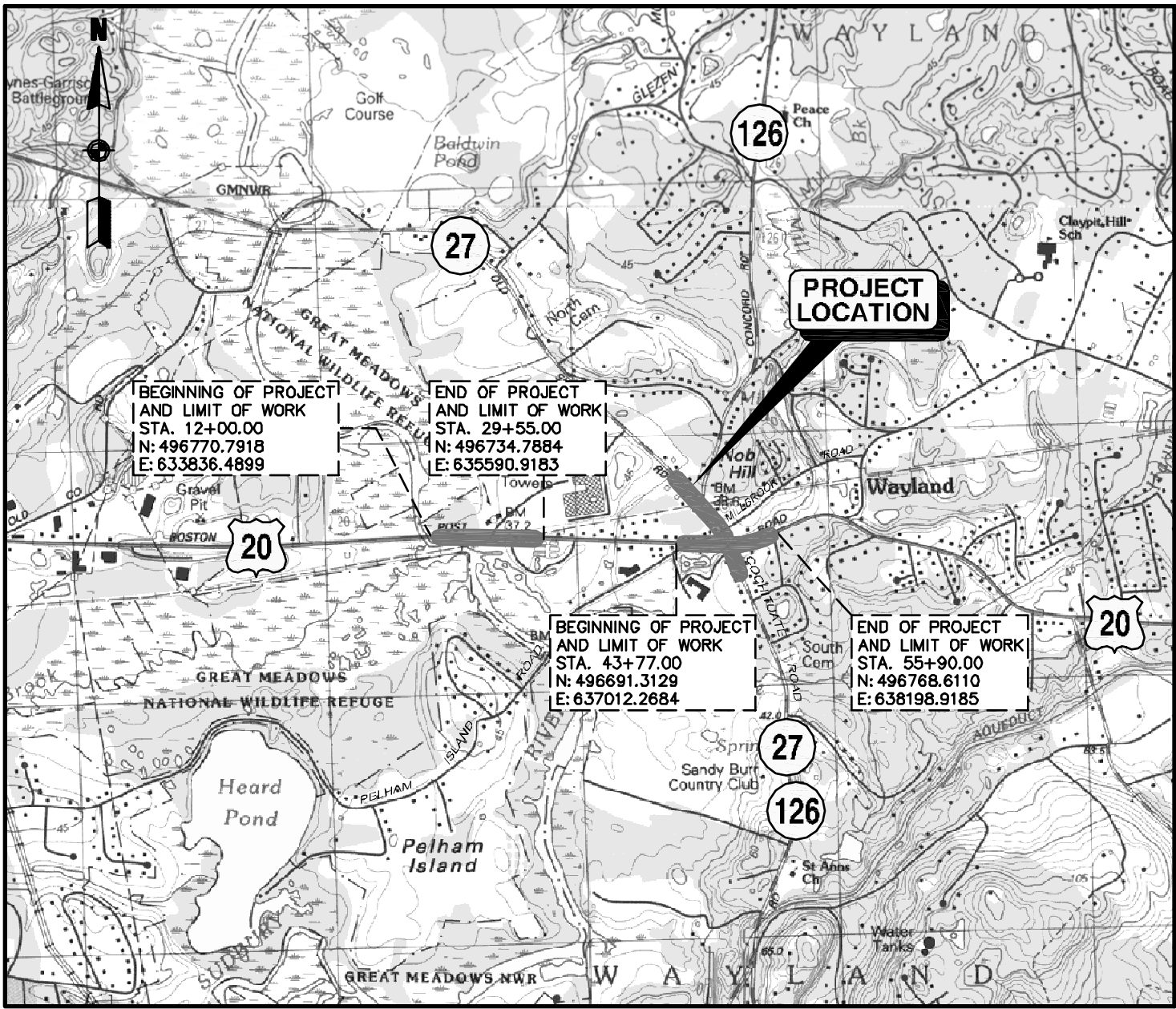


TRANSPORTATION IMPROVEMENT PROJECT
BOSTON POST ROAD (ROUTE 20)

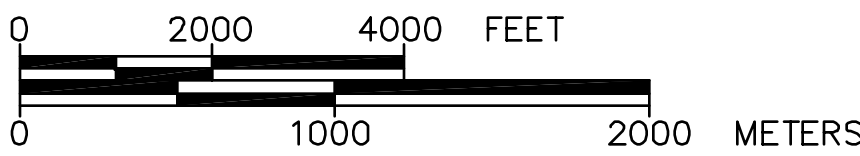
IN THE TOWN OF
WAYLAND
MIDDLESEX COUNTY
THE COMMONWEALTH OF MASSACHUSETTS

INDEX

SHEET NO.	DESCRIPTION
1	TITLE & INDEX SHEET
2	LEGEND & GENERAL NOTES
3	KEY PLAN
4-6	TYPICAL SECTIONS
7-17	CONSTRUCTION PLANS
18	PROFILE - ROUTE 20 AT SITE DRIVE
19-23	TRAFFIC PLANS
24	SIGN SUMMARY SHEET
25-26	TRAFFIC MANAGEMENT PLANS
27-29	CRITICAL CROSS SECTIONS



LOCATION MAP



SCALES - AS NOTED

LENGTH OF PROJECT = 1,755 FT. = 0.332 MILES (AT SITE DR)
= 1,213 FT. = 0.230 MILES (AT RTE 27)

25% SUBMISSION
APRIL 2008

THE 1988 MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES; THE JUNE 6, 2006 SUPPLEMENTAL SPECIFICATIONS; THE 1977 CONSTRUCTION STANDARDS; THE APRIL 2003 METRIC/ENGLISH SUPPLEMENTAL DRAWINGS; THE 2003 "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS"; THE 1990 "STANDARD DRAWINGS FOR SIGNS AND SUPPORTS"; AND THE AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1-1990) WILL GOVERN, ALL AS AMENDED.

DESIGN DESIGNATION DATA

	RTE 20	RTE 27
DESIGN SPEED	= 40 MPH (SITE DR) = 25 MPH (RTE 27)	25 MPH
ADT (2006)	= 19,500	12,300
ADT (2011)	= 22,700	15,000
K	= 9.3%	8.9%
D	= 51.6% WB	64.2% NB
T (PEAK HOUR)	= 2%	1%
T (AVERAGE DAY)	= 2%	1%
DHV	= 2,106	1,345
DDHV	= 1,086	863

PROJECT TITLE

Wayland Town Center
Off-Site Improvements

Wayland,
Massachusetts

PREPARED FOR

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Boston,
Massachusetts

VAI Vanasse & Associates, Inc.
Transportation Engineers & Planners

ANDOVER, MASSACHUSETTS
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DESIGNED BY	JAR
DRAWN BY	JAR
CHECKED BY	FLD
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REVISIONS		
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DRAWING TITLE

Title & Index Sheet

SHEET 1 OF 29	DRAWING NUMBER
JOB NO. 5139	1
CAD 5139COV1	

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GENERAL SYMBOLS			TRAFFIC SIGNAL SYMBOLS			ABBREVIATIONS		
EXISTING		PROPOSED	EXISTING		PROPOSED	TRAFFIC SIGNAL SYSTEMS		
		■CB (OR GI, LB)			CONTROL CABINET GROUND MOUNTED (WITH & WITHOUT CONCRETE PAD)	R	STEADY CIRCULAR RED	
		■CBCI (OR GICI)			CONTROL CABINET POLE MOUNTED	Y	STEADY CIRCULAR AMBER	
					FLASHING BEACON CONTROL & METER PEDESTAL	G	STEADY CIRCULAR GREEN	
		● EHH			SIGNAL POST & BASE	FR	FLASHING CIRCULAR RED	
		● EMH			MAST ARM, SHAFT, & BASE (ARM LENGTH AS NOTED)	FY	FLASHING CIRCULAR AMBER	
		● TMH			VEHICULAR SIGNAL HEAD (ALPHA-NUMERIC DESIGNATION NOTED)	⇄	FLASHING RED – ARROW	
		● WMH			VEHICULAR SIGNAL HEAD OPTICALLY PROGRAMMED	⇄	FLASHING AMBER – ARROW	
		● SMH			LIMIT OF VISIBILITY OF OPTICALLY PROGRAMMED SIGNAL HEAD	⇄	STEADY VERTICAL ARROW (GREEN PREFIX)	
		● DMH			FLASHING BEACON	⇄ ⇄ ⇄	STEADY LEFT ARROW (RED, AMBER, OR GREEN PREFIX)	
		● GG			PEDESTRIAN SIGNAL HEAD	⇄ ⇄ ⇄	STEADY RIGHT ARROW (RED, AMBER, OR GREEN PREFIX)	
		● WG			STROBE	W	STEADY WALK – LUNAR WHITE	
		● CS			OPTICOM RECEIVER	DW	STEADY DON'T WALK – PORTLAND ORANGE	
		Hyd			PULLBOX 12" X 12" OR HANDHOLE	FDW	FLASHING DON'T WALK – PORTLAND ORANGE	
		● FA			PULLBOX 8" X 23"	L	DETECTOR – LOCK	
		● PM			CONTROLLER PHASE	NL	DETECTOR – NON-LOCK	
		LP			MAGNETIC DETECTOR (LANE, MULTI-LANE, DIRECTIONAL AS NOTED)			
		● UP			RADAR DETECTOR			
		● GUY			SONIC DETECTOR			
					INDUCTIVE LOOP DETECTOR			
		— S —			PRESSURE DETECTOR			
		— E —			MAGNETOMETER			
		— G —			PEDESTRIAN PUSH BUTTON			
		— W —			AREA OF DETECTION			
		— T —			CONDUIT			
		■ MB			CONDUIT CROSSING ROADWAY WITH CEMENT CONCRETE CAP			
		— x — x —			"X" DUCT (CONCRETE ENCASED)			
		■ MHB, SB, CB			OVERHEAD CABLE			
					DIRECT BURIED CABLE			

PAVEMENT MARKINGS AND SIGNING SYMBOLS			
EXISTING		PROPOSED	
		CW	CROSSWALK, 2 – 12" WHITE LINES (WDTH NOTED)
		SL	STOP LINE, 12" WHITE LINE 4' BEHIND CROSSWALK (TYP.)
		SWL	SOLID WHITE LINE – 6"
		SYL	SOLID YELLOW LINE – 6"
		DWL	DOTTED WHITE LINE – 6" (2' STRIPE W/4' GAP)
		WLDL	WHITE LANE DELINEATION LINE – 6" (3' STRIPE W/9' GAP)
		DDYL	DOUBLE DOTTED YELLOW LINE – 6" (2' STRIPE W/4' GAP)
		BWLL	BROKEN WHITE LANE LINE – 6" (10' STRIPE W/30' GAP)
		SWLL	SOLID WHITE LANE LINE – 6"
		SWEL	SOLID WHITE EDGE LINE – 6"
		SWGL	SOLID WHITE GORE LINE – 12"
		SYEL	SOLID YELLOW EDGE LINE – 6"
		SYGL	SOLID YELLOW GORE LINE – 12"
		DYL	DOUBLE YELLOW LINE – 2-6" LINES
		DYCL	DOUBLE YELLOW CENTER LINE – 2-6" LINES
		Δ	SIGN AND POST
		+	DELINEATOR
			PAVEMENT ARROW AND LEGEND

GENERAL NOTES			
1.	TOPOGRAPHICAL INFORMATION OBTAINED FROM SURVEY CONDUCTED BY HANCOCK ASSOCIATES. COORDINATES ARE MASSACHUSETTS STATE PLANE. VERTICAL DATUM IS NAVD '88.		
2.	THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.		
3.	WHERE AN EXISTING UNDERGROUND UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION, AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.		
4.	THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE, AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES.		
5.	AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.		
6.	THE TERM "PROPOSED" (PROP.) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE AND RESET" (R & R).		
7.	ALL EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE RETAINED UNLESS NOTED OTHERWISE.		
8.	ALL PROPOSED PAVEMENT MARKINGS SHALL BE THERMOPLASTIC.		
9.	SERVICE CONNECTION CONSISTS OF INSTALLING A NEW SERVICE DISCONNECT, RISER, METER, AND CABLE IN CONFORMANCE WITH SECTION 813.63 OF THE STANDARD SPECIFICATIONS.		
10.	ALL EXISTING STATE, COUNTY, CITY, AND TOWN LOCATION LINES AND PRIVATE PROPERTY LINES HAVE BEEN ESTABLISHED FROM AVAILABLE INFORMATION AND THEIR EXACT LOCATIONS ARE NOT GUARANTEED.		
11.	A MINIMUM 3 FOOT WIDE CLEAR PATH OF TRAVEL SHALL BE MAINTAINED ON ALL SIDEWALKS PAST ALL SIGNAL EQUIPMENT, UTILITIES, OR OTHER OBSTRUCTIONS.		
12.	DIMENSIONS RELATIVE TO EXISTING CURB LINES SHALL CONTROL. THE EXACT LOCATION OF TRAFFIC SIGNAL POLES, POSTS, CONTROLLERS, PULL BOXES, SIGNS, AND PAVEMENT MARKINGS SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.		
13.	JOINTS BETWEEN NEW HOT MIX ASPHALT ROADWAY PAVEMENT AND SAWCUT EXISTING PAVEMENT SHALL BE SEALED WITH BITUMEN AND BACKSANDED.		
14.	ALL EXISTING GRANITE CURB AND EDGING DETERMINED BY THE ENGINEER TO BE IN SUITABLE CONDITION SHALL BE RE-USED IN THE PROPOSED WORK, EXCEPT CURVED STONES OF A DIFFERENT RADIUS THAN PROPOSED CURB.		
15.	EXISTING UTILITIES WILL BE RELOCATED BY THE RESPECTIVE UTILITY OWNERS.		
16.	ALL EXISTING SEWER, DRAINAGE, ELECTRIC MANHOLE COVERS, GAS GATES, WATER GATES, ETC. SHALL BE ADJUSTED TO FINISHED GRADE.		
17.	THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION STAKING AT NO ADDITIONAL COST.		
18.	ALL VERTICAL GRANITE CURB (VGC) SHALL TRANSITION AT THE LIMITS OF WORK WITH A 6' TRANSITION PIECE.		
19.	IN ACCORDANCE WITH MASSHIGHWAY ENGINEERING DIRECTIVE E-98-004, ALL TRENCH CUTS WITHIN THE PAVED SURFACE OF A STATE HIGHWAY HAVING A DEPTH OF 4' OR LESS SHALL BE BACKFILLED WITH CONTROLLED DENSITY FILL.		
20.	ALL CATCH BASIN GRATES WITHIN THE PROJECT LIMITS SHALL BE BICYCLE SAFE. THE CONTRACTOR SHALL REPLACE EXISTING GRATES WHICH ARE NOT BICYCLE SAFE.		
21.	ALL PEDESTRIAN ACCOMMODATIONS (I.E. SIDEWALKS, WHEELCHAIR RAMPS, ETC.) SHALL COMPLY WITH CURRENT ADA & AAB RULES AND REGULATIONS AND MASSHIGHWAY STANDARDS.		

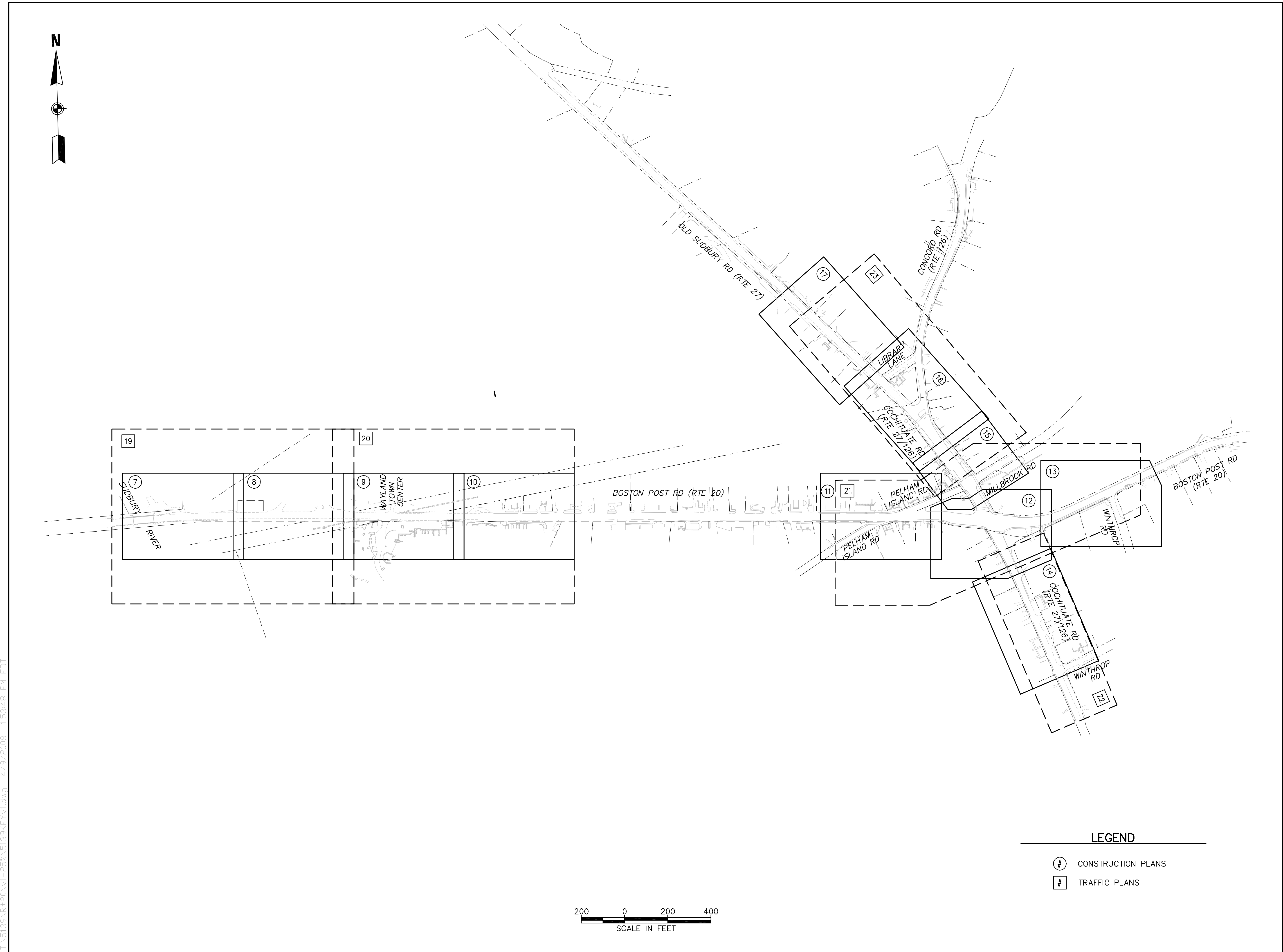
ABBREVIATIONS			
TRAFFIC SIGNAL SYSTEMS			
R	STEADY CIRCULAR RED		
Y	STEADY CIRCULAR AMBER		
G	STEADY CIRCULAR GREEN		
FR	FLASHING CIRCULAR RED		
FY	FLASHING CIRCULAR AMBER		
⇄	FLASHING RED – ARROW		
⇄	FLASHING AMBER – ARROW		
⇄	STEADY VERTICAL ARROW (GREEN PREFIX)		
⇄ ⇄ ⇄	STEADY LEFT ARROW (RED, AMBER, OR GREEN PREFIX)		
⇄ ⇄ ⇄	STEADY RIGHT ARROW (RED, AMBER, OR GREEN PREFIX)		
W	STEADY WALK – LUNAR WHITE		
DW	STEADY DON'T WALK – PORTLAND ORANGE		
FDW	FLASHING DON'T WALK – PORTLAND ORANGE		
L	DETECTOR – LOCK		
NL	DETECTOR – NON-LOCK		

