

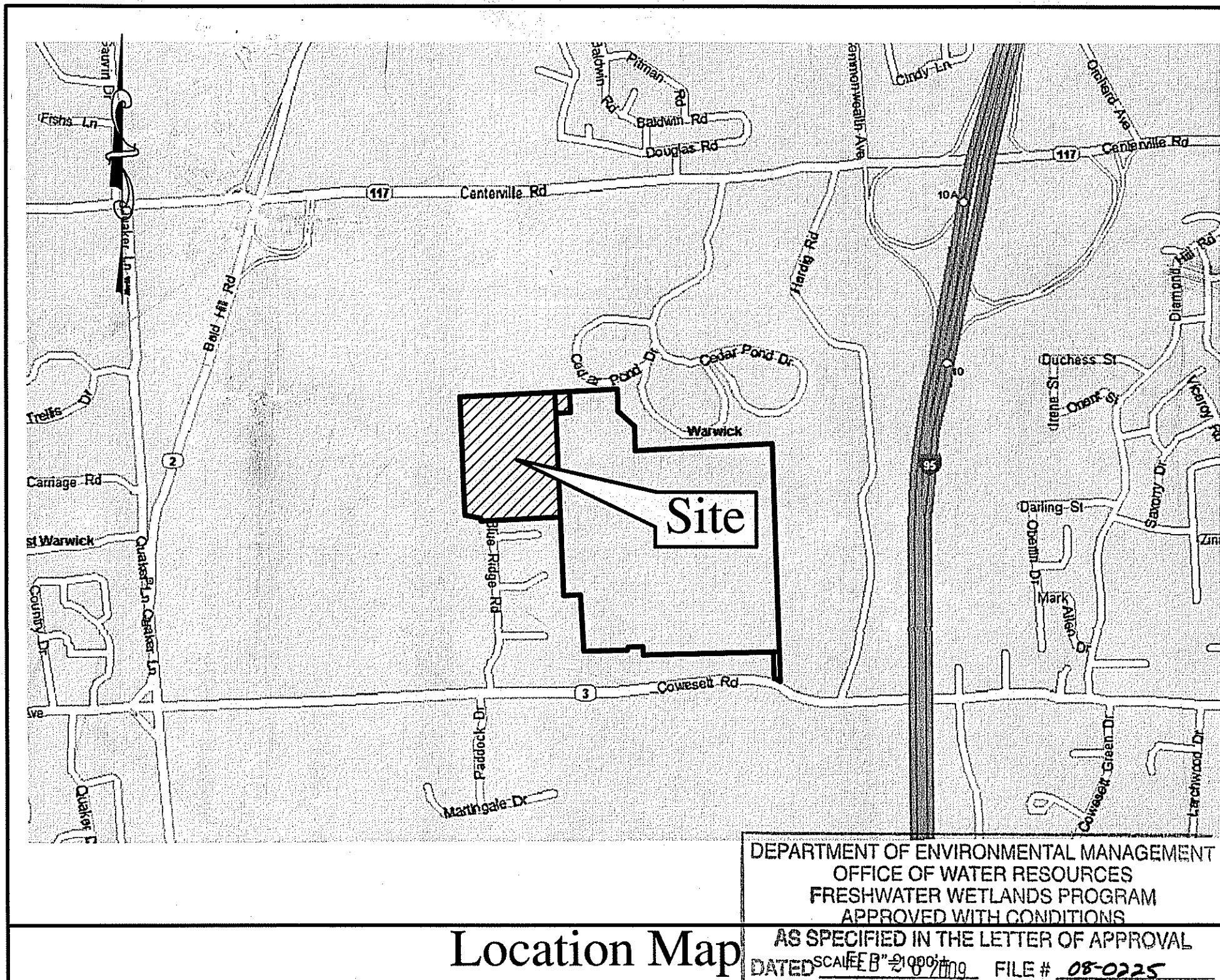
# RIDEM Preliminary Determination Submission

# Cowesett Farm

Located on Blue Ridge Road  
Warwick, Rhode Island  
Assessor's Plat 239 Lot 8 (Portion)

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NO.	DATE	DESCRIPTION	BY
1	7-12-08	RIDEM PRE-SUBMISSION	D.A.R.
2	7-12-08	RIDEM PRE-SUBMISSION	L.A.B.
3	7-12-08	RIDEM PRE-SUBMISSION	L.A.B.

COVER SHEET

**Cowesett Farm**  
ASSESSOR'S PLAT 239 LOT 8 (PORTION)  
WARWICK, RHODE ISLAND

PREPARED BY  
**DiPrete Engineering Associates, Inc.**  
ENGINEERING, SURVEYING AND PLANNING CONSULTANTS  
TWO STAFFORD COURT  
CRANSTON, R.I. 02920  
(401) 943-1000 FAX: (401) 464-6006

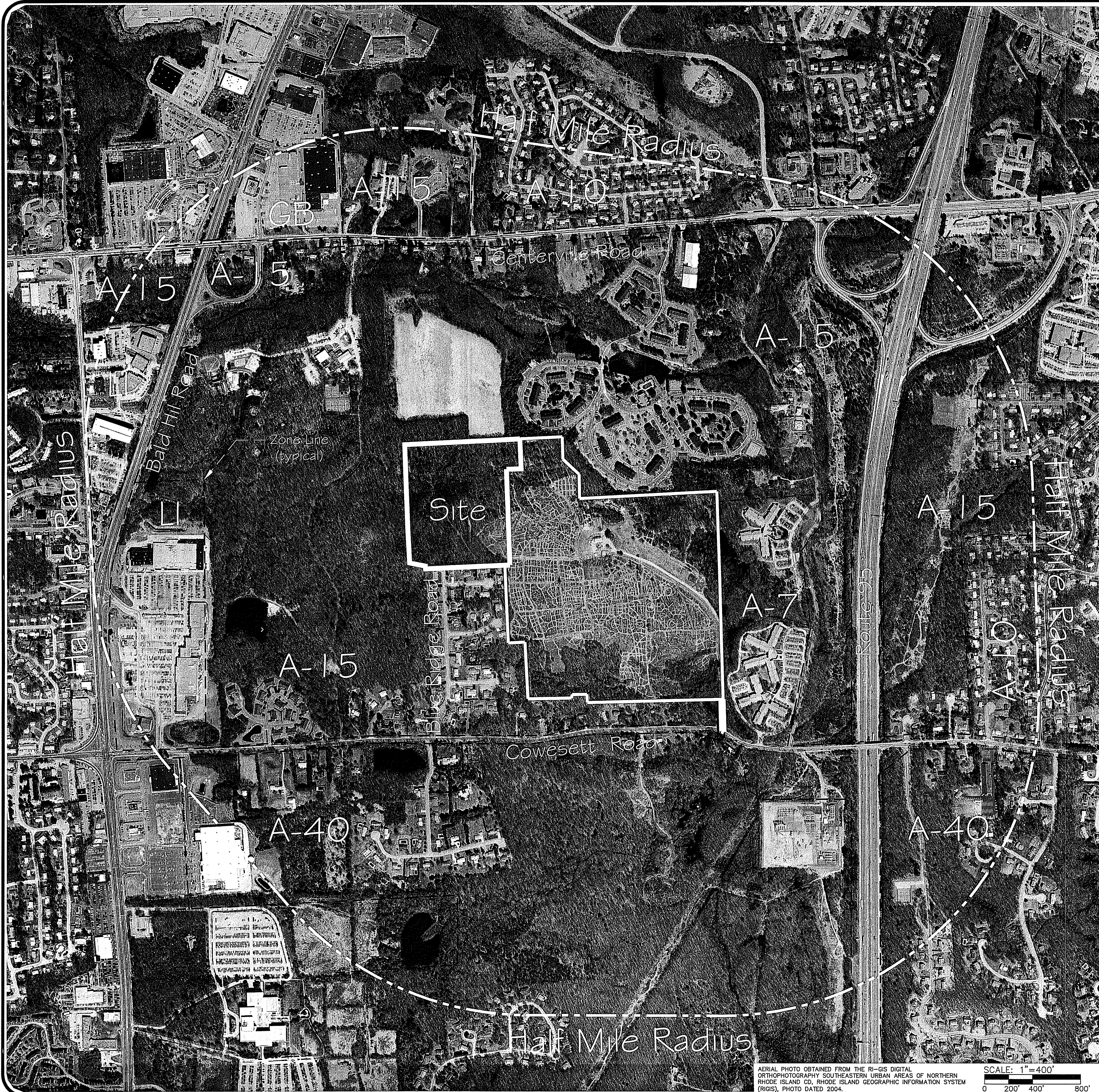
PREPARED FOR  
**Cowesett Farm, LLC**  
50 LYNCH PLACE  
CUMBERLAND, RI 02864  
PHONE: (401) 333-4300

JULY, 2008  
DWN. BY: L.A.B.

SHEET 1 OF 21

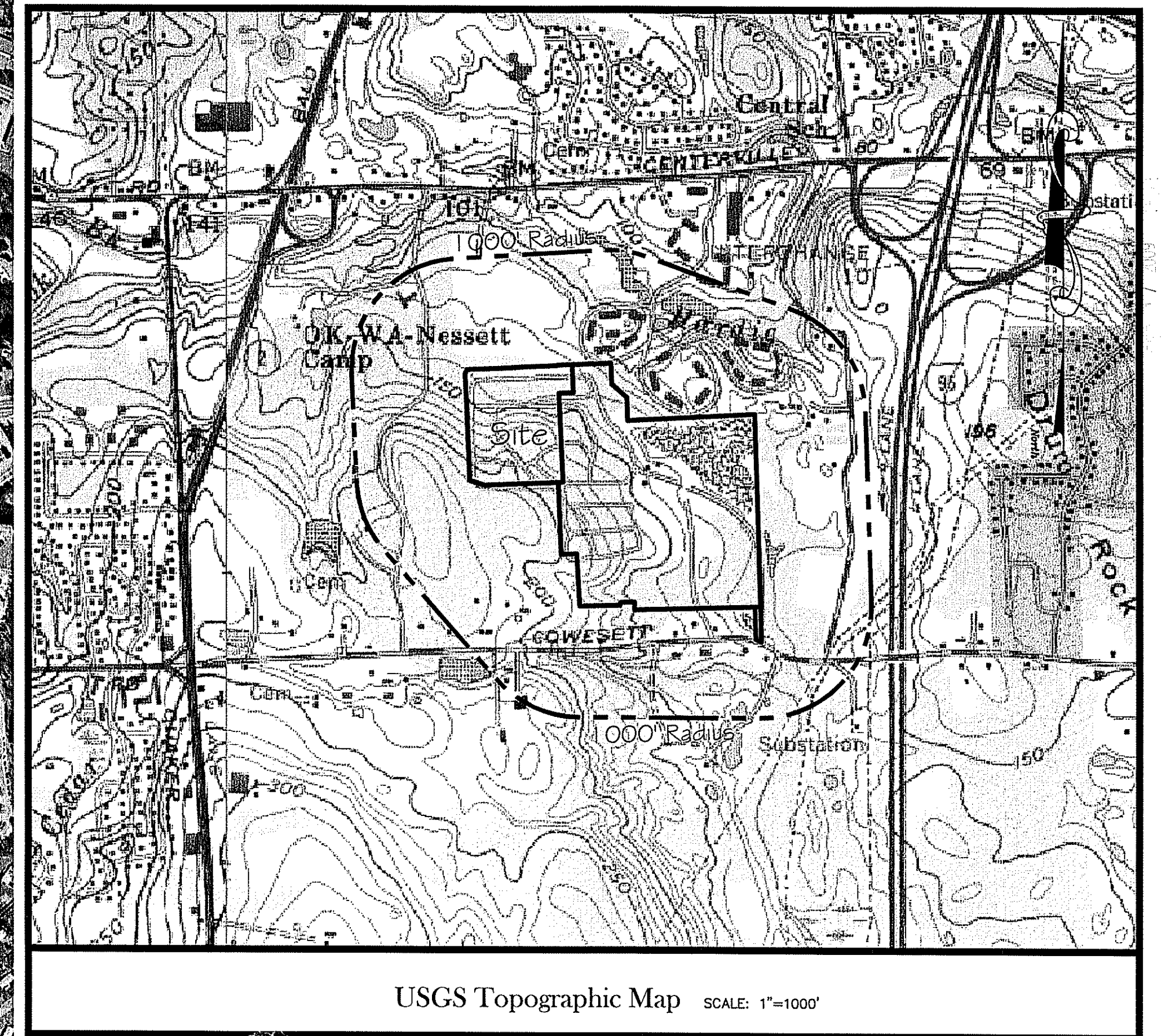


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AERIAL PHOTO OBTAINED FROM THE RI-GIS DIGITAL ORTHOPHOTOGRAPHY SOUTHEASTERN URBAN AREAS OF NORTHERN RHODE ISLAND CO. RHODE ISLAND GEOGRAPHIC INFORMATION SYSTEM (RIGIS), PHOTO DATED 2004.

SCALE: 1"=400'  
0 200' 400' 800'



USGS Topographic Map SCALE: 1"=1000'

### Legend

	EXISTING TREELINE		PROPOSED DRAINAGE PIPE
	ABUTTING PROPERTY LINE		PROPOSED DRAINAGE MANHOLE
	SOIL DIVISION LINE		PROPOSED CATCHBASIN
	EXISTING EDGE OF PAVEMENT		PROPOSED DOUBLE CATCHBASIN
	PROPERTY LINE		PROPOSED FLARED-END SECTION
	EXISTING BUILDING		PROPOSED WATER MAIN
	TWO FOOT CONTOUR		PROPOSED SUBDRAIN
	TEN FOOT CONTOUR		PROPOSED SEWER FORCE MAIN
	EDGE OF WETLAND LINE		TEST HOLES
	UTILITY POLES		CATCH BASIN
	EXISTING STONEWALL		HIGH CAPACITY CATCH BASIN
	EXISTING FENCE		DRAINAGE MANHOLE
	ASSESSOR'S PLAT		DOUBLE CATCH BASIN
	NOW OR FORMERLY		PROPOSED DRYWELL
	PROPOSED DWELLING		PROPOSED CONTOUR
	PROPOSED LIMITED OF WORK (LOW)		PROPOSED LIMITED OF CLEARING

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OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED FEB 26 2008 FILE # 08-0225  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Charles A. Durham

CHRISTOPHER A. DURHAM  
No. 5013  
REGISTERED PROFESSIONAL ENGINEER

### AERIAL HALF MILE RADIUS

### Cowesett Farm

ASSESSOR'S PLAT 239 LOT 8 (PORTION)  
WARWICK, RHODE ISLAND

PREPARED BY  
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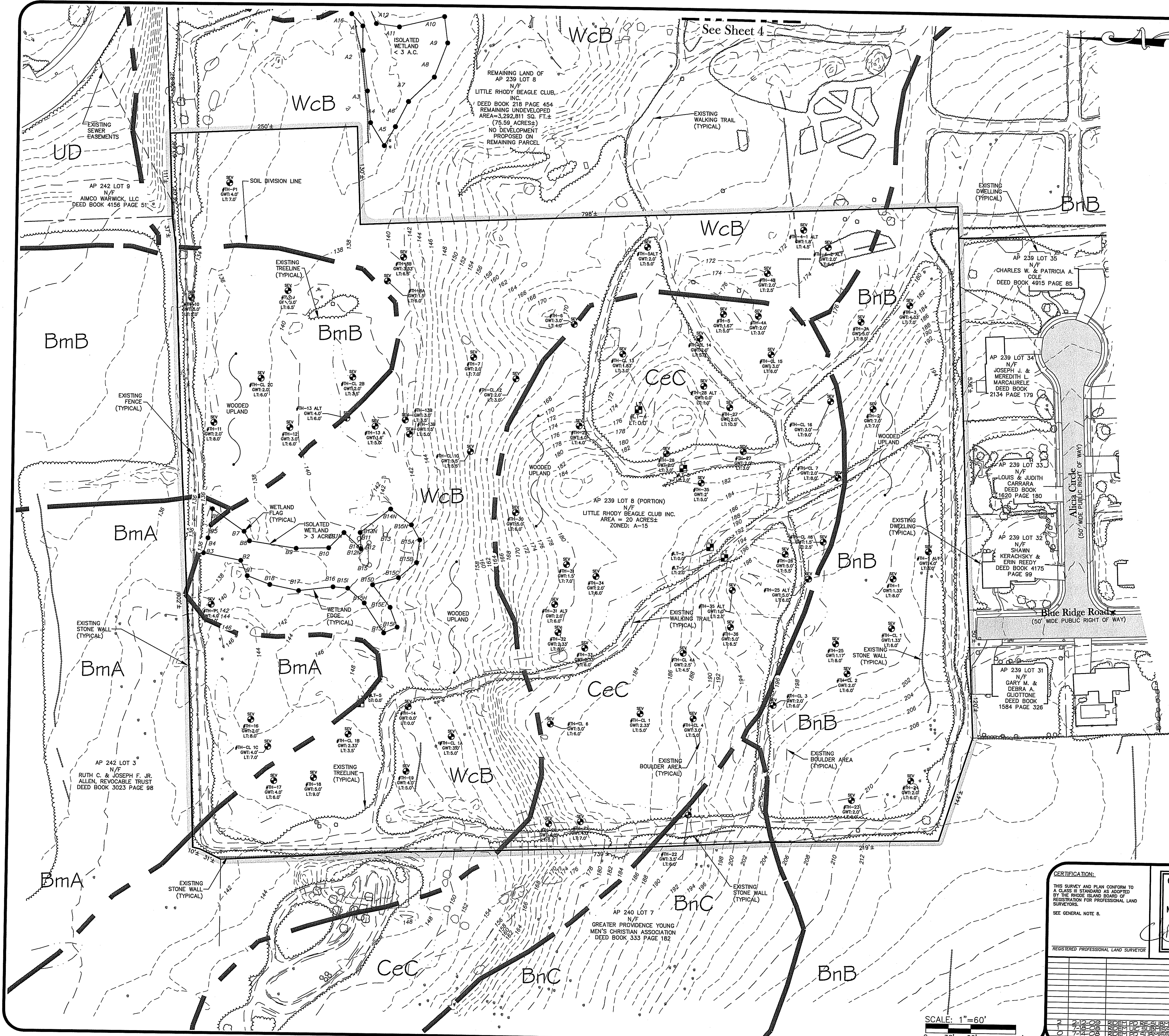
PREPARED FOR  
**Cowesett Farm, LLC**

50 LYNCH PLACE  
CUMBERLAND, RI 02864  
PHONE: (401) 333-4300

JULY, 2008  
DWN. BY: L.A.B.

SHEET 2 OF 21





- ### Existing Conditions Notes
1. THE SITE IS LOCATED ON ASSESSOR'S PLAT 239 LOT 8 (PORTION), THE OWNER OF THE PARCEL IS LITTLE RHODY BEAGLE CLUB INC., 821 COWSETT ROAD, WARWICK, RI 02886. THE APPLICANT IS COWSETT FARM, LLC, 946 CENTERVILLE ROAD, WARWICK, RI 02886.
  2. PROPERTY BOUNDARIES FOR THE REMAINDER OF AP 239 LOT 8 HAVE BEEN OBTAINED FROM EXISTING PLANS OF RECORD AND SHOULD BE CONSIDERED APPROXIMATE AT THE TIME.
  3. TOPOGRAPHIC SURVEY PREPARED BY COL EAST, INC. PO BOX 347 HARRIMAN & WEST AIRPORT, NORTH ADAMS, MA 01247. DATUM IS NAVD 88, NAVD DATUM OF 1988.
  4. THERE IS NO 100 YEAR FLOOD ZONE ON SITE. REFERENCE CITY OF WARWICK FEMA FLOOD INSURANCE RATE MAP NO. 445409-00040, APRIL 16, 1991.
  5. EDGE OF WETLANDS DELINEATED BY NATURAL RESOURCE SERVICES, INC.
  6. THE SITE IS NOT LOCATED WITHIN A HISTORIC ZONING DISTRICT OR NATIONAL REGISTER DISTRICT. NO HISTORIC CEMETERIES EXIST ON THE SITE BUT ONE CEMETERY EXISTS TO THE NORTH OF THE SITE ON THE REMAINING LAND OF LOT 8.
  7. DWELLINGS SURROUNDING THE SITE ARE SERVICED BY PUBLIC WATER AND PUBLIC SEWER.
  8. THE BOUNDARY LINES AS SHOWN ON THIS PLAN FOR THE DEVELOPMENT AREA CONFORM TO CLASS 1 STANDARD GEOMETRY; THE PLAN ITSELF CONFORMS TO A CLASS 3 STANDARD AS ADOPTED BY THE RHODE ISLAND BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS. THIS EXISTING CONDITIONS PLAN MAY NOT BE USED FOR CONVEYANCE PURPOSES. ONLY THE FINAL PLAN APPROVED BY THE PLANNING BOARD AND SUBSEQUENTLY RECORDED MAY BE USED FOR CONVEYANCE PURPOSES.

### Soil Information

SOIL MAPPING OBTAINED FROM 'SOIL SURVEY OF RHODE ISLAND', PREPARED BY U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE.

**BmA** - BRIDGEHAMPTON SILT LOAM, 0 TO 3 PERCENT SLOPES - THIS NEARLY LEVEL, WELL DRAINED TO MODERATELY WELL DRAINED SOIL IS ON CRESTS OF UPLAND HILLS. THE PERMEABILITY OF THIS SOIL IS MODERATE IN THE SURFACE LAYER AND SUBSOIL AND MODERATELY RAPID OR RAPID IN THE SUBSTRATUM. THIS SOIL IS SUITABLE FOR COMMUNITY DEVELOPMENT.

**BmB** - BRIDGEHAMPTON SILT LOAM, 3 TO 8 PERCENT SLOPES - THIS GENTLY SLOPING, WELL DRAINED TO MODERATELY WELL DRAINED SOIL IS ON SIDE SLOPES AND CRESTS OF UPLAND HILLS. THE PERMEABILITY OF THIS SOIL IS MODERATE IN THE SURFACE LAYER AND SUBSOIL AND MODERATELY RAPID OR RAPID IN THE SUBSTRATUM. THIS SOIL IS SUITABLE FOR COMMUNITY DEVELOPMENT.

**BnC** - BRIDGEHAMPTON-CHARLTON COMPLEX, VERY STONY, 0 TO 8 PERCENT SLOPES - THIS COMPLEX CONSISTS OF NEARLY LEVEL TO GENTLY SLOPING, WELL DRAINED TO MODERATELY WELL DRAINED SOILS ON SLOPES AND CRESTS OF UPLAND HILLS. THE PERMEABILITY OF THE BRIDGEHAMPTON SOILS IS MODERATE IN THE SURFACE LAYER AND SUBSOIL AND MODERATELY RAPID OR RAPID IN THE SUBSTRATUM. THE PERMEABILITY OF THE CHARLTON SOILS IS MODERATE TO MODERATELY RAPID. THIS SOIL IS SUITABLE FOR COMMUNITY DEVELOPMENT.

**CeC** - CANTON AND CHARLTON FINE SANDY LOAMS, VERY ROCKY, 3 TO 15 PERCENT SLOPES - THESE GENTLY SLOPING TO SLOPING, WELL DRAINED SOILS ARE ON SIDE SLOPES AND CRESTS OF GLACIAL UPLAND HILLS AND RIDGES. THE PERMEABILITY OF THE CANTON SOILS IS MODERATELY RAPID IN THE SURFACE LAYER AND SUBSOIL AND MODERATELY RAPID OR RAPID IN THE SUBSTRATUM. THE PERMEABILITY OF THE CHARLTON SOILS IS MODERATE TO MODERATELY RAPID. THESE SOILS ARE SUITABLE FOR COMMUNITY DEVELOPMENT.

**WcB** - WAPPING VERY STONY SILT LOAM, 0 TO 8 PERCENT SLOPES - THIS NEARLY LEVEL TO GENTLY SLOPING, MODERATELY WELL DRAINED SOIL IS ON SIDE SLOPES AND CRESTS OF GLACIAL UPLAND HILLS. THE PERMEABILITY OF THIS SOIL IS MODERATE IN THE SURFACE LAYER AND SUBSOIL AND MODERATE OR MODERATELY RAPID IN THE SUBSTRATUM. THIS SOIL IS SUITABLE FOR COMMUNITY DEVELOPMENT.

**UD** - UDORTHENTS-URBAN LAND COMPLEX, THIS COMPLEX CONSISTS OF MODERATELY WELL DRAINED TO EXCESSIVELY DRAINED SOILS THAT HAVE BEEN DISTURBED BY CUTTING OR FILLING.

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*Charles A. Duhamel*

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CERTIFICATION:

THIS SURVEY AND PLAN CONFORM TO A CLASS 3 STANDARD AS ADOPTED BY THE RHODE ISLAND BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS.

SEE GENERAL NOTE 8.

REGISTERED PROFESSIONAL LAND SURVEYOR

CHRISTOPHER A. DUHAMEL  
No. 1844  
PROFESSIONAL LAND SURVEYOR

**EXISTING CONDITIONS PLAN**

**Cowesett Farm**

ASSESSOR'S PLAT 239 LOT 8 (PORTION)  
WARWICK, RHODE ISLAND

PREPARED BY  
**DiPrete Engineering Associates, Inc.**  
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TWO STAFFORD COURT  
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(401) 943-1000 FAX: (401) 464-6006

PREPARED FOR  
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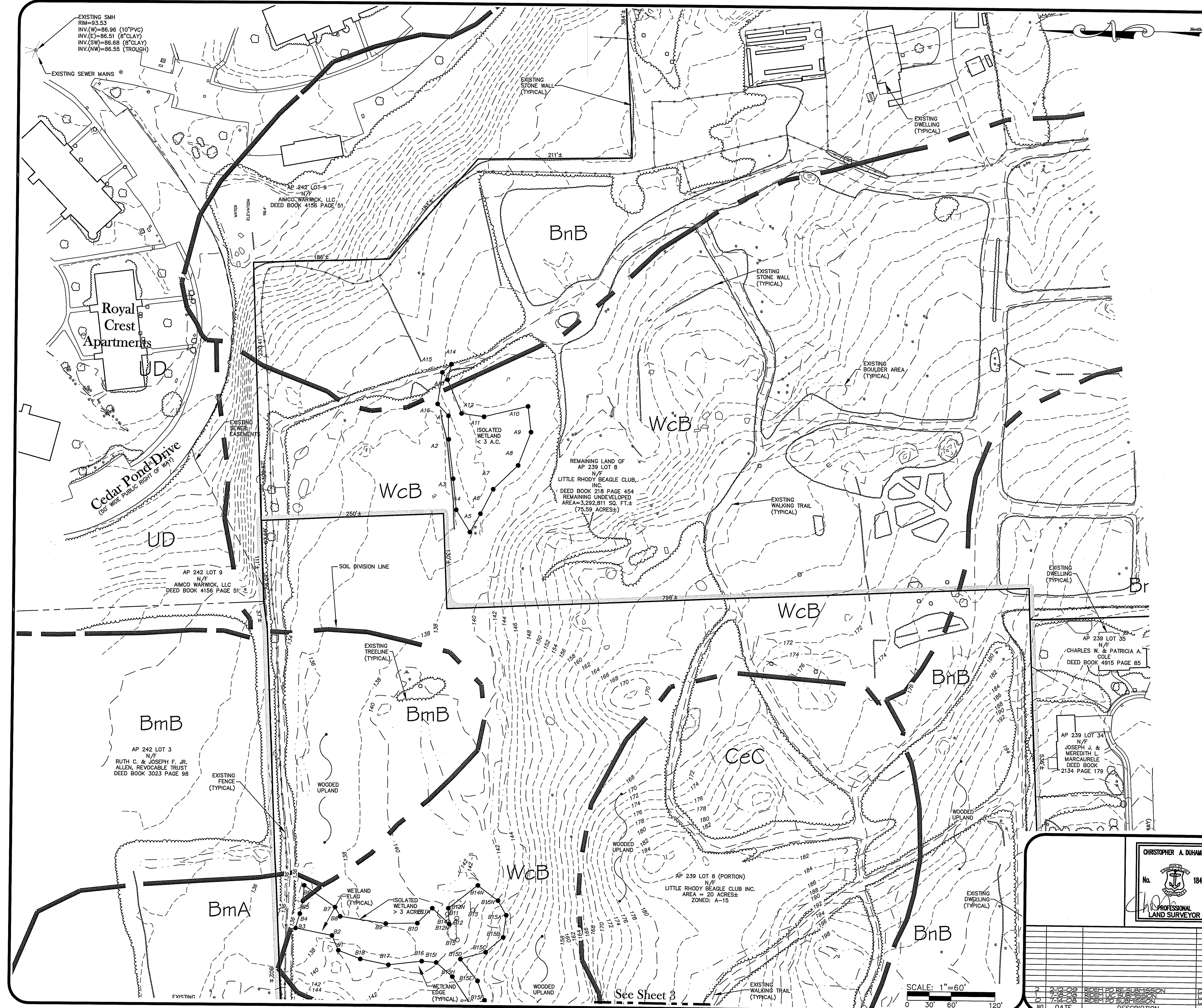
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SHEET 3 OF 21

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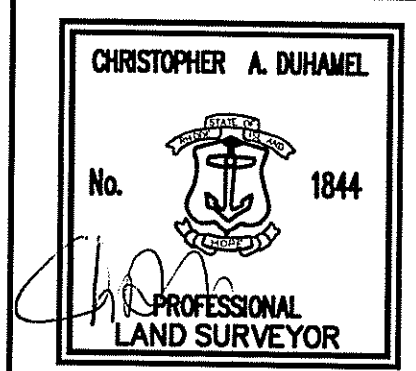


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**EXISTING CONDITIONS OFFSITE PLAN**

**Cowesett Farm**

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JULY, 2008  
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SHEET **4** OF 21







# CONSTRUCTION NOTES

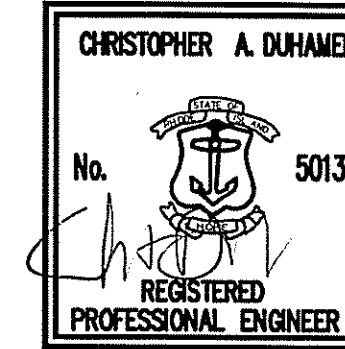
1. NO STOCKPILING OF MATERIAL IS TO BE ALLOWED WITHIN A PUBLIC R.O.W. NO OPEN TRENCHES ARE TO BE LEFT OVERNIGHT.
2. CONTRACTOR TO OBTAIN ALL FEDERAL, STATE, AND MUNICIPAL APPROVALS PRIOR TO THE START OF CONSTRUCTION.
3. THE CONTRACTOR IS TO NOTIFY THE DIRECTOR OF PUBLIC WORKS, THE TOWN ENGINEER, AND THE RIDEM AT LEAST 48 HOURS PRIOR TO THE START OF CONSTRUCTION.
4. THE DRAINAGE SYSTEM WILL BE DESIGNED TO MEET THE CITY OF WARWICK SUBDIVISION AND LAND DEVELOPMENT REGULATIONS WITH THE USE OF CATCH BASINS, CULVERTS, AND DRAINAGE BASINS. THE STORMWATER MANAGEMENT SYSTEM WILL MEET THE RIDEM BEST MANAGEMENT PRACTICES.
5. ALL EXCESS SOIL, STUMPS, TREES, ROCKS, Boulders AND OTHER REFUSE, SHALL BE DISCARDED OFF SITE IN AN APPROVED MANNER AT AN APPROVED LOCATION.
6. ALL LOAM IN DISTURBED AREAS TO BE STOCKPILED FOR FUTURE USE.
7. ALL STEEP SLOPES ARE SHOWN SCHEMATICALLY ONLY AND DIPRETE ENGINEERING ASSOCIATES, INC. IS NOT PROVIDING THE DESIGN OF THESE ITEMS. THE ACTUAL SLOPES ARE TO BE BUILT UNDER THE DIRECTION OF A GEOTECHNICAL ENGINEER AND CERTIFIED TO THE OWNER PRIOR TO THE COMPLETION OF THE PROJECT. SHOP DRAWINGS TO BE SUBMITTED PRIOR TO CONSTRUCTION.
8. ALL CUT AND FILL AREAS ARE TO BE DONE UNDER THE DIRECTION OF A GEOTECHNICAL ENGINEER WITH TESTING AND CERTIFICATION TO BE PROVIDED TO THE OWNER AT THE COMPLETION OF THE PROJECT. DIPRETE ENGINEERING ASSOCIATES, INC. HAS NOT PROVIDED THE FILL SPECIFICATION, GEOTECHNICAL ENGINEERING, STRUCTURAL ENGINEERING SERVICES, OR SUPERVISION AS PART OF THESE DRAWINGS.
9. UTILITY INFORMATION SHOWN IS BASED ON BOTH FIELD SURVEY AND PLANS OF RECORD. THE LOCATIONS OF UNDERGROUND PIPES AND CONDUITS HAVE BEEN DETERMINED FROM AFOREMENTIONED RECORD PLANS AND ARE APPROXIMATE ONLY. PRIOR TO CONSTRUCTION, THE PROPER UTILITY ENGINEERING DEPARTMENTS SHALL BE CONTACTED AND THE ACTUAL LOCATION OF SUBSURFACE STRUCTURES SHALL BE DETERMINED IN THE FIELD. CALL TOLL FREE THE DIG SAFE CENTER AT 1-888-344-7233, 72 HOURS PRIOR TO EXCAVATION. ANY DAMAGE TO UTILITIES WHICH ARE SHOWN ON THE PLANS OR DETAILED BY DIG SAFE SHALL BE THE SITE CONTRACTORS RESPONSIBILITY.
10. ALL EXISTING UTILITIES SHOWN ARE SCHEMATIC IN NATURE AND DIPRETE ENGINEERING ASSOCIATES, INC. DOES NOT CERTIFY ITS ACCURACY. THE CONTRACTOR IS TO VERIFY THE UTILITY LOCATIONS PRIOR TO THE START OF CONSTRUCTION.

