STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA		1	16
PROJECT FILE NO.			

TITLE SHEET & INDEX

PLAN AND PROFILE OF

KINGSBURY/WILLOW/CHADWICK INTERSECTION

IN THE CITY OF

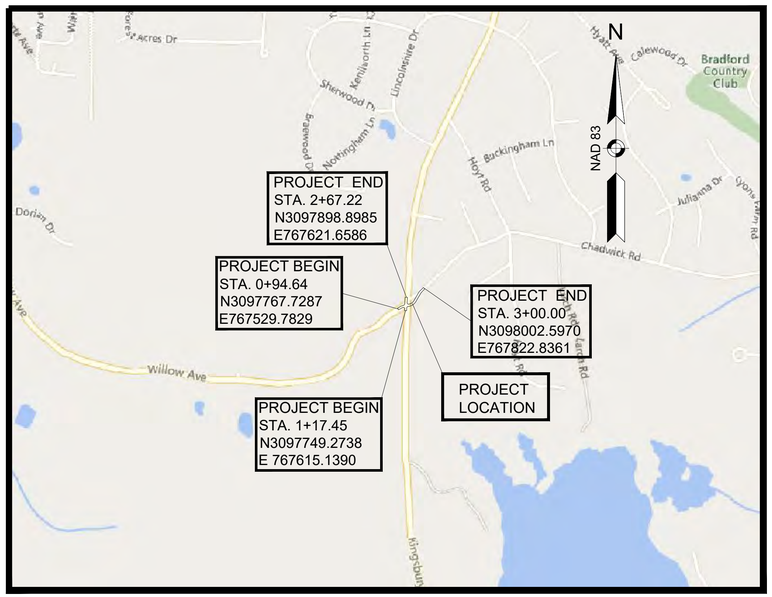
HAVERHILL

ESSEX COUNTY

NOI SUBMITTAL

THESE PLANS ARE SUPPLEMENTED BY THE OCTOBER 2017 CONSTRUCTION STANDARD DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK.

INDEX



0 800 1600 2400 3200

SCALE: 1" = 800'

LENGTH OF PROJECT = 350 FEET = 0.07 MILES

DESIGN DESIGNATION (KINGSBURY/WILLOW/CHADWICK INTERSECTION)	
DESIGN SPEED	**35 MPH**
ADT (2022)	2,400
ADT (2029)	2,600
K	10.1%
D	50.6% SB
T (PEAK HOUR)	0.5%
T (AVERAGE DAY)	3.3%
DHV	270
DDHV	140
FUNCTIONAL CLASSIFICATION	URBAN MINOR ARTERIAL

DESIGN DESIGNATION (WILLOW AVENUE)	
DESIGN SPEED	**30 MPH**
ADT (2022)	3,360
ADT (2029)	3,600
K	9.0%
D	51.5% EB
T (PEAK HOUR)	1.0%
T (AVERAGE DAY)	2.7%
DHV	330
DDHV	160
FUNCTIONAL CLASSIFICATION	URBAN COLLECTOR

DESIGN DESIGNATION (CHADWICK ROAD)	
DESIGN SPEED	**30 MPH**
ADT (2022)	1,690
ADT (2029)	1,900
K	9.1%
D	53.1% EB
T (PEAK HOUR)	0.7%
T (AVERAGE DAY)	2.4%
DHV	180
DDHV	90
FUNCTIONAL CLASSIFICATION	URBAN COLLECTOR

ISSUED FOR PERMITTING
NOT CONSTRUCTION

COMMONWEALTH OF MASSACHUSETTS
WAYNE A. KEEFNER
CIVIL
No.41313
REGISTERED PROFESSIONAL ENGINEER

DATE	DESCRIPTION	REV #
3/28/2023	FINAL SUBMISSION	
2/21/2023	PRELIMINARY SUBMISSION	

GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
JB	JB	JERSEY BARRIER
CB	CB	CATCH BASIN
		CATCH BASIN CURB INLET
FP	FP	FLAG POLE
GP	GP	GAS PUMP
MB	MB	MAIL BOX
		POST SQUARE
		POST CIRCULAR
WELL	WELL	WELL
EHH	EHH	ELECTRIC HANDHOLE
		FENCE GATE POST
GG	GG	GAS GATE
BHL #	BHL #	BORING HOLE
MW #	MW #	MONITORING WELL
TP #	TP #	TEST PIT
		HYDRANT
		LIGHT POLE
CO.BD.		COUNTY BOUND
		GPS POINT
C	C	CABLE MANHOLE
D	D	DRAINAGE MANHOLE
E	E	ELECTRIC MANHOLE
G	G	GAS MANHOLE
M	M	MISC MANHOLE
S	S	SEWER MANHOLE
T	T	TELEPHONE MANHOLE
W	W	WATER MANHOLE
MHB	MHB	MASSACHUSETTS HIGHWAY BOUND
MON		MONUMENT
SB		STONE BOUND
TB		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
TPL or GUY	TPL or GUY	TROLLEY POLE OR GUY POLE
HTP		TRANSMISSION POLE
UFB	UFB	UTILITY POLE W/ FIREBOX
UPDL	UPDL	UTILITY POLE WITH DOUBLE LIGHT
ULT	ULT	UTILITY POLE W / 1 LIGHT
UPL	UPL	UTILITY POLE
		BUSH
SIZE & TYPE		TREE
		STUMP
		SWAMP / MARSH
WG	WG	WATER GATE
PM	PM	PARKING METER
		OVERHEAD CABLE/WIRE
		CURBING
100 99		CONTOURS (ON-THE-GROUND SURVEY DATA)
100 99		CONTOURS (PHOTOGRAMMETRIC DATA)
		UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)
		BALANCED STONE WALL
		GUARD RAIL - STEEL POSTS
		GUARD RAIL - WOOD POSTS
		GUARD RAIL - DOUBLE FACE - STEEL POSTS
		GUARD RAIL - DOUBLE FACE - WOOD POSTS
x	x	CHAIN LINK OR METAL FENCE
		WOOD FENCE
		HAY BALES/SILT FENCE
		TREE LINE
		SAWCUT LINE
		TOP OR BOTTOM OF SLOPE
		LIMIT OF EDGE OF PAVEMENT OR COLD PLANE AND OVERLAY
		BANK OF RIVER OR STREAM
		BORDER OF WETLAND
		100 FT WETLAND BUFFER
		200 FT RIVERFRONT BUFFER
		STATE HIGHWAY LAYOUT
		TOWN OR CITY LAYOUT
		COUNTY LAYOUT
		RAILROAD SIDELINE
		TOWN OR CITY BOUNDARY LINE
		PROPERTY LINE OR APPROXIMATE PROPERTY LINE
		EASEMENT

