

PROPOSED WETLAND ALTERATION PLANS  
**POPPY HILLS - SECTION 2**

IN

**JOHNSTON, RHODE ISLAND**  
**LOT 19 & A PORTION OF LOT 34 ON A.P. 55**

FOR

POPPY HILLS DEVELOPMENT GROUP, INC.

PREPARED BY

**DAVID D. GARDNER & ASSOCIATES, INC.**

CIVIL ENGINEERS    LAND SURVEYORS    LAND PLANNERS

SHEET INDEX

SHEET NO.

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4. SITE & REGRADING PLAN
5. PLAN & PROFILE
6. PROFILE & SECTIONS
- 7-12. DETAIL SHEETS
13. ROADWAY SECTIONS

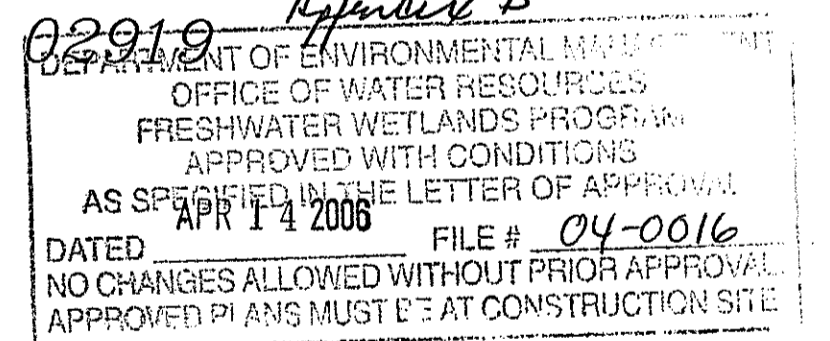
DATE ISSUED: 8/14/2003  
REVISED: 3/24/2004  
3/15/2005  
9/26/2005



LOCATION MAP  
SCALE: 1"=1000'

APPLICANT:

POPPY HILLS DEVELOPMENT GROUP, INC.  
1481 ATWOOD AVE.  
JOHNSTON, RHODE ISLAND 02919  
(401) 861-7788



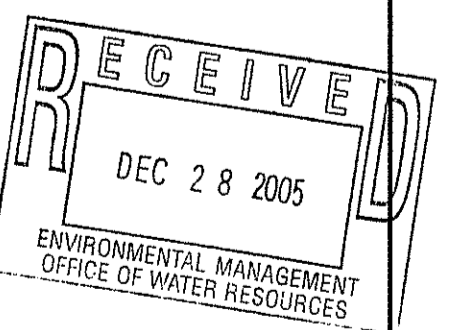
OWNER:

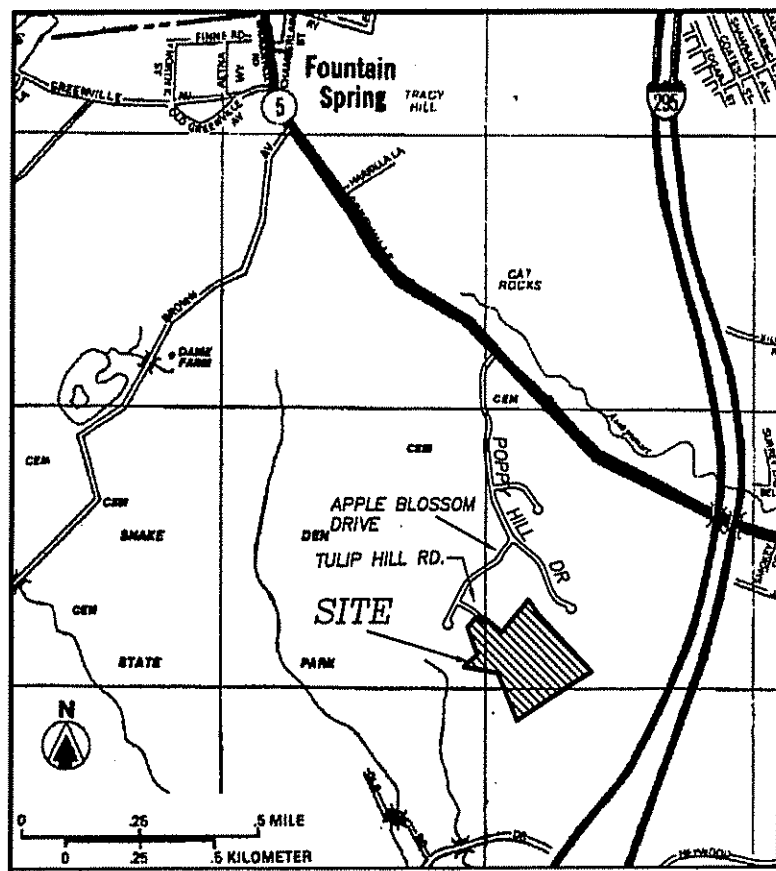
R.J. COLARDO, INC.  
C/O POPPY HILLS DEVELOPMENT GROUP, INC.  
1481 ATWOOD AVE.  
JOHNSTON, RHODE ISLAND 02919  
(401) 861-7788

*Charles A. Habes*

ENGINEER/SURVEYOR:

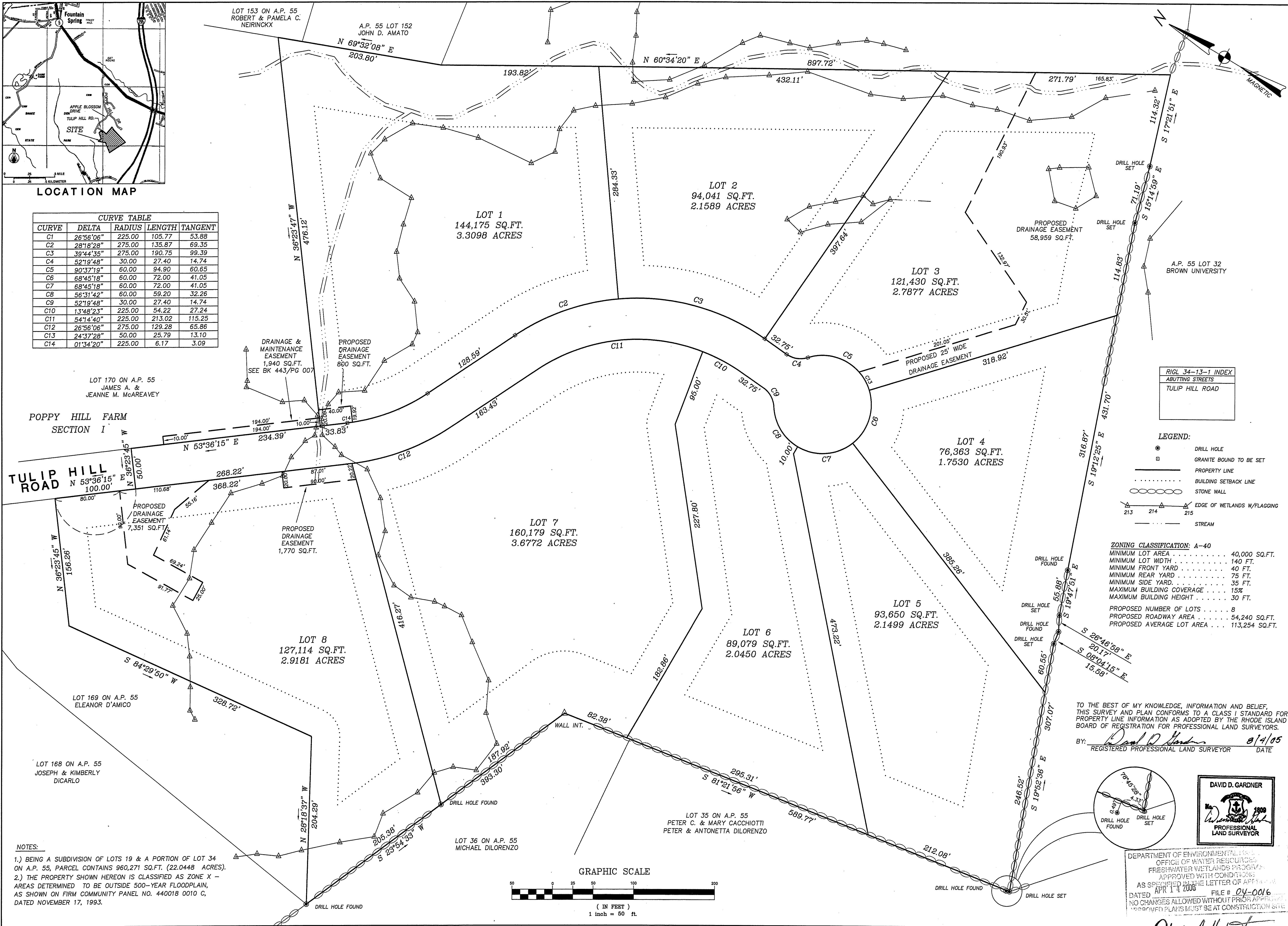
DAVID D. GARDNER & ASSOCIATES, INC.  
200 METRO CENTER BOULEVARD - SUITE 7  
WARWICK, RHODE ISLAND 02886  
(401) 738-3200





LOCATION MAP

CURVE	DELTA	RADIUS	LENGTH	TANGENT
C1	26°56'06"	225.00	105.77	53.88
C2	28°18'28"	275.00	135.87	69.35
C3	39°44'35"	275.00	190.75	99.39
C4	52°19'48"	30.00	27.40	14.74
C5	90°37'19"	60.00	94.90	60.85
C6	68°45'18"	60.00	72.00	41.05
C7	68°45'18"	60.00	72.00	41.05
C8	56°31'42"	60.00	59.20	32.26
C9	52°19'48"	30.00	27.40	14.74
C10	13°48'23"	225.00	54.22	27.24
C11	54°14'40"	225.00	213.02	115.25
C12	26°56'06"	275.00	129.28	65.86
C13	24°37'28"	50.00	25.79	13.10
C14	01°34'20"	225.00	6.17	3.09



RIGL 34-13-1 INDEX
ABUTTING STREETS
TULIP HILL ROAD

- LEGEND:
- DRILL HOLE
  - GRANITE BOUND TO BE SET
  - PROPERTY LINE
  - ..... BUILDING SETBACK LINE
  - ○ ○ ○ ○ STONE WALL
  - ▲ 213
  - ▲ 214
  - ▲ 215
  - STREAM

ZONING CLASSIFICATION: A-40

MINIMUM LOT AREA . . . . . 40,000 SQ.FT.

MINIMUM LOT WIDTH . . . . . 140 FT.

MINIMUM FRONT YARD . . . . . 40 FT.

MINIMUM REAR YARD . . . . . 75 FT.

MINIMUM SIDE YARD . . . . . 35 FT.

MAXIMUM BUILDING COVERAGE . . . . . 15%

MAXIMUM BUILDING HEIGHT . . . . . 30 FT.

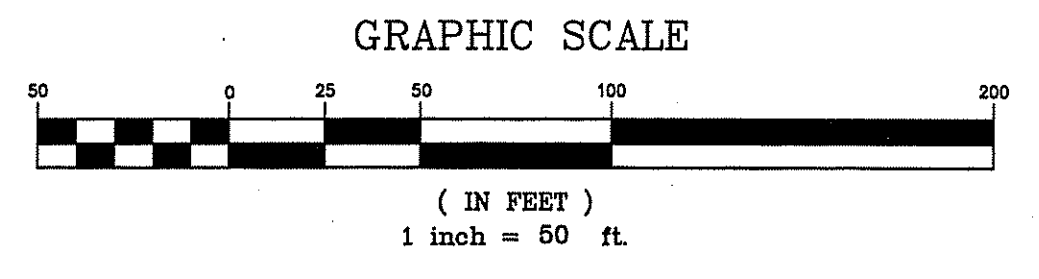
PROPOSED NUMBER OF LOTS . . . . . 8

PROPOSED ROADWAY AREA . . . . . 54,240 SQ.FT.

PROPOSED AVERAGE LOT AREA . . . . . 113,254 SQ.FT.

TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF, THIS SURVEY AND PLAN CONFORMS TO A CLASS I STANDARD FOR PROPERTY LINE INFORMATION AS ADOPTED BY THE RHODE ISLAND BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS.

BY: *David D. Gardner* 8/4/05  
REGISTERED PROFESSIONAL LAND SURVEYOR DATE



NOTES:

- 1.) BEING A SUBDIVISION OF LOTS 19 & A PORTION OF LOT 34 ON A.P. 55, PARCEL CONTAINS 960,271 SQ.FT. (22.0448 ACRES).
- 2.) THE PROPERTY SHOWN HEREON IS CLASSIFIED AS ZONE X - AREAS DETERMINED TO BE OUTSIDE 500-YEAR FLOODPLAIN, AS SHOWN ON FIRM COMMUNITY PANEL NO. 440018 0010 C, DATED NOVEMBER 17, 1993.

DAVID D. GARDNER & ASSOCIATES, INC.  
200 METRO CENTER BOULEVARD  
WARWICK, RHODE ISLAND 02886  
(401) 798-3200

ENGINEERS • SURVEYORS • PLANNERS

SUBDIVISION PLAN  
POPPY HILLS - SECTION 2  
JOHNSTON, RHODE ISLAND  
LOT 19 & A PORTION OF LOT 34 ON A.P. 55  
FOR  
POPPY HILLS DEVELOPMENT GROUP, INC.

APPLICANT: POPPY HILLS DEVELOPMENT GROUP, INC.  
1481 ATHWOOD AVE.  
JOHNSTON, RI 02819

OWNER: R.L. COLARDO, INC.  
1481 ATHWOOD AVE.  
JOHNSTON, RI 02819

DATE	REVISIONS
3/24/04	RD.DEM. COMMENTS
3/15/05	WETLAND CROSSING

DATE ISSUED: 8/14/2003

SCALE: 1" = 50'

DESIGNED BY:

DRAWN BY: M.T.C.

CHECKED BY: D.D.G.

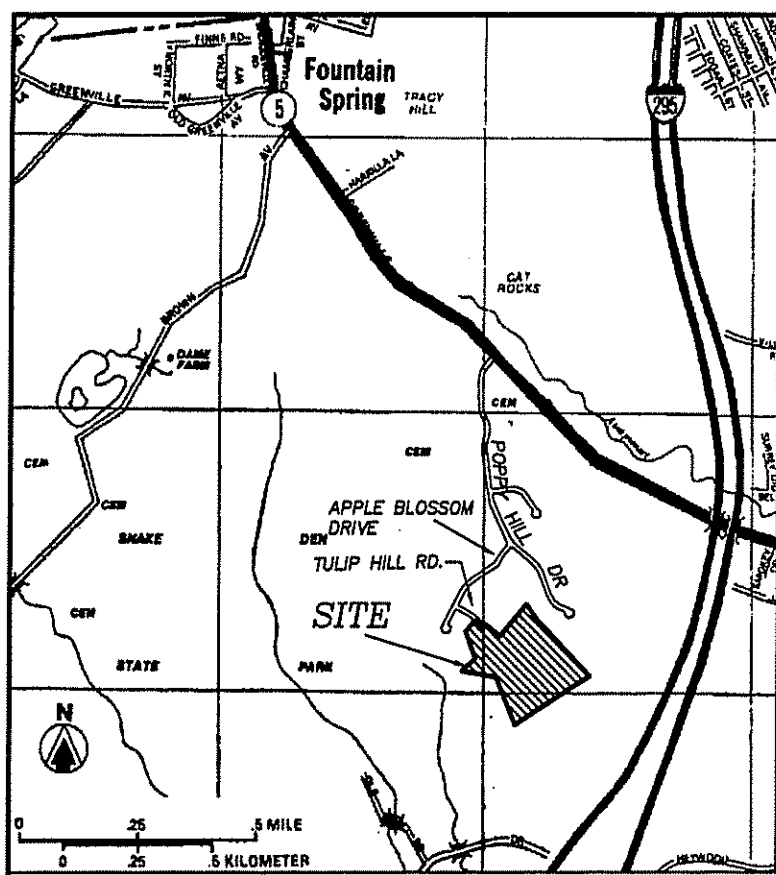
JOB NO.: 01-106

DWG NO.: 01-106W2-6

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DEC 28 2005

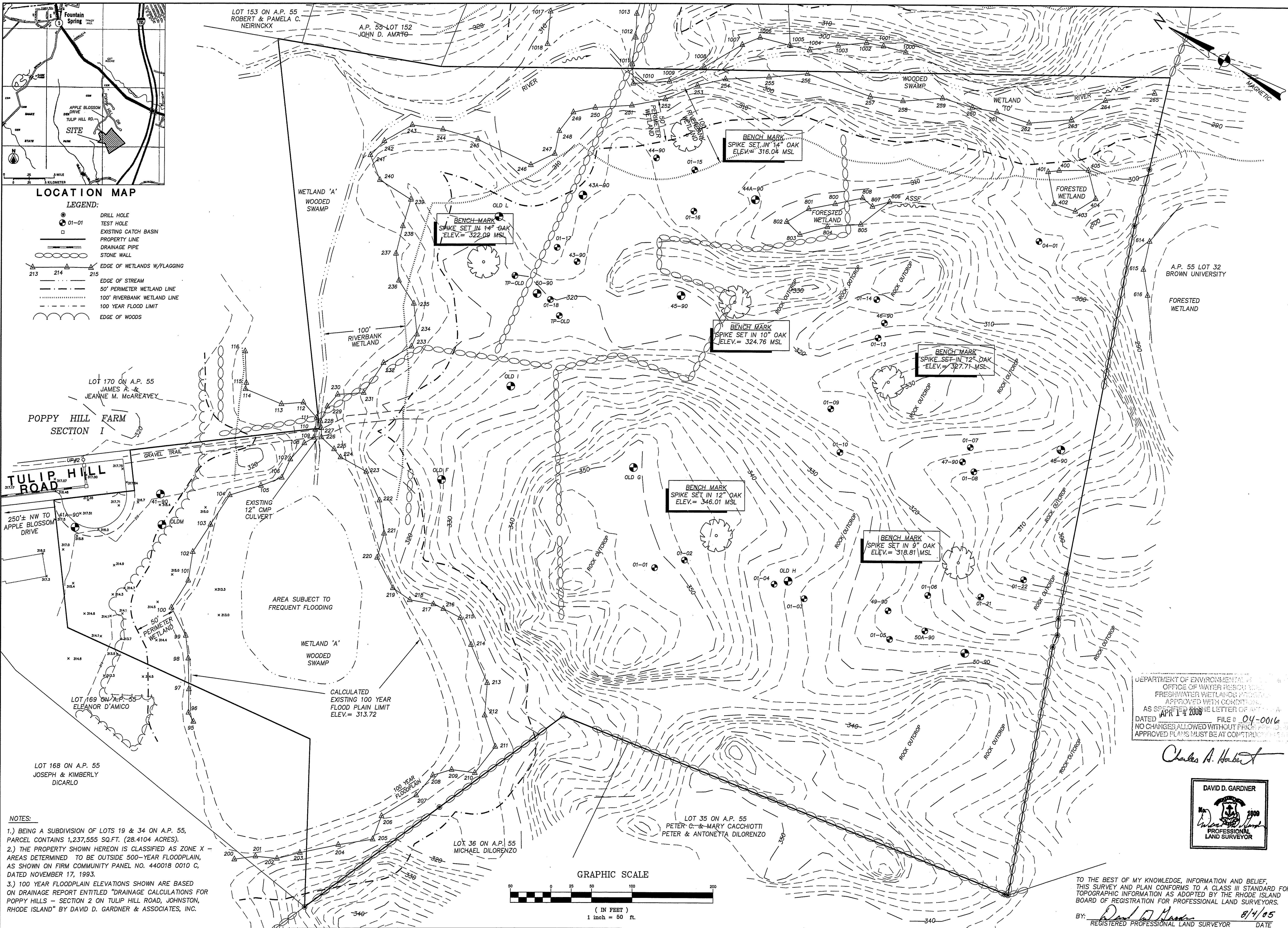
ENVIRONMENTAL MANAGEMENT OFFICE OF WATER RESOURCES



**LOCATION MAP**

**LEGEND:**

- 01-01 DRILL HOLE
- TEST HOLE
- EXISTING CATCH BASIN
- PROPERTY LINE
- DRAINAGE PIPE
- STONE WALL
- △ EDGE OF WETLANDS W/FLAGGING
- EDGE OF STREAM
- 50' PERIMETER WETLAND LINE
- 100' RIVERBANK WETLAND LINE
- 100 YEAR FLOOD LIMIT
- EDGE OF WOODS



LOT 170 ON A.P. 55  
JAMES A. &  
JEANNE M. McAREAVEY

POPPY HILL FARM  
SECTION 1

TULIP HILL ROAD

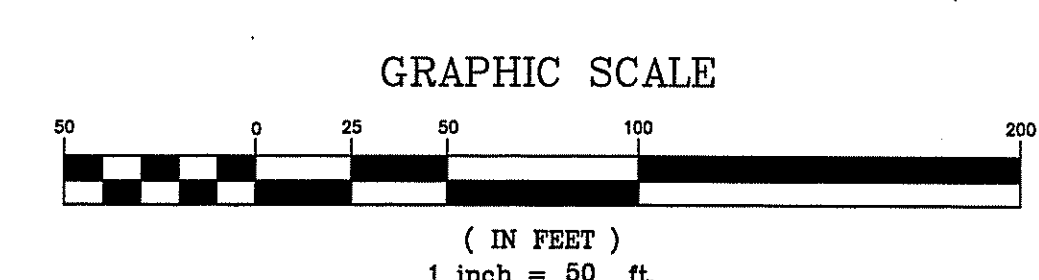
250'± NW TO  
APPLE BLOSSOM  
DRIVE

LOT 169 ON A.P. 55  
ELEANOR D'AMICO

LOT 168 ON A.P. 55  
JOSEPH & KIMBERLY  
DICARLO

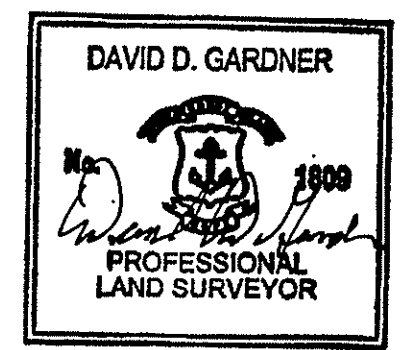
- NOTES:**
- 1.) BEING A SUBDIVISION OF LOTS 19 & 34 ON A.P. 55, PARCEL CONTAINS 1,237,555 SQ.FT. (28.4104 ACRES).
  - 2.) THE PROPERTY SHOWN HEREON IS CLASSIFIED AS ZONE X - AREAS DETERMINED TO BE OUTSIDE 500-YEAR FLOODPLAIN, AS SHOWN ON FIRM COMMUNITY PANEL NO. 440018 0010 C, DATED NOVEMBER 17, 1993.
  - 3.) 100 YEAR FLOODPLAIN ELEVATIONS SHOWN ARE BASED ON DRAINAGE REPORT ENTITLED "DRAINAGE CALCULATIONS FOR POPPY HILLS - SECTION 2 ON TULIP HILL ROAD, JOHNSTON, RHODE ISLAND" BY DAVID D. GARDNER & ASSOCIATES, INC.

CALCULATED  
EXISTING 100 YEAR  
FLOOD PLAIN LIMIT  
ELEV.= 313.72



DEPARTMENT OF ENVIRONMENTAL  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED APR 14 2006 FILE # 04-0016  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION

*Charles A. Harbo*



TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF,  
THIS SURVEY AND PLAN CONFORMS TO A CLASS III STANDARD FOR  
TOPOGRAPHIC INFORMATION AS ADOPTED BY THE RHODE ISLAND  
BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS.

By: *David D. Gardner* 8/4/05  
REGISTERED PROFESSIONAL LAND SURVEYOR DATE

DAVID D. GARDNER  
& ASSOCIATES, INC.  
200 METRO CENTER BOULEVARD  
WARWICK, RHODE ISLAND 02886  
(401) 738-3200

ENGINEERS • SURVEYORS • PLANNERS

EXISTING CONDITIONS  
POPPY HILLS - SECTION 2  
JOHNSTON, RHODE ISLAND  
LOT 19 & A PORTION OF LOT 34 ON A.P. 55  
FOR  
POPPY HILLS DEVELOPMENT GROUP, INC.

APPLICANT: POPPY HILLS DEVELOPMENT GROUP, INC.  
1481 ATWOOD AVE.  
JOHNSTON, RI, 02919

OWNER:  
R.L. COLARDO, INC.  
1481 ATWOOD AVE.  
JOHNSTON, RI, 02919

DATE	REVISIONS
3/24/04	R.LDEM. COMMENTS

DATE ISSUED: 8/14/2003  
SCALE: 1" = 50'  
DESIGNED BY:  
DRAWN BY: M.T.C.  
CHECKED BY: D.D.G.  
JOB NO.: 01-106  
DWG NO.: 01-106W2-6

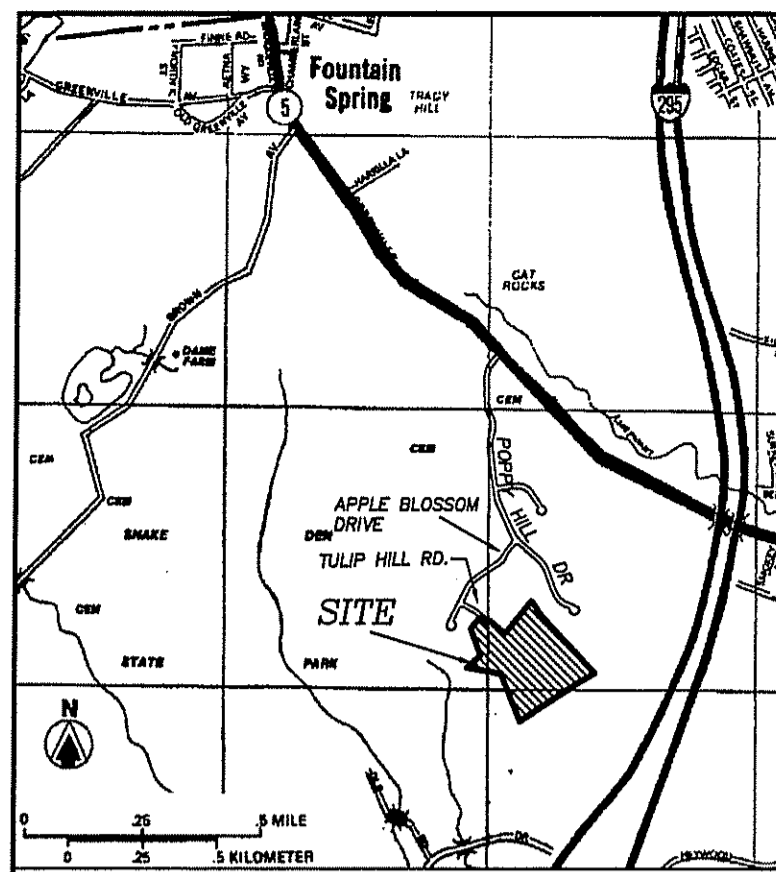
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DEC 28 2005

ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES

3

SHEET 3 OF 13



LOCATION MAP

ZONING CLASSIFICATION: A-40  
 MINIMUM LOT AREA . . . . . 40,000 SQ.FT.  
 MINIMUM LOT WIDTH . . . . . 140 FT.  
 MINIMUM FRONT YARD . . . . . 40 FT.  
 MINIMUM REAR YARD . . . . . 75 FT.  
 MINIMUM SIDE YARD . . . . . 35 FT.  
 MAXIMUM BUILDING COVERAGE . . . . . 15%  
 MAXIMUM BUILDING HEIGHT . . . . . 30 FT.  
 PROPOSED NUMBER OF LOTS . . . . . 9  
 PROPOSED ROADWAY AREA . . . . . 54,240 SQ.FT.  
 PROPOSED AVERAGE LOT AREA . . . . . 113,254 SQ.FT.

