

RI DEM FRESHWATER WETLAND ALTERATION & SUBDIVISION SUITABILITY APPLICATION PLAN

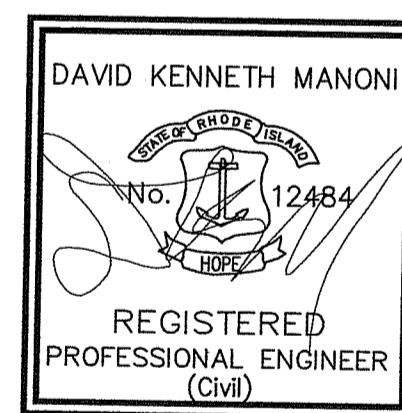
FOR

"HILLSIDE ESTATES"

A.P. 52, LOTS 12, 13, 23, & 24
EAST WALLUM LAKE ROAD
BURRILLVILLE, RHODE ISLAND 02859

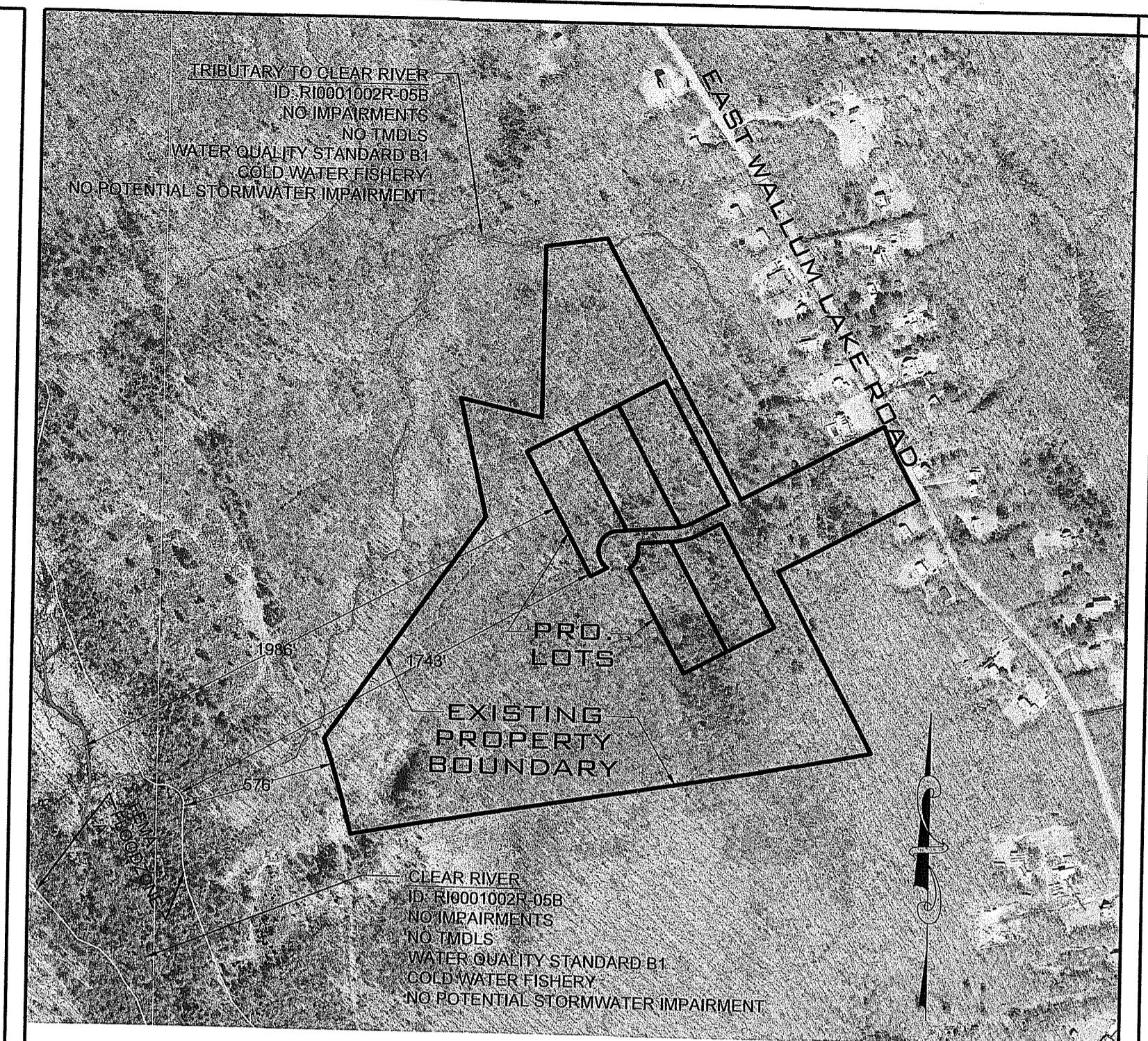
OWNER / APPLICANT:
MARK MURPHY REAL ESTATE, LLC
595 TOWN FARM RD.
BURRILLVILLE, RI 02859

DATE: JUNE 20, 2022
REVISED: MAY 24, 2023



**GROUNDBREAKING
DESIGNS, LLC**
CIVIL ENGINEERING SOLUTIONS

90 HIGHLAND AVE., SOUTH KINGSTOWN, RI 02879 ☎ PHONE: (401) 622-2932



LOCUS MAP
1" = 400'

LIST OF DRAWINGS

1. TITLE SHEET
2. EXISTING CONDITIONS MAP
3. PROPOSED SITE LAYOUT PLAN
4. PROPOSED SITE LAYOUT PLAN
5. PROPOSED GRADING & UTILITIES PLAN - 1
6. PROPOSED GRADING & UTILITIES PLAN - 2
7. PROFILE PLAN
8. SOIL EROSION & SEDIMENT CONTROL PLAN
9. DETAIL SHEET
10. DETAIL SHEET - 2

REFERENCES

1. PROPERTY LINE INFORMATION OBTAINED FROM PLAN SHEET TITLED "WETLANDS APPLICATION #18-0038 'HILLSIDE ESTATES' MARC MURPHY REAL ESTATE, LLC ASSESSORS MAP 52 LOTS 12, 13, 23 AND 24 EAST WALLUM LAKE ROAD BURRILLVILLE, RHODE ISLAND EXISTING CONDITIONS PLAN" DATED FEBRUARY 2016, PRODUCED BY NATIONAL LAND SURVEYORS-DEVELOPERS, INC.
2. EXISTING 2-FOOT CONTOURS OUTSIDE OF SURVEYED AREA OBTAINED FROM RIGIS LIDAR DATA.
3. CONTOURS ARE BASED ON VERTICAL DATUM NAVD 88.
4. AERIAL IMAGERY OBTAINED FROM RIGIS IMAGERY RESOURCES.
5. ALL UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THERE IS NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. (PLEASE CONTACT DIGSAFE PRIOR TO CONSTRUCTION @ 1-888-344-7233.)
6. PROJECT SITE IS LOCATED IN ZONE X 'AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD' AS SHOWN ON F.E.M.A. FLOOD INSURANCE RATE MAPS # 44007C0130G FOR THE TOWN OF BURRILLVILLE, RHODE ISLAND, PROVIDENCE COUNTY, PANEL 130 OF 451, EFFECTIVE DATE MARCH 2 2009.
7. WETLANDS SHOWN HEREON DELINEATED BY NATURAL RESOURCE SERVICES, INC. AND FIELD LOCATED BY NATIONAL LAND SURVEYORS-DEVELOPERS, INC.
8. SOIL EVALUATIONS PERFORMED IN PART BY NATIONAL LAND SURVEYORS-DEVELOPERS, INC. AND GROUNDBREAKING DESIGNS, LLC.

GENERAL NOTES

1. ALL PLANS AND IMPROVEMENTS CONFORM TO ALL EXISTING AND AMENDED STANDARDS OF THE STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS, BOARD OF REGISTRATION OF PROFESSIONAL ENGINEERS AND BOARD OF REGISTRATION OF LAND SURVEYORS.
2. ONLY PLANS STAMPED ISSUED FOR CONSTRUCTION SHALL BE USED FOR CONSTRUCTION.
3. THE LOCATION AND ELEVATION FOR ALL EXISTING UTILITIES SHALL BE CONSIDERED APPROXIMATE AND MUST BE VERIFIED BY THE CONTRACTOR PRIOR TO ANY CONSTRUCTION. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ANY CROSSINGS OF PROPOSED UTILITIES AND EXISTING UTILITIES. ANY DISCREPANCIES IN THE LOCATION OF ANY UTILITY SHOWN OR ENCOUNTERED DURING CONSTRUCTION SHALL BE REPORTED TO GROUNDBREAKING DESIGNS, LLC, (401) 622-2932.
4. THE CONTRACTOR SHALL BE RESPONSIBLE TO NOTIFY DIG-SAFE (1-800-344-7233) A MINIMUM OF 72 WORKING HOURS, EXCLUDING WEEKENDS AND HOLIDAYS, PRIOR TO THE START OF ANY EXCAVATION WORK. THE NAME OF THE COMPANY PERFORMING THE EXCAVATION MUST BE SUPPLIED TO DIG-SAFE, IF IT IS DIFFERENT FROM THE CALLER.
5. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO MAINTAIN THE INTEGRITY OF ALL EXISTING UTILITIES, STRUCTURES, AND ADJUTING PROPERTIES. THE COST OF ANY REPAIR OR REPLACEMENT OF DAMAGED ITEMS SHALL BE BORNE BY THE CONTRACTOR.
6. ALL TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH MUTCD 2009 LATEST REVISION.

RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM

APPROVED WITH CONDITIONS AS
SPECIFIED IN THE LETTER OF APPROVAL
DATED: APR 01 2024 FILE # 22-0971

NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Martin D. Wemel

MAY 23 2023

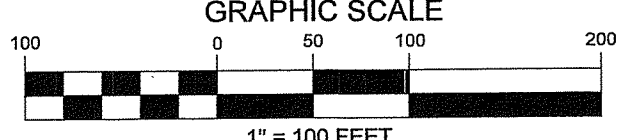
Office of Water Resources

ISSUED FOR PERMITTING ONLY,
NOT FOR CONSTRUCTION

PLAN FOR NOTICE

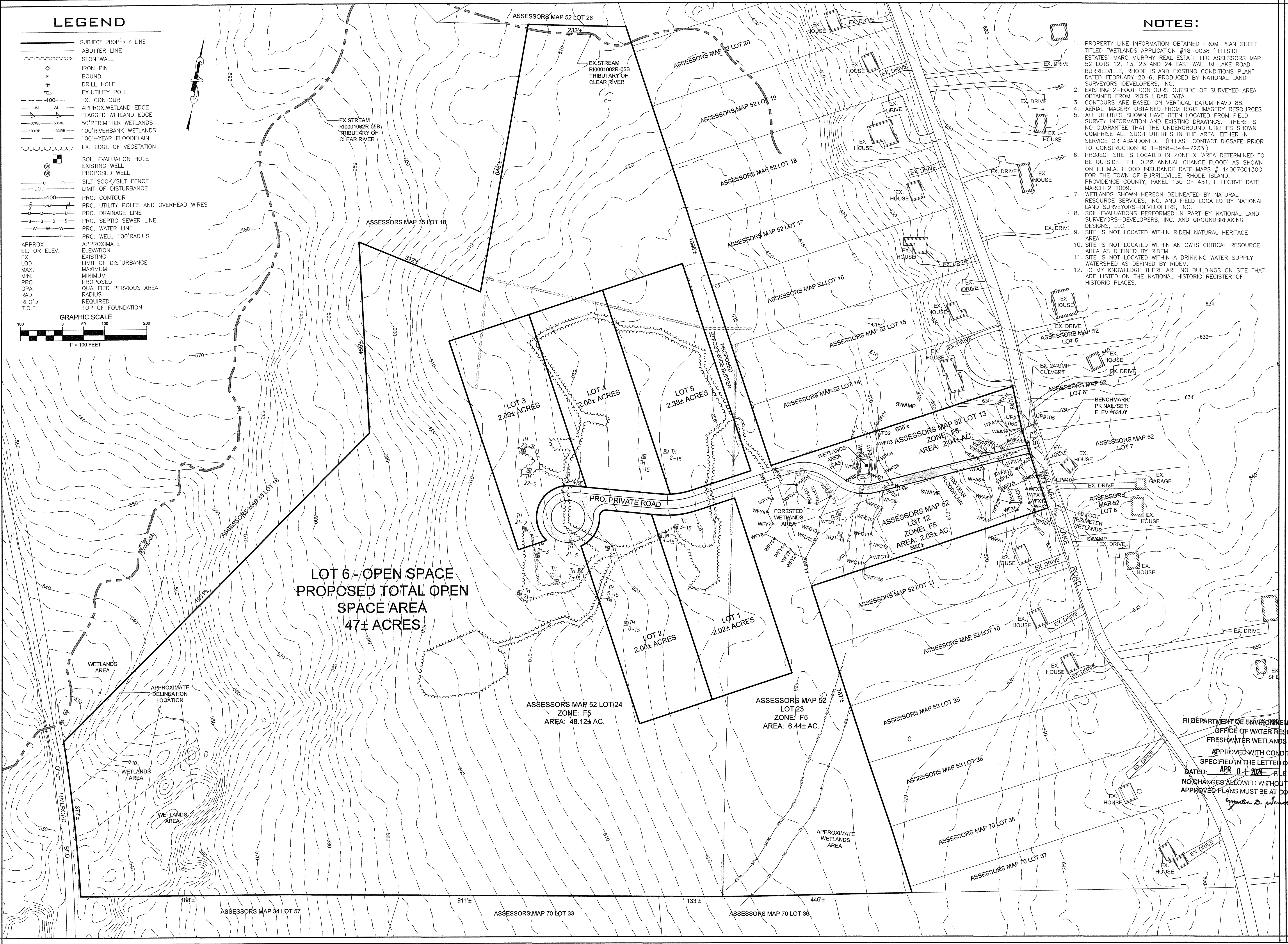
LEGEND

- SUBJECT PROPERTY LINE
- ABUTTER LINE
- STONEWALL
- IRON PIN
- BOUND
- DRILL HOLE
- EX. UTILITY POLE
- EX. CONTOUR
- APPROX. WETLAND EDGE
- FLAGGED WETLAND EDGE
- 50' PERIMETER WETLANDS
- 100' RIVERBANK WETLANDS
- 100'-YEAR FLOODPLAIN
- EX. EDGE OF VEGETATION
- SOIL EVALUATION HOLE
- EXISTING WELL
- PROPOSED WELL
- SILT SOCK/SILT FENCE
- LIMIT OF DISTURBANCE
- PRO. CONTOUR
- PRO. UTILITY POLES AND OVERHEAD WIRES
- PRO. DRAINAGE LINE
- PRO. SEPTIC SEWER LINE
- PRO. WATER LINE
- PRO. WELL 100' RADIUS
- APPROX. ELEVATION
- EL. OR ELEV.
- EX. LOD
- MAX. LOD
- MIN. LOD
- PRO. QPA
- RAD
- REQ'D
- T.O.F.



NOTES:

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7. WETLANDS SHOWN HEREON DELINEATED BY NATURAL RESOURCE SERVICES, INC. AND FIELD LOCATED BY NATIONAL LAND SURVEYORS-DEVELOPERS, INC.
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9. SITE IS NOT LOCATED WITHIN RIDEM NATURAL HERITAGE AREA
10. SITE IS NOT LOCATED WITHIN AN OWTS CRITICAL RESOURCE AREA AS DEFINED BY RIDEM.
11. SITE IS NOT LOCATED WITHIN A DRINKING WATER SUPPLY WATERSHED AS DEFINED BY RIDEM.
12. TO MY KNOWLEDGE THERE ARE NO BUILDINGS ON SITE THAT ARE LISTED ON THE NATIONAL HISTORIC REGISTER OF HISTORIC PLACES.



RIDEM FWMP & SUBDIVISION SUITABILITY APPLICATION PLAN

HILLSIDE ESTATES

PROPOSED LOT LAYOUT

A.P. 52, LOTS 12, 13, 23, & 24
BURRILLVILLE, RHODE ISLAND 02859

RI Environmental Management
Office of Water Resources
MAY 26 2023

OWNER/APPLICANT
MARK MURPHY REAL ESTATE, LLC
595 TOWN FARM RD.
PASCOAG, RI 02859

NO.	DATE	DESCRIPTION	BY
1.	3-10-23	DEM COMMENTS	DKM
2.	5-24-23	DEM COMMENTS	DKM

REGISTRATION:

DAVID KENNETH MANONI
REGISTERED PROFESSIONAL ENGINEER
(CIVIL)

GROUND BREAKING DESIGNS, LLC

CIVIL ENGINEERING SOLUTIONS

90 HIGHLAND AVE., SOUTH KINGSTOWN, RI 02879 | PHONE: (401) 622-2932

RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM

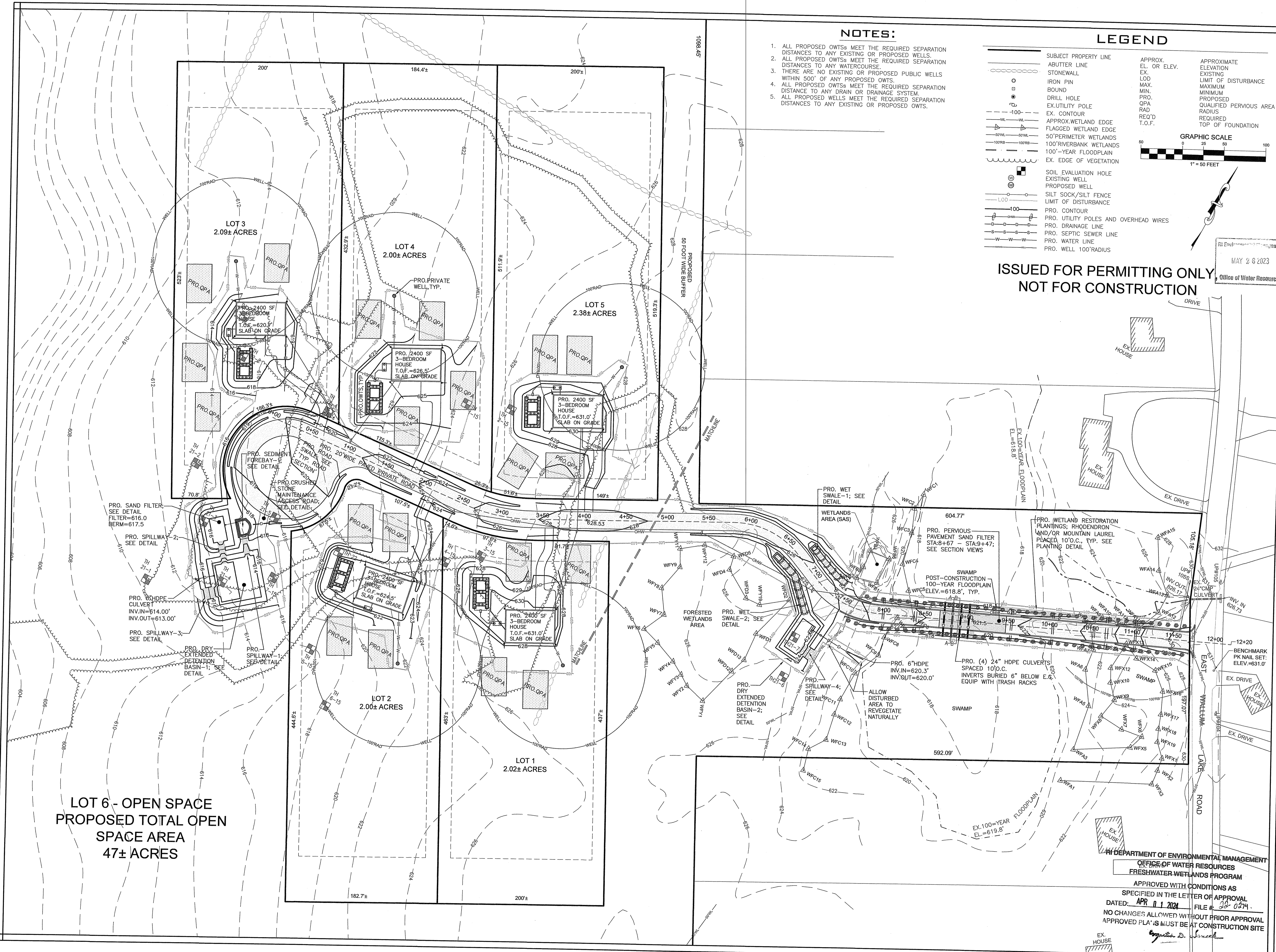
APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL
DATED: APR 11 2024 FILE # 20-0274

NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Signature

SCALE: AS SHOWN DATE: 06/20/22 SHEET 3 of 10

JOB NO.: 21.32



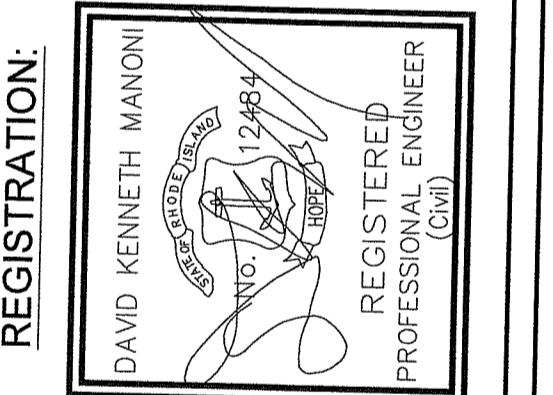
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 PASCOAG, RI 02859

REVISIONS:

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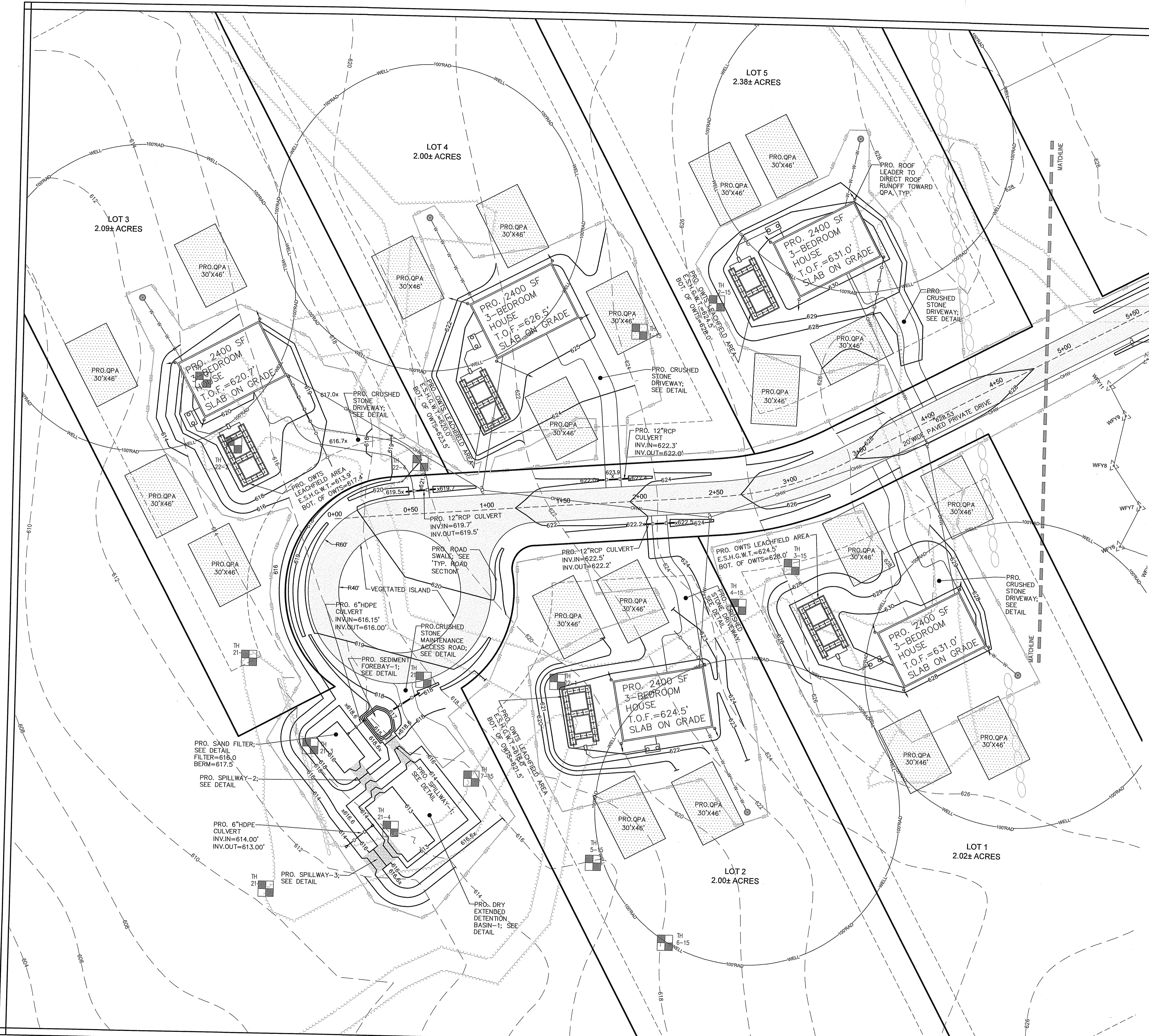
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 OFFICE OF WATER RESOURCES
 FRESHWATER WETLANDS PROGRAM

APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL
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Signature: D. Manoni



NOTES:

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- TO MY KNOWLEDGE THERE ARE NO BUILDINGS ON SITE THAT ARE LISTED ON THE NATIONAL HISTORIC REGISTER OF HISTORIC PLACES.

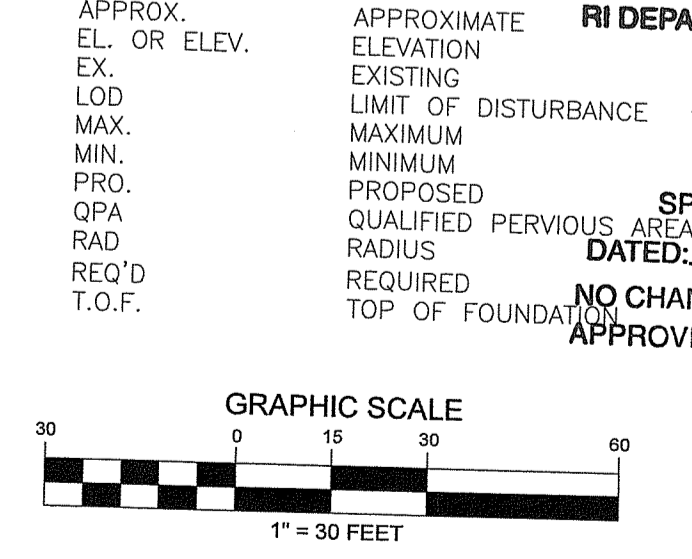
QPA NOTES

- QPAs SHALL BE AVOIDED DURING CONSTRUCTION AND IF THE AREAS ARE COMPACTED, THE SOIL SHALL BE SUITABLE, AMENDED, TILLED, AND REVEGETATED ONCE CONSTRUCTION IS COMPLETE TO RESTORE INFILTRATION CAPACITY.
- ALL ROOF LEADERS ARE TO BE EQUIPPED WITH SPLASH BLOCKS TO PROMOTE SHEET FLOW.

Office of Water Resources

LEGEND

- SUBJECT PROPERTY LINE
- ABUTTER LINE
- STONEWALL
- IRON PIN
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- PRO. WELL 100' RADIUS



ISSUED FOR PERMITTING ONLY,
NOT FOR CONSTRUCTION

RI DEM FWMP & SUBDIVISION SUITABILITY APPLICATION PLAN
HILLSIDE ESTATES
PROPOSED GRADING & UTILITIES PLAN - 1
A.P. 52, LOTS 12, 13, 23, & 24
BURRILLVILLE, RHODE ISLAND 02859
SCALE: AS SHOWN DATE: 06/20/22 SHEET 5 of 10

OWNER/APPLICANT
MARK MURPHY REAL ESTATE, LLC
595 TOWN FARM RD.
PASCOAG, RI 02859

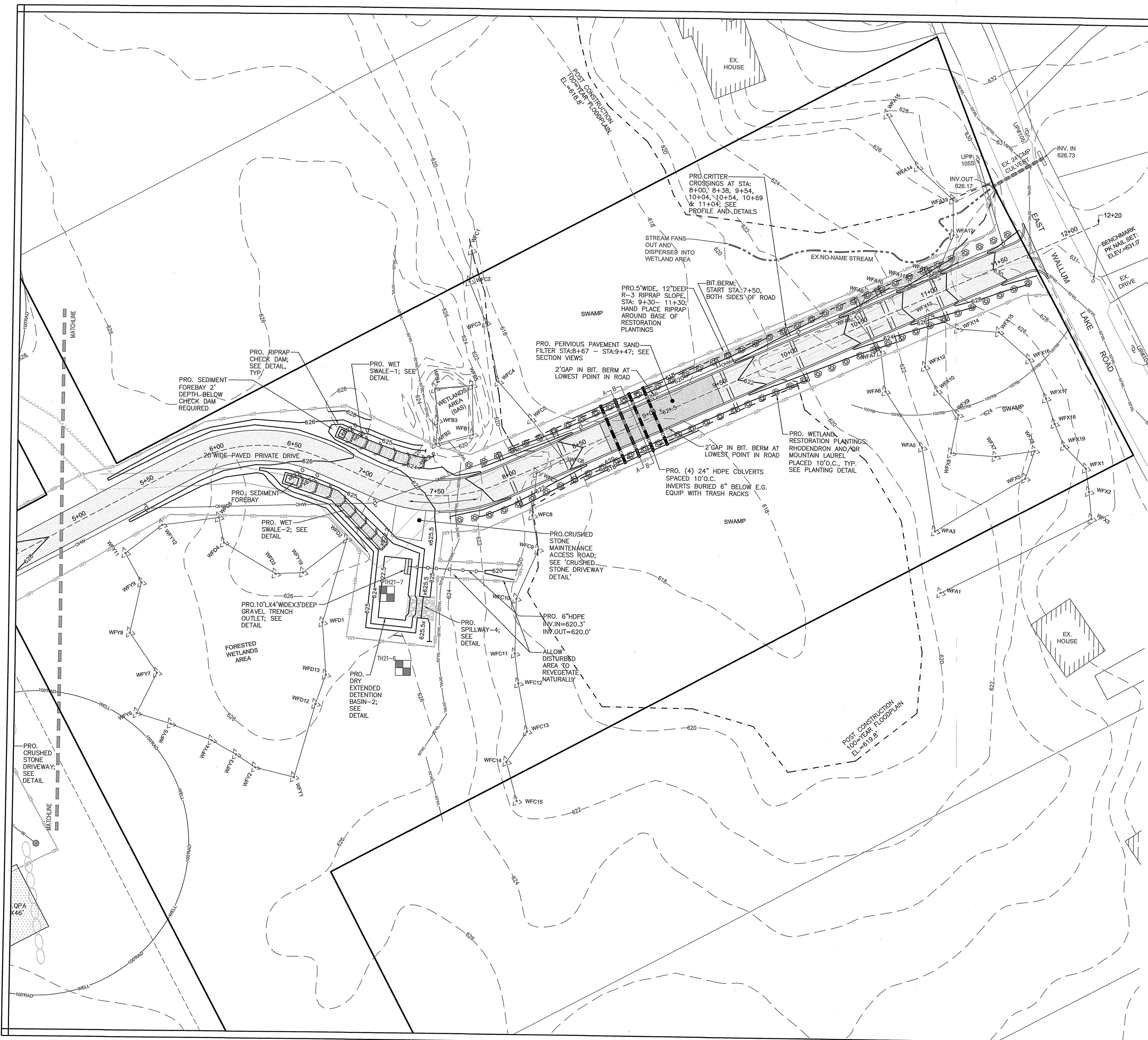
REVISIONS:

NO.	DATE	DESCRIPTION	BY
1.	3-10-23	DEM COMMENTS	DKM
2.	5-24-23	DEM COMMENTS	DKM

REGISTRATION:
DAVID KENNETH MANONI
REGISTERED ENGINEER
PROFESSIONAL ENGINEER
(CEN)

GROUNDBREAKING DESIGNS, LLC
CIVIL ENGINEERING SOLUTIONS
90 HIGHLAND AVE., SOUTH KINGSTOWN, RI 02879 • PHONE: (401) 622-2932

RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL
DATED: APR 01 2024 FILE # 24-074
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE



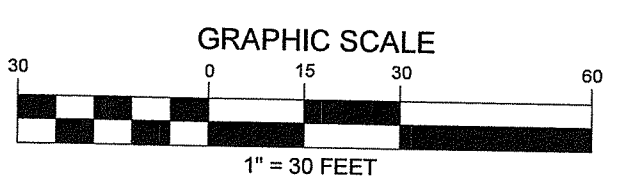
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MAY 26 2023
Office of Water Resources

LEGEND

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- ABUTTER LINE
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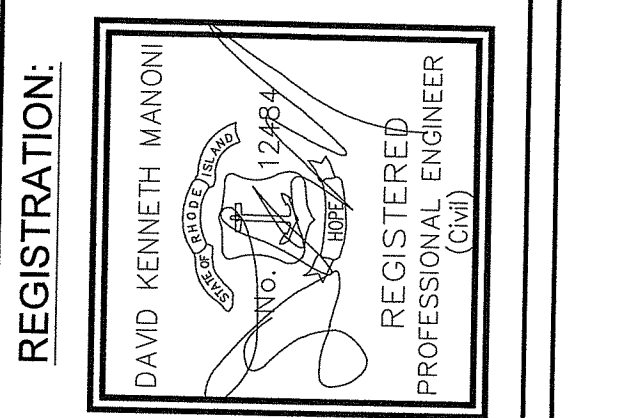
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SCALE: AS SHOWN DATE: 06/20/22 SHEET 6 of 10

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REVISIONS:

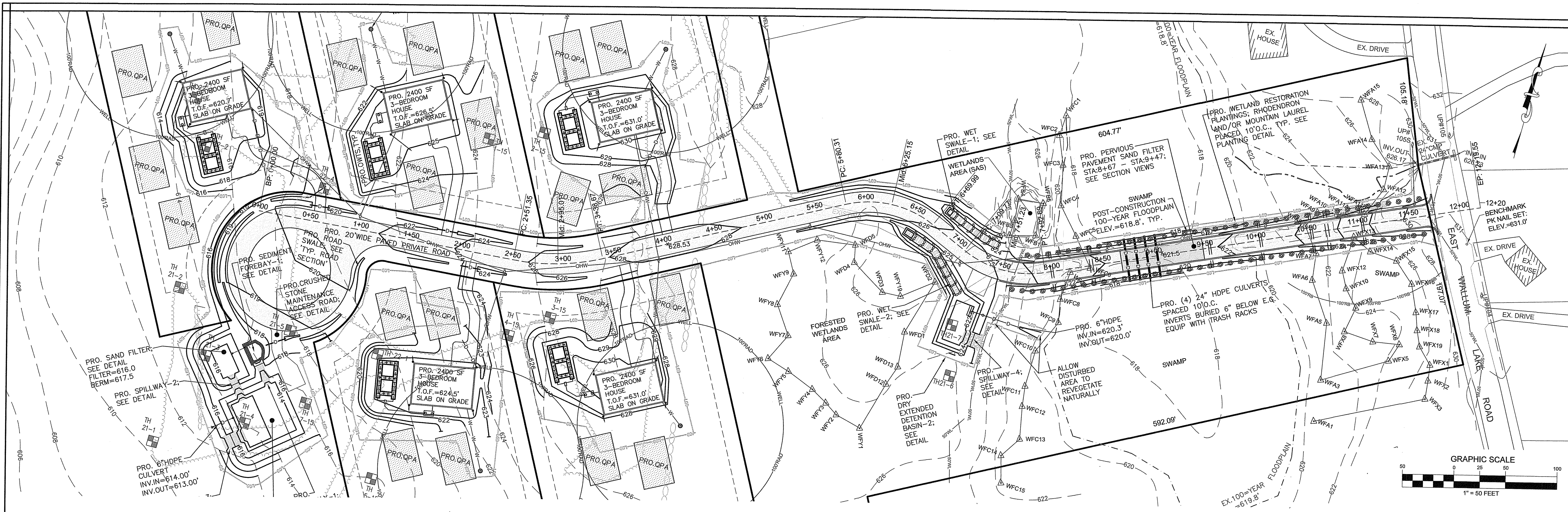
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JOB NO.: 21.32

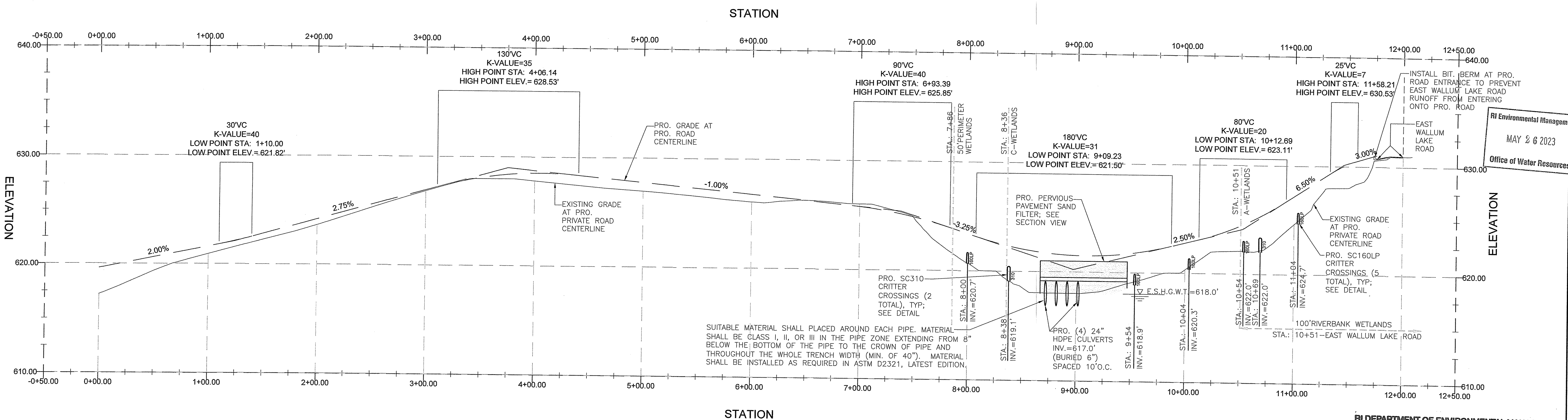


GROUND BREAKING
DESIGNS, LLC
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90 HIGHLAND AVE., SOUTH KINGSTOWN, RI 02879 ☎ PHONE: (401) 622-2932

