

U.S. DEPARTMENT OF VETERANS AFFAIRS
WASHINGTON, DC

DELAWARE COMMISSION OF VETERANS AFFAIRS

DELAWARE OFFICE OF MANAGEMENT AND BUDGET
DIVISION OF FACILITIES MANAGEMENT

**DELAWARE VETERANS MEMORIAL CEMETERY
BEAR, DELAWARE
DE-15-22
BID SET DOCUMENTS**

ADDENDUM NO. 1
June 21, 2016

NOTICE TO BIDDERS:

Please take into account the following in preparing bids for the subject project.

All statements in this Addendum shall supersede statements in the main body of the Project Manual and items shown on the Bid Set Document Plans, dated 5/2/16, with which they conflict. Work and materials not specifically mentioned herein shall be as described in the main body of the specifications and as shown on the plans.

Attach this Addendum to the Contract Documents. It modifies and becomes part of the Contract Documents. Acknowledge the receipt of this Addendum on the Bid Form (Section 00 41 13-3 within the Project Manual).

Attached herewith are the following:

- Pre-Bid Meeting Minutes from 6/16/2016;
- Pre-Bid Meeting Attendees contact information;
- List of approved crypt manufacturers;
- Project Manual Revisions (see below for description);
- Plan Revision Sketches (see below for description).

Below is a list of the attached revisions that have been made to the Project Manual as part of Addendum 1:

1. Instructions to Bidders - 00 21 13-9: Revised item 4.7.3 to specify a sixty (60) day bidding period.
2. Bid Form – 00 41 13-3 &4: Revised the form to specify a sixty (60) day bidding period, and included four Subcontractor Categories (Excavation, Irrigation, Landscaping, and Masonry) on the Subcontractor List.

The attached Sketches, dated 6/4/2016, depict the following described revisions made to the plans as part of Addendum 1:

1. GI002-SK-1: Added /removed revised erosion and sediment controls to legend. Revised Sequence of Construction note 12 to specify that the DNREC Construction Reviewer and Certified Construction Reviewer shall be notified.
2. GI002-SK-2: Revised Sequence of Construction note 5 to list revised erosion and sediment controls.
3. GI002-SK-3: Revised stabilization matting product recommendation to North American Green S150.
4. CG110-SK-1: Changed Diversion Swale symbols to Temporary Swale or Vegetated Channel – Parabolic symbols accordingly. Changed Stone Check Dams symbols to Compost Filter Log Check Dams symbols.
5. CG111-SK-1: Diversion Swale callouts changed to Temporary Swale callouts. Add drainage area labels.
6. CG111-SK-2: Diversion Swale callouts changed to Vegetated Channel - Parabolic callouts. Add drainage area labels. Stone Check Dams callout changed to Compost Filter Log Check Dams callout.

7. CG120-SK-1: Changed Diversion Swale designations to Temporary Swale or Vegetated Channel – Parabolic accordingly. Changed Stone Check Dams symbol to Compost Filter Log Check Dams symbol. Added Stabilization Matting (Slope and Channel) symbols.
8. CG120-SK-2: Added Stabilization Matting - Slope symbol.
9. CG121-SK-1: Diversion Swale callout changed to Vegetated Channel - Parabolic callout. Add drainage area label and Stabilization Matting – Channel or sod callout. Stone Check Dams callouts changed to Compost Filter Log Check Dams callouts.
10. CG121-SK-2: Diversion Swale callout changed to Temporary Swale callout. Add drainage area label. Stone Check Dams symbol changed to Compost Filter Log Check Dams symbol.
11. CG121-SK-3: Diversion Swale callouts changed to Vegetated Channel - Parabolic callouts. Add Stabilization Matting – Channel and Slope callouts. Stone Check Dams symbols changed to Compost Filter Log Check Dams symbols.
12. CG121-SK-4: Add Stabilization Matting –Slope callouts.
13. CG122-SK-1: Add Stabilization Matting –Slope callouts.
14. CG141-SK-1: Revised various underdrain/cleanout inverts, top elevations and lengths.
15. CG141-SK-2: Revised manhole top elevation.
16. CG500-SK-1: Revised the design storm elevations note. Added design storm elevation labels to Section B-B.
17. CG500-SK-2: Added design storm elevation labels to Section A-A. Revised the Sequence of Construction note 1 to state that... “The Bioretention Facility shall be constructed from either side of the planting soil area. Construction equipment shall not traverse the planting soil area.”
18. CG501-SK-1: Revised the design storm elevations note. Added design storm elevation labels to Section A-A.
19. CG501-SK-2: Added design storm elevation labels to Section B-B. Revised the Sequence of Construction note 1 to state that... “The Bioretention Facility shall be constructed from either side of the planting soil area. Construction equipment shall not traverse the planting soil area.”

20. CG520-SK-1: Removed Diversion Swale details. Added Temporary Swale details.
21. CG520-SK-2: Removed Stone Check Dam details. Added Vegetated Channel – Parabolic details.
22. CG520-SK-3: Added Compost Filter Log Check Dam detail.
23. CG521-SK-1: Added boxes around recommended temporary and permanent seed mixes.
24. LI102-SK-1: Included existing sprinkler locations adjacent to columbarium. Added callout to protect sprinklers during construction.
25. LI103-SK-1: Added note that mainline is located 3-feet from the back of curb and an existing valve is located in asphalt pavement area. Added callout to install control wires over the length of the area of disturbance.
26. LI103-SK-2: Included existing sprinkler locations adjacent to columbarium. Added callout to install new valve in head rotor sprinklers, lateral pipe and wire after columbarium construction, and verify operation.
27. LI103-SK-3: Added callout to install control wires over the length of the area of disturbance.
 - Note: Irrigation system discharge pressure is 110 PSI and the flow is 800 GPM.



DELAWARE VETERANS MEMORIAL CEMETERY – BEAR, DELAWARE

MEETING MINUTES

Subject: Pre-Bid Meeting

Date: June 16, 2016

Location: Delaware Veterans Memorial Cemetery
2465 Chesapeake City Road, Bear, Delaware 19701

Prepared By: Mark A. Russo, RLA, ASLA

Project Number: DE-15-22

Meeting Attendees:

Larence Kirby, M.A., M.Ed – DE Commission of Veterans Affairs

Larry Schrock – OMB/DFM

Barbara Cooke – Cemetery Administrator

Ed Lyons – Cemetery Grounds Manager

Steve Johns, P.E., P.L.S. – VanDemark & Lynch, Inc. (V&L)

Mark Russo, RLA, ASLA – VanDemark & Lynch, Inc. (V&L)

Vincent Dills – Merit Construction Engineers, Inc.

Bill Booth – Commonwealth Construction Co., Inc.

Rob Solloway – Kent Construction Co.

Brad Winemiller – Greenleaf Services, Inc.

Michael Boyce – Greenleaf Services, Inc.

Brian Thompson – Conventional Builders, Inc.

Patrick McNelis – Reybold Construction

Jim Griffith – G & C Fab-Con, LLC

Dick Creter - G & C Fab-Con, LLC

Matt Tarr – Guardian Environmental Services

The following items were discussed during the Pre-Bid Meeting:

Project Overview:

The State of Delaware Commission of Veterans Affairs proposes to provide improvements at the Delaware Veterans Memorial Cemetery located in Bear, Delaware consisting of an expansion to the existing facilities of 8 columbaria walls containing a total of 1,280 cremain niches, 5 crypt fields containing a total of 3,429 pre-placed double-depth lawn crypts, and a gravel service road located behind the proposed crypt fields.

1. The engineer/architect (V&L) presented an overview of the design, including elements and enhancements that are incorporated within the scope of the project.
2. **Schedule**
 - Any and all questions (RFI's), including requests for substitutions should be made to VanDemark & Lynch, Inc. and are to be received no later than July 8, 2016.
 - Responses will be made available to all parties by July 12, 2016.
 - All Bids are due by July 19, 2016. **There will be no bid extensions.**
 - The estimated date the project will be awarded is late September / early October.
3. **Bidding**
 - Bids must be honored for a minimum of **60 days** as amended in paragraph 002113 - 4.7.3 and the Bid Form as part of the Addendum No. 1 package.
 - V&L recommends reading “Instructions to Bidders”, located in the Project Manual.
 - The contract to be utilized on this project shall be the “Standard Form of Agreement Between Owner and Contractor”, Form AIA A101
 - Contractors are to use Prevailing Wage Rate or Davis-Bacon Wage Rate, whichever is greater. These rates are indicated within the Project Manual.
 - A Subcontractor’s List was discussed and the following disciplines were agreed upon and are included in the amended Bid Form.
 - i) Excavation ii) Irrigation iii) Landscaping iv) Masonry
 - V&L reviewed the Bid Form Unit Prices.
 - V&L emphasized the State’s policy regarding the “Employee Drug Testing Program” as indicated in the affidavit contained within the Bid Form, and the forms found in Section 008114, which is within the Project Manual, but not listed in the Table of Contents.
4. **Addenda**
 - Addenda will be mailed or delivered to all who are known by V&L to have received a complete set of bidding documents, and/or attended the Pre-Bid Meeting.
 - V&L emphasized that there will be no bid extensions.
5. **Project Requirements / Description**
 - V&L briefly discussed various project elements such as Earth Moving, Crypt location/installation, Irrigation, Sod/Seeding locations, Columbaria Design, Maintenance Access Drive, Stormwater Management, etc.
 - V&L stressed the importance of work being suspended during funeral services. There are typically four services each day, held at 10:00 AM, 11:00 AM, 1:00 PM, and 2:00 PM, each lasting 30 minutes on average. There are no other restrictions to the times work may occur. It was recommended the superintendent contact the cemetery each morning for the upcoming schedule.
 - The Contractor is to provide their own sewer and water, although the site’s public utilities may be used as long as they are not abused.

- Contractor is responsible for obtaining Geotech testing and all regulatory permits. V&L is responsible for Certified Construction Review.
- OMB/DFM stressed the importance of the contractor including a copy of their Delaware Business License with the Bid Form.

6. Responses to Pre-Bid Meeting Questions:

- V&L will provide a list of approved vendors for the lawn crypt manufacturers as provided by the U.S. Department of Veterans Affairs (see attached).
- There is no set completion time for this project. All contractors are required to “pledge” a completion time in calendar days on the Bid Form.
- The project perimeter is to be delineated with “Orange Construction Fencing” as indicated on the plans. The Contractor is responsible for maintenance of all fencing.
- The contractor may purchase crypts from multiple vendors from the approved lawn crypt manufacturer’s list.
- The cemetery has allotted time on June 23, 2016, from 9:00 a.m.-12:00 noon to revisit the site and to have someone available to answer site specific questions if necessary. Please contact Barbara Cooke or Ed Lyons. (Their contact information is provided on the “Pre-Bid Meeting Attendees” List)

PRE-BID MEETING ATTENDEES

DELAWARE VETERANS MEMORIAL CEMETERY

BEAR – NEW CASTLE COUNTY

Vincent Dills	Merit Construction Engineers, Inc. 5700 Kirkwood Highway, Suite 201 Wilmington, DE 19808	vinced@mce85.com	(302) 992-9810 <i>purchased plans</i>
Bill Booth	Commonwealth Construction Co., Inc. 2317 Pennsylvania Avenue Wilmington, DE 19806	bbooth@itscommonwealth.com	(302) 654-6611 <i>purchased plans</i>
Rob Solloway	Kent Construction Co. 2 Big Oak Road Smyrna, DE 19977	estimator2@kentconstructionco.com	(302) 633-6469
Brad Winemiller	Greenleaf Services, Inc. 365 Water Street Wilmington, DE 19804	brad@greenleafservicesinc.net	(302) 836-9050 <i>purchased plans</i>
Michael Boyce	Greenleaf Services, Inc. 365 Water Street Wilmington, DE 19804	michael.christopher.boyce@gmail.com	(302) 450-2052 <i>purchased plans</i>
Brian Thompson	Conventional Builders, Inc. 846 School Street Houston, DE 19954	conventionalbuilders@comcast.net	(302) 422-2429 <i>purchased plans</i>
Patrick McNelis	Reybold Construction 116 East Scotland Drive Bear, DE 19701	pmcnelis@reybold.com	(302) 388-6712 <i>purchased plans</i>
Jim Griffith Dick Creter	G & C Fab-Con, LLC 5 Foster Lane, Building A Flemington, NJ 08822	jgriffith@gandcfabcon.com	(908) 782-0526 <i>purchased plans</i>
Matt Tarr	Guardian Environmental Services 70 Albe Drive Newark, DE 19702	mtarr@gesoncall.com	(302) 757-2883

Larry Schrock	OMB/DFM Thomas Collins Building 540 South DuPont Highway Dover, DE 19901	larrys.schrock@state.de.us	(302) 739-5644
Larence Kirby	DE Commission of Veterans Affairs 802 Silver Lake Boulevard, Suite 100 Dover, DE 19904	Larence.kirby@state.de.us	(302) 739-2293
Barbara Cooke	Cemetery Administrator 2465 Chesapeake City Road Bear, DE 19701	barbara.cooke@state.de.us	(302) 834-8046
Ed Lyons	Grounds Manager 2465 Chesapeake City Road Bear, DE 19701	edman.lyons@state.de.us	(302) 293-3083
Steve Johns, PE, PLS	VanDemark & Lynch, Inc. 4305 Miller Road Wilmington, DE 19802	sjohns@vandemarklynch.com	(302) 764-7635
Mark Russo, RLA	VanDemark & Lynch, Inc. 4305 Miller Road Wilmington, DE 19802	mrusso@vandemarklynch.com	(302) 764-7635



DELAWARE VETERANS MEMORIAL CEMETERY – BEAR, DELAWARE

APPROVED VENDORS LIST: LAWN CRYPT MANUFACTURERS

Provided By: U.S. Department of Veterans Affairs

1. United Precast, Connecticut
2. Lindsay Concrete Products, Canal Fulton, Ohio
3. G&C FabCon, Flemington, NJ
4. Wilbert Cemetery Construction, Parson KS
5. Wieser Concrete, Portage WI

if the Architect is notified in writing prior to receipt of fax, is acceptable. A fax directing a modification in the bid price will render the Bid informal, causing it to be ineligible for consideration of award. Telephone directives for modification of the bid price shall not be permitted and will have no bearing on the submitted proposal in any manner.

4.7.2 Bidders submitting Bids that are late shall be notified as soon as practicable and the bid shall be returned.

4.7.3 A Bid may not be modified, withdrawn or canceled by the Bidder during a sixty (60) day period following the time and date designated for the receipt and opening of Bids, and Bidder so agrees in submitting their Bid. Bids shall be binding for 60 days after the date of the Bid opening.

ARTICLE 5: CONSIDERATION OF BIDS

5.1 OPENING/REJECTION OF BIDS

5.1.1 Unless otherwise stated, Bids received on time will be publicly opened and will be read aloud. An abstract of the Bids will be made available to Bidders.

5.1.2 The Agency shall have the right to reject any and all Bids. A Bid not accompanied by a required Bid Security or by other data required by the Bidding Documents, or a Bid which is in any way incomplete or irregular is subject to rejection.

5.1.3 If the Bids are rejected, it will be done within thirty (30) calendar day of the Bid opening.

5.2 COMPARISON OF BIDS

5.2.1 After the Bids have been opened and read, the bid prices will be compared and the result of such comparisons will be made available to the public. Comparisons of the Bids may be based on the Base Bid plus desired Alternates. The Agency shall have the right to accept Alternates in any order or combination.

5.2.2 The Agency reserves the right to waive technicalities, to reject any or all Bids, or any portion thereof, to advertise for new Bids, to proceed to do the Work otherwise, or to abandon the Work, if in the judgment of the Agency or its agent(s), it is in the best interest of the State.

5.2.3 An increase or decrease in the quantity for any item is not sufficient grounds for an increase or decrease in the Unit Price.

5.2.4 The prices quoted are to be those for which the material will be furnished F.O.B. Job Site and include all charges that may be imposed during the period of the Contract.

5.2.5 No qualifying letter or statements in or attached to the Bid, or separate discounts will be considered in determining the low Bid except as may be otherwise herein noted. Cash or separate discounts should be computed and incorporated into Unit Bid Price(s).

5.3 DISQUALIFICATION OF BIDDERS

5.3.1 An agency shall determine that each Bidder on any Public Works Contract is responsible before awarding the Contract. Factors to be considered in determining the responsibility of a Bidder include:

A. The Bidder's financial, physical, personnel or other resources including Subcontracts;

BID FORM

UNIT PRICE No. 5 Install Seed & Mulch \$ _____ \$ _____

UNIT PRICE No. 6 Install Valve-In-Head Sprinkler \$ _____ \$ _____

UNIT PRICE No. 7 Install 2½ inch PVC Pipe \$ _____ \$ _____

UNIT PRICE No. 8 Install Two Wire Cable \$ _____ \$ _____

BID FORM

I/We acknowledge Addendums numbered _____ and the price(s) submitted include any cost/schedule impact they may have.

This bid shall remain valid and cannot be withdrawn for sixty (60) days from the date of opening of bids (60 days for School Districts and Department of Education), and the undersigned shall abide by the Bid Security forfeiture provisions. Bid Security is attached to this Bid.

The Owner shall have the right to reject any or all bids, and to waive any informality or irregularity in any bid received.

This bid is based upon work being accomplished by the Sub-Contractors named on the list attached to this bid.

Should I/We be awarded this contract, I/We pledge to achieve substantial completion of all the work within _____calendar days of the Notice to Proceed.

The undersigned represents and warrants that he has complied and shall comply with all requirements of local, state, and national laws; that no legal requirement has been or shall be violated in making or accepting this bid, in awarding the contract to him or in the prosecution of the work required; that the bid is legal and firm; that he has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken action in restraint of free competitive bidding.

Upon receipt of written notice of the acceptance of this Bid, the Bidder shall, within twenty (20) calendar days, execute the agreement in the required form and deliver the Contract Bonds, and Insurance Certificates, required by the Contract Documents.

