

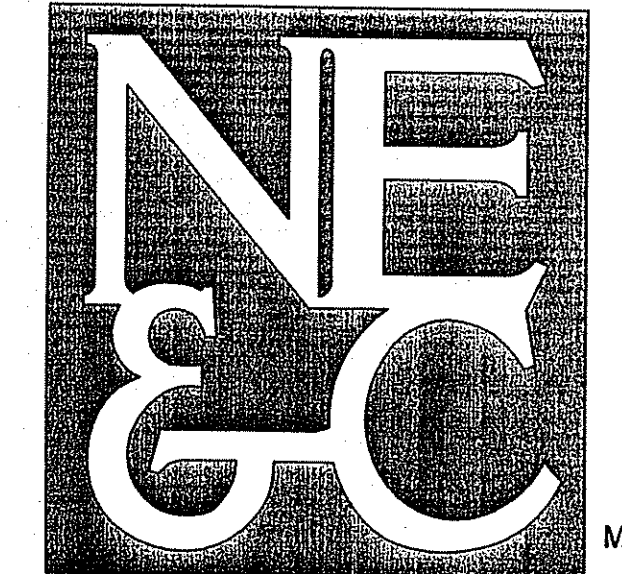
EXCELLENCE IN ENGINEERING

# THE OAKS AT HARRIS ROAD

## A.P. 45, LOT 92

### HARRIS ROAD SMITHFIELD, RHODE ISLAND 02917

NORTHEAST ENGINEERS & CONSULTANTS, INC.



SITE/CIVIL  
LAND PLANNING  
WATERFRONT  
SURVEYING  
GEOTECHNICAL  
ENVIRONMENTAL  
TRANSPORTATION  
STRUCTURAL  
MATERIALS TESTING

A KNOWLEDGE CORPORATION®

55 JOHN CLARKE ROAD, MIDDLETOWN, RI 02842  
PHONE (401) 849-0810 FAX (401) 846-4169  
WWW.NORTHEASTENGINEERS.COM

**OWNER:**

SMITHFIELD HILL, LLC  
c/o KIRKBRÆ DEVELOPMENT  
1300 HIGHLAND CORPORATE PARK  
CUMBERLAND, RI 02864  
(401) 312-8100

**PROJECT COORDINATOR:**

THE PEREGRINE GROUP, LLC  
293 BOURNE AVENUE  
RUMSFORD, RI 02916  
(401) 270-0600

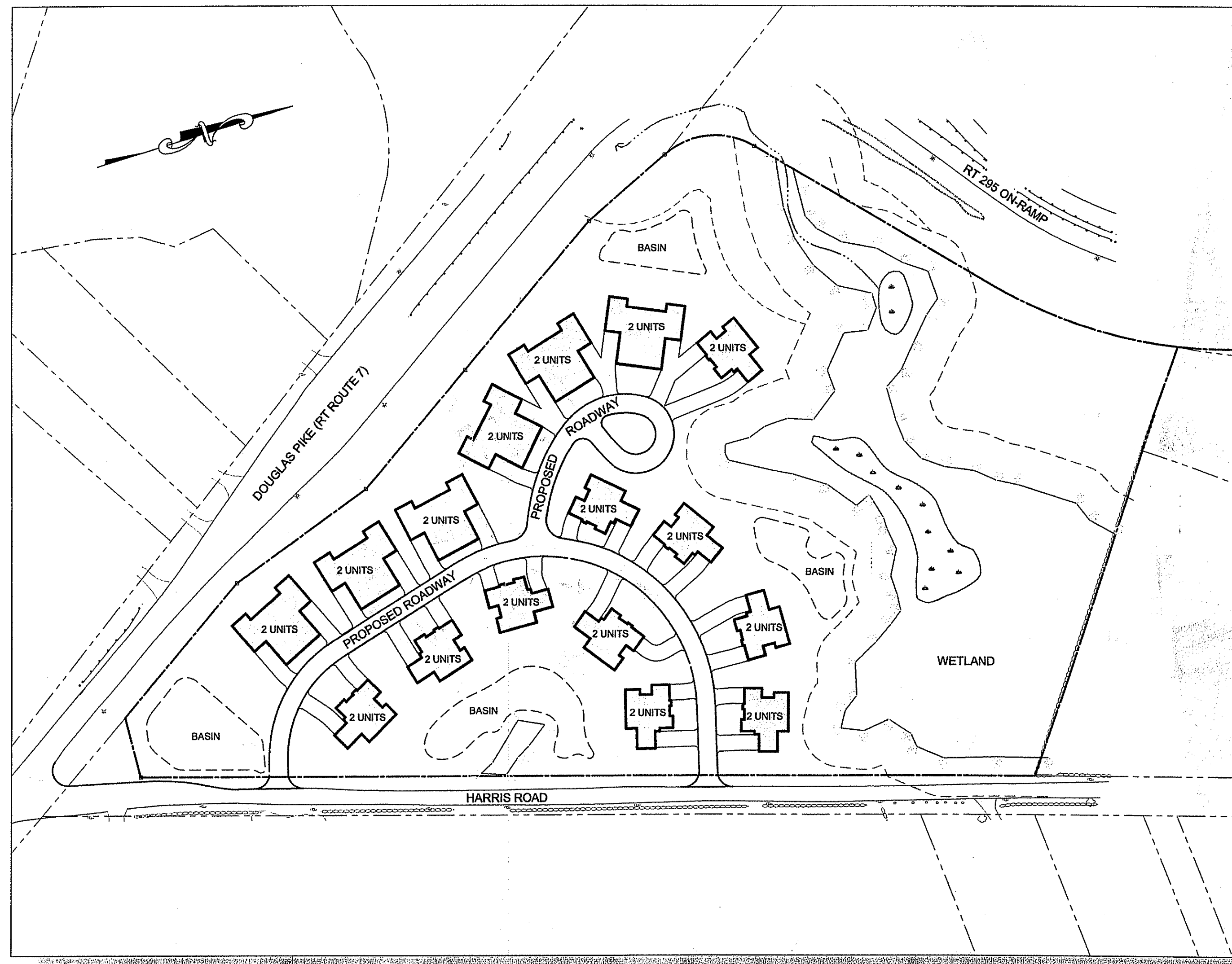
**CONSULTANT TEAM:**

PROJECT COORDINATOR	PEREGRINE GROUP
CIVIL/SITE	NORTHEAST ENGINEERS
SURVEYOR	NORTHEAST ENGINEERS / WATERMAN
LANDSCAPE	NORTHEAST ENGINEERS
ELECTRICAL	TBD
MECHANICAL	TBD
STRUCTURAL	TBD
GEOTECHNICAL	TBD
COST ESTIMATE	TBD

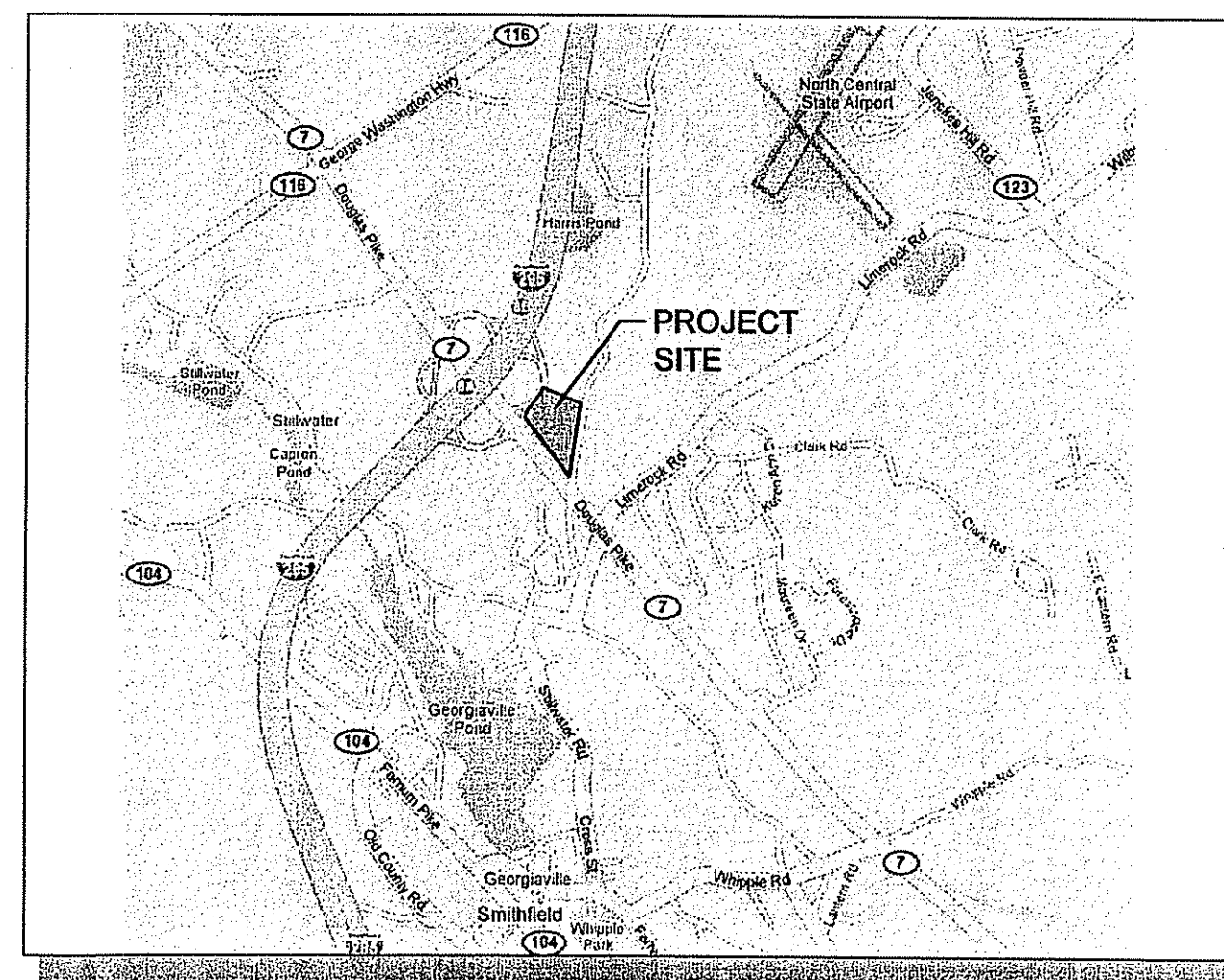
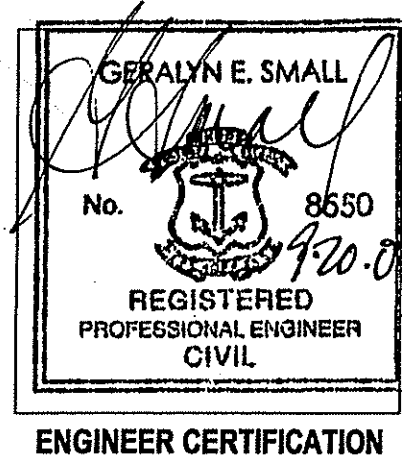
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED JAN 16 2008 FILE # 07-0230  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

**DRAWING INDEX**

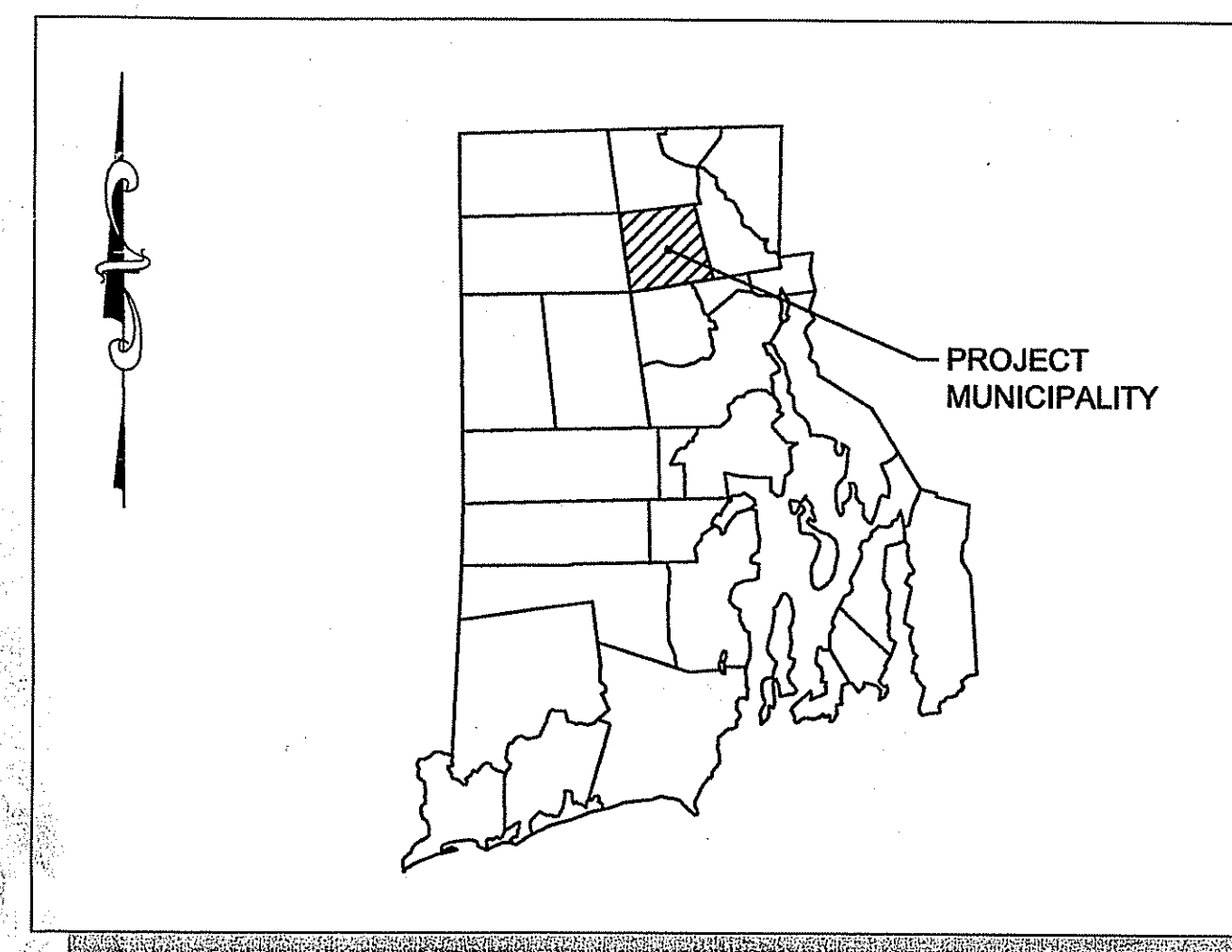
T-1	TITLE SHEET	SHEET 1
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**SITE PLAN**  
NOT TO SCALE



**LOCUS MAP**  
NOT TO SCALE



**STATE MAP**  
NOT TO SCALE

**SUBMISSION SUMMARY**

AGENCY:	DATE:	REV. DATE:	COMMENTS:
RIDOT	MAY 2007		PAP PERMIT
RIDEM	MAY 2007		WETLANDS PERMIT
TOWN OF SMITHFIELD	TBD		PRELIMINARY SUBMITTAL
RIDEM	SEPT 2007		PER COMMENTS

**SMITHFIELD DEVELOPMENT CONSTRUCTION STANDARDS**

- A PRE-CONSTRUCTION MEETING SHALL BE HELD WITH THE SMITHFIELD ADMINISTRATION (ADMIN.) OFFICER, MUNICIPAL ENGINEER AND DIRECTOR OF PUBLIC WORKS AT LEAST SEVEN (7) DAYS PRIOR TO THE START OF ANY SUBDIVISION OR DEVELOPMENT IMPROVEMENTS. THE DEVELOPER, OR HIS REPRESENTATIVE, AND THE ON-SITE PROJECT MANAGER SHALL ATTEND THIS MEETING.
  - NO STEP IN THE CONSTRUCTION OF REQUIRED IMPROVEMENTS SHALL COMMENCE UNTIL THE SMITHFIELD PLANNING BOARD HAS BEEN NOTIFIED, IN WRITING, AT LEAST SEVENTY-TWO (72) HOURS IN ADVANCE.
  - EACH PHASE OR STEP IN THE CONSTRUCTION OF REQUIRED IMPROVEMENTS SHALL BE INSPECTED ON-SITE AND APPROVED, IN WRITING (INCLUDING DATE OF INSPECTION AND SIGNATURE OF AUTHORIZED INSPECTOR), ON THE JOB BY THE MUNICIPAL ENGINEER OR HIS REPRESENTATIVE. ANY STAGE OF CONSTRUCTION BEGUN WITHOUT WRITTEN CONSENT OF THE MUNICIPAL ENGINEER SHALL BE AT THE DEVELOPER'S RISK. NO SUBSEQUENT PHASE OR STEP SHALL COMMENCE UNTIL SUCH INSPECTION AND APPROVAL HAS BEEN COMPLETED. AS A MINIMUM, THE DEVELOPER SHALL PROVIDE FOR ON-SITE INSPECTION AT THE FOLLOWING STAGES IN THE CONSTRUCTION IMPROVEMENTS:
    - DURING INSTALLATION OF ALL UNDERGROUND DRAINAGE AND FOLLOWING INSTALLATION OF UTILITIES, PRIOR TO BACK FILLING IN ADDITION, THE SMITHFIELD GAS COMPANY, SMITHFIELD WATER SUPPLY BOARD AND THE SMITHFIELD SEWER AUTHORITY, AS APPROPRIATE, SHALL CONDUCT ON-SITE INSPECTIONS DURING INSTALLATION OF UTILITIES.
    - DURING PREPARATION OF THE SUB-BASE, BACK FILLING AND THE INSTALLATION OF CURBING OR SHOULDERS, PRIOR TO APPLICATION OF THE BASE COURSE.
    - DURING SPREADING AND COMPACTION OF THE BASE COURSE, PRIOR TO THE APPLICATION OF THE PENETRATION COAT.
    - IMMEDIATELY PRIOR TO AND DURING THE APPLICATION AND COMPACTION OF THE SURFACE COURSE ON THE ROADWAY AND SIDEWALKS.
    - DURING COMPLETION OF ALL IMPROVEMENTS AND INSTALLATION OF MONUMENTS.
    - ADDITIONAL INSPECTIONS MAY BE REQUIRED BY THE PLANNING BOARD ENGINEER AT SUCH OTHER INTERVALS AS DEEMED NECESSARY TO ASSURE PROPER CONSTRUCTION OF IMPROVEMENTS.
    - THE PLANNING BOARD ENGINEER, UPON PROPER NOTIFICATION, SHALL NOT IMPEDE THE CONSTRUCTION OF IMPROVEMENTS BY DELAYING INSPECTION AND APPROVAL WITHOUT JUST CAUSE.
  - UPON COMPLETION OF CONSTRUCTION OF ALL REQUIRED IMPROVEMENTS, THE CONTRACTOR SHALL FURNISH TWO (2) SETS OF "AS-BUILT DRAWINGS" OF SUCH IMPROVEMENTS TO THE ADMIN. OFFICER. AS-BUILT DRAWINGS SHALL CONTAIN ALL OF THE INFORMATION ON THE FINAL PLAN AND SET FORTH: THE EXACT LOCATION OF ALL SIDEWALKS, STREETS, MONUMENTS, WATER, SEWER, GAS AND DRAINAGE PIPES, OTHER UNDERGROUND OR ABOVE GROUND UTILITIES AND ALL OTHER PUBLIC IMPROVEMENTS, AS INSTALLED.
  - SHOULD ANY CLARIFICATION BE REQUIRED ON THE CONSTRUCTION SPECIFICATIONS, REFERENCE IS HEREBY MADE TO THE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION," PUBLISHED BY THE STATE BOARD OF RHODE ISLAND, DEPARTMENT OF PUBLIC WORKS, DIVISION OF ROADS AND BRIDGES, AS REVISED. IN GENERAL ALL CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION (RIDOT), DIVISION OF PUBLIC WORKS, STANDARD DETAILS, AS REVISED AND STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS, DEPARTMENT OF TRANSPORTATION, DIVISION OF PUBLIC WORKS, STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AS REVISED.
  - CONSTRUCTION SHALL ADHERE TO THE TOWN OF SMITHFIELD "LAND DEVELOPMENT AND SUBDIVISION REVIEW REGULATION" AS AMENDED.
  - RCP SHALL BE CURED FOR A MINIMUM OF SEVEN (7) DAYS PRIOR TO DELIVERY TO SITE.
  - SHOULD ANY CONFLICT ARISE BETWEEN THE CONSTRUCTION SPECIFICATION CONTAINED IN THE SMITHFIELD "LAND DEVELOPMENT AND SUBDIVISION REVIEW REGULATIONS" AND EITHER THE RIDOT STANDARD SPECIFICATIONS OR THE PROJECT SPECIFICATIONS, THE SMITHFIELD REGULATIONS SHALL TAKE PRECEDENCE.
  - THE MUNICIPAL ENGINEER OR ADMIN. OFFICER MAY REQUIRE ANY OR ALL OF THE FOLLOWING TESTS TO BE CONDUCTED DURING THE COURSE OF THE PROJECT REVIEW, THE COST OF WHICH SHALL BE PAID BY THE CONTRACTOR: COMPACTION, SIEVE ANALYSIS OF MATERIAL, AND/OR WET SEASON GROUNDWATER DETERMINATION.
  - THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ASPECTS OF THE PROPOSED SITE DESIGN, INCLUDING MAINTENANCE AND REPAIR OF ALL DRAINAGE STRUCTURES, SITE STABILIZATION, ETC. THROUGHOUT CONSTRUCTION AS WELL AS UP TO AND INCLUDING ONE (1) YEAR AFTER CONSTRUCTION, OR UNTIL THE SITE IS ACCEPTED BY THE OWNER AND THE TOWN OF SMITHFIELD, WHICH EVER COMES FIRST.
- THE OWNER SHALL BE RESPONSIBLE FOR THE OPERATION, MAINTENANCE AND STABILITY OF ALL MITIGATIVE FEATURES, FACILITIES, AND SYSTEMS OF TREATMENT AND CONTROL SHOWN ON THE PLANS UNTIL SUCH TIME THAT THIS RESPONSIBILITY IS ASSUMED BY ANOTHER PARTY / ENTITY. IN THE CASE THAT MAINTENANCE OF DRAINAGE / STORMWATER FACILITIES ARE TO BE ASSUMED BY ANOTHER PARTY / ENTITY (SUCH AS A HOMEOWNERS ASSOCIATION, ETC.), OR SIMILAR GROUP A COVENANT OUTLINING THE SPECIFIC RESPONSIBILITIES OF THIS NEW ENTITY / GROUP SHALL BE INCLUDED IN BOTH THE LAND DEEDS THAT RUN WITH THE PROPERTY AND WITH THE BY-LAWS OF SUCH ASSOCIATION.
- CONTRACTOR SHALL OBTAIN A RIDOT PERMIT PRIOR TO THE START OF CONSTRUCTION.
  - CONTRACTOR SHALL NOT DO ANY WORK WITHIN THE 50' RIDOT WETLAND PERIMETER BUFFER OR 100' RIDOT STREAM PERIMETER BUFFER. ANY FINES ASSOCIATED WITH THESE VIOLATIONS SHALL BE PAID BY THE CONTRACTOR.

**GENERAL CONSTRUCTION NOTES**

- THE CONTRACTOR SHALL PROVIDE ACCESS TO AND FROM PUBLIC STREETS AT ALL TIMES.
- WHEN TRENCH EXCAVATION IS ADJACENT TO OR UNDER EXISTING STRUCTURES OR FACILITIES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY SHEETING AND BRACING THE EXCAVATION AND STABILIZING THE EXISTING GROUND TO RENDER IT SAFE AND SECURE FROM POSSIBLE SLIDES, CAVE-INS AND SETTLEMENT AND FOR PROPERLY SUPPORTING EXISTING STRUCTURES AND FACILITIES WITH BEAMS, STRUTS OR UNDERPINNING TO FULLY PROTECT THEM FROM DAMAGE.
- BACK FILL UNDER EXISTING STRUCTURES OR FACILITIES SHALL BE SANDY OR GRANULAR MATERIAL COMPLETELY PLACED AS SOON AS THE PIPE IS LAID AND TESTED. THE BACK FILL MATERIAL SHALL BE RAMMED WITH PROPER TOOLS UNTIL COMPACTED TO A MINIMUM OF 90 PERCENT OF ITS MAXIMUM DENSITY.
- ALL EXCAVATION WORK CALLED FOR ON THE PLANS AND NOT ITEMIZED IN THE PROPOSAL AND ALL EXCAVATION WORK NOT CALLED FOR BUT REQUIRED FOR THE CONSTRUCTION OF THIS PROJECT SHALL BE CONSIDERED TO BE INCLUDED IN TRENCH EXCAVATION.
- THE CONTRACTOR SHALL VERIFY THE PROPOSED LAYOUT AND DETAILS WITH ITS RELATIONSHIP TO THE EXISTING SITE SURVEY. CONTRACTOR SHALL ALSO VERIFY ALL DIMENSIONS, SITE CONDITIONS AND MATERIAL SPECIFICATIONS AND SHALL NOTIFY THE OWNER AND ENGINEER OF ANY ERRORS, OMISSIONS OR DISCREPANCIES BEFORE COMMENCING WORK.
- THE UNDERGROUND PIPES, CABLES OR CONDUIT LINES KNOWN TO EXIST BY THE ENGINEER FROM HIS SEARCH OF RECORDS ARE INDICATED ON THE PLANS. CONTRACTOR SHALL VERIFY THE LOCATIONS AND DEPTHS OF THE FACILITIES AND EXERCISE PROPER CARE IN EXCAVATING IN THE AREA. ALL DAMAGED PORTIONS SHALL BE REPLACED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE AFFECTED UTILITY COMPANY AND SHALL BE THE CONTRACTOR'S RESPONSIBILITY. PERSONAL INJURY RESULTING FROM CONTACT WITH EXISTING UTILITIES SHALL BE THE CONTRACTOR'S RESPONSIBILITY. WHEREVER CONNECTION OF NEW UTILITIES TO EXISTING UTILITIES ARE SHOWN ON THE PLANS, THE CONTRACTOR SHALL EXPOSE THE EXISTING LINES AT THE PROPOSED CONNECTIONS TO VERIFY THEIR LOCATIONS AND DEPTHS PRIOR TO EXCAVATION FOR NEW LINES. (PLEASE CALL DIG SAFE PRIOR TO CONSTRUCTION AT 1-888-DIG-SAFE AND ALL LOCAL UTILITY COMPANIES.)
- THE CONTRACTOR SHALL NOTIFY ALL AGENCIES TO VERIFY THE ACTUAL LOCATIONS OF ALL UTILITIES IN THE PROJECT AREA PRIOR TO EXCAVATING.
- THE CONTRACTOR SHALL RESTORE TO THEIR ORIGINAL CONDITION OR BETTER, ALL IMPROVEMENTS DAMAGED AS A RESULT OF THE CONSTRUCTION, INCLUDING PAVEMENTS, EMBANKMENTS, CURBS, SIGNS, LANDSCAPING, STRUCTURES, UTILITIES, WALLS, FENCES, ETC UNLESS PROVIDED FOR SPECIFICALLY IN THE PROPOSAL.
- CONTRACTOR SHALL EXERCISE EXTREME CAUTION TO PRESERVE STREET MONUMENTS.
- STREET MONUMENTS THAT ARE DISTURBED SHALL BE RESTORED UNDER THE LICENSED LAND SURVEYOR'S DIRECTION. ANY NEW DATA SUCH AS ELEVATIONS SHALL BE CERTIFIED BY THE SURVEYOR, AND SUBMITTED TO THE TOWN OF SMITHFIELD.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING/ RECONSTRUCTING ALL CONCRETE CURBS AND GUTTERS, CONCRETE SWALES, DRIVEWAYS AND SIDEWALKS DAMAGED DURING CONSTRUCTION.
- DURING NON-WORKING HOURS, THE TRENCHES ON PUBLIC STREETS SHALL BE COVERED WITH NON-SKID PLATES AND ALL LANES MAINTAINED OPEN FOR TRAFFIC.
- ALL WORK CALLED FOR ON THE PLANS AND NOT ITEMIZED IN THE PROPOSAL AND ALL WORK NOT CALLED FOR BUT REQUIRED FOR THE CONSTRUCTION OF THIS PROJECT, SHALL BE CONSIDERED INCIDENTAL.
- NO BLASTING SHALL BE ALLOWED ON THIS PROJECT.
- FOR BENCHMARK, SEE C-3 EXISTING CONDITIONS PLAN.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS, INSPECTIONS, BONDS, ETC. AND OTHER APPROVAL RELATED ITEMS WITH THE TOWN OF SMITHFIELD. NO CONSTRUCTION IS TO COMMENCE UNTIL SUCH PERMITS HAVE BEEN SECURED.

**GENERAL CONSTRUCTION NOTES CONTINUED**

- DEVIATIONS OR CHANGES FROM THESE PLANS WILL NOT BE ALLOWED UNLESS APPROVED BY THE PROJECT ENGINEER, APPROPRIATE AGENCY AND OWNER.
- RELOCATION OF ANY UTILITIES SHALL BE AT THE OWNERS EXPENSE AND BE COMPLETED WITH THE UTILITY WORK. THE OWNER SHALL BE NOTIFIED AS TO THE RELOCATION REQUIRED PRIOR TO THE START OF CONSTRUCTION.
- AN APPROVED SET OF PLANS AND ALL APPLICABLE PERMITS MUST BE AVAILABLE AT THE CONSTRUCTION SITE AT ALL TIMES.
- CONTRACTOR AGREES THAT HE/SHE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF THE CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND THE ENGINEERS HARMLESS FROM ANY AND ALL LIABILITY, REAL AND ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR PROJECT ENGINEER."
- WATER AND SEWER MAINS SHALL MAINTAIN A MINIMUM HORIZONTAL SEPARATION OF 10' AT ALL TIMES. CONSULT RIDOT RULES AND REGULATIONS FOR ANY DEVIATIONS FROM THIS REQUIREMENT.
- ALL SEWER MANHOLE FRAMES AND COVERS SHALL PROVIDE A MINIMUM 30" CLEAR ACCESS AND HAVE THE WORD "SEWER" CAST IN CENTER W/ 3" LETTERS.

**GRADING NOTES**

- NO CONTRACTOR SHALL PERFORM ANY GRADING OPERATION SO AS TO CAUSE FALLING ROCKS, SOIL OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW ONTO ADJOINING PROPERTIES, STREETS OR NATURAL WATERCOURSES. SHOULD SUCH VIOLATIONS OCCUR, THE CONTRACTOR MAY BE CITED BY THE TOWN AND THE CONTRACTOR SHALL IMMEDIATELY MAKE ALL REMEDIAL ACTIONS NECESSARY.
- ADEQUATE PROVISIONS SHALL BE MADE TO PREVENT SURFACE WATERS FROM DAMAGING THE CUT FACE OF AN EXCAVATION OR THE SLOPED SURFACES OF A FILL. FURTHERMORE, ADEQUATE PROVISIONS SHALL BE MADE TO PREVENT SEDIMENT RUNOFF FROM LEAVING THE SITE.
- ALL GRADED AREAS SHALL BE SODED OR PLANTED IMMEDIATELY AFTER THE GRUBBING WORK HAS BEEN COMPLETED.
- THE TOWN SHALL BE INFORMED OF THE LOCATION OF THE DISPOSAL SITE FOR THE PROJECT.
- NO GRADING WORK SHALL BE DONE ON SATURDAYS, SUNDAYS AND HOLIDAYS AT ANY TIME WITHOUT PRIOR NOTICE TO THE TOWN OF SMITHFIELD, PROVIDED SUCH GRADING WORK IS ALSO IN CONFORMANCE WITH THE COMMUNITY NOISE CONTROL STANDARDS.
- THE LIMITS OF THE AREA TO BE GRADED SHALL BE FLAGGED BEFORE THE COMMENCEMENT OF THE GRADING WORK.
- ALL GRADING OPERATIONS SHALL BE PERFORMED IN CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE DEPARTMENT OF ENVIRONMENTAL MANAGEMENT.
- WHERE APPLICABLE AND FEASIBLE THE MEASURES TO CONTROL EROSION AND OTHER POLLUTANTS SHALL BE IN PLACE BEFORE GRADING WORK IS INITIATED.
- TEMPORARY EROSION CONTROLS SHALL NOT BE REMOVED BEFORE PERMANENT EROSION CONTROLS ARE IN PLACE AND ESTABLISHED.
- IF THE GRADING WORK INVOLVES CONTAMINATED SOIL, THEN ALL GRADING WORK SHALL BE DONE IN CONFORMANCE WITH APPLICABLE STATE AND FEDERAL REQUIREMENTS.
- NONCOMPLIANCE TO ANY OF THE ABOVE REQUIREMENTS SHALL MEAN IMMEDIATE SUSPENSION OF ALL WORK, AND REMEDIAL WORK SHALL COMMENCE IMMEDIATELY. ALL COSTS INCURRED SHALL BE BILLED TO THE VIOLATOR. FURTHERMORE, VIOLATORS SHALL BE SUBJECT TO ADMINISTRATIVE, CIVIL AND/OR CRIMINAL PENALTIES.

**SEWER NOTES**

- THE INSTALLATION OF SEWERS SHALL BE IN ACCORDANCE WITH THE TOWN OF SMITHFIELD SEWER AUTHORITY "STANDARD SPECIFICATIONS AND DETAILS FOR THE INSTALLATION OF SEWER AND APPURTENANCES BY PRIVATE DEVELOPERS," COPIES OF WHICH MAY BE OBTAINED FROM THE SEWER AUTHORITY AT NOMINAL COST TO THE CONTRACTOR. SPECIFICATIONS FOR ALL SPECIAL STRUCTURES AND CONDITIONS SHALL BE PREPARED BY THE DEVELOPER FOR SEWER AUTHORITY REVIEW AND APPROVAL.
- THE DEVELOPER SHALL MAKE APPLICATION FOR AND PAY ALL FEES FOR PERMITTING AND INSPECTIONS REQUIRED TO CONSTRUCT THIS PROJECT.
- PRIOR TO RECEIVING AUTHORIZATION TO CONSTRUCT, ALL MATERIALS SHALL MEET THE STANDARDS AND RECEIVE THE WRITTEN APPROVAL, BASED ON MANUFACTURERS DRAWINGS AND OTHER DATA, OF THE SEWER AUTHORITY OR ITS REPRESENTATIVES.
- INSTALLATION OF THE SEWERAGE FACILITIES SHALL BE IN ACCORDANCE WITH THE SEWER AUTHORITY'S (STANDARD SPECIFICATIONS AND DETAILS FOR THE INSTALLATION OF SEWER AND APPURTENANCES BY PRIVATE DEVELOPERS).
- ALL SEWERAGE FACILITIES SHALL MEET TESTING AND CLEANING REQUIREMENTS PRIOR TO ACCEPTANCE (IN ACCORDANCE WITH THE ABOVE).
- TWO SETS OF AS-BUILT DRAWINGS STAMPED BY A CURRENT RHODE ISLAND REGISTERED PHYSICAL ENGINEER SHALL BE FURNISHED TO THE SMITHFIELD SEWER AUTHORITY AS A CONDITION FOR ACCEPTANCE OF THE NEW SEWERAGE FACILITIES.
- NO FLOW WILL BE ACCEPTED UNTIL ALL ABOVE STEPS ARE COMPLETED AND THE COMPLETION CERTIFICATE IS ISSUED.
- THE MINIMUM SLOPE OF 8" PIPE SHALL BE 0.006 FEET PER FOOT. THE MINIMUM SLOPE OF ALL 6" PIPE SHALL BE 0.020 FEET PER FOOT. THE MAXIMUM SPACING BETWEEN SEWER MANHOLES SHALL BE 300 FEET. ALL SEWER PIPES SHALL HAVE A MINIMUM COVER OF 4 FEET.
- SEWER - WATER SEPARATION SHALL CONFORM TO THE RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT GUIDELINES OR AS APPROVED BY THE LOCAL WATER DEPARTMENT.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE APPROVED PLANS AND MATERIALS, STANDARD SPECIFICATIONS AND DETAILS. ANY WORK NOT MEETING THE APPROVED STANDARDS SHALL BE IMMEDIATELY REMOVED AND REPLACED AT THE FULL RESPONSIBILITY AND COST/EXPENSE OF THE CONTRACTOR.

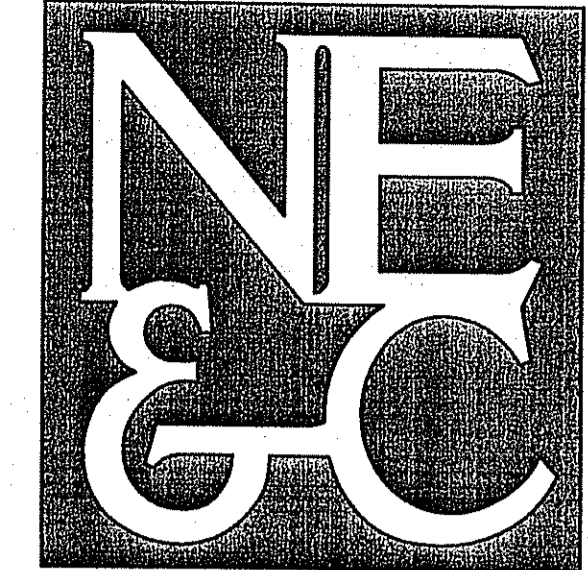
**PUBLIC HEALTH SAFETY AND CONVENIENCE NOTES**

- CONTRACTOR SHALL OBSERVE AND COMPLY WITH ALL FEDERAL, STATE, AND LOCAL LAWS REQUIRED FOR THE PROTECTION OF PUBLIC HEALTH, SAFETY AND ENVIRONMENTAL QUALITY.
- THE CONTRACTOR AT HIS/HER EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM RUBBISH, DUST, NOISE, EROSION, ETC. THE WORK SHALL BE DONE IN CONFORMANCE WITH THE AIR AND WATER POLLUTION CONTROL STANDARDS AND REGULATIONS OF ALL APPLICABLE FEDERAL, STATE AND LOCAL AGENCIES.
- THE CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN ALL NECESSARY SIGNS, LIGHTS, FLARES, BARRICADES, MARKERS, CONES, AND OTHER PROTECTIVE FACILITIES AND SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE PROTECTION, CONVENIENCE AND SAFETY OF THE PUBLIC.

**SMITHFIELD WATER NOTES**

- THE GENERAL CONFORMANCE OF ALL WATER MAIN, LATERALS, FACILITIES AND APPARATUS SHALL CONFORM WITH THE SMITHFIELD WATER DEPARTMENT STANDARD SPECIFICATIONS. FOR ANY DISCREPANCIES FOUND BETWEEN THESE NOTES AND THE SMITHFIELD STANDARD SPECIFICATIONS, THE SMITHFIELD STANDARD SPECIFICATIONS SHALL TAKE PRECEDENCE.
- UNLESS OTHERWISE SPECIFIED BY THE TOWN, THE CONTRACTOR SHALL SUBMIT THE FOLLOWING:
  - THREE SETS OF PLANS FOR THE JOB. THESE PLANS SHALL BE SIZED "D" DRAWINGS OR LARGER AND SHALL SHOW ALL PERTINENT INFORMATION RELATED TO THE JOB, AND NOT LESS THAN: THE PROPOSED DEVELOPMENT, THE PROPOSED WATER MAIN AND ALL ITS ACCESSORIES (INCLUDING FIRE HYDRANTS.) PLANS SHALL BE SIGNED BY A PE AND THE TOWN FIRE DEPARTMENT CHIEF. A LETTER OF COMMITMENT ADDRESSED TO THE TOWN FROM AN APPROPRIATE TOWN OFFICIAL AUTHORIZING HYDRANT INSTALLATION SHALL ALSO BE SUBMITTED BY THE CONTRACTOR.
  - THE NAMES, ADDRESSES AND TELEPHONE NUMBERS OF THE CONTRACTOR, ALL HIS CONTRACTORS, SUBCONTRACTORS AND AGENTS, RELATED TO THE JOB. THE NAMES OF THE SUPPLIERS OF THE PIPE AND ALL PIPE ACCESSORIES, AND A LIST OF ALL MATERIALS.
  - THREE SETS OF SHOP DRAWINGS, DETAILING ALL ITEMS OF THE JOB, AND CLASSIFICATION FOR ALL PIPE AND ACCESSORIES.
  - SCHEDULE OF PROPOSED CONSTRUCTION ACTIVITIES, WITH THE EXPECTED DATES OF START AND FINISH AND A COPY OF ALL REQUIRED PERMITS
- THE DEVELOPER SHALL CONFORM AND ABIDE BY, ANY AND ALL LAWS, ORDINANCES, RULES AND REGULATIONS OF THE FEDERAL GOVERNMENT, STATE, COUNTY, MUNICIPALITY, AGENCIES OR BRANCHES THEREOF WHICH PERTAIN IN ANY WAY AFFECT THE WORK TO BE DONE.
- THERE SHALL BE A SMITHFIELD WATER INSPECTOR ON THE JOB AT ANY TIME CONSTRUCTION OF THE WATER MAINS BEING DONE WITHIN THE PUBLIC RIGHT-OF-WAY. THE COST OF THE RESIDENT INSPECTOR OR HIS REPRESENTATIVE SHALL BE AT THE CONTRACTOR'S EXPENSE.
- THE DEVELOPER SHALL NOTIFY THE TOWN FIVE (5) BUSINESS DAYS PRIOR TO HIS INTENDED COMMENCING OF ANY WORK. IN THE EVENT THAT SERVICE TO TOWN CUSTOMERS MUST BE TEMPORARILY INTERRUPTED, THE CONTRACTOR SHALL NOTIFY THE TOWN FORTY-EIGHT (48) HOURS PRIOR TO SHUT DOWN SO THAT THE TOWN MAY INFORM THE AFFECTED CUSTOMERS. ALL SHUTDOWNS SHALL BE PRE-APPROVED BY THE TOWN WATER DEPARTMENT MANAGEMENT STAFF. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS TO KEEP THE SERVICE INTERRUPTION TIME AT A MINIMUM.
- THE CONTRACTOR SHALL PROVIDE THE TOWN WITH 24-HOUR EMERGENCY TELEPHONE NUMBERS, AND THE NAME OF THE SUPERVISOR ASSIGNED TO THE JOB. THE NAMED SUPERVISOR SHALL BE PRESENT ON THE JOB AT ALL TIMES DURING CONSTRUCTION.
- THE DEVELOPER SHALL PERFORM PRESSURE AND LEAKAGE TESTING IN THE PRESENCE OF THE TOWN WATER DEPARTMENT INSPECTOR, AND OTHER TOWN PERSONNEL AS REQUIRED. THE MAINS SHALL BE FILLED AT LEAST THREE DAYS PRIOR TO THE LEAKAGE TEST.
- THE PRESSURE AND LEAKAGE TEST SHALL BE CONDUCTED CONCURRENTLY AT A PRESSURE OF 200 PSI FOR A MINIMUM DURATION OF 2 HOURS.
- THE LEAKAGE TEST SHALL BE CONDUCTED AT THE TIME OF THE PRESSURE TEST AND ALLOWABLE LIQUID LOSS SHALL NOT EXCEED 20 GALLONS PER 24 HOURS PER MILE OF PIPE PER INCH OF DIAMETER.
- BEFORE BEING PLACED IN SERVICE, ALL NEW WATER PIPELINES (INCLUDING HYDRANT BRANCHES) SHALL BE CHLORINATED USING THE CONTINUOUS FEED METHOD SPECIFIED IN AWWA C651-86.
- PAYMENT FOR ITEMS OF WORK CALLED FOR IN THE PLANS, SPECIAL PROVISIONS AND SPECIFICATIONS FOR WHICH PAYMENT IS NOT SPECIFIED SHALL NOT BE MADE DIRECTLY BUT SHALL BE CONSIDERED INCIDENTAL TO THE VARIOUS ITEMS OF THE PROPOSAL AND NO ADDITIONAL COMPENSATION SHALL BE MADE.
- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL ASSUMPTIONS, DEDUCTIONS, OR CONCLUSIONS HE/SHE MAY MAKE OR DERIVE FROM THE SUBSURFACE INFORMATION OR DATA FURNISHED ON THE PLANS. THE CONTRACTOR MUST SATISFY HIMSELF/HERSELF THROUGH HIS/HER OWN INVESTIGATIONS AS TO WHAT SUBSURFACE CONDITIONS ARE TO BE ENCOUNTERED.
- THE CONTRACTOR SHALL EXPOSE, VERIFY AND BACK FILL ALL EXISTING UNDERGROUND UTILITIES AND STRUCTURES AT CROSSINGS PRIOR TO EXCAVATION OF PIPELINE TRENCH. THE WATER MAIN ALIGNMENT AND GRADE MAY BE CHANGED IF THERE ARE ANY CONFLICTS WITH ANY EXISTING UNDERGROUND UTILITIES AND STRUCTURES, WHETHER SHOWN ON THE PLANS OR NOT. PAYMENT FOR WORK INCLUDED IN THIS PARAGRAPH SHALL BE CONSIDERED INCIDENTAL TO THE APPROPRIATE BID ITEMS OF THE PROPOSAL, AND NO ADDITIONAL COMPENSATION SHALL BE MADE.
- EXISTING UTILITIES CROSSING THE WATER MAIN ARE TO REMAIN IN SERVICE AND IN PLACE. IF RELOCATED FOR THE CONTRACTOR'S CONVENIENCE, INTERRUPTION OF SERVICE SHALL BE FOR A MINIMUM PERIOD OF TIME AND SHALL BE DONE AT THE CONTRACTOR'S EXPENSE AND ONLY WITH THE APPROVAL OF THE TOWN.
- IF THE CONTRACTOR ELECTS NOT TO EXPOSE AND VERIFY ALL EXISTING UNDERGROUND UTILITIES AND STRUCTURES AT CROSSINGS PRIOR TO PIPELINE EXCAVATION, HE/SHE FORFEITS HIS/HER RIGHTS FOR ANY CLAIMS FOR COMPENSATION CAUSED BY ANY CONFLICTS WITH EXISTING UTILITIES AND STRUCTURES.
- ALL WATER MAIN TRENCHES SHALL BE BACK FILLED. COMPACTION OF TRENCH BACK FILL SHALL MEET APPLICABLE REQUIREMENTS OF RIDOT STANDARD SPECIFICATIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER DISPOSAL OF ALL EFFLUENT ASSOCIATED WITH THE CONSTRUCTION ACTIVITY AND THE DISINFECTION AND HYDROTASTING OPERATIONS TO SAFEGUARD PUBLIC HEALTH AND SAFETY IN ACCORDANCE WITH APPLICABLE DEPARTMENT OF HEALTH REQUIREMENTS. ALL PERMITS AND LICENSES FOR CONSTRUCTION WATER DISPOSAL, INCLUDING ALL APPLICATIONS, CHARGES, FEES, AND TAXES, ARE THE RESPONSIBILITY OF THE CONTRACTOR.
- UNLESS OTHERWISE SPECIFIED, ALL ABANDONED LINES SHALL BE CUT AND PLUGGED WITH CONCRETE. PAYMENT FOR CUTTING AND PLUGGING WILL NOT BE MADE DIRECTLY BUT WILL BE CONSIDERED INCIDENTAL TO THE VARIOUS ITEMS OF THE PROPOSAL. THE CONTRACTOR SHALL VERIFY THE SIZE AND TYPE OF LINE TO BE PLUGGED.
- ALL AIR RELIEF VALVES SHALL HAVE A MINIMUM WORKING PRESSURE RANGE OF 0 TO 200 PSI OR AS SPECIFIED BY THE TOWN WATER DEPARTMENT.

