVE BEEN INCORPORATED INTO THE PROJECT PLAN WHICH WILL BE SUBMITTED TO MDE FOR REVIEW AND APPROVAL.

5. BLASTING WILL BE CONDUCTED UNDER A SPECIFIC BLASTING PLAN AS APPROVED BY MDE, WHICH INCLUDES INFORMATION ON AVOIDING AND STRICTLY MINIMIZING SURFACE DISTURBANCE. BLASTING WILL BE OVERSEEN BY A CERTIFIED PERSON/PROJECT MANAGER. BLASTING DESIGN, BMPS, AND MONITORING WILL ENSURE THAT NO SIGNIFICANT VIBRATIONS, EXCESSIVE SOUND WAVES, OR DISTURBANCES OF SIGNIFICANCE OCCUR WITHIN THE WATER COLUMN OF THE STREAM. STREAM DIVERSIONS, DRILLING PROCEDURES, CAPPING OF HOLES, MATTING, ETC. WILL BE UTILIZED TO AVOID BLASTING IMPACTS TO THE FLOWING STREAM.

6. UTILITY STREAM CROSSINGS SHALL BE IN ACCORDANCE WITH THE MARYLAND GUIDELINES FOR WATERWAY CONSTRUCTION (MGWC) DETAIL 4.2(a). SEE DWG. NO. ECD-1.03.

MGWC 1.5: SANDBAG/STONE CHANNEL DIVERSION

Temporary measure for dewatering in-channel construction sites

DESCRIPTION

The work should consist of installing sandbag or stone flow diversions for the purpose of erosion control when construction activities occur within the stream channel.

EFFECTIVE USES & LIMITATIONS

Diversions are used to isolate work areas from flow during the construction of in-stream projects. Diversions which have an insufficient flow capacity can fail and severely erode the disturbed channel section under construction. Therefore, in-channel construction activities should occur only during periods of low rainfall. This temporary measure may not be practical in large channels.

MATERIAL SPECIFICATIONS

Materials for sandbag and stone stream diversions should meet the following requirements:

- *Riprap*: Riprap should be washed and have a minimum diameter of 6 inches (0.15 meters).
- *Sandbags*: Sandbags should consist of materials which are resistant to ultra-violet radiation, tearing, and puncture and should be woven tightly enough to prevent leakage of the fill material (i.e., sand, fine gravel, etc.).
- *Sheeting*: Sheeting should consist of polyethylene or other materials which are impervious and resistant to puncture and tearing.

INSTALLATION GUIDELINES

All erosion and sediment control devices, including dewatering basins, should be implemented as the first order of business according to a plan approved by the WMA or local authority. Installation should proceed from upstream to downstream during periods of low flow. If necessary, silt fence or straw bales should be installed around the perimeter of the work area.

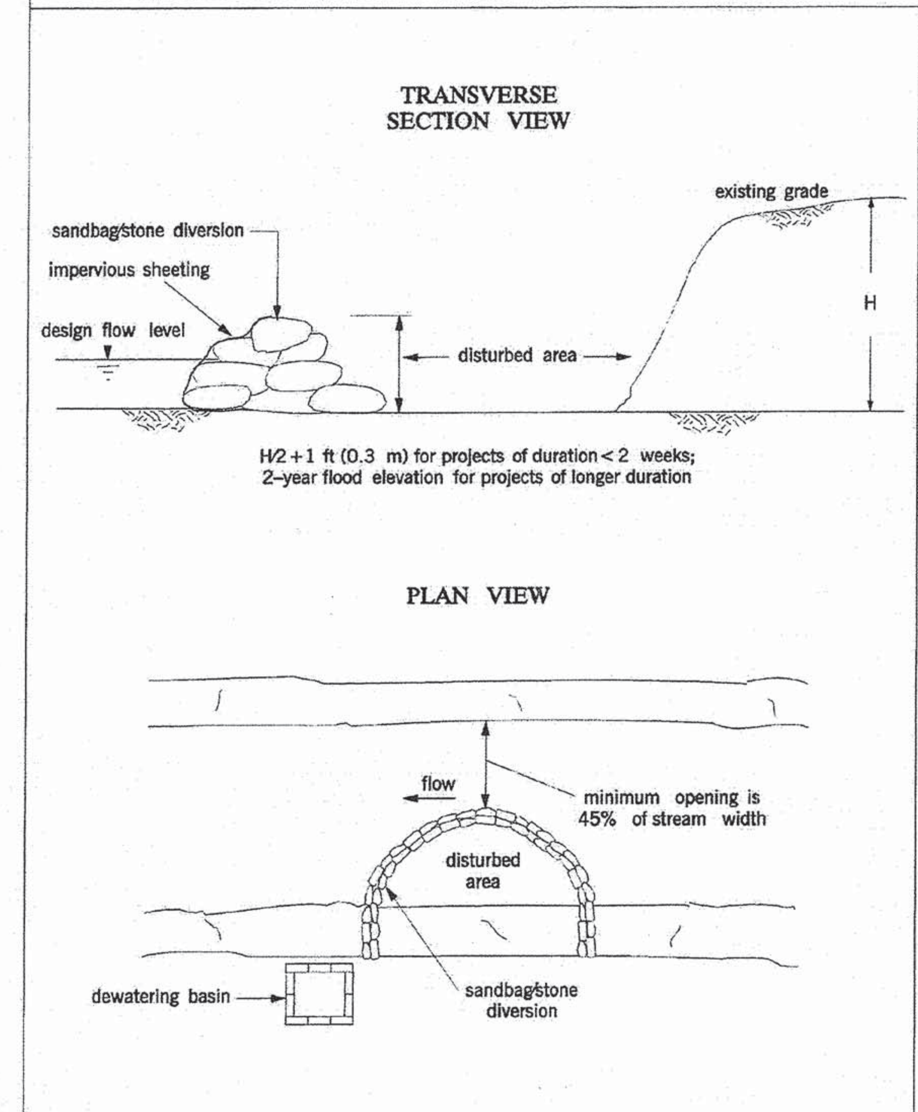
Sandbag/stone diversions can be used independently or as components of other stream diversion techniques. Installation of this measure should proceed as follows (refer to Detail 1.5):

1. The diversion structure should be installed from upstream to downstream.
2. The height of the sandbag/stone diversion should be a function of the duration of the project in the stream reach. For projects with a duration less than 2 weeks, the height of the diversion should be one half the streambank height, measured from the channel bed, plus 1 foot (0.3 meters) or bankfull height, whichever is greater. For projects of longer duration, the top of the sandbag or stone diversion should correspond to bankfull height. For diversion structures utilizing sandbags, the stream bed should be hand prepared prior to placement of the base layer of sandbags in order to ensure a water tight fit. Additionally, it may be necessary to prepare the bank in a similar fashion.
3. All excavated material should be deposited and stabilized in an approved area outside the 100-year floodplain unless otherwise authorized by the WMA.
4. Sediment-laden water from the construction area should be pumped to a dewatering basin.

MGWC 1.5: SANDBAG/STONE CHANNEL DIVERSION

5. Sheeting on the diversion should be positioned such that the upstream portion covers the downstream portion with at least a 18-inch (0.45 meters) overlap.
6. Sandbag or stone diversions should not obstruct more than 45% of the stream width. Additionally, bank stabilization measures should be placed in the constricted section if accelerated erosion and bank scour are observed during the construction time or if project time is expected to last more than 2 weeks.
7. Prior to removal of these temporary structures, any accumulated sediment should be removed, deposited and stabilized in an approved area outside the 100-year floodplain unless authorized by the WMA.
8. Sediment control devices are to remain in place until all disturbed areas are stabilized in accordance with an approved sediment and erosion control plan and the inspecting authority approves their removal.

Maryland's Guidelines To Waterway Construction
DETAIL 1.5: SANDBAG/STONE DIVERSION



TEMPORARY INSTREAM CONSTRUCTION MEASURES	REVISED NOVEMBER 2000 PAGE 1.5 - 3	MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM - HORIZ.: NAD 83 (ADJ. '07); VERT.: NAVD 88

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. 14942
EXPIRATION DATE: 6/01/2016

SEAL — STATE OF MARYLAND — KAREN R. POWELL — 14942 — PROFESSIONAL ENGINEER — 2-13-15

KCI TECHNOLOGIES
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818

Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE	JAN. 2015
SCALE	N.T.S.
DESIGNED BY	CW
DRAWN BY	KP

BALTIMORE COUNTY
EROSION AND SEDIMENT CONTROL DETAILS
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO. ECD-1.02
SHEET 46 OF 61
KCI JOB NUMBER 16-121849

PLOTTED: "09:33 AM on Thursday, January 15, 2015"
BY: Christopher Deibel Division: P050 Natural Res Emp
FILE: M:\2012\16121849\drawings\WR\ESC-Details-03-BC-phase2.dgn

MGWC 4.2: UTILITY CROSSING

Temporary in-stream construction

DESCRIPTION

The work should consist of installing erosion control devices in and adjacent to the construction of utility crossings.

INSTALLATION GUIDELINES

All erosion and sediment control devices, including dewatering basins, should be implemented as the first order of business according to a plan approved by the WMA or local authority. (See *the* **2011** *Maryland Standards and Specifications for Soil Erosion and Sediment Control.*) The proposed construction sequence is as follows (refer to Detail 4.2):

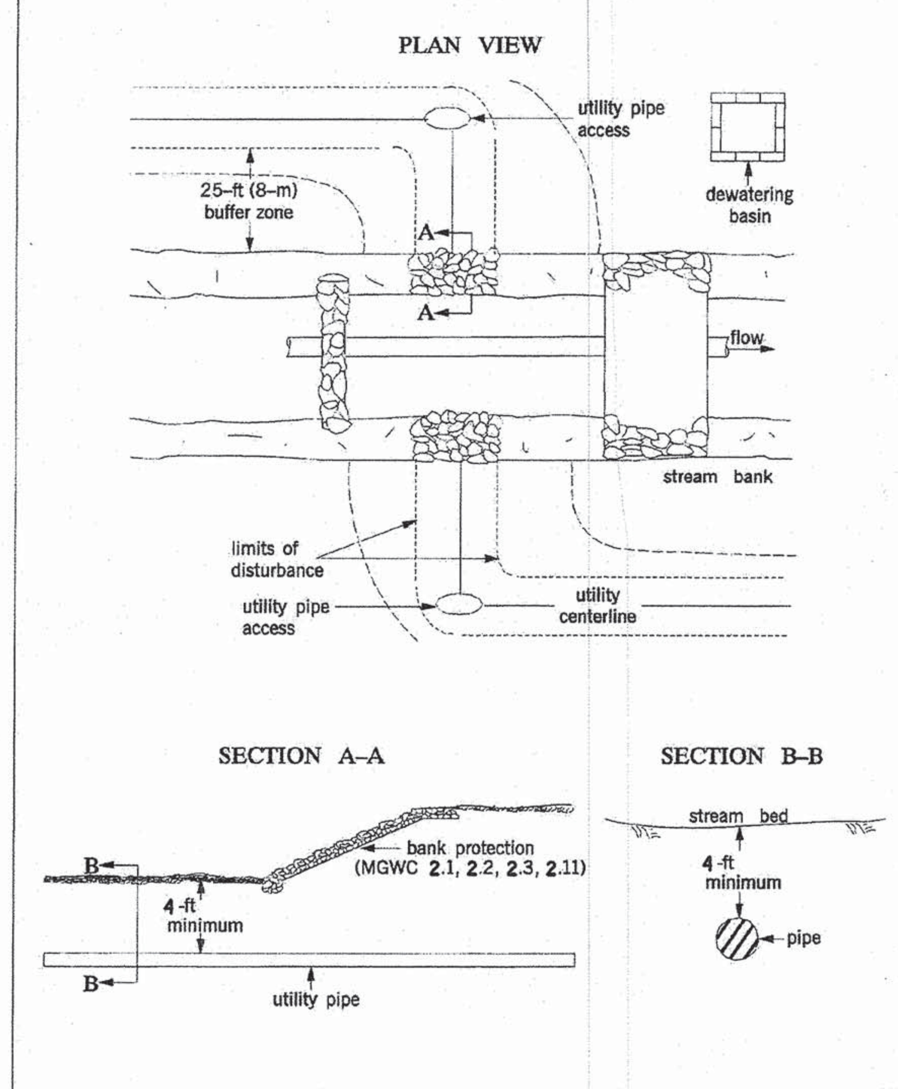
1. The contractor should insure that a continuous perimeter control barrier is in place to minimize the amount of pollutants entering the flow. A diversion pipe as shown in MGWC 1.4: Diversion Pipe or other measure should be installed and sandbag or stone barriers as shown in MGWC 1.5: Sandbag/Stone Diversion should be constructed according to specifications to divert the streamflow.
2. Excavated topsoil and subsoil should be kept separate, placed on the upland side of the excavation, and replaced in their natural order.
3. All construction should take place during stream low flows. The length of construction time should be limited to a maximum of 5 consecutive days for each crossing.

*4. **Line MB will be installed at a minimum of 4 feet below the streambed, which exceeds the minimum 3 feet of cover required by USDOT/PHMSA. Upon backfill, the streambed will be restored with original stream materials.**

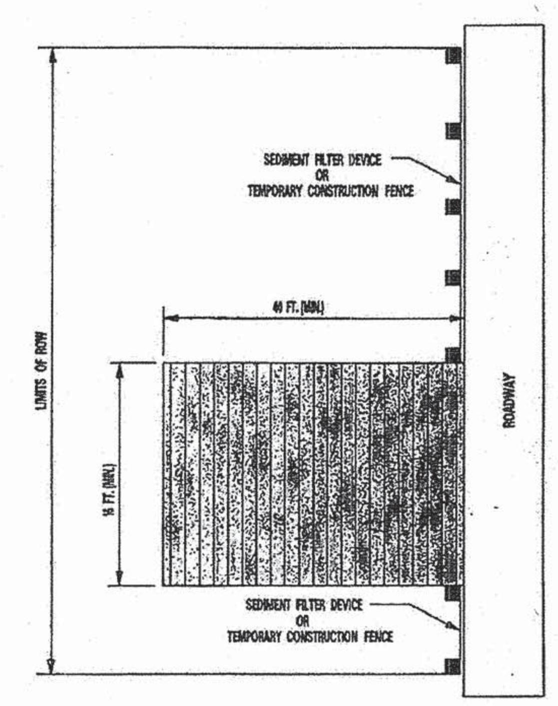
5. The stream should be diverted by an approved temporary stream diversion, the construction area should be dewatered, and any disturbed banks should be stabilized. The contractor may elect to construct the utility crossing in two stages. In this case, a WMA approved flow barrier may be constructed to keep the construction area dry.
6. Once the crossing is completed, the diversion should be removed from upstream to downstream. Sediment control devices, including perimeter erosion controls, are to remain in place until all disturbed areas are stabilized in accordance with an approved sediment and erosion control plan and the inspection authority approves their removal.

* MODIFIED

Maryland's Guidelines To Waterway Construction
DETAIL 4.2(a): UTILITY CROSSING



L. Figure 11 – Temporary Road Entrance Board Road



NOTES:
1. BOARD ROADS TO BE USED IN WETLANDS AND ROADWAY ENTRANCES FOR TEMPORARY ACCESS ROADS.
2. BOARD ROADS ARE CONSTRUCTED BY LAYERING A BASE OF THE INTERLOCKING MATS PARALLEL TO THE ROAD IN A STAGGERED MANNER. OTHER METHODS OF BOARD ROAD CONSTRUCTION MAY BE USED IF APPROVED BY THE EM & CP PREPARER.
3. BOARD ROADS WILL BE UNDERLAIN WITH GEOTEXTILE FABRIC.

NOT TO SCALE

Columbia Gas Transmission — ENVIRONMENTAL CONSTRUCTION STANDARDS	TEMPORARY ROAD ENTRANCE BOARD ROAD	FIGURE - 11

B-4-7 STANDARDS AND SPECIFICATIONS

FOR

HEAVY USE AREA PROTECTION

Definition

The stabilization of areas frequently and intensively used by surfacing with suitable materials (e.g., mulch and aggregate).

Purpose

To provide a stable, non-eroding surface for areas frequently used and to improve the water quality from the runoff of these areas.

Conditions Where Practice Applies

This practice applies to intensively used areas (e.g., equipment and material storage, staging areas, heavily used travel lanes).

Criteria

1. A minimum 4-inch base course of crushed stone or other suitable materials including wood chips over nonwoven geotextile should be provided as specified in Section H-1 Materials.
2. Select the stabilizing material based on the intended use, desired maintenance frequency, and runoff control.
3. The transport of sediments, nutrients, oils, chemicals, particulate matter associated with vehicular traffic and equipment, and material storage needs to be considered in the selection of material. Additional control measures may be necessary to control some of these potential pollutants.
4. Surface erosion can be a problem on large heavy use areas. In these situations, measures to reduce the flow length of runoff or erosive velocities need to be considered.

Maintenance

The heavy use areas must be maintained in a condition that minimizes erosion. This may require adding suitable material, as specified on the approved plans, to maintain a clean surface.

MGWC 4.8: TEMPORARY ACCESS BRIDGE

Temporary stream crossing intended for minimum corridor disturbance

DESCRIPTION

A temporary access bridge is a stream crossing made of wood, metal, or other materials designed to limit the amount of disturbance to the stream banks and bed.

EFFECTIVE USES & LIMITATIONS

Temporary access bridges are the preferred method of waterway crossing since they typically cause the least disturbance to the waterway bed and banks, pose the least chance for interference with fish migration, and can be quickly removed and reused.

MATERIAL SPECIFICATIONS

- *Stringers*: Stringers should either be logs, sawn timber, prestressed concrete beams, metal beams, or other approved materials.
- *Deck Materials*: Deck materials should be of sufficient strength to support the anticipated load.

CONSTRUCTION SEQUENCE

All erosion and sediment control devices, including stream diversions, should be implemented as the first order of business according to a plan approved by the WMA or local authority. Dewatering basins should be built as needed and swales or ditches should be used to prevent surface drainage from entering the stream via the bridge crossing. (See the **2011** *Maryland Standards and Specifications for Soil Erosion and Sediment Control.*) The proposed construction, maintenance, and removal sequence is as follows:

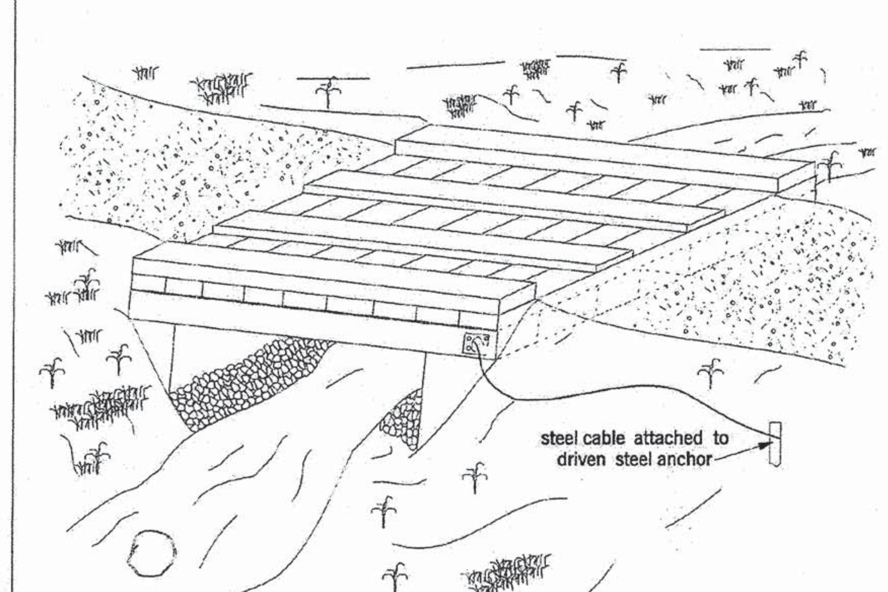
1. Abutments should be placed parallel to, and on, stable banks such that the structure is at or above bankfull depth to prevent the entrapment of floating materials and debris.
2. Temporary access bridges should be constructed to span the entire channel. If the bankfull channel width exceeds 8 feet (2.5 meters), then a footing, pier, or other bridge support may be constructed within the waterway. No support will be permitted within the channel for waterways less than 8 feet wide. One additional bridge support will be permitted for each additional 8-foot width of the channel.
3. All decking members should be placed perpendicularly to the stringers, butted tightly, and securely fastened to the stringers. Decking materials must be butted tightly to prevent any soil material tracked onto the bridge from falling into the waterway.
4. Although run planks are optional, they may be necessary to properly distribute loads. One run plank should be provided for each track of the equipment wheels and should be securely fastened to the length of the span.
5. Curbs or fenders may be installed along the outer sides of the deck to provide additional safety.
6. Bridges should be securely anchored at one end using steel cable or chain to prevent the bridge from floating downstream and possibly causing an obstruction to the flow. Anchoring at only one end will prevent channel obstruction in the event that flood waters float the bridge. Acceptable anchors are large trees, boulders, or driven steel anchors.

MGWC 4.8: TEMPORARY ACCESS BRIDGE

7. All areas disturbed during installation should be stabilized within 14 calendar days in accordance with a revegetation plan approved by the WMA.
8. Periodic inspection should be performed by the user to ensure that the bridge, streambed, and stream banks are maintained and not damaged.
9. Maintenance should be performed as needed to ensure that the structure complies with all standards and specifications. This should include the removal of trapped sediment and debris which should then be disposed of and stabilized outside the floodplain.
10. When the temporary bridge is no longer needed, all structures including abutments and other bridging materials should be removed within 14 calendar days. In all cases, the bridge materials should be removed within 1 year of installation. Removal of the bridge and clean-up of the area, including protection and stabilization of disturbed stream banks, should be accomplished without the use of construction equipment in the waterway.

Maryland's Guidelines To Waterway Construction
DETAIL 4.8: TEMPORARY ACCESS BRIDGE

SKETCH



B-4-8 STANDARDS AND SPECIFICATIONS

FOR

STOCKPILE AREA

Definition

A mound or pile of soil protected by appropriately designed erosion and sediment control measures.

Purpose

To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and changes to drainage patterns.

Conditions Where Practice Applies

Stockpile areas are utilized when it is necessary to salvage and store soil for later use.

Criteria

1. The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan.
2. The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1. Benching must be provided in accordance with Section B-3 Land Grading.
3. Runoff from the stockpile area must drain to a suitable sediment control practice.
4. Access the stockpile area from the upgrade side.
5. Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or diversion fence. Provisions must be made for discharging concentrated flow in a non-erosive manner.
6. Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sediment control practice must be used to intercept the discharge.
7. Stockpiles must be stabilized in accordance with the 3/7 day stabilization requirement as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization.
8. If the stockpile is located on an impervious surface, a liner should be provided below the stockpile to facilitate cleanup. Stockpiles containing contaminated material must be covered with impermeable sheeting.

Maintenance

The stockpile area must continuously meet the requirements for Adequate Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization. Side slopes must be maintained at no steeper than a 2:1 ratio. The stockpile area must be kept free of erosion. If the vertical height of a stockpile exceeds 20 feet for 2:1 slopes, 30 feet for 3:1 slopes, or 40 feet for 4:1 slopes, benching must be provided in accordance with Section B-3 Land Grading.

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM – HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

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. 14942 EXPIRATION DATE: 6/01/2016

SEAL: STATE OF MARYLAND — KAREN R. POWELL — 14942 — PROFESSIONAL ENGINEER — 2.13.15

KCI TECHNOLOGIES
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818

Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE	JAN. 2015
SCALE	N.T.S.
DESIGNED BY	CW
DRAWN BY	KP

BALTIMORE COUNTY
EROSION AND SEDIMENT CONTROL DETAILS
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO. ECD-1.03
SHEET 47 OF 61
KCI JOB NUMBER 16-121849

PLOTTED: "09:33 AM on Thursday, January 15, 2015"
BY: Christopher Deibel Division: P050 Natural Res Emp
FILE: M:\2012\16121849\drawings\WR\ESC-Details-04-BC-phase2.dgn

MGWC 1.4: DIVERSION PIPE

Temporary measure for dewatering in-channel construction sites

DESCRIPTION

The work should consist of installing flow diversion pipes in combination with sandbag or stone diversions when construction activities occur within the stream channel.

EFFECTIVE USES & LIMITATIONS

Diversion pipes with an insufficient flow capacity can cause the channel diversion to fail thereby resulting in severe erosion of the disturbed channel section under construction. Therefore, in-channel construction activities should occur only during periods of low flow.

MATERIAL SPECIFICATIONS

Materials for stream diversions should meet the following requirements:

- *Riprap*: Stone should be washed and have a minimum diameter of 6 inches (15 centimeters).
- *Sandbags*: Sandbags should consist of materials which are resistant to ultra-violet radiation, tearing, and puncture and should be woven tightly enough to prevent leakage of fill material (i.e., sand, fine gravel, etc.).
- *Sheeting*: Sheeting should consist of polyethylene or other material which is impervious and resistant to puncture and tearing.

INSTALLATION GUIDELINES

All erosion and sediment control devices including mandatory dewatering basins should be installed as the first order of business according to a plan approved by the WMA or local authority. Installation should proceed from upstream to downstream during low flow conditions. If necessary, silt fence or straw bales should be installed around the perimeter of the work area.

