

SITE NOTES:

1. THE SITE IS SHOWN ON THE TOWN OF FREETOWN ASSESSORS MAP AS MAP 232 LOT 32 AND MAP 233 LOT 4.
2. PROPERTY LINE AND EXISTING CONDITIONS INFORMATION WAS TAKEN FROM A FIELD SURVEY BY MOUNT HOPE ENGINEERING.
3. NORTHERN BRISTOL COUNTY REGISTRY OF DEEDS:
DEED REFERENCE: BOOK 2478 PAGE 17
BOOK 8159 PAGE 102
PLAN REFERENCES: PLAN BOOK 106 PAGE 5
4. A PORTION OF THE SITE IS LOCATED IN A FLOOD PLAIN ZONE AS INDICATED ON THE F.E.M.A. FLOOD INSURANCE RATE MAP NUMBER 25050C0284F WITH AN EFFECTIVE DATE OF JULY 7, 2009.
5. THE SITE IS NOT LOCATED IN A PRIORITY HABITAT AND ESTIMATED HABITAT AS SHOWN ON THE MASSACHUSETTS NATURAL HERITAGE ATLAS 14TH EDITION EFFECTIVE DATE AUGUST, 2017.
6. AN ORDER OF RESOURCE AREA DELINEATION (ORAD) WAS ISSUED ON 2/2/2009 BY THE FREETOWN CONSERVATION COMMISSION. DEP FILE NUMBER SE 026-0477
7. THE PROJECT IS NOT LOCATED WITHIN AN AREA OF CRITICAL ENVIRONMENTAL CONCERN (ACEC).
8. THE SITE IS NOT LOCATED IN A ZONE II TO A PUBLIC WATER SUPPLY WELL.
9. THE SITE IS NOT IN A ZONE A TO A SURFACE WATER SUPPLY AREA.
10. THE SITE IS NOT LOCATED IN AN OUTSTANDING RESOURCE WATER AREA (ORW).
11. ALL UNDERGROUND UTILITIES ARE TO BE CONSIDERED APPROXIMATE. LOCATIONS WERE TAKEN FROM PLANS OF RECORD WITH THE MUNICIPALITY, DIG SAFE LOCATIONS OR FIELD EVIDENCE. IT IS THE CONTRACTORS RESPONSIBILITY TO CONTACT DIG SAFE (1-888-DIG SAFE) AND ALL UTILITY COMPANIES TO CONFIRM LOCATIONS AND ELEVATIONS PRIOR TO THE START OF WORK.

CONSTRUCTION NOTES:

1. A NPDES FILING MUST BE SUBMITTED FOR THIS PROJECT PRIOR TO CONSTRUCTION.
2. CONTRACTOR TO VERIFY BENCHMARKS FOR CONSISTENCY PRIOR TO CONSTRUCTION AND SHALL NOTIFY ZENITH CONSULTING ENGINEERS, LLC. OF ANY DISCREPANCIES.
3. CONTRACTOR SHALL VERIFY WATER TABLE ELEVATIONS AND NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES FROM THE PLAN.
4. IT IS THE CONTRACTORS RESPONSIBILITY TO CONTACT DIG SAFE (1-888-DIG SAFE) PRIOR TO THE COMMENCEMENT OF WORK AND ALL UNDERGROUND UTILITY COMPANIES TO CONFIRM LOCATIONS AND ELEVATIONS.
5. PROPOSED UTILITIES AND CONSTRUCTION METHODS UNDER AREAS SUBJECT TO TRAFFIC LOADING SHALL BE INSTALLED TO WITHSTAND H-20 LOADING TRAFFIC STANDARDS. CONTRACTOR SHALL VERIFY THAT ALL STRUCTURES COMPLY TO THIS STANDARD.
6. WHERE ALL CONCRETE STRUCTURES INTERCEPT THE SEASONAL HIGH GROUNDWATER TABLE, THE CONTRACTOR SHALL SEAL THE ENTIRE STRUCTURE WITH WATERPROOF SEALER.
7. IF APPLICABLE, ANY RETAINING WALLS SHALL BE DESIGNED BY A MASSACHUSETTS REGISTERED PROFESSIONAL STRUCTURAL ENGINEER.
8. ALL WORK SHALL CONFORM TO THE TOWN OF FREETOWN RULES AND REGULATIONS AND THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION SPECIFICATIONS FOR HIGHWAY AND BRIDGES, MOST CURRENT VERSION OF PLAN SET.
9. AN ESTIMATE 900,000 CUBIC YARDS OF SOIL ARE TO BE REMOVED DURING THE EARTH REMOVAL OPERATION.

SITE PLAN FOR 35 COPICUT ROAD FREETOWN, MASSACHUSETTS



**LOCUS PLAN
SCALE: 1"=500'**

SCHEDULE OF DRAWINGS

DRAWING NUMBER	PLAN TITLE	PLAN PREPARED BY	LATEST PLAN DATE
C1	COVER SHEET	ZENITH CONSULTING ENGINEERS, LLC.	8/27/20
E1	EXISTING CONDITIONS PLAN	ZENITH CONSULTING ENGINEERS, LLC.	8/27/20
G1	GRADING PLAN	ZENITH CONSULTING ENGINEERS, LLC.	8/27/20
G2	GRADING PLAN	ZENITH CONSULTING ENGINEERS, LLC.	8/27/20
G3	GRADING PLAN	ZENITH CONSULTING ENGINEERS, LLC.	8/27/20
G4	GRADING PLAN	ZENITH CONSULTING ENGINEERS, LLC.	8/27/20
G5	GRADING PLAN	ZENITH CONSULTING ENGINEERS, LLC.	8/27/20
WR1	WETLAND REPLICATION PLAN	ZENITH CONSULTING ENGINEERS, LLC.	8/27/20
EC1	EROSION CONTROL PLAN	ZENITH CONSULTING ENGINEERS, LLC.	8/27/20
D1	DETAIL SHEET 1	ZENITH CONSULTING ENGINEERS, LLC.	8/27/20

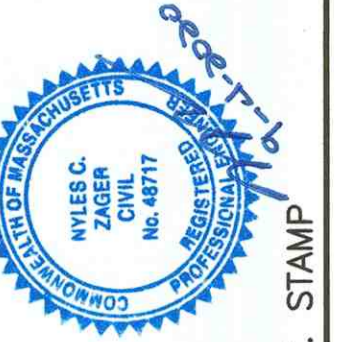
PROJECT MANAGEMENT AND DESIGN ASSISTANCE BY:

**HOLMES ENGINEERING
CIVIL ENGINEERING & CONSULTING
622 BERKLEY STREET, BERKLEY, MA 02779
PHONE: (508) 880-6535**

**SURVEY BY:
MOUNT HOPE ENGINEERING, INC.
CIVIL/ENVIRONMENTAL SERVICES
1788 G.A.R. HIGHWAY, SWANSEA, MA 02777
PHONE: (508) 379-1234**

**OWNER
R FIVE LIMITED INC.
3 SAMMY'S LANE
ASSONET, MA 02702**

**APPLICANT
KR REZENDES, INC.
3 SAMMY'S LANE
ASSONET, MA 02702**



P.E. STAMP

ZCE
ZENITH CONSULTING ENGINEERS, LLC
3 MAIN STREET LAKEVILLE, MA 02347
PHONE: (508) 947-4208



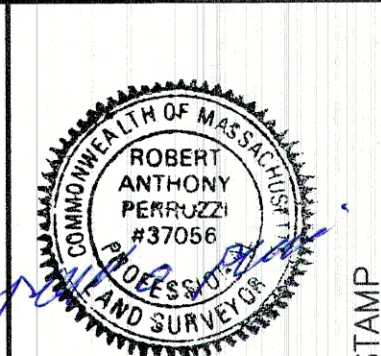
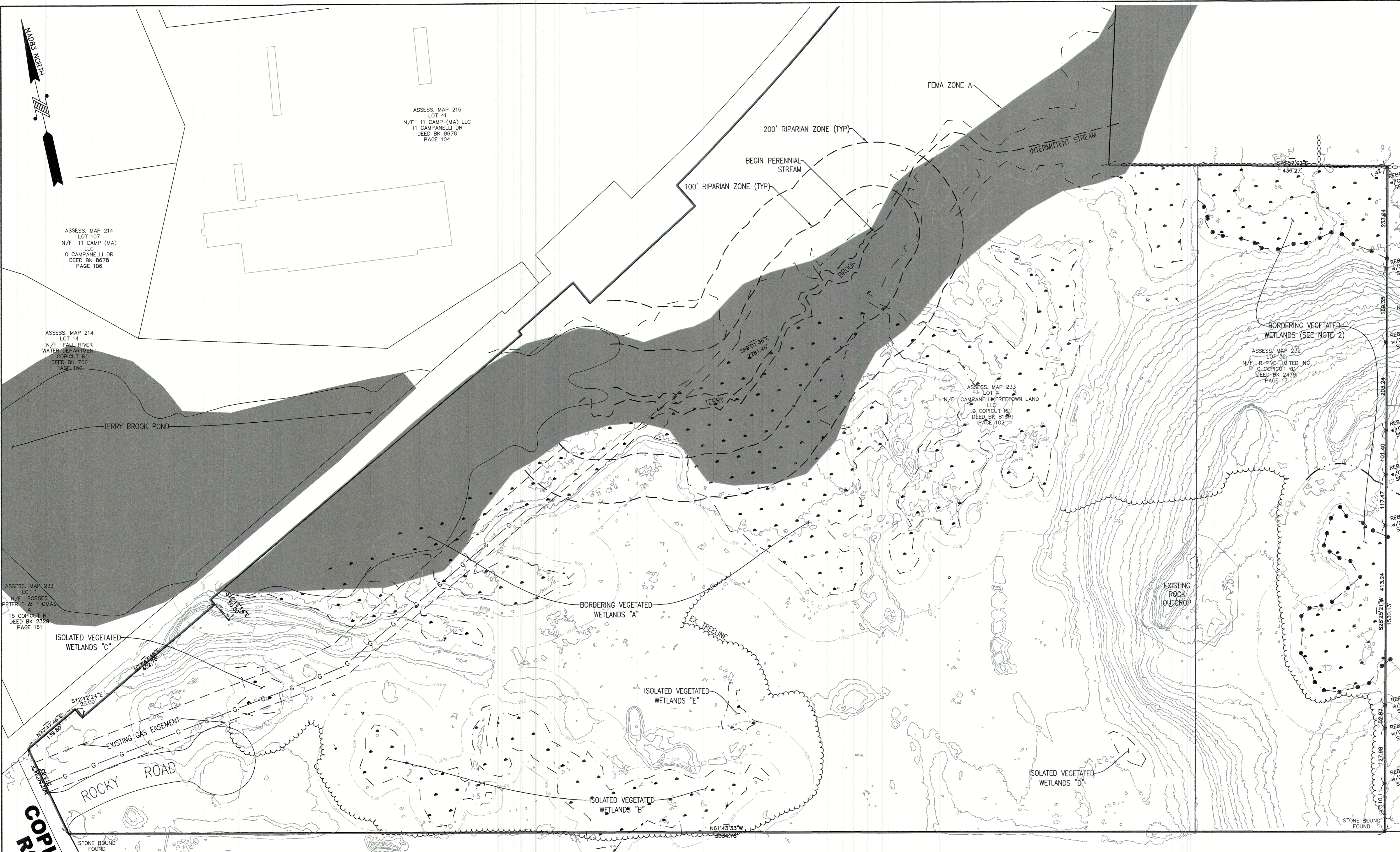
EXISTING	DESCRIPTION	PROPOSED
--- 98 ---	CONTOURS	--- 72 ---
×69.4	SPOT GRADE	+98.5
□	BOUND	
TP 7	TEST PIT	
WETLAND SYMBOL		
+WF #BW15	WETLAND FLAG AND NUMBER	
25' B	25' BW BUFFER	
50' B	50' BW BUFFER	
100' B	100' BW BUFFER	
D	DRAIN LINE	--- D ---
⊙	DRAIN MANHOLE	⊙
⊙	CATCH BASIN	⊙
---	RETAINING WALL	---
OHW	OVERHEAD WIRES	
UP#213	UTILITY POLE	⊙
+	LIGHT POLE	+
---	STONEWALL	---
---	SEWER LINE	---
+	SIGN	+
---	CHAIN LINK FENCE	---
+	HYDRANT	+
G	GAS LINE	---

REV.	DATE	DESCRIPTION

DATE	BY	APP.
8/31/2020		

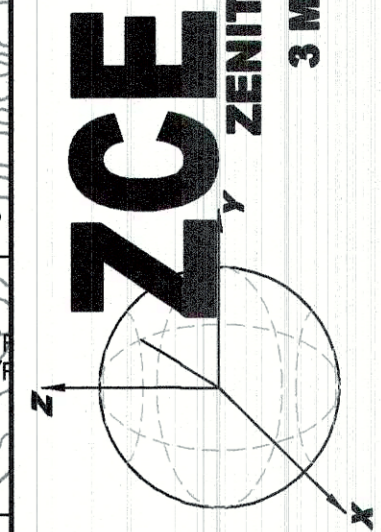
SHEET NAME: COVER SHEET	DESIGNED BY: RLG	PROJECT NUMBER: 0617-01-01	DATE: 8/31/2020
PROJECT SITE: 35 COPICUT ROAD FREETOWN, MASSACHUSETTS	CHECKED BY: NCZ	DRAWING SCALE: AS NOTED	PROJECT DATE: 8/31/2020
CLIENT INFO: KR REZENDES, INC. 3 SAMMY'S LANE ASSONET, MASSACHUSETTS	APPROVED BY: NCZ	SHEET ID: C1	

AUGUST 31, 2020



P.E. STAMP

ZCE ZENITH CONSULTING ENGINEERS, LLC
 3 MAIN STREET LAKEVILLE, MA 02347
 PHONE: (508) 947-4208



EXISTING CONDITIONS PLAN
35 COPICUT ROAD
 FREETOWN, MASSACHUSETTS
 KR REZENDES, INC.
 3 SAMMY'S LANE
 ASSONNET, MASSACHUSETTS

SITE NOTES:

1. WETLANDS AND RESOURCE AREAS SHOWN HEREON ON PARCEL 233_04_0 TAKEN FROM "PLAN TO ACCOMPANY ANRAD APPLICATION" BY KELLY ENGINEERING GROUP, INC. DATED 11/14/08, REVISED THRU 1/19/09 AND APPROVED PER AN ORDER OF RESOURCE AREA DELINEATION (ORAD) ISSUED ON **2/2/2009** BY THE FREETOWN CONSERVATION COMMISSION. DEP FILE NUMBER **SE 026-0477**
2. WETLANDS SHOWN HEREON ON PARCEL 232_32_0 FLAGGED BY DAVID DURANLEAU OF HOLMES ENGINEERING ON 02/29/2020.
3. THE PROJECT IS NOT LOCATED WITHIN AN AREA OF CRITICAL ENVIRONMENTAL CONCERN (ACEC).
4. THE SITE IS NOT LOCATED IN A ZONE II TO A PUBLIC WATER SUPPLY WELL.
5. THE SITE IS NOT IN A ZONE A TO A SURFACE WATER SUPPLY AREA.
6. THE SITE IS NOT LOCATED IN AN OUTSTANDING RESOURCE WATER AREA (ORW).
7. A PORTION OF THE SITE IS LOCATED IN A FLOOD PLAIN ZONE A AS INDICATED ON THE F.E.M.A. FLOOD INSURANCE RATE MAP NUMBER **250050264F** WITH AN EFFECTIVE DATE OF **JULY 7, 2009**.

