SURRY POWER STATION
DREDGE MATERIAL MANAGEMENT AREA (DMMA)

(PARCEL PIN: 44-4B)
1652 HOG ISLAND ROAD
SURRY, VIRGINIA 23883

PREPARED FOR

VIRGINIA ELECTRIC AND POWER COMPANY

PREPARED BY

SCHNABEL ENGINEERING, LLC.

PROJECT NO. 16C21018.01

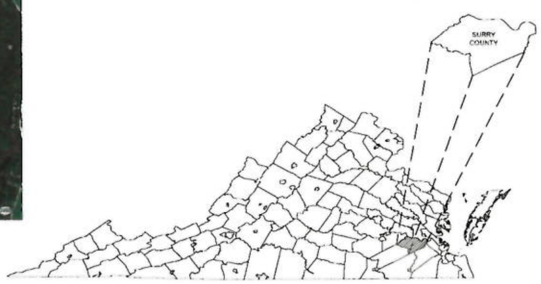
WITH SUPPORT FROM

WATERWAYS SURVEYS AND ENGINEERING, LTD.

ANGLER ENVIRONMENTAL

VICINITY MAP

LOCATION MAP



KEY MAP

DESIGNED BY AMC/JMP	DRAWN BY AMC	CHECKED BY TJF	

JONATHAN M. PITTMAN, PE

DATE

VIRGINIA PROFESSIONAL ENGINEER 041420

REV | DESCRIPTION | DATE

Schnabel ENGINEERING

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SURRY POWER STATION
DREDGE MATERIAL MANAGEMENT AREA (DMMA)
VIRGINIA ELECTRIC AND POWER COMPANY
SURRY COUNTY, VIRGINIA

COVER SHEET

Dominion Energy

PROJECT: 16C21018.01
DATE: OCTOBER 2017
DRAWING NO. G-01
SHEET 1 OF 24

FEATURES LEGEND AND ABBREVIATION LIST

- EXISTING ELECTRIC TRANSMISSION TOWER
- EXISTING UTILITY POLES
- SPOT ELEVATION (45.00)
- PROPERTY LINE
- LIMITS OF RESOURCE PROTECTION AREA
- PROPOSED TREE LINE
- EXISTING TREE LINE
- EXISTING DIRT ROAD
- EDGE OF PAVEMENT
- LIMITS OF DISTURBANCE
- EXISTING DRAINAGE AREA LIMITS
- PROPOSED DRAINAGE AREA LIMITS
- EXISTING TOPO MAJOR
- EXISTING TOPO MINOR
- PROPOSED TOPO MAJOR
- PROPOSED TOPO MINOR
- EXISTING OVERHEAD ELECTRIC
- SOIL STOCKPILE AREA
- RIPRAP
- PERMANENT GRAVEL ACCESS ROAD
- FIELD VERIFIED WETLANDS

NOTE:
FEMA FIRM ZONE AE-7 LOCATED BELOW EL 7.

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S-1	GANGWAY PLAN

DRAWING SYMBOLS LEGEND

SECTION NUMBER*
DIRECTION WHICH SECTION IS SHOWN
DRAWING NUMBER ON WHICH SECTION APPEARS

SECTION INDICATOR

DETAIL NUMBER
DRAWING NUMBER ON WHICH DETAIL APPEARS

DETAIL INDICATOR

PLAN, SECTION OR DETAIL NUMBER
PLAN, SECTION OR DETAIL TITLE
PLAN / SECTION / DETAIL
ADDITIONAL INFORMATION
OPTIONAL ADDITIONAL INFORMATION

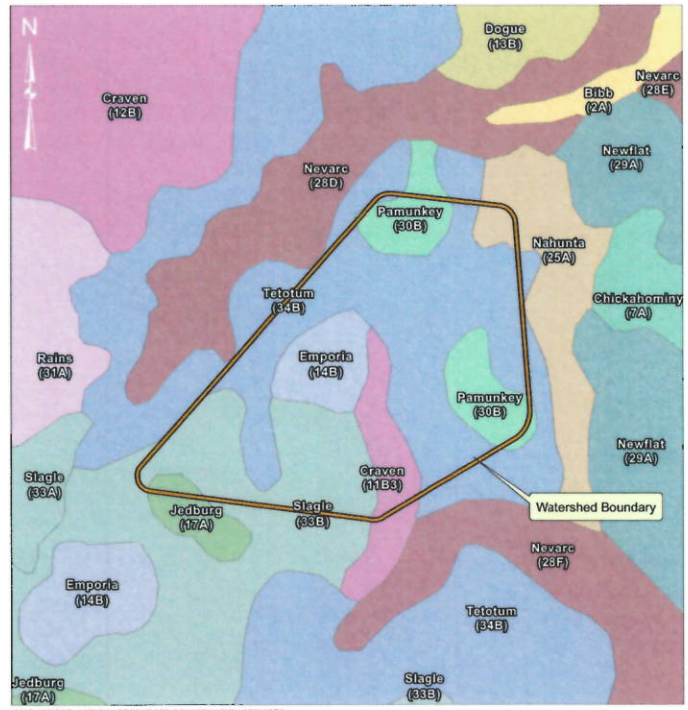
PLAN, SECTION OR DETAIL LABEL

VERBAL SCALE**

SCALE INDICATOR

* SECTION AND ELEVATION INDICATORS ARE SIMILAR. SECTION AND ELEVATION NUMBERS ARE COMBINED AND SEQUENTIAL ON EACH DRAWING.

** VERBAL SCALE IS SHOWN FOR CONVENIENCE. ALL DRAWINGS SHOULD BE CHECKED TO INSURE THAT THE SCALE BAR ITSELF IS SHOWN AT ACTUAL SIZE. DRAWINGS NOT PLOTTED AT THEIR INTENDED SIZE (ANSI D 22" x 34") WILL NOT SCALE PROPERLY.



MAP SOURCE: NATURAL RESOURCES CONSERVATION SERVICES

1 SOILS MAP
NOT TO SCALE

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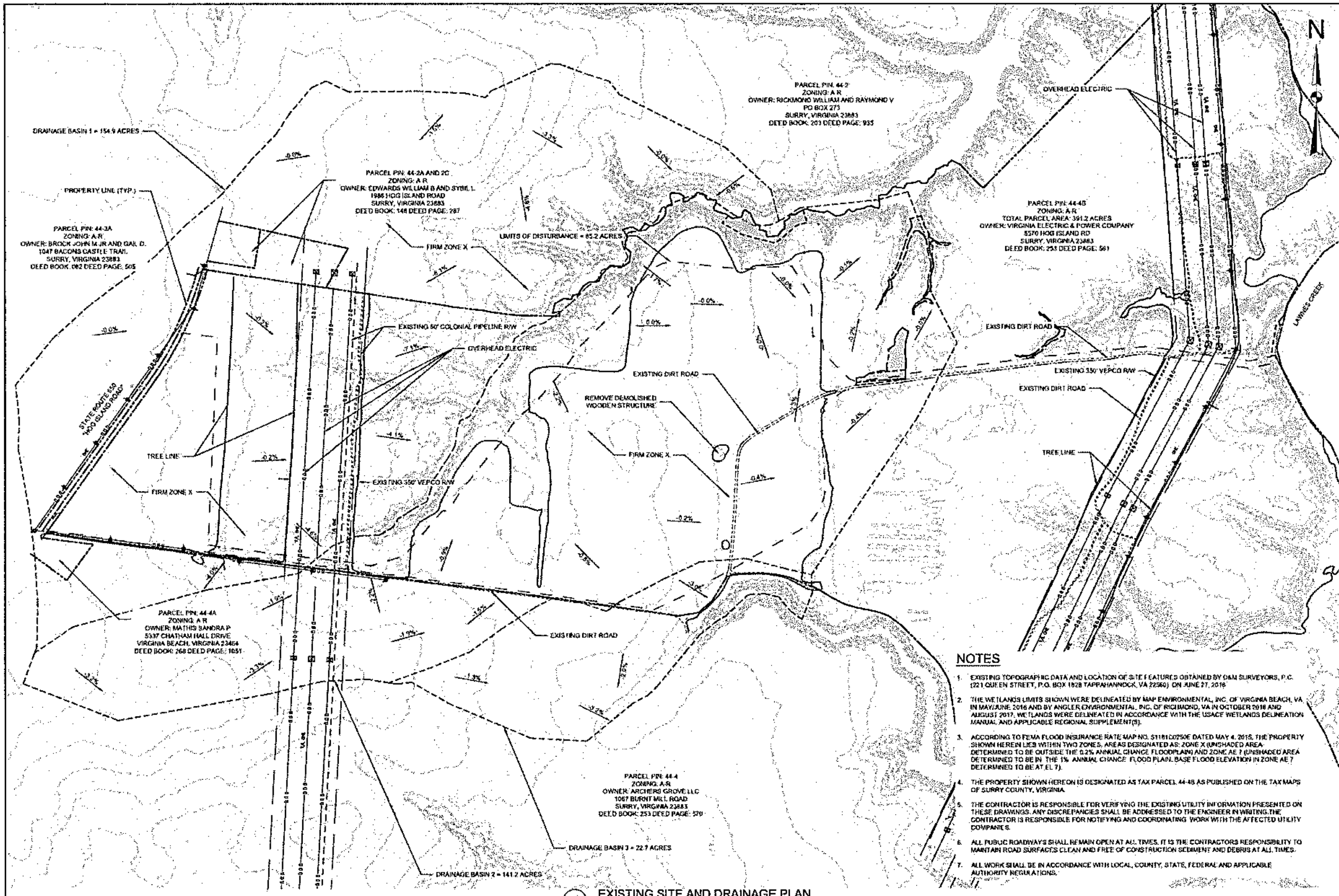
SURRY POWER STATION
DREDGE MATERIAL MANAGEMENT AREA (DMMA)
VIRGINIA ELECTRIC AND POWER COMPANY
SURRY COUNTY, VIRGINIA

INDEX, LEGEND, AND SOILS MAP SHEET

Dominion Energy

PROJECT: 16C21018.01
DATE: OCTOBER 2017
DRAWING NO. G-02
SHEET 2 OF 24



NOTES

1. EXISTING TOPOGRAPHIC DATA AND LOCATION OF SITE FEATURES OBTAINED BY O&M SURVEYORS, P.C. (221 QUEEN STREET, P.O. BOX 1828 TAPPAHANNOCK, VA 22560) ON JUNE 27, 2016
2. THE WETLANDS LIMITS SHOWN WERE DELINEATED BY MAP ENVIRONMENTAL, INC. OF VIRGINIA BEACH, VA IN MAY/JUNE 2016 AND BY ANGLER ENVIRONMENTAL, INC. OF RICHMOND, VA IN OCTOBER 2016 AND AUGUST 2017. WETLANDS WERE DELINEATED IN ACCORDANCE WITH THE USACE WETLANDS DELINEATION MANUAL AND APPLICABLE REGIONAL SUPPLEMENT(S).
3. ACCORDING TO FEMA FLOOD INSURANCE RATE MAP NO. 51181C0250E DATED MAY 4, 2015, THE PROPERTY SHOWN HEREIN LIES WITHIN TWO ZONES, AREAS DESIGNATED AS: ZONE X (UNSHADED AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) AND ZONE AE 7 (UNSHADED AREA DETERMINED TO BE IN THE 1% ANNUAL CHANCE FLOOD PLAIN. BASE FLOOD ELEVATION IN ZONE AE 7 DETERMINED TO BE AT EL 7).
4. THE PROPERTY SHOWN HEREON IS DESIGNATED AS TAX PARCEL 44-4B AS PUBLISHED ON THE TAX MAPS OF SURRY COUNTY, VIRGINIA.
5. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE EXISTING UTILITY INFORMATION PRESENTED ON THESE DRAWINGS. ANY DISCREPANCIES SHALL BE ADDRESSED TO THE ENGINEER IN WRITING.THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING AND COORDINATING WORK WITH THE AFFECTED UTILITY COMPANIES.
6. ALL PUBLIC ROADWAYS SHALL REMAIN OPEN AT ALL TIMES. IT IS THE CONTRACTORS RESPONSIBILITY TO MAINTAIN ROAD SURFACES CLEAN AND FREE OF CONSTRUCTION SEDIMENT AND DEBRIS AT ALL TIMES.
7. ALL WORK SHALL BE IN ACCORDANCE WITH LOCAL, COUNTY, STATE, FEDERAL AND APPLICABLE AUTHORITY REGULATIONS.

1 EXISTING SITE AND DRAINAGE PLAN

SCALE: 1"=250'

Dominion Energy

SURRY POWER STATION
DREDGE MATERIAL MANAGEMENT AREA (DMMA)
VIRGINIA ELECTRIC AND POWER COMPANY
SURRY COUNTY, VIRGINIA

EXISTING SITE AND DRAINAGE PLAN

Schnabel ENGINEERING

JONATHAN M. PITTMAN, PE

DATE ______

VIRGINIA PROFESSIONAL ENGINEER 0414725

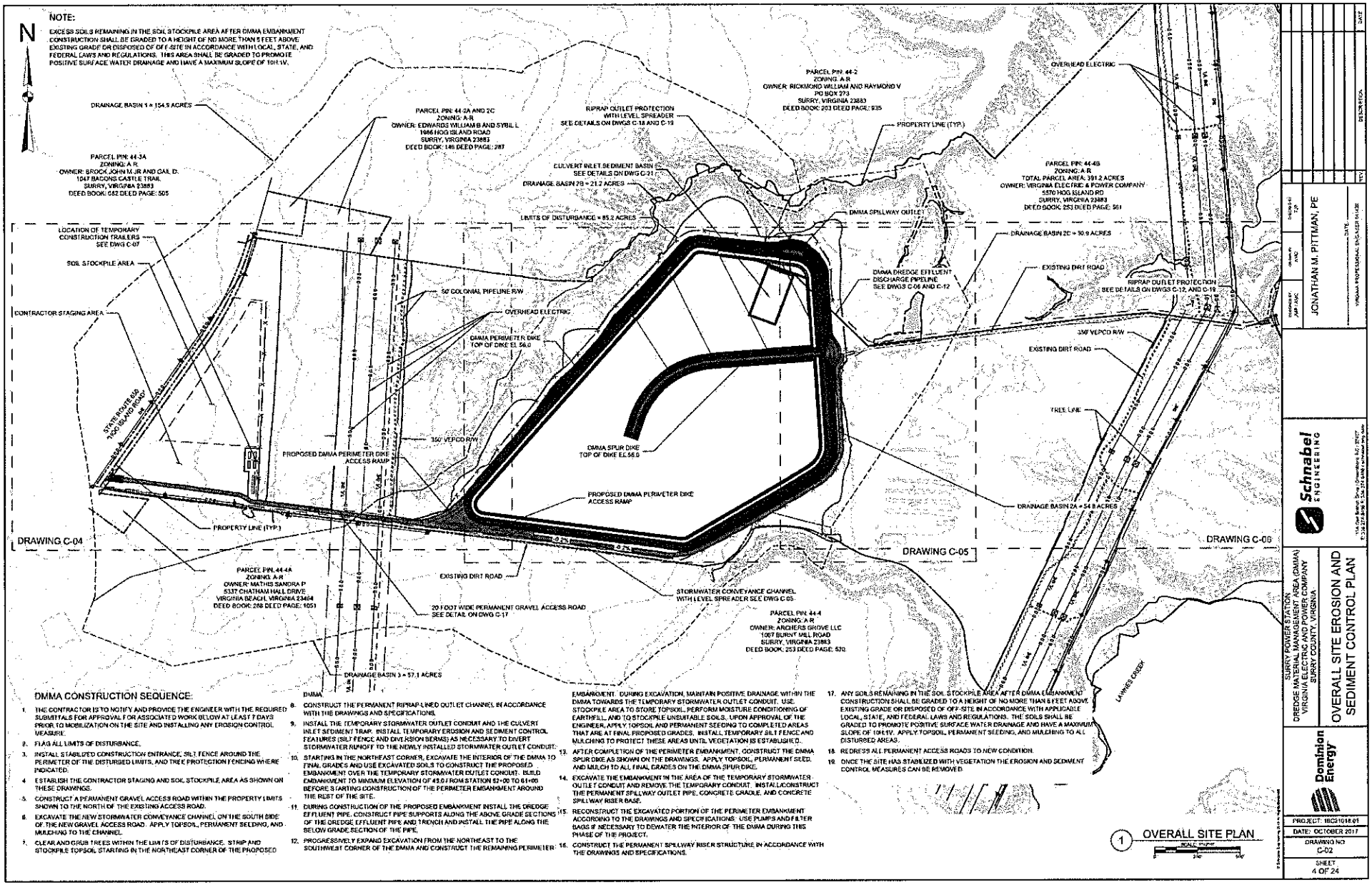
REV	DESCRIPTION	DATE

PROJECT: 16C21018.01

DATE: OCTOBER 2017

DRAWING NO. C-01

SHEET 3 OF 24



DMMA CONSTRUCTION SEQUENCE:

1. THE CONTRACTOR IS TO NOTIFY AND PROVIDE THE ENGINEER WITH THE REQUIRED SUBMITTALS FOR APPROVAL FOR ASSOCIATED WORK BELOW AT LEAST 7 DAYS PRIOR TO MOBILIZATION ON THE SITE AND INSTALLING ANY EROSION CONTROL MEASURE.
2. FLAG ALL LIMITS OF DISTURBANCE.
3. INSTALL STABILIZED CONSTRUCTION ENTRANCE, SILT FENCE AROUND THE PERIMETER OF THE DISTURBED LIMITS, AND TREE PROTECTION FENCING WHERE INDICATED.
4. ESTABLISH THE CONTRACTOR STAGING AND SOIL STOCKPILE AREA AS SHOWN ON THESE DRAWINGS.
5. CONSTRUCT A PERMANENT GRAVEL ACCESS ROAD WITHIN THE PROPERTY LIMITS SHOWN TO THE NORTH OF THE EXISTING ACCESS ROAD.
6. EXCAVATE THE NEW STORMWATER CONVEYANCE CHANNEL ON THE SOUTH SIDE OF THE NEW GRAVEL ACCESS ROAD. APPLY TOPSOIL, PERMANENT SEEDING, AND MULCHING TO THE CHANNEL.
7. CLEAR AND GRUB TREES WITHIN THE LIMITS OF DISTURBANCE. STRIP AND STOCKPILE TOPSOIL STARTING IN THE NORTHEAST CORNER OF THE PROPOSED DMMA.
8. CONSTRUCT THE PERMANENT RIPRAP-LINED OUTLET CHANNEL IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS.
9. INSTALL THE TEMPORARY STORMWATER OUTLET CONDUIT AND THE CULVERT INLET SEDIMENT TRAP. INSTALL TEMPORARY EROSION AND SEDIMENT CONTROL FEATURES (SILT FENCE AND DIVERSION BERMS) AS NECESSARY TO DIVERT STORMWATER RUNOFF TO THE NEWLY INSTALLED STORMWATER OUTLET CONDUIT.
10. STARTING IN THE NORTHEAST CORNER, EXCAVATE THE INTERIOR OF THE DMMA TO FINAL GRADES AND USE EXCAVATED SOILS TO CONSTRUCT THE PROPOSED EMBANKMENT OVER THE TEMPORARY STORMWATER OUTLET CONDUIT. BUILD EMBANKMENT TO MINIMUM ELEVATION OF 45.0 FROM STATION 52+00 TO 61+00 BEFORE STARTING CONSTRUCTION OF THE PERIMETER EMBANKMENT AROUND THE REST OF THE SITE.
11. DURING CONSTRUCTION OF THE PROPOSED EMBANKMENT INSTALL THE DREDGE EFFLUENT PIPE. CONSTRUCT PIPE SUPPORTS ALONG THE ABOVE GRADE SECTIONS OF THE DREDGE EFFLUENT PIPE AND TRENCH AND INSTALL THE PIPE ALONG THE BELOW GRADE SECTION OF THE PIPE.
12. PROGRESSIVELY EXPAND EXCAVATION FROM THE NORTHEAST TO THE SOUTHWEST CORNER OF THE DMMA AND CONSTRUCT THE REMAINING PERIMETER EMBANKMENT. DURING EXCAVATION, MAINTAIN POSITIVE DRAINAGE WITHIN THE DMMA TOWARDS THE TEMPORARY STORMWATER OUTLET CONDUIT. USE STOCKPILE AREA TO STORE TOPSOIL. PERFORM MOISTURE CONDITIONING OF EARTHFILL, AND TO STOCKPILE UNSUITABLE SOILS. UPON APPROVAL OF THE ENGINEER, APPLY TOPSOIL AND PERMANENT SEEDING TO COMPLETED AREAS THAT ARE AT FINAL PROPOSED GRADES. INSTALL TEMPORARY SILT FENCE AND MULCHING TO PROTECT THESE AREAS UNTIL VEGETATION IS ESTABLISHED.
13. AFTER COMPLETION OF THE PERIMETER EMBANKMENT, CONSTRUCT THE DMMA SPUR DIKE AS SHOWN ON THE DRAWINGS. APPLY TOPSOIL, PERMANENT SEED, AND MULCH TO ALL FINAL GRADES ON THE DMMA SPUR DIKE.
14. EXCAVATE THE EMBANKMENT IN THE AREA OF THE TEMPORARY STORMWATER OUTLET CONDUIT AND REMOVE THE TEMPORARY CONDUIT. INSTALL/CONSTRUCT THE PERMANENT SPILLWAY OUTLET PIPE, CONCRETE CRADLE, AND CONCRETE SPILLWAY RISER BASE.
15. RECONSTRUCT THE EXCAVATED PORTION OF THE PERIMETER EMBANKMENT ACCORDING TO THE DRAWINGS AND SPECIFICATIONS. USE PUMPS AND FILTER BAGS IF NECESSARY TO DEWATER THE INTERIOR OF THE DMMA DURING THIS PHASE OF THE PROJECT.
16. CONSTRUCT THE PERMANENT SPILLWAY RISER STRUCTURE IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS.
17. ANY SOILS REMAINING IN THE SOIL STOCKPILE AREA AFTER DMMA EMBANKMENT CONSTRUCTION SHALL BE GRADED TO A HEIGHT OF NO MORE THAN 5 FEET ABOVE EXISTING GRADE OR DISPOSED OF OFF-SITE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. THE SOILS SHALL BE GRADED TO PROMOTE POSITIVE SURFACE WATER DRAINAGE AND HAVE A MAXIMUM SLOPE OF 10H:1V. APPLY TOPSOIL, PERMANENT SEEDING, AND MULCHING TO ALL DISTURBED AREAS.
18. REDRESS ALL PERMANENT ACCESS ROADS TO NEW CONDITION.
19. ONCE THE SITE HAS STABILIZED WITH VEGETATION THE EROSION AND SEDIMENT CONTROL MEASURES CAN BE REMOVED.

