

**GENERAL NOTES:**

1. THIS PLAN SET AND THE INFORMATION SHOWN HEREON IS REFERENCED TO A CERTAIN 5 PAGE PLAN SET ENTITLED "WETLANDS SUBMISSION, PERIMETER PROPERTY SURVEY, PREPARED FOR LLOYD B. CLARK TRUST & MARGOT A. CLARK TRUSTEE, ON ASSESSORS PLAT 14 LOT 30, CHESTNUT OAK ROAD & TOURTELLOTT HILL ROAD, GLOCESTER, R.I., BY DUPONT ENGINEERING, 1112 MAIN STREET COVENTRY, RHODE ISLAND, \* AND SAID PLANSET HAS BEEN PERMITTED BY R.I.D.E.M. WETLANDS DIVISION, DATED MARCH 7, 2006 ; FILE NUMBER 05-0362
2. R.I.D.E.M. ISDS APPLICATION # 9513-1075
3. THE LOCATION AND DEPTH OF EXISTING UTILITIES ARE APPROXIMATE AND HAVE BEEN PLOTTED FROM THE LATEST AVAILABLE INFORMATION. THE UTILITY LOCATIONS ARE APPROXIMATE AND MAY NOT BE ALL INCLUSIVE. THE CONTRACTOR SHALL CHECK AND VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES, BOTH OVERHEAD AND UNDERGROUND, AND "DIG-SAFE" MUST BE NOTIFIED PRIOR TO COMMENCING ANY CONSTRUCTION OPERATIONS. RESTORATION AND REPAIR OF DAMAGE TO EXISTING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR WITH NO ADDITIONAL COST THE OWNER. NO EXCAVATION SHALL COMMENCE UNTIL ALL INVOLVED UTILITY COMPANIES AND/OR TOWN WHOSE FACILITIES MIGHT BE AFFECTED BY ANY WORK TO BE PERFORMED BY THE CONTRACTOR ARE NOTIFIED AT LEAST 72 HOURS IN ADVANCE.
4. THIS SITE DOES NOT LIE WITHIN ANY KNOWN AGRICULTURAL USE, CIVILCULTURAL USE, NATURAL HERITAGE OR FARMLAND CONSERVATION AREAS.
5. THERE ARE NO KNOWN EASEMENTS OR RIGHTS OF WAY WITHIN OR ADJACENT TO THIS PARCEL.
6. THE CONTOURS SHOWN HEREIN ARE BASED UPON THE NAVD 88 DATUM.
7. THERE ARE NO UNDERGROUND UTILITIES LOCATED WITHIN TOURTELLOTT HILL ROAD OR CHESTNUT OAK ROAD ALONG THIS PARCELS FRONTAGE.
8. THERE ARE NO KNOWN HISTORIC CEMETERIES WITHIN OR IMMEDIATELY ADJACENT TO THIS PARCEL.
9. D.E.M. WETLANDS APPROVAL 05-0362, DATED MARCH 7, 2006

NO.	DATE	DESCRIPTION	BY
1.	7-19-11	REVISED CUL DE SAC LAYOUT	JML



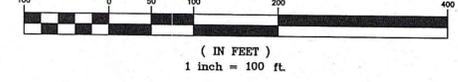
Please be advised that this plan is not equivalent to a verification of the type or extent of freshwater wetlands on site.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED SEP 20 2011 FILE # 11-0018  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

**LEGEND**  
NOT TO SCALE

- BOUNDARY
- - - BOUNDARY PROPOSED
- - - ABUTTER
- - - MAJOR CONTOUR
- - - MINOR CONTOUR
- STONEWALL
- △ WETLANDS EDGE
- 50' PERIMETER WETLAND
- LOD- LIMIT OF DISTURBANCE
- SILT FENCE
- BUILDING ENVELOPE
- ⊙ TH SOIL EVALUATION HOLE
- IRON PIN
- BOUND
- ⊙ DRILL HOLE
- ⊙ WELL
- ⊙ UTILITY POLE

**GRAPHIC SCALE**

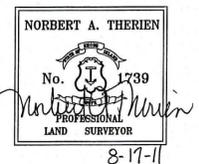


ZONING CRITERIA		
ZONING DISTRICT	A-4	CONSERVATION DEVELOPMENT
MINIMUM LOT AREA	4 ACRE	1 ACRE
MINIMUM LOT FRONTAGE	350'	150'
MINIMUM FRONT YARD SETBACK	75'	25'
MINIMUM SIDE YARD SETBACK	50'	25'
MINIMUM REAR YARD SETBACK	100'	30'
MAXIMUM BUILDING COVERAGE	4%	8%
MAXIMUM BUILDING HEIGHT	35'	35'

**GREAT WALL COMMONS  
"LLOYD BOWEN COURT"**  
OWNED BY  
**LLOYD B. CLARK**  
208 TOURTELLOTT HILL ROAD  
GLOCESTER, RHODE ISLAND  
FOR  
MAP 14 LOT 30  
CHESTNUT OAK ROAD  
GLOCESTER, RHODE ISLAND

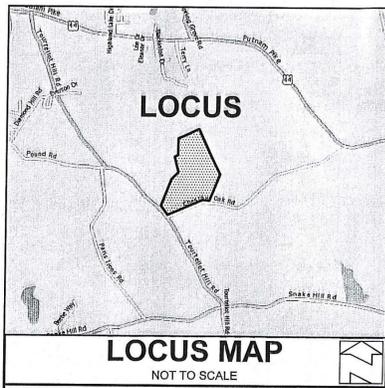
**MINOR SUBDIVISION  
EXISTING CONDITIONS**

DRAWN BY: J.M.L.	CHECKED BY: N.A.T.	FIELD BY: J.M.L., J.B.
JULY 2010	JOB No. 2009-30	SHEET 1 OF 6



**NATIONAL**  
Surveyors-Developers  
Inc.  
42 Hamlet Ave., Woonsocket, R.I.  
(401) 769-7779

" I CERTIFY THAT THE INFORMATION SHOWN HEREON HAS BEEN OBTAINED BY AN ACTUAL SURVEY ON THE GROUND, THAT IT IS CORRECT AND THIS SURVEY AND PLAN CONFORM TO A CLASS 1 STANDARD AS ADOPTED BY THE RHODE ISLAND BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS.  
BY: *Norbert A. Therien*  
NORBERT A. THERIEN P.L.S.



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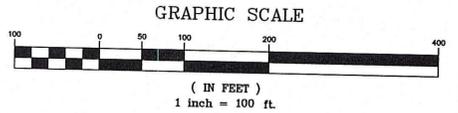
A.P. 14 LOT 23  
NF MICHAEL J. HARVEY  
D.B. 371 PG. 154

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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 SEP 20 2011 FILE # 11-0088  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

**LEGEND**  
NOT TO SCALE

- BOUNDARY
- BOUNDARY PROPOSED
- ABUTTER
- MAJOR CONTOUR
- MINOR CONTOUR
- STONEWALL
- WETLANDS EDGE
- 50' PERIMETER WETLAND
- LOD- LIMIT OF DISTURBANCE / SILT FENCE
- BUILDING ENVELOPE
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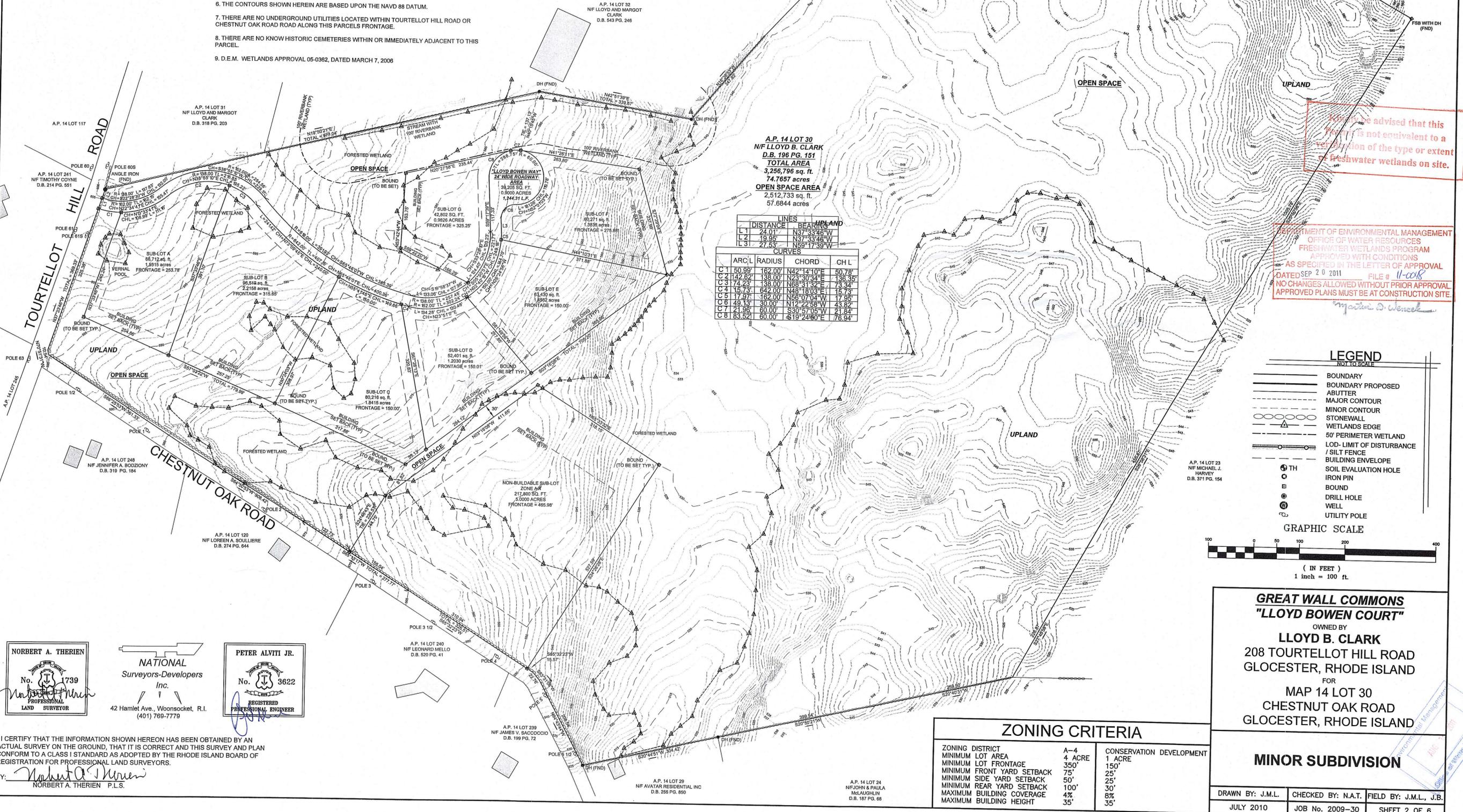
**TABLES**