UTILITIES			
CIT	CHANGE IN TYPE		
F & G	FRAME AND GRATE		
F & C	FRAME AND COVER		
RCP	REINFORCED CONCRETE PIPE		
VCP	VITRIFIED CLAY PIPE		
PVC	POLYVINYLCHLORIDE PIPE		
ACCM	ASPHALT COATED CORRUGATED METAL PIPE		
CIP	CAST IRON PIPE		
DIP	DUCTILE IRON PIPE		
HYD	HYDRANT		
CAP	CORRUGATED ALUMINUM PIPE		
INV	INVERT ELEVATION		
PWW	PAVED WATER WAY		
UP	UTILITY POLE		
TSV & B	TAPPING SLEEVE, VALVE AND BOX		
COND	CONDUIT		

GENERAL			
PROP	PROPOSED	BOS	BOTTOM OF SLOPE
MIN	MINIMUM	TOS	TOP OF SLOPE
MAX	MAXIMUM	EOP	EDGE OF PAVEMENT
RET	RETAIN	ROW	RIGHT OF WAY
REM	REMOVE	VGC	VERTICAL GRANITE CURB
REMOD	REMODEL	GC	GRANITE CURB
ABAN	ABANDON	SGC	SLOPED GRANITE CURB
ADJ	ADJUST	CC	CONCRETE CURB
EXIST	EXISTING	BB	BITUMINOUS BERM
R & R	REMOVE AND RESET	BC	BITUMINOUS CURB
R & S	REMOVE AND STACK	NIC	NOT IN CONTRACT
FND	FOUNDATION	NTS	NOT TO SCALE
ELEV	ELEVATION	TYP	TYPICAL
CIT	CHANGE IN TYPE	APPROX	APPROXIMATE
H.M.A.	HOT MIX ASPHALT	SHLDR	SHOULDER

EDGE OF PAVEMENT/CURB LAYOUT	
AP	ANGLE POINT
CC	CENTER OF CURVE
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
POC	POINT ON CURVE
POT	POINT ON TANGENT
PRC	POINT OF REVERSE CURVATURE
PT	POINT OF TANGENCY

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PROJECT TITLE

Wayland Town Center
Off-Site Improvements

Wayland,
Massachusetts

PREPARED FOR

Twenty Wayland, LLC

Boston,
Massachusetts



ANDOVER, MASSACHUSETTS

10 N.E. BUSINESS CENTER DRIVE
ANDOVER, MA 01810-1066
TEL: (978) 474-8800
FAX: (978) 688-6508

FORT MYERS, FLORIDA

12730 NEW BRITTANY BLVD., SUITE 600
FORT MYERS, FL 33907
TEL: (239) 437-4601
FAX: (239) 437-4636

DESIGNED BY	LSA
DRAWN BY	LSA
CHECKED BY	FLD
DATE	APRIL 2008
SCALE	1" = 200'
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NO.	DESCRIPTION	DATE

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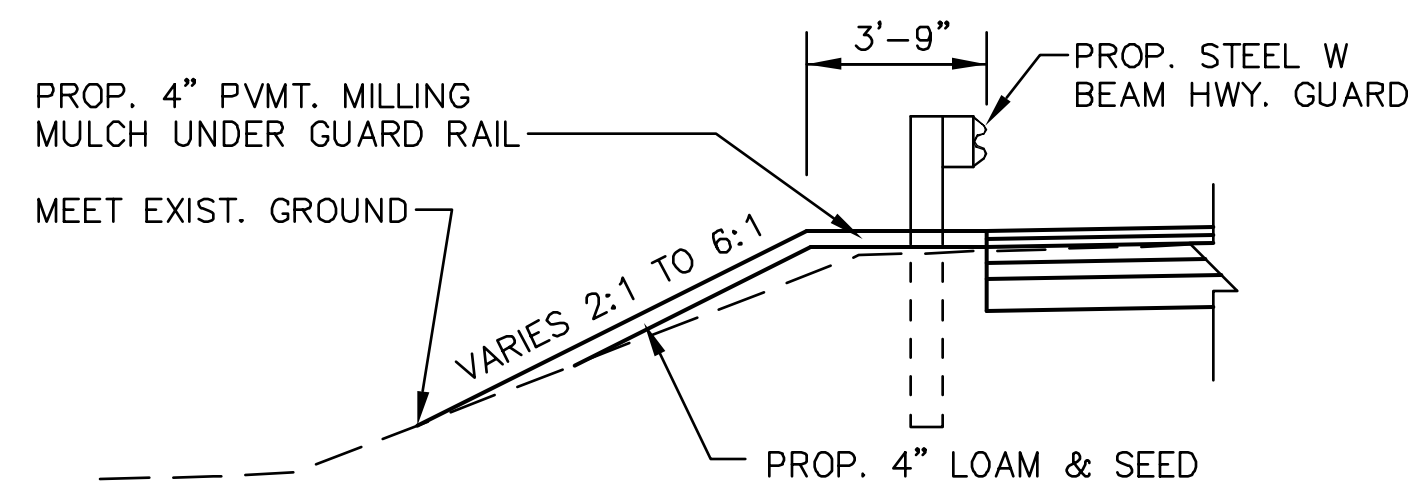
Key Plan

SHEET 3 OF 29	DRAWING NUMBER
JOB NO. 5139	3
CAD 5139KEY1	

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Typical Sections

SHEET 4 OF 29	DRAWING NUMBER
JOB NO. 5139	4
CAD 5139TRSV1	



STA 12+18 TO STA 14+11
NOT TO SCALE



STA 12+00 TO STA 21+57
NOT TO SCALE

SUBBASE: 8" GRAVEL BORROW

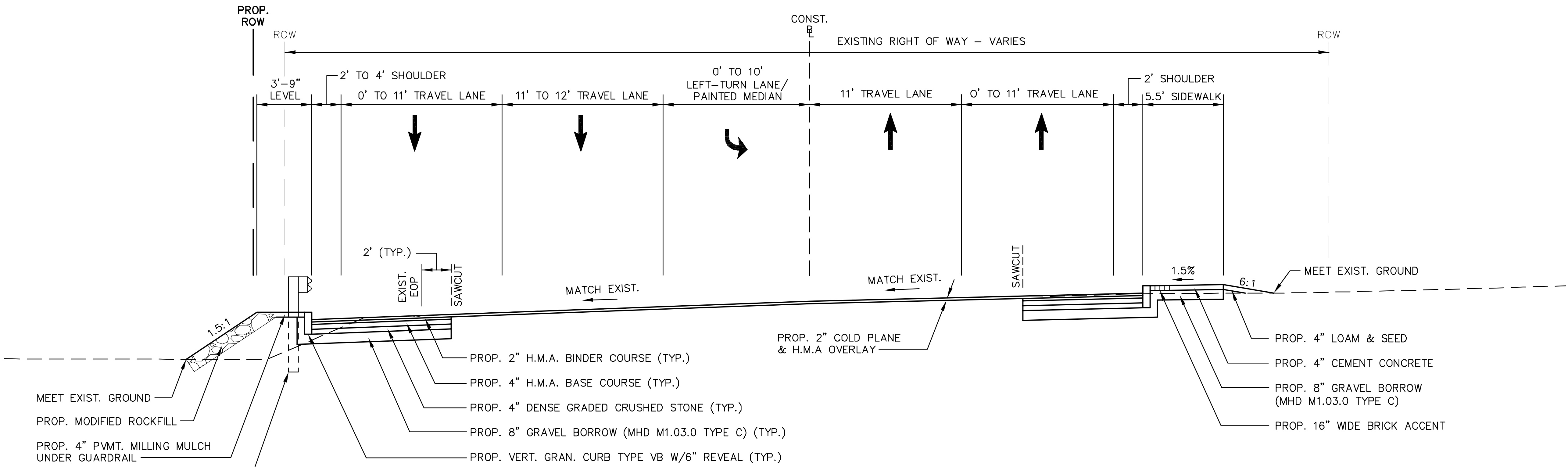
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NO.	DESCRIPTION	DATE

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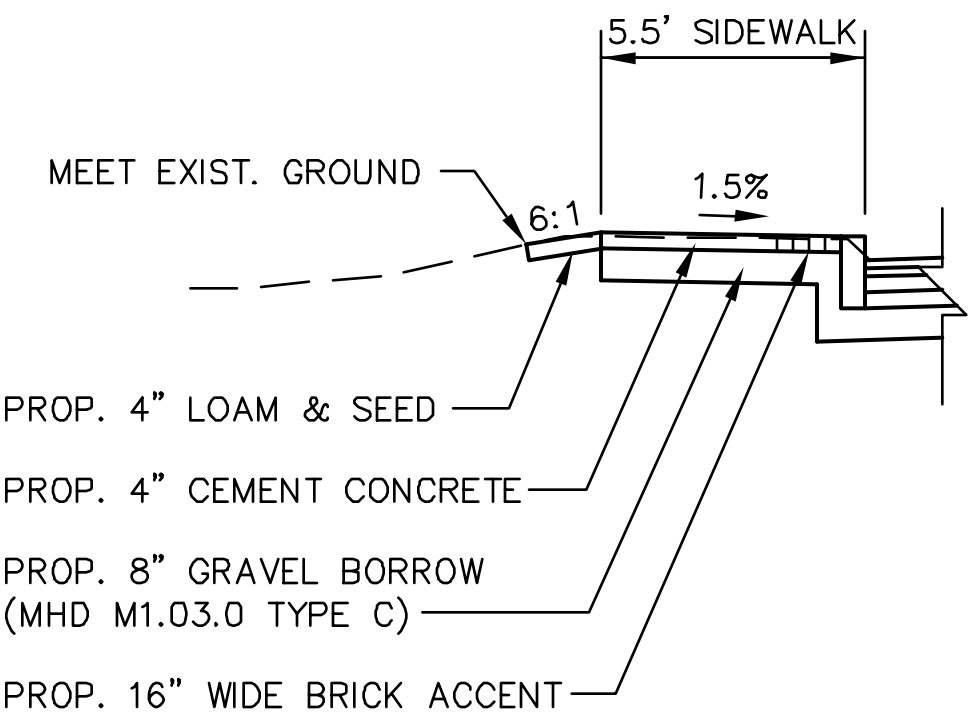
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SHEET 5 OF 29	DRAWING NUMBER
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CAD 5139TRSV1	



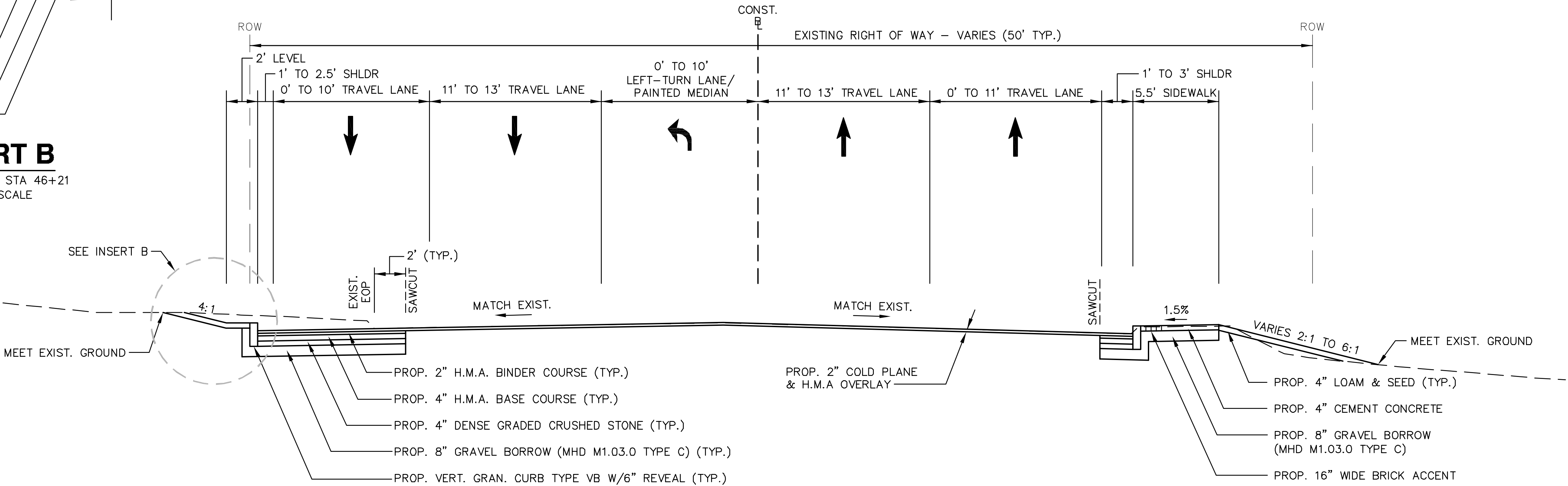
BOSTON POST ROAD (ROUTE 20)

STA 50+39 TO STA 55+90
NOT TO SCALE



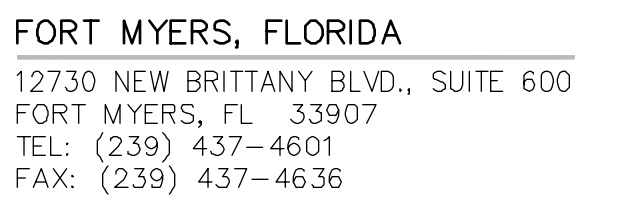
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STA 43+77 TO STA 46+21
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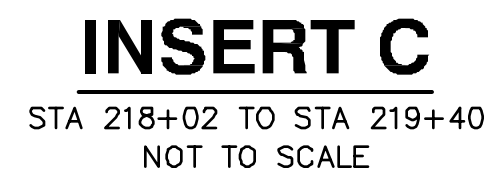
BOSTON POST ROAD (ROUTE 20)

STA 43+77 TO STA 50+39
NOT TO SCALE

[illegible]

Typical Sections

SHEET 6 OF 29	DRAWING NUMBER
JOB NO. 5139	6
CAD 5139TRSv1	



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NO.	DESCRIPTION	DATE

DRAWING TITLE

Construction Plan

SHEET 8 OF 29	DRAWING NUMBER
JOB NO. 5139	8
CAD 5139GNv1	

CONT. ON SHEET 7

CONT. ON SHEET 9

DRAINAGE STRUCTURE DATA						
NO.	TYPE	STATION	RIM ELEV	INV IN	INV OUT	REMARKS
1	FLARED END	20+56 LT				
2	DMH	20+80 LT				
3	CBCI	20+82 LT				



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Construction Plan

SHEET 9 OF 29

JOB NO. 5139

CAD 5139GNV1

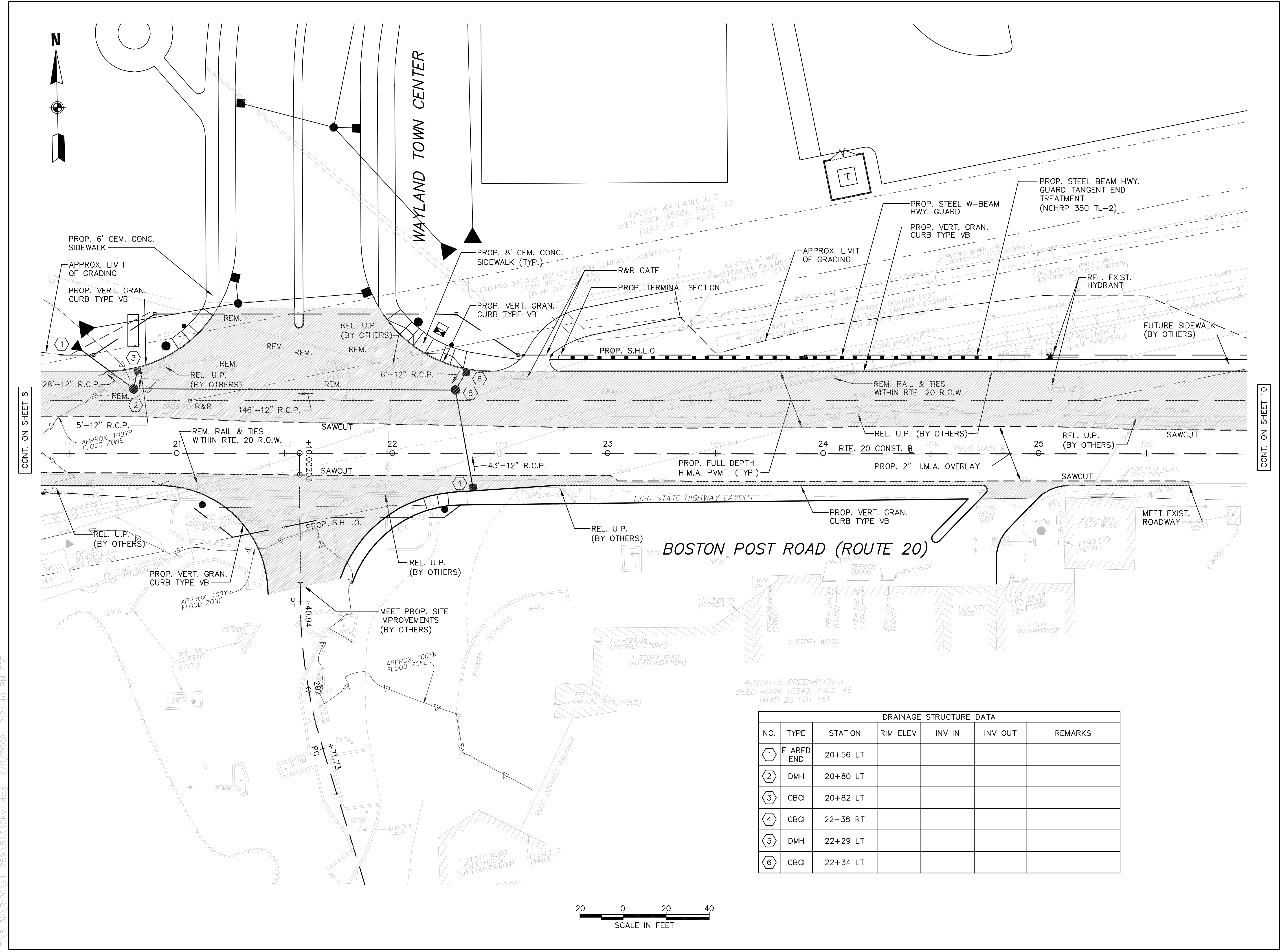
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CONT. ON SHEET 8