REV.	DATE	DESCRIPTION	BY	APP.
	8/31/2020			

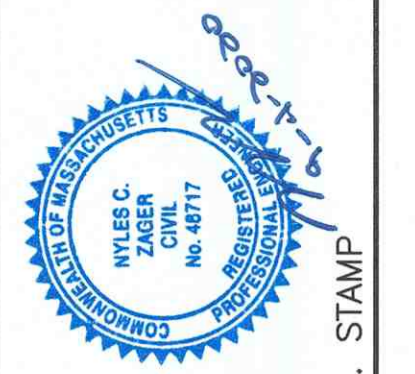
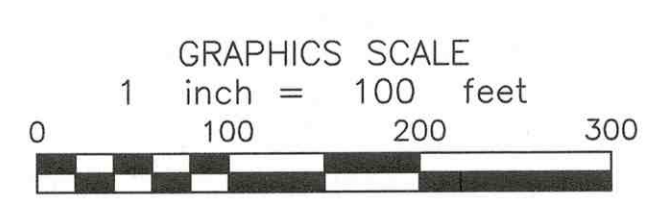
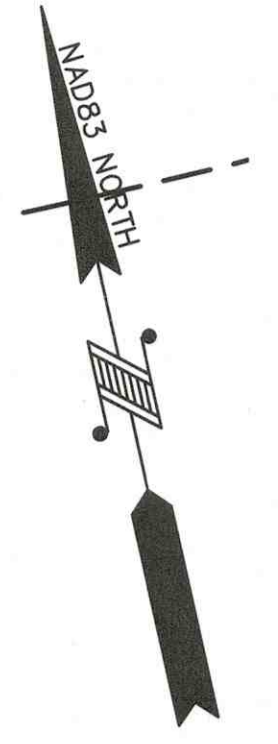
DATE: 8/31/2020 PROJECT NUMBER: 0617-01-01 DRAWING SCALE: 1"=100' SHEET ID: E1

DRAWN BY: RLG DESIGNED BY: RLG CHECKED BY: MCZ APPROVED BY: MCZ

GRAPHICS SCALE
 1 inch = 100 feet

0 100 200 300

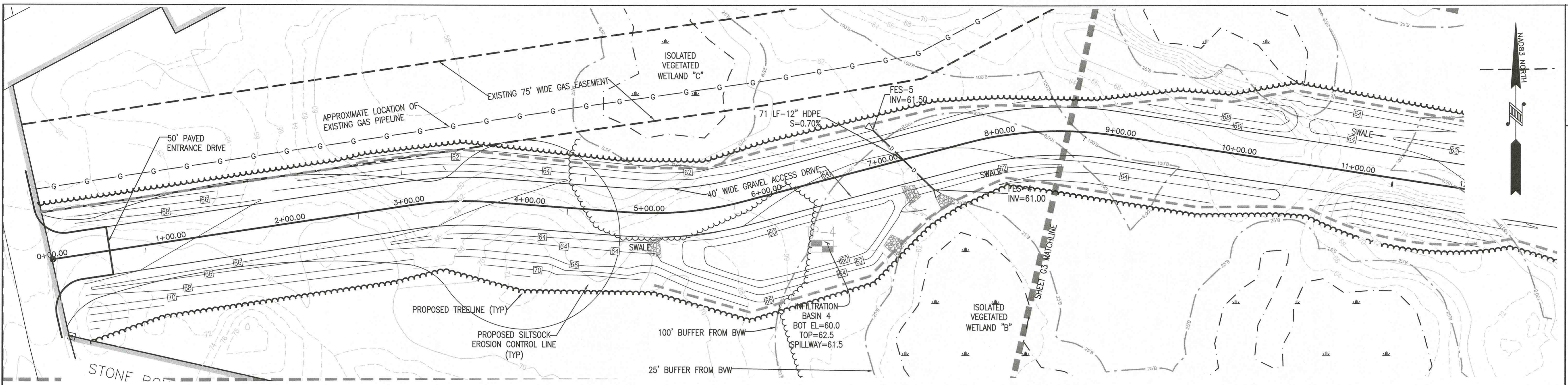
ASSESS. MAP 233
 LOT 5
 N/F R FIVE LIMITED INC
 0 COPICUT RD
 DEED BK 645008
 PAGE



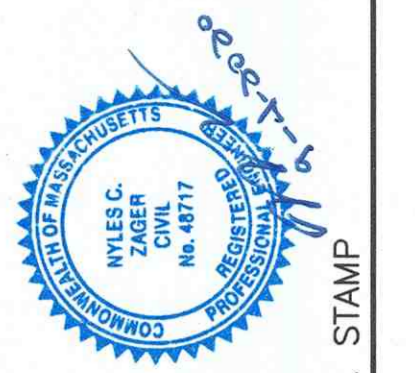
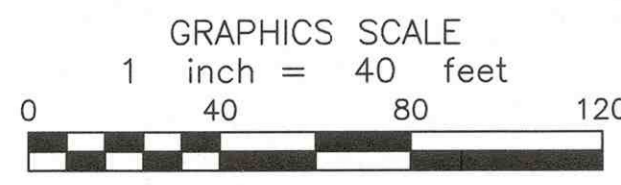
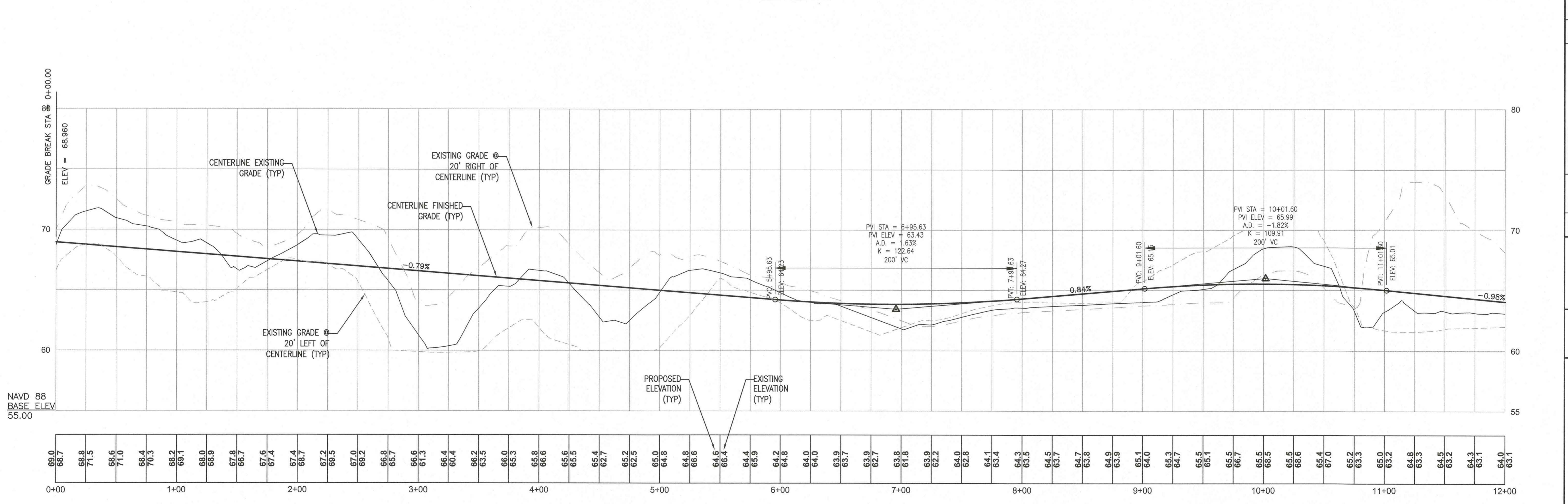
ZCE
ZENITH CONSULTING ENGINEERS, LLC
 3 MAIN STREET LAKEVILLE, MA 02347
 PHONE: (508) 947-4208

SHEET NAME:	DATE:	REV.	DATE	DESCRIPTION	BY	APP.
GRADING PLAN 35 COPICUT ROAD FREETOWN, MASSACHUSETTS KR REZENDES, INC. 3 SAMMY'S LANE ASSONET, MASSACHUSETTS	8/31/2020					
	PROJECT NUMBER:	0617-01-01				
	DRAWING SCALE:	1"=100'				
	SHEET ID:	G1				

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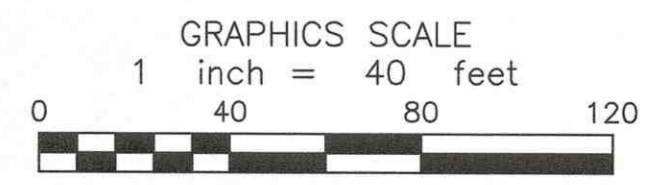
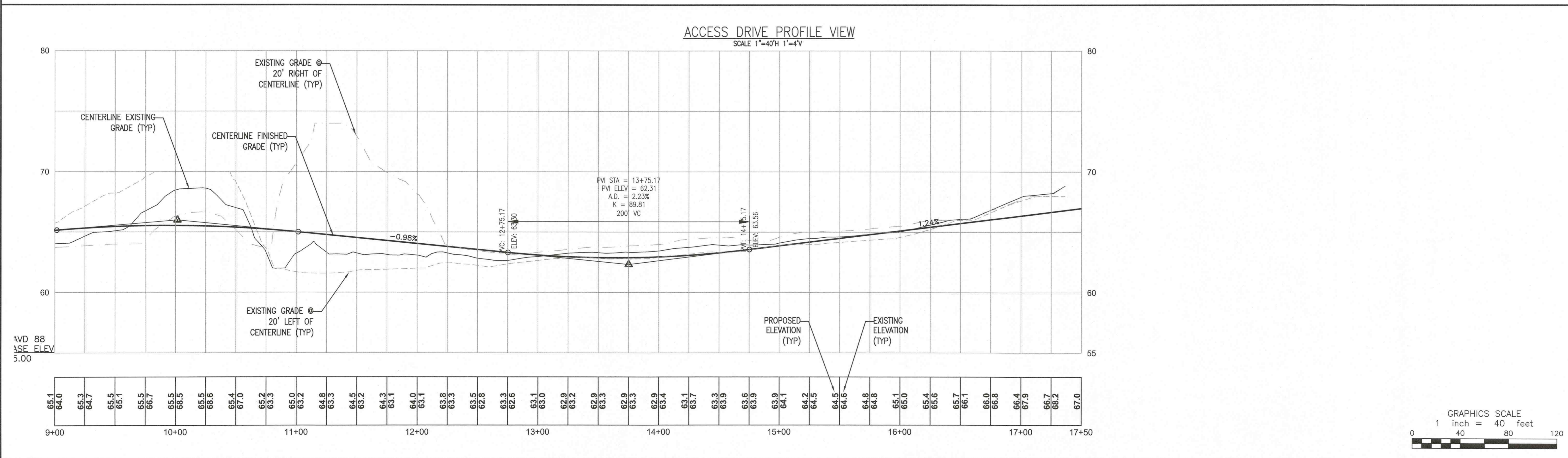
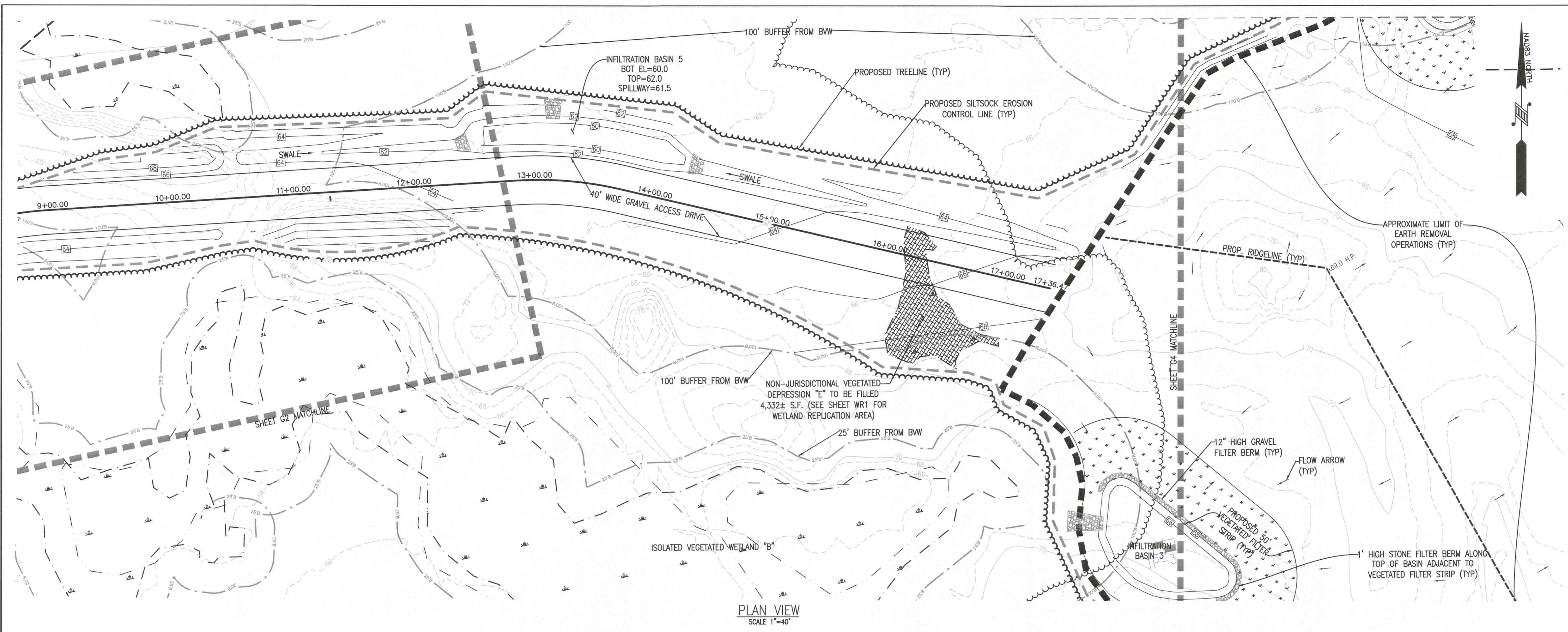
ACCESS DRIVE PROFILE VIEW
SCALE 1"=40'H 1"=4'V



ZCE
ZENITH CONSULTING ENGINEERS, LLC
3 MAIN STREET LAKEVILLE, MA 02347
PHONE: (508) 947-4208

REV.	DATE	DESCRIPTION	BY	APP.