I am / We are an Individual / a Partnership / a Corporation

By _____ Trading as _____
(Individual's / General Partner's / Corporate Name)

(State of Corporation)

Business Address: _____

Witness: _____ **By:** _____
(SEAL) (Authorized Signature)

(Title)
Date: _____

ATTACHMENTS

- Sub-Contractor List
- Non-Collusion Statement
- Affidavit(s) of Employee Drug Testing Program
- Bid Security
- (Others as Required by Project Manuals)

BID FORM

SUBCONTRACTOR LIST

In accordance with Title 29, Chapter 6962 (d)(10)b Delaware Code, the following sub-contractor listing must accompany the bid submittal. The name and address of the sub-contractor **must be listed for each category** where the bidder intends to use a sub-contractor to perform that category of work. In order to provide full disclosure and acceptance of the bid by the *Owner*, **it is required that bidders list themselves as being the sub-contractor for all categories where he/she is qualified and intends to perform such work.** This form must be filled out completely with no additions or deletions. **Note that all subcontractors listed below must have a signed Affidavit of Employee Drug Testing Program included with this bid.**

<u>Subcontractor Category</u>	<u>Subcontractor</u>	<u>Address (City & State)</u>	<u>Subcontractors tax payer ID # or Delaware Business license #</u>
1. Excavation	_____	_____	_____
2. Irrigation	_____	_____	_____
3. Landscaping	_____	_____	_____
4. Masonry	_____	_____	_____
5.	_____	_____	_____
6.	_____	_____	_____
7.	_____	_____	_____
8.	_____	_____	_____
9.	_____	_____	_____

ID FORM
NON-COLLUSION STATEMENT

This is to certify that the undersigned bidder has neither directly nor indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this proposal submitted this date (*to the Office of Management and Budget, Division of Facilities Management*).

All the terms and conditions of (*Project or Contract Number*) have been thoroughly examined and are understood.

NAME OF BIDDER: _____

**AUTHORIZED REPRESENTATIVE
(TYPED):** _____

**AUTHORIZED REPRESENTATIVE
(SIGNATURE):** _____

TITLE: _____

ADDRESS OF BIDDER: _____

E-MAIL: _____

PHONE NUMBER: _____

Sworn to and Subscribed before me this _____ day of _____ 20____.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

**AFFIDAVIT
OF
EMPLOYEE DRUG TESTING PROGRAM**

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors implement a program of mandatory drug testing for Employees who work on Large Public Works Contracts funded all or in part with public funds.

We hereby certify that we have in place or will implement during the entire term of the contract a Mandatory Drug Testing Program for our employees on the jobsite that complies with this regulation:

Contractor/Subcontractor Name: _____

Contractor/Subcontractor Address: _____

Authorized Representative (typed or printed): _____

Authorized Representative (signature): _____

Title: _____

Sworn to and Subscribed before me this _____ day of _____ 20____.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

8. CLEAR AND GRUB REMAINING AREAS (WITHIN LIMIT OF DISTURBANCE). STRIP TOPSOIL AND STOCKPILE AT DESIGNATED LOCATIONS. REMOVE AND SALVAGE ANY EXISTING MEMORIAL PLAQUES LOCATED AT THE BASE OF TREES TO BE REMOVED AND PROVIDE THEM TO THE CEMETERY.
9. REMOVE EXISTING 18" STORM PIPE AS SHOWN ON PLAN. INSTALL PROPOSED STORM MANHOLES AND STORM PIPES PER PLAN.
10. EXCAVATE AND INSTALL IN-GROUND BURIAL VAULTS, AND BACKFILL. REMOVE CONFLICTING PRE-CONSTRUCTION SITE EROSION AND SEDIMENT CONTROLS AS VAULTS ARE EXCAVATED. UPON BACKFILLING OF THE VAULTS, TOPSOIL AND SOD SHALL BE PLACED OVER COMPLETED VAULT AREA. INSTALL CONSTRUCTION SITE EROSION AND SEDIMENT CONTROLS AS VAULTS ARE COMPLETED.
11. THE COLUMBARIUM, SIDEWALKS, GRAVEL ACCESS ROAD AND ALL OTHER SITE IMPROVEMENTS MAY BE CONSTRUCTED CONCURRENTLY WITH THE VAULTS.
12. NOTIFY THE DNREC CONSTRUCTION REVIEWER AND THE CERTIFIED CONSTRUCTION REVIEWER AT LEAST THREE (3) DAYS PRIOR TO THE START OF BIORETENTION SYSTEM CONSTRUCTION; STORMWATER FACILITIES MUST BE REVIEWED THROUGHOUT THEIR CONSTRUCTION.
13. INSTALL THE TWO BIORETENTION FACILITIES PER THE SPECIFIC BIORETENTION FACILITY SEQUENCE OF CONSTRUCTION LOCATED ON THE FACILITY DETAIL SHEETS.
14. PLACE TOPSOIL, FINE GRADE, SEED AND MULCH, OR SOD ALL DISTURBED AREAS.
15. INSTALL ALL REQUIRED LANDSCAPING PER THIS PLAN.
16. EROSION AND SEDIMENT CONTROL DEVICES SHOULD BE REMOVED ONLY AFTER WORK IN AN AREA HAS BEEN COMPLETED AND STABILIZED, WITH WRITTEN APPROVAL FROM THE AGENCY CONSTRUCTION SITE REVIEWER.
17. THE TERMINATION OF THE CONSTRUCTION PERMIT WILL REQUIRE SUBMISSION AND ACCEPTANCE OF THE POST CONSTRUCTION VERIFICATION DOCUMENTS, INCLUDING FINAL STABILIZATION THROUGHOUT THE SITE, ALL ELEMENTS OF THE SEDIMENT AND STORMWATER PLAN IMPLEMENTED, AND ACCEPTANCE OF THE FINAL OPERATION AND MAINTENANCE PLAN.

	—*—	SPRINKLER & 2 WATERLINE	N/A
	—w—	MAIN WATERLINE	N/A
	⊠	TEST PIT	N/A
	⋯	WETLAND	N/A
	N/A	SILT FENCE	—(SF)—
	N/A	COMPOST FILTER LOG	—(CFL)—
	N/A	ORANGE CONSTRUCTION FENCE	—(OCF)—
1	N/A	TEMPORARY SWALE	—TS-(A)(1)— TS-(A)(1)
	N/A	VEGETATED CHANNEL - PARABOLIC	—VC-P— VC-P
	N/A	LIMITS OF DISTURBANCE & CONSTRUCTION	—(LOD)—
	N/A	INLET PROTECTION (IP-2)	⊠ (IP-2) P-2
	N/A	STABILIZED CONSTRUCTION ENTRANCE	⊠ SCE
	N/A	TEMPORARY SOIL STOCKPILE	TSS
	N/A	GEOTEXTILE DEWATERING BAG	GB
	N/A	STONE OUTLET SEDIMENT TRAP	SST
	N/A	PUMPING PIT - TYPE 1	PP-1
1	N/A	COMPOST FILTER LOG CHECK DAM	CD
	N/A	CONCRETE WASHOUT	CW
1	N/A	STABILIZATION MATTING - SLOPE	SM-S
	N/A	STABILIZATION MATTING - CHANNEL	SM-C
	N/A	TO BE REMOVED	==X==
	N/A	DRAINAGE BOUNDARY	■■■■■■■■■■
	N/A	SOILS BOUNDARY	- - - - - ImB

GI002-SK-1
DELAWARE VETERANS MEMORIAL CEMETERY
 BEAR, DELAWARE

DATE: 6/04/2016 PROJECT No.: DE-15-22

SCALE: NTS



VANDEMARK & LYNCH, INC.
 ENGINEERS - PLANNERS - SURVEYORS
 4305 MILLER ROAD
 WILMINGTON, DE 19802/(302) 764-7635
 WWW.VANDEMARKLYNCH.COM

2

GRAM MUST BE NOTIFIED
NSTRUCTION. FAILURE TO
ENT AND STORMWATER

ATER MANAGEMENT PLAN
RESPONSIBILITIES FOR
EDIMENT AND STORMWATER
M ERRORS OR OMISSIONS

L SEDIMENT AND
EMED NECESSARY BY THE

ENT OR TEMPORARY
EDIMENT CONTROLS, SOIL
S ON THE PROJECT SITE
ERAL REQUIREMENTS

OMPLY WITH THE
TEST EDITION.

BE PREVIOUSLY
FOR A NON-EROSIVE
E APPROVED BY THE

DATE OF APPROVAL.

SUBMITTED TO THE DNREC
STORMWATER

OT GRANT OR IMPLY A
VELOPER IS RESPONSIBLE
C., NECESSARY TO
S.

SOCIATED WITH
FOR THIS PROJECT IS
ANGES, A TRANSFER OF
SUBMITTED TO DNREC.
HEIR RESPONSIBILITIES
DNREC.

L ASPECTS OF THE
HE PROJECT, INCLUDING,
IS DURING CONSTRUCTION
OF THESE INSPECTIONS.

E CONTRACTOR SHALL
3 HOURS PRIOR TO
N SITE

SEQUENCE OF CONSTRUCTION

1. NOTIFY THE DNREC SEDIMENT AND STORMWATER MANAGEMENT PROGRAM IN WRITING AT LEAST FIVE (5) DAYS PRIOR TO THE START OF CONSTRUCTION. FAILURE TO DO SO CONSTITUTES A VIOLATION OF THE APPROVED SEDIMENT AND STORMWATER MANAGEMENT PLAN.
2. PRIOR TO ANY CLEARING, INSTALLATION OF SEDIMENT CONTROL MEASURES OR GRADING, A PRE-CONSTRUCTION MEETING MUST BE SCHEDULED AND CONDUCTED WITH THE AGENCY CONSTRUCTION SITE REVIEWER. THE LANDOWNER/DEVELOPER, CONTRACTOR, AND CERTIFIED CONSTRUCTION REVIEWER ARE REQUIRED TO BE IN ATTENDANCE AT THE PRE-CONSTRUCTION MEETING; THE DESIGNER IS RECOMMENDED TO ATTEND.
3. IF REQUIRED, THE DEVELOPER SHALL REQUEST, AT LEAST 48-HOURS IN ADVANCE, THAT DNREC EITHER MAKE A SITE INSPECTION OR ISSUE AN APPROVAL OF WORK COMPLETED AT THE FOLLOWING STAGES OF CONSTRUCTION:
 - A. UPON COMPLETION OF PERIMETER CONTROL INSTALLATION.
 - B. UPON ESTABLISHMENT OF PERMANENT VEGETATION.
 - C. UPON COMPLETION OF PROJECT.
4. CLEAR AND GRUB ONLY THOSE AREAS NECESSARY FOR INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROL MEASURES.
5. INSTALL PERIMETER EROSION AND SEDIMENT CONTROLS INCLUDING, STABILIZED CONSTRUCTION ENTRANCE, SILT FENCE, COMPOST FILTER LOGS, INLET PROTECTION, SEDIMENT TRAPS, TEMPORARY SWALES, VEGETATED CHANNELS, ETC. PRIOR TO SITE DISTURBANCE.
6. ALL PERIMETER CONTROLS ARE TO BE REVIEWED BY THE AGENCY CONSTRUCTION SITE REVIEWER AND APPROVED PRIOR TO PROCEEDING WITH FURTHER SITE DISTURBANCE OR CONSTRUCTION.
7. THE CONTRACTOR SHALL AT ALL TIMES PROTECT AGAINST SEDIMENT OR DEBRIS LADEN RUNOFF AND WIND FROM LEAVING THE SITE. PERIMETER CONTROLS SHOULD BE CHECKED DAILY AND ADJUSTED AND/OR REPAIRED TO FULLY CONTAIN AND CONTROL SEDIMENTATION ON THE SITE. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT HAS REACHED HALF OF THE EFFECTIVE CAPACITY OF THE CONTROL. IN ADDITION, THE CONTRACTOR MAY NEED TO ADJUST OR REPAIR MEASURES IN TIMES OF ADVERSE WEATHER CONDITIONS, OR AS DIRECTED BY THE AGENCY CONSTRUCTION SITE REVIEWER.
8. CLEAR AND GRUB REMAINING AREAS (WITHIN LIMIT OF DISTURBANCE). STRIP TOPSOIL AND STOCKPILE AT DESIGNATED LOCATIONS. REMOVE AND SALVAGE ANY EXISTING MEMORIAL PLAQUES LOCATED AT THE BASE OF TREES TO BE REMOVED AND PROVIDE THEM TO THE CEMETERY.
9. REMOVE EXISTING 18" STORM PIPE AS SHOWN ON PLAN. INSTALL PI STORM MANHOLES AND STORM PIPES PER PLAN.
10. EXCAVATE AND INSTALL IN-GROUND BURIAL VAULTS, AND BACKFILL. R CONFLICTING PRE-CONSTRUCTION SITE EROSION AND SEDIMENT CONTI VAULTS ARE EXCAVATED. UPON BACKFILLING OF THE VAULTS, TOPSOIL SHALL BE PLACED OVER COMPLETED VAULT AREA. INSTALL CONSTRUC EROSION AND SEDIMENT CONTROLS AS VAULTS ARE COMPLETED.



LEGENDS

EXISTING

	SIGN
	BRUSHLINE
	BUILDING
	CONTROL POINT
	CULVERT PIPE
	CURB
	FIRE HYDRANT
	FLAGPOLE
	HEDGELINE
	INDEX CONTOUR
	INTERMEDIATE CONTOUR
	INLET
	LIGHT POLE
	MANHOLE
	PAINT STRIPE
	PAVED ROAD
	POST
	POWER POLE
	SINGLE TREE
	SPOT ELEVATION
	TREELINE
	UNPAVED ROAD
	VALVE
	WALL
	WATER VALVE
	SPRINKLER & 2" WATERLINE
	MAIN WATERLINE
	TEST PIT

GI002-SK-2

DELAWARE VETERANS MEMORIAL CEMETERY

BEAR, DELAWARE

DATE: 6/04/2016

PROJECT No.: DE-15-22

SCALE: NTS



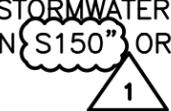
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DELEGATED AGENCY TO VERIFY THAT THE PERMANENT OR TEMPORARY STABILIZATION HAS BEEN COMPLETED IN ACCORDANCE WITH THE APPROVED PLAN. THE DEPARTMENT OR DELEGATED AGENCY MAY REQUIRE ADDITIONAL SOIL TESTING AND REAPPLICATION OF PERMANENT OR TEMPORARY STABILIZATION IN ACCORDANCE WITH SPECIFICATIONS PROVIDED IN THE *DELAWARE EROSION AND SEDIMENT CONTROL HANDBOOK*, OR ALTERNATIVE MEASURES THAT PROVIDE FUNCTIONAL EQUIVALENCY.

17. THE TERMINATION OF THE CONSTRUCTION PERMIT WILL REQUIRE SUBMISSION ACCEPTANCE OF THE POST CONSTRUCTION VERIFICATION DOCUMENTS, INCLUDING FINAL STABILIZATION THROUGHOUT THE SITE, ALL ELEMENTS OF THE SEDIMENT STORMWATER PLAN IMPLEMENTED, AND ACCEPTANCE OF THE FINAL OPERATIONAL MAINTENANCE PLAN.

EROSION AND SEDIMENT CONTROL GENERAL NOTES

1. ANY DEVIATION FROM THE SEQUENCE OF CONSTRUCTION INDICATED ON THIS DRAWING SHALL BE APPROVED BY DNREC.
2. MINOR FIELD ADJUSTMENTS MAY BE MADE TO INSURE THE CONTROL OF SEDIMENT, UPON APPROVAL OF THE SEDIMENT CONTROL REPRESENTATIVE.
3. ALL SEDIMENT CONTROL DEVICES, ONCE INSTALLED, SHALL BE APPROVED BY SEDIMENT CONTROL REPRESENTATIVES BEFORE PROCEEDING WITH ACTUAL CONSTRUCTION.
4. AT THE END OF EACH WORKING DAY ALL SEDIMENT CONTROL DEVICES SHALL BE INSPECTED AND LEFT IN FUNCTIONAL CONDITION.
5. NO SPOILS, STOCKPILED OR EXCAVATED MATERIAL MAY BE DISCHARGED INTO WETLANDS REGULATED BY THE STATE OF DELAWARE OR THE U.S. ARMY CORPS OF ENGINEERS.
6. CONTACT DNREC, SEDIMENT AND STORMWATER PROGRAM PRIOR TO COMMENCEMENT OF ANY WELL POINT OPERATIONS.
7. EROSION CONTROL MATTING IS REQUIRED IN OPEN CHANNELS AND ON SLOPES OF 3H:1V OR STEEPER. MATTING SHALL BE INSTALLED ON SLOPES OF 4H:1V OR STEEPER ADJACENT TO STORMWATER MANAGEMENT FACILITIES. MATTING SHALL BE "NORTH AMERICAN GREEN S150" OR AN EQUAL APPROVED BY DNREC, SEDIMENT AND STORMWATER PROGRAM.
8. LOCATE STOCKPILES ON AREAS WITH LITTLE OR NO SLOPE. STOCKPILES MUST BE SURROUNDED WITH SILT FENCE OR A STABILIZED EARTHEN BERM. STOCKPILE HEIGHTS SHALL NOT EXCEED 20'. STOCKPILE SLOPES SHALL BE 3:1 OR FLATTER.
9. STOCKPILING OF EXCAVATED MATERIAL OUTSIDE OF THE CONTRACT AREA SHALL REQUIRE AN ADDITIONAL EROSION AND SEDIMENT CONTROL PLAN FOR THAT LOCATION. PLAN MUST BE SUBMITTED AND APPROVED BY DNREC.
10. TO PREVENT OR REDUCE MOVEMENT OF DUST FROM DISTURBED SOIL SURFACES, THE CONTRACTOR SHALL SPRINKLE THE SITE WITH WATER UNTIL THE SURFACE IS MOIST AND REPEAT AS NECESSARY.
11. ALL GRADED AREAS TO BE SEEDED SHALL HAVE A 4" MINIMUM DEPTH OF TOP SOIL.
12. THE DELAWARE COMMISSION OF VETERANS AFFAIRS WILL BE RESPONSIBLE FOR ALL MAINTENANCE OF THE STORMWATER MANAGEMENT FACILITIES ONCE CONSTRUCTED.