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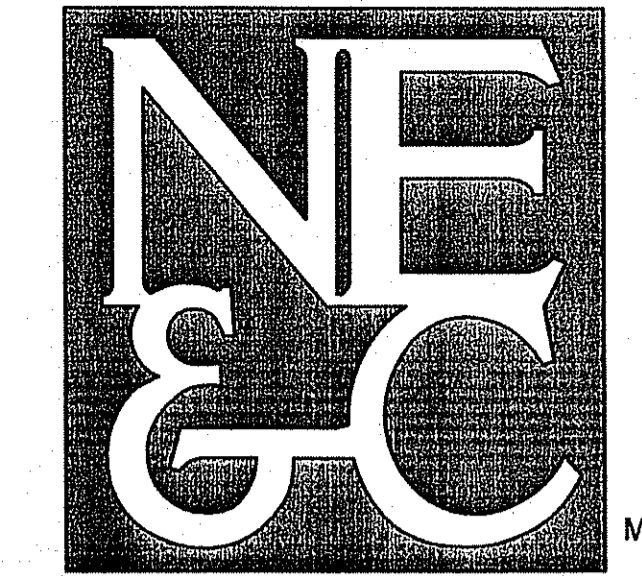
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DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
 OFFICE OF WATER RESOURCES  
 FRESHWATER WETLANDS PROGRAM  
 APPROVED WITH CONDITIONS  
 AS SPECIFIED IN THE LETTER OF APPROVAL  
 DATED JAN 10 2007 FILE # 07-0230  
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE

*Charles A. Hester*

1.	DEM COMMENTS	SEPT 07	
No.	Revision	Date	App.
Designed By:	JR	Drawn by:	SMH
Scale:	NOT APPLICABLE	Date:	MAY 2007
Project Title:			
<b>THE OAKS AT HARRIS ROAD</b>			
A.P. 45, LOT 92			
HARRIS ROAD			
SMITHFIELD, RI			
Client/Owner:			
KIRKBRAE DEVELOPMENT 1300 HIGHLAND CORPORATE DRIVE CUMBERLAND, RI 02864			
Issued for:			
PERMITTING			
Drawing Title:			
<b>CIVIL NOTES - 1</b>			
SEP 24 2007			
Drawing Number:		C-1	
Sheet		2 of 25	
Project Number:		05338.0	
Survey Index:		26 - 45 - 92	
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*Charles A. Harbeck*

**ABBREVIATIONS**

AC	ASPHALT PAVEMENT
ADJ	ADJACENT
AP	ASSESSOR'S PLAT
ACCESS	ACCESSIBLE
ARCH	ARCHITECT
BC	BOTTOM OF CURB
BH	BORING HOLE
BIT	BITUMINOUS
CB	CATCH BASIN
CLR	CLEARANCE
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CONC	CONCRETE
CONN	CONNECT
COTG	CLEAN OUT TO GRADE
CF	CUBIC FOOT
DEMO	DEMOLISH
DI	DRAIN INLET
DIA	DIAMETER
DMH	DRAIN MANHOLE
DS	DOWN SPOUT
DWG	DRAWING
E	ELECTRIC
ELEV	ELEVATION
EMH	ELECTRIC MANHOLE
EOP	EDGE OF PAVEMENT
EQ	EQUAL
EXIST	EXISTING
EXP	EXPANSION
FPE	FINISH FLOOR ELEVATION
FG	FINISHED GRADE
FIH	FIRE HYDRANT
FT	FEET
G	GAS
GAL	GALLON
GV	GATE VALVE
INV.	INVERT
JT	JOINT
L	LENGTH
LAND	LANDSCAPE
NTS	NOT TO SCALE
MAX	MAXIMUM
MECH	MECHANICAL
MH	MANHOLE
MIN	MINIMUM
PAVT	PAVEMENT
PVC	POLYVINYL CHLORIDE
R	RADIUS
RC	REINFORCED CONCRETE
RECONN	RECONNECT
RIHD	RHODE ISLAND HIGHWAY BOUND
RIDOT	RHODE ISLAND DEPARTMENT OF TRANSPORTATION
ROW	RIGHT OF WAY
S	SLOPE, SEWER
SF	SQUARE FEET
SHT	SHEET
SMH	SEWER MANHOLE
STA	STATION
STRUCT	STRUCTURAL
TC	TOP OF CURB
TOP	TOP OF SURFACE
UGT	UNDERGROUND TELEPHONE
TYP	TYPICAL
W	WATER
WI	WITH

**STORM WATER SYSTEM MAINTENANCE SCHEDULE**

1. GRASSES AND/OR SPECIFIED VEGETATION SHALL BE PLANTED AROUND AND WITHIN THE BASINS IMMEDIATELY FOLLOWING CONSTRUCTION TO STABILIZE SLOPES AND PREVENT EROSION.
2. ALL INLET / OUTFLOW STRUCTURES ARE TO BE INSPECTED AT LEAST THREE TIMES IN THE FIRST SIX MONTHS OF OPERATION. EVIDENCE OF CLOGGING, OR RAPID RELEASE OF FLOW SHALL BE REPORTED TO THE PROJECT ENGINEER, AND REMEDIED IMMEDIATELY.
3. ALL INLET STRUCTURES SHALL HAVE SEDIMENTS REMOVED AND PROPERLY DISPOSED OF IMMEDIATELY FOLLOWING THE COMPLETION OF CONSTRUCTION ACTIVITIES AND/OR, WHEN SUMPS SHOW A SEDIMENT DEPTH AT 75% OF THEIR CAPACITY OR ON AN ANNUAL BASIS, WHICH EVER COMES FIRST.
4. THE SIDE SLOPES, EMBANKMENTS, AND BASIN AREAS SHALL BE MOWED AT LEAST THREE TIMES PER GROWING SEASON TO PREVENT UNWANTED GROWTH, AND TO MAINTAIN THE INTEGRITY OF THE STRUCTURES.
5. THE BASINS SHALL BE INSPECTED AT LEAST TWICE A YEAR FOR EVIDENCE OF EROSION. AREAS WHERE EROSION PROBLEMS ARE OBSERVED SHALL BE RE-SEEDED AND, IF DEEMED NECESSARY BY THE DESIGN ENGINEER, AN EROSION CONTROL BLANKET SHALL BE INSTALLED TO PREVENT FURTHER DAMAGE.
6. TRASH, LITTER AND DEBRIS SHALL BE REMOVED FROM ALL SURFACE STORM WATER FACILITIES AT LEAST FOUR TIMES A YEAR TO PREVENT BLOCKAGE OF OUTLET STRUCTURES. IN LOCATIONS WHERE SIGNIFICANT VOLUMES OF DEBRIS ARE OBSERVED, THE ADJACENT STRUCTURES SHALL BE CAREFULLY INSPECTED TO IDENTIFY IF ANY DAMAGE HAS OCCURRED.
7. ALL DRAINAGE STRUCTURES SHALL BE INSPECTED AT LEAST TWICE A YEAR. ACCUMULATED SEDIMENT AND DEBRIS SHALL BE REMOVED FROM ALL STRUCTURES DURING THE SCHEDULED MAINTENANCE INSPECTIONS. ALL REMOVED MATTER SHALL BE DISPOSED OF AT A LICENSED OFF-SITE FACILITY.
8. THE STRUCTURAL INTEGRITY OF ALL CATCH BASINS, INLET STRUCTURES, OUTLET STRUCTURES AND MANHOLES SHALL BE CHECKED AT LEAST TWICE A YEAR. STRUCTURAL FAULTS SHALL BE REPAIRED IMMEDIATELY.
9. IF A BLOCKAGE OCCURS TO A BASIN, IT MAY BE NECESSARY TO DRAIN THE SYSTEMS TO AFFECT A REPAIR. ALL WATER DRAINED FROM STRUCTURES SHALL BE ADEQUATELY TREATED BEFORE ALLOWING IT TO DISCHARGE TO DOWNSTREAM AREAS.
10. DURING THE INSPECTION OF THE DETENTION BASINS, IF STANDING WATER IS FOUND IN ANY ONE BASIN FOR MORE THAN THREE (3) DAYS AFTER A RAINFALL EVENT, THAT DETENTION BASIN SHALL BE DETERMINED FAILED AND THE OWNER SHALL BE RESPONSIBLE TO HAVE THE SYSTEM, AND ALL ASSOCIATED DEVICES (I.E. SUBDRAIN WHERE APPLICABLE, ETC), INSPECTED BY A RI REGISTERED PROFESSIONAL ENGINEER AND REPAIRED / REPLACED IMMEDIATELY.
11. MAINTENANCE OF THE STORM WATER SYSTEM DURING CONSTRUCTION OF THE PROJECT SHALL BE THE RESPONSIBILITY OF SITE CONTRACTOR.
12. SEE NOTE #10 OF THE "SMITHFIELD DEVELOPMENT CONSTRUCTION STANDARDS" ON SHEET 2 OF 26 OF THESE PLANS

**SOIL EROSION & SEDIMENT CONTROL NOTES**

**I. CONSTRUCTION SEQUENCE:**

- A. DO NOT BEGIN CONSTRUCTION UNTIL ALL LOCAL, STATE, AND FEDERAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED.
- B. ESTABLISH PROPERTY LIMITS.
- C. INSTALL STONE CONSTRUCTION ENTRANCE AT UTILIZED DRIVEWAY.
- D. INSTALL SILT FENCE AS DELINEATED ON PLAN.
- E. COMMENCE REMOVAL OF EXISTING VEGETATION
- F. COMMENCE ROUGH GRADING.
- G. BEGIN INSTALLATION OF REQUIRED DRAINAGE SYSTEM. INSTALLING ALL INLET PROTECTION SILT SACKS AS THE CONSTRUCTION OF EACH STRUCTURE IS COMPLETED.
- H. CONCURRENTLY WITH CONSTRUCTION OF DRAINAGE, THE BUILDING OF THE STRUCTURE MAY BEGIN ACCORDING TO CONTRACTOR'S SCHEDULE.
- I. CONSTRUCT LANDSCAPE AREAS AND MAINTAIN THE SITE IN ACCORDANCE WITH THE MAINTENANCE NOTES.

**II. GENERAL NOTES:**

1. DURING CONSTRUCTION AND THEREAFTER, EROSION CONTROL MEASURES ARE TO BE IMPLEMENTED AS NOTED. THE SMALLEST PRACTICAL AREA OF LAND SHOULD BE EXPOSED AT ANY ONE TIME DURING DEVELOPMENT. WHEN LAND IS EXPOSED DURING DEVELOPMENT, THE EXPOSURE SHOULD BE KEPT TO THE SHORTEST PRACTICAL PERIOD OF TIME.
2. ANY ROUGH GRADED AREAS DURING CONSTRUCTION SHALL BE STABILIZED WITHIN FOURTEEN DAYS IN ACCORDANCE WITH TEMPORARY MEASURES IN THE VEGETATIVE PRACTICE NOTES.
3. AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOP SOIL TO REMOVE VEGETATION, ROOTS, AND ANY OTHER OBJECTIONABLE MATERIAL.
4. ALL FILL SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT SUBSIDENCE, OR OTHER RELATED PROBLEMS.
5. FILL INTENDED TO SUPPORT BUILDING STRUCTURES AND CONDUITS, ETC., SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL CODES AND SPECIFICATIONS.
6. ALL FILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT TO EXCEED 12" IN THICKNESS.
7. FILL MATERIAL SHALL BE FREE OF BRUSH, RUBBISH, ROCKS, LOGS, STUMPS, BUILDING DEBRIS, AND OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
8. FROZEN, SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIAL SHALL NOT BE INCORPORATED INTO FILLS.
9. FILL SHALL NOT BE PLACED ON A FROZEN FOUNDATION SUBGRADE.
10. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT ENGINEER.
11. ALL DISTURBED AREAS SHALL BE STABILIZED WITHIN 14 DAYS OF FINISHED GRADING IN ACCORDANCE WITH THE VEGETATIVE PRACTICE NOTES.
12. REMOVE TEMPORARY EROSION CONTROL MEASURES ONCE UPSTREAM AREAS HAVE BEEN PERMANENTLY STABILIZED.

**III. VEGETATIVE PRACTICE:**

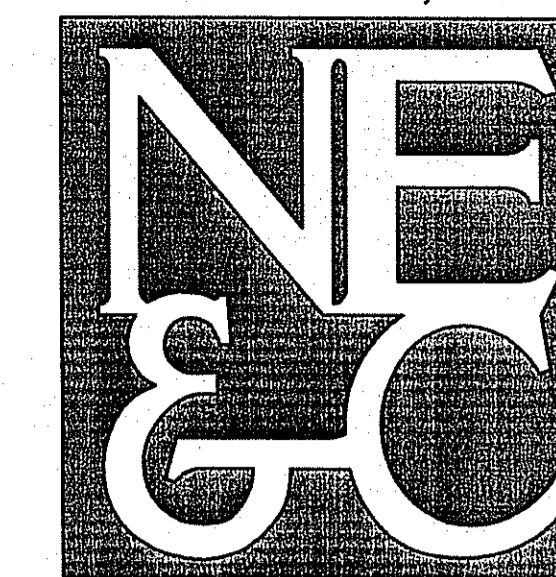
**PERMANENT MEASURES**

- A. SLOPES SHALL NOT BE STEEPER THAN 1 VERTICAL TO 3 HORIZONTAL UNLESS OTHERWISE SPECIFIED.
- B. A MINIMUM OF 4 INCHES OF LOAM SHALL BE INSTALLED. THE LOAM SHALL BE GRADED TO A SMOOTH CONDITION AND STONES AND OTHER OBJECTS LARGER THAN 2-INCHES SHALL BE REMOVED.
- C. LIMESTONE AND FERTILIZER SHALL BE APPLIED AT THE FOLLOWING RATE:  
LIMESTONE: 3 TONS/ACRE  
FERTILIZER: (10-10-10): 600 LBS/ACRE
- D. SEED SHALL BE APPLIED AT THE FOLLOWING RATE:  
WINTER RYE: 112 LB/ACRE
- E. HAY MULCH SHALL BE APPLIED AT THE RATE OF 1.5 TONS/ACRE.

**IV. BASIN/POND EXCAVATION:**

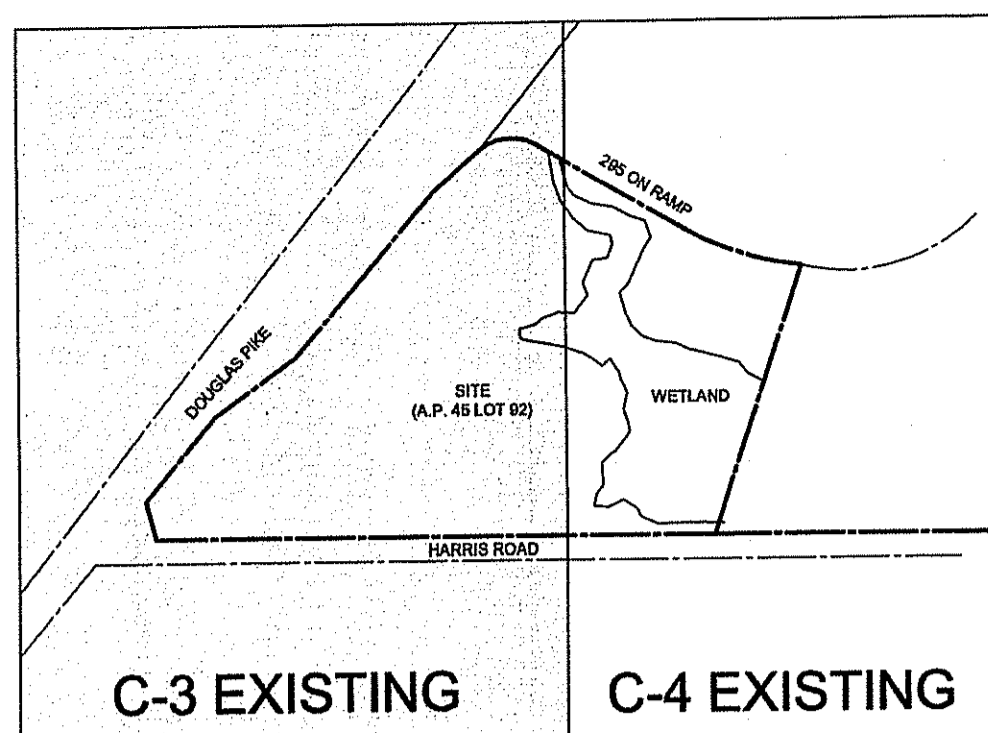
- A. INSTALL SILT FENCE AND SILT CURTAIN AS INDICATED ON THE PLANS.
- B. EXCAVATE THE PROPOSED BASINS/PONDS.
- C. ANY FILL USED DURING THE CONSTRUCTION OF EMBANKMENTS FOR THE STORM WATER MANAGEMENT FACILITY SHALL BE PLACED AND COMPACTED IN 8-INCH INCREMENTS.
- D. SEED IN ACCORDANCE WITH SOIL EROSION NOTES.
- E. REMOVE SILT FENCE FROM THE BASINS/PONDS.
- F. LEAVE SILT CURTAIN IN PLACE IN FRONT OF OUTLETS UNTIL BASINS/PONDS ARE STABILIZED.

1.	DEM COMMENTS	SEPT 07	
No.	Revision	Date	App.
Designed By:	JR	Drawn by:	SMH
Scale:	NOT APPLICABLE	Date:	MAY 2007
Project Title:			
<b>THE OAKS AT HARRIS ROAD</b>			
A.P. 45, LOT 92 HARRIS ROAD SMITHFIELD, RI			
Client/Owner:			
KIRKBRÆ DEVELOPMENT 1300 HIGHLAND CORPORATE DRIVE CUMBERLAND, RI 02864			
Issued for:			
PERMITTING			
Drawing Title:			
<b>CIVIL NOTES - 2</b>			
SEP 24 2007			
Drawing Number:		C-2	
Sheet 3 of 25		Project Number:	
		05338.0	
Survey Index:		26 - 45 - 92	
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**DRAWING KEY**

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**REFERENCES:**

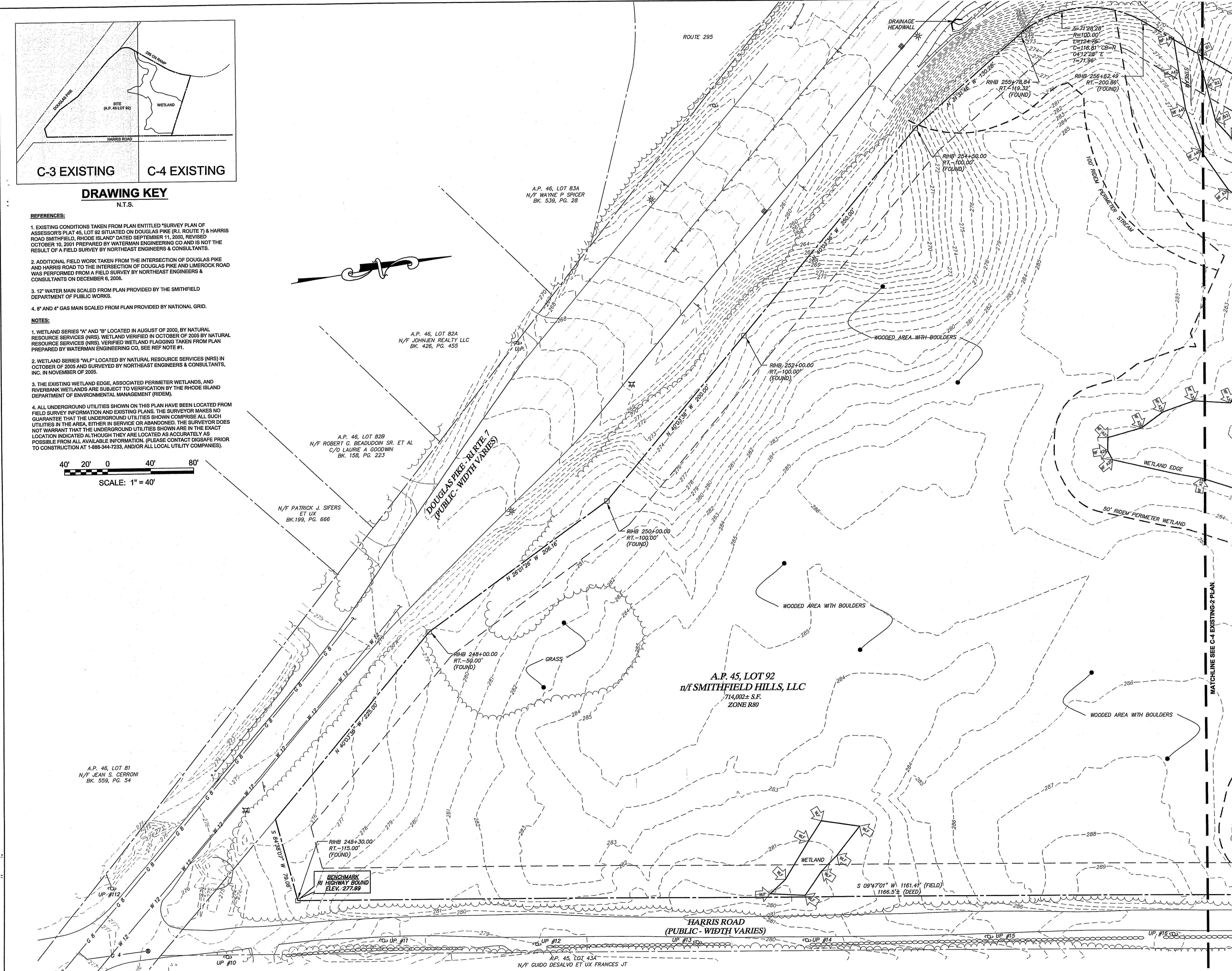
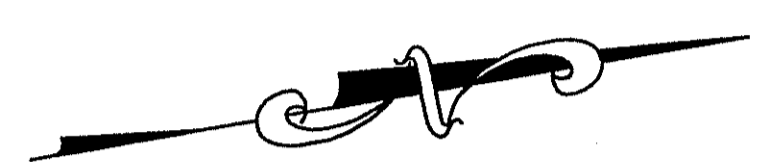
- EXISTING CONDITIONS TAKEN FROM PLAN ENTITLED "SURVEY PLAN OF ASSESSOR'S PLAT 45, LOT 92 SITUATED ON DOUGLAS PIKE (R.I. ROUTE 7) & HARRIS ROAD SMITHFIELD, RHODE ISLAND" DATED SEPTEMBER 11, 2000, REVISED OCTOBER 10, 2001 PREPARED BY WATERMAN ENGINEERING CO AND IS NOT THE RESULT OF A FIELD SURVEY BY NORTHEAST ENGINEERS & CONSULTANTS.
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- 12" WATER MAIN SCALED FROM PLAN PROVIDED BY THE SMITHFIELD DEPARTMENT OF PUBLIC WORKS.
- 8" AND 4" GAS MAIN SCALED FROM PLAN PROVIDED BY NATIONAL GRID.

**NOTES:**

- WETLAND SERIES "A" AND "B" LOCATED IN AUGUST OF 2000, BY NATURAL RESOURCE SERVICES (NRS). WETLAND VERIFIED IN OCTOBER OF 2005 BY NATURAL RESOURCE SERVICES (NRS). VERIFIED WETLAND FLAGGING TAKEN FROM PLAN PREPARED BY WATERMAN ENGINEERING CO, SEE REF NOTE #1.
- WETLAND SERIES "W12" LOCATED BY NATURAL RESOURCE SERVICES (NRS) IN OCTOBER OF 2005 AND SURVEYED BY NORTHEAST ENGINEERS & CONSULTANTS, INC. IN NOVEMBER OF 2005.
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SCALE: 1" = 40'



**LEGEND**

	PROPERTY LINE
	ABUTTERS PROPERTY LINE
	BUILDING SETBACK
	EXISTING CONTOUR
	WETLAND EDGE
	50' PERIMETER WETLAND
	EXISTING STREAM
	100' RIVER BANK WETLAND
	EXISTING 12" WATER MAIN
	EXISTING GAS LINE
	EXISTING SEWER LINE
	EXISTING DRAIN LINE
	STONE WALL
	BRUSH LINE
	WETLAND FLAG
	SEWER MANHOLE
	CATCH BASIN
	UTILITY POLE
	HYDRANT
	WATER VALVE
	GAS VALVE
	TRAFFIC SIGN
	SIGNAL POLE
	SIGNAL HAND HOLE
	LIGHTPOLE
	BOUND

No.	DEM COMMENTS	SEPT 07
1.		

Revision: \_\_\_\_\_ Date: \_\_\_\_\_ App: \_\_\_\_\_

Designed By: JR    Drawn by: SMH    Checked by: \_\_\_\_\_

Scale: \_\_\_\_\_ Date: MAY 2007

**Project Title:**  
THE OAKS AT HARRIS ROAD  
A.P. 45, LOT 92  
HARRIS ROAD  
SMITHFIELD, RI

**Client/Owner:**  
KIRKBRAE DEVELOPMENT  
1300 HIGHLAND CORPORATE DRIVE  
CUMBERLAND, RI 02864

**Issued for:**  
PERMITTING

**Drawing Title:**  
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
PERMITTING WETLANDS PROGRAM  
**EXISTING PLAN #1**  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED JAN 10 2008, FILE # 07-0230  
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Drawing Number: **C-3**

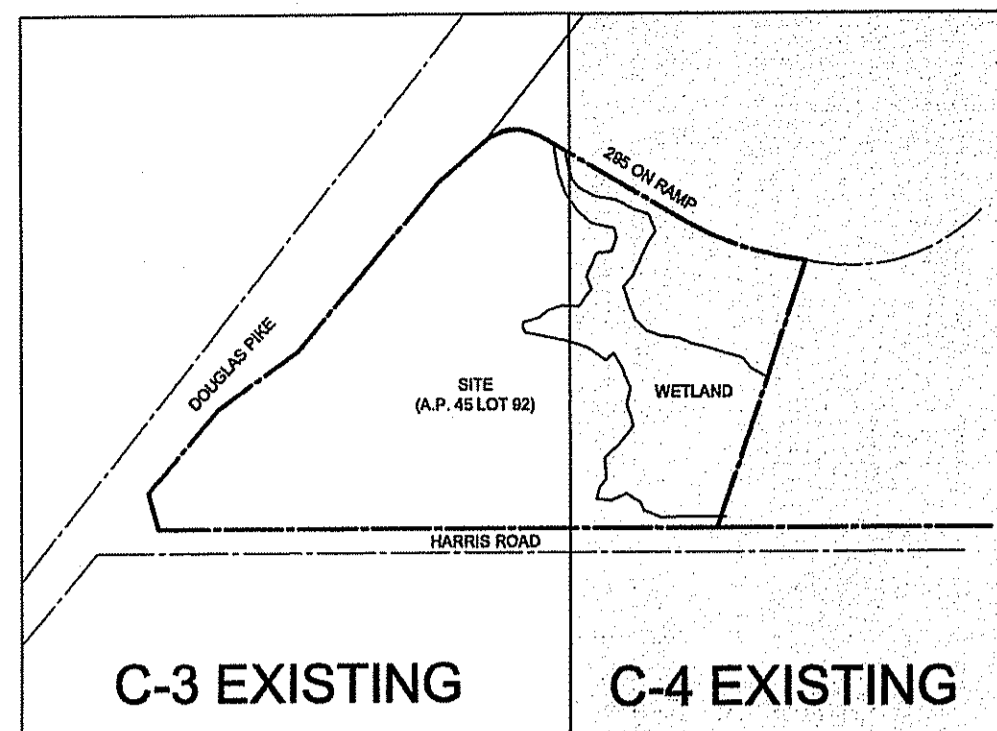
Sheet **4** of **25**

Project Number: **05338.0**

Survey Index: **26 - 45 - 92**

**GERALYN E. SMALL**  
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REGISTERED PROFESSIONAL ENGINEER CIVIL

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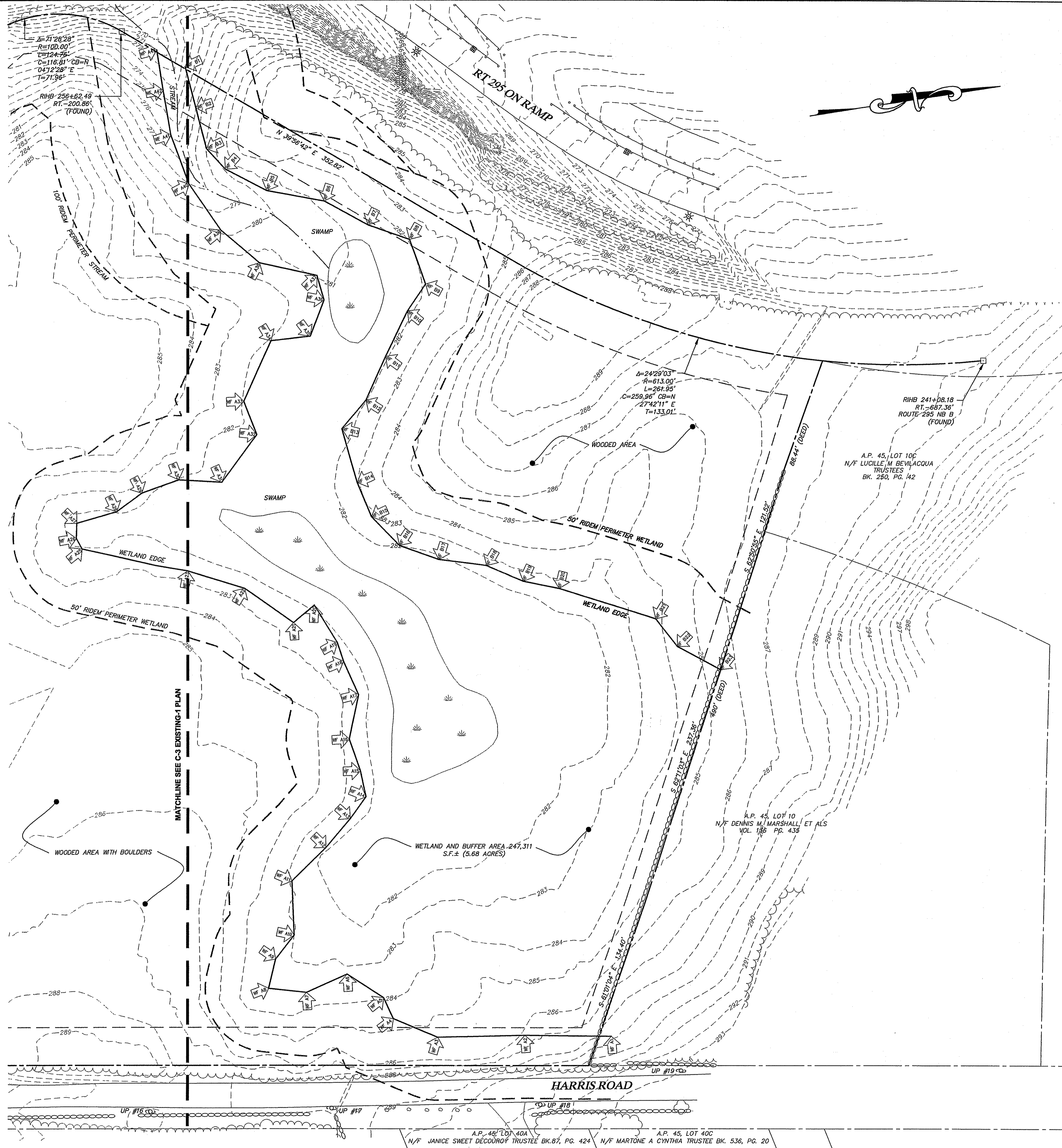
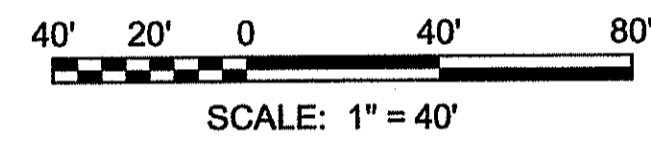
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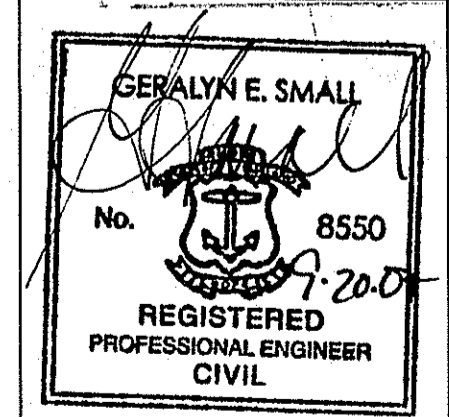
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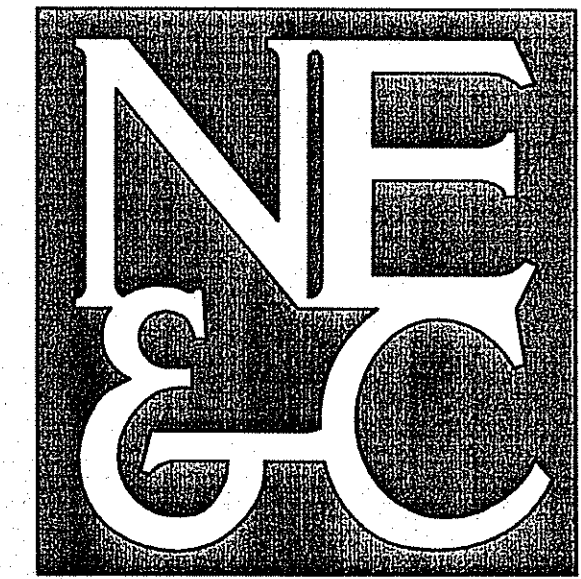
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**LEGEND**

---	PROPERTY LINE
- - - -	ABUTTERS PROPERTY LINE
---	BUILDING SETBACK
---	EXISTING CONTOUR
---	WETLAND EDGE
---	50' PERIMETER WETLAND
---	EXISTING STREAM
---	100' RIVER BANK WETLAND
---	EXISTING 12" WATER MAIN
---	EXISTING GAS LINE
---	EXISTING SEWER LINE
---	EXISTING DRAIN LINE
---	STONE WALL
---	BRUSH LINE
---	WETLAND FLAG
---	SEWER MANHOLE
---	CATCH BASIN
---	UTILITY POLE
---	HYDRANT
---	WATER VALVE
---	GAS VALVE
---	TRAFFIC SIGN
---	SIGNAL POLE
---	SIGNAL HAND HOLE
---	LIGHTPOLE
---	BOUND

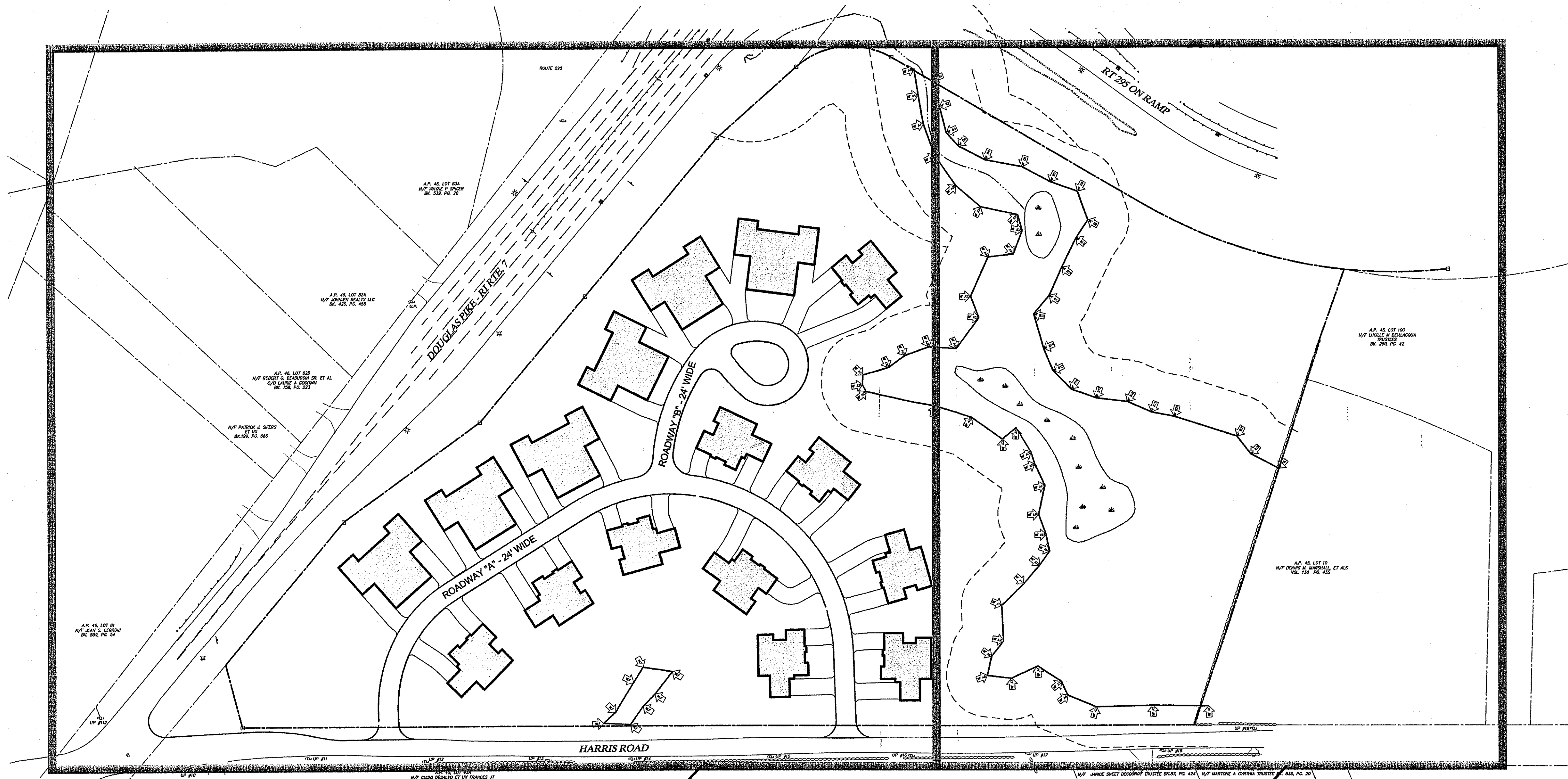
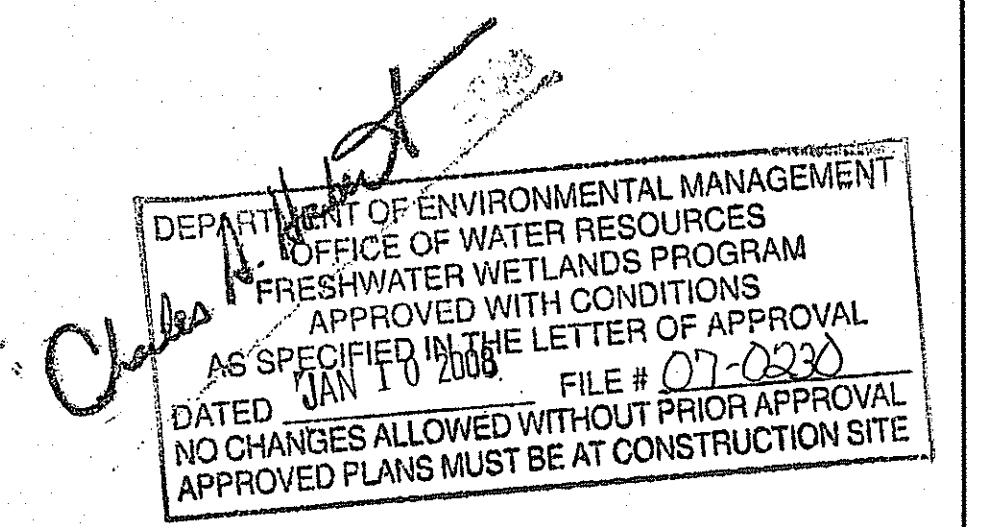
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No.	Revision	Date
Designed by:	JR	Drawn by:
SMH	Checked by:	
Scale:	Date:	MAY 2007
Project Title:		
<b>THE OAKS AT HARRIS ROAD</b>		
A.P. 45, LOT 92 HARRIS ROAD SMITHFIELD, RI		
Client/Owner:		
KIRKBRAE DEVELOPMENT 1300 HIGHLAND CORPORATE DRIVE CUMBERLAND, RI 02864		
Issued for:		
PERMITTING		
Drawing Title:		
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT DIVISION OF WATERS AND SERVICES <b>EXISTING PLAN - 2</b> APPROVED PERMIT CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL DATED JAN 1-0 2008 FILE # 07-0230 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL APPROVED PLANS MUST BE AT CONSTRUCTION SITE		
Drawing Number:		
<b>C-4</b>		
Sheet 5 of 25		
Project Number:		
<b>05338.0</b>		
Survey Index:		
<b>26 - 45 - 92</b>		
OWNERSHIP AND USE OF DOCUMENTS: DRAWINGS AND SPECIFICATIONS, AS INSTRUMENTS OF PROFESSIONAL SERVICE, ARE AND SHALL REMAIN THE PROPERTY OF THE ENGINEER. THESE DOCUMENTS ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECTS OR PURPOSES, OR BY ANY OTHER PARTIES, THAN THOSE PROPERLY AUTHORIZED BY CONTRACT, WITHOUT THE EXPRESS AUTHORIZATION OF THE ENGINEER.		





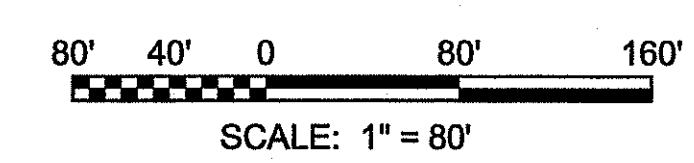
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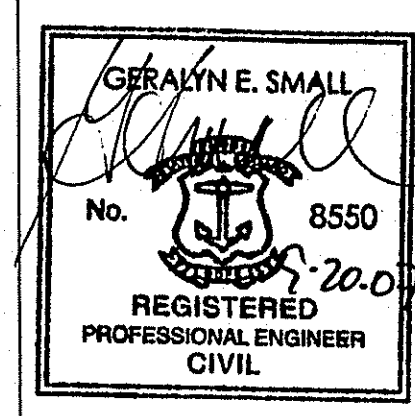


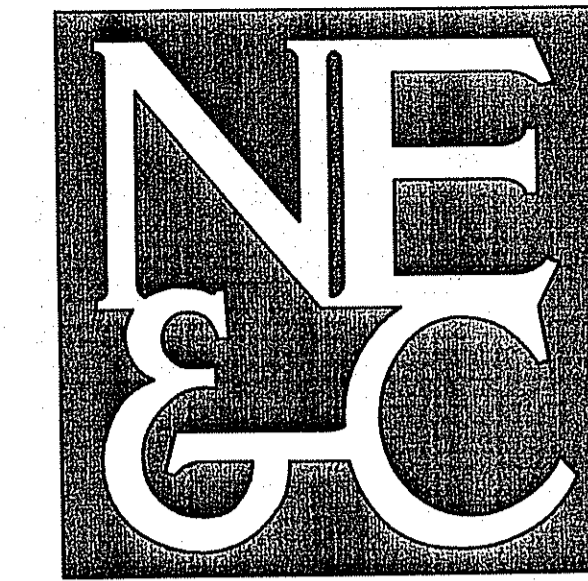
C-6: LAYOUT PLAN  
C-8: GRADING & SESC PLAN  
C-10: DRAINAGE PLAN  
C-13: SEWER PLAN  
C-15: UTILITY PLAN  
C-17: SUBDRAIN PLAN

C-7: LAYOUT PLAN  
C-9: GRADING & SESC PLAN  
C-11: DRAINAGE PLAN  
C-14: SEWER PLAN  
C-16: UTILITY PLAN  
C-18: SUBDRAIN PLAN



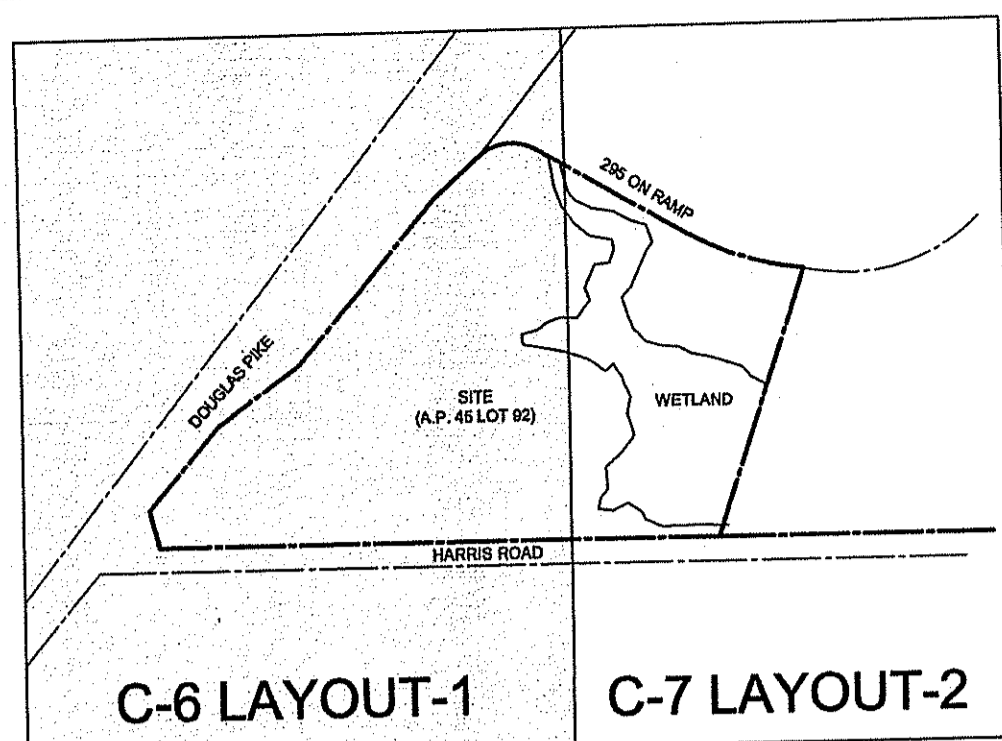
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No.	Revision	Date	App.
Designed By:	JR	Drawn by:	SMH
Checked by:		Date:	MAY 2007
Project Title:			
<b>THE OAKS AT HARRIS ROAD</b> A.P. 45, LOT 92 HARRIS ROAD SMITHFIELD, RI			
Client/Owner:			
KIRKBRÆ DEVELOPMENT 1300 HIGHLAND CORPORATE DRIVE CUMBERLAND, RI 02864			
Issued for:			
PERMITTING SEP 24 2007			
Drawing Title:			
<b>PROPOSED DEVELOPMENT INDEX SHEET</b>			
Drawing Number:			
<b>C-5</b>			
Sheet 6 of 25			
Project Number:			
<b>05338.0</b>			
Survey Index:			
<b>26 - 45 - 92</b>			
OWNERSHIP AND USE OF DOCUMENTS: DRAWINGS AND SPECIFICATIONS, AS INSTRUMENTS OF PROFESSIONAL SERVICE, ARE AND SHALL REMAIN THE PROPERTY OF THE ENGINEER. THESE DOCUMENTS ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECTS OR PURPOSES, OR BY ANY OTHER PARTIES, THAN THOSE PROPERLY AUTHORIZED BY CONTRACT, WITHOUT THE EXPRESS AUTHORIZATION OF THE ENGINEER.			





SITE/CIVIL  
LAND PLANNING  
WATERFRONT  
SURVEYING  
GEOTECHNICAL  
ENVIRONMENTAL  
TRANSPORTATION  
STRUCTURAL  
MATERIALS TESTING

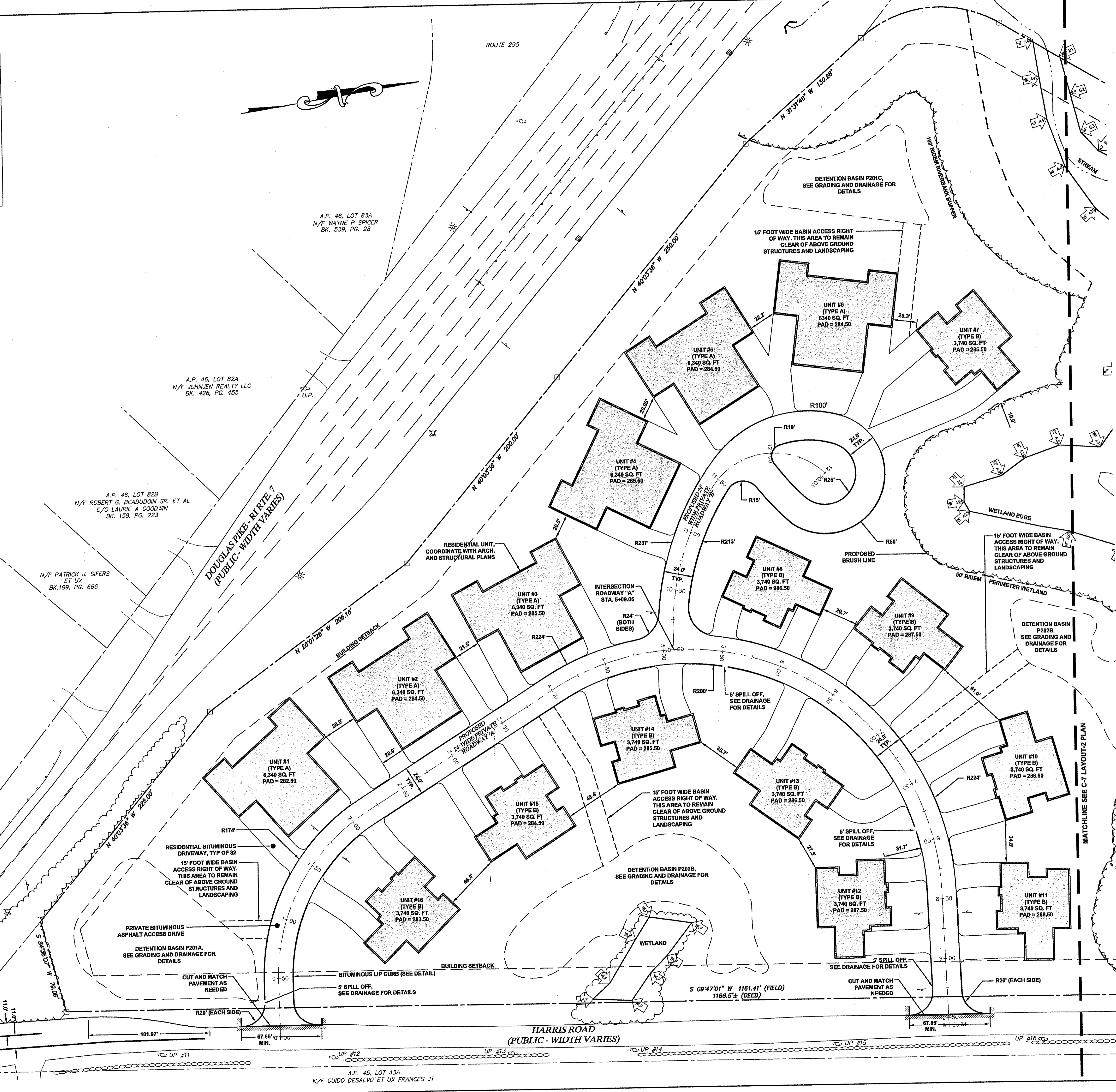
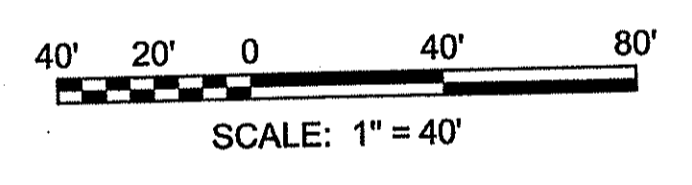
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**DRAWING KEY**  
N.T.S.

