

ROADWAY IMPROVEMENT PROJECT

PLAN AND PROFILE OF VARIOUS LOCATIONS

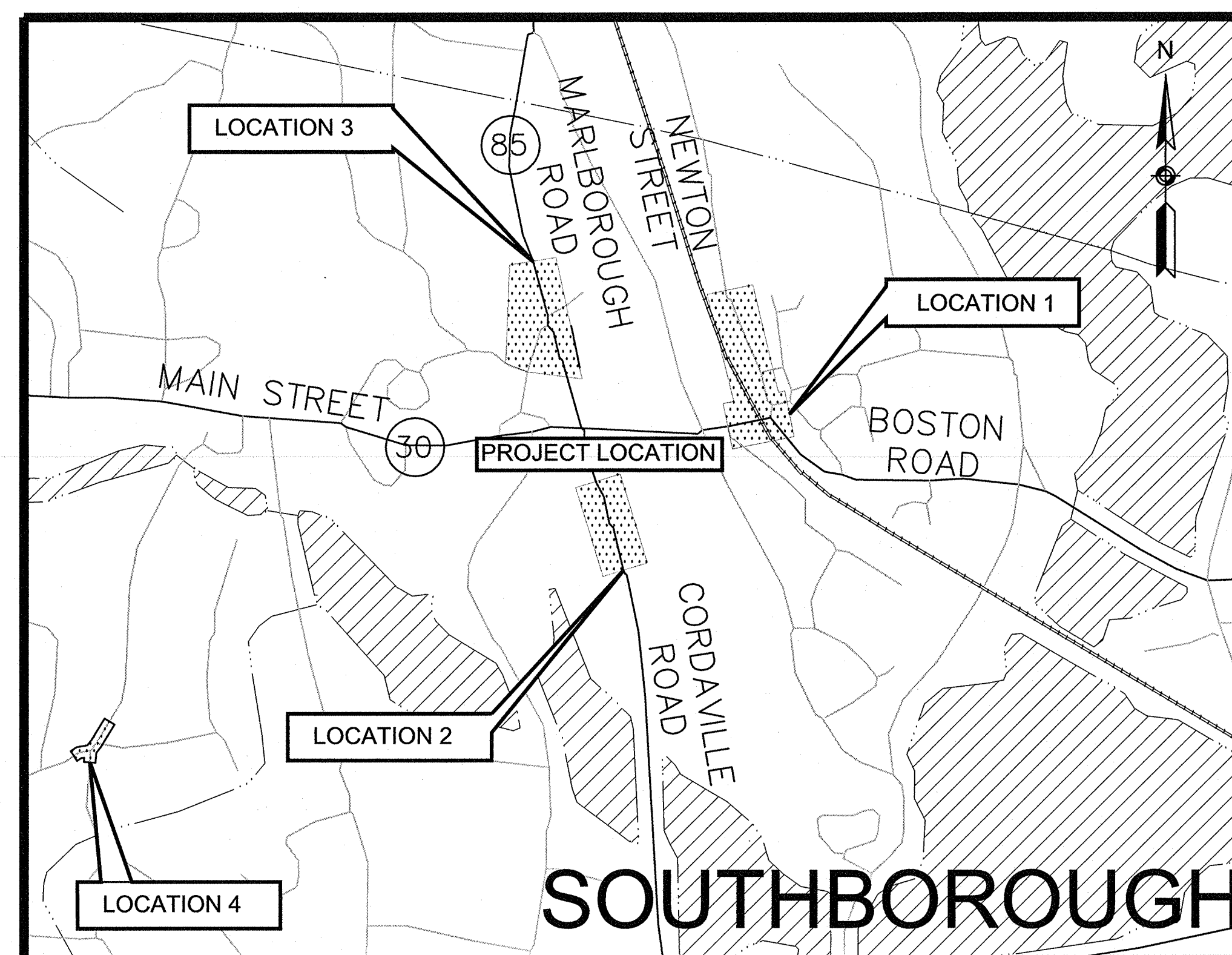
IN THE TOWN OF

SOUTHBOROUGH
WORCESTER COUNTY

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 1988 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK.

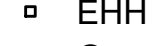
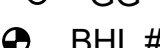
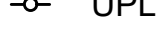
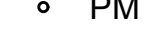
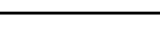
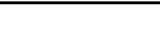
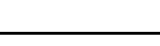
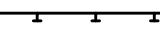
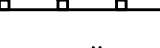
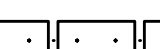
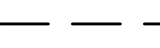
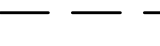
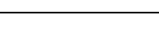
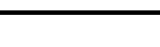
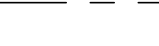
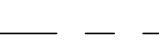
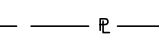
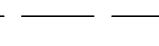
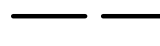
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6/24/2021	BID PLANS	0
DATE	DESCRIPTION	REV #
  6/24/21 ENGINEER DATE		
 Vanasse Hangen Brustlin, Inc. 101 Walnut St., PO Box 9151 Watertown, MA 02472 617.924.1770 FAX 617.924.2286		
DESIGNED BY MES	APPROVED BY GJR	SHEET 1 OF 141
DRAWN BY CML/KK	DTGT CHECKED BY CAC	VHB CAD FILE NAME COMBINED - HD(COV).dwg
CHECKED BY CAC	DATE 06/20/21	JOB NO. 13812.00

GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		JERSEY BARRIER
		CATCH BASIN
		CATCH BASIN CURB INLET
		FLAG POLE
		GAS PUMP
		MAIL BOX
		POST SQUARE
		POST CIRCULAR
		WELL
		ELECTRIC HANDHOLE
		FENCE GATE POST
		GAS GATE
		BORING HOLE
		MONITORING WELL
		TEST PIT
		HYDRANT
		LIGHT POLE
		COUNTY BOUND
		GPS POINT
		CABLE MANHOLE
		DRAINAGE MANHOLE
		ELECTRIC MANHOLE
		GAS MANHOLE
		MISC MANHOLE
		SEWER MANHOLE
		TELEPHONE MANHOLE
		WATER MANHOLE
		MASSACHUSETTS HIGHWAY BOUND
		MONUMENT
		STONE BOUND
		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
		TROLLEY POLE OR GUY POLE
		TRANSMISSION POLE
		UTILITY POLE W/ FIREBOX
		UTILITY POLE WITH DOUBLE LIGHT
		UTILITY POLE W / 1 LIGHT
		UTILITY POLE
		BUSH
		TREE
		STUMP
		SWAMP / MARSH
		WATER GATE
		PARKING METER
		OVERHEAD CABLE/WIRE
		CURBING
		CONTOURS (ON-THE-GROUND SURVEY DATA)
		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
		CHAIN LINK OR METAL FENCE
		WOOD FENCE
		HAY BALES/SILT FENCE
		TREE LINE
		SAWCUT LINE
		TOP OR BOTTOM OF SLOPE
		EDGE OF PAVEMENT
		LIMIT OF MICROMILLING 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
		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)
		RAILROAD SIGNAL
		SIGNAL POST AND BASE (ALPHA-NUMERIC DESIGNATION NOTED)
		MAST ARM, SHAFT AND BASE (ARM LENGTH AS NOTED)
		HIGH MAST POLE OR TOWER
		SIGN AND POST
		SIGN AND POST (2 POSTS)
		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
		LEGEND "ONLY" - WHITE
		STOP LINE
		CROSSWALK
		SOLID WHITE LINE
		SOLID YELLOW LINE
		BROKEN WHITE LINE
		BROKEN YELLOW LINE
		DOTTED WHITE LINE
		DOTTED YELLOW LINE
		DOTTED WHITE LINE EXTENSION
		DOTTED YELLOW LINE EXTENSION
		DOUBLE WHITE LINE
		DOUBLE YELLOW LINE

GNERAL ABBREVIATIONS

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
CC	CEMENT CONCRETE
CCM	CEMENT CONCRETE MASONRY
CEM	CEMENT
CI	CURB INLET
CLF	CHAIN LINK FENCE
CL	CENTERLINE
CO.	COUNTY
CONC	CONCRETE
CONT	CONTINUOUS / CONTINUED
CONST	CONSTRUCTION
CR GR	CROWN GRADE
DIA	DIAMETER
DWY	DRIVEWAY
ELEV (or EL.)	ELEVATION
EMB	EMBANKMENT
EOP	EDGE OF PAVEMENT
EQ	EQUAL
EXIST (or EX)	EXISTING
EXC	EXCAVATION
FDN.	FOUNDATION
FDP	FULL DEPTH PAVEMENT
FLDSTN	FIELDSTONE
GAR	GARAGE
GD	GROUND
GRAN	GRANITE
GRAV	GRAVEL
GRD	GUARD
HMA	HOT MIX ASPHALT
HOR	HORIZONTAL
HWY	HIGHWAY
JCT	JUNCTION
LOAM	LOAM BORROW
LSA	LANDSCAPED AREA
LT	LEFT
MAHWL	MEAN AVERAGE HIGH WATER LINE
MAX	MAXIMUM
MB	MAILBOX
MHB	MASSACHUSETTS HIGHWAY BOUND
MIN	MINIMUM
MOD	MODIFIED
MSE	MECHANICALLY STABILIZED EARTH
NERR	NEW ENGLAND RAILROAD
NIC	NOT IN CONTRACT
NO.	NUMBER
NTS	NOT TO SCALE
O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER
P.G.L.	PROFILE GRADE LINE
PREV	PREVIOUS/PREVIOUSLY
PROJ	PROJECT
PROP	PROPOSED
PSB	PLANTABLE SOIL BORROW
PVMT	PAVEMENT
R&D	REMOVE AND DISCARD
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
RD	ROAD
RDWY	ROADWAY
REB	REBUILD
REM	REMOVE
REMOD	REMODEL
RET	RETAIN
RET WALL	RETAINING WALL
ROW	RIGHT OF WAY
RR	RAILROAD
RT	RIGHT
SB	STONE BOUND
SHLD	SHOULDER
SHLO/S.H.L.O.	STATE HIGHWAY LAYOUT LINE

GENERAL ABBREVIATIONS (CONT)

ST	STREET
STA	STATION
STD	STANDARD
SW	SIDEWALK
TEMP	TEMPORARY
TC	TOP OF CURB
TOS	TOP OF SLOPE
TRANS	TRANSITION
TRM	TURF REINFORCING MAT
TYP	TYPICAL
VAR	VARIES
VERT	VERTICAL
WCR	WHEEL CHAIR RAMP
WP	WORKING POINT
X-SECT	CROSS SECTION

UTILITY ABBREVIATIONS

CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CIP	CAST IRON PIPE
CIT	CHANGE IN TYPE
CMP	CORRUGATED METAL PIPE
CSP	CORRUGATED STEEL PIPE
DI	DROP INLET
DIP	DUCTILE IRON PIPE
FES	FLARED END SECTION
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
GG	GAS GATE
GI	GUTTER INLET
GIP	GALVANIZED IRON PIPE
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HDW	HEADWALL
HYD	HYDRANT
INV	INVERT
LB	LEACH BASIN
LP	LIGHT POLE
MH	MANHOLE
MW	MONITORING WELL
OHW	OVERHEAD WIRE
PVC	POLYVINYLCHLORIDE PIPE
PWW	PAVED WATER WAY
RCP	REINFORCED CONCRETE PIPE
SMH	SEWER MANHOLE
TSV&B	TAPPING SLEEVE VALVE & BOX
UP	UTILITY POLE
WG	WATER GATE
WIP	WROUGHT IRON PIPE
WM	WATER METER/WATER MAIN

ALIGNMENT & GRADING ABBREVIATIONS

CC	CENTER OF CURVE
HP	HIGH POINT
I.T.	INTERSECTION OF TANGENT
LP	LOW POINT
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
PI	POINT OF INTERSECTION
PNT	POINT
POC	POINT ON CURVE
POT	POINT ON TANGENT
PRC	POINT OF REVERSE CURVATURE
PT	POINT OF TANGENCY
∟PT	ANGLE POINT
R	RADIUS OF CURVATURE
T	TANGENT DISTANCE OF CURVE
TAN	TANGENT
25.45	SPOT ELEVATION

PROFILE ABBREVIATIONS

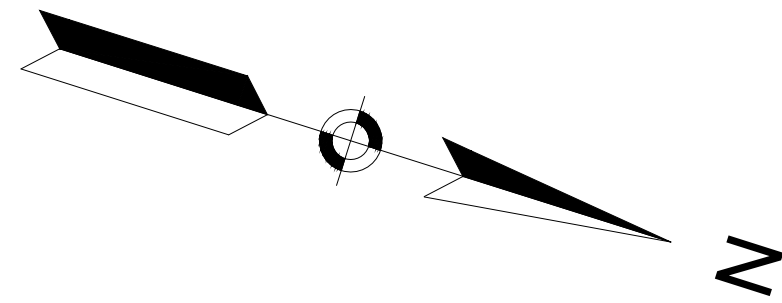
AD	ALGEBRAIC DIFFERENCE IN RATES OF GRADE
HSD	HORIZONTAL SIGHT DISTANCE
K	RATE OF VERTICAL CURVATURE
L	LENGTH OF CURVE
PVC	POINT OF VERTICAL CURVATURE
PVCC	POINT OF VERTICAL COMPOUND CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVRC	POINT OF VERTICAL REVERSE CURVATURE
PVT	POINT OF VERTICAL TANGENCY
SSD	STOPPING SIGHT DISTANCE
VC	VERTICAL CURVE

TRAFFIC & SIGNAL ABBREVIATIONS

AADT	ANNUAL AVERAGE DAILY TRAFFIC
CAB.	CABINET
CCVE	CLOSED CIRCUIT VIDEO EQUIPMENT
COND	CONDUIT
CW	CROSS WALK
DW	STEADY DON'T WALK - PORTLAND ORANGE
DHV	DESIGN HOURLY VOLUME
FDW	FLASHING DON'T WALK
FR	FLASHING CIRCULAR RED
FRL	FLASHING RED LEFT ARROW
FRR	FLASHING RED RIGHT ARROW
FY	FLASHING CIRCULAR AMBER
FYL	FLASHING AMBER LEFT ARROW
FYR	FLASHING AMBER 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
HH	HAND HOLE
OL	OVERLAP
PB	PULL BOX
PED	PEDESTRIAN
PTZ	PAN, TILE, ZOOM
R	STEADY CIRCULAR RED
RL	STEADY RED LEFT ARROW
RR	STEADY RED RIGHT ARROW
SL	STOP LINE
T	TRUCK %
TS OR TR SIG	TRAFFIC SIGNAL
TSC	TRAFFIC SIGNAL CONDUIT
W	STEADY WALK
Y	STEADY CIRCULAR AMBER
YL	STEADY AMBER LEFT ARROW

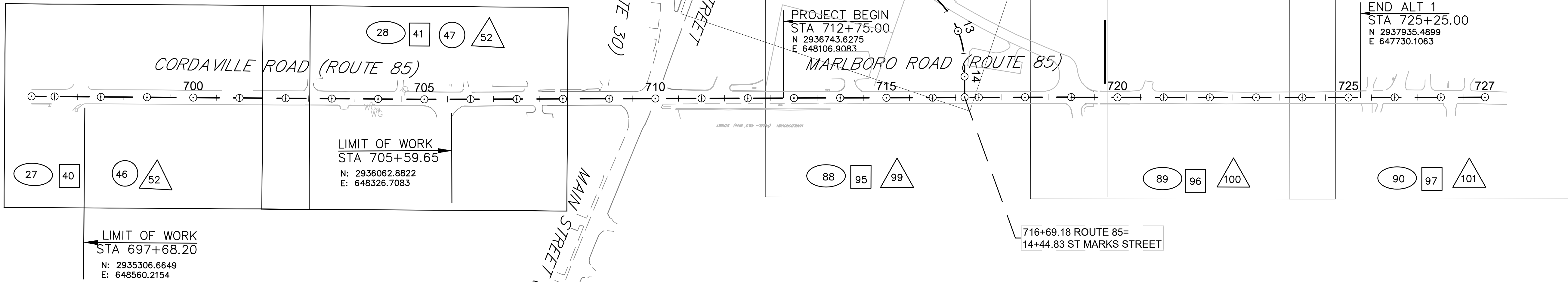
GENERAL NOTES:

1. THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND GRADES IN THE FIELD BEFORE COMMENCING WORK AND PROMPTLY NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
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 SHALL 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. DRAINAGE ELEVATIONS ARE PROVIDED FOR DESIGN PURPOSES ONLY. THE CONTRACTOR SHALL VERIFY BY TEST PIT, THE LOCATIONS OF EXISTING UTILITIES WHICH MAY CONFLICT WITH THE PROPOSED DRAINAGE DESIGN. ANY FIELD ADJUSTMENTS REQUIRED WILL BE MADE AS APPROVED OR DIRECTED BY THE ENGINEER. ONLY AFTER THE CONTRACTOR VERIFIES ELEVATIONS FOR THE CONSTRUCTABILITY OF THE DRAINAGE SYSTEM SHALL ANY STRUCTURES BE ORDERED. ANY FIELD ADJUSTMENTS TO LINE & GRADE UP TO A DEPTH OF 5' SHALL BE INCLUDED IN THE COST OF THE PIPE. PIPE EXCAVATION GREATER THAN 5' WILL BE PAID UNDER CLASS B TRENCH EXCAVATION.
4. THE CONTRACTOR SHALL VERIFY BY TEST PIT, THE LOCATIONS OF EXISTING UTILITIES WHICH MAY CONFLICT WITH PROPOSED CONDUIT AND SIGNAL EQUIPMENT. ANY FIELD ADJUSTMENTS REQUIRED WILL BE MADE AS APPROVED OR DIRECTED BY THE ENGINEER.
5. WHERE AN EXISTING 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.
6. THE CONTRACTOR SHALL ALTER THE MASONRY OF THE TOP SECTION OF ALL EXISTING DRAINAGE AND SEWER STRUCTURES AS NECESSARY FOR CHANGES IN GRADE, AND RESET ALL WATER AND DRAINAGE FRAMES, GRATES AND BOXES TO THE PROPOSED FINISH SURFACE GRADE. REQUIRED NEW MASONRY SHALL BE CLAY BRICK.
7. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES.
8. EXISTING UTILITY POLES WILL BE RELOCATED BY OTHERS IF REQUIRED.
9. TREES AND SHRUBS WITHIN THE LIMITS OF GRADING SHALL BE REMOVED ONLY UPON APPROVAL OF THE ENGINEER.
10. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT NO EXPENSE TO THE OWNER.
11. 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).
12. JOINTS BETWEEN NEW ASPHALT CONCRETE ROADWAY PAVEMENT AND SAWCUT EXISTING PAVEMENT SHALL BE SEALED WITH HMA JOINT SEALER AND BACKSANDED.
13. AFTER MILLING OPERATIONS AND PRIOR TO PAVING THE SUPERPAVE INTERMEDIATE OR SURFACES COURSES THE ENGINEER SHALL EVALUATE THE MILLED SURFACE AND SHALL APPLY THE APPROPRIATE REPAIR METHOD IF REQUIRED.
14. EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE RETAINED UNLESS INDICATED OTHERWISE ON THE DRAWINGS.
15. IF SUITABLE, EXISTING GRANITE CURB & EDGING SHALL BE RE-USED IN THE PROPOSED WORK, EXCEPT CURVED STONES OF A DIFFERENT RADIUS THAN PROPOSED CURB.
16. 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.
17. THE CONTRACTOR SHALL EXERCISE DUE CARE WHEN WORKING AROUND ALL PROPERTY BOUNDS WHICH ARE TO REMAIN. SHOULD ANY DAMAGE TO A BOUND RESULT FROM THE ACTIONS OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE THE BOUND REPLACED AND/OR REALIGNED BY A LICENSED PROFESSIONAL SURVEYOR AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST.
18. DISPOSAL OF ALL SURPLUS MATERIAL SHALL BE AS APPROVED BY THE ENGINEER AND OWNER.
19. LATERAL DRAIN PIPES SHALL BE INSTALLED WITH A PITCH OF 0.01 FOOT PER FOOT (MINIMUM) UNLESS NOTED OTHERWISE ON THE PLANS.

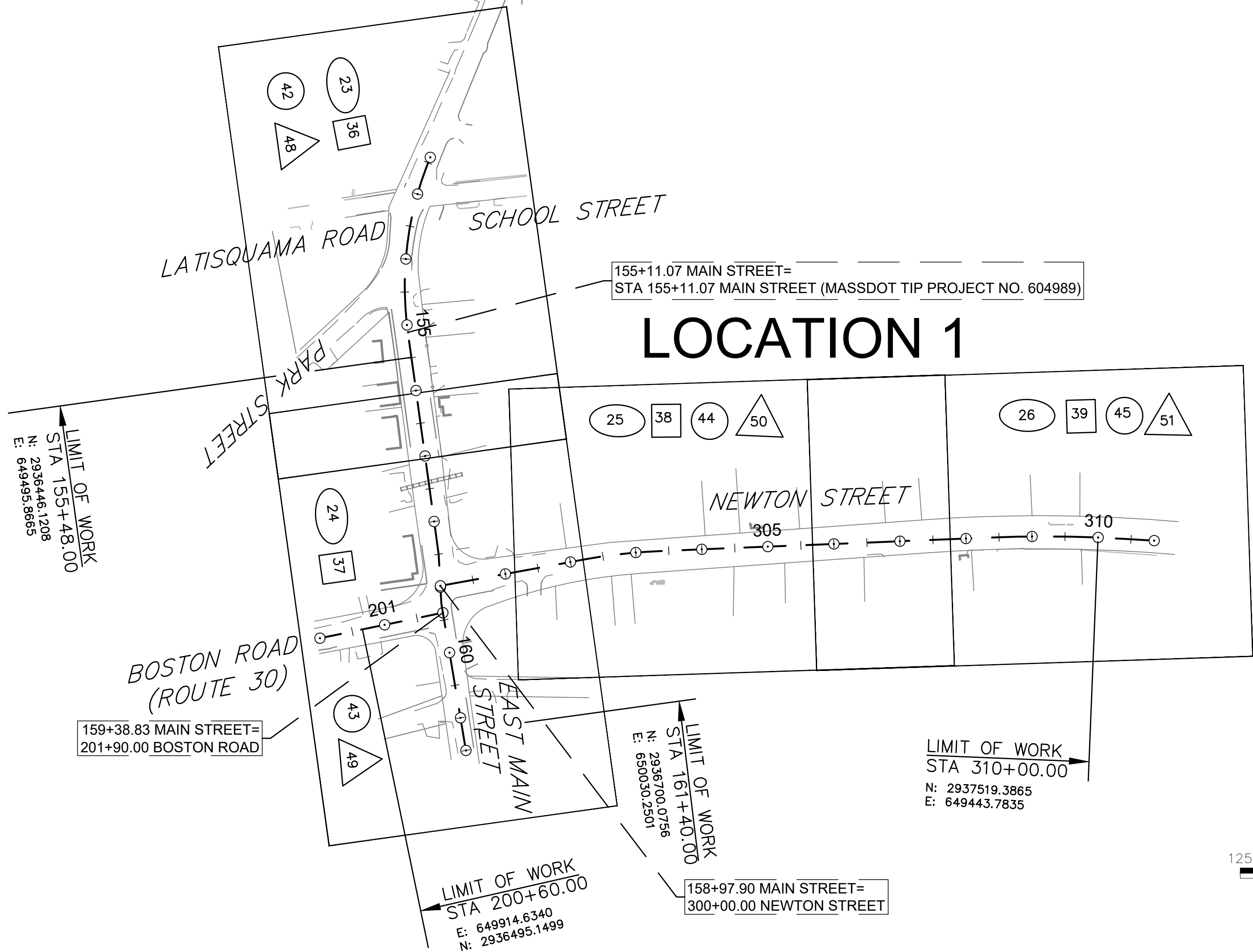
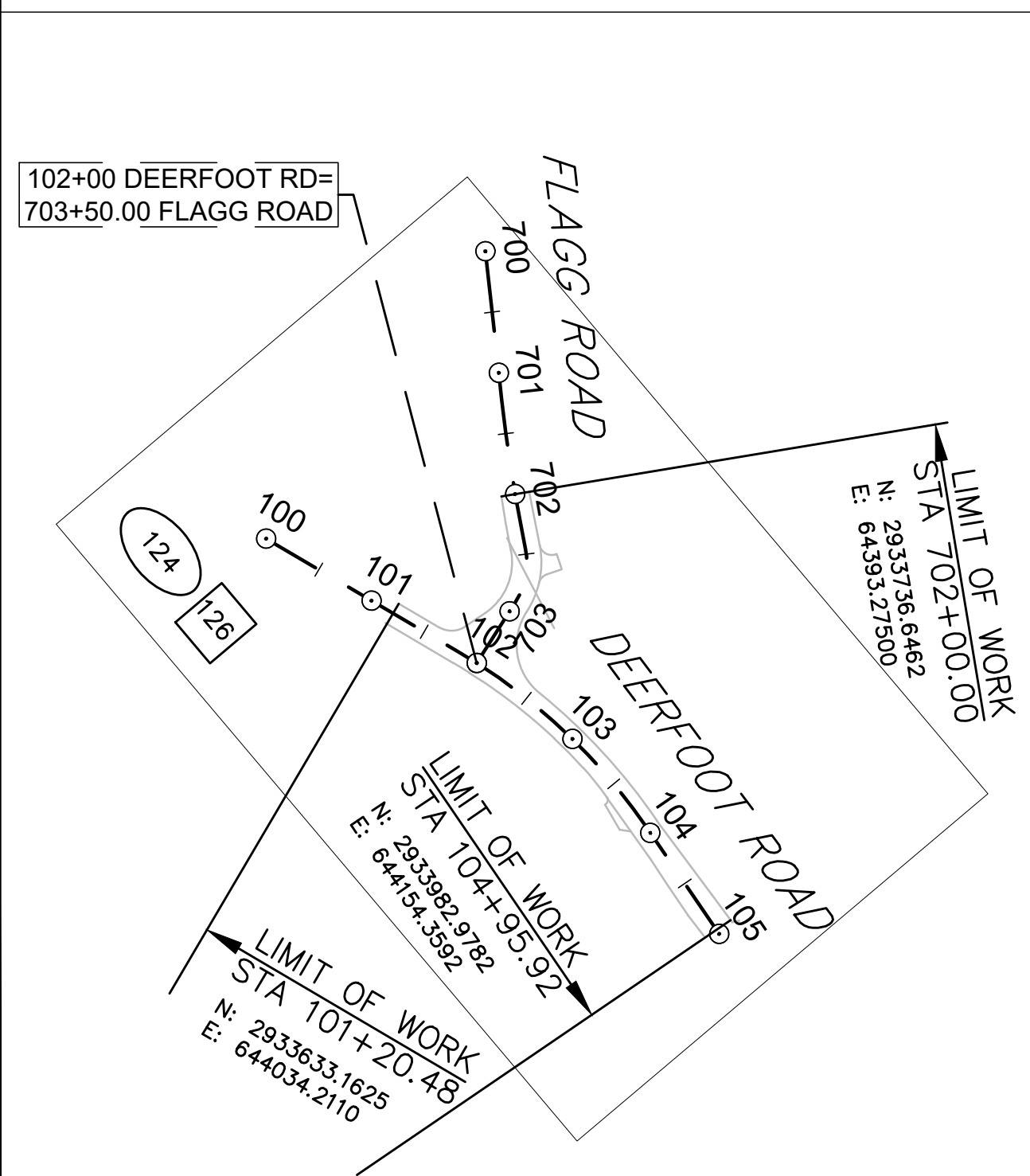


LOCATION 2

LOCATION 3



LOCATION 4



LEGEND:

- (X) CONSTRUCTION PLANS
- (X) UTILITY PLANS
- (X) CURB TIE & GRADING
- (X) TRAFFIC PLANS



TEMPORARY TRAFFIC CONTROL PLAN GENERAL NOTES

1.

ALL CONSTRUCTION SIGNING, TEMPORARY TRAFFIC CONTROL DEVICES, AND ROADSIDE ELEMENTS SHALL CONFORM WITH THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AS AMENDED, THE MASSDOT STANDARD DETAILS AND DRAWINGS FOR THE DEVELOPMENT OF TEMPORARY TRAFFIC CONTROL PLANS, THE LATEST REVISIONS OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, (AASHTO) ROADSIDE DESIGN GUIDE, AASHTO POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS, AND NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) REPORT 350 OR THE AASHTO MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
3.

WORK HOURS SHALL BE 7:00AM TO 3:00PM MONDAY THRU FRIDAY UNLESS OTHERWISE APPROVED BY THE SOUTHBOROUGH DEPARTMENT OF PUBLIC WORKS. WORK SHALL NOT AFFECT TRAFFIC PATTERNS DURING PEAK TRAFFIC PERIODS WITHOUT PRIOR APPROVAL. PEAK TRAFFIC PERIODS ARE DEFINED AS MONDAY THRU FRIDAY 7:00AM-9:00AM AND 3:00PM-7:00PM.
2.

CONTRACTOR SHALL PROVIDE PEDESTRIAN ACCESS AT ALL TIMES WHERE ACCESS CURRENTLY EXISTS. ALL TEMPORARY PEDESTRIAN PATHWAYS SHALL COMPLY FULLY WITH ALL REQUIREMENTS OF THE MUTCD AND ALL APPLICABLE MASSACHUSETTS ARCHITECTURAL ACCESS BOARD (MAAB), AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES (ADAAG) REQUIREMENTS, AND PUBLIC RIGHTS-OF WAY ACCESSIBILITY GUIDELINES (PROWAG)
3.

NO WORK SHALL OCCUR WITHIN THE PUBLIC WAY ON STATE RECOGNIZED HOLIDAYS UNLESS OTHERWISE APPROVED BY THE ENGINEER.
4.

ALL DRUMS OUTSIDE TAPERS SHALL BE SET AT 20' ON CENTER MAX. UNLESS OTHERWISE NOTED OR ADJUSTED BY THE ENGINEER.
5.

ALL DRUMS SHALL BE APPROXIMATELY PLACED AND MOVED AS NECESSARY TO MAINTAIN SAFE AND REASONABLE ABUTTER ACCESS. WORK MAY REQUIRE ADDITIONAL SIGNS, DRUMS AND OTHER TRAFFIC CONTROL DEVICES, GRADING AND TEMPORARY PAVEMENT FOR PASSAGE OF PEDESTRIAN, VEHICULAR AND EMERGENCY TRAFFIC THROUGH THE WORK AREAS, BOTH DURING AND AFTER WORKING HOURS, TO MAINTAIN SUCH ACCESS.
6.

THE CONTRACTOR SHALL NOTIFY EACH ABUTTER AT LEAST 24 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OR RESTRICTION OF ACCESS.
7.

TRAFFIC MAY BE REDUCED TO ONE LANE UNDER POLICE CONTROL FOR SHORT TIME PERIODS WHEN REQUIRED FOR THE WORK AS SHOWN UNLESS OTHERWISE APPROVED BY THE TOWN.
8.

FOR DROP-OFFS 3" OR LESS WITHIN THE CLEAR ZONE, CONDITION MAY BE MITIGATED WITH W8-9 (LOW SHOULDER) SIGN OR TEMPORARY CHANNELIZATION DEVICES. FOR DROP-OFFS GREATER THAN 3" BUT NO MORE THAN 36", DETERMINE WHETHER IT IS MORE COST EFFECTIVE TO INSTALL BOTH W8-9 SIGN AND TEMPORARY CHANNELIZATION DEVICES IN ACCORDANCE WITH MASSDOT WORK ZONE SAFETY GUIDE OR W8-9 SIGN WITH A 2H:1V (MIN) WEDGE OR TO REMOVE THE HAZARD.
9.

CONTRACTOR SHALL STAGE WORK SUCH THAT A DROP-OFF OF NO MORE THAN 3" AT THE END OF EACH WORK DAY EXISTS WITHIN THE CLEAR ZONE AT ANY TIME AND ENSURE DROP-OFF IS MITIGATED WITHOUT BARRIER PER NOTE 9.
10.

CONSTRUCTION CLEAR ZONE SHALL BE IN ACCORDANCE WITH MASSDOT BOSTON TRAFFIC GUIDELINES AS FOLLOWS:
4' IF POSTED SPEED IS LESS THAN 35 MPH
11.

11' MINIMUM LANE WIDTHS SHALL BE MAINTAINED UNLESS OTHERWISE NOTED.
12.

NON-ESSENTIAL TRAFFIC CONTROL DEVICES AND SIGNS SHALL BE COVERED OR REMOVED DURING NON-WORKING HOURS WHEN NOT IN USE.
13.

ADVISORY SPEED PLATES (W13-1p) SHALL BE USED IF APPROPRIATE AND AS REQUESTED BY THE ENGINEER.
14.

SIGNS INSTALLED ON PORTABLE STANDS REQUIRE 12 INCH MINIMUM MOUNTING HEIGHT FROM THE ROADWAY SURFACE TO THE BOTTOM OF THE SIGN. SIGNS SHALL NOT BE MOUNTED ON OR LEANED AGAINST DRUMS/CONES.
15.

SIGNS INSTALLED ON PORTABLE STANDS PLACED AMONG CHANNELIZATION DEVICES REQUIRE A 36 INCH MINIMUM MOUNTING HEIGHT FROM THE ROADWAY SURFACE TO THE BOTTOM OF THE SIGN.
16.

SIGNS MOUNTED ON POSTS REQUIRE A MINIMUM 84 INCH MOUNTING HEIGHT FROM THE ROADWAY OR SIDEWALK SURFACE TO THE BOTTOM OF THE SIGN.
17.

ALL SIGNS SHALL BE MOUNTED ON THEIR OWN NCHRP 350 AND/OR MASH CRASH TESTED SIGN SUPPORTS AND INSTALLED IN ACCORDANCE WITH THE MUTCD.
18.

TEMPORARY MARKINGS SHALL BE WATER-BORNE PAINT OR SURFACE-APPLIED REMOVABLE TAPE, AS APPROVED BY THE ENGINEER.
19.

ALL TEMPORARY CROSSWALKS AND STOP LINES SHALL BE 12 INCHES WIDE.
20.

ALL TEMPORARY DOUBLE YELLOW CENTER LINES (DBYL) SHALL BE 4 INCHES WIDE.
21.

THE FIRST 10 DRUMS ON TAPERS SHALL BE REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS AND SHALL BE OPERATING, AT A MINIMUM, BETWEEN DUSK AND DAWN, WHEN TAPER IS DEPLOYED.
22.

REFLECTORIZED CONES SHALL BE A MINIMUM OF 36 INCHES IN HEIGHT.
23.

CONES MAY BE USED IN LIEU OF DRUMS OUTSIDE OF TAPER AREAS.
24.

CONTRACTOR SHALL SECURE WORK AREAS TO PREVENT UNAUTHORIZED ACCESS AT ALL TIMES.
25.

THERE IS NO DESIGNATED BICYCLE LANE ON THE ROADWAY WITHIN THE PROJECT LIMITS. BICYCLES ARE EXPECTED TO SHARE THE ROAD WITH GENERAL VEHICULAR TRAFFIC.
26.

W21-7 SIGNS SHALL BE INSTALLED IN ADVANCE (100' MIN) OF AREAS WHERE UTILITY CASTINGS HAVE BEEN RAISED IN ADVANCE OF PAVING OPERATIONS OR AS REQUESTED BY THE ENGINEER.
27.

W8-15 SIGNS SHALL BE INSTALLED IN ADVANCE (100' MIN) OF PAVEMENT MILLING AREAS OR AS REQUESTED BY THE ENGINEER.
28.

W20-1c OR MA-R2-10a SIGNS SHOWN ON ADVANCE SIGN SCHEMATIC MAY BE USED IN LIEU OF THOSE SIGNS SHOWN ON TYPICAL DETAILS IF MINIMUM SIGN SPACING IS MET.
29.

MA-W20-7b SIGNS SHALL BE REPLACED BY W20-7 SIGNS WHEN FLAGGERS ARE USED IN LIEU OF POLICE OFFICER DETAILS.
30.

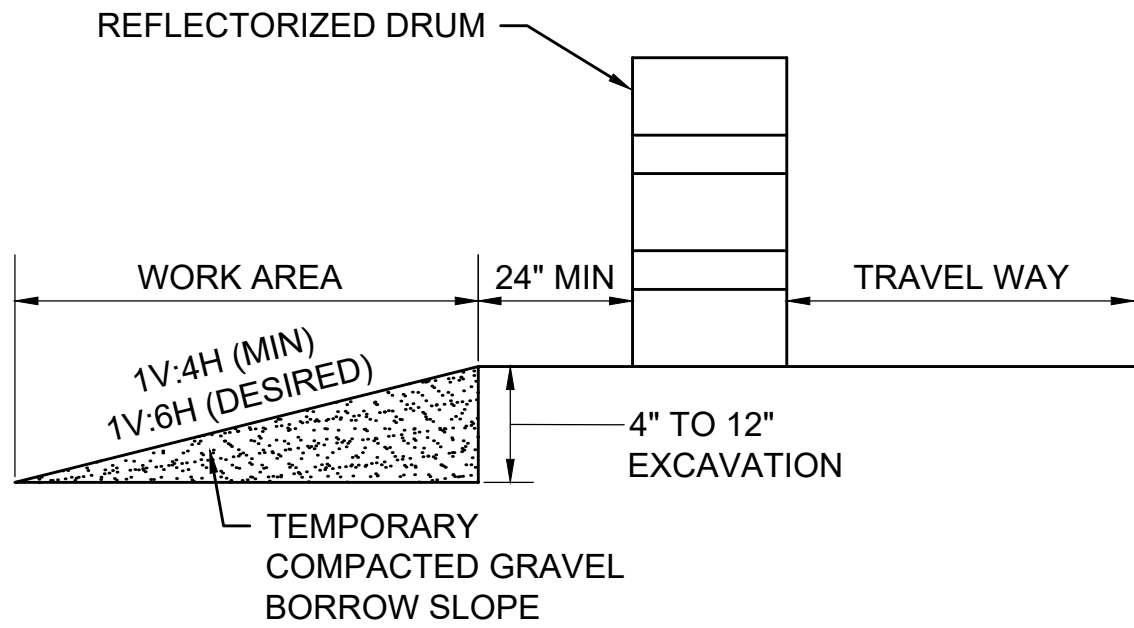
CONTRACTOR SHALL NOT PERMIT PUBLIC ACCESS ON PORTIONS OF NEWLY CONSTRUCTED SIDEWALKS ON NEWTON STREET AND MARLBORO ROAD UNTIL ENTIRE SIDEWALK ALONG THESE SEGMENTS ARE FULLY CONSTRUCTED AND ADAAG COMPLIANT OR AS DIRECTED BY THE ENGINEER.

TEMPORARY TRAFFIC CONTROL PLAN GENERAL NOTES (CONTINUED)

30.

CONTRACTOR SHALL SETUP DAILY WORK ZONES AS NECESSARY FOR FULL DEPTH PAVEMENT CONSTRUCTION. AT THE END OF EACH WORK SHIFT, UNTIL INTERMEDIATE PAVING COURSE IS INSTALLED, CONTRACTOR TO FOLLOW THE BELOW GUIDELINES OR AS DIRECTED BY THE ENGINEER.
A. GRAVEL PAVEMENT COURSE SHALL REMAIN OPEN TO TRAVEL FOR A MAXIMUM OF 10 CALENDAR DAYS PRIOR TO PAVING.
B. BASE AND BINDER PAVING COURSES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND PAVEMENT NOTES IN LOCATIONS WHERE THE ROADWAY IS NARROWED, PAVED ACCESS SHALL BE PROVIDED AT ALL ABUTTING DRIVEWAYS AND PARKING AREAS.
C. MAINTAIN ADEQUATE ROADWAY DRAINAGE AT ALL TIMES.
27.

ARROW BOARD FLASHING CAUTION SHALL FLASH IN FOUR-POINT CAUTION MODE ONLY.



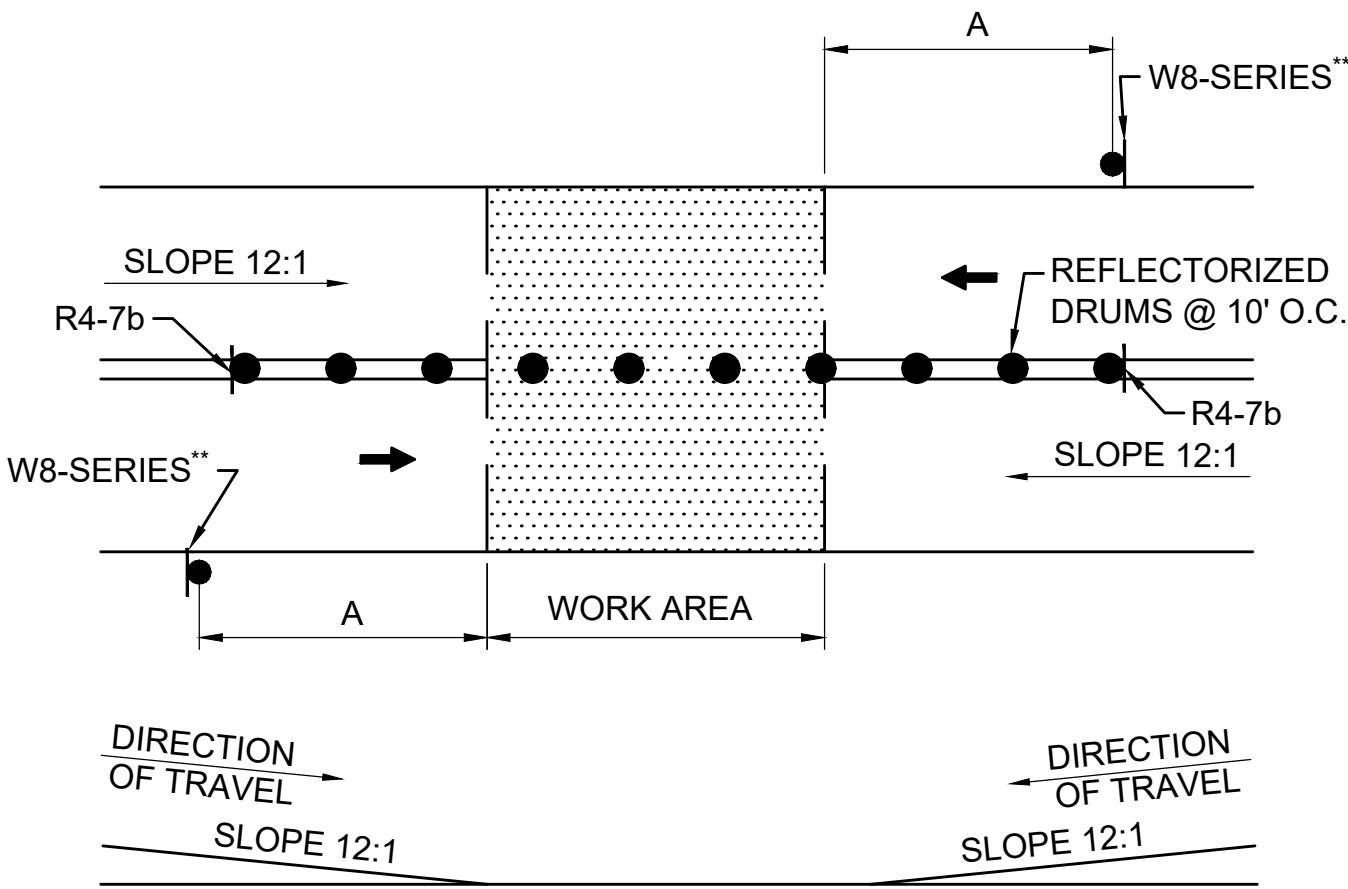
- NOTE:
1.

CONTRACTOR SHALL INSTALL W8-9 SIGN ON ALL ROADWAYS 350 FT IN ADVANCE OF THE START OF DROP-OFF CONDITION.
2.

SEE TTCP GENERAL NOTE 9.

TYPICAL ROADWAY DROP-OFF PROTECTION

SCALE: NTS



- NOTES:
1.

SQUARE OFF THE FULL WIDTH OF THE ROADWAY AT THE END OF WORK DAY
2.

** CONTRACTOR SHALL INSTALL W8-1, W8-3, OR W8-8 SIGN, AS APPROPRIATE, ON ALL ROADWAYS IN ADVANCE OF THE TRANSITION UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

TEMPORARY PAVEMENT TRANSITION

SCALE: NTS

SOUTHBOROUGH
VARIOUS LOCATIONS
OVERALL TEMP TRAFFIC CONTROL PLAN
GENERAL NOTES & LEGEND
SHEET 5 OF 141

LEGEND

	POLICE OFFICER
	FLAGGER
	REFLECTORIZED DRUM
	REFLECTORIZED DRUM WITH SEQUENTIAL FLASHING WARNING LIGHTS (SEE GENERAL NOTE 20)
	TEMPORARY CONSTRUCTION SIGN
	TRAFFIC CONE
	TYPE III BARRICADE
	PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)
	WORK AREA (PUBLIC ACCESS RESTRICTED)
	ADJACENT PROJECT WORK AREA
	TRAFFIC FLOW
	PEDESTRIAN ROUTE
	TEMP PORTABLE PEDESTRIAN BARRICADE
NTS	NOT TO SCALE
TTCP	TEMPORARY TRAFFIC CONTROL PLAN

ADVANCE SIGN SPACING

ROADWAY	DISTANCE BETWEEN SIGNS (FEET)			
	A	B	C	D
NEWTON ST	100	50	100	100
ALL OTHER ROADWAYS	350	150	350	350

LANE TAPER LENGTH FORMULAS

L= TAPER LENGTH IN FEET

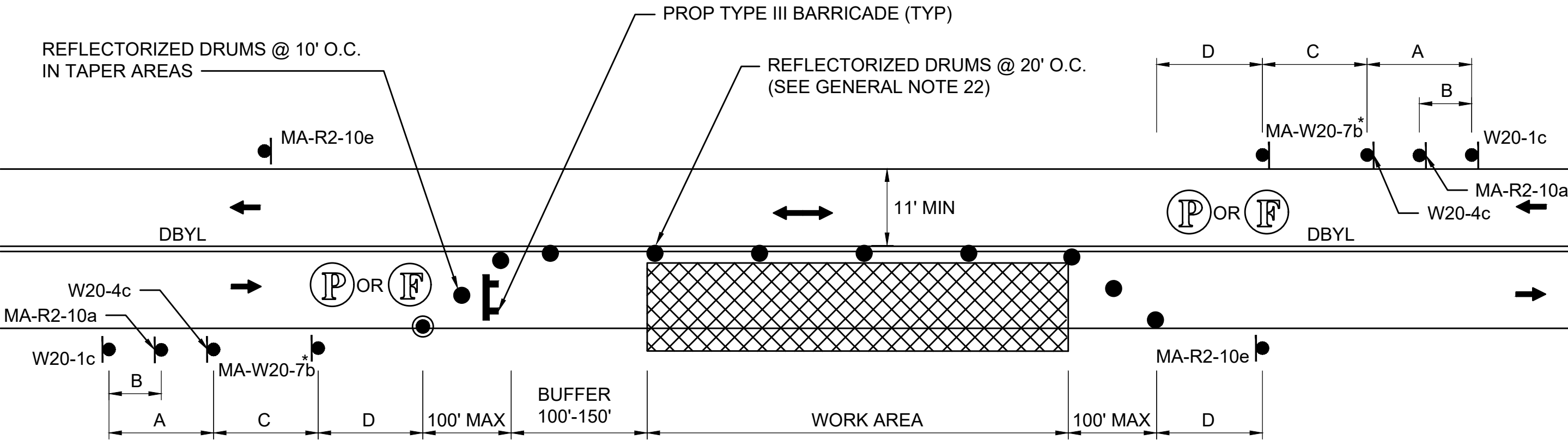
W= WIDTH OF ROADWAY TO BE SHIFTED OR REDIRECTED IN FEET

S= POSTED SPEED LIMIT IN MPH

POSTED SPEED	
40 MPH OR LESS	GREATER THAN 40 MPH
$L = \frac{WS^2}{60}$	$L = WS$

BUFFER SPACING

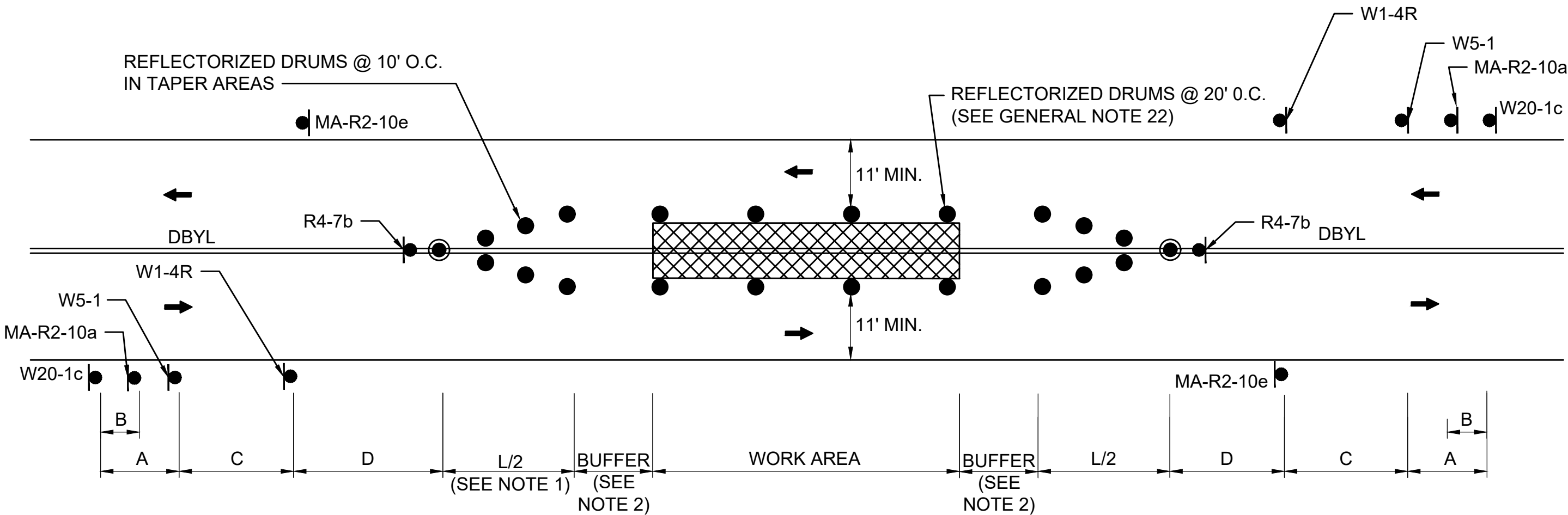
SPEED (MPH)	DISTANCE (FEET)
15	80
20	115
25	155
30	200
35	250
40	305



- NOTES:
1. REFER TO ADVANCE SIGN SPACING TABLE ON TTCP GENERAL NOTES & LEGEND SHEET.
 2. * SEE GENERAL NOTE 28 ON TTCP GENERAL NOTES & LEGEND SHEET.

TYPICAL TWO-WAY STREET LANE CLOSURE - ALTERNATING TRAFFIC

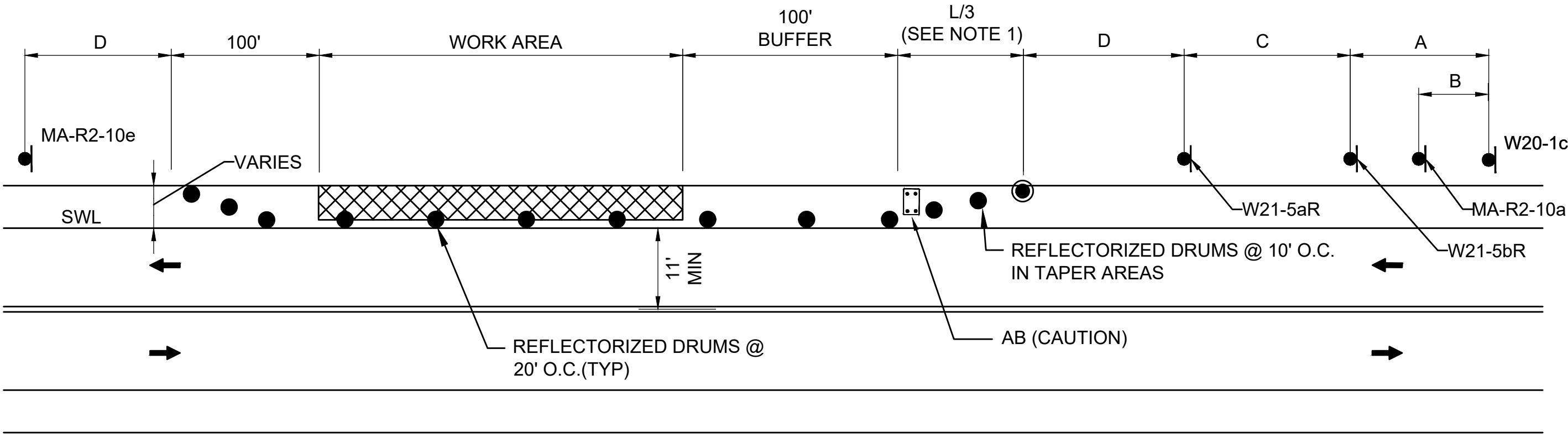
SCALE: NTS



- NOTES:
1. SEE TAPER LENGTH FORMULA ON TTCP GENERAL NOTES & LEGEND SHEET.
 2. SEE BUFFER SPACING CHART ON TTCP GENERAL NOTES & LEGEND SHEET.
 3. REFER TO ADVANCE SIGN SPACING TABLE ON TTCP GENERAL NOTES & LEGEND SHEET.

TYPICAL TWO-WAY STREET CENTER WORK AREA

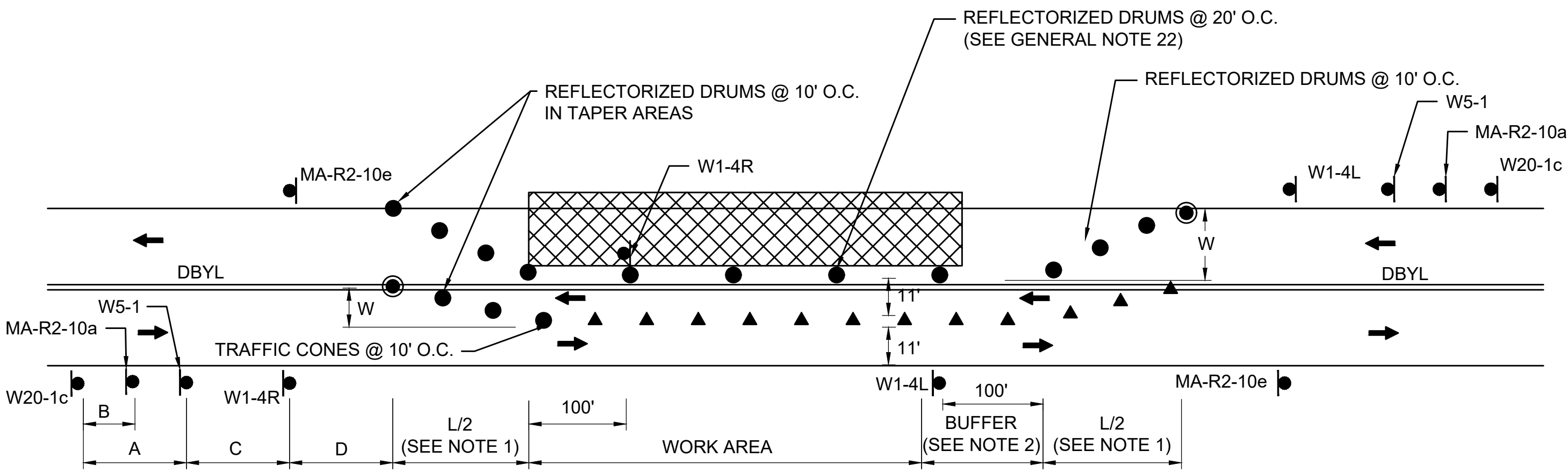
SCALE: NTS



- NOTES:
1. SEE TAPER LENGTH FORMULA ON TTCP GENERAL NOTES & LEGEND SHEET.
 2. SEE ADVANCE SIGN SPACING CHART ON TTCP GENERAL NOTES & LEGEND SHEET.
 3. ADVANCE WARNING SIGN PLACEMENT TO BE ADJUSTED BEYOND MINIMUM SPACING SHOWN AS NECESSARY.

TYPICAL SHOULDER CLOSURE - RIGHT

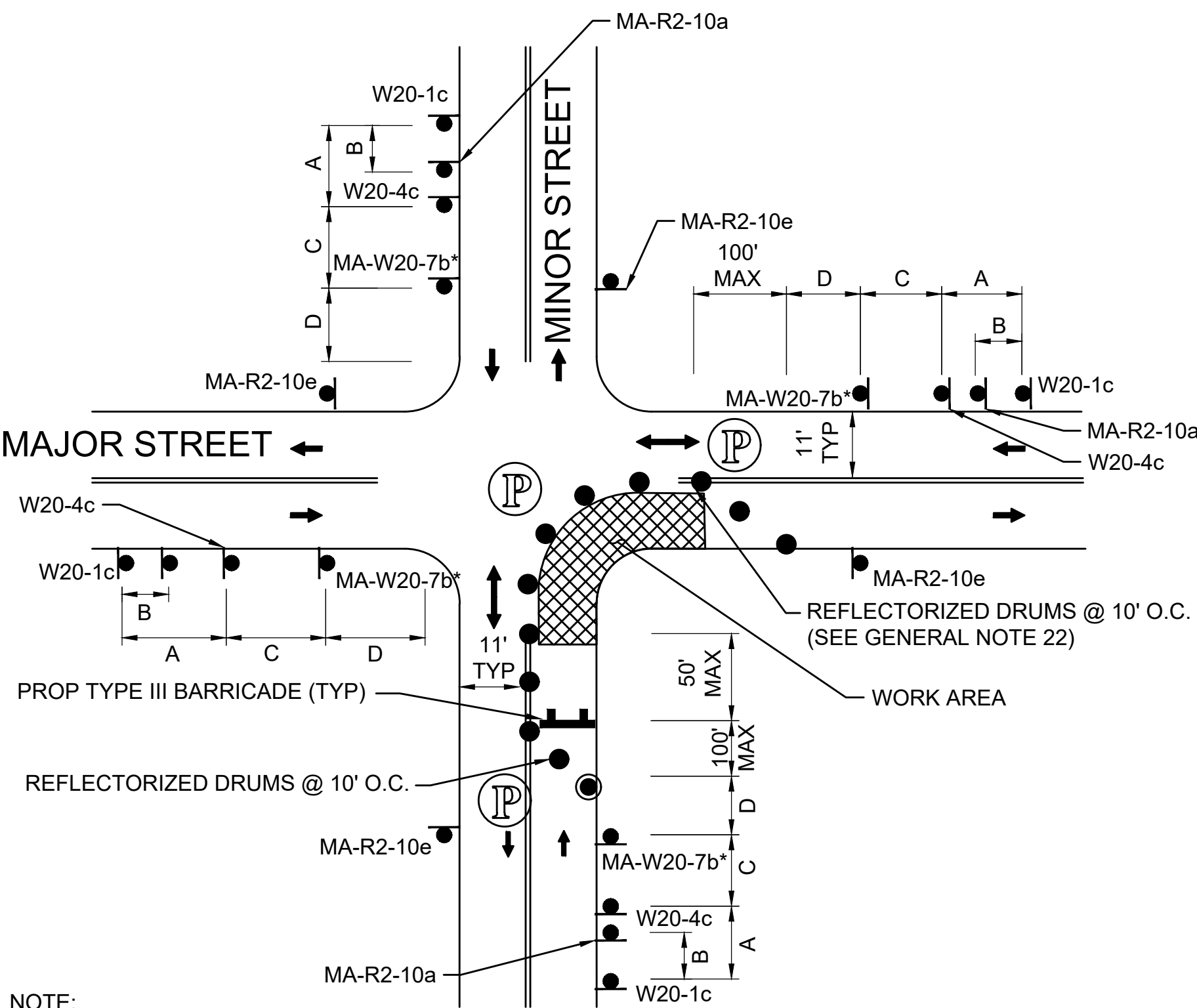
SCALE: NTS



- NOTES:
1. SEE TAPER LENGTH FORMULA ON TTCP GENERAL NOTES & LEGEND SHEET.
 2. SEE BUFFER SPACING CHART ON TTCP GENERAL NOTES & LEGEND SHEET.
 3. REFER TO ADVANCE SIGN SPACING TABLE ON TTCP GENERAL NOTES & LEGEND SHEET.

TYPICAL TWO-WAY STREET LANE SHIFT

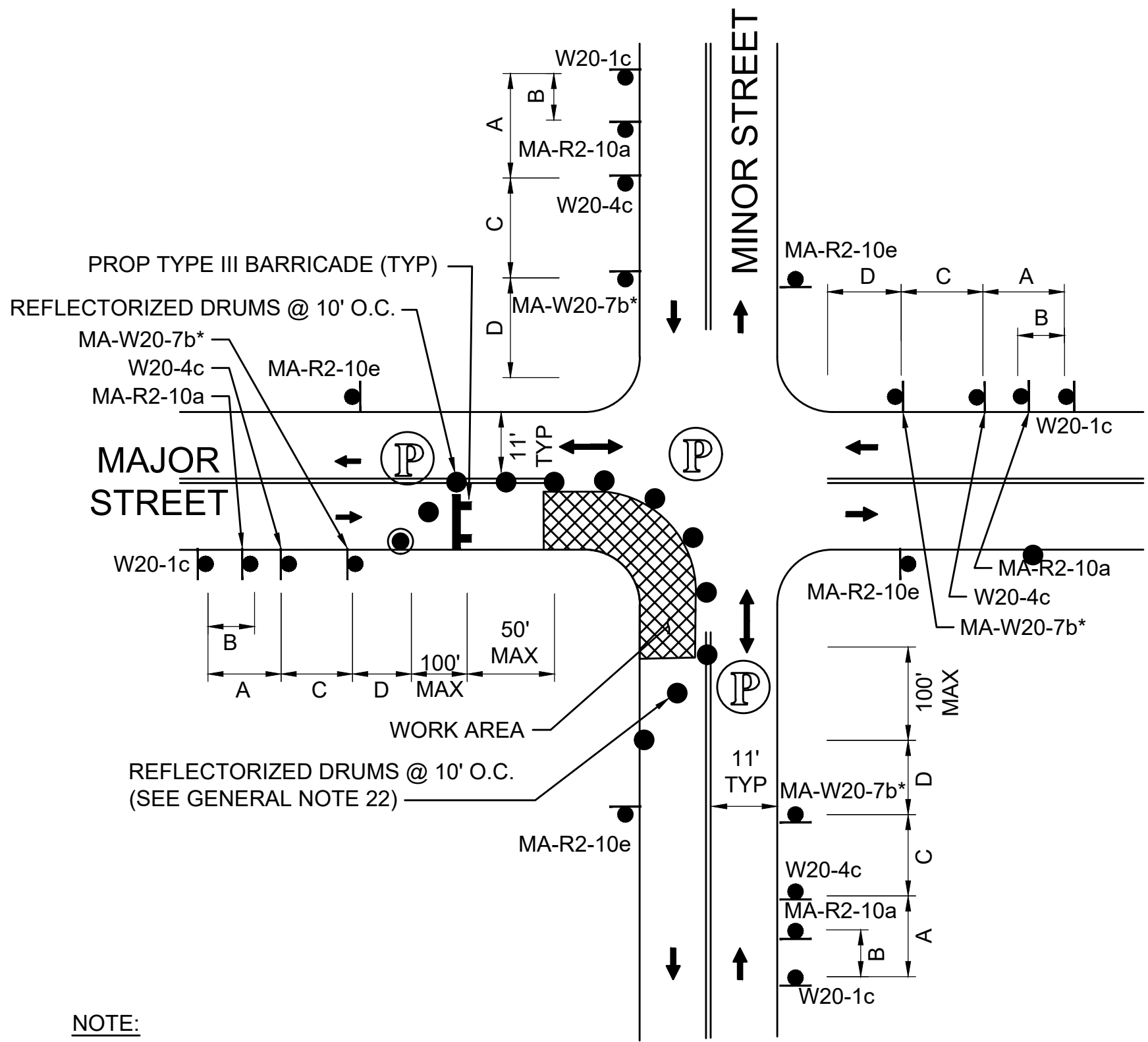
SCALE: NTS



- NOTE:
1. ADVANCE WARNING SIGN PLACEMENT TO BE ADJUSTED AS NECESSARY.
 2. * SEE GENERAL NOTE 28 ON TTCP GENERAL NOTES & LEGEND SHEET.

ONE LANE BI-DIRECTIONAL TRAFFIC AT INTERSECTIONS - FAR SIDE

SCALE: NTS



- NOTE:
1. ADVANCE WARNING SIGN PLACEMENT TO BE ADJUSTED AS NECESSARY.
 2. * SEE GENERAL NOTE 28 ON TTCP GENERAL NOTES & LEGEND SHEET.

ONE LANE BI-DIRECTIONAL TRAFFIC AT INTERSECTIONS - NEAR SIDE

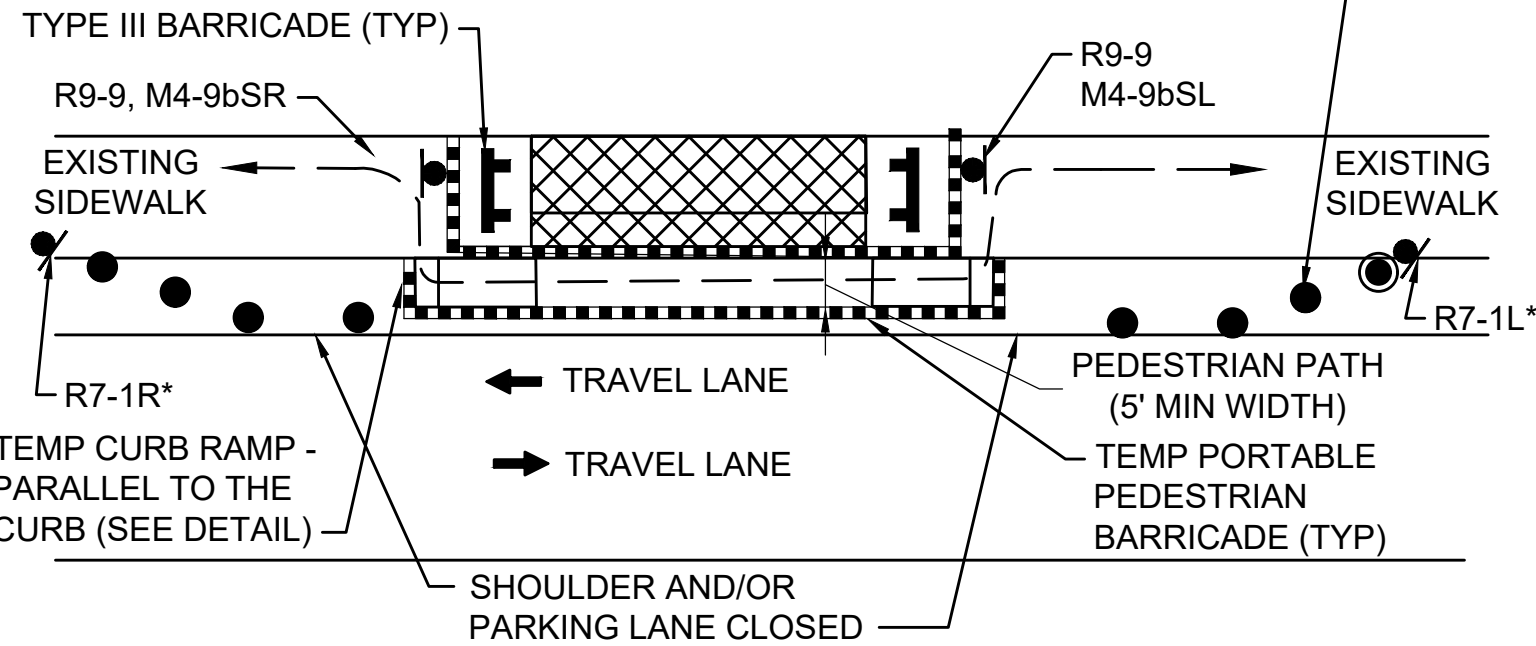
SCALE: NTS

NOTES:

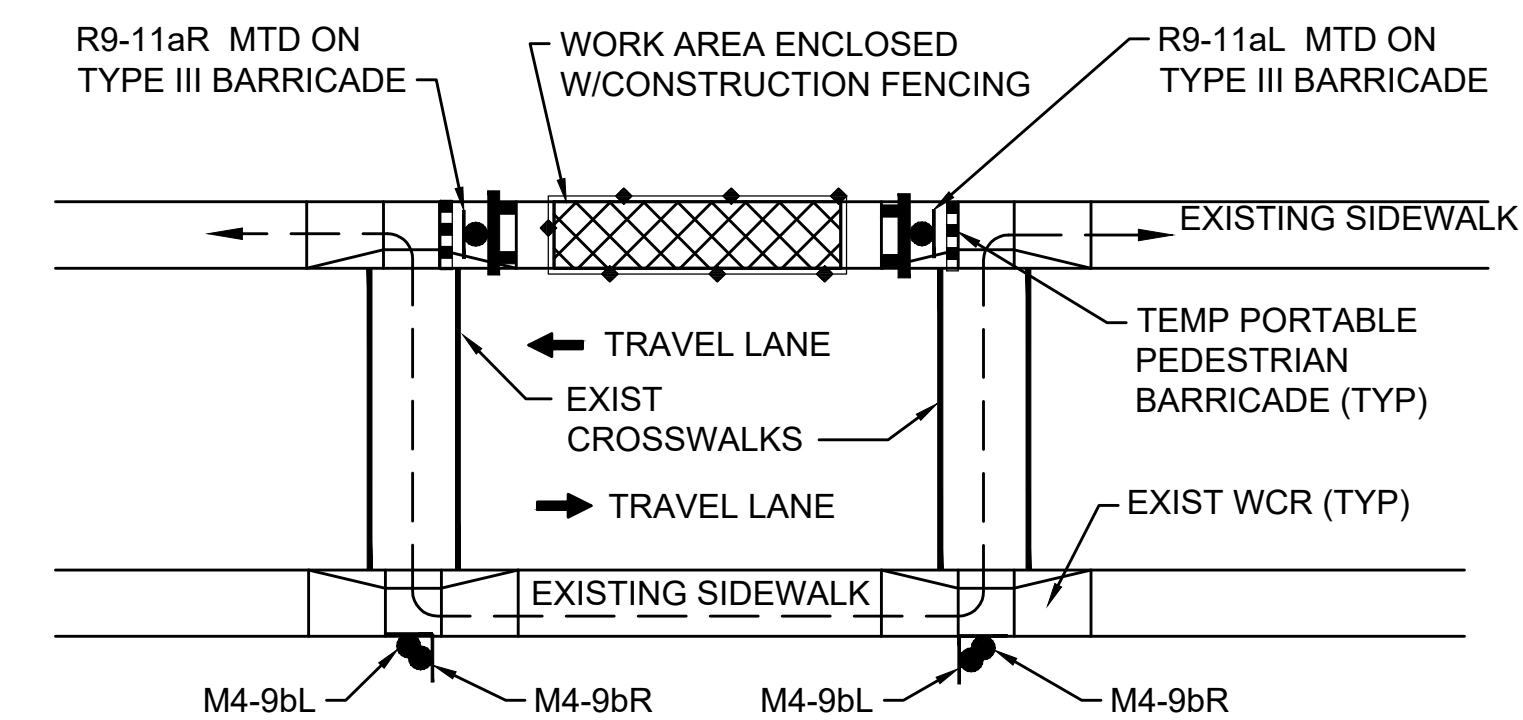
1. ADDITIONAL ADVANCE WARNING SIGNS MAY BE NECESSARY AS DETERMINED BY THE ENGINEER.
2. CONTROLS FOR PEDESTRIAN TRAFFIC ONLY, ARE SHOWN. VEHICULAR TRAFFIC SHALL BE MAINTAINED AS SHOWN ELSEWHERE.
3. STREET LIGHTING SHOULD BE CONSIDERED WHEN LOCATING CONTROL DEVICES.
4. — — — INDICATES DIRECTION OF PEDESTRIAN TRAVEL.
5. IF THE WORK ZONE DOES NOT PERMIT PEDESTRIANS TO TRAVEL ADJACENT TO IT AS SHOWN IN PEDESTRIAN BYPASS TYPE I, THE APPROPRIATE SIGNS SHALL BE INSTALLED TO CROSS PEDESTRIANS TO THE OPPOSITE SIDE OF THE STREET AT EXISTING CROSSWALKS AS SHOWN IN PEDESTRIAN BYPASS TYPE II, AND AS DIRECTED BY THE ENGINEER.
6. ALL TEMPORARY PEDESTRIAN PATHWAYS SHALL COMPLY FULLY WITH ALL REQUIREMENTS OF THE MUTCD AND ALL APPLICABLE MAAB AND ADAAG REQUIREMENTS AND INCLUDE THE USE OF A COMPLIANT TEMPORARY PEDESTRIAN MANAGEMENT GUIDANCE SYSTEM AT ALL TIMES.
7. CONTRACTOR SHALL MAINTAIN AS WIDE OF A PEDESTRIAN ACCESS AS POSSIBLE AT ALL TIMES. EXCEPT WHERE NECESSARY, THE CONTRACTOR MAY TEMPORARILY REDUCE PEDESTRIAN PATHWAYS TO 4 FEET IN WIDTH (EXCLUDING CURB) FOR NO MORE THAN 200 LINEAR FEET AT A TIME IN ACCORDANCE WITH ALL STANDARDS. A 5' x 5' PASSING AREA SHALL BE PROVIDED IN INTERVALS NOT EXCEEDING 200 FEET.
8. TEMPORARY WHEELCHAIR RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH MASSDOT, MAAB, AND ADAAG REQUIREMENTS.
9. TEMPORARY PORTABLE PEDESTRIAN BARRICADE AND TEMPORARY CURB RAMP SHALL BE PAID FOR UNDER ITEM 852.1 TEMPORARY PEDESTRIAN MANAGEMENT GUIDANCE SYSTEM.
10. * NO PARKING SIGNS TO BE INSTALLED AT ENDS OF SHOULDER CLOSURE SET-UP.