LINES		
LINE	DISTANCE	BEARING
L 1	24.01'	N37°33'46"W
L 2	19.95'	N37°33'46"W
L 3	27.53'	N59°17'39"W

CURVES				
ARC/L	RADIUS	CHORD	CHL	
C 1	50.99'	162.00'	N42°14'10"E	50.78'
C 2	142.62'	138.00'	N28°00'34"E	136.35'
C 3	14.23'	138.00'	N68°31'32"E	78.34'
C 4	15.73'	642.00'	N48°18'03"E	15.73'
C 5	17.97'	162.00'	N68°07'04"W	17.95'
C 6	49.13'	30.00'	N12°22'58"W	43.82'
C 7	21.36'	60.00'	S30°47'05"W	21.84'
C 8	83.52'	60.00'	S19°24'50"E	76.94'

A.P. 14 LOT 30  
NF LLOYD B. CLARK  
D.B. 196 PG. 151  
TOTAL AREA  
3,256,796 sq. ft.  
74.7657 acres  
OPEN SPACE AREA  
2,512,733 sq. ft.  
57.6844 acres



**ZONING CRITERIA**

ZONING DISTRICT	A-4	CONSERVATION DEVELOPMENT
MINIMUM LOT AREA	4 ACRE	1 ACRE
MINIMUM LOT FRONTAGE	35'	150'
MINIMUM FRONT YARD SETBACK	25'	25'
MINIMUM SIDE YARD SETBACK	50'	25'
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MAXIMUM BUILDING COVERAGE	4%	8%
MAXIMUM BUILDING HEIGHT	35'	35'

**GREAT WALL COMMONS  
"LLOYD BOWEN COURT"**  
OWNED BY  
**LLOYD B. CLARK**  
208 TOURTELLOTT HILL ROAD  
GLOUCESTER, RHODE ISLAND  
FOR  
MAP 14 LOT 30  
CHESTNUT OAK ROAD  
GLOUCESTER, RHODE ISLAND

**MINOR SUBDIVISION**

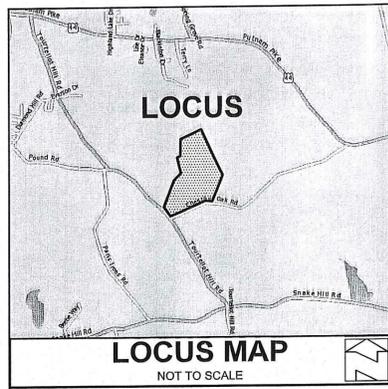
DRAWN BY: J.M.L. CHECKED BY: N.A.T. FIELD BY: J.M.L., J.B.  
JULY 2010 JOB No. 2009-30 SHEET 2 OF 6

**NORBERT A. THERIEN**  
No. 7339  
PROFESSIONAL LAND SURVEYOR

**NATIONAL Surveyors-Developers Inc.**  
42 Hamlet Ave., Woonsocket, R.I. (401) 769-7779

**PETER ALVITI JR.**  
No. 3622  
REGISTERED PROFESSIONAL ENGINEER

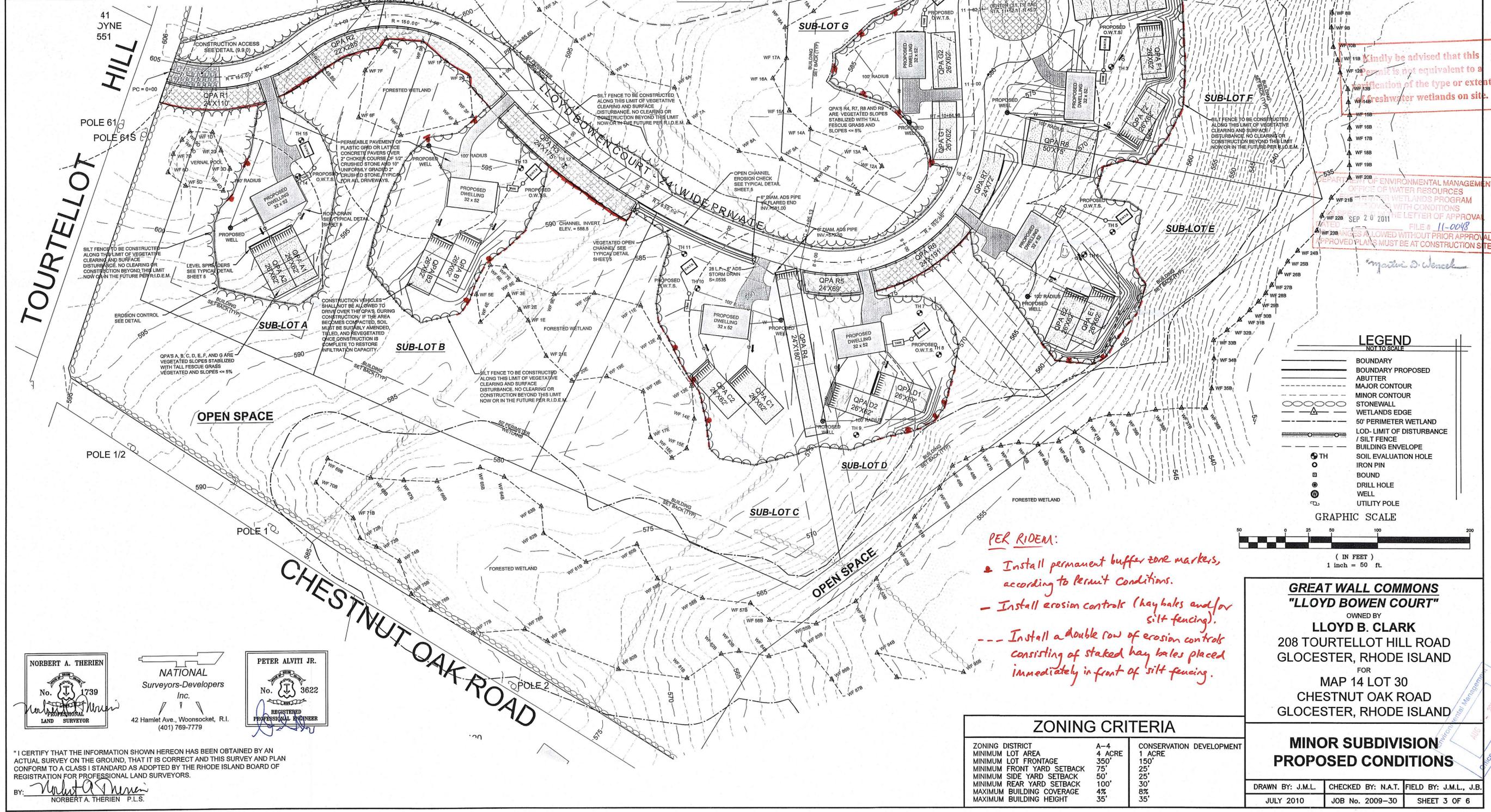
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BY: *Norbert A. Therien*  
NORBERT A. THERIEN P.L.S.



**GENERAL NOTES:**  
 1. R.I.D.E.M. ISDS APPLICATION # 9513-1075  
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 3. D.E.M. WETLANDS APPROVAL 05-0362, DATED MARCH 7, 2006

A.P. 14 LOT 31  
 N/F LLOYD AND MARGOT  
 CLARK  
 D.B. 318 PG. 203

NO.	DATE	DESCRIPTION	BY
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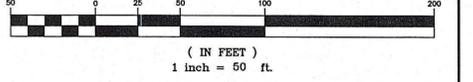
Kindly be advised that this permit is not equivalent to a certification of the type or extent of freshwater wetlands on site.