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*Charles A. Duhamel*



## GRADING PLAN

### Cowesett Farm

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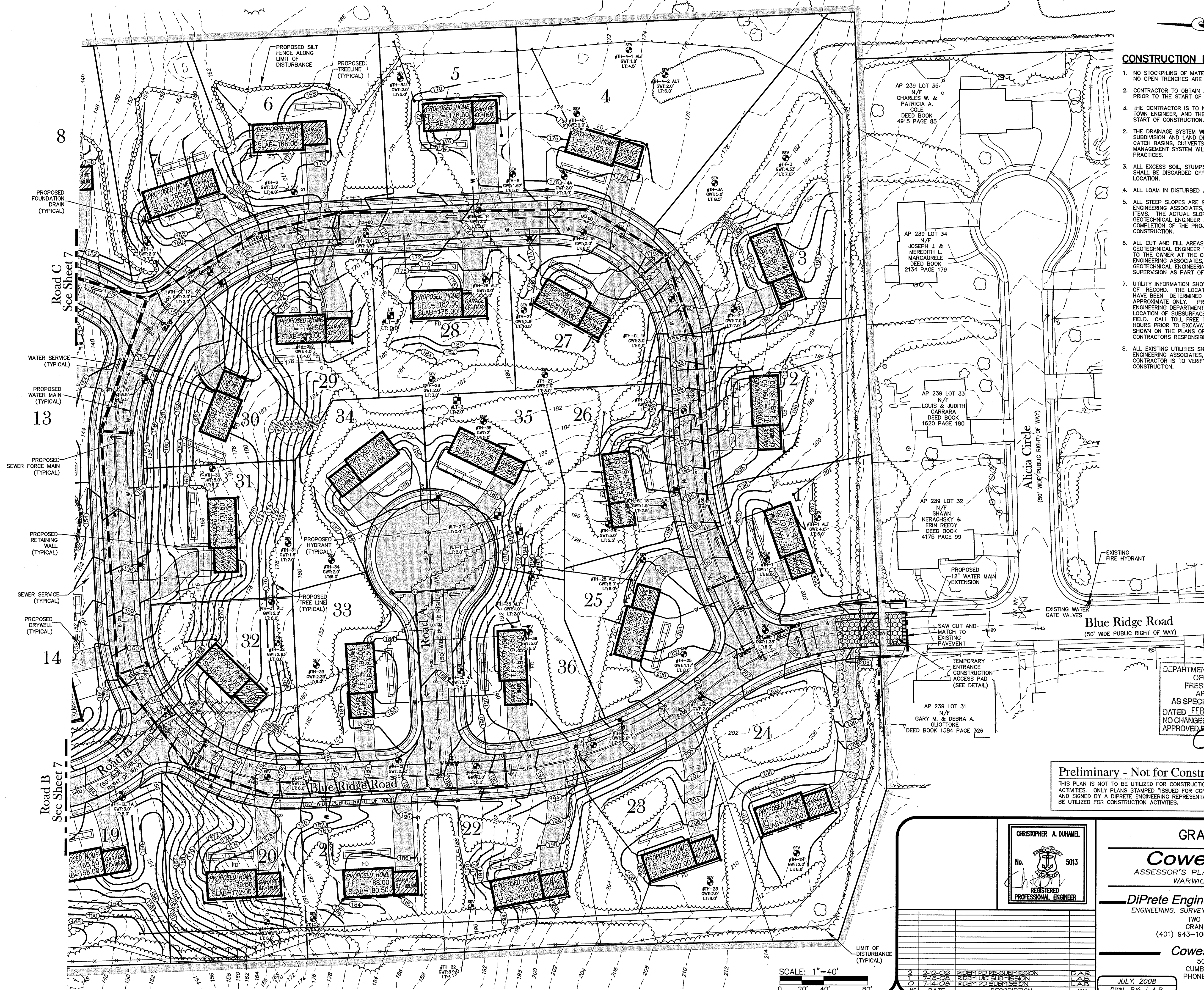
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JULY, 2008  
DWN. BY: L.A.B.

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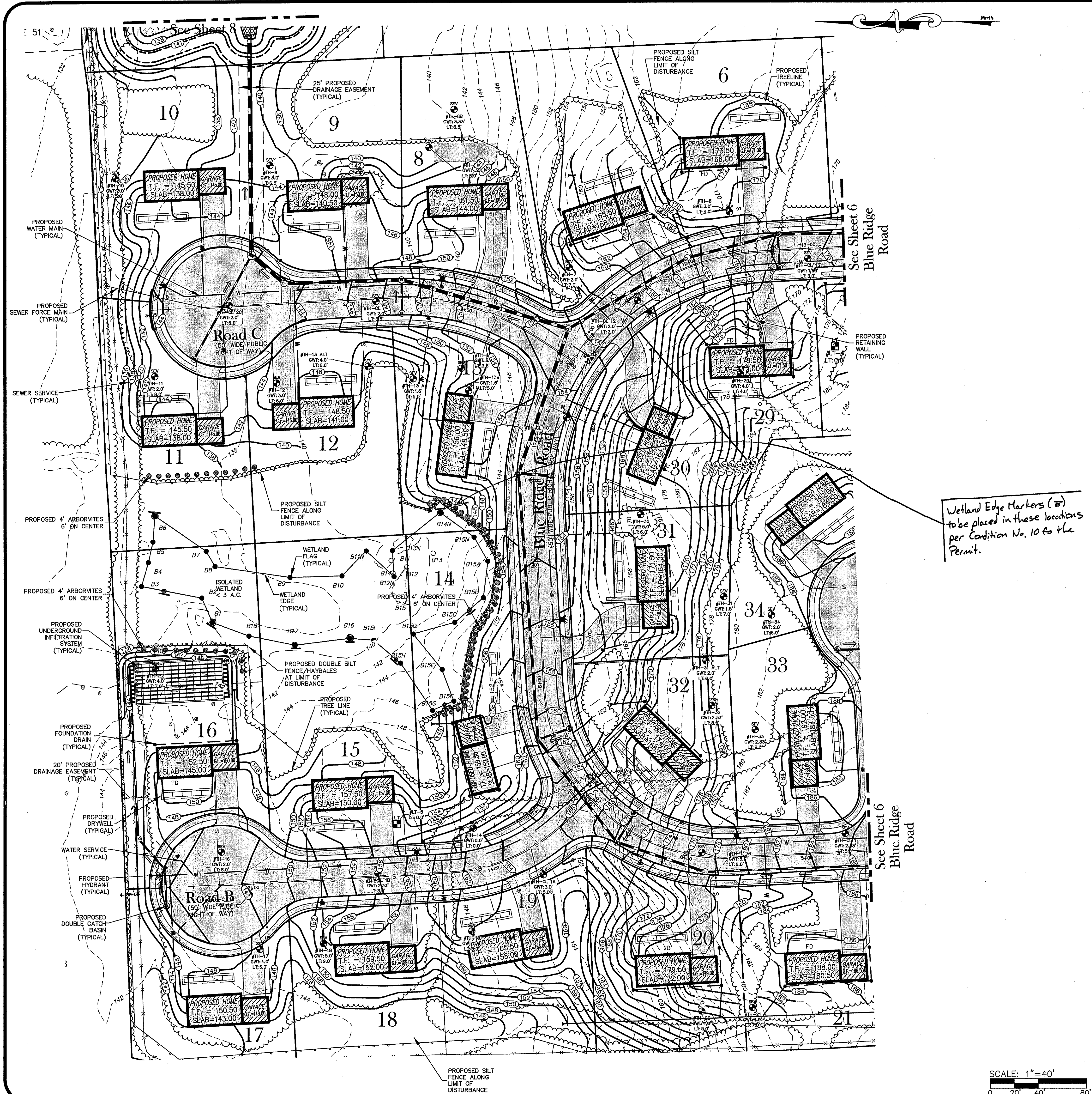


SCALE: 1"=40'  
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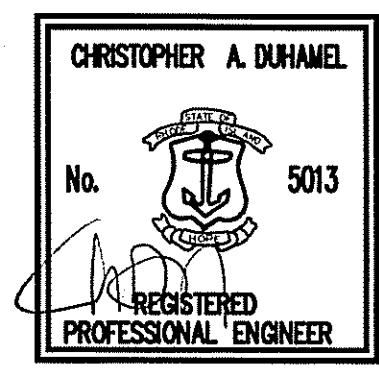
Wetland Edge Markers (B) to be placed in these locations per Condition No. 10 to the Permit.

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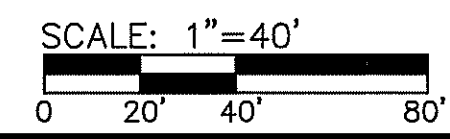
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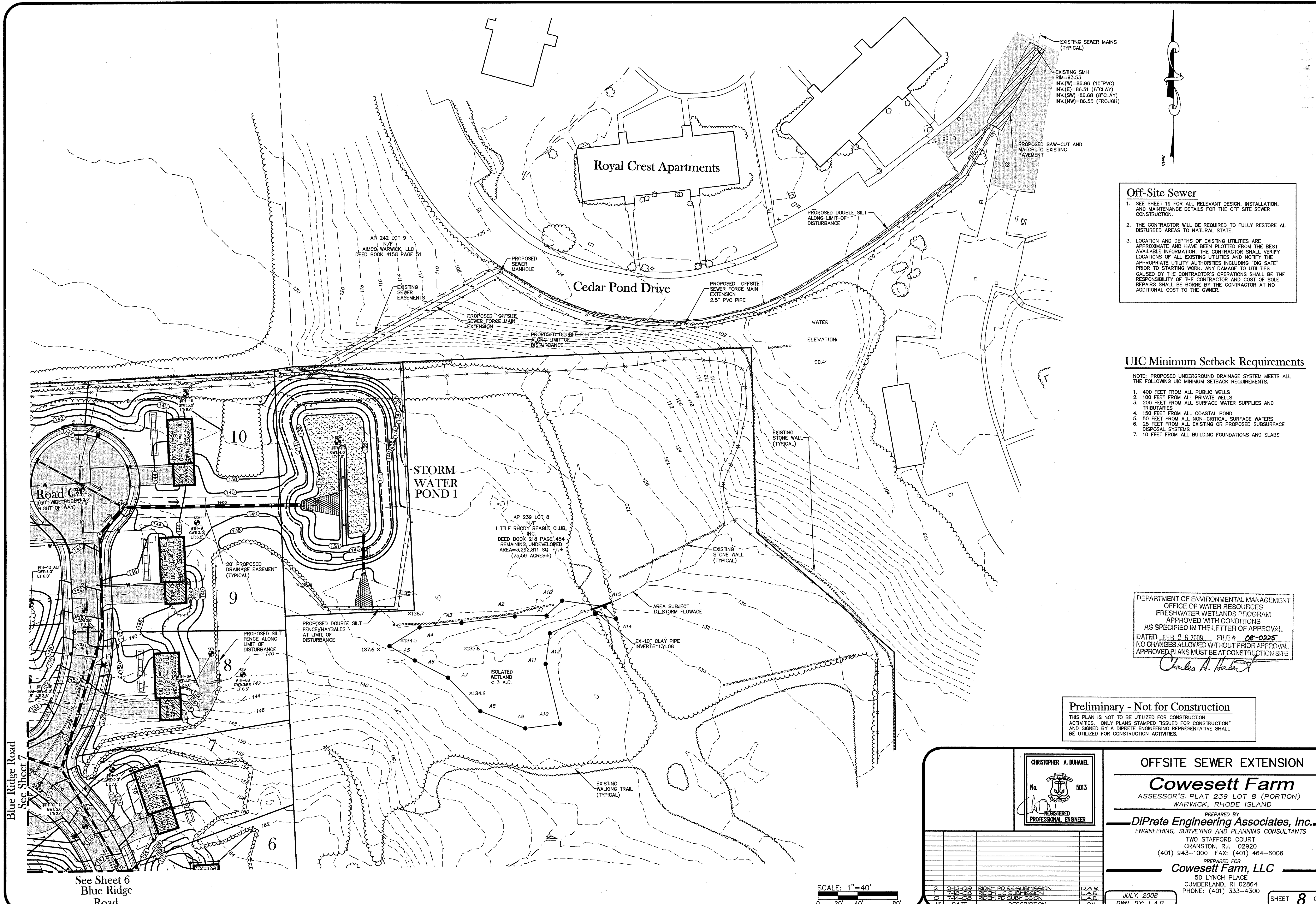
SHEET 7 OF 21

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2	2-12-08	REDM PD RE-SUBMISSION	DAR
1	7-18-08	REDM DC SUBMISSION	L.A.B.
0	7-14-08	REDM PD SUBMISSION	L.A.B.





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**Off-Site Sewer**

- SEE SHEET 19 FOR ALL RELEVANT DESIGN, INSTALLATION, AND MAINTENANCE DETAILS FOR THE OFF SITE SEWER CONSTRUCTION.
- THE CONTRACTOR WILL BE REQUIRED TO FULLY RESTORE ALL DISTURBED AREAS TO NATURAL STATE.
- LOCATION AND DEPTHS OF EXISTING UTILITIES ARE APPROXIMATE AND HAVE BEEN PLOTTED FROM THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL VERIFY LOCATIONS OF ALL EXISTING UTILITIES AND NOTIFY THE APPROPRIATE UTILITY AUTHORITIES INCLUDING "DIG SAFE" PRIOR TO STARTING WORK. ANY DAMAGE TO UTILITIES CAUSED BY THE CONTRACTOR'S OPERATIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND COST OF SOLE REPAIRS SHALL BE BORNE BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

**UIC Minimum Setback Requirements**

NOTE: PROPOSED UNDERGROUND DRAINAGE SYSTEM MEETS ALL THE FOLLOWING UIC MINIMUM SETBACK REQUIREMENTS.

- 400 FEET FROM ALL PUBLIC WELLS
- 100 FEET FROM ALL PRIVATE WELLS
- 200 FEET FROM ALL SURFACE WATER SUPPLIES AND TRIBUTARIES
- 150 FEET FROM ALL COASTAL POND
- 50 FEET FROM ALL NON-CRITICAL SURFACE WATERS
- 25 FEET FROM ALL EXISTING OR PROPOSED SUBSURFACE DISPOSAL SYSTEMS
- 10 FEET FROM ALL BUILDING FOUNDATIONS AND SLABS

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CHRISTOPHER A. DUHAMEL  
No. 5013  
REGISTERED PROFESSIONAL ENGINEER

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0	7-24-08	RIDEM PD SUBMISSION	L.A.B.

**OFFSITE SEWER EXTENSION**

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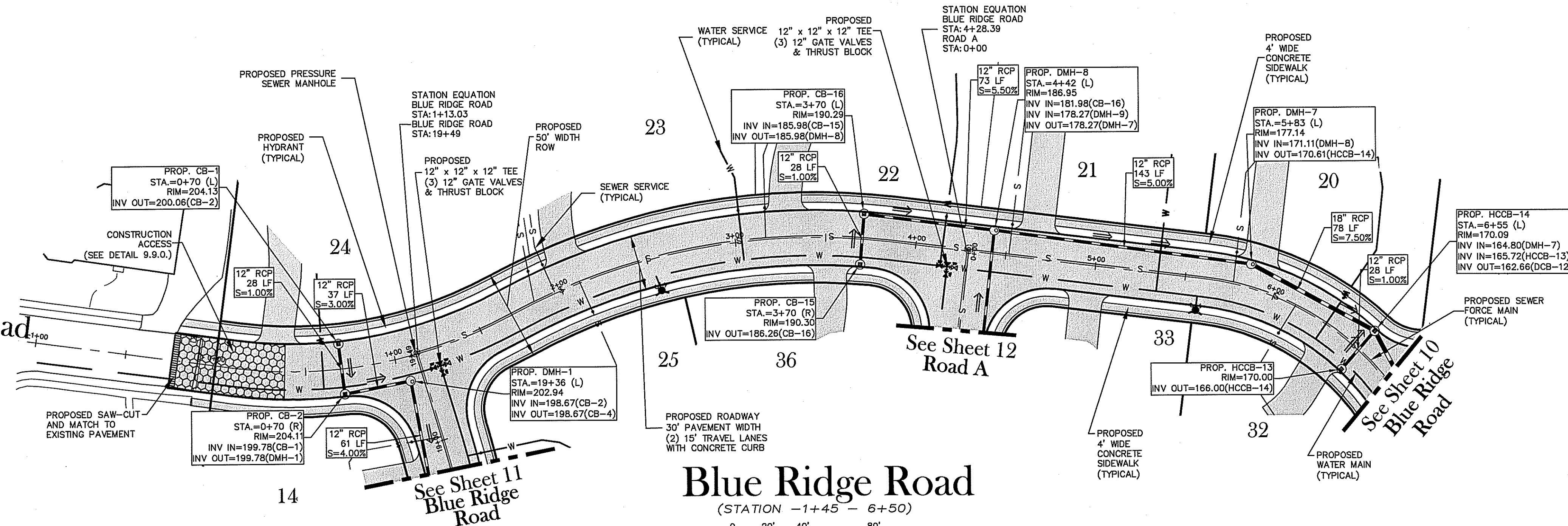
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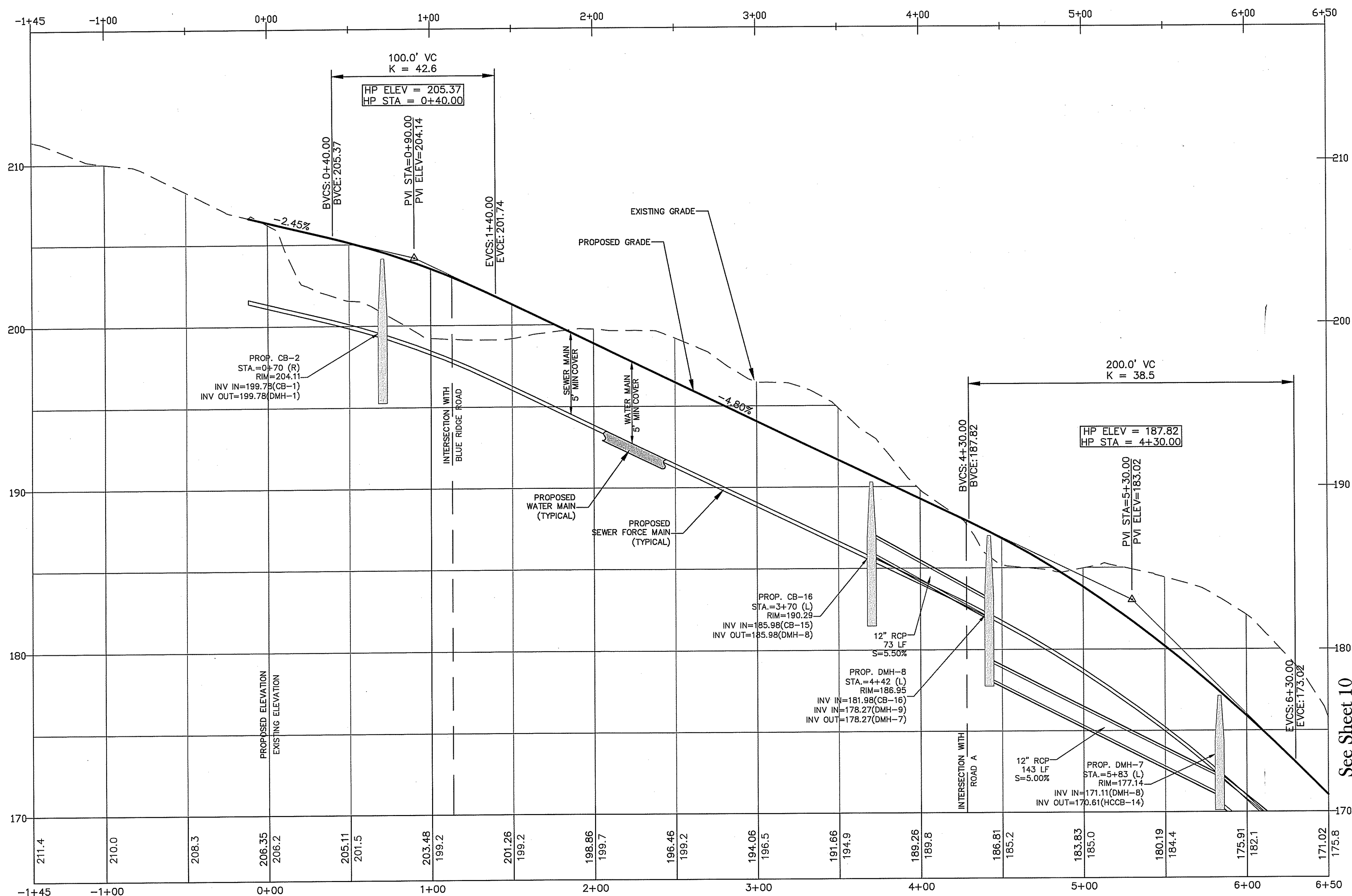
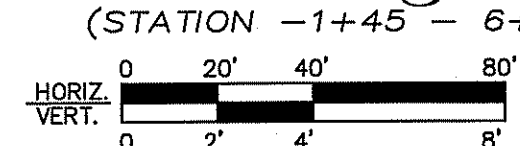
SHEET **8** OF 21



Blue Ridge Road  
(50' WIDE PUBLIC RIGHT OF WAY)



Blue Ridge Road  
(STATION -1+45 - 6+50)

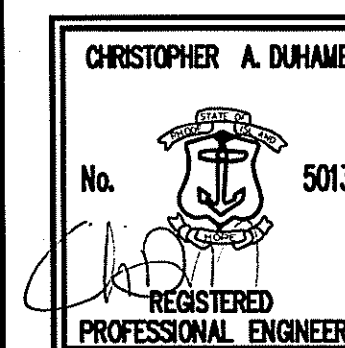


DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED FEB 26 2009 FILE # 08-0225  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

*Charles A. Hulse*

Preliminary - Not for Construction

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PLAN & PROFILE - BLUE RIDGE 0+00 - 6+50

**Cowesett Farm**

ASSESSOR'S PLAT 239 LOT 8 (PORTION)  
WARWICK, RHODE ISLAND

PREPARED BY  
**DiPrete Engineering Associates, Inc.**  
ENGINEERING, SURVEYING AND PLANNING CONSULTANTS

TWO STAFFORD COURT  
CRANSTON, R.I. 02920  
(401) 943-1000 FAX: (401) 464-6006

PREPARED FOR

**Cowesett Farm, LLC**

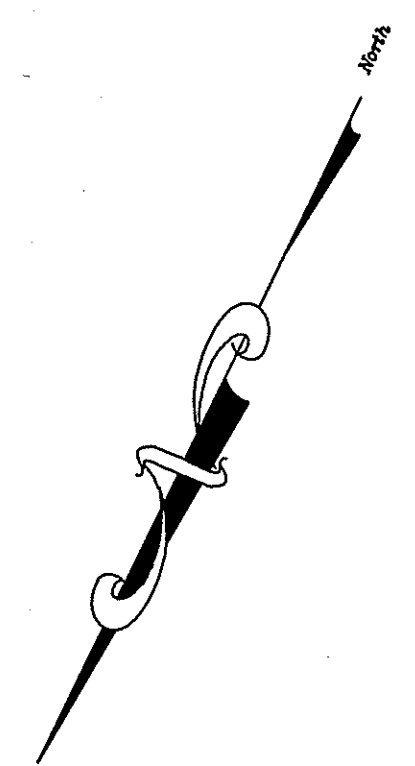
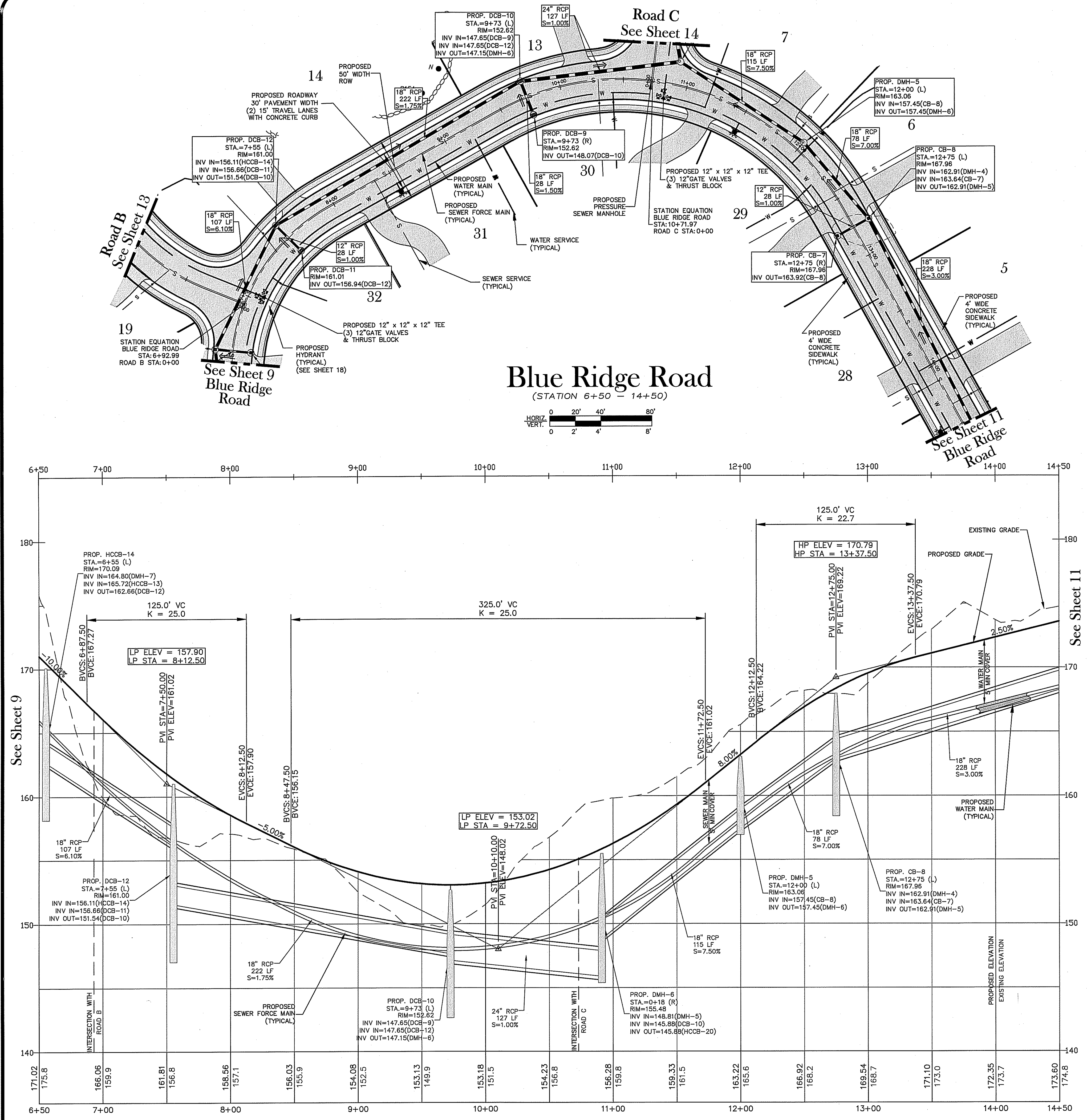
50 LYNCH PLACE  
CUMBERLAND, RI 02864  
PHONE: (401) 333-4300

JULY, 2008  
DWN. BY: L.A.B.

SHEET 9 OF 21



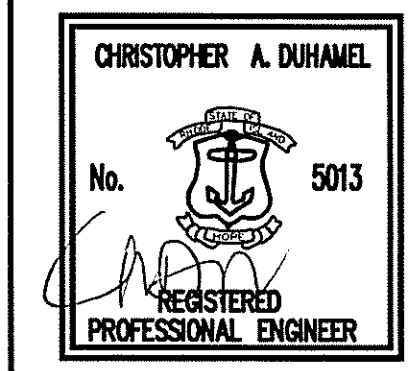
FEB 17 2009



DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED FEB 26 2009 FILE # **08-0225**  
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*Charles A. Harte*

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**PLAN & PROFILE - BLUE RIDGE 6+50 - 14+50**

**Cowesett Farm**  
ASSESSOR'S PLAT 239 LOT 8 (PORTION)  
WARWICK, RHODE ISLAND

PREPARED BY  
**DiPrete Engineering Associates, Inc.**  
ENGINEERING, SURVEYING AND PLANNING CONSULTANTS  
TWO STAFFORD COURT  
CRANSTON, R.I. 02920  
(401) 943-1000 FAX: (401) 464-6006

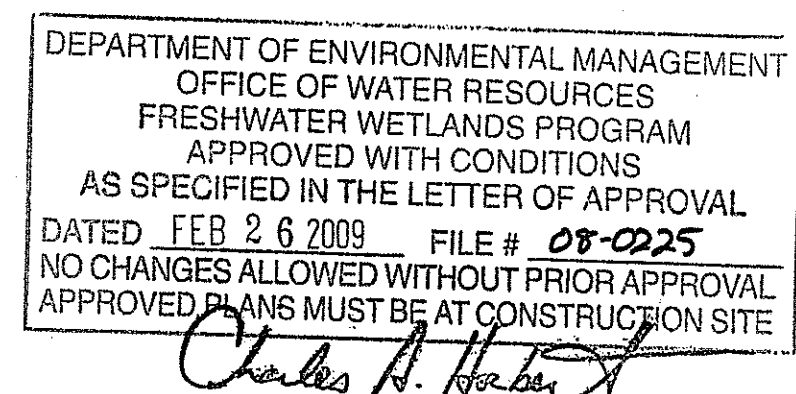
PREPARED FOR  
**Cowesett Farm, LLC**  
50 LYNCH PLACE  
CUMBERLAND, RI 02864  
PHONE: (401) 333-4300

NO.	DATE	DESCRIPTION	BY
1	2-12-08	RECEIVED FOR SUBMISSION	PAR
2	2-12-08	RECEIVED FOR SUBMISSION	LAB
3	2-12-08	RECEIVED FOR SUBMISSION	LAB
4	2-12-08	RECEIVED FOR SUBMISSION	LAB
5	2-12-08	RECEIVED FOR SUBMISSION	LAB
6	2-12-08	RECEIVED FOR SUBMISSION	LAB
7	2-12-08	RECEIVED FOR SUBMISSION	LAB
8	2-12-08	RECEIVED FOR SUBMISSION	LAB
9	2-12-08	RECEIVED FOR SUBMISSION	LAB
10	2-12-08	RECEIVED FOR SUBMISSION	LAB