1/2" = 1' VERTICAL SCALE

GI002-SK-3

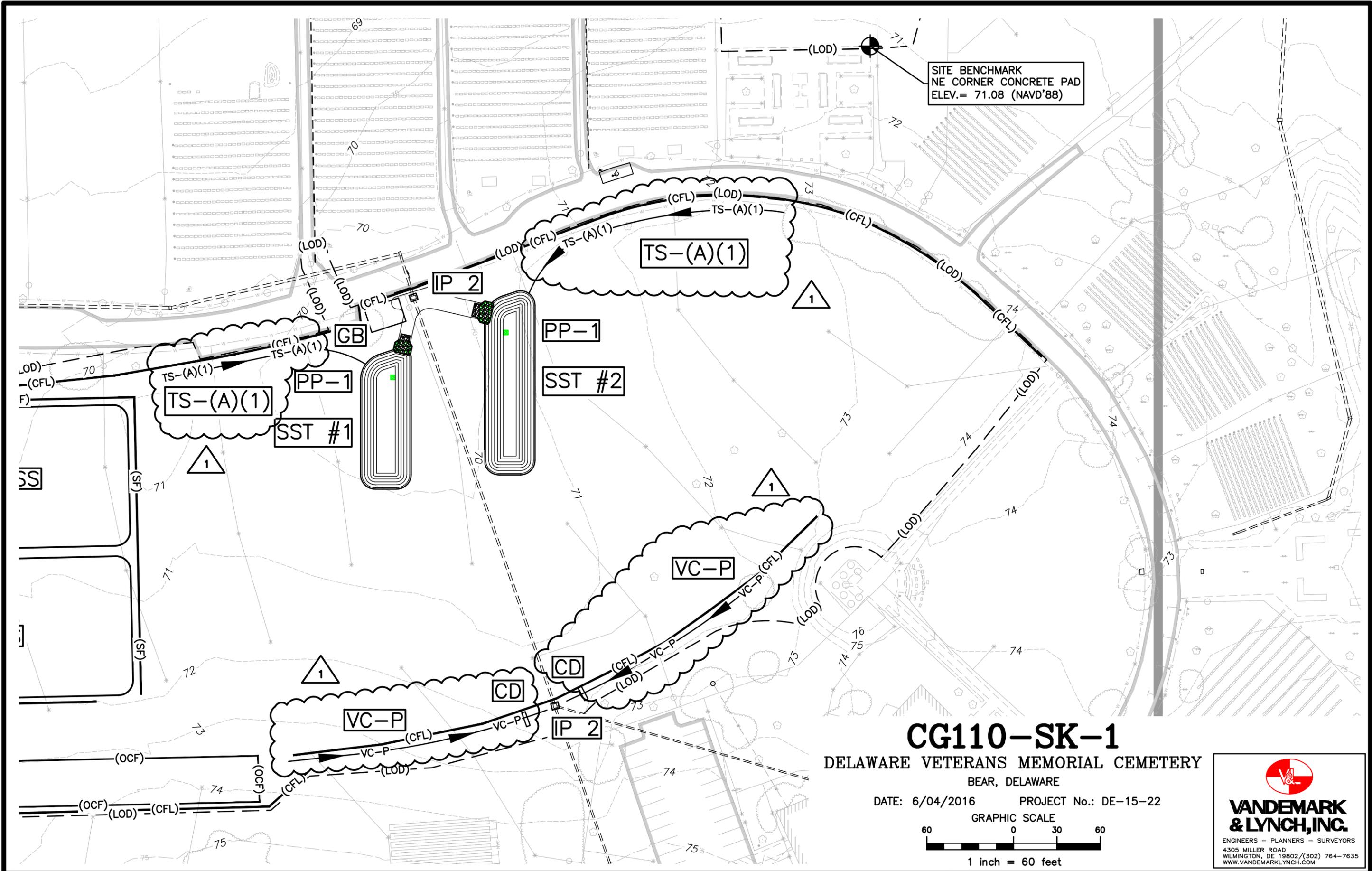
DELAWARE VETERANS MEMORIAL CEMETERY

BEAR, DELAWARE

DATE: 6/04/2016 PROJECT No.: DE-15-22

SCALE: NTS





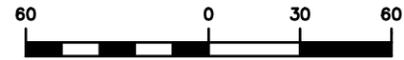
CG110-SK-1

DELAWARE VETERANS MEMORIAL CEMETERY

BEAR, DELAWARE

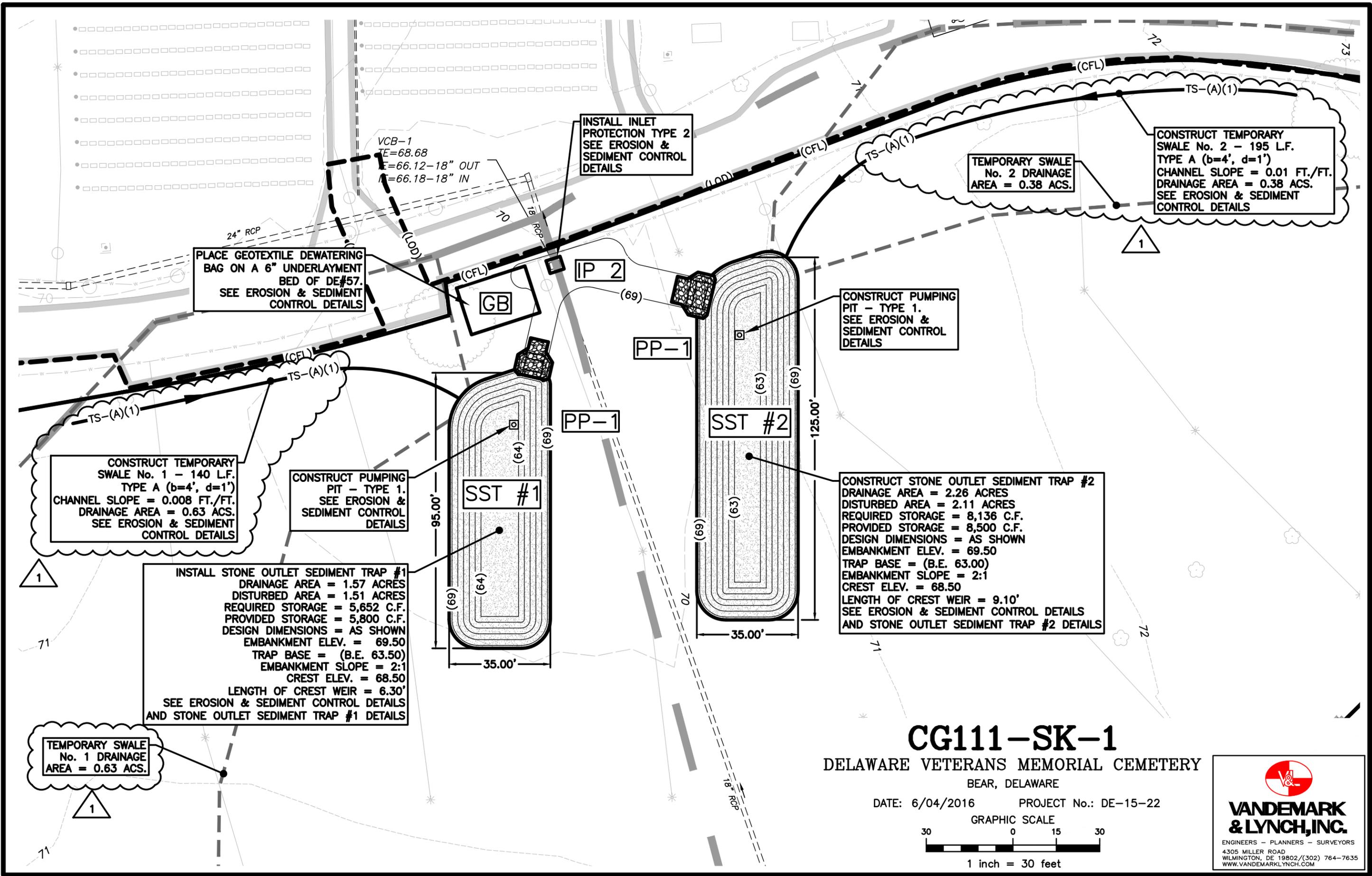
DATE: 6/04/2016 PROJECT No.: DE-15-22

GRAPHIC SCALE



1 inch = 60 feet

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INSTALL INLET PROTECTION TYPE 2 SEE EROSION & SEDIMENT CONTROL DETAILS

CONSTRUCT TEMPORARY SWALE No. 2 - 195 L.F. TYPE A (b=4', d=1') CHANNEL SLOPE = 0.01 FT./FT. DRAINAGE AREA = 0.38 ACS. SEE EROSION & SEDIMENT CONTROL DETAILS

TEMPORARY SWALE No. 2 DRAINAGE AREA = 0.38 ACS.

PLACE GEOTEXTILE DEWATERING BAG ON A 6" UNDERLAYMENT BED OF DE#57. SEE EROSION & SEDIMENT CONTROL DETAILS

CONSTRUCT PUMPING PIT - TYPE 1. SEE EROSION & SEDIMENT CONTROL DETAILS

CONSTRUCT TEMPORARY SWALE No. 1 - 140 L.F. TYPE A (b=4', d=1') CHANNEL SLOPE = 0.008 FT./FT. DRAINAGE AREA = 0.63 ACS. SEE EROSION & SEDIMENT CONTROL DETAILS

CONSTRUCT PUMPING PIT - TYPE 1. SEE EROSION & SEDIMENT CONTROL DETAILS

CONSTRUCT STONE OUTLET SEDIMENT TRAP #2 DRAINAGE AREA = 2.26 ACRES DISTURBED AREA = 2.11 ACRES REQUIRED STORAGE = 8,136 C.F. PROVIDED STORAGE = 8,500 C.F. DESIGN DIMENSIONS = AS SHOWN EMBANKMENT ELEV. = 69.50 TRAP BASE = (B.E. 63.00) EMBANKMENT SLOPE = 2:1 CREST ELEV. = 68.50 LENGTH OF CREST WEIR = 9.10' SEE EROSION & SEDIMENT CONTROL DETAILS AND STONE OUTLET SEDIMENT TRAP #2 DETAILS

INSTALL STONE OUTLET SEDIMENT TRAP #1 DRAINAGE AREA = 1.57 ACRES DISTURBED AREA = 1.51 ACRES REQUIRED STORAGE = 5,652 C.F. PROVIDED STORAGE = 5,800 C.F. DESIGN DIMENSIONS = AS SHOWN EMBANKMENT ELEV. = 69.50 TRAP BASE = (B.E. 63.50) EMBANKMENT SLOPE = 2:1 CREST ELEV. = 68.50 LENGTH OF CREST WEIR = 6.30' SEE EROSION & SEDIMENT CONTROL DETAILS AND STONE OUTLET SEDIMENT TRAP #1 DETAILS

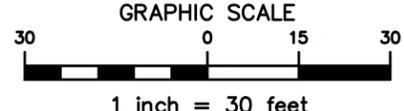
TEMPORARY SWALE No. 1 DRAINAGE AREA = 0.63 ACS.

CG111-SK-1

DELAWARE VETERANS MEMORIAL CEMETERY

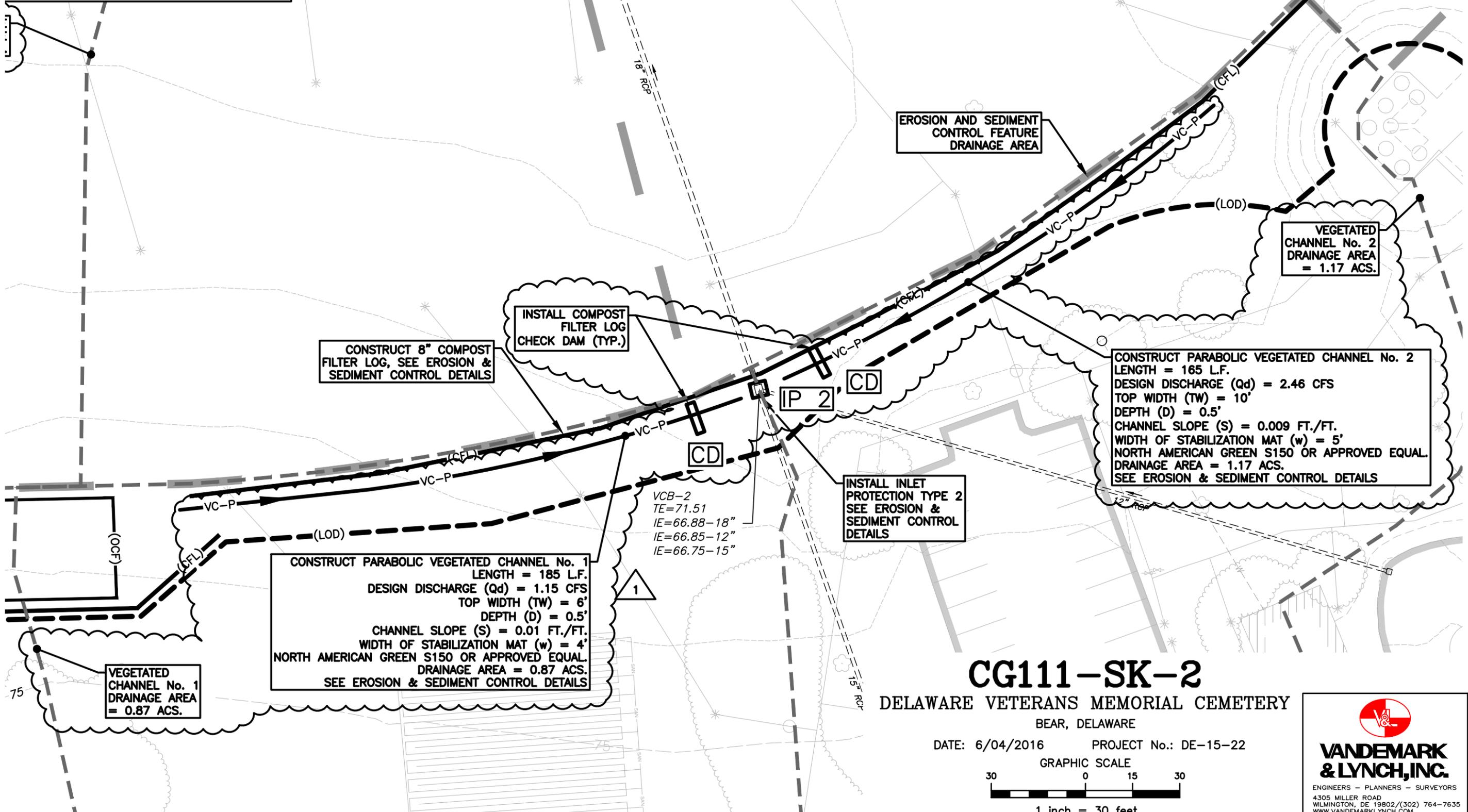
BEAR, DELAWARE

DATE: 6/04/2016 PROJECT No.: DE-15-22



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DESIGN DIMENSIONS = AS SHOWN
 EMBANKMENT ELEV. = 69.50
 TRAP BASE = (B.E. 63.50)
 EMBANKMENT SLOPE = 2:1
 CREST ELEV. = 68.50
 LENGTH OF CREST WEIR = 6.30'
 SEE EROSION & SEDIMENT CONTROL DETAILS
 AND STONE OUTLET SEDIMENT TRAP #1 DETAILS



CONSTRUCT PARABOLIC VEGETATED CHANNEL No. 1
 LENGTH = 185 L.F.
 DESIGN DISCHARGE (Qd) = 1.15 CFS
 TOP WIDTH (TW) = 6'
 DEPTH (D) = 0.5'
 CHANNEL SLOPE (S) = 0.01 FT./FT.
 WIDTH OF STABILIZATION MAT (w) = 4'
 NORTH AMERICAN GREEN S150 OR APPROVED EQUAL.
 DRAINAGE AREA = 0.87 ACS.
 SEE EROSION & SEDIMENT CONTROL DETAILS

CONSTRUCT PARABOLIC VEGETATED CHANNEL No. 2
 LENGTH = 165 L.F.
 DESIGN DISCHARGE (Qd) = 2.46 CFS
 TOP WIDTH (TW) = 10'
 DEPTH (D) = 0.5'
 CHANNEL SLOPE (S) = 0.009 FT./FT.
 WIDTH OF STABILIZATION MAT (w) = 5'
 NORTH AMERICAN GREEN S150 OR APPROVED EQUAL.
 DRAINAGE AREA = 1.17 ACS.
 SEE EROSION & SEDIMENT CONTROL DETAILS

INSTALL INLET PROTECTION TYPE 2
 SEE EROSION & SEDIMENT CONTROL DETAILS

INSTALL COMPOST FILTER LOG CHECK DAM (TYP.)

CONSTRUCT 8" COMPOST FILTER LOG, SEE EROSION & SEDIMENT CONTROL DETAILS

EROSION AND SEDIMENT CONTROL FEATURE DRAINAGE AREA

VEGETATED CHANNEL No. 2 DRAINAGE AREA = 1.17 ACS.

VEGETATED CHANNEL No. 1 DRAINAGE AREA = 0.87 ACS.