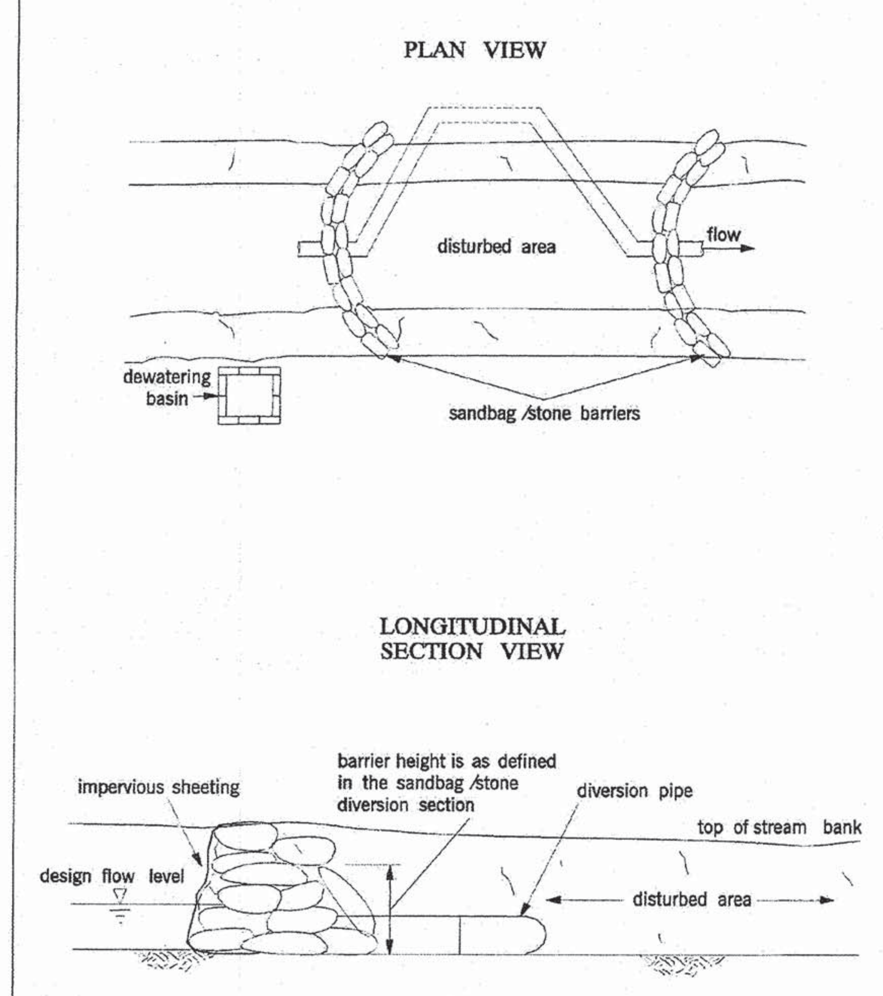
Diversion pipes with sandbag or stone barriers should be completed as follows (refer to Detail 1.4):

1. Sandbag/stone barriers should be sized and installed as detailed in MGWC 1.5: Sandbag/Stone Diversion. The materials should be sized to withstand baseflow velocities.
2. All excavated material should be deposited and stabilized in an approved area outside the 100-year floodplain unless otherwise authorized by the WMA.
3. Sediment-laden water from the construction area should be pumped to a dewatering basin.
4. The diversion pipe should have a minimum capacity sufficient to convey the 2-year flow for projects with a duration of two weeks or greater. For projects of shorter duration, the capacity of the pipe can be reduced accordingly.
5. If necessary, silt fence or straw bales should be installed around the perimeter of the work area.
6. Sediment control devices are to remain in place until all disturbed areas are stabilized and the inspecting authority approves their removal.

TEMPORARY INSTREAM CONSTRUCTION MEASURES | *MARYLAND DEPARTMENT OF THE ENVIRONMENT WATERWAY CONSTRUCTION GUIDELINES REVISED NOVEMBER 2000*

PAGE 1.4 - 1

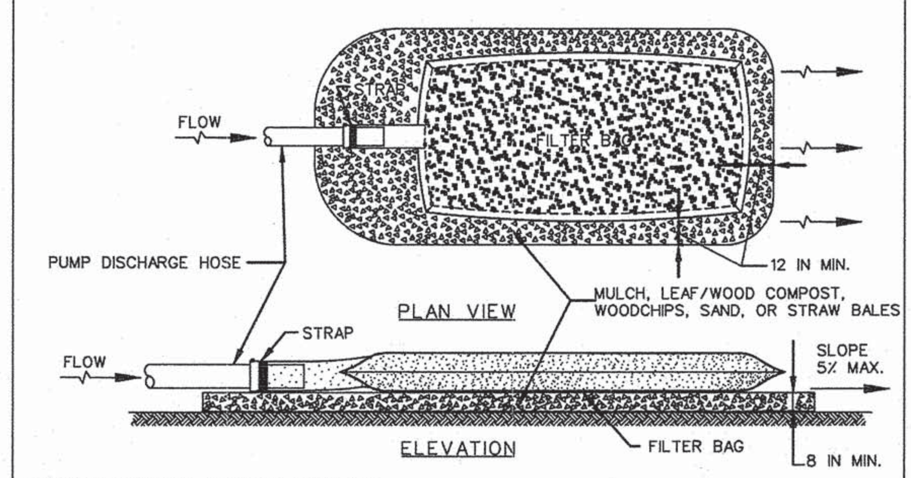
Maryland's Guidelines To Waterway Construction
DETAIL 1.4: DIVERSION PIPE



TEMPORARY INSTREAM CONSTRUCTION MEASURES	REVISED NOVEMBER 2000 PAGE 1.4 – 2	MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL F-4 FILTER BAG

STANDARD SYMBOL ☒FB



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 5% 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 DEWATERED 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	ASTM D-4632
PUNCTURE	150 LB	ASTM D-4833
FLOW RATE	70 GAL/MIN/FT^2	ASTM D-4491
PERMITTIVITY (SEC^{-1})	1.2 SEC^{-1}	ASTM D-4491
UV RESISTANCE	70% STRENGTH @ 500 HOURS	ASTM D-4355
APPARENT OPENING SIZE (AOS)	0.15-0.18 MM	ASTM D-4751
SEAM STRENGTH	90%	ASTM D-4632

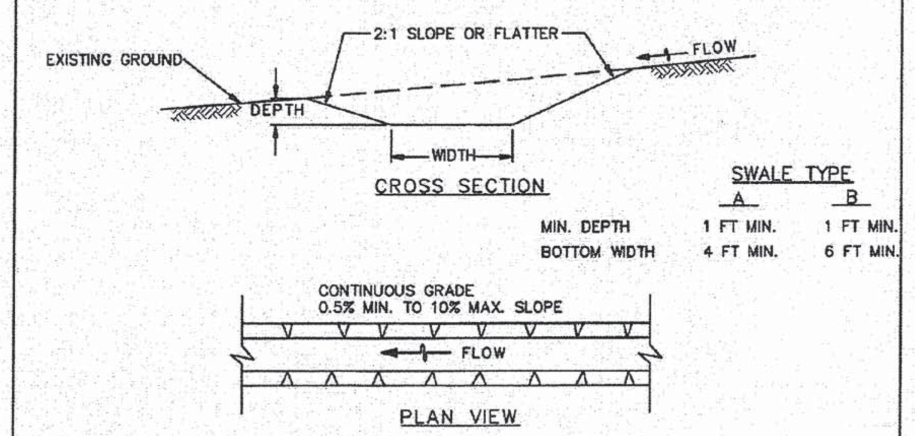
6. REPLACE FILTER BAG IF BAG CLOGS OR HAS RIPS, TEARS, OR PUNCTURES. DURING OPERATION KEEP CONNECTION BETWEEN PUMP HOSE AND FILTER BAG WATER TIGHT. REPLACE BEDDING IF IT BECOMES DISPLACED.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL C-2 TEMPORARY SWALE

STANDARD SYMBOL A-1



	SWALE TYPE A	SWALE TYPE B
MIN. DEPTH	1 FT MIN.	1 FT MIN.
BOTTOM WIDTH	4 FT MIN.	6 FT MIN.

FLOW CHANNEL STABILIZATION

- A-1 SEED WITH STRAW MULCH AND TACK. (NOT ALLOWED FOR CLEAR WATER DIVERSION.)
- A-2/B-2 SEED WITH SOIL STABILIZATION MATTING OR LINE WITH SOD.
- A-3/B-3 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE PRESSED INTO SOIL A MINIMUM OF 7 INCHES AND FLUSH WITH GROUND.

CONSTRUCTION SPECIFICATIONS

1. REMOVE AND DISPOSE OF ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SO AS NOT TO INTERFERE WITH PROPER FUNCTION OF TEMPORARY SWALE.
2. EXCAVATE OR SHAPE TEMPORARY SWALE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK PROJECTIONS OR OTHER IRREGULARITIES ARE NOT ALLOWED.
3. STABILIZE TEMPORARY SWALE WITHIN THREE DAYS OF INSTALLATION. STABILIZE SWALES USED FOR CLEAR WATER DIVERSION WITHIN 24 HOURS OF INSTALLATION.
4. CONSTRUCT FLOW CHANNEL ON AN UNINTERRUPTED, CONTINUOUS GRADE, ADJUSTING THE LOCATION DUE TO FIELD CONDITIONS AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE.
5. PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
6. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS, AND MAINTAIN POSITIVE DRAINAGE. KEEP TEMPORARY SWALE AND POINT OF DISCHARGE FREE OF EROSION, AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
7. UPON REMOVAL OF TEMPORARY SWALE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS OF REMOVAL STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

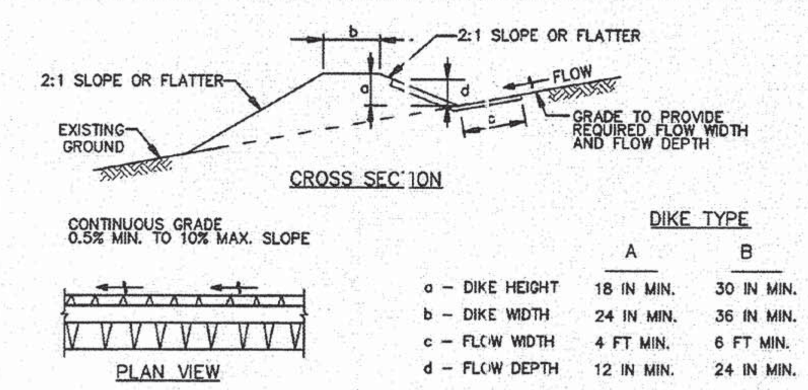
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

C.11

DETAIL C-1 EARTH DIKE

STANDARD SYMBOL A-1 PLACE DESIGNATION (e.g. A-1) ON FLOW CHANNEL SIDE OF DIKE.



	DIKE TYPE A	DIKE TYPE B
a – DIKE HEIGHT	18 IN MIN.	30 IN MIN.
b – DIKE WIDTH	24 IN MIN.	36 IN MIN.
c – FLOW WIDTH	4 FT MIN.	6 FT MIN.
d – FLOW DEPTH	12 IN MIN.	24 IN MIN.

FLOW CHANNEL STABILIZATION

- A-1 SEED WITH STRAW MULCH AND TACK. (NOT ALLOWED FOR CLEAR WATER DIVERSION.)
- A-2/B-2 SEED WITH SOIL STABILIZATION MATTING OR LINE WITH SOD.
- A-3/B-3 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE PRESSED INTO SOIL A MINIMUM OF 7 INCHES AND FLUSH WITH GROUND.

CONSTRUCTION SPECIFICATIONS

1. REMOVE AND DISPOSE OF ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SO AS NOT TO INTERFERE WITH PROPER FUNCTION OF EARTHDIKE.
2. EXCAVATE OR SHAPE EARTH DIKE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK PROJECTIONS OR OTHER IRREGULARITIES ARE NOT ALLOWED.
3. COMPACT FILL.
4. CONSTRUCT FLOW CHANNEL ON AN UNINTERRUPTED, CONTINUOUS GRADE, ADJUSTING THE LOCATION DUE TO FIELD CONDITIONS AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE.
5. PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
6. STABILIZE EARTH DIKE WITHIN THREE DAYS OF INSTALLATION. STABILIZE FLOW CHANNEL FOR CLEAR WATER DIVERSION WITHIN 24 HOURS OF INSTALLATION.
7. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS, AND MAINTAIN POSITIVE DRAINAGE. KEEP EARTH DIKE AND POINT OF DISCHARGE FREE OF EROSION, AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
8. UPON REMOVAL OF EARTH DIKE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS OF REMOVAL STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

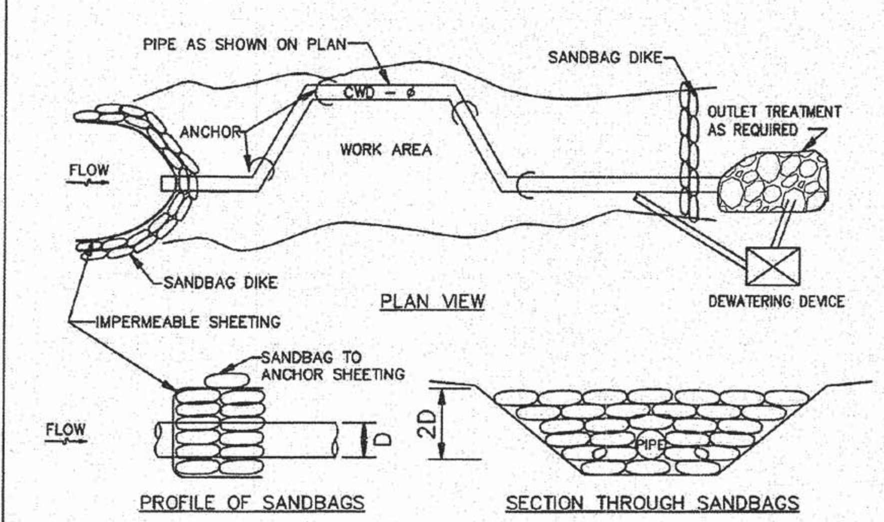
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

C.5

DETAIL C-6 CLEAR WATER DIVERSION PIPE

STANDARD SYMBOL CWD – 12 DESIGNATION CWD-12 REFERS TO 12 INCH CLEAR WATER DIVERSION.



CONSTRUCTION SPECIFICATIONS

1. FLEXIBLE PIPE IS PREFERRED. HOWEVER, CORRUGATED METAL PIPE OR EQUIVALENT PVC PIPE CAN BE USED. MAKE ALL JOINTS WATERTIGHT.
2. FOR SANDBAGS USE MATERIALS THAT ARE RESISTANT TO ULTRA-VIOLENT RADIATION, TEARING, AND PUNCTURE AND WOVEN TIGHTLY ENOUGH TO PREVENT LEAKAGE OF FILL MATERIAL.
3. USE 10 MIL OR THICKER, UV RESISTANT, IMPERMEABLE SHEETING OR OTHER APPROVED MATERIAL THAT IS IMPERMEABLE AND RESISTANT TO PUNTURING AND TEARING.
4. PLACE IMPERMEABLE SHEETING SUCH THAT UPGRADE PORTION OVERLAPS DOWNGRADE PORTION BY A MINIMUM OF 18 INCHES.
5. SET HEIGHT OF SANDBAG DIKE AT TWICE THE PIPE DIAMETER. MAINTAIN HEIGHT ALONG LENGTH OF SANDBAG DIKE. PLACE DOUBLE ROW OF SANDBAGS.
6. AT A MINIMUM, SECURELY ANCHOR DIVERSION PIPE AT EACH DOWNGRADE JOINT.
7. SET OUTLET END OF DIVERSION PIPE LOWER THAN INLET END.
8. PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
9. DEWATER WORK AREA USING AN APPROVED EROSION AND SEDIMENT CONTROL PRACTICE AS SPECIFIED ON APPROVED PLAN.
10. KEEP POINT OF DISCHARGE FREE OF EROSION. MAINTAIN WATER TIGHT CONNECTIONS AND POSITIVE DRAINAGE. REPLACE SANDBAGS AND IMPERMEABLE SHEETING IF TORN.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

C.20

Table H.3: Compost

Parameters[1]	Acceptable Range
pH	5.0 - 8.5
Moisture content	30% - 60%, wet weight basis
Organic matter content	25% - 65%, dry weight basis
Particle size	% passing a selected mesh size, dry weight basis 3 in (75 mm), 100% passing 1 in (25 mm), 90 – 100% passing 0.75 in (19 mm), 70 – 100% passing 0.25 in (6.4 mm), 30 – 60% passing 0.04 in (1 mm), 30% min. passing
Physical contaminants (manmade inerts)	<1% dry weight basis

Adapted from AASHTO Standards Specs for Compost Filter Socks and EPA Example Compost Filter Parameters.

[1] Recommended test methodologies are provided in Test Methods for the Examination of Composting and Compost (TMEC, The U.S Composting Council).

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM – HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

PLOTTED: "09:33 AM on Thursday, January 15, 2015"
BY: Christopher Deibel Division: P050 Natural Res Emp
FILE: M:\2012\16121849\drawings\WR\ESC-Details-04A-BC-phase2.dgn

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. 14942 EXPIRATION DATE: 6/01/2016

SEAL: STATE OF MARYLAND KAREN R. POWELL 14942 PROFESSIONAL ENGINEER 2-13-15

KCI TECHNOLOGIES — ENGINEERS, PLANNERS, SCIENTISTS, CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD, SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818

Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

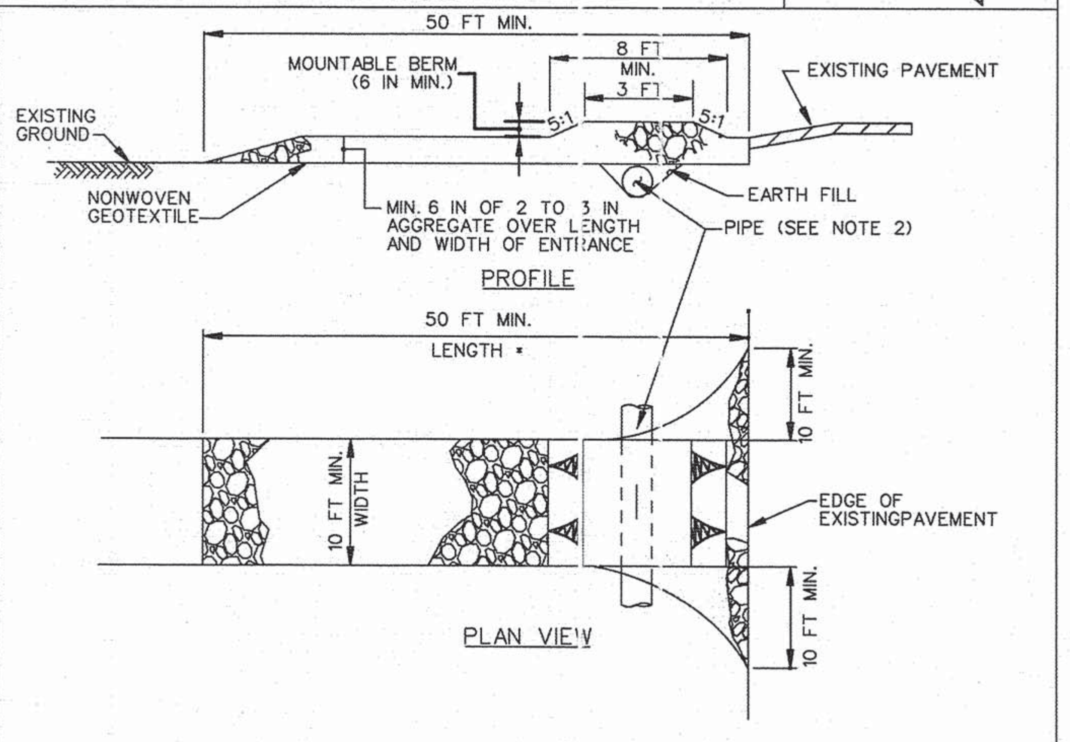
DATE	JAN. 2015
SCALE	N.T.S.
DESIGNED BY	CW
DRAWN BY	KP

BALTIMORE COUNTY
EROSION AND SEDIMENT CONTROL DETAILS
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO. ECD-1.04
SHEET 48 OF 61
KCI JOB NUMBER 16-121849

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE



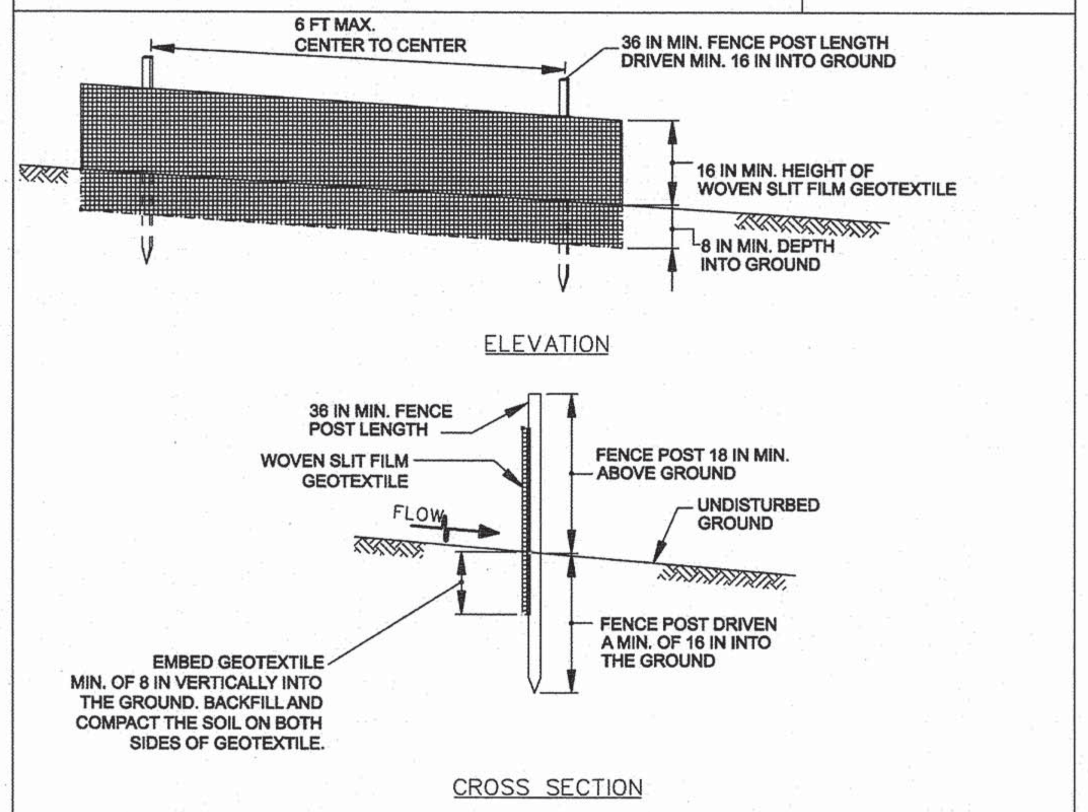
CONSTRUCTION SPECIFICATIONS

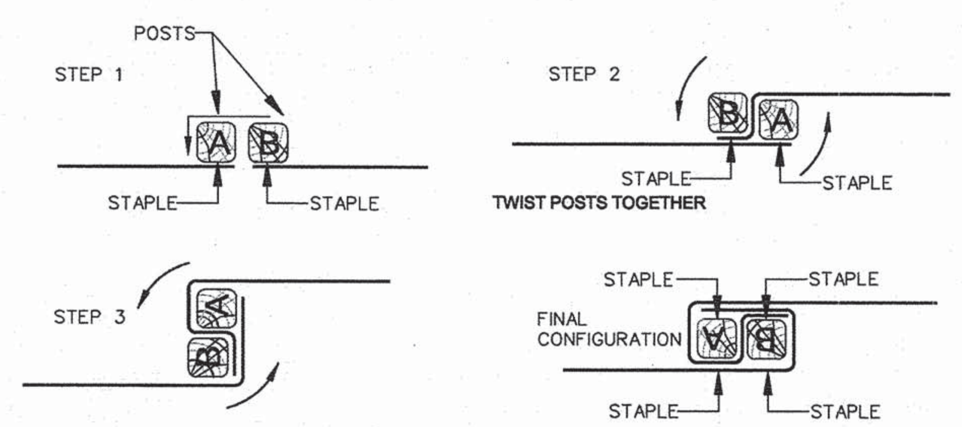
1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (×30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING 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 NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-1 SILT FENCE

STANDARD SYMBOL: SF





JOINING TWO ADJACENT SILT FENCE SECTIONS (TOP VIEW)

