

COMPREHENSIVE PERMIT PLAN

BOLTON, MA

MALLARD LANE

SHEET INDEX

SHEET NUMBER	SHEET TITLE	LAST REVISED
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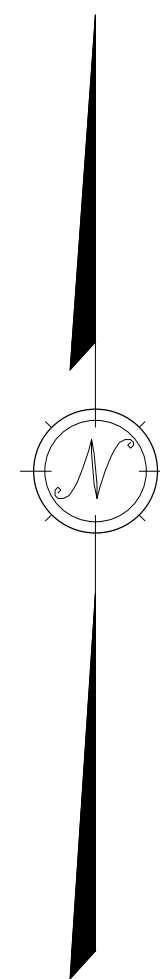
RECORD INFORMATION

RECORD OWNER:
JAMES MORIN & KATHRYN LUM
307 CENTRAL ST, APT 331
HUDSON, MA

DEED REFERENCE:
BOOK 58115 PAGE 346

PARCEL NUMBER:
002.C-0015.1

ZONING DISTRICT:
RESIDENTIAL



LOCUS MAP

SCALE: 1"=1,100'±

LEGEND

EXIST. FEATURE	DESCRIPTION	EXIST. SYM.	DESCRIPTION
	STREAMS/RIVERS		LIGHT POLE
	WETLANDS		TELEPHONE POLE
	LIMIT OF BUFFER ZONE		GUY WIRE
	STONE WALL		HYDRANT
	WATER LINE		SEWER MANHOLE
	EXISTING OVER-HEAD WIRES		WETLAND FLAG
	EXISTING CONTOUR (INDEX)		CATCH BASIN
	EXISTING CONTOUR (INTERMEDIATE)		WATER GATE VALVE
	EXISTING BUILDING/HOUSE		FLAG POLE
	TREE LINE		SHRUB

PROP. FEATURE	DESCRIPTION	PROP. SYM.	DESCRIPTION
	PROPERTY LINE		PROPOSED STORM WATER MANHOLE
	HAYBALES		PROPOSED CATCH BASIN
	PROPOSED WATER LINE		PROPOSED FLARED END SECTION
	PROPOSED SANITARY SEWER		PROPOSED RIPRAP
	PROPOSED STORM DRAIN		STANDARD TREE
	PROPOSED BACK CAPE COD BERM		PINE TREE
	PROPOSED EDGE OF PAVEMENT		SHRUB
	PROPOSED UNPAVED ROAD		
	PROPOSED CONTOUR (INDEX)		
	PROPOSED CONTOUR (INTERMEDIATE)		
	PROPOSED SPOT ELEVATION		
	TREE LINE		

ISSUED FOR PERMIT

PREPARED BY:

DILLIS & ROY
CIVIL DESIGN GROUP

CIVIL ENGINEERS LAND SURVEYORS WETLAND CONSULTANTS

1 MAIN STREET, SUITE 1
LUNENBURG, MA 01462

PHONE: (978) 779-6091
www.dillisandroy.com

OWNER:

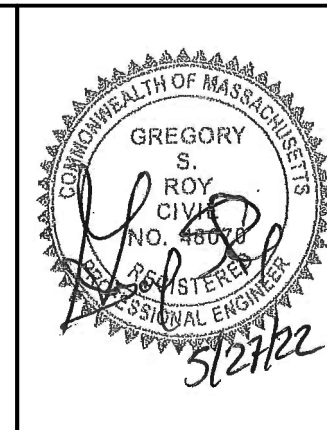
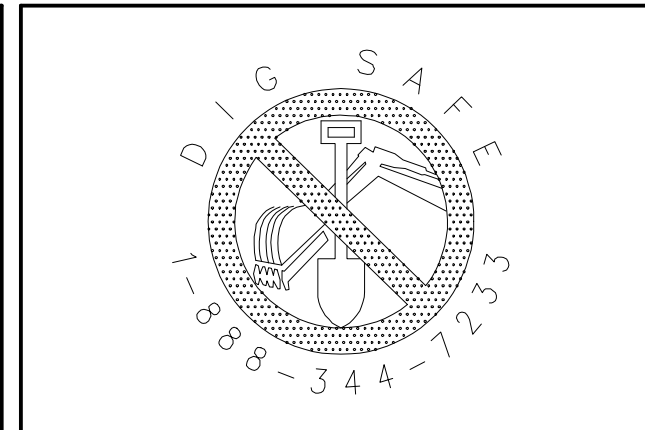
JAMES MORIN & KATHRYN LUM
307 CENTRAL STREET, APT 331
HUDSON, MASSACHUSETTS

APPLICANT:

JAMES MORIN
307 CENTRAL STREET, APT 331
HUDSON, MASSACHUSETTS

SCALE:

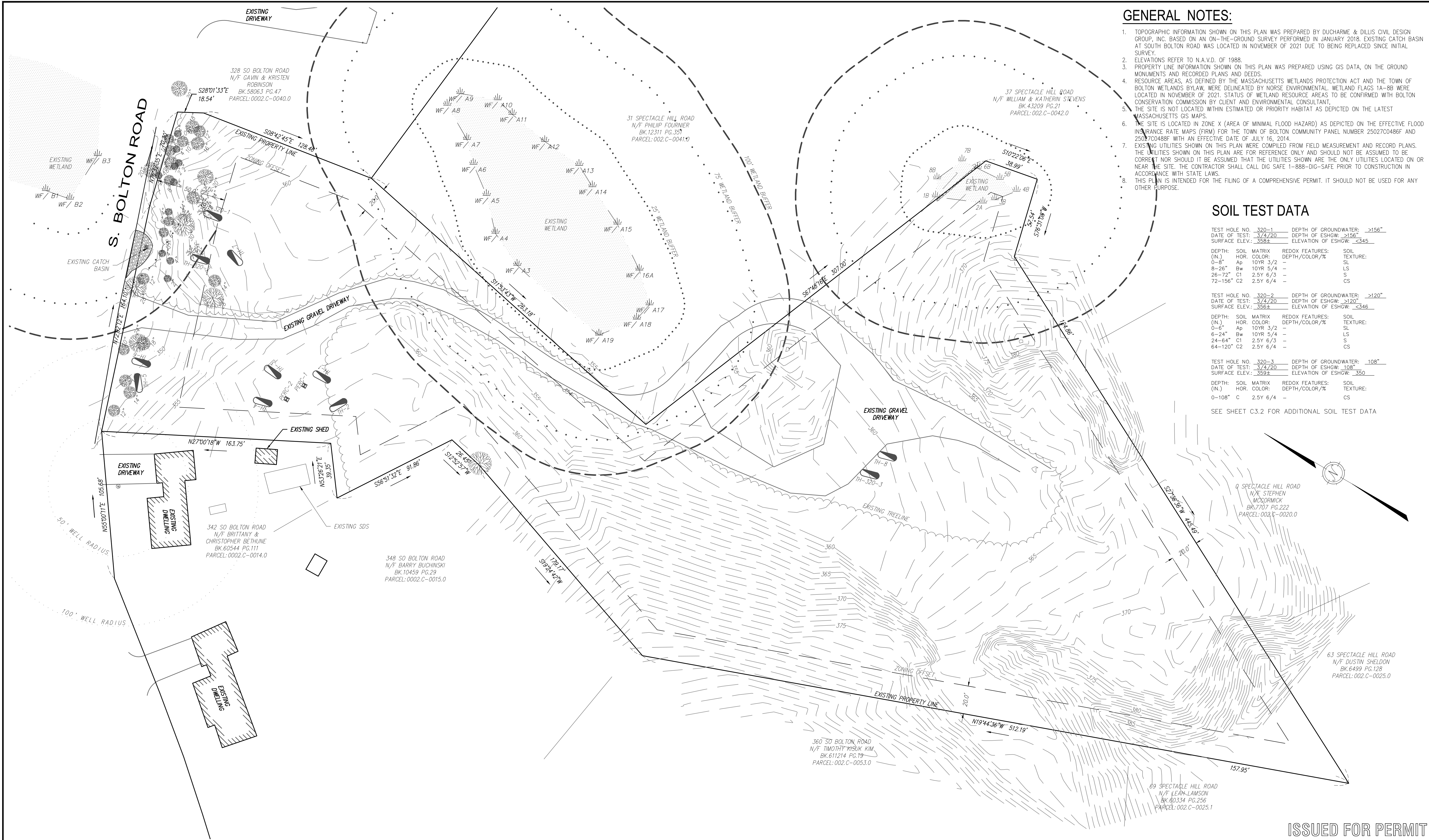
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DATE:	12/16/20
DESIGN BY:	RPV
DRAWN BY:	RPV
CHECKED BY:	FMM

TITLE SHEET MALLARD LANE BOLTON, MASSACHUSETTS			
NO.	DATE	DESCRIPTION	BY
1.	2/28/22	REDUCE TO 8 UNITS & ZBA COMMENTS	GSR
2.	3/30/22	REVISED PER PEER REVIEW COMMENTS	RWP
3.	5/5/22	UNIT FOOTPRINTS	SBD
4.	5/27/22	REV. PER PEER REVIEW COMMENTS	GSR

JOB NO.	5293
DRAWING NO.	5293-TITLE
SHEET NO.	C1.0



GENERAL NOTES:

1. TOPOGRAPHIC INFORMATION SHOWN ON THIS PLAN WAS PREPARED BY DUCHARME & DILLIS CIVIL DESIGN GROUP, INC. BASED ON AN ON-THE-GROUND SURVEY PERFORMED IN JANUARY 2018. EXISTING CATCH BASIN AT SOUTH BOLTON ROAD WAS LOCATED IN NOVEMBER OF 2021 DUE TO BEING REPLACED SINCE INITIAL SURVEY.
2. ELEVATIONS REFER TO N.A.V.D. OF 1988.
3. PROPERTY LINE INFORMATION SHOWN ON THIS PLAN WAS PREPARED USING GIS DATA, ON THE GROUND MONUMENTS AND RECORDED PLANS AND DEEDS.
4. RESOURCE AREAS, AS DEFINED BY THE MASSACHUSETTS WETLANDS PROTECTION ACT AND THE TOWN OF BOLTON WETLANDS BYLAW, WERE DELINEATED BY NORSE ENVIRONMENTAL. WETLAND FLAGS 1A-8B WERE LOCATED IN NOVEMBER OF 2021. STATUS OF WETLAND RESOURCE AREAS TO BE CONFIRMED WITH BOLTON CONSERVATION COMMISSION BY CLIENT AND ENVIRONMENTAL CONSULTANT.
5. THE SITE IS NOT LOCATED WITHIN ESTIMATED OR PRIORITY HABITAT AS DEPICTED ON THE LATEST MASSACHUSETTS GIS MAPS.
6. THE SITE IS LOCATED IN ZONE X (AREA OF MINIMAL FLOOD HAZARD) AS DEPICTED ON THE EFFECTIVE FLOOD INSURANCE RATE MAPS (FIRM) FOR THE TOWN OF BOLTON COMMUNITY PANEL NUMBER 25027C0486F AND 25027C0488F WITH AN EFFECTIVE DATE OF JULY 16, 2014.
7. EXISTING UTILITIES SHOWN ON THIS PLAN WERE COMPILED FROM FIELD MEASUREMENT AND RECORD PLANS. THE UTILITIES SHOWN ON THIS PLAN ARE FOR REFERENCE ONLY AND SHOULD NOT BE ASSUMED TO BE CORRECT NOR SHOULD IT BE ASSUMED THAT THE UTILITIES SHOWN ARE THE ONLY UTILITIES LOCATED ON OR NEAR THE SITE. THE CONTRACTOR SHALL CALL DIG SAFE 1-888-DIG-SAFE PRIOR TO CONSTRUCTION IN ACCORDANCE WITH STATE LAWS.
8. THIS PLAN IS INTENDED FOR THE FILING OF A COMPREHENSIVE PERMIT. IT SHOULD NOT BE USED FOR ANY OTHER PURPOSE.

SOIL TEST DATA

TEST HOLE NO. 320-1	DEPTH OF GROUNDWATER: >156"
DATE OF TEST: 3/4/20	DEPTH OF ESHGW: >156"
SURFACE ELEV.: 358±	ELEVATION OF ESHGW: <345
DEPTH: SOIL MATRIX REDOX FEATURES: SOIL	DEPTH/COLOR/% TEXTURE:
0-6" Ap 10YR 3/2 -	SL
8-26" Bw 10YR 5/4 -	LS
26-72" C1 2.5Y 6/3 -	S
72-156" C2 2.5Y 6/4 -	CS

TEST HOLE NO. 320-2	DEPTH OF GROUNDWATER: >120"
DATE OF TEST: 3/4/20	DEPTH OF ESHGW: >120"
SURFACE ELEV.: 356±	ELEVATION OF ESHGW: <346
DEPTH: SOIL MATRIX REDOX FEATURES: SOIL	DEPTH/COLOR/% TEXTURE:
0-6" Ap 10YR 3/2 -	SL
6-24" Bw 10YR 5/4 -	LS
24-64" C1 2.5Y 6/3 -	S
64-120" C2 2.5Y 6/4 -	CS

TEST HOLE NO. 320-3	DEPTH OF GROUNDWATER: 108"
DATE OF TEST: 3/4/20	DEPTH OF ESHGW: 108"
SURFACE ELEV.: 359±	ELEVATION OF ESHGW: 350
DEPTH: SOIL MATRIX REDOX FEATURES: SOIL	DEPTH/COLOR/% TEXTURE:
0-108" C 2.5Y 6/4 -	CS

SEE SHEET C3.2 FOR ADDITIONAL SOIL TEST DATA

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PREPARED BY:

DILLIS & ROY
CIVIL DESIGN GROUP

CIVIL ENGINEERS LAND SURVEYORS WETLAND CONSULTANTS

1 MAIN STREET, SUITE 1 LUNENBURG, MA 01462

PHONE: (978) 779-6091
www.dillisandroy.com

OWNER:

JAMES MORIN & KATHRYN LUM
307 CENTRAL STREET, APT 331
HUDSON, MASSACHUSETTS

APPLICANT:

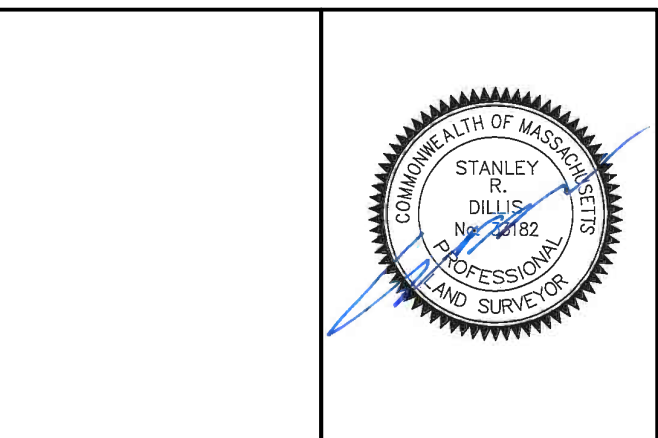
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HUDSON, MASSACHUSETTS

SCALE:

30 0 15 30 60 120

1 in. = 30 ft.

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DATE: 12/16/20	EXISTING CONDITIONS PLAN MALLARD LANE BOLTON, MASSACHUSETTS			JOB NO. 5293
DESIGN BY: RPV				DRAWING NO. 5293-EXIST
DRAWN BY: RPV				SHEET NO.
CHECKED BY: FMM				C1.1
	NO.	DATE	DESCRIPTION	BY
	2.	3/30/22	REVISED PER PEER REVIEW COMMENTS	RWP
	3.	4/19/22	LOCATE ADDITIONAL SOIL TEST HOLES	RWP
	4.	5/5/22	UNIT FOOTPRINTS	SD
	5.	5/27/22	REV. PER PEER REVIEW COMMENTS	GSR

CONSTRUCTION/LAYOUT NOTES:

1. ALL BUILDINGS AND STRUCTURES TO BE PLACED WITHIN THE FOOTPRINTS SHOWN ON THIS PLAN. DEVIATIONS FROM THE PERMITTED PLANS MAY REQUIRE APPROVAL FROM THE TOWN OF BOLTON.
2. CONTRACTOR SHALL CALL 1-888-DIG-SAFE IN ACCORDANCE WITH STATE LAWS PRIOR TO CONSTRUCTION.
3. CONTRACTOR SHALL PLACE ALL EROSION CONTROL BARRIERS PRIOR TO CONSTRUCTION.
4. CONTRACTOR TO CONTACT AND COORDINATE WITH APPROPRIATE UTILITY COMPANY TO CUT AND CAP EXISTING SERVICES PRIOR TO CONSTRUCTION.
5. ALL PAVEMENT DIMENSION AND RADII REFER TO FRONT FACE OF BERMS AND CURBS.
6. PROPOSED PAVEMENT SHALL BE 1 3/4" BITUMINOUS WEARING COURSE OVER, 2" BITUMINOUS BINDER COURSE OVER, 12" GRAVEL COMPACTED IN PLACE TO 95% DENSITY.
7. ALL CURBING SHALL BE BITUMINOUS CONCRETE CURBING.
8. SIDEWALKS SHALL BE 4" THICK, REINFORCED CONCRETE.
9. HANDICAPPED RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE AMERICAN DISABILITIES ACT AND THE MASSACHUSETTS ARCHITECTURAL ACCESS BOARD STANDARDS FOR THE SAME.
10. PARKING SPACE STRIPING SHALL BE WHITE PAINT.

