EROSION & SEDIMENT CONTROL NARRATIVE

I. PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS FOR THE RENOVATION OF THE EXISTING BUILDING, CONSTRUCTION OF A BOAT MAINTENANCE FACILITY, AND FLEXIBLE STORAGE AREA ON BOOKER T WASHINGTON HIGHWAY (STATE ROUTE 122). THIS PROJECT INCLUDES RECONFIGURED PARKING, LANDSCAPING, AND STORMWATER MANAGEMENT. DISTURBED AREA IS 4.76 ACRES.

II. EXISTING SITE CONDITIONS

THE SITE IS LOCATED ON BOOKER T WASHINGTON HIGHWAY (STATE ROUTE 122), PARCEL 0300000103I. THE SITE CONSISTS OF AN EXISTING BUILDING WITH PRIVATE SEPTIC SYSTEM, PARKING AREA, STORMWATER MANAGEMENT POND, AND A WOODED AREA TO THE NORTH WITH A PORTION LEASED FOR A CONSTRUCTED CELL TOWER. THE SITE DRAINS TO THE WEST TO INDIAN CREEK UT (XOM) AND TO THE EAST AND NORTH TO A TRIBUTARY OF INDIAN CREEK UT (XOM).

III. ADJACENT PROPERTIES

DIRECTLY TO THE NORTH IS VACANT AGRICULTURAL LAND (PARCEL ID 0300000200). TO THE EAST ARE TWO (2) VACANT COMMERCIAL LAND PROPERTIES, LOCATED AT PARCEL ID 0300000103BB & 0300000103J, AND PARKCREST DRIVE. TO THE WEST IS VACANT COMMERCIAL LAND LOCATED AT PARCEL ID 0300000102. TO THE SOUTH IS BOOKER T WASHINGTON HWY (VA-122).

IV. SOILS

ACCORDING TO THE USDA SCS SOIL MAPPING, THE PROJECT SITE LIES ON SOIL TYPE CLIFFORD FINE SANDY LOAM. MAPPING UNIT (7C), IS A CLIFFORD FINE SANDY LOAM WITH 8 TO 15 PERCENT SLOPES. SOILS ARE WELL DRAINED AND MOSTLY HILLSLOPES. THESE SOILS FALL UNDER HYDROLOGIC GROUP B SOILS. MAPPING UNIT (7D) IS A CLIFFORD FINE SANDY LOAM WITH 15 TO 25 PERCENT SLOPES. SOILS ARE VERY WELL DRAINED AND MOSTLY HILLSLOPES. BOTH THESE SOILS HAVE A KSAT VALUE OF 0.57 TO 1.98.

V. CRITICAL AREAS*

(7C) AND (7D) SOILS WITHIN THE SITE DISTURBANCE HAVE A KSAT VALUE OF 0.57 TO 1.98. CARE SHALL BE TAKEN TO STABILIZE ALL SLOPES AND PREVENT EROSION. CARE SHALL ALSO BE TAKEN TO MINIMIZE THE TRANSPORT OF SEDIMENT ONTO ADJACENT PROPERTIES AND DRAINAGE WAYS.

VI. EROSION AND SEDIMENT CONTROL MEASURES

ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED BY THE CONTRACTOR IN ACCORDANCE WITH THE LATEST EDITION OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK. SYMBOLS, DETAILS, AND DIMENSIONS USED ARE TAKEN FROM THE HANDBOOK, AS WELL AS THE VIRGINIA DEPARTMENT OF TRANSPORTATION'S ROAD AND BRIDGE STANDARDS, LATEST VOLUME.

VIII. OWNER RESPONSIBLE FOR MAINTENANCE AND IMPLEMENTATION

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A. STRUCTURAL PRACTICES

(CE) 1. CONSTRUCTION ENTRANCE (CE), SPEC 3.02, A TEMPORARY CONSTRUCTION ENTRANCE SHALL BE INSTALLED WHERE SHOWN TO REDUCE THE AMOUNT OF MUD TRANSPORTED ONTO PAVED PUBLIC ROADS BY MOTOR VEHICLES OR RUNOFF.