1 OF 2

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

DETAIL E-1 SILT FENCE

STANDARD SYMBOL: SF

CONSTRUCTION SPECIFICATIONS

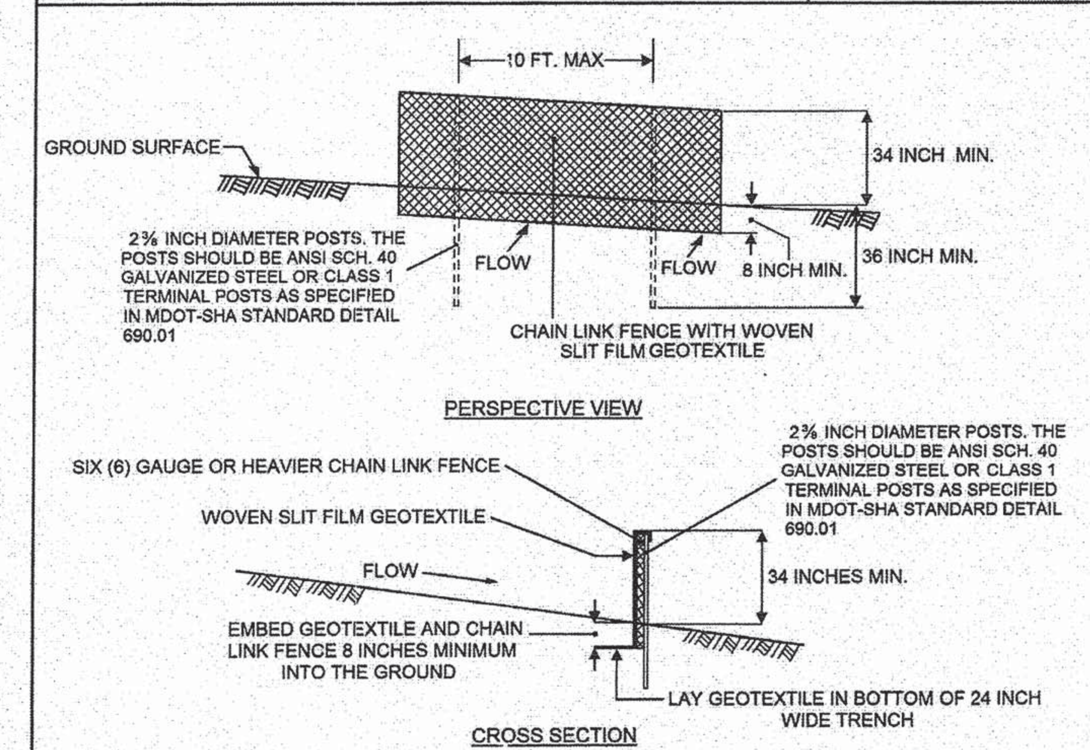
1. USE WOOD POSTS 1¾ X 1¾ ± 1/16 INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
2. USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
3. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
4. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
5. EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
6. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
7. EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
8. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

2 OF 2

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

DETAIL E-3 SUPER SILT FENCE

STANDARD SYMBOL: SSF



CONSTRUCTION SPECIFICATIONS

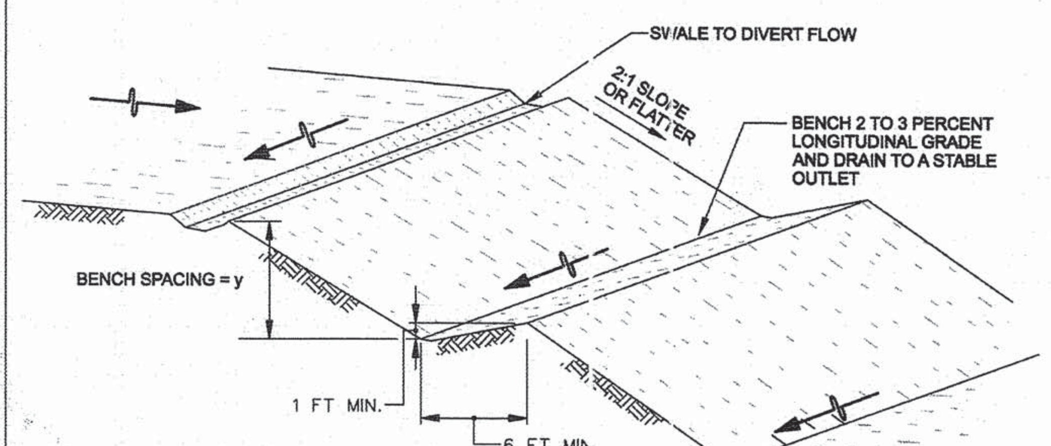
1. INSTALL 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 6 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2⅜ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
3. FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H -1 MATERIALS, SECURELY TO THE UPSLOPE 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 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BYPASS.
5. EXTEND BOTH ENDS OF THE SUPER SILT FENCE UPHILL 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 MODIFIED FOR USE IN BALTIMORE COUNTY
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | MODIFIED - 2012 | MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

APPENDIX 17

DETAIL B-3-1 BENCHING

STANDARD SYMBOL: BENCHING



SLOPE	y (MAX.)
2:1	20 FT
3:1	30 FT
4:1	40 FT

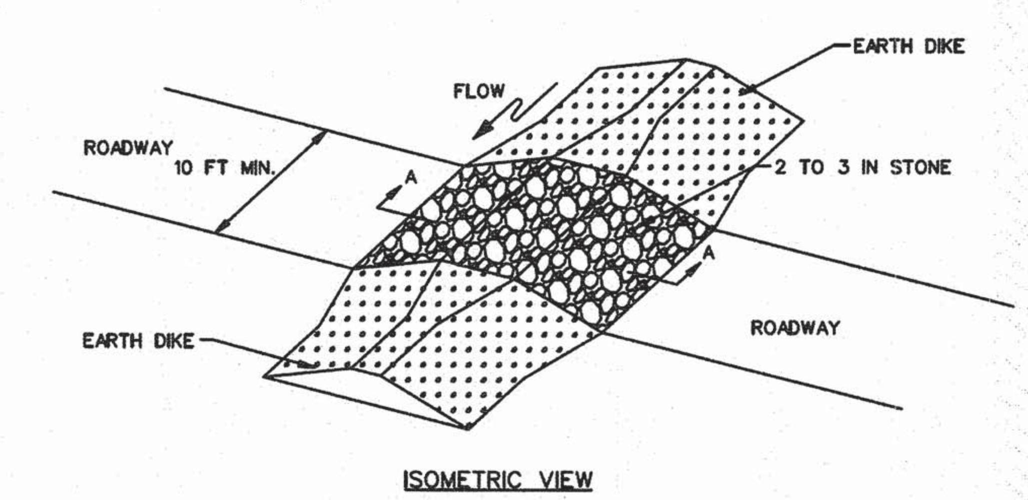
CONSTRUCTION SPECIFICATIONS

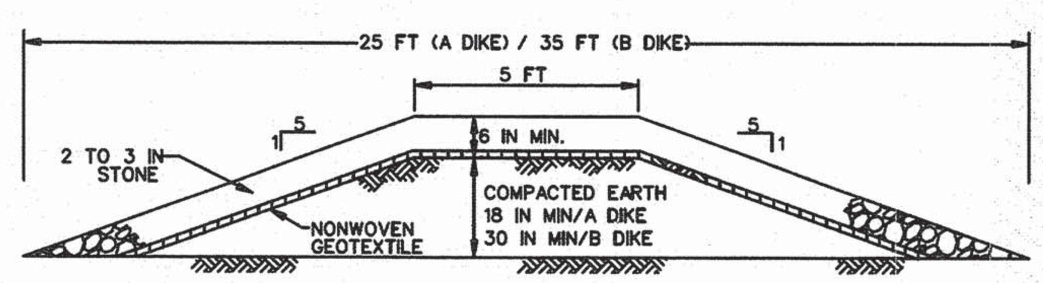
1. USE FILL MATERIAL FREE OF BRUSH, RUBBISH, ROCKS, LOGS, STUMPS, BUILDING DEBRIS, AND OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
2. DO NOT INCORPORATE FROZEN, SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS INTO FILL SLOPES OR STRUCTURAL FILLS. DO NOT PLACE FILL ON A FROZEN FOUNDATION.
3. PLACE ALL FILL IN LOOSE LIFTS NOT TO EXCEED 8 INCHES AND THEN COMPACT.
4. COMPACT ALL FILLS AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, OR OTHER RELATED PROBLEMS. COMPACT FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES, CONDUITS, ETC., IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
5. HANDLE SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION IN ACCORDANCE WITH SECTION H-2 SUBSURFACE DRAINS OR OTHER APPROVED METHODS.
6. MAINTAIN LINE, GRADE, AND CROSS SECTION OF BENCHING. STABILIZE IN ACCORDANCE WITH THE 3/7 DAY STABILIZATION CRITERIA OR AS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN. INSTALLATION OF EROSION CONTROL MATTING MAY BE NECESSARY IN BENCH/SWALE INVERTS. CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
7. KEEP ALL BENCHES FREE OF SEDIMENT DURING ALL PHASES OF DEVELOPMENT.

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

DETAIL C-8 MOUNTABLE BERM

STANDARD SYMBOL: MB





CONSTRUCTION SPECIFICATIONS

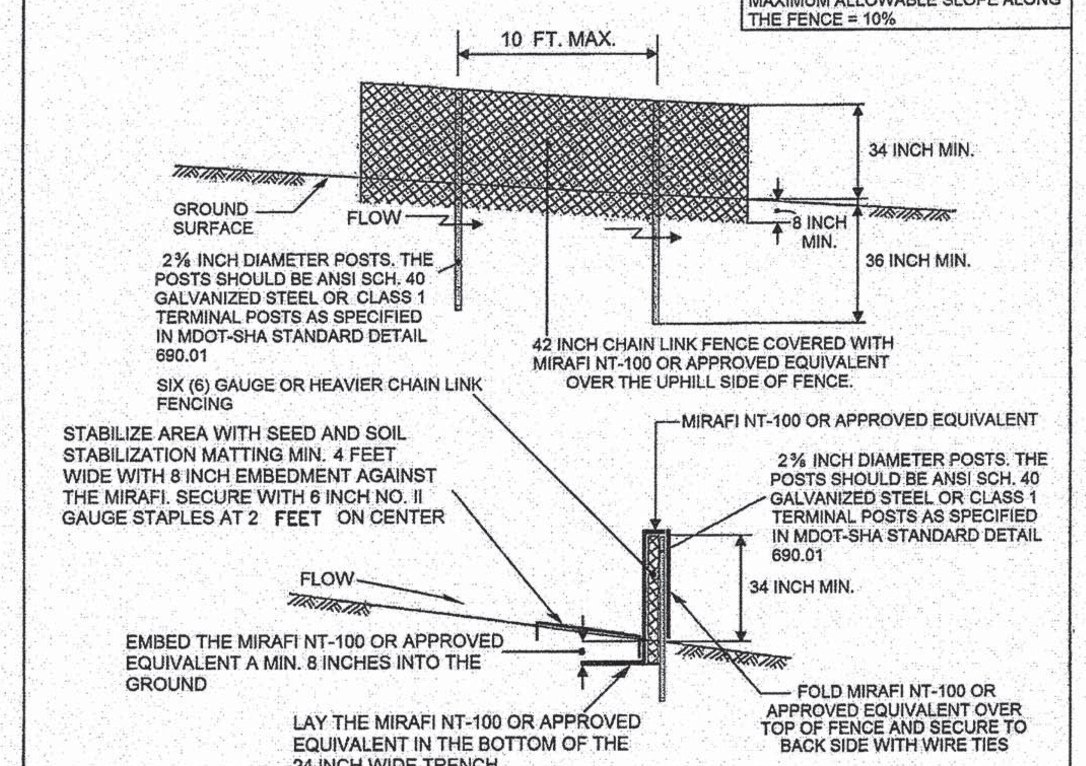
1. USE MINIMUM WIDTH OF 10 FEET TO ALLOW FOR VEHICULAR PASSAGE.
2. PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE EARTH MOUND PRIOR TO PLACING STONE.
3. PLACE 2 TO 3 INCH STONE OR EQUIVALENT RECYCLED CONCRETE AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE MOUNTABLE BERM.
4. MAINTAIN LINE, GRADE, AND CROSS SECTION. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN SPECIFIED DIMENSIONS. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE.

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

DETAIL C-9 SUPER FENCE DIVERSION

STANDARD SYMBOL: SFD

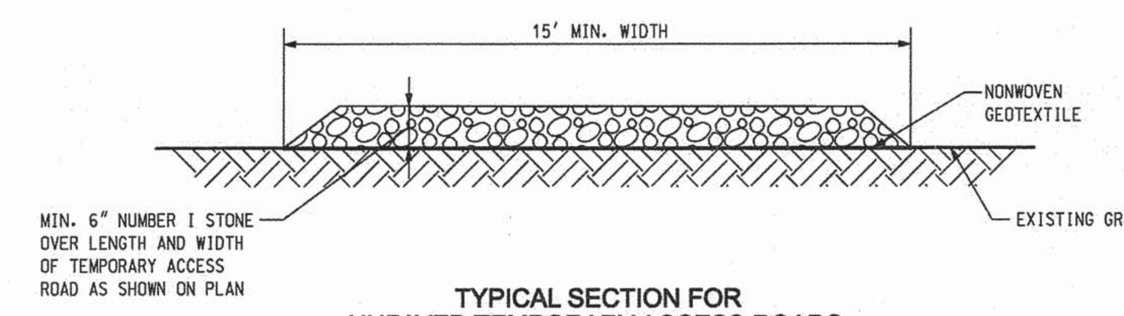
MAXIMUM DRAINAGE AREA = 5 ACRES
MAXIMUM ALLOWABLE SLOPE ALONG THE FENCE = 10%



CONSTRUCTION SPECIFICATIONS

1. USE 42 INCH HIGH, 6 GAUGE OR HEAVIER CHAIN LINK FENCING. (2⅜ INCH MAXIMUM OPENING).
2. USE 2⅜ INCH DIAMETER, GALVANIZED STEEL POSTS. THE POSTS SHALL BE SIX FEET IN LENGTH SPACED NO FURTHER THAN TEN FEET APART. THE POSTS DO NOT NEED TO BE SET IN CONCRETE.
3. FASTEN CHAIN LINK FENCE SECURELY TO THE FENCE POSTS WITH WIRE TIES.
4. SECURE THE MIRAFI NT-100 OR APPROVED EQUIVALENT TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP, 18 INCHES BELOW THE TOP AND BELOW THE GROUND.
5. FLOW CHANNEL TO BE STABLIZED WITH SEED AND SOIL STABILIZATION MATTING A MINIMUM OF 4 FEET WIDE. EMBED THE ENDS OF THE MATTING A MINIMUM OF 8 INCHES INTO THE GROUND. THE SOIL STABILIZATION MATTING SHALL HAVE A SHEAR STRESS RATING OF 2.25 LB./FT.
6. WHEN TWO SECTIONS OF MIRAFI ADJOIN EACH OTHER, OVERLAP BY 6 INCHES AND FOLD WITH SEAM FACING DOWNGRADE.
7. KEEP FLOW SURFACE ALONG THE FENCE AND POINT OF DISCHARGE FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE. REPLACE MIRAFI FABRIC IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL MODIFIED FOR USE IN BALTIMORE COUNTY
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | MODIFIED - 2012 | MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



TYPICAL SECTION FOR UNPAVED TEMPORARY ACCESS ROADS
NO TO SCALE

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM – HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

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. 14942 EXPIRATION DATE: 6/01/2016

SEAL

KCI TECHNOLOGIES
ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818

Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE: JAN. 2015
SCALE: N.T.S.
DESIGNED BY: CW
DRAWN BY: KP

BALTIMORE COUNTY
EROSION AND SEDIMENT CONTROL DETAILS
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

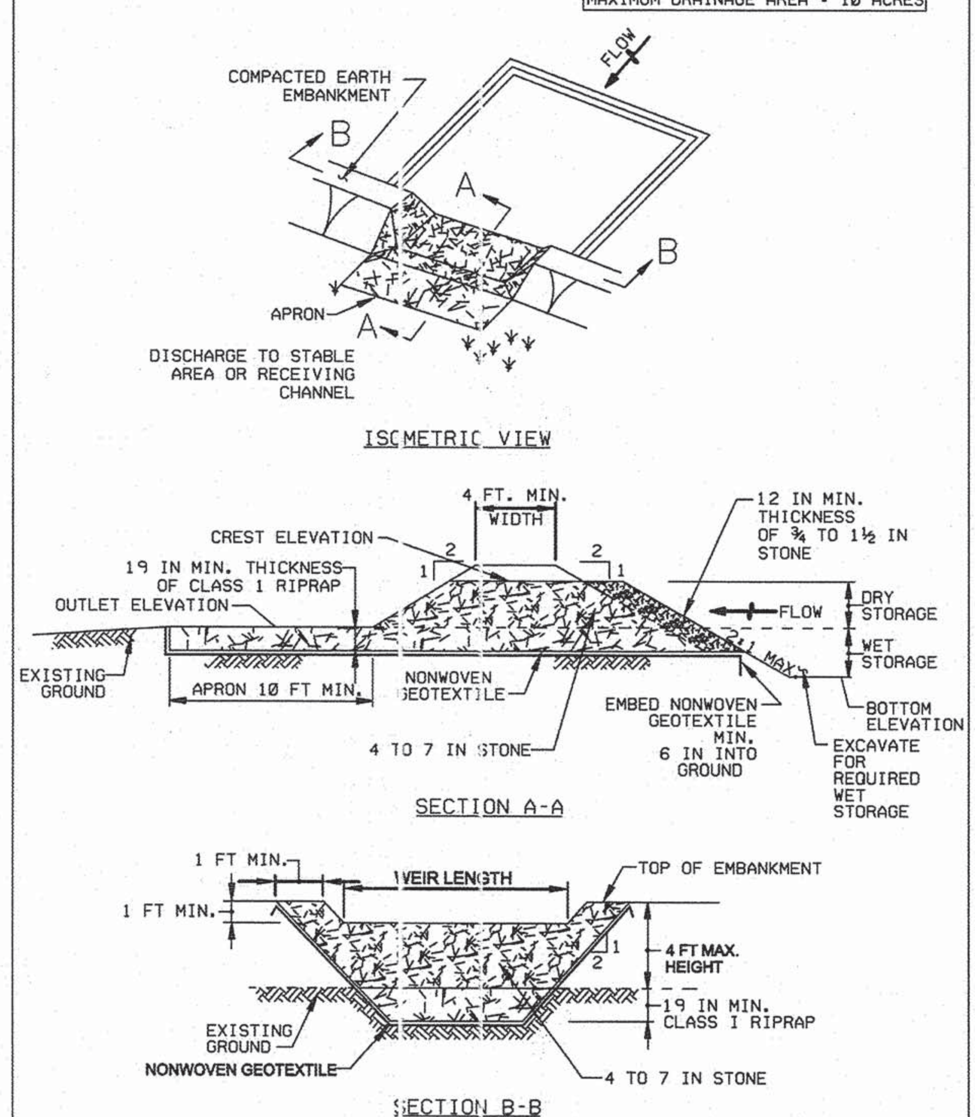
DRAWING NO. ECD-1.05
SHEET 49 OF 61
KCI JOB NUMBER 16-121849

PLOTTED: "09:33 AM on Thursday, January 15, 2015"
BY: Christopher Deibel Division: P050 Natural Res Emp
FILE: M:\2012\16121849\drawings\WR\ESC-Details-05-BC-phase2.dgn

DETAIL G-1-2 STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II

STANDARD SYMBOL: ST-II

MAXIMUM DRAINAGE AREA - 10 ACRES



1 OF 3

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL G-1-2 STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II

STANDARD SYMBOL: ST-II

CONSTRUCTION SPECIFICATIONS

1. CONSTRUCT TRAP IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE AVOIDED.
2. CLEAR, GRUB, AND STRIP ANY VEGETATION AND ROOT MAT FROM THE AREA UNDER THE EMBANKMENT AND TRAP BOTTOM.
3. USE FILL MATERIAL FREE OF ROOTS, WOODY VEGETATION, OVERSIZED STONES, ROCKS, ORGANIC MATERIAL, OR OTHER OBJECTIONABLE MATERIAL FOR THE EMBANKMENT.
4. CONSTRUCT TOP OF EMBANKMENT 1 FOOT MINIMUM ABOVE WEIR CREST. COMPACT THE EMBANKMENT BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
5. MAKE ALL CUT AND FILL SLOPES 2:1 OR FLATTER.
6. PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE BOTTOM AND SIDES OF OUTLET AND APRON PRIOR TO PLACEMENT OF RIPRAP. OVERLAP SECTIONS OF GEOTEXTILE AT LEAST 1 FOOT WITH THE SECTION NEARER TO THE TRAP PLACED ON TOP. EMBED GEOTEXTILE AT LEAST 6 INCHES INTO EXISTING GROUND AT ENTRANCE OF OUTLET CHANNEL.
7. USE CLEAN 4 TO 7 INCH RIPRAP TO CONSTRUCT THE WEIR. USE CLASS I RIPRAP FOR THE APRON. USE OF RECYCLED CONCRETE EQUIVALENT IS ACCEPTABLE.
8. PLACE 1 FOOT OF CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE ON THE UPSTREAM FACE OF THE WEIR.
9. CONSTRUCT AND MAINTAIN THE OUTLET ACCORDING TO APPROVED PLAN, AND IN SUCH A MANNER THAT EROSION AT OR BELOW THE OUTLET DOES NOT OCCUR.
10. STABILIZE THE EMBANKMENT AND INTERIOR SLOPES WITH SEED AND MULCH. STABILIZE POINTS OF CONCENTRATED INFLOW AS SHOWN ON APPROVED PLAN.
11. REMOVE SEDIMENT AND RESTORE TRAP TO ORIGINAL DIMENSIONS WHEN SEDIMENT HAS ACCUMULATED TO CLEANOUT ELEVATION (50% OF WET STORAGE DEPTH). DEPOSIT REMOVED SEDIMENT IN AN APPROVED AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE. KEEP POINTS OF INFLOW AND OUTFLOW AS WELL AS INTERIOR OF THE TRAP FREE FROM EROSION, AND REMOVE ACCUMULATED DEBRIS. MAINTAIN EMBANKMENTS TO CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. REMOVE ANY TREES, BRUSH, OR OTHER WOODY VEGETATION GROWING ON EMBANKMENT OR NEAR PRINCIPAL SPILLWAY. MAINTAIN LINE, GRADE, AND CROSS SECTION.
12. WHEN DEWATERING TRAP, PASS REMOVED WATER THROUGH AN APPROVED SEDIMENT CONTROL PRACTICE.
13. UPON REMOVAL, GRADE AND STABILIZE THE AREA OCCUPIED BY TRAP.

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MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL G-1-2 STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II

STANDARD SYMBOL: ST-II

STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II, TRAP NO. 26-1		
DRAINAGE AREA - INITIAL	3.21	ACRES
DRAINAGE AREA - INTERIM	3.21	ACRES
DRAINAGE AREA - FINAL	3.21	ACRES
TOTAL STORAGE REQUIRED	11,556	CF
TOTAL STORAGE PROVIDED	14,480	CF
WET STORAGE REQUIRED	5,778	CF
WET STORAGE PROVIDED	8,438	CF
DRY STORAGE REQUIRED	5,778	CF
DRY STORAGE PROVIDED	6,042	CF
EXISTING GROUND ELEVATION AT OUTLET (WET STORAGE ELEVATION)	345	FT
TRAP BOTTOM ELEVATION	343.25	FT
TRAP BOTTOM DIMENSIONS	102 x 45	FT X FT
TRAP DEPTH	2.75	FT
WEIR LENGTH	20	FT
WEIR CREST (DRY STORAGE) ELEVATION	346.00	FT
CLEANOUT ELEVATION	344.13	FT
TOP OF EMBANKMENT ELEVATION	347.00	FT
SIDE SLOPE	2:1	H:V RATIO
EMBANKMENT TOP WIDTH	4.0	FT
OUTLET PROTECTION - LENGTH	10.0	FT
OUTLET PROTECTION - DEPTH	19	IN

ELEVATION	AREA (SF)	STORAGE (CF)	STORAGE (AC-FT)
343.25	4,389	0	0.000
345.00	5,254	8,438	0.194
346.00	6,829	14,480	0.332
347.00	7,457	21,623	0.496

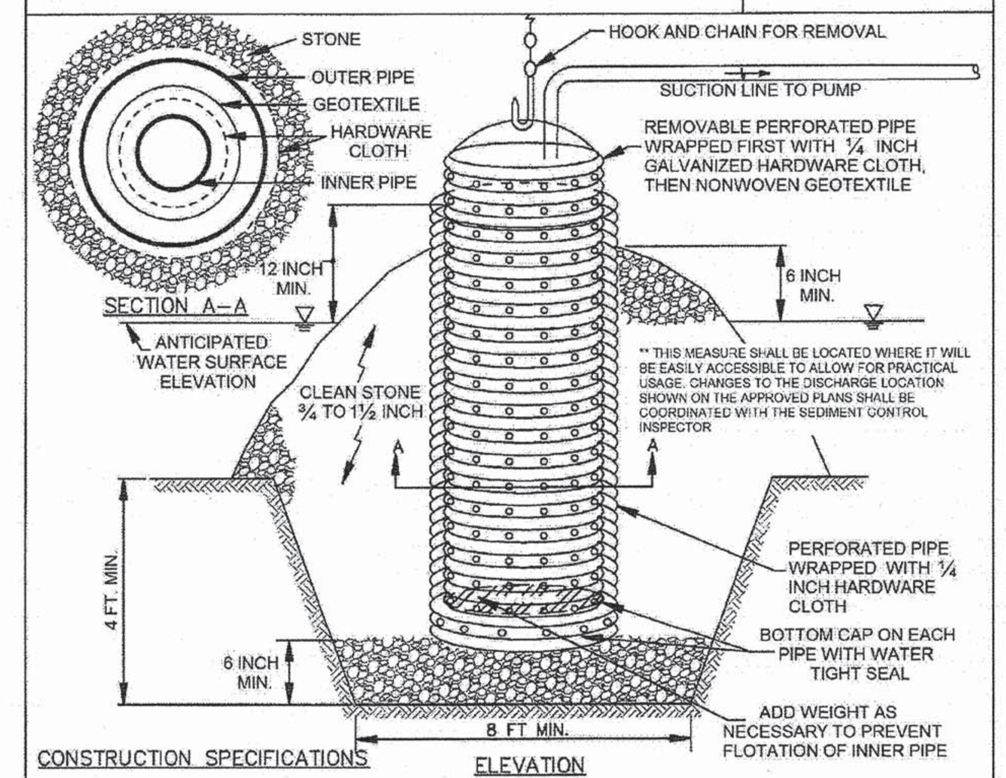
3 OF 3

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL F-1 REMOVABLE PUMPING STATION

STANDARD SYMBOL: ☒RPS



CONSTRUCTION SPECIFICATIONS

1. USE CORRUGATED METAL OR PLASTIC PIPE WITH 1 INCH DIAMETER PERFORATIONS 6 INCHES ON CENTER.
2. USE A MINIMUM 12 INCH DIAMETER INNER PIPE WITH AN OUTER PIPE A MINIMUM 6 INCHES LARGER IN DIAMETER. BOTTOM OF EACH PIPE MUST BE CAPPED WITH WATERTIGHT SEAL.
3. WRAP EACH PIPE WITH ¼ INCH GALVANIZED HARDWARE CLOTH. ON INNER PIPE WRAP NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H–1 MATERIALS, OVER THE HARDWARE CLOTH.
4. EXCAVATE 8 FEET X 8 FEET X 4 FEET DEEP PIT FOR PIPE PLACEMENT. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE, 6 INCHES IN DEPTH PRIOR TO PIPE PLACEMENT.
5. SET TOP OF INNER AND OUTER PIPES MINIMUM 12 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION (OR RISER CREST ELEVATION WHEN DEWATERING A BASIN).
6. BACKFILL PIT AROUND THE OUTER PIPE WITH ¾ TO 1½ INCH CLEAN STONE OR EQUIVALENT RECYCLED CONCRETE AND EXTEND STONE A MINIMUM OF 6 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
7. DISCHARGE TO A STABLE AREA AT A NONEROSIVE RATE.
8. A REMOVABLE PUMPING STATION REQUIRES FREQUENT MAINTENANCE. IF SYSTEM CLOGS, PULL OUT INNER PIPE AND REPLACE GEOTEXTILE. KEEP POINT OF DISCHARGE FREE OF EROSION.

