

UNION STUDIO
ARCHITECTURE & COMMUNITY DESIGN

ADDENDUM

ADDENDUM NO.: 2
DATE: 06/24/16
PROJECT: CHW | ChurchWoods
PROJECT ADDRESS: 4130 Old Post Road
Charlestown, RI

TO: All Bidders of Record:

This Addendum forms a part of and modifies the bidding requirements and proposed Contract Documents for the subject Project, dated May 27, 2016. Receipt of this addendum shall be acknowledged on the Bid Form. Failure to do so may subject bidder to disqualification.

1. Clarification:

Prevailing wage rate sheet General Decision Number RI160002 dated 06/17/2016 will apply to the project instead of General Decision Number RI160002 dated 03/11/2016 which is included in the Project Manual. See attached.

2. Question: Which units will be designated ADA accessible? Adapable units?

Answer: Unit #4 in Buildings 2,3,4,5, and 6 are ADA accessible. Units #1,2 and 3 in Buildings 2,3,4,5 and 6 are 'adaptable units'.

3. Question: Solar powered attic exhaust fan specification?

Answer: Solar powered attic exhaust fans should be VentSure Solar Attic Exhaust Fan or approved equal. See attached specifications. General contract to provide optional electric backup for continued operation when sunlight is unavailable and all components and necessary power.

4. Question: Will the builders risk policy for the project be provided by contractors?

Answer: Yes.

5. Question: Drawing C-2/Note 3: Tree protection/pruning. There is 1 existing tree shown on proposed plan, Sheet C3. Is that the extent of tree protection and pruning?

Answer: No. Prior to the start of construction, the landscape architect will meet with the contractor, contractor's arborist, and Owner to review the limits of work and tag significant trees and vegetation that can remain during the construction process. Those identified would then receive tree protection



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and necessary pruning. As a condition of the Town of Charlestown's Master Plan approval, the extent of grubbing and clearing shall be kept to the absolute minimum in order to maintain a min. 25' vegetative boundary along property lines and along Old Post Road and existing trees throughout.

6. Question: Specification Section 001116 & 001153: Are the documents referenced in the request for qualification applicable to and part of our bid submission, or only those documents referenced in the invitation to bid?

Answer: The required documents referenced in the Section 001116 Invitation to Bid and Section 001153 Request for Qualifications apply.

7. Question: Are there any civil specifications for the project? For example, water system, drainage system, septic system, excavation, etc.?

Answer: As stated on throughout the civil (C-series) sheets, the controlling Civil Specifications are the RI Standard Specifications for Road and Bridge Construction Amended August 2013 with all revisions and addenda. The standard details for the work are RI DOT Standard Details 1988 Edition with all revisions. The septic system specifications are controlled by the RIDEM-OWTS Section regulations and any amendments thereto.

8. Question: Could you provide more information on the new Water System? Pipe sizes, service connections, type and size of Gate Valve.

Answer: The layout and design of the water distribution system is by EDS. The Well House layout plan (Sheet C15) calls for the inlet from the well to be 2" HDPE and the outlet distribution line from the booster pumps to the distribution system to be 3" HDPE.

9. Question: Sheet 3 C-4 calls for a "CB W/Weir" to be installed in the Cultec Recharger system, provide more detail as to how the "CB W/Weir" is connected to the Cultec Recharge System.

Answer: Attached are the final drawings/computations from the manufacturer Cultec that have been approved by RIDEM and RICRMC. The drainage structure on drawing C4 labelled CB w/weir can be another 4' diameter deep sump catch basin as shown on Sheet C6 (MADEP 2008) with a 24" outlet to the separator row (at the inverts given on the Cultec drawings) set lower than the 12" high flow by-pass.

10. Question: Sheet 3 C-4 calls for "Roof Drain MH's" in multiple locations, could you provide a detail of those drain manholes?

Answer: Any manhole suitable for use with 12" Double Walled HDPE pipe (24" minimum diameter needed) will be suitable. All of these proposed manholes are to be located in lawn areas carrying only roof runoff so any green manhole cover that can be opened with a simple allen wrench, similar to those



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now used as septic system covers but labelled "drain" will be suitable because the maximum load anticipated over the structures would be a lawn tractor.

11. Question: Specification Section 000500/3.4.1.1: Contains the statement: "The Contractor shall be responsible for any utility company charges, and connection fees for the work." Is there a work order/cost estimate for electrical services provided by National Grid? How much should contractors allow for this?

Answer: Work orders have been requested by Engineering Design Services, however no cost estimate for electrical services has been provided by National Grid. Please provide an allowance and include it in your bids as Allowance No. 4 – Utility Back charges and Connection Fees for the Work.

12. Question: Specification Section 012100-1/1.1/B: should contractors carry an allowance for testing & inspections? i.e. concrete, rebar, loam, compaction/soils.

Answer: Contractors should include all testing and inspections called out for in the specifications and applicable building codes unless otherwise stated.

13. Question: Specification Section 000200 Bid Form/Alternate #5: the well house generator is shown as a deduct. I can't find any reference to it on drawings or specs. Where is it located?

Answer: There is no additional description or specification of the well house generator.

14. Question: Do you know which units are ADA units, the plumbing drawing has the fixtures shown, but none of them are tagged with the "P" Designation, so not sure which are ADA and which are not.

Answer: See Question #3 above.

15. Question: There is no P2 or P2a Lavatories shown in the spec, are you providing them, possibly a solid surface with built in sink?

Answer: Bathroom lavatories to be one-piece vanity sink top with integral sink as specified in Section 123623 / 2.2 Plastic Laminate Countertops. Bowl depth to be ADA compliant.

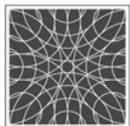
16. Question: There is also no spec for the P3, P3a Shower units, are they tile, fiberglass, also what valve is recommended.

Answer: Showers are wall tiled.

17. Clarification: WCCDC telephone number is 401-667-7185.

18. Question: Is finger-jointed primed pine acceptable for trims? The specs don't state whether finger-jointing is allowed or not.

Answer: No, finger-jointed primed pine is not an acceptable substitution.



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19. Question: Is wire shelving acceptable at closets? The specs have sections for both MDF shelving in division 6 and wire shelving in division 10. Which should I quote?
Answer: Yes, vinyl coated wire shelving is acceptable at closets.

20. Question: Detail A2/A502 for Building 8 shows 5-1/2" head casing on the interior side of the unit entry. For all the other buildings it shows a 3-1/2" head casing. Is this correct for just Building 8 or should I assume it is the same as all the other buildings?
Answer: 5 1/2" head casing should be used at all interior sides of unit entry doors.

21. Clarification:
C.4 Site Improvement Plan – Concrete site sidewalks to connect to all ADA parking loading areas (through pea stone diaphragms) to maintain an ADA accessible route.

22. Clarification:
C.4 Site Improvement Plan – all roof leaders to connect to underground piping and the subsurface stormwater management system.

23. Clarification:
L.101 Overall Landscape Plan, dated May 27, 2016 at **1:30 scale** (which shows full extents of the site plan and property) will replace L.101 Overall Landscape Plan, dated May 27, 2016 at **1:20 scale**. See attached.

24. Addition:
C.16 Open Space Plan, dated June 15, 2016, to be included in the Bid Documents. See attached.

ATTACHMENTS:

1. VentSure Solar Attic Exhaust Fan specification.
2. Prevailing wage rate sheet General Decision Number RI160002 dated 06/17/2016
3. L.101 Overall Landscape Plan, dated May 27, 2016 at **1:30 scale**
4. C.16 Open Space Plan, dated June 15, 2016
5. Cultec, Inc. Subsurface Stormwater Management Systems design and calculations for ChurchWoods.

END OF ADDENDUM NO. 2



VentSure™ Solar Attic Exhaust Fan



Combining the benefits of active ventilation and solar power.

Proper attic ventilation — a balanced system of both intake and exhaust — is critical. The VentSure™ Solar Attic Exhaust Fan is designed to work as an integral part of a VentSure® Balanced Air Ventilation System by using solar power to actively exhaust hot, humid air from the attic environment.

- Helps prevent ice damming, heat buildup and mold/mildew in the attic
- Controller Module with an electronic thermostat and humidistat that automatically activate the fan when needed
- Optional electric backup for continued operation when sunlight is unavailable
- 25-watt solar panel powers a 38-volt DC motor
- Roof Mount unit ventilates up to 3,200 sq. ft. of attic space**
- Gable Mount unit ventilates up to 4,200 sq. ft. of attic space**/††



Optional Remote Attic Monitor



Optional Remote Mount Installation



Attic-Mounted Controller Module



A high-tech component of a well-ventilated roofing system.

- **Controller Module with electronic thermostat and humidistat** that continuously monitor attic conditions and trigger fan operation when needed
 - Fan turns on when attic reaches 80°F or 75% humidity and turns off at 77°F or less and 65% humidity
- **Optional Remote Attic Monitor** for viewing fan operation and attic conditions from nearly anywhere in the house
- **25-watt solar panel** powers a robust 38-volt DC motor without the need for electricity
- **Removable solar panel** can be remotely mounted for improved light gathering and aesthetics
- **3-position, swivel design** allows solar panel to be precisely positioned for maximum exposure to light
- **Professional-grade metal flashing and shroud** are designed to help prevent leaking and are powder coated for long-term performance
- **Ultra-quiet fan** delivers maximum performance with minimal noise
- **20-year warranty*** on solar panel and housing; 5-year warranty* on motor

VentSure™ Solar Attic Exhaust Fan Specifications		
	Roof Mount	Gable Mount
Attic Size 1 Fan Can Ventilate†	Up to 3,200 sq. ft.	Up to 4,200 sq. ft.
Shroud/Panel Tray (Squared Design)	Hot-dipped galvanized steel; black-powder coated	Electro-deposition galvanized steel; black-powder coated
Flashing	20-gauge steel; black-powder coated	N/A
Installed Dimensions	26"L x 26"W x 10 3/16"H	20 1/4"L x 10 5/8"W x 20 1/4"H
Unit Weight	28 pounds	23 pounds

Both Roof and Gable Mount units feature a 25-watt solar panel with tempered glass, 38V DC motor with external brushes, 14" 3-wing pitched-aluminum fan blades, 20-year warranty on the solar panel and housing, and a 5-year warranty on the motor.

†Varies by roof pitch and requires adequate intake ventilation. See installation instructions for more details.

Number of Roof Mount Fans Required**			
Attic Size (Sq. ft.)	Low Slope 3:12-4:12	Medium Slope 5:12-8:12	Steep Slope 9:12-12:12
1,200	1	1	1
1,600	1	1	2
2,000	1	1	2
2,400	1	2	2
2,800	1	2	3

Number of Gable Mount Fans Required**/††			
Attic Size (Sq. ft.)	Low Slope 3:12-4:12	Medium Slope 5:12-8:12	Steep Slope 9:12-12:12
1,200	1	1	1
1,600	1	1	1
2,000	1	1	1
2,400	1	1	2
2,800	1	2	2

** It is critical to have the right amount of intake ventilation and to adequately seal the attic floor to prevent pulling air from conditioned space. For each Roof Mount fan, Owens Corning Roofing requires 600 square inches of intake. See instructions for details.

†† For each Gable Mount fan, Owens Corning Roofing requires 890 square inches of intake. See instructions for details.

* See actual warranty for details, limitations and requirements.

Homeowners may be eligible for a 30% tax incentive. For tax incentive information, visit www.roofing.owenscorning.com/solaratticfan

Shipping Specifications and Short Codes

Short Code	Product Description	Minimum Order Quantity	Cartons/Pallet
SFROOF	Solar Attic Fan (Roof Mount)	1 carton	18
SFRRAM	Roof Mount Solar Attic Fan with RAM	1 carton	18
SFGABL	Solar Attic Fan (Gable Mount)	1 carton	32
SFGRAM	Gable Mount Solar Attic Fan with RAM	1 carton	32
SFRAM	Remote Attic Monitor (device only)	1 carton	N/A
SFADD	Additional Solar Panel Kit (25 Watt)	1 carton	N/A
SFBRKT	Fascia Bracket	1 carton	N/A
SFGARD	Gable Mount Fan Guard	1 carton	N/A
SFEXT	30-foot Extension Wire	1 carton	N/A

Applicable Codes and Certifications

- TDI Listed for Usage in Texas Coastal Regions (Pending)
- Florida Building Code (Pending)
- Complies with UL 1703 Impact Resistance requirements



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OWENS CORNING ROOFING AND ASPHALT, LLC
ONE OWENS CORNING PARKWAY
TOLEDO, OHIO, USA 43659

1-800-GET-PINK®
www.owenscorning.com

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General Decision Number: RI160002 06/17/2016 RI2

Superseded General Decision Number: RI20150002

State: Rhode Island

Construction Type: Residential

Counties: Bristol, Kent, Providence and Washington Counties in Rhode Island.

RESIDENTIAL CONSTRUCTION PROJECTS (consisting of single family homes and apartments up to and including 4 stories)

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.15 for calendar year 2016 applies to all contracts subject to the Davis-Bacon Act for which the solicitation was issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.15 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2016. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/08/2016
1	01/15/2016
2	02/12/2016
3	03/11/2016
4	06/03/2016
5	06/17/2016

ASBE0006-009 09/01/2015

	Rates	Fringes
INSULATOR - PIPE & PIPEWRAPPER Includes application of all insulating materials, protective coverings, coatings & finishes to all types of mechanical systems.	\$ 39.43	25.65

ELEC0099-004 06/01/2016

	Rates	Fringes
ELECTRICIAN.....	\$ 27.62	6.4%+13.72

FOOTNOTE: Work of a hazardous nature, or where the work height is 30 feet or more from the floor, except when working OSHA-approved lifts: 20% per hour additional.