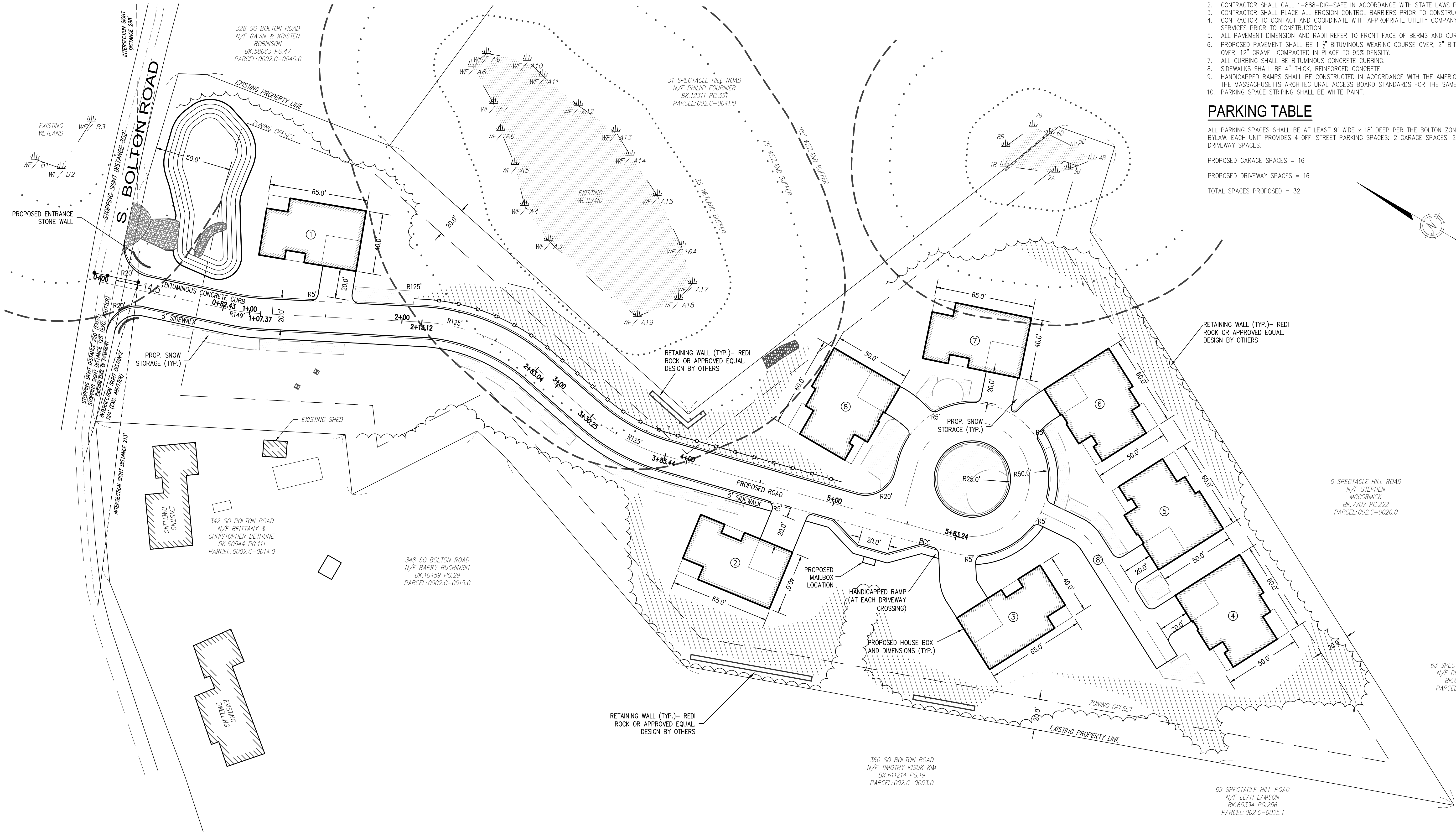
PARKING TABLE

ALL PARKING SPACES SHALL BE AT LEAST 9' WIDE x 18' DEEP PER THE BOLTON ZONING BYLAW. EACH UNIT PROVIDES 4 OFF-STREET PARKING SPACES: 2 GARAGE SPACES, 2 DRIVEWAY SPACES.

PROPOSED GARAGE SPACES = 16

PROPOSED DRIVEWAY SPACES = 16

TOTAL SPACES PROPOSED = 32



ISSUED FOR PERMIT

PREPARED BY:

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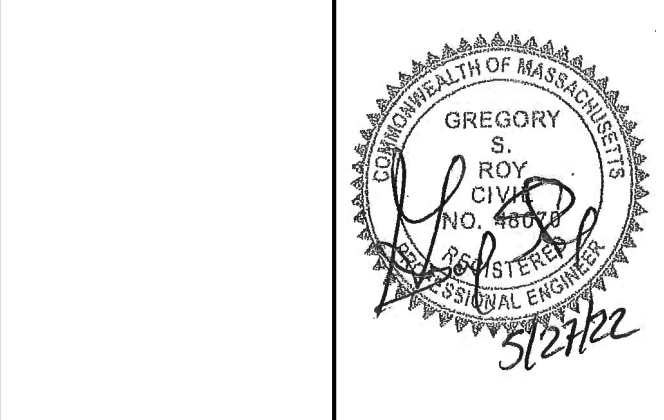
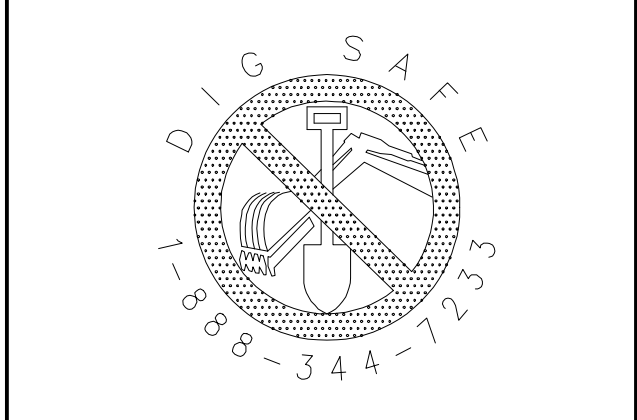
APPLICANT:

JAMES MORIN
307 CENTRAL STREET, APT 331
HUDSON, MASSACHUSETTS

SCALE:

30 0 15 30 60 120
1 in. = 30 ft.

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DATE:	12/16/20
DESIGN BY:	RPV
DRAWN BY:	RPV
CHECKED BY:	FM

LAYOUT PLAN MALLARD LANE BOLTON, MASSACHUSETTS			
NO.	DATE	DESCRIPTION	BY
1.	2/28/22	REDUCE TO 8 UNITS & ZBA COMMENTS	GS
2.	3/30/22	REVISED PER PEER REVIEW COMMENTS	RWP
3.	5/5/22	UNIT FOOTPRINTS	SBD
4.	5/27/22	REV. PER PEER REVIEW COMMENTS	GS

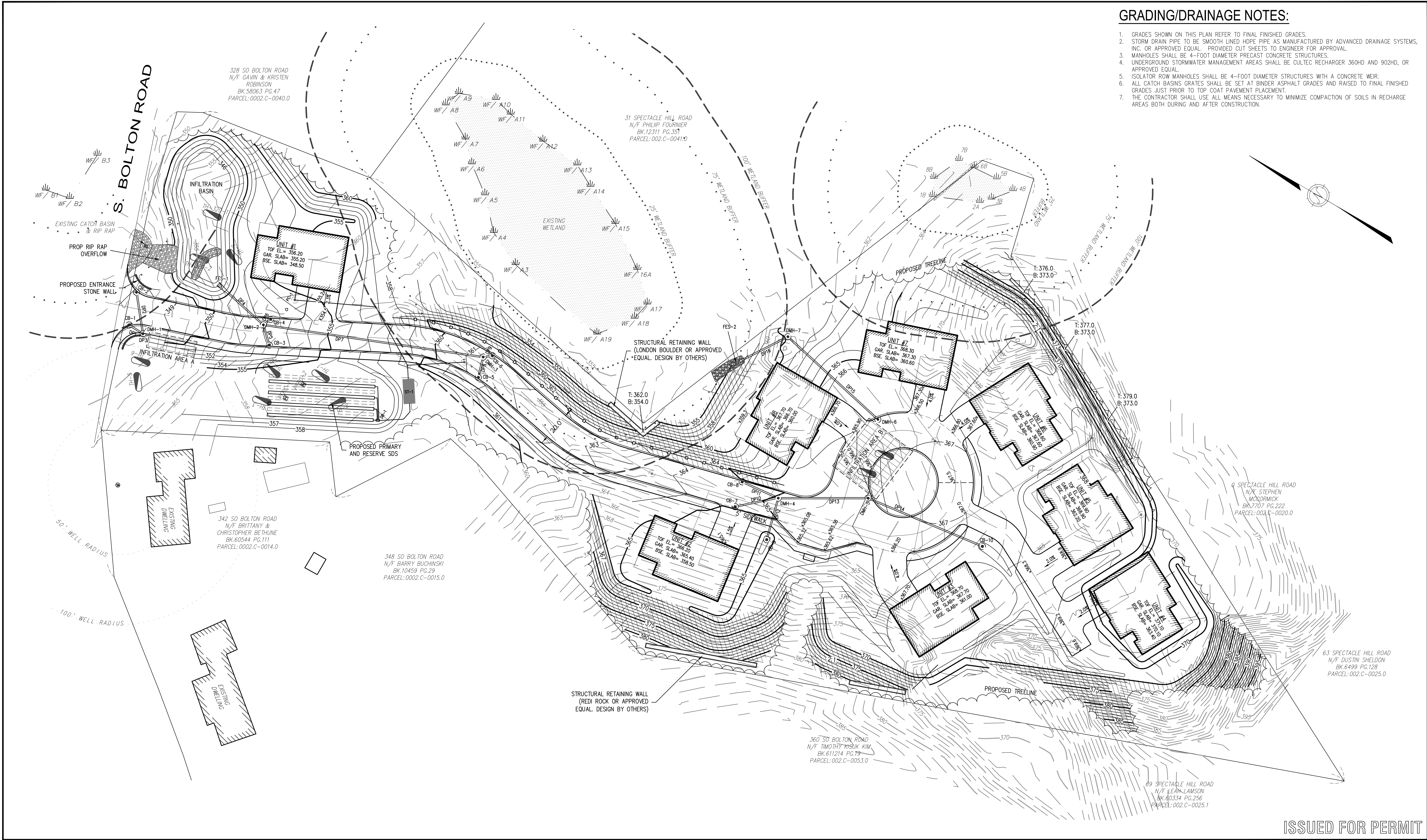
JOB NO. 5293

DRAWING NO. 5293-LAYOUT

SHEET NO. C2.0

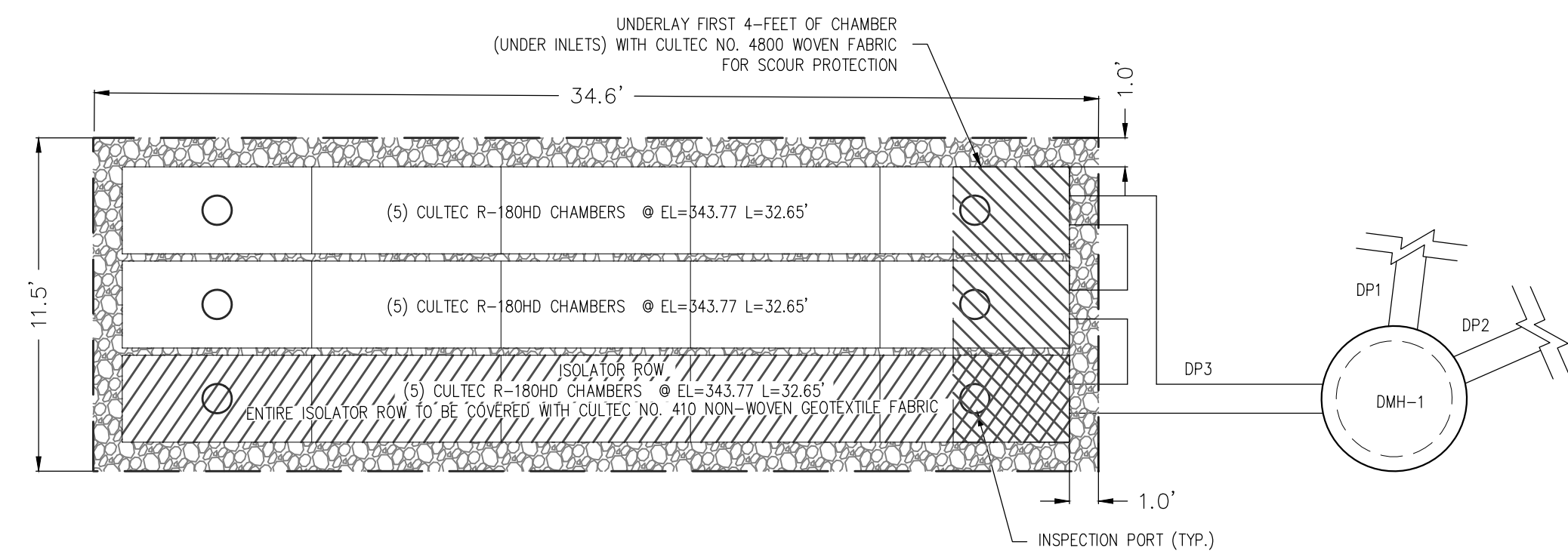
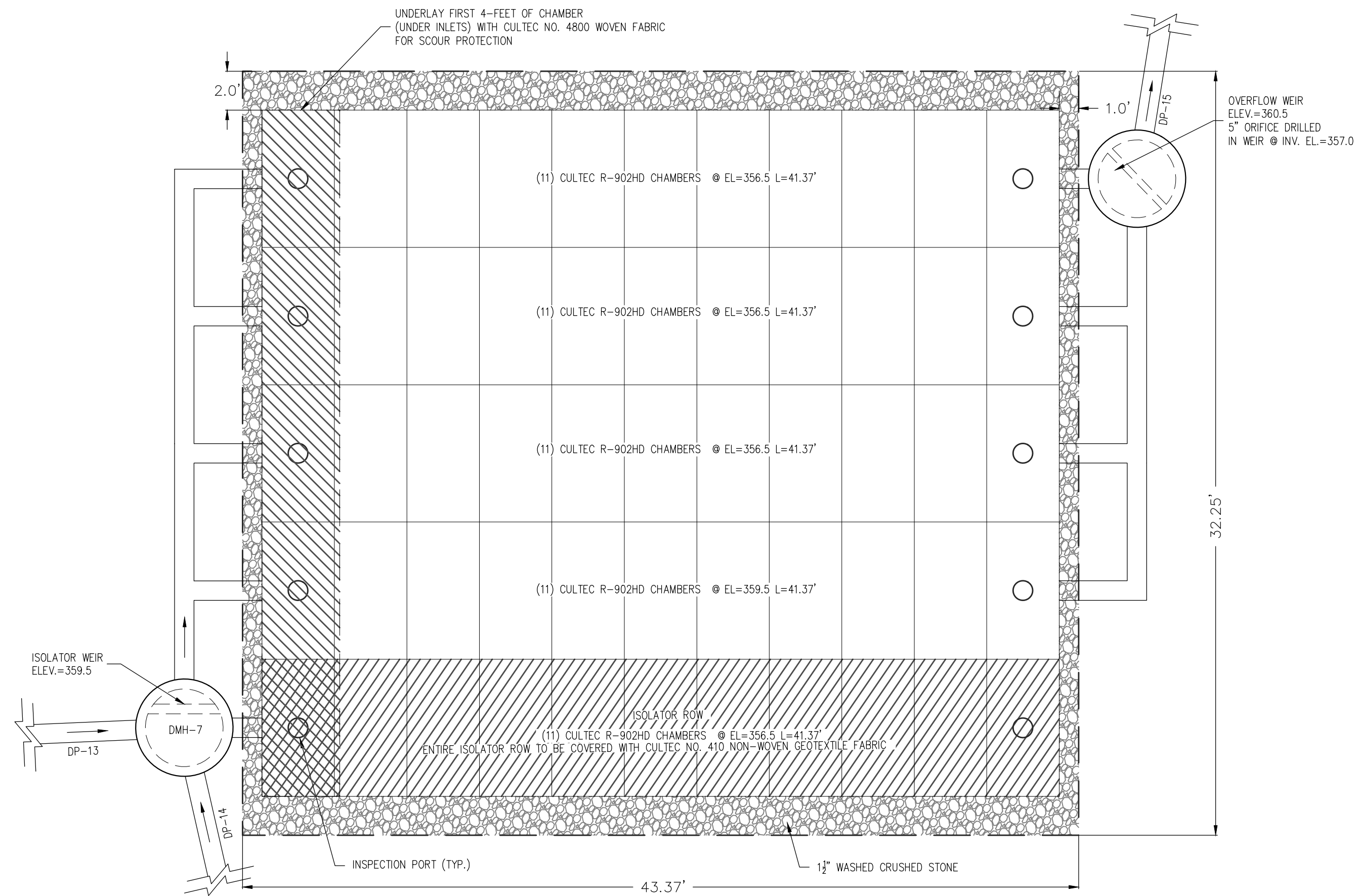
GRADING/DRAINAGE NOTES:

1. GRADES SHOWN ON THIS PLAN REFER TO FINAL FINISHED GRADES.
2. STORM DRAIN PIPE TO BE SMOOTH LINED HDPE PIPE AS MANUFACTURED BY ADVANCED DRAINAGE SYSTEMS, INC. OR APPROVED EQUAL. PROVIDED CUT SHEETS TO ENGINEER FOR APPROVAL.
3. MANHOLES SHALL BE 4-FOOT DIAMETER PRECAST CONCRETE STRUCTURES.
4. UNDERGROUND STORMWATER MANAGEMENT AREAS SHALL BE CULTREC RECHARGER 360HD AND 902HD, OR APPROVED EQUAL.
5. ISOLATOR ROW MANHOLES SHALL BE 4-FOOT DIAMETER STRUCTURES WITH A CONCRETE WEIR.
6. ALL CATCH BASINS GRATES SHALL BE SET AT BINDER ASPHALT GRADES AND RAISED TO FINAL FINISHED GRADES JUST PRIOR TO TOP COAT PAVEMENT PLACEMENT.
7. THE CONTRACTOR SHALL USE ALL MEANS NECESSARY TO MINIMIZE COMPACTION OF SOILS IN RECHARGE AREAS BOTH DURING AND AFTER CONSTRUCTION.