EXISTING ISDS  
 LOT 170 ON A.P. 55  
 JAMES A. &  
 JEANNE M. McAREAVEY

POPPY HILL FARM  
 SECTION I

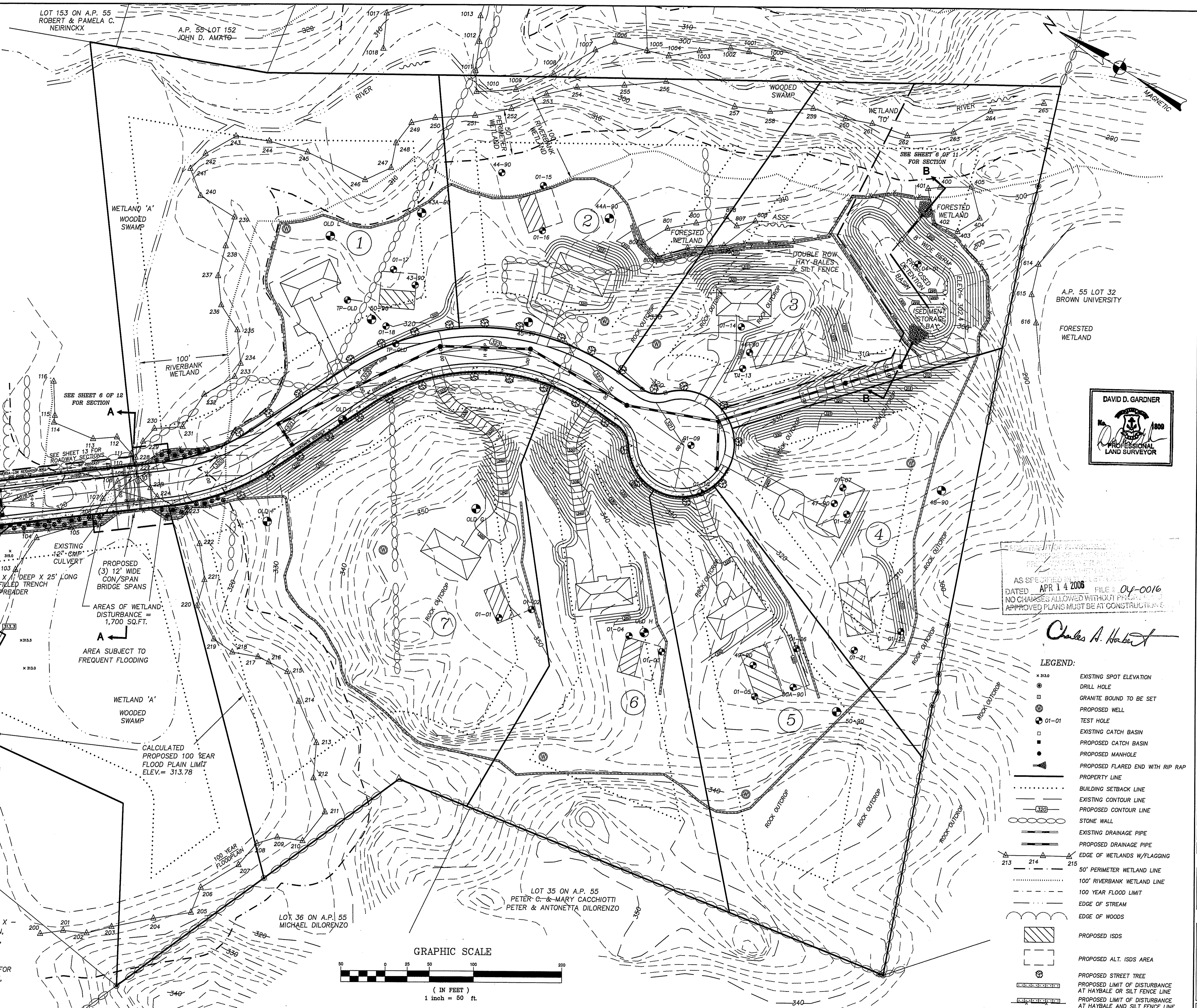
TULIP HILL ROAD

EXISTING ISDS  
 VEGETATE FILTER STRIP  
 3' WIDE X 1' DEEP X 25' LONG  
 STONE-FILLED TRENCH  
 LEVEL SPREADER  
 50' PERIMETER WETLAND

EXISTING WELLS  
 LOT 169 ON A.P. 55  
 ELEANOR D'AMICO

LOT 168 ON A.P. 55  
 JOSEPH & KIMBERLY  
 DICARLO

NOTES:  
 1.) BEING A SUBDIVISION OF LOTS 19 & 34 ON A.P. 55, PARCEL CONTAINS 1,237,555 SQ.FT. (28.4104 ACRES).  
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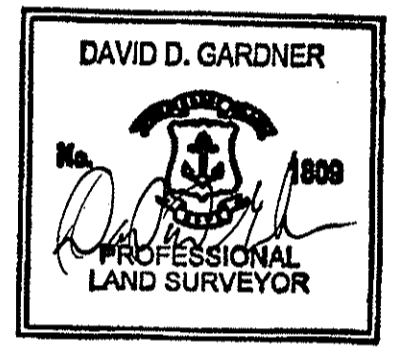


LOT 153 ON A.P. 55  
 ROBERT & PAMELA C.  
 NEIRINCKX

A.P. 55 LOT 152  
 JOHN D. AMATO

A.P. 55 LOT 32  
 BROWN UNIVERSITY

FORESTED WETLAND

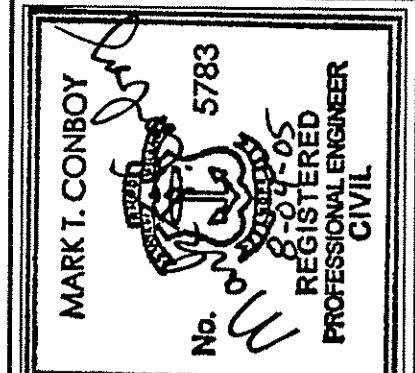
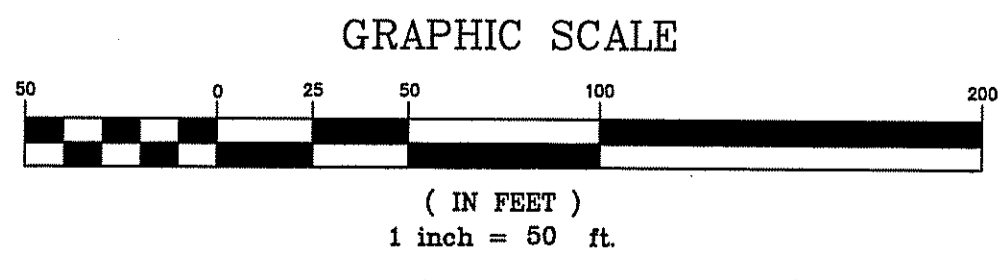


AS SPECIFIED IN FILE # 04-0016  
 DATED APR 14 2006  
 NO CHANGES ALLOWED WITHOUT PERMISSION  
 APPROVED PLANS MUST BE AT CONSTRUCTION

*Charles A. Herbert*

LEGEND:

x 313.0	EXISTING SPOT ELEVATION
⊙	DRILL HOLE
⊕	GRANITE BOUND TO BE SET
⊗	PROPOSED WELL
⊙-01	TEST HOLE
□	EXISTING CATCH BASIN
■	PROPOSED CATCH BASIN
●	PROPOSED MANHOLE
▲	PROPOSED FLARED END WITH RIP RAP
—	PROPERTY LINE
⋯	BUILDING SETBACK LINE
---	EXISTING CONTOUR LINE
---	PROPOSED CONTOUR LINE
○-○-○	STONE WALL
---	EXISTING DRAINAGE PIPE
---	PROPOSED DRAINAGE PIPE
▲	EDGE OF WETLANDS W/FLAGGING
---	50' PERIMETER WETLAND LINE
---	100' RIVERBANK WETLAND LINE
---	100 YEAR FLOOD LIMIT
---	EDGE OF STREAM
---	EDGE OF WOODS
□	PROPOSED ISDS
□	PROPOSED ALT. ISDS AREA
⊙	PROPOSED STREET TREE
---	PROPOSED LIMIT OF DISTURBANCE AT HAYBALE OR SILT FENCE LINE
---	PROPOSED LIMIT OF DISTURBANCE AT HAYBALE AND SILT FENCE LINE



DAVID D. GARDNER & ASSOCIATES, INC.  
 200 METRO CENTER BOULEVARD  
 WARWICK, RHODE ISLAND 02886  
 (401) 738-3200

ENGINEERS • SURVEYORS • PLANNERS

SITE & REGRADING PLAN  
 POPPY HILLS - SECTION 2  
 JOHNSTON, RHODE ISLAND  
 LOT 19 & A PORTION OF LOT 34 ON A.P. 55  
 FOR  
 POPPY HILLS DEVELOPMENT GROUP, INC.

APPLICANT: POPPY HILLS DEVELOPMENT GROUP, INC.  
 1481 ATWOOD AVE.  
 JOHNSTON, RI 02919

OWNER: D.A. COLLARD, INC.  
 1481 ATWOOD AVE.  
 JOHNSTON, RI 02919

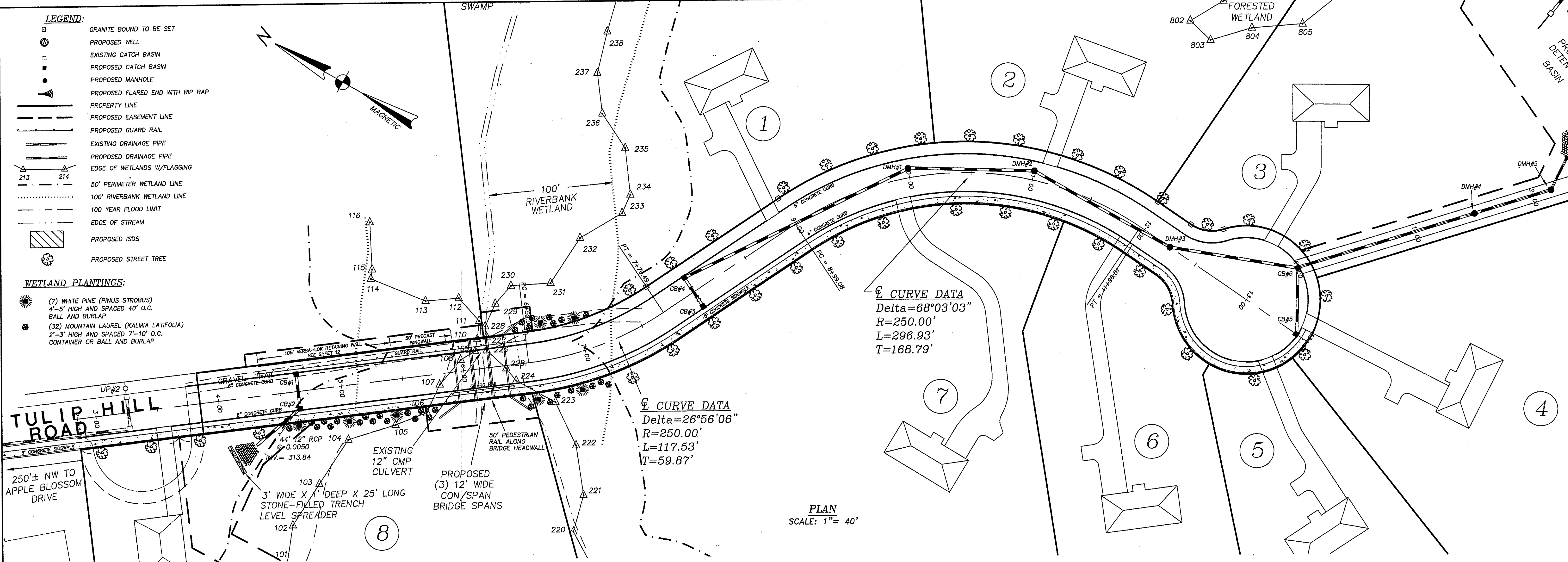
DATE	REVISIONS
3/24/04	R.I.D.M. COMMENTS
3/15/05	WETLAND CROSSING
8/24/05	CON/SPAN BRIDGE

DATE ISSUED: 8/14/2003  
 SCALE: 1" = 50'  
 DESIGNED BY:  
 DRAWN BY: M.T.C.  
 CHECKED BY: D.D.G.  
 JOB NO.: 01-106  
 DWG NO.: 01-106W2-6

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DEC 28 2005  
 ENVIRONMENTAL MANAGEMENT  
 OFFICE OF WATER RESOURCES

SHEET 4 OF 13

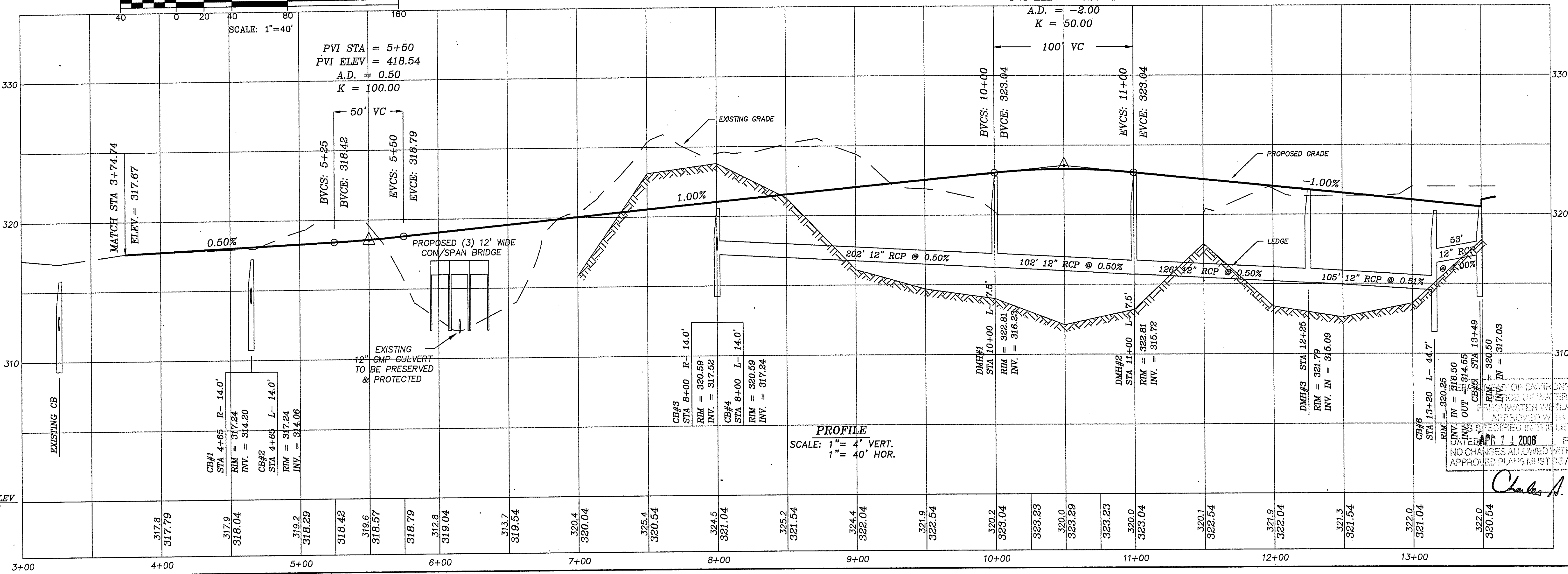


PLAN  
SCALE: 1" = 40'

GRAPHIC SCALE  
SCALE: 1" = 4'

NOTE:  
ELECTRIC, TELEPHONE AND CABLE ARE TO BE ABOVE GROUND.

HIGH POINT ELEV = 323.29  
HIGH POINT STA = 10+50  
PVI STA = 10+50  
PVI ELEV = 323.54



PROFILE  
SCALE: 1" = 4' VERT.  
1" = 40' HOR.

MARK T. CONROY  
REGISTERED PROFESSIONAL CIVIL ENGINEER  
No. 5783

DAVID D. GARDNER & ASSOCIATES, INC.  
200 METRO CENTER BOULEVARD  
WARWICK, RHODE ISLAND 02886  
(401) 738-3200



PLANNERS • SURVEYORS • ENGINEERS  
FOR  
POPPLY HILLS DEVELOPMENT GROUP, INC.  
POPPLY HILLS - SECTION 2  
JOHNSTON, RHODE ISLAND  
LOT 19 & A PORTION OF LOT 34 ON A.P. 55

APPLICANT: POPPLY HILLS DEVELOPMENT GROUP, INC.  
1481 ATWOOD AVE. JOHNSTON, RI 02919  
OWNER: R.V. COLARDO, INC.  
1481 ATWOOD AVE. JOHNSTON, RI 02919

DATE	REVISIONS
3/24/04	R.I.D.M. COMMENTS
3/15/05	WETLAND CROSSING
8/24/05	WIDEN CON/SPAN BRIDGE, REMOVE WATER LINE, WALL & PLANTINGS

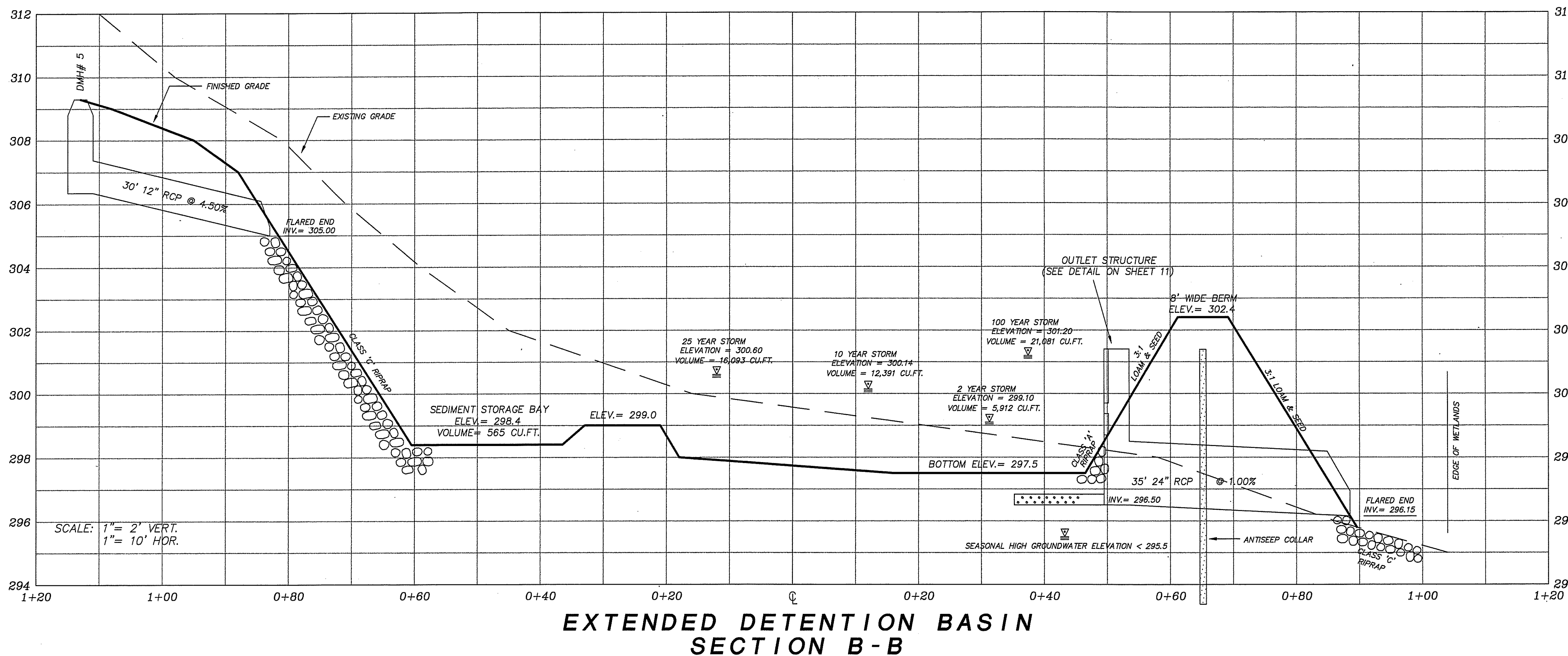
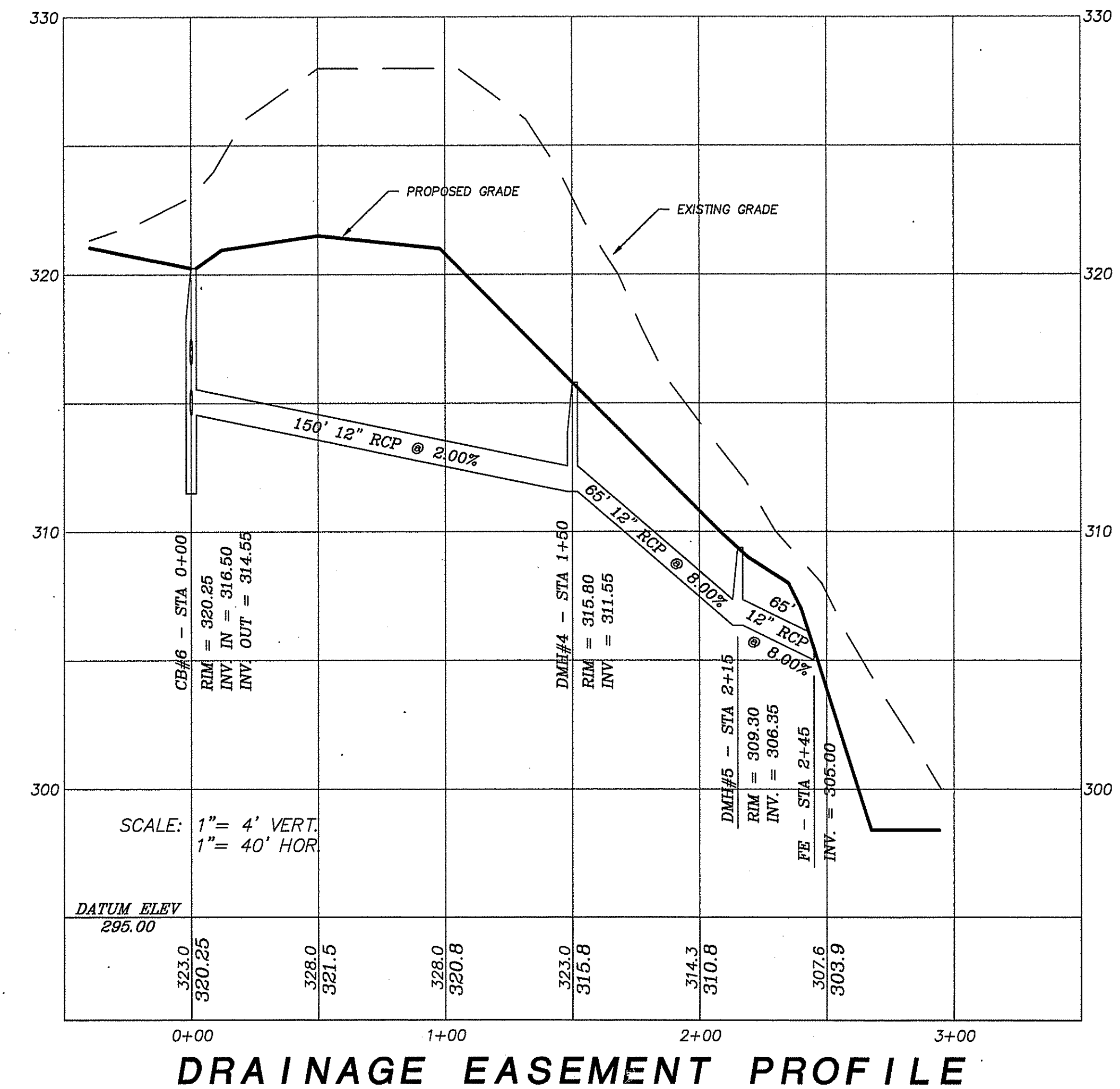
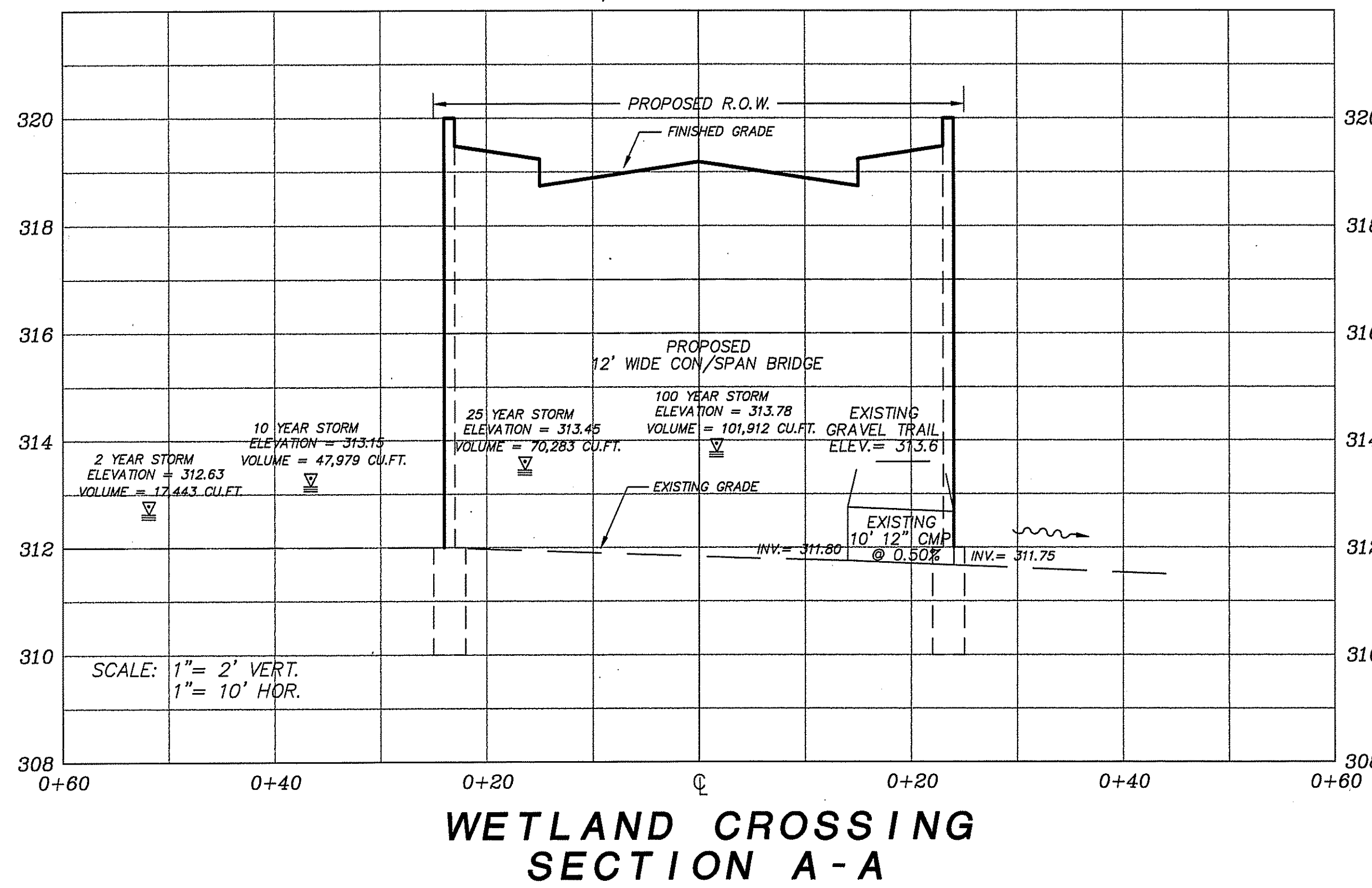
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DRAWN BY: M.T.C.  
CHECKED BY: D.D.G.  
JOB NO.: 01-106  
DWG NO.: 01-106W2-6

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APR 11 2006  
FILE # 04-0016  
DFC 2.8 2005

ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES

5

- FILTER STRIP MAINTENANCE**
1. THE FILTER STRIP MUST BE INSPECTED AT LEAST QUARTERLY DURING THE FIRST YEAR OF OPERATION AND SEMI-ANNUALLY THEREAFTER. EVIDENCE OF EROSION AND CONCENTRATED FLOWS WITHIN THE BUFFER MUST BE CORRECTED IMMEDIATELY. ERODED SPOTS MUST BE RESEDED AND MULCHED TO ENHANCE A VIGOROUS GROWTH AND PREVENT FUTURE EROSION PROBLEMS.
  2. PROCEDURES FOR SOIL PREPARATION AND SEEDING SHOULD BE DONE IN ACCORDANCE WITH THE MOST RECENT VERSION OF THE "RI SOIL EROSION AND SEDIMENT CONTROL HANDBOOK".
  3. SEDIMENTS MUST 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 SEDIMENT REMOVAL PROCESS.
  4. GRASS FILTER STRIPS MUST BE MOWED ONLY ONCE PER 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.
  5. THE TOWN OF JOHNSTON SHALL BE RESPONSIBLE FOR LONG TERM INSPECTION AND MAINTENANCE OF ALL PROPOSED DRAINAGE CONTROL STRUCTURES.