DATE:	8/31/2020
PROJECT NUMBER:	0617-01-01
DRAWING SCALE:	1"=40'
SHEET ID:	G2
DRAWN BY:	RLG
DESIGNED BY:	RLG
CHECKED BY:	NCZ
APPROVED BY:	NCZ



P.E. STAMP

ZENITH CONSULTING ENGINEERS, LLC
3 MAIN STREET LAKEVILLE, MA 02347
PHONE: (508) 947-4208

REV.	DATE	DESCRIPTION	BY	APP.

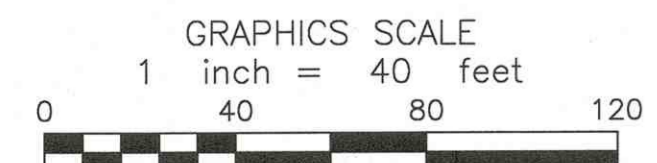
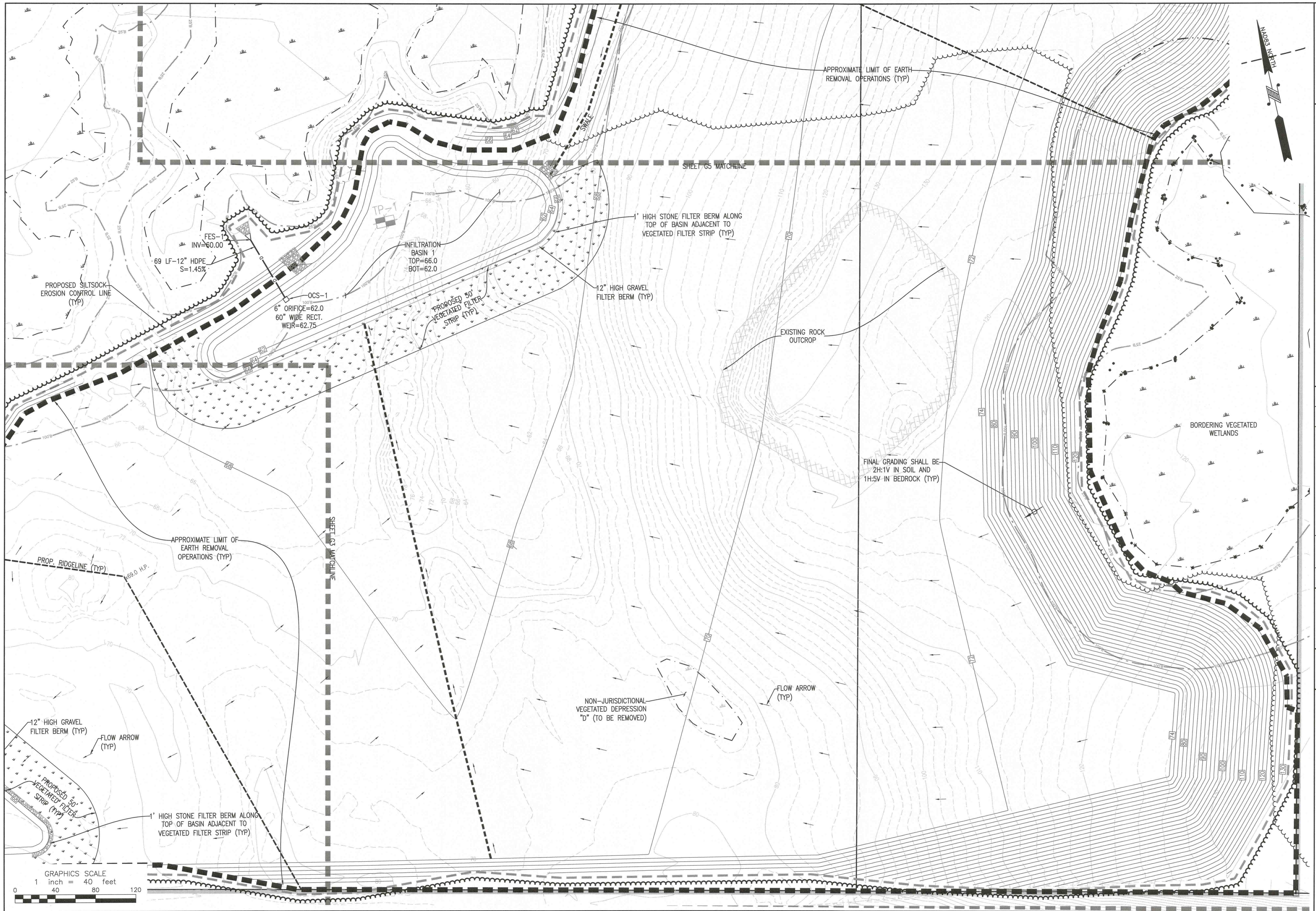
DRAWN BY: RLG	DATE: 8/31/2020
DESIGNED BY: RLG	PROJECT NUMBER: 0617-01-01
CHECKED BY: NCZ	DRAWING SCALE: 1"=40'
APPROVED BY: NCZ	SHEET ID: G3

GRADING PLAN

35 COPICUT ROAD
FREETOWN, MASSACHUSETTS

KR REZENDES, INC.
3 SAMMY'S LANE
ASSONET, MASSACHUSETTS

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ZCE
ZENITH CONSULTING ENGINEERS, LLC
3 MAIN STREET LAKEVILLE, MA 02347
PHONE: (508) 947-4208



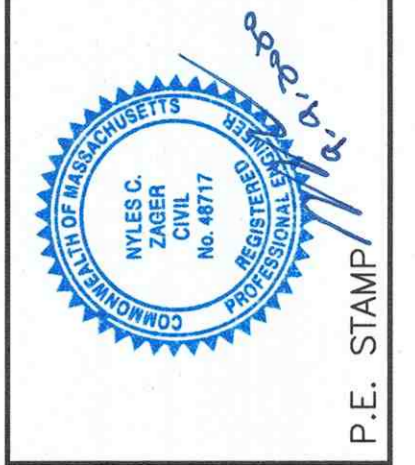
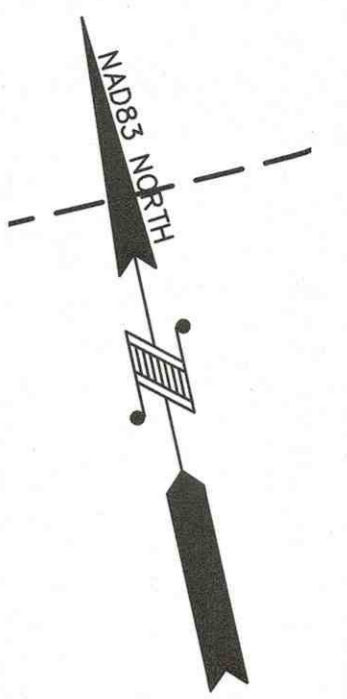
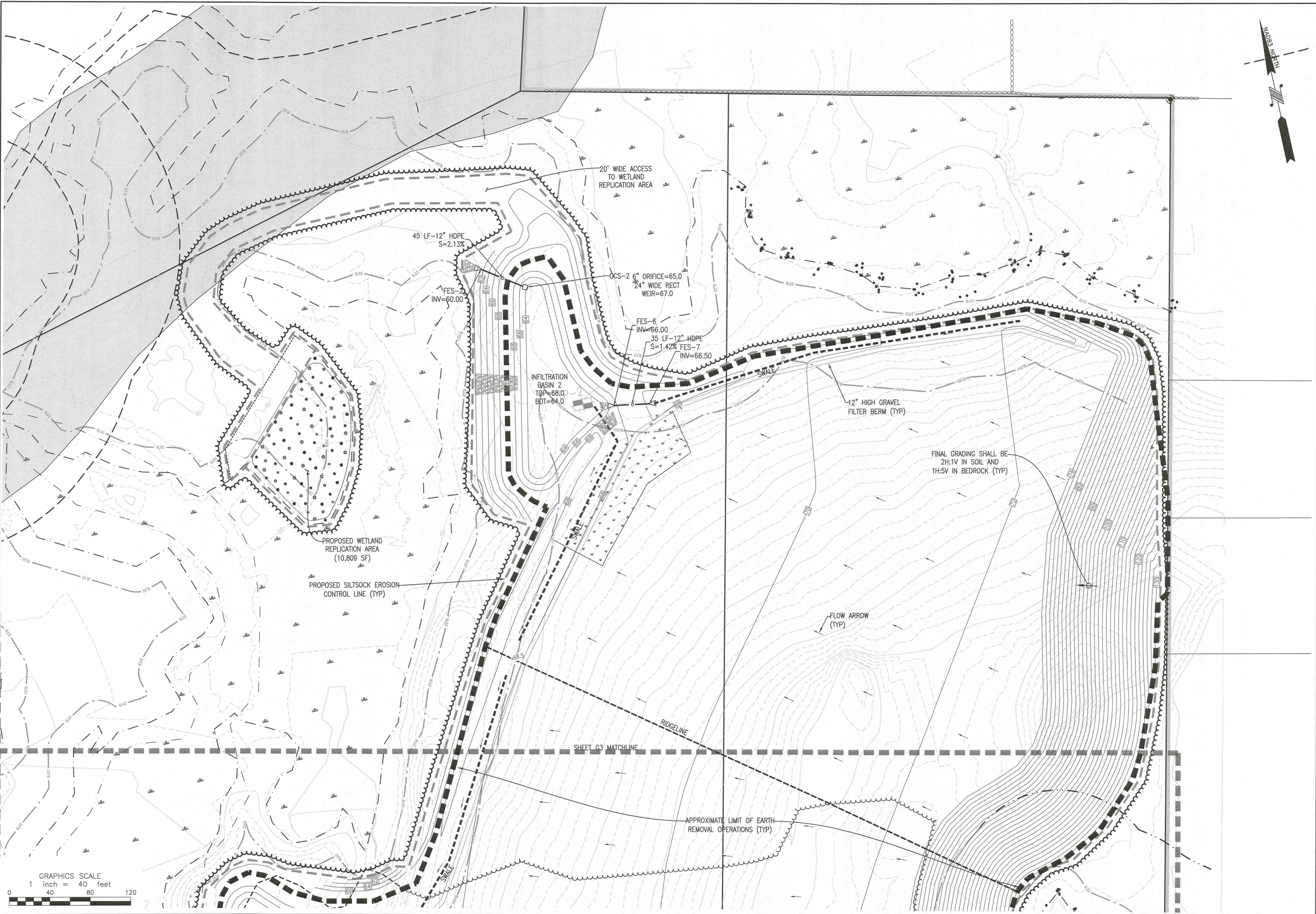
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DATE:	8/31/2020
PROJECT NUMBER:	0617-01-01
DRAWING SCALE:	1"=40'
SHEET ID:	G4

DRAWN BY:	RLG
DESIGNED BY:	RLG
CHECKED BY:	NCZ
APPROVED BY:	NCZ

GRADING PLAN
35 COPICUT ROAD
FREETOWN, MASSACHUSETTS
KR REZENDES, INC.
3 SAMMY'S LANE
ASSONET, MASSACHUSETTS

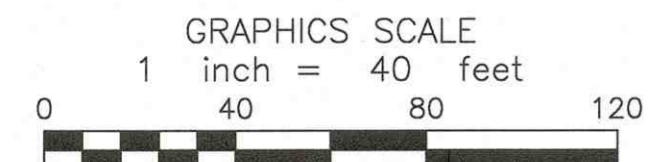
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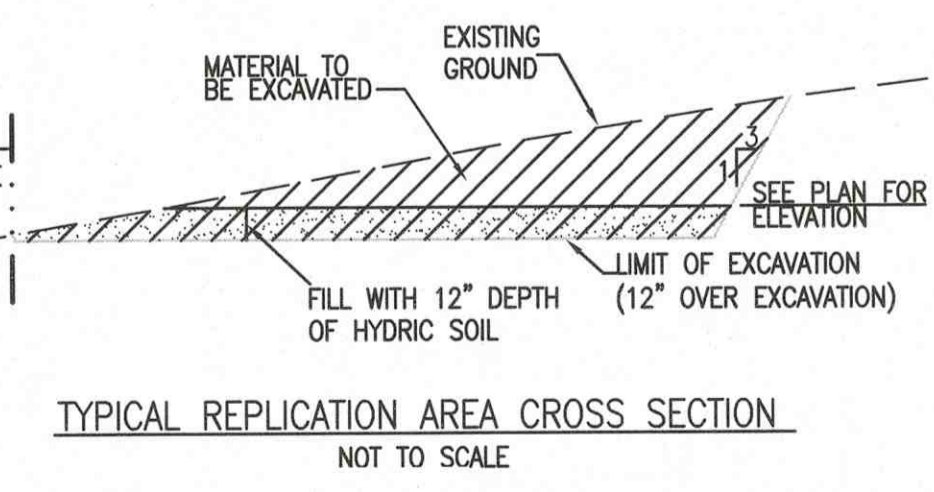
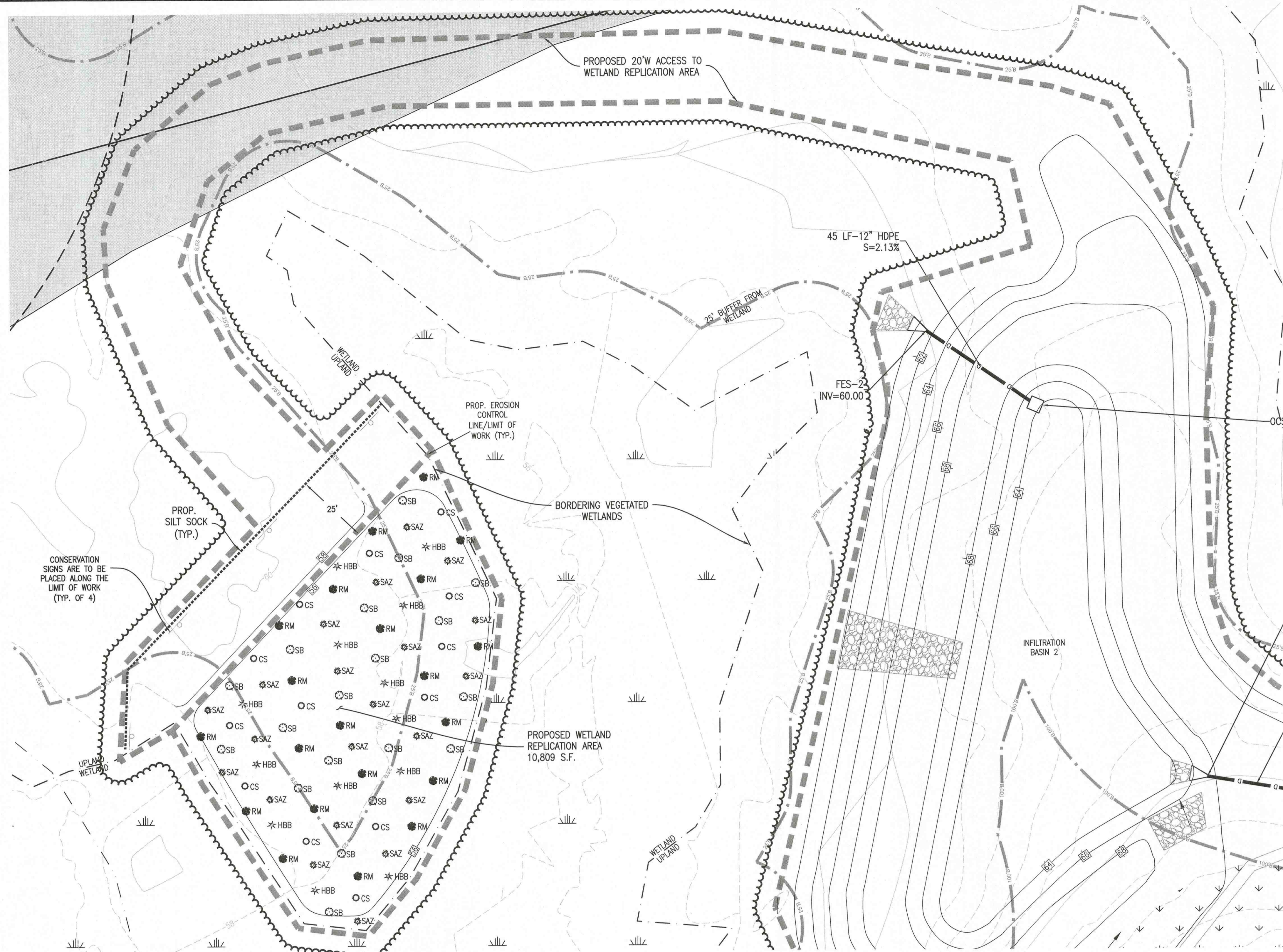
ZCE
ZENITH CONSULTING ENGINEERS, LLC
 3 MAIN STREET LAKEVILLE, MA 02347
 PHONE: (508) 947-4208

