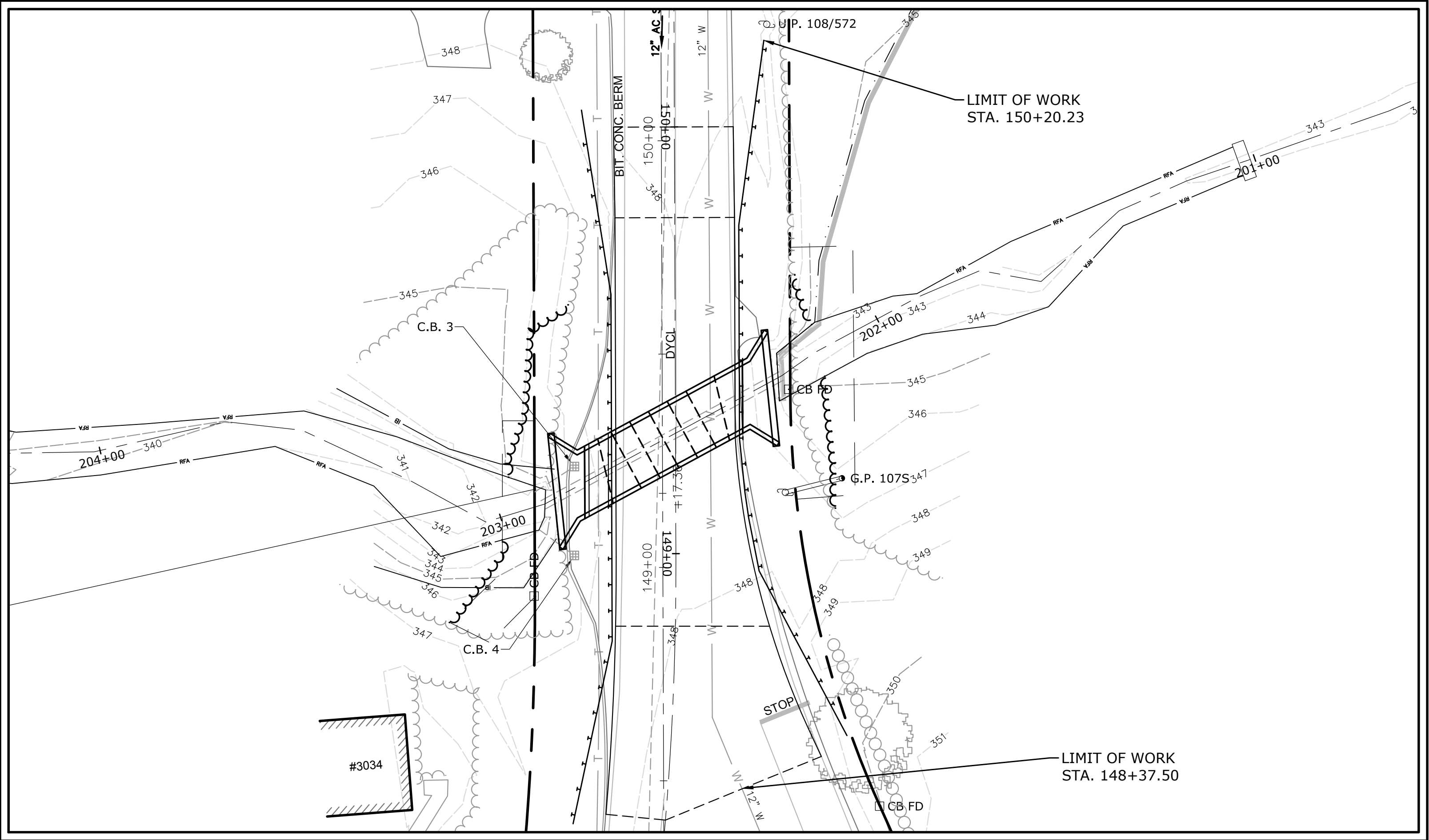


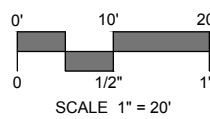
ROUTE 181 CULVERT REPLACEMENT OVER SCOTT'S BROOK

ROUTE 181 (PALMER STREET)
PALMER, MASSACHUSETTS
60% PLANS

MMI PROJECT No: 6472-01
APRIL 15, 2020

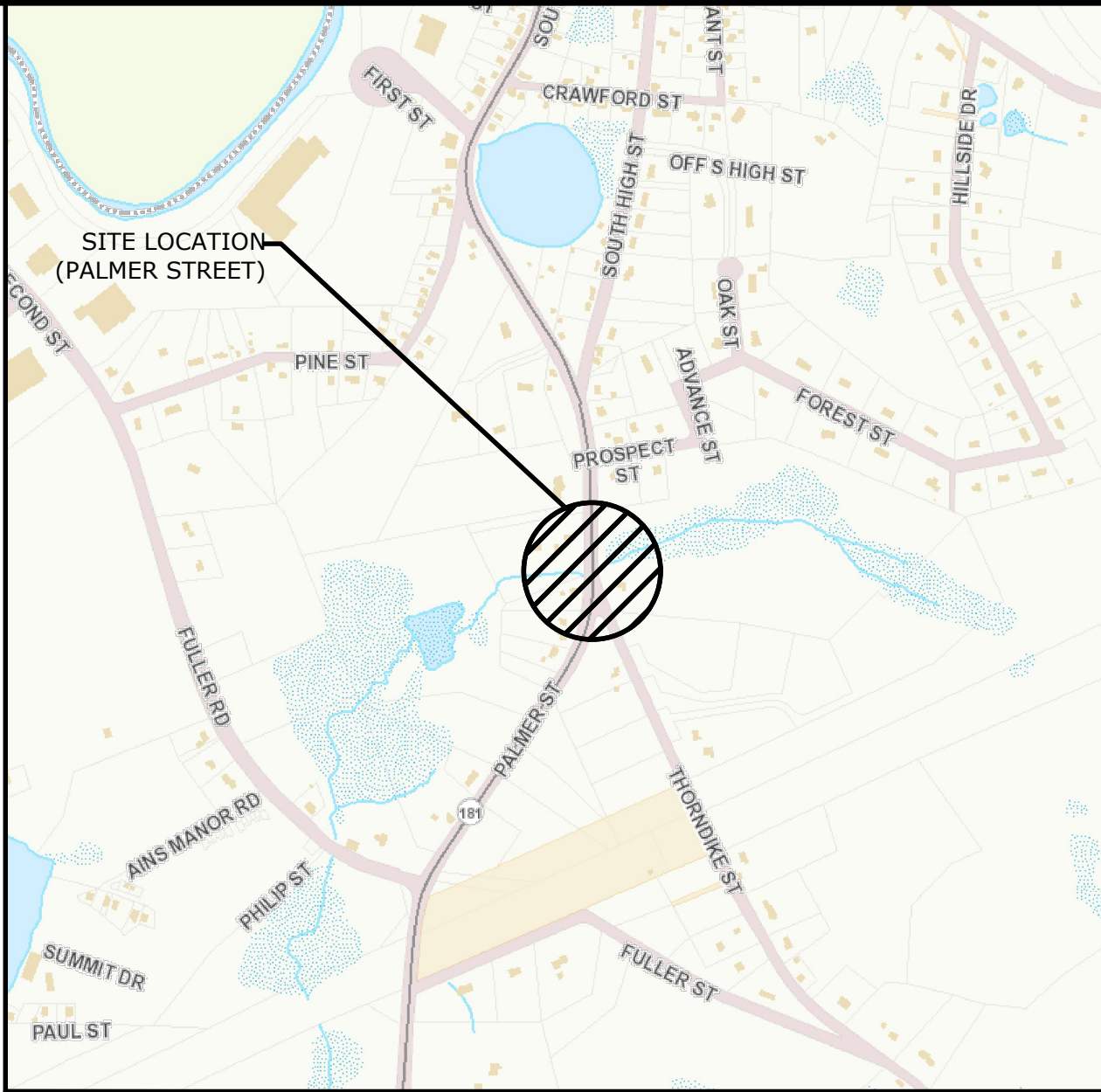


PROJECT SITE VICINITY MAP:



PREPARED BY:

**MILONE &
MACBROOM**
1350 MAIN STREET, SUITE 1012
SPRINGFIELD, MA
413.241.6920
WWW.MMINC.COM



LOCATION MAP:

PREPARED FOR:

TOWN OF PALMER
4417 MAIN STREET
PALMER, MA 01069

LIST OF DRAWINGS

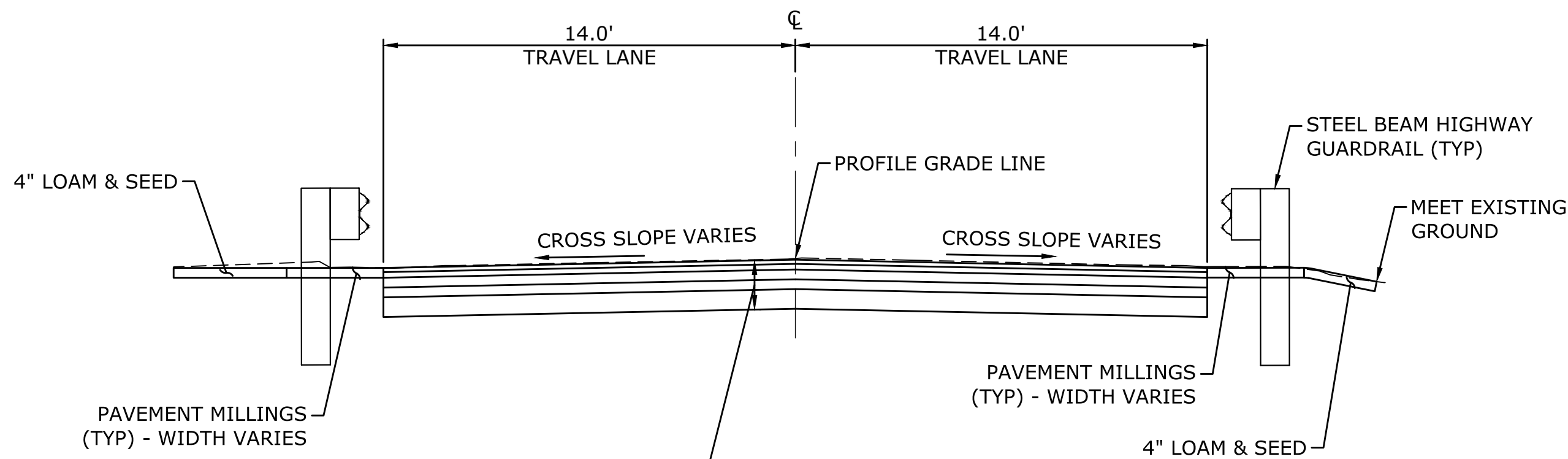
NO.	TITLE	DESCRIPTION
01	TITLE	TITLE SHEET
02	N-01	GENERAL NOTES & LEGEND
03	EX	EXISTING CONDITIONS & BASELINE LAYOUT
04	PL	ROADWAY PLAN & PROFILE
05	MPT	DETOUR PLAN
06	STR-01	CULVERT PLAN
07	STR-02	BORING LOGS
08	STR-03	STAGED CONSTRUCTION
09	STR-04	FRAMING PLAN & DETAILS
10	SE	SEDIMENT & EROSION CONTROL PLAN



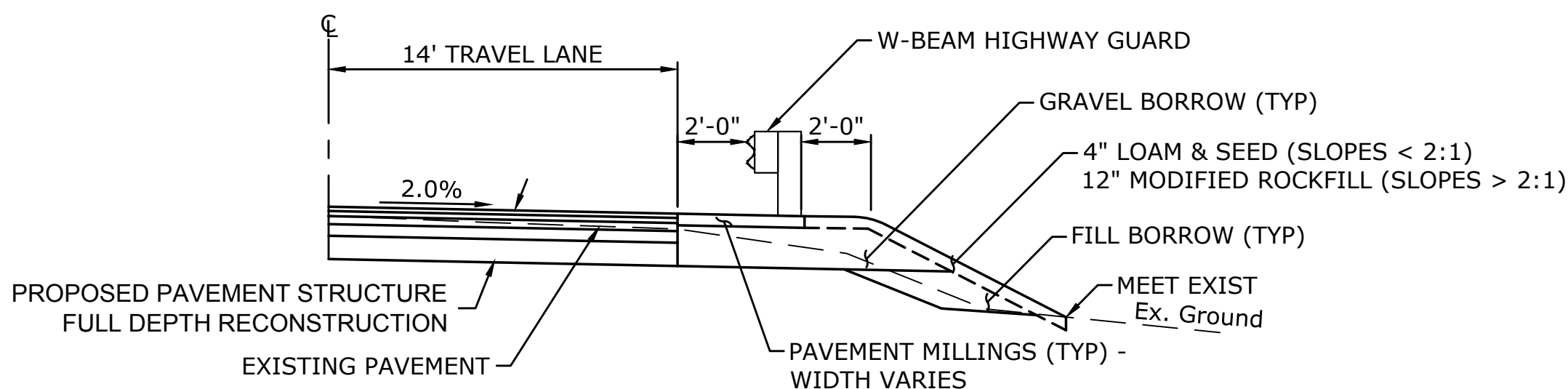
Know what's below.
Call before you dig.
www.cbyd.com

1. CONTRACTOR SHALL PERFORM WORK DURING LOW FLOWS IN THE TOWN RIVER, WHILE ABIDING BY ALL TIME-OF-YEAR RESTRICTIONS.
2. TRAFFIC DETOURS AND TRAFFIC MANAGEMENT SHALL BE COORDINATED WITH THE TOWN OF BRIDGEWATER.
3. NO SHOT OR CRUSHED ANGULAR ROCK WILL BE ALLOWED IN THE POST-RESTORATION STREAM BED. ONLY NATIVE OR ROUNDED STONE SHALL BE USED FOR STREAM-BED MATERIAL AND ACCESS ROADS IN THE RIVER CHANNEL.
4. EACH PIECE OF EQUIPMENT SLATED FOR USE DURING CONSTRUCTION SHALL BE INSPECTED FOR ANY MAINTENANCE ISSUES INCLUDING LEAKING OIL, GAS, OR HYDRAULIC FLUID.
5. NO EQUIPMENT SHALL BE REFUELED WITHIN THE LIMITS OF THE WETLANDS, OR HISTORIC DAM IMPOUNDMENT.
6. ALL DISTURBED AREAS SHALL RECEIVE A MINIMUM OF 4" TOPSOIL, AND BE SEEDED IN ACCORDANCE WITH THE RESTORATION PLAN.
7. ALL CONSTRUCTION MATERIALS AND METHODS SHALL CONFORM TO THE TOWN OF BRIDGEWATER AND TO THE APPLICABLE SECTIONS OF THE MOST RECENT STATE OF MASSACHUSETTS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES.
8. ALL FUEL, OIL, CONSTRUCTION EQUIPMENT, OR OTHER HAZARDOUS MATERIALS SHALL BE STORED ABOVE THE FEMA DESIGNATED 100-YEAR FLOODPLAIN ELEVATION DURING NON-WORK HOURS.
9. PROJECT SITE IS SUBJECT TO FLOODING. CONTRACTOR SHALL MONITOR WEATHER REPORTS, AND BE PREPARED TO STOP WORK AND STABILIZE SITE IF MORE THAN ONE INCH (1") OF RAINFALL IS PREDICTED BY THE NATIONAL WEATHER SERVICE (70% CHANCE OR HIGHER). WORK SHALL BE HALTED UNTIL PRECIPITATION STOPS, AND CHANCES OF FURTHER RAINFALL FALL BELOW 50%.
10. CONTRACTOR SHALL STAY ON TOWN OWNED PROPERTY, ROADWAY RIGHT OF WAYS, OR DESIGNATED EASEMENT AREAS AT ALL TIMES DURING CONSTRUCTION.
11. CONTRACTOR SHALL SUBMIT A DEWATERING PLAN, AND A CONSTRUCTION SEQUENCE TO THE ENGINEER FOR APPROVAL PRIOR TO THE START OF CONSTRUCTION.

	EDGE OF PAVEMENT
	PROPERTY LINE
	MAJOR CONTOUR
	MINOR CONTOUR
	INTERMITTENT STREAM
	EXISTING BORDERING VEGETATED WETLAND
	MEAN ANNUAL HIGH WATER
	TREE LINE
	FENCE
	GUARD RAIL
	UTILITY POLE
	BORING LOCATION
	CULVERT
	MANHOLE
	SANITARY LINE
	STORM SEWER LINE
	ELECTRICAL LINE
	WATER LINE
	DRAINAGE LINE
	GAS LINE



