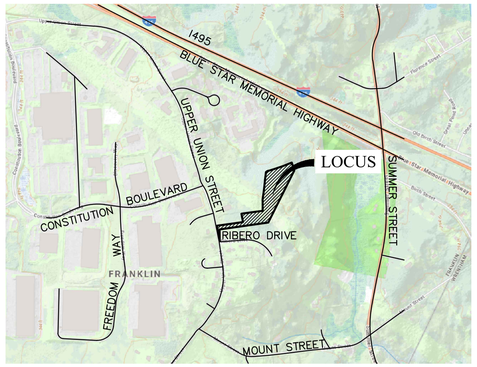
SITE DEVELOPMENT PLANS
FOR
UPPER UNION SOLAR PROJECT
FRANKLIN, MASSACHUSETTS 02038

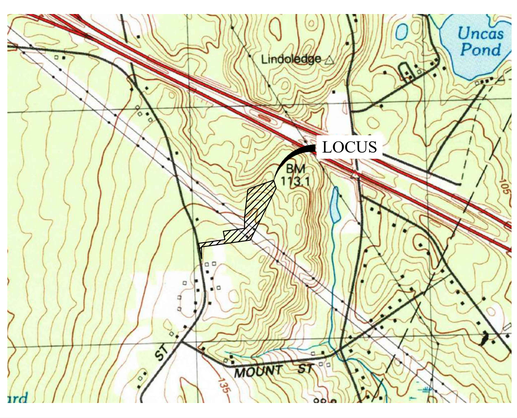
DATE: JUNE 19, 2023

REVISION DATE: NOVEMBER 10, 2023



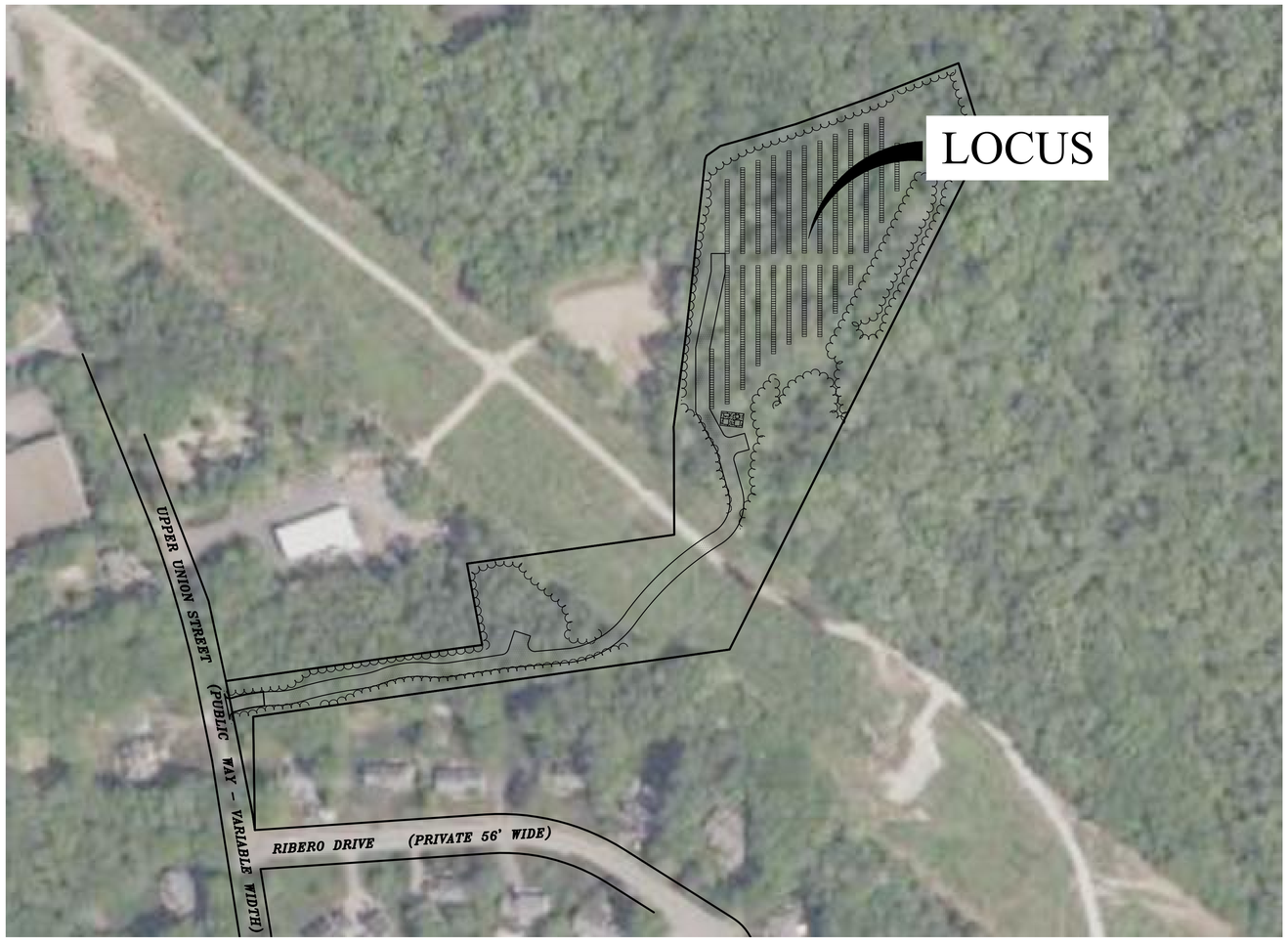
VICINITY MAP

1" = 1,000'



LOCUS MAP

1" = 1,000'



OVERALL LOCATION PLAN

SCALE: 1" = 100'

MASS STATE PLANE

INDEX OF PLANS		
SHEET NO.	TITLE	SCALE
1	COVER SHEET	1" = 100'
2	OVERALL EXISTING CONDITIONS PLAN	1" = 60'
3	EXISTING CONDITIONS PLAN	1" = 30'
4	EXISTING CONDITIONS PLAN	1" = 30'
5	OVERALL SITE DEVELOPMENT PLAN	1" = 60'
6	SITE DEVELOPMENT PLAN	1" = 30'
7	SITE DEVELOPMENT PLAN	1" = 30'
8	DETAILS PLAN	N.T.S.
9	DETAILS PLAN	N.T.S.
10	DETAILS PLAN	N.T.S.

OWNER:

JOHN C. COLELLA SR.
0 UPPER UNION STREET
FRANKLIN MA, 02038

APPLICANT:

VS UNION SOLAR SMART, LLC
24942 DANA POINT HARBOR
DANA POINT, CA 92629

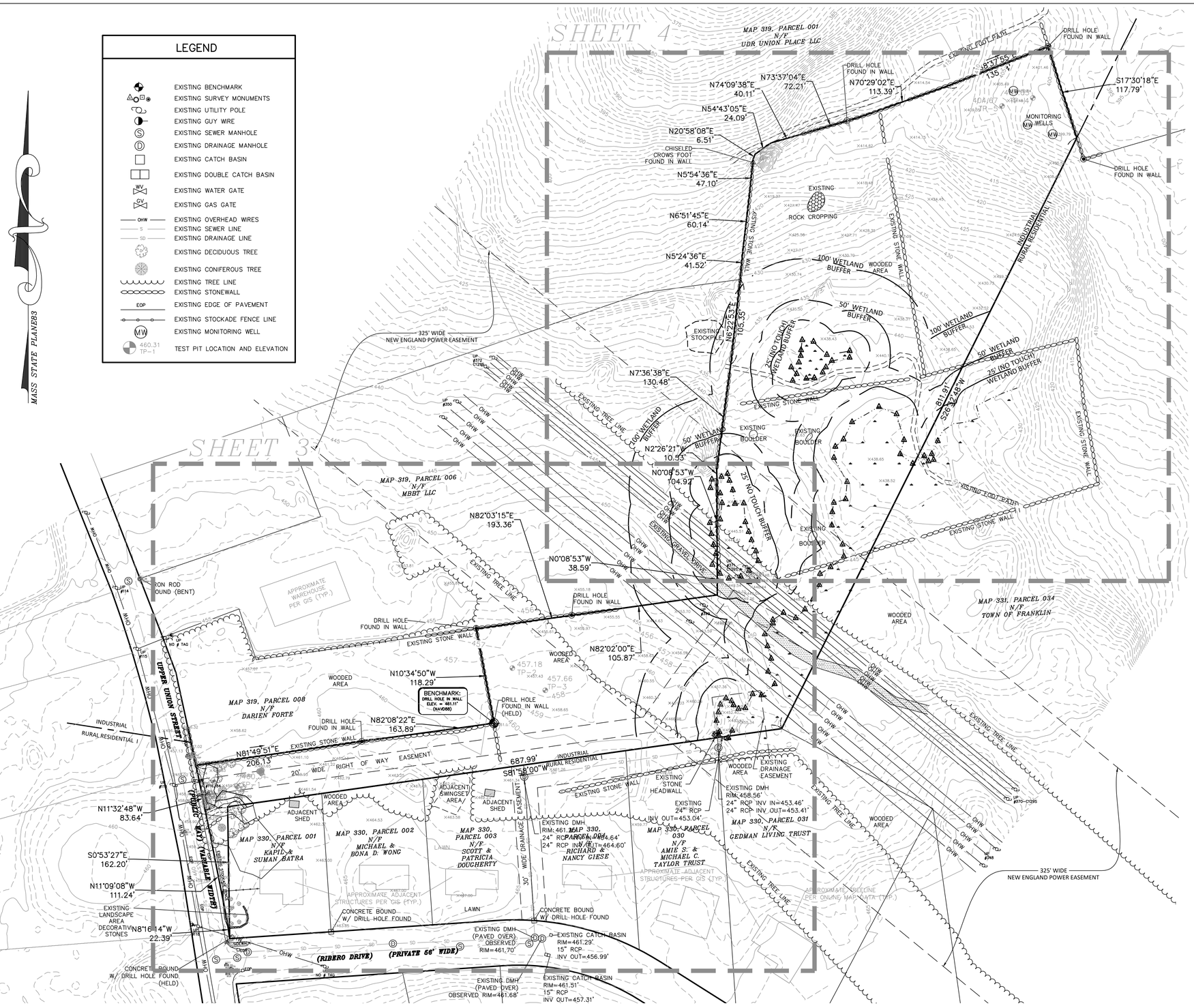
ENGINEER:

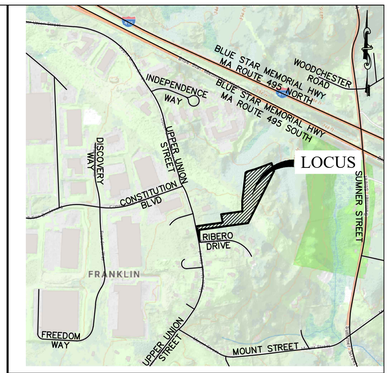
Atlantic®
DESIGN ENGINEERS, INC.
P.O. Box 1051, Sandwich, MA 02563
PHONE NUMBER: (508) 888-9282

FILE: 3328-DETAIL-REV1

Sheet	of
1	10

JOB NUMBER 3328.00





LOCUS MAP
1" = 1,000'

GENERAL NOTES:

1. RECORD OWNER(S) PER NORFOLK COUNTY REGISTRY OF DEEDS BOOK 31678 PAGE 107:

   MAP 319 PARCEL 009 (0 UPPER UNION STREET)
   JOHN C. COLELLA JR.
   FRANKLIN, MA 02038
   AREA = ±6.21 ACRES

2. THE SUBJECT PROPERTY IS SHOWN AS PARCEL 009 ON THE TOWN OF FRANKLIN ASSESSOR'S MAP 319. TOTAL LAND AREA IS ±6.21 ACRES.

3. THE PROPERTY LIES WITHIN A INDUSTRIAL ZONING DISTRICT BASED UPON A REVIEW OF THE TOWN OF FRANKLIN ZONING MAP AND PROPERTY CARDS.

4. THE LOCUS PROPERTY LINES SHOWN HEREON, ARE COMPILED FROM THE RECORD PLAN (PARCEL A–PLAN NUMBER 624 OF 1995 IN PLAN BOOK 433) AND DEED (BOOK 31678 PAGE 107) AND ARE BASED UPON THE NORTH AMERICAN DATUM OF 1983 (NAD83) AND ARE BASED UPON A FIELD SURVEY BY ATLANTIC DESIGN ENGINEERS, INC.

5. THE PROPERTY LIES WITHIN FLOOD ZONE X, AN AREA OF MINIMAL FLOODING, BASED UPON A REVIEW OF THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) MAP NUMBER 25021C0317E, EFFECTIVE DATE JULY 17, 2012.

6. THE LOCUS DOES NOT LIE WITHIN A ZONE II BASED UPON REVIEW OF THE MASSACHUSETTS GEOGRAPHIC INFORMATION SYSTEM AND THE TOWN OF FRANKLIN GEOGRAPHIC INFORMATION SYSTEM.

7. THE LOCUS DOES NOT LIE WITHIN THE WATER RESERVE OVERLAY DISTRICT BASED UPON REVIEW OF THE TOWN OF FRANKLIN GEOGRAPHIC INFORMATION SYSTEM AND WATER RESERVE DISTRICT MAPS.

8. THE SITE IS NOT LOCATED WITHIN AN ESTIMATED HABITAT OF RARE WILDLIFE OR A PRIORITY HABITAT OF RARE SPECIES BASED UPON A REVIEW OF THE NATURAL HERITAGE AND ENDANGERED SPECIES PROGRAM MAPS OBSERVED ON THE MASSACHUSETTS GEOGRAPHIC INFORMATION SYSTEM.

9. THE PROPERTY DOES NOT LIE WITHIN AN AREA OF CRITICAL ENVIRONMENTAL CONCERN (ACEC) BASED UPON A REVIEW OF THE MASSACHUSETTS GEOGRAPHIC INFORMATION SYSTEM.

10. THE EXISTING CONDITIONS SHOWN HEREON ARE BASED UPON A FIELD SURVEY BY ATLANTIC DESIGN ENGINEERS, INC. IN APRIL AND JUNE OF 2023 AND SUPPLEMENTED BY INFORMATION OBTAINED BY THE MASSACHUSETTS GEOGRAPHIC INFORMATION SYSTEM, THE TOWN OF FRANKLIN GEOGRAPHIC INFORMATION SYSTEM, AND INFORMATION OBTAINED FROM PUBLIC RECORDS.

11. THE WETLAND RESOURCE AREAS SHOWN HEREON ARE BASED UPON WETLAND DELINEATIONS COMPLETED BY GODDARD CONSULTING LLC IN APRIL AND SEPTEMBER 2023. WETLAND FLAGS WERE GPS LOCATED BY ATLANTIC DESIGN ENGINEERS ON APRIL 19, 2023 AND OCTOBER 2, 2023.

COMMONWEALTH OF MASSACHUSETTS
EDWIN H. GLESS No. 39045 PROFESSIONAL LAND SURVEYOR

FILE: 3328-EX-COND-REV1

Atlantic® DESIGN ENGINEERS, INC.
P.O. Box 1051, Sandwich, MA 02563 (508) 888 – 9282

Designed by :
Drawn by :
Checked by :
Survey chk. by :
Approved by :

SCALE
SCALE 1" = 60'
0 30 60 120

DATE

NO.	BY	DATE	REVISION
1	BJR	11/10/23	PEER REVIEW/TOWN COMMENTS

PREPARED FOR:
VS UNION SOLAR SMART,LLC
24941 DANA POINT HARBOR
DANA POINT, CA 92629

OVERALL EXISTING CONDITIONS PLAN
FOR
UPPER UNION SOLAR PROJECT
FRANKLIN, MA
JUNE 19, 2023

Sheet 2 of 10
JOB NUMBER 3328.00

SEE SHEET 4

COMMONWEALTH OF MASSACHUSETTS
EDWIN H. GLESS
No. 39045
PROFESSIONAL LAND SURVEYOR

N0°08'53"W
104.92'

NO TOUCH BUFFER

N82°03'15"E
193.36'

EXISTING GRAVEL DRIVE

EXISTING BOULDER

N0°08'53"W
38.59'

UP #371
G295.4

IRON ROD FOUND (BENT)

APPROXIMATE WAREHOUSE PER GIS (TYP.)