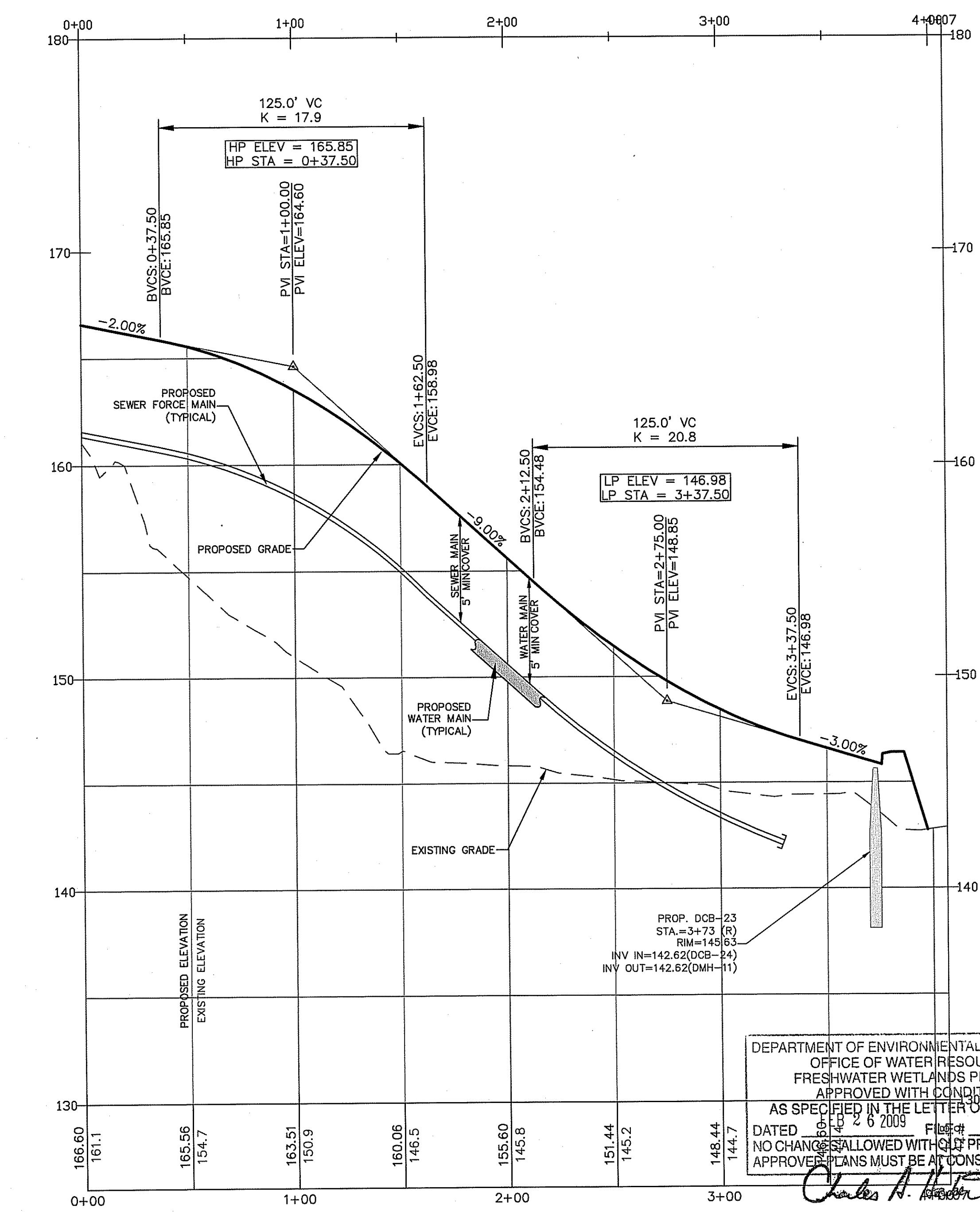
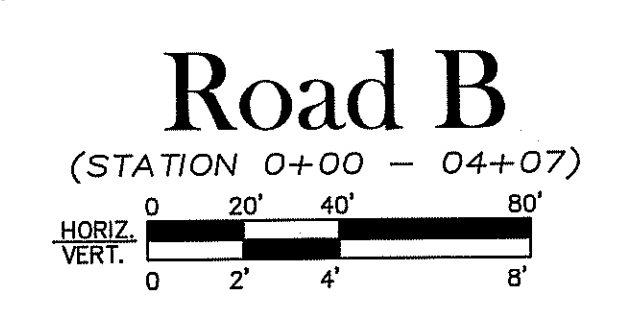
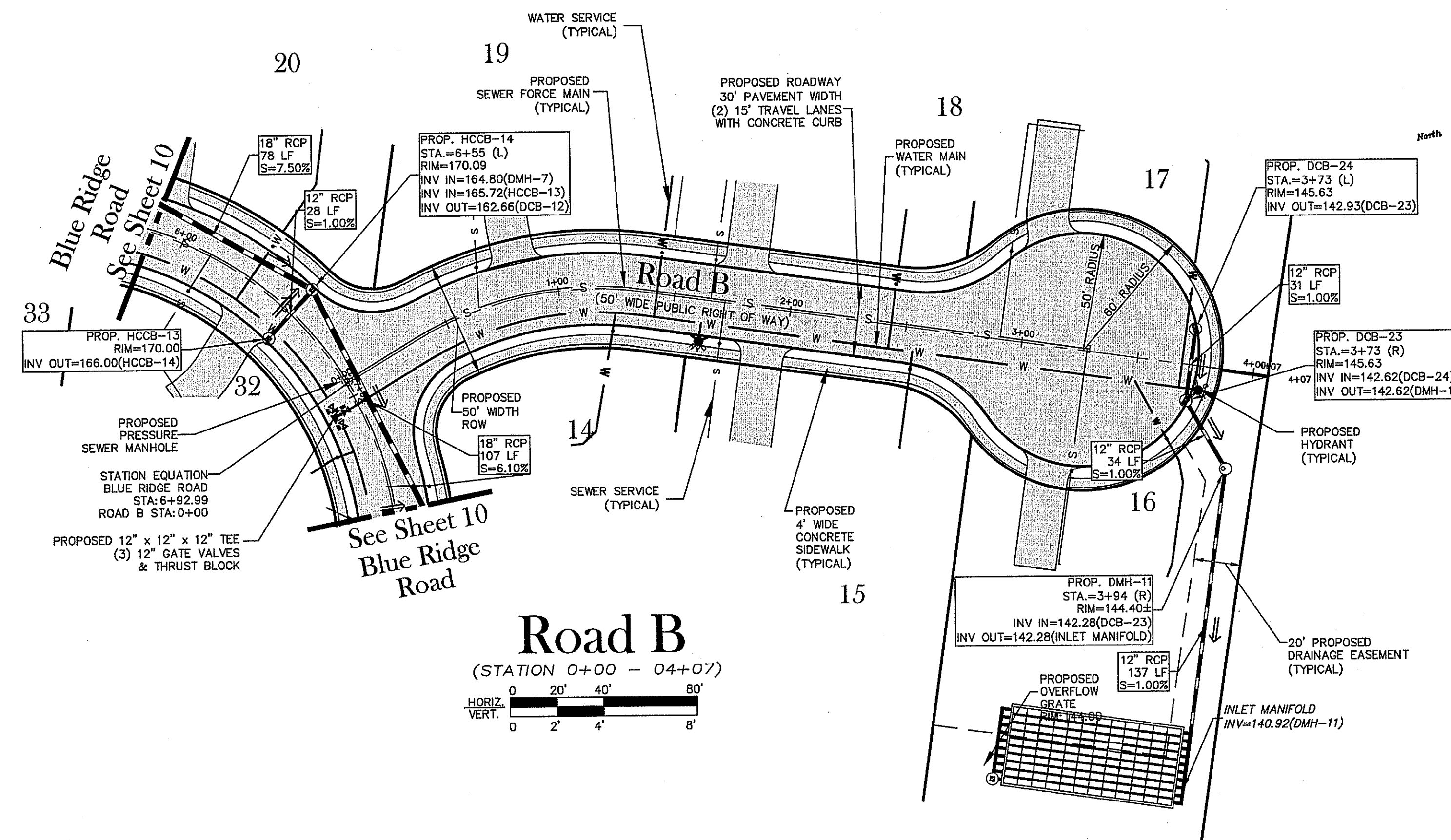
CHRISTOPHER A. DUHAMEL

No. 5013

REGISTERED  
PROFESSIONAL ENGINEER

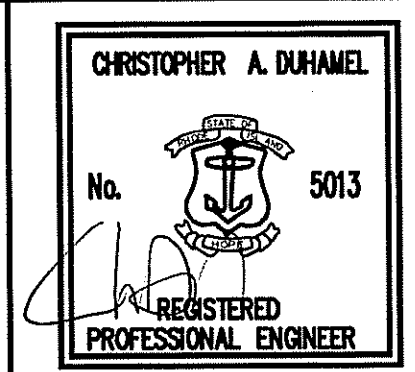
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O	7-18-08	RIDEM UIC SUBMISSION	LAB	
	7-14-08	RIDEM PD SUBMISSION	LAB	
NO.	DATE	DESCRIPTION	BY	





DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
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DATED 08-26-2009  
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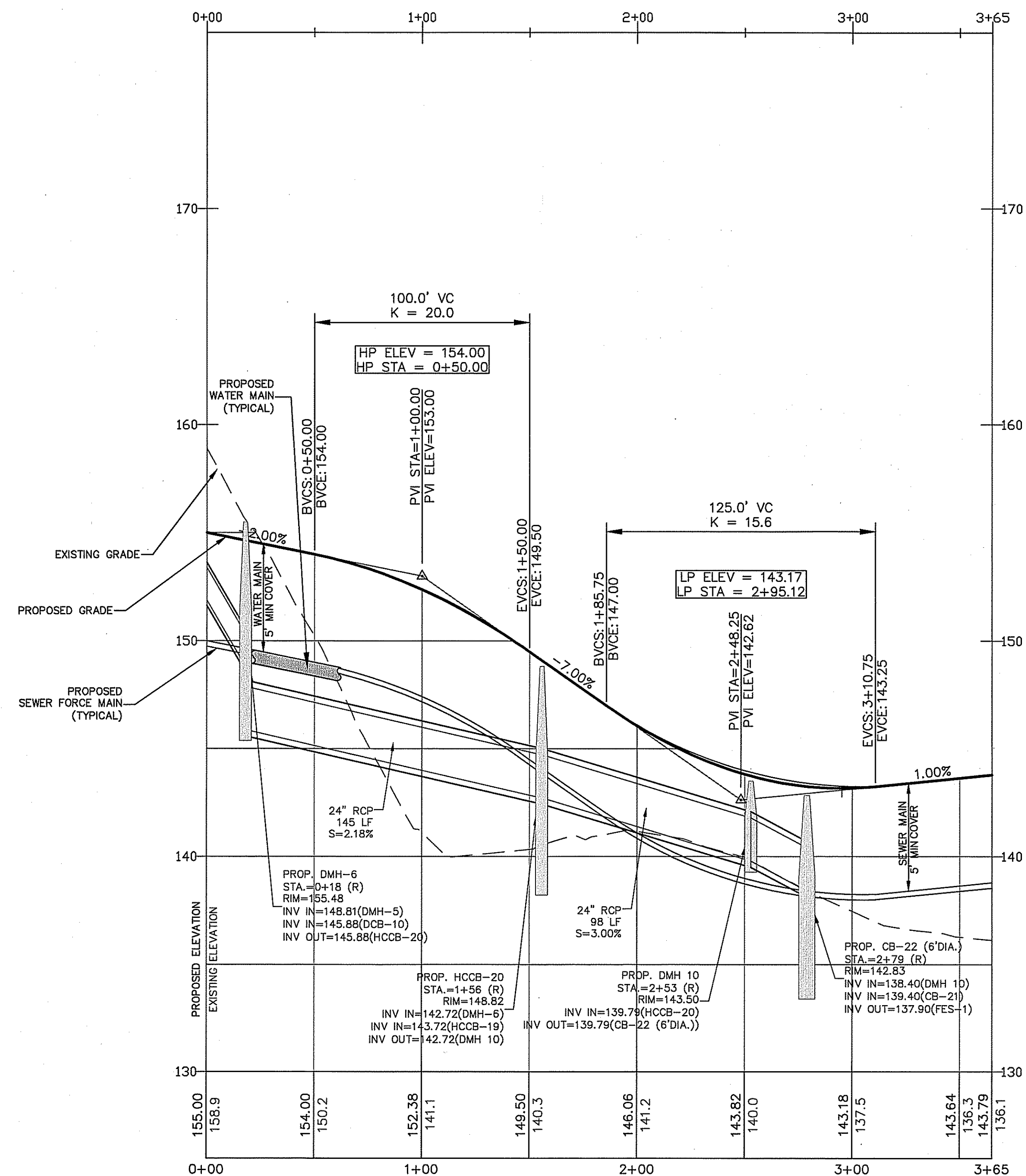
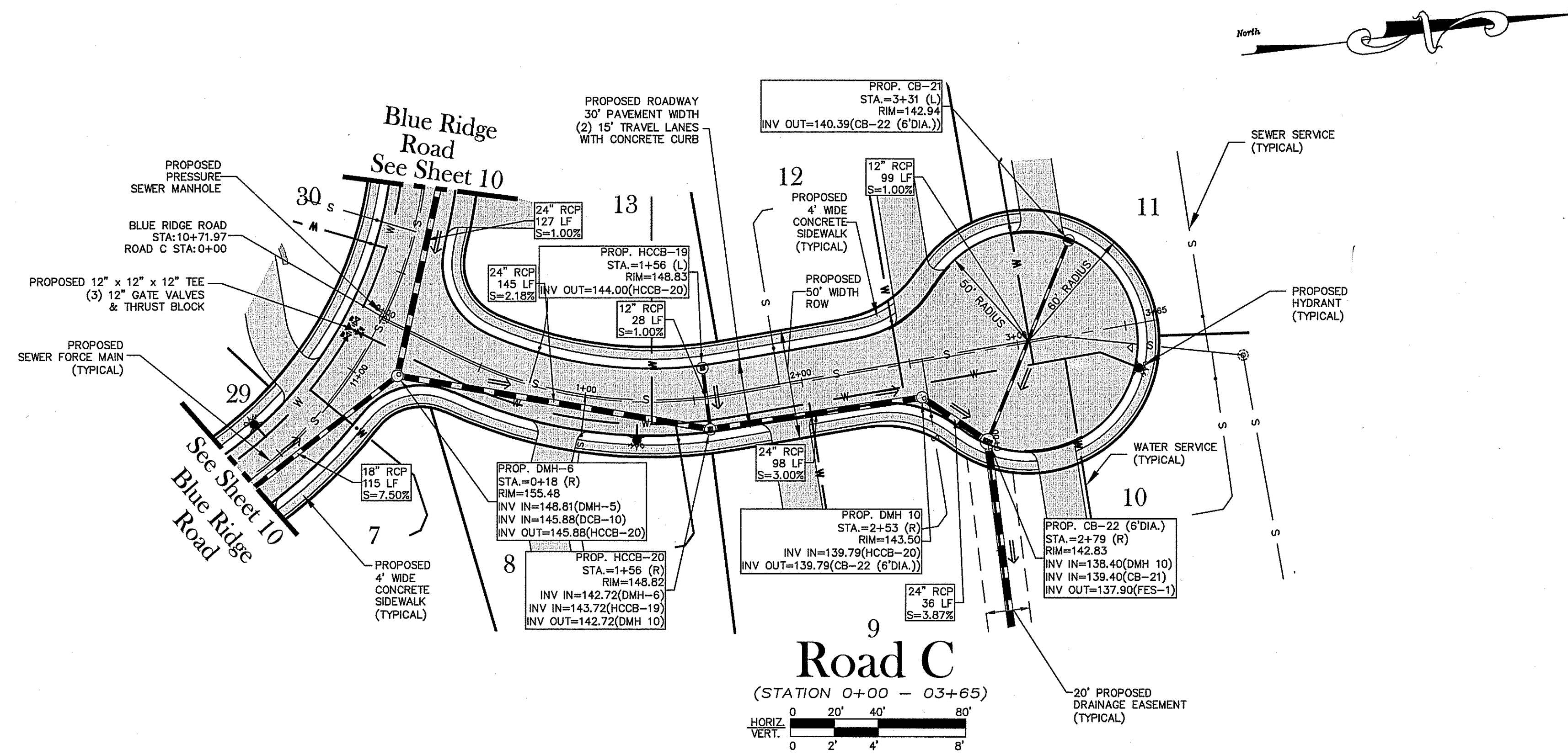
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**PLAN & PROFILE - ROAD B 0+00 - 4+07**  
**Cowesett Farm**  
ASSESSOR'S PLAT 239 LOT 8 (PORTION)  
WARWICK, RHODE ISLAND  
PREPARED BY  
**DiPrete Engineering Associates, Inc.**  
ENGINEERING, SURVEYING AND PLANNING CONSULTANTS  
TWO STAFFORD COURT  
CRANSTON, R.I. 02920  
(401) 943-1000 FAX: (401) 464-6006  
PREPARED FOR  
**Cowesett Farm, LLC**  
50 LYNCH PLACE  
CUMBERLAND, RI 02864  
PHONE: (401) 333-4300  
JULY, 2008  
DWN. BY: L.A.B.

NO.	DATE	DESCRIPTION	BY
1	2-12-08	ISSUED FOR SUBMISSION	D.A.R.
2	7-18-08	ISSUED FOR SUBMISSION	L.A.B.
3	7-14-08	ISSUED FOR SUBMISSION	L.A.B.



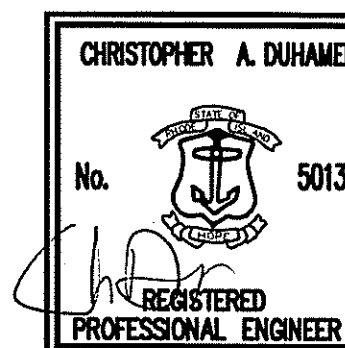


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DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED FEB 26 2009 FILE # 08-0225  
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*Charles A. Duhamel*



**PLAN & PROFILE (ROAD C 0+00 - 3+65)**

**Cowesett Farm**

ASSESSOR'S PLAT 239 LOT 8 (PORTION)  
WARWICK, RHODE ISLAND

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**DiPrete Engineering Associates, Inc.**

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JULY, 2008  
DWN. BY: L.A.B.

SHEET 14 OF 21

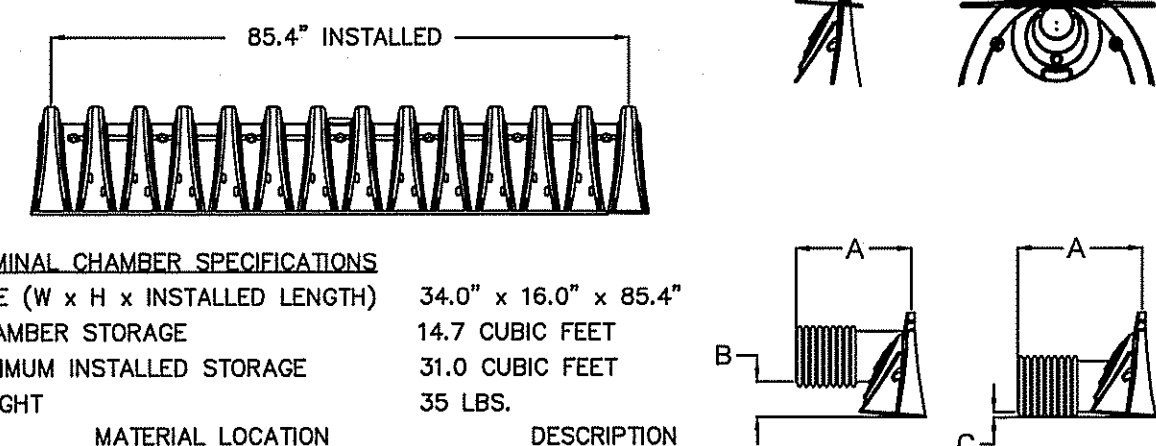
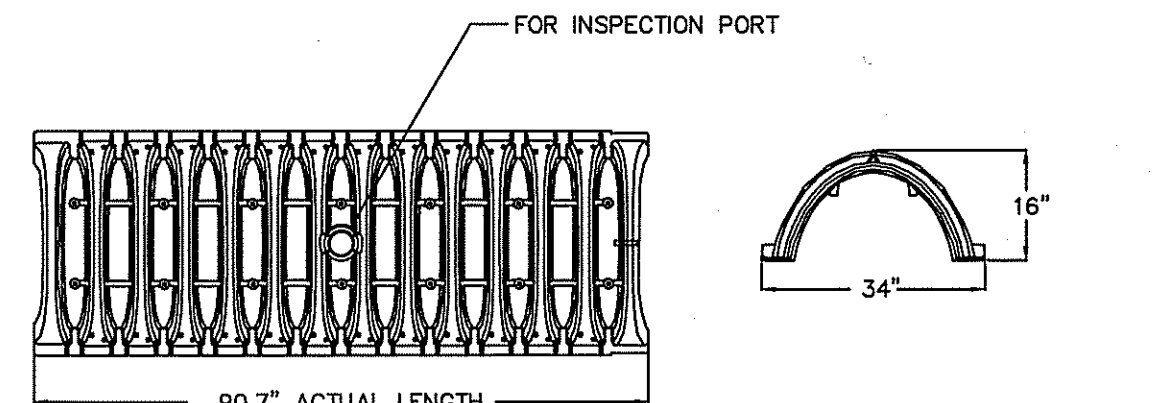






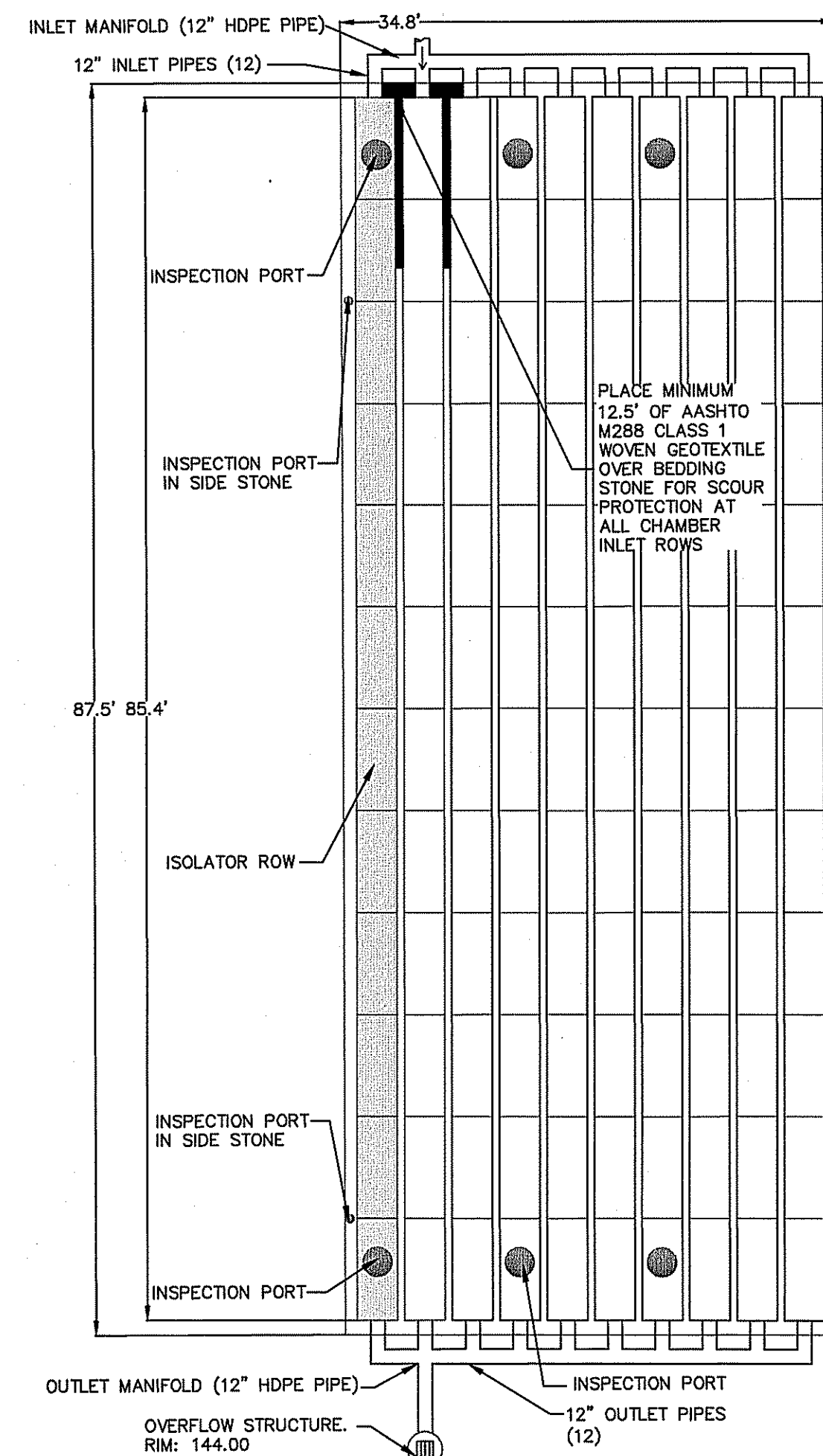


STORM EVENT	ELEV.
2-YEAR	141.08'
10-YEAR	141.90'
25-YEAR	142.63'
100-YEAR	144.09'



		ASHTO M43 DESIGNATION	ASHTO M45 DESIGNATION	COMPACTION/DENSITY REQUIREMENT
① FILL MATERIAL FROM 18" TO GRADE ABOVE CHAMBERS	ANY SOIL/ROCK MATERIALS, NATIVE SOIL OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	N/A	PREPARE PER GEOTECHNICAL ENGINEER'S SPECS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
② FILL MATERIAL FOR 6" TO 18" ELEVATION ABOVE CHAMBERS (24" FOR UNPAVED INSTALLATIONS)	GRANULAR WELL-GRADED SOIL/AGGREGATE PER AASHTO M227, 56 MIXTURES, <35% FINES.	3, 357, 4, 467, 5, 56, 6, 67, 8, 89, 9, 10	A-1 A-2 A-3	COMPACT IN 6" LIFTS TO A MINIMUM 95% OF PROCTOR DENSITY. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 LBS. DYNAMIC FORCE NOT TO EXCEED 20,000 LBS.
③ EMBEDMENT STONE SURROUNDING AND TO A 6" ELEVATION ABOVE CHAMBERS	CLEAN ANGULAR STONE WITH THE MAJORITY OF PARTICLES BETWEEN ½-2 INCH	3, 357, 4, 467, 5, 56, 57	N/A	NO COMPACTION REQUIRED
④ FOUNDATION STONE BELOW CHAMBERS	CLEAN ANGULAR STONE WITH THE MAJORITY OF PARTICLES BETWEEN ½-2 INCH	3, 357, 4, 467, 5, 56, 57	N/A	PLATE COMPACT OR ROLL TO ACHIEVE A 95% STANDARD PROCTOR DENSITY

PLEASE NOTE: THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED ANGULAR. FOR EXAMPLE, THE STONE MUST BE SPECIFIED AS CLEAN, CRUSHED, ANGULAR NO. 4 STONE.



PLAN VIEW

## STORMWATER MAINTENANCE NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE UNDERGROUND DETENTION SYSTEM DURING CONSTRUCTION, AND THE DRAINAGE SYSTEM UP TO THE ACCEPTANCE BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE THEREAFTER FOR THE DRAINAGE SYSTEM DURING OPERATION, AND FOR MAINTENANCE OF THE DRAINAGE SYSTEM DURING AND AFTER MAJOR STORMS. THE CONTRACTOR SHALL FLUSH THE DRAINAGE SYSTEM AT THE END OF CONSTRUCTION.
2. THE OWNER SHALL INSPECT THE UNDERGROUND DETENTION SYSTEM AFTER EVERY RAINFALL EVENT DURING THE FIRST SIX (6) MONTHS OF OPERATION, TO ENSURE THAT IT IS FUNCTIONING PROPERLY, AND TO ENSURE THAT THE PROPOSED MAINTENANCE SCHEDULES ARE BEING FOLLOWED BY THE OWNER. AFTER EACH MAJOR STORM, THEREAFTER, THE OWNER SHALL INSPECT THE UNDERGROUND DETENTION SYSTEM SEMIANNUALLY AND AFTER MAJOR STORMS.
3. CONSTRUCTION OF THE UNDERGROUND DETENTION SYSTEM SHALL BE SUPERVISED BY A PROFESSIONAL ENGINEER.
4. THE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE AND INSPECTION OF THE UNDERGROUND DETENTION SYSTEM UP TO ACCEPTANCE OF CONSTRUCTION BY THE OWNER. AFTER ACCEPTANCE, THE CONTRACTOR SHALL BE REMOVED FROM THE CATCH BASINS WHEN THE SEDIMENTS EXCEEDS .2% . MAINTENANCE WITHIN THE UNDERGROUND DETENTION SYSTEM SHALL CONSIST OF INSPECTION OF THE RESPECTIVE MONITORING WELLS WITHIN 72 HOURS OF A RAINFALL EVENT FOLLOWING CONSTRUCTION. IF IT IS FOUND THAT THE UNDERGROUND DETENTION SYSTEM IS NOT METERING OUT STORMWATER AFTER 72 HOURS FOLLOWING A RAINFALL EVENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OR REPLACEMENT OF THE APPROPRIATE SYSTEM COMPONENTS.
5. THE CONSTRUCTION SUPERINTENDENT SHALL HAVE OVERALL RESPONSIBILITY FOR THE MAINTENANCE PROGRAM DURING THE CONSTRUCTION PHASE. THE SUPERINTENDENT SHALL SEE THAT THE APPROPRIATE WORKERS ARE AWARE OF THE PROVISIONS OF THE PLAN.
6. AFTER ACCEPTANCE BY THE OWNER, THE OWNER SHALL HAVE OVERALL RESPONSIBILITY FOR IMPLEMENTING THE MAINTENANCE PROGRAM.

# STORMTECH GENERAL NOTES

1. STORMTECH LLC ("STORMTECH") REQUIRES INSTALLING CONTRACTORS TO USE AND UNDERSTAND STORMTECH'S LATEST INSTALLATION INSTRUCTIONS PRIOR TO BEGINNING SYSTEM INSTALLATION.
2. STORMTECH'S TECHNICAL SERVICES DEPARTMENT OFFERS INSTALLATION CONSULTATIONS TO INSTALLING CONTRACTORS. CONTACT THEIR TECHNICAL SERVICES REPRESENTATIVE AT LEAST 30 DAYS PRIOR TO SYSTEM INSTALLATION TO ARRANGE PRE-INSTALLATION CONSULTATION. THEIR REPRESENTATIVES CAN THEN ANSWER YOUR QUESTIONS, PROVIDE COMMENTS ON THE STORMTECH CHAMBER SYSTEM AND INFORM THE INSTALLING CONTRACTOR OF THE MINIMUM INSTALLATION REQUIREMENTS BEFORE BEGINNING THE SYSTEM'S CONSTRUCTION. CALL 1-888-892-2694 TO SPEAK TO A TECHNICAL SERVICE REPRESENTATIVE OR VISIT [WWW.STORMTECH.COM](http://WWW.STORMTECH.COM) TO RECEIVE A COPY OF THEIR INSTALLATION INSTRUCTIONS.
3. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE GEOTECHNICAL ENGINEER.
4. AASHTO M288 CLASS 2 NON-WOVEN GEOTEXTILE (FILTER FABRIC) MUST BE USED AS INDICATED IN THE PROJECT PLANS.
5. STONE PLACEMENT BETWEEN CHAMBERS ROWS AND AROUND PERIMETER MUST FOLLOW INSTRUCTIONS AS INDICATED IN THE MOST CURRENT VERSION OF STORMTECH'S INSTALLATION INSTRUCTIONS.
6. BACKFILLING OVER THE CHAMBERS MUST FOLLOW REQUIREMENTS AS INDICATED IN THE MOST CURRENT VERSION OF STORMTECH'S INSTALLATION INSTRUCTIONS.
7. THE CONTRACTOR MUST REFER TO STORMTECH'S INSTALLATION INSTRUCTIONS FOR A TABLE OF ACCEPTABLE VEHICLE LOADS AT VARIOUS DEPTHS BEYOND THE CHAMBER SYSTEM. IT IS ALSO AVAILABLE AT STORMTECH'S WEBSITE: [WWW.STORMTECH.COM](http://WWW.STORMTECH.COM). THE CONTRACTOR IS RESPONSIBLE FOR PREVENTING VEHICLES THAT EXCEED STORMTECH'S REQUIREMENTS FROM TRAVELING ACROSS THE PARKING LOT AND CHAMBER WATER SYSTEM. TEMPORARY FENCING, WARNING TAPE, AND APPROPRIATELY LOCATED SIGNS ARE COMMONLY USED TO PREVENT UNAUTHORIZED VEHICLES FROM ENTERING SENSITIVE CONSTRUCTION AREAS.
8. THE CONTRACTOR MUST APPLY EROSION AND SEDIMENT CONTROL MEASURES TO PROTECT THE STORMWATER SYSTEM DURING ALL PHASES OF SITE CONSTRUCTION PER LOCAL CODES AND DESIGN ENGINEER'S SPECIFICATIONS.
9. STORMTECH PRODUCT WARRANTY IS LIMITED. SEE CURRENT PRODUCT WARRANTY FOR DETAILS. TO ACQUIRE A COPY CALL 1-888-892-2694 OR VISIT [WWW.STORMTECH.COM](http://WWW.STORMTECH.COM).

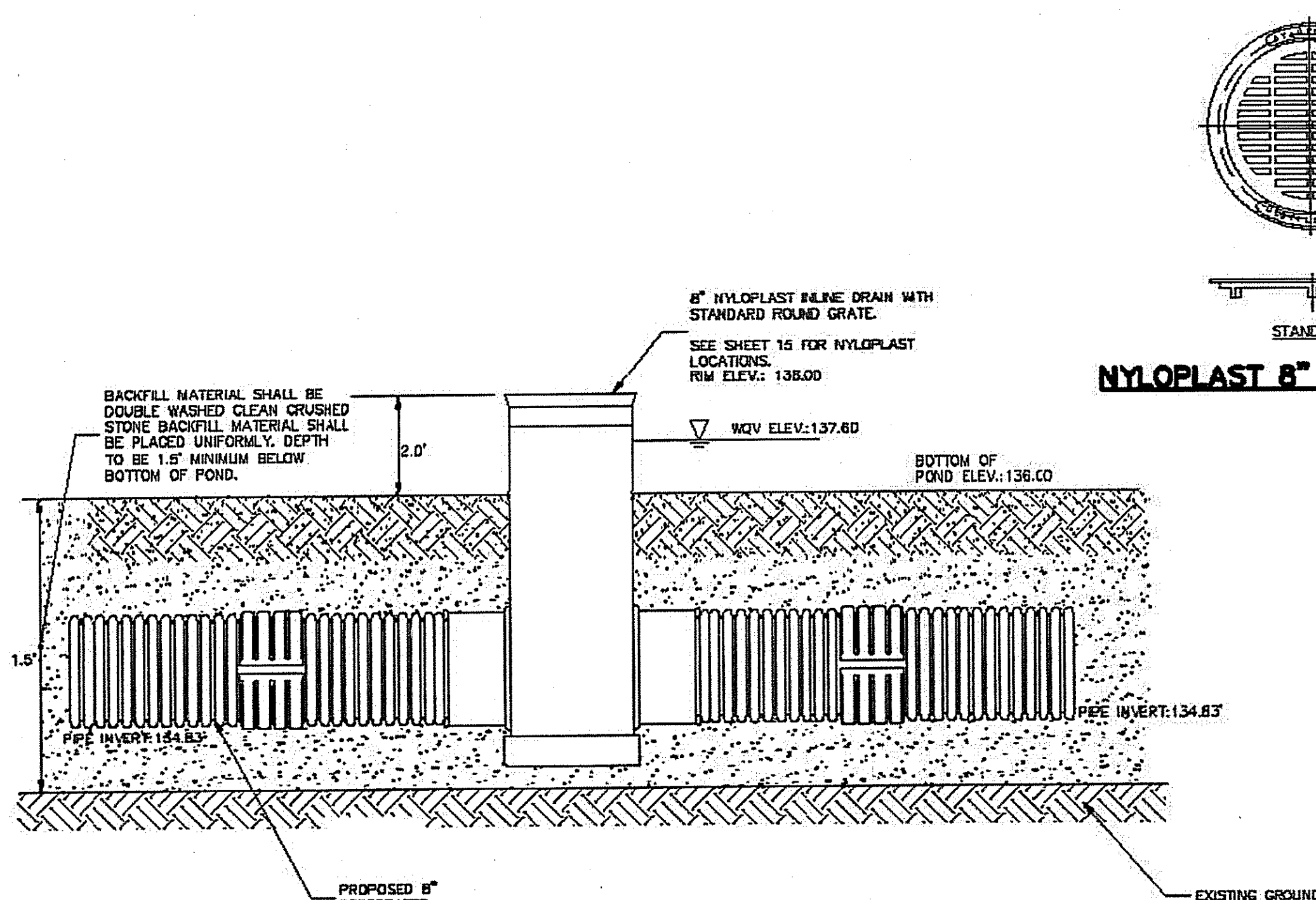
## STORMWATER CHAMBER SPECIFICATIONS

CHAMBERS SHALL BE STORMTECH SC-310 OR APPROVED EQUAL.