PEDESTRIAN BYPASS TYPE I

SEE TYPICAL SHOULDER CLOSURE-RIGHT DETAIL FOR MORE INFORMATION

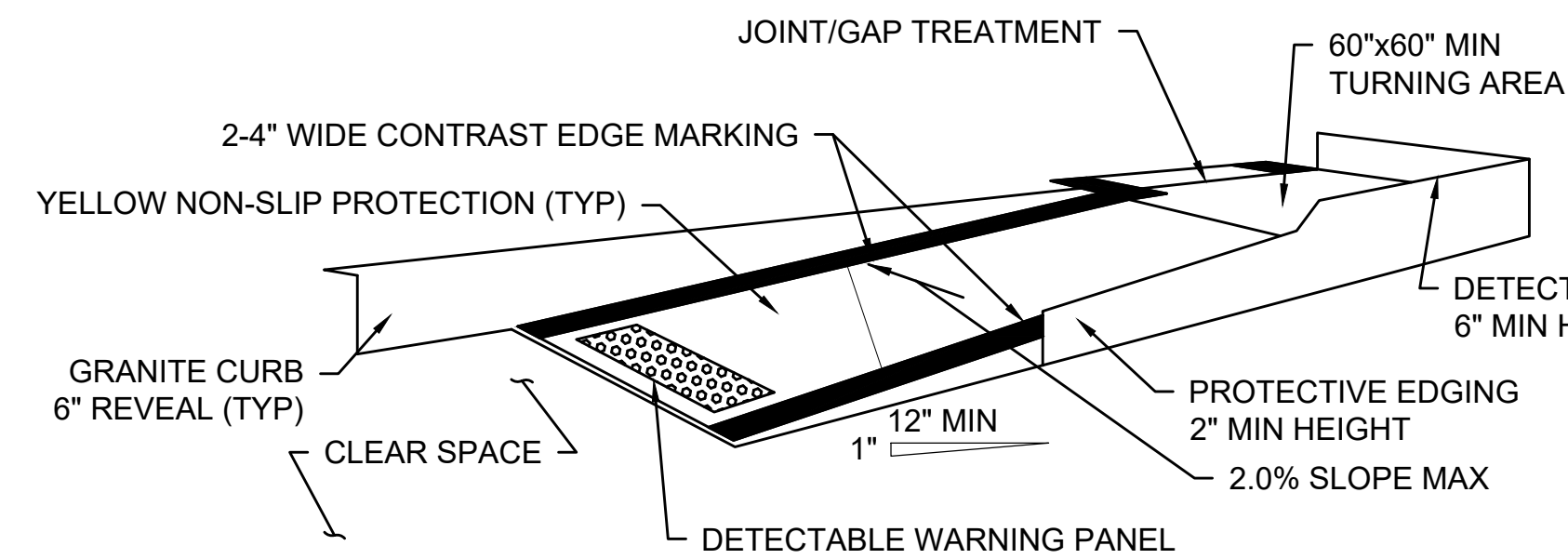


PEDESTRIAN BYPASS TYPE II

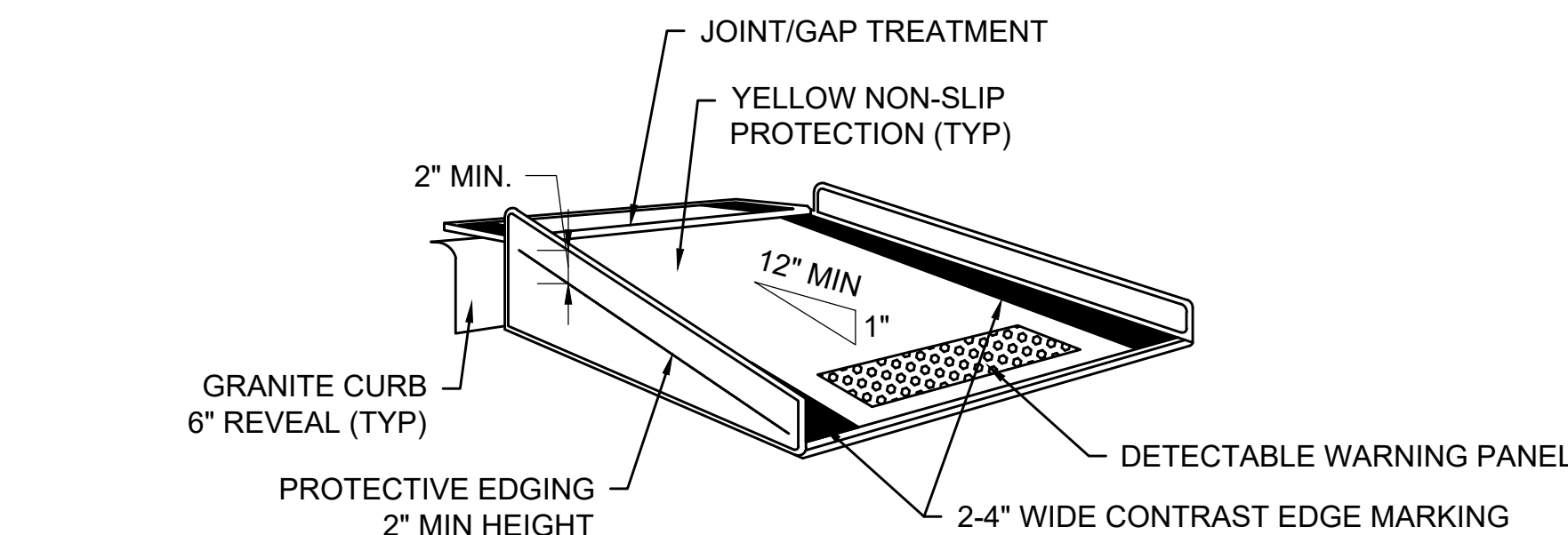


PEDESTRIAN BYPASS DETAIL

SCALE: NTS



TEMPORARY CURB RAMP-PARALLEL TO CURB



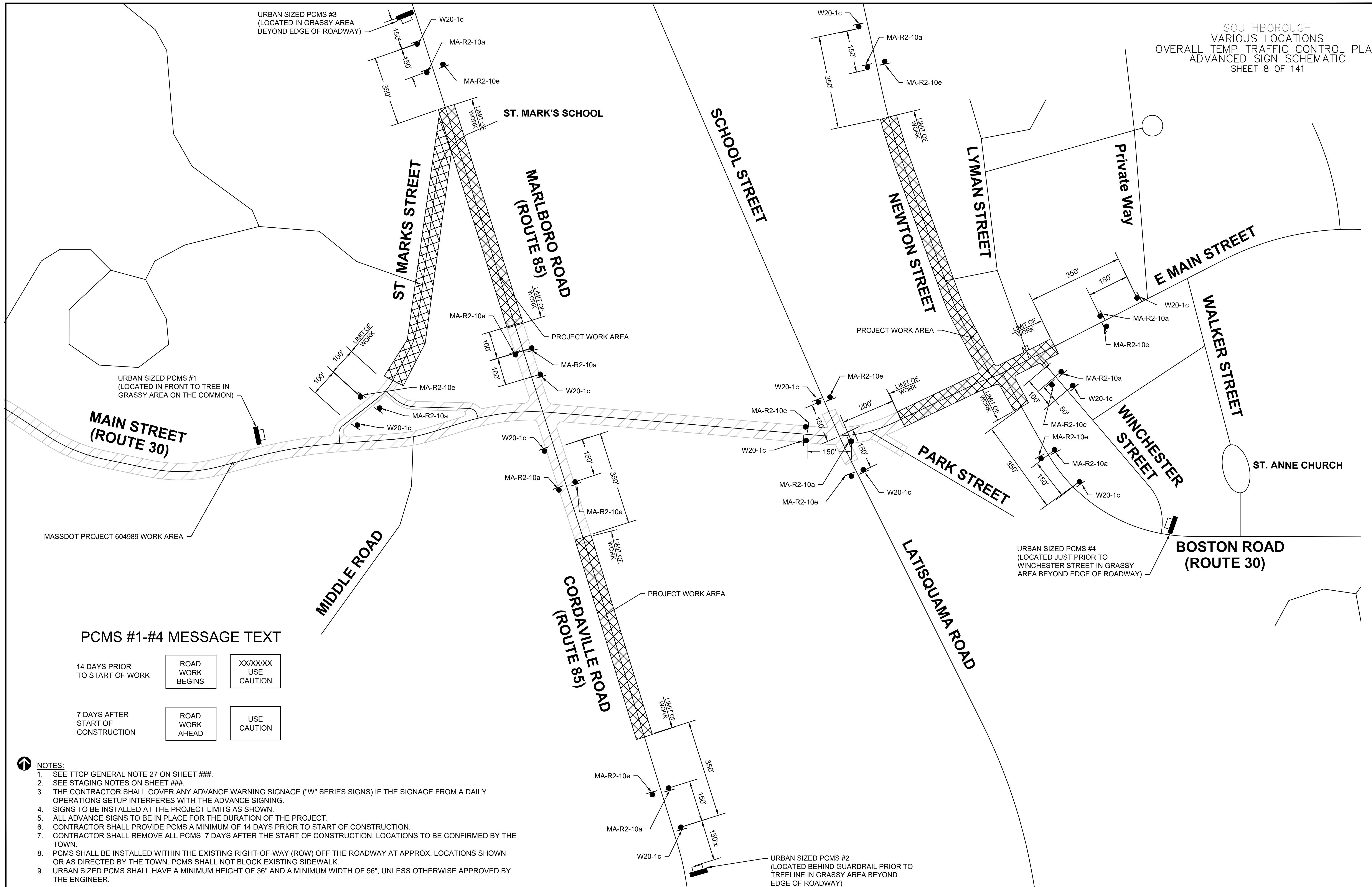
TEMPORARY CURB RAMP-PERPENDICULAR TO CURB

TEMPORARY CURB RAMPS

SCALE: NTS

NOTES:

1. CURB RAMPS SHALL BE 60\"/>



PCMS #1-#4 MESSAGE TEXT

14 DAYS PRIOR
TO START OF WORK

ROAD
WORK
BEGINS

XX/XX/XX
USE
CAUTION

7 DAYS AFTER
START OF
CONSTRUCTION

ROAD
WORK
AHEAD

USE
CAUTION

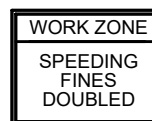
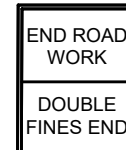
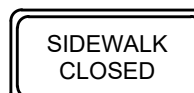
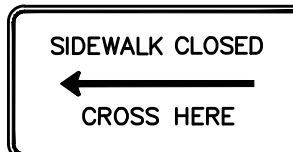
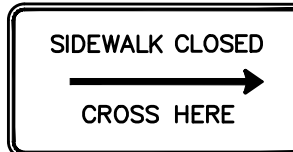


NOTES:

1. SEE TTCP GENERAL NOTE 27 ON SHEET ###.
2. SEE STAGING NOTES ON SHEET ###.
3. THE CONTRACTOR SHALL COVER ANY ADVANCE WARNING SIGNAGE ("W" SERIES SIGNS) IF THE SIGNAGE FROM A DAILY OPERATIONS SETUP INTERFERES WITH THE ADVANCE SIGNING.
4. SIGNS TO BE INSTALLED AT THE PROJECT LIMITS AS SHOWN.
5. ALL ADVANCE SIGNS TO BE IN PLACE FOR THE DURATION OF THE PROJECT.
6. CONTRACTOR SHALL PROVIDE PCMS A MINIMUM OF 14 DAYS PRIOR TO START OF CONSTRUCTION.
7. CONTRACTOR SHALL REMOVE ALL PCMS 7 DAYS AFTER THE START OF CONSTRUCTION. LOCATIONS TO BE CONFIRMED BY THE TOWN.
8. PCMS SHALL BE INSTALLED WITHIN THE EXISTING RIGHT-OF-WAY (ROW) OFF THE ROADWAY AT APPROX. LOCATIONS SHOWN OR AS DIRECTED BY THE TOWN. PCMS SHALL NOT BLOCK EXISTING SIDEWALK.
9. URBAN SIZED PCMS SHALL HAVE A MINIMUM HEIGHT OF 36" AND A MINIMUM WIDTH OF 56", UNLESS OTHERWISE APPROVED BY THE ENGINEER.

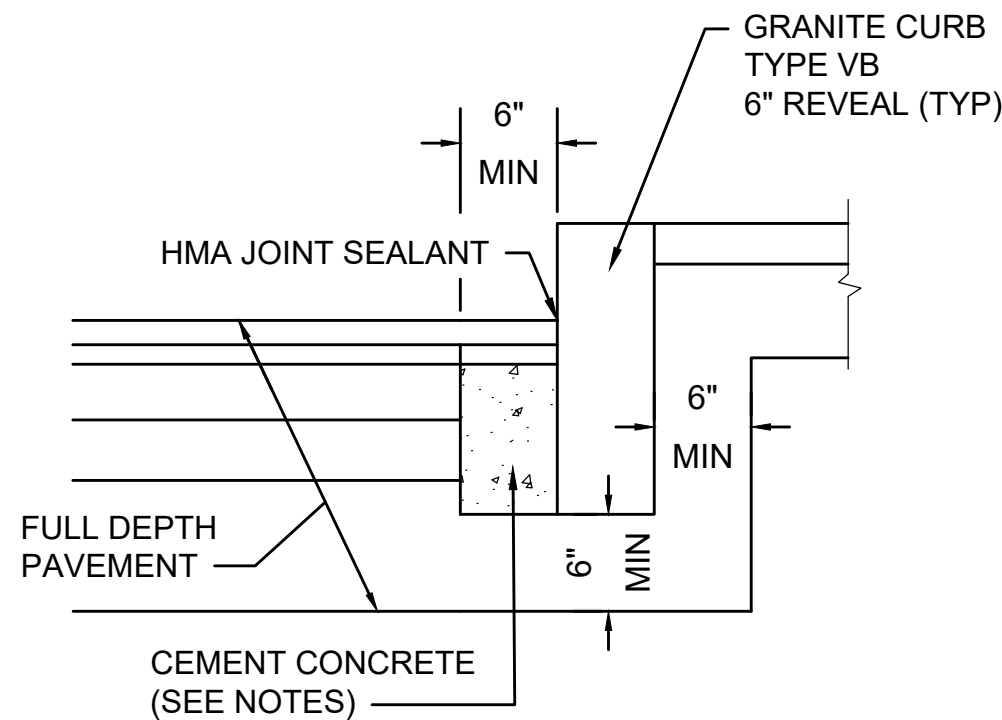
ADVANCE SIGN SCHEMATIC

SCALE: APPROX 1"=150'

TEMPORARY TRAFFIC CONTROL SIGN SUMMARY									
IDENTIFI- CATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			COLOR		
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.	BACK- GROUND	LEGEND	BORDER
MA-R2-10a	48"	36"		AS PER MASSDOT STANDARD			FLUOR- ESCENT ORANGE	BLACK	BLACK
MA-R2-10e	36"	48"					WHITE	BLACK	BLACK
							FLUOR- ESCENT ORANGE		
R4-7b	24"	30"		SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION"; AS AMENDED			WHITE	BLACK	BLACK
R7-1L	12"	18"					WHITE	RED	RED
R7-1R	12"	18"					WHITE	RED	RED
R9-9	24"	12"					WHITE	BLACK	BLACK
R9-11aL	24"	12"					WHITE	BLACK	BLACK
R9-11aR	24"	12"					WHITE	BLACK	BLACK
W1-4L	36"	36"					FLUOR- ESCENT ORANGE	BLACK	BLACK
W1-4R	36"	36"					FLUOR- ESCENT ORANGE	BLACK	BLACK
W5-1	36"	36"					FLUOR- ESCENT ORANGE	BLACK	BLACK
W8-1	36"	36"					FLUOR- ESCENT ORANGE	BLACK	BLACK
W8-3	36"	36"					FLUOR- ESCENT ORANGE	BLACK	BLACK
W8-8	36"	36"					FLUOR- ESCENT ORANGE	BLACK	BLACK
W8-9	36"	36"					FLUOR- ESCENT ORANGE	BLACK	BLACK
W8-15	36"	36"					FLUOR- ESCENT ORANGE	BLACK	BLACK
W20-1c	36"	36"					FLUOR- ESCENT ORANGE	BLACK	BLACK
W20-4c	36"	36"					FLUOR- ESCENT ORANGE	BLACK	BLACK
W20-7	36"	36"					FLUOR- ESCENT ORANGE	BLACK	BLACK

TEMPORARY TRAFFIC CONTROL SIGN SUMMARY								
IDENTIFI- CATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			COLOR	
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.	BACK- GROUND	LEGEND
MA-W20-7b	36"	36"		AS PER MASSDOT STANDARD			FLUOR- ESCENT ORANGE	BLACK
W21-7	36"	36"		SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION"; AS AMENDED			FLUOR- ESCENT ORANGE	BLACK
W21-5aR	36"	36"					FLUOR- ESCENT ORANGE	BLACK
W21-5bR	36"	36"					FLUOR- ESCENT ORANGE	BLACK
M4-9bL	30"	24"					FLUOR- ESCENT ORANGE	BLACK
M4-9bR	30"	24"					FLUOR- ESCENT ORANGE	BLACK
M4-9bSL	30"	24"					FLUOR- ESCENT ORANGE	BLACK
M4-9bSR	30"	24"					FLUOR- ESCENT ORANGE	BLACK
W8-24	36"	36"					FLUOR- ESCENT ORANGE	BLACK
W13-1p(XX)	24"	24"	SEE NOTE 3 				FLUOR- ESCENT ORANGE	BLACK

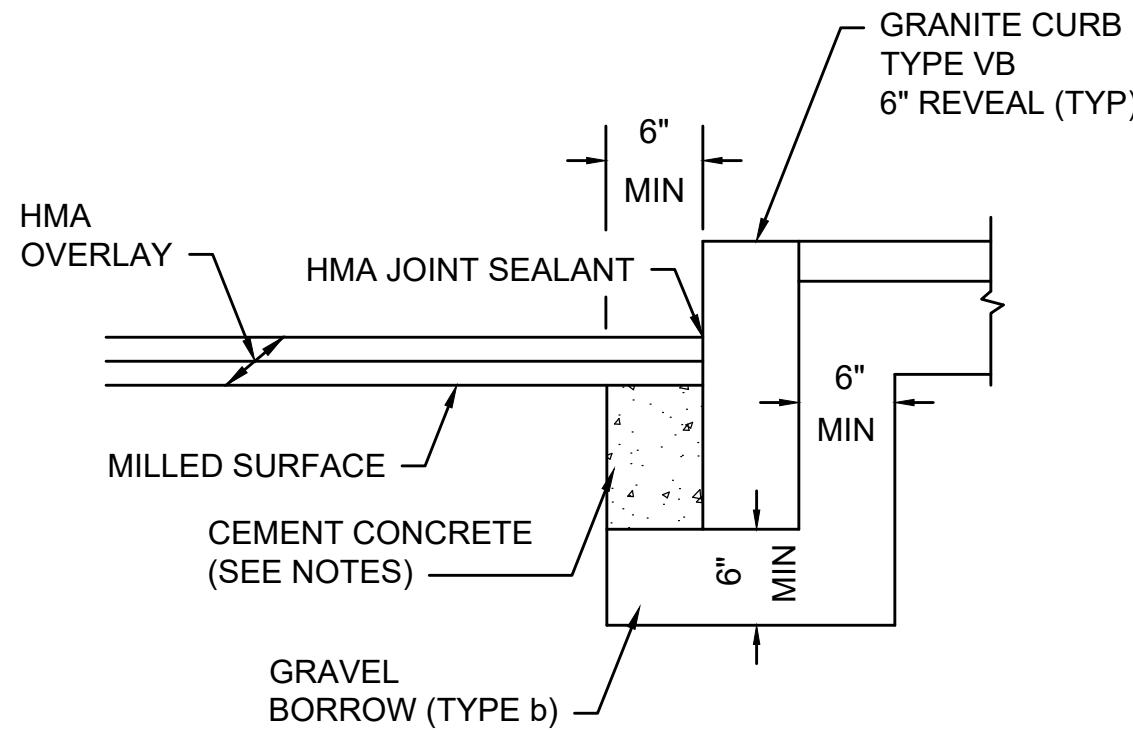
- NOTES:
1. HIGH INTENSITY REFLECTIVE SHEETING SHALL BE USED FOR ALL SIGNS. SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION" FOR TEXT DIMENSIONS, AS AMENDED; THE 1977 MASSHIGHWAY DEPARTMENT CONSTRUCTION AND TRAFFIC STANDARD DETAILS, AS AMENDED, FOR SIGNS AND SUPPORTS; THE MASSHIGHWAY DEPARTMENT SIGN LISTINGS 1993 EDITION, AS AMENDED; THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR MOUNTING REQUIREMENTS; AND THE 2017 MASSDOT STANDARD SIGNS BOOK, AS AMENDED.
 2. ALL SIGNS SHOWN GRAPHICALLY FOR INFORMATION ONLY. SIGN VENDOR SHALL FABRICATE ALL SIGNS IN ACCORDANCE WITH THE APPLICABLE STANDARDS.
 3. REFER TO GENERAL NOTE 14 ON TTCP GENERAL NOTES AND LEGEND SHEET FOR SPEED LIMIT INFORMATION.



- NOTES:
1. TO BE PLACED IF CURB IS INSTALLED AFTER HOT MIX ASPHALT
 2. CONCRETE SHALL BE INCLUDED IN PRICE BID FOR GRANITE CURB
 3. ANY DESIGNATED CEMENT CONCRETE THAT IS ACCEPTABLE UNDER SECTION M4 OF THE STANDARD SPECIFICATIONS MAY BE USED. ALL TEST REQUIREMENTS ARE WAIVED. HOT MIX ASPHALT SHALL NOT BE USED AS A SUBSTITUTE.

GRANITE CURB IN FULL DEPTH PAVEMENT

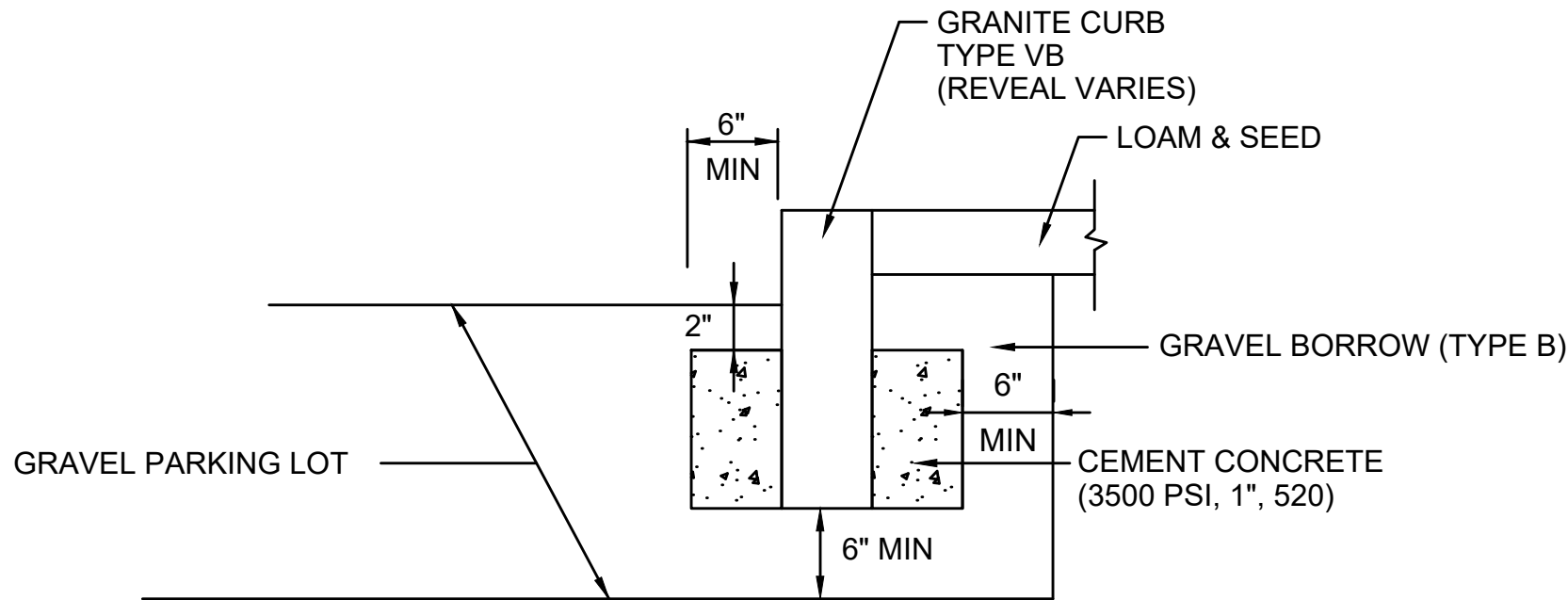
SCALE: N.T.S.



- NOTES:
1. CONCRETE SHALL BE INCLUDED IN PRICE BID FOR GRANITE CURB.
 2. ANY DESIGNATED CEMENT CONCRETE THAT IS ACCEPTABLE UNDER SECTION M4 OF THE STANDARD SPECIFICATIONS MAY BE USED. ALL TEST REQUIREMENTS ARE WAIVED. HOT MIX ASPHALT SHALL NOT BE USED AS A SUBSTITUTE.

GRANITE CURB IN MILL & OVERLAY

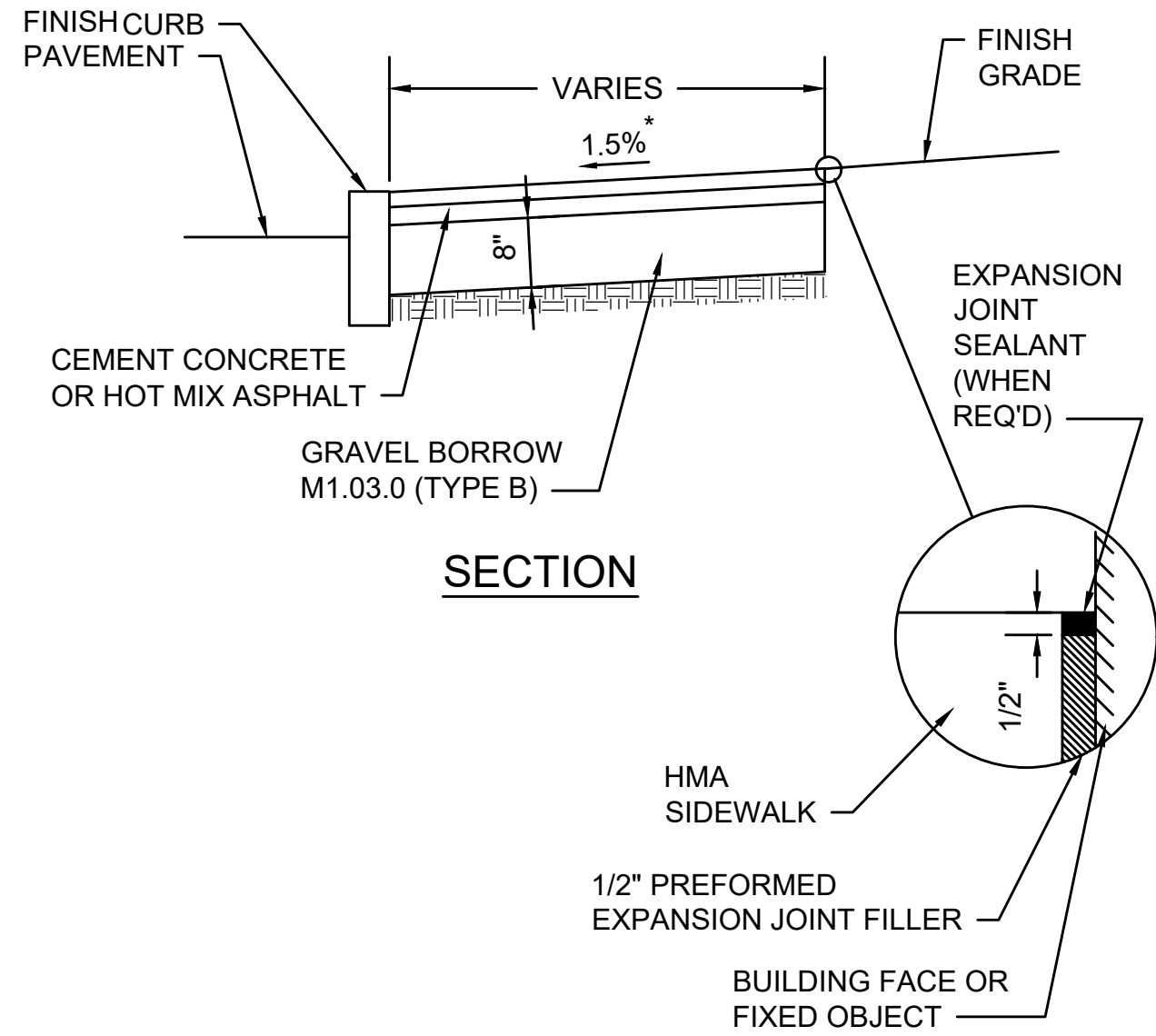
SCALE: N.T.S.



- NOTES:
1. CONCRETE SHALL BE INCLUDED IN PRICE BID FOR GRANITE CURB
 2. ANY DESIGNATED CEMENT CONCRETE THAT IS ACCEPTABLE UNDER SECTION M4 OF THE STANDARD SPECIFICATIONS MAY BE USED. ALL TEST REQUIREMENTS ARE WAIVED. HOT MIX ASPHALT SHALL NOT BE USED AS A SUBSTITUTE.

GRANITE CURB IN GRAVEL PARKING LOT

SCALE: N.T.S.



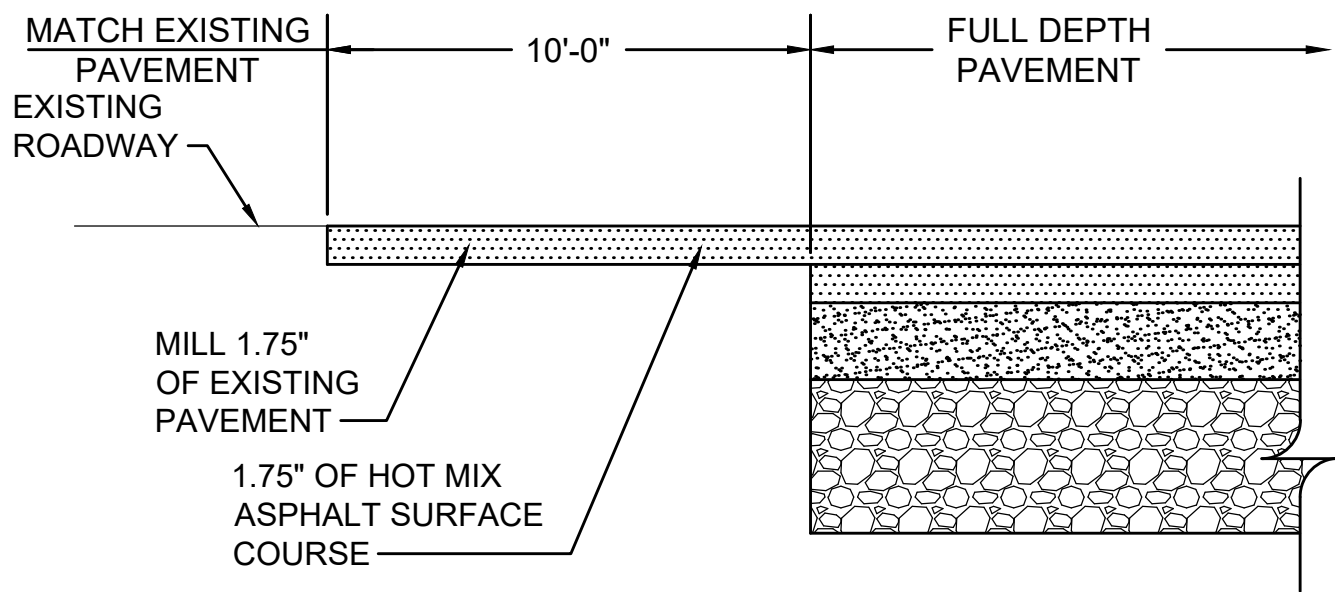
* TOLERANCE FOR CONSTRUCTION ±0.5%

SIDEWALK

SCALE: N.T.S.

DWG: WALK-01

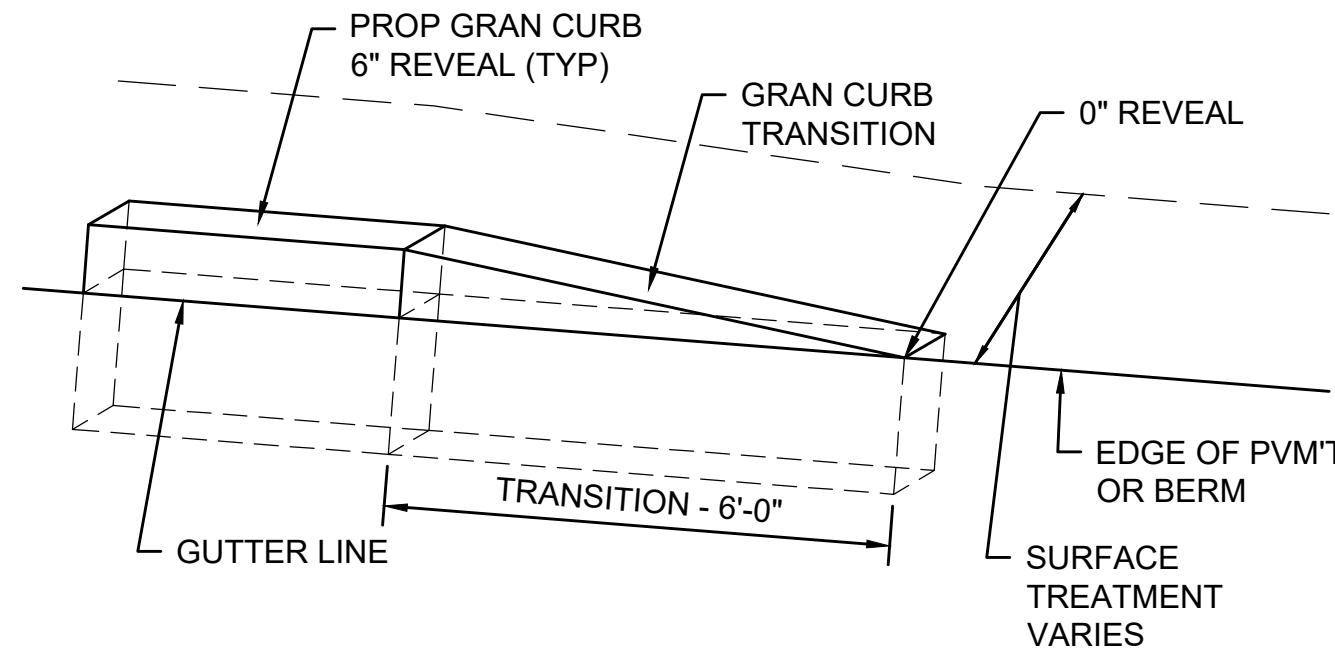
DATE: MARCH 2013



LONGITUDINAL SECTION

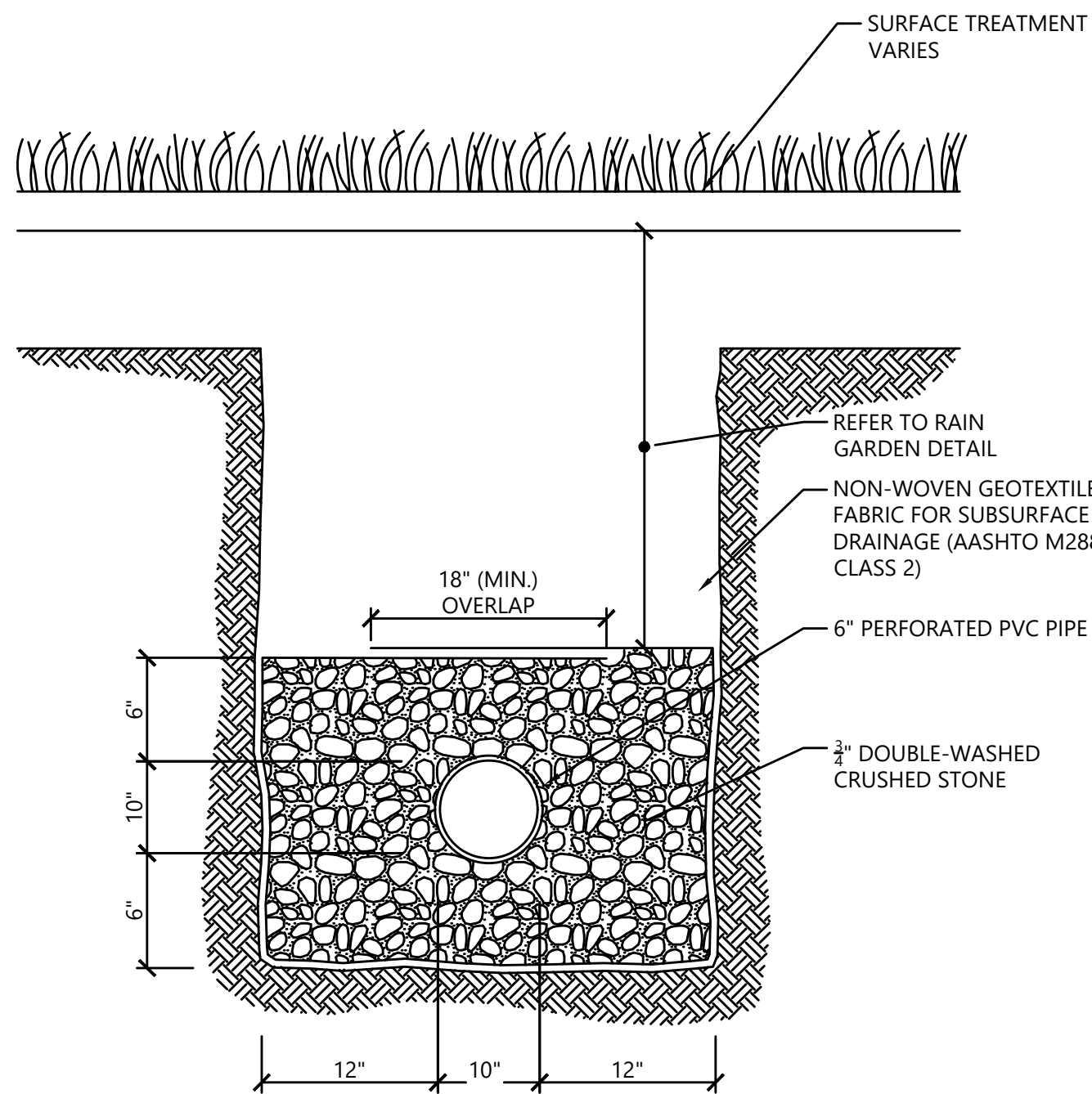
FULL DEPTH PAVEMENT TRANSITION

SCALE: N.T.S.



GRANITE CURB TRANSITION PIECE

SCALE: N.T.S.

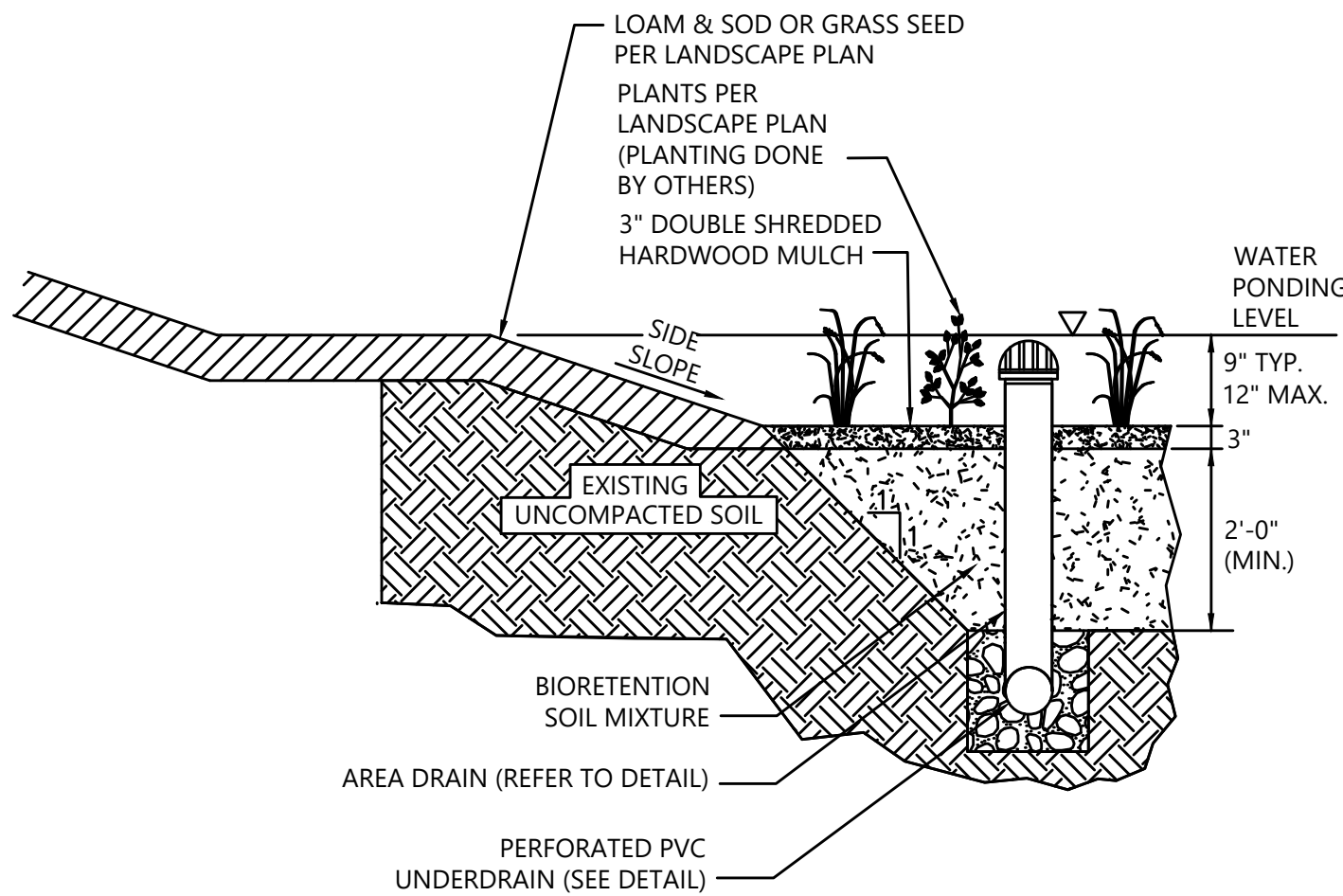


UNDERDRAIN (UD)

SCALE: N.T.S.

SOURCE: VHB

DATE: FEBRUARY 2021



NOTES:

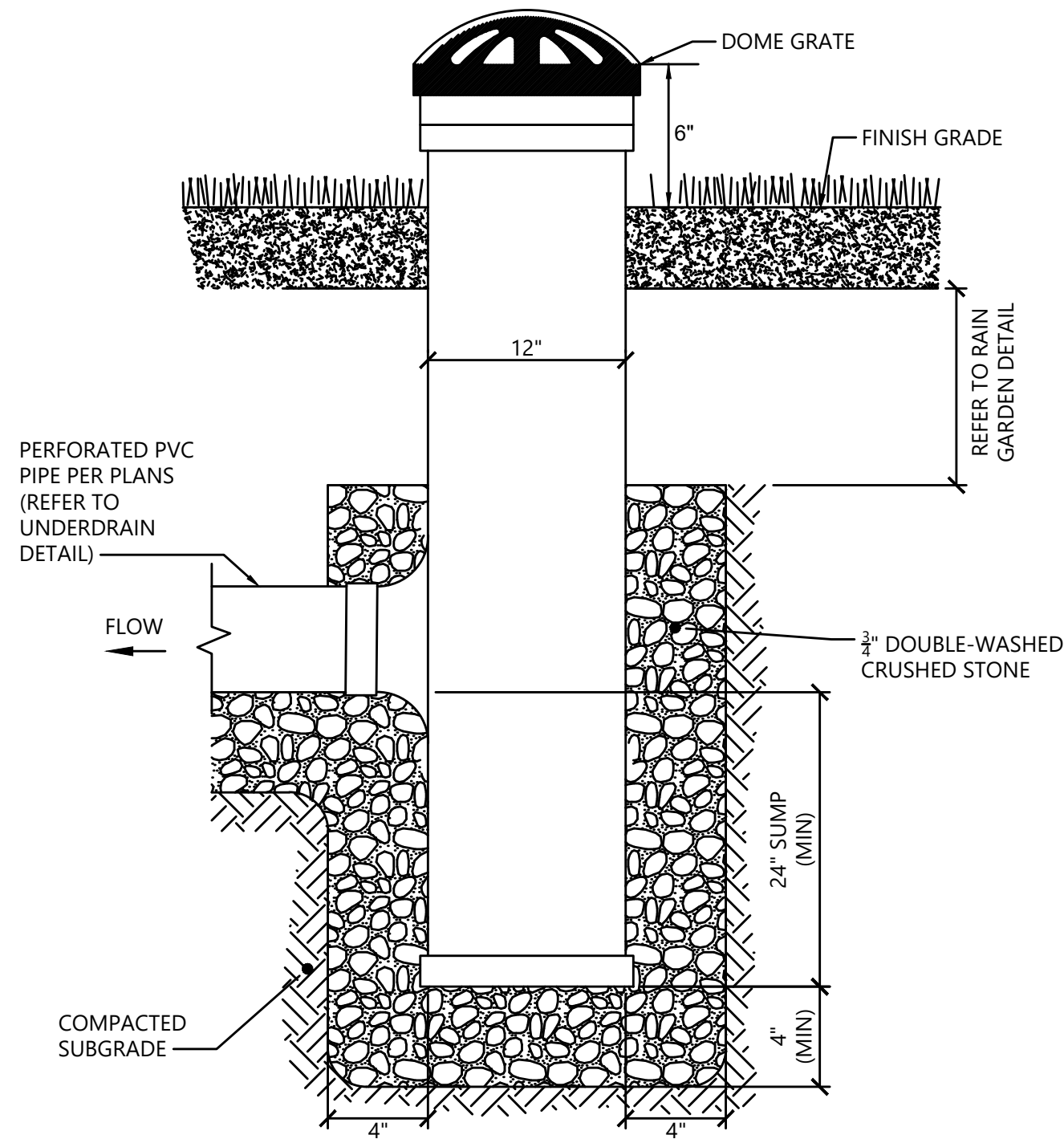
1. SIDE SLOPES SHALL BE 3:1 MAX, 2% MIN.
2. SEE GRADING AND DRAINAGE PLAN FOR LOCATIONS AND INVERTS OF OVERFLOW OUTLETS AND UNDERDRAIN CONNECTIONS.

RAIN GARDEN WITH UNDERDRAIN

SCALE: N.T.S.

SOURCE: VHB

DATE: FEBRUARY 2021



NOTES:

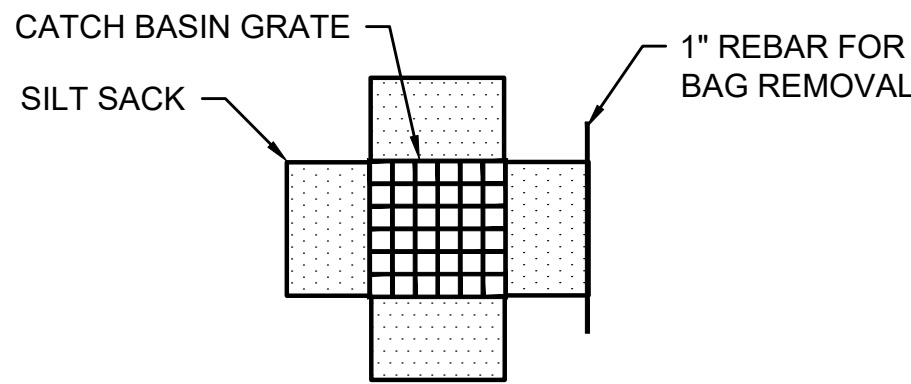
1. AREA DRAINS SHALL BE NYLOPLAST 12" DRAIN BASIN, OR APPROVED EQUAL.
2. GRATES SHALL BE NYLOPLAST, 12" DOME GRATE MODEL 1299CGD, OR APPROVED EQUAL AS SHOWN ON PLANS.

AREA DRAIN (AD)

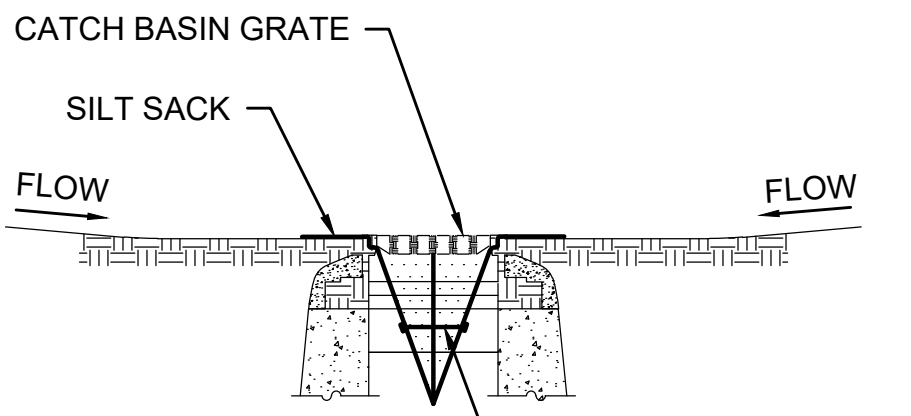
SCALE: N.T.S.

SOURCE: VHB

DATE: FEBRUARY 2021



PLAN VIEW



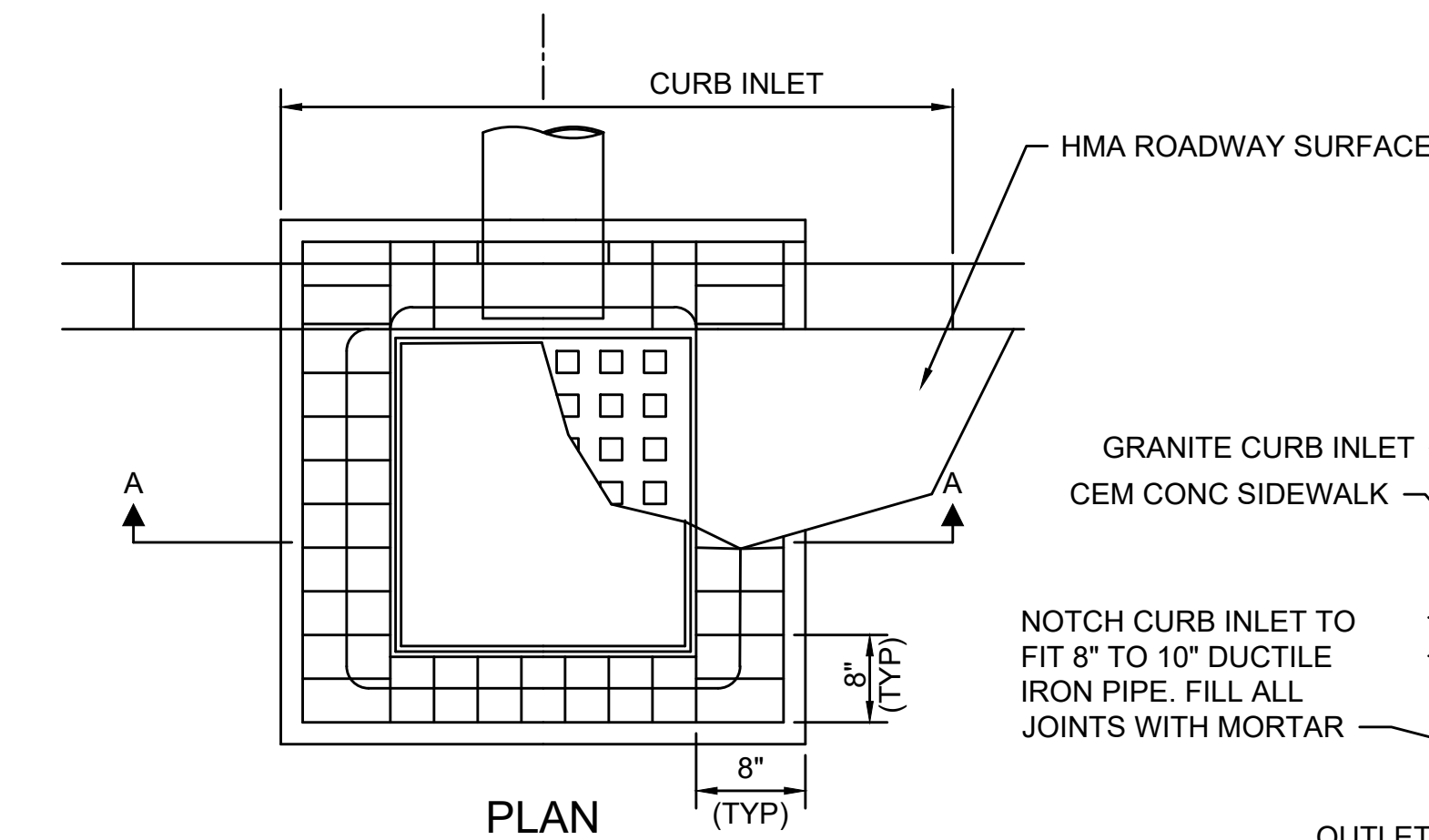
SECTION VIEW

NOTES:

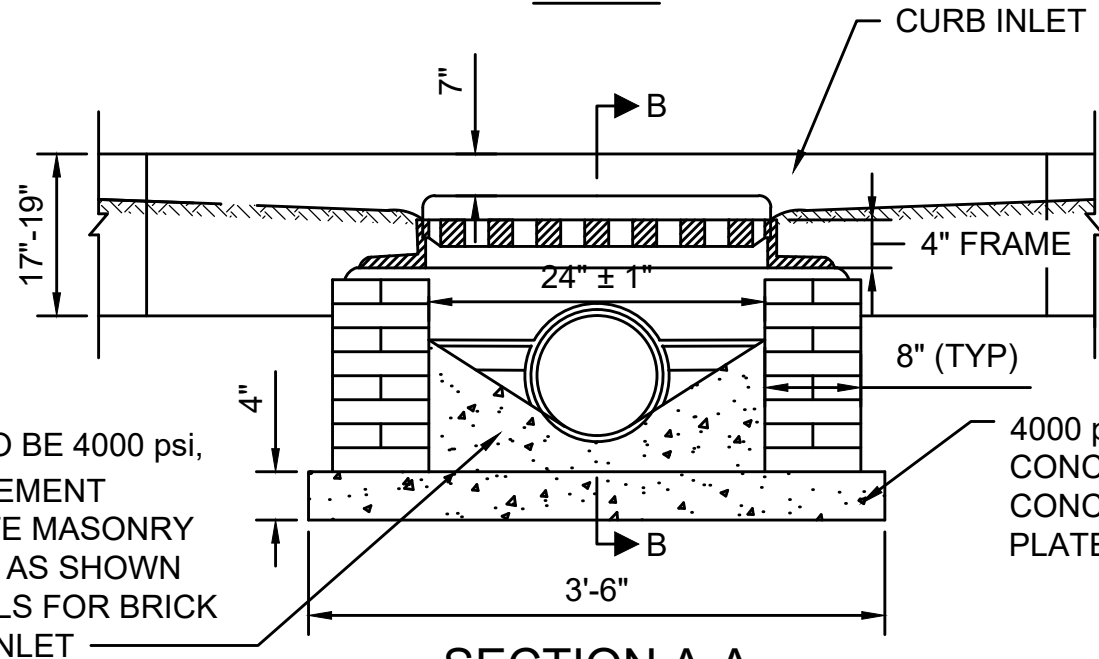
1. INSTALL SILT SACK IN EXISTING CATCH BASINS, BEFORE COMMENCING WORK, AND IN NEW CATCH BASINS IMMEDIATELY AFTER INSTALLATION OF STRUCTURE. MAINTAIN UNTIL BINDER COURSE PAVING IS COMPLETE OR A PERMANENT STAND OF GRASS HAS BEEN ESTABLISHED.
2. GRATE TO BE PLACED OVER SILT SACK.
3. SILT SACK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED

**INLET PROTECTION - SILT SACK
IN CATCH BASIN**

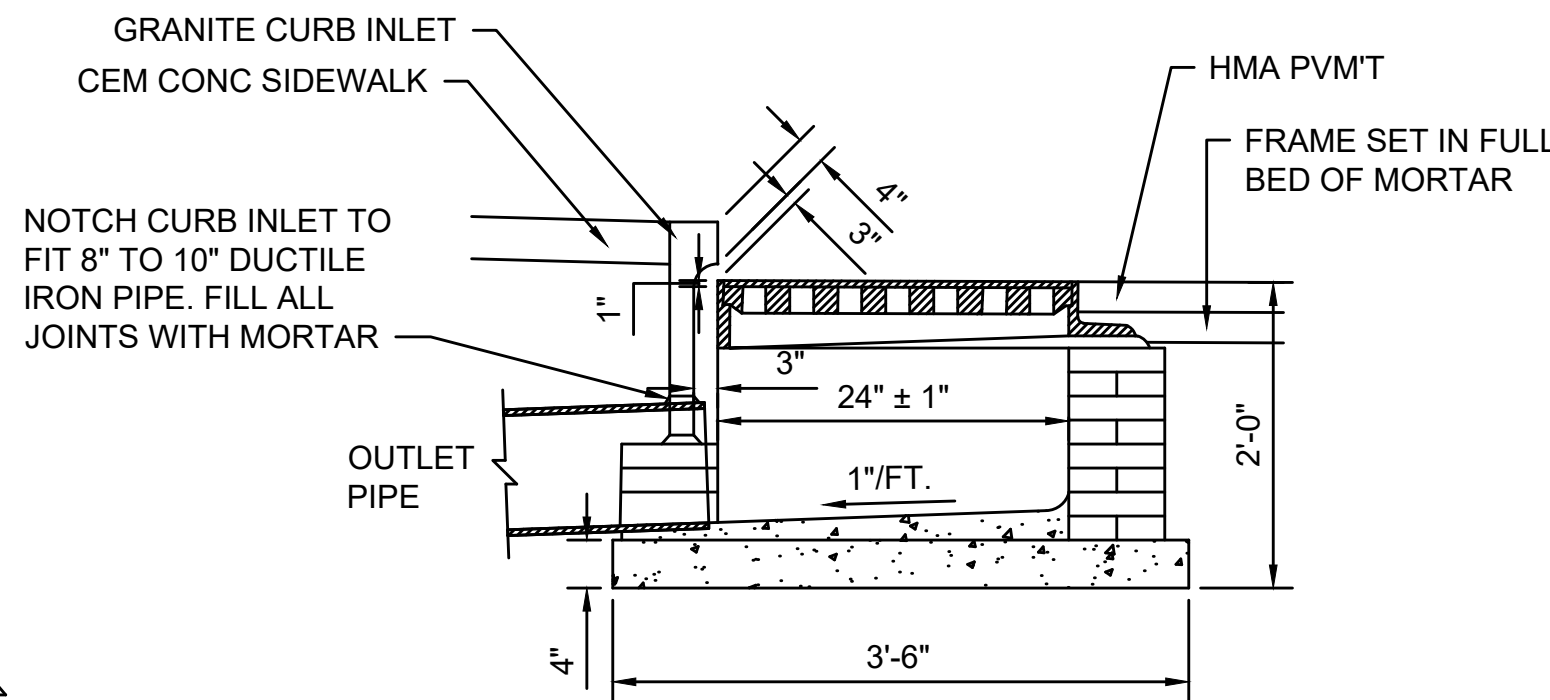
SCALE: N.T.S.



PLAN



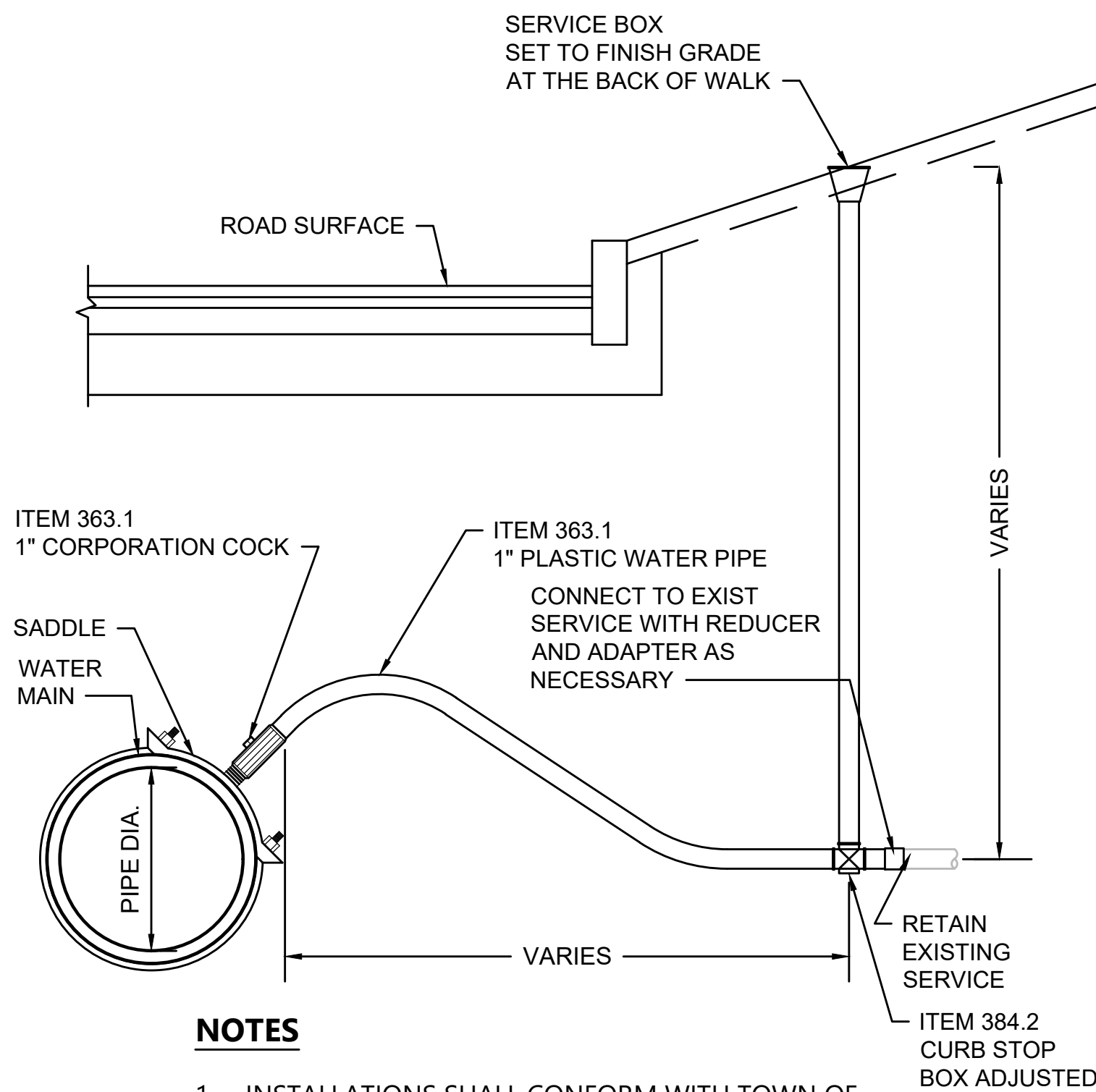
SECTION A-A



SECTION B-B

GUTTER INLET - SPECIAL

SCALE: N.T.S.

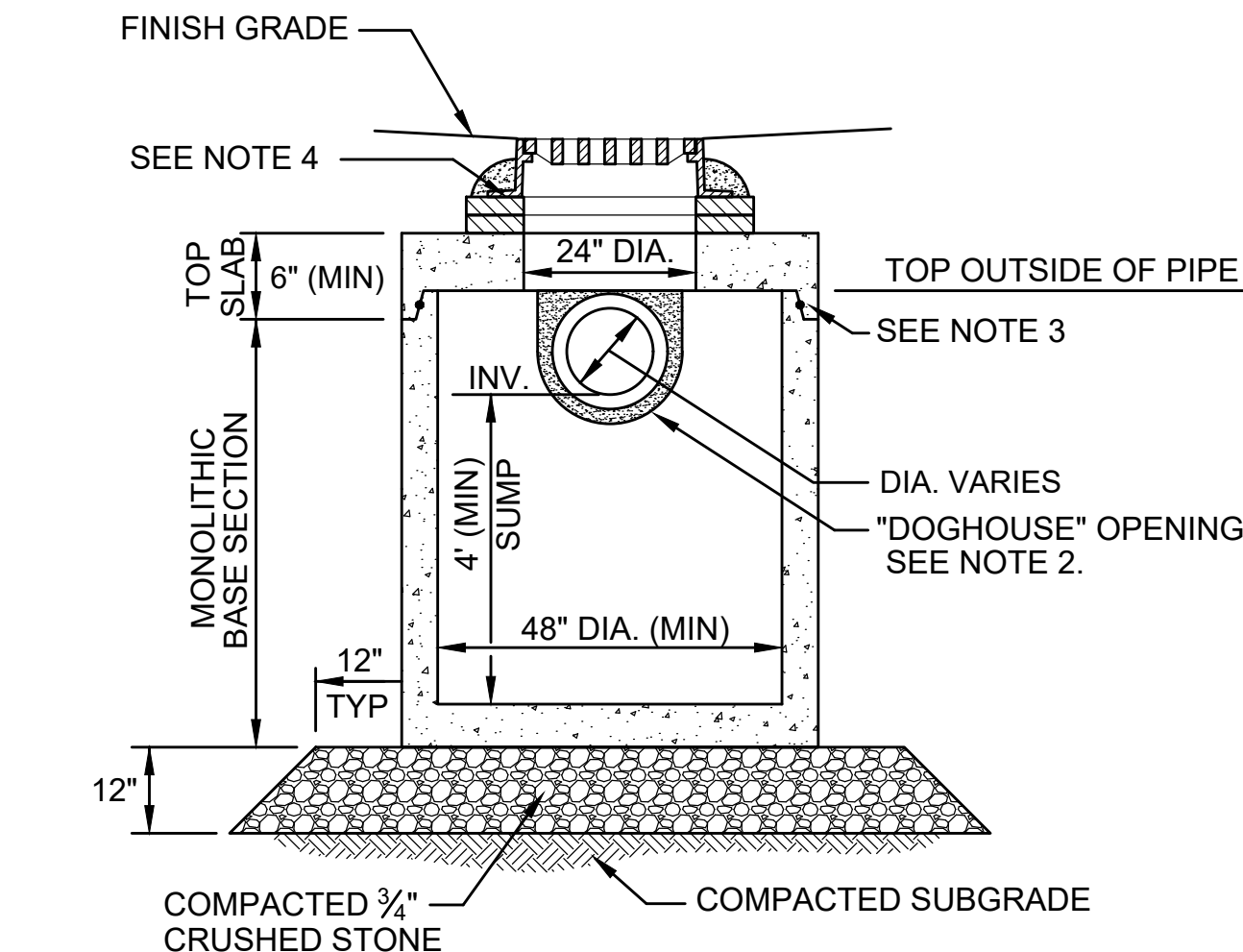


NOTES

1. INSTALLATIONS SHALL CONFORM WITH TOWN OF SOUTHBOROUGH WATER DEPARTMENT SPECIFICATIONS AND STANDARDS.

WATER SERVICE

SCALE: N.T.S.