VCB-2
 TE=71.51
 IE=66.88-18"
 IE=66.85-12"
 IE=66.75-15"

CG111-SK-2
 DELAWARE VETERANS MEMORIAL CEMETERY

BEAR, DELAWARE

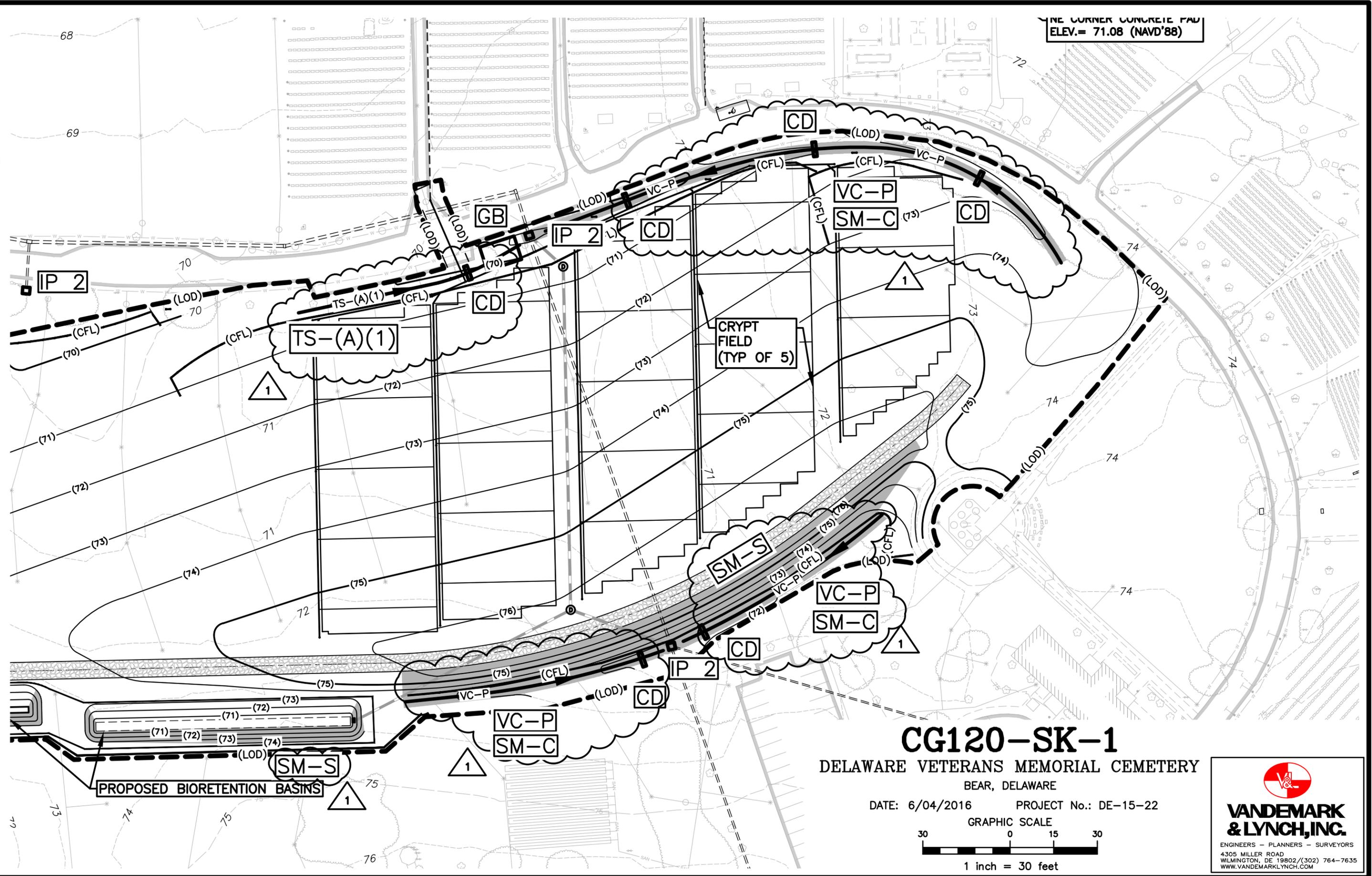
DATE: 6/04/2016 PROJECT No.: DE-15-22



1 inch = 30 feet

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NE CORNER CONCRETE PAD
ELEV.= 71.08 (NAVD'88)



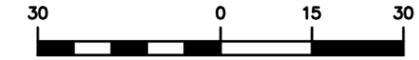
CG120-SK-1

DELAWARE VETERANS MEMORIAL CEMETERY

BEAR, DELAWARE

DATE: 6/04/2016 PROJECT No.: DE-15-22

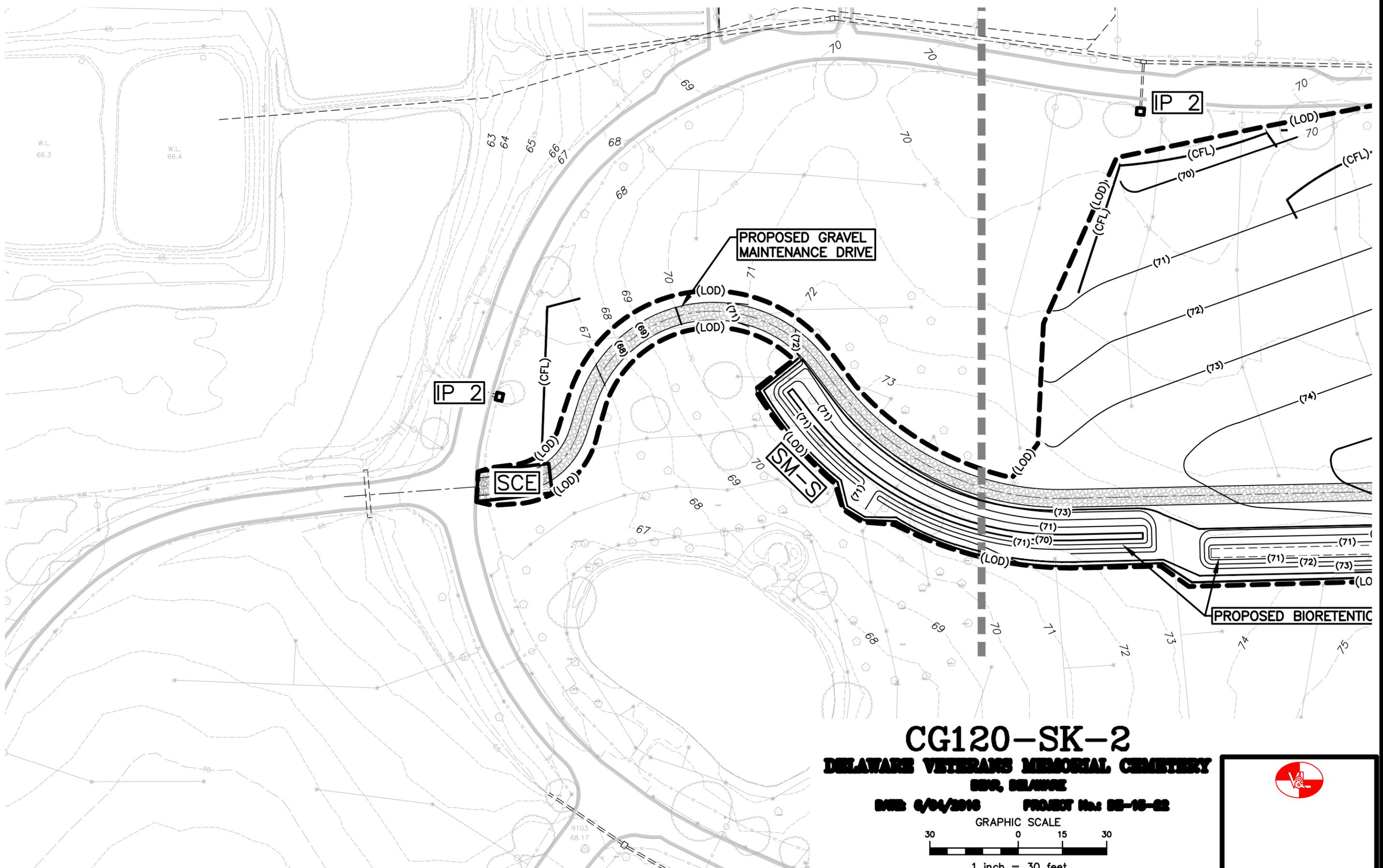
GRAPHIC SCALE



1 inch = 30 feet



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**PROPOSED GRAVEL
MAINTENANCE DRIVE**

IP 2

SCE

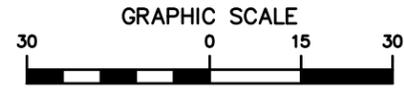
SM-S

IP 2

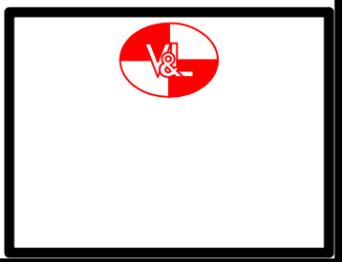
PROPOSED BIORETENTIC

CG120-SK-2
DELAWARE VETERANS MEMORIAL CEMETERY
 DEW, DELAWARE

DATE: 6/04/2016 PROJECT No.: DE-15-02



1 inch = 30 feet



ELEV. = 71.08 (NAVD'88)

CONVERT TEMPORARY SWALE No. 2
TO VEGETATED CHANNEL No. 3
LENGTH = 395 L.F.
DESIGN DISCHARGE (Qd) = 1.88 CFS
TOP WIDTH (TW) = 15'
DEPTH (D) = 0.8'
CHANNEL SLOPE (S) = 0.01 FT./FT.
WIDTH OF STABILIZATION MAT (w) = 8'
NORTH AMERICAN GREEN S150 OR
APPROVED EQUAL.
DRAINAGE AREA = 2.11 ACS.
SEE EROSION & SEDIMENT CONTROL DETAILS

INSTALL COMPOST FILTER LOG
CHECK DAM (TYP. OF 4)

STABILIZE CHANNEL WITH
NORTH AMERICAN GREEN
S150, APPROVED EQUAL OR
SOD. SEE SM-C DETAILS.

VEGETATED CHANNEL No. 3
DRAINAGE AREA = 2.11 ACS.

PROPOSED
CRYPT FIELD
(TYP OF 5)

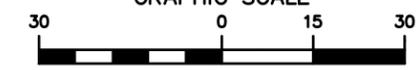
CG121-SK-1

DELAWARE VETERANS MEMORIAL CEMETERY

BEAR, DELAWARE

DATE: 6/04/2016 PROJECT No.: DE-15-22

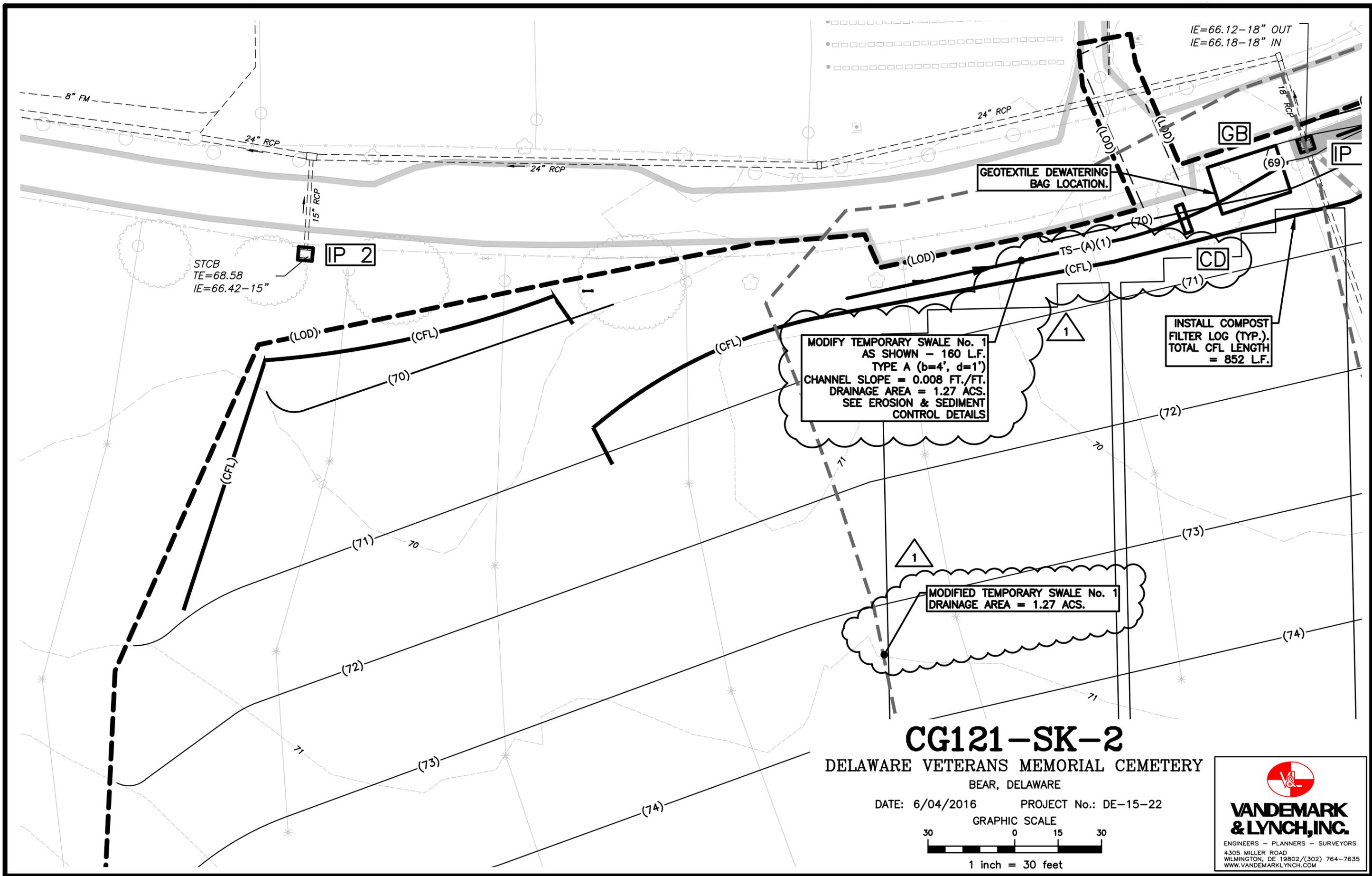
GRAPHIC SCALE



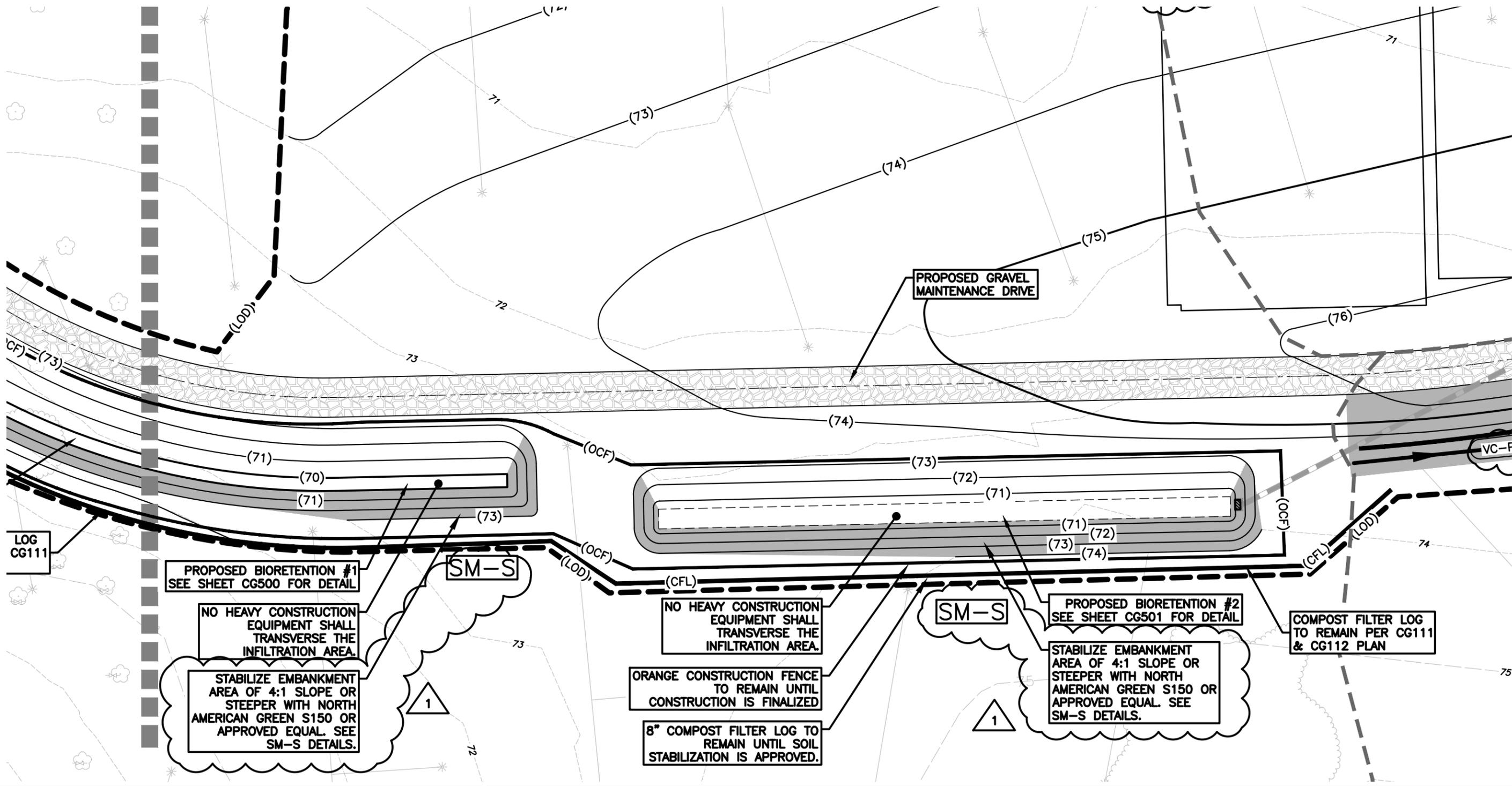
1 inch = 30 feet



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LOG CG111

PROPOSED BIORETENTION #1
SEE SHEET CG500 FOR DETAIL

NO HEAVY CONSTRUCTION
EQUIPMENT SHALL
TRANSVERSE THE
INFILTRATION AREA.