TRAFFIC SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
1	1	CONTROLLER PHASE ACTUATED
		TRAFFIC SIGNAL HEAD (SIZE AS NOTED)
		WIRE LOOP DETECTOR (6' x 6' TYP UNLESS OTHERWISE SPECIFIED)
		VIDEO DETECTION CAMERA
		MICROWAVE DETECTOR
		PEDESTRIAN PUSH BUTTON, SIGN (DIRECTIONAL ARROW AS SHOWN) AND SADDLE
	*	EMERGENCY PREEMPTION CONFIRMATION STROBE LIGHT
		VEHICULAR SIGNAL HEAD
		VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED
		FLASHING BEACON
		PEDESTRIAN SIGNAL HEAD, (TYPE AS NOTED OR AS SPECIFIED)
RRSG	RRSG	RAILROAD SIGNAL
OR		SIGNAL POST AND BASE (ALPHA-NUMERIC DESIGNATION NOTED)
20'		MAST ARM, SHAFT AND BASE (ARM LENGTH AS NOTED)
		HIGH MAST POLE OR TOWER
		SIGN AND POST
		SIGN AND POST (2 POSTS)
	20'	MAST ARM WITH LUMINAIRE
		OPTICAL PRE-EMPTION DETECTOR
		CONTROL CABINET, GROUND MOUNTED
		CONTROL CABINET, POLE MOUNTED
		FLASHING BEACON CONTROL AND METER PEDESTAL
		LOAD CENTER ASSEMBLY
		PULL BOX 12"x12" (OR AS NOTED)
		ELECTRIC HANDHOLE 12"x24" (OR AS NOTED)
		TRAFFIC SIGNAL CONDUIT

PAVEMENT MARKINGS SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		PAVEMENT ARROW - WHITE
ONLY	ONLY	LEGEND "ONLY" - WHITE
	SL	STOP LINE
	CW	CROSSWALK
	SWL	SOLID WHITE LINE
	SYL	SOLID YELLOW LINE
	BWL	BROKEN WHITE LINE
	BYL	BROKEN YELLOW LINE
	DWL	DOTTED WHITE LINE
	DYL	DOTTED YELLOW LINE
	DWLEx	DOTTED WHITE LINE EXTENSION
	DYLEx	DOTTED YELLOW LINE EXTENSION
	DBWL	DOUBLE WHITE LINE
	DBYL	DOUBLE YELLOW LINE

ABBREVIATIONS

GENERAL

AADT	ANNUAL AVERAGE DAILY TRAFFIC
ABAN	ABANDON
ADJ	ADJUST
APPROX.	APPROXIMATE
A.C.	ASPHALT CONCRETE
ACCM PIPE	ASPHALT COATED CORRUGATED METAL PIPE
BIT.	BITUMINOUS
BC	BOTTOM OF CURB
BD.	BOUND
BL	BASELINE
BLDG	BUILDING
BM	BENCHMARK
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
BR.	BRIDGE
CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CC	CEMENT CONCRETE
CCM	CEMENT CONCRETE MASONRY
CEM	CEMENT
CI	CURB INLET
CIP	CAST IRON PIPE
CLF	CHAIN LINK FENCE
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CSP	CORRUGATED STEEL PIPE
CO.	COUNTY
CONC	CONCRETE
CONT	CONTINUOUS
CONST	CONSTRUCTION
CR GR	CROWN GRADE
DHV	DESIGN HOURLY VOLUME
DI	DROP INLET
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DW	STEADY DON'T WALK - PORTLAND ORANGE
DWY	DRIVEWAY
ELEV (or EL.)	ELEVATION
EMB	EMBANKMENT
EOP	EDGE OF PAVEMENT
EXIST (or EX)	EXISTING
EXC	EXCAVATION
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
FDN.	FOUNDATION
FLDSTN	FIELDSTONE
GAR	GARAGE
GD	GROUND
GG	GAS GATE
GI	GUTTER INLET
GIP	GALVANIZED IRON PIPE
GRAN	GRANITE
GRAV	GRAVEL
GRD	GUARD
HDW	HEADWALL
HMA	HOT MIX ASPHALT
HOR	HORIZONTAL
HYD	HYDRANT
INV	INVERT
JCT	JUNCTION
L	LENGTH OF CURVE
LB	LEACH BASIN
LP	LIGHT POLE
LT	LEFT
MAX	MAXIMUM
MB	MAILBOX
MH	MANHOLE
MHB	MASSACHUSETTS HIGHWAY BOUND
MIN	MINIMUM
NIC	NOT IN CONTRACT
NO.	NUMBER
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
P.G.L.	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
POC	POINT ON CURVE
POT	POINT ON TANGENT
PRC	POINT OF REVERSE CURVATURE
PROJ	PROJECT
PROP	PROPOSED
PSB	PLANTABLE SOIL BORROW
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PVMT	PAVEMENT
PWW	PAVED WATER WAY

ABBREVIATIONS (cont.)

GENERAL

R	RADIUS OF CURVATURE
R&D	REMOVE AND DISPOSE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RDWY	ROADWAY
REM	REMOVE
RET	RETAIN
RET WALL	RETAINING WALL
ROW	RIGHT OF WAY
RR	RAILROAD
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
RT	RIGHT
SB	STONE BOUND
SHLD	SHOULDER
SMH	SEWER MANHOLE
ST	STREET
STA	STATION
SSD	STOPPING SIGHT DISTANCE
SHLO	STATE HIGHWAY LAYOUT LINE
SW	SIDEWALK
T	TANGENT DISTANCE OF CURVE/TRUCK %
TAN	TANGENT
TEMP	TEMPORARY
TC	TOP OF CURB
TOS	TOP OF SLOPE
TYP	TYPICAL
UP	UTILITY POLE
VAR	VARIES
VERT	VERTICAL
VC	VERTICAL CURVE
WCR	WHEEL CHAIR RAMP
WG	WATER GATE
WIP	WROUGHT IRON PIPE
WM	WATER METER/WATER MAIN
X-SECT	CROSS SECTION

TRAFFIC SIGNAL ABBREVIATIONS

CAB	CABINET
CCVE	CLOSED CIRCUIT VIDEO EQUIPMENT
DW	STEADY UPRAISED HAND
FDW	FLASHING UPRAISED HAND
FR	FLASHING CIRCULAR RED
FRL	FLASHING RED LEFT ARROW
FRR	FLASHING RED RIGHT ARROW
FY	FLASHING CIRCULAR YELLOW
FYL	FLASHING YELLOW LEFT ARROW
FYR	FLASHING YELLOW RIGHT ARROW
G	STEADY CIRCULAR GREEN
GL	STEADY GREEN LEFT ARROW
GR	STEADY GREEN RIGHT ARROW
GSL	STEADY GREEN SLASH LEFT ARROW
GSR	STEADY GREEN SLASH RIGHT ARROW
GV	STEADY GREEN VERTICAL ARROW
OL	OVERLAP
PED	PEDESTRIAN
PTZ	PAN, TILT, ZOOM
R	STEADY CIRCULAR RED
RL	STEADY RED LEFT ARROW
RR	STEADY RED RIGHT ARROW
TR SIG	TRAFFIC SIGNAL
TSC	TRAFFIC SIGNAL CONDUIT
W	STEADY WALKING PERSON
Y	STEADY CIRCULAR YELLOW
YL	STEADY YELLOW LEFT ARROW

HAVERHILL
KINGSBURY/WILLOW/CHADWICK INTERSECTION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA		2	16
PROJECT FILE NO.			