EXISTING TREE LINE

DRILL HOLE FOUND IN WALL

DRILL HOLE FOUND IN WALL

UP #349

UP NO # TAG

UP #115

EXISTING STONE WALL

9407
456.79
HOLE

WOODED AREA

N82°02'00"E
105.87'

N10°34'50"W
118.29'

457.18
TP-2

457.66
TP-3

MAP 319, PARCEL 008
N/F
DARIEN FORTE

BENCHMARK:
DRILL HOLE IN WALL
ELEV. = 461.11'
(NAVD88)

DRILL HOLE FOUND IN WALL (HELD)

DRILL HOLE FOUND IN WALL

N82°08'22"E
163.89'

EXISTING STONE WALL

N81°49'51"E
206.13'

20' WIDE RIGHT OF WAY EASEMENT

INDUSTRIAL
RURAL RESIDENTIAL I

687.99'
S81°58'00"W

UPPER UNION STREET (PUBLIC WAY) (VARIABLE WIDTH)

UP #116

UP #116/84

460.31
TP-1

EXISTING 24" RCP INV OUT=453.04

EXISTING DRAINAGE EASEMENT

EXISTING STONE HEADWALL
EXISTING DMH
RIM: 458.56'
24" RCP INV. IN=453.46'
24" RCP INV OUT=453.41'

WOODED AREA

ADJACENT SHED

ADJACENT SWINGSET AREA

ADJACENT SHED

EXISTING DMH
RIM: 461.25'
24" RCP INV IN=464.64'
24" RCP INV OUT=464.60'

EXISTING STONE WALL

EXISTING TREE LINE

MAP 330, PARCEL 001
N/F
KAPIL &
SUMAN BATRA

MAP 330, PARCEL 002
N/F
MICHAEL &
BONA D. WONG

MAP 330,
PARCEL 003
N/F
SCOTT &
PATRICIA
DOUGHERTY

MAP 330,
PARCEL 004
N/F
RICHARD &
NANCY GIESE

MAP 330,
PARCEL
030
N/F
AMIE S. &
MICHAEL C.
TAYLOR TRUST

MAP 330, PARCEL 031
N/F
GEDMAN LIVING TRUST

30' WIDE DRAINAGE EASEMENT

APPROXIMATE ADJACENT STRUCTURES PER GIS (TYP.)

LAWN

CONCRETE BOUND W/ DRILL HOLE FOUND

CONCRETE BOUND W/ DRILL HOLE FOUND

CONCRETE BOUND W/ DRILL HOLE FOUND (HELD)

N8°16'14"W
22.39'

UP #118

SIDEWALK

EXISTING LANDSCAPE AREA DECORATIVE STONES

(RIBERO DRIVE)

(PRIVATE 56' WIDE)

EXISTING DMH (PAVED OVER) OBSERVED RIM=461.70'

EXISTING CATCH BASIN
RIM=461.29'
15" RCP
INV OUT=456.99'

MASS STATE PLANE83

SEE SHEET 2 FOR OVERALL EXISTING CONDITIONS, LEGEND AND GENERAL NOTES

FILE: 3328-EX-COND-REV1

Atlantic® DESIGN ENGINEERS, INC.
P.O. Box 1051, Sandwich, MA 02563 (508) 888 – 9282

Designed by :
Drawn by :
Checked by :
Survey chk. by :
Approved by :

SCALE
SCALE 1" = 30'
0 15 30 45

DATE

NO.	BY	DATE	REVISION
1	BJR	11/10/23	PEER REVIEW/TOWN COMMENTS

PREPARED FOR:
VS UNION SOLAR SMART, LLC
24941 DANA POINT HARBOR
DANA POINT, CA 92629

EXISTING CONDITIONS PLAN
FOR
UPPER UNION SOLAR PROJECT
FRANKLIN, MA
JUNE 19, 2023

Sheet 3 of 10
JOB NUMBER 3328.00

COMMONWEALTH OF MASSACHUSETTS
EDWIN
H.
GLESS
No. 39045
PROFESSIONAL
LAND SURVEYOR

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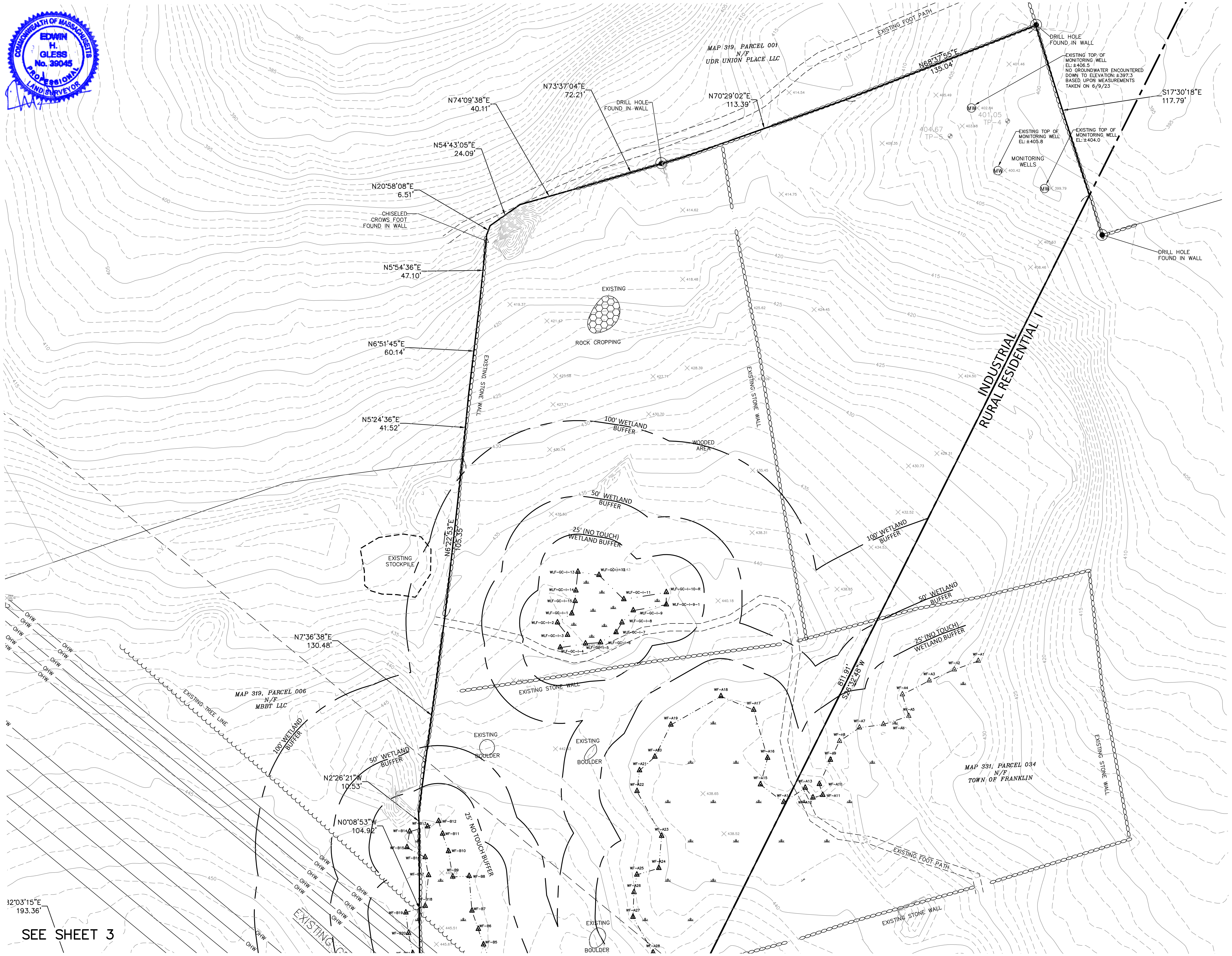

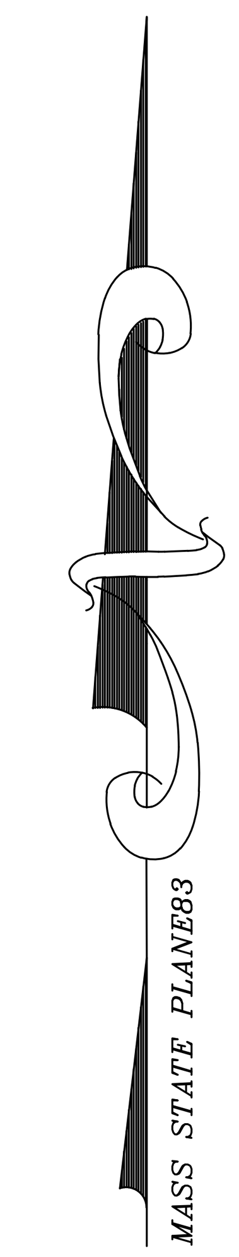

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OVERALL EXISTING
CONDITIONS, LEGEND
AND GENERAL NOTES

FILE: 3328-EX-COND-REV1

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PREPARED FOR:
VS UNION SOLAR PROJECT, LLC
24941 DANA POINT HARBOR
DANA POINT, CA 92629

EXISTING CONDITIONS PLAN
FOR
UPPER UNION SOLAR PROJECT
FRANKLIN, MA
JUNE 19, 2023

Sheet 4 of 10
JOB NUMBER
3328.00

ZONING REQUIREMENTS

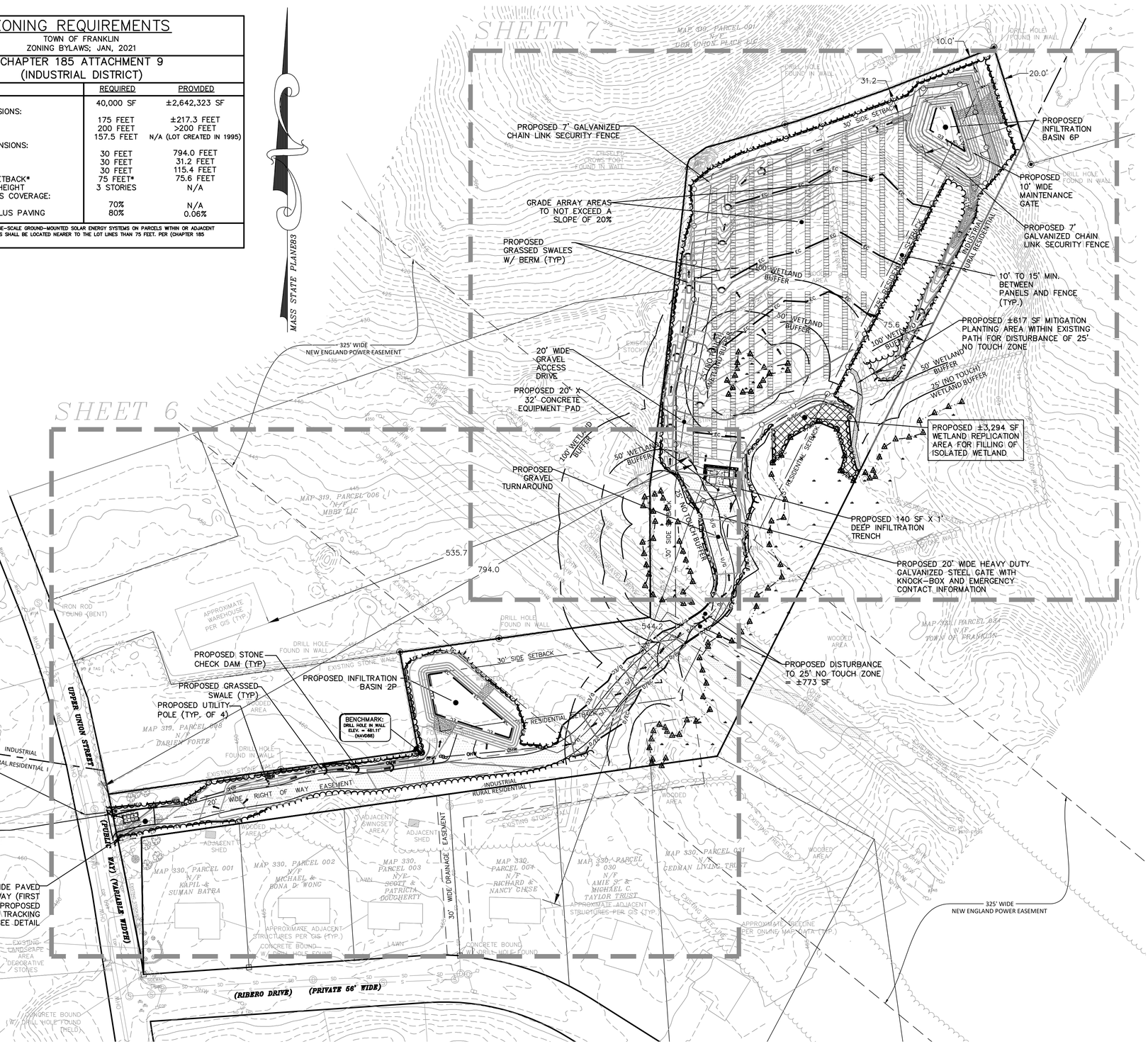
TOWN OF FRANKLIN
ZONING BYLAWS; JAN, 2021

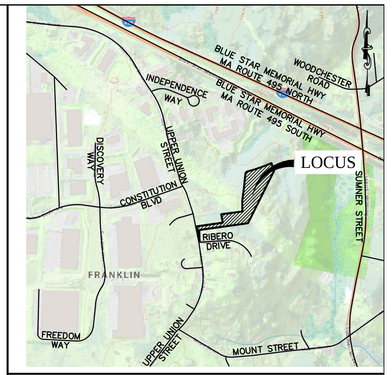
CHAPTER 185 ATTACHMENT 9
(INDUSTRIAL DISTRICT)

	REQUIRED	PROVIDED
MINIMUM LOT SIZE	40,000 SF	±2,642,323 SF
MINIMUM LOT DIMENSIONS:		
FRONTAGE	175 FEET	±217.3 FEET
DEPTH	200 FEET	>200 FEET
WIDTH	157.5 FEET	N/A (LOT CREATED IN 1995)
MINIMUM YARD DIMENSIONS:		
FRONT YARD	30 FEET	794.0 FEET
SIDE YARD	30 FEET	31.2 FEET
REAR YARD	30 FEET	115.4 FEET
RESIDENTIAL SETBACK*	75 FEET*	75.6 FEET
MAXIMUM BUILDING HEIGHT	3 STORIES	N/A
MAXIMUM IMPERVIOUS COVERAGE:		
STRUCTURES	70%	N/A
STRUCTURES PLUS PAVING	80%	0.06%

* NO MEDIUM-SCALE OR LARGE-SCALE GROUND-MOUNTED SOLAR ENERGY SYSTEMS ON PARCELS WITHIN OR ADJACENT TO RESIDENTIAL ZONING DISTRICTS SHALL BE LOCATED NEARER TO THE LOT LINES THAN 75 FEET. PER (CHAPTER 185 ATTACHMENT 4)

MASS STATE PLANE83





LOCUS MAP
1" = 1,000'

LEGEND

- EXISTING BENCHMARK
- EXISTING SURVEY MONUMENTS
- EXISTING UTILITY POLE
- EXISTING GUY WIRE
- EXISTING SEWER MANHOLE
- EXISTING DRAINAGE MANHOLE
- EXISTING CATCH BASIN
- EXISTING DOUBLE CATCH BASIN
- EXISTING WATER GATE
- EXISTING GAS GATE
- EXISTING OVERHEAD WIRES
- EXISTING SEWER LINE
- EXISTING DRAINAGE LINE
- EXISTING DECIDUOUS TREE
- EXISTING CONIFEROUS TREE
- EXISTING TREE LINE
- EXISTING STONEWALL
- EXISTING EDGE OF PAVEMENT
- EXISTING STOCKADE FENCE LINE
- EXISTING MONITORING WELL
- TP-1 460.31 — TEST PIT LOCATION AND ELEVATION
- PROPOSED TREELINE
- 402 — PROPOSED 1 FOOT CONTOUR
- 425 — PROPOSED 5 FOOT CONTOUR
- PROPOSED CHAIN LINK FENCE
- EC — PROPOSED EROSION CONTROL BARRIER
- D/EC — PROPOSED DOUBLE EROSION CONTROL
- OHW — PROPOSED OVERHEAD WIRES
- U/G — PROPOSED UNDERGROUND ELECTRIC
- PROPOSED UTILITY POLE
- SD — PROPOSED DRAINAGE LINE
- PROPOSED FLARED END SECTION
- PROPOSED DRAINAGE FLOW ARROW
- PROPOSED RIP-RAP APRON/CHANNEL

SEE SHEET 8 FOR CONSTRUCTION NOTES

FILE: 3328 SITE PLANS-REV1

Atlantic® DESIGN ENGINEERS, INC.
P.O. Box 1051, Sandwich, MA 02563 (508) 888 – 9282

Designed by : _____
Drawn by : _____
Checked by : _____
Survey chk. by : _____
Approved by : _____

SCALE
SCALE 1" = 60'
0 30 60 120

RICHARD J. TARNOCZYNSKI CIVIL No. 33744 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS

DATE

NO.	BY	DATE	REVISION
1	BJR	11/10/23	PEER REVIEW/TOWN COMMENTS

APPLICANT:
VS UNION SOLAR SMART, LLC
24941 DANA POINT HARBOR
DANA POINT, CA 92629

OVERALL DEVELOPMENT PLAN
FOR
UPPER UNION SOLAR PROJECT
JUNE 19, 2023
FRANKLIN, MA

Sheet 5 of 10
JOB NUMBER 3328.00

SEE SHEET 7

PROPOSED 140 SF x 1' DEEP INFILTRATION TRENCH

100' WETLAND BUFFER

50' WETLAND BUFFER

PROPOSED 20' X 32' CONCRETE EQUIPMENT PAD

PROPOSED 20' WIDE HEAVY DUTY GALVANIZED STEEL GATE WITH KNOCK-BOX AND EMERGENCY CONTACT INFORMATION

PROPOSED GRAVEL TURNAROUND

75' RESIDENTIAL SETBACK

PROPOSED TREELINE

PROPOSED DOUBLE EROSION CONTROL AT DOWN-GRADIENT LIMIT OF WORK (TYP)