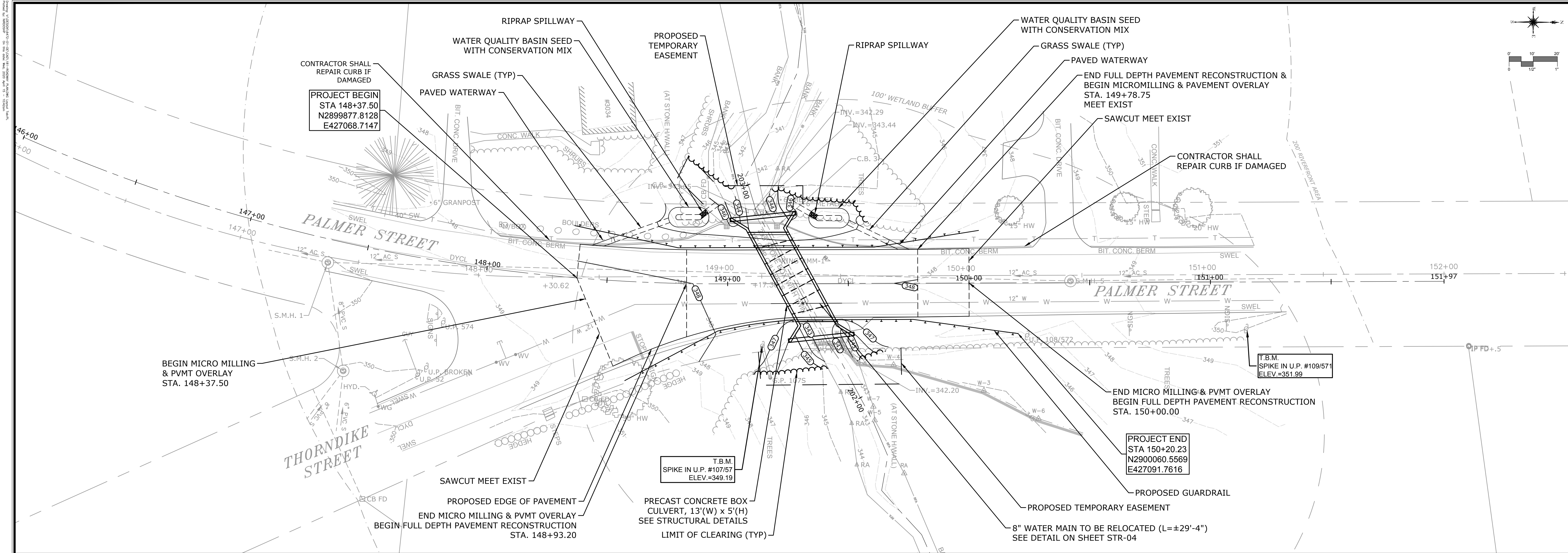
SCALE: $\frac{1}{4}" = 1'-0"$



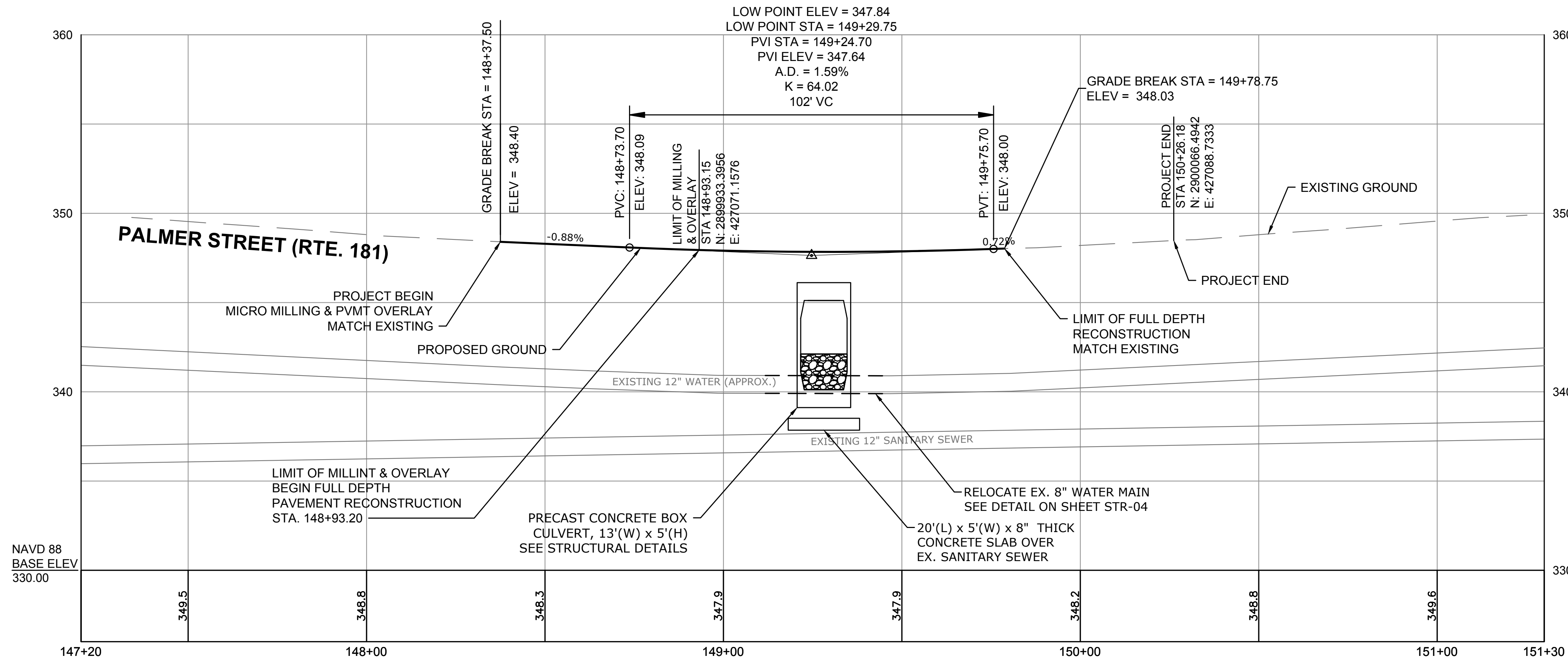
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NOT TO SCALE

---	NP	KP
DESIGNED	DRAWN	CHECKED
AS NOTED		
SCALE		
APRIL 15, 2020		
DATE		
6472-01		
PROJECT NO.		
02 OF 10		
SHEET NO.		



PLAN - PALMER STREET (RTE. 181)



PROFILE - PALMER STREET (RTE. 181)

SCALE 1" = 20'H
1" = 4'V



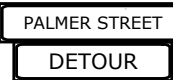



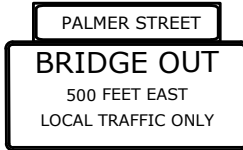


DESCRIPTION	DATE	BY

ROADWAY PLAN & PROFILE
ROUTE 181 CULVERT REPLACEMENT
OVER SCOTT'S BROOK
ROUTE 181 (PALMER STREET)
PALMER, MASSACHUSETTS


MRG DESIGNED	HMM DRAWN	MRG CHECKED
SCALE 1"=20'		
DATE APRIL 15, 2020		
PROJECT NO. 6472-01		
SHEET NO. 04 OF 10		
SHEET NAME PL		



- | CONSTRUCTION SIGN LEGEND | | | |
|--------------------------|---|------------------------|----------------------|
| PLAN
DESIGNATION | MESSAGE | SIZE | MUTCD
DESIGNATION |
| (A) |  | 30" x 12"
48" x 18" | W16-8*
M4-10(L) |
| (B) |  | 30" x 12"
48" x 18" | W16-8*
M4-10(R) |
| (C) |  | 30" x 12"
24" x 12" | W16-8*
M4-8 |
| (D) |  | 24" x 18" | M4-8a |
| (E) |  | 48" x 30" | R11-2 |
| (F) |  | 18" x 18" | R1-1 |
| (G) |  | 30" x 12"
60" x 30" | W16-8*
R11-3b |


1. ALL TEMPORARY TRAFFIC CONTROL WORK SHALL CONFORM TO THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) WITH THE MASSACHUSETTS AMENDMENTS TO THE MUTCD AND STANDARD MUNICIPAL TRAFFIC CODE.
2. ALL SIGN LEGENDS, BORDERS AND MOUNTING SHALL BE IN ACCORDANCE WITH THE MUTCD WITH THE MASSACHUSETTS AMENDMENTS TO THE MUTCD AND STANDARD MUNICIPAL TRAFFIC CODE.
3. TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE START OF ANY WORK.
4. TEMPORARY CONSTRUCTION SIGNING, BARRICADES AND ALL OTHER NECESSARY WORK ZONE TRAFFIC CONTROL DEVICES SHALL BE REMOVED FROM THE HIGHWAY OR COVERED WHEN THEY ARE NOT REQUIRED FOR CONTROL OF TRAFFIC.
5. SIGNS AND SIGN SUPPORTS LOCATED ON OR NEAR THE TRAVELED WAY, AND REFLECTORIZED PLASTIC DRUMS WITH LIGHTING DEVICES MOUNTED ON THEM, MUST PASS THE CRITERIA SET FORTH IN NCHRP REPORT 350, "RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE EVALUATION OF HIGHWAY FEATURES."
6. ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS.
7. TRAFFIC PERSONS ARE TO BE USED WHENEVER TRAFFIC CONTROL DEVICES ARE INSTALLED, RELOCATED OR REMOVED.
8. LOCATIONS FOR TEMPORARY SIGNS ARE APPROXIMATE AND SHALL BE ADJUSTED AS DIRECTED BY THE ENGINEER SO AS NOT TO CONFLICT WITH EXISTING PERMANENT SIGNS. EXISTING SIGNS IN CONFLICT WITH TEMPORARY SIGNS SHALL BE ADJUSTED TO MEET FIELD CONDITIONS.
9. CONTRACTOR SHALL NOTIFY THE CITY AND EMERGENCY SERVICES AT LEAST 14 DAYS IN ADVANCE OF ROAD CLOSURE/DETOUR.
10. THE CONTRACTOR SHALL SUBMIT ANY PROPOSED VARIATIONS TO THIS DETOUR PLAN TO THE ENGINEER FOR APPROVAL AT LEAST 30 DAYS BEFORE THE WORK BEGINS.



TEST BORING LOG																			
			PROJECT: CULVERT REPLACEMENT				BORING NO: MM-1			SHEET: 1 of 2									
99 Peely Drive Cheshire, CT 06430 (203) 271-1773			LOCATION: ROUTE 181, PALMER, MASSACHUSETTS				CONTRACTOR: SEABOARD DRILLING, INC.												
			PROJ. NO: 6472-01				FOREMAN: M. GLYNN												
			CLIENT: TOWN OF PALMER				INSPECTOR: D. COWINSOOK												
			DATE: DECEMBER 27, 2018				GROUND SURFACE ELEVATION:												
EQUIPMENT		AUGER	CASINO	SAMPLER	COREBRL	GROUNDWATER DEPTH (FT)				TYPE OF RIG									
TYPE ID		HSA	-	SS	-	DATE	TIME	WATER DEPTH		TRUCK W/ SAFETY HAMMER									
SIZE ID (IN.)		4 1/4	-	1 3/8	-	2018-12-27		370		RIG MODEL:									
HWR WT (LB)		-	-	140	-					MOBILE B-53									
HWR FALL (IN.)		-	-	30	-														
SOIL AND ROCK CLASSIFICATION-DESCRIPTION																			
Depth (FT)	SAMPLE NUMBER	RECOVERY (IN)	BLOWS PER 6"	BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)									DEPTH (FT)	STRATUM DESCRIPTION	ELEV (FT)	Remark			
1	S-1	1	50/4"	Top 6" ASPHALT. Bottom 6" Black; fine to coarse SAND, little fine to coarse Gravel, trace Silt.									0.5'	ASPHALT					
2				5-1 Very dense, black, fine to coarse SAND, little fine to coarse Gravel, trace Silt.															
3				5-2 No Recovery.															
4	S-2	0		5-3 Dense, Top 3" Black; fine to coarse SAND, little fine to coarse Gravel, trace Silt.															
5				Bottom 3" Brown, fine to coarse SAND, some Silt, trace fine Gravel.									6.0'						
6	S-3	6											7.0'						
7													8.5'						
8														G.W.T					
9														SILTY SAND					
10																			
11	S-4	4		S-4 Very dense, brown, fine to coarse GRAVEL and fine to coarse SAND, trace Silt.															
12																			
13																			
14																			
15	S-5	5		S-5 Very dense, brown, fine to coarse GRAVEL, some fine to coarse Sand, trace Silt.															
16																			
17																			
18																			
19																			
20																			
21	S-6	3		S-6 Very dense, brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt.															
22																			
				COHESIONLESS SOILS				COHESIVE SOILS				SAMPLE TYPE				PROPORTIONS			
				N = 0 - 4 = VERY LOOSE 4 - 10 = LOOSE 10 - 30 = MEDIUM DENSE 30 - 50 = DENSE 50+ = VERY DENSE				N = 0 - 2 = VERY SOFT 2 - 4 = SOFT 4 - 8 = MEDIUM 8 - 15 = STIFF 15 - 30 = VERY STIFF 30+ = HARD				C = ROCK CORE 5 = SPLIT SPOON UP = UNDISTURBED PISTON UT = UNDISTURBED THINWALL				Trace = 10% little = 10% - 20% some = 20% - 35% and = 35% - 50%			