PART OF ENVIRONMENTAL MANAGEMENT OFFICE OF WATER RESOURCES WETLANDS PROGRAM WITH CONDITIONS OF APPROVAL SEP 20 2011 FILE # 11-0018 APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

**LEGEND**  
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**GRAPHIC SCALE**



**PER RIDEM:**

- Install permanent buffer zone markers, according to permit conditions.
- Install erosion controls (hay bales and/or silt-fencing).
- Install a double row of erosion controls consisting of staked hay bales placed immediately in front of silt-fencing.

**ZONING CRITERIA**

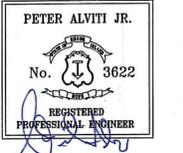
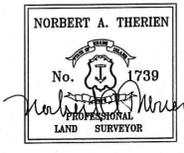
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**GREAT WALL COMMONS  
 "LLOYD BOWEN COURT"**

OWNED BY  
**LLOYD B. CLARK**  
 208 TOURTELLOTT HILL ROAD  
 GLOCESTER, RHODE ISLAND  
 FOR  
 MAP 14 LOT 30  
 CHESTNUT OAK ROAD  
 GLOCESTER, RHODE ISLAND

**MINOR SUBDIVISION  
 PROPOSED CONDITIONS**

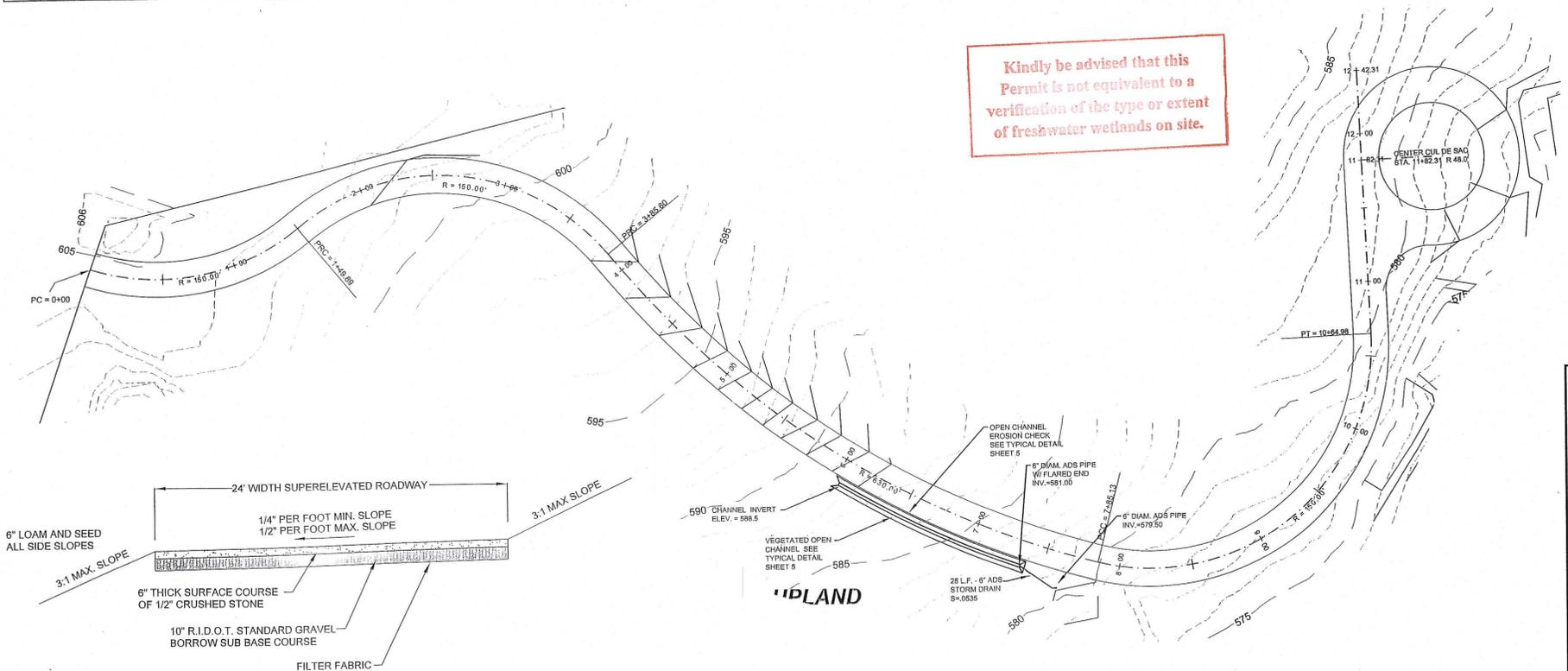
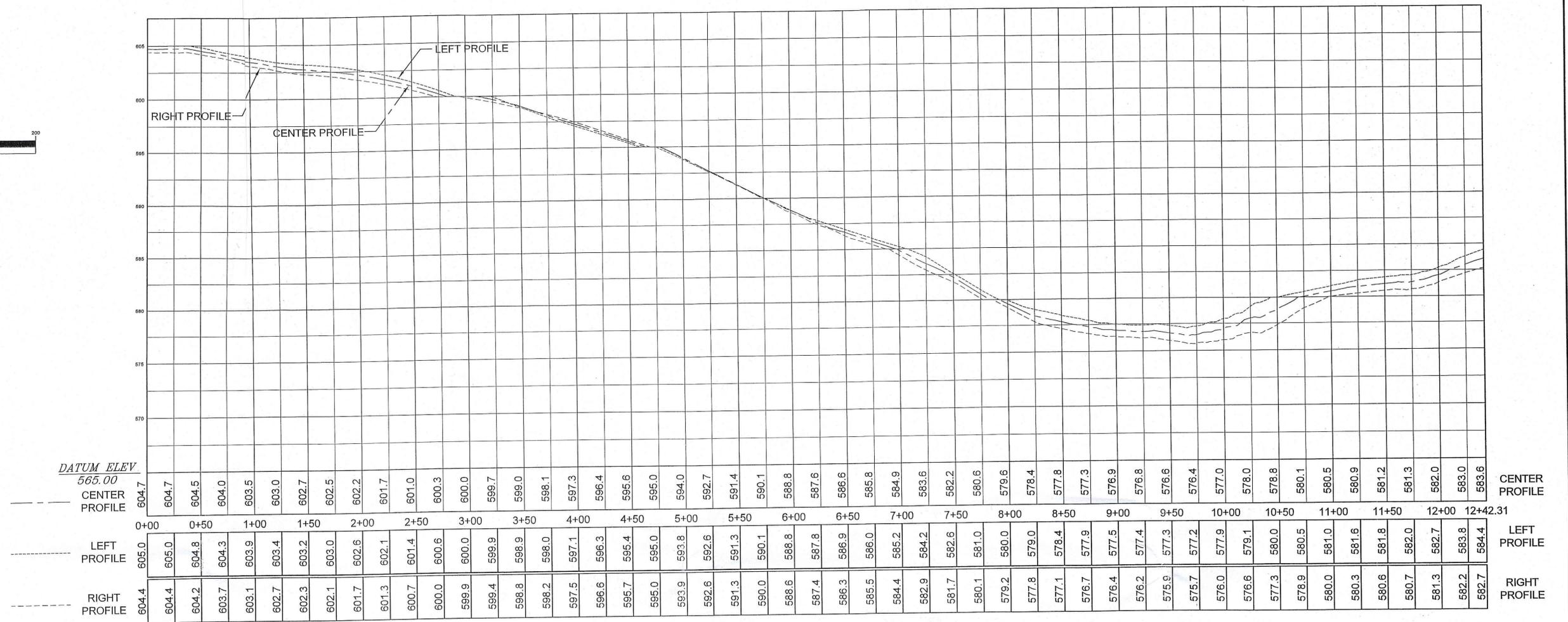
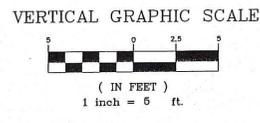
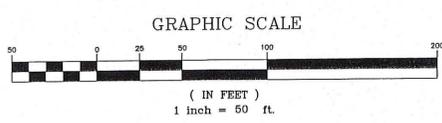
DRAWN BY: J.M.L.	CHECKED BY: N.A.T.	FIELD BY: J.M.L., J.B.
JULY 2010	JOB No. 2009-30	SHEET 3 OF 6



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BY: *Norbert A. Therien*  
 NORBERT A. THERIEN P.L.S.

1.	7-19-11	REVISED CUL DE SAC LAYOUT	JML
NO.	DATE	DESCRIPTION	BY



DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
 OFFICE OF WATER RESOURCES  
 FRESHWATER WETLANDS PROGRAM  
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 DATED SEP 20 2011 FILE # 11-0048  
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL.  
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PETER ALVITI JR.  
 No. 3622  
 REGISTERED PROFESSIONAL ENGINEER

NORBERT A. THERIEN  
 No. 1739  
 REGISTERED PROFESSIONAL LAND SURVEYOR

NATIONAL Surveyors-Developers Inc.  
 42 Hamlet Ave., Woonsocket, R.I.  
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TYPICAL CROSS SECTION OF SUPERELEVATED GRAVEL ROADWAY

**GREAT WALL COMMONS  
 "LLOYD BOWEN COURT"**

OWNED BY  
**LLOYD B. CLARK**  
 208 TOURTELLOT HILL ROAD  
 GLOCESTER, RHODE ISLAND

FOR  
 MAP 14 LOT 30  
 CHESTNUT OAK ROAD  
 GLOCESTER, RHODE ISLAND

**ROADWAY PROFILE**

DRAWN BY: J.M.L. CHECKED BY: N.A.T. FIELD BY: J.M.L., J.B.  
 JULY 2010 JOB No. 2009-30 SHEET 4 OF 6

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BY: *Norbert A. Therien*  
 NORBERT A. THERIEN P.L.S.