1 OVERALL SITE PLAN
SCALE: 1"=200'

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SURRY POWER STATION
DREDGE MATERIAL MANAGEMENT AREA (DMMA)
VIRGINIA ELECTRIC AND POWER COMPANY
SURRY COUNTY, VIRGINIA

OVERALL SITE EROSION AND SEDIMENT CONTROL PLAN

Dominion Energy

PROJECT: 16C31018.01
DATE: OCTOBER 2017
DRAWING NO: C-02
SHEET: 4 OF 24

INTRODUCTION:

THE FOLLOWING EROSION AND SEDIMENT CONTROL NARRATIVE WAS DEVELOPED USING THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH) (1992). IMPLEMENTATION OF THE OUTLINED PLAN SHOULD BE THE RESPONSIBILITY OF THE CONTRACTOR.

SPECIFIC EROSION AND SEDIMENT CONTROL MEASURE AND STRUCTURE DETAILS CAN BE FOUND IN THE APPLICABLE STANDARD(S) WITHIN THE VESCH, AND THE CALCULATIONS AND DRAWINGS PROVIDE THE REQUIRED DIMENSIONS. THE SPECIFICATIONS REFERENCED IN THIS PLAN AND INCLUDED IN THE VESCH DESCRIBE MAINTENANCE REQUIREMENTS AS WELL. THE APPLICANT MUST FOLLOW THE RECOMMENDED MAINTENANCE SCHEDULES TO ENSURE AN ACCEPTABLE PROGRAM OF EROSION AND SEDIMENT CONTROL ON THE SITE.

THIS EROSION AND SEDIMENT CONTROL PLAN IS PROVIDED AS A GUIDELINE TO THE REQUIREMENTS NEEDED TO PROTECT THE SITE TO BE DISTURBED. SITE CONDITIONS MAY CHANGE AND REQUIRE SOME DEVIATION FROM THE OUTLINED PLAN WHICH MAY INCLUDE ADDITIONAL CONTROL MEASURES. REFERENCE TO THE VESCH SHOULD BE MADE WHEN WARRANTED.

PLAN NARRATIVE:

PROJECT DESCRIPTION:

SURRY NUCLEAR POWER STATION (SNPS) MUST MAINTAIN AN ADEQUATE CIRCULATING WATER SUPPLY THAT IS DERIVED FROM THE JAMES RIVER VIA AN INTAKE STRUCTURE. SNPS MUST ALSO MAINTAIN ADEQUATE WATER DEPTH IN AN APPROXIMATELY 1,800 FOOT LONG DREDGE CHANNEL AS A MEANS OF TRANSPORTING FUEL CASKS AND LARGE EQUIPMENT TO THE STATION DOCK. THE CHANNEL WAS DREDGED IN 1979, 1988, 1994, 2000, 2005, 2008, 2013, AND 2017. TYPICAL DREDGE VOLUMES PER DREDGE ARE ABOUT 100,000 TO 150,000 CUBIC YARDS. TO DATE, DREDGE MATERIAL HAS BEEN STORED IN AN ON-SITE DREDGE MATERIAL MANAGEMENT AREA (DMMA), WHICH IS AT CAPACITY.

IN ORDER TO SUPPORT FUTURE DREDGING CYCLES, THIS PROJECT CONSISTS OF THE CONSTRUCTION OF A NEW DMMA APPROXIMATELY FOUR MILES SOUTH OF SNPS. THE DREDGED MATERIAL WILL BE SLUICED TO THE NEW DMMA VIA A TEMPORARY HDPE PIPELINE ROUTED ALONG LAWNES CREEK (I.E., THE DREDGE INFLUENT PIPELINE). THE NEW DMMA WILL HAVE A CAPACITY OF OVER 1,500,000 CUBIC YARDS. THE DMMA WILL BE ABOUT 54 ACRES IN SIZE AND WILL BE SURROUNDED BY A 5 TO 20 FOOT HIGH EARTHEN EMBANKMENT. EXCAVATED MATERIALS FROM THE BOTTOM OF THE DMMA WILL BE USED TO CONSTRUCT THE EARTH EMBANKMENTS. A ONE-FOOT THICK CLAY LINER WILL ALSO BE CONSTRUCTED ALONG THE BOTTOM OF THE DMMA.

THE DREDGE MATERIAL WILL BE SLUICED INTO THE SOUTH END OF THE DMMA VIA THE DREDGE INFLUENT PIPELINE, AND STORMWATER AND THE CLARIFIED PONDED WATER FROM DREDGING ACTIVITIES (I.E., THE DREDGE EFFLUENT) WILL BE RELEASED VIA A PIPE AND RISER SPILLWAY SYSTEM AT THE NORTHEAST CORNER OF THE DMMA. THE DREDGE INFLUENT PIPELINE AND SPILLWAY SYSTEM WILL BE SEPARATED BY AN EARTH EMBANKMENT SPUR DIKE WITHIN THE DMMA.

THE STORMWATER AND DREDGE EFFLUENT WILL BE MANAGED SEPARATELY. STORMWATER WILL BE RELEASED VIA A 36-INCH DIAMETER HDPE PIPE TO THE NATURAL DRAINAGE FEATURE TO THE NORTH. THE DREDGE EFFLUENT WILL BE DISCHARGED VIA A SEPARATE 36-INCH DIAMETER DUCTILE IRON PIPE (DIP) TO LAWNES CREEK. BOTH PIPES WILL INCLUDE REDUNDANT GATE AND VALVE SYSTEMS, WITH FLAP GATES OVER THE PIPE OPENINGS IN THE RISER AND GATE VALVES AT THE TOE OF THE EMBANKMENT. DURING NORMAL OPERATIONS (I.E., NON-DREDGING ACTIVITIES), THE FLAP GATE AND THE GATE VALVE ALONG THE 36-INCH DIP TO LAWNES CREEK WILL REMAIN CLOSED AND STORMWATER WILL BE DISCHARGED THROUGH THE HDPE PIPE TO THE NORTH. DURING DREDGING ACTIVITIES, THE FLAP GATE AND GATE VALVE ALONG THE 36-INCH HDPE PIPE TO THE NORTH WILL BE CLOSED, AND DREDGE EFFLUENT WILL ONLY BE DISCHARGED THROUGH THE 36-INCH DIP TO LAWNES CREEK.

THE 36-INCH HDPE STORMWATER PIPE WILL FIRST DISCHARGE INTO RIPRAP-LINED OUTLET PROTECTION AND ACROSS A LEVEL SPREADER PRIOR TO FLOWING INTO THE NATURAL DRAINAGE FEATURE TO THE NORTH. THE 36-INCH DIP FOR THE DREDGE EFFLUENT TO LAWNES CREEK WILL DISCHARGE INTO RIPRAP-LINED OUTLET PROTECTION ALONG THE SLOPE DOWN TO LAWNES CREEK.

SPILLWAY RELEASES FOR BOTH THE STORMWATER AND DREDGE EFFLUENT WILL BE MANAGED USING COMPOSITE STOP LOGS PLACED ON ALL FOUR SIDES OF THE SPILLWAY RISER STRUCTURE. THE HEIGHT OF THE STOP LOGS WILL VARY BETWEEN TWO AND SIX INCHES WITH THE SHORTEST STOP LOGS PLACED AT THE TOP OF THE WEIR. DURING NON-DREDGING PERIODS, THE ELEVATION OF THE STOP LOGS WILL BE SET TWO TO THREE FEET HIGHER THAN THE BOTTOM ELEVATION OF THE DMMA TO PREVENT UNCONTROLLED STORMWATER DISCHARGES. IN OTHER WORDS, STORMWATER WILL TYPICALLY BE TEMPORARILY STORED IN THE DMMA AND RELEASED IN A SLOW, CONTROLLED MANNER THROUGH THE REMOVAL OF STOP LOGS. DURING EACH DREDGING CYCLE, THE RISER STRUCTURE WILL BE MANNED, AND THE ELEVATION OF THE STOP LOGS WILL BE ADJUSTED TO ALLOW ONLY CLARIFIED, PONDED WATER TO BE RELEASED. THE FLOW DEPTH OVER THE STOP LOGS (WEIR) WILL TYPICALLY BE LIMITED TO ONE TO TWO INCHES DURING DREDGING.

ADDITIONAL IMPROVEMENTS WILL INCLUDE THE CONSTRUCTION OF A NEW GRAVEL ACCESS ROAD OFF HOG ISLAND ROAD. THE NEW ACCESS ROAD WILL BE LOCATED JUST TO THE NORTH OF THE EXISTING DIRT ACCESS ROAD AT THE SOUTH END OF THE PROPERTY AND WILL EXTEND AROUND THE PERIMETER OF THE DMMA. IN ADDITION, THE APPROXIMATELY 15-ACRE FIELD AT THE FRONT OF THE PROPERTY OFF HOG ISLAND ROAD WILL BE UTILIZED FOR CONSTRUCTION LAYDOWN, TEMPORARY FACILITIES (E.G., CONSTRUCTION TRAILERS), AND SOIL STOCKPILING.

EXISTING SITE CONDITIONS:

AS MENTIONED ABOVE, THE NEW DMMA SITE IS LOCATED OFF OF HOG ISLAND ROAD ABOUT FOUR MILES SOUTH OF SNPS. THE MAJORITY OF THE NEW DMMA SITE IS AN AGRICULTURAL FIELD. EXISTING GRADES VARY IN THE FIELD VARY FROM ABOUT EL 34 AT THE NORTHEAST CORNER TO ABOUT EL 50 AT THE SOUTHWEST CORNER. TWO SIGNIFICANT NATURAL DRAINAGE FEATURES ARE LOCATED TO THE NORTH AND SOUTH OF THE PROPOSED DMMA. THESE DRAINAGE FEATURES DISCHARGE TO LAWNES CREEK TO THE EAST. THE AREA BETWEEN THE PROPOSED DMMA AND LAWNES CREEK IS PRIMARILY WOODED, AND ONLY SMALL AMOUNTS OF THE TREES AROUND THE PERIMETER OF THE FIELD WILL BE CLEARED TO SUPPORT THE CONSTRUCTION OF THE DMMA. THE AREA BETWEEN THE DMMA AND THE CREEK SLOPES TO LAWNES CREEK FROM A MINIMUM ELEVATION OF ABOUT EL 34 AT THE PROPOSED DMMA TO ABOUT EL 3 OR EL 4 AT THE CREEK.

EXISTING ACCESS TO THE SITE IS PROVIDED FROM HOG ISLAND ROAD, WHICH IS LOCATED AT THE WEST END OF THE PROPERTY, VIA A DIRT ACCESS ROAD AT THE SOUTH END OF THE PROPERTY. TWO ACCESS ROADS ALSO EXTEND FROM THE PROPOSED DMMA SITE THROUGH THE WOODS DOWN TO LAWNES CREEK.

ADJACENT AREAS:

THERE ARE NO ADJACENT AREAS THAT WILL BE AFFECTED BY THE PROPOSED CONSTRUCTION AS LONG AS THE SPECIFIED EROSION AND SEDIMENT CONTROL MEASURES ARE MAINTAINED UNTIL PERMANENT STABILIZATION IS ACCOMPLISHED.

SOILS:

SOILS DATA WAS OBTAINED FROM THE USDA-NRCS SOILS DATABASE FOR SURRY COUNTY, VIRGINIA. A SOILS MAP FOR THE SITE IS INCLUDED ON THESE DRAWINGS. AS SHOWN ON THAT MAP, THE SITE IS MADE UP OF MULTIPLE SOIL UNITS. THESE SOIL UNITS GENERALLY CONSIST OF MARINE TERRACE DEPOSITS VARYING FROM FINE SANDY LOAM TO CLAY LOAM. THESE SOILS ARE CONSIDERED MODERATELY WELL DRAINING TO WELL DRAINING. THE SOILS IN THE AREA OF THE PROPOSED DMMA ARE GENERALLY CLASSIFIED AS HYDROLOGIC GROUP C, AND THE SOILS EAST OF THE DMMA DOWN TO LAWNES CREEK ARE GENERALLY CLASSIFIED AS HYDROLOGIC GROUP D.

CRITICAL AREAS:

THE TWO MAJOR NATURAL DRAINAGE FEATURES AND LAWNES CREEK COULD BE AFFECTED BY LAND DISTURBANCE ACTIVITIES IF PROPER EROSION AND SEDIMENT CONTROL MEASURES AND PERMANENT FLOW CONTROL FEATURES ARE NOT INSTALLED AND MAINTAINED. PERMANENT RIPRAP OUTLET PROTECTION AND A LEVEL SPREADER WILL BE PROVIDED AT THE STORMWATER DISCHARGE OUTLET FROM THE SPILLWAY, AND A LEVEL SPREADER WILL BE PROVIDED AT THE STORMWATER CONVEYANCE CHANNEL OUTLET TO DISSIPATE ENERGY FROM SPILLWAY AND STORM FLOWS, RESPECTIVELY AND REDUCE THE POTENTIAL FOR EROSION ALONG THE NATURAL DRAINAGE FEATURES. PERMANENT RIPRAP OUTLET PROTECTION WILL ALSO BE PROVIDED AT THE DREDGE EFFLUENT OUTLET AT LAWNES CREEK TO PREVENT EROSION ALONG THAT SLOPE.

THE ADJACENT WETLANDS SHOWN ON THE DRAWINGS ARE ALSO CONSIDERED CRITICAL AREAS AND WILL BE PROTECTED THROUGHOUT THE CONSTRUCTION PERIOD.

EROSION AND SEDIMENT CONTROL MEASURES:

THE FOLLOWING MEASURES WILL BE USED TO CONTROL EROSION AND SEDIMENTATION AT THE DMMA. DETAILS FOR THE SPECIFIED EROSION AND SEDIMENT CONTROL MEASURES ARE INCLUDED ON THE DRAWING. IN ADDITION TO THESE STANDARDS, ALL MINIMUM STANDARDS SET FORTH IN THE VESCH WILL BE MET.

- 3.02 TEMPORARY STONE CONSTRUCTION ENTRANCE (CE)

A CONSTRUCTION ENTRANCE WILL BE CONSTRUCTED OFF OF HOG ISLAND ROAD ADJACENT TO THE EXISTING GRAVEL ROAD TO REMOVE SEDIMENT FROM ANY VEHICLE OR EQUIPMENT THAT ENTERS THE CONSTRUCTION SITE. THE CONSTRUCTION ENTRANCE WILL REDUCE THE AMOUNT OF SEDIMENTS TRANSPORTED ONTO HOG ISLAND ROAD OR OTHER PAVED AREA. IF NECESSARY, A WASH RACK WILL BE PROVIDED.

- 3.05 SILT FENCE (SF)

SILT FENCE WILL BE INSTALLED DOWNSLOPE OF ALL DISTURBED AREAS AS SHOWN ON THE DRAWINGS. SILT FENCE WILL FILTER SHEET FLOW RUNOFF BEFORE IT ENTERS ANY DRAINAGE SWALE.

- 3.08 CULVERT INLET PROTECTION (CIP) AND 3.14 TEMPORARY SEDIMENT BASIN (SB)

A TEMPORARY SEDIMENT BASIN WITH CULVERT INLET PROTECTION WILL BE LOCATED AT THE NORTHEAST CORNER AND WITHIN THE FOOTPRINT OF THE DMMA PERIMETER EMBANKMENT. CONSTRUCTION WILL BE STAGED TO PROMOTE DRAINAGE TO THIS BASIN UNTIL EMBANKMENT CONSTRUCTION IS NEAR COMPLETION. THE PURPOSE OF THE TEMPORARY SEDIMENT BASIN WILL BE TO REMOVE SEDIMENT FROM STORMWATER RUNOFF COLLECTED WITHIN THE PERIMETER EMBANKMENT FOOTPRINT.

THE TEMPORARY SEDIMENT BASIN WILL HAVE A CONTRIBUTING DRAINAGE AREA OF 54.8 ACRES. THE TEMPORARY SEDIMENT BASIN WILL HAVE THE CAPACITY TO DETAIN 5,429 CU-YD OF WET STORAGE AND 5,429 CU-YD OF DRY STORAGE. THE PERMANENT 36-INCH DIAMETER HDPE SPILLWAY OUTLET PIPE WILL ALSO BE UTILIZED FOR THE TEMPORARY SEDIMENT BASIN. THIS PIPE HAS THE CAPACITY TO PASS PEAK FLOWS FROM THE 25-YEAR STORM. THE TEMPORARY SEDIMENT BASIN HAS NO EMERGENCY SPILLWAY. CALCULATIONS FOR THIS TEMPORARY STRUCTURE ARE INCLUDED UNDER SEPARATE COVER.

- 3.17 STORMWATER CONVEYANCE CHANNEL (SCC) AND 3.21 LEVEL SPREADER (LS)

A GRASS-LINED STORMWATER CONVEYANCE CHANNEL WILL BE PROVIDED ALONG THE NEW GRAVEL ACCESS ROAD TO DIVERT CLEAN RUNOFF AWAY FROM THE SITE. A LEVEL SPREADER WILL BE PROVIDED AT THE CHANNEL OUTLET TO CONVERT THE CHANNEL FLOWS TO SHEET FLOW PRIOR TO ALLOWING IT TO DISCHARGE IN TO THE NATURAL DRAINAGE FEATURE TO THE SOUTH OF THE DMMA. CALCULATIONS FOR THE STORMWATER CONVEYANCE CHANNEL ARE INCLUDED UNDER SEPARATE COVER.

- 3.18 OUTLET PROTECTION (OP), 3.19 RIPRAP (RR) AND 3.21 LEVEL SPREADER (LS)

DURING AND POST-CONSTRUCTION, PERMANENT RIPRAP OUTLET PROTECTION AND A LEVEL SPREADER WILL BE PROVIDED AT THE OUTLET OF THE 36-INCH DIAMETER HDPE STORMWATER PIPE FROM THE SPILLWAY. THE PURPOSE OF THESE FEATURES WILL BE TO DISSIPATE THE VELOCITY AND ENERGY OF THE SPILLWAY DISCHARGE AND CONVERT THE DISCHARGE TO SHEET FLOW PRIOR TO ALLOWING IT TO DISCHARGE IN TO THE NATURAL DRAINAGE FEATURE TO THE NORTH OF THE DMMA.

PERMANENT RIPRAP OUTLET PROTECTION WILL ALSO BE PROVIDED AT THE OUTLET OF THE DREDGE EFFLUENT PIPELINE TO DISSIPATE THE VELOCITY AND ENERGY OF THE DREDGE EFFLUENT DISCHARGE AND PREVENT EROSION OF THE SLOPE DOWN TO LAWNES CREEK.

CALCULATIONS FOR THE OUTLET PROTECTION ARE INCLUDED UNDER SEPARATE COVER.

- 3.27 TURBIDITY CURTAIN (TC)

DURING CONSTRUCTION, A TURBIDITY CURTAIN WILL BE TEMPORARY PLACED IN LAWNES CREEK BELOW THE PROPOSED DREDGE EFFLUENT PIPE OUTLET TO CONTROL SEDIMENT-LADEN RUNOFF FROM THIS AREA OF THE CONSTRUCTION SITE.

- 3.30 TOPSOILING (TO)

TOPSOIL WILL BE STRIPPED FROM THE DMMA FOOTPRINT AND STORED IN THE DESIGNATED SOIL STOCKPILE AREA SHOWN ON THE DRAWINGS. THE TOPSOIL STOCKPILE WILL BE PROTECTED AND MAINTAINED SO THAT RUNOFF FROM THE STOCKPILE WILL NOT CONTAMINATE ANY WATERWAYS. A MINIMUM 6-INCH THICK LAYER OF TOPSOIL WILL BE PLACED ON ALL DISTURBED AREAS AFTER FINAL GRADING AND/ OR DESIGNATED WORK IN AN AREA HAS BEEN COMPLETED.

- 3.31 TEMPORARY SEEDING (TS)

ALL FINAL GRADED AREAS WILL BE TEMPORARILY SEEDED AND MULCHED WITHIN 7 DAYS OF GRADING DURING ALL TIMES OF THE YEAR NOT SUITABLE FOR PERMANENT SEEDING AND THE ESTABLISHMENT OF PERMANENT VEGETATION. SOIL STOCKPILES AND DISTURBED AREAS THAT WILL NOT BE BROUGHT TO GRADE FOR A PERIOD OF MORE THAN 14 DAYS WILL ALSO BE TEMPORARILY SEEDED.

- 3.35 MULCHING (MU)

AFTER ALL SEEDING, MULCH WILL IMMEDIATELY BE APPLIED AND ANCHORED. STRAW MULCH SHALL BE APPLIED AT THE RATE OF 2 TONS/ACRE AND ANCHORED USING A MULCH CRIMPER OR SIMILAR APPROVED METHOD. WHERE SLOPES TO BE VEGETATED ARE 3H:1V OR STEEPER, AN EROSION CONTROL BLANKET, MESH, OR NETTING SHALL BE USED TO STABILIZE THE AREA. IF EROSION CONTROL MATTING IS REQUIRED, IT SHALL BE PLACED IN ACCORDANCE WITH THE REQUIREMENTS OF SPECIFICATION 3.36 IN THE VESCH.