25' NO TOUCH BUFFER

30' SIDE SETBACK

EXISTING GRAVEL DRIVE

PITCH DRIVEWAY TO NORTH

PROPOSED 10' WIDE EMERGENCY OVERFLOW SPILLWAY EL=457.8'

PROPOSED DOUBLE EROSION CONTROL AT DOWNGRADIENT LIMIT OF WORK (TYP)

A MIN. OF 6" OF TOP SOIL SHALL BE APPLIED TO ALL AREAS DISTURBED DUE TO SOLAR CONSTRUCTION AND IT WILL BE PLANTED WITH A SEED MIX DESIGNED IN ACCORDANCE WITH THE TOWN OF FRANKLIN BEST DEVELOPMENT PRACTICES GUIDEBOOK — TO BE APPROVED BY PLANNING BOARD

PROPOSED DISTURBANCE TO 25' NO TOUCH ZONE = ±773 SF

PORTION OF EXISTING GRAVEL UTILITY ACCESS ROAD NOT INCLUDED IN 25' NO TOUCH ZONE DISTURBANCE CALCULATION (±50 SF)

PROPOSED UTILITY POLE (TYP. OF 4)

PROPOSED EROSION CONTROL MEASURES (TYP)

PROPOSED 20' WIDE GRAVEL ACCESS DRIVEWAY

BENCHMARK:
DRILL HOLE IN WALL
ELEV. = 461.11'
(NAVD88)

PROPOSED CATCH BASIN (CB-1)
RIM=459.30
INV OUT=457.30

PROPOSED STONE CHECK DAM (TYP)

PROPOSED GRASS SWALE (TYP)

12" CLASS V RCP
10 LF
S=1.0%

PROPOSED (4 CHAMBERS) CULTEC 100-HD RECHARGER CHAMBERS ON 0.5' BED OF STONE WITH 1' STONE SURROUND AND 0.5' STONE COVER
INV. IN=457.20 (CB-1)

PITCH DRIVEWAY TO SOUTH

EXISTING UTILITY POLE #116 (POI)
FINAL LOCATION & DESIGN TO BE DETERMINED BY UTILITY

PROPOSED UNDERGROUND ELECTRICAL CONDUIT

PROPOSED GRAVEL TURNAROUND

PROPOSED CAPE COD BERM ON NORTH SIDE OF PAVED APRON

ROCKS REMOVED FROM THE STONE WALL TO BE PLACED ALONG THE DRIVEWAY ENTRANCE

PROPOSED 20' WIDE PAVED ACCESS DRIVEWAY (FIRST ±50')/PROPOSED TEMPORARY TRACKING PAD—SEE DETAIL

PITCH DRIVEWAY TO NORTH (TYP)

PROPOSED TREE LINE

UPPER UNION STREET (PUBLIC WAY) (VARIABLE WIDTH)

INDUSTRIAL
RURAL RESIDENTIAL I

20' WIDE RIGHT OF WAY EASEMENT

30' WIDE DRAINAGE EASEMENT

MAP 319, PARCEL 008
N/F
DARIEN FORTE

MAP 330, PARCEL 001
N/F
KAPIL & SUMAN BATRA

MAP 330, PARCEL 002
N/F
MICHAEL & BONA D. WONG

MAP 330, PARCEL 003
N/F
SCOTT & PATRICIA DOUGHERTY

MAP 330, PARCEL 004
N/F
RICHARD & NANCY CIESE

MAP 330, PARCEL 030
N/F
AMIE S. & MICHAEL C. TAYLOR TRUST

SEE SHEET 5 FOR LEGEND AND SEE SHEET 8 FOR CONSTRUCTION NOTES

FILE: 3328 SITE PLANS-REV1

Atlantic® DESIGN ENGINEERS, INC.
P.O. Box 1051, Sandwich, MA 02563 (508) 888 – 9282

Designed by :
Drawn by :
Checked by :
Survey chk. by :
Approved by :

SCALE
SCALE 1" = 30'
0 15 30 45

DATE

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24941 DANA POINT HARBOR
DANA POINT, CA 92629

DEVELOPMENT PLAN
FOR
UPPER UNION SOLAR PROJECT
JUNE 19, 2023
FRANKLIN, MA

Sheet 6 of 10
JOB NUMBER 3328.00

PROPOSED 10' WIDE MAINTENANCE GATE

STABILIZE ALL SLOPES STEEPER THAN 3:1 WITH EROSION CONTROL MATTING AND IF STEEPER THAN 2:1 UTILIZE RIP-RAP (TYP)

REMOVE EXISTING STONE WALL ONLY WITHIN LIMIT OF WORK (TYP.)

TOP OF 6' WIDE BERM EL: 409.6'

PROPOSED STONE CHECK DAM (TYP)

TOP OF BERM=409.6

PROPOSED 29' LONG RIP-RAP APRON WITH 50' WIDE LEVEL SPREADER

PROPOSED TREELINE

PROPOSED EROSION CONTROL MEASURES (TYP)

PROPOSED 7' GALVANIZED CHAIN LINK SECURITY FENCE

PROPOSED 10' WIDE EMERGENCY OVERFLOW SPILLWAY SET AT EL=408.6'

PROPOSED INFILTRATION BASIN 6P (BOTTOM EL=404.0) (ESHG=401.3)

PROPOSED 10' WIDE MAINTENANCE GATE

PROPOSED 7' GALVANIZED CHAIN LINK SECURITY FENCE

GRADE ARRAY AREAS TO NOT EXCEED A SLOPE OF 20%

EXISTING TOPSOIL IS TO BE RETAINED AND/OR STOCKPILED AND SCREENED FOR RE-USE

PROPOSED 20'X100' MATERIAL STORAGE AND LAYDOWN AREA. (ALL MATERIALS MUST BE STORED OUTSIDE JURISDICTIONAL AREAS)

A MIN. OF 6" OF TOP SOIL SHALL BE APPLIED TO ALL AREAS DISTURBED DUE TO SOLAR CONSTRUCTION AND IT WILL BE PLANTED WITH A SEED MIX DESIGNED IN ACCORDANCE WITH THE TOWN OF FRANKLIN BEST DEVELOPMENT PRACTICES GUIDEBOOK - TO BE APPROVED BY PLANNING BOARD

PROPOSED GRASSED SWALES W/ BERM (TYP)

PROPOSED ROCK LINED SWALE (TYP)

100' WETLAND BUFFER

PROPOSED IMPACT TO BUFFER ZONE = ±56,736

PROPOSED SOLAR ARRAY FENCED IN AREA = ±2.17 AC

10' TO 15' MIN. BETWEEN PANELS AND FENCE (TYP.)

75' RESIDENTIAL SETBACK

CONTRACTOR TO PROVIDE INTERMEDIATE ROWS OF SEDIMENT/EROSION CONTROL MEASURES AS REQUIRED DURING CONSTRUCTION (TYP)

20' WIDE GRAVEL ACCESS DRIVE

50' WETLAND BUFFER

PROPOSED GRASSED SWALE (TYP)

25' (NO TOUCH) WETLAND BUFFER

50' WETLAND BUFFER

PROPOSED STONE CHECK DAM (TYP)

ISOLATED WETLAND ±1,647 SF TO BE FILLED

25' (NO TOUCH) WETLAND BUFFER

PROPOSED ±617 SF MITIGATION PLANTING AREA WITHIN EXISTING PATH FOR DISTURBANCE OF 25' NO TOUCH ZONE

PROPOSED ±3,294 SF WETLAND REPLICATION AREA FOR FILLING OF ISOLATED WETLAND

100' WETLAND BUFFER

PROPOSED 140 SF X 1' DEEP INFILTRATION TRENCH

50' WETLAND BUFFER

PROPOSED DOUBLE EROSION CONTROL UP-GRADIENT AND DOWN-GRADIENT ALONG WETLAND REPLICATION AREA (TYP)

PROPOSED 20' X 32' CONCRETE EQUIPMENT PAD

75' RESIDENTIAL SETBACK

PROPOSED TREELINE

PROPOSED 20' WIDE HEAVY DUTY GALVANIZED STEEL GATE WITH KNOCK-BOX AND EMERGENCY CONTACT INFORMATION

25' (NO TOUCH) BUFFER

30' SIDE SETBACK

PROPOSED GRAVEL TURNAROUND

PROPOSED DOUBLE EROSION CONTROL AT DOWN-GRADIENT LIMIT OF WORK (TYP)

INDUSTRIAL / RURAL RESIDENTIAL

MASS STATE PLANE

SEE SHEET 6

SEE SHEET 5 FOR LEGEND AND SEE SHEET 8 FOR CONSTRUCTION NOTES

FILE: 3328 SITE PLANS-REV1

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P.O. Box 1051, Sandwich, MA 02563 (508) 888 - 9282

Designed by : _____
Drawn by : _____
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Approved by : _____

SCALE
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0 15 30 45

RICHARD T. TARACZYNSKI CIVIL No. 33764 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS

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JUNE 19, 2023
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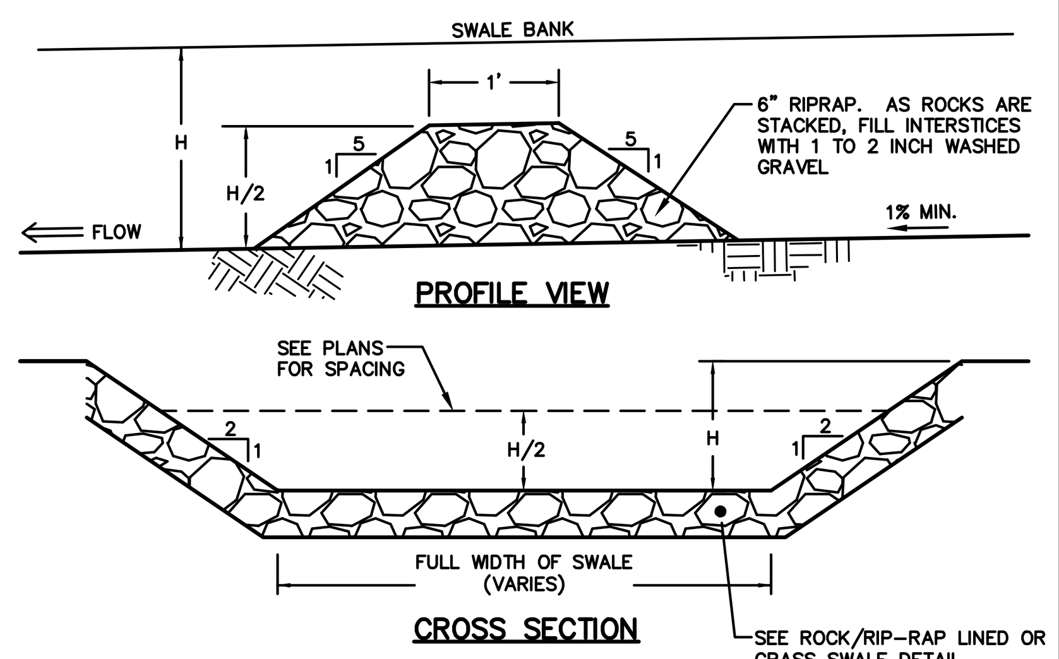
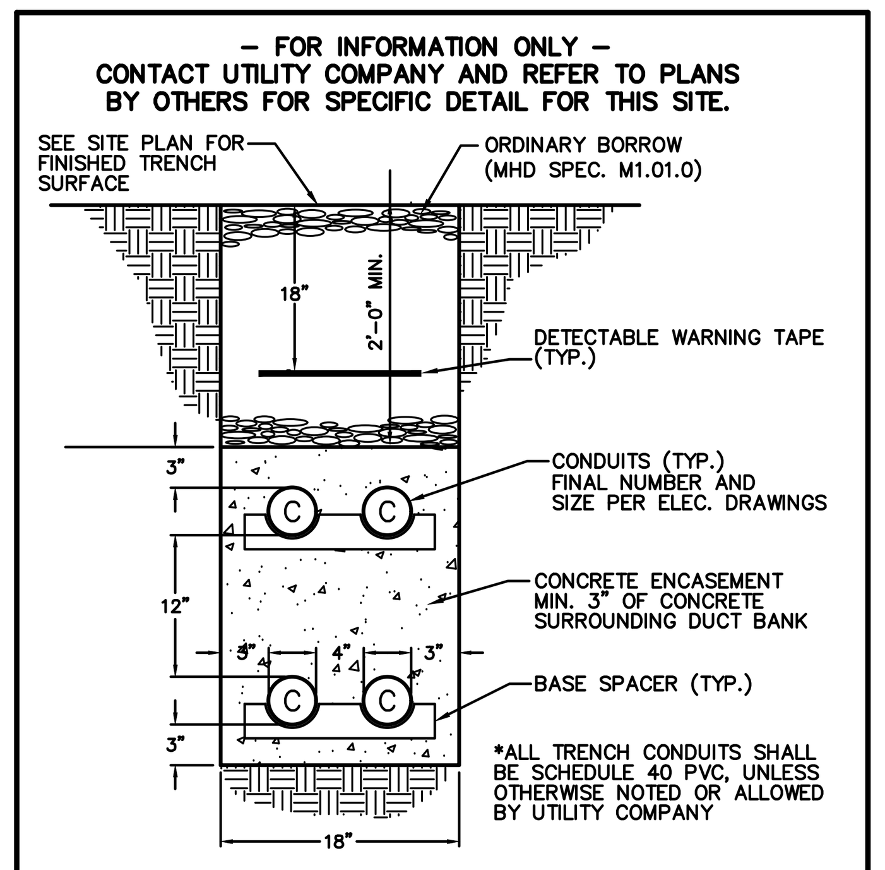
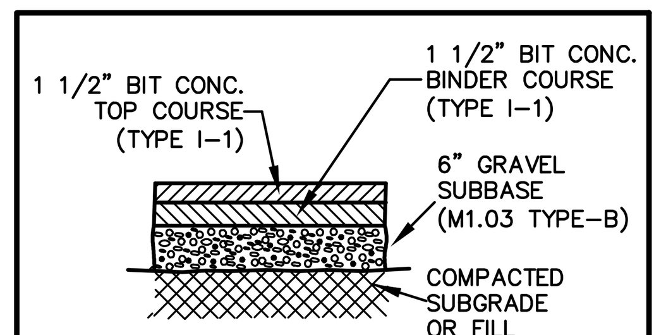
Sheet 7 of 10
JOB NUMBER 3328.00



STONE CHECK DAM DETAIL



TYPICAL UTILITY TRENCH DETAIL
(NOT TO SCALE)



PAVEMENT CROSS SECTION
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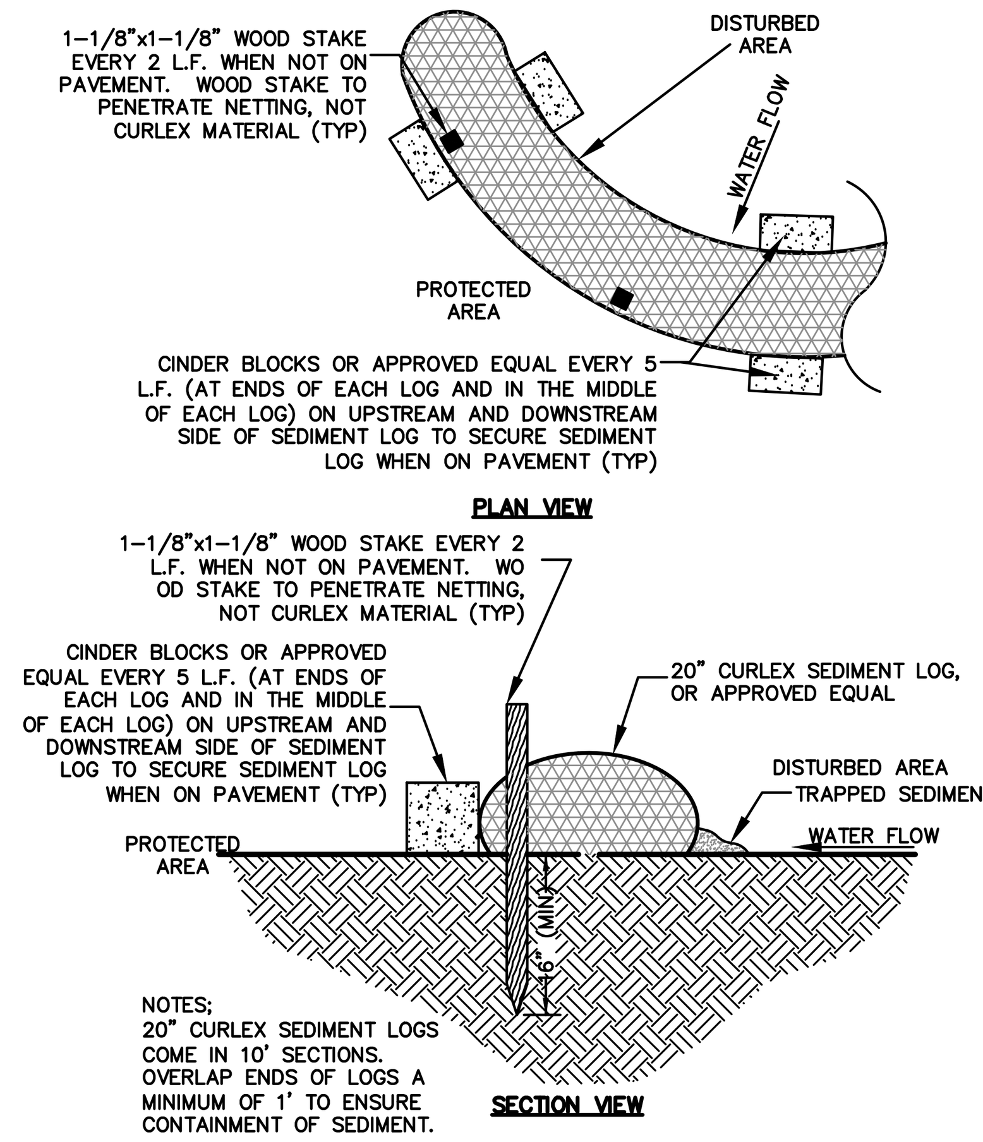