(IP) 2. INLET PROTECTION (IP), SPEC 3.07, INLET PROTECTION SHALL BE PROVIDED WHERE SHOWN TO PREVENT SEDIMENT FROM ENTERING STORM DRAINAGE SYSTEMS PRIOR TO PERMANENT STABLIZATION OF THE DISTURBED AREA.

(OP) 3. OUTLET PROTECTION (OP), SPEC 3.18, OUTLET PROTECTION SHALL BE PROVIDED WHERE SHOWN TO PREVENT SCOUR AT STORMWATER OUTLETS, TO PROTECT THE OUTLET STRUCTURE, AND TO MINIMIZE THE POTENTIAL FOR DOWNSTREAM EROSION BY REDUCING THE VELOCITY AND ENERGY OF CONCENTRATED STORMWATER FLOWS.

(SF) 4. SILT FENCE (SF), SPEC 3.05, SILT FENCE BARRIERS SHALL BE PROVIDED WHERE SHOWN AND AS NEEDED TO PREVENT SEDIMENT FROM LEAVING THE SITE.

(SCC) 5. STORMWATER CONVEYANCE CHANNEL (SCC); SPEC 3.17; STORMWATER CONVEYANCE CHANNEL SHALL BE INSTALLED WHERE SHOWN TO PROVIDE FOR THE CONVEYANCE OF CONCENTRATE RUNOFF WATER TO A RECEIVING CHANNEL OR SYSTEM WITHOUT DAMAGE FROM EROSION.

(CRS) 6. CONSTRUCTION ROAD STABILIZATION (CRS) SPEC 3.03; CONSTRUCTION ROAD STABILIZATION WILL BE INSTALLED WHERE SHOWN TO REDUCE THE EROSION OF TEMPORARY ROADBEDS BY CONSTRUCTION TRAFFIC DURING WET WEATHER, AND TTO REDUCE THE EROSION AND SUBSEQUENT REGRADING OF PERMANENT ROADBEDS BETWEEN THE TIME OF INITIAL GRADING AND FINAL STABILIZATION.

(CIP) 7. CULVERT INLET PROTECTION (CIP); SPEC 3.08; CULVERT INLET PROTECTION SHALL BE INSTALLED WHERE SHOWN TO PREVENT SEDIMENT FROM ENTERING, ACCUMULATING IN AND BEING TRANSFERRED BY A CULVERT AND ASSOCIATED DRAINAGE SYSTEM PRIOR TO PERMANENT STABILIZATION OF A DISTURBED PROJECT AREA.

(CD) 8. CHECK DAM (CD), SPEC 3.20; CHECK DAM SHALL BE INSTALLED WHERE SHOWN TO REDUCE VELOCITY OF CONCENTRATED STORMWATER FLOWS, THEREFORE REDUCING EROSION OF THE SWALE OR DITCH.

B. VEGETATIVE PRACTICES

(TS) 1. TEMPORARY SEEDING (TS), SPEC 3.31; TEMPORARY SEEDING SHALL BE APPLIED TO REDUCE EROSION AND SEDIMENTATION BY STABILIZING DISTURBED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR A PERIOD OF MORE THAN 14 DAYS. TEMPORARY SEEDING SCHEDULE SHOULD FOLLOW THE APPROPRIATE PLANTING SCHEDULE FOR THE TIME OF YEARS IN WHICH CONSTRUCTION OCCURS. SEE SHEET C-6 FOR TEMPORARY SEEDING SCHEDULE.

(PS) 2. PERMANENT SEEDING (PS), SPEC 3.32; PERMANENT SEEDING SHALL BE PROVIDED AND APPLIED AS SHON ON THE SEEDING SCHEDULE FOR ALL DISTURBED AREAS TO PREMANENTLY STABILIZE PERVIOUS AREAS AT FINAL GRADE. SEE SHEET C-6 FOR PERMANENT SEEDING SCHEDULE.

(MU) 3. MULCHING (MU), SPEC 3.35; MULCHING SHALL BE APPLIED IN CONJUNCTION WITH PERMANENT SEEDING TO HELP FOSTER THE GROWTH OF VEGETATION AND PREVENTING RAINDROP EROSION AND VELOCITY OF OVERLAND FLOW.