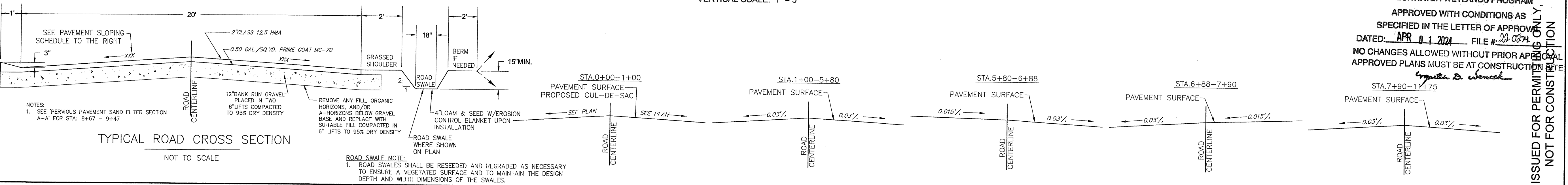
OFFICE OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
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DATED APR 11 2024 FILE # 23-0074
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
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PROPOSED ROAD PROFILE VIEW



HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

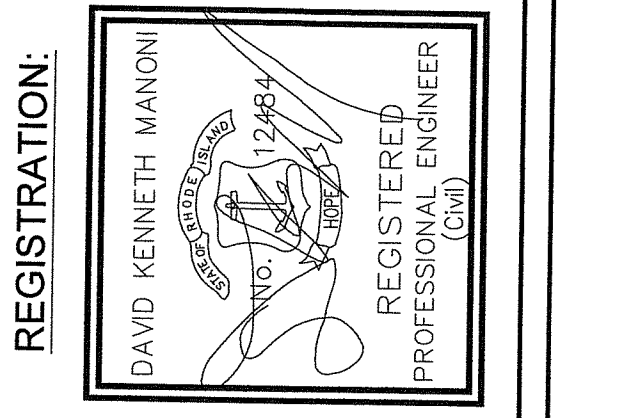


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HILLSIDE ESTATES
PROFILE PLAN
A.P. 52, LOTS 12, 13, 23, & 24
BURRILLVILLE, RHODE ISLAND 02859
SCALE: AS SHOWN DATE: 06/20/22 SHEET 7 OF 10

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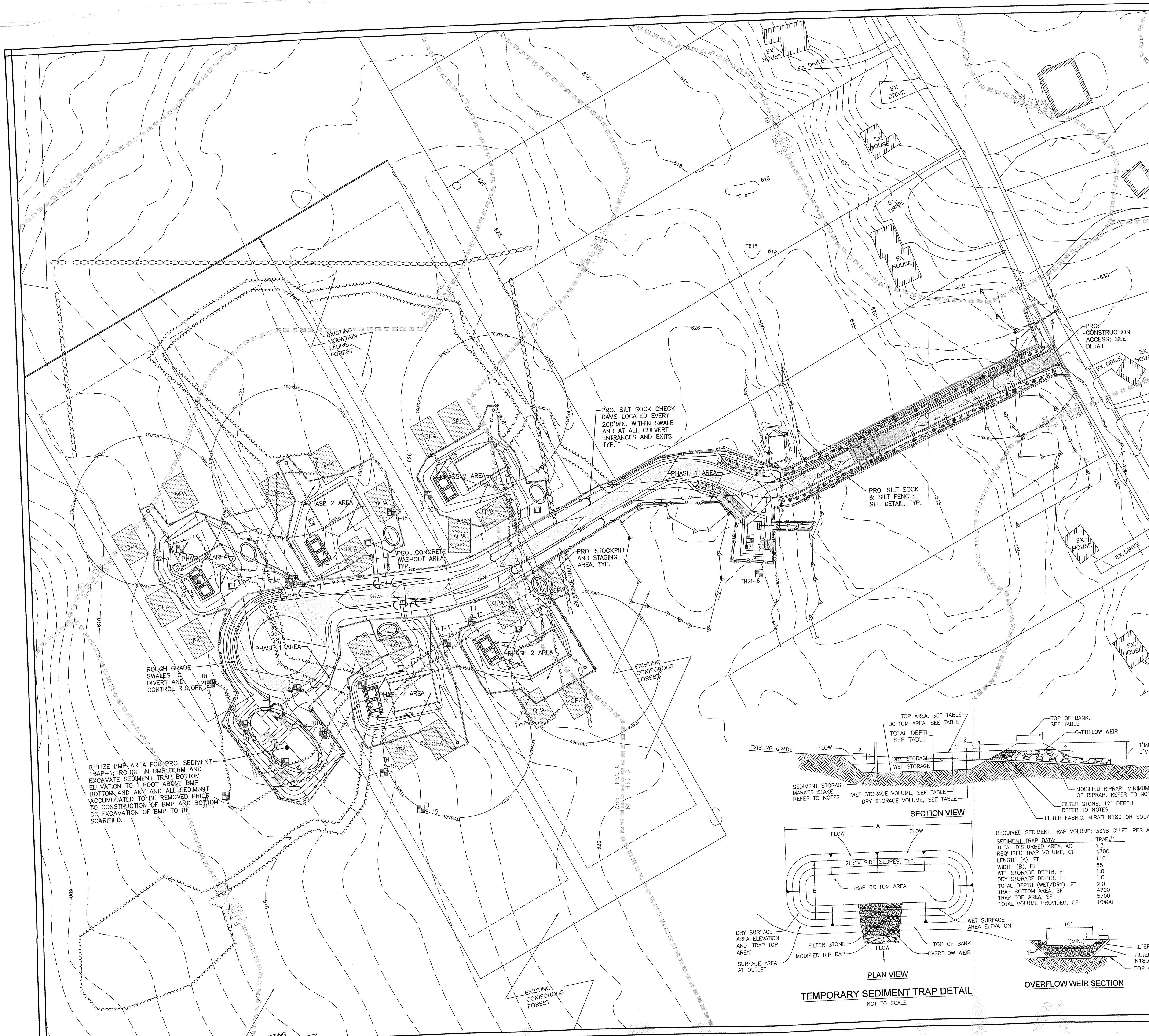
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SESC NOTES:

- AREAS ON SITE WHERE SOILS ARE COMPACTED UNNECESSARILY SHALL BE TILLED OR SCARIFIED IN ORDER TO RESTORE INFILTRATION CAPACITY. IN AREAS WHERE INFILTRATING STORMWATER TREATMENT PRACTICES ARE LOCATED, COMPACTED SOILS MUST BE AMENDED SUCH THAT THEY WILL COMPLY WITH THE DESIGN INFILTRATION RATES ESTABLISHED IN THE RI STORMWATER DESIGN AND INFILTRATION STANDARDS MANUAL.
- ALL MATERIAL STOCKPILES THAT EXIST FOR AN EXTENDED PERIOD OF TIME SHALL BE SEEDED TO PREVENT EROSION.

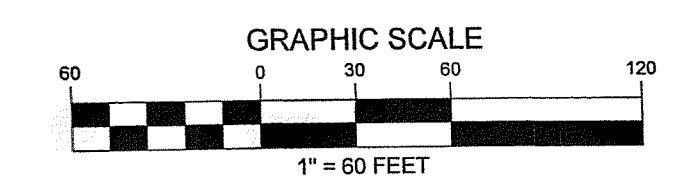
QPA NOTES:

- CONSTRUCTION VEHICLES SHALL AVOID DRIVING OVER QPA AREAS TO THE MAXIMUM EXTENT POSSIBLE.
- IF QPA SOILS ARE COMPACTED, THEN THE SOIL MUST BE SUITABLE AMENDED, TILLED, AND RE-VEGETATED ONCE CONSTRUCTION IS COMPLETE TO RESTORE INFILTRATION CAPACITY.
- THE SLOPE OF THE QPA MUST BE LESS THAN OR EQUAL TO 5.0%.
- THE QPA MUST BE INSPECTED YEARLY TO ENSURE NO BUILD-UP OF SEDIMENT. IF THERE IS ACCUMULATION OF SEDIMENT, THEN THE SEDIMENT SHALL BE REMOVED AND THE QPA SHALL BE RESTORED.

RI Department of Environmental Management
 MAY 26 2023
 Office of Water Resources
 603-281-2200

LEGEND

- SUBJECT PROPERTY LINE
- ABUTTER LINE
- STONEWALL
- IRON PIN
- BOUND
- DRILL HOLE
- EX. UTILITY POLE
- EX. CONTOUR
- APPROX. WETLAND EDGE
- FLAGGED WETLAND EDGE
- 50' PERIMETER WETLANDS
- 100' RIVERBANK WETLANDS
- 100'-YEAR FLOODPLAIN
- EX. EDGE OF VEGETATION
- SOIL EVALUATION HOLE
- EXISTING WELL
- PROPOSED WELL
- SILT SOCK/SILT FENCE
- LIMIT OF DISTURBANCE
- PRO. CONTOUR
- PRO. UTILITY POLES AND OVERHEAD WIRES
- PRO. DRAINAGE LINE
- PRO. SEPTIC SEWER LINE
- PRO. WATER LINE
- PRO. WELL 100' RADIUS
- APPROX. EL. OR ELEV.
- EXISTING
- LOD
- MAX.
- MIN.
- PRO.
- QPA
- RAD
- REQ'D
- T.O.F.
- APPROXIMATE ELEVATION
- EXISTING
- LIMIT OF DISTURBANCE
- MAXIMUM
- MINIMUM
- PROPOSED
- QUALIFIED PERVIOUS AREA
- RADIUS
- REQUIRED
- TOP OF FOUNDATION

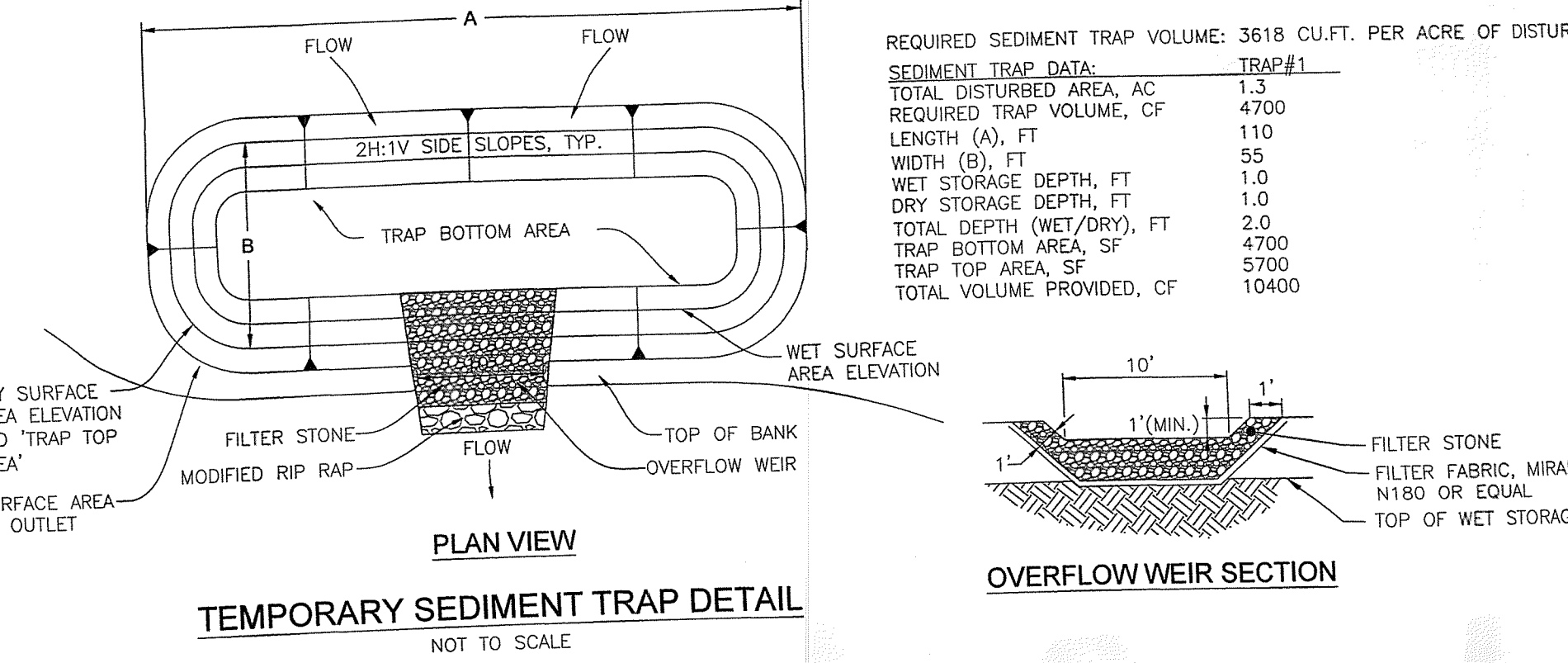
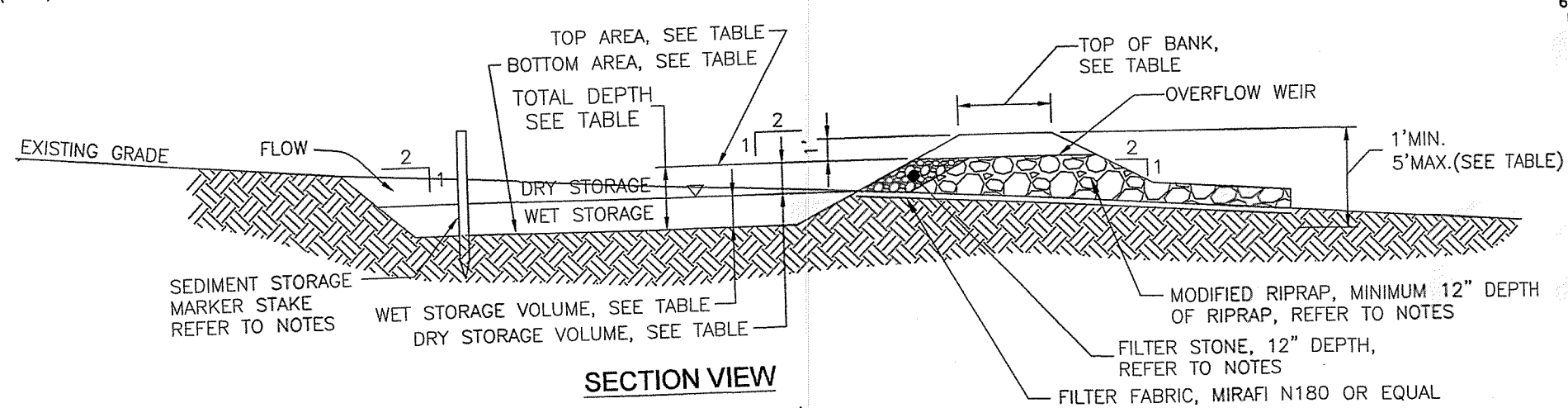


UTILIZE BMP AREA FOR PRO. SEDIMENT TRAP-1. ROUGH IN BMP BERM AND EXCAVATE SEDIMENT TRAP BOTTOM ELEVATION TO 1 FOOT ABOVE BMP BOTTOM AND ANY AND ALL SEDIMENT ACCUMULATED TO BE REMOVED PRIOR TO CONSTRUCTION OF BMP AND BOTTOM OF EXCAVATION OF BMP TO BE SCARIFIED.

PRO. SILT SOCK CHECK DAMS LOCATED EVERY 200' MIN. WITHIN SWALE AND AT ALL CULVERT ENTRANCES AND EXITS, TYP.

PRO. SILT SOCK & SILT FENCE; SEE DETAIL, TYP.

PRO. STOCKPILE AND STAGING AREA; TYP.



REQUIRED SEDIMENT TRAP VOLUME: 3618 CU.FT. PER ACRE OF DISTURBED LAND

SEDIMENT TRAP DATA	TRAP #1
TOTAL DISTURBED AREA, AC	1.3
REQUIRED TRAP VOLUME, CF	4700
LENGTH (A), FT	110
WIDTH (B), FT	55
WET STORAGE DEPTH, FT	1.0
DRY STORAGE DEPTH, FT	1.0
TOTAL DEPTH (WET/DRY), FT	2.0
TRAP BOTTOM AREA, SF	4700
TRAP TOP AREA, SF	5700
TOTAL VOLUME PROVIDED, CF	10400

RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF WATER RESOURCES
 FRESHWATER WETLANDS PROGRAM
 APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL
 DATED: APR 11 2024 FILE # 23-0574
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE
 Signature: D. Weneck

ISSUED FOR PERMITTING ONLY,
 NOT FOR CONSTRUCTION

RI DEM FWMP & SUBDIVISION SUITABILITY APPLICATION PLAN
HILLSIDE ESTATES
SOIL EROSION & SEDIMENT CONTROL PLAN
 A.P. 52, LOTS 12, 13, 23, & 24
 BURRILLVILLE, RHODE ISLAND 02859
 SCALE: AS SHOWN DATE: 06/20/22 SHEET 8 of 10

OWNER/APPLICANT
 MARK MURPHY REAL ESTATE, LLC
 595 TOWN FARM RD.
 PASCOAG, RI 02859

REVISIONS:

NO.	DATE	DESCRIPTION	BY
1.	3-10-23	DEM COMMENTS	DKM
2.	5-24-23	DEM COMMENTS	DKM

REGISTRATION:
 DAVID KENNETH MANONI
 REGISTERED PROFESSIONAL ENGINEER (CIVIL)

GROUND BREAKING
DESIGNS, LLC
 CIVIL ENGINEERING SOLUTIONS
 90 HIGHLAND AVE., SOUTH KINGSTOWN, RI 02879 ■ PHONE: (401) 622-2932

GENERAL EROSION CONTROL NOTES:

- THE STATE OF RHODE ISLAND STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AMENDED AUG. 2013, AND THE RHODE ISLAND STANDARD DETAILS ARE MADE A PART HEREOF AS FULLY AND COMPLETELY AS IF ATTACHED HERETO. THE 2013 STANDARD SPECIFICATIONS MAY BE OBTAINED AT THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION WEB PAGE.
- LOCATION AND DEPTH OF EXISTING UTILITIES ARE APPROXIMATE AND HAVE BEEN PLOTTED FROM THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL CHECK AND VERIFY LOCATIONS OF ALL EXISTING UTILITIES BOTH UNDERGROUND AND OVERHEAD. ANY DAMAGE TO EXISTING UTILITIES AS SHOWN OR NOT SHOWN ON THE PLANS SHALL BE THE CONTRACTOR'S RESPONSIBILITY. COSTS OF SUCH DAMAGE SHALL BE BORNE BY THE CONTRACTOR. NO EXCAVATION SHALL BE DONE UNTIL ALL INVOLVED UTILITY COMPANIES ARE NOTIFIED 48-HOURS IN ADVANCE. THE CONTRACTOR SHALL BE RESPONSIBLE TO NOTIFY DIG-SAFE (1-800-344-7233) A MINIMUM OF 48 WORKING HOURS, EXCLUDING WEEKENDS AND HOLIDAYS, PRIOR TO THE START OF ANY EXCAVATION AND/OR BLASTING WORK. THE NAME OF THE COMPANY PERFORMING THE EXCAVATION AND/OR BLASTING WORK MUST BE SUPPLIED TO DIG-SAFE, IF IT IS DIFFERENT FROM THE CALLER.
- IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO OBTAIN ANY AND ALL PERMITS REQUIRED BY, BUT NOT LIMITED TO, THE STATE OF RHODE ISLAND, THE FEDERAL GOVERNMENT, LOCAL (TOWN/CITY) GOVERNMENT AND ALL INDIVIDUAL UTILITY COMPANIES PRIOR TO COMMENCING ANY WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL TEMPORARY SEDIMENTATION AND EROSION CONTROLS. ALL MATERIAL FOR FILL SHALL BE CLEAN AND FREE OF MATTER WHICH COULD POLLUTE ANY DOWN STREAM WATERCOURSE.
- FILL MATERIAL SHALL BE COMPACTED TO ONE FOOT (MAXIMUM) LIFTS TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED IN ACCORDANCE WITH ASTM D-1557 (MODIFIED PROCTOR TEST).
- ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ALL AREAS NOT TO BE DEVELOPED THAT ARE COMPACTED BY CONSTRUCTION ACTIVITIES SHALL BE RESTORED BY TILLING THE TOP 12" OF SOIL.