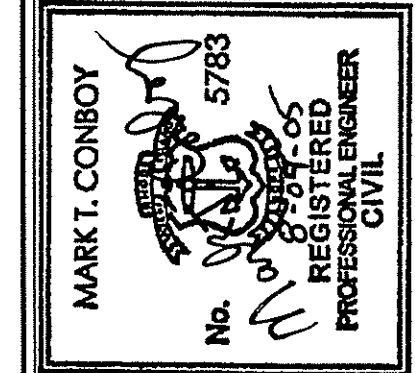


**DETENTION BASIN CONSTRUCTION NOTES**

1. DETENTION BASIN BERM AREAS ARE TO BE CONSTRUCTED WITH COMMON BORROW COMPACTED TO 95% AND THEN LOAMED AND SEEDED.
2. TREES AND SHRUBS SHALL NOT BE PLANTED ON ANY IMPOUNDING EMBANKMENT.
3. DISTURBED AREAS INCLUDING BASIN AREAS ARE TO BE LOAMED A MINIMUM OF 4" AND SEEDED WITH A CONSERVATION TYPE MIXTURE.
4. ALL CONTROL PRACTICES MUST BE IN ACCORDANCE WITH THE MOST RECENT EDITION OF THE "RI SOIL EROSION AND SEDIMENT CONTROL HANDBOOK".

**DETENTION BASIN MAINTENANCE**

1. GRASSES MUST BE PLANTED AROUND AND WITHIN THE BASIN IMMEDIATELY FOLLOWING CONSTRUCTION TO STABILIZE THE SLOPES AND PREVENT EROSION.
2. SIDE-SLOPES, EMBANKMENTS, AND THE UPPER STAGE OF THE BASIN MUST BE MOWED AT LEAST ONCE DURING THE GROWING SEASON (PREFERABLY AFTER AUGUST 15TH), TO PREVENT UNWANTED GROWTH. ALL TRASH AND LITTER SHALL BE REMOVED FROM THE BASIN DURING MOWING OPERATIONS.
3. SEDIMENTS MUST BE REMOVED FROM THE BASIN DURING THE FIRST (INITIAL) YEAR OF OPERATION AND EVERY 10 YEARS THEREAFTER. MORE FREQUENT REMOVALS MAY BE NECESSARY IF THE SEDIMENT STORAGE CAPACITY OF THE FOREBAY OR POND IS EXCEEDED.
4. THE OUTLET STRUCTURE AND ALL OUTFLOW CHANNELS MUST BE INSPECTED ANNUALLY. EXTENDED DETENTION DEVICES MUST BE INSPECTED AT LEAST TWICE A YEAR. INSPECTIONS MUST BE ACCOMPLISHED SEVERAL TIMES DURING THE FIRST SIX MONTHS OF OPERATIONS, ESPECIALLY AFTER RAINFALL EVENTS TO CHECK FOR CLOGGING OR, CONVERSELY, TOO RAPID A RELEASE.
5. THE GRASSSED AREAS OF THE BASIN MUST BE INSPECTED AT LEAST TWICE PER YEAR TO CHECK FOR EROSION PROBLEMS. PROBLEM AREAS MUST BE RESEDED IMMEDIATELY TO STABILIZE EXPOSED SOILS.
6. IF BLOCKAGE OF A BASIN OUTLET STRUCTURE OCCURS IT MAY BE NECESSARY TO DEWATER THE BASIN FOR ACCESS TO THE BLOCKAGE. THE DEWATERING FLOW MUST BE ADEQUATELY FILTERED PRIOR TO DISCHARGE INTO A RECEIVING WATER BODY TO REMOVE SUSPENDED SOLIDS.
7. SIDE-SLOPES, EMBANKMENTS, AND THE UPPER STAGE OF BASINS SHALL BE MOWED AT LEAST ONCE PER GROWING SEASON, TO PREVENT UNWANTED WOODY GROWTH.
8. ALL TRASH AND LITTER AND OTHER DEBRIS SHALL BE REMOVED FROM ANY STORMWATER FACILITY INCLUDING INLET AND OUTLET STRUCTURES. THIS MUST BE ACCOMPLISHED AT LEAST TWICE A YEAR, PREFERABLY SPRING AND FALL.
9. INSPECTIONS OF ALL CATCH BASINS ON-SITE SHALL OCCUR ON AN ANNUAL BASIS TO CHECK FOR DEBRIS REMOVAL (SEDIMENT AND HYDROCARBONS) AND STRUCTURAL INTEGRITY OR DAMAGE SUCH DEFICIENCIES MUST BE CORRECTED IMMEDIATELY. SEDIMENTS MUST BE REMOVED FROM CATCH BASINS WHEN SUMPS ARE HALF FILLED.
10. THE TOWN OF JOHNSTON SHALL BE RESPONSIBLE FOR LONG TERM INSPECTION AND MAINTENANCE OF ALL PROPOSED DRAINAGE CONTROL STRUCTURES.
11. REPAIRS OR REPLACEMENT OF INLET / OUTLET STRUCTURES, RIP-RAP CHANNELS, OR OTHER ELEMENTS OF THE FACILITY MUST BE DONE WITHIN 30 DAYS OF DEFICIENCY REPORTS. IF AN EMERGENCY SITUATION IS IMMINENT THEN REPAIR / REPLACEMENT MUST BE DONE IMMEDIATELY.



**DAVID D. GARDNER & ASSOCIATES, INC.**  
200 METRO CENTER BOULEVARD  
WARWICK, RHODE ISLAND 02886  
(401) 738-3200

**PROFILE & SECTIONS - SECTION 2**  
POPPY HILLS, RHODE ISLAND  
LOT 19 & A PORTION OF LOT 34 ON A.P. 55  
FOR  
POPPY HILLS DEVELOPMENT GROUP, INC.

APPLICANT: POPPY HILLS DEVELOPMENT GROUP, INC.  
1481 ATHWOOD AVE.  
JOHNSTON, RI, 02919  
OWNER: RUI COLLARDO, INC.  
1481 ATHWOOD AVE.  
JOHNSTON, RI, 02919

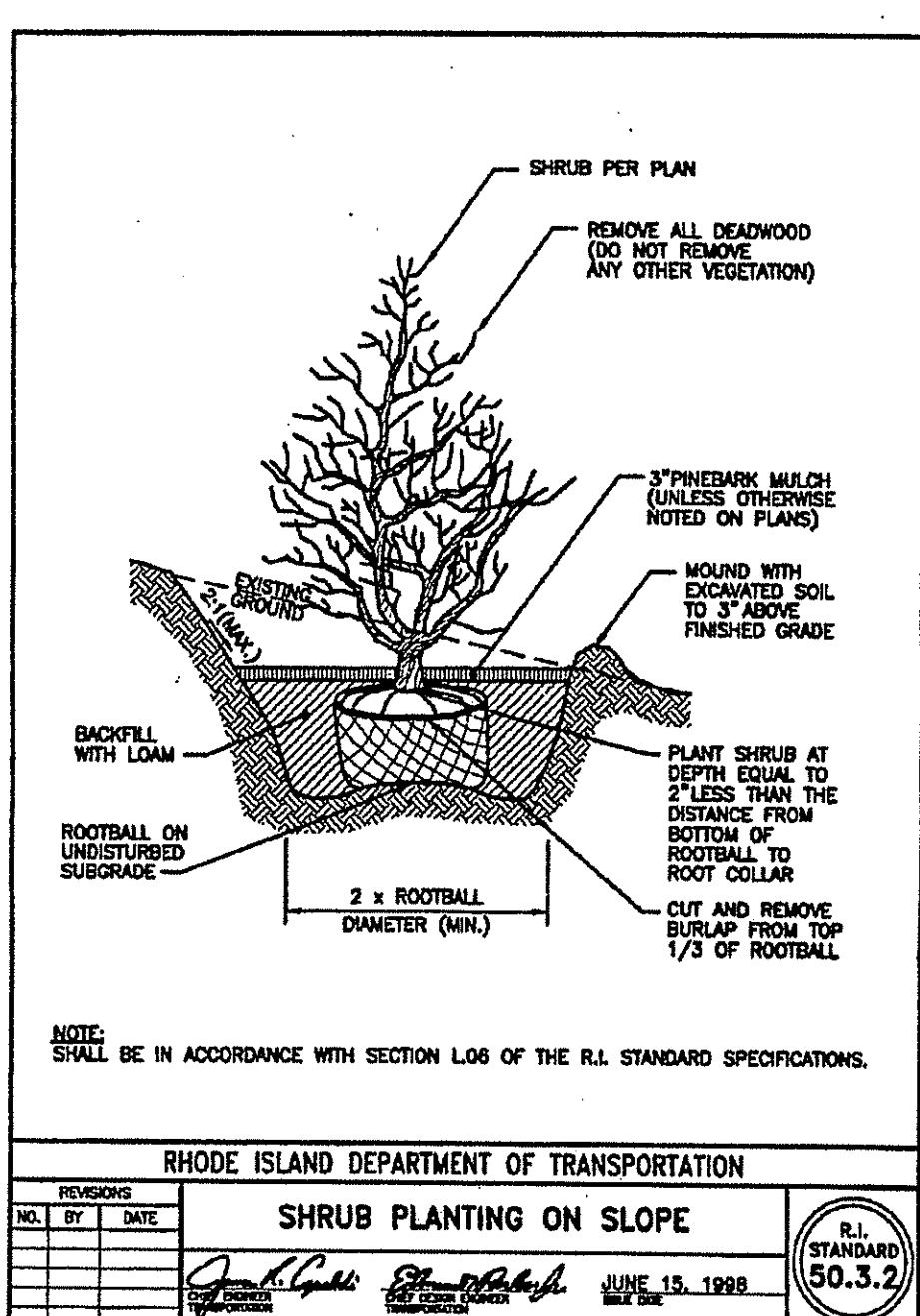
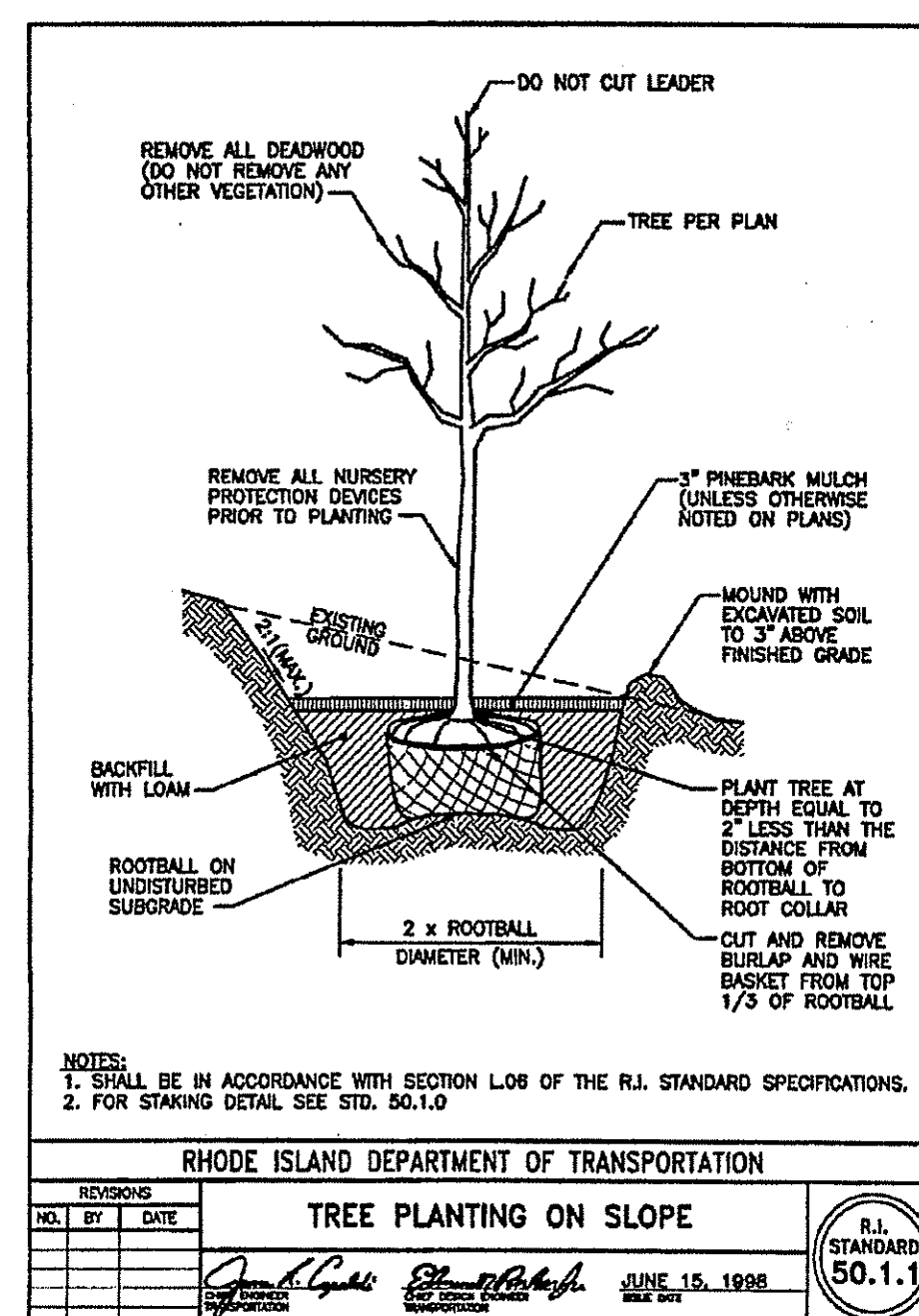
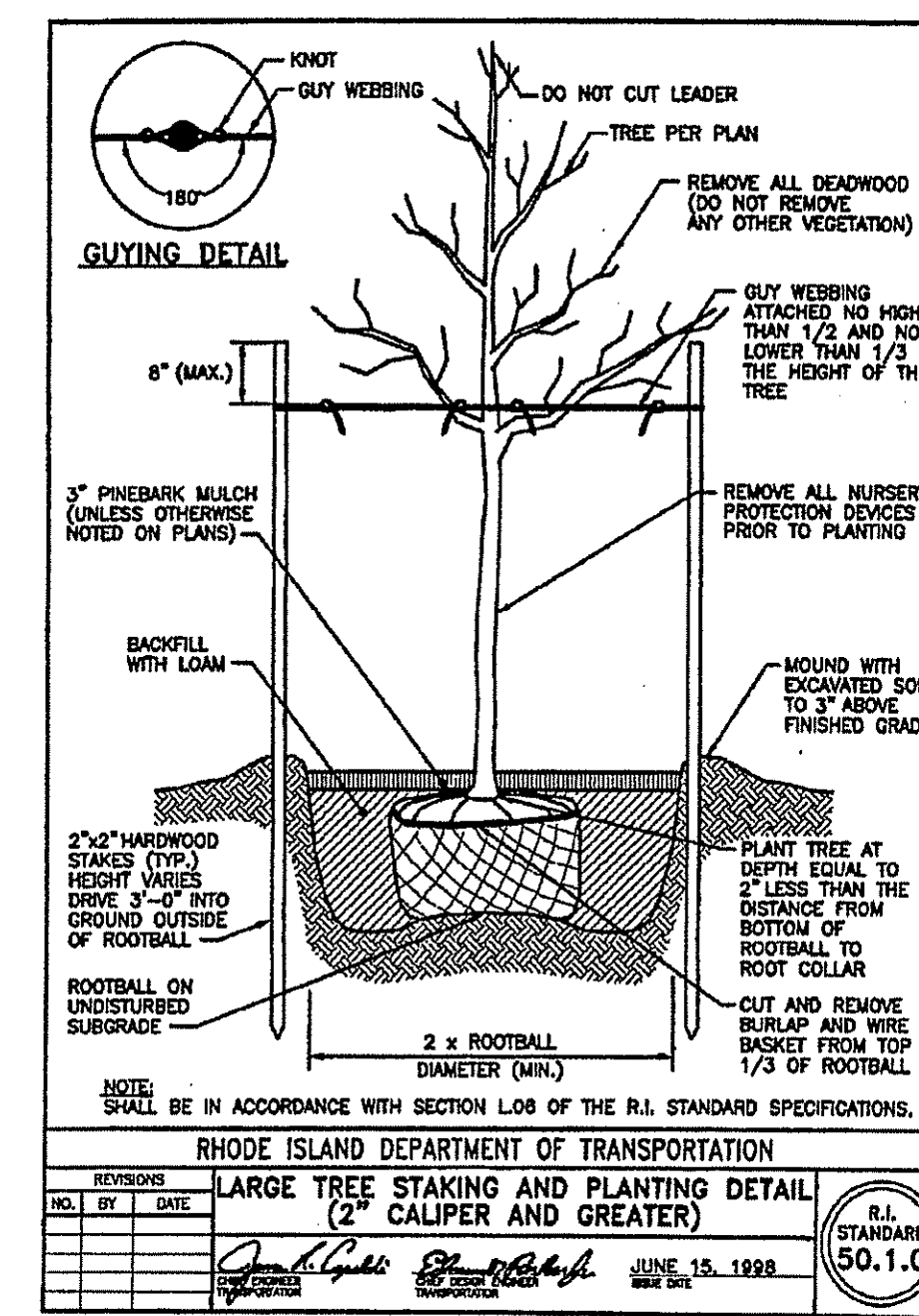
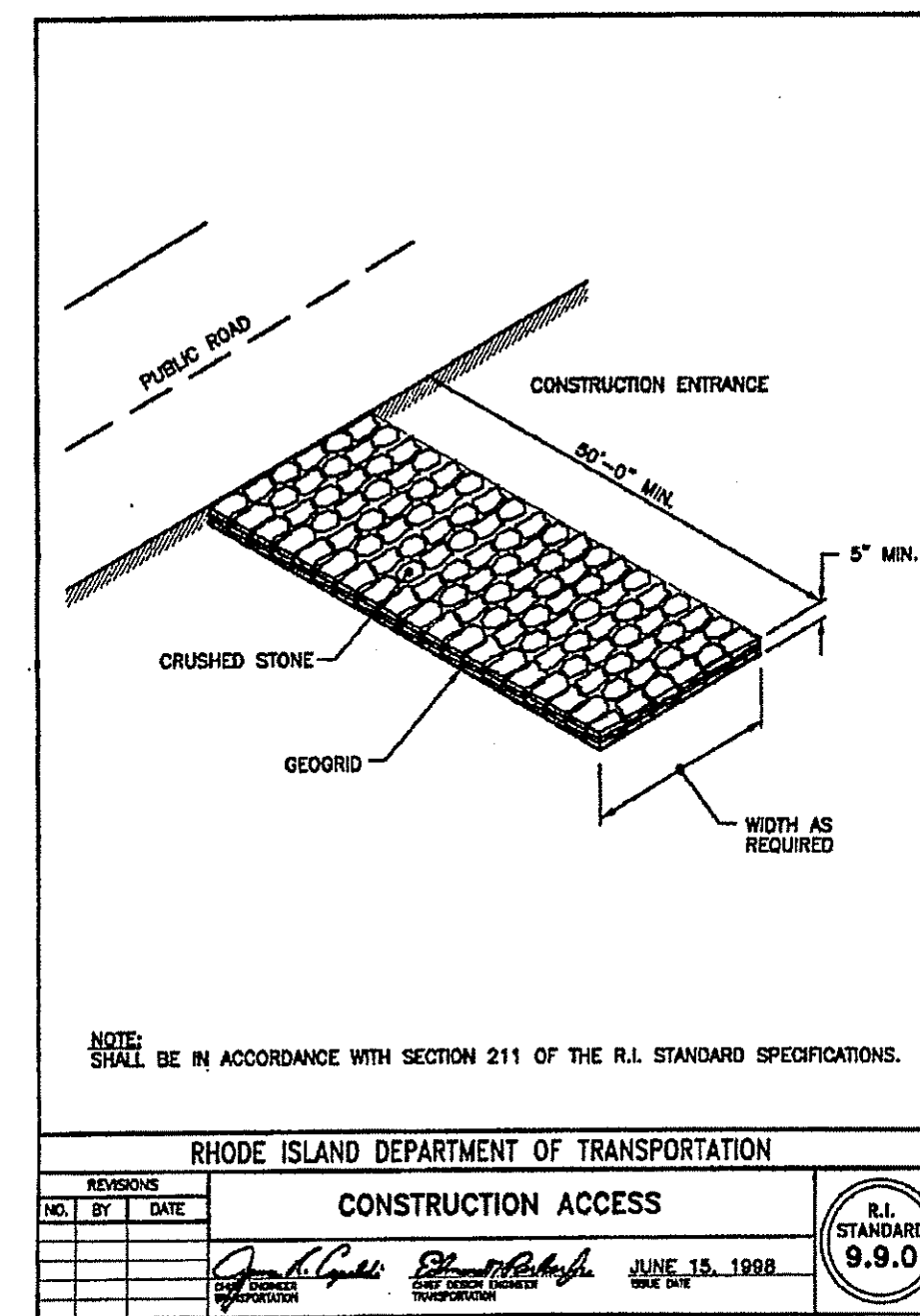
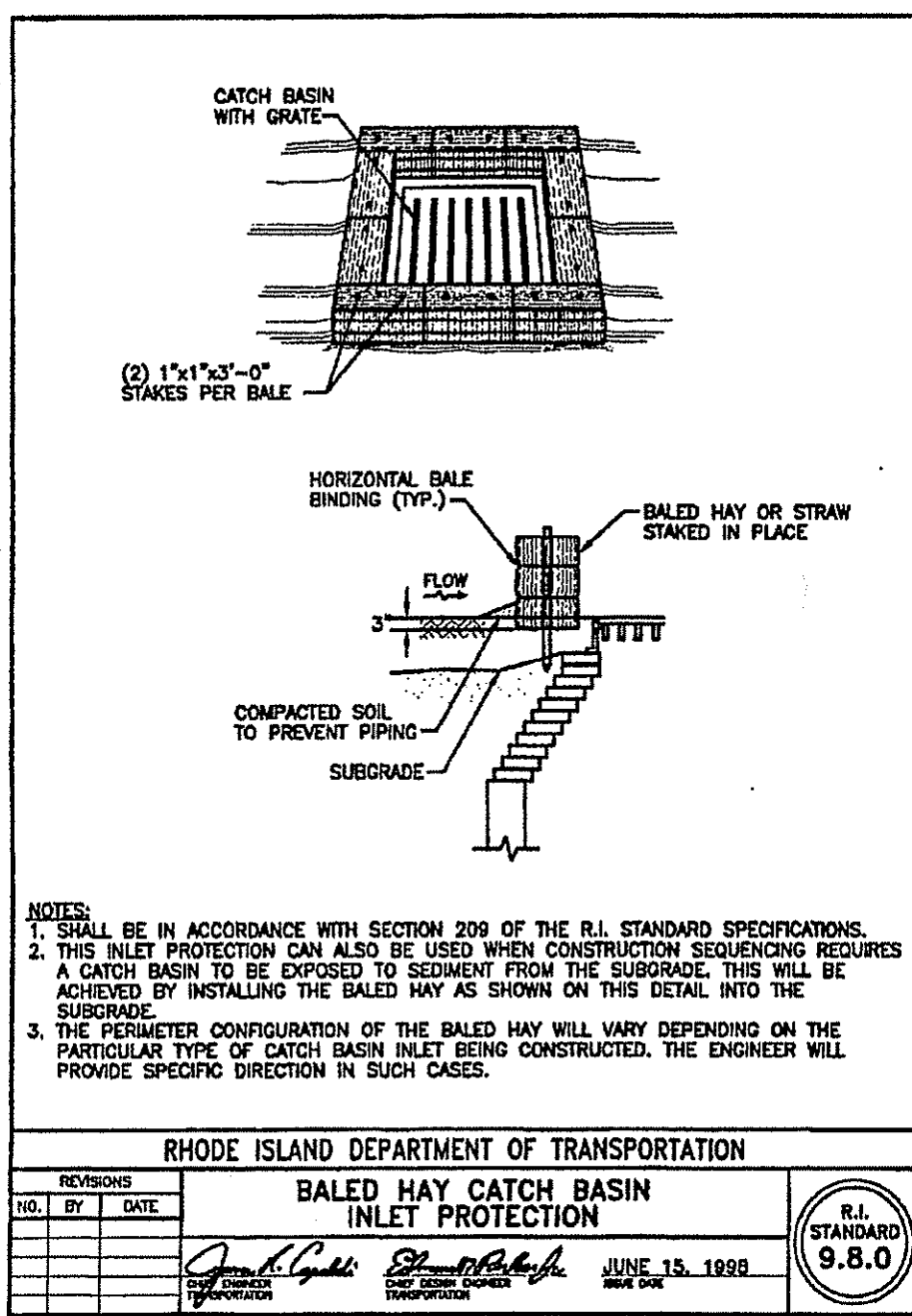
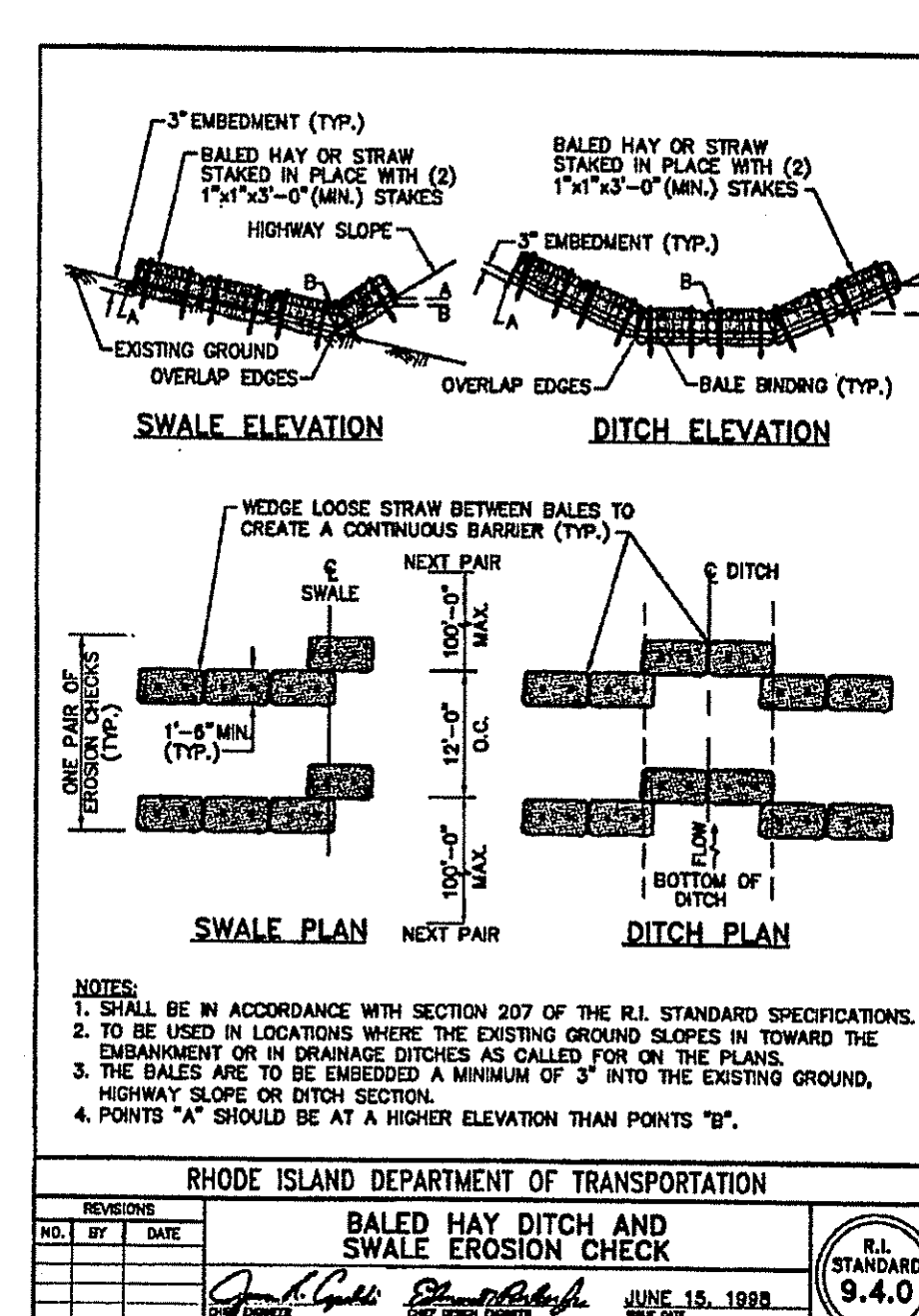
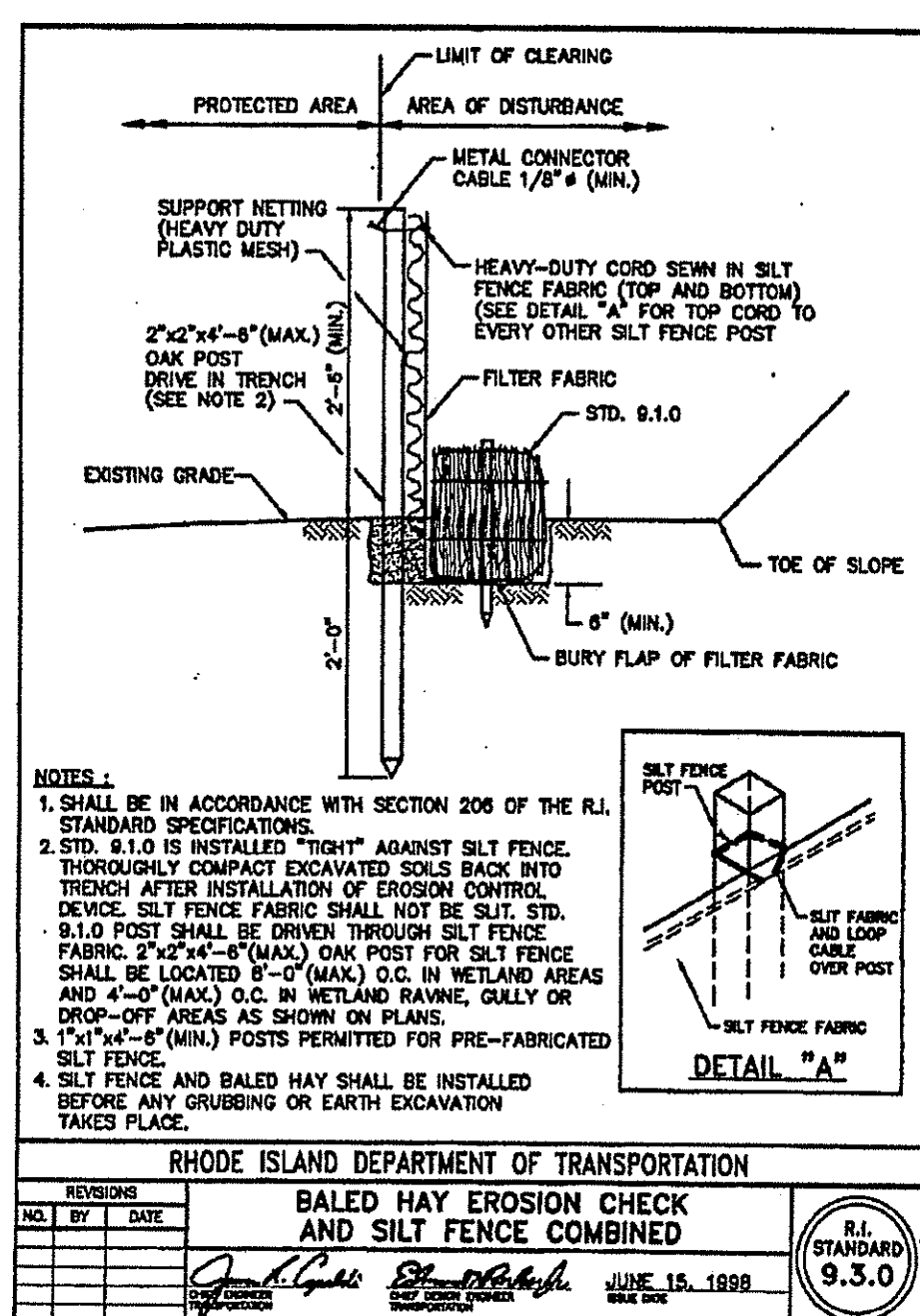
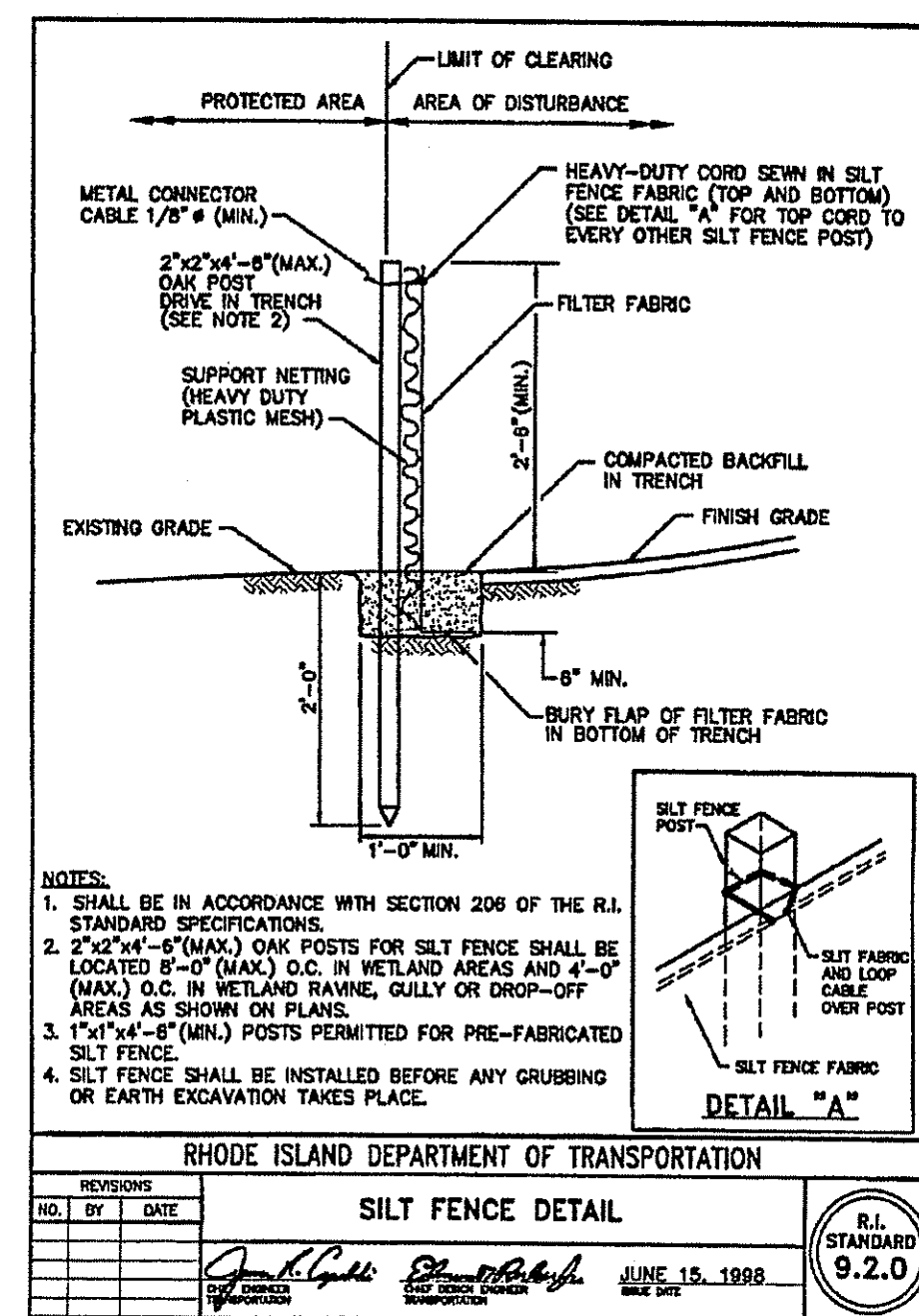
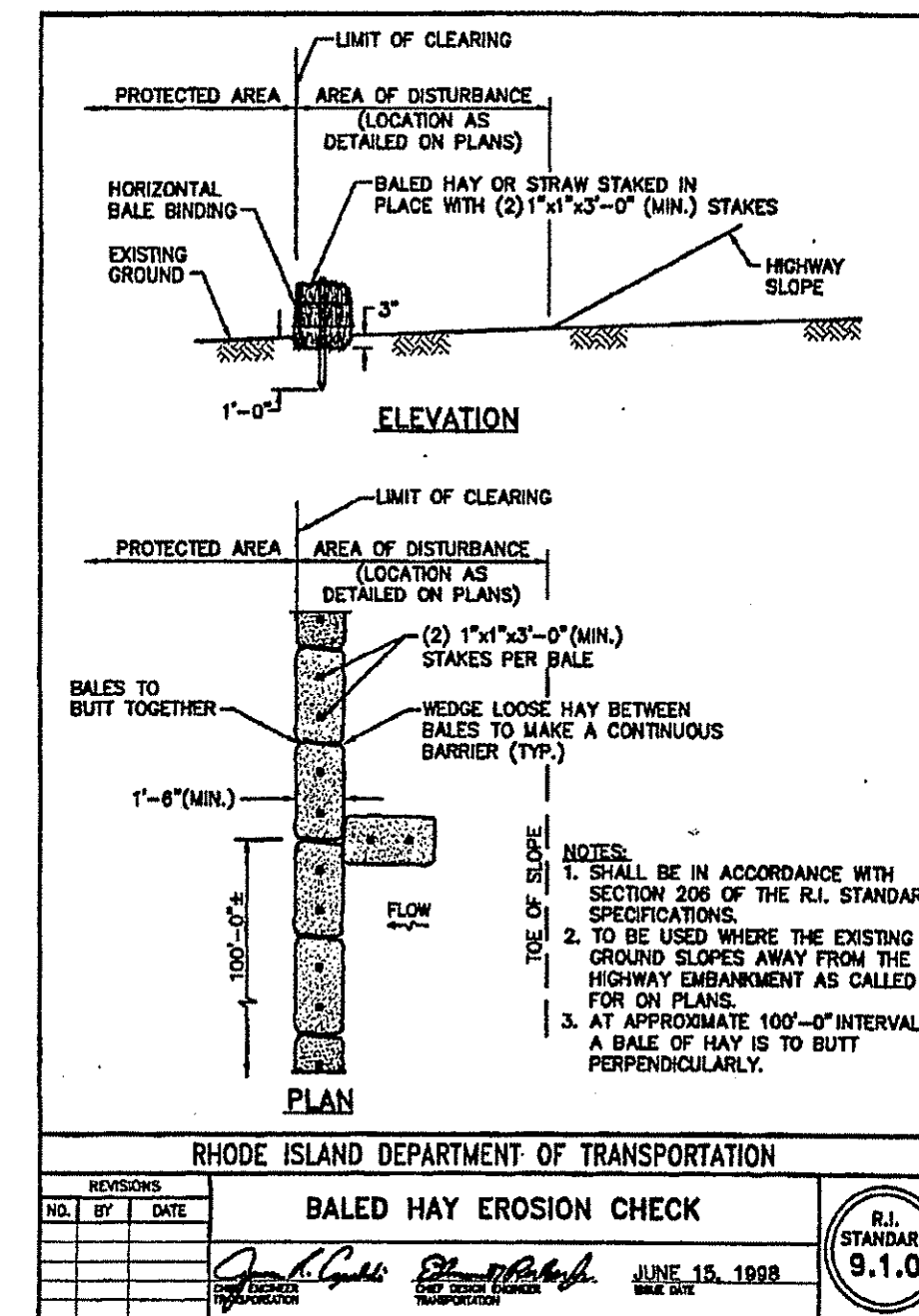
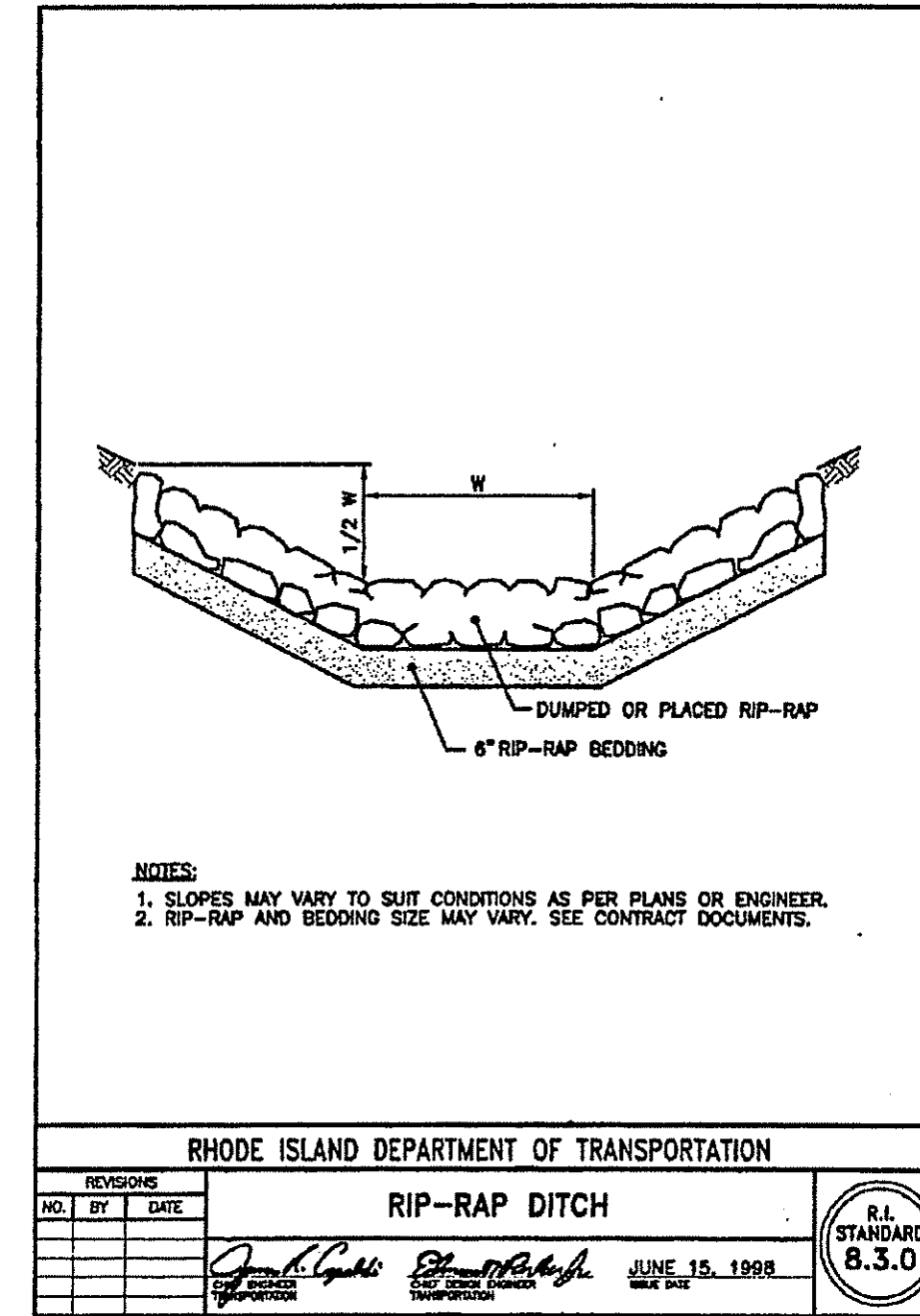
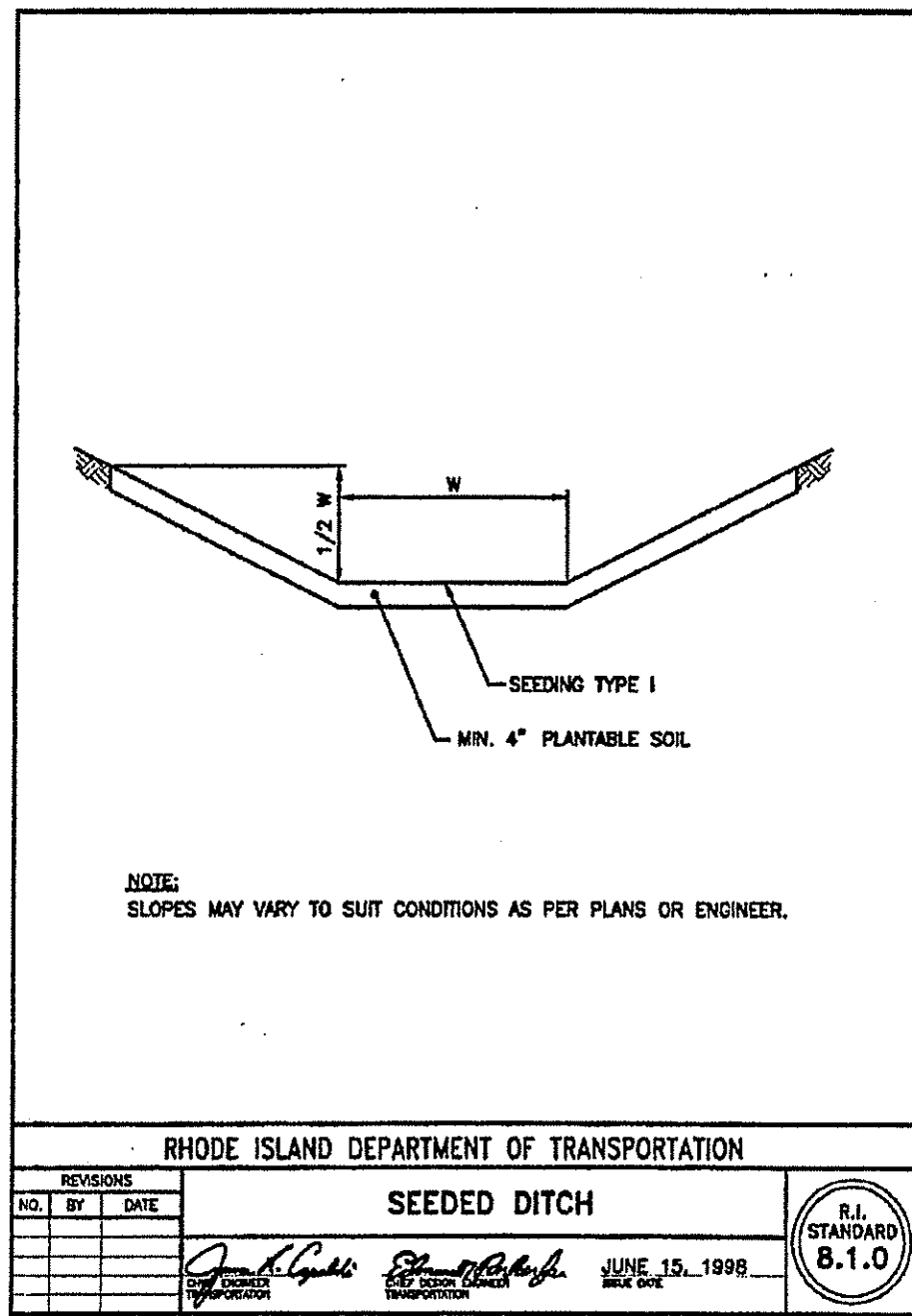
DATE	REVISIONS
3/24/04	R.L.D.M. COMMENTS
8/04/05	SECTION A-A