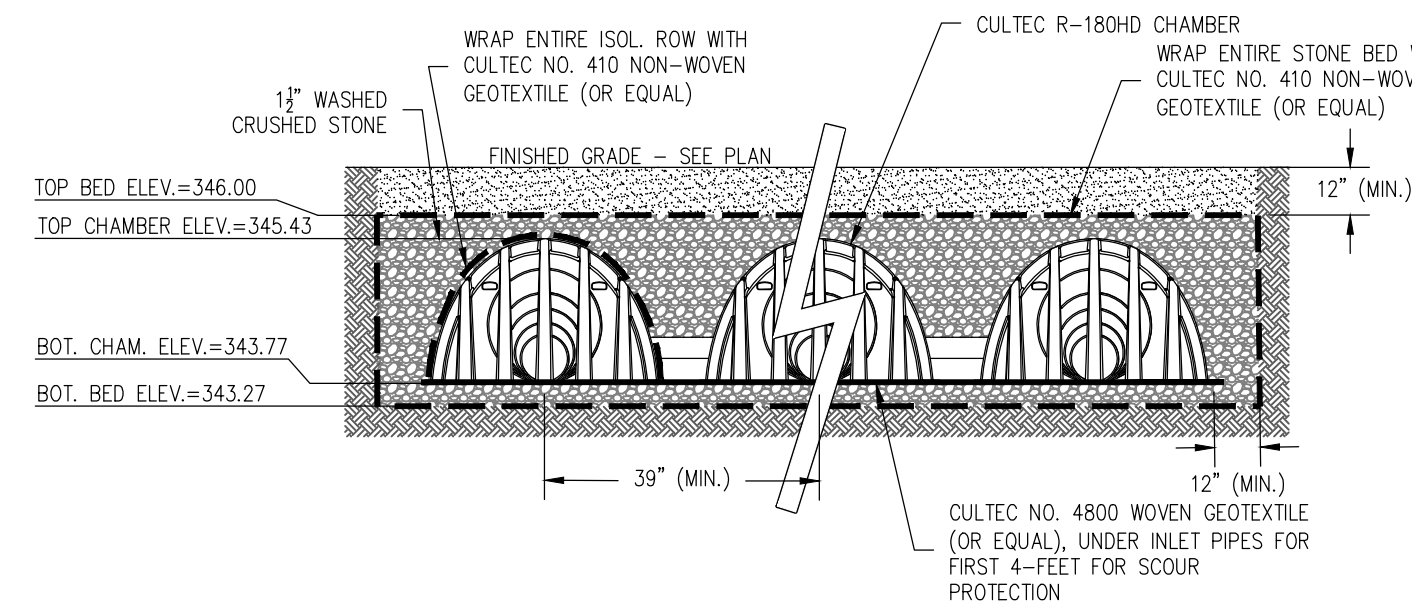
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PREPARED BY: DILLIS & ROY CIVIL DESIGN GROUP CIVIL ENGINEERS LAND SURVEYORS WETLAND CONSULTANTS 1 MAIN STREET, SUITE 1 LUNENBURG, MA 01462 PHONE: (978) 779-6091 www.dillissandroy.com	OWNER: JAMES MORIN & KATHRYN LUM 307 CENTRAL STREET, APT 331 HUDSON, MASSACHUSETTS APPLICANT: JAMES MORIN 307 CENTRAL STREET, APT 331 HUDSON, MASSACHUSETTS	SCALE: 30 0 15 30 60 120 1 in. = 30 ft. COPYRIGHT DILLIS & ROY CIVIL DESIGN GROUP, INC 2022			DATE: 12/16/20	GRADING & DRAINAGE PLAN MALLARD LANE BOLTON, MASSACHUSETTS	JOB NO. 5293																	
					DESIGN BY: RPV		DRAWING NO. 5293-GRADE																	
					DRAWN BY: RPV		SHEET NO. C3.0																	
					CHECKED BY: FMM																			
			<table><tr><th>NO.</th><th>DATE</th><th>DESCRIPTION</th><th>BY</th></tr><tr><td>1.</td><td>2/28/22</td><td>REDUCE TO 8 UNITS & ZBA COMMENTS</td><td>GSR</td></tr><tr><td>2.</td><td>3/30/22</td><td>REVISED PER PEER REVIEW COMMENTS</td><td>RWP</td></tr><tr><td>3.</td><td>5/5/22</td><td>UNIT FOOTPRINTS</td><td>SBD</td></tr><tr><td>4.</td><td>5/27/22</td><td>REV. PER PEER REVIEW COMMENTS</td><td>GSR</td></tr></table>	NO.	DATE	DESCRIPTION	BY	1.	2/28/22	REDUCE TO 8 UNITS & ZBA COMMENTS	GSR	2.	3/30/22	REVISED PER PEER REVIEW COMMENTS	RWP	3.	5/5/22	UNIT FOOTPRINTS	SBD	4.	5/27/22	REV. PER PEER REVIEW COMMENTS	GSR	
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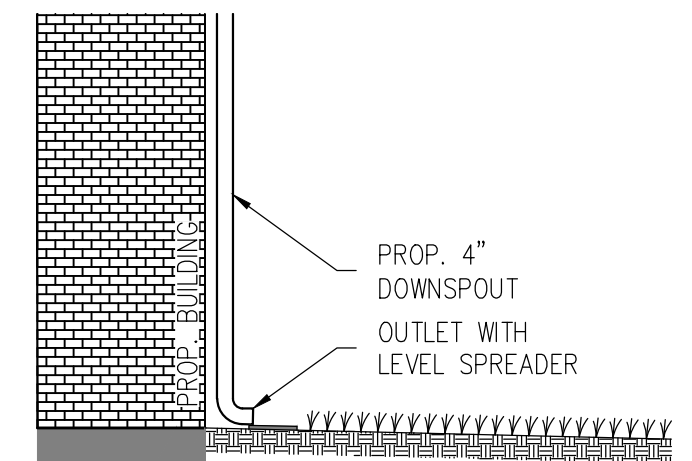
INFILTRATION AREA A

NOT TO SCALE



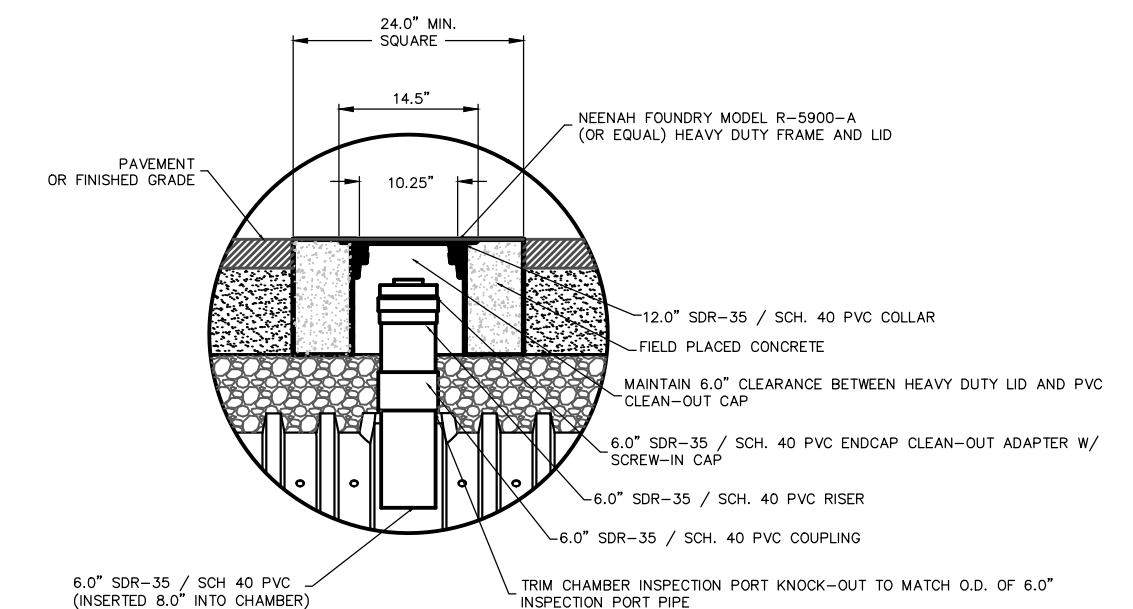
INFILTRATION AREA A CROSS SECTION

NOT TO SCALE



ROOF DRAIN DETAIL

NOT TO SCALE

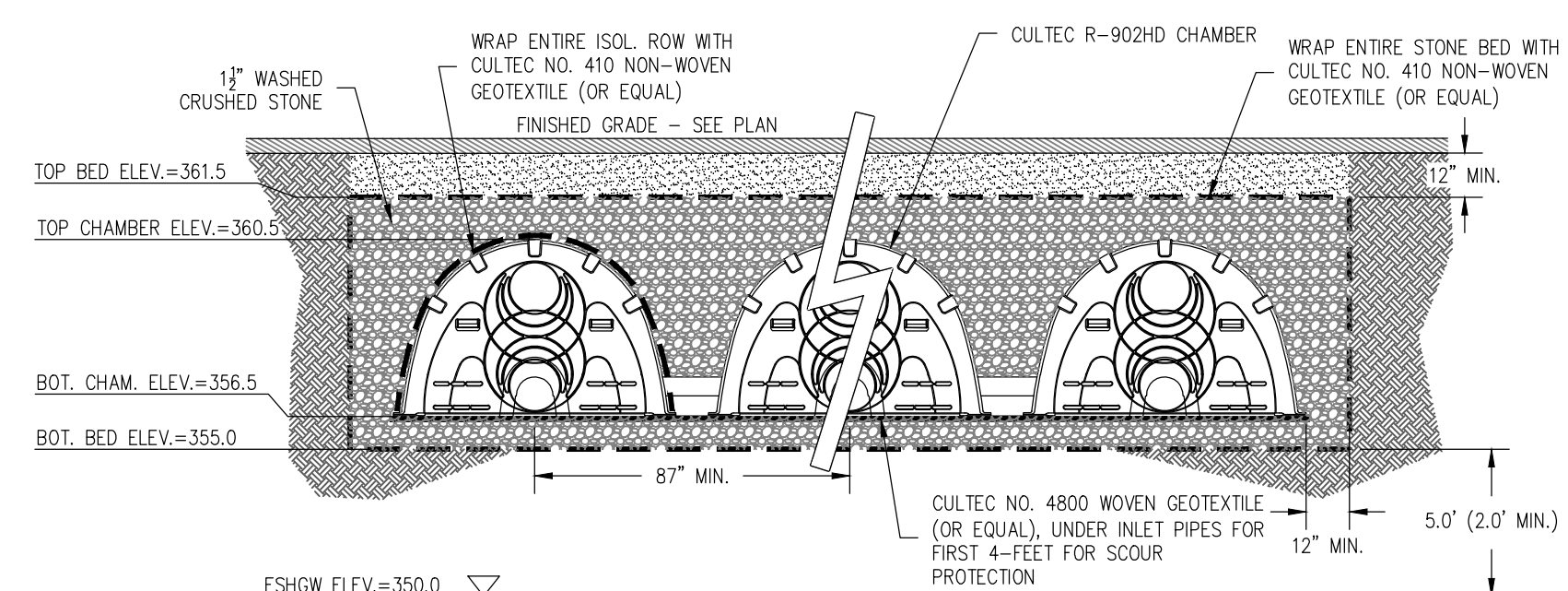


CULTEC INSPECTION PORT DETAIL

NOT TO SCALE

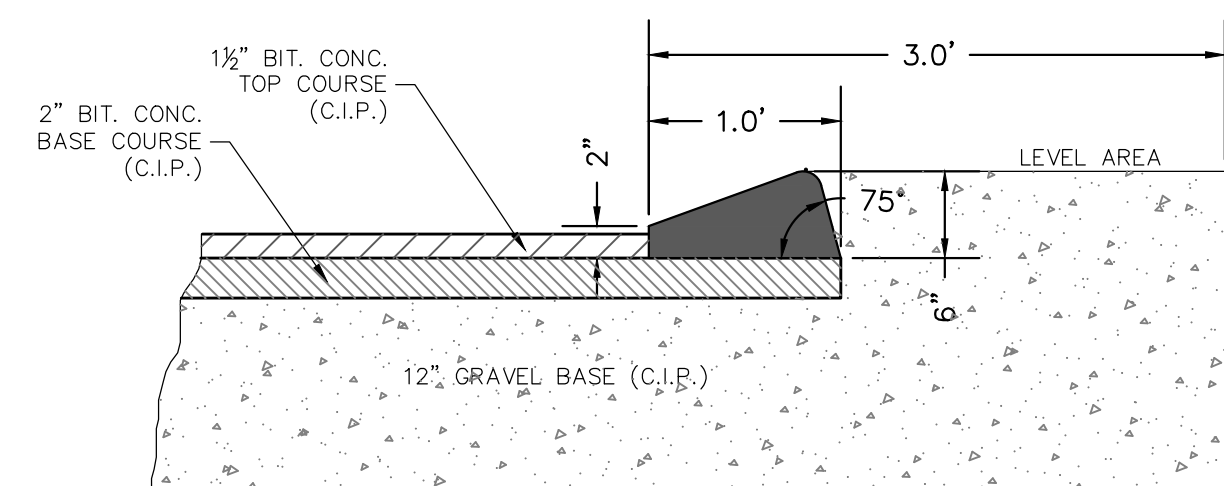
INFILTRATION AREA B

NOT TO SCALE



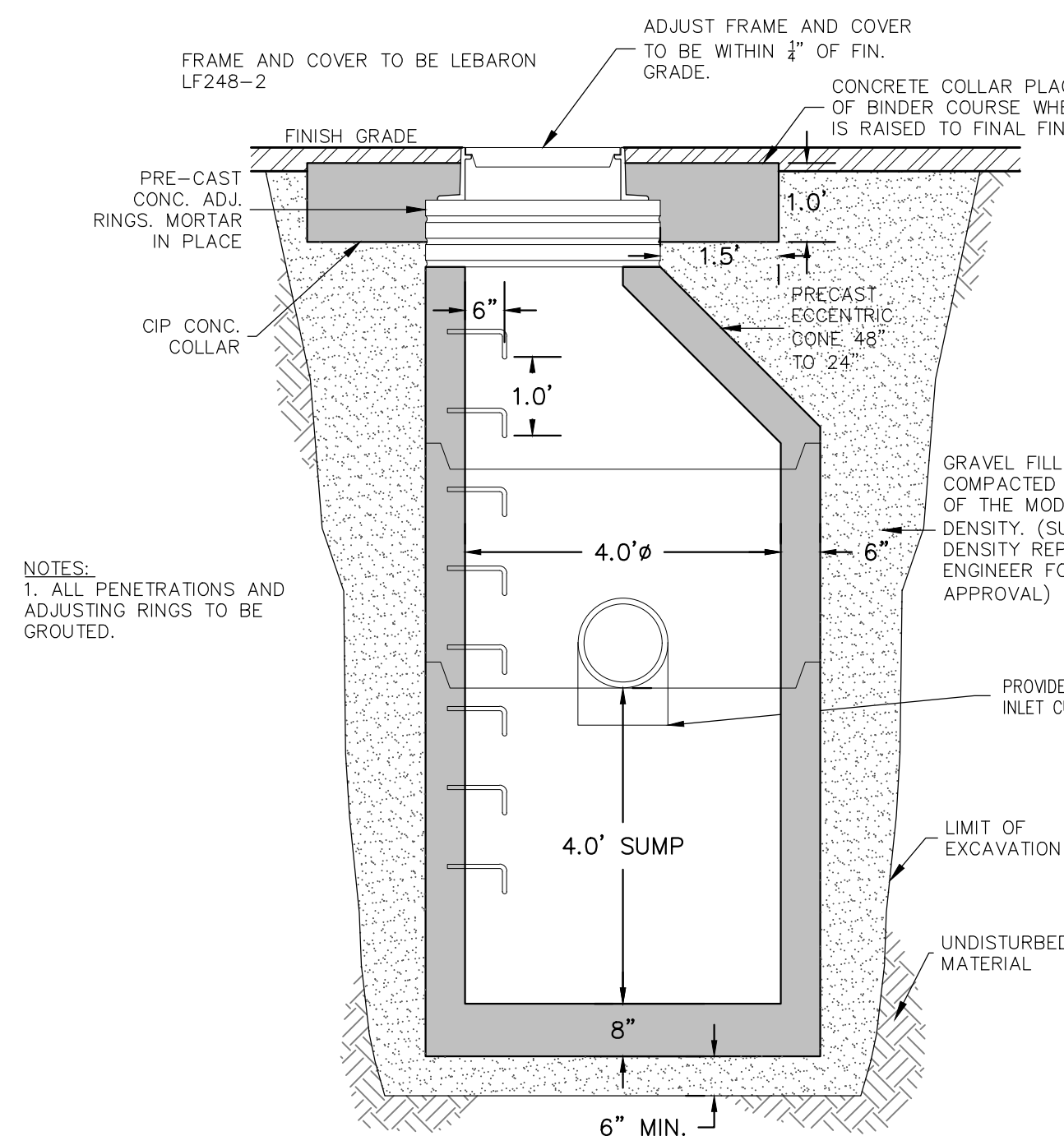
INFILTRATION AREA B CROSS SECTION

NOT TO SCALE



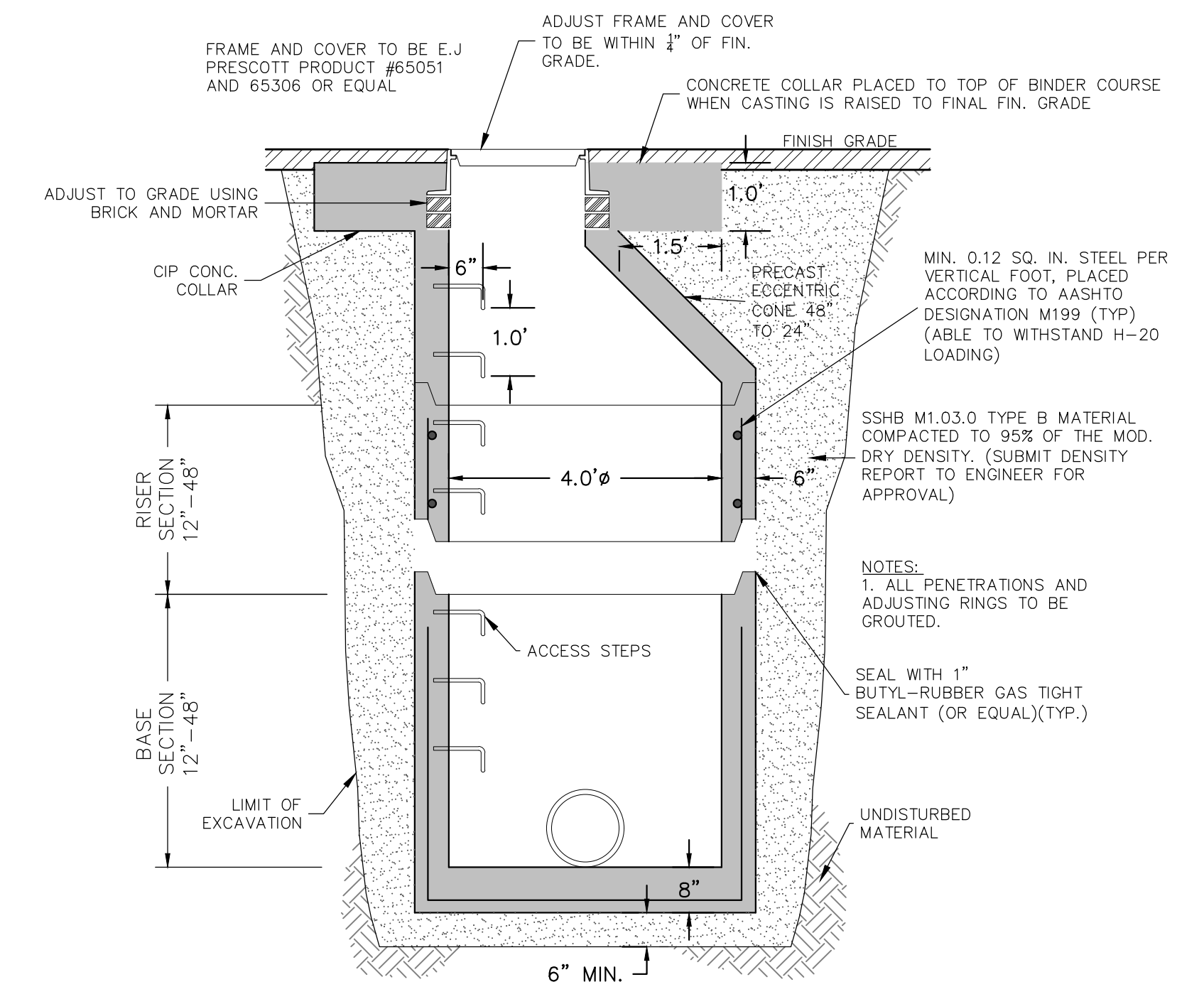
BITUMINOUS CONCRETE CURB DETAIL

NOT TO SCALE



CATCH BASIN DETAIL

NOT TO SCALE



DRAIN MANHOLE DETAIL

NOT TO SCALE

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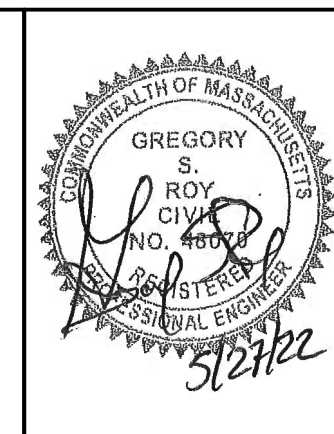
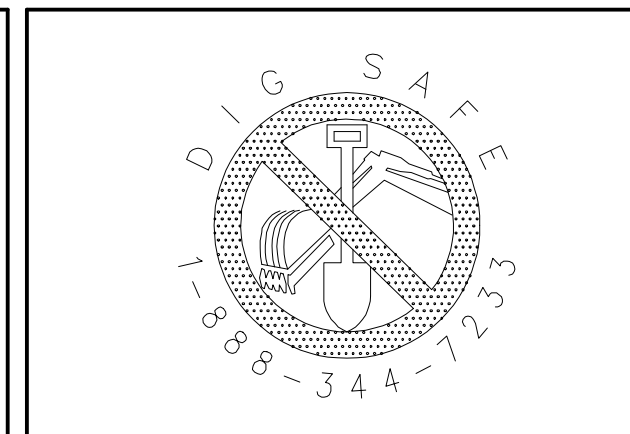
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HUDSON, MASSACHUSETTS