EROSION CONTROL AND SOIL STABILIZATION PROGRAM:

- ALL STRAW BALES OR TEMPORARY PROTECTION SHALL REMAIN IN-PLACE UNTIL AN ACCEPTABLE STAND OF GRASS OR APPROVED GROUND COVER IS ESTABLISHED.
- THE TOPSOIL SHALL HAVE A SANDY LOAM, FINE SANDY LOAM, LOAM, OR SILT LOAM TEXTURE RELATIVELY FREE OF SUBSOIL MATERIAL, STONES, ROOTS, LUMPS OF SOIL, TREE LIMBS, TRASH OR CONSTRUCTION DEBRIS AND SHALL CONFORM WITH RHODE ISLAND STANDARD SPECIFICATION M.20.01, AS AMENDED.
- THE SEED MIX SHALL BE INOCULATED WITHIN 24-HOURS BEFORE MIXING AND PLANTING, WITH APPROPRIATE INOCULUM FOR EACH VARIETY.
- THE DESIGN MIX UTILIZED IN ALL DISTURBED AREAS TO BE SEEDED SHALL BE COMPRISED OF THE FOLLOWING:

TYPE	% BY WEIGHT	SEEDING DATE
CREeping RED FESCUE	70	APRIL 1 - JUNE 15
ASTORIA BENTGRASS	5	AUGUST 15 - OCT.
BIRDFOOT TREFLOE	15	
PERENNIAL RYEGRASS	10	

- APPLICATION RATE: 100 LBS/ACRE
LIMING AND FERTILIZING AS REQUIRED TO COMPLIMENT OR UPGRADE EXISTING CONDITIONS.
- ANY AREAS THAT DO NOT DEVELOP WITHIN THE PERIOD OF ONE YEAR SHALL BE REPAIRED AND/OR RESEEDED.
 - THE NORMAL ACCEPTABLE SEASONAL SEEDING DATES ARE APRIL 1ST THROUGH OCTOBER 15TH.
 - STABILIZATION OF ONE FORM OR ANOTHER AS DESCRIBED ABOVE SHALL BE ACHIEVED WITHIN FIFTEEN (15) DAYS OF FINAL GRADING.
 - STOCKPILES OF TOPSOIL AND EARTH MATERIALS SHALL NOT BE LOCATED NEAR WATERWAYS. THEY SHALL HAVE SIDE SLOPES NO GREATER THAN 2:1 AND STOCKPILE SHALL ALSO BE SEEDED AND/OR STABILIZED. THE STOCKPILES SHALL BE SURROUNDED BY STACKED STRAW BALES AND/OR SILT FENCE.
 - ON SLOPES STEEPER THAN 30% MULCH APPLICATIONS SHALL BE TACKED DOWN BY "CRIMPING" OR "TRACKING".
 - TREES TO BE RETAINED SHALL BE FENCED OR ROPED OFF TO PROTECT THEM FROM CONSTRUCTION EQUIPMENT.
 - ALL PROPOSED PLANTINGS MUST BE ACCOMPLISHED AS EARLY AS POSSIBLE UPON COMPLETION OF GRADING AND CONSTRUCTION, AND AT LEAST PRIOR TO ANY ON-SITE OCCUPANCY.
 - PLANTINGS SHALL BE MAINTAINED BY THE PROPERTY OWNER TO ENSURE SURVIVAL.
 - SHOULD ANY OR ALL OF THE PROPOSED PLANTS FAIL TO SURVIVE AT LEAST ONE (1) FULL GROWING SEASON FROM THE TIME THEY HAVE BEEN PLANTED, THE OWNER SHALL BE FULLY RESPONSIBLE FOR REPLACING AND MAINTAINING THE SAME PLANT SPECIES FOR ONE (1) ADDITIONAL GROWING SEASON.
 - ALL DISTURBED AREAS MUST BE SEEDED OR PLANTED WITHIN THE CONSTRUCTION SEASON.
 - TEMPORARY SEEDING MUST BE DONE WITHIN ONE (1) MONTH AFTER DISTURBANCE.
 - ALL DISTURBED AREAS MUST BE PERMANENTLY SEEDED OR PLANTED BEFORE OCTOBER 1ST, IF NOT THEY MUST BE TEMPORARILY SEEDED.
 - SLOPES CONSTRUCTED AT, OR STEEPER THAN, 1:3% SHALL HAVE TEMPORARY EROSION CONTROL MATTING UTILIZED AS A SUPPORTIVE METHOD IN ADDITION TO THE METHODS DESCRIBED ABOVE UNLESS IN THE CASE WHERE PERMANENT TURF REINFORCEMENT MATS ARE INSTALLED IMMEDIATELY UPON CONSTRUCTION OF THE SLOPE. IN NO CASE SHALL STEEP SLOPES BE LEFT UNPROTECTED.
 - ALL PROPOSED INLETS AND OUTLETS SHALL BE PROTECTED WITH TURF REINFORCEMENT AS PROPOSED ON THE PLANS AND/OR STRAW BALE INLET AND OUTLET PROTECTION DEVICES. SEE DETAILS.
 - ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARDS AND PROCEDURES SET FORTH IN THE TOWN ZONING ORDINANCES, RHODE ISLAND STORMWATER DESIGN AND INSTALLATION STANDARDS MANUAL, AMENDED MARCH 2015 AS PREPARED BY THE RIDEM AND CRMC; AND RHODE ISLAND EROSION AND SEDIMENT CONTROL HANDBOOK AS PREPARED BY RHODE ISLAND STATE CONSERVATION COMMITTEE, REVISED 2014, (AS REVISED).

- EXTREME CARE SHALL BE EXERCISED AS TO PREVENT ANY MATERIALS FROM PASSING THE LIMIT OF DISTURBANCE
- STRAW BALES, SILT SOCK, AND/OR SILT FENCE SHALL BE INSTALLED WHERE SHOWN ON THE PLAN AND AS REQUIRED TO PREVENT ADDITIONAL SEDIMENTATION INTO ANY WETLAND AREAS.
- DENUDED SLOPES SHALL NOT BE UNATTENDED OR EXPOSED FOR MORE THAN 2 WEEKS OF TIME OR FOR THE INACTIVE WINTER SEASON.
- ALL DISTURBED SOILS EXPOSED PRIOR TO OCTOBER 15 OF ANY CALENDAR YEAR SHALL BE SEEDED OR PROTECTED BY THAT DATE. ANY SUCH AREAS THAT DO NOT HAVE ADEQUATE VEGETATIVE STABILIZATION, AS DETERMINED BY THE RESIDENT ENGINEER OR ENVIRONMENTAL INSPECTOR, BY NOVEMBER 15 OF ANY CALENDAR YEAR, MUST BE STABILIZED THROUGH THE USE OF EROSION CONTROL MATTING OR STRAW MULCH, IN ACCORDANCE WITH SPECIFICATIONS CONTAINED WITHIN THE R.I. SOIL EROSION AND SEDIMENT CONTROL HANDBOOK OR AS DIRECTED BY THE RESIDENT ENGINEER OR INSPECTOR. IF WORK CONTINUES WITHIN ANY OF THESE AREAS DURING THE PERIOD FROM OCTOBER 15 THROUGH APRIL 15, CARE MUST BE TAKEN TO ENSURE THAT ONLY THE AREA REQUIRED FOR THAT DAY'S WORK IS EXPOSED, AND ALL ERODIBLE SOIL MUST BE RESTABILIZED WITHIN 5 WORKING DAYS. WORK TO CORRECT PROBLEMS RESULTING FROM FAILURE TO COMPLY WITH THIS PROVISION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THERE WILL BE NO SEPARATE PAYMENT FOR THIS PROVISION. IT SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION OPERATIONS. STABILIZATION OF ONE FORM OR ANOTHER AS DESCRIBED ABOVE SHALL BE ACHIEVED WITHIN 2 WEEKS OF FINAL GRADING.
- PREPARE TEMPORARY SEEDING AREA, PROVIDE AND PLANT SEED IN ACCORDANCE WITH "RHODE ISLAND EROSION AND SEDIMENT CONTROL HANDBOOK" AS PREPARED BY THE RHODE ISLAND STATE CONSERVATION COMMITTEE, REVISED 2014, (AS REVISED).
- SEED MIX: ANNUAL RYE GRASS 1.5 LBS/1,000 SQ. FT.
- TEMPORARY TREATMENTS TO STABILIZE EXPOSED SOILS SHALL CONSIST OF STRAW OR FIBER MULCH OR PROTECTIVE COVERS, SUCH AS A MAT OR FIBER LINING (BURLAP, JUTE, FIBERGLASS NETTING, EXCELSIOR BLANKETS). THEY SHALL BE INCORPORATED INTO THE WORK WHEN SOILS ARE EXPOSED FOR TWO WEEKS OR MORE OR AS ORDERED BY THE RESIDENT ENGINEER OR OWNER AT NO ADDITIONAL COST.
- STRAW APPLICATIONS SHALL BE IN THE AMOUNT OF 4,000 LBS/ACRE.
- ALL NEW STRAW BALES OR TEMPORARY PROTECTION SHALL REMAIN IN PLACE UNTIL AN ACCEPTABLE STAND OF GRASS OR APPROVED GROUND COVER IS ESTABLISHED AND POTENTIAL SEDIMENTATION SOURCES ARE REMOVED.
- DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EROSION CONTROL MAINTENANCE AND SHALL INSPECT/REPLACE AS NEEDED.
- ADDITIONAL STRAW BALES/SILT FENCE OR OTHER TREATMENTS SHALL BE PROVIDED AS DIRECTED BY ENGINEER, RIDEM OR LOCAL REPRESENTATIVES AT NO ADDITIONAL COST.
- THE CONTRACTOR SHALL INSPECT THE SOIL EROSION CONTROL DEVICES AFTER EVERY RAIN STORM EVENT AND EVERY 7 DAYS (WHICH EVER COMES FIRST). ANY SOIL MIGRATION PAST THE DEVICES SHALL BE REMOVED AND THE SOIL EROSION CONTROL DEVICES SHALL BE RE-ESTABLISHED TO PREVENT SOIL EROSION. ALL ACCUMULATED SEDIMENT IN FRONT OF THE DEVICES SHALL BE REMOVED AFTER EVERY RAIN STORM EVENT.
- ALL DISTURBED SOIL AREAS SHALL BE PROTECTED AGAINST SOIL EROSION BY PLACEMENT OF STRAW BALES AND/OR SILT FENCE ON THE DOWN GRADIENT SIDE OF THE DISTURBED AREA(S). SHOULD THE VOLUME AND/OR RATE OF STORMWATER RUNOFF BE TOO GREAT FOR A SINGLE DEVICE, THEN MULTIPLE DEVICES ARE REQUIRED SUCH AS SILT FENCE BACKED-UP WITH STRAW BALES. THESE ADDITIONAL DEVICES ARE NOT SHOWN ON THE PLANS BUT SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- AT THE END OF THE PROJECT CONSTRUCTION, ALL SEDIMENT IN MANHOLE SUMPS AND WITHIN ANY DRAINAGE STRUCTURE OR BMP SHALL BE REMOVED.

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- TEMPORARY TREATMENTS TO STABILIZE EXPOSED SOILS SHALL CONSIST OF STRAW OR FIBER MULCH OR PROTECTIVE COVERS, SUCH AS A MAT OR FIBER LINING (BURLAP, JUTE, FIBERGLASS NETTING, EXCELSIOR BLANKETS). THEY SHALL BE INCORPORATED INTO THE WORK WHEN SOILS ARE EXPOSED FOR TWO WEEKS OR MORE OR AS ORDERED BY THE RESIDENT ENGINEER OR OWNER AT NO ADDITIONAL COST.
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- ADDITIONAL STRAW BALES/SILT FENCE OR OTHER TREATMENTS SHALL BE PROVIDED AS DIRECTED BY ENGINEER, RIDEM OR LOCAL REPRESENTATIVES AT NO ADDITIONAL COST.
- THE CONTRACTOR SHALL INSPECT THE SOIL EROSION CONTROL DEVICES AFTER EVERY RAIN STORM EVENT AND EVERY 7 DAYS (WHICH EVER COMES FIRST). ANY SOIL MIGRATION PAST THE DEVICES SHALL BE REMOVED AND THE SOIL EROSION CONTROL DEVICES SHALL BE RE-ESTABLISHED TO PREVENT SOIL EROSION. ALL ACCUMULATED SEDIMENT IN FRONT OF THE DEVICES SHALL BE REMOVED AFTER EVERY RAIN STORM EVENT.
- ALL DISTURBED SOIL AREAS SHALL BE PROTECTED AGAINST SOIL EROSION BY PLACEMENT OF STRAW BALES AND/OR SILT FENCE ON THE DOWN GRADIENT SIDE OF THE DISTURBED AREA(S). SHOULD THE VOLUME AND/OR RATE OF STORMWATER RUNOFF BE TOO GREAT FOR A SINGLE DEVICE, THEN MULTIPLE DEVICES ARE REQUIRED SUCH AS SILT FENCE BACKED-UP WITH STRAW BALES. THESE ADDITIONAL DEVICES ARE NOT SHOWN ON THE PLANS BUT SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- AT THE END OF THE PROJECT CONSTRUCTION, ALL SEDIMENT IN MANHOLE SUMPS AND WITHIN ANY DRAINAGE STRUCTURE OR BMP SHALL BE REMOVED.

SEQUENCE AND STAGING OF LAND DISTURBING ACTIVITIES:

- CONTRACTOR TO REFER TO RIDEM RIDES SOIL EROSION AND SEDIMENT CONTROL (SES) REPORT AS WELL AS THESE DRAWINGS.
- SURVEY AND STAKE LIMIT OF DISTURBANCE FOR PLACEMENT OF SEDIMENTATION CONTROL DEVICES.
- PLACE PERIMETER SEDIMENTATION CONTROL DEVICES, SEE DETAILS. IN NO CASE SHALL THE LIMIT OF WORK EXTEND BEYOND THE SEDIMENTATION CONTROL DEVICES.
- CONSTRUCT CONSTRUCTION ENTRANCE DEVICES LOCATED ALONG EAST WALLUM LAKE ROAD, SEE DETAIL.