**SOIL EROSION AND SEDIMENTATION CONTROL PLAN NOTES:**

THE HAYBALE AND SILT FENCE LINE ILLUSTRATED ON THESE PLANS SHALL SERVE AS THE STRICT MIT OF DISTURBANCE FOR THE PROJECT WITHIN OR ADJACENT TO REGULATED FRESHWATER WETLAND AREAS. THE LIMITS OF CLEARING, GRADING, AND DISTURBANCE SHALL BE KEPT TO A MINIMUM WITHIN THE PROPOSED AREA OF CONSTRUCTION. ALL AREAS OUTSIDE OF THESE LIMITS, AS DEPICTED ON THE PLAN SHALL BE TOTALLY UNDISTURBED, TO REMAIN IN NATURAL CONDITION.

ALL CATCH BASINS SHALL BE PROTECTED WITH STAKED HAYBALES (R.I. STD. 9.8.0) DURING CONSTRUCTION ACTIVITIES. ALL PROPOSED STORMWATER DISCHARGE AREAS SHALL BE LINED WITH A RIPRAP SPLASH PAD AND PROTECTED WITH STAKED HAYBALE OUTLET PROTECTION (R.I. STD. 9.1.0), OR STAKED HAYBALE WITH SILT FENCE (R.I. STD. 9.3.0) SHALL ALSO BE INSTALLED AT ALL EXISTING STORMWATER DISCHARGE LOCATIONS WHERE DISTRIBUTING PIPES, CATCH BASINS, AND MANHOLES ARE TO BE CLEANED AND FLUSHED.

ALL DISTURBED SLOPES EITHER NEWLY CREATED OR CURRENTLY EXPOSED SHALL BE SEEDED, PROTECTED AND MAINTAINED BY THE CONTRACTOR. THE CONTRACTOR SHALL REGULARLY CHECK ALL SEEDED AREAS TO ENSURE THAT A GOOD STAND OF VEGETATION IS MAINTAINED.

ALL HAYBALES, TEMPORARY TREATMENT (HAY, STRAW, ETC.) AND TEMPORARY EROSION 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.

STOCKPILES OF TOPSOIL SHALL NOT BE LOCATED NEAR WATERWAYS OR WETLAND EDGES. THEY SHALL HAVE SIDE SLOPES OF NO GREATER THAN 2:1 AND SHALL BE TEMPORARILY SEEDED AND/OR STABILIZED PER CONTRACT SPECIFICATIONS.

THE HAYBALES SHALL BE CHECKED BY THE CONTRACTOR ON A WEEKLY BASIS AND AFTER EACH STORM FOR UNDERMINING OR DETERIORATION. THE CONTRACTOR SHALL REPAIR OR REPLACE ANY HAYBALES AS NEEDED. THE CONTRACTOR SHALL CLEAN THE ACCUMULATED SEDIMENT IF HALF OF THE ORIGINAL HEIGHT OF THE BALES BECOMES FILLED WITH SEDIMENTS.

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN ALL SOIL EROSION AND SEDIMENT CONTROLS ON THE PROJECT SITE FOR THE ENTIRE DURATION OF THE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL FOLLOW THE DIRECTION OF THE RESIDENT ENGINEER WITH REGARD TO INSTALLATION, MAINTENANCE, AND REPAIR OF ALL SOIL EROSION AND SEDIMENTATION CONTROLS ON THE PROJECT SITE. TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROLS (HAYBALES, SILT FENCE, ETC.) SHALL BE MAINTAINED UNTIL ALL EXPOSED SOILS ARE SATISFACTORILY STABILIZED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AND/OR RESEEDING ALL AREAS THAT DO NOT DEVELOP WITHIN ONE YEAR FROM THE COMPLETION OF CONSTRUCTION.

ALL REFERENCED SOIL EROSION AND SEDIMENTATION CONTROLS INCLUDING MATERIALS USED, APPLICATION RATES AND THE INSTALLATION PROCEDURES SHALL BE PERFORMED PER THE "RHODE ISLAND EROSION AND SEDIMENTATION HANDBOOK", DATED 1993.

**SITE PLAN NOTES:**

DETAILED ENGINEERING REVIEW FOR PROPOSED UTILITIES COVERED UNDER SEPARATE SUBMISSION, TO GOVERNING AGENCIES. THE DETAILED ENGINEERING PLANS FOR UTILITIES INSTALLATION AND CONNECTION HAVE NOT BEEN PROVIDED UNDER THIS SUBMISSION.

THE LOCATION AND DEPTH OF EXISTING UTILITIES ARE APPROXIMATE AND HAVE BEEN PLOTTED FROM THE LATEST AVAILABLE INFORMATION. THE UTILITY LOCATIONS ARE APPROXIMATE AND MAY NOT BE ALL INCLUSIVE. THE CONTRACTOR SHALL CHECK AND VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES, BOTH OVERHEAD AND UNDERGROUND, AND "DIG-SAFE" MUST BE NOTIFIED PRIOR TO COMMENCING ANY CONSTRUCTION OPERATIONS. RESTORATION AND REPAIR OF DAMAGE TO EXISTING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR WITH NO ADDITIONAL COST TO THE OWNER. NO EXCAVATION SHALL COMMENCE UNTIL ALL INVOLVED UTILITY COMPANIES AND/OR TOWN WHOSE FACILITIES MIGHT BE AFFECTED BY ANY WORK TO BE PERFORMED BY THE CONTRACTOR ARE NOTIFIED AT LEAST 72 HOURS IN ADVANCE.

**MAINTENANCE AND PROTECTION OF TRAFFIC NOTES:**

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MAINTENANCE AND PROTECTION OF PEDESTRIAN AND VEHICULAR TRAFFIC INCLUDING POLICE PROTECTION. ALL TEMPORARY AND VEHICULAR SIGNS, BARRICADES AND LANE CLOSURES SHALL BE IN CONFORMANCE WITH THE LATEST REVISIONS OF MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.)

TEMPORARY CONSTRUCTION SIGNS AND ALL APPLICABLE TRAFFIC CONTROL DIVIDES SHALL BE IN PLACE PRIOR TO THE START OF WORK IN ANY AREA OPEN TO TRAFFIC.

THE PRIVATE VEHICLES OF CONSTRUCTION WORKERS WILL NOT BE PARKED IN THE STATE RIGHT-OF-WAY.

ALL MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL SETUPS, SIGNS CHANNELING DEVICES, ETC, SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. 1988 EDITION, INCLUDING REVISION 3, SEPTEMBER 3, 1993 AND SUBSEQUENT ADDENDA.

SIGN MOUNTINGS SHALL BE IN ACCORDANCE WITH THE R.I.D.O.T. SPECIFICATIONS FOR TEMPORARY CONSTRUCTION SIGNS.

**ESTABLISHMENT OF VEGETATIVE COVER:**

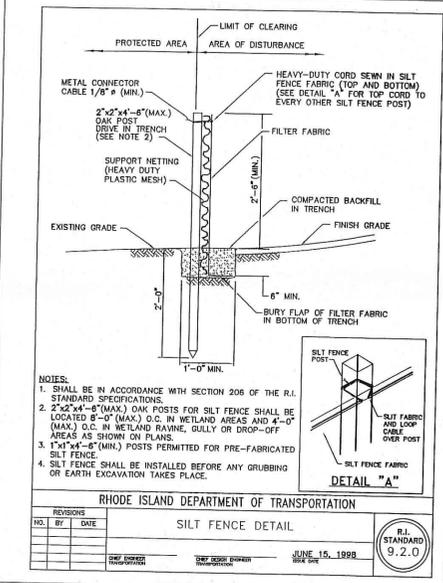
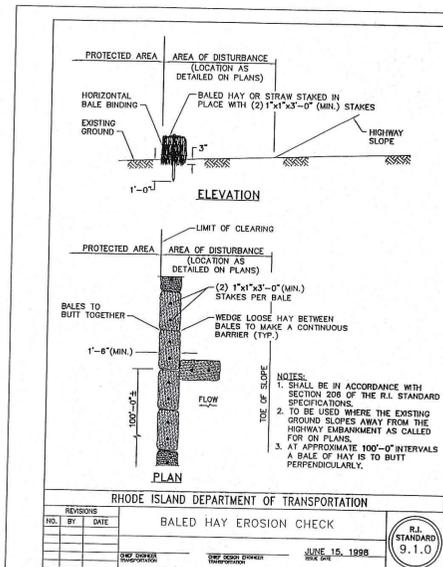
ALL FILL SHALL BE THOROUGHLY COMPACTED UPON PLACEMENT IN STRICT CONFORMANCE WITH THE R.I. STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, SECTION 202.