- 3.38 TREE PRESERVATION AND PROTECTION (TP)

TREE PROTECTION FENCING WILL BE INSTALLED AROUND ALL AREAS WHERE EXISTING TREES AND VEGETATION ARE TO BE PRESERVED TO PREVENT DAMAGE FROM CONSTRUCTION EQUIPMENT AND PROCESSES.

- 3.39 DUST CONTROL (DC)

CONSTRUCTION ACTIVITIES WILL BE PHASED TO MINIMIZE TOTAL EXPOSED SOIL AREA AND THE LENGTH OF TIME BARE AREAS ARE EXPOSED, THEREBY REDUCING EROSION DUE TO AIR AND WATER MOVEMENT. WATERING OF EXPOSED SOIL WILL BE USED AS NEEDED TO CONTROL DUST DURING CONSTRUCTION. WHEN AREAS HAVE BEEN REGRADED OR BROUGHT TO FINAL GRADE, THEY WILL BE STABILIZED USING TEMPORARY OR PERMANENT SEED AND MULCH OR OTHER MEASURES, AS PREVIOUSLY DESCRIBED.

DEWATERING FILTER BAGS

DEWATERING FILTER BAGS WILL BE PLACED IN LOW LYING AREAS AND EXCAVATIONS AS NEEDED BY THE CONTRACTOR. THE DEWATERING FILTER BAGS WILL REMOVE SEDIMENT FROM POTENTIAL SEDIMENT-LADEN RUNOFF THAT ACCUMULATES IN LOW-LYING AREAS DURING CONSTRUCTION. THE SEDIMENT FILTER BAGS WILL DISCHARGE IN TO THE TEMPORARY SEDIMENT BASIN TO THE EXTENT POSSIBLE.

STORMWATER RUNOFF DESCRIPTION AND CONSIDERATIONS:

PRE CONDITIONS:

THE PRE-CONSTRUCTION DRAINAGE BASINS AND PATTERNS ARE SHOWN ON THE EXISTING SITE PLAN.

DRAINAGE BASIN 1 - INCLUDES AN AREA OF 154.9 ACRES THAT CONSISTS OF A MIX OF AGRICULTURAL FIELDS, WOODED AREAS, RESIDENTIAL LOTS AND HOUSING, GRAVEL AND DIRT ROADS, AND A PORTION OF HOG ISLAND ROAD. DRAINAGE BASIN 1 DISCHARGES INTO THE NATURAL DRAINAGE FEATURE LOCATED TO THE NORTH OF THE PROPOSED DMMA. THIS DRAINAGE FEATURE ULTIMATELY DISCHARGES INTO LAWNES CREEK.

DRAINAGE BASIN 2 - INCLUDES AN AREA OF 141.2 ACRES THAT CONSISTS OF AGRICULTURAL FIELDS, WOODED AREAS, AND GRAVEL AND DIRT ROADS. DRAINAGE BASIN 2 ALSO DISCHARGES INTO THE NATURAL DRAINAGE FEATURE LOCATED TO THE NORTH OF THE PROPOSED DMMA.

DRAINAGE BASIN 3 - INCLUDES AN AREA OF 22.7 ACRES THAT CONSISTS OF AGRICULTURAL FIELDS, WOODED AREAS, AND A DIRT ROAD. DRAINAGE BASIN 3 DISCHARGES INTO THE NATURAL DRAINAGE FEATURE LOCATED TO THE SOUTH OF THE PROPOSED DMMA. THIS DRAINAGE FEATURE ULTIMATELY DISCHARGES INTO LAWNES CREEK.

CONSTRUCTION CONDITIONS:

DURING CONSTRUCTION, A SEDIMENT BASIN, SILT FENCE, SEDIMENT FILTER BAGS, AND OTHER EROSION AND SEDIMENT CONTROL DEVICES WILL BE USED TO CONTROL ANY RUNOFF THAT MAY CONTAIN SEDIMENT.

THE MODIFIED DRAINAGE PATTERNS DURING AND POST-CONSTRUCTION ARE SHOWN ON THE PROPOSED SITE PLAN. THE EROSION AND SEDIMENT CONTROL MEASURES PLANNED FOR EACH DRAINAGE BASIN ARE DESCRIBED BELOW.

DRAINAGE BASIN 1 - THE CONTRACTOR STAGING AND STOCKPILE AREA WILL BE LOCATED IN THE OPEN FIELD ADJACENT TO HOG ISLAND ROAD, WHICH IS WITHIN DRAINAGE BASIN 1. SILT FENCE WILL BE PLACED DOWN SLOPE OF THE DISTURBED AREAS TO CONTROL RUNOFF. THE NEW GRAVEL ACCESS ROAD WILL BE CONSTRUCTED NEAR THE SOUTH END OF THIS DRAINAGE BASIN JUST NORTH OF THE EXISTING DIRT ACCESS ROAD. SILT FENCE WILL ALSO BE INSTALLED ALONG THE ROAD AS NECESSARY. TEMPORARY AND PERMANENT SEEDING WILL BE USED TO ESTABLISH PROPER VEGETATION.

DRAINAGE BASIN 2A, 2B & 2C - THE MAJORITY OF THE PROPOSED GRAVEL ROAD, THE WHOLE DMMA, AND SPILLWAY OUTLET PIPES WILL BE CONSTRUCTED WITHIN DRAINAGE BASIN 2. THE DMMA WILL SUBDIVIDE THIS BASIN INTO THREE AREAS. DRAINAGE SUB-BASIN 2A WILL CONTAIN THE DMMA WHICH WILL BE ABOUT 54.8 ACRES. THE TWO REMAINING SUB-BASINS WILL CONTAIN GRADING AND PORTIONS OF THE GRAVEL ROAD. SUB-BASIN 2B IS TO THE WEST OF THE DMMA AND ADJACENT TO THE EXISTING STREAM. SUB-BASIN 2C IS TO THE EAST OF THE DMMA AND WILL ALSO INCLUDE THE RUNOFF FROM THE SPILLWAY OUTLET PIPES FROM THE DMMA. TO CONTROL RUNOFF, SILT FENCE WILL BE INSTALLED AROUND THE PERIMETER OF THE DMMA FOOTPRINT AND NEW GRAVEL ACCESS ROAD. RUNOFF INSIDE THE DMMA PERIMETER WILL BE CONTROLLED BY A TEMPORARY SEDIMENT BASIN. TEMPORARY AND PERMANENT SEEDING WILL BE USED TO ESTABLISH PROPER VEGETATION.

DRAINAGE BASIN 3 - A PORTION OF THE NEW GRAVEL ACCESS ROAD AND A SMALL PORTION OF THE DMMA PERIMETER EMBANKMENT WILL BE CONSTRUCTED WITHIN DRAINAGE BASIN 3. A PERMANENT GRASS-LINED STORMWATER CONVEYANCE CHANNEL WILL BE CONSTRUCTED ALONG THE SOUTH SIDE OF THE NEW GRAVEL ACCESS ROAD TO COLLECT AND CONTROL RUNOFF FROM THIS DRAINAGE BASIN. THE STORMWATER CONVEYANCE CHANNEL WILL STILL CONVEY FLOWS TO THE SOUTH DRAINAGE FEATURE SIMILAR TO PRE-CONSTRUCTION CONDITIONS. FOR ADDITIONAL CONTROL OF RUNOFF, SILT FENCE WILL ALSO BE INSTALLED AROUND THE LIMITS OF CONSTRUCTION WITHIN THIS DRAINAGE BASIN. TEMPORARY AND PERMANENT SEEDING WILL BE USED TO ESTABLISH PROPER VEGETATION. THE TEMPORARY FACILITIES (CONSTRUCTION TRAILERS AND ASSOCIATED TEMPORARY INFRASTRUCTURE) DO NOT CHANGE THE EROSION AND SEDIMENT CONTROL APPROACH AND CALCULATIONS DISCUSSED HEREIN.

POST CONDITIONS:

RUNOFF FLOW RATES WILL NOT BE SUBSTANTIALLY AFFECTED BY THE PLANNED CONSTRUCTION. SOME MODIFICATIONS TO EXISTING DRAINAGE DIVIDES WILL OCCUR AS A RESULT OF THE CONSTRUCTION; HOWEVER, ALL OF THE RUNOFF FROM THE SITE WILL ULTIMATELY STILL DISCHARGE TO LAWNES CREEK.

AS PREVIOUSLY DESCRIBED, AREAS OF CONCENTRATED FLOW AT THE SPILLWAY AND STORMWATER CONVEYANCE CHANNEL OUTLETS WILL BE CONTROLLED AND CONVERTED TO SHEET FLOW THROUGH THE INSTALLATION OF RIPRAP OUTLET PROTECTION AND LEVEL SPREADERS.

SEQUENCE AND TIMING OF LAND DISTURBANCE AREAS:

THE GENERAL SEQUENCE OF CONSTRUCTION AND INSTALLATION OF THE SPECIFIED EROSION AND SEDIMENT CONTROL MEASURES DISCUSSED HEREIN IS INCLUDED ON THE DRAWINGS.

THE SPECIFIC DATES OF THE ESTABLISHMENT OF ON-SITE CONTROL MEASURES AND LAND DISTURBANCE ACTIVITIES ARE TO BE SET BY THE CERTIFIED SITE OPERATOR (I.E., THE CONTRACTOR).

MAINTENANCE:

ALL EROSION AND SEDIMENT CONTROL MEASURES WILL BE CHECKED FOR STABILITY AND OPERATIONS AT LEAST ONCE PER WEEK AND FOLLOWING EVERY RAINFALL THAT PRODUCES RUNOFF. DAMAGE OR INEFFECTIVE MEASURES WILL BE REPAIRED OR REPLACED IMMEDIATELY.

SEDIMENT WILL BE REMOVED FROM THE TEMPORARY SEDIMENT BASIN WHEN THE STORAGE CAPACITY HAS BEEN REDUCED BY 50%.

SEDIMENT WILL BE REMOVED FROM BEHIND SILT FENCES WHEN IT BECOMES ABOUT 6 INCHES DEEP AT THE FENCE. SILT FENCE WILL BE REPAIRED AS NECESSARY TO MAINTAIN A BARRIER.

ALL SEEDED AREAS WILL BE FERTILIZED, RESEEDED AS NECESSARY, AND MULCHED AS NECESSARY IN ORDER TO PROVIDE AND MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER.

POTENTIAL POLLUTION SOURCES:

POTENTIAL POLLUTION SOURCES AND PROPOSED PROCEDURES FOR MINIMIZING POTENTIAL POLLUTANTS ARE DISCUSSED IN THE PROJECT'S STORMWATER POLLUTION PREVENTION PLAN (SWPPP).

NO INDUSTRIAL ACTIVITY OTHER THAN CONSTRUCTION ACTIVITY WILL OCCUR AT THE SITE. NO DEDICATED ASPHALT OR CONCRETE PLANTS ARE LOCATED AT THIS SITE.

PORTABLE SANITARY WASTE FACILITIES (PORT-A-JOHNS) WILL BE LOCATED NEXT TO THE TEMPORARY CONSTRUCTION TRAILERS AT THE FRONT OF THE PROPERTY. THE PORT-A-JOHNS WILL BE RENTED FROM AND MAINTAINED BY A CERTIFIED COMPANY. THE WASTE WILL BE REMOVED FROM THE PORT-A-JOHNS ON A WEEKLY BASIS, OR MORE FREQUENTLY IF NEEDED, AND PROPERLY DISPOSED OF OFF-SITE BY THE CERTIFIED COMPANY IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS.

THE SITE WILL BE INSPECTED REGULARLY TO COLLECT AND PROPERLY DISPOSE OF LITTER AND CONSTRUCTION DEBRIS. THE INSPECTIONS WILL BE RECORDED IN THE RECORDS SECTION OF THE SWPPP.

IF POTENTIAL POLLUTION SOURCES ARE INTRODUCED ON-SITE DURING CONSTRUCTION, THE LOCATION OF THE ACTIVITY WILL BE MARKED ON THE SITE PLAN. THE DATE, DESCRIPTION OF THE ACTIVITY, AND THE CONTROL MEASURES IMPLEMENTED WILL BE RECORDED.

PERMANENT CONTROLS TO REMAIN AFTER CONSTRUCTION:

WITH THE EXCEPTION OF THE PERMANENT SEEDING, STORMWATER CONVEYANCE CHANNEL, LEVEL SPREADERS, AND RIPRAP OUTLET PROTECTION, THERE WILL BE NO OTHER PERMANENT CONTROLS REMAINING AFTER CONSTRUCTION. THE PROPOSED DMMA WILL SERVE A DUAL PURPOSE OF DREDGE MATERIAL MANAGEMENT AND STORMWATER CONTROL / DETENTION DURING ITS SERVICE LIFE.

REFERENCES:

VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, 1992.

CHECKLIST

GENERAL

✓ MINIMUM STANDARDS - ALL APPLICABLE MINIMUM STANDARDS MUST BE ADDRESSED.

NARRATIVE

✓ SITE DESCRIPTION - A DESCRIPTION OF THE EXISTING SITE CONDITIONS AND FEATURES.

✓ PROJECT DESCRIPTION - BRIEFLY DESCRIBES THE NATURE AND PURPOSE OF THE LAND-DISTURBING ACTIVITY, AND THE AREA (ACRES) TO BE DISTURBED.

✓ ADJACENT AREAS - A DESCRIPTION OF NEIGHBORING AREAS SUCH AS STREAMS, LAKES, RESIDENTIAL AREAS, ROADS, ETC., WHICH MIGHT BE AFFECTED BY THE LAND DISTURBANCE.

✓ OFF-SITE AREAS - DESCRIBE ANY OFF-SITE LAND-DISTURBING ACTIVITIES THAT WILL OCCUR (INCLUDING BORROW SITES, WASTE OR SURPLUS AREAS, ETC.)

✓ SOILS - A BRIEF DESCRIPTION OF THE SOILS ON THE SITE GIVING SUCH INFORMATION AS SOIL NAME, MAPPING UNIT, ERODIBILITY, PERMEABILITY, DEPTH, TEXTURE AND SOIL STRUCTURE.

✓ CRITICAL AREAS - A DESCRIPTION OF AREAS ON THE SITE WHICH HAVE POTENTIALLY SERIOUS EROSION PROBLEMS (E.G., STEEP SLOPES, CHANNELS, WET WEATHER/UNDERGROUND SPRINGS, ETC.)

✓ EROSION AND SEDIMENT CONTROL MEASURES - A DESCRIPTION OF THE METHODS WHICH WILL BE USED TO CONTROL EROSION AND SEDIMENTATION ON THE SITE.

✓ PERMANENT STABILIZATION - A BRIEF DESCRIPTION, INCLUDING SPECIFICATIONS, OF HOW THE SITE WILL BE STABILIZED AFTER CONSTRUCTION IS COMPLETED.

✓ STORMWATER RUNOFF CONSIDERATIONS - WILL THE DEVELOPMENT SITE CAUSE AN INCREASE IN PEAK RUNOFF RATES? WILL THE INCREASE IN RUNOFF CAUSE FLOODING OR CHANNEL DEGRADATION DOWNSTREAM? DESCRIBE THE STRATEGY TO CONTROL STORMWATER RUNOFF.

✓ CALCULATIONS - DETAILED CALCULATIONS FOR THE DESIGN OF TEMPORARY SEDIMENT BASINS, PERMANENT STORMWATER DETENTION BASINS, DIVERSIONS, CHANNELS, ETC. INCLUDE CALCULATIONS FOR PRE- AND POST-DEVELOPMENT RUNOFF.

SITE PLAN

✓ VICINITY MAP - A SMALL MAP LOCATING THE SITE IN RELATION TO THE SURROUNDING AREA. INCLUDE ANY LANDMARKS WHICH MIGHT ASSIST IN LOCATING THE SITE.

✓ INDICATE NORTH - THE DIRECTION OF NORTH IN RELATION TO THE SITE.

✓ LIMITS OF CLEARING AND GRADING - AREAS WHICH ARE TO BE CLEARED AND GRADED.

✓ EXISTING CONTOURS - THE EXISTING CONTOURS OF THE SITE.

✓ FINAL CONTOURS - CHANGES TO THE EXISTING CONTOURS, INCLUDING FINAL DRAINAGE PATTERNS.

✓ EXISTING VEGETATION - THE EXISTING TREE LINES, GRASSED AREAS, OR UNIQUE VEGETATION.

✓ SOILS - THE BOUNDARIES OF DIFFERENT SOIL TYPES.

✓ EXISTING DRAINAGE PATTERNS - THE DIVIDING LINES AND THE DIRECTION OF FLOW FOR THE DIFFERENT DRAINAGE AREAS. INCLUDE THE SIZE (ACREAGE) OF EACH DRAINAGE AREA.

✓ CRITICAL EROSION AREAS - AREAS WITH POTENTIALLY SERIOUS EROSION PROBLEMS.

✓ SITE DEVELOPMENT - SHOW ALL IMPROVEMENTS SUCH AS BUILDINGS, PARKING LOTS, ACCESS ROADS, UTILITY CONSTRUCTION, ETC.

✓ LOCATION OF PRACTICES - THE LOCATIONS OF EROSION AND SEDIMENT CONTROLS AND STORMWATER MANAGEMENT PRACTICES USED ON THE SITE. USE THE STANDARD SYMBOLS AND ABBREVIATIONS IN CHAPTER 3 OF THE E&S HANDBOOK.

✓ OFF-SITE AREAS - IDENTIFY ANY OFF-SITE LAND-DISTURBING ACTIVITIES (E.G., BORROW SITES, WASTE AREAS, ETC.). SHOW LOCATION OF EROSION CONTROLS.

✓ DETAIL DRAWINGS - ANY STRUCTURAL PRACTICES USED THAT ARE NOT REFERENCED TO THE E&S HANDBOOK OR LOCAL HANDBOOKS SHOULD BE EXPLAINED AND ILLUSTRATED WITH DETAIL DRAWINGS.

JONATHAN M. PITTMAN, PE

Schnabel ENGINEERING

Dominion Energy

SURRY POWER STATION
DREDGE MATERIAL MANAGEMENT AREA (DMMA)
VIRGINIA ELECTRIC AND POWER COMPANY
SURRY COUNTY, VIRGINIA

EROSION AND SEDIMENT CONTROL NARRATIVE

EROSION & SEDIMENT CONTROL LEGEND

No.	TITLE	KEY	SYMBOL
3.02	TEMPORARY STONE CONSTRUCTION ENTRANCE	CE	
3.05	SILT FENCE	SF	—x—
3.08	CULVERT INLET PROTECTION	CIP	
3.14	TEMPORARY SEDIMENT BASIN	SB	
3.17	STORMWATER CONVEYANCE CHANNEL	SCC	
3.18	OUTLET PROTECTION	OP	
3.19	RIPRAP	RR	
3.21	LEVEL SPREADER	LS	
3.30	TOPSOILING	TO	TO
3.31	TEMPORARY SEEDING	TS	TS
3.32	PERMANENT SEEDING	PS	PS
3.35	MULCHING	MU	MU
3.38	TREE PRESERVATION AND PROTECTION	TP	TP
3.39	DUST CONTROL	DC	DC

NOTE:

EXCESS SOILS REMAINING IN THE SOIL STOCKPILE AREA AFTER DMMA EMBANKMENT CONSTRUCTION SHALL BE GRADED TO A HEIGHT OF NO MORE THAN 5 FEET ABOVE EXISTING GRADE OR DISPOSED OF OFF-SITE IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. THIS AREA SHALL BE GRADED TO PROMOTE POSITIVE SURFACE WATER DRAINAGE AND HAVE A MAXIMUM SLOPE OF 10H:1V

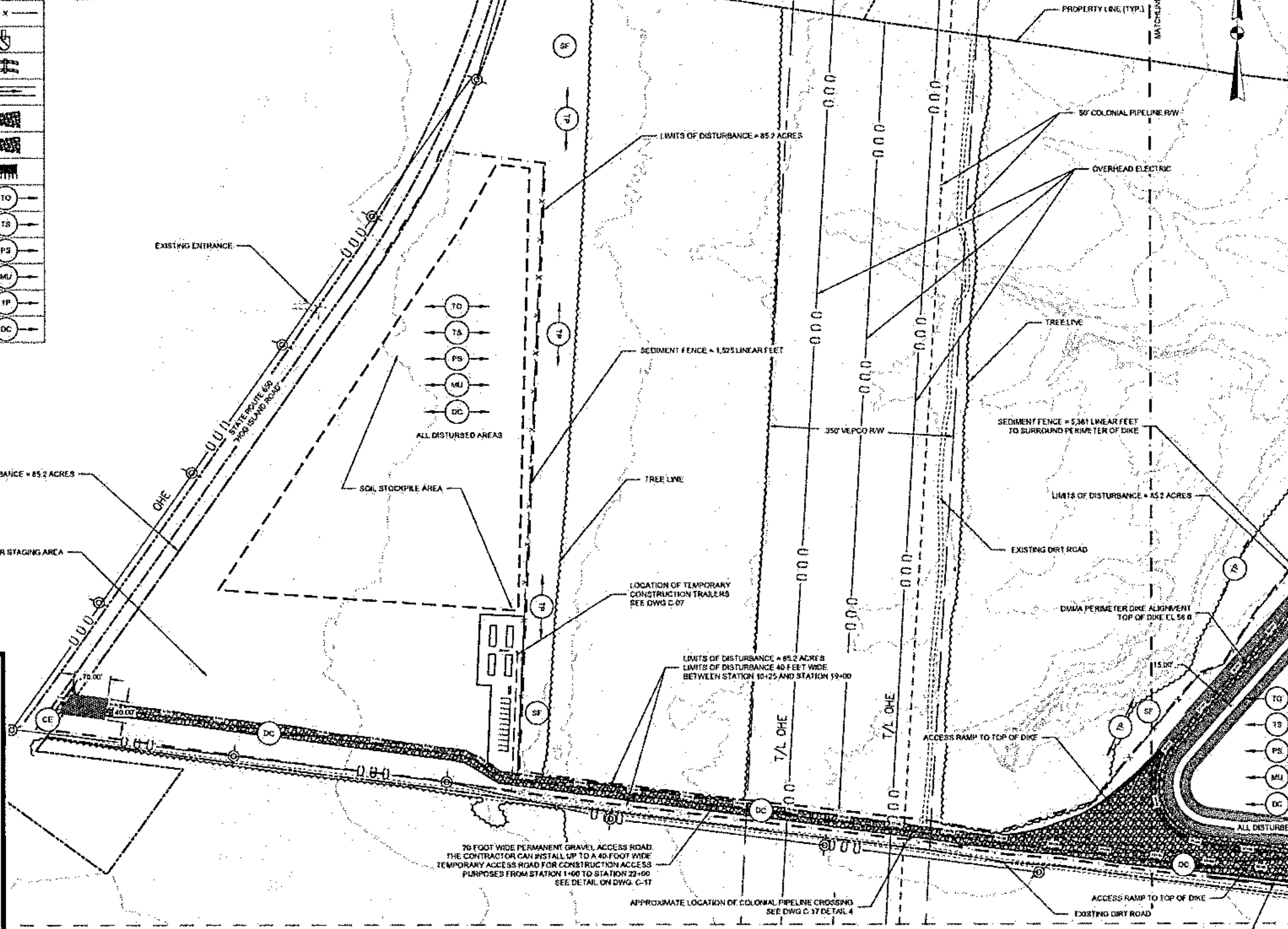


TABLE 6-1

GENERAL EROSION AND SEDIMENT CONTROL NOTES

ES-1: Unless otherwise indicated, all vegetative and structural erosion and sediment control practices will be constructed and maintained according to minimum standards and specifications of the Virginia Erosion and Sediment Control Handbook and Virginia Regulations [illegible] Erosion and Sediment Control Regulations.