STABILIZE EMBANKMENT
AREA OF 4:1 SLOPE OR
STEEPER WITH NORTH
AMERICAN GREEN S150 OR
APPROVED EQUAL. SEE
SM-S DETAILS.

SM-S

NO HEAVY CONSTRUCTION
EQUIPMENT SHALL
TRANSVERSE THE
INFILTRATION AREA.

ORANGE CONSTRUCTION FENCE
TO REMAIN UNTIL
CONSTRUCTION IS FINALIZED

8" COMPOST FILTER LOG TO
REMAIN UNTIL SOIL
STABILIZATION IS APPROVED.

SM-S

PROPOSED BIORETENTION #2
SEE SHEET CG501 FOR DETAIL

STABILIZE EMBANKMENT
AREA OF 4:1 SLOPE OR
STEEPER WITH NORTH
AMERICAN GREEN S150 OR
APPROVED EQUAL. SEE
SM-S DETAILS.

COMPOST FILTER LOG
TO REMAIN PER CG111
& CG112 PLAN

CONSULTANTS:

STRUCTURAL
STEINLE CONSTRUCTION ENGINEERS
A DIVISION OF VANDEMARK & LYNCH, INC.



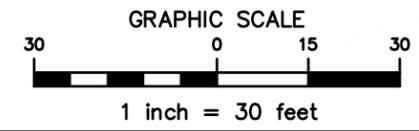
MECHANICAL/ELECTRICAL



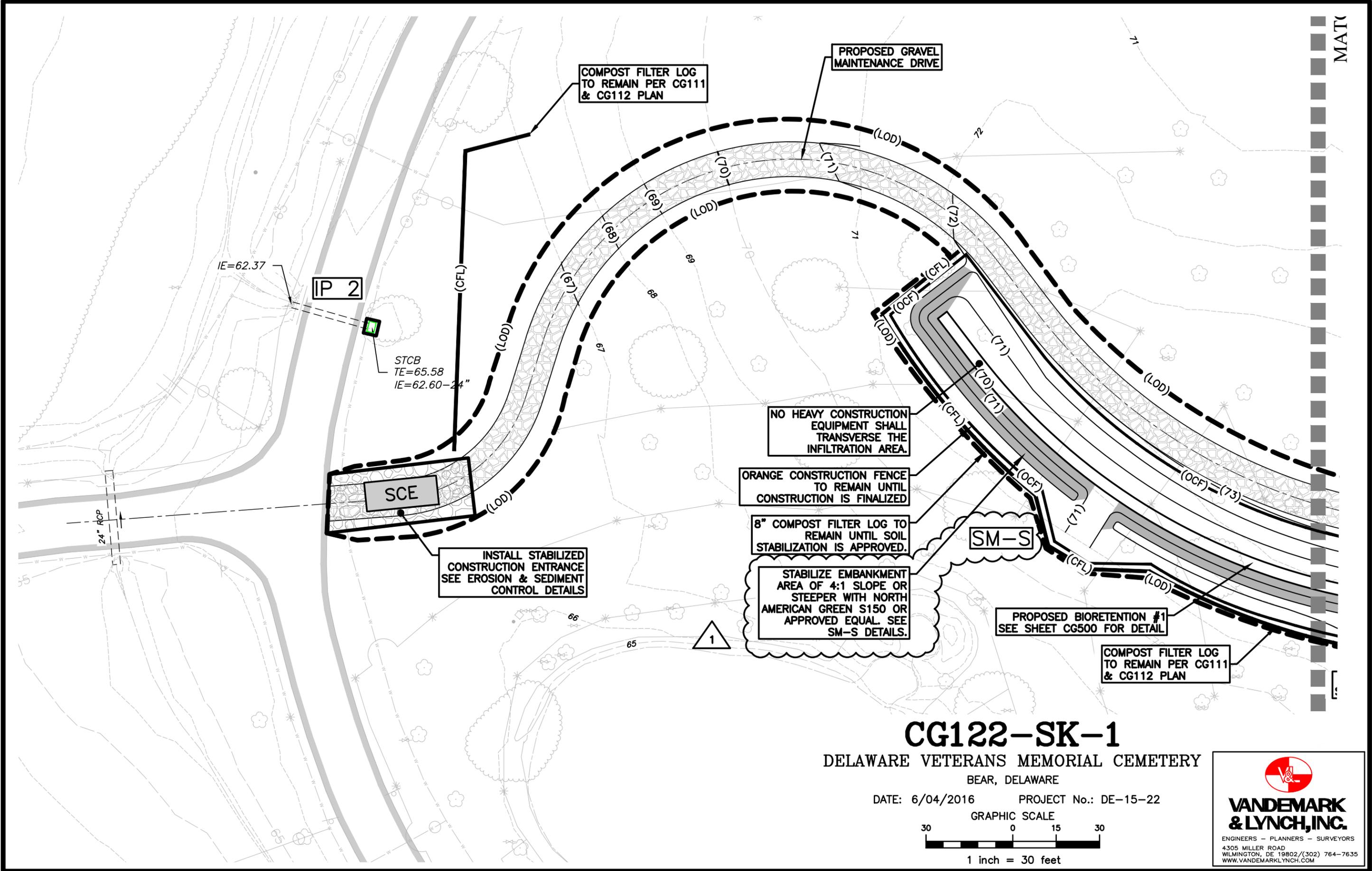
MECHANICAL/ELECTRICAL

CG121-SK-4
DELAWARE VETERANS MEMORIAL CEMETERY
BEAR, DELAWARE

DATE: 6/04/2016 PROJECT No.: DE-15-22



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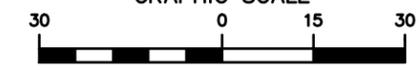
CG122-SK-1

DELAWARE VETERANS MEMORIAL CEMETERY

BEAR, DELAWARE

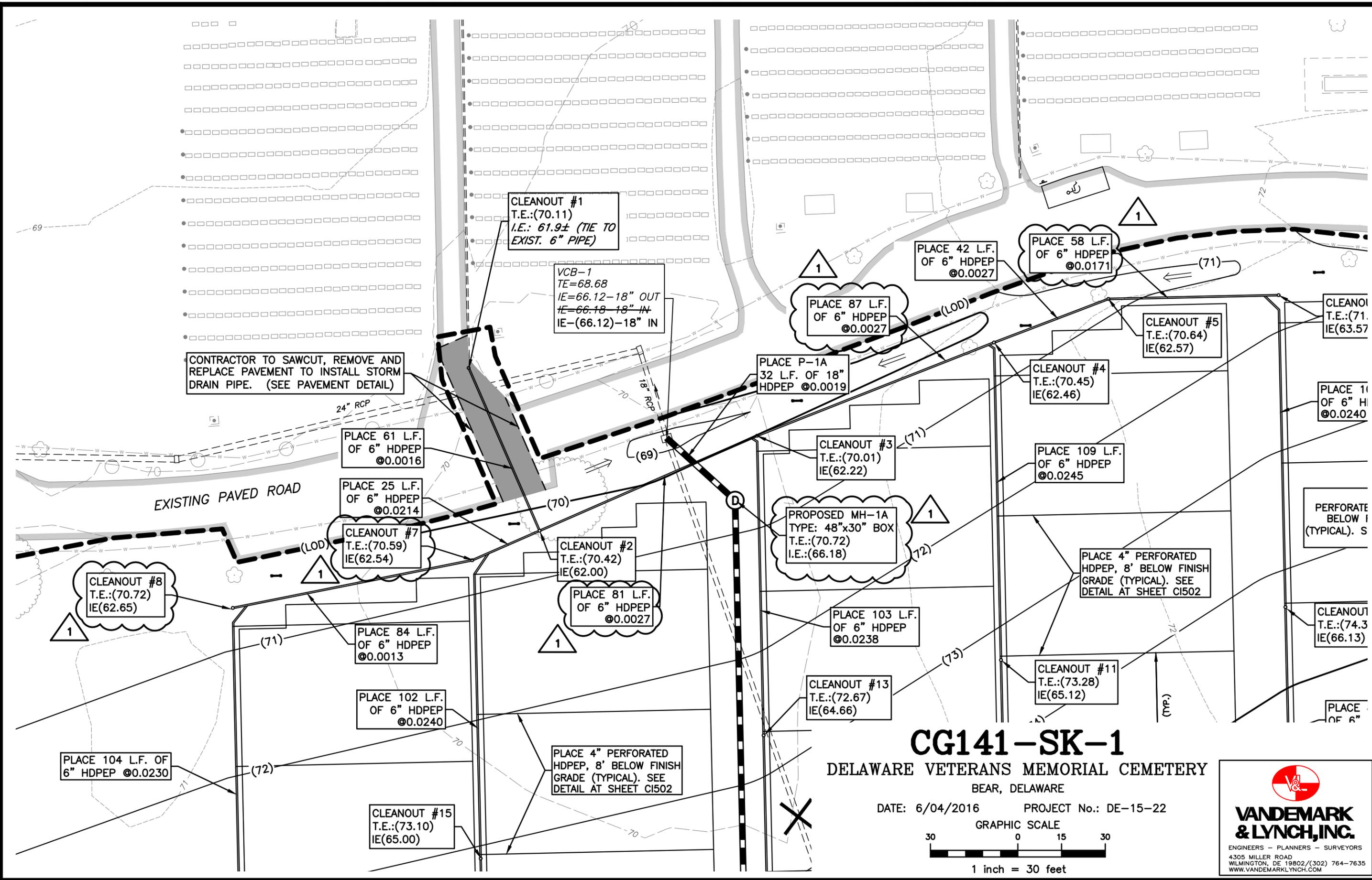
DATE: 6/04/2016 PROJECT No.: DE-15-22

GRAPHIC SCALE



1 inch = 30 feet

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CONTRACTOR TO SAWCUT, REMOVE AND REPLACE PAVEMENT TO INSTALL STORM DRAIN PIPE. (SEE PAVEMENT DETAIL)

CLEANOUT #1
T.E.:(70.11)
I.E.: 61.9± (TIE TO EXIST. 6" PIPE)

VCB-1
TE=68.68
IE=66.12-18" OUT
IE=66.18-18" IN
IE-(66.12)-18" IN

PLACE 87 L.F. OF 6" HDPEP @0.0027

PLACE 42 L.F. OF 6" HDPEP @0.0027

PLACE 58 L.F. OF 6" HDPEP @0.0171

CLEANOUT #5
T.E.:(70.64)
IE(62.57)

CLEANOUT
T.E.:(71.1)
IE(63.57)

PLACE 11 OF 6" HDPEP @0.0240

CLEANOUT #4
T.E.:(70.45)
IE(62.46)

PLACE P-1A
32 L.F. OF 18" HDPEP @0.0019

PLACE 109 L.F. OF 6" HDPEP @0.0245

CLEANOUT #3
T.E.:(70.01)
IE(62.22)

PERFORATE BELOW 1 (TYPICAL). SEE

PROPOSED MH-1A
TYPE: 48"x30" BOX
T.E.:(70.72)
I.E.:(66.18)

PLACE 4" PERFORATED HDPEP, 8' BELOW FINISH GRADE (TYPICAL). SEE DETAIL AT SHEET C1502

PLACE 61 L.F. OF 6" HDPEP @0.0016

PLACE 25 L.F. OF 6" HDPEP @0.0214

CLEANOUT #7
T.E.:(70.59)
IE(62.54)

CLEANOUT #2
T.E.:(70.42)
IE(62.00)

PLACE 81 L.F. OF 6" HDPEP @0.0027

PLACE 103 L.F. OF 6" HDPEP @0.0238

CLEANOUT
T.E.:(74.3)
IE(66.13)

CLEANOUT #8
T.E.:(70.72)
IE(62.65)

PLACE 84 L.F. OF 6" HDPEP @0.0013

PLACE 102 L.F. OF 6" HDPEP @0.0240

CLEANOUT #13
T.E.:(72.67)
IE(64.66)

CLEANOUT #11
T.E.:(73.28)
IE(65.12)

PLACE OF 6"

PLACE 104 L.F. OF 6" HDPEP @0.0230

PLACE 4" PERFORATED HDPEP, 8' BELOW FINISH GRADE (TYPICAL). SEE DETAIL AT SHEET C1502

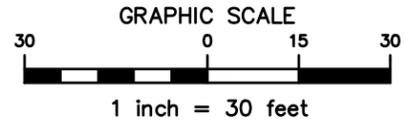
CLEANOUT #15
T.E.:(73.10)
IE(65.00)

CG141-SK-1

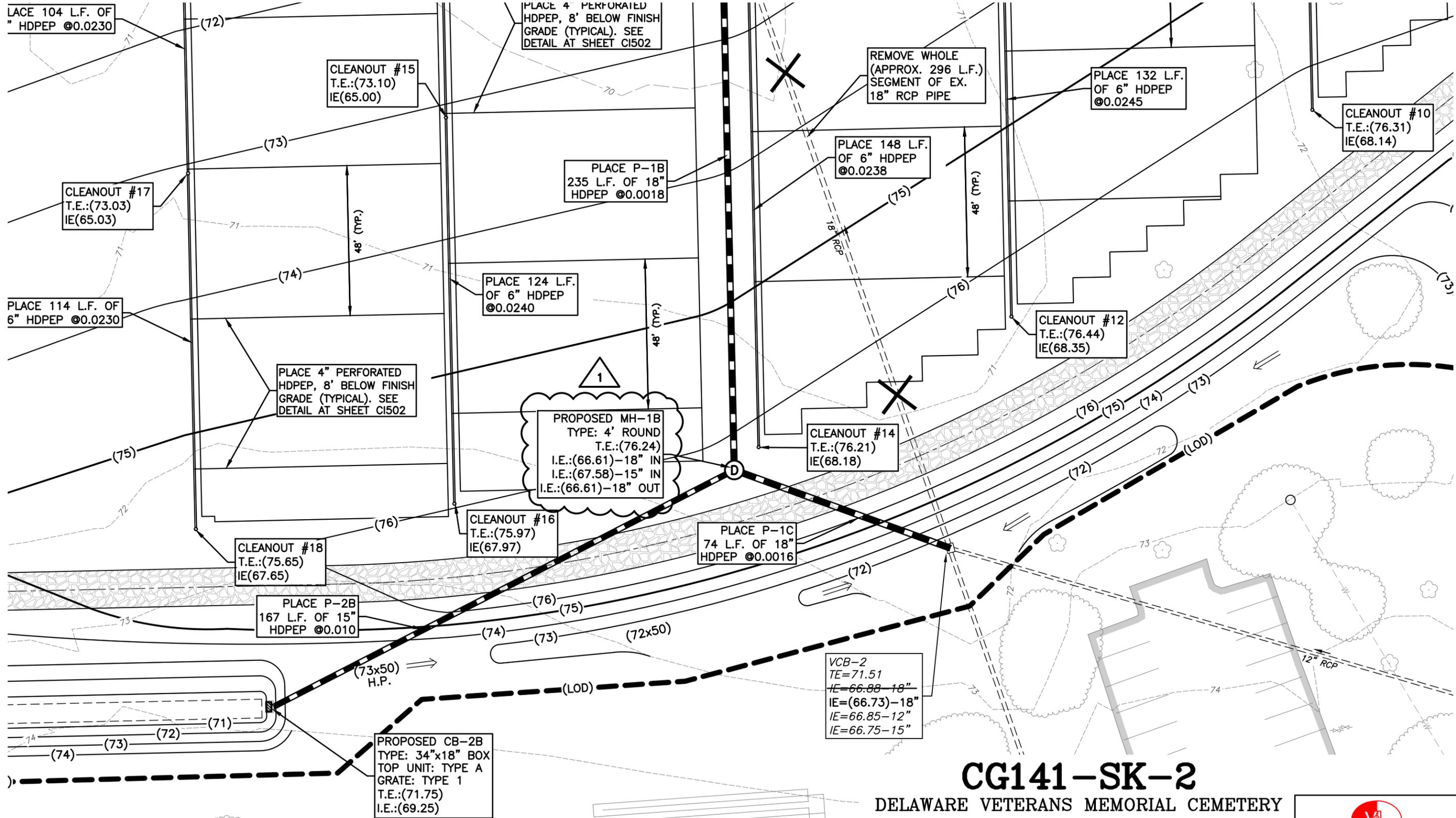
DELAWARE VETERANS MEMORIAL CEMETERY

BEAR, DELAWARE

DATE: 6/04/2016 PROJECT No.: DE-15-22



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CG141-SK-2

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GRAPHIC SCALE



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11. CARE IS TO BE TAKEN DURING INSTALLATION OF PLANTING. COMPACTED SOIL.

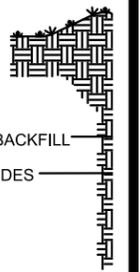
BIO-RETENTION AREA PLANTINGS

BIO-RETENTION AREA #1
 APPROXIMATE SOIL MIX SURFACE AREA: 0.025 ACRES
 X 1000 PLANTS PER ACRE = 25 PLANTS

PROVIDED WITH:
 (SHRUBS) 10-CA, 6-CAS & 13-IV

SET ROOT BALL 2" ABOVE GRADE. - REMOVE EXCESS SOIL ON TOP OF THE BALL, JUST EXPOSING THE ROOT FLARE.