REV.	DATE	DESCRIPTION	BY	APP.

DATE	8/31/2020
PROJECT NUMBER:	0617-01-01
DRAWING SCALE:	1"=40'
SHEET ID:	05
DRAWN BY:	RLG
DESIGNED BY:	RLG
CHECKED BY:	NCZ
APPROVED BY:	NCZ



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LEGEND	
---	EXISTING CONTOURS
- - -	PROPOSED CONTOURS
+100.50	PROPOSED SPOT ELEVATION
~~~~~	EXISTING TREELINE
~~~~~	PROPOSED TREELINE
- - -	WETLANDS FLAG
- - -	EROSION CONTROL
~~~~~	EXISTING WETLANDS

THE BASE OF THE REPLICATION AREAS AND THE SIDE SLOPES OF THE ACCESS DRIVE AT WETLAND CROSSING ONLY ARE TO BE SEEDED WITH ONE POUND PER 2,500 SQUARE FEET OF NEE WET MIX SUPPLIED BY NEW ENGLAND ENVIRONMENTAL, INC. AMHERST, MA, OR APPROVED EQUAL.

COMMON NAME	SCIENTIFIC NAME	% IN MIX	NWI RATING	COMMENTS
LURID SEDGE	CAREX LURIDA	30	OBL	A LOW GROUND COVER THAT TOLERATES MESIC SITES IN ADDITION TO SATURATED AREAS; PROLIFIC SEEDER IN SECOND GROWING SEASON.
FOWL MEADOW GRASS	GLYCERIA CANADENSIS	25	OBL	PROLIFIC SEED PRODUCER THAT IS A VALUABLE WILDLIFE RESOURCE.
FRINGED SEDGE	CAREX CRINITA	10	OBL	A MEDIUM TO LARGE SEDGE THAT TOLERATES SATURATED AREAS; GOOD SEED PRODUCER.
JOE-PYE WEED	EUPATORIADELPHUS MACULATUS	10	FACW	FLOWERING PLANT THAT IS VALUABLE FOR WILDLIFE COVER; GROWS TO 4 FEET.
BROOM SEDGE	CAREX SPP, OVALES GROUP	10	FACW-OBL	TOLERATES A WIDE RANGE OF HYDROLOGIC CONDITIONS.
WOOLGRASS	SCIRPUS CYPERINUS	5	FACW+	TOLERATES FLUCTUATING HYDROLOGY
BONESET	EUPATORIUM PERFOLIATUM	5	FACW+	FLOWERING PLANT THAT IS VALUABLE FOR WILDLIFE COVER; GROWS TO 3 FEET.
TUSSOCK SEDGE	CAREX STRICTA	<5	OBL	GROWS IN ELEVATED HUMMOCKS ON WET SITES, MAY GROW RHIZOMOUSLY ON DRIER SITES.
BLUE VERVAIN	VERBENA HASTATA	<5	FACW+	A NATIVE PLANT THAT BEARS ATTRACTIVE BLUE FLOWERS.

- WETLAND REPLICATION CONSTRUCTION SEQUENCE:**
- THE REPLICATION AREA SHALL BE PREPARED SIMULTANEOUSLY WITH THE PROPOSED WETLAND CROSSING AREA USING THE FOLLOWING ESSENTIAL SEQUENCE OF CONSTRUCTION:
- EROSION CONTROL SHALL BE INSTALLED AND INSPECTED FOR ADEQUACY BY ZENITH CONSULTING ENGINEERING, LLC. AND THE FREETOWN CONSERVATION COMMISSION OR ITS AGENT.
  - THE REPLICATION AREA SHALL THEN BE CLEARED AND GRUBBED.
  - ANY SALVAGEABLE TOPSOIL FROM THE REPLICATED AREA SHALL BE STOCKPILED UPGRADIENT OF THE REPLICATION AREA.
  - THE AREA WILL THEN BE GRADED TO A SUBGRADE ONE FOOT LOWER THAN FINAL GRADES SHOWN.
  - THE SALVAGED TOPSOIL WILL THEN BE SPREAD.
  - THE WETLAND FILLING AREAS WILL THEN BE EXAMINED FOR SALVAGEABLE SHRUBS. ANY SHRUBS DEEMED POTENTIALLY SALVAGEABLE BY THE ENGINEER WILL BE EXCAVATED AND STAGED FOR TRANSPLANTING.
  - ALL ORGANIC TOPSOIL FROM THE WETLAND CROSSING WILL THEN BE SPREAD TO ACHIEVE THE FINAL PROPOSED GRADES. THE AREA IS NOT TO BE RAKED SMOOTH BUT RATHER IS TO BE LEFT WITH BACK HOE TEETH MARKS IN ORDER TO CREATE A MICROTOPOGRAPHY.
  - THE SHRUBS SHALL BE PLANTED AS DIRECTED BY THE ENGINEER.
  - THE AREA WILL THEN IMMEDIATELY BE SEEDED WITH NEE WETLAND MIX AT A RATE OF 1 LB PER 2,500 SQUARE FEET.

**TREE & SHRUB PLANTING SCHEDULE**

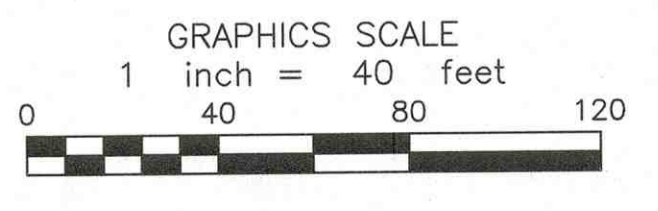
SYMBOL	SCIENTIFIC NAME	COMMON NAME	SIZE	QUANTITY
* HBB	VACCINIUM CORYMOSUM	HIGHBUSH BLUEBERRY	2'	13
⊗ SAZ	RHODODENDRON VISCOSUM	SWAMP AZALEA	2'	21
⊗ SB	CLETHRA ALNIFOLIA	SWEET PEPPER BUSH	2'	19
⊗ CS	LINDERA BENZOIN	COMMON SPICEBUSH	2'	13
⊗ RM	ACER RUBRUM	RED MAPLE	3'	21

**REPLICATION NOTES:**

TOTAL ISOLATED VEGETATED WETLAND TO BE DISTURBED = 4,332 S.F.

TOTAL WETLAND REPLICATION AREA PROVIDED = 10,809 S.F.

REPLICATION/DISTURBANCE RATIO = 2.49



P.E. STAMP

**ZCE** ZENITH CONSULTING ENGINEERS, LLC
   
 3 MAIN STREET LAKEVILLE, MA 02347
   
 PHONE: (508) 947-4208

REV.	DATE	DESCRIPTION	BY	APP.

DATE:	8/31/2020
PROJECT NUMBER:	0617-01-01
DRAWING SCALE:	1"=40'
SHEET ID:	WR1
DRAWN BY:	RLG
DESIGNED BY:	RLG
CHECKED BY:	NZC
APPROVED BY:	NZC

**WETLAND REPLICATION PLAN**

**35 COPIQUIT ROAD**

**FREETOWN, MASSACHUSETTS**

**KR REZENDES, INC.**

**3 SAMMY'S LANE**

**ASSONNET, MASSACHUSETTS**

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**CONSTRUCTION OPERATION AND MAINTENANCE SCHEDULE**