SLOPES SHALL NOT BE LEFT UNATTENDED OR EXPOSED FOR EXCESSIVE PERIODS OF TIME SUCH AS THE INACTIVE WINTER SEASON.

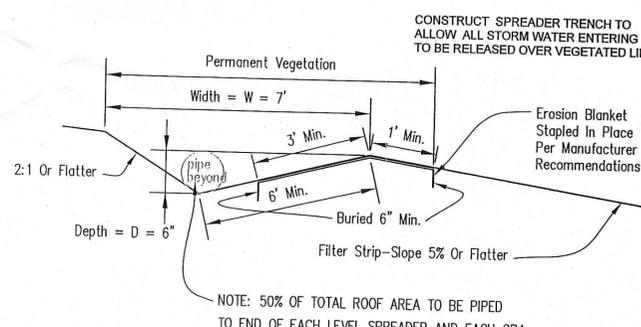
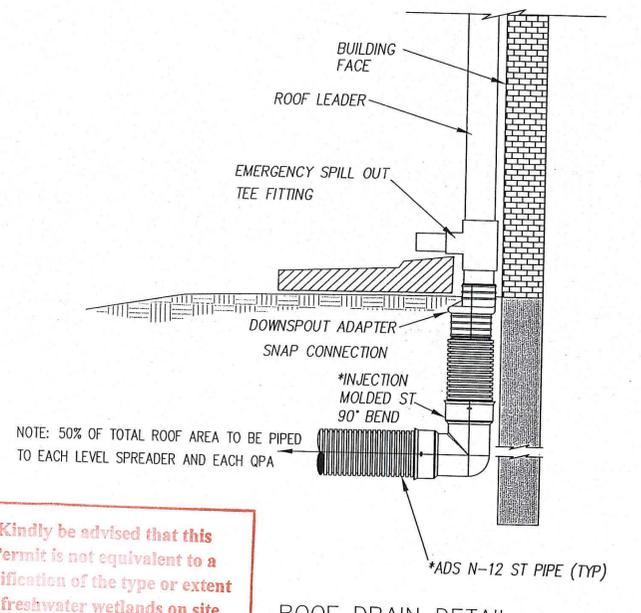
THE TOPSOIL SHALL HAVE A SANDY LOAM TEXTURE RELATIVELY FREE OF SUBSOIL MATERIAL, STONES, ROOTS, LUMPS OF SOIL, TREE LIMBS, TRASH OR CONSTRUCTION DEBRIS AND SHALL CONFORM TO RHODE ISLAND STANDARD SPECIFICATION M.20.

THE SEED MIX TO BE USED ON SLOPE APPROACHING WETLAND SHALL BE THE NEW ENGLAND CONSERVATION/WILDLIFE MIX FROM NEW ENGLAND WETLAND PLANTS, INC. OR APPROVED EQUAL APPLIED AT A RATE OF 25 LBS. PER ACRE AND MULCHED WITH STRAW.

EARLY SPRING OR LATE SUMMER SEEDING IS RECOMMENDED. LIME AND FERTILIZER AS REQUIRED BY SOIL TESTING TO COMPLIMENT OR UPGRADE EXISTING CONDITIONS.



Kindly be advised that this Permit is not equivalent to a verification of the type or extent of freshwater wetlands on site.

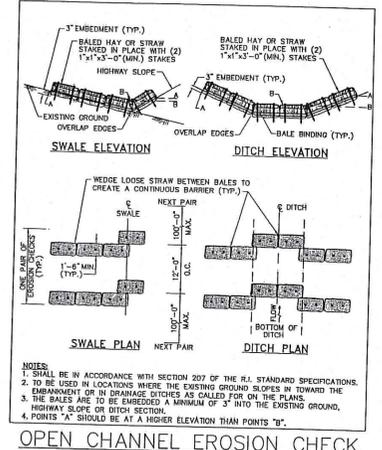
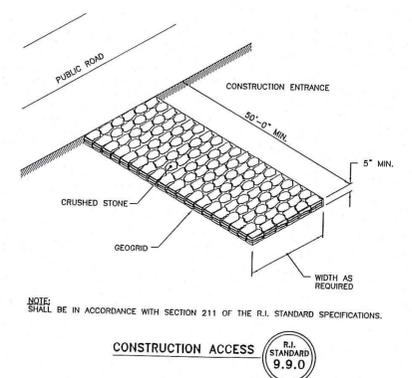
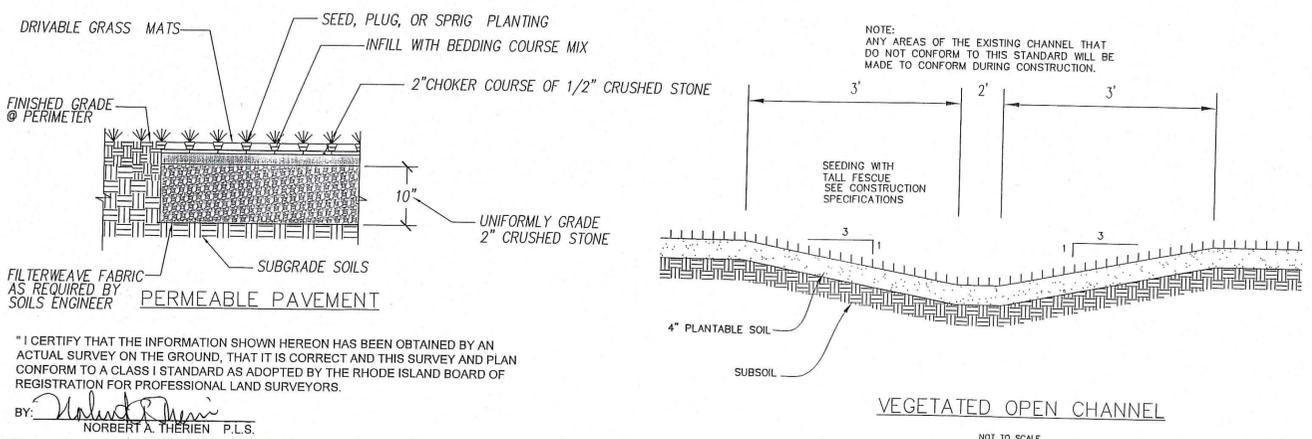


DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED SEP 20 2011 FILE # 11-0048  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

NORBERT A. THERIEN  
No. 1739  
PROFESSIONAL LAND SURVEYOR

NATIONAL Surveyors-Developers Inc.  
42 Hamlet Ave., Woonsocket, R.I.  
(401) 769-7779

PETER ALVITI JR.  
No. 3622  
REGISTERED PROFESSIONAL ENGINEER



**GREAT WALL COMMONS**  
**"LLOYD BOWEN COURT"**  
OWNED BY  
**LLOYD B. CLARK**  
208 TOURTELLOT HILL ROAD  
GLOCESTER, RHODE ISLAND  
FOR  
MAP 14 LOT 30  
CHESTNUT OAK ROAD  
GLOCESTER, RHODE ISLAND

**DETAILS**  
DRAWN BY: J.M.L. CHECKED BY: N.A.T. FIELD BY: J.M.L., J.B.  
JULY 2010 JOB No. 2009-30 SHEET 5 OF 6

Environmental Management  
Office of Water Resources

# Construction Specifications

## Permeable Pavements Notes and Specifications QC/QA

A. Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work in this section.

B. Codes and Standards – All materials, methods of construction and workmanship shall conform to applicable requirements of AASHTO ASTM Standards, RIDOT Standard Specifications for Road and Bridge Construction, latest revised (including supplements and updates), or other standards as specified. Protection of Existing Improvements

1. Proper erosion and sediment control practices shall be provided in accordance with existing regulations. Do not damage or disturb existing improvements or vegetation. Provide suitable protection where required before starting work and maintain protection throughout the course of the work. This includes the regular, appropriate inspection and maintenance of the erosion and sediment control measures.

2. Restore damaged areas, including existing pavement on or adjacent to the site that has been damaged as a result of construction work, to their original condition or repair as directed to the satisfaction of the Engineer at no additional cost.

### MATERIALS

Permeable solid blocks or reinforced turf: This type of permeable paving surface includes permeable solid blocks (where the blocks have a minimum void ratio of 15%) and contain open-cell grids filled with either ASTM No. 8 washed aggregate for (paving blocks) or sandy soil and planted with turf (for reinforced turf applications), set on a prepared base course consisting of a minimum of 2" choker course and 8" reservoir course.

Porous Media Infiltration Beds at all Permeable Pavement Driveways  
Below the permeable pavement itself are located the porous media infiltration beds from top to bottom: a 2" (minimum) thick layer of choker; a 2" (minimum) thick layer of washed crushed and an 10" (minimum) reservoir course of washed crushed stone.

Material for the choker course and reservoir course shall meet the following:  
Maximum Wash Loss of 0.5%  
Minimum Durability Index of 35  
Maximum Abrasion Loss of 10% for 100 revolutions, and maximum of 50% for 1000 revolutions.

Material for the choker course and reservoir course shall have the AASHTO No. 57 and AASHTO No. 3 gradations, respectively.