BORING NOTES

1. LOCATION OF BORING SHOWN ON THE PLAN THUS: 4 BORING #MM-1
2. BORINGS ARE TAKEN FOR PURPOSE OF DESIGN AND SHOW CONDITIONS AT BORING POINTS ONLY, BUT DO NOT NECESSARILY SHOW THE NATURE OF THE MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.
3. WATER LEVELS SHOWN ON THE BORING LOGS WERE OBSERVED AT THE TIME OF TAKING BORINGS AND DO NOT NECESSARILY SHOW THE TRUE GROUND WATER LEVEL.
4. FIGURES IN COLUMNS INDICATE NUMBER OF BLOWS REQUIRED TO DRIVE A 1 1/8" I.D. SPLIT SPOON SAMPLER 6" USING 140 POUND WEIGHT FALLING 30".
5. ALL BORINGS WERE MADE IN DECEMBER 2018.
6. BORINGS WERE MADE BY SEABOARD DRILLING, INC., 649 MEADOW STREET, CHICOPEE, MA 01013
7. THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 IS USED THROUGHOUT

TEST BORING LOG													
			PROJECT: CULVERT REPLACEMENT LOCATION: ROUTE 181, PALMER, MASSACHUSETTS PROJ. NO.: 6472-01 CLIENT: TOWN OF PALMER DATE: DECEMBER 27, 2018				BORING NO.: MB-M1 CONTRACTOR: SEABOARD DRILLING, INC. FOREMAN: M. GLVNN INSPECTOR: R. GOWINSNOCK GROUND SURFACE ELEVATION:			SHEET: 2 of 2			
EQUIPMENT: TYPE: H5A SIZE D (IN): 4 1/4 HMR WT (LB): - HMR FALL (IN): -		AUGER: H5A 4 1/4 - -		CASING: - - - -		SAMPLER: SS 1.39 140 30		CORE BRL: - - - -		GROUNDWATER DEPTH (FT.): DATE: 2/18-12-27 TIME: - WATER DEPTH: 47.0' TYPE OF RIG: TRUCK W/ SAFETY HAMMER RIG MODEL: MOBILE B-53			
SOIL AND ROCK CLASSIFICATION DESCRIPTION										DEPTH (FT)	STRATUM DESCRIPTION	ELEV. (FT)	REMARKS
Depth (FT)	SAMPLE NUMBER	RECOVERY (IN)	BLOWS PER 6"	BIRMINGHAM SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)									
24				5-7: Very dense, brown, fine to coarse SAND, some fine to coarse Gravel, trace SILT.						27.0'	SAND & GRAVEL		
25	S-7	18											
26													
27													
28													
BOTTOM OF EXPLORATION @ 27.0'										27.0'			
29													
30													
31													
32													
33													
34													
35													
36													
37													
38													
39													
40													
41													
42													
43													
44													
45													

REMARKS:	COHESIONLESS SOILS		COHESIVE SOILS		SAMPLE TYPE		PROPORTIONS	
	N = 4 = VERY LOOSE 10-30 = MEDIUM DENSE 30-50 = DENSE 50+ = VERY DENSE	N = 0-2 = VERY SOFT 2-4 = SOFT 4-8 = MEDIUM 8-15 = STIFF 15-30 = VERY STIFF 30+ = HARD	C = ROCK CORE S = SPLIT SPOON UP = UNDISTURBED PISTON UT = UNDISTURBED THINWALL	TOLERANCE little = 10% - 20% some = 20% - 35% and + 35% - 50%				

GENERAL NOTES

DESIGN

SPECIFICATIONS: MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES DATED 1988, INCLUDING SUPPLEMENTAL AND AMENDED SPECIFICATIONS THROUGH 2017 AND PROJECT SPECIAL PROVISIONS.

DESIGN SPECIFICATIONS: IN ACCORDANCE WITH THE 2017 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 8TH EDITION, FOR HL-93 LOADING.

PROJECT SPECIFICATIONS

MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS
AND BRIDGES DATED 1988, INTERIM SUPPLEMENTAL SPECIFICATIONS THROUGH 2017
AND PROJECT SPECIAL PROVISIONS.

FOUNDATIONS

FOUNDATIONS MAY BE ALTERED, IF NECESSARY TO SUIT CONDITIONS ENCOUNTERED DURING CONSTRUCTION, WITH APPROVAL BY THE ENGINEER.

REINFORCEMENT

REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 31 GRADE 60. UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS, ALL BARS SHALL BE LAPPED AS FOLLOWS:

<u>MODIFICATION CONDITION</u>		<u>#4 BARS</u>	<u>#5 BARS</u>
1.	NONE	21"	26"
2.	12" OF CONCRETE BELOW BAR	29"	36"
		31"	39"
3.	COATED BARS, COVER <3d OR CLEAR SPACING <6d	25"	31"
4.	COATED BARS, ALL OTHER CASES	35"	44"
		34"	43"

IF THE ABOVE BARS ARE SPACE 6" OR MORE ON CENTER, THE LAP LENGTH SHALL BE 80% OF THE LAP LENGTH GIVEN ABOVE. ALL OTHER BARS SHALL BE LAPPED AS SHOWN ON THE CONSTRUCTION DRAWINGS.

UTILITIES

THE CONTRACTOR SHALL LOCATE AND PROTECT FROM DAMAGE ALL EXISTING UTILITIES

CONCRETE

CONCRETE MIXES

(1)	(2)	(3)	<u>TO BE USED IN CONSTRUCTION OF:</u>
000	1½"	565	CONCRETE PAD OVER SANITARY SEWER MAIN.

0000 3/4" 685 HP PRECAST CONCRETE BOX CULVERT

(1) 28 DAY COMPRESSIVE STRENGTH (PSI)
(2) MAXIMUM AGGREGATE SIZE (IN)
(3) CEMENTITIOUS CONTENT (POUND/CY)

THE USE OF REMAIN-IN-PLACE FORMS ON THIS STRUCTURE IS NOT ALLOWED.

EXPOSED EDGES OF CONCRETE SHALL BE BEVELED 1" X 1" UNLESS DIMENSIONED OTHERWISE.

ALL REINFORCEMENT SHALL HAVE 3" COVER AT BOTTOM OF FOOTINGS AND 2" COVER ELSEWHERE UNLESS DIMENSIONED OTHERWISE.

CONSTRUCTION JOINTS, OTHER THAN THOSE SHOWN ON THE PLANS, WILL NOT BE PERMITTED WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.

THE CONTRACTOR SHALL DESIGN, MANUFACTURE AND CONSTRUCT THREE SIDED
PRECAST CONCRETE CULVERT PER THE INSIDE DIMENSIONS, LENGTH AND DETAILS
SHOWN ON THESE PLANS.

BRIDGE MANUFACTURER SHALL SUBMIT SHOP DRAWINGS AND DESIGN CALCULATIONS FOR APPROVAL. DRAWINGS AND CALCULATIONS SHALL BE STAMPED BY A MASSACHUSETTS-LICENSED PROFESSIONAL ENGINEER. MATERIAL CERTIFICATIONS AND CERTIFICATION OF COMPLIANCE WITH SPECIFICATIONS SHALL BE PROVIDED.

A COPY OF THE STAMPED MANUFACTURER'S SHOP DRAWINGS AND CALCULATIONS, APPROVED BY THE ENGINEER, SHALL BE SUBMITTED TO MASSDOT BRIDGE SECTION FOR RECORD.