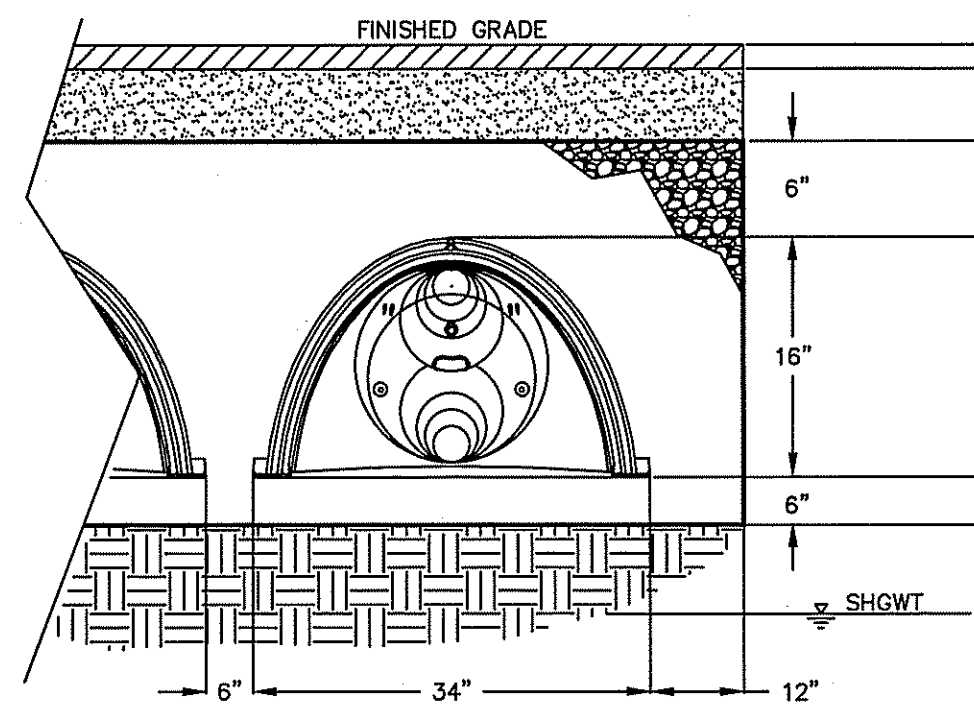
1. CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418-05, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
  2. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORT PANELS.
  3. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL BE DETERMINED BY THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12 ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS. THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
  4. ONLY CHAMBERS THAT ARE APPROVED BY THE ENGINEER WILL BE ALLOWED. THE CONTRACTOR SHALL SUBMIT (3 SETS) OF THE FOLLOWING TO THE ENGINEER FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE:
    - A. A STRUCTURAL EVALUATION BY A REGISTERED STRUCTURAL ENGINEER THAT DEMONSTRATES THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12 ARE MET. THE 50-YEAR CREEP MODULUS DATA SPECIFIED IN ASTM 2418-05 MUST BE USED AS PART OF THE AASHTO STRUCTURAL EVALUATION TO VERIFY LONG-TERM PERFORMANCE.
    - B. A CERTIFICATION BY THE MANUFACTURER THAT THE CHAMBERS ARE IN ACCORDANCE WITH ASTM F2418-05.
  5. CHAMBERS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.
  6. ALL DESIGN SPECIFICATIONS FOR CHAMBERS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S LATEST DESIGN MANUAL OF THE ENVIRONMENTAL MANAGEMENT SYSTEM
  7. THE INSTALLATION SHALL BE IN ACCORDANCE WITH THE OFFICE OF WATER RESOURCES' STANDARD SPECIFICATIONS FOR THE INSTALLATION OF CHAMBERS WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- AS SPECIFIED IN THE LETTER OF APPROVAL.
- DATED FEB 20 2019 FILE # 08-5925
- NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVAL PLANS MUST BE AT CONSTRUCTION SITE

Preliminary - Not for Construction

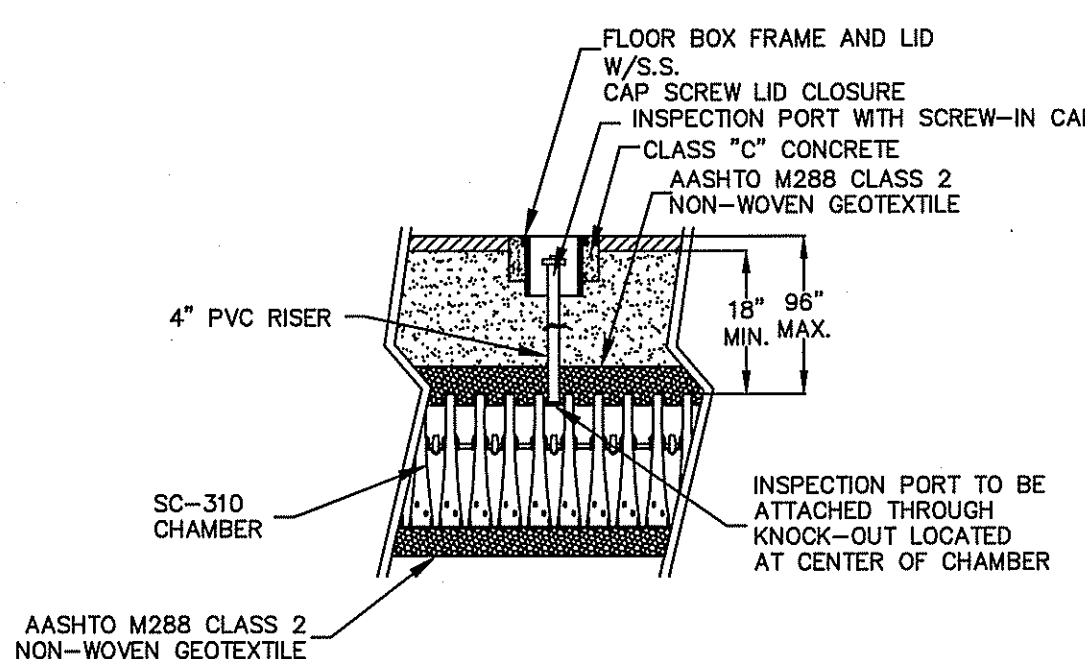
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### POND 1 INFILTRATION NYLOPLAST DRAIN DETAIL




SYSTEM PROFILE VIEW



INSPECTION PORT DETAIL

CHRISTOPHER A. DUHAMEL

No. 5013

 REGISTERED PROFESSIONAL ENGINEER

## DETAIL SHEET

## Cowesett Farm

ASSESSOR'S PLAT 239 LOT 8 (PORTION)  
WARWICK, RHODE ISLAND

PREPARED BY  
**DiPrete Engineering Associates, Inc.**  
ENGINEERING, SURVEYING AND PLANNING CONSULTANTS

TWO STAFFORD COURT  
CRANSTON, R.I. 02920

(401) 943-1000 FAX: (401) 464-6006

PREPARED FOR  
**Cowesett Farm, LLC**

50 LYNCH PLACE

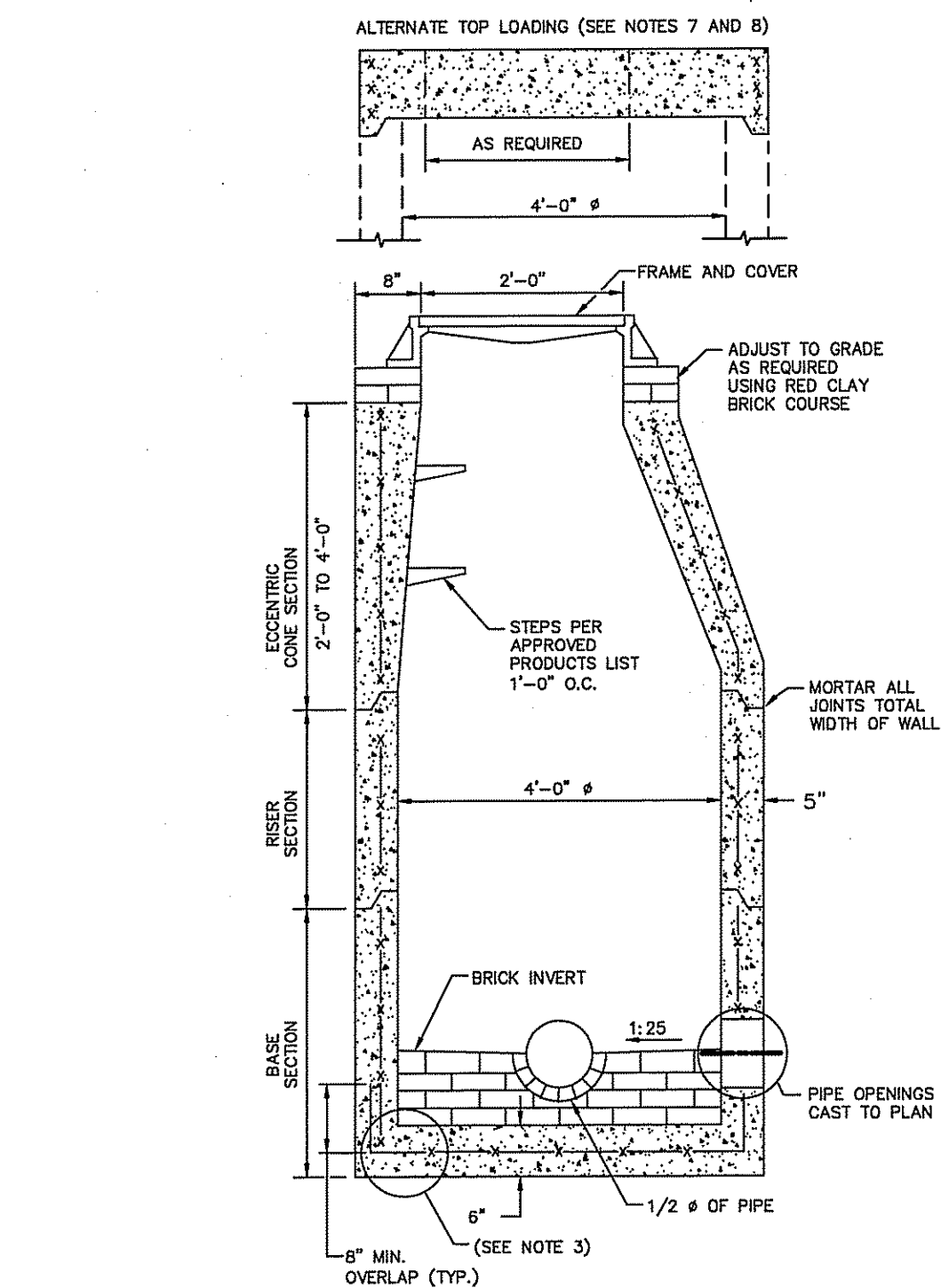
CUMBERLAND, RI 02864

PHONE: (401) 333-4300

JULY, 2008  
DWN. BY: L.A.B

SHEET 16 OF 21

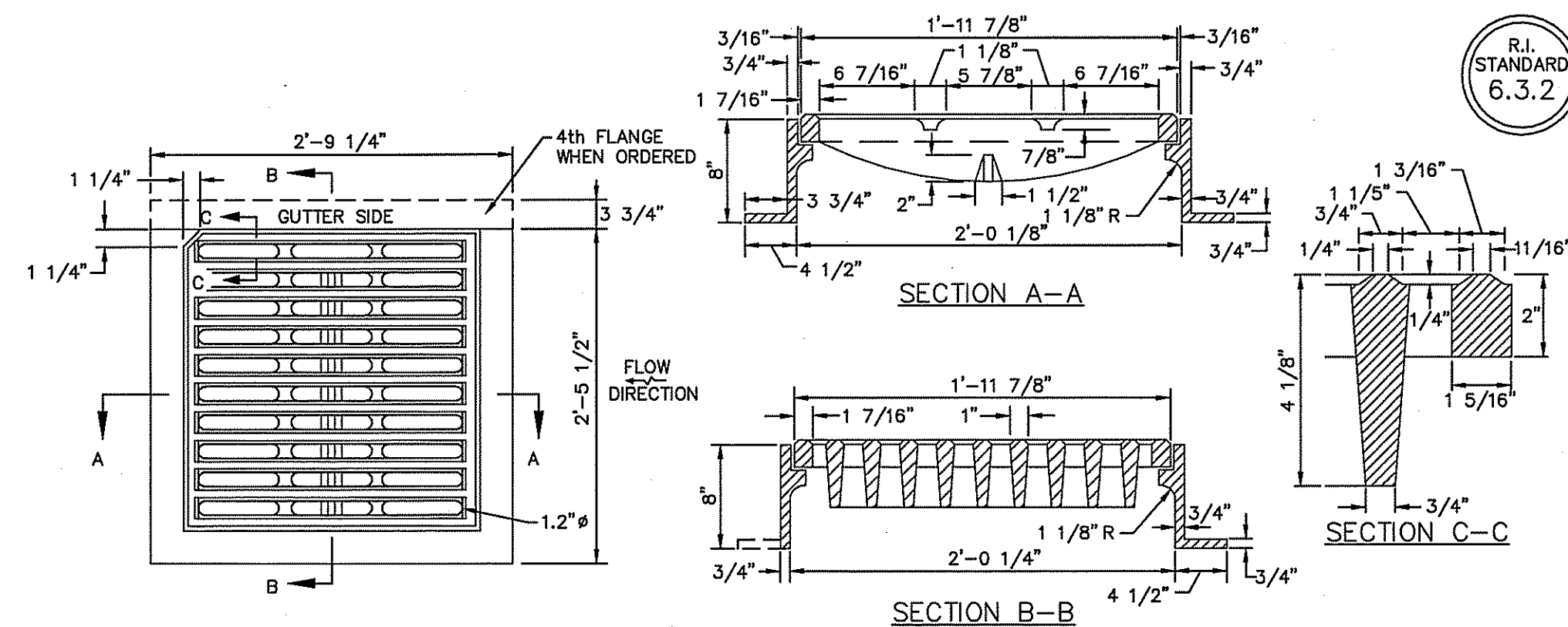




- NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
  2. CIRCUMFERENTIAL STEEL REINFORCEMENT REQUIRED = 0.12 SQ. IN. / LIN. FT. (BOTH WAYS).
  3. STEEL REINFORCEMENT FOR BASE SECTION BOTTOM SHALL BE A MINIMUM OF 0.12 SQ. IN./LIN. FT. (BOTH WAYS).
  4. ONE POUR MONOLITHIC BASE SECTION.
  5. ANY NECESSARY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAW-CUTTING AND/OR CORING ONLY. NO JACKHAMMERS, HAMMERS OR PNEUMATIC TOOLS WILL BE ALLOWED.
  6. STEPS SHALL CONFORM TO STD. 5.3.0 AND SHALL BE INSTALLED AT THE CASTING PLANT.
  7. ALTERNATE TOP SLAB IS STEEL REINFORCED TO MEET OR EXCEED H-25 LOADING (SEE STD. 4.7.2).
  8. ALTERNATE TOP SLAB IS ONLY FOR USE WHEN REDUCING SECTION DOES NOT FIT BECAUSE OF STRUCTURE DEPTH.
  9. REFER TO STD. 5.2.0 FOR MAXIMUM PIPE SIZES.

**PRECAST 4'-0" ROUND MANHOLE**  
NOT TO SCALE

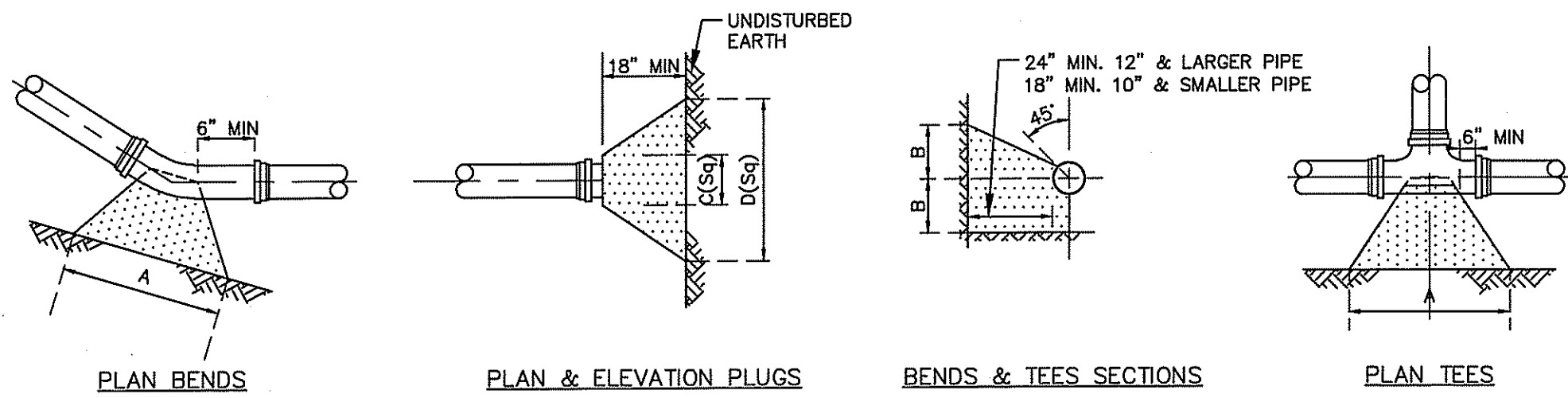
R.I. STANDARD 4.2.0





# NOTES:

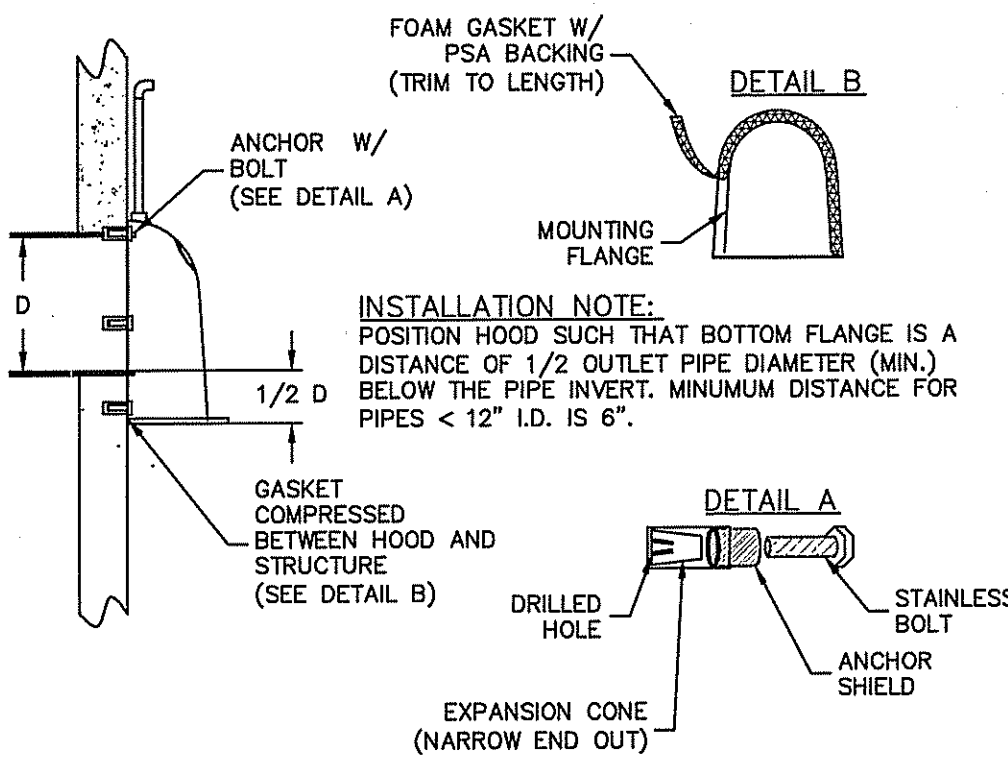
- ALL CONCRETE SHALL BE 4000 P.S.I. @ 28 DAYS
- CONCRETE THRUST BLOCKS SHALL BEAR AGAINST UNDISTURBED EARTH.
- FORMS TO BE USED AS NECESSARY.
- ALL BOLTS AND NUTS TO BE PROTECTED FROM CONCRETE AND EASILY ACCESSIBLE WHEN THRUST BLOCK IS INSTALLED.
- REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF R.I. SHALL VERIFY ALL CALCULATIONS DURING DESIGN TO MEET CONDITIONS OF PROJECT AND KCWA REQUIREMENTS.
- FROM THE KENT COUNTY WATER AUTHORITY DATE: 09/2006



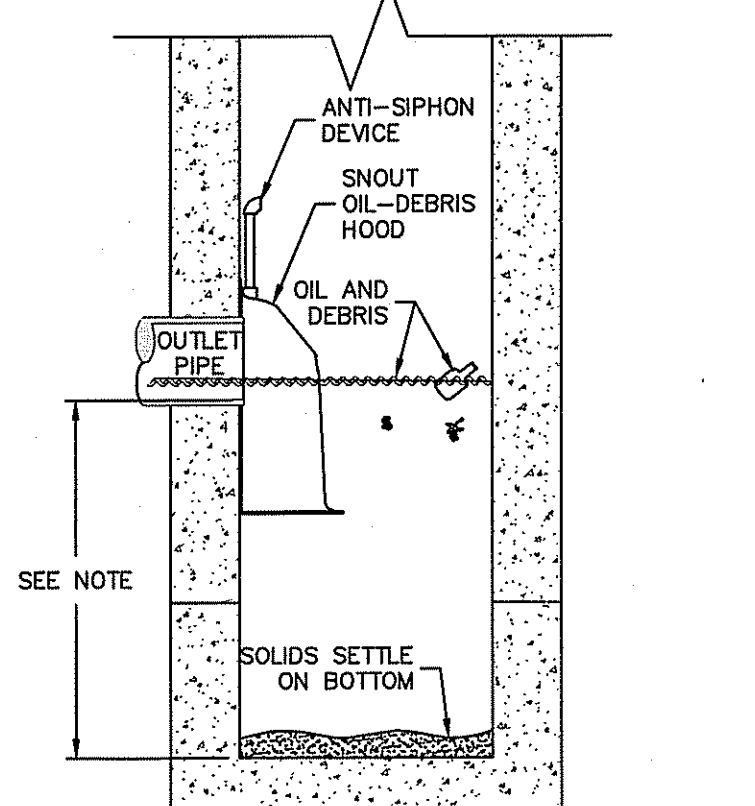
## KCWA THRUST BLOCK

NOT TO SCALE

### INSTALLATION DETAIL

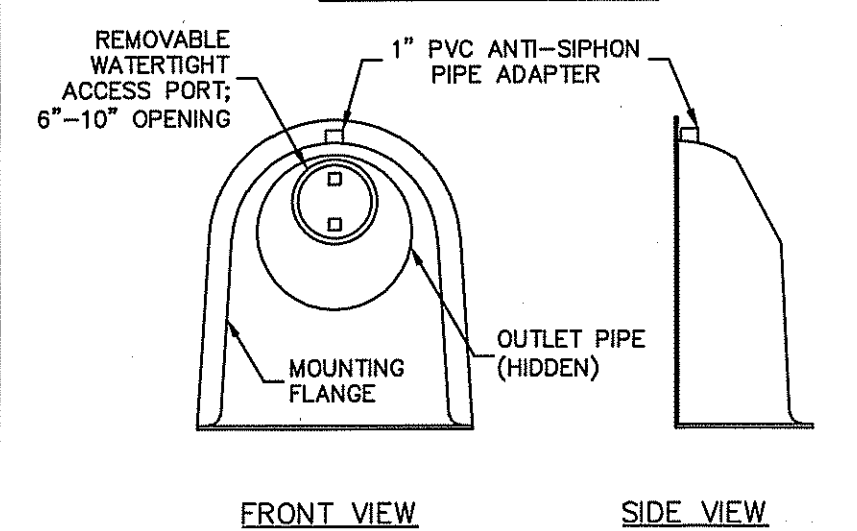


### TYPICAL INSTALLATION



NOTE: SUMP DEPTH OF 36" MIN. FOR < OR = 12" DIAM. OUTLET. FOR OUTLETS > OR = 15", DEPTH = 2.5 - 3.0 X DIAMETER.

### CONFIGURATION DETAIL



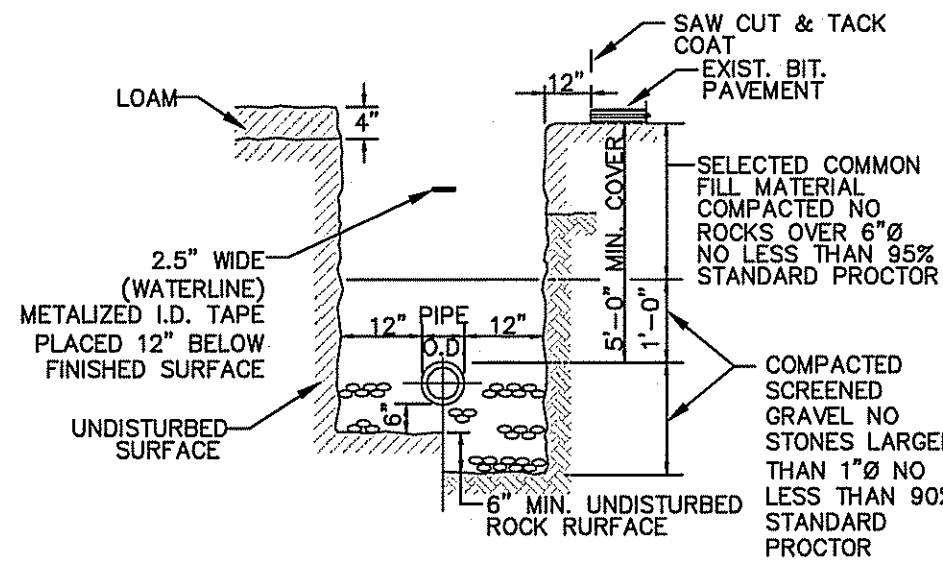
DESCRIPTION	DATE	SCALE
OIL-DEBRIS HOOD SPECIFICATION AND INSTALLATION (TYPICAL)	09/08/00	NONE
	DRAWING NUMBER SP-SN	
	US Patent # 6126817	

## OIL SEPARATOR DETAIL

NOT TO SCALE

# NOTES:

- ROADWAY RESTORATION IN ACCORDANCE WITH COMMUNITY OR RIDOT.
- FROM KENT COUNTY WATER AUTHORITY DETAIL DATE: 9/2006

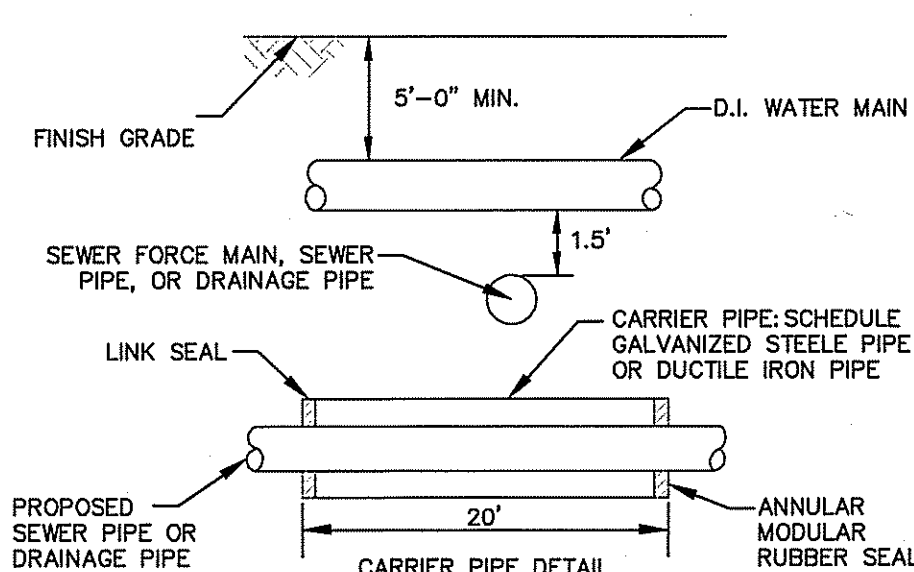


## KCWA TRENCH INSTALLATION IN ROCK AND SOIL

NOT TO SCALE

# NOTES:

- THE VERTICAL SEPARATION BETWEEN THE WATER MAIN AND THE PROPOSED UTILITY SHALL BE A MINIMUM OF 18 INCHES.
- THE HORIZONTAL SEPARATION BETWEEN THE WATER MAIN AND THE PROPOSED UTILITY SHALL BE A MINIMUM OF 10 FEET.
- IF 1 OR 2 CAN NOT BE MAINTAINED THE PROPOSED UTILITY SHALL BE INSTALLED WITHIN A CARRIER PIPE UPON WRITTEN APPROVAL BY THE KCWA.
- SEWER MAIN AND SERVICES ARE NOT ALLOWED TO CROSS OVER THE TOP OF THE WATER MAIN.
- CONCRETE ENCASUREMENT IS NOT ALLOWED.
- FROM THE KENT COUNTY WATER AUTHORITY DATE: 09/2006

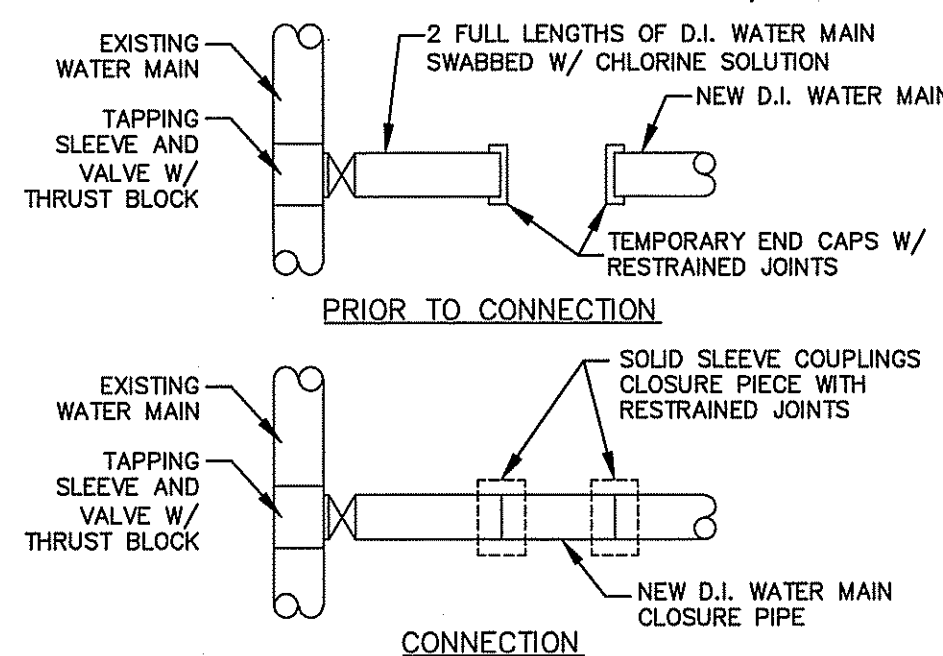


## KCWA UTILITY SEPARATION

NOT TO SCALE

# NOTES:

- PRIOR TO FINAL APPROVAL FOR PERMANENT CONNECTION FROM KCWA, CONTRACTOR SHALL PERFORM PRESSURE TESTING AND CHLORINATION.
- SLEEVE FOR CLOSURE TO BE SWABBED WITH CHLORINE SOLUTION
- FROM KENT COUNTY WATER AUTHORITY DETAIL DATE: 09/2006