DATE ISSUED: 8/14/2003  
SCALE: NOTED  
DESIGNED BY:  
DRAWN BY: M.T.C.  
CHECKED BY: D.D.G.  
JOB NO.: 01-106  
DWG NO.: 01-106W2-6

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DEC 2 8 2005  
ENVIRONMENTAL MANAGEMENT OFFICE OF WATER RESOURCES

APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED APR 14 2006 FILE # 04-0016  
CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
EXCEPT AS LISTED AT CONSTRUCTION SITE

Charles A. Hoover



**GENERAL NOTES:**

- IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO OBTAIN ANY AND ALL PERMITS REQUIRED BY THE STATE AND THE MUNICIPALITY IN WHICH WORK IS BEING PERFORMED PRIOR TO START OF ANY WORK.
- IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO DOCUMENT EXISTING CONDITIONS OF SURROUNDING PROPERTIES AND TO MAINTAIN THE INTEGRITY OF THE SAME. ANY DAMAGE TO AND THE COST OF REPAIR OF UTILITIES, ROADWAYS, STRUCTURES AND SURROUNDING PROPERTY SHALL BE FULLY BORNE BY THE CONTRACTOR.
- ALL WORKMANSHIP AND MATERIALS SHALL MEET OR EXCEED THE LATEST STANDARDS OF THE MUNICIPALITY, AND THE LATEST STATE STANDARDS AND SPECIFICATIONS PUBLISHED FOR ROAD AND BRIDGE CONSTRUCTION.
- CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES, THE MUNICIPAL PUBLIC WORKS DEPARTMENT, FIRE DEPARTMENT AND THE DEPARTMENT OF TRANSPORTATION FOR VERIFICATION OF APPROVED LOCATIONS SHOWN HEREON PRIOR TO START OF CONSTRUCTION. IF ANY DISCREPANCIES ARE NOTED, THE CONTRACTOR SHALL CONTACT THIS ENGINEER IMMEDIATELY FOR A RESOLUTION.
- THE LOCATION OF ALL EXISTING UTILITIES IS APPROXIMATE ONLY AND SHALL BE VERIFIED BY CONTRACTOR PRIOR TO START OF CONSTRUCTION.
- CONTRACTOR TO VERIFY ALL ELEVATION BENCHMARKS PRIOR TO CONSTRUCTION.
- CONTACT DIG-SAFE AND UTILITY COMPANIES FOR EXACT ON-SITE LOCATION OF EXISTING UNDERGROUND UTILITIES AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO START OF CONSTRUCTION.
- CONTRACTOR SHALL OBTAIN REQUIRED INSPECTION SCHEDULE OF THE MUNICIPALITY, UTILITY COMPANIES AND ALL OTHER REQUIRED PARTIES AND SHALL STRICTLY ADHERE TO THOSE REQUIREMENTS.
- ALL DRAINAGE PIPING SHALL BE CLASS IV RCP UNLESS OTHERWISE NOTED.
- ALL CONTRACTORS SHALL ADHERE TO ALL CONDITIONS OF CONSTRUCTION APPROVALS, INCLUDING BUT NOT LIMITED TO THE APPROVAL FROM THE DEPARTMENT OF ENVIRONMENTAL MANAGEMENT FRESHWATER WETLANDS DIVISION AND ANY OTHER AGENCY HAVING APPROVED JURISDICTION OVER THE PROJECT. CONTRACTOR SHALL KEEP A COPY OF ALL APPROVALS ON-SITE DURING CONSTRUCTION. CONTRACTOR SHALL READ ALL APPROVALS PRIOR TO START OF CONSTRUCTION AND SHALL CLARIFY ANY QUESTIONS BEFOREHAND.

**SOIL STABILIZATION & PLANTING PROGRAM**

**ACCEPTABLE PLANTING MATERIALS:**  
LOAM - THE MATERIAL TO BE FURNISHED SHALL CONSIST OF LOOSE, FRIABLE, SANDY LOAM OR LOAM TOPSOIL FREE OF A MIXTURE OF SUBSOIL, REFUSE, STUMPS, ROOTS, ROCKS, BRUSH, WEEDS AND OTHER MATERIAL WHICH WILL PREVENT THE FORMATION OF A SUITABLE SEED BED.

**SEED MIXTURES - ALL LEGUME SEED SHALL BE INOCULATED WITHIN 24 HOURS BEFORE MIXING AND PLANTING WITH THE APPROPRIATE INOCULUM FOR EACH VARIETY. ALL INOCULA SHALL BE FRESH AND SHALL BE USED WITHIN THE DATE LIMIT PRESCRIBED BY THE MANUFACTURER.**

**FOR RELATIVELY FLAT SLOPES:**

MIX	% BY WEIGHT
RED FESCUE - CHEWING'S PENNLAWN	70
OR CREEPING PERENNIAL RYEGRASS	5
KENTUCKY BLUEGRASS	15
COLONIAL BENTGRASS - ASTORIA OR EXETER	5
PERENNIAL RYEGRASS	10
- SEEDING RATE = 100 LBS. PER ACRE	
FOR STEEP SLOPES 3:1 OR GREATER	
MIX	% BY WEIGHT
RED FESCUE - PENNLAWN OR CREEPING PERENNIAL RYEGRASS	75
OR CREEPING PERENNIAL RYEGRASS	5
COLONIAL BENTGRASS - ASTORIA OR EXETER	5
BIRDSFOOT TREFOIL - EMPIRE	15
- SEEDING RATE: 100 LBS. PER ACRE	

THE ACCEPTED PLANTING SEASON SHALL BE BETWEEN APRIL 1ST AND OCTOBER 15TH. CONTRACTOR SHOULD COORDINATE ON ALL DISTURBED AREAS. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF FOUR (4) INCHES OF LOAM ON AREAS UP TO 10% IN GRADE. ALL AREAS OVER 10% SHALL RECEIVE A MINIMUM OF SIX (6) INCHES.

REFERENCE IS HEREBY MADE TO THE RHODE ISLAND SOIL EROSION AND SEDIMENT CONTROL HANDBOOK PUBLISHED BY THE SOIL CONSERVATION SERVICE. THE GUIDELINES SHOWN THEREIN SHOULD BE INCORPORATED INTO THE CONSTRUCTION PRACTICES ON SITE.

**SOIL EROSION & SEDIMENT CONTROL NOTES:**

- THE APPROVED LIMIT OF VEGETATIVE CLEARING AND SOIL DISTURBANCE WILL BE CLEARLY IDENTIFIED WITH HIGH VISIBILITY FLAGGING PRIOR TO CLEARING OPERATIONS.
- ALL EROSION AND SEDIMENT CONTROL BARRIERS WILL BE INSTALLED AT THE LIMIT OF DISTURBANCE PRIOR TO OR COMMENSURATE WITH GROUND DISTURBING ACTIVITIES.
- THE PROPOSED SOIL EROSION AND SEDIMENTATION CONTROL PROGRAM SHALL CONSIST, AT A MINIMUM, OF A COMPLETE PERIMETER SEDIMENTATION BARRIER CONSISTING OF ENTRENCHED SILT FENCE. BOTH SILT FENCE AND ENTRENCHED, STAKED HAY BALES SHALL BE INSTALLED AT THE PROPOSED WETLAND CROSSING AND IN THE PROXIMITY TO WETLAND 400 AND 800.
- STABILIZATION OF DISTURBED SOIL WITH A CONSERVATION SEED MIXTURE WILL BE ACCOMPLISHED IN ACCORDANCE WITH THE RHODE ISLAND SOIL EROSION AND SEDIMENT CONTROL HANDBOOK (FRIDEN ET AL. 1989).
- SEDIMENTATION BARRIERS SHALL BE MAINTAINED TO FUNCTION PROPERLY UNTIL THE SITE IS FULLY STABILIZED.