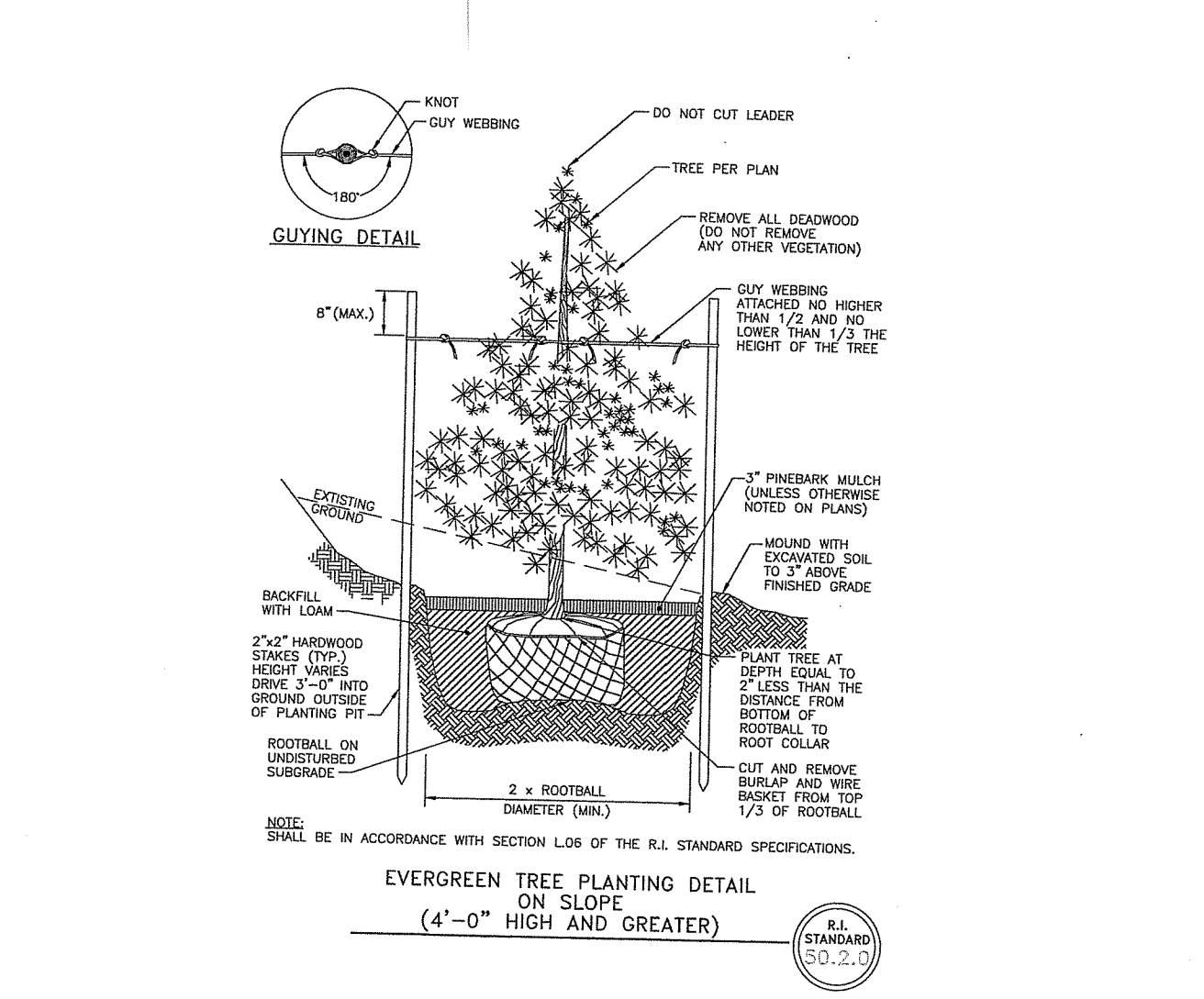
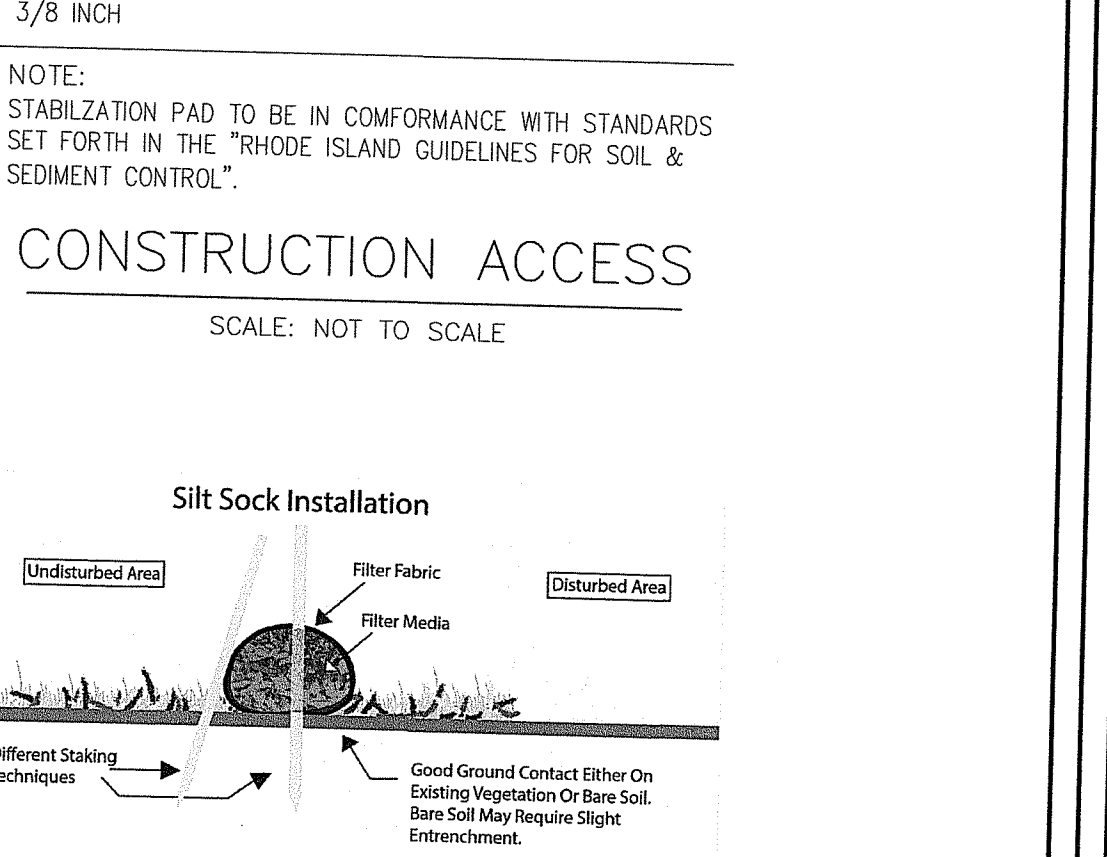
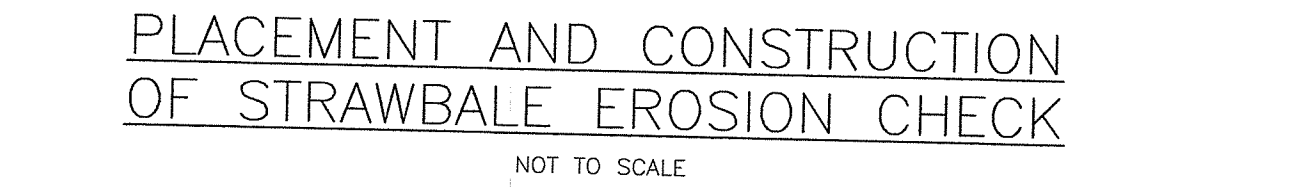
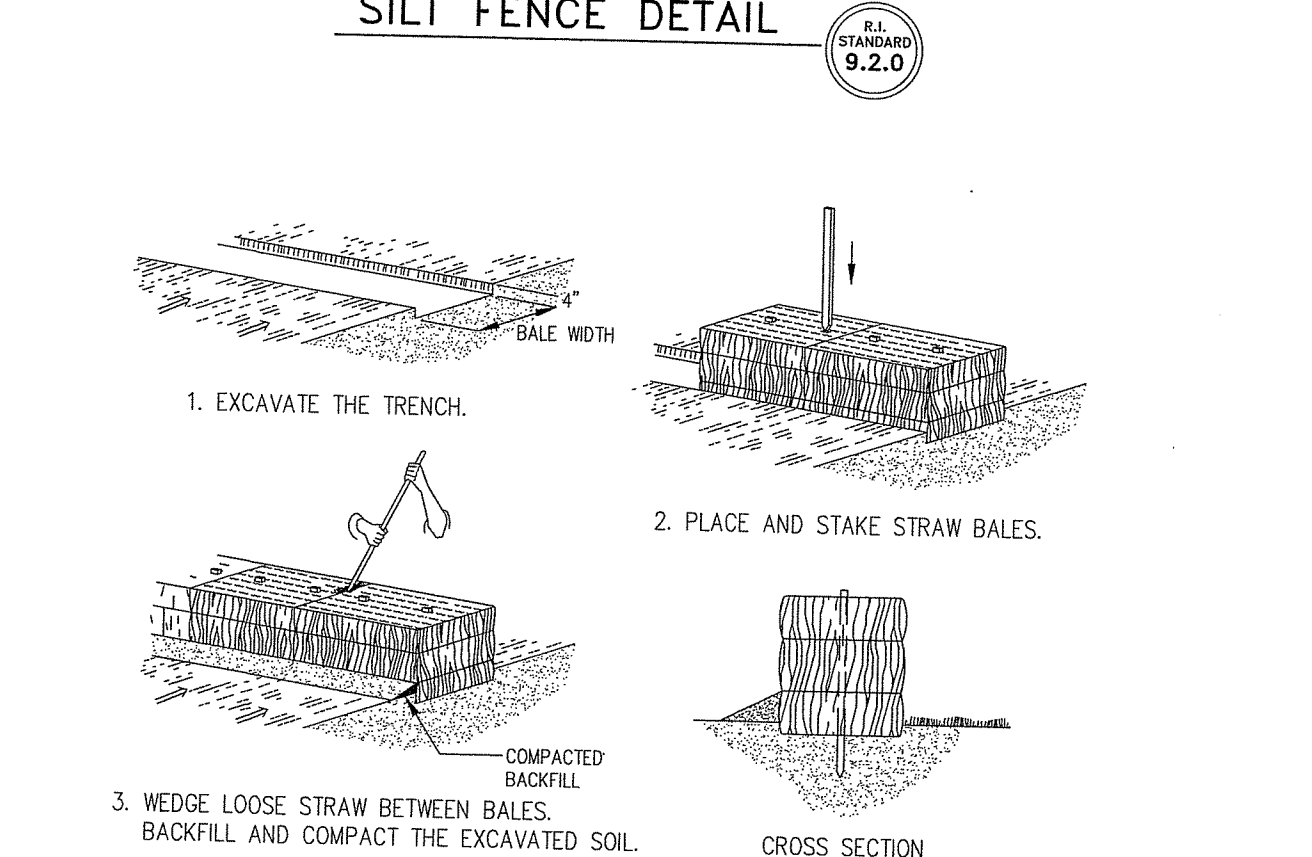
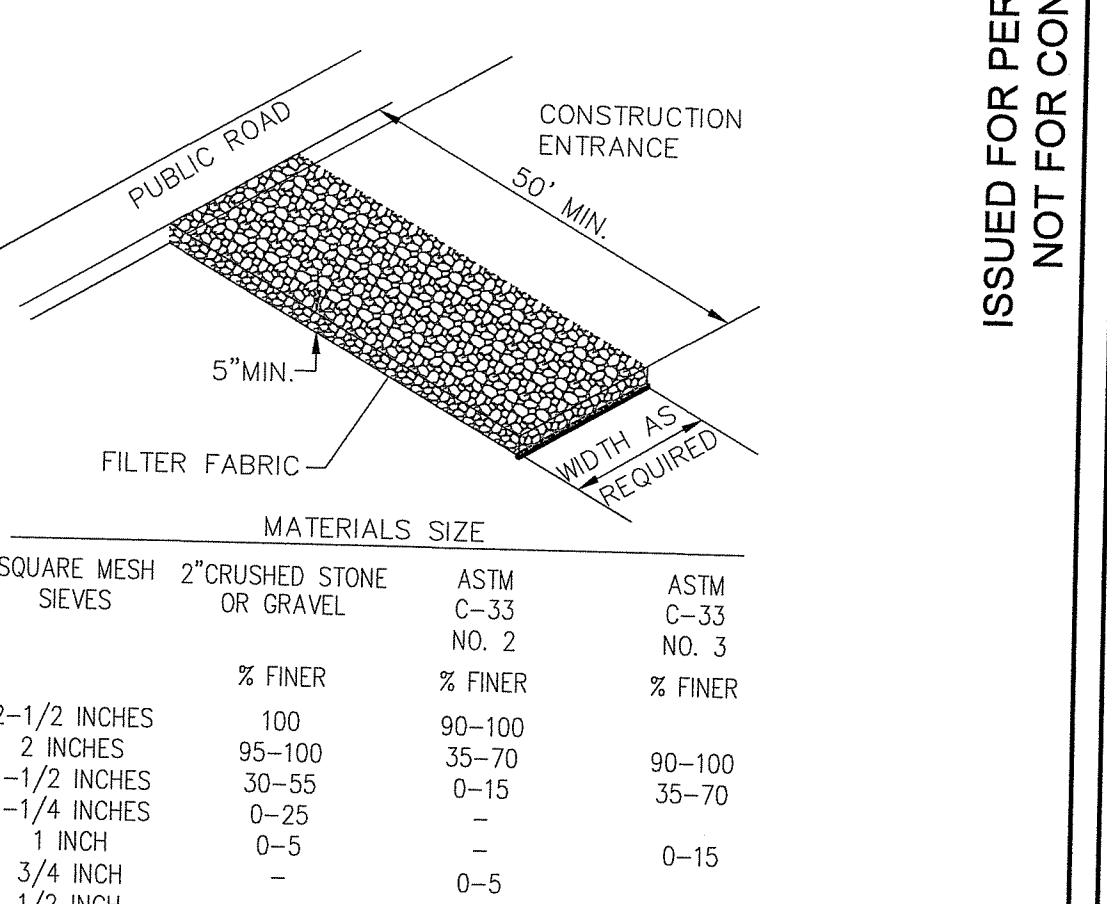
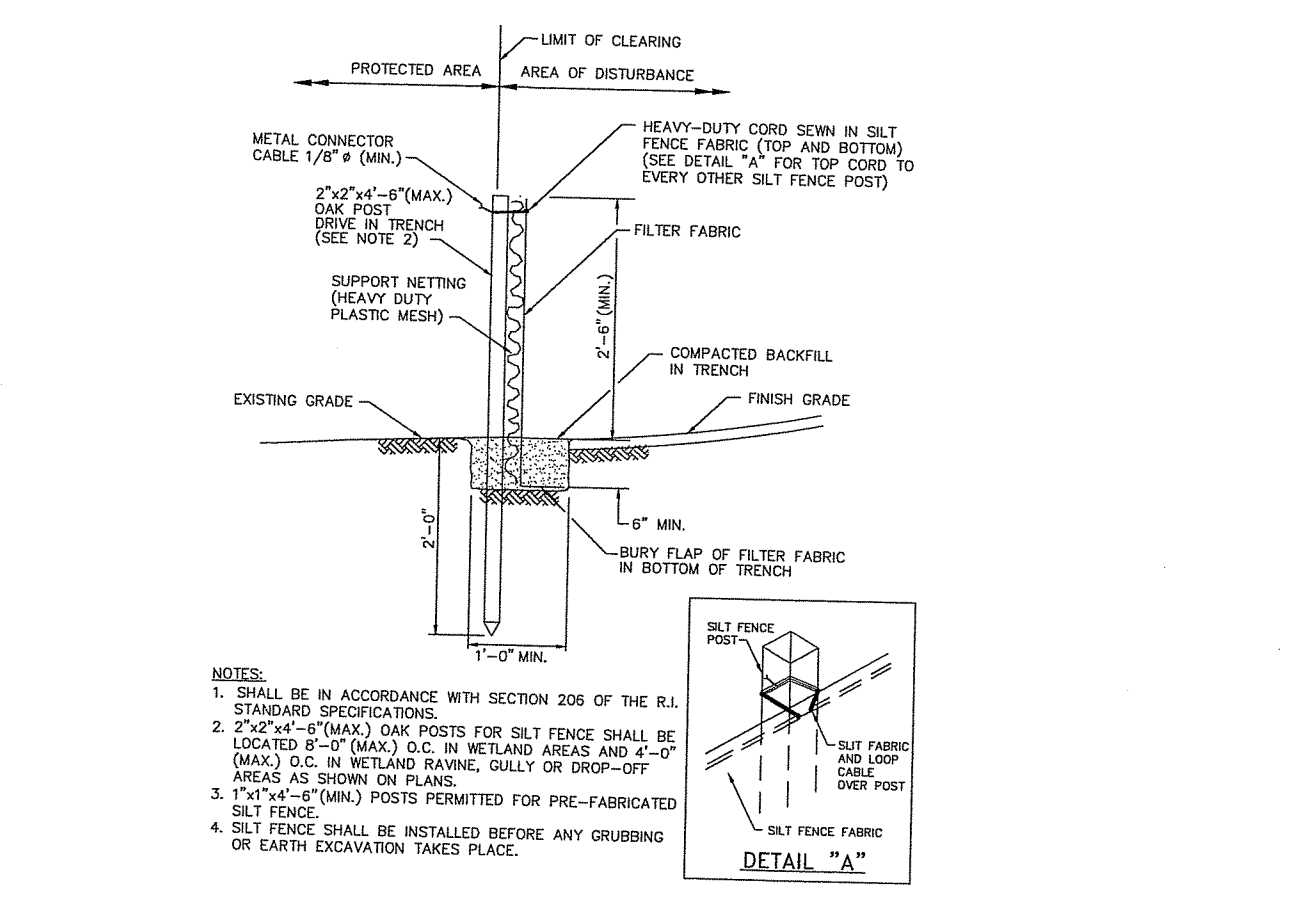
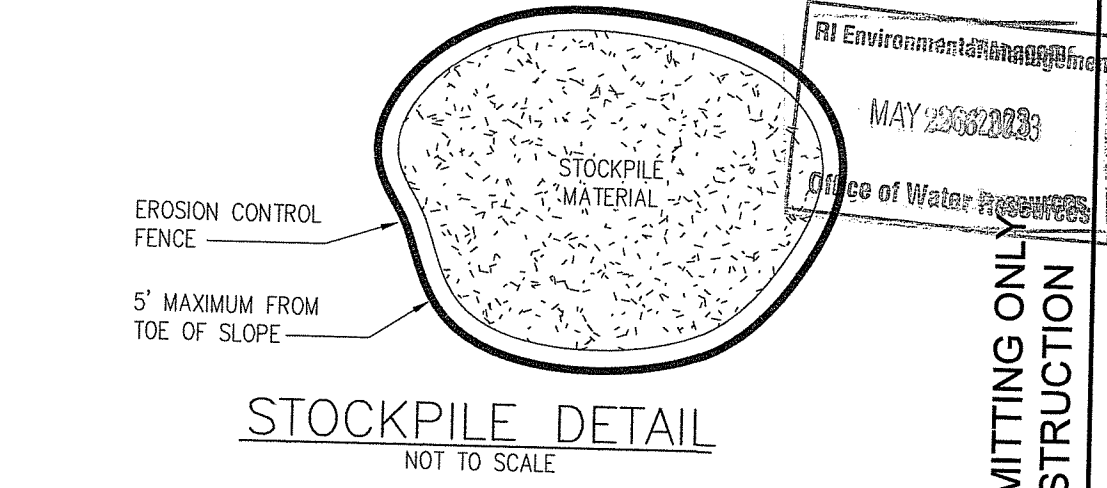
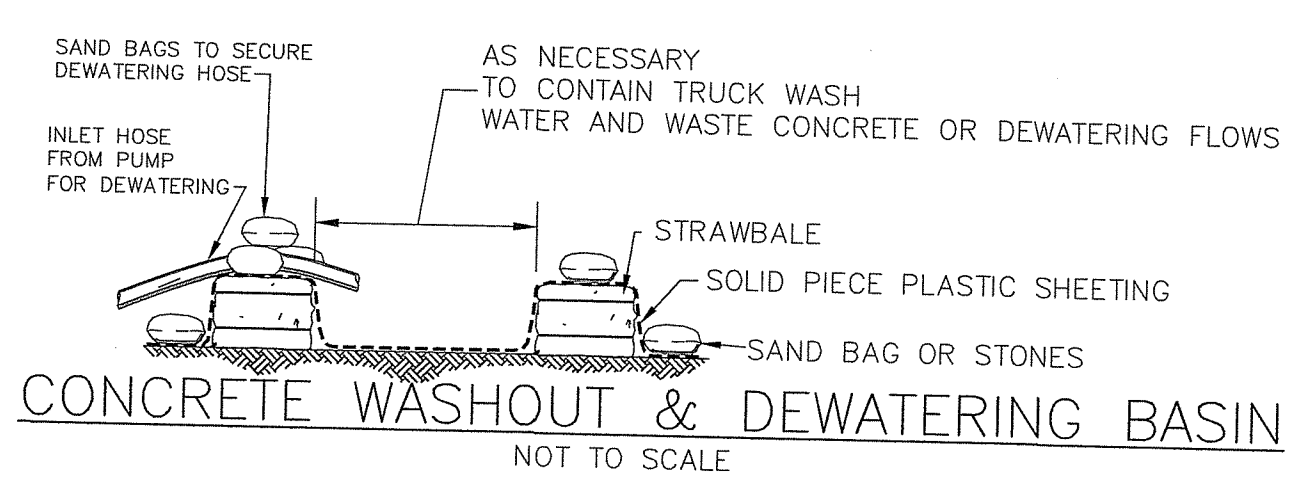
- PHASE 1:**
- CLEAR AND GRUB AREA FOR ROADWAY AND ASSOCIATED BMPs WITHIN THE LIMIT OF DISTURBANCE (2.3± ACRES).
 - ROUGH GRADE ROADWAY.
 - INSTALL AND COMPACT GRAVEL BASE COURSE FOR ROADS
 - CONSTRUCT UTILITIES (CULVERTS, CRITTER CROSSINGS, RIP RAP SECTIONS, & UTILITY POLES)
 - POUR BITUMINOUS CONCRETE COURSE.
 - CLEAN OUT SEDIMENT TRAPS AS NEEDED, REMOVING AND DISPOSING OF ALL ACCUMULATED SEDIMENT IN A SUITABLE AREA.
 - CONSTRUCT DRAINAGE BMPs WITHIN PHASE 1.
 - SEED AND LOAM AS NECESSARY AND FINISH REMAINDER OF CONSTRUCTION WITHIN PHASE.
 - ONCE ALL AREAS ARE STABILIZED, REMOVE TEMPORARY SOIL EROSION DEVICES.
 - CLEAN OUT ALL DRAINAGE BASINS AND STRUCTURES AS NEEDED. REMOVE AND DISPOSE ALL ACCUMULATED SEDIMENT IN A SUITABLE AREA.

- PHASE 2:**
- CLEAR AND GRUB AREA FOR HOUSE LOTS WITHIN THE LIMIT OF DISTURBANCE (2.0± ACRES).
 - ROUGH GRADE HOUSE LOTS
 - INSTALL AND COMPACT GRAVEL BASE COURSE FOR DRIVEWAYS AND FOUNDATIONS.
 - POUR FOUNDATIONS AND FRAME AND ROOF HOUSES.
 - CONSTRUCT UTILITIES (PRIVATE WELLS, DWTs, ELECTRIC, CABLE, COMMUNICATIONS).
 - LOAM AND SEED AS NECESSARY AND FINISH REMAINDER OF CONSTRUCTION WITHIN PHASE.
 - REMOVE TEMPORARY SOIL EROSION DEVICES.
 - CLEAN OUT ALL DRAINAGE BASINS AND STRUCTURES AS NEEDED. REMOVE AND DISPOSE ALL ACCUMULATED SEDIMENT IN A SUITABLE AREA.