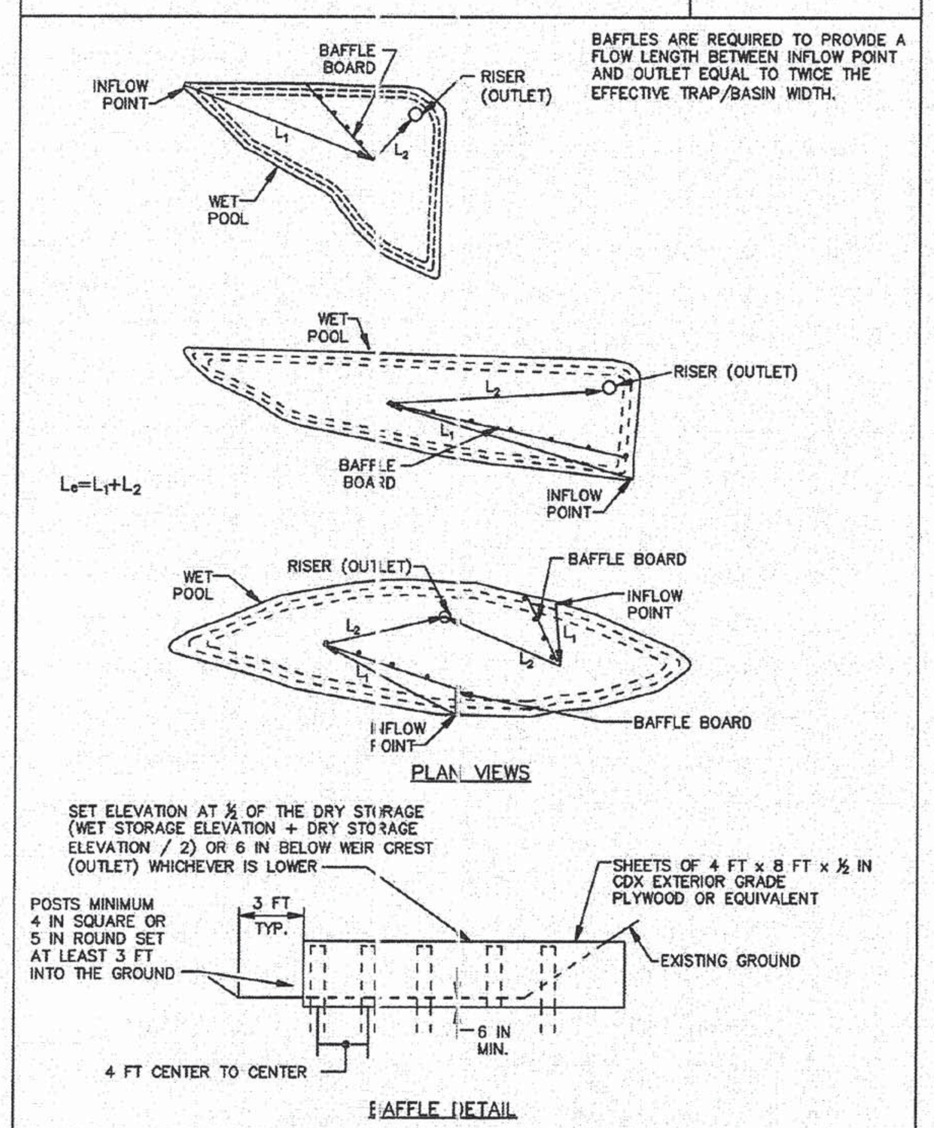
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
MODIFIED FOR USE IN BALTIMORE COUNTY

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	MODIFIED - 2012	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL G-2-4 BAFFLE BOARDS

STANDARD SYMBOL: BB

BAFFLES ARE REQUIRED TO PROVIDE A FLOW LENGTH BETWEEN INFLOW POINT AND OUTLET EQUAL TO TWICE THE EFFECTIVE TRAP/BASIN WIDTH.



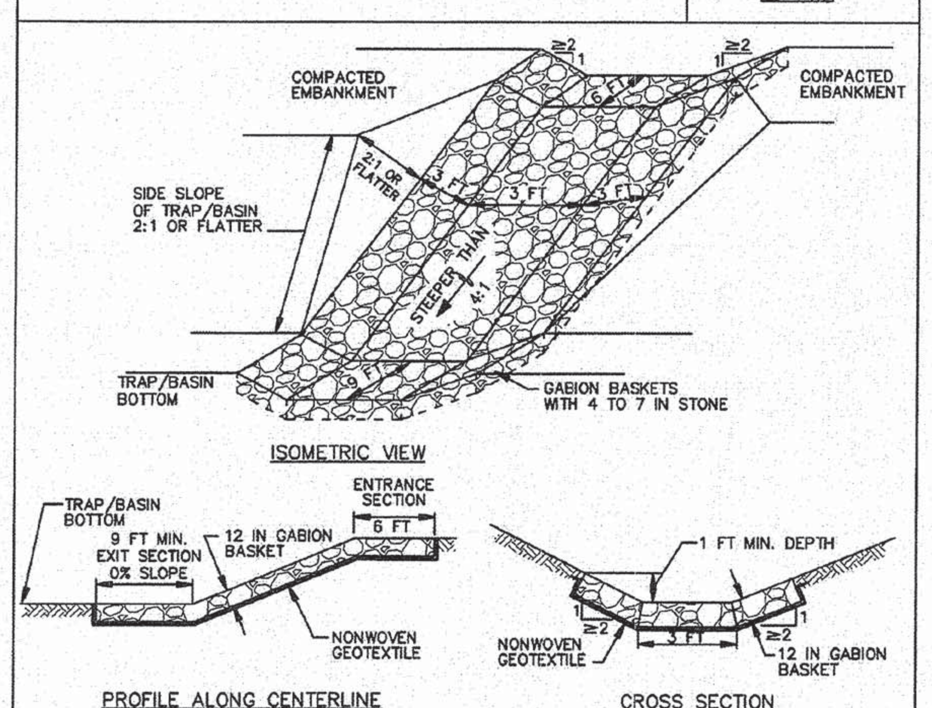
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

G.46

DETAIL D-3-2 GABION INFLOW PROTECTION

STANDARD SYMBOL: GP



CONSTRUCTION SPECIFICATIONS

1. PROVIDE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H–1 MATERIALS, UNDER THE BOTTOM AND ALONG SIDES OF ALL GABION BASKETS.
2. USE BASKETS MADE OF MINIMUM 11 GAUGE WIRE.
3. CONSTRUCT GABION INFLOW PROTECTION BY ARRANGING 9 X 3 X 1 FOOT GABION BASKETS TO FORM A TRAPEZOIDAL SECTION WITH A 3 FOOT BOTTOM WIDTH, 1 FOOT MINIMUM DEPTH, 3 FOOT SIDE WALLS, AND 2:1 OR FLATTER SIDE SLOPES. FILL GABION BASKETS WITH 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE WITHOUT REBAR OR WEIR MESH.
4. INSTALL ENTRANCE AND EXIT SECTIONS AS SHOWN ON THE PROFILE.
5. INSTALL GABIONS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.
6. BLEND GABIONS INTO EXISTING GROUND.
7. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. KEEP POINTS OF INFLOW AND OUTFLOW FREE OF EROSION

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

D.12

TRAP/BASIN FLOW DIVERSION NOTE

TO PREVENT SLOPE EROSION, WITHIN SEDIMENT TRAPPING DEVICES, ADEQUATELY SIZED AND STABILIZED FLOW DIVERSION MEASURES (I.E. EARTH DIKE, TEMPORARY SWALE, PERIMETER DIKE/SWALE, SUPER FENCE DIVERSION, ETC) SHALL BE INSTALLED AT THE UPSLOPE EXTENT OF TRAP, AND BASIN STORAGE AREAS TO DIVERT ALL FLOWS TO APPROPRIATE INFLOW PROTECTION DEVICES. THESE MEASURES WILL BE LOCATED BY THE CONTRACTOR AND THEREFORE NOT SHOWN ON THE PLAN VIEW.

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM – HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

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. 14942 EXPIRATION DATE: 6/01/2016

SEAL: STATE OF MARYLAND, KAREN R. POWELL, 14942, PROFESSIONAL ENGINEER — 2-13-15

KCI TECHNOLOGIES — ENGINEERS, PLANNERS, SCIENTISTS, CONSTRUCTION MANAGERS
936 Ridgebrook Road, Sparks, Maryland 21152
Telephone: (410) 316-7800
Fax: (410) 316-7818

Columbia Gas Transmission — A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE: JAN. 2015
SCALE: N.T.S.
DESIGNED BY: CW
DRAWN BY: KP

BALTIMORE COUNTY
EROSION AND SEDIMENT CONTROL DETAILS
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

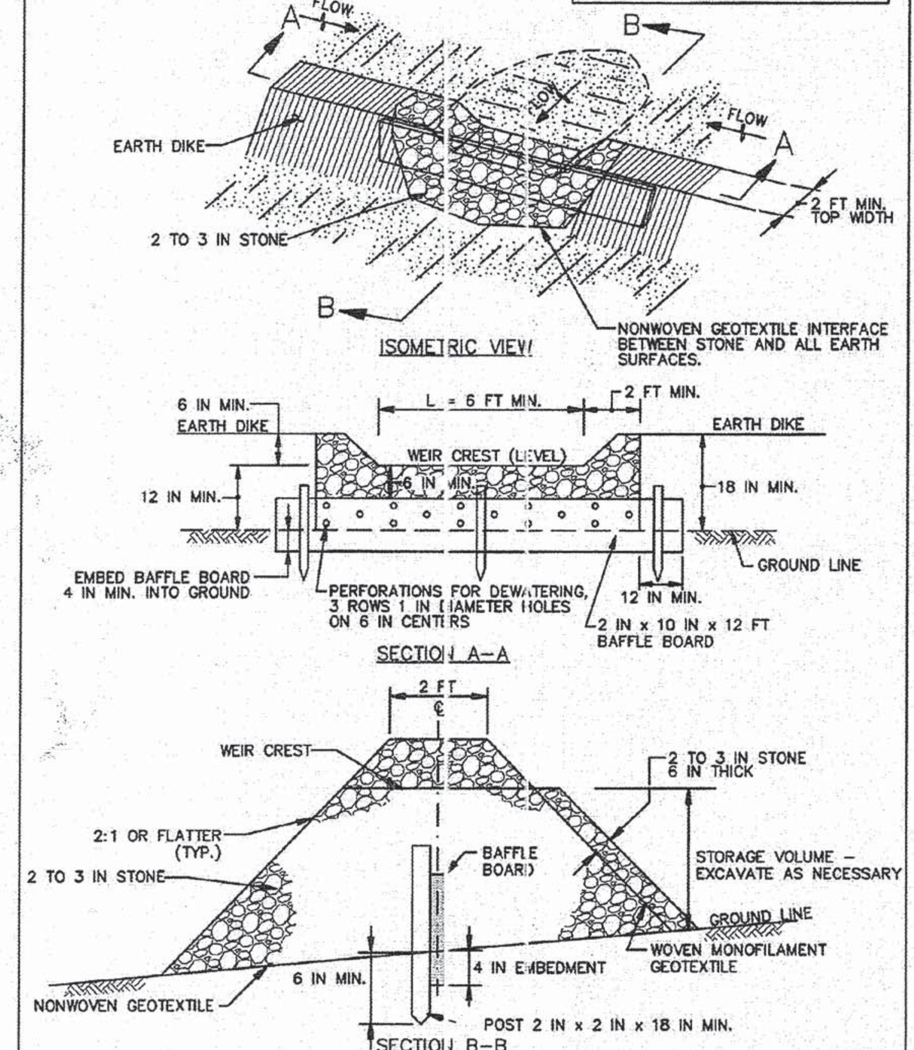
DRAWING NO. ECD-1.06
SHEET 50 OF 61
KCI JOB NUMBER 16-121849

PLOTTED: "09:34 AM on Thursday, January 15, 2015"
BY: Christopher Deibel Division: P050 Natural Res Emp
FILE: M:\2012\16121849\drawings\WR\ESC-Details-06-BC-phase2.dgn

DETAIL E-7 TEMPORARY STONE OUTLET STRUCTURE

STANDARD SYMBOL: TSOS

MAXIMUM DRAINAGE AREA = ½ ACRE



1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

E.18

DETAIL E-7 TEMPORARY STONE OUTLET STRUCTURE

STANDARD SYMBOL: TSOS

CONSTRUCTION SPECIFICATIONS

1. PROVIDE STORAGE VOLUME AS SPECIFIED ON APPROVED PLANS.
2. USE NONWOVEN GEOTEXTILE ON INTERFACE BETWEEN GROUND AND STONE.
3. PERFORATE BAFFLE BOARD WITH 3 ROWS OF 1 INCH DIAMETER HOLES 6 INCHES ON CENTER, EMBED A MINIMUM OF 4 INCHES INTO GROUND, AND EXTEND BAFFEL BOARD MINIMUM OF 12 INCHES INTO EARTH DIKE.
4. USE CLEAN 2 TO 3 INCH STONE OR EQUIVALENT RECYCLED CONCRETE. PLACE WOVEN MONOFILAMENT GEOTEXTILE ON UPSTREAM FACE AND COVER WITH A MINIMUM OF 6 INCHES OF ADDITIONAL STONE.
5. USE NONWOVEN AND WOVEN MONOFILAMENT GEOTEXTILES AS SPECIFIED IN SECTION H–1 MATERIALS.
6. SET WEIR CREST OF STONE 6 INCHES LOWER THAN THE TOP OF EARTH DIKE. USE MINIMUM LENGTH OF 6 FEET FOR WEIR CREST.
7. REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO WITHIN 6 INCHES OF WEIR CREST. REPLACE GEOTEXTILE AND STONE FACING WHEN STRUCTURE CEASES TO DRAIN. MAINTAIN LINE, GRADE, AND CROSS SECTION.
8. UPON REMOVAL OF STONE OUTLET STRUCTURE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

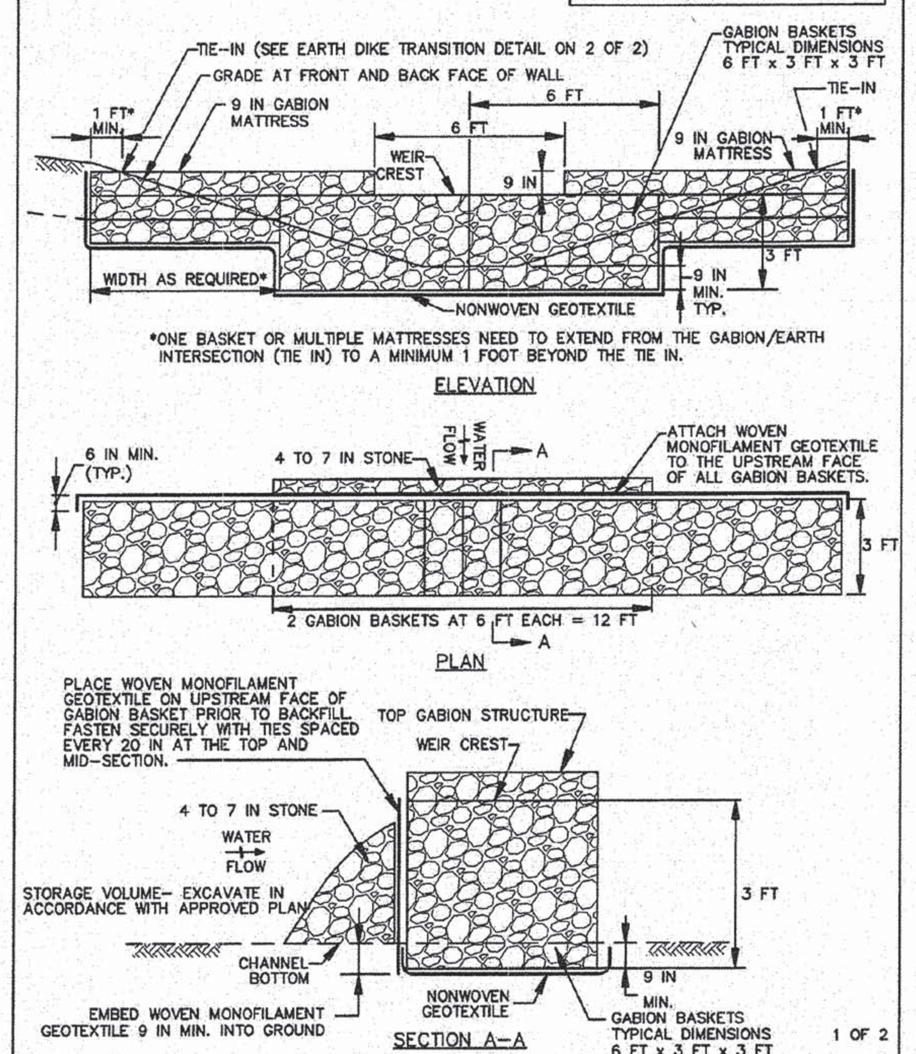
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

E.19

DETAIL E-8 TEMPORARY GABION OUTLET STRUCTURE

STANDARD SYMBOL: TGOS

MAXIMUM DRAINAGE AREA = 1½ ACRE



1 OF 2

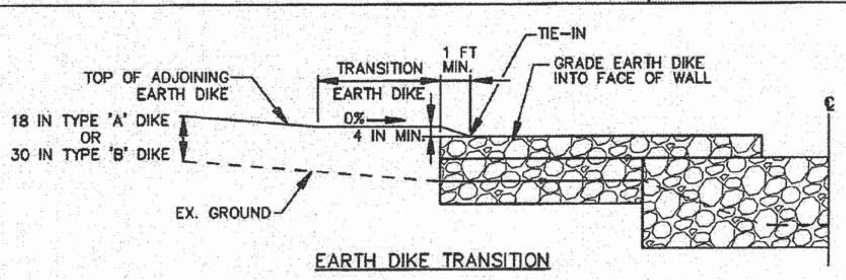
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

E.21

DETAIL E-8 TEMPORARY GABION OUTLET STRUCTURE

STANDARD SYMBOL: TGOS



EARTH DIKE TRANSITION

NOTES:

1. PROVIDE TRANSITION LENGTH AND HEIGHT AS SPECIFIED ON PLAN. HEIGHT OF TRANSITION EARTH DIKE MUST EXCEED 4 INCH MINIMUM FREEBOARD ABOVE TOP OF GABION AND EXTEND AT THIS ELEVATION UNTIL IT INTERCEPTS THE TOP OF ADJOINING EARTH DIKE.
2. PROVIDE POSITIVE DRAINAGE ALONG EARTH DIKE TO GABION OUTLET STRUCTURE.
3. COMPACT FILL.
4. SHAPE EARTH DIKE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED ON PLAN. BANK PROJECTIONS OR IRREGULARITIES ARE NOT ALLOWED.

CONSTRUCTION SPECIFICATIONS

1. PROVIDE STORAGE VOLUME AS SPECIFIED ON APPROVED PLANS.
2. USE BASKETS MADE OF 11 GAUGE WIRE OR HEAVIER.
3. USE NONWOVEN AND WOVEN MONOFILAMENT GEOTEXTILES AS SPECIFIED IN SECTION H–1 MATERIALS.
4. INSTALL GABIONS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.
5. EMBED THE GABION OUTLET STRUCTURE INTO THE SOIL A MINIMUM OF 9 INCHES. PROVIDE NONWOVEN GEOTEXTILE UNDER ALL GABIONS.
6. FILL GABION BASKETS WITH CLEAN 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE WITHOUT REBAR OR WIRE MESH.
7. MAKE THE WEIR CREST OF THE GABION OUTLET STRUCTURE 9 INCHES LOWER THAN THE TOP OF THE ADJACENT GABIONS.
8. PROVIDE A MINIMUM WEIR CREST OF 6 FEET.
9. ATTACH WOVEN MONOFILAMENT GEOTEXTILE TO THE UPSTREAM FACE OF GABION BASKETS AND COVER WITH 4 TO 7 INCH STONE.
10. REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO WITHIN 12 INCHES OF THE WEIR CREST. REPLACE GEOTEXTILE AND STONE FACING WHEN STRUCTURE CEASES TO FUNCTION. MAINTAIN LINE, GRADE, AND CROSS SECTION.
11. UPON REMOVAL OF GABION OUTLET STRUCTURE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

2 OF 2

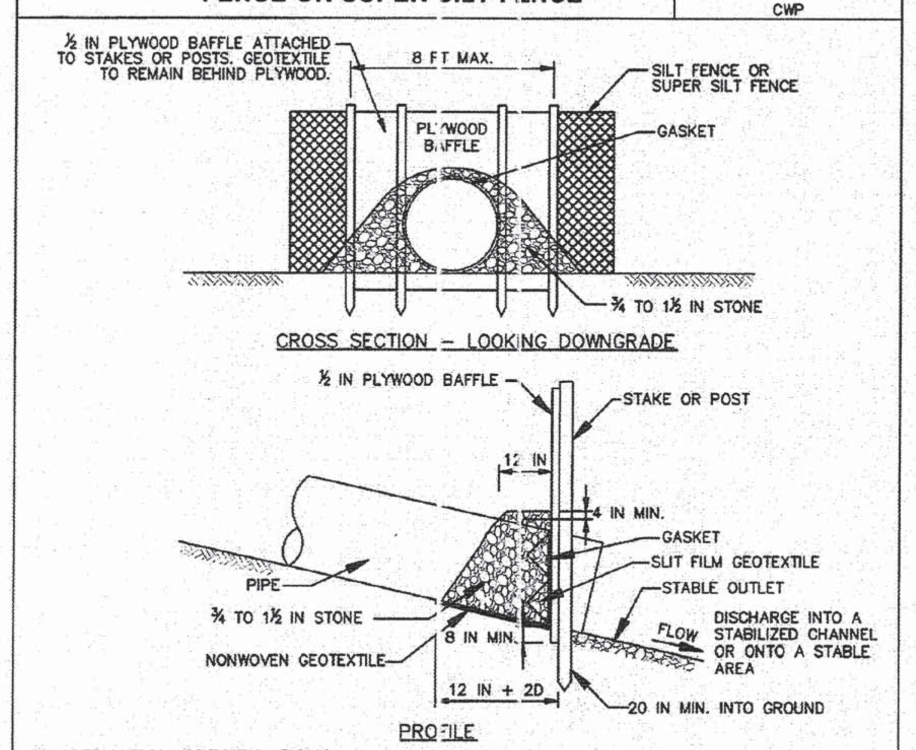
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

E.22

DETAIL E-4 CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE

STANDARD SYMBOL: CWP



CONSTRUCTION SPECIFICATIONS

1. INSTALL SILT FENCE OR SUPER SILT FENCE IN ACCORDANCE WITH DETAIL E–1 OR DETAIL E–2.
2. AT THE PIPE LOCATION, CUT AND PULL BACK THE WOVEN SLIT FILM GEOTEXTILE AND CHAIN LINK FENCING. SECURE GEOTEXTILE TO PIPE WITH GASKET. INSTALL ADDITIONAL STAKES OR POSTS IF NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE BAFFLE BOARD.
3. ENTRENCH ½ INCH PLYWOOD BAFFLE A MINIMUM OF 8 INCHES AND SECURE TO THE UPGRADE SIDE OF THE FENCE STAKES OR POSTS. BAFFLE SHOULD BE AT LEAST THE HEIGHT OF THE FENCE.
4. PLACE ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE BEHIND THE PLYWOOD BAFFLE ON NONWOVEN GEOTEXTILE AND EXTEND 12 INCH MIN. ALONG TOP OF PIPE AND TO A HEIGHT OF 4 INCHES ABOVE THE TOP OF PIPE.
5. USE NONWOVEN AND WOVEN SLIT FILM GEOTEXTILES AS SPECIFIED IN SECTION H–1 MATERIALS.
6. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN SEDIMENT REACHES 6 INCHES IN HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL BAFFLE, CHAIN LINK, AND GEOTEXTILE. REPLACE STONE IF DISPLACED. KEEP POINT OF DISCHARGE FREE OF EROSION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

E.9

H-1 STANDARDS AND SPECIFICATIONS

FOR

MATERIALS

Table H.1: Geotextile Fabrics

		WOVEN SLIT FILM GEOTEXTILE		WOVEN MONOFILAMENT GEOTEXTILE		NONWOVEN GEOTEXTILE	
		MINIMUM AVERAGE ROLL VALUE[1]					
PROPERTY	TEST METHOD	MD	CD	MD	CD	MD	CD
Grab Tensile Strength	ASTM D-4632	200 lb	200 lb	370 lb	250 lb	200 lb	200 lb
Grab Tensile Elongation	ASTM D-4632	15%	10%	15%	15%	50%	50%
Trapezoidal Tear Strength	ASTM D-4533	75 lb	75 lb	100 lb	60 lb	80 lb	80 lb
Puncture Strength	ASTM D-6241	450 lb		900 lb		450 lb	
Apparent Opening Size[2]	ASTM D-4751	U.S. Sieve 30 (0.59 mm)		U.S. Sieve 70 (0.21 mm)		U.S. Sieve 70 (0.21 mm)	
Permittivity	ASTM D-4491	0.05 sec^{-1}		0.28 sec^{-1}		1.1 sec^{-1}	
Ultraviolet Resistance Retained at 500 hours	ASTM D-4355	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 (NTPEP) 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

Table H.2: Stone Size

TYPE	SIZE RANGE	d_{50}	d_{100}	AASHTO	MIDSIZE WEIGHT[3]
NUMBER 57[1]	3/8 to 1 ½ inch	½ in	1 ½ in	M-43	N/A
NUMBER 1	2 to 3 inch	2 ½ in	3 in	M-43	N/A
RIPRAP[2] (CLASS 0)	4 to 7 inch	5 ½ in	7 in	N/A	N/A
CLASS I	N/A	9 ½ in	15 in	N/A	40 lb
CLASS II	N/A	16 in	24 in	N/A	200 lb
CLASS III	N/A	23 in	34 in	N/A	600 lb

[1] This classification is to be used on the upstream face of stone outlets and check dams.