EROSION CONTROL SEDIMENT LOG DETAIL
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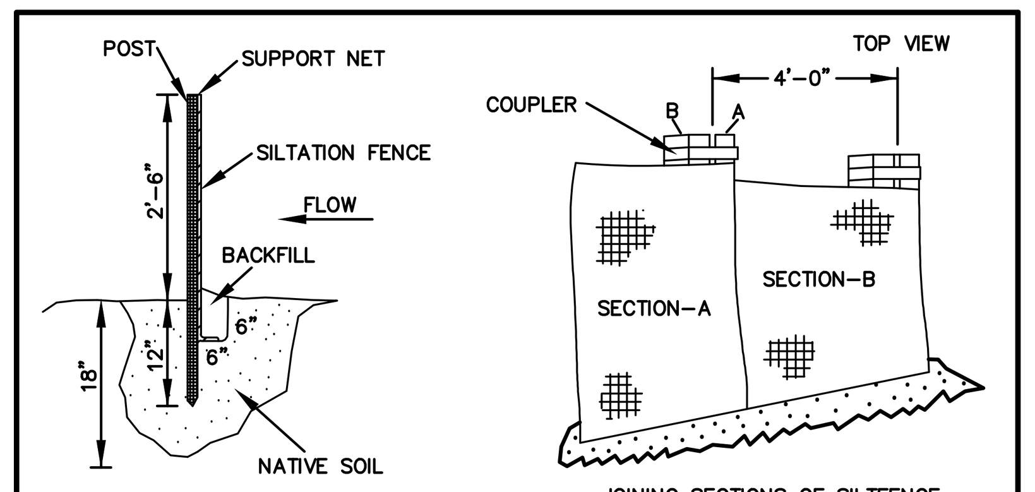
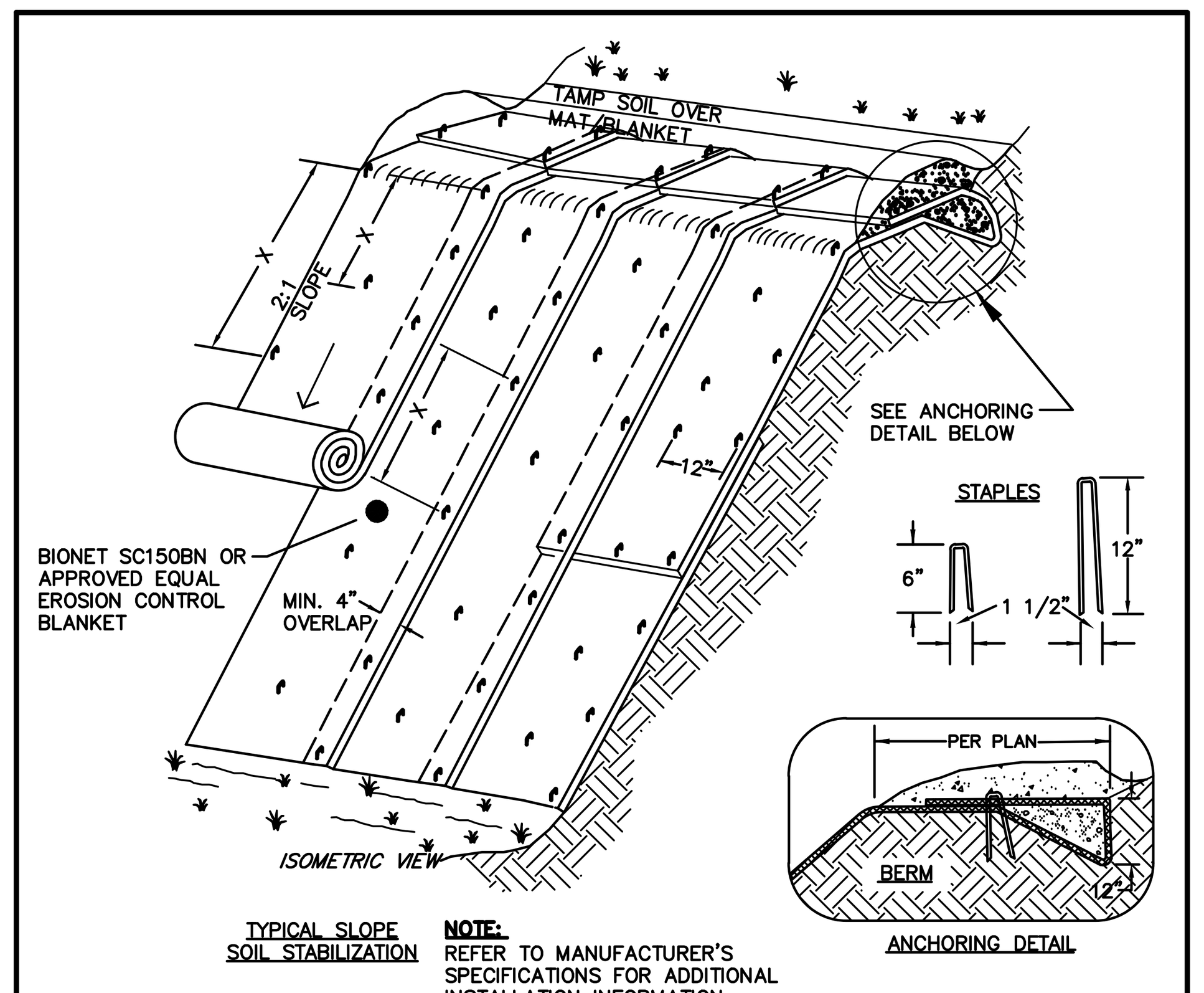
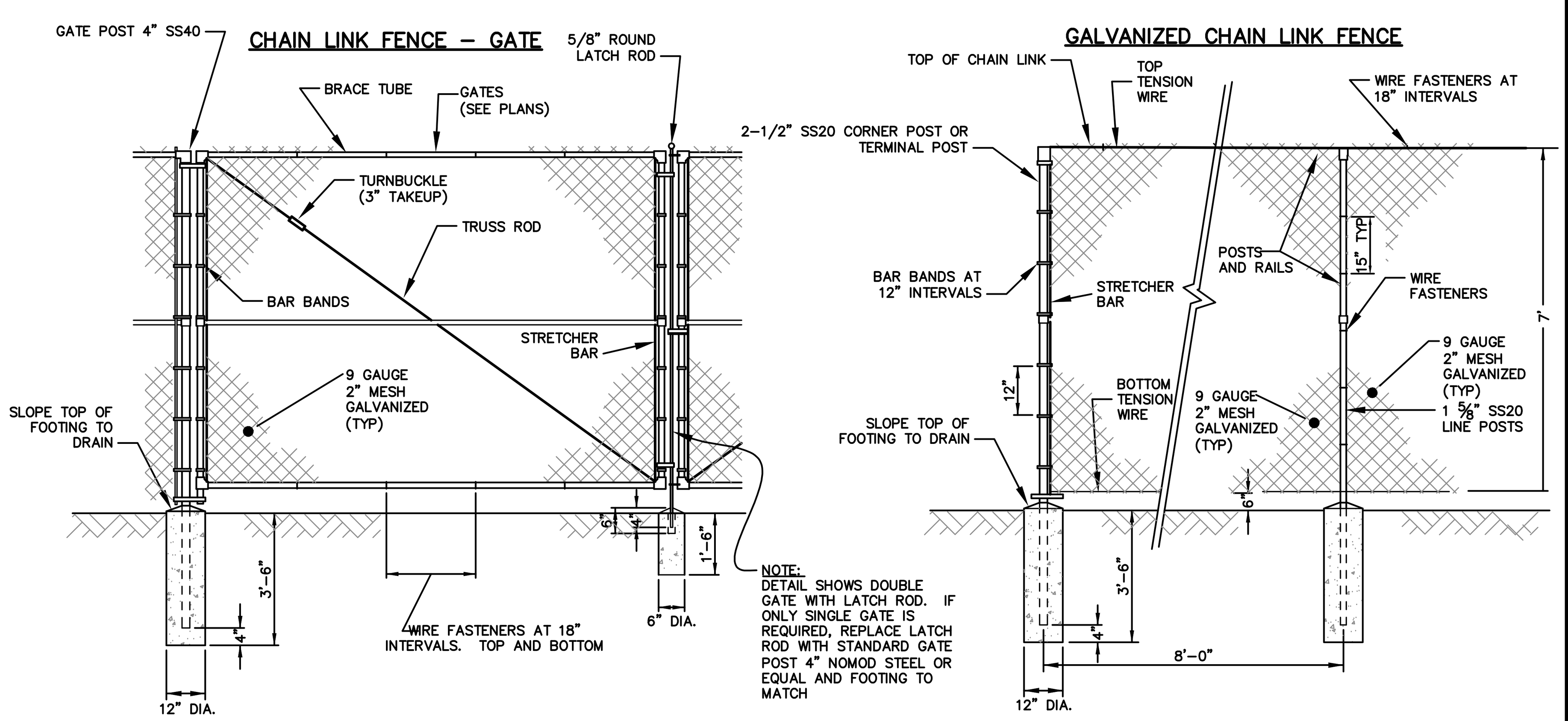


SILTATION FENCE DETAIL (ONLY FOR DOUBLE EROSION)
(NOT TO SCALE)



EROSION CONTROL BLANKET INSTALLATION DETAIL
(NOT TO SCALE)



CHAIN LINK FENCE DETAIL (GALVANIZED)
(NOT TO SCALE)

EROSION CONTROL NOTES:

1. PRIOR TO COMMENCING SITE WORK OR EARTHWORK OPERATIONS, INSTALL EROSION CONTROL BARRIERS AT DOWN GRADIENT LIMITS OF WORK AND AT INTERIM LOCATIONS WITHIN ARRAY AS SHOWN ON THE SITE PLANS TO BE MAINTAIN THROUGHOUT CONSTRUCTION.
2. ALL DISTURBED AREAS SHALL BE LOAMED AND SEEDED IMMEDIATELY UPON COMPLETION OF CONSTRUCTION.
3. ALL MATERIALS AND STOCKPILES SHALL BE STORED ON LEVEL AREAS OUTSIDE OF ANY FLOOD ZONES, WETLANDS OR BUFFER ZONE AREAS. ALL STOCKPILES SHALL BE SURROUNDED BY SEDIMENTATION CONTROL DEVICES AND EROSION CONTROL BARRIERS PER PLANS, SHALL HAVE SIDE SLOPES NO GREATER THAN 30% AND SHALL BE SEEDED OR STABILIZED IF LEFT UNDISTURBED FOR TWO WEEKS OR MORE.
4. SEDIMENTATION CONTROL DEVICES AND EROSION CONTROL BARRIERS SHALL BE INSPECTED WEEKLY AND MAINTAINED AS NECESSARY THROUGHOUT ALL PHASES OF CONSTRUCTION AND PROMPTLY AFTER EACH RAINFALL.
5. ANY SLOPE STEEPER AND 3:1 SHALL BE EQUIPPED WITH SLOPE STABILIZATION FABRIC OR EROSION CONTROL MATTING.
6. ADDITIONAL EROSION CONTROL MEASURES SHALL BE INSTITUTED AS CONDITIONS WARRANT OR AS DIRECTED BY THE ENGINEER AND/OR THE TOWN.
7. THE CONTRACTOR MUST REPAIR OR RE-SEED ANY AREAS THAT DO NOT DEVELOP WITHIN A PERIOD OF ONE YEAR AT NO ADDITIONAL EXPENSE TO THE OWNER.
8. MATERIAL STOCKPILES SHALL NOT BE LOCATED WITHIN THE PATH OF EXISTING OR PROPOSED WATERCOURSES (BOTH TEMPORARY OR PERMANENT) OR THOSE AREAS SUBJECT TO STORM WATER FLOW.
9. SEDIMENT CONTROL DEVICES AND EROSION CONTROL BARRIERS MAY BE REMOVED ONLY AFTER THE SITE HAS BEEN STABILIZED.
10. ALL DISTURBED OR EXPOSED AREAS SUBJECT TO EROSION, WHICH REMAIN DISTURBED BUT INACTIVE FOR AT LEAST THIRTY DAYS, SHALL RECEIVE TEMPORARY SEEDING IN ACCORDANCE WITH THE MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES. IN ALL CASES, STABILIZATION MEASURES SHALL BE IMPLEMENTED AS SOON AS POSSIBLE IN ACCORDANCE WITH THE MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES.
11. EARTHWORK ACTIVITY ON THE SITE SHALL BE DONE IN A MANNER SUCH THAT RUNOFF IS DIRECTED AWAY FROM ABUTTING STRUCTURES, PROPERTY, ETC.
12. THE CONTRACTOR SHALL KEEP ON SITE AT ALL TIMES EXTRA SEDIMENTATION CONTROL DEVICES AND EROSION CONTROL BARRIERS FOR INSTALLATION AT THE DIRECTION OF THE ENGINEERS OR THE TOWN TO MITIGATE ANY EMERGENCY CONTROL.
13. REFER TO CONSTRUCTION DETAILS FOR ADDITIONAL EROSION CONTROL MEASURES.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SITING, RELOCATION AND AUGMENTATION OF EROSION CONTROL DEVICES AS THE PROJECT PROGRESSES AND THE SITE DRAINAGE CONDITIONS CHANGE.
15. THE CONTRACTOR SHALL MINIMIZE THE AREA OF DISTURBED SOIL. EFFORTS SHALL BE MADE TO LIMIT THE TIME OF EXPOSURE OF DISTURBED AREAS. SEE STABILIZATION DEADLINES.

DUST CONTROL NOTES:

1. THE CONTRACTOR SHALL TAKE STEPS TO MINIMIZE THE AMOUNT OF DUST GENERATED ON THE SITE AND ENSURE THE SITE IS IN CONFORMANCE WITH THE DEP AIR POLLUTION CONTROL REGULATIONS 310 CMR 7.09.
2. DUST CONTROL MEASURES SHOULD BE IMPLEMENTED AS NEEDED DURING ALL SITE GRADING ACTIVITIES AND PARTICULARLY DURING WINDY CONDITIONS.
3. WATER SHALL BE APPLIED UNTIL THE SURFACE IS WET AND REPEAT AS NEEDED. WATER SHALL BE APPLIED AT RATES SO THAT RUNOFF, CHANNELING, OR EROSION DOES NOT OCCUR.
4. OTHER POTENTIAL WETTING AND/OR DUST CONTROL AGENTS MAY BE PROPOSED FOR USE BY THE CONTRACTOR AND MUST BE APPROVED BY THE TOWN PRIOR TO USE ON SITE.
5. WHEEL AND TRUCK WASHES SHALL BE USED AT SITE EGRESSES AS NEEDED.
6. ALL TRUCKS LEAVING THE SITE WHICH HAVE BEEN LOADED WITH SOIL OR DUST-PRODUCING MATERIAL SHALL BE TARPED IN ACCORDANCE WITH APPLICABLE REGULATIONS.
7. ALL PAVED SURFACES AND ROADWAYS (WITHIN 500 FEET OF THE SITE) ON WHICH EQUIPMENT AND TRUCK TRAFFIC ENTER AND LEAVE THE CONSTRUCTION AREA SHALL BE SWEPT AND/OR WATERED AS NEEDED.
8. WIND SCREENS, WIND FENCES, SILT FENCE OR SIMILAR BARRIERS SHALL BE IMPLEMENTED AS NEEDED AND PLACED AT INTERVALS OF ABOUT 10 TO 15 TIMES THE BARRIER HEIGHT.
9. ALL CLEARING, GRADING, EARTHMOVING, AND EXCAVATING ACTIVITIES SHALL BE SUSPENDED DURING PERIODS OF SUSTAINED STRONG WINDS (HOURLY AVERAGE WIND SPEEDS OF 25 MPH OR GREATER).