- REFERENCE IS MADE TO APPENDIX G "POLLUTION PREVENTION AND SOURCE CONTROLS" OF THE RHODE ISLAND STORMWATER DESIGN AND INSTALLATION STANDARDS MANUAL, AMENDED 2015. THIS DOCUMENT SHALL BE REFERENCED WHEN IMPLEMENTING THE POLLUTION PREVENTION TECHNIQUES. A BRIEF SUMMARY OF THE TECHNIQUES IS PROVIDED BELOW, REFER TO THE ABOVE REFERENCE FOR ALL TECHNIQUES TO BE IMPLEMENTED.
- SOLID WASTE CONTAINMENT:
 - OWNER TO PROVIDE TRASH CONTAINER. CONTAINER TO HAVE A COVER TO PREVENT TRASH FROM BLOWING OUT.
 - SWEEP STREET/PARKING AREA ANNUALLY.
- HAZARDOUS MATERIALS CONTAINMENT:
 - CONTRACTOR TO STORE ALL HAZARDOUS MATERIALS INSIDE STORAGE LOCKERS OR OTHER APPROVED METHODS WHICH HAVE SECONDARY CONTAINMENT SYSTEMS.
 - SECONDARY CONTAINMENT SHALL BE INCLUDED WHEREVER SPILLS MIGHT OCCUR (E.G. FUELING AND HAZARDOUS MATERIAL TRANSFER AND LOADING AREAS).
- ROADS AND PARKING AREA MANAGEMENT:
 - SWEEP STREET/PARKING AREA ANNUALLY.
 - USE DEICING CHEMICALS AND SAND JUDICIOUSLY SINCE THEY CAUSE WATER QUALITY PROBLEMS. PROVIDE AND SPREAD IN ACCORDANCE WITH APPENDIX G RECOMMENDATIONS.
 - FLOW SNOW AND STORE ACCUMULATED SNOW PILES AWAY FROM BMPs.
 - DEBRIS SHOULD BE CLEANED FROM THE SITE PRIOR USING THIS PROVISION. IT SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION OPERATIONS. STABILIZATION OF ONE FORM OR ANOTHER AS DESCRIBED ABOVE SHALL BE ACHIEVED WITHIN 2 WEEKS OF FINAL GRADING.
 - GRASS AT 2-3 INCHES.
 - DEBRIS SHOULD BE CLEANED FROM THE SITE PRIOR USING THIS PROVISION. IT SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION OPERATIONS. STABILIZATION OF ONE FORM OR ANOTHER AS DESCRIBED ABOVE SHALL BE ACHIEVED WITHIN 2 WEEKS OF FINAL GRADING.
- LAWN, GARDEN, AND LANDSCAPE MANAGEMENT:
 - LAWN CONVERSION - REDUCE THE AMOUNT OF LAWN BY REPLANTING LAWN WITH GARDEN BEDS CONTAINING FLOWERS/SHRUBS. LAWNS REQUIRE MORE MAINTENANCE THAN FLOWER BEDS.
 - SOIL BUILDING - MAINTAIN A HEALTHY LAWN BY TESTING SOIL FOR PH, FERTILITY, COMPACTION, TEXTURE, AND EARTH WORM CONTENT.
 - GRASS SELECTION - SELECT DROUGHT TOLERANT GRASS SPECIES. REFER TO APPENDIX G FOR ADDITIONAL INFORMATION.
 - MOWING AND THATCH MANAGEMENT - KEEP GRASS HEIGHT HIGH SUCH AS 2 TO 3 INCHES IN HEIGHT. THIS WILL REDUCE WEED GROWTH.
 - FERTILIZATION - MINIMIZE FERTILIZATION. FERTILIZE NO MORE THAN TWICE A YEAR. APPLY FULLY SOLID FERTILIZER DOES NOT SPREAD ONTO IMPERVIOUS SURFACES. REFRAIN FROM THE USE OF PHOSPHATE BASED FERTILIZERS. REFER TO APPENDIX G FOR ADDITIONAL INFORMATION.
 - WEED MANAGEMENT - NEVER USE CHEMICAL HERBICIDES TO ELIMINATE OR CONTROL WEEDS. OWNER SHALL REMOVE WEEDS BY PULLING OR DIGGING OUT. REFER TO APPENDIX G FOR ADDITIONAL INFORMATION.
 - PEST MANAGEMENT - LIMIT PESTICIDE USE. CHOOSE PESTICIDES THAT POSE THE LEAST RISK TO HUMAN HEALTH AND THE ENVIRONMENT. REFER TO APPENDIX G FOR ADDITIONAL INFORMATION.
 - SENSIBLE IRRIGATION - WATER NO MORE THAN 1" PER WEEK. USE DROUGHT-RESISTANT GRASSES. CUT

SEDIMENTATION CONTROL PROGRAM:

- EXTREME CARE SHALL BE EXERCISED SO AS TO PREVENT ANY UNSUITABLE MATERIAL FROM ENTERING DOWNSTREAM WATERCOURSES AND STORMWATER DRAINAGE SYSTEMS.
- DURING CONSTRUCTION, THE CONTRACTOR AND/OR DEVELOPER SHALL BE RESPONSIBLE FOR MAINTAINING DRAINAGE AND RUN-OFF FLOW DURING STORMS.
- SEDIMENTATION CONTROL DEVICES SHALL BE INSPECTED CLOSELY AND MAINTAINED PROMPTLY AFTER EACH RAINFALL.
- CARE SHALL BE TAKEN SO AS NOT TO PLACE "REMOVED SEDIMENTS" WITHIN THE PATH OF EXISTING, NEWLY CREATED (BOTH TEMPORARY AND PERMANENT) OR PROPOSED WATERCOURSES OR THOSE AREAS SUBJECTED TO STORMWATER FLOWAGE.
- ADDITIONAL STRAW BALES OR SANDBAGS SHALL BE LOCATED AS CONDITIONS WARRANT OR AS DIRECTED BY THE ENGINEER.
- SEDIMENTATION TRAPS SHALL BE PROVIDED AT ALL DRAINAGE STRUCTURES DURING CONSTRUCTION (SILT SACS, STRAW BALES, TEMPORARY DITCHES, ETC).
- EROSION AND SEDIMENTATION CONTROLS SHALL BE INSTALLED AT THE SITE PRIOR TO THE START OF CONSTRUCTION AND BE PROPERLY MAINTAINED UNTIL ALL DISTURBED AREAS ARE STABILIZED INCLUDING:
 - THE INSTALLATION OF AN EROSION CONTROL FENCE IN ALL LOCATIONS SHOWN ON THE APPROVED SITE PLANS AND WHERE OTHERWISE NECESSARY TO PREVENT SEDIMENTS FROM ENTERING DOWNSTREAM WATERCOURSES AND STORMWATER DRAINAGE SYSTEMS.
 - ALL DISTURBED AREAS ARE TO BE PERMANENTLY STABILIZED WITH APPROVED GROUND COVER PRIOR TO THE COMPLETION OF THE PROJECT. AREAS EXPOSED FOR EXTENDED PERIODS ARE TO BE COMPLETELY COVERED WITH SPREAD STRAW MULCH.
 - BALE FILTERS WILL BE PROTECTED WITH SILT SACS & STRAW BALES. FILTERS THROUGHOUT THE CONSTRUCTION PERIOD AND UNTIL ALL DISTURBED AREAS ARE THOROUGHLY STABILIZED. SUMPS ARE TO BE CLEANED IMMEDIATELY FOLLOWING INSTALLATION OF PERMANENT PAVEMENT.
 - OUTLETS ARE TO BE PROTECTED BY STRAW BALE FILTERS UNTIL DISTURBED AREAS ARE PERMANENTLY STABILIZED WITH APPROVED GROUND COVER.
 - ALL CONTROL MEASURES WILL BE MAINTAINED IN EFFECTIVE CONDITION THROUGHOUT THE CONSTRUCTION PERIOD.
 - THE LIMITS OF ALL CLEARING, GRADING AND DISTURBANCE SHALL BE KEPT TO A MINIMUM WITHIN THE PROPOSED AREA OF CONSTRUCTION. ALL AREAS OUTSIDE OF THE LIMITS OF DISTURBANCE SHALL REMAIN TOTALLY UNDISTURBED.
 - UPON COMPLETION OF CONSTRUCTION OF SITE IMPROVEMENTS AND THE STORMWATER DRAINAGE SYSTEM, ALL CATCH BASINS AND STORM DRAIN PIPING SHALL BE CLEANED OF SEDIMENT. SEDIMENT FOREBAY AND SAND FILTER SHALL BE CLEANED OF SEDIMENT TO THE DESIGN GRADES INDICATED.
 - NO TIME TO TIME DURING CONSTRUCTION SHALL THE SUBGRADE OF THE SITE BE SUCH THAT SURFACE RUNOFF WILL BE PERMITTED TO DIRECTLY ENTER ANY DRAINAGE STRUCTURE. A TEMPORARY DEPRESSED AREA AROUND THE STRUCTURE SHALL BE INCORPORATED AS A SEDIMENTATION TRAP. THE MOUTH OF THE TRAP SHALL BE LINED WITH STRAW BALES AROUND THE COMPLETE PERIMETER. DURING ALL PRELIMINARY STAGES, THE TOP OF THE STRUCTURE SHALL ALWAYS BE HIGHER THAN THE SUBGRADE.
 - STRAW BALE EROSION CHECKS SHALL BE MAINTAINED AROUND ALL CATCH BASINS UNTIL ALL UPGRADIENT DISTURBED AREAS ARE STABILIZED BY PAVEMENT OR VEGETATION.
 - ALL COMPONENTS OF THE DRAINAGE SYSTEM MUST BE CLEANED OF SEDIMENT BY THE APPLICANT OR HIS REPRESENTATIVE IMMEDIATELY AFTER CONSTRUCTION IS COMPLETED.
 - INSPECT TEMPORARY DIVERSIONS AND THEIR COMPONENTS ONCE A WEEK AND AFTER EVERY RAINFALL. DAMAGE CAUSED BY CONSTRUCTION TRAFFIC OR OTHER ACTIVITY SHOULD BE REPAIRED BEFORE THE END OF EACH WORKING DAY.
 - TEMPORARY CHECK DAMS SHALL BE INSTALLED WITHIN DRAINAGED SWALES EVERY 300 FEET FOR SLOPES OF 1% OR LESS, EVERY 200 FEET FOR SLOPES OF 2%, EVERY 150 FEET FOR SLOPES OF 3% TO 5%, AND EVERY 100 FEET FOR SLOPES OF 5% OR GREATER.
 - CHECK DAMS SHALL BE INSTALLED EVERY 200 FEET ALONG THE PROPOSED SWALE.
 - SEDIMENTS SHOULD BE REMOVED FROM THE CHECK DAM WHEN IT REACHES ONE-HALF THE DAM HEIGHT.



TEST HOLE DATA

REV	DEPTH	TEXTURE	REV	DEPTH	TEXTURE	REV	DEPTH	TEXTURE	REV	DEPTH	TEXTURE	REV	DEPTH	TEXTURE	REV	DEPTH	TEXTURE
1-15	0-15"	FSL	2-15	0-12"	FSL	3-15	0-30"	FSL	4-15	0-27"	FSL	5-15	0-28"	FSL	6-15	0-21"	FSL
	15-25"	SL		12-20"	SL		30-37"	G.SL (FIRM)		27-102"	G.SL (FIRM)		27-110"	G.SL (FIRM)		27-110"	G.SL (FIRM)
	25-71"	G.SL (FIRM)		27-81"	G.SL (FIRM)		21-49"	G.LS (FIRM)		48-110"	G.SL (FIRM)		48-110"	G.SL (FIRM)		27-110"	G.SL (FIRM)
	E.S.H.G.W.T. = 24"			E.S.H.G.W.T. = 24"			E.S.H.G.W.T. = 24"			E.S.H.G.W.T. = 18"			E.S.H.G.W.T. = 25"			E.S.H.G.W.T. = 24"	
	NO REFUSAL			NO REFUSAL			NO REFUSAL			NO REFUSAL			NO REFUSAL			NO REFUSAL	
	TH21-1			TH21-2			TH21-3			TH21-4			TH21-5			TH21-6	
	0-48"	FSL		0-48"	FSL		0-30"	FSL		0-28"	FSL		0-28"	FSL		0-21"	FSL
	48-72"	SL		48-72"	SL		36-72"	LS		36-72"	LS		36-72"	LS		36-72"	LS
	72-120"	LS		72-120"	LS		36-96"	LS		36-96"	LS		36-96"	LS		36-96"	LS
	REDOX @ 24"			REDOX @ 24"			REDOX @ 30"			REDOX @ 40"			REDOX @ 48"			REDOX @ 48"	
	FIRM @ 24"			FIRM @ 24"			FIRM @ 30"			FIRM @ 40"			FIRM @ 48"			FIRM @ 48"	
	E.S.H.G.W.T. = 24"			E.S.H.G.W.T. = 24"			E.S.H.G.W.T. = 30"			E.S.H.G.W.T. = 36"			E.S.H.G.W.T. = 48"			E.S.H.G.W.T. = 48"	
	NO REFUSAL			NO REFUSAL			NO REFUSAL			NO REFUSAL			NO REFUSAL			NO REFUSAL	
	TH22-1			TH22-2			TH22-3			TH22-4			TH22-5			TH22-6	
	0-27"	SL		0-26"	SL		0-26"	SL		0-26"	SL		0-26"	SL		0-26"	SL
	27-96"	FSL		26-96"	FSL		26-96"	FSL		26-96"	FSL		26-96"	FSL		26-96"	FSL
	REDOX @ 24"			REDOX @ 24"			REDOX @ 24"			REDOX @ 24"			REDOX @ 24"			REDOX @ 24"	
	FIRM @ 27"			FIRM @ 27"			FIRM @ 27"			FIRM @ 27"			FIRM @ 27"			FIRM @ 27"	
	E.S.H.G.W.T. = 24"			E.S.H.G.W.T. = 24"			E.S.H.G.W.T. = 24"			E.S.H.G.W.T. = 24"			E.S.H.G.W.T. = 24"			E.S.H.G.W.T. = 24"	
	NO REFUSAL			NO REFUSAL			NO REFUSAL			NO REFUSAL			NO REFUSAL			NO REFUSAL	
	TH22-7			TH22-8			TH22-9			TH22-10			TH22-11			TH22-12	
	0-25"	SL		0-25"	SL		0-25"	SL		0-25"	SL		0-25"	SL		0-25"	SL
	25-43"	FSL		25-43"	FSL		25-43"	FSL		25-43"	FSL		25-43"	FSL		25-43"	FSL
	REDOX @ 24"			REDOX @ 24"			REDOX @ 24"			REDOX @ 24"			REDOX @ 24"			REDOX @ 24"	
	FIRM @ 27"			FIRM @ 27"			FIRM @ 27"			FIRM @ 27"			FIRM @ 27"			FIRM @ 27"	
	E.S.H.G.W.T. = 24"			E.S.H.G.W.T. = 24"			E.S.H.G.W.T. = 24"			E.S.H.G.W.T. = 24"			E.S.H.G.W.T. = 24"			E.S.H.G.W.T. = 24"	
	NO REFUSAL			NO REFUSAL			NO REFUSAL			NO REFUSAL			NO REFUSAL			NO REFUSAL	

ISSUED FOR PERMITTING ONLY
NOT FOR CONSTRUCTION

RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL
DATED: APR 11 2024 FILE # 23-0774
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

REVISIONS:

NO.	DATE	DESCRIPTION	BY
1.	3-10-23	DEM COMMENTS	DKM
2.	5-24-23	DEM COMMENTS	DKM

REGISTRATION:
DAVID KENNETH MANONI
REGISTERED PROFESSIONAL ENGINEER
(CIVIL)

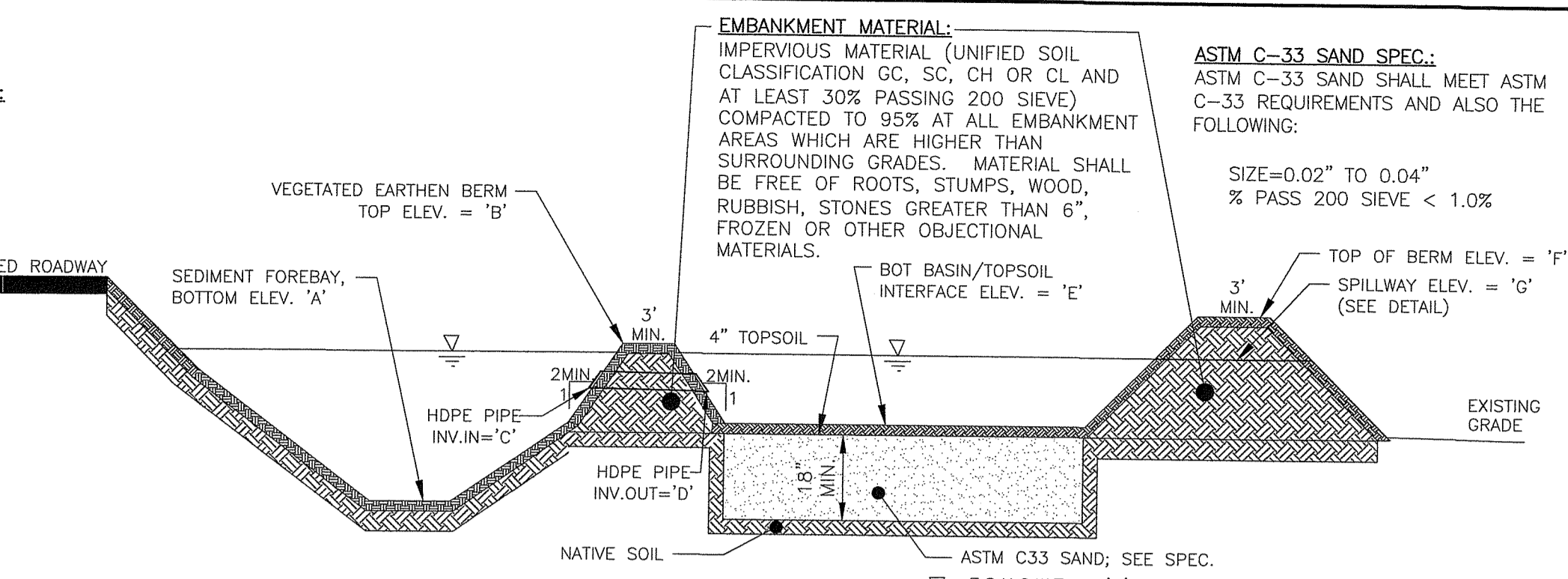
GROUND BREAKING
DESIGNS, LLC
CIVIL ENGINEERING SOLUTIONS

OWNER/APPLICANT
MARK MURPHY REAL ESTATE, LLC
595 TOWN FARM RD.
PASCOAG, RI 02859

HILLSIDE ESTATES
DETAIL SHEET - 1
A.P. 52, LOTS 12, 13, 23, & 24
BURRILLVILLE, RHODE ISLAND 02859
SCALE: AS SHOWN DATE: 06/20/22 SHEET 9 of 10
JOB NO.: 21.32
PHONE: (401) 622-2932
90 HIGHLAND AVE., SOUTH KINGSTOWN, RI 02879

SAND FILTER
DIMENSION/ELEVATION SCHEDULE:

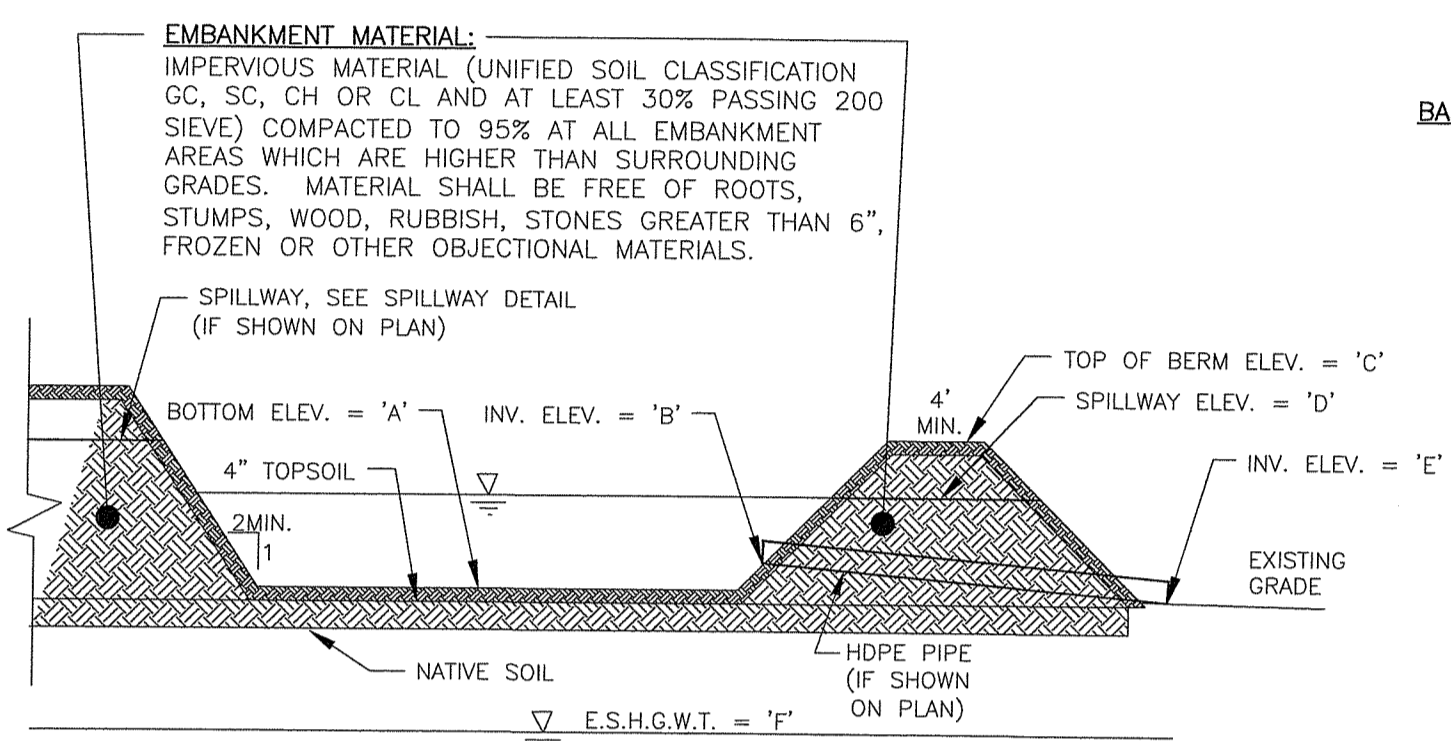
SAND FILTER	
'A' = 615.0'	
'B' = 618.2'	
'C' = 616.15'	
'D' = 616.00'	
'E' = 616.0'	
'F' = 618.2'	
'G' = 617.0'	
'H' = 613.0'	
WQF = 616.30'	
1YR = 617.11'	
10YR = 617.15'	
100YR = 617.17'	



SAND FILTER DETAIL
NOT TO SCALE

BMP SEED MIX:
CREEP RED FESCUE @ 0.45 LBS/1,000SF
TALL FESCUE @ 0.45 LBS/1,000SF

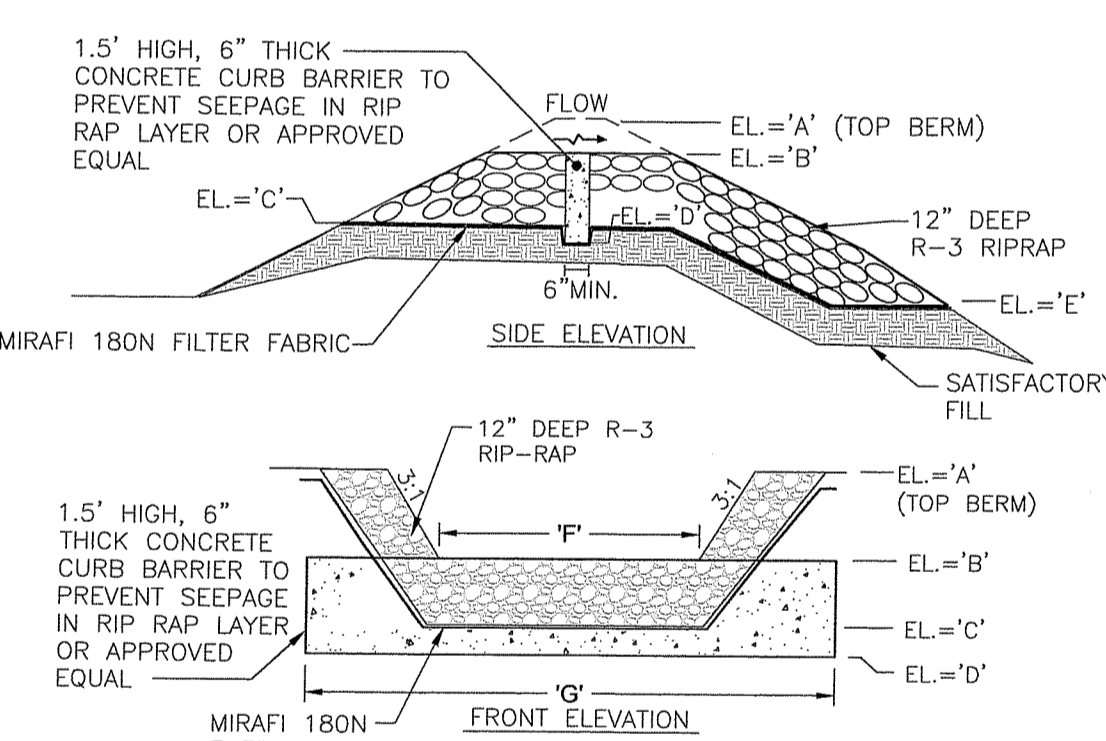
EMBANKMENT SEED MIX:
RED FESCUE @ 1.75 LBS/1,000SF
COLONIAL BENTGRASS, 'EXETER' @ 0.11 LBS/1,000SF
PERENNIAL RYEGRASS @ 0.11 LBS/1,000SF
BIRDSFOOT TREFOLI*, 'EMPIRE' @ 0.35 LBS/1,000SF
* USE INOCULATED SEED



EXTENDED DETENTION BASIN DETAIL
NOT TO SCALE

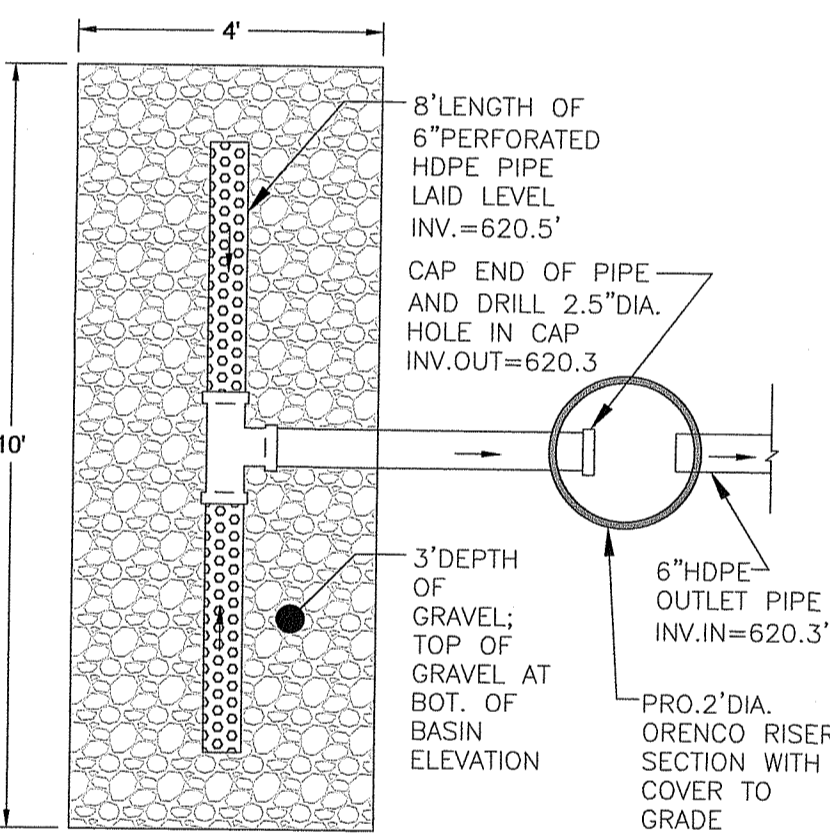
SPILLWAY DIMENSION/ELEVATION SCHEDULE:

SPILLWAY-1	SPILLWAY-2	OVERFLOW SPILLWAY-3	OVERFLOW SPILLWAY-4
'A' = 618.6'	'A' = 618.2'	'A' = 616.6'	'A' = 625.5'
'B' = 616.67'	'B' = 617.0'	'B' = 615.25'	'B' = 624.25'
'C' = 615.67'	'C' = 616.0'	'C' = 614.25'	'C' = 623.25'
'D' = 616.17'	'D' = 615.5'	'D' = 613.75'	'D' = 622.75'
'E' = 614.0'	'E' = 613.0'	'E' = 613.00'	'E' = 624.00'
'F' = 4'	'F' = 4'	'F' = 10'	'F' = 10'
'G' = 10'	'G' = 10'	'G' = 16'	'G' = 16'



SPILLWAY DETAIL
NOT TO SCALE

GRAVEL TRENCH OUTLET DETAIL
NOT TO SCALE

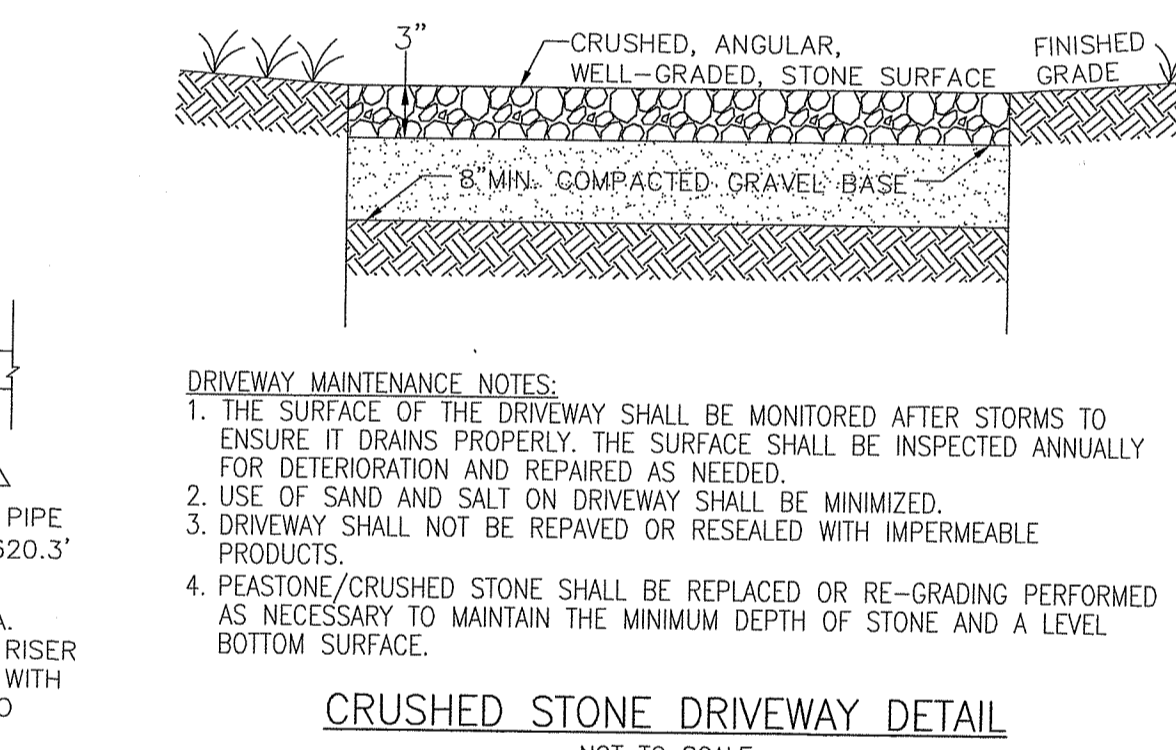


BASIN DIMENSION/ELEVATION SCHEDULE:

DRY EXTENDED DETENTION BASIN-1	
'A' = 613.0'	WQF = 613.00'
'B' = 614.0'	1YR = 614.11'
'C' = 616.6'	10YR = 615.29'
'D' = 615.25'	100YR = 615.69'
'E' = 613.0'	
'F' = 612.0'	

DRY EXTENDED DETENTION BASIN-2	
'A' = 622.5'	WQF = 622.55'
'B' = N/A	1YR = 623.39'
'C' = 625.5'	10YR = 624.29'
'D' = 624.25	100YR = 624.49'
'E' = N/A	
'F' = 621.5'	

CRUSHED STONE DRIVEWAY DETAIL
NOT TO SCALE



StormTech® SC-160LP Chamber

Designed to meet the most stringent industry performance standards for superior structural integrity while providing designers with a cost-effective method to save valuable land and protect water resources. The StormTech system is designed primarily to be used under parking lots, thus maximizing land usage for commercial and residential applications. StormTech chambers can also be used in conjunction with green infrastructure, thus enhancing the performance and extending the service life of these practices.

The SC-160LP chamber was developed for infiltration and detention in shallow cover applications.

- Only 12" (305 mm) required from top of chamber to bottom of pavement
- Only 12" (305 mm) tall

Nominal Chamber Specifications
(Units in inches)

Size (L x W x H)
85.4" x 29" x 12"

Capacity
2700 mm x 652 mm x 305 mm

Chamber Storage
6.85 ft³ (0.19 m³)

Min. Installed Storage
15.8 ft³ (0.42 m³)

Weight
24.0 lbs (10.9 kg)

Shipping
132 chambers/pallet
14.5 end cap/pallet
4" (102 mm) total height above
4" (102 mm) total height below
4" (102 mm) total height

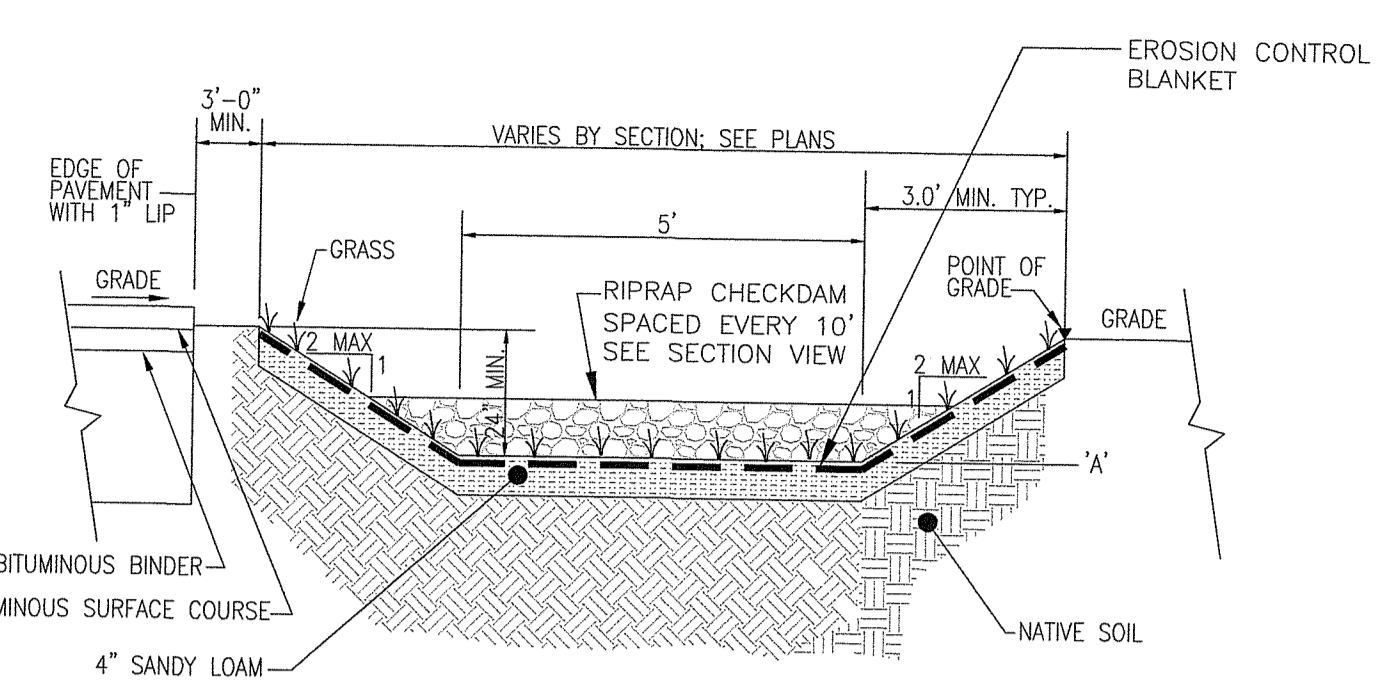
INSTALL WITHOUT END CAPS

SC-160LP CRITTER CROSSING DETAIL
NOT TO SCALE

WET SWALE
DIMENSION/ELEVATION SCHEDULE:

WET SWALE-1	
LENGTH = 59'	(INCLUDING SEDIMENT FOREBAY)
'A' = 623.0'	- 622.2'
'B' = 6'	
'C' = 4'	
100-YEAR STORM PEAK FLOW THROUGH VELOCITY = 1.2 FPS	

WET SWALE-2	
LENGTH = 78'	(INCLUDING SEDIMENT FOREBAY)
'A' = 623.0'	- 622.2'
'B' = 12'	
'C' = 8'	
100-YEAR STORM PEAK FLOW THROUGH VELOCITY = 2.9 FPS	



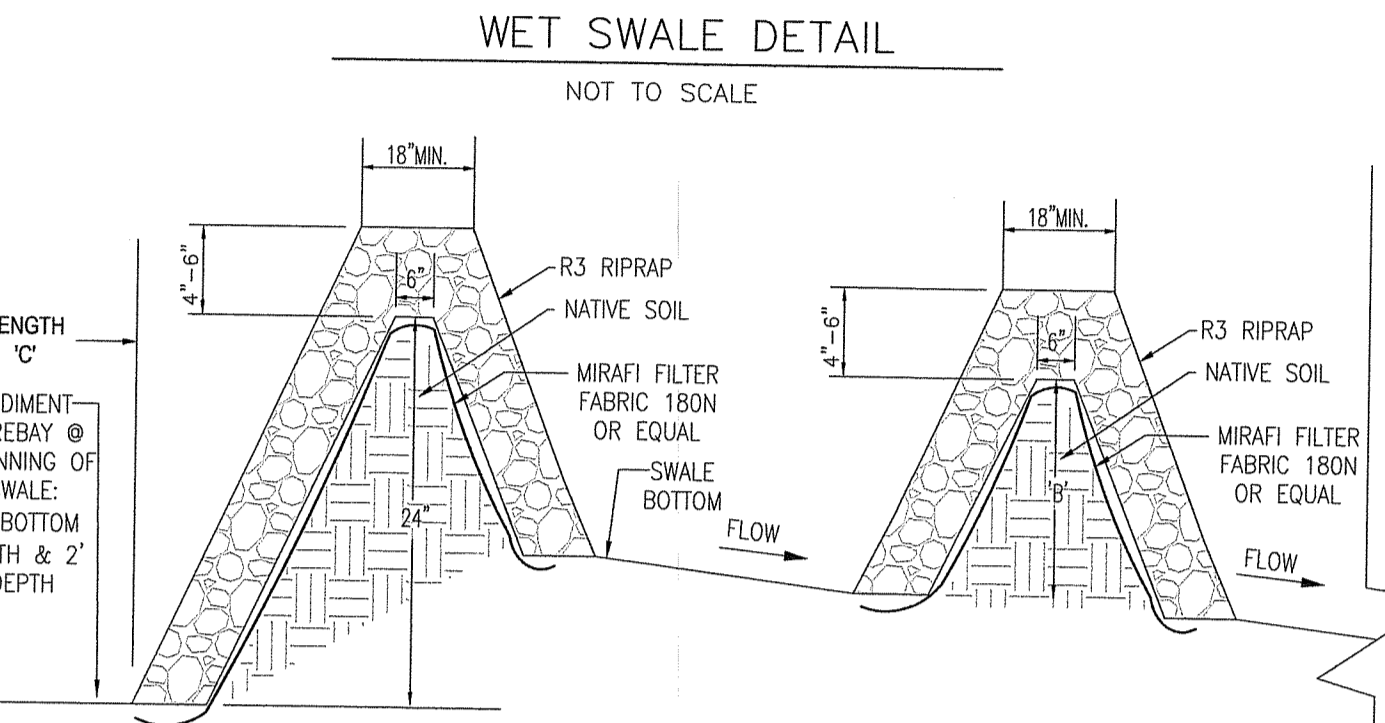
WET SWALE DETAIL
NOT TO SCALE

R-2 RIPRAP SPECIFICATION
100% PASSING 0-50% PASSING 0-15% PASSING
4" 2" 1"