**SEDIMENTATION CONTROL PROGRAM**

ALL EXPOSED SLOPES, INCLUDING STOCKPILES OF MATERIAL, SHALL RECEIVE TEMPORARY SEDIMENTATION AND EROSION CONTROLS. THIS WILL INCLUDE LOAMING AND SEEDING, MULCHING, HAYMATS, ETC., TO STABILIZE THE AREA.

ALL DRAINAGE STRUCTURES SHALL BE SURROUNDED BY HAYBALES TO PREVENT INFILTRATION OF SEDIMENTS.

DRYWELLS, GALLEYS, FLOW DIFFUSERS, AND OTHER LEACHING FACILITIES SHALL BE THOROUGHLY PROTECTED FROM SEDIMENTATION DURING CONSTRUCTION. IF SEDIMENTS ENTER FACILITIES DURING CONSTRUCTION, THE STRUCTURES SHALL BE CLEARED AND, IF NECESSARY, REMOVED AND REINSTALLED WITH ALL EXPENSE TO BE BORNE BY CONTRACTOR.

SHOULD SEDIMENTS ENTER A CRITICAL AREA, (WETLAND, BUFFER ZONE, ABUTTING PROPERTY) THE CONTRACTOR SHALL IMMEDIATELY CLEAN AND RESTORE THE EFFECTED AREA.

**EROSION CONTROL PROGRAM**

PRIOR TO START OF CONSTRUCTION, HAYBALES, SILT FENCES AND ALL OTHER SPECIFIED EROSION CONTROL FENCES SHALL BE IN PLACE.

CRITICAL AREAS SUCH AS WETLAND AREAS, SLOPES AND STREAMS SHALL BE PROTECTED AS PER PLAN AND, IN THE PRESENCE OF WETLANDS, THE CONDITIONS OF THE ASSENT ORDER SHALL BE ADHERED TO.

THE CONTRACTOR SHALL BE REQUIRED TO ESTABLISH AND FULLY MAINTAIN ALL REQUIRED EROSION AND SEDIMENTATION CONTROLS.

**GENERAL LANDSCAPING NOTES:**

- ALL DISTURBED AREAS ARE TO BE REVEGETATED AS SOON AS POSSIBLE. ALL BANKS AND SLOPING AREAS ARE TO RECEIVE A MINIMUM OF 6" OF CLEAN TOPSOIL, THEN SEED AND FERTILIZE. LEVEL AREAS TO RECEIVE 4" MIN. OF CLEAN TOPSOIL, SEED AND FERTILIZE.
- SEED AND SOD SHALL CONSIST OF A BLEND OF KENTUCKY BLUE GRASSES. PLANT BY SUPPLIERS SPECIFICATIONS.
- LIME SHALL BE APPLIED AS NECESSARY.
- USE OF HAY OR STRAW MULCH DURING SLOPE STABILIZATION IN CONJUNCTION WITH TEMPORARY SEEDING. APPLY MULCH AT A RATE OF 75 TO 100 LBS. PER 1000 SQUARE FEET.
- CONTRACTOR TO MAINTAIN TREE REMOVAL AT A MINIMUM MAXIMUM CLEARING 5,000 S.F. / LOT BY REGULATIONS.
- STOCKPILE ALL STRIPPED TOPSOIL FOR LATER USE. THE LOCATION IS TO BE APPROVED BY THIS ENGINEER. MULCH AND TEMPORARY SEED THE STOCKPILE.
- REMOVE ALL ROCKS 3" OR LARGER IN PLANTING AREA.
- ALL CLEARING SHALL CONFORM TO THE LIMITS AS SHOWN ON PLANS. CLEARING LIMITS ARE TO BE MARKED IN THE FIELD BY THE ENGINEER.
- NEW TREES SHALL MEASURE AT LEAST 2" IN DIAMETER AS MEASURED AT A POINT 4" ABOVE FINISHED GRADE LEVEL.
- CONTRACTOR SHALL REPLACE ANY PROPOSED TREE OR PLANTING WHICH FAILS TO FLOURISH OVER A PERIOD OF 2 YEARS.
- ALL EXCAVATED MATERIAL SHALL BE STORED ON A SUITABLE UPLAND SITE FROM ANY AND ALL WETLANDS.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED APR 14 2008 FILE # 04-0016  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

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OFFICE OF WATER RESOURCES

Charles A. Herbert

MARK T. CONROY  
REGISTERED PROFESSIONAL CIVIL ENGINEER  
No. 5783

DAVID D. GARDNER & ASSOCIATES, INC.  
200 METRO CENTER BOULEVARD  
WARWICK, RHODE ISLAND 02886  
(401) 738-3500

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DETAIL SHEET - SECTION 2  
POPPY HILLS, RHODE ISLAND  
LOT 19 & A PORTION OF LOT 34 ON A.P. 55  
FOR  
POPPY HILLS DEVELOPMENT GROUP, INC.

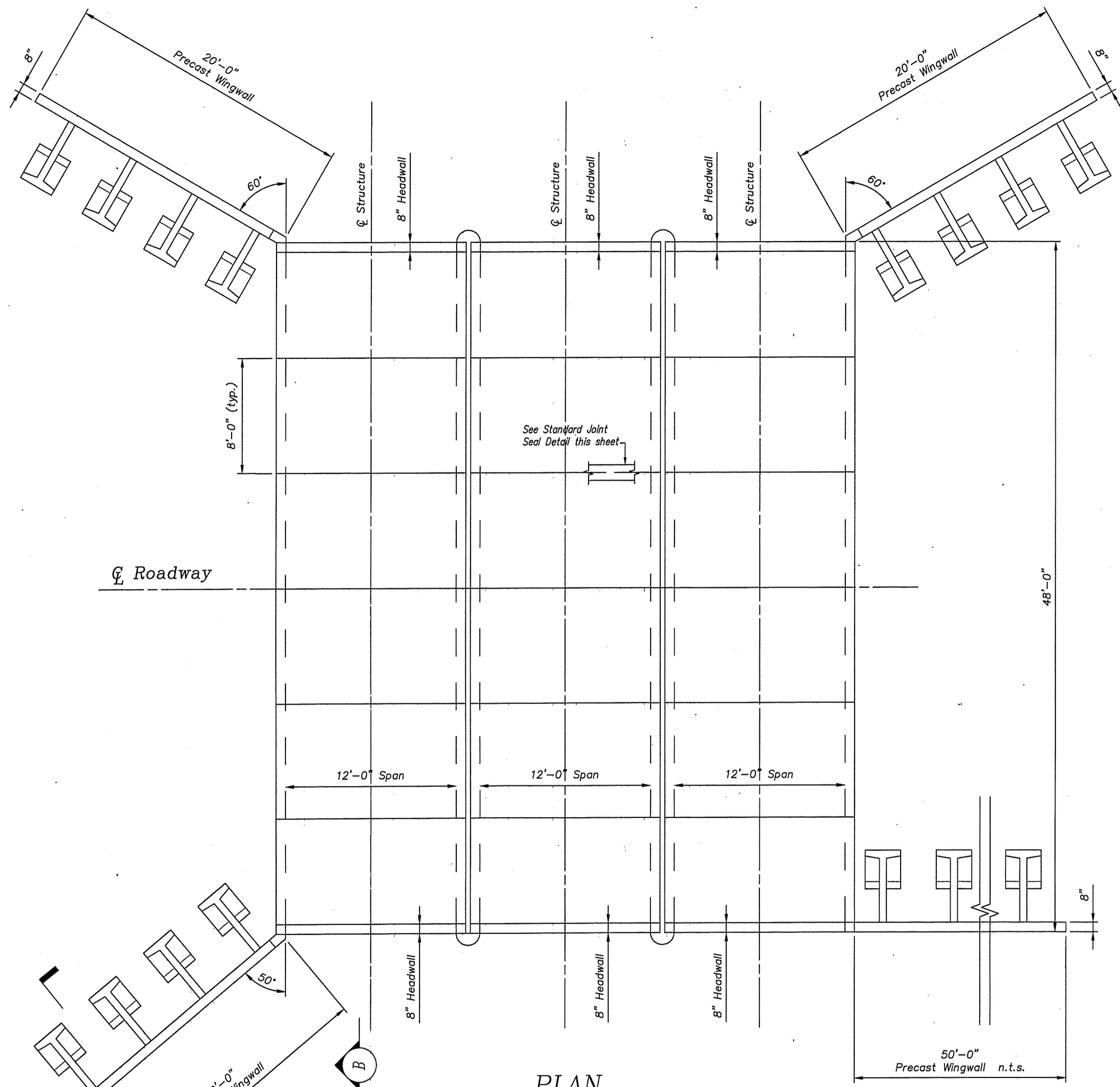
APPLICANT: POPPY HILLS DEVELOPMENT GROUP, INC.  
1481 ATHWOOD AVE.  
JOHNSTON, RI, 02891  
OWNER:  
R.L. COLARDO, INC.  
1481 ATHWOOD AVE.  
JOHNSTON, RI, 02891

DATE	REVISIONS
3/24/04	R.I.D.E.M. COMMENTS

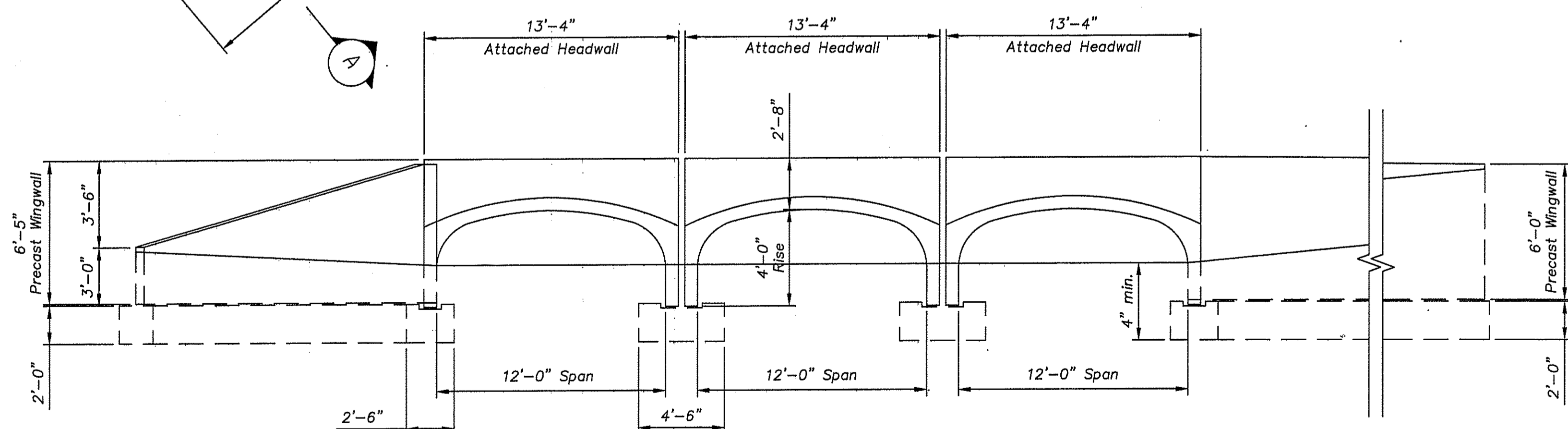
DATE ISSUED: 8/14/2003  
SCALE: NOTED  
DESIGNED BY:  
DRAWN BY: M.T.C.  
CHECKED BY: D.D.G.  
JOB NO.: 01-106  
DWG NO.: 01-106W7-12

SHEET 7 OF 13

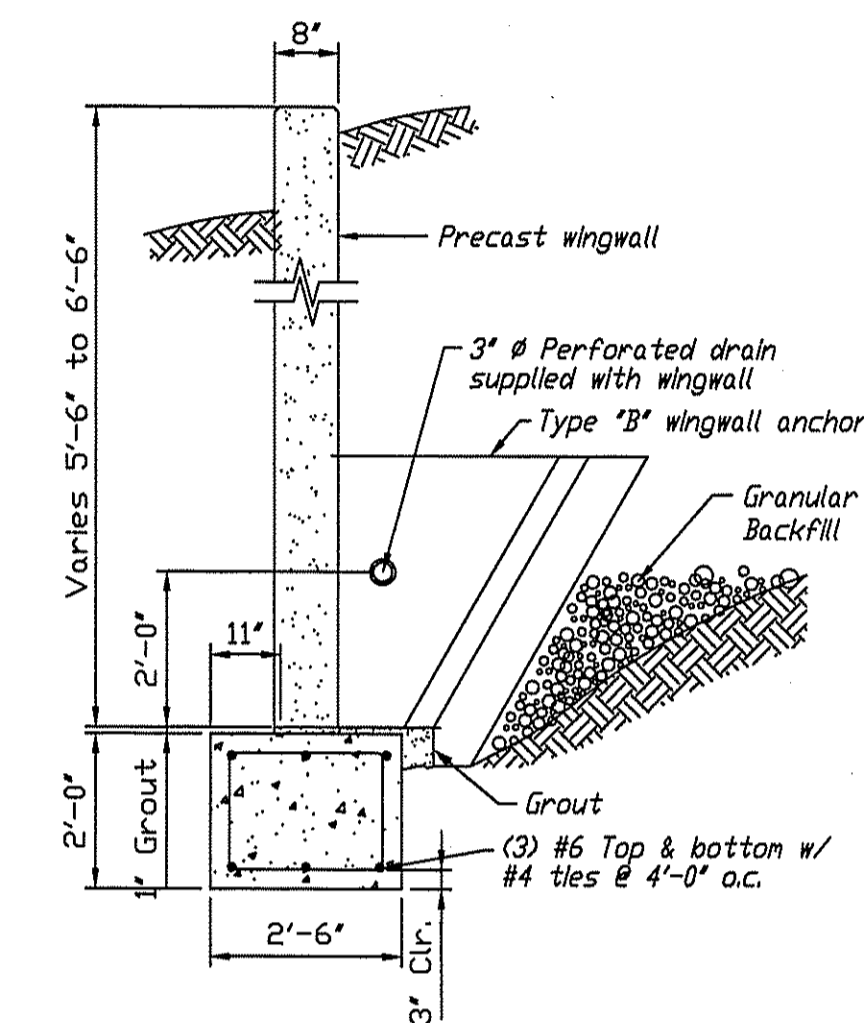




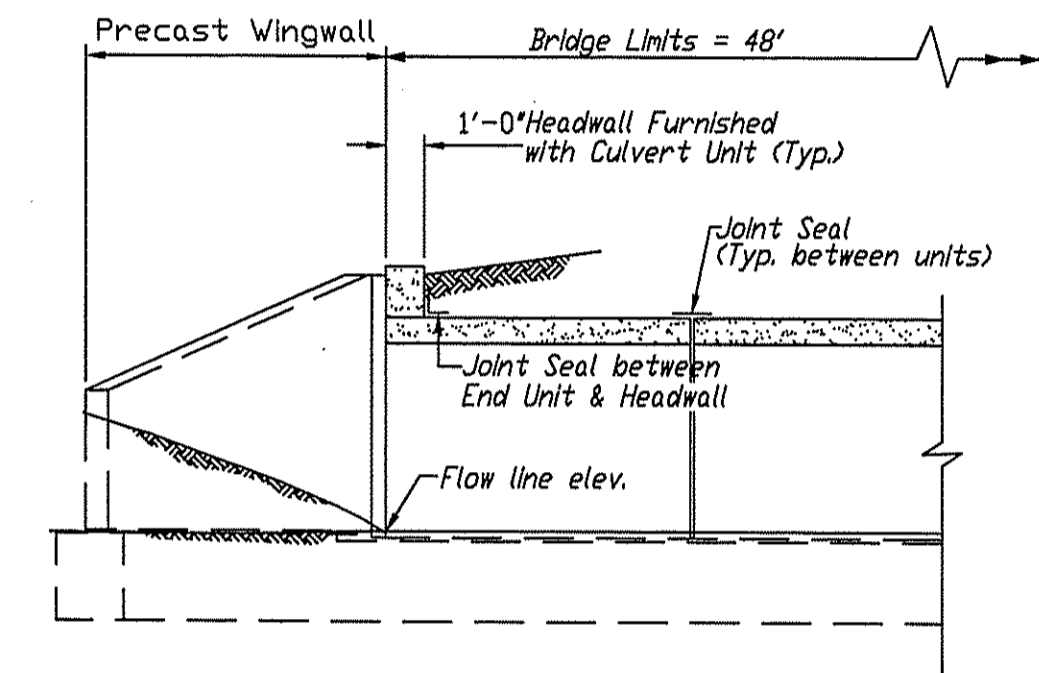
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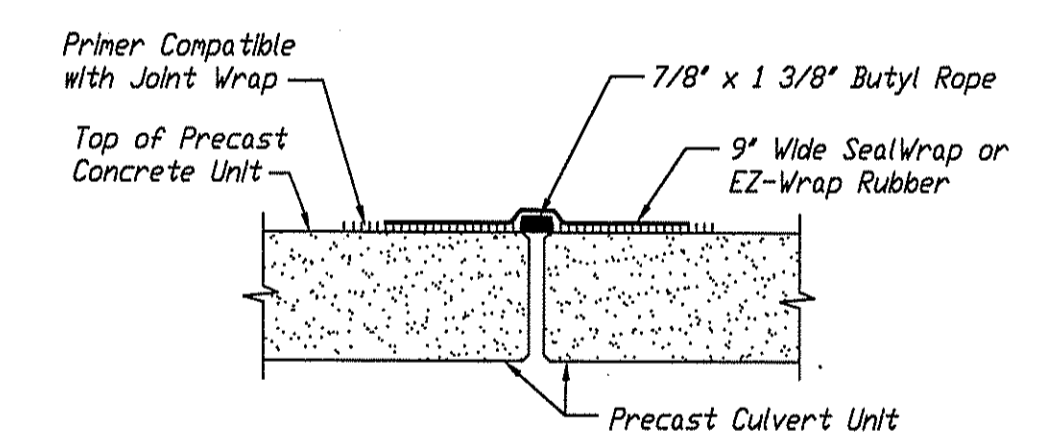
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**SECTION A**



**SECTION B**



**STANDARD JOINT SEAL DETAIL**

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
 OFFICE OF WATER RESOURCES  
 FRESHWATER WETLANDS PROGRAM  
 APPROVED WITH CONDITIONS  
 AS SPECIFIED IN THE LETTER OF APPROVAL  
 DATED APR 14 2008 FILE # 04-0016  
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE

*Charles A. Hobbs*

**RECEIVED**  
 DEC 28 2005  
 ENVIRONMENTAL MANAGEMENT  
 OFFICE OF WATER RESOURCES

**DESIGN DATA**  
 Design Loading: HS20-44  
 Design Fill Height: 4'-0" max. from top of crown to top of pavement.  
 Design Method: Load factor per AASHTO Specification  
 Assumed Allowable Soil Bearing: 3000 PSF (Verify)

**MATERIALS**  
 Precast units shall be constructed and installed in accordance with Con/Span Specifications.  
 Concrete For Footings and Wingwalls shall have a minimum compressive strength of 4000 psi.  
 Reinforcing steel For Footings and Wingwalls shall conform to ASTM A615, A616 or A617-Grade 60.

**CONISPAN®**  
 BRIDGE SYSTEMS

3100 Research Blvd. P.O. Box 20266 Dayton, Ohio 45420-0266 (937) 254-2233 (800) 526-3999 Fax (937) 254-8365 Email: info@con-span.com

**12' BRIDGE SPAN**

MARK T. CONBOY  
 No. 5783  
 REGISTERED PROFESSIONAL ENGINEER  
 CIVIL

**DAVID D. GARDNER & ASSOCIATES, INC.**  
 200 METRO CENTER BOULEVARD  
 WARWICK, RHODE ISLAND 02886  
 (401) 798-3200



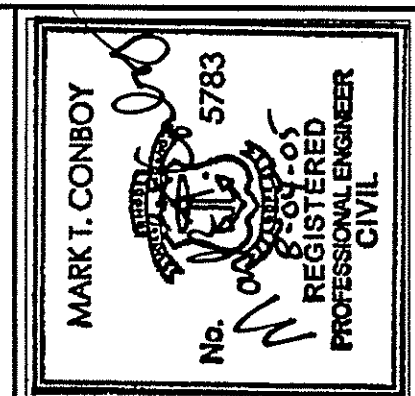
**DETAIL SHEET**  
 POPPY HILLS - SECTION 2  
 JOHNSTON, RHODE ISLAND  
 LOT 19 & A PORTION OF LOT 34 ON A.P. 55  
 FOR  
 POPPY HILLS DEVELOPMENT GROUP, INC.

DATE	REVISIONS
5/24/04	R.I.D.E.M. COMMENTS
6/04/05	TRIPLE 12' BRIDGE SPAN

DATE ISSUED: 8/14/2003  
 SCALE: NOTED  
 DESIGNED BY:  
 DRAWN BY: M.T.C.  
 CHECKED BY: D.D.G.  
 JOB NO.: 01-106  
 DWG NO.: 01-106W7-12

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# SPECIFICATIONS FOR MANUFACTURE AND INSTALLATION OF CON/SPAN BRIDGE SYSTEMS



**DAVID D. GARDNER & ASSOCIATES, INC.**  
 200 METRO CENTER BOULEVARD  
 WARWICK, RHODE ISLAND 02886  
 (401) 798-9200

ENGINEERS • SURVEYORS • PLANNERS

**DETAIL SHEET**  
 POPPY HILLS - SECTION 2  
 JOHNSTON, RHODE ISLAND  
 LOT 19 & A PORTION OF LOT 34 ON A.P. 55  
 FOR  
 POPPY HILLS DEVELOPMENT GROUP, INC.

DATE	REVISIONS
8/24/04	RJL:DM COMMENTS

DATE ISSUED: 8/14/2003  
 SCALE: NOTED  
 DESIGNED BY:  
 DRAWN BY: M.T.C.  
 CHECKED BY: D.D.G.  
 JOB NO.: 01-106  
 DWG NO.: 01-106W-12

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SHEET 10 OF 13

## 1. DESCRIPTION

This work shall consist of constructing a Con/Span culvert in accordance with these specifications and in reasonably close conformity with the lines, grades, design and dimensions shown on the plans or as established by the Engineer.

## 2. TYPES

Precast reinforced concrete Con/Span culverts manufactured in accordance with this specification shall be designated by span and rise.

## 3. MATERIALS - CONCRETE

The concrete for the culverts shall be air-entrained when installed in areas subject to freeze-thaw conditions, composed of Portland cement, fine and coarse aggregates, admixtures and water. Concrete shall contain 6 ± 2 percent air. The air entraining admixture shall conform to AASHTO M154.

- 3.1 Portland Cement - Shall conform to the requirements of ASTM Specifications C150-Type I, Type II, or Type III cement.
- 3.2 Coarse Aggregate - Shall consist of stone having a maximum size of 1 inch. Aggregate shall meet requirements for ASTM C33.
- 3.3 Water Reducing Admixture - The manufacturer may submit for approval by the Engineer, a water-reducing admixture for the purpose of increasing workability and reducing the water requirement for the concrete.
- 3.4 Calcium Chloride - The addition to the mix of calcium chloride or admixtures containing calcium chloride will not be permitted.

## 4. MATERIALS - STEEL REINFORCEMENT AND HARDWARE

All reinforcing steel for the culverts shall be fabricated and placed in accordance with the detailed shop drawings submitted by the manufacturer.

- 4.1 Steel Reinforcement - Reinforcement shall consist of welded wire fabric conforming to ASTM Specification A 185 or A 497, or deformed billet steel bars conforming to ASTM Specification A 615, Grade 60. Longitudinal distribution reinforcement may consist of welded wire fabric or deformed billet-steel bars.

## 5. MANUFACTURE

- 5.1 Mixture - The aggregates, cement and water shall be proportioned and mixed in a batch mixer to produce a homogeneous concrete meeting the strength requirements of this specification. The proportion of Portland cement in the mixture shall not be less than 564 pounds (6 sacks) per cubic yard of concrete.

- 5.2 Curing - The precast concrete culvert units shall be cured for a sufficient length of time so that the concrete will develop the specified compressive strength in 28 days or less. Any one of the following methods of curing or combinations thereof shall be used:
  - 5.2.1 Steam Curing - The culverts may be low pressure, steam cured by a system that will maintain a moist atmosphere.
  - 5.2.2 Water Curing - The culverts may be water cured by any method that will keep the sections moist.
  - 5.2.3 Membrane Curing - A sealing membrane conforming to the requirements of ASTM Specification C 309 may be applied and shall be left intact until the required concrete compressive strength is attained. The concrete temperature at the time of application shall be within + 10 degrees F of the atmospheric temperature. All surfaces shall be kept moist prior to the application of the compounds and shall be damp when the compound is applied.

- 5.3 Forms - The forms used in manufacture shall be sufficiently rigid and accurate to maintain the culvert dimensions within the permissible variations given in Section 7. All casting surfaces shall be of a smooth material.

- 5.4 Handling - Handling devices or holes shall be permitted in each culvert for the purpose of handling and setting.

- 5.5 Storage - The culverts shall be stored in such a manner to prevent cracking or damage. The units shall not be stored in an upright position until the compressive strength is a minimum of 4,000 psi.

## 6. DESIGN

- 6.1 The culvert dimension and reinforcement details shall be as prescribed in the plan and the shop drawings provided by the manufacturer subject to the provisions of Section 7. The minimum concrete compressive strength shall be 4,000 psi. The minimum steel yield strength shall be 60,000 psi.

The culverts are designed in accordance with the "Standard Specifications for Highway Bridges" adopted by the American Association of State Highway and Transportation Officials, 1996. A minimum of one foot of cover above the crown of the culvert is required in the installed condition. (Unless noted otherwise and designed accordingly.)

- 6.2 Placement of Reinforcement - The cover of concrete over the outside circumferential reinforcement shall be 2 inches minimum. The cover of concrete over the inside circumferential reinforcement shall be 1 1/2 inches minimum. The clear distance of the end circumferential wires shall not be less than one inch nor more than two inches from the ends of the culvert. Reinforcement shall be assembled utilizing single or multiple layers of welded wire fabric, or utilizing a single layer of deformed billet-steel bars. The welded wire fabric shall be composed of circumferential and longitudinal wires meeting the spacing requirements of 6.4 and shall contain sufficient longitudinal wires extending through the culvert to maintain the shape and position of the reinforcement. Longitudinal distribution reinforcement may be welded wire fabric or deformed billet-steel bars and shall meet the spacing requirements of 6.4. The ends of the longitudinal distribution reinforcement shall be not more than 3 inches from the ends of the culvert.

- 6.3 Bending of Reinforcement - The outside and inside circumferential reinforcing steel for the corners of the culvert shall be bent to such an angle that is approximately equal to the configuration of the culvert's outside corner.

- 6.4 Laps, Welds, and Spacing - Tension splices in the circumferential reinforcement shall be made by lapping. Laps may be tack welded together for assembly purposes. For smooth welded wire fabric, the overlap shall meet the requirements of ACI 12.8 and 12.19. For deformed welded wire fabric, the overlap shall meet the requirements of ACI 12.7 and 12.18. For deformed billet-steel bars, the overlap shall meet the requirements of ACI 12.2. For splices other than tension splices, the overlap shall be a minimum of 12" for welded wire fabric or deformed billet-steel bars. The spacing center to center of the circumferential wires in a wire fabric sheet shall be not less than 2 inches nor more than 4 inches. For the wire fabric, the spacing center to center of the longitudinal wires shall not be more than 8 inches. The spacing center to center of the longitudinal distribution steel for either line of reinforcing in the top slab shall be not more than 16 inches.