C. MANAGEMENT STRATEGIES

1. CONSTRUCTION SHALL BE PLANNED SO THAT GRADING OPERATIONS CAN BEGIN AND END AS SOON AS POSSIBLE.

2. DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE CONTRACTOR IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE AS WELL AS BORROW AREAS AND SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE. ANY SOIL STOCKPILES SHALL BE TEMPORARILY SEEDED AFTER COMPLETION OF STRIPPING AND BE PROVIDED WITH SILT FENCES ON THE LOWER SIDE OF THE STOCKPILE.

3. EROSION CONTROL PRACTICES SHALL BE INSTALLED AND FUNCTIONAL PRIOR TO PROCEEDING WITH CONSTRUCTION ACTIVITIES. MEASURES SHALL BE SEEDED AND STRAW MULCHED IMMEDIATELY AFTER INSTALLATION.

4. DISTURBED AREAS ON ANY PORTION OF THE SITE SHALL RECEIVE TEMPORARY OR PERMANENT SEEDING WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DISTURBED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 30 DAYS.

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL PRACTICES.

6. STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES IMMEDIATELY AFTER INSTALLATION.

7. A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION.

8. CUT AND FILL SLOPES FOUND TO BE ERODING EXCESSIVELY WITHIN ONE YEAR OF PERMANENT STABILIZATION SHALL BE PROVIDED WITH ADDITIONAL SLOPE STABILIZATION MEASURES UNTIL THE PROBLEM IS CORRECTED. CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE. WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.

9. WHERE CONSTRUCTION VEHICLES USE PAVED OR PUBLIC ROADS, PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICULAR TRAFFIC. CONSTRUCTION VEHICLES SHALL ACCESS THE PROJECT SITE BY USE OF THE CONSRUCTION ENTRANCES AS SHOWN ON THE PLANS.

10. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WHEN THE TEMPORARY MEASURES ARE NO LONGER NEEDED, OR WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION, UNLESS OTHERWISE AUTHORIZED BY THE LOCAL PROGRAM AUTHORITY.

D. MAINTENANCE:

ALL EROSION AND SEDIMENT CONTROL STRUCTURES AND SYSTEMS SHALL BE MAINTAINED, INSPECTED, AND REPAIRED AS NEEDED TO ENSURE CONTINUOUS PERFORMANCE OF THEIR INTENDED FUNCTION. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED AT THE END OF EACH DAY AND AFTER EVERY RAINFALL EVENT.

1. DAMAGE TO EROSION CONTROL MEASURES CAUSED BY CONSTRUCTION TRAFFIC OR OTHER ACTIVITIES SHALL BE REPAIRED BEFORE THE END OF EACH WORKING DAY.

2. MAINTAIN ALL SEEDED AREAS UNTIL A UNIFORM STAND IS ACCEPTED.

3. (SPEC. 3.02) PROVIDE FOR EQUIPMENT WASHING AS NEEDED TO PREVENT THE TRANSPORT OF SOIL ONTO EXISTING ASHPHALT ROADWAYS. ANY SEDIMENT ON THE PAVEMENT SHALL BE REMOVED IMMEDIATELY. (SPEC. 3.05) SILT FENCE BARRIERS WILL BE CHECKED DAILY FOR UNDERMINING OR DETERIORATION OF THE FABRIC. SEDIMENT SHALL BE REMOVED WHEN THE LEVEL REACHES HALF WAY TO THE TOP OF THE BARRIER.

4. (SPEC. 3.13) 1.) SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO IT'S ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE HALF THE DESIGN VOLUME OF THE WET STORAGE. SEDIMENT REMOVAL FROM THE BASIN SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH MANNER THAT IT WILL NOT ERODE AND CAUSE SEDIMENTATION PROBLEMS. 2.) FILTER STONE SHALL BE REGULARLY CHECKED TO ENSURE THAT FILTRATION PERFORMANCE IS MAINTAINED. STONE CHOKED WITH SEDIMENT SHALL BE REMOVED AND CLEANED OR REPLACED. 3.) THE STRUCTURE SHOULD BE CHECKED REGULARLY TO ENSURE THAT IT IS STRUCTURALLY SOUND AND HAS NOT BEEN DAMAGED BY EROSION OR CONSTRUCTION EQUIPMENT. THE HEIGHT OF THE STONE OUTLET SHOULD BE CHECKED TO ENSURE THAT IT'S CENTER IS AT LEAST 1 FOOT BELOW THE TOP OF THE EMBANKMENT.