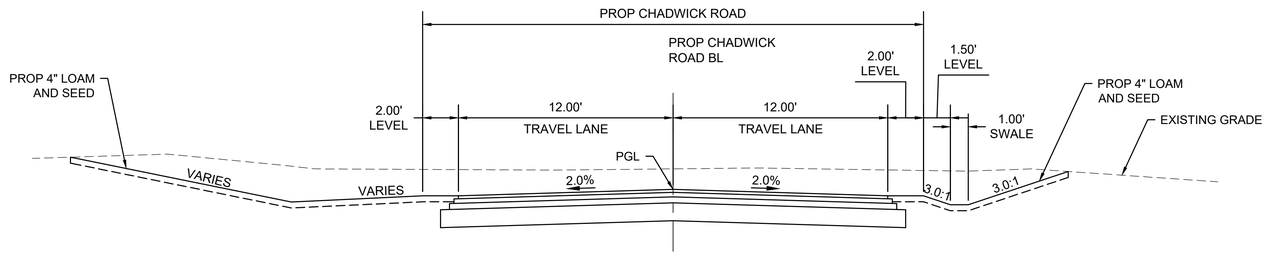
LEGEND & ABBREVIATIONS

2338205_HD2(LEGEND).DWG Plotted on 26-Jun-2023 3:23 PM

HAVERHILL
KINGSBURY/WILLOW/CHADWICK INTERSECTION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA		3	16
PROJECT FILE NO.			

TYPICAL SECTIONS



CHADWICK ROAD
STA 0+00 TO STA 3+00
SCALE 1"=4'

PAVEMENT NOTES

PROPOSED FULL DEPTH PAVEMENT

SURFACE COURSE:	1.5" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5)
INTERMEDIATE COURSE:	1.75" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC-12.5)
BASE COURSE:	3.25" SUPERPAVE BASE COURSE 37.5 (SBC-37.5)
FOUNDATION:	12" GRAVEL BORROW (TYPE b)

PROPOSED MILLING AND RESURFACING

SURFACE COURSE:	1.5" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5)
FINE MILLING:	1.5" PAVEMENT FINE MILLING

NOTES:

1. SAWCUTS ARE LOCATED 12" FROM THE EXISTING EDGE OF ROAD OR 12" FROM THE PROPOSED EDGE OF PAVEMENT, WHICHEVER IS FURTHEST INTO THE EXISTING ROADWAY.
2. ASPHALT EMULSIONS FOR TACK COAT SHALL BE SPRAY APPLIED FOR UNIFORM COVERAGE AT 0.07 GAL/SY OVER MILLED PAVEMENT AND AT 0.05 GAL/SY OVER SMOOTH (UN-MILLED) PAVEMENT.
3. LEVELING COURSES TO BE ADDED IN AREAS OF MILLING AND RESURFACING AS NECESSARY TO ACHIEVE PROPOSED GRADES.
4. JOINTS BETWEEN NEW HOT MIX ASPHALT PAVEMENT AND SAWCUT EXISTING PAVEMENT SHALL BE SEALED WITH HMA JOINT SEALER AND BACKSANDED

HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

NONE

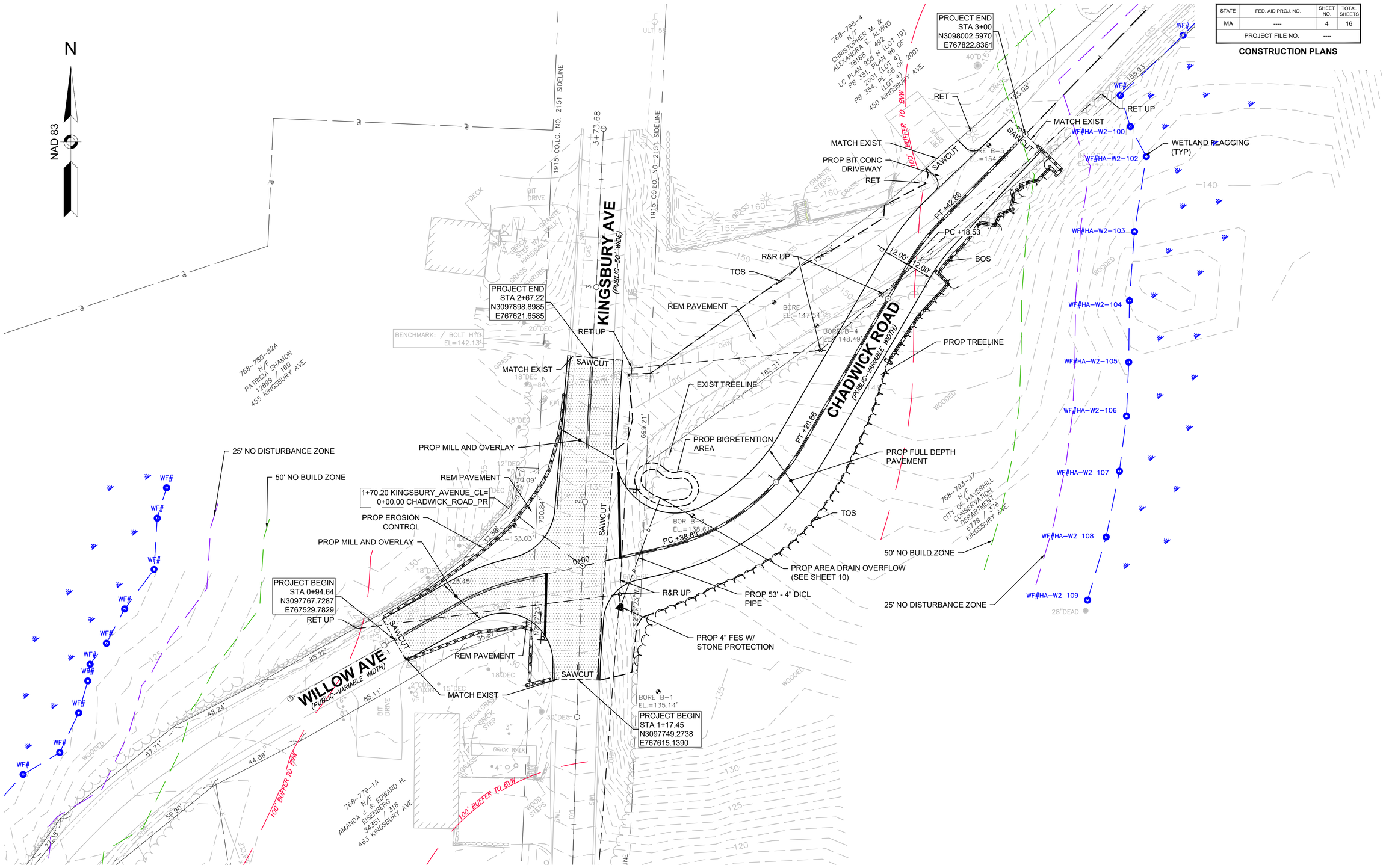
DRAINAGE DETAILS

NONE

HAVERHILL
KINGSBURY/WILLOW/CHADWICK INTERSECTION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	----	4	16
PROJECT FILE NO.		----	