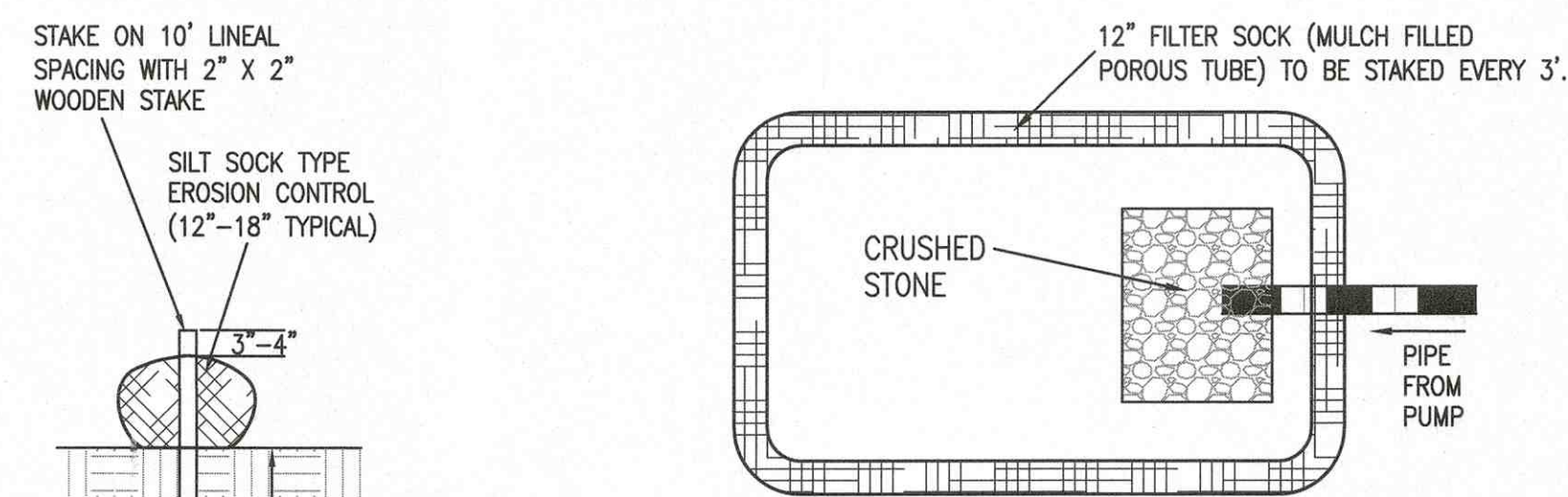
THE OPERATION AND MAINTENANCE (O&M) SCHEDULE DURING THE CONSTRUCTION PHASE IS THE RESPONSIBILITY OF THE DEVELOPER AND/OR SITE CONTRACTOR. THE OUTLINE BELOW SHALL BE ADHERED TO AS CLOSELY AS POSSIBLE TO ENSURE THE PROPER CONSTRUCTION AND FUNCTION OF THE DRAINAGE SYSTEM.

- PRIOR TO CONSTRUCTION, SILT SOCK SHALL BE INSTALLED PER THE APPROVED PLANS. THE SILT SOCK SHALL BE INSPECTED PRIOR TO A LARGE STORM EVENT TO ENSURE THAT THE EROSION CONTROL WILL FUNCTION AS REQUIRED AND FOLLOWING A STORM TO INSPECT FOR DAMAGE TO THE EROSION CONTROL ELEMENTS. ANY DAMAGE OR IMPROPER INSTALLATION THAT IS NOTICED PRIOR TO OR FOLLOWING A STORM EVENT SHALL BE PROMPTLY REPLACED OR REPAIRED IN A SATISFACTORY MANNER SO AS TO PREVENT SEDIMENT FROM BYPASSING THE EROSION CONTROL BARRIER.
- THE LIMIT OF CLEARING SHOWN ON THE APPROVED PLAN SHALL BE STRICTLY ADHERED TO. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE LEVEL OF SAFETY OF STANDING TREES.
- IN CONJUNCTION WITH THE SITE CONSTRUCTION, ALL DRAINAGE STRUCTURES, INCLUDING THE INFILTRATION BASINS, SHALL BE CONSTRUCTED AND STABILIZED AS SOON AS POSSIBLE. METHODS OF STABILIZATION INCLUDE, BUT ARE NOT LIMITED TO, HYDROSEED, LOAM AND SEED, STRAW MULCH, EROSION CONTROL BLANKETS, ETC.
- THE CATCH BASINS, DRAINAGE MANHOLES, OIL WATER SEPARATORS AND FIRST DEFENSE TREATMENT UNITS SHALL BE INSPECTED WEEKLY DURING CONSTRUCTION. ANY SEDIMENT BUILDUP OF EIGHT (8) INCH DEPTH IN EITHER OF THE STRUCTURES SHALL BE PROMPTLY REMOVED BY HAND OR MECHANICAL METHODS AND ALL DEBRIS REMOVED IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.
- THE INFILTRATION BASINS SHALL BE INSPECTED WEEKLY OR AFTER ALL RAINFALL EVENTS GREATER THAN 1/2 INCH, WHICHEVER OCCURS SOONER. ANY EROSION WITHIN THE BASINS SHALL BE FILLED AND RESTABILIZED IN A MANNER TO PREVENT FUTURE EROSION. IN ADDITION, THE OUTER PORTIONS OF THE INFILTRATION BASINS SHALL BE INSPECTED IN A SIMILAR MANNER.

**CONSTRUCTION SEQUENCE OF OPERATIONS**

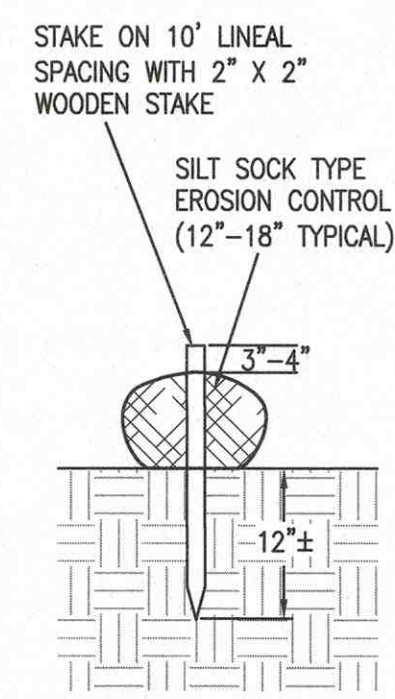
THE FOLLOWING SEQUENCE OF OPERATION SHALL BE FOLLOWED TO ENSURE THE PROPER CONSTRUCTION AND FUNCTION OF THE DRAINAGE AND EROSION CONTROL SYSTEMS.

- PRIOR TO ANY EARTH DISTURBING ACTIVITIES, THE EROSION CONTROL BARRIERS CONSISTING OF SILT FENCE AND SILT SOCK SHALL BE INSTALLED IN THE LOCATIONS SHOWN ON THE SITE PLANS.
- THE EXISTING TREES AND SHRUBS WITHIN THE LIMIT OF WORK SHALL THEN BE CLEARED AND GRUBBED.
- THE CONSTRUCTION PHASE OF THE PROJECT SHALL BEGIN WITH THE CONSTRUCTION OF THE INFILTRATION BASIN.
- THE AREA SHALL THEN BE FILLED AND COMPACTED IN 12 INCH LIFTS TO THE PROPOSED ROUGH GRADE.
- SIDE SLOPES THAT ARE TO BECOME LAWN IN THE FINAL CONDITION SHALL THEN RECEIVE A 4 INCH LAYER OF LOAM AND THEN BE SEEDED WITH A QUALITY HYDROSEED MIX. THOSE SLOPES THAT ARE DESIGNATED TO RECEIVE SPECIAL SLOPE STABILIZATION AS SHOWN ON SHEET EC1 SHALL BE TREATED AS DESCRIBED FOR THAT METHOD.
- THROUGHOUT THE REMAINDER OF THE CONSTRUCTION PHASE, THE ENTIRE PROJECT SITE SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER ANY RAIN EVENT GREATER THAN 1 INCH FOR INDICATIONS OF EROSION. ANY ERODED AREAS SHALL BE REPAIRED IMMEDIATELY AND STABILIZED WITH VEGETATION, GEOGRID OR ANY METHOD THE CONTRACTOR DETERMINES TO BE ADEQUATE.

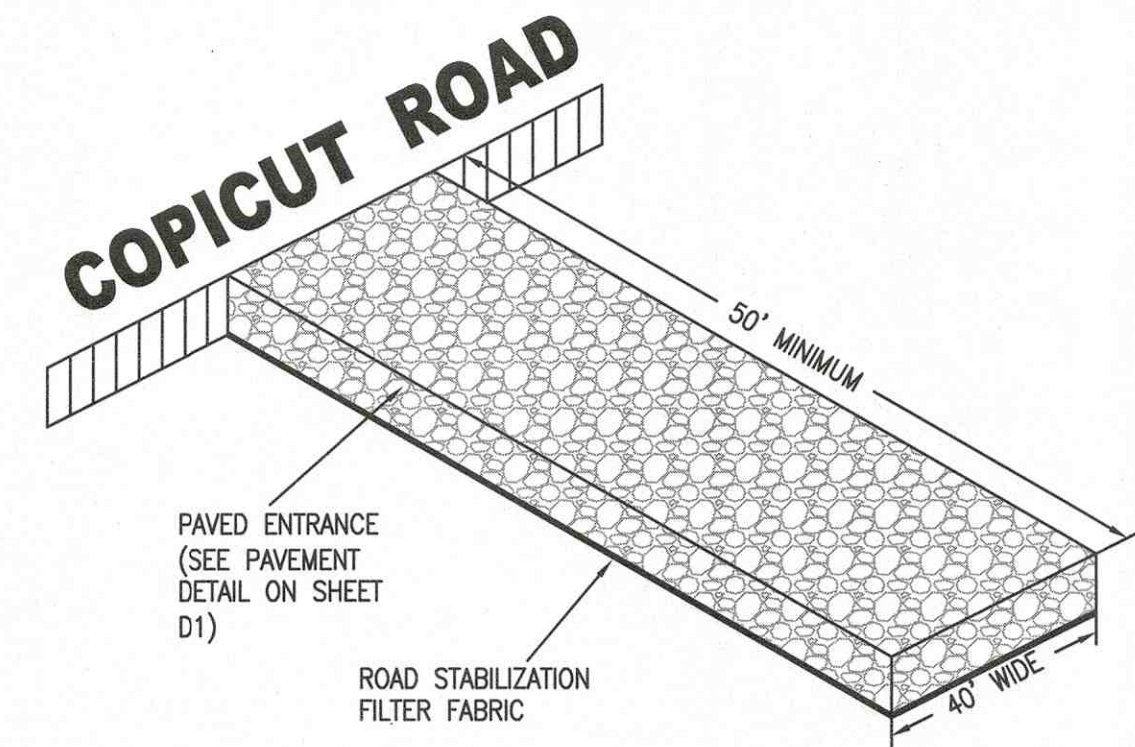


DEWATERING BASIN PLAN  
NOT TO SCALE

* TO BE USED IF NECESSARY, LOCATION TO BE DETERMINED AT TIME OF CONSTRUCTION



SILT SOCK DETAIL  
NOT TO SCALE



ANTI-TRACKING PAD

**STORMWATER MANAGEMENT SYSTEMS LONG-TERM OPERATION AND MAINTENANCE PLAN:**

**1.0 INTRODUCTION**

THE 2318 BAY STREET COMMERCIAL SITE HAS BEEN DESIGNED TO ENSURE STORMWATER QUALITY. IN ORDER FOR THIS TO CONTINUE IN THE LONG TERM, IT IS NECESSARY TO IMPLEMENT THE FOLLOWING LONG TERM OPERATION AND MAINTENANCE PROGRAM.