APPLICANT:

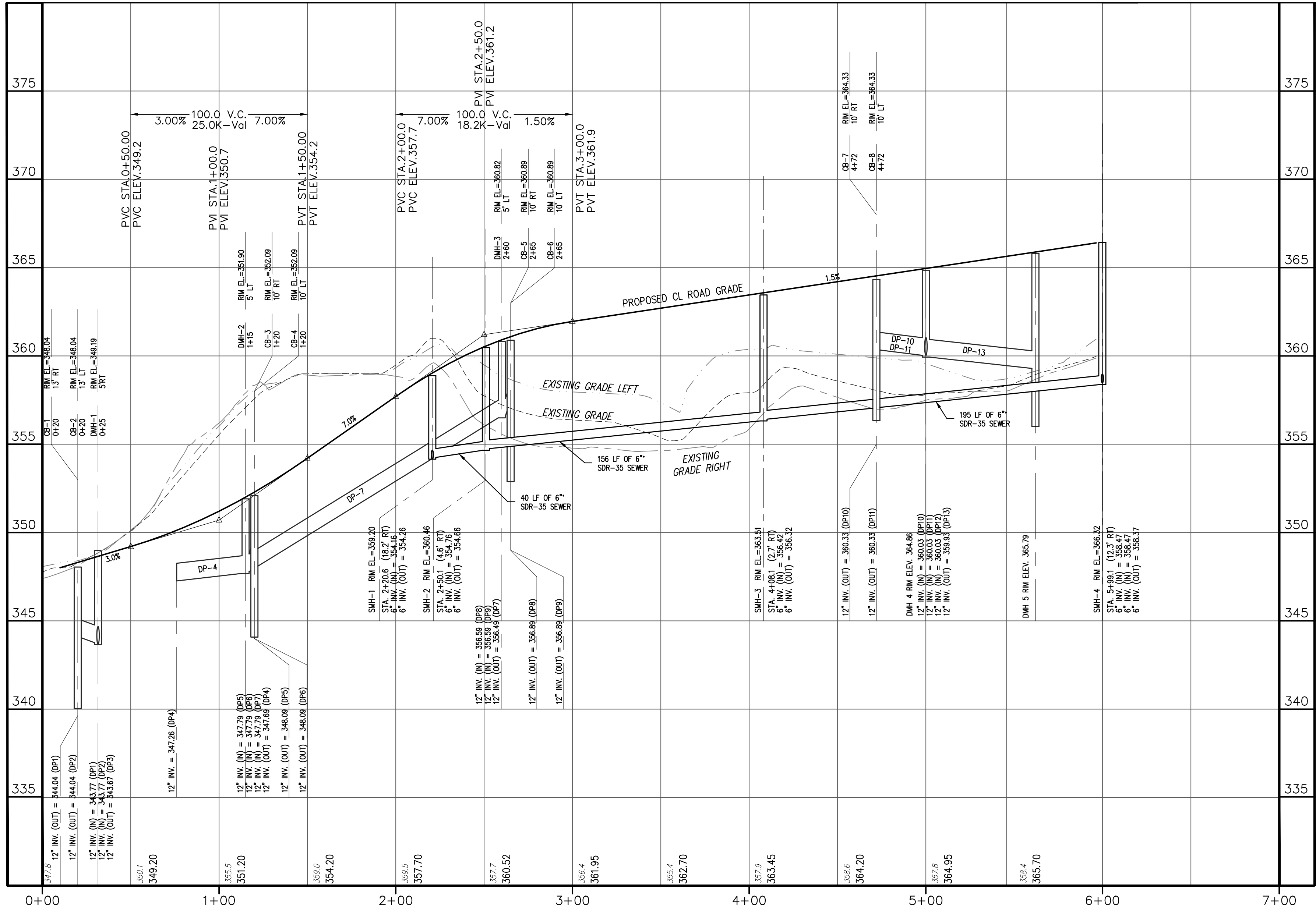
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SCALE:

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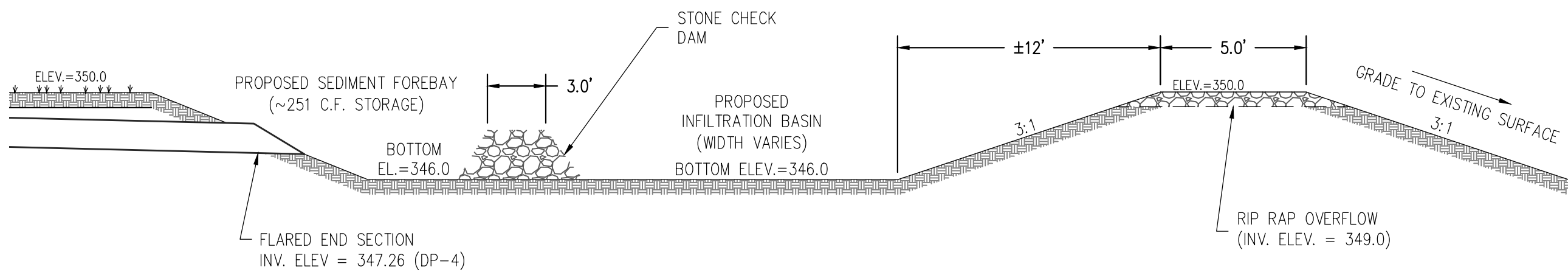


DATE:	12/16/20	GRADING & DRAINAGE DETAILS 1			JOB NO.	5293
DESIGN BY:	RPV	MALLARD LANE			DRAWING NO.	5293-GRADE
DRAWN BY:	RPV	BOLTON, MASSACHUSETTS			SHEET NO.	C3.1
CHECKED BY:	FMM	NO.	DATE	DESCRIPTION	BY	
		1.	2/28/22	REDUCE TO 8 UNITS & ZBA COMMENTS	GSR	
		2.	3/30/22	REVISED PER PEER REVIEW COMMENTS	RWP	
		3.	5/5/22	UNIT FOOTPRINTS	SBD	
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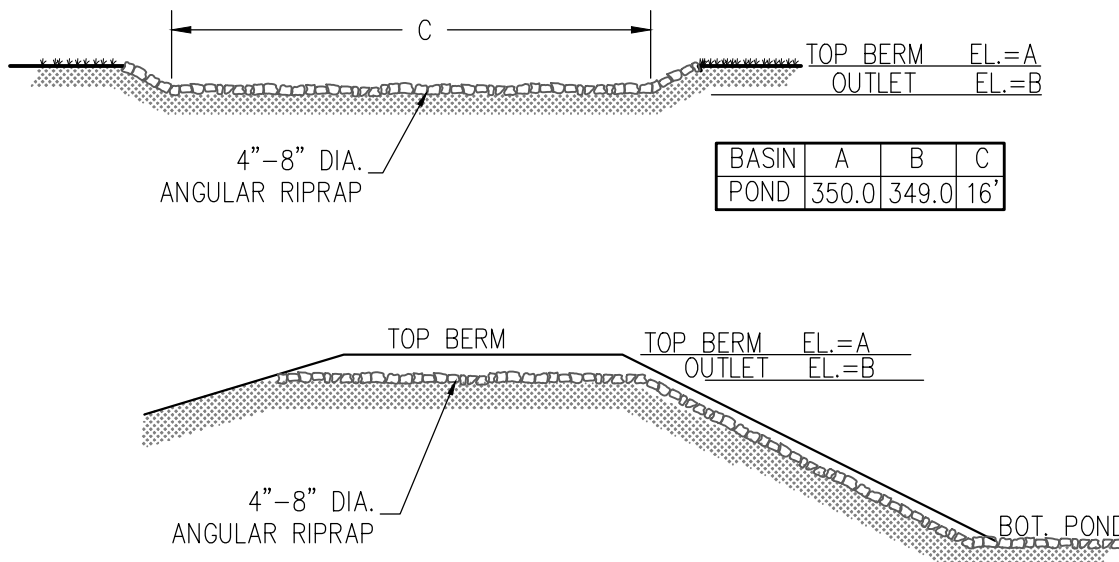
PROPOSED ROAD PROFILE

SCALE: 1" = 40' (HOR.)
1" = 4' (VERT.)



INFILTRATION BASIN CROSS SECTION

NOT TO SCALE



EMERGENCY SPILLWAY DETAIL

NOT TO SCALE

DRAINAGE PIPE SCHEDULE:

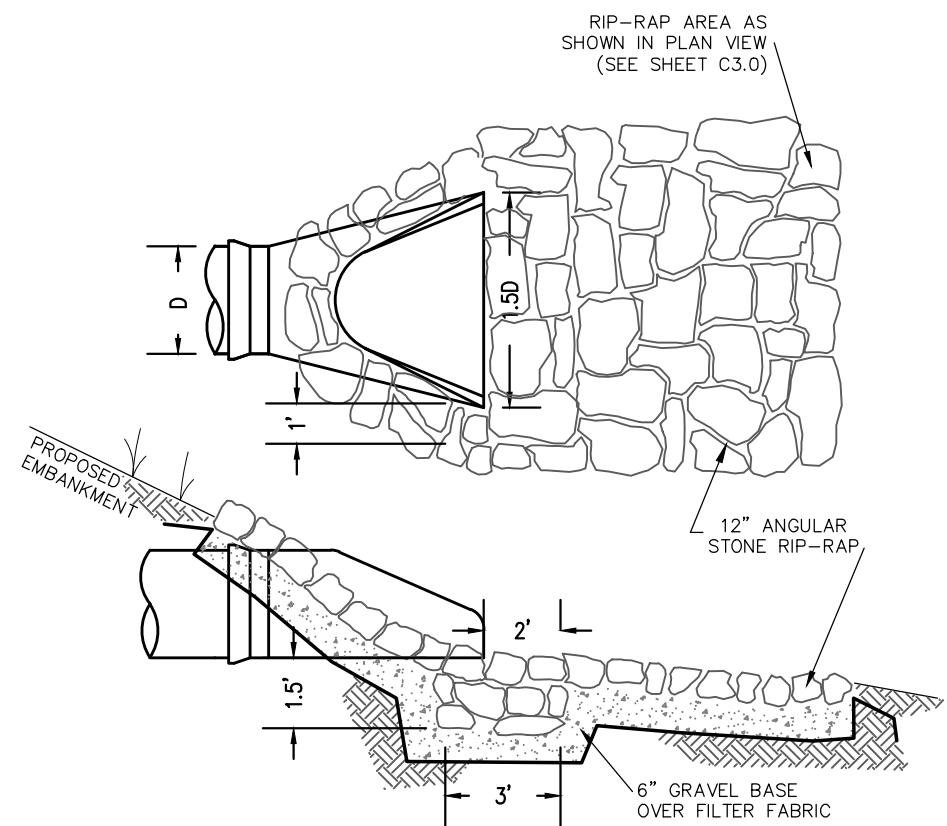
DP-1 DUCTILE IRON SLOPE = 3.4% LENGTH = 8'± INLET INV.=334.04 (CB-1) OUTLET INV.=343.77 (DMH-1)	12"ø	DP-2 DUCTILE IRON SLOPE = 1.0% LENGTH = 27'± INLET INV.=334.04 (CB-2) OUTLET INV.=343.77 (DMH-1)	12"ø	DP-3 DUCTILE IRON SLOPE = 2.5% LENGTH = 4'± INLET INV.=343.67 (DMH-1) OUTLET INV.=343.57 (INFIL. AREA A)	12"ø
DP-4 ADS N-12 SLOPE = 1.0% LENGTH = 43'± INLET INV.=347.69 (DMH-1) OUTLET INV.=347.26 (FES-1)	12"ø	DP-5 ADS N-12 SLOPE = 2.0% LENGTH = 15'± INLET INV.=348.09 (CB-3) OUTLET INV.=347.79 (DMH-2)	12"ø	DP-6 ADS N-12 SLOPE = 2.0% LENGTH = 15'± INLET INV.=348.09 (CB-4) OUTLET INV.=347.79 (DMH-2)	12"ø
DP-7 ADS N-12 SLOPE = 5.5% LENGTH = 159'± INLET INV.=356.49 (DMH-3) OUTLET INV.=347.79 (DMH-2)	12"ø	DP-8 ADS N-12 SLOPE = 2.0% LENGTH = 15'± INLET INV.=356.89 (CB-5) OUTLET INV.=356.59 (DMH-3)	12"ø	DP-9 ADS N-12 SLOPE = 2.0% LENGTH = 15'± INLET INV.=356.89 (CB-6) OUTLET INV.=356.59 (DMH-3)	12"ø
DP-10 ADS N-12 SLOPE = 1.0% LENGTH = 30'± INLET INV.=360.33 (CB-7) OUTLET INV.=360.03 (DMH-4)	12"ø	DP-11 ADS N-12 SLOPE = 1.0% LENGTH = 30'± INLET INV.=360.33 (CB-8) OUTLET INV.=360.03 (DMH-4)	12"ø	DP-12 ADS N-12 SLOPE = 1.0% LENGTH = 31'± INLET INV.=360.34 (CB-9) OUTLET INV.=360.03 (DMH-4)	12"ø
DP-13 ADS N-12 SLOPE = 1.0% LENGTH = 64'± INLET INV.=359.93 (DMH-4) OUTLET INV.=359.29 (DMH-5)	12"ø	DP-14 ADS N-12 SLOPE = 3.0% LENGTH = 89'± INLET INV.=361.96 (CB-10) OUTLET INV.=359.29 (DMH-5)	12"ø	DP-15 ADS N-12 SLOPE = 0.7% LENGTH = 87'± INLET INV.=356.0 (INFIL. AREA B) OUTLET INV.=355.39 (DMH-7)	12"ø
DP-16 ADS N-12 SLOPE = 0.7% LENGTH = 42'± INLET INV.=355.39 (DMH-7) OUTLET INV.=355.00 (FES-2)	12"ø				

SOIL TEST DATA

TEST HOLE NO. TH-1 DATE OF TEST: 4/8/22 SURFACE ELEV.: 360± DEPTH OF GROUNDWATER: >156" DEPTH OF ESHGW: >156" ELEVATION OF ESHGW: <347	DEPTH: SOIL MATRIX REDOX FEATURES: SOIL (IN.) HOR. COLOR: DEPTH/COLOR/% TEXTURE: 0-6" A 10YR 2/2 - SL 6-18" B 7.5YR 5/4 - S 18-156" C 7.5YR 5/4 -	TEST HOLE NO. TH-5 DATE OF TEST: 4/8/22 SURFACE ELEV.: 351± DEPTH OF GROUNDWATER: >156" DEPTH OF ESHGW: >156" ELEVATION OF ESHGW: <338	DEPTH: SOIL MATRIX REDOX FEATURES: SOIL (IN.) HOR. COLOR: DEPTH/COLOR/% TEXTURE: 0-6" A 10YR 2/2 - SL 6-24" B 7.5YR 5/6 - SL 24-156" C 7.5YR 5/4 -	TEST HOLE NO. TH-2 DATE OF TEST: 4/8/22 SURFACE ELEV.: 359± DEPTH OF GROUNDWATER: >144" DEPTH OF ESHGW: >144" ELEVATION OF ESHGW: <347	DEPTH: SOIL MATRIX REDOX FEATURES: SOIL (IN.) HOR. COLOR: DEPTH/COLOR/% TEXTURE: 0-9" A 10YR 2/2 - SL 9-24" B 7.5YR 5/6 - S 24-144" C 7.5YR 5/4 -	TEST HOLE NO. TH-6 DATE OF TEST: 4/8/22 SURFACE ELEV.: 350± DEPTH OF GROUNDWATER: >156" DEPTH OF ESHGW: >156" ELEVATION OF ESHGW: <337	DEPTH: SOIL MATRIX REDOX FEATURES: SOIL (IN.) HOR. COLOR: DEPTH/COLOR/% TEXTURE: 0-9" A 10YR 2/2 - SL 9-24" B 7.5YR 5/4 - SL 24-156" C 7.5YR 5/4 -	TEST HOLE NO. TH-3 DATE OF TEST: 4/8/22 SURFACE ELEV.: 359± DEPTH OF GROUNDWATER: >156" DEPTH OF ESHGW: >156" ELEVATION OF ESHGW: <346	DEPTH: SOIL MATRIX REDOX FEATURES: SOIL (IN.) HOR. COLOR: DEPTH/COLOR/% TEXTURE: 0-9" A 10YR 2/2 - SL 9-24" B 7.5YR 5/4 - SL 24-156" C 7.5YR 5/4 -	TEST HOLE NO. TH-7 DATE OF TEST: 4/8/22 SURFACE ELEV.: 358± DEPTH OF GROUNDWATER: >156" DEPTH OF ESHGW: >156" ELEVATION OF ESHGW: <345	DEPTH: SOIL MATRIX REDOX FEATURES: SOIL (IN.) HOR. COLOR: DEPTH/COLOR/% TEXTURE: 0-6" A 10YR 2/2 - SL 6-24" B 7.5YR 5/4 - SL 24-180" C 7.5YR 5/4 -	TEST HOLE NO. TH-4 DATE OF TEST: 4/8/22 SURFACE ELEV.: 359± DEPTH OF GROUNDWATER: >144" DEPTH OF ESHGW: >144" ELEVATION OF ESHGW: <347	DEPTH: SOIL MATRIX REDOX FEATURES: SOIL (IN.) HOR. COLOR: DEPTH/COLOR/% TEXTURE: 0-9" A 10YR 2/2 - SL 9-24" B 7.5YR 5/6 - SL 24-144" C 7.5YR 5/4 -	TEST HOLE NO. TH-8 DATE OF TEST: 4/8/22 SURFACE ELEV.: 360± DEPTH OF GROUNDWATER: >156" DEPTH OF ESHGW: >156" ELEVATION OF ESHGW: <347	DEPTH: SOIL MATRIX REDOX FEATURES: SOIL (IN.) HOR. COLOR: DEPTH/COLOR/% TEXTURE: 0-156" C 10YR 5/4 - S
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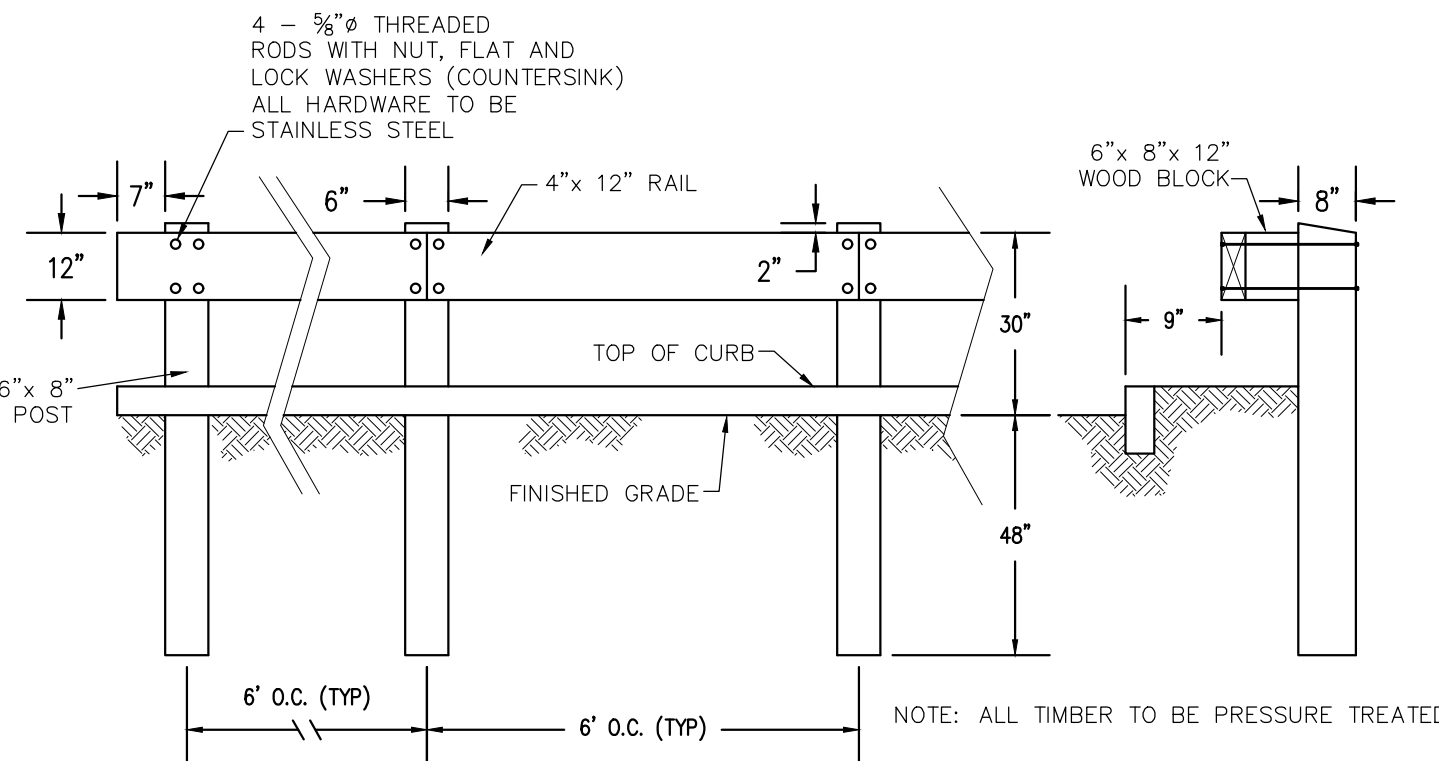
DRAINAGE STRUCTURE SCHEDULE:

CB-1 PRECAST RC RM = 349.19 12"ø HDPE INV. OUT=344.04	4'ø	DMH-1 PRECAST RC RM = 349.19 12"ø HDPE INV. IN=343.77 12"ø HDPE INV. OUT=343.67	4'ø	(DP-1) 12"ø HDPE INV. IN=347.79 12"ø HDPE INV. OUT=347.69	4'ø
CB-2 PRECAST RC RM = 348.04 12"ø HDPE INV. IN=344.04	4'ø	DMH-2 PRECAST RC RM = 351.90 12"ø HDPE INV. IN=347.79 12"ø HDPE INV. IN=347.79 12"ø HDPE INV. OUT=347.69	4'ø	(DP-2) 12"ø HDPE INV. IN=347.79 12"ø HDPE INV. OUT=347.69	4'ø
CB-3 PRECAST RC RM = 352.09 12"ø HDPE INV. OUT=348.09	4'ø	DMH-3 PRECAST RC RM = 360.82 12"ø HDPE INV. IN=356.59 12"ø HDPE INV. IN=347.79 12"ø HDPE INV. OUT=356.49	4'ø	(DP-5) 12"ø HDPE INV. IN=356.59 12"ø HDPE INV. OUT=356.49	4'ø
CB-4 PRECAST RC RM = 352.09 12"ø HDPE INV. OUT=348.09	4'ø	DMH-4 PRECAST RC RM = 364.86 12"ø HDPE INV. IN=360.03 12"ø HDPE INV. IN=360.03 12"ø HDPE INV. OUT=359.93	4'ø	(DP-8) 12"ø HDPE INV. IN=360.03 12"ø HDPE INV. OUT=359.93	4'ø
CB-5 PRECAST RC RM = 360.89 12"ø HDPE INV. OUT=356.89	4'ø	DMH-5 PRECAST RC RM = 365.79 12"ø HDPE INV. IN=356.29 12"ø HDPE INV. OUT=356.19	4'ø	(DP-9) 12"ø HDPE INV. IN=356.29 12"ø HDPE INV. OUT=356.19	4'ø
CB-6 PRECAST RC RM = 360.89 12"ø HDPE INV. OUT=356.89	4'ø	DMH-6 PRECAST RC RM = 364.85 12"ø HDPE INV. IN=362.06 12"ø HDPE INV. OUT=361.96	4'ø	(DP-10) 12"ø HDPE INV. IN=362.06 12"ø HDPE INV. OUT=361.96	4'ø
CB-7 PRECAST RC RM = 364.33 12"ø HDPE INV. OUT=360.33	4'ø	DMH-7 PRECAST RC RM = 366.50 12"ø HDPE INV. IN=361.35 12"ø HDPE INV. OUT=361.25	4'ø	(DP-11) 12"ø HDPE INV. IN=361.35 12"ø HDPE INV. OUT=361.25	4'ø
CB-8 PRECAST RC RM = 364.33 12"ø HDPE INV. OUT=360.33	4'ø	DMH-8 PRECAST RC RM = 366.50 12"ø HDPE INV. IN=361.35 12"ø HDPE INV. OUT=361.25	4'ø	(DP-12) 12"ø HDPE INV. IN=361.35 12"ø HDPE INV. OUT=361.25	4'ø
CB-9 PRECAST RC RM = 363.84 12"ø HDPE INV. OUT=360.34	4'ø	DMH-9 PRECAST RC RM = 366.50 12"ø HDPE INV. IN=361.35 12"ø HDPE INV. OUT=361.25	4'ø	(DP-13) 12"ø HDPE INV. IN=361.35 12"ø HDPE INV. OUT=361.25	4'ø
CB-10 PRECAST RC RM = 366.8 12"ø HDPE INV. OUT=361.96	4'ø	DMH-10 PRECAST RC RM = 366.50 12"ø HDPE INV. IN=361.35 12"ø HDPE INV. OUT=361.25	4'ø	(DP-14) 12"ø HDPE INV. IN=361.35 12"ø HDPE INV. OUT=361.25	4'ø



FLARED END SECTION

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WOODEN GUARDRAIL DETAIL

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PREPARED BY:

DILLIS & ROY
CIVIL DESIGN GROUP

CIVIL ENGINEERS LAND SURVEYORS WETLAND CONSULTANTS

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PHONE: (978) 779-6091

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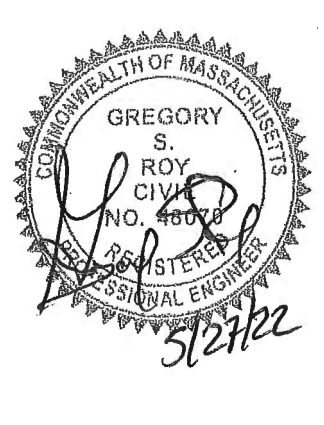
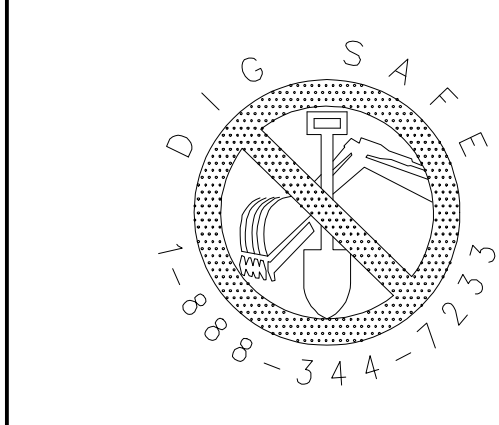
JAMES MORIN & KATHRYN LUM
307 CENTRAL STREET, APT 331
HUDSON, MASSACHUSETTS

APPLICANT:

JAMES MORIN
307 CENTRAL STREET, APT 331
HUDSON, MASSACHUSETTS

SCALE:

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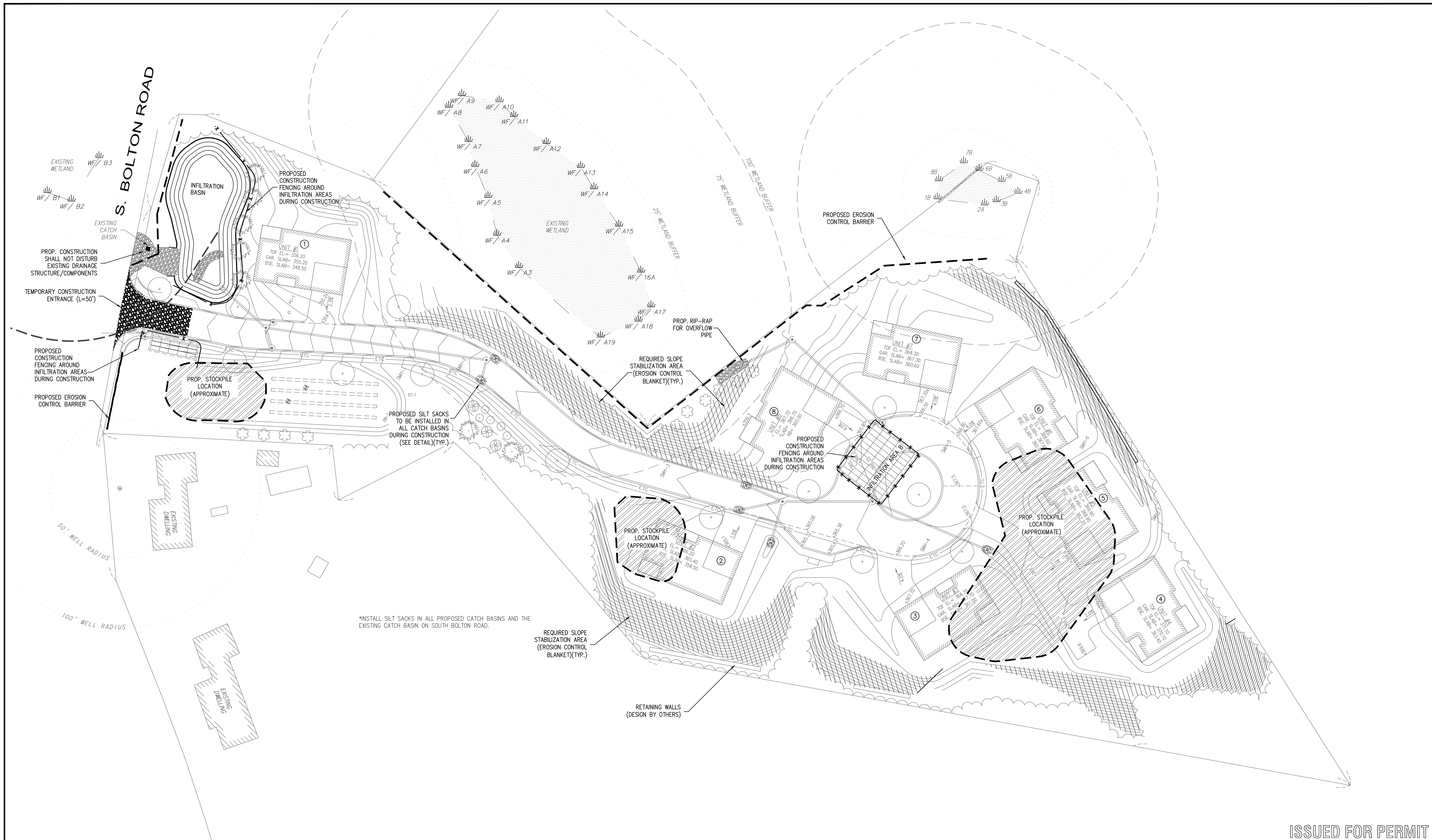
DATE:	12/16/20
DESIGN BY:	RPV
DRAWN BY:	RPV
CHECKED BY:	FM

GRADING & DRAINAGE DETAILS 2 MALLARD LANE BOLTON, MASSACHUSETTS			
NO.	DATE	DESCRIPTION	BY
1.	2/28/22	REDUCE TO 8 UNITS & ZBA COMMENTS	GS
2.	3/30/22	REVISED PER PEER REVIEW COMMENTS	RWP
3.	5/5/22	UNIT FOOTPRINTS	SBD
4.	5/27/22	REV. PER PEER REVIEW COMMENTS	GS

JOB NO. 5293

DRAWING NO. 5293-GRADE

SHEET NO. C3.2



ISSUED FOR PERMIT

PREPARED BY:

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1 MAIN STREET, SUITE 1
LUNENBURG, MA 01462

PHONE: (978) 779-6091
www.dillisandroy.com

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JAMES MORIN & KATHRYN LUM
307 CENTRAL STREET, APT 331
HUDSON, MASSACHUSETTS

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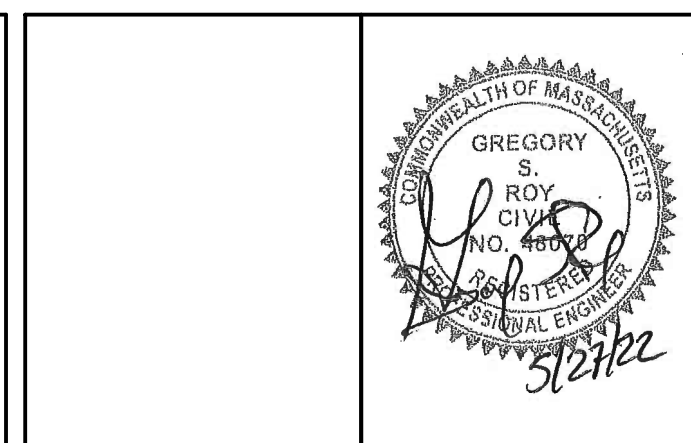
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HUDSON, MASSACHUSETTS

SCALE:

30 0 15 30 60 120

1 in. = 30 ft.

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DATE:	12/16/20	EROSION CONTROL PLAN			JOB NO.	5293
DESIGN BY:	RPV	MALLARD LANE			DRAWING NO.	5293-EROSION
DRAWN BY:	RPV	BOLTON, MASSACHUSETTS			SHEET NO.	C4.0
CHECKED BY:	FMM	NO.	DATE	DESCRIPTION	BY	
		1.	2/28/22	REDUCE TO 8 UNITS & ZBA COMMENTS	GSR	
		2.	3/30/22	REVISED PER PEER REVIEW COMMENTS	RWP	
		3.	5/5/22	UNIT FOOTPRINTS	SBD	
		4.	5/27/22	REV. PER PEER REVIEW COMMENTS	GSR	

EROSION CONTROL NOTES:

A. MANAGEMENT STRATEGIES:

- CONSTRUCTION SHALL BE SEQUENCED SO THAT GRADING OPERATIONS CAN BEGIN AND END AS QUICKLY AS POSSIBLE.
- EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY DISTURBANCE ON SITE.
- AREAS WHICH ARE NOT TO BE DISTURBED SHALL BE CLEARLY MARKED BY FLAGS, SIGNS, ETC. RETAIN EXISTING VEGETATION WHERE FEASIBLE.
- THERE SHALL BE NO STORAGE OF ANY KIND OF ANY CHEMICALS, PESTICIDES, FUELS AND OTHER POTENTIALLY TOXIC OR HAZARDOUS MATERIALS ON SITE.
- NO DEBRIS, JUNK, RUBBISH OR OTHER WASTE MATERIALS SHALL BE BURIED ON THE SITE.
- STUMPS AND OTHER WOOD DEBRIS SHALL BE DISPOSED OF IN ACCORDANCE WITH THE "POLICY ON THE DISPOSAL OF WOODWASTES" PUBLISHED BY THE DEPARTMENT OF ENVIRONMENTAL AFFAIRS, DATED AUGUST 14, 1987.
- THE JOB SUPERINTENDENT SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL PRACTICES.

B. MAINTENANCE/ PERFORMANCE STANDARDS:

ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER EACH RAINFALL WITH AN ACCUMULATION OF ½" OR MORE. THE FOLLOWING ITEMS SHALL BE CHECKED IN PARTICULAR:

- THE SILT FENCE BARRIERS SHALL BE CHECKED REGULARLY FOR TEARS, DETERIORATION, AND UNDERMINING.
- ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE RESEED AS NEEDED.
- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO THE PUBLIC ROAD. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 2 INCH STONE AS CONDITIONS DEMAND AND OR CLEANOUT/REPLACEMENT OF STONE IF CLOGGING OR SEDIMENTATION OCCURS. ALL MATERIALS SPILLED DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO THE TOWN ROAD MUST BE REMOVED DAILY BY SWEEPING OR OTHER SUITABLE MEANS.
- ALL AREAS ON SITE SUBJECT TO EROSION/SEDIMENTATION SHALL BE INSPECTED ON A REGULAR BASIS. ALL ITEMS SPECIFIED ON THIS AND OTHER PLANS SHALL BE INSPECTED TO VERIFY THAT THEY ARE OPERATING AS DESIGNED AND INTENDED. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO MAINTAIN AND REPAIR ALL STRUCTURES.
- THE ENTIRE DRAINAGE SYSTEM SHALL BE INSPECTED ON A REGULAR BASIS AND PRIOR TO AND IMMEDIATELY AFTER ANY RAINFALL EVENT WHILE THE SITE IS DISTURBED.
 - CATCH BASINS SHALL BE INSPECTED WEEKLY TO ENSURE THAT THEY ARE WATER TIGHT, HAVE ADEQUATE SUMP CAPACITY, THAT OIL AND GAS TRAPS ARE IN PLACE. THEY SHALL ALSO BE INSPECTED AFTER EVERY SIGNIFICANT RAINFALL EVENT (I.E. A TWO-YEAR STORM EVENT OR GREATER) DURING THE FIRST THREE (3) MONTHS OF BEING PLACED IN SERVICE TO ENSURE THAT THEY ARE FUNCTIONING IN AN ADEQUATE FASHION. THE BASINS SHALL BE CLEANED WITH A VACUUM TRUCK WHEN ⅓ OF THE SUMP IS FILLED WITH SEDIMENT BUT NOT LESS THAN TWO (2) TIMES PER YEAR. AFTER THE FIRST THREE (3) MONTHS OF SERVICE THE BASINS SHALL BE INSPECTED NOT LESS THAN ONE (1) TIME PER YEAR TO ENSURE ADEQUATE FUNCTIONALITY. OIL/GAS TRAPS SHALL BE CLEANED WITH A VACUUM TRUCK AND MONITORED FOR HYDROCARBON BUILD UP SEMIANNUALLY.
 - DEWATERING OF EXCAVATIONS DURING CONSTRUCTION SHALL BE ADDRESSED ON AN INDIVIDUAL BASIS AS NEEDED. IF TEMPORARY DEWATERING IS REQUIRED ON THE SITE OR IN CLOSE PROXIMITY TO THE 100 FT BUFFER ZONE, SEDIMENT BASINS SHALL BE CONSTRUCTED OR SILT TRAPS SHALL BE UTILIZED. SILT TRAPS AND SEDIMENT BASINS SHALL BE MAINTAINED DURING THE DEWATERING OPERATION.