- LAYOUT NOTES:**
- PROPOSED DEVELOPMENT SITE IS ZONED R-20M.
  - BUILDING LOCATIONS AND ROADWAY SHOWN GENERALLY CONFORM TO THE SMITHFIELD MASTER PLAN, APPROVED JULY 14, 2003.
  - ALL STRUCTURES MUST CONFORM TO THE MAXIMUM BUILDING HEIGHT LIMITATIONS OF 39 FEET.
  - MAXIMUM BUILDING COVERAGE FOR THE SITE IS 25%.
  - MINIMUM LOT FRONTAGE FOR THE SITE IS 150 FEET.
  - THE EXISTING WETLAND EDGE, ASSOCIATED PERIMETER WETLANDS, AND RIVERBANK WETLANDS ARE SUBJECT TO VERIFICATION BY THE RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (RIDEM).
  - MINIMUM LOT AREA IS TWO DWELLINGS PER ACRE. CURRENT SITE IS 16.38 ACRES WITH 32 UNITS.
  - THERE SHALL BE AT LEAST 20' BETWEEN EACH PRINCIPAL STRUCTURE.
  - FOR BUILDING DETAILS, SEE ARCH SHEETS.
  - FOR LANDSCAPING, SEE LANDSCAPE SHEETS.
  - THERE WILL BE NO ON-STREET PARKING.
  - ALL DRIVEWAYS ARE A MINIMUM OF 20' WIDE AND 20' LONG. EACH UNIT IS SERVED BY ONE GARAGE PARKING STALL AND ONE STALL WITHIN THE DRIVEWAY IN CONFORMANCE WITH THE SMITHFIELD ZONING ORDINANCE ARTICLE 6, SECTION 7.4.A WHICH REQUIRES TWO STALLS FOR A TWO-BEDROOM DWELLING.
  - THERE SHALL BE AN UNPAVED SIDEWALK ADJACENT TO ROADWAY CURB. CONTRACTOR SHALL LOAM TO A DEPTH OF 6" AND SEED WITH A SUITABLE GRASS SEED AS DETERMINED BY THE MUNICIPAL ENGINEER.
  - TOP OF PAD IS NOT TOP OF FOUNDATION.
  - ROADWAY NAMES TBD. ROADWAY NAMES ARE SUBJECT TO APPROVAL BY THE SMITHFIELD FIRE DEPARTMENT AND WILL BE DISCUSSED AT A LATER DATE.

- ROADWAY NOTES:**
- UNSATURABLE MATERIALS ENCOUNTERED DURING EXCAVATION FOR ROADWAYS SHALL BE REMOVED IN ACCORDANCE WITH RIDOT 203.03.1.
  - ROADWAY EMBANKMENTS SHALL BE CONSTRUCTED OF SUITABLE EARTH EXCAVATION, COMMON BORROW OR GRAVEL PLACED IN MAXIMUM 12" LIFTS, COMPACTED TO NOT LESS THAN 95% MAXIMUM DENSITY (AASHTO T180), IN ACCORDANCE WITH RIDOT SPECIFICATIONS 203.03.1.
  - ROCK EXCAVATION, WHERE REQUIRED SHALL BE UNDERTAKEN IN ACCORDANCE WITH RIDOT SPECIFICATION 202.03.1. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY IF ROCK IS ENCOUNTERED IN ORDER THAT MEASUREMENTS CAN BE MADE OF THE ELEVATION AND AREA OF ROCK.



**LEGEND**

	PROPERTY LINE
	ABUTTERS PROPERTY LINE
	EXISTING CONTOUR
	STONE WALL
	WETLAND EDGE
	BUILDING SETBACK
	50' PERIMETER WETLAND
	100' RIVERBANK WETLAND
	EXISTING STREAM
	PROPOSED BRUSHLINE
	WETLAND FLAG
	EXISTING HYDRANT
	EXISTING WATER VALVE
	EXISTING GAS VALVE
	EXISTING UTILITY POLE
	EXISTING TRAFFIC SIGN
	PROPOSED SAW CUT LINE
	PROPOSED PRECAST CURBING
	PROPOSED NO PARKING SIGN

No.	DEM COMMENTS	SEPT 07
1.		

No. Revision Date App.  
 Designed By: JR Drawn by: SMH Checked by:  
 Scale: 1 INCH = 40 FEET Date: MAY 2007

**THE OAKS AT HARRIS ROAD**  
A.P. 45, LOT 92  
HARRIS ROAD  
SMITHFIELD, RI

Client/Owner:  
**KIRKBRAE DEVELOPMENT**  
1300 HIGHLAND CORPORATE DRIVE  
CUMBERLAND, RI 02864

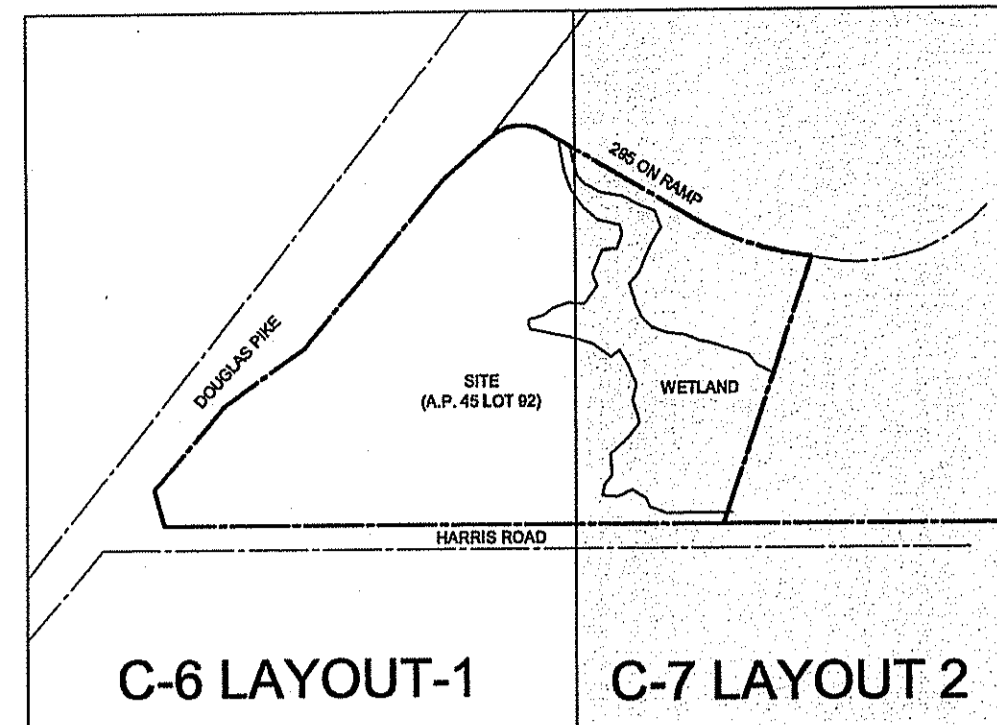
Issued for:  
PERMITTING

Drawing Title:  
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
PERMITTED WETLANDS PROGRAM  
PROPOSED PLANS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED JAN 10 2008 FILE# 2007-0230  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Drawing Number: **C-6**  
Sheet **7** of **25**  
Project Number: **05338.0**  
Survey Index: **26 - 45 - 92**

**GERALYN E. SMALL**  
No. 8550  
REGISTERED PROFESSIONAL ENGINEER CIVIL

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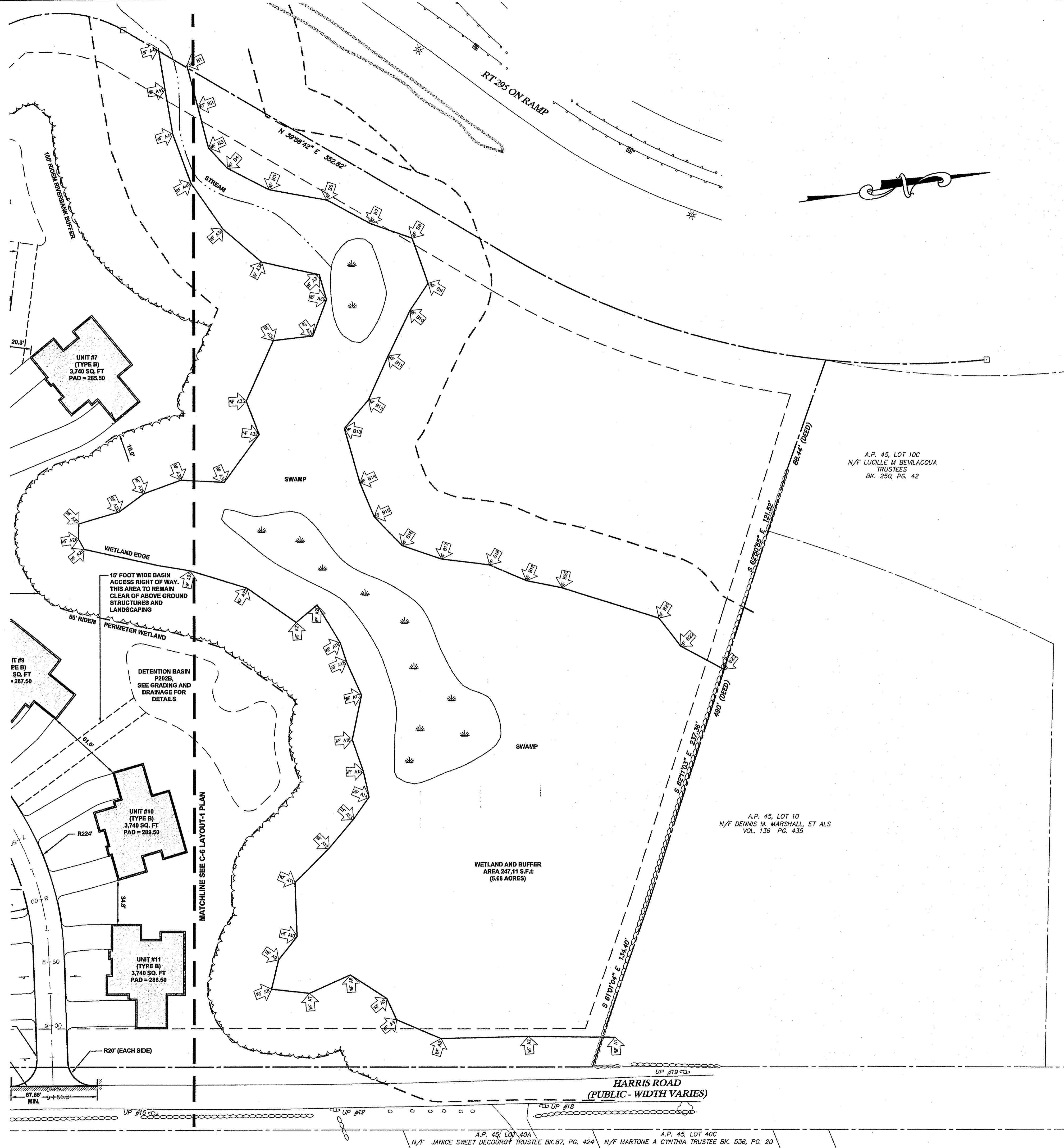
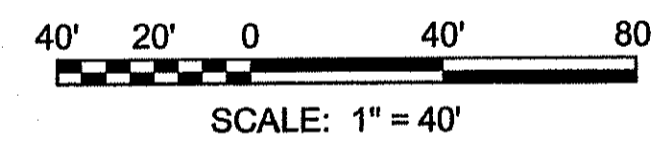
**DRAWING KEY**  
N.T.S.

**LAYOUT NOTES:**

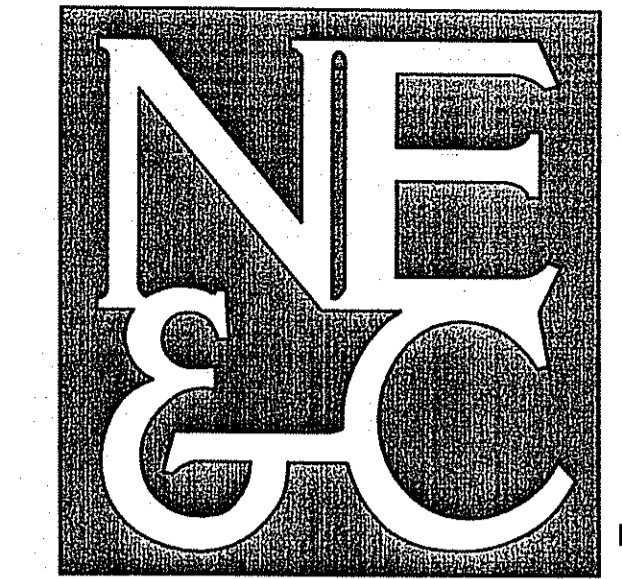
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**ROADWAY NOTES:**

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- ROADWAY EMBANKMENTS SHALL BE CONSTRUCTED OF SUITABLE EARTH EXCAVATION, COMMON BORROW OR GRAVEL PLACED IN MAXIMUM 12" LIFTS, COMPACTED TO NOT LESS THAN 85% MAXIMUM DENSITY (AASHTO T180), IN ACCORDANCE WITH RIDOT SPECIFICATIONS 203.03.1.
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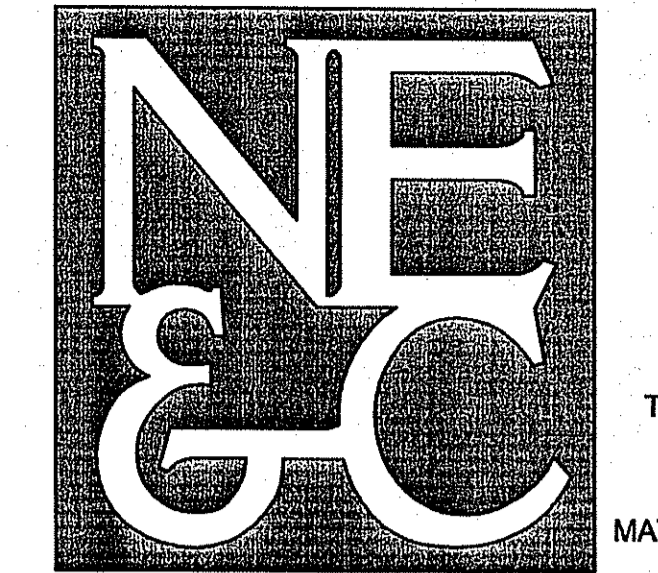
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- LAND PLANNING
- WATERFRONT
- SURVEYING
- GEOTECHNICAL
- ENVIRONMENTAL
- TRANSPORTATION
- STRUCTURAL
- MATERIALS TESTING

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**LEGEND**

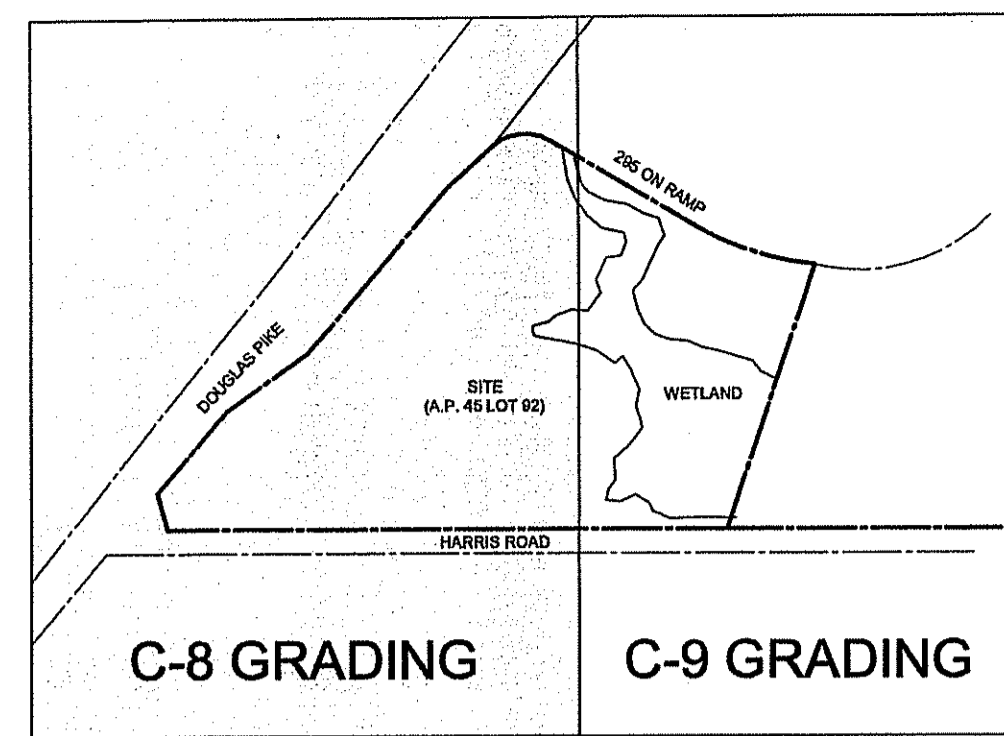
- PROPERTY LINE
- ABUTTERS PROPERTY LINE
- EXISTING CONTOUR
- STONE WALL
- WETLAND EDGE
- BUILDING SETBACK
- 50' PERIMETER WETLAND
- 100' RIVERSHORE WETLAND
- EXISTING STREAM
- PROPOSED BRUSHLINE
- WETLAND FLAG
- EXISTING HYDRANT
- EXISTING WATER VALVE
- EXISTING GAS VALVE
- EXISTING UTILITY POLE
- EXISTING TRAFFIC SIGN
- PROPOSED SAW CUT LINE
- PROPOSED PRECAST CURBING
- PROPOSED NO PARKING SIGN

1.	DEM COMMENTS	SEPT 07
No.	Revision	Date App.
Designed by:	JR	SMH
Drawn by:	SMH	Checked by:
Scale:	1 INCH = 40 FEET	Date:
		MAY 2007
Project Title:		
<b>THE OAKS AT HARRIS ROAD</b>		
A.P. 45, LOT 92 HARRIS ROAD SMITHFIELD, RI		
Client/Owner:		
KIRKBRAE DEVELOPMENT 1300 HIGHLAND CORPORATE DRIVE CUMBERLAND, RI 02864		
Issued for:		
PERMITTING		
Drawing Title:		
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT OFFICE OF WATER RESOURCES FRESHWATER WETLANDS PROGRAM <b>LAYOUT PLAN 2</b> AS SPECIFIED IN THE LETTER OF APPROVAL DATED: 07-20-07 FILE # 07-0230 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL APPROVED PLANS MUST BE AT CONSTRUCTION SITE		
Drawing Number:		
<b>C-7</b>		
Sheet 8 of 25		
Project Number:		
<b>05338.0</b>		
Survey Index:		
<b>26 - 45 - 92</b>		
<small>OWNERSHIP AND USE OF DOCUMENTS: DRAWINGS AND SPECIFICATIONS, AS INSTRUMENTS OF PROFESSIONAL SERVICE, ARE AND SHALL REMAIN THE PROPERTY OF THE ENGINEER. THESE DOCUMENTS ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECTS OR PURPOSES, OR BY ANY OTHER PARTIES, THAN THOSE PROPERLY AUTHORIZED BY CONTRACT, WITHOUT THE EXPRESS AUTHORIZATION OF THE ENGINEER.</small>		



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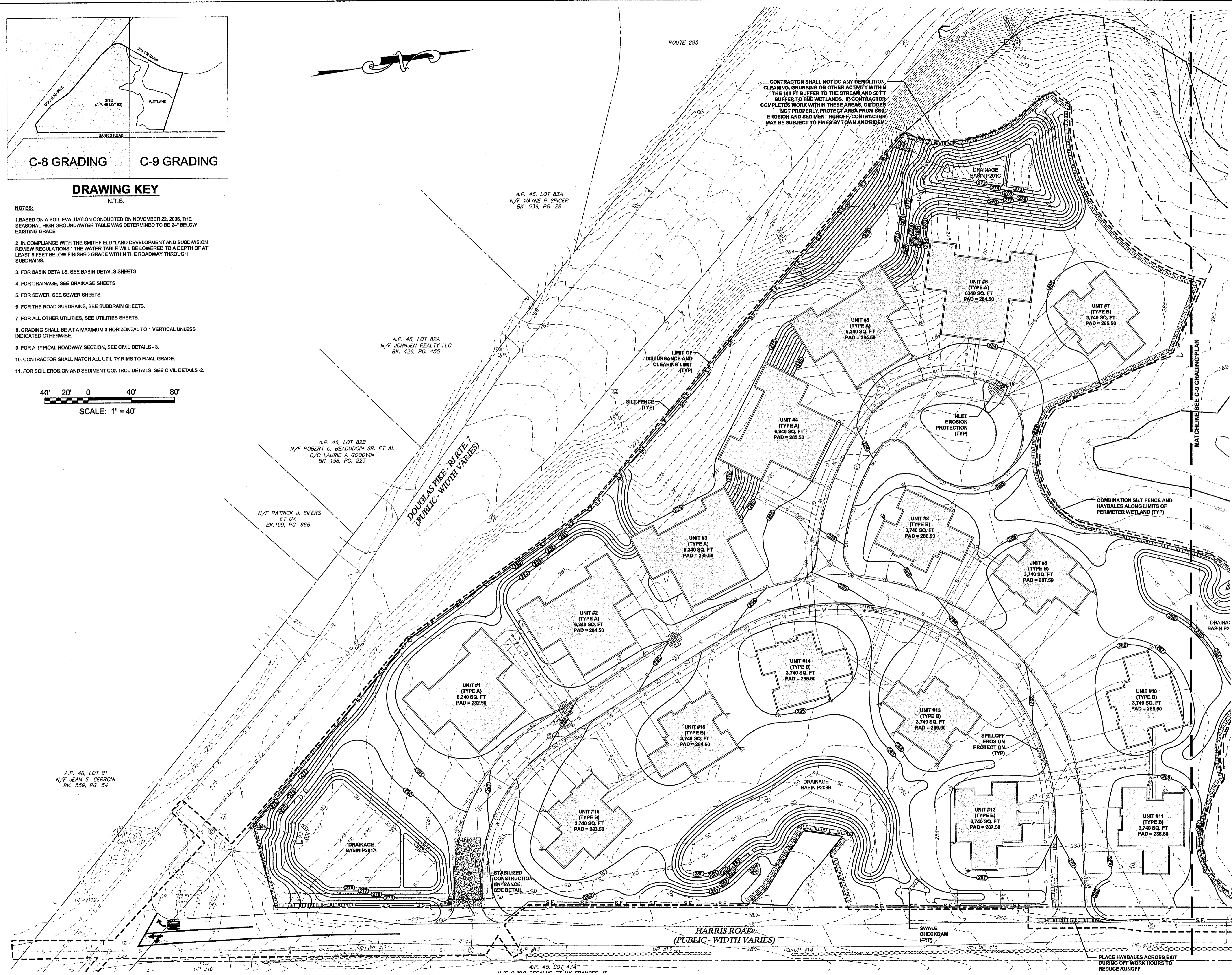
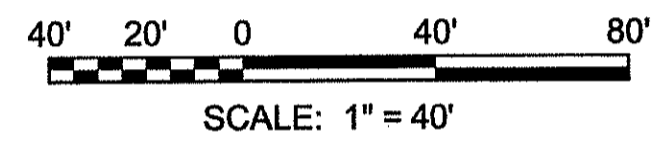
55 JOHN CLARKE ROAD MIDDLETOWN RHODE ISLAND 02842  
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**DRAWING KEY**  
N.T.S.

**NOTES:**

1. BASED ON A SOIL EVALUATION CONDUCTED ON NOVEMBER 22, 2006, THE SEASONAL HIGH GROUNDWATER TABLE WAS DETERMINED TO BE 24" BELOW EXISTING GRADE.
2. IN COMPLIANCE WITH THE SMITHFIELD "LAND DEVELOPMENT AND SUBDIVISION REVIEW REGULATIONS," THE WATER TABLE WILL BE LOWERED TO A DEPTH OF AT LEAST 5 FEET BELOW FINISHED GRADE WITHIN THE ROADWAY THROUGH SUBDRAINS.
3. FOR BASIN DETAILS, SEE BASIN DETAILS SHEETS.
4. FOR DRAINAGE, SEE DRAINAGE SHEETS.
5. FOR SEWER, SEE SEWER SHEETS.
6. FOR THE ROAD SUBDRAINS, SEE SUBDRAIN SHEETS.
7. FOR ALL OTHER UTILITIES, SEE UTILITIES SHEETS.
8. GRADING SHALL BE AT A MAXIMUM 3 HORIZONTAL TO 1 VERTICAL UNLESS INDICATED OTHERWISE.
9. FOR A TYPICAL ROADWAY SECTION, SEE CIVIL DETAILS -3.
10. CONTRACTOR SHALL MATCH ALL UTILITY RIMS TO FINAL GRADE.
11. FOR SOIL EROSION AND SEDIMENT CONTROL DETAILS, SEE CIVIL DETAILS -2.



**LEGEND**

---	PROPERTY LINE
---	ABUTTERS PROPERTY LINE
---	EXISTING CONTOUR
---	STONE WALL
---	WETLAND EDGE
---	50' PERIMETER WETLAND
---	100' RIVERBANK WETLAND
---	EXISTING STREAM
---	EXISTING WATER LINE
---	EXISTING GAS LINE
---	PROPOSED CONTOUR LINE
---	PROPOSED SEWER LINE
---	PROPOSED DRAIN LINE
---	PROPOSED WATER LINE
---	PROPOSED SUBDRAINS
---	WETLAND FLAG
---	EXISTING CATCH BASIN
---	EXISTING HYDRANT
---	EXISTING WATER VALVE
---	EXISTING GAS VALVE
---	EXISTING UTILITY POLE
---	EXISTING TRAFFIC SIGN
---	PROPOSED SEWER MANHOLE
---	PROPOSED DRAIN MANHOLE
---	PROPOSED CATCH BASIN
---	PROPOSED HYDRANT
---	PROPOSED DOWNPOUT
---	PROPOSED SPILLOFF
---	LIMIT OF DISTURBANCE
---	SILT FENCE
---	SILT FENCE AND HAYBALES

1.	DEM COMMENTS	SEPT 07
No.	Revision	Date
App.		
Designed By:	JR	Drawn by: SMH
Checked by:		
Scale:	1 INCH = 40 FEET	Date: MAY 2007
Project Title:		

**THE OAKS AT HARRIS ROAD**  
A.P. 45, LOT 92  
HARRIS ROAD  
SMITHFIELD, RI

Client/Owner:  
**KIRKBRAE DEVELOPMENT**  
1300 HIGHLAND CORPORATE DRIVE  
CUMBERLAND, RI 02864

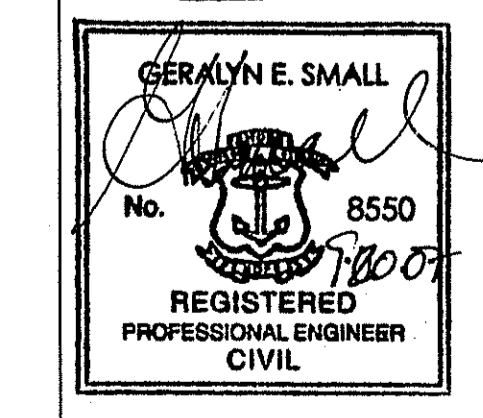
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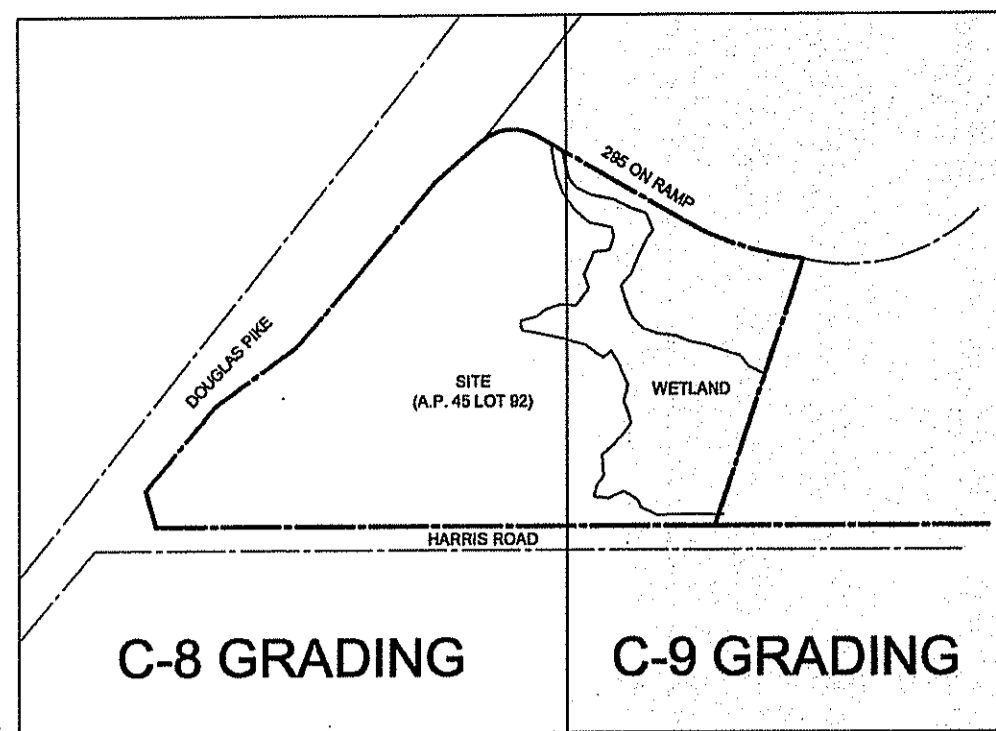
Drawing Title:  
SEP 24 2007

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
**GRADING PERMIT**  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED JAN 10 2008 FILE # 07-0230  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

**C-8**  
Sheet 9 of 25  
Project Number: 05338.0  
Survey Index: 26 - 45 - 92

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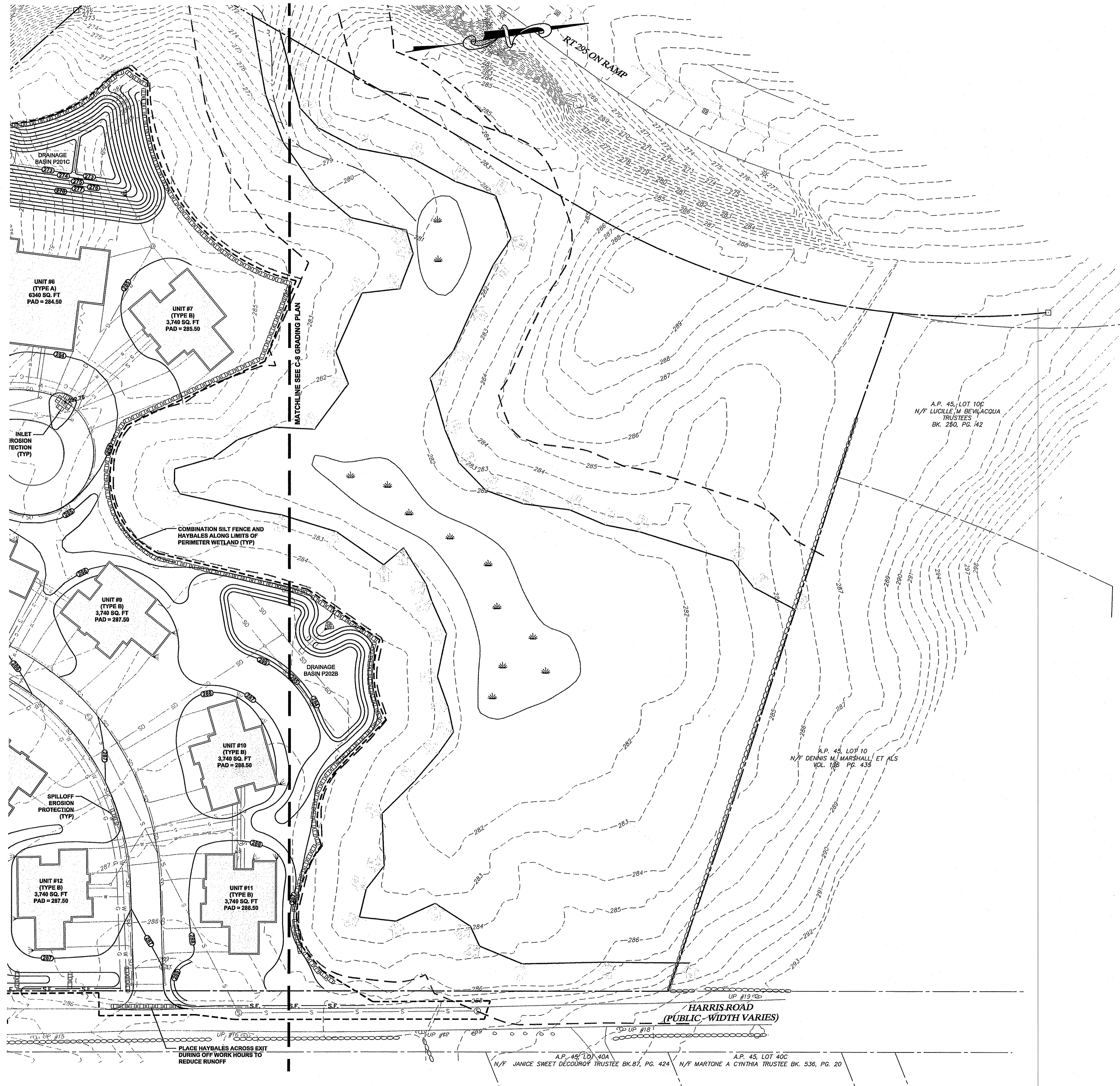
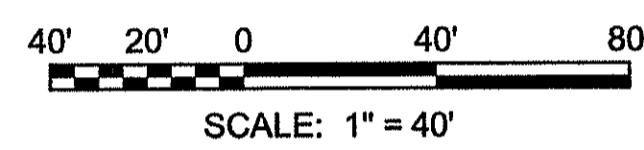




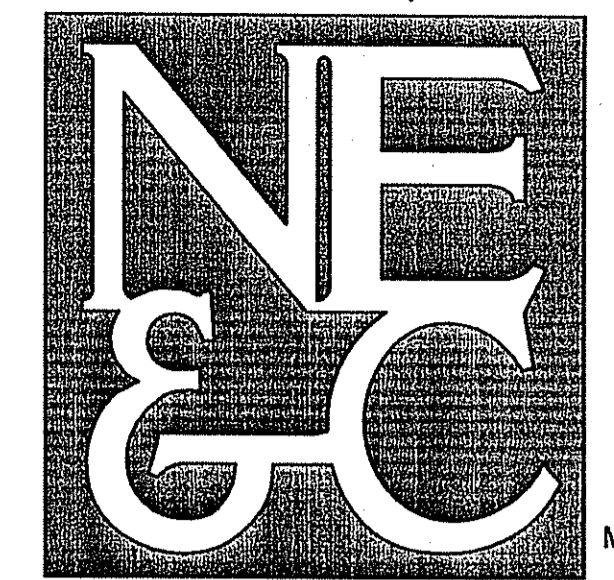
**DRAWING KEY**  
N.T.S.

**NOTES:**

1. BASED ON A SOIL EVALUATION CONDUCTED ON NOVEMBER 22, 2006, THE SEASONAL HIGH GROUNDWATER TABLE WAS DETERMINED TO BE 24" BELOW EXISTING GRADE.
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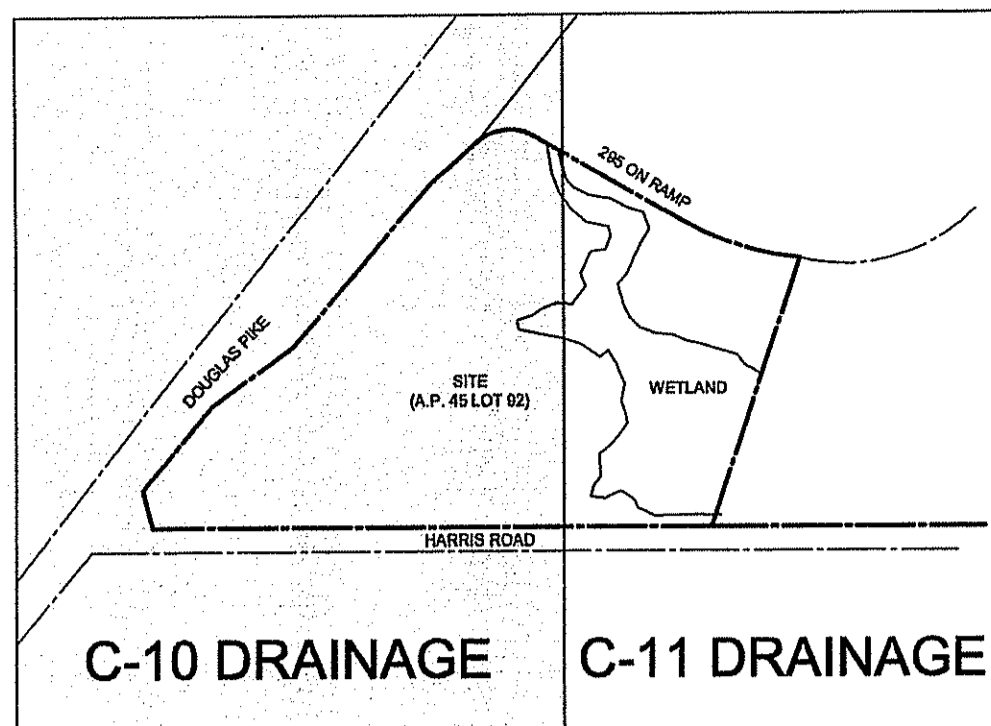
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PHONE (401) 849-0810 FAX (401) 846-4169  
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- WATERFRONT
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- ENVIRONMENTAL
- TRANSPORTATION
- STRUCTURAL
- MATERIALS TESTING

**LEGEND**

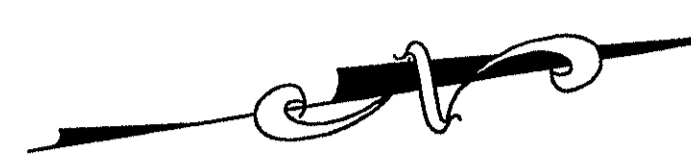
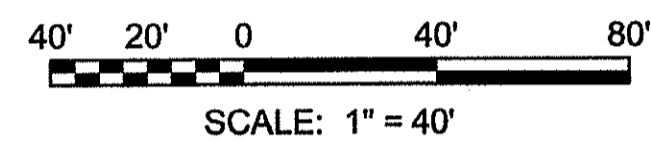
- — — — — PROPERTY LINE
- — — — — ABUTTERS PROPERTY LINE
- — — — — EXISTING CONTOUR
- — — — — STONE WALL
- — — — — WETLAND EDGE
- — — — — 50' PERIMETER WETLAND
- — — — — 100' RIVERBANK WETLAND
- — — — — EXISTING STREAM
- — — — — EXISTING WATER LINE
- — — — — EXISTING GAS LINE
- — — — — PROPOSED CONTOUR LINE
- — — — — PROPOSED SEWER LINE
- — — — — PROPOSED DRAIN LINE
- — — — — PROPOSED WATER LINE
- — — — — PROPOSED SUBDRAINS
- — — — — WETLAND FLAG
- — — — — EXISTING CATCH BASIN
- — — — — EXISTING HYDRANT
- — — — — EXISTING WATER VALVE
- — — — — EXISTING GAS VALVE
- — — — — EXISTING UTILITY POLE
- — — — — EXISTING TRAFFIC SIGN
- — — — — PROPOSED SEWER MANHOLE
- — — — — PROPOSED DRAIN MANHOLE
- — — — — PROPOSED CATCH BASIN
- — — — — PROPOSED HYDRANT
- — — — — PROPOSED DOWNPOUT
- — — — — PROPOSED SPILLOFF
- — — — — LIMIT OF DISTURBANCE
- — — — — SILT FENCE
- — — — — SILT FENCE AND HAYBALES

1.	DEM COMMENTS	SEPT 07
No.	Revision	Date App.
Designed By:	JR	Drawn by: SMH
Checked by:		
Scale:	1 INCH = 40 FEET	Date: MAY 2007
Project Title:		
<b>THE OAKS AT HARRIS ROAD</b>		
A.P. 45, LOT 92 HARRIS ROAD SMITHFIELD, RI		
Client/Owner:		
KIRKBRAE DEVELOPMENT 1300 HIGHLAND CORPORATE DRIVE CUMBERLAND, RI 02864		
Issued for:		
PERMITTING		
Drawing Title:		
GRADING & SECO OFFICE OF WATER RESOURCES FRESH WATER PLANS PROGRAM APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL DATED JAN 1 0 2008 FILE # 07-0230		
<b>C-9</b>		
Sheet 10 of 25		
Project Number: <b>05338.0</b>		
Survey Index: <b>26 - 45 - 92</b>		
<small>OWNERSHIP AND USE OF DOCUMENTS: DRAWINGS AND SPECIFICATIONS, AS INSTRUMENTS OF PROFESSIONAL SERVICE, ARE AND SHALL REMAIN THE PROPERTY OF THE ENGINEER. THESE DOCUMENTS ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECTS OR PURPOSES, OR BY ANY OTHER PARTIES, THAN THOSE PROPERLY AUTHORIZED BY CONTRACT, WITHOUT THE EXPRESS AUTHORIZATION OF THE ENGINEER.</small>		

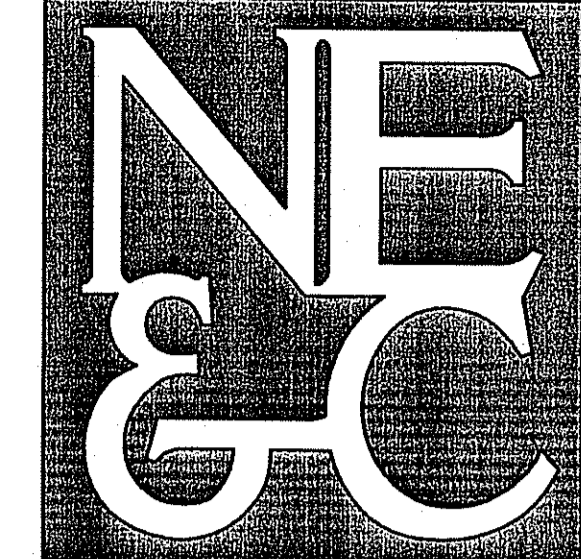


**DRAWING KEY**  
N.T.S.

- NOTES:**
1. ALL PIPES SHALL BE ADS UNLESS INDICATED OTHERWISE.
  2. ALL DOWNSPOUTS FROM 3740 SQ FT BUILDINGS SHALL CONNECT TO A 8" ADS PIPE.
  3. ALL DOWNSPOUTS FROM 6400 SQ FT BUILDINGS SHALL CONNECT TO A 12" ADS PIPE.
  4. DRAIN PIPES HAVE BEEN DESIGNED FOR THE 25-YEAR, 24-HOUR, TYPE III STORM PEAK FLOW IN COMPLIANCE WITH THE SMITHFIELD LAND DEVELOPMENT AND SUBDIVISION REVIEW REGULATIONS.
  5. DETENTION BASINS DESIGNED FOR THE 100-YEAR, 24 HOUR, TYPE III STORM IN COMPLIANCE WITH THE SMITHFIELD LAND DEVELOPMENT AND SUBDIVISION REVIEW REGULATIONS.
  6. SITE DESIGNED FOR A REDUCTION IN PEAK RUNOFF FOR THE 2, 10, 25 AND 100-YEAR, 24-HOUR STORM IN CONFORMANCE WITH THE SMITHFIELD LAND DEVELOPMENT AND SUBDIVISION REVIEW REGULATIONS.
  7. SITE DESIGNED FOR A REDUCTION IN DISCHARGE VOLUME TO DOUGLAS PIKE AND HARRIS ROAD DURING THE 10-YEAR, 24-HOUR TYPE III STORM IN COMPLIANCE WITH RIDOT REGULATIONS.
  8. FOR ALL STORM MANHOLES / CATCH BASINS WITH LESS THAN 3'-0" COVER, CONTRACTOR SHALL USE RIDOT STD DET 3.5.0. FOR ALL STORM MANHOLES / CATCH BASINS WITH 3'-0" COVER OR MORE SHALL USE RIDOT STD DET 3.4.3.
  9. ALL UNDERGROUND UTILITIES SHOWN ON THIS PLAN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING PLANS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM ALL AVAILABLE INFORMATION. (PLEASE CONTACT DIGSAFE PRIOR TO CONSTRUCTION AT 1-888-344-7233, AND/OR ALL LOCAL UTILITY COMPANIES)



**NORTHEAST ENGINEERS & CONSULTANTS, INC.**



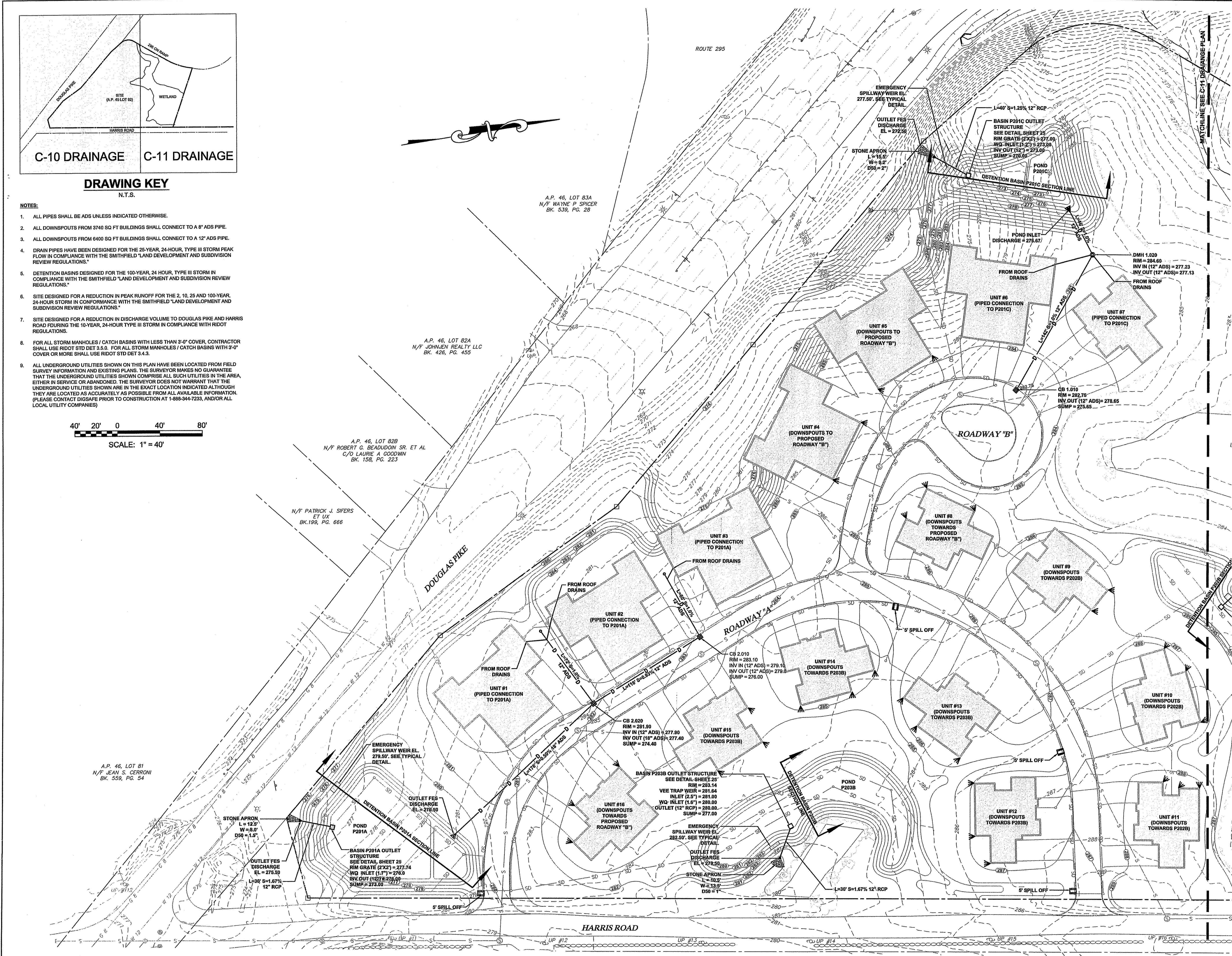
SITE/CIVIL  
LAND PLANNING  
WATERFRONT  
SURVEYING  
GEOTECHNICAL  
ENVIRONMENTAL  
TRANSPORTATION  
STRUCTURAL  
MATERIALS TESTING

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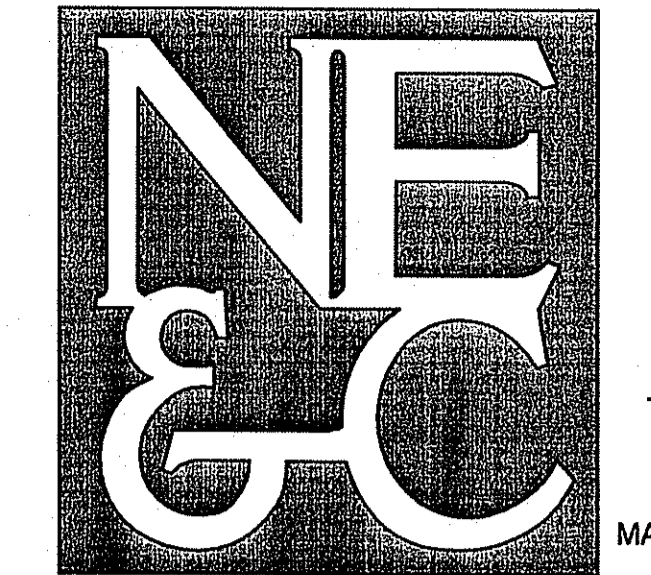
55 JOHN CLARKE ROAD MIDDLETOWN RHODE ISLAND 02842  
PHONE (401) 849-0810 FAX (401) 846-4169  
WWW.NORTHEASTENGINEERS.COM

**LEGEND**

- PROPERTY LINE
- - - BUTTERS PROPERTY LINE
- - - EXISTING CONTOUR
- STONE WALL
- WETLAND EDGE
- 50' PERIMETER WETLAND
- 100' RIVERBANK WETLAND
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- PROPOSED HYDRANT
- PROPOSED DOWNPOUT
- PROPOSED SPILLOFF

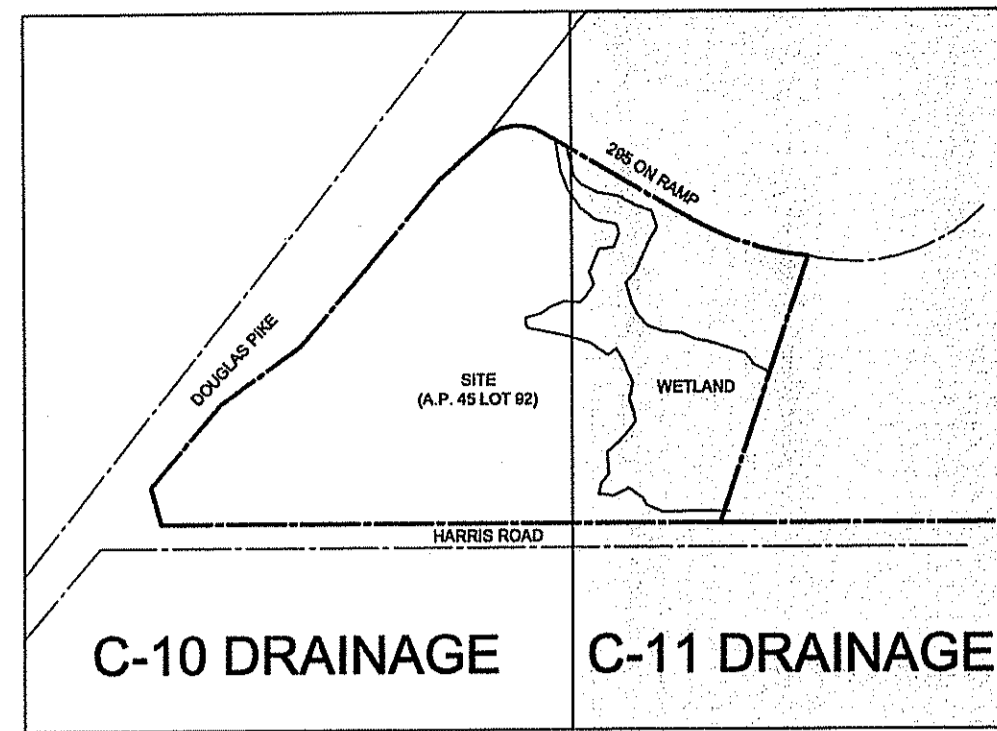


1.	DEM COMMENTS	SEPT 07	
No.	Revision	Date	App.
Designed By:	JR	Drawn by:	SMH
Checked by:		Date:	MAY 2007
Scale:	1 INCH = 40 FEET	Date:	MAY 2007
Project Title:			
<b>THE OAKS AT HARRIS ROAD</b>			
A.P. 45, LOT 92 HARRIS ROAD SMITHFIELD, RI			
Client/Owner:			
KIRKBRAE DEVELOPMENT 1300 HIGHLAND CORPORATE DRIVE CUMBERLAND, RI 02864			
Issued for:			
PERMITTING			
Drawing Title:			
SEP 24 2007			
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT <b>DRAINAGE PLAN #1</b> APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL DATED 09/10/2008 FILE # 07-0230 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL APPROVED PLANS MUST BE AT CONSTRUCTION SITE			
GERALDINE SMALL <i>G. Small</i> No. 8550 REGISTERED PROFESSIONAL ENGINEER CIVIL		<b>C-10</b> Sheet 11 of 25 Project Number: <b>05338.0</b> Survey Index: <b>26 - 45 - 92</b>	
OWNERSHIP AND USE OF DOCUMENTS: DRAWINGS AND SPECIFICATIONS, AS INSTRUMENTS OF PROFESSIONAL SERVICE, ARE AND SHALL REMAIN THE PROPERTY OF THE ENGINEER. THESE DOCUMENTS ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECTS OR PURPOSES, OR BY ANY OTHER PARTIES, THAN THOSE PROPERLY AUTHORIZED BY CONTRACT, WITHOUT THE EXPRESS AUTHORIZATION OF THE ENGINEER.			