CONSTRUCTION PLANS

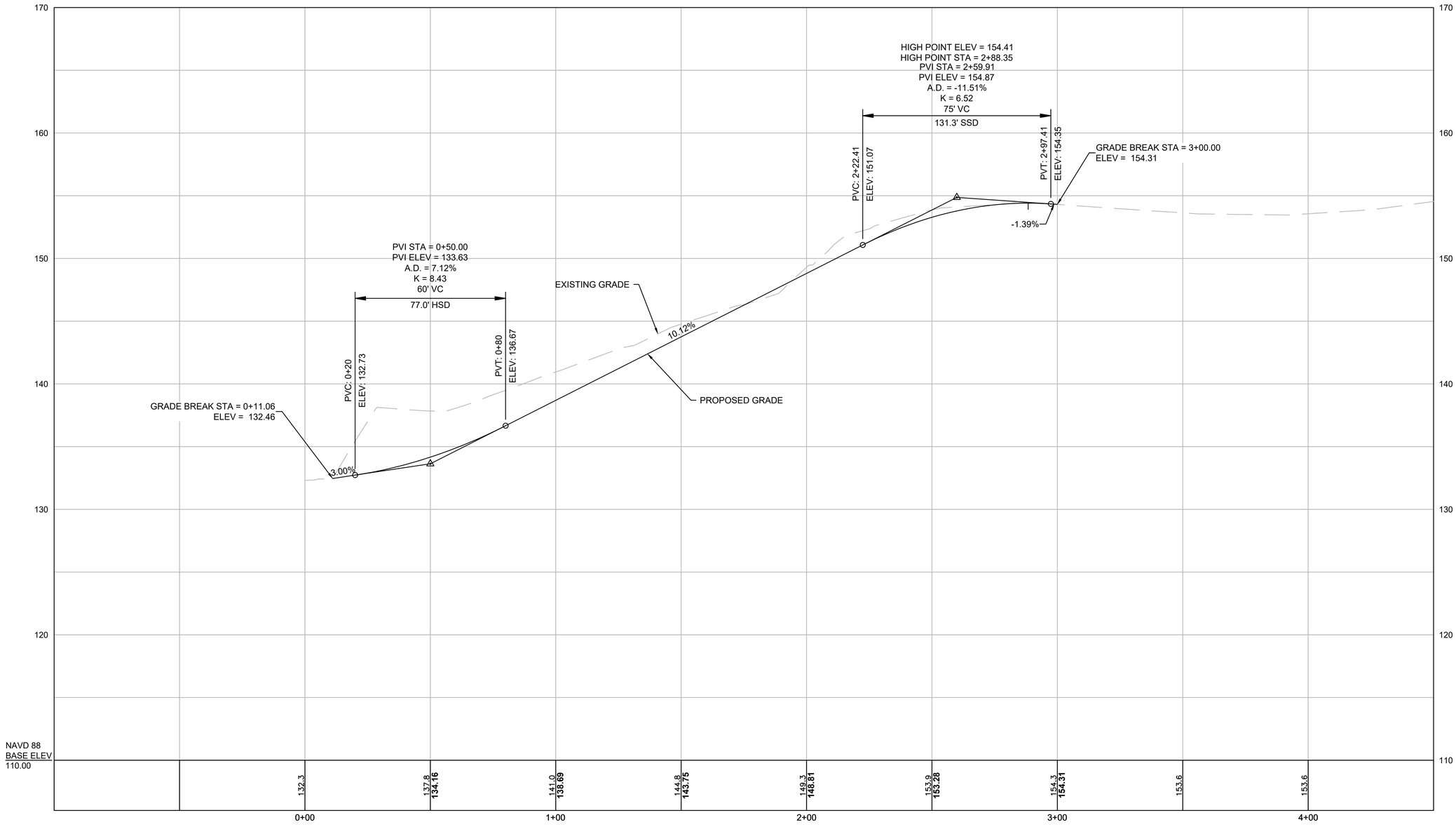


2338205_HD4(CONST_PLANS).DWG Plotted on 26-Jun-2023 3:40 PM

HAVERHILL
KINGSBURY/WILLOW/CHADWICK INTERSECTION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	----	5	16
PROJECT FILE NO.		----	

PROPOSED PROFILE
CHADWICK ROAD



HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

2338205_HDS(PROFILE).DWG Plotted on 26-Jun-2023 3:28 PM

HAVERHILL
KINGSBURY/WILLOW/CHADWICK INTERSECTION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	----	6	16
PROJECT FILE NO.		----	

CURB TIE & GRADING PLAN

N

NAD 83

PROJECT BEGIN
STA 3+00
N3098002.5970
E767822.8361

PROJECT END
STA 2+67.22
N3097898.8985
E767621.6586

PROJECT END
STA 0+94.78
N3097768.4423
E767529.3763

PROJECT BEGIN
STA 1+17.45
N3097749.2738
E767615.1390

1+70.20 KINGSBURY_AVENUE_CL=
0+00.00 CHADWICK_ROAD_PR

KINGSBURY AVE
(PUBLIC–50' WIDE)

CHADWICK ROAD
(PUBLIC–VARIABLE WIDTH)

WILLOW AVE
(PUBLIC–VARIABLE WIDTH)

768–798–4
N/F
CHRISTOPHER M. &
ALEXANDRA E. ALVINO
38168 / 492
LC PLAN 956 H
PB 331, PL 200 PLAN (LOT 19)
PB 354, PL 58 (LOT 4)
PB 354, PL 96 OF 2001
(LOT 1)
450 KINGSBURY AVE.

768–780–52A
N/F
PATRICIA SHAMON
12899 / 160
455 KINGSBURY AVE.

768–779–1A
N/F
AMANDA J. & EDWARD H.
EISENBERG
34351 / 316
463 KINGSBURY AVE.