[illegible]



FRAMING PLAN

**ROUTE 181 CULVERT REPLACEMENT
OVER SCOTT'S BROOK**

**ROUTE 181 (PALMER STREET)
PALMER, MASSACHUSETTS**

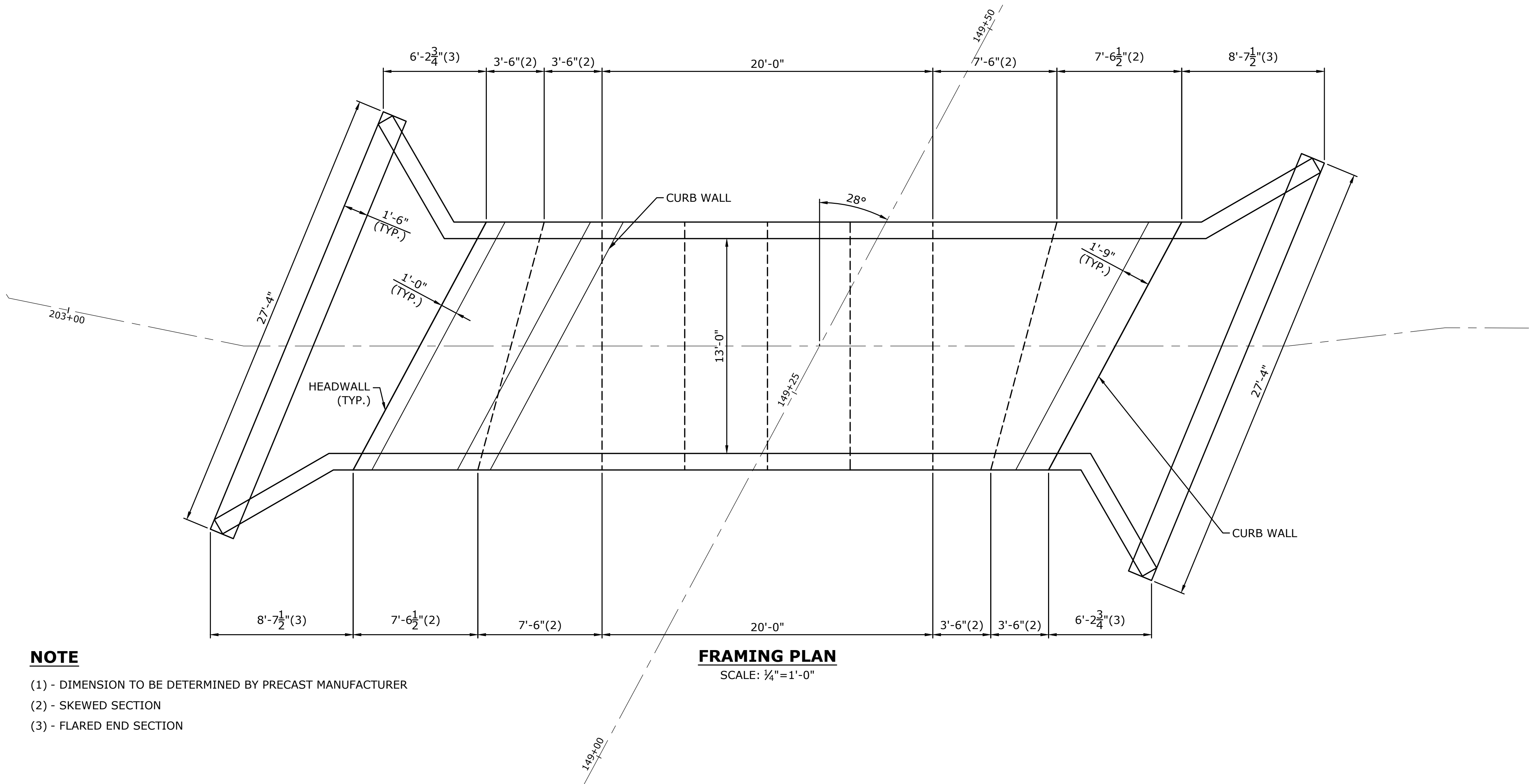
STR-03

STAGE I

- ## STAGE II

- * SEE DETOUR PLAN FOR ROADWAY CLOSURE NOTES.

149+00
149+25
149+50
203+00

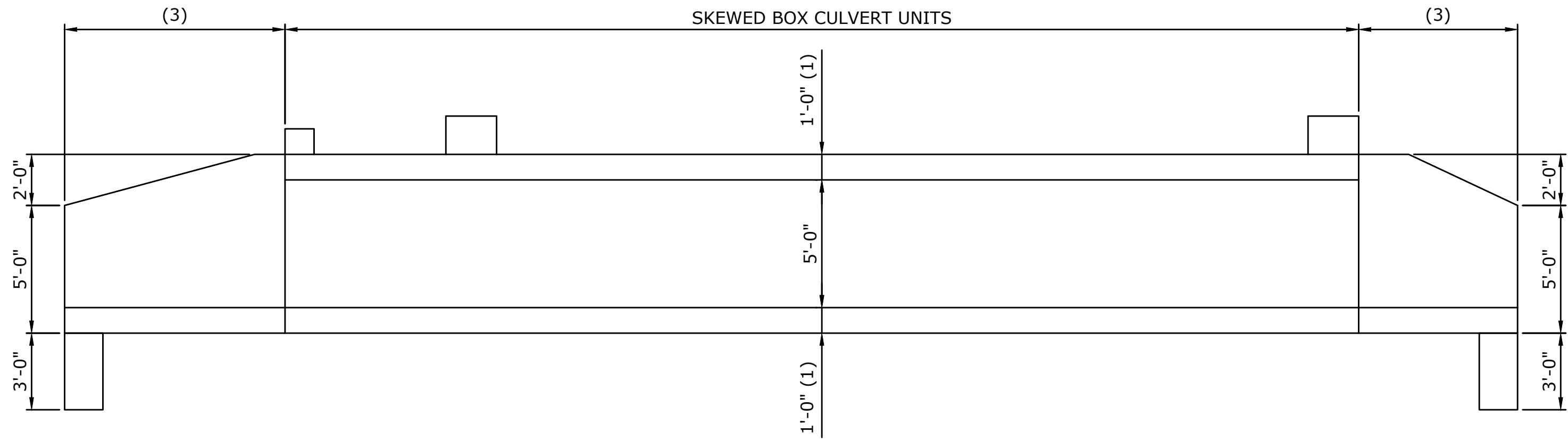


NOTE

- (1) - DIMENSION TO BE DETERMINED BY PRECAST MANUFACTURER
(2) - SKEWED SECTION
(3) - FLARED END SECTION

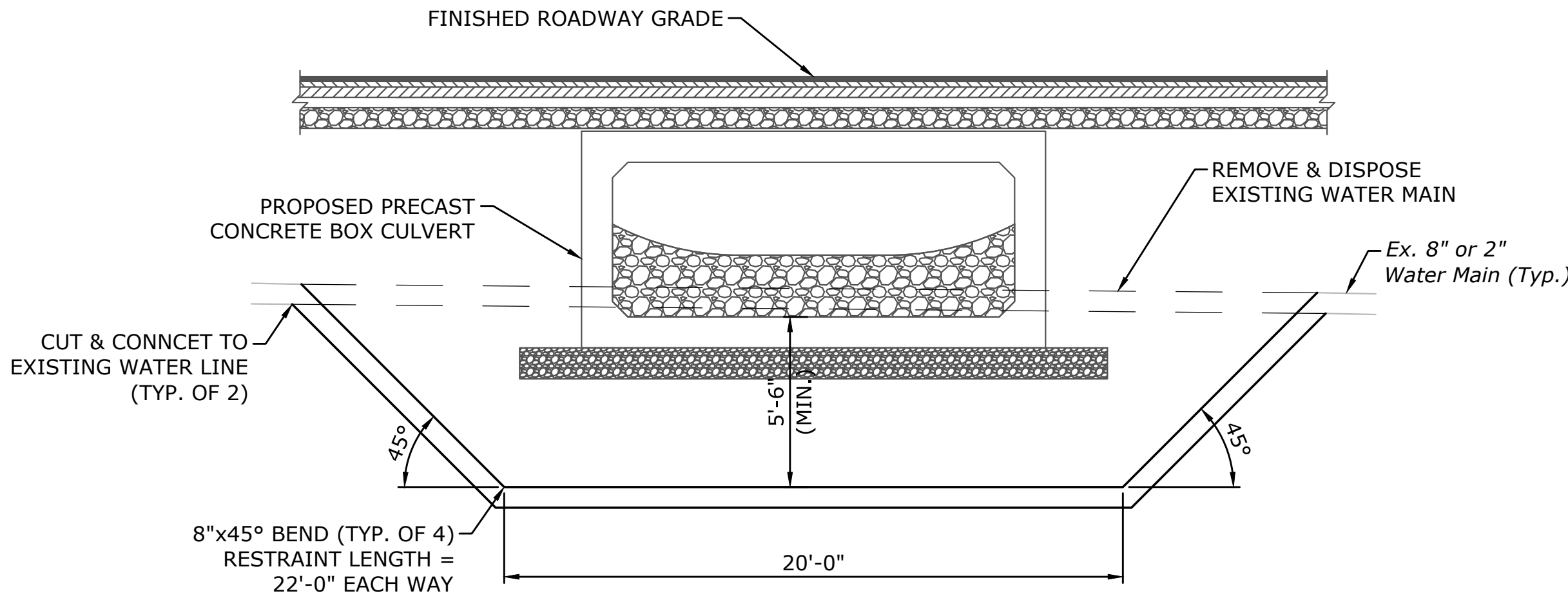
FRAMING PLAN

SCALE: 1/4"=1'-0"



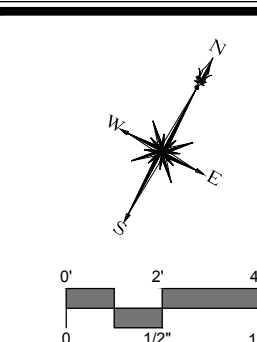
PRECAST CONCRETE BOX CULVERT ELEVATION

SCALE: 1/4"=1'-0"



TYPICAL WATER MAIN DETAIL

SCALE 1/4"=1'-0"



DESCRIPTION	DATE	BY

FRAMING PLAN
ROUTE 181 CULVERT REPLACEMENT
OVER SCOTT'S BROOK
ROUTE 181 (PALMER STREET)
PALMER, MASSACHUSETTS

NP DESIGNED	NP DRAWN	KP CHECKED
1/4"=1'-0"		
APRIL 15, 2020		
6472-01		
09 OF 10		

STR-04

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THESE GUIDELINES SHALL APPLY TO ALL WORK CONSISTING OF ANY AND ALL TEMPORARY AND/OR PERMANENT MEASURES TO CONTROL WATER POLLUTION AND SOIL EROSION, AS MAY BE REQUIRED, DURING THE CONSTRUCTION OF THE PROJECT.