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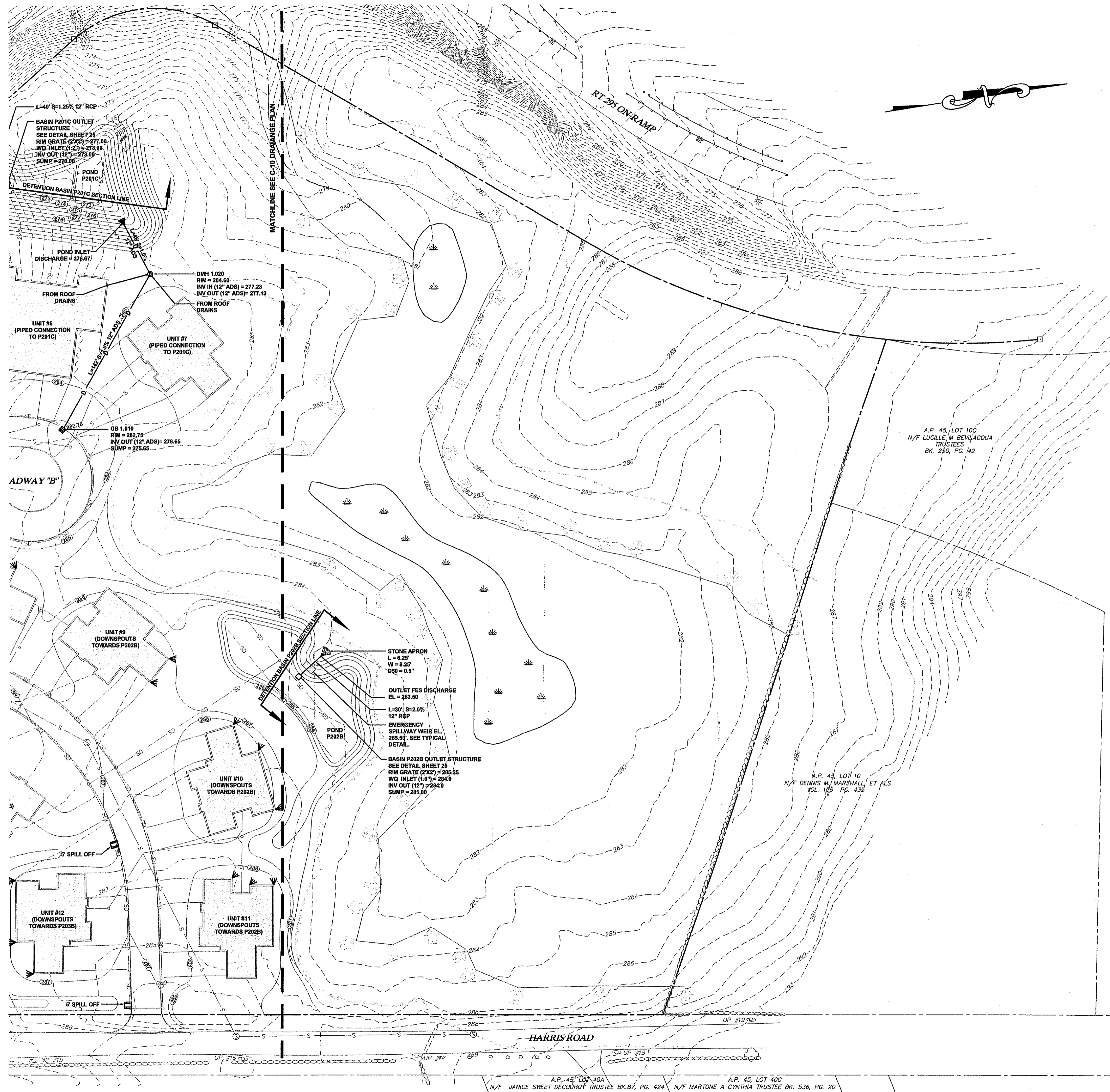
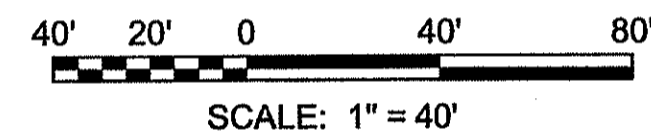


C-10 DRAINAGE C-11 DRAINAGE

**DRAWING KEY**  
N.T.S.

**NOTES:**

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- ALL DOWNSPOUTS FROM 3740 SQ FT BUILDINGS SHALL CONNECT TO A 8" ADS PIPE.
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**LEGEND**

- PROPERTY LINE
- ABUTTERS PROPERTY LINE
- EXISTING CONTOUR
- STONE WALL
- WETLAND EDGE
- 50' PERIMETER WETLAND
- 100' RIVERBANK WETLAND
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- PROPOSED DRAIN MANHOLE
- PROPOSED CATCH BASIN
- PROPOSED HYDRANT
- PROPOSED DOWNSPOUT
- PROPOSED SPILLOFF

No.	Revision	Date	App.
1.	DEM COMMENTS	SEPT 07	

Designed by: JR Drawn by: SMH Checked by:  
Scale: 1 INCH = 40 FEET Date: MAY 2007  
Project Title:

**THE OAKS AT HARRIS ROAD**  
A.P. 45, LOT 92  
HARRIS ROAD  
SMITHFIELD, RI

Client/Owner:  
**KIRKBRAE DEVELOPMENT**  
1300 HIGHLAND CORPORATE DRIVE  
CUMBERLAND, RI 02864

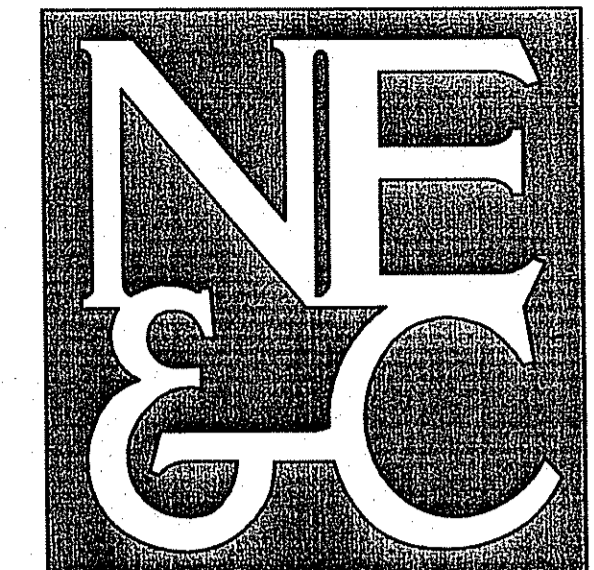
Issued for:  
**PERMITTING**

Drawing Title:  
SEP 24 2007  
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
**DRAINAGE PLAN #2**  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED JAN 10 2008 FILE # 07-0230  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED BY THIS SITE AT CONSTRUCTION SITE

GERALD E. SMALL  
No. 8550  
7-20-07  
REGISTERED PROFESSIONAL ENGINEER  
CIVIL

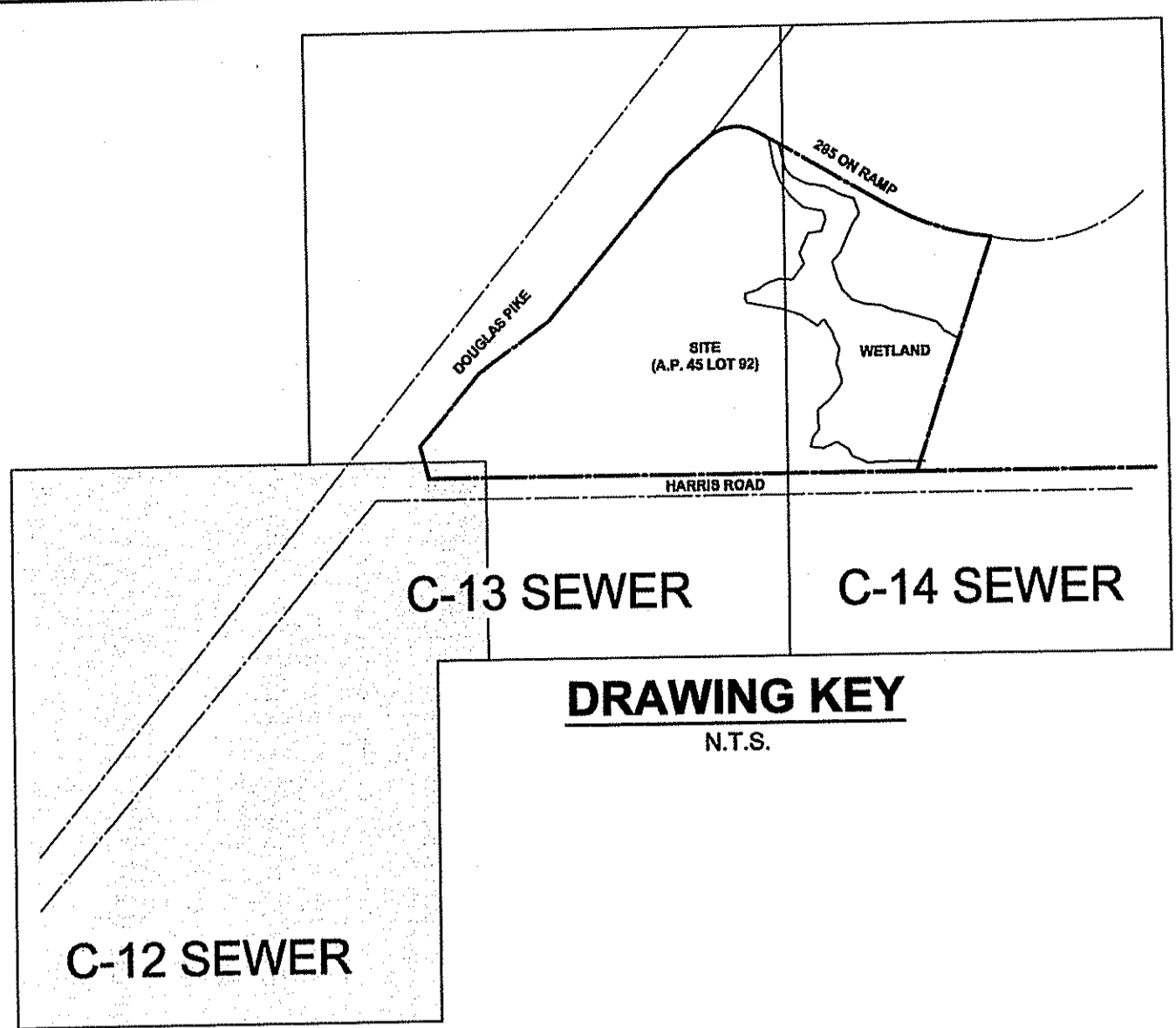
**C-11**  
Sheet 12 of 25  
Project Number:  
**05338.0**  
Survey Index:  
**26 - 45 - 92**

OWNERSHIP AND USE OF DOCUMENTS: DRAWINGS AND SPECIFICATIONS, AS INSTRUMENTS OF PROFESSIONAL SERVICE, ARE AND SHALL REMAIN THE PROPERTY OF THE ENGINEER. THESE DOCUMENTS ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECTS OR PURPOSES, OR BY ANY OTHER PARTIES, THAN THOSE PROPERLY AUTHORIZED BY CONTRACT, WITHOUT THE EXPRESS AUTHORIZATION OF THE ENGINEER.



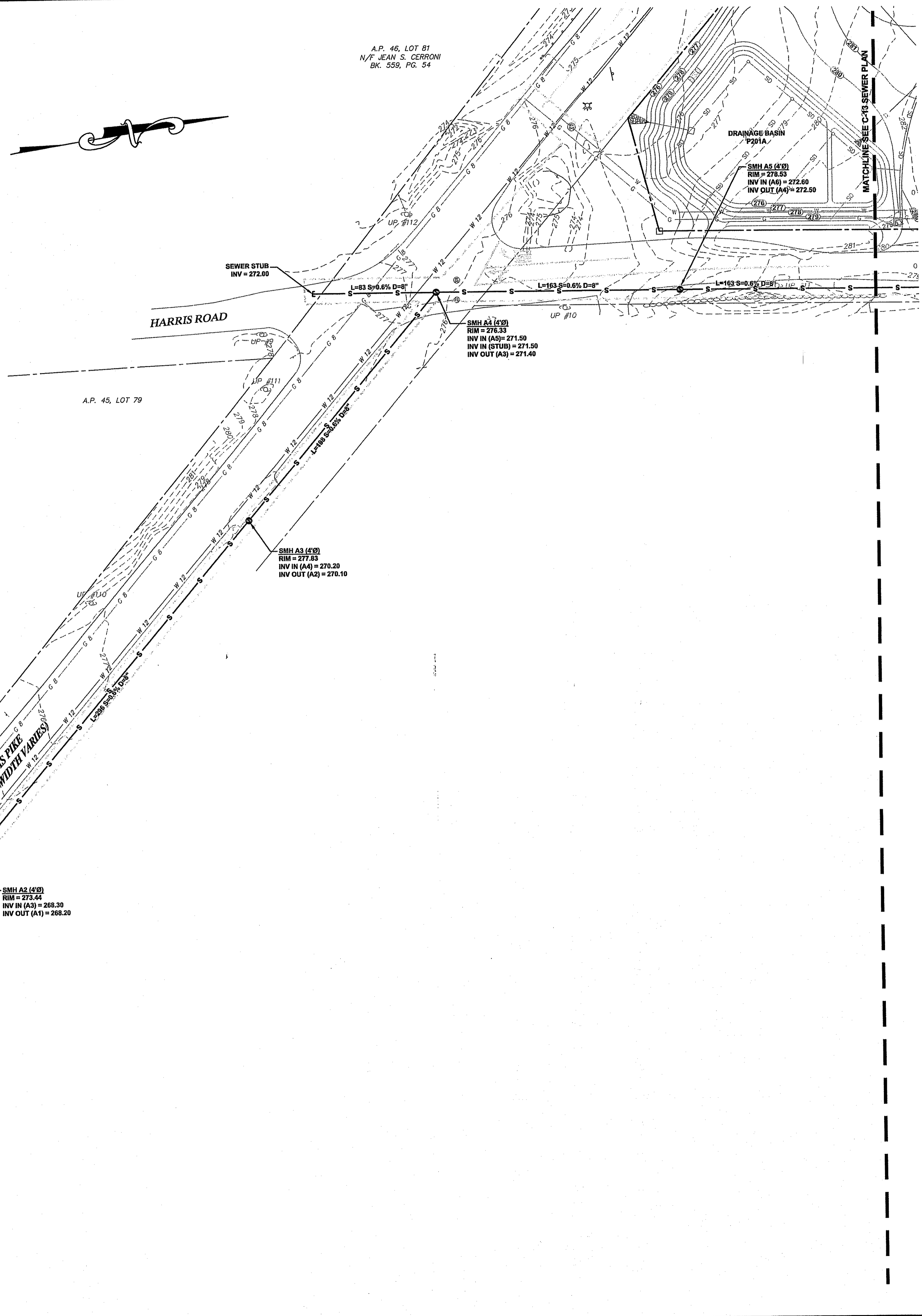
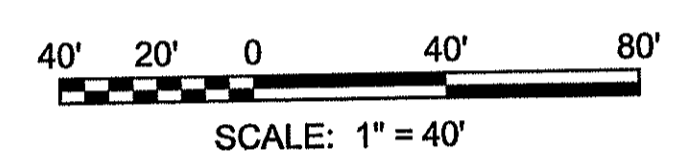
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**DRAWING KEY**  
N.T.S.

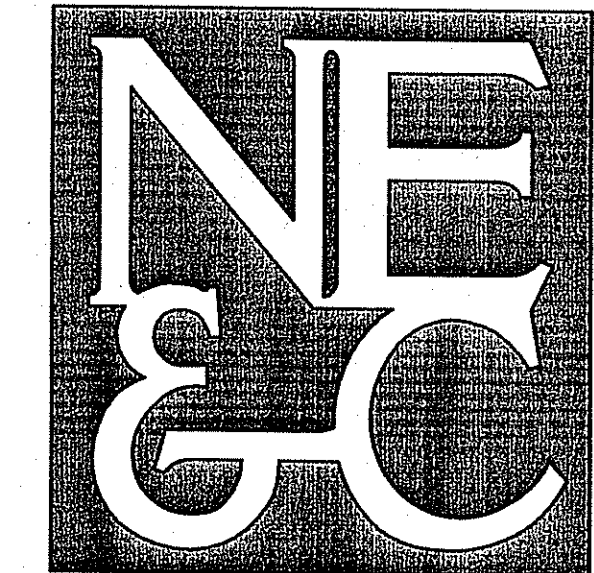
- MUNICIPAL SEWER NOTES:**
1. THE INVERT OUT ELEVATION OF THE CONNECTION SMH AT LIMEROCK ROAD SHALL BE CONFIRMED PRIOR TO CONSTRUCTION.
  2. ALL EXISTING UTILITIES SHALL BE CONFIRMED PRIOR TO CONSTRUCTION.
  3. CONTRACTOR SHALL REPAIR ROAD CUTS AND LANDSCAPING TO EQUAL OR BETTER CONDITIONS.
  4. CONTRACTOR SHALL NOTIFY ABUTTING PROPERTY OWNERS AT LEAST 48 HRS PRIOR TO START OF CONSTRUCTION.



**LEGEND**

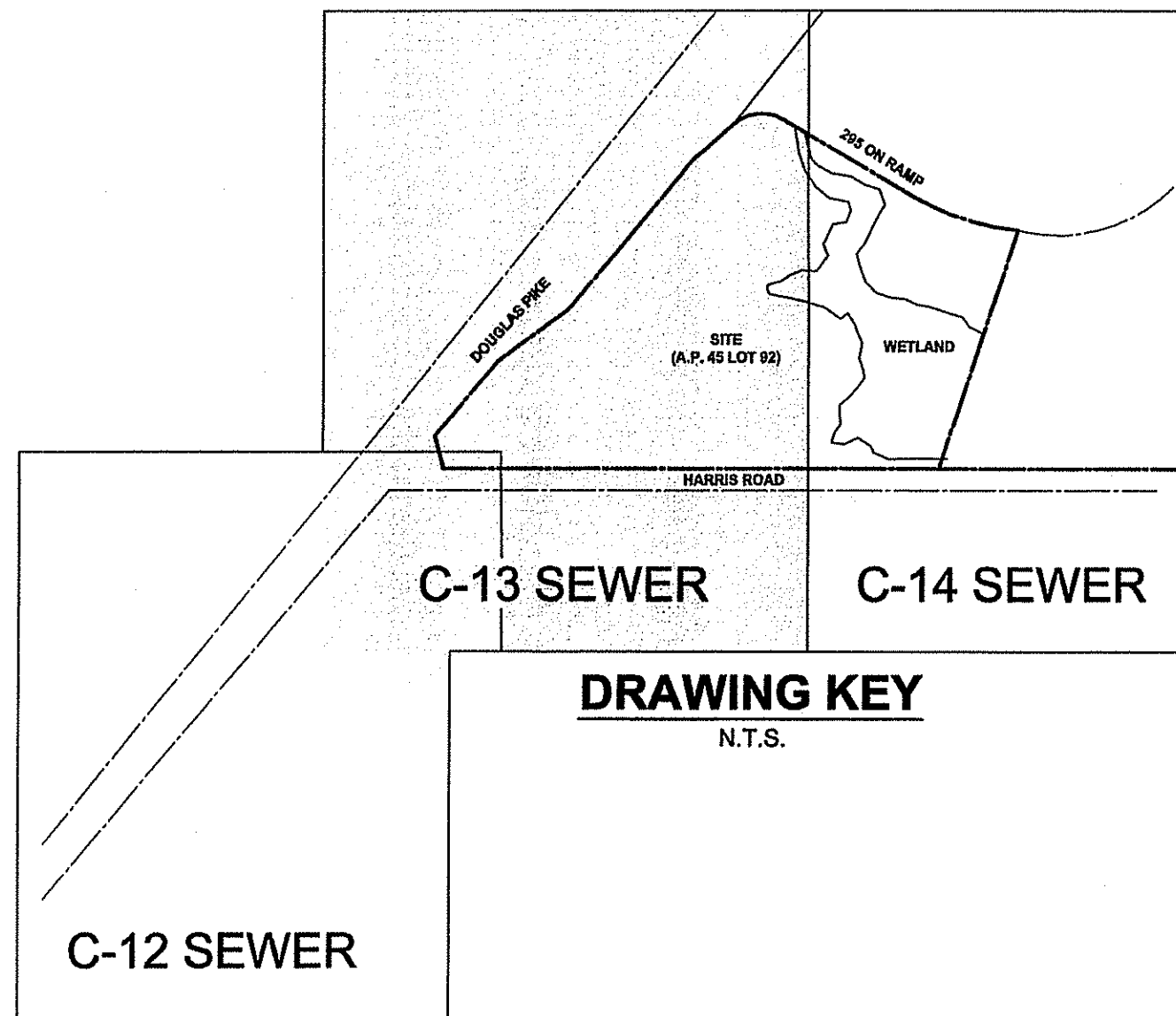
---	PROPERTY LINE
- - - -	ADJUTERS PROPERTY LINE
.....	EXISTING CONTOUR
-----	STONE WALL
-----	WETLAND EDGE
-----	50' PERIMETER WETLAND
-----	100' RIVERBANK WETLAND
-----	EXISTING STREAM
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-----	EXISTING GAS LINE
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-----	PROPOSED DRAIN LINE
-----	PROPOSED WATER LINE
-----	PROPOSED SUBDRAINS
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-----	EXISTING UTILITY POLE
-----	EXISTING TRAFFIC SIGN
-----	PROPOSED SEWER MANHOLE
-----	PROPOSED DRAIN MANHOLE
-----	PROPOSED CATCH BASIN
-----	PROPOSED HYDRANT
-----	PROPOSED DOWNPOUT
-----	PROPOSED SPILLOFF
-----	PROPOSED LIMIT OF DISTURBANCE

1.	DEM COMMENTS	SEPT 07	
No.	Revision	Date	App.
Designed By:	JR	Drawn by:	SMH
Checked by:		Date:	MAY 2007
Scale:	1 INCH = 40 FEET	Date:	MAY 2007
Project Title:	<p><b>THE OAKS AT HARRIS ROAD</b> A.P. 45, LOT 92 HARRIS ROAD SMITHFIELD, RI</p>		
Client/Owner:	<p>KIRKBRÆ DEVELOPMENT 1300 HIGHLAND CORPORATE DRIVE CUMBERLAND, RI 02864</p>		
Issued for:	<p>PERMITTING</p>		
Drawing Title:	<p>SEWER PLAN</p>		
DESIGNER'S ENVIRONMENTAL MANAGEMENT	<p>FRESHWATER WETLANDS PROGRAM APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL DATED JAN 10 2008 FILE # 07-0230 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL APPROVED PLANS NUMBER:</p>		
GERALYNE SMALL	<p>C-12</p>		
No. 8550	<p>Sheet 13 of 25</p>		
REGISTERED PROFESSIONAL ENGINEER CIVIL	<p>Project Number: 05338.0</p>		
	<p>Survey Index: 26-45-92</p>		
<p>OWNERSHIP AND USE OF DOCUMENTS: DRAWINGS AND SPECIFICATIONS, AS INSTRUMENTS OF PROFESSIONAL SERVICE, ARE AND SHALL REMAIN THE PROPERTY OF THE ENGINEER. THESE DOCUMENTS ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECTS OR PURPOSES, OR BY ANY OTHER PARTIES, THAN THOSE PROPERLY AUTHORIZED BY CONTRACT, WITHOUT THE EXPRESS AUTHORIZATION OF THE ENGINEER.</p>			



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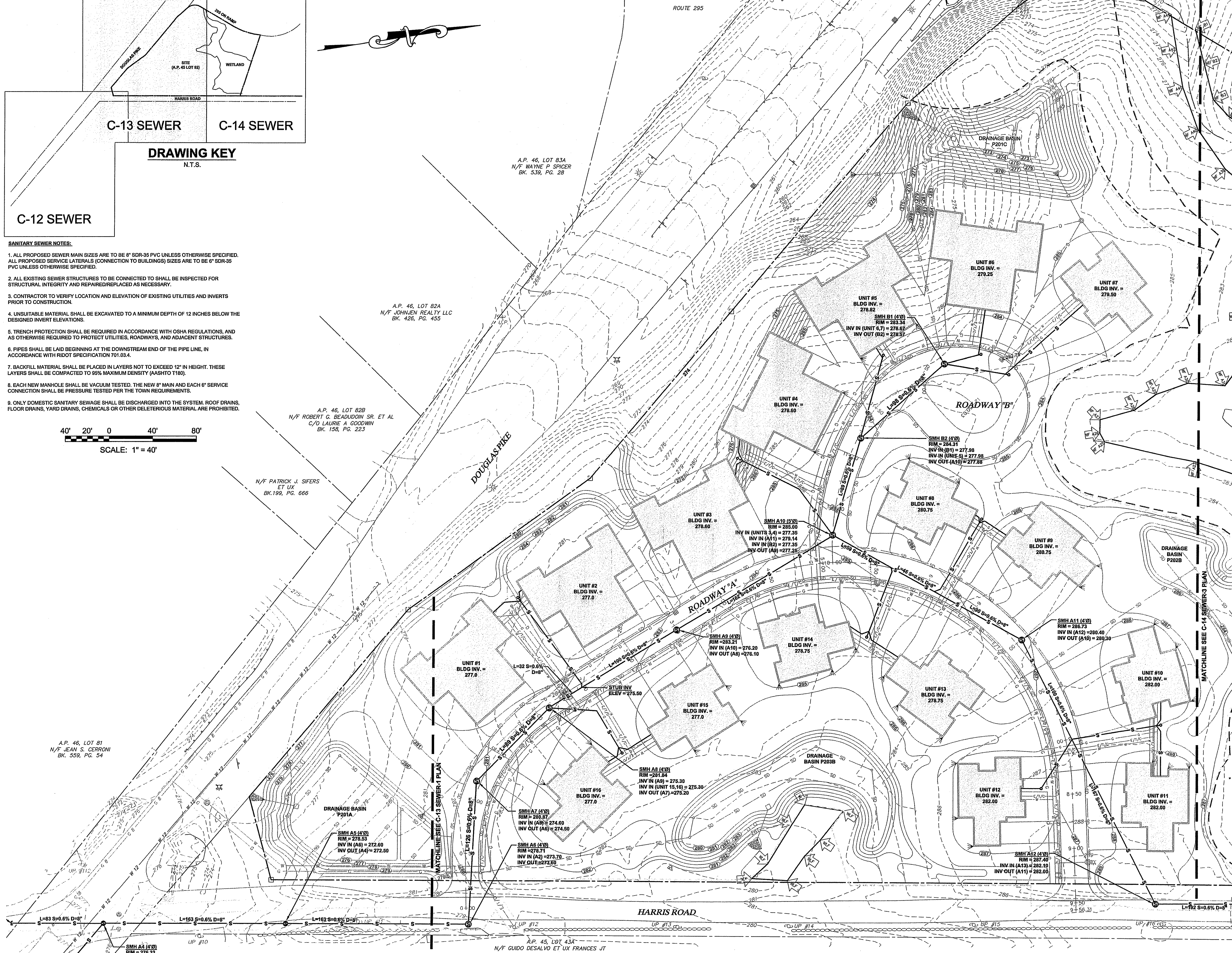
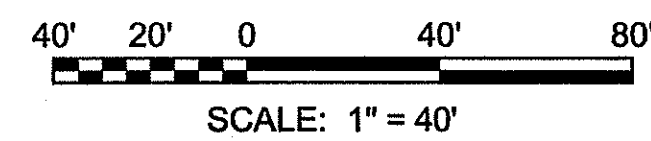
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**DRAWING KEY**  
N.T.S.

**SANITARY SEWER NOTES:**

1. ALL PROPOSED SEWER MAIN SIZES ARE TO BE 6" SDR-35 PVC UNLESS OTHERWISE SPECIFIED. ALL PROPOSED SERVICE LATERALS (CONNECTION TO BUILDINGS) SIZES ARE TO BE 6" SDR-35 PVC UNLESS OTHERWISE SPECIFIED.
2. ALL EXISTING SEWER STRUCTURES TO BE CONNECTED TO SHALL BE INSPECTED FOR STRUCTURAL INTEGRITY AND REPAIRED/REPLACED AS NECESSARY.
3. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES AND INVERTS PRIOR TO CONSTRUCTION.
4. UNSUITABLE MATERIAL SHALL BE EXCAVATED TO A MINIMUM DEPTH OF 12 INCHES BELOW THE DESIGNED INVERT ELEVATIONS.
5. TRENCH PROTECTION SHALL BE REQUIRED IN ACCORDANCE WITH OSHA REGULATIONS, AND AS OTHERWISE REQUIRED TO PROTECT UTILITIES, ROADWAYS, AND ADJACENT STRUCTURES.
6. PIPES SHALL BE LAID BEGINNING AT THE DOWNSTREAM END OF THE PIPE LINE, IN ACCORDANCE WITH RIDOT SPECIFICATION 701.03.4.
7. BACKFILL MATERIAL SHALL BE PLACED IN LAYERS NOT TO EXCEED 12" IN HEIGHT. THESE LAYERS SHALL BE COMPACTED TO 95% MAXIMUM DENSITY (AASHTO T180).
8. EACH NEW MANHOLE SHALL BE VACUUM TESTED. THE NEW 8" MAIN AND EACH 6" SERVICE CONNECTION SHALL BE PRESSURE TESTED PER THE TOWN REQUIREMENTS.
9. ONLY DOMESTIC SANITARY SEWAGE SHALL BE DISCHARGED INTO THE SYSTEM. ROOF DRAINS, FLOOR DRAINS, YARD DRAINS, CHEMICALS OR OTHER DELETERIOUS MATERIAL ARE PROHIBITED.



**LEGEND**

---	PROPERTY LINE
- - - -	ABUTTERS PROPERTY LINE
---	EXISTING CONTOUR
---	STONE WALL
---	WETLAND EDGE
---	50' PERIMETER WETLAND
---	100' RIVERBANK WETLAND
---	EXISTING STREAM
---	EXISTING WATER LINE
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---	PROPOSED SEWER LINE
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---	PROPOSED WATER LINE
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---	PROPOSED CATCH BASIN
---	PROPOSED HYDRANT
---	PROPOSED DOWNPOUT
---	PROPOSED SPILLOFF
---	PROPOSED LIMIT OF DISTURBANCE

1.	DEM COMMENTS	SEPT 07
No.	Revision	Date
Designed By:	JR	Drawn by: SMH
Scale:	1 INCH = 40 FEET	Date: MAY 2007
Checked by:		

**THE OAKS AT HARRIS ROAD**  
A.P. 45, LOT 92  
HARRIS ROAD  
SMITHFIELD, RI

Client/Owner:  
**KIRKBRAE DEVELOPMENT**  
1300 HIGHLAND CORPORATE DRIVE  
CUMBERLAND, RI 02864

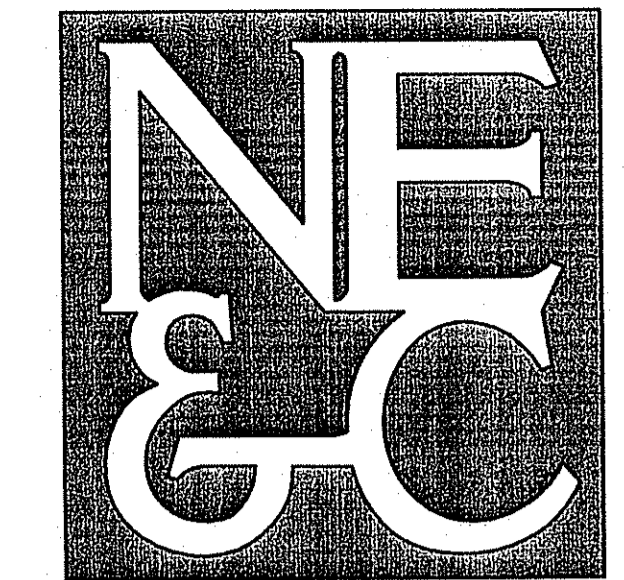
Issued for: **PERMITTING**  
Drawing Title: **SEWER PLAN**

DATE: **JAN 10 2008** FILE # **07-0230**  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED BY: **GERALD E. SMALL**

**GERALD E. SMALL**  
No. **8550**  
REG. DATE: **9-20-07**  
**REGISTERED PROFESSIONAL ENGINEER CIVIL**

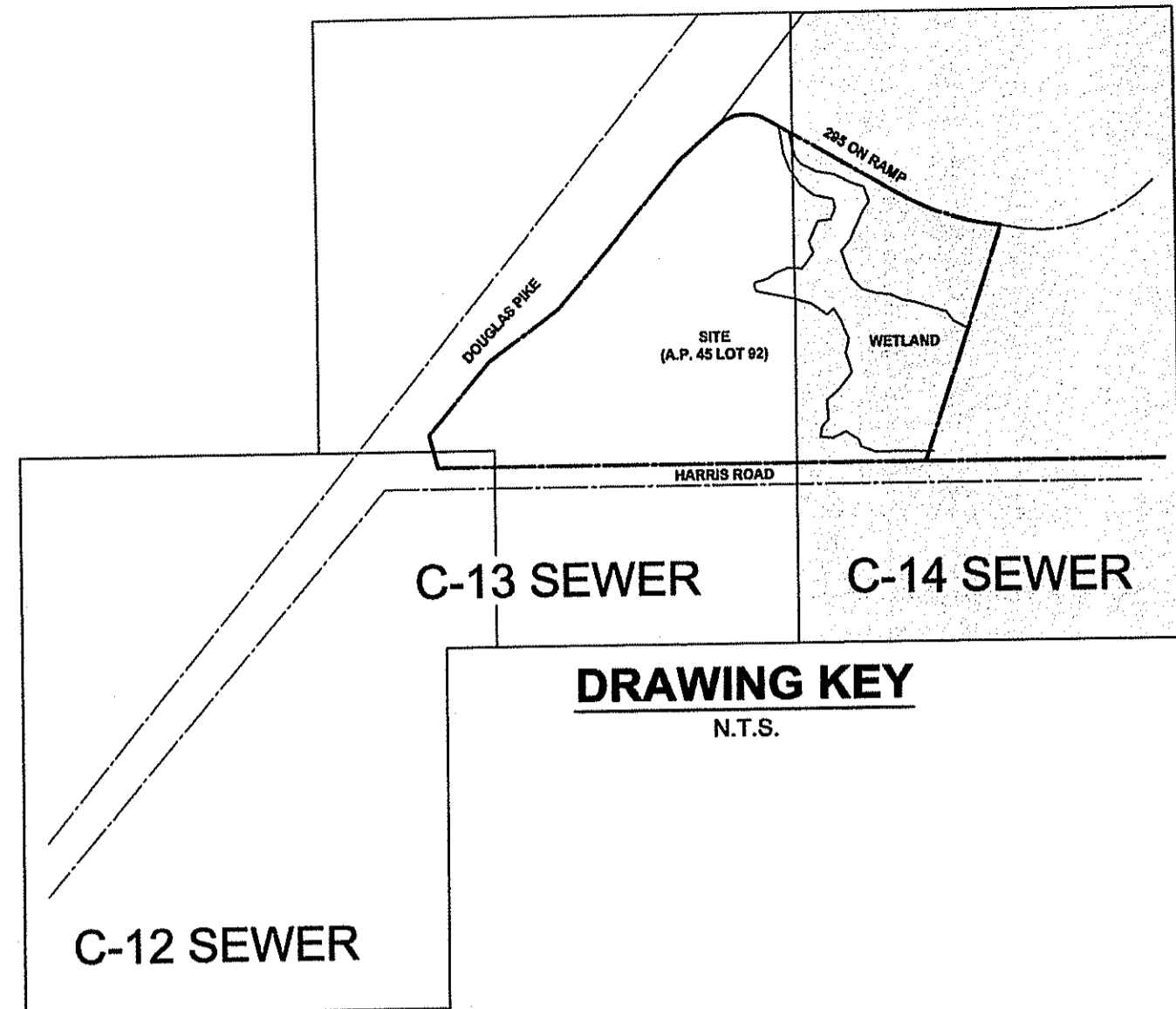
**C-13**  
Sheet **14** of **25**  
Project Number: **05338.0**  
Survey Index: **26-45-92**

OWNERSHIP AND USE OF DOCUMENTS: DRAWINGS AND SPECIFICATIONS, AS INSTRUMENTS OF PROFESSIONAL SERVICE, ARE AND SHALL REMAIN THE PROPERTY OF THE ENGINEER. THESE DOCUMENTS ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECTS OR PURPOSES, OR BY ANY OTHER PARTIES, THAN THOSE PROPERLY AUTHORIZED BY CONTRACT, WITHOUT THE EXPRESS AUTHORIZATION OF THE ENGINEER.



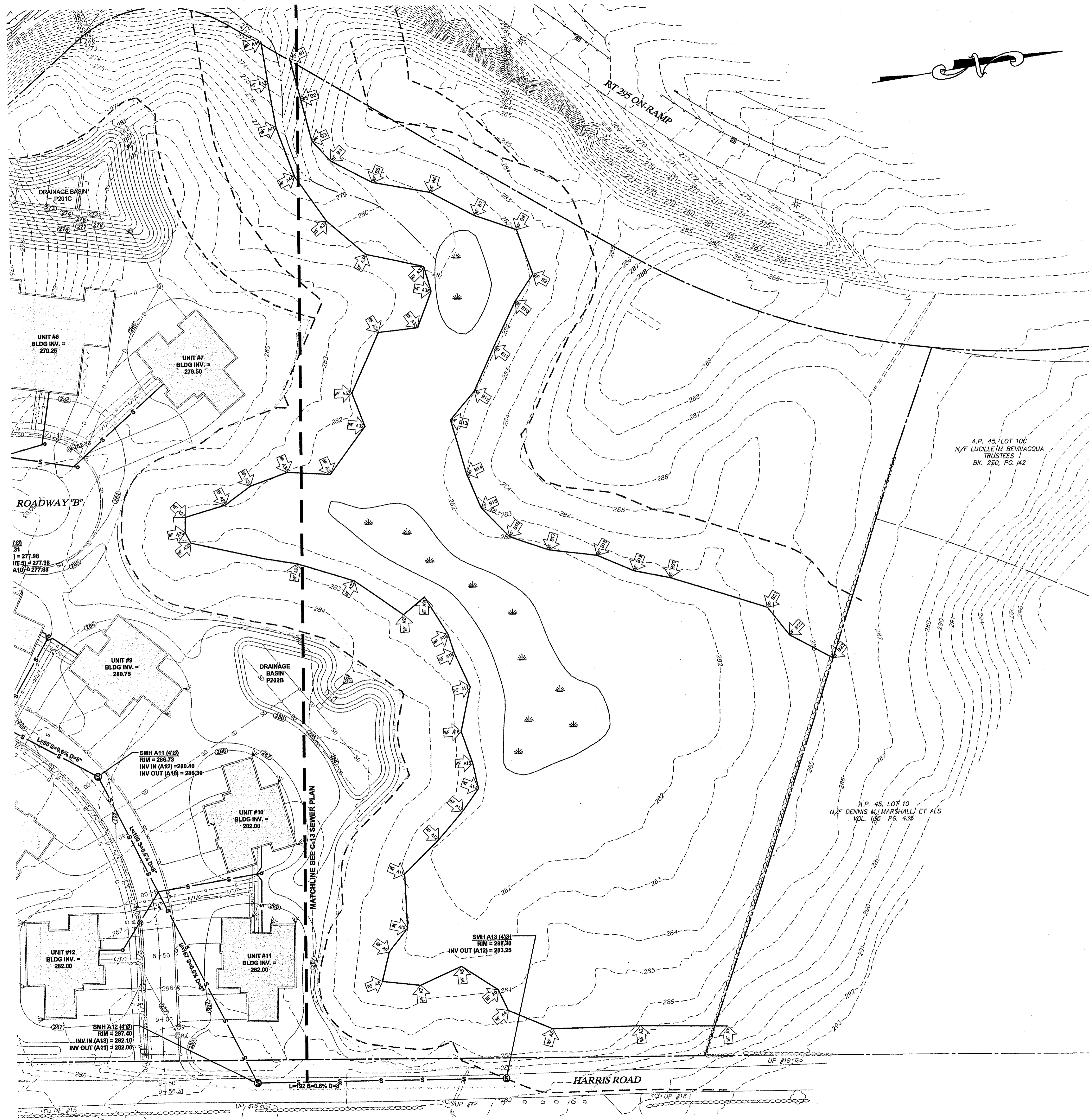
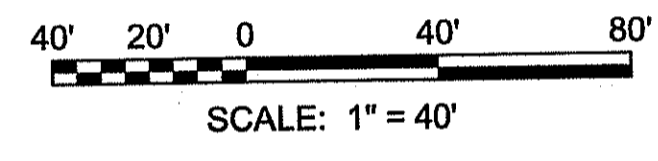
SITE/CIVIL  
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**DRAWING KEY**  
N.T.S.