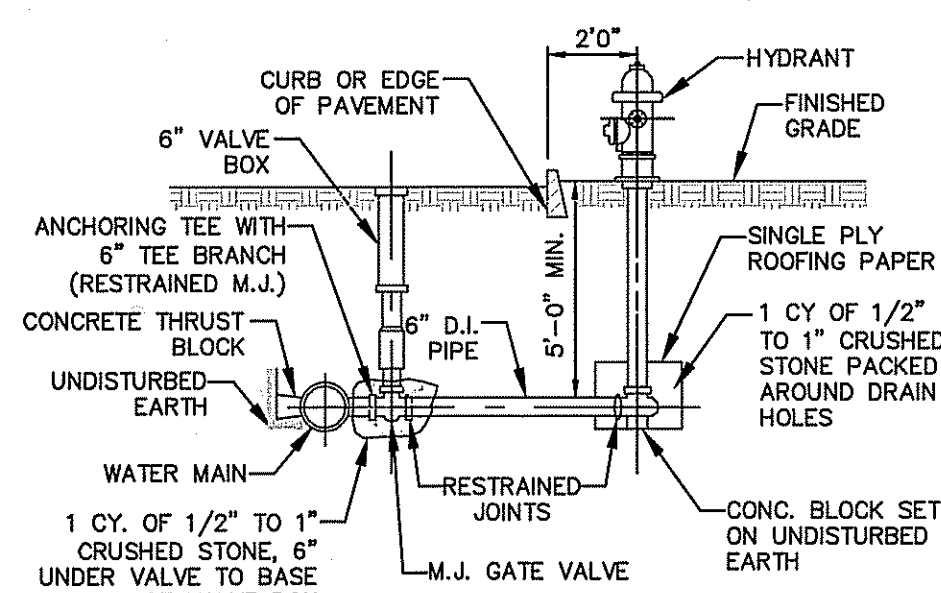


## KCWA CONNECTION OF NEW WATER MAIN TO EXISTING WATER MAIN

NOT TO SCALE

# NOTES:

- KCWA COLOR SCHEME FOR HYDRANT.
- INSTALLATION SHALL NOT OBSTRUCT SIDEWALK TO PEDESTRIAN OR PHYSICALLY IMPAIRED.
- REMOVAL OF EXISTING HYDRANT MAY REQUIRE ADDITIONAL RESTRAINT DESIGNED BY A PROFESSIONAL ENGINEER.
- MECHANICAL JOINT PIPE W/ RESTRAINED JOINTS FOR BRANCHES OVER ONE LENGTH OF PIPE.
- FROM KENT COUNTY WATER AUTHORITY DETAIL DATE: 09/2006

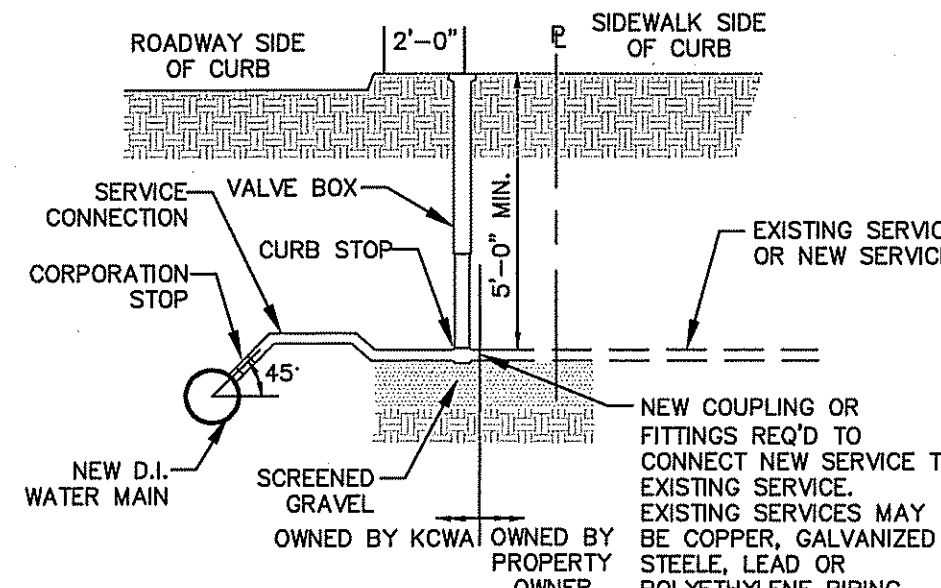


## KCWA HYDRANT

NOT TO SCALE

# NOTES:

- SERVICE MATERIALS PER KCWA SPECIFICATION UNLESS CITY OR TOWN CODES REQUIRE SPECIFIC MATERIALS THAT HAVE BEEN APPROVED BY KCWA.
- SERVICE LINE FROM CURB BOX TO BUILDING SHALL BE INSPECTED, TESTED AND APPROVED BY THE LOCAL PLUMBING INSPECTOR.
- FROM KENT COUNTY WATER AUTHORITY DETAIL DATE: 09/2006

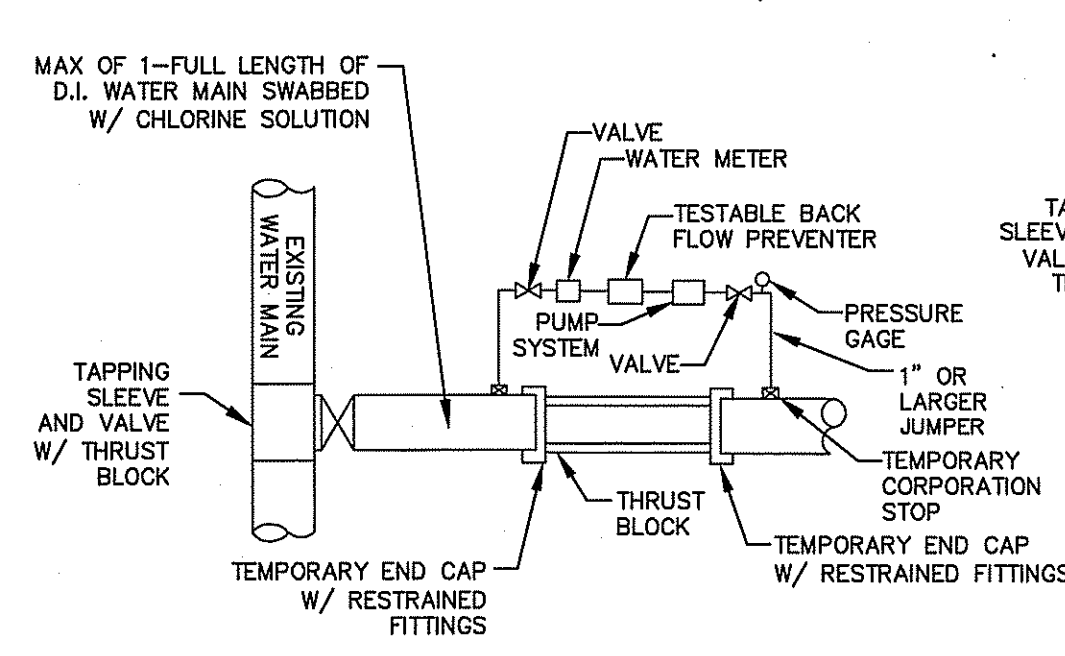


## KCWA SERVICE CONNECTION

NOT TO SCALE

# NOTES:

- UPON SUCCESSFUL TESTING AND DISINFECTION THE TEMPORARY CORPORATION STOPS SHALL BE REMOVED AND PLUGS INSTALLED.
- SLEEVE FOR CLOSURE TO BE SWABBED WITH CHLORINE SOLUTION
- FROM KENT COUNTY WATER AUTHORITY DETAIL DATE: 09/2006



## KCWA TEMPORARY CONNECTION FOR PRESSURE TESTING AND DISINFECTION

NOT TO SCALE

## WATER INSTALLATION NOTES

- INSTALLATION OF WATER MAIN AND SERVICE SHALL CONFORM TO THE "RULES AND REGULATIONS OF THE KENT COUNTY WATER AUTHORITY" SEPTEMBER 20, 2006, OR LATEST EDITION, AND IN ACCORDANCE WITH THE DUCTILE IRON PIPE RESEARCH ASSOCIATION INSTALLATION MANUAL AND ANSI/AWWA C600.
- DISTRIBUTION PIPING SHALL BE CL 52 DUCTILE IRON, DOUBLE CEMENT LINED, WITH PUSH ON JOINTS. PIPE SHALL MEET ANSI/AWWA C151 A21.51. JOINTS SHALL MEET ANSI/AWWA C111/A21.51.
- FITTINGS SHALL BE DUCTILE IRON MECHANICAL JOINT CL350 CEMENT MORTAR LINED AND MEET ANSI/AWWA C153/A21.53. MECHANICAL JOINTS SHALL MEET ANSI/AWWA C111/A21.11 AMERICAN MANUFACTURER ONLY.
- VALVES SHALL BE MECHANICAL JOINT, DOUBLE DISC PARALLEL SEAT OR RESILIENT SEAT GATE STYLES AS FOLLOWS:  
A. MUELLER CORPORATION DOUBLE DISC PARALLEL SEAT.  
B. AMERICAN DARLING VALVE RESILIENT SEAT MODEL CRS-80.
- PRESSURE TEST OF THE WATER SYSTEM SHALL BE 1.5 TIMES THE MAXIMUM WORKING PRESSURE OR 150 PSI. NOTIFY KENT COUNTY WATER AUTHORITY 2 DAYS PRIOR TO TEST IF APPLICABLE.
- NOTIFY THE KENT COUNTY AUTHORITY 5 DAYS PRIOR TO CONSTRUCTION COMMENCEMENT.
- CHLORINATION OF SYSTEM AND SAMPLING SHALL CONFORM TO SEC. 3.5 OF REQUIREMENTS FOR SERVICE AND MAIN INSTALLATION.
- NOTIFY ENGINEER PRIOR TO COVERING OF WATER SERVICE TO SURVEY AS-BUILT LOCATION AND TO COMPLETE REQUIRED AS-BUILT PLAN. ENGINEER WILL NOT ACCEPT FIELD MEASUREMENTS FROM THE CONTRACTOR.
- TEMPORARY FLUSHING CONNECTIONS AND BLOW-OFFS SHALL BE SIZED TO PROVIDE 2.5-FOOT PER SECOND FLOW PER AWWA STANDARD 651
- CONTRACTOR RESPONSIBLE TO COORDINATE WITH PLUMBING OFFICIAL FOR DISINFECTION OF SERVICE PIPE EXTENDING FROM CURB BOX TO HOME PER STATE PLUMBING CODE AND KENT COUNTY WATER AUTHORITY REGULATIONS. WATER SERVICE CANNOT BE ACTIVATED WITHOUT COPY OF LAB RESULTS AND PLUMBING INSPECTOR'S VERIFICATION.
- ALL INSTALLATION SHALL CONFORM TO RULES AND REGULATIONS OF THE KENT COUNTY WATER AUTHORITY-SEPTEMBER 20, 2006 OR LATEST EDITION.
- PRESSURE-REDUCING VALVES ARE REQUIRED AT ALL BUILDINGS PER RI BUILDING CODE.

## SEWER LINE/WATER MAIN SEPARATION POLICY

KENT COUNTY WATER AUTHORITY RULES AND REGULATIONS 3.21.18 WATER MAINS SHALL BE LAID WITH A MINIMUM OF TEN-FOOT HORIZONTAL CLEARANCE FROM ANY EXISTING SEWER FACILITIES. THE DISTANCE SHALL BE MEASURED EDGE TO EDGE. WATER MAINS CROSSING UNDER SEWERS SHALL BE FORBIDDEN. WATER MAINS CROSSING OVER SEWERS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL SEPARATION OF EIGHTEEN-INCHES BETWEEN THE INVERT OF THE WATER MAIN AND THE CROWN OF THE SEWER. RE-ALIGNMENT OF AN EXISTING WATER MAIN OR RELOCATION OF THE SEWER MAY BE NECESSARY TO ACHIEVE THIS VERTICAL SEPARATION. THE GENERAL MANAGER/CHIEF ENGINEER MUST APPROVE ANY DEVIATION FROM THESE REQUIREMENTS. CONCRETE ENCASUREMENT SHALL NOT BE ALLOWED IN THE DESIGN FOR SEWER AND WATER CROSSINGS.

KENT COUNTY WATER AUTHORITY RULES AND REGULATIONS 3.14.6 A MINIMUM OF TEN-FOOT HORIZONTAL AND EIGHTEEN-INCH VERTICAL SEPARATION SHALL BE MAINTAINED IN THE PLACEMENT OF WATER MAINS, SEWERS OR APPURTENANCES WITHIN THE VICINITY OF SEWER FACILITIES OR VICE VERSA. IN CASES WHERE IT IS NOT POSSIBLE TO MAINTAIN A 10-FOOT, HORIZONTAL SEPARATION OR IN THE CASE OF CROSSING THE EIGHTEEN-INCH, VERTICAL SEPARATION, A DEVIATION FROM THIS RESTRICTION MAY BE ALLOWED ON A CASE BY CASE BASIS WITH PRIOR APPROVAL FROM THE GENERAL MANAGER/CHIEF ENGINEER AS TO THE PROPOSED MATERIALS AND INTERVENTIONS TO BE TAKEN TO PROTECT THE WATER SYSTEM FROM THE POSSIBILITY OF CONTAMINATION.

## CHLORINATION/DISINFECTION\* POLICY

- ALL NEW OR REPAIRED POTABLE WATER SYSTEM DISTRIBUTION MAINS, SERVICE PIPE AND THE NECESSARY CONNECTING PIPES, FITTINGS, VALVES, AND ALL APPURTENANCES IN OR ADJACENT TO OR NEAR ANY RESIDENCE, BUILDING OR PREMISES SHALL BE PURGED OF DELETERIOUS MATTER AND SHALL BE DISINFECTED PRIOR TO UTILIZATION OR PERMANENT CONNECTION TO THE KENT COUNTY WATER AUTHORITY (KCWA) SYSTEM. THAT PORTION OF THE CUSTOMER'S SERVICE PIPE AFTER THE CURB STOP SHALL BE DISINFECTED UNDER THE SUPERVISION OF THE LOCAL PLUMBING OFFICIAL. THE OWNER MUST PROVIDE WRITTEN LABORATORY CERTIFIED DOCUMENTATION OF THE DISINFECTION RESULTS TO THE KCWA BEFORE MAKING ANY PERMANENT CONNECTION TO THE KCWA SYSTEM OR BEFORE REACTIVATION OF ANY EXISTING WATER SERVICE. CAN BE AUTHORIZED PRIOR TO APPENDIX FOR PROGRAM REQUIREMENTS OF THE CUSTOMER WATER SERVICE DISINFECTION POLICY.
- THE DEVELOPER OR THE CONTRACTOR FOR THE DEVELOPER, IN ACCORDANCE WITH CHAPTER 5, DISTRIBUTION SYSTEM CHLORINATION, AMERICAN WATER WORKS ASSOCIATION MANUAL #20, SHALL PERFORM CHLORINATION. TABLET CHLORINATION SHALL NOT BE ALLOWED.
- THE OWNER OR CUSTOMER IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH THE DISINFECTION PROCESS OR PROCEDURE.
- THE DISINFECTION MUST RESULT IN ELIMINATION FROM THE VARIOUS PARTS OF THE NEW PIPE LINE ANY EVIDENCE OF THE EXISTENCE, THEREIN, OF BACTERIA INDICATING CONTAMINATION, AS DETERMINED BY TEST OF THE BACTERIAL CONTENT OF SAMPLES OF WATER TAKEN FROM THE NEW WATER MAIN. THE DISINFECTION MAY BE ACCOMPLISHED BY INTRODUCING INTO ALL THE VARIOUS PARTS OF THE NEW WATER MAINS, A LIQUID SOLUTION CONTAINING 1% AVAILABLE CHLORINE IN SUCH VOLUME THAT THE RATE OF DOSAGE TO THE WATER MAINS SHALL BE AT LEAST 50 PARTS PER MILLION OF AVAILABLE CHLORINE. TABLET CHLORINATION IS NOT ALLOWED. THE CONTACT PERIOD FOR THIS DISINFECTION SHALL BE AT LEAST 24 HOURS, AND A LONGER PERIOD WILL BE REQUIRED IF TESTS OF RESIDUAL CHLORINE SHOW IT TO BE NECESSARY FOR PROPER DISINFECTION.
- THE NEW WATER SYSTEM SHALL BE FLUSHED OUT AFTER DISINFECTION AND REFILLED WITH FRESH WATER. ALL CHLORINATED WATER USED IN THE DISINFECTION PROCESS SHALL BE DE-CHLORINATED PRIOR TO DISCHARGE TO THE SURROUNDING AREA.
- WATER MUST SIT IN THE MAIN FOR AT LEAST 24 HOURS PRIOR TO TAKING A TEST SAMPLE. WATER UTILIZED FOR THIS PURPOSE, FLUSHING OR PRESSURE TESTING, WHICH IS OBTAINED DIRECTLY FROM THE KCWA SYSTEM, MUST FLOW THROUGH AN ISOLATED CONNECTION TO THE KCWA SYSTEM VIA AN APPROVED METER, TESTABLE BACKFLOW PREVENTION DEVICE AND JUMPER LINE. THE CONTRACTOR SHALL MAKE ALL NECESSARY ARRANGEMENTS FOR SECURING THE WATER FOR TEST PURPOSES AND SHALL BEAR THE EXPENSE OF THESE ARRANGEMENTS. THE INSTALLER SHALL FURNISH AND INSTALL SUITABLE TEMPORARY TESTING PLUGS, CAPS, PUMPS, PIPE CONNECTIONS AND OTHER APPURTENANCES, AS NECESSARY, TO OBTAIN SAMPLES AT POINTS NO FURTHER THAN 1,000 FEET APART.
- AFTER FINAL FLUSHING AND BEFORE THE NEW WATER MAIN IS CONNECTED TO THE DISTRIBUTION SYSTEM, TWO CONSERVATIVE SETS OF ACCEPTABLE SAMPLES FOR COLIFORM BACTERIA HETEROTROPHIC PLATE COUNT (HPC), TAKEN 24 HOURS APART, SHALL BE COLLECTED FROM THE TERMINATION OF THE NEW MAIN. AT LEAST ONE SAMPLE SHALL BE COLLECTED EVERY 1000 FT. OF NEW MAIN, PLUS ONE SET OF TWO SAMPLES FROM THE END OF THE LINE. AT LEAST ONE SET OF TWO SAMPLES SHALL BE TAKEN FROM EACH BRANCH. SAMPLES SHALL BE COLLECTED BY KCWA EMPLOYEES, GIVEN A TWO-DAY NOTICE AND TESTED BY A LABORATORY APPROVED BY KCWA. A FEE SHALL BE IMPOSED FOR THE SAMPLING TESTING FOR EACH TEST. THE FEE SHALL BE AT THE CURRENT RATE SCHEDULED IN EFFECT AT THE TIME OF TESTING. PAYMENT SHALL BE PRIOR TO SAMPLE COLLECTION BY THE KCWA. THE WATER SAMPLE TEST RESULTS MUST INDICATE THAT THE WATER QUALITY IN THE NEW MAIN IS CONSISTENT IN QUALITY WITH KCWA SYSTEM WATER.

\* TAKEN FROM SECTION 3.23 OF THE "RULES AND REGULATIONS OF THE KENT COUNTY WATER AUTHORITY" DATED SEPTEMBER 20, 2006.

## LEAKAGE AND PRESSURE TESTING FOR WATERMAINS

- GENERAL
  - HYDROSTATIC AND LEAKAGE TESTS SHALL BE PERFORMED ON ALL COMPLETED SECTIONS OF NEWLY INSTALLED SEWER FORCE MAIN AND WATERMAIN PIPELINE IN ACCORDANCE WITH THE REQUIREMENTS OF THE KENT COUNTY WATER AUTHORITY, AND AS SPECIFIED BELOW.
- THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING ALL LABOR, TOOLS AND EQUIPMENT NECESSARY FOR TESTING, CONTRACTOR TO NOTIFY KENT COUNTY WATER AUTHORITY 48 HOURS IN ADVANCE OF TEST DATE.
- TESTING PROCEDURES
  - ALL AIR SHALL BE EXPELLED AT THE HIGH POINTS AND THE PIPELINE SLOWLY FILLED WITH POTABLE WATER, AND MUST SIT FOR 24 HOURS BEFORE CONDUCTING TEST.
  - THE INTERNAL PRESSURE SHALL BE BUILT UP TO 150 PSI AND MAINTAINED FOR A PERIOD OF NOT LESS THAN ONE (1) HOUR.
  - ALL LEAKS IN THE PIPELINE SHALL BE STOPPED; CRACKED OR DEFECTIVE PIPE, FITTINGS OR ACCESSORIES SHALL BE REMOVED AND REPLACED WITH NEW BY THE CONTRACTOR.
  - THE PIPELINE SHALL BE RETESTED AS MAY BE REQUIRED AND NECESSARY UNTIL THE LEAKAGE FALLS WITHIN THE ALLOWABLE DETERMINED FOR THE PIPE NETWORK, AT WHICH TIME THE PIPELINE MAY BE CONSIDERED READY FOR:
    - WATERMAINS - DISINFECTION STEP
    - SEWER FORCE MAIN - READY FOR USE
- COMPLIANCE WITH STATE PLUMBING CODE IN REFERENCE TO RESIDENTIAL BACK FLOW PREVENTION, MUST BE VERIFIED BY PLUMBER INSPECTOR, PRIOR TO METER INSTALLATION.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED FEB 26 2000 FILE # 05-025  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE  
Charles A. Harte

## Preliminary - Not for Construction

THIS PLAN IS NOT TO BE UTILIZED FOR CONSTRUCTION ACTIVITIES. ONLY PLANS TYPED "ISSUED FOR CONSTRUCTION" AND SIGNED BY A DIPRETE ENGINEERING REPRESENTATIVE SHALL BE UTILIZED FOR CONSTRUCTION ACTIVITIES.

CHRISTOPHER A. DURAMEL  
No. 5013  
REGISTERED PROFESSIONAL ENGINEER

**DETAIL SHEET**

**Cowesett Farm**

ASSESSOR'S PLAT 239 LOT 8 (PORTION)  
WARWICK, RHODE ISLAND

PREPARED BY  
**DiPrete Engineering Associates, Inc.**  
ENGINEERING, SURVEYING AND PLANNING CONSULTANTS

TWO STAFFORD COURT  
CRANSTON, R.I. 02924  
(401) 943-1000 FAX: (401) 464-6006

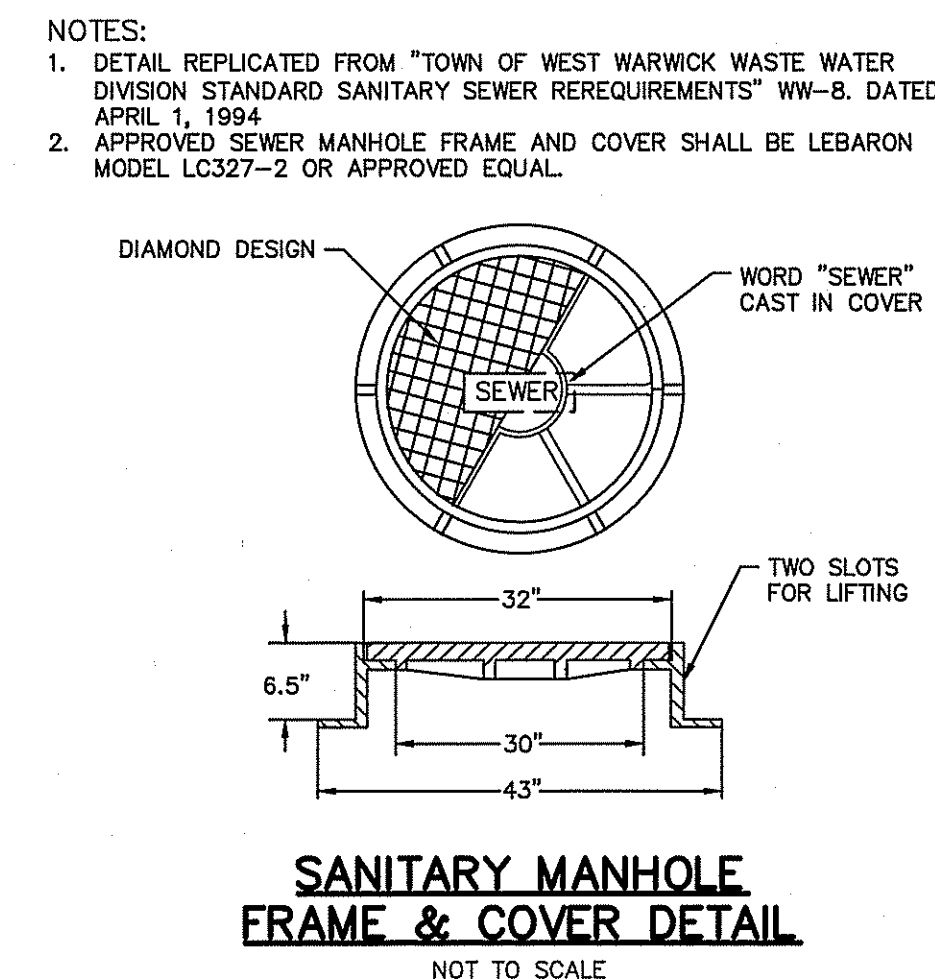
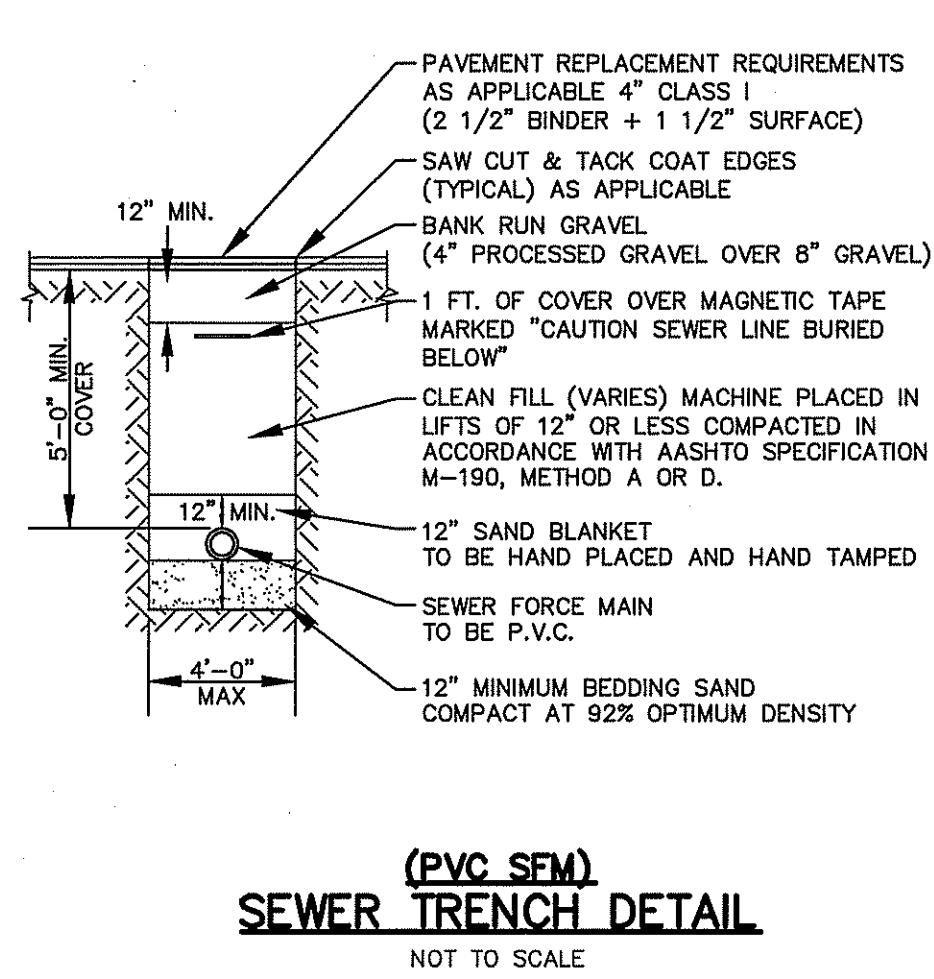
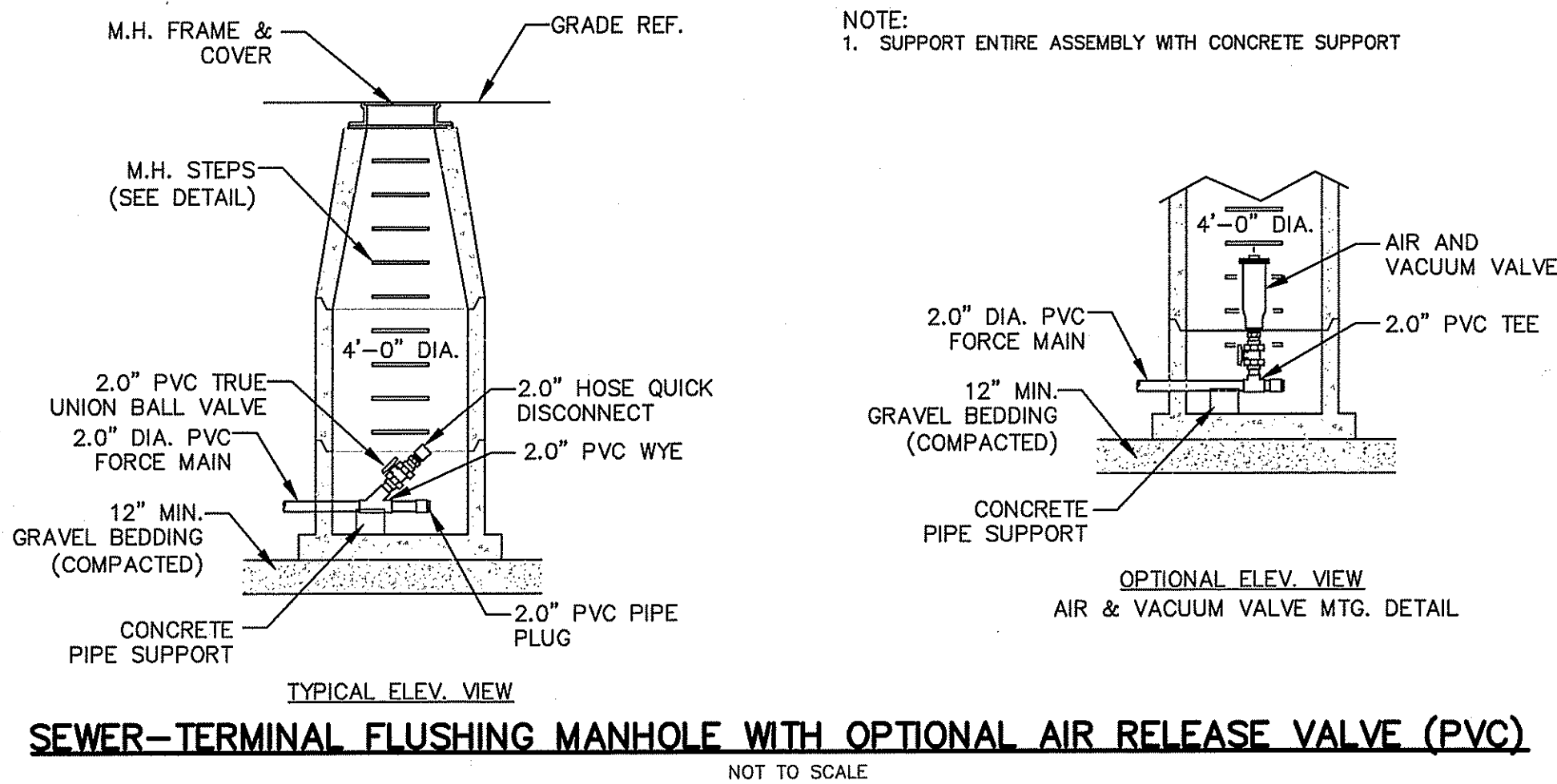
PREPARED FOR  
**Cowesett Farm, LLC**  
50 LYNCH PLACE  
CUMBERLAND, RI 02864  
PHONE: (401) 333-4300

JULY, 2008  
DWN. BY: L.A.B.

SHEET **18** OF 21

NO.	DATE	DESCRIPTION	BY
2	2-12-08	REVISION TO SUBMISSION	DAR
1	7-16-08	REVISION TO SUBMISSION	L.A.B.
0	7-16-08	REVISION TO SUBMISSION	L.A.B.





## SEWER LINE / WATER MAIN SEPARATION POLICY FOR DESIGN OF SANITARY SEWERS

### A. LATERAL PLACEMENT OF SEWERS AND WATER MAINS

SEWERS SHALL BE LAID AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATERMAIN. THE DISTANCE SHALL BE MEASURED EDGE-TO-EDGE. THERE IS NO MINIMUM VERTICAL SEPARATION REQUIRED PROVIDED THE 10 FOOT HORIZONTAL SEPARATION IS MAINTAINED.

IN CASES WHERE IT IS NOT POSSIBLE TO MAINTAIN A 10 FOOT HORIZONTAL SEPARATION, THE DIVISION MAY ALLOW DEVIATION ON A CASE BY CASE BASIS, IF SUPPORTED BY DATA FROM THE DESIGN ENGINEER. SUCH DEVIATION MAY ALLOW INSTALLATION OF THE SEWER CLOSER TO A WATERMAIN, PROVIDED THAT:

1. THE SEWER AND WATER MAIN ARE LAID IN SEPARATE TRENCHES, OR
2. THE SEWER AND WATER MAIN MAY BE INSTALLED IN THE SAME TRENCH WITH THE WATERMAIN PLACED ON A BENCH OF UNDISTURBED EARTH, AND
3. IN EITHER CASE, THE CROWN OF THE SEWER SHALL BE AT LEAST 18 INCHES BELOW THE INVERT OF THE WATERMAIN.