5. A CLEAN-OUT LEVEL INDICATOR MUST BE ADDED IN THE SEDIMENT TRAP (ST), AS A VISIBLE INDICATOR SHOWING WHEN THE TRAP NEEDS TO BE CLEANED OUT (WHEN SEDIMENT HAS ACCUMULATED TO ONE-HALF THE DESIGN VOLUME OF THE WET STORAGE).

E. MINIMUM STANDARDS:

Y N N/A

[X] [ ] [ ] MS-1. STABILIZATION OF DENUDED AREAS:
PERMANENET OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE, BUT WILL REMAIN DORMANT OR UNDISTURBED FOR LONGER THAN 30 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.

[X] [ ] [ ] MS-2. STABILIZATION OF SOIL STOCKPILES:
DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE APPLICANT IS RESPONSIBLE FOR TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL STOCKPILES ON SITE AS WELL AS BORROW AREAS AND SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.

[X] [ ] [ ] MS-3. PERMANENT VEGETATIVE COVER:
A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT, IN THE OPINION OF THE E&S INSPECTOR, IS UNIFORM AND MATURE ENOUGH TO SURVIVE AND INHIBIT EROSION.

[X] [ ] [ ] MS-4. TIMING AND STABILIZATION OF SILT TRAPPING MEASURES:
SEDIMENT BASINS AND TRAPS, STORM INLET PROTECTION, SILT FENCING, AND OTHER MEASURES INTEDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND DISTURBING ACTIVITIY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE.

[X] [ ] [ ] MS-5. TIMING AND STABILIZATOIN OF EARTHEN STRUCTURES:
STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.

[ ] [ ] [X] MS-6. SEDIMENT BASINS AND TRAPS:
SEDIMENT TRAPS AND BASINS SHALL BE CONSTRUCTED BASED ON THE TOTAL DRAINAGE AREA TO BE SERVED.
A. THE MINIMUM CAPACITY OF A SEDIMENT BASIN SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA, AND SHALL CONTROL A DRAINAGE AREA OF LESS THAN THREE ACRES.
B. THE MINIMUM CAPACITY OF A SEDIMENT BASIN SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA, AND SHALL CONTROL A DRAINAGE AREA OF THREE ACRES OR GREATER.

[X] [ ] [ ] MS-7. CUT AND FILL SLOPES:
CUT AND FILL SLOPES SHALL BE CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES THAT ARE FOUND TO BE ERODING EXCESSIVELY WITHIN ONE YEAR OF PERMANENT STABILIZATION SHALL BE PROVIDED WITH ADDITIONAL SLOPE STABILIZING MEASURES UNITL THE PROBLEM IS CORRECTED.

[ ] [ ] [X] MS-8. CONCENTRATED RUNOFF DOWN CUT OR FILL SLOPES:
CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLES CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE.

[X] [ ] [ ] MS-9. WATER SEEPAGE FROM A SLOPE FACE:
WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.

[X] [ ] [ ] MS-10. STORM SEWER INLET PROTECTION:
ALL STORM SEWER INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT-LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT.

[X] [ ] [ ] MS-11. STABILIZATION OF OUTLETS:
BEFORE NEWLY CONSTRUCTED STORM WATER CONVEYANCE CHANNELS OR PIPES ARE MADE OPERATIONAL, ADEQUATE OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT CHANNEL LINING SHALL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND RECEIVING CHANNEL.