[2] This classification is to be used for gabions.

[3] Optimum gradation is 50 percent of the stone being above and 50 percent below the midsize.

Stone must be composed of a well graded mixture of stone sized so that fifty (50) percent of the pieces by weight are larger than the size determined by using the charts. A well graded mixture, as used herein, is defined as a mixture composed primarily of larger stone sizes but with a sufficient mixture of other sizes to fill the smaller voids between the stones. The diameter of the largest stone in such a mixture must not exceed the respective d_{100} selected from Table H.2. The d_{50} refers to the median diameter of the stone. This is the size for which 50 percent, by weight, will be smaller and 50 percent will be larger.

Note: Recycled concrete equivalent may be substituted for all stone classifications for temporary control measures only. Concrete broken into the sizes meeting the appropriate classification, containing no steel reinforcement, and having a minimum density of 150 pounds per cubic foot may be used as an equivalent.

H.2

H-5 STANDARDS AND SPECIFICATIONS

FOR

DUST CONTROL

Definition

Controlling the suspension of dust particles from construction activities.

Purpose

To prevent blowing and movement of dust from exposed soil surfaces to reduce on and off-site damage including health and traffic hazards.

Conditions Where Practice Applies

Areas subject to dust blowing and movement where on and off-site damage is likely without treatment.

Specifications

1. Mulches: See Section B-4-2 Soil Preparation, Topsoiling, and Soil Amendments, Section B-4-3 Seeding and Mulching, and Section B-4-4 Temporary Stabilization. Mulch must be anchored to prevent blowing.
2. Vegetative Cover: See Section B-4-4 Temporary Stabilization.
3. Tillage: Till to roughen surface and bring clods to the surface. Begin plowing on windward side of site. Chisel-type plows spaced about 12 inches apart, spring-toothed harrows, and similar plows are examples of equipment that may produce the desired effect.
4. Irrigation: Sprinkle site with water until the surface is moist. Repeat as needed. The site must not be irrigated to the point that runoff occurs.
5. Barriers: Solid board fences, silt fences, snow fences, burlap fences, straw bales, and similar material can be used to control air currents and soil blowing.
6. Chemical Treatment: Use of chemical treatment requires approval by the appropriate plan review authority.

H.22

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM – HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

PLOTTED: "09:34 AM on Thursday, January 15, 2015"
BY: Christopher Deibel Division: P050 Natural Res Emp
FILE: M:\2012\16121849\drawings\WR\ESC-Details-07-BC-phase2.dgn

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. 14942 EXPIRATION DATE: 6/01/2016

SEAL — STATE OF MARYLAND, KAREN R. POWELL, 14942, PROFESSIONAL ENGINEER — 2-13-15

KCI TECHNOLOGIES
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818

Columbia Gas Transmission
A NiSource Company

REVISIONS

NO.	DATE	DESCRIPTION	BY

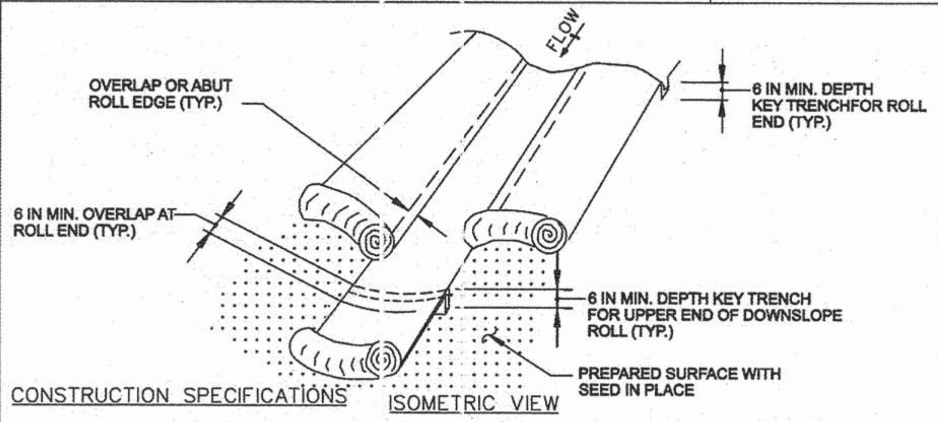
DATE	JAN. 2015
SCALE	N.T.S.
DESIGNED BY	CW
DRAWN BY	KP

BALTIMORE COUNTY
EROSION AND SEDIMENT CONTROL DETAILS
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO. ECD-1.07
SHEET 51 OF 61
KCI JOB NUMBER 16-121849

DETAIL B-4-6-A TEMPORARY SOIL STABILIZATION MATTING CHANNEL APPLICATION

STANDARD SYMBOL
TSSMC - * 2.25 lb/ft²
(* INCLUDE SHEAR STRESS)



CONSTRUCTION SPECIFICATIONS

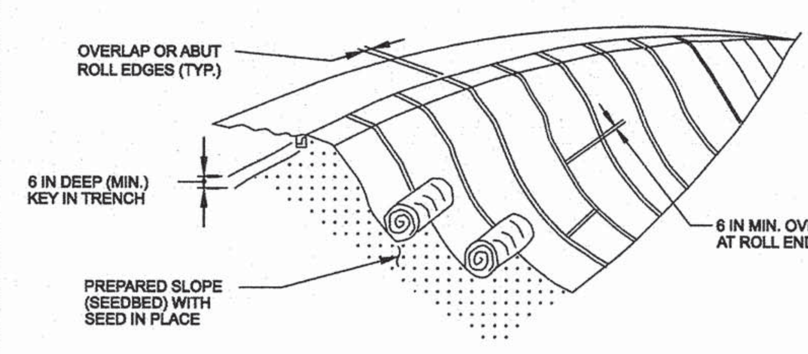
1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SMOLDER RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
5. UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTERLINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MAT SMOOTHLY AND FIRMLY ON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. KEY-IN UPSTREAM END OF EACH MAT ROLL BY DIGGING A 6 INCH (MINIMUM) TRENCH AT THE UPSTREAM END OF THE MATTING, PLACING THE ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END.
7. OVERLAP OR ABUT THE ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-4-6-B TEMPORARY SOIL STABILIZATION MATTING SLOPE APPLICATION

STANDARD SYMBOL
TSSMS - * 2.25 lb/ft²
(* INCLUDE SHEAR STRESS)



CONSTRUCTION SPECIFICATIONS

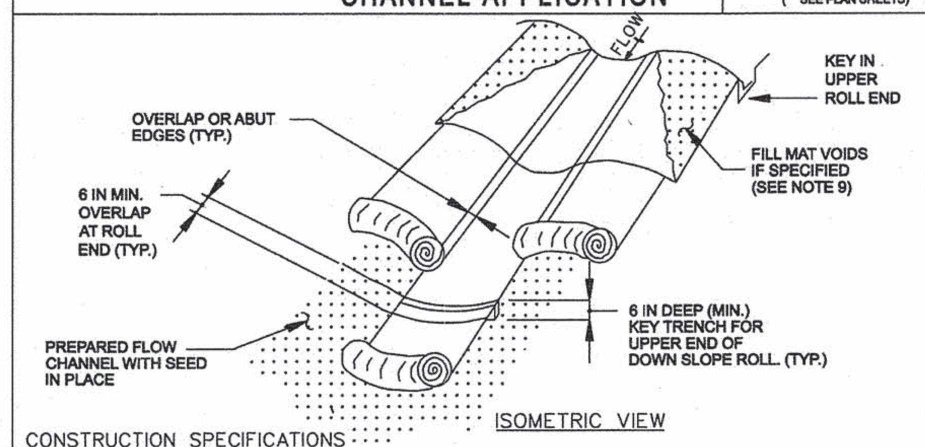
1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SMOLDER RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION & SEDIMENT CONTROL PLAN.
5. UNROLL MATTING DOWNSLOPE. LAY MAT SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. OVERLAP OR ABUT ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSLOPE MAT OVERLAPPING ON TOP OF THE DOWNSLOPE MAT.
7. KEY IN THE UPSLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-4-6-C PERMANENT SOIL STABILIZATION MATTING CHANNEL APPLICATION

STANDARD SYMBOL
PSSMC - * lb/ft²
(* SEE PLAN SHEETS)



CONSTRUCTION SPECIFICATIONS

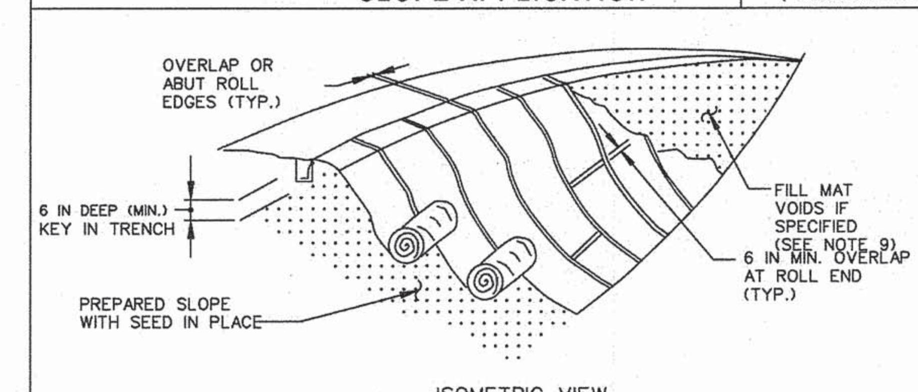
1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1 ½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPE AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS, UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
5. UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTER LINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
7. KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED, ONCE THE MATTING IS KEYED AND STAPLED IN PLACE, FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAXIMIZE SOIL/MAT CONTACT WITHOUT CRUSHING MAT.
10. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-4-6-D PERMANENT SOIL STABILIZATION MATTING SLOPE APPLICATION

STANDARD SYMBOL
PSSMS - 2.25* lb/ft²
(* INCLUDE SHEAR STRESS)



CONSTRUCTION SPECIFICATIONS

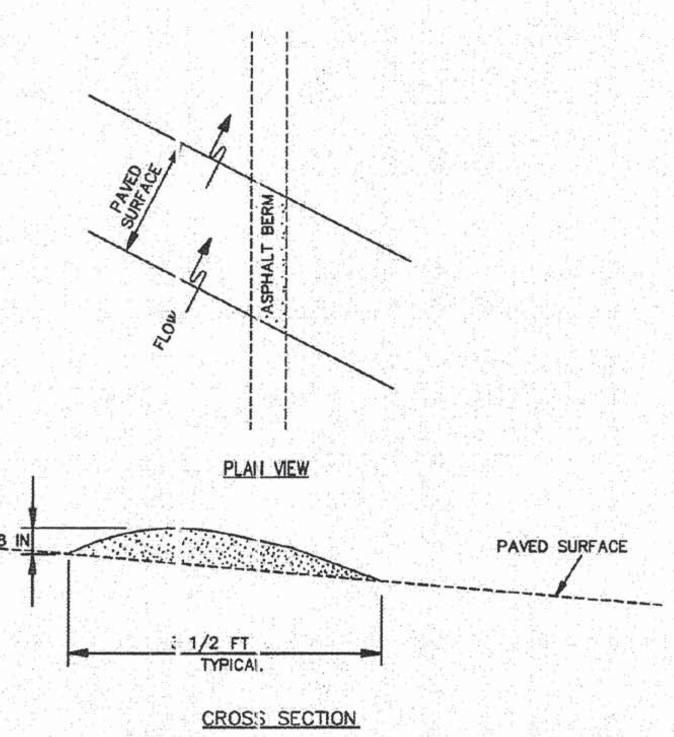
1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPE AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS, UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
5. UNROLL MATTING DOWN SLOPE. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE DOWNSLOPE MAT.
7. KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED, ONCE THE MATTING IS KEYED AND STAPLED IN PLACE, FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAXIMIZE SOIL/MAT CONTACT WITHOUT CRUSHING MAT.
10. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL C-5 TEMPORARY ASPHALT BERM

STANDARD SYMBOL
TAB



CONSTRUCTION SPECIFICATIONS

1. CONSTRUCT BERM ON AN UNINTERRUPTED, CONTINUOUS GRADE.
2. INSTALL BERM TO CONFORM TO CROSS SECTION DIMENSIONS OF A UNIFORM HEIGHT OF 8 INCHES MINIMUM AND APPROXIMATE WIDTH OF 3½ FEET.
3. PROVIDE OUTLET PROTECTION AS REQUIRED ON PLAN.
4. COMPACT ASPHALT BERM.
5. REPAIR DAMAGED ASPHALT. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE.
6. UPON REMOVAL OF ASPHALT BERM, RETURN TO ORIGINAL CONDITIONS OR AS SPECIFIED ON APPROVED PLAN.

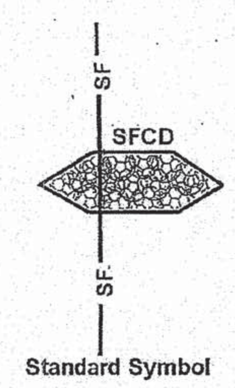
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

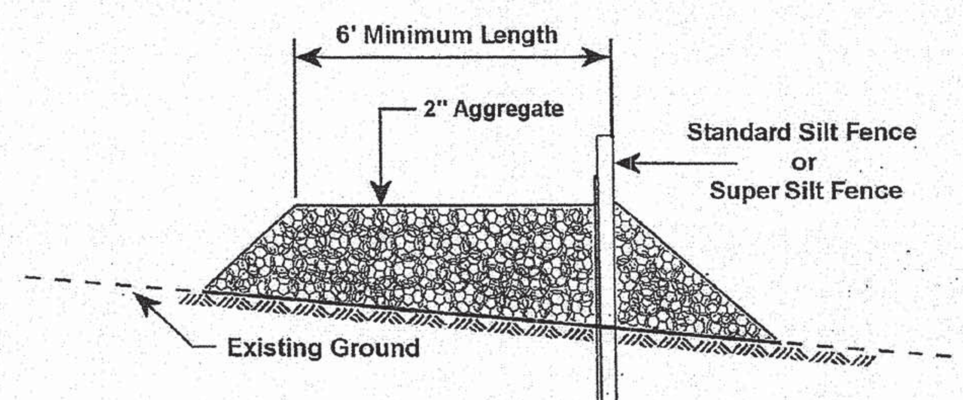
C.18

Standard Silt Fence	Super Silt Fence
# 2 Stone 12" High 24" Wide	# 2 Stone 24" High 36" Wide

Placement Engineered
Based on Slope Gradient



* AT THE DISCRETION OF THE INSPECTOR EXTRA POST(S) MAY BE REQUIRED ON THE DOWNSLOPE SIDE OF THE FENCE IN LIEU OF STONE.

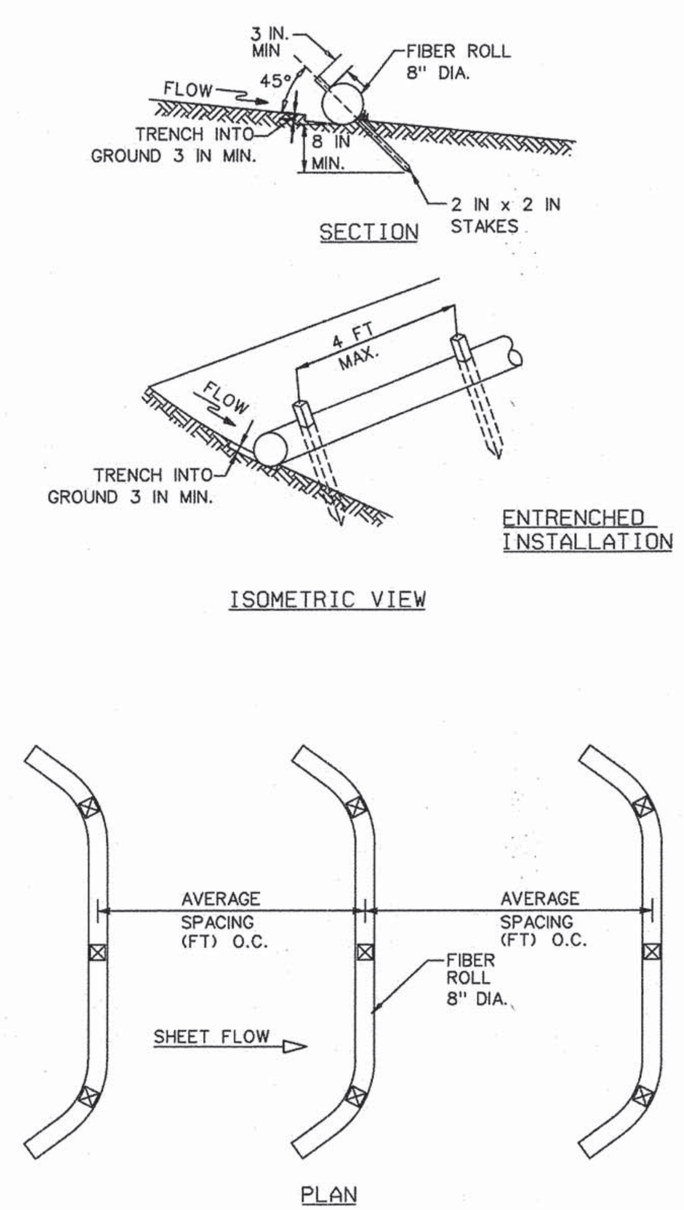


Silt Fence Check Dam

Not To Scale

APPENDIX 18

FIBER ROLL



1 OF 2

FIBER ROLL

CONSTRUCTION SPECIFICATIONS

1. PRIOR TO INSTALLATION, CLEAR ALL OBSTRUCTIONS INCLUDING ROCKS, CLODS, AND DEBRIS GREATER THAN ONE INCH THAT MAY INTERFERE WITH PROPER FUNCTION OF FIBER ROLL.

2. FILL ROLL FABRIC UNIFORMLY WITH COMPOST (IN ACCORDANCE WITH TABLE H.3 COMPOST), OR OTHER APPROVED BIODEGRADABLE MATERIAL TO DESIRED LENGTH SUCH THAT ROLLS DO NOT DEFORM. FIBER ROLL FABRIC SHALL BE COMPRISED OF UV-DEGRADABLE POLYPROPYLENE NETTING, BURLAP, JUTE OR COIR.

3. INSTALL FIBER ROLLS PERPENDICULAR TO THE FLOW DIRECTION AND PARALLEL TO THE SLOPE WITH THE BEGINNING AND END OF THE INSTALLATION POINTING SLIGHTLY UP THE SLOPE CREATING A "J" SHAPE AT EACH END TO PREVENT BYPASS.

4. THE AVERAGE SPACING BETWEEN THE ROWS OF FIBER ROLLS IS AS FOLLOWS

AVERAGE SLOPE		AVERAGE SPACING (FT)
FLATTER THAN 4:1	(<25%)	40
4:1 TO 3:1	(25% - 33%)	30
3:1 TO 2:1	(33% - 50%)	20
2:1 TO 1:1	(50% - 100%)	10

5. TRENCH FIBER ROLL INTO GROUND A MINIMUM OF 3 INCHES AND STAKE ROLL EVERY 4 FEET OR CLOSER.

6. USE STAKES WITH A MINIMUM NOMINAL CROSS SECTION OF 2X2 INCH AND OF SUFFICIENT LENGTH TO ATTAIN A MINIMUM OF 8 INCHES INTO THE GROUND AND 3 INCHES PROTRUDING ABOVE ROLL.

7. WHEN MORE THAN ONE ROLL IS NEEDED, OVERLAP ENDS 12 INCHES MINIMUM AND STAKE.

8. FIBER ROLLS ARE TO BE USED FOR PERMANENT STABILIZATION. FIBER ROLLS ARE TO BE USED IN CONJUNCTION WITH HYDROSEEDING ON SLOPES GREATER THAN 15%. FIBER ROLLS ARE NOT TO BE USED ALONE AS A SEDIMENT CONTROL MEASURE.