### B. SEWERS CROSSING WATER MAINS

SEWERS CROSSING OVER WATER MAINS SHOULD BE AVOIDED, BUT IF CONDITIONS WARRANT THIS SITUATION, THEN ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER TO MAINTAIN LINE AND GRADE. SEWERS CROSSING UNDER WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL SEPARATION OF 18 INCHES BETWEEN THE INVERT OF THE WATER MAIN AND THE CROWN OF THE SEWER. THE CROSSING SHALL BE ARRANGED SO THAT SEWER JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE WATER MAIN JOINTS.

WHERE CONDITIONS PREVENT AN 18 INCH VERTICAL SEPARATION FROM BEING MAINTAINED, THE FOLLOWING METHODS SHALL BE SPECIFIED:

- A. THE SEWER SHALL BE DESIGNED AND CONSTRUCTED EQUAL TO WATER MAIN PIPE (CEMENT-LINED DUCTILE IRON PIPE, PVC OR OTHER AWWA APPROVED MATERIAL FOR POTABLE WATER CONVEYANCE) FOR A DISTANCE OF 12 FEET ON EACH SIDE OF THE CROSSING, MEASURED PERPENDICULAR TO THE WATER MAIN AND PRESSURE TESTED IN ACCORDANCE WITH AWWA SPECIFICATIONS, OR
- B. EITHER THE WATER MAIN OR THE SEWER MAY BE ENCASED IN CONCRETE (MIN. 6 INCH THICKNESS) OR A CARRIER PIPE FOR A DISTANCE OF 12 FEET ON EACH SIDE OF THE CROSSING, MEASURED PERPENDICULAR TO THE WATERMAIN. THE CARRIER PIPE SHALL BE DESIGNED AND CONSTRUCTED OF MATERIALS WHICH ARE SATISFACTORY TO THE DIVISION, OR
- C. ANY OTHER METHODS, IF SUPPORTED BY DATA FROM THE DESIGN ENGINEER, WHICH ENSURE ADEQUATE WATER TIGHTNESS AND ARE SATISFACTORY TO THE DIVISION.

## FOUNDATION DRAIN CONSTRUCTION MAINTENANCE AND INSPECTION NOTES:

1. FOUNDATION DRAIN AREAS TO BE STAKED, MARKED, AND REMAIN UNDISTURBED PRIOR TO CONSTRUCTION. THERE IS TO BE NO CONSTRUCTION TRAFFIC ON SUBDRAIN AREA PRIOR TO CONSTRUCTION.
2. STAKE CENTERLINE OF FOUNDATION DRAINS.
3. EXCAVATE TRENCH, IF NECESSARY, PUMP GROUNDWATER TO DEWATERING BASIN. THE TRENCH SHALL BE A MINIMUM OF 36\"/>

## GENERAL SEWER NOTES

1. INSTALLATION OF THE SEWERAGE FACILITIES SHALL BE IN ACCORDANCE WITH THE KENT COUNTY WATER AUTHORITY "STANDARD SPECIFICATIONS AND DETAILS FOR THE INSTALLATION OF SEWERS AND APPURTENANCES BY PRIVATE DEVELOPERS" IN EFFECT ON THE DATE PART I OF THE SEWER PERMIT AGREEMENT IS EXECUTED.
2. 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 REPRESENTATIVE.
3. ALL SEWERAGE FACILITIES SHALL BE MEET TESTING AND CLEANING REQUIREMENTS PRIOR TO ACCEPTANCE.
4. AS-BUILT DRAWING SHALL BE FURNISHED AS A CONDITION FOR ACCEPTANCE OF THE NEW SEWERAGE FACILITIES.
5. NO FLOW WILL BE ACCEPTED UNTIL ALL ABOVE STEPS ARE COMPLETED AND COMPLETION CERTIFICATE IS ISSUED.
6. AFTER THE DEVELOPERS HAS "STAKED OUT" THE FACILITIES TO BE CONSTRUCTED AND HAS THE APPROVED MATERIALS ON THE JOB, THE WARWICK SEWER AUTHORITY SHALL BE NOTIFIED AT LEAST TWO WORKING DAYS IN ADVANCE OF CONSTRUCTION IN ORDER FOR IT TO ARRANGE FOR ITS INSPECTOR.
7. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE APPROVE PLANS AND MATERIALS, STANDARD AND SPECIAL DETAILS, AND STANDARD SPECIFICATION. ANY WORK NOT MEETING THE APPROVED STANDARDS SHALL BE IMMEDIATELY REMOVED AND REPLACED AT THE FULL RESPONSIBILITY AND COST/EXPENSE TO THE DEVELOPER.
8. THE CONTRACTOR SHALL BE CONFINE HIS OPERATIONS AND ACTIVATES FOR CONSTRUCTION PURPOSES WITHIN THE STREET LINES, EASEMENTS AND/OR RIGHT-OF-WAY AS SHOWN ON THE DRAWINGS.
9. ALL AREAS DISTURBED BY THE CONTRACTOR SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AT NO EXTRA COST TO THE OWNER. ALL GRASSED AREAS DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE LOAMED AND SEEDS.
10. LOCATION AND DEPTHS OF EXISTING UTILITIES ARE APPROXIMATE AND HAVE BEEN PLOTTED FROM THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL VERIFY LOCATIONS OF ALL EXISTING UTILITIES AND NOTIFY THE APPROPRIATE UTILITY AUTHORITIES INCLUDING "DIG SAFE" PRIOR TO STARTING WORK. ANY DAMAGE TO UTILITIES CAUSED BY THE CONTRACTOR'S OPERATIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND COST OF REPAIRS SHALL BE BORNE BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
11. VERTICAL SEPARATION OF SEWER AND WATER MAINS SHALL BE 18\"/>

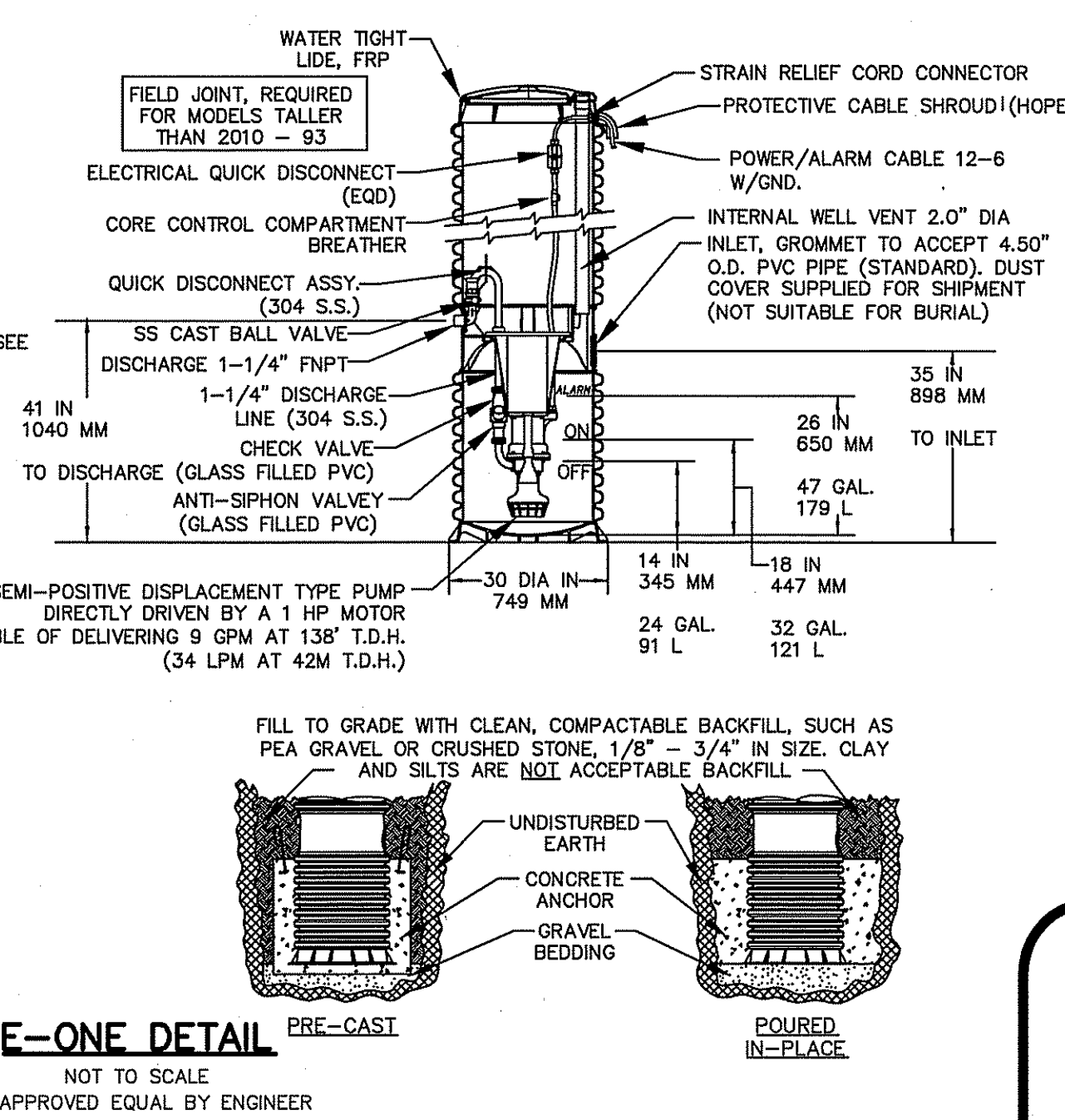
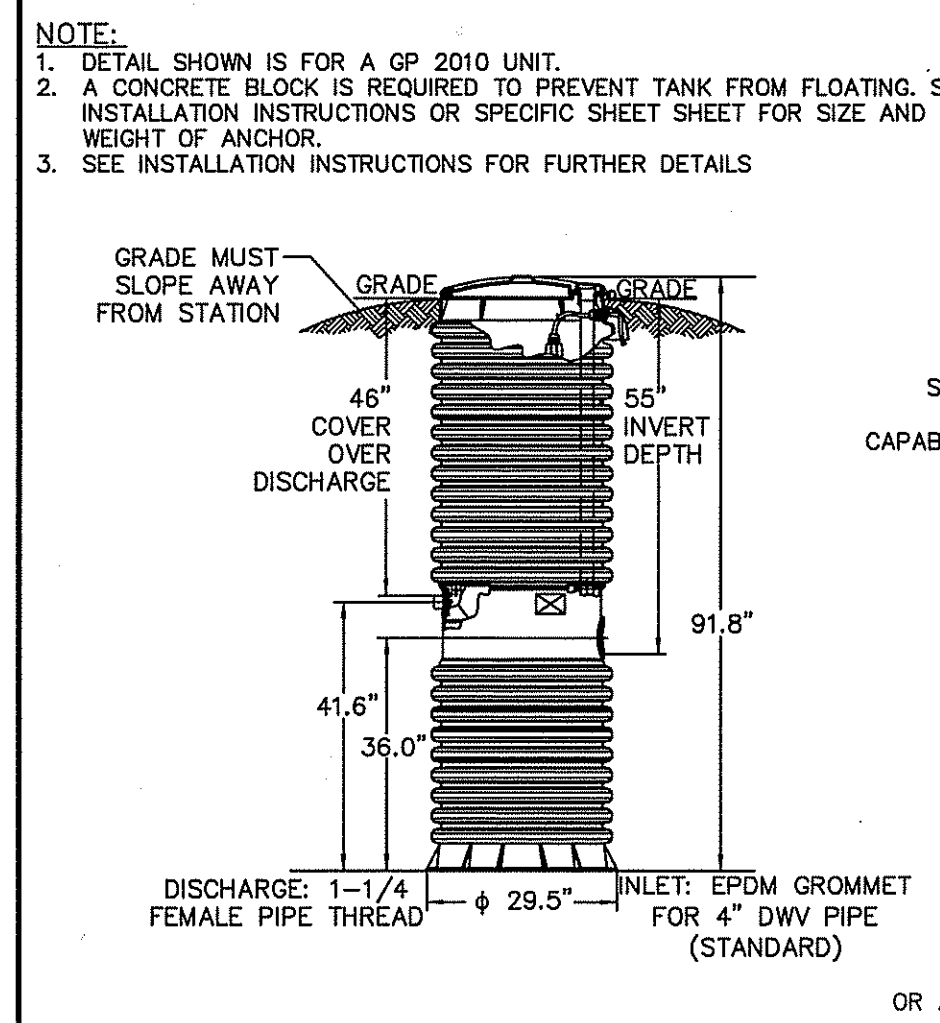
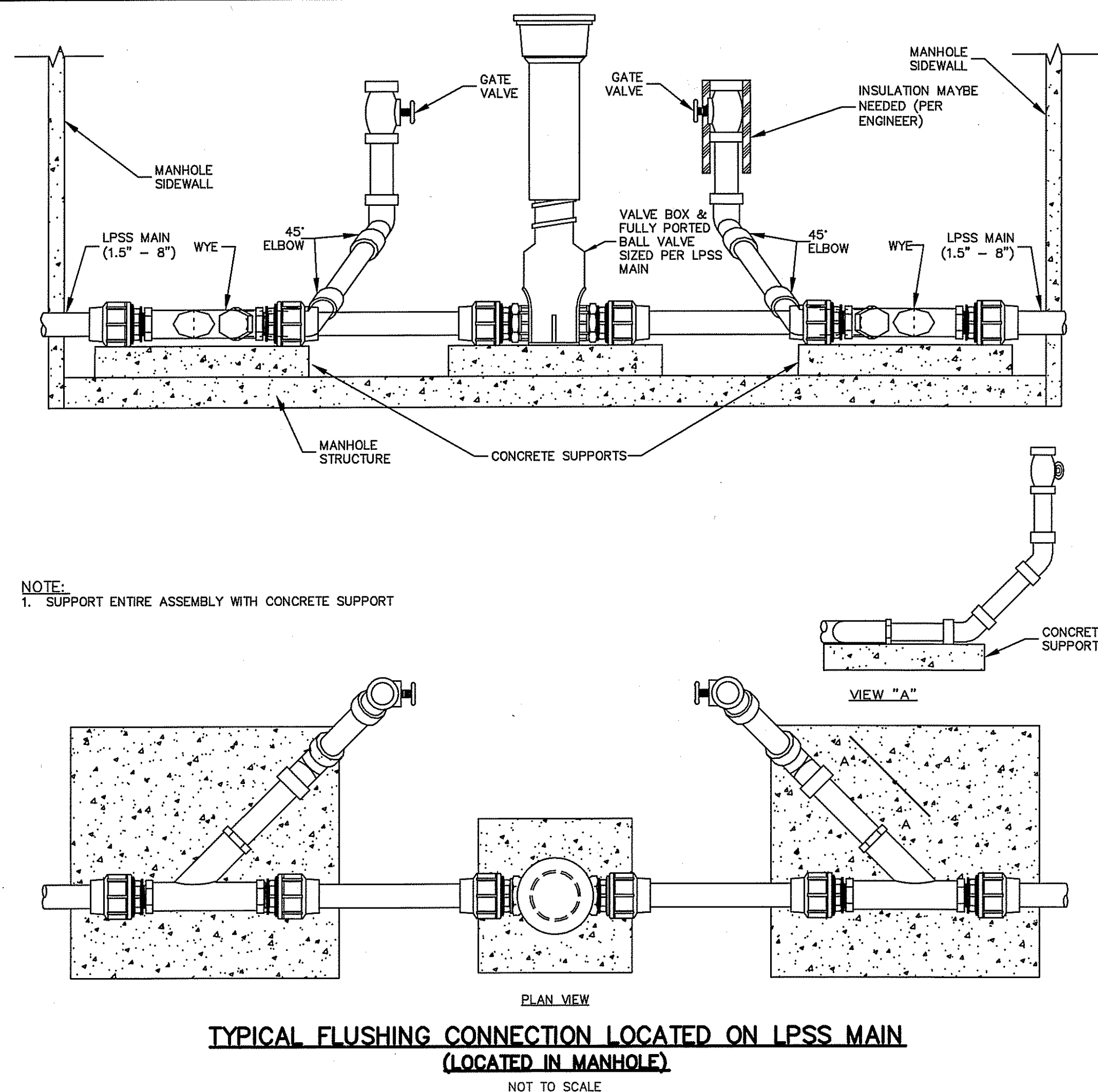
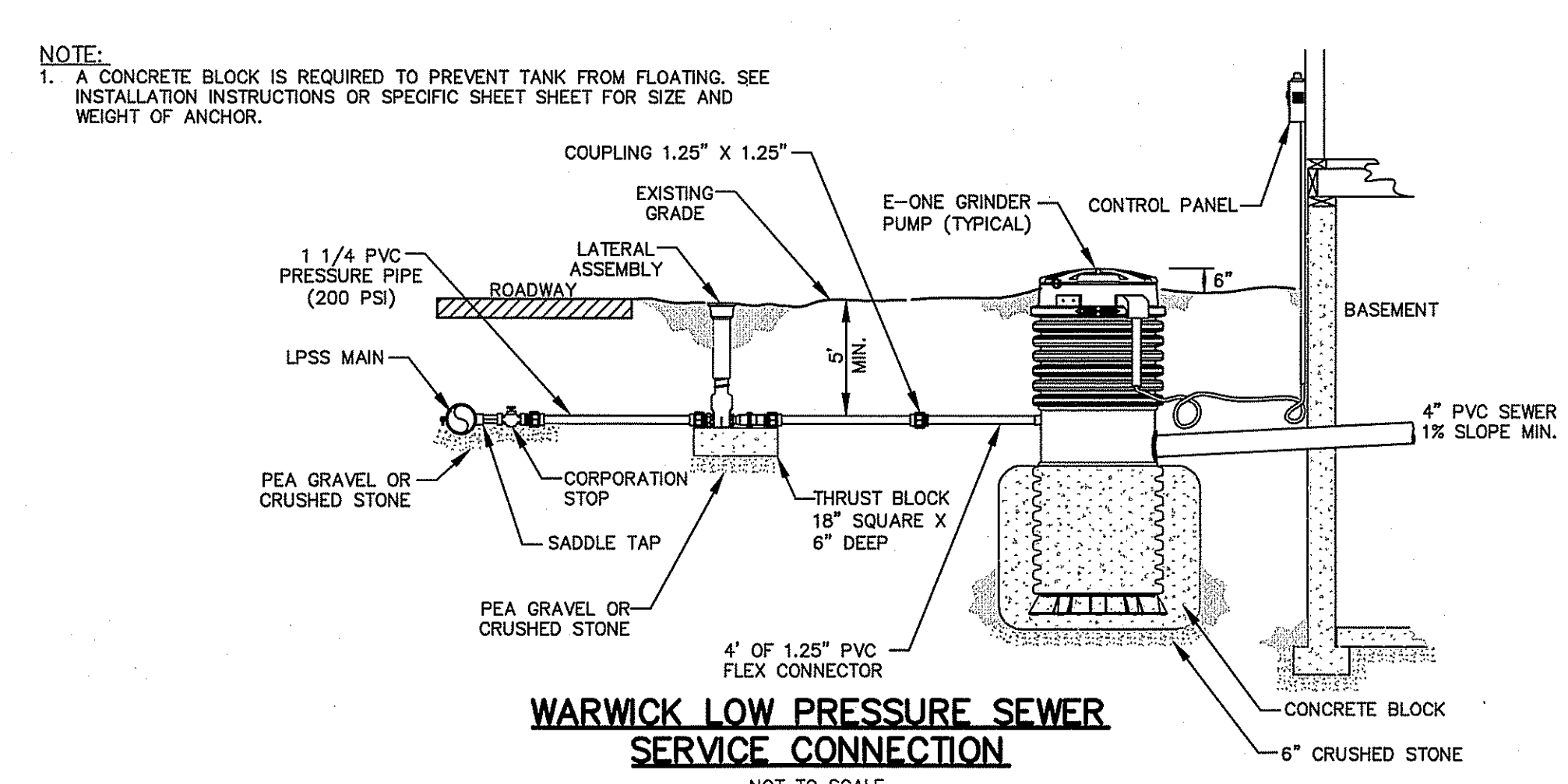
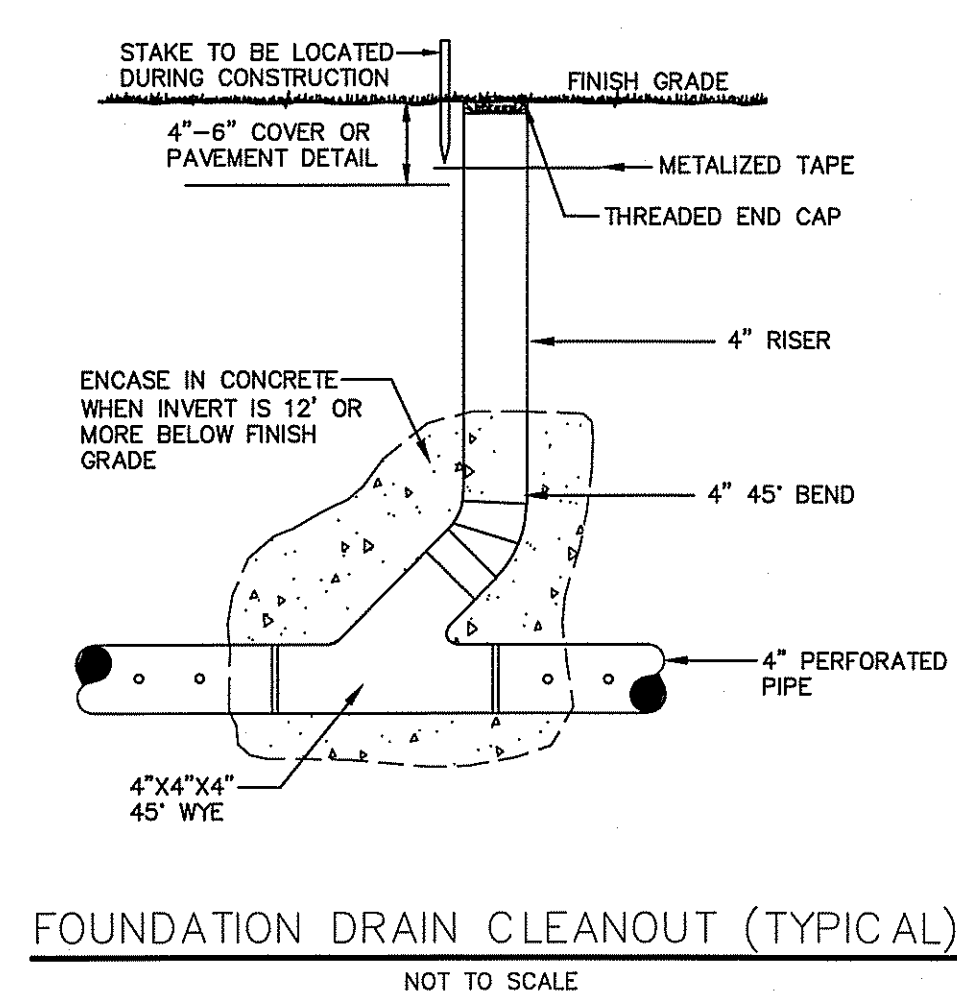
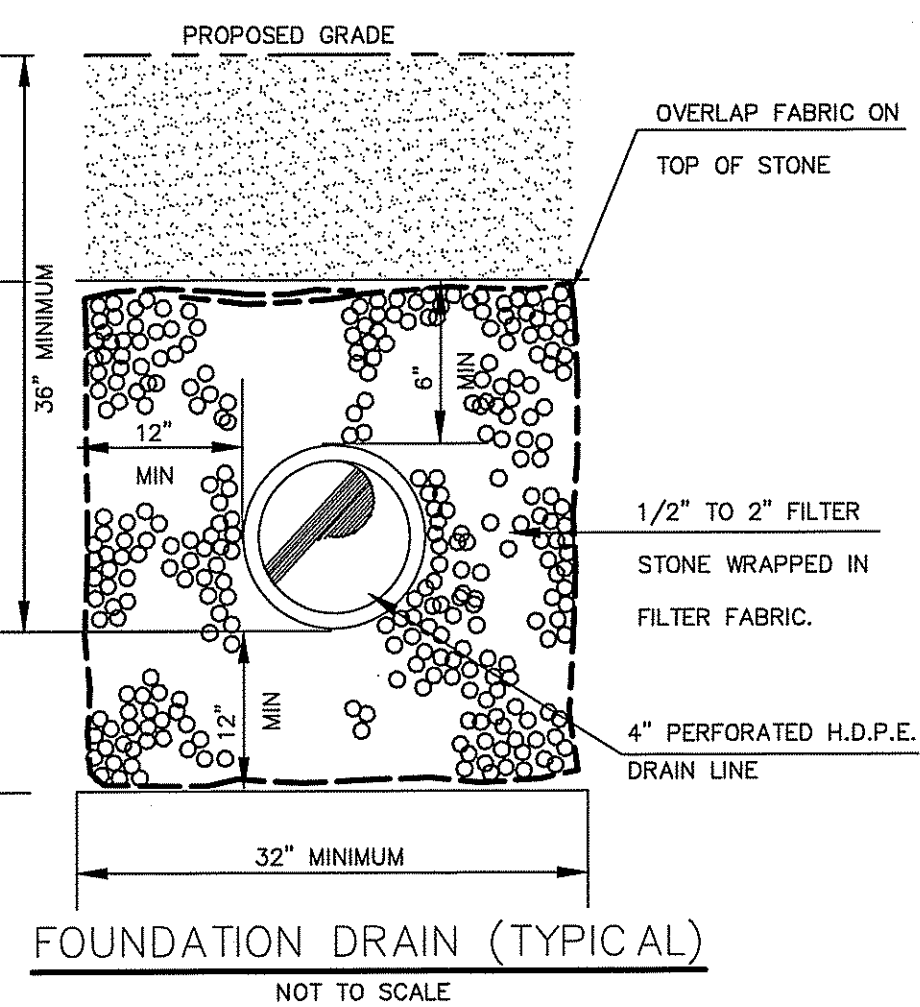
## LEAKAGE AND PRESSURE TESTING FOR SEWER FORCE MAINS AND WATERMAINS

1. **GENERAL**  
HYDROSTATIC AND LEAKAGE TESTS SHALL BE PERFORMED ON ALL COMPLETED SECTIONS OF NEWLY Laid SEWER FORCE MAIN AND WATERMAIN PIPELINE IN ACCORDANCE WITH AWWA C600, KENT COUNTY WATER AUTHORITY, THE CITY OF WARWICK, AND AS SPECIFIED BELOW.  
THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING ALL LABOR, TOOLS AND EQUIPMENT NECESSARY FOR TESTING.
2. **TESTING PROCEDURES**  
ALL AIR SHALL BE EXPELLED AT THE HIGH POINTS AND THE PIPELINE SLOWLY FILLED WITH POTABLE WATER.  
THE INTERNAL PRESSURE SHALL BE BUILT UP TO 150 PSI OR 1.25 OPERATING PRESSURE AND MAINTAINED FOR A PERIOD OF NOT LESS THAN TWO (2) HOURS.  
ALL LEAKS IN THE PIPELINE SHALL BE STOPPED; CRACKED OR DEFECTIVE PIPE, FITTINGS OR ACCESSORIES SHALL BE REMOVED AND REPLACED WITH NEW BY THE CONTRACTOR.  
THE PIPELINE SHALL BE RETESTED AS MAY BE REQUIRED AND NECESSARY UNTIL THE LEAKAGE FALLS WITHIN THE ALLOWABLE DETERMINED FOR THE PIPE NETWORK, AT WHICH TIME THE PIPELINE MAY BE CONSIDERED READY FOR:  
A. WATERMAINS - DISINFECTION STEP  
B. SEWER FORCE MAIN - READY FOR USE  
ALL LINES SHALL BE DISINFECTED PRIOR TO BEING ACTIVATED IN ACCORDANCE WITH AWWA C-600, AWWA C-601, AND CITY SPECIFICATIONS. CHLORINATION ACCORDING TO AWWA REQUIREMENTS FOR SERVICE AND MAIN INSTALLATION.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED FEB 26 2009 FILE # 08-0225  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE  
*Charles A. Hackett*

## Preliminary - Not for Construction

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NO.	DATE	DESCRIPTION	BY
2	2-12-08	RIDET PD RE-SUBMISSION	DAR
3	7-18-08	RIDET PD SUBMISSION	LAB
4	7-18-08	RIDET PD SUBMISSION	LAB

**DETAIL SHEET**

**Cowesett Farm**  
ASSESSOR'S PLAT 239 LOT 8 (PORTION)  
WARWICK, RHODE ISLAND

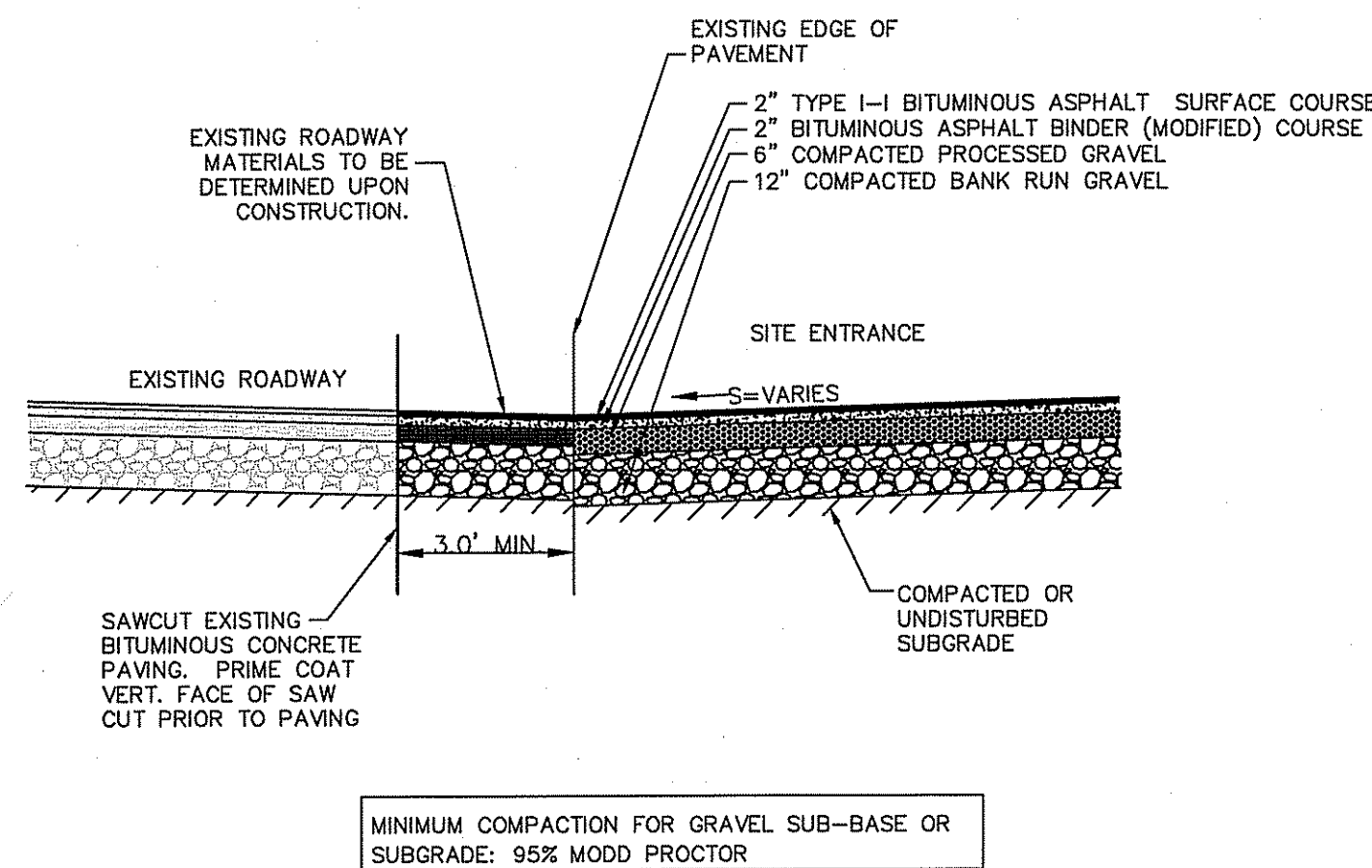
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TWO STAFFORD COURT  
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PREPARED FOR  
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CUMBERLAND, RI 02864  
PHONE: (401) 333-4300

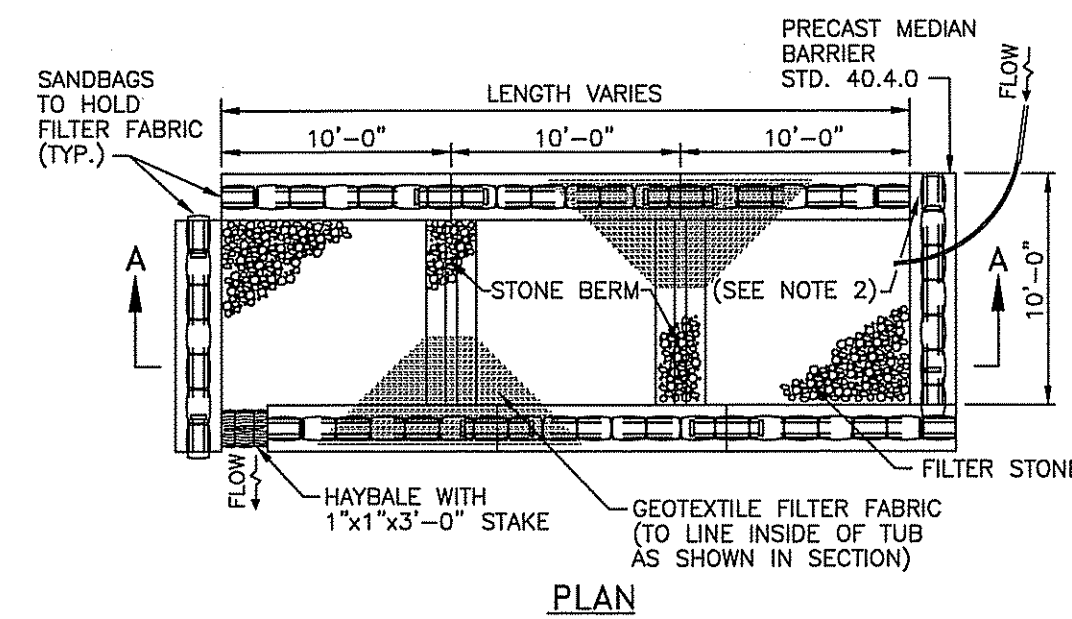
JULY, 2008  
DWN. BY: L.A.B.