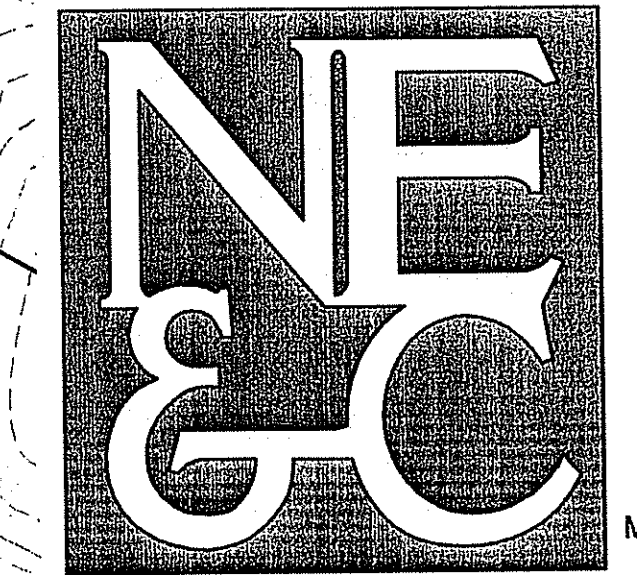
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1. ALL PROPOSED SEWER MAIN SIZES ARE TO BE 8" SDR-35 PVC UNLESS OTHERWISE SPECIFIED. ALL PROPOSED SERVICE LATERALS (CONNECTION TO BUILDINGS) SIZES ARE TO BE 6" SDR-35 PVC UNLESS OTHERWISE SPECIFIED.
  2. ALL EXISTING SEWER STRUCTURES TO BE CONNECTED TO SHALL BE INSPECTED FOR STRUCTURAL INTEGRITY AND REPAIRED/REPLACED AS NECESSARY.
  3. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES AND INVERTS PRIOR TO CONSTRUCTION.
  4. UNSUITABLE MATERIAL SHALL BE EXCAVATED TO A MINIMUM DEPTH OF 12 INCHES BELOW THE DESIGNED INVERT ELEVATIONS.
  5. TRENCH PROTECTION SHALL BE REQUIRED IN ACCORDANCE WITH OSHA REGULATIONS, AND AS OTHERWISE REQUIRED TO PROTECT UTILITIES, ROADWAYS, AND ADJACENT STRUCTURES.
  6. PIPES SHALL BE LAID BEGINNING AT THE DOWNSTREAM END OF THE PIPE LINE, IN ACCORDANCE WITH RIDOT SPECIFICATION 701.03.4.
  7. BACKFILL MATERIAL SHALL BE PLACED IN LAYERS NOT TO EXCEED 12" IN HEIGHT. THESE LAYERS SHALL BE COMPACTED TO 95% MAXIMUM DENSITY (AASHTO T198).
  8. EACH NEW MANHOLE SHALL BE VACUUM TESTED. THE NEW 8" MAIN AND EACH 6" SERVICE CONNECTION SHALL BE PRESSURE TESTED PER THE TOWN REQUIREMENTS.
  9. ONLY DOMESTIC SANITARY SEWAGE SHALL BE DISCHARGED INTO THE SYSTEM. ROOF DRAINS, FLOOR DRAINS, YARD DRAINS, CHEMICALS OR OTHER DELETERIOUS MATERIAL ARE PROHIBITED.



**LEGEND**

---	PROPERTY LINE
---	ABUTTERS PROPERTY LINE
- - - - -	EXISTING CONTOUR
-----	STONE WALL
-----	WETLAND EDGE
-----	50' PERIMETER WETLAND
-----	100' RIVERBANK WETLAND
-----	EXISTING STREAM
W 12	EXISTING WATER LINE
G C	EXISTING GAS LINE
-----	PROPOSED CONTOUR LINE
S	PROPOSED SEWER LINE
D	PROPOSED DRAIN LINE
W	PROPOSED WATER LINE
SD	PROPOSED SUBDRAINS
▲	WETLAND FLAG
□	EXISTING CATCH BASIN
□	EXISTING HYDRANT
□	EXISTING WATER VALVE
□	EXISTING GAS VALVE
□	EXISTING UTILITY POLE
□	EXISTING TRAFFIC SIGN
□	PROPOSED SEWER MANHOLE
□	PROPOSED DRAIN MANHOLE
□	PROPOSED CATCH BASIN
□	PROPOSED HYDRANT
□	PROPOSED DOWNPOUT
□	PROPOSED SPILLOFF
□	PROPOSED LIMIT OF DISTURBANCE

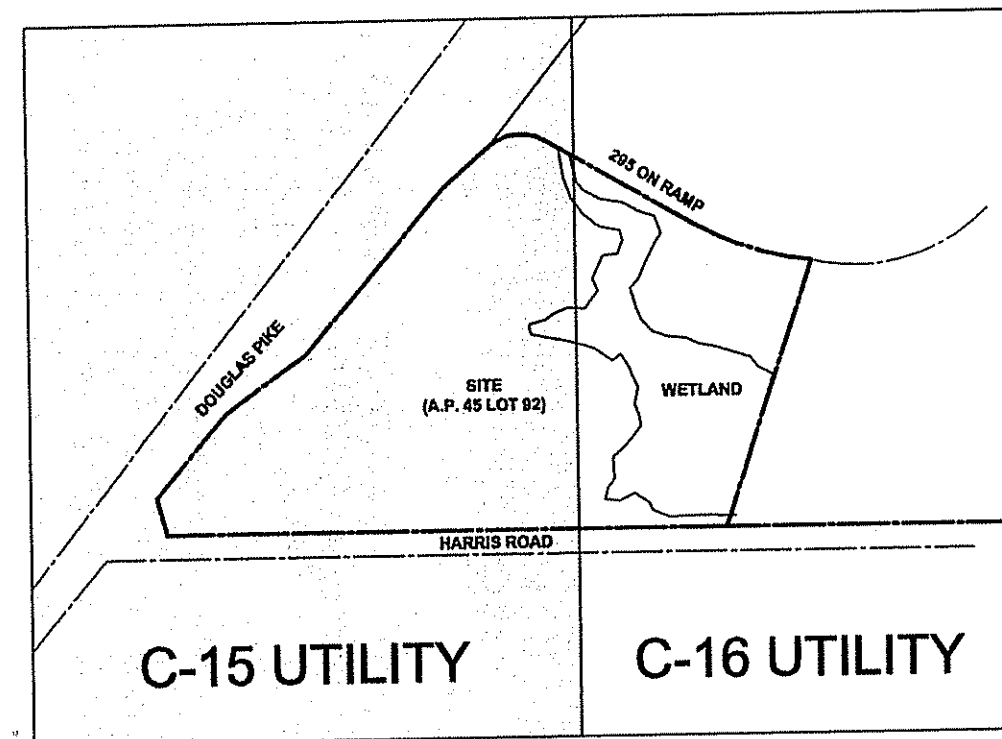
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No.	Revision	Date App.
Designed By:	JR	Drawn by: SMH
Scale:	1 INCH = 40 FEET	Checked by:
Date:	MAY 2007	
Project Title:		
<b>THE OAKS AT HARRIS ROAD</b>		
A.P. 45, LOT 92 HARRIS ROAD SMITHFIELD, RI		
Client/Owner:		
KIRKBRAE DEVELOPMENT 1300 HIGHLAND CORPORATE DRIVE CUMBERLAND, RI 02864		
Issued for:		
PERMITTING		
Drawing Title:		
<b>SEWER PLAN</b>		
APPROVED FOR ENVIRONMENTAL MANAGEMENT FRESHWATER WETLANDS PROGRAM APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL DATED JAN 10 2008 FILE # 07-0230 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL NO CHANGES ALLOWED WITHOUT CONSTRUCTION SITE		
GERALDINE SMALL REGISTERED PROFESSIONAL ENGINEER CIVIL		
<b>C-14</b>		
Sheet 15 of 25		
Project Number: 05338.0		
Survey Index: 26 - 45 - 92		
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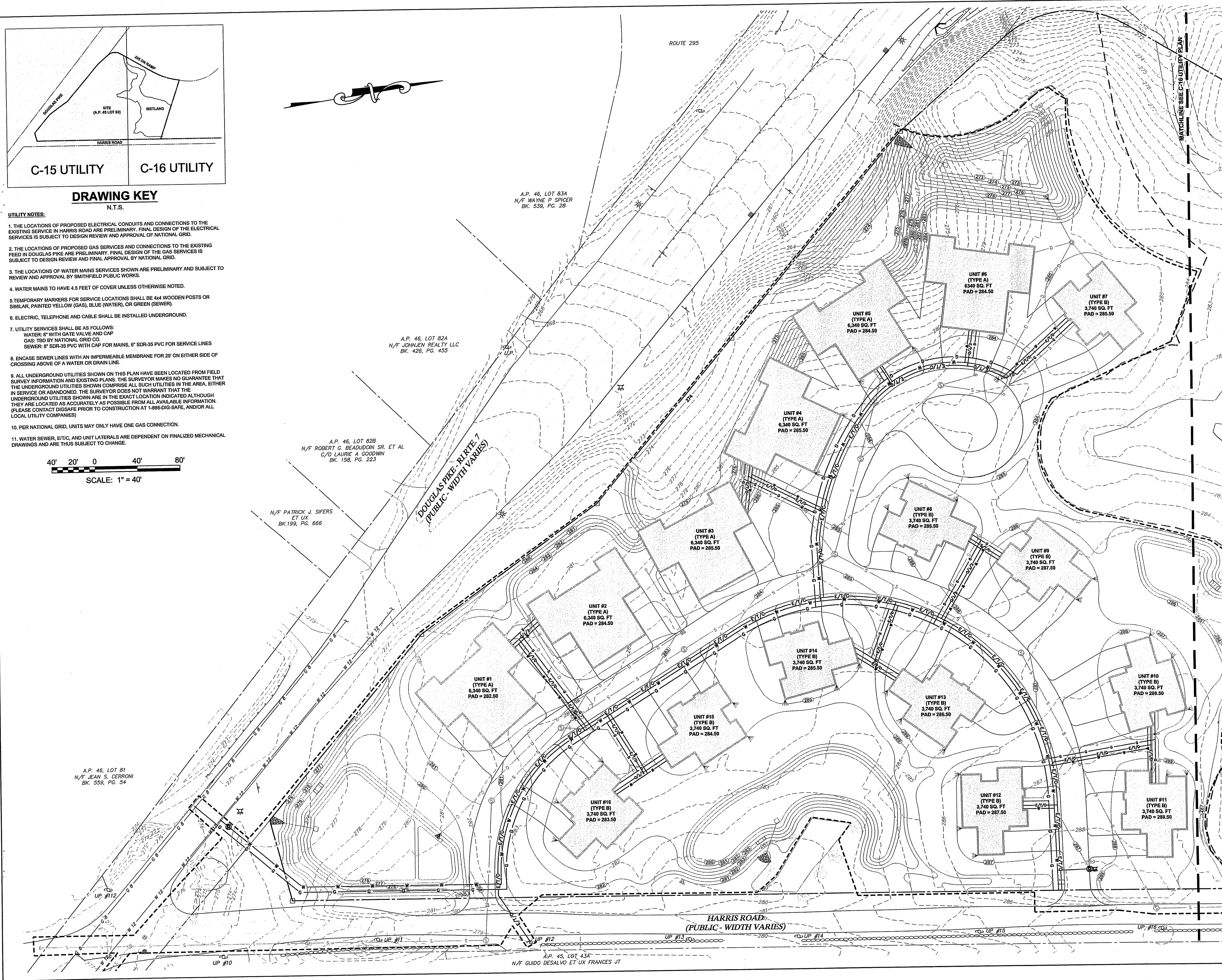
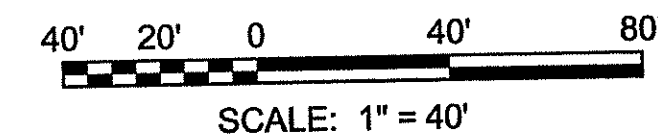
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 ENVIRONMENTAL  
 TRANSPORTATION  
 STRUCTURAL  
 MATERIALS TESTING



**DRAWING KEY**

- UTILITY NOTES:**
1. THE LOCATIONS OF PROPOSED ELECTRICAL CONDUITS AND CONNECTIONS TO THE EXISTING SERVICE IN HARRIS ROAD ARE PRELIMINARY. FINAL DESIGN OF THE ELECTRICAL SERVICES IS SUBJECT TO DESIGN REVIEW AND APPROVAL OF NATIONAL GRID.
  2. THE LOCATIONS OF PROPOSED GAS SERVICES AND CONNECTIONS TO THE EXISTING FEED IN DOUGLAS PIKE ARE PRELIMINARY. FINAL DESIGN OF THE GAS SERVICES IS SUBJECT TO DESIGN REVIEW AND FINAL APPROVAL BY NATIONAL GRID.
  3. THE LOCATIONS OF WATER MAINS SERVICES SHOWN ARE PRELIMINARY AND SUBJECT TO REVIEW AND APPROVAL BY SMITHFIELD PUBLIC WORKS.
  4. WATER MAINS TO HAVE 4.5 FEET OF COVER UNLESS OTHERWISE NOTED.
  5. TEMPORARY MARKERS FOR SERVICE LOCATIONS SHALL BE 4x4 WOODEN POSTS OR SIMILAR, PAINTED YELLOW (GAS), BLUE (WATER), OR GREEN (SEWER).
  6. ELECTRIC, TELEPHONE AND CABLE SHALL BE INSTALLED UNDERGROUND.
  7. UTILITY SERVICES SHALL BE AS FOLLOWS:  
 WATER: 8" WITH GATE VALVE AND CAP  
 GAS: TBD BY NATIONAL GRID CO.  
 SEWER: 8" SDR-35 PVC WITH CAP FOR MAINS, 6" SDR-35 PVC FOR SERVICE LINES
  8. ENCASE SEWER LINES WITH AN IMPERMEABLE MEMBRANE FOR 2' ON EITHER SIDE OF CROSSING ABOVE OF A WATER OR DRAIN LINE.
  9. ALL UNDERGROUND UTILITIES SHOWN ON THIS PLAN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING PLANS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM ALL AVAILABLE INFORMATION. (PLEASE CONTACT DIGSAFE PRIOR TO CONSTRUCTION AT 1-888-DIG-SAFE, AND/OR ALL LOCAL UTILITY COMPANIES)
  10. PER NATIONAL GRID, UNITS MAY ONLY HAVE ONE GAS CONNECTION.
  11. WATER SEWER, E/T/C, AND UNIT LATERALS ARE DEPENDENT ON FINALIZED MECHANICAL DRAWINGS AND ARE THUS SUBJECT TO CHANGE.



**LEGEND**

---	PROPERTY LINE
---	ABUTTERS PROPERTY LINE
---	EXISTING CONTOUR
---	STONE WALL
---	WETLAND EDGE
---	50' PERIMETER WETLAND
---	100' RIVERBANK WETLAND
---	EXISTING STREAM
---	EXISTING WATER LINE
---	EXISTING GAS LINE
---	PROPOSED CONTOUR LINE
---	PROPOSED SEWER LINE
---	PROPOSED DRAIN LINE
---	PROPOSED WATER LINE
---	PROPOSED SUBDRAINS
---	PROPOSED ELECTRIC / COMMUNICATIONS
---	PROPOSED GAS SERVICE
---	WETLAND FLAG
---	EXISTING CATCH BASIN
---	EXISTING HYDRANT
---	EXISTING WATER VALVE
---	EXISTING GAS VALVE
---	EXISTING UTILITY POLE
---	EXISTING TRAFFIC SIGN
---	PROPOSED SEWER MANHOLE
---	PROPOSED DRAIN MANHOLE
---	PROPOSED CATCH BASIN
---	PROPOSED HYDRANT
---	PROPOSED GATE VALVE

1.	DEM COMMENTS	SEPT 07
No.	Revision	Date App.
Designed By: JR	Drawn by: SMH	Checked by:
Scale: 1 INCH = 40 FEET	Date:	MAY 2007

**THE OAKS AT HARRIS ROAD**  
 A.P. 45, LOT 92  
 HARRIS ROAD  
 SMITHFIELD, RI

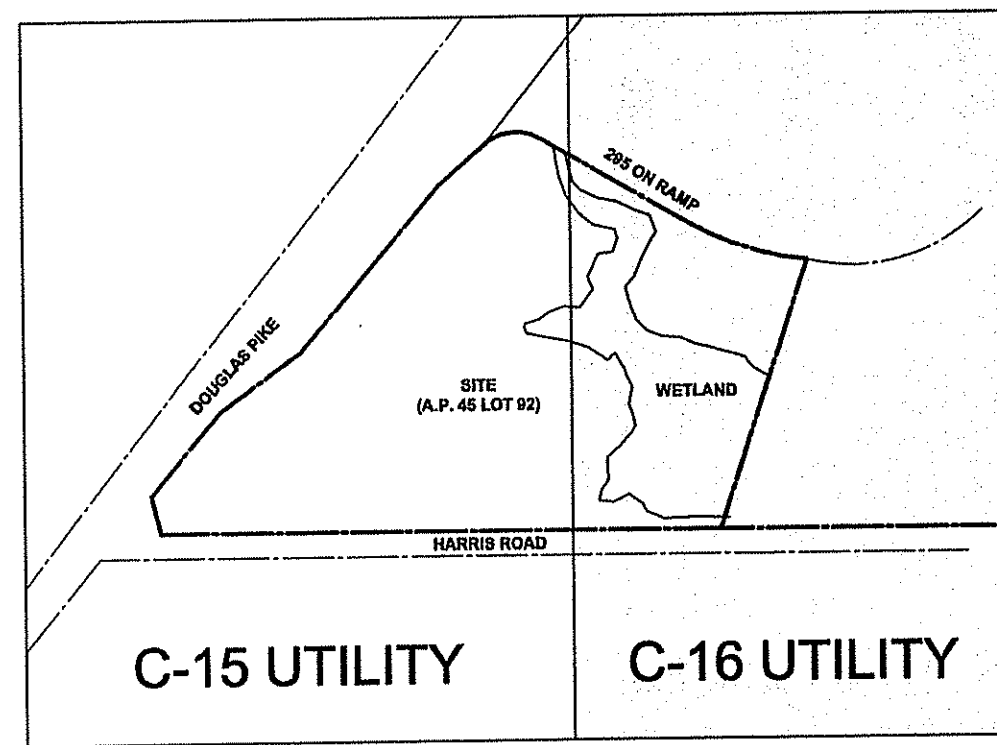
Client/Owner: KIRKBRAE DEVELOPMENT  
 1200 HIGHLAND CORPORATE DRIVE  
 DEPT. OF ENVIRONMENTAL & WILDLIFE MANAGEMENT  
 OFFICE OF WATER RESOURCES  
 Issued for: FRESHWATER WETLANDS PROGRAM  
 APPROVED WITH CONDITIONS  
 AS SPECIFIED IN THE LETTER OF APPROVAL  
 DATED JAN 10 2008 FILE # 07-0230  
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
 Drawing APPROVED PLANS MUST BE AT CONSTRUCTION SITE

**UTILITIES PLAN - 1**

SEP 24 2007

	Drawing Number:	<b>C-15</b>
	Sheet	16 of 25
	Project Number:	<b>05338.0</b>
	Survey Index:	<b>26 - 45 - 92</b>

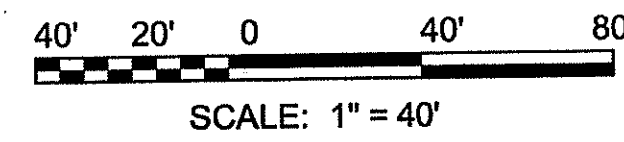
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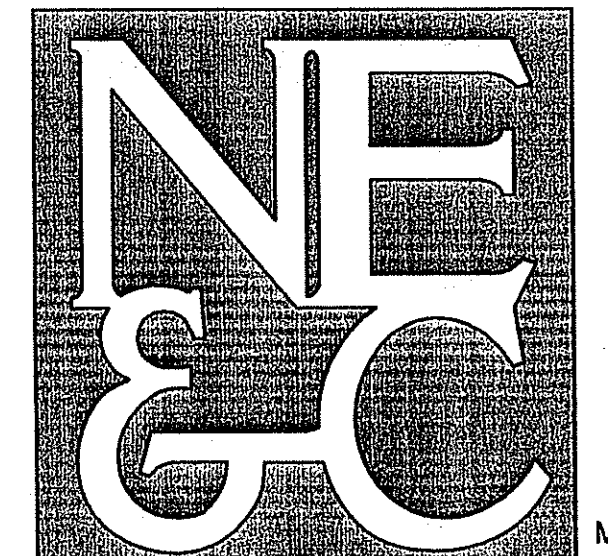
**DRAWING KEY**  
N.T.S.

**UTILITY NOTES:**

1. THE LOCATIONS OF PROPOSED ELECTRICAL CONDUITS AND CONNECTIONS TO THE EXISTING SERVICE IN HARRIS ROAD ARE PRELIMINARY. FINAL DESIGN OF THE ELECTRICAL SERVICES IS SUBJECT TO DESIGN REVIEW AND APPROVAL OF NATIONAL GRID.
2. THE LOCATIONS OF PROPOSED GAS SERVICES AND CONNECTIONS TO THE EXISTING FEED IN DOUGLAS PIKE ARE PRELIMINARY. FINAL DESIGN OF THE GAS SERVICES IS SUBJECT TO DESIGN REVIEW AND FINAL APPROVAL BY NATIONAL GRID.
3. THE LOCATIONS OF WATER MAINS SERVICES SHOWN ARE PRELIMINARY AND SUBJECT TO REVIEW AND APPROVAL BY SMITHFIELD PUBLIC WORKS.
4. WATER MAINS TO HAVE 4.5 FEET OF COVER UNLESS OTHERWISE NOTED.
5. TEMPORARY MARKERS FOR SERVICE LOCATIONS SHALL BE 4x4 WOODEN POSTS OR SIMILAR, PAINTED YELLOW (GAS), BLUE (WATER), OR GREEN (SEWER).
6. ELECTRIC, TELEPHONE AND CABLE SHALL BE INSTALLED UNDERGROUND.
7. UTILITY SERVICES SHALL BE AS FOLLOWS:  
WATER: 8" WITH GATE VALVE AND CAP  
GAS: TBD BY NATIONAL GRID CO.  
SEWER: 8" SDR-35 PVC WITH CAP FOR MAINS, 6" SDR-35 PVC FOR SERVICE LINES
8. ENCASE SEWER LINES WITH AN IMPERMEABLE MEMBRANE FOR 25' ON EITHER SIDE OF CROSSING ABOVE OF A WATER OR DRAIN LINE.
9. ALL UNDERGROUND UTILITIES SHOWN ON THIS PLAN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING PLANS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM ALL AVAILABLE INFORMATION. (PLEASE CONTACT DISSAFE PRIOR TO CONSTRUCTION AT 1-888-DIG-SAFE, AND/OR ALL LOCAL UTILITY COMPANIES)
10. PER NATIONAL GRID, UNITS MAY ONLY HAVE ONE GAS CONNECTION.
11. WATER SEWER, E/T/C, AND UNIT LATERALS ARE DEPENDENT ON FINALIZED MECHANICAL DRAWINGS AND ARE THUS SUBJECT TO CHANGE.



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- TRANSPORTATION
- STRUCTURAL
- MATERIALS TESTING

**LEGEND**

- PROPERTY LINE
- - - - - ABUTTERS PROPERTY LINE
- - - - - EXISTING CONTOUR
- STONE WALL
- WETLAND EDGE
- 50' PERIMETER WETLAND
- 100' RIVERBANK WETLAND
- EXISTING STREAM
- EXISTING WATER LINE
- EXISTING GAS LINE
- PROPOSED CONTOUR LINE
- PROPOSED SEWER LINE
- PROPOSED DRAIN LINE
- PROPOSED WATER LINE
- PROPOSED SUBDRAINS
- E/T/C PROPOSED ELECTRIC / COMMUNICATIONS
- G --- PROPOSED GAS SERVICE
- WETLAND FLAG
- EXISTING CATCH BASIN
- EXISTING HYDRANT
- EXISTING WATER VALVE
- EXISTING GAS VALVE
- EXISTING UTILITY POLE
- EXISTING TRAFFIC SIGN
- PROPOSED SEWER MANHOLE
- PROPOSED DRAIN MANHOLE
- PROPOSED CATCH BASIN
- PROPOSED HYDRANT
- PROPOSED GATE VALVE

No.	Revision	Date	App.
1.	DEM COMMENTS	SEPT 07	

Designed By: JR Drawn by: SMH Checked by:  
Scale: 1 INCH = 40 FEET Date: MAY 2007

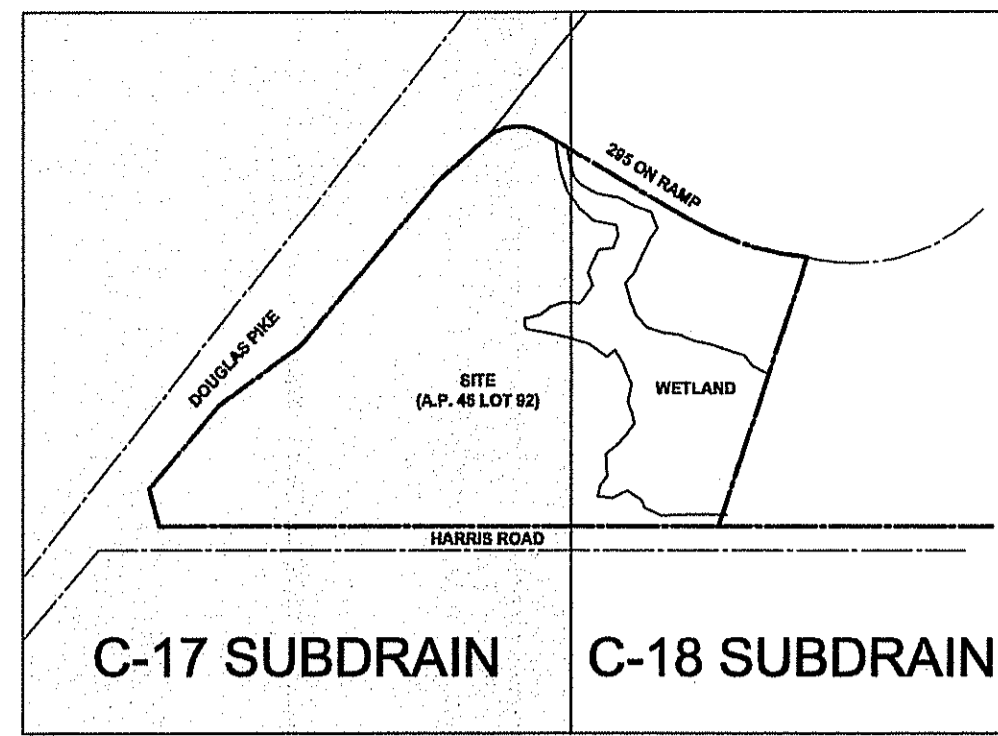
Project Title:  
**THE OAKS AT HARRIS ROAD**  
A.P. 45, LOT 92  
HARRIS ROAD  
SMITHFIELD, RI

Client/Owner:  
TURKBAE DEVELOPMENT MANAGEMENT  
14300 HIGHLAND CORPORATE DRIVE  
CUMBERLAND, RI 02866  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED JAN 10 2008 FILE # 07-0230  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

**UTILITIES PLAN - 2**  
SEP 24 2007

	Drawing Number:	<b>C-16</b>
	Sheet	17 of 25
	Project Number:	05338.0
	Survey Index:	26 - 45 - 92

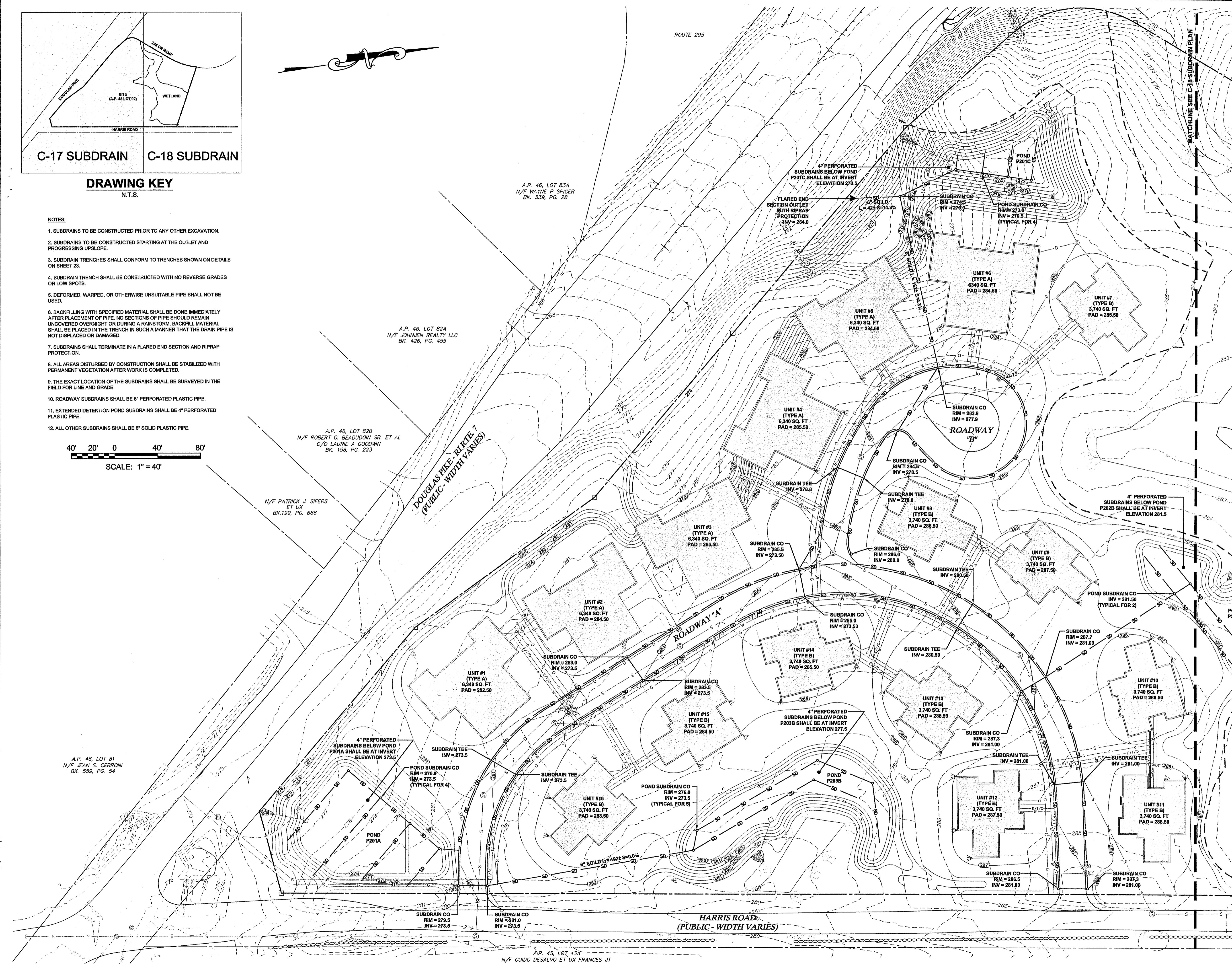
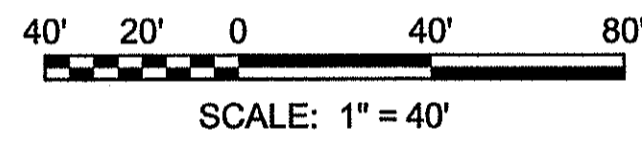
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**DRAWING KEY**  
N.T.S.

**NOTES:**

- SUBDRAINS TO BE CONSTRUCTED PRIOR TO ANY OTHER EXCAVATION.
- SUBDRAINS TO BE CONSTRUCTED STARTING AT THE OUTLET AND PROGRESSING UPSLOPE.
- SUBDRAIN TRENCHES SHALL CONFORM TO TRENCHES SHOWN ON DETAILS ON SHEET 23.
- SUBDRAIN TRENCH SHALL BE CONSTRUCTED WITH NO REVERSE GRADES OR LOW SPOTS.
- DEFORMED, WARPED, OR OTHERWISE UNSUITABLE PIPE SHALL NOT BE USED.
- BACKFILLING WITH SPECIFIED MATERIAL SHALL BE DONE IMMEDIATELY AFTER PLACEMENT OF PIPE. NO SECTIONS OF PIPE SHOULD REMAIN UNCOVERED OVERNIGHT OR DURING A RAINSTORM. BACKFILL MATERIAL SHALL BE PLACED IN THE TRENCH IN SUCH A MANNER THAT THE DRAIN PIPE IS NOT DISPLACED OR DAMAGED.
- SUBDRAINS SHALL TERMINATE IN A FLARED END SECTION AND RIPRAP PROTECTION.
- ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE STABILIZED WITH PERMANENT VEGETATION AFTER WORK IS COMPLETED.
- THE EXACT LOCATION OF THE SUBDRAINS SHALL BE SURVEYED IN THE FIELD FOR LINE AND GRADE.
- ROADWAY SUBDRAINS SHALL BE 6" PERFORATED PLASTIC PIPE.
- EXTENDED DETENTION POND SUBDRAINS SHALL BE 4" PERFORATED PLASTIC PIPE.
- ALL OTHER SUBDRAINS SHALL BE 6" SOLID PLASTIC PIPE.



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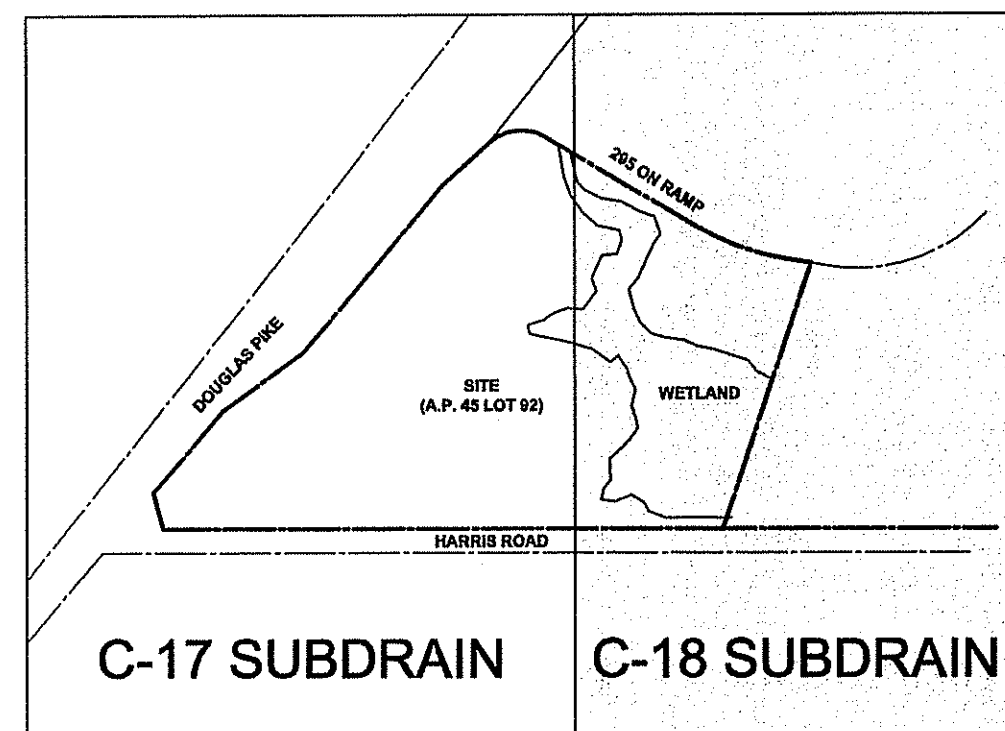
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**LEGEND**

---	PROPERTY LINE
---	ABUTTERS PROPERTY LINE
---	EXISTING CONTOUR
---	STONE WALL
---	WETLAND EDGE
---	50' PERIMETER WETLAND
---	100' RIVERBANK WETLAND
---	EXISTING STREAM
---	EXISTING WATER LINE
---	EXISTING GAS LINE
---	PROPOSED CONTOUR LINE
---	PROPOSED SEWER LINE
---	PROPOSED DRAIN LINE
---	PROPOSED WATER LINE
---	PROPOSED SUBDRAINS
---	PROPOSED GAS SERVICE
---	WETLAND FLAG
---	EXISTING CATCH BASIN
---	EXISTING HYDRANT
---	EXISTING WATER VALVE
---	EXISTING UTILITY POLE
---	PROPOSED SEWER MANHOLE
---	PROPOSED DRAIN MANHOLE
---	PROPOSED CATCH BASIN
---	PROPOSED HYDRANT
---	PROPOSED DOWNPOUT
---	PROPOSED SPILLOFF

1.	DEM COMMENTS	SEPT 07
No.	Revision	Date
Designed By:	JR	Drawn by: SMH
Checked by:		
Scale:	1 INCH = 40 FEET	Date: MAY 2007
Project Title:	THE OAKS AT HARRIS ROAD A.P. 45, LOT 92 HARRIS ROAD SMITHFIELD, RI	
Client/Owner:	HINKBAE DEVELOPMENT	
Issued for:	DESIGN PERMITTING FOR THE DEVELOPMENT OF THE OAKS AT HARRIS ROAD CUMBERLAND RIVER WETLANDS PROGRAM FRESHWATER WETLANDS PROGRAM AS SPECIFIED IN THE PERMITTING TERMS OF APPROVAL DATED JAN 10 2008 FILE # 07-0230 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL APPROVED PLANS MUST BE AT CONSTRUCTION SITE	
Drawing Title:	SUBDRAIN PLAN - 1	
Drawing Number:	C-17	
Sheet	18 of 25	
Project Number:	05338.0	
Survey Index:	26 - 45 - 92	
REGISTERED PROFESSIONAL ENGINEER CIVIL	No. 8550	

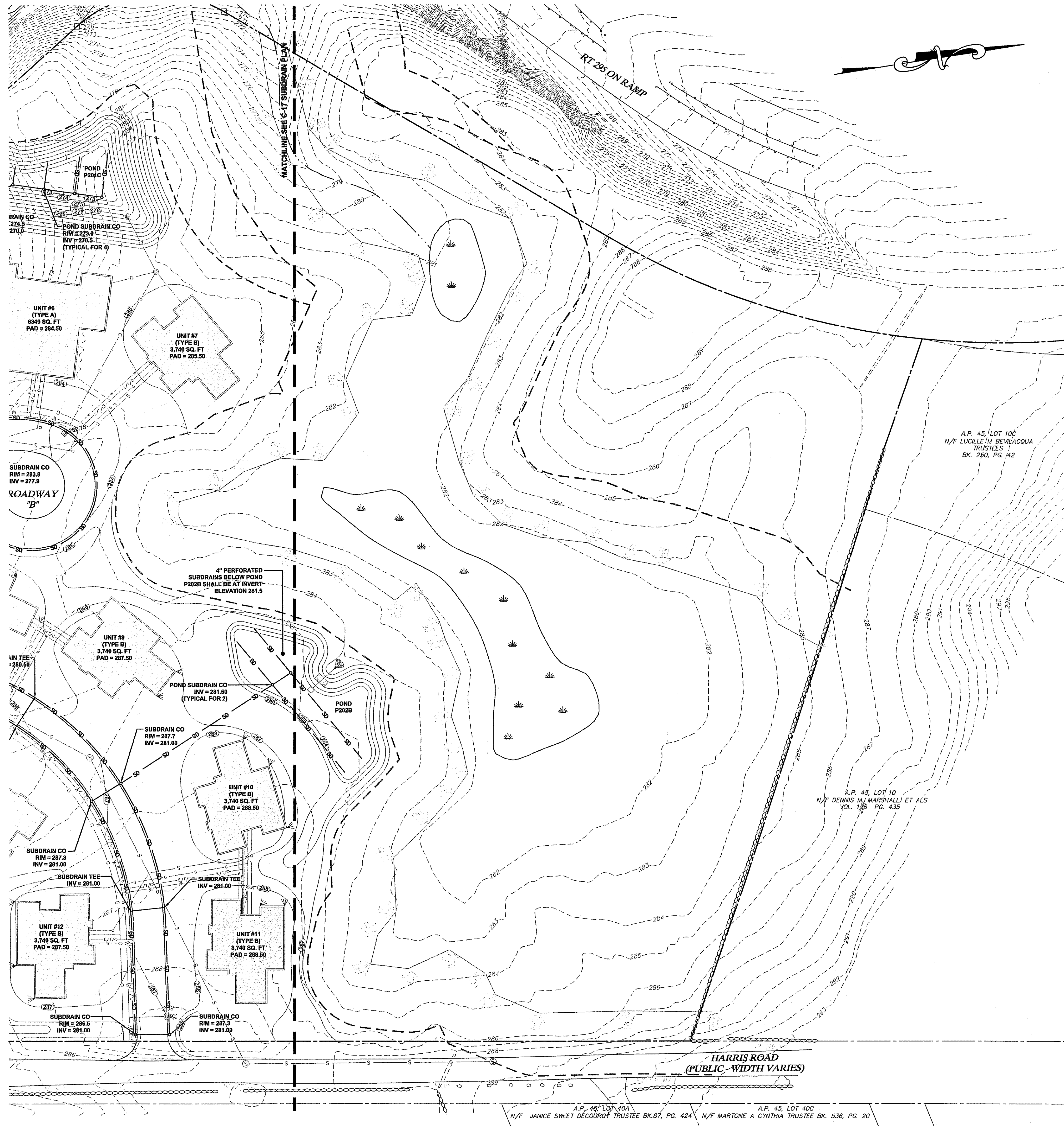
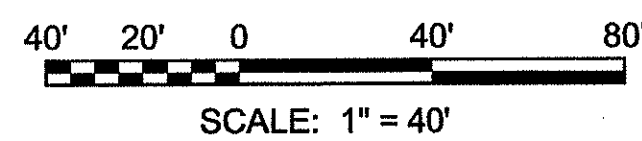
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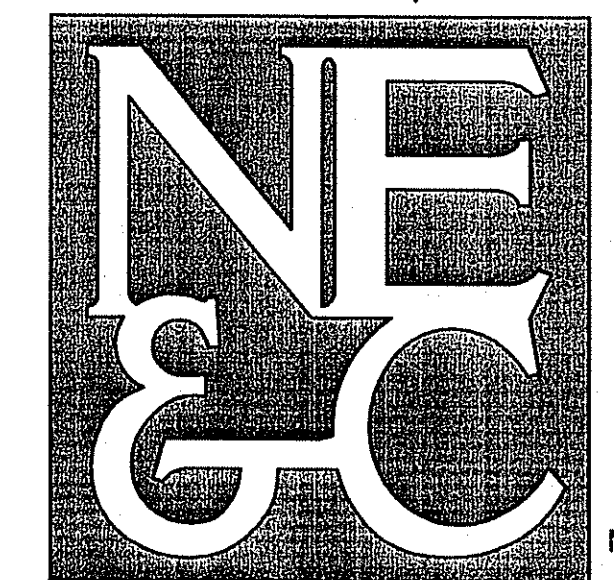
**DRAWING KEY**  
N.T.S.

**NOTES:**

1. SUBDRAINS TO BE CONSTRUCTED PRIOR TO ANY OTHER EXCAVATION.
2. SUBDRAINS TO BE CONSTRUCTED STARTING AT THE OUTLET AND PROGRESSING UPSLOPE.
3. SUBDRAIN TRENCHES SHALL CONFORM TO TRENCHES SHOWN ON DETAILS ON SHEET 23.
4. SUBDRAIN TRENCH SHALL BE CONSTRUCTED WITH NO REVERSE GRADES OR LOW SPOTS.
5. DEFORMED, WARPED, OR OTHERWISE UNSUITABLE PIPE SHALL NOT BE USED.
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8. ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE STABILIZED WITH PERMANENT VEGETATION AFTER WORK IS COMPLETED.
9. THE EXACT LOCATION OF THE SUBDRAINS SHALL BE SURVEYED IN THE FIELD FOR LINE AND GRADE.
10. ROADWAY SUBDRAINS SHALL BE 6" PERFORATED PLASTIC PIPE.
11. EXTENDED DETENTION POND SUBDRAINS SHALL BE 4" PERFORATED PLASTIC PIPE.
12. ALL OTHER SUBDRAINS SHALL BE 6" SOLID PLASTIC PIPE.