ELEV0039-002 01/01/2016

	Rates	Fringes
ELEVATOR MECHANIC.....	\$ 47.37	29.985+A+B

FOOTNOTES:

A. PAID HOLIDAYS: New Years Day; Memorial Day; Independence Day; Labor Day; Veterans' Day; Thanksgiving Day; the Friday after Thanksgiving Day; and Christmas Day.

B. Employer contributes 8% basic hourly rate for 5 years or more of service or 6% basic hourly rate for 6 months to 5 years of service as vacation pay credit.

ENGI0057-004 05/31/2016

	Rates	Fringes
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Power Equipment Operator		
Grader and Roller.....	\$ 34.50	24.85+a
Paver.....	\$ 35.42	24.85+a

a. FOOTNOTES: Any employee who works 3 days in the week in which a holiday falls shall be paid for the holiday.

a. PAID HOLIDAYS: New Year's Day, President's Day, Memorial Day, July Fourth, Victory Day, Labor Day, Columbus Day, Veterans Day, Thanksgiving Day & Christmas Day.

Hazmat work: \$2.00 per hour additional.
Tunnel/Shaft work: \$5.00 per hour additional.

* ROOF0033-002 06/01/2016

	Rates	Fringes
ROOFER.....	\$ 34.03	22.34

SURI1999-002 04/12/1999

	Rates	Fringes
BRICKLAYER.....	\$ 20.45	11.40
CARPENTER		
Including Acoustical		
Ceiling Installation,		
Drywall Hanging, & Metal		
Stud Framing.....	\$ 15.32	9.65
Cement Mason/Finisher.....	\$ 20.45	11.40
Drywall Finisher/Taper.....	\$ 20.55	8.50
FLOOR LAYER: Carpet.....	\$ 15.62	9.65
INSULATOR - BATT.....	\$ 19.56	9.65
LABORER		
Unskilled, Landscape, &		
Brick Mason Tender.....	\$ 18.47	8.10
PAINTER (Brush and Roller).....	\$ 20.55	8.50
PLASTERER.....	\$ 13.50	2.45
PLUMBER.....	\$ 23.96	8.95
Power Equipment Operator		
Backhoe.....	\$ 20.27	8.98
SPRINKLER FITTER.....	\$ 24.24	9.81

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal

process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

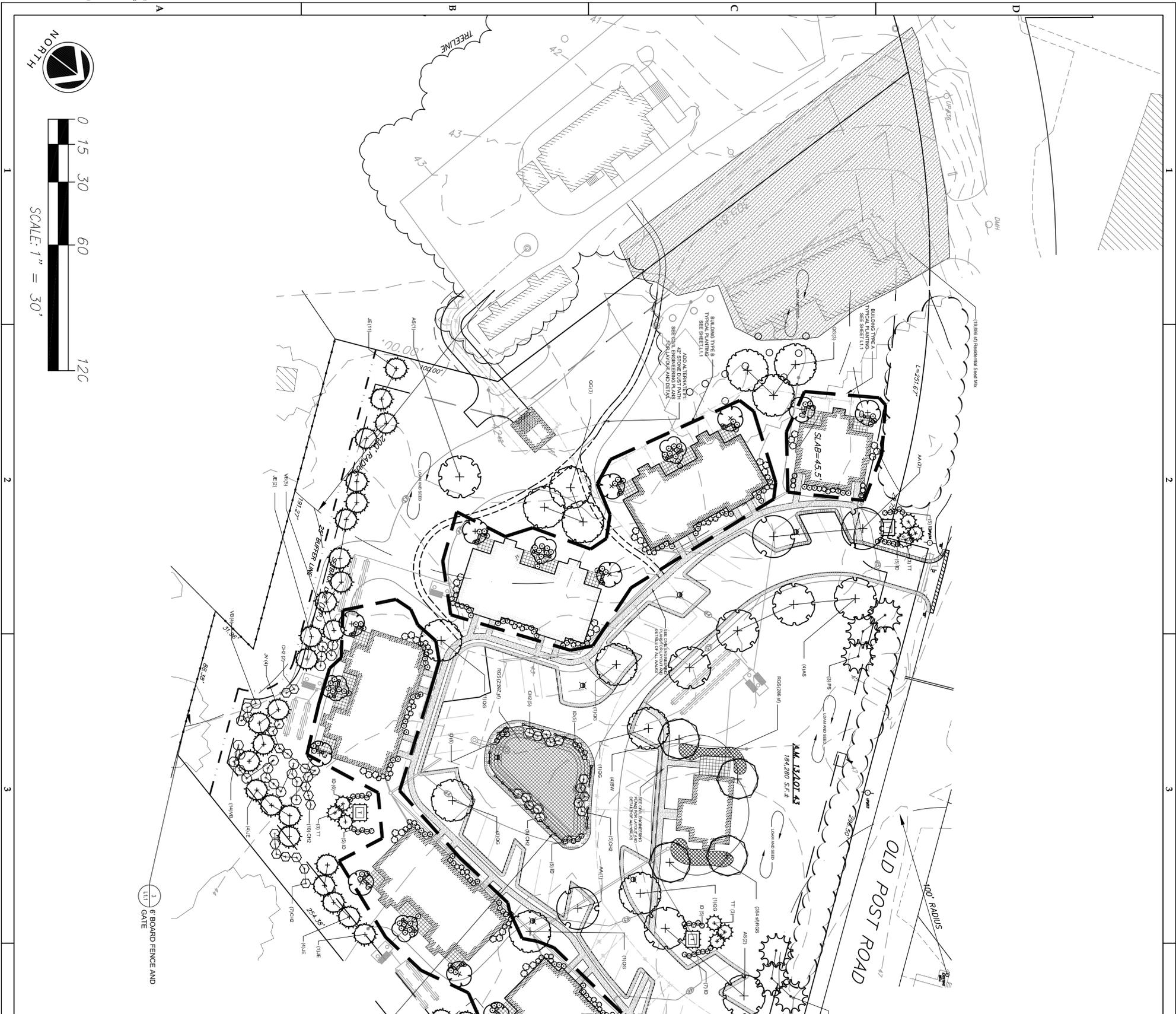
3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION



- RAIN GARDEN SEED MIX - RGS**
New England Wetland Seed Mix
Contents:
Carex vulpinoidea, Carex lurida, Carex scoparia, Verbena hastata, Scirpus atrovirens, Carex lupulina, Bidens cernua, Carex crinita, Juncus effusus, Scirpus oregonus, Eupatorium maculatum, Eupatorium perfoliatum, Ailanthus subtortuosum, Aster punctuosus, Glyceria canadensis, Scirpus validus, Asclepias incarnata, Mimulus ringens
- 1LB, 250 SQ-FT**
- NOTE:**
1. ALL DISTURBED AREAS SHALL RECEIVE LOAM AND SEED USING SEED MIX FOR GENERAL LAWN AREAS PER SPECIFICATION 32 92 20 UNLESS OTHERWISE NOTED ON THE PLANS.
 2. ALL LAWN AREAS SHALL BE OVER SEEDED TO THE LIMIT OF DISTURBANCE (LOD) UNLESS OTHERWISE NOTED ON THE PLANS.
 3. ALL TREES TO RECEIVE 5' DIAMETER MULCH RING UNLESS OTHERWISE NOTED ON THE PLANS.
 4. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR INSTALLATION AND COORDINATION OF ALL SITE UTILITIES. SEE ALL UTILITIES AND SPECIFIC ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING DRAWINGS AND PROJECT MANUAL FOR DETAILS.
 5. SEE SPECIFICATION 32 92 20 AND 32 40 FOR SEED MIXES.
 6. LANDSCAPE ARCHITECT TO TAG EXISTING TREES PRIOR TO CONSTRUCTION.
 7. CONTRACTOR TO PROVIDE TREE PROTECTION ON ALL TREES TAGGED DURING THE PRE-CONSTRUCTION MEETING.

PLANT SCHEDULE COMMON AREA

TREES	BOTANICAL NAME / COMMON NAME	QTY	2.5" CAL. SIZE	QTY
AX	Acer nigrum / Norway Spruce	5	2.5" Cal	4
AS	Acer nigrum / Norway Spruce	5	2.5" Cal	7
BN	Betula populifolia / White Birch	5	2.5" Cal	4
JE	Juglans nigra / Eastern Red Cedar	5	7" H X 3" W	24
PS	Pinus strobus / White Pine	5	7" H X 3" W	6
OD	Quercus palustris / Green Pillar / Green Pillar Oak	5	2.5" Cal	15
TT	Thuja occidentalis / Arborvitae / Arborvitae	5	5/6"	4
SHRUBS	Botanical Name / Common Name	QTY	QTY	QTY
CH	Chamaecyparis thuifolia / Juniper	5	5	5
ID	Ilex glabra / Holly	2 gal	2	4
VB	Verbena trilobum / Booley / Cranberry Verbena	5	5	25

SECOND COVERS

CODE	BOTANICAL NAME / COMMON NAME	QTY
R95	New England Wetland Seed Mix	2540 #
RS	Residential Seed Mix	14586 #

OWNER:
CHURCHWOODS, LLC
C/O WASHINGTON COUNTY CDC
400 TOWER HILL RD
NORTH KINGSTOWN, RI 02882
TEL: 401.788.0090
CONTACT: GERARD BERTRAND

CHURCHWOODS - sheet title

LANDSCAPE
4130 OLD POST ROAD
CHARLESTOWN, RI

OVERALL LANDSCAPE PLAN

L101

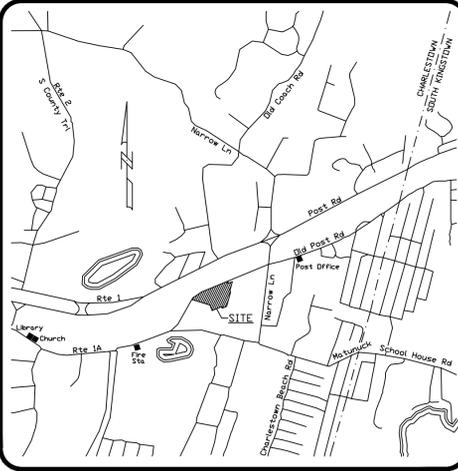
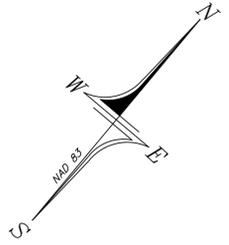
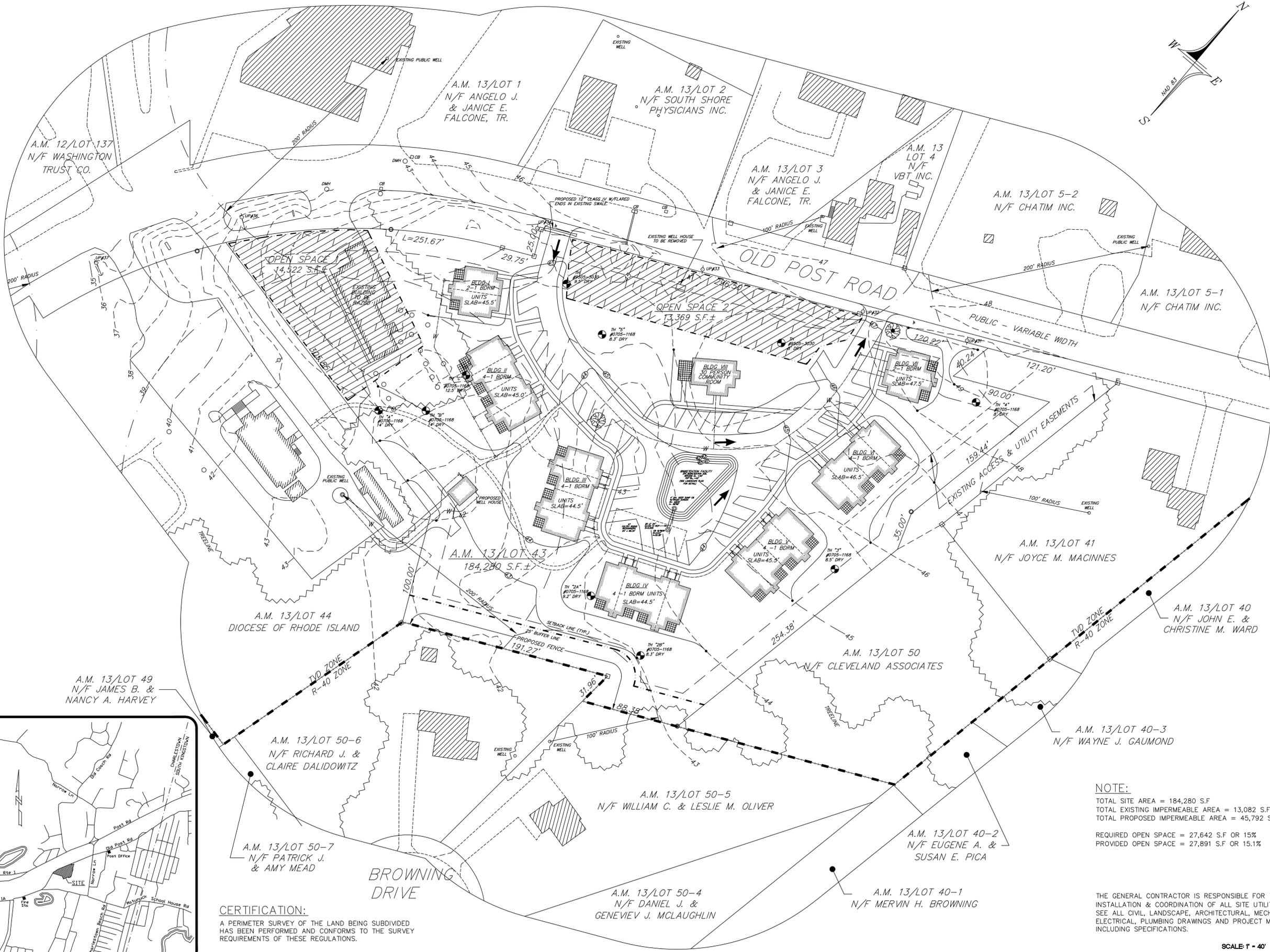
CONSTRUCTION DOCUMENTS

100%
REVISION SCHEDULE

NO.	ISSUE	DATE

JOB #: 15-3200
DATE: MAY 27, 2016
SCALE: As Indicated

THESE DOCUMENTS HAVE BEEN REVIEWED SPECIFICALLY FOR THE PURPOSE OF CONSTRUCTION. ANY OTHER PROJECTS OR CONDITIONS NOT SHOWN ON THESE PLANS ARE NOT GUARANTEED. THE ARCHITECT AND LANDSCAPE ARCHITECT SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS. REVISIONS ARE PROHIBITED.