## 7. PERMISSIBLE VARIATIONS

- 7.1 Internal Dimensions - The internal dimension shall vary not more than 1% from the design dimensions nor more than 1-1/2 inches whichever is less. The haunch dimensions shall vary not more than 3/4 inch from the design dimension.
- 7.2 Slab and Wall Thickness - The slab and wall thickness shall not be less than that shown in the design by more than 1/4 inch. A thickness more than that required in the design shall not be cause for rejection.
- 7.3 Length of Opposite Surfaces - Variations in laying lengths of two opposite surfaces of the culvert shall not be more than 5/8 inch in any culvert section, except where beveled ends are laying of curves are specified by the purchaser.
- 7.4 Length of Section - The underrun in length of a section shall not be more than 1/2 inch in any culvert.
- 7.5 Position of Reinforcement - The maximum variation in position of the reinforcement shall be + 1/2 inch. In no case shall the cover over the reinforcement be less than 1 inches for the outside circumferential steel or be less than 1 inch for the inside circumferential steel as measured to the external or internal surface of the culvert. These tolerances or cover requirements do not apply to mating surfaces of the joints.
- 7.6 Area of Reinforcement - The areas of steel reinforcement shall be the design steel areas as shown in the manufacturer's shop drawings. Steel areas greater than those required shall not be cause for rejection. The permissible variation in diameter of any reinforcement shall conform to the tolerances prescribed in the ASTM Specification for that type of reinforcement.

## 8. TESTING AND INSPECTION

- 8.1 Type of Test Specimen - Concrete compressive strength shall be determined from compression tests made on cylinders or cores. For cylinder testing a minimum of 4 cylinders shall be taken during each production run. For core testing, one core shall be cut from a culvert section selected at random from each group of 15 culverts or less of a particular size and production run. For each continuous production run, each group of 15 culverts of a single size or fraction thereof shall be considered separately for the purpose of testing and acceptance. A production run shall be considered continuous if not interrupted for more than 3 consecutive days.
- 8.2 Compression Testing - Cylinders shall be made and tested as prescribed by the ASTM C 39 Specification. Cores shall be obtained and tested for compressive strength in accordance with the provisions of the ASTM C 497 Specification.
- 8.3 Acceptability of Cylinder Tests - Failure of any of the 28 day test cylinders to meet 90 percent of the minimum compressive strength requirement can be cause for rejection.
- 8.4 Acceptability of Core Tests - The compressive strength of the concrete in each group of culverts as defined in 8.1 is acceptable when the core test strength is equal to or greater than the design concrete strength. When the compressive strength of the core tested is less than the design concrete strength, the culvert from which that core was taken may be rejected. Two culverts from the remainder of the group shall be selected at random and one core shall be taken from each. If the compressive strength of both cores is equal to or greater than the design concrete strength, the compressive strength of the remainder of that group of culverts is acceptable. If the compressive strength of either of the two cores tested is less than the design concrete strength, the remainder of the group of culverts shall be rejected or, at the option of the manufacturer, each culvert of the remainder of the group shall be cored and accepted individually, and any of these culverts that have cores with less than the design concrete strength shall be rejected.

- 8.4.1 When the compressive strength of any core is less than the design concrete strength, the culvert from which that core was taken shall be rejected. Two culverts from the remainder of the group shall be selected at random and one core shall be taken from each. If the compressive strength of both cores is equal to or greater than the design concrete strength, the compressive strength of the remainder of that group of culverts is acceptable. If the compressive strength of either of the two cores tested is less than the design concrete strength, the remainder of the group of culverts shall be rejected or, at the option of the manufacturer, each culvert of the remainder of the group shall be cored and accepted individually, and any of these culverts that have cores with less than the design concrete strength shall be rejected.

- 8.4.2 Plugging Core Holes - The core holes shall be plugged and sealed by the manufacturer in a manner such that the culvert will meet all of the test requirements of this specification. Culverts so sealed shall be considered satisfactory for use.

- 8.4.3 Test Equipment - Every manufacturer furnishing culverts under this specification shall furnish all facilities and personnel necessary to carryout the test required.

## 9. JOINTS

The culverts shall be produced with flat butt ends. The ends of the culvert shall be such that when the sections are laid together they will make a continuous line of culverts with a smooth interior free of appreciable irregularities, all compatible with the permissible variations - in Section 7. The joint width shall not exceed 3/4 inches.

## 10. WORKMANSHIP AND FINISH

The culverts shall be substantially free of fractures. The ends of the culvert shall be normal to the walls and centerline of the culvert section, within the limits of the variations given in section 7, except where beveled ends are specified. The surface of the culverts shall be a smooth steel form or troweled surface. Trapped air pockets causing surface defects shall be considered as part of a smooth steel form finish.

## 11. REPAIRS

Culverts may be repaired, if necessary, because of imperfections in manufacture or handling damage and will be acceptable if, in the opinion of the purchaser, the repairs are sound, properly finished and cured, and the repaired section conforms to the requirements of this specification.

## 12. INSPECTION

The quality of materials, the process of manufacture, and the finished culverts shall be subject to inspection by the purchaser.

## 13. REJECTION

Culverts shall be subject to rejection on account of any of the specification requirements. Individual culverts may be rejected because of any of the following:

- 13.1 Fractures or cracks passing through the wall, except for a single end crack that does not exceed one half the thickness of the wall.
- 13.2 Defects that indicate proportioning, mixing, and molding not in compliance with Section 5.
- 13.3 Honeycombed or open texture.
- 13.4 Damaged ends, where such damage would prevent making a satisfactory joint.

## 14. MARKING

Each culvert shall be clearly marked by waterproof paint. The following shall be shown on the inside of the vertical leg of the culvert section:

Culvert Section Span X Culvert Rise

Date of Manufacture

Name or trademark of the manufacturer

## 15. CONSTRUCTION REQUIREMENTS

- 15.1 Footings - The culverts shall be installed on either precast or cast-in-place concrete footings. The design size and elevation of the footings shall be as determined by the Engineer. A three inch deep keyway shall be formed in the top surface of the footing three inches clear of the inside and outside faces of the culvert, unless specified otherwise on the plans. The footings shall be given a smooth float finish and shall reach a compressive strength of 2,000 psi before placement of the culvert sections. The completed footing surface shall be constructed in accordance with grades shown on the plans. When tested with a 10 foot straight edge, the surface shall not vary more than 1/4 inch in 10 feet. If a precast concrete footing is used, the contractor shall prepare a 4 inch thick layer of compacted granular material the full width of the footing prior to placing the precast footing.

- 15.2 Placement of the Culverts - The culverts shall be placed as shown on the Engineer's plan drawings. Special care shall be taken in setting the culverts to the true line and grade. The culverts shall be set on 6" X 6" masonite or steel shims. A minimum of 1/2 inch gap shall be provided between the footing and the bottom of the culverts vertical legs. The gap shall be filled with cement grout (Portland cement and water or cement mortar composed of one part Portland cement and three parts of sand, by volume, and water.)

- 15.3 External Protection of Joints - The butt joint made by two adjoining culverts shall be covered with a 7/8" x 1 3/8" (1 1/4" round equivalent) piece of butyl rope and a minimum of a 9 inch wide joint wrap. The surface shall be free of dirt before applying the joint material. A primer compatible with the joint wrap to be used shall be applied for a minimum width of nine inches on each side of the joint. The external wrap shall be either EZ-WRAP RUBBER by PRESS-SEAL GASKET CORPORATION, SEAL WRAP by MAR MAC MANUFACTURING CO. INC. or approved equal. The joint shall be covered continuously from the bottom of one culvert section leg, across the top of the arch and to the opposite culvert section leg. Any laps that result in the joint wrap shall be a minimum of six inches long with the overlap running downhill.

In addition to the joints between units, the joint between the end unit and the headwall shall also be sealed. If using precast wingwalls, the joint between the end bridge unit and the wingwall shall be sealed with this type of wrap or at the discretion of the Engineer, filter fabric shall be substituted.

During the backfilling operation, care shall be taken to keep the joint wrap in its proper location over the joint.

- 15.4 Backfill - Backfill shall be considered as all replaced excavation and new embankment adjacent to the Con/Span bridge units and wingwalls. The project construction and material specifications which include the specifications for excavation for structures and roadway excavation and embankment construction shall apply except as modified in this section.

No backfill shall be placed against any structural elements until they have been approved by the Engineer.

Backfill against a waterproofed surface shall be placed carefully to avoid damage to the waterproofing material.

Mechanical tampers or approved compacting equipment shall be used to compact all backfill and embankment immediately adjacent to each side of the culvert and over the top of the culvert until it is covered to a minimum depth of one foot. The backfill within four feet of each side of the culvert shall be placed in lifts of eight inches or less (loose depth). Heavy compaction equipment shall not be operated in this area or over the culvert until it is covered to a depth of one foot.

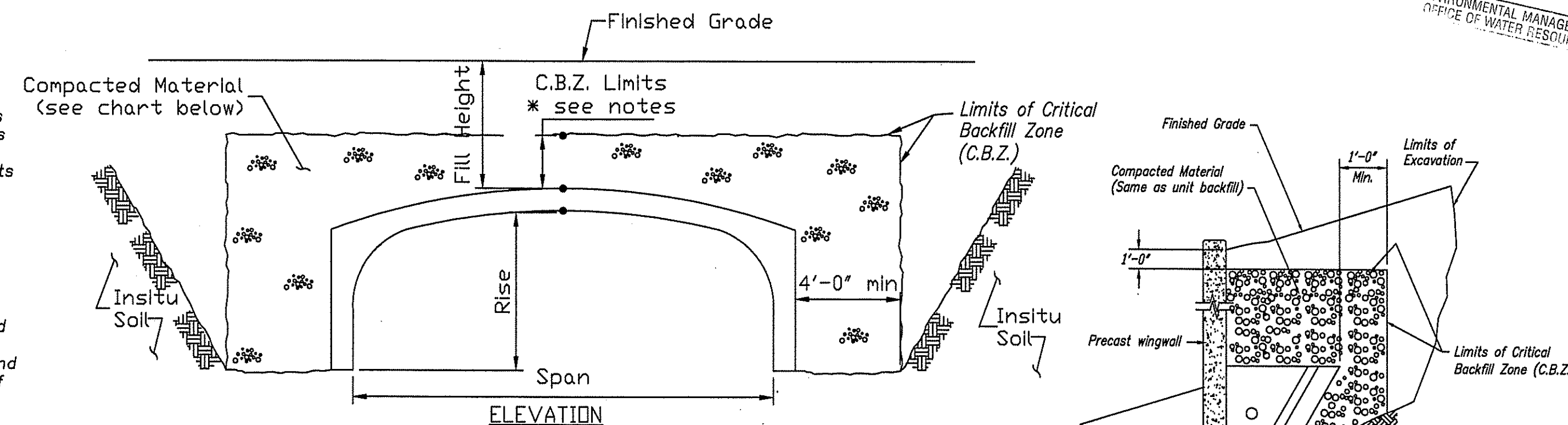
Lightweight dozers and graders may be operated over culverts having one foot of compacted cover, but heavy earth moving equipment (larger than a D-4 Dozer weighing in excess of 12 tons and having track pressures of eight psi or greater) shall require two feet of cover unless the design cover is less than two feet. In no case shall equipment operating in excess of the design load (HS20 or HS25) be permitted over the culvert unless approved by Con/Span.

Any additional fill and subsequent excavation required to provide this minimum cover shall be made at no additional cost to the project.

As a precaution against introducing unbalanced stresses in the culvert, when placing backfill at no time shall the difference between the heights of fill on opposite sides of the culvert exceed 24".

Backfill in front of wingwalls shall be carried to ground lines shown in the plans.

Group Classification	BACKFILL DESCRIPTION						
	A-1	A-3	A-2		A-4		A-4
	A-1-a	A-1-b	A-2-4	A-2-5	A-2-6	A-2-7	
Sieve Analysis, Percent Passing							
No. 10	50 max.						
No. 40	30 max.	50 max.	51 max.				
No. 200	15 max.	25 max.	10 max.	35 max.	35 max.	35 max.	36 min.
Characteristics of Fraction Passing							
No. 40				40 max.	41 min.	40 max.	40 max.
Liquid Limit				10 max.	10 max.	11 min.	10 max.
Plasticity Index	6 max.		N.P.				
Usual Types of Significant Constituent Materials	Stone Fragments, Gravel & Sand		Fine Sand	Silty or Clayey Gravel and Sand			Silty Soils
General Rating as Subgrade			Excellent to Good				Fair to Poor



- NOTES
1. SEE CON/SPAN SPECIFICATIONS SECTION 15.4 FOR BACKFILL SPECIFICATIONS.
  2. FOR FILL HEIGHTS GREATER THAN 2'-0", C.B.Z. LIMIT SHALL BE 2'-0" ABOVE ARCH CROWN. FOR FILL HEIGHTS LESS THAN 2'-0", THE FINISHED GRADE SHALL BE THE BOUNDARY LINE FOR THE C.B.Z.
  3. BACKFILLING OPERATIONS WITHIN THE C.B.Z. SHALL BE PERFORMED IN LIFTS OF 8" OR LESS (LOOSE DEPTH).
  4. MAXIMUM DRY DENSITY SHALL BE DETERMINED BY AASHTO T-99 OR OTHER APPROVED METHODS.
  5. BACKFILL SHALL BE COMPACTED IN LAYERS UNTIL THE DENSITY IS NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY.

SPAN	FILL HEIGHT	ACCEPTABLE MATERIAL INSIDE C.B.Z.	ACCEPTABLE MATERIAL OUTSIDE C.B.Z.
< 24'-0"	> 12'-0"	A1, A3	**
< 24'-0"	< 12'-0"	A1, A2, A3, A4	**
> 24'-0"	ALL	A1, A3	**

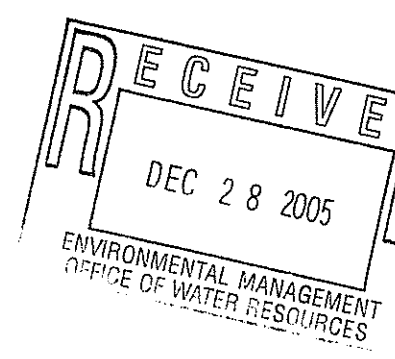
\*\* EMBANKMENT MATERIAL PER PROJECT SPECIFICATIONS

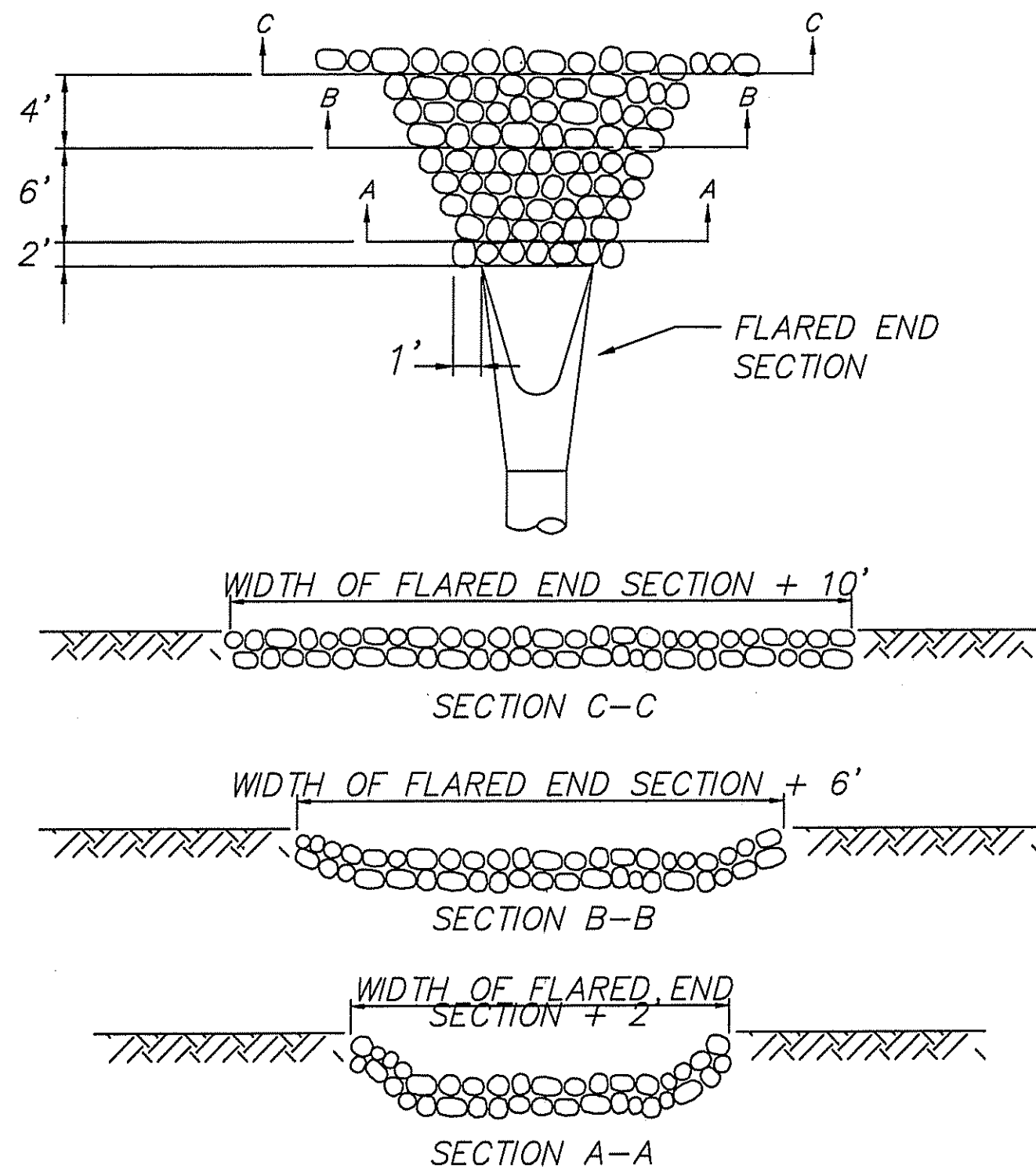
### BACKFILL REQUIREMENTS

### WINGWALL BACKFILL REQUIREMENTS

OFFICE OF WATER RESOURCES  
 FREEWATER WITH PROPOSED  
 APPROVED WITH CONDITIONS  
 AS SPECIFIED IN THE LETTER OF APPROVAL  
 DATED APR 14 2006 FILE # 01-0016  
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE

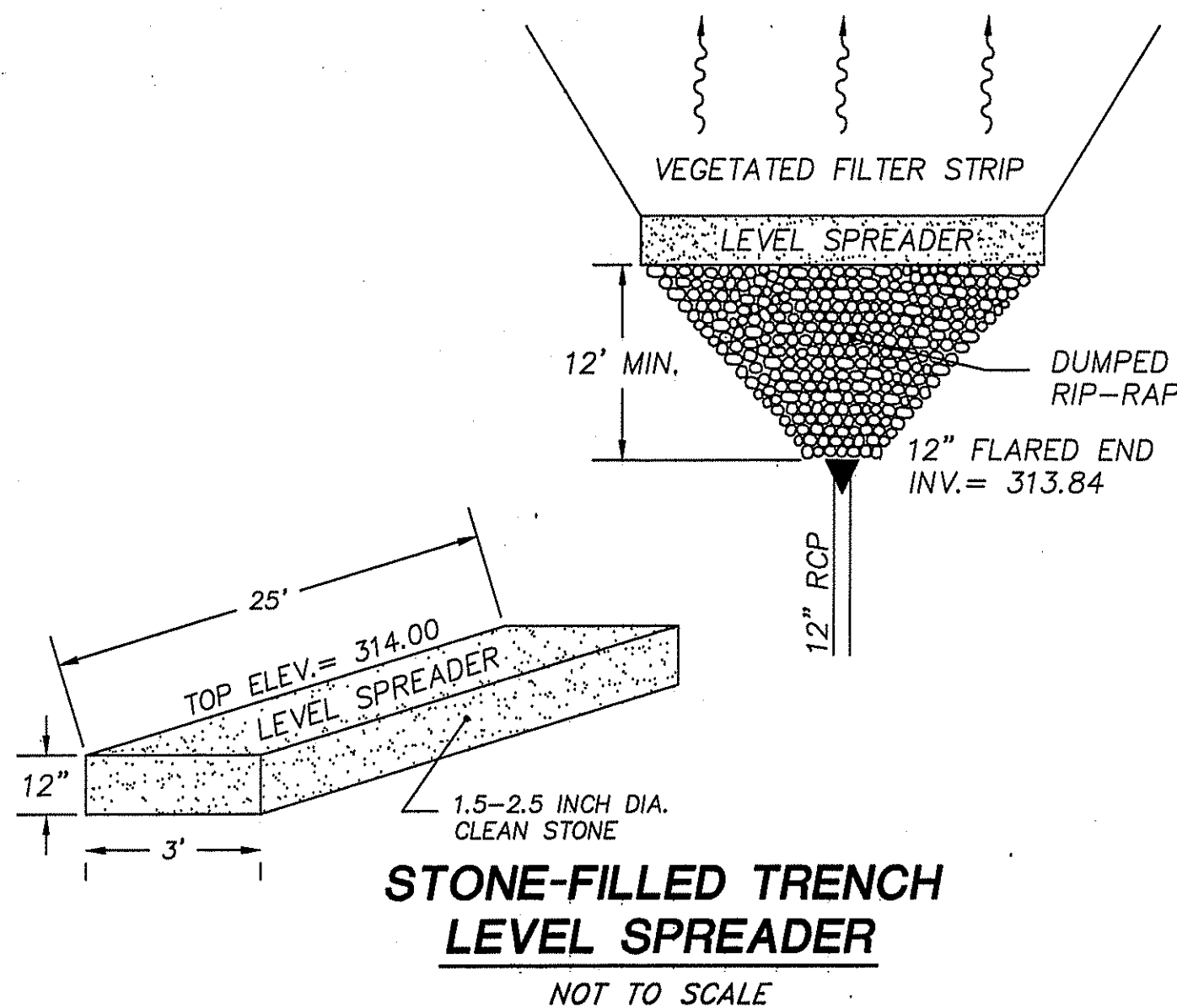
Charles A. Hubert



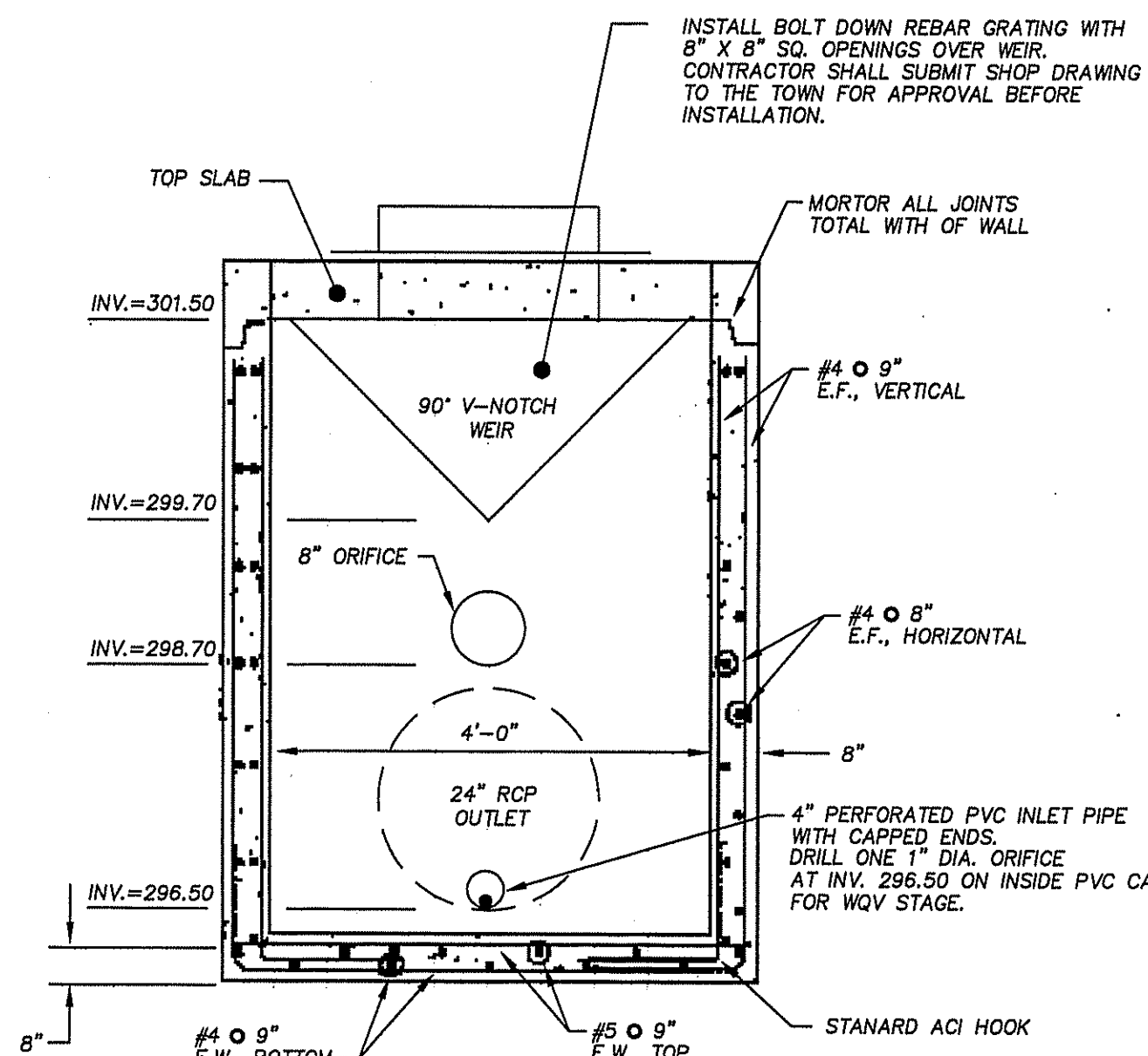


- NOTES:
1. CLASS OF RIP-RAP AND BEDDING TO BE SPECIFIED IN CONTRACT DOCUMENTS.
  2. DIMENSIONS MAY BE MODIFIED BY ENGINEER TO MEET FIELD CONDITIONS.
  3. UNLESS OTHERWISE SPECIFIED, DUMPED RIP-RAP SHALL BE USED.