ES-2: The plan approving authority must be notified one week prior to the pre-construction conference, one week prior to the commencement of land disturbing activity, and one week prior to the final inspection.

ES-3: All erosion and sediment control measures are to be placed prior to or as the first step in clearing.

ES-4: A copy of the approved erosion and sediment control plan shall be maintained on the site at all times.

ES-5: Prior to commencing land disturbing activities in areas other than indicated on these plans (including, but not limited to, off-site borrow or waste areas), the contractor shall submit a supplementary erosion control plan to the owner for review and approval by the plan approving authority.

ES-6: The contractor is responsible for installation of any additional erosion control measures necessary to prevent erosion and sedimentation as determined by the plan approving authority.

ES-7: All disturbed areas are to drain to approved sediment control measures at all times during land disturbing activities and during site development until final stabilization is achieved.

ES-8: During dewatering operations, water will be pumped into an approved filtering device.

ES-9: The contractor shall inspect all erosion control measures periodically and after each runoff-producing rainfall event. Any necessary repairs or cleanup to maintain the effectiveness of the erosion control devices shall be made immediately.

1 EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 100'

STORMWATER CONVEYANCE CHANNEL
INSTALL PARALLEL WITH THE PERMANENT GRAVEL ACCESS ROAD FROM STATION 23+00 TO 33+95
BOTTOM WIDTH = 3 FEET
TOP WIDTH = 12 FEET
SLOPE = 0.2%

REV	DESCRIPTION	DATE

DESIGNED BY: JWP / AMC | DRAWN BY: AMC | CHECKED BY: TJF

JONATHAN M. PITTMAN, PE

DATE

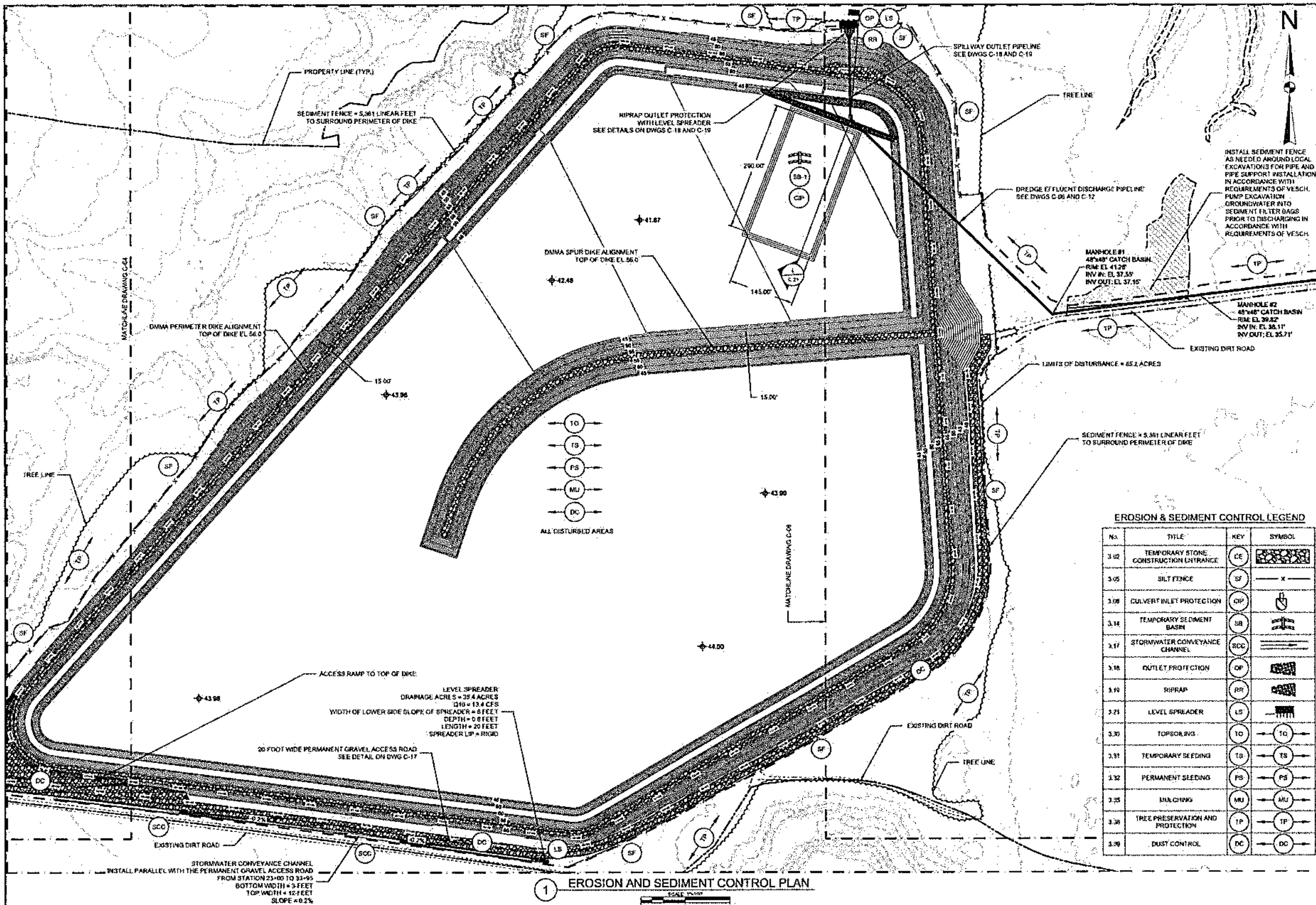
Schnabel ENGINEERING

SURRY POWER STATION
DREDGE MATERIAL MANAGEMENT AREA (DMMA)
VIRGINIA ELECTRIC AND POWER COMPANY
SURRY COUNTY, VIRGINIA

SITE AND EROSION AND SEDIMENT CONTROL PLAN - SHEET 1

Dominion Energy

PROJECT: 16C21018.01
DATE: OCTOBER 2017
DRAWING NO. C-04



1 EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1"=100'

EROSION & SEDIMENT CONTROL LEGEND

No.	TITLE	KEY	SYMBOL
3.02	TEMPORARY STONE CONSTRUCTION ENTRANCE	CE	
3.05	SILT FENCE	SF	—— x ——
3.08	CULVERT INLET PROTECTION	CIP	
3.14	TEMPORARY SEDIMENT BASIN	SB	
3.17	STORMWATER CONVEYANCE CHANNEL	SCC	
3.18	OUTLET PROTECTION	OP	
3.19	RIPRAP	RR	
3.21	LEVEL SPREADER	LS	
3.30	TOPSOILING	TO	TO
3.31	TEMPORARY SEEDING	TS	TS
3.32	PERMANENT SEEDING	PS	PS
3.35	MULCHING	MU	MU
3.38	TREE PRESERVATION AND PROTECTION	TP	TP
3.39	DUST CONTROL	DC	DC

REV	DESCRIPTION	DATE

DESIGNED BY: JAP/AMC
DRAWN BY: AMC
CHECKED BY: TJF

JONATHAN M. PITTMAN, PE

VIRGINIA PROFESSIONAL ENGINEER No. [illegible]

DATE

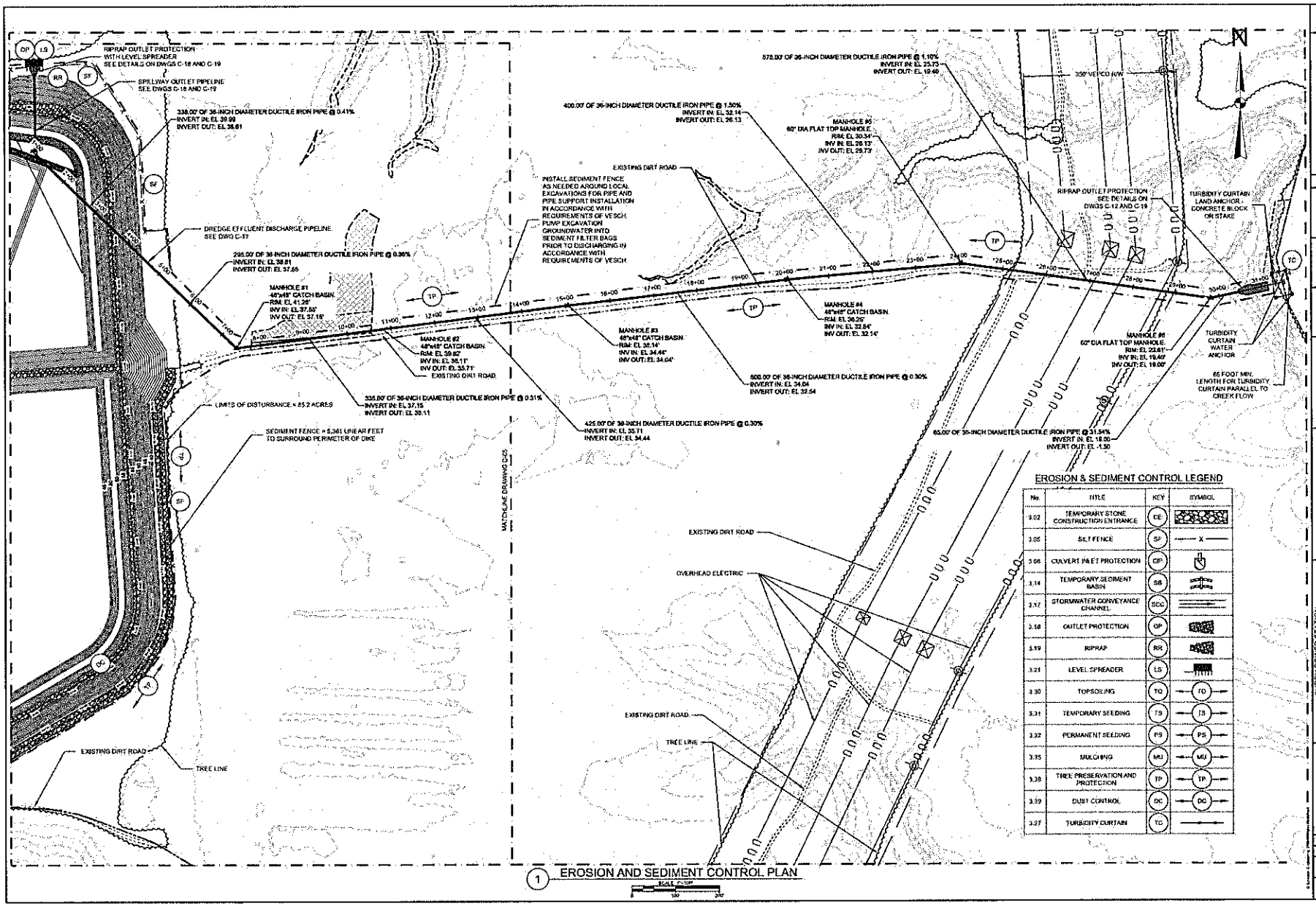
Schnabel ENGINEERING

SURRY POWER STATION
DREDGE MATERIAL MANAGEMENT AREA (DMMA)
VIRGINIA ELECTRIC AND POWER COMPANY
SURRY COUNTY, VIRGINIA

SITE AND EROSION AND SEDIMENT CONTROL PLAN - SHEET 2

Dominion Energy

PROJECT: 16C21015.01
DATE: OCTOBER 2017
DRAWING NO. C-05
SHEET 7 OF 24



1 EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1"=100'

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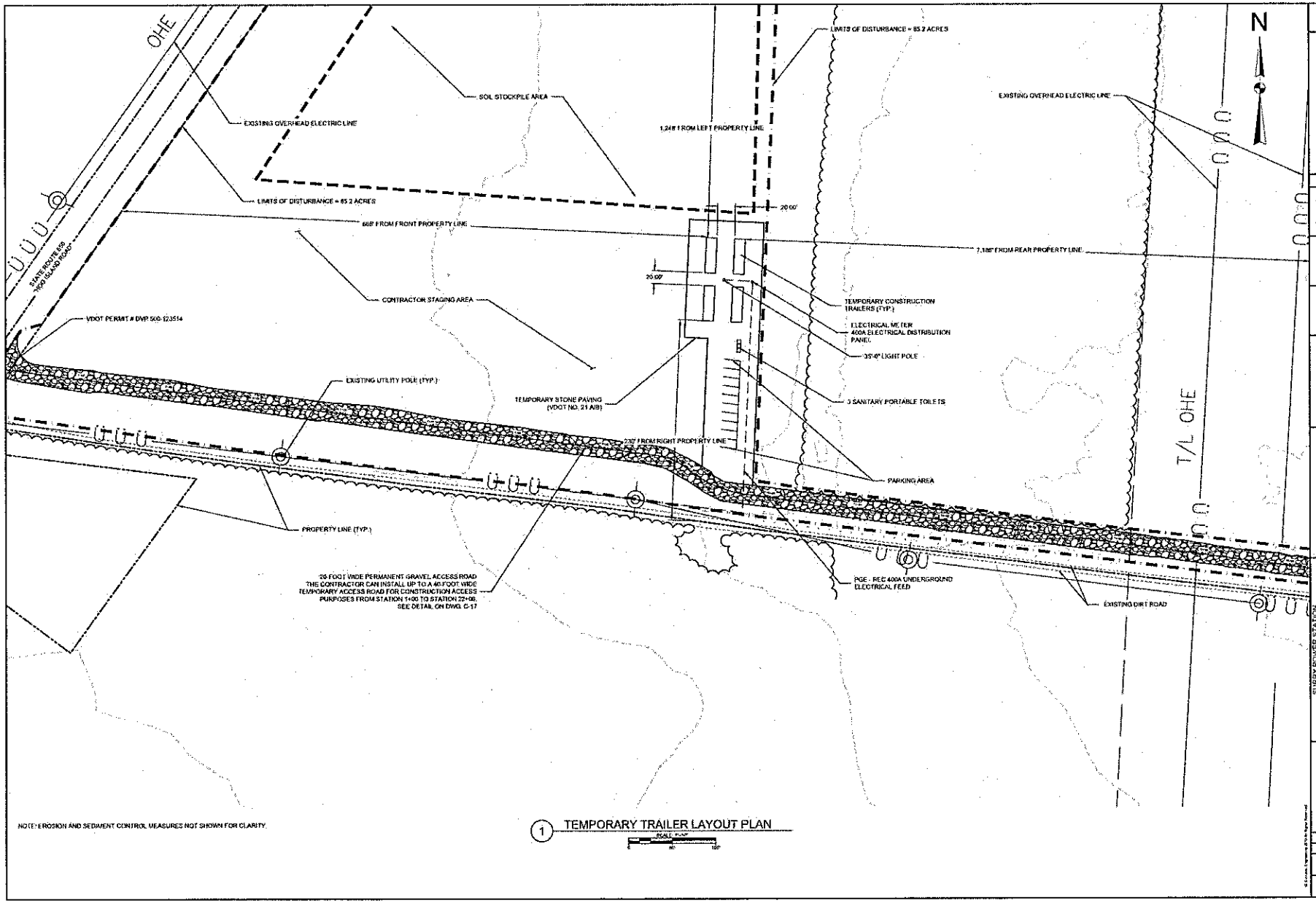
VIRGINIA ELECTRIC AND POWER COMPANY
SURRY COUNTY, VIRGINIA

SITE AND EROSION AND SEDIMENT CONTROL PLAN - SHEET 3

Dominion Energy

PROJECT: 16C21018.01
DATE: OCTOBER 2017
DRAWING NO. C-06
SHEET 8 OF 24



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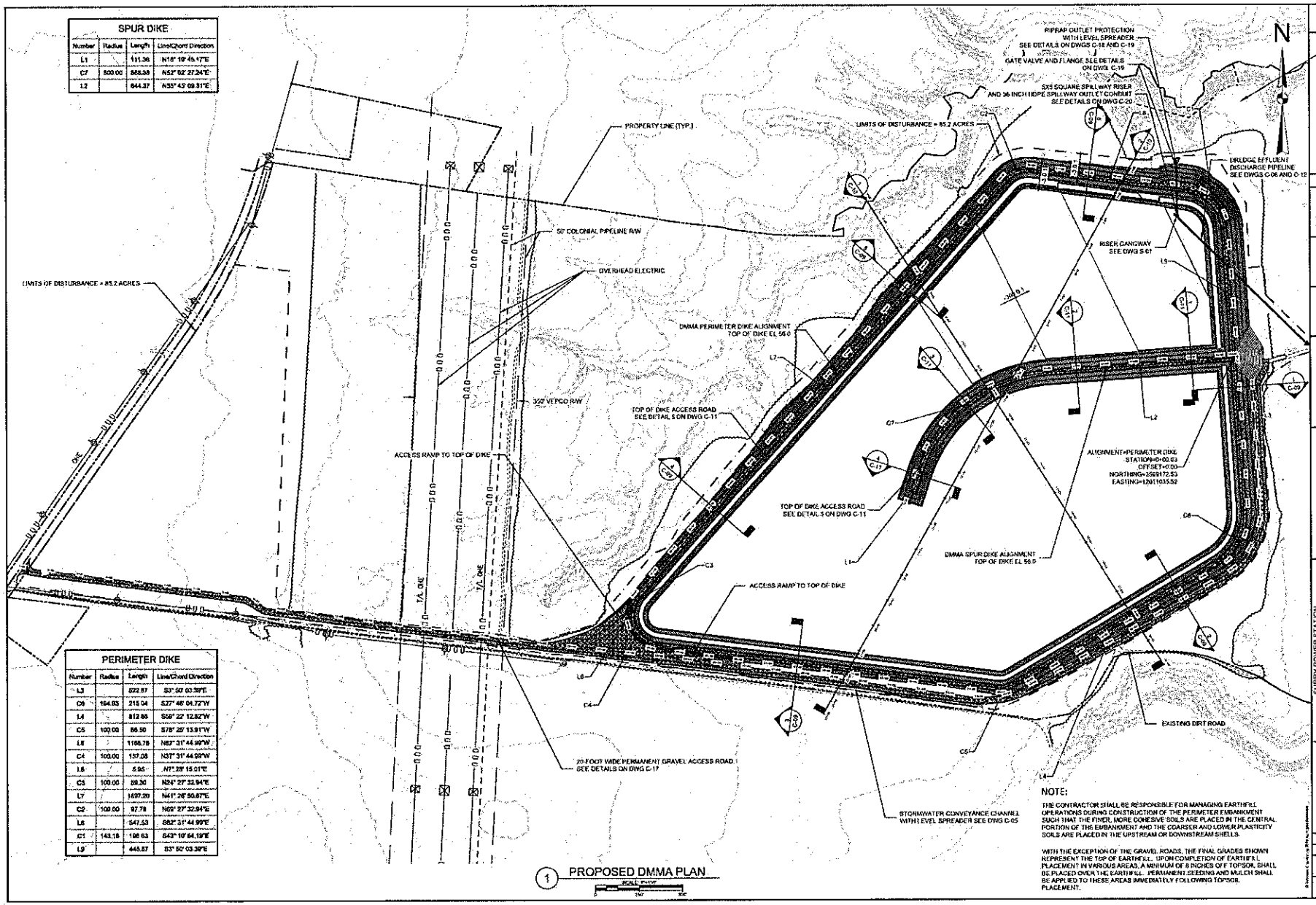
DREDGE MATERIAL MANAGEMENT AREA (DMMA)
VIRGINIA ELECTRIC AND POWER COMPANY
SURRY COUNTY, VIRGINIA

TEMPORARY TRAILER LAYOUT PLAN

Dominion Energy

PROJECT: 16C21018.01
DATE: OCTOBER 2017
DRAWING NO: C-07
SHEET: 9 OF 24



NOTE:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MANAGING EARTHFILL OPERATIONS DURING CONSTRUCTION OF THE PERIMETER EMBANKMENT SUCH THAT THE FINER, MORE COHESIVE SOILS ARE PLACED IN THE CENTRAL PORTION OF THE EMBANKMENT AND THE COARSER AND LOWER PLASTICITY SOILS ARE PLACED IN THE UPSTREAM OR DOWNSTREAM SHELLS.