LOCATION MAP
SCALE: 1" = 2000'

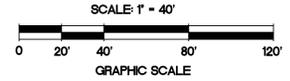
CERTIFICATION:
A PERIMETER SURVEY OF THE LAND BEING SUBDIVIDED HAS BEEN PERFORMED AND CONFORMS TO THE SURVEY REQUIREMENTS OF THESE REGULATIONS.

BY: _____
REGISTERED PROFESSIONAL LAND SURVEYOR DATE

NOTE:
TOTAL SITE AREA = 184,280 S.F.
TOTAL EXISTING IMPERMEABLE AREA = 13,082 S.F OR 7.1%
TOTAL PROPOSED IMPERMEABLE AREA = 45,792 S.F OR 24.8%

REQUIRED OPEN SPACE = 27,642 S.F OR 15%
PROVIDED OPEN SPACE = 27,891 S.F OR 15.1%

THE GENERAL CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION & COORDINATION OF ALL SITE UTILITIES, SEE ALL CIVIL, LANDSCAPE, ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING DRAWINGS AND PROJECT MANUAL INCLUDING SPECIFICATIONS.



OPEN SPACE PLAN
"CHURCHWOODS"
PRELIMINARY PLAN
ASSESSOR'S MAP 13 LOT 43
PREPARED FOR
WASHINGTON COUNTY
COMMUNITY DEVELOPMENT
SITUATED IN THE TOWN OF
CHARLESTOWN, RHODE ISLAND

NO.	REVISION	DATE

WILLIAM D. DOWDELL
No. 4217
REGISTERED PROFESSIONAL ENGINEER

RICHARD L. COUCHON
No. 1820
PROFESSIONAL LAND SURVEYOR

DOWDELLE
ENGINEERING, INC.
CIVIL & ENVIRONMENTAL ENGINEERS
SURVEYORS & LAND PLANNERS
P.O. BOX 1684 • 3949 OLD POST ROAD
CHARLESTOWN, RHODE ISLAND 02813
(401) 364-1027

JOB NO. 2859	DRAWN BY: R.L.C.
DWG. NO. 2859-0S	CHECKED BY: W.D.D.
SCALE: 1"=40'	APPROVED BY: W.D.D.
SHEET: 1	DATE: JUNE 15, 2016
1 OF 1 SHEETS	16 OF 16 SHEETS

CHURCHWOODS

4130 OLD POST ROAD

CHARLESTOWN, RI

DRAWING INDEX

TITLE	SHEET NO.
SYSTEM LAYOUT	1 OF 6
SYSTEM CALCULATIONS	2 OF 6
SYSTEM INCREMENTAL	3 OF 6
RECHARGER 902HD DETAIL SHEET	4 OF 6
SEPARATOR ROW DETAIL SHEET	5 OF 6
SITE OVERLAY	6 OF 6

COMBINED PROJECT MATERIALS LIST		
RECHARGER 902HD CHAMBER	47	PIECES
RECHARGER 902HD END CAP	10	PIECES
HVLV FC-48 FEED CONNECTORS	1	PIECES
CULTEC NO. 410 NON- WOVEN GEOTEXTILE 12.5' x 360'	2	ROLLS
CULTEC NO. 66 WOVEN GEOTEXTILE 7.5' x 300'	1	ROLLS
1-2 INCH WASHED, CRUSHED STONE	315	TONS

PROJECT INFORMATION	
PROJECT NO:	15-7759
CULTEC SALES REP:	BOB GOODRICH 475-289-7067 475-289-7068 RGOODRICH@CULTEC.COM
CULTEC CAD TECH:	STEPHANIE SEARS 475-289-7116 SSEARS@CULTEC.COM
COMMENTS:	REVISION .01 - 12/8/15 - 902HD OPTION - CHAMBER RECONFIGURATION REVISION .02 - 12/10/15 - DESIGN AND VOLUME ADJUSTMENTS PER ENGINEER

BEFORE YOU BEGIN - REQUIRED MATERIALS AND EQUIPMENT

1. PROPER GEOTECHNICAL SOIL EVALUATION BY A QUALIFIED ENGINEER OR SOIL SCIENTIST TO DETERMINE SUITABILITY OF STRUCTURAL INSTALLATION
2. OSHA COMPLIANCE
3. CULTEC WARNING TAPE, OR EQUIVALENT
4. ASSURANCES FROM LOCAL UTILITIES THAT NO UNDERGROUND GAS, ELECTRICAL OR OTHER POTENTIALLY DANGEROUS PIPELINES OR CONDUITS ARE ALREADY BURIED AT THE SITE
5. ACCEPTABLE 1- 2 INCH (25 - 51 mm) WASHED, CRUSHED STONE AS DETAILED IN CULTEC'S INSTALLATION INSTRUCTIONS. CLEANLINESS OF STONE TO BE VERIFIED BY ENGINEER.
6. ACCEPTABLE FILL MATERIAL AS SHOWN IN CULTEC'S INSTALLATION INSTRUCTIONS.
7. ALL CULTEC CHAMBERS AND ACCESSORIES AS SPECIFIED IN THE ENGINEER'S PLANS INCLUDING CULTEC NO. 410 NON-WOVEN GEOTEXTILE, CULTEC STORMFILTER AND CULTEC NO. 66 WOVEN GEOTEXTILE, WHERE APPLICABLE.
8. RECIPROCATING SAW OR ROUTER
9. STONE BUCKET
10. STONE CONVEYOR AND/OR TRACKED EXCAVATOR
11. TRANSIT OR LASER LEVEL MEASURING DEVICE
12. COMPACTION EQUIPMENT WITH MAXIMUM GROSS VEHICLE WEIGHT OF 12,000 LBS (5,440 KGS). VIBRATORY ROLLERS MAY ONLY BE USED ON THE STONE BASE PRIOR TO THE INSTALLATION OF CHAMBERS.
13. CHECK CULTEC CHAMBERS FOR DAMAGE PRIOR TO INSTALLATION. DO NOT USE DAMAGED CULTEC CHAMBERS, CONTACT YOUR SUPPLIER IMMEDIATELY TO REPORT DAMAGE OR PACKING-LIST DISCREPANCIES.

REQUIREMENTS FOR CULTEC CHAMBER SYSTEM INSTALLATIONS

8. INSTALLING CONTRACTORS ARE EXPECTED TO COMPREHEND AND USE THE MOST CURRENT INSTALLATION INSTRUCTIONS PRIOR TO BEGINNING A SYSTEM INSTALLATION. IF THERE IS ANY QUESTION AS TO WHETHER YOU POSSESS THE MOST CURRENT INSTRUCTIONS, CONTACT CULTEC AT (203) 775-4416 OR VISIT WWW.CULTEC.COM.
9. CONTACT CULTEC AT LEAST THIRTY DAYS PRIOR TO SYSTEM INSTALLATION TO ARRANGE FOR A PRE-CONSTRUCTION MEETING.
10. ALL CULTEC SYSTEM DESIGNS MUST BE CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER.
11. USE CULTEC INSTALLATION INSTRUCTIONS AS A GUIDELINE ONLY FOR MINIMUM/MAXIMUM REQUIREMENTS. ACTUAL DESIGN MAY VARY. REFER TO APPROVED CONSTRUCTION DRAWINGS FOR JOB-SPECIFIC DETAILS. BE SURE TO FOLLOW THE ENGINEER'S DRAWINGS AS YOUR PRIMARY GUIDE.
12. THE FOUNDATION STONE SHALL BE LEVEL AND COMPACTED PRIOR TO CHAMBER INSTALLATION.
13. OVERLAPPING RIB CONNECTIONS OF CHAMBERS SHALL BE FULLY SHOULDERED PRIOR TO STONE PLACEMENT.
14. CENTER-TO-CENTER SPACING SHALL BE CHECKED AND MAINTAINED THROUGHOUT INSTALLATION PROCESS.
15. ANY DISCREPANCIES WITH THE SYSTEM SUB-GRADE SOIL'S BEARING CAPACITY MUST BE REPORTED TO THE DESIGN ENGINEER.
16. NON-WOVEN GEOTEXTILE MUST BE USED AS SPECIFIED IN THE ENGINEER'S DRAWINGS.
17. CULTEC REQUIRES THE CONTRACTOR TO REFER TO CULTEC'S INSTALLATION INSTRUCTIONS CONCERNING VEHICULAR TRAFFIC. RESPONSIBILITY FOR PREVENTING VEHICLES THAT EXCEED CULTEC'S REQUIREMENTS FROM TRAVELING ACROSS OR PARKING OVER THE CHAMBER SYSTEM LIES SOLELY WITH THE CONTRACTOR THROUGHOUT THE ENTIRE SITE CONSTRUCTION PROCESS. THE PLACEMENT OF WARNING TAPE, TEMPORARY FENCING, AND/OR APPROPRIATELY LOCATED SIGNS IS HIGHLY RECOMMENDED. IMPRINTED WARNING TAPE IS AVAILABLE FROM CULTEC. FOR ACCEPTABLE VEHICLE LOAD INFORMATION, REFER TO CULTEC INSTALLATION INSTRUCTIONS.
18. TRAFFIC OF INSTALLATION EQUIPMENT OR OTHER VEHICULAR TRAFFIC OVER TOP OF THE CULTEC STORMWATER SYSTEM IS STRICTLY RESTRICTED AND PROHIBITED UNTIL SATISFACTORY COVER AND COMPACTION IS ACHIEVED ACCORDING TO CULTEC'S MANUFACTURER INSTALLATION INSTRUCTIONS.
19. EROSION AND SEDIMENT-CONTROL MEASURES MUST MEET LOCAL CODES AND THE DESIGN ENGINEER'S SPECIFICATIONS THROUGHOUT THE ENTIRE SITE CONSTRUCTION PROCESS.
20. CULTEC SYSTEMS MUST BE DESIGNED AND INSTALLED IN ACCORDANCE WITH CULTEC'S MINIMUM REQUIREMENTS. FAILURE TO DO SO WILL VOID THE LIMITED WARRANTY.
21. CONTACT CULTEC, INC. AT 203-775-4416 WITH ANY QUESTIONS OR FURTHER CLARIFICATION OF REQUIREMENTS.
22. PLACEMENT OF EMBEDMENT STONE MUST BE IN ACCORDANCE WITH CULTEC'S INSTALLATION INSTRUCTIONS. STONE COLUMN HEIGHT DEFERENTIAL MUST NEVER EXCEED 12" (305 mm) BETWEEN CHAMBER ROWS, ADJACENT CHAMBERS OR STONE PERIMETER. STONE MUST BE PLACED OVER THE CROWN OF THE CHAMBERS TO ANCHOR THE CHAMBERS IN PLACE AND MAINTAIN ROW SPACING.
23. EMBEDMENT STONE MUST ONLY BE PLACED BY EXCAVATOR OR TELESCOPING CONVEYOR BOOM. PLACEMENT OF EMBEDMENT STONE WITH BULLDOZER IS NOT AN ACCEPTABLE METHOD OF INSTALLATION AND MAY CAUSE DAMAGE TO THE CHAMBERS. ANY CHAMBERS DAMAGED USING AN UNACCEPTABLE METHOD OF BACKFILL ARE NOT COVERED UNDER THE CULTEC LIMITED WARRANTY.