3" LAYER SHREDDED HARDWOOD - BARK MULCH. (DO NOT PLACE IN CONTACT WITH SHRUB TRUNK)

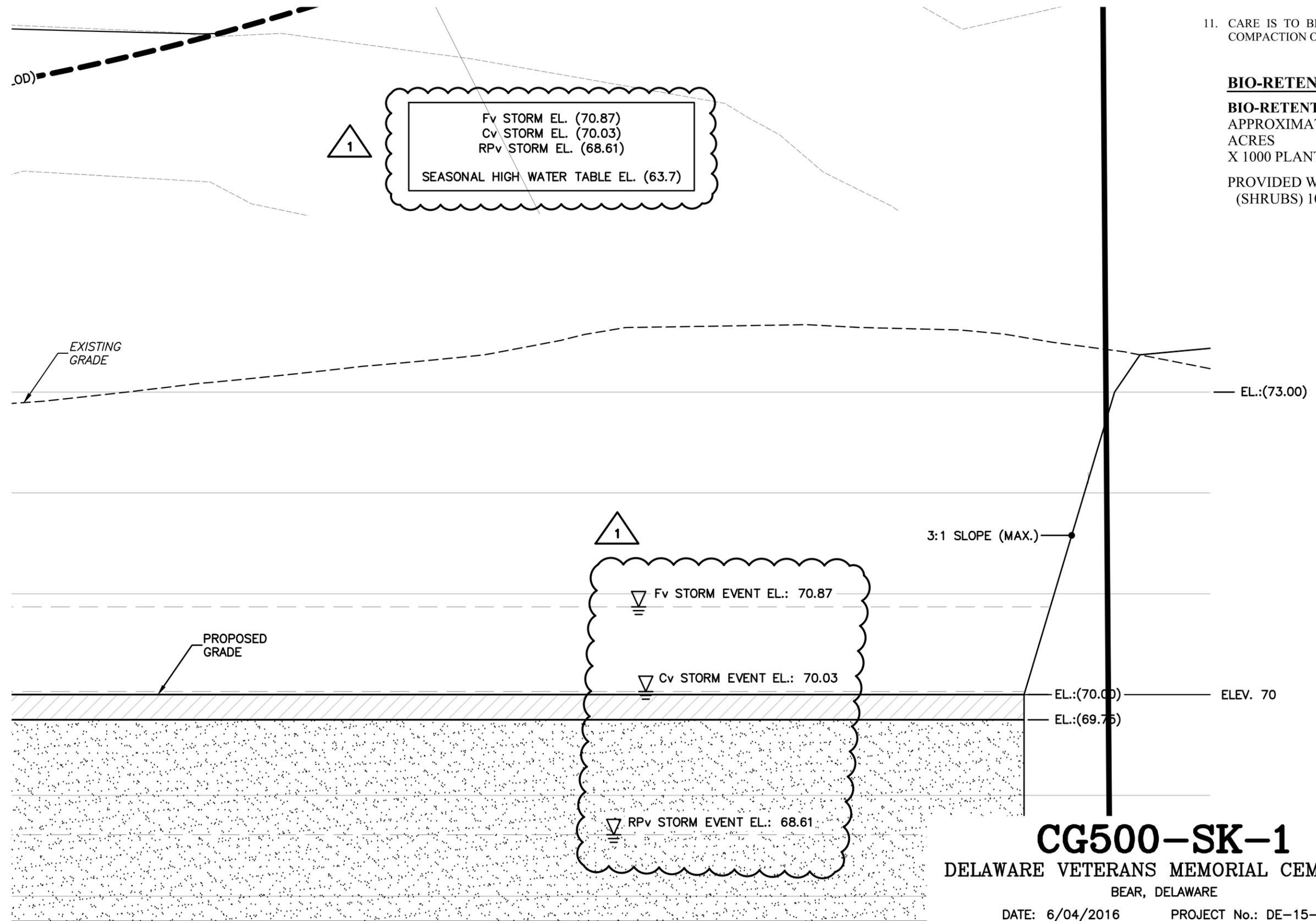


SPECIFIED BACKFILL
 SCARIFY SIDES

DE'

SPECIFICATIONS FOR PLANTING SOIL

THE BIORETENTION BIOSOIL-1 SAND (FINENESS MODULUS > 10% AGED STA CERTIFIED CO) BY SUPPLIERS APPROVED BY DNREC REQUIREMENTS. CONT



Fv STORM EL. (70.87)
 Cv STORM EL. (70.03)
 Rpv STORM EL. (68.61)
 SEASONAL HIGH WATER TABLE EL. (63.7)

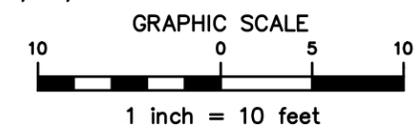
Fv STORM EVENT EL.: 70.87
 Cv STORM EVENT EL.: 70.03
 Rpv STORM EVENT EL.: 68.61

3:1 SLOPE (MAX.)

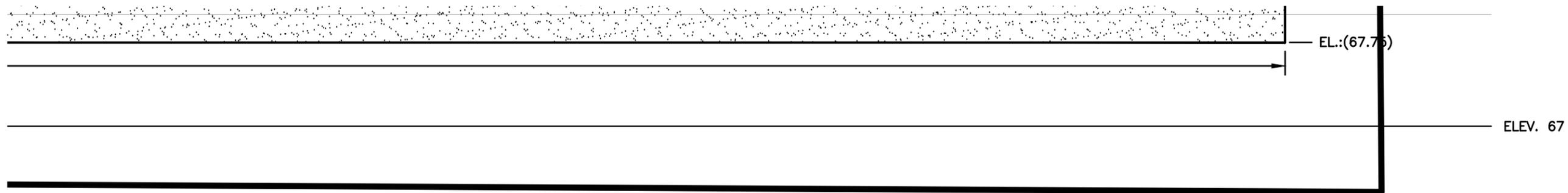
CG500-SK-1

DELAWARE VETERANS MEMORIAL CEMETERY
 BEAR, DELAWARE

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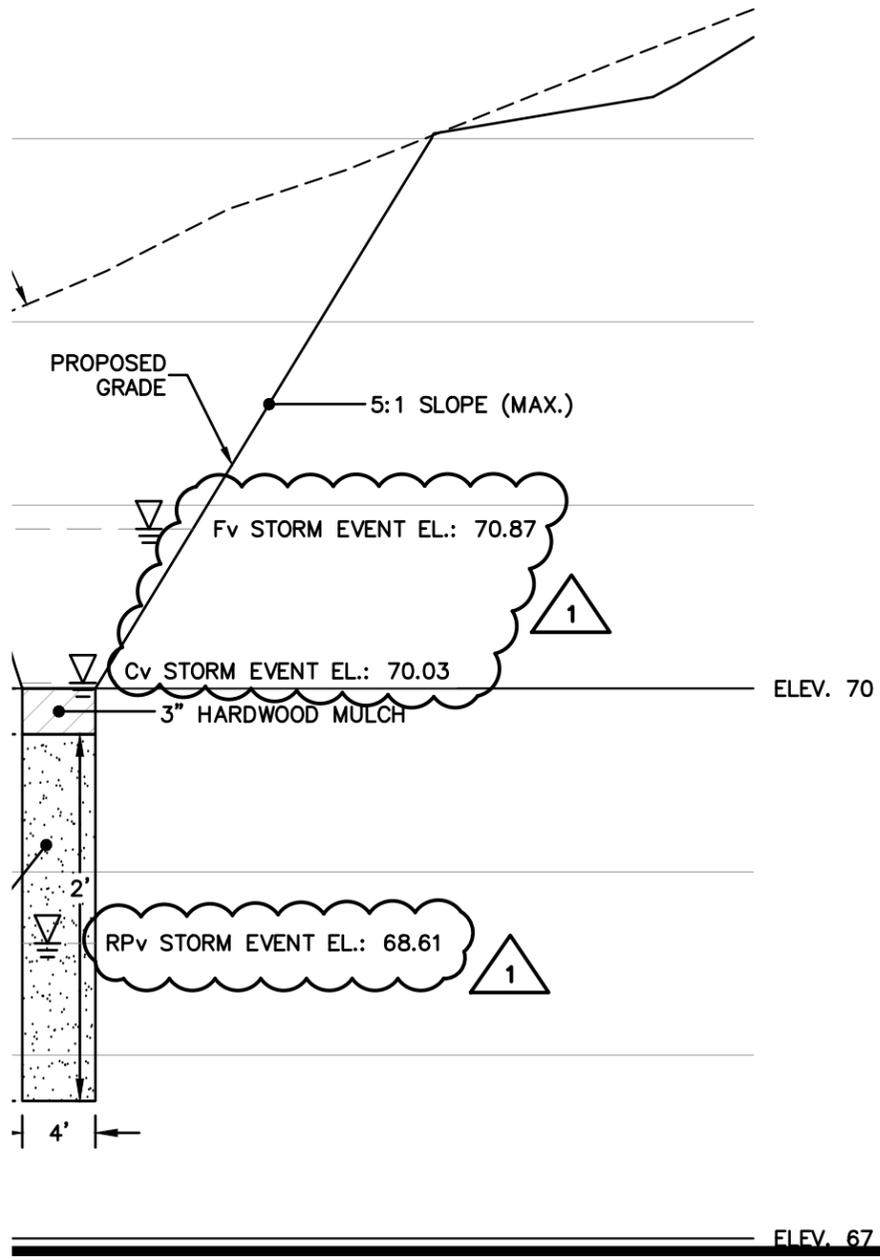


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SECTION A-A
 HORZ. SCALE: 1" = 10'
 VERT. SCALE: 1" = 1'

- BIORETENTION BASIN SEQUENCE OF CONSTRUCTION**
1. THE BIORETENTION FACILITY SHALL BE CONSTRUCTED FROM EITHER SIDE OF THE PLANTING SOIL AREA. CONSTRUCTION EQUIPMENT SHALL NOT TRAVERSE PROPOSED PLANTING SOIL AREA. COMPACTION IN THIS AREA IS PROHIBITED.
 2. ONCE THE CONTRIBUTING DRAINAGE AREA TO THE BASIN IS STABILIZED TO THE SATISFACTION OF THE INSPECTOR OR RUNOFF IS DIVERTED AROUND BASIN, CONSTRUCTION MAY BEGIN.
 3. GRADE BIORETENTION BASIN AND EXCAVATE BIORETENTION AREA TO ACCOMMODATE PLANTING SOIL.
 4. SCARIFY THE EXISTING SOIL SURFACES, TAKING CARE NOT TO COMPACT THE IN-SITU MATERIALS. WHEELS OF RUBBER TIRED EQUIPMENT SHALL NOT COME INTO CONTACT WITH BIORETENTION AREA TO PREVENT COMPACTION.
 5. BACKFILL BIORETENTION AREA WITH PLANTING SOIL AS SHOWN IN THE PLANS AND DETAILED IN THE SPECIFICATIONS. OVERFILLING IS RECOMMENDED TO ACCOUNT FOR SETTLEMENT.
 6. INSTALL COMPOST FILTER LOG AROUND PLANTING SOIL.
 7. PRESOAK THE PLANTING SOIL PRIOR TO PLANTING VEGETATION TO ALLOW FOR SETTLEMENT. THIS CAN BE DONE BY WATER TRUCK OR ALLOWING WATER TO ENTER THE PIT FROM A RAIN EVENT.
 8. EXCAVATE OR FILL TO ACHIEVE PROPER DESIGN GRADE, LEAVING SPACE FOR THE UPPER LAYER OF MULCH THAT WILL BRING THE SURFACE TO FINAL GRADE AND READY FOR PLANTING.
 9. INSTALL NORTH AMERICAN GREEN S150 OR APPROVED EQUIVALENT ON SLOPES OF 4:1 OR STEEPER. STABILIZE ALL OTHER DISTURBED AREAS WITH 6" OF TOPSOIL, PERMANENT SEED MIX #3 AND MULCH.
 10. PLANT VEGETATION AS SPECIFIED ON THIS SHEET FOR THE BIORETENTION AREA AND PLACE 3" OF TRIPLE SHREADED HARDWOOD MULCH PER THE DETAILS ON THIS SHEET.
 11. ONCE THE SIDE SLOPES AND IMMEDIATE AREA AROUND THE BASIN ARE STABILIZED TO THE SATISFACTION OF THE INSPECTOR, REMOVE THE COMPOST FILTER LOG AND STABILIZE THE DISTURBED AREA WITH PERMANENT SEED MIX #3 AND MULCH.
 12. AN AS-BUILT SHALL BE PROVIDED WITHIN 45 DAYS OF COMPLETING THE FACILITY OR PRIOR TO REQUESTING A RECORD PLAN INSPECTION.

CG500-SK-2
 DELAWARE VETERANS MEMORIAL CEMETERY
 BEAR, DELAWARE

DATE: 6/04/2016 PROJECT No.: DE-15-22

		Drawing Title
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MULCH AND 2" OF BIOSOIL-14 MEDIA

Fv STORM EL. (72.20)
Cv STORM EL. (71.04)
RPv STORM EL. (69.62)
SEASONAL HIGH WATER TABLE EL. (64.0)



CB-2B
T.E.: (71.75)
I.E.: (69.25) Out
D: 2.5'

3:1 SLOPE (MAX.)

PROPOSED GRADE

ELEV. 70

P-2B
PLACE 167 L.F. 15" HDPE ● 0.010

ELEV. 75

EXISTING GRADE

3:1 SLOPE (MAX.)

PROPOSED GRADE

Fv STORM EVENT EL.: 72.20

5:1 SLOPE (MAX.)

Cv STORM EVENT EL.: 71.04



EL.: (70.50)

EL.: (70.25)

3" HARDWOOD MULCH

ELEV. 70

ELEV. 70

BIOSOIL-14 MEDIA

RPv STORM EVENT EL.: 69.62

2'

CG501-SK-1

DELAWARE VETERANS MEMORIAL CEMETERY

BEAR, DELAWARE

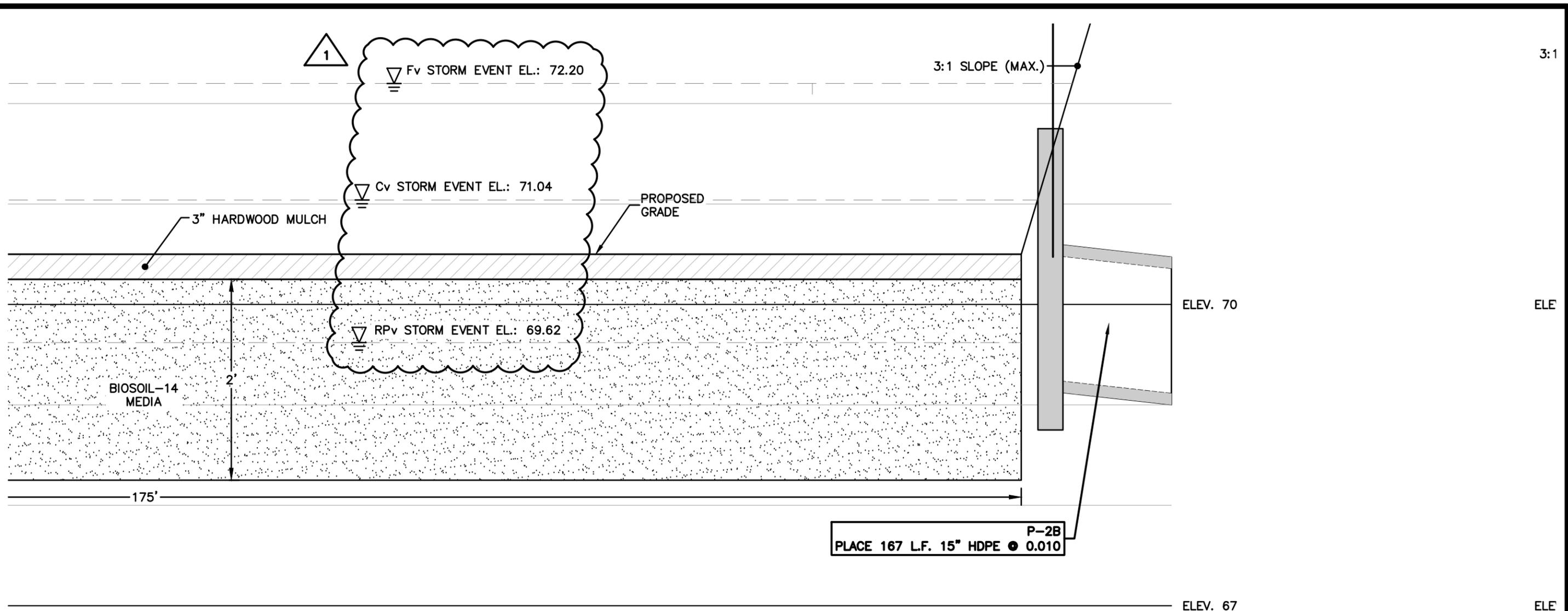
DATE: 6/04/2016

PROJECT No.: DE-15-22



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SECTION B-B

HORZ. SCALE: 1" = 10'
 VERT. SCALE: 1" = 1'

E PLAN REQUIREMENTS

ER PROGRAM RESERVES THE RIGHT TO USES OF PERIODIC SITE REVIEWS.