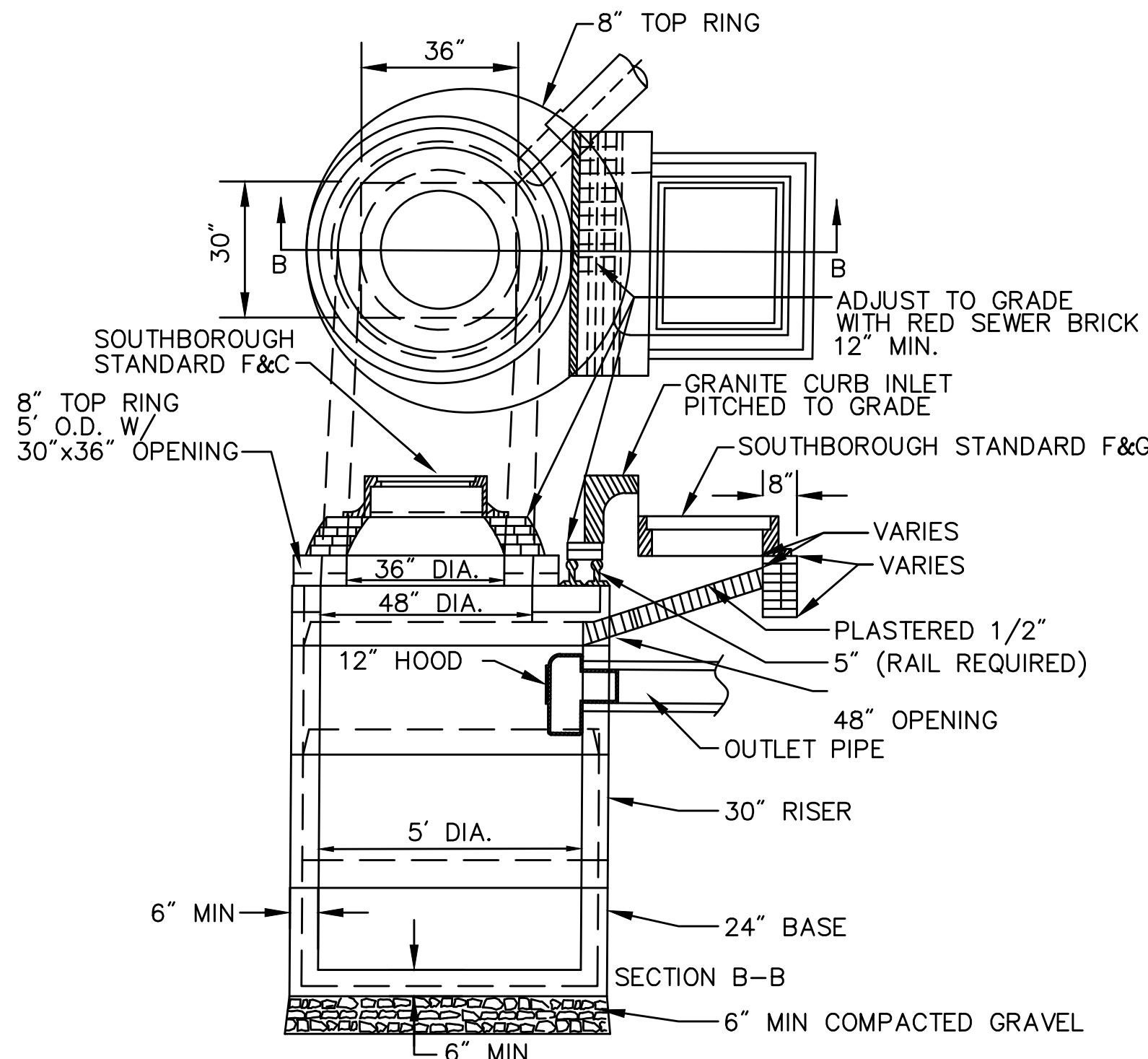


CONSTRUCTION NOTES:

1. ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING.
2. PROVIDE DOGHOUSE OPENING FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. TOP SLAB SHALL NOT REST DIRECTLY ON PIPE. GROUT ALL PIPE CONNECTIONS (NON-SHRINK GROUT).
3. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
4. CATCH BASIN FRAME AND GRATE (8"DEPTH) SHALL BE SET IN FULL MORTAR BED.
5. ADJUST TO FINISH GRADE WITH CLAY BRICK AND MORTAR AS REQUIRED.

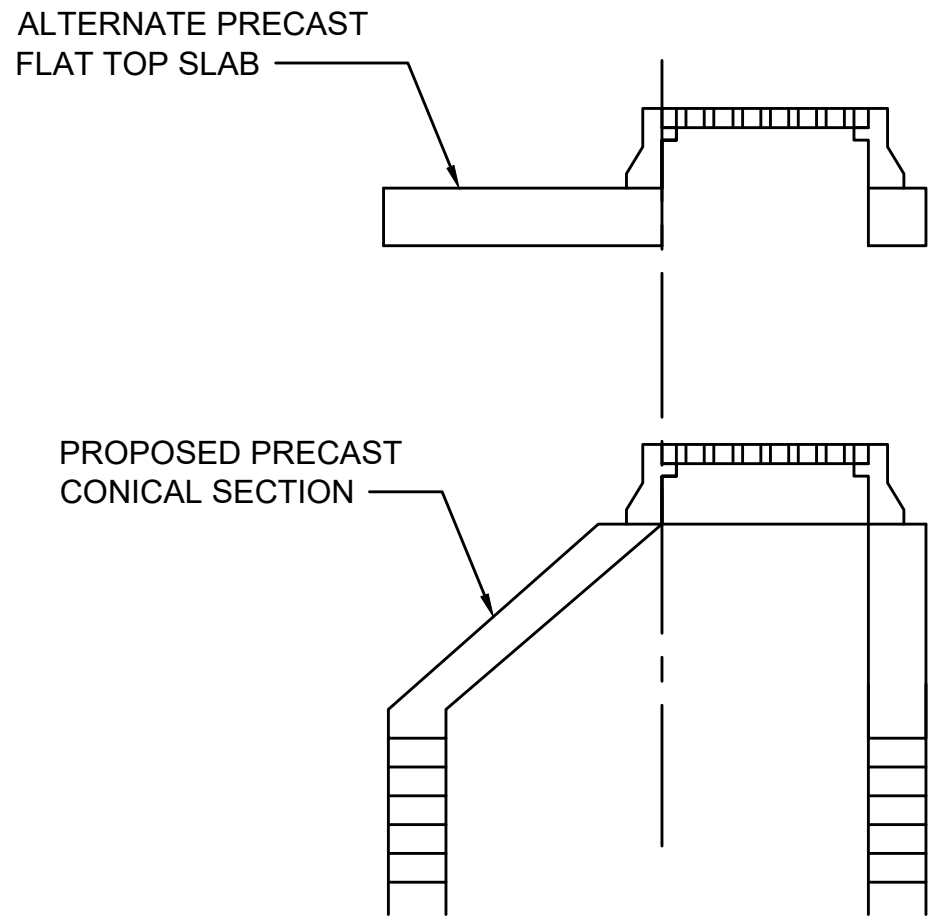
SHALLOW COVER DRAINAGE STRUCTURE

SCALE: N.T.S.



ALTERNATIVE CATCH BASIN (SP CBCI)

SCALE: N.T.S.



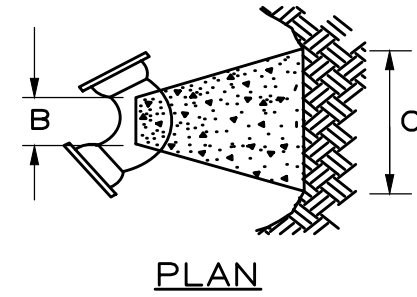
NOTE:

BASED ON ACTUAL FIELD CONDITIONS; THE CONTRACTORS SHALL DETERMINE WHICH STYLE OF TOP SECTION SHOULD BE USED.

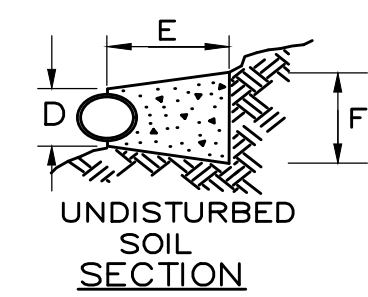
CATCH BASIN WITH ECCENTRIC CONE SECTION

SCALE: N.T.S.

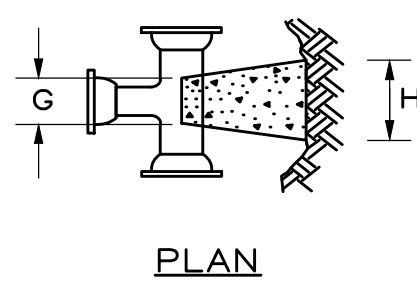
BENDS						BENDS					
	B	C	D	E	F		B	C	D	E	F
6"	11-1/4"	8"	15"	12"	24"	12"	6"	45"	8"	30"	12"
6"	22-1/2"	"	19"	"	13"	6"	"	90"	"	24"	14"
8"	11-1/4"	"	20"	"	13"	8"	"	30"	"	"	27"
8"	22-1/2"	"	22"	"	17"	8"	"	40"	"	"	24"
12"	11-1/4"	"	30"	"	15"	12"	"	45"	"	"	36"
12"	22-1/2"	"	35"	"	25"	12"	"	60"	"	"	40"
											52"
TEES						TEES					
	G	H	I	J			G	H	I	J	
6"x 6"x 6"	12"	24"	24"	18"		12"x12"x6"	12"	24"	24"	12"	
8"x 8"x 6"	"	"	"	"		12"x12"x8"	"	"	"	24"	
8"x 8"x 8"	"	"	"	24"		12"x12"x12"	"	36"	"	36"	



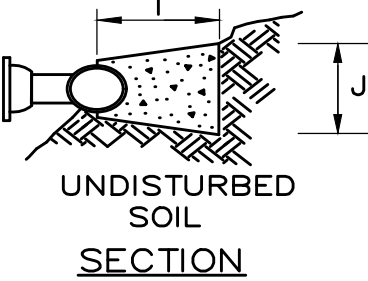
PLAN



UNDISTURBED SOIL SECTION



PLAN



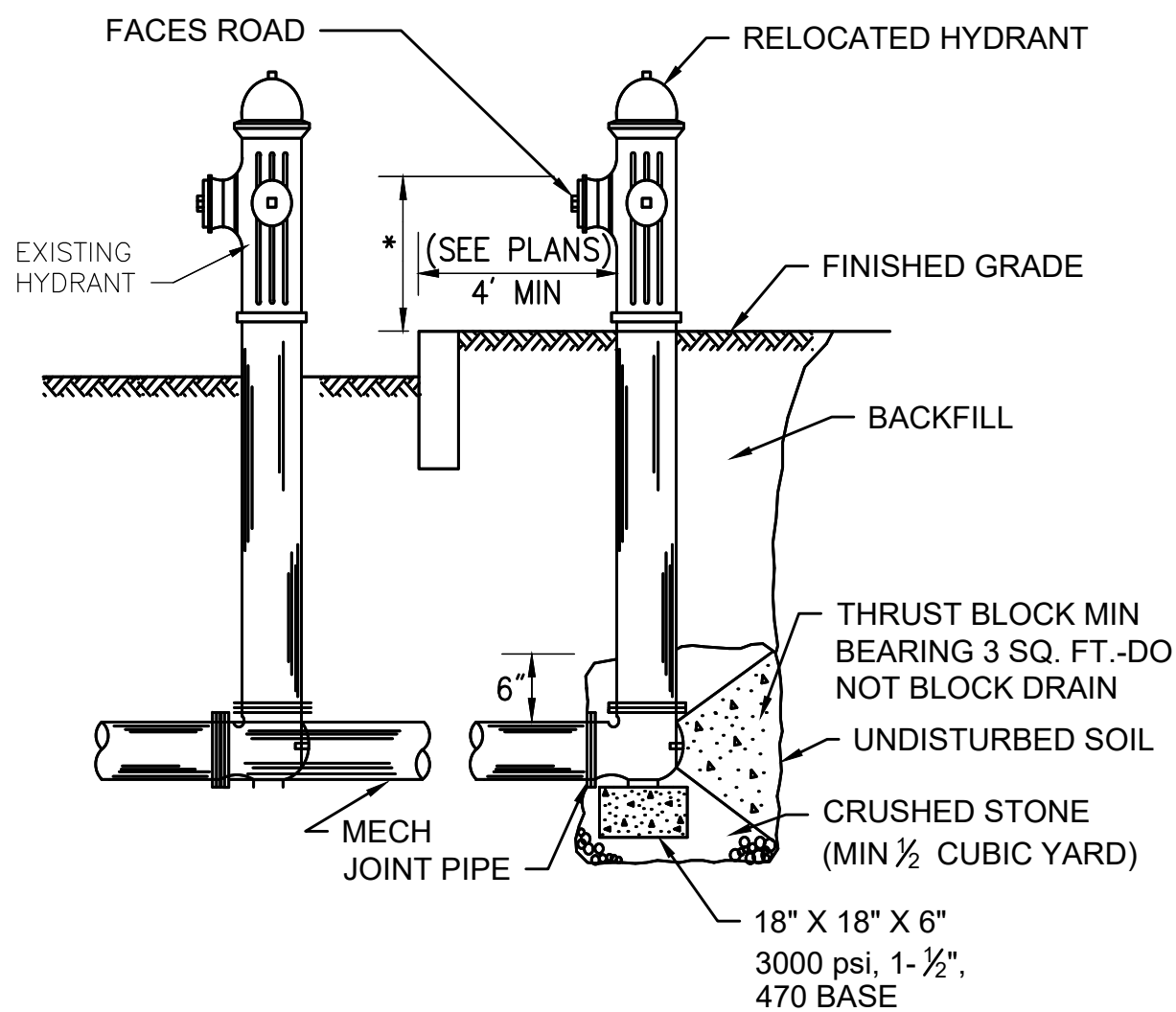
UNDISTURBED SOIL SECTION

NOTES:

1. PROVIDE BLOCKS FOR TAPPING SLEEVES, DEAD ENDS, GATE VALVES AND VERTICAL BENDS, SAME SIZE AS REQUIRED FOR TEES.
2. PROVIDE ANCHOR RODS AT VERTICAL BENDS AND GATE VALVES
3. CONCRETE SHALL NOT BE PLACED AGAINST PIPE BEYOND FITTING.

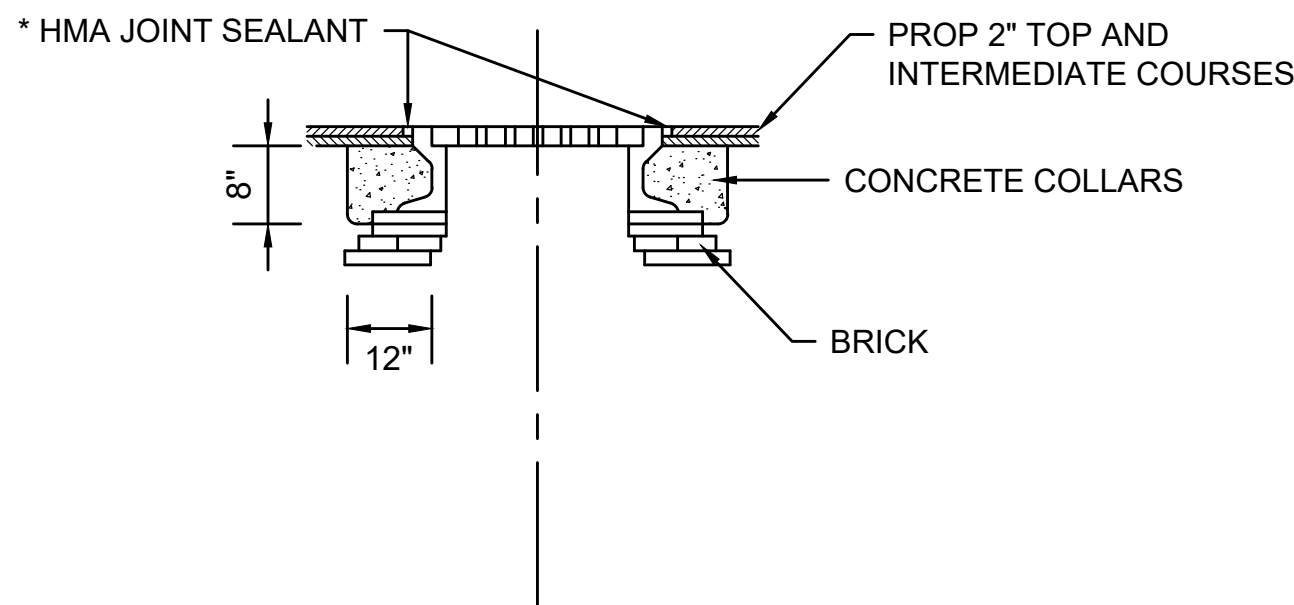
CONCRETE THRUST BLOCK

SCALE: NTS



HYDRANT RELOCATION

SCALE: NTS

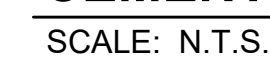
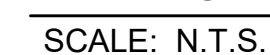


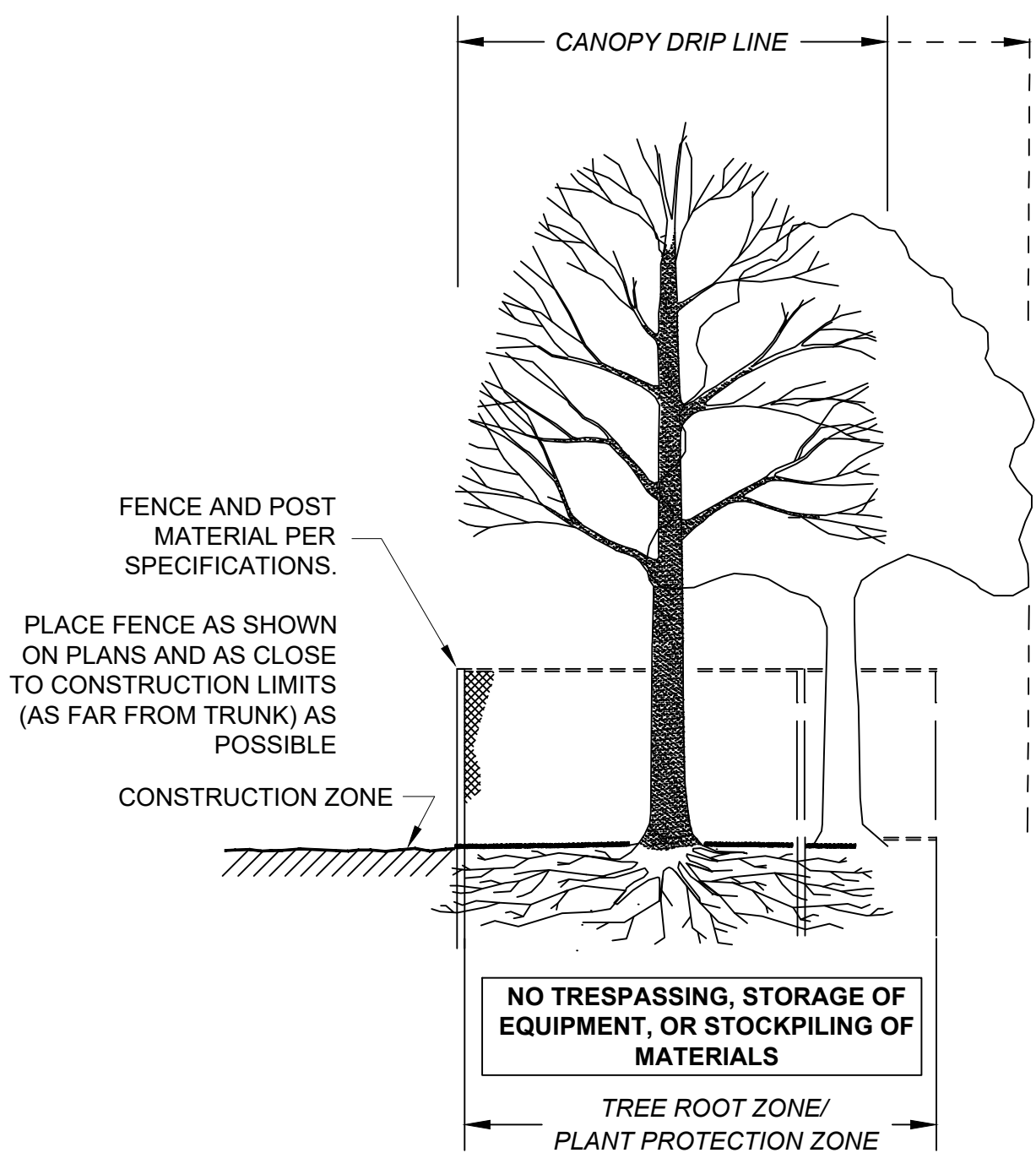
NOTE:

- * PRIOR TO PLACING HMA TOP COURSE APPLY HMA JOINT SEALANT AROUND OUTSIDE PERIMETER OF ALL CASTINGS.

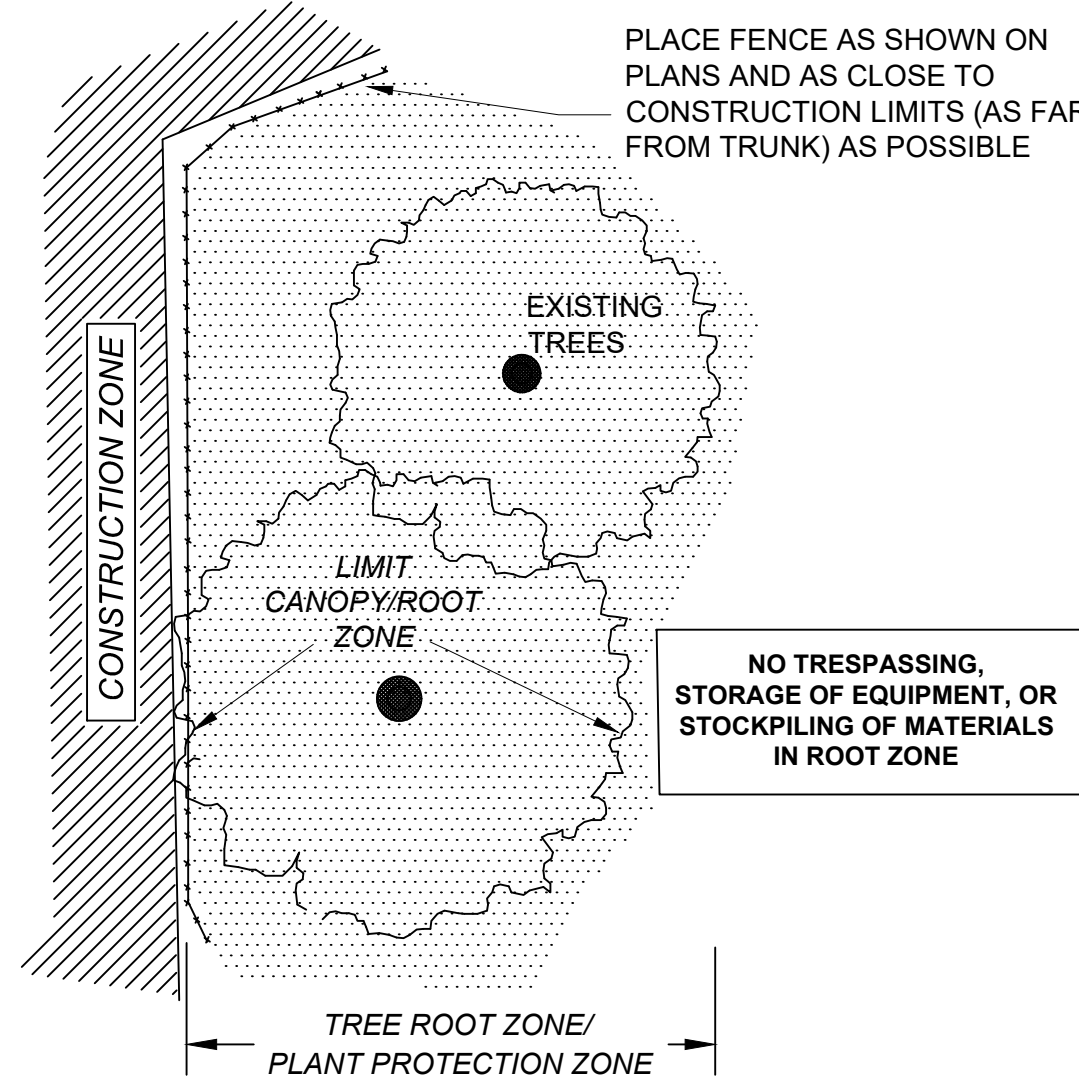
CAST IRON FRAME DETAIL

SCALE: N.T.S.

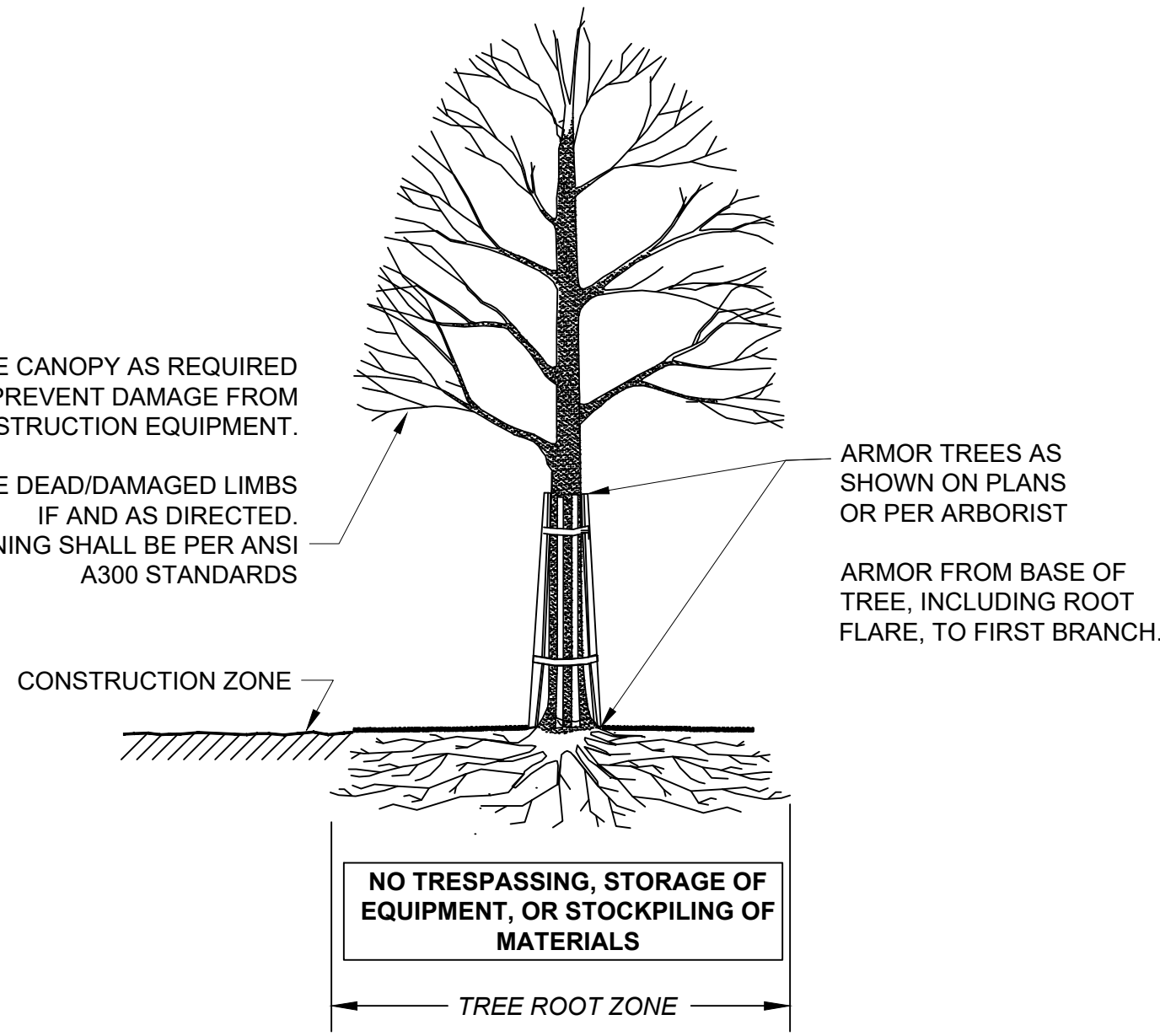




SECTION - FENCE PROTECTION OF ROOT ZONE



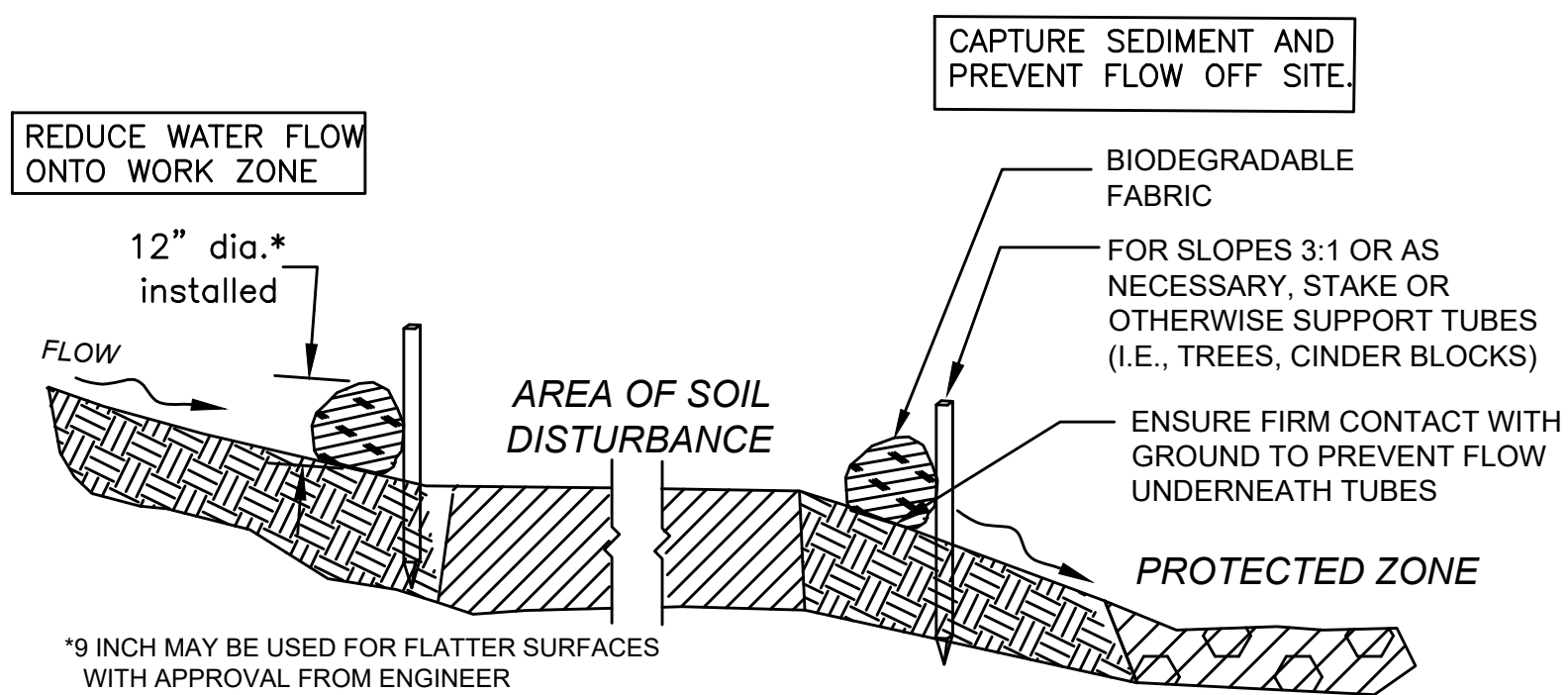
PLAN VIEW - FENCE PROTECTION OF ROOT ZONE



SECTION - TRUNK ARMORING & PRUNING

TREE PROTECTION DETAILS

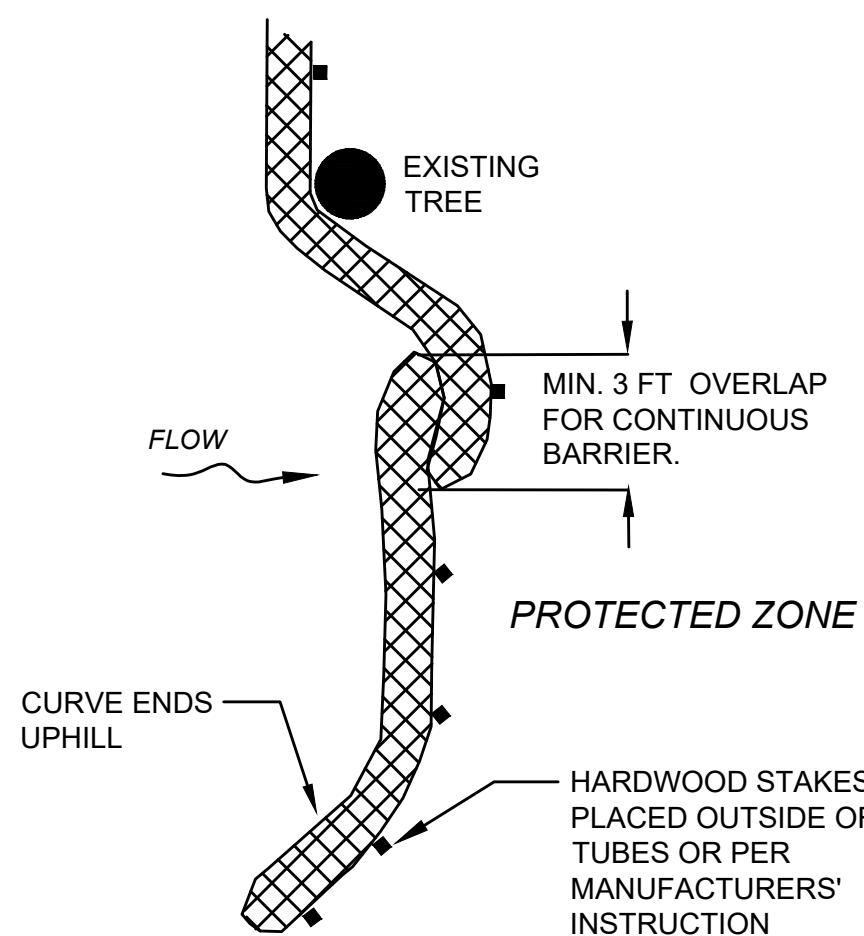
NOT TO SCALE



SECTION

SEDIMENT BARRIERS - COMPOST FILTER TUBES

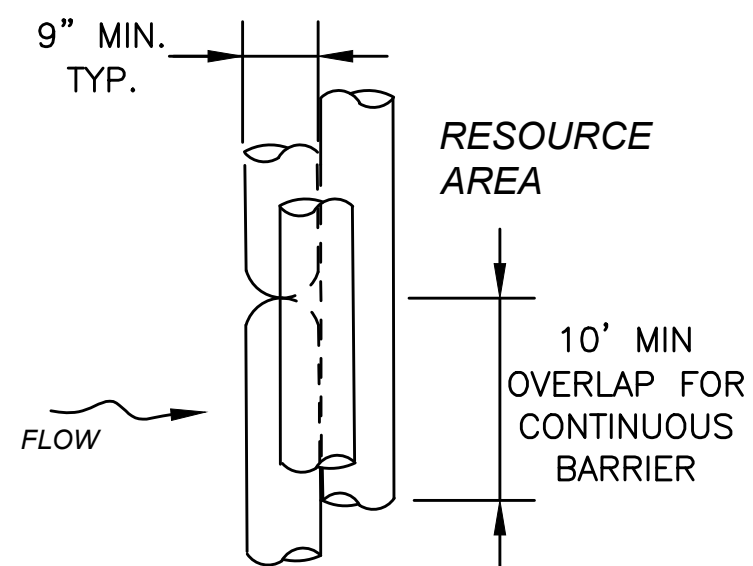
NOT TO SCALE



PLAN VIEW

SEDIMENT BARRIERS

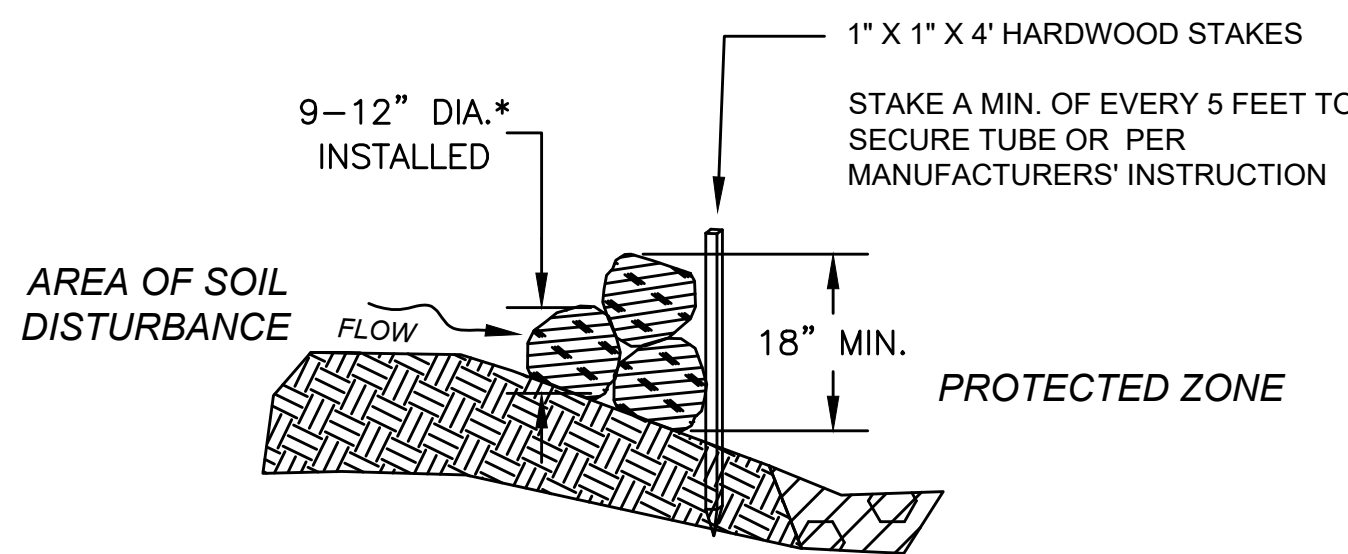
NOT TO SCALE



PLAN VIEW

COMPOST FILTER TUBE BERM (SLOPES 2:1 OR STEEPER)

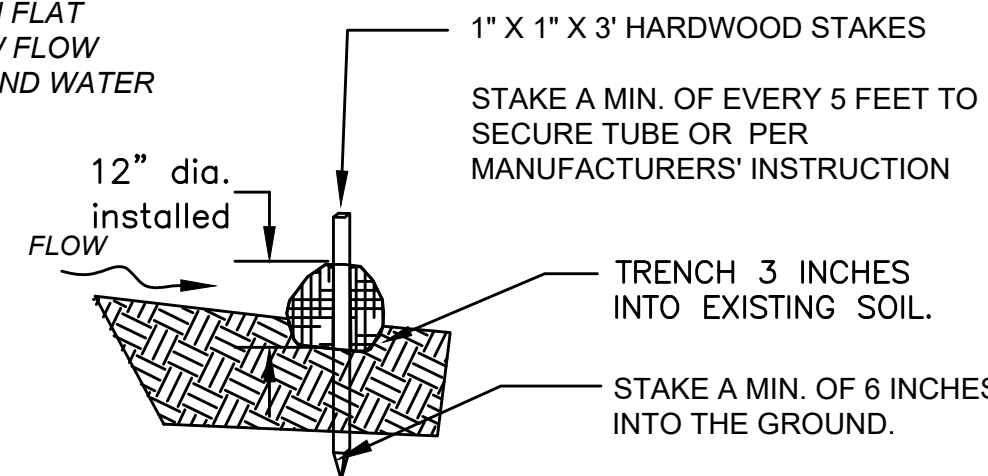
NOT TO SCALE



SECTION

12 INCH STRAW WATTLE

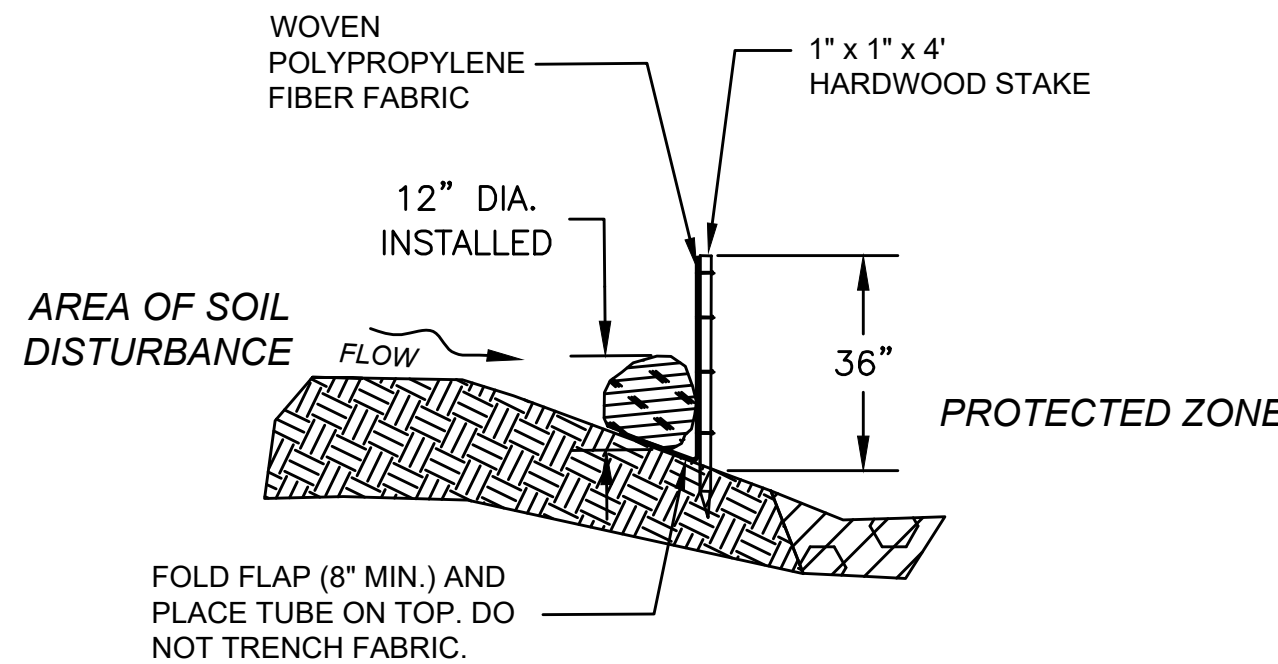
TO BE USED ONLY ON FLAT SURFACES WITH LOW FLOW TO DIVERT OR IMPOUND WATER FLOW



SECTION

SEDIMENT BARRIERS - STRAW WATTLE

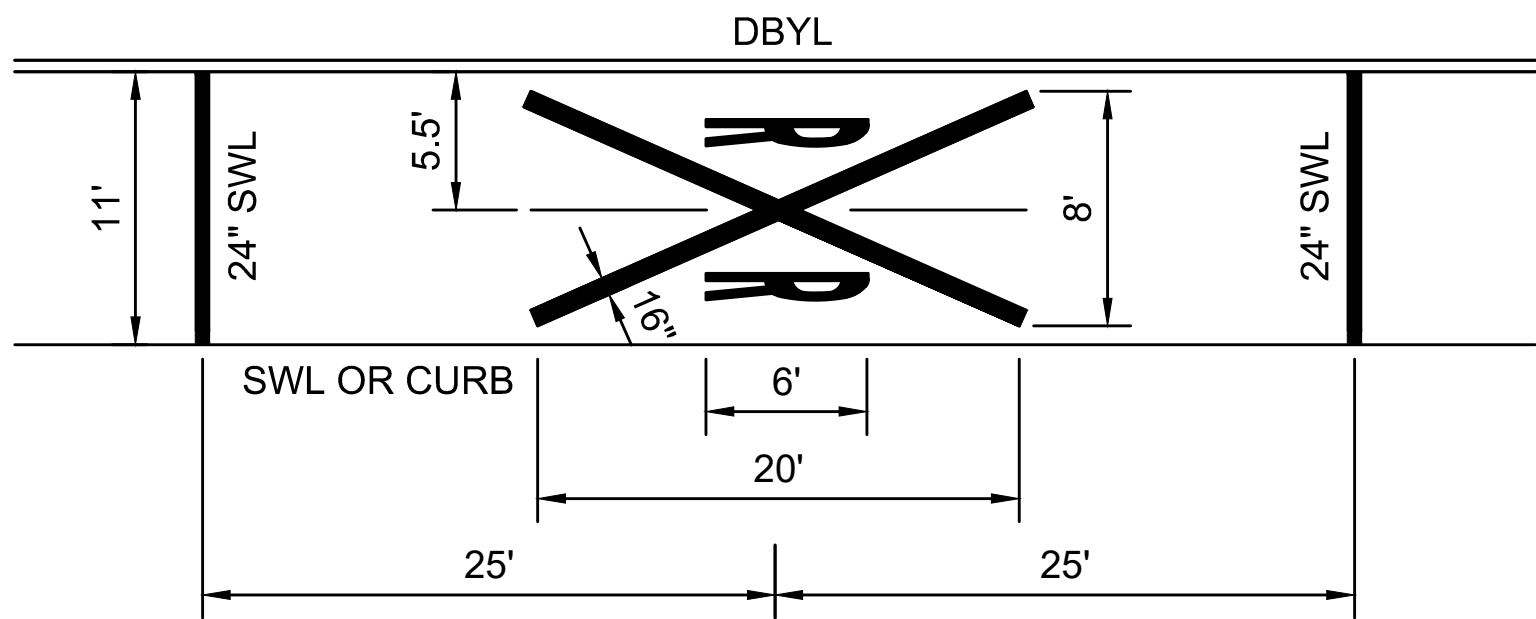
NOT TO SCALE



SECTION

COMPOST FILTER TUBE & SILT FENCE

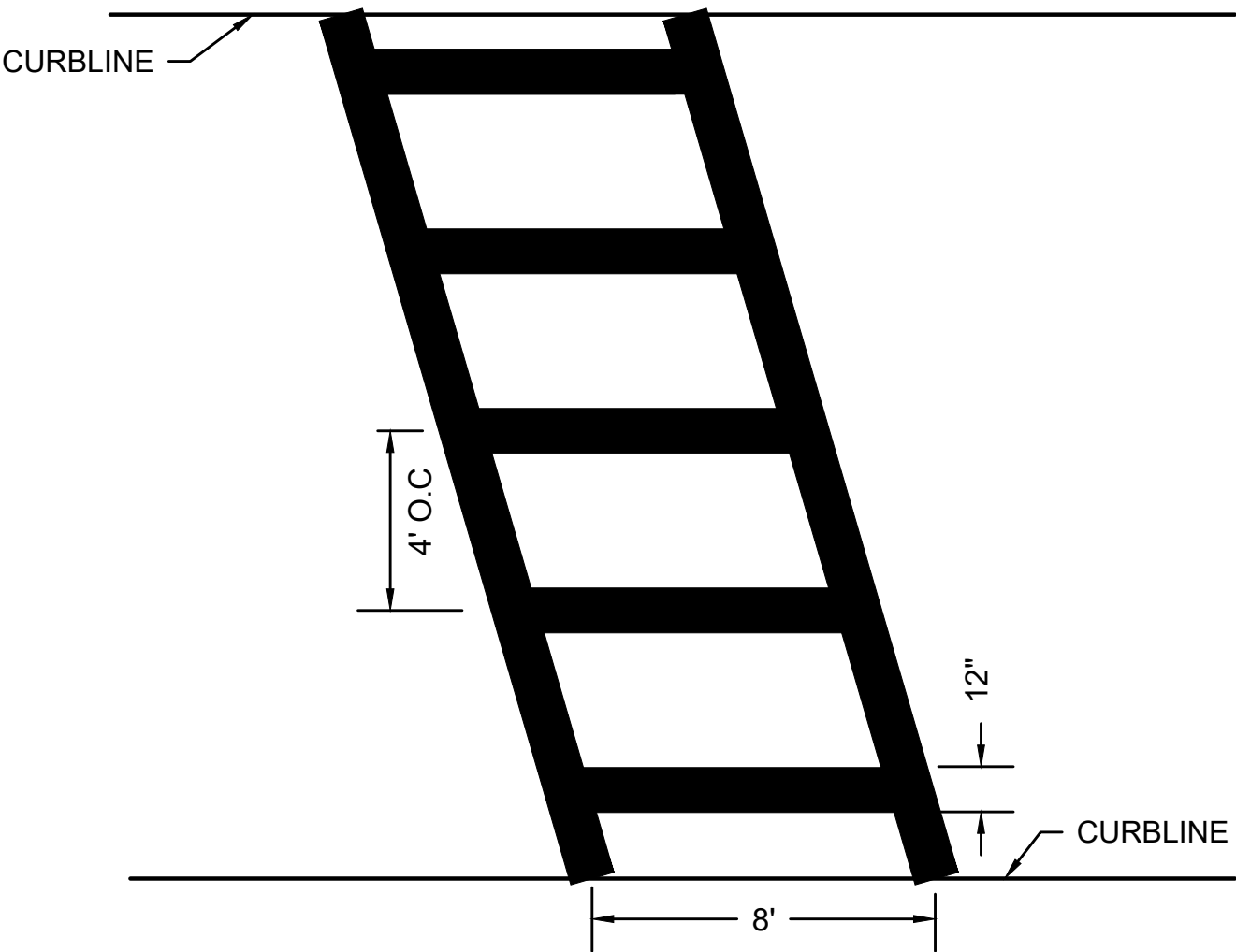
NOT TO SCALE



NOTE:
REFER TO STANDARD ALPHABET FOR HIGHWAY SIGNS AND MARKINGS
FOR R x R SYMBOL DETAILS.

**RR CROSSING PAVEMENT
MARKING DETAIL**

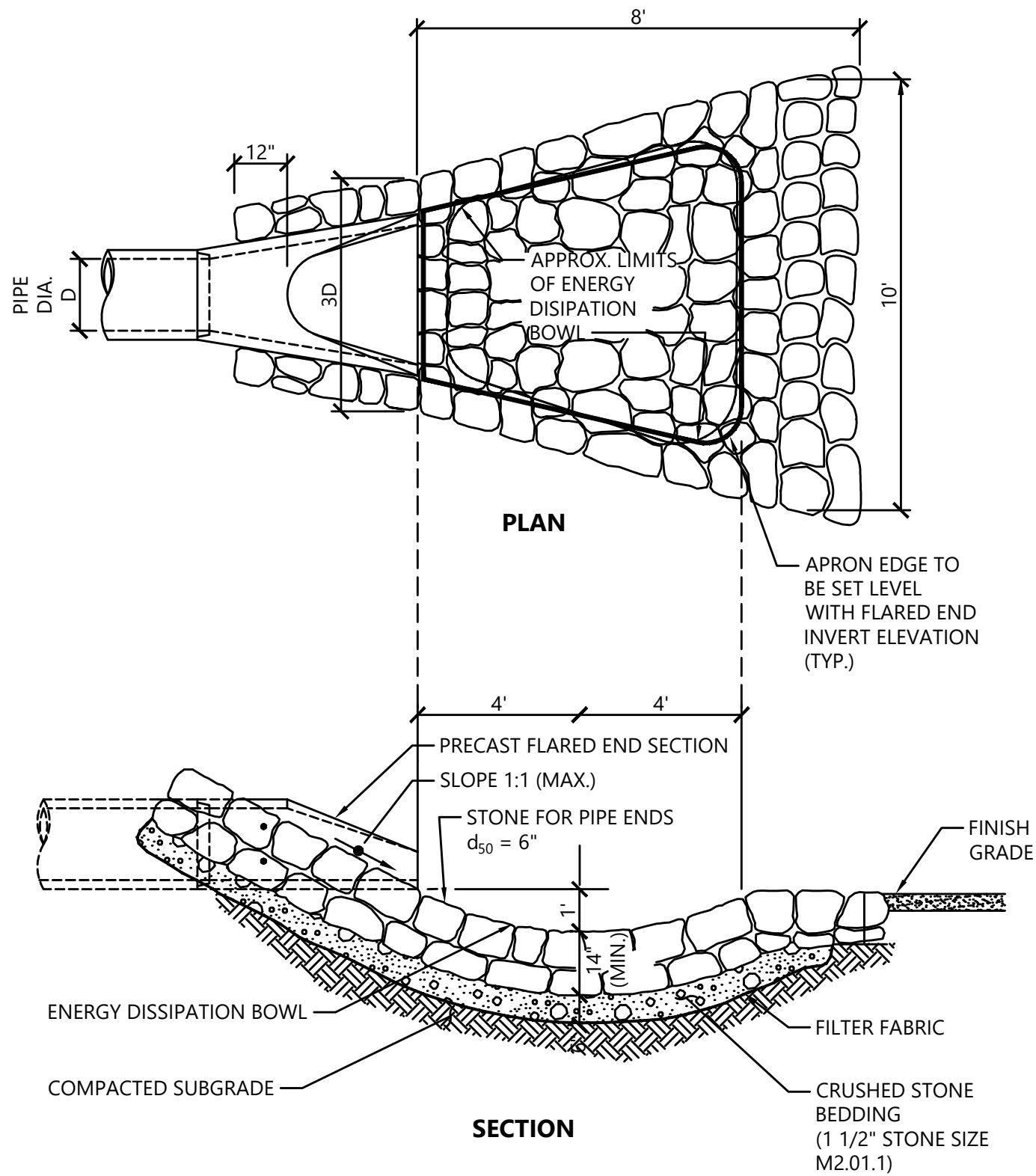
SCALE: N.T.S. DWG: PM-05 DATE: AUGUST 2018



- NOTES:
- ALL 12" THERMOPLASTIC LINES SHALL BE APPLIED IN ONE APPLICATION, NO COMBINATION OF LINES (TWO - 6" LINES) WILL BE ACCEPTED.
 - LAYOUT OF CROSSWALKS SHALL BE ORIENTATED IN THE DIRECTION OF TRAVEL AND LOCATED OUTSIDE OF THE WHEEL PATH OF VEHICLES. LAYOUT SHALL BE APPROVED BY TOWN OF SOUTHBOROUGH PRIOR TO APPLICATION OF THERMOPLASTIC.
 - ALL CROSSWALKS INSTALLED SHALL CONFORM TO THE RELEVANT PROVISIONS OF THE MASSACHUSETTS HIGHWAY DEPARTMENT "STANDARD SPECIFICATION FOR HIGHWAY AND BRIDGES" DATED 1988, SECTION 860 FOR REFLECTORIZED LINE (THERMO-PLASTIC) & MATERIAL M7.01.20, LATEST REVISIONS.

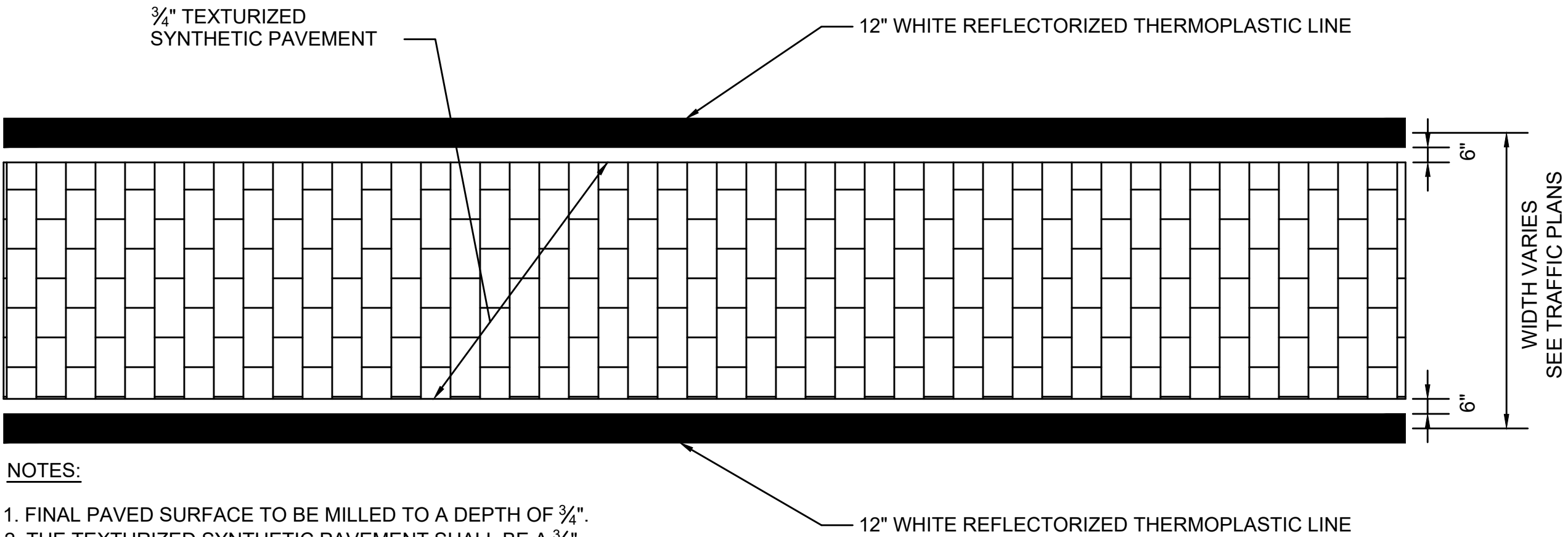
CONTINENTAL CROSSWALK

SCALE: N.T.S. DWG: PM-26 DATE: APRIL 2017



FLARED END SECTION (FES) WITH STONE FOR PIPE ENDS

SCALE: N.T.S.



- NOTES:
- FINAL PAVED SURFACE TO BE MILLED TO A DEPTH OF 3/4".
 - THE TEXTURIZED SYNTHETIC PAVEMENT SHALL BE A 3/4" HOT-APPLIED RESIN BASED COMPOUND WITH BRICK RED COLOR THROUGHOUT.

TEXTURIZED SYNTHETIC PAVEMENT AT CROSSWALKS

SCALE: N.T.S.

TRANSPORTATION IMPROVEMENT PROJECT

PLAN AND PROFILE OF

NEWTON STREET AND CORDAVILLE ROAD

IN THE TOWN OF

SOUTHBOROUGH

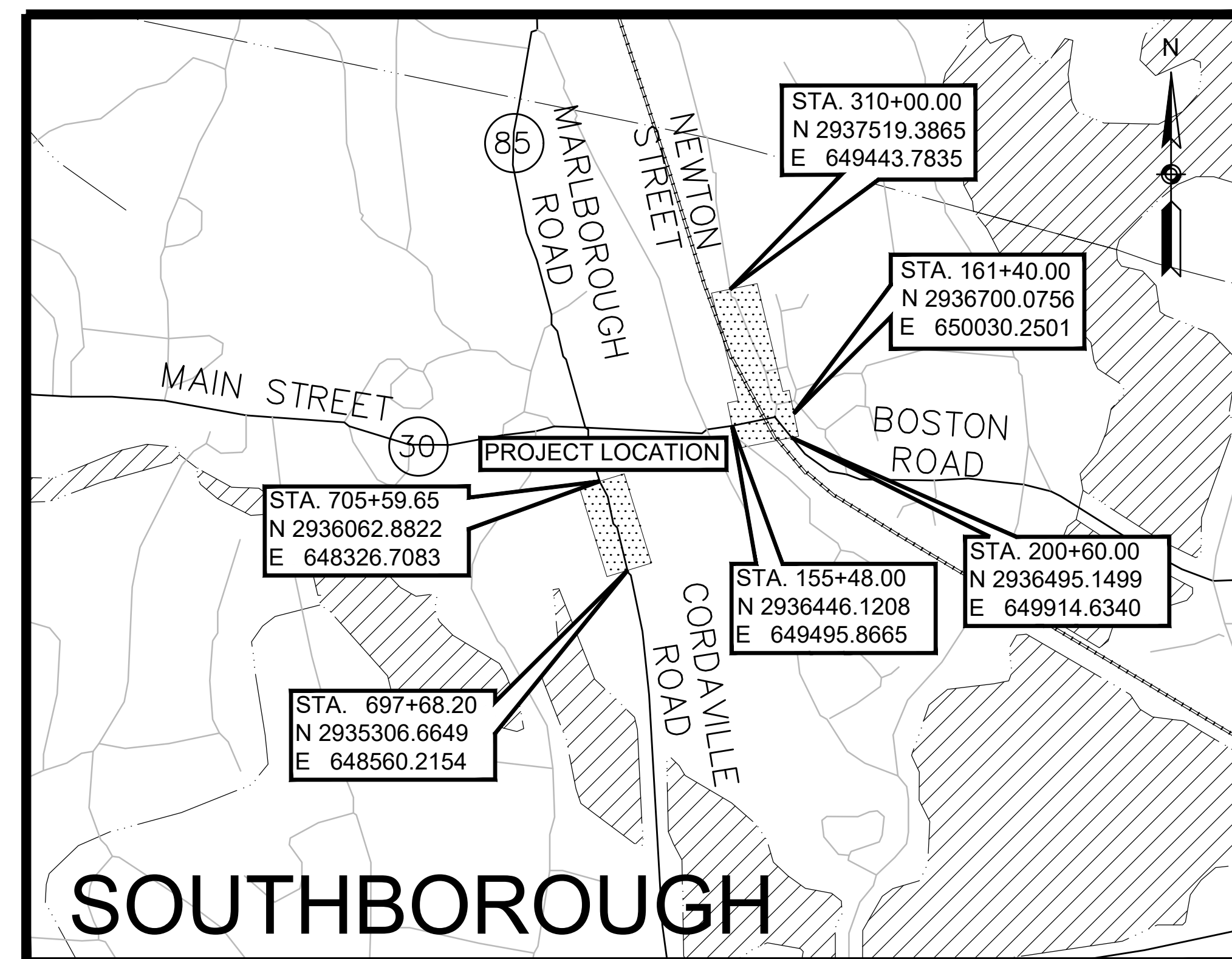
WORCESTER COUNTY

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.

LOCATIONS 1 AND 2

INDEX

SHEET NO.	DESCRIPTION
17	TITLE SHEET & INDEX
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23-28	CONSTRUCTION PLANS
29-35	PROFILES
36-41	CURB TIE & GRADING PLANS
42-47	UTILITY PLANS
48-52	TRAFFIC PLANS
53	TRAFFIC SIGN SUMMARY
60-67	CROSS SECTIONS - MAIN STREET
68	CROSS SECTIONS - BOSTON ROAD
69-77	CROSS SECTIONS - NEWTON STREET
78-83	CROSS SECTIONS - CORDAVILLE ROAD



DESIGN DESIGNATION (MAIN STREET)

DESIGN SPEED	25 MPH
ADT (2009)	8,215 VPD
ADT (2037)	10,127 VPD
K	10%
D	72.8% EB
T (PEAK HOUR)	4.3%
T (AVERAGE DAY)	2.0%
DHV	1,043 VPH
DDHV	759 VPH
FUNCTIONAL CLASSIFICATION	URBAN MINOR ARTERIAL



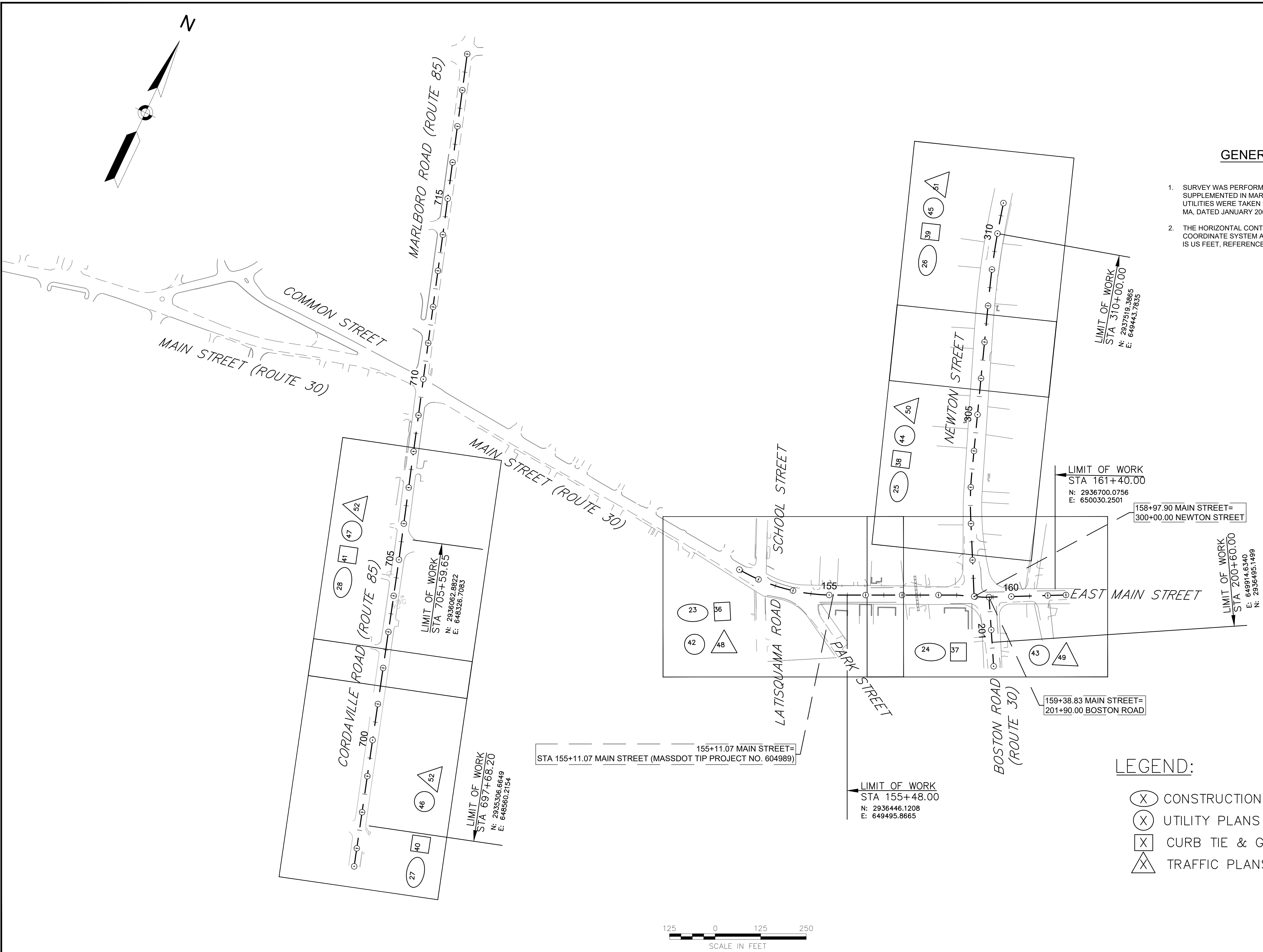
LENGTH OF PROJECT = 2,030.00 FEET = 0.38 MILES

GENERAL NOTES:

1. SURVEY WAS PERFORMED BY VHB, INC., WATERTOWN, MA IN AUGUST 2009 AND SUPPLEMENTED IN MARCH 2011, OCTOBER 2015, AND MAY 2018. UNDERGROUND UTILITIES WERE TAKEN FROM PLANS PREPARED BY TAJ ENGINEERING, CHELMSFORD, MA, DATED JANUARY 2004.
2. THE HORIZONTAL CONTROL IS BASED ON THE MASSACHUSETTS MAINLAND STATE PLANE COORDINATE SYSTEM AND THE NATIONAL GEODETIC SURVEY (NAD83). ALL ELEVATION IS US FEET, REFERENCED TO THE NORTH AMERICA VERTICAL DATUM OF 1988 (NAVD88).

LEGEND:

- (X) CONSTRUCTION PLANS
- (X) UTILITY PLANS
- [X] CURB TIE & GRADING
- (X) TRAFFIC PLANS



SOUTHBOROUGH
VARIOUS LOCATIONS
TYPICAL SECTIONS
SHEET 19 OF 141

PAVEMENT NOTES

PROPOSED FULL DEPTH PAVEMENT

SURFACE: 1.75" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5) OVER
1.75" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC-12.5) OVER

BASE: 4.5" SUPERPAVE BASE COURSE 37.5 (SBC-37.5) OVER

SUBBASE: 4" DENSE GRADED CRUSHED STONE OVER
8" GRAVEL BORROW (TYPE b)

PROPOSED PAVEMENT MILLING & OVERLAY

SURFACE: 1.75" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5) OVER
1.75" PAVEMENT MICROMILLING

PROPOSED FULL DEPTH PAVEMENT LESS THAN 4'-0"

SURFACE: 1.75" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5) OVER
1.75" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC-12.5) OVER

BASE: 6" HIGH EARLY STRENGTH CEMENT CONCRETE BASE OVER

SUBBASE: 8" GRAVEL BORROW (TYPE b)

PROPOSED HOT MIX ASPHALT WALK

SURFACE: 1.25" SUPERPAVE SURFACE COURSE 9.5 (SSC-9.5) OVER
1.5" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC-12.5) OVER

FOUNDATION: 8" GRAVEL BORROW (TYPE b)

PROPOSED HOT MIX ASPHALT DRIVEWAY/WALK AT DRIVEWAY

SURFACE: 1.5" SUPERPAVE SURFACE COURSE 9.5 (SSC-9.5) OVER
2.5" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC-12.5) OVER

FOUNDATION: 8" GRAVEL BORROW (TYPE b)

PROPOSED CEMENT CONCRETE DRIVEWAY

SURFACE: 6" CEMENT CONCRETE
AIR ENTRAINED 4000PSI, 3/4", 610 OVER

FOUNDATION: 8" GRAVEL BORROW (TYPE b)

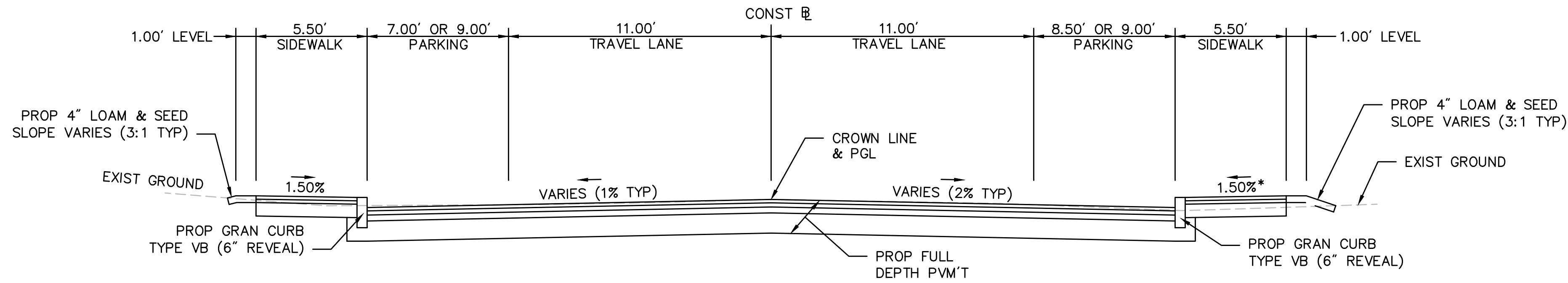
PROPOSED CEMENT CONCRETE WALK/WHEELCHAIR RAMP

SURFACE: 4" CEMENT CONCRETE
AIR ENTRAINED 4000 PSI, 3/4", 610 OVER

FOUNDATION: 8" GRAVEL BORROW (TYPE b)

NOTES:

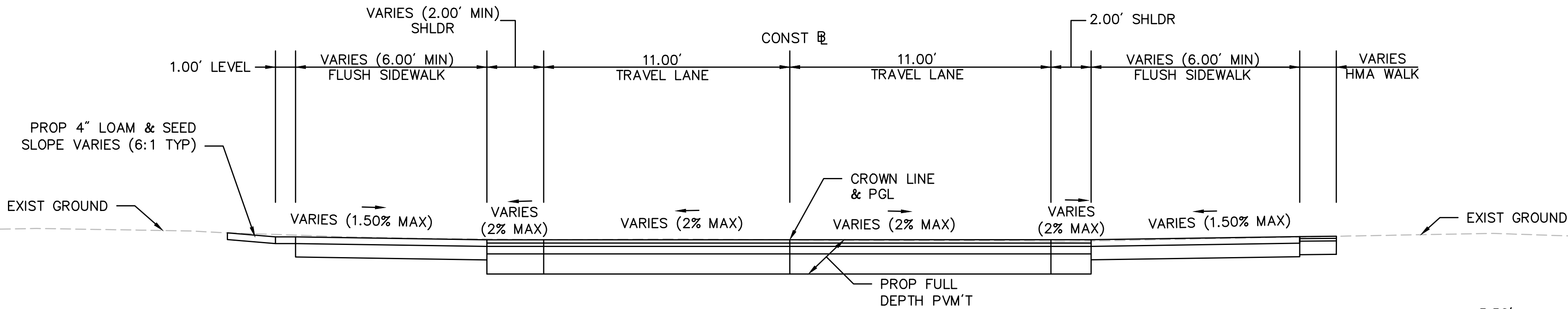
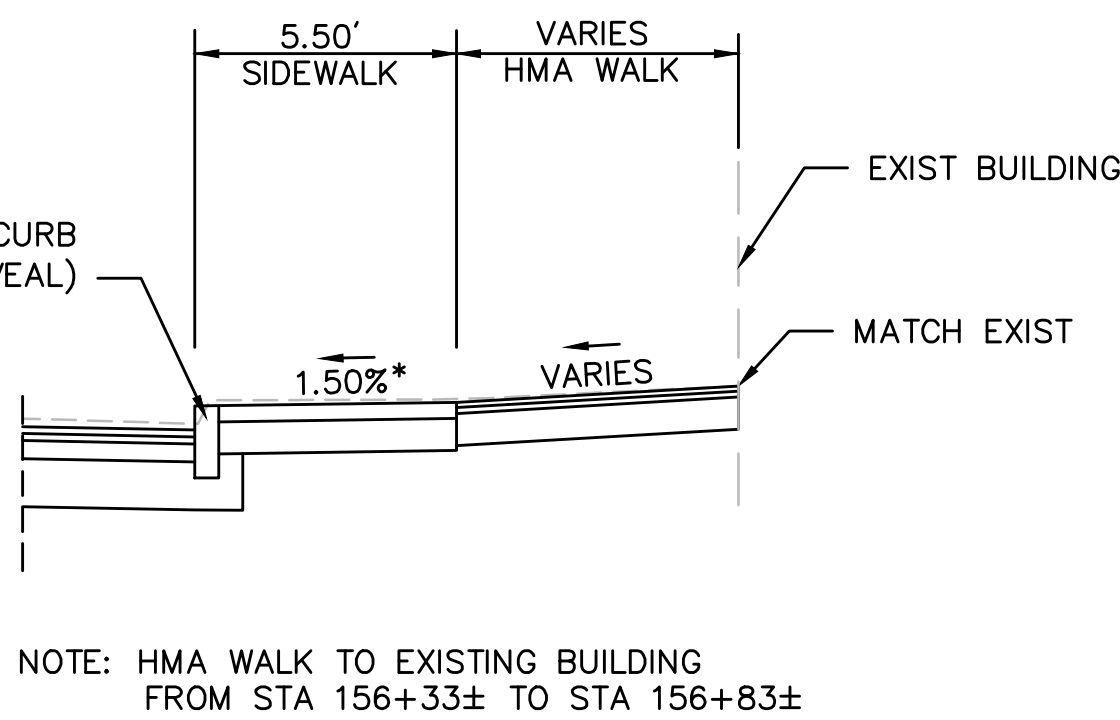
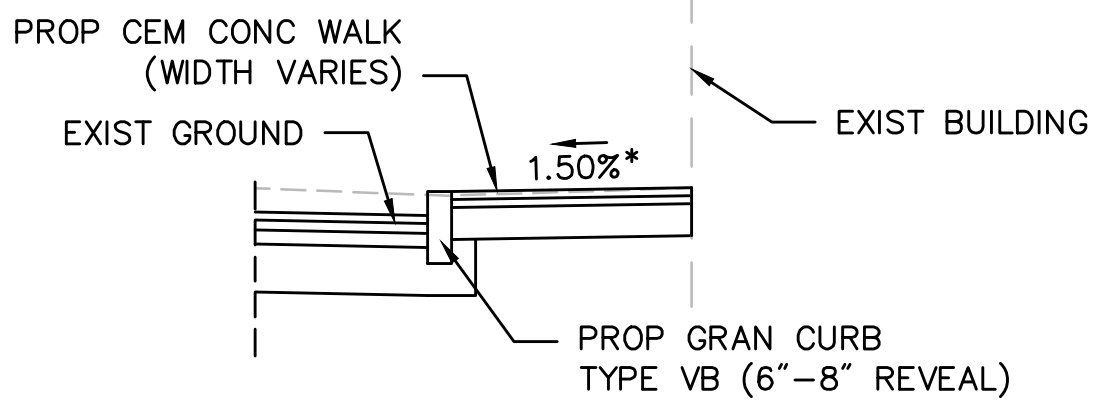
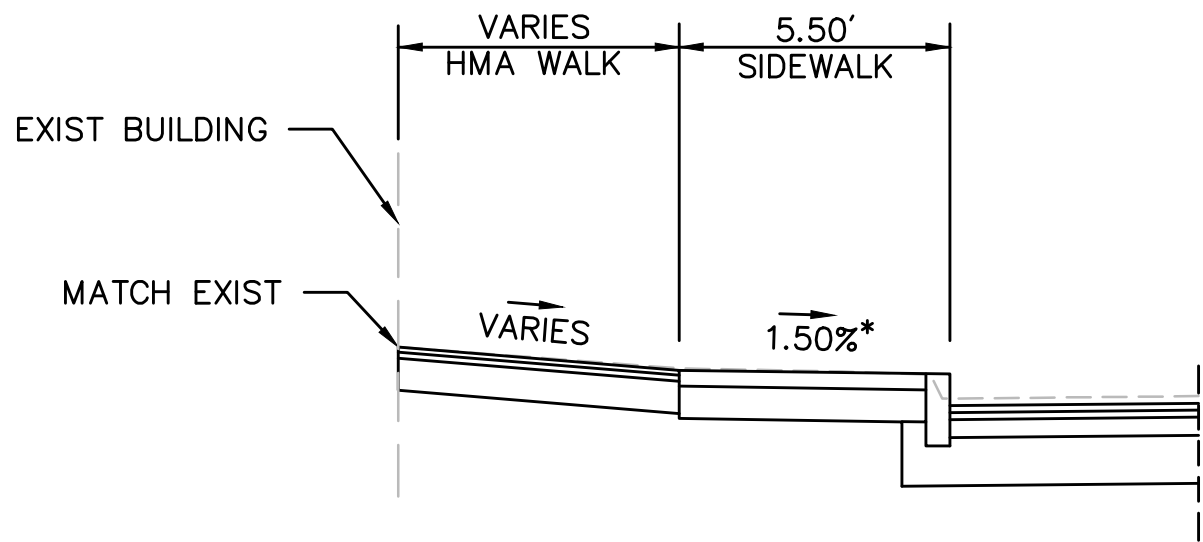
- 1) ASPHALT EMULSION FOR TACK COAT SHALL BE (RS-1H) TO RESIST TRACKING BY HAUL VEHICLES AND BOND HMA LAYERS FOR FLEXURAL STRENGTH. TACK COAT WILL BE APPLIED AT 0.07 GAL/SY OVER SMOOTH PAVEMENT (BASE AND INTERMEDIATE COURSES).
- 2) HMA WALKS AND DRIVEWAYS SHALL BE IN ACCORDANCE WITH SECTION 702. AND SHALL BE 50 GYRATION MIXTURES.
- 3) EXISTING GRAVEL BORROW MEETING MATERIAL SPECIFICATIONS SHALL BE RETAINED AND USED ON SITE FOR SUBBASE AS APPROVED BY ENGINEER.



TYPICAL SECTION - FULL-DEPTH PAVEMENT

ROUTE 30 (MAIN STREET)
STA 155+48± TO STA 158+50±
NTS

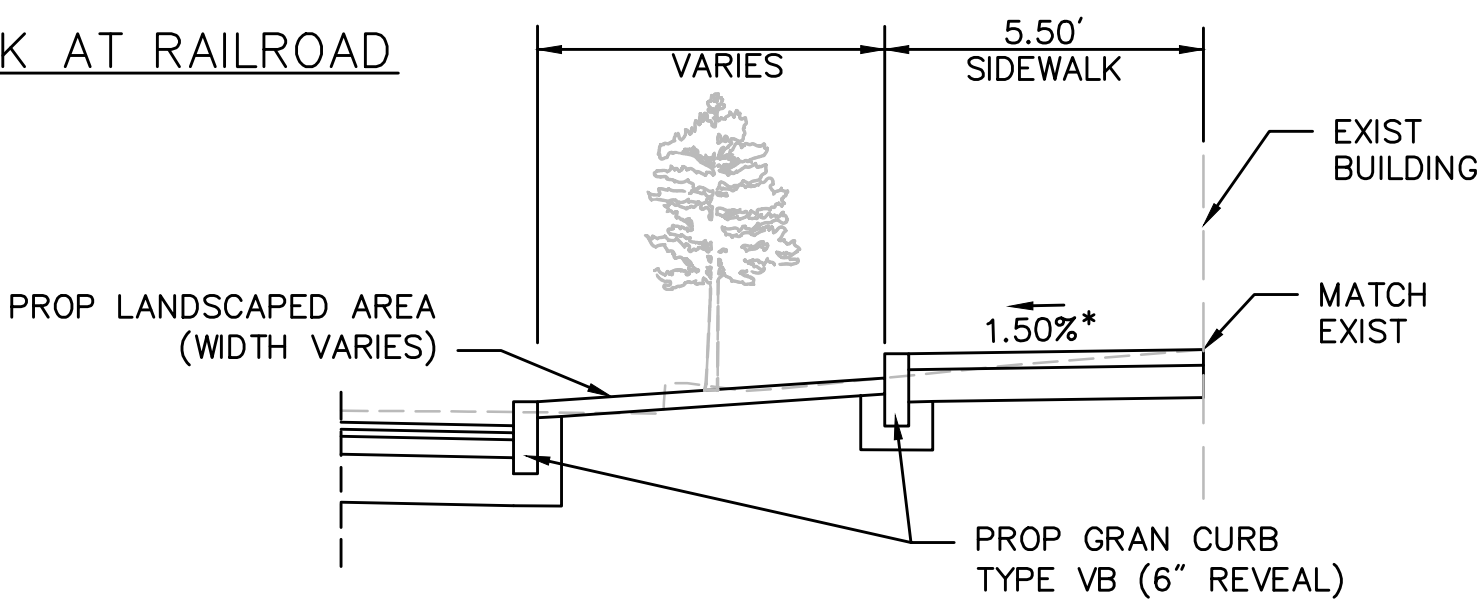
*TOLERANCE FOR CONSTRUCTION ±0.5%



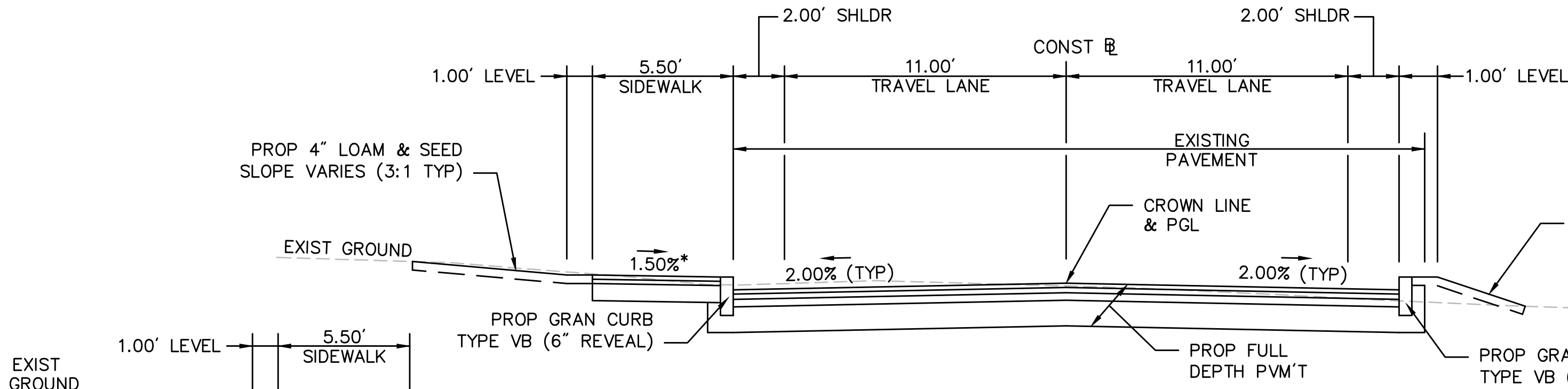
TYPICAL SECTION - FULL-DEPTH PAVEMENT - FLUSH SIDEWALK AT RAILROAD

EAST MAIN STREET
LT: STA 157+25± TO STA 157+56±
RT: STA 157+18± TO STA 157+82±
NTS

*TOLERANCE FOR CONSTRUCTION ±0.5%



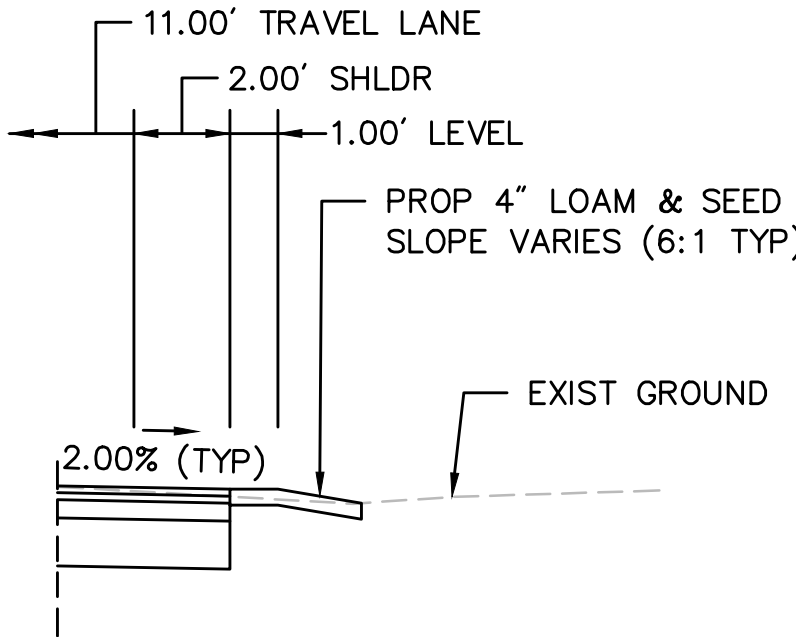
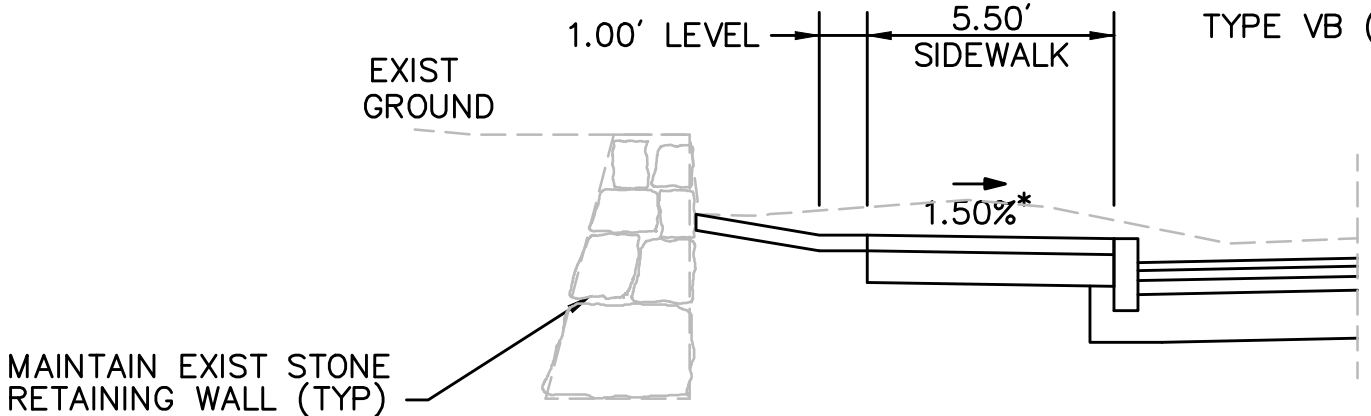
NOTE: GRADE SIDEWALK TO EXISTING BUILDING AND PROP LANDSCAPED AREA FROM STA 158+15± TO STA 158+85±



TYPICAL SECTION - FULL-DEPTH PAVEMENT

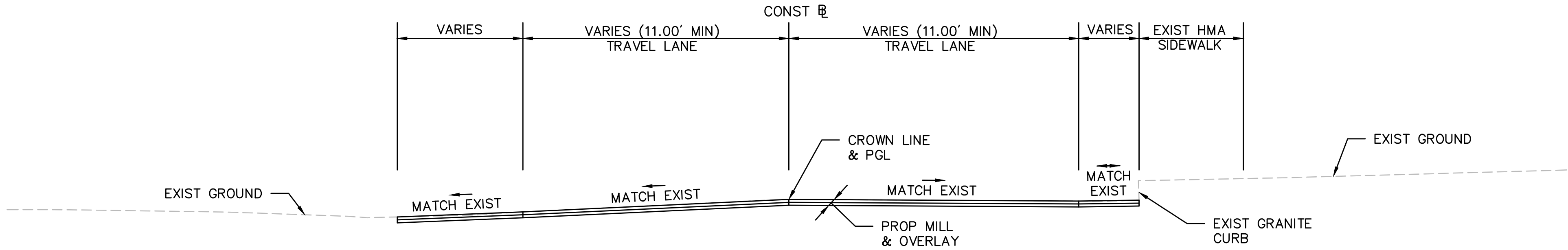
EAST MAIN STREET
STA 159+12± TO STA 161+20±
NTS

*TOLERANCE FOR CONSTRUCTION ±0.5%

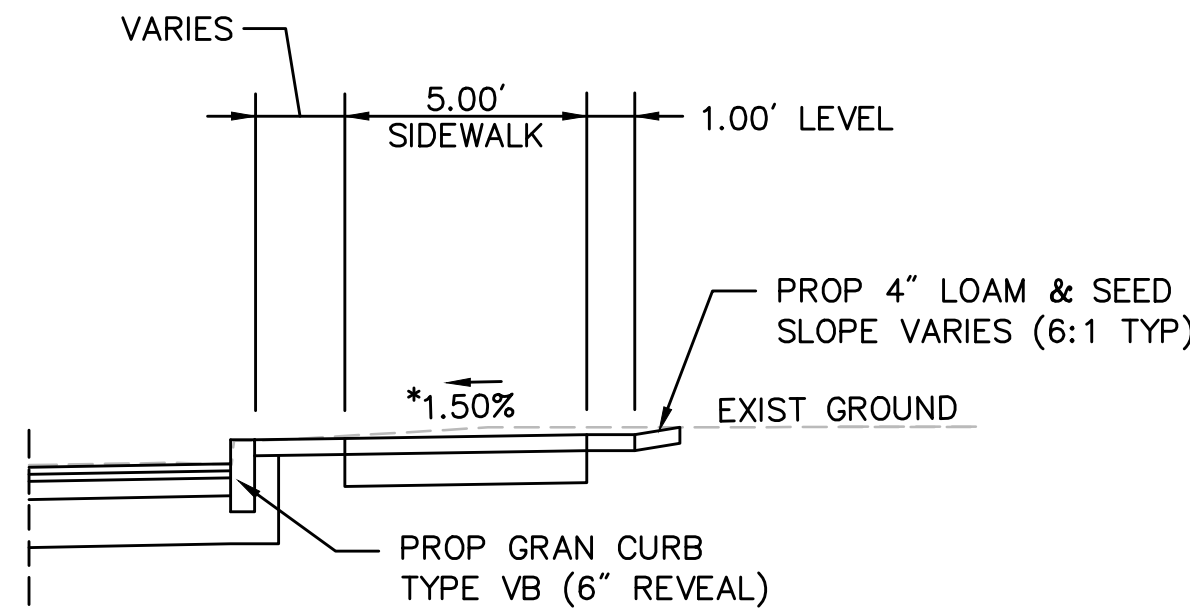


NOTE: CURB ENDS ON RIGHT SIDE AT STA 160+00

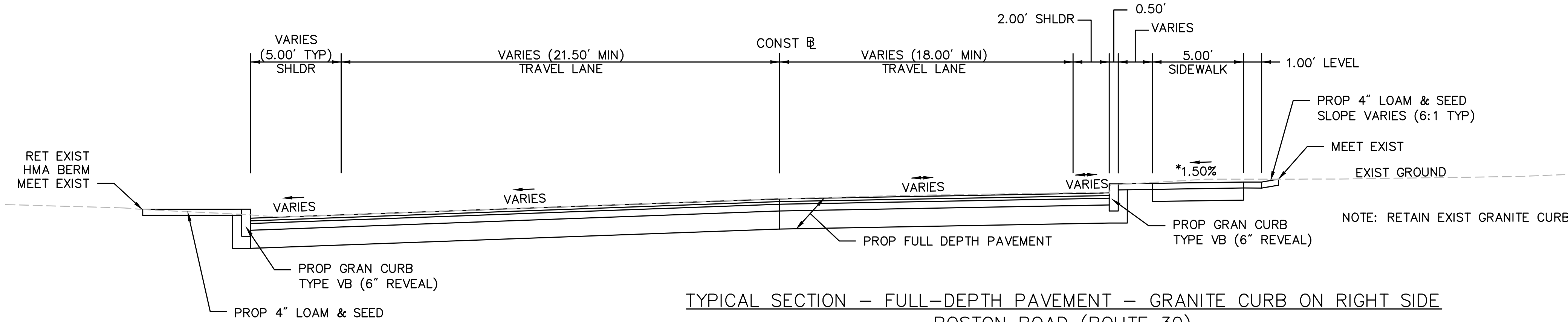
FOR PAVEMENT NOTES, SEE SHEET 19.



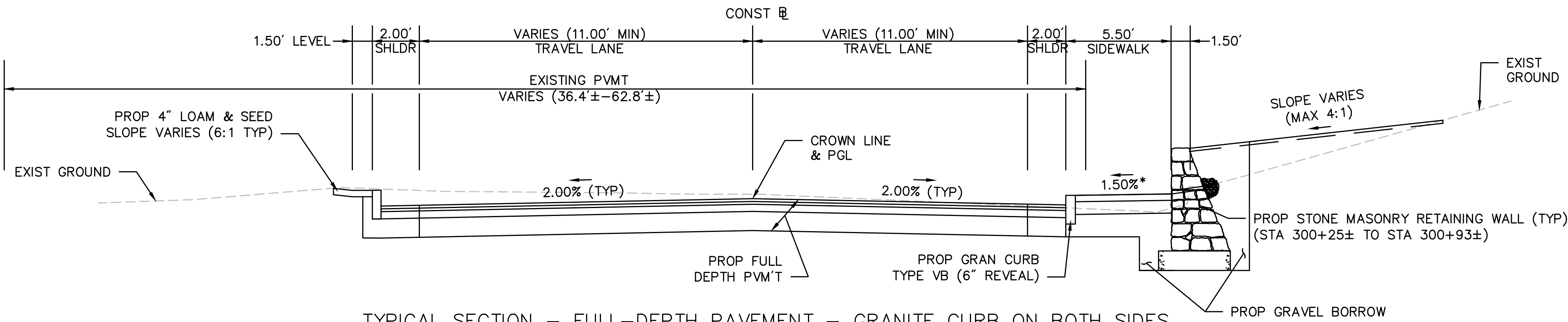
TYPICAL SECTION – MILL & OVERLAY
BOSTON ROAD (ROUTE 30)
STA 200+60± TO STA 201+37±
NTS



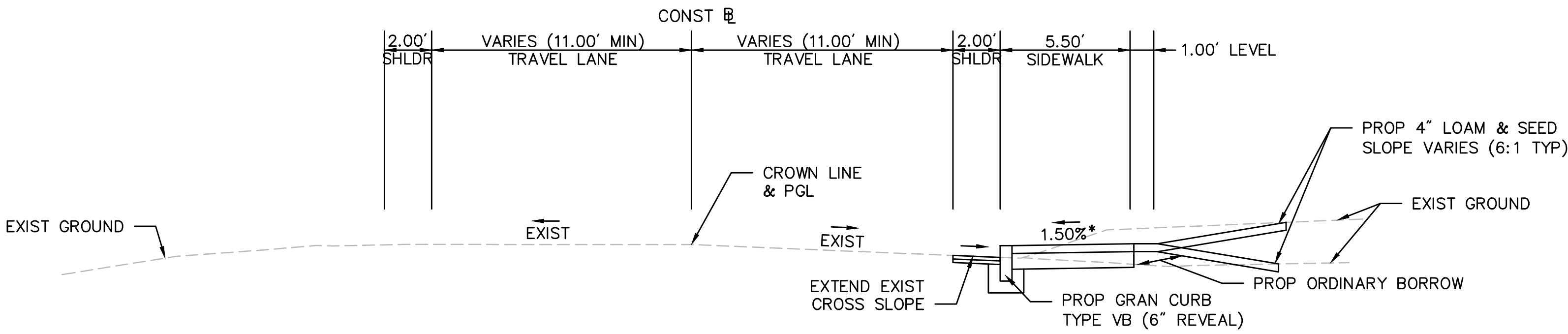
NOTE: 5.00' SIDEWALK ON RIGHT
STA 201+37± TO STA 201+50±
NTS
*TOLERANCE FOR CONSTRUCTION ±0.5%



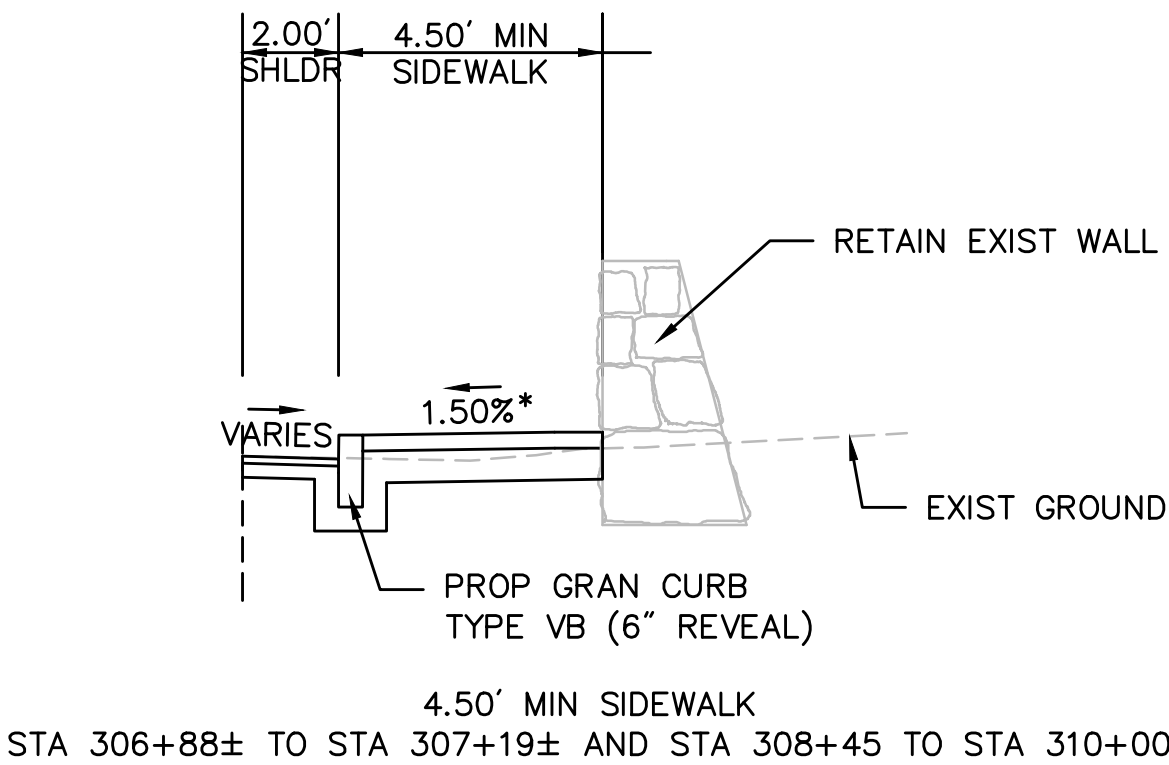
TYPICAL SECTION – FULL-DEPTH PAVEMENT – GRANITE CURB ON RIGHT SIDE
BOSTON ROAD (ROUTE 30)
STA 201+50± TO STA 201+75±
NTS
*TOLERANCE FOR CONSTRUCTION ±0.5%



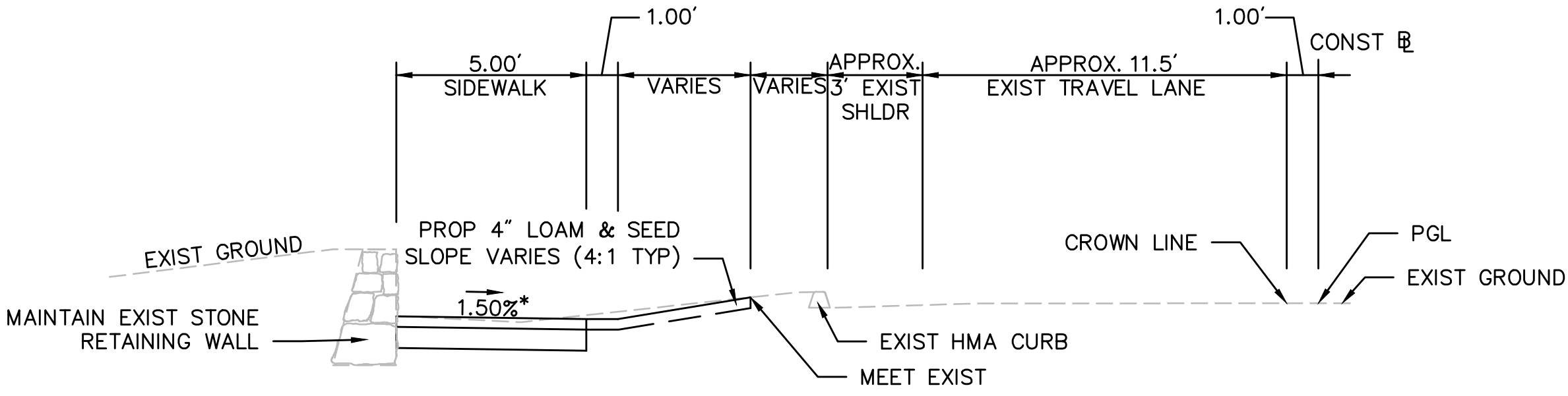
TYPICAL SECTION - FULL-DEPTH PAVEMENT - GRANITE CURB ON BOTH SIDES
NEWTON STREET
STA 300+25± TO STA 301+55±
NTS
TOLERANCE FOR CONSTRUCTION ±0.5%



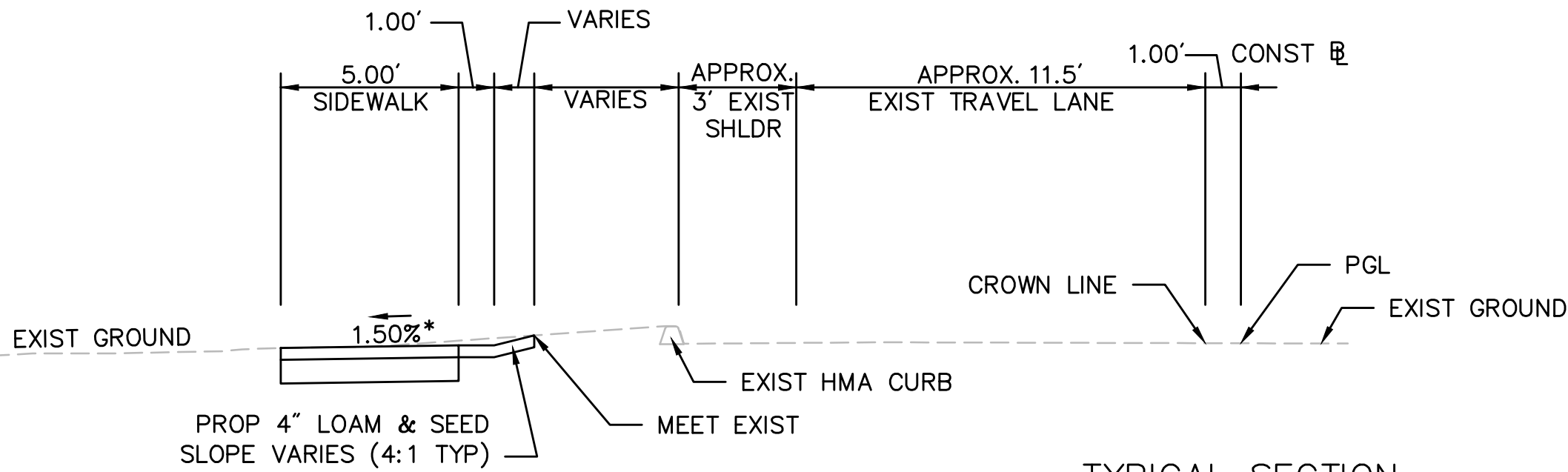
TYPICAL SECTION - GRANITE CURB RIGHT SIDE
NEWTON STREET
STA 301+55± TO STA 310+00±
NTS
TOLERANCE FOR CONSTRUCTION ±0.5%



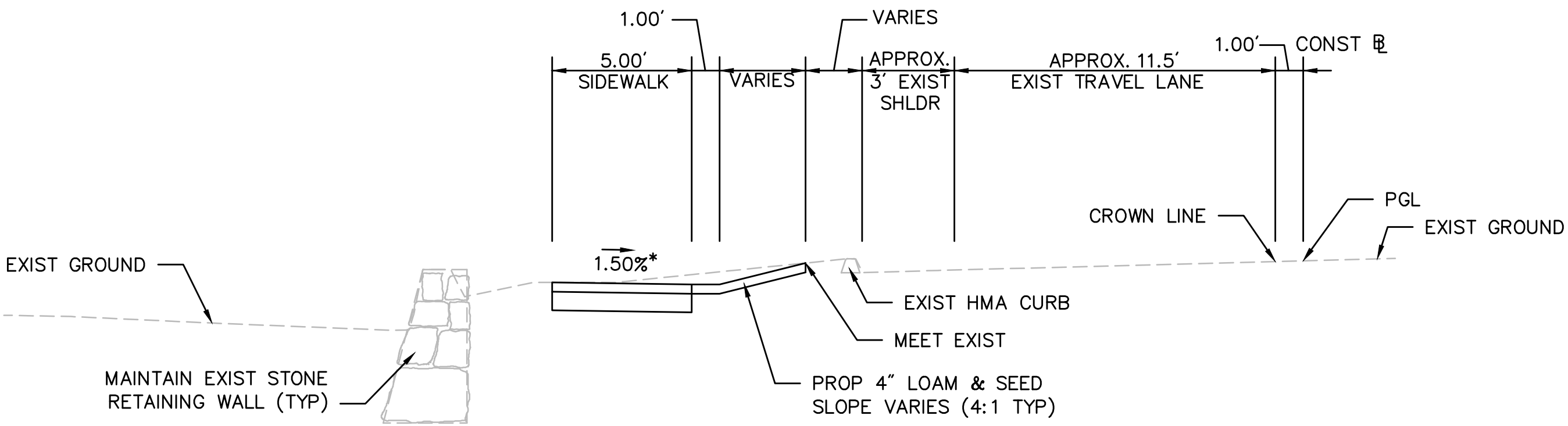
FOR PAVEMENT NOTES, SEE SHEET 19.



TYPICAL SECTION
CORDAVILLE ROAD
STA 697+68± TO STA 700+50±
NTS
*TOLERANCE FOR CONSTRUCTION ±0.5%



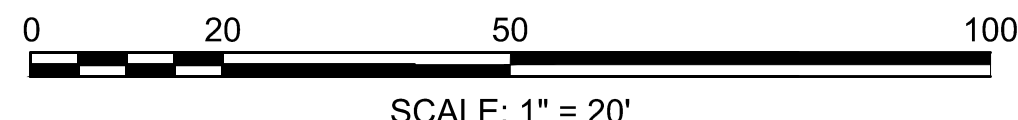
TYPICAL SECTION
CORDAVILLE ROAD
STA 700+50± TO STA 705+60±
NTS
*TOLERANCE FOR CONSTRUCTION ±0.5%



TYPICAL SECTION
CORDAVILLE ROAD
STA 702+63± TO STA 703+01±
NTS
TOLERANCE FOR CONSTRUCTION ±0.5%

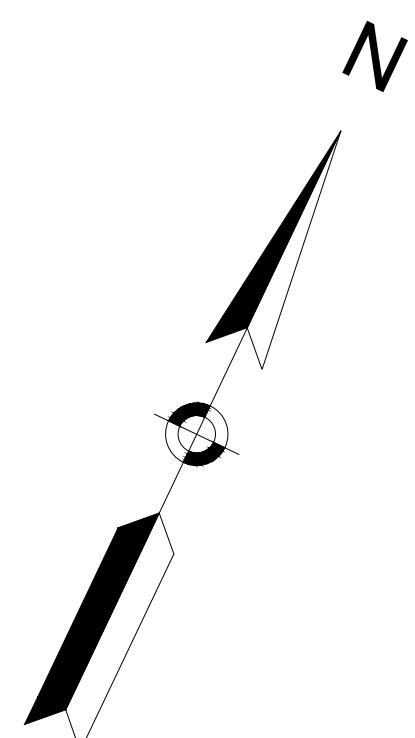
SOUTHBOROUGH
VARIOUS LOCATIONS
CONSTRUCTION PLANS
SHEET 23 OF 141

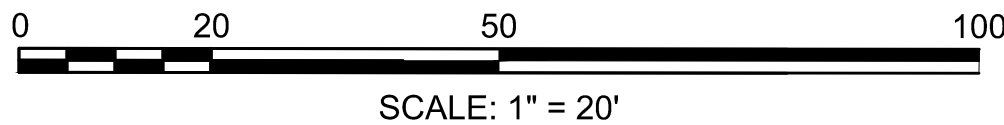
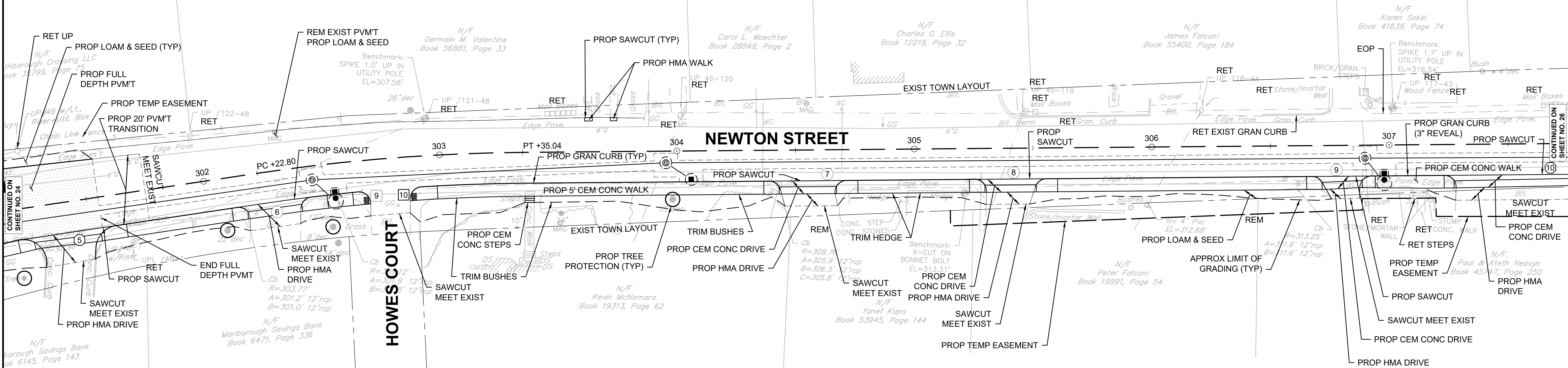
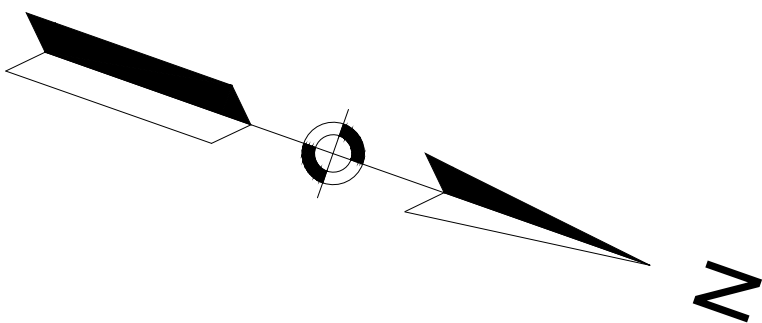
1. SURVEY WAS PERFORMED BY YHB, INC., WATERTOWN, MA IN AUGUST 2009 AND SUPPLEMENTED IN MARCH 2011, OCTOBER 2015, AND MAY 2018. UNDERGROUND UTILITIES WERE TAKEN FROM PLANS PREPARED BY TAJ ENGINEERING CHELMSFORD, MA, DATED JANUARY 2004.
2. THE HORIZONTAL CONTROL IS BASED ON THE MASSACHUSETTS MAINLAND STATE PLANE COORDINATE SYSTEM AND THE NATIONAL ADIC SURVEY (NAD83). ALL ELEVATION IS US FEET, REFERENCED TO THE NORTH AMERICA VERTICAL DATUM OF 1988 (NAVD88).



☒ WCR NUMBER

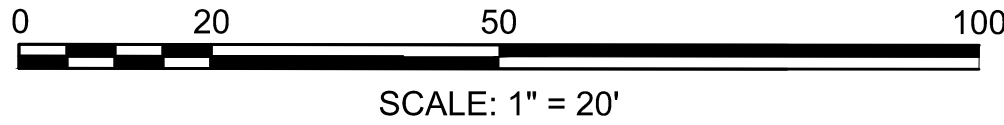
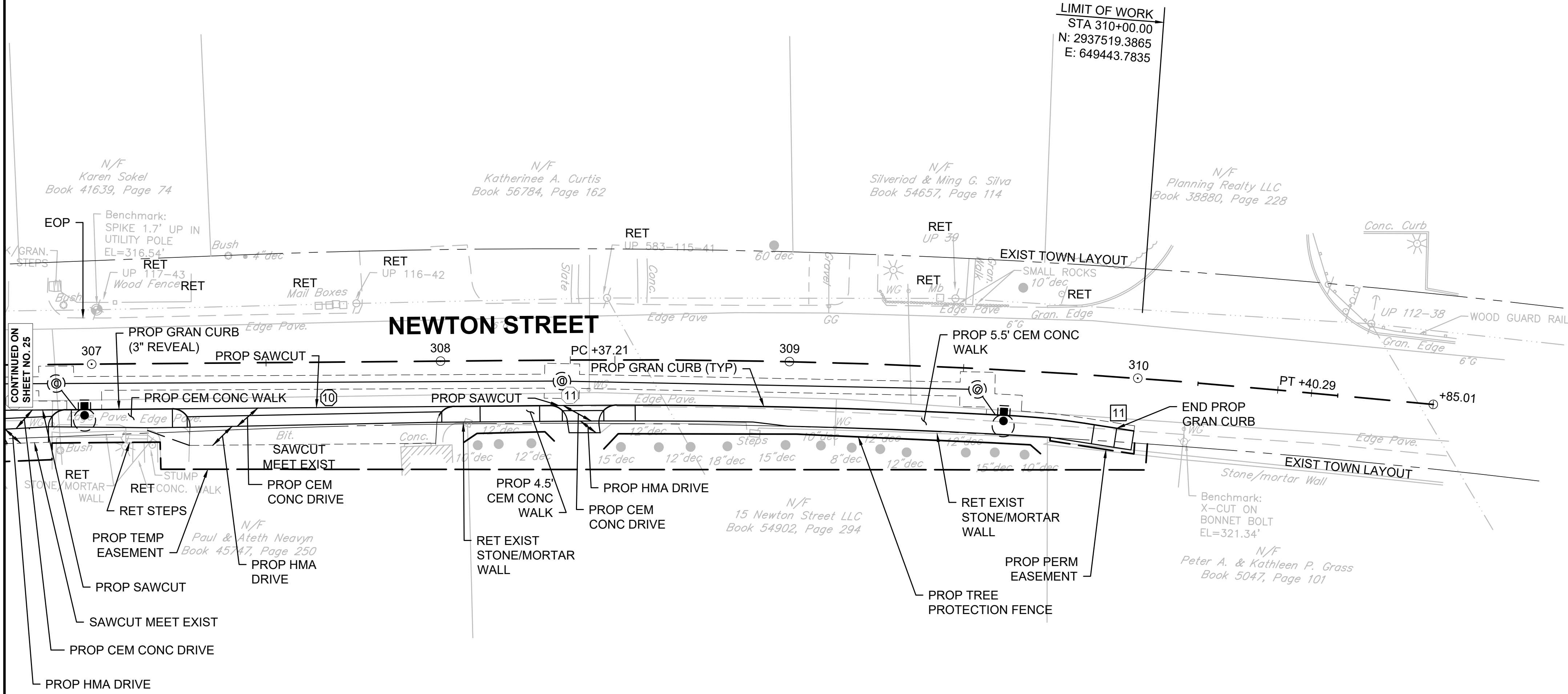
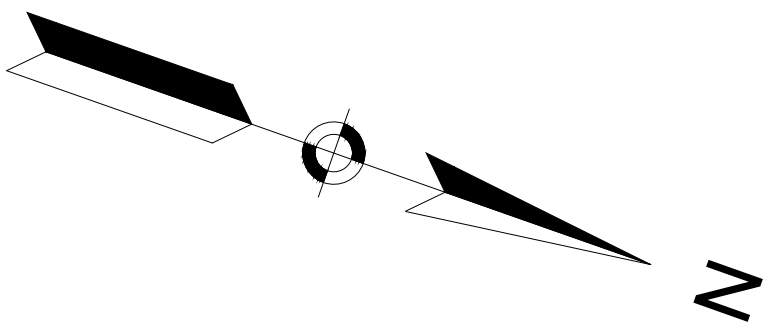
☒ DRIVEWAY NUMBER





LEGEND:

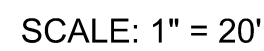
- WCR NUMBER
- DRIVEWAY NUMBER



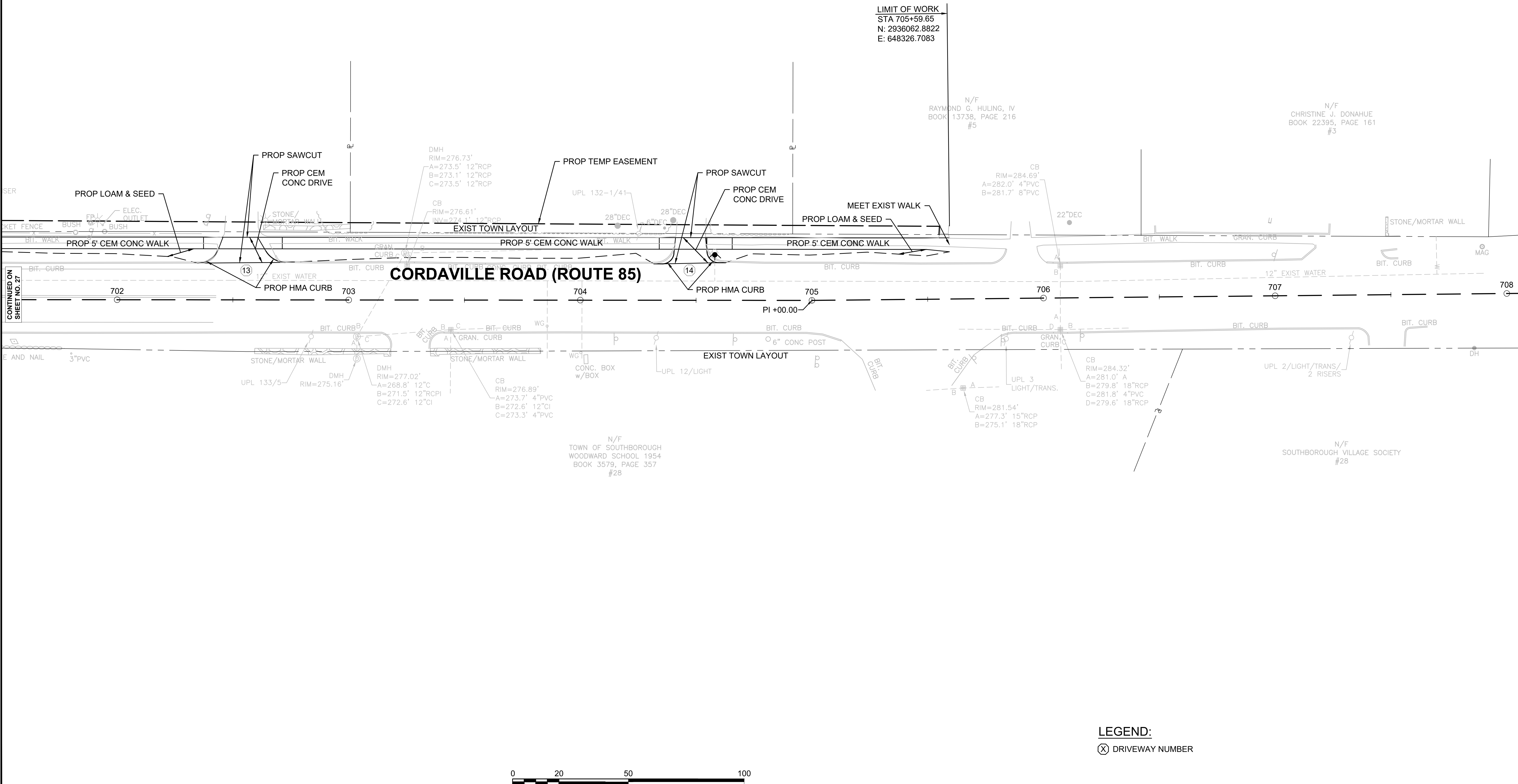
- LEGEND:
- WCR NUMBER
 - DRIVEWAY NUMBER



(X) DRIVEWAY NUMBER



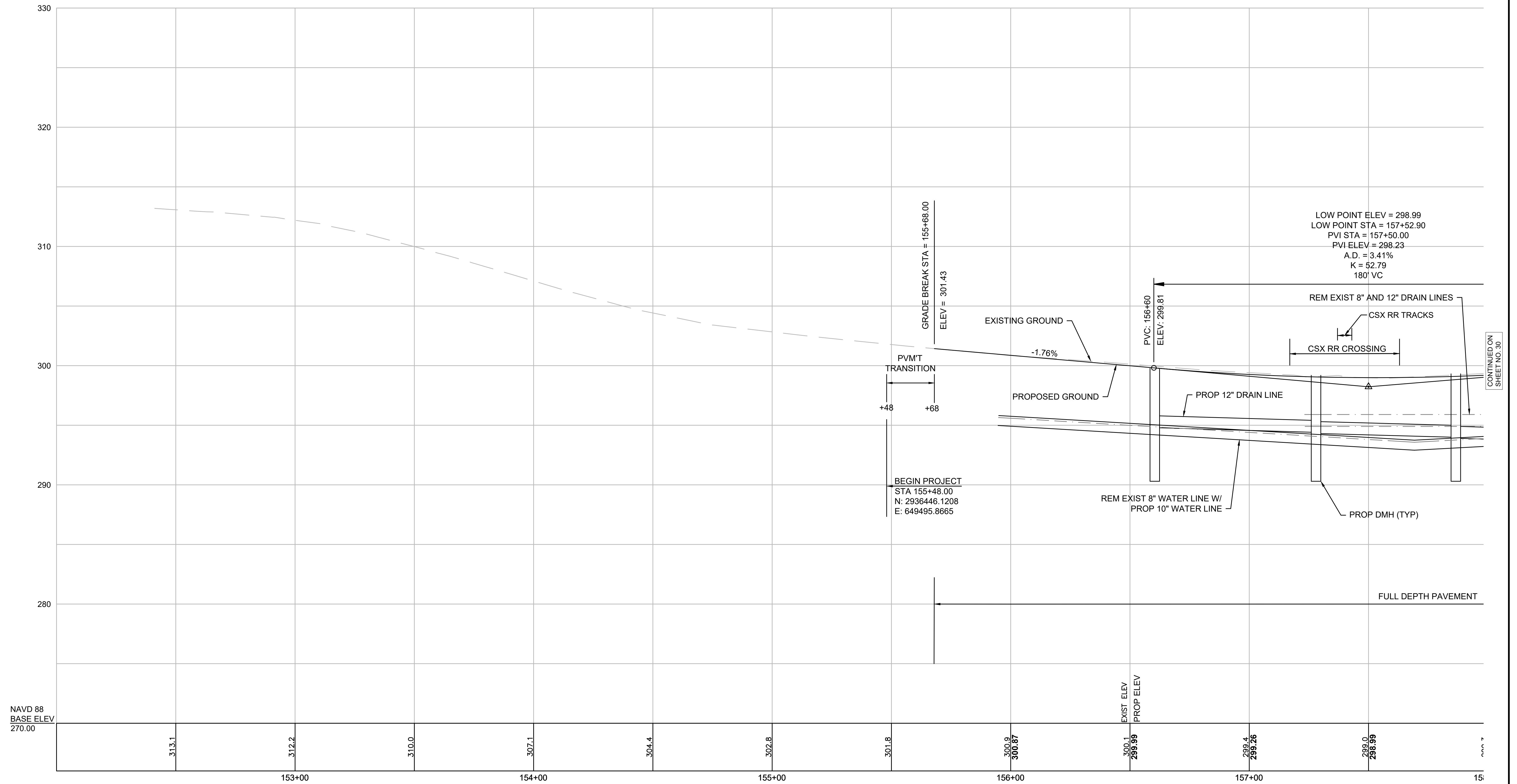
3812-HD(GEN) DWG Plotted on 24-Jun-2021 2:32 PM



(X) DRIVEWAY NUMBER

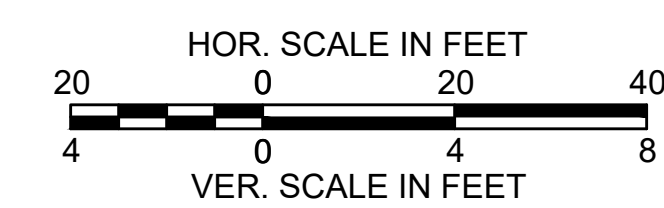
MAIN STREET

SOUTHBOROUGH
VARIOUS LOCATIONS
PROFILES
SHEET 29 OF 141

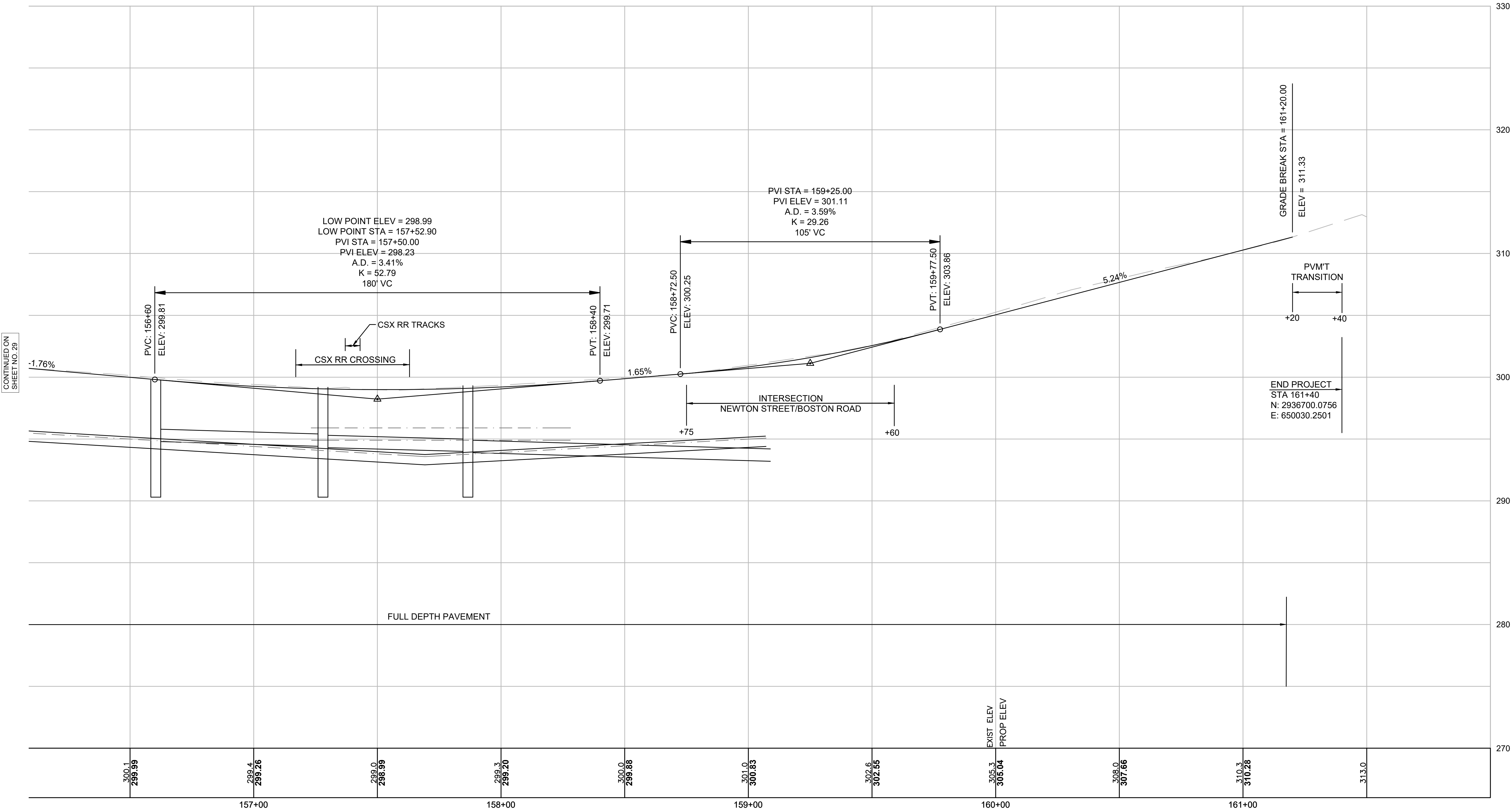


CONTINUED ON
SHEET NO. 30

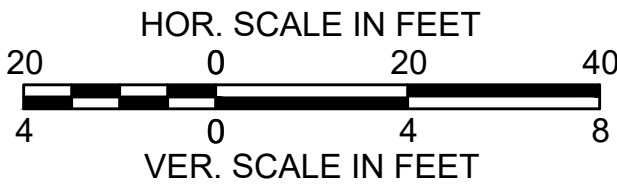
FOR CONSTRUCTION PLANS SEE SHEET NO. 23 & 24



MAIN STREET

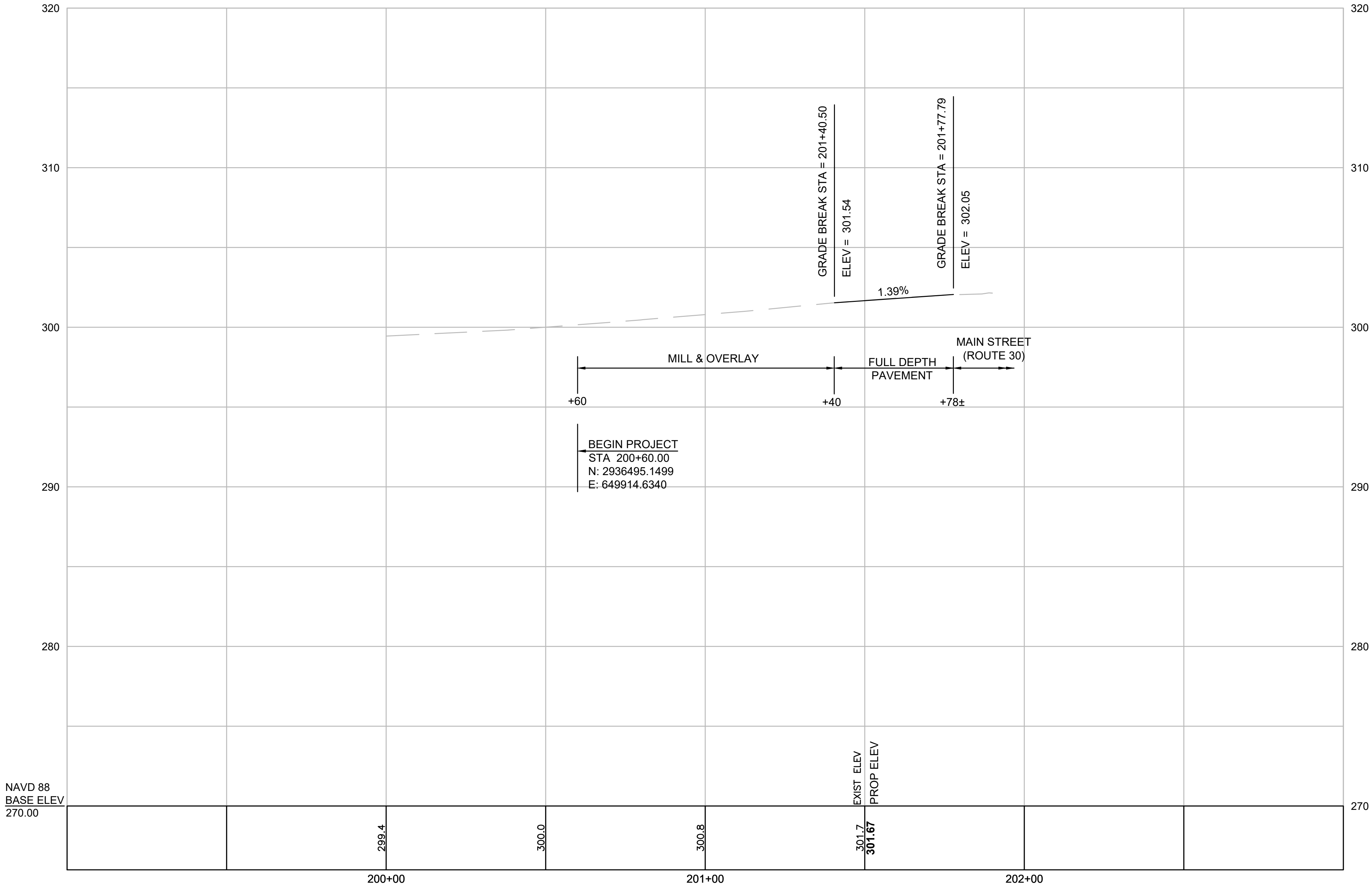


FOR CONSTRUCTION PLANS SEE SHEET NO. 23 & 24

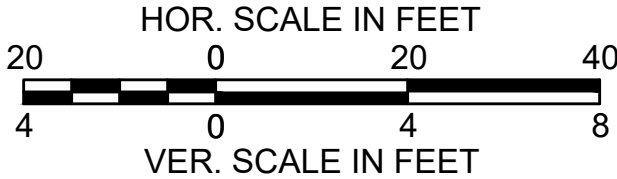


BOSTON ROAD

A SECTION OF BOSTON ROAD IS PROPOSED PAVEMENT
MICROMILLING & OVERLAY. NO PROFILE ADJUSTMENTS ARE
PROPOSED. THE EXISTING PROFILE PROVIDED IS FOR
INFORMATIONAL PURPOSES ONLY.

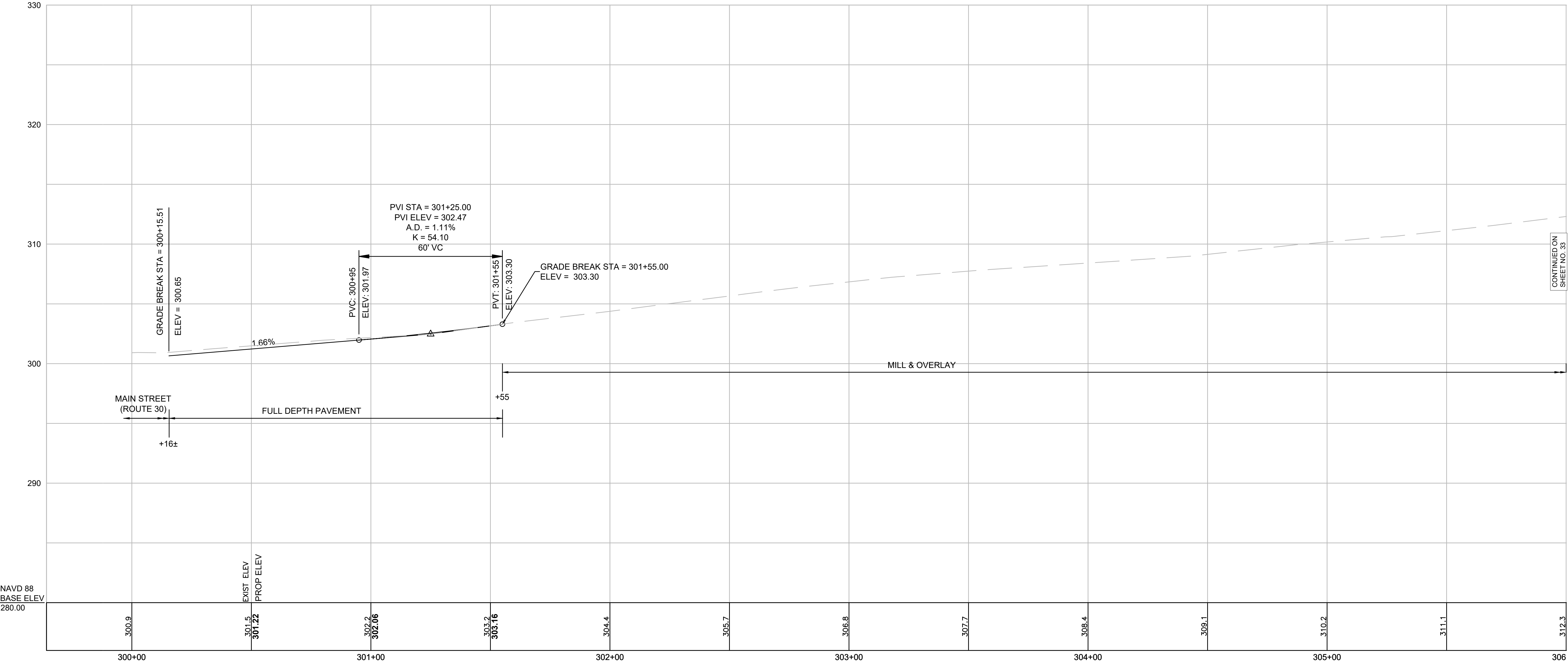


FOR CONSTRUCTION PLANS SEE SHEET NO. 24



NEWTON STREET

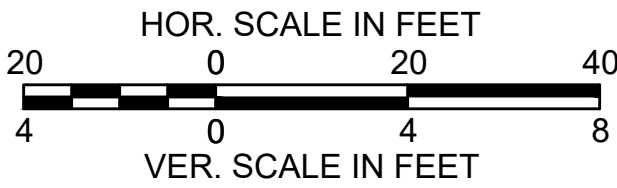
A SECTION OF NEWTON ROAD IS PROPOSED PAVEMENT
MICROMILLING & OVERLAY. NO PROFILE ADJUSTMENTS ARE
PROPOSED. THE EXISTING PROFILE PROVIDED IS FOR
INFORMATIONAL PURPOSES ONLY.



NAVD 88
BASE ELEV
280.00

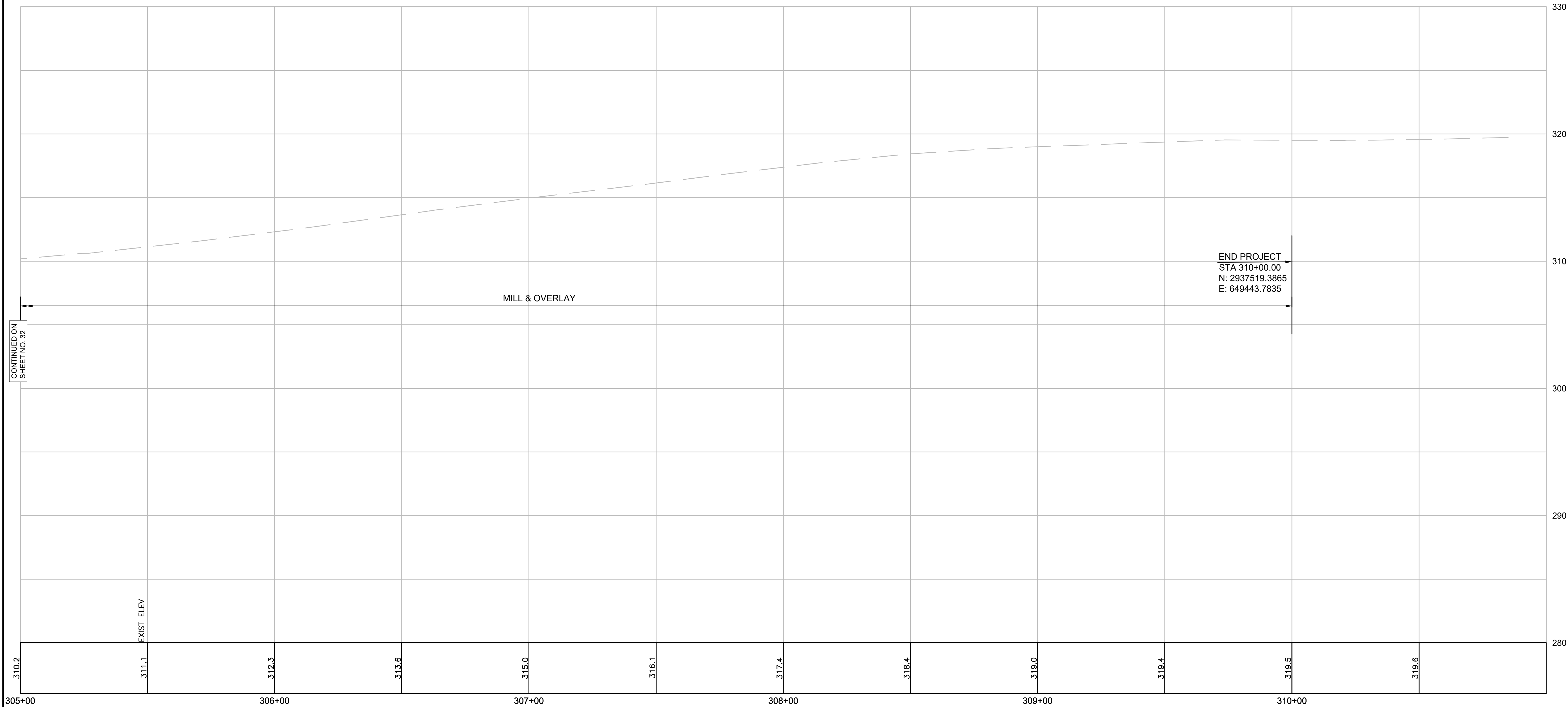
CONTINUED ON
SHEET NO. 33

FOR CONSTRUCTION PLANS SEE SHEET NO. 24 & 25



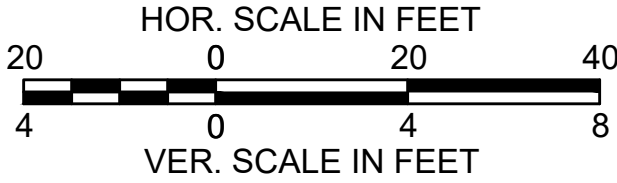
NEWTON STREET

A SECTION OF NEWTON ROAD IS PROPOSED PAVEMENT
MICROMILLING & OVERLAY. NO PROFILE ADJUSTMENTS ARE
PROPOSED. THE EXISTING PROFILE PROVIDED IS FOR
INFORMATIONAL PURPOSES ONLY.



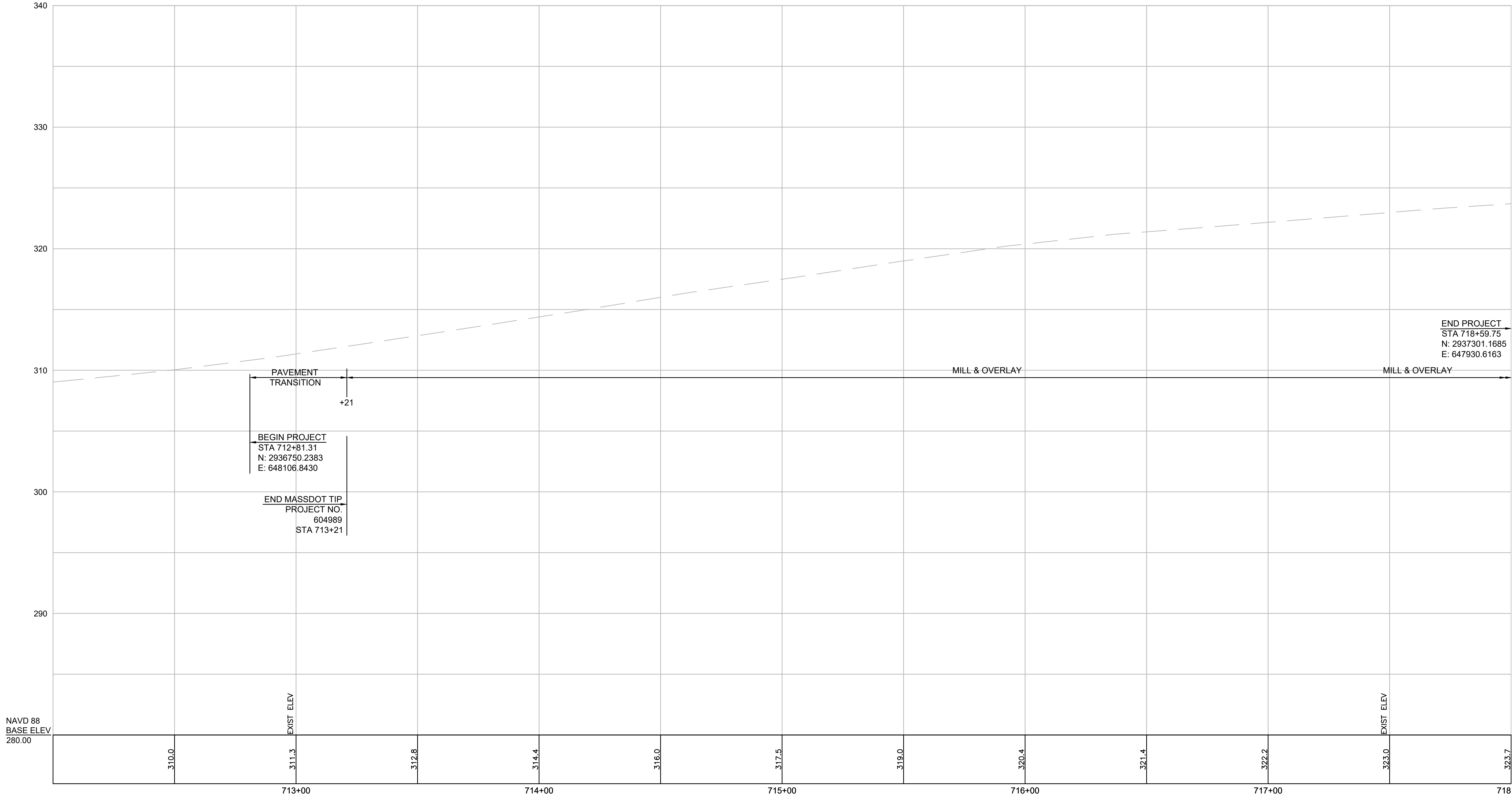
CONTINUED ON
SHEET NO. 32

FOR CONSTRUCTION PLANS SEE SHEET NO. 25 & 26

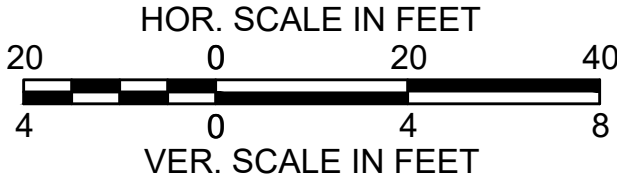


MARLBOROUGH ROAD (ROUTE 85) IS PROPOSED PAVEMENT
MICROMILLING & OVERLAY. NO PROFILE ADJUSTMENTS ARE
PROPOSED. THE EXISTING PROFILE PROVIDED IS FOR
INFORMATIONAL PURPOSES ONLY.

MARLBOROUGH STREET (ROUTE 85)

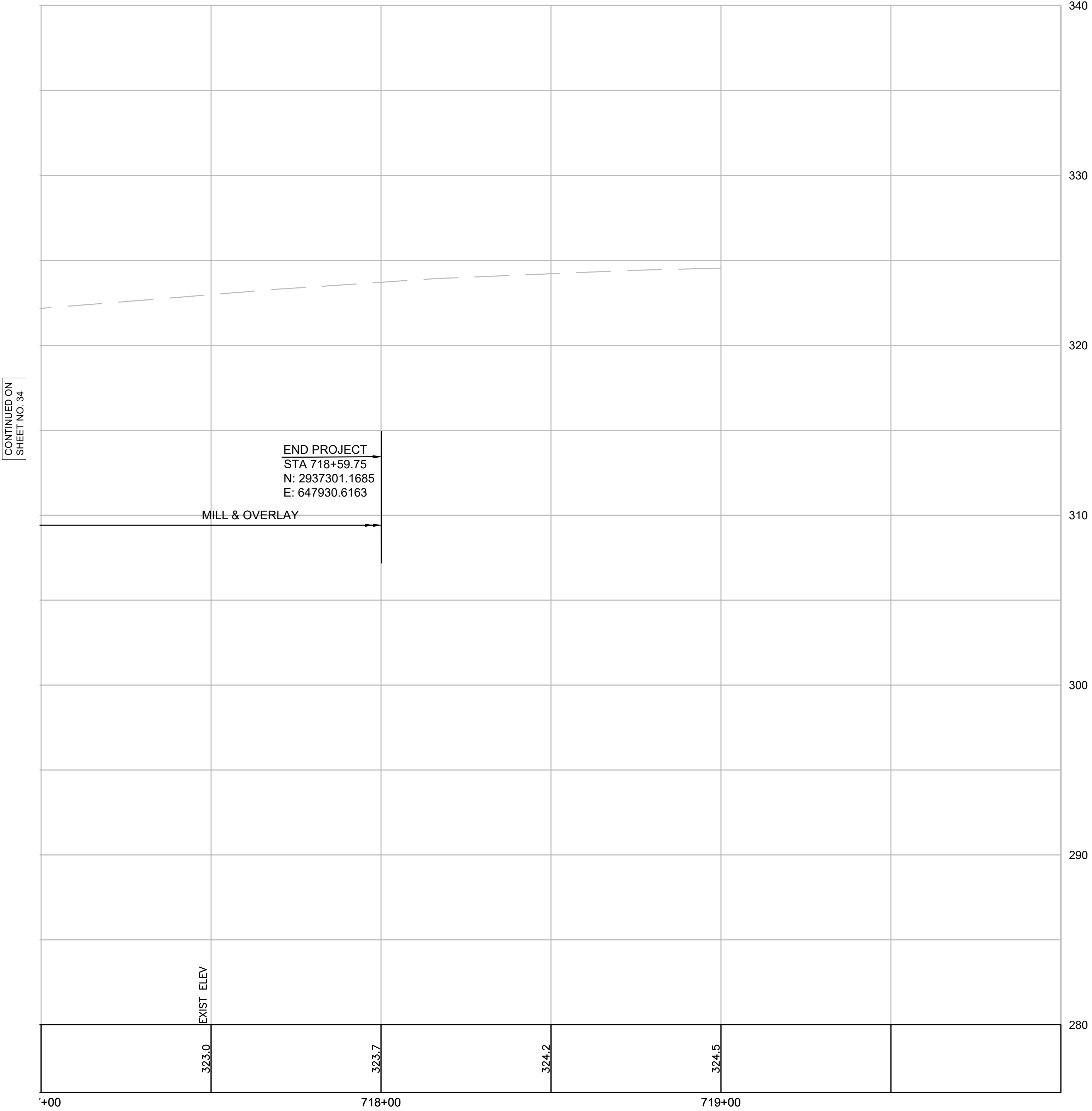


FOR CONSTRUCTION PLANS SEE SHEET NO. 28 & ##

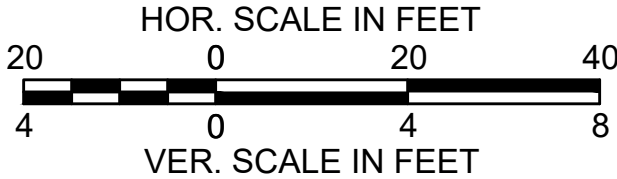


MARLBOROUGH STREET (ROUTE 85)

MARLBOROUGH ROAD (ROUTE 85) IS PROPOSED PAVEMENT
MICROMILLING & OVERLAY. NO PROFILE ADJUSTMENTS ARE
PROPOSED. THE EXISTING PROFILE PROVIDED IS FOR
INFORMATIONAL PURPOSES ONLY.

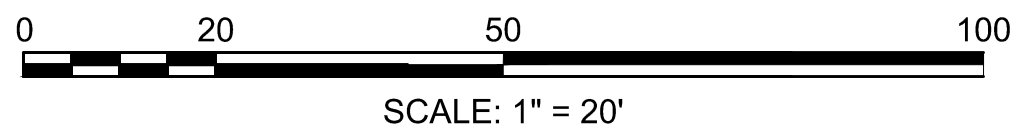


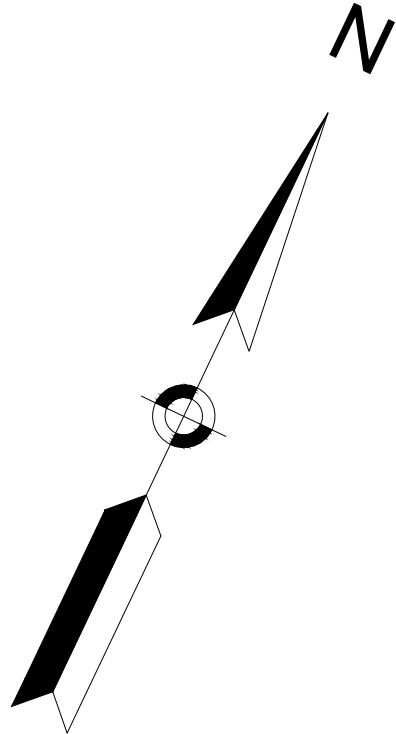
FOR CONSTRUCTION PLANS SEE SHEET NO. ##



MAIN STREET CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C1	152+41.16	2936382.7180	649200.0162	R = 510.00' Δ= 30°19'24" L=269.91' T=138.20'		155+11.07	2936430.2579	649462.5200
L1	155+11.07	2936430.2579	649462.5200		N64°34'24"E 338.93'	158+50.00	2936575.7799	649768.6199

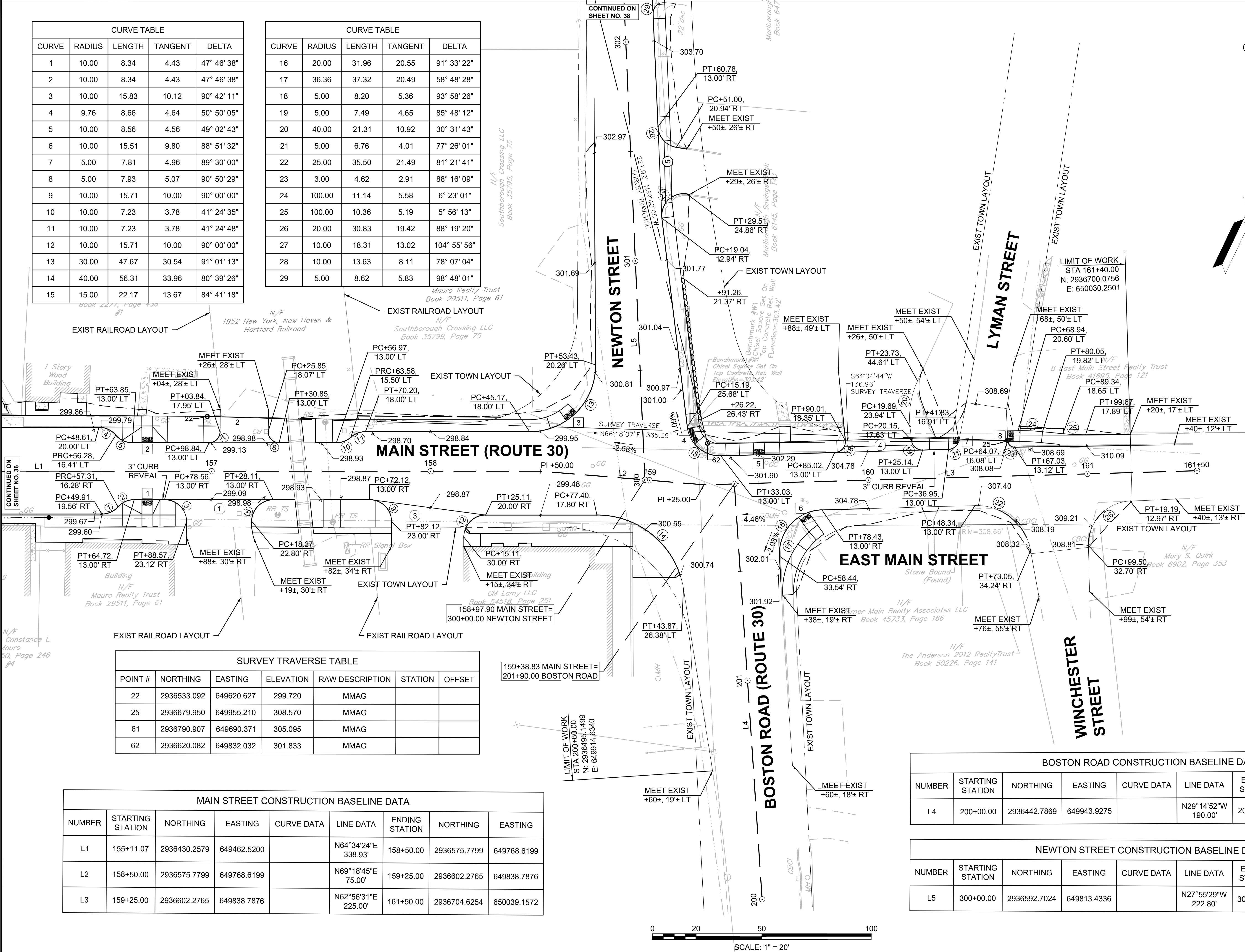
SURVEY TRAVERSE TABLE						
POINT #	NORTHING	EASTING	ELEVATION	RAW DESCRIPTION	STATION	OFFSET
22	2936533.092	649620.627	299.720	MMAG		
25	2936679.950	649955.210	308.570	MMAG		





CURVE TABLE				
CURVE	RADIUS	LENGTH	TANGENT	DELTA
1	10.00	8.34	4.43	47° 46' 38"
2	10.00	8.34	4.43	47° 46' 38"
3	10.00	15.83	10.12	90° 42' 11"
4	9.76	8.66	4.64	50° 50' 05"
5	10.00	8.56	4.56	49° 02' 43"
6	10.00	15.51	9.80	88° 51' 32"
7	5.00	7.81	4.96	89° 30' 00"
8	5.00	7.93	5.07	90° 50' 29"
9	10.00	15.71	10.00	90° 00' 00"
10	10.00	7.23	3.78	41° 24' 35"
11	10.00	7.23	3.78	41° 24' 48"
12	10.00	15.71	10.00	90° 00' 00"
13	30.00	47.67	30.54	91° 01' 13"
14	40.00	56.31	33.96	80° 39' 26"
15	15.00	22.17	13.67	84° 41' 18"

CURVE TABLE				
CURVE	RADIUS	LENGTH	TANGENT	DELTA
16	20.00	31.96	20.55	91° 33' 22"
17	36.36	37.32	20.49	58° 48' 28"
18	5.00	8.20	5.36	93° 58' 26"
19	5.00	7.49	4.65	85° 48' 12"
20	40.00	21.31	10.92	30° 31' 43"
21	5.00	6.76	4.01	77° 26' 01"
22	25.00	35.50	21.49	81° 21' 41"
23	3.00	4.62	2.91	88° 16' 09"
24	100.00	11.14	5.58	6° 23' 01"
25	100.00	10.36	5.19	5° 56' 13"
26	20.00	30.83	19.42	88° 19' 20"
27	10.00	18.31	13.02	104° 55' 56"
28	10.00	13.63	8.11	78° 07' 04"
29	5.00	8.62	5.83	98° 48' 01"

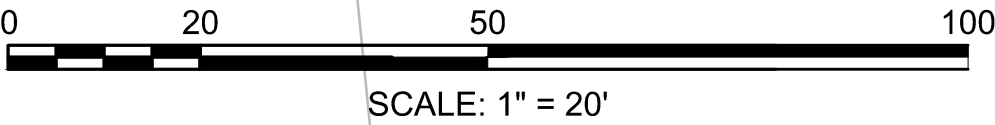


SURVEY TRAVERSE TABLE						
POINT #	NORTHING	EASTING	ELEVATION	RAW DESCRIPTION	STATION	OFFSET
22	2936533.092	649620.627	299.720	MMAG		
25	2936679.950	649955.210	308.570	MMAG		
61	2936790.907	649690.371	305.095	MMAG		
62	2936620.082	649832.032	301.833	MMAG		

MAIN STREET CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L1	155+11.07	2936430.2579	649462.5200		N64°34'24"E 338.93'	158+50.00	2936575.7799	649768.6199
L2	158+50.00	2936575.7799	649768.6199		N69°18'45"E 75.00'	159+25.00	2936602.2765	649838.7876
L3	159+25.00	2936602.2765	649838.7876		N62°56'31"E 225.00'	161+50.00	2936704.6254	650039.1572

BOSTON ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L4	200+00.00	2936442.7869	649943.9275		N29°14'52"W 190.00'	201+90.00	2936608.5640	649851.0967

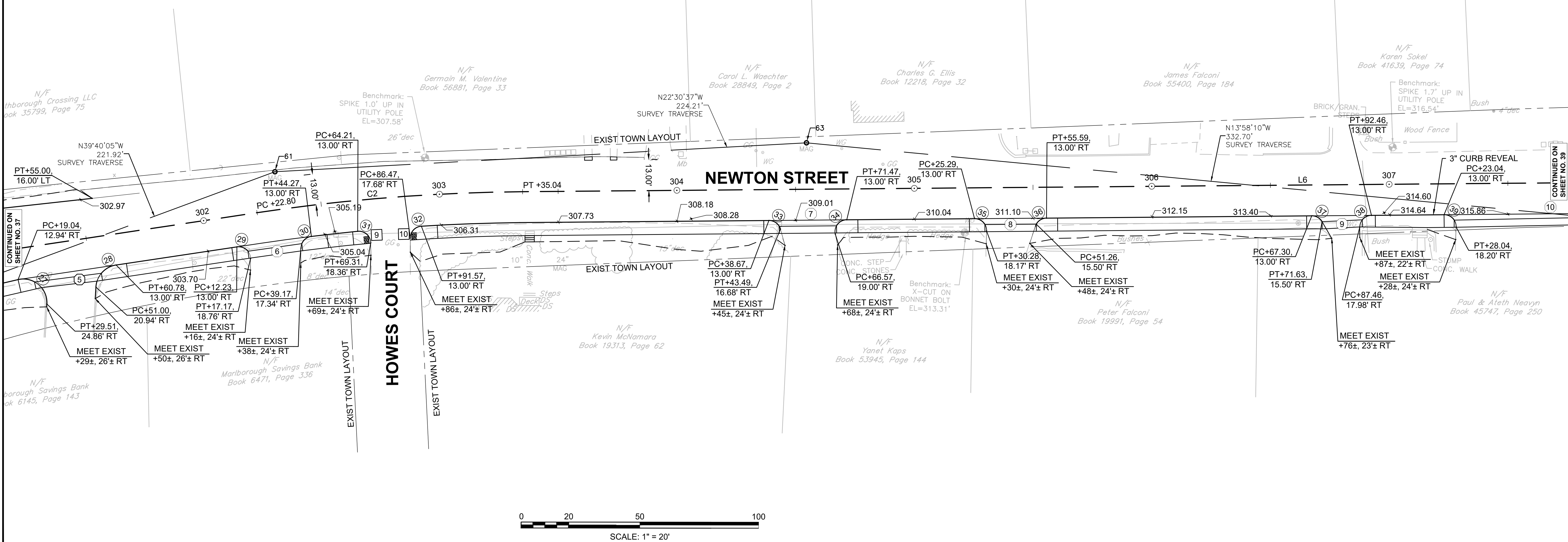
NEWTON STREET CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L5	300+00.00	2936592.7024	649813.4336		N27°55'29"W 222.80'	302+22.80	2936789.5571	649709.0960



SURVEY TRAVERSE TABLE						
POINT #	NORTHING	EASTING	ELEVATION	RAW DESCRIPTION	STATION	OFFSET
61	2936790.907	649690.371	305.095	MMAG		
62	2936620.082	649832.032	301.833	MMAG		
63	2936998.035	649604.532	309.070	MMAG		
64	2937320.895	649524.216	316.570	MMAG		

NEWTON STREET CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L5	300+00.00	2936592.7024	649813.4336		N27°55'29"W 222.80'	302+22.80	2936789.5571	649709.0960
C2	302+22.80	2936789.5571	649709.0960	R=800.00' Δ=8°02'21" L=112.25' T=56.22'		303+35.04	2936892.0924	649663.6479
L6	303+35.04	2936892.0924	649663.6479		N19°53'08"W 502.17'	308+37.21	2937364.3163	649492.8409

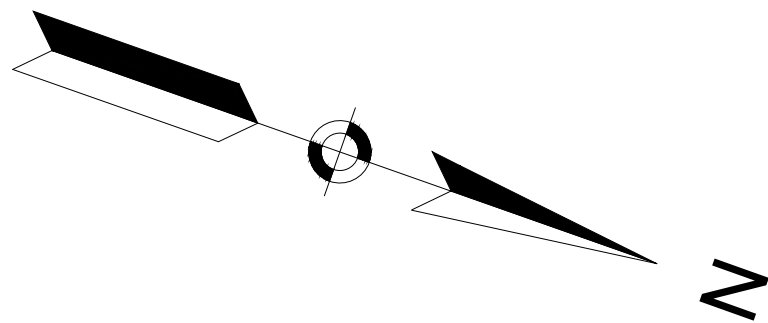
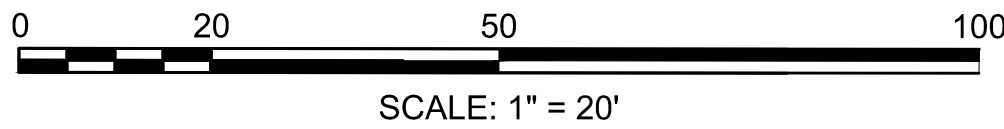
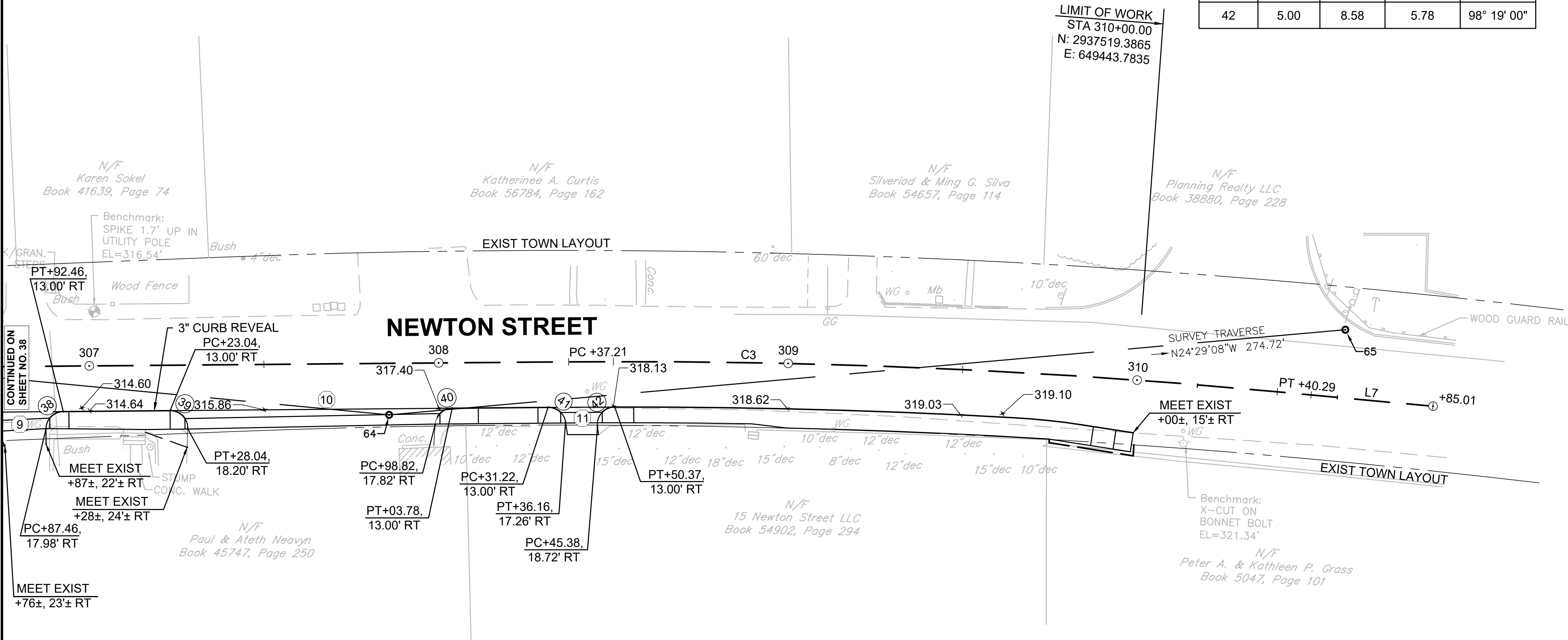
CURVE TABLE				
CURVE	RADIUS	LENGTH	TANGENT	DELTA
27	10.00	18.31	13.02	104° 55' 56"
28	10.00	13.63	8.11	78° 07' 04"
29	5.00	8.62	5.83	98° 48' 01"
30	5.00	7.23	4.42	82° 53' 26"
31	5.00	8.23	5.39	94° 17' 27"
32	5.00	7.55	4.70	86° 29' 10"
33	5.00	6.51	3.81	74° 38' 58"
34	5.00	8.86	6.13	101° 33' 02"
35	5.00	8.03	5.18	91° 58' 57"
36	5.00	6.22	3.59	71° 18' 07"
37	5.00	5.26	2.90	60° 14' 09"
38	5.00	7.83	4.98	89° 46' 33"
39	5.00	8.05	5.20	92° 14' 39"

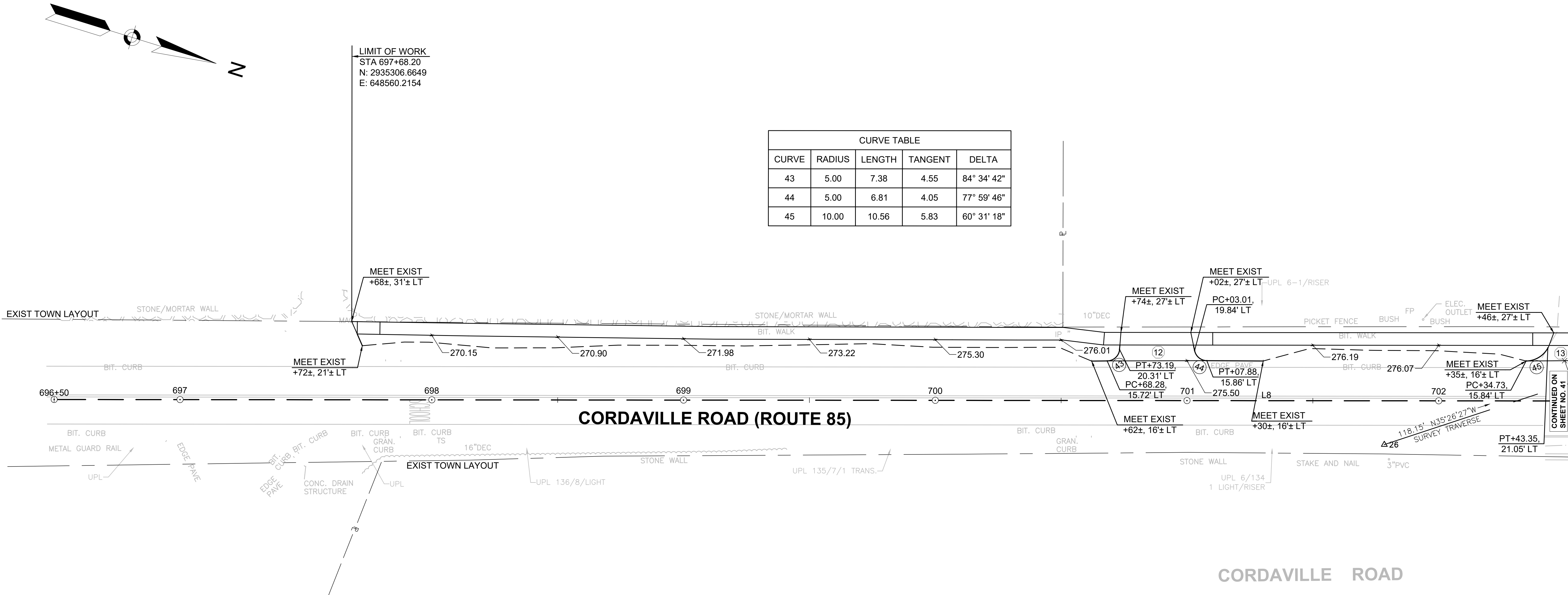


NEWTON STREET CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L6	303+35.04	2936892.0924	649663.6479		N19°53'08"W 502.17'	308+37.21	2937364.3163	649492.8409
C3	308+37.21	2937364.3163	649492.8409	R=2000.00' Δ=5°49'04" L=203.08' T=101.63'		310+40.29	2937558.4603	649433.5719
L7	310+40.29	2937558.4603	649433.5719		N14°04'04"W 44.73'	310+85.01	2937601.8470	649422.6999

SURVEY TRAVERSE TABLE						
POINT #	NORTHING	EASTING	ELEVATION	RAW DESCRIPTION	STATION	OFFSET
63	2936998.035	649604.532	309.070	MMAG		
64	2937320.895	649524.216	316.570	MMAG		
65	2937570.908	649410.354	318.730	MMAG		

CURVE TABLE				
CURVE	RADIUS	LENGTH	TANGENT	DELTA
37	5.00	5.26	2.90	60° 14' 09"
38	5.00	7.83	4.98	89° 46' 33"
39	5.00	8.05	5.20	92° 14' 39"
40	5.01	7.64	4.79	87° 25' 34"
41	5.00	7.14	4.33	81° 47' 28"
42	5.00	8.58	5.78	98° 19' 00"

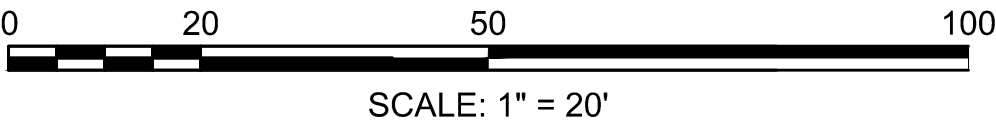




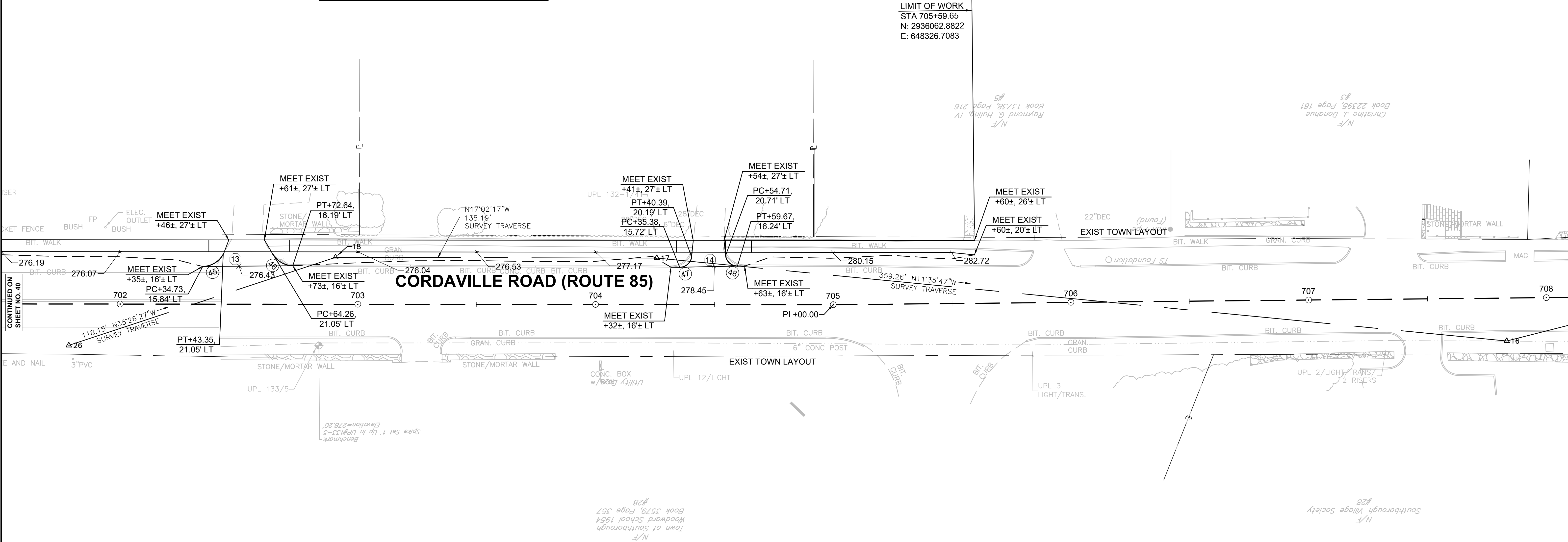
CURVE TABLE				
CURVE	RADIUS	LENGTH	TANGENT	DELTA
43	5.00	7.38	4.55	84° 34' 42"
44	5.00	6.81	4.05	77° 59' 46"
45	10.00	10.56	5.83	60° 31' 18"

ROUTE 85 CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L8	696+50.00	2935193.7019	648594.9947		N17°06'46"W 850.00'	705+00.00	2936006.0706	648344.8807

SURVEY TRAVERSE TABLE						
POINT #	NORTHING	EASTING	ELEVATION	RAW DESCRIPTION	STATION	OFFSET
18	2935800.109	648387.640	276.800	HTSET		
26	2935703.849	648456.151	276.420	HTSET		

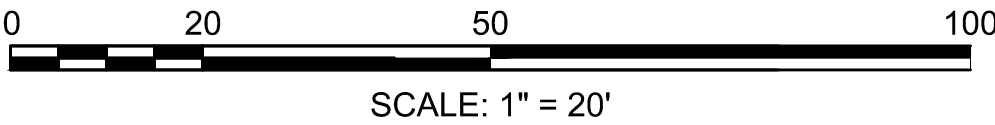


CURVE TABLE				
CURVE	RADIUS	LENGTH	TANGENT	DELTA
43	5.00	7.38	4.55	84° 34' 42"
44	5.00	6.81	4.05	77° 59' 46"
45	10.00	10.56	5.83	60° 31' 18"
46	10.00	10.11	5.53	57° 54' 44"
47	5.00	7.36	4.53	84° 18' 02"
48	5.00	7.31	4.49	83° 49' 09"

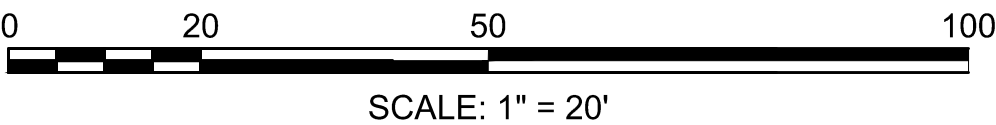
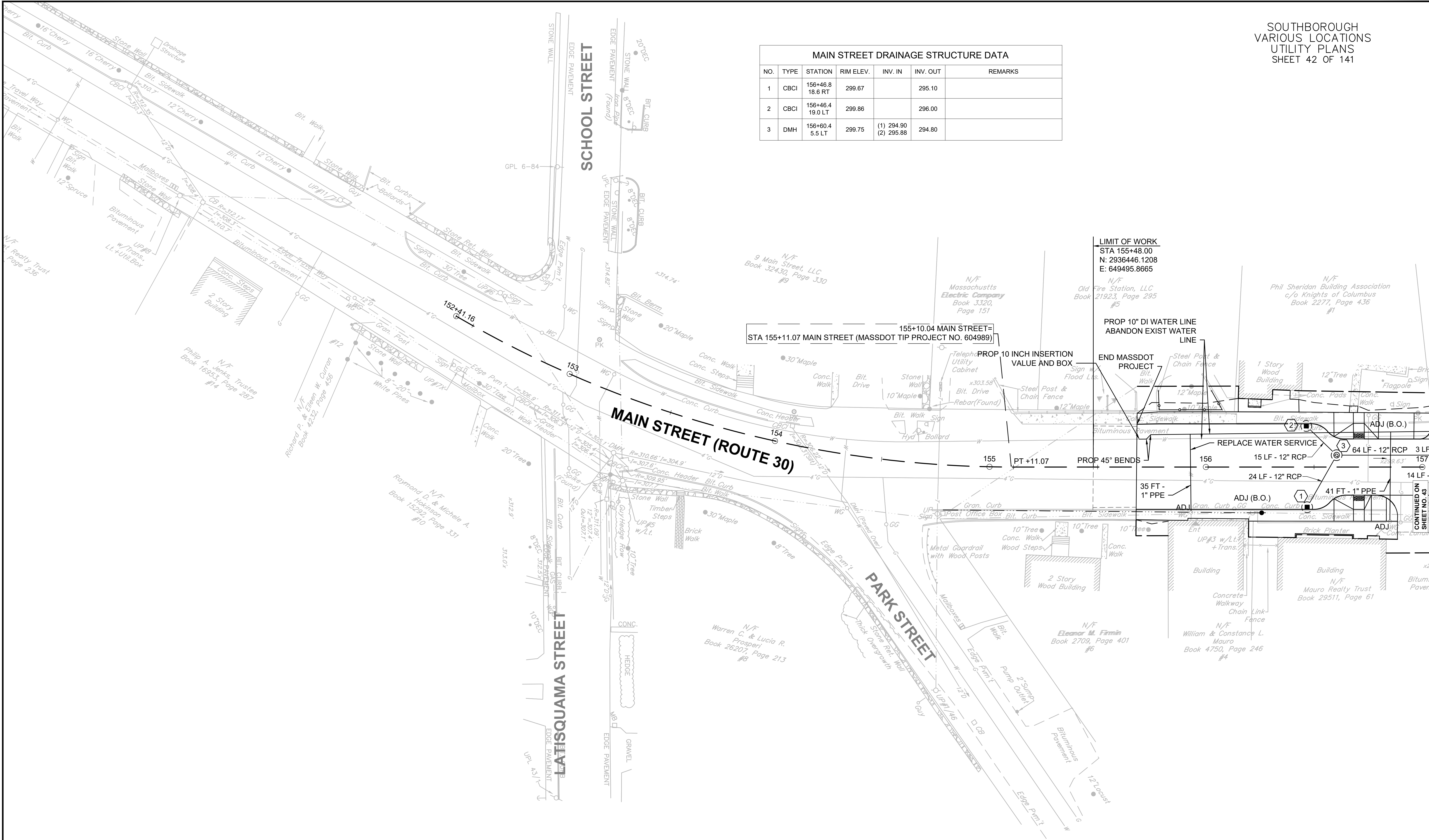


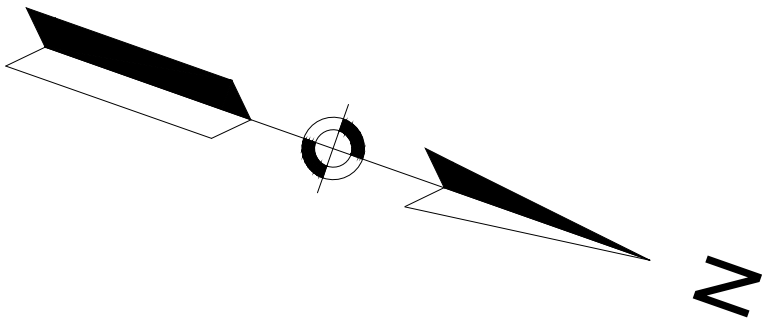
ROUTE 85 CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L8	696+50.00	2935193.7019	648594.9947		N17°06'46"W 850.00'	705+00.00	2936006.0706	648344.8807

SURVEY TRAVERSE TABLE						
POINT #	NORTHING	EASTING	ELEVATION	RAW DESCRIPTION	STATION	OFFSET
16	2936281.295	648275.811	294.810	HTSET		
17	2935929.366	648348.029	278.380	HTSET		
18	2935800.109	648387.640	276.800	HTSET		
26	2935703.849	648456.151	276.420	HTSET		

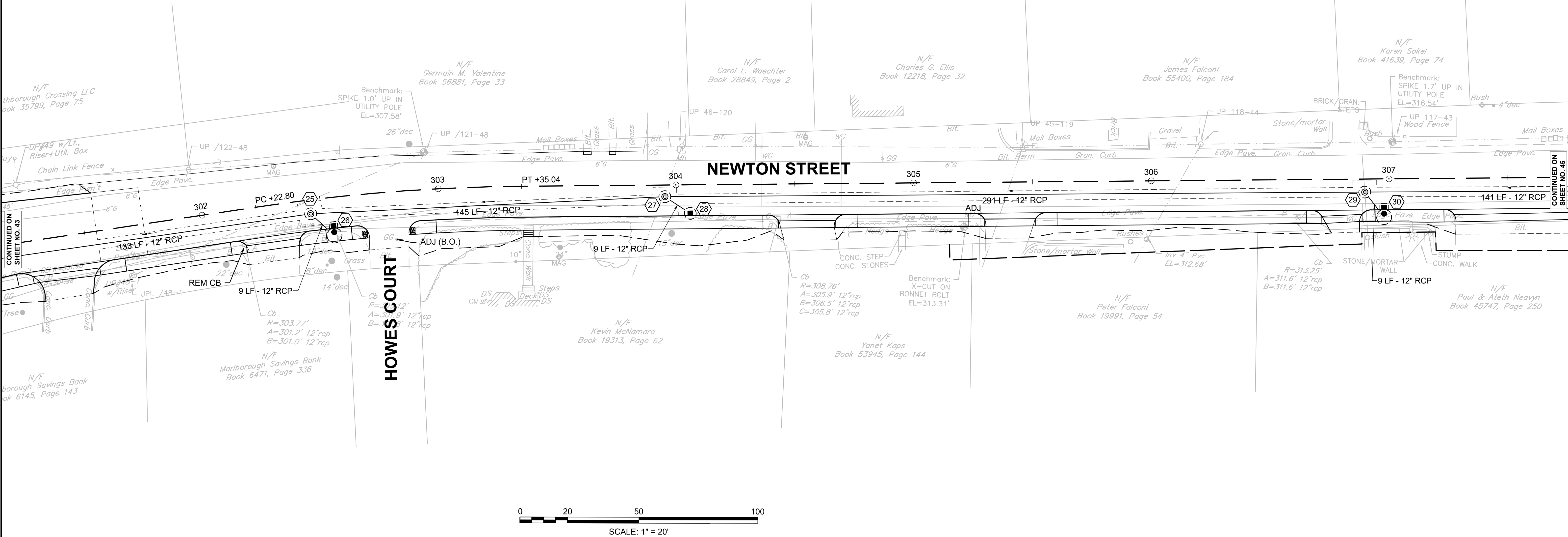


MAIN STREET DRAINAGE STRUCTURE DATA						
NO.	TYPE	STATION	RIM ELEV.	INV. IN	INV. OUT	REMARKS
1	CBCI	156+46.8 18.6 RT	299.67		295.10	
2	CBCI	156+46.4 19.0 LT	299.86		296.00	
3	DMH	156+60.4 5.5 LT	299.75	(1) 294.90 (2) 295.88	294.80	

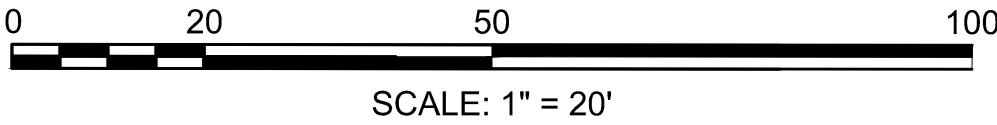
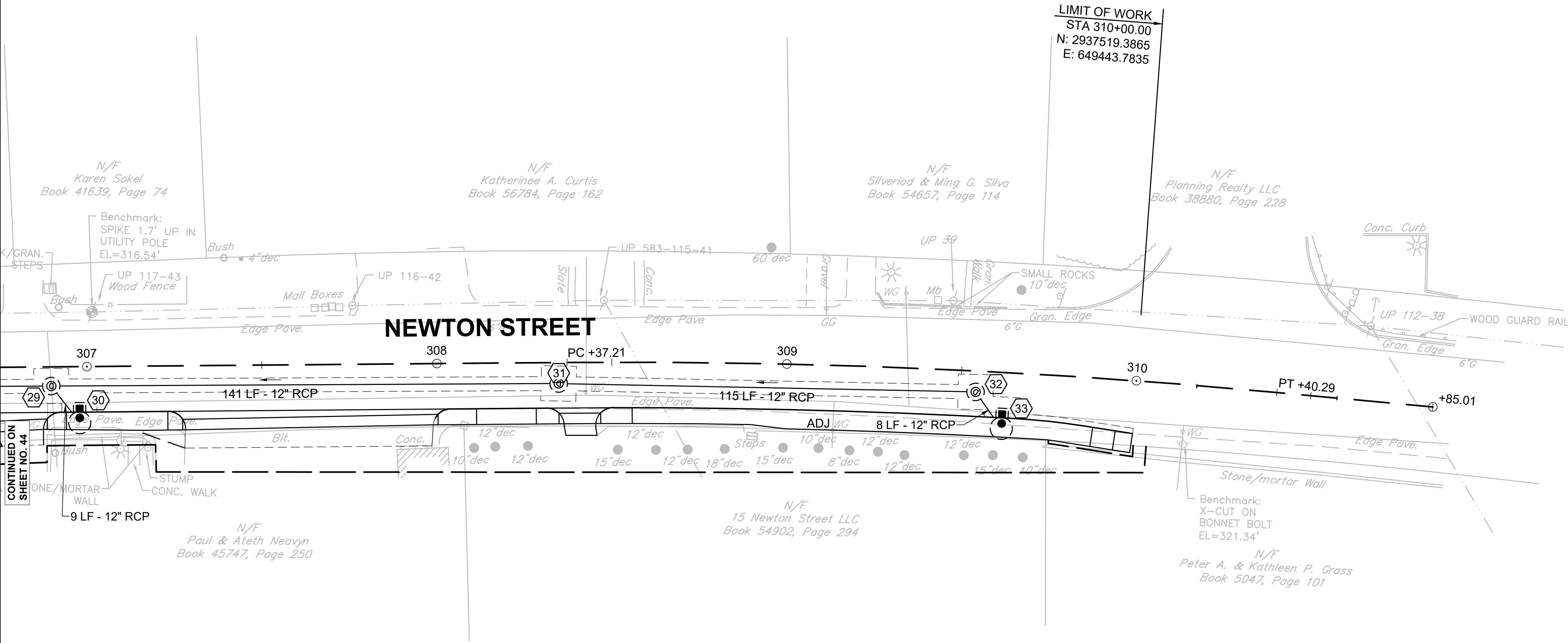
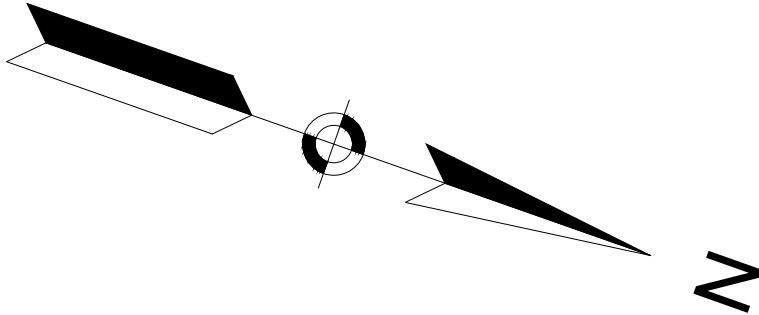


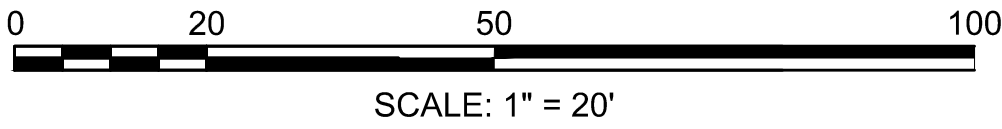
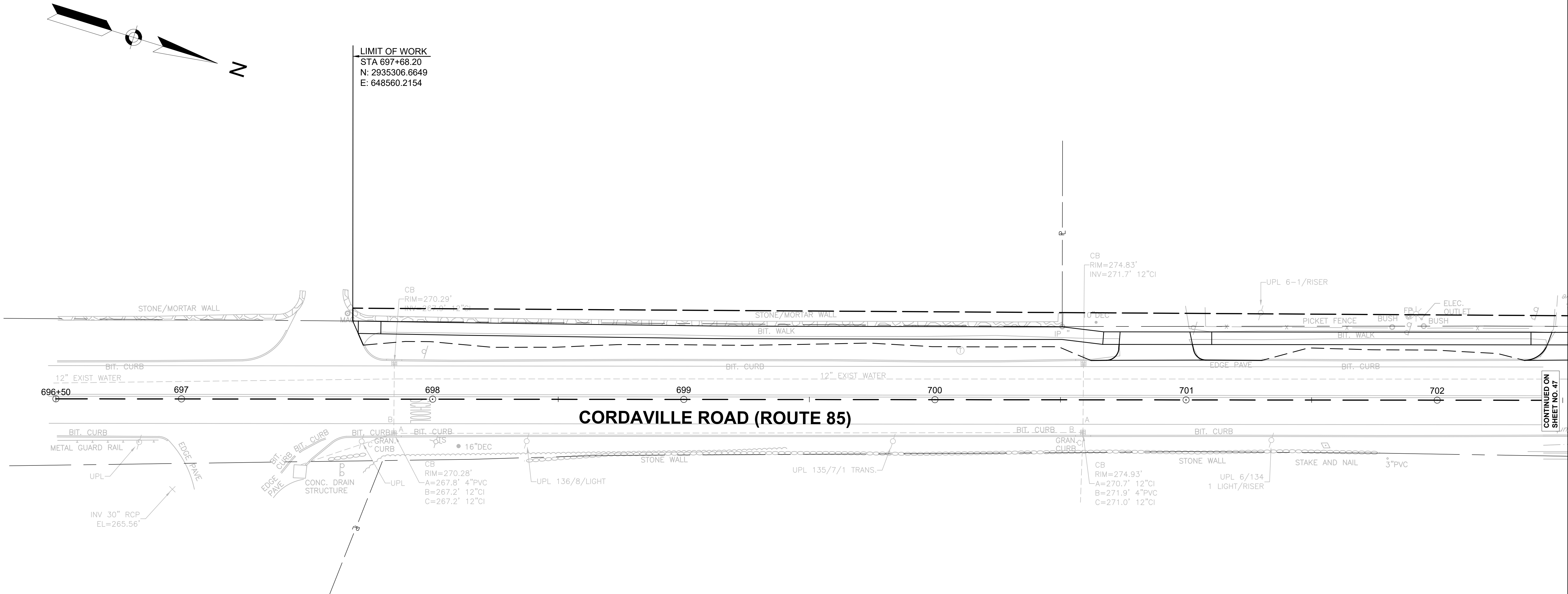


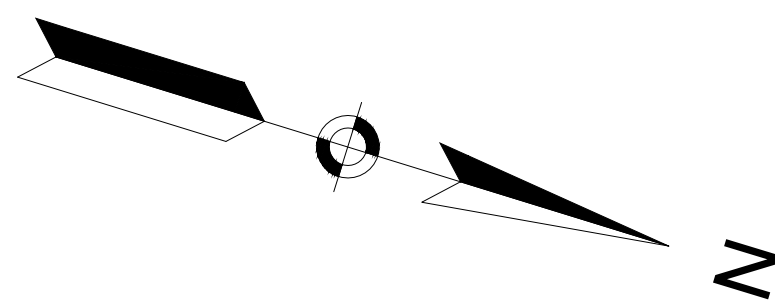
NEWTON STREET DRAINAGE STRUCTURE DATA						
NO.	TYPE	STATION	RIM ELEV.	INV. IN	INV. OUT	REMARKS
25	DMH	302+45.4 5.9 RT	305.26	(27) 300.36 (26) 300.92	300.27	
26	SP CBCI	302+54.5 16.0 RT	305.24		301.05	
27	DMH	303+95.3 4.9 RT	308.26	(29) 302.42 (28) 304.37	302.32	
28	CBCI	304+06.0 12.0 RT	308.28		304.44	
29	DMH	306+89.8 5.5 RT	314.57	(31) 309.33 (30) 310.36	309.23	
30	SP CBCI	306+97.8 16.0 RT	314.87		310.60	



NEWTON STREET DRAINAGE STRUCTURE DATA						
NO.	TYPE	STATION	RIM ELEV.	INV. IN	INV. OUT	REMARKS
29	DMH	306+89.8 5.5 RT	314.57	(31) 309.33 (30) 310.36	309.23	
30	SP CBCI	306+97.8 16.0 RT	314.87		310.60	
31	DMH	308+34.8 6.0 RT	317.99	(32) 312.97	312.87	
32	DMH	309+54.3 6.0 RT	319.23	(33) 314.87	314.77	
33	SP CBCI	309+62.2 16.0 RT	319.61		314.96	



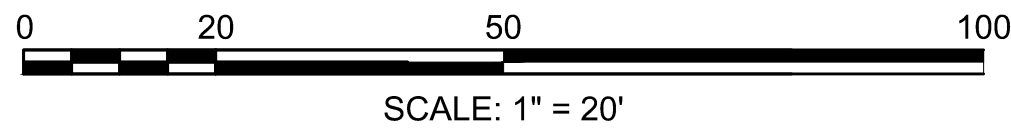
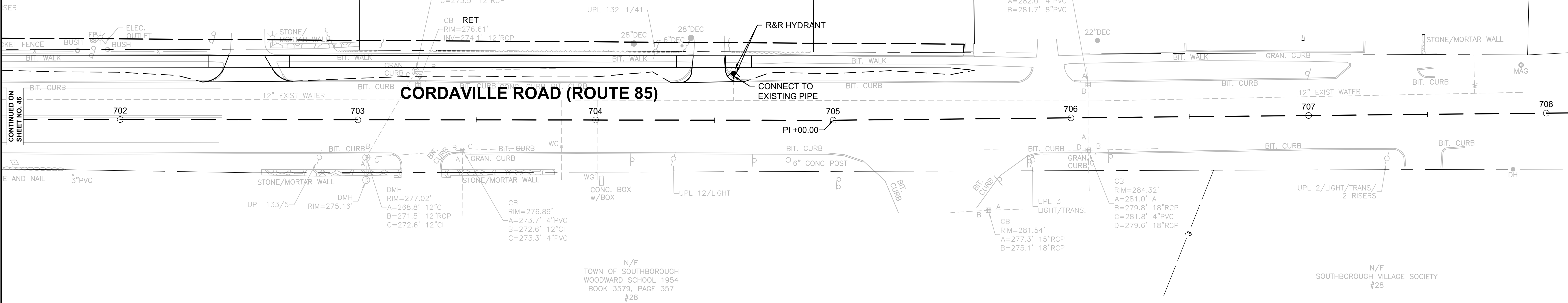


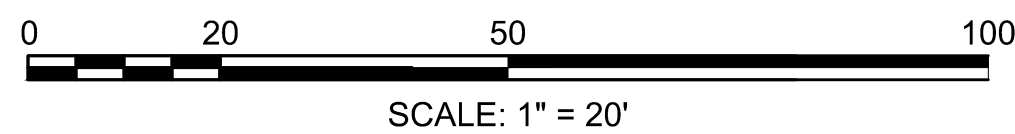


LIMIT OF WORK
STA 705+59.65
N: 2936062.8822
E: 648326.7083

N/F
RAYMOND G. HULING, IV
BOOK 13738, PAGE 216
#5

N/F
CHRISTINE J. DONAHUE
BOOK 22395, PAGE 161
#3





1. ALL PAVEMENT MARKINGS SHALL BE REFLECTORIZED THERMOPLASTIC.
2. WHERE EXISTING PAVEMENT MARKINGS ARE DIFFERENT THAN PROPOSED MARKINGS SHOWN, REMOVE BY AN APPROVED METHOD
3. RETAIN ALL EXISTING SIGNS UNLESS OTHERWISE NOTED.

- CONSTRUCTION NOTES
1. ALL PAVEMENT MARKINGS SHALL BE REFLECTORIZED THERMOPLASTIC.
 2. WHERE EXISTING PAVEMENT MARKINGS ARE DIFFERENT THAN PROPOSED MARKINGS SHOWN, REMOVE BY AN APPROVED METHOD.
 3. RETAIN ALL EXISTING SIGNS UNLESS OTHERWISE NOTED.

LIMIT OF WORK
STA 161+40.00
N: 2936700.0756
E: 650030.2501

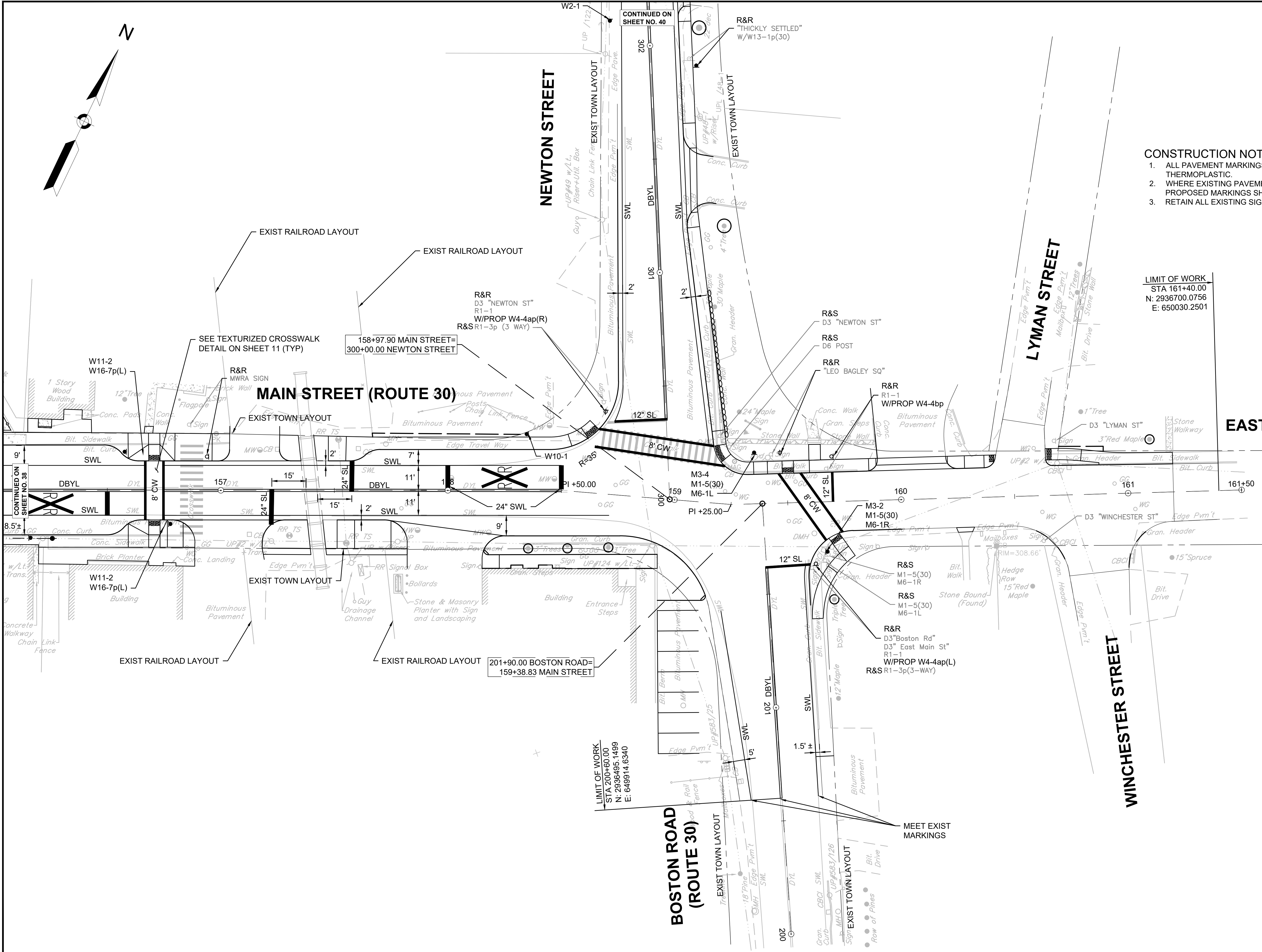
EAST MAIN STREET

LYMAN STREET

WINCHESTER STREET

NEWTON STREET

BOSTON ROAD
(ROUTE 30)



0 20 50 100
SCALE: 1" = 20'

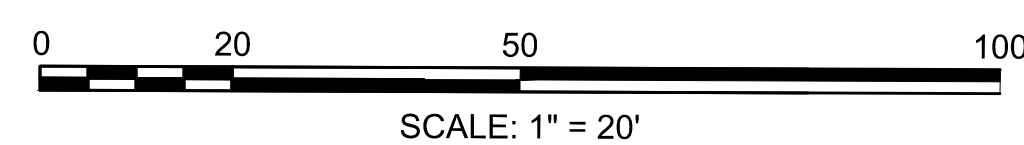
1. ALL PAVEMENT MARKINGS SHALL BE REFLECTORIZED THERMOPLASTIC.
2. WHERE EXISTING PAVEMENT MARKINGS ARE DIFFERENT THAN PROPOSED MARKINGS SHOWN, REMOVE BY AN APPROVED METHOD.
3. RETAIN ALL EXISTING SIGNS UNLESS OTHERWISE NOTED.

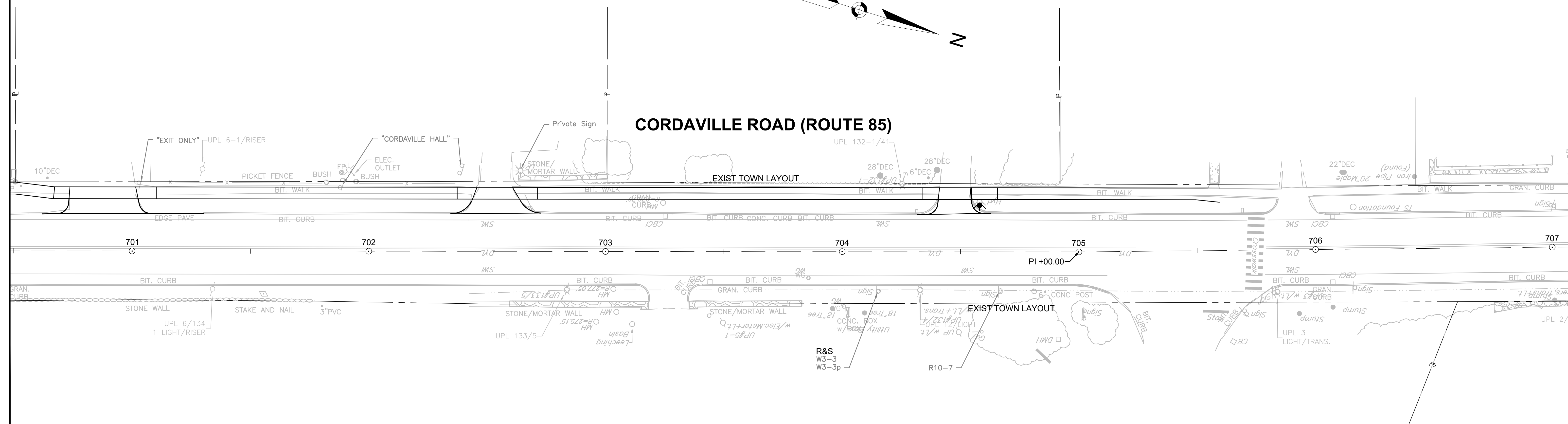


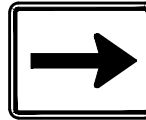
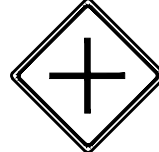


CONSTRUCTION NOTES

1. ALL PAVEMENT MARKINGS SHALL BE REFLECTORIZED THERMOPLASTIC.
2. WHERE EXISTING PAVEMENT MARKINGS ARE DIFFERENT THAN PROPOSED MARKINGS SHOWN, REMOVE BY AN APPROVED METHOD.
3. RETAIN ALL EXISTING SIGNS UNLESS OTHERWISE NOTED.



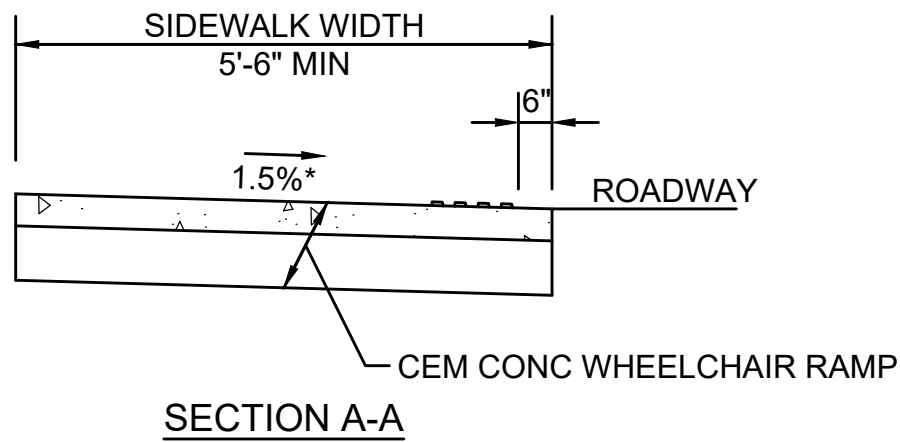


TRAFFIC SIGN SUMMARY													
IDENTIFI- CATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK- GROUND	LEGEND	BORDER			
M1-5(30)	30"	24"		SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION"; AS AMENDED			2	WHITE	BLACK	BLACK	P5-2	5.00	10.00
M3-2	24"	12"					1	WHITE	BLACK	BLACK	1 MTD W/OTHER	2.00	2.00
M3-4	24"	12"					1	WHITE	BLACK	BLACK	1 MTD W/OTHER	2.00	2.00
M6-1L	21"	15"					1	WHITE	BLACK	BLACK	1 MTD W/OTHER	2.19	2.19
M6-1R	21"	15"					1	WHITE	BLACK	BLACK	1 MTD W/OTHER	2.19	2.19
W2-1	30"	30"					1	YELLOW	BLACK	BLACK	P5-1	6.25	6.25
W4-4ap(L)	24"	12"					1	YELLOW	BLACK	BLACK	1 MTD W/OTHERS	2.00	2.00
W4-4ap(R)	24"	12"					1	YELLOW	BLACK	BLACK	1 MTD W/OTHERS	2.00	2.00
W4-4bp	24"	12"					1	YELLOW	BLACK	BLACK	1 MTD W/OTHERS	2.00	2.00
W10-1	36" DIA						2	YELLOW	BLACK	BLACK	P5-2	7.00	14.00
W11-2	30"	30"					2	YELLOW	BLACK	BLACK	P5-2	6.25	12.50
W16-7p(L)	24"	12"					2	YELLOW	BLACK	BLACK	2 MTD W/OTHERS	2.00	4.00

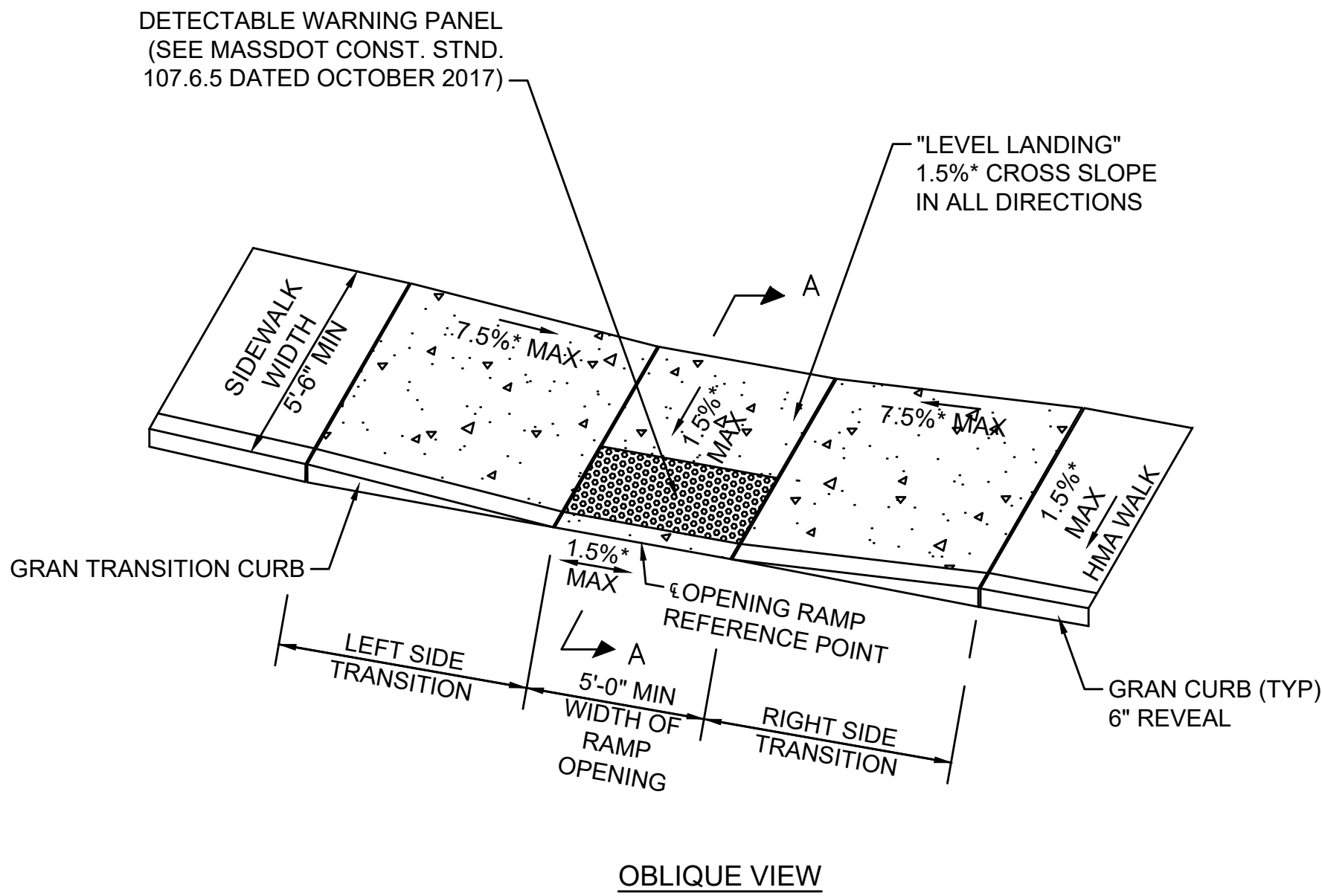
NOTES:
1. HIGH INTENSITY REFLECTIVE SHEETING SHALL BE USED FOR ALL SIGNS. SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION" FOR TEXT DIMENSIONS, AS AMENDED; THE 1977 MASSHIGHWAY DEPARTMENT CONSTRUCTION AND TRAFFIC STANDARD DETAILS, AS AMENDED, FOR SIGNS AND SUPPORTS; AND THE MASSHIGHWAY DEPARTMENT SIGN LISTINGS 1993 EDITION, AS AMENDED.

WHEELCHAIR RAMP DATA										
NO.	LOCATION (REFERENCE POINT)	LEFT SIDE			RIGHT SIDE			OPENING ELEVATION	SIDEWALK WIDTH	COMMENTS
		ROADWAY GUTTER	REVEAL	TRANS	ROADWAY GUTTER	REVEAL	TRANS			
MAIN STREET										
5	159+50.9, 13.0' LT	-4.6%	6"	6'-6"	4.6%	3"	7'-0"	302.31'	5'-6"	

- NOTE:
- NEGATIVE (-) ROADWAY GUTTER SLOPE DENOTES A LOW SIDE TRANSITION.
 - ROADWAY GUTTER SLOPE TAKEN FROM PROFILE.
 - TOLERANCE FOR CONSTRUCTION $\pm 0.5\%$
 - TRANSITION LENGTH MEASURED AT BACK OF WALK.



- LEGEND
- [Symbol] = LIMITS OF CEM CONC RAMP
 - [Symbol] = DETECTABLE WARNING PANEL



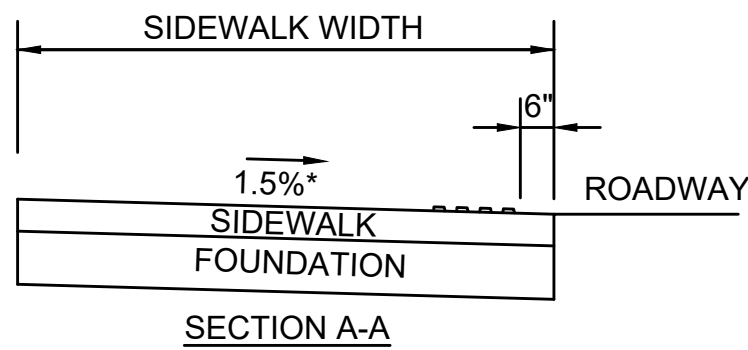
*TOLERANCE FOR CONSTRUCTION $\pm 0.5\%$

WHEELCHAIR RAMP IN SIDEWALK LESS THAN 6'-6"

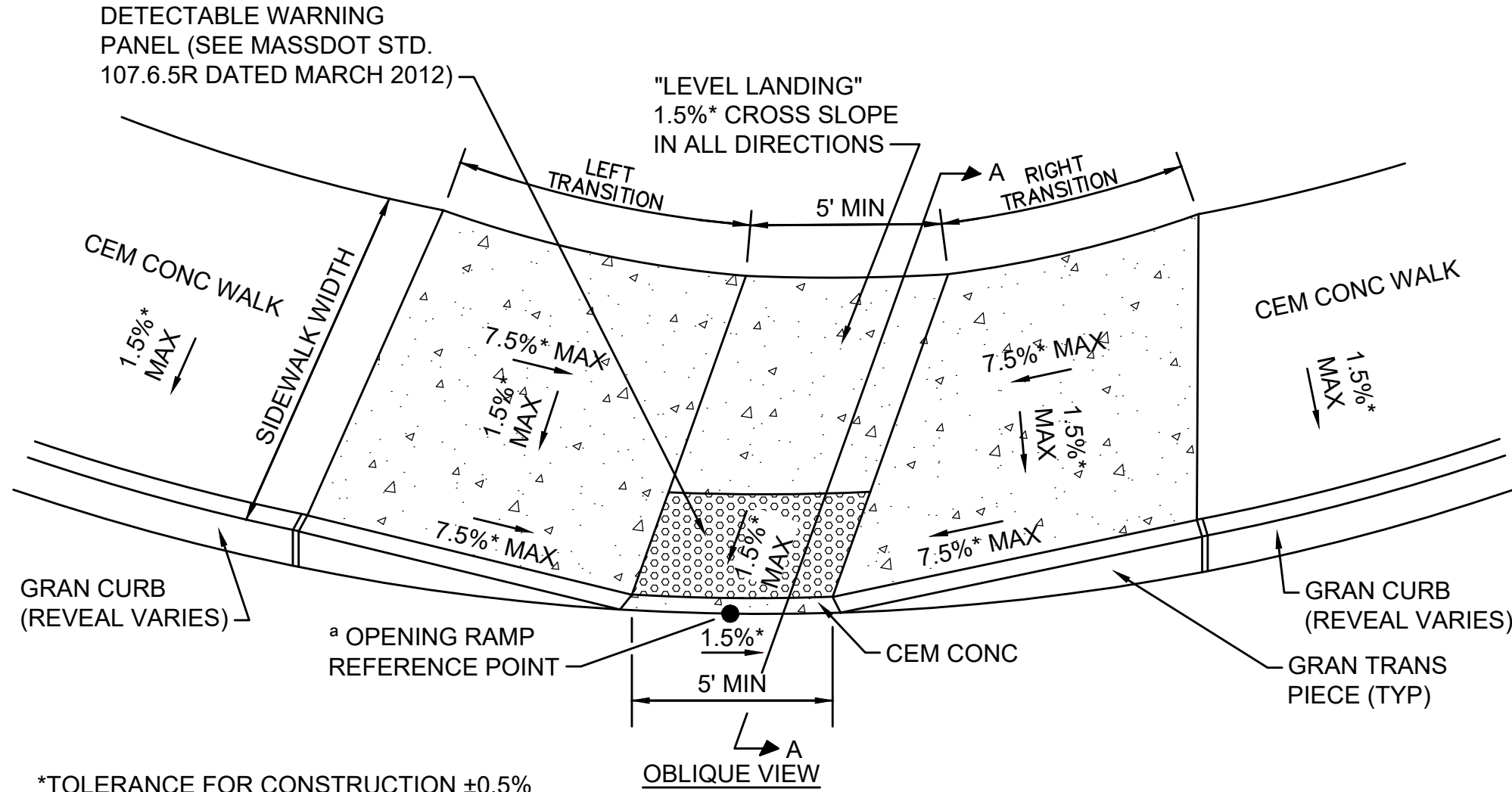
SCALE: NTS MassDOT STANDARD DETAIL REFERENCE: E 107.2.1

WHEELCHAIR RAMP DATA										
NO.	LOCATION (REFERENCE POINT)	LEFT SIDE			RIGHT SIDE			OPENING ELEVATION	SIDEWALK WIDTH	COMMENTS
		ROADWAY GUTTER	REVEAL	TRANS	ROADWAY GUTTER	REVEAL	TRANS			
MAIN STREET										
3	158+62.1, 26.1' LT	-4.90%	6"	6'-6"	N/A	6"	6'-6"	300.34'	5'-6"	NO RIGHT PANEL
4	159+16.8, 21.4' LT	-1.50%	6"	6'-6"	2.63%	6"	11'-0"	300.27'	5'-6"	

- NOTE:
- NEGATIVE (-) ROADWAY GUTTER SLOPE DENOTES A LOW SIDE TRANSITION.
 - TOLERANCE FOR CONSTRUCTION $\pm 0.5\%$
 - TRANSITION LENGTH MEASURED AT BACK OF WALK.



- LEGEND
- [Symbol] = LIMITS OF CEM CONC RAMP
 - [Symbol] = DETECTABLE WARNING PANEL



*TOLERANCE FOR CONSTRUCTION $\pm 0.5\%$

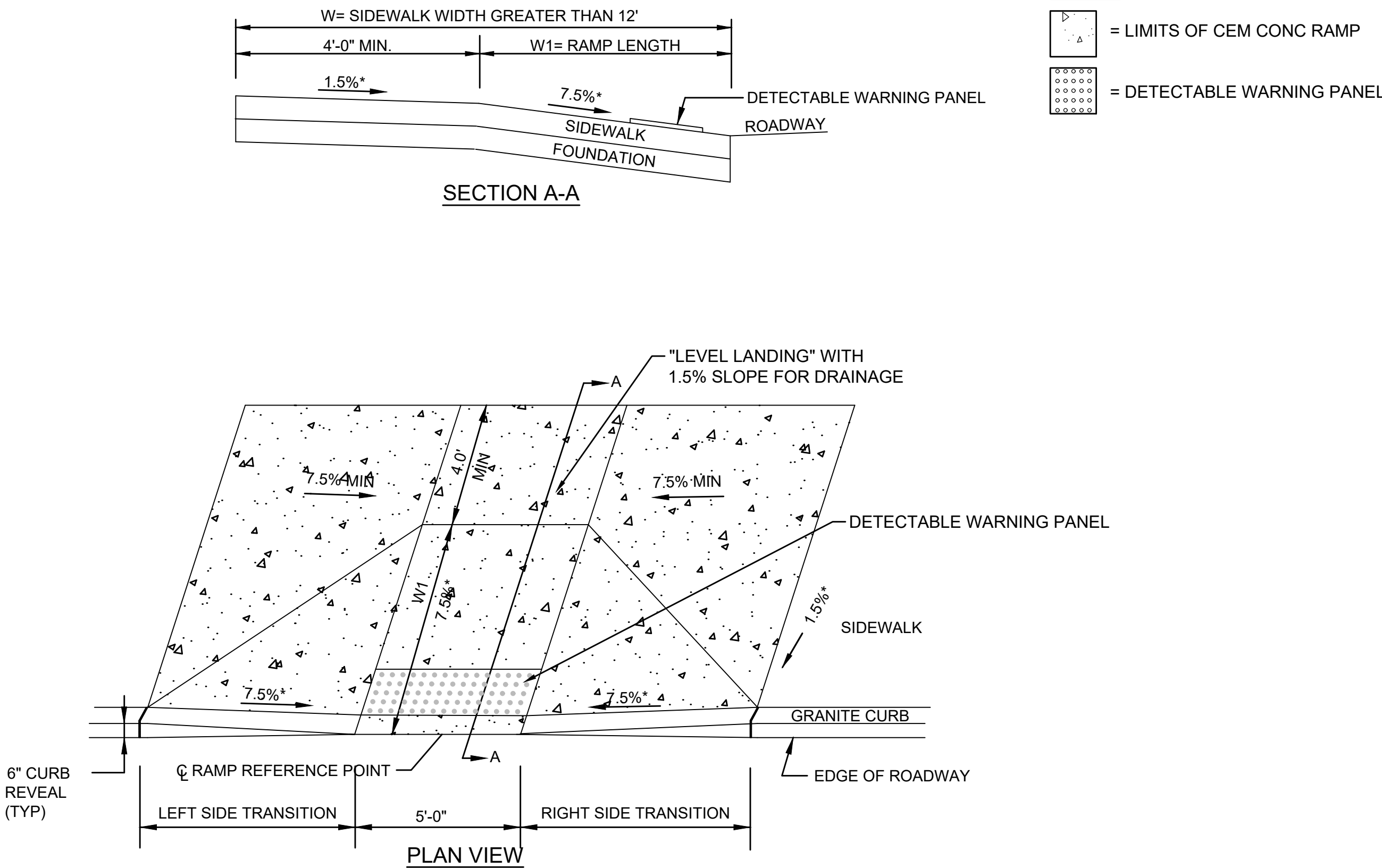
WHEELCHAIR RAMP LESS THAN 6'-6" - CURVED

SCALE: NTS

WHEELCHAIR RAMP DATA												
NO.	LOCATION (REFERENCE POINT)	LEFT SIDE			RIGHT SIDE			OPENING ELEVATION	SIDEWALK WIDTH	W1 RAMP LENGTH	LEVEL LANDING LENGTH	COMMENTS
		ROADWAY GUTTER	REVEAL	TRANS	ROADWAY GUTTER	REVEAL	TRANS					
MAIN STREET												
1	156+70.7, 13.0' RT	-1.55%	3"	3'-3"	1.55%	6"	9'-0"	299.37'	12.0'	6.7'	5'-6"	
2	156+70.7, 13.0' LT	1.55%	6"	9'-0"	-1.55%	6"	6'-6"	299.50'	12.2'	7.2'	5'-0"	

NOTE:

- NEGATIVE (-) ROADWAY GUTTER SLOPE DENOTES A LOW SIDE TRANSITION.
- ROADWAY GUTTER SLOPE TAKEN FROM PROFILE.
- TOLERANCE FOR CONSTRUCTION $\pm$ 0.5%



*TOLERANCE FOR CONSTRUCTION $\pm$ 0.5%

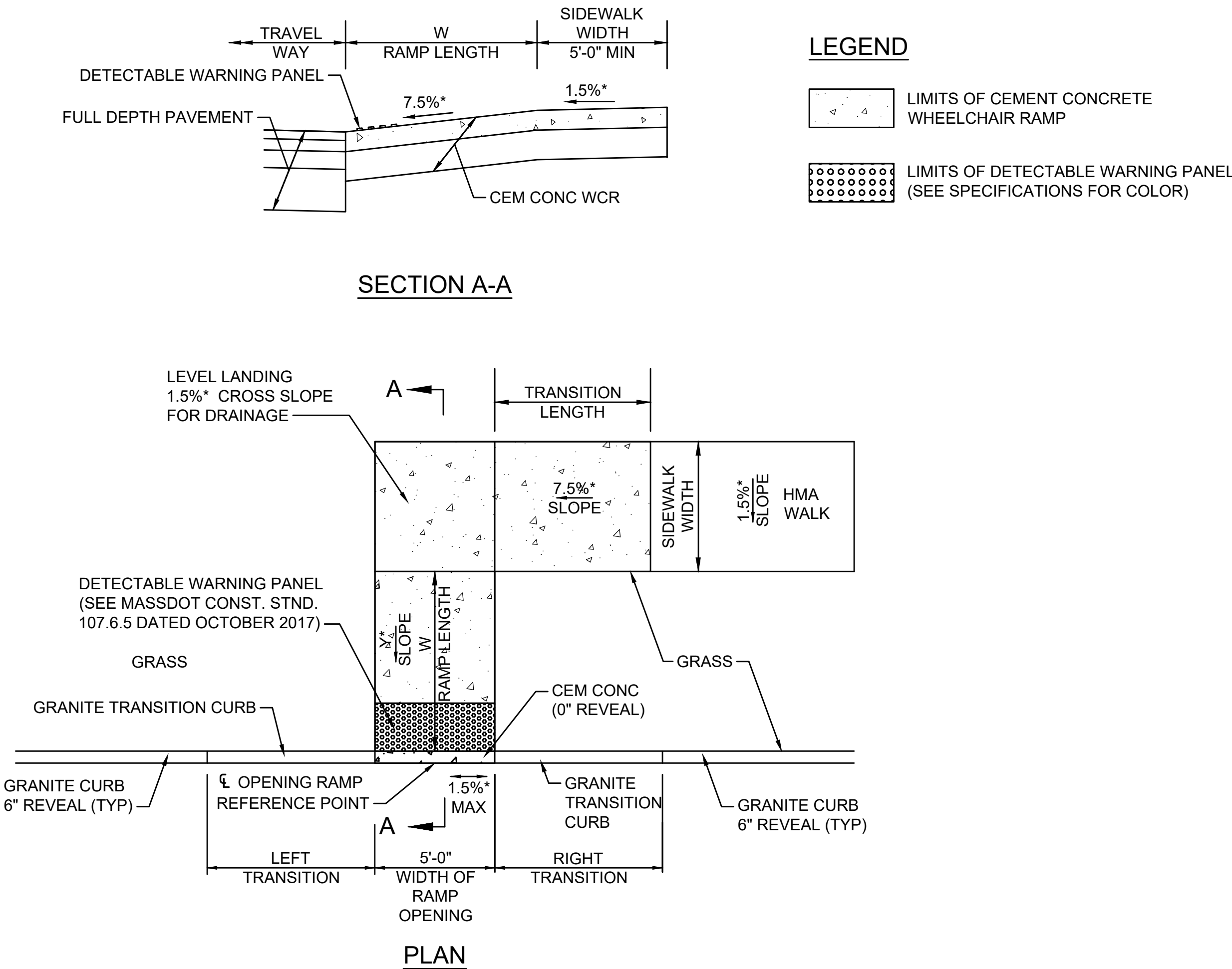
WHEELCHAIR RAMP - LESS THAN 12'-4" SIDEWALK

SCALE: NTS MassDOT STANDARD DETAIL REFERENCE: E 107.2.0

WHEELCHAIR RAMP DATA												
NO.	LOCATION (REFERENCE POINT)	LEFT SIDE			RIGHT SIDE			OPENING ELEVATION	SIDEWALK WIDTH	W RAMP LENGTH	Y RAMP SLOPE	COMMENTS
		ROADWAY GUTTER	REVEAL	TRANS	ROADWAY GUTTER	REVEAL	TRANS					
MAIN STREET												
6	159+69.9, 14.9' RT	N/A	6"	6'-6"	-3.75%	6"	6'-6"	303.04	5'-0"	7.7' AT CENTER	1.5%	NO LEFT PANEL

NOTE:

- NEGATIVE (-) ROADWAY GUTTER SLOPE DENOTES A LOW SIDE TRANSITION.
- TOLERANCE FOR CONSTRUCTION $\pm$ 0.5%
- TRANSITION LENGTH MEASURED AT BACK OF WALK



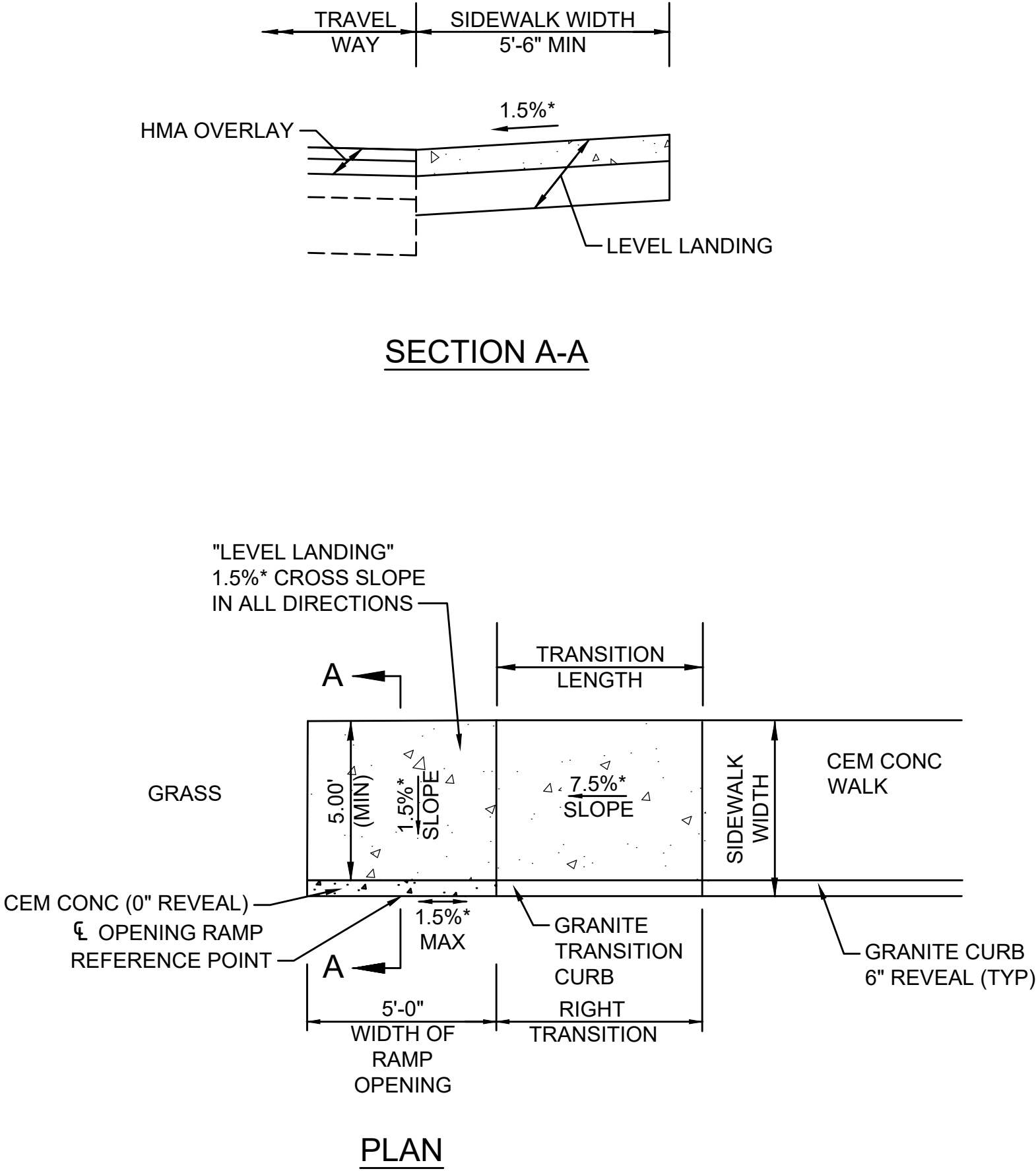
*TOLERANCE FOR CONSTRUCTION $\pm$ 0.5%

WHEELCHAIR RAMP - ONE RAMP ADJACENT TO GRASS

SCALE: N.T.S.

WHEELCHAIR RAMP DATA										
NO.	LOCATION (REFERENCE POINT)	LEFT SIDE			RIGHT SIDE			OPENING ELEVATION	SIDEWALK WIDTH	COMMENTS
		ROADWAY GUTTER	REVEAL	TRANS	ROADWAY GUTTER	REVEAL	TRANS			
NEWTON STREET										
11	309+97.5, 14.9' RT	-	-	-	0.01%	6"	6'-6"		5'-6"	NO LEFT PANEL

- NOTE:
- 1. NEGATIVE (-) ROADWAY GUTTER SLOPE DENOTES A LOW SIDE TRANSITION.
 - 2. ROADWAY GUTTER SLOPE TAKEN FROM PROFILE.
 - 3. TOLERANCE FOR CONSTRUCTION ± 0.5%



*TOLERANCE FOR CONSTRUCTION ±0.5%

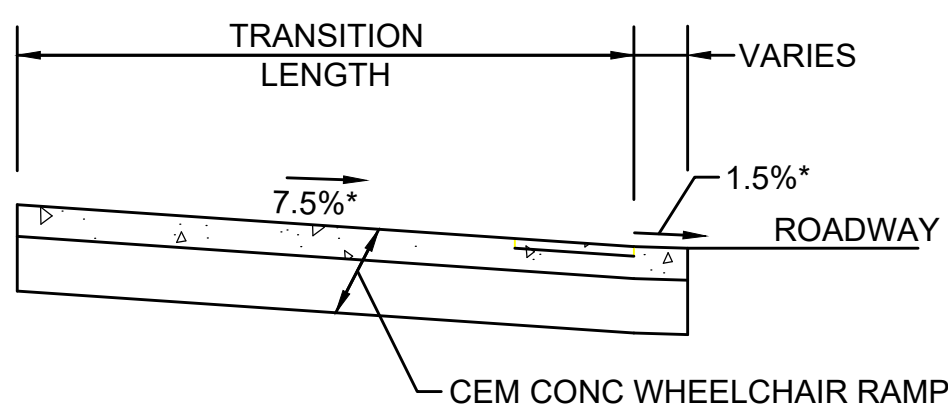
WHEELCHAIR RAMP IN SIDEWALK LESS THAN 6'-6" - WITH ONE PANEL

SCALE: N.T.S.

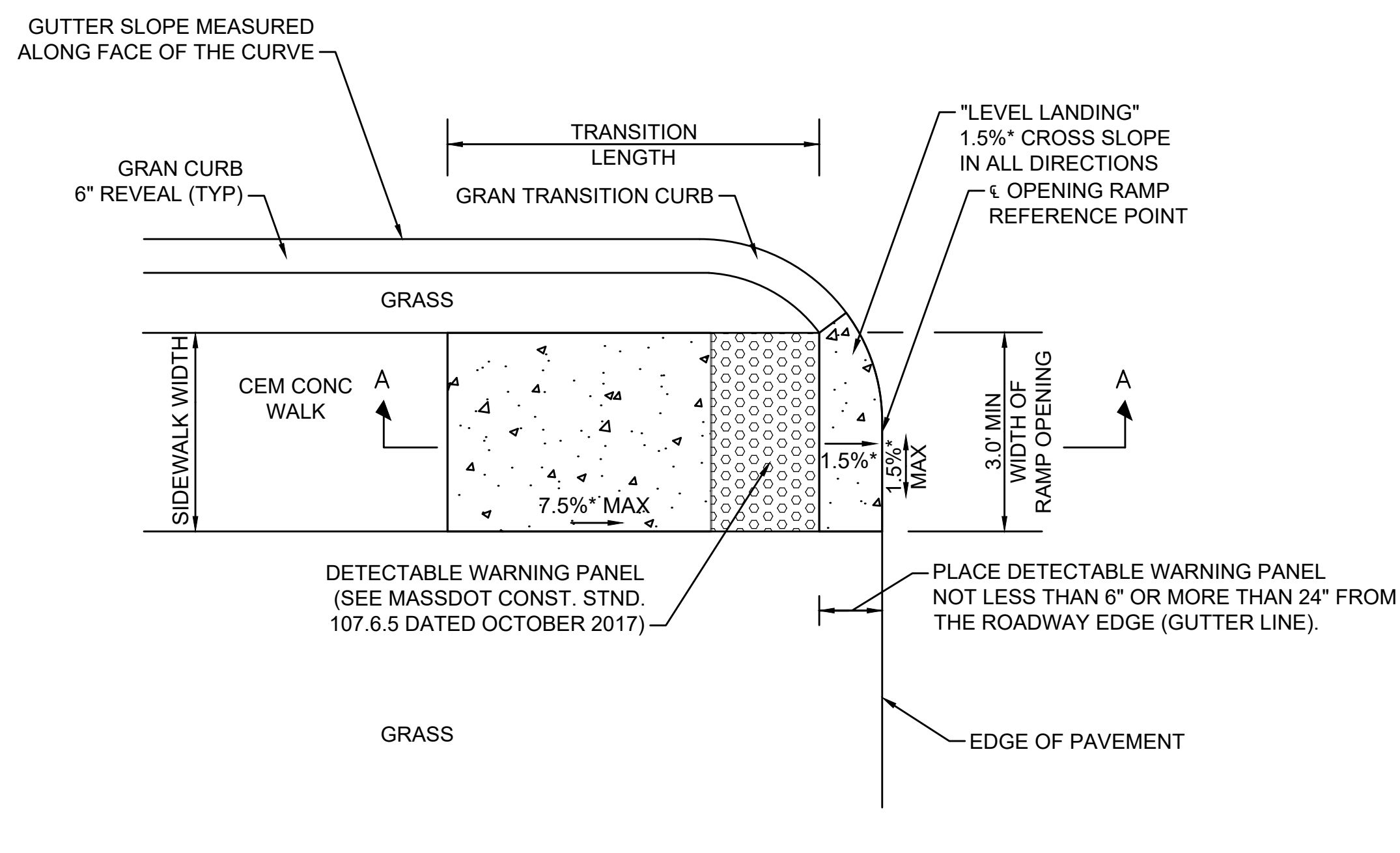
WHEELCHAIR RAMP DATA							
NO.	LOCATION (REFERENCE POINT)	SIDEWALK WIDTH	ROADWAY GUTTER	REVEAL	TRANS	OPENING ELEVATION	COMMENTS
MAIN STREET							
8	160+64.0. 18.2' LT	5'-0"	5.25%	6"	15'-0"	308.08'	

NOTE:

1. NEGATIVE (-) ROADWAY GUTTER SLOPE DENOTES A LOW SIDE TRANSITION.
2. ROADWAY GUTTER SLOPE TAKEN FROM PROFILE.
3. TOLERANCE FOR CONSTRUCTION $\pm 0.5\%$



SECTION A-A



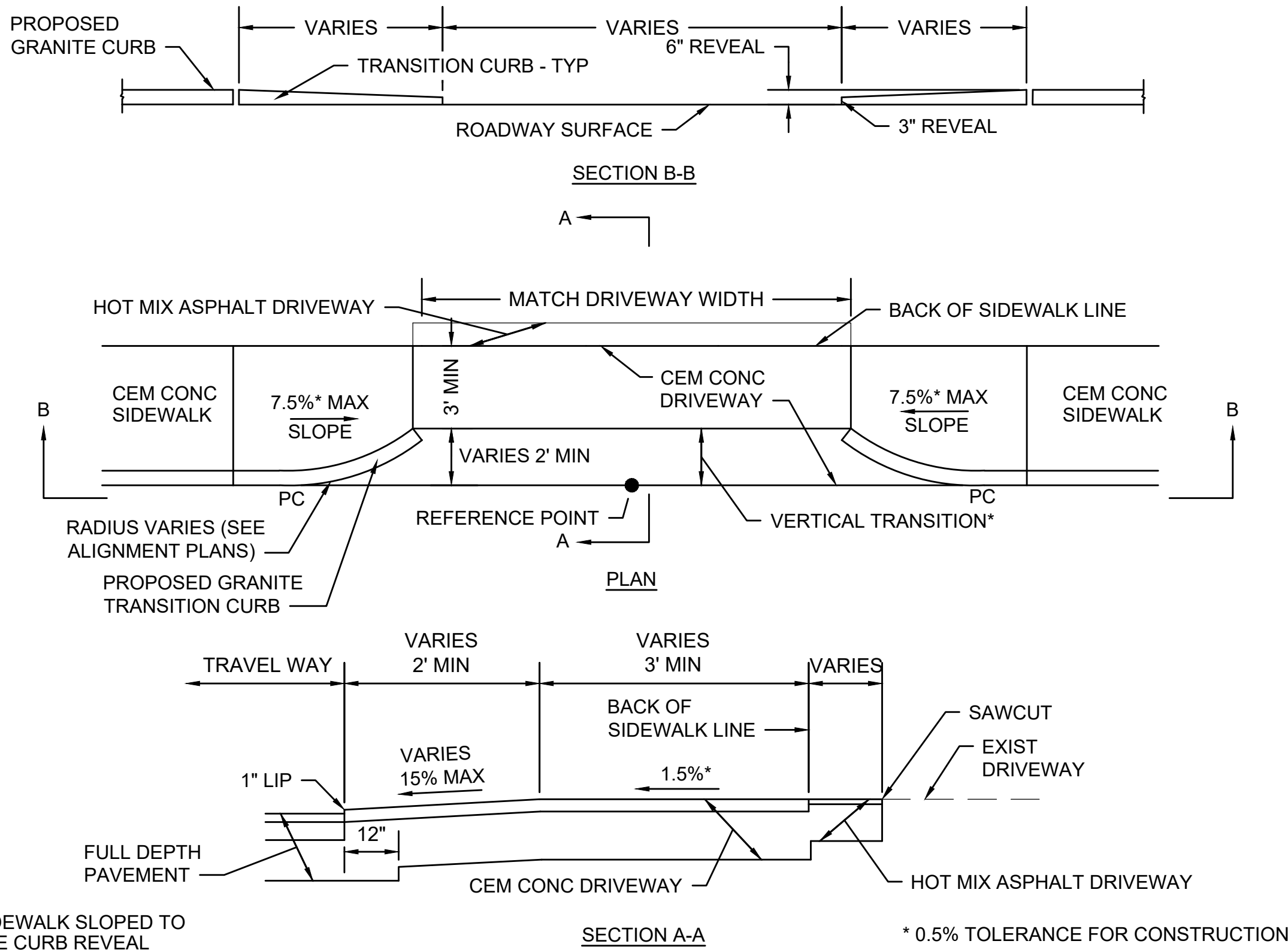
*TOLERANCE FOR CONSTRUCTION $\pm 0.5\%$

WHEELCHAIR RAMP FOR ONE DIRECTION OF PEDESTRIAN TRAVEL W/ GRASS STRIP

SCALE: NTS

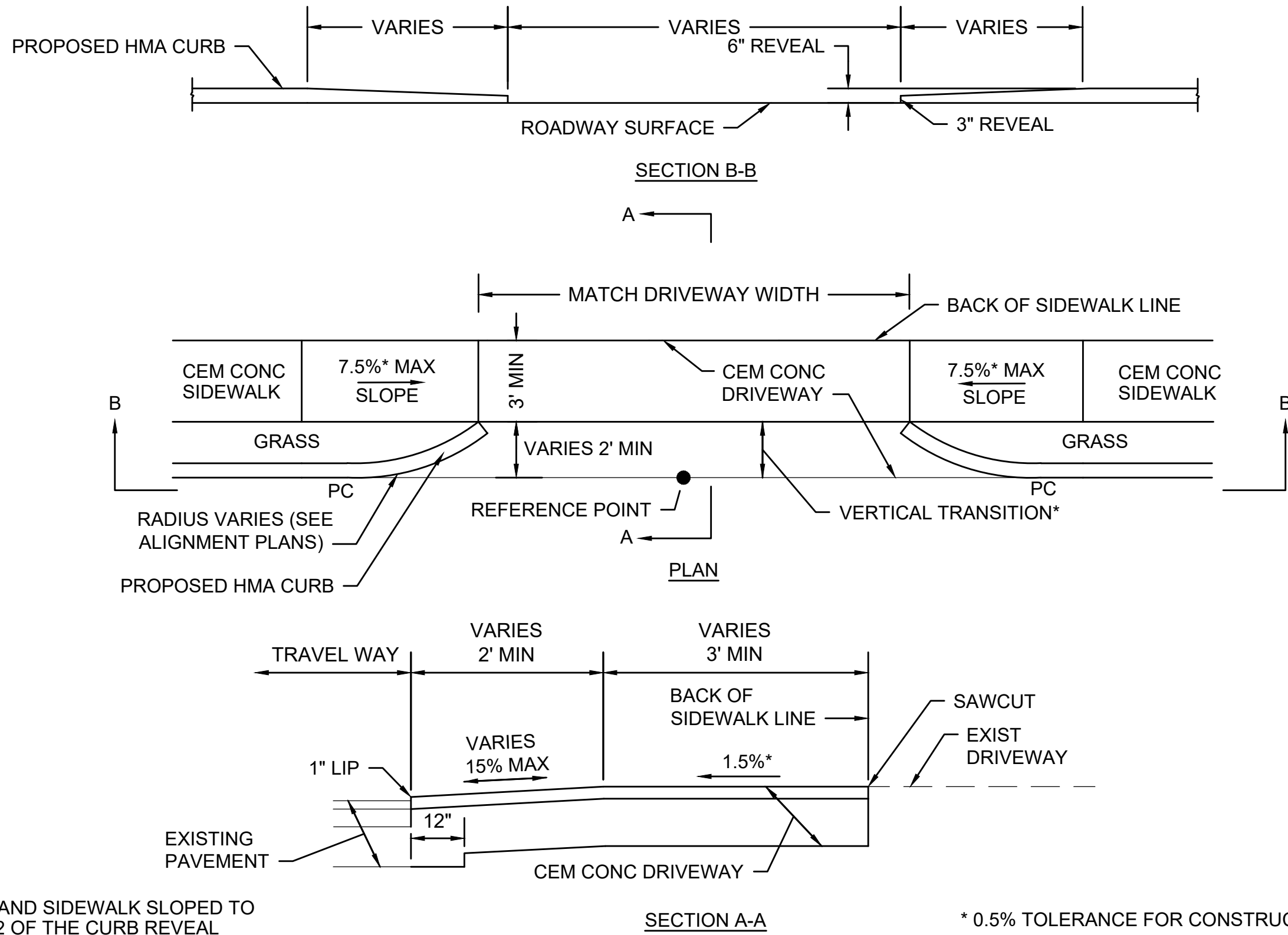
DRIVEWAY DATA									
NO.	LOCATION (REF POINT)	ROADWAY GUTTER	SIDEWALK WIDTH	LEFT SIDE		RIGHT SIDE		OPENING ELEVATION	COMMENTS
				REVEAL	TRANS	REVEAL	TRANS		
MAIN STREET									
4	160+05.1, 13.0' LT	5.2%	5'-6"	6"	6'-6"	3"	7'-6"	305.05'	
NEWTON STREET									
5	301+39.9, 13.0 RT	-2.1%	5'-6"	6"	11'-0"	6"	6'-6"	302.54'	
6	302+28.2, 13.0 RT	-2.8%	5'-6"	6"	11'-0"	6"	6'-6"	304.30'	
7	304+55.1, 13.0 RT	-1.9%	5'-6"	6"	9'-0"	6"	6'-6"	309.10'	
8	305+40.4, 13.0 RT	-2.0%	5'-6"	6"	9'-0"	6"	6'-6"	311.07'	
9	306+79.9, 13.0 RT	-2.4%	5'-0" LEFT 5'-6" RIGHT	3"	5'-6"	6"	6'-6"	314.34'	
10	307+63.4, 13.0 RT	-2.3%	4'-6"	6"	11'-0"	3"	4'-4"	316.16'	
11	308+40.8, 13.0 RT	-2.0%	4'-6"	6"	9'-0"	6"	6'-6"	318.44'	

DRIVEWAY DATA									
NO.	LOCATION (REF POINT)	ROADWAY GUTTER	SIDEWALK WIDTH	LEFT SIDE		RIGHT SIDE		OPENING ELEVATION	COMMENTS
				REVEAL	TRANS	REVEAL	TRANS		
CORDAVILLE ROAD (ROUTE 85)									
12	700+88.1, 15.8' LT	1.0%	5'-0"	6"	6'-6"	6"	7'-8"	275.40'	
13	702+53.6, 16.0 LT	0.30%	5'-0"	6"	6'-6"	6"	7'-8"	276.42'	
14	704+47.5, 16.0 LT	2.4%	5'-0"	6"	6'-6"	6"	11'-0"	278.40'	



TYPICAL DRIVEWAY WITH SIDEWALK AND CURVED TRANSITION CURB

SCALE: N.T.S.



TYPICAL DRIVEWAY WITH SIDEWALK, GRASS STRIP, AND CURVED TRANSITION CURB

SCALE: N.T.S.

SCALE: N.T.S.

SAWCUT MEET EXIST

PROPOSED DETECTABLE WARNING PANEL

7.5% MAX. SLOPE

1.5% MAX SLOPE

HMA DRIVEWAY

PROP FLUSH CEM CONC WALK

TRANSITION LENGTH

REFERENCE POINT

PROPOSED GRANITE TRANSITION CURB

SCALE: N.T.S.

SAWCUT MEET EXIST

CEM CONC WALK

7.5% MAX SLOPE

PROP CURB CORNER

PROP LANDSCAPING

1.5% MAX SLOPE

HMA DRIVEWAY

PROP FLUSH CEM CONC WALK

PROPOSED GRANITE CURB

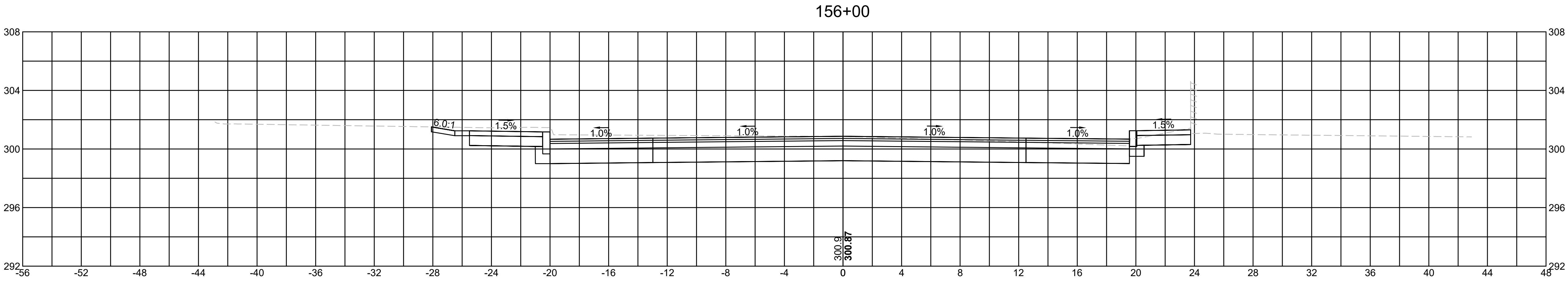
TRANSITION LENGTH

REFERENCE POINT

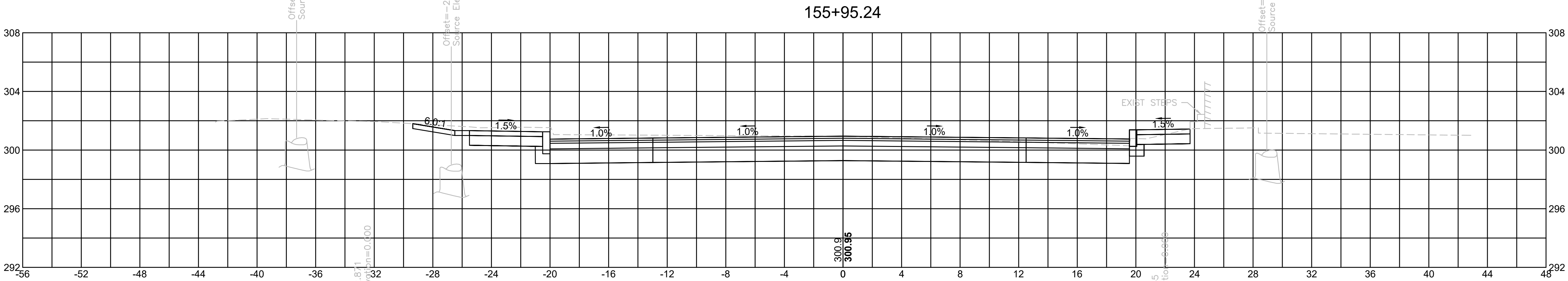
SCALE: N.T.S.

SOUTHBOROUGH
VARIOUS LOCATIONS
CROSS SECTIONS
SHEET 60 OF 141

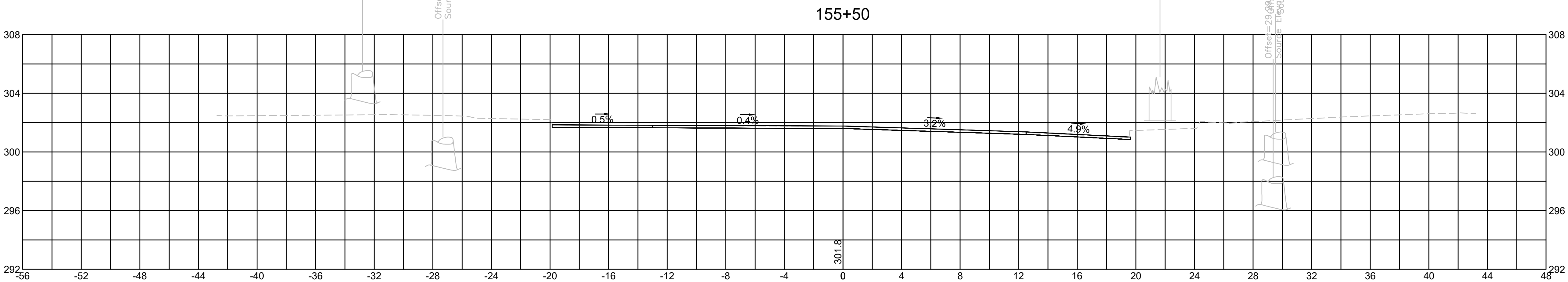
13812-HD(X)SEC-MAIN STREET.DWG 24-Jun-2021



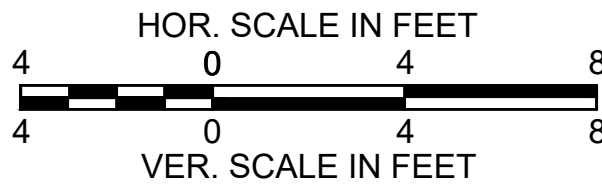
Material(s) at Station 156+00.00		
Material Name	Area	Volume
CUT	77.9	13.7
FILL	0.0	0.0



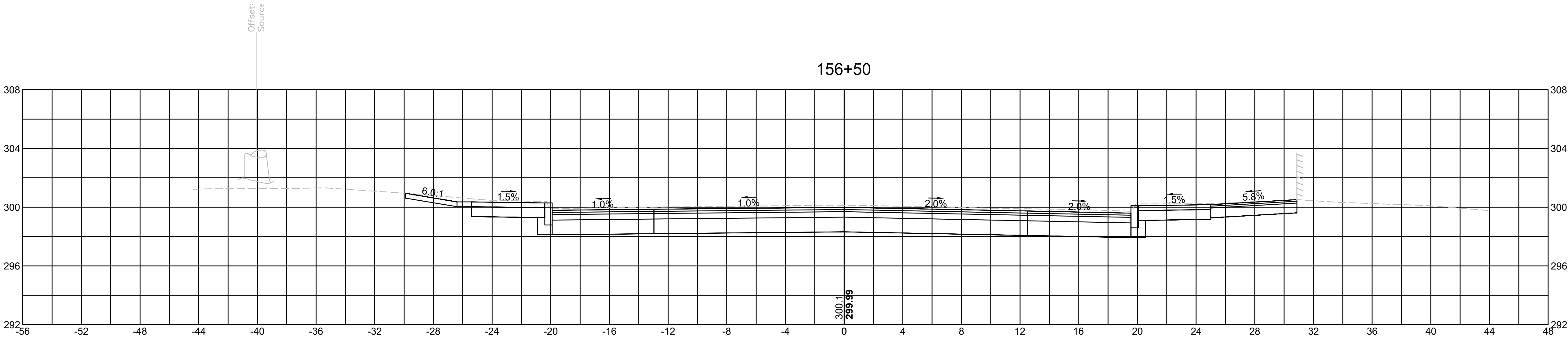
Material(s) at Station 155+95.24		
Material Name	Area	Volume
CUT	78.1	65.5
FILL	0.0	0.0



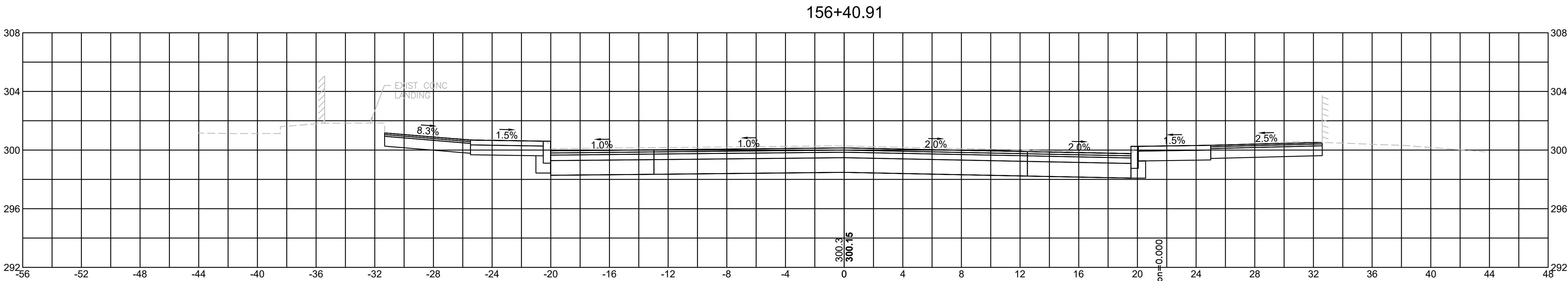
Material(s) at Station 155+50.00		
Material Name	Area	Volume
CUT	0.0	0.0
FILL	0.0	0.0



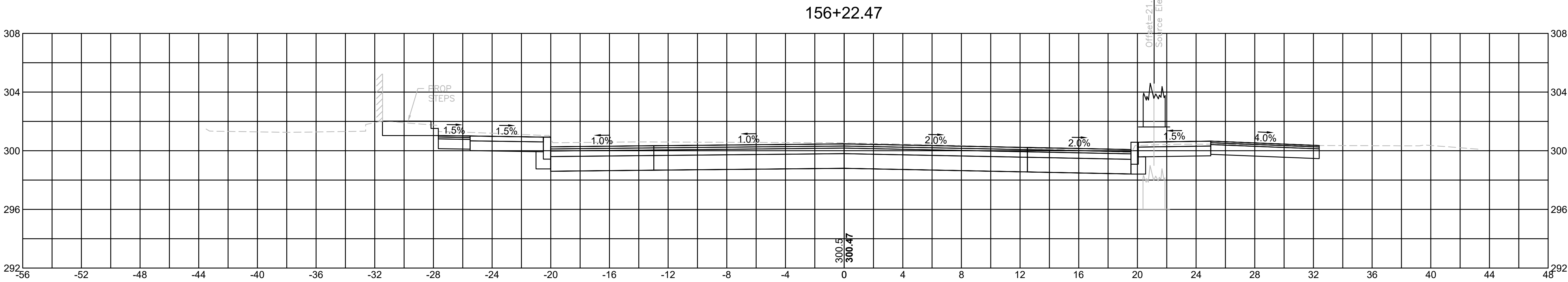
SOUTHBOROUGH
VARIOUS LOCATIONS
CROSS SECTIONS
SHEET 61 OF 141



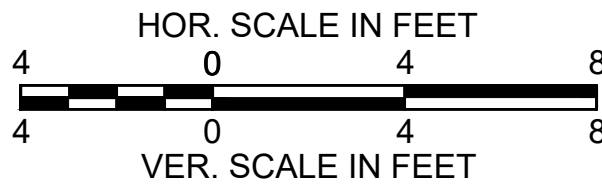
Material(s) at Station 156+50.00		
Material Name	Area	Volume
CUT	93.5	32.0
FILL	0.0	0.0



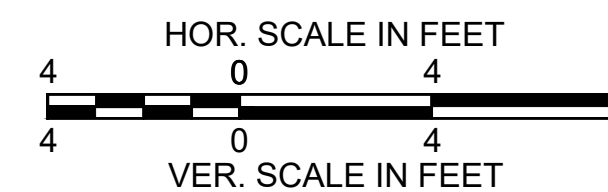
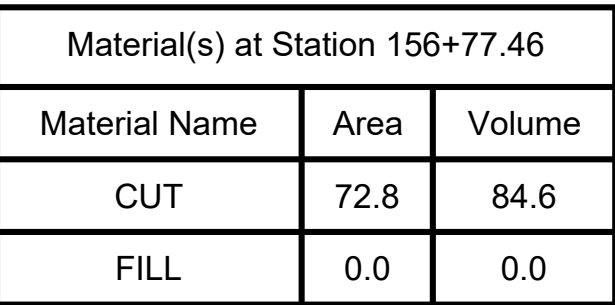
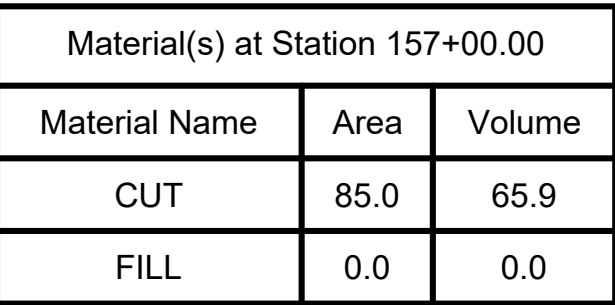
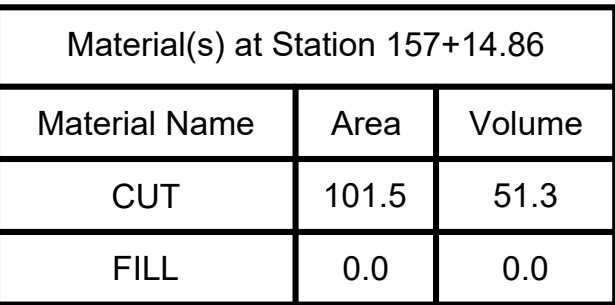
Material(s) at Station 156+40.91		
Material Name	Area	Volume
CUT	96.4	64.0
FILL	0.0	0.0



Material(s) at Station 156+22.47		
Material Name	Area	Volume
CUT	91.1	70.3
FILL	0.0	0.0

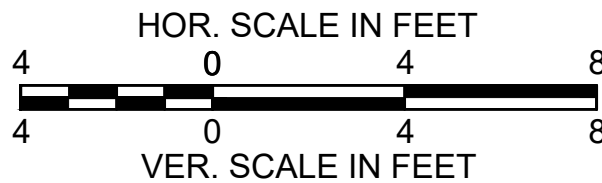
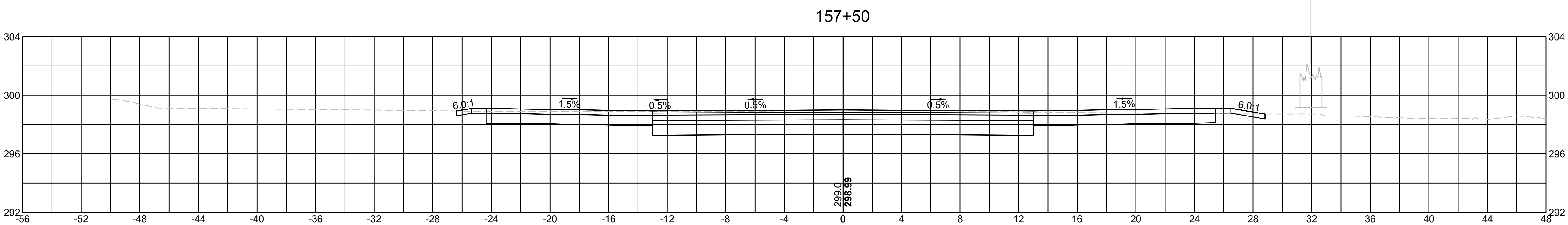
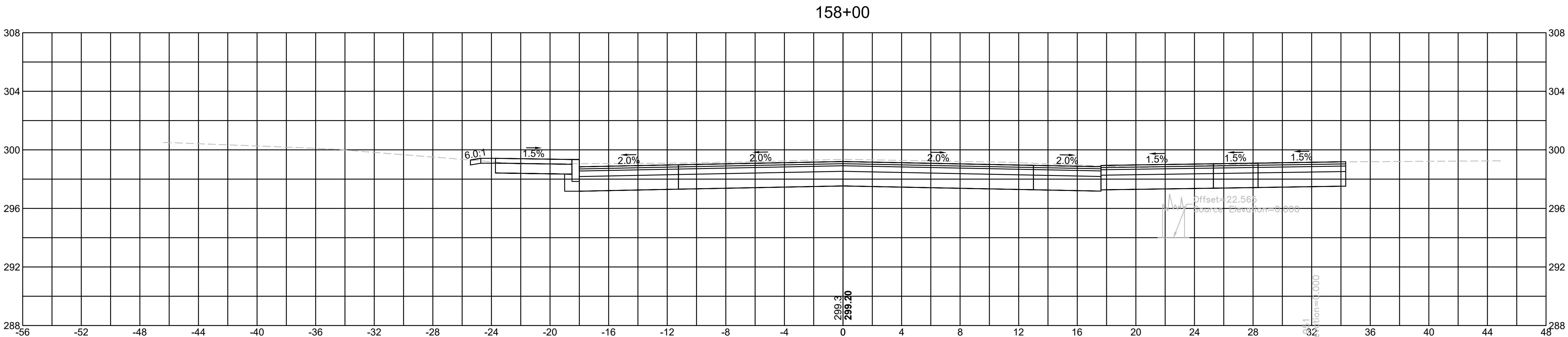
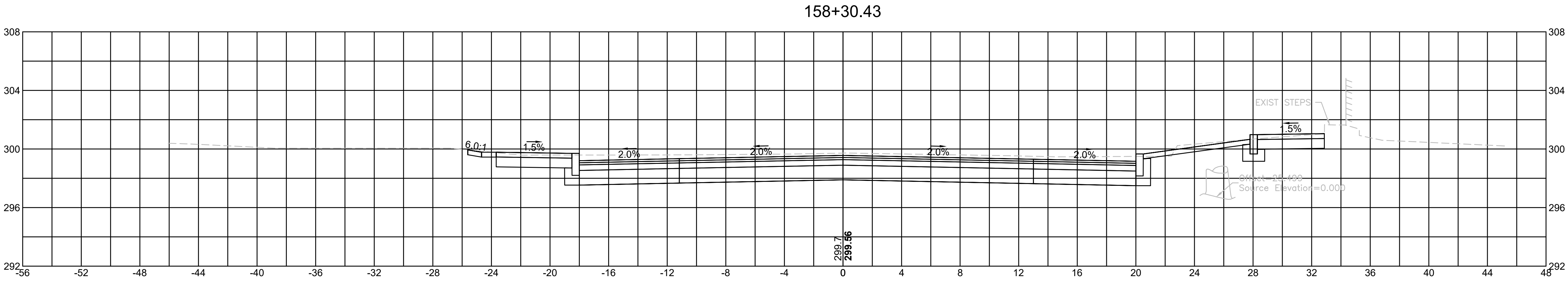


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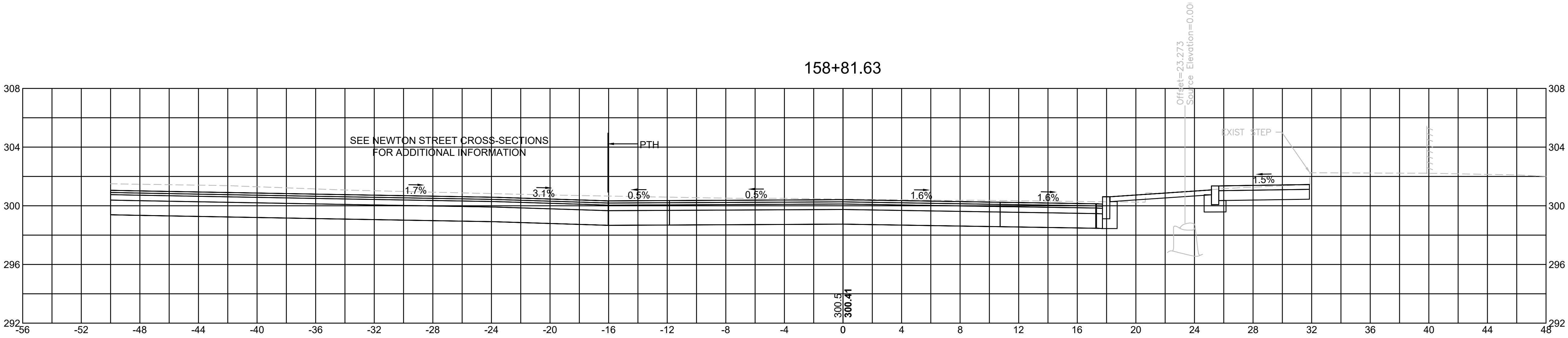


SOUTHBOROUGH
VARIOUS LOCATIONS
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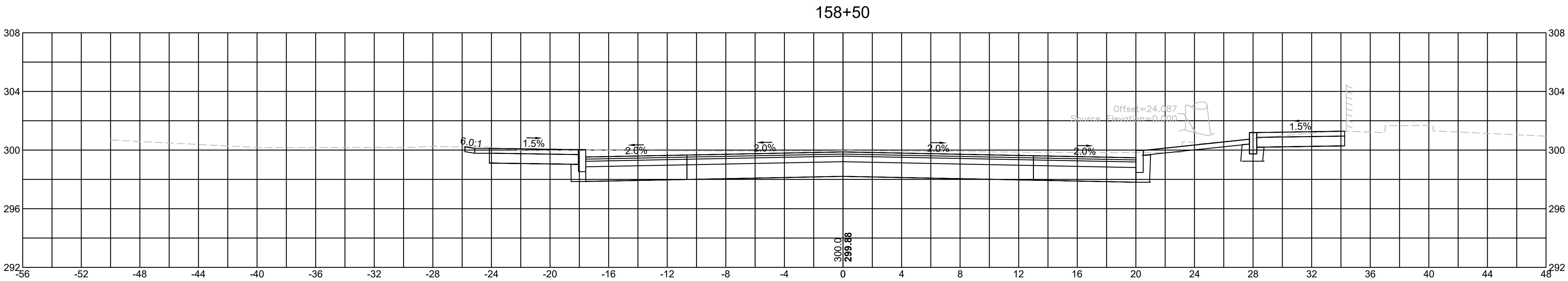
13812-HD(X)SEC-MAIN STREET.DWG 24-Jun-2021



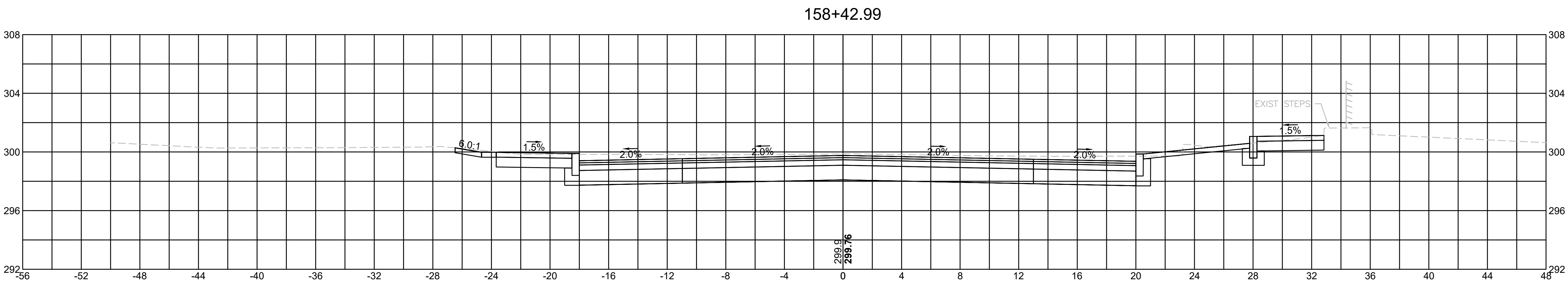
SOUTHBOROUGH
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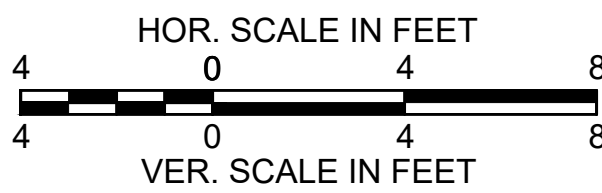
Material(s) at Station 158+81.63		
Material Name	Area	Volume
CUT	59.9	82.9
FILL	0.0	0.0



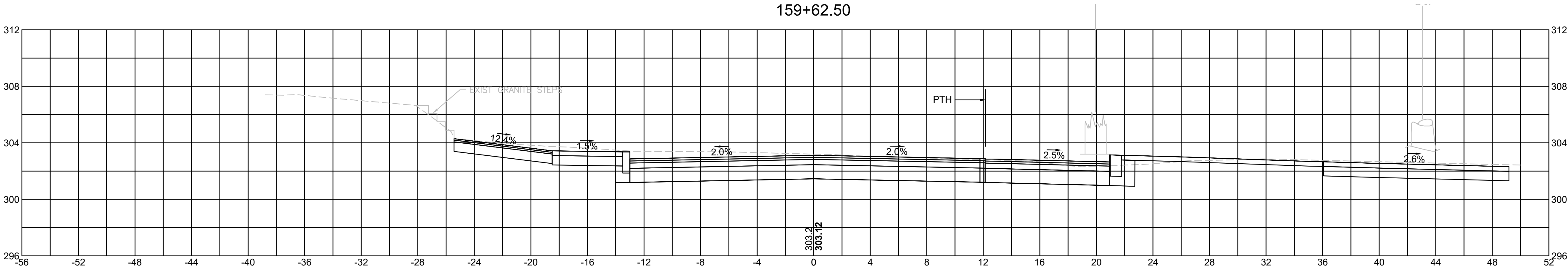
Material(s) at Station 158+50.00		
Material Name	Area	Volume
CUT	81.6	22.0
FILL	0.0	0.0



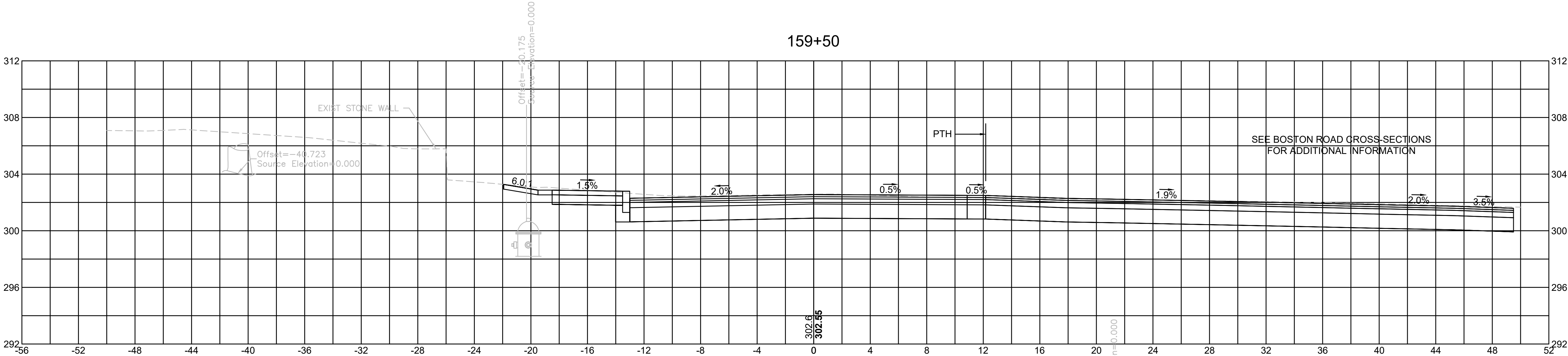
Material(s) at Station 158+42.99		
Material Name	Area	Volume
CUT	88.0	41.4
FILL	0.0	0.0



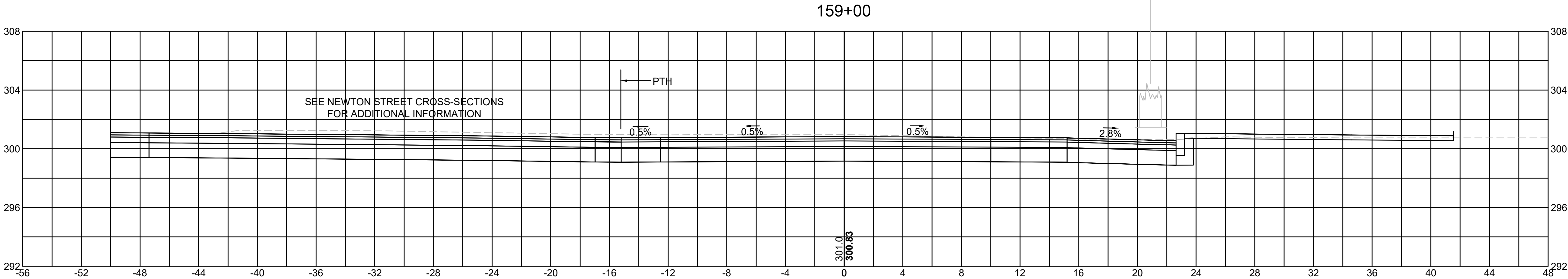
SOUTHBOROUGH
VARIOUS LOCATIONS
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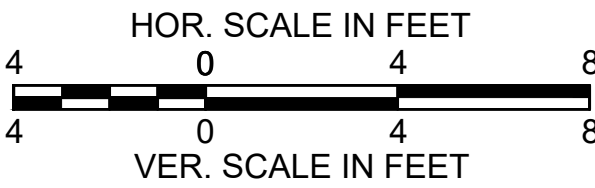
Material(s) at Station 159+62.50		
Material Name	Area	Volume
CUT	61.2	25.9
FILL	0.0	0.0



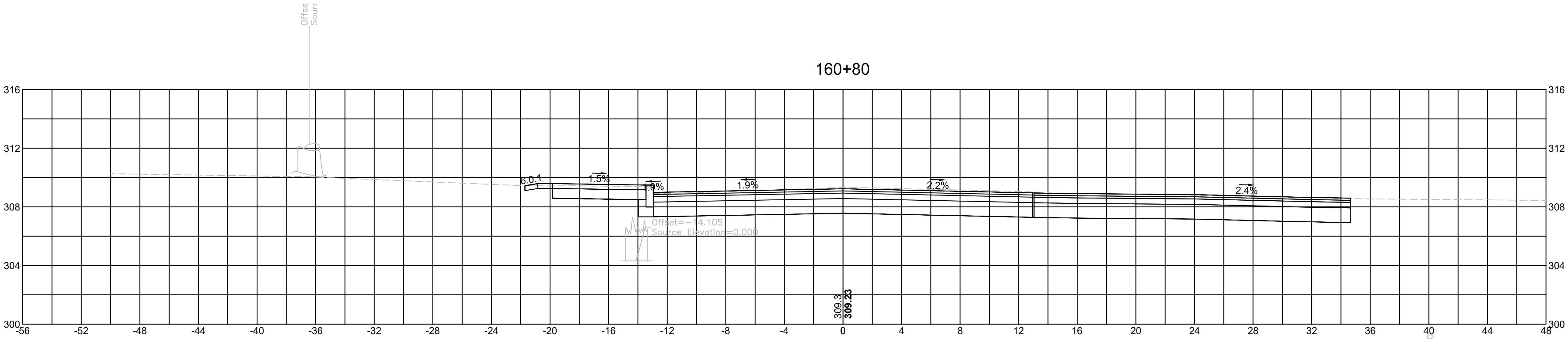
Material(s) at Station 159+50.00		
Material Name	Area	Volume
CUT	50.6	96.9
FILL	0.0	0.0



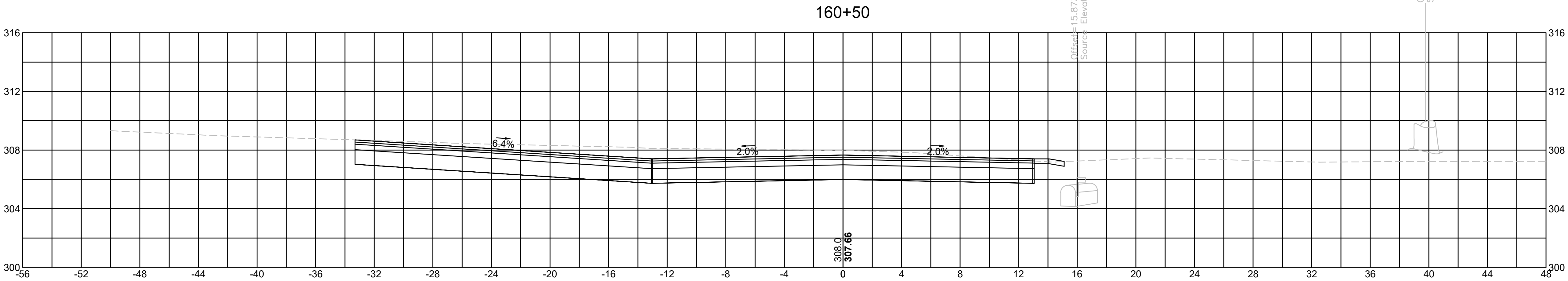
Material(s) at Station 159+00.00		
Material Name	Area	Volume
CUT	54.0	38.8
FILL	0.0	0.0



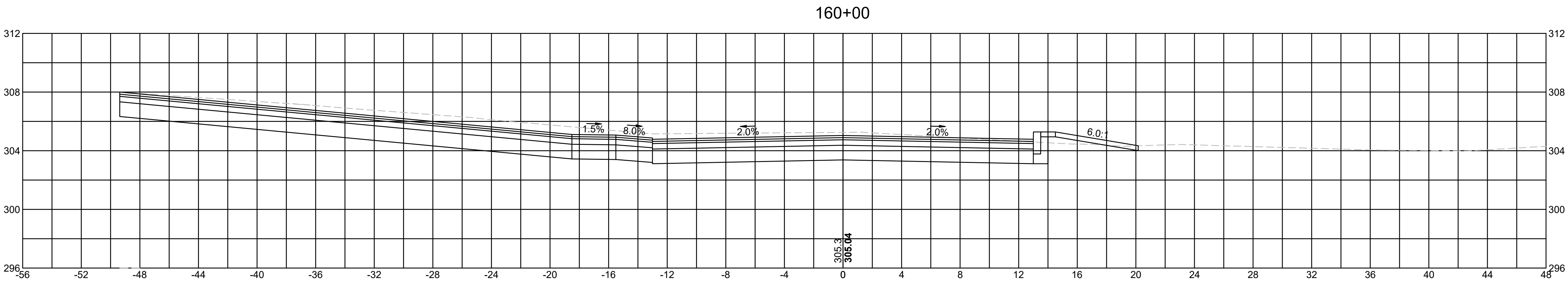
SOUTHBOROUGH
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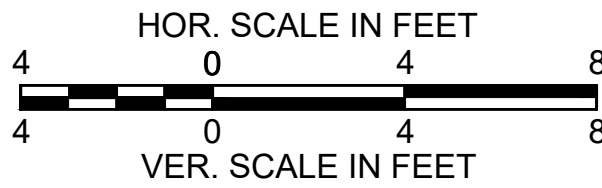
Material(s) at Station 160+80.00		
Material Name	Area	Volume
CUT	51.8	80.5
FILL	0.0	0.0

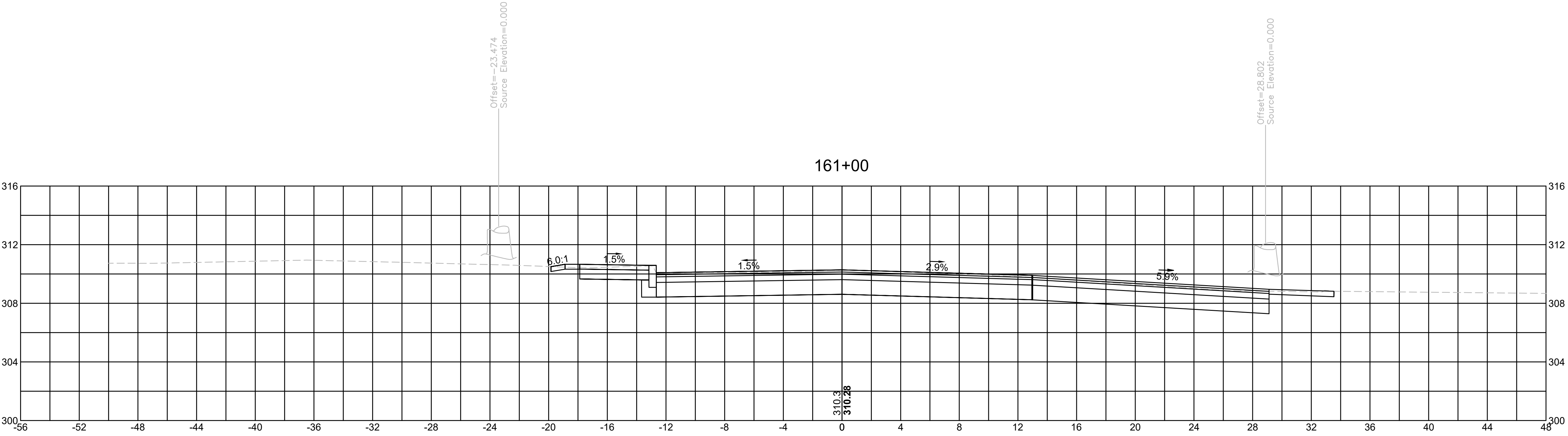


Material(s) at Station 160+50.00		
Material Name	Area	Volume
CUT	93.0	174.5
FILL	0.0	0.9

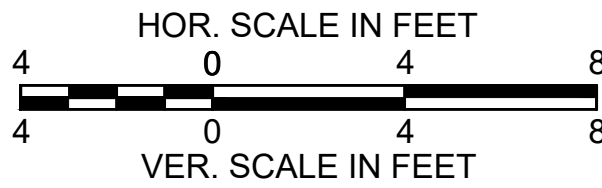


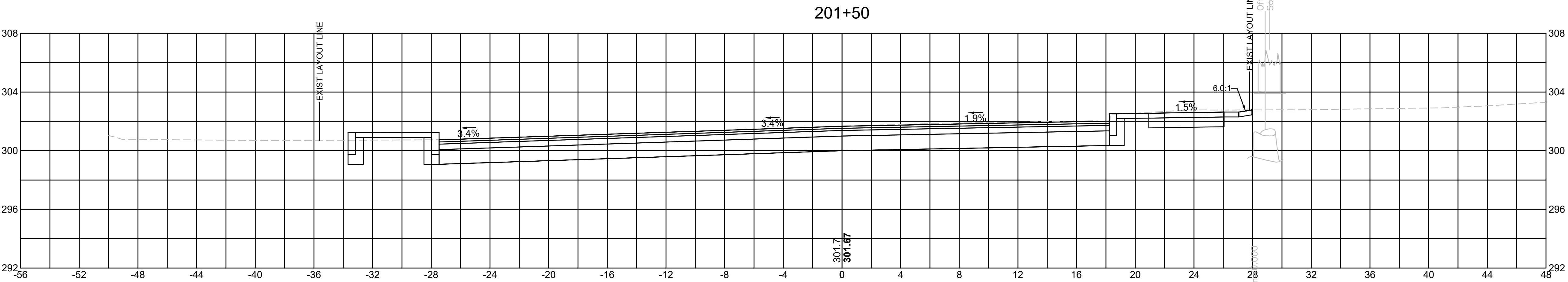
Material(s) at Station 160+00.00		
Material Name	Area	Volume
CUT	95.4	108.8
FILL	0.9	0.6



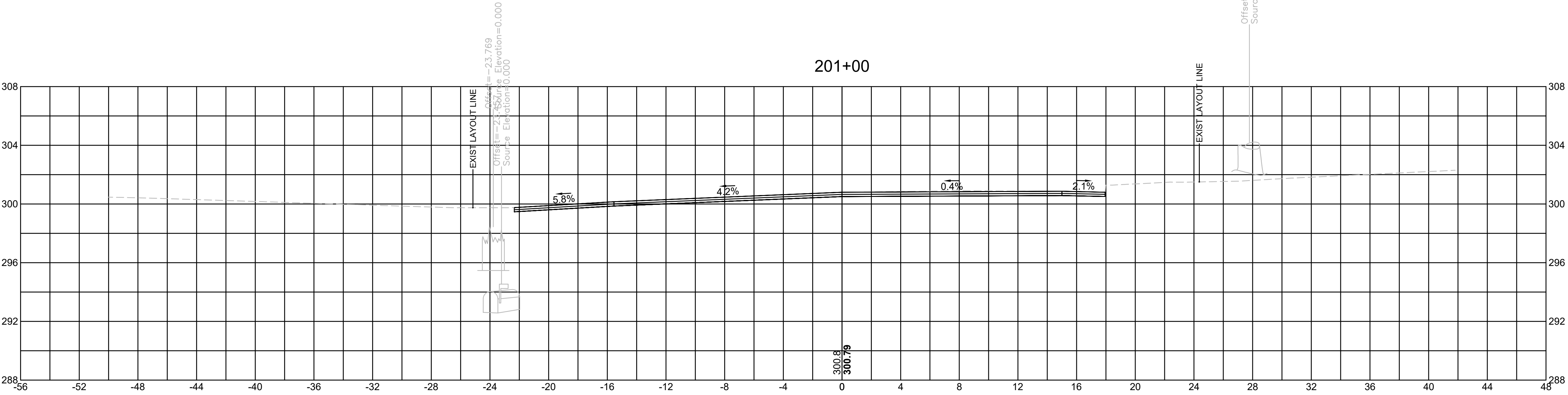


Material(s) at Station 161+00.00		
Material Name	Area	Volume
CUT	73.5	46.4
FILL	0.0	0.0

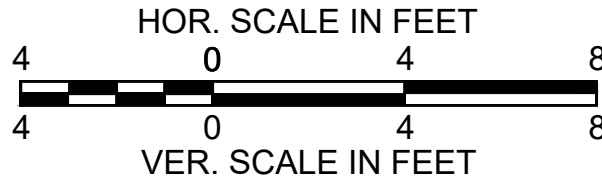




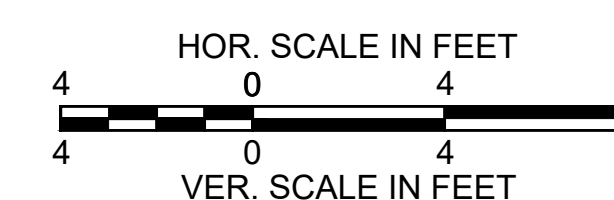
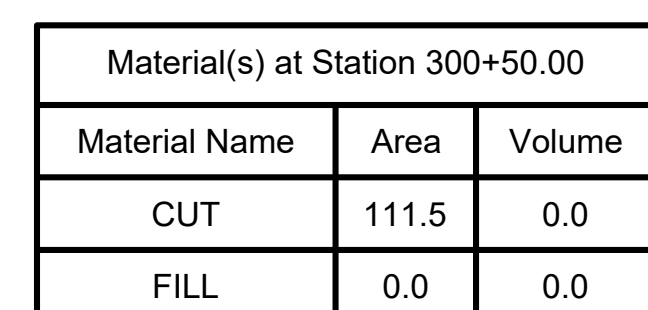
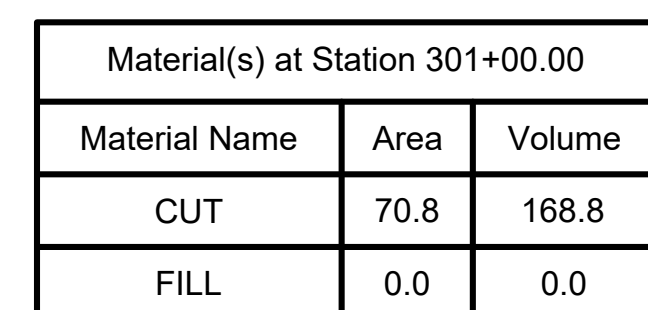
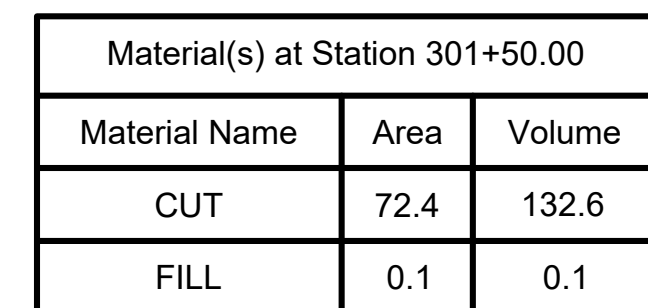
Material(s) at Station 201+50.00		
Material Name	Area	Volume
CUT	88.3	81.7
FILL	0.7	0.7



Material(s) at Station 201+00.00		
Material Name	Area	Volume
CUT	0.0	0.0
FILL	0.0	0.0

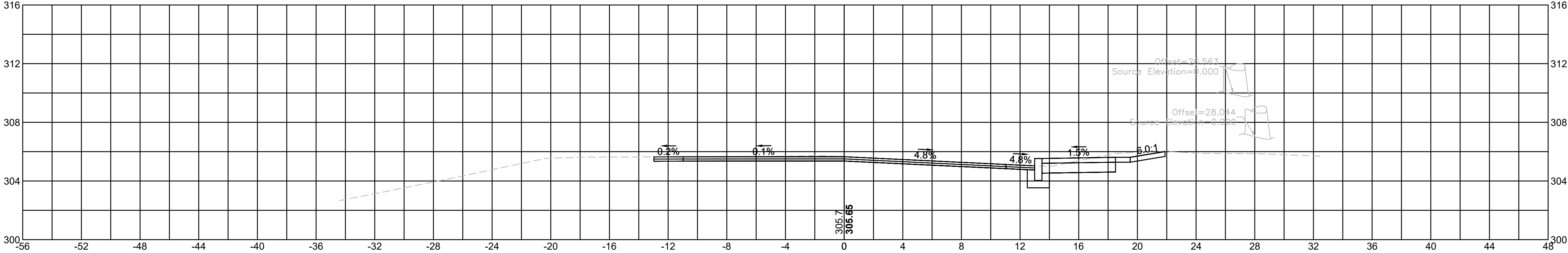


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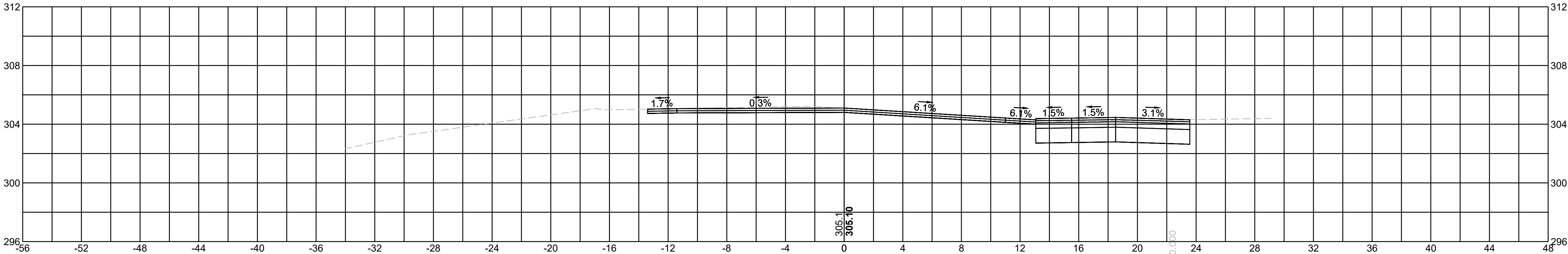
SOUTHBOROUGH
VARIOUS LOCATIONS
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302+50



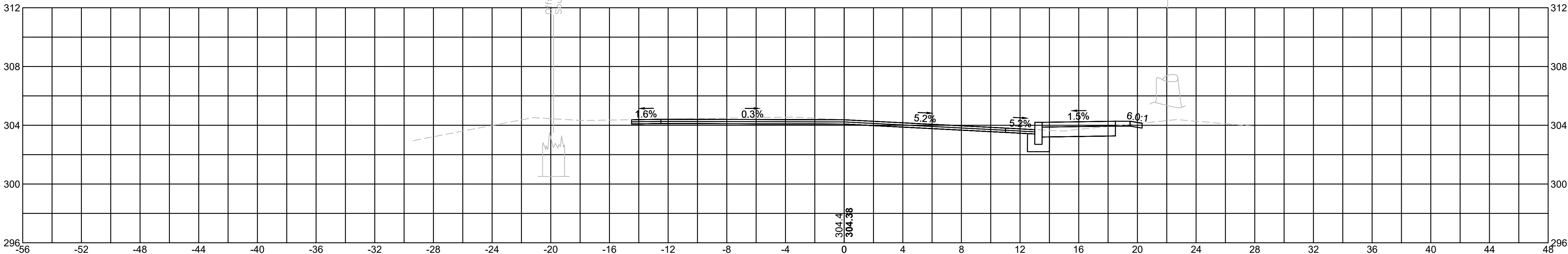
Material(s) at Station 302+50.00		
Material Name	Area	Volume
CUT	8.1	9.8
FILL	0.0	0.0

302+28

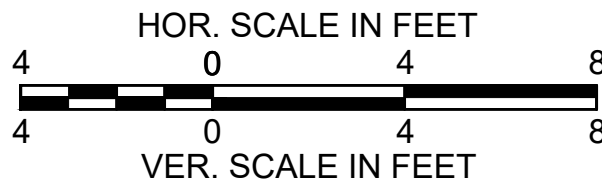


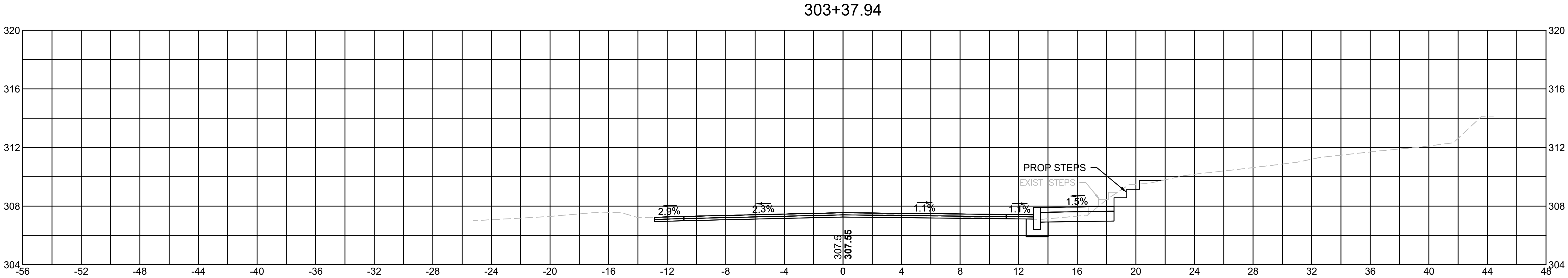
Material(s) at Station 302+28.00		
Material Name	Area	Volume
CUT	16.0	10.9
FILL	0.0	0.0

302+00

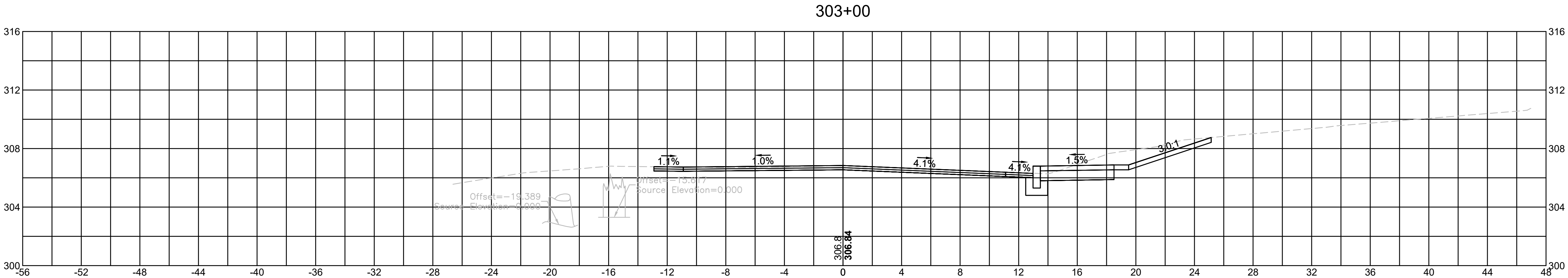


Material(s) at Station 302+00.00		
Material Name	Area	Volume
CUT	4.9	71.6
FILL	0.0	0.1

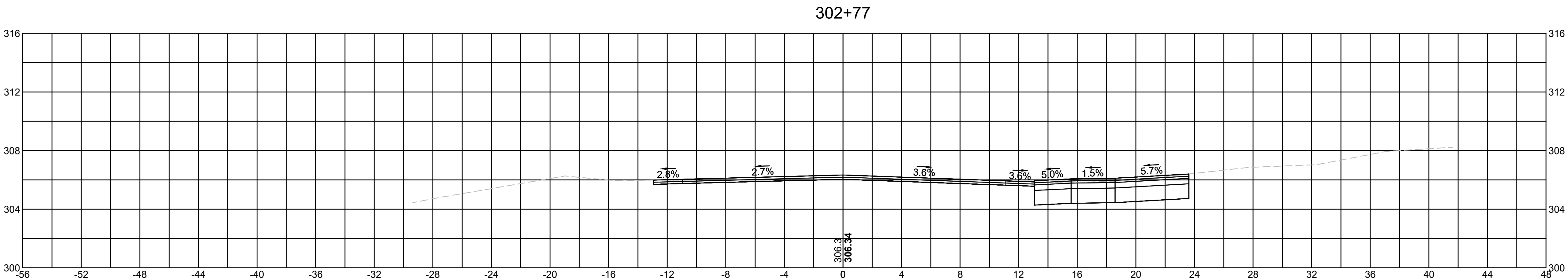




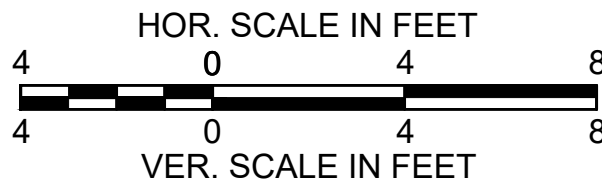
Material(s) at Station 303+37.94		
Material Name	Area	Volume
CUT	4.7	12.9
FILL	0.0	0.0



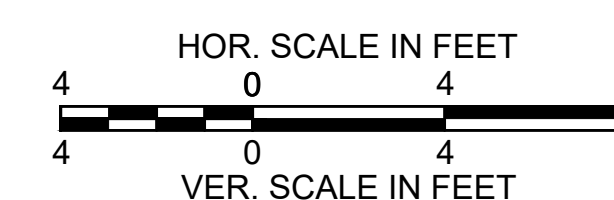
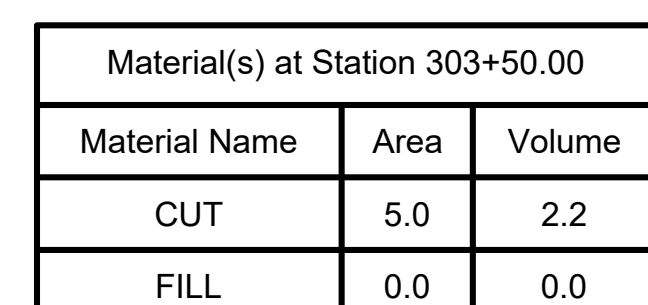
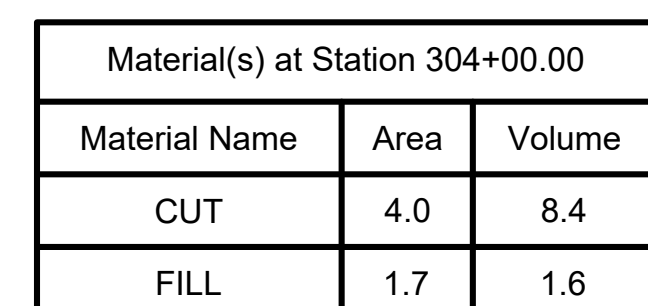
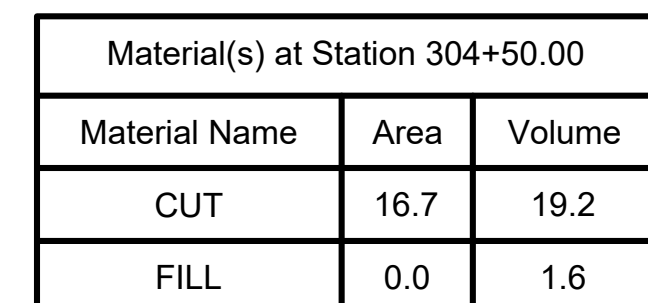
Material(s) at Station 303+00.00		
Material Name	Area	Volume
CUT	13.6	12.6
FILL	0.0	0.0



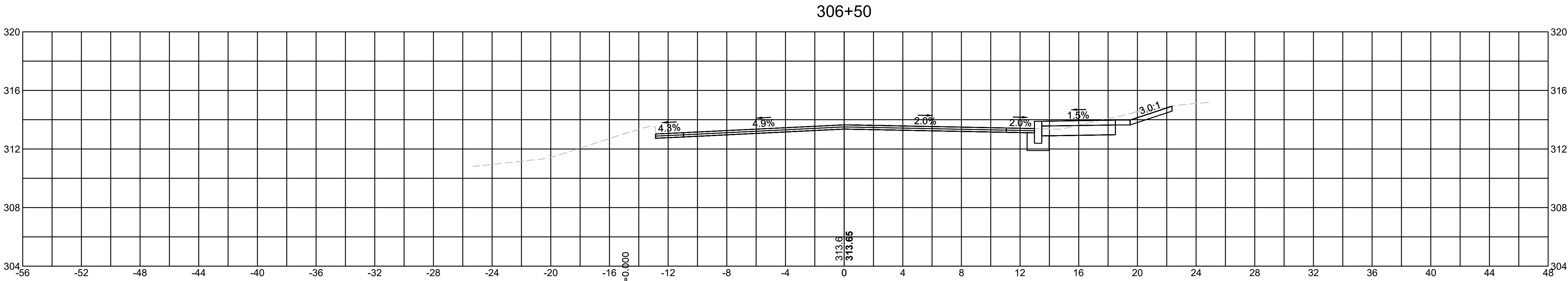
Material(s) at Station 302+77.00		
Material Name	Area	Volume
CUT	16.1	12.1
FILL	0.0	0.0



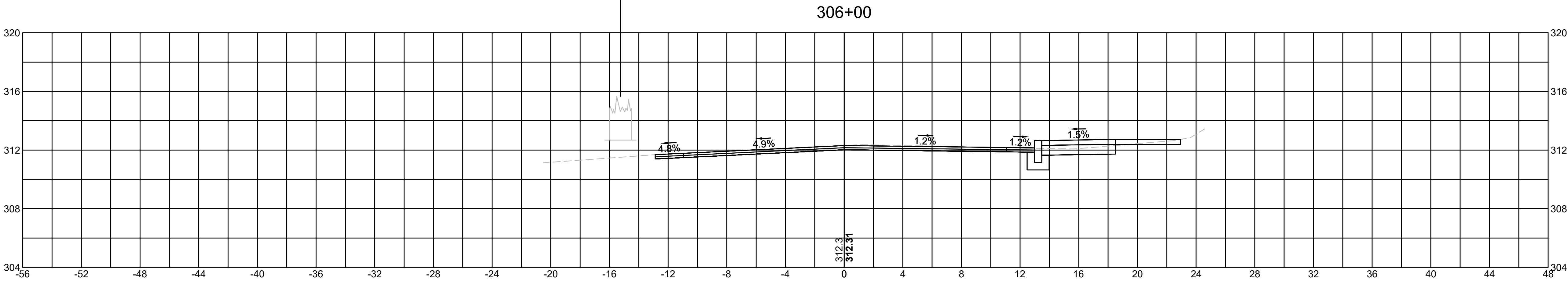
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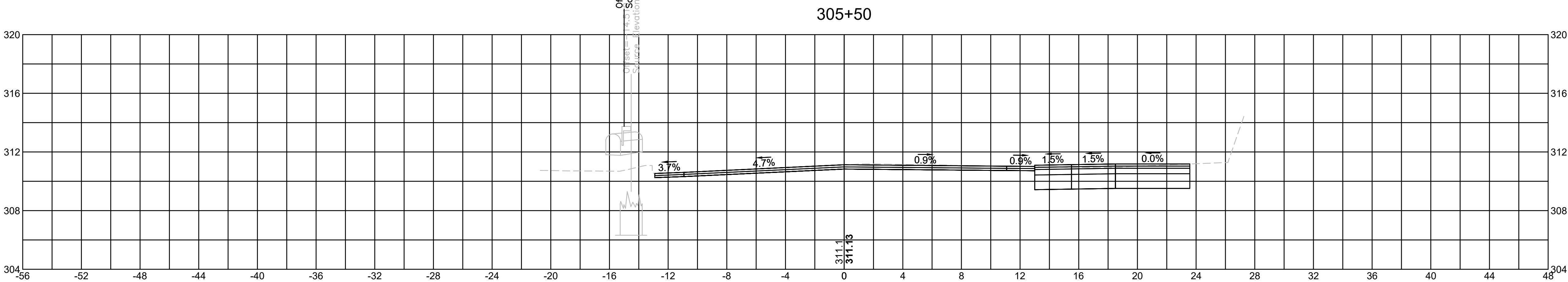
SOUTHBOROUGH
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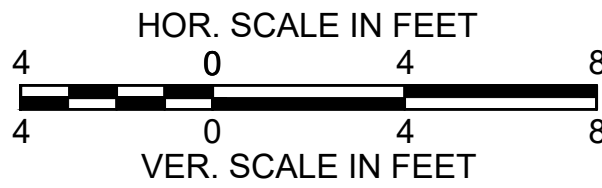
Material(s) at Station 306+50.00		
Material Name	Area	Volume
CUT	8.1	12.1
FILL	0.0	0.0



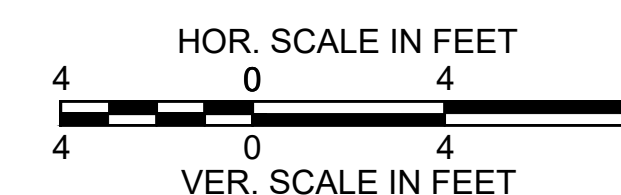
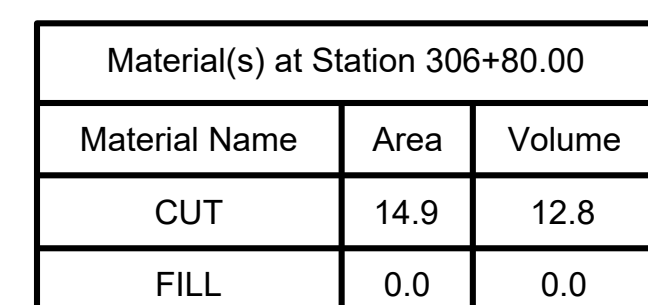
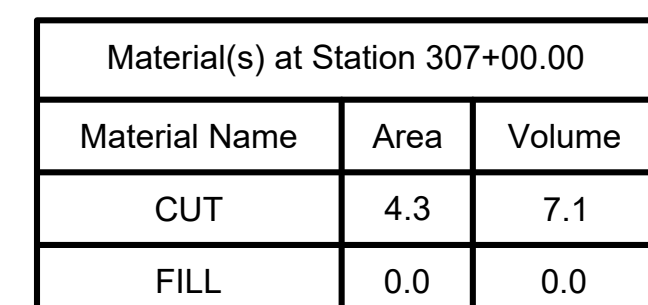
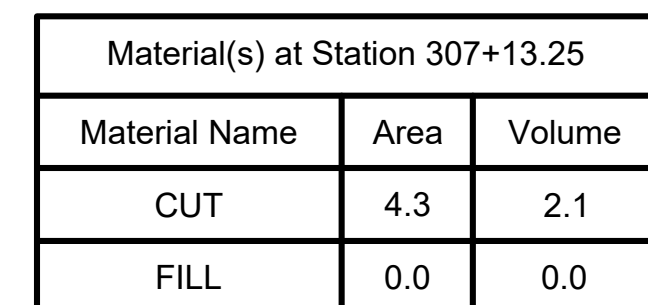
Material(s) at Station 306+00.00		
Material Name	Area	Volume
CUT	5.0	19.7
FILL	0.0	0.0



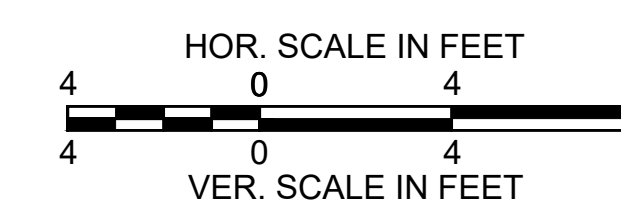
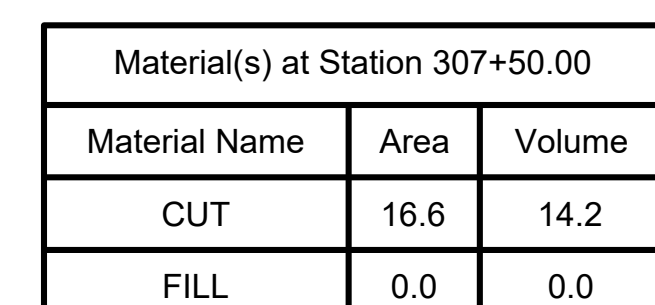
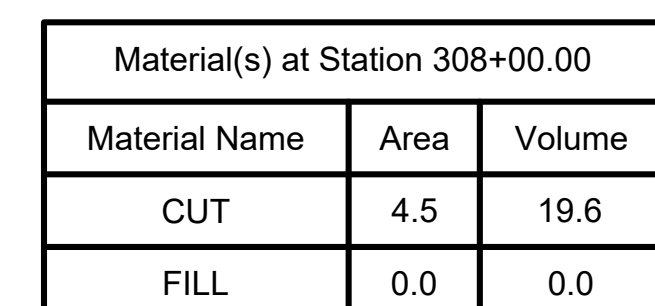
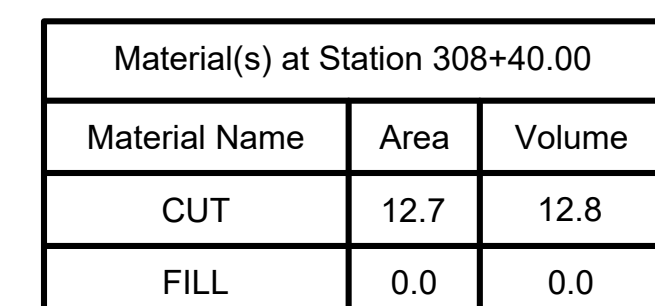
Material(s) at Station 305+50.00		
Material Name	Area	Volume
CUT	16.4	6.0
FILL	0.0	0.0



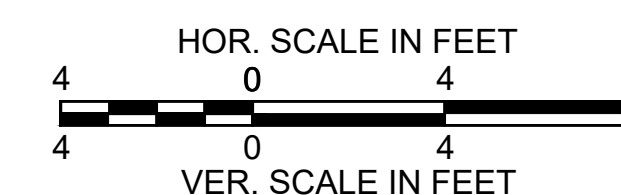
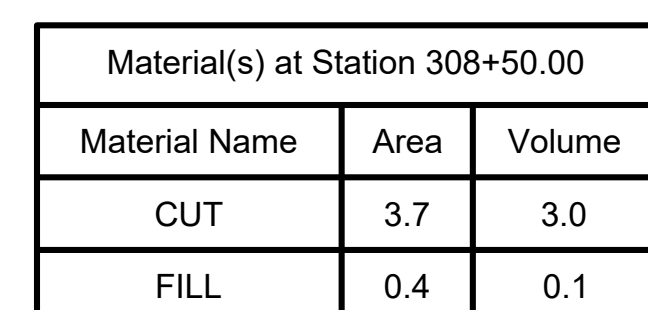
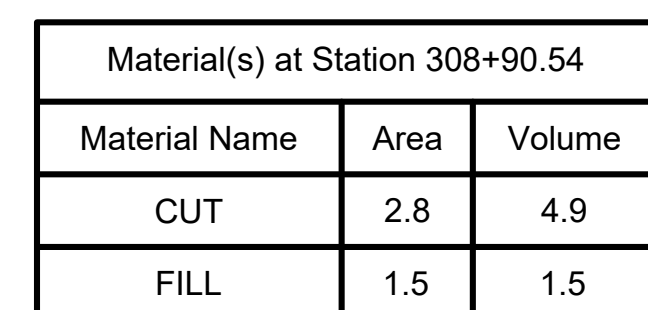
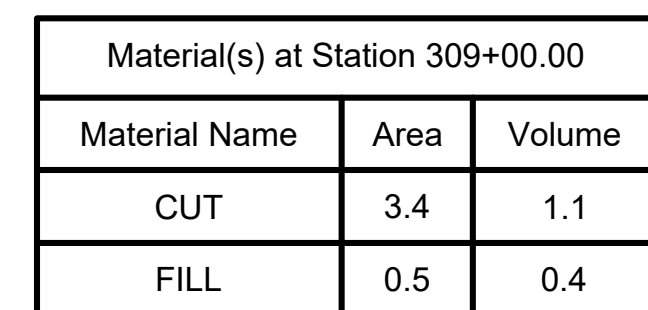
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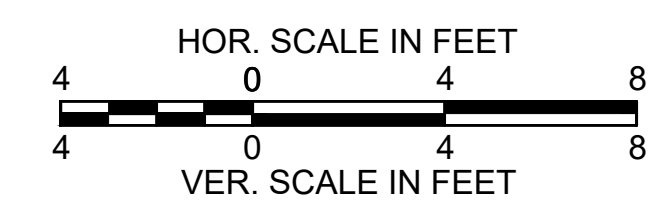
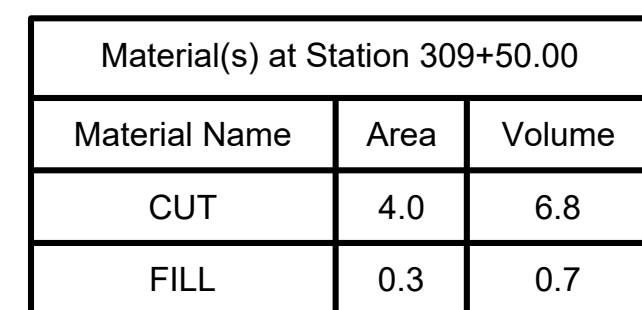
3812-HD(XSEC)-NEWTON STREET DWG 24-Jun-2021



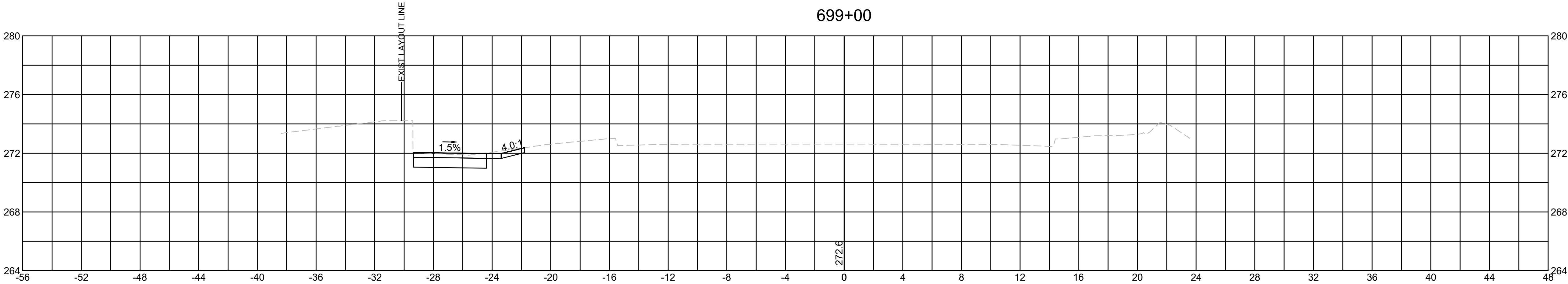
3812-HD(XSEC)-NEWTON STREET DWG 24-Jun-2021



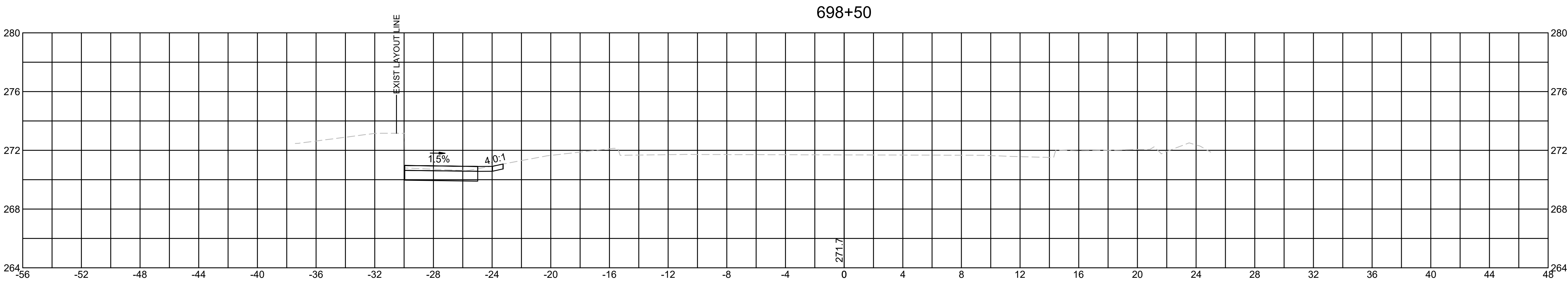
13812-HD(XSEC)-NEWTON STREET DWG 24-Jun-2021



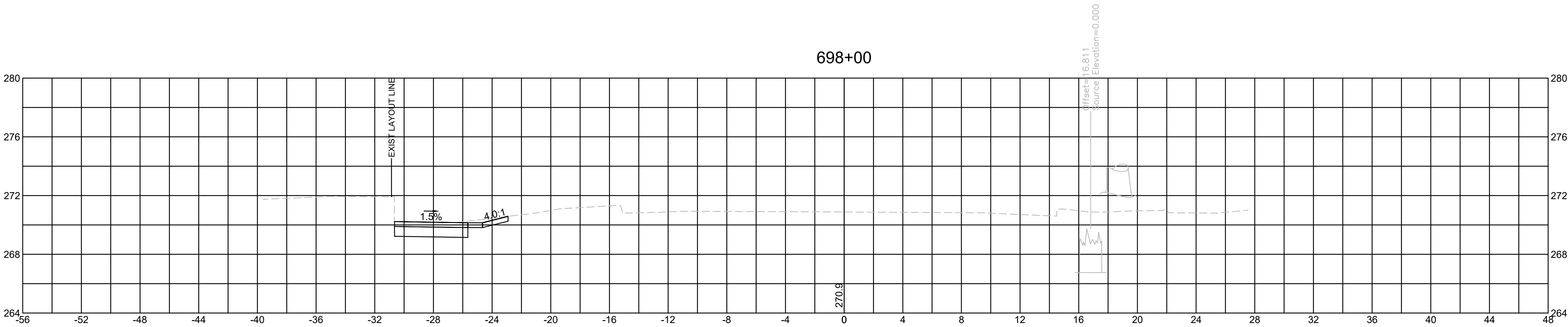
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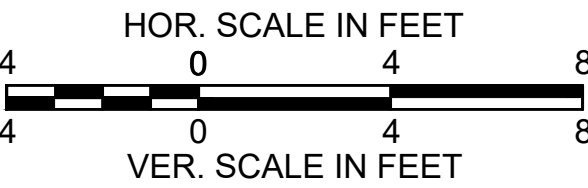
Material(s) at Station 699+00.00		
Material Name	Area	Volume
CUT	5.8	9.4
FILL	0.0	0.0



Material(s) at Station 698+50.00		
Material Name	Area	Volume
CUT	4.4	9.9
FILL	0.0	0.0

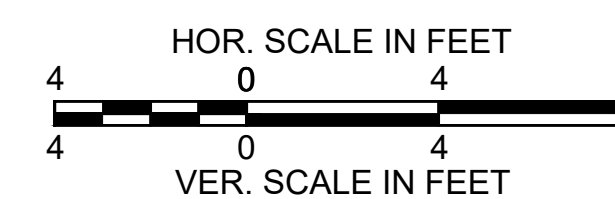
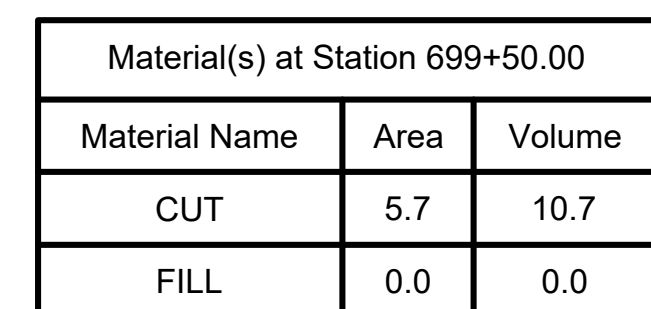


Material(s) at Station 698+00.00		
Material Name	Area	Volume
CUT	6.3	0.0
FILL	0.0	0.0

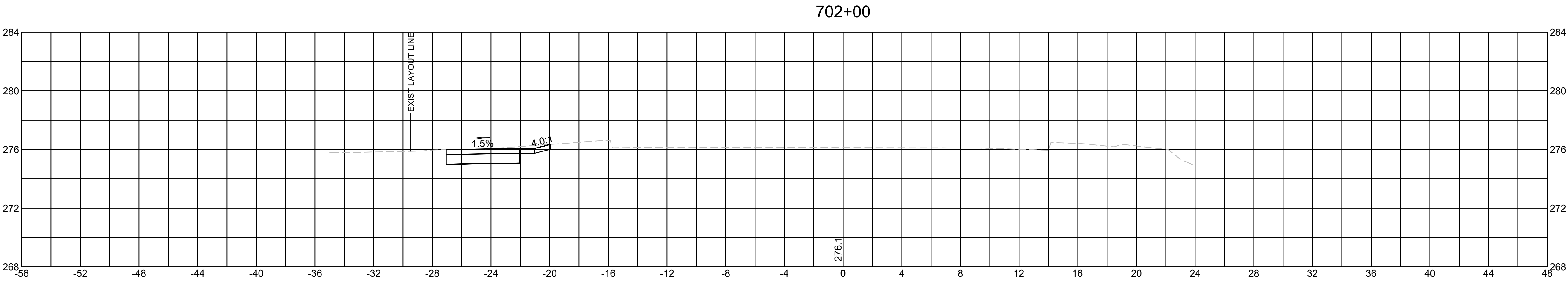


13812-HD(XSEC)-ROLITE 85 DWG 24-Jun-2021

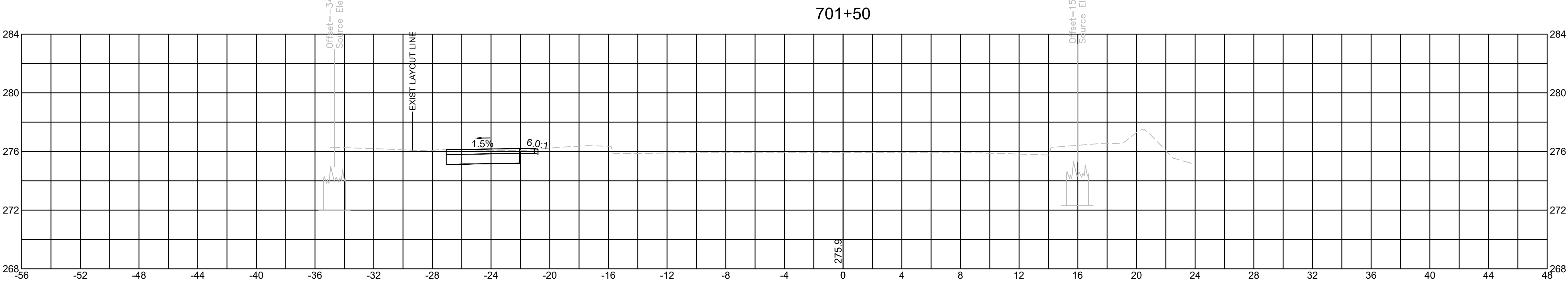
Material(s) at Station 700+00.00		
Material Name	Area	Volume
CUT	4.9	9.9
FILL	0.0	0.0



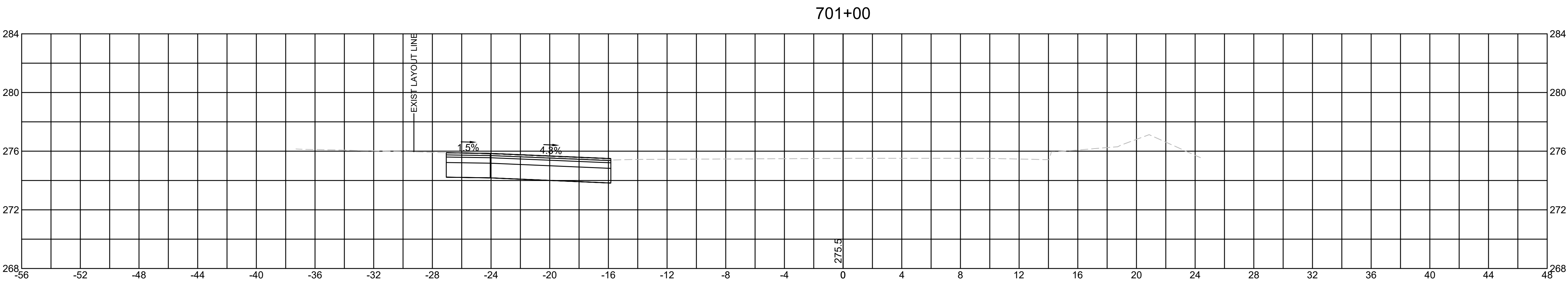
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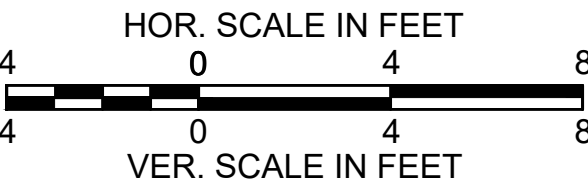
Material(s) at Station 702+00.00		
Material Name	Area	Volume
CUT	6.1	10.3
FILL	0.0	0.0



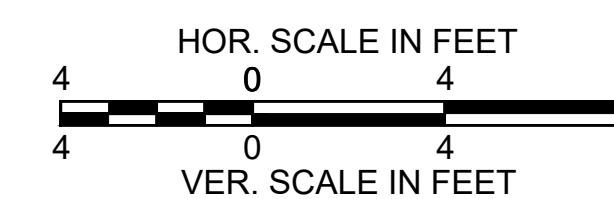
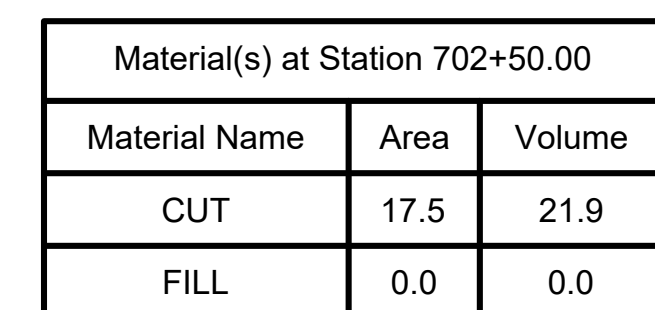
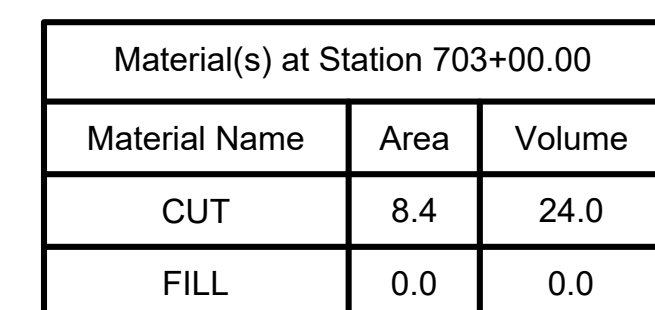
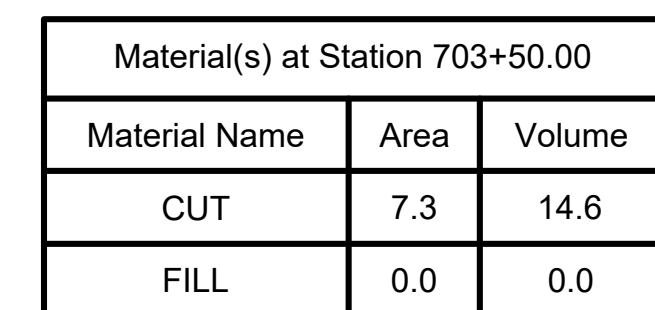
Material(s) at Station 701+50.00		
Material Name	Area	Volume
CUT	5.0	21.3
FILL	0.0	0.0



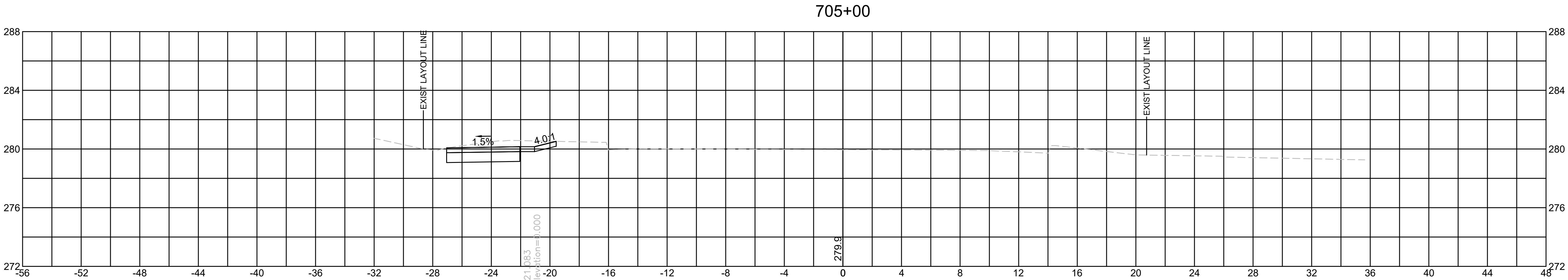
Material(s) at Station 701+00.00		
Material Name	Area	Volume
CUT	18.0	21.8
FILL	0.0	0.0



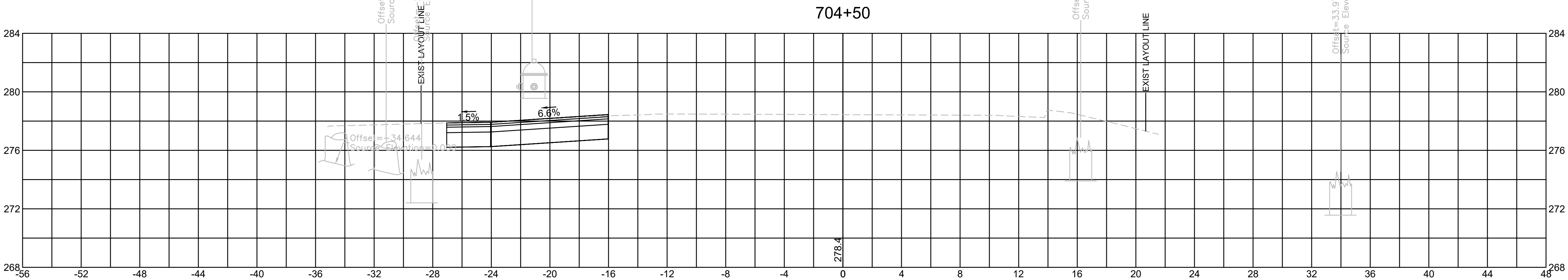
13812-HD(XSEC)-POLITE 85 DWG 24-Jun-2021



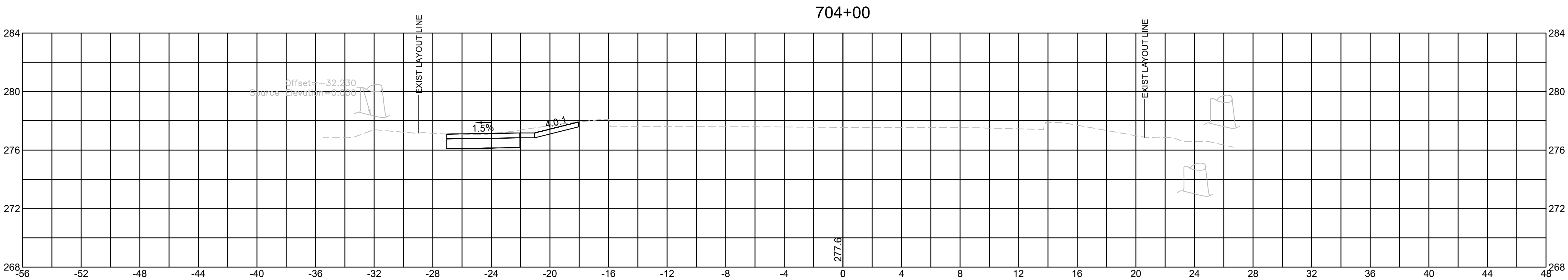
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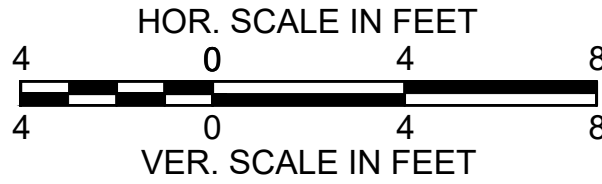
Material(s) at Station 705+00.00		
Material Name	Area	Volume
CUT	4.4	21.0
FILL	0.0	0.0



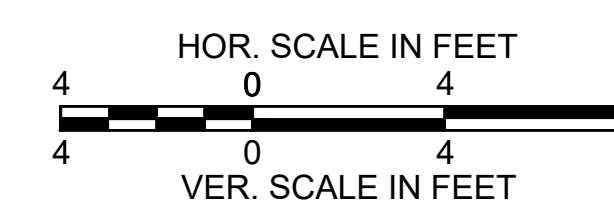
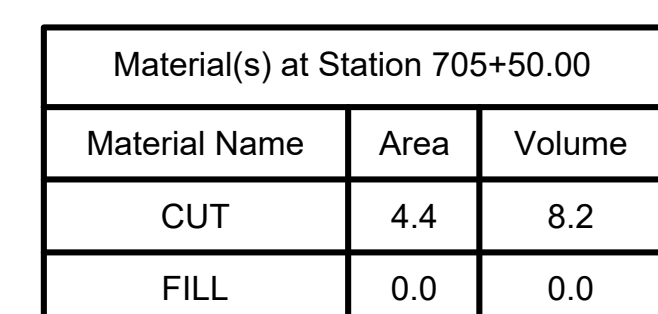
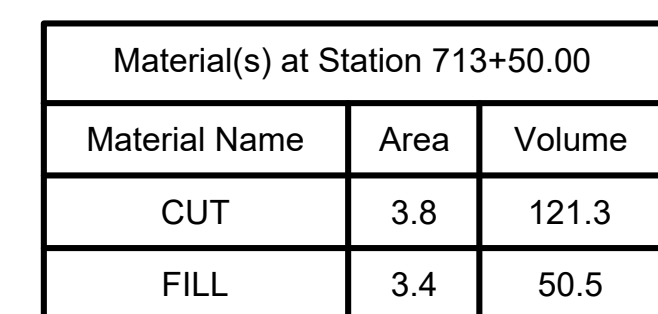
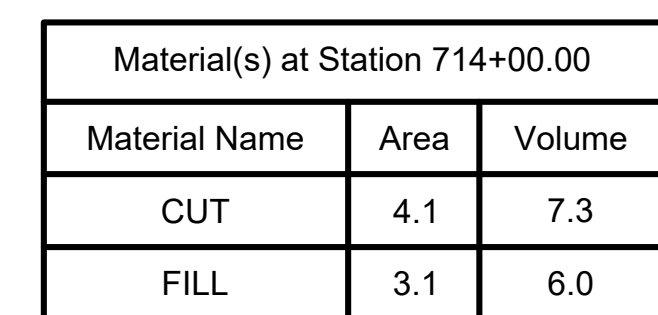
Material(s) at Station 704+50.00		
Material Name	Area	Volume
CUT	18.2	23.5
FILL	0.0	0.0



Material(s) at Station 704+00.00		
Material Name	Area	Volume
CUT	7.2	13.4
FILL	0.0	0.0



13812-HD(XSEC)-ROLITE 85 DWG 24-Jun-2021



TRANSPORTATION IMPROVEMENT PROJECT

PLAN AND PROFILE OF
VARIOUS LOCATIONS

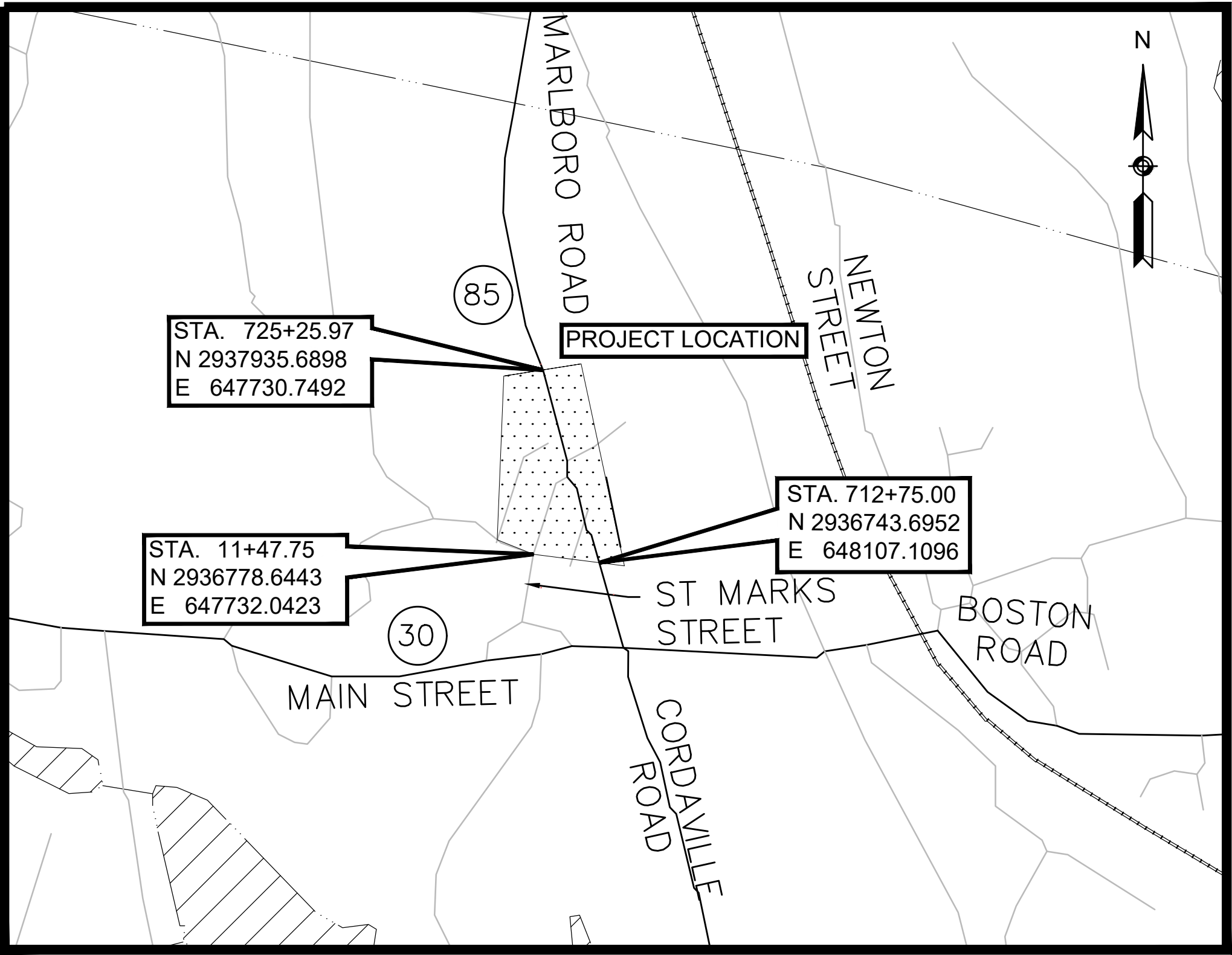
IN THE TOWN OF
SOUTHBOROUGH
WORCESTER COUNTY

SOUTHBOROUGH
VARIOUS LOCATIONS
TITLE SHEET & INDEX
SHEET 84 OF 141

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.

LOCATION 3

INDEX	
SHEET NO.	DESCRIPTION
84	TITLE SHEET & INDEX
85	KEY PLAN
86	TYPICAL SECTIONS
87-90	CONSTRUCTION PLANS
91-93	PROFILES
94-97	ALIGNMENT & GRADING PLANS
98-101	TRAFFIC PLANS
102-104	LANDSCAPING PLANS
105-107	LANDSCAPING DETAILS
108	CONSTRUCTION DETAILS
109-121	CROSS SECTIONS

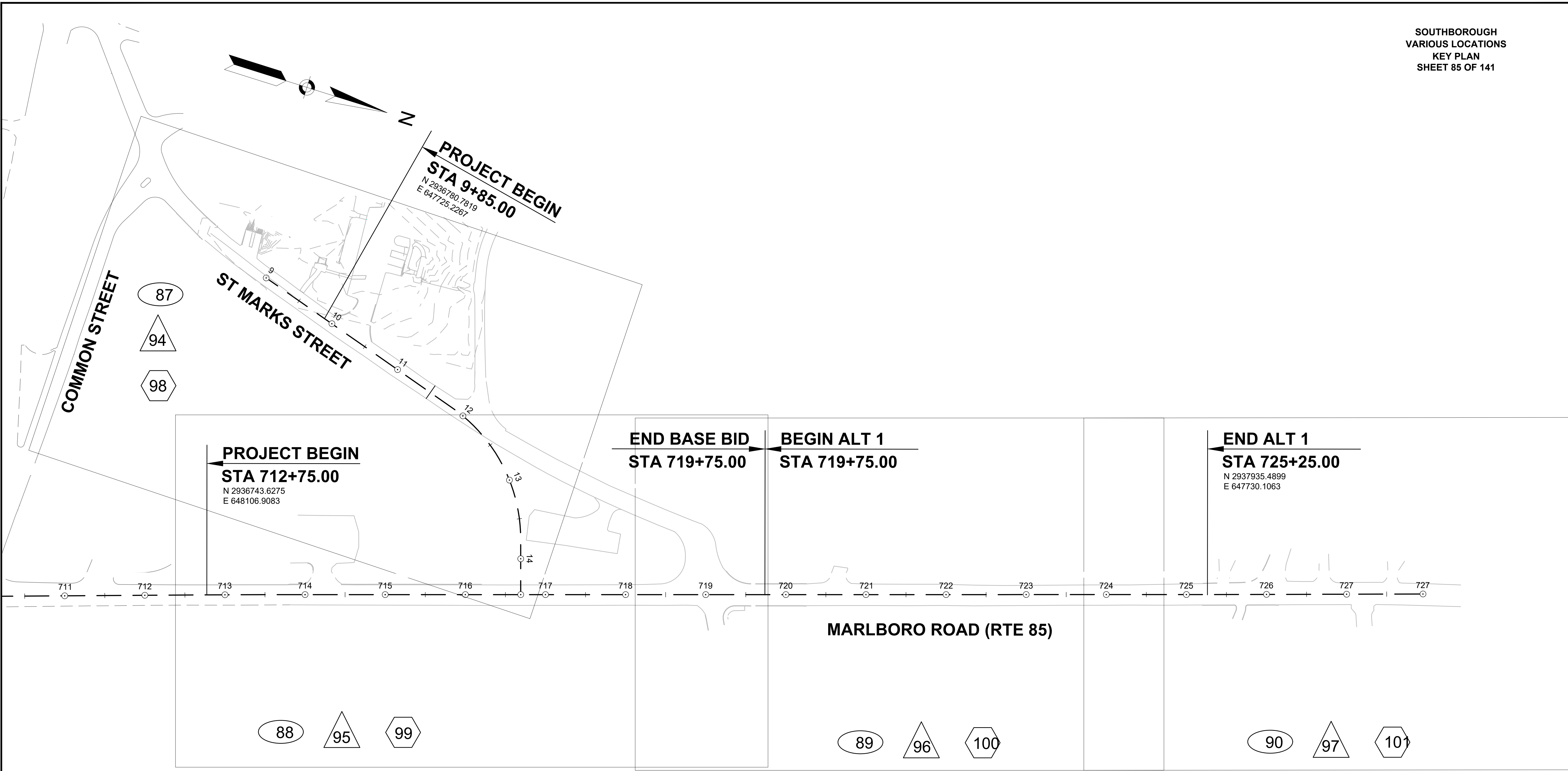


DESIGN DESIGNATION (SAINT MARKS STREET)

DESIGN SPEED	25 MPH
FUNCTIONAL CLASSIFICATION	LOCAL

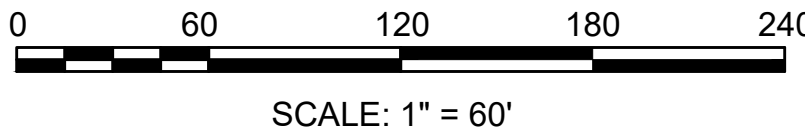
DESIGN DESIGNATION (MARLBORO ROAD)

DESIGN SPEED	30 MPH
ADT (2037)	13,750 VPD
FUNCTIONAL CLASSIFICATION	URBAN MINOR ARTERIAL



LEGEND

- # CONSTRUCTION PLANS
- # ALIGNMENT & GRADING PLANS
- # TRAFFIC SIGN & PAVEMENT MARKING PLANS



PAVEMENT NOTES

PROPOSED FULL DEPTH PAVEMENT / TRENCH PATCH (PERMANENT)

SURFACE: 1.75" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5) OVER
INTERMEDIATE: 2.25" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC-12.5) OVER

SUBBASE: 12" GRAVEL BORROW (TYPE b)

PROPOSED PAVEMENT MILLING & OVERLAY

SURFACE: 1.75" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5) OVER
1.75" PAVEMENT MICROMILLING

PROPOSED CEMENT CONCRETE DRIVEWAY

SURFACE: 6" CEMENT CONCRETE
AIR ENTRAINED 4000PSI, 3/4", 610 OVER

FOUNDATION: 8" GRAVEL BORROW (TYPE b)

PROPOSED CEMENT CONCRETE WALK/WHEELCHAIR RAMP

SURFACE: 4" CEMENT CONCRETE
AIR ENTRAINED 4000 PSI, 3/4", 610 OVER

FOUNDATION: 8" GRAVEL BORROW (TYPE b)

HOT MIX ASPHALT DRIVEWAY

SURFACE: (1.5" SUPERPAVE SURFACE COURSE 9.5 (SSC-9.5) OVER
(2.5" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC-12.5))

SUBBASE: 8" GRAVEL BORROW (TYPE b)

GRAVEL PARKING LOT

12" GRAVEL BORROW (TYPE b) OR RECLAIMED BORROW

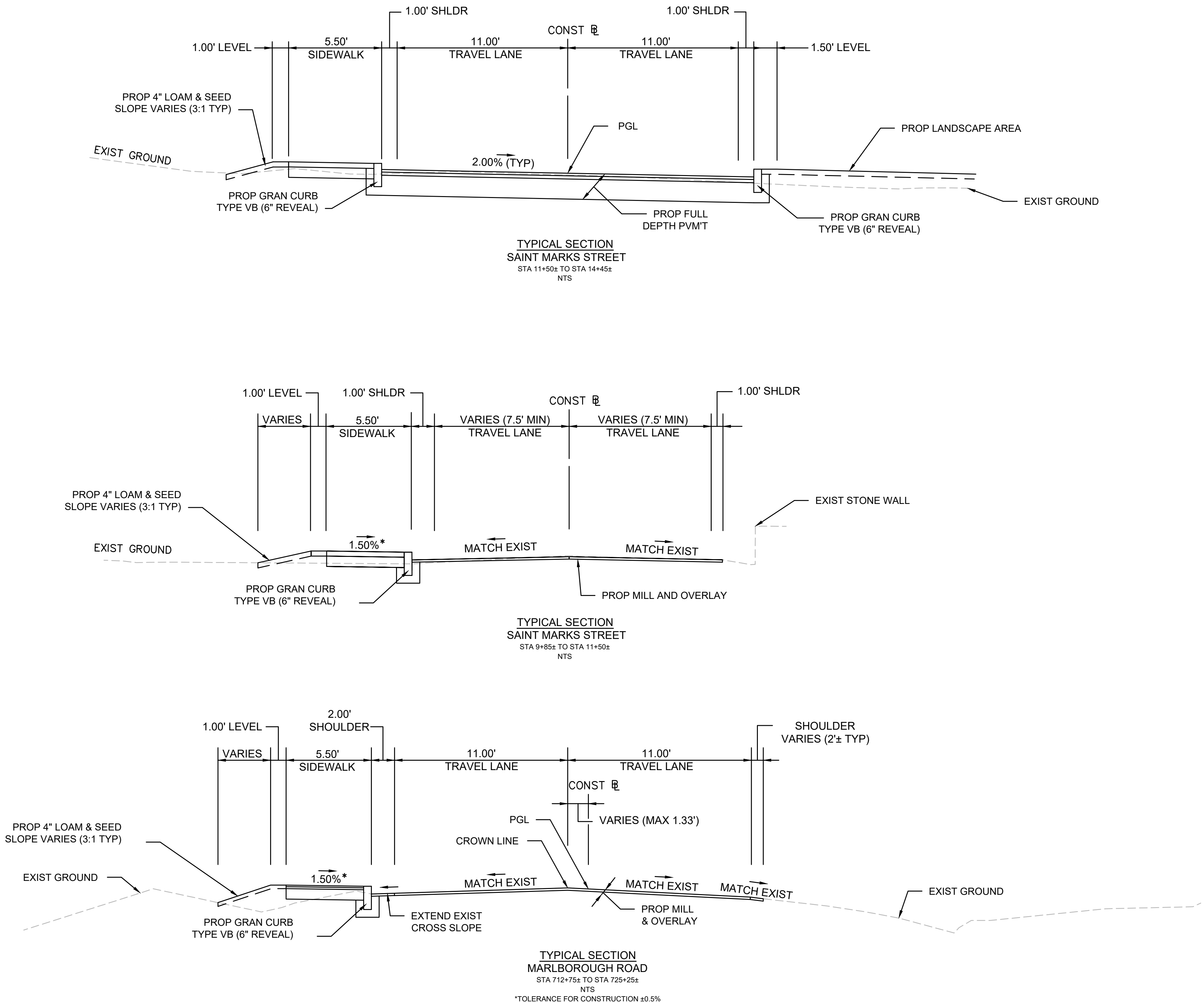
STONE DUST PATH

SURFACE: 4" STONE DUST

SUBBASE: 4" GRAVEL BORROW (TYPE b)

NOTES:

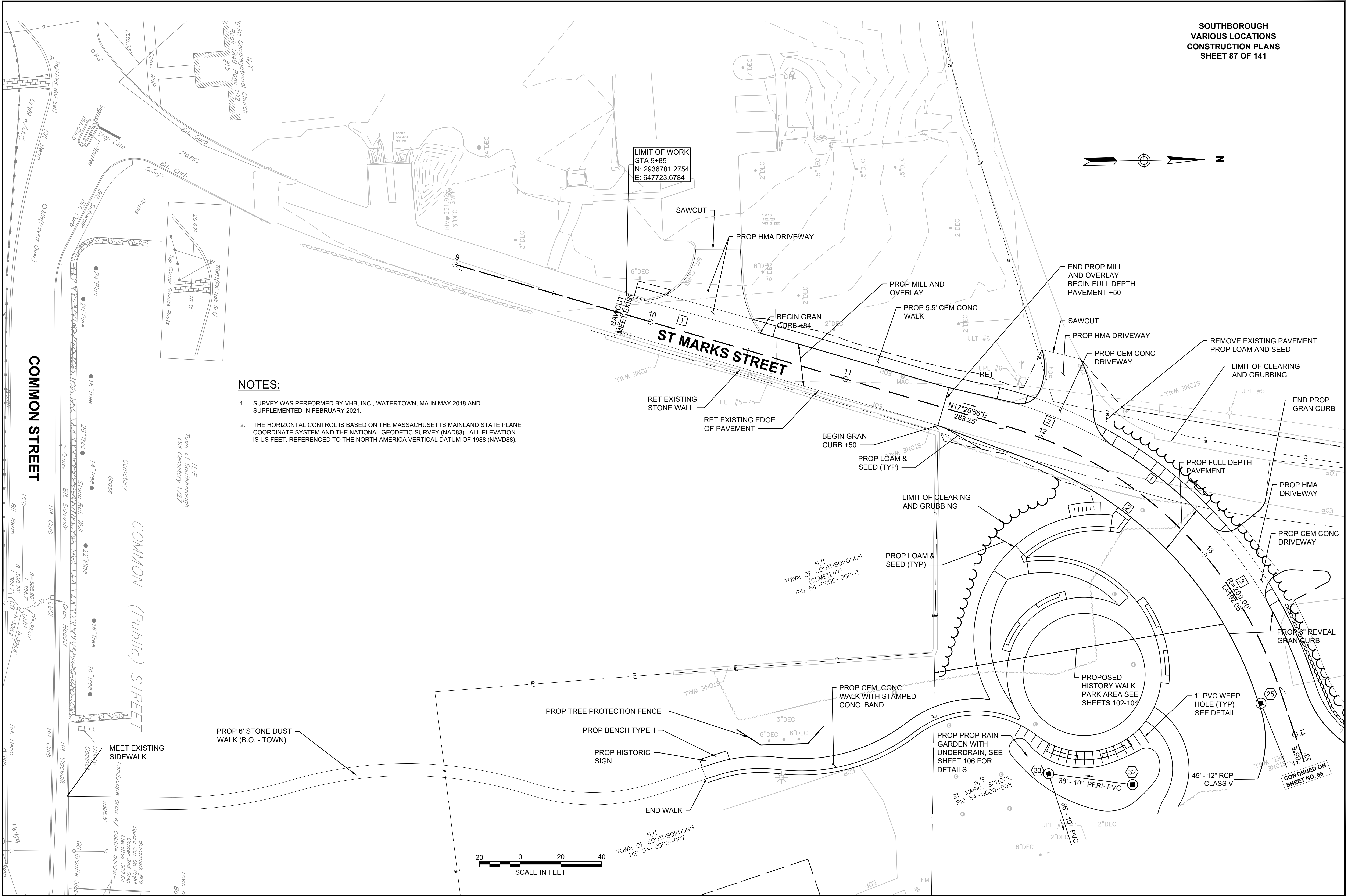
- 1) ASPHALT EMULSION FOR TACK COAT SHALL BE (RS-1H) TO RESIST TRACKING BY HAUL VEHICLES AND BOND HMA LAYERS FOR FLEXURAL STRENGTH. TACK COAT WILL BE APPLIED AT 0.07 GAL/SY OVER SMOOTH PAVEMENT (BASE AND INTERMEDIATE COURSES).
- 2) HMA WALKS AND DRIVEWAYS SHALL BE IN ACCORDANCE WITH SECTION 702. AND SHALL BE 50 GYRATION MIXTURES.
- 3) EXISTING GRAVEL BORROW MEETING MATERIAL SPECIFICATIONS SHALL BE RETAINED AND USED ON SITE FOR SUBBASE AS APPROVED BY ENGINEER.

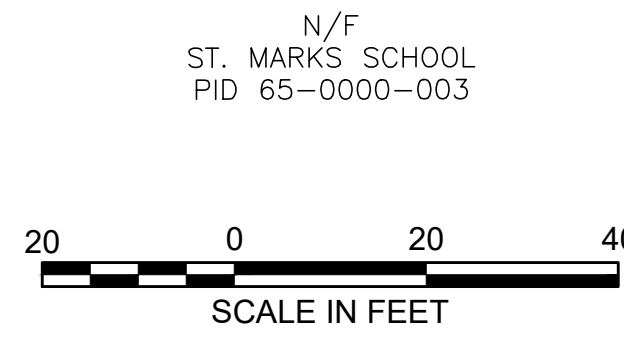
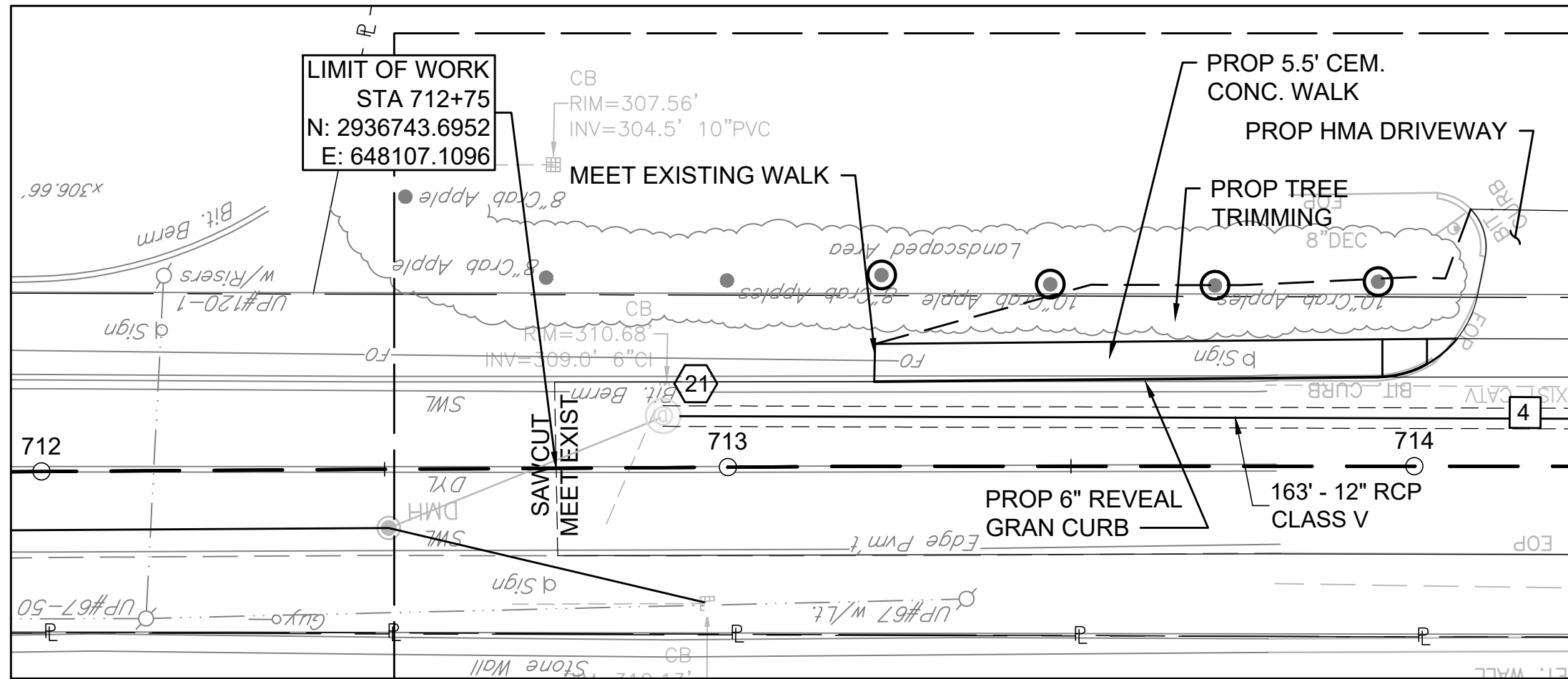
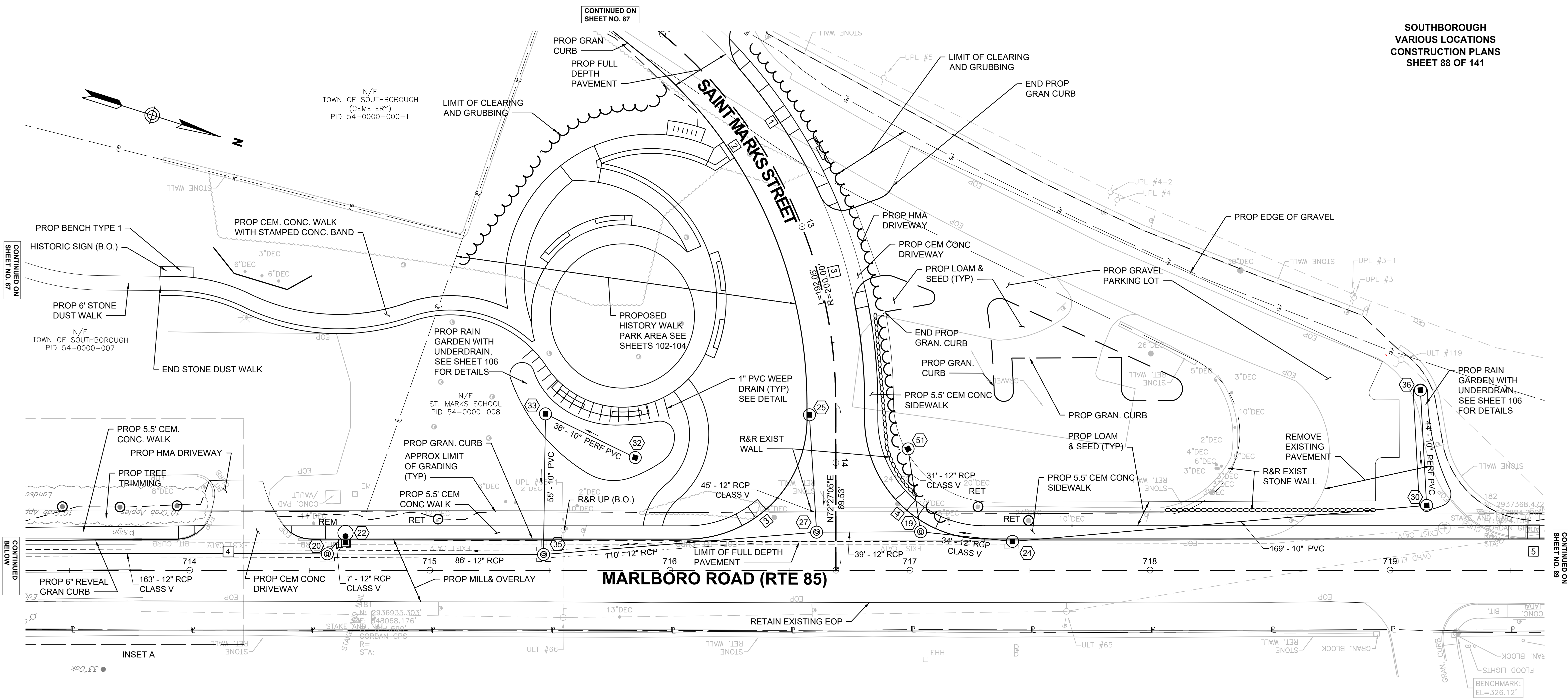




NOTES:

1. SURVEY WAS PERFORMED BY VHB, INC., WATERTOWN, MA IN MAY 2018 AND SUPPLEMENTED IN FEBRUARY 2021.
2. THE HORIZONTAL CONTROL IS BASED ON THE MASSACHUSETTS MAINLAND STATE PLANE COORDINATE SYSTEM AND THE NATIONAL GEODETIC SURVEY (NAD83). ALL ELEVATION IS US FEET, REFERENCED TO THE NORTH AMERICA VERTICAL DATUM OF 1988 (NAVD88).





ROUTE 85 DRAINAGE STRUCTURE DATA						
NO.	TYPE	STATION	RIM ELEV.	INV. IN	INV. OUT	REMARKS
19	DMH	717+04.5 16.0 LT	321.64	(51) 318.00 (24) 317.60	317.30	
20	DMH	714+57.3 6.8 LT	316.02	(35) 312.10 (22) 312.10	312.00	
21	EX DMH	712+90.6 7.5 LT	310.86	(20) 307.50		CONFIRM INVERT OUT PRIOR TO ORDERING STRUCTURE
22	SP CBCI	714+64.9 15.5 LT	316.14		312.30	
24	CBCI	717+42.7 12.0 LT	322.25	(30) 318.10	318.00	ECCENTRIC CONE
25	CBCI	13+80.1 11.0 RT	321.04		317.70	
27	DMH	716+61.1 15.9 LT	320.67	(19) 316.70 (25) 317.00	316.60	
32	AD	715+85.6 46.9 LT	317.50		314.80	
33	AD	715+48.2 65.1 LT	317.50	(32) 314.80	314.80	
35	DMH	715+47.4 6.6 LT	318.77	(27) 314.10 (33) 314.10	314.00	
51	CB	716+99.2 50.5 LT	322.80		318.40	

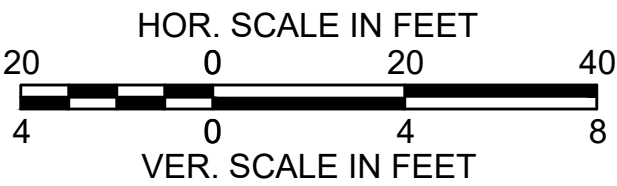
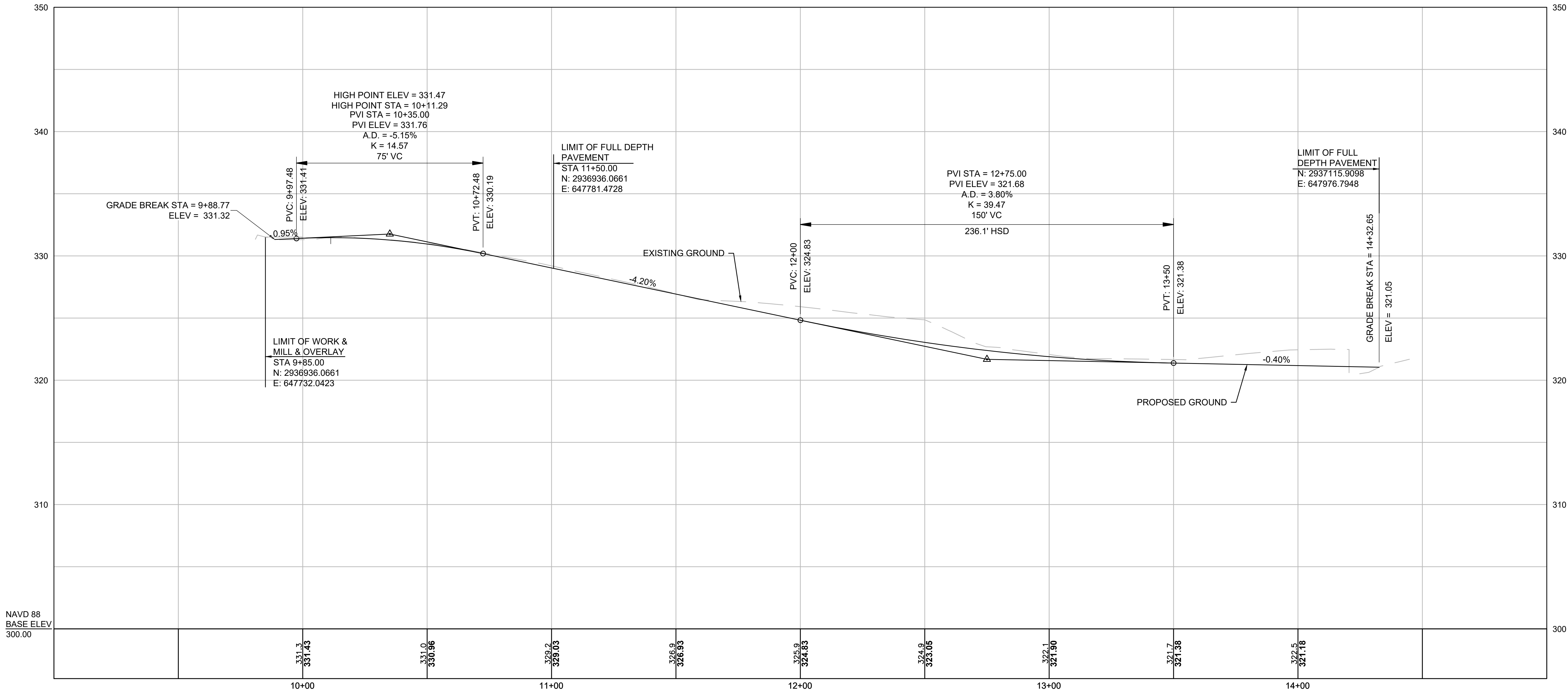
NOTE: TEST PITS SHALL BE TAKEN AT THE STRUCTURES ALONG THE WEST SIDE OF MARLBORO ROAD TO CONFIRM THE LOCATION OF THE FIBER OPTIC CABLE PRIOR TO ORDERING STRUCTURES.

NOTE: TEST PITS SHALL BE TAKEN AT THE STRUCTURES ALONG THE WEST SIDE OF MARLBORO ROAD TO CONFIRM THE LOCATION OF THE FIBER OPTIC CABLE PRIOR TO ORDERING STRUCTURES.





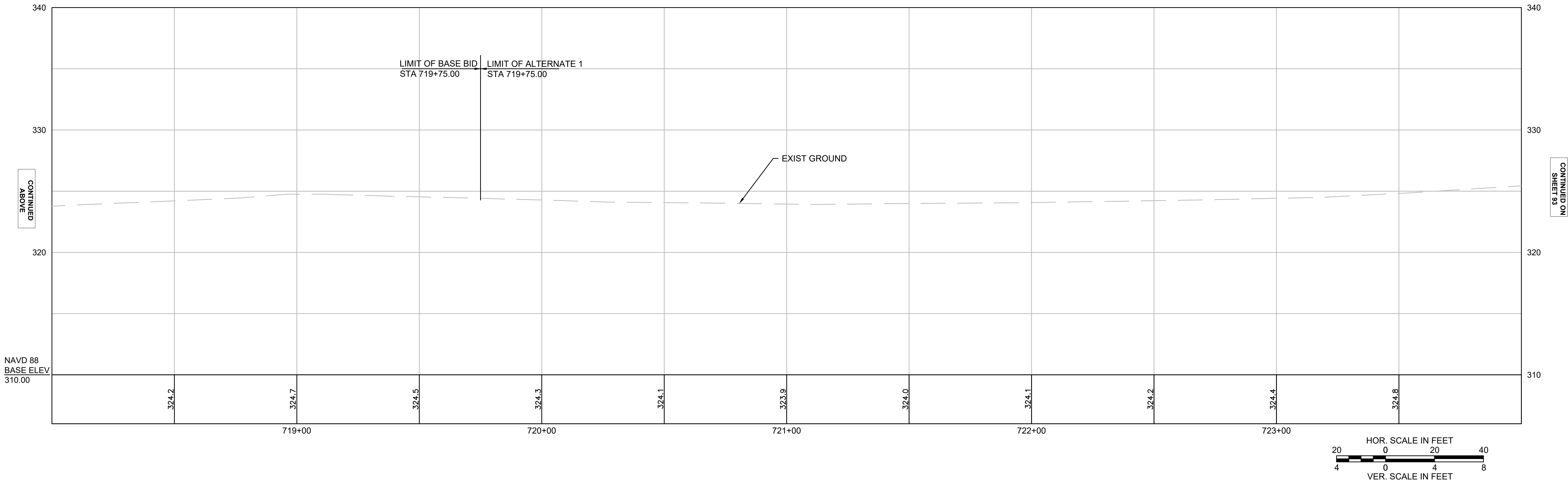
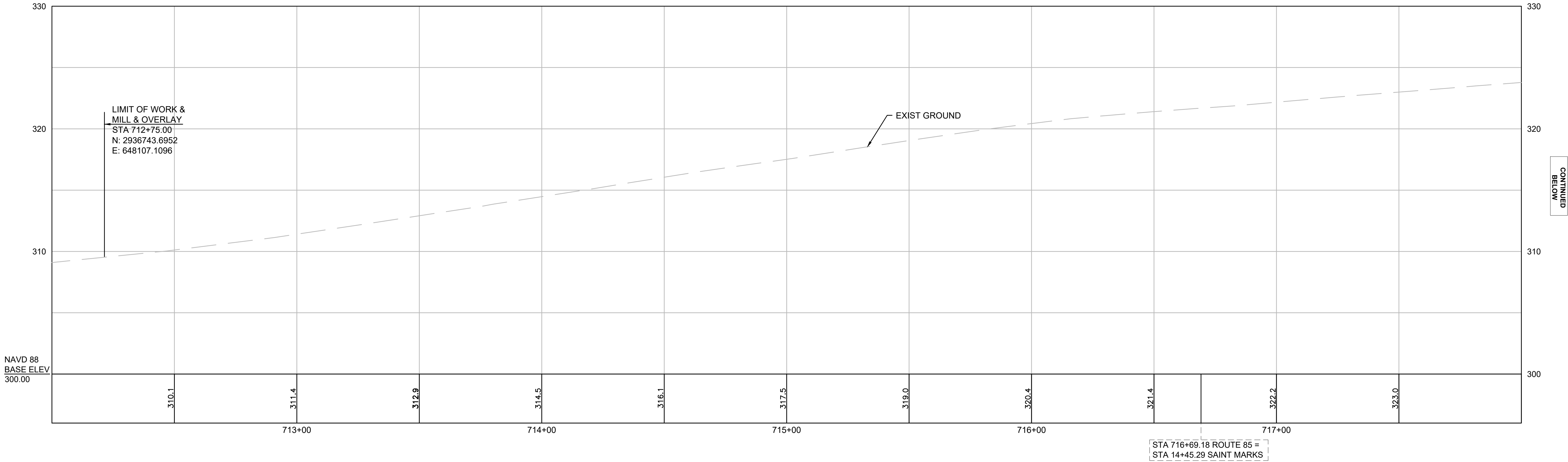
SAINT MARKS STREET



MARLBORO ROAD (ROUTE 85) IS PROPOSED PAVEMENT MICROMILLING & OVERLAY. NO PROFILE ADJUSTMENTS ARE PROPOSED. THE EXISTING PROFILE PROVIDED IS FOR INFORMATIONAL PURPOSES ONLY.

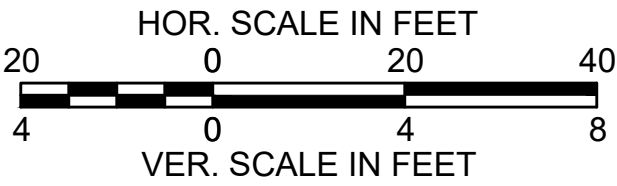
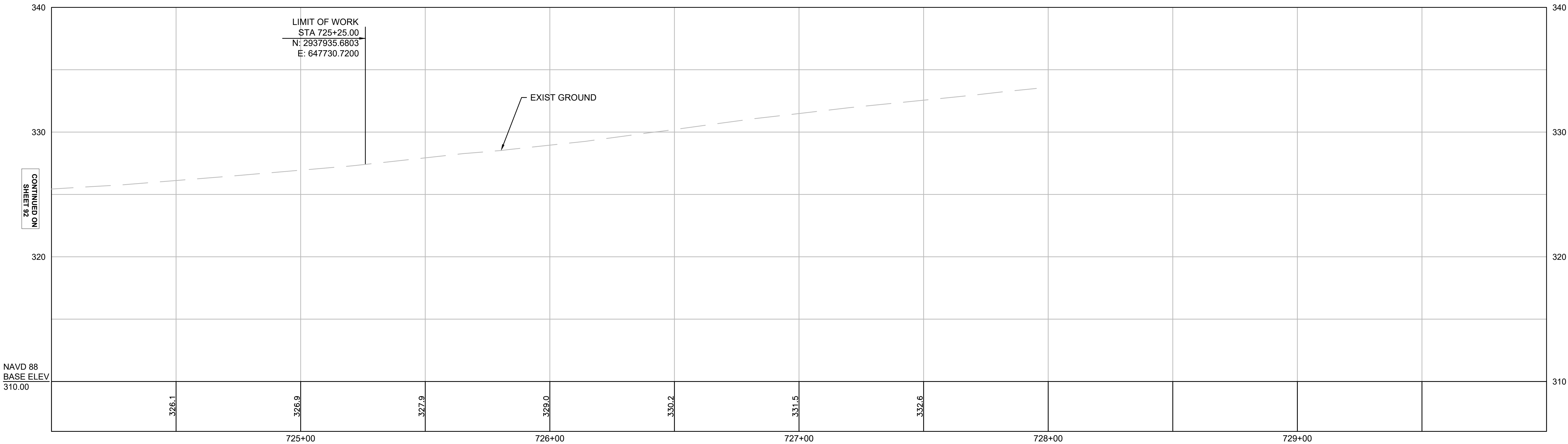
MARLBORO ROAD (RTE 85)

SOUTHBOROUGH
VARIOUS LOCATIONS
PROFILES
SHEET 92 OF 141



MARLBORO ROAD (ROUTE 85) IS PROPOSED PAVEMENT
MICROMILLING & OVERLAY. NO PROFILE ADJUSTMENTS ARE
PROPOSED. THE EXISTING PROFILE PROVIDED IS FOR
INFORMATIONAL PURPOSES ONLY.

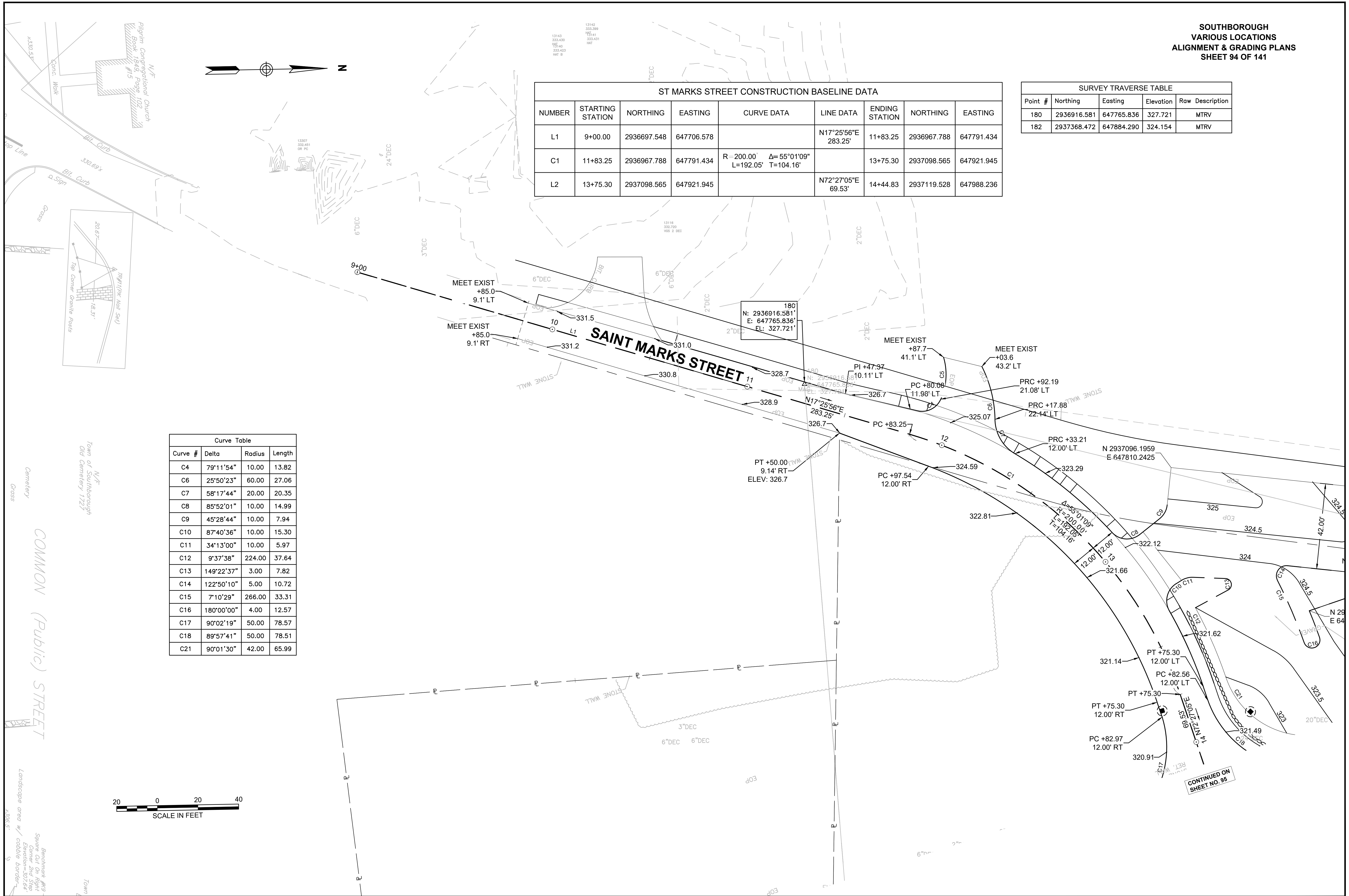
MARLBORO ROAD (RTE 85)



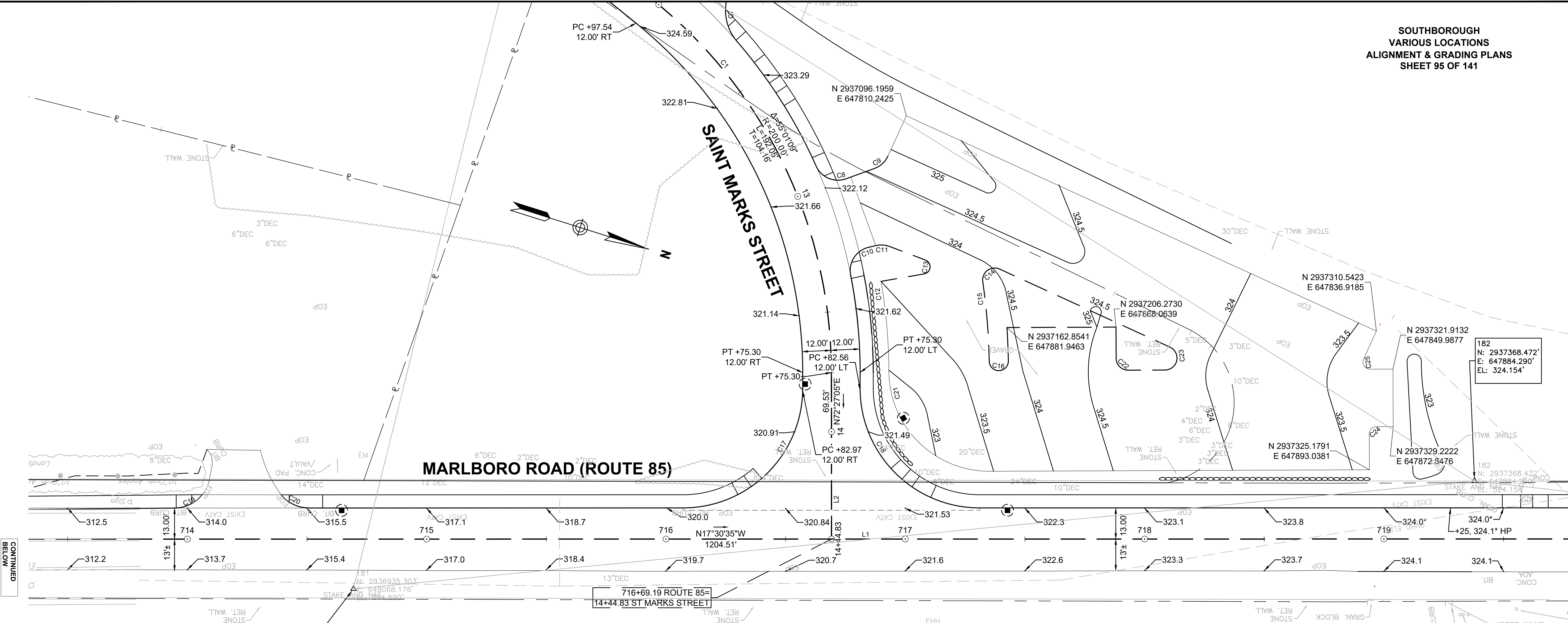
14931-HD(ALN).DWG Plotted on 24-Jun-2021 11:37 AM

ST MARKS STREET CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L1	9+00.00	2936697.548	647706.578		N17°25'56"E 283.25'	11+83.25	2936967.788	647791.434
C1	11+83.25	2936967.788	647791.434	R = 200.00' Δ= 55°01'09" L=192.05' T=104.16'		13+75.30	2937098.565	647921.945
L2	13+75.30	2937098.565	647921.945		N72°27'05"E 69.53'	14+44.83	2937119.528	647988.236

A horizontal scale bar with a black and white checkered pattern. It is labeled "SCALE IN FEET" below the bar. The bar has markings at 20, 0, 20, and 40 feet.



CONTINUED ON
SHEET NO. 94



MARLBORO ROAD (ROUTE 85)

SAINT MARKS STREET

ROUTE 85 CONSTRUCTION BASELINE DATA

NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L1	713+21.47	2936787.928	648092.851		N17°30'35"W 1204.51'	725+25.98	2937936.624	647730.455

ST MARKS STREET CONSTRUCTION BASELINE DATA

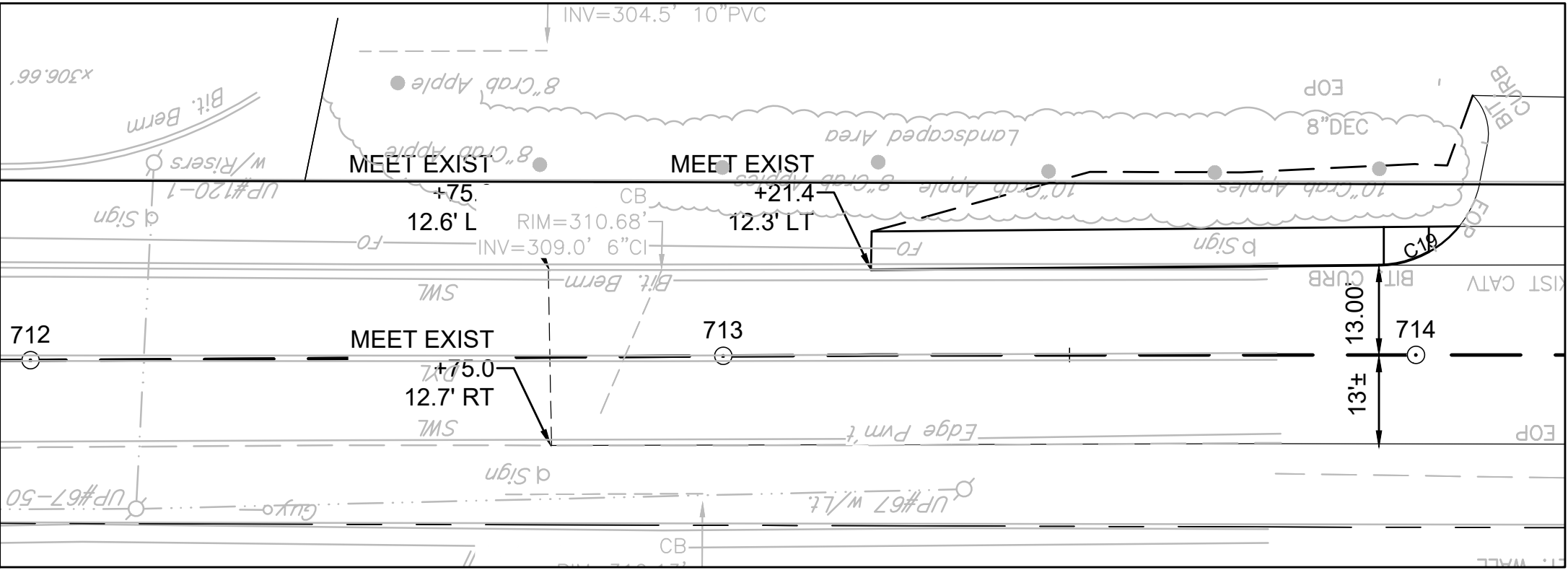
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C1	11+83.25	2936967.788	647791.434	R = 200.00' Δ = 55°01'09" L = 192.05' T = 104.16'		13+75.30	2937098.565	647921.945
L2	13+75.30	2937098.565	647921.945		N72°27'05"E 69.53'	14+44.83	2937119.528	647988.236

SURVEY TRAVERSE TABLE

Point #	Northing	Easting	Elevation	Raw Description
181	2936935.303	648068.176	314.590	MTRV

Curve Table

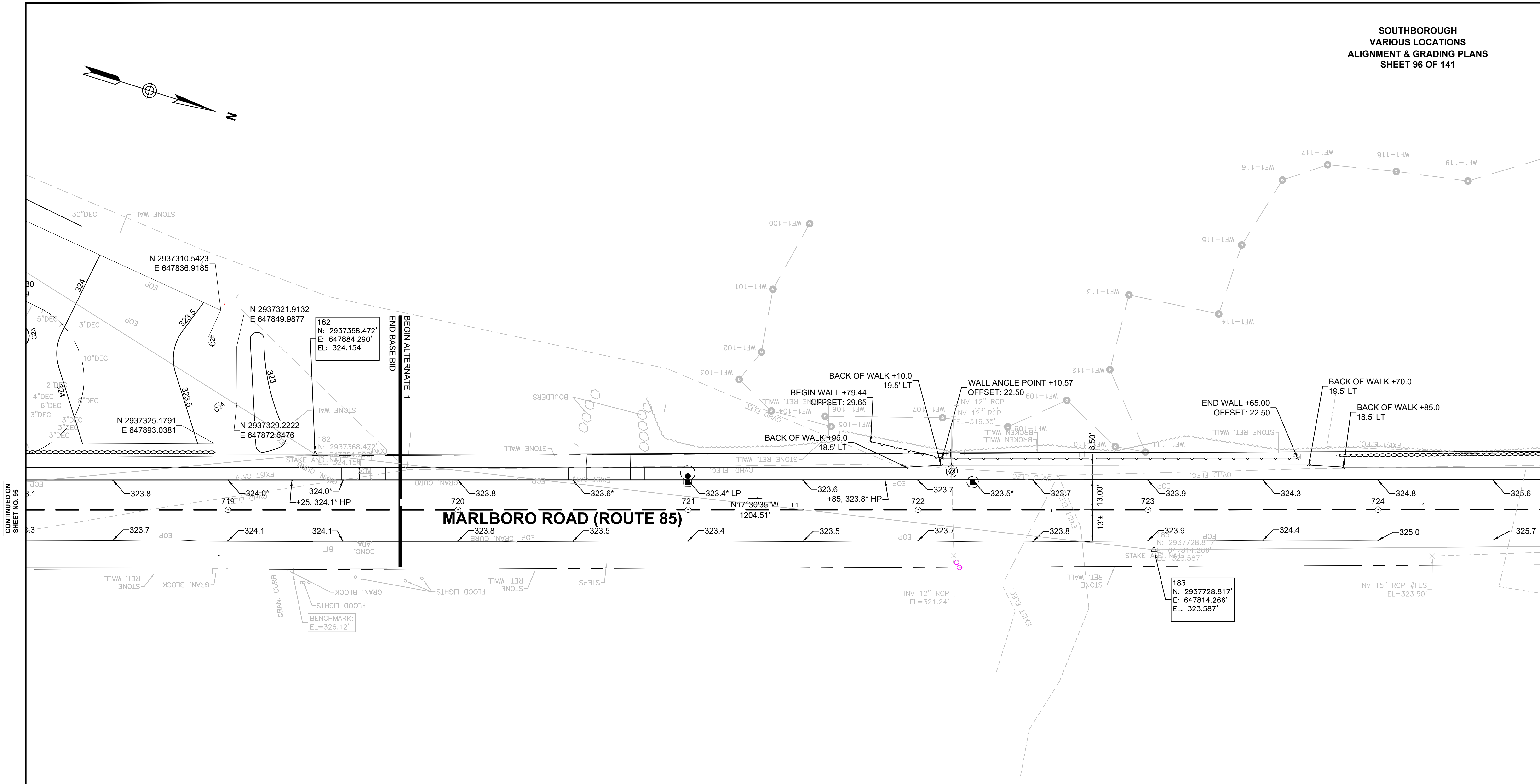
Curve #	Delta	Radius	Length
C6	25°50'23"	60.00	27.06
C7	58°17'44"	20.00	20.35
C8	85°52'01"	10.00	14.99
C9	45°28'44"	10.00	7.94
C10	87°40'36"	10.00	15.30
C11	34°13'00"	10.00	5.97
C12	9°37'38"	224.00	37.64
C13	149°22'37"	3.00	7.82
C14	122°50'10"	5.00	10.72
C15	7°10'29"	266.00	33.31
C16	180°00'00"	4.00	12.57
C17	90°02'19"	50.00	78.57
C18	89°57'41"	50.00	78.51
C19	20°49'28"	16.00	5.82
C20	33°33'26"	15.00	8.79
C21	90°01'30"	42.00	65.99
C22	90°00'00"	5.00	7.85
C23	155°10'30"	5.00	13.54
C24	90°00'00"	3.00	4.71
C25	114°49'30"	3.00	6.01



CONTINUED
ABOVE

CONTINUED
BELOW

CONTINUED ON
SHEET NO. 96

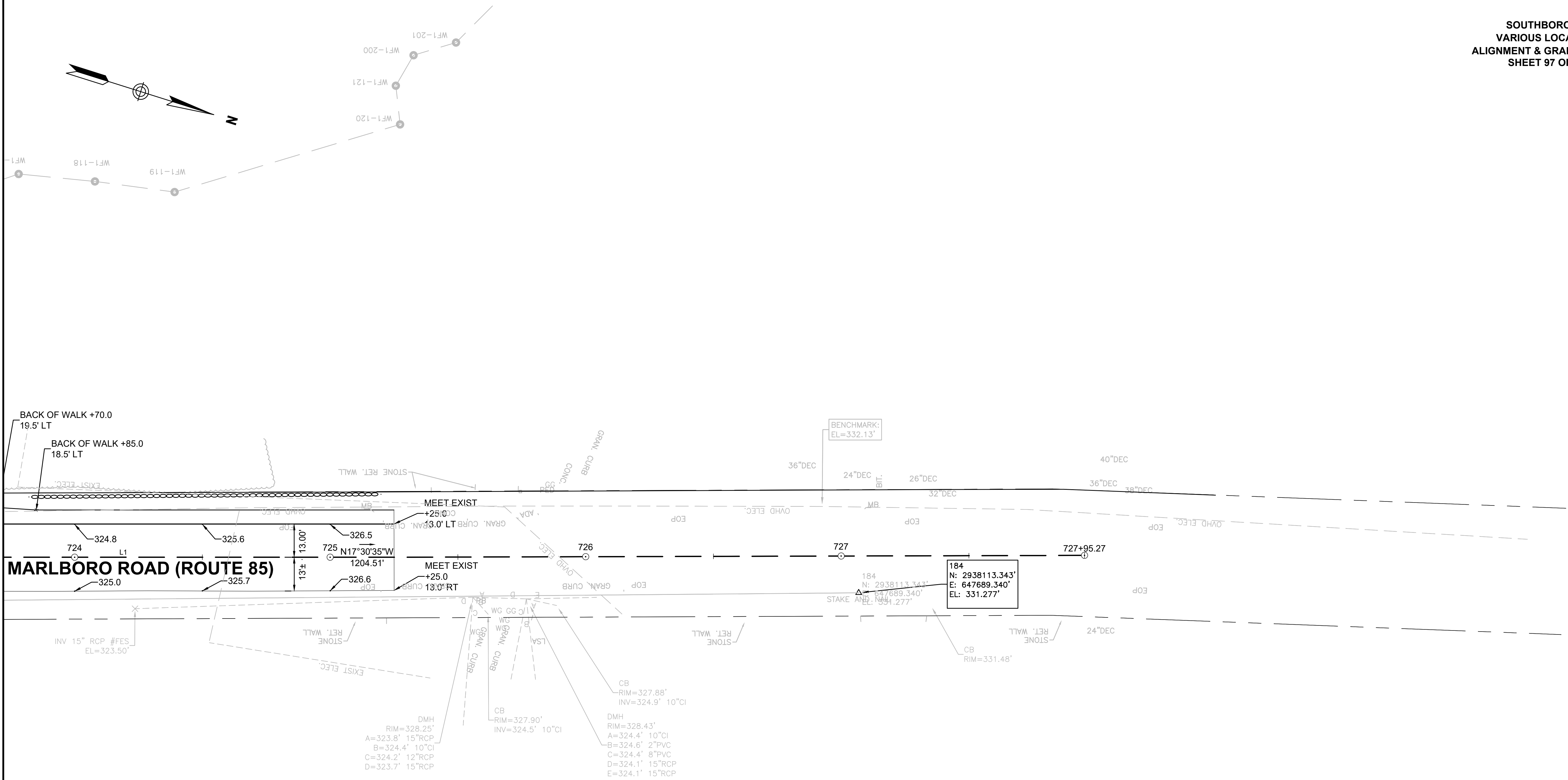


Curve Table			
Curve #	Delta	Radius	Length
C23	155°10'30"	5.00	13.54
C24	90°00'00"	3.00	4.71
C25	114°49'30"	3.00	6.01

SURVEY TRAVERSE TABLE				
Point #	Northing	Easting	Elevation	Raw Description
182	2937368.472	647884.290	324.154	MTRV
183	2937728.817	647814.266	323.587	MTRV

ROUTE 85 CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L1	713+21.47	2936787.928	648092.851		N17°30'35"W 1204.51'	725+25.98	2937936.624	647730.455





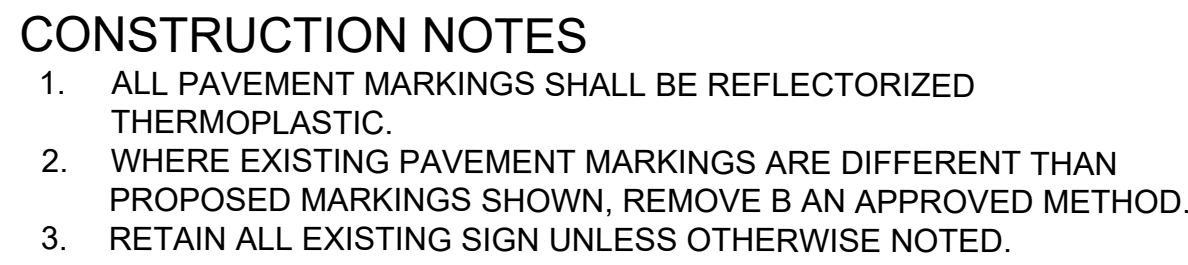
CONTINUED ON
SHEET NO. 96

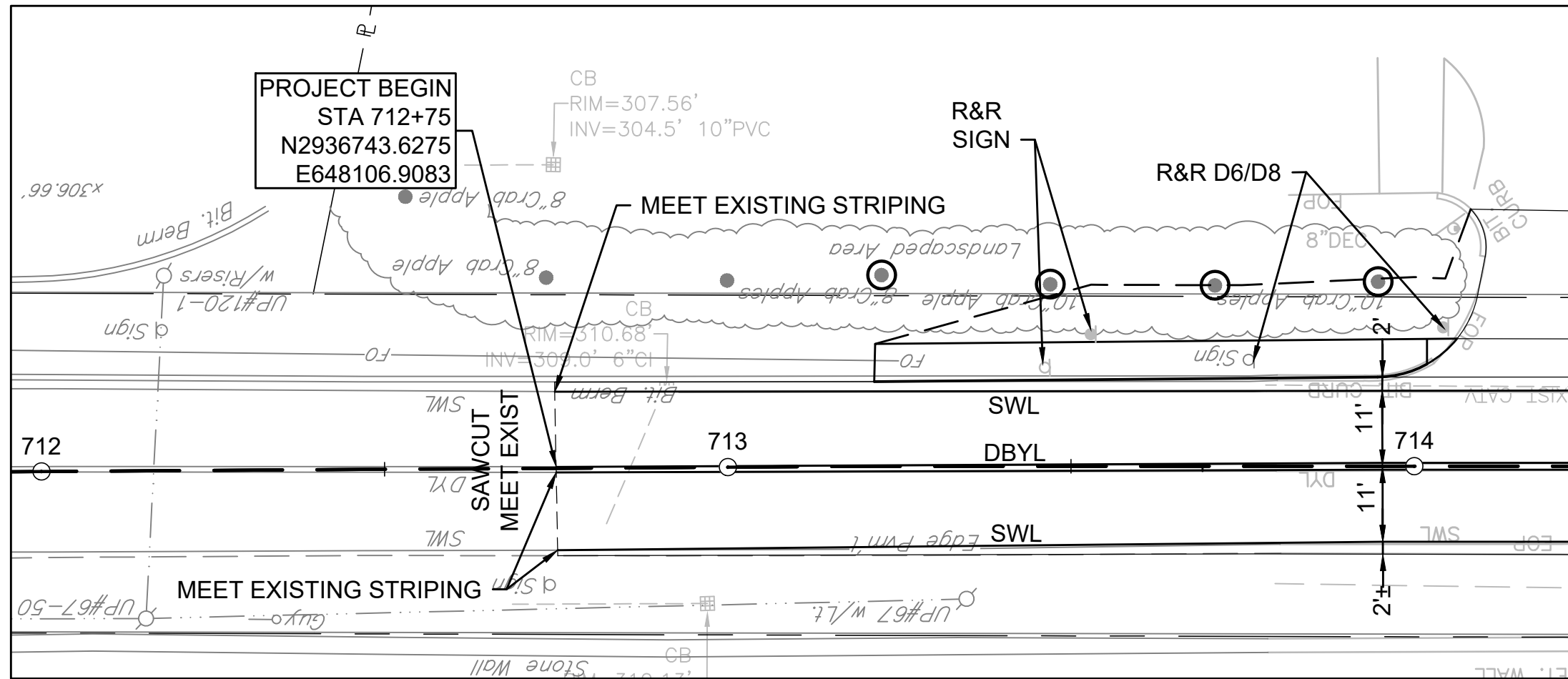
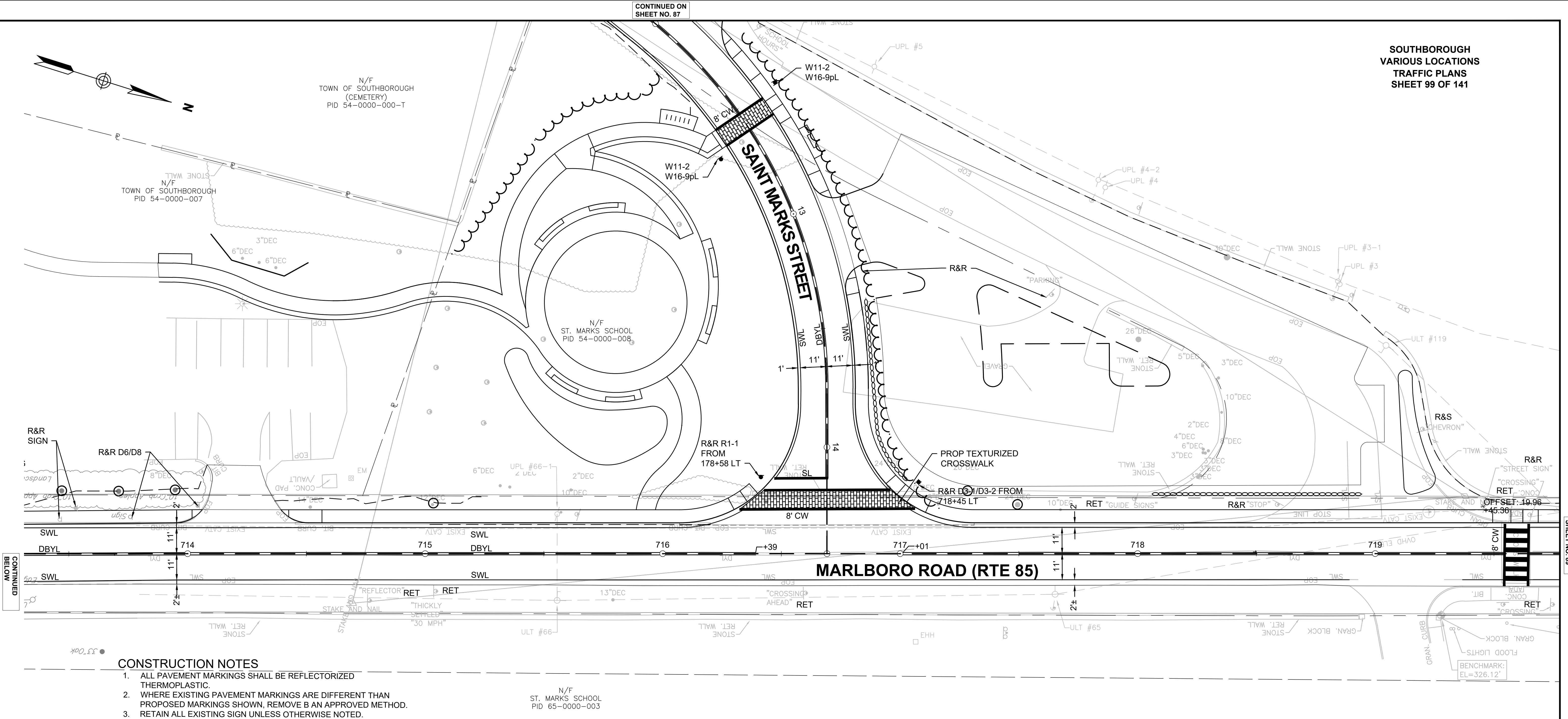
MARLBORO ROAD (ROUTE 85)

SURVEY TRAVERSE TABLE				
Point #	Northing	Easting	Elevation	Raw Description
184	2938113.343	647689.340	331.277	MTRV

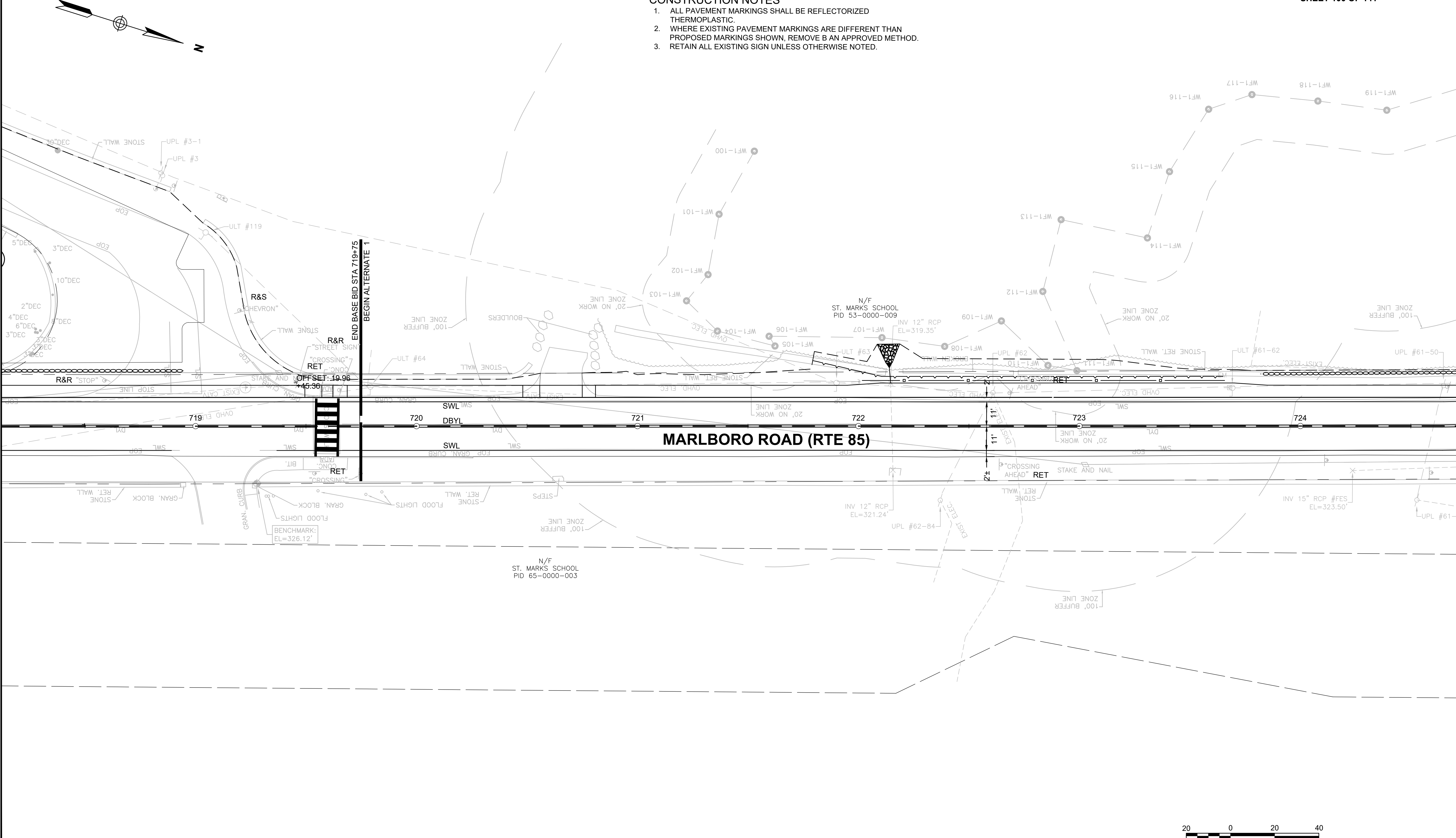
ROUTE 85 CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L1	713+21.47	2936787.928	648092.851		N17°30'35"W 1204.51'	725+25.98	2937936.624	647730.455







- CONSTRUCTION NOTES
1. ALL PAVEMENT MARKINGS SHALL BE REFLECTORIZED THERMOPLASTIC.
 2. WHERE EXISTING PAVEMENT MARKINGS ARE DIFFERENT THAN PROPOSED MARKINGS SHOWN, REMOVE B AN APPROVED METHOD.
 3. RETAIN ALL EXISTING SIGN UNLESS OTHERWISE NOTED.