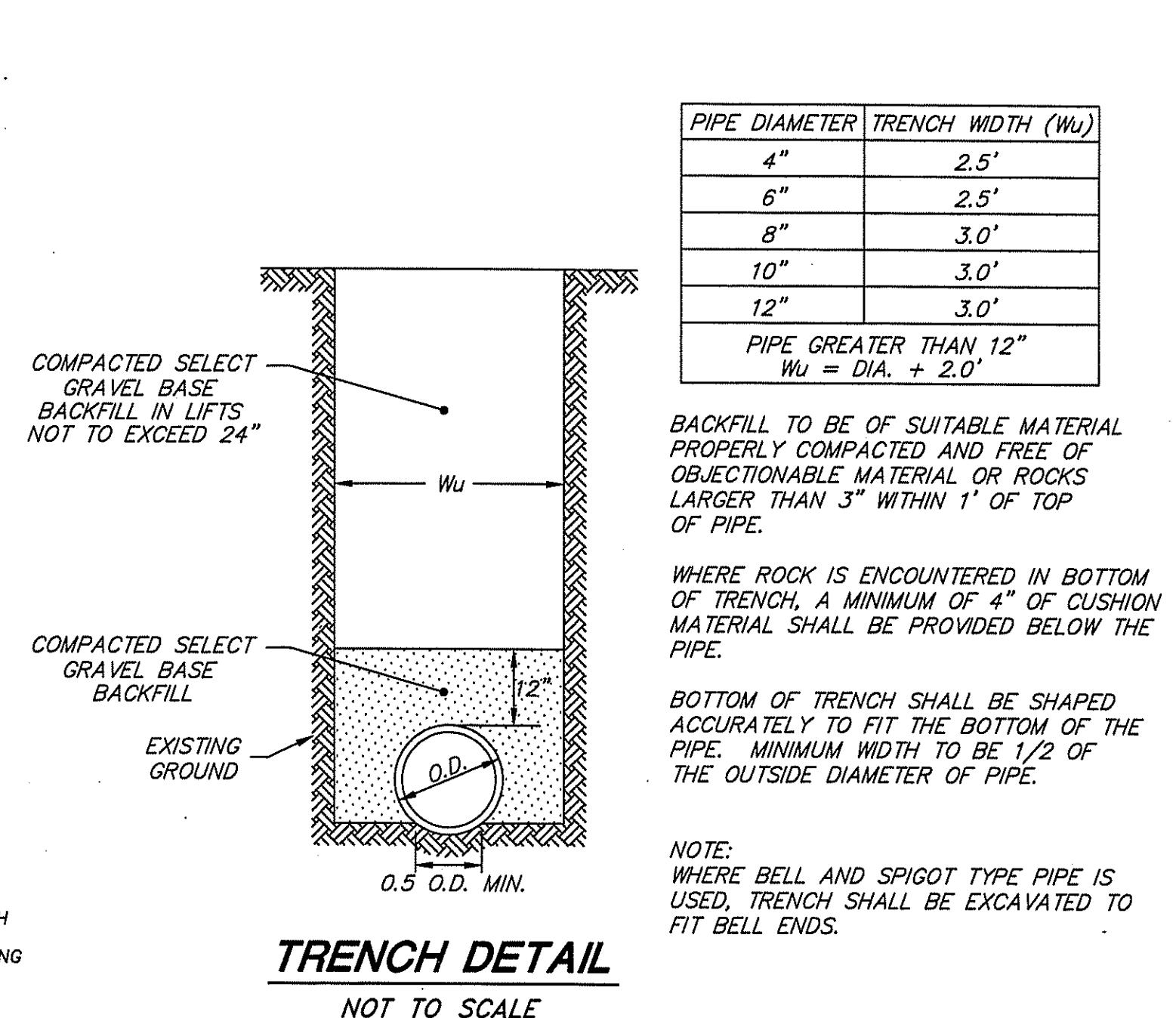
**RIP-RAP AT FLARED END SECTIONS**  
NOT TO SCALE



**STONE-FILLED TRENCH LEVEL SPREADER**  
NOT TO SCALE



**PRECAST CONCRETE DETENTION BASIN OUTLET**  
NOT TO SCALE



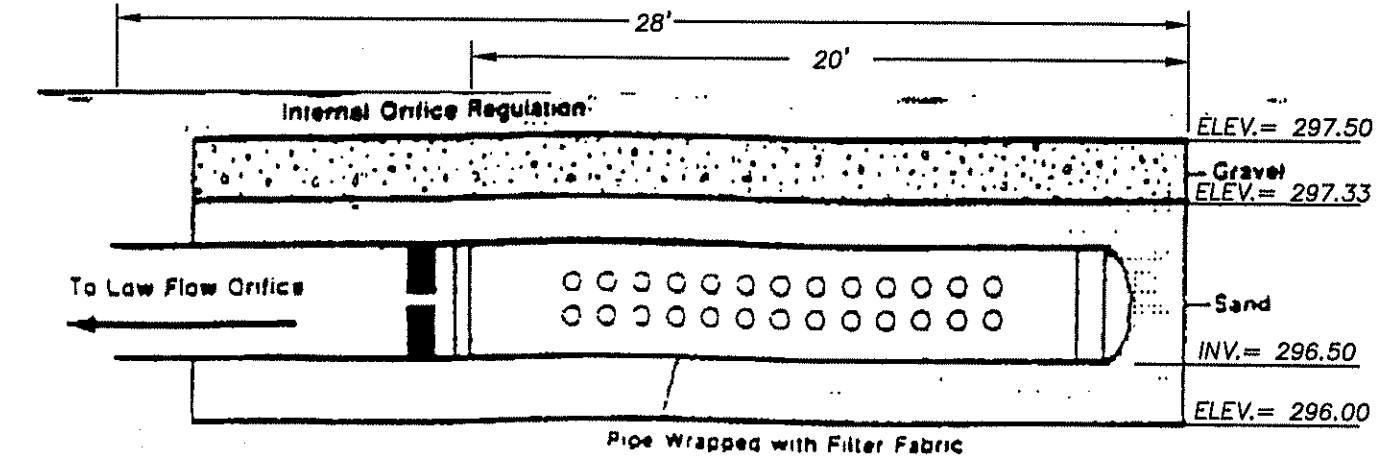
PIPE DIAMETER	TRENCH WIDTH (Wu)
4"	2.5'
6"	2.5'
8"	3.0'
10"	3.0'
12"	3.0'
PIPE GREATER THAN 12" Wu = DIA. + 2.0'	

BACKFILL TO BE OF SUITABLE MATERIAL PROPERLY COMPACTED AND FREE OF OBJECTIONABLE MATERIAL OR ROCKS LARGER THAN 3" WITHIN 1' OF TOP OF PIPE.

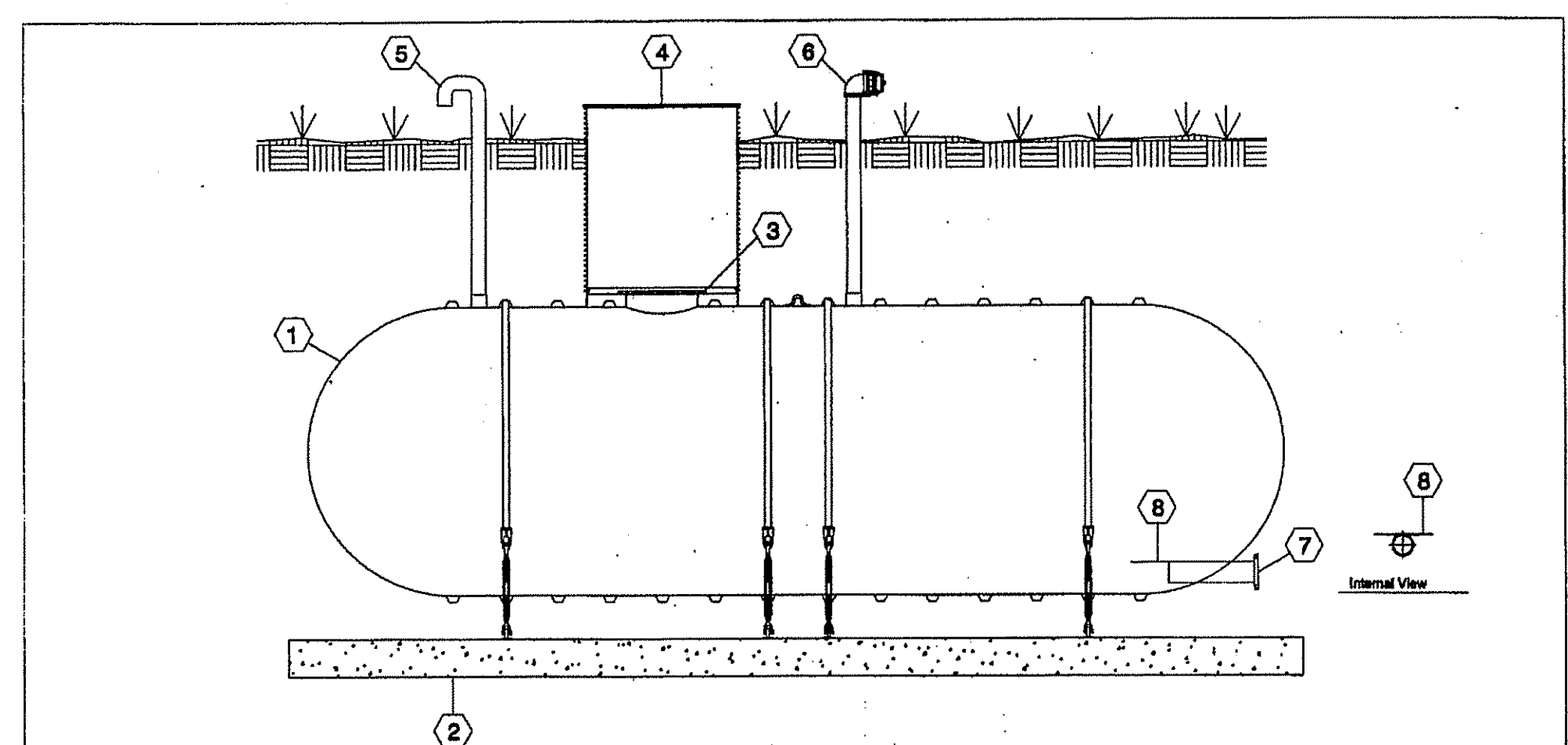
WHERE ROCK IS ENCOUNTERED IN BOTTOM OF TRENCH, A MINIMUM OF 4" OF CUSHION MATERIAL SHALL BE PROVIDED BELOW THE PIPE.

BOTTOM OF TRENCH SHALL BE SHAPED ACCURATELY TO FIT THE BOTTOM OF THE PIPE. MINIMUM WIDTH TO BE 1/2 OF THE OUTSIDE DIAMETER OF PIPE.

NOTE: WHERE BELL AND SPIGOT TYPE PIPE IS USED, TRENCH SHALL BE EXCAVATED TO FIT BELL ENDS.



**4" PERFORATED PVC INLET**  
NOT TO SCALE



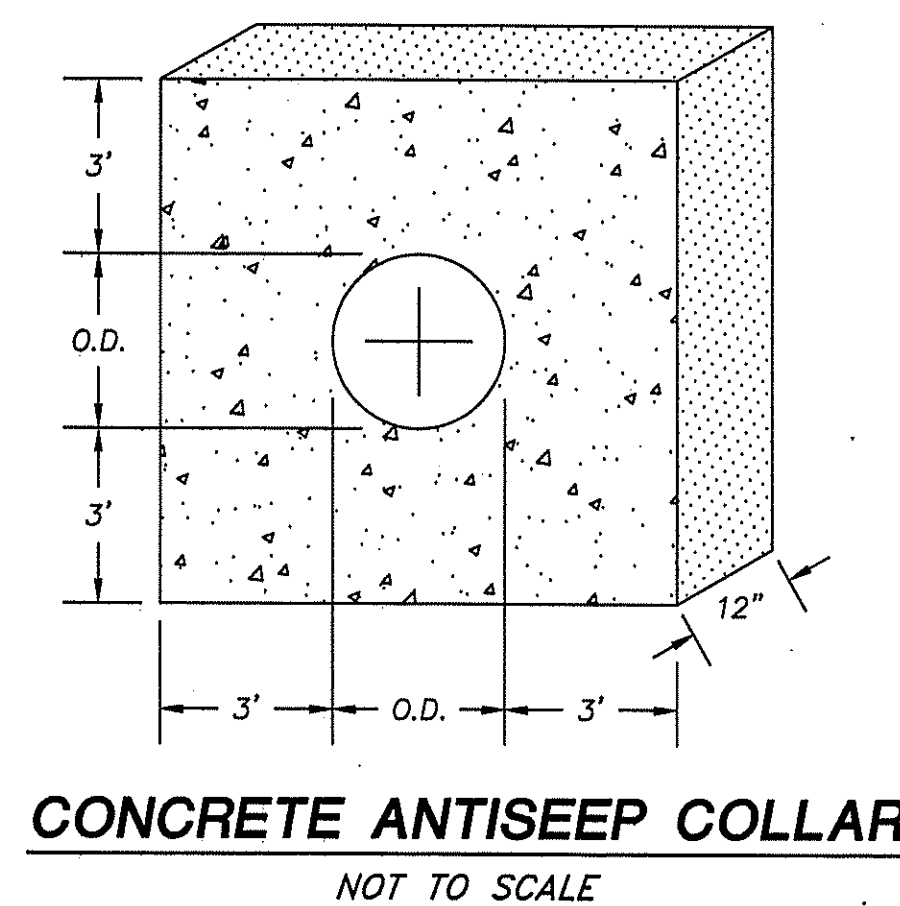
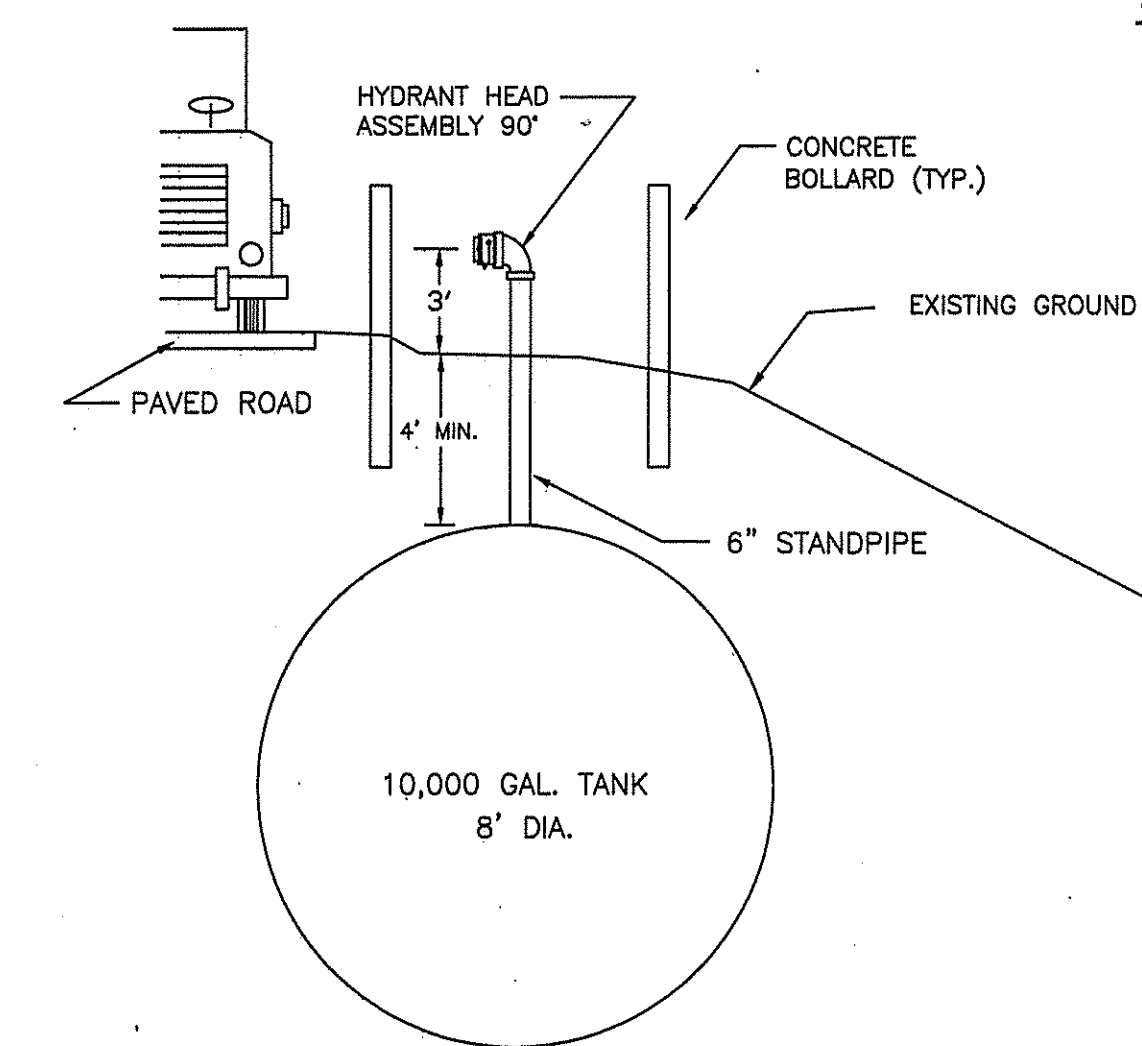
This drawing is for illustrative purposes only. Consult with an engineer for specific applications.

**XERXES CORPORATION**

**ILLUSTRATIVE APPLICATION DRAWINGS**  
Fire Water Storage  
Horizontal Drain  
With Anti-Vortex Plate

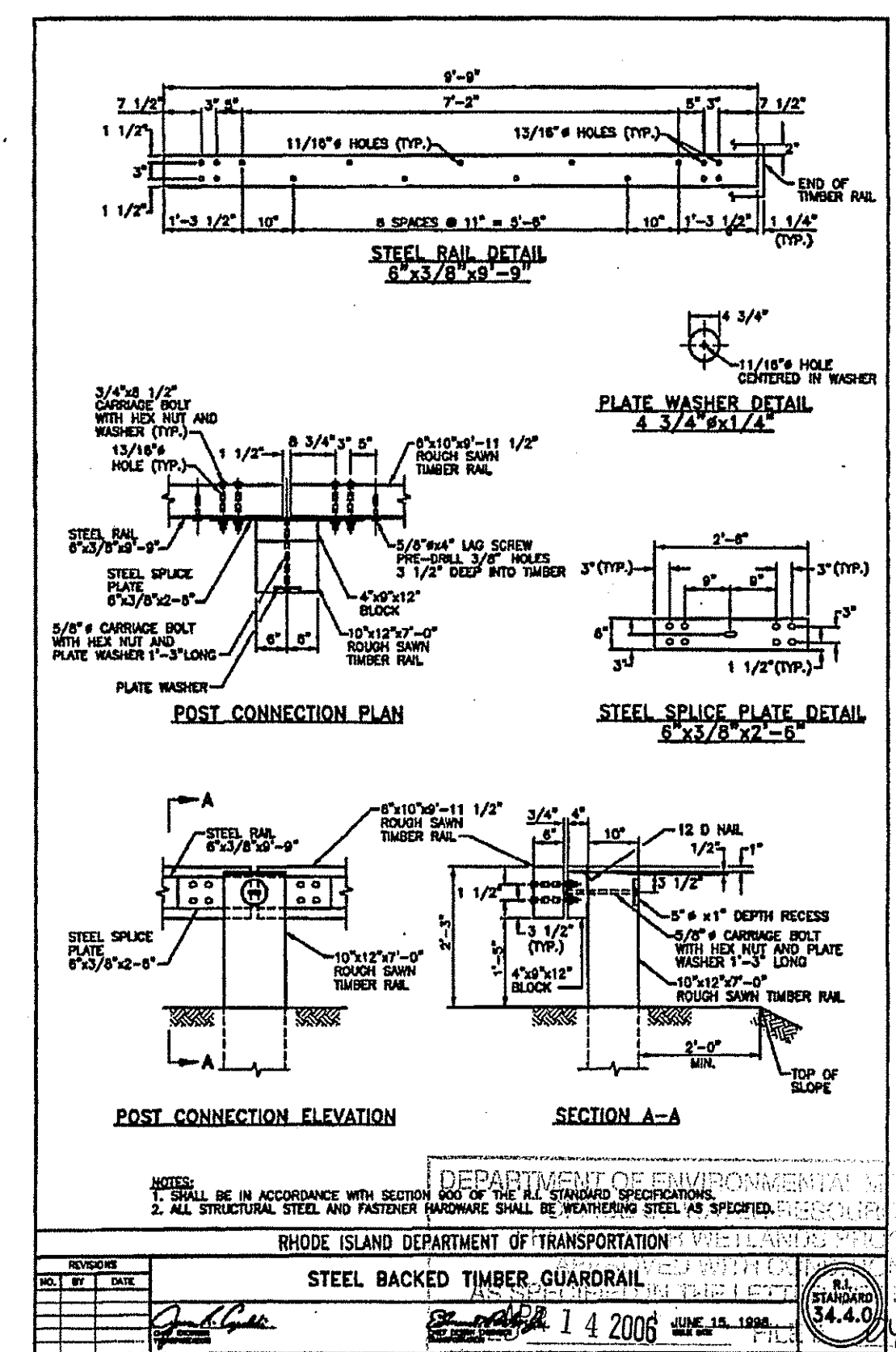
DATE: 5-00 DR. NO.: S20-304

NO.	DESCRIPTION
1	XERXES BRIGLE WALL FRP TANK
2	XERXES PRECAST DETENTION SYSTEM W/ HOLD DOWN STRAP AND TURNBUCKLE ASST.
3	2" MANWAY W/ GAUGE PLATE
4	4" DIA. COLLAR W/ 4" DIA. RIBBED PVC RISER W/ FRP LID
5	4" VENT W/ GAUGE PLATE
6	4" FILL W/ CAM LOCK CONNECTION W/ GAUGE PLATE
7	4" FRP HORIZONTAL NOZZLE
8	FRP ANTI-VORTEX PLATE



**CONCRETE ANTISEEP COLLAR**  
NOT TO SCALE

- DRY HYDRANT SPECIFICATIONS:**
1. MAXIMUM DISTANCE TO ROADWAY SHALL NOT EXCEED 6'.
  2. THE SUCTION PORT SHALL BE 6" NATIONAL STANDARD THREAD AND SHALL BE PROTECTED BY AN END CAP. THE CENTER TO THE PORT SHALL BE 3' IN HEIGHT ABOVE THE GROUND MEASURED AT THE BOTTOM EDGE OF THE ROADWAY.
  3. ALL BELOW GROUND PIPING ELBOWS FROM THE TANK TO THE HYDRANT SHALL BE ENCASED IN CONCRETE. THE CONCRETE FOOTING SHALL BE 16"X16" IN DIAMETER AND SHALL NOT BE LESS THAN 24" IN LENGTH PAST EACH CONNECTION ON THE HORIZONTAL AND VERTICAL PIPING.
  4. ALL PIPING FROM TANK TO HYDRANT SHALL BE NOT LESS THAN 6" IN DIAMETER AND SHALL BE IN COMPLIANCE WITH NFPA 30.
  5. ALL FITTINGS AND ADAPTERS SHALL BE AIRTIGHT.
  6. ALL HYDRANTS SHALL BE PROTECTED BY CONCRETE BOLLARDS ON EITHER SIDE OF THE HYDRANT BUT SHALL NOT OBSTRUCT HYDRANT USE.
  7. ALL HYDRANTS SHALL HAVE A FREESTANDING SIGN LOCATED BEHIND THE HYDRANT. THE SIGN SHALL BE AT A HEIGHT SO THAT INFORMATION IS EASILY READABLE FROM THE STREET. THE SIGN SHALL BE WHITE WITH BLACK LETTERS 4" IN HEIGHT STATING THE FOLLOWING:  
"FIRE DEPARTMENT USE ONLY"  
10,000 GALLONS
  8. ALL HYDRANTS SHALL BE YELLOW IN COLOR.

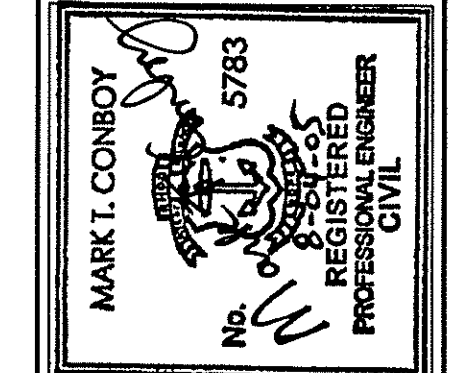


DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
RHOIDE ISLAND DEPARTMENT OF TRANSPORTATION

STEEL BACKED TIMBER GUARDRAIL

DATE: 1 4 2006

APPROVED PLANS MUST BE AT CONSTRUCTION SITE



**DAVID D. GARDNER & ASSOCIATES, INC.**  
200 METRO CENTER BOULEVARD  
WARWICK, RHODE ISLAND 02886  
(401) 798-3200

REGISTERED PROFESSIONAL ENGINEER  
NO. 5783  
STATE OF RHODE ISLAND

ENGINEERS • SURVEYORS • PLANNERS

**DETAIL SHEET**  
**POPPY HILLS - SECTION 2**  
JOHNSTON, RHODE ISLAND  
FOR LOT 19 & A PORTION OF LOT 34 ON A.P. 55  
FOR POPPY HILLS DEVELOPMENT GROUP, INC.

RECEIVED

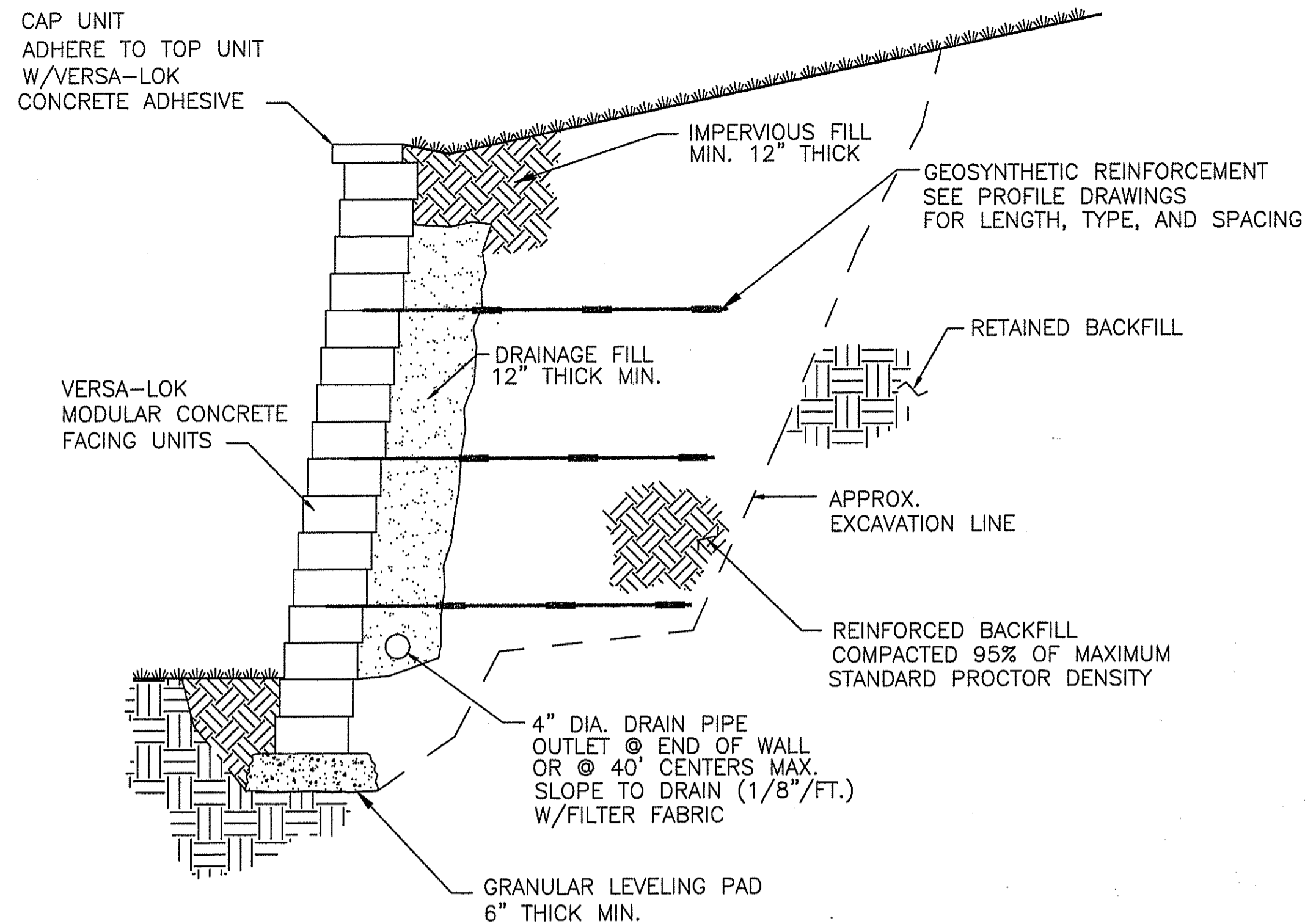
DEC 28 2005

DATE	REVISIONS
3/24/04	RLDEM COMMENTS

DATE ISSUED: 8/14/2003  
SCALE: NOTED  
DESIGNED BY:  
DRAWN BY: M.T.C.  
CHECKED BY: D.D.G.  
JOB NO.: 01-106  
DWG NO.: 01-106W7-12