C. TEMPORARY MEASURES:

- PLACE EROSION CONTROL BARRIERS WITH STRAW WATTLES AS SHOWN ON THE EROSION CONTROL PLAN.
- IF LOAM IS PLACED OUTSIDE OF THE NORMAL GROWING SEASON, SILT FENCE OR STRAW WADDLES SHALL BE PLACED BETWEEN THE LAWN AREA AND PAVEMENT.
- CONSTRUCT TEMPORARY STONE PAD AT EXIT TO THE SITE AS SHOWN ON THE EROSION CONTROL PAN.
- DURING DRY PERIODS, PROVIDE MEANS FOR MITIGATION OF DUST, SUCH AS WATERING OF EXPOSED AREAS.
- STOCKPILE LOCATIONS SHALL BE WITHIN THE PROPOSED LIMIT OF WORK. PLACE SILT FENCE AROUND ALL STOCK PILED AREAS. PILES LEFT FOR 21 DAYS OR MORE SHALL BE SEEDED OR COVERED WITH PLASTIC SHEETING.
- WASTE DISPOSAL RECEPTACLES AND TRAILERS WILL BE USED FOR THE DISPOSAL OF CONSTRUCTION DEBRIS, WHICH WILL BE REMOVED FROM THE SITE ACCORDING TO STATE, LOCAL, AND FEDERAL GUIDELINES. CONSTRUCTION DEBRIS WILL INCLUDE PAVEMENT, UTILITY, EARTH AND BUILDING MATERIALS THAT CANNOT BE REUSED. THE RECEPTACLES WILL BE LOCATED ON-SITE AND COVERED.
- PLACE SILT SACK INSERTS IN ALL PROPOSED CATCH BASINS AFTER CONSTRUCTED AND IN THE EXISTING LEACHING CATCH BASIN.
- IN ADDITION TO WHAT IS DEPICTED ON THE PLANS, SILT FENCE SHALL BE PLACED DOWN GRADIENT (UP-GRADIENT OF ANY STORMWATER APPURTENANCES, WETLAND BUFFER ZONES AND AREAS TO BE LEFT UNDISTURBED) TO EACH STRUCTURE DURING THE CONSTRUCTION PROCESS UNTIL THE DISTURBED AREA IS RESTORED.
- THE DEVELOPER SHALL MAINTAIN ANY STORMWATER TREATMENT SYSTEMS USED TO TRAP SEDIMENT DURING CONSTRUCTION TO PREVENT SEDIMENT FROM LEAVING THE SITE AND SHALL REMOVE ALL SEDIMENT FROM ALL SYSTEMS WHEN CONSTRUCTION IS FINISHED AND THE SITE IS STABILIZED.
- ADDITION EROSION CONTROL MEASURES SHALL BE IMPLEMENTED DURING THE CONSTRUCTION PROCESS AS DEEMED NECESSARY BY THE TOWN OF BOLTON.

D. PERMANENT STABILIZATION:

- UNLESS OTHERWISE INDICATED HEREON ALL DISTURBED AREAS SHALL BE LOAMED (4" MIN.) AND SEEDED WITH AN APPROPRIATE MIXTURE OF GRASSES SUITABLE FOR THE AREA. AREAS NOT STABILIZED BEFORE THE END OF THE FALL PLANTING SEASON SHALL BE HYDRO-MULCHED AND SEEDED IN THE SPRING.
- SLOPES STEEPER THAN 3 TO 1 SHALL BE RESTORED WITH 4" OF LOAM (MIN.), SEED, FERTILIZER AND STAKED DOWN EROSION CONTROL BLANKET SIMILAR TO NORTH AMERICAN GREEN SC 150 BN. INSTALL IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS.
- THE TEMPORARY MEASURES WILL NOT BE REMOVED UNTIL PERMANENT STABILIZATION HAS OCCURRED.
- 4" OF MULCH SHALL BE APPLIED IN ALL LANDSCAPED AREAS SHOWN.

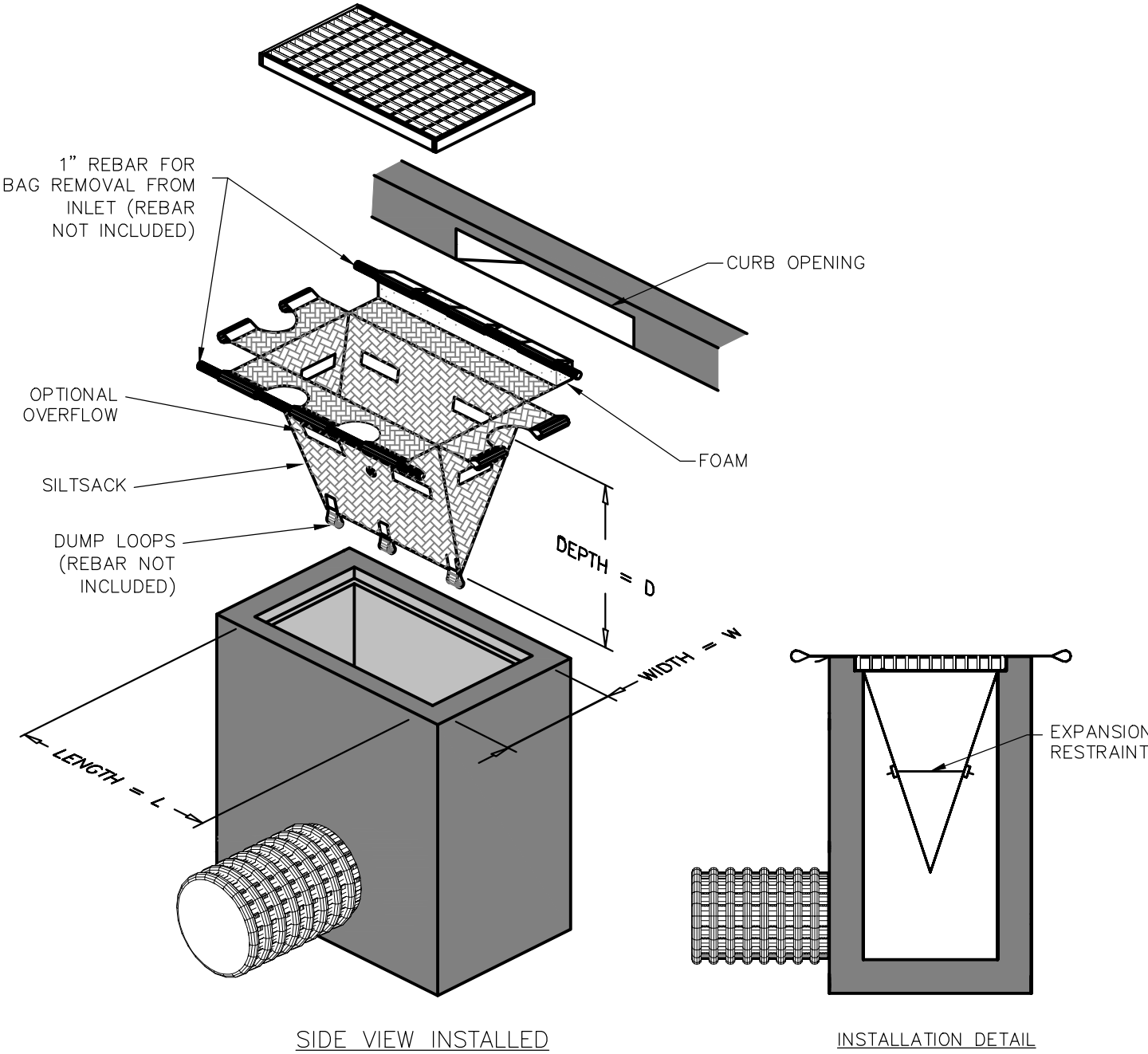
F. CONSTRUCTION SEQUENCE:

DURING THIS SEQUENCE ALL EROSION CONTROLS SHALL BE INSPECTED AND MAINTAINED. ALL DISTURBED AREAS SHALL BE STABILIZED BY SEEDING OR SOODING AS SOON AS POSSIBLE AFTER GRADING IS COMPLETE. EROSION BARRIERS SHALL BE REMOVED AFTER SLOPE STABILIZATION IS COMPLETE.

- INSTALL EROSION AND SEDIMENT CONTROL MEASURES.
- DELINEATE AND FENCE UNDERGROUND INFILTRATION AREAS.
- EXCAVATED TO SUBGRADE IN CUT SECTIONS; BRING FILL SECTIONS TO SUBGRADE USING EXCAVATED SOIL.
- EXCAVATE UNDERGROUND INFILTRATION AREAS TO SUBGRADE USING LIGHT EARTH MOVING EQUIPMENT TO LIMIT SOIL COMPACTION. PREVENT STORMWATER FROM UN-STABILIZED AREAS FROM ENTERING UNDERGROUND INFILTRATION AREAS.
- INSTALL PROPOSED RETAINING WALLS.
- INSTALL BUILDING FOUNDATION, UNDERGROUND UTILITIES, AND BUILDING PADS. UTILITIES INCLUDE DRAINAGE SYSTEM, WATER AND ELECTRICAL.
- INSTALL UNDERGROUND INFILTRATION AREAS. EXCAVATE AND REPLACE ANY IMPERVIOUS SOILS TO A DEPTH OF TWO (2) FEET BELOW THE INVERT OF THE SYSTEM AND REPLACE WITH PERVIOUS SOILS. SCARIFY SYSTEM INVERT WITH ROTARY TILLER OR DISC HARROWER AND SMOOTH WITH LEVELING DRAG, OR EQUIVALENT GRADING EQUIPMENT, PRIOR TO PLACEMENT OF UNDERGROUND INFILTRATION AREA PER CONSTRUCTION DETAILS.
- INSTALL INSPECTION PORTS FOR SUBSURFACE INFILTRATION AREAS TO FINISHED GRADE PRIOR TO SUBGRADING THE CUL-DE-SAC AND GRASSED CENTER ISLAND.
- PLACE COMPACTED BASE GRAVEL FOR THE PAVED AREAS, ROUGH GRADE AREAS TO BE LOAMED AND SEEDED.
- BRING ALL GRASSES AND COVER TO FINAL GRADE. INSTALL PAVEMENT, CURBING AND SIDEWALKS.
- FINALIZE GRADING, LOAM, SEED AND MULCH DISTURBED AREAS.
- PLANT TREES, SHRUBS AND GROUND COVER AS INDICATED ON PLANS.

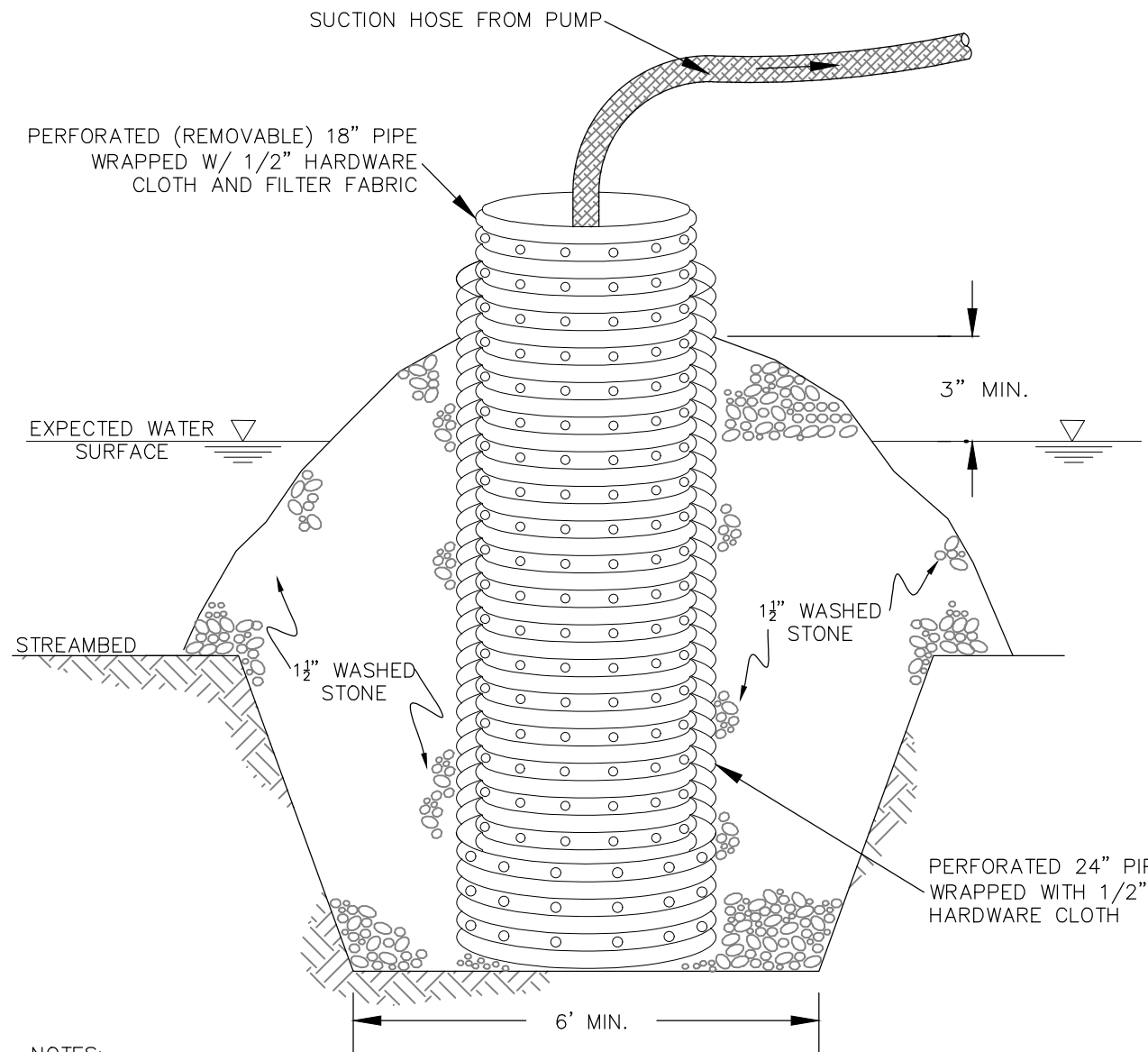
G. DEWATERING:

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEWATERING DURING CONSTRUCTION.
- DEWATERING SHALL BE PERFORMED TO ACHIEVE CONSTRUCTION OF FOOTINGS, FOUNDATIONS, PAVEMENTS, AND OTHER SUBSURFACE UTILITIES AND APPURTENANCES IN DRY CONDITIONS.
- DEWATERING SHALL BE PERFORMED THROUGH THE USE OF IN TRENCH SUMP PUMPS, WELLS, DRAINS AND OTHER ITEMS NECESSARY FOR CONSTRUCTION. CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN, OPERATE AND REMOVE ALL DEWATERING DEVICES AND APPURTENANCES AS REQUIRED FOR CONSTRUCTION. SUCH ACTIVITIES SHALL BE INCLUDED IN THE CONTRACTOR BID.
- THE FLOW FROM DEWATERING PUMPS SHALL BE DISCHARGED TO A SEDIMENTATION TRAP OR DEVICE PRIOR TO DISCHARGE TO A RESOURCE AREA. REFER TO THE DETAILS ON THIS PLAN.
- THE CONTRACTOR SHALL NOTIFY THE TOWN OF ALL DEWATERING ACTIVITIES AND COORDINATE THE LOCATION OF ALL DISCHARGE POINTS WITH THE TOWN PRIOR TO COMMENCING DEWATERING ACTIVITIES.



SILT SACK

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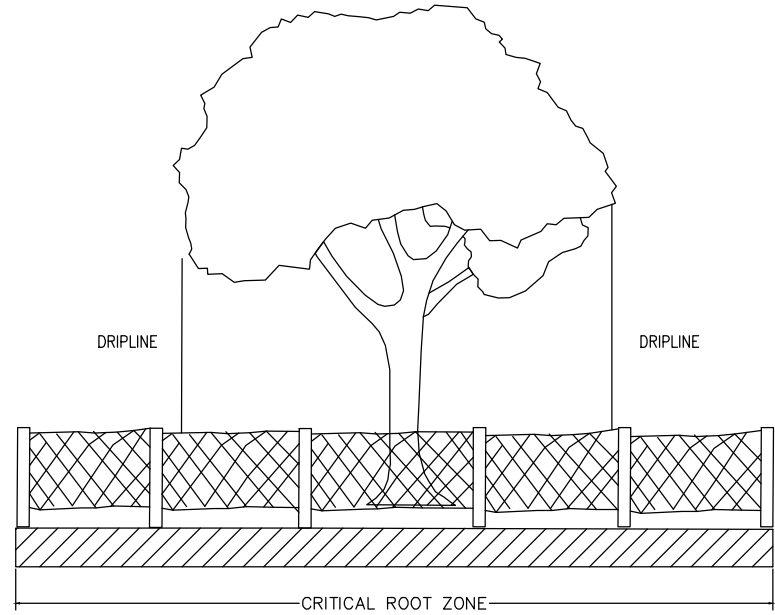


NOTES:

- THE OUTER PIPE SHALL BE A 24" DIA. CORRUGATED PLASTIC OR HDPE PIPE. THE OUTER PIPE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH TO PREVENT BACKFILL MATERIAL FROM ENTERING THE PERFORATIONS. AFTER INSTALLING THE OUTER PIPE, BACKFILL AROUND OUTER PIPE WITH 1½" WASHED STONE.
- THE INSIDE STANDPIPE (CENTER PIPE) SHOULD BE CONSTRUCTED BY PERFORATING AN 18" CORRUGATED METAL, HDPE OR PVC PIPE. THE PERFORATIONS SHALL BE 1" DIAMETER HOLES 6" ON CENTER. THE CENTER PIPE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH FIRST, THEN WRAPPED AGAIN WITH FILTER FABRIC (MIRAF 140M OR EQUAL).
- THE CENTER PIPE SHOULD EXTEND 12" TO 18" ABOVE THE ANTICIPATED WATER SURFACE ELEVATION OR RISER CREST ELEVATION WHEN DEWATERING A BASIN.

REMOVABLE PUMPING STATION

NOT TO SCALE

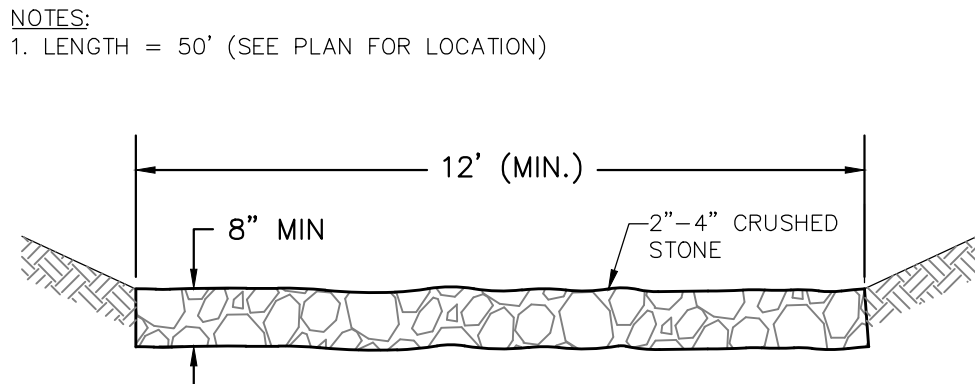


NOTES:

- INSTALL A PROTECTIVE FENCE AROUND THE TREE DRIPLINE.
- AVOID COMPACTION OF THE SOIL BY KEEPING FOOT AND VEHICLE TRAFFIC AWAY FROM THE ROOT ZONE.
- TIE PROTECTIVE 2X4S AROUND TRUNK OF TREE WITH ROPE NOT WIRE.
- TAKE SPECIAL CARE WITH BACKHOES AND OTHER MACHINERY TO MINIMIZE DAMAGE TO TRUNK, LIMBS AND OVER HEAD BRANCHES.