WITH THE EXCEPTION OF THE GRAVEL ROADS, THE FINAL GRADES SHOWN REPRESENT THE TOP OF EARTHFILL. UPON COMPLETION OF EARTHFILL PLACEMENT IN VARIOUS AREAS, A MINIMUM OF 6 INCHES OF TOPSOIL SHALL BE PLACED OVER THE EARTHFILL. PERMANENT SEEDING AND MULCH SHALL BE APPLIED TO THESE AREAS IMMEDIATELY FOLLOWING TOPSOIL PLACEMENT.

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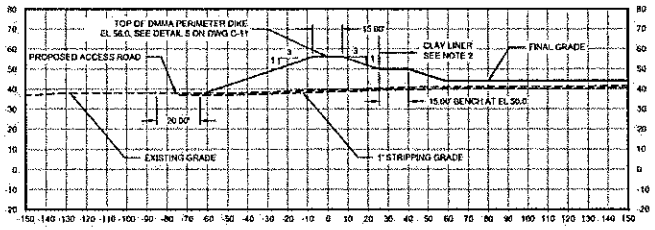
SURRY POWER STATION
DREDGE MATERIAL MANAGEMENT AREA (DMMA)
VIRGINIA ELECTRIC AND POWER COMPANY
SURRY COUNTY, VIRGINIA

PROPOSED DMMA PLAN

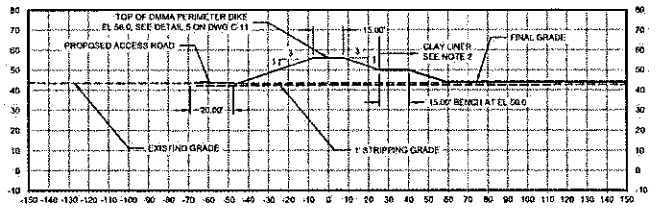
Dominion Energy

PROJECT: 16C21016.01
DATE: OCTOBER 2017
DRAWING NO. C-08
SHEET 10 OF 24



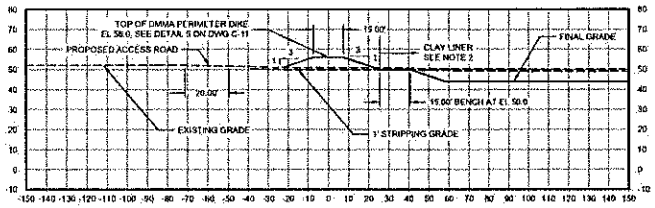
1 DMMA PERIMETER DIKE SECTION AT STATION 1+00

SCALE: 1"=50'



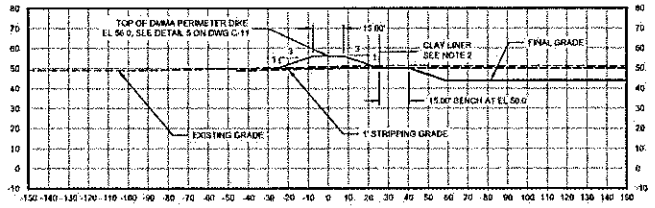
2 DMMA PERIMETER DIKE SECTION AT STATION 9+00

SCALE: 1"=50'



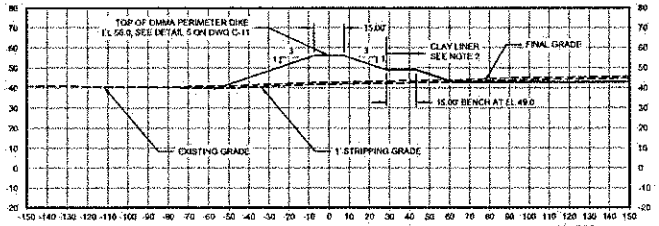
3 DMMA PERIMETER DIKE SECTION AT STATION 23+00

SCALE: 1"=50'



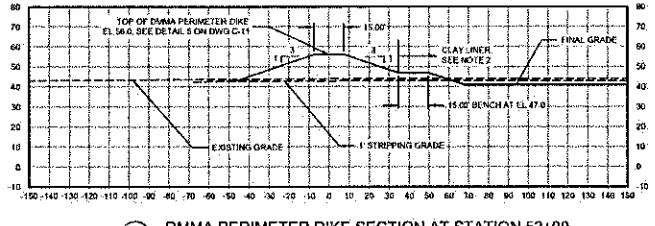
4 DMMA PERIMETER DIKE SECTION AT STATION 34+00

SCALE: 1"=50'



5 DMMA PERIMETER DIKE SECTION AT STATION 44+00

SCALE: 1"=50'



6 DMMA PERIMETER DIKE SECTION AT STATION 52+00

SCALE: 1"=50'

NOTES:

1. RIGHT SIDE OF SECTIONS IS THE INTERIOR OF THE DMMA.
2. MINIMUM ONE FOOT THICK CLAY LINER TO BE PLACED AND COMPACTED ALONG THE BOTTOM OF THE DMMA AND EXTEND UP INBOARD SLOPES TO TIE INTO THE INBOARD TOE OF THE EMBANKMENT FILL. CLAY LINER SHALL HAVE A MINIMUM PERMEABILITY OF 1×10^{-6} CM/SEC. SEE TECHNICAL SPECIFICATIONS FOR MATERIAL, PLACEMENT AND COMPACTION, AND TESTING REQUIREMENTS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MANAGING EARTHFILL OPERATIONS DURING CONSTRUCTION OF THE PERIMETER EMBANKMENT SUCH THAT THE FINER, MORE COHESIVE SOILS ARE PLACED IN THE CENTRAL PORTION OF THE EMBANKMENT AND THE COARSER AND LOWER PLASTICITY SOILS ARE PLACED IN THE UPSTREAM OR DOWNSTREAM SHELLS.
4. WITH THE EXCEPTION OF THE GRAVEL ROADS, THE FINAL GRADES SHOWN REPRESENT THE TOP OF EARTHFILL. UPON COMPLETION OF EARTHFILL PLACEMENT IN VARIOUS AREAS, A MINIMUM OF 6 INCHES OF TOPSOIL SHALL BE PLACED OVER THE EARTHFILL. PERMANENT SEEDING AND MULCH SHALL BE APPLIED TO THESE AREAS IMMEDIATELY FOLLOWING TOPSOIL PLACEMENT.

NO.	DESCRIPTION	DATE

JONATHAN M. PITTMAN, PE

VIRGINIA PROFESSIONAL ENGINEER 041427

DATE:

Schnabel ENGINEERING

SURRY POWER STATION
DREDGE MATERIAL MANAGEMENT AREA (DMMA)
VIRGINIA ELECTRIC AND POWER COMPANY
SURRY COUNTY - VIRGINIA

DMMA PERIMETER DIKE SECTIONS

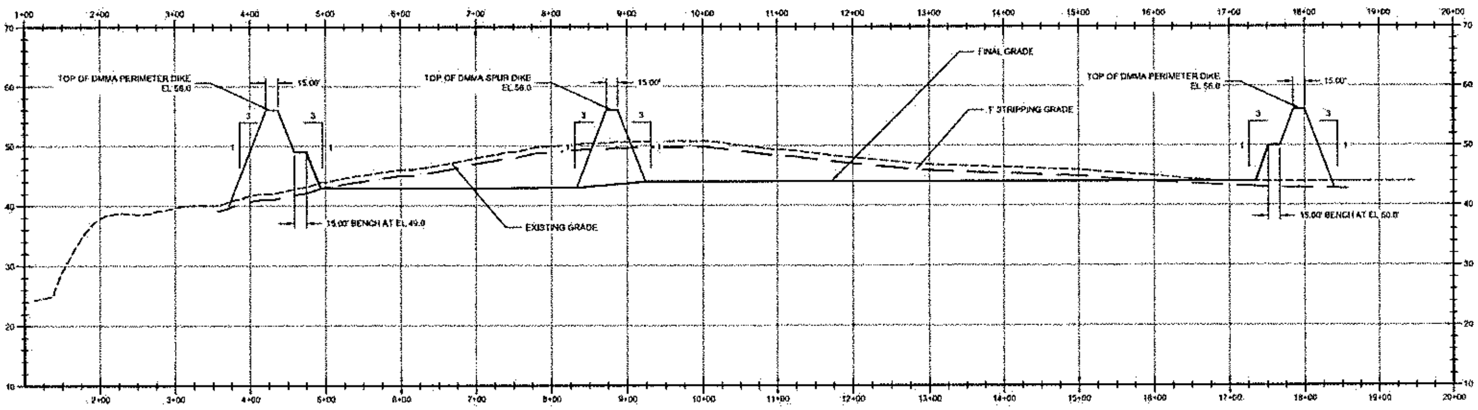
Dominion Energy

PROJECT: 18C21018.01

DATE: OCTOBER 2017

DRAWING NO.
C-09

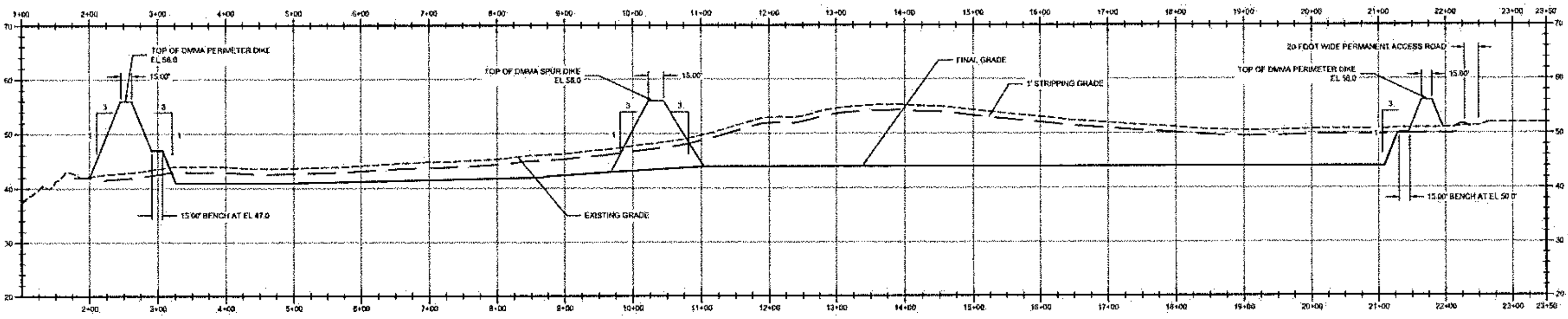
SHEET
11 OF 24



(1) DMMA SECTION

HORIZONTAL = SCALE: 1"=40'

VERTICAL = SCALE: 1"=10'



(2) DMMA SECTION

HORIZONTAL = SCALE: 1"=40'

VERTICAL = SCALE: 1"=10'

NOTES:

1. MINIMUM ONE FOOT THICK CLAY LINER TO BE PLACED AND COMPACTED ALONG THE BOTTOM OF THE DMMA AND EXTEND UP INBOARD SLOPES TO TIE INTO THE INBOARD TOE OF THE EMBANKMENT FILL. CLAY LINER SHALL HAVE A MINIMUM PERMEABILITY OF $1X10^{-6}$ CM/SEC. SEE TECHNICAL SPECIFICATIONS FOR MATERIAL, PLACEMENT AND COMPACTION, AND TESTING REQUIREMENTS.

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3. WITH THE EXCEPTION OF THE GRAVEL ROADS, THE FINAL GRADES SHOWN REPRESENT THE TOP OF EARTHFILL. UPON COMPLETION OF EARTHFILL PLACEMENT IN VARIOUS AREAS, A MINIMUM OF 6 INCHES OF TOPSOIL SHALL BE PLACED OVER THE EARTHFILL. PERMANENT SEEDING AND MULCH SHALL BE APPLIED TO THESE AREAS IMMEDIATELY FOLLOWING TOPSOIL PLACEMENT.

JONATHAN M. PITTMAN, PE

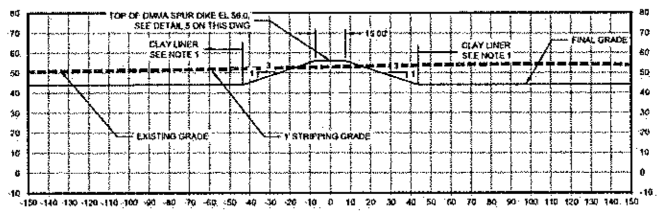
Schnabel ENGINEERING

SURRY POWER STATION
DREDGE MATERIAL MANAGEMENT AREA (DMMA)
VIRGINIA ELECTRIC AND POWER COMPANY
SURRY COUNTY, VIRGINIA

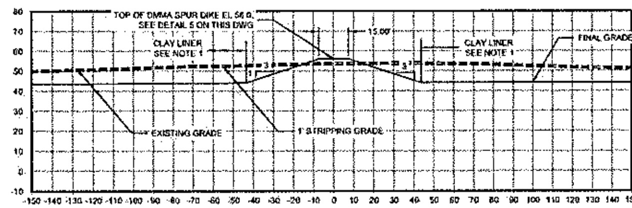
DMMA SECTIONS

Dominion Energy

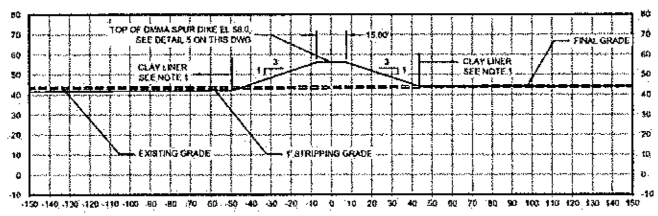
PROJECT: 16C21016.01
DATE: OCTOBER 2017
DRAWING NO.
C-10
SHEET
12 OF 24



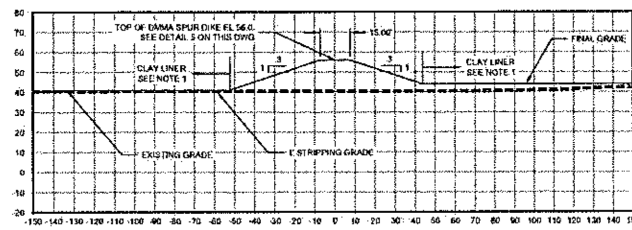
1 DMMA SPUR DIKE SECTION AT STATION 2+00



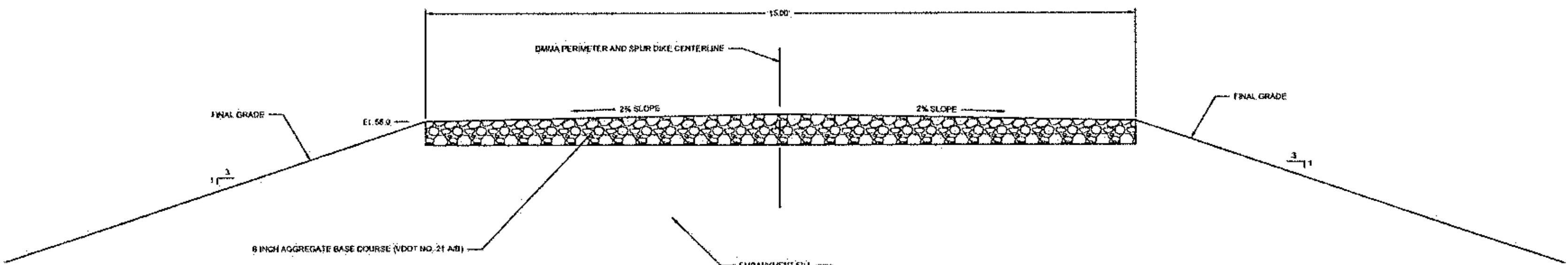
2 DMMA SPUR DIKE SECTION AT STATION 5+00



3 DMMA SPUR DIKE SECTION AT STATION 9+00



4 DMMA SPUR DIKE SECTION AT STATION 13+00



5 TOP OF DIKE ACCESS ROAD SECTION

NOT TO SCALE

NOTES:

1. MINIMUM ONE FOOT THICK CLAY LINER TO BE PLACED AND COMPACTED ALONG THE BOTTOM OF THE DMMA AND EXTEND UP INBOARD SLOPES TO TIE INTO THE INBOARD TOE OF THE EMBANKMENT FILL. CLAY LINER SHALL HAVE A MINIMUM PERMEABILITY OF 1X10⁻⁶ CM/SEC. SEE TECHNICAL SPECIFICATIONS FOR MATERIAL, PLACEMENT AND COMPACTION, AND TESTING REQUIREMENTS.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MANAGING EARTHFILL OPERATIONS DURING CONSTRUCTION OF THE PERIMETER EMBANKMENT SUCH THAT THE FINER, MORE COHESIVE SOILS ARE PLACED IN THE CENTRAL PORTION OF THE EMBANKMENT AND THE COARSER AND LOWER PLASTICITY SOILS ARE PLACED IN THE UPSTREAM OR DOWNSTREAM SHELLS.

3. WITH THE EXCEPTION OF THE GRAVEL ROADS, THE FINAL GRADES SHOWN REPRESENT THE TOP OF EARTHFILL. UPON COMPLETION OF EARTHFILL PLACEMENT IN VARIOUS AREAS, A MINIMUM OF 6 INCHES OF TOPSOIL SHALL BE PLACED OVER THE EARTHFILL. PERMANENT SEEDING AND MULCH SHALL BE APPLIED TO THESE AREAS IMMEDIATELY FOLLOWING TOPSOIL PLACEMENT.

JONATHAN M. PITTMAN, PE

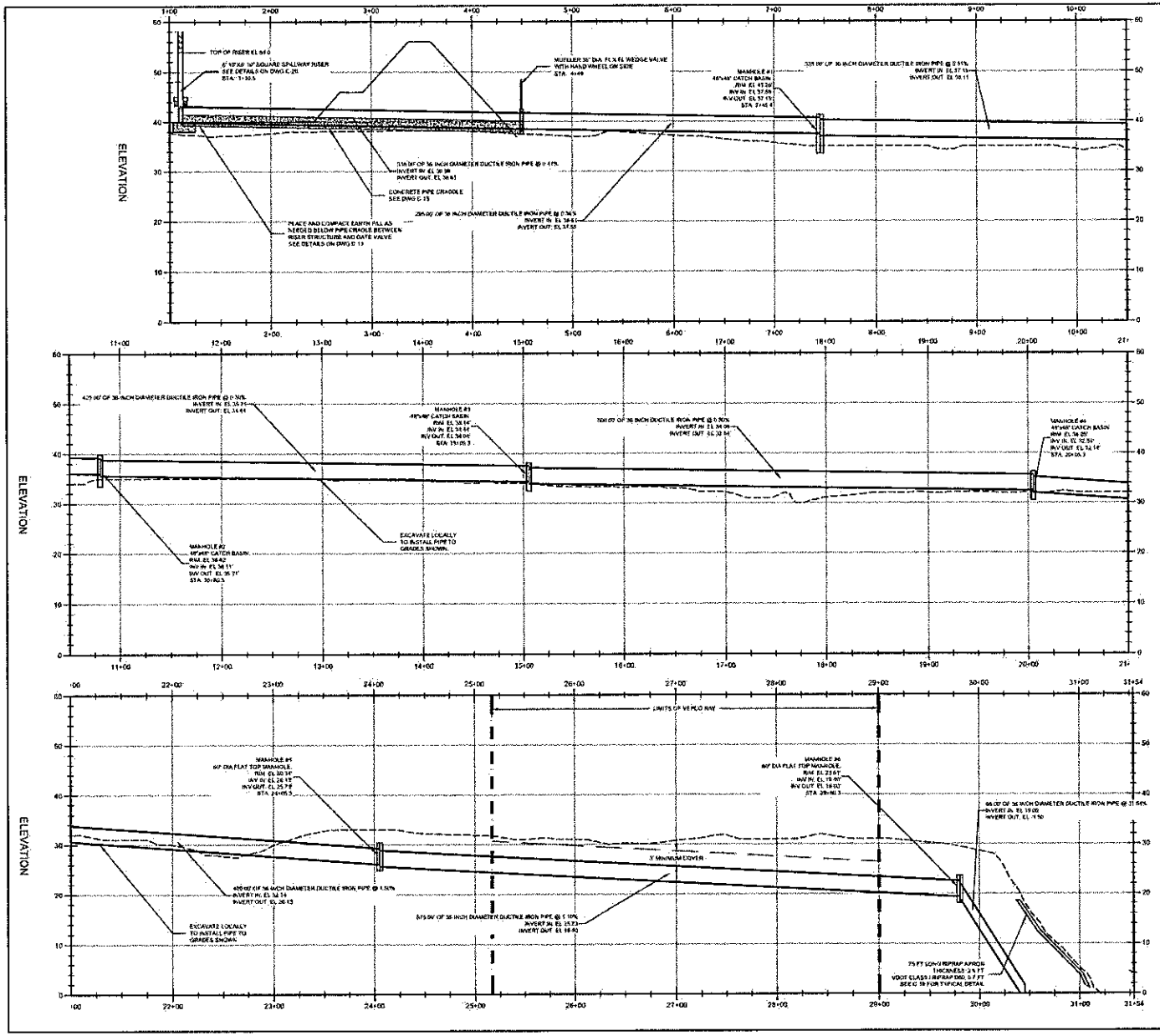
SURRY POWER STATION
DREDGE MATERIAL MANAGEMENT AREA (DMMA)
VIRGINIA ELECTRIC AND POWER COMPANY
SURRY COUNTY, VIRGINIA

DMMA SPUR DIKE SECTIONS AND DETAILS

Schnabel ENGINEERING

Dominion Energy

PROJECT: 16C21018.01
DATE: OCTOBER 2017
DRAWING NO C-11
SHEET 13 OF 24



NOTES

1. CONTRACTOR TO PROTECT EXISTING INFRASTRUCTURE THROUGH VEPCO R/W.
2. STANDARD MANHOLE AND CATCH BASIN DETAILS ARE SHOWN ON DWG C-14.
3. STANDARD PIPE BACKFILL DETAILS ARE SHOWN ON DWG C-14.
4. PIPE SUPPORT DETAILS AND SCHEDULE ARE SHOWN ON DWG C-15.
5. WETLAND IMPACTS DUE TO DREDGE EFFLUENT PIPE INSTALLATION WILL BE LESS THAN 0.1 ACRES, AND NO STREAM IMPACTS ARE ANTICIPATED DUE TO RIPRAP OUTLET PROTECTION INSTALLATION.