[ ] [ ] [X] MS-12. WORK IN A LIVE WATERCOURSE:
WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED, PRECAUTIONS SHALL BE TAKEN TO MINIMIZE ENCROACHMENT, CONTROL SEDIMENT TRANSPORT AND STABILIZE THE WORK AREA TO THE GREATEST EXTENT POSSIBLE DURING CONSTRUCTION. NON-ERODABLE MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF CAUSEWAYS AND COFFERDAMS. EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF ARMORED BY NON-ERODABLE COVER MATERIALS.

[ ] [ ] [X] MS-13. CROSSING A LIVE WATERCOURSE:
WHEN A LIVE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES MORE THAN TWICE IN ANY SIX MONTH PERIOD, A TEMPORARY VEHICULAR STREAM CROSSING CONSTRUCTED OF NON-ERODABLE MATERIALS SHALL BE PROVIDED.

[ ] [ ] [X] MS-14. APPLICABLE REGULATIONS:
ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE MET.

[ ] [ ] [X] MS-15. STABILIZATION OF BED AND BANKS:
THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED.

[X] [ ] [ ] MS-16. UNDERGROUND UTILITIES:
UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS, IN ADDITION TO OTHER APPLICABLE CRITERIA:
A. NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.
B. WHERE CONSISTENT WITH SAFETY AND SPACE CONSIDERATIONS, EXCAVATED MATERIAL IS TO BE PLACED ON THE UPHILL SIDE OF TRENCHES, EXCEPT FOR ANY DIVERSION DITCHES.
C. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFFSITE PROPERTY.
D. TRENCH BACKFILL MATERIAL SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.
E. RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THESE REGULATIONS.
F. ALL APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH AT ALL TIMES.

[X] [ ] [ ] MS-17. CONSTRUCTION ACCESS ROUTES:
WHERE CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED OR PUBLIC ROADS, PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICULAR TRACKING ONTO THE PAVED SURFACE. WHERE SEDIMENT IS TRANSPORTED ONTO A PAVED OR PUBLIC ROAD, THE ROAD SURFACE SHALL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED BY SHOVELING OR SWEEPING AND TRANSPORTED TO A SEDIMENT DISPOSAL AREA. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER. THIS PROVISION SHALL APPLY TO INDIVIDUAL DEVELOPMENT LOTS AS WELL AS TO LARGER LAND-DISTURBING ACTIVITIES.

[X] [ ] [ ] MS-18. TEMPORARY E&S CONTROL MEASURE REMOVAL:
ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER TEMPORARY MEASURES ARE NO LONGER NEEDED, UNLESS OTHERWIZE AUTHORIZED BY THE LOCAL E&S AUTHORITY. TRAPPED SEDIMENT AND THE DISTURBED SOIL AREAS RESULTING FROM THE DISPOSITION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.