R-3 RIPRAP SPECIFICATION
100% PASSING 0-50% PASSING 0-15% PASSING
8" 4" 2"

R-4 RIPRAP SPECIFICATION
100% PASSING 0-50% PASSING 0-15% PASSING
14" 7" 4"

RIPRAP CHECK DAMS SECTION VIEW
NOT TO SCALE



BIORETENTION SOIL SPEC.:

BIORETENTION SOIL MIX (BY VOLUME):	
SAND	85 TO 88%
ORGANIC MATTER	3 TO 5%
SILT	10 TO 12%
CLAY	0 TO 2%

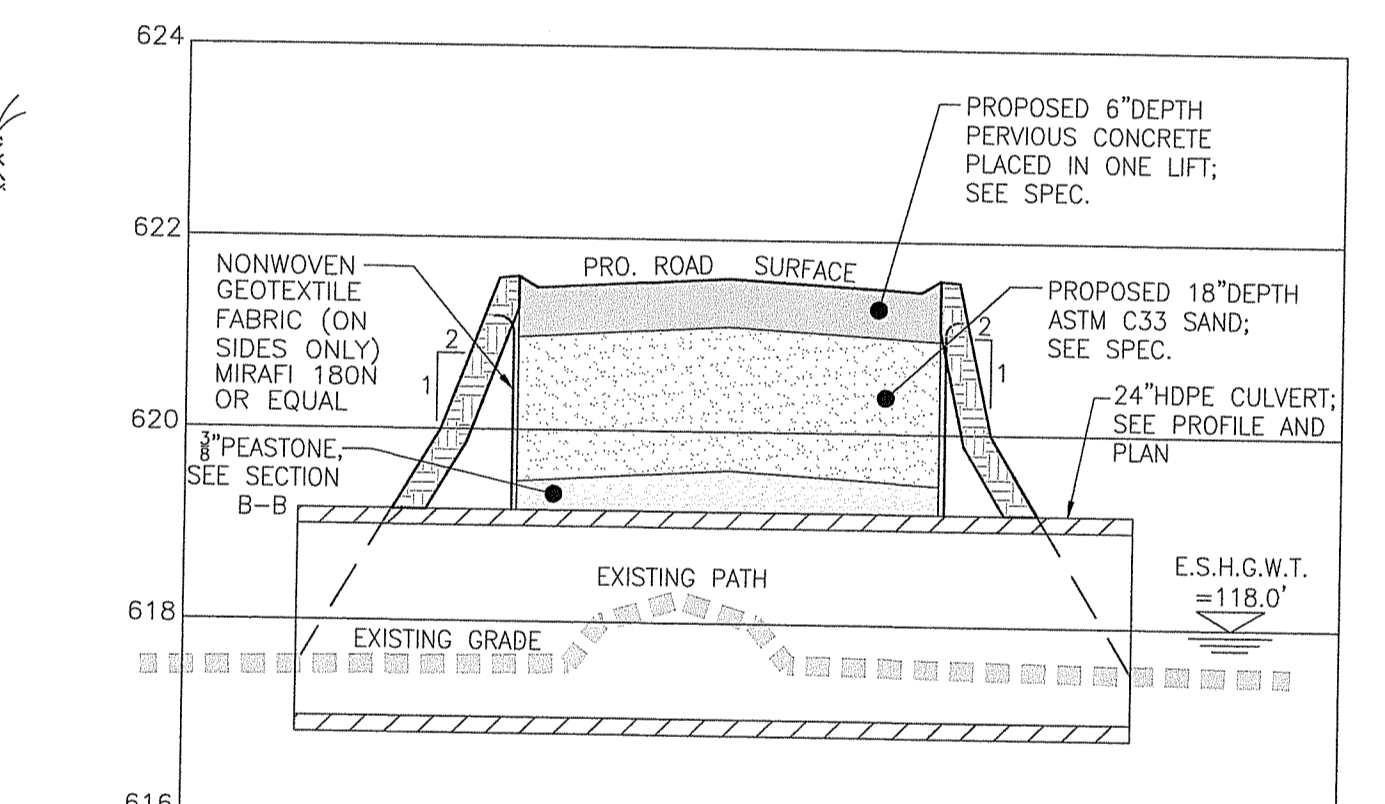
WET SWALE & VEGETATED SWALE MAINTENANCE NOTES:

- OPEN CHANNEL PRACTICES SHALL BE INSPECTED ANNUALLY AND AFTER STORMS OF GREATER THAN OR EQUAL TO THE 1-YEAR, 24-HOUR TYPE III PRECIPITATION EVENT.
- SEDIMENT BUILD-UP WITHIN THE BOTTOM OF THE CHANNEL SHALL BE REMOVED WHEN GREATER THAN OR EQUAL TO 3" DEPTH OF SEDIMENT HAS BEEN ACCUMULATED IN THE CHANNEL.
- ERODED SIDE SLOPES AND CHANNEL BOTTOMS SHALL BE STABILIZED AS NECESSARY.
- IN THE ABSENCE OF EVIDENCE OF CONTAMINATION, REMOVED DEBRIS MAY BE TAKEN TO A LANDFILL OR OTHER PERMITTED FACILITY.
- SEDIMENT TESTING MAY BE REQUIRED PRIOR TO SEDIMENT DISPOSAL WHEN CONTAMINATION IS PRESENT.
- VEGETATION SHALL BE MOWED AS REQUIRED TO MAINTAIN GRASS HEIGHTS IN THE 4-6 INCH RANGE, WITH MANDATORY MOWING ONCE GRASS HEIGHTS EXCEED 10 INCHES.
- IF THE SURFACE OF THE DRY SWALE BECOMES CLOGGED TO THE HOURS AFTER STANDING WATER IS OBSERVED ON THE SURFACE 48 HOURS AFTER PRECIPITATION EVENTS, THE BOTTOM SHALL BE ROTOLLOTTED OR CULTIVATED TO BREAK UP ANY HARD-PACKED SEDIMENT, AND THEN RESEDED.
- EVERY FIVE YEARS, THE CHANNEL BOTTOM SHOULD BE SCRAPPED TO REMOVE SEDIMENT AND TO RESTORE ORIGINAL CROSS SECTION AND INFILTRATION RATE, AND SHOULD BE SEED TO RESTORE GROUND COVER.
- DURING INSPECTION, ANY STRUCTURAL COMPONENTS OF THE SYSTEM, INCLUDING TRASH RACKS, VALVES, PIPES, AND SPILLWAY STRUCTURES, SHOULD BE CHECKED FOR PROPER FUNCTION. ANY CLOGGED OPENINGS SHOULD BE CLEANED OUT AND REPAIRS SHOULD BE MADE WHERE NECESSARY.

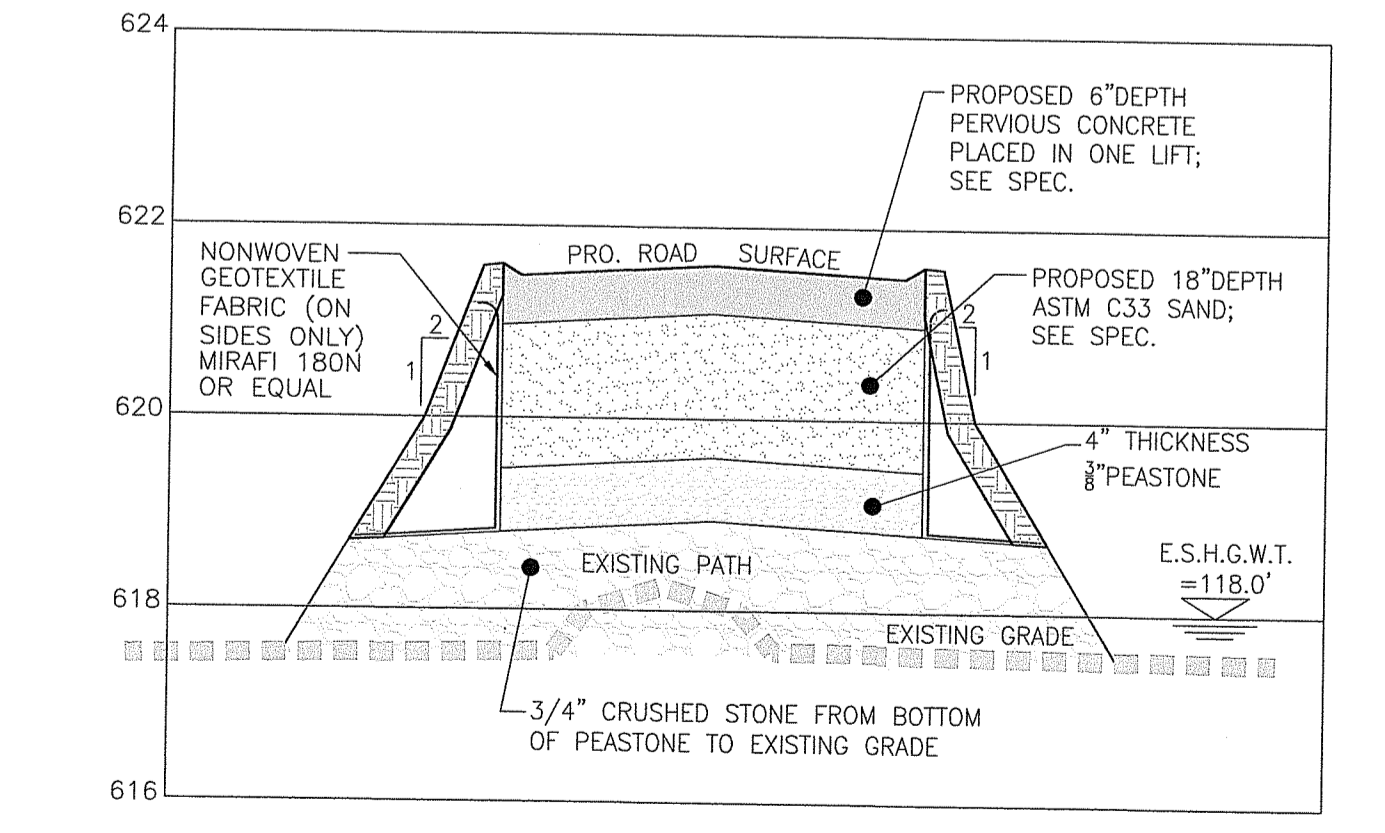
PERVIOUS CONCRETE SPECIFICATION

- CEMENT: PORTLAND CEMENT TYPE I, II, OR V CONFORMING TO ASTM C 150 OR PORTLAND CEMENT TYPE IP OR IS CONFORMING TO ASTM C 595.
- AIR ENTRAINING ADMIXTURES SHALL COMPLY WITH ASTM C 260
- CHEMICAL ADMIXTURES SHALL COMPLY WITH ASTM C 494.
- SYNTHETIC FIBER SHALL BE IN ACCORDANCE TO ASTM C 1116 TYPE III MADE OF POLYPROPYLENE.
- CELLULOSE FIBERS SHALL BE IN ACCORDANCE TO ASTM C 1116 TYPE IV MADE OF NATURAL FIBERS CONFORMING TO ASTM D 7357.
- AGGREGATES
- COARSE AGGREGATES SHALL MEET THE SIZE AND GRADING REQUIREMENTS AS DEFINED IN ASTM D 448 AND SHALL COMPLY WITH ASTM C 33
- NO. 8 (3/8 INCH) POORLY GRADED AGGREGATE SHALL BE USED WITH NO MORE THAN 15% PASSING THE NO. 4 SIEVE
- FOR 5 - 10% PASSING NO. 4 SIEVE ADD 125 LB/YD³ FINE AGGREGATE
- FOR 0 - 5% PASSING NO. 4 SIEVE ADD 200 LB/YD³ FINE AGGREGATE
- WATER SHALL COMPLY WITH ASTM C 1602
- MIXTURE PROPORTIONS
- AGGREGATE/CEMENTITIOUS RATIO: 4:1 TO 5:1
- CONCRETE MIXTURE UNIT WEIGHT: 115 LB/FT³ TO 135 LB/FT³
- CONCRETE MIXTURE VOID CONTENT: 15%-25%
- CEMENTITIOUS CONTENT: RATIO OF 450 LBS/YD³ TO 600 LBS/YD³
- SUPPLEMENTARY CEMENTITIOUS CONTENT: FLY ASH: 25% MAX., SLAG 25% MAX. OR COMBINED 35% MAX.
- WATER - CEMENT RATIO: 0.28 - 0.35
- FIBER REINFORCEMENT
- SYNTHETIC POLYPROPYLENE: 1 LB/YD³ TO 1.5 LB/YD³
- CELLULOSE RANGE: 1.5 LB/YD³ TO 3 LB/YD³
- MACROSYNTHETIC FIBERS PER MANUFACTURER'S RECOMMENDATION
- ADDMIXTURES SHALL BE USED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.
- MIX WATER: MIX WATER SHALL BE SUCH THAT THE CEMENT PASTE DISPLAYS A WET METALLIC SHEEN WITHOUT CAUSING THE PASTE TO FLOW FROM THE AGGREGATE. INSUFFICIENT MIX WATER RESULTS IN INCONSISTENCY IN THE MIX AND POOR BOND STRENGTH. JOBSITE ADDITION OF MIX WATER IS PERMITTED TO ADJUST FOR DRY MIXTURES IN CONCRETE TRANSIT MIXERS; ADD WATER AT 0.5 GAL/CY AND REMIX FOR TWO MINUTES.
- PLATE COMPACTOR WITH A MIN. BASE AREA OF 2 SQ.FT. EXERTING A MIN. OF 10 PSI VERTICAL PRESSURE THROUGH A TEMPORARY COVER OF 3" PLYWOOD.
- CONTRACTION JOINTS TO BE CREATED BY ROLLING, FORMING, OR SAWING. ROLLED JOINTS SHALL BE FORMED USING A "PIZZA CUTTER" ROLLER TO WHICH A BEVELED FIN WITH A MINIMUM DEPTH OF 3/4" THICKNESS OF THE SLAB HAS BEEN WELDED AROUND THE CIRCUMFERENCE OF A STEEL ROLLER.
- ALL PERVIOUS CONCRETE MIXTURE PROPORTIONS INCLUDING MATERIAL WEIGHTS, WATER-CEMENTITIOUS RATIO, ABSOLUTE VOLUMES INCLUDING DENSITY (UNIT WEIGHT) AND VOID CONTENT OF FRESHLY MIXED PERVIOUS CONCRETE MIXTURE PER ASTM C 1688.
- AGGREGATE TYPE, SOURCE, GRADING, DRY-RODDING UNIT WEIGHT, PERCENT PASSING NUMBER 4 SIEVE AND VOID CONTENT.
- CEMENT, SUPPLEMENTARY CEMENTITIOUS MATERIALS, SYNTHETIC (POLYPROPYLENE) OR CELLULOSE FIBERS AND CHEMICAL ADMIXTURE MANUFACTURER CERTIFICATIONS.
- IN-PLACE HARDENED DENSITY (UNIT WEIGHT) AND VOID CONTENT OF PROPOSED PERVIOUS CONCRETE MIXTURE PER ASTM C 1754.
- PERVIOUS CONCRETE SHALL NOT BE PLACED WHEN THE AMBIENT TEMPERATURE IS 40°F OR LOWER AND/OR IF THE TEMPERATURE FOR THE FOLLOWING SEVEN (7) DAYS IS PREDICTED TO BE 40°F OR LOWER.
- PERVIOUS CONCRETE SHALL NOT BE PLACED WHEN THE AMBIENT TEMPERATURE IS 90°F OR HIGHER AND/OR IF THE TEMPERATURE FOR THE FOLLOWING SEVEN (7) DAYS IS PREDICTED TO BE 90°F OR HIGHER.
- PERVIOUS CONCRETE PAVEMENT SHALL NOT BE PLACED ON FROZEN COARSE AGGREGATE OR SUBGRADE.
- EVAPORATION CONTROL MEASURES SHALL BE APPLIED FROM THE TIME OF DISCHARGE UNTIL THE PAVEMENT IS COVERED WITH POLYETHYLENE SHEETING TO PREVENT MOISTURE LOSS DURING PLACEMENT OPERATIONS.
- ISOLATION JOINT MATERIAL SHALL BE FULL DEPTH OF PAVEMENT, 3" OR 3" PROFLEX VINYL EXPANSION JOINT WITH ASTM D 1751 OR ASTM D 1752.

PERVIOUS PAVEMENT SAND FILTER & CULVERT SECTION A-A
NOT TO SCALE



PERVIOUS PAVEMENT SAND FILTER SECTION B-B
NOT TO SCALE



- PERVIOUS PAVEMENT SAND FILTER NOTES:**
- AN ENGINEER SHALL PROVIDE SOIL TESTING DURING THE CONSTRUCTION PHASE OF THE PROJECT TO CONFIRM THAT THE ACTUAL INFILTRATION RATE IS EQUAL OR GREATER THAN THE DESIGN INFILTRATION RATE IN ACCORDANCE WITH APPENDIX H (SECTION H.1.3) OF THE RHODE ISLAND STORMWATER DESIGN AND INSTALLATION STANDARDS MANUAL.

PERVIOUS PAVEMENT SAND FILTER SECTION B-B
NOT TO SCALE

RI DEWM FWWP & SUBDIVISION SUITABILITY APPLICATION PLAN
HILLSIDE ESTATES
DETAIL SHEET - 2
A.P. 52, LOTS 12, 13, 23, & 24
BURRILLVILLE, RHODE ISLAND 02859
SCALE: AS SHOWN DATE: 06/20/22 SHEET 10 of 10

OWNER/APPLICANT
MARK MURPHY REAL ESTATE, LLC
595 TOWN FARM RD.
PASCOAG, RI 02859

NO.	DATE	DESCRIPTION	BY
1.	3-10-23	DEM. COMMENTS	DKM
2.	5-24-23	DKM	

REGISTRATION:
DAVID KENNETH MANONI
REGISTERED PROFESSIONAL ENGINEER (GMA)

GROUND BREAKING
DESIGNS, LLC
CIVIL ENGINEERING SOLUTIONS
90 HIGHLAND AVE., SOUTH KINGSTOWN, RI 02879 | PHONE: (401) 622-2932

OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL
DATED: APR 01 2024 FILE #: 2023-0074
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
ISSUED FOR PERMITTING ONLY, NOT FOR CONSTRUCTION