**2.0 RESPONSIBLE PARTY**

OWNER:  
KR REZENDES INC.  
3 SAMMY'S WAY  
ASSONET, MA

RESPONSIBLE FOR OPERATION AND MAINTENANCE:

SAME

**3.0 MAINTENANCE OF STORMWATER MANAGEMENT FACILITIES**

THE STORM WATER MANAGEMENT FACILITIES WERE DESIGNED TO REQUIRE LITTLE OR NO INTERVENTION IN THE OPERATION AND TO REQUIRE LITTLE OR NO MAINTENANCE ONCE THE PROJECT IS BUILT AND STABLE VEGETATIVE COVER IS ESTABLISHED. HOWEVER, THE DRAINAGE IMPROVEMENTS SHALL BE SUBJECT TO THE FOLLOWING MAINTENANCE SCHEDULE:

**3.1 ROUTINE MAINTENANCE**

- DEBRIS: ALL DEBRIS AND LITTER ARE TO BE REMOVED FROM ALL CATCH BASINS, DRAINS, INFILTRATION BASINS AND SURROUNDING AREAS AT LEAST TWICE PER YEAR.
- RE-SEEDING: EMBANKMENTS THAT HAVE EXCESSIVE EROSION OR SLUMPING ARE TO BE RE-GRADED AND SEEDED (WITH CANARY GRASS OR TALL FESCUE GRASS) DURING THE SPRING OR FALL GROWING SEASONS AS NEEDED.
- INSPECT: INFILTRATION BASINS SHALL BE INSPECTED FOR SIGNS OF PROPER FUNCTIONING ON A MONTHLY BASIS. ANY POTENTIAL BLOCKAGES IN THE ROOF DOWN SPOUTS WILL BE REMOVED IF DISCOVERED. GUTTERS WILL BE CLEANED AT LEAST TWICE PER YEAR.
- MOWING: THE INFILTRATION BASIN SIDESLOPES SHALL BE MOWED AT LEAST TWICE PER YEAR. THE INFILTRATIONS BASIN BOTTOMS SHALL BE INSPECTED AT EACH MOWING EVENT IF VEGETATION HAS ACCUMULATED THAT COULD CAUSE A NEGATIVE IMPACT ON THE FUNCTION OF THE BASIN, THEN IT SHALL BE REMOVED.

**3.2 PERIODIC MAINTENANCE**

ALL GRAVEL BERMS AND CHECKDAMS WILL BE CLEANED A MINIMUM OF ONCE PER YEAR AND INSPECTED MONTHLY DURING THE ACTIVE CONSTRUCTION STAGE.

**3.3 NON-ROUTINE MAINTENANCE**

- STRUCTURAL: ALL PIPES AND INFILTRATION BASIN SIDESLOPES AND OVERFLOW SPILLWAYS SHALL BE INSPECTED ONCE EVERY FOUR (4) YEARS FOR PROPER FUNCTION, CLOGGING, SIGNS OF DETERIORATION AND STRUCTURAL INADEQUACY. ANY ADVERSE SITUATIONS ARE TO BE REPAIRED AS NEEDED.

**3.4 NON-PERIODIC INSPECTION**

- THE STORM WATER MANAGEMENT SYSTEM SHALL BE INSPECTED AFTER TWO YEARS OF FULL OPERATION BY A REGISTERED PROFESSIONAL CIVIL ENGINEER TO CONFIRM ITS ADEQUACY. THE INSPECTION SHALL INCLUDE AN EXAMINATION OF ALL COMPONENTS OF THE SYSTEM INCLUDING ALL INFILTRATION SYSTEMS.

**4.0 PUBLIC SAFETY FEATURES**

THE STORMWATER MANAGEMENT FACILITIES WERE DESIGNED TO BE INHERENTLY SAFE. ALL OF THE ACCESSIBLE STORMWATER CONTROLS (I.E., LOW POINTS, ETC.) WERE DESIGNED WITH 3:1 MINIMUM SIDE SLOPES TO ALLOW FOR PEDESTRIAN ACCESS IN AND OUT OF THE STORMWATER CONTROLS.

**5.0 ESTIMATED O&M BUDGET**

THE ESTIMATED ANNUAL BUDGET TO CONDUCT THE SPECIFIED OPERATION AND MAINTENANCE IS APPROXIMATELY \$4,000.00.

**EROSION & SEDIMENT CONTROL NOTES:**

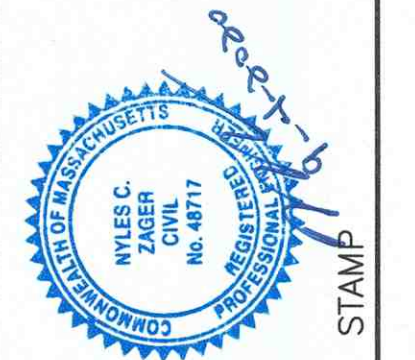
IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTROL EROSION AND PREVENT SEDIMENTATION BEYOND THE LIMIT OF WORK OR OFFSITE PROPERTIES. IT IS INTENDED THAT THE IMPLEMENTATION OF THE FOLLOWING MEASURES WILL MEET THIS GOAL. WHEN IT IS CLEAR TO THE DESIGNER THAT EROSION AND SEDIMENTATION HAVE BEEN ADEQUATELY CONTROLLED WITHOUT THE IMPLEMENTATION OF EVERY MEASURE, ADDITIONAL MEASURES NEED NOT BE IMPLEMENTED. ALTERNATIVELY, IF ALL OF THE FOLLOWING MEASURES HAVE BEEN IMPLEMENTED AND THE CONTROL OF EROSION AND SEDIMENTATION IS INADEQUATE, THE CONTRACTOR MUST EMPLOY SUFFICIENT SUPPLEMENTAL MEASURES BEYOND THE SCOPE OF THIS PLAN.

- EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED PRIOR TO STUMP REMOVAL AND CONSTRUCTION. STABILIZATION OF ALL REGRADED AND SOIL STOCKPILE AREAS WILL BE INITIATED AND MAINTAINED DURING ALL PHASES OF CONSTRUCTION.
- ALL EROSION AND SEDIMENT CONTROL MEASURES WILL BE CONSTRUCTED IN ACCORDANCE WITH LOCAL MUNICIPAL REGULATIONS. ALL EROSION CONTROL MEASURES ARE TO BE MAINTAINED AND UPGRADED AS REQUIRED TO ACHIEVE PROPER SEDIMENT CONTROL DURING CONSTRUCTION. A STAKED SILT SOCK SHALL BE INSTALLED DOWN GRADIENT OF ALL DRAINAGE OUTFALLS.
- ADDITIONAL CONTROL MEASURES WILL BE INSTALLED DURING THE CONSTRUCTION PERIOD, IF DEEMED NECESSARY BY THE OWNER OR AGENTS OF THE OWNER.