CONT. ON SHEET 10

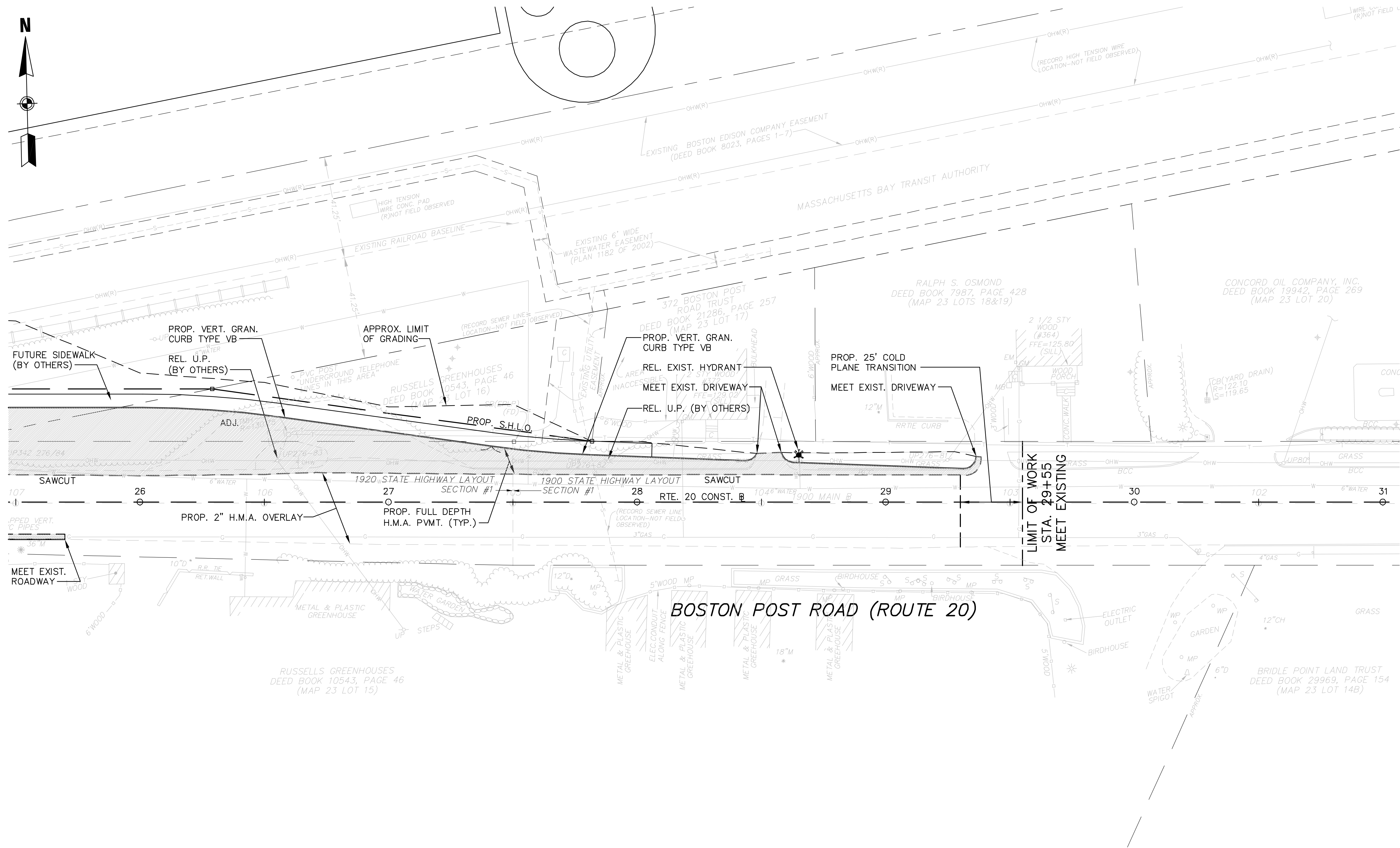


DRAINAGE STRUCTURE DATA						
NO.	TYPE	STATION	RIM ELEV	INV IN	INV OUT	REMARKS
1	FLARED END	20+56 LT				
2	DMH	20+80 LT				
3	CBCI	20+82 LT				
4	CBCI	22+38 RT				
5	DMH	22+29 LT				
6	CBCI	22+34 LT				



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CONT. ON SHEET 9



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SCALE 1" = 20'

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REVISIONS

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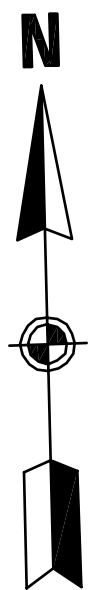
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SHEET 10 OF 29 DRAWING NUMBER

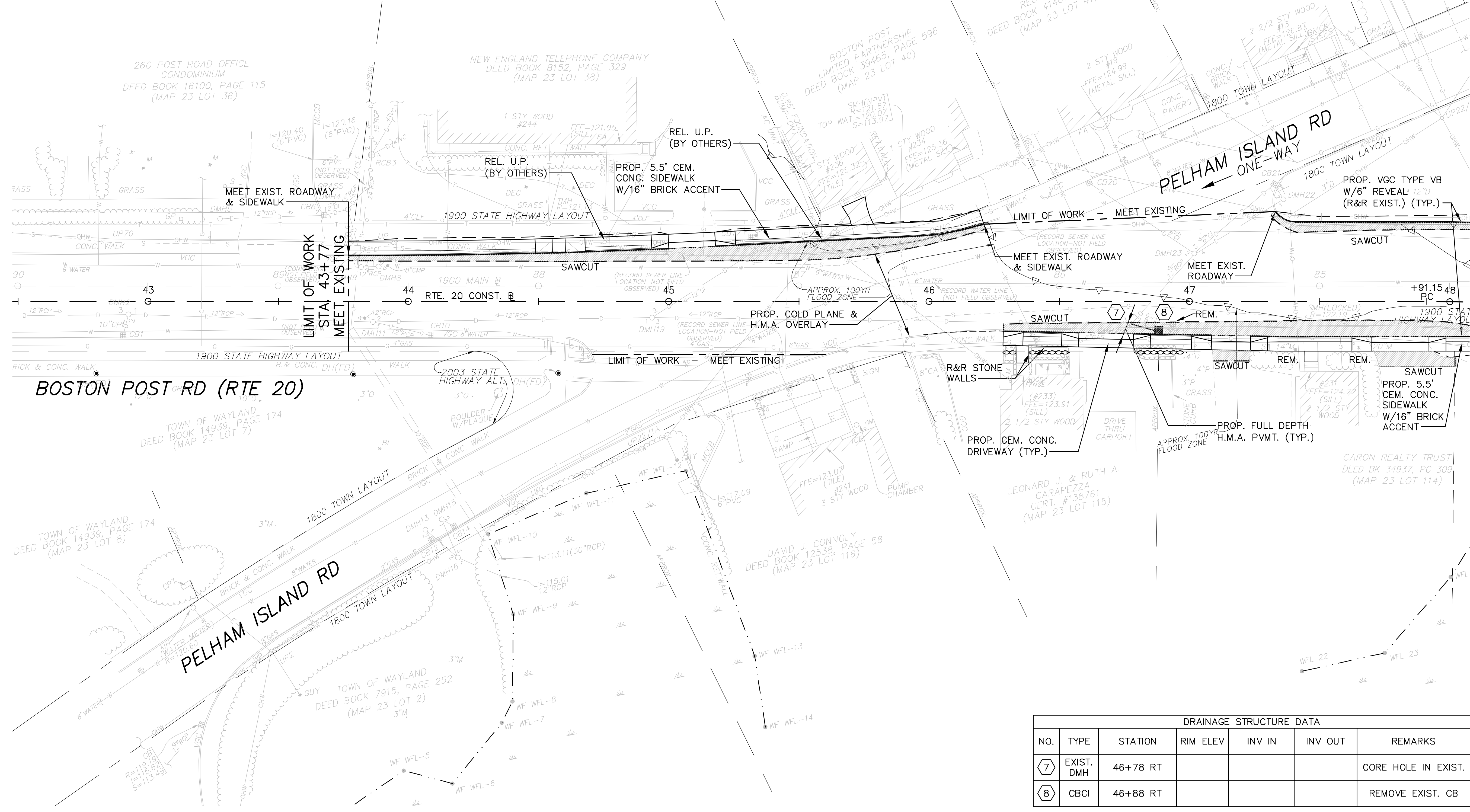
JOB NO. 5139

CAD 5139GNV1

10



CB1 R=120.89 I=118.29	DMH4 R=121.10 I=116.20(T)	CB7 R=120.84 I=118.54	CB10 R=120.49 I=118.04	DMH13 R=119.63 I=115.63(1)(12"CI) I=115.79(2)(12"CI)	DMH16 R=119.57 I=115.27(1) I=115.42(2)	DMH19 R=120.94 I=117.49(1) I=117.54(2)	DMH22 R=123.16 I=120.36(1) I=121.11(2)	DMH25 R=121.69 I=118.41(1) I=119.06(2) I=118.69(3)
DMH2 R=121.23 I=117.23(1) I=118.03(2) I=117.38(3)	DMH5 R=121.20 I=117.25	DMH8 R=120.89 I=115.69(1) I=118.59(2)	DMH11 R=120.67 I=117.17(1) I=117.22(2) I=118.12(3)	CB14 R=119.31 I=116.01(12"CI)	CB17 R=121.08 I=119.76	CB20 R=122.36 I=120.16	DMH23 R=122.53 I=118.68(1) I=120.08(2) I=120.28(3,4)	
RCB3 R=120.03 I=116.18(1,2) I=117.53(3) I=117.08(4)	CB6 R=120.55 I=116.55(1) I=116.85(2)	DMH9 R=120.92 I=116.42(1) I=117.07(2)	CB12 R=119.38 I=115.78(12"CI)	DMH15 R=119.62 I=115.66(1)(12"CI) I=115.73(2)(12"CI)	DMH18 R=122.00 I=117.90(1) I=119.31(2)	CB21 R=122.90 I=N/A(1) I=120.82(2)	CB24 R=121.78 I=NPV S=115.38	



DRAINAGE STRUCTURE DATA						
NO.	TYPE	STATION	RIM ELEV	INV IN	INV OUT	REMARKS
7	EXIST. DMH	46+78 RT				CORE HOLE IN EXIST.
8	CBCI	46+88 RT				REMOVE EXIST. CB

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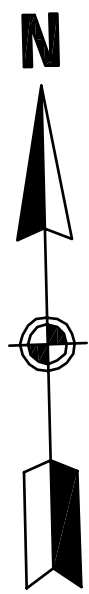
REVISIONS		
NO.	DESCRIPTION	DATE

DRAWING TITLE

Construction Plan

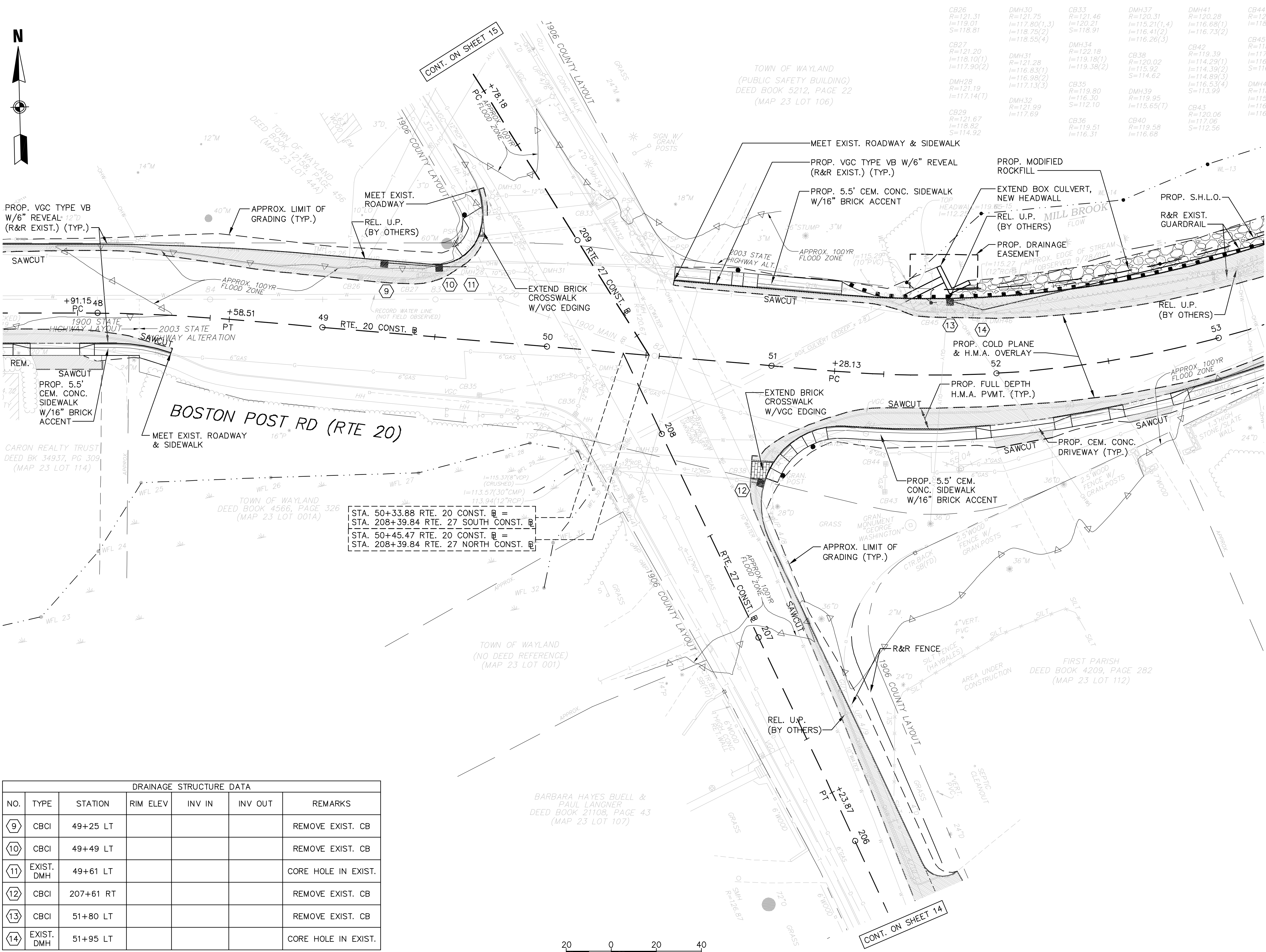
SHEET 11 OF 29	DRAWING NUMBER
JOB NO. 5139	11
CAD 5139GNV1	

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CONT. ON SHEET 11

CONT. ON SHEET 13



DRAINAGE STRUCTURE DATA						
NO.	TYPE	STATION	RIM ELEV	INV IN	INV OUT	REMARKS
9	CBCI	49+25 LT				REMOVE EXIST. CB
10	CBCI	49+49 LT				REMOVE EXIST. CB
11	EXIST. DMH	49+61 LT				CORE HOLE IN EXIST.
12	CBCI	207+61 RT				REMOVE EXIST. CB
13	CBCI	51+80 LT				REMOVE EXIST. CB
14	EXIST. DMH	51+95 LT				CORE HOLE IN EXIST.



CB26 R=121.31 I=119.01 S=118.81	DMH30 R=121.75 I=117.80(1,3) S=118.75(2) I=118.55(4)	CB33 R=121.46 I=120.21 S=118.91	DMH37 R=120.31 I=115.21(1,4) S=116.41(2) I=116.26(3)	DMH41 R=120.28 I=116.68(1) S=116.73(2)	CB44 R=120.24 I=118.39
CB27 R=121.20 I=118.10(1) S=117.90(2)	DMH31 R=121.28 I=116.83(1) S=116.98(2) I=117.13(3)	DMH34 R=122.18 I=119.18(1) S=119.38(2)	CB38 R=120.02 I=115.92 S=114.62	CB42 R=119.39 I=114.29(1) S=114.39(2) I=114.89(3) S=113.99	CB45 R=118.73 I=117.03(1) S=116.93(2) I=116.48(3)
DMH28 R=121.19 I=117.14(T)	DMH32 R=121.99 I=117.69	CB35 R=119.80 I=116.30 S=112.10	DMH39 R=119.95 I=115.65(7) S=116.68	CB43 R=120.06 I=117.06 S=112.56	DMH46 R=118.98 I=115.73(1) S=116.78(2)
CB29 R=121.67 I=118.82 S=114.92		CB36 R=119.51 I=116.31	CB40 R=119.58 I=116.68		

PROJECT TITLE

Wayland Town Center Off-Site Improvements

Wayland,
Massachusetts

PREPARED FOR

Twenty Wayland, LLC

Boston,
Massachusetts



ANDOVER, MASSACHUSETTS
10 N.E. BUSINESS CENTER DRIVE
ANDOVER, MA 01810-1066
TEL: (978) 474-8800
FAX: (978) 688-6508

FORT MYERS, FLORIDA
12730 NEW BRITANNY BLVD., SUITE 600
FORT MYERS, FL 33907
TEL: (239) 437-4601
FAX: (239) 437-4636

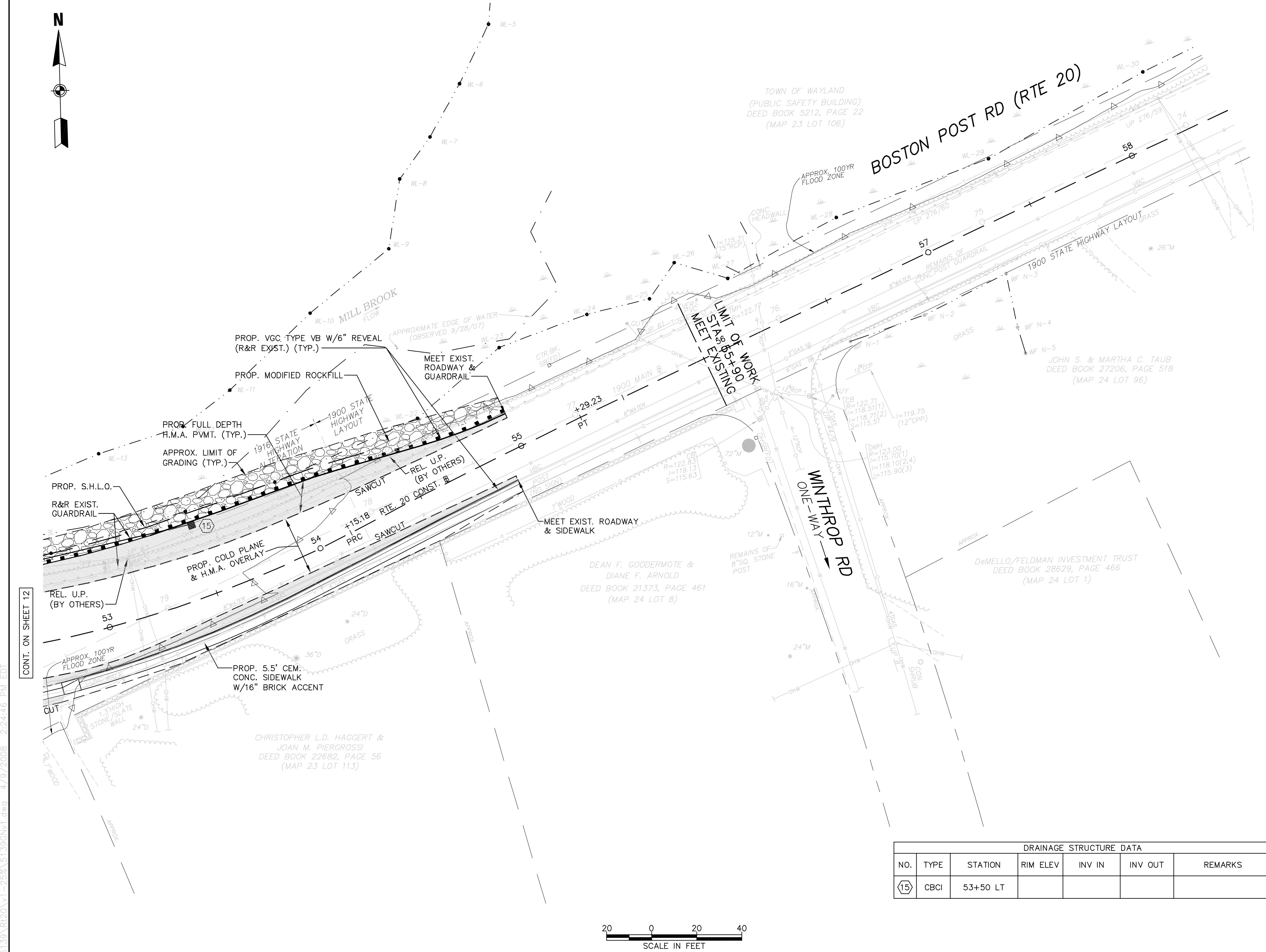
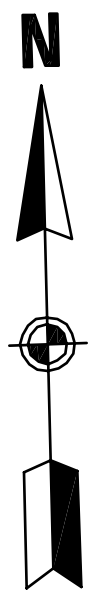
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DRAWN BY	JAR
CHECKED BY	FLD
DATE	APRIL 2008
SCALE	1" = 20'
STAMP	