US Standard Sieve Size (inches/mm)	Percent Passing (%)	Choker Course (AASHTO No. 57) Reservoir Course (AASHTO No. 3)
6/150	—20/63	100 2/50 - 90
100 35 - 70	1/25 95 - 100	5 3/8/9.5
4/4.75 0 - 10	#20/0.75 0 - 5	#200/0.075 % Compaction ASTM D698 95 95 / AASHTO 199

Other adjacent construction shall be completed and site stabilized before installation of reservoir materials. A dense and vigorous vegetative cover shall be established on any contributing pervious drainage areas before runoff can be accepted into the facility.  
Pavers that are planted with grass require species with deep root systems. Follow manufacturer's guidelines on appropriate species.

### INSTALLATION

A. Porous Media Beds  
Protection of native materials from over compaction is important. Proper compaction of select subbase materials is essential. Improper compaction of subbase materials will result in either 1) low pavement durability from insufficient compaction, or 2) poor infiltration due to over-compaction of subbase. Care must be taken to assure proper compaction as detailed below.

1. Grade Control  
a. Establish and maintain required lines and elevations. The Engineer shall be notified for review and approval of final stake lines for the work before construction work is to begin. Finished surfaces shall be true to grade and even, free of roller marks and free of puddle-forming low spots. All areas must drain freely. Excavation elevations should be within +/- 0.1 ft (+/- 3 cm).  
b. If, in the opinion of the Engineer, based upon reports of the testing service and inspection, the quality of the work is below the standards which have been specified, additional work and testing will be required until satisfactory results are obtained.  
c. The Engineer shall be notified at least 24 hours prior to all porous media bed and porous pavement work.

2. Subgrade Preparation  
a. Native subgrade refers to materials beyond the limit of the excavation. The existing native subgrade material under all bed areas shall NOT be compacted or subject to excessive construction equipment traffic prior to compacted or stone bed placement. Compaction is acceptable if an geotextile and liner is used at the base of the porous asphalt system and infiltration is not desired.  
b. Where erosion of the native material subgrade has caused accumulation of fine materials and/or surface ponding, this material shall be removed with light equipment and the underlying soils scarified to a minimum depth of 6 inches with a York rake or equivalent and light tractor.  
c. Bring subgrade to line, grade, and elevations indicated. Fill and lightly regrade any areas damaged by erosion, ponding, or traffic compaction before the placing of the stone subbase.  
d. All bed bottoms are as level as feasible to promote uniform infiltration. For permeable subbases constructed on grade, soil or fabric barriers should be constructed along equal elevation for every 6"-12" of grade change to act as internal check dams. This will prevent erosion within the subbase on slope.

3. Porous Media Bed Installation  
a. Subbase refers to materials below pavement surface and above native subgrade. Upon completion of subgrade work, the Engineer shall be notified and shall inspect at his/her discretion before proceeding with the porous media bed installation.  
b. Sideslope geotextile and porous media bed aggregate shall be placed immediately after approval of subgrade preparation. Any accumulation of debris or sediment which has taken place after approval of subgrade shall be removed prior to installation of geotextile at no extra cost to the Owner.  
c. Place sideslope geotextile in accordance with manufacturer's standards and recommendations. Adjacent strips of geotextile shall overlap a minimum of sixteen inches (16"). Secure geotextile at least four feet (1.2 m) outside of the bed excavation and take any steps necessary to prevent any runoff or sediment from entering the storage bed.  
d. Install filter course aggregate in 8-inch maximum lifts to a MAXIMUM of 95% standard proctor compaction (ASTM D698 / AASHTO 199). Choker aggregate to grades indicated on the drawings.  
e. Install choker, gravel, and stone base course aggregate to a MAXIMUM of 95% compaction standard proctor (ASTM D698 / AASHTO 199). Choker should be placed evenly over surface of filter course bed, sufficient to allow placement of pavement, and notify Engineer for approval. Choker base course thickness shall be sufficient to allow for even placement of the porous asphalt but no less than 4-inches (10 cm) in depth.  
f. The density of subbase courses shall be determined by AASHTO T 191 (Sand-Cone Method), AASHTO T 204 (Drive Cylinder Method), or AASHTO T 238 (Nuclear Methods), or other approved methods at the discretion of the supervising engineer.  
g. Compaction of subbase course material shall be done with a method and adequate water to meet the requirements. Rolling and shaping shall continue until the required density is attained. Water shall be uniformly applied over the subbase course materials during compaction in the amount necessary for proper consolidation.

l. Rolling and shaping patterns shall begin on the lower side and progress to the higher side of the subbase course while lapping the roller passes parallel to the centerline. Rolling and shaping shall continue until each layer conforms to the required grade and cross-section and the surface is smooth and uniform.  
j. Following placement of subbase aggregate, the sideslope geotextile shall be folded back along all bed edges to protect from sediment washing along bed edges. At least a four-foot edge strip shall be used to protect beds from adjacent bare soil. This edge strip shall remain in place until all bare soils contiguous to beds are stabilized and vegetated. In addition, take any other necessary steps to prevent sediment from washing into beds during site development. When the site is fully stabilized, temporary sediment control devices shall be removed.

### CONSTRUCTION STANDARDS/SPECIFICATIONS FOR VEGETATED OPEN CHANNELS

Material Specifications  
The recommended construction materials for open channels and filter strips are detailed in Table F-20.

Dry Swales  
Roto-till soil/gravel interface approximately 6in to avoid a sharp soil/gravel interface. Permeable soil mixture should meet the bioretention planting soil specifications. Check dams, if required, shall be placed as specified.

Side slopes to be 2:1 minimum; (3:1 or greater preferred).  
No gravel or perforated pipe is to be placed under dryswales.  
Seed with flood/drought resistant grasses; see Appendix B for guidance, and RIDOT specification section L01.  
Bottom width to be 8 ft maximum to avoid braiding; larger widths may be used if proper berming is supplied (i.e., barrier between minimum widths). Width to be 2 ft minimum.

Parameter Specification Size Notes - (see chart at right)

Open Channel System Construction Inspection Checklist - (see chart at right)

CONSTRUCTION SEQUENCE SATISFACTORY / UNSATISFACTORY COMMENTS - (see chart at right)

### QUALIFYING PVIOUS AREAS (QPA)

All QPAs must be shown on site plans, must have a minimum of 4 inches of topsoil or organic material, and must be located outside of regulated wetland areas and regulated buffer to a waterbody or wetland.

To prevent compaction of the soil in the QPA, construction vehicles must not be allowed to drive over the area. If it becomes compacted, the soil must be naturally or mechanically re-vegetated once construction is complete to restore infiltration capacity.

### INSTALLATION REQUIREMENTS FOR SEED MIXTURES ON QPA'S

A. Site Preparation  
1. Install needed erosion control measures such as diversions, grade stabilization structures, sediment basins and grassed waterways.  
2. Grade as needed and feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application and anchoring, and maintenance. All grading should be done in accordance with the guidelines for land grading as discussed in Chapter 3.

B. Seedbed Preparation  
1. Apply limestone and fertilizer according to soil tests such as those offered by the University of Rhode Island Soil Testing Laboratory. Soil sample molar are available from the local Cooperative Extension Service Office. If soil testing is not feasible on small or variable sites, or where timing is critical, fertilizer may be applied at the rate of 500 pounds per acre or 11.5 pounds per 1000 square feet using 10-20-20 or equivalent.  
2. Fertilizer is not required in buffer areas adjacent to wetland areas or in wetland areas when the recommended seed mix of ladino clover and reed canarygrass is used (Table 4-2). Leguminous plants such as ladino clover are nitrogen fixers which make nitrogen available for uptake by other plants. In general, it is desirable to minimize the use of fertilizers in areas adjacent to surface waters so as to prevent the eutrophication of these waters.  
3. With the exception of hydroseeding, work lime and fertilizer into the soil as nearly as practical to a depth of 4 inches with a disc, spring tooth harrow or other suitable equipment. The final harrowing or discing operation should be on the general contour. Continue tillage until a reasonably uniform, fine seedbed is prepared. All but clay or silty soils and coarse sands should be rolled to firm the seedbed wherever feasible.  
4. Remove from the surface all stones two inches or larger in any dimension. Remove all other debris, such as wire, cable, tree roots, pieces of concrete, clods, or lumps.  
5. Inspect seedbed just before seeding. If traffic has left the soil compacted, the area must be retiled and firmed as above.