THIS DRAWING WAS PREPARED TO SUPPORT THE DESIGN ENGINEER FOR THE PROPOSED SYSTEM. IT IS THE ULTIMATE RESPONSIBILITY OF THE DESIGN ENGINEER TO ASSURE THAT THE STORMWATER SYSTEM'S DESIGN IS IN FULL COMPLIANCE WITH ALL APPLICABLE LAWS AND REGULATIONS. IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THAT THE CULTEC PRODUCTS ARE DESIGNED IN ACCORDANCE WITH CULTEC'S MINIMUM REQUIREMENTS. CULTEC INC. DOES NOT APPROVE PLANS, SIZING, OR SYSTEM DESIGNS. THE DESIGNING ENGINEER IS RESPONSIBLE FOR ALL DESIGN DECISIONS.



CULTEC, Inc.

Subsurface Stormwater Management Systems

P.O. Box 280
878 Federal Road
Brookfield, CT 06804
www.cultec.com

PH: (203) 775-4416
PH: (800) 4-CULTEC
FX: (203) 775-1462
tech@cultec.com

**CULTEC RECHARGER® 902HD
LEGEND**

- RECHARGER 902HD CHAMBER
- RECHARGER 902HD END CAP
- HVLV FC-48 FEED CONNECTORS
- CULTEC NO. 410 NON-WOVEN GEOTEXTILE
- CULTEC NO. 66 WOVEN GEOTEXTILE
- STONE BORDER

**CULTEC RECHARGER® 902HD
STORMWATER SYSTEM**

NOTE: *ASSUMING 33% STONE VOID

CULTEC STORMWATER MANAGEMENT SYSTEM

TOTAL STORAGE REQUIRED: 5,000 c.f.

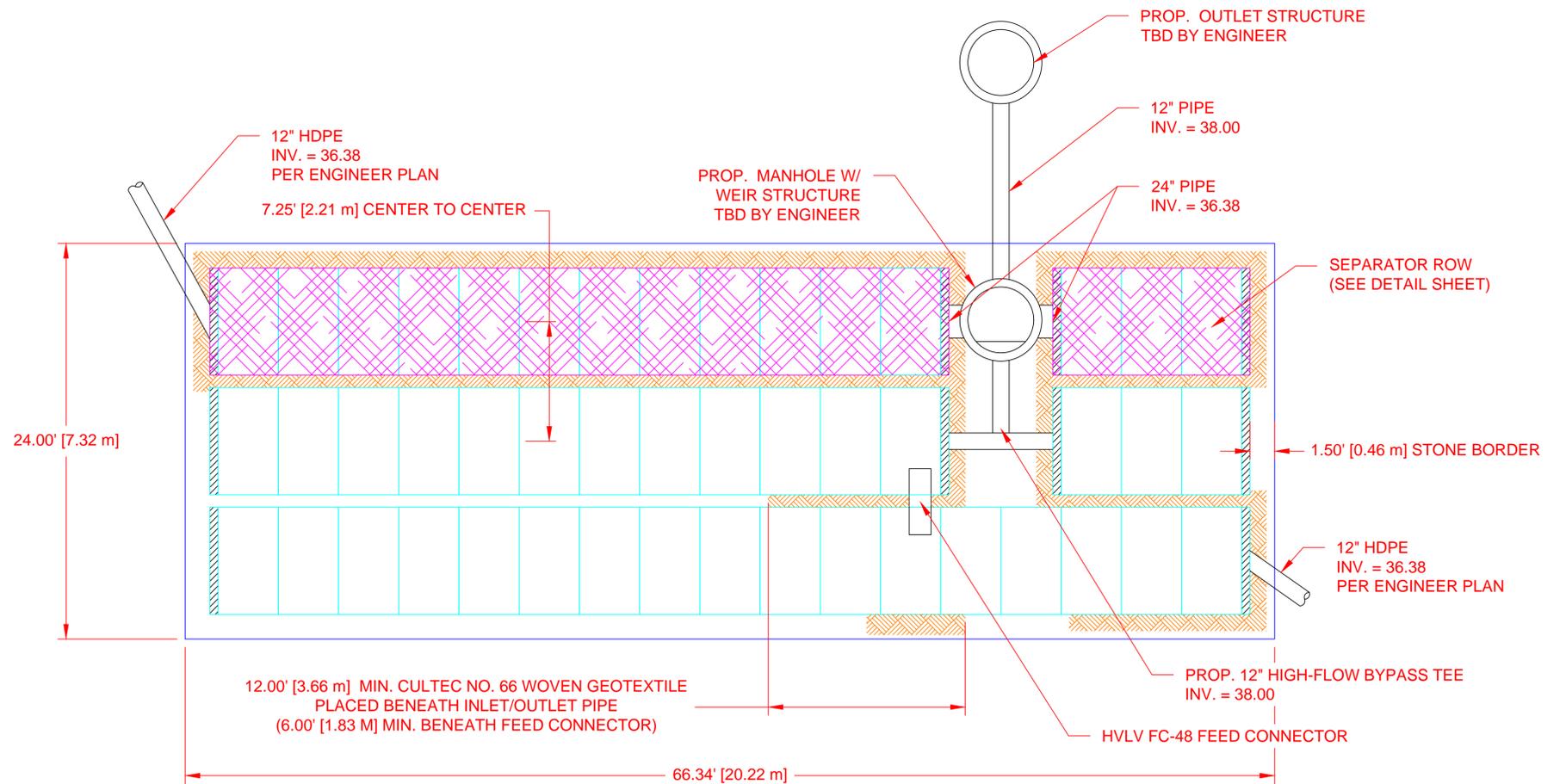
TOTAL STORAGE PROVIDED: 5,079 c.f.

(STORAGE WITHIN CULTEC CHAMBERS: 3,071.69 c.f.)

(STORAGE WITHIN SURROUNDING STONE: 2,007.25 c.f.)

*SYSTEM INSTALLED REQUIRING STONE AMOUNTS OF 9 INCHES BELOW CHAMBERS, 12 INCHES ABOVE CHAMBERS AND A 1.5 FT. [18 INCH] MINIMUM BORDER SURROUNDING

***NOTE: ALL EXTERNAL SYSTEM STRUCTURES, INLET/OUTLET PIPES, AND PROPOSED ELEVATIONS MUST BE DESIGNED AND APPROVED BY ENGINEER. ALL SYSTEM ELEVATIONS PROVIDED MUST BE VERIFIED BY THE DESIGN ENGINEER AND THE DESIGN ENGINEER MUST ENSURE CHAMBER BURIAL REQUIREMENTS ARE MET.**



MATERIALS LIST

(MATERIALS LIST - SEE COVER SHEET FOR COMBINED PROJECT MATERIALS LIST)

RECHARGER 902HD CHAMBER	47	PIECES
RECHARGER 902HD END CAP	10	PIECES
HVLV FC-48 FEED CONNECTORS	1	PIECES
CULTEC NO. 410 NON-WOVEN GEOTEXTILE 12.5' x 360'	2	ROLLS
CULTEC NO. 66 WOVEN GEOTEXTILE 7.5' x 300'	40	LINEAL FEET
1-2 INCH WASHED, CRUSHED STONE	315	TONS
SEPARATOR ROW MATERIALS LIST (PROVIDED BY CULTEC)		
CULTEC NO. 410 NON- WOVEN GEOTEXTILE 12.5' x 360' (TO WRAP SEPARATOR ROW)	0.19	ROLLS
CULTEC NO. 66 WOVEN GEOTEXTILE 7.5' x 300' (BENEATH SEPARATOR ROW)	0.39	ROLLS



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THIS DRAWING WAS PREPARED TO SUPPORT THE DESIGN ENGINEER FOR THE PROPOSED SYSTEM. IT IS THE ULTIMATE RESPONSIBILITY OF THE DESIGN ENGINEER TO ASSURE THAT THE STORMWATER SYSTEM'S DESIGN IS IN FULL COMPLIANCE WITH ALL APPLICABLE LAWS AND REGULATIONS. IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THAT THE CULTEC PRODUCTS ARE DESIGNED IN ACCORDANCE WITH CULTEC'S MINIMUM REQUIREMENTS. CULTEC INC. DOES NOT APPROVE PLANS, SIZING, OR SYSTEM DESIGNS. THE DESIGNING ENGINEER IS RESPONSIBLE FOR ALL DESIGN DECISIONS.

CHURCHWOODS
4130 OLD POST ROAD
CHARLESTOWN, RI
SYSTEM LAYOUT

CULTEC RECHARGER® 902HD

PROJECT NO: 15-7759.02	DATE: 12/14/15
DESIGNED BY: SLS	DRAWN BY: SLS
SCALE: N.T.S.	SHEET NO: 1 OF 6



CULTEC Recharger 902HD Stormwater System Calculations

PREPARED FOR:

PROJECT INFORMATION:

15-7759.02
Churchwoods
4130 Old Post Road
Charlestown, RI
System

CALCULATED BY:

Stephanie Sears
CULTEC, Inc.
878 Federal Rd.
Brookfield, CT 06804
PH: 203.775.4416
FX: 203.775.1462

DATE:

12/10/15

System Information

Proposed bed layout of

5	No. of Rows	47	Total No. of Chambers in System
1592.048	ft ² - Area (from CAD file)	180.6707	ft. - Perimeter (from CAD file)

Given:

Storage required	5000	CF	141.6	m ³
Stone base	9	inches	229	mm
Stone above	12	inches	305	mm
Chamber Spacing	9	inches	229	mm
No. of HVLV FC-48 Feed Connectors	1	units		
Stone Porosity	33	%		
Stone Border Width	1.5	Feet	0.4572	m
Utilizing Separator Row?	YES			
Length of Separator Row	58	Feet	17.6784	m

Assumptions

Model Name	Chamber Height	Design Unit Height	Chamber Width	Chamber Spacing	Design Unit Width	Chamber Volume per Linear Foot	Design Unit Volume	Installed Chamber Length	
									inches
Recharger® 902HD Chamber	English	48	5.750	78	9	7.25	17.66	25.589	3.667
	Metric	1219	1.753	1981	229	2.21	1.641	2.377	1.118
Recharger® 902HD End Cap	English	48.5	5.750	78	9	7.25	5.509	17.448	0.501
	Metric	1232	1.753	1981	229	2.21	0.512	1.621	0.153
HVLV® FC-48 Feed Connectors	English	12	n/a	16	n/a	n/a	0.913	n/a	0.750
	Metric	305	n/a	406	n/a	n/a	0.085	n/a	0.229

Storage Provided within CULTEC Recharger 902HD Stormwater Chamber, End Caps and HVLV FC-48 Feed Connector Internal Manifold System - not including stone

Number of Recharger 902HD chambers by design	47	pcs x	3.667	=	47	pcs		
				=	172.33	feet	52.53	m
Number of Recharger 902HD end caps	10	pcs x	0.501	=	10	pcs		
				=	5.01	feet	1.53	m
Number of HVLV FC-48 Feed Connectors	1	pcs x	0.750	=	1	pcs		
				=	0.75	feet	0.23	m
Total footage of Recharger 902HD chambers				=	172.33	feet	52.53	m
Total footage of Recharger 902HD end caps				=	5.01	feet		
Total footage of HVLV FC-48 Feed Connectors				=	0.75	feet	0.23	m
Storage provided within Recharger 902HD chambers				=	3043.41	CF	86.19	m ³
Storage provided within Recharger 902HD end caps				=	27.50	CF	0.78	m ³
Storage provided within HVLV FC-48 Feed Connectors				=	0.68	CF	0.02	m ³
Total Storage within Recharger 902HD chambers and feed connectors				=	3071.69	CF	86.99	m³

Storage Provided within Entire CULTEC Stormwater System - including stone

Effective Bed depth (not including additional cover)				=	5.75	feet	1.75	m
Total Area				=	1592.05	sq. ft.	147.90	m ²
Volume of Effective Excavation (not including additional cover)				=	9154.28	CF	259.25	m ³
Perimeter of Bed				=	180.67	feet	55.07	m
Total Storage within CULTEC Recharger 902HD chambers, end caps and feed connectors				=	3071.69	CF	86.99	m ³
Total Stone Required				=	6082.58	CF	172.26	m ³
				=	225	CY		
				=	315	tons		
Storage provided within stone				=	2007.25	CF	56.85	m ³
Total Storage within CULTEC Stormwater System				=	5079	CF	143.84	m³

Req. storage attained.