SHEET **19** OF 21



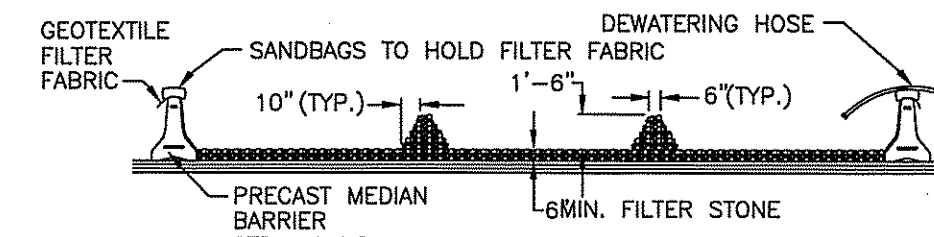


**SAWCUT & MATCH PAVEMENT DETAIL**  
N.T.S.

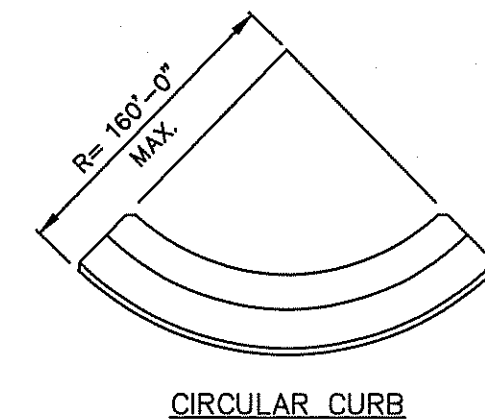
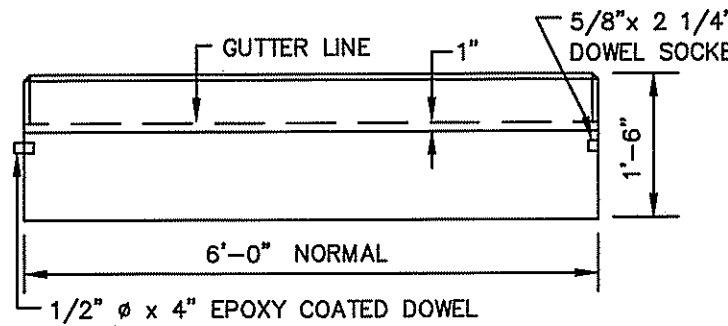
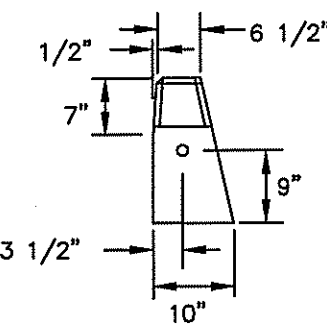


NOTES:  
1. SHALL BE IN ACCORDANCE WITH SECTION 208 OF THE R.I. STANDARD SPECIFICATIONS.  
2. PROVIDE ADDITIONAL SAND BAGS AS REQUIRED TO FILL SPACE BETWEEN ADJACENT BARRIERS.

**DEWATERING BASIN**  
NOT TO SCALE

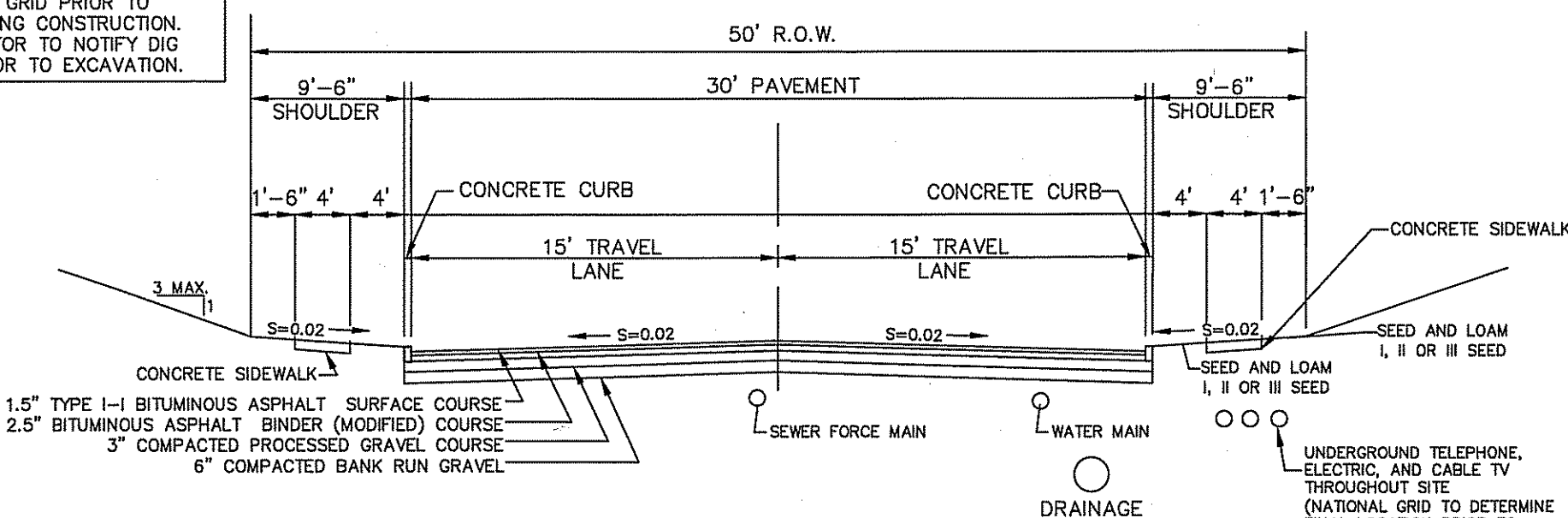


- NOTES:  
1. SHALL BE IN ACCORDANCE WITH SECTION 905 OF THE R.I. STANDARD SPECIFICATIONS.  
2. MINIMUM LENGTH OF STRAIGHT OR CIRCULAR FILLER PIECES TO BE 3'-0".  
3. EXPOSED SURFACES TO HAVE A SPONGE FLOAT FINISH.  
4. CIRCULAR CURB IS REQUIRED ON CURVES WITH RADI OF 160'-0" OR LESS. STRAIGHT CURB TO BE USED ON CURVES OF MORE THAN 160'-0" RADIUS.  
5. EXPOSED EDGES TO HAVE A 3/4 CHAMFER.

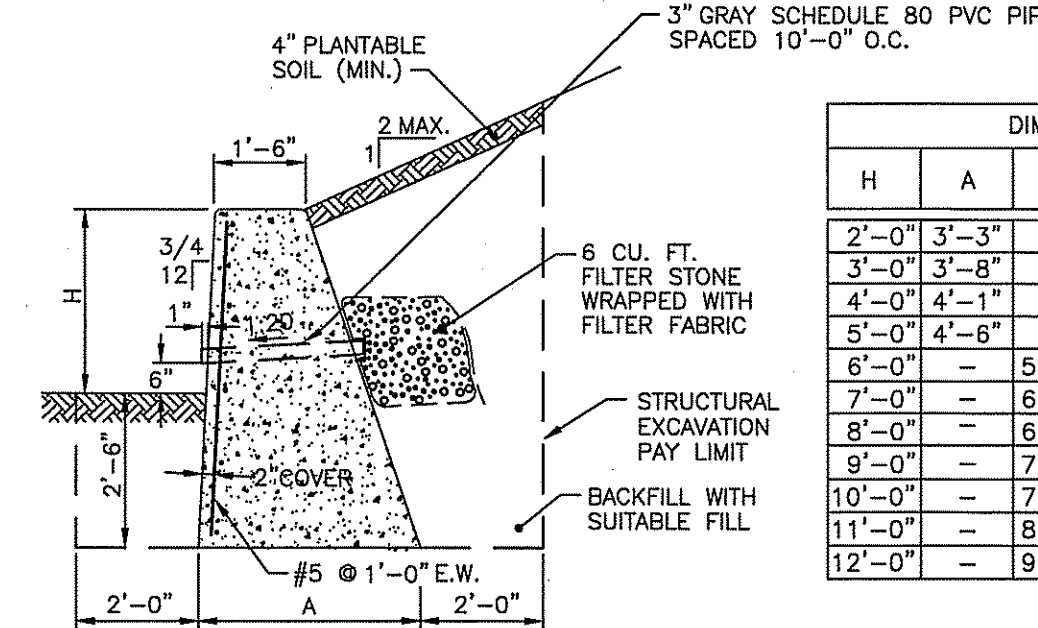


**PRECAST CONCRETE CURB**  
NOT TO SCALE

NOTE: UNDERGROUND UTILITY TRENCH CONSTRUCTION TO CONFORM TO ALL APPLICABLE STANDARDS DETERMINED BY THE TOWN AND NATIONAL GRID PRIOR TO COMMENCING CONSTRUCTION. CONTRACTOR TO NOTIFY DIG SAFE PRIOR TO EXCAVATION.

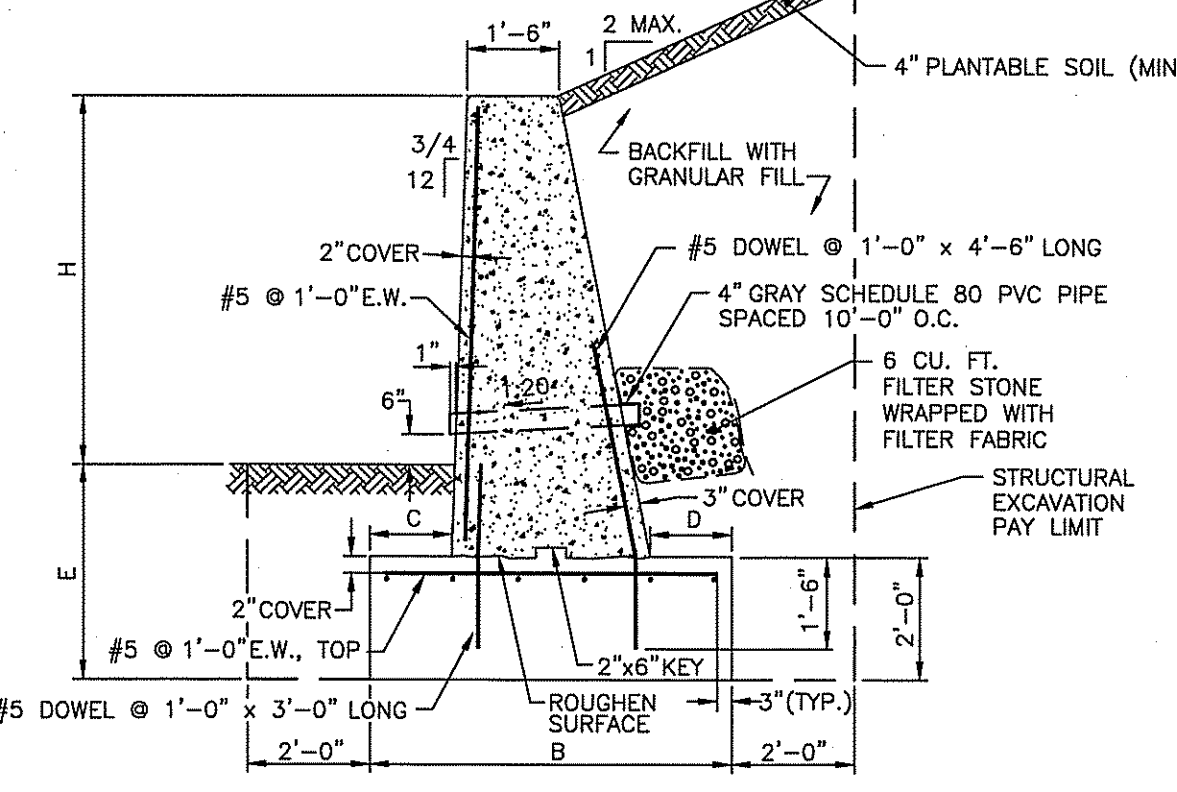


**TYPICAL ROAD CONSTRUCTION CROSS SECTION**  
NOT TO SCALE



DIMENSIONS AND QUANTITIES						
H	A	B	C	D	E	C.F./L.F. OF WALL
2'-0"	3'-3"	-	-	-	2'-6"	10.69
3'-0"	3'-8"	-	-	-	2'-6"	14.21
4'-0"	4'-1"	-	-	-	2'-6"	18.14
5'-0"	4'-6"	-	-	-	2'-6"	22.50
6'-0"	5'-4"	1'-0"	1'-4"	3'-6"	27.54	
7'-0"	6'-2"	1'-4"	1'-4"	3'-6"	33.59	
8'-0"	6'-5"	1'-4"	1'-6"	3'-6"	36.98	
9'-0"	7'-4"	1'-9"	1'-9"	3'-6"	42.66	
10'-0"	7'-10"	1'-9"	2'-0"	3'-6"	47.76	
11'-0"	8'-5"	1'-10"	2'-3"	3'-6"	53.30	
12'-0"	9'-0"	1'-10"	2'-6"	3'-6"	59.63	

H = 2'-0" TO 5'-0"



H = 6'-0" TO 12'-0"

- GENERAL NOTES:  
1. SHALL BE IN ACCORDANCE WITH SECTION 808 OF THE R.I. STANDARD SPECIFICATIONS.  
2. USE 1/2" PREFORMED JOINT FILLER AND BEVEL EXPOSED EDGES WITH 3/4" CHAMFER.  
3. SEAL BACKFACE WITH 1/4"x1/2" JOINT SEALANT.  
4. SURFACE RUB EXPOSED FACE AND TOP.  
5. ALL REINFORCING TO BE EPOXY COATED.  
6. PROVIDE EXPANSION JOINTS EVERY 25'-0" IN STEMS.

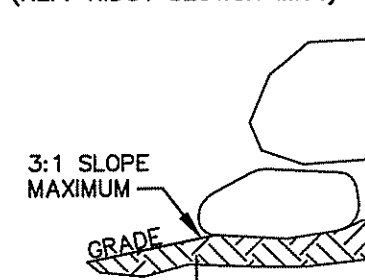
**CONCRETE RETAINING WALL**  
N.T.S.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
STANDARD APPROVED WITH CONDITIONS  
APPROVED IN THE LETTER OF APPROVAL  
DATED FEB 26 2009 FILE # 08-0225  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

MINIMUM DIMENSIONS	
H	A
3'-0"	2'-6"
4'-0"	3'-0"
5'-0"	3'-6"
6'-0"	3'-10"

NOTE: MAXIMUM HEIGHT OF BOULDER RETAINING WALL IS 6 FEET. GREATER THAN 6 FOOT HEIGHT WILL REQUIRE DEVELOPMENT PLAN REVIEW WITH THE TOWN.

BOULDERS STACKED IN PLACE WITHOUT THE USE OF CONCRETE OR MORTAR. TYPICALLY 18"-36" DIA. (REF: RIDOT SECTION M.14)

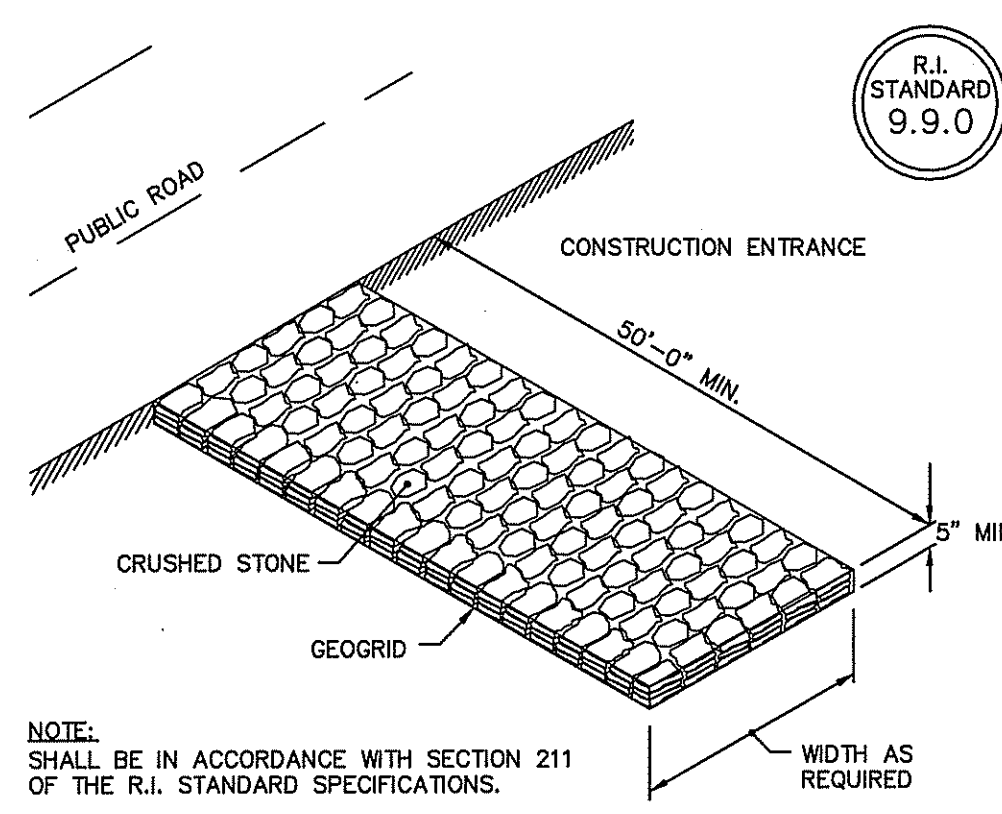


- NOTES:  
1. WALL MANUFACTURER OR TYPE MAY BE SUBSTITUTED WITH APPROVAL OF ENGINEER.  
2. SHOP DRAWINGS STAMPED BY A PROFESSIONAL ENGINEER TO BE PROVIDED PRIOR TO CONSTRUCTION.

**BOULDER RETAINING WALL**  
NOT TO SCALE

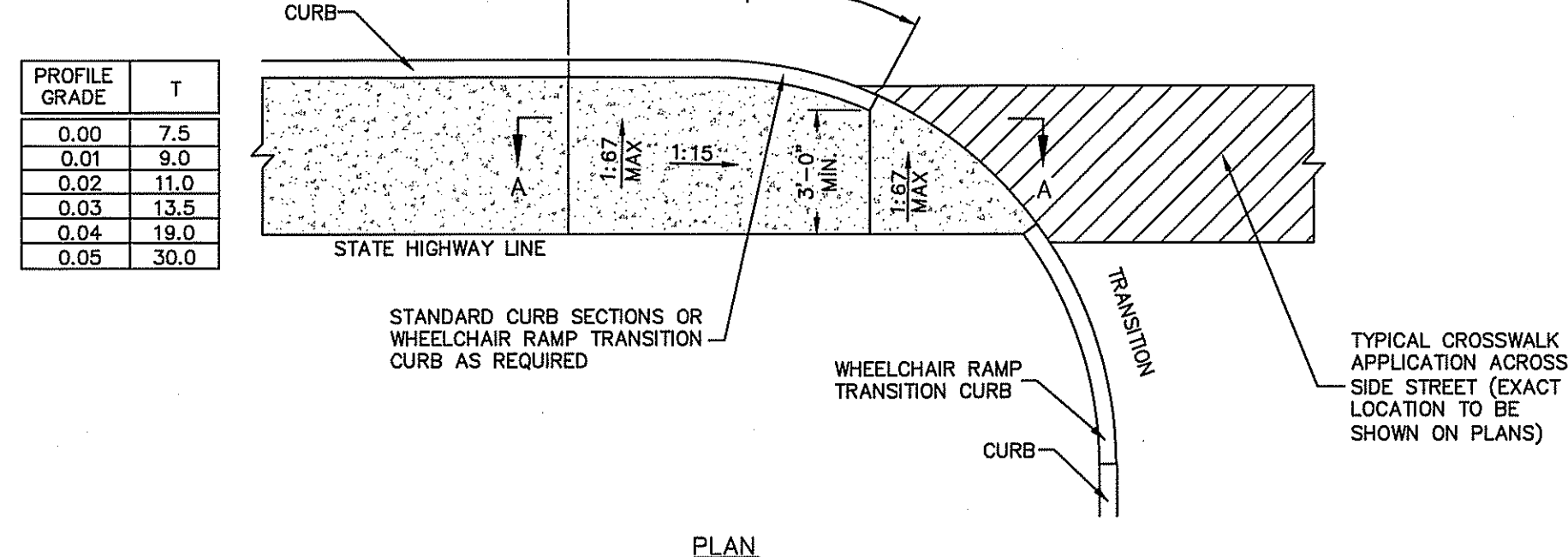
SITE SPECIFIC NOTES:

1. ALL RETAINING WALLS AND STEEP SLOPES ARE SHOWN SCHEMATICALLY ONLY AND DIPRETE ENGINEERING ASSOCIATES, INC. IS NOT PROVIDING THE DESIGN OF THESE ITEMS. THE ACTUAL WALLS AND SLOPES ARE TO BE BUILT UNDER THE DIRECTION OF A GEOTECHNICAL ENGINEER AND CERTIFIED TO THE OWNER PRIOR TO THE COMPLETION OF THE PROJECT. SHOP DRAWINGS TO BE SUBMITTED PRIOR TO CONSTRUCTION.  
2. ALL CUT AND FILL AREAS ARE TO BE DONE UNDER THE DIRECTION OF A GEOTECHNICAL ENGINEER WITH TESTING AND CERTIFICATION TO BE PROVIDED TO THE OWNER AT THE COMPLETION OF THE PROJECT. DIPRETE ENGINEERING ASSOCIATES, INC. HAS NOT PROVIDED THE FILL SPECIFICATION, GEOTECHNICAL ENGINEERING, STRUCTURAL ENGINEERING SERVICES, OR SUPERVISION AS PART OF THESE DRAWINGS.  
3. ADDITIONAL SUBDRAINS MAY BE REQUIRED IN THE AREAS OF THE CUT SLOPES TO CONTROL GROUNDWATER.  
4. PROPOSED RETAINING WALLS MAY BE SUBSTITUTED BY THE CONTRACTOR UPON PERMISSION FROM DIPRETE ENGINEERING ASSOCIATES.

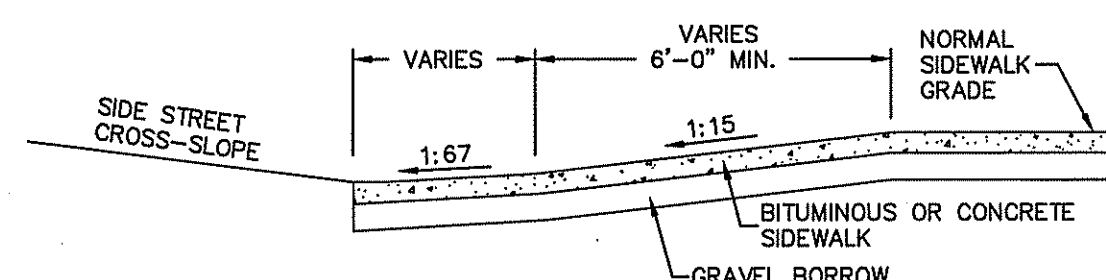


NOTE: SHALL BE IN ACCORDANCE WITH SECTION 211 OF THE R.I. STANDARD SPECIFICATIONS.

**CONSTRUCTION ACCESS**  
NOT TO SCALE



**PLAN**



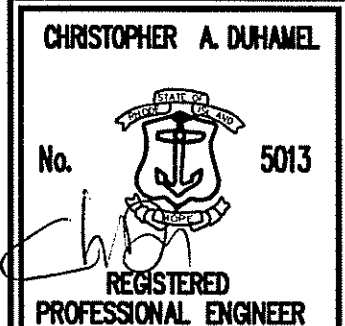
**SECTION A-A**

- NOTES:  
1. SHALL BE IN ACCORDANCE WITH SECTION 904 OF THE R.I. STANDARD SPECIFICATIONS.  
2. THIS DETAIL IS TO BE USED ONLY WHEN STATE RIGHT-OF-WAY IS LIMITED TO BACK OF SIDEWALK, AND SIDEWALK IS NARROW WITH NO PEDESTRIAN TRAFFIC FROM SIDE STREET.  
3. WHEN ANY OBSTRUCTION LOCATED IN THE SIDEWALK FALLS WITHIN A CROSSWALK AREA, IF POSSIBLE, THE OBSTRUCTION WILL BE PLACED SUCH THAT IT FALLS OUTSIDE OF THE RAMP.  
4. AT NO TIME IS ANY PART OF THE WHEELCHAIR RAMP TO BE LOCATED OUTSIDE OF THE CROSSWALK, AND IT IS TO BE CENTERED WHENEVER POSSIBLE.  
5. DRAINAGE FACILITIES ARE TO BE LOCATED UP-GRADE OF ALL WHEELCHAIR RAMPS.  
6. LOCATION OF WHEELCHAIR RAMPS IS AS SHOWN ON CONTRACT DRAWINGS.  
7. ALL REQUIRED CUTTING OF CURB PIECES TO BE PAID FOR UNDER COST OF CURB.  
8. THE ENTRANCE OF THE WHEELCHAIR RAMP SHALL BE FLUSH WITH THE ROADWAY.  
9. MINIMUM LENGTH OF STRAIGHT OR CIRCULAR FILLER PIECES TO BE 3'-0" (GREATER LENGTHS PREFERRED).  
10. AN UNOBSTRUCTED PATH OF TRAVEL WITH A MINIMUM WIDTH OF 5'-0" SHALL BE MAINTAINED.  
11. MEETS OR EXCEEDS GUIDELINES OF RIDOT STANDARD DETAIL 43.3.1.

**WHEELCHAIR RAMP FOR LIMITED RIGHT-OF-WAY AREAS (ADA)**  
NOT TO SCALE

Preliminary - Not for Construction

THIS PLAN IS NOT TO BE UTILIZED FOR CONSTRUCTION ACTIVITIES. ONLY PLANS STAMPED "ISSUED FOR CONSTRUCTION" AND SIGNED BY A DIPRETE ENGINEERING REPRESENTATIVE SHALL BE UTILIZED FOR CONSTRUCTION ACTIVITIES.



DETAIL SHEET

**Cowesett Farm**

ASSESSOR'S PLAT 239 LOT 8 (PORTION)  
WARWICK, RHODE ISLAND

PREPARED BY  
**DiPrete Engineering Associates, Inc.**  
ENGINEERING, SURVEYING AND PLANNING CONSULTANTS

TWO STAFFORD COURT  
CRANSTON, R.I. 02920  
(401) 943-1000 FAX: (401) 464-6006

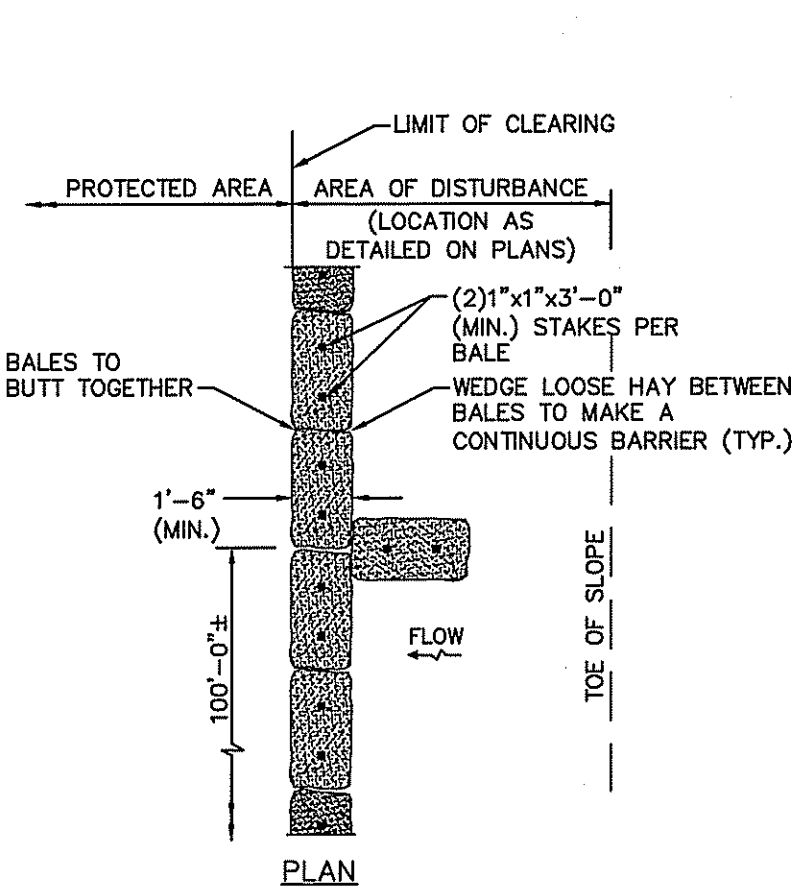
PREPARED FOR  
**Cowesett Farm, LLC**

50 LYNCH PLACE  
CUMBERLAND, RI 02864  
PHONE: (401) 333-4300

JULY, 2008  
DWN. BY: L.A.B.

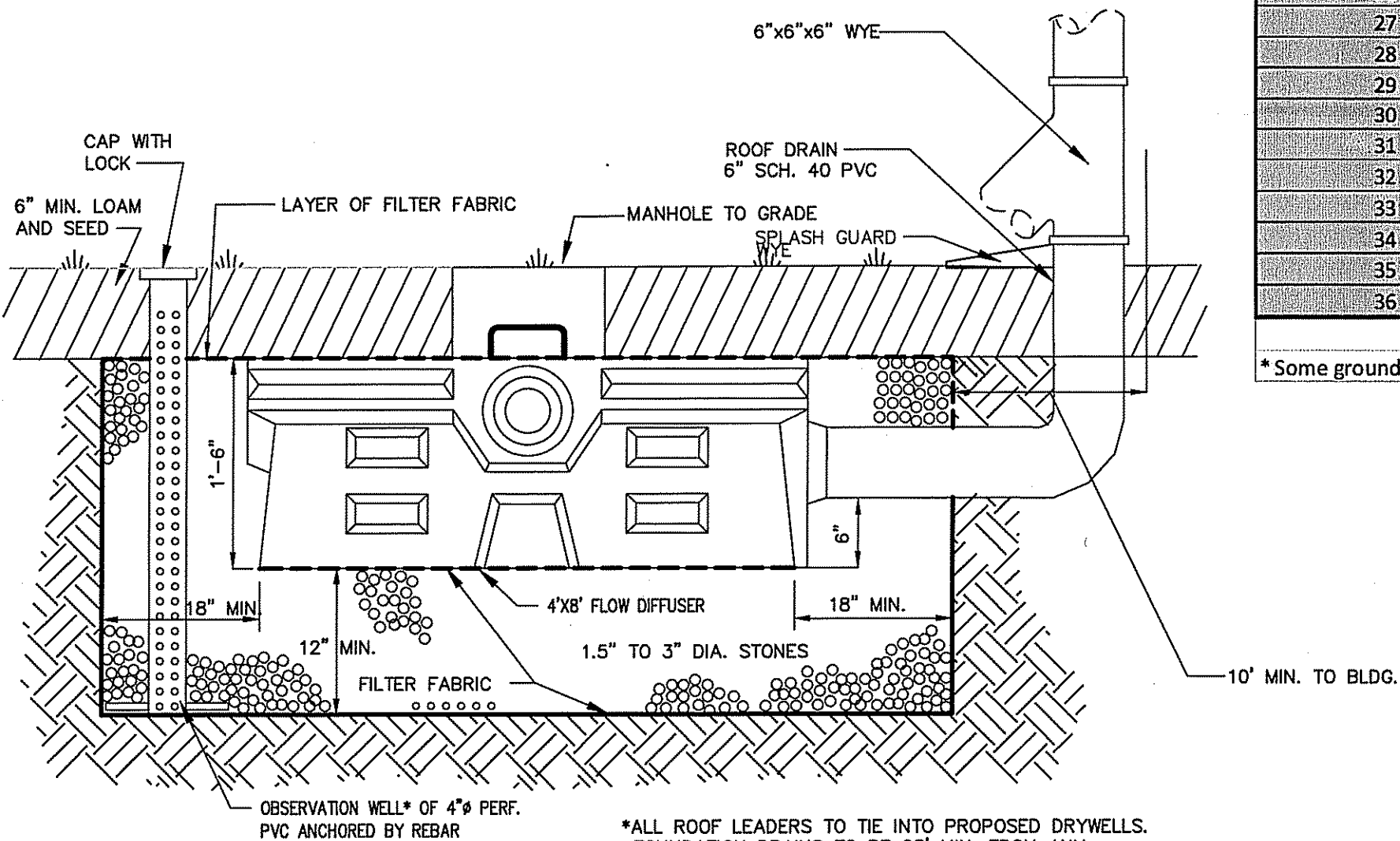
SHEET 20 OF 21



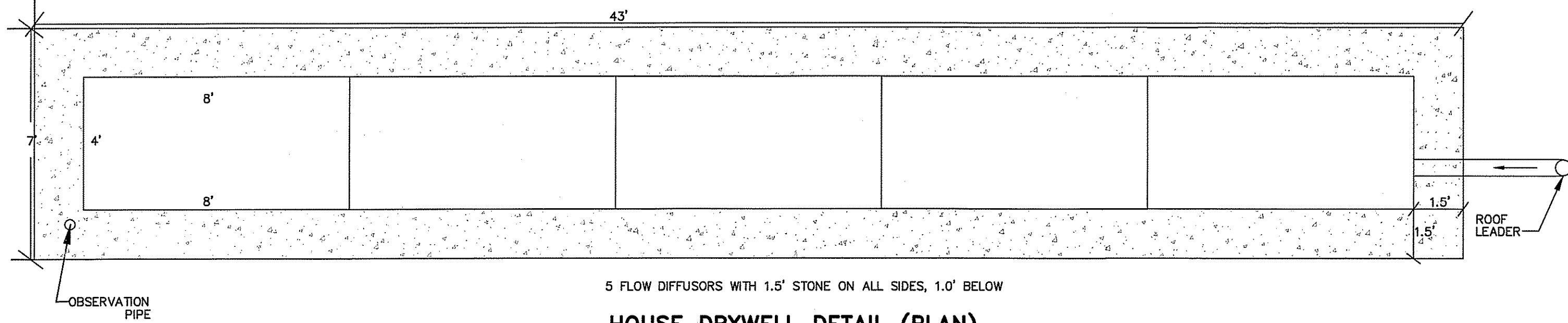


- NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 206 OF THE R.I. STANDARD SPECIFICATIONS.
  2. TO BE USED WHERE THE EXISTING GROUND SLOPES AWAY FROM THE HIGHWAY EMBANKMENT AS CALLED FOR ON PLANS.
  3. AT APPROXIMATE 100'-0" INTERVALS A BALE OF HAY IS TO BUTT PERPENDICULARLY.