1 DMMA DREDGE EFFLUENT PIPE PROFILE

HORIZONTAL = SCALE: 1"=100'

VERTICAL = SCALE: 1"=10'

JONATHAN M. PITTMAN, PE

COMMONWEALTH OF VIRGINIA PROFESSIONAL ENGINEER

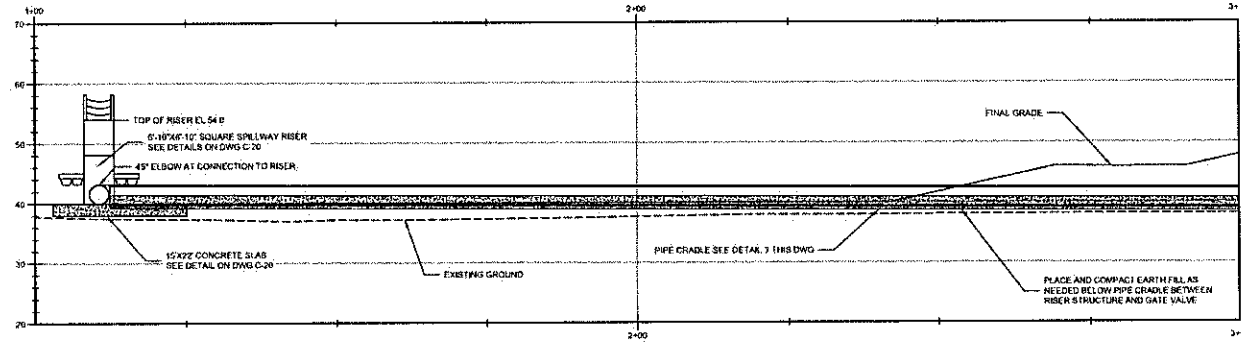
Schnabel ENGINEERING

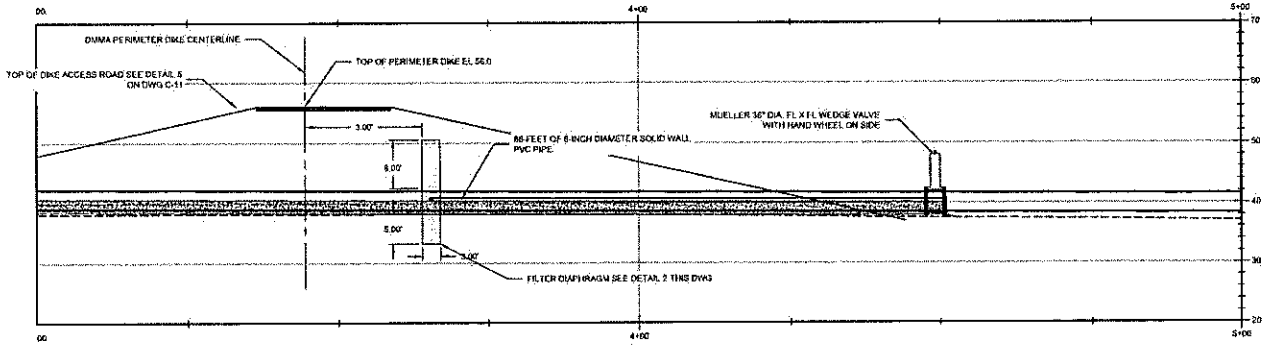
SURRY POWER STATION
DREDGE MATERIAL MANAGEMENT AREA (DMMA)
VIRGINIA ELECTRIC AND POWER COMPANY
SURRY COUNTY, VIRGINIA

DMMA DREDGE EFFLUENT PIPELINE PROFILE

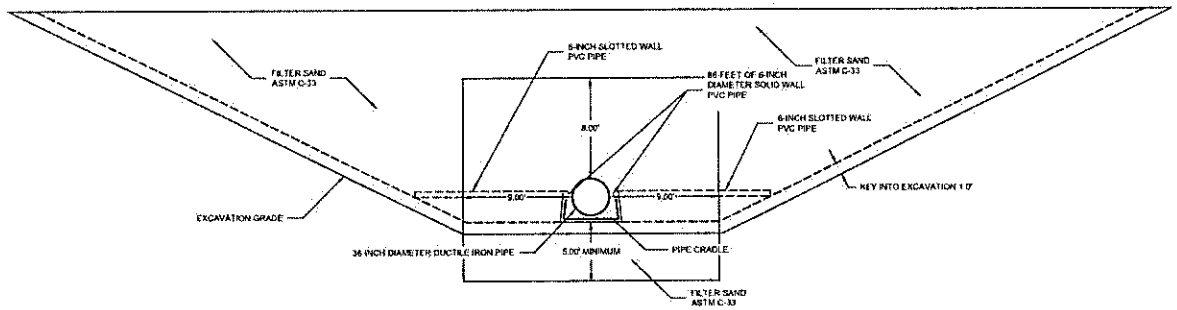
Dominion Energy

PROJECT: 16C21018.01
DATE: OCTOBER 2017
DRAWING NO. C-12
SHEET 14 OF 24

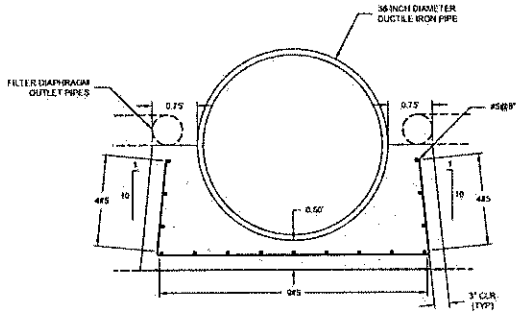




FLOW ① DMMA DREDGE EFFLUENT PIPE PROFILE



② SAND FILTER DIAPHRAGM
NOT TO SCALE



③ PIPE CRADLE DETAIL

JONATHAN M. PITTMAN, PE

Schnabel ENGINEERING

SURRY POWER STATION
DREDGE MATERIAL MANAGEMENT AREA (DMMA)
VIRGINIA ELECTRIC AND POWER COMPANY
SURRY COUNTY, VIRGINIA

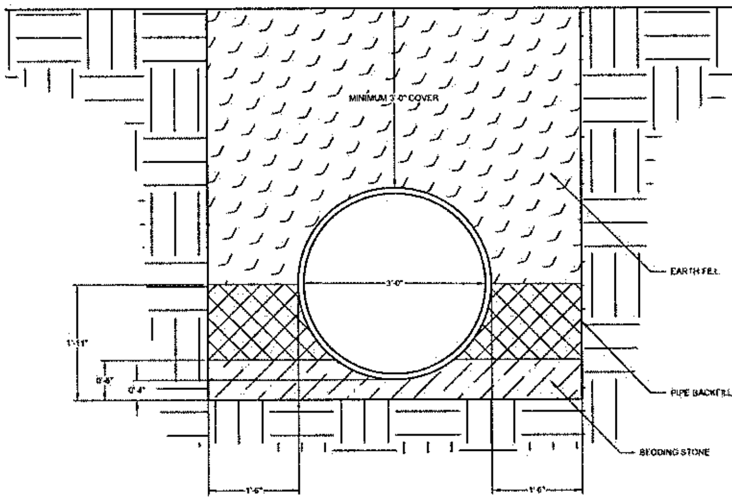
DMMA DREDGE EFFLUENT DISCHARGE PIPELINE EMBANKMENT SECTION

Dominion Energy

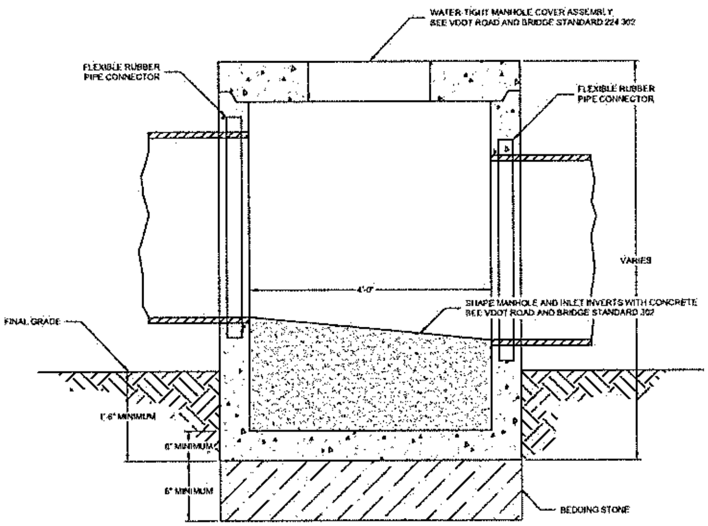
PROJECT: 16C21618.01
DATE: OCTOBER 2017
DRAWING NO: C-13
SHEET: 15 OF 24

NOTES

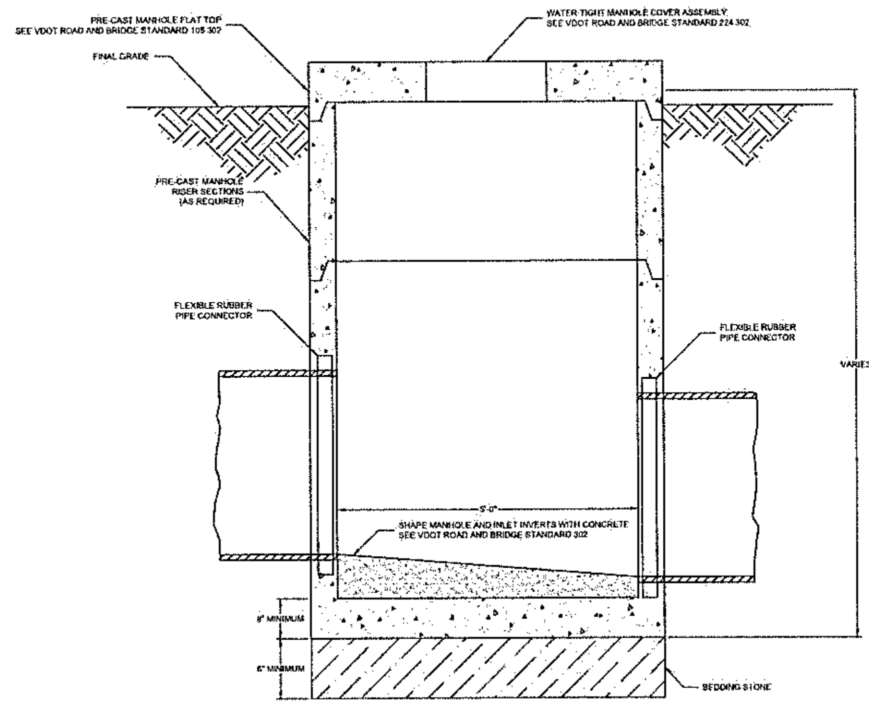
1. FOR MANHOLE AND CATCH BASIN SPECIFICATION SEE VDOT ROAD AND BRIDGE STANDARDS 105 302 AND 224 302.
2. FOR PIPE BACKFILL SPECIFICATIONS SEE VDOT ROAD AND BRIDGE STANDARDS 302 303 FOR NORMAL EARTH FOUNDATION.



1 PIPE BACKFILL SECTION



2 TYPICAL CATCH BASIN DETAIL



3 TYPICAL MANHOLE DETAIL

REV	DESCRIPTION	DATE

JONATHAN M. PITTMAN, PE

VIRGINIA PROFESSIONAL ENGINEER 041426 DATE

Schnabel ENGINEERING

SURRY POWER STATION
DREDGE MATERIAL MANAGEMENT AREA (DMMA)
VIRGINIA ELECTRIC AND POWER COMPANY
SURRY COUNTY, VIRGINIA

DMMA DREDGE EFFLUENT DISCHARGE PIPELINE DETAILS

Dominion Energy

PROJECT: 16C21018.01
DATE: OCTOBER 2017
DRAWING NO. C-14
SHEET 16 OF 24

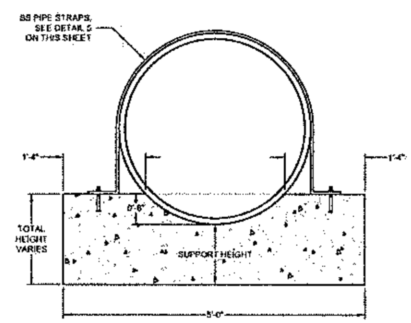
Valve to Manhole #1				
Point #	Support Station	Above Ground Height	Support Height	Embedment
1	4+68.4	0.96 ft	1.0	0.04 ft
2	4+88.4	1.10 ft	2.0	0.90 ft
3	5+08.4	1.20 ft	2.0	0.80 ft
4	5+28.4	0.58 ft	1.0	0.42 ft
5	5+48.4	0.17 ft	1.0	0.83 ft
6	5+68.4	0.34 ft	1.0	0.66 ft
7	5+88.4	0.52 ft	1.0	0.48 ft
8	6+08.4	0.73 ft	1.0	0.27 ft
9	6+28.4	0.77 ft	1.0	0.23 ft
10	6+48.4	1.21 ft	2.0	0.79 ft
11	6+68.4	1.56 ft	2.0	0.44 ft
12	6+88.4	1.55 ft	2.0	0.45 ft
13	7+08.4	1.90 ft	2.0	0.04 ft
14	7+28.4	2.26 ft	3.0	0.74 ft

Manhole #1 to Manhole #2				
Point #	Support Station	Above Ground Height	Support Height	Embedment
15	7+63.4	1.89 ft	2.0	0.11 ft
16	7+83.4	1.82 ft	2.0	0.18 ft
17	8+03.4	1.76 ft	2.0	0.24 ft
18	8+23.4	1.70 ft	2.0	0.30 ft
19	8+43.4	1.64 ft	2.0	0.38 ft
20	8+63.4	2.25 ft	3.0	0.75 ft
21	8+83.4	1.73 ft	2.0	0.27 ft
22	9+03.4	1.45 ft	2.0	0.55 ft
23	9+23.4	1.39 ft	2.0	0.61 ft
24	9+43.4	1.33 ft	2.0	0.67 ft
25	9+63.4	1.27 ft	2.0	0.73 ft
26	9+83.4	1.46 ft	2.0	0.54 ft
27	10+03.4	1.99 ft	2.0	0.01 ft
28	10+23.4	1.68 ft	2.0	0.32 ft
29	10+43.4	1.14 ft	2.0	0.86 ft
30	10+83.4	1.96 ft	2.0	0.04 ft

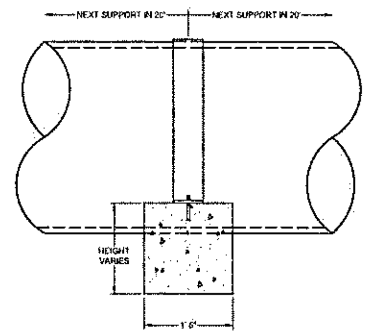
Manhole #2 to Manhole #3				
Point #	Support Station	Above Ground Height	Support Height	Embedment
31	10+98.3	0.45 ft	1.0	0.55 ft
32	11+18.3	0.39 ft	1.0	0.61 ft
33	11+38.3	0.33 ft	1.0	0.67 ft
34	11+58.3	0.27 ft	1.0	0.73 ft
35	11+78.3	0.21 ft	1.0	0.79 ft
36	14+78.3	0.29 ft	1.0	0.71 ft
37	14+98.3	0.25 ft	1.0	0.75 ft

Manhole #3 to Manhole #4				
Point #	Support Station	Above Ground Height	Support Height	Embedment
38	15+23.3	0.26 ft	1.0	0.74 ft
39	15+43.3	0.36 ft	1.0	0.64 ft
40	15+63.3	0.35 ft	1.0	0.65 ft
41	15+83.3	0.30 ft	1.0	0.70 ft
42	16+03.3	0.34 ft	1.0	0.66 ft
43	16+23.3	0.18 ft	1.0	0.82 ft
44	16+43.3	0.42 ft	1.0	0.58 ft
45	16+63.3	0.54 ft	1.0	0.46 ft
46	16+83.3	0.97 ft	1.0	0.03 ft
47	17+03.3	1.19 ft	2.0	0.81 ft
48	17+23.3	2.18 ft	3.0	0.82 ft
49	17+43.3	2.12 ft	3.0	0.88 ft
50	17+63.3	1.05 ft	2.0	0.95 ft
51	17+83.3	2.64 ft	3.0	0.36 ft
52	18+03.3	1.73 ft	2.0	0.27 ft
53	18+23.3	1.39 ft	2.0	0.61 ft
54	18+43.3	0.85 ft	1.0	0.15 ft
55	18+63.3	0.72 ft	1.0	0.28 ft
56	18+83.3	0.58 ft	1.0	0.42 ft
57	19+03.3	0.64 ft	1.0	0.36 ft
58	19+23.3	0.43 ft	1.0	0.57 ft
59	19+43.3	0.32 ft	1.0	0.68 ft
60	19+63.3	0.36 ft	1.0	0.64 ft
61	19+83.3	0.40 ft	1.0	0.60 ft

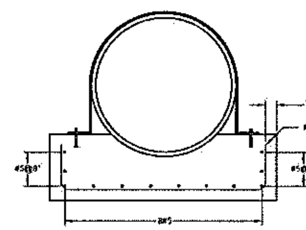
(1) PIPE SUPPORT SCHEDULE



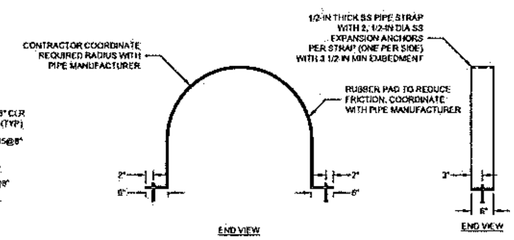
(2) PIPE SUPPORT ELEVATION



(3) PIPE SUPPORT PROFILE



(4) PIPE SUPPORT REINFORCEMENT



(5) PIPE STRAP DETAIL AT SUPPORT

JONATHAN M. PITTMAN, PE

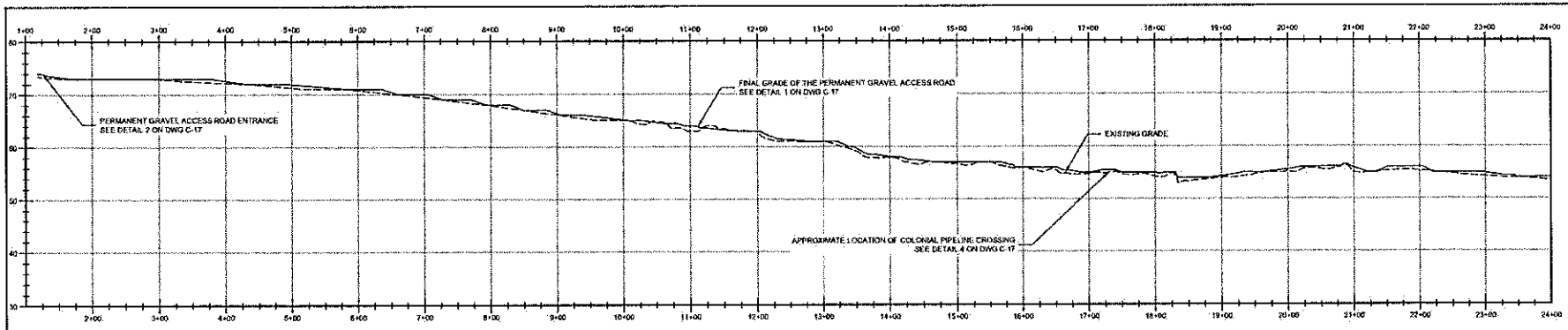
SURRY POWER STATION
DREDGE MATERIAL MANAGEMENT AREA (DMMA)
VIRGINIA ELECTRIC AND POWER COMPANY
SURRY COUNTY, VIRGINIA

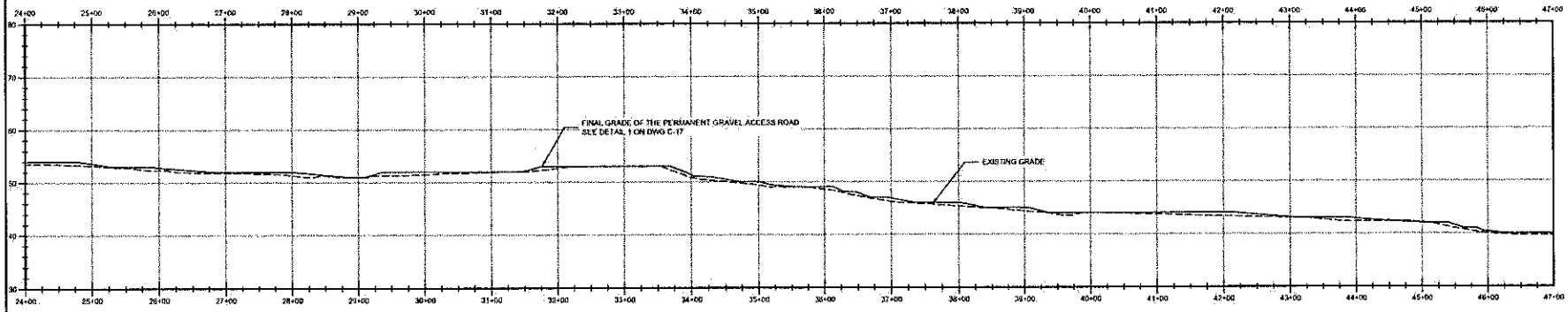
DMMA DREDGE EFFLUENT DISCHARGE PIPE SUPPORT SCHEDULE AND DETAILS

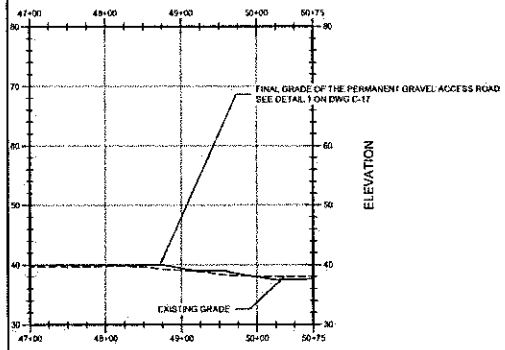
Schnabel ENGINEERING

Dominion Energy

PROJECT: 16C21018.01
DATE: OCTOBER 2017
DRAWING NO. C-15
SHEET 17 OF 24







1 PERMANENT GRAVEL ACCESS ROAD PROFILE

HORIZONTAL = SCALE: 1"=50'