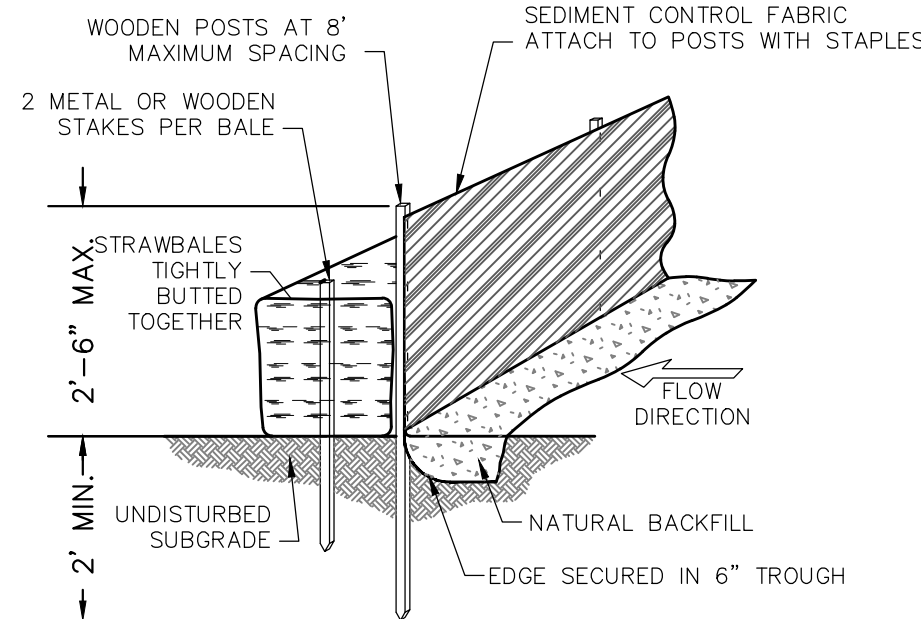
TREE PROTECTION DETAIL

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TEMP. CONSTRUCTION ENTRANCE DETAIL

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SILTATION BARRIER

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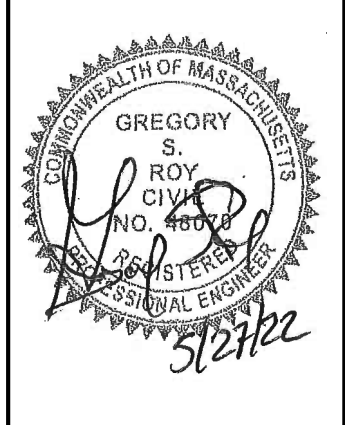
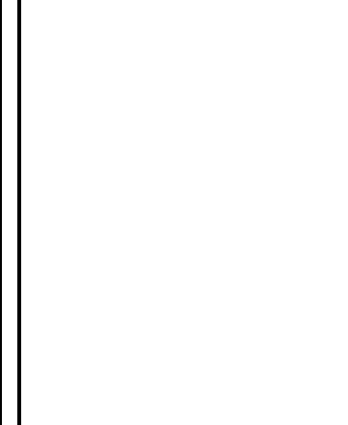
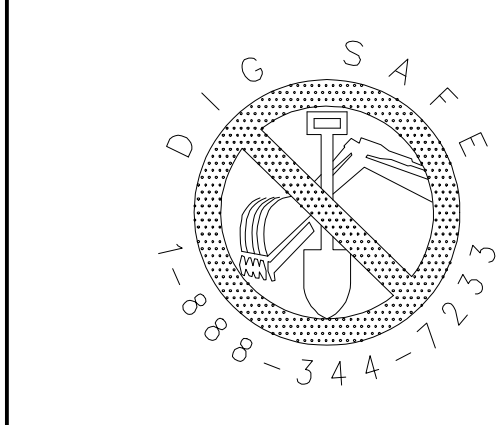
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HUDSON, MASSACHUSETTS

SCALE:

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DATE: 12/16/20

DESIGN BY: RPV

DRAWN BY: RPV

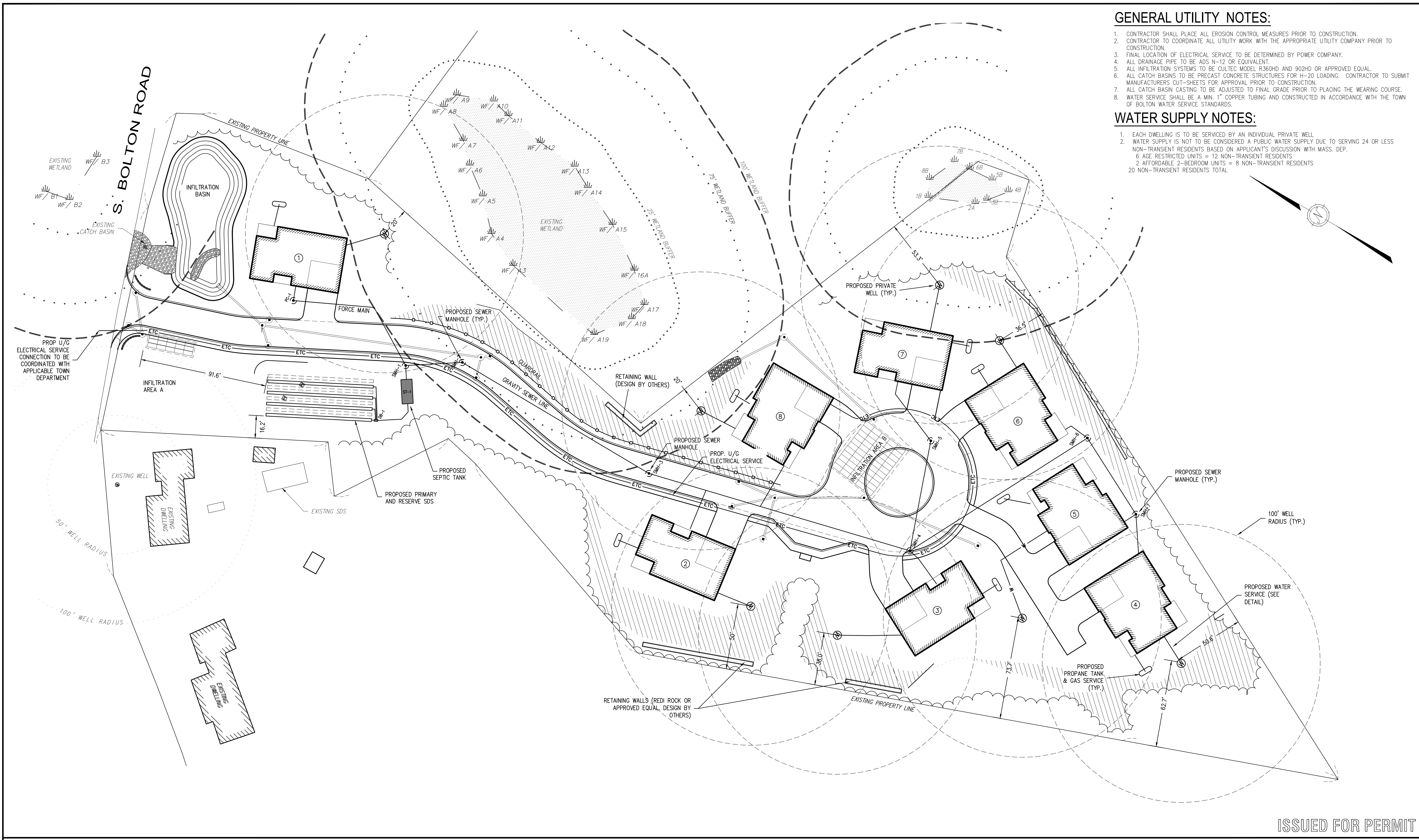
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EROSION CONTROL DETAILS MALLARD LANE BOLTON, MASSACHUSETTS			
NO.	DATE	DESCRIPTION	BY
1.	2/28/22	REDUCE TO 8 UNITS & ZBA COMMENTS	GSR
2.	3/30/22	REVISED PER PEER REVIEW COMMENTS	RWP
3.	5/5/22	UNIT FOOTPRINTS	SBD
4.	5/27/22	REV. PER PEER REVIEW COMMENTS	GSR

JOB NO. 5293

DRAWING NO. 5293-EROSION

SHEET NO. C4.1



GENERAL UTILITY NOTES:

- 1. CONTRACTOR SHALL PLACE ALL EROSION CONTROL MEASURES PRIOR TO CONSTRUCTION.
- 2. CONTRACTOR TO COORDINATE ALL UTILITY WORK WITH THE APPROPRIATE UTILITY COMPANY PRIOR TO CONSTRUCTION.
- 3. FINAL LOCATION OF ELECTRICAL SERVICE TO BE DETERMINED BY POWER COMPANY.
- 4. ALL DRAINAGE PIPE TO BE ADS N-12 OR EQUIVALENT.
- 5. ALL INFILTRATION SYSTEMS TO BE CULTEC MODEL R360HD AND 902HD OR APPROVED EQUAL.
- 6. ALL CATCH BASINS TO BE PRECAST CONCRETE STRUCTURES FOR H-20 LOADING. CONTRACTOR TO SUBMIT MANUFACTURERS CUT-SHEETS FOR APPROVAL PRIOR TO CONSTRUCTION.
- 7. ALL CATCH BASIN CASTING TO BE ADJUSTED TO FINAL GRADE PRIOR TO PLACING THE WEARING COURSE.
- 8. WATER SERVICE SHALL BE A MIN. 1" COPPER TUBING AND CONSTRUCTED IN ACCORDANCE WITH THE TOWN OF BOLTON WATER SERVICE STANDARDS.

WATER SUPPLY NOTES:

- 1. EACH DWELLING IS TO BE SERVICED BY AN INDIVIDUAL PRIVATE WELL.
- 2. WATER SUPPLY IS NOT TO BE CONSIDERED A PUBLIC WATER SUPPLY DUE TO SERVING 24 OR LESS NON-TRANSIENT RESIDENTS BASED ON APPLICANT'S DISCUSSION WITH MASS. DEP.
 - 6 AGE RESTRICTED UNITS = 12 NON-TRANSIENT RESIDENTS
 - 2 AFFORDABLE 2-BEDROOM UNITS = 8 NON-TRANSIENT RESIDENTS
 - 20 NON-TRANSIENT RESIDENTS TOTAL

ISSUED FOR PERMIT

PREPARED BY:

CIVIL ENGINEERS

LAND SURVEYORS

WETLAND CONSULTANTS

1 MAIN STREET, SUITE 1

LUNENBURG, MA 01462

PHONE: (978) 779-6091

www.dillisandroy.com

OWNER:

JAMES MORIN & KATHRYN LUM

307 CENTRAL STREET, APT 331

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APPLICANT:

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UTILITIES PLAN

MALLARD LANE

BOLTON, MASSACHUSETTS

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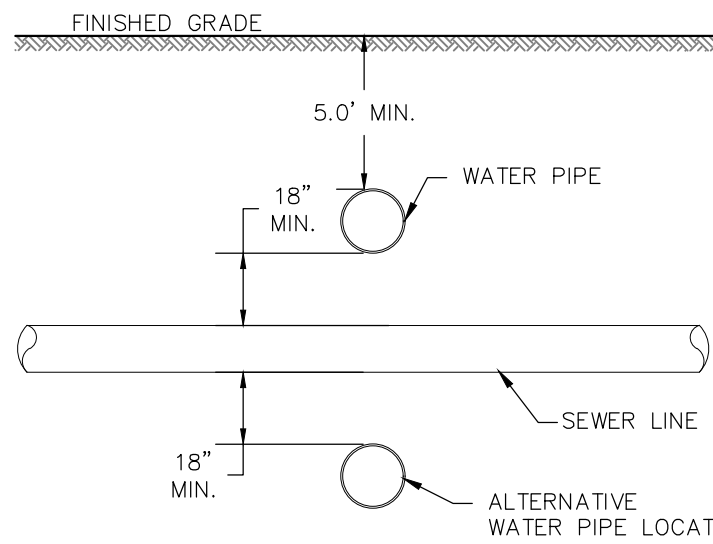
5293

DRAWING NO.

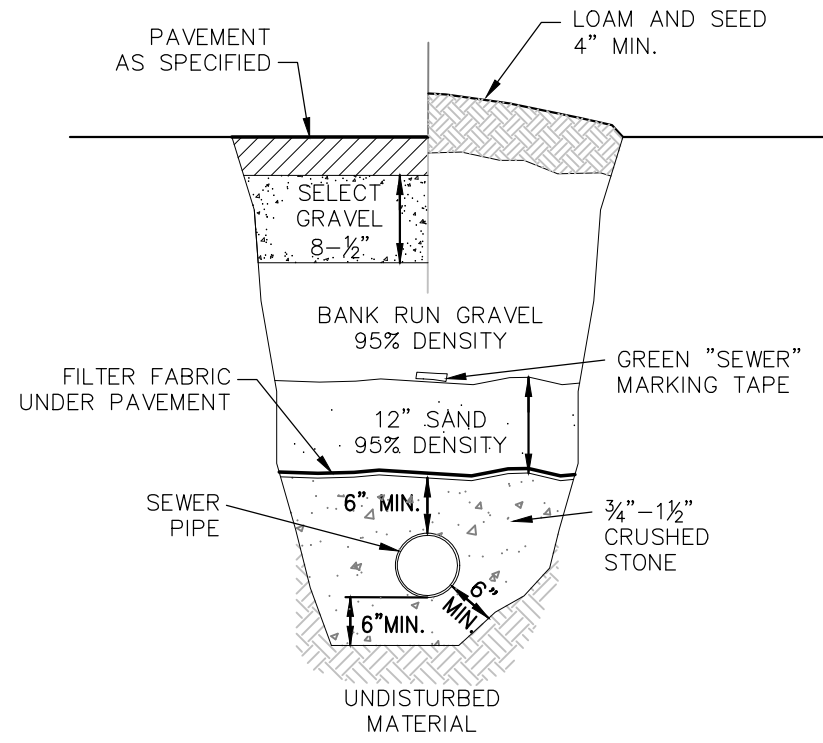
5293-UTILITIES

SHEET NO.

C5.0



WATER AND SEWER LINE CROSSING
NOT TO SCALE



GRAVITY SEWER LINE TRENCH DETAIL
NOT TO SCALE

SEWAGE DISPOSAL CALCULATIONS:

HYDRAULIC LOADING:
THE SYSTEM HAS BEEN DESIGNED FOR SIX (6) AGED RESTRICTED UNITS AT 150 GALLONS PER DAY PER UNIT AND TWO (2), TWO (2)
BEDROOM UNITS AT 110 GALLONS PER DAY PER BEDROOM
= (6 x 150 GPD) + (4 x 110 GPD) = 1,340 GPD

SEPTIC TANK SIZE:
AVERAGE DAILY FLOW = 1,340 G.P.D.
SEPTIC TANKS PROVIDED: 4,500 GALLON TWO COMPARTMENT TANK
FIRST COMPARTMENT (200% DAILY FLOW) = 2,680 GALLON MIN
SECOND COMPARTMENT (100% DAILY FLOW) = 1,340 GALLON MIN

PRIMARY LEACHING AREA:
DESIGN PERCOLATION RATE = 2 M.P.I. (SOIL CLASS I)
EFFLUENT LOADING RATE = 0.74 GALLONS/S.F.
LEACHING AREA REQUIRED = 1,340 GPD / 0.74 GPD/S.F. = 1,811 S.F.
TOTAL LEACHING AREA PROVIDED = (4) 76' TRENCHES, 2' WIDE x 2' DEEP (4 x 76 x 6) = 1,824 S.F.
TOTAL DESIGN FLOW = 1,824 S.F. x 0.74 GALLON/S.F. = 1,349 GALLONS.

RESERVE LEACHING AREA:
DESIGN PERCOLATION RATE = 2 M.P.I. (SOIL CLASS I)
EFFLUENT LOADING RATE = 0.74 GALLONS/S.F.
LEACHING AREA REQUIRED = 1,340 GPD / 0.74 GPD/S.F. = 1,811 S.F.
TOTAL LEACHING AREA PROVIDED = (4) 76' TRENCHES, 2' WIDE x 2' DEEP (4 x 76 x 6) = 1,824 S.F.
TOTAL DESIGN FLOW = 1,824 S.F. x 0.74 GALLON/S.F. = 1,349 GALLONS.