IN GENERAL, ALL CONSTRUCTION ACTIVITIES SHALL PROCEED IN SUCH A MANNER SO AS NOT TO POLLUTE ANY WETLANDS, WATERCOURSE, WATER BODY, AND CONDUIT CARRYING WATER, ETC. THE CONTRACTOR SHALL LIMIT, INsofar AS POSSIBLE, THE SURFACE AREA OF EARTH MATERIALS EXPOSED BY CONSTRUCTION METHODS AND IMMEDIATELY PROVIDE PERMANENT AND TEMPORARY POLLUTION CONTROL MEASURES TO PREVENT CONTAMINATION OF ADJACENT WETLANDS, WATERCOURSES, AND WATER BODIES, AND TO PREVENT, INsofar AS POSSIBLE, EROSION ON THE SITE.

THE RESHAPING OF THE GROUND SURFACE BY EXCAVATION AND FILLING OR A COMBINATION OF BOTH, TO OBTAIN PLANNED GRADES, SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING CRITERIA:

- a. THE CUT FACE OF EARTH EXCAVATION SHALL NOT BE STEEPER THAN TWO HORIZONTAL TO ONE VERTICAL (2:1).
- b. THE PERMANENT EXPOSED FACES OF FILLS SHALL NOT BE STEEPER THAN TWO HORIZONTAL TO ONE VERTICAL (2:1).
- c. THE CUT FACE OF ROCK EXCAVATION SHALL NOT BE STEEPER THAN ONE HORIZONTAL TO TWO VERTICAL (1:2).
- d. PROVISION SHOULD BE MADE TO CONDUCT SURFACE WATER SAFELY TO STORM DRAINS TO PREVENT SURFACE RUNOFF FROM DAMAGING CUT FACES AND FILL SLOPES.
- e. NO FILL SHOULD BE PLACED WHERE IT WILL SLIDE OR WASH UPON THE INTO ADJACENT WETLANDS, WATERCOURSES, OR WATER BODIES.
- f. PRIOR TO ANY RE-GRADING, A STABILIZED CONSTRUCTION ENTRANCE SHALL BE PLACED AT THE ENTRANCE TO THE WORK AREA. GREAT CARE TO REDUCE MUD AND OTHER SEDIMENTS FROM LEAVING THE SITE.

TOPSOIL SHALL BE SPREAD OVER ALL EXPOSED AREAS IN ORDER TO PROVIDE A SOIL MEDIUM HAVING FAVORABLE CHARACTERISTICS FOR THE ESTABLISHMENT, GROWTH, AND MAINTENANCE OF VEGETATION.

UPON ATTAINING FINAL SUBGRADES, SCARIFY SURFACE TO PROVIDE A GOOD BOND WITH TOPSOIL.

REMOVE ALL LARGE STONES, TREE LIMBS, ROOTS AND CONSTRUCTION DEBRIS.

APPLY LIME ACCORDING TO SOIL TEST OR AT THE RATE OF TWO (2) TONS PER ACRE.

1. TOPSOIL SHOULD HAVE PHYSICAL, CHEMICAL, AND BIOLOGICAL CHARACTERISTICS FAVORABLE TO THE GROWTH OF PLANTS.
2. TOPSOIL SHOULD HAVE A SANDY OR LOAMY TEXTURE.
3. TOPSOIL SHOULD BE RELATIVELY FREE OF SUBSOIL MATERIAL AND MUST BE FREE OF STONES (OVER 1" IN DIAMETER), LUMPS OF SOIL, ROOTS, TREE LIMBS, TRASH, OR CONSTRUCTION DEBRIS. IT SHOULD BE FREE OF WEED SEEDS OR RHIZOMES SUCH AS THISTLE, NUTGRASS, AND QUACKGRASS.
4. AN ORGANIC MATTER CONTENT OF SIX PERCENT (6%) IS REQUIRED. AVOID LIGHT COLORED SUBSOIL MATERIAL.
5. SOLUBLE SALT CONTENT OF OVER 500 PARTS PER MILLION (PPM) IS LESS SUITABLE. AVOID TIDAL MARSH SOILS BECAUSE OF HIGH SALT CONTENT AND SULFUR ACIDITY.
6. THE PH SHOULD BE MORE THAN 6.0. IF LESS, ADD LIME TO INCREASE PH TO AN ACCEPTABLE LEVEL.

1. AVOID SPREADING WHEN TOPSOIL IS WET OR FROZEN.
2. SPREAD TOPSOIL UNIFORMLY TO A DEPTH OF AT LEAST SIX INCHES (6"), OR TO THE DEPTH SHOWN ON THE LANDSCAPING PLANS.

TEMPORARY VEGETATIVE COVER SHALL BE ESTABLISHED ON ALL UNPROTECTED AREAS THAT PRODUCE SEDIMENT, AREAS WHERE FINAL GRADING HAS BEEN COMPLETED, AND AREAS WHERE THE ESTIMATED PERIOD OF BARE SOIL EXPOSURE IS LESS THAN 12 MONTHS. TEMPORARY VEGETATIVE COVER SHALL BE APPLIED IF AREAS WILL NOT BE PERMANENTLY SEED BY SEPTEMBER 1.

1. INSTALL REQUIRED SURFACE WATER CONTROL MEASURES.
2. REMOVE LOOSE ROCK, STONE, AND CONSTRUCTION DEBRIS FROM AREA.
3. APPLY LIME ACCORDING TO SOIL TEST OR AT A RATE OF ONE (1) TON OF GROUND DOLOMITIC LIMESTONE PER ACRE (5 LBS. PER 100 SQ. FT.).
4. APPLY FERTILIZER ACCORDING TO SOIL TEST OR AT THE RATE OF 30 LBS. OF 10-10-10 PER ACRE (7 LBS. PER 1,000 SQ. FT.) AND SECOND APPLICATION OF 200 LBS. OF 10-10-10- (5 LBS. PER 1,000 SQ. FT.) WHEN GRASS IS FOUR INCHES (4") TO SIX INCHES (6") HIGH. APPLY ONLY WHEN GRASS IS DRY.

5. UNLESS HYDROSEEDING, WORK IN LIME AND FERTILIZER TO A DEPTH OF FOUR (4") INCHES USING A DISK OR ANY SUITABLE EQUIPMENT.
6. TILLAGE SHOULD ACHIEVE A REASONABLY UNIFORM LOOSE SEEDBED. WORK ON CONTOUR IF SITE IS SLOPING.

7. SELECT APPROPRIATE SPECIES FOR THE SITUATION. NOTE RATES AND SEEDING DATES (SEE VEGETATIVE COVER SELECTION & MULCHING SPECIFICATION BELOW).
8. APPLY SEED UNIFORMLY ACCORDING TO THE RATE INDICATED BY BROADCASTING, DRILLING, OR HYDRAULIC APPLICATION.
9. UNLESS HYDROSEEDED, COVER REYGRASS SPECIES WITH NOT MORE THAN 1/4" INCH OF SOIL USING SUITABLE EQUIPMENT.
10. MULCH IMMEDIATELY AFTER SEEDING IF REQUIRED. (SEE VEGETATIVE COVER SELECTION & MULCHING SPECIFICATION BELOW.) APPLY STRAW MULCH AND ANCHOR TO SLOPES GREATER THAN 3% OR WHERE CONCENTRATED FLOW WILL OCCUR.

TEMPORARY PERVIOUS BARRIERS USING COMPOST FILTER TUBE HELD IN PLACE WITH STAKES AND EROSION CONTROL MATTING SHALL BE INSTALLED AND MAINTAINED AS REQUIRED TO CHECK EROSION AND REDUCE SEDIMENTATION.

COMPOST FILTER TUBES SHOULD BE PLACED WITH A MINIMUM OVERLAP OF THREE FEET (3') OR SLEEVED TO JOIN IN A CONTINUOUS BARRIER. COMPOST TUBES SHALL BE TAMPED IN PLACE TO ENSURE GOOD CONTACT WITH SOIL SURFACE.

COMPOST FILTER TUBES SHALL BE STAKED OR LEANED AGAINST SUPPORTS ON SLOPES 2:1 OR GREATER. STAKES SHALL BE LOCATED AS REQUIRED TO SECURE TUBES IN PLACE UP TO FIVE FEET (5') APART. COMPOST FILTER TUBES SHALL BE PLACED AS CLOSE TO THE LIMITS OF SOIL DISTURBANCE AS POSSIBLE.

1. COMPOST FILTER TUBE AND EROSION CONTROL MATTING SHALL BE INSTALLED AT THE LOCATION INDICATED ON THE PLAN AND IN ADDITIONAL AREAS AS MAY BE DEEMED APPROPRIATE DURING CONSTRUCTION.
2. ALL EROSION CHECKS SHALL BE MAINTAINED UNTIL ADJACENT AREAS ARE STABILIZED.
3. INSPECTION SHALL BE FREQUENT (AT MINIMUM EVERY SEVEN CALENDAR DAYS AND AFTER EVERY RAINFALL EVENT GREATER THAN ONE HALF INCH) AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
4. EROSION CHECKS SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM WATER FLOW OR DRAINAGE.