768–793–37
N/F
CITY OF HAVERHILL
CONSERVATION
DEPARTMENT
6779 / 376
KINGSBURY AVE.

PROP AREA DRAIN OVERFLOW
(SEE SHEET 10)

PROP 53' - 4" DICL
PIPE

PROP 4" FES W/
STONE PROTECTION

25' NO DISTURBANCE ZONE

50' NO BUILD ZONE

100' BUFFER TO BVW

BENCHMARK: / BOLT HYD
EL=142.13'

1915 CO LO NO 2151 SIDELINE

WF#HA–W2–100
WF#HA–W2–102
WF#HA–W2–103
WF#HA–W2–104
WF#HA–W2–105
WF#HA–W2–106
WF#HA–W2 107
WF#HA–W2 108
WF#HA–W2 109

0 20 50 100

SCALE: 1" = 20'

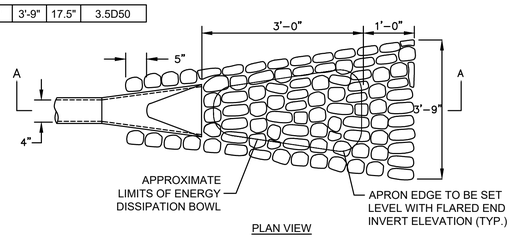
2338205_HD6(GRADING).DWG Plotted on 26-Jun-2023 3:32 PM

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	----	10	16
PROJECT FILE NO.		----	

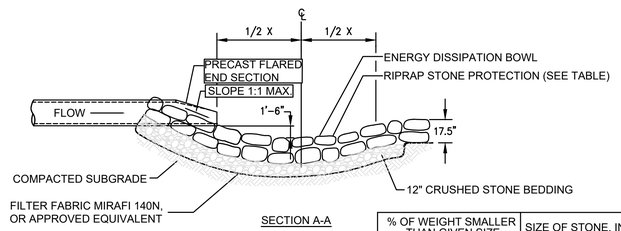
CONSTRUCTION DETAILS

2338205_HD16(CON_DETAILS).DWG Plotted on 26-Jun-2023 3:30 PM

OUTLET 1	3'	3'-9"	17.5"	3.5D50



PLAN VIEW

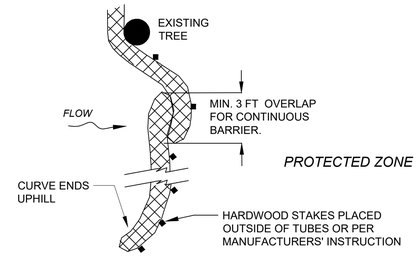


SECTION A-A

% OF WEIGHT SMALLER THAN GIVEN SIZE	SIZE OF STONE, INCHES		
100	8	TO	10
85	7	TO	9
50	5	TO	8
15	7	TO	3

FLARED END SECTION W/ STONE PROTECTION (DISSIPATION BOWL)

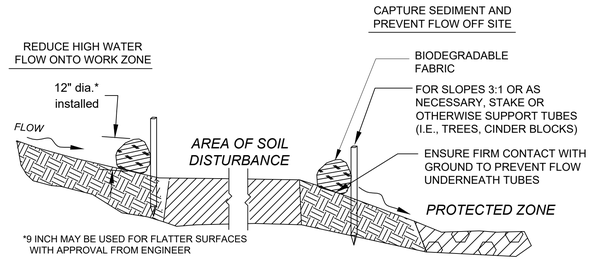
SCALE: NONE



PLACE TUBE AS CLOSE TO LIMIT OF SOIL DISTURBANCE AS POSSIBLE, ALONG CONTOURS, AND PERPENDICULAR TO FLOW.

ADJUST LOCATION AS REQUIRED FOR OPTIMUM EFFECTIVENESS. DO NOT INSTALL IN WATERWAYS.

PLAN VIEW

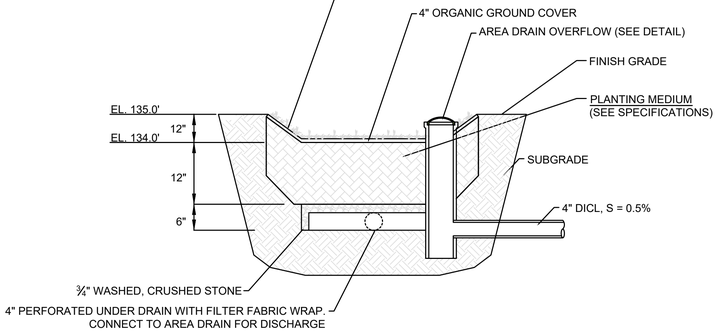


*9 INCH MAY BE USED FOR FLATTER SURFACES WITH APPROVAL FROM ENGINEER

SECTION

SEDIMENT BARRIER - COMPOST FILTER TUBE

NOT TO SCALE



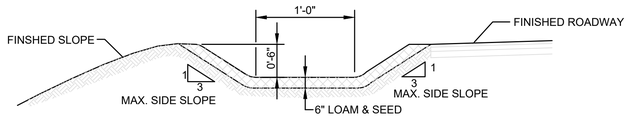
PLANTING MEDIUM NOTES:

1. PARTICLE SIZE DISTRIBUTION SHALL BE TESTED IN ACCORDANCE WITH ASTM D422.
2. PARTICLE SIZE DISTRIBUTION BY SEPARATES:
   a. EXCLUDE ALL MATERIAL THAT DOES NOT PASS A STANDARD #4 SIEVE (LARGER THAN 4.76mm)
   b. VERY COURSE SAND/GRAVEL (2.0-4.76mm): 5% MAX. (% BY DRY WEIGHT)
   c. SAND (0.42mm-2.0mm): 60-80% (% BY DRY WEIGHT)
   d. SILT (0.075mm-0.42mm): 20% MAX. (% BY DRY WEIGHT)
   e. CLAY (LESS THAN 0.075mm): 5% MAX. (% BY DRY WEIGHT)
3. ORGANIC MATTER SHALL BE 5-9% BY VOLUME WITH MAXIMUM 500 ppm SOLUBLE SALTS
4. SOIL SHALL HAVE A pH BETWEEN 5.5 AND 7.0
5. CEC OF TOTAL SOIL: MIN. 10 meq/100 Ml at pH OF 7.0
6. NO COMPOST SHALL BE INCLUDED IN THE PLANTING MEDIUM

PLANTING MIX PARTICLE SIZE DISTRIBUTION	
SIEVE #	PERCENT PASSING
4	100
10	95-100
40	15-45
200	10-20
<200 (PAN)	0-5

RAIN GARDEN/BIORETENTION AREAS

SCALE: NONE



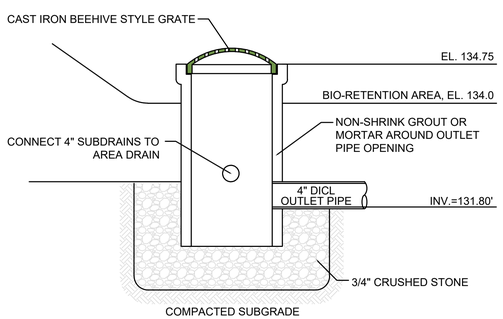
NOTES:

1. SWALE CHANNEL AND SIDE SLOPES TO BE STABLIZED WITH JUTE MATTING IN ADDITION TO LOAM AND SEED TO PREVENT EROSION.

2. GRASS MIX SHOULD CONSIST OF SPECIES THAT PRODUCE FINE, UNIFORM AND DENSE COVER THAT CAN WITHSTAND PREVAILING MOISTURE CONDITIONS. (CONSIDER WETLAND ADAPTED SPECIES FOR SWALES IN AREAS OF POORLY DRAINED SOILS) SPECIES TO BE SELECTED BY WETLAND SPECIALIST.