CULTEC MATERIALS LIST

Model	Quantity	Unit of Measure	Quantity	Unit of Measure
Recharger 902HD Heavy Duty Chamber	47	pcs		
Recharger 902HD End Cap	10	pcs		
HVLV FC-48 Feed Connectors	1	pcs		
CULTEC No. 410 Non-Woven Geotextile 12.5' W x 360' L (3.81 m W x 109.73 m L)	2	rolls		
CULTEC No. 66 Woven Geotextile 7.5' x 300' (2.29 m W x 91.44 m L)	40	feet	12.192	m
Total Stone	315	tons	172	cubic meters
CULTEC No. 410 Non-Woven Geotextile 12.5' W x 360' L (To Wrap Separator Row)	0.19	rolls		
CULTEC No. 66 Woven Geotextile 7.5' x 300' (2.29 m W x 91.44 m L) (Beneath Separator row)	0.39	rolls		

Call CULTEC for cost estimates and system design.
 This calculator program is for estimation purposes only and should not take the place of a comprehensive engineering design.
 System calculations do not include materials required for construction per manufacturer.
 The successful installation and use of this software product is dependent on the availability of skilled engineering talent available to the user and/or their consultant.
 The user of this software must label their work to describe their specific engineering situation.
 The information presented in the computer output is for review, interpretation, explanation, and approval by a qualified engineer who must assume full responsibility for verifying that all output is appropriate and correct.
 Any material or information presented on this software program is user manual inclusive warranties of merchantability or fitness for any particular purpose are intended and excluded.
 CULTEC, Inc. and any of its affiliates shall not be held liable for any special, incidental, consequential, indirect or other similar damages resulting from the use of this software.
 Use of this program constitutes acceptance of this liability agreement by the user.
 Reinstallation the bed layout may affect actual storage provided.
 Contact CULTEC Technical Assistance at 800-438-0653 or 203-775-4416 for further assistance.
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Last updated: 10/23/14



Project Information:

15-7759.02
Churchwoods
4130 Old Post Road
Charlestown, RI

System Information:

33	stone void (%)	147.90	m ² area
5	number of rows	52.53	m of chambers
1592.048	sq. ft. area	1.53	m of end caps
172.3333333	ft. of chambers	0.23	m of feed connectors (exposed)
5.01	ft. of end caps		
0.75	ft. of feed connectors (exposed)		

47	pcs of	Recharger 902HD Chambers
10	pcs of	Recharger 902HD End Caps
1	pcs of	HVLV FC-48 Feed Connectors

INCREMENTAL STORAGE FOR CULTEC RECHARGER 902HD SYSTEM

TOP OF SYSTEM	Elevation		Chamber Volume		End Cap Volume		HVLV FC-48 Feed Connector Volume		Stone Volume		Cumulative Storage Volume		Total Cumulative Storage Volume		
	Cumulative Elevation inches	mm	per inch ft ³	per 25.4 mm m ³	per inch ft ³	per 25.4 mm m ³	per inch ft ³	per 25.4 mm m ³	per inch ft ³	per 25.4 mm m ³	per inch ft ³	per 25.4 mm m ³	per inch ft ³	per 25.4 mm m ³	
STONE ABOVE	69	1753	12	305					43.78	1.24	43.78	1.24	5078.37	143.82	
	68	1727	11	279					43.78	1.24	43.78	1.24	5034.59	142.58	
	67	1702	10	254					43.78	1.24	43.78	1.24	4990.81	141.34	
	66	1676	9	229					43.78	1.24	43.78	1.24	4947.03	140.10	
	65	1651	8	203					43.78	1.24	43.78	1.24	4903.25	138.86	
	64	1626	7	178					43.78	1.24	43.78	1.24	4859.47	137.62	
	63	1600	6	152					43.78	1.24	43.78	1.24	4815.68	136.38	
	62	1575	5	127					43.78	1.24	43.78	1.24	4771.90	135.14	
	61	1549	4	102					43.78	1.24	43.78	1.24	4728.12	133.90	
	60	1524	3	76					43.78	1.24	43.78	1.24	4684.34	132.66	
59	1499	2	51					43.78	1.24	43.78	1.24	4640.56	131.42		
58	1473	1	25					43.78	1.24	43.78	1.24	4596.78	130.18		
CHAMBER HEIGHT	57	1448	48	1219	3.45	0.10	0.19	0.01	42.58	1.21	46.22	1.31	4553.00	128.94	
	56	1422	47	1194	6.89	0.20	0.29	0.01	41.41	1.17	48.59	1.38	4506.78	127.63	
	55	1397	46	1168	13.79	0.39	0.29	0.01	39.14	1.11	53.21	1.51	4458.18	126.26	
	54	1372	45	1143	22.40	0.63	0.39	0.01	36.26	1.03	59.05	1.67	4404.97	124.75	
	53	1346	44	1118	29.30	0.83	0.48	0.01	33.95	0.96	63.73	1.80	4345.92	123.08	
	52	1321	43	1092	36.19	1.02	0.39	0.01	31.71	0.90	68.29	1.93	4282.18	121.27	
	51	1295	42	1067	39.64	1.12	0.48	0.01	30.54	0.86	70.66	2.00	4213.89	119.34	
	50	1270	41	1041	43.08	1.22	0.48	0.01	29.40	0.83	72.97	2.07	4143.23	117.34	
	49	1245	40	1016	46.53	1.32	0.48	0.01	28.27	0.80	75.28	2.13	4070.26	115.27	
	48	1219	39	991	48.25	1.37	0.48	0.01	27.70	0.78	76.44	2.16	3994.98	113.14	
	47	1194	38	965	51.70	1.46	0.48	0.01	26.56	0.75	78.74	2.23	3918.54	110.97	
	46	1168	37	940	53.42	1.51	0.58	0.02	25.96	0.74	79.96	2.26	3839.80	108.74	
	45	1143	36	914	56.87	1.61	0.48	0.01	24.85	0.70	82.21	2.33	3759.83	106.48	
	44	1118	35	889	56.87	1.61	0.48	0.01	24.85	0.70	82.21	2.33	3677.62	104.15	
	43	1092	34	864	60.32	1.71	0.58	0.02	23.68	0.67	84.58	2.40	3595.42	101.82	
	42	1067	33	838	62.04	1.76	0.48	0.01	23.15	0.66	85.67	2.43	3510.83	99.43	
	41	1041	32	813	62.04	1.76	0.48	0.01	23.15	0.66	85.67	2.43	3425.16	97.00	
	40	1016	31	787	65.49	1.85	0.58	0.02	21.98	0.62	88.05	2.49	3339.49	94.57	
	39	991	30	762	65.49	1.85	0.48	0.01	22.01	0.62	87.98	2.49	3251.44	92.08	
	38	965	29	737	67.21	1.90	0.68	0.02	21.38	0.61	89.27	2.53	3163.46	89.59	
	37	940	28	711	67.21	1.90	0.48	0.01	21.44	0.61	89.14	2.52	3074.19	87.06	
	36	914	27	686	70.66	2.00	0.58	0.02	20.27	0.57	91.51	2.59	2985.05	84.54	
	35	889	26	660	68.93	1.95	0.58	0.02	20.84	0.59	90.36	2.56	2893.54	81.95	
	34	864	25	635	70.66	2.00	0.48	0.01	20.30	0.58	91.45	2.59	2803.19	79.39	
	33	838	24	610	72.38	2.05	0.58	0.02	19.70	0.56	92.67	2.62	2711.74	76.80	
	32	813	23	584	72.38	2.05	0.58	0.02	19.70	0.56	92.67	2.62	2619.08	74.17	
	31	787	22	559	72.38	2.05	0.68	0.02	19.67	0.56	92.73	2.63	2526.41	71.55	
	30	762	21	533	74.10	2.10	0.58	0.02	19.14	0.54	93.82	2.66	2433.68	68.92	
	29	737	20	508	74.10	2.10	0.58	0.02	19.14	0.54	93.82	2.66	2339.86	66.26	
	28	711	19	483	74.10	2.10	0.58	0.02	19.14	0.54	93.82	2.66	2246.04	63.61	
27	686	18	457	75.83	2.15	0.58	0.02	18.57	0.53	94.97	2.69	2152.22	60.95		
26	660	17	432	75.83	2.15	0.58	0.02	18.57	0.53	94.97	2.69	2057.25	58.26		
25	635	16	406	75.83	2.15	0.68	0.02	18.53	0.52	95.04	2.69	1962.27	55.57		
24	610	15	381	77.55	2.20	0.58	0.02	18.00	0.51	96.13	2.72	1867.23	52.88		
23	584	14	356	77.55	2.20	0.58	0.02	18.00	0.51	96.13	2.72	1771.10	50.16		
22	559	13	330	79.27	2.25	0.58	0.02	17.43	0.49	97.28	2.76	1674.97	47.44		
21	533	12	305	77.55	2.20	0.68	0.02	17.96	0.51	96.20	2.72	1577.69	44.68		
20	508	11	279	79.27	2.25	0.58	0.02	17.42	0.49	97.30	2.76	1481.49	41.96		
19	483	10	254	79.27	2.25	0.68	0.02	17.38	0.49	97.38	2.76	1384.19	39.20		
18	457	9	229	81.00	2.29	0.68	0.02	16.81	0.48	98.54	2.79	1286.81	36.44		
17	432	8	203	81.00	2.29	0.68	0.02	16.81	0.48	98.54	2.79	1188.27	33.65		
16	406	7	178	81.00	2.29	0.68	0.02	16.81	0.48	98.55	2.79	1089.73	30.86		
15	381	6	152	81.00	2.29	0.58	0.02	16.84	0.48	98.48	2.79	991.18	28.07		
14	356	5	127	82.72	2.34	0.68	0.02	16.24	0.46	99.70	2.82	892.70	25.28		
13	330	4	102	81.00	2.29	0.68	0.02	16.81	0.48	98.55	2.79	792.99	22.46		
12	305	3	76	84.44	2.39	0.78	0.02	15.64	0.44	100.93	2.86	694.44	19.67		
11	279	2	51	82.72	2.34	0.68	0.02	16.24	0.46	99.71	2.82	593.52	16.81		
10	254	1	25	82.72	2.34	0.78	0.02	16.20	0.46	99.78	2.83	493.81	13.98		
STONE BASE	9	229	9	229					43.78	1.24	43.78	1.24	394.03	11.16	
	8	203	8	203					43.78	1.24	43.78	1.24	350.25	9.92	
	7	178	7	178					43.78	1.24	43.78	1.24	306.47	8.68	
	6	152	6	152					43.78	1.24	43.78	1.24	262.69	7.44	
	5	127	5	127					43.78	1.24	43.78	1.24	218.91	6.20	
	4	102	4	102					43.78	1.24	43.78	1.24	175.13	4.96	
BOTTOM OF SYSTEM	3	76	3	76					43.78	1.24	43.78	1.24	131.34	3.72	
	2	51	2	51					43.78	1.24	43.78	1.24	87.56	2.48	
	1	25	1	25					43.78	1.24	43.78	1.24	43.78	1.24	
	0	0	0	0					0.00	0.00	0.00	0.00	0.00	0.00	
				Chamber Volume	End Cap Volume	HVLV FC-48 Feed Connector Volume	Stone Volume	Cumulative Storage Volume	Total Cumulative Storage Volume						
				3043.41	86.19	26.75	0.76	0.68	0.02	2007.53	56.85	5078.37	143.82	5078.37	143.82
			cu. ft.	m³	cu. ft.	m³	cu. ft.	m³	cu. ft.	m³	cu. ft.	m³	cu. ft.	m³	

CULTEC RECHARGER 902HD PRODUCT SPECIFICATIONS

GENERAL
CULTEC RECHARGER 902HD CHAMBERS ARE DESIGNED FOR UNDERGROUND STORMWATER MANAGEMENT. THE CHAMBERS MAY BE USED FOR RETENTION, RECHARGING, DETENTION OR CONTROLLING THE FLOW OF ON-SITE STORMWATER RUNOFF.

CHAMBER PARAMETERS

- THE CHAMBERS SHALL BE MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
- THE CHAMBER SHALL BE STRUCTURAL FOAM INJECTION MOLDED OF BLUE VIRGIN HIGH MOLECULAR WEIGHT IMPACT-MODIFIED POLYPROPYLENE.
- THE CHAMBER SHALL BE ARCHED IN SHAPE.
- THE CHAMBER SHALL BE OPEN-BOTTOMED.
- THE CHAMBER SHALL BE JOINED USING AN INTERLOCKING OVERLAPPING RIB METHOD. CONNECTIONS MUST BE FULLY SHOULDERED OVERLAPPING RIBS, HAVING NO SEPARATE COUPLINGS.
- THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC RECHARGER 902HD SHALL BE 48 INCHES (1219 mm) TALL, 78 INCHES (1981 mm) WIDE AND 4.10 FEET (1.25 mm) LONG. THE INSTALLED LENGTH OF A JOINED RECHARGER 902HD SHALL BE 3.67 FEET (1.12 m).
- MULTIPLE CHAMBERS MAY BE CONNECTED TO FORM DIFFERENT LENGTH ROWS. EACH ROW SHALL BEGIN AND END WITH A SEPARATELY FORMED CULTEC RECHARGER 902HD END CAP. MAXIMUM INLET OPENING ON THE END CAP IS 24 INCHES (600 mm).
- THE CHAMBER SHALL HAVE TWO SIDE PORTALS TO ACCEPT CULTEC HVLV™ FC-48 FEED CONNECTORS TO CREATE AN INTERNAL MANIFOLD. MAXIMUM ALLOWABLE PIPE SIZE IN THE SIDE PORTAL IS 11.5 INCHES (292 mm).
- THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV™ FC-48 FEED CONNECTOR SHALL BE 12 INCHES (305 mm) TALL, 16 INCHES (406 mm) WIDE AND 49 INCHES (1244 mm) LONG.
- THE NOMINAL STORAGE VOLUME OF THE RECHARGER 902HD CHAMBER SHALL BE 17.66 FT³ / FT (1.64 m³ / m) - WITHOUT STONE. THE NOMINAL STORAGE VOLUME OF A JOINED RECHARGER 902HD SHALL BE 64.75 FT³ / UNIT (1.84 m³ / UNIT) - WITHOUT STONE.
- THE NOMINAL STORAGE VOLUME OF THE HVLV™ FC-48 FEED CONNECTOR SHALL BE 0.913 FT³ / FT (0.085 m³ / m) - WITHOUT STONE.
- THE RECHARGER 902HD CHAMBER SHALL HAVE TWENTY-FOUR DISCHARGE HOLES BORED INTO THE SIDEWALLS OF THE UNIT'S CORE TO PROMOTE LATERAL CONVEYANCE OF WATER.
- THE RECHARGER 902HD CHAMBER SHALL HAVE 7 CORRUGATIONS.
- THE CHAMBER SHALL BE DESIGNED TO WITHSTAND AASHTO HS-25 DEFINED LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
- THE CHAMBER SHALL HAVE A RAISED INTEGRAL CAP AT THE TOP OF THE ARCH NEAR THE CENTER OF EACH UNIT TO BE USED AS AN OPTIONAL INSPECTION PORT OR CLEAN-OUT.
- THE UNITS MAY BE TRIMMED TO CUSTOM LENGTHS BY CUTTING BACK TO ANY CORRUGATION.
- THE CHAMBER SHALL BE MANUFACTURED IN A FACILITY EMPLOYING CULTEC'S QUALITY CONTROL AND ASSURANCE PROCEDURES.
- MAXIMUM ALLOWABLE COVER OVER THE TOP OF THE CHAMBER SHALL BE 8.5 FEET (2.59 m).

