February 17, 2016

Town of Ashland Planning Board
101 Main Street, 2nd Floor
Ashland, MA 01721

Re: Application for Site Plan Review and Special Permit
102 Howe Street, Ashland Landfill
Response to Peer Review Comments

Dear Members of the Planning Board:

AMEC Massachusetts, Inc. (AMEC) is pleased to provide the following responses to comments received from the Town of Ashland's consultant, GCG Associates (GCG), in a letter dated February 8, 2016. GCG's comments are included for reference and AMEC's responses follow each comment.

LETTER:
"The subject property is approximately 9.2** AC (per report) with frontage on the south side of Howe Street."
** Property deed refers to 7.06 AC, Lot area should be verified.

Engineer's response: The lot area was obtained from the Town of Ashland property record card, in which the total land area is listed as 9.15 aces.

GENERAL COMMENTS:

Plan

Plan Sheet 1 of 6 - Construction, Erosion, Sedimentation Control Notes, and Legend (Drawing No. G-001)

1. The General Erosion and Sedimentation Construction Detail note #4 refers to "See Detail 7 on C-502" for the Erosion Control Blanket detail. However, the plan sheet and detail drawing are not included in the plan set.

Engineer's response: Note #4 of the General Erosion and Sedimentation Construction Detail Notes on Sheet 1 has been revised to read: "See Detail 8 on Drawing C-501." The erosion control blanket detail has been added to Sheet 4 and a revised plan set is included as Attachment 1.

2. Minimum landfill cap thickness should be specified on the plan to minimize disturbance to the cap and protect the system.

Engineer's response: The landfill cap thickness is based upon the Environmental Compliance Services Landfill Closure Completion Report. A new Note #9 has been added to the General Erosion and Sedimentation Construction Detail Notes on Sheet 1 to read: "Landfill cap thickness above the existing low permeability fill subgrade layer and geocomposite drainage net (where shown on plan) is approximately 18"." In addition, the ballast installation detail and notes (Detail

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2 on Sheet 4) have been revised to add further clarification regarding the excavation and fill depths and materials.

Plan Sheet 3 of 6 - Proposed Site Plan (Drawing No. C-101)

1. The solar panel system footprint is essentially 3.7± acres with maximum dimensions approximately 540'± x 300'±. Two permanent gravel access roads are proposed at the two corners of the Howe Street frontage. Maintenance and emergency access should be considered for the entire grid. Emergency vehicles (fire trucks) may not be able to maneuver in the site.

Engineer's response: The two proposed access roads will accommodate emergency vehicles and fire trucks; however, in order to minimize gravel cover on the vegetative support layer of the cap, larger emergency vehicles will have to back out in reverse in order to exit the site.

2. Proposed lighting should be considered for site access and maintenance purposes.

Engineer's response: Lighting is not currently included as the site will only be accessed during daylight hours. In the event that afterhours work is required, temporary lighting provisions will be brought in. Lighting the array would undermine the Planning Board's intent to maintain the natural feeling of this scenic road area, compromising the natural appeal to the neighborhood.

3. Dimensioning should be shown for the proposed gravel access drives. Information shall be provided to the Planning Board which demonstrates sufficient dimensions of turnaround area for access of emergency and maintenance vehicles. Westerly entrance provides a proposed hammerhead turnaround, while easterly entrance dead ends.

Engineer's response: Dimensioning for the proposed access roads is shown on Sheet 4, Detail 3. The method used to confirm access road maneuverability was AutoTURN®, a vehicle sweep pass software program which analyzes vehicle access and maneuverability. For the temporary gravel access road, a tractor trailer was analyzed to simulate one-way material deliveries in each direction during construction. Per comments received from the Town during the Planning Board Technical Session, the temporary roadway entrance radii have been increased to provide further maneuverability. For the permanent gravel access roads, maintenance vehicles such as pickup trucks were analyzed. The southern hammerhead turnaround provides sufficient access for a pickup truck, while the northern road is to be used to one-way entrance and exit due to space constraints. Fire trucks or other large emergency vehicles will have to back out in reverse in order to exit the site.

4. Inverts information for the proposed 6" DI culvert should be specified on the plan.

Engineer's response: Inverts for the proposed temporary and permanent culverts have been added to the plan. Note #4 has also been added to the plan to read: "Drain pipes under roads to be field adjusted to low point as required to allow drainage from the higher elevation side of the road to pass to the lower elevation side of the road." An additional culvert with its invert information has also been added to the plan at the northern permanent access road to eliminate the possibility of ponding on the landfill cap over the long term. The model used for the stormwater management permit confirms that the previous analysis remains accurate in this area and the culvert has sufficient capacity to accommodate the minimal amount of surface run-off generated in this small drainage area.

5. Proposed grading for the two gravel access roads should be included on the plan. Grading should also demonstrate sufficient pipe cover over the proposed culvert.

Engineer's response: Proposed 1' contours for the two permanent gravel access roads have been added to the plan. There is sufficient cover over the proposed DI culverts which are capable of withstanding heavy traffic.

6. Check exist shade areas on Howe Street at Pinecrest Lane.

Engineer's response: There is one rack proposed to encroach into the existing shade area of the nearby utility pole. This rack was recently relocated from the east side to the west side in order to facilitate the perimeter fence construction.

7. Chain link fence gate location(s), dimensions, specification and detail should be provided on the plan.

Engineer's response: The proposed chain link fence and gate locations are shown on the site plan on Sheet 3. Additional fence and structural details with dimensions have been added to plan set on a new Sheet 8.

Plan Sheet 4 of 6 - Details (Drawing No. C-501)

1. Detail 2, Ballast Installation – the drawing labels 6" maximum dense graded crushed stone base, and Note #4 calls for minimum 6" of crushed stone, the thickness of the stone base needs clarification; Note #2 should specify the maximum depth of vegetation to be stripped to protect the cap; Note #6 shall further clarify that the 6" maximum excavation shall consist of top soil only.

Engineer's response: The ballast detail and notes have been revised to add further clarification regarding the excavation and fill depths and materials.

2. Detail 5, Sediment Barrier (Compost Sock) - The detail notes should specify that support post/stake are prohibited to use for secure sediment barrier over the capped area. Sand bags should be used for secure Compost Sock in place, locations, maximum offset distance and minimum quantities should be specified.

Engineer's response: The sediment barrier detail and notes have been revised to add further clarification regarding support posts/stakes and sand bags.

3. Detail 7, Inlet and Outlet Protection – this detail should match with the MassDOT Stone Pipe Ends (E 206.7.0) or provide calculations to support the proposed stone pad dimensions.

Engineer's response: Detail 7 has been revised to match the MassDOT detail 206.7.0.

4. Detail 8, Chain Link Fence – Precast concrete ballast block dimensions should be specified and sized to support the fence and fence post system. The dashed line through the ballast block and the ground surface should be clarified and dimensions should be labeled to assure no penetration through the landfill cap. Gate width should be specified.

Engineer's response: Additional structural details for the precast ballast blocks and fence gate have been added on a new Sheet 8. The blocks have been adequately sized to structurally support the fence and post system, and the plans are stamped by a licensed structural engineer.

Plan Sheet 6 of 6 – Landscape Details (Drawing No. L-501)

1. Typical Berm Section would require erosion control blanket protection over the 2 horizontal to 1 vertical slope face of the berm. The blanket detail was mentioned on plan sheet 1, but not included on the plan set.

Engineer's response: The erosion control blanket detail and notes have been added to Sheet 4. Erosion control blanket is required on all slopes greater than 3:1, therefore it will installed on the 2:1 slope on the solar array side of the berm. The typical berm section detail on Sheet 6 has also been revised.

2. Seed mix should be specified to assure growth in shaded area and drought tolerant.

Engineer's response: The proposed seed mix is New England Showy Wildflower Seed Mix. A copy of the Specification is included as Attachment 2.

CHAPTER 282 – ZONING

Note: Zoning is reviewed with respect to sections 8.3 and 9.4.

282-8.3.5.3 Building permit fee is required.

Engineer's response: The applicant, Ashland Howe Street Solar LLC, will file the required electrical and building permits and fees when all required state and local permits have been received:

- Post-Closure Use Permit Application – MassDEP
- Site Plan Review and Special Permit – Ashland Planning Board
- Stormwater Management Permit – Ashland Conservation Commission

282-8.3.6.2 (f) Financial Surety that satisfy Section 8.3.11.3, see section 8.3.11.3.

282-8.3.6.2 (c) Operations and maintenance plan is required, see section 8.3.6.4 and 8.3.10.1.

282-8.3.6.4 Operation and Maintenance Plan – The Operations and maintenance (O&M) plan should include site erosion inspection to check for rilling and gullying, repair eroded areas and revegetation. Stormwater controls and general operations and maintenance procedures for system. Snow removal and general maintenance of the two access roads should be included to assure emergency and maintenance vehicle safe access.

Engineer's response: Per Bylaw Chapter 343 Section 7.6.4, the Operation and Maintenance Plan regarding stormwater and erosion control is included in the Stormwater Management Permit Application. In addition, a Stormwater Pollution Prevention Plan (SWPPP) will be prepared and submitted under the Environmental Protection Agency's Construction General Permit prior to construction commencement.

282-8.3.8 1 Lighting - No proposed lighting is currently shown on plan. If lighting is proposed as part of this system for access and maintenance purposes, this shall be shown or specified on plans. Where feasible lighting shall be directed downward using full cut-off fixtures.

Engineer's response: There is no proposed lighting for the project. If lighting is subsequently added, it will be added to the site plan and will comply with all requirements.

282-8.3.10.1 Condition of the Installation – The facility shall be maintained in good condition and an operations and maintenance plan shall be submitted. Per this section the facility monitoring and maintenance shall include painting, structural repairs and integration of security measures. The party responsible for the cost of maintaining the system shall be specifically stated.

Engineer's response: The applicant, Ashland Howe Street Solar LLC, will be responsible for all required maintenance and associated costs.

282-8.3.11.3 Financial Surety – The Applicant has proposed an annual renewing bond in the amount of $75,000 as the financial surety for decommissioning of solar panels/system. Since the bond estimate is based on the 20 years lease, GCG recommends the bond amount to be reviewed once every 5 years and an escrow account (amount to be determined by the Board) should be held by the Planning Board to assure annual bond renewal.

Engineer's response: Ashland Howe Street Solar LLC will annually renew a bond for the amount of $75,000 as the financial surety for decommissioning of solar panels/system. This value approved by the Board of Selectmen as advised by Town Council and the Town's consultant, Beth Greenblatt of Beacon Integrated Solutions with written confirmation from Ameresco, Inc. in the form of a PE stamped memorandum providing explanation of the calculation to establish this value. See the PE stamped calculation in the memorandum, in Attachment 3. The Town is covered by the language in the executed Power Purchase Agreement, in the event the Ashland Howe Street Solar LLC cannot or does not renew the bond. Section 4.h of the executed Power Purchase Agreement between the Town of Ashland and Ashland Howe Street Solar LLC, requires the developer (Ashland Howe Street Solar LLC) to provide the buyer (Town of Ashland) with evidence of renewal at least thirty (30) days prior to expiration of the existing bond. In the event the developer fails to provide evidence of renewal, as noted, or the surety company shall refuse to issue a new bond, the developer shall have thirty days (30) to replace the bond with a letter of credit for $75,000 or a cash security in the amount of $75,000, which shall be deposited in escrow with the buyer, for the purpose of removal of the facility. As a result of this contract language, further review of the bond and an additional escrow is not needed. Ashland Howe Street Solar LLC requests the Planning Board waive any additional requirements to guarantee decommissioning financial surety.

282-9.4.6.8 Utilities shall be underground except in cases of extreme physical and environmental constraints. The applicant has proposed above ground utility due to the landfill cap. The proponent should request a wavier for section 282-9.4.6.8. The request should be considered to protect the landfill cap system.

Engineer's response: A waiver has been requested for Bylaw Chapter 282 Section 9.4.6.8.

282-9.4.6.10 The parking area requirements for the proposed use is considered as "Others" in the Schedule of Parking Area Requirements (Section 5.1.2). "Individually determined by the Building Inspector upon advisory report of the Planning Board where required in compliance with Section 9.4, Site Plan Review." The traffic generated from the proposed use would be maintenance and emergency vehicles only and the two proposed access roads should be sufficient for the parking and loading purposes.

282-9.4.9 The cover letter stated that a Stormwater Management Permit application is being filed concurrently with the Conservation Commission. Stormwater management is not included in this application package.

Engineer's response: Correct, a Stormwater Management Permit application has been filed with the Conservation Commission.

282-9.4.10 The Landscape Screening Management Plan (Appendix 'C') stated periodic watering as required to ensure initial establishment of vegetation. There is no water utility proposed for this development. The applicant should arrange water supply for the landscape features.

Engineer's response: There is no proposed water utility work for the project aside from the relocation of an existing fire hydrant required for construction of the landscape berm. Ashland Howe Street Solar LLC will arrange for periodic watering for the initial establishment of the landscape features, likely via a water truck. Mulching is also proposed to increase water conservation.

Should you have any questions please contact me at (978) 392-5307 or at rob.bukowski@amecfw.com.

Sincerely,

Robert J. Bukowski, P.E.
Project Manager

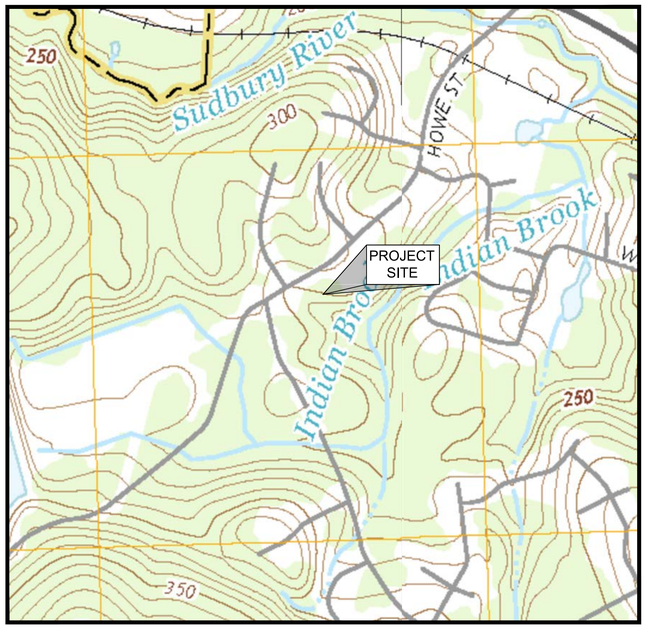
Attachments

cc: M. Zimmer, Ameresco, Inc.

Attachment 1 – Revised Plans

TOWN OF ASHLAND

ASHLAND LANDFILL 907 KW SOLAR PV DEVELOPMENT
ASHLAND, MASSACHUSETTS
JANUARY, 2016
ISSUED FOR SITE PLAN REVIEW
REVISED FEBRUARY, 2016



LOCUS MAP
NOT TO SCALE

AERIAL IMAGE
NOT TO SCALE

DRAWING INDEX

SHEET NUMBER	DRAWING TITLE	DRAWING NUMBER
	COVER SHEET	
1	CONSTRUCTION, EROSION, SEDIMENTATION CONTROL NOTES, AND LEGEND	G-001
2	EXISTING CONDITIONS PLAN	V-101
3	PROPOSED SITE PLAN	C-101
4	DETAILS	C-501
5	LANDSCAPE PLAN	L-101
6	LANDSCAPE DETAILS	L-501
7	STRUCTURAL DETAILS	S-501
8	FENCE AND BALLAST BLOCK DETAILS	S-502

DEVELOPED BY

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Green • Clean • Sustainable
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PREPARED BY

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MATERIAL SPECIFICATIONS AND PLACEMENT REQUIREMENTS:

1.1 DENSE GRADED CRUSHED STONE.

DENSE GRADED CRUSHED STONE SHALL BE PLACED DIRECTLY BENEATH THE BALLASTS AS SHOWN ON THE DRAWINGS, AND SHALL MEET THE REQUIREMENTS OF A MATERIAL SUCH AS MASSDOT SPECIFICATION M2.01.7 CRUSHED STONE, OR APPROVED EQUAL. THIS MATERIAL SHALL BE PLACED AT A MINIMUM THICKNESS OF 6-INCHES AND SHALL BE IN DIRECT CONTACT WITH THE BALLAST BLOCKS. THIS MATERIAL SHALL CONSIST OF CLEAN HARD, DURABLE CRUSHED ROCK OR CRUSHED GRAVEL STONE, FREE FROM LOAM AND CLAY AND DELETERIOUS MATERIAL AND NO MORE THAN 10 PERCENT PASSING THE U.S. NO. 200 SIEVE. THIS MATERIAL SHALL MEET THE FOLLOWING GRADATION:

SIEVE DESIGNATION	PERCENT PASSING
2-INCH	100
1.5-INCH	70-100
¾-INCH	50-85
NO. 4	30-55
NO. 50	8-24
NO. 200	3-10

PRIOR TO USE, THE DENSE GRADED CRUSHED STONE SHALL BE TESTED FOR APPROVAL AS DESCRIBED BELOW IN SECTION 2.0 AND SHALL BE PLACED AS DESCRIBED BELOW IN SECTION 3.0.

1.2 GRANULAR FILL MATERIAL

CLEAN GRANULAR FILL MAY BE USED BENEATH THE MINIMUM 6-INCH LAYER OF CRUSHED STONE FOR FILL OR GRADING MATERIAL. GRANULAR FILL SHALL CONSIST OF MASSDOT MATERIAL M1.03.0, GRAVEL BORROW, TYPE C, OR APPROVED EQUAL, AND MEET THE FOLLOWING GRADATION:

SIEVE DESIGNATION	PERCENT PASSING
2-INCH	100
½-INCH	50-85
NO. 4	40-75
NO. 50	8-28
NO. 200	0-10

PRIOR TO USE, THE GRANULAR FILL SHALL BE TESTED FOR APPROVAL AS DESCRIBED IN SECTION 2.0 AND SHALL BE PLACED AS DESCRIBED IN SECTION 3.0.

1.3 GEOTEXTILE FABRIC

GEOTEXTILE FABRIC SHALL BE PLACED ABOVE LANDFILL COVER SOILS AS SHOWN ON THE DRAWINGS. FIBERS USED IN MANUFACTURING OF THE GEOTEXTILES SHALL CONSIST OF POLYPROPYLENE, POLYVINYL CHLORIDE, NYLON, POLYOLEFINS, POLYAMIDES, OR POLYESTER. THE FIBERS SHALL BE FORMED INTO NETWORK SUCH THAT THE FILAMENTS OR YARNS RETAIN DIMENSIONAL STABILITY RELATIVE TO EACH OTHER, INCLUDING SELVAGES. THE GEOTEXTILE SHALL CONTAIN STABILIZERS AND/OR INHIBITORS TO MAKE THE FIBERS RESISTANT TO DETERIORATION RESULTING FROM EXPOSURE TO SUNLIGHT, WATER, OR HEAT. THE GEOTEXTILE SHALL BE FREE OF DEFECTS OR FLAWS WHICH WILL AFFECT ITS PHYSICAL PROPERTIES. PROVIDE A GEOTEXTILE MEETING THE PROPERTIES LISTED IN TABLE-1:

TABLE 1
REQUIRED PHYSICAL PROPERTIES OF GEOTEXTILE FABRIC

PROPERTY	TEST METHOD	NONWOVEN	WOVEN
MASS PER UNIT AREA (OZ/YD3)	D 5261	6	N/A
TENSILE STRENGTH (LBS)	D 4632	160	7200
ELONGATION (%)	D 4632	50	N/A
PUNCTURE STRENGTH (LBS)	D 4833	90	N/A
TRAPEZOID TEAR (LBS)	D 4533	65	N/A
PERMITTIVITY (SEC^{-1})	D 4491	1.50	0.23
ULTRAVIOLET STABILITY (% FOR MIN. 500 HRS)	D 4355	70	80
APPARENT OPENING SIZE (AOS) (STANDARD SIEVE)	D 4751	70	30

TABLE NOTES:

1. ALL NUMERICAL VALUES EXCEPT AOS AND ULTRAVIOLET STABILITY REPRESENT MINIMUM AVERAGE ROLL VALUES (MARV), IN THE WEAKER PRINCIPAL DIRECTION.
2. AOS VALUE IS A MAXIMUM AVERAGE ROLL VALUE OR MAXARV.
3. ULTRAVIOLET STABILITY IS MEASURED AS A MINIMUM AVERAGE PERCENTAGE.

2.0 BORROW SOURCE TESTING REQUIREMENTS

PRIOR TO USE, BORROW SOURCE TESTING, INCLUDING GEOTECHNICAL CHARACTERIZATION REQUIREMENTS, SHALL BE CONDUCTED ON ALL SOIL MATERIALS PROPOSED FOR CONSTRUCTION AND SUBMITTED TO ENGINEER TO ASSESS CONFORMANCE TO MATERIAL SPECIFICATIONS.

3.0 MATERIAL PLACEMENT AND FIELD QUALITY CONTROL REQUIREMENTS

1. DO NOT PLACE FILL MATERIAL ON SURFACES THAT ARE MUDDY, FROZEN, OR CONTAIN FROST OR ICE.
2. SURFACES ON WHICH THE GEOTEXTILE WILL BE PLACED SHALL BE PREPARED TO A RELATIVELY SMOOTH SURFACE CONDITION. SURFACES SHALL BE FREE FROM OBSTRUCTION, DEBRIS, DEPRESSIONS, EROSION FEATURE, OR VEGETATION. ANY IRREGULARITIES SHALL BE REMOVED SO AS TO ENSURE CONTINUOUS, INTIMATE CONTACT OF THE GEOTEXTILE WITH THE SURFACE. ANY LOOSE MATERIAL, SOFT OR LOW DENSITY POCKETS OF MATERIAL, SHALL BE REMOVED, FILLED WITH SUITABLE SUBGRADE FILL, AND COMPACTED. EROSION FEATURES SUCH AS RILLS AND GULLIES MUST BE GRADED OUT OF THE SURFACE BEFORE GEOTEXTILE PLACEMENT.
3. AT THE TIME OF INSTALLATION, FABRIC SHALL BE REJECTED IF IT HAS DEFECTS, RIPS, HOLES, FLAWS, DETERIORATION OR DAMAGE INCURRED DURING MANUFACTURE, TRANSPORTATION OR STORAGE.
4. PLACE FABRIC WITH THE LONG DIMENSION PARALLEL TO THE CENTERLINE OF THE BALLASTS AND LAY SMOOTH AND FREE OF TENSION, STRESS, FOLDS, WRINKLES, OR CREASES.
5. CRUSHED STONE SHALL BE PLACED IN MAXIMUM 6-INCH LOOSE LIFTS AND COMPACTED WITH 3 PASSES, IN BOTH DIRECTIONS BY A SMOOTH DRUM ROLLER COMPACTOR (ACCESS ROAD) AND BY A PLATE COMPACTOR (BALLAST BLOCK AND SUPPORT BLOCK GRAVEL BASE) TO A FIRM AND NON-YIELDING CONDITION.
6. ALL MATERIAL AND BALLAST BLOCK PLACEMENT ON THE SURFACE OF THE LANDFILL (BEYOND THE LIMITS OF THE EXISTING AND PROPOSED ACCESS ROADS) SHALL BE PERFORMED USING LOW GROUND PRESSURE EQUIPMENT.
7. THE MAXIMUM ALLOWABLE CROSS-SLOPE (PERPENDICULAR TO THE BALLAST BLOCKS) IS 5%. AT LIMITED LOCATIONS WHERE EXISTING SLOPE BETWEEN THE 2 BALLAST BLOCKS ON THE SAME RACK IS GREATER THAN 10%, CONTRACTOR SHALL SHIM THE LOWER BLOCK TO MEET THE 10% MAXIMUM SLOPE, USING ADDITIONAL GRAVEL OR RECYCLED CONCRETE MEETING THE SPECIFICATIONS OF SECTION 1.1.
8. THE MAXIMUM ALLOWABLE GROUND PRESSURE ON THE LANDFILL SURFACE IS 7 PSI. CONTRACTOR SHALL USE LOW GROUND PRESSURE EQUIPMENT ON ALL AREAS OF THE LANDFILL WITH THE EXCEPTION OF THE CONSTRUCTED ACCESS ROADS AND STAGING AREA.

EROSION AND SEDIMENTATION CONTROL PLAN:

THIS PLAN HAS BEEN DEVELOPED TO PROVIDE A STRATEGY FOR CONTROLLING SOIL EROSION AND SEDIMENTATION DURING AND AFTER CONSTRUCTION OF THE PROPOSED PROJECT.

THIS PLAN IS BASED ON STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION IN DEVELOPING AREAS AS CONTAINED IN MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS, 2003.

GENERAL EROSION AND SEDIMENTATION CONSTRUCTION DETAIL NOTES:

DURING CONSTRUCTION THE CONTRACTOR SHALL TAKE ALL REASONABLE MEASURES TO SCHEDULE EARTHWORK OPERATIONS SUCH THAT THE AREA OF EXPOSED AND DISTURBED SOIL IS MINIMIZED. CONSTRUCTION SHALL BE PHASED TO REDUCE THE AREA OF DISTURBED SOIL AT ANY ONE TIME. UPGRADIENT STORM WATER DIVERSION AND DISPERSION MEASURES SHALL BE INSTALLED WHERE APPROPRIATE. AFTER ACHIEVING ROUGH GRADE OF A PORTION OF THE SITE AND PRIOR TO EXTENDING EARTHWORK OPERATIONS, THE CONTRACTOR SHALL STABILIZE DISTURBED AREAS BY LAYING DOWN TEMPORARY MULCH UNTIL FINAL GRADE IS REACHED. ALL CUT AND FILL SLOPES SHALL BE STABILIZED UPON COMPLETION. THE FOLLOWING MEASURES WILL BE UNDERTAKEN TO PROVIDE MAXIMUM PROTECTION TO THE SOIL, WATER, AND ABUTTING LANDS:

1. NO EROSION/SEDIMENTATION CONTROL DEVICE SHALL PENETRATE THE EXISTING LANDFILL COVER MATERIALS WITHIN THE LIMITS OF WASTE
2. PRIOR TO GRUBBING OR ANY EARTH MOVING OPERATION, SEDIMENT BARRIERS, OR OTHER APPROPRIATE BEST MANAGEMENT PRACTICE (BMP) SHALL BE INSTALLED ACROSS THE SLOPE ON THE CONTOUR AT THE DOWNHILL LIMIT OF THE WORK AS PROTECTION AGAINST CONSTRUCTION RELATED EROSION. INSTALL ALL NECESSARY STORMWATER DIVERSIONS AND DISPERSION MEASURES.
3. PERMANENT SOIL EROSION CONTROL MEASURES FOR ALL SLOPES, OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN FOURTEEN (14) CALENDAR DAYS AFTER FINAL GRADING HAS BEEN COMPLETED. WHEN IT IS NOT POSSIBLE OR PRACTICAL TO PERMANENTLY STABILIZE DISTURBED LAND, TEMPORARY EROSION CONTROL MEASURES SHALL BE IMPLEMENTED ON DISTURBED AREAS INCLUDING STOCKPILES WITHIN FOURTEEN (14) CALENDAR DAYS OF EXPOSURE OF SOIL OR FORMATION OF PILES UNLESS THESE AREAS ARE TO BE SUBSEQUENTLY SURFACED. ALL DISTURBED AREAS SHALL BE MULCHED FOR EROSION CONTROL UPON COMPLETION OF ROUGH GRADING.
4. ANY EXPOSED SLOPES 3:1 OR GREATER SHALL BE STABILIZED WITH EROSION CONTROL BLANKET TO PREVENT EROSION DURING CONSTRUCTION AND TO FACILITATE REVEGETATION AFTER TOPSOILING AND SEEDING. SEE DETAIL 8 ON C-501.
5. EXISTING TOPSOIL SHALL BE SAVED, STOCKPILED, AND REUSED AS MUCH AS POSSIBLE ON SITE. SEDIMENT BARRIER SHALL BE INSTALLED AT THE BASE OF STOCKPILES AT THE DOWNHILL LIMIT TO PROTECT AGAINST EROSION. STOCKPILES SHALL BE STABILIZED BY SEEDING AND MULCHING UPON FORMATION OF THE PILES. UPGRADIENT OF THE STOCKPILES, STABILIZED DITCHES AND/OR BERMS SHALL BE CONSTRUCTED TO DIVERT STORMWATER RUNOFF AWAY FROM THE PILES.
6. INTERCEPTED SEDIMENT SHALL BE REMOVED AND SHALL BE DEPOSITED TO AN AREA THAT SHALL NOT CONTRIBUTE TO SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
7. ADDITIONAL EROSION CONTROL METHODS SHALL BE IMPLEMENTED IF CONSTRUCTION OCCURS AFTER DECEMBER 15TH. ALL DISTURBED AREAS SHALL BE MINIMIZED TO THE EXTENT POSSIBLE. PRIOR TO FREEZING, ADDITIONAL EROSION CONTROL DEVICES SHALL BE INSTALLED AS APPROPRIATE. INSPECTION OF THESE EROSION CONTROL ITEMS SHALL BE FREQUENT, WITH PARTICULAR ATTENTION PAID TO WEATHER PREDICTIONS TO ENSURE THAT THESE MEASURES ARE PROPERLY IN PLACE TO HANDLE LARGE QUANTITIES OF RUNOFF RESULTING FROM HEAVY RAINS OR EXCESSIVE THAWS.
8. GENERAL EROSION AND SEDIMENTATION CONTROL ACTIONS SHALL INCLUDE THE FOLLOWING:
   - MARK SOIL DISTURBANCE LIMITS
   - INSTALL SEDIMENT BARRIERS BEFORE DISTURBING ANY SOILS
   - DIVERT AND DISPERSE STORM WATER RUNOFF TO UNDISTURBED AREAS WHEREVER POSSIBLE
   - MULCH DISTURBED AREAS
   - PROTECT STEEP SLOPES
   - INSPECT AND REPAIR EROSION CONTROLS AND SEDIMENT BARRIERS
9. LANDFILL CAP THICKNESS ABOVE THE EXISTING LOW PERMEABILITY FILL SUBGRADE LAYER AND GEOCOMPOSITE DRAINAGE NET (WHERE SHOWN ON PLAN) IS APPROXIMATELY 18".

DUST CONTROL:

1. CONSTRUCTION ACTIVITIES SHALL BE SCHEDULED SO THAT A MINIMUM OF DISTURBED SOIL IS EXPOSED AT ONE TIME.
2. DUST SHALL BE CONTROLLED ON CONSTRUCTION ROUTES AND OTHER DISTURBED AREAS SUBJECT TO SURFACE DUST MOVEMENT AND DUST BLOWING.
3. MAINTAIN DUST CONTROL MEASURES PROPERLY THROUGH DRY WEATHER PERIODS UNTIL ALL DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.
4. DUST CONTROL METHODS SHALL INCLUDE VEGETATIVE COVER, MULCH (INCLUDING GRAVEL MULCH), WATER SPRINKLING, STONE, AND BARRIERS.
5. VEGETATIVE COVER - FOR DISTURBED AREAS NOT SUBJECT TO TRAFFIC, VEGETATION PROVIDES THE MOST PRACTICAL METHOD OF DUST CONTROL.
6. MULCH (INCLUDING GRAVEL MULCH) - WHEN PROPERLY APPLIED, MULCH OFFERS A FAST, EFFECTIVE MEANS OF CONTROLLING DUST.
7. SPRINKLING - THE SITE MAY BE SPRINKLED WITH WATER UNTIL THE SURFACE IS WET. SPRINKLING IS ESPECIALLY EFFECTIVE FOR DUST CONTROL ON HAUL ROADS AND OTHER TRAFFIC ROUTES.
8. STONE - USED TO STABILIZE CONSTRUCTION ROADS; CAN ALSO BE EFFECTIVE FOR DUST CONTROL.
9. BARRIERS - A BOARD FENCE, WIND FENCE, SEDIMENT FENCE, OR SIMILAR BARRIER CAN CONTROL AIR CURRENTS AND BLOWING SOIL. ALL OF THESE FENCES ARE NORMALLY CONSTRUCTED OF WOOD AND THEY PREVENT EROSION BY OBSTRUCTING THE WIND NEAR THE GROUND AND PREVENTING THE SOIL FROM BLOWING OFFSITE.

MONITORING PROGRAM:

1. EROSION AND SEDIMENTATION CONTROLS SHALL BE INSPECTED AT LEAST ONCE EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM EVENT OF 0.25 INCHES OR GREATER. ALL STRUCTURES DAMAGED BY CONSTRUCTION EQUIPMENT, VANDALS, OR THE ELEMENTS SHALL BE REPAIRED IMMEDIATELY. ALL DAMAGED STRUCTURES SHALL BE REPAIRED AND/OR ADDITIONAL EROSION CONTROL STRUCTURES SHALL BE INSTALLED PRIOR TO CONTINUING THE CONSTRUCTION. TRAPPED SEDIMENT SHALL BE REMOVED BEFORE IT HAS ACCUMULATED TO ONE-HALF FOOT DEEP AT THE INSTALLED SEDIMENT BARRIER. DEVICES NO LONGER SERVICEABLE DUE TO SEDIMENT ACCUMULATION SHALL ALSO BE REPAIRED AND/OR REPLACED AS REQUIRED. RUTTING OR EXPOSED SOIL SHALL BE REPAIRED TO PREVENT EROSION AND OTHERWISE MITIGATED AS NECESSARY TO MINIMIZE FUTURE EROSION.
2. FOLLOWING THE FINAL SEEDING, THE SITE SHALL BE INSPECTED TO ENSURE THAT THE VEGETATION HAS BEEN ESTABLISHED (70% COVER ACHIEVED). IN THE EVENT OF ANY UNSATISFACTORY GROWTH, RESEEDING WILL BE CARRIED OUT, WITH FOLLOW-UP INSPECTION.
3. AFTER THE CONSTRUCTION INSPECTOR HAS DETERMINED THAT THE PROJECT AREA HAS BEEN STABILIZED, THE CONTRACTOR SHALL REMOVE ALL SEDIMENT BARRIERS, TEMPORARY SEDIMENTATION CONTROL RISERS AND ANY OTHER TEMPORARY EROSION CONTROL MEASURES.

SEEDING AND REVEGETATION PLAN:

UPON COMPLETION OF SITE CONSTRUCTION, ALL AREAS PREVIOUSLY DISTURBED SHALL BE TREATED AS STATED BELOW. THESE AREAS WILL BE CLOSELY MONITORED BY THE CONTRACTOR UNTIL SUCH TIME AS A SATISFACTORY GROWTH OF VEGETATION IS ESTABLISHED. SATISFACTORY GROWTH SHALL MEAN A MINIMUM OF 70% OF THE AREA IS VEGETATED WITH VIGOROUS GROWTH.

1. TOPSOIL WILL BE SPREAD OVER ALL DISTURBED AREAS TO BE REVEGETATED AND SHALL BE GRADED TO A DEPTH OF FOUR (4) TO SIX (6) INCHES.
2. FERTILIZER AT A 18-24-12 PROPORTION SHALL BE MIXED WITH THE HYDROSEED AT A RATE OF 150 LBS. PER ACRE.
3. WOOD FIBER MULCH SHALL BE APPLIED AT A RATE OF 2,000 LBS. PER ACRE FOR MAXIMUM MOISTURE RETENTION RESULTS.
4. DISTURBED AREAS SHALL BE SEEDED USING ONE OF THE FOLLOWING MIXES AS DIRECTED BY THE OWNER AND ENGINEER DEPENDING ON THE TIME OF YEAR AND AMOUNT OF SEEDING REQUIRED:
   - 4.1. AT THE RATE OF 10 LBS. PER 1,000 SQ. FT. OF THE FOLLOWING MIXTURE: 25% RED FESCUE, 25% CANADA BLUEGRASS , 25% PERENNIAL RYEGRASS, AND 25% RED TOP. SEEDING SHOULD BE PLANTED TO A DEPTH OF 1/4 TO 1/8 INCHES. SEEDING METHODS MAY BE DRILL SEEDINGS, BROADCASTS AND ROLLED, CULTIPACKED, OR TRACKED WITH A SMALL TRACK PIECE OF CONSTRUCTION EQUIPMENT, OR HYDROSEEDING, WITH SUBSEQUENT TRACKING. TACKIFIER SHALL BE USED IN HYDROSEED TO HELP IT ADHERE TO THE SOIL AND ANY SLOPES PROPERLY.
   - 4.2. AT THE RATE OF 225 LBS. PER ACRE OF THE FOLLOWING MIXTURE: 25% WENDY JEAN CREEPING RED FESCUE, 15% TREAZURE II CHEWINGS FESCUE, 20% AURORA II HARD FESCUE, 20% BERKSHIRE HARD FESCUE, AND 20% LITTLE BIGHORN (BLUE AMERICAN SHEEP FESCUE). METHOD SHALL BE HYDROSEEDING. TACKIFIER SHALL BE USED IN HYDROSEED TO HELP IT ADHERE TO THE SOIL AND ANY SLOPES PROPERLY.
5. SEEDING SHALL BE COMPLETED BETWEEN THE DATES OF APRIL 1 AND OCTOBER 15. WATERING MAY BE REQUIRED DURING DRY PERIODS.
6. STEEP SLOPES (3:1 AND STEEPER) SHALL BE STABILIZED BY INSTALLING EROSION CONTROL BLANKET (E.G., NORTH AMERICAN GREEN OR EXCELSIOR).
7. IF FINAL SEEDING OF THE DISTURBED AREA IS NOT COMPLETED BY OCTOBER 1ST OF THE YEAR OF CONSTRUCTION THEN, WITHIN THE NEXT 10 CALENDAR DAYS, THESE AREAS SHALL BE GRADED AND SMOOTHED, THEN SEEDED TO A WINTER COVER CROP OF WINTER RYE AT A RATE OF 3 LBS. PER 1,000 SQ. FT. THE FOLLOWING SHALL BE INCORPORATED INTO THE SOIL PRIOR TO WINTER RYE SEEDING: GROUND LIMESTONE AT A RATE OF 100 LBS. PER 1,000 SQ. FT., FOLLOWED BY A 10-10-10 FERTILIZER AT A RATE OF 14 LBS. PER 1,000 SQ. FT. HAY MULCH SHALL BE APPLIED AT A RATE OF 100 LBS. PER 1,000 SQ. FT. FOLLOWING SEEDING. IF THE WINTER RYE SEEDING CANNOT BE COMPLETED BY OCTOBER 1, OR DOES NOT MAKE ADEQUATE GROWTH BY NOVEMBER 1, THEN ON THAT DATE, HAY MULCH SHALL BE APPLIED AT THE RATE OF 100 LBS. PER 1,000 SQ. FT. A SUITABLE BINDER SUCH AS CURASOL OR RMB PLUS SHALL BE USED ON HAY MULCH FOR WIND CONTROL. EROSION CONTROL BLANKET WILL BE INSTALLED ON STEEP SLOPES (3:1 AND STEEPER) AND ON AREAS OF CONCENTRATED FLOWS.
8. INSPECT SEEDED AREAS FOR FAILURE AND MAKE NECESSARY REPAIRS AND RESEED IMMEDIATELY. CONDUCT A FOLLOW-UP SURVEY AFTER ONE YEAR AND RESEED WHERE NECESSARY.
9. IF THERE ARE AREAS WITH LESS THAN 40% COVER, REEVALUATE CHOICE OF PLANT MATERIALS AND QUANTITIES OF LIME AND FERTILIZER. IF THE SEASON PREVENTS RESOWING, MULCH OR JUTE NETTING IS AN EFFECTIVE TEMPORARY COVER.
10. SEEDED AREAS SHOULD BE FERTILIZED DURING THE SECOND GROWING SEASON.
11. LIME AND FERTILIZE THEREAFTER AT PERIODIC INTERVALS, AS NEEDED.
12. ALL SEDIMENT CONTROL STRUCTURES WILL REMAIN IN PLACE UNTIL VEGETATION IS ESTABLISHED. ESTABLISHED MEANS A MINIMUM OF 70% AS DETERMINED BY CONSTRUCTION INSPECTOR OF THE AREA IS VEGETATED WITH VIGOROUS GROWTH.

ISSUED FOR SITE PLAN REVIEW

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REVISION	DATE	ISSUE / REVISION DESCRIPTION	ISSUED BY	APPROVED
1	02/17/2016	REVISED PER TOWN PEER REVIEW	APV	RJB
0	01/04/2016	ISSUED FOR SITE PLAN REVIEW	APV	RJB

PROJECT: ASHLAND LANDFILL SOLAR PV DEVELOPMENT
ASHLAND, MASSACHUSETTS

TITLE: CONSTRUCTION, EROSION, SEDIMENTATION CONTROL NOTES, AND LEGEND

CLIENT: AMERESCO
111 SPEEN STREET
FRAMINGHAM, MA 01701

AMERESCO Green • Clean • Sustainable

SEAL:

COMMONWEALTH OF MASSACHUSETTS
ROBERT J. BUKOWSKI
CIVIL
No. 41492
REGISTERED PROFESSIONAL ENGINEER
2/17/16

DESIGNED BY:	DRAWN BY:
APV	DED
CHECKED BY:	SCALE:
TD	NONE

PROJECT NUMBER: 3652150029

DRAWING NUMBER: G-001

SHEET NUMBER: 1 OF 8

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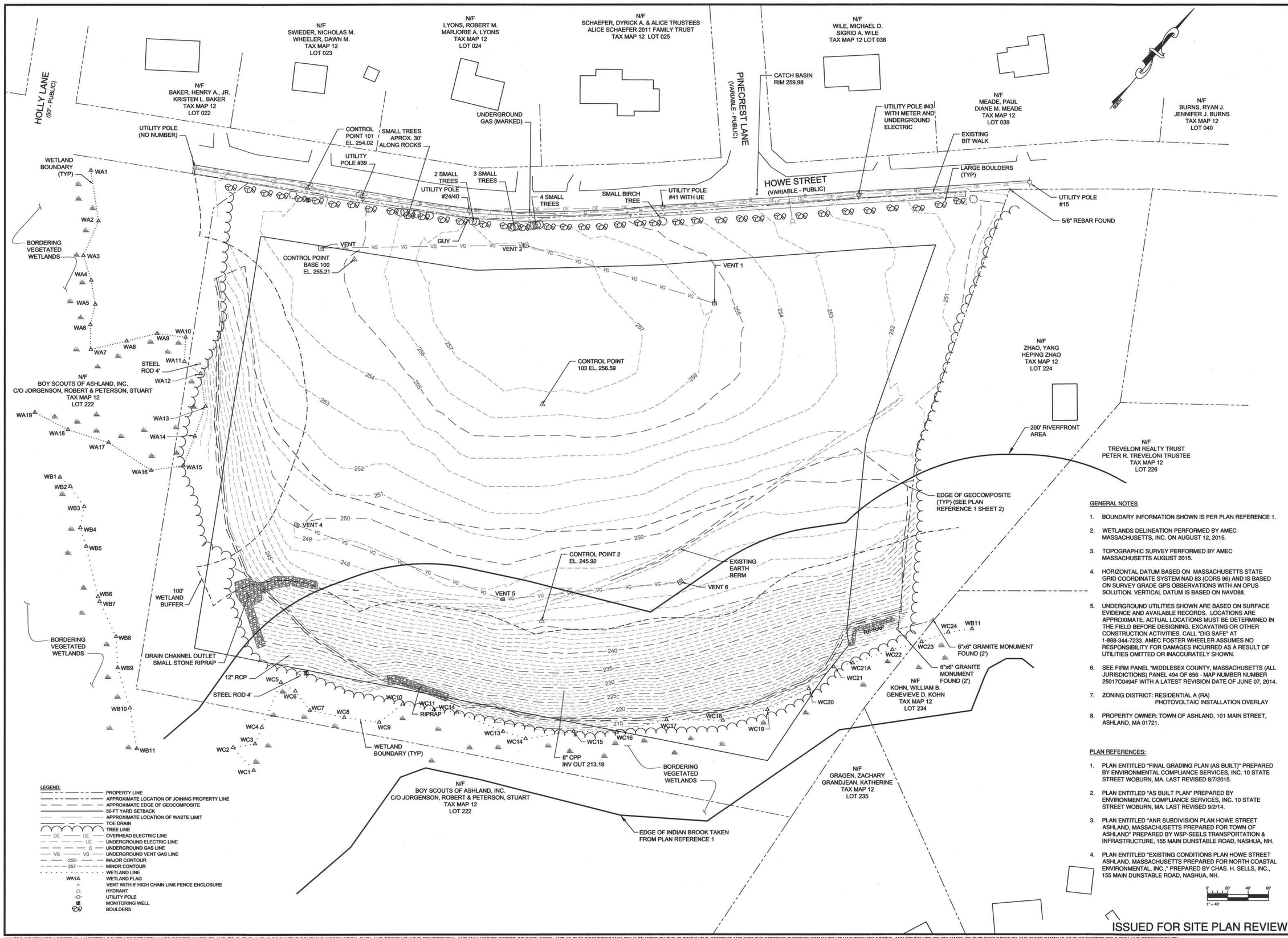

GENERAL NOTES

1. BOUNDARY INFORMATION SHOWN IS PER PLAN REFERENCE 1.
2. WETLANDS DELINEATION PERFORMED BY AMEC MASSACHUSETTS, INC. ON AUGUST 12, 2015.
3. TOPOGRAPHIC SURVEY PERFORMED BY AMEC MASSACHUSETTS AUGUST 2015.
4. HORIZONTAL DATUM BASED ON MASSACHUSETTS STATE GRID COORDINATE SYSTEM NAD 83 (CORS 96) AND IS BASED ON SURVEY GRADE GPS OBSERVATIONS WITH AN OPUS SOLUTION. VERTICAL DATUM IS BASED ON NAVD88.
5. UNDERGROUND UTILITIES SHOWN ARE BASED ON SURFACE EVIDENCE AND AVAILABLE RECORDS. LOCATIONS ARE APPROXIMATE. ACTUAL LOCATIONS MUST BE DETERMINED IN THE FIELD BEFORE DESIGNING, EXCAVATING OR OTHER CONSTRUCTION ACTIVITIES. CALL "DIG SAFE" AT 1-888-344-7233. AMEC FOSTER WHEELER ASSUMES NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OMITTED OR INACCURATELY SHOWN.
6. SEE FIRM PANEL "MIDDLESEX COUNTY, MASSACHUSETTS (ALL JURISDICTIONS) PANEL 494 OF 656 - MAP NUMBER NUMBER 25017C0494F WITH A LATEST REVISION DATE OF JUNE 07, 2014.
7. ZONING DISTRICT: RESIDENTIAL A (RA)
   PHOTOVOLTAIC INSTALLATION OVERLAY
8. PROPERTY OWNER: TOWN OF ASHLAND, 101 MAIN STREET, ASHLAND, MA 01721.

PLAN REFERENCES:

1. PLAN ENTITLED "FINAL GRADING PLAN (AS BUILT)" PREPARED BY ENVIRONMENTAL COMPLIANCE SERVICES, INC. 10 STATE STREET WOBURN, MA. LAST REVISED 8/7/2015.
2. PLAN ENTITLED "AS BUILT PLAN" PREPARED BY ENVIRONMENTAL COMPLIANCE SERVICES, INC. 10 STATE STREET WOBURN, MA. LAST REVISED 9/2/14.
3. PLAN ENTITLED "ANR SUBDIVISION PLAN HOWE STREET ASHLAND, MASSACHUSETTS PREPARED FOR TOWN OF ASHLAND" PREPARED BY WSP-SEELS TRANSPORTATION & INFRASTRUCTURE, 155 MAIN DUNSTABLE ROAD, NASHUA, NH.
4. PLAN ENTITLED "EXISTING CONDITIONS PLAN HOWE STREET ASHLAND, MASSACHUSETTS PREPARED FOR NORTH COASTAL ENVIRONMENTAL, INC.," PREPARED BY CHAS. H. SELLS, INC., 155 MAIN DUNSTABLE ROAD, NASHUA, NH.

ISSUED FOR SITE PLAN REVIEW

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1	02/17/2016	NO CHANGES THIS SHEET	APV	RJB
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PROJECT: ASHLAND LANDFILL SOLAR PV DEVELOPMENT
ASHLAND, MASSACHUSETTS

TITLE: EXISTING CONDITIONS PLAN

CLIENT: AMERESCO
111 SPEEN STREET
FRAMINGHAM, MA 01701
AMERESCO Green • Clean • Sustainable

SEAL: COMMONWEALTH OF MASSACHUSETTS — ROBERT J. BUKOWSKI — CIVIL — No. 41492 — REGISTERED PROFESSIONAL ENGINEER — 2/17/16

DESIGNED BY: APV	DRAWN BY: DED
CHECKED BY: TD	SCALE: AS SHOWN
PROJECT NUMBER: 3652150029	
DRAWING NUMBER: V-101	
SHEET NUMBER: 2 OF 8	

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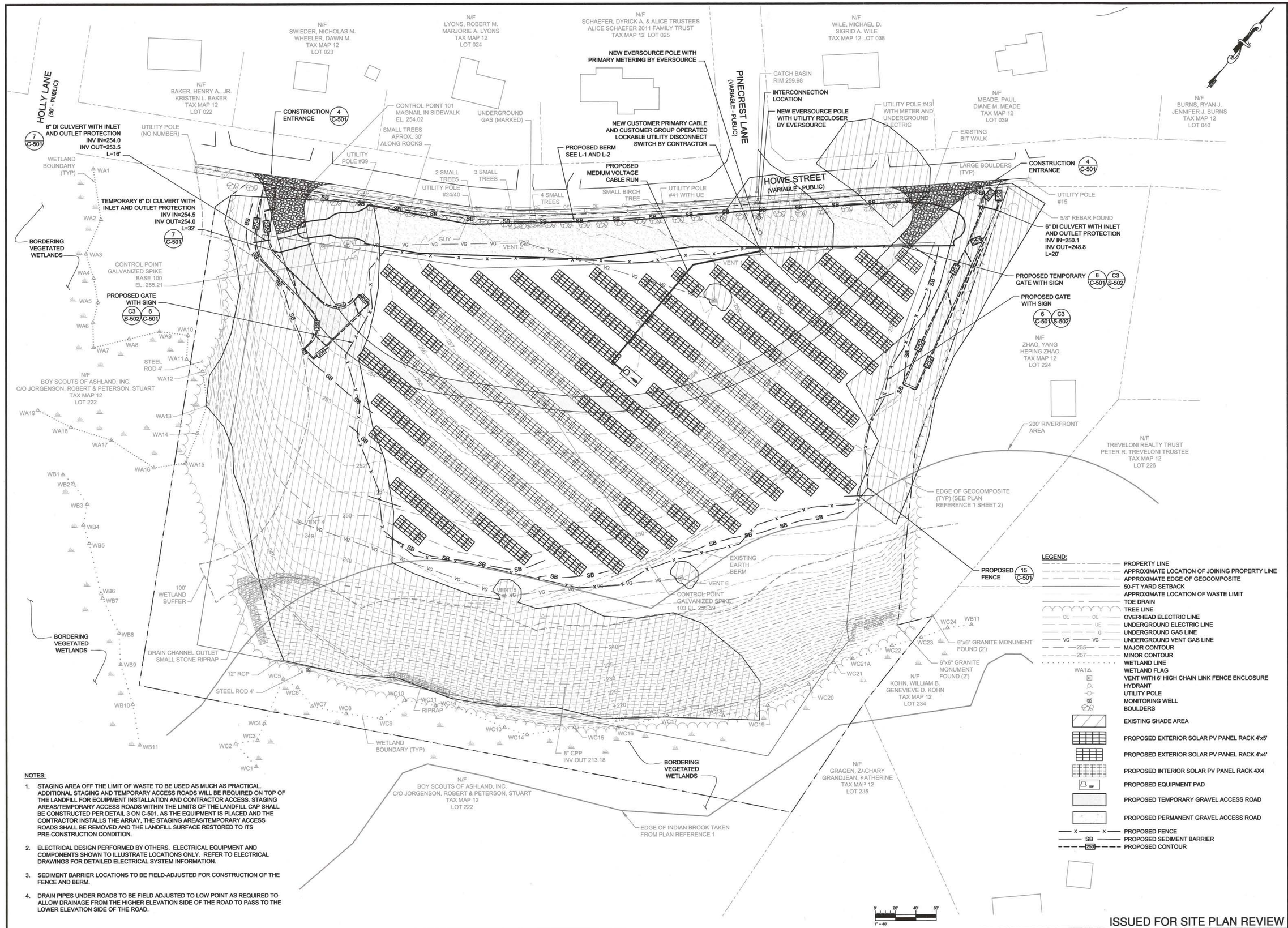

NOTES:

1. STAGING AREA OFF THE LIMIT OF WASTE TO BE USED AS MUCH AS PRACTICAL. ADDITIONAL STAGING AND TEMPORARY ACCESS ROADS WILL BE REQUIRED ON TOP OF THE LANDFILL FOR EQUIPMENT INSTALLATION AND CONTRACTOR ACCESS. STAGING AREAS/TEMPORARY ACCESS ROADS WITHIN THE LIMITS OF THE LANDFILL CAP SHALL BE CONSTRUCTED PER DETAIL 3 ON C-501. AS THE EQUIPMENT IS PLACED AND THE CONTRACTOR INSTALLS THE ARRAY, THE STAGING AREAS/TEMPORARY ACCESS ROADS SHALL BE REMOVED AND THE LANDFILL SURFACE RESTORED TO ITS PRE-CONSTRUCTION CONDITION.
2. ELECTRICAL DESIGN PERFORMED BY OTHERS. ELECTRICAL EQUIPMENT AND COMPONENTS SHOWN TO ILLUSTRATE LOCATIONS ONLY. REFER TO ELECTRICAL DRAWINGS FOR DETAILED ELECTRICAL SYSTEM INFORMATION.
3. SEDIMENT BARRIER LOCATIONS TO BE FIELD-ADJUSTED FOR CONSTRUCTION OF THE FENCE AND BERM.
4. DRAIN PIPES UNDER ROADS TO BE FIELD ADJUSTED TO LOW POINT AS REQUIRED TO ALLOW DRAINAGE FROM THE HIGHER ELEVATION SIDE OF THE ROAD TO PASS TO THE LOWER ELEVATION SIDE OF THE ROAD.

ISSUED FOR SITE PLAN REVIEW

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0	01/04/2016	ISSUED FOR SITE PLAN REVIEW	APV	RJB

PROJECT: ASHLAND LANDFILL SOLAR PV DEVELOPMENT ASHLAND, MASSACHUSETTS

TITLE: PROPOSED SITE PLAN

CLIENT: AMERESCO 111 SPEEN STREET FRAMINGHAM, MA 01701

AMERESCO Green • Clean • Sustainable

SEAL: COMMONWEALTH OF MASSACHUSETTS ROBERT J BUKOWSKI CIVIL No. 41492 REGISTERED PROFESSIONAL ENGINEER 2/17/16

DESIGNED BY:	DRAWN BY:
APV	DED
CHECKED BY:	SCALE:
TD	AS SHOWN

PROJECT NUMBER: 3652150029

DRAWING NUMBER: C-101

SHEET NUMBER: 3 OF 8

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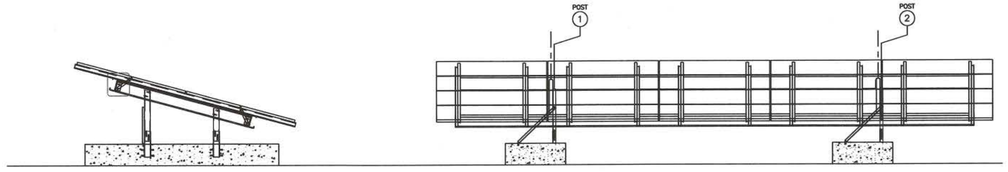
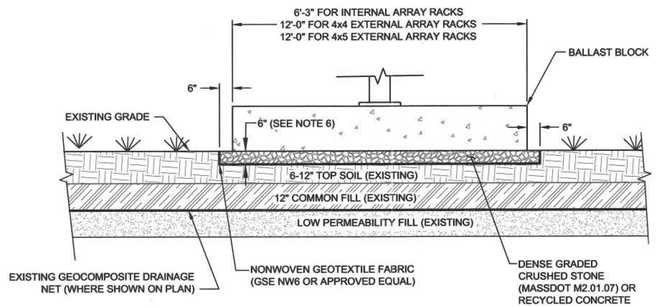


BALLAST BLOCK

NOTES:

1. DESIGN FOR FOUNDATIONS, RACKING, AND MODULES BY OTHERS. DETAILS SHOWN FOR ILLUSTRATION PURPOSES ONLY.
2. SEE DETAIL 2 THIS SHEET FOR INTERIOR AND EXTERIOR BLOCK DIMENSIONS.

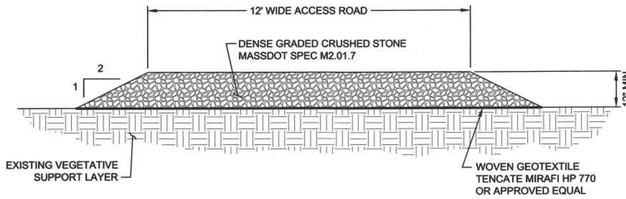
SOLAR PV ARRAY 1
NOT TO SCALE



NOTES:

1. INTERIOR BLOCKS ARE 6'-3"L x 4'-0"W x 1'-6"H. EXTERIOR BLOCKS (4x4) ARE 12'-0"L x 4'-0"W x 1'-6"H AND (4x5) 12'-0"L x 4'-0"W x 1'-6"H.
2. VEGETATION TO BE STRIPPED FROM CAP PRIOR TO ANY GRADING ACTIVITIES.
3. TOPSOIL TO BE STRIPPED FOR REUSE IN LANDSCAPE BERM PRIOR TO PLACEMENT OF GRANULAR FILL OR CRUSHED STONE.
4. MINIMUM 6" DENSE GRADED CRUSHED STONE TO BE PLACED 6" BEYOND ALL SIDES OF THE BLOCK.
5. SEE SHEET 1 FOR MATERIAL SPECIFICATIONS AND PLACEMENT REQUIREMENTS.
6. MINIMUM OF 6" OF DENSE GRADED CRUSHED STONE OR RECYCLED CONCRETE IS REQUIRED; HOWEVER, A MAXIMUM EXCAVATION DEPTH OF 6" IS ALLOWED AND SHALL CONSIST OF TOPSOIL ONLY. SHOULD ADDITIONAL STONE BE REQUIRED BEYOND THE EXCAVATION DEPTH TO ATTAIN THE 6" THICKNESS, THE ADDITIONAL STONE SHALL BE PLACED ABOVE EXISTING GROUND SURFACE ELEVATION.
7. AS AN ALTERNATIVE INSTALLATION, CONTRACTOR MAY INSTALL 6" OF DENSE GRADED CRUSHED STONE ON TOP OF THE EXISTING VEGETATIVE SUPPORT LAYER AFTER CUTTING EXISTING VEGETATION AS SHORT AS POSSIBLE AND PLACING NON-WOVEN GEOTEXTILE FABRIC (SEE FABRIC SPECIFICATION ON DETAIL).

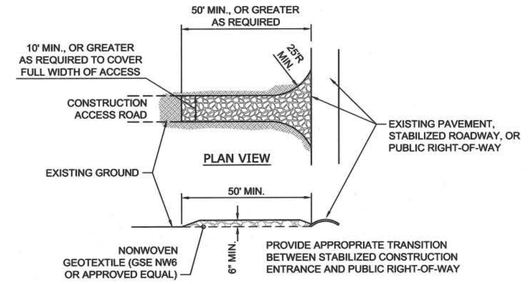
BALLAST INSTALLATION 2
NOT TO SCALE



NOTES:

1. ACCESS ROAD TO BE CONSTRUCTED OF A MINIMUM 12" OF DENSE GRADED CRUSHED STONE.
2. WOVEN GEOTEXTILE TO BE PLACED BETWEEN THE GROUND SURFACE AND THE CRUSHED STONE.

ACCESS ROAD 3
NOT TO SCALE

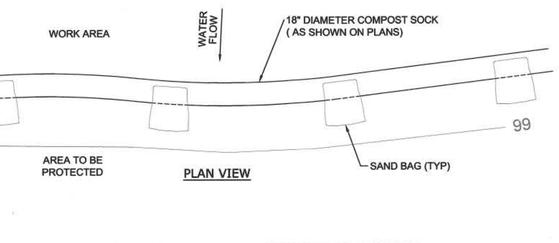


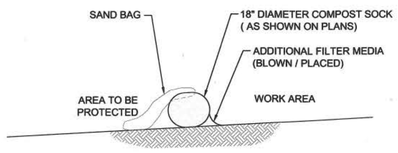
SECTION VIEW

NOTES:

1. STONE TO BE 1"-3" STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - AS REQUIRED, BUT NOT LESS THAN 50 FT.
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH- TEN (10) FT. MIN, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
5. FILTER CLOTH - SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCE SHALL BE PIPED ACROSS OR BENEATH THE ENTRANCE.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WASHING - WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. IF WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

STABILIZED CONSTRUCTION ENTRANCE 4
NOT TO SCALE



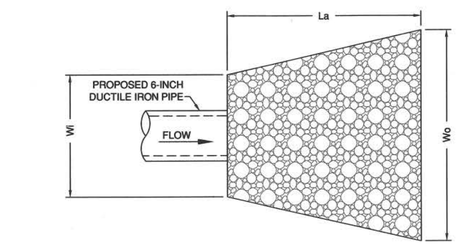


SECTION VIEW

NOTES:

1. SUPPORT POST OR STAKES ARE PROHIBITED FOR USE TO SECURE SEDIMENT BARRIER OVER THE EXISTING LANDFILL CAP.
2. NO EROSION/SEDIMENTATION CONTROL DEVICE SHALL PENETRATE THE EXISTING LANDFILL CAP MATERIAL.
3. COMPOST SOCK TO BE FILTREXX SOXX OR APPROVED EQUAL.
4. FILTER MEDIA FILL TO MEET MANUFACTURER'S REQUIREMENTS.
5. SAND BAGS TO BE SPACED EQUALLY TO SECURE COMPOST SOCKS IN PLACE, IF REQUIRED.
6. UPON COMPLETION, COMPOST MATERIAL TO BE DISPERSED ON SITE AS DETERMINED BY ENGINEER.

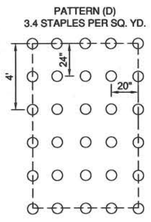
SEDIMENT BARRIER - COMPOST SOCK 5
NOT TO SCALE



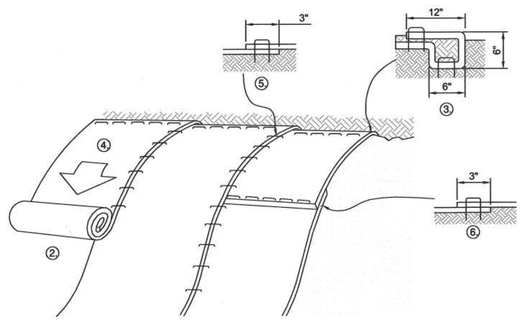
PIPE SIZE	La	Wo	Wi	Dstone
6-INCH	5-FEET	4.5-FEET	4.5-FEET	4-INCH MINUS

INLET AND OUTLET PROTECTION 7
NOT TO SCALE

SIGN DETAIL 6
NOT TO SCALE



STAPLE PATTERN GUIDE
6.67' WIDE ROLLS



SLOPE INSTALLATION
(SEE STEPS BELOW)

NOTE:
THIS DETAIL REFERENCES PRODUCTS BY NORTH AMERICAN GREEN. EQUIVALENT PRODUCTS MAY BE USED AS APPROVED BY THE ENGINEER. EROSION CONTROL BLANKETS TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND INSTRUCTIONS.

1. EROSION CONTROL MATTING TO BE NORTH AMERICAN GREEN S75BN OR APPROVED EQUAL. INSTALL USING STAPLE PATTERN D.
2. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECPs), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED (SEE DRAWING C-101).
3. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECPs IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF RECPs EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECPs WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF RECPs BACK OVER SEED AND COMPACTED SOIL. SECURE RECPs OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE RECPs.
4. ROLL THE RECPs DOWN THE SLOPE. RECPs WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECPs MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
5. THE EDGES OF PARALLEL RECPs MUST BE STAPLED WITH AN APPROXIMATE 3" OVERLAP.
6. CONSECUTIVE RECPs SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE RECPs WIDTH.
7. STAPLES LONGER THAN 6 INCHES SHALL NOT BE USED WITHIN THE LIMIT OF WASTE TO AVOID PENETRATION INTO THE LANDFILL CAP.

EROSION CONTROL BLANKET INSTALLATION 8
NOT TO SCALE

ISSUED FOR SITE PLAN REVIEW

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0	01/04/2016	ISSUED FOR SITE PLAN REVIEW	APV	RJB

PROJECT:
ASHLAND LANDFILL SOLAR PV DEVELOPMENT
ASHLAND, MASSACHUSETTS

TITLE:
DETAILS

CLIENT:
AMERESCO
111 SPEEN STREET
FRAMINGHAM, MA 01701
AMERESCO Green • Clean • Sustainable

SEAL:
COMMONWEALTH OF MASSACHUSETTS
ROBERT J. BUKOWSKI
CIVIL
No. 41492
REGISTERED PROFESSIONAL ENGINEER
2/17/16

DESIGNED BY:	DRAWN BY:
APV	DED
CHECKED BY:	SCALE:
TD	AS SHOWN

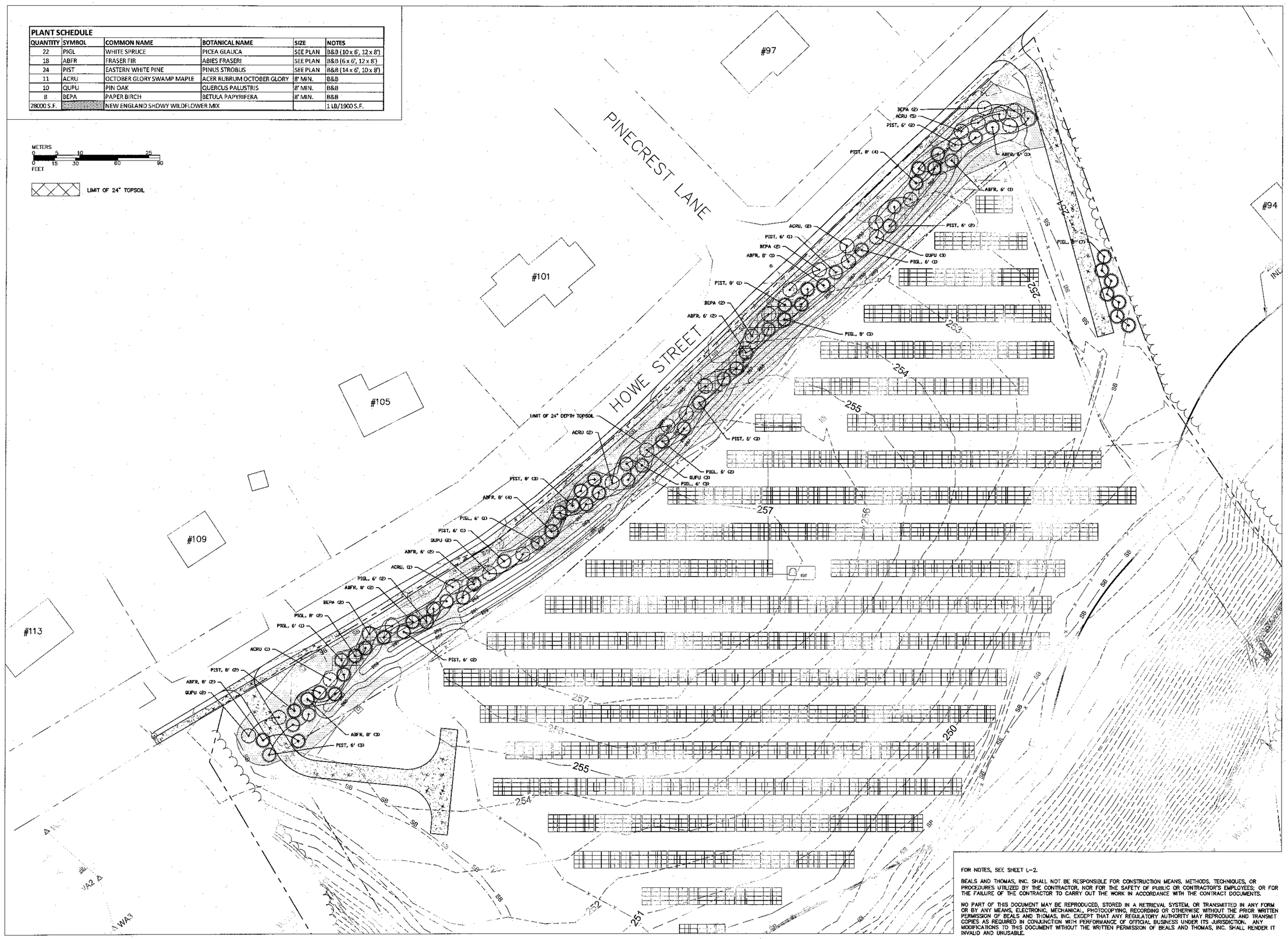
PROJECT NUMBER: 3652150029
DRAWING NUMBER: C-501
SHEET NUMBER: 4 OF 8

U:\- CAD Projects\Ameresco\Ashland - 3652150029\7.0 CAD\7.01 Site Plan\Sheets\4 - 3652150221 - C-501 Site Plan.dwg - C-501 - Feb. 17, 2016 10:26am - dana.dempsey

PLANT SCHEDULE					
QUANTITY	SYMBOL	COMMON NAME	BOTANICAL NAME	SIZE	NOTES
22	PIGL	WHITE SPRUCE	PICEA GLAUCA	SEE PLAN	B&B (10 x 6', 12 x 8')
18	ABFR	FRASER FIR	ABIES FRASERI	SEE PLAN	B&B (6 x 6', 12 x 8')
24	PIST	EASTERN WHITE PINE	PINUS STROBUS	SEE PLAN	B&B (14 x 6', 10 x 8')
11	ACRU	OCTOBER GLORY SWAMP MAPLE	ACER RUBRUM OCTOBER GLORY	8' MIN.	B&B
10	QUPU	PIN OAK	QUERCUS PALUSTRIS	8' MIN.	B&B
8	BEPA	PAPER BIRCH	BETULA PAPYRIFERA	8' MIN.	B&B
28000 S.F.		NEW ENGLAND SHOWY WILDFLOWER MIX			1 LB/1900 S.F.

METERS 0 5 10 25
FEET 0 15 30 60 90

LIMIT OF 24" TOPSOIL



FOR NOTES, SEE SHEET L-2.

BEALS+THOMAS
Civil Engineers + Landscape Architects +
Land Surveyors + Planners +
Environmental Specialists

BEALS AND THOMAS, INC.
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REVISION	DATE	ISSUE / REVISION DESCRIPTION	ISSUED BY	APPROVED
2	02/16/2016	NO CHANGES TO THIS SHEET		
1	02/01/2016	FOR DATE ONLY		
0	01/04/2016	ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION	AML	REW

PROJECT: ASHLAND LANDFILL SOLAR PV DEVELOPMENT
ASHLAND, MASSACHUSETTS

TITLE: LANDSCAPE PLAN

CLIENT: ASHLAND HOWE STREET SOLAR LLC

AMERESCO

SEAL: MASSACHUSETTS ROBERT G. WEINGARTEN NO. 897 REGISTERED LANDSCAPE ARCHITECT
2/16/2016

DESIGNED BY: AML	DRAWN BY: AML
CHECKED BY: REW	SCALE: 1" = 30'
PROJECT NUMBER: 266800P001B-001	
DRAWING NUMBER: L-101	
SHEET NUMBER: 5 OF 8	

GENERAL NOTES

THE CONTRACTOR SHALL MAKE ALL NECESSARY CONSTRUCTION NOTIFICATIONS AND APPLY FOR AND OBTAIN ALL NECESSARY CONSTRUCTION PERMITS. THE CONTRACTOR SHALL ALSO PAY ALL FEES AND POST ALL BONDS ASSOCIATED WITH THE SAME, AND COORDINATE WITH THE ENGINEER AND LANDSCAPE ARCHITECT AS REQUIRED.

CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR JOB SITE SAFETY AND ALL CONSTRUCTION MEANS AND METHODS.

LIMIT OF WORK SHALL BE EROSION CONTROL BARRIERS, LIMIT OF GRADING AND SITE PROPERTY LINES AND/OR AS INDICATED ON DRAWINGS.

PORTIONS OF THE ROADWAY, SIDEWALK AND ROADSIDE AREA DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO THEIR CONDITIONS PRIOR TO DISTURBANCE.

CONTRACTOR TO VERIFY UTILITY STUB LOCATIONS AND ELEVATIONS IN THE FIELD PRIOR TO COMMENCING WORK.

ANY ALTERATION TO THESE DRAWINGS MADE IN THE FIELD DURING CONSTRUCTION SHALL BE RECORDED BY THE CONTRACTOR ON RECORD DOCUMENTS.

ANY AREA OUTSIDE THE LIMIT OF WORK THAT IS DISTURBED SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT NO COST TO OWNER.

EXISTING TREES AND SHRUBS OUTSIDE THE LIMITS OF GRADING SHALL BE REMOVED ONLY UPON PRIOR APPROVAL OF THE OWNER.

FOR DRAWING LEGIBILITY, ALL EXISTING TOPOGRAPHIC FEATURES, EXISTING UTILITIES, PROPERTY BOUNDARIES, EASEMENTS, ETC. MAY NOT BE SHOWN ON ALL DRAWINGS. REFER TO ALL REFERENCED DRAWINGS AND OTHER DRAWINGS IN THIS SET FOR ADDITIONAL INFORMATION.

NEW EXCAVATION AND TRENCH SAFETY REGULATIONS ARE IN EFFECT AS OF MARCH 1, 2015. (REFER TO 520 CMR 14.00) ALL EXCAVATORS OR CONTRACTORS MUST OBTAIN A TRENCH PERMIT PRIOR TO ANY CONSTRUCTION RELATED TRENCHES ON SITE.

PLANTING AND LIGHTING NOTES

ALL PLANT MATERIAL SHALL CONFORM TO THE MINIMUM GUIDELINES ESTABLISHED BY THE AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION.

ANY PROPOSED SUBSTITUTIONS OF PLANT MATERIAL SHALL BE MADE WITH MATERIAL EQUIVALENT TO THE DESIRED MATERIAL IN OVERALL FORM, HEIGHT, BRANCHING HABIT, FLOWER, LEAF, COLOR, FRUIT AND CULTURE. PROPOSED SUBSTITUTIONS WILL ONLY BE CONSIDERED IF SUBMITTED WITH ENUMERATED REASONS WHY SUBSTITUTIONS ARE PROPOSED.

CAUTION SHALL BE USED NOT TO EXTEND MULCH LAYER ABOVE SOIL LEVEL AT TRUNKS/STEMS OF INSTALLED PLANT MATERIAL.

PROVIDE FIVE (5) FOOT DIAMETER MULCH CIRCLE AROUND ALL INDIVIDUAL TREE PLANTINGS AND CONTINUOUS MULCH BED AROUND SHRUB PLANTINGS.

VERIFY ALL EXISTING UTILITY LINES PRIOR TO PLANTING AND REPORT ANY CONFLICTS TO THE OWNER OR HIS REPRESENTATIVE.

NO PLANT SHALL BE PLANTED BEFORE ACCEPTANCE OF ROUGH GRADING.

PLANT MATERIALS SHALL BEAR SAME RELATIONSHIP TO GRADE AS THEY BORE TO GRADE IN THE NURSERY.

ALL PLANT MATERIALS SHALL BE GUARANTEED FOR ONE YEAR FOLLOWING DATE OF FINAL ACCEPTANCE.

LOAM AND SEED ALL DISTURBED AREAS UNLESS OTHERWISE INDICATED.

REGRADE STOCKPILE AREA AFTER REMOVAL OF SURPLUS MATERIALS (SEE SITE WORK SPECIFICATIONS). LOAM AND SEED THE DISTURBED AREA.

TOPSOIL STRIPPED FROM THE SITE AND PROPERLY STOCKPILED PRIOR TO APPLICATION MAY, UPON APPROVAL OF THE LANDSCAPE ARCHITECT, BE USED FOR PREPARATION OF LAWNS AND PLANTING BEDS. IT SHOULD BE FREE OF LARGE (ONE (1) INCH OR GREATER) COBBLES, ROOTS, OLD SOD, TRASH, WOOD OR OTHER CONTAMINANTS AND BE OF A FRIABLE CONSISTENCY AND SUITABLE FOR PLANT GROWTH.

THE LANDSCAPE CONTRACTOR SHALL FURNISH TOPSOIL. TOPSOIL SHALL BE FERTILE, FRIABLE, NATURAL AND PRODUCTIVE TOPSOIL OF GOOD CLAY-LOAM TYPE. IT SHALL BE FREE OF WEED SEEDS. TOPSOIL SHALL BE WITHOUT ADMIXTURE OF SUBSOIL AND SHALL BE REASONABLY FREE OF STONES, LUMPS, ROOTS, STICKS AND OTHER FOREIGN MATTER. TOPSOIL SHALL NOT BE WORKED OR APPLIED IN A MUDDY OR WET CONDITION.

TOPSOIL SHALL BE SPREAD TO A MINIMUM DEPTH OF SIX (6) INCHES AFTER SETTING ON ALL STRIPPED PLANTED AREAS INCLUDING SLOPE STABILIZATION, LAWN AREAS AND PLANTING BEDS AFTER FILLS ARE PROPERLY SETTLED AND SUBGRADE HAS BEEN APPROVED BY THE OWNER. THE SETTLED TOPSOIL SHALL BE UP TO THE FINISHED GRADE AS CALLED FOR ON THE DRAWINGS. SCARIFY SUBGRADE TO A DEPTH OF TWO (2) INCHES BEFORE PLACING TOPSOIL.

REMOVE ALL ROCKS AND DEBRIS FROM SOIL SURFACE AND GRADE TO AN EVEN SURFACE.

SPREAD 10-10-10 FERTILIZER AT A RATE OF TWENTY-TWO (22) POUNDS PER ONE THOUSAND (1,000) SQUARE FEET AND INCORPORATE INTO THE SOIL UNIFORMLY.

APPLY DOLOMITIC LIME AT THE RATE OF ONE HUNDRED (100) POUNDS PER ONE THOUSAND (1,000) SQUARE FEET THE AREAS BEING PREPARED FOR PLANTING.

PLANTING SEED SHALL BE SOWN IN SEASONAL CONDITIONS AS APPROPRIATE FOR GOOD SEED SURVIVAL, OR AT SUCH TIMES AS APPROVED BY THE OWNER. PROVIDE SUFFICIENT HOSE AND SPRINKLER HEADS FOR ADEQUATE WATERING TO MAINTAIN A MOIST SEED BED AT ALL TIMES.

WATER, MULCH AND SEED BED THOROUGHLY AND IMMEDIATELY AFTER COMPLETION OF MULCHING. SOIL SHALL BE MOISTENED TO A DEPTH OF FOUR (4) INCHES. CONTRACTOR SHALL INSTRUCT OWNERS REPRESENTATIVE ON APPROPRIATE WATERING PROCEDURES DURING INITIAL ESTABLISHMENT.

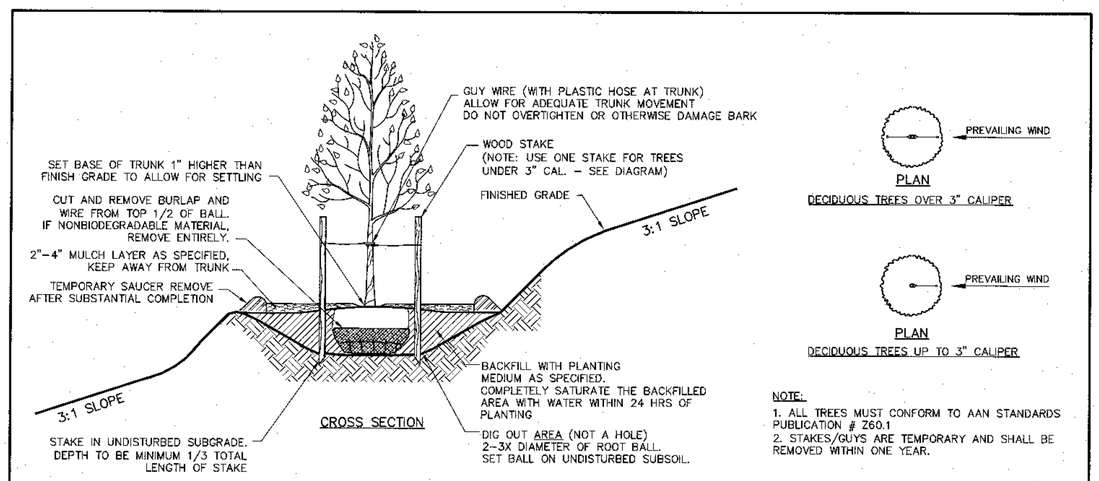
PROTECT NEWLY TOPSOILED, GRADED AND/OR SEEDED AREAS FROM TRAFFIC AND EROSION. KEEP AREAS FREE OF TRASH AND DEBRIS RESULTING FROM LANDSCAPE CONTRACTOR OPERATIONS.

REPAIR AND REESTABLISH GRADES IN SETTLED, ERODED AND RUTTED AREAS TO THE SPECIFIED GRADE AND TOLERANCES.

THE LANDSCAPE CONTRACTOR IS TO CLEAN UP AND REMOVE ANY DEBRIS FROM THE SITE CAUSED BY THE LANDSCAPE CONTRACTOR.

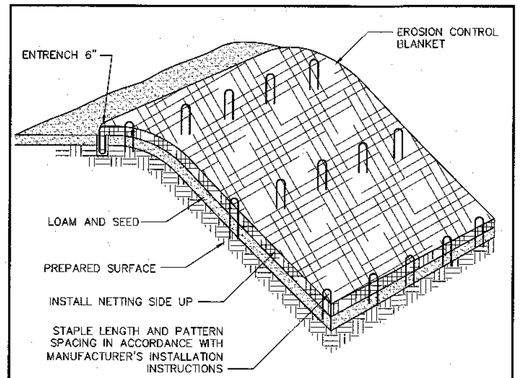
PLANT MATERIAL IS TO BE MAINTAINED BY THE LANDSCAPE CONTRACTOR WHILE THE PROJECT IS UNDERWAY.

ALL TREES ALONG SIDEWALKS SHALL HAVE A MINIMUM SIX (6) FOOT BRANCHING HEIGHT.



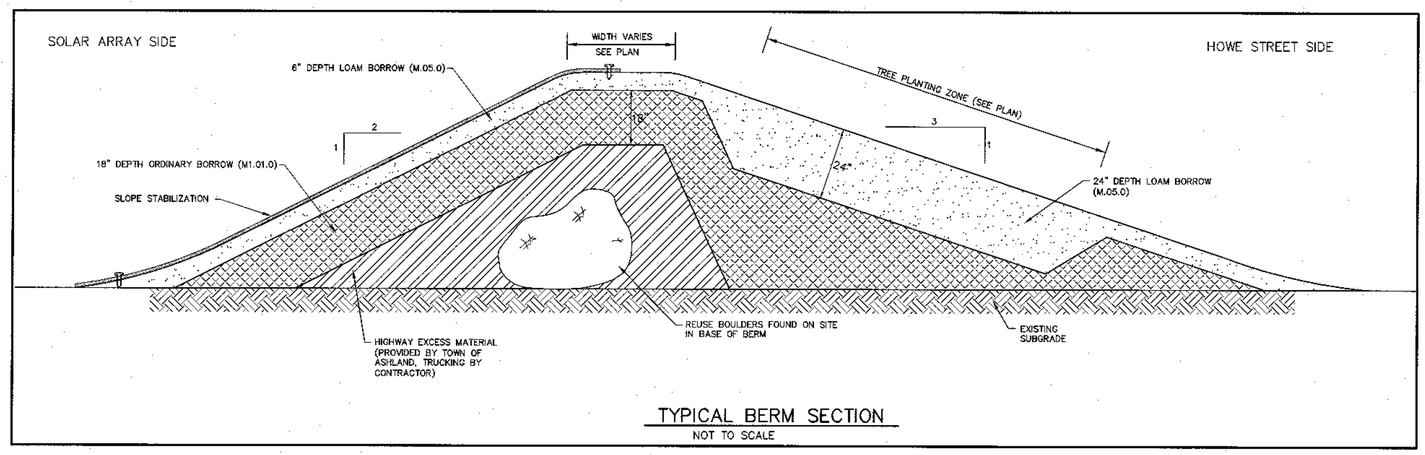
NOTE:
1. ALL TREES MUST CONFORM TO AAN STANDARDS PUBLICATION # Z60.1
2. STAKES/GUYS ARE TEMPORARY AND SHALL BE REMOVED WITHIN ONE YEAR.

TREE PLANTING
NOT TO SCALE

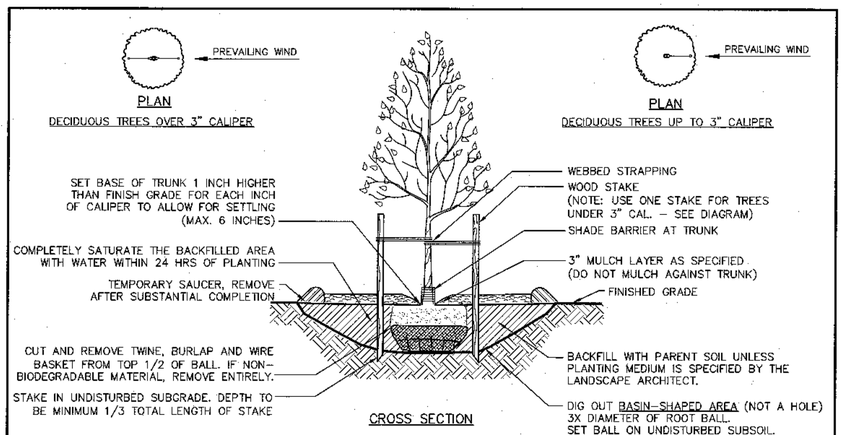


NOTE: TO BE INSTALLED ON ALL SLOPES STEEPER THAN 2:1 UNLESS OTHERWISE NOTED.

SLOPE STABILIZATION
NOT TO SCALE



TYPICAL BERM SECTION
NOT TO SCALE



NOTE:
1. ALL TREES MUST CONFORM TO AAN STANDARDS PUBLICATION ANSI Z60.1.
2. STAKES/GUYS ARE TEMPORARY AND SHALL BE REMOVED WITHIN ONE YEAR.

TREE PLANTING
NOT TO SCALE

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2	02/16/2016	REVISED PER TOWN PEER REVIEW	AML	REW
1	02/01/2016	FOR DATE ONLY		
0	01/04/2016	ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION		

PROJECT: ASHLAND LANDFILL SOLAR PV DEVELOPMENT
ASHLAND, MASSACHUSETTS

TITLE: LANDSCAPE DETAILS

CLIENT: ASHLAND HOWE STREET SOLAR LLC

AMERESCO Clean. Renewable.

SEAL: COMMONWEALTH OF MASSACHUSETTS ROBERT E. WEBER NO. 897 REGISTERED LANDSCAPE ARCHITECT
2/16/2016

DESIGNED BY:	DRAWN BY:
AML	AML
CHECKED BY:	SCALE:
REW	1" = 30'

PROJECT NUMBER: 2060OOP0016-002

DRAWING NUMBER: L-501

SHEET NUMBER: 6 OF 8

GENERAL NOTES:

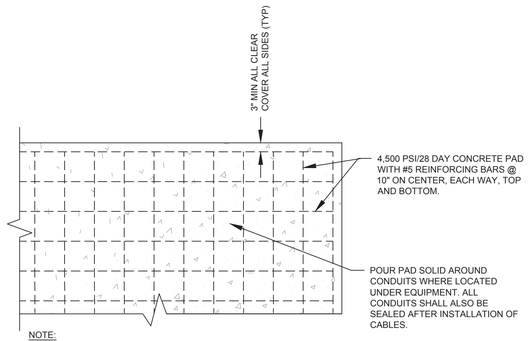
1. NOTIFY 811 DIGSAFE. CONFIRM THE LOCATIONS OF ALL SURFACE OR SUBSURFACE FEATURES, INCLUDING UTILITIES, WHICH HAVE A BEARING UPON THE PROPOSED CONSTRUCTION PRIOR TO BEGINNING CONSTRUCTION. VERIFY THE LOCATION OF ALL EXISTING UTILITIES AND REPORT ANY DISCREPANCIES IMMEDIATELY PRIOR TO CONTINUANCE OF WORK. COORDINATE WITH UTILITY COMPANIES PRIOR TO UTILITY DISCONNECT.
2. USE STRUCTURAL DRAWINGS IN CONJUNCTION WITH MECHANICAL, ELECTRICAL, AND SITE DRAWINGS. CONSULT THESE DRAWINGS FOR LOCATIONS AND DIMENSIONS OF OPENINGS, CHASES, INSERTS, REGLETS, SLEEVES, DEPRESSIONS, AND OTHER DETAILS NOT SHOWN ON STRUCTURAL DRAWINGS.
3. THE TERM "LICENSED ENGINEER" IN THIS DOCUMENT REFERS TO AN ENGINEER LICENSED IN THE STATE CONTAINING THIS PROJECT.
4. MAKE NO DEVIATIONS FROM THE DOCUMENTS WITHOUT WRITTEN DIRECTION FROM THE ENGINEER.
5. VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD. NOTIFY ENGINEER OF DISCREPANCIES BETWEEN THE NOTES, DRAWINGS, AND EXISTING CONDITIONS BEFORE PROCEEDING WITH THE AFFECTED PORTIONS OF THE WORK.
6. COORDINATE ALL WORK WITH THE OWNER TO MINIMIZE DISRUPTION TO OPERATIONS, AND PROTECT EXISTING FACILITIES, STRUCTURES, AND UTILITIES FROM DAMAGE.
7. THE STRUCTURE IS DESIGNED TO BE SELF SUPPORTING AND STABLE ONLY AFTER THE STRUCTURAL WORK CONTAINED IN THE DRAWINGS IS COMPLETED.
8. CONSIDER SECTIONS AND DETAILS SHOWN ON ANY STRUCTURAL DRAWINGS TO BE TYPICAL FOR SIMILAR CONDITIONS AS DETERMINED BY THE ENGINEER.
9. SUBMIT COMPLETE SHOP DRAWINGS FOR ALL PARTS OF THE WORK. NO PERFORMANCE OF THE WORK SHALL COMMENCE WITHOUT REVIEW OF THE SHOP DRAWINGS BY THE ENGINEER.
10. ADHERE TO ALL APPLICABLE FEDERAL, STATE, AND MUNICIPAL LAWS, RULES, REGULATIONS, AND ORDINANCES, INCLUDING THE FEDERAL DEPARTMENT OF LABOR OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA).

FOUNDATION NOTES:

1. THE ALLOWABLE (DESIGN) NET SOIL BEARING CAPACITY IS 2,000 PSF UNDER INVERTER/EQUIPMENT PADS.
2. NOTIFY THE ENGINEER AND STOP WORK IF SOFT CLAY, WET LOOSE SOILS, DEBRIS, UNSUITABLE FILL, OR OTHER DELETERIOUS MATERIALS ARE ENCOUNTERED. NO FOUNDATIONS SHALL BE INSTALLED UNTIL THE SUBGRADE HAS BEEN APPROVED BY THE OWNER'S GEOTECHNICAL ENGINEER.
3. PLACE NO FILL FOR SUPPORT UNTIL SUBGRADES HAVE BEEN OBSERVED AND APPROVED BY THE ENGINEER.
4. PLACE ENGINEERED FILL IN UNIFORM LIFTS AND COMPACT AS REFERENCED IN MASSACHUSETTS HIGHWAY DEPARTMENT (MHD) APPLICABLE PARTS OF SECTION 150.60 THROUGH, 150.68. STRUCTURAL (ENGINEERED) FILL SHALL MEET MHD REQUIREMENTS IN SECTION 150.40-MATERIALS FOR ORDINARY BORROW (M1.01.0), GRAVEL BORROW (M1.03.0), OR CRUSHED STONE (M2.01.4, M2.01.5, OR M2.01.07).
5. THE CONTRACTOR SHALL VERIFY FOOTING BEARING SURFACE IS CLEAN OF LOOSE SOIL, LOOSE ROCKS LARGER THAN 3-INCHES, DEBRIS, FROZEN SOIL OR ANY OTHER OBJECTIONABLE MATERIAL.
6. PROTECT SOILS EXPOSED AT THE BEARING SURFACE OF ALL SATISFACTORY FOUNDATION EXCAVATIONS AGAINST ANY DETRIMENTAL CHANGE IN CONDITION, SUCH AS DISTURBANCE FROM RAIN OR FROST. DRAIN SURFACE RUNOFF AWAY FROM THE EXCAVATIONS. ANTICIPATE GROUNDWATER IN EXCAVATIONS AND EMPLOY APPROPRIATE DEWATERING MEASURES.
7. NOTIFY THE OWNER'S ENGINEER IN ADVANCE TO ALLOW FOR INSPECTION, BUT NOT LESS THAN 48-HOURS, PRIOR TO PLACING CONCRETE.

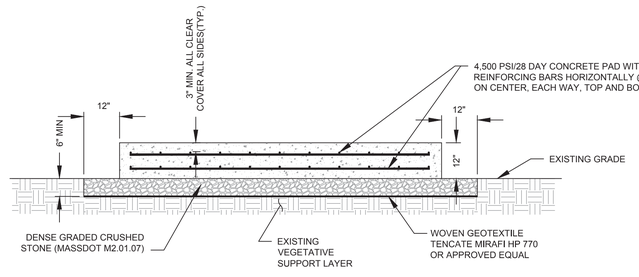
CONCRETE NOTES:

1. CONCRETE WORK SHALL CONFORM TO "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318)," AND "SPECIFICATIONS FOR STRUCTURAL CONCRETE (ACI 301)." MOST RECENT EDITION. THE CONTRACTOR SHALL HAVE AVAILABLE ON SITE AT ALL TIMES A COPY OF ACI "FIELD REFERENCE MANUAL SP-15".
2. REINFORCING BARS SHALL CONFORM TO ASTM A615 GRADE 60 DEFORMED BARS AND SHALL BE DETAILED, FABRICATED AND PLACED IN ACCORDANCE WITH ACI 315, LATEST EDITION. WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.
3. SYNTHETIC FIBER REINFORCEMENT SHALL BE CONFORMING TO ASTM C 1116/C 1116/M. FIBERS SHALL BE A MINIMUM OF 1-INCH LONG. FIBERS SHALL BE FREE OF OIL, GREASE, AND OTHER CONTAMINANTS.
4. PORTLAND CEMENT SHALL CONFORM TO ASTM C150 TYPE I OR II. AGGREGATES SHALL CONFORM TO ASTM C33 CLASS 3M.
5. CONCRETE MIX DESIGN:
   a. READY-MIX CONCRETE MUST COMPLY WITH THE REQUIREMENTS OF ASTM C94, AND AS SPECIFIED HEREIN. PROVIDE BATCH TICKET FOR EACH BATCH DISCHARGED AND USED IN WORK, INDICATING PROJECT NAME, MIX TYPE, MIX TIME, BATCH QUANTITY, AND PROPORTIONS OF INGREDIENTS. JOB-SITE MIXING WILL NOT BE PERMITTED. WATER SHALL NOT BE ADDED AT SITE.
   b. SUBMIT CONCRETE MIX DESIGNS TO THE ENGINEER FOR REVIEW. NO CONCRETE SHALL BE PLACED WITHOUT THE DESIGN MIX BEING REVIEWED BY THE ENGINEER.
   c. THE MAXIMUM W/C SHALL BE 0.44.
   d. CONCRETE STRENGTH(f'c) SHALL BE 4,500 PSI AT 28 DAYS FOR ALL CONCRETE SUPPORTS AND EQUIPMENT PADS.
   e. AGGREGATE: 3/4" NOMINAL MAXIMUM.
   f. CONCRETE EXPOSED TO WEATHER SHALL HAVE 6% (1 1/2"% ±) ENTRAINED AIR.
   g. SLUMP: 5"(±1") BEFORE ADDITION OF HIGH RANGE WATER REDUCER OR PLASTICIZER. MAXIMUM SLUMP AFTER ADDITION OF ADMIXTURE SHALL BE 8 INCHES.
   h. ADJUSTMENT TO CONCRETE MIXES: MIX ADJUSTMENTS MAY BE REQUESTED BY THE CONTRACTOR, WHEN CHARACTERISTICS OF THE MATERIALS, JOB CONDITIONS, WEATHER OR OTHER CIRCUMSTANCES WARRANT, AT NO ADDITIONAL COST TO THE OWNER AND AS ACCEPTED BY THE ENGINEER. LABORATORY TEST DATA FOR THE REVISED MIX DESIGN AND STRENGTH DATA MUST BE SUBMITTED AND ACCEPTED BY THE ENGINEER BEFORE USING IN WORK.
6. PREPARE COMPLETE SHOP DRAWINGS AND SCHEDULES OF ALL REINFORCING STEEL AND SUBMIT TO THE ENGINEER FOR REVIEW. PROVIDE NECESSARY ACCESSORIES TO HOLD REINFORCEMENT SECURELY IN POSITION.
7. MINIMUM CONCRETE PROTECTIVE COVERING FOR REINFORCEMENT SHALL BE 3" CONCRETE CAST AGAINST EARTH. COVER SHALL BE 2 INCHES ELSEWHERE.
8. ALL LAP SPLICES SHALL BE CLASS B LAP SPLICES WITH A MINIMUM SPLICE LENGTH OF 30 INCHES.
9. COMPLETE INSTALLATION OF REINFORCEMENT AT LEAST 24 HOURS PRIOR TO THE SCHEDULED CONCRETE PLACEMENT. NOTIFY ENGINEER OF COMPLETION AT LEAST 24 HOURS PRIOR TO THE SCHEDULED COMPLETION OF THE INSTALLATION OF REINFORCEMENT.
10. PLACE CONCRETE IN THE PRESENCE OF THE ENGINEER.
11. DO NOT PLACE CONCRETE IN WATER OR ON FROZEN GROUND. PLACE CONCRETE WITHOUT HORIZONTAL CONSTRUCTION JOINTS.
12. PLACE CONCRETE IN A MANNER SO AS TO PREVENT SEGREGATION OF THE MIX.
13. HOT WEATHER CONCRETING SHALL CONFORM TO ACI 305. COLD WEATHER CONCRETING SHALL CONFORM TO ACI 306.
14. DELAY FLOATING AND TROWELING UNTIL THE CONCRETE HAS LOST SURFACE WATER SHEEN. FINISHING OF SLAB SURFACES SHALL COMPLY WITH ACI RECOMMENDATIONS ACI 302 AND 304.
15. TROWEL FINISH AND SMOOTH TOP OF FOUNDATION WALL. TYPE B SURFACE IS REQUIRED FOR ALL CAST IN PLACE CONCRETE WORK U.N.O.
16. PROVIDE 7 DAY CURING IMMEDIATELY AFTER FINISHING USING APPROVED CURING METHOD.
17. REPAIR CONCRETE EXHIBITING VOIDS, SPALLS OR OTHERWISE DAMAGED SURFACE WITH DRY PACK OR CEMENT GROUT AND FINISH FLUSH. AT THE DISCRETION OF THE ENGINEER OR AS QUALIFIED BY TESTING, REMOVE AND REPLACE EXCESSIVE "HONEYCOMBS" AT THE EXPENSE OF THE CONTRACTOR.



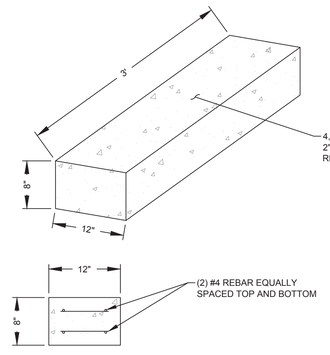
NOTE:
1. SEE DETAIL 14 THIS SHEET, FOR PAD DIMENSIONS

TYPICAL CONCRETE TRANSFORMER PAD PLAN — 10
NOT TO SCALE

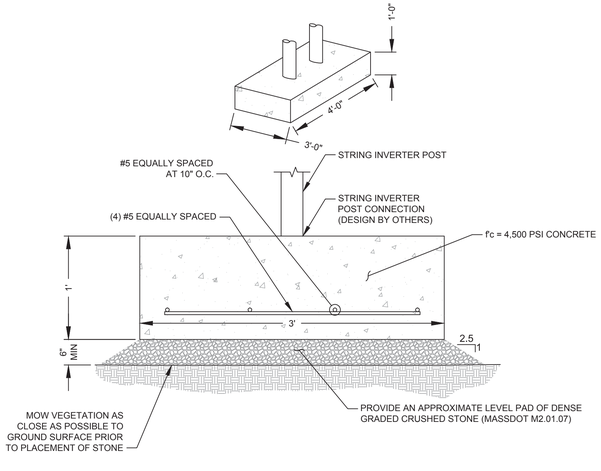


NOTE:
1. MINIMUM OF 6" OF DENSE GRADED CRUSHED STONE OR RECYCLED CONCRETE IS REQUIRED; HOWEVER, A MAXIMUM EXCAVATION DEPTH OF 6" IS ALLOWED. SHOULD ADDITIONAL STONE BE REQUIRED BEYOND THE EXCAVATION DEPTH TO ATTAIN THE 6" THICKNESS, THE STONE SHALL BE PLACED ABOVE EXISTING GROUND SURFACE ELEVATION.

TYPICAL CONCRETE TRANSFORMER PAD SECTION — 11
NOT TO SCALE

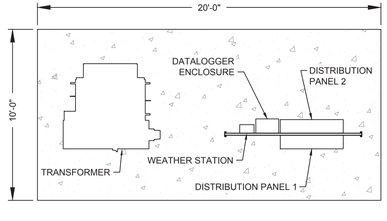


CABLE TRAY SUPPORT BLOCKS — 12
NOT TO SCALE



NOTE:
1. PROVIDE LEVEL BEARING SURFACES FOR SLOPES STEEPER THAN 5.6-HORIZ TO 1-VERT (5.6:1).
2. LEVELING STONE TO BE USED UNDER THE STRING INVERTER PAD WHEN THE GRADE EXCEEDS 18%.

STRING INVERTER PAD — 13
NOT TO SCALE



TYPICAL TRANSFORMER PAD LAYOUT

NOTES:
1. SEE DETAIL 11 THIS SHEET FOR PAD DETAILS.
2. CONTRACTOR TO PLACE CRUSHED STONE UNDER BLOCK AS NEEDED TO ACCOMMODATE CONDUIT PLACEMENT. (DENSE GRADED CRUSHED STONE (MASSDOT M2.01.07)).

PROPOSED TRANSFORMER COMBINER PANEL PAD LAYOUT — 14
NOT TO SCALE

ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION

amec foster wheeler
AMEC MASSACHUSETTS, INC.
271 MILL ROAD
CHELMSFORD MASSACHUSETTS 01824
TELEPHONE: (978) 692-9090
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REVISION	DATE	ISSUE / REVISION DESCRIPTION	ISSUED BY	APPROVED
0	02/01/2016	ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION	NAB	DET

PROJECT: ASHLAND LANDFILL SOLAR PV DEVELOPMENT
ASHLAND, MASSACHUSETTS

TITLE: **STRUCTURAL DETAILS**

CLIENT: ASHLAND HOWE STREET SOLAR LLC
111 SPEEN STREET
FRAMINGHAM, MA 01701

AMERESCO Green • Clean • Sustainable

SEAL: COMMONWEALTH OF MASSACHUSETTS — DOUGLAS E. TATE — CIVIL — No. 40908 — REGISTERED PROFESSIONAL ENGINEER

douglas.tate@amecfw.com — Digitally signed by douglas.tate@amecfw.com DN: cn=douglas.tate@amecfw.com Date: 2016.02.01 10:52:51 -04'00'

DESIGNED BY:	DRAWN BY:
NAB	DED
CHECKED BY:	SCALE:
DET	AS SHOWN

PROJECT NUMBER: 3652150029

DRAWING NUMBER: **S-501**

SHEET NUMBER: **7 OF 8**

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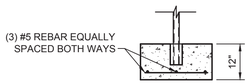
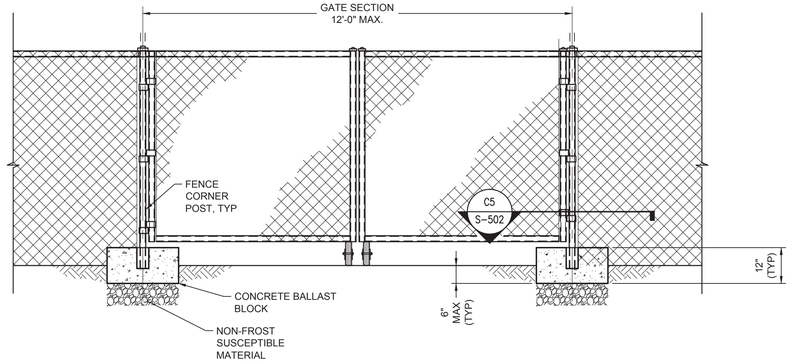


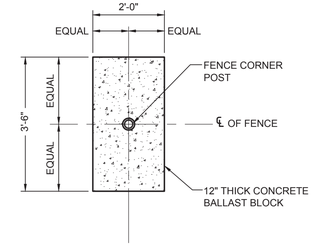
C1 GATE FENCE POST BLOCK STRUCTURAL DETAIL

SCALE: NOT TO SCALE



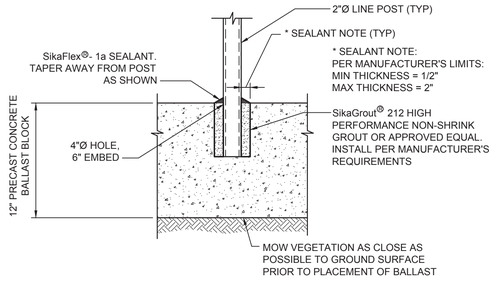
C3 FENCE GATE DETAIL

SCALE: 1/2" = 1'-0"



C5 SECTION AT GATE FENCE POST BALLAST BLOCK

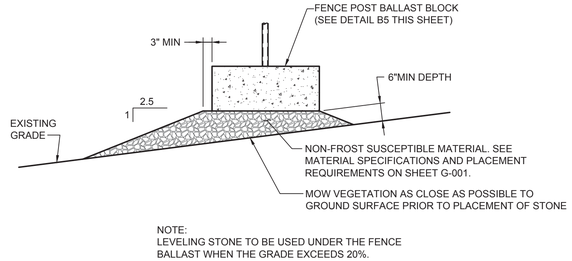
SCALE: NOT TO SCALE



NOTE:
THE FENCE BALLAST DESIGN DOES NOT IMPLY COMPLIANCE WITH THE NEC OR OTHER APPLICABLE CODES OR REGULATIONS.

B1 POST GROUTING DETAIL

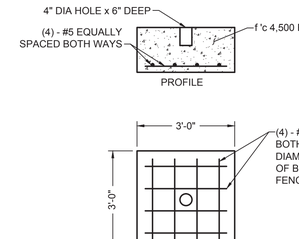
SCALE: NOTE TO SCALE



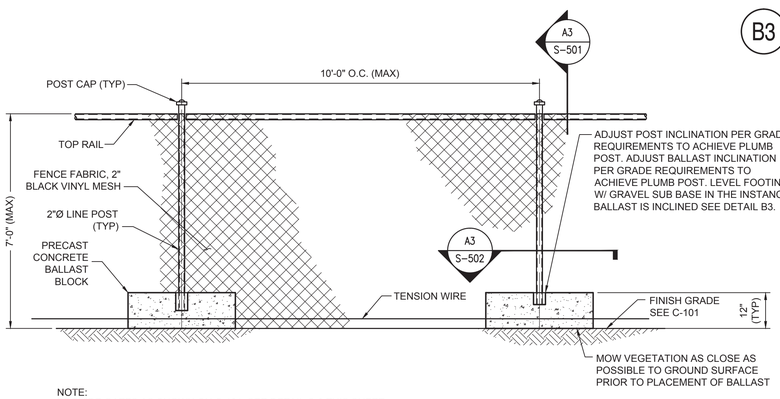
NOTE:
LEVELING STONE TO BE USED UNDER THE FENCE BALLAST WHEN THE GRADE EXCEEDS 20%.

B3 FENCE BALLAST BLOCK LEVELING DETAIL

SCALE: NOT TO SCALE



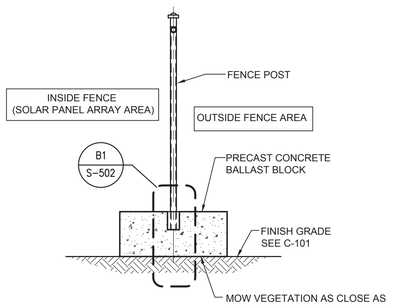
NOTE:
MINIMUM COVER FOR REINFORCING IN PRECAST BLOCK IS 2".



NOTE:
PROVIDE GATES AS SHOWN ON C-101. SEE DETAIL C-3 THIS SHEET.

A1 FENCE ELEVATION

SCALE: 1/2" = 1'-0"



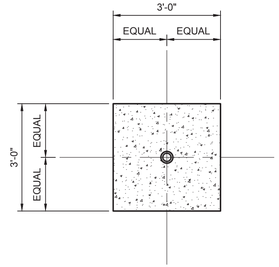
NOTE:
PLACEMENT ON LEVEL GROUND SHOWN. SEE DETAIL B3 WHEN SURFACE GRADES EXCEEDS 8%.

A3 SECTION AT FENCE POST

SCALE: 1/2" = 1'-0"

B5 FENCE POST BALLAST BLOCK STRUCTURAL DETAIL

NOT TO SCALE



A5 SECTION AT FENCE POST BALLAST BLOCK

SCALE: NOT TO SCALE

15 FENCE DETAIL

SCALE: 1/2" = 1'-0"

ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION

amec foster wheeler
AMEC MASSACHUSETTS, INC.
271 MILL ROAD
CHELMSFORD MASSACHUSETTS 01824
TELEPHONE: (978) 692-9090
FAX: (978) 692-6633
WEB: WWW.AMECFW.COM

REVISION	DATE	ISSUE / REVISION DESCRIPTION	ISSUED BY	APPROVED
0	02/01/2016	ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION	NAB	DET

PROJECT: ASHLAND LANDFILL SOLAR PV DEVELOPMENT ASHLAND, MASSACHUSETTS

TITLE: **FENCE AND BALLAST BLOCK DETAILS**

CLIENT: ASHLAND HOWE STREET SOLAR LLC
111 SPEEN STREET
FRAMINGHAM, MA 01701
AMERESCO Green • Clean • Sustainable

SEAL:
COMMONWEALTH OF MASSACHUSETTS
DOUGLAS E. TATE
CIVIL
No. 40908
REGISTERED PROFESSIONAL ENGINEER

douglas.tate@amecfw.com
Digitally signed by douglas.tate@amecfw.com
Date: 2016.02.01 10:51:41 -05'00'

DESIGNED BY:	DRAWN BY:
NAB	DED
CHECKED BY:	SCALE:
DET	AS SHOWN

PROJECT NUMBER: 3652150029

DRAWING NUMBER: **S-502**

SHEET NUMBER: **8 OF 8**

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Attachment 2 – Seed Mix Specification

NEW ENGLAND WETLAND PLANTS, INC

820 WEST STREET, AMHERST, MA 01002
PHONE: 413-548-8000 FAX 413-549-4000
EMAIL: INFO@NEWP.COM WEB ADDRESS: WWW.NEWP.COM

New England Showy Wildflower Seed Mix

Botanical name	Common name	Indicator
Schizachyrium scoparium	Little Bluestem	FACU
Festuca rubra	Creeping Red Fescue	FACU
Sorghastrum nutans	Indian Grass	UPL
Chamaecrista fasciculata	Partridge Pea	FACU
Elymus canadensis	Canada Wild Rye	FACU+
Elymus virginicus	Virginia Wild Rye	FACW-
Desmodium canadense	Showy Tick Trefoil	FAC
Penstemon digitalis	Beard Tongue	FAC
Rudbeckia hirta	Black Eyed Susan	FACU-
Coreopsis lanceolata	Lance Leaved Coreopsis	FACU
Heliopsis helianthoides	Ox Eye Sunflower	UPL
Verbena hastata	Blue Vervain	FACW
Asclepias syriaca	Common Milkweed	FACU-
Helenium autumnale	Common Sneezeweed	FACW+
Monarda fistulosa	Wild Bergamot	UPL
Zizia aurea	Golden Alexanders	FAC
Aster laevis	Smooth Blue Aster	UPL
Aster novae-angliae	New England Aster	FACW-
Eupatorium maculatum	Spotted Joe Pye Weed	FACW
Eupatorium purpureum	Purple Joe Pye Weed	FAC
Liatris spicata	Spiked Gayfeather/Marsh Blazing Star	FAC+
Tradescantia ohiensis	Ohio Spiderwort	FAC
Baptisia australis	Wild Blue False Indigo	FACU
Euthamia graminifolia	Grass Leaved Goldenrod	FAC
Solidago juncea	Early Goldenrod	

PRICE PER LB. $86.00
MIN. QUANTITY: 1 LBS.
TOTAL $86.00

APPLY: 23 LBS/ACRE
1 LB/1900 SQ FT

The New England Showy Wildflower mix includes a selection of native wildflowers and grasses that will mature into a colorful and vibrant native meadow. It is an appropriate seed mix for roadsides, commercial landscaping, parks, golf courses, and industrial sites. Always apply on clean bare soil. The mix may be applied by mechanical spreader, or on small sites it can be spread by hand. Lightly rake, or roll to ensure proper seed to soil contact. Best results are obtained with a Spring or late Fall dormant seeding. Late Spring and early Summer seeding will benefit with a light mulching of weed-free straw to conserve moisture. If conditions are drier than usual, watering may be required. Late Fall and Winter dormant seeding require an increase in the seeding rate. Fertilization is not required unless the soils are particularly infertile. Preparation of a clean weed free seed bed is necessary for optimal results.

New England Wetland Plants, Inc. may modify seed mixes at any time depending upon seed availability.
The design criteria and ecological function of the mix will remain unchanged.
Price is $/bulk pound, FOB warehouse, plus S&H and applicable taxes.

Attachment 3 – Financial Surety Memorandum

AMERESCO
Green • Clean • Sustainable

111 Speen Street, Suite 410
Framingham, MA 01701

P: 508 661 2200
F: 508 661 2201

ameresco.com

September 22, 2015

Town of Ashland
Board of Selectmen
101 Main Street
Ashland, MA

Re: Decommissioning Financial Surety Determination

Dear Ladies and Gentlemen;

In accordance with the Ashland Town Bylaws, Chapter 282 Section 8.3.11.3, in connection with our proposal regarding the construction and operation of a large scale solar facility on the Town's former landfill off of Howe Street (the "Landfill Project"), Ameresco, Inc. ("Ameresco") has prepared and hereby submits the attached estimate of the costs associated with removal of the Landfill Project in the event that the Town must remove it and remediate the landscape. Ameresco certifies that the cost estimates attached hereto were prepared by a qualified engineer experienced in development, installation and construction of solar PV projects similar to the Landfill Project.

Very truly yours,

AMERESCO, INC.

By _____
Name: ROBERT W. PERSONS, PE
Title: SENIOR PROJECT DEVELOPMENT ENGINEER

Attachment A

Decommissioning Costs Estimates

Decommissioning costs for each of the proposed Ashland projects, including the Landfill Project, have been estimated as follows based on civil and electrical engineering costs and salvage value:

1. Landfill: $75,000
2. Middle School: $50,000
3. High School: $50,000

For each of the three sites salvage value is calculated at 20% of the installed equipment cost, escalating at 3% per year.

Removal costs for each of the three sites was determined as follows:

1. **Landfill:** Removal costs assumes 30% of the electrical sub cost and 30% of the civil site work costs of the actual budgeted costs for installation. Removing a system not requiring the detail and quality of an installed project, the actual cost to remove is less than the labor cost to install. Our model assumes these costs escalate 3% per year due to inflation and wage increases
2. **Middle School:** Removal costs assumes 39% of electrical install costs. There is no site work for this roof mounted project. This percentage is higher than the landfill as removing from a school roof requires increased attention to minimize impact on the school roof. Our model assumes these costs escalate 3% per year due to inflation and wage increases.
3. **High School:** Removal cost assumes 55% of the electrical and 45% of site contract budget. These cost exceed the budget amount for the labor portion of each budget item due to the equipment required to remove the systems including lift rentals and for electrical contractor work and site work including removing and filling foundations and patching asphalt. Our model assumes these costs escalate 3% per year due to inflation and wage increases.

The attached spreadsheet sets forth the calculations in further detail.

Ashland Landffill

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Equipment Asset Value: Straight Line Depreciation	**$1,128,860**	**$1,072,417**	**$1,015,974**	**$959,531**	**$903,088**	**$846,645**	**$790,202**	**$733,759**	**$677,316**	**$620,873**	**$564,430**	**$507,987**	**$451,544**	**$395,101**	**$338,658**	**$282,215**	**$225,772**	**$169,329**	**$112,886**	**$56,443**	**$0**
Electrical Sub	$ 600,280																				
Site Contractor	$ 285,420																				
Removal Cost % Electric Sub	30%																				
Removal Cost % Site Contractor	30%																				
Removal Cost At Termination		$ 268,543	$ 276,600	$284,898	$293,445	$302,248	$ 311,315	$320,655	$330,274	$340,183	$350,388	$360,900	$371,727	$382,879	$394,365	$406,196	$418,382	$430,933	$443,861	$457,177	$470,892
Salvage Value		$ 225,772	$ 232,545	$239,521	$246,707	$254,108	$ 261,732	$269,583	$277,671	$286,001	$294,581	$303,419	$312,521	$321,897	$331,554	$341,500	$351,745	$362,298	$373,167	$384,362	$395,892
Removal Less Salvate		$ 42,771	$ 44,055	$ 45,376	$ 46,738	$ 48,140	$ 49,584	$ 51,071	$ 52,603	$ 54,182	$ 55,807	$ 57,481	$ 59,206	$ 60,982	$ 62,811	$ 64,696	$ 66,637	$ 68,636	$ 70,695	$ 72,816	$ 75,000
Salvage Value Percentage	20%																				
Decommissioning Assurance Amount in Year 20	$ 75,000																				

Ashland Middle School

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Equipment Asset Value: Straight Line Depreciation	**$255,941**	**$1,072,417**	**$1,015,974**	**$959,531**	**$903,088**	**$846,645**	**$790,202**	**$733,759**	**$677,316**	**$620,873**	**$564,430**	**$507,987**	**$451,544**	**$395,101**	**$338,658**	**$282,215**	**$225,772**	**$169,329**	**$112,886**	**$56,443**	**$0**
Electrical Sub	$ 205,630																				
Site Contractor	$ -																				
Removal Cost % Electric Sub	39%																				
Removal Cost % Site Contractor	0%																				
Removal Cost At Termination		$ 79,702	$ 82,094	$ 84,556	$ 87,093	$ 89,706	$ 92,397	$ 95,169	$ 98,024	$100,965	$103,994	$107,113	$110,327	$113,637	$117,046	$120,557	$124,174	$127,899	$131,736	$135,688	$139,759
Salvage Value		$ 51,188	$ 52,724	$ 54,305	$ 55,935	$ 57,613	$ 59,341	$ 61,121	$ 62,955	$ 64,844	$ 66,789	$ 68,793	$ 70,856	$ 72,982	$ 75,171	$ 77,427	$ 79,749	$ 82,142	$ 84,606	$ 87,144	$ 89,759
Removal Less Salvate		$ 28,514	$ 29,370	$ 30,251	$ 31,158	$ 32,093	$ 33,056	$ 34,048	$ 35,069	$ 36,121	$ 37,205	$ 38,321	$ 39,470	$ 40,655	$ 41,874	$ 43,130	$ 44,424	$ 45,757	$ 47,130	$ 48,544	$ 50,000
Salvage Value Percentage	20%																				
Decommissioning Assurance Amount in Year 20	$ 50,000																				

Ashland High School

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Equipment Asset Value: Straight Line Depreciation	**$1,316,526**	**$1,072,417**	**$1,015,974**	**$959,531**	**$903,088**	**$846,645**	**$790,202**	**$733,759**	**$677,316**	**$620,873**	**$564,430**	**$507,987**	**$451,544**	**$395,101**	**$338,658**	**$282,215**	**$225,772**	**$169,329**	**$112,886**	**$56,443**	**$0**
Electrical Sub	$ 453,395																				
Site Contractor	$ 94,500																				
Removal Cost % Electric Sub	55%																				
Removal Cost % Site Contractor	45%																				
Removal Cost At Termination		$ 291,820	$ 300,574	$309,591	$318,879	$328,445	$ 338,299	$348,448	$358,901	$369,668	$380,758	$392,181	$403,946	$416,065	$428,547	$441,403	$454,645	$468,285	$482,333	$496,803	$511,707
Salvage Value		$ 263,305	$ 271,204	$279,341	$287,721	$296,352	$ 305,243	$314,400	$323,832	$333,547	$343,554	$353,860	$364,476	$375,410	$386,673	$398,273	$410,221	$422,528	$435,203	$448,260	$461,707
Removal Less Salvate		$ 28,514	$ 29,370	$ 30,251	$ 31,158	$ 32,093	$ 33,056	$ 34,048	$ 35,069	$ 36,121	$ 37,205	$ 38,321	$ 39,470	$ 40,655	$ 41,874	$ 43,130	$ 44,424	$ 45,757	$ 47,130	$ 48,544	$ 50,000
Salvage Value Percentage	20%																				
Decommissioning Assurance Amount in Year 20	$ 50,000																				