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**LEGEND**

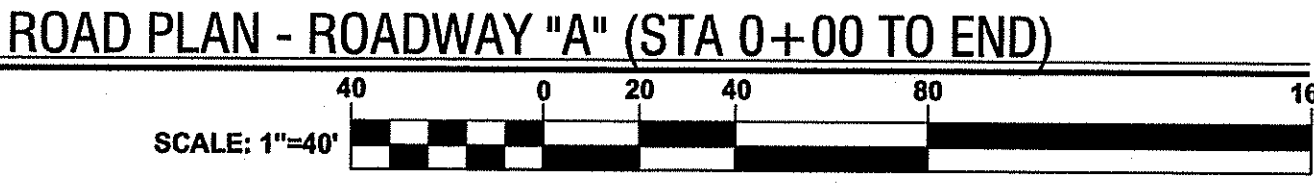
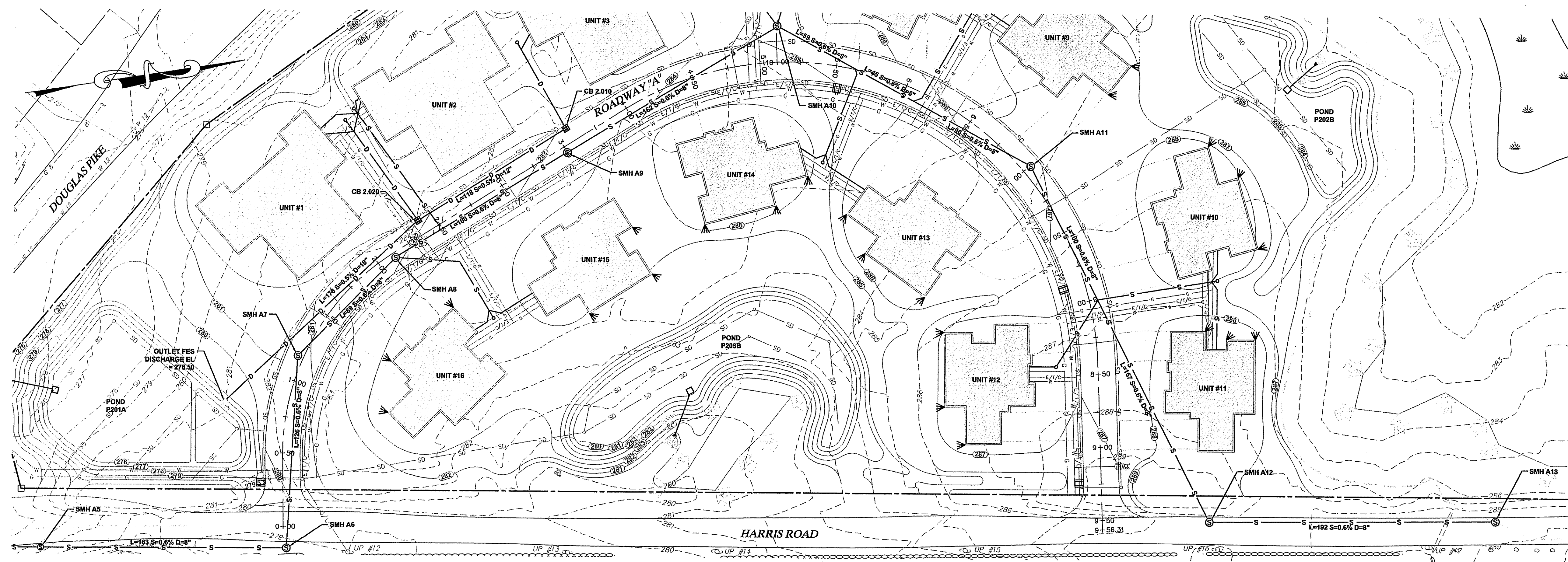
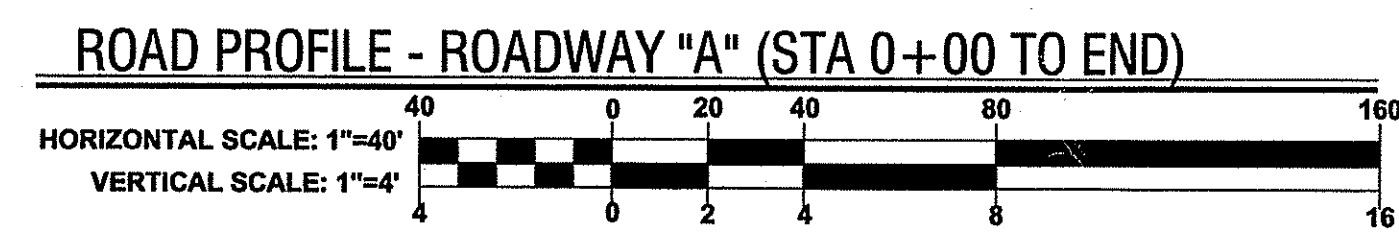
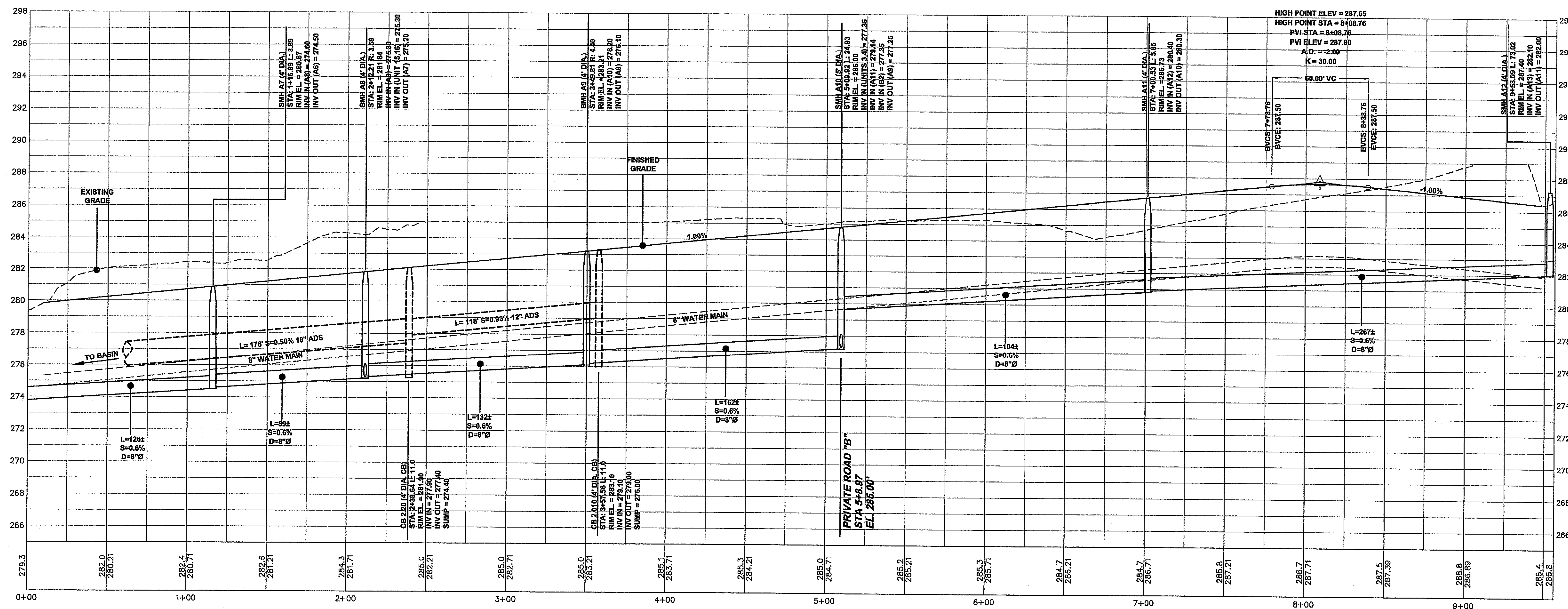
- PROPERTY LINE
- ABUTTERS PROPERTY LINE
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- WETLAND EDGE
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- PROPOSED HYDRANT
- PROPOSED DOWNPOUT
- PROPOSED SPILLOFF

1.	DEM COMMENTS	SEPT 07
No.	Revision	Date App.
Designed By: JR	Drawn by: SMH	Checked by:
Scale: 1 INCH = 40 FEET	Date: MAY 2007	
Project Title:		
<b>THE OAKS AT HARRIS ROAD</b>		
A.P. 45, LOT 92 HARRIS ROAD SMITHFIELD, RI		
Client/Owner:		
KIRKBRAE DEVELOPMENT 300 HIGHLAND CORPORATE DRIVE DEVELOPMENT OF CUMBERLAND HARBOR BRACES OF CUMBERLAND HARBOR BRACES FRESHWATER WETLANDS PROGRAM APPROVED WITH CONDITIONS AS SPECIFIED BY THE MINISTER OF APPROVAL DATED JAN 10 2006 FILE # 07-0230 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL APPROVED PLANS MUST BE AT CONSTRUCTION SITE		
<b>SUBDRAIN PLAN - 2</b>		
SEP 24 2007		
Drawing Number:		
<b>C-18</b>		
Sheet 19 of 25		
Project Number:		
<b>05338.0</b>		
Survey Index:		
<b>26 - 45 - 92</b>		
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No.	Revision	Date	App.
1.	DEM COMMENTS	SEPT 07	

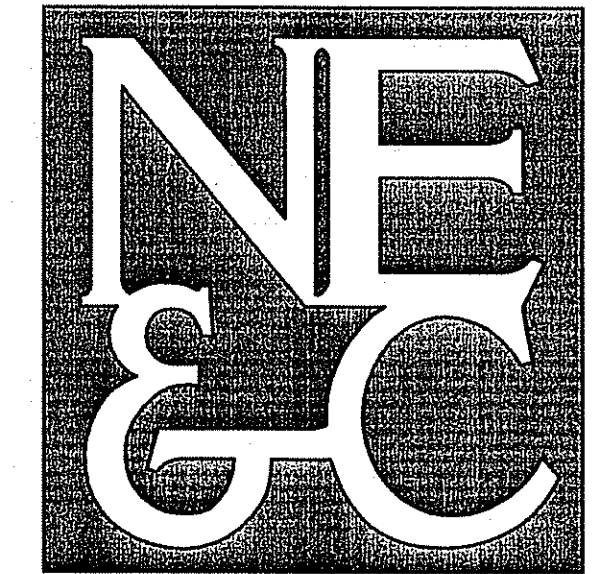
Designed By: JR Drawn by: SMH Checked by: [Signature]  
Scale: Date: MAY 2007  
Project Title:  
**THE OAKS AT HARRIS ROAD**  
A.P. 45, LOT 92  
HARRIS ROAD  
SMITHFIELD, RI

Client/Owner: KIRKBRAE DEVELOPMENT  
1300 HIGHLAND CORPORATE DRIVE  
DEPT. OF ENVIRONMENTAL & WATER RESOURCES  
OFFICE OF WATER RESOURCES  
Issue for: FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED JAN 10 2008 FILE # 07-0230  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
Drawing: APPROVED PLANS MUST BE AT CONSTRUCTION SITE

**ROADWAY PROFILE - 1**  
SEP 24 2007

Drawing Number: **C-19**  
Sheet **20** of **25**  
Project Number: **05338.0**  
Survey Index: **26 - 45 - 92**

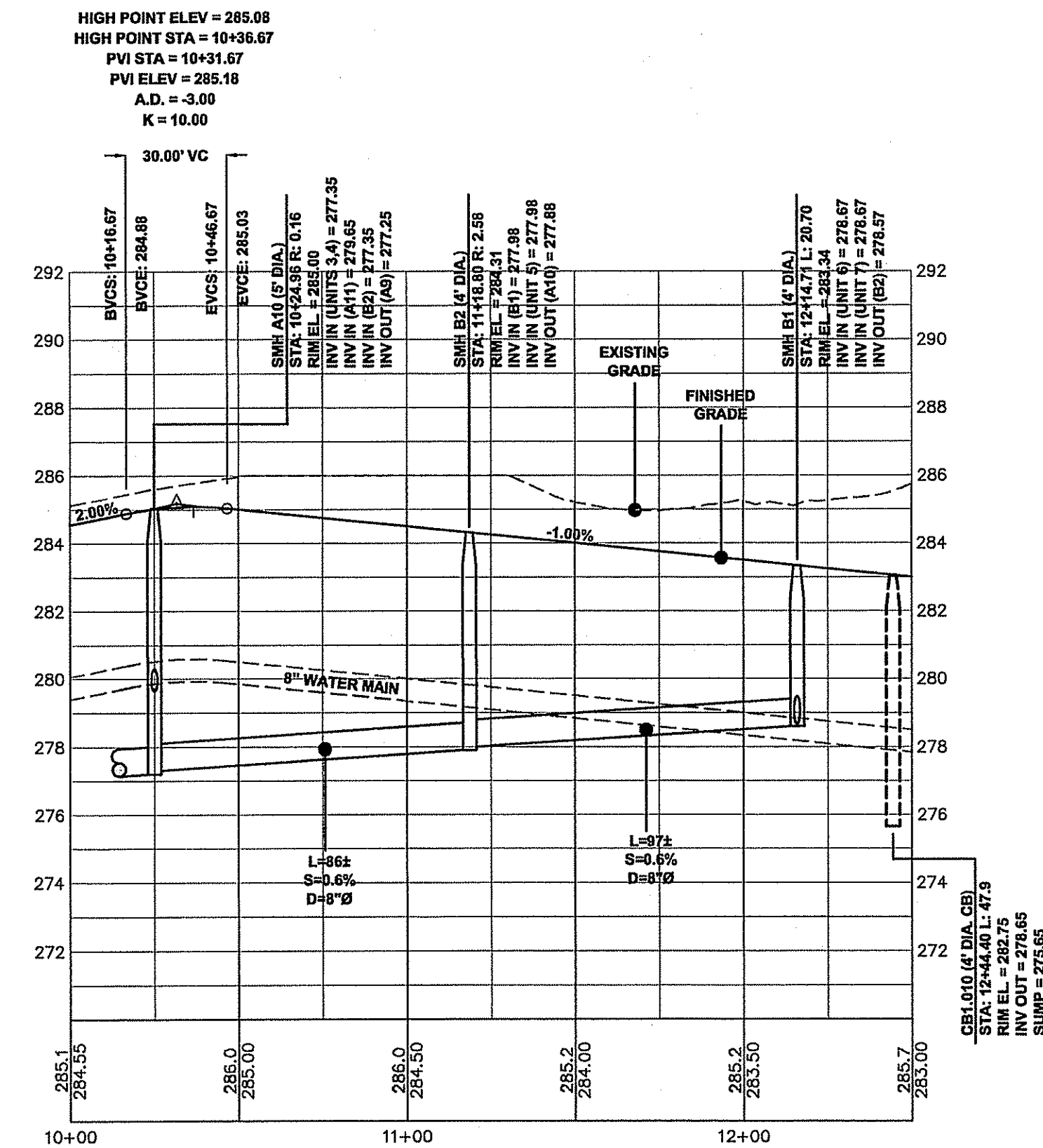
OWNERSHIP AND USE OF DOCUMENTS: DRAWINGS AND SPECIFICATIONS, AS INSTRUMENTS OF PROFESSIONAL SERVICE, ARE AND SHALL REMAIN THE PROPERTY OF THE ENGINEER. THESE DOCUMENTS ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECTS OR PURPOSES, OR BY ANY OTHER PARTIES, THAN THOSE PROPERLY AUTHORIZED BY CONTRACT, WITHOUT THE EXPRESS AUTHORIZATION OF THE ENGINEER.



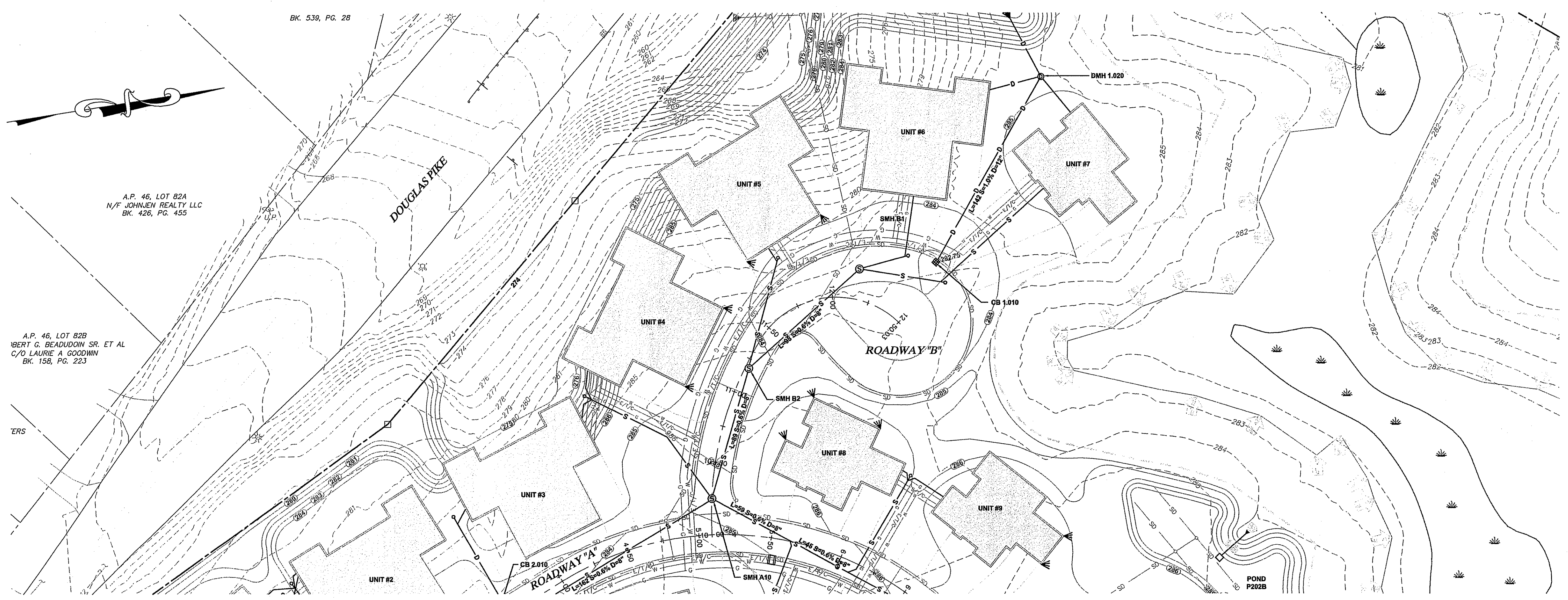
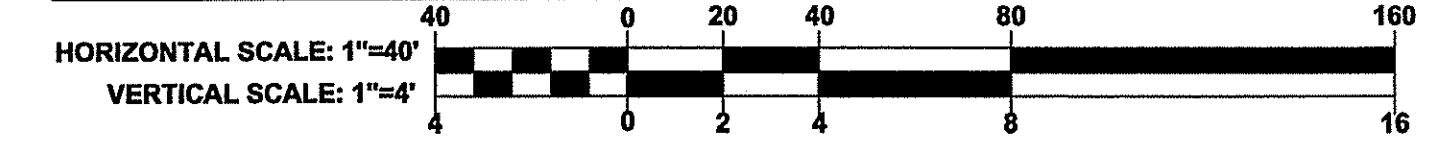
SITE/CIVIL  
 LAND PLANNING  
 WATERFRONT  
 SURVEYING  
 GEOTECHNICAL  
 ENVIRONMENTAL  
 TRANSPORTATION  
 STRUCTURAL  
 MATERIALS TESTING

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ROAD PROFILE - ROADWAY "B" (STA 10+00 TO END)



ROAD PLAN - ROADWAY "B" (STA 10+00 TO END)



1.	DEM COMMENTS	SEPT 07
No.	Revision	Date App.
Designed By: JR	Drawn by: SMH	Checked by:
Scale:	Date:	MAY 2007

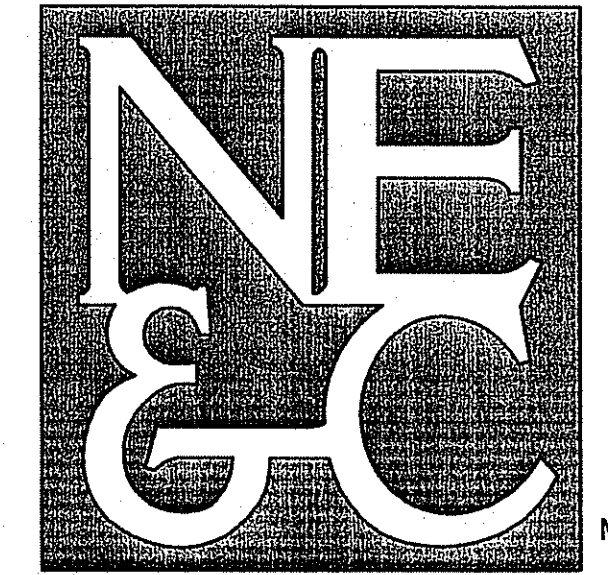
Project Title:  
**THE OAKS AT HARRIS ROAD**  
 A.P. 45, LOT 92  
 HARRIS ROAD  
 SMITHFIELD, RI

Client/Owner:  
 KIRKBRAE DEVELOPMENT  
 1600 HIGHLAND CORPORATE DRIVE  
 DEPT. OF WATER RESOURCES  
 OFFICE OF WATER RESOURCES  
 Issued for:  
 FRESHWATER WETLANDS PROGRAM  
 APPROVED PERMITTING CONDITIONS  
 AS SPECIFIED IN THE LETTER OF APPROVAL  
 DATED JAN 10 2008 FILE # 07-0230  
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
 Drawing: IMPROVED PLANS MUST BE AT CONSTRUCTION SITE

**ROADWAY PROFILE - 2**  
 SEP 24 2007

	Drawing Number:	<b>C-20</b>
	Sheet	<b>21</b> of <b>25</b>
	Project Number:	<b>05338.0</b>
	Survey Index:	<b>26 - 45 - 92</b>

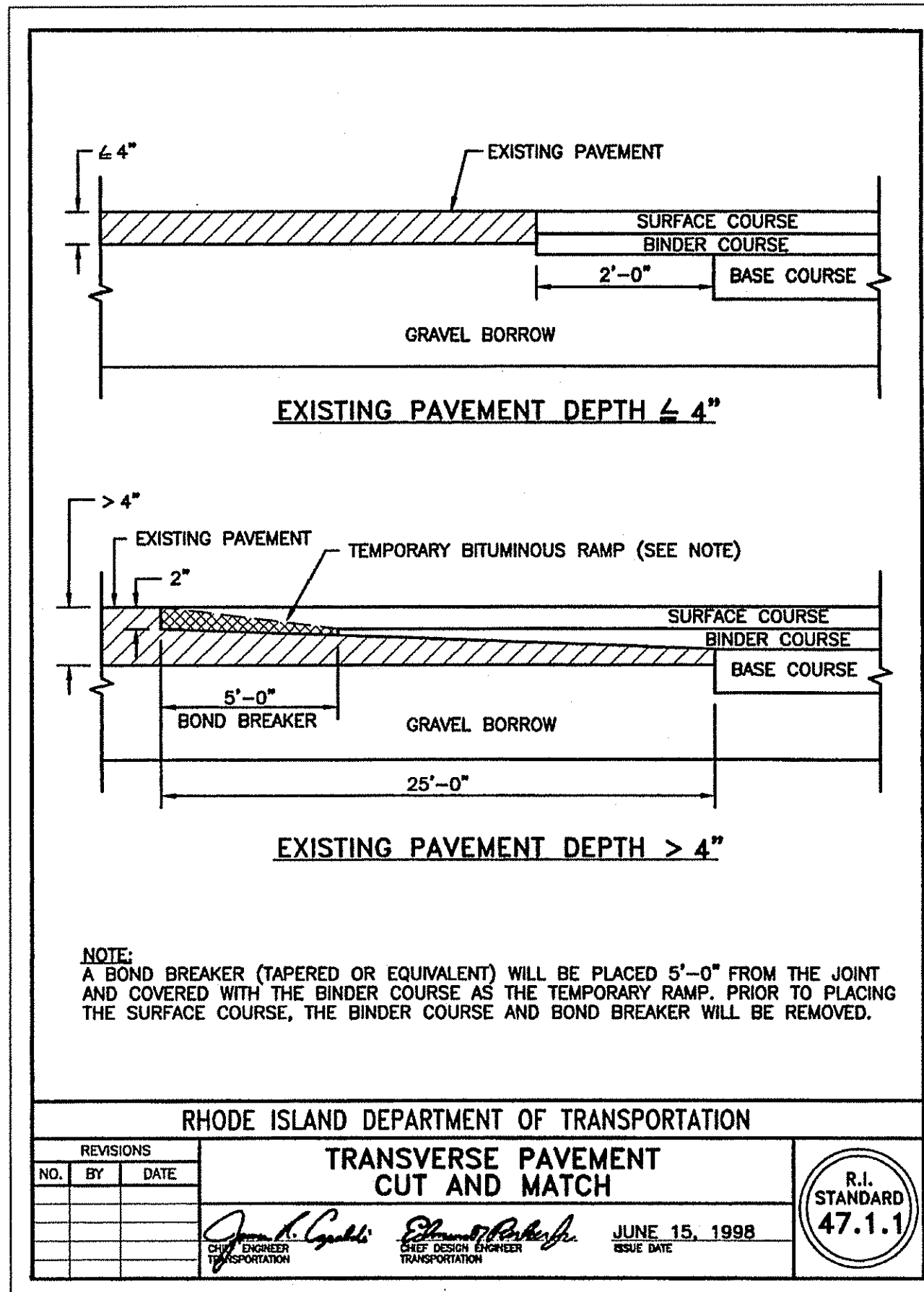
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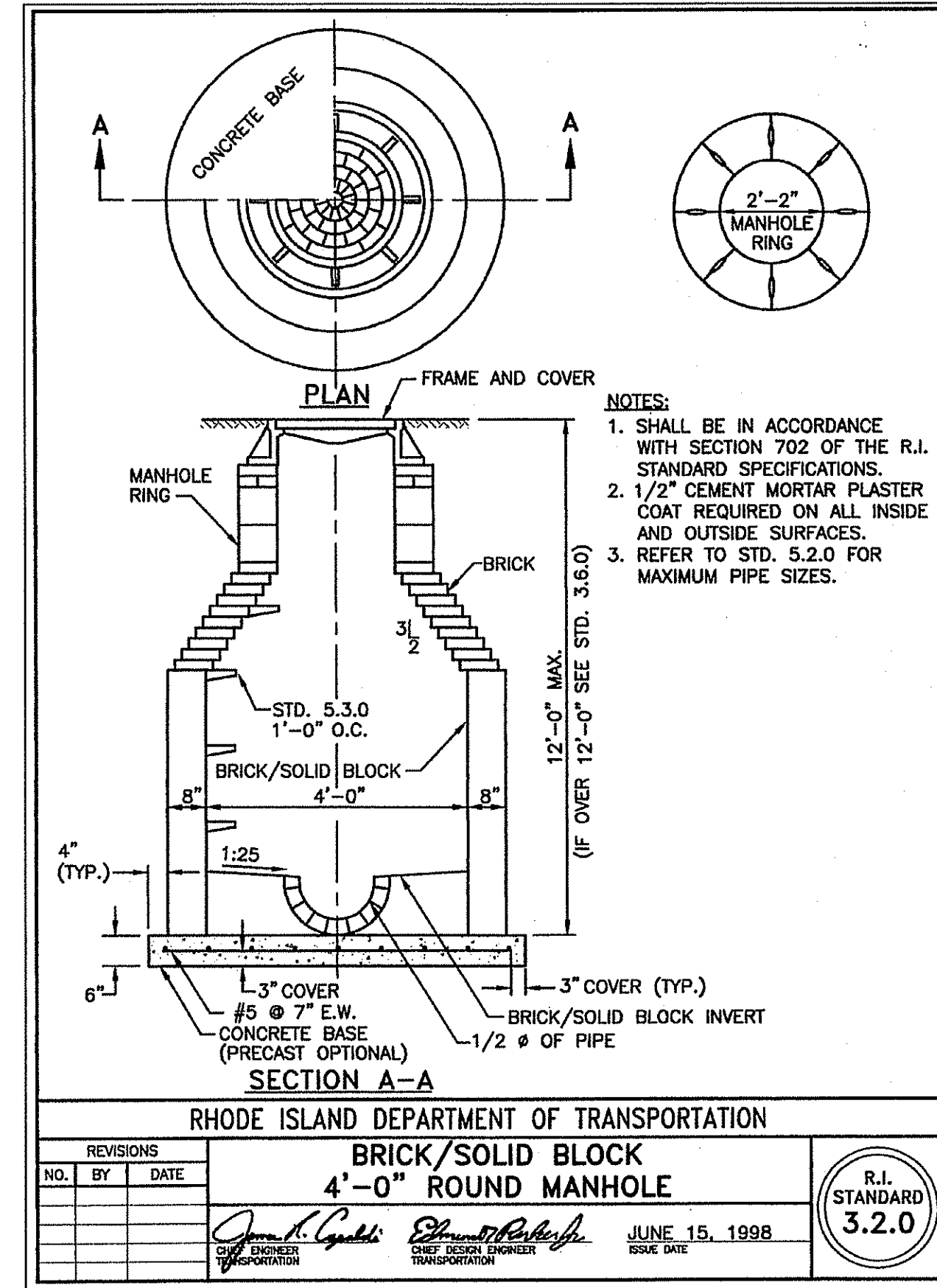
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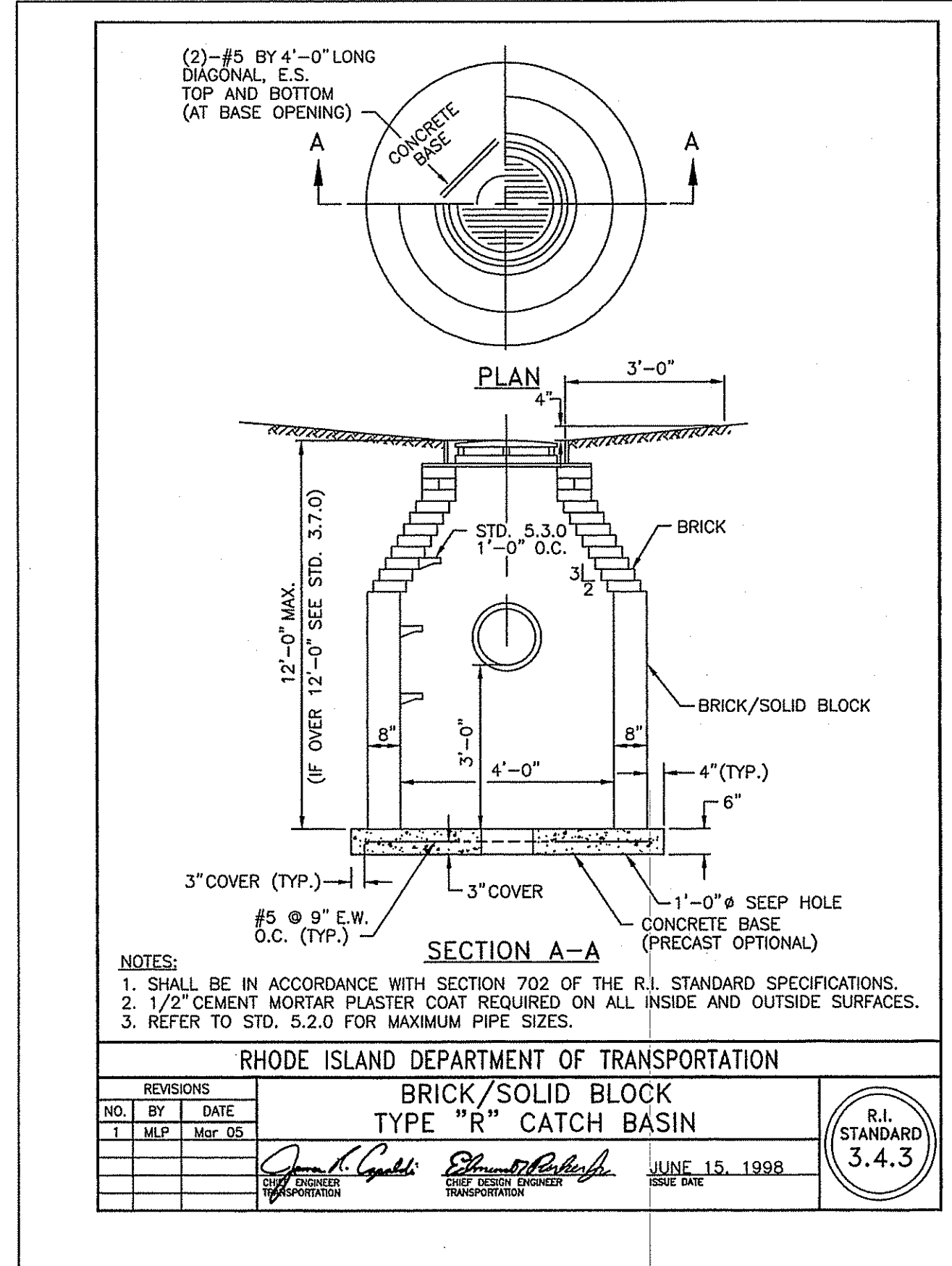
SITE/CIVIL  
LAND PLANNING  
WATERFRONT  
SURVEYING  
GEOTECHNICAL  
ENVIRONMENTAL  
TRANSPORTATION  
STRUCTURAL  
MATERIALS TESTING



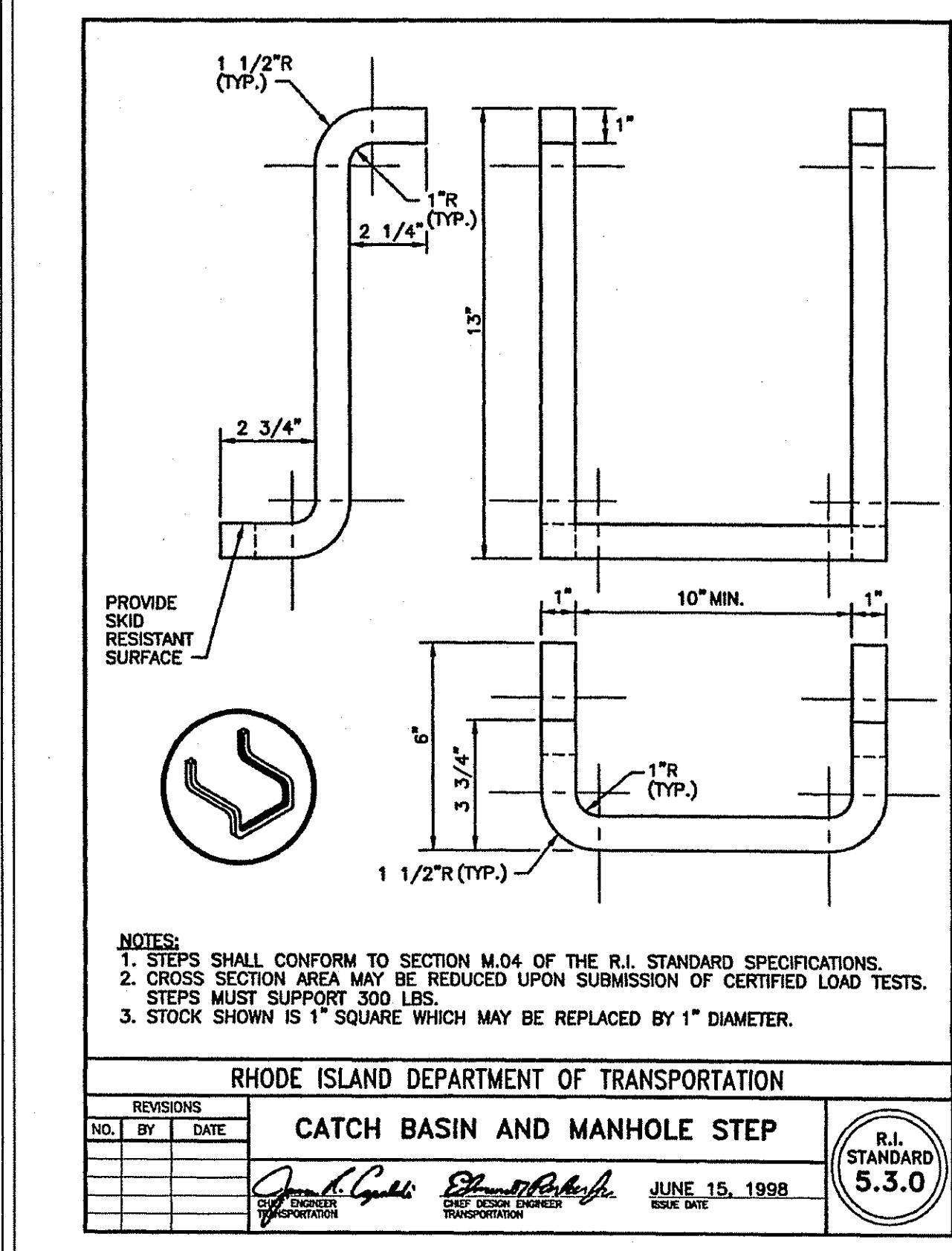
**SMOOTH RIDING CONNECTION**  
SCALE: NOT TO SCALE



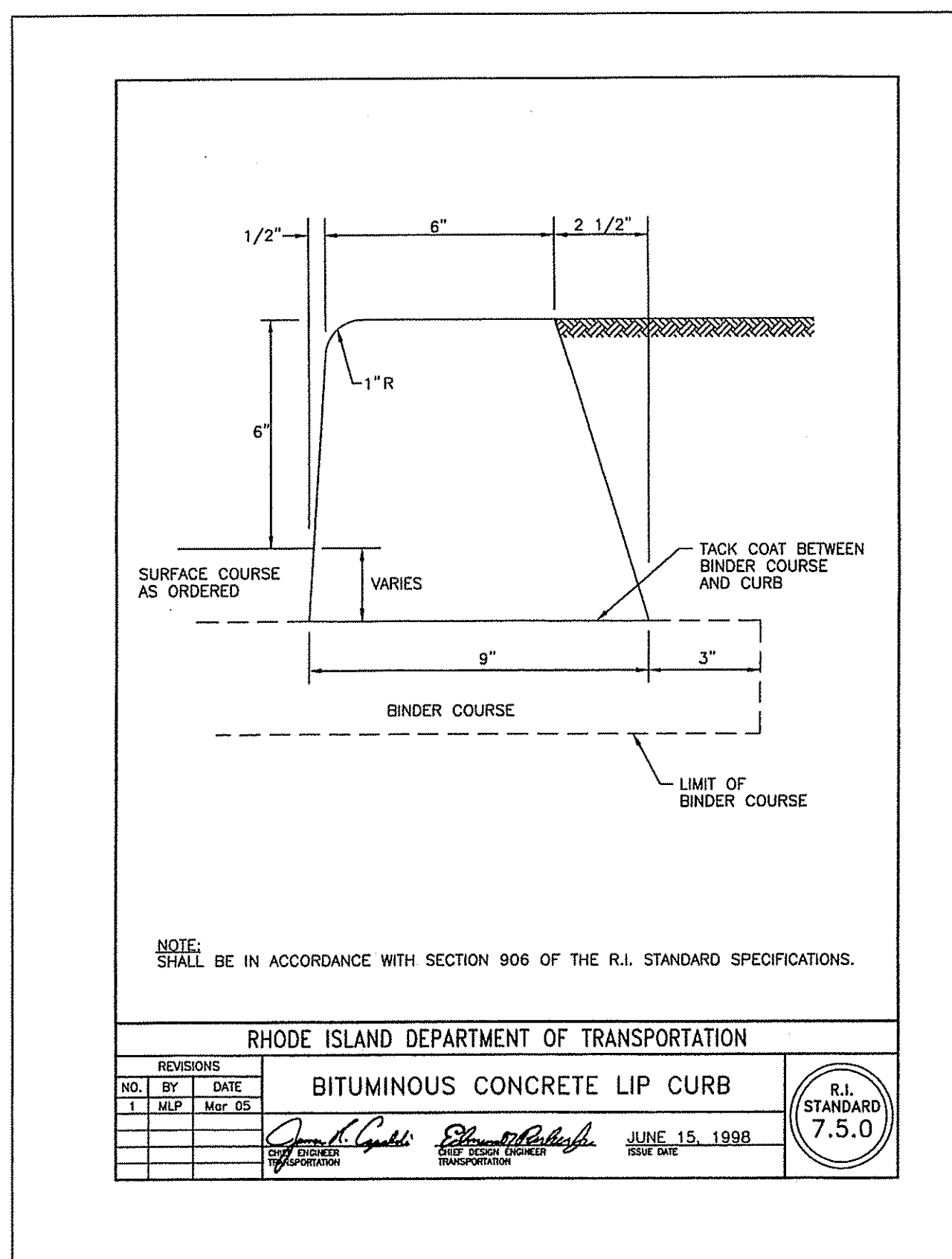
**SANITARY SEWER MANHOLE**  
SCALE: NOT TO SCALE



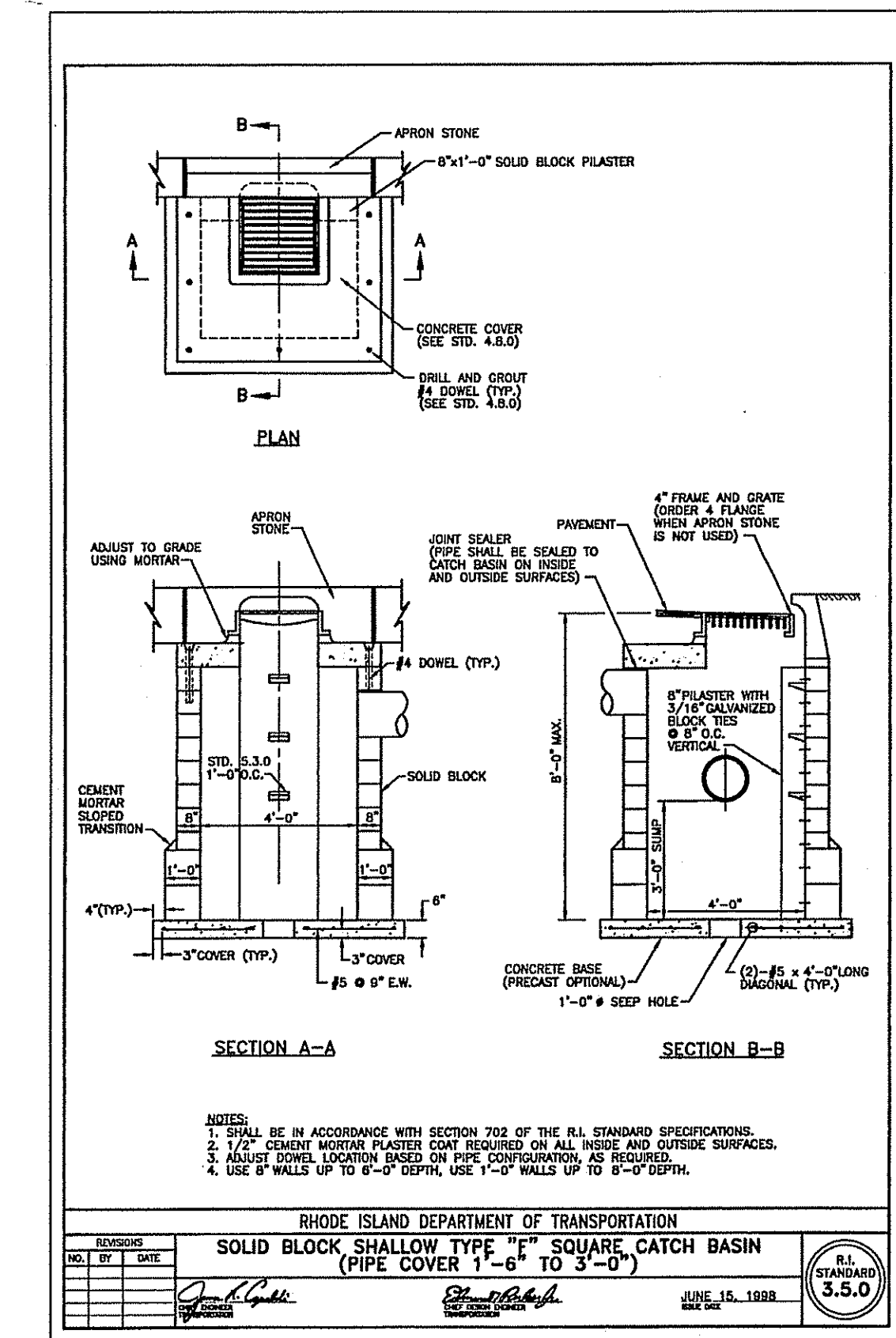
**STORM SEWER MANHOLE / CATCH BASIN**  
SCALE: NOT TO SCALE



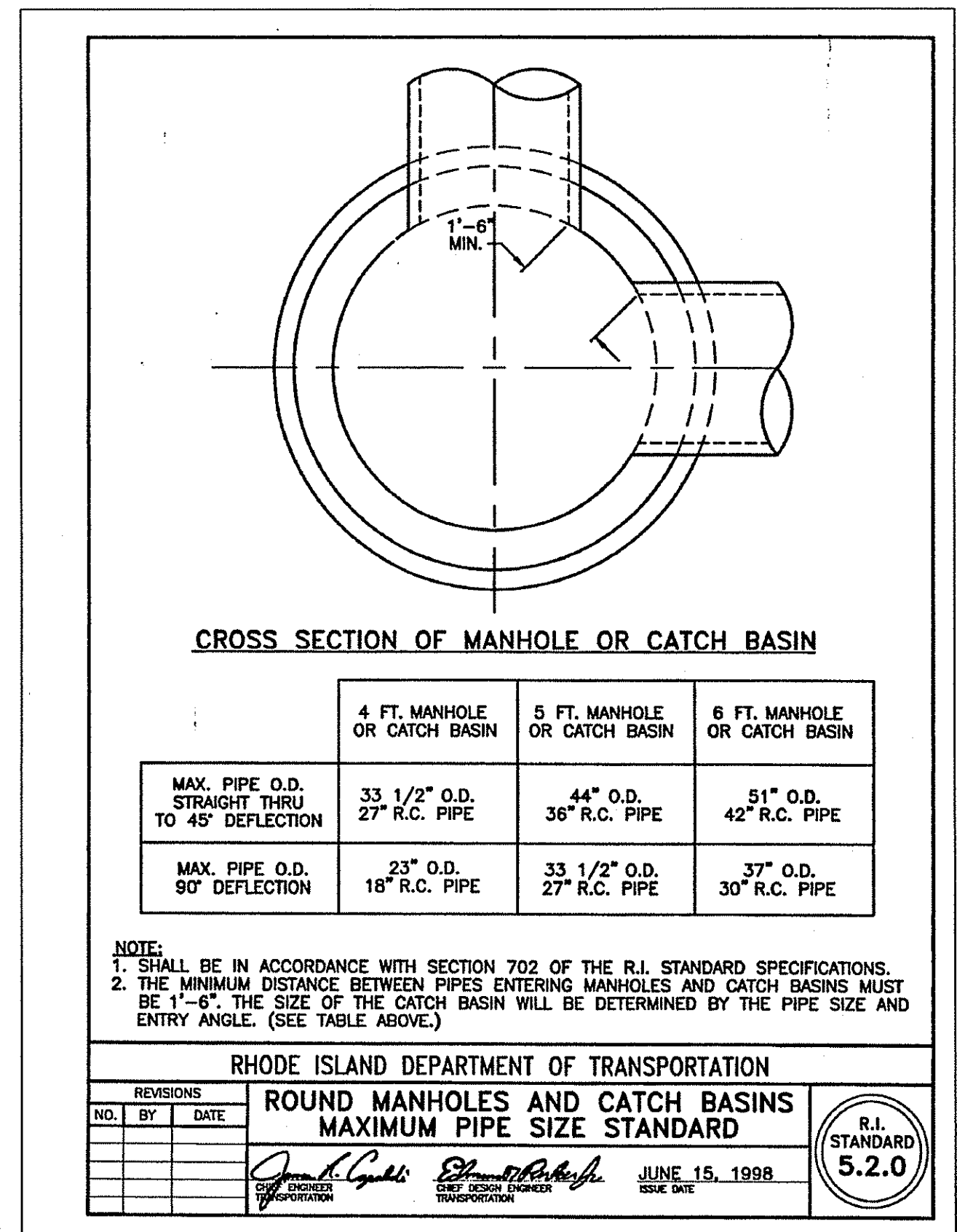
**CATCH BASIN AND MANHOLE STEPS**  
SCALE: NOT TO SCALE



**BITUMINOUS CURB**  
SCALE: NOT TO SCALE

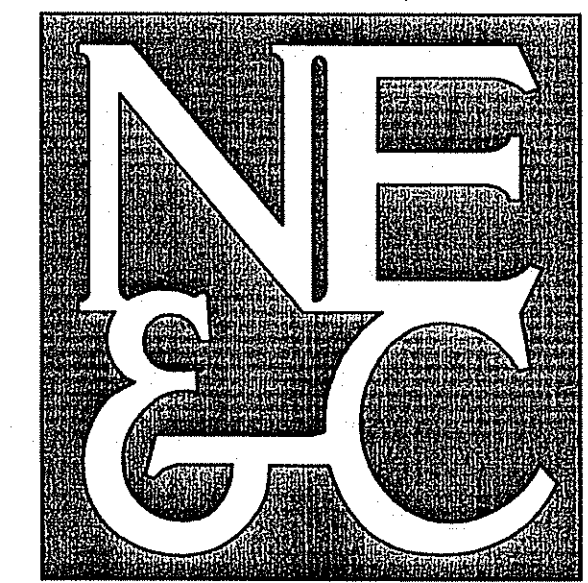


**SHALLOW STORM MANHOLE / CATCH BASIN**  
SCALE: NOT TO SCALE



**4 FT MANHOLE PIPE SIZES**  
SCALE: NOT TO SCALE

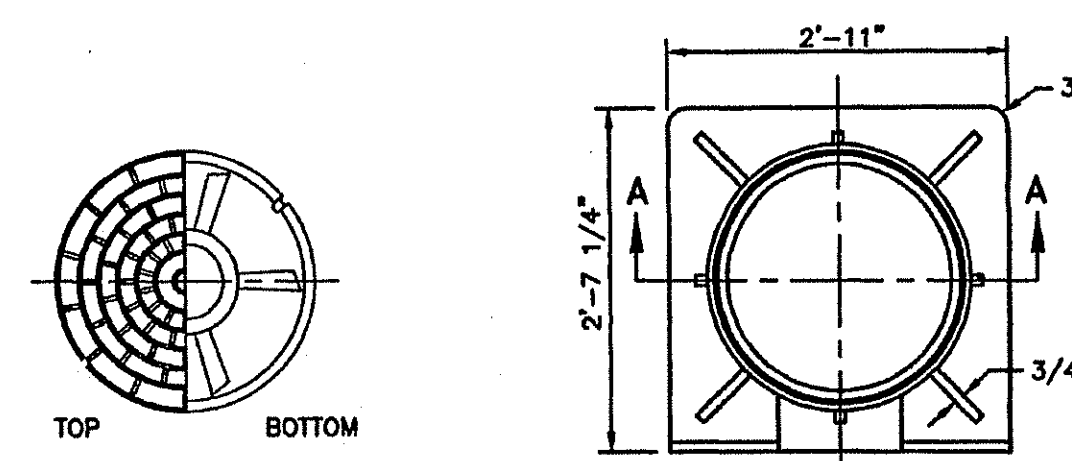
1.	DEM COMMENTS	SEPT 07
No.	Revision	Date
Desiged By:	JR	Drawn by: SMH
Scale:		Date: MAY 2007
Project Title:		
<b>THE OAKS AT HARRIS ROAD</b>		
A.P. 45, LOT 92 HARRIS ROAD SMITHFIELD, RI		
Client/Owner:		
KIRBRAE DEVELOPMENT 1300 HIGHLAND CORPORATE DRIVE MIDDLETOWN, RHODE ISLAND 02842		
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT OFFICE OF WATER RESOURCES FRESHWATER WETLANDS PROGRAM APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL DATED JAN 10 2008 FILE # 07-0230		
DRAWING CHANGES ALLOWED WITHOUT PRIOR APPROVAL APPROVED PLANS MUST BE AT CONSTRUCTION SITE		
<b>CIVIL DETAILS - 1</b>		
SEP 24 2007		
Drawing Number: <b>C-21</b>		
Sheet <b>22</b> of <b>25</b>		
Project Number: <b>05338.0</b>		
Survey Index: <b>26 - 45 - 92</b>		
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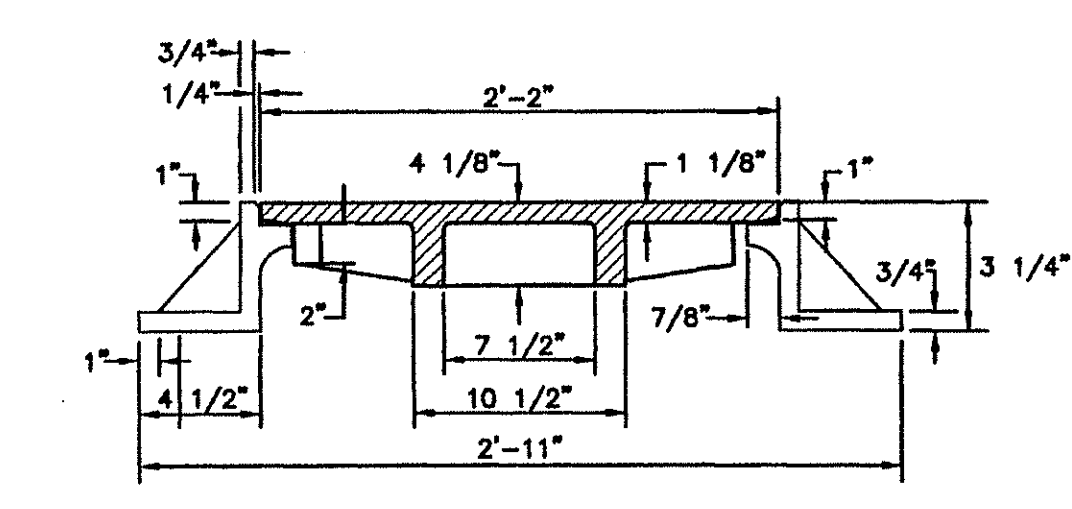
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MATERIALS TESTING



COVER FRAME



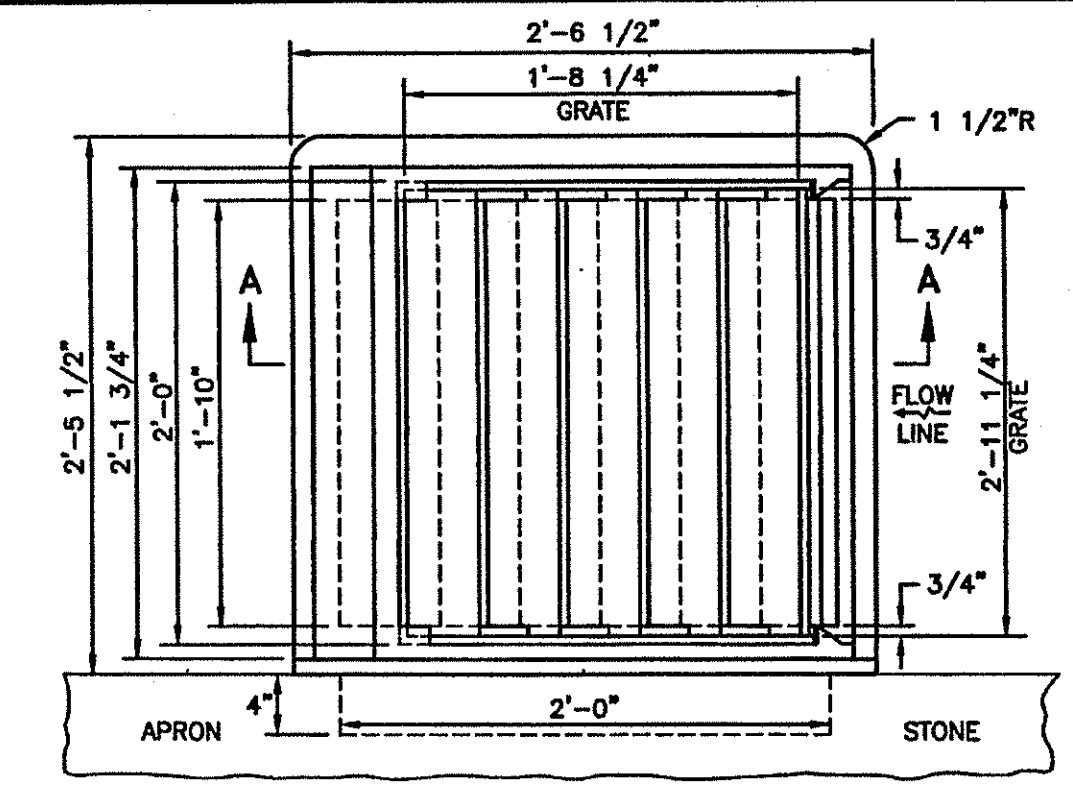
SECTION A-A

NOTES:  
1. FRAME AND COVER SHALL CONFORM TO SECTION M.04 OF THE R.I. STANDARD SPECIFICATIONS.  
2. FRAME AND COVER SEATS TO BE MACHINE FINISH.