- CATCH BASINS WILL BE PROTECTED WITH HAYBALE FILTERS THROUGHOUT THE CONSTRUCTION PERIOD UNTIL ALL DISTURBED AREAS ARE THOROUGHLY STABILIZED. SILT SOCKS SHOULD BE INSTALLED UNDER GRATE OPENING UNTIL PAVEMENT IS IN PLACE AND GROUND SURFACE IS STABILIZED.
- SEEDING MIXTURE FOR FINISHED GRASSED AREAS WILL BE AS FOLLOWS:

KENTUCKY BLUE GRASS	45%
CREeping RED FESCUE	45%
PERENNIAL RYEGRASS	10%

SEED TO BE APPLIED AT A RATE OF 4 LBS./1000 SQ. FT. PLANTING SEASONS SHALL BE APRIL 1 TO JUNE 1 AND AUGUST 1 TO OCTOBER 15. AFTER OCTOBER 15, AREAS WILL BE STABILIZED WITH HAYBALE CHECK, FILTER FABRIC, OR WOODCHIP MULCH, AS REQUIRED, TO CONTROL EROSION.

- STABILIZATION OF SLOPES IN CUT AREAS (USING MULCH OR GRASS) AND THE INSTALLATION OF CONTROL LINE (HAYBALE CHECK OR FILTER FABRIC) AT THE TOE OF SLOPE SHALL BE INITIATED WITHIN THIRTY (30) DAYS OF COMPLETION.
- SEDIMENT REMOVED FROM CONTROL STRUCTURES WILL BE DISPOSED IN A MANNER WHICH IS CONSISTENT WITH THE INTENT OF THE PLAN. ALL HAYBALES OR SILT FENCE RETAINING SEDIMENT OVER 1/2 THEIR HEIGHT SHALL HAVE THE SEDIMENT REMOVED AND ALL DAMAGED EROSION CONTROLS SHALL BE REPAIRED OR REPLACED.
- CONTRACTOR WILL BE ASSIGNED THE RESPONSIBILITY FOR IMPLEMENTING THIS EROSION AND SEDIMENT CONTROL PLAN. THIS RESPONSIBILITY INCLUDES THE INSTALLATION AND MAINTENANCE OF CONTROL MEASURES, INFORMING ALL PARTIES ENGAGED ON THE CONSTRUCTION SITE OF THE REQUIREMENTS AND OBJECTIVES OF THE PLAN. THE OWNER SHALL BE RESPONSIBLE FOR CONVEYING A COPY OF THE EROSION AND SEDIMENT CONTROL PLAN IF THE TITLE TO THE LAND IS TRANSFERRED.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DUST AND WIND EROSION THROUGHOUT THE LIFE OF HIS CONTRACT. DUST CONTROL SHALL INCLUDE, BUT IS NOT LIMITED TO SPRINKLING OF WATER ON EXPOSED SOILS AND HAUL ROADS. CONTRACTOR SHALL CONTROL DUST TO PREVENT A HAZARD TO TRAFFIC.
- WHERE DEWATERING IS NECESSARY, THERE SHALL NOT BE A DISCHARGE DIRECTLY INTO WETLANDS OR WATERCOURSES. PROPER METHODS AND DEVICES SHALL BE UTILIZED TO THE EXTENT PERMITTED BY LAW, SUCH AS PUMPING WATER INTO A TEMPORARY SEDIMENTATION BOWL, PROVIDING SURGE PROTECTION AT THE INLET AND THE OUTLET OF PUMPS, OR FLOATING THE INTAKE OF THE PUMP, OR OTHER METHODS TO MINIMIZE AND RETAIN THE SUSPENDED SOLIDS. IF A PUMPING OPERATION IS CAUSING TURBIDITY PROBLEMS, SAID OPERATION SHALL CEASE UNTIL SUCH TIME AS FEASIBLE MEANS OF CONTROLLING TURBIDITY ARE DETERMINED AND IMPLEMENTED. SAID DISCHARGE POINTS SHALL BE LOCATED OVER 100 FEET FROM THE DELINEATED WETLANDS AS INDICATED ON THIS PLAN.



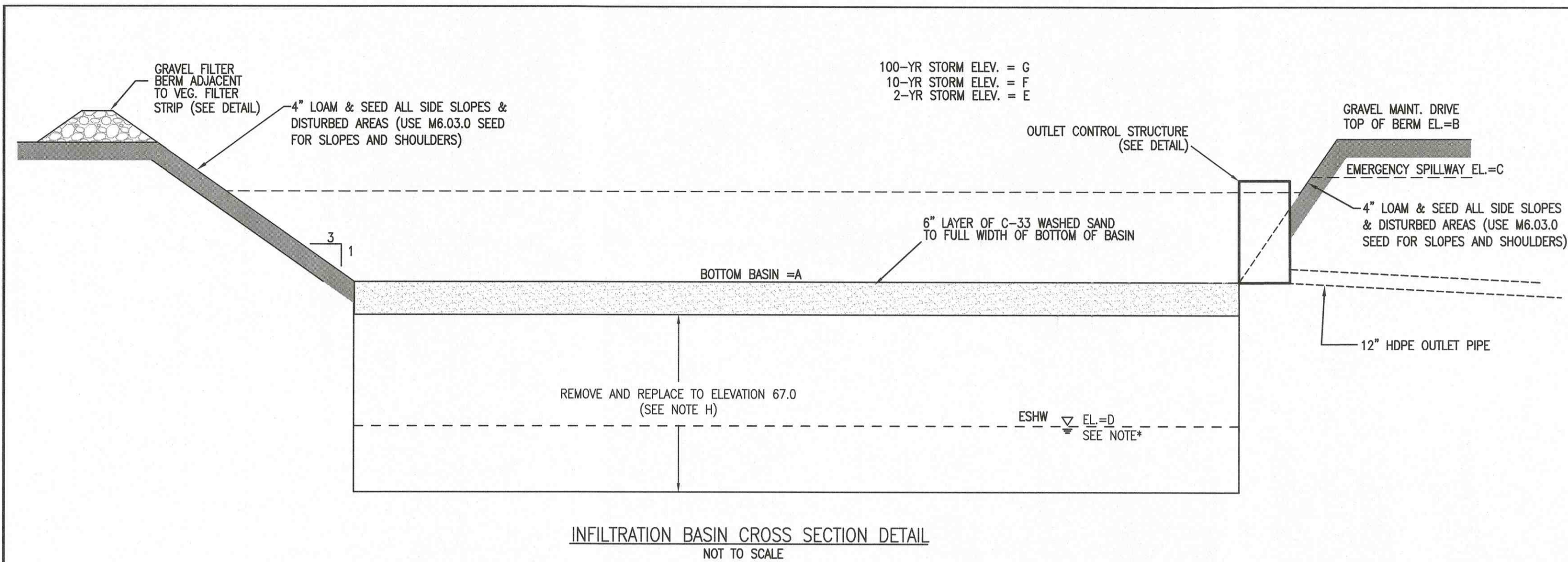
P.E. STAMP

**ZCE**  
ZENITH CONSULTING ENGINEERS, LLC  
3 MAIN STREET LAKEVILLE, MA 02347  
PHONE: (508) 947-4208



REV.	DATE	DESCRIPTION	BY	APP.

<b>EROSION CONTROL PLAN</b>	<b>DATE:</b> 8/31/2020	<b>PROJECT NUMBER:</b> 0617-01-01	<b>DRAWING SCALE:</b> 1"=40'	<b>SHEET ID:</b> EC1
<b>35 COPICUT ROAD</b>	<b>DRAWN BY:</b> RLG	<b>DESIGNED BY:</b> RLG	<b>CHECKED BY:</b> NCZ	<b>APPROVED BY:</b> NCZ
<b>FREETOWN, MASSACHUSETTS</b>				
<b>CLIENT INFO:</b>				
<b>KR REZENDES, INC.</b>				
<b>3 SAMMY'S LANE</b>				
<b>ASSONET, MASSACHUSETTS</b>				

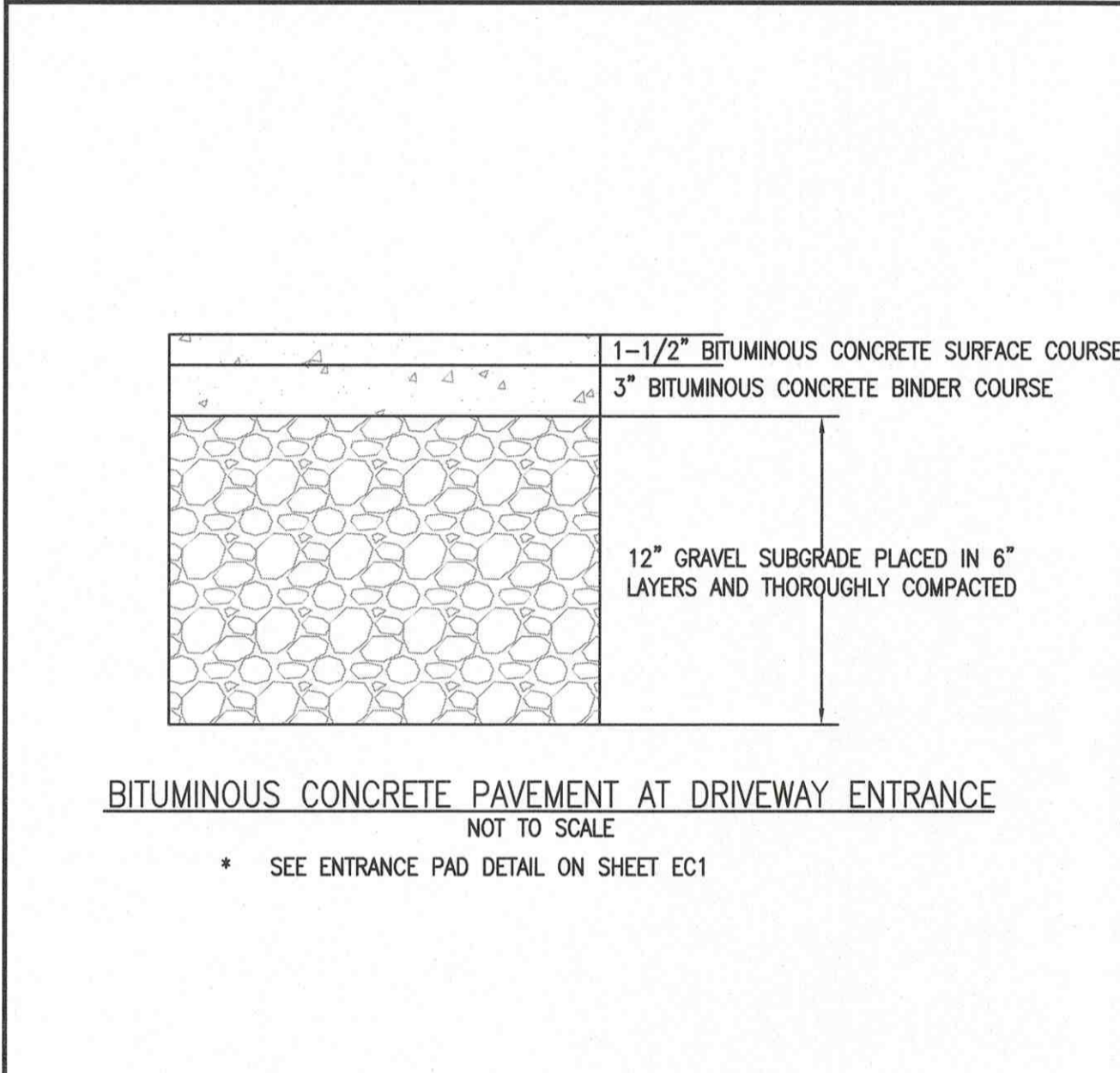


**INFILTRATION BASIN NOTES:**

- THE CONTRACTOR IS CAUTIONED THAT THE DETENTION BASIN IS DESIGNED TO INFILTRATE/RECHARGE STORMWATER PRIMARILY THROUGH THE BOTTOM AND SIDES OF THE BASIN. CONSTRUCTION TECHNIQUES THAT WOULD POTENTIALLY DIMINISH THE FILTRATION CAPACITY OF THE UNDERLYING SOILS ARE TO BE AVOIDED. COMPACTION AND SILTATION OF THE BASIN DURING CONSTRUCTION IS PROHIBITED.
- DO NOT UTILIZE ANY PORTION OF THE BASIN FLOOR AS A HAUL ROAD FOR MATERIAL AND HEAVY EQUIPMENT.
  - DO NOT COMPACT SOILS IN THE BASIN FLOOR.
  - DO NOT PLACE GRAVEL OR OTHER MATERIALS TO STABILIZE THE BASIN FLOOR FOR CONSTRUCTION VEHICULAR TRAVEL ACCESS.