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Charles A. Harter



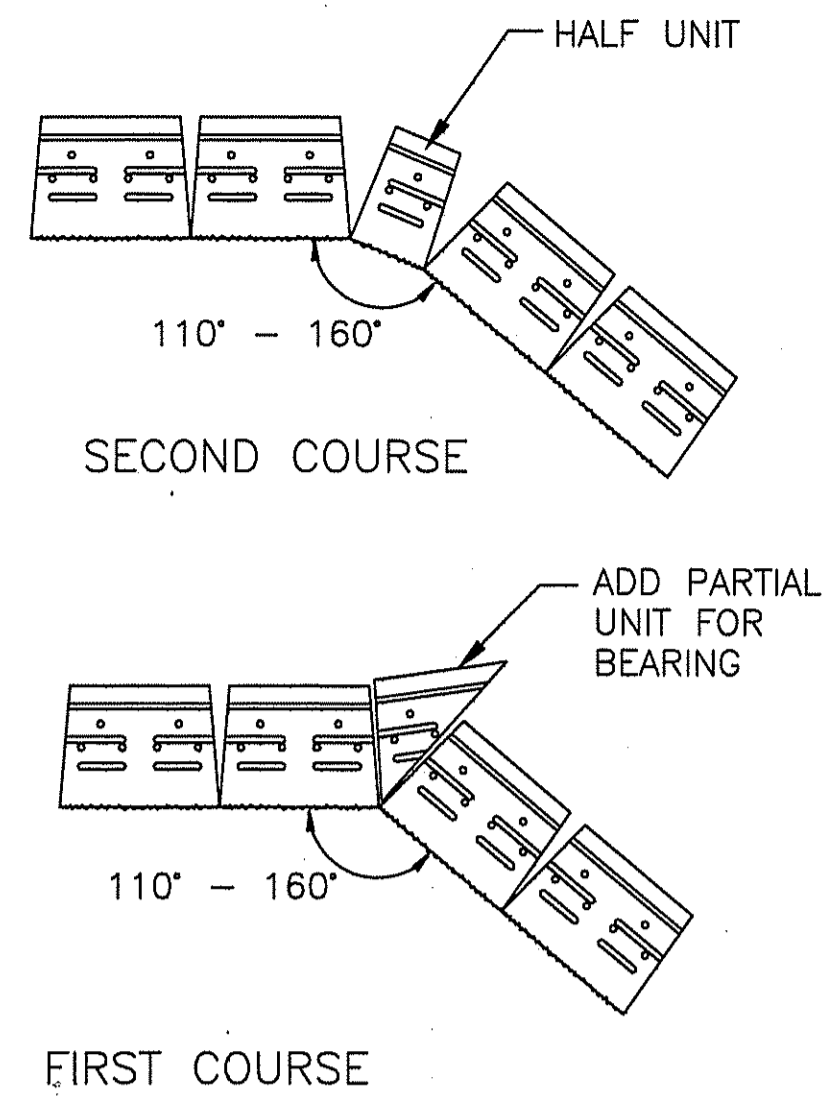
**TYPICAL SECTION-REINFORCED RETAINING WALL**

MODULAR CONCRETE UNIT  
SCALE: NONE

**GENERAL NOTES**

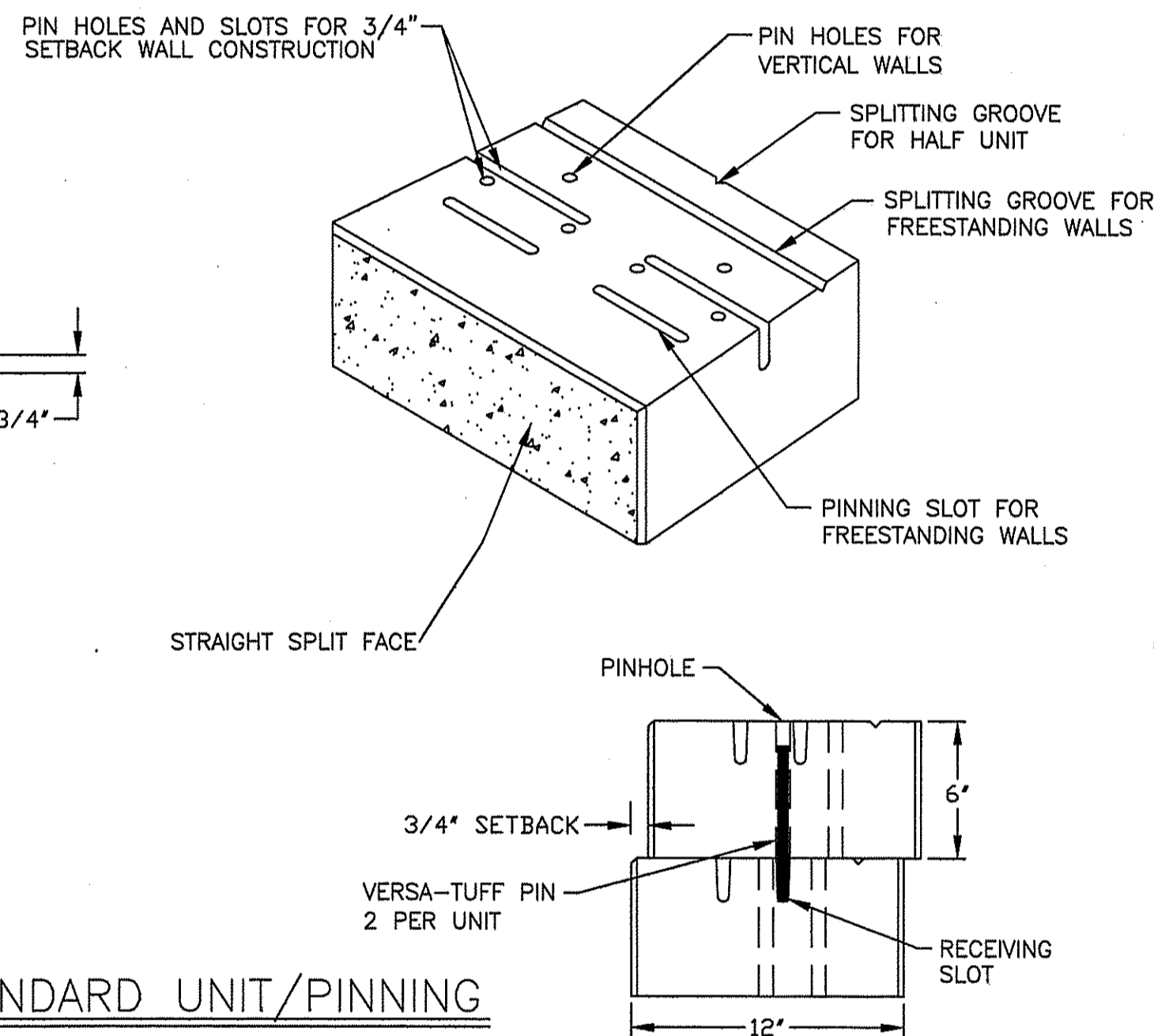
1. STRIP VEGETATION AND ORGANIC SOIL FROM WALL AND GEOSYNTHETIC ALIGNMENT.
2. BENCH CUT ALL EXCAVATED SLOPES.
3. DO NOT OVER EXCAVATE UNLESS DIRECTED BY SITE SOIL ENGINEER TO REMOVE UNSUITABLE SOIL.
4. SITE SOIL ENGINEER SHALL VERIFY FOUNDATION SOILS AS BEING COMPETENT PER THE DESIGN STANDARDS AND PARAMETERS.
5. BASE SHALL CONSIST OF COMPACTED COARSE SAND AND/OR GRAVEL, 6" THICK MIN.
6. CONTRACTOR MAY OPT FOR A LEAN CONCRETE PAD. CONCRETE PAD SHALL BE UNREINFORCED, 1" TO 2" THICK MAXIMUM.
7. MINIMUM EMBEDMENT OF WALL BELOW FINISH GRADE SHALL BE 12" FOR WALL HEIGHTS FROM 4 FT. AND UP, 6" BELOW 4 FT. UNLESS SHOWN DIFFERENTLY.
8. FOLLOW APPLICABLE PROVISIONS OF THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND WRITTEN SPECIFICATIONS.
9. DRAINAGE FILL SHALL BE INSTALLED BEHIND THE WALL UP TO 18" OF THE TOP OF THE WALL. DRAINAGE FILL SHALL NOT EXTEND BELOW FINAL GRADE IN FRONT OF WALL.
10. WHERE DRAIN PIPE IS USED, PROVIDE OUTLETS @ MAX. 40 FT C-C.
11. FOR UNITS TO BE EMBEDDED, COMPACT FILL IN FRONT OF UNITS AT THE SAME TIME BACKFILL BEHIND UNITS IS COMPACTED.
12. COMPACTION TESTS SHALL BE TAKEN AS THE WALL IS INSTALLED. THE MINIMUM NUMBER OF TESTS SHALL BE DETERMINED BY THE SITE SOILS ENGINEER.
13. COMPACTION SHALL BE TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY.(ASTM D-698)
14. SEE ELEVATION FOR GEOSYNTHETIC TYPE, LENGTH AND LOCATION REQUIRED.
15. GEOSYNTHETIC SHALL BE THE TYPE AND LENGTH AS SHOWN. PULL GEOSYNTHETIC TIGHT PRIOR TO BACKFILLING.
16. GEOSYNTHETIC SHALL BE PLACED WITH STONGEST DIRECTION PERPENDICULAR TO WALL. FOLLOW GEOSYNTHETIC MANUFACTURER'S INSTALLATION INSTRUCTIONS AND WRITTEN SPECIFICATIONS.

IF CONDITIONS ARE DIFFERENT THAN THOSE STATED IN THESE DRAWINGS AND SPECIFICATIONS, THE CONTRACTOR MUST CONTACT ENGINEER PRIOR TO PROCEEDING WITH THE CONSTRUCTION OF THE WALL.



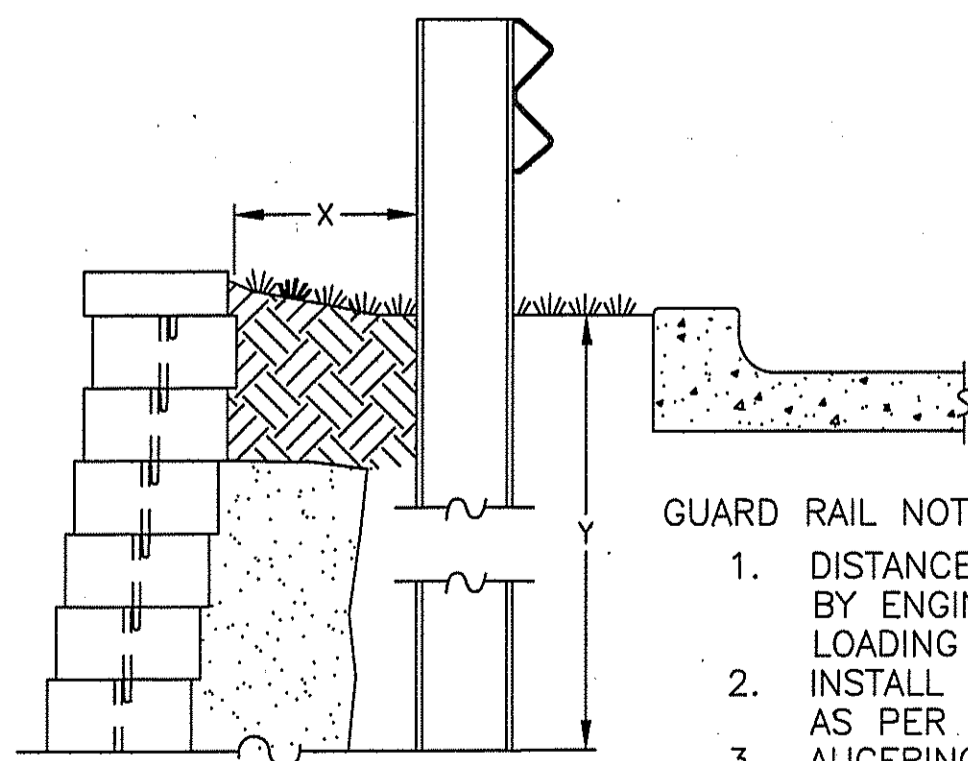
**CORNER DETAIL**

OBLIQUE ANGLE-INSIDE  
SCALE: NONE



**VERSA-LOK STANDARD UNIT/PINNING**

UNIT DIMENSIONS  
SCALE: NONE

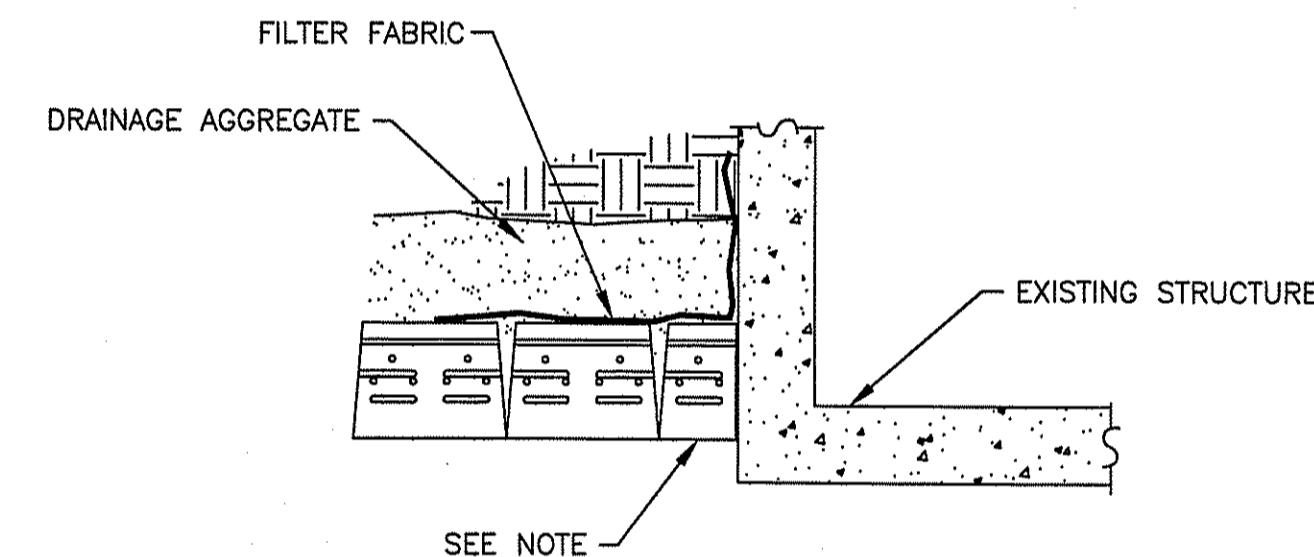


**GUARD RAIL NOTES:**

1. DISTANCE X AND Y TO BE DETERMINED BY ENGINEER BASED ON SOIL AND LOADING CONDITIONS.
2. INSTALL H-PILE OR WOOD POST AS PER MANUFACTURER'S RECOMMENDATIONS.
3. AUGERING OR DRIVING OF POST MAY PIERCE UPPER LAYER OF GEOSYNTHETIC AS PER ENGINEER'S DESIGN.

**GUARD RAIL DETAIL**

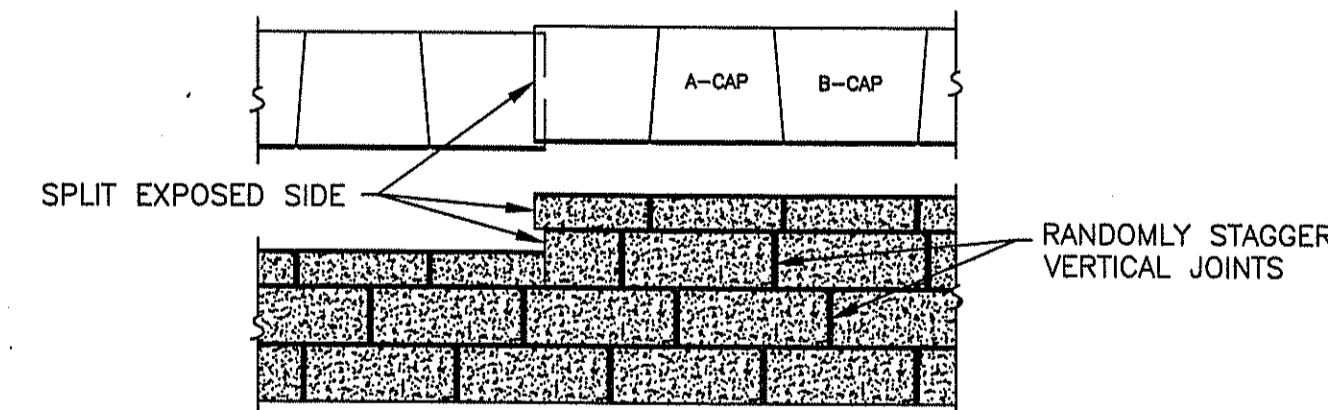
TYPICAL GUARD RAIL  
SCALE: NONE



**WALL ABUTMENT DETAIL**

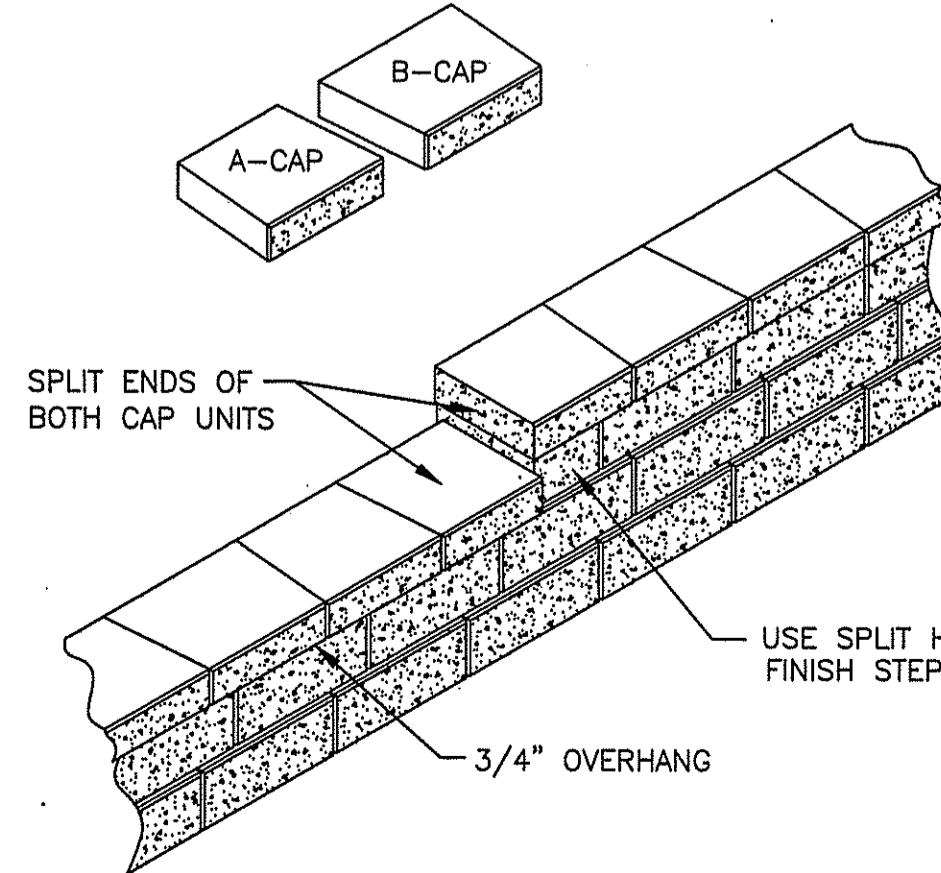
SCALE: NONE

FOR STRAIGHT WALLS, ALTERNATE A-CAP AND B-CAP



**CAPPING DETAIL-PROFILE**

STEP AT TOP OF WALL  
SCALE: NONE

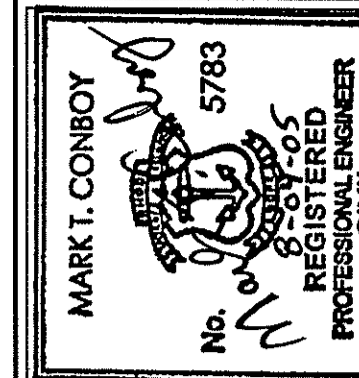


**GENERAL NOTES FOR CAPPING:**

1. CAPS SHALL BE ADHERED TO WALL USING VERSA-LOK CONCRETE ADHESIVE
  2. CAPS MAY BE PLACED WITH A 1/2" TO 3/4" OVERHANG OF TOP COURSE
  3. WHEN SPLITTING CAP UNIT FOR WALL END, DO NOT USE A-CAP SECTION LESS THAN 6" WIDE
  4. DO NOT OVERHANG CAP AT END OF COURSE MORE THAN 3/4" WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL
- DATED APR 14 2008 FILE # 04-0016  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

*Charles A. Harbeck*

**VERSA-LOK®**  
Retaining Wall Systems  
Solid Solutions™  
(800)770-4525 fax(651)770-4089  
6348 Hwy36 Ste1, Oakdale, MN 55128



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WARWICK, RHODE ISLAND 02886  
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**DETAIL SHEET**  
POPPY HILLS - SECTION 2  
JOHNSTON, RHODE ISLAND  
LOT 19 & A PORTION OF LOT 34 ON A.P. 55  
FOR  
POPPY HILLS DEVELOPMENT GROUP, INC.

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DEC 28 2005  
ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES

DATE	REVISIONS

DATE ISSUED: 6/21/2005

SCALE: NOTED

DESIGNED BY:

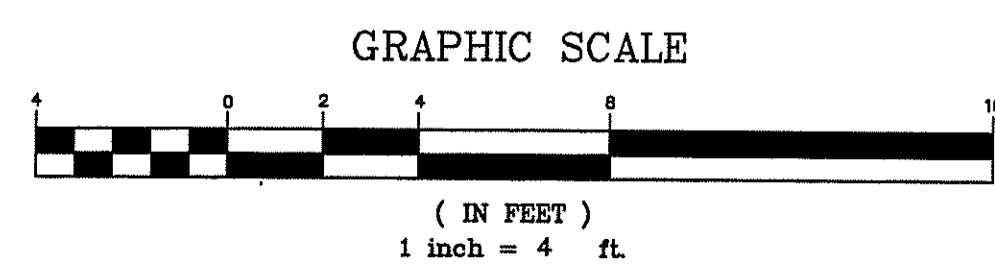
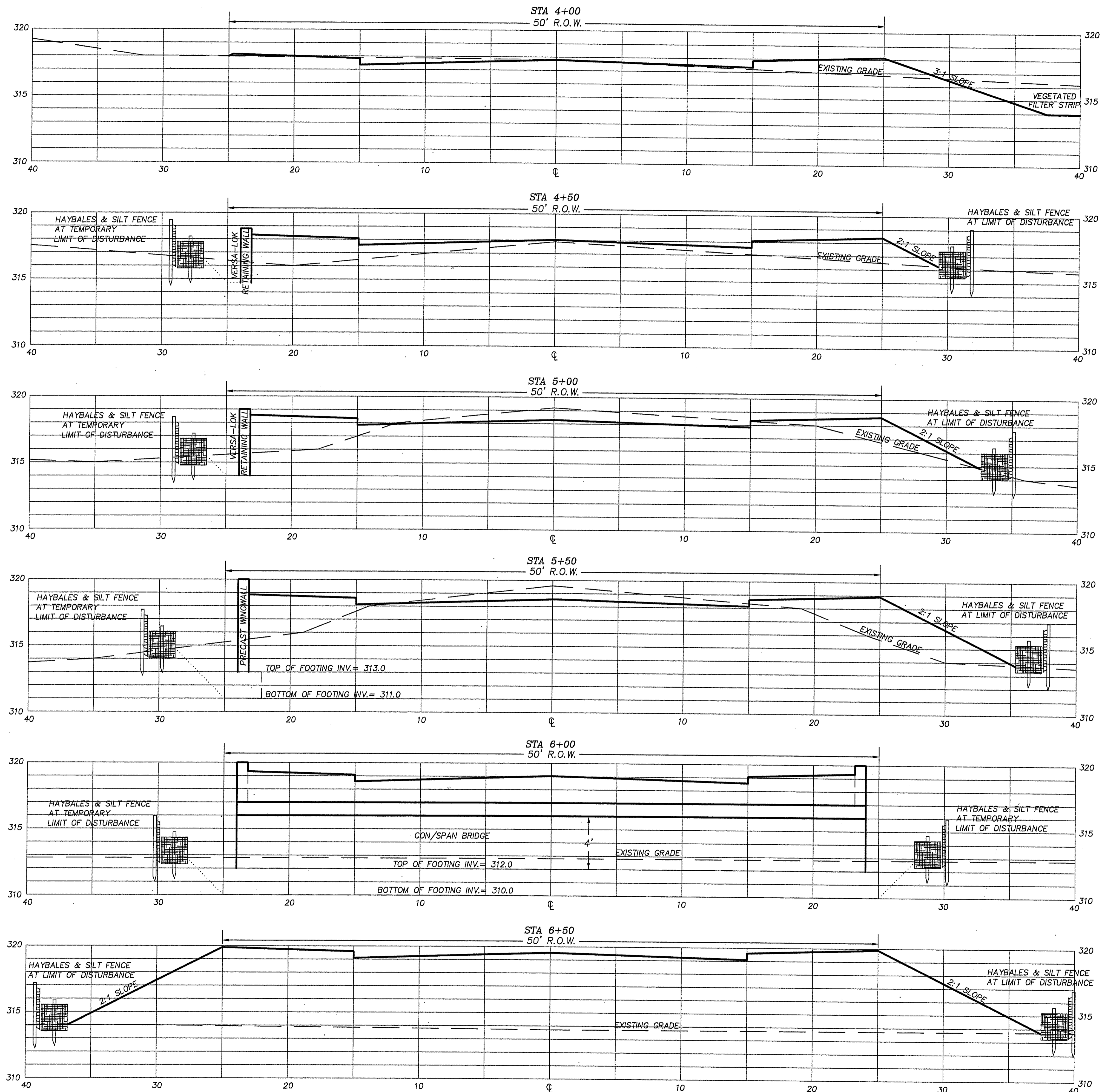
DRAWN BY: M.T.C.

CHECKED BY: D.D.G.

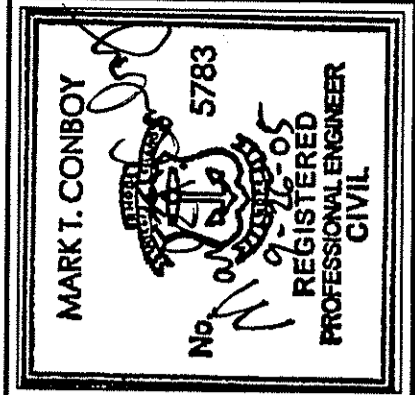
JOB NO.: 01-106

DWG NO.: 01-106W7-12

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 WARWICK, RHODE ISLAND 02886  
 (401) 738-3200  
 ENGINEERS • SURVEYORS • PLANNERS

ROADWAY SECTIONS  
 POPPY HILLS - SECTION 2  
 JOHNSTON, RHODE ISLAND  
 LOT 19 & A PORTION OF LOT 34 ON A.P. 55  
 FOR  
 POPPY HILLS DEVELOPMENT GROUP, INC.

APPLICANT:  
 POPPY HILLS DEVELOPMENT GROUP, INC.  
 1481 ATWOOD AVE.  
 JOHNSTON, RI 02819  
 OWNER:  
 S.L. COLLARD, INC.  
 1481 ATWOOD AVE.  
 JOHNSTON, RI 02819

DATE	REVISIONS

DATE ISSUED: 9/26/2005  
 SCALE: 1"=4'  
 DESIGNED BY:  
 DRAWN BY: M.T.C.  
 CHECKED BY: D.D.G.  
 JOB NO.: 01-106  
 DWG NO.: 01-106W13

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
 OFFICE OF WATER RESOURCES  
 FRESHWATER WETLANDS PROGRAM  
 APPROVED WITH CONDITIONS  
 AS SHOWN ON 4/2006 LETTER OF APPROVAL  
 DATED \_\_\_\_\_ FILE # 04-0016  
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Charles A. Herbert

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