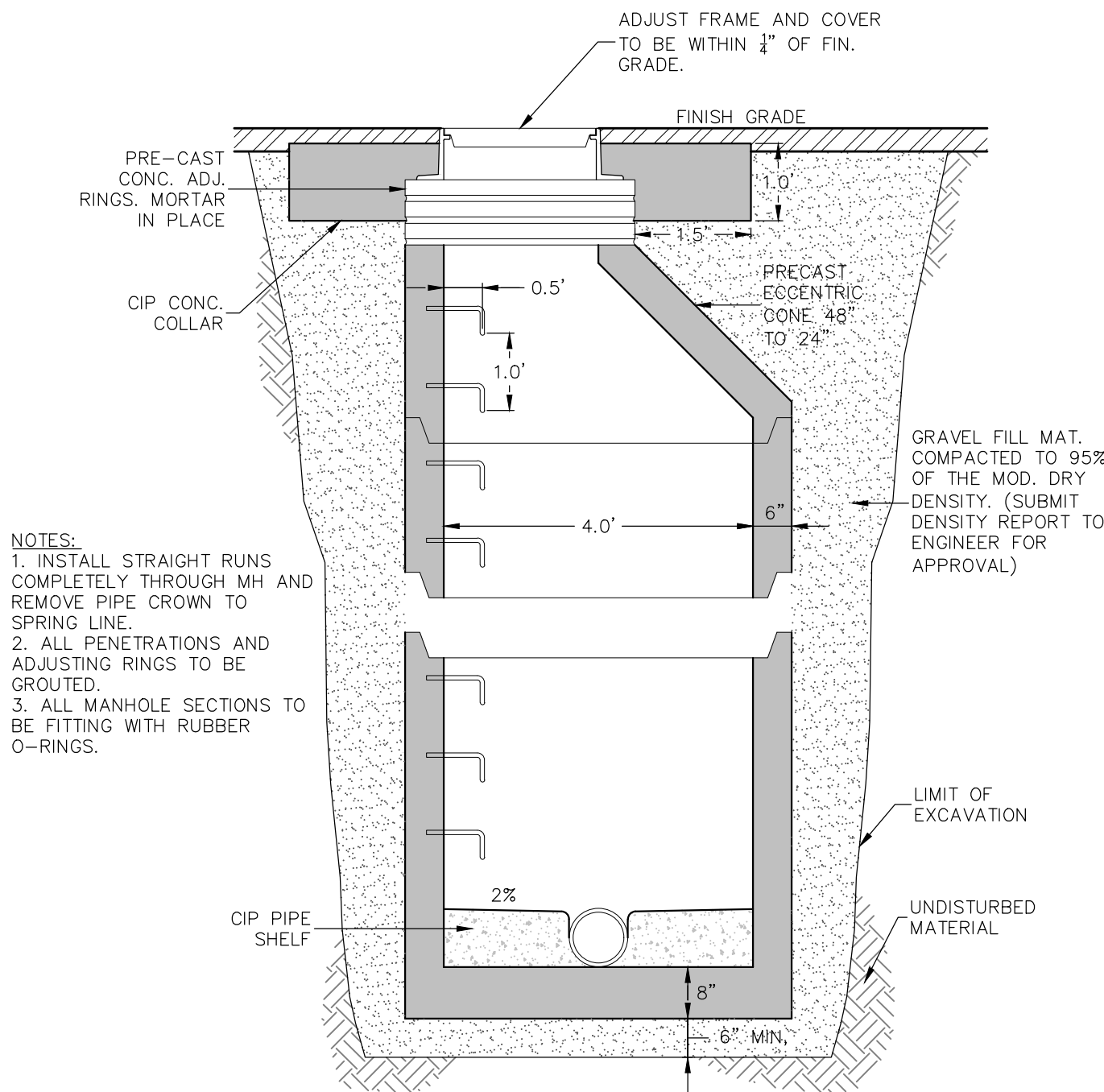
NITROGEN TREATMENT NOTES:

- NITROGEN TREATMENT IS NOT REQUIRED. SEE CALCULATIONS BELOW:

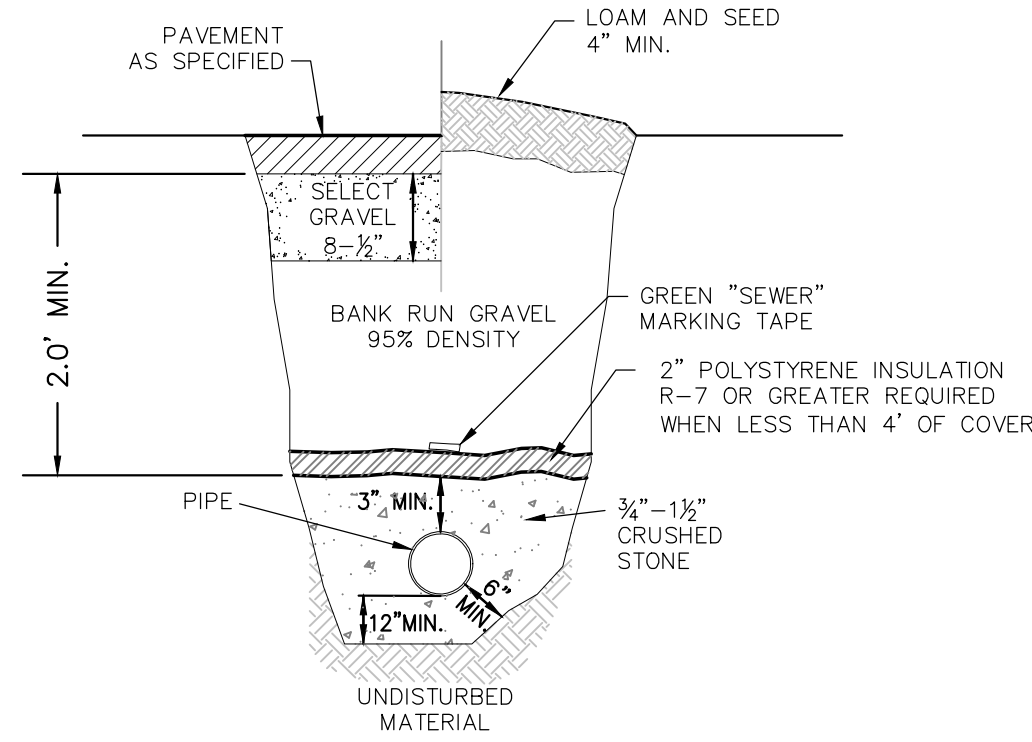
NITROGEN LOADING:
LOT AREA / 40,000 SF x 440 GPD

184,472 SF / 40,000 SF x 440 GPD = 2,029 GPD
OK 2,029 GPD > 1,340 GPD

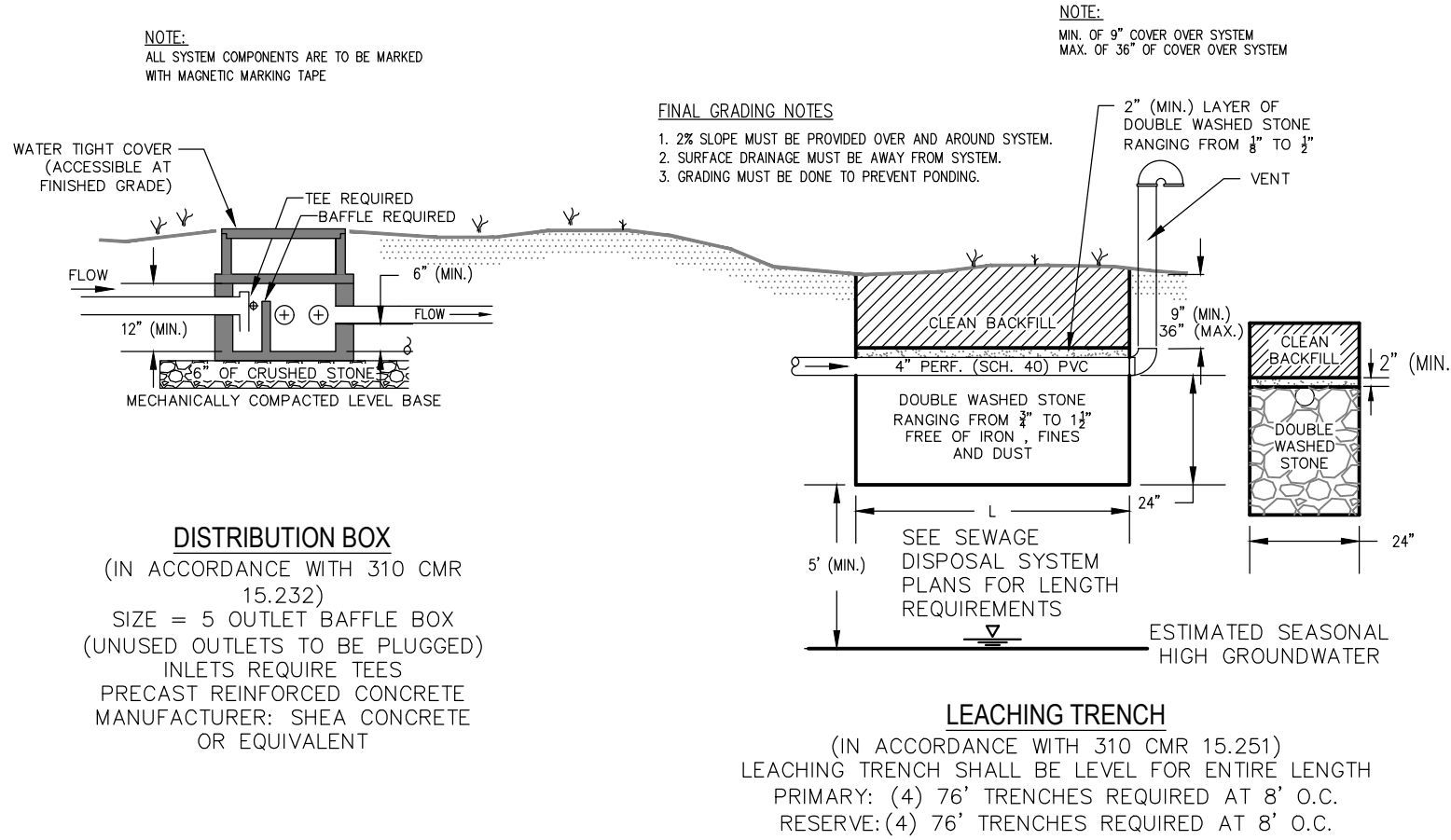
SEE SEWAGE DISPOSAL SYSTEM PLANS FOR DESIGN DETAILS, CONSTRUCTION DETAILS AND PUMPING SPECIFICATIONS



SEWER MANHOLE DETAIL
NOT TO SCALE



PRESSURE LINE W/ INSULATION TRENCH DETAIL
NOT TO SCALE



TYPICAL SDS DETAIL
NOT TO SCALE

ISSUED FOR PERMIT

PREPARED BY:

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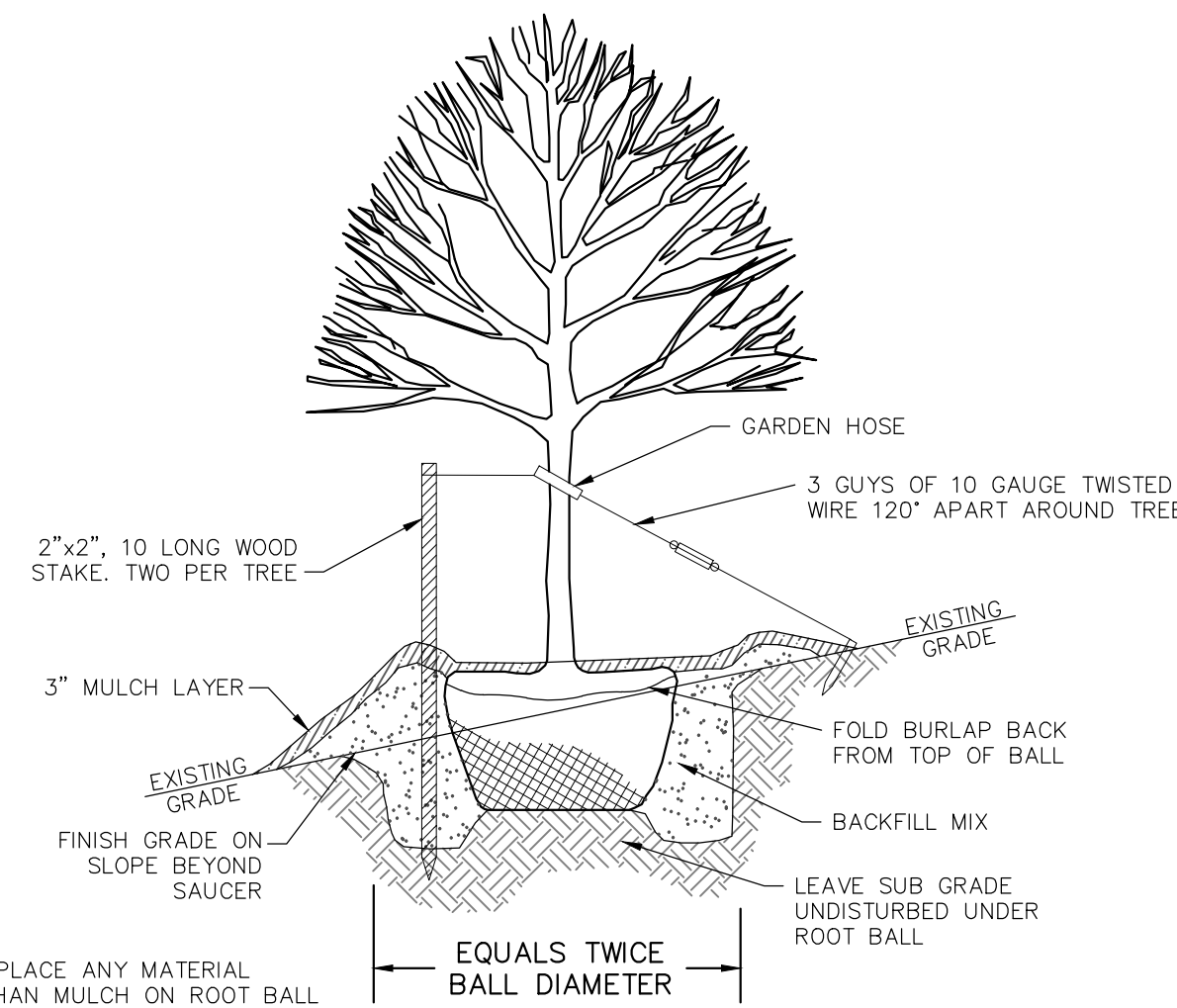
JOB NO. 5293

DRAWING NO. 5293-UTILITIES

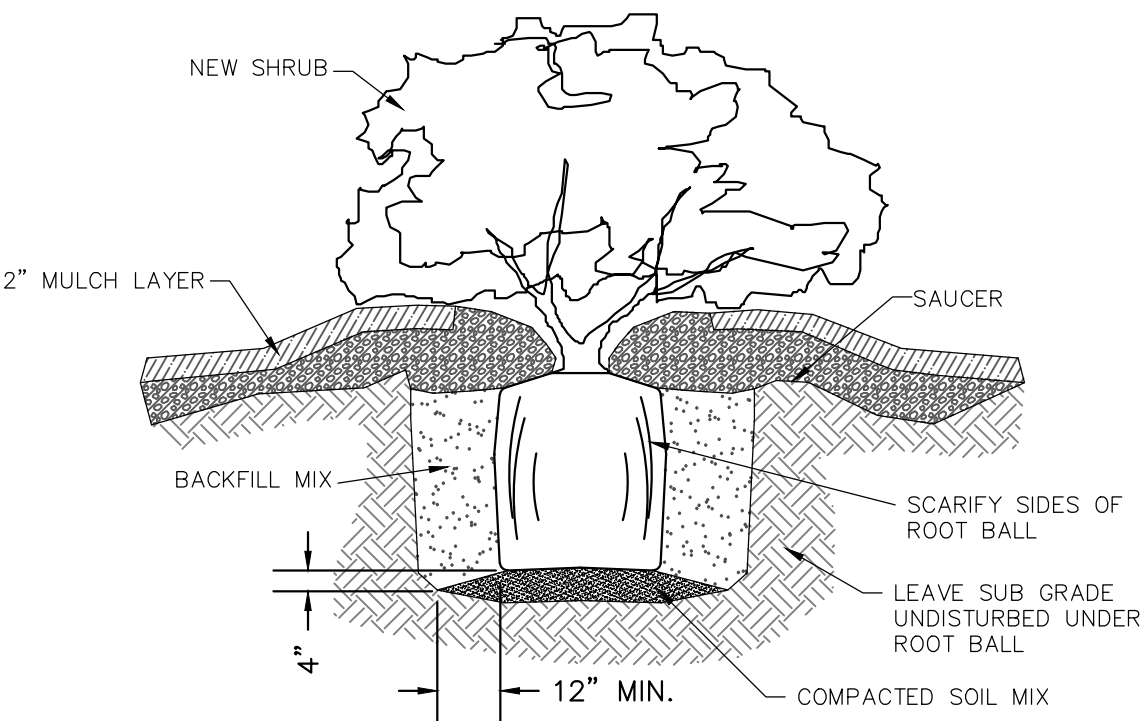
SHEET NO. C5.1

LANDSCAPE NOTES:

1. GUARANTEE: ALL PLANT MATERIAL SHALL BE GUARANTEED FOR TWELVE (12) MONTHS FROM THE DAY OF FINAL APPROVAL BY THE ARBORIST OR ENGINEER. ANY PLANT MATERIAL TWENTY-FIVE (25%) OR MORE OF WHICH IS DEAD SHALL BE CONSIDERED DEAD. A TREE SHALL BE CONSIDERED DEAD WHEN THE MAIN LEADER HAS DIED OR TWENTY-FIVE (25%) OF THE CROWN IS DEAD. IF THE PLANT FAILS TO SURVIVE DURING THIS PERIOD, REPLACEMENT SHALL BE MADE AT THE BEGINNING OF THE FIRST SUCCESSIVE GROWING SEASON. ALL REPLACEMENTS SHALL HAVE A GUARANTEE EQUAL TO THAT STATED ABOVE. ANY DEAD PLANT MATERIAL SHALL BE REPLACED AND INSTALLED ACCORDING TO THE APPROVED PLAN.
2. PROPOSED PLANT MATERIAL MAY BE SUBSTITUTED WITH SIMILAR PLANT PRIOR TO INSTALLATION BASED ON AVAILABILITY AND APPROVAL BY ARBORIST OR ENGINEER.
3. IN THE EVENT THAT ANY DISCREPANCIES BETWEEN THE QUANTITIES OF PLANTS INDICATED ON THE PLANT SCHEDULE AND THOSE INDICATED ON THE PLAN, THE QUANTITIES INDICATED ON THE PLAN SHALL GOVERN.
4. NOTIFY ALL UTILITY COMPANIES PRIOR TO EXCAVATING PLANT PITS. PLANT LOCATIONS MAY BE ADJUSTED IN THE FIELD TO AVOID INTERFERENCE WITH UTILITIES.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PLANTING AT CORRECT GRADES AND ALIGNMENT.
6. PLANTS SHALL BE TYPICAL OF THEIR SPECIES AND VARIETY; HAVE NORMAL GROWTH HABITS; WELL DEVELOPED BRANCHES, DENSELY FOLIATED, VIGOROUS ROOT SYSTEMS AND BE FREE FROM DEFECTS AND INJURY.
7. THE CONTRACTOR SHALL REPORT ANY SOIL OR DRAINAGE CONDITION CONSIDERED DETRIMENTAL TO THE GROWTH OF PLANT MATERIAL.
8. QUALITY AND SIZE OF THE PLANTS, SPREAD OF ROOTS AND SIZE OF BALLS SHALL BE IN ACCORDANCE WITH "AMERICAN STANDARD FOR NURSERY STOCK" ANSI Z60 (MOST RECENT EDITION) AS PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSEYMEN, INC.
9. B & B PLANTS SHALL BE HANDLED FROM THE BOTTOM OF THE ROOT BALL ONLY. PLANTS WITH BROKEN, SPLIT OR DAMAGED ROOT BALLS SHALL BE REJECTED.
10. TREES SHALL BE LOCATED IN A MANNER WHICH WILL NOT OBSTRUCT ACCESS TO UTILITIES OR VISIBILITY OF STREET OR TRAFFIC SIGNS.
11. PLANTING OPERATIONS SHALL BE PERFORMED DURING PERIODS WITHIN THE PLANTING SEASON WHEN WEATHER AND SOIL CONDITIONS ARE SUITABLE. SPRING PLANTING SEASON SHALL BE: MARCH 21 TO MAY 30 FOR DECIDUOUS / APRIL 1 TO JUNE 15 FOR EVERGREEN. FALL PLANTING SEASON SHALL BE: OCTOBER 1 TO DECEMBER 1 FOR DECIDUOUS / AUGUST 15 TO OCTOBER 15 FOR EVERGREEN.



TREE PLANTING DETAIL
NOT TO SCALE



SHRUB PLANTING DETAIL
NOT TO SCALE

ISSUED FOR PERMIT

PREPARED BY:

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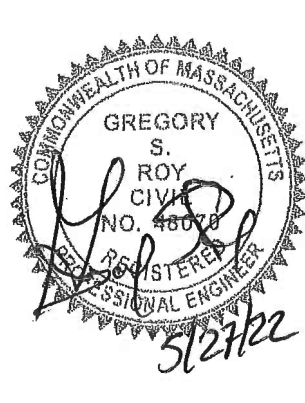
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SCALE:

30 0 15 30 60 120
1 in. = 30 ft.

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DRAWING NO. 5293-LANDSCAPE

SHEET NO. C6.0