C. Seeding Dates Early spring or late summer seeding is recommended; mid-summer seeding is not recommended. Spring seeding of all seed mixes with legumes is recommended, however late summer seedings prior to September 1 can be made. The recommended seeding dates are: April 1 through June 15 and August 15 through September 30. The final seeding date may be extended 15 days in Newport County.  
D. Seeding:  
1. Use a mixture Till fescue 20 lbs/acre or 0.45 lbs/1000 ft<sup>2</sup>  
2. Apply seed uniformly by hand, cyclone seeder, drill, cultipacker type seeder, or hydroseeder (slurry including seed and fertilizer). Normal seeding depth is from 114 to 112 inch. Hydroseedings which are mulched may be left on the soil surface.  
3. Where feasible, except where either a cultipacker type seeder or hydroseeder is used, the seedbed should be firmed following seeding operations with a roller, or light drag. Seeding operations should be on the contour.  
4. Frost crack seeding can be used to improve the density of permanent seeding. Frost crack seeding must be done in late winter or early spring. Suitable weather conditions are freezing nights and thawing days with little or no snow cover.  
5. Hydraulic application (hydroseeding) is a suitable method except on severely steep slopes. When hydroseeding, a seedbed is prepared in the conventional way or by hand raking to loosen and smooth the soil and to remove surface stones larger than two inches in diameter. Generally, slopes greater than 2:1 are not recommended. Where slopes exceeding 2:1 are un-avoidable, supplemental mulch, matting and/or structural erosion controls are recommended. Lime should be applied and thoroughly incorporated into the soil prior to seeding. Fertilizer may be applied simultaneously with the seed. Use of straw mulch held with adhesive materials or 500 lbs per acre of wood fiber mulch is recommended for protection from soil erosion. Whole wood mulch is recommended. The recommended rate for hydromulch is 1,500 lbs per acre on flats and 3,000 lbs per acre on slopes. Seeding rates must be increased 10% when hydroseeding.  
6. Apply mulch according to the Temporary Mulching measure.  
7. If seeding cannot be done within the seeding dates, use the Temporary Mulching measure to protect the site and delay seeding until the next recommended seeding period.

# OPERATION AND MAINTENANCE

Name, address, and phone number of responsible parties for maintenance:

Private lot owners are responsible for operation and maintenance in accordance with these standards for Pervious Pavement Driveways and QPAs A, B, C, D, E, F, and G.

The GREAT WALL COMMONS HOMEOWNERS ASSOCIATION is responsible for operation and maintenance in accordance with these standards for QPA s R1 through R10, the vegetated open channel, the gravel roadway and for all commonly owned Open Spaces.

Description of annual maintenance tasks:  
These standards are to be made part of the GREAT WALL COMMONS HOMEOWNERS ASSOCIATION incorporation documents and each private lot deed restrictions. See standards below for O&M procedures.

Description of applicable easements  
Easements for QPA s R1 through R10, the vegetated open channel, the gravel roadway and for all commonly owned Open Spaces are to be granted to the GREAT WALL COMMONS HOMEOWNERS ASSOCIATION granting the rights to pass and re-pass and conduct the O&M procedures presented herein.

Description of funding source  
Private lot owners and the GREAT WALL COMMONS HOMEOWNERS ASSOCIATION are responsible for their respective operation and maintenance requirements as presented herein. This responsibility will be made binding in the GREAT WALL COMMONS HOMEOWNERS ASSOCIATION incorporation documents and each private lot deed restrictions.

Minimum vegetative cover requirements  
See O&M procedures below.

Access and safety issues  
All Federal, State and Local safety regulations including those promulgated by OSHA and RIDOT will be complied with by the GREAT WALL COMMONS HOMEOWNERS ASSOCIATION and each lot owner in the conduct of these O&M procedures.

### PERVIOUS PAVEMENT DRIVEWAYS

Required Elements  
A legally binding and enforceable maintenance agreement shall be executed between the facility owner and the responsible authority.

Areas where infiltrating permeable pavement practices are proposed shall not serve as a temporary sediment control device during site construction phases.  
Permeable paving surfaces require regular vacuum sweeping or hosing (minimum every three months or as recommended by manufacturer) to keep the surface from clogging. Maintenance frequency needs may be more or less depending on the traffic volume at the site.  
Minimize use of sand and silt in winter months.  
Do not repave or resal with impermeable materials.

The Erosion and Sediment Control (ESC) Plan shall specify at a minimum:  
- how sediment will be prevented from entering the pavement area;  
- a construction sequence;  
- drainage management; and  
- vegetative stabilization.

### VEGETATED OPEN CHANNEL

Required Elements  
A legally binding and enforceable maintenance agreement shall be executed between the facility owner and the responsible authority.

Open channel practices shall be inspected annually and after storms of greater than or equal to the 24-hour Type III precipitation event.  
Sediment build-up within the bottom of the channel or filter strip shall be removed when 25% of the original WQV volume has been exceeded.  
Eroded side slopes and channel bottoms shall be stabilized as necessary.  
In the absence of evidence of contamination, removed debris may be taken to a landfill or other permitted facility.  
Sediment testing may be required prior to sediment disposal when a LUHPPL is present.

Vegetation in dry swales shall be mowed as required to maintain grass heights in the 4-6 inch range, with mandatory mowing once grass heights exceed 10 inches.  
2. Fertilizer is not required in buffer areas adjacent to wetland areas or in wetland areas when the recommended seed mix of ladino clover and reed canarygrass is used (Table 4-2). Leguminous plants such as ladino clover are nitrogen fixers which make nitrogen available for uptake by other plants. In general, it is desirable to minimize the use of fertilizers in areas adjacent to surface waters so as to prevent the eutrophication of these waters.  
3. With the exception of hydroseeding, work lime and fertilizer into the soil as nearly as practical to a depth of 4 inches with a disc, spring tooth harrow or other suitable equipment. The final harrowing or discing operation should be on the general contour. Continue tillage until a reasonably uniform, fine seedbed is prepared. All but clay or silty soils and coarse sands should be rolled to firm the seedbed wherever feasible.  
4. Remove from the surface all stones two inches or larger in any dimension. Remove all other debris, such as wire, cable, tree roots, pieces of concrete, clods, or lumps.  
5. Inspect seedbed just before seeding. If traffic has left the soil compacted, the area must be retiled and firmed as above.

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3. Where feasible, except where either a cultipacker type seeder or hydroseeder is used, the seedbed should be firmed following seeding operations with a roller, or light drag. Seeding operations should be on the contour.  
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6. Apply mulch according to the Temporary Mulching measure.  
7. If seeding cannot be done within the seeding dates, use the Temporary Mulching measure to protect the site and delay seeding until the next recommended seeding period.

During inspection, any structural deficiencies, and spiders that prey on detrimental pest species. These desirable organisms can be introduced directly or can be attracted to the area by providing food and/or habitat.

### QUALIFYING PVIOUS AREA (QPA)

Maintenance is very important for filter strips, particularly in terms of ensuring that flow does not short circuit the practice.  
Required Elements  
Ensure that grass has established; if not, replace with an alternative species.  
QPA strips shall be inspected at least quarterly during the first year of operation and annually thereafter. Evidence of erosion and concentrated flows within the QPA strip must be corrected immediately. Eroded spots must be reseeded and mulched to enhance a vigorous growth and prevent future erosion problems.  
The bulk of accumulated sediments will be trapped at the initial entry point of the QPA filter strip. These deposited sediments shall be removed manually at least once per year or when accumulating sediments cause a change in the grade elevation. Reseeding may be necessary to repair areas damaged during the sediment removal process.  
QPA Filter strips, or areas proposed as such, must be protected by proper soil erosion and sediment control techniques (e.g., hay bales and silt fences) during all phases of construction. These measures must be properly maintained until final site stabilization and subsequent removal of all trapped sediments has occurred.  
QPA grass filter strips should be mowed approximately 2 to 4 times a year, leaving vegetation a minimum of 4 inches in height. Mowing operations are to be conducted during the growing season, but preferably after mid-August. This management technique maintains a tall vigorous growth.  
QPA filter strips provide a convenient area for snow storage and treatment. If used for this purpose, vegetation in the filter strip should be salt tolerant, (e.g., creeping bentgrass), and a maintenance schedule should include the removal of snow built up at the bottom of the slope.

The QPA must be owned or controlled (e.g., drainage easement) by the property owner.  
SEPTIC SYSTEM MANAGEMENT  
Approximately one-third of Rhode Islanders use some form of onsite wastewater treatment system (i.e., septic system, cesspool, etc.). When septic systems fail, they may become a major source of pollution to surface and groundwater. Discharge from failed systems is often carried to surface water via stormwater runoff. Stormwater management plans must discuss appropriate operation and management for all onsite wastewater treatment systems (OWTS) on the project site. Use of regular inspections in accordance with the procedures of Septic System Checkup: The Rhode Island Manual for Inspections is recommended.

LAWN, GARDEN, AND LANDSCAPE MANAGEMENT  
Lawns are a significant feature of urban landscapes. Estimates of turf and lawn coverage in the United States are as high as 30 million acres, which, if lawns were classified as a crop, would rank as the fifth largest in the country after corn, soybeans, wheat, and hay (Swann and Schueler, 2000). This large area of managed landscape has the potential to contribute to urban runoff pollution due to over-fertilization, overwatering, overapplication of pesticides, and direct disposal of lawn clippings, leaves, and trimmings. Also, erosion from bare patches of poorly managed lawns Rhode Island Stormwater Design and Installation Standards Manual December 2010 APPENDIX G: POLLUTION PREVENTION AND SOURCE CONTROLS G-8 contribute sediment to watercourses, and disposal of lawn clippings in landfills can reduce the capacity of these facilities to handle other types of waste.  
The following standards for grounds management must be incorporated into stormwater management plans:

Lawn conversion – Grasses require more water and attention than alternative groundcovers, flowers, shrubs, or trees. Alternatives to turf are especially recommended for problem areas such as lawn edges, frost pockets, shady spots, steep slopes, and soggy areas. Vegetation that is best suited to the local conditions should be selected.