REVISIONS		
NO.	DESCRIPTION	DATE

DRAWING TITLE

Construction Plan

SHEET 12 OF 29	DRAWING NUMBER
JOB NO. 5139	12
CAD 5139GNV1	



DRAINAGE STRUCTURE DATA						
NO.	TYPE	STATION	RIM ELEV	INV IN	INV OUT	REMARKS
15	CBCI	53+50 LT				

PROJECT TITLE

Wayland Town Center
Off-Site Improvements

Wayland,
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Massachusetts



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10 N.E. BUSINESS CENTER DRIVE
ANDOVER, MA 01810-1066
TEL: (978) 474-8800
FAX: (978) 688-6508

FORT MYERS, FLORIDA

12730 NEW BRITANNY BLVD., SUITE 600
FORT MYERS, FL 33907
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STAMP	

REVISIONS		
NO.	DESCRIPTION	DATE

DRAWING TITLE

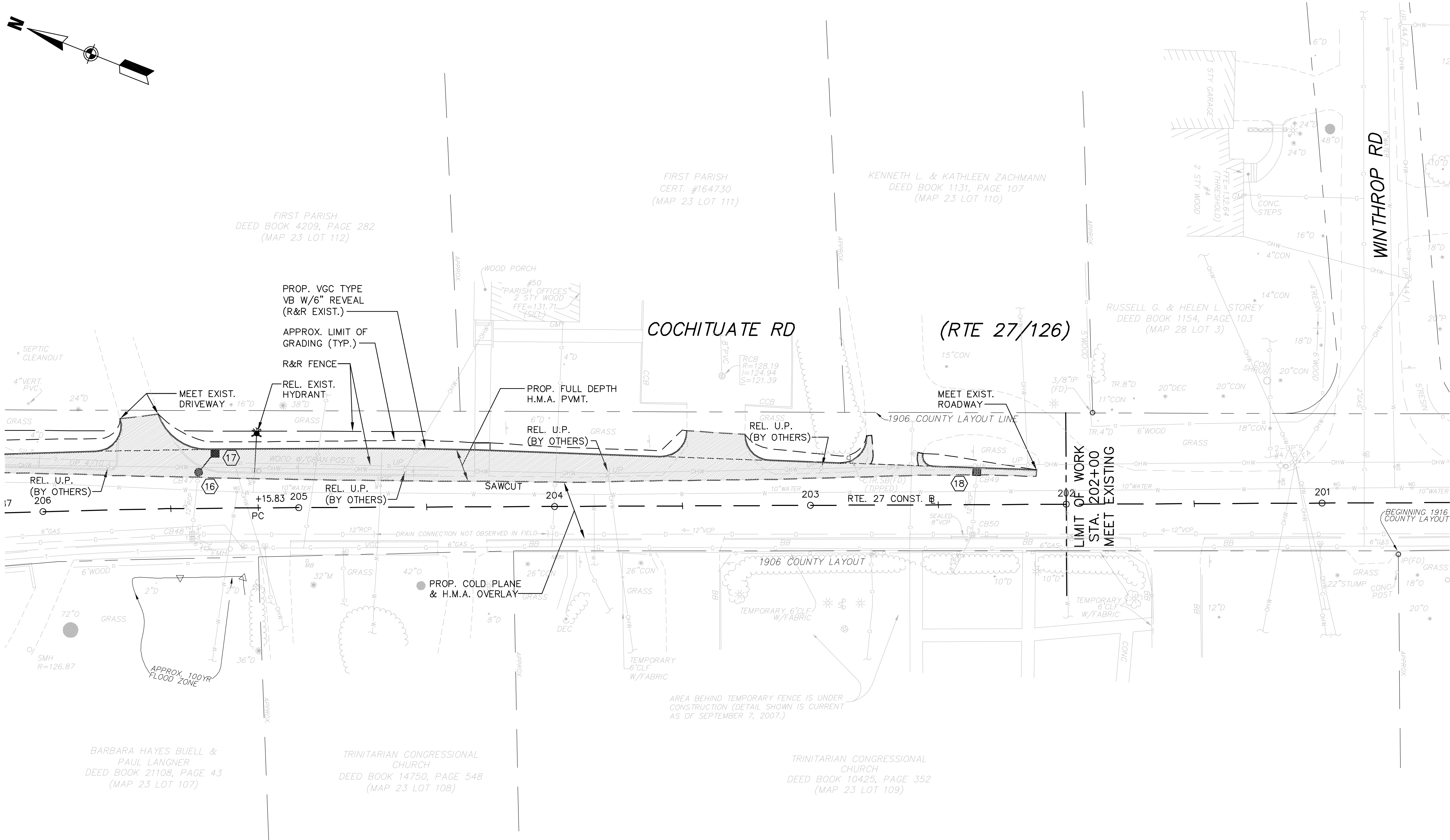
Construction Plan

SHEET 13 OF 29	DRAWING NUMBER
JOB NO. 5139	13
CAD 5139GNv1	

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CONT. ON SHEET 12



CB47
R=126.08
I=122.13
S=119.68

CB49
R=128.22
I=124.47
S=122.82

CB48
R=125.98
I=120.83(1)
I=121.03(2)
I=120.98(3)
I=122.48(4)
S=120.03

CB50
R=128.37
I=122.57(1)
I=123.72(2)
I=122.69(3)
I=123.87(4)
TOP, 8\"/>

DRAINAGE STRUCTURE DATA						
NO.	TYPE	STATION	RIM ELEV	INV IN	INV OUT	REMARKS
16	DMH	205+39 RT				CHANGE IN TYPE
17	CBCI	205+33 RT				
18	CBCI	202+35 RT				REMODEL WITH ECCENTRIC CONE



PROJECT TITLE

Wayland Town Center
Off-Site Improvements

Wayland,
Massachusetts

PREPARED FOR

Twenty Wayland, LLC

Boston,
Massachusetts

VAI Vanasse & Associates, Inc.
Transportation Engineers & Planners

ANDOVER, MASSACHUSETTS

10 N.E. BUSINESS CENTER DRIVE
ANDOVER, MA 01810-1066
TEL: (978) 474-8800
FAX: (978) 688-6508

FORT MYERS, FLORIDA

12730 NEW BRITANNY BLVD., SUITE 600
FORT MYERS, FL 33907
TEL: (239) 437-4601
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DESIGNED BY	JAR
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DATE	APRIL 2008
SCALE	1" = 20'
STAMP	

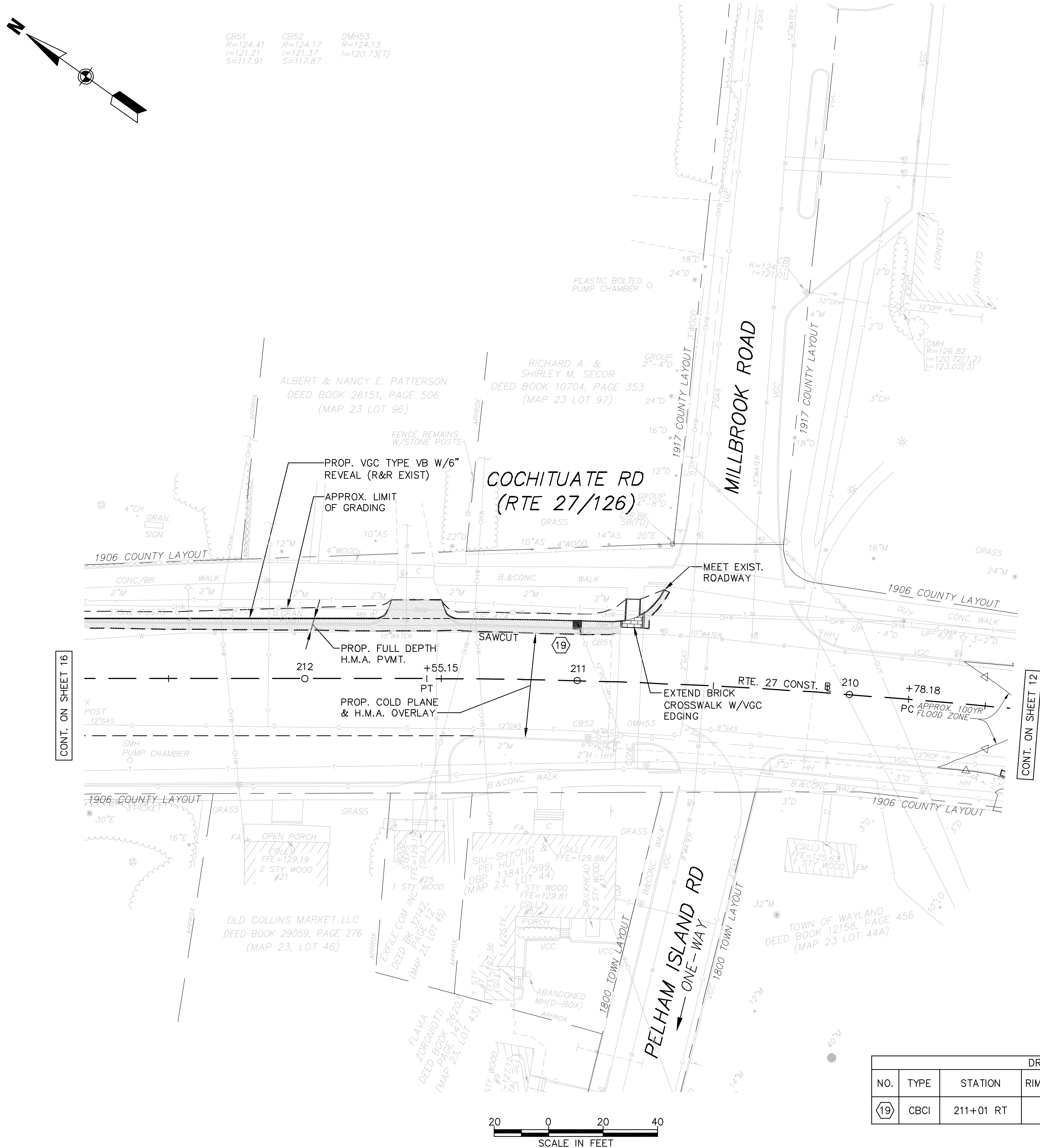
REVISIONS		
NO.	DESCRIPTION	DATE

DRAWING TITLE

Construction Plan

SHEET 14 OF 29	DRAWING NUMBER
JOB NO. 5139	14
CAD 5139GNV1	

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DRAINAGE STRUCTURE DATA						
NO.	TYPE	STATION	RIM ELEV	INV IN	INV OUT	REMARKS
19	CBCI	211+01 RT				REMOVE EXIST. CB

PROJECT TITLE

Wayland Town Center
Off-Site Improvements

Wayland,
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Massachusetts



ANDOVER, MASSACHUSETTS

10 N.E. BUSINESS CENTER DRIVE
ANDOVER, MA 01810-1066
TEL: (978) 474-8800
FAX: (978) 688-6508

FORT MYERS, FLORIDA

12730 NEW BRITANNY BLVD., SUITE 600
FORT MYERS, FL 33907
TEL: (239) 437-4601
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DESIGNED BY	JAR
DRAWN BY	JAR
CHECKED BY	FLD
DATE	APRIL 2008
SCALE	1" = 20'
STAMP	

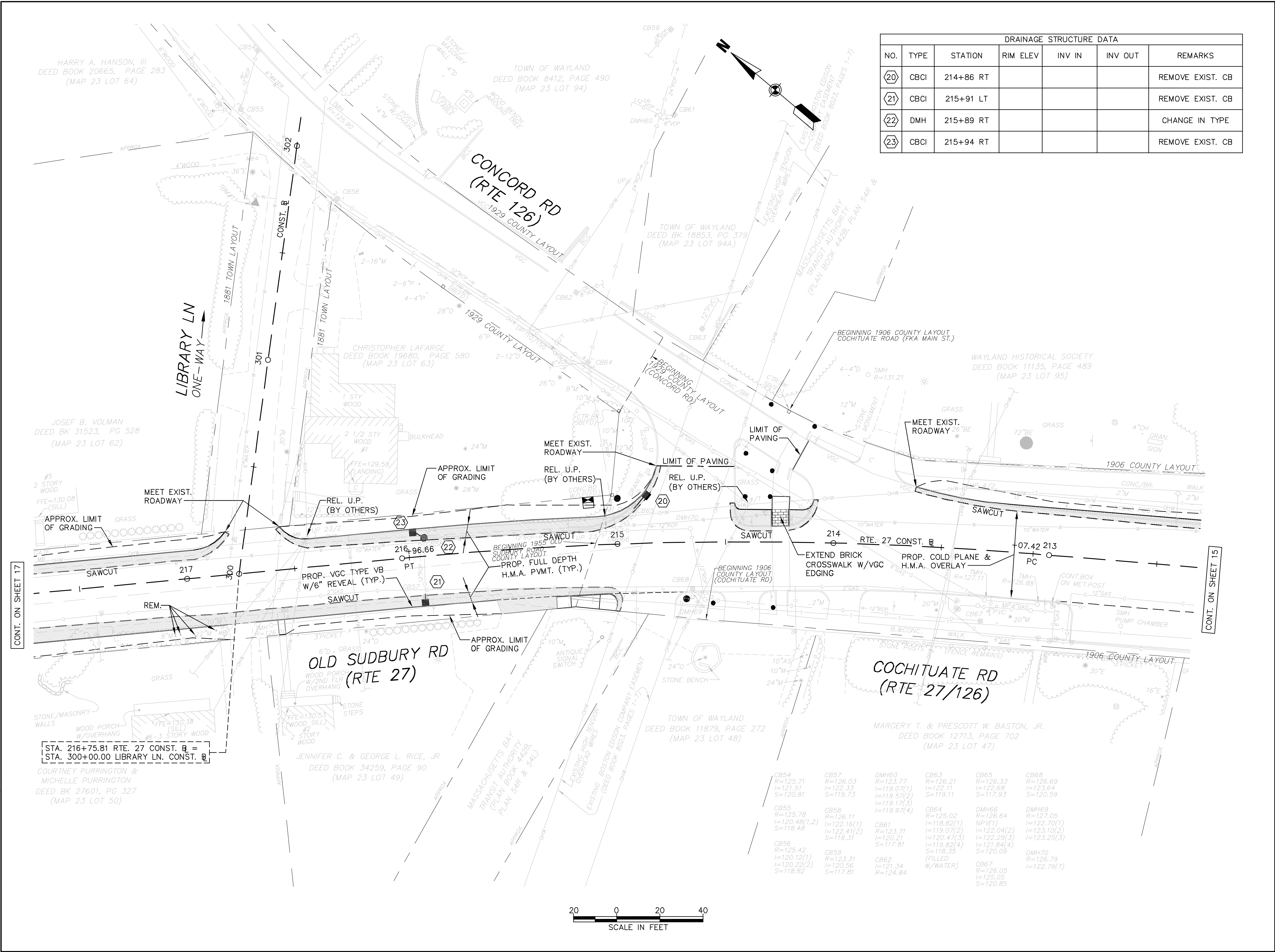
REVISIONS		
NO.	DESCRIPTION	DATE

DRAWING TITLE

Construction Plan

SHEET 15 OF 29	DRAWING NUMBER
JOB NO. 5139	15
CAD 5139GNV1	

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DRAINAGE STRUCTURE DATA						
NO.	TYPE	STATION	RIM ELEV	INV IN	INV OUT	REMARKS
20	CBCI	214+86 RT				REMOVE EXIST. CB
21	CBCI	215+91 LT				REMOVE EXIST. CB
22	DMH	215+89 RT				CHANGE IN TYPE
23	CBCI	215+94 RT				REMOVE EXIST. CB

PROJECT TITLE

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VAI Vanasse & Associates, Inc.
Transportation Engineers & Planners

ANDOVER, MASSACHUSETTS
10 N.E. BUSINESS CENTER DRIVE
ANDOVER, MA 01810-1066
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FAX: (978) 688-6508

FORT MYERS, FLORIDA
12730 NEW BRITANNY BLVD., SUITE 600
FORT MYERS, FL 33907
TEL: (239) 437-4601
FAX: (239) 437-4636

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DRAWN BY	JAR
CHECKED BY	FLD
DATE	APRIL 2008
SCALE	1" = 20'
STAMP	

REVISIONS		
NO.	DESCRIPTION	DATE

DRAWING TITLE

Construction Plan

SHEET 16 OF 29	DRAWING NUMBER
JOB NO. 5139	16
CAD 5139GNV1	

PROJECT TITLE

Wayland Town Center
Off-Site Improvements

Wayland,
Massachusetts

PREPARED FOR

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Boston,
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Transportation Engineers & Planners

ANDOVER, MASSACHUSETTS
10 N.E. BUSINESS CENTER DRIVE
ANDOVER, MA 01810-1066
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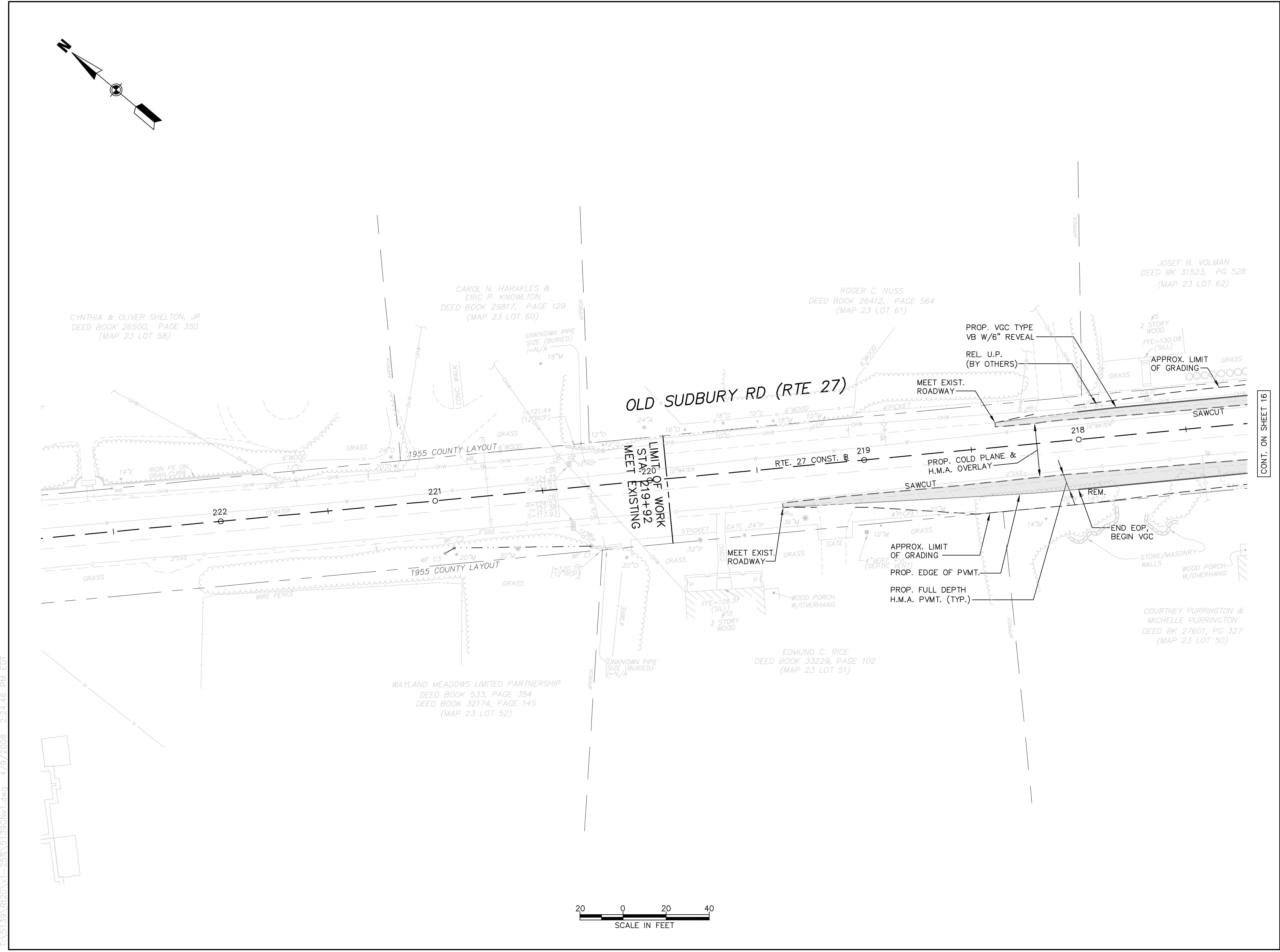
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DRAWN BY	JAR
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DATE	APRIL 2008
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STAMP	