END CAP PARAMETERS

- THE CULTEC RECHARGER 902HD END CAP (REFERRED TO AS 'END CAP') SHALL BE MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
- THE END CAP SHALL BE TWIN-SHEET THERMOFORMED OF BLACK VIRGIN HIGH MOLECULAR WEIGHT POLYETHYLENE.
- THE END CAP SHALL BE JOINED AT THE BEGINNING AND END OF EACH ROW OF CHAMBERS USING AN INTERLOCKING OVERLAPPING RIB METHOD. CONNECTIONS MUST BE FULLY SHOULDERED OVERLAPPING RIBS, HAVING NO SEPARATE COUPLINGS.
- THE NOMINAL DIMENSIONS OF THE END CAP SHALL BE 48.5 INCHES (1231 mm) TALL, 78 INCHES (1982 mm) WIDE AND 9.2 INCHES (236 mm) LONG. WHEN JOINED WITH A RECHARGER 902HD CHAMBER, THE INSTALLED LENGTH OF THE END CAP SHALL BE 8.2 INCHES (157 mm).
- MAXIMUM INLET OPENING ON THE END CAP IS 24 INCHES (600 mm).
- THE END CAP SHALL BE DESIGNED TO WITHSTAND AASHTO HS-25 DEFINED LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.

CULTEC HVLV FC-48 FEED CONNECTOR PRODUCT SPECIFICATIONS

GENERAL
CULTEC HVLV FC-48 FEED CONNECTORS ARE DESIGNED TO CREATE AN INTERNAL MANIFOLD FOR CULTEC RECHARGER MODEL 902HD STORMWATER CHAMBERS.

FEED CONNECTOR PARAMETERS

- THE FEED CONNECTOR SHALL BE MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
- THE FEED CONNECTOR SHALL BE VACUUM THERMOFORMED OF BLACK HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE).
- THE FEED CONNECTOR SHALL BE ARCHED IN SHAPE.
- THE FEED CONNECTOR SHALL BE OPEN-BOTTOMED.
- THE NOMINAL DIMENSIONS OF THE CULTEC HVLV FC-48 FEED CONNECTOR SHALL BE 12 INCHES (305 mm) TALL, 16 INCHES (406 mm) WIDE AND 49 INCHES (1244 mm) LONG.
- THE NOMINAL STORAGE VOLUME OF THE HVLV FC-48 FEED CONNECTOR SHALL BE 0.913 FT³ / FT (0.085 m³ / m) - WITHOUT STONE.
- THE HVLV FC-48 FEED CONNECTOR SHALL HAVE 4 CORRUGATIONS.
- THE HVLV FC-48 FEED CONNECTOR MUST BE FORMED AS A WHOLE UNIT HAVING TWO OPEN END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS. THE UNIT SHALL FIT INTO THE SIDE PORTALS OF THE CULTEC RECHARGER STORMWATER CHAMBER AND ACT AS CROSS FEED CONNECTIONS CREATING AN INTERNAL MANIFOLD.
- THE FEED CONNECTOR SHALL BE DESIGNED TO WITHSTAND AASHTO HS-25 DEFINED LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
- THE FEED CONNECTOR SHALL BE MANUFACTURED IN AN ISO 9001:2008 CERTIFIED FACILITY.

CULTEC NO. 66™ WOVEN GEOTEXTILE

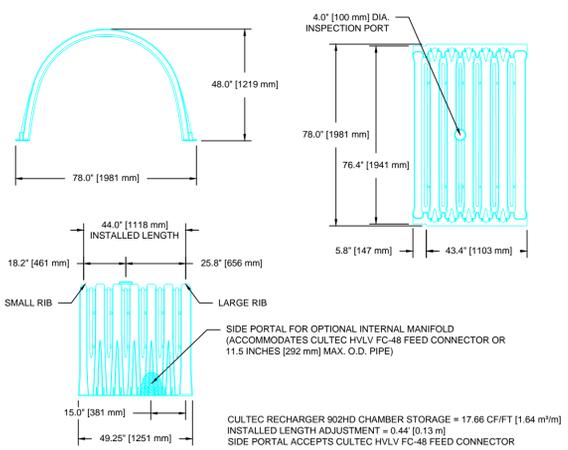
GENERAL
CULTEC NO. 66™ WOVEN GEOTEXTILE IS UTILIZED AS AN UNDERLAYMENT TO PREVENT SCOURING CAUSED BY WATER MOVEMENT WITHIN THE CULTEC CHAMBERS AND FEED CONNECTORS UTILIZING THE CULTEC MANIFOLD FEATURE.

GEOTEXTILE PARAMETERS

- THE GEOTEXTILE SHALL BE PROVIDED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
- THE GEOTEXTILE SHALL BE BLACK IN APPEARANCE.
- THE GEOTEXTILE SHALL HAVE A TENSILE STRENGTH OF 315 LBS (1.40KN) PER ASTM D4632 TESTING METHOD.
- THE GEOTEXTILE SHALL HAVE A TENSILE ELONGATION RESISTANCE OF 15% PER ASTM D4632 TESTING METHOD.
- THE GEOTEXTILE SHALL HAVE A MULLEN BURST RESISTANCE OF 600PSI (4130 KPA) PER ASTM D3786 TESTING METHOD.
- THE GEOTEXTILE SHALL HAVE A TEAR RESISTANCE OF 115 LBS (0.51 kN) PER ASTM D4533 TESTING METHOD.
- THE GEOTEXTILE SHALL HAVE A PUNCTURE RESISTANCE OF 150 LBS (0.66 kN) PER ASTM D4833 TESTING METHOD.
- THE GEOTEXTILE SHALL HAVE A CBR PUNCTURE RESISTANCE OF 900 LBS (4.00 KN) PER ASTM D6241 TESTING METHOD.
- THE GEOTEXTILE SHALL HAVE A UV RESISTANCE OF 70% @ 500 HRS. PER ASTM D4355 TESTING METHOD.
- THE GEOTEXTILE SHALL HAVE A PERMITTIVITY RATING OF 0.05 SEC-1 PER ASTM D4491 TESTING METHOD.
- THE GEOTEXTILE SHALL HAVE A WATER FLOW RATING OF 4 GPM/FT² (160 LPM/M²) PER ASTM D4491 TESTING METHOD.
- THE GEOTEXTILE SHALL HAVE A PERCENT OPEN AREA OF <1% PER CV-02215 TESTING METHOD.
- THE GEOTEXTILE SHALL HAVE AN APPARENT OPENING SIZE OF 40 US STD. SIEVE (0.425 MM) PER ASTM D4751 TESTING METHOD.
- THE GEOTEXTILE SHALL CONSIST OF A 100% HIGH-TENACITY, SILT-FILM POLYPROPYLENE YARNS.

902HD 1.0

GENERAL NOTES



902HD 4.0

CULTEC RECHARGER 902HD HEAVY DUTY THREE VIEW

PIPE	A	B
6" [150 mm]	N/A	N/A
8" [200 mm]	N/A	N/A
10" [250 mm]	N/A	N/A
12" [300 mm]	29.50" [749 mm]	2.25" [57 mm]
15" [375 mm]	26.50" [673 mm]	2.25" [57 mm]
18" [450 mm]	23.50" [597 mm]	2.50" [64 mm]
24" [600 mm]	16.50" [420 mm]	3.00" [76 mm]

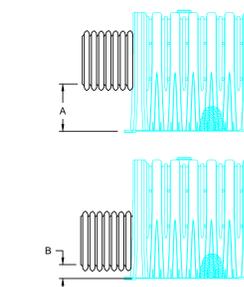
*THE TYPICAL INVERT TABLE ABOVE IS BASED ON THE INSIDE DIAMETER OF STANDARD CORRUGATED PLASTIC PIPE. THE HEAVY DUTY END CAP HAS PRE-MARKED TRIM LINES FOR PIPE DIAMETERS 12" (300mm), 15" (375mm), 18" (450mm) AND 24" (600mm). PIPES OF ANY SIZE AND MATERIAL UP TO 24" MAY BE PLACED AT CUSTOM LOCATIONS AND CUSTOM INVERTS. THE CROWN OF THE PIPE MUST REMAIN A MINIMUM OF 4" (100mm) FROM THE EDGE OF THE HEAVY DUTY END CAP.