Soil building – Grounds operation and maintenance should incorporate soil evaluation every 1 to 3 years to determine suitability for supporting a lawn, and to determine how to optimize growing conditions. Consider testing soil characteristics such as pH, fertility, compaction, texture, and earthworm content.

Grass selection – Grass seed is available in a wide range of cultivated varieties, so homeowners, landscapers, and grounds managers are able to choose the grass type that grows well in their particular climate, matches site conditions, and is consistent with the property owner's desired level of maintenance. When choosing ground cover, consideration should be given to seasonal variations in rainfall and temperature. Table G-3 lists turfgrass types and their level of tolerance to drought:

Table G-3 Drought Tolerance of Turfgrass Types  
Turfgrass Type Drought Tolerance  
Fine-leaved Fescues  
Tall Fescue

Mowing and thatch management – To prevent insects and weed problems, property owners should mow high, mow frequently, and keep mower blades sharp. Lawns should not be cut shorter than 2 to 3 inches, because weeds can grow more easily in short grass. Dues can be cut lower in the spring and fall to stimulate root growth, but not shorter than 1 1/2 inches.

Fertilization – If fertilizing is desired, consider the following points:  
Most lawns require little or no fertilizer to remain healthy. Fertilize no more than twice a year – once in May-June, and once in September-October.  
Fertilizers are rated on their labeling by three numbers (e.g., 10-10-10 or Rhode Island Stormwater Design and Installation Standards Manual December 2010 APPENDIX G: POLLUTION PREVENTION AND SOURCE CONTROLS G-9 12-4-8), which refer to their Nitrogen (N) – Phosphorus (P) – Potassium (K) concentrations. Fertilize at a rate of no more than 1/2 pound of nitrogen per 1000 square feet, which can be determined by dividing 50 by the percentage of nitrogen in the fertilizer.

Apply fertilizer carefully to avoid spreading on impervious surfaces such as paved walkways, patios, driveways, etc., where the nutrient can be easily washed into stormdrains or directly into surface waters;  
To encourage more complete uptake, use slow-release fertilizers that is those that contain 50 percent or more water-insoluble nitrogen (WIN);  
Grass blades retain 30-40 percent of nutrients applied in fertilizers.  
Reduce fertilizer applications by 30 percent, or eliminate the spring application of fertilizer and leave clippings on the lawn while they will degrade and release stored nutrients back to the soil, and  
Fertilizer should not be applied when rain is expected. Not only does the rain decrease fertilizer effectiveness, it also increases the risk of surface and ground water contamination.

Weed management – A property owner must decide how many weeds can be tolerated before action is taken to eradicate them. To the extent practicable, weeds should be dug or pulled out. If patches of weeds are present, they can be covered for a few days with a black plastic sheet; a technique called solarization. Solarization kills the weeds while leaving the grass intact. If weeds blanket a large enough area, the patch can be covered with clear plastic for several weeks, effectively "booking" the weeds and their seeds. The bare area left behind after weeding should be reseeded to prevent weeds from growing back. As a last resort, homeowners can use chemical herbicides to spot-treat weeds.  
Pest management – Effective pest management begins with maintenance of a healthy, vigorous lawn that is naturally disease resistant. Property owners should monitor plants for obvious damage and check for the presence of pest organisms. Learn to distinguish between those that will damage plants.  
When damage is detected or when harmful organisms are present, property owners should determine the level of damage the plant is able to tolerate. No action should be taken if the plant can maintain growth and fertility. If controls are needed, there are a variety of low-impact pest management controls and practices to choose from, including the following:

Visible insects can be removed by hand (with gloves or tweezers) or with a spray in soapy water or vegetable oil. Alternatively, insects can be placed off a plant with water, or in some cases vacuumed off of larger plants.  
Store-bought traps, such as species-specific, pheromone-based traps or colored sticky cards, can be used;  
Rhode Island Stormwater Design and Installation Standards Manual December 2010 APPENDIX G: POLLUTION PREVENTION AND SOURCE CONTROL G-10 Sprinkling the ground surface with abrasive diatomaceous earth can prevent infestations by soft-bodied insects and slugs. Slugs can also be trapped by falling or crawling into small cups set in the ground flush with the surface and filled with beer;  
In cases where microscopic parasites, such as bacteria and fungi, are causing damage to plants, the affected plant material can be removed and disposed of. (Pruning equipment should be disinfected with bleach to prevent spreading the disease organism);  
Small mammals and birds can be excluded using fences, nesting, tree trunk guards, and, as a last resort, trapping. (In some areas trapping is illegal. Property owners should check local codes if this type of action is desired); and  
Property owners can encourage/attract beneficial organisms, such as bats, birds, green lacewings, ladybugs, praying mantis, ground beetles, parasitic nematodes, trichogramma wasps, seedhead weevils, and spiders that prey on detrimental pest species. These desirable organisms can be introduced directly or can be attracted to the area by providing food and/or habitat.

Chemical pesticides are used, property owners should try to select the least toxic, water soluble, and volatile pesticides possible. All selected pesticides should be screened for their potential to harm water resources. Although organophosphate pesticides, such as diazinon and chlorpyrifos, are popular because they target a broad range of pests and are less expensive than newer, less toxic pesticides, they rank among the worst killers of wildlife, and often pose the greatest health risk. Synthetic pyrethroids are more selective, and typically much less toxic than organophosphates, yet they can harm beneficial insects. When possible, pesticides that pose the least risk to human health and the environment should be chosen. A list of popular pesticides, along with their uses, their toxicity to humans and wildlife, EPA's toxicity rating, and alternatives to the listed chemicals, is available from The Audubon Guide to Home Pesticides. (<http://www.audubon.org/bird/pesticides/>).

Sensible irrigation – Most New England lawns will survive without irrigation. Grasses will normally go dormant in warm, dry periods (June-September) and resume growth when moisture is more plentiful. However, if watering is desired, consider the following points:  
Established lawns need no more than one inch of water per week (including precipitation) to prevent dormancy in dry periods. Watering at this rate should wet soil to approximately 4-6 inches and will encourage analogous root growth. If possible, use timers to water before 10:00 a.m., preferably in the early morning to avoid evaporative loss. Use drought-resistant grasses (see "grass selection" above).

Open Channel System Construction Inspection Checklist

CONSTRUCTION SEQUENCE	SATISFACTORY / UNSATISFACTORY	COMMENTS
1. Check dams		
Dimensions		
Spacing		
Materials		
4. Structural Components		
Underdrain installed correctly		
Inflow installed correctly		
Treatment devices installed		
5. Vegetation		
Complies with planting specifications		
Topsoil adequate in composition and placement		
Adequate erosion control measures in place		
6. Final inspection		
Dimensions		
Check dams		
Proper outlet		
Effective stand of vegetation and stabilization		
Contributing watershed stabilized before flows due to the facility		

NO.	DATE	DESCRIPTION	BY

CONSTRUCTION SEQUENCE	SATISFACTORY / UNSATISFACTORY	COMMENTS
Dry waste soil	soil BS-605 soil fines - 12% (2% clay) organic 1-5%	n/a
Dry profile sand	ASTM C-38 fine aggregate concrete sand	0.02 in to 0.04 in
Check Dam (pressure treated)	RIDOT Specs. Sec. 207 2x4x6x12 treated C4	6 in x 6 in or 8 in x 8 in
Check Dam (natural wood)	RIDOT Specs. Sec. 207 2x4x6x12 treated C4 Aluminum, Cedar, Catalpa, White Oak, Chestnut Oak, Black Walnut	8 in to 12 in down to 12 in
Filter strip sand/gravel pervious berm	sand per dry swale sand spec; AASHTO M-43	sand: 0.02 in to 0.04 in gravel: 1/8 to 3/8 in
Gravel discharge and curb/ditch	ASTM D-448	width (16, 6) or (12) in to 24 in
underdrain gravel	RIDOT Specs. Sec. 703 AASHTO M-43	4-8 in grad schedule 40 PVC
underdrain	RIDOT Specs. Sec. 703 AASHTO M-272 See Standards and Specs	n/a
Geotextile	RIDOT Specs. Sec. 910	width

CONSTRUCTION SEQUENCE	SATISFACTORY / UNSATISFACTORY	COMMENTS
1. Pre-Construction		
Pre-construction meeting		
Runoff diverted		
Facility location staked out		
2. Excavation		
Site and location		
Side slope stable		
Soil permeability		
Groundwater / bedrock		
Lateral slopes completely level		
Longitudinal slopes within design range		
Excavation does not impact subsol		

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
AS SPECIFIED WITH CONDITIONS  
DATED SEP 20 2011 FILE # 11-0048  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

CONSTRUCTION SEQUENCE	SATISFACTORY / UNSATISFACTORY	COMMENTS
1. Pre-Construction		
Pre-construction meeting		
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Facility location staked out		
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Lateral slopes completely level		
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Excavation does not impact subsol		

**GREAT WALL COMMONS**  
**"LLOYD BOWEN COURT"**  
OWNED BY  
**LLOYD B. CLARK**  
208 TOURTELLOTT HILL ROAD  
GLOCESTER, RHODE ISLAND  
FOR  
MAP 14 LOT 30  
CHESTNUT OAK ROAD  
GLOCESTER, RHODE ISLAND  
**CONSTRUCTION & MAINTAINENCE SCHEDULE**  
DRAWN BY: J.M