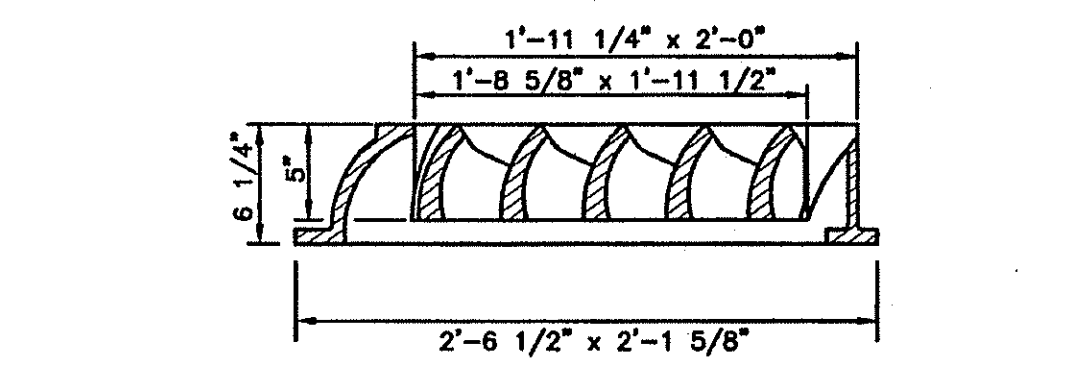
REVISIONS		
NO.	BY	DATE

RHODE ISLAND DEPARTMENT OF TRANSPORTATION  
**HEAVY-DUTY SQUARE FRAME AND ROUND COVER**  
JUNE 15, 1998  
R.I. STANDARD 6.1.1

HEAVY DUTY FRAME & COVER  
SCALE: NOT TO SCALE



PLAN



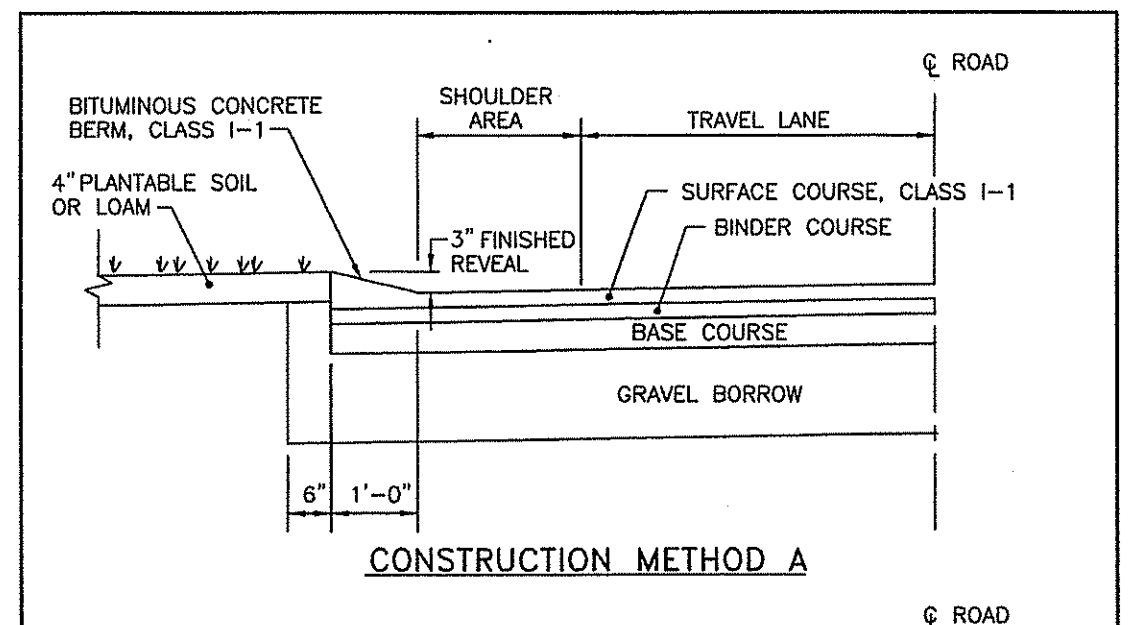
SECTION A-A

NOTES:  
1. FRAME AND GRATE SHALL CONFORM TO SECTION M.04 OF THE R.I. STANDARD SPECIFICATIONS.  
2. GRATES CAN BE INSTALLED IN ONLY ONE POSITION IN THE FRAME. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING FRAME FOR PROPER ORIENTATION OF GRATE.  
3. ORDER 2 FLANGE FRAME WHEN USED WITH CURBING OR APRON STONE.

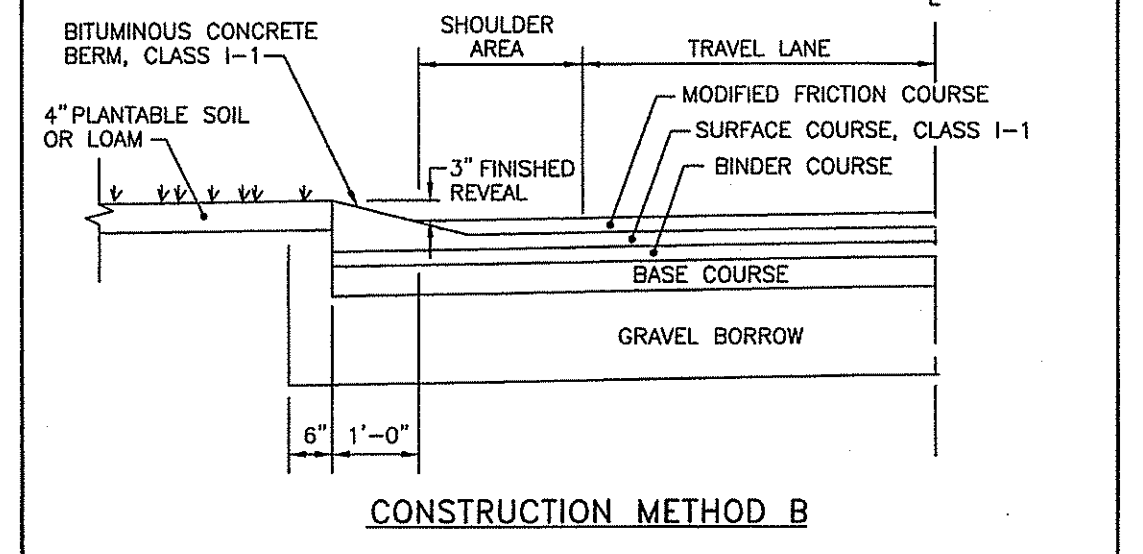
REVISIONS		
NO.	BY	DATE

RHODE ISLAND DEPARTMENT OF TRANSPORTATION  
**HIGH CAPACITY FRAME AND GRATE**  
JUNE 15, 1998  
R.I. STANDARD 6.3.3

HIGH CAPACITY FRAME & GRATE  
SCALE: NOT TO SCALE



CONSTRUCTION METHOD A



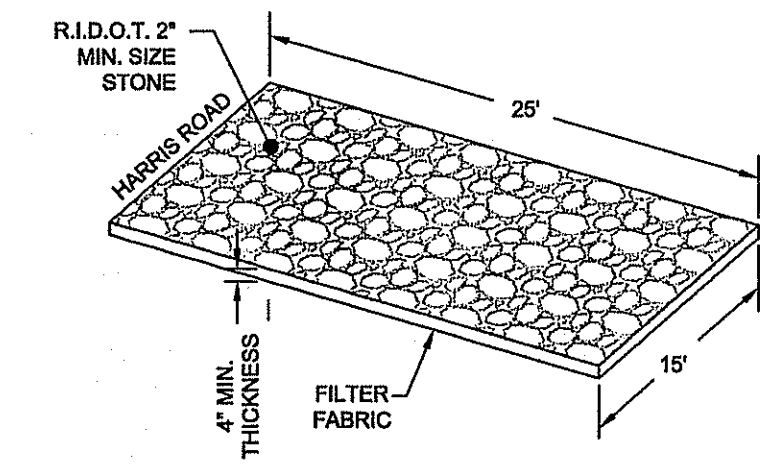
CONSTRUCTION METHOD B

NOTES:  
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.  
2. BITUMINOUS BERM CAN BE PLACED AT THE SAME TIME THAT THE SURFACE COURSE LAYER IS PLACED ON THE PROJECT ROADWAY, OR IT CAN BE INSTALLED IN A SEPARATE OPERATION.

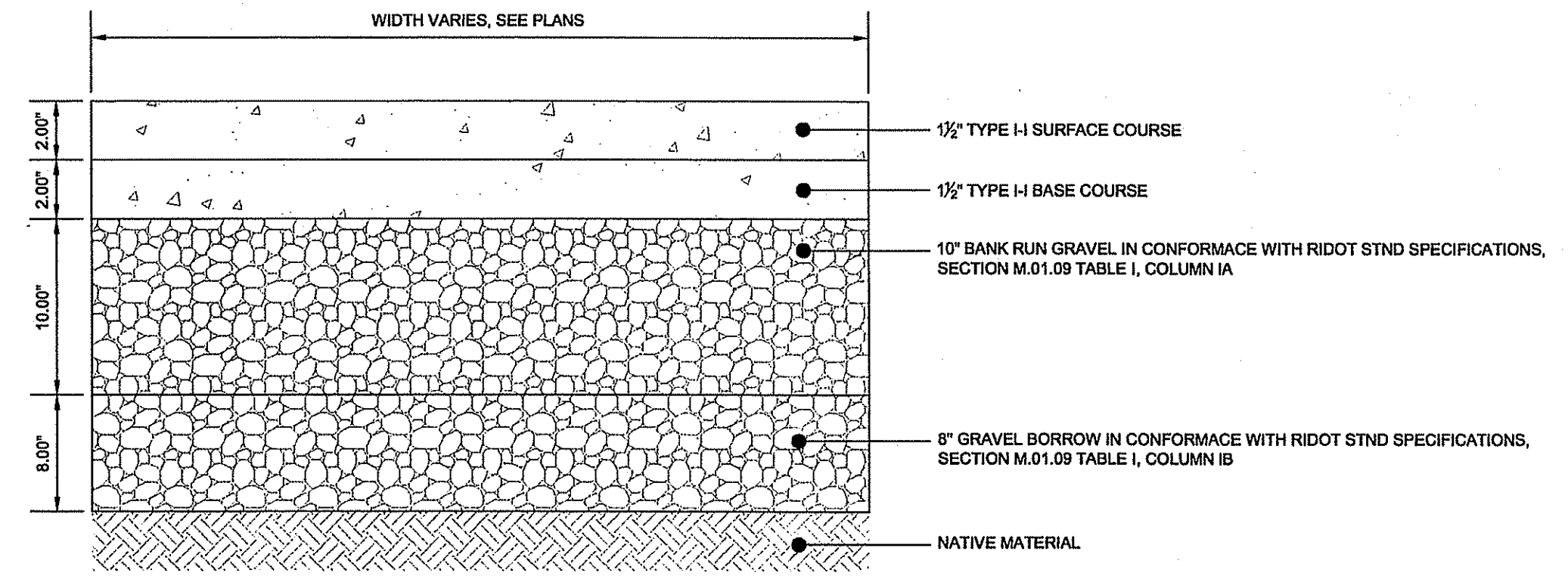
REVISIONS		
NO.	BY	DATE

RHODE ISLAND DEPARTMENT OF TRANSPORTATION  
**BITUMINOUS BERM**  
JUNE 15, 1998  
R.I. STANDARD 7.5.1

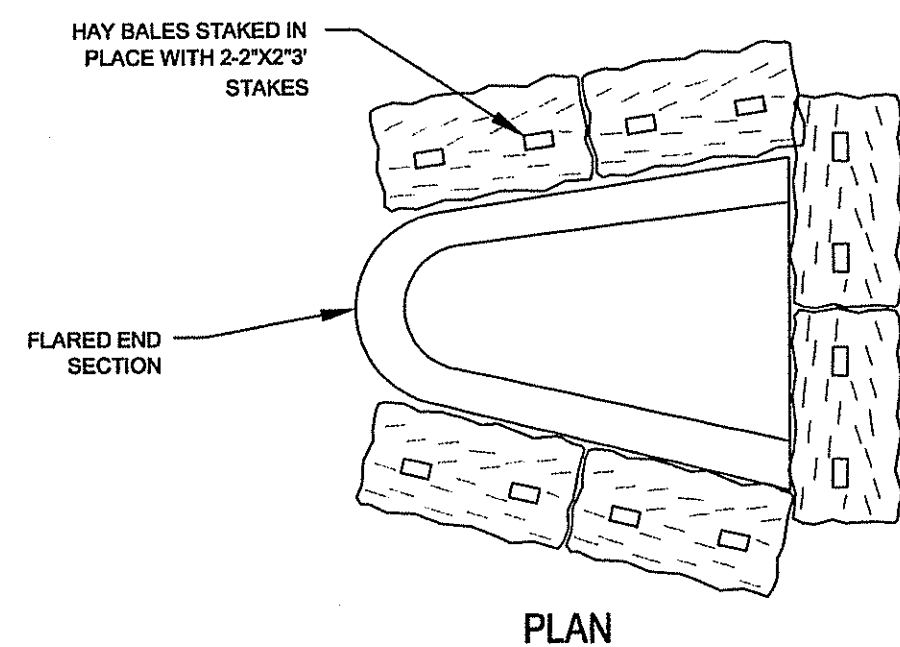
BITUMINOUS BERM  
SCALE: NOT TO SCALE



CONSTRUCTION ENTRANCE  
SCALE: NOT TO SCALE

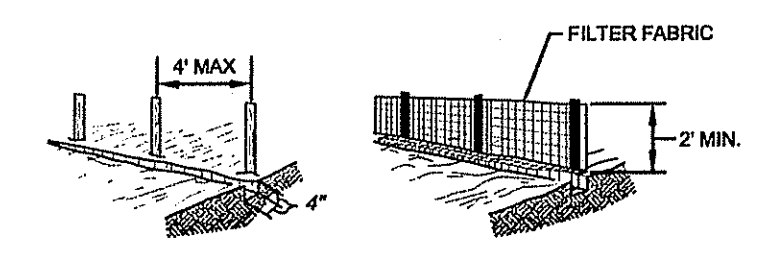


ASPHALT PAVEMENT SECTION  
SCALE: NOT TO SCALE

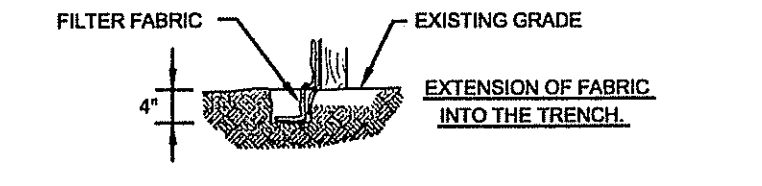


PLAN

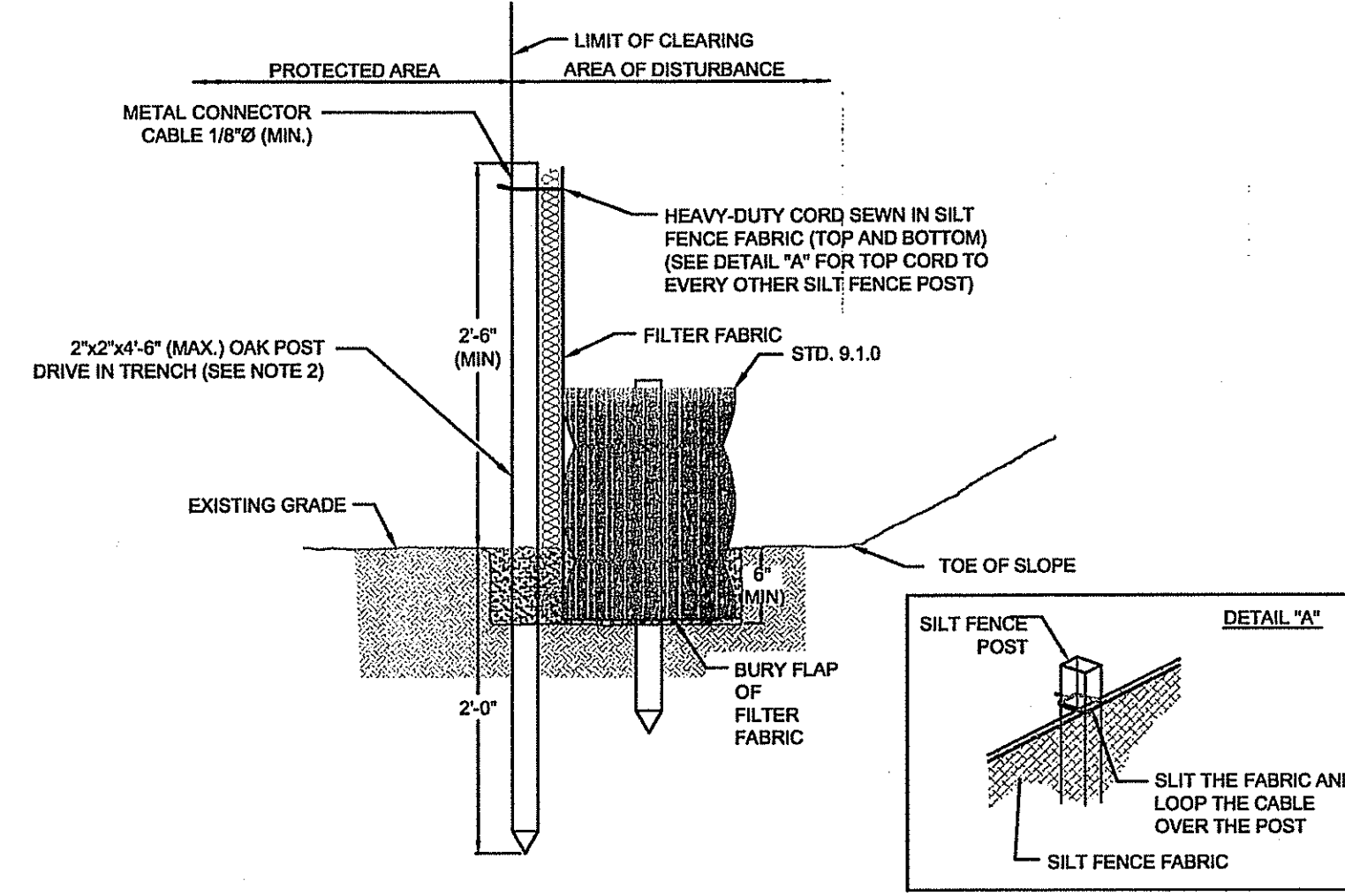
OUTLET STRUCTURE PROTECTION  
SCALE: NOT TO SCALE



- SET POSTS AND EXCAVATE A 4" X 4" TRENCH UPSLOPE ALONG THE LINE OF POSTS.
- STAPLE FILTER FABRIC TO THE POSTS AND EXTEND INTO TRENCH.
- BACK FILL AND COMPACT THE EXCAVATED SOIL INTO THE TRENCH.

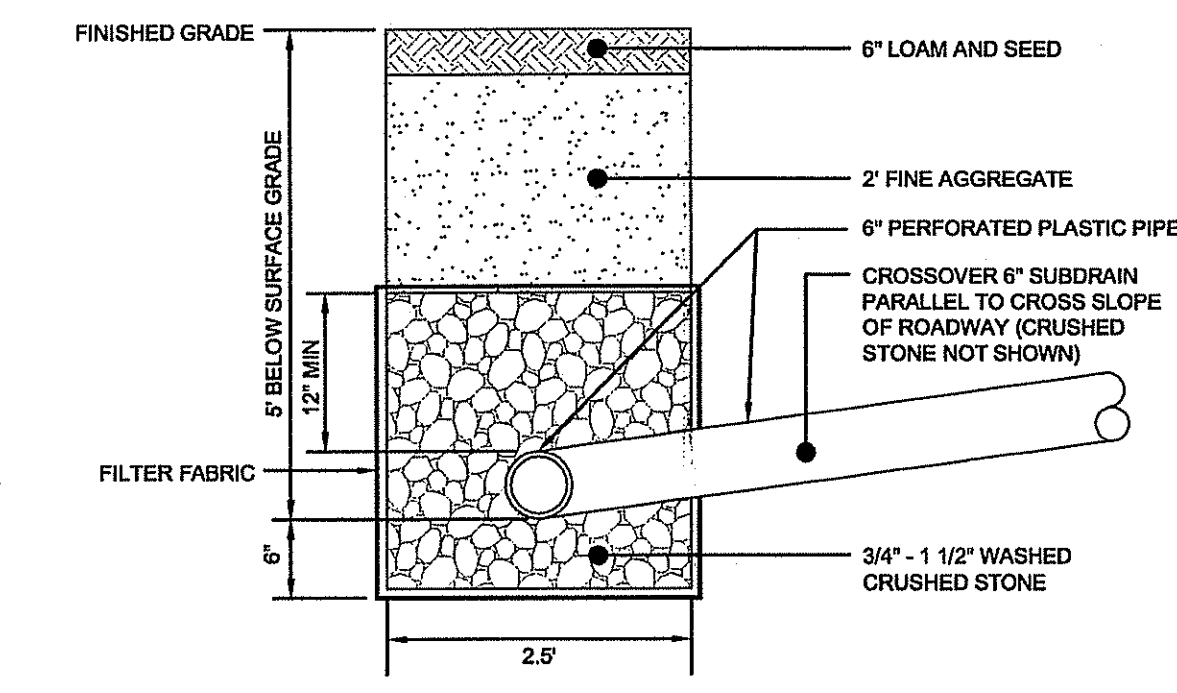


SILT FENCE CONSTRUCTION DETAIL  
SCALE: NOT TO SCALE

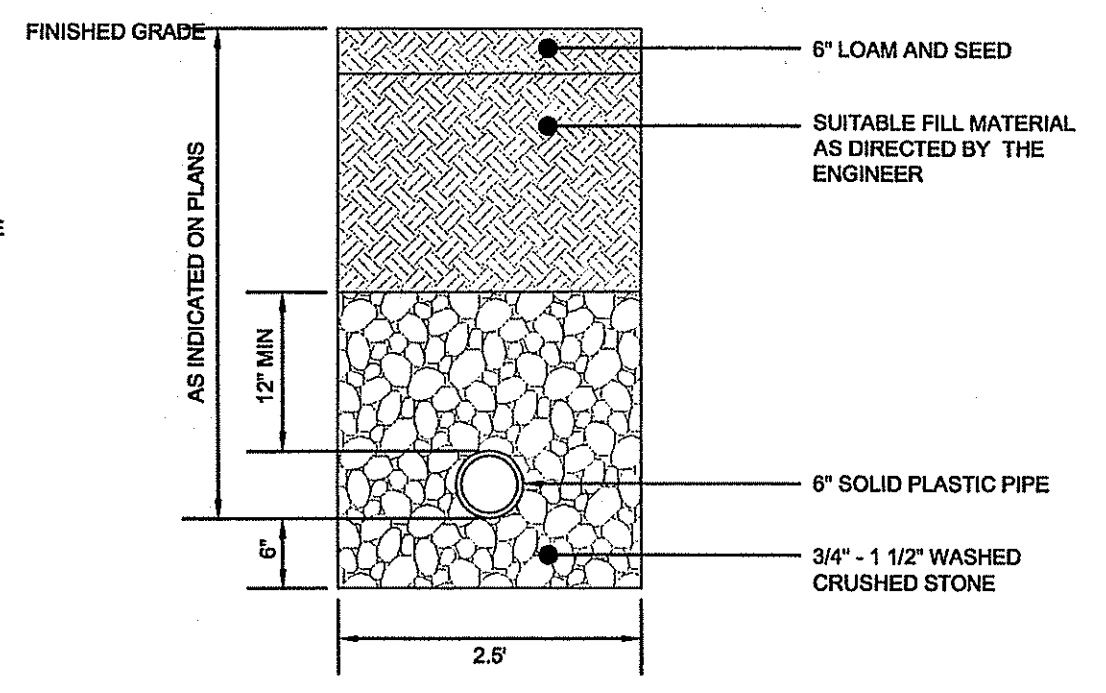


- NOTES:
- SHALL BE IN ACCORDANCE WITH SECTION 206 OF THE R.I. STANDARD SPECIFICATIONS.
  - STD. 9.1.0 IS INSTALLED "TIGHT" AGAINST SILT FENCE. THOROUGHLY COMPACT EXCAVATED SOILS BACK INTO TRENCH AFTER INSTALLATION OF EROSION CONTROL DEVICE. SILT FENCE FABRIC SHALL NOT BE SLIT. STD. 9.1.0 POST SHALL BE DRIVEN THROUGH SILT FENCE FABRIC. 2"x2"x4'-6" (MAX.) OAK POST FOR SILT FENCE SHALL BE LOCATED 6"-0" (MAX.) O.C. IN WETLAND AREAS AND 4'-0" (MAX.) O.C. IN WETLAND RAVINE, GULLY OR DROP OFF AREAS AS SHOWN ON PLANS.
  - 1"x1"x4'-6" (MIN.) POSTS ARE PERMITTED FOR PRE-FABRICATED SILT FENCE.
  - SILT FENCE AND BALED HAY SHALL BE INSTALLED BEFORE ANY GRUBBING OR EARTH EXCAVATION TAKES PLACE.

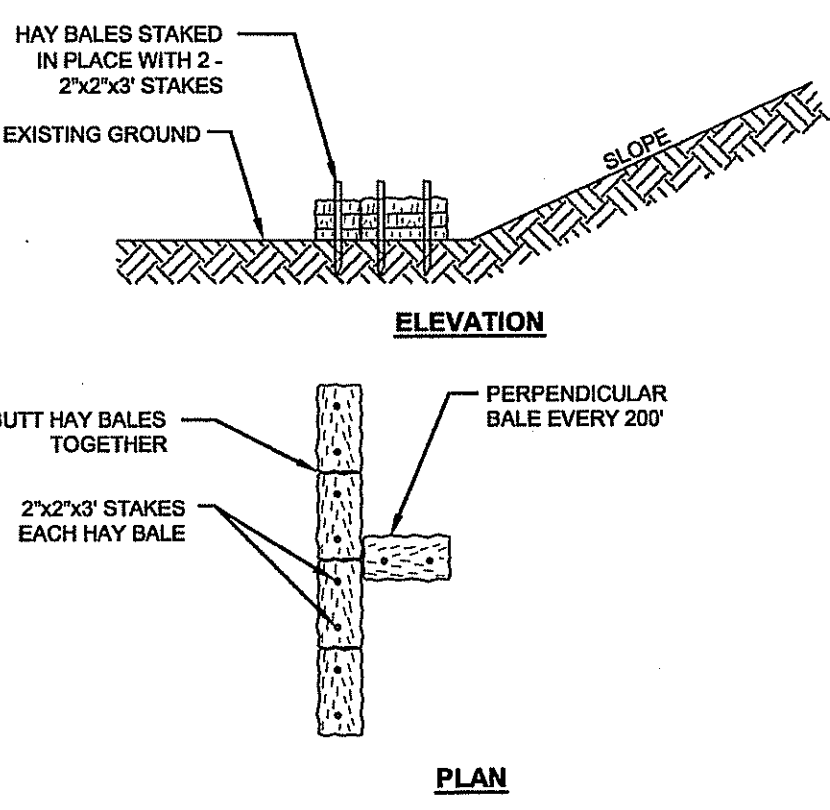
BALED HAY AND SILT FENCE COMBINATION (RIDOT 9.3.0)  
SCALE: NOT TO SCALE



ROADWAY SUBDRAIN DETAIL  
SCALE: NOT TO SCALE

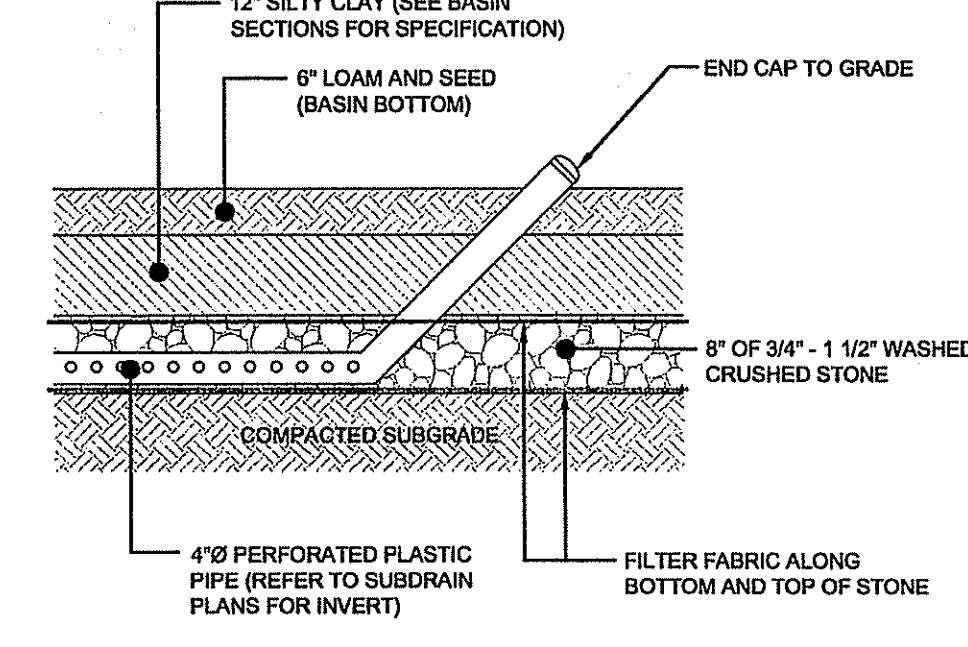


SOILD SUBDRAIN TRENCH DETAIL  
SCALE: NOT TO SCALE



PLAN

BALED HAY SEDIMENT BARRIER  
SCALE: NOT TO SCALE



Basin SUBDRAIN DETAIL  
SCALE: NOT TO SCALE

1.	DEM COMMENTS	SEPT 07
No.	Revision	Date App.

Designed By: JR Drawn by: SMH Checked by:   
Scale: Date: MAY 2007

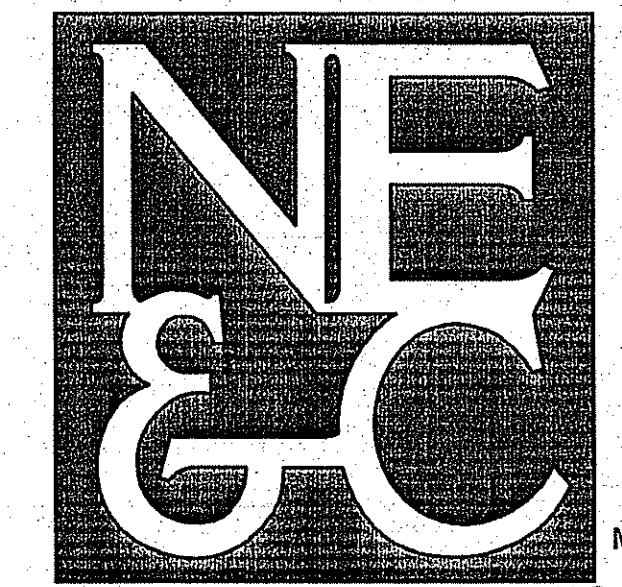
Project Title:  
**THE OAKS AT HARRIS ROAD**  
A.P. 45, LOT 92  
HARRIS ROAD  
SMITHFIELD, RI

Client/Owner:  
KIRKBRAE DEVELOPMENT  
1300 MIDLAND CORPORATE DRIVE  
MIDDLETOWN, RI 02842  
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
SPECIFIED IN THE LETTER OF APPROVAL  
DATED JAN 10 2008 FILE # 02-0220  
DRAWING CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

CIVIL DETAILS - 2

	Drawing Number:	C-22
	Sheet	23 of 25
	Project Number:	05338.0
	Survey Index:	26 - 45 - 92

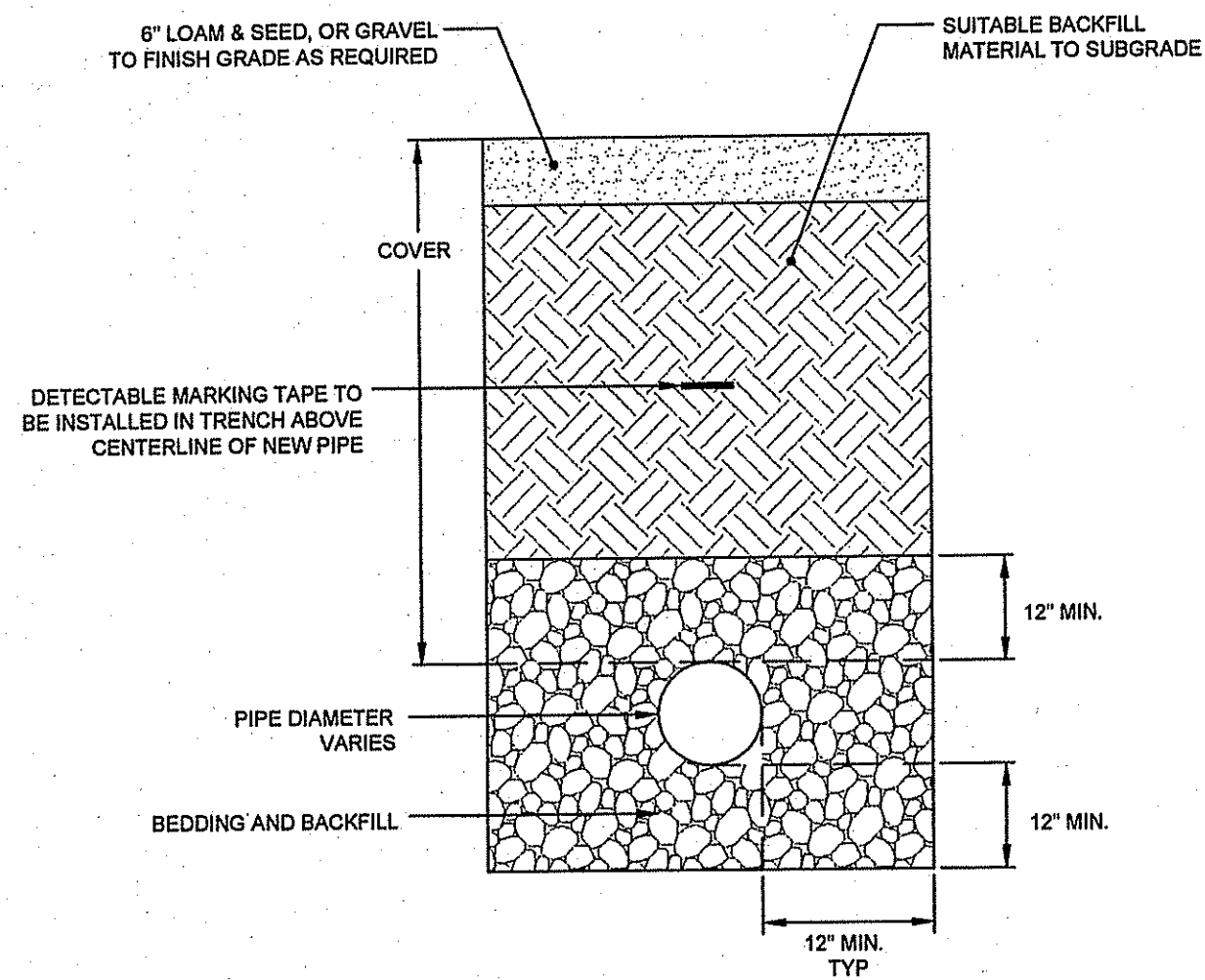
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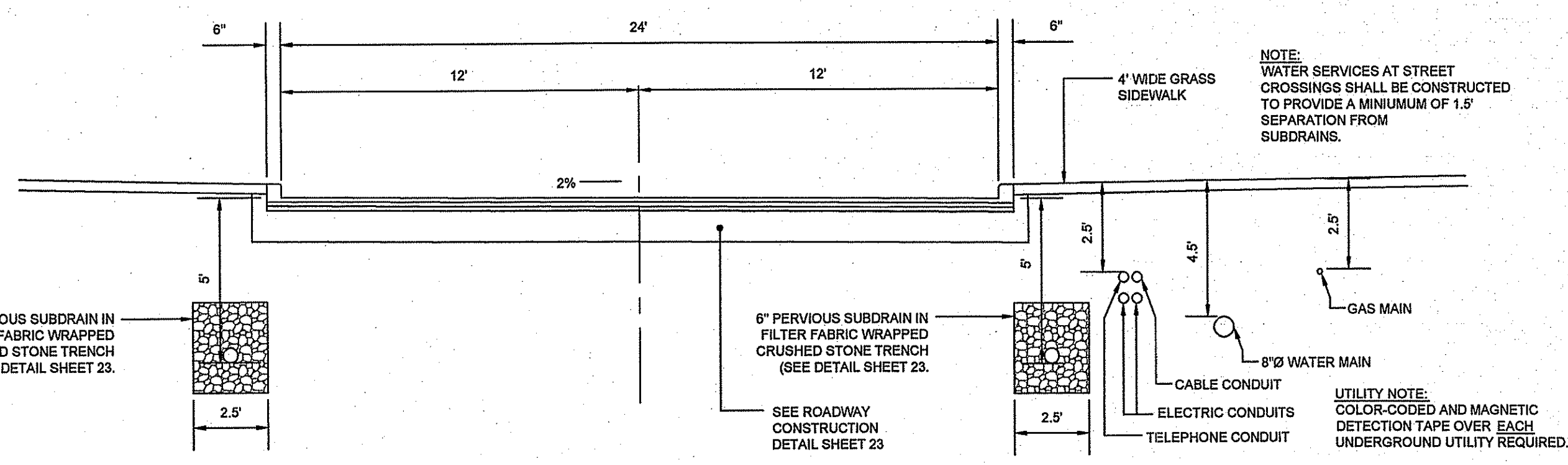


**TRENCH NOTES:**

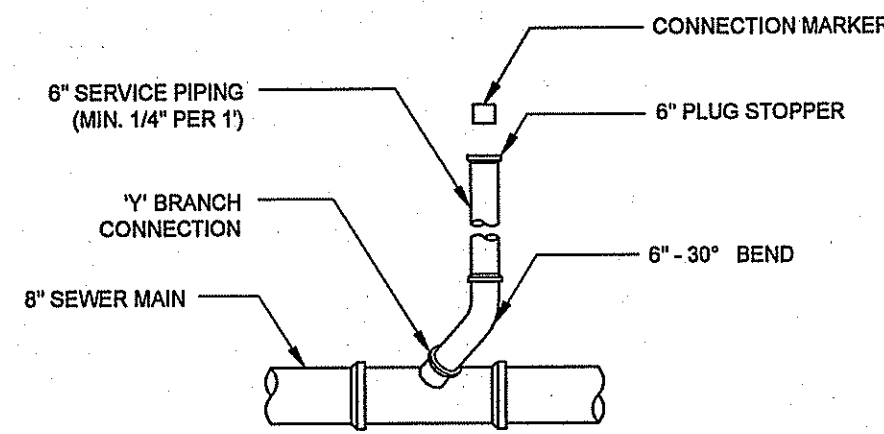
- 1) UNSUITABLE MATERIAL SHALL BE EXCAVATED TO A MINIMUM DEPTH OF 12-INCHES BELOW THE DESIGN INVERT ELEVATION.
- 2) TRENCH PROTECTION SHALL BE REQUIRED IN ACCORDANCE WITH OSHA REGULATIONS, AND AS OTHERWISE REQUIRED TO PROTECT UTILITIES, ROADWAYS, AND ADJACENT STRUCTURES.
- 3) SEWER AND DRAIN PIPES SHALL BE LAID BEGINNING AT THE DOWNSTREAM END OF THE PIPE LINE.
- 4) UTILITY INSTALLATIONS SHALL CONFORM TO ALL REQUIREMENTS OF THE TOWN OF SMITHFIELD PUBLIC WORKS RULES AND REGULATIONS AND THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

TYPICAL MIN. COVER:	TYPICAL MIN. HORIZ. CLR.
WATER 4.5'	WATER 3.0'
SEWER 4.0'	SEWER 3.0'
DRAIN 3.0'	DRAIN 3.0'
ET&C 2.5'	ET&C 1.0'
GAS 3.0'	GAS 3.0'

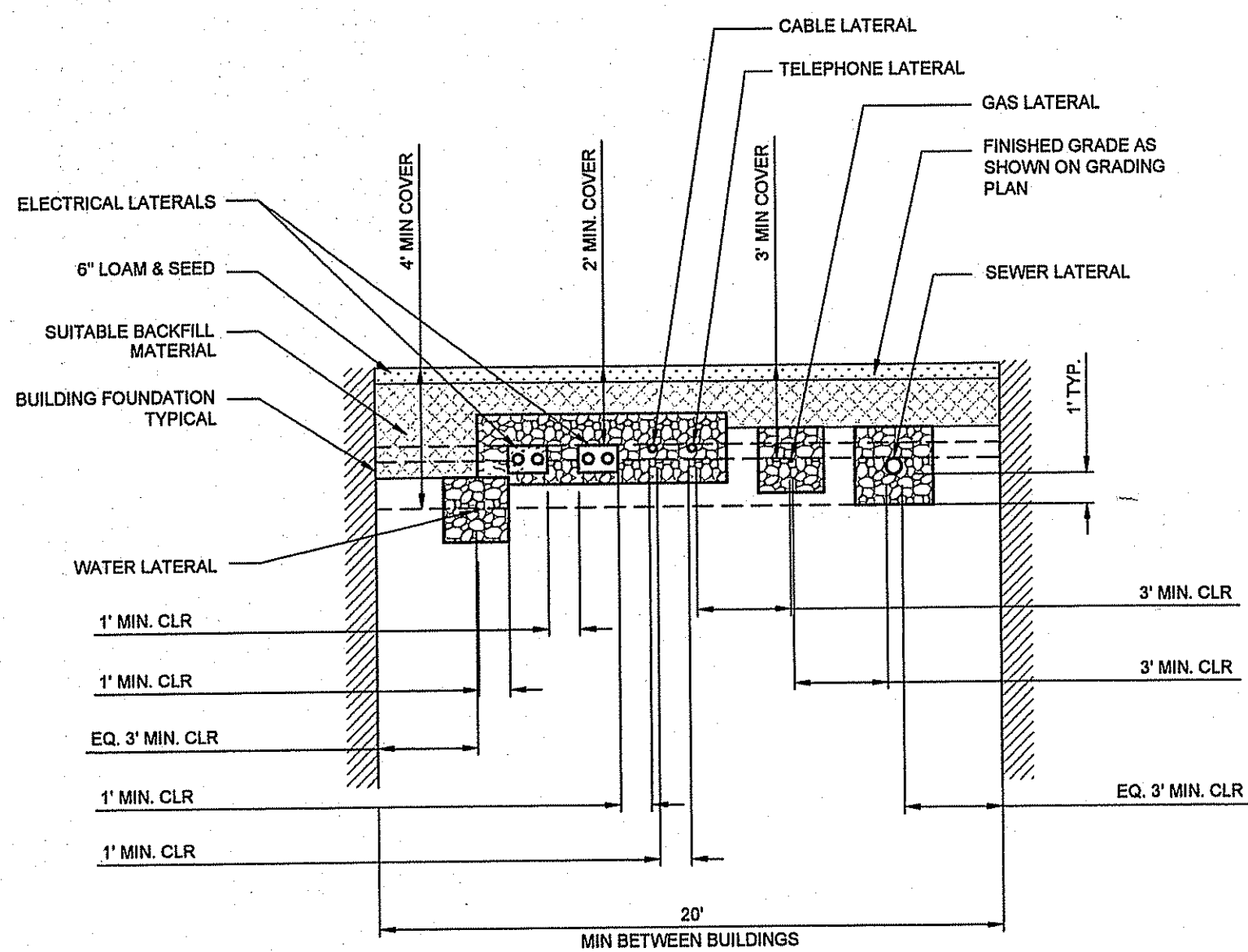
**TYPICAL UTILITY TRENCH DETAILS & NOTES**  
(N.T.S.)



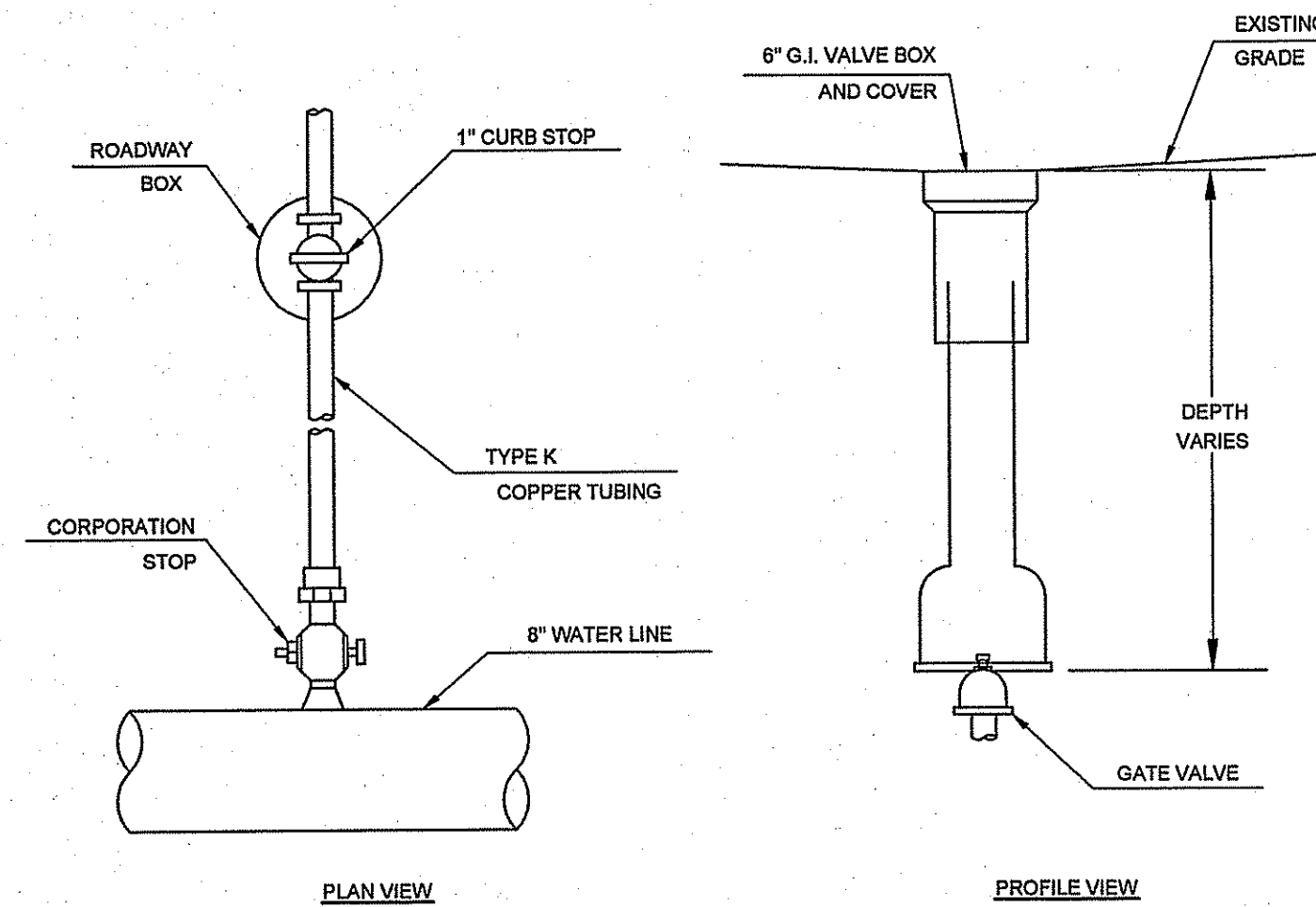
**TYPICAL ROADWAY CROSS SECTION**  
(N.T.S.)