[X] [ ] [ ] MS-19. DOWNSTREAM AND PROPERTY PROTECTION:
PROPERTIES AND WATERWAYS DOWNSTREAM FROM DEVELOPMENT SITES SHALL BE PROTECTED FROM SEDIMENT DEPOSITION EROSION AND DAMAGE DUE TO INCREASES IN VOLUME, VELOCITY AND PEAK FLOW RATES OF STORM WATER RUNOFF FOR THE STATED FREQUENCY STORM OF 24-HOUR DURATION IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND CRITERIA. STREAM RESTORATION AND RELOCATION PROJECTS THAT INCORPORATE NATURAL CHANNEL DESIGN CONCEPTS ARE NOT MAN-MADE CHANNELS AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS:
a. CONCENTRATED STORMWATER RUNOFF LEAVING A DEVELOPMENT SITE SHALL BE DISCHARGED DIRECTLY INTO AN ADEQUATE NATURAL OR MAN-MADE RECEIVING CHANNEL, PIPE OR STORM SEWER SYSTEM. FOR THOSE SITES WHERE RUNOFF IS DISCHARGED INTO A PIPE OR PIPE SYSTEM, DOWNSTREAM STABILITY ANALYSES AT THE OUTFALL OF THE PIPE OR PIPE SYSTEM SHALL BE PERFORMED.
b. ADEQUACY OF ALL CHANNELS AND PIPES SHALL BE VERIFIED IN THE FOLLOWING MANNER:
(1) THE APPLICANT SHALL DEMONSTRATE THAT THE TOTAL DRAINAGE AREA TO THE POINT OF ANALYSIS WITHIN THE CHANNEL IS ONE HUNDRED TIMES GREATER THAN THE CONTRIBUTING DRAINAGE AREA OF THE PROJECT IN QUESTION; OR
(2) (a) NATURAL CHANNELS SHALL BE ANALYZED BY THE USE OF A TWO-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP CHANNEL BANKS NOR CAUSE EROSION OF CHANNEL BED OR BANKS.
(b) ALL PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS SHALL BE ANALYZED BY THE USE OF A 10-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP ITS BANKS AND BY THE USE OF A TWO-YEAR STORM TO DEMONSTRATE THAT STORMWATER WILL NOT CAUSE EROSION OF CHANNEL BED OR BANKS; AND
(c) PIPES AND STORM SEWER SYSTEMS SHALL BE ANALYZED BY THE USE OF A 10-YEAR STORM TO VERIFY THAT STORMWATER WILL BE CONTAINED WITHIN THE PIPE OR SYSTEM.
c. IF EXISTING NATURAL RECEIVING CHANNELS OR PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS OR PIPES ARE NOT ADEQUATE, THE APPLICANT SHALL:
(1) IMPROVE THE CHANNELS TO A CONDITION WHERE A 10-YEAR STORM WILL NOT OVERTOP THE BANKS AND A TWO-YEAR STORM WILL NOT CAUSE EROSION TO THE CHANNEL, THE BED, OR THE BANKS; OR
(2) IMPROVE THE PIPE OR PIPE SYSTEM TO A CONDITION WHERE THE 10-YEAR STORM IS CONTAINED WITHIN THE APPURTENANCES;
(3) DEVELOP A SITE DESIGN THAT WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A TWO-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A NATURAL CHANNEL OR WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A 10-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A MAN-MADE CHANNEL; OR
(4) PROVIDE A COMBINATION OF CHANNEL IMPROVEMENT, STORMWATER DETENTION OR OTHER MEASURES WHICH IS SATISFACTORY TO THE VESCP AUTHORITY TO PREVENT DOWNSTREAM EROSION.
d. THE APPLICANT SHALL PROVIDE EVIDENCE OF PERMISSION TO MAKE THE IMPROVEMENTS.
e. ALL HYDROLOGIC ANALYSES SHALL BE BASED ON THE EXISTING WATERSHED CHARACTERISTICS AND THE ULTIMATE DEVELOPMENT CONDITION OF THE SUBJECT PROJECT.
f. IF THE APPLICANT CHOOSES AN OPTION THAT INCLUDES STORMWATER DETENTION, HE SHALL OBTAIN APPROVAL FROM THE VESCP OF A PLAN FOR MAINTENANCE OF THE DETENTION FACILITIES. THE PLAN SHALL SET FORTH THE MAINTENANCE REQUIREMENTS OF THE FACILITY AND THE PERSON RESPONSIBLE FOR PERFORMING THE MAINTENANCE.