  - STRICT COMPLIANCE WITH THE EROSION CONTROL PLAN AND THE STORMWATER OPERATIONS AND MAINTENANCE PLAN IS NECESSARY.
  - BASIN CONSTRUCTION SHALL OCCUR AT THE EARLY STAGES OF THE PROJECT CONSTRUCTION SO THAT THEY ARE FULLY VEGETATED AND STABILIZED PRIOR TO RECEIVING STORMWATER.
  - RIP-RAP IN THE FOREBAYS IS TO BE PLACED, NOT DUMPED, DO NOT COMPACT.
  - DO NOT USE THE INFILTRATION BASIN AS A TEMPORARY SEDIMENT BASIN OR DE-WATERING BASIN.
  - AS PART OF THE INFILTRATION BASIN CONSTRUCTION, THE CONTRACTOR SHALL REMOVE TOPSOIL, SUBSOIL, AND OTHER UNSUITABLE SOIL THAT MAY BE ENCOUNTERED DOWN TO APPROPRIATELY DRAINING SOILS. TEST PITS SHALL BE DUG WITHIN THE INFILTRATION BASIN AREAS PRIOR TO EARTH REMOVAL OPERATIONS. THE REMOVED MATERIAL SHALL BE REPLACED BY CLEAN SAND WHICH MEETS TITLE V (310 CMR 15.255) REQUIREMENTS. AFTER THE REMOVAL OF UNSUITABLE MATERIAL AND PRIOR TO THE PLACEMENT OF THE CLEAN SAND, AN INSPECTION BY THE DESIGN ENGINEER SHALL BE COMPLETED TO CONFIRM CONDITIONS. SIEVE ANALYSIS OF THE CLEAN SAND SHALL BE SUBMITTED TO THE DESIGN ENGINEER FOR APPROVAL PRIOR TO PLACEMENT AND SAMPLED ONSITE BY THE DESIGN ENGINEER.

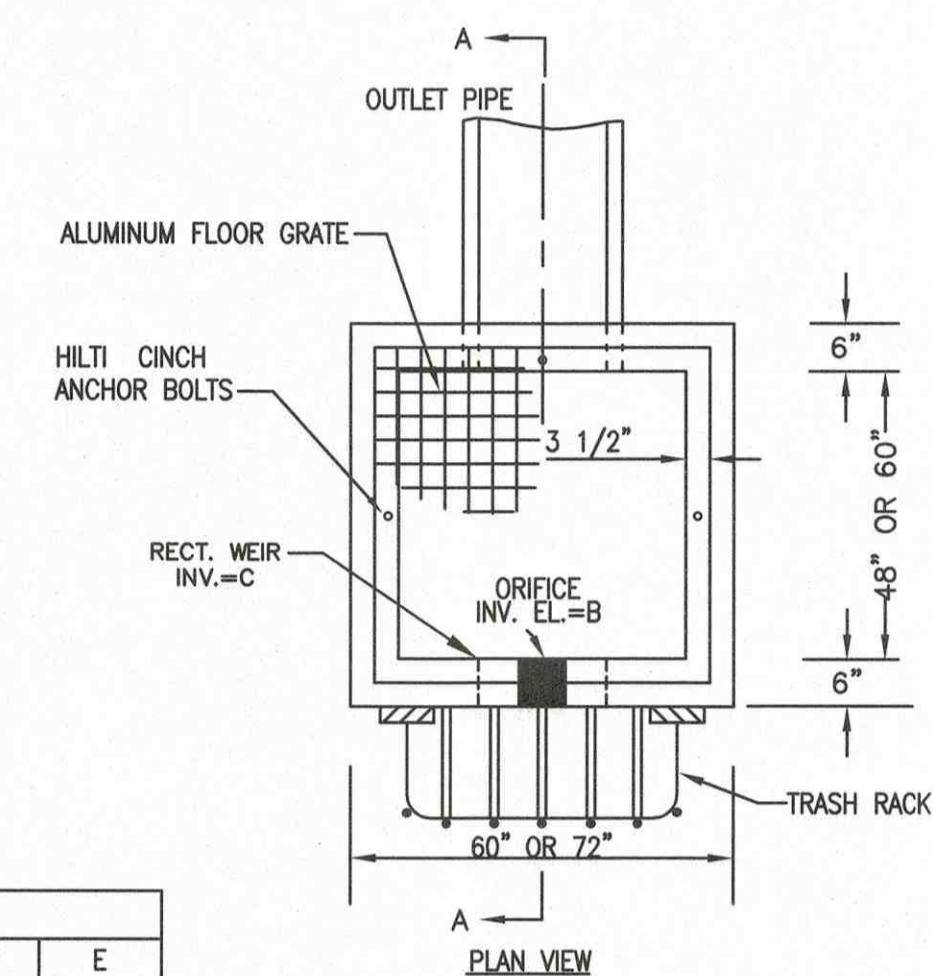
BASIN #	A	B	C	D	E	F	G
1	62.00	66.50	65.00	57.50	62.88	63.83	65.50
2	64.00	68.00	67.00	59.20	64.32	65.28	66.83
3	65.00	68.00	67.00	61.00	65.57	66.25	67.19
4	60.00	62.50	61.50	58.00	60.06	60.45	61.28
5	60.00	62.50	61.50	58.00*	60.43	61.38	61.98

* ESW ELEVATION TO BE CONFIRMED VIA TEST PITS PRIOR TO THE ONSET OF CONSTRUCTION

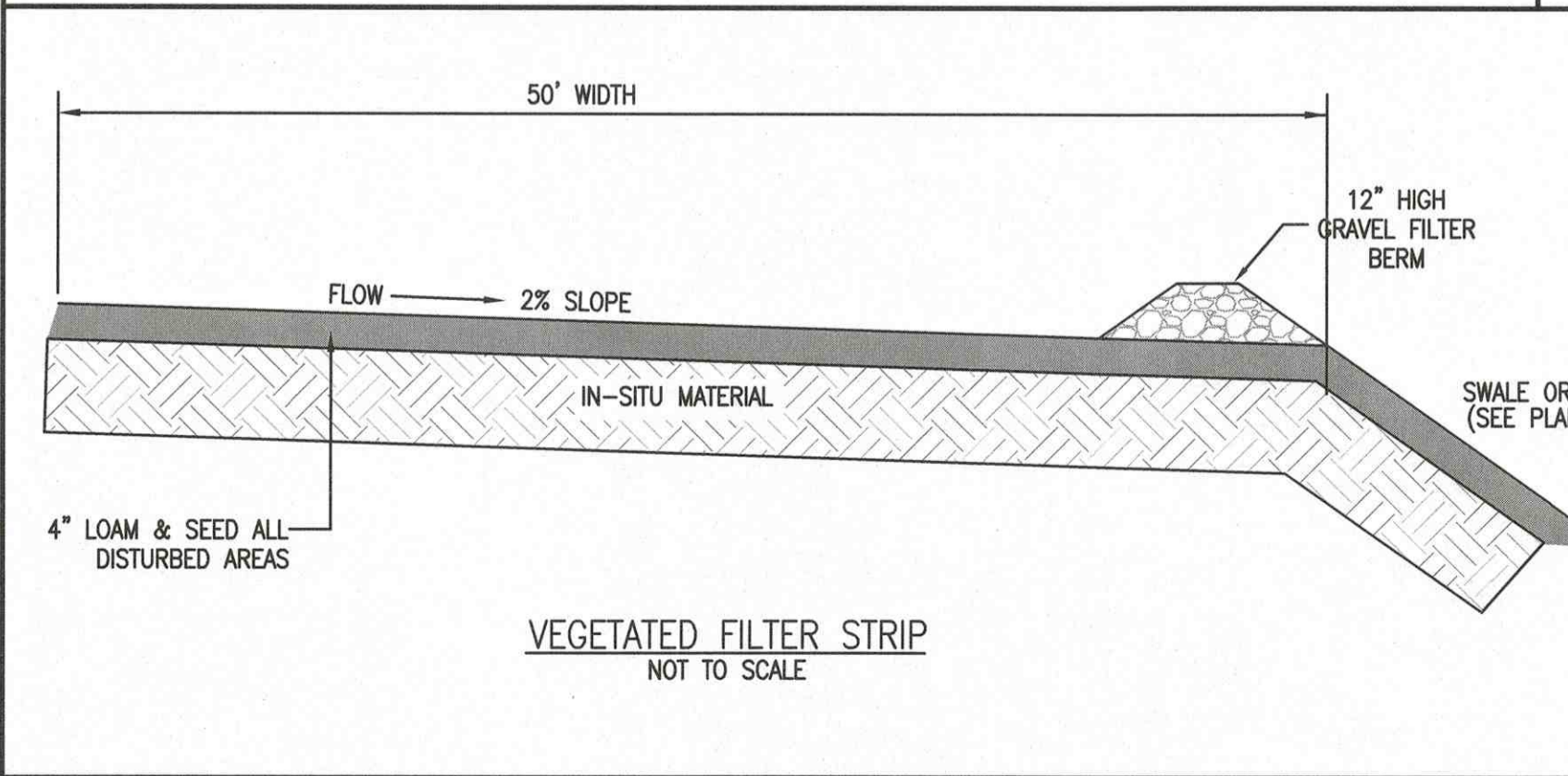
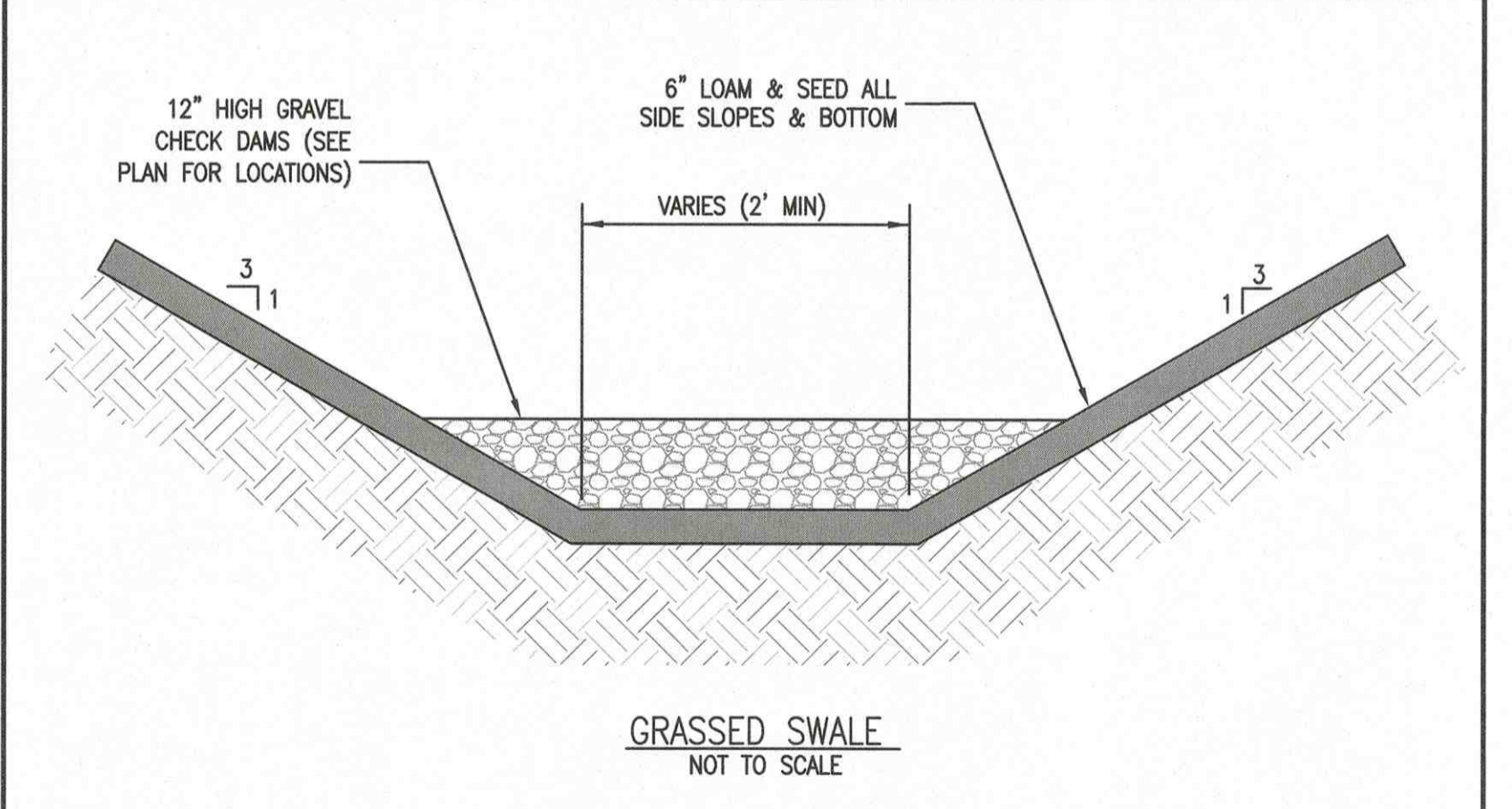
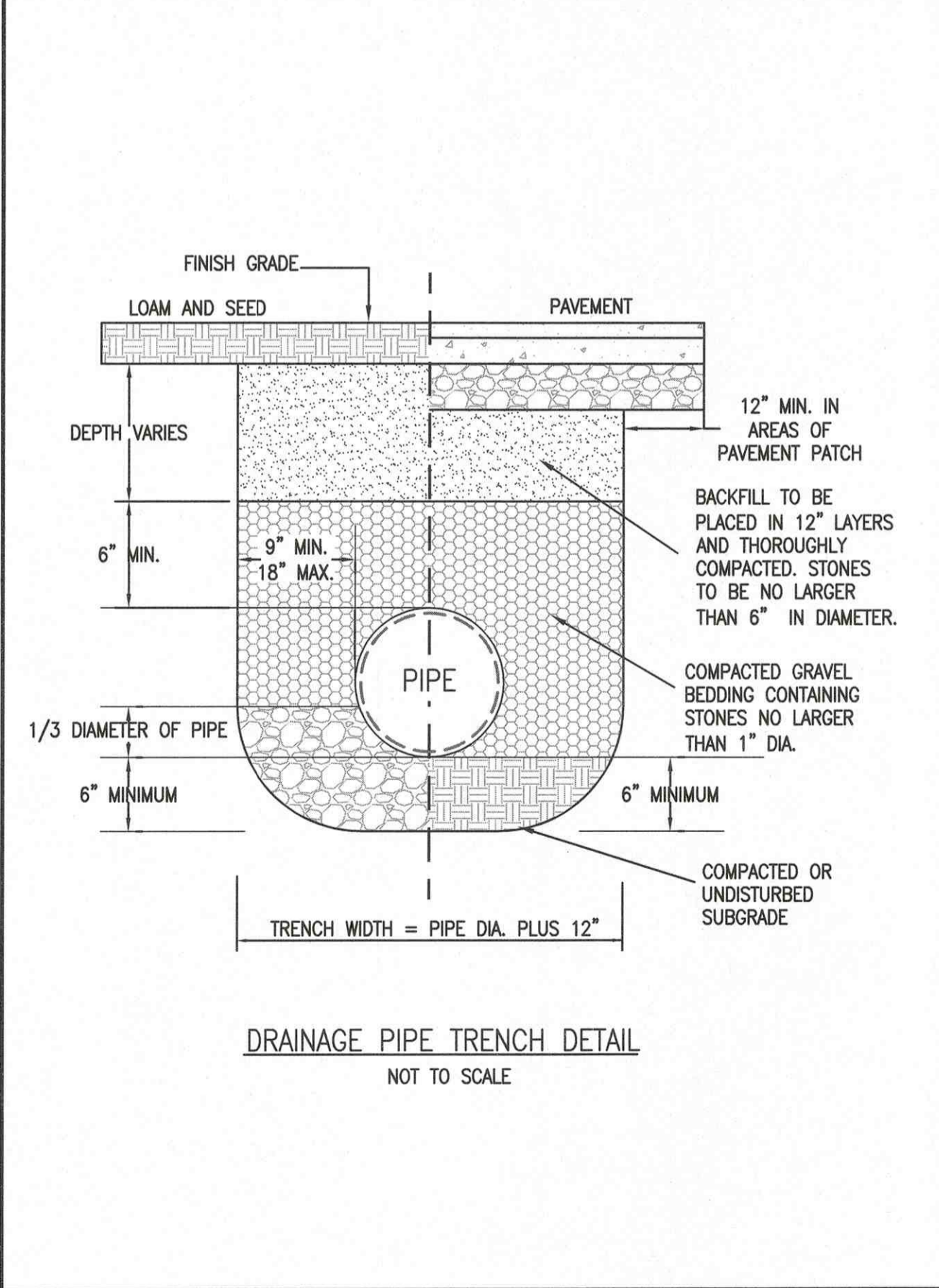
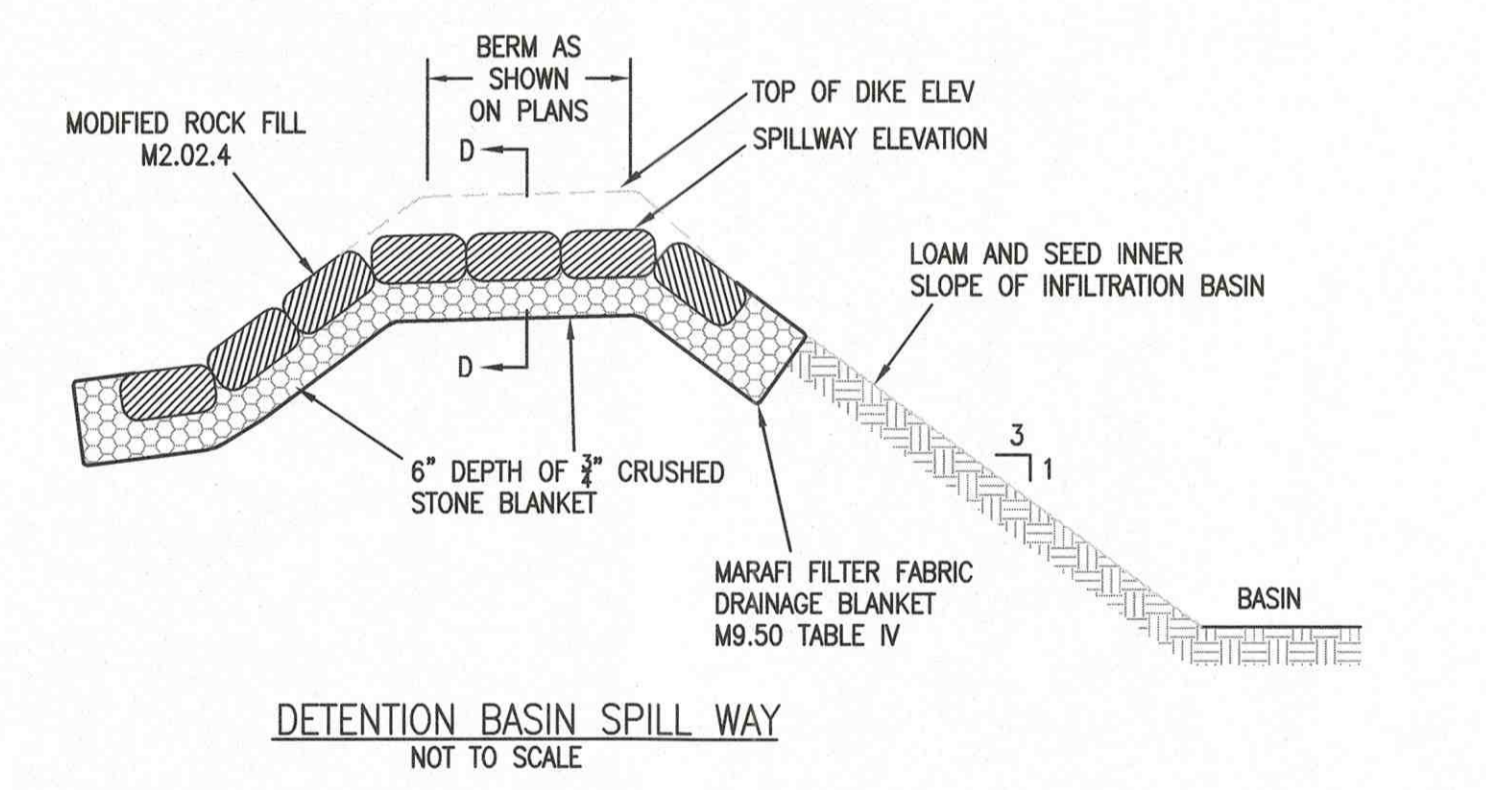
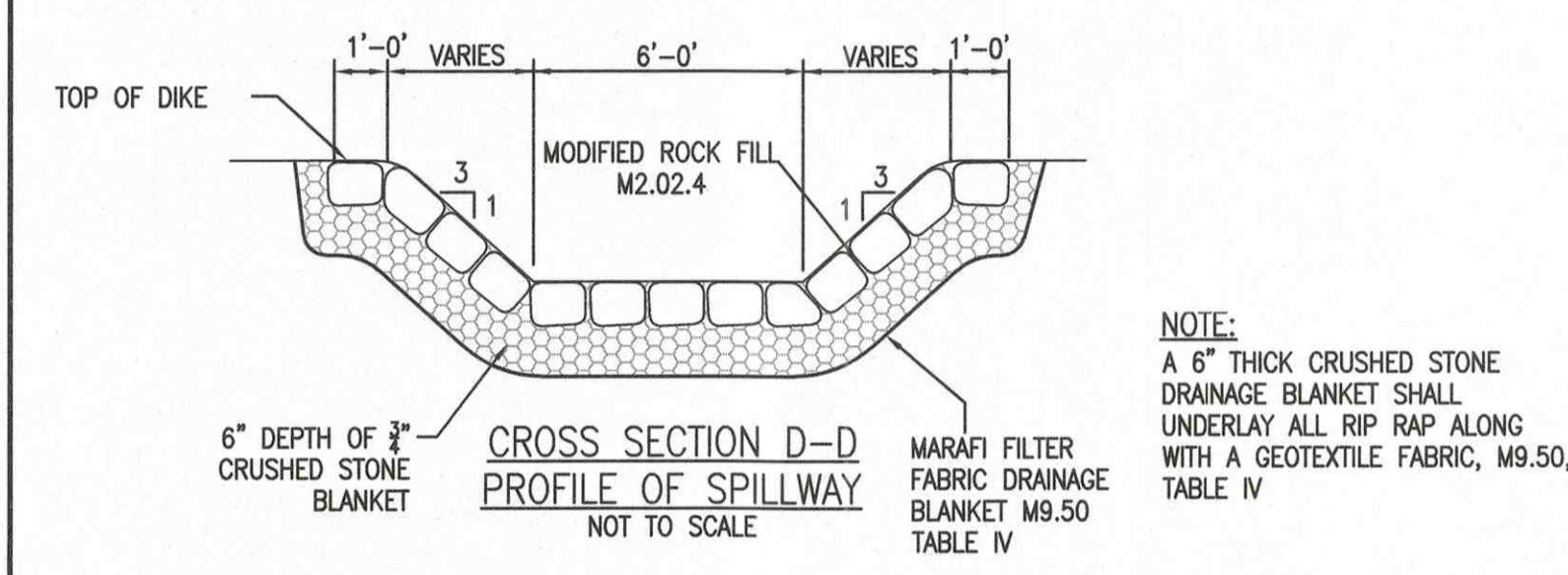
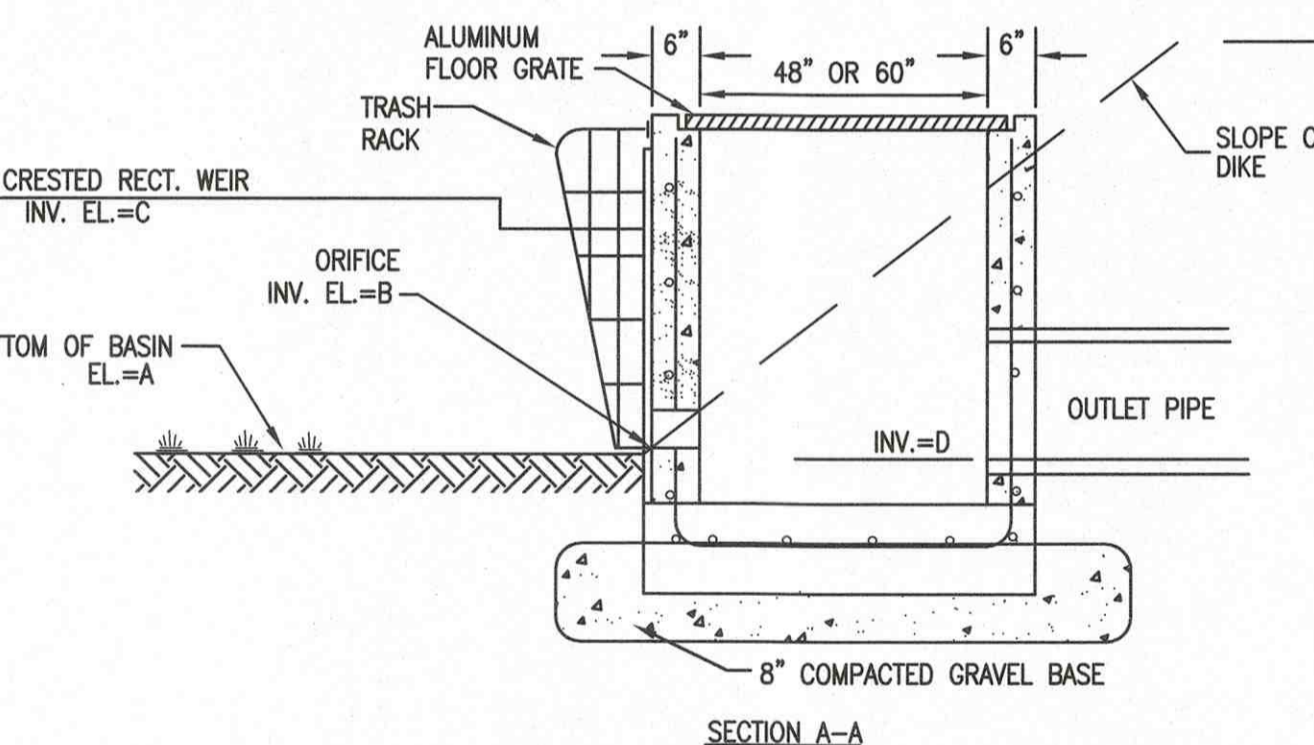
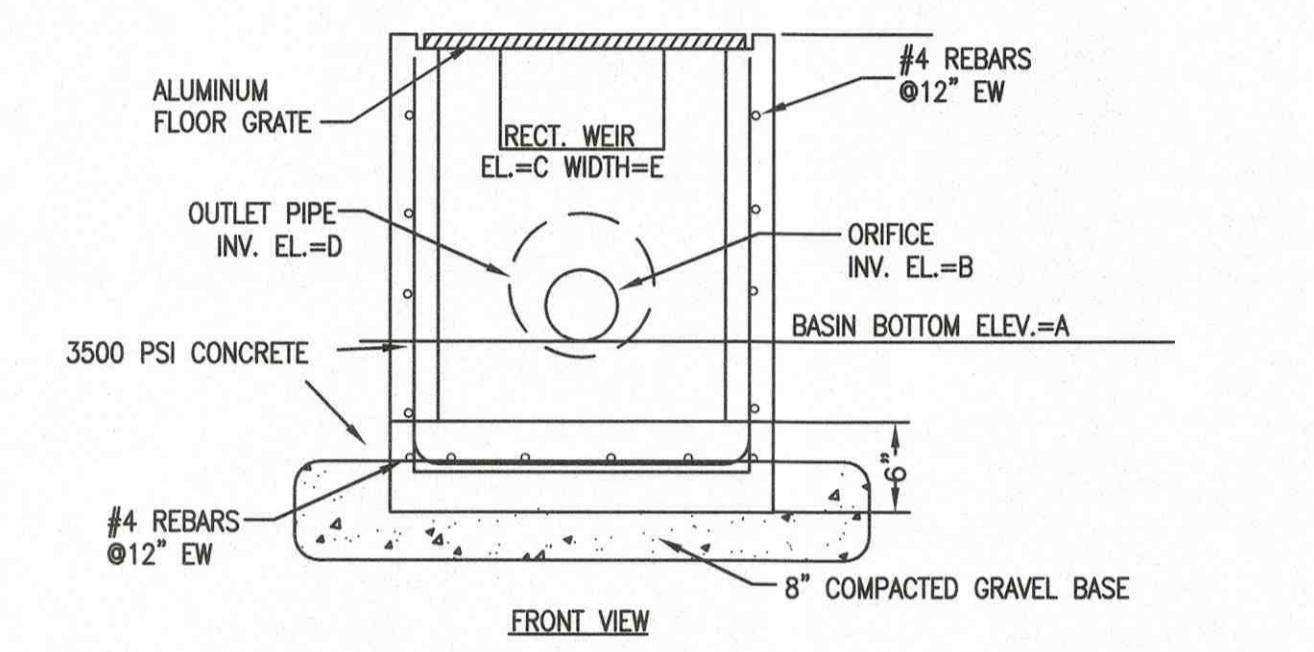


- NOTES:**
- COVER GRATE SHALL BE SET FLUSH WITH THE TOP OF STRUCTURE AND SHALL HAVE A HINGED, CLEAR ACCESS OPENING OF 24" X 24" WITH A HASP AND LOCK.
  - THE GRATE SHALL BE DESIGNED FOR A UNIFORM LOAD OF 100 #/FT², SHALL BE SUPPORTED ON ANGLE FRAME WITH FASTENERS, AND SHALL BE ALUMINUM OR LIGHT DUTY STEEL THAT IS HOT-DIPPED GALVANIZED AFTER FABRICATION.

	GRATING	ANGLE FRAMES
ALUMINUM:	ASTM-B221	6063-T6
LIGHT DUTY STEEL:	ASTM-A1011 ASTM-A510	ASTM-A36



BASIN #	A	B	C	D	E (INCHES)
1	61.00	62.00	62.75	61.00	60
2	64.00	65.00	67.00	64.00	24



**OUTLET CONTROL STRUCTURE**  
NOT TO SCALE

**SOIL LOGS:**  
DATE: 8-31-2020  
PERFORMED BY: NYLES ZAGER, ZENITH CONSULTING ENGINEERS, LLC.

DEPTH (INCHES)	TP 1	ELEV. (FEET)	DEPTH (INCHES)	TP 2	ELEV. (FEET)	DEPTH (INCHES)	TP 3	ELEV. (FEET)	DEPTH (INCHES)	TP 4	ELEV. (FEET)
0		65.0	0		68.0	0		68.0	0		65.0
6	A SANDY LOAM	64.5	68	C1 FINE-MEDIUM SANDS	62.3	6	FILL	62.3			
16	B SANDY LOAM	63.7	46		64.2	72	A SANDY LOAM	62.0	70		59.2
90	C1 FINE-MEDIUM SANDS	57.5		64.2		84	B SANDY LOAM	61.0			
130	C2 MEDIUM-COARSE SANDS & GRAVEL	54.2		57.0		120	C MEDIUM SANDS & GRAVEL	58.0			

MOTTLING @ 90" WEEPING @ 90" ESHW EL.= 57.5  
MOTTLING @ 106" WEEPING @ 106" ESHW EL.= 59.2  
MOTTLING @ 84" WEEPING @ 84" ESHW EL.= 61.0  
MOTTLING @ 84" WEEPING @ 84" ESHW EL.= 58.0

- NOTES:**
- UNLESS OTHERWISE NOTED, ALL MATERIAL AND CONSTRUCTION SHALL CONFORM TO THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION CONSTRUCTION STANDARD DETAILS AND THE MASSACHUSETTS STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES.
  - UNLESS OTHERWISE NOTED, ALL DRAINAGE PIPE IS TO BE ADS N-12 STYLE PIPE OR EQUAL.

P.E. STAMP

**ZCE**  
 ZENITH CONSULTING ENGINEERS, LLC  
 3 MAIN STREET LAKEVILLE, MA 02347  
 PHONE: (508) 947-4208

REV.	DATE	DESCRIPTION	BY	APP.

DRAWN BY: RLG    DATE: 8/31/2020  
 DESIGNED BY: RLG    PROJECT NUMBER: 0617-01-01  
 CHECKED BY: NCZ    DRAWING SCALE: AS NOTED  
 APPROVED BY: NCZ    SHEET ID: DI

**DETAIL SHEET**  
**35 COPICUT ROAD**  
**FREETOWN, MASSACHUSETTS**  
**KR REZENDES, INC.**  
**3 SAMMY'S LANE**  
**ASSONET, MASSACHUSETTS**

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