VEGETATED SWALE

SCALE: NONE



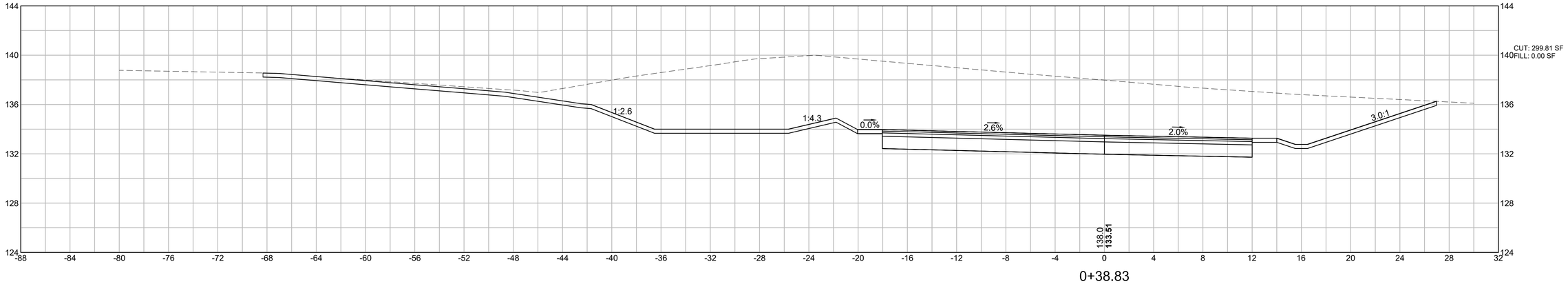
RAIN GARDEN AREA DRAIN OVERFLOW WITH BEEHIVE GRATE

SCALE: NONE

HAVERHILL
KINGSBURY/WILLOW/CHADWICK INTERSECTION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	----	11	16
PROJECT FILE NO.		----	

CROSS SECTIONS
CHADWICK ROAD 1 OF 6



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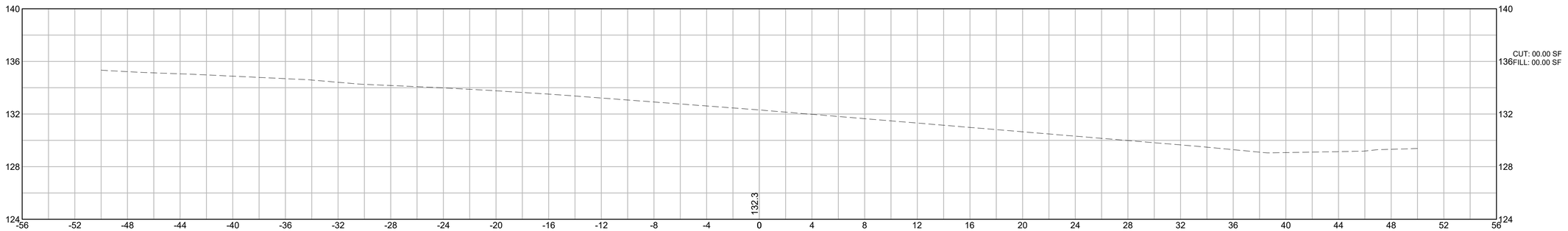


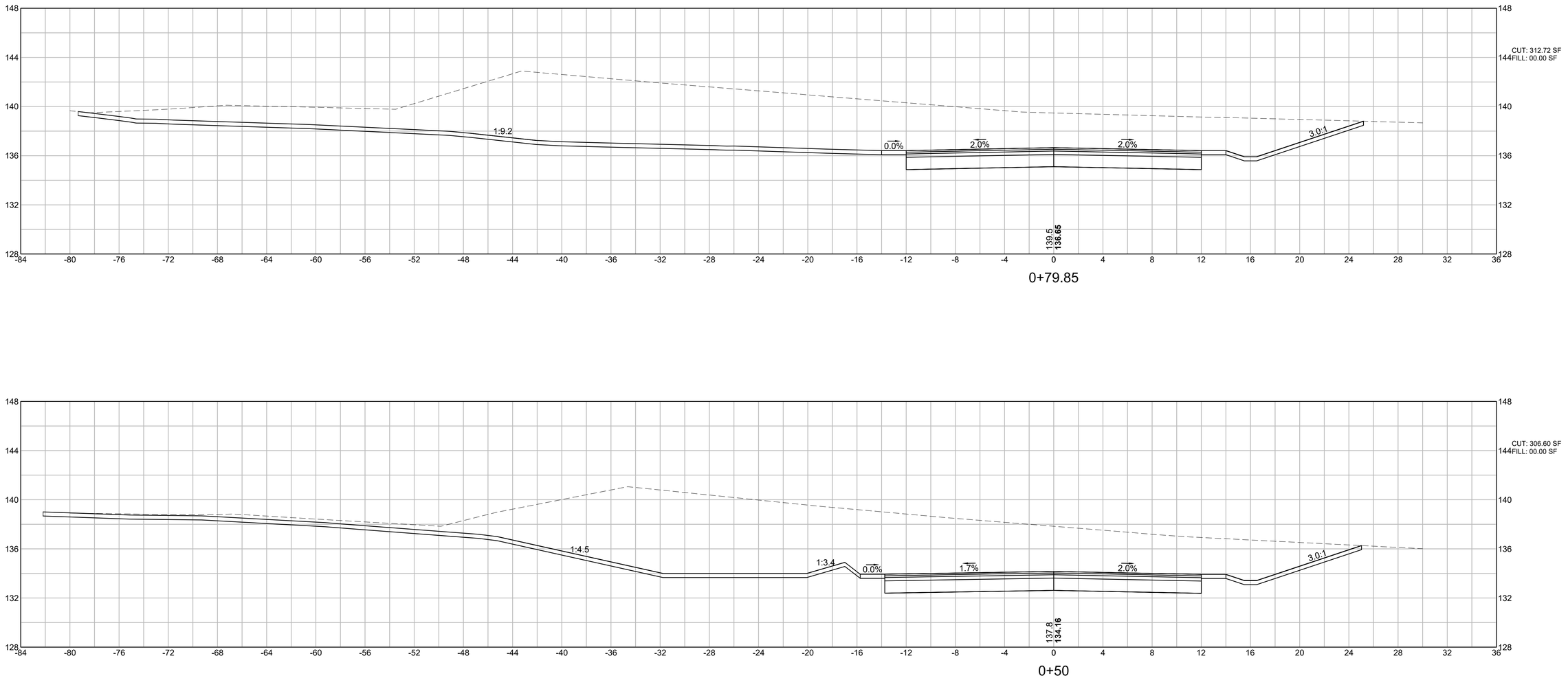
0+00

HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

HAVERHILL
KINGSBURY/WILLOW/CHADWICK INTERSECTION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	----	12	16
PROJECT FILE NO.		----	