9. REPLACE FIBER ROLL IF TORN. REINSTALL FIBER ROLL IF UNDERMINING OR DISLODGING OCCURS. FOR PERMANENT APPLICATIONS, ESTABLISH AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

2 OF 2

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
[signature] 2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM – HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

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. 14942 EXPIRATION DATE: 6/01/2016

SEAL: STATE OF MARYLAND – KAREN R. POWELL – 14942 – PROFESSIONAL ENGINEER – 2-13-15

KCI TECHNOLOGIES
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818

Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE: JAN. 2015
SCALE: N.T.S.
DESIGNED BY: CW
DRAWN BY: KP

BALTIMORE COUNTY
EROSION AND SEDIMENT CONTROL DETAILS
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

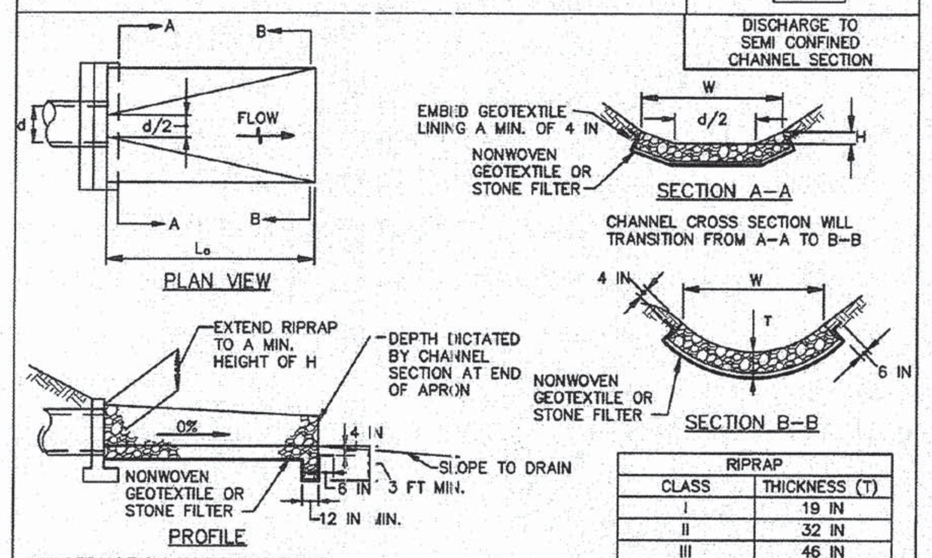
DRAWING NO. ECD-1.08
SHEET 52 OF 61
KCI JOB NUMBER 16-121849

PLOTTED: "09:34 AM on Thursday, January 15, 2015"
BY: Christopher Deibel Division: P050 Natural Res Emp
FILE: M:\2012\16121849\drawings\WR\ESC-Details-08-BC-phase2.dgn

DETAIL D-4-1-A ROCK OUTLET PROTECTION I

STANDARD SYMBOL: ROP1

DISCHARGE TO SEMI CONFINED CHANNEL SECTION



RIPRAP	
CLASS	THICKNESS (T)
I	19 IN
II	32 IN
III	46 IN

CONSTRUCTION SPECIFICATIONS

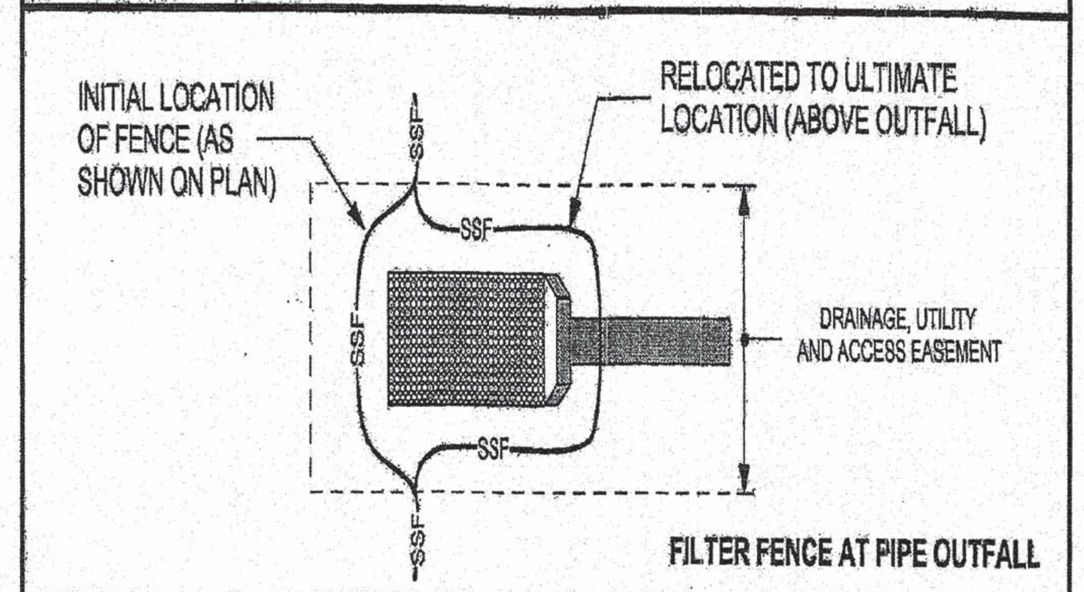
1. RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H–1 MATERIALS, AND PROTECT FROM PUNCTURING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE TOGETHER.
3. PREPARE THE SUBGRADE FOR GEOTEXTILE OR STONE FILTER (⅜ TO 1½ INCH STONE FOR 6 INCH MINIMUM DEPTH) AND RIPRAP TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
4. EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIPRAP AND EMBED AT LEAST 4 INCHES AT SIDES OF THE RIPRAP.
5. CONSTRUCT RIPRAP OUTLET TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE STONE FOR RIPRAP OUTLET IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE RIPRAP IN A MANNER TO PREVENT DAMAGE TO THE STONE FILTER BLANKET OR GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
6. WHERE NO ENDWALL IS USED, CONSTRUCT THE UPSTREAM END OF THE APRON SO THAT THE WIDTH IS TWO TIMES THE DIAMETER OF THE OUTLET PIPE, AND EXTEND THE STONE UNDER THE OUTLET BY A MINIMUM OF 18 INCHES.
7. CONSTRUCT APRON WITH 0% SLOPE ALONG ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDS IN WITH EXISTING GROUND.
8. MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND DISLODGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

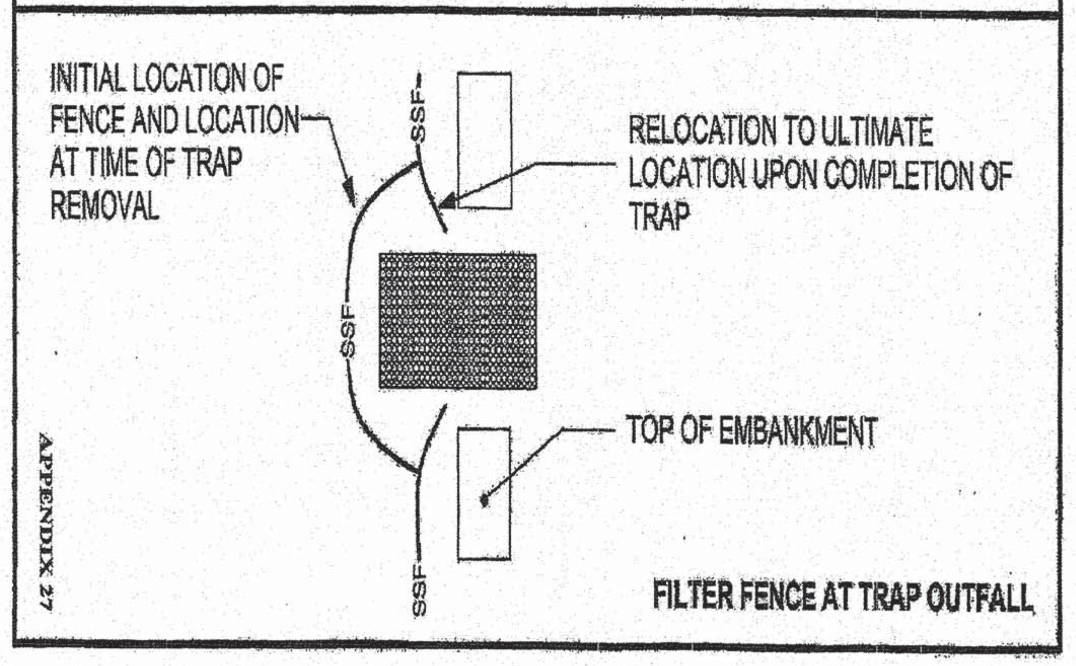
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

D.20

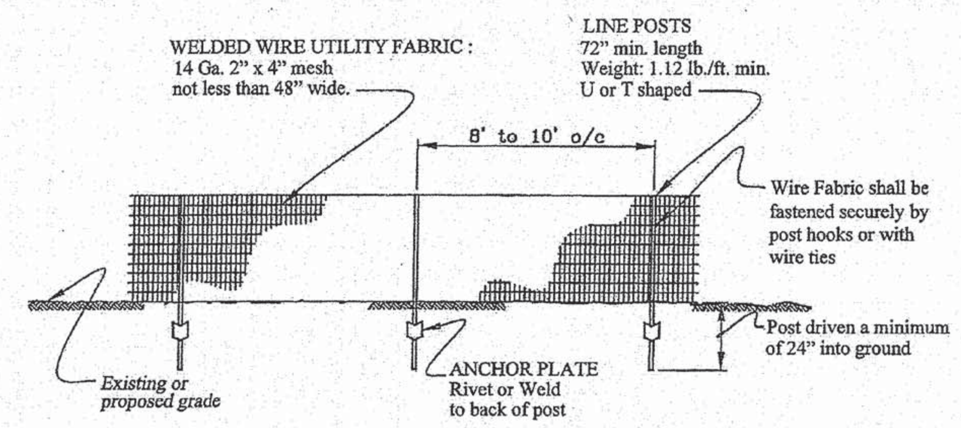
FILTER FENCE OUTFALL PROTECTION





APPENDIX 27

APPENDIX 26



TEMPORARY SAFETY FENCE FOR SEDIMENT TRAPPING DEVICES

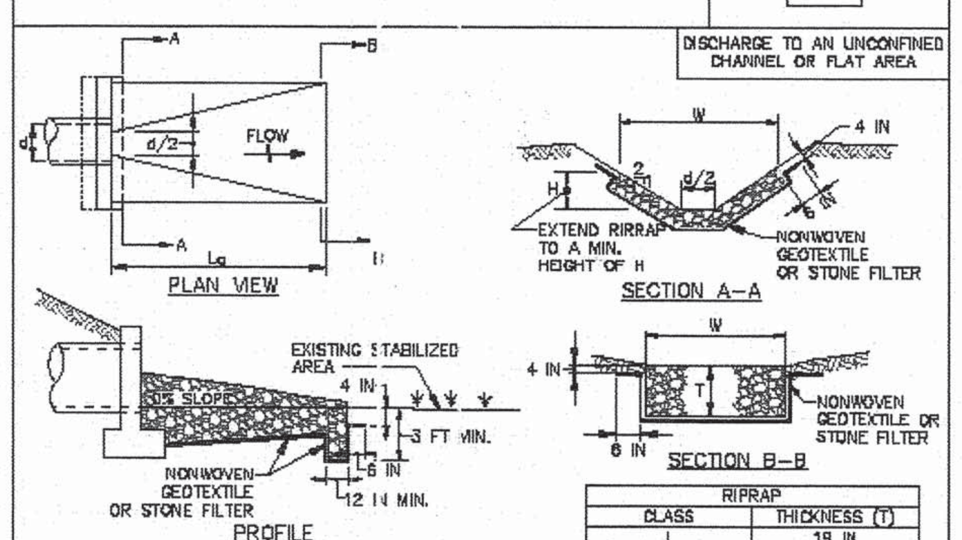
NOT TO SCALE

Baltimore County
Department of Environmental Protection and Resource Management

DETAIL D-4-1-C ROCK OUTLET PROTECTION III

STANDARD SYMBOL: ROPIII

DISCHARGE TO AN UNCONFINED CHANNEL OR FLAT AREA



RIPRAP	
CLASS	THICKNESS (T)
I	19 IN
II	32 IN
III	46 IN

CONSTRUCTION SPECIFICATIONS

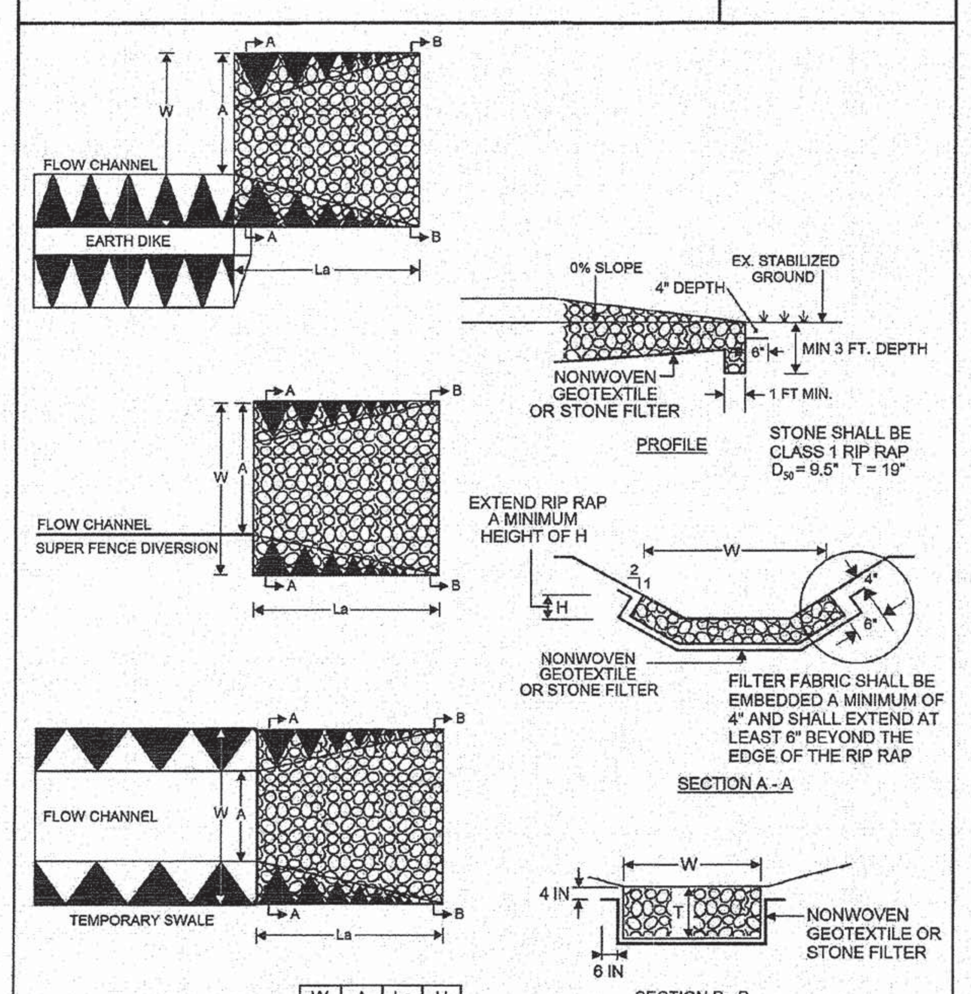
1. RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
2. USE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H–1 MATERIALS, AND PROTECT FROM PUNCTURING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE TOGETHER.
3. PREPARE THE SUBGRADE FOR GEOTEXTILE OR STONE FILTER (⅜ TO 1½ INCH MINIMUM STONE FOR 6 INCH MINIMUM DEPTH) AND RIPRAP TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
4. EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIPRAP AND EMBED AT LEAST 4 INCHES AT SIDES OF RIPRAP.
5. CONSTRUCT RIPRAP OUTLET TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE STONE FOR RIPRAP OUTLET IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE RIPRAP IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
6. WHERE NO ENDWALL IS USED, CONSTRUCT THE UPSTREAM END OF THE APRON SO THAT THE WIDTH IS TWO TIMES THE DIAMETER OF THE OUTLET PIPE, AND EXTEND THE STONE UNDER THE OUTLET BY A MINIMUM OF 18 INCHES.
7. CONSTRUCT APRON WITH 0% SLOPE ALONG ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDS IN WITH EXISTING GROUND.
8. MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND RIPRAP DISLODGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

ROCK OUTLET PROTECTION III

STANDARD SYMBOL: ROP III



	W	A	La	H
A EARTH DIKE	8'	6'	8'	12"
B EARTH DIKE	12'	9'	12'	24"
A SWALE	8'	4'	8'	12"
B SWALE	12'	6'	12'	12"
SUPER FENCE DIVERSION	8'	6'	8'	12"

1 of 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	MODIFIED - 2012	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

APPENDIX 29

ROCK OUTLET PROTECTION III

STANDARD SYMBOL: ROP III

CONSTRUCTION SPECIFICATIONS

1. RIP RAP AND STONE MUST CONFORM TO SPECIFIED CLASS.
2. USE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS AND PROTECT FROM PUNCTURING, CUTTING OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE TOGETHER.
3. PREPARE THE SUBGRADE FOR GEOTEXTILE OR STONE FILTER (⅜ TO 1½ INCH MINIMUM STONE FOR 6 INCH MINIMUM DEPTH) AND RIP RAP TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
4. EXTEND THE GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIP RAP AND EMBED AT LEAST 4 INCHES AT SIDES OF RIP RAP.
5. CONSTRUCT RIP RAP OUTLET TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE STONE FOR RIP RAP OUTLET IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE RIP RAP IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
6. CONSTRUCT APRON WITH 0% SLOPE ALONG ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDS IN WITH EXISTING GROUND.
7. MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND DISLODGED RIP RAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

2 of 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
MODIFIED FOR USE IN BALTIMORE COUNTY

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	MODIFIED - 2012	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

NOTE:
IN THE EVENT THE ROCK OUTLET PROTECTION (ROP) IS LOCATED WITHIN 5 FT HORIZONTALLY OF EXISTING LINE MA OR EXISTING FOREIGN PIPELINE, THE RIPRAP THICKNESS (T) SHALL EXTEND FOR THE ENTIRE LENGTH (La) OF THE OUTLET PROTECTION. THE 3 FT TOE WALL IS NOT REQUIRED.

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM – HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

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. 14942 EXPIRATION DATE: 6/01/2016

SEAL: STATE OF MARYLAND KAREN R. POWELL 14942 PROFESSIONAL ENGINEER 2-13-15

KCI TECHNOLOGIES
ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD SPARKS, MARYLAND 21152 TELEPHONE: (410) 316-7800 FAX: (410) 316-7818

Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE: JAN. 2015
SCALE: N.T.S.
DESIGNED BY: CW
DRAWN BY: KP

BALTIMORE COUNTY
EROSION AND SEDIMENT CONTROL DETAILS
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

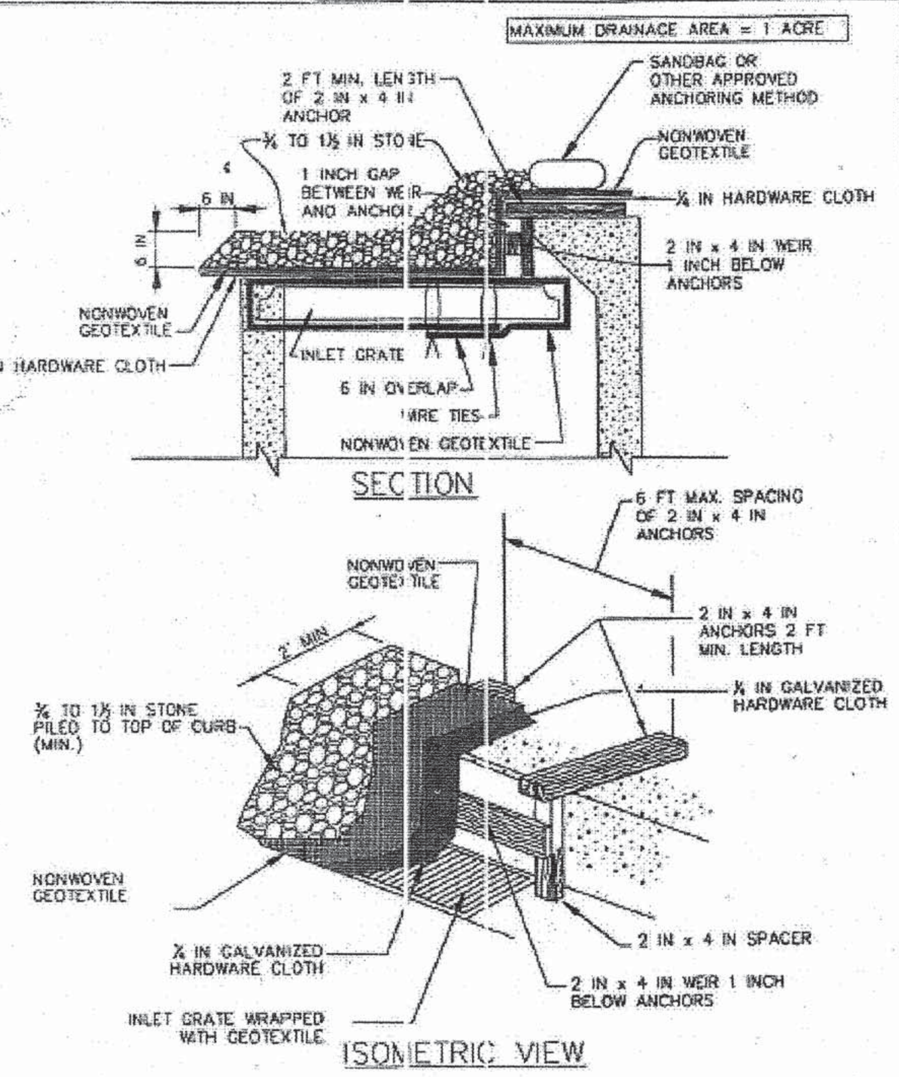
DRAWING NO. ECD-1.09
SHEET 53 OF 61
KCI JOB NUMBER 16-121849

PLOTTED: "10:19 AM on Monday, January 19, 2015"
BY: Christopher Deibel Division: P050 Natural Res Emp
FILE: M:\2012\16121849\drawings\WR\ESC-Details-09-BC-phase2.dgn

DETAIL E-9-6 COMBINATION INLET PROTECTION

STANDARD SYMBOL: MOD COIP

MAXIMUM DRAINAGE AREA = 1 ACRE



NOTE: HARDWARE CLOTH, GEOTEXTILE AND STONE SHALL EXTEND 2 FEET BEYOND THROAT ON EACH SIDE.

MODIFIED FOR SUMP

1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL MODIFIED FOR USE IN BALTIMORE COUNTY

DETAIL E-9-6 COMBINATION INLET PROTECTION

STANDARD SYMBOL: MOD COIP

CONSTRUCTION SPECIFICATIONS

1. USE NOMINAL 2 INCH x 4 INCH LUMBER.
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
3. LIFT GRATE, AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS. THEN SET GRATE BACK IN PLACE.
4. NAIL THE 2X4 WEIR (1 INCH BELOW THE ANCHORS) TO THE TOP OF A 9 INCH LONG VERTICAL SPACER, LOCATED BETWEEN THE WEIR AND THE INLET FACE (MAXIMUM 4 FEET APART).
5. PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL TO 2X4 ANCHORS (MINIMUM 2 FOOT LENGTHS) AT SPACER LOCATIONS. EXTEND 2X4 ANCHORS ACROSS THE INLET TOP AND HOLD IN PLACE BY SANDBAGS OR OTHER APPROVED ANCHORING METHOD.
6. INSTALL END SPACERS A MINIMUM OF 1 FOOT BEYOND THE ENDS OF THE THROAT OPENING.
7. ATTACH A CONTINUOUS PIECE OF ¼ INCH GALVANIZED HARDWARE CLOTH WITH A MINIMUM WIDTH OF 60 INCHES AND A MINIMUM LENGTH OF 4 FEET LONGER THAN THE THROAT OPENING, TO 2 FEET BEYOND THE TOP OF CURB, EXTENDING 2 FEET BEYOND THROAT ON EACH SIDE.
8. PLACE A CONTINUOUS PIECE OF NONWOVEN GEOTEXTILE THE SAME DIMENSIONS AS THE HARDWARE CLOTH OVER THE HARDWARE CLOTH.
9. FORM THE ¼ INCH HARDWARE CLOTH AND THE GEOTEXTILE TO THE CONCRETE GUTTER AND AGAINST THE FACE OF THE CURB ON BOTH SIDES OF THE INLET. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE OVER THE HARDWARE CLOTH AND GEOTEXTILE IN SUCH A MANNER TO PREVENT WATER FROM ENTERING THE INLET UNDER OR AROUND THE GEOTEXTILE.
10. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. 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 GEOTEXTILE AND STONE.

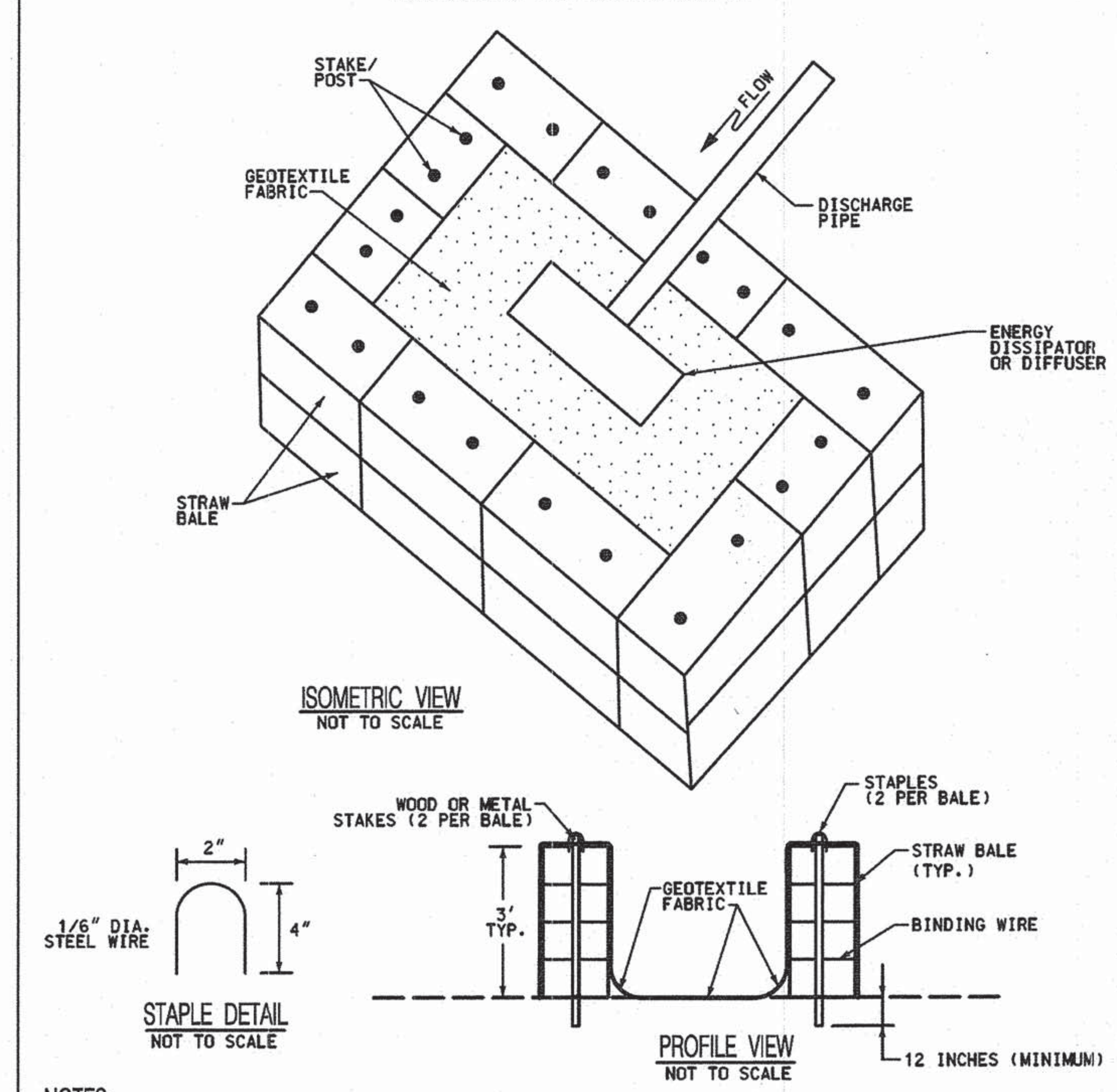
MODIFIED FOR SUMP

2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL MODIFIED FOR USE IN BALTIMORE COUNTY