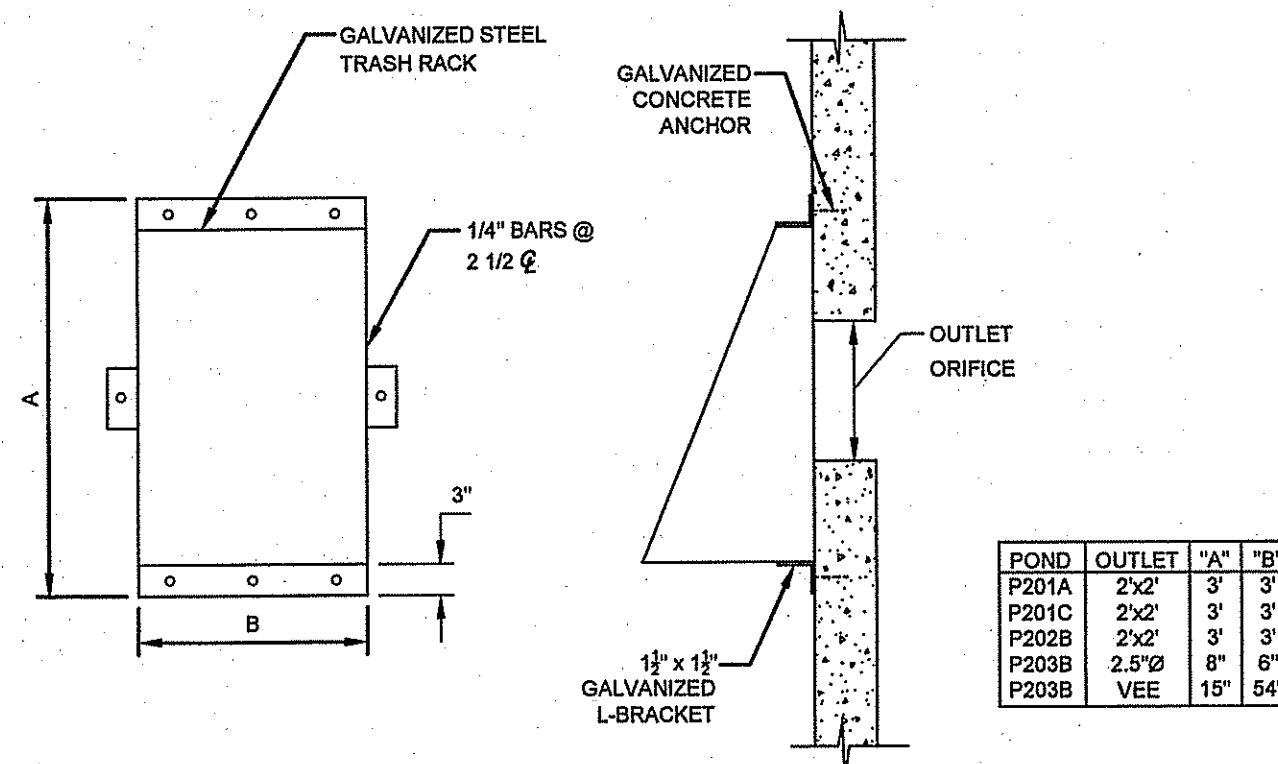
**6" SEWER SERVICE CONNECTION DETAIL**  
(N.T.S.)



**SECTION THROUGH LATERAL CONNECTIONS**  
(N.T.S.)

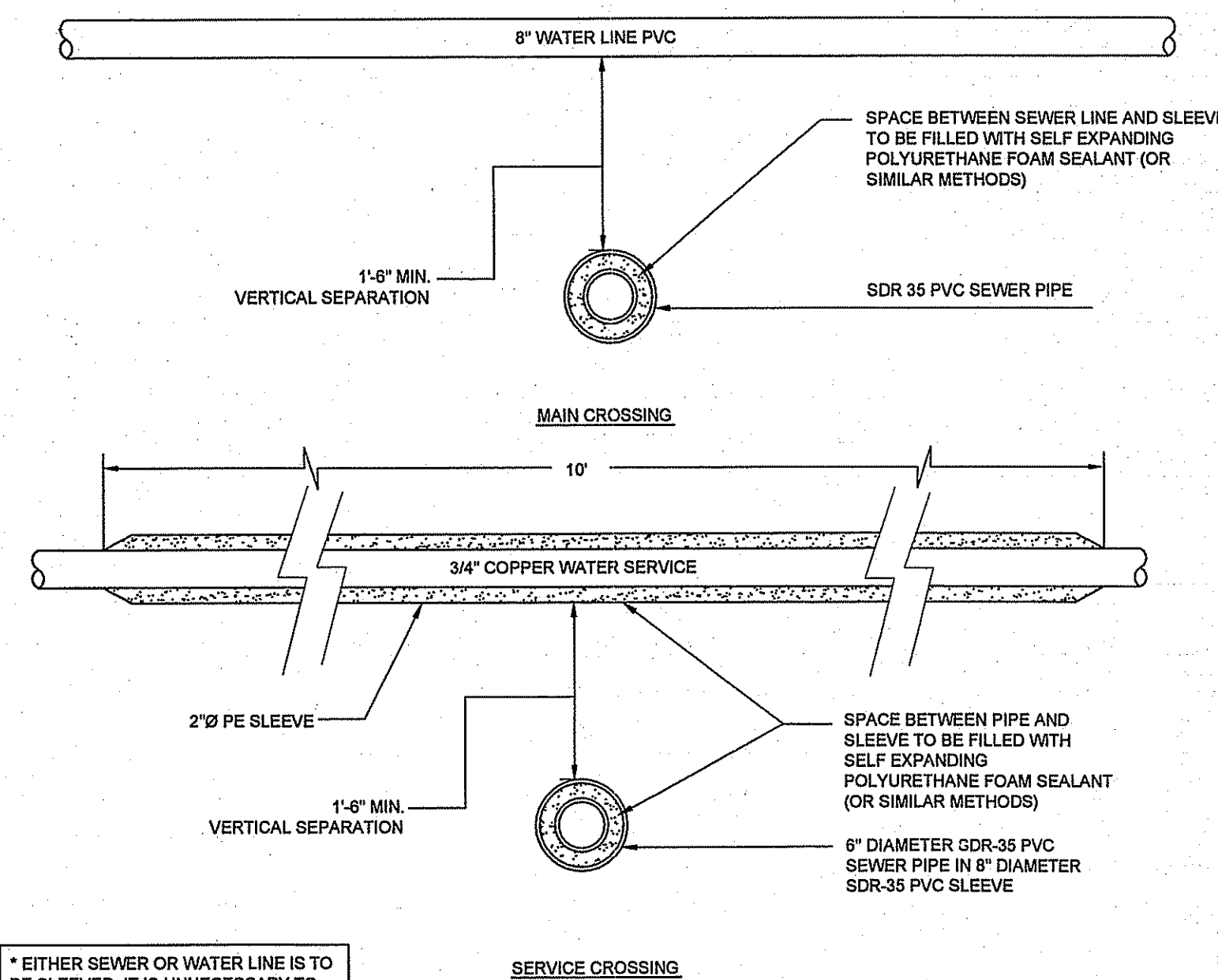


**WATER GATE VALVE / SERVICE CURB STOP**  
(N.T.S.)



**OUTLET TRASH RACK DETAIL**  
(N.T.S.)

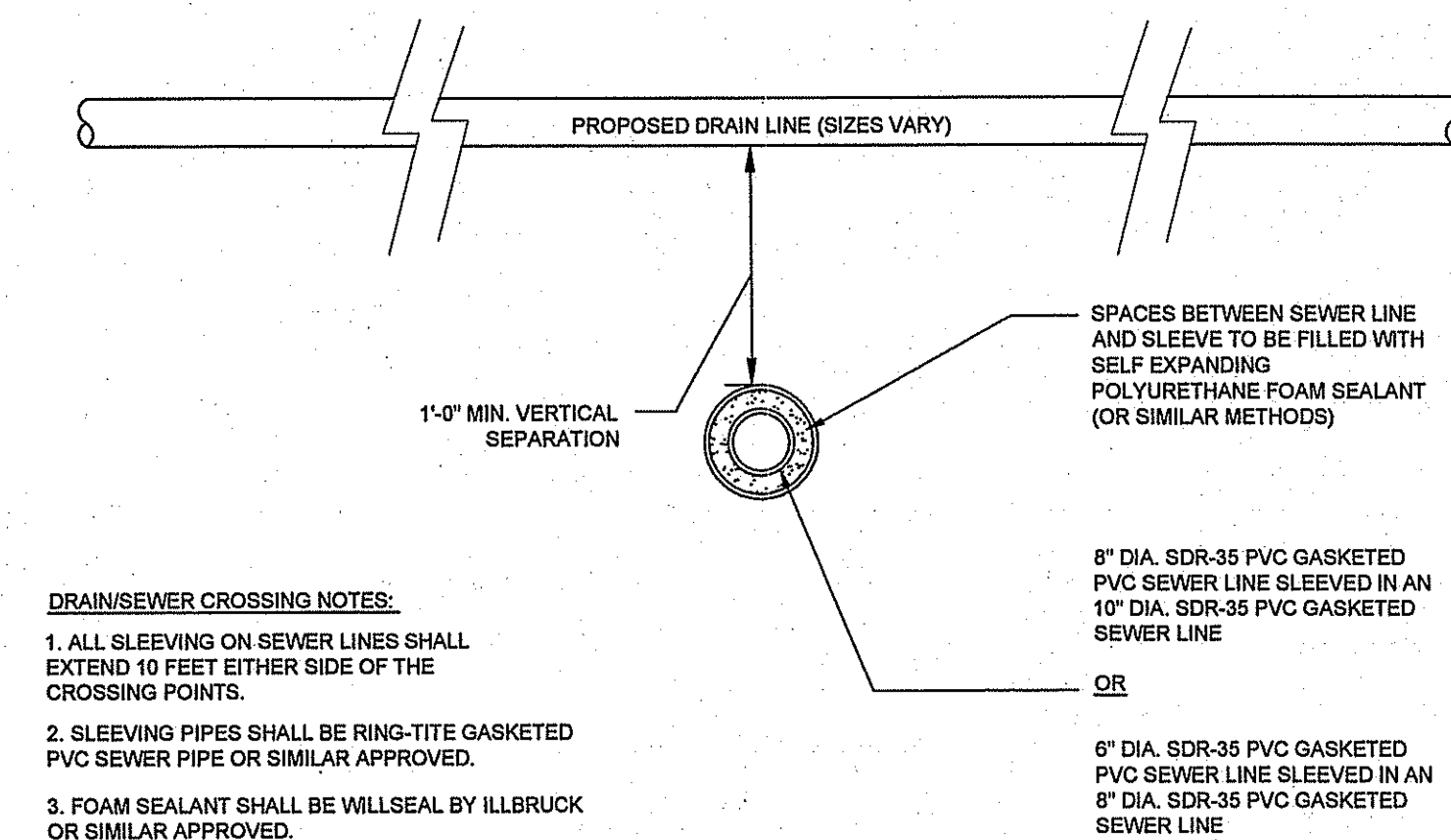
POND	OUTLET	"A"	"B"
P201A	2x2	3'	3'
P201C	2x2	3'	3'
P202B	2x2	3'	3'
P203B	2.5'x3'	8'	8'
P203B	VEE	15'	54'



**WATER + SEWER PIPE CROSSING DETAIL**  
(N.T.S.)

**WATER/SEWER PIPE CROSSING NOTES:**

1. ALL SLEEVING ON WATER AND SEWER LINES SHALL EXTEND 10 FEET ON EITHER SIDE OF THE CROSSING POINTS.
2. SLEEVING PIPES SHALL BE RING-TITE GASKETED PVC SEWER PIPE OR SIMILAR APPROVED.
3. FOAM SEALANT SHALL BE WILLSEAL BY ILLBRUCK OR SIMILAR APPROVED.
4. CONSTRUCTION DETAIL & SEPARATION DISTANCES SHALL BE THE SAME IN INSTANCES WHERE SEWER CROSSES ABOVE WATER LINE.



**DRAIN + SEWER PIPE CROSSING DETAIL**  
(N.T.S.)

**DRAIN/SEWER CROSSING NOTES:**

1. ALL SLEEVING ON SEWER LINES SHALL EXTEND 10 FEET EITHER SIDE OF THE CROSSING POINTS.
2. SLEEVING PIPES SHALL BE RING-TITE GASKETED PVC SEWER PIPE OR SIMILAR APPROVED.
3. FOAM SEALANT SHALL BE WILLSEAL BY ILLBRUCK OR SIMILAR APPROVED.

2	WATER & SEWER REVISIONS	SEPT 07
1	DEM COMMENTS	SEPT 07

No.	Revision	Date	App.
Designed By:	JR	Drawn by:	SMH
Checked by:			

Scale: NOT APPLICABLE Date: MAY 2007

Project Title:  
**THE OAKS AT HARRIS ROAD**  
 A.P. 45, LOT 92  
 HARRIS ROAD  
 SMITHFIELD, RI

Client/Owner:  
**KIRKRAE DEVELOPMENT**  
 1300 HIGHLAND CORPORATE DRIVE  
 CUMBERLAND, RI 02864

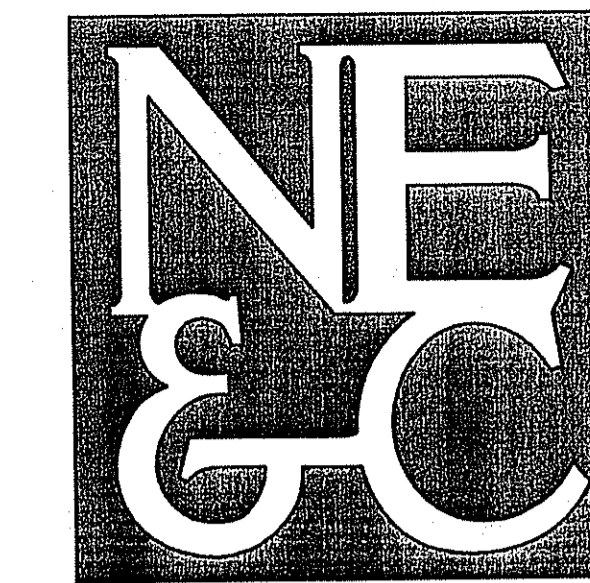
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
 OFFICE OF WATER RESOURCES  
 FRESHWATER PERMITTING PROGRAM  
 APPROVED WITH CONDITIONS  
 AS SPECIFIED IN THE LETTER OF APPROVAL  
 JAN 10 2008 FILE # 07-023D

**CIVIL DETAILS - 3**

DEC 6 2007

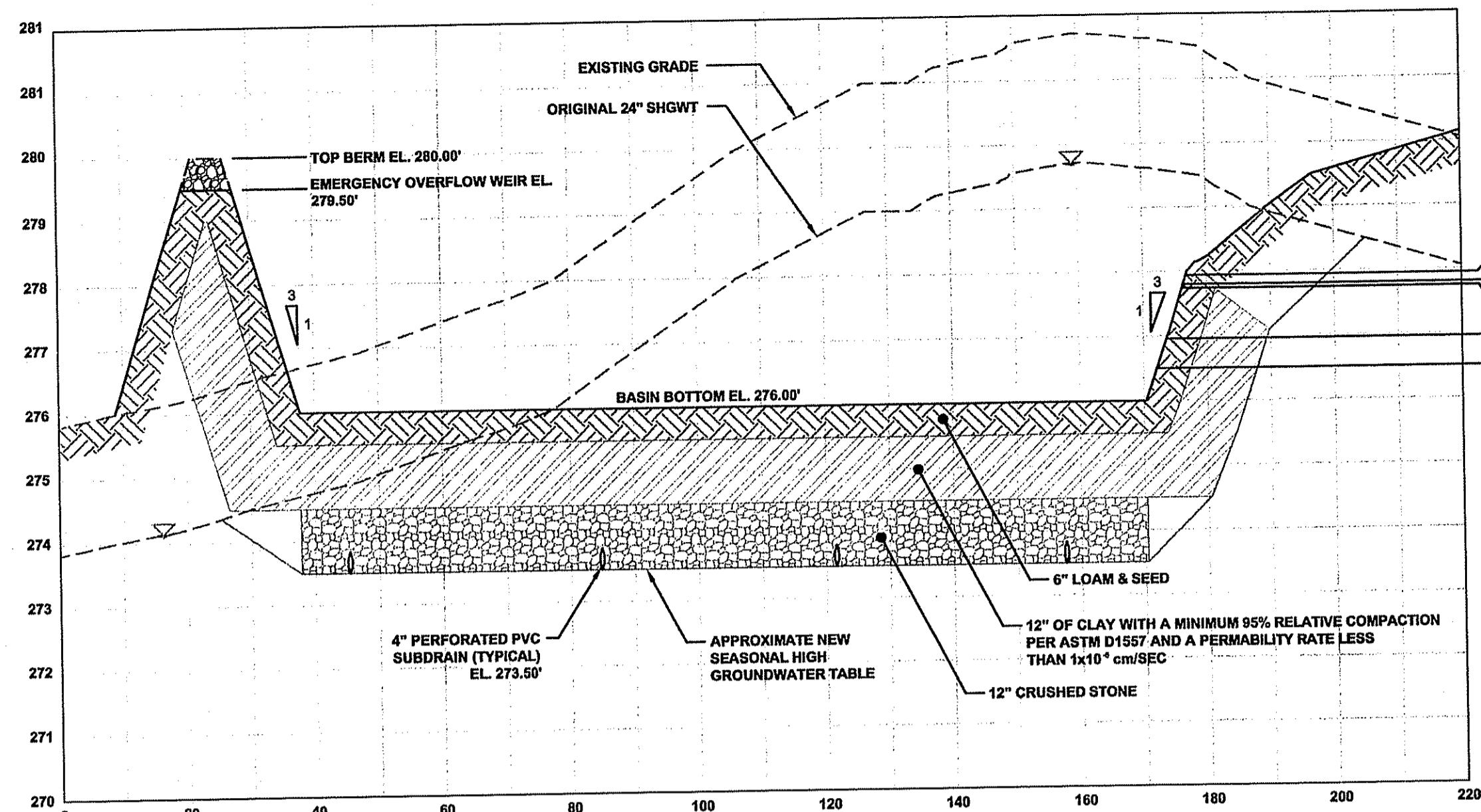
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	Sheet	<b>24</b> of <b>25</b>
	Project Number:	<b>05338.0</b>
	Survey Index:	<b>26 - 45 - 92</b>

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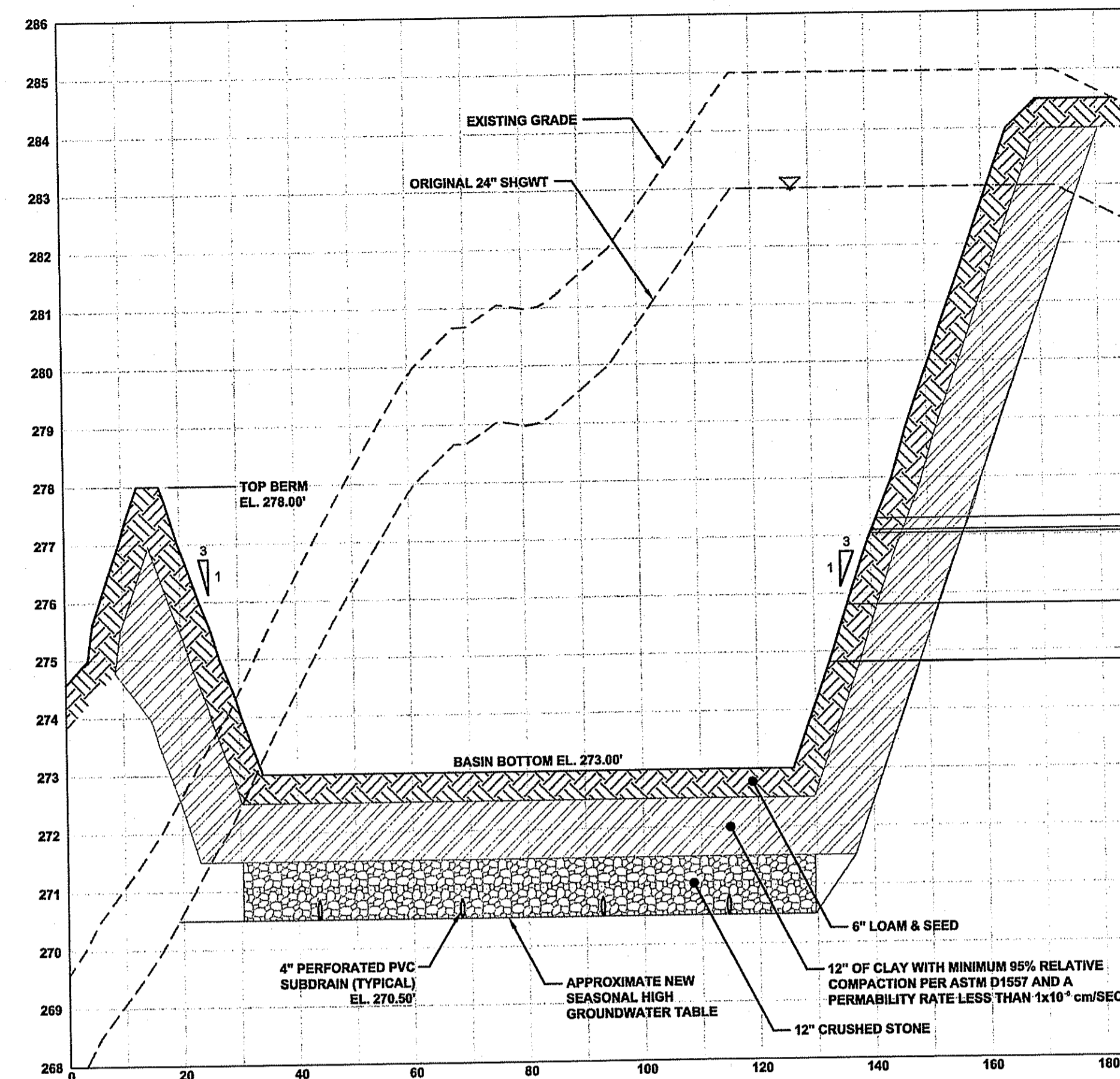
A KNOWLEDGE CORPORATION®

55 JOHN CLARKE ROAD MIDDLETOWN RHODE ISLAND 02842  
PHONE (401) 849-0810 FAX (401) 846-4169  
WWW.NORTHEASTENGINEERS.COM



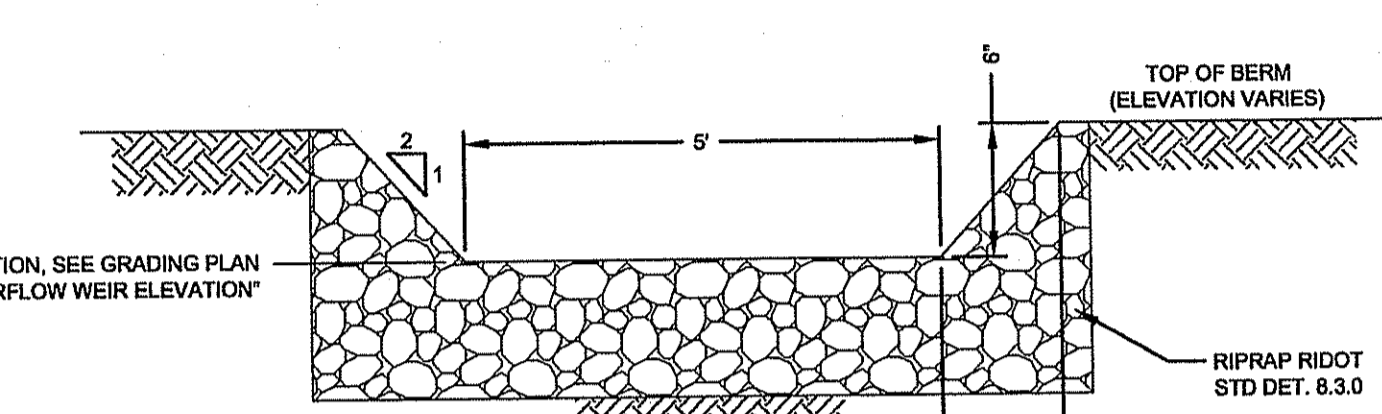
WATER QUALITY BASIN P201A SECTION

HORIZONTAL SCALE: 1" = 20'  
VERTICAL SCALE: 1" = 2'

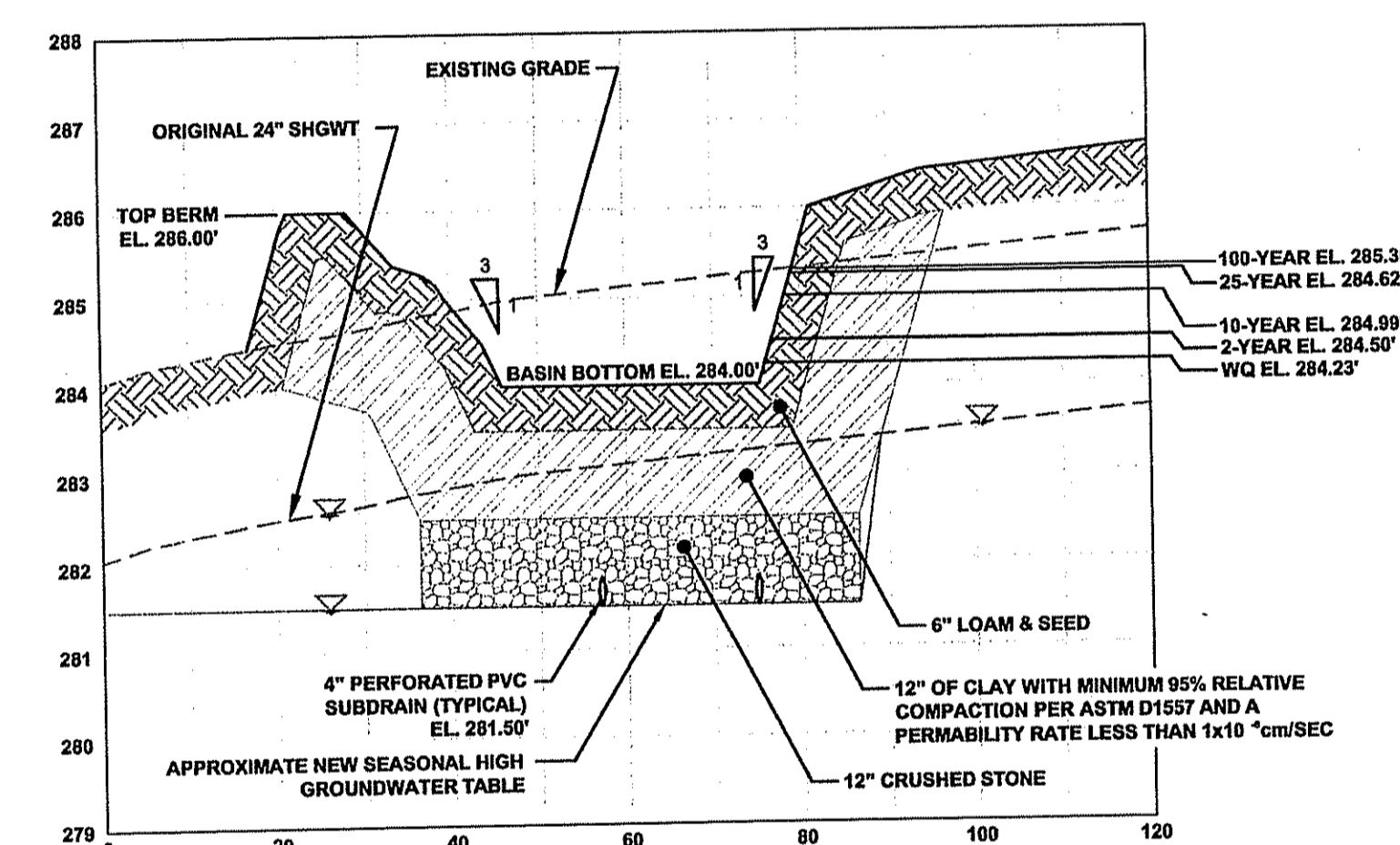


WATER QUALITY BASIN P201C SECTION

HORIZONTAL SCALE: 1" = 20'  
VERTICAL SCALE: 1" = 2'

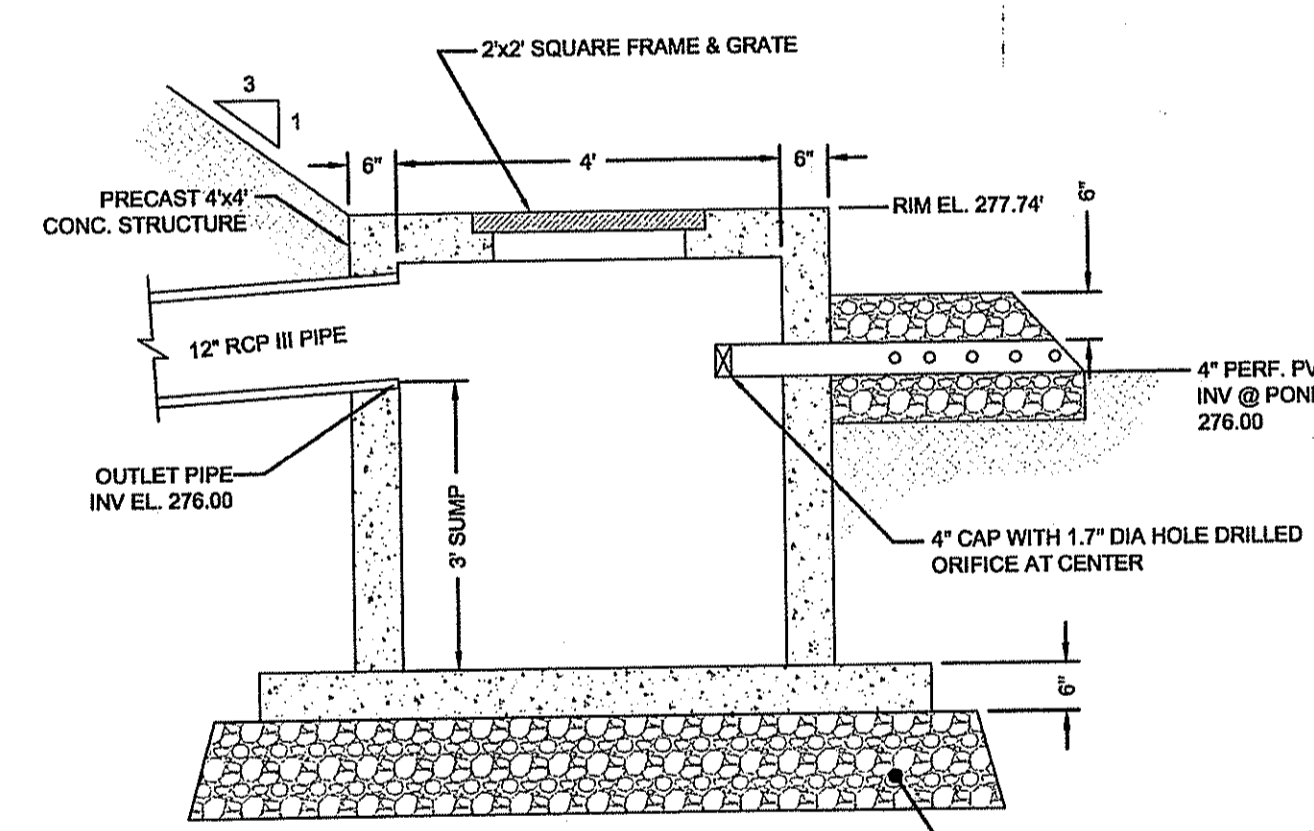


TYPICAL EMERGENCY OVERFLOW WEIR DETAIL  
SCALE N.T.S.



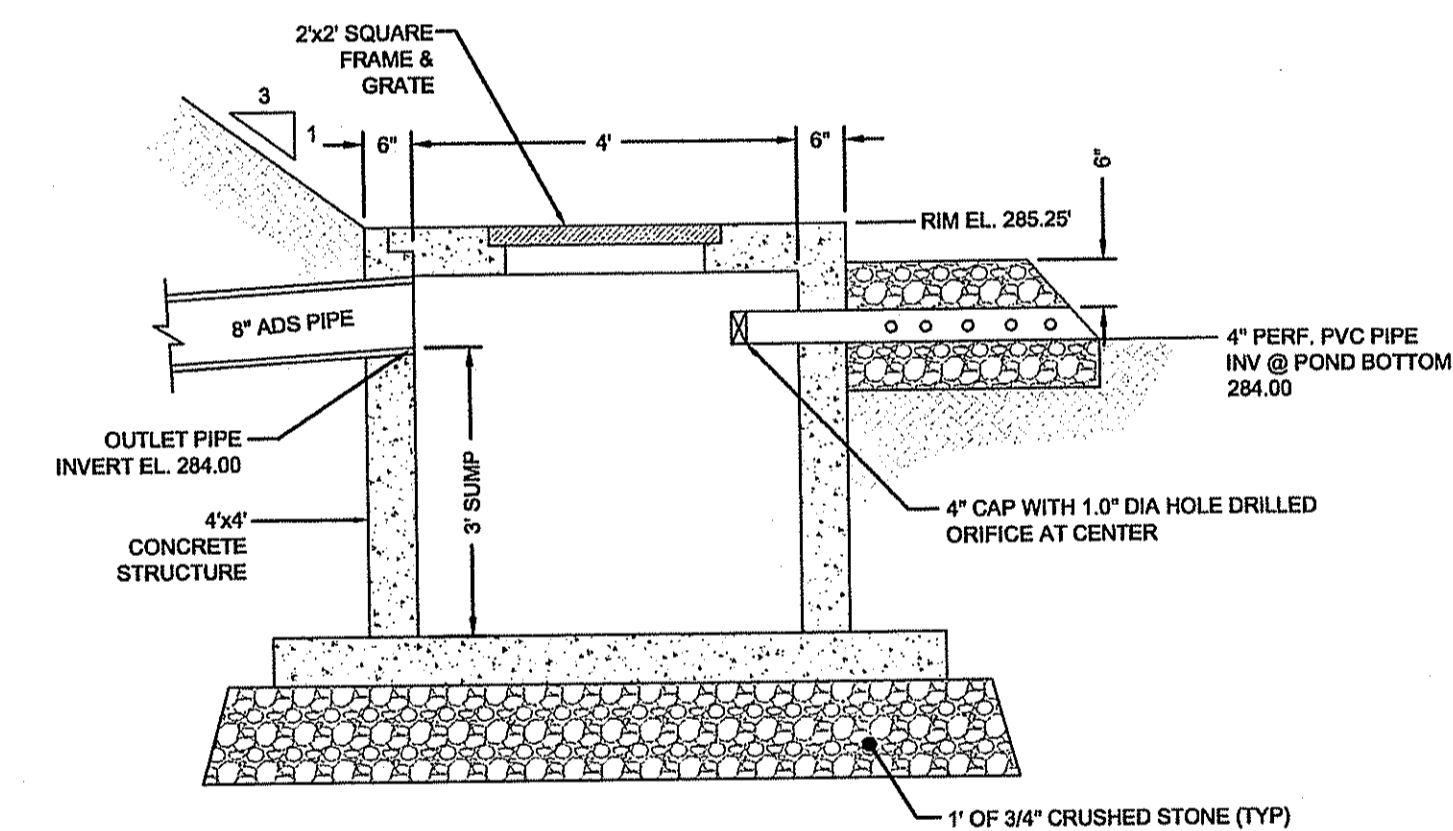
WATER QUALITY BASIN P202B SECTION

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VERTICAL SCALE: 1" = 2'



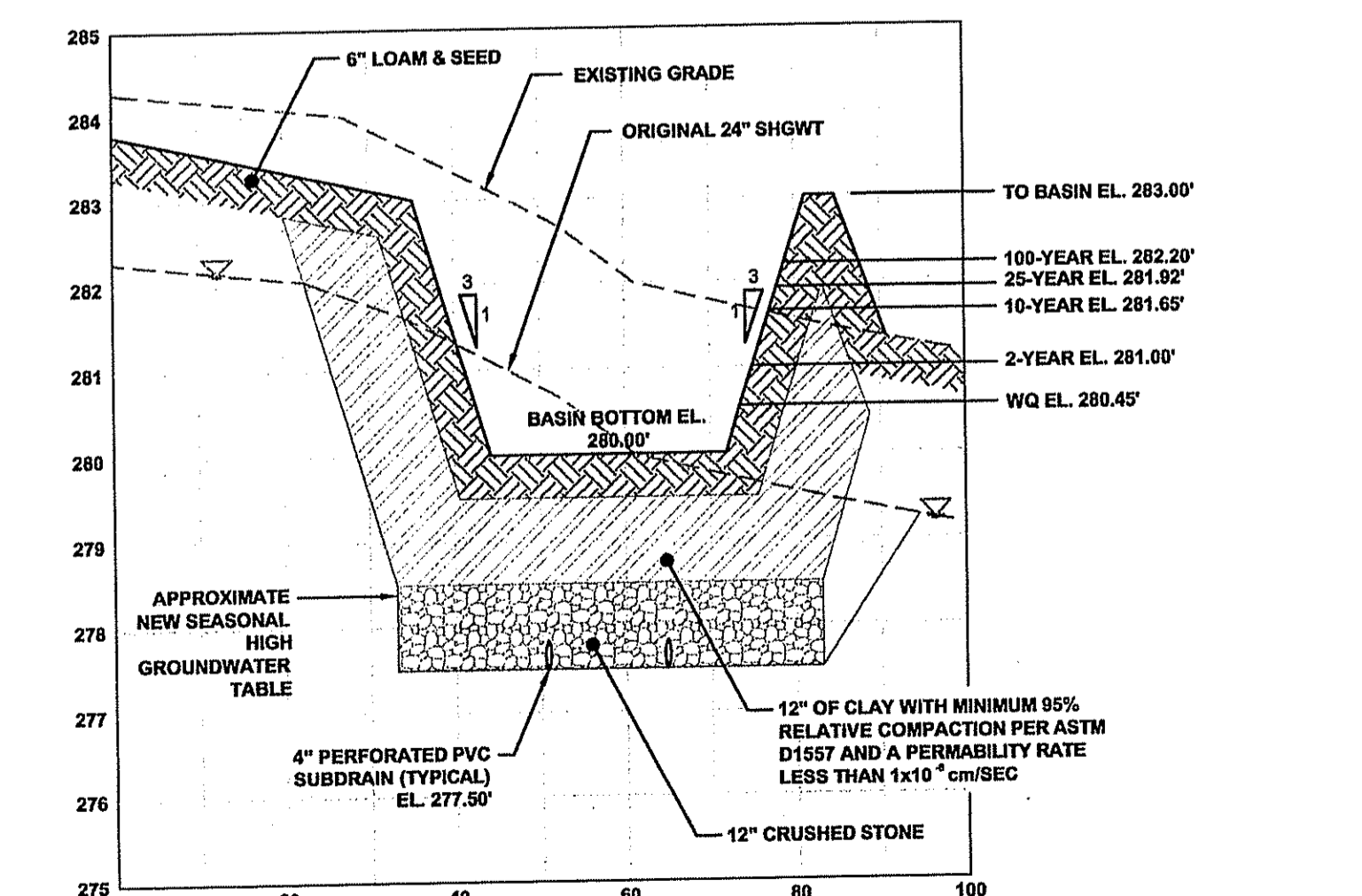
WATER QUALITY BASIN P201A SECTION

SCALE: 1" = 2'



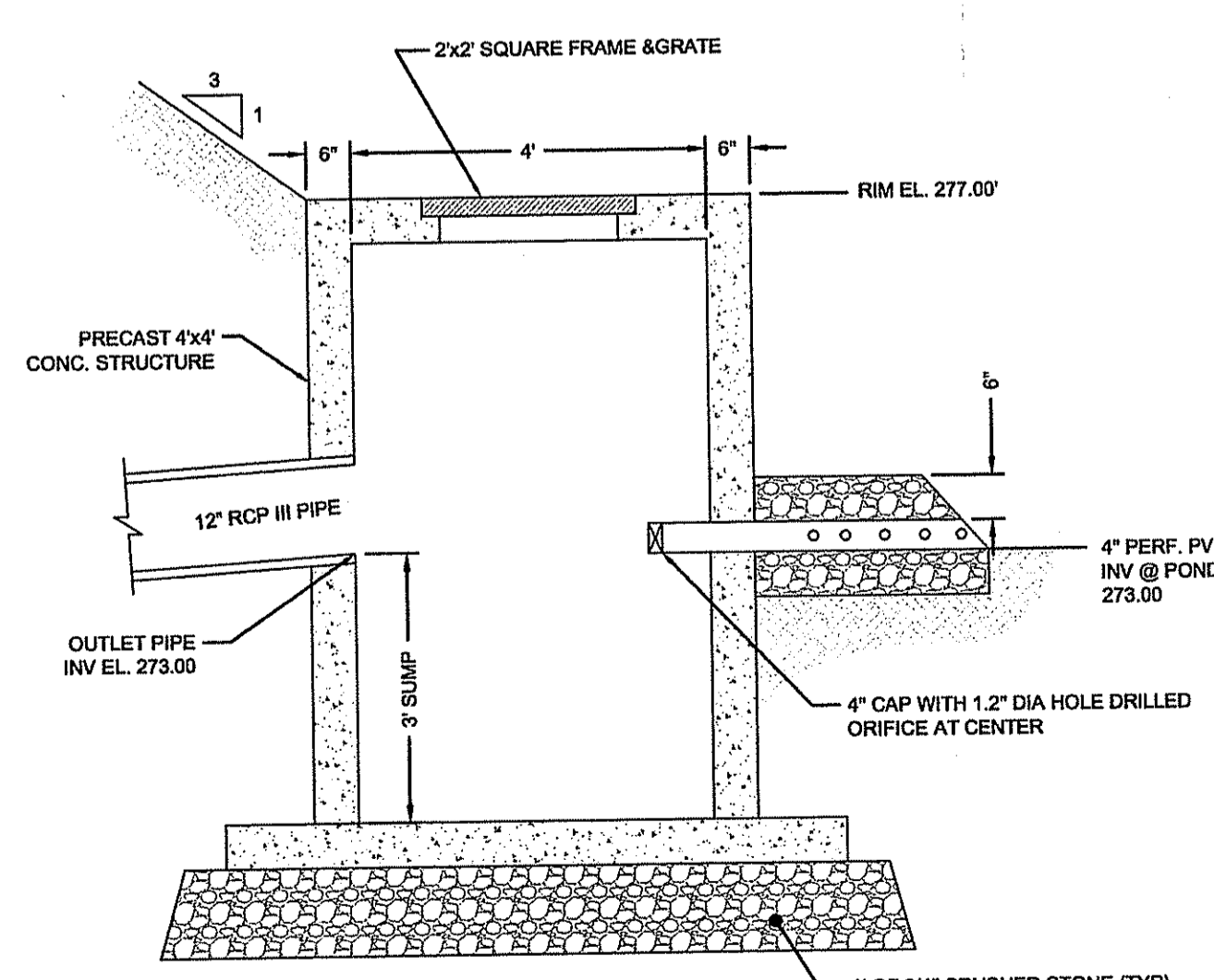
WATER QUALITY BASIN P202B SECTION

SCALE: 1" = 2'



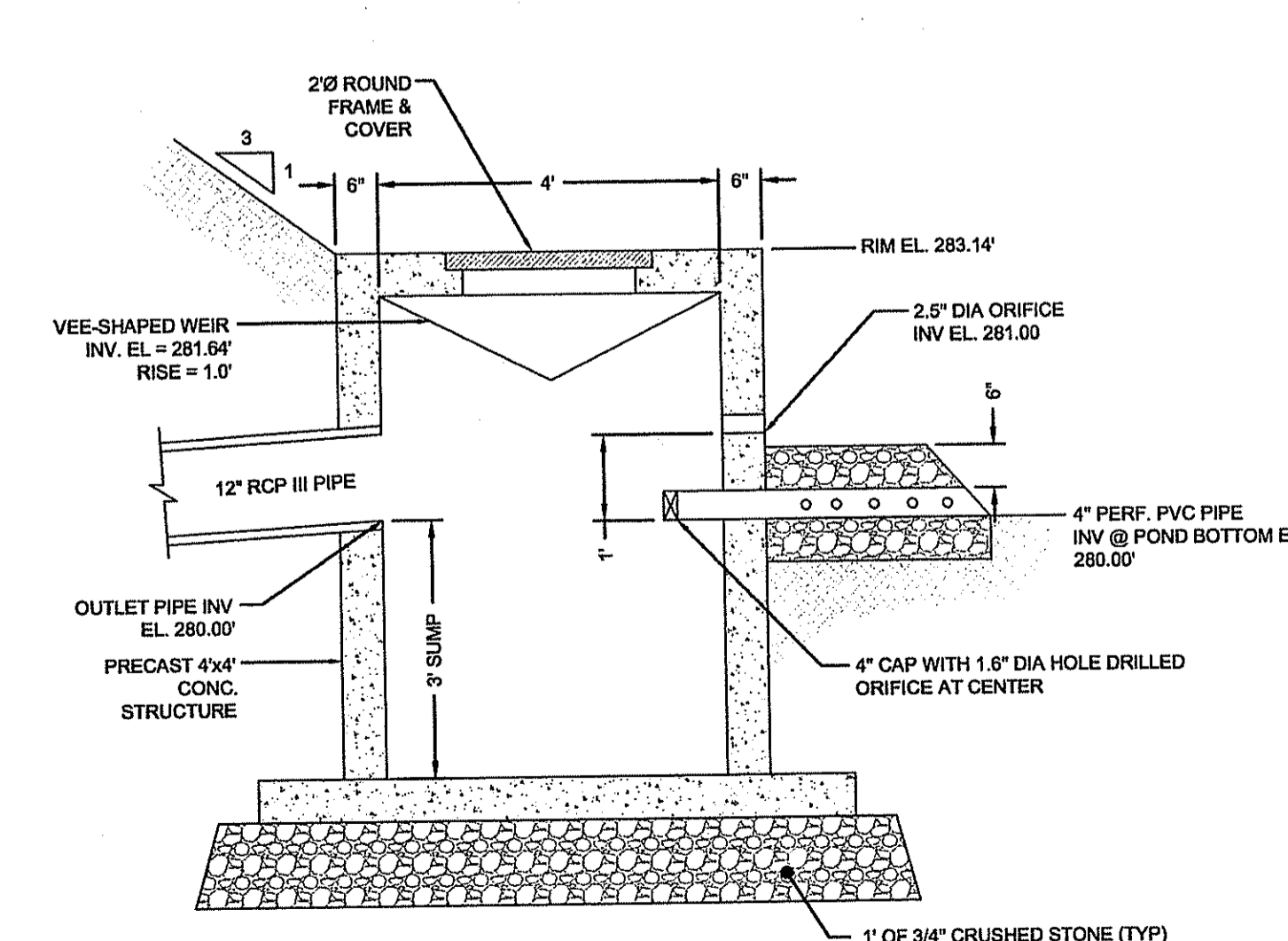
WATER QUALITY BASIN P203B SECTION

HORIZONTAL SCALE: 1" = 20'  
VERTICAL SCALE: 1" = 2'



WATER QUALITY BASIN P201C SECTION

SCALE: 1" = 2'



WATER QUALITY BASIN P203B SECTION

SCALE: 1" = 2'

1.	DEM COMMENTS	SEPT 07
No.	Revision	Date App.
Designed By:	JR	Drawn by: SMH
Checked by:		
Scale:		Date: MAY 2007
Project Title:		
<b>THE OAKS AT HARRIS ROAD</b>		
A.P. 45, LOT 92		
HARRIS ROAD		
SMITHFIELD, RI		
Client/Owner:		
KIRKPATRICK DEVELOPMENT 1300 HIGHLAND CORPORATE DRIVE CUMBERLAND, RI 02864		
Issued for:		
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT OFFICE OF WATER RESOURCES BESHWA PERMITTING PROGRAM APPROVED WITH CONDITIONS SPECIFIED IN 2008 LETTER OF APPROVAL JAN 1 2008 FILE # 07-0030		
Drawn by:		
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL APPROVED PLANS MUST BE AT CONSTRUCTION SITE		
<b>BASIN DETAILS - 1</b>		
SEP 24 2007		
Drawing Number:		
<b>C-24</b>		
Sheet:		
<b>25 of 25</b>		
Project Number:		
<b>05338.0</b>		
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