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NO.	DESCRIPTION	DATE

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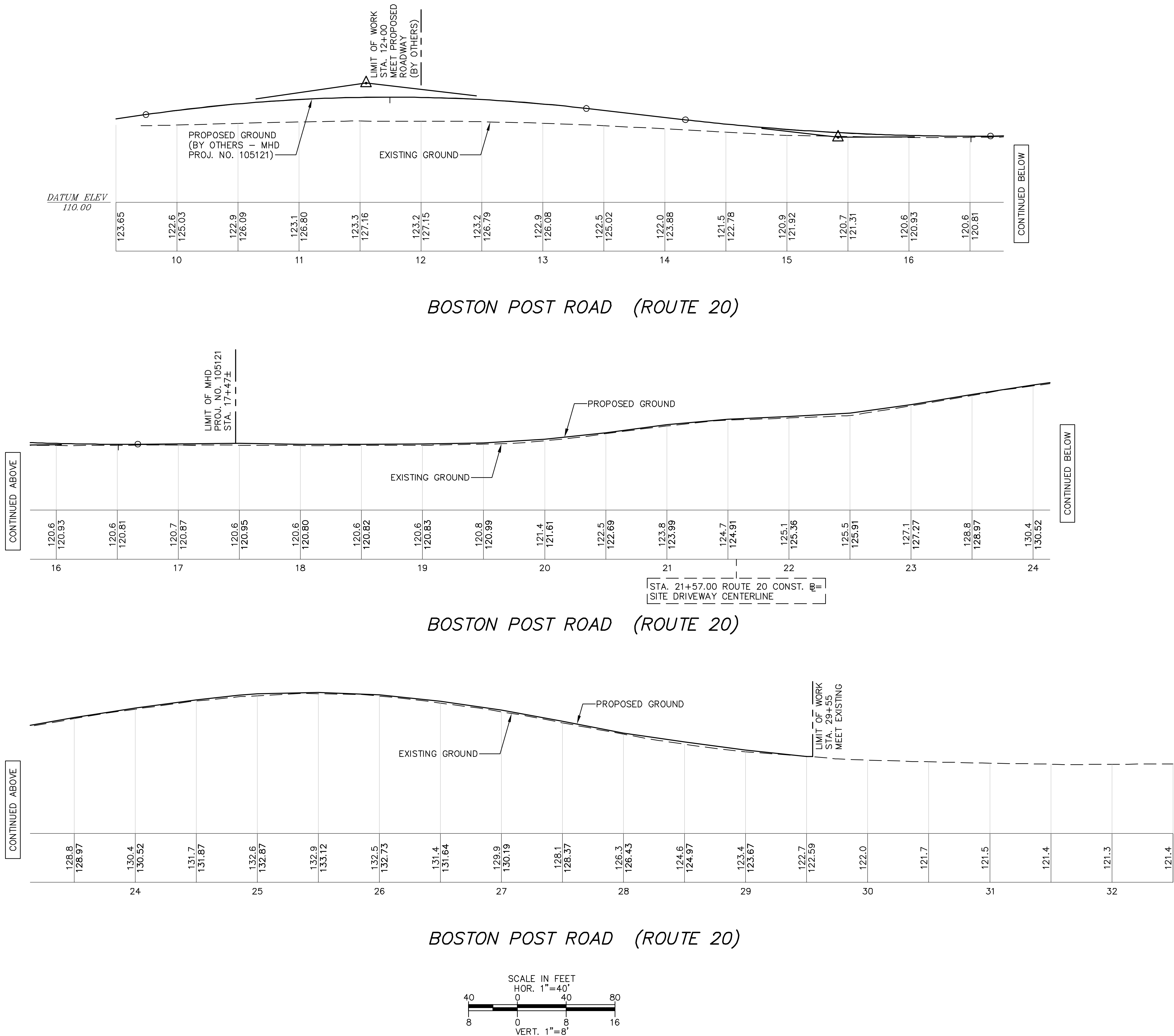
Construction Plan

SHEET 17 OF 29	DRAWING NUMBER
JOB NO. 5139	17
CAD 5139GNv1	



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PROJECT TITLE

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ANDOVER, MASSACHUSETTS

10 N.E. BUSINESS CENTER DRIVE
ANDOVER, MA 01810-1066
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FAX: (978) 688-6508

FORT MYERS, FLORIDA

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DESIGNED BY	JAR
DRAWN BY	JAR
CHECKED BY	FLD
DATE	APRIL 2008
SCALE	HOR: 1"=40' / VERT: 1"=8'
STAMP	

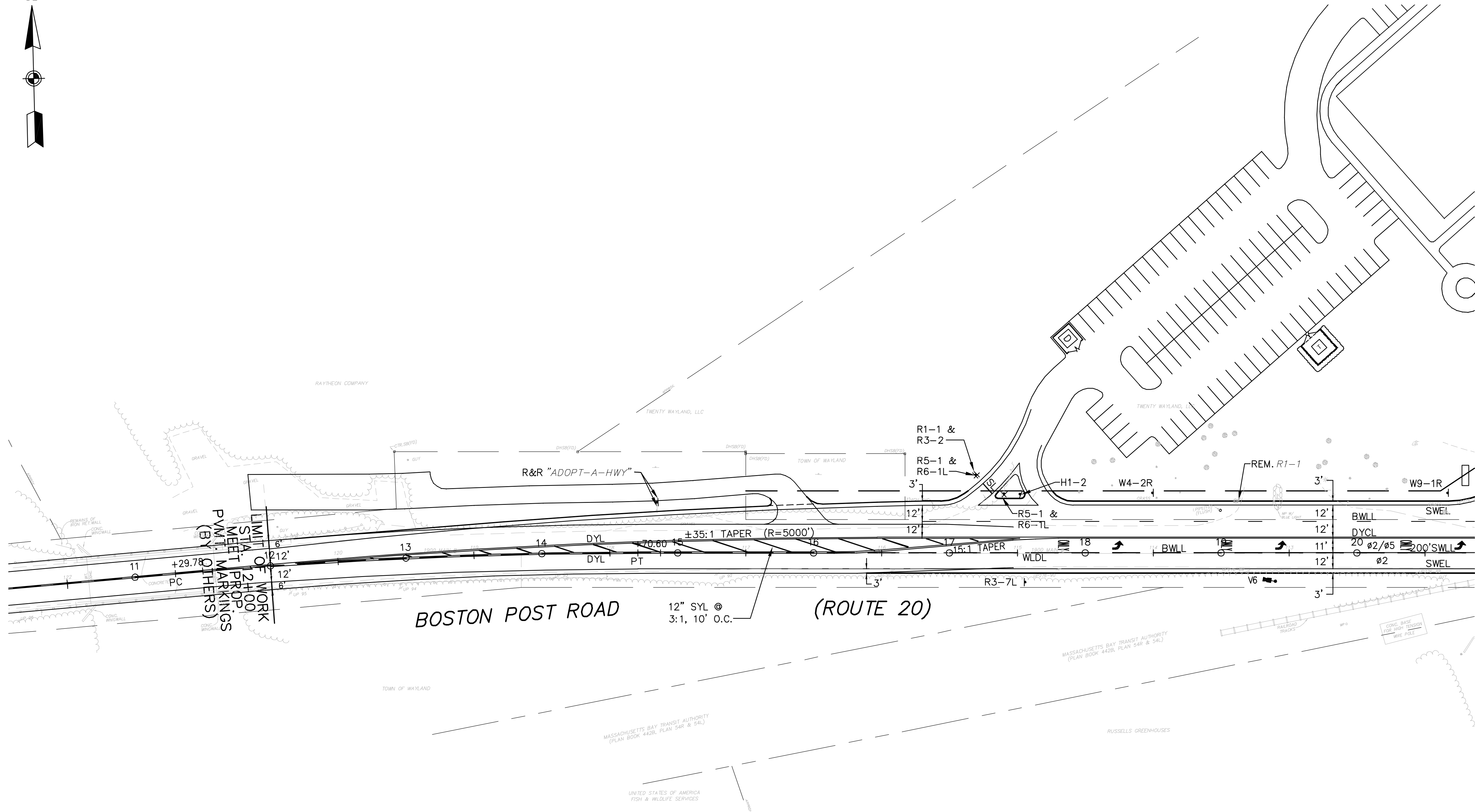
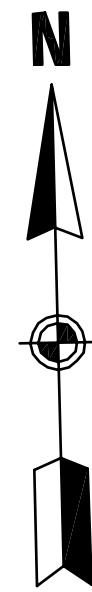
REVISIONS		
NO.	DESCRIPTION	DATE

DRAWING TITLE

Profile

Route 20 at Site Drive

SHEET 18 OF 29	DRAWING NUMBER
JOB NO. 5139	18
CAD 5139CS.v1	



PROJECT TITLE

Wayland Town Center
Off-Site Improvements

Wayland,
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ANDOVER, MASSACHUSETTS

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ANDOVER, MA 01810-1066
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FAX: (978) 688-6508

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FORT MYERS, FL 33907
TEL: (239) 437-4601
FAX: (239) 437-4636

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DATE	APRIL 2008
SCALE	1" = 40'
STAMP	

REVISIONS		
NO.	DESCRIPTION	DATE

DRAWING TITLE

Traffic Plan

SHEET 19 OF 29	DRAWING NUMBER
JOB NO. 5139	19
CAD 5139PMv1	

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PROJECT TITLE

Wayland Town Center
Off-Site Improvements

Wayland,
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Boston,
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ANDOVER, MASSACHUSETTS
10 N.E. BUSINESS CENTER DRIVE
ANDOVER, MA 01810-1066
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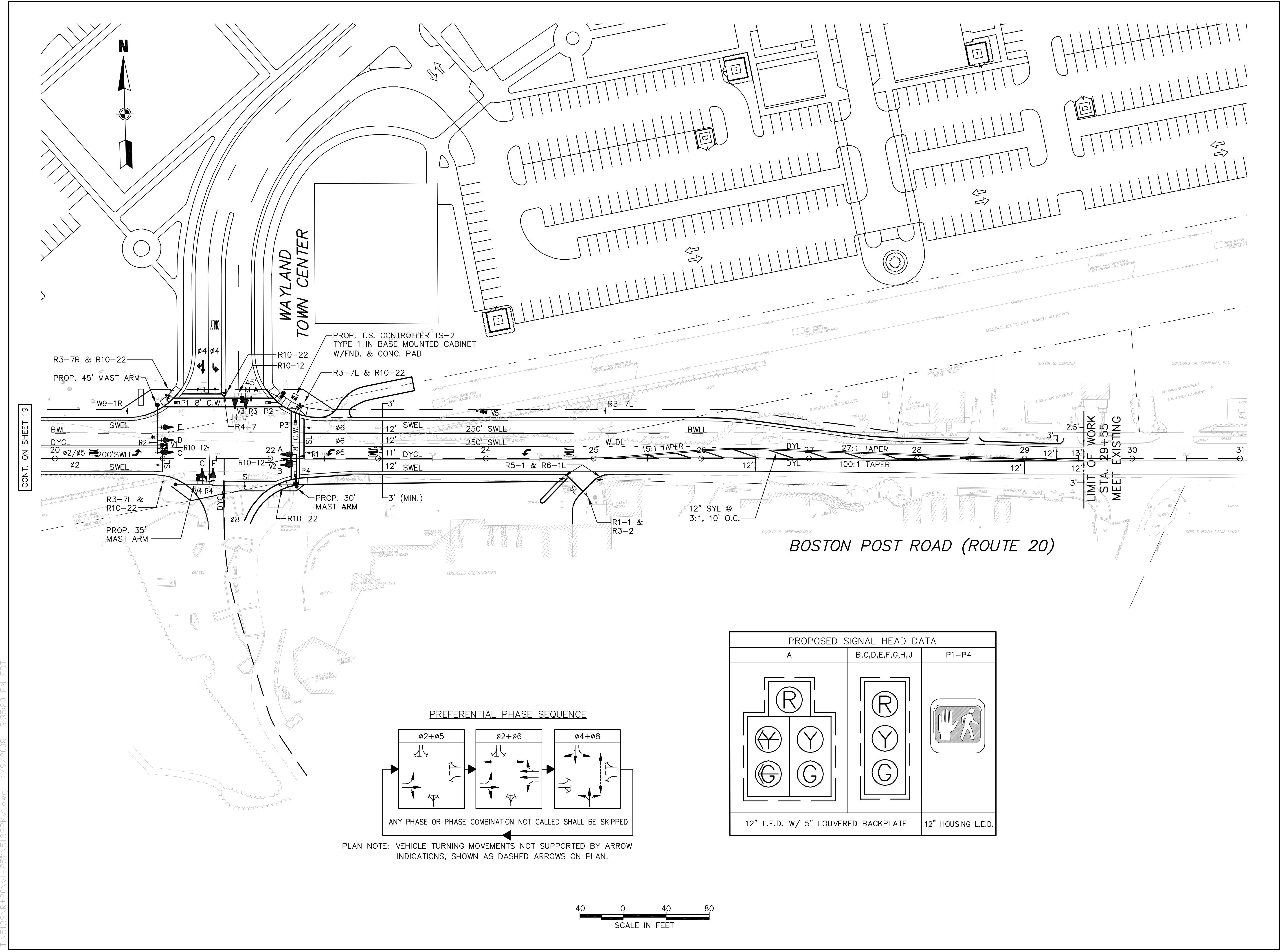
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DRAWN BY	JAR
CHECKED BY	FLD
DATE	APRIL 2008
SCALE	1" = 40'
STAMP	

REVISIONS		
NO.	DESCRIPTION	DATE

DRAWING TITLE

Traffic Plan

SHEET 20 OF 29	DRAWING NUMBER
JOB NO. 5139	20
CAD 5139PMv1	



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PROJECT TITLE

Wayland Town Center
Off-Site Improvements

Wayland,
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PREPARED FOR

Twenty Wayland, LLC

Boston,
Massachusetts



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10 N.E. BUSINESS CENTER DRIVE
ANDOVER, MA 01810-1066
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FAX: (978) 688-6508

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DESIGNED BY	JAR
DRAWN BY	JAR
CHECKED BY	FLD
DATE	APRIL 2008
SCALE	1" = 40'
STAMP	