TEMPORARY VEGETATIVE COVER:

PERENNIAL RYEGRASS 3 LBS./1,000 SQ.FT. (LOLIUM PERENNE)

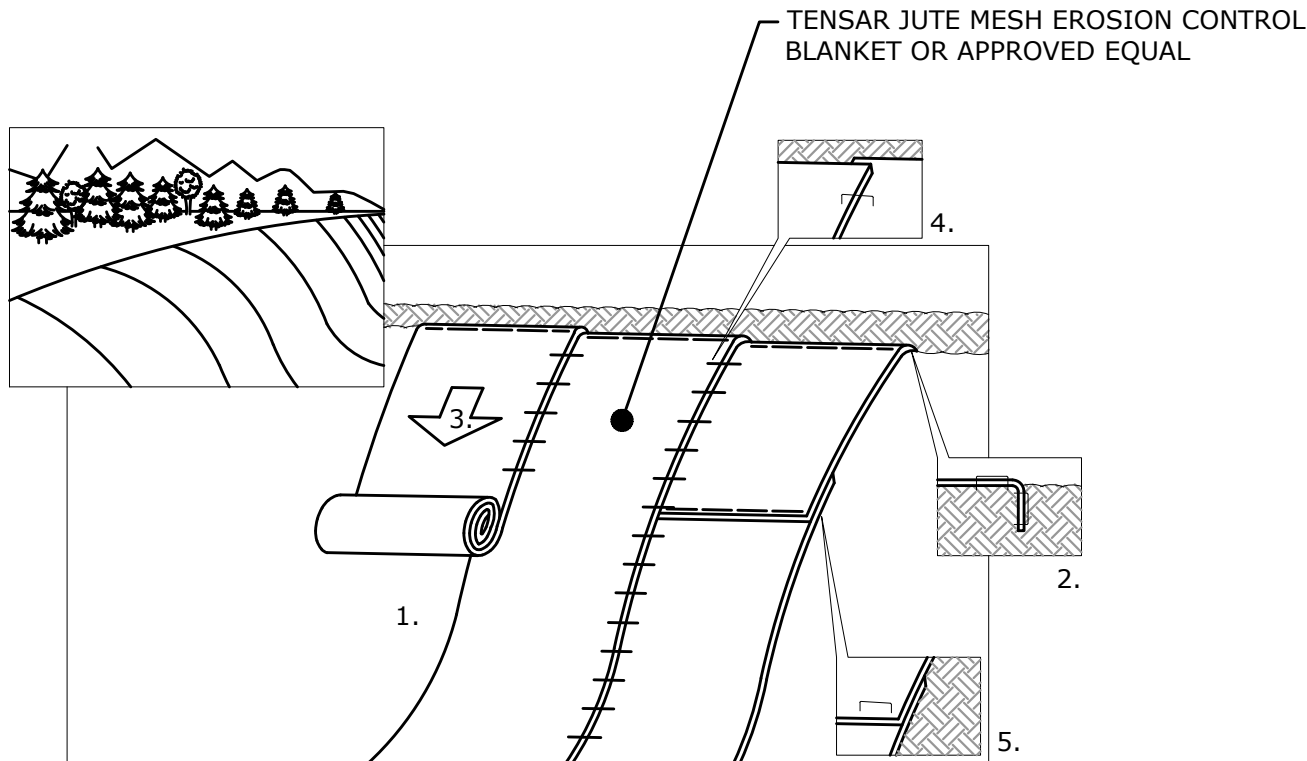
1. SEE SEDIMENTATION AND EROSION CONTROL PLAN FOR SEED MIX
2. TEMPORARY MULCHING: STRAW AT 70-90 LBS./1,000 SQ.FT. (TEMPORARY VEGETATIVE AREAS) WOOD FIBER IN HYDROMULCH SLURRY 25-50 LBS./1,000 SQ. FT.

1. SMOOTH AND FIRM SEEDBED WITH CULTIPACKER OR OTHER SIMILAR EQUIPMENT PRIOR TO SEEDING (EXCEPT WHEN HYDROSEEDING).
2. SELECT ADAPTED SEED MIXTURE FOR THE SPECIFIC SITUATION. NOTE RATES AND THE SEEDING DATES (SEE VEGETATIVE COVER SELECTION & MULCHING SPEC. BELOW).
3. APPLY SEED UNIFORMLY ACCORDING TO RATE INDICATED, BY BROADCASTING, DRILLING, OR HYDRAULIC APPLICATION.
4. COVER GRASS AND LEGUME SEED WITH NOT MORE THAN 1/4 INCH OF SOIL WITH SUITABLE EQUIPMENT (EXCEPT WHEN HYDROSEEDING).
5. MULCH IMMEDIATELY AFTER SEEDING, IF REQUIRED, ACCORDING TO TEMPORARY MULCHING SPECIFICATIONS. (SEE VEGETATIVE COVER SELECTION & MULCHING SPECIFICATION BELOW).
6. USE PROPER INOCULANT ON ALL LEGUME SEEDINGS, USE FOUR (4) TIMES NORMAL RATES WHEN HYDROSEEDING.
7. USE SOD WHERE THERE IS A HEAVY CONCENTRATION OF WATER AND IN CRITICAL AREAS WHERE IT IS IMPORTANT TO GET A QUICK VEGETATIVE COVER TO PREVENT EROSION.

1. TEST FOR SOIL ACIDITY EVERY THREE (3) YEARS AND LIME AS REQUIRED.
2. ON SITES WHERE GRASSES PREDOMINATE, BROADCAST ANNUALLY 500 POUNDS OF 10-10-10 FERTILIZER PER ACRE (12 LBS. PER 1,000 SQ. FT.) OR AS NEEDED ACCORDING TO ANNUAL SOIL TESTS.
3. ON SITES WHERE LEGUMES PREDOMINATE, BROADCAST EVERY THREE (3) YEARS OR AS INDICATED BY SOIL TEST 300 POUNDS OF 0-20-20 OR EQUIVALENT PER ACRE (8 LBS PER 1,000 SQ. FT.).

PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED AS VARIOUS SECTIONS OF THE PROJECT ARE COMPLETED IN ORDER TO STABILIZE THE SOIL, REDUCE DOWNSTREAM DAMAGE FROM SEDIMENT AND RUNOFF, AND TO ENHANCE THE AESTHETIC NATURE OF THE SITE. IT WILL BE APPLIED TO ALL CONSTRUCTION AREAS SUBJECT TO EROSION WHERE FINAL GRADING HAS BEEN COMPLETED AND A PERMANENT COVER IS NEEDED.

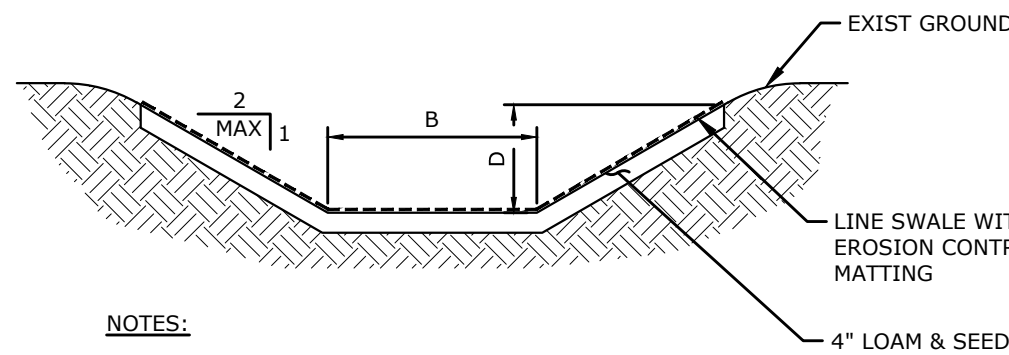
1. INSTALL REQUIRED SURFACE WATER CONTROL MEASURES.
2. REMOVE LOOSE ROCK, STONE, AND CONSTRUCTION DEBRIS FROM AREA.
3. PERFORM ALL PLANTING OPERATIONS PARALLEL TO THE CONTOURS OF THE SLOPE.
4. APPLY TOPSOIL AS INDICATED ELSEWHERE HEREIN.
5. APPLY FERTILIZER ACCORDING TO SOIL TEST OR:
 - SPRING SEEDING: WORK DEEPLY IN SOIL, BEFORE SEEDING, 300 LBS. OF 10-10-10 FERTILIZER PER ACRE (7 LBS. PER 1,000 SQ. FT.). THEN SIX (6) TO EIGHT (8) WEEKS LATER, ACRY ON THE SURFACE AN ADDITIONAL 300 LBS. OF 10-10-10 FERTILIZER PER ACRE. AFTER SEPTEMBER 1, TEMPORARY VEGETATIVE COVER SHALL BE APPLIED.
 - FALL SEEDING: WORK DEEPLY IN SOIL, BEFORE SEEDING, 600 LBS. OF 10-10-10 FERTILIZER PER ACRE (14 LBS. PER 1,000 SQ. FT.).



1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN TENSAR NORTH AMERICAN GREEN SC150BN, DO NOT SEED PREPARED AREA. TENSAR NORTH AMERICAN GREEN SC150BN MUST BE INSTALLED WITH PAPER SEED DOWN.
2. START AT THE TOP OF THE SLOPE BY UNROLLING THE BLANKET IN A 6" DEEP BY 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
3. ROLL THE BLANKETS DOWN THE SLOPE IN THE DIRECTION OF THE WATER FLOW.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2" OVERLAP.
5. WHEN BLANKETS MUST BE SPLICED DOWN THE SLOPE, PLACE BLANKETS' END OVER END (SHINGLE STYLE) WITH APPROXIMATELY 6" OVERLAP. STAPLE THROUGH OVERLAP AREA, APPROXIMATELY 12" APART.