CROSS SECTIONS
CHADWICK ROAD 2 OF 6

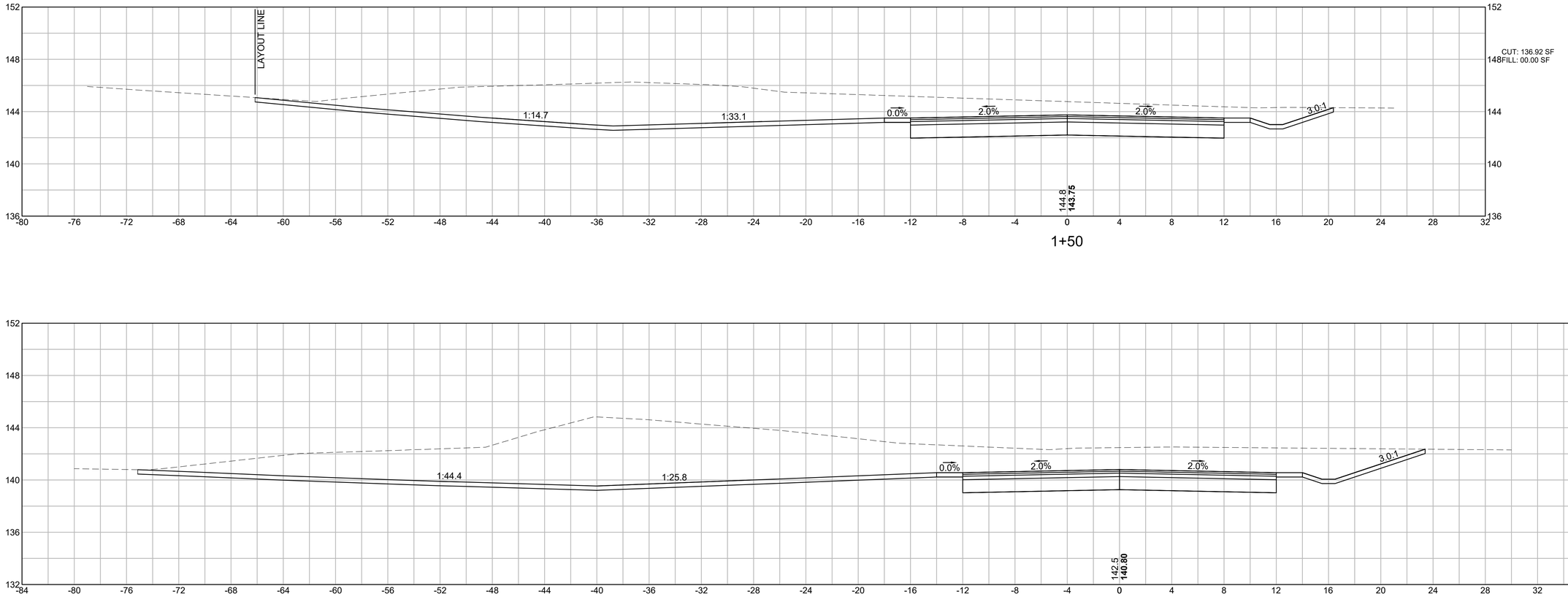


HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

HAVERHILL
KINGSBURY/WILLOW/CHADWICK INTERSECTION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	----	13	16
PROJECT FILE NO.		----	

CROSS SECTIONS
CHADWICK ROAD 3 OF 6

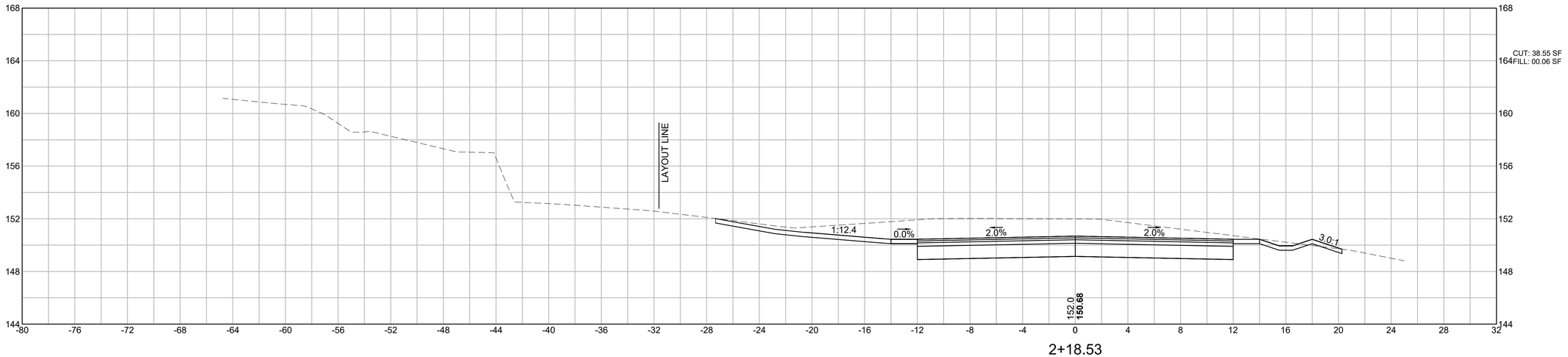


HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

HAVERHILL
KINGSBURY/WILLOW/CHADWICK INTERSECTION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	----	14	16
PROJECT FILE NO.		----	