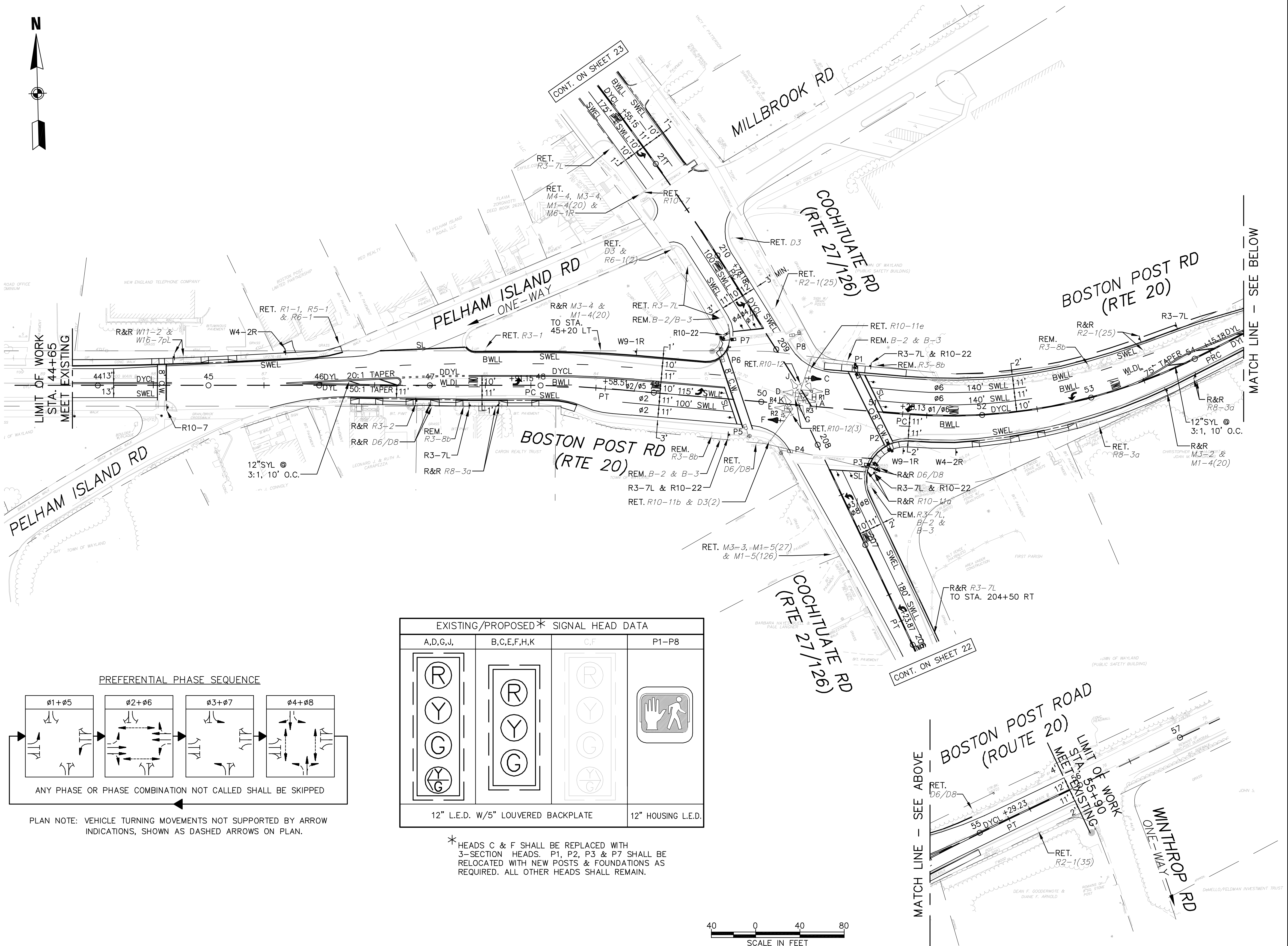
REVISIONS		
NO.	DESCRIPTION	DATE

DRAWING TITLE

Traffic Plan

SHEET 21 OF 29	DRAWING NUMBER
JOB NO. 5139	21
CAD 5139PM.v1	

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PROJECT TITLE

Wayland Town Center
Off-Site Improvements

Wayland,
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PREPARED FOR

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Massachusetts



ANDOVER, MASSACHUSETTS
10 N.E. BUSINESS CENTER DRIVE
ANDOVER, MA 01810-1066
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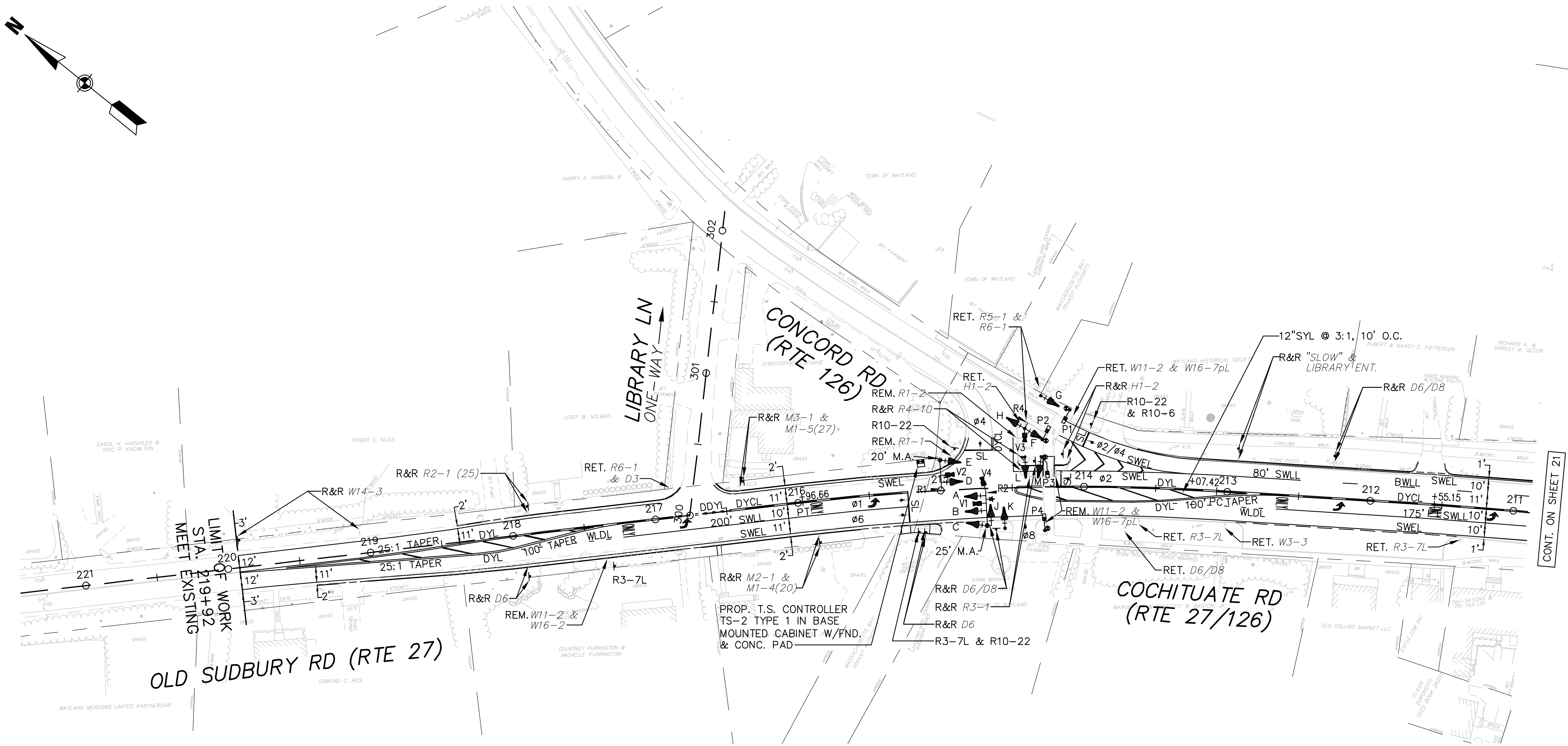
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CHECKED BY	FLD
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REVISIONS		
NO.	DESCRIPTION	DATE

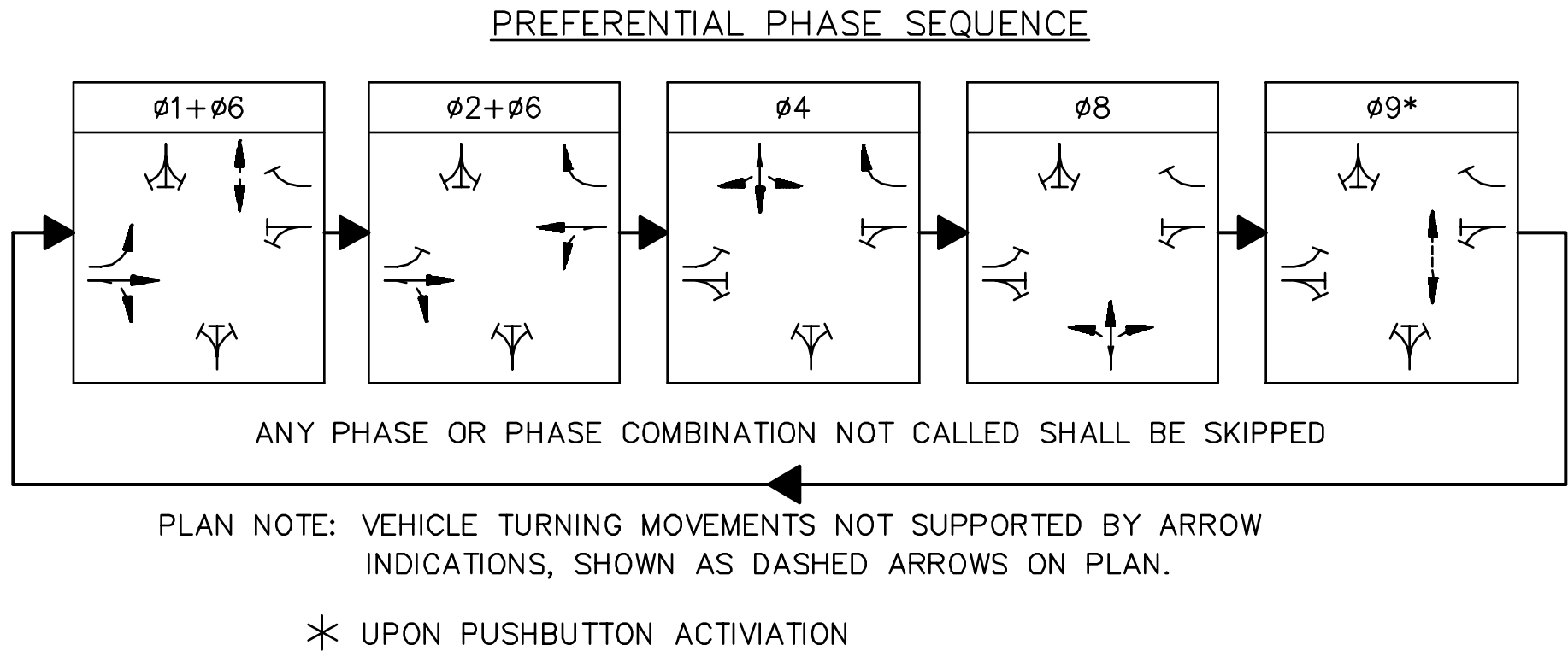
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Traffic Plan

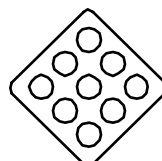
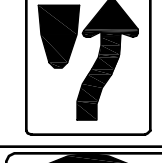
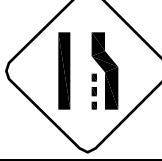
SHEET 23 OF 29	DRAWING NUMBER
JOB NO. 5139	23
CAD 5139PMv1	

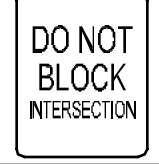
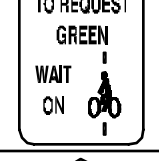
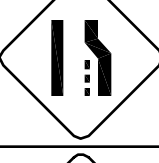


PROPOSED SIGNAL HEAD DATA			
A	B,C,D,E,F,G,H,J,M	K,L	P1-P4
12" L.E.D. W/ 5" LOUVERED BACKPLATE			12" HOUSING L.E.D.



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PROPOSED SIGN SUMMARY – ROUTE 20 @ SITE DRIVE													
IDENTIFI- CATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCH)			NUMBER OF SIGNS REQUIRED	COLOR			POST TYPE AND NUMBER REQUIRED	AREA PER SIGN	TOTAL AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	RTE. MKR. ARROW		BACK- GROUND	LEGEND	BORDER			
H1-2	24"	24"		MHD STANDARD			1	YELLOW	9 AMBER REFL.		P-5 1	4.00	4.00
R1-1	30"	30"		SEE FHWA STANDARD HIGHWAY SIGNS 2004 EDITION			2	RED	WHITE	WHITE	P-5 2	5.18	10.36
R3-2	24"	24"					2	WHITE	RED/ BLACK	BLACK	MOUNT W/ R1-1	4.00	8.00
R3-7L	30"	30"					4	WHITE	BLACK	BLACK	P-5 4	6.25	25.00
R3-7R	30"	30"					1	WHITE	BLACK	BLACK	P-5 1	6.25	6.25
R4-7	24"	30"					1	WHITE	BLACK	BLACK	P-5 1	5.00	5.00
R5-1	30"	30"					4	WHITE	RED/ WHITE	-	P-5 3 MOUNT 1 W/ R1-1	6.25	25.00
R6-1L	36"	12"					4	BLACK	BLACK/ WHITE	WHITE	MOUNT W/ R5-1	3.00	12.00
R10-12	30"	36"					4	WHITE	BLACK	BLACK	MOUNT ON MAST ARM	7.50	30.00
R10-22	18"	24"		MHD STANDARD			5	WHITE	BLACK	BLACK	MOUNT W/ OTHER SIGNS	3.00	15.00
W4-2R	36"	36"		SEE FHWA STANDARD HIGHWAY SIGNS 2004 EDITION			1	YELLOW	BLACK	BLACK	P-5 1	9.00	9.00
W9-1R	36"	36"					1	YELLOW	BLACK	BLACK	P-5 1	9.00	9.00

PROPOSED SIGN SUMMARY – ROUTE 20 @ ROUTE 27/126													
IDENTIFI- CATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCH)			NUMBER OF SIGNS REQUIRED	COLOR			POST TYPE AND NUMBER REQUIRED	AREA PER SIGN	TOTAL AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	RTE. MKR. ARROW		BACK- GROUND	LEGEND	BORDER			
R3-7L	30"	30"		SEE FHWA STANDARD HIGHWAY SIGNS 2004 EDITION			6	WHITE	BLACK	BLACK	P-5 6	6.25	37.50
R10-6	24"	36"					1	WHITE	BLACK	BLACK	MOUNT W/ R10-22	6.00	6.00
R10-7	24"	30"					1	WHITE	BLACK	BLACK	P-5 1	5.00	50.00
R10-12	30"	36"					4	WHITE	BLACK	BLACK	MOUNT ON MAST ARMS	7.50	30.00
R10-22	18"	24"					MHD STANDARD			7	WHITE	BLACK	BLACK
W4-2R	36"	36"		SEE FHWA STANDARD HIGHWAY SIGNS 2004 EDITION			2	YELLOW	BLACK	BLACK	P-5 2	9.00	18.00
W9-1R	36"	36"					2	YELLOW	BLACK	BLACK	P-5 2	9.00	18.00

PROJECT TITLE

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ANDOVER, MASSACHUSETTS
10 N.E. BUSINESS CENTER DRIVE
ANDOVER, MA 01810-1066
TEL: (978) 474-8800
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FORT MYERS, FLORIDA
12730 NEW BRITTANY BLVD., SUITE 600
FORT MYERS, FL 33907
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DESIGNED BY	JAR
DRAWN BY	JAR
CHECKED BY	FLD
DATE	APRIL 2008
SCALE	N.T.S.
STAMP	

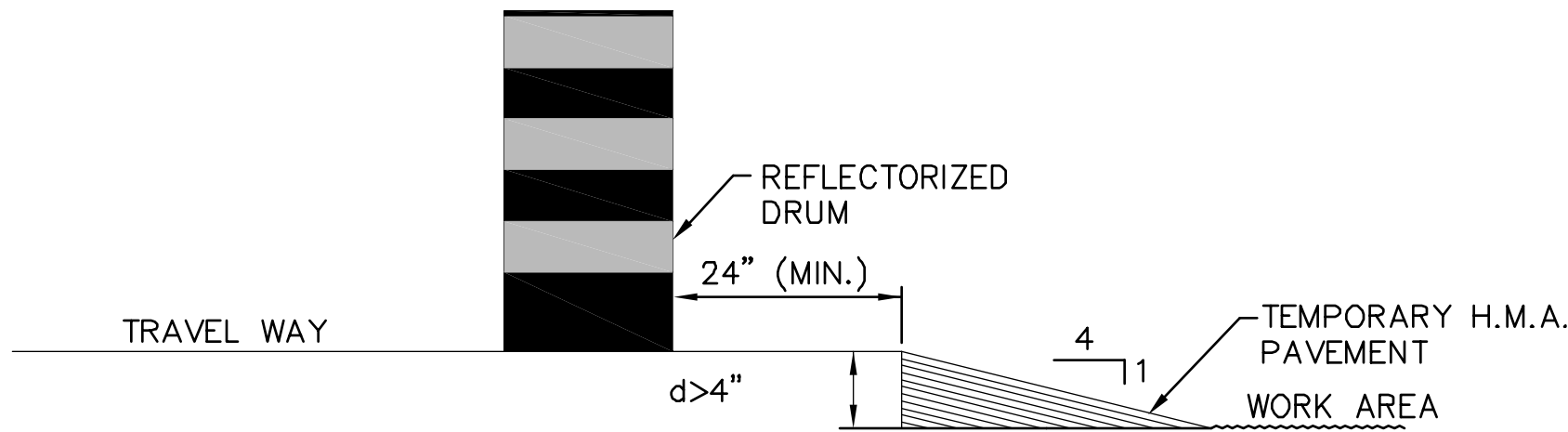
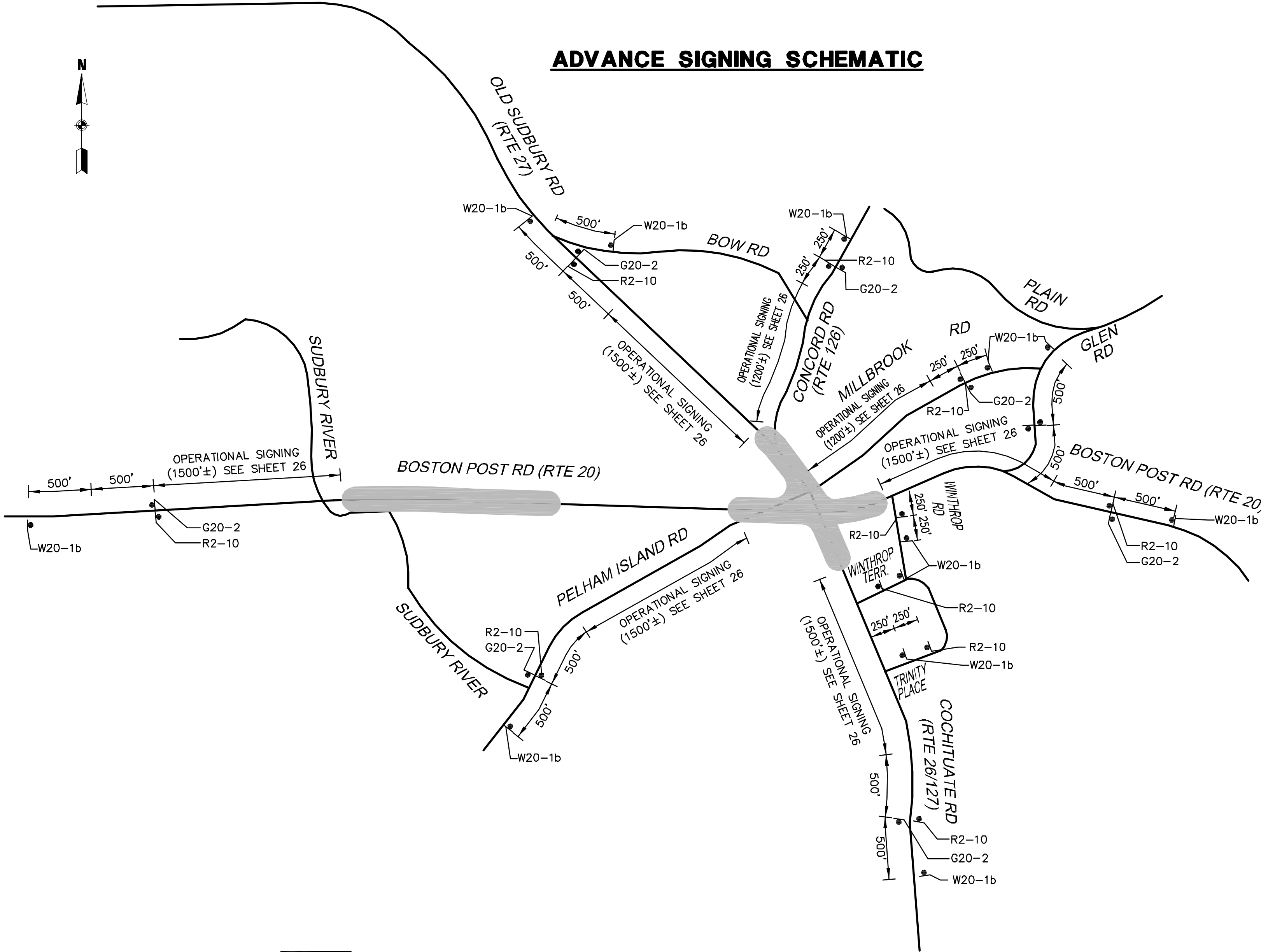
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NO.	DESCRIPTION	DATE