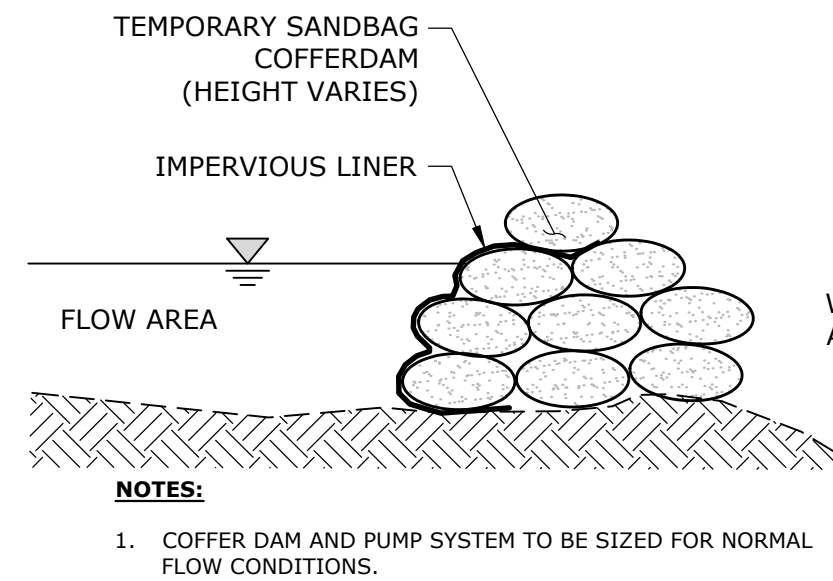
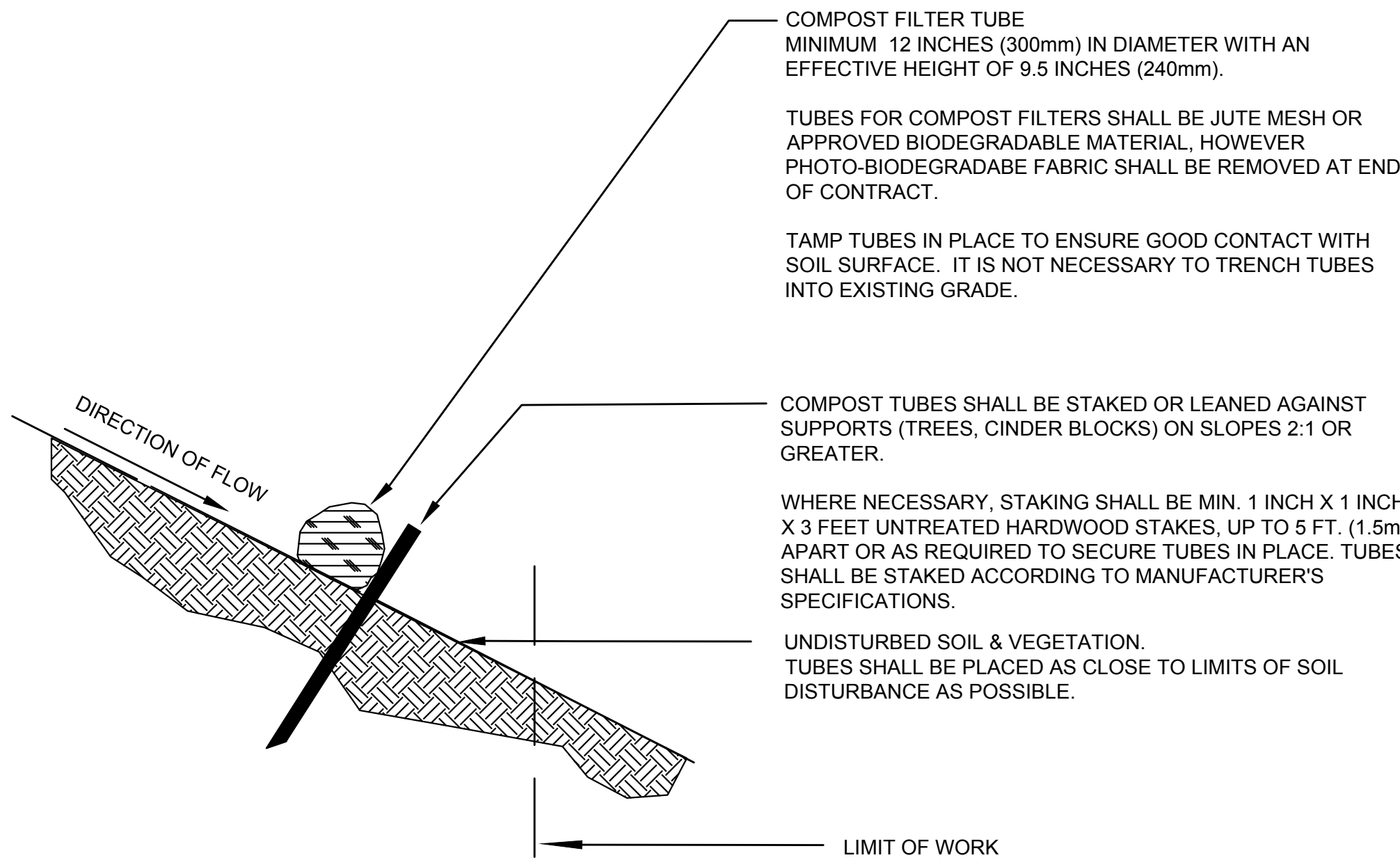
REFER TO GENERAL STAPLE PATTERN GUIDE IN NORTH AMERICAN GREEN CATALOG FOR CORRECT STAPLE PATTERN RECOMMENDATIONS FOR SLOPE INSTALLATIONS.

NOT TO SCALE

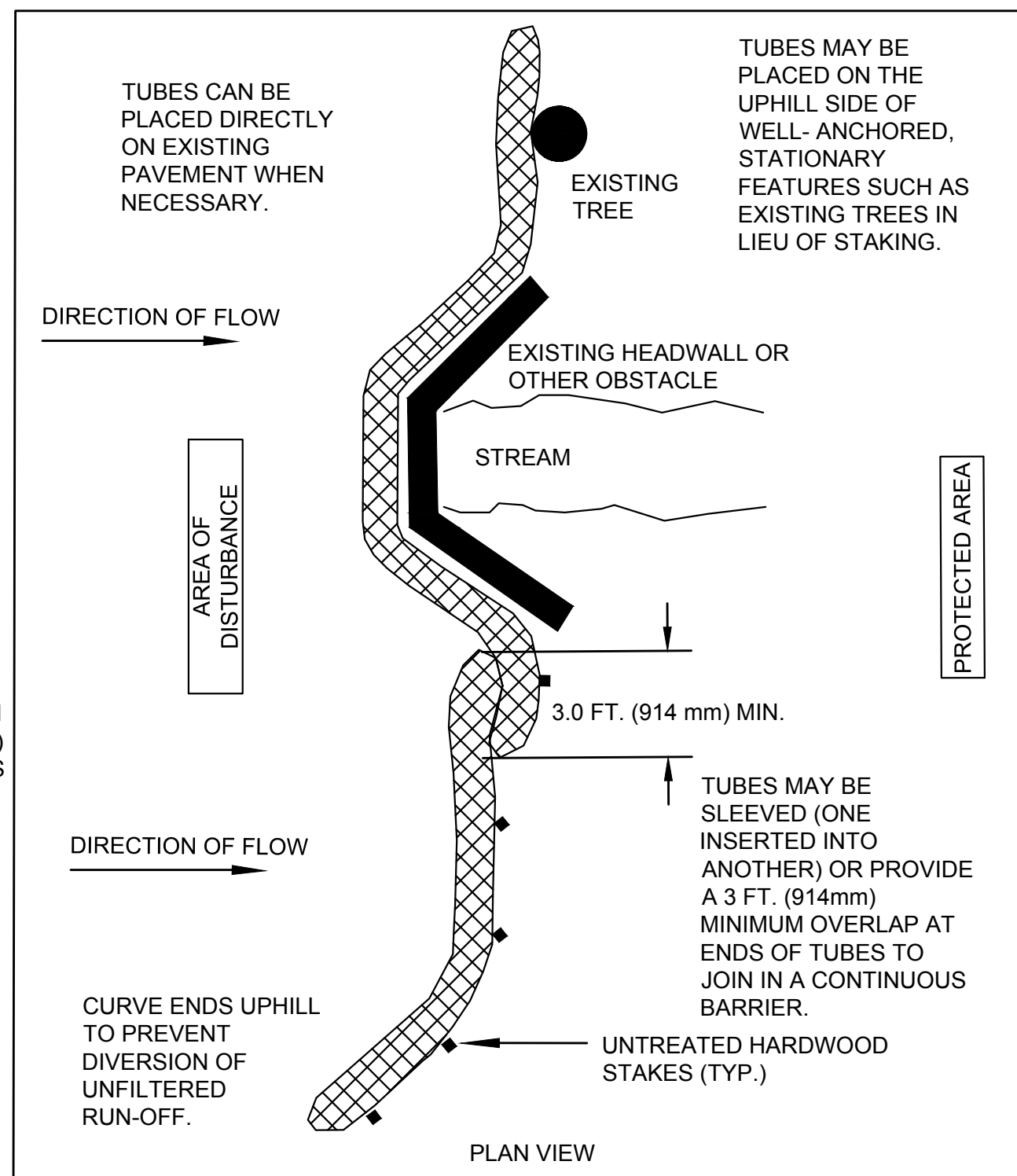


- NOTES:
1. B=BOTTOM WIDTH AS INDICATED ON THE PLANS
 2. D=DEPTH AS INDICATED ON THE PLANS

NOT TO SCALE



NOT TO SCALE



NOT TO SCALE

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