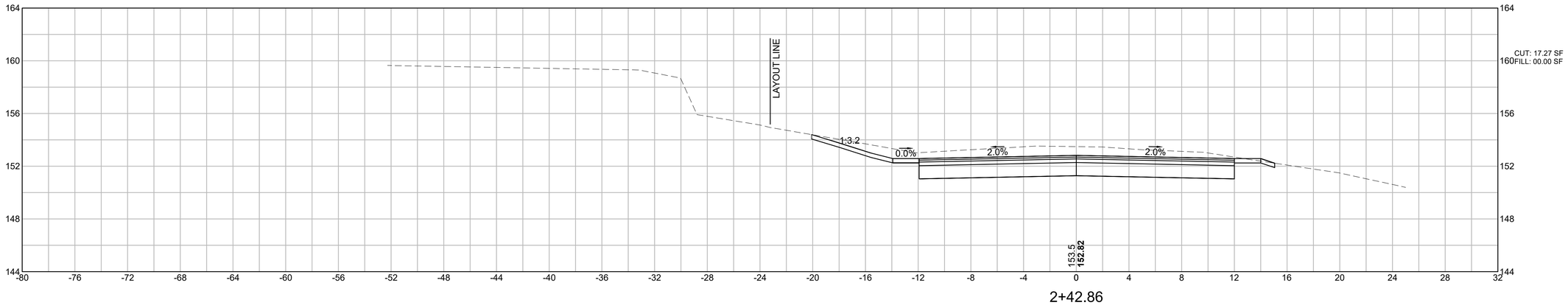
CROSS SECTIONS
CHADWICK ROAD 4 OF 6

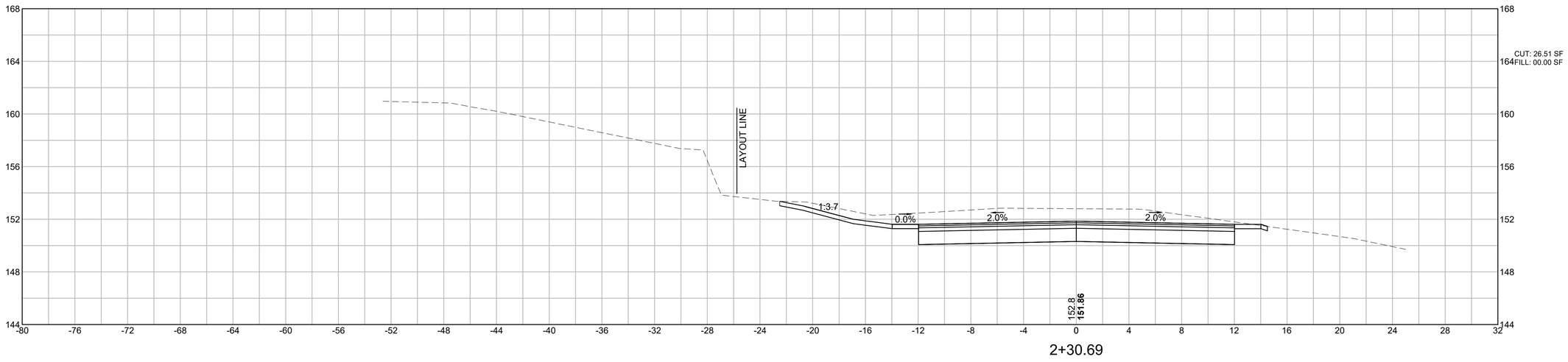


HAVERHILL
KINGSBURY/WILLOW/CHADWICK INTERSECTION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	----	15	16
PROJECT FILE NO.		----	

CROSS SECTIONS
CHADWICK ROAD 5 OF 6



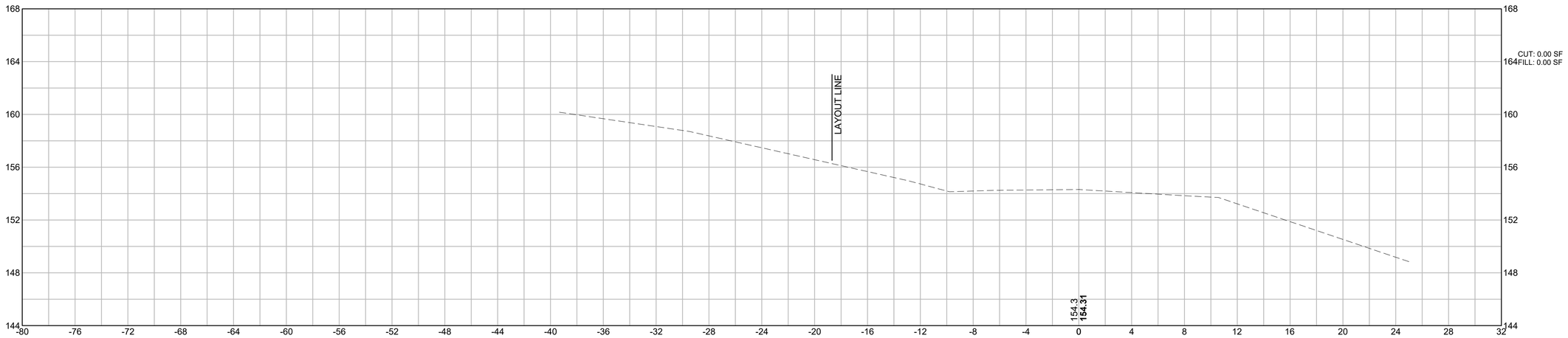


HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

HAVERHILL
KINGSBURY/WILLOW/CHADWICK INTERSECTION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	----	16	16
PROJECT FILE NO.		----	

CROSS SECTIONS
CHADWICK ROAD 6 OF 6



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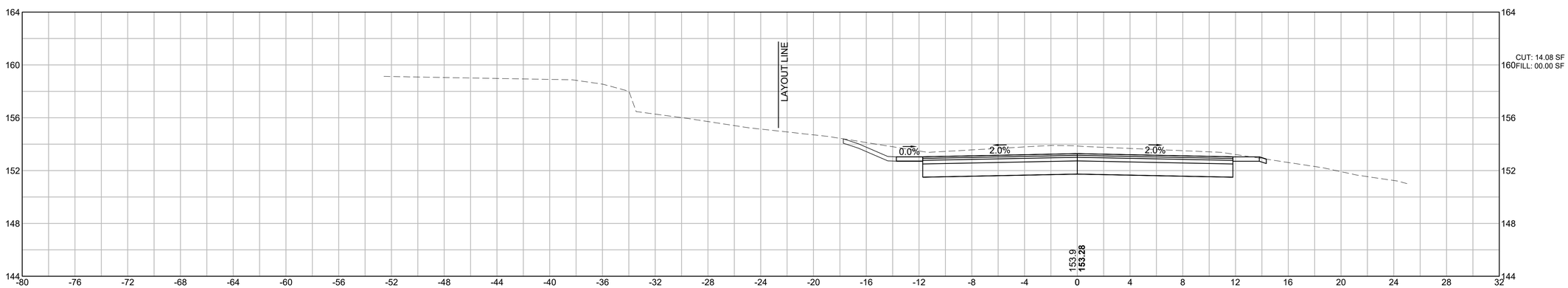

2+50

HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

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