g. OUTFALL FROM A DETENTION FACILITY SHALL BE DISCHARGED TO A RECEIVING CHANNEL, AND ENERGY DISSIPATORS SHALL BE PLACED AT THE OUTFALL OF ALL DETENTION FACILITIES AS NECESSARY TO PROVIDE A STABILIZED TRANSITION FROM THE FACILITY TO THE RECEIVING CHANNEL.
h. ALL ON-SITE CHANNELS MUST BE VERIFIED TO BE ADEQUATE.
i. INCREASED VOLUMES OF SHEET FLOWS THAT MAY CAUSE EROSION OR SEDIMENTATION ON ADJACENT PROPERTY SHALL BE DIVERTED TO A STABLE OUTLET, ADEQUATE CHANNEL, PIPE OR PIPE SYSTEM, OR TO A DETENTION FACILITY.
j. IN APPLYING THESE STORMWATER MANAGEMENT CRITERIA, INDIVIDUAL LOTS OR PARCELS IN A RESIDENTIAL, COMMERCIAL OR INDUSTRIAL DEVELOPMENT SHALL NOT BE CONSIDERED TO BE SEPARATE DEVELOPMENT PROJECTS. INSTEAD, THE DEVELOPMENT, AS A WHOLE, SHALL BE CONSIDERED TO BE A SINGLE DEVELOPMENT PROJECT. HYDROLOGIC PARAMETERS THAT REFLECT THE ULTIMATE DEVELOPMENT CONDITION SHALL BE USED IN ALL ENGINEERING CALCULATIONS.
k. ALL MEASURES USED TO PROTECT PROPERTIES AND WATERWAYS SHALL BE EMPLOYED IN A MANNER WHICH MINIMIZES IMPACTS ON THE PHYSICAL, CHEMICAL AND BIOLOGICAL INTEGRITY OF RIVERS, STREAMS AND OTHER WATERS OF THE STATE.
l. ANY PLAN APPROVED PRIOR TO JULY 1, 2014, THAT PROVIDES FOR STORMWATER MANAGEMENT THAT ADDRESSES ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS SHALL SATISFY THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS IF THE PRACTICES ARE DESIGNED TO (I) DETAIN THE WATER QUALITY VOLUME AND TO RELEASE IT OVER 48 HOURS; (II) DETAIN AND RELEASE OVER A 24-HOUR PERIOD THE EXPECTED RAINFALL RESULTING FROM THE ONE YEAR, 24-HOUR STORM; AND (III) REDUCE THE ALLOWABLE PEAK FLOW RATE RESULTING FROM THE 1.5, 2, AND 10-YEAR, 24-HOUR STORMS TO A LEVEL THAT IS LESS THAN OR EQUAL TO THE PEAK FLOW RATE FROM THE SITE ASSUMING IT WAS IN A GOOD FORESTED CONDITION, ACHIEVED THROUGH MULTIPLICATION OF THE FORESTED PEAK FLOW RATE BY A REDUCTION FACTOR THAT IS EQUAL TO THE RUNOFF VOLUME FROM THE SITE WHEN IT WAS IN A GOOD FORESTED CONDITION DIVIDED BY THE RUNOFF VOLUME FROM THE SITE IN ITS PROPOSED CONDITION, AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS AS DEFINED IN ANY REGULATIONS PROMULGATED PURSUANT TO § 62.1-44.15:54 OR 62.1-44.15:65 OF THE ACT.
m. FOR PLANS APPROVED ON AND AFTER JULY 1, 2014, THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS OF § 62.1-44.15:52 A OF THE ACT AND THIS SUBSECTION SHALL BE SATISFIED BY COMPLIANCE WITH WATER QUANTITY REQUIREMENTS IN THE STORMWATER MANAGEMENT ACT (§ 62.1-44.15:24 ET SEQ. OF THE CODE OF VIRGINIA) AND ATTENDANT REGULATIONS, UNLESS SUCH LAND-DISTURBING ACTIVITIES ARE IN ACCORDANCE WITH 9VAC25-870-48 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) REGULATION OR ARE EXEMPT PURSUANT TO SUBDIVISION C 7 OF § 62.1-44.15:34 OF THE ACT.
n. COMPLIANCE WITH THE WATER QUANTITY MINIMUM STANDARDS SET OUT IN 9VAC25-870-66 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) REGULATION SHALL BE DEEMED TO SATISFY THE REQUIREMENTS OF THIS SUBDIVISION 19.