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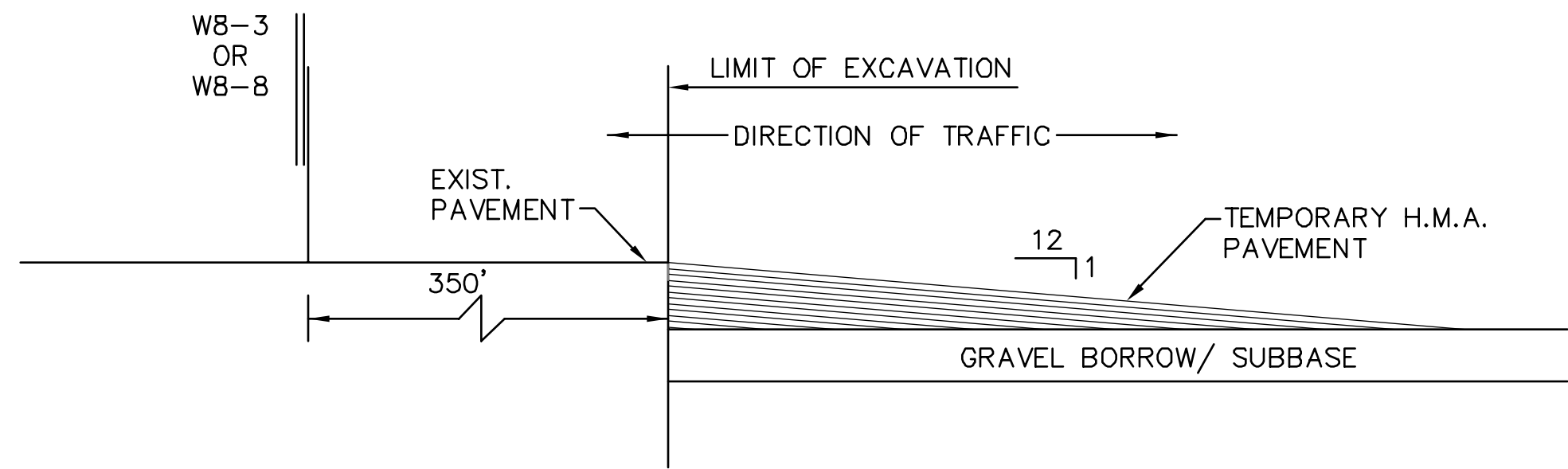
Sign Summary Sheet

SHEET 24 OF 29	DRAWING NUMBER 24
JOB NO. 5139	
CAD 5139PMv1	

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LATERAL DROP-OFF DETAIL
NOT TO SCALE



LONGITUDINAL DROP-OFF DETAIL
NOT TO SCALE

SIGN LEGEND

END
ROAD WORK

G20-2
(48" x 24")

PAVEMENT
ENDS
W8-3
(30" x 30")

STATE LAW
SPEEDING FINES
DOUBLED
IN WORK ZONES

R2-10
(48" x 36")

ROUGH
ROAD
W8-8
(30" x 30")

ROAD
WORK
AHEAD

W20-1
a - AHEAD
b - 1/2 MILE
(36" x 36")

TRAFFIC MANAGEMENT NOTES

1. ALL TEMPORARY TRAFFIC CONTROL WORK SHALL CONFORM TO THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND ALL REVISIONS.
2. ALL SIGN LEGENDS, BORDERS AND MOUNTING SHALL BE IN ACCORDANCE WITH THE MUTCD.
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. USE W20-8 SIGNS ONLY WHILE POLICE ARE DIRECTING TRAFFIC. THEY SHALL BE TAKEN DOWN OR COVERED AT THE CLOSE OF EACH DAY.
6. 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."
7. ALL DRUMS SHALL CONFORM TO SPECIAL PROVISION ITEM NUMBER 859, REFLECTORIZED DRUM.
8. CONTRACTORS SHALL NOTIFY EACH ABUTTER AT LEAST 24 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OF ACCESS, SUCH AS CONDUIT INSTALLATION, EXISTING PAVEMENT EXCAVATION, TEMPORARY DRIVEWAY PAVEMENT PLACEMENT AND SIMILAR OPERATIONS.
9. FOR NIGHT WORK SETUPS, THE FIRST THREE PLASTIC DRUMS OF A TAPER MAY BE MOUNTED WITH TYPE A LIGHTS.
10. ADVISORY SPEED PLATES (W13-1) SHALL BE USED WHERE APPROPRIATE. THE ADVISORY SPEED LIMIT, IF REQUIRED, SHALL BE DETERMINED BY THE ENGINEER.
11. DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
12. MAXIMUM SPACING OF CHANNELIZING DEVICES IN FEET IS EQUAL TO THE SPEED LIMIT IN MPH WHEN USED FOR TAPER CHANNELIZATION, AND A DISTANCE IN FEET OF TWICE THE SPEED LIMIT IN MPH WHEN USED FOR TANGENT CHANNELIZATION.
13. TAPER FORMULA: $L = WS$ FOR SPEED ≥ 45 MPH
 $L = WS^2/60$ FOR SPEED ≤ 40 MPH
L=MIN. LENGTH OF TAPER S=SPEED W=OFFSET WIDTH

TAPER TYPE	TAPER LENGTH
MERCING TAPER	L MINIMUM
SHIFTING TAPER	1/2 L MINIMUM
SHOULDER TAPER	1/3 L MINIMUM
TWO-WAY TRAFFIC TAPER	100' MAXIMUM
14. MINIMUM LANE WIDTH IS TO BE 10 FEET UNLESS OTHERWISE SHOWN. MINIMUM LANE WIDTH TO BE MEASURED FROM THE EDGE OF DRUMS OR MEDIAN BARRIER.
15. ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS.
16. WORK WITHIN THE TRAVEL WAY, INCLUDING ANY LANE CLOSURE, SHALL BE LIMITED TO OFF-PEAK HOURS.

TRAFFIC MANAGEMENT LEGEND

- REFLECTORIZED PLASTIC DRUM
- P POLICE DETAIL
- TYPE III BARRICADE
- FLASHING ARROW PANEL
- FLASHING ARROW PANEL
- WORK ZONE
- DIRECTION OF TRAFFIC
- SIGN
- VARIABLE MESSAGE SIGN

PROJECT TITLE

Wayland Town Center
Off-Site Improvements

Wayland,
Massachusetts

PREPARED FOR

Twenty Wayland, LLC

Boston,
Massachusetts

VA **Vanasse & Associates, Inc.**
Transportation Engineers & Planners

ANDOVER, MASSACHUSETTS

10 N.E. BUSINESS CENTER DRIVE
ANDOVER, MA 01810-1066
TEL: (978) 474-8800
FAX: (978) 688-6508

FORT MYERS, FLORIDA

12730 NEW BRITANNY BLVD., SUITE 600
FORT MYERS, FL 33907
TEL: (239) 437-4601
FAX: (239) 437-4636

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DATE	APRIL 2008
SCALE	N.T.S.
STAMP	

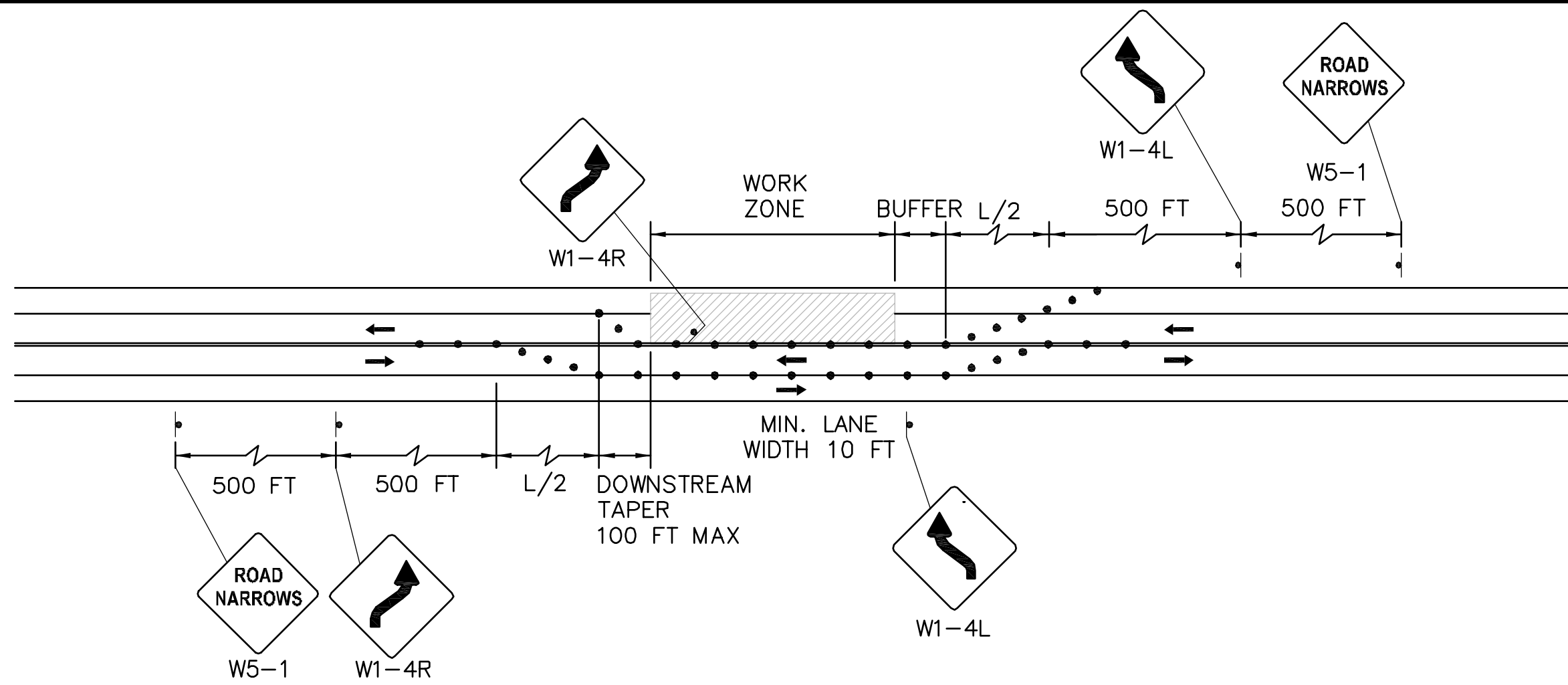
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NO.	DESCRIPTION	DATE

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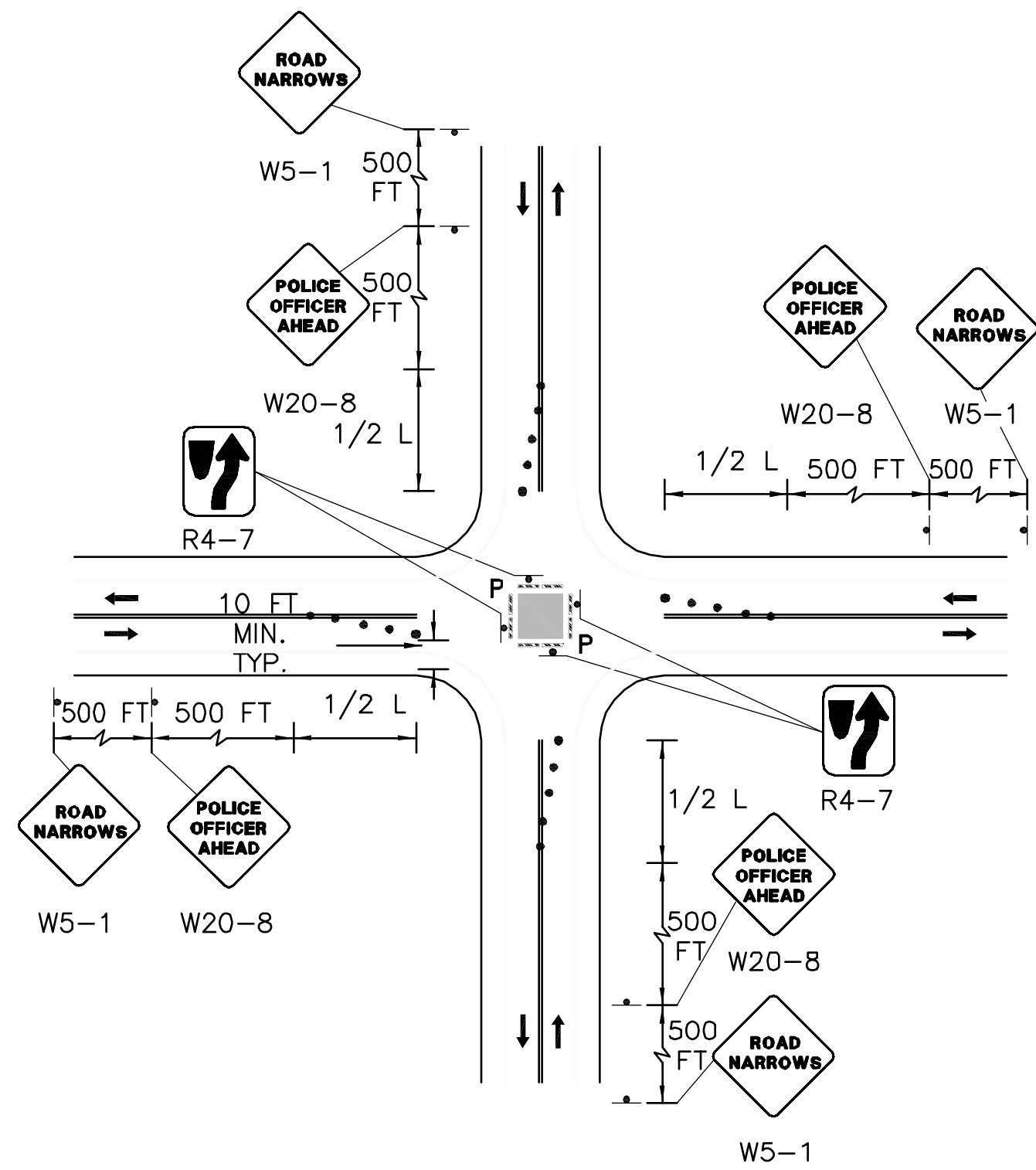
Traffic Management
Plan

SHEET 25 OF 29	DRAWING NUMBER
JOB NO. 5139	25
CAD 5139TMP\1	

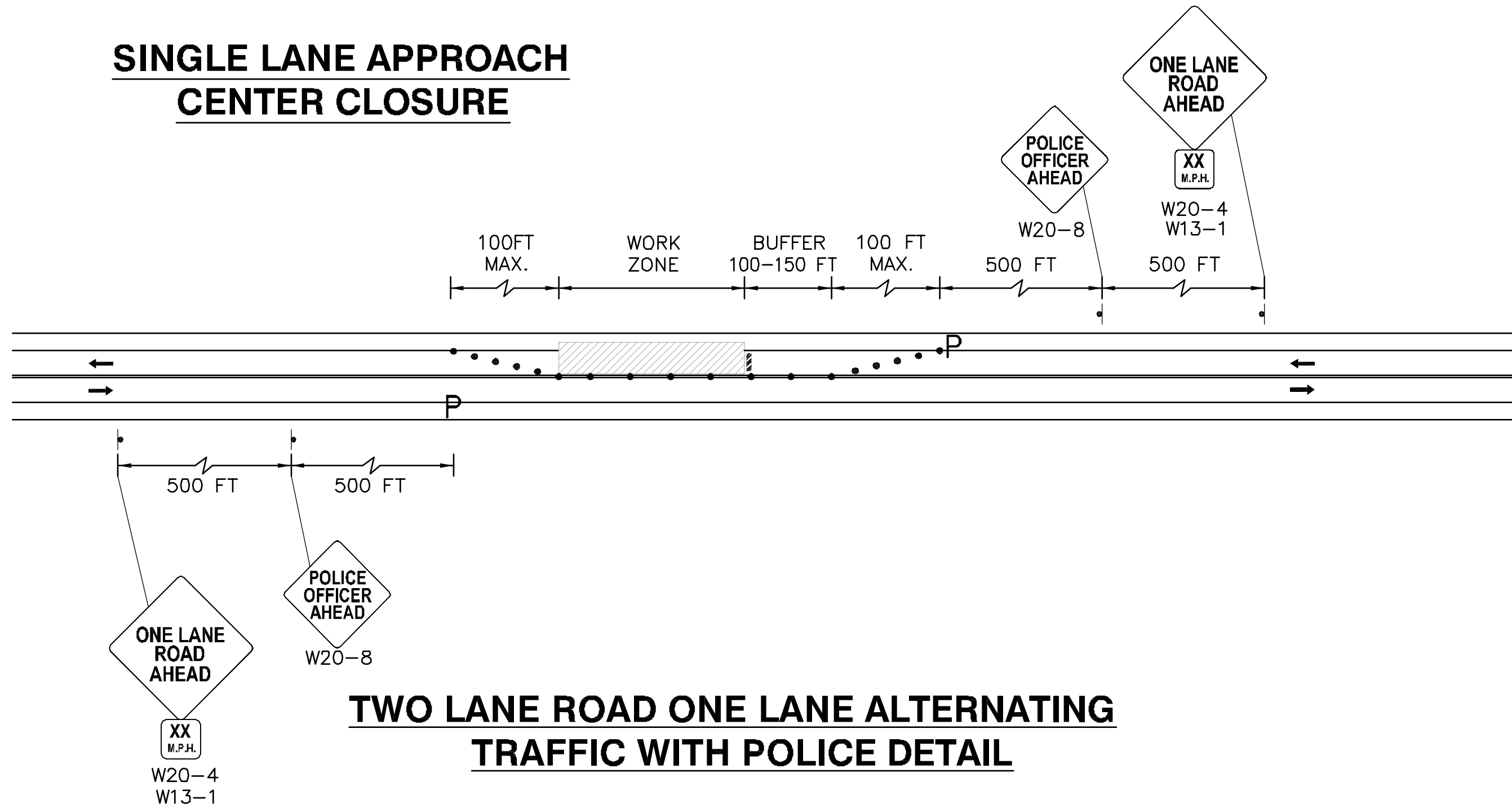
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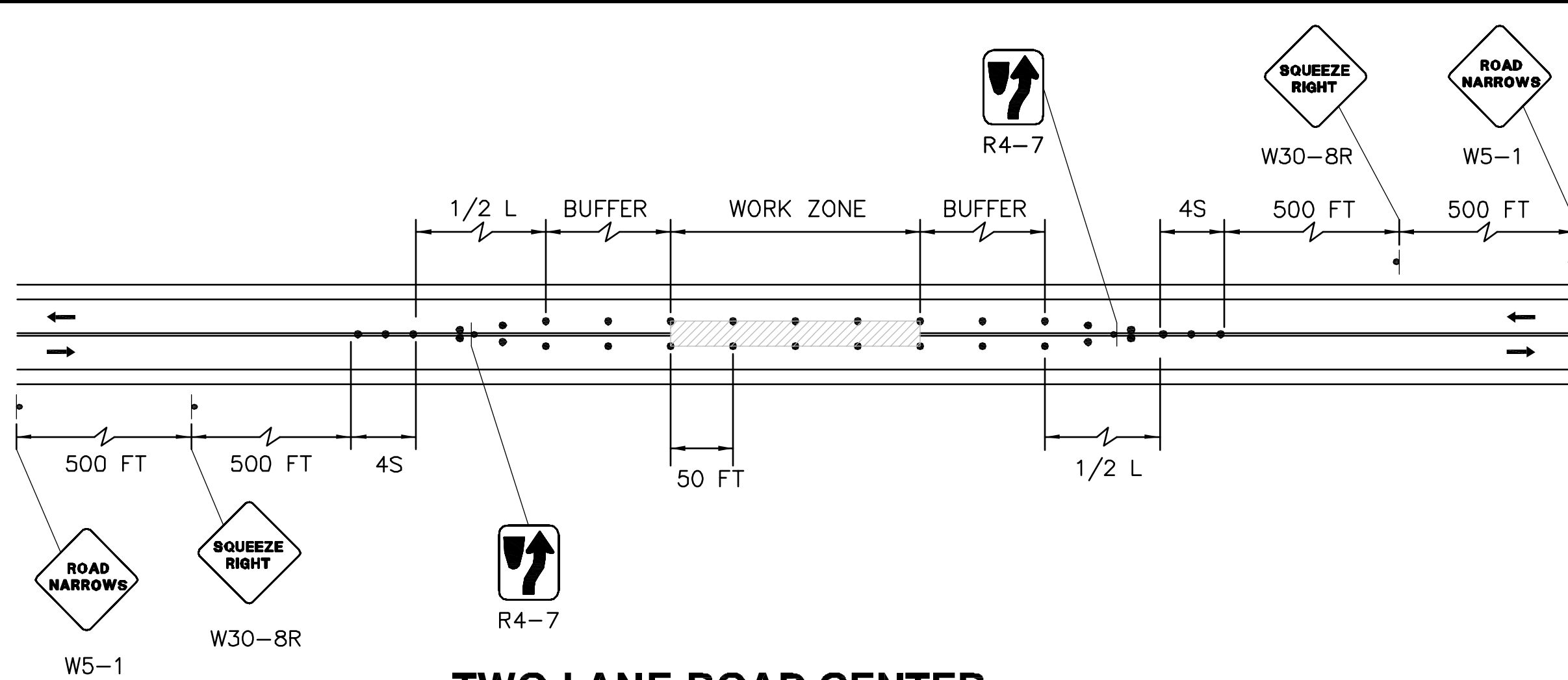
**TWO LANE ROAD SHOULDER
AND TRAVEL LANE CLOSED**