VERTICAL = SCALE: 1"=10'

JONATHAN M. PITTMAN, PE

VIRGINIA PROFESSIONAL ENGINEER

Schnabel ENGINEERING

SURRY POWER STATION
DREDGE MATERIAL MANAGEMENT AREA (DMMA)
VIRGINIA ELECTRIC AND POWER COMPANY
SURRY COUNTY, VIRGINIA

PERMANENT GRAVEL ACCESS ROAD PROFILE

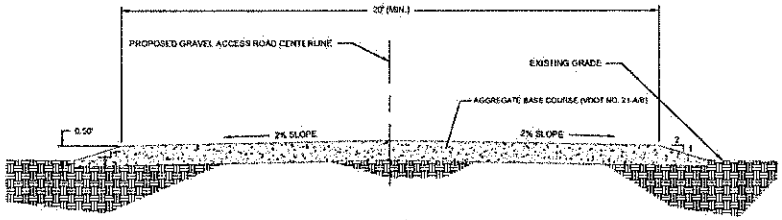
Dominion Energy

PROJECT: 18C2181E.01

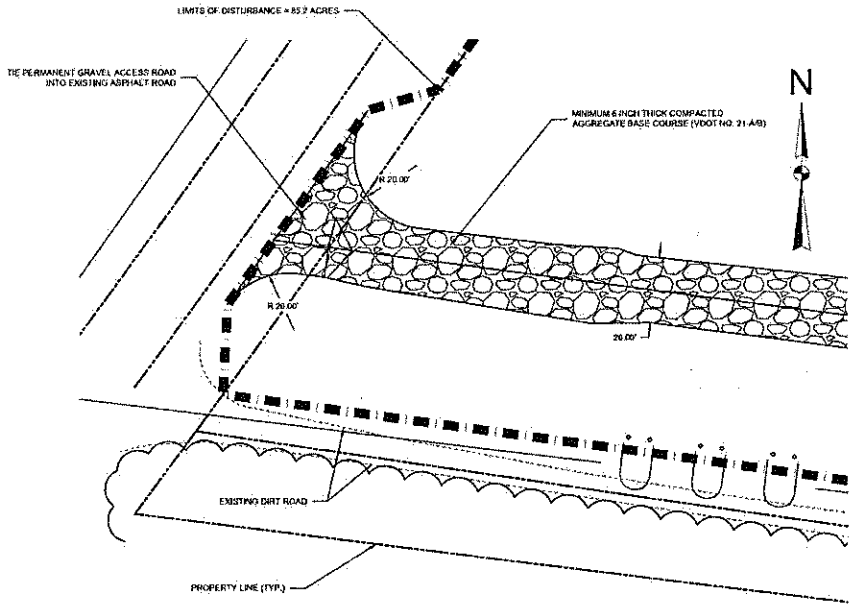
DATE: OCTOBER 2017

DRAWING NO. C-16

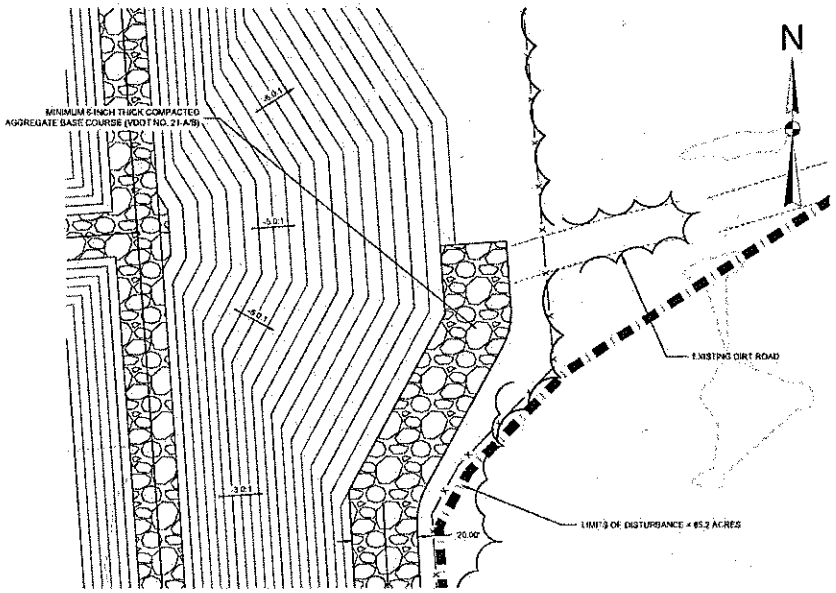
SHEET 18 OF 24



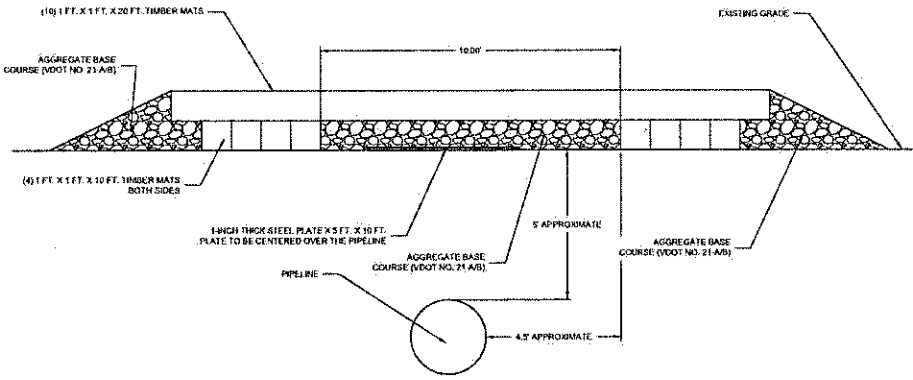
1 PERMANENT GRAVEL ACCESS ROAD
NOT TO SCALE



2 PERMANENT GRAVEL ACCESS ROAD ENTRANCE
SCALE: 1"=30'



3 PERMANENT GRAVEL ACCESS ROAD TIE-IN
SCALE: 1"=30'



4 PIPELINE CROSSING AIR BRIDGE DETAIL
NOT TO SCALE

DESIGNED BY: JMP
DRAWN BY: AMC
CHECKED BY: JMP

JONATHAN M. PITTMAN, PE
DATE
VIRGINIA PROFESSIONAL ENGINEER № 0402

NO.	DESCRIPTION	DATE
1		

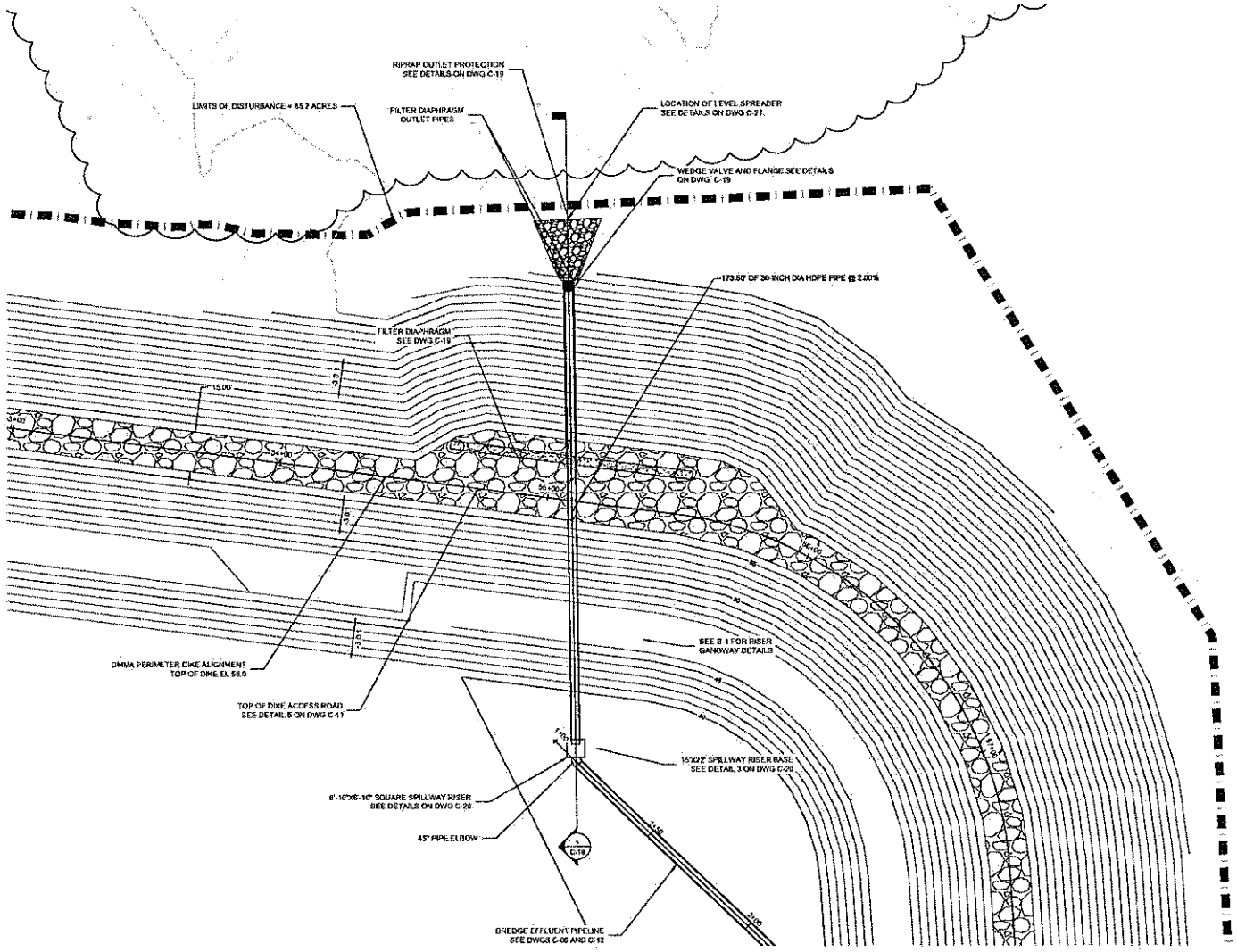
Schnabel ENGINEERING

SURRY POWER STATION
DREDGE MATERIAL MANAGEMENT AREA (DMMA)
VIRGINIA ELECTRIC AND POWER COMPANY
SURRY COUNTY, VIRGINIA

PERMANENT GRAVEL ACCESS ROAD SECTIONS AND DETAILS

Dominion Energy

PROJECT: 15C21618.01
DATE: OCTOBER 2017
DRAWING NO.: C-17
SHEET: 19 OF 24



1 DMMA SPILLWAY OUTLET PLAN

SCALE: 1"=30'

JONATHAN M. PITTMAN, PE

VIRGINIA PROFESSIONAL ENGINEER

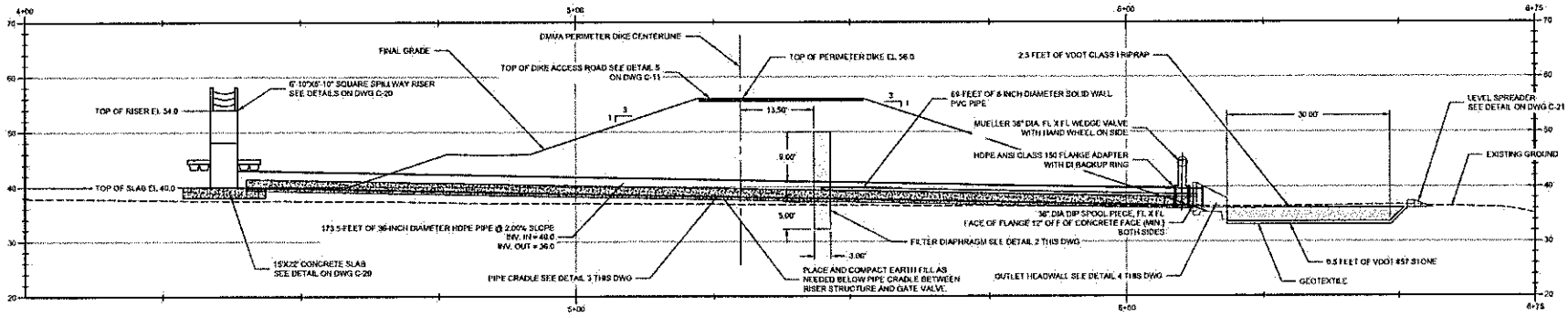
Schnabel ENGINEERING

SURRY POWER STATION
DREDGE MATERIAL MANAGEMENT AREA (DMMA)
VIRGINIA ELECTRIC AND POWER COMPANY
SURRY COUNTY, VIRGINIA

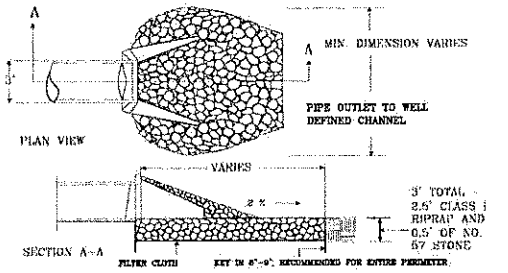
DMMA SPILLWAY OUTLET PLAN

Dominion Energy

PROJECT: 16C21018.01
DATE: OCTOBER 2017
DRAWING NO. C-18
SHEET 20 OF 24

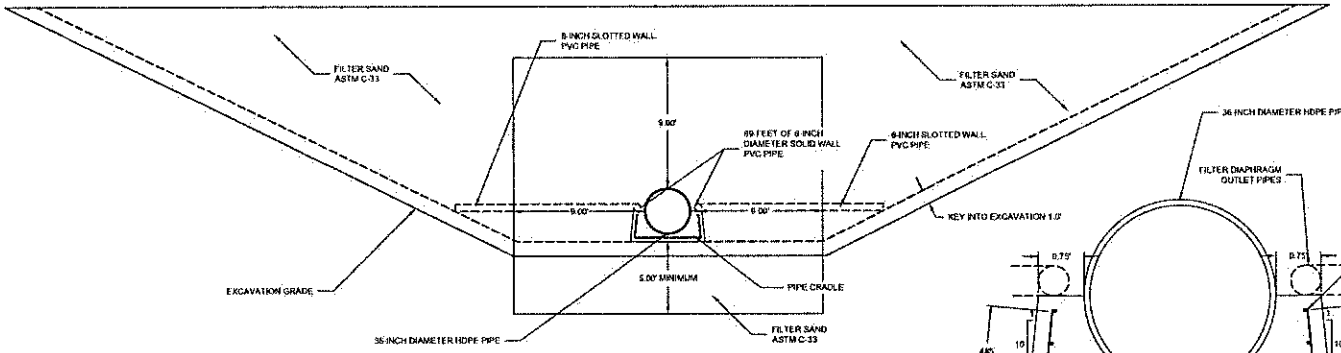


FLOW ① PERMANENT OUTLET PIPE PROFILE

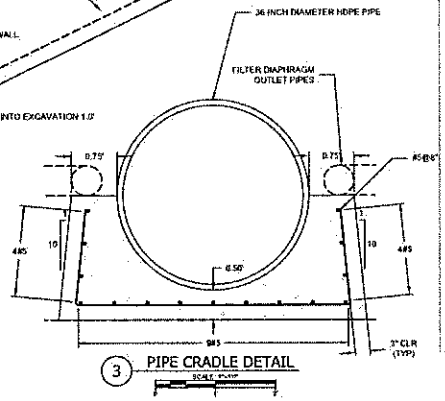


Source: Va. DSWC Plate 3.18-1

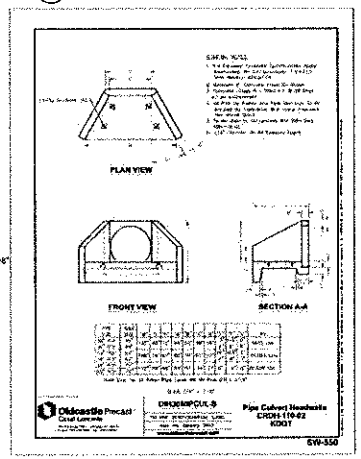
OP CHANNEL OUTLET PROTECTION NO SCALE



② SAND FILTER DIAPHRAGM NOT TO SCALE



③ PIPE CRADLE DETAIL



④ OUTLET HEADWALL DETAIL NO SCALE

JONATHAN M. PITTMAN, PE

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SURRY POWER STATION
DREDGE MATERIAL MANAGEMENT AREA (DMMA)
VIRGINIA ELECTRIC AND POWER COMPANY
SURRY COUNTY, VIRGINIA

DMMA SPILLWAY OUTLET PROFILE AND DETAILS

Dominion Energy

PROJECT: 16C21018.01
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DRAWING NO. C-19
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Figure 7. Set of 18-ft-tall, 4-ft x 4-ft box riser weirs with gangway to floating dock access, Bartram Island Cell F, Jacksonville, Florida.

MAGLIO, C.K., J. W. BEARCE, M. A. PRESLEY, AND J. L. GROVER. 2014. *NEW STANDARD WEIR DESIGN FOR DREDGED MATERIAL MANAGEMENT AREA JACKSONVILLE DISTRICT.* DOTS TECHNICAL NOTES COLLECTION. ERDC TN-DOTS-14-01 VICKSBURG, MS: U.S. ARMY ENGINEER RESEARCH AND DEVELOPMENT CENTER.

1 EXAMPLE SPILLWAY RISER AND SPILLWAY ACCESS SYSTEM

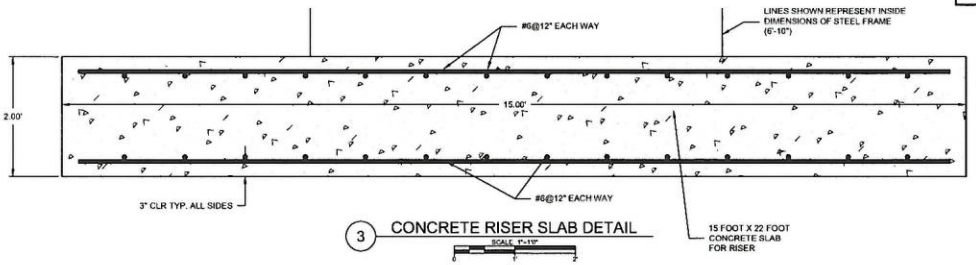
NOTE: THIS PHOTOGRAPH IS PROVIDED AS AN EXAMPLE OF A SPILLWAY RISER AND SPILLWAY ACCESS SYSTEM FOR A DMMA. CONTRACTOR TO PROVIDE ONLY ONE 5-FOOT SQUARE RISER FOR THE SURRY DMMA. SEE ADDITIONAL NOTES THIS SHEET.

Figure 10. Internal weir outfall flap gates.

MAGLIO, C.K., J. W. BEARCE, M. A. PRESLEY, AND J. L. GROVER. 2014. *NEW STANDARD WEIR DESIGN FOR DREDGED MATERIAL MANAGEMENT AREA, JACKSONVILLE DISTRICT.* DOTS TECHNICAL NOTES COLLECTION. ERDC TN-DOTS-14-01 VICKSBURG, MS: U.S. ARMY ENGINEER RESEARCH AND DEVELOPMENT CENTER.

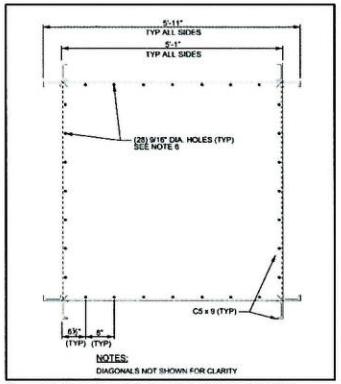
2 TYPICAL INTERNAL WEIR FLAP GATE

NOTE: CONTRACTOR TO PROVIDE A 36-INCH DIAMETER STAINLESS STEEL FLAP GATE WITH CONNECTION TO PIPE FLANGE. FLAP GATE SHALL ALSO INCLUDE A STAINLESS STEEL HARDWARE LOCKING MECHANISM. SEE SECTION 40 05 71.16 FOR ADDITIONAL DETAILS AND REQUIREMENTS.



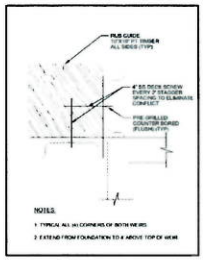
3 CONCRETE RISER SLAB DETAIL

SCALE: 1"=1'0"

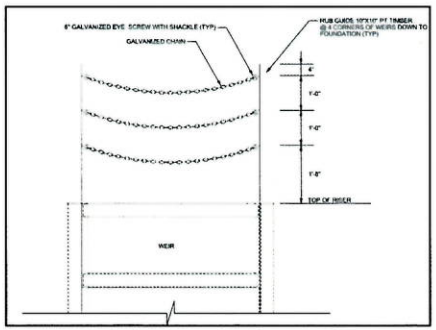


4 TOP VIEW OF RISER STRUCTURE

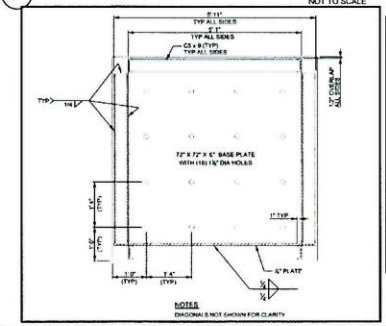
NOTE: ALUMINUM GRATING TO BE PROVIDED. NOT SHOWN FOR CLARITY.