ER PROGRAM SHALL BE NOTIFIED PROPERTY OWNERSHIP IS TRANSFERRED

ER PROGRAM MAY SEEK ENFORCEMENT NEGLIGENT IN FULFILLING THE ELEMENTS OF THE "DELAWARE SEDIMENT

ER PROGRAM SHALL BE CONTACTED IF ORMWATER MANAGEMENT FACILITY, NCE, OR IF MODIFICATIONS TO THE

BIORETENTION BASIN SEQUENCE OF CONSTRUCTION



1. THE BIORETENTION FACILITY SHALL BE CONSTRUCTED FROM EITHER SIDE OF THE PLANTING SOIL AREA. CONSTRUCTION EQUIPMENT SHALL NOT TRAVERSE PROPOSED PLANTING SOIL AREA. COMPACTION IN THIS AREA IS PROHIBITED.
2. ONCE THE CONTRIBUTING DRAINAGE AREA TO THE BASIN IS STABLE RUNOFF IS DIVERTED AROUND BASIN, CONSTRUCTION MAY BEGIN.
3. GRADE BIORETENTION BASIN AND EXCAVATE BIORETENTION AREA TO
4. INSTALL OUTFALL STRUCTURE AND OUTFALL PIPE.
5. SCARIFY THE EXISTING SOIL SURFACES, TAKING CARE NOT TO COI TIED EQUIPMENT SHALL NOT COME INTO CONTACT WITH BIORETEI
6. BACKFILL BIORETENTION AREA WITH PLANTING SOIL AS SHOWN IN OVERFILLING IS RECOMMENDED TO ACCOUNT FOR SETTLEMENT.

SPECIFICATIO

PLANTING SOIL
 THE BIORETENTION

CG501-SK-2
DELAWARE VETERANS MEMORIAL CEMETERY
 BEAR, DELAWARE

DATE: 6/04/2016 PROJECT No.: DE-15-22

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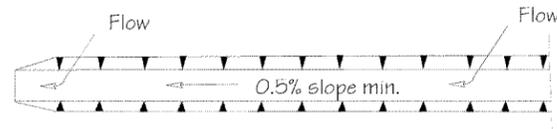
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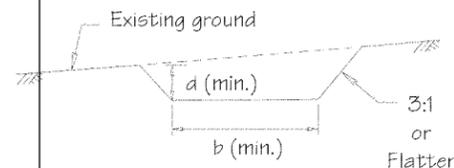
Standard Detail & Specifications Temporary Swale



Discharge to be directed to sediment trapping device (or stable outlet for clean water).



Plan



Typical Section

	Type A (< 5 ac.)	Type B ($5-10$ ac.)
b - BOTTOM WIDTH	4'	6'
d - FLOW DEPTH	1'	1'

FLOW CHANNEL STABILIZATION CHART

Stabilization Method	Channel Grade	Type A	Type B
1	0.5-3.0%	Seed & straw mulch	Seed & straw mulch
2	3.1-5.0%	Seed & straw mulch	Seed using stab. blanket; sod; DE #2 stone
3	5.1-8.0%	Seed with stab. blanket; sod; DE #2 stone	Lined R-4 riprap
4	8.1-20%	Lined R-4 riprap	Engineering design

- a. Stone to be DE #2 inch stone in a layer at least 3 inches in thickness and be pressed into the soil with construction equipment.
- b. Riprap to be R-4 in a layer at least 8 inches thickness and pressed into the soil.
- c. Approved equivalents can be substituted for any of the above materials.

Source: Adapted from MD Stds. & Specs. for ESC	Symbol: — TS-(A/B)(1-4) →	Detail No. DE-ESC-3.3.1 Sheet 1 of 2 Date: 12/03
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Standard Detail & Specifications Stone Outlet Sediment Trap STONE OUTLET SEDIMENT TRAP #1



Standard Detail & Specifications Temporary Swale

Construction Notes:

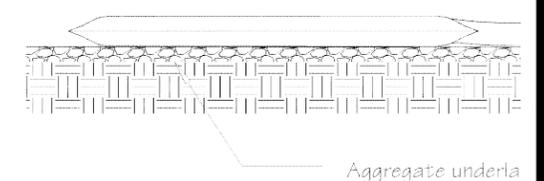
- All temporary swales shall have uninterrupted positive grade to an outlet with a minimum of erosion.
- Diverted runoff from a disturbed area shall be conveyed to a sediment trapping device.
- Diverted runoff from an undisturbed area shall outlet directly into an undisturbed stabilized area at a non-erosive velocity.
- All trees, brush, stumps, obstructions, and other objectionable material shall be removed and disposed of so as not to interfere with the proper functioning of the swale.
- The swale shall be excavated or shaped to line, grade, and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.
- Fills shall be compacted by earth moving equipment.
- All earth removed and not needed on construction shall be placed so that it will not interfere with the functioning of the swale.
- Periodic inspection and required maintenance must be provided after each rain event.

Source: Adapted from MD Stds. & Specs. for ESC	Symbol: — TS-(A/B)(1-4) →	Detail No. DE-ESC-3.3.1 Sheet 2 of 2 Date: 12/03
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Standard Detail & Specifications Geotextile Dewatering Bag



Plan



Profile

Source: Adapted from ACF Products, Inc.	Symbol:
--	-------------

Standard Detail & Specifical Stone Outlet Sedime STONE OUTLET S



CG520-SK-1

DELAWARE VETERANS MEMORIAL CEMETERY

BEAR, DELAWARE

DATE: 6/04/2016

PROJECT No.: DE-15-22



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Date: 12/03

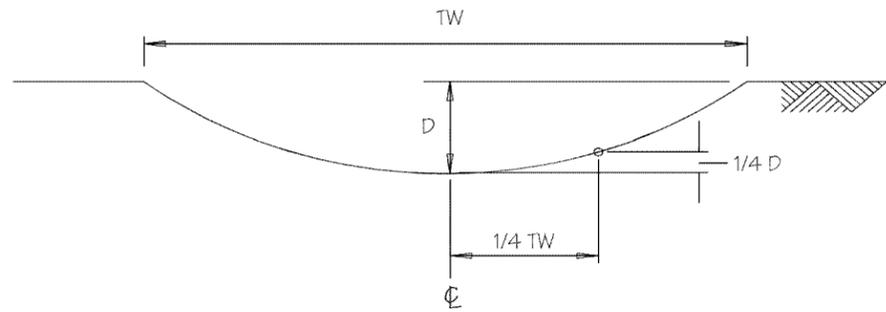
Date: 12/03

Date: 6/05

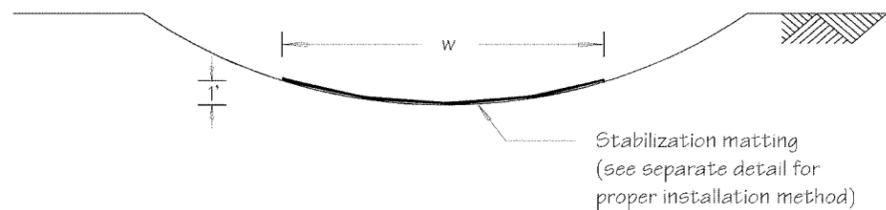
Standard Detail & Specifications Vegetated Channel - Type 2

Protection - Type 1 cannot be installed if partially completed
Protection as construction
Insert shall meet one of the requirements made completely from an oil-impervious material
Use of Type GD-III geotextile in accordance with the Erosion and Sediment Control Handbook.

Standard Detail & Specifications Vegetated Channel - Parabolic



Typical Section (Design)



Typical Section (Stabilization)

DATA
Design discharge (Q_d)
Design topwidth (TW)
Design depth (D)
Design channel slope (s)
Width of stabilization mat (w)
Type of stabilization matting

Detail No. **DE-ESC-3.1.5.2**
Sheet 2 of 2
Date: 12/03

Source: Delaware ESC Handbook

Symbol: **VC-P**

Detail No. **DE-ESC-3.3.3.1**
Sheet 1 of 2
Date: 12/03



Standard Detail & Specifications Vegetated Channel - Parabolic

Construction Notes:

- All trees, brush, stumps, obstructions, and other objectionable material shall be removed and disposed of so as not to interfere with the proper functioning of the waterway.
- The channel shall be excavated or shaped to line, grade, and cross section as required to meet the criteria specified herein, and be free of bank projections or other irregularities which will impede normal flow.
- Fills shall be compacted as needed to prevent unequal settlement that would cause damage in the waterway.
- All earth removed and not needed in construction shall be spread or disposed of so that it will not interfere with the functioning of the waterway.
- Stabilization shall be done in accordance with the appropriate Standard and Specifications for Vegetative Stabilization and Stabilization Matting.
 - It is recommended that, when conditions permit, temporary diversions or other means should be used to prevent water from entering the waterway during the establishment of the vegetation.
 - Should groundwater or base flow conditions preclude the establishment of adequate vegetative stabilization throughout the entire design section, provisions shall be made through use of a lining material, stone center drain and/or subsurface drain. Such practices shall be designed and constructed in accordance with the appropriate Standard(s) and Specifications and Standard Detail(s).

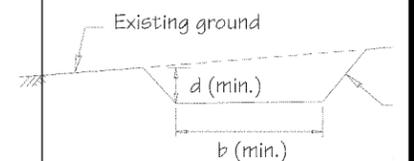
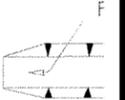
Source: Delaware ESC Handbook

Symbol: **VC-P**

Detail No. **DE-ESC-3.3.3.1**
Sheet 2 of 2
Date: 12/03

Standard Detail & Specifications Temporary Swale

Discharge to be directed to sediment trapping device (or stable outlet for clean water).



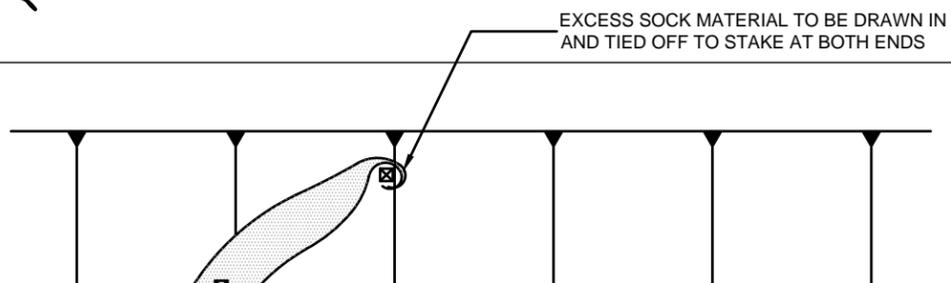
Typical Section

Stabilization Method	Channel Grade	FLOW CHANNEL
1	0.5-3.0%	Seed
2	3.1-5.0%	Seed
3	5.1-8.0%	Seed
4	8.1-20%	Lined

a. Stone to be DE #2 inch size
b. Riprap to be R-4 in a layer
c. Approved equivalents car

Source: Adapted from MD Stds. & Specs. for ESC

Symbol: **TS**

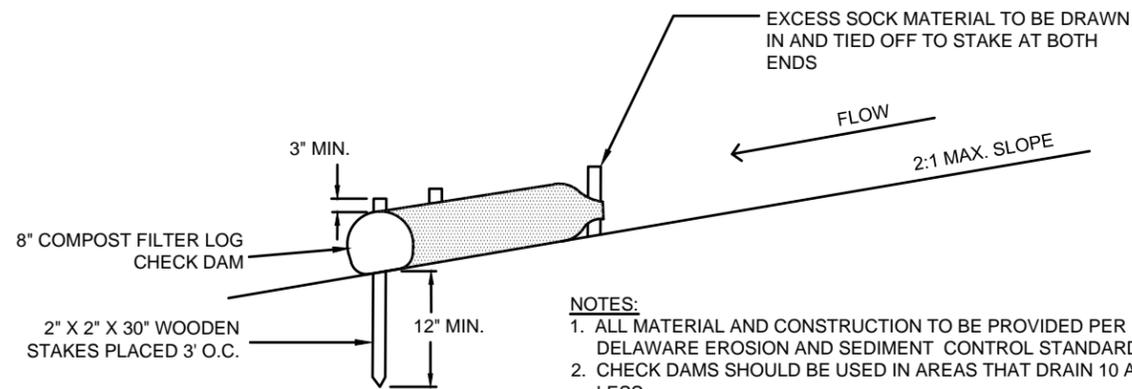
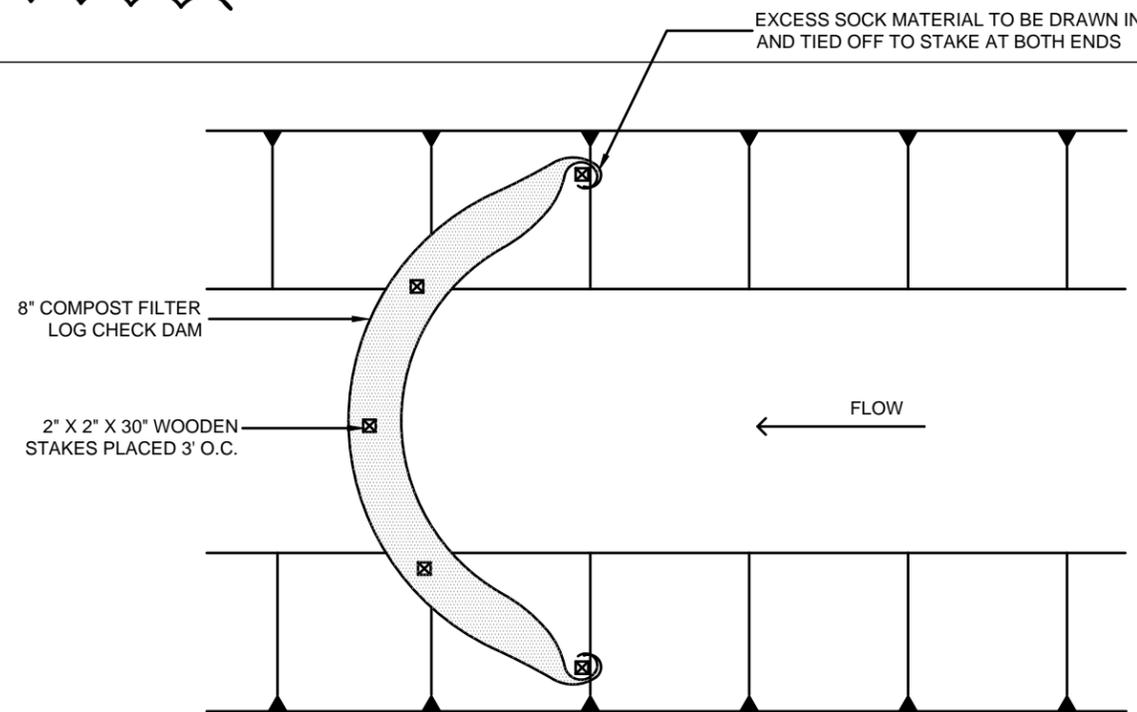


Standard Detail Pumping Pit

Clean water
Top of standpipe to

CG520-SK-2
DELAWARE VETERANS MEMORIAL CEMETERY
BEAR, DELAWARE
DATE: 6/04/2016 PROJECT No.: DE-15-22

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NOTES:

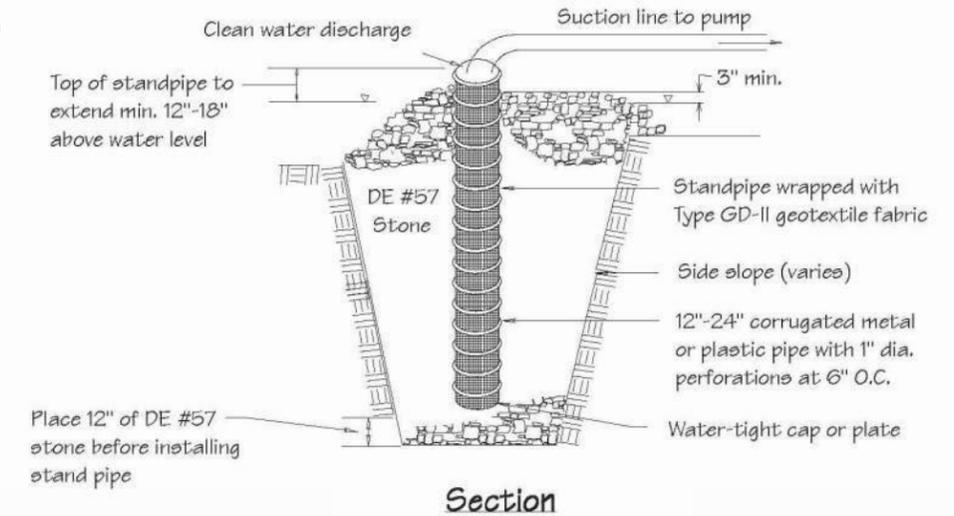
1. ALL MATERIAL AND CONSTRUCTION TO BE PROVIDED PER DELAWARE EROSION AND SEDIMENT CONTROL STANDARDS.
2. CHECK DAMS SHOULD BE USED IN AREAS THAT DRAIN 10 ACRES OR LESS.
3. SEDIMENT SHOULD BE REMOVED FROM BEHIND CHECK DAM ONCE THE ACCUMULATED HEIGHT HAS REACHED 1/2 THE HEIGHT OF THE CHECK DAM.
4. CHECK DAM CAN BE DIRECT SEEDED AT THE TIME OF INSTALLATION.
5. LOGS SHALL BE 5 MIL HDPE PHOTODEGRADABLE MATERIAL

COMPOST FILTER LOG CHECK DAM (CD)

NTS

1

**Standard Detail & Specifications
Pumping Pit - Type 1**



Construction Notes:

1. Pit dimensions are variable.
2. The standpipe should be constructed by perforating a 12" to 24" diameter corrugated or PVC pipe. The perforations shall be 1/2" X 6" slits or 1" diameter holes 6" on center.
3. A base of DE #57 aggregate should be placed in the pit to a depth of 12". After installing the standpipe, the pit surrounding the standpipe should then be backfilled with DE #57 aggregate.
4. The standpipe should extend 12" to 18" above the lip of the pit or riser crest elevation (basin dewatering).

NOTE: If discharge will be pumped directly to a storm drainage system, the standpipe must be wrapped with Type GD-II geotextile fabric before installation. If desired, 1/2" hardware cloth may be placed around the standpipe, prior to attaching the geotextile fabric. This will increase the rate of water seepage into the pipe.

Source:

Adapted from
MD Stds. & Specs. for ESC

Symbol:



Detail No.