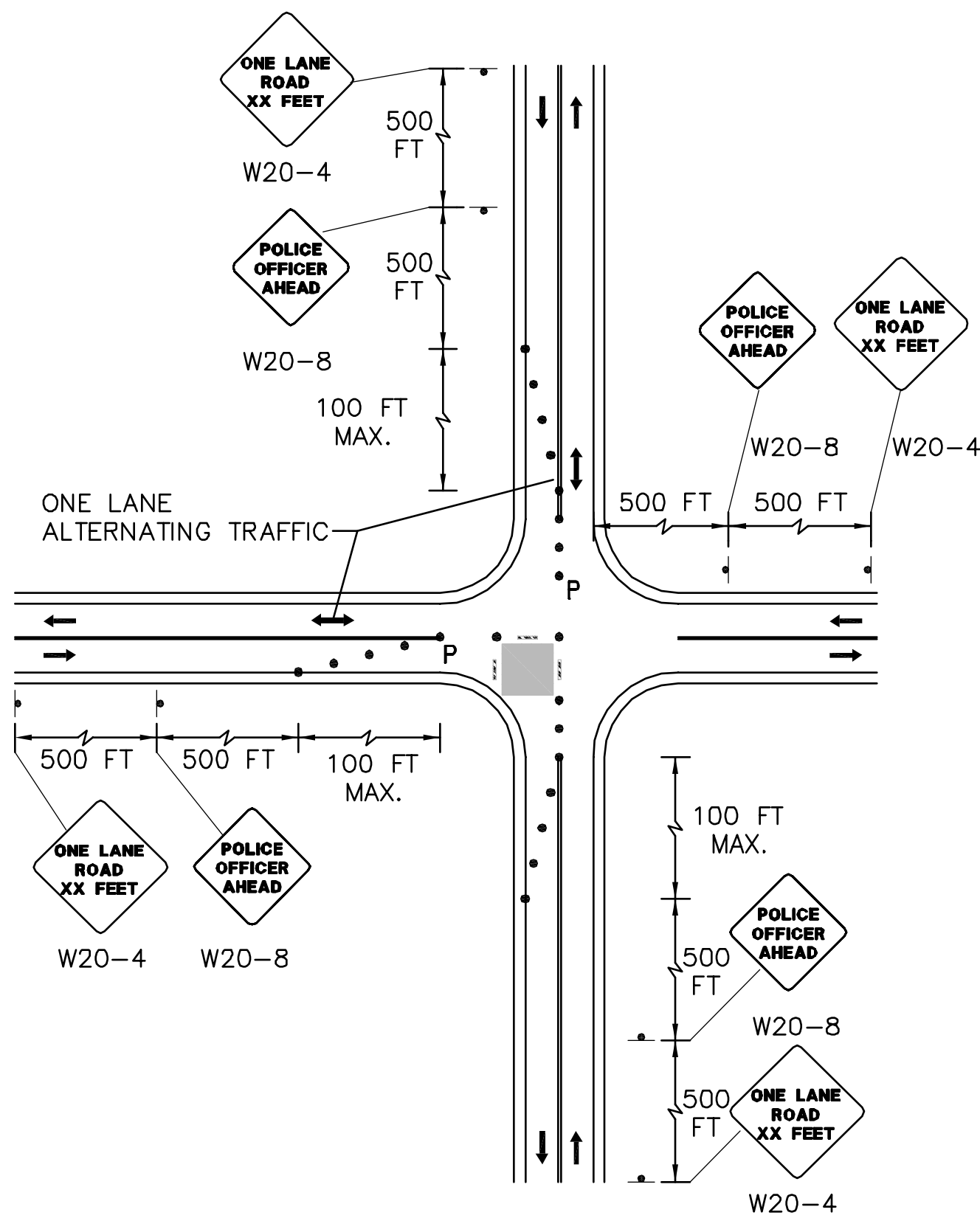
**SINGLE LANE APPROACH
CENTER CLOSURE**



**TWO LANE ROAD ONE LANE ALTERNATING
TRAFFIC WITH POLICE DETAIL**



**TWO LANE ROAD CENTER
OF ROAD CLOSURE**



**SINGLE LANE APPROACH
ONE QUADRANT CLOSURE**

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FORT MYERS, FL 33907
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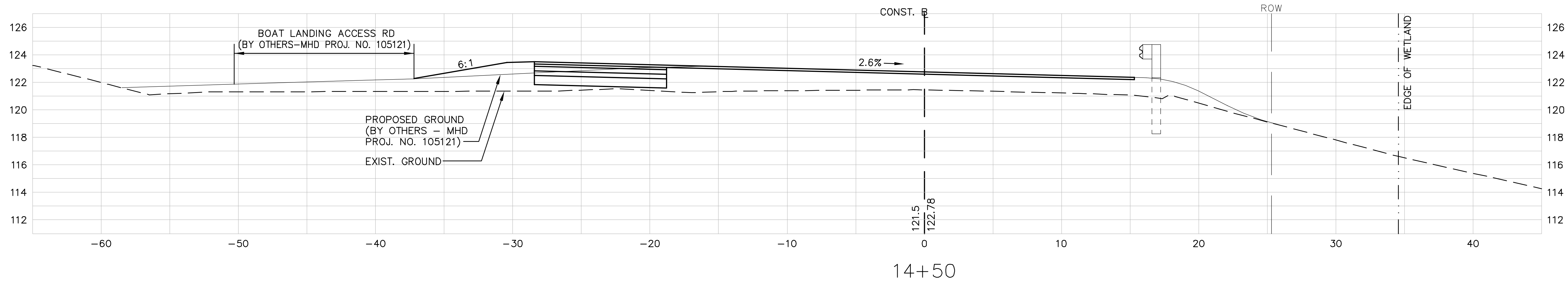
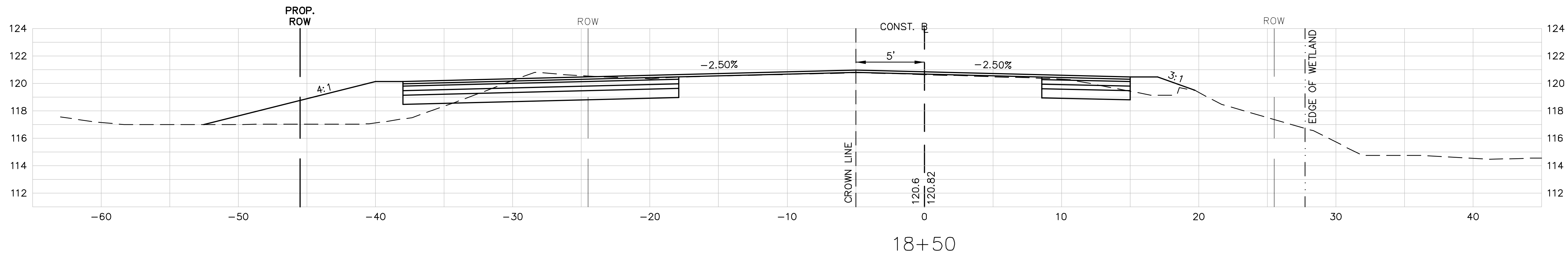
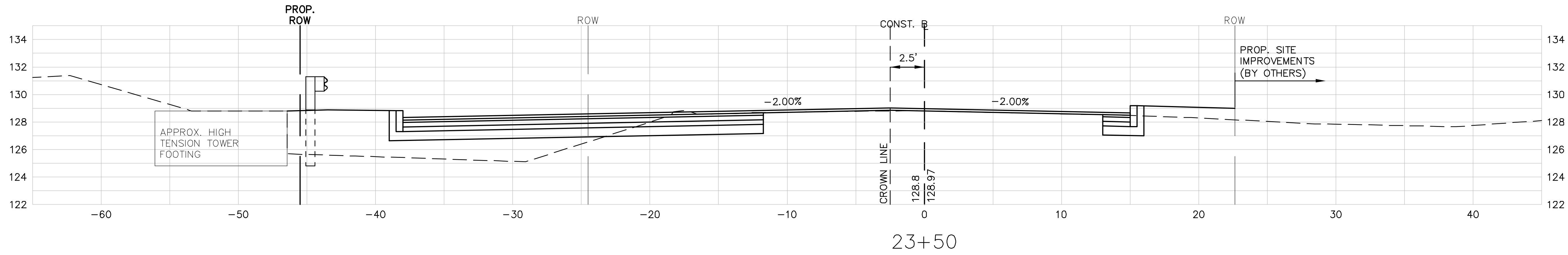
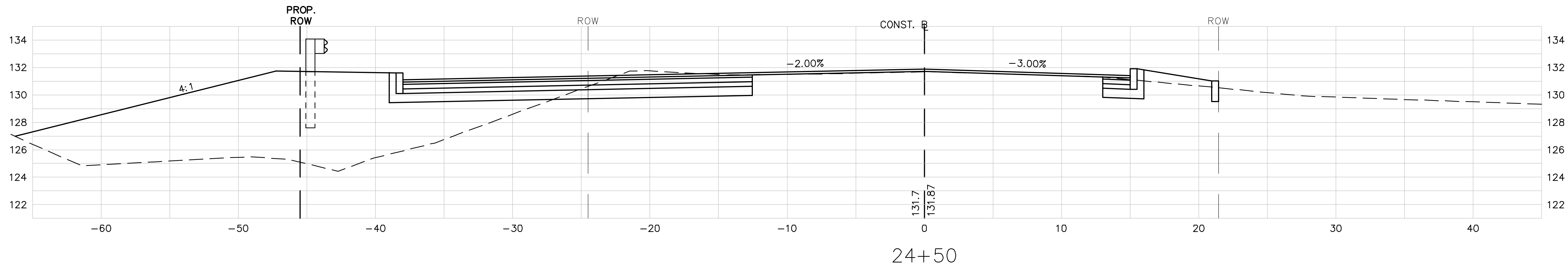
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DRAWING TITLE

Traffic Management
Plan

SHEET 26 OF 29	DRAWING NUMBER
JOB NO. 5139	26
CAD 5139TMP\1	

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PROJECT TITLE

Wayland Town Center
Off-Site Improvements

Wayland,
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ANDOVER, MASSACHUSETTS
10 N.E. BUSINESS CENTER DRIVE
ANDOVER, MA 01810-1066
TEL: (978) 474-8800
FAX: (978) 688-6508

FORT MYERS, FLORIDA
12730 NEW BRITTANY BLVD., SUITE 600
FORT MYERS, FL 33907
TEL: (239) 437-4601
FAX: (239) 437-4636

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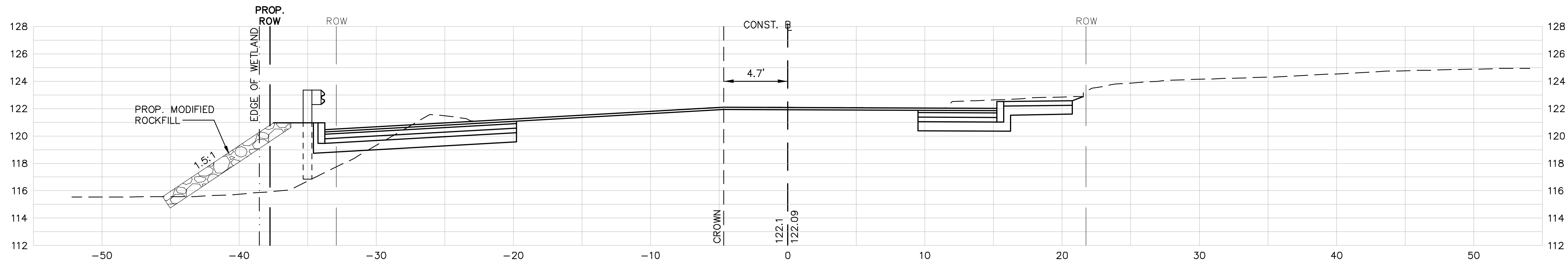
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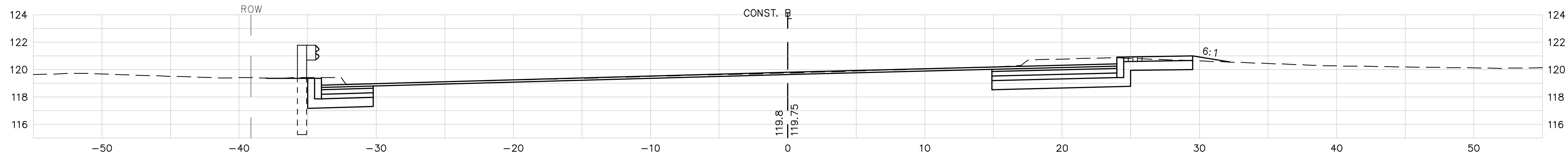
Critical Cross Sections
Route 20 at Site Drive

SHEET 27 OF 29	DRAWING NUMBER
JOB NO. 5139	27
CAD 5139CSv1	

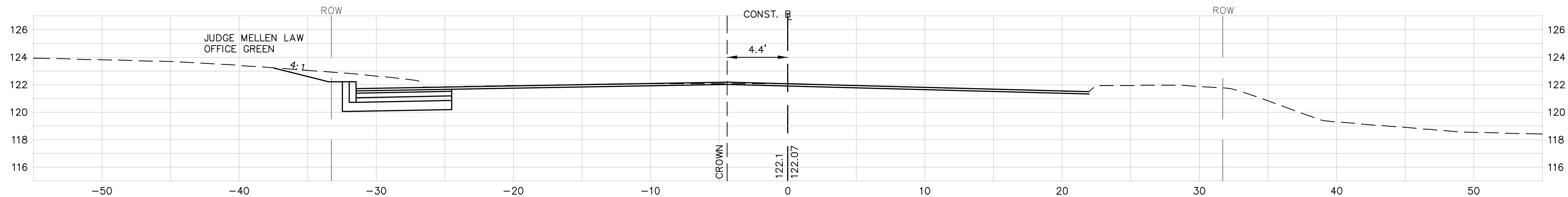
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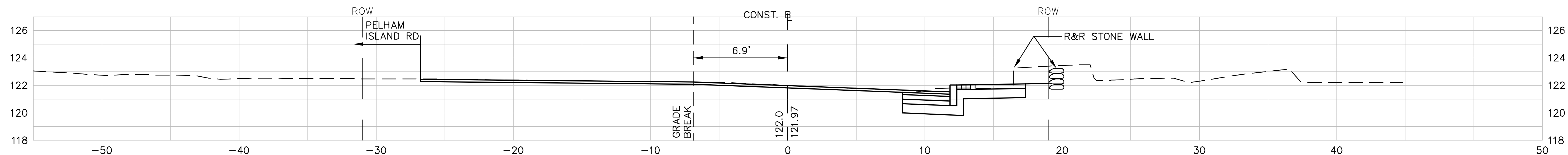
53+50



51+50



48+50



46+50



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Off-Site Improvements

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FORT MYERS, FL 33907
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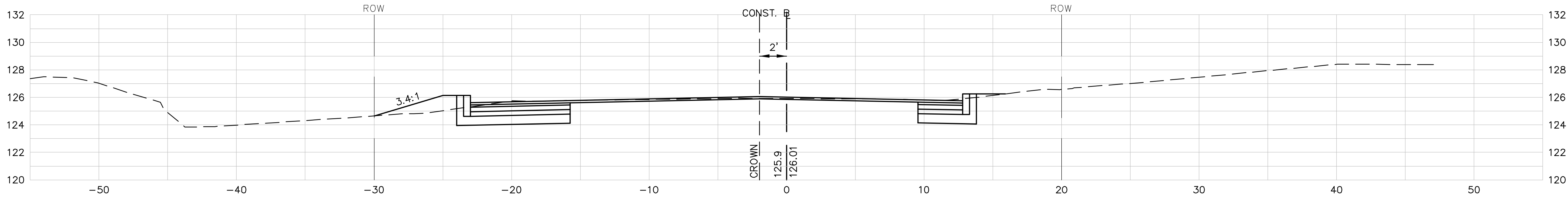
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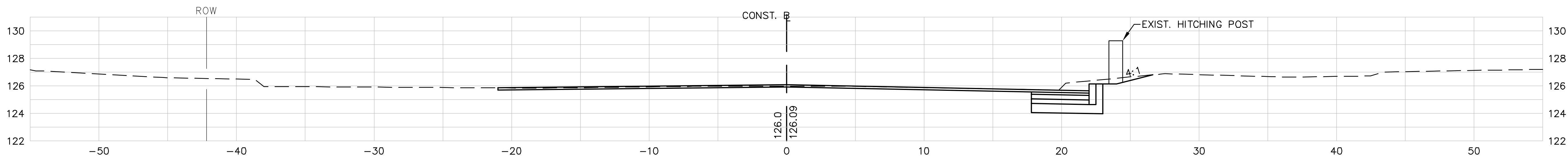
Critical Cross Sections
Route 20 at Route 27

SHEET 28 OF 29	DRAWING NUMBER
JOB NO. 5139	28
CAD 5139CSv1	

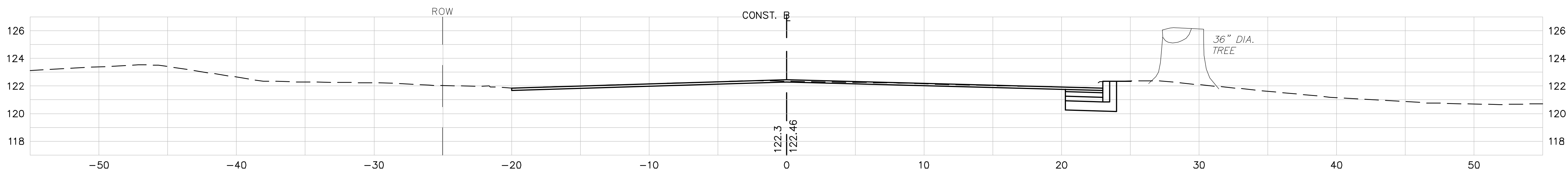
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218+00



212+00



207+00



PROJECT TITLE

Wayland Town Center
Off-Site Improvements

Wayland,
Massachusetts

PREPARED FOR

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Boston,
Massachusetts



ANDOVER, MASSACHUSETTS

10 N.E. BUSINESS CENTER DRIVE
ANDOVER, MA 01810-1066
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FAX: (978) 688-6508

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DRAWING TITLE

Critical Cross Sections
Route 27

SHEET 29 OF 29	DRAWING NUMBER
JOB NO. 5139	29
CAD 5139CSv1	