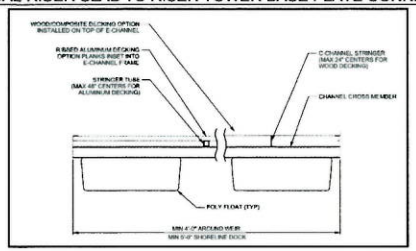
5 TYPICAL RUB GUIDE DETAIL



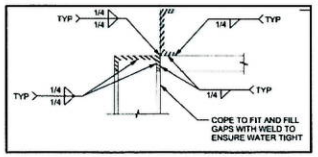
7 CHAIN-RUB GUIDE DETAIL (UPPER SECTION)



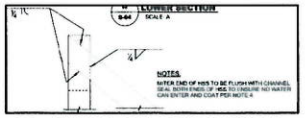
8 TYPICAL RISER SLAB TO RISER TOWER BASE PLATE CONNECTION



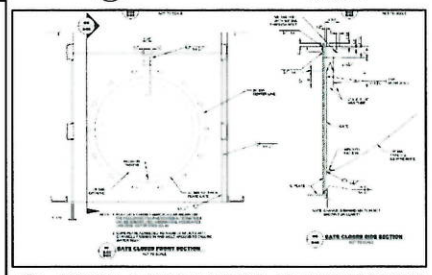
6 TYPICAL DOCK DETAIL SECTION



9 SECTION



10 TYPICAL DIAGONAL SECTION



9 TYPICAL INTERNAL WEIR FLAP GATE SECTIONS

NOTES:

1. WITH THE EXCEPTION OF THE CONCRETE RISER SLAB, THE DETAILS SHOWN ON THIS SHEET WERE PROVIDED BY THE USACE JACKSONSVILLE DISTRICT. THE DETAILS PROVIDED ARE CONCEPTUAL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARING A DETAILED RISER STRUCTURE DESIGN FOR REVIEW BY THE ENGINEER AND OWNER. THE RISER SHALL BE DESIGNED FOR FULL FLOOD AND SEDIMENT LOADING. THE CONTRACTOR'S DESIGN SHALL BE PREPARED BY A PROFESSIONAL ENGINEER LICENSED IN THE COMMONWEALTH OF VIRGINIA WITH EXPERIENCE IN THE DESIGN OF SIMILAR STRUCTURES.
2. THE RISER STRUCTURE SHALL HAVE 5-FOOT BY 5-FOOT INSIDE DIMENSIONS.
3. STRUCTURAL STEEL VERTICAL AND HORIZONTAL MEMBERS SHALL CONSIST OF ADEQUATELY SIZED C-CHANNEL. OTHER FRAMING MEMBERS TO BE STRUCTURAL ANGLES, HSS, BARS AND PLATES AS APPROPRIATE. THE STRUCTURAL STEEL MEMBERS FOR THE RISER STRUCTURE SHALL BE COATED WITH COAL TAR EPOXY.
4. FASTENERS TO BE STAINLESS STEEL TYPE 316 UNLESS OTHERWISE APPROVED.
5. COMPOSITE HOLLOW STOP LOGS SHALL BE PROVIDED FOR ALL FOUR SIDES OF THE RISER FROM EL 40 UP TO EL 53.0. 6-INCH TALL STOP LOGS SHOULD BE PROVIDED FOR 10-FEET OF RISER HEIGHT, 4-INCH HIGH STOP LOGS SHOULD BE PROVIDED FOR 2-FEET OF RISER HEIGHT, AND 2-INCH TALL STOP LOGS SHOULD BE PROVIDED FOR THE REMAINING 1-FOOT. COMPOSITE MEMBERS SHALL BE SIZED FOR PROPOSED HYDROSTATIC AND SEDIMENT LOADING WITH MINIMAL DEFLECTION.
6. 10-IN X 10-IN TIMBER RUB GUIDES SHALL BE PROVIDED FOR FLOATING DOCK AT EACH CORNER OF RISER STRUCTURE. SEE ADDITIONAL DETAILS THIS SHEET.
7. FLOATING DOCKS TO BE PROVIDED AS SHOWN. GANGWAY TO ACCESS RISER WILL BE REQUIRED. ADDITIONAL DESIGN DETAILS / REQUIREMENTS TO BE PROVIDED TO CONTRACTOR UNDER SEPARATE COVER.

DESIGNED BY
DRAWN BY
CHECKED BY
JONATHAN M. PITTMAN, PE
DATE
VIRGINIA PROFESSIONAL ENGINEER 041420

REV	DESCRIPTION	DATE

Schnabel ENGINEERING
11A Oak Branch Drive / Greensboro, NC / 27407
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SURRY POWER STATION
DREDGE MATERIAL MANAGEMENT AREA (DMMA)
VIRGINIA ELECTRIC AND POWER COMPANY
SURRY COUNTY, VIRGINIA

DMMA SPILLWAY RISER DETAILS

Dominion Energy

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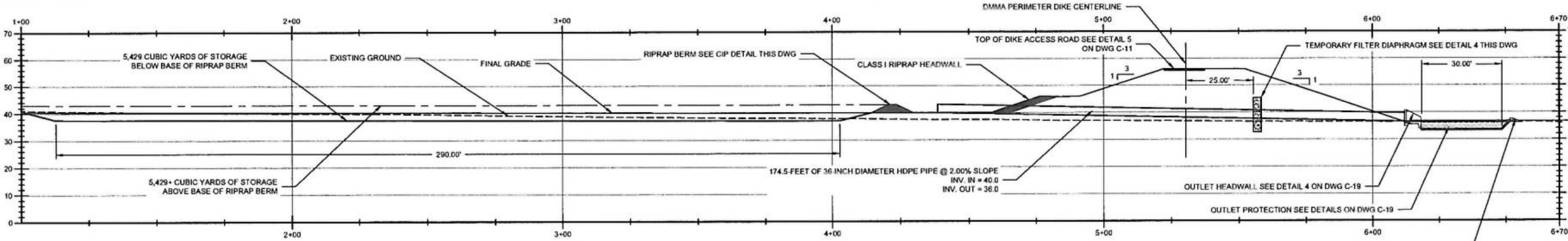
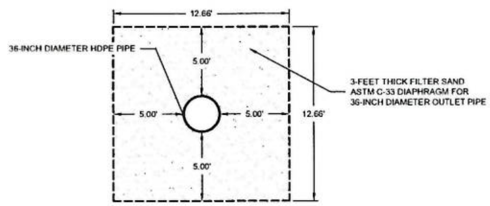
22 OF 24



① CULVERT INLET SEDIMENT BASIN AND OUTLET PIPE PROFILE

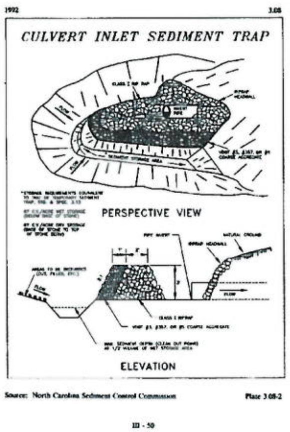
SCALE: 1"=20'

NOTE: CONTRACTOR TO RE-USE THE 36-INCH HDPE PIPE FOR THE CULVERT INLET SEDIMENT TRAP AS THE PERMANENT SPILLWAY OUTLET PIPE. CONTRACTOR TO PROTECT PIPE AS NECESSARY THROUGHOUT THE WORK AND REPLACE IF DAMAGED.



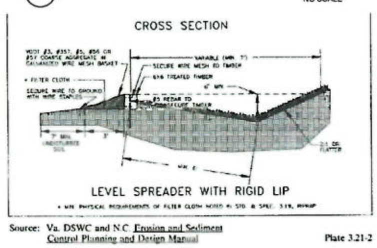
② TEMPORARY FILTER DIAPHRAGM

NO SCALE



CIP CULVERT INLET SEDIMENT TRAP

NO SCALE



Source: Va. DSWC and N.C. Erosion and Sediment Control Planning and Design Manual

Plate 3.21-2

LS LEVEL SPREADER

NO SCALE

TABLE 3.31-B

ACCEPTABLE TEMPORARY SEEDING PLANT MATERIALS

"QUICK REFERENCE FOR ALL REGIONS"

Planting Dates	Species	Rate (lbs./acre)
Sept. 1 - Feb. 15	50/50 Mix of Annual Ryegrass (Lolium multi-florum) & Cereal (Winter) Rye (Secale cereale)	50 - 100
Feb. 16 - Apr. 30	Annual Ryegrass (Lolium multi-florum)	60 - 100
May 1 - Aug 31	German Millet (Setaria italica)	50

Source: Va. DSWC

TS TEMPORARY SEEDING DETAIL

NO SCALE

PS PERMANENT SEEDING DETAIL

NO SCALE

TABLE 3.35-A

ORGANIC MULCH MATERIALS AND APPLICATION RATES

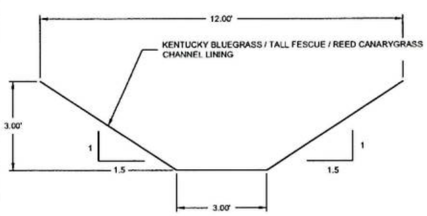
MULCHES	RATES: Per Acre	RATES: Per 1000 sq. ft.	NOTES
Straw or Hay	1½ - 2 tons (Minimum 2 tons for winter cover)	70 - 90 lbs.	Free from weeds and coarse matter. Must be anchored. Spread with mulch blower or by hand.
Fiber Mulch	Minimum 1500 lbs.	35 lbs.	Do not use as mulch for winter cover or during hot, dry periods.* Apply as slurry.
Corn Stalks	4 - 6 tons	185 - 275 lbs.	Cut or shredded in 4-6" lengths. Air-dried. Do not use in fine turf areas. Apply with mulch blower or by hand.
Wood Chips	4 - 6 tons	185 - 275 lbs.	Free of coarse matter. Air-dried. Treat with 12 lbs nitrogen per ton. Do not use in fine turf areas. Apply with mulch blower, chip handler, or by hand.
Bark Chips or Shredded Bark	50 - 70 cu. yds.	1-2 cu. yds.	Free of coarse matter. Air-dried. Do not use in fine turf areas. Apply with mulch blower, chip handler, or by hand.

* When fiber mulch is the only available mulch during periods when straw should be used, apply at a minimum rate of 2000 lbs./ac. or 45 lbs./1000 sq. ft.

Source: Va. DSWC

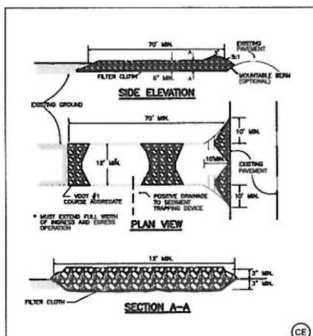
MU MULCHING DETAIL

NO SCALE

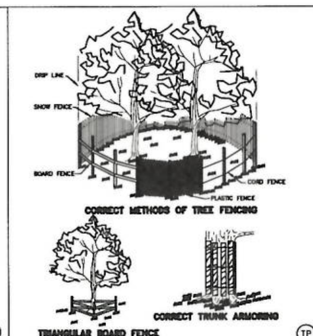


SCC STORMWATER CONVEYANCE CHANNEL

NO SCALE

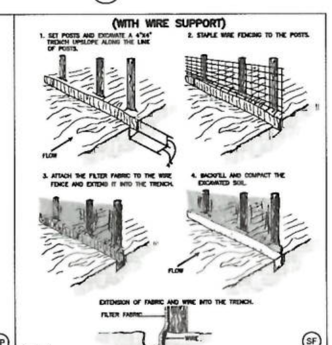


NO SCALE STONE CONSTRUCTION ENTRANCE

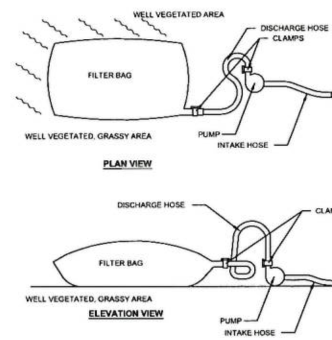


NO SCALE TREE PROTECTION

Source: Va. DSCW



NO SCALE CONSTRUCTION OF A SILT FENCE



DS DEWATERING STRUCTURE

NO SCALE

SURRY POWER STATION
DREDGE MATERIAL MANAGEMENT AREA (DMMA)
VIRGINIA ELECTRIC AND POWER COMPANY
SURRY COUNTY, VIRGINIA

EROSION AND SEDIMENT CONTROL DETAILS

JONATHAN M. PITTMAN, PE
VIRGINIA PROFESSIONAL ENGINEER 041420

DESIGNED BY JMP / AMC
DRAWN BY AMC
CHECKED BY TJF

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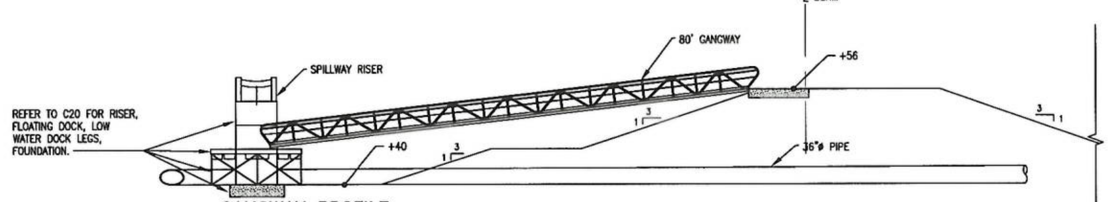
Dominion Energy

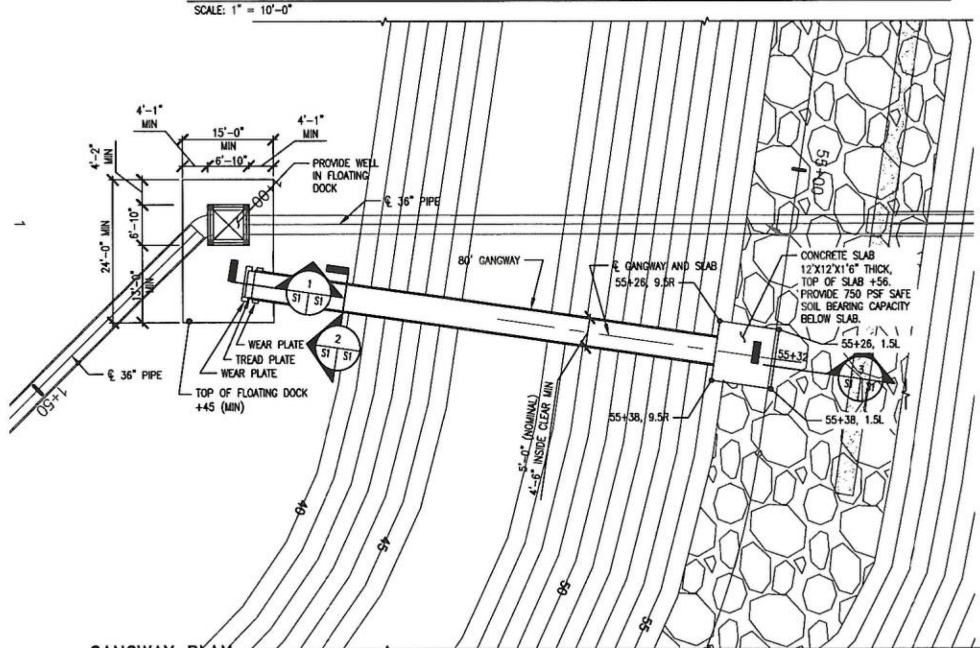
PROJECT: 16C21018.01
DATE: OCTOBER 2017
DRAWING NO. C-21

GANGWAY NOTES:

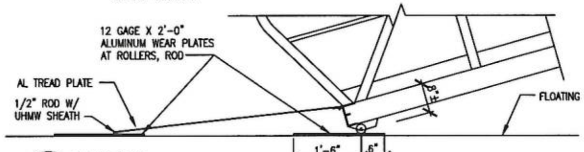
1. DESIGN, FABRICATION AND INSTALLATION OF THE GANGWAYS AND APPURTENANCES SHALL BE IN ACCORDANCE WITH THE, VIRGINIA UNIFORM STATEWIDE BUILDING CODE 2012.
2. THE DETAILS SHOWN ARE PROVIDED TO INDICATE THE GENERAL INTENT OF THE GANGWAYS. THE ACTUAL GANGWAYS FURNISHED AND INSTALLED SHALL BE IN ACCORDANCE WITH THE APPROVED SHOP DRAWINGS AND DESIGN DATA AS PROVIDED AND SUBMITTED BY THE GANGWAY SUPPLIER/ FABRICATOR. GANGWAY AND FLOATING DOCK SUBMITTALS SHALL BE COORDINATED BY THE GENERAL CONTRACTOR.
3. PROVIDE A 50 PSF LIVE LOAD ALLOWANCE IN DESIGN. AS THE GANGWAY PROVIDES ACCESS FOR MAINTENANCE AND OPERATION ONLY, THE GUARDS EACH SIDE SHALL BE 42" TALL WITH TOPRAIL, MIDRAIL AND TOE BOARD CONFIGURED SUCH THAT A 21" SPHERE IS PREVENTED FROM PASSING THROUGH THEM. PROVIDE HANDRAIL EACH SIDE OF GANGWAY.
4. DESIGN, FABRICATION, AND ERECTION SHALL BE IN ACCORDANCE WITH THE ALUMINUM ASSOCIATION, INC. ALUMINUM DESIGN MANUAL (LATEST EDITION).
5. ALUMINUM EXTRUSIONS FOR GANGWAY SHALL BE ALUMINUM ALLOY 6061-T6.
6. STAINLESS STEEL BOLTS AND ANCHOR BOLTS SHALL CONFORM TO ASTM F 593, ALLOY GROUP 2 (TYPE 316). STAINLESS STEEL NUTS SHALL CONFORM TO ASTM F 594. WASHERS SHALL BE OF THE SAME MATERIAL AND FINISH AS THE BOLTS AND NUTS TO WHICH APPLIED.
7. ROLLERS FOR GANGWAYS SHALL BE UHMWP POLYETHYLENE WITH BLACK ULTRAVIOLET LIGHT INHIBITOR ADDED.
8. HOLES TO BE MADE IN ALUMINUM SHALL BE DRILLED OR PUNCHED. FLAME CUTTING OR ENLARGEMENT OF HOLES SHALL NOT BE PERMITTED.
9. FIELD CONNECTIONS SHALL BE MADE WITH STAINLESS STEEL BOLTS UNLESS OTHERWISE NOTED. FIELD WELDING WILL BE PERMITTED ONLY WHEN SPECIFICALLY SHOWN ON THE APPROVED SHOP DRAWINGS.
10. ALL WELDED FABRICATION UNLESS OTHERWISE NOTED. WELDING SHALL BE IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY (AWS) STRUCTURAL WELDING CODE-ALUMINUM, AWS D1.2. ALL SHOP CONNECTIONS SHALL BE WELDED.
11. SUBMIT SHOP DRAWINGS, DESIGN CALCULATIONS, MANUFACTURER'S CATALOG DATA, AND MATERIAL CERTIFICATES OF COMPLIANCE FOR REVIEW PRIOR TO FABRICATION. CALCULATIONS AND SHOP DRAWINGS SHALL BE PREPARED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED TO PRACTICE IN THE COMMONWEALTH OF VIRGINIA.
12. GANGWAY SHALL HAVE AN ALUMINUM DECK THAT PROVIDES A NONSLIP WALKING SURFACE.



GANGWAY PROFILE
SCALE: 1" = 10'-0"



GANGWAY PLAN
SCALE: 1" = 10'-0"



1 S1 | S1 SECTION
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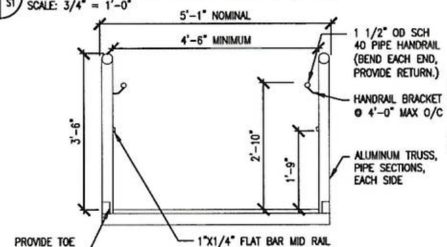

2 S1 | S1 SECTION
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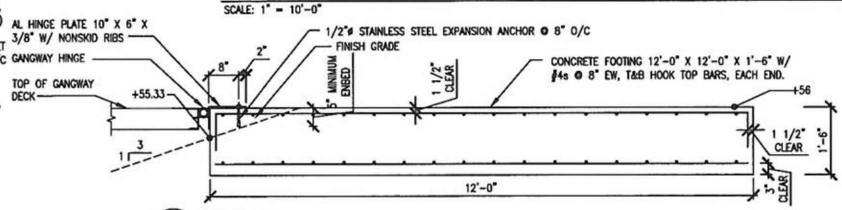

3 S1 | S1 SECTION
SCALE: 3/4" = 1'-0"

GRAPHIC SCALES
1" = 10' — 0' 10' 20' 30' 40' 50'
3/4" = 1'-0" — 1' 6" 0' 1' 2' 3' 4'

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STRUCTURAL ENGINEERING

COMMONWEALTH OF VIRGINIA — JAN M. HARRIS Lic. No. 13755 — 9/6/17 — PROFESSIONAL ENGINEER

Dominion Energy

SURRY POWER STATION
DREDGE MATERIAL MANAGEMENT AREA (DMMA)
VIRGINIA ELECTRIC AND POWER COMPANY

SURRY VIRGINIA

MARK	DATE	DESCRIPTION
	SEPT 2017	

CLIENT PROJECT NO:	2478
CAD DWG FILE:	
DRAWN BY:	JDH
CHECKED BY:	JMH

SHEET TITLE
GANGWAY PLAN

S-1
SHEET 1 OF 1