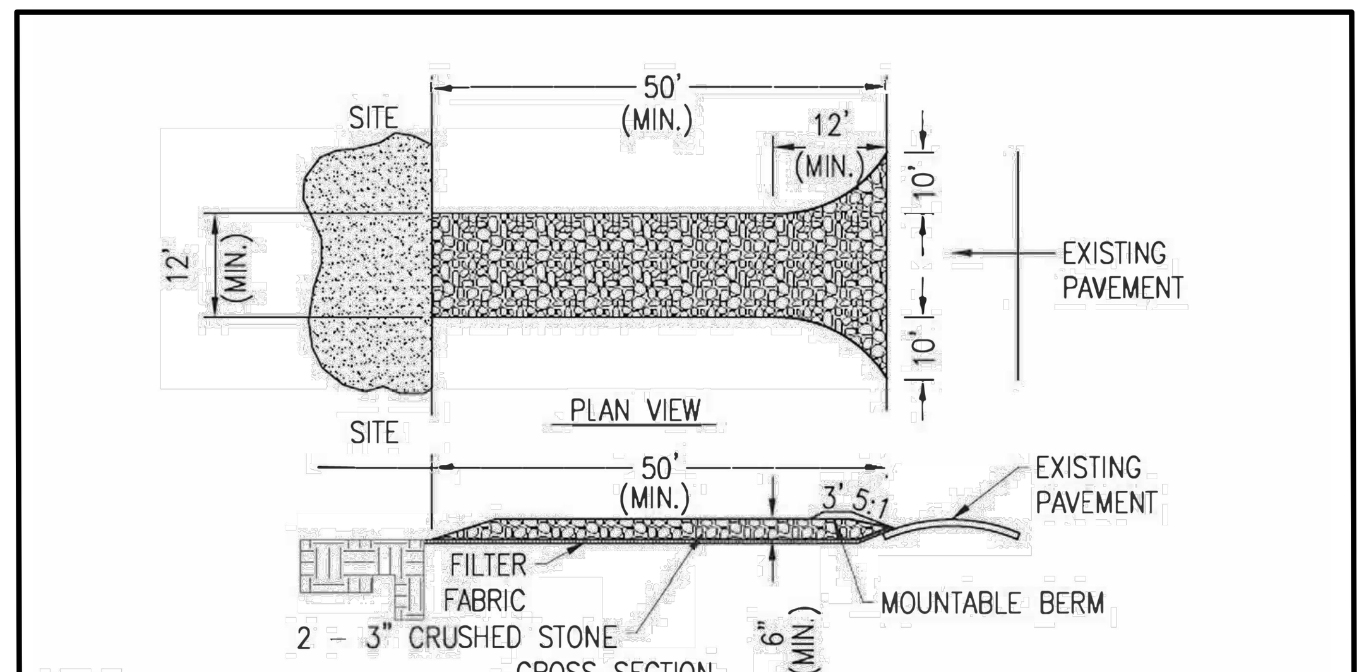
STABILIZATION DEADLINES

(IN ACCORDANCE WITH THE EPA 2022 CONSTRUCTION GENERAL PERMIT)

- INITIATE THE INSTALLATION OF STABILIZATION MEASURES IMMEDIATELY IN ANY AREAS OF EXPOSED SOIL WHERE CONSTRUCTION ACTIVITIES HAVE PERMANENTLY CEASED OR WILL BE TEMPORARILY INACTIVE FOR 14 OR MORE CALENDAR DAYS; AND
- COMPLETE THE INSTALLATION OF STABILIZATION MEASURES AS SOON AS PRACTICABLE, BUT NO LATER THAN 14 CALENDAR DAYS AFTER STABILIZATION HAS BEEN INITIATED.

IF DISTURBANCE IS MORE THAN 5 ACRES AT A TIME:

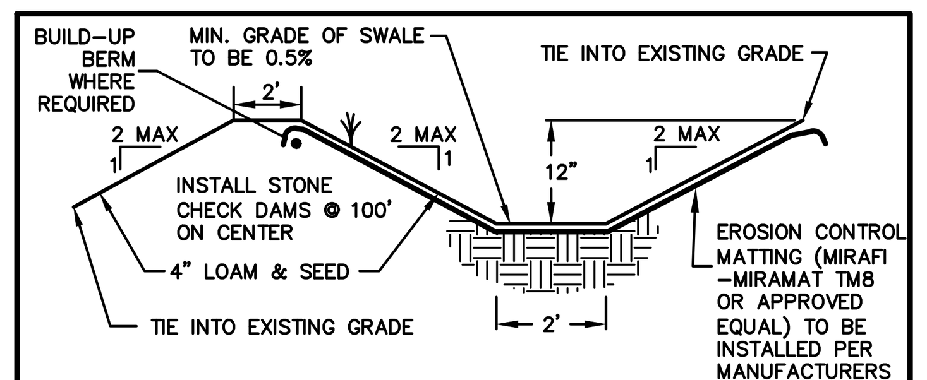
- COMPLETE THE INSTALLATION OF STABILIZATION MEASURES AS SOON AS PRACTICABLE, BUT NO LATER THAN SEVEN (7) CALENDAR DAYS AFTER STABILIZATION HAS BEEN INITIATED.



NOTES:

1. STONE SIZE – USE 1-4 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH– NOT LESS THAN 50 FEET.
3. THICKNESS–NOT LESS THAN 6 INCHES.
4. WIDTH–NOT LESS THAN 12 FEET WHERE MORE THAN ONE (1) ACCESS POINT TO THE SITE. WHERE ONE (1) ACCESS POINT A MINIMUM OF 24 FEET IS REQUIRED.
5. GEOTEXTILE–SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER–SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5: 1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE–THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY SHALL BE REMOVED IMMEDIATELY.
8. WHEN WHEEL 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 DETAIL
NOT TO SCALE

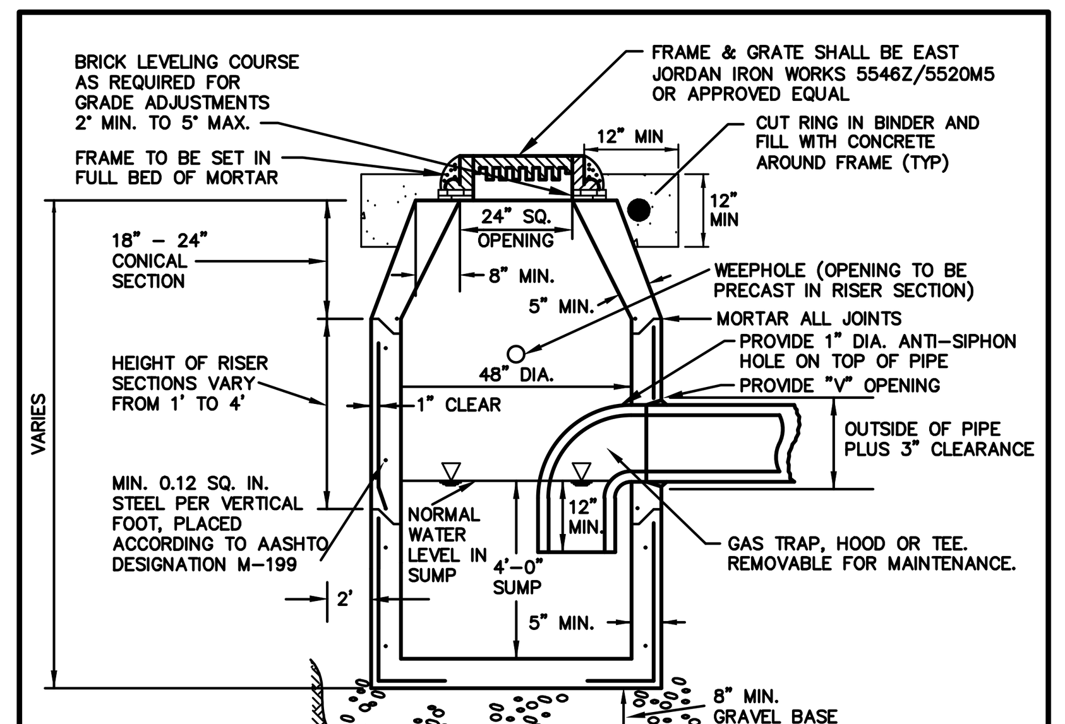


NOTES:
1. LOAM AND SEED AND EROSION CONTROL MEASURES TO BE INSTALLED IMMEDIATELY UPON CONSTRUCTION OF SWALE.
2. CONTRACTOR TO CHECK SWALE WEEKLY AND AFTER ALL RAIN EVENTS DURING CONSTRUCTION FOR SIGNS OF EROSION/BARE SPOTS AND RESEED IMMEDIATELY, UNTIL STABILIZED.
3. SEE STORMWATER O+M SCHEDULE FOR LONG TERM MEASURES.

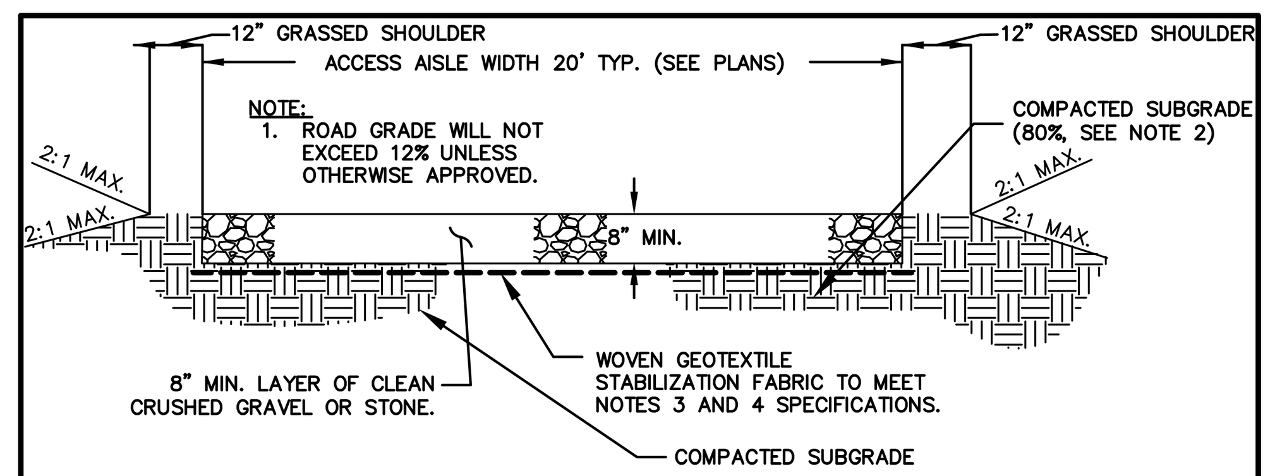
GRASSED SWALE
(NOT TO SCALE)

CONSTRUCTION NOTES:

1. THE PROPERTY LINES AND EXISTING CONDITIONS SHOWN HEREON, ARE COMPILED FROM THE RECORD PLAN (PARCEL A-PLAN NUMBER 624 OF 1995 IN PLAN BOOK 433) AND DEED (NOOK 31678 PAGE 107) AND ARE BASED UPON THE NORTH AMERICAN DATUM OF 1983 (NAVD83) AND BASED UPON A FIELD SURVEY BY ATLANTIC DESIGN ENGINEERS, INC.
2. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS SHOWN AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES THAT MAY BE FOUND IN THE PLAN.
3. CONTRACTOR SHALL VERIFY ALL CRITICAL ELEVATIONS AND INVERTS PRIOR TO CONSTRUCTION.
4. WHERE AN EXISTING PUBLIC UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED AND THE INFORMATION FURNISHED TO THE UTILITY COMPANY AND OWNER FOR RESOLUTION OF THE CONFLICT.
5. SUBSURFACE AND ENVIRONMENTAL CONDITIONS WERE NOT EXAMINED OR CONSIDERED AS PART OF THIS SURVEY. NO STATEMENT IS MADE CONCERNING THE EXISTENCE OF UNDERGROUND OR OVERHEAD CONTAINERS OR FACILITIES THAT MAY AFFECT THE USE OR DEVELOPMENT OF THIS SITE.
6. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY DIGSAFE, THE TOWN OF FRANKLIN DEPARTMENT OF PUBLIC WORKS, AND ALL UTILITY COMPANIES A MINIMUM OF 72 HOURS PRIOR TO CONSTRUCTION ACTIVITIES FOR LOCATION OF ALL UNDERGROUND UTILITIES AND UTILITY COMPANY APPROVALS.
7. ALL BUILDINGS, SURFACE, AND SUBSURFACE IMPROVEMENTS ON AREAS ADJACENT TO THE SITE ARE NOT NECESSARILY SHOWN HEREON.
8. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVES. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL UTILITIES AND RIM AND INVERTS BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES THAT MIGHT OCCUR BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
9. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENTS OF ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES WITH THE UTILITY COMPANY, IF NECESSARY. IF ANY INTERRUPTIONS IN SERVICE ARE NECESSARY TO ABUTTING PROPERTY OWNERS, A MINIMUM OF 48 HOURS NOTICE SHALL BE GIVEN.
10. THE CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL MEASURES IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND MASSACHUSETTS HIGHWAY DEPARTMENT REQUIREMENTS FOR ALL WORK WITHIN PUBLIC STREETS.
11. CONTRACTOR SHALL IMPLEMENT DUST CONTROL MEASURES, INCLUDING WATER TRUCKS THROUGHOUT CONSTRUCTION UNTIL PAVING IS COMPLETED AND ALL SURFACES ARE STABILIZED. DUST CONTROL ADDITIVES SUCH AS CALCIUM CHLORIDE OR SODIUM CHLORIDE SHALL BE USED ONLY WITH PERMISSION FROM THE TOWN.
12. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATION SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
13. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT ALL REQUIRED INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES AND/OR UTILITY COMPANIES ARE COMPLETED PRIOR TO INSTALLATION, BACKFILLING, ANNOUNCED BUILDING POSSESSION, AND THE FINAL CONNECTION OF SERVICES.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL SURVEY CONTROL POINTS AND BENCHMARKS NECESSARY FOR THE PROPOSED WORK.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ADEQUATE RECORDS OF THE LOCATION AND ELEVATION OF ALL WORK INSTALLED.
16. THE CONTRACTOR SHALL INSTITUTE AND MAINTAIN ALL SAFETY MEASURES NECESSARY TO PROTECT THE PUBLIC DURING CONSTRUCTION, INCLUDING, BUT NOT LIMITED TO BARRICADES, SIGNS, FENCES, FLAGGERS, LIGHTING, POLICE DETAIL, AND ANY OTHER MEANS AS DIRECTED BY THE TOWN. NO TRENCHES ARE TO REMAIN OPEN OVERNIGHT.
17. THE CONTRACTOR SHALL KEEP THE PREMISES FREE FROM THE ACCUMULATION OF WASTE MATERIAL AND OTHER DEBRIS RESULTING FROM THE WORK. AT THE END OF CONSTRUCTION THE CONTRACTOR SHALL REMOVE ALL CONSTRUCTION DEBRIS AND SURPLUS MATERIALS FROM THE SITE. A THOROUGH INSPECTION OF THE WORK PERIMETER IS TO BE MADE AND ALL DISCARDED MATERIALS, BLOWN OR WATER CARRIED DEBRIS, SHALL BE COLLECTED AND REMOVED FROM THE SITE.
18. ALL WORK SHALL BE DONE IN STRICT COMPLIANCE WITH ALL APPROVED PERMITS AND WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES, STANDARDS, ORDINANCES, RULES AND REGULATIONS.
19. CONTRACTOR TO DESIGNATE A SPECIFIC AREA FOR COMBUSTIBLE MATERIALS, APPROVED BY THE FIRE DEPARTMENT, SO THAT COMBUSTIBLES ARE NOT SPREAD THROUGHOUT THE CONSTRUCTION SITE.
20. EXISTING TOP SOIL IS TO BE RETAINED, STOCKPILED AND SCREENED FOR RE-USE.



PRECAST CONCRETE CATCH BASIN WITH GAS TRAP AND CLEANOUT
(NOT TO SCALE)



NOTES:
1. SUBCONTRACTOR SHALL CLEAR AND STRIP ROADBED AND PARKING AREAS OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL.
2. SUBCONTRACTOR SHALL COMPACT SUBGRADE TO PROVIDE SUITABLE SURFACE TO PLACE ROAD. DEPENDING ON NATIVE SOILS AND OBSERVED CONDITIONS, COMPACTION MAY BE INCREASED UP TO 95%.
3. GEOTEXTILE FABRIC SHALL MEET THE FOLLOWING REQUIREMENTS
– TENSILE STRENGTH: 56 LB MIN.
– ELONGATION: 50%
– CBR PUNCTURE: 309 LB MIN.
– MINIMUM PERMITTIVITY: 0.1 SEC-1
4. SUBCONTRACTOR SHALL FOLLOW GEOTEXTILE FABRIC MANUFACTURER INSTALLATION PROCEDURES. WHERE OVERLAPPING OF GEOTEXTILE FABRIC IS REQUIRED, SUBCONTRACTOR SHALL OVERLAP A MINIMUM OF 24".

GRAVEL ACCESS ROAD
(NOT TO SCALE)

CONSTRUCTION PERIOD STORMWATER OPERATION AND MAINTENANCE:

SCHEDULE:

CONSTRUCTION ENTRANCE/TRACKING PAD:
THE CONSTRUCTION ENTRANCE TRACKING PADS SHOULD BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOW OF SEDIMENT ONTO THE PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOPDRESSING WITH ADDITIONAL STONE. THE ENTRANCE PAD SHOULD BE INSPECTED WEEKLY AT A MINIMUM, AFTER MAJOR STORM EVENTS (>0.25" PER THE CGP) AND DURING PERIODS OF HEAVY USE. WHEN MUD AND SOIL PARTICLES CLOG THE VOIDS IN THE STONE, THE PAD SHOULD BE TOP DRESSED WITH NEW STONE OR REPLACED COMPLETELY.

EROSION CONTROL BARRIERS:
EROSION CONTROL BARRIERS (HAY BALES, SILT FENCE, ETC.) SHOULD BE INSPECTED IMMEDIATELY AFTER EACH RUN-OFF PRODUCING RAINFALL EVENT (>0.25 INCHES PER 2022 CGP) AND AT LEAST DAILY DURING PROLONGED RAINFALL. SEDIMENT DEPOSITS MUST BE REMOVED WHEN THE LEVEL OF DEPOSITION REACHES APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER. SEDIMENT SHOULD BE DISPOSED OF IN A SUITABLE AREA AND PROTECTED FROM EROSION BY EITHER STRUCTURAL OR VEGETATIVE MEANS.

GRASSED SWALES WITH CHECK-DAMS:
DURING CONSTRUCTION GRASSED LINED SWALES SHALL BE INSPECTED IMMEDIATELY AFTER MAJOR STORM EVENTS (>0.25 INCHES PER 2022 CGP) AND AT LEAST DAILY DURING PROLONGED RAINFALL. REPAIR ERODED SPOTS IMMEDIATELY AFTER INSPECTION. ADDITIONAL INSPECTIONS SHOULD BE SCHEDULED DURING THE FIRST FEW MONTHS TO ENSURE THAT THE VEGETATION IN THE CHANNELS IS ESTABLISHED ADEQUATELY. ACCUMULATED SEDIMENT SHALL BE REMOVED BEFORE IT EXCEEDS 0.5' IN DEPTH. SWALES SHALL BE MOWED AS NEEDED. CLIPPINGS TO BE REMOVED FROM SWALES AND AREAS IMMEDIATELY UP-GRADIENT AND PROPERLY DISPOSED OF.

DEEP SUMP HOODED CATCH BASINS:
INSPECT MONTHLY (MINIMUM), OR AFTER MAJOR STORM EVENTS (>0.25" PER THE CGP) DURING CONSTRUCTION FOR CLOGGED GRATES OR PIPES AND EXCESSIVE ACCUMULATION OF SEDIMENT, SAND, OR TRASH. CLEAN SUMPS WHEN SEDIMENT REACHES 24". FOLLOWING CONSTRUCTION, THE CATCH BASIN SHOULD BE INSPECTED FOUR TIMES A YEAR. ALL CATCH BASINS SHALL BE PROVIDED WITH PRE-MANUFACTURED "SILT-BAG" CATCH BASIN INLET SEDIMENT COLLECTION SYSTEMS UNTIL BASE COURSE IS IN PLACE.

CATCH BASIN INLET PROTECTION ("SILT-SACKS"):
ALL CATCH BASINS SHALL BE PROVIDED WITH INLET PROTECTION CONSISTING OF PRE-MANUFACTURED "SILT-SACKS" CATCH BASIN INLET SEDIMENT COLLECTION SYSTEMS UNTIL PAVEMENT BASE COURSE IS IN PLACE AND THE CONTRIBUTING DRAINAGE AREA TO THE INLET IS STABILIZED. INSPECT THE INLET PROTECTION DEVICE WEEKLY AT A MINIMUM, AND AFTER MAJOR STORM EVENTS (>0.25" PER THE CGP) THROUGHOUT CONSTRUCTION. REPAIRS ARE TO BE MADE AS REQUIRED AND SEDIMENT MUST BE REMOVED WHEN THE LEVEL OF DECOMPOSITION REACHES THE REMOVAL DEPTH PER MANUFACTURER SPECIFICATIONS.

STONE INFILTRATION TRENCH:
INSPECT AFTER EVERY MAJOR STORM EVENT (0.25" PER CGP) DURING CONSTRUCTION. ONCE SITE IS STABILIZED AND RE-VEGETATED, CUT AWAY/REMOVE TEMPORARY COVER FOLD AND INSPECT TO ENSURE PROPER STABILIZATION AND FUNCTION. REMOVE ANY SEDIMENT THAT ACCUMULATED DURING CONSTRUCTION.

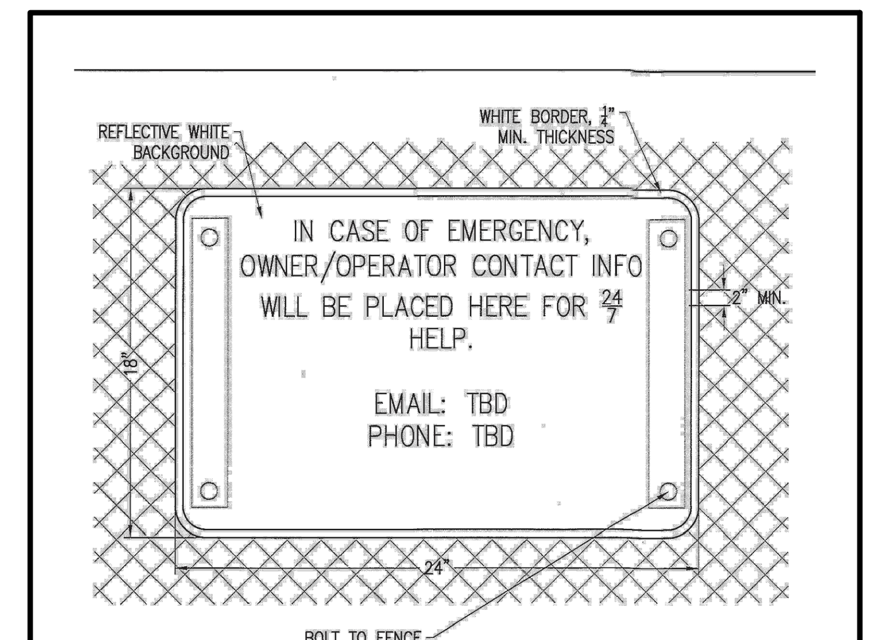
SUB-SURFACE INFILTRATION SYSTEM:
INSPECT AFTER EVERY MAJOR STORM EVENT (>0.25 INCHES PER 2022 CGP) DURING CONSTRUCTION TO ENSURE THE SYSTEM IS DRAINING PROPERLY. CHECK FOR ACCUMULATION OF SEDIMENT AND PONDING WATER. IF PONDING WATER IS VISIBLE INSIDE THE SYSTEM FOR SEVERAL DAYS AFTER A STORM EVENT, NOTIFY THE ENGINEER FOR POSSIBLE REMEDIAL MEASURES. REMOVE SEDIMENT AS NECESSARY DURING CONSTRUCTION, WHILE THE SYSTEM IS DRY.

DETENTION BASINS:
INSPECT AFTER EVERY MAJOR STORM EVENT (>0.25" PER 2022 GCP) DURING CONSTRUCTION TO ENSURE PROPER STABILIZATION AND FUNCTION. EXAMINE THE OUTLET STRUCTURE OR OUTLET PIPES FOR EVIDENCE OF CLOGGING OR EXCESSIVE OUTLET VELOCITIES. CHECK FOR ACCUMULATION OF SEDIMENT AND PONDING OF WATER. IF PONDING WATER ABOVE THE OUTLET PIPES IS VISIBLE INSIDE THE BASIN FOR SEVERAL DAYS AFTER A STORM EVENT, NOTIFY THE ENGINEER FOR POSSIBLE REMEDIAL MEASURES. MOW THE BERM AT THE COMPLETION OF THE CONSTRUCTION PERIOD. REMOVE SEDIMENT WHILE THE SYSTEM IS DRY.

NOTES:
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER INSPECTION AND MAINTENANCE OF ALL STORMWATER AND EROSION CONTROL FACILITIES UNTIL THE PROJECT CONSTRUCTION IS COMPLETED. THE CONTRACTOR SHALL CLEAN ALL COMPONENTS OF THE STORMWATER MANAGEMENT SYSTEM AT THE COMPLETION OF CONSTRUCTION, IMMEDIATELY PRIOR TO TURNING OVER OPERATION AND MAINTENANCE RESPONSIBILITY TO THE PROJECT PROPONENT.
2. UPON COMPLETION OF CONSTRUCTION, THE OPERATION AND MAINTENANCE OF ALL COMPONENTS OF THE STORMWATER MANAGEMENT SYSTEM WILL BE THE RESPONSIBILITY OF THE SYSTEM OWNER:

VS UNION SOLAR SMART, LLC
24941 DANA POINT HARBOR
DANA POINT, CA 92629

3. DISPOSAL OF ACCUMULATED SEDIMENT AND HYDROCARBONS TO BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL GUIDELINES AND REGULATIONS.
4. THERE SHALL BE NO ILLICIT DISCHARGE OF ANY WASTE OR WASTE WATER INTO THE STORMWATER MANAGEMENT SYSTEM. THE MAINTENANCE OF THE FACILITY SHALL BE UNDERTAKEN IN SUCH A MANNER AS TO PREVENT ANY DISCHARGE OF WASTE OR WASTE WATER INTO STORMWATER MANAGEMENT SYSTEM. ANY WASTE OIL OR OTHER WASTE PRODUCTS GENERATED DURING MAINTENANCE SHALL BE PROPERLY DISPOSED OF OFF SITE.



EMERGENCY CONTACT SIGN
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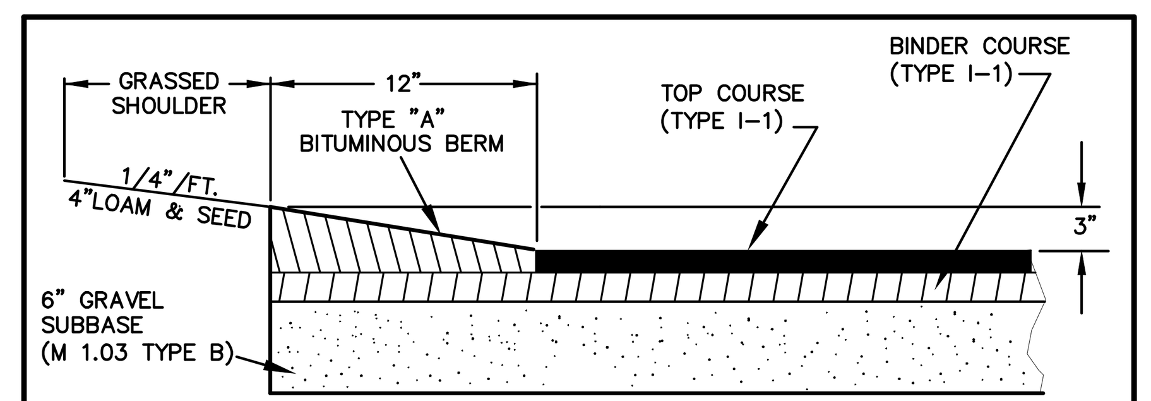


CAPE COD BERM DETAIL
(NOT TO SCALE)

CONSTRUCTION SEQUENCE

IN CONJUNCTION WITH ANY SEQUENCE TO BE PROVIDED WITHIN A STORMWATER POLLUTION PREVENTION PLAN (SWPPP), THE FOLLOWING GENERAL SEQUENCE OF CONSTRUCTION FOR THE SITE WORK IS AS FOLLOWS:

1. STAKE LIMIT OF WORK/CLEARING TO DEFINE THE LIMIT OF WORK FOR THE ACCESS ROADS, SOLAR FIELD, UNDERGROUND UTILITY LINES, AND STORMWATER FACILITIES.
2. NOTIFY DIG-SAFE TO DEMARCATE ALL UNDERGROUND UTILITIES PRIOR TO THE START OF CONSTRUCTION.
3. INSTALL EROSION CONTROL BARRIERS AT DOWN GRADIENT LIMITS OF WORK AND AT INTERIM LOCATIONS WITHIN ARRAY AS SHOWN ON THE SITE PLANS.
4. BEGIN CLEARING AND CHIPPING OF VEGETATION. A TEMPORARY ACCESS ROAD WILL BE CLEARED/INSTALLED TO ACCESS PROPOSED BASIN LOCATIONS. CLEARING WILL BE LIMITED TO A MANAGEABLE ACREAGE WHILE TEMPORARY SEDIMENT BASINS ARE INSTALLED TO PREVENT SILTATION OF PERMANENT STORMWATER BASINS.
5. STOCKPILE WOOD CHIPS AS NEEDED IN PILES FOR FURTHER USE IN EROSION CONTROL AND SOIL STABILIZATION.
6. AT THE END OF EACH DAY OF CLEARING OPERATIONS, WALK SITE PERIMETER TO REPAIR ANY DAMAGED EROSION CONTROLS OR PERFORM ANY NECESSARY MAINTENANCE.
7. AT THE END OF EACH DAY, INSPECT ALL TEMPORARY STORMWATER FACILITIES AND REPAIR ANY DAMAGE AND PERFORM ANY NECESSARY MAINTENANCE.
8. INSTALL CONSTRUCTION ENTRANCE PAD AND SUBSURFACE DRAINAGE SYSTEM AS SHOWN ON THE SITE PLANS. MAINTAIN SILT SAC IN CATCH BASIN TO PREVENT SILTATION OF THE UNDERGROUND CHAMBER DURING CONSTRUCTION.
9. COMPLETE FINAL GRADING OF STORMWATER SWALES, WETLAND REPLICATION AREAS AND STORMWATER BASINS.
10. INSTALL CHECK DAMS AND RIP-RAP APRONS/SPILLWAYS.
11. STABILIZE ALL STORMWATER FACILITIES AND SLOPES WITH LOAM AND SEED AND EROSION CONTROL MEASURES AS REQUIRED.
12. INSTALL AND COMPACT GRAVEL ACCESS ROAD AND INTERIOR SITE ACCESS ROADS.
13. PREPARE CONTRACTOR STAGING/LAYDOWN AREA FOR TEMPORARY PARKING, STORAGE, WHEEL WASH AREA, CONCRETE WASH-OUT, AND MOBILE FUELING AREAS.
14. STUMPS ARE TO BE GROUND WHERE NECESSARY AND USED FOR WOOD CHIP BERMS.
15. GRADING ACTIVITIES SHOULD BE AVOIDED DURING EXTREMELY WET CONDITIONS TO MINIMIZE SOIL COMPACTION, DEEP RUTTING, AND SOIL SMEARING.
16. IF NECESSARY, PROVIDE TEMPORARY PROTECTIVE MEASURES, WHICH MAY INCLUDE BARRIERS AND/OR SILT SACKS UNTIL SITE IS STABILIZED AND VEGETATED. INTERMEDIATE EROSION CONTROLS SHOULD BE INSTALLED PRIOR TO THE INSTALLATION OF THE SOLAR ARRAY RACKING SYSTEM.
17. USE DISKS, TILLERS, OR HARROWS TO BREAK UP THE SURFACE WHERE SOIL HAS BECOME COMPACTED DURING CONSTRUCTION ACTIVITIES IN ORDER TO CREATE VIABLE SEED BEDS.
18. INITIATE THE INSTALLATION OF STABILIZATION MEASURES IMMEDIATELY IN ANY AREAS OF EXPOSED SOIL MORE THAN FIVE ACRES WHERE CONSTRUCTION ACTIVITIES HAVE PERMANENTLY CEASED OR WILL BE TEMPORARILY INACTIVE FOR 14 OR MORE CALENDAR DAYS. COMPLETE THE INSTALLATION OF MEASURES AS SOON AS PRACTICABLE, BUT NO LATER THAN (7) CALENDAR DAYS AFTER STABILIZATION HAS BEEN INITIATED. OATS WILL BE USED FOR A SPRING OR SUMMER SEEDING, WINTER WHEAT FOR A FALL SEEDING. THIS COVER CROP WILL ESTABLISH QUICKLY, PROVIDING ADDITIONAL EROSION CONTROL THROUGHOUT CONSTRUCTION, ALONG WITH PROTECTION OF FINAL NATIVE VEGETATION DURING ITS ESTABLISHMENT PERIOD.
19. WORK INVOLVING FOUNDATION PILE DRIVING AND TRENCHING SHALL BE STAGED TO CONCENTRATE WORK IN PHASES, TO REDUCE SITE DISTURBANCE. SEED AND MULCH ANY DISTURBED AREAS AS THEY ARE COMPLETED.
20. ONCE SITE CONSTRUCTION IS COMPLETE, PERMANENT SEEDING WILL BE APPLIED BY BROADCASTING.
21. TO ASSURE RAPID STABILIZATION, SUPPLEMENT SEEDING FOR AREAS WHERE COVERAGE IS LESS THAN 70% UNIFORM COVER OF VEGETATION.
22. UNLESS DIRECTED OTHERWISE BY THE FRANKLIN CONSERVATION COMMISSION, ONCE THE SITE IS PERMANENTLY STABILIZED AT 70% UNIFORM COVER OF VEGETATION OR MORE, REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES.
23. STAKE OUT PIER LOCATION FOR RACKING SYSTEM DRIVEN PIERS.
24. INSTALL UNDERGROUND UTILITIES (ELECTRIC) IN THE AREA OF THE SOLAR FIELD AND EQUIPMENT PADS LEADING TO THE FIRST CUSTOMER OWNED POLE LOCATION.
25. INSTALL SOLAR FIELD ARRAY AND ELECTRICAL FACILITIES ON SITE INCLUDING ABOVE-GROUND UTILITY POLES AND WIRING.
26. COMPLETE PAVING AND BERM AT ENTRANCE TO SITE.
27. STABILIZE ALL DISTURBED AREAS WITH LOAM AND SEED.
28. INSTALL PLANTINGS FOR WETLAND REPLICATION AND MITIGATION AREAS AS REQUIRED PER THE GODDARD CONSULTING INC. WETLAND REPLICATION PLAN AND HABITAT RESTORATION PLAN.
29. AFTER COMPLETION OF CONSTRUCTION THE SITE WILL BE INSPECTED FOR ANY REMAINING DEBRIS AND, IF FOUND, WILL BE CLEANED AND DISPOSED OF OFF-SITE. INSTALL PERIMETER FENCING, SIGNS, AND GATES.

FILE: 3328-DETAIL-REV1

Atlantic® DESIGN ENGINEERS, INC.
P.O. Box 1051, Sandwich, MA 02563 (508) 888 – 9282

Designed by :
Drawn by :
Checked by :
Survey chk. by :
Approved by :

SCALE

DATE

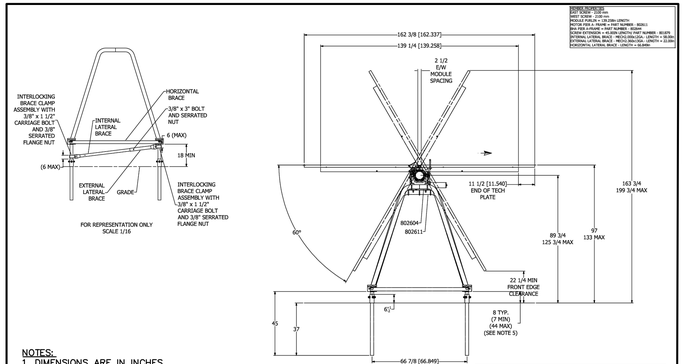
COMMONWEALTH OF MASSACHUSETTS RICHARD J TABACZYNSKI CIVIL No. 33746 REGISTERED PROFESSIONAL ENGINEER

NO.	BY	DATE	REVISION
1	BSK	11/10/23	PEER REVIEW/TOWN COMMENTS

APPLICANT:
VS UNION SOLAR SMART, LLC
24941 DANA POINT HARBOR
DANA POINT, CA 92629

DETAILS
FOR
UPPER UNION SOLAR PROJECT
JUNE 19, 2023
FRANKLIN, MA

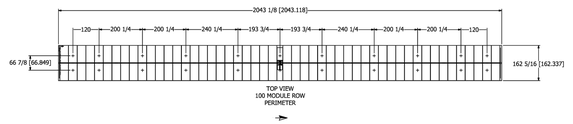
Sheet 8 of 10
JOB NUMBER
3328.00



NOTES:
1. DIMENSIONS ARE IN INCHES.
2. TYPICAL INSTALLATION DIMENSIONS MAY BE ADJUSTED TO SUIT FIELD CONDITIONS WITHIN THE TOLERANCES PROVIDED.
3. SCREW EXTENSIONS SHALL BE INSTALLED PLUMB, IF MECHANICALLY POSSIBLE MAXIMUM 3" OUT OF PLUMB.
4. LATERAL BRACES ARE DESIGNED TO ALLOW FOR 7" OF TOTAL ADJUSTMENT IN LENGTH. IF FIELD CONDITIONS REQUIRE ADDITIONAL ADJUSTMENT AND LATERAL BRACES ARE TOO LONG, THEY MAY BE CUT DOWN AND DRILLED TO FIT BY THE RACK INSTALLER. IF THEY ARE TOO SHORT, NEW LATERAL BRACES MAY BE ORDERED TO FIT AT THE PURCHASER'S EXPENSE.
5. ALL SCREW EXTENSIONS REQUIRE A MINIMUM OF 1 INCH EMBEDMENT BELOW GRADE.
6. DIAGONAL BRACING IS REQUIRED IF EITHER OF THE SCREW EXTENSIONS FOR A SINGLE FOUNDATION HAVE MORE THAN 18" OF TUBE MATERIAL ABOVE GRADE.

DETAIL IS INFORMATIONAL ONLY. REFER TO FINAL FOUNDATION AND RACKING SYSTEM DESIGN BY OTHERS.

SINGLE AXIS TRACKING PANEL DETAIL
NOT TO SCALE



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NOTES:
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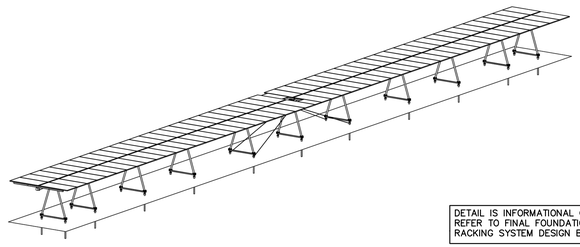
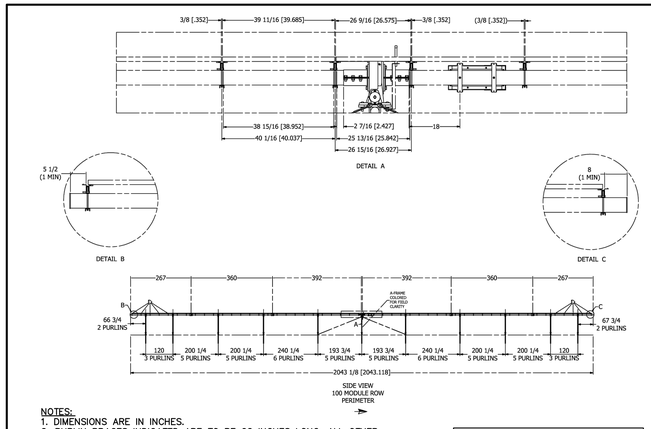
SINGLE AXIS TRACKING PANEL DETAIL
NOT TO SCALE



DETAIL IS INFORMATIONAL ONLY. REFER TO FINAL FOUNDATION AND RACKING SYSTEM DESIGN BY OTHERS.

NOTES:
1. DIMENSIONS ARE IN INCHES.
2. INTERPRET DIMENSIONS AND TOLERENCES PER ASME Y14.5-2009

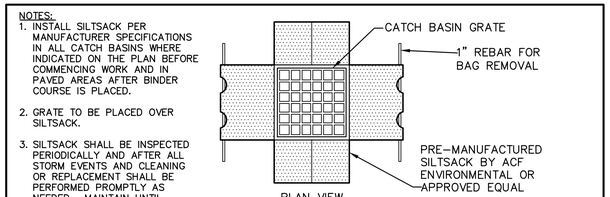
SINGLE AXIS TRACKING PANEL DETAIL
NOT TO SCALE



NOTES:
1. DIMENSIONS ARE IN INCHES.
2. PURLIN BRACES INDICATED ARE TO BE 62 INCHES LONG. ALL OTHER BRACES TO BE 14 INCHES.
3. TYPICAL INSTALLATION DIMENSIONS MAY BE ADJUSTED TO SUIT FIELD CONDITIONS WITHIN THE TOLERANCES PROVIDED.
4. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5-2009.
5. CIRCLED DIMENSIONS ARE VARIABLE BASED ON PROJECT NEEDS AND ONLY REPRESENT A RANGE OF POSSIBLE VALUES.

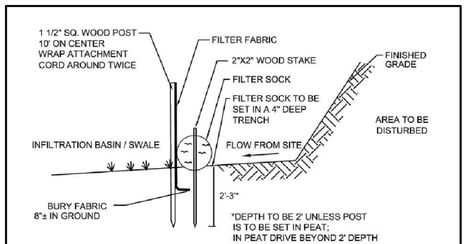
DETAIL IS INFORMATIONAL ONLY. REFER TO FINAL FOUNDATION AND RACKING SYSTEM DESIGN BY OTHERS.

SINGLE AXIS TRACKING PANEL DETAIL
NOT TO SCALE

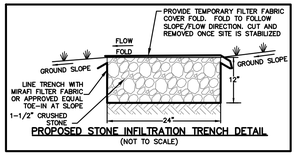


NOTES:
1. INSTALL SILTSACK PER MANUFACTURER SPECIFICATIONS IN ALL CATCH BASINS WHERE INDICATED ON THE PLAN BEFORE COMMENCING WORK AND IN PAVED AREAS AFTER BINDER COURSE IS PLACED.
2. GRATE TO BE PLACED OVER SILTSACK.
3. SILTSACK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED. MAINTAIN UNTIL UPSTREAM AREAS HAVE BEEN PERMANENTLY STABILIZED.

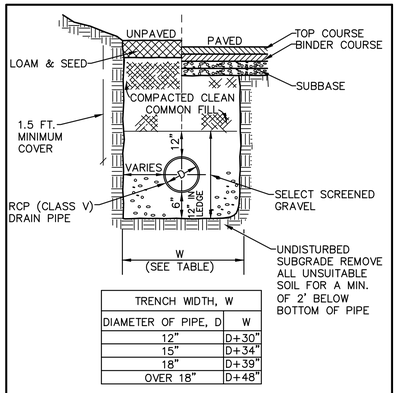
SILTSACK SEDIMENT TRAP DETAIL
(NOT TO SCALE)



SILT FENCE WITH SEDIMENT LOG DETAIL (DOUBLE ROW EROSION CONTROLS)
(NOT TO SCALE)

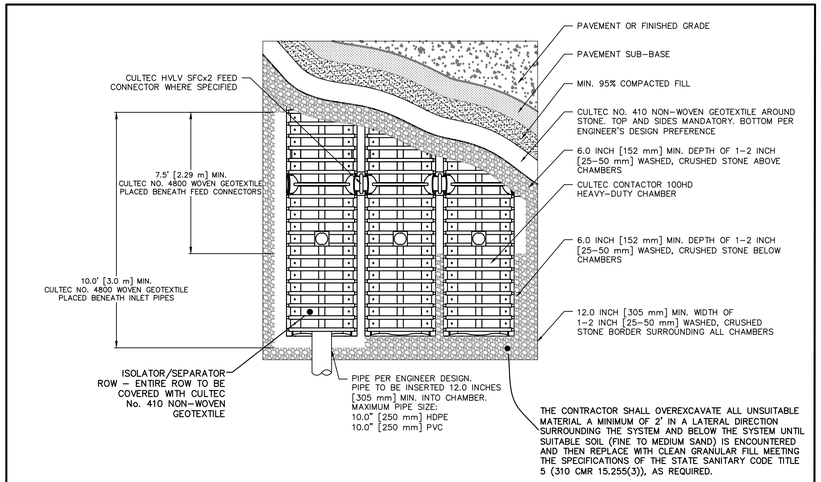


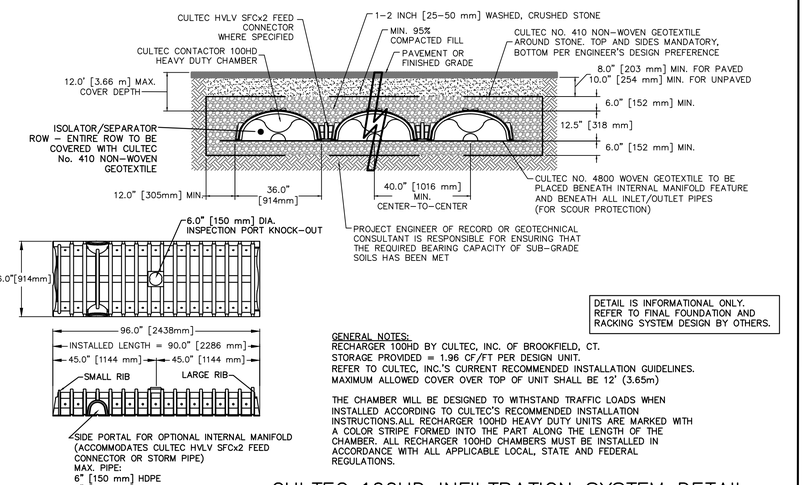
PROPOSED STONE INFILTRATION TRENCH DETAIL
(NOT TO SCALE)



TRENCH WIDTH, W	
DIAMETER OF PIPE, D	W
12"	D+30"
15"	D+34"
18"	D+39"
OVER 18"	D+48"

TYPICAL DRAINAGE TRENCH SECTION
NOT TO SCALE



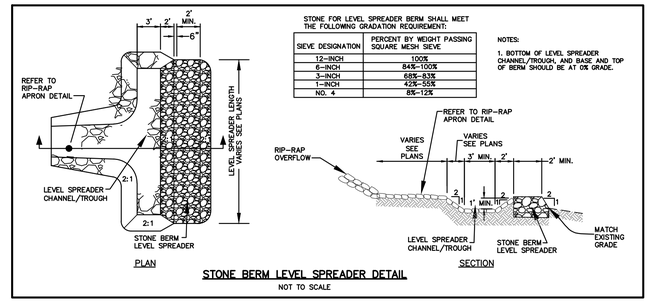


DETAIL IS INFORMATIONAL ONLY. REFER TO FINAL FOUNDATION AND RACKING SYSTEM DESIGN BY OTHERS.

GENERAL NOTES:
RECHARGER 100HD BY CULTEC, INC. OF BROOKFIELD, CT.
STORAGE PROVIDED = 1.96 CF/FT PER DESIGN UNIT.
REFER TO CULTEC, INC.'S CURRENT RECOMMENDED INSTALLATION GUIDELINES.
MAXIMUM ALLOWED COVER OVER TOP OF UNIT SHALL BE 12' (3.65m)

THE CHAMBER WILL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.ALL RECHARGER 100HD HEAVY DUTY UNITS ARE MARKED WITH A COLOR STRIPE FORMED INTO THE PART ALONG THE LENGTH OF THE CHAMBER. ALL RECHARGER 100HD CHAMBERS MUST BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

CULTEC 100HD INFILTRATION SYSTEM DETAIL
(NOT TO SCALE)



STONE BERM LEVEL SPREADER DETAIL
NOT TO SCALE

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APPLICANT:
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24941 DANA POINT HARBOR
DANA POINT, CA 92629

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JUNE 19, 2023
FRANKLIN, MA

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JOB NUMBER 3328.00

TEST PIT #1

Estimated Depth to High Groundwater Mottles @74"

SOIL LOG					
Depth (in)	Soil Horizon/ Layer	Soil Texture	Soil Color (Munsell)	Mottles	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-8	O/A	Sandy Loam	10YR 3/2		
8-34	B	Sandy Loam	10YR 5/6		
34-108	C	Loamy Sand	2.5Y 5/2	74"	

TEST PIT #2

Estimated Depth to High Groundwater Mottles @ 70"

SOIL LOG					
Depth (in)	Soil Horizon/ Layer	Soil Texture	Soil Color (Munsell)	Mottles	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-8	O/A	Sandy Loam	10YR 3/2		
8-32	B	Sandy Loam	10YR 5/6		
32-94	C	Loamy Sand	2.5Y 5/2	70"	Refusal

TEST PIT #3

Estimated Depth to High Groundwater Mottles @60"

SOIL LOG					
Depth (in)	Soil Horizon/ Layer	Soil Texture	Soil Color (Munsell)	Mottles	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-12	O/A	Sandy Loam	10YR 3/2		
12-38	B	Sandy Loam	10YR 5/6		
38-56	C1	Loamy Sand	2.5Y 5/2		
56-74	C2d	Sandy Loam	2.5Y 5/3	60"	
74-122	C3	Medium Coarse Sand	2.5Y 5/4		

TEST PIT #4

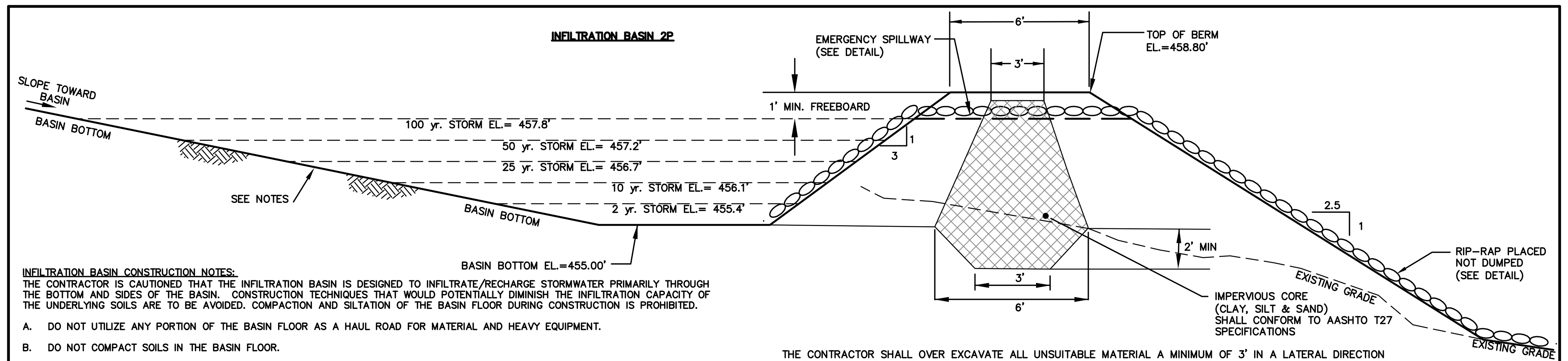
Estimated Depth to High Groundwater Mottles @50"

SOIL LOG					
Depth (in)	Soil Horizon/ Layer	Soil Texture	Soil Color (Munsell)	Mottles	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-10	O/A	Sandy Loam	10YR 3/2		
10-32	B	Sandy Loam	10YR 5/8		
32-76	C	Loamy Sand	2.5Y 5/6	50"	

TEST PIT #5

Estimated Depth to High Groundwater Mottles @40"

SOIL LOG					
Depth (in)	Soil Horizon/ Layer	Soil Texture	Soil Color (Munsell)	Mottles	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-8	O/A	Sandy Loam	10YR 3/2		
8-34	B	Sandy Loam	10YR 5/8		
34-84	C	Loamy Sand	2.5Y 5/6	40"	Refusal



INFILTRATION BASIN CONSTRUCTION NOTES:
THE CONTRACTOR IS CAUTIONED THAT THE INFILTRATION BASIN IS DESIGNED TO INFILTRATE/RECHARGE STORMWATER PRIMARILY THROUGH THE BOTTOM AND SIDES OF THE BASIN. CONSTRUCTION TECHNIQUES THAT WOULD POTENTIALLY DIMINISH THE INFILTRATION CAPACITY OF THE UNDERLYING SOILS ARE TO BE AVOIDED. COMPACTION AND SILTATION OF THE BASIN FLOOR DURING CONSTRUCTION IS PROHIBITED.

A. DO NOT UTILIZE ANY PORTION OF THE BASIN FLOOR AS A HAUL ROAD FOR MATERIAL AND HEAVY EQUIPMENT.

B. DO NOT COMPACT SOILS IN THE BASIN FLOOR.

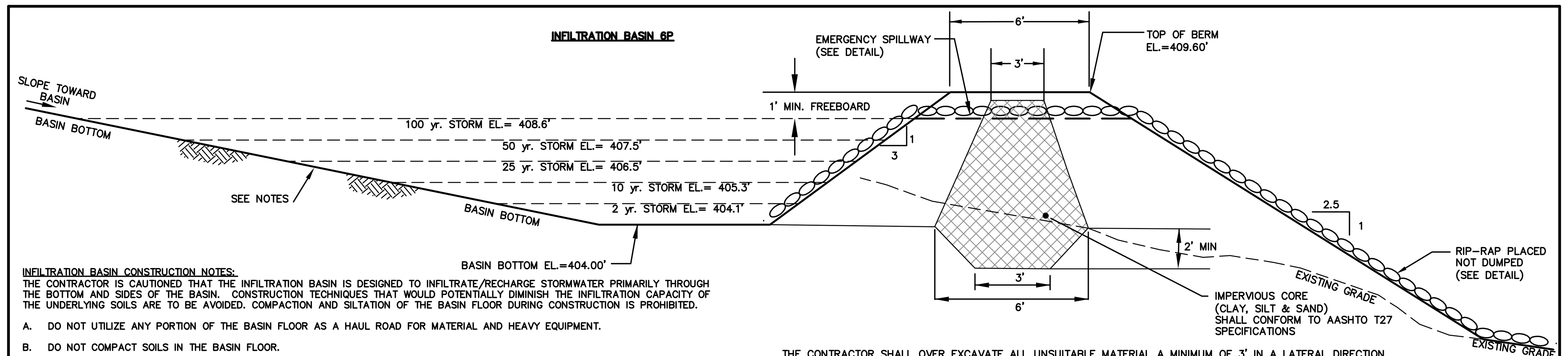
C. DO NOT PLACE GRAVEL OR OTHER MATERIALS TO STABILIZE THE BASIN FLOOR FOR CONSTRUCTION VEHICULAR ACCESS. STRICT COMPLIANCE WITH THE EROSION CONTROL PLAN AND THE STORMWATER OPERATIONS AND MAINTENANCE PLAN IS NECESSARY.

D. THE INFILTRATION BASIN SHALL NOT, AT ANY POINT DURING CONSTRUCTION, BE UTILIZED AS A TEMPORARY SEDIMENT BASIN.

E. BASIN CONSTRUCTION SHALL OCCUR AT THE EARLY STAGES OF THE PROJECT CONSTRUCTION SO THAT THEY ARE FULLY VEGETATED AND STABILIZED PRIOR TO RECEIVING STORMWATER.

THE CONTRACTOR SHALL OVER EXCAVATE ALL UNSUITABLE MATERIAL A MINIMUM OF 3' IN A LATERAL DIRECTION SURROUNDING THE SYSTEM AND BELOW THE SYSTEM UNTIL SUITABLE SOIL IS ENCOUNTERED AND THEN REPLACE WITH CLEAN GRANULAR FILL MEETING THE SPECIFICATIONS OF THE STATE SANITARY CODE TITLE 5 (310 CMR 15.255(3)). THE OVER EXCAVATION SHALL BE MONITORED BY A MASSACHUSETTS CERTIFIED SOIL EVALUATOR (MCSE) TO VERIFY THE REMOVAL OF ALL UNSUITABLE SOIL PRIOR TO THE INSTALLATION OF THE DRAINAGE SYSTEM.

INFILTRATION BASIN 2P
(NOT TO SCALE)



INFILTRATION BASIN CONSTRUCTION NOTES:
THE CONTRACTOR IS CAUTIONED THAT THE INFILTRATION BASIN IS DESIGNED TO INFILTRATE/RECHARGE STORMWATER PRIMARILY THROUGH THE BOTTOM AND SIDES OF THE BASIN. CONSTRUCTION TECHNIQUES THAT WOULD POTENTIALLY DIMINISH THE INFILTRATION CAPACITY OF THE UNDERLYING SOILS ARE TO BE AVOIDED. COMPACTION AND SILTATION OF THE BASIN FLOOR DURING CONSTRUCTION IS PROHIBITED.

A. DO NOT UTILIZE ANY PORTION OF THE BASIN FLOOR AS A HAUL ROAD FOR MATERIAL AND HEAVY EQUIPMENT.

B. DO NOT COMPACT SOILS IN THE BASIN FLOOR.

C. DO NOT PLACE GRAVEL OR OTHER MATERIALS TO STABILIZE THE BASIN FLOOR FOR CONSTRUCTION VEHICULAR ACCESS. STRICT COMPLIANCE WITH THE EROSION CONTROL PLAN AND THE STORMWATER OPERATIONS AND MAINTENANCE PLAN IS NECESSARY.

D. THE INFILTRATION BASIN SHALL NOT, AT ANY POINT DURING CONSTRUCTION, BE UTILIZED AS A TEMPORARY SEDIMENT BASIN.

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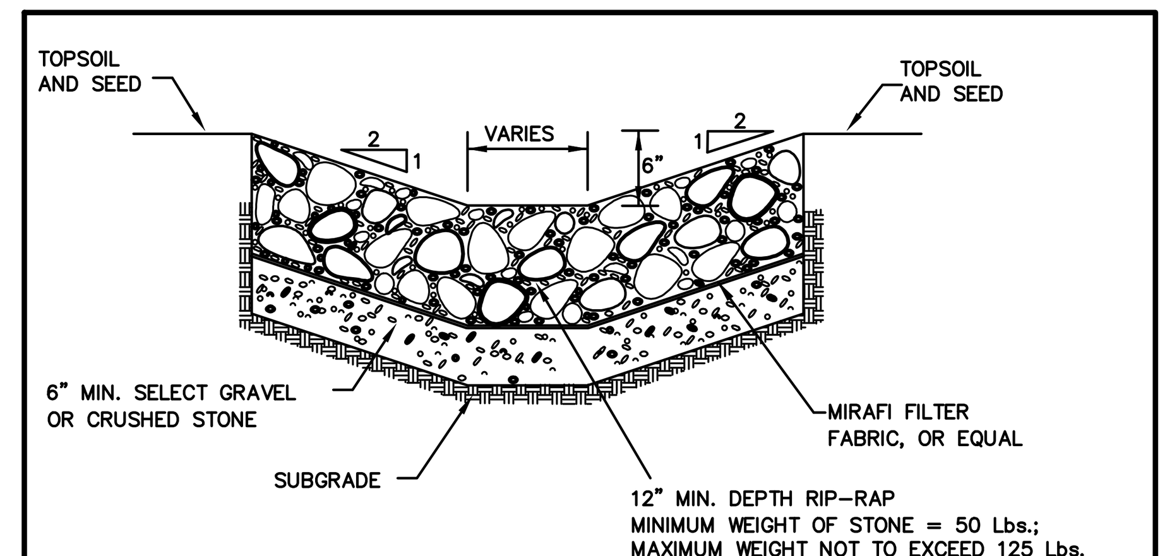
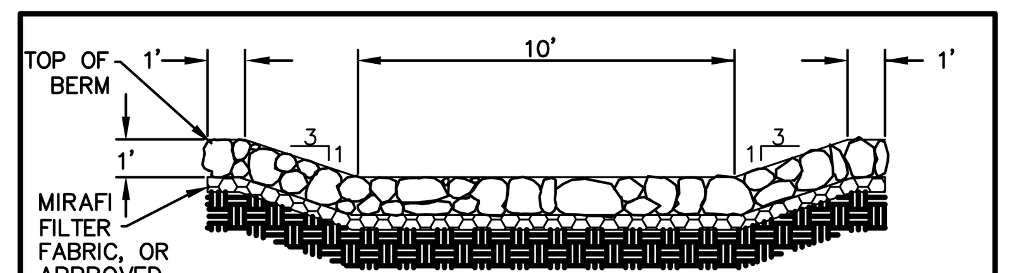
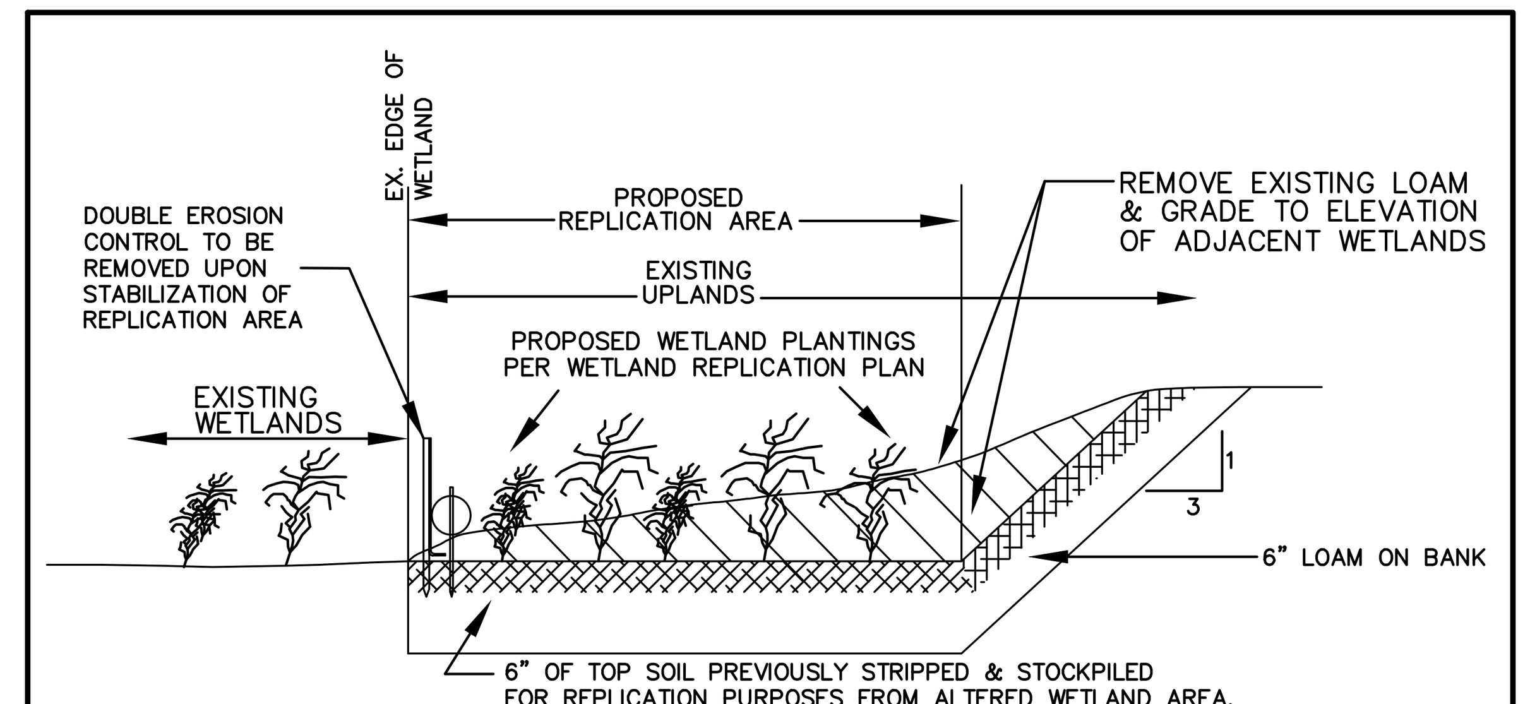
INFILTRATION BASIN 6P
(NOT TO SCALE)



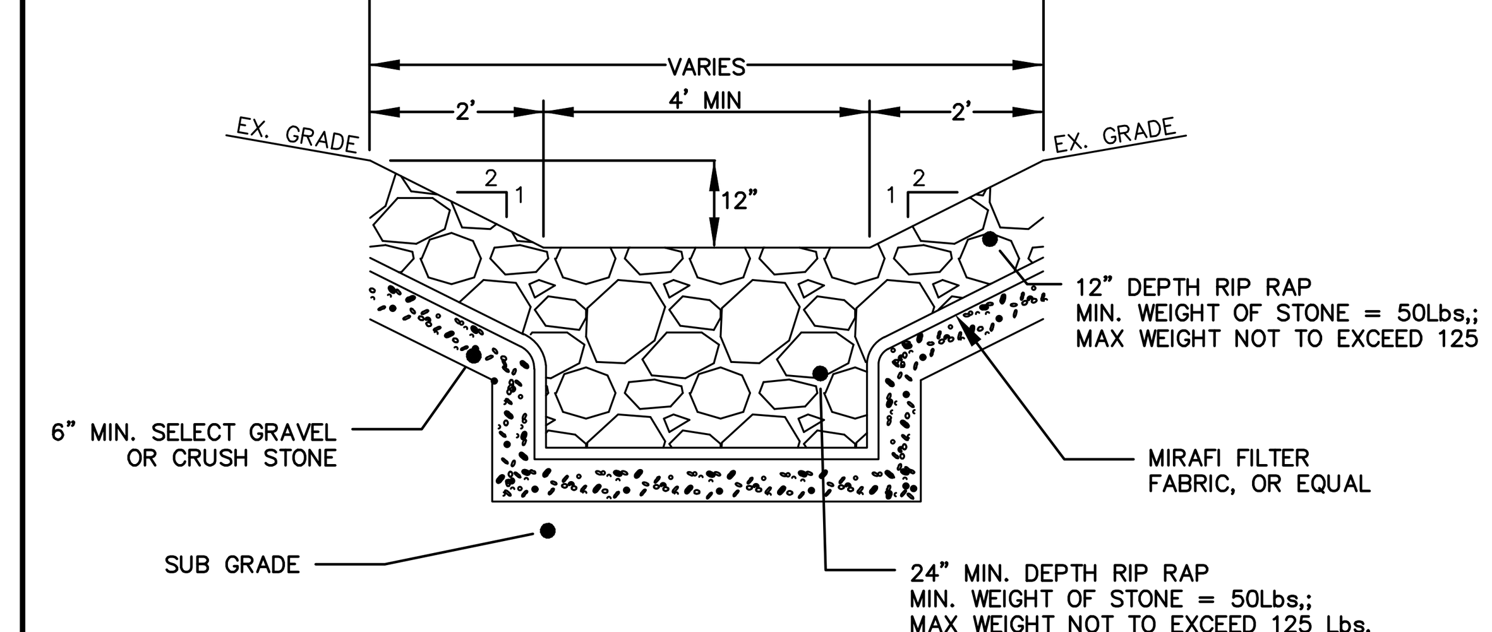
RIP-RAP APRON DETAIL
(NOT TO SCALE)



TYPICAL EMERGENCY SPILLWAY
NOT TO SCALE



TYPICAL X-SECTION – WETLAND REPLICATION AREA
NOT TO SCALE



ROCK LINED SWALE DETAIL
(NOT TO SCALE)

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