DE-ESC-3.2.2.1
Sheet 1 of 1

Date: 12/03

CG520-SK-3

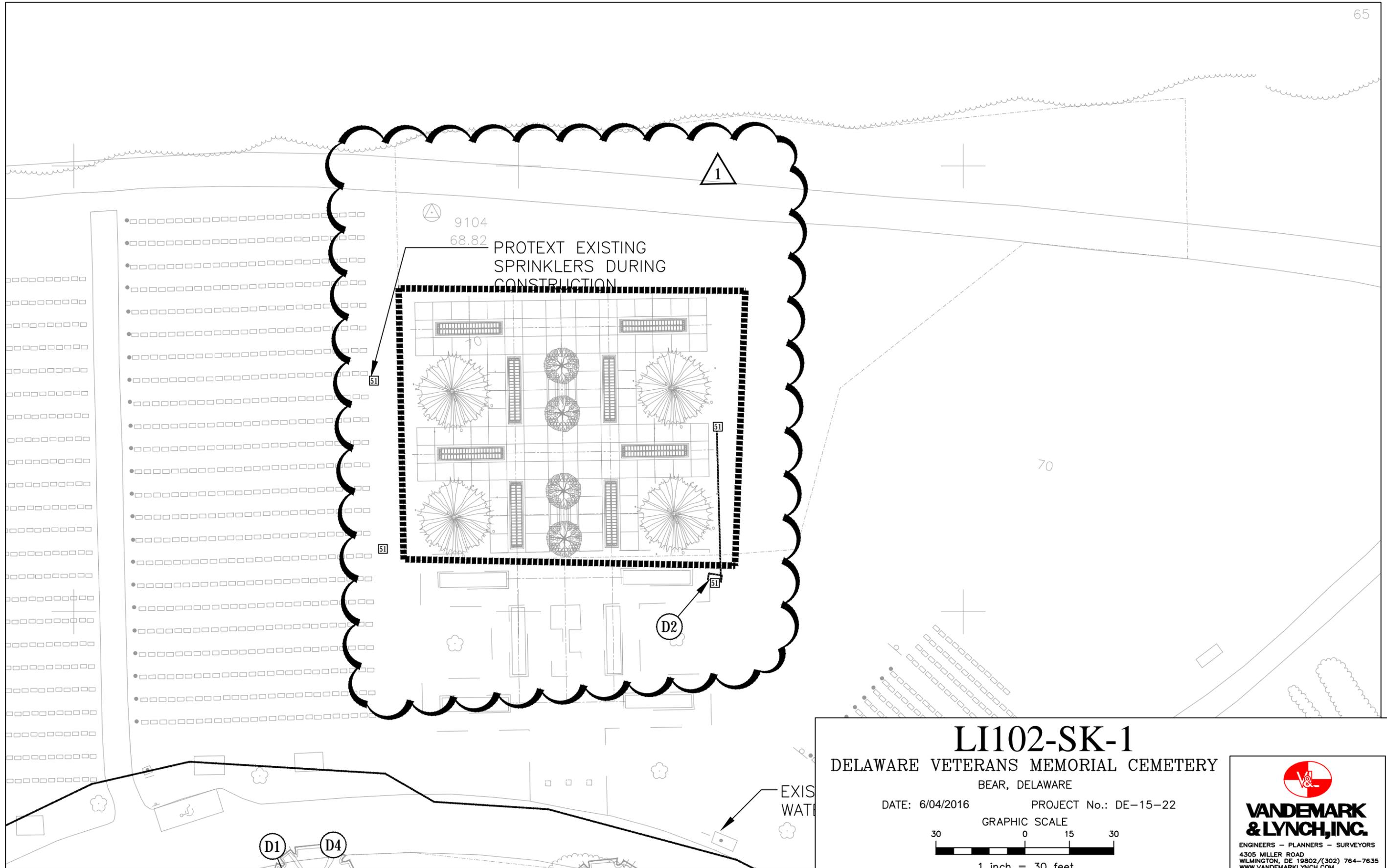
DELAWARE VETERANS MEMORIAL CEMETERY

BEAR, DELAWARE

DATE: 6/04/2016

PROJECT No.: DE-15-22

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LI102-SK-1
 DELAWARE VETERANS MEMORIAL CEMETERY
 BEAR, DELAWARE

DATE: 6/04/2016 PROJECT No.: DE-15-22

GRAPHIC SCALE

30 0 15 30

1 inch = 30 feet

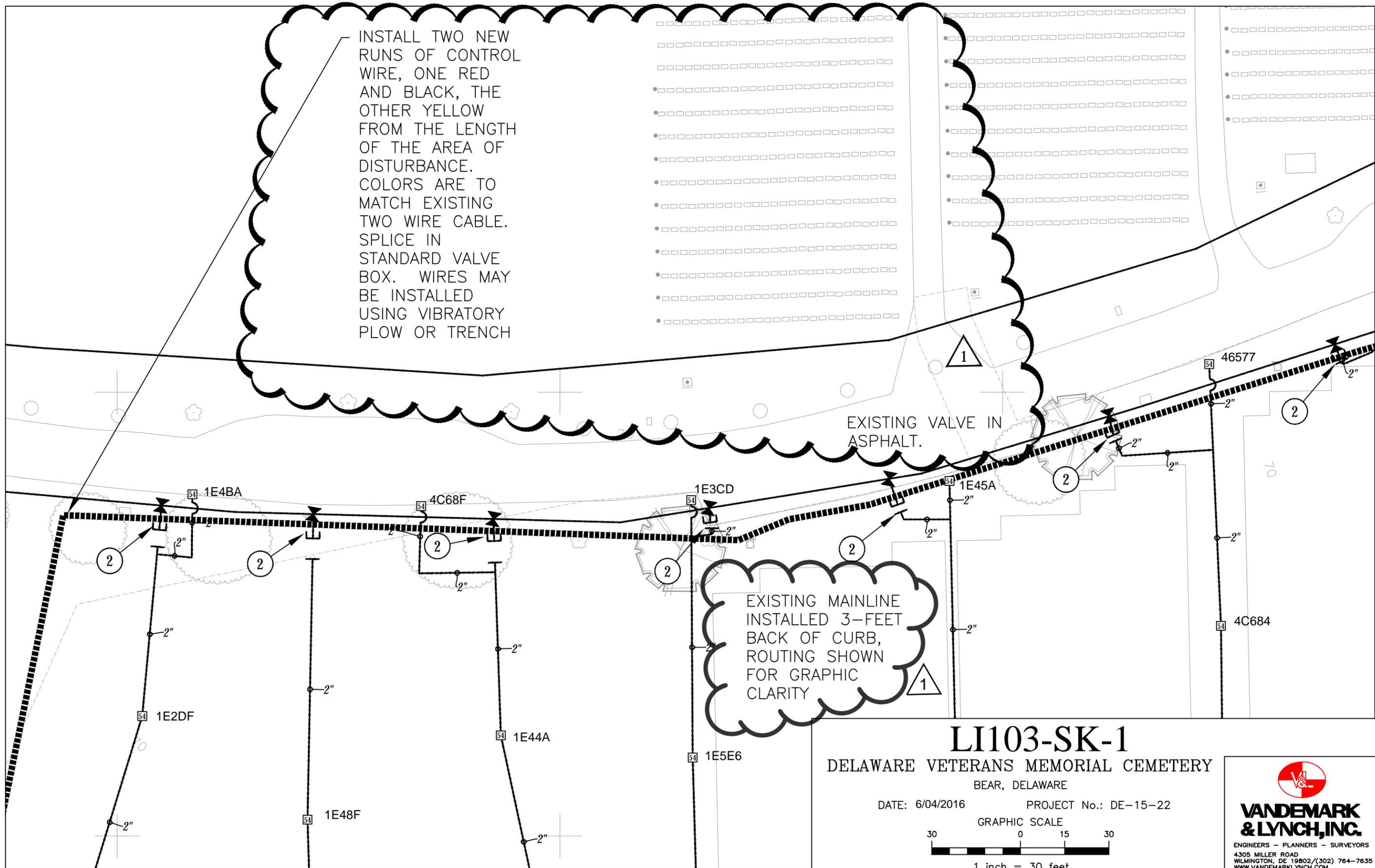


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INSTALL TWO NEW RUNS OF CONTROL WIRE, ONE RED AND BLACK, THE OTHER YELLOW FROM THE LENGTH OF THE AREA OF DISTURBANCE. COLORS ARE TO MATCH EXISTING TWO WIRE CABLE. SPLICE IN STANDARD VALVE BOX. WIRES MAY BE INSTALLED USING VIBRATORY PLOW OR TRENCH

EXISTING VALVE IN ASPHALT.

EXISTING MAINLINE INSTALLED 3- FEET BACK OF CURB, ROUTING SHOWN FOR GRAPHIC CLARITY



LI103-SK-1

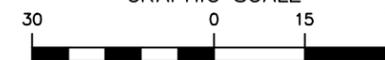
DELAWARE VETERANS MEMORIAL CEMETERY

BEAR, DELAWARE

DATE: 6/04/2016

PROJECT No.: DE-15-22

GRAPHIC SCALE

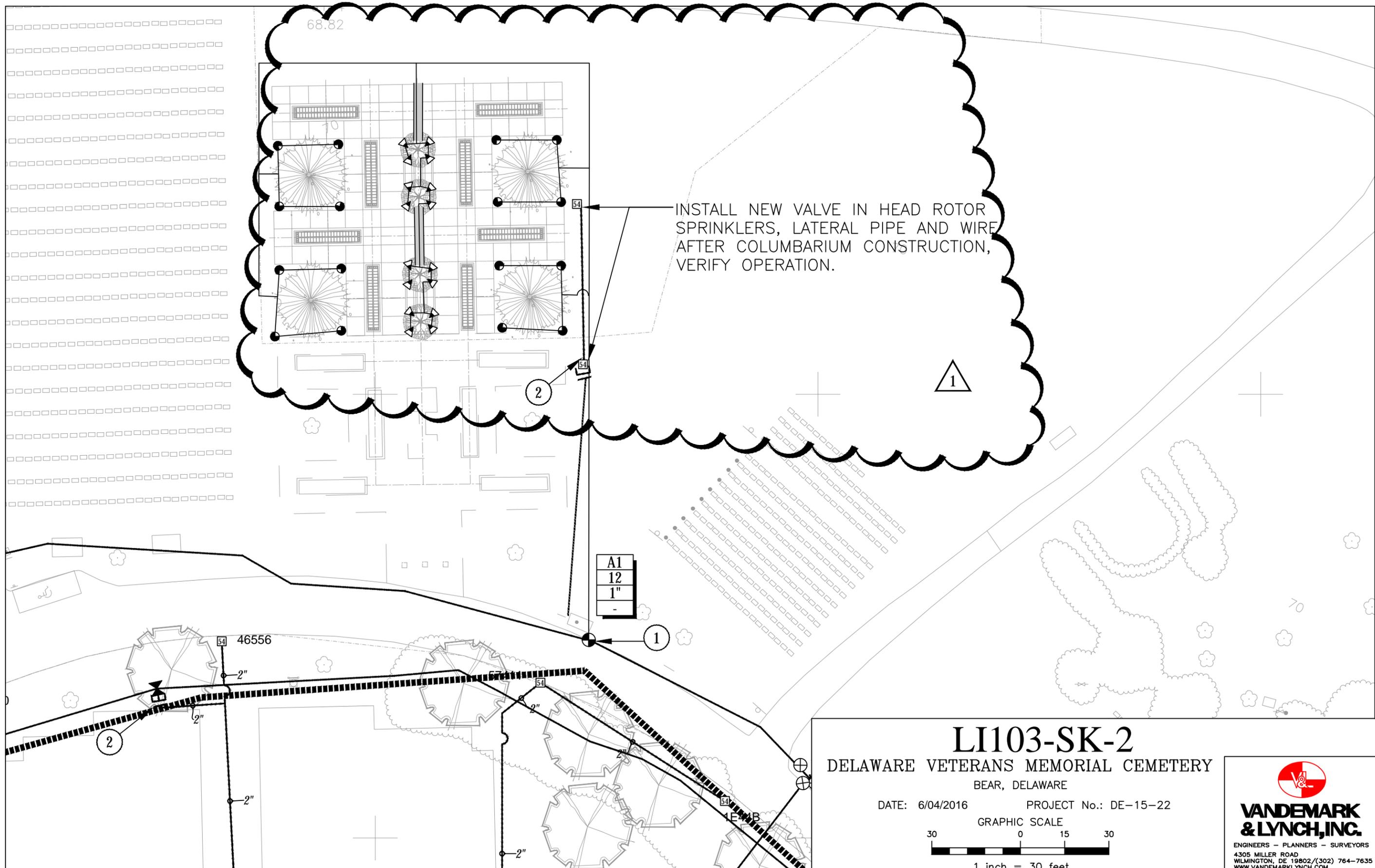


1 inch = 30 feet



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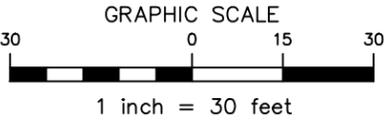


INSTALL NEW VALVE IN HEAD ROTOR SPRINKLERS, LATERAL PIPE AND WIRE AFTER COLUMBARIUM CONSTRUCTION, VERIFY OPERATION.

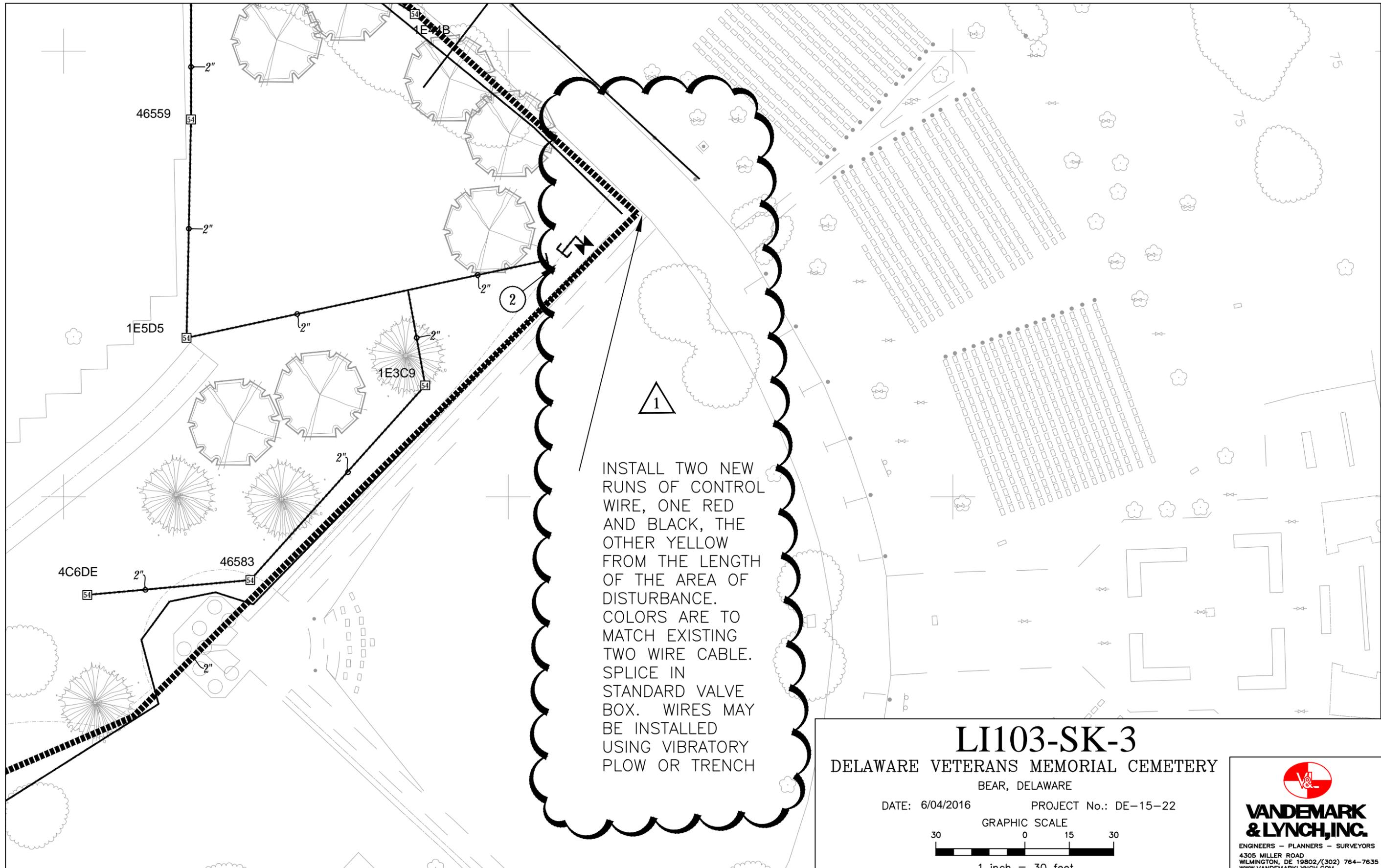
A1
12
1"
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LI103-SK-2
 DELAWARE VETERANS MEMORIAL CEMETERY
 BEAR, DELAWARE

DATE: 6/04/2016 PROJECT No.: DE-15-22



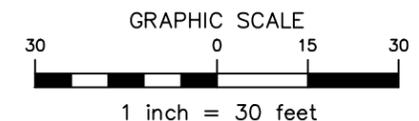
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INSTALL TWO NEW RUNS OF CONTROL WIRE, ONE RED AND BLACK, THE OTHER YELLOW FROM THE LENGTH OF THE AREA OF DISTURBANCE. COLORS ARE TO MATCH EXISTING TWO WIRE CABLE. SPLICE IN STANDARD VALVE BOX. WIRES MAY BE INSTALLED USING VIBRATORY PLOW OR TRENCH

LI103-SK-3
 DELAWARE VETERANS MEMORIAL CEMETERY
 BEAR, DELAWARE

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