902HD 8.0

CULTEC RECHARGER 902HD TYPICAL PIPE INVERTS

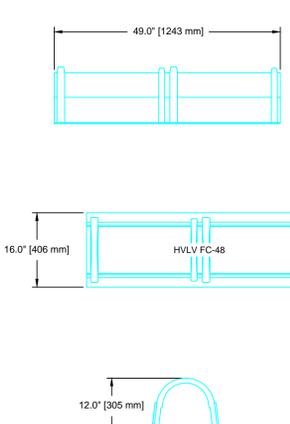
902HD 5.0

CULTEC RECHARGER 902HD HEAVY DUTY END CAP THREE VIEW



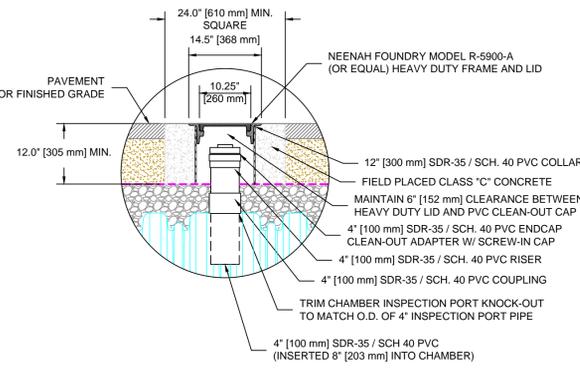
902HD 9.0

CULTEC HVLV FC-48 FEED CONNECTOR THREE VIEW



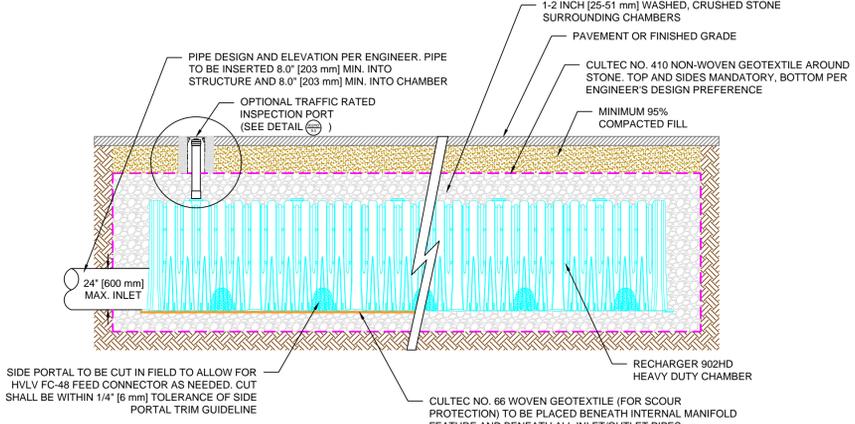
902HD 10.0

OPTIONAL INSPECTION PORT - ZOOM DETAIL



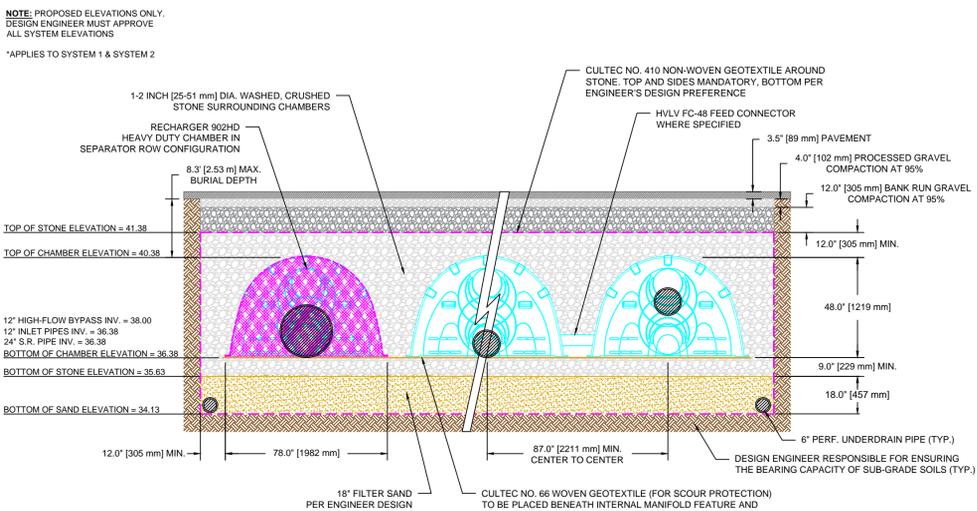
902HD 11.0

CULTEC INTERNAL MANIFOLD - OPTIONAL INSPECTION PORT DETAIL



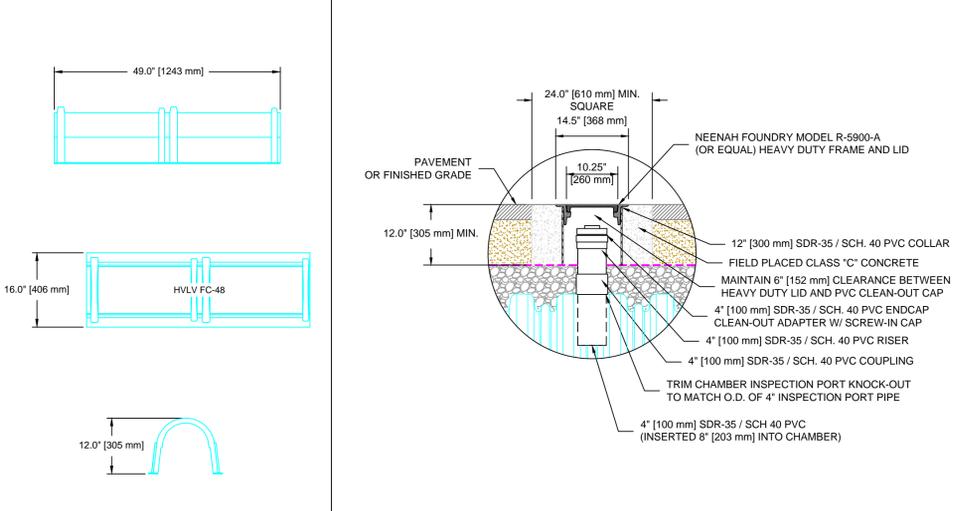
902HD 2.0

CULTEC RECHARGER 902HD HEAVY DUTY PLAN VIEW



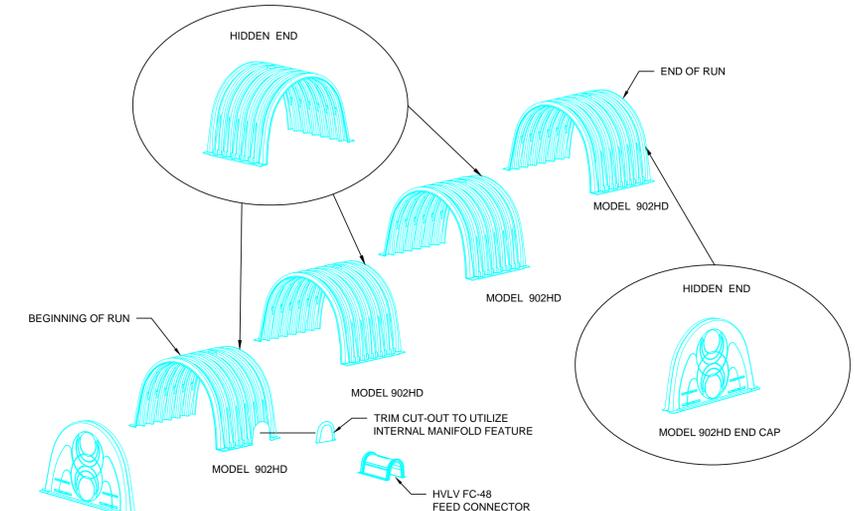
902HD 6.0

CULTEC RECHARGER 902HD HEAVY DUTY CUSTOM CROSS SECTION



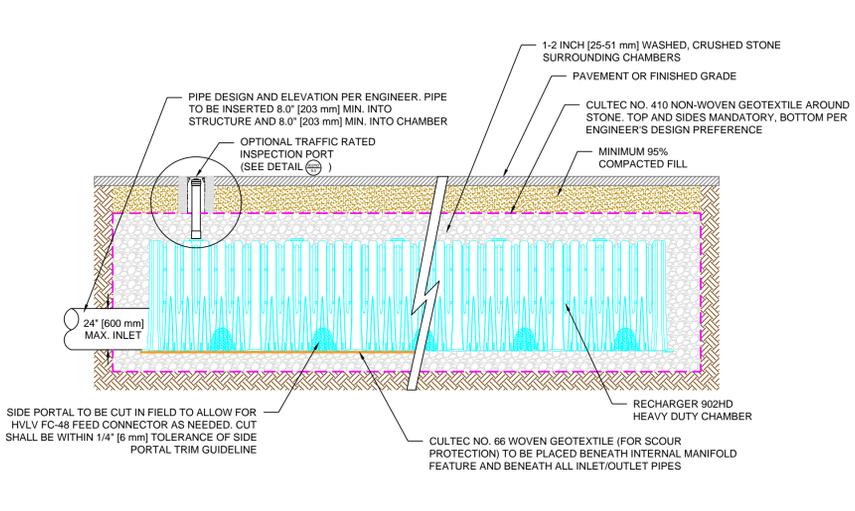
902HD 3.0

CULTEC TYPICAL INLET CONNECTION



902HD 7.0

CULTEC RECHARGER 902HD HEAVY DUTY TYPICAL INTERLOCK



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CHURCHWOODS
4130 OLD POST ROAD
CHARLESTOWN, RI
RECHARGER 902HD DETAIL SHEET

CULTEC RECHARGER 902HD		
PROJECT NO:	15-7759.02	DATE: 12/2015
DESIGNED BY:	CULTEC, INC.	DRAWN BY: TECH
SCALE:	N.T.S.	SHEET NO: 4 OF 6

SEPARATOR ROW™ SPECIFICATIONS

GENERAL

CULTEC'S SEPARATOR ROW IS USED AS AN INEXPENSIVE MEANS OF REMOVING TOTAL SUSPENDED SOLIDS FROM THE CHAMBER SYSTEM, AS WELL AS PROVIDING EASIER ACCESS FOR INSPECTION AND MAINTENANCE.

INSTALLATION INSTRUCTIONS

A SEPARATOR ROW IS INSTALLED ON A 1-2 INCH [25-51 mm] WASHED, CRUSHED STONE BASE. TYPICALLY, THE CULTEC CHAMBER MODEL USED FOR THE SEPARATOR ROW IS THE SAME CHAMBER USED THROUGHOUT THE ENTIRE CHAMBER BED.

STORMWATER IS DISTRIBUTED TO THE SEPARATOR ROW BY A PRIMARY FEED SYSTEM THAT DIVERTS FLOW TO THE SEPARATOR ROW AND A SECONDARY BYPASS FEED SYSTEM THAT DIVERTS THE FLOW OF CLEAN WATER TO THE OTHER PARTS OF THE UNDERGROUND STORMWATER MANAGEMENT SYSTEM. THE DISTRIBUTION SYSTEM MAY BE BY PIPES SET AT A LOWER ELEVATION THAT PERMIT THE FIRST FLUSH TO THE SEPARATOR ROW VERSUS OTHER PARTS OF THE UNDERGROUND STORMWATER SYSTEM. THIS INITIAL FLOW MAY BE MANAGED BY A Baffle OR WEIR. THE SIZING OF THE PIPE(S) THAT PROVIDE STORM WATER TO THE SEPARATOR ROW IS TO BE DETERMINED BY THE DESIGN ENGINEER AND IS BASED UPON THE REQUIREMENT TO ACCOMMODATE THE DESIGN FLOW AND SERVICE CONVENIENCE.

THE CHAMBERS UTILIZED IN THE SEPARATOR ROW ARE TO BE COMPLETELY WRAPPED WITH CULTEC NO. 410 NON-WOVEN GEOTEXTILE. THIS CREATES A PASS-THROUGH FILTER ARRANGEMENT TO SEPARATE TOTAL SUSPENDED SOLIDS IN THE TRANSFER OF STORM WATER TO OTHER CHAMBERS THROUGHOUT THE UNDERGROUND STORMWATER MANAGEMENT SYSTEM.

ONCE WRAPPED, THE SEPARATOR ROW IS TO THEN BE PLACED ENTIRELY OVER 2 LAYERS OF CULTEC NO. 66 WOVEN GEOTEXTILE. THIS WOVEN GEOTEXTILE PROVIDES A DURABLE SURFACE WITHIN THE ROW FOR MAINTENANCE PROCEDURES AS WELL AS TO PREVENT ANY SCOURING OF THE STONE BASE DURING HIGH PRESSURE JETTING.

THE RECOMMENDED INSTALLATION OF SEPARATOR ROW CHAMBERS, IN REGARD TO STONE SEPARATION AND STONE ABOVE THE UNIT, ALONG WITH OTHER MINIMUM BURIAL, MATERIALS AND METHOD SPECIFICATIONS DETAILED FOR THE PROPER INSTALLATION, IS THE SAME AS CULTEC'S REQUIREMENT DETAILED IN THE COMPANY'S INSTALLATION GUIDELINES WITH THE EXCEPTION OF THE PLACEMENT OF THE REQUIRED FILTERING FABRICS. PLEASE REFER TO CULTEC'S CURRENT INSTALLATION INSTRUCTIONS FOR STORMWATER CHAMBERS AS A GUIDE.

MAINTENANCE PROCEDURES

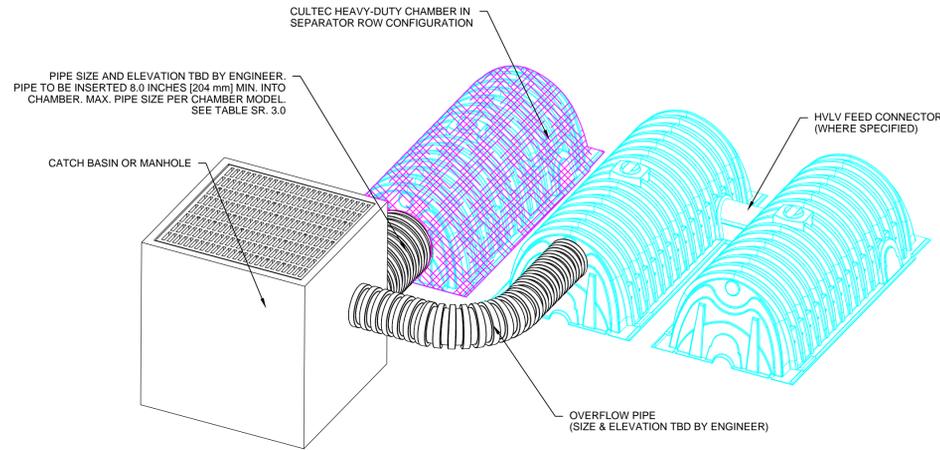
CULTEC RECOMMENDS INSPECTIONS OF THE SEPARATOR ROW TO BE PERFORMED EVERY SIX MONTHS FOR THE FIRST YEAR. THE FREQUENCY OF INSPECTION CAN THEN BE ADJUSTED BASED UPON PREVIOUS OBSERVATION OF SEDIMENT DEPOSITION.

WHILE CLEANING IS POSSIBLE FROM A SINGLE MANHOLE IN SHORTER LINES, A CLEAN-OUT OPTION FROM EITHER END OF A LINE IS PREFERABLE, PARTICULARLY FOR LONGER RUNS. CLEANING INVOLVES FLUSHING SEDIMENT FROM THE BASE FABRIC OF THE SEPARATOR ROW.

ACCESS WILL BE PROVIDED VIA A MANHOLE(S) LOCATED AT THE END(S) OF THE ROW FOR CLEAN OUT.

MAINTENANCE OF THE SEPARATOR ROW IS TO BE ACCOMPLISHED WITH A JETVAC PROCESS.

THE JETVAC IS TO BE SENT DOWN THE ENTIRE LENGTH OF THE SEPARATOR ROW. AS THE HIGH PRESSURE WATER NOZZLE IS RETRIEVED, THE CAPTURED SEDIMENTS ARE PUSHED BACK INTO THE MANHOLE FOR VACUUMING.