F. OFFSITE AREAS

SHOULD IT BECOME NECESSARY TO BORROW OR EXPORT MATERIAL OFFSITE - IT MUST BE TO OR FROM AN APPROVED LOCATION.

STORMWATER MANAGEMENT NARRATIVE

I. PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO CONSTRUCT A BOAT MAINTENANCE FACILITY WITH A GRAVEL OUTDOOR STORAGE AREA.

II. HYDROLOGICAL ANALYSIS

A DETENTION POND IS PROPOSED AT THE EASTERN SIDE OF THE SITE TO MANAGE RUNOFF FROM THE PROPOSED BUILDINGS AND OUTDOOR AREA. PRE AND POST DEVELOPMENT RUNOFF RATES WERE COMPUTED FOR THE 1, 2, 10, 25, AND 100 YEAR STORM EVENTS UTILIZING THE SCS METHOD AND FRANKLIN COUNTY, VA (SITE) NOAA ATLAS 14 RAINFALL PRECIPITATION FREQUENCY DATA. HYDRAFLOW SOFTWARE WAS UTILIZED FOR ROUTING CALCULATIONS FOR THE STORM SEWER SYSTEM AND DETENTION POND.

III. DRAINAGE AREA CHARACTERISTICS

PRE-DEVELOPMENT CONDITIONS DISCHARGE PRIMARILY TO THE EAST WITH OUTER EDGES OF THE SITE DISCHARGING TO THE NORTH, NORTHEAST, AND NORTHWEST. THE EXISTING SITE HAS A BUILDING WITH ADJACENT PAVED PARKING AREA AND GRASSED AREA WITH SOME TREES.

IV. TIME OF CONCENTRATION

TIME OF CONCENTRATION WAS ANALYZED USING TR-55 METHODS. IT WAS DETERMINED THAT THE TIME OF CONCENTRATION FOR PRE-DEVELOPMENT AND POST DEVELOPMENT DRAINAGE AREAS WERE LESS THAN 5.0 MINUTES. A TIME OF CONCENTRATION OF 5 MINUTES WAS USED TO CALCULATE RUNOFF.

V. PRE AND POST DEVELOPMENT PEAK RUNOFF RATES

DETAILS OF PRE AND POST DEVELOPMENT RUNOFF RATES ARE OUTLINED IN THE DRAINAGE TABLES WITH SUPPORTING HYDROGRAPH DOCUMENTATION FOR RUNOFF ANALYSIS. CALCULATIONS SHOW A NET REDUCTION IN RUNOFF AFTER ROUTING THROUGH THE PROPOSED DETENTION POND FOR THE 1, 2, 10, 25, AND 100 YEAR STORMS. SEE TABLES FOR SUMMARY AND HYDRAFLOW ROUTING CALCULATIONS FOR DOCUMENTATION.

VI. HYDRAULIC ANALYSIS

THE POST DEVELOPMENT DISCHARGES AT POA 1 FOR THE 1, 2, 10, 25, AND 100 YEAR STORMS ARE LESS THAN THE PRE DEVELOPMENT DISCHARGE RATES AND THE 1 YEAR STORM MEETS ENERGY BALANCE. THE RUNOFF TO THE REMAINING POA'S ARE MINIMAL IN AREA AND DISCHARGE AS NON-EROSIVE SHEET FLOW. FLOWS WERE ANALYZED AT EACH LOCATION AND RUNOFF WAS NOT INCREASED TO ANY OF THE POAS.

VII. WATER QUALITY

VRRM CALCULATIONS ARE INCLUDED ON SHEET C-14. VRRM CALCULATIONS SHOW A TOTAL PHOSPHOROUS LOAD REDUCTION REQUIRED OF 4.25 LBS/YEAR. 2.60 ACRES OF AREA WILL BE CONSERVED AS SHOWN ON SHEET C-19 WHICH WILL OFFSET 0.89 LBS/YEAR. THE REMAINING 3.36 LBS/YEAR WILL BE PURCHASED WITH CREDITS FROM AN APPROVED VIRGINIA NUTRIENT BANK.

ACCUPOINT
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SITE DEVELOPMENT PLAN
FOR
ROCK OUTDOOR
71 PARKCREST DRIVE
FRANKLIN COUNTY, VIRGINIA

COMMONWEALTH OF VIRGINIA
AMY K. IGARTA-SEIPP
Lic. No. 036952
11/02/23
PROFESSIONAL ENGINEER

REVISION/DATE
PER WVWA COMMENTS: 05/05/2023
PER COUNTY COMMENTS: 05/17/2023
PER COUNTY COMMENTS: 11/02/2023

ASD JOB #:	2022-678
FILE #:	2022-678 SITE
PARCEL ID:	0300000103I; 0300000103
DATE:	SEPTEMBER 13, 2023

C-11
EROSION AND SEDIMENT CONTROL AND STORMWATER NARRATIVE