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	MODIFIED-2013	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

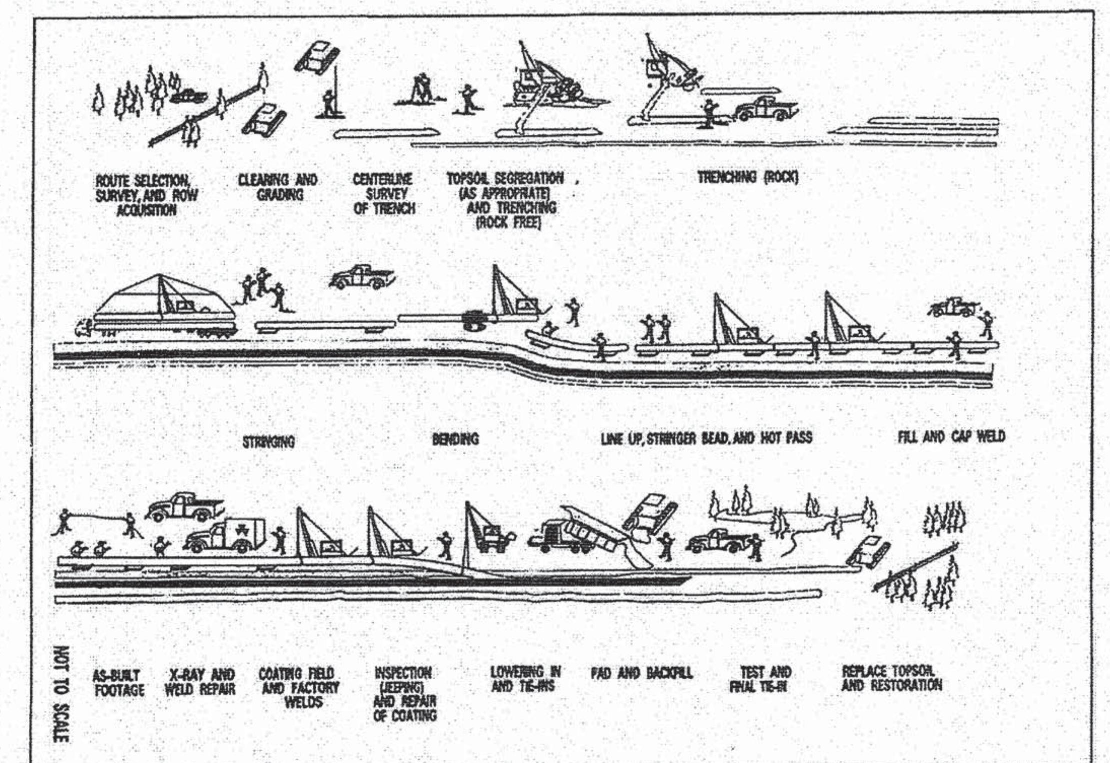
HYDROSTATIC TEST DEWATERING PIT



NOTES:

1. ALL DEWATERING ACTIVITIES WILL BE CONDUCTED IN ACCORDANCE WITH PERMIT CONDITIONS.
2. DISCHARGE SITE SHOULD BE WELL VEGETATED, WHERE POSSIBLE, AND LOCATED AT LEAST 50FT. FROM ANY WATERBODY. THE TOPOGRAPHY OF THE SITE SHOULD BE SUCH THAT WATER WILL FLOW INTO THE DEWATERING STRUCTURE AND AWAY FROM THE WORK AREAS.
3. DIRECT THE PUMPED WATER ONTO A STABLE SPILL PAD CONSTRUCTED OF STRAW BALES AND GEOTEXTILE FABRIC STAKED TO THE GROUND SURFACE.
4. DISCHARGE RATES SHOULD BE SUCH THAT THE STRUCTURE WILL NOT OVERFLOW.
5. DRIVE TWO STAKES OR POSTS INTO EACH BALE TO ANCHOR THEM IN PLACE.
6. FILTER BAGS ARE A SUITABLE ALTERNATIVE TO STRAW BALE STRUCTURES. STRAW BALES OR FILTER SOCK CAN BE ADDED AROUND THE FILTER BAG WHERE NEEDED.
7. STAKES OR POSTS SHOULD BE 2"x2" WOOD OR SUITABLE ALTERNATIVE.
8. SIZE OF DEWATERING STRUCTURE WILL BE DETERMINED BASED ON VOLUME OF DISCHARGE.

A. Figure 1 - Typical Upland Pipeline Construction Sequence

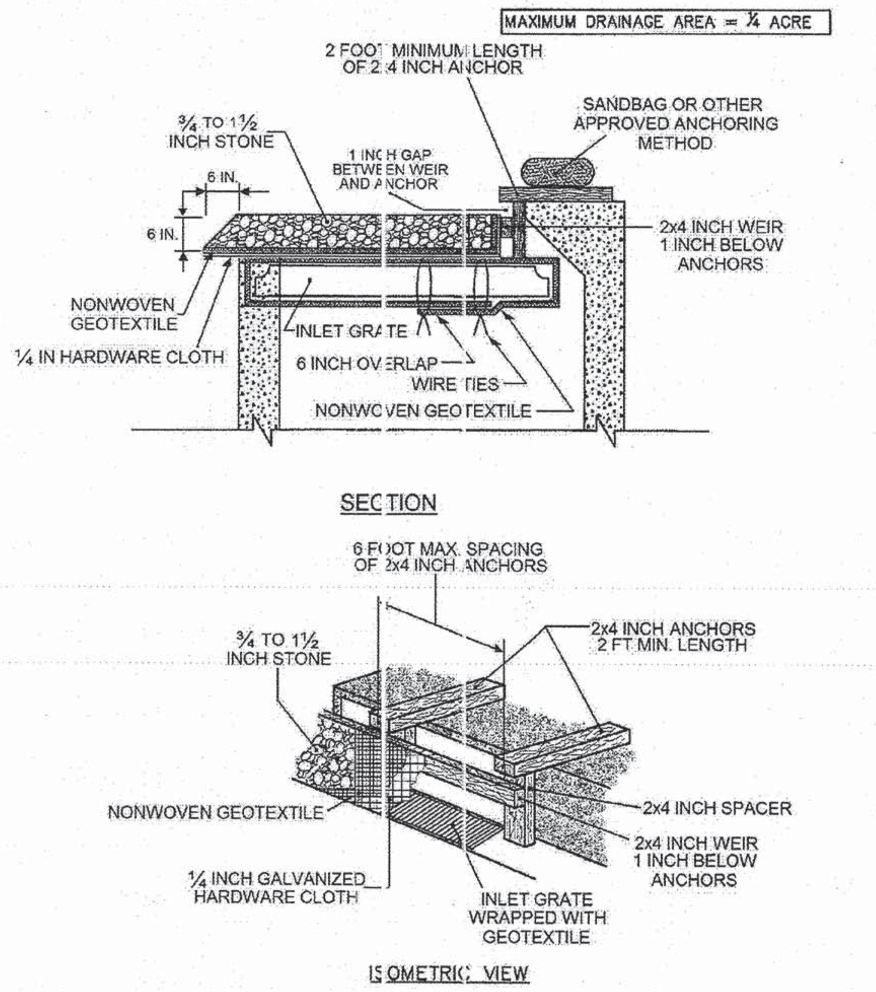


Columbia Gas Transmission — ENVIRONMENTAL CONSTRUCTION STANDARDS	TYPICAL UPLAND PIPELINE CONSTRUCTION SEQUENCE	FIGURE - 1

DETAIL E-9-6 COMBINATION INLET PROTECTION

STANDARD SYMBOL: COIP

MAXIMUM DRAINAGE AREA = ¼ ACRE



1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL MODIFIED FOR USE IN BALTIMORE COUNTY

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	MODIFIED - 2012	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-6 COMBINATION INLET PROTECTION

STANDARD SYMBOL: COIP

CONSTRUCTION SPECIFICATIONS

1. USE NOMINAL 2 INCH x 4 INCH LUMBER.
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H - 1 MATERIALS.
3. LIFT GRATE, AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS, THEN SET GRATE BACK IN PLACE.
4. ATTACH A CONTINUOUS PIECE OF ¼ INCH GALVANIZED HARDWARE CLOTH WITH A MINIMUM WIDTH OF 30 INCHES AND A MINIMUM LENGTH OF 4 FEET LONGER THAN THE THROAT OPENING, TO THE 2 INCH BY 4 INCH WEIR, EXTENDING 2 FEET BEYOND THE THROAT ON EACH SIDE.
5. PLACE A CONTINUOUS PIECE OF NONWOVEN GEOTEXTILE THE SAME DIMENSIONS AS THE HARDWARE CLOTH OVER THE HARDWARE CLOTH AND SECURELY ATTACH IT TO THE WEIR.
6. NAIL THE 2 x 4 INCH WEIR (1 INCH BELOW THE ANCHORS) TO THE 9 INCH LONG VERTICAL SPACERS, LOCATED BETWEEN THE WEIR AND INLET FACE, (MAXIMUM 4 FEET APART).
7. PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL TO THE 2 x 4 INCH ANCHORS (MINIMUM 2 FOOT LENGTHS) AT THE SPACER LOCATIONS. EXTEND THE 2 x 4 INCH ANCHORS ACROSS THE INLET TOP AND HOLD IN PLACE BY SANDBAGS OR OTHER APPROVED ANCHORING METHOD.
8. INSTALL END SPACERS A MINIMUM OF 1 FOOT BEYOND THE ENDS OF THE THROAT OPENING.
9. FORM THE ¼ INCH HARDWARE CLOTH AND THE GEOTEXTILE TO THE CONCRETE GUTTER AND AGAINST THE FACE OF THE CURB ON BOTH SIDES OF THE INLET. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE OVER THE HARDWARE CLOTH AND GEOTEXTILE IN SUCH A MANNER TO PREVENT WATER FROM ENTERING THE INLET UNDER OR AROUND THE GEOTEXTILE.
10. AT NON-SUMP LOCATIONS, INSTALL A TEMPORARY SANDBAG OR ASPHALT BERM TO PREVENT INLET BYPASS.
11. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. 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.

2 OF 2

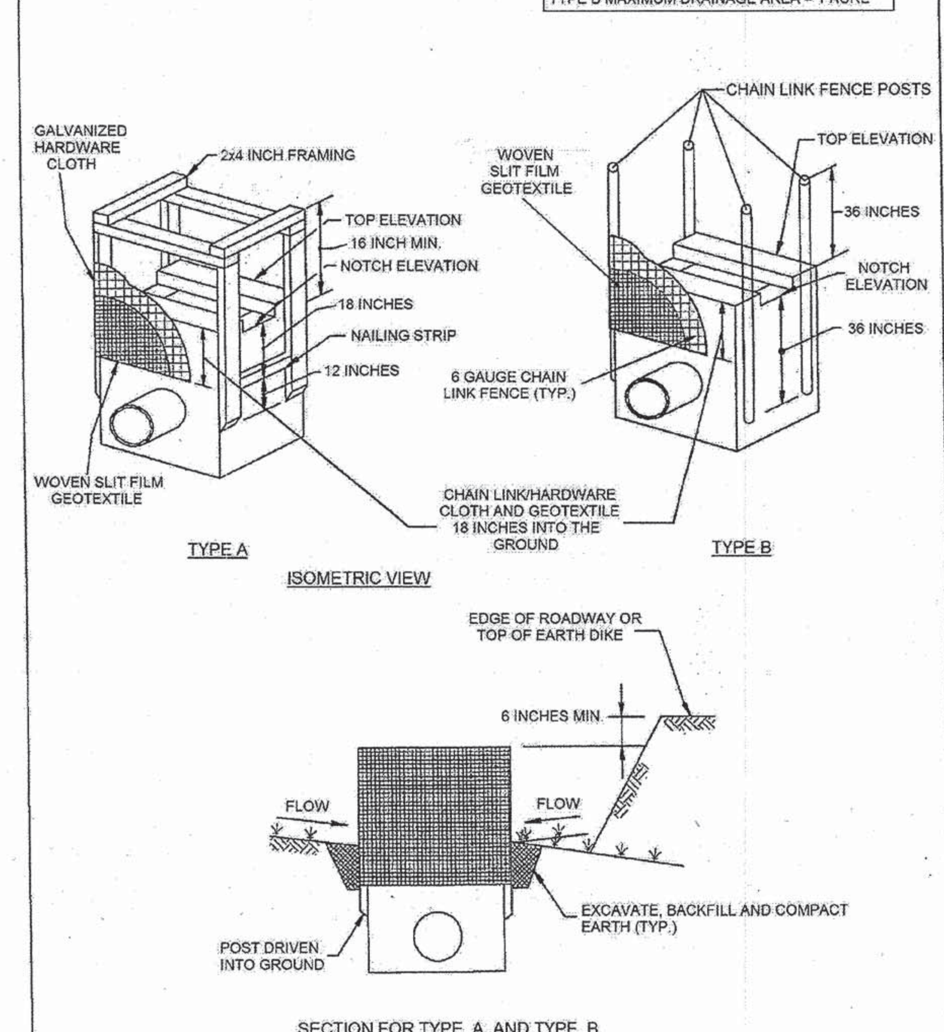
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL MODIFIED FOR USE IN BALTIMORE COUNTY

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	MODIFIED - 2012	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-1 STANDARD INLET PROTECTION

STANDARD SYMBOL: SIP

TYPE A MAXIMUM DRAINAGE AREA = ¼ ACRE
TYPE B MAXIMUM DRAINAGE AREA = 1 ACRE



1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL MODIFIED FOR USE IN BALTIMORE COUNTY

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	MODIFIED - 2012	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

APPENDIX 21

DETAIL E-9-1 STANDARD INLET PROTECTION

STANDARD SYMBOL: SIP

CONSTRUCTION SPECIFICATIONS

1. USE WOVEN GEOTEXTILE (AS INDICATED ON THE STANDARD INLET PROTECTION DETAIL) AS SPECIFIED IN SECTION H - 1 MATERIALS.
2. EXCAVATE COMPLETELY AROUND THE INLET TO A DEPTH OF 18 INCHES BELOW THE NOTCH ELEVATION.
3. FOR TYPE A, USE NOMINAL 2x4 INCH CONSTRUCTION GRADE LUMBER POSTS, DRIVEN 1 FOOT INTO THE GROUND AT EACH CORNER OF THE INLET. PLACE NAIL STRIPS BETWEEN THE POSTS ON THE ENDS OF THE INLET. ASSEMBLE THE TOP PORTION OF THE 2x4 INCH FRAME AS SHOWN. STRETCH ¼ INCH GALVANIZED HARDWARE CLOTH TIGHTLY AROUND THE FRAME AND FASTEN SECURELY. FASTEN GEOTEXTILE SECURELY TO THE HARDWARE CLOTH WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND HARDWARE CLOTH A MINIMUM OF 18 INCHES BELOW THE WEIR CREST. THE ENDS OF THE GEOTEXTILE MUST MEET AT A POST, BE OVERLAPPED AND FOLDED, THEN FASTENED TO THE POST.

   FOR TYPE B, USE 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND 6 FOOT LENGTH, DRIVEN A MINIMUM OF 36 INCHES BELOW THE WEIR CREST AT EACH CORNER OF THE STRUCTURE. FASTEN 6 GAUGE OR HEAVIER CHAIN LINK FENCE, 42 INCHES IN HEIGHT, SECURELY TO THE FENCE POSTS WITH WIRE TIES. FASTEN GEOTEXTILE SECURELY TO 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 18 INCHES BELOW THE WEIR CREST.
4. BACKFILL AROUND THE INLET IN LOOSE 4 INCH LIFTS AND COMPACT UNTIL SOIL IS LEVEL WITH THE NOTCH ELEVATION ON THE ENDS AND TOP ELVATION ON THE SIDES.
5. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE, REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. 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 GEOTEXTILE AND STONE.

2 of 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL MODIFIED FOR USE IN BALTIMORE COUNTY

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	MODIFIED - 2012	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

APPENDIX 21A

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM – HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

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. 14942 EXPIRATION DATE: 6/01/2016

SEAL: STATE OF MARYLAND — KAREN R. POWELL — 14942 — PROFESSIONAL ENGINEER — 2-13-15

KCI TECHNOLOGIES — ENGINEERS, PLANNERS, SCIENTISTS, CONSTRUCTION MANAGERS — 936 RIDGEBROOK ROAD, SPARKS, MARYLAND 21152, TELEPHONE: (410) 316-7800, FAX: (410) 316-7818

Columbia Gas Transmission — A NiSource Company

REVISIONS

NO.	DATE	DESCRIPTION	BY

DATE	JAN. 2015
SCALE	N.T.S.
DESIGNED BY	CW
DRAWN BY	KP

BALTIMORE COUNTY
EROSION AND SEDIMENT CONTROL DETAILS
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO. ECD-1.10

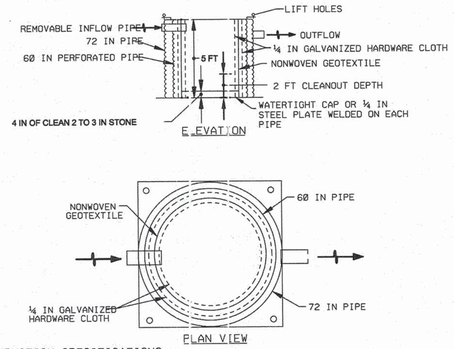
SHEET 54 OF 61

KCI JOB NUMBER 16-121849

PLOTTED: "09:34 AM on Thursday, January 15, 2015"
BY: Christopher Deibel Division: P050 Natural Res Emp
FILE: M:\2012\16121849\drawings\WR\ESC-Details-10-BC-phase2.dgn

DETAIL F-3 PORTABLE SEDIMENT TANK

STANDARD SYMBOL ⊠PST



CONSTRUCTION SPECIFICATIONS

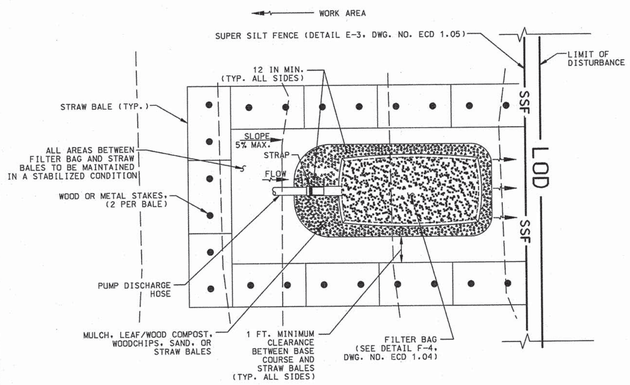
1. PROVIDE 1 CUBIC FOOT OF STORAGE FOR EACH GALLON PER MINUTE OF PUMP CAPACITY. REQUIRED STORAGE VOLUME MAY BE ATTAINED BY PLACEMENT OF TANKS IN PARALLEL WITH INFLOW EVENLY DISTRIBUTED AMONG TANKS. OVERTOPPING OF TANKS IS NOT PERMITTED.
2. USE 60 INCH CORRUGATED METAL OR PLASTIC PIPE WITH 1 INCH DIAMETER 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, ¼ 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

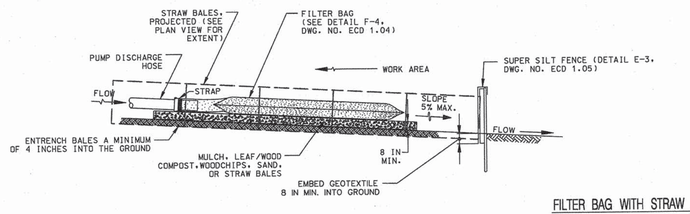
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

FILTER BAG WITH STRAW BALE AND SUPER SILT FENCE FOR REDUNDANT EROSION AND SEDIMENT CONTROL TREATMENT

NOT TO SCALE



PLAN VIEW

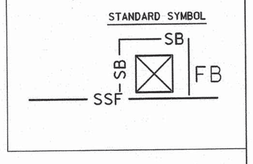


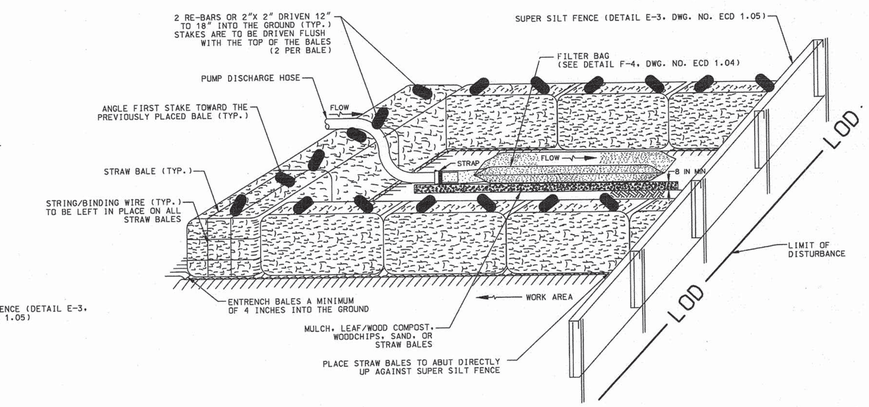
CROSS SECTION

FILTER BAG NOTES

1. ALL DEWATERING OF AREAS WITHIN THE LIMIT OF DISTURBANCE SHALL BE THROUGH A FILTER BAG LOCATED DIRECTLY UPSTREAM OF SUPER SILT FENCE AND SURROUNDED ON THREE SIDES BY STRAW BALES AS SHOWN.
2. STRAW BALES SHALL BE INSPECTED FREQUENTLY AND AFTER EACH RAIN EVENT AND MAINTENANCE PERFORMED AS NEEDED.
3. APPROXIMATE LOCATIONS OF FILTER BAGS ARE SHOWN AT ALL STREAM CROSSINGS ON THE PLAN SHEETS. THE CONTRACTOR SHALL DETERMINE EXACT LOCATIONS IN THE FIELD AND RELOCATE AS NEEDED. IN ACCORDANCE WITH THE FILTER BAG DETAIL NOTE 2, THIS SHEET AND WITH THE APPROVAL OF THE BALTIMORE COUNTY SEDIMENT CONTROL INSPECTOR.
4. SHOULD IT BECOME NECESSARY TO DEWATER THE TRENCH IN UPLAND AREAS, A STANDARD F-4 FILTER BAG WILL TREAT THE DISCHARGE PRIOR TO RELEASE. THE CONTRACTOR SHALL DETERMINE EXACT LOCATIONS IN THE FIELD AND RELOCATE AS NEEDED. IN ACCORDANCE WITH THE FILTER BAG DETAIL NOTE 2, THIS SHEET AND WITH THE APPROVAL OF THE BALTIMORE COUNTY SEDIMENT CONTROL INSPECTOR. TRENCH DEWATERING SHALL BE DONE IN A MANNER THAT DOES NOT CAUSE EROSION, DOES NOT RESULT IN SILT-LADEN WATER DISCHARGING FROM THE WORK AREA, AND WHERE WATER WILL NOT DRAIN TO DISTURBED AREAS.

STANDARD SYMBOL





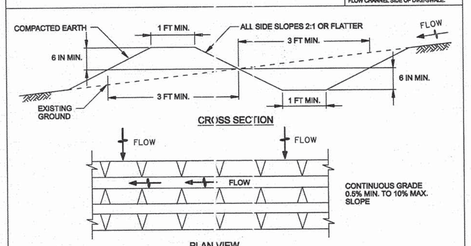
ISOMETRIC VIEW

NOTE:
STACKED FILTER LOGS MAY BE USED IN PLACE OF SUPER SILT FENCE IN ACCORDANCE WITH PLAN SHEETS EC-26 THOUGH EC-53.

DETAIL C-3 PERIMETER DIKE/SWALE

STANDARD SYMBOL PDS-1

PLACE DESIGNATION (PDS-1 OR 2) ON FLOW CHANNEL SIDE OF DIKE/SWALE.



FLOW CHANNEL STABILIZATION

PDS-1 SEED AND MULCH AND TACK (DRAINING < 1 ACRE) (NOT ALLOWED FOR CLEAR WATER DIVERSION.)

PDS-2 SEED WITH SOIL STABILIZATION MATTING OR LINE WITH SOD (DRAINING BETWEEN 1 AND 2 ACRES)

NOTE: THE MAXIMUM DRAINAGE AREA FOR THIS PRACTICE IS 2 ACRES.

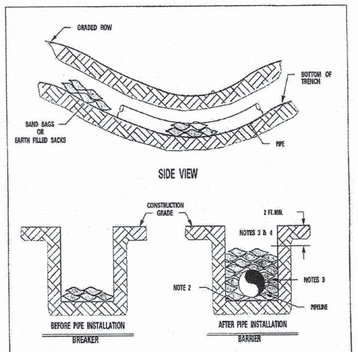
CONSTRUCTION SPECIFICATIONS

1. REMOVE AND DISPOSE OF ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SO AS NOT TO INTERFERE WITH PROPER FUNCTION OF DIKE/SWALE.
2. EXCAVATE OR SHAPE DIKE/SWALE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK PROJECTIONS OR OTHER IRREGULARITIES ARE NOT ALLOWED.
3. COMPACT FILL.
4. CONSTRUCT DIKE/SWALE ON AN UNINTERRUPTED, CONTINUOUS GRADE, ADJUSTING THE LOCATION DUE TO FIELD CONDITIONS AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE.
5. PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
6. STABILIZE DIKE/SWALE WITHIN 3 DAYS OF INSTALLATION. STABILIZE DIKE/SWALES USED FOR CLEAR WATER DIVERSION WITHIN 24 HOURS OF INSTALLATION.
7. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS, AND MAINTAIN POSITIVE DRAINAGE. KEEP PERIMETER DIKE/SWALE AND POINT OF DISCHARGE FREE OF EROSION AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
8. UPON REMOVAL OF DIKE/SWALE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS OF REMOVAL STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, MULCH, OR AS SPECIFIED ON APPROVED PLAN.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

N. **Figure 13 – Trenchline Barriers and Breakers**



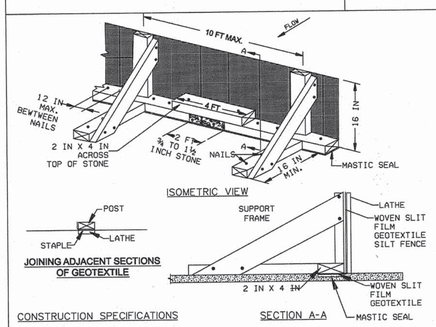
NOTES:
1. INSTALL AT EVERY SECOND INTERCEPTOR DIVERSION PROMPTLY AS TRENCH IS COMPLETED. (SEE FIGURE 8A)
2. PRIOR TO LOWERING IN, REMOVE ALL DECOMPOSED MATERIAL AND ROCKS.
3. INSTALL SACKS TO TOP OF TRENCH ON STEEP GRADES THAT ARE NOT USED FOR FARMING.
4. TOP OF TRENCHLINE BARRIER WILL BE BELOW PLOW DEPTH IN AGRICULTURAL LAND.
5. DOUBLE STAKED HAY /STRAW BALES MAY BE SUBSTITUTED FOR SAND BAGS (EARTH FILLED SACKS) AS TEMPORARY BREAKERS WHERE APPROPRIATE.

NOT TO SCALE

Columbia Gas Transmission, A NiSource Company — ENVIRONMENTAL CONSTRUCTION STANDARDS	TRENCHLINE BARRIERS AND BREAKERS	FIGURE - 13

DETAIL E-2 SILT FENCE ON PAVEMENT

STANDARD SYMBOL —SFOP—

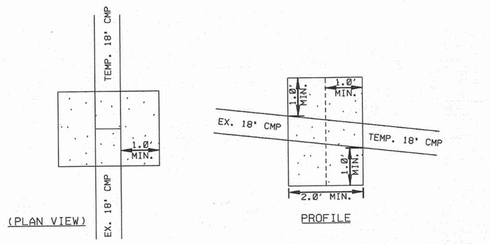


CONSTRUCTION SPECIFICATIONS

1. USE NOMINAL 2 INCH X 4 INCH LUMBER.
2. USE WOVEN SLIT FILM GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
3. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
4. SPACE UPRIGHT SUPPORTS NO MORE THAN 10 FEET APART.
5. PROVIDE A TWO FOOT OPENING BETWEEN EVERY SET OF SUPPORTS AND PLACE STONE IN THE OPENING OVER GEOTEXTILE.
6. KEEP SILT FENCE TAUT AND SECURELY STAPLE TO THE UPSLOPE SIDE OF UPRIGHT SUPPORTS.
7. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, FOLD, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL. ATTACH LATHE.
8. PROVIDE A MASTIC SEAL BETWEEN PAVEMENT, GEOTEXTILE, AND 2x4 TO PREVENT SEDIMENT-LADEN WATER FROM ESCAPING BENEATH SILT FENCE INSTALLATION.
9. SECURE BOARDS TO PAVEMENT WITH 40D 5 INCH MINIMUM LENGTH NAILS.
10. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. MAINTAIN WATER TIGHT SEAL ALONG BOTTOM. REPLACE STONE IF DISPLACED.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



2.0' CONCRETE COLLAR FOR WATER TIGHT CONNECTION BETWEEN EX. 18" CMP & TEMP. 18" CMP

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM – HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

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.: 14942 EXPIRATION DATE: 6/01/2016

STATE OF MARYLAND — KAREN R. POWELL — 14942 — PROFESSIONAL ENGINEER — 2-13-15
SEAL

KCI TECHNOLOGIES
ENGINEERS, PLANNERS, SCIENTISTS, CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD, SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818

Columbia Gas Transmission, A NiSource Company

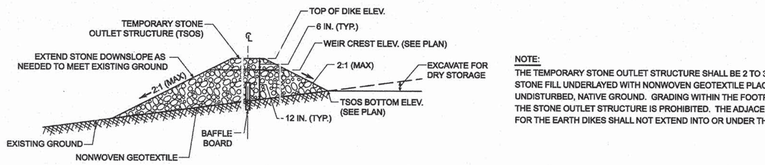
REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE JAN. 2015
SCALE N.T.S.
DESIGNED BY CW
DRAWN BY KP

BALTIMORE COUNTY
EROSION AND SEDIMENT CONTROL DETAILS
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

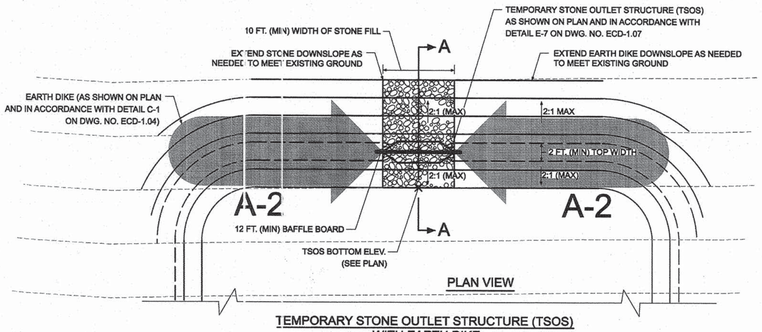
DRAWING NO. ECD-1.11
SHEET 55 OF 61
KCI JOB NUMBER 16-121849

PLOTTED: "09:34 AM on Thursday, January 15, 2015"
BY: Christopher Diebel Division: PD50 Natural Res. Emp.
FILE: M:\2012\121849\drawings\WRK\ESC-Details-11-BC-phase2.dgn



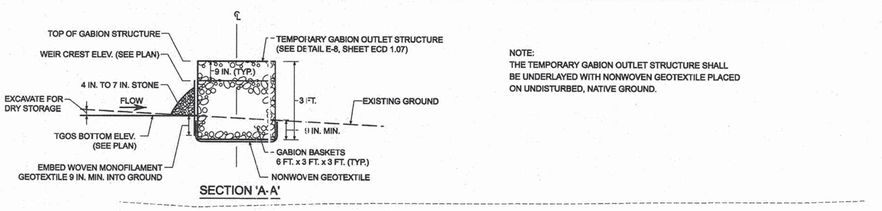
NOTE:
THE TEMPORARY STONE OUTLET STRUCTURE SHALL BE 2 TO 3 INCH STONE FILL UNDERLAYED WITH NONWOVEN GEOTEXTILE PLACED ON UNDISTURBED, NATIVE GROUND. GRADING WITHIN THE FOOTPRINT OF THE STONE OUTLET STRUCTURE IS PROHIBITED. THE ADJACENT FILL FOR THE EARTH DIKES SHALL NOT EXTEND INTO OR UNDER THE STONE.

SECTION 'A-A'



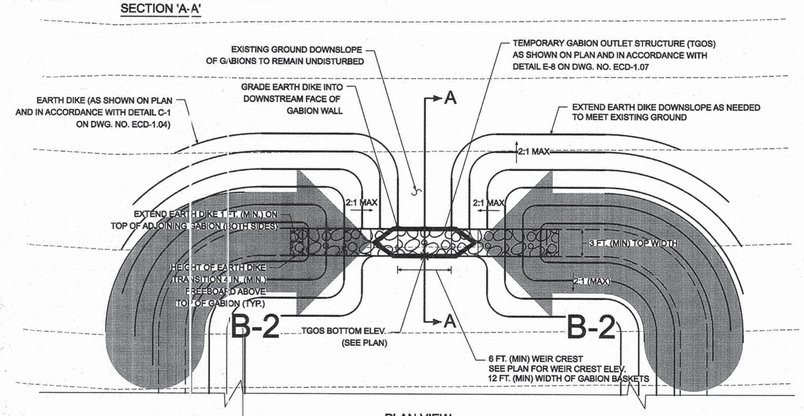
PLAN VIEW

TEMPORARY STONE OUTLET STRUCTURE (TSOS)
WITH EARTH DIKE
NOT TO SCALE



NOTE:
THE TEMPORARY GABION OUTLET STRUCTURE SHALL BE UNDERLAYED WITH NONWOVEN GEOTEXTILE PLACED ON UNDISTURBED, NATIVE GROUND.

SECTION 'A-A'

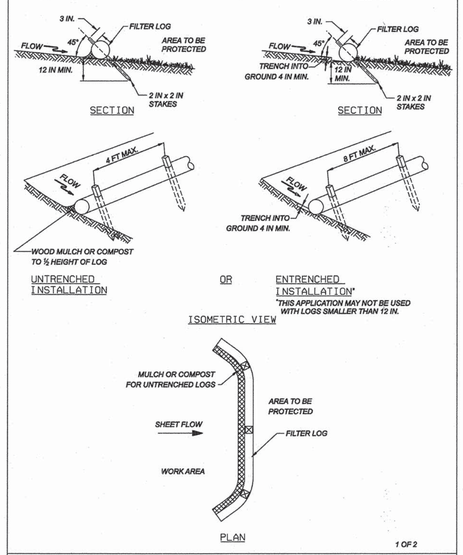


PLAN VIEW

TEMPORARY GABION OUTLET STRUCTURE (TGOS)
WITH EARTH DIKE
NOT TO SCALE

DETAIL E-6 FILTER LOG

STANDARD SYMBOL FL-18
DESIGNATION FL-18 REFERS TO 18 INCH DIAMETER FILTER LOG.



1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-6 FILTER LOG

STANDARD SYMBOL FL-18
DESIGNATION FL-18 REFERS TO 18 INCH DIAMETER FILTER LOG.

CONSTRUCTION SPECIFICATIONS

1. PRIOR TO INSTALLATION, CLEAR ALL OBSTRUCTIONS INCLUDING ROCKS, CLODS, AND DEBRIS GREATER THAN ONE INCH THAT MAY INTERFERE WITH PROPER FUNCTION OF FILTER LOG.
2. FILL LOG NETTING UNIFORMLY WITH COMPOST (IN ACCORDANCE WITH SECTION H-1 MATERIALS), OR OTHER APPROVED BIODEGRADABLE MATERIAL TO DESIRED LENGTH SUCH THAT LOGS DO NOT DEFORM.
3. INSTALL FILTER LOGS PERPENDICULAR TO THE FLOW DIRECTION AND PARALLEL TO THE SLOPE WITH THE BEGINNING AND END OF THE INSTALLATION POINTING SLIGHTLY UP THE SLOPE CREATING A "J" SHAPE AT EACH END TO PREVENT BYPASS.
4. FOR UNTRENCHED INSTALLATION BLOW OR HAND PLACE MULCH OR COMPOST ON UPHILL SIDE OF THE SLOPE ALONG LOG.
5. STAKE FILTER LOG EVERY 4 FEET OR CLOSER ALONG ENTIRE LENGTH OF LOG OR TRENCH LOG INTO GROUND A MINIMUM OF 4 INCHES AND STAKE LOG EVERY 8 FEET OR CLOSER.
6. USE STAKES WITH A MINIMUM NOMINAL CROSS SECTION OF 2X2 INCH AND OF SUFFICIENT LENGTH TO ATTAIN A MINIMUM OF 12 INCHES INTO THE GROUND AND 3 INCHES PROTRUDING ABOVE LOG.
7. WHEN MORE THAN ONE LOG IS NEEDED, OVERLAP ENDS 12 INCHES MINIMUM AND STAKE.
8. REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO A DEPTH OF ¼ THE EXPOSED HEIGHT OF LOG AND REPLACE MULCH. REPLACE FILTER LOG IF TORN. REINSTALL FILTER LOG IF UNDERMINING OR DISLODGING OCCURS. REPLACE CLOGGED FILTER LOGS. FOR PERMANENT APPLICATIONS, ESTABLISH AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

2 OF 2

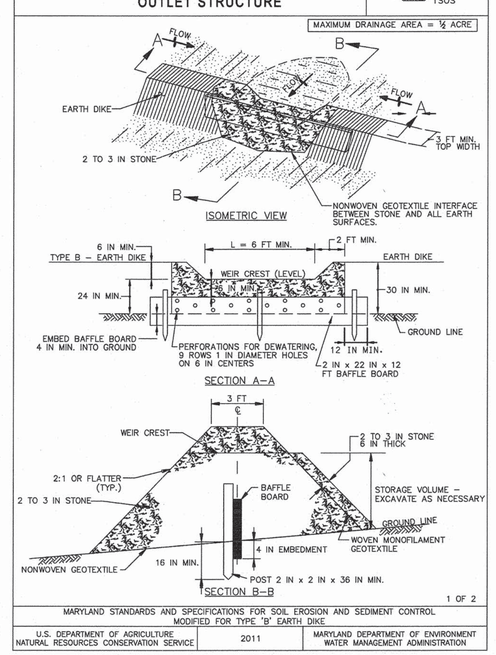
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-7 TEMPORARY STONE OUTLET STRUCTURE

STANDARD SYMBOL MOD TSOS

MAXIMUM DRAINAGE AREA = ½ ACRE



1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL MODIFIED FOR TYPE 'B' EARTH DIKE

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-7 TEMPORARY STONE OUTLET STRUCTURE

STANDARD SYMBOL MOD TSOS

CONSTRUCTION SPECIFICATIONS

1. PROVIDE STORAGE VOLUME AS SPECIFIED ON APPROVED PLANS.
2. USE NONWOVEN GEOTEXTILE ON INTERFACE BETWEEN GROUND AND STONE.
3. PERFORATE BAFFLE BOARD WITH 9 ROWS OF 1 INCH DIAMETER HOLES 6 INCHES ON CENTER. EMBED A MINIMUM OF 4 INCHES INTO GROUND. AND EXTEND BAFFEL BOARD MINIMUM OF 12 INCHES INTO EARTH DIKE. THERE SHALL BE NO GAPS BETWEEN THE BAFFLE BOARDS. BOARDS SHALL BE SECURELY FASTENED TO THE 2" POSTS.
4. USE CLEAN 2 TO 3 INCH STONE OR EQUIVALENT RECYCLED CONCRETE. PLACE WOVEN MONOFILAMENT GEOTEXTILE ON UPSTREAM FACE AND COVER WITH A MINIMUM OF 6 INCHES OF ADDITIONAL STONE.
5. USE NONWOVEN AND WOVEN MONOFILAMENT GEOTEXTILES AS SPECIFIED IN SECTION H-1 MATERIALS.
6. SET WEIR CREST OF STONE 6 INCHES LOWER THAN THE TOP OF EARTH DIKE. USE MINIMUM LENGTH OF 6 FEET FOR WEIR CREST.
7. REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO WITHIN 6 INCHES OF WEIR CREST. REPLACE GEOTEXTILE AND STONE FACING WHEN STRUCTURE CEASES TO DRAIN. MAINTAIN LINE, GRADE, AND CROSS SECTION.
8. UPON REMOVAL OF STONE OUTLET STRUCTURE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL MODIFIED FOR TYPE 'B' EARTH DIKE

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM – HORIZ.: NAD 83 (ADJ. '07) ; VERT.: NAVD 88

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. 14942 EXPIRATION DATE: 6/01/2016

STATE OF MARYLAND · KAREN R. POWER · 14942 · PROFESSIONAL ENGINEER
SEAL 2-13-15

KCI TECHNOLOGIES
ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD SPARKS, MARYLAND 21152 TELEPHONE: (410) 316-7800 FAX: (410) 316-7818

Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE JAN. 2015
SCALE N.T.S.
DESIGNED BY CW
DRAWN BY KP

BALTIMORE COUNTY
EROSION AND SEDIMENT CONTROL DETAILS
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO. ECD-1.12
SHEET 56 OF 61
KCI JOB NUMBER 16-121849

PLOTTED:"09:34 AM on Thursday, January 15, 2015"
By:Christopher Debel Division:PROJ Layout:Layout Ref: ECD
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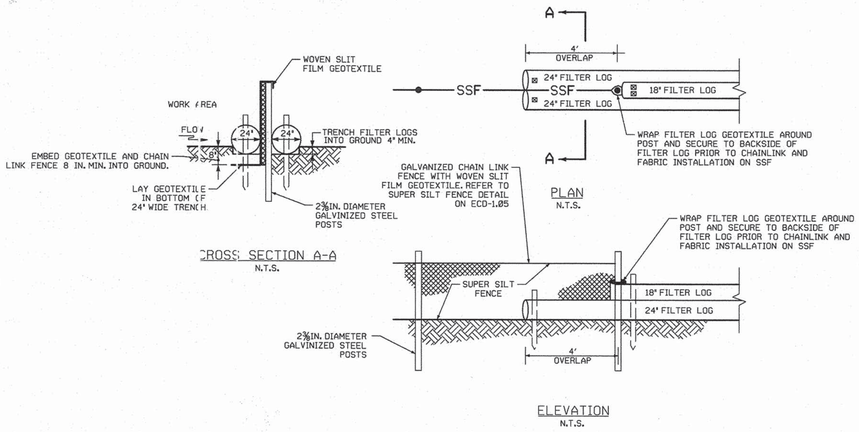
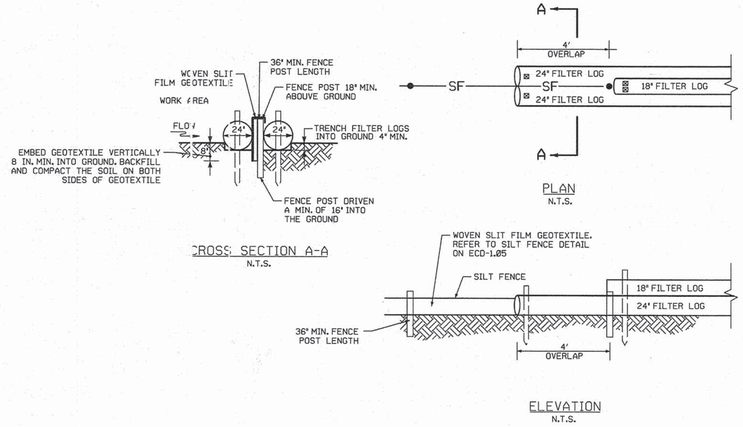


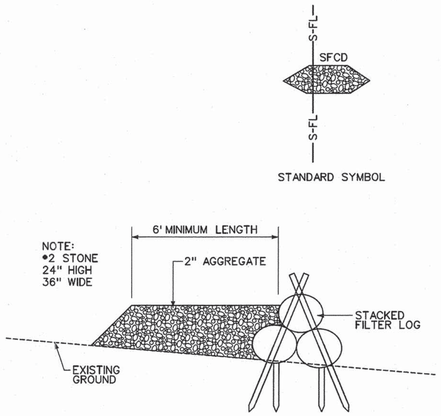
STACKED FILTER LOG WITH SUPER SILT FENCE

NOT TO SCALE



STACKED FILTER LOG WITH SILT FENCE

NOT TO SCALE

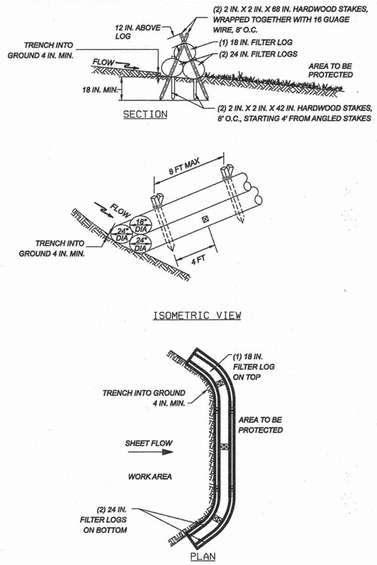


SILT FENCE CHECK DAM WITH STACKED FILTER LOG

NOT TO SCALE

STACKED FILTER LOG DETAIL

STANDARD SYMBOL
S-FL



1 OF 2

STACKED FILTER LOG DETAIL

STANDARD SYMBOL
S-FL

CONSTRUCTION SPECIFICATIONS

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4. TRENCH LOG INTO GROUND A MINIMUM OF 4 INCHES AND STAKE FILTER LOG EVERY 8 FEET OR CLOSER ALONG ENTIRE LENGTH OF LOG.

5. USE STAKES WITH A MINIMUM NOMINAL CROSS SECTION OF 2X2 INCH AND OF SUFFICIENT LENGTH TO ATTAIN A MINIMUM OF 18 INCHES INTO THE GROUND AND 12 INCHES PROTRUDING ABOVE LOG.

6. WHEN MORE THAN ONE LOG IS NEEDED, OVERLAP ENDS 12 INCHES MINIMUM AND STAKE.

7. REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO A DEPTH OF ½ THE TOTAL HEIGHT. REPLACE FILTER LOG IF TORN. REINSTALL FILTER LOG IF UNDERMINING OR DISLODGING OCCURS. REPLACE CLOGGED FILTER LOGS.

8. FILTER LOGS SHALL BE INSPECTED WEEKLY AND AFTER EACH RAINFALL EVENT.

ADAPTED FROM THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL, MARCH 2012.

2 OF 2

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM – HORIZ. NAD 83 (ADJ. '07), VERT.: NAVD 88

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. 14942 EXPIRATION DATE: 6/01/2016

STATE OF MARYLAND · KAREN A. POWELL · 14942 · PROFESSIONAL ENGINEER
SEAL 2-13-15

KCI TECHNOLOGIES
ENGINEERS · PLANNERS · SCIENTISTS · CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818

Columbia Gas Transmission
A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE: JAN. 2015
SCALE: N.T.S.
DESIGNED BY: CW
DRAWN BY: KP

BALTIMORE COUNTY
EROSION AND SEDIMENT CONTROL DETAILS
FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO. ECD-1.13
SHEET 57 OF 61
KCI JOB NUMBER 16-121849

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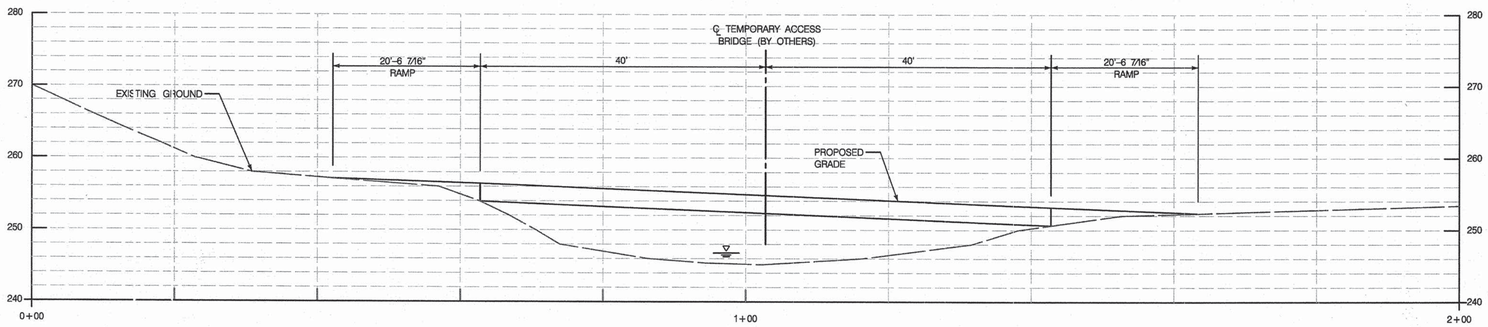
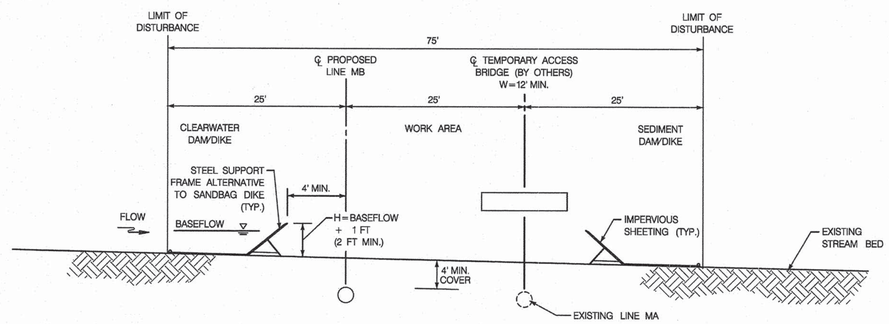


1" = 10'-0" H
1" = 10'-0" V

SEE GRADING/EROSION AND SEDIMENT CONTROL PLAN DWG. NO. EC-32

PROFILE TEMPORARY ACCESS BRIDGE OVER WESTERN RUN



SEE GRADING/EROSION AND SEDIMENT CONTROL PLAN DWG. NO. EC-32

CROSS-SECTION OF PUMP-AROUND PRACTICE AT WESTERN RUN

N.T.S.

Baltimore County Soil Conservation District
APPROVED FOR SEDIMENT CONTROL
2-17-15
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SEAL — STATE OF MARYLAND — KAREN R. POWELL — 14942 — 2-13-15

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FOR
COLUMBIA GAS TRANSMISSION, LLC
LINE MB EXTENSION PROJECT - PHASE 2
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO.
ECD-1.14
SHEET 58 OF 61
KCI JOB NUMBER 16-121849

PLOTTED: "09:34 AM on Thursday, January 15, 2015"
BY: Christopher Dekel Division: POGO NuVue Res. Eng.
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