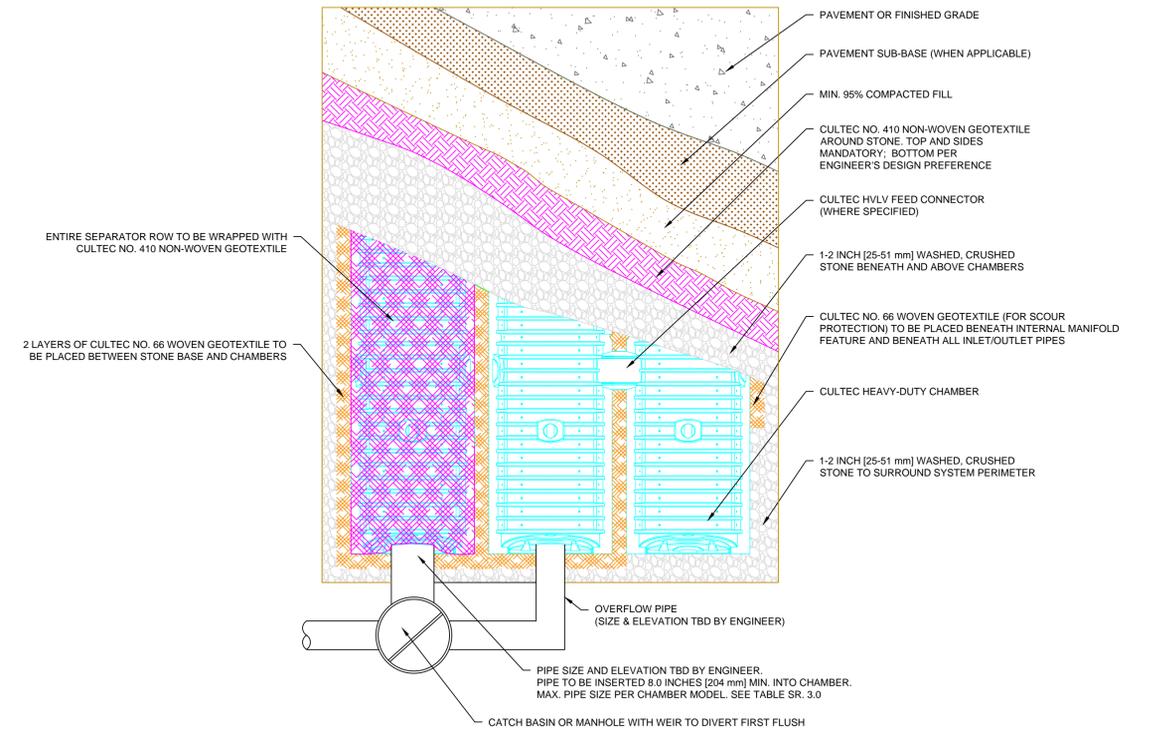


SR 2.0

SEPARATOR ROW CONFIGURATION INLET CONNECTION

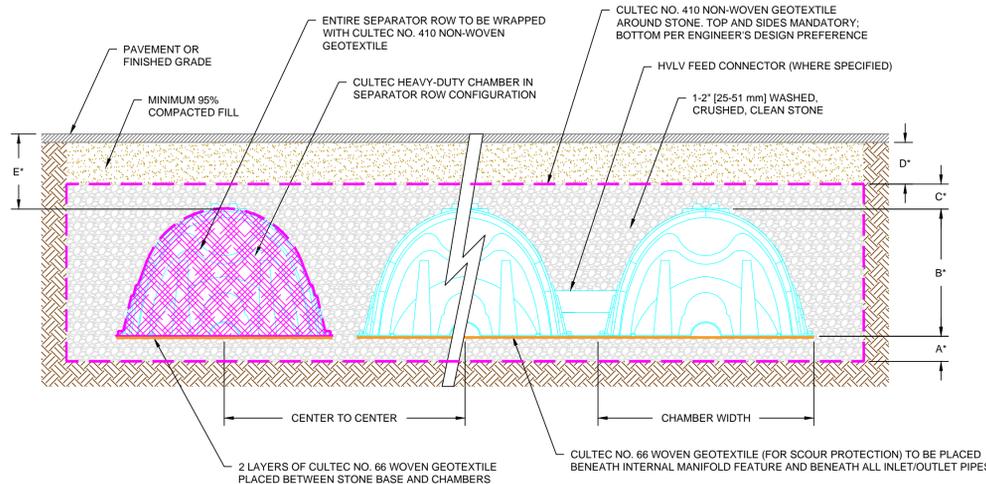
CULTEC CHAMBER MODEL							
	DESCRIPTION	CONTACTOR 100HD	RECHARGER 150XLHD	RECHARGER 280HD	RECHARGER 330XLHD	RECHARGER V8HD	RECHARGER 902HD
A'	MIN. DEPTH OF STONE BASE	6" 152 mm	6" 152 mm	6" 152 mm	6" 152 mm	6" 152 mm	9" 229 mm
B	CHAMBER HEIGHT	12.5" 318 mm	18.5" 470 mm	26.5" 673 mm	30.5" 775 mm	32" 813 mm	48" 1219 mm
C'	MIN. DEPTH OF STONE REQUIRED ABOVE UNITS FOR TRAFFIC APPLICATIONS	6" 152 mm	6" 152 mm	6" 152 mm	6" 152 mm	6" 152 mm	12" 305 mm
D	MIN. DEPTH REQUIRED OF 95% COMPACTED FILL FOR PAVED TRAFFIC	8" 203 mm	8" 203 mm	8" 203 mm	10" 254 mm	12" 305 mm	12" 305 mm
E	MAX. DEPTH OF COVER ALLOWED ABOVE CROWN OF CHAMBER	12" 3.65 m	12" 3.65 m	12" 3.65 m	12" 3.65 m	8" 2.44 m	8.3" 2.53 m
	MAX. PIPE SIZE TO CHAMBER ENDWALL/ENDCAP	10" 250 mm	12" 300 mm	18" 450 mm	24" 600 mm	24" 600 mm	24" 600 mm

NOTE 1: STONE ABOVE AND BELOW UNITS MAY VARY PER SYSTEM. SEE SYSTEM LAYOUT FOR STONE REQUIREMENTS



SR 3.0

CROSS SECTION TABLE REFERENCE



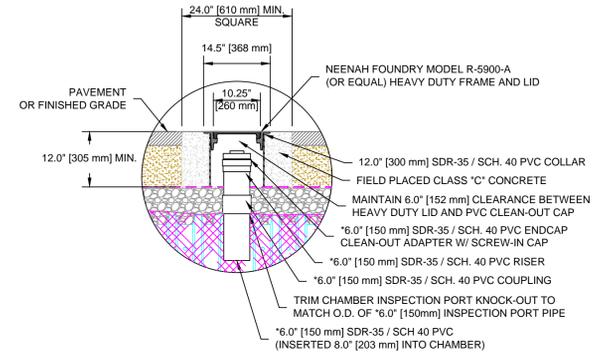
* SEE SR 3.0 - CROSS SECTION TABLE REFERENCE

SR 6.0

SEPARATOR ROW CONFIGURATION CROSS SECTION

SR 1.0

GENERAL NOTES



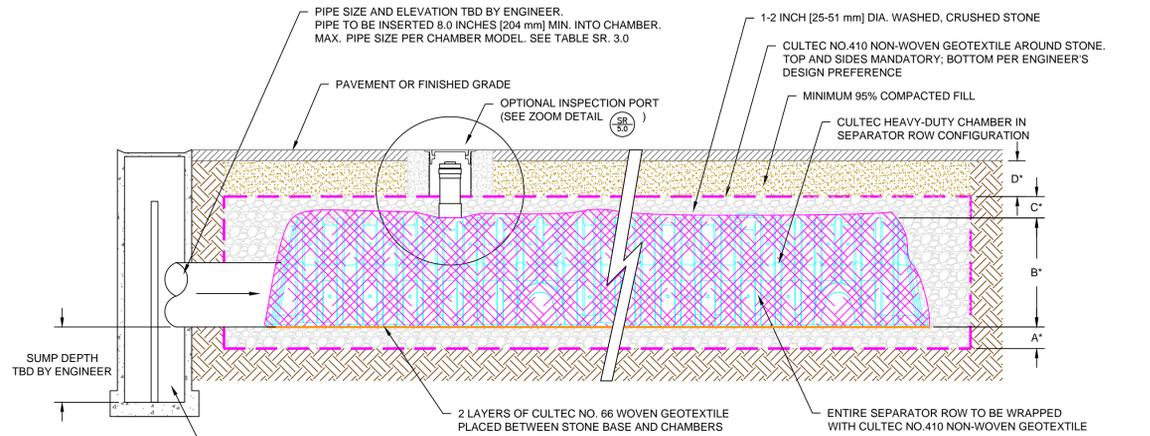
* REDUCE INSPECTION PORT PIPE SIZE TO 4.0" [100 mm] FOR RECHARGER 902HD CHAMBER

SR 5.0

INSPECTION PORT - ZOOM DETAIL

SR 4.0

SEPARATOR ROW CONFIGURATION PLAN VIEW



* SEE SR 3.0 - CROSS SECTION TABLE REFERENCE

SR 7.0

SEPARATOR ROW CONFIGURATION CROSS SECTION WITH INSPECTION PORT DETAIL



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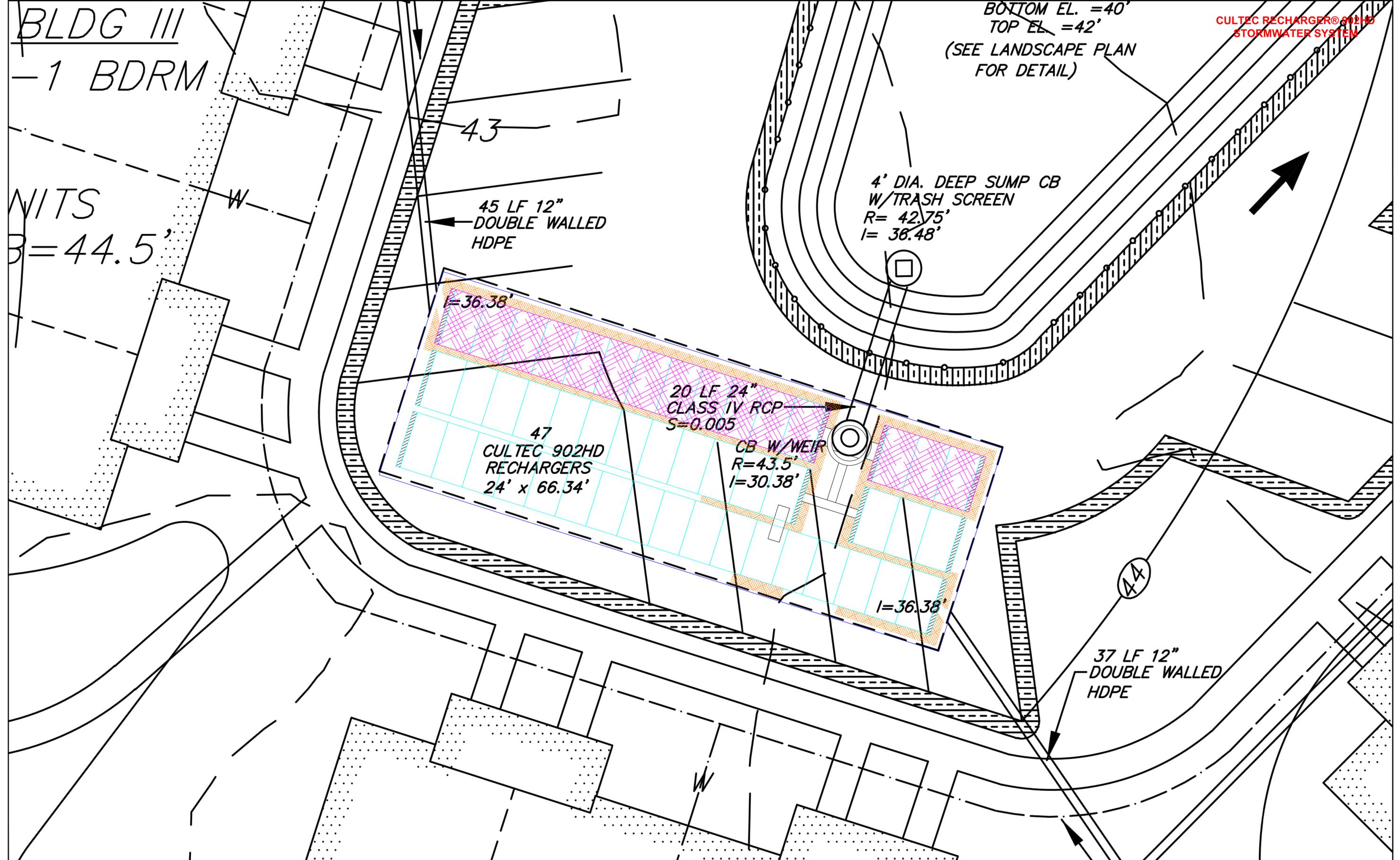
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CHURCHWOODS
4130 OLD POST ROAD
CHARLESTOWN, RI
SEPARATOR ROW DETAIL SHEET

SEPARATOR ROW DETAIL SHEET

PROJECT NO:	15-7759.02	DATE:	2015
DESIGNED BY:	CULTEC, INC	DRAWN BY:	TECH
SCALE:	N.T.S.	SHEET NO:	5 OF 6



CULTEC RECHARGER® 902HD
STORMWATER SYSTEM

BOTTOM EL. = 40'
TOP EL. = 42'
(SEE LANDSCAPE PLAN
FOR DETAIL)

4' DIA. DEEP SUMP CB
W/TRASH SCREEN
R= 42.75'
I= 36.48'

45 LF 12"
DOUBLE WALLED
HDPE

20 LF 24"
CLASS IV RCP
S=0.005

47
CULTEC 902HD
RECHARGERS
24' x 66.34'

CB W/WEIR
R=43.5'
I=30.38'

37 LF 12"
DOUBLE WALLED
HDPE

BLDG III
- 1 BDRM

WITS
B=44.5'



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CHURCHWOODS
4130 OLD POST ROAD
CHARLESTOWN, RI
SITE OVERLAY

CULTEC RECHARGER® 902HD			
PROJECT NO:	15-7759.02	DATE:	12/14/15
DESIGNED BY:	SLS	DRAWN BY:	SLS
SCALE:	N.T.S.	SHEET NO:	6 OF 6