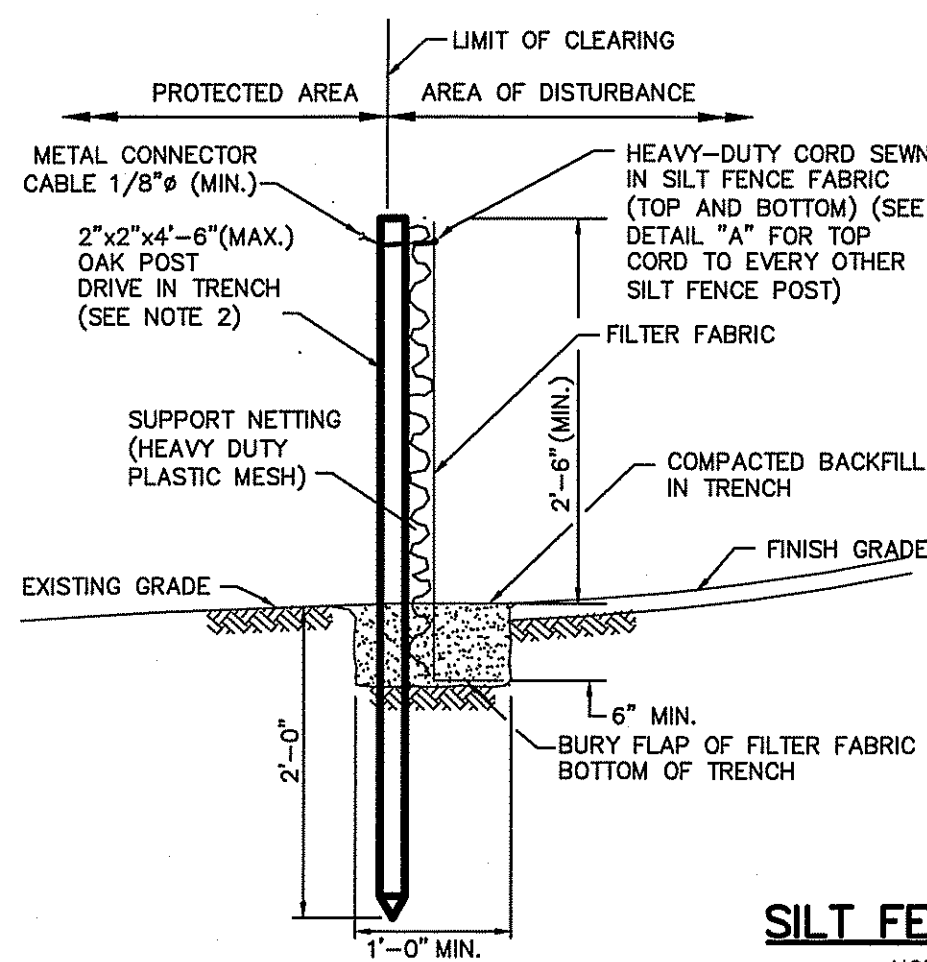
**BALED HAY EROSION CHECK**  
NOT TO SCALE



**HOUSE DRYWELL DETAIL**  
NOT TO SCALE



**HOUSE DRYWELL DETAIL (PLAN)**  
1"=3'



**SILT FENCE DETAIL**  
NOT TO SCALE

Lot #s	Elevation					Separation Distance (ft.)	Cover (ft.)
	Prop. Ground	Top of Drywell	Bottom of Drywell Facility (w/1' stone)	Seasonal High GWT			
1	202.00	201.00	198.50	196.50		2.0	1.0
2	192.00	190.50	188.00	186.00		2.0	1.5
3	186.00	185.50	183.00	181.00		2.0	0.5
4	178.00	175.50	173.00	170.00		3.0	2.5
5	171.00	170.00	167.50	165.50		2.0	1.0
6	170.00	167.50	165.00	163.00		2.0	2.5
7	160.00	159.50	157.00	155.00		2.0	0.5
8	147.00	145.50	143.00	141.00		2.0	1.5
9	142.50	142.00	139.50	137.50		2.0	0.5
10	140.00	137.90	135.40	133.40		2.0	2.1
11	143.00	140.50	138.00	135.00		2.0	2.5
12	143.00	142.50	140.00	138.00		2.0	0.5
13	151.00	148.90	146.40	140.40		6.0	2.1
14	159.00	157.00	154.50	149.00		5.5	2.0
15	153.75	151.50	149.00	140.50		8.5	2.3
16	148.00	145.50	143.00	142.00		8.0	2.5
17	147.00	145.00	142.50	139.00		4.5	2.0
18	156.00	153.30	150.80	140.80		10.0	2.7
19	162.00	159.40	156.90	146.40		10.5	2.6
20	174.00	173.50	171.00	169.00		2.0	0.5
21	184.00	182.00	179.50	177.50		2.0	2.0
22	195.00	194.50	192.00	190.00		2.0	0.5
23	205.50	203.50	201.00	199.00		2.0	2.0
24	209.75	207.50	205.00	203.00		2.0	2.3
25	201.00	199.50	197.00	195.00		2.0	1.5
26	193.00	191.50	189.00	187.00		2.0	1.5
27	175.75	173.50	171.00	169.00		2.0	2.3
28	175.00	174.50	172.00	170.00		2.0	0.5
29	174.00	173.50	171.00	169.00		2.0	0.5
30	166.00	165.50	163.00	161.00		2.0	0.5
31	166.00	165.50	163.00	161.00		2.0	0.5
32	168.50	168.00	165.50	163.50		2.0	0.5
33	187.00	185.80	183.37	181.37		2.0	1.1
34	187.75	185.90	183.40	181.40		2.0	1.8
35	187.75	184.50	182.00	180.00		2.0	3.3
36	190.50	189.50	187.00	185.00		2.0	1.0

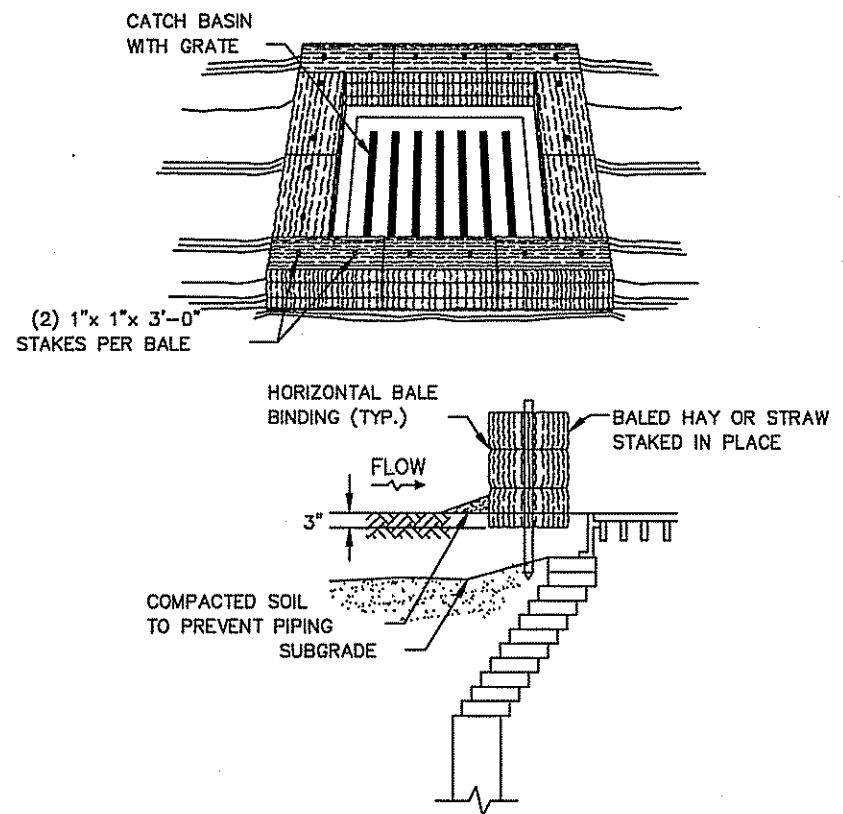
\*Some groundwater elevations have been lowered by foundation drains.

**HOUSE DRYWELL TABLE**

- NOTES:
1. DRYWELLS REQUIRED FOR ALL LOTS
  2. NO STONE BETWEEN CONSECUTIVE DRYWELLS.
- \*SCHEDULE OF INSPECTION FOR OBSERVATION WELL:  
MONITORING WATER LEVELS WITHIN THE PIPE AT VARIOUS TIME INTERVALS AFTER A RAINFALL EVENT WILL INDICATE THE INFILTRATION ABILITY AND PERFORMANCE OF THE SYSTEM. IF WATER IS STANDING IN A PIPE MORE THAN 3 DAYS AFTER A STORM EVENT, SYSTEM FAILURE HAS OCCURRED AND WILL REQUIRE REPAIR OR REPLACEMENT OF DRYWELL BY THE HOMEOWNER.

**MAINTENANCE: SHORT TERM / LONG TERM**

1. ALL DISTURBED SLOPES EITHER NEWLY CREATED OR CURRENTLY EXPOSED SHALL BE SEEDED, PROTECTED AND MAINTAINED BY THE CONTRACTOR FOLLOWING THE FINAL GRADING AND CONSTRUCTION. THE CONTRACTOR SHALL CHECK REGULARLY ALL SEEDED AREAS TO SEE THAT A GOOD STAND IS MAINTAINED.
2. THE CONTRACTOR MUST REPAIR OR RESEED ANY AREAS THAT DO NOT DEVELOP WITHIN THE PERIOD OF ONE YEAR AND SHALL DO SO AT NO ADDITIONAL EXPENSE.
3. ALL HAY BALES, TEMPORARY TREATMENTS (HAY, STRAW, ETC.) AND TEMPORARY PROTECTION SHALL BE MAINTAINED BY THE CONTRACTOR THROUGHOUT CONSTRUCTION AND SHALL REMAIN IN PLACE UNTIL AN ACCEPTABLE STAND OF GRASS OR APPROVED GROUND COVER IS ESTABLISHED.
4. THE CONTRACTOR SHALL MAINTAIN ALL TOPSOIL STOCKPILES AND SEDIMENT BARRIERS THROUGHOUT CONSTRUCTION. EXTREME CARE SHALL BE TAKEN TO ENSURE THAT SEDIMENTS DO NOT SPILL OVER THE SEDIMENT BARRIER.
5. THE CONTRACTOR SHALL CHECK THE HAY BALES OR SILT FENCE ON A WEEKLY BASIS AND AFTER EACH STORM FOR UNDERMINING OR DETEIORATION. CONTRACTOR SHALL REPAIR OR REPLACE THE HAY BALES AS NECESSARY. CONTRACTOR SHALL CLEAN THE ACCUMULATED SEDIMENT IF HALF OF THE ORIGINAL HEIGHT OF THE BALES BECOMES FILLED IN WITH SEDIMENTS.
6. THE CONTRACTOR SHALL MAINTAIN THE STONE STABILIZATION PAD AT THE SITE ENTRANCE. THE MAINTENANCE SHALL INCLUDE TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS CONDITIONS DEMAND OR AS DIRECTED BY THE ENGINEER. ALL SEDIMENTS SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC RIGHT OF WAY MUST BE REMOVED IMMEDIATELY BY THE CONTRACTOR.
7. THE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE AND INSPECTION OF THE POND DURING AND UP TO A YEAR AFTER COMPLETION OF CONSTRUCTION. THE ACCUMULATED SEDIMENTS IN THE OUTLET STRUCTURE SHALL BE REMOVED AND OUTLET PIPE FLUSHED BY THE CONTRACTOR AT THE END OF CONSTRUCTION.
8. THE CONTRACTOR SHALL MAINTAIN THE DRAINAGE SYSTEM THROUGHOUT CONSTRUCTION. THE ACCUMULATED SEDIMENTS IN THE DETENTION BASIN, REMOVING ACCUMULATED SILT OVER 3" IN THE DETENTION BASIN, AND MAINTAINING THE GRASS TO A GROWING HEIGHT BETWEEN 2" - 10". ELEVATION OF SILT SHALL BE MANUAL WITH SHOVEL AND WHEELBARROW ONLY.
9. THE CONTRACTOR SHALL MAINTAIN THE DRAINAGE SYSTEM THROUGHOUT CONSTRUCTION. THE ACCUMULATED SEDIMENTS IN THE DETENTION BASIN SHALL BE REMOVED AND OUTLET PIPE FLUSHED BY THE CONTRACTOR AT THE END OF CONSTRUCTION.
10. THE CITY OF WARWICK IS RESPONSIBLE FOR THE LONG TERM MAINTENANCE OF THE DETENTION BASIN. THE DRAINAGE SYSTEM SHALL BE CHECKED SEMIANNUALLY AND ACCUMULATED SEDIMENTS SHALL BE REMOVED WHEN THEY EXCEED 3" DEPTH OR EVERY 10 YEARS, WHICHEVER COMES FIRST.
11. THE CITY OF WARWICK SHALL CHECK THE RIP-RAP APRONS AND EMERGENCY OUTLETS AFTER MAJOR STORMS AND AN ANNUAL BASIS. REPAIRS SHALL BE PERFORMED IMMEDIATELY AS CONDITIONS WARRANT.
12. THE DETENTION BASIN SHALL BE MAINTAINED BY THE CITY OF WARWICK AFTER THE FIRST YEAR. THE H.A. SHALL MAINTAIN A GOOD VEGETATIVE COVER (GRASS BETWEEN 2"-10" OR VEGETATION AS SPECIFIED). BOTTOM OF THE DETENTION BASIN SHALL BE INSPECTED ON A BIENNIAL BASIS AND ACCUMULATED SEDIMENTS SHALL BE REMOVED WHEN THEY REACH A 3" DEPTH OR EVERY 10 YEARS, WHICHEVER COMES FIRST.
13. THE CONSTRUCTION SUPERINTENDENT SHALL HAVE OVERALL RESPONSIBILITY FOR THE MAINTENANCE PROGRAM DURING THE CONSTRUCTION PHASE. THE SUPERINTENDENT SHALL SEE THAT THE APPROPRIATE WORKERS ARE AWARE OF THE PROVISIONS OF THE PLAN.
14. AFTER THE FIRST YEAR AND ACCEPTANCE BY THE CITY, THE CITY OF WARWICK SHALL HAVE OVERALL RESPONSIBILITY FOR IMPLEMENTING THE MAINTENANCE PROGRAM.
15. CONSTRUCTION OF THE DETENTION POND SHALL BE SUPERVISED BY A PROFESSIONAL ENGINEER. A REPORT AND PLAN OF AS-BUILT CONSTRUCTION SHALL BE MADE AVAILABLE TO THE CITY ENGINEER.
16. IF STANDING WATER PERSISTS SEVENTY TWO (72) HOURS AFTER A STORM EVENT WITHIN THE DETENTION BASIN OR UNDERGROUND BASIN, THE BASIN SHALL UNDERGO MAINTENANCE IMMEDIATELY AND NON-IMPROVEMENT OF CONDITIONS THEREAFTER WILL CALL FOR REPLACEMENT OF THE SYSTEM AND/OR IMPROVEMENT OF THE SURROUNDING STONE.
17. MAINTENANCE WITHIN THE UNDERGROUND STORMTECH SYSTEM SHALL CONSIST OF INSPECTION OF THE RESPECTIVE MONITORING WELLS SEMI-ANNUALLY, TO OCCUR WITHIN 72 HOURS OF A RAINFALL EVENT. IF IT IS FOUND THAT STORMTECH SYSTEMS ARE NOT INFILTRATING STORMWATER AFTER 72 HOURS FOLLOWING A RAINFALL EVENT, THE CITY OF WARWICK SHALL BE RESPONSIBLE FOR REPAIR OR REPLACEMENT OF THE APPROPRIATE SYSTEM COMPONENTS.



**BALED HAY CATCH BASIN INLET PROTECTION**  
NOT TO SCALE

- NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 209 OF THE R.I. STANDARD SPECIFICATIONS.
  2. THIS INLET PROTECTION CAN ALSO BE USED WHEN CONSTRUCTION SEQUENCING REQUIRES A CATCH BASIN TO BE EXPOSED TO SEDIMENT FROM THE SUBGRADE. THIS WILL BE ACHIEVED BY INSTALLING THE BALED HAY AS SHOWN ON THIS DETAIL INTO THE SUBGRADE.
  3. THE PERIMETER CONFIGURATION OF THE BALED HAY WILL VARY DEPENDING ON THE PARTICULAR TYPE OF CATCH BASIN INLET BEING CONSTRUCTED. THE ENGINEER WILL PROVIDE SPECIFIC DIRECTION IN SUCH CASES.

**SEQUENCE AND STAGING OF LAND DISTURBING ACTIVITIES**

1. SURVEY AND STAKE CENTERLINE OF THE PROPOSED ROAD, DETENTION BASIN, UNDERGROUND INFILTRATION SYSTEM, AND LIMIT OF SEDIMENTATION BARRIERS.
2. PLACE SEDIMENTATION BARRIERS (HAY BALES OR SILT FENCE) AS SHOWN ON THE PLANS AND STAKED OUT IN THE FIELD. IN NO CASE IS THE LIMIT OF WORK TO EXTEND BEYOND THE SEDIMENTATION BARRIERS.
3. BEGIN BASIN AND ROAD WORK (CLEARING AND GRUBBING, EXCAVATING AND GRADING, ETC.). TOPSOIL TO BE STRIPPED AND STOCKPILED IN APPROVED AREAS. THE STOCKPILES ARE TO BE PROTECTED BY A ROW OF SEDIMENTATION BARRIER AND COVERED OR TEMPORARILY SEEDED. NO RUNOFF IS TO BE DISCHARGED TO THE DETENTION AREAS UNTIL THE PAVEMENT IS INSTALLED AND DISTURBED AREAS ARE STABILIZED WITH VEGETATION.
4. INSTALL UTILITIES AND DRAINAGE AREA. PROTECT DISCHARGE AREA FROM ALL RUNOFF UNTIL ALL DISTURBED AREAS ARE STABILIZED. IMMEDIATELY PLACE EROSION CONTROLS AT THE DISCHARGE POINT AND SEED THE BASIN AND DISTURBED AREAS.
5. BEGIN ROAD CONSTRUCTION.
6. BEGIN LAYOUT OF HOUSES AND GRADING ALONG WITH 8.7.
7. BEGIN LANDSCAPING WHILE HOMES ARE UNDER CONSTRUCTION. FINISH HOMES AND ROAD CONSTRUCTION.
8. FINISH LANDSCAPING AND PERMANENT STABILIZATION. SWEEP THE ROADWAY TO REMOVE SEDIMENTS.
9. REPAIR DRAINAGE OUTLETS AND PONDS AS REQUIRED. THE TREE LIMBS, LEAVES, BOULDERS, ETC. SHALL BE REMOVED FROM THE BOTTOM OF THE BASIN BEFORE APPLICATION OF TOPSOIL.
10. REMOVE ALL TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL MEASURES FOLLOWING VEGETATIVE ESTABLISHMENT OF ALL DISTURBED AREAS.
11. CONSTRUCTION TO COMMENCE DURING 2008.
12. PRIOR TO COMMENCING INDIVIDUAL LOT CONSTRUCTION THE PROPOSED LIMITS OF CLEARING SHALL BE SURVEYED AND FLAGGED TO LIMIT TREE CLEARING.

**ESTABLISHMENT OF VEGETATIVE COVER**

1. SLOPES SHALL NOT BE LEFT UNATTENDED OR EXPOSED FOR EXCESSIVE PERIODS OF TIME SUCH AS THE INACTIVE WINTER SEASON.
  2. ALL DISTURBED SLOPES EITHER NEWLY CREATED OR CURRENTLY EXPOSED SHALL BE SEEDED OR PROTECTED.
  3. THE TOPSOIL SHALL HAVE A SANDY LOAM TEXTURE RELATIVELY FREE OF SUBSOIL MATERIAL, STONES, ROOTS, LUMPS OF SOIL, TREE LIMBS, AND TRASH OR CONSTRUCTION DEBRIS AND SHALL CONFORM TO RHODE ISLAND'S STANDARD SPECIFICATION, M.20.
  4. THE SEEDING DESIGN MIX SHALL BE COMPRISED OF THE FOLLOWING:
- | TYPE                | LBS./AC. |
|---------------------|----------|
| CREeping RED FESCUE | 75       |
| KENTUCKY BLUE GRASS | 15       |
| COLONIAL BENT GRASS | 5        |
| PERENNIAL RYE GRASS | 5        |
5. EARLY SPRING OR LATE SUMMER SEEDING IS RECOMMENDED. LIME AND FERTILIZATION AS REQUIRED BY SOIL TESTING TO COMPLEMENT OR UPGRADE EXISTING CONDITIONS. THE SEED MIX SHALL BE INOCULATED WITHIN 24 HOURS, BEFORE MIXING AND PLANTING WITH APPROPRIATE INOCULUMS FOR EACH VARIETY.
  6. TEMPORARY TREATMENTS SHALL CONSIST OF HAY, STRAW OR FIBER MULCH OR PROTECTIVE COVERS SUCH AS A MAT OR A FIBER LINING. SIDE SLOPES OF PONDS SHALL BE TREATED WITH NORTH AMERICAN GREEN S150 EROSION CONTROL BLANKETS OR APPROVED EQUAL. THEY SHALL BE INCORPORATED INTO THE WORK AS WARRANTED OR AS ORDERED BY THE ENGINEER. HAY OR STRAW APPLICATION SHALL BE IN THE AMOUNT OF 2 TONS/ACRE.
  7. ALL HAY BALES OR TEMPORARY PROTECTION SHALL REMAIN IN PLACE UNTIL AN ACCEPTABLE STAND OF GRASS OR APPROVED GROUND COVER IS ESTABLISHED.
  8. ALL FILL SHALL BE THOROUGHLY COMPACTED UPON PLACEMENT IN STRICT CONFORMANCE WITH THE RHODE ISLAND STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, SECTION 202.
  9. STOCKPILES OF TOPSOIL SHALL NOT BE LOCATED NEAR WATERWAY. THEY SHALL HAVE SIDE SLOPES NO GREATER THAN 2:1 AND SHALL BE TEMPORARILY SEEDED AND/OR STABILIZED. STOCKPILES SHALL BE SURROUNDED BY HAY BALES.
  10. THE CONSTRUCTION SUPERINTENDENT SHALL HAVE OVERALL RESPONSIBILITY FOR PLAN IMPLEMENTATION AND FOR SEEING THAT THE APPROPRIATE WORKERS ARE AWARE OF THE PROVISIONS OF THE PLAN. THE CONTRACTOR MUST REPAIR AND/OR RESEED ANY AREAS THAT DO NOT DEVELOP WITHIN THE PERIOD OF ONE YEAR AND SHALL DO SO AT NO ADDITIONAL EXPENSE.
  11. ALL AREAS DISTURBED BY POND CONSTRUCTION SHALL BE STABILIZED WITH PERMANENT SEEDING IMMEDIATELY FOLLOWING FINISH GRADING. PERMANENTLY SEEDED AREAS SHALL BE PROTECTED DURING ESTABLISHMENT WITH MULCH. ALL SEEDED AREAS WILL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHALL BE FERTILIZED AND RESEDED AS NECESSARY.
  12. REFERENCE THE "RHODE ISLAND SOIL EROSION AND SEDIMENTATION CONTROL HANDBOOK" PREPARED BY THE USDA SOIL CONSERVATION SERVICE 1989, AS A GUIDE.
  13. TEMPORARY HAY MULCH TO BE TACKED IN PLACE WITH NYLON MESH NETTING.
  14. MAXIMUM GRADED SLOPE WITHIN SUBDIVISION TO BE 3:1, UNLESS OTHERWISE SHOWN ON THE GRADING SHEETS.

**STRUCTURAL MEASURES**

1. A POND DETENTION SYSTEM IS USED TO CONTROL RUNOFF. DISCHARGE OUTLETS ARE PROTECTED WITH RIP-RAP APRONS AND/OR LEVEL SPREADERS.
2. A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED IN THE BASIN IMMEDIATELY AFTER GRADING. THE SEEDING EXTENDS TO AT LEAST THE DESIGN TOP WIDTH AND INCLUDES ANY OTHER AREAS DISTURBED BY CONSTRUCTION ACTIVITIES. ACTIVITIES SHALL BE CONFINED TO WITHIN THE LIMIT OF WORK AS SHOWN ON THE PLANS.
3. VIGOROUS VEGETATION SHALL BE MAINTAINED BY APPLYING LIME AND FERTILIZER. BARE OR ERODED AREAS SHALL BE IMMEDIATELY REPAIRED AND RESEDED BY THE CONTRACTOR.
4. THE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE AND INSPECTION OF THE DETENTION BASIN DURING AND UP TO A YEAR AFTER COMPLETION OF CONSTRUCTION. THE CITY OF WARWICK IS RESPONSIBLE THEREAFTER. ANY UNDEVELOPED VEGETATION COVER IN THE BASIN WITHIN A YEAR OF THE PROJECT COMPLETION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL RESEED ANY UN-STABILIZED AREAS AFTER A FULL GROWING SEASON AT NO ADDITIONAL EXPENSE TO THE OWNER.
5. THE GRASS IN THE BASIN SHALL BE ALLOWED TO GROW BETWEEN 2" - 10".
6. THE PERMANENT DETENTION BASIN SHALL BE INSTALLED. COVER WITH TOP SOIL AT THE END OF CONSTRUCTION.
7. THE DETENTION BASIN SHALL BE BUILT TO CONTROL RUNOFF FOR 2 THROUGH 100 YEAR STORM FREQUENCIES.
8. SIDE SLOPES OF THE BASIN SHALL BE SEEDED. THE SIDE SLOPES SHALL BE 3:1 MAXIMUM UNLESS OTHERWISE SHOWN.
9. ALL EMBANKMENTS OF THE BASIN SHALL BE THOROUGHLY COMPACTED UPON PLACEMENT IN STRICT CONFORMANCE WITH R.I. STANDARD SPECIFICATION SECTION 202.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE SEDIMENTATION BASIN DURING CONSTRUCTION AND THE DETENTION BASIN UP TO THE ACCEPTANCE BY THE OWNER. THE HOME OWNER ASSOCIATION (H.O.A.) IS RESPONSIBLE THEREAFTER. THE H.A. SHALL INSPECT THE POND SEMIANNUALLY AND AFTER MAJOR STORMS.
11. A GRADUATED GAGE IS TO BE SET WITHIN THE DETENTION BASIN TO MONITOR ACCUMULATED SEDIMENTS (SEE "MAINTENANCE" NOTE 12).
12. RIP RAP APRONS SHALL BE INSTALLED AT THE OUTLETS OF THE DETENTION POND. THE EMERGENCY SPILLWAY SHALL BE PROTECTED BY RIP RAP DOWNSTREAM AND UPSTREAM.
13. RIP RAP APRONS SHALL BE INSPECTED SEMIANNUALLY AND AFTER MAJOR STORMS. IF REPAIRS ARE NEEDED, THEY SHALL BE ACCOMPLISHED IMMEDIATELY.
14. THE CONSTRUCTION SUPERINTENDENT SHALL HAVE THE OVERALL RESPONSIBILITY FOR STRUCTURAL MEASURE IMPLEMENTATION AND FOR SEEING THAT APPROPRIATE WORKERS ARE AWARE OF THE PROVISIONS OF THE PLAN.
15. REFERENCE THE "RHODE ISLAND SOIL EROSION AND SEDIMENT CONTROL HANDBOOK" PREPARED BY USDA SOIL CONSERVATION SERVICE 1989, AS A GUIDE.

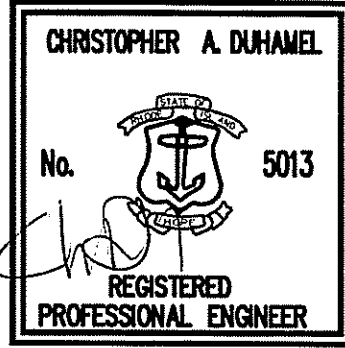
**NON-STRUCTURAL MEASURES**

1. CONSTRUCTION TRAFFIC SHALL BE LIMITED TO ACCESS ROADS, DRAINAGE EASEMENTS AND AREAS TO BE GRADED.
2. A STONE STABILIZATION PAD IS LOCATED AT THE SITE ENTRANCE TO REDUCE THE TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT OF WAY.
3. THE CONTRACTOR SHALL MAINTAIN THE ENTRANCE. THE MAINTENANCE SHALL INCLUDE TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS CONDITIONS DEMAND OR AS DIRECTED BY THE ENGINEER. ALL SEDIMENTS SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC RIGHT OF WAY, MUST BE REMOVED IMMEDIATELY BY THE CONTRACTOR.
4. TOPSOIL SHALL BE STRIPPED FROM AREAS TO BE GRADED AND STOCKPILED FOR LATER USE. STOCKPILE LOCATION SHALL BE SUBJECT TO APPROVAL BY THE PROJECT ENGINEER. A SEDIMENT BARRIER SHOULD SURROUND ALL TOPSOIL STOCKPILES.
5. HAY BALES OR SILT FENCE SHALL BE INSTALLED DOWNSTREAM OUTSIDE THE LIMITS OF ANY PROPOSED CONSTRUCTION AS SHOWN ON THE SITE PLANS AND PRIOR TO THE COMMENCEMENT OF THE PROPOSED ALTERATION.
6. THE CONTRACTOR SHALL MAINTAIN HAY BALES. INSPECTION SHALL BE MADE AFTER EACH STORM EVENT AND REPAIRED OR REPLACED AS WARRANTED. THE CONTRACTOR SHALL CLEAN THE ACCUMULATED SEDIMENT IF HALF OF THE ORIGINAL HEIGHT OF THE BALES BECOMES FILLED WITH SEDIMENT.
7. THE CONTRACTOR SHALL CHECK THE HAY BALES OR SILT FENCE WEEKLY FOR UNDERMINING OR DETEIORATION.
8. THE CONSTRUCTION SUPERINTENDENT SHALL HAVE OVERALL RESPONSIBILITY FOR PLAN IMPLEMENTATION OF NON-STRUCTURAL MEASURES AND FOR SEEING THAT APPROPRIATE WORKERS ARE AWARE OF THE PROVISIONS OF THE PLAN.
9. REFERENCE THE "RHODE ISLAND SOIL EROSION AND SEDIMENT CONTROL HANDBOOK" PREPARED BY THE USDA SOIL CONSERVATION SERVICE 1989, AS A GUIDE.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED FEB 26 2008 FILE # 08-0225  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

**Preliminary - Not for Construction**

THIS PLAN IS NOT TO BE UTILIZED FOR CONSTRUCTION ACTIVITIES. ONLY PLANS STAMPED "ISSUED FOR CONSTRUCTION" AND SIGNED BY A DIPRETE ENGINEERING REPRESENTATIVE SHALL BE UTILIZED FOR CONSTRUCTION ACTIVITIES.



**DETAIL SHEET**

**Cowesett Farm**  
ASSESSOR'S PLAT 239 LOT 8 (PORTION)  
WARWICK, RHODE ISLAND

PREPARED BY  
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JULY, 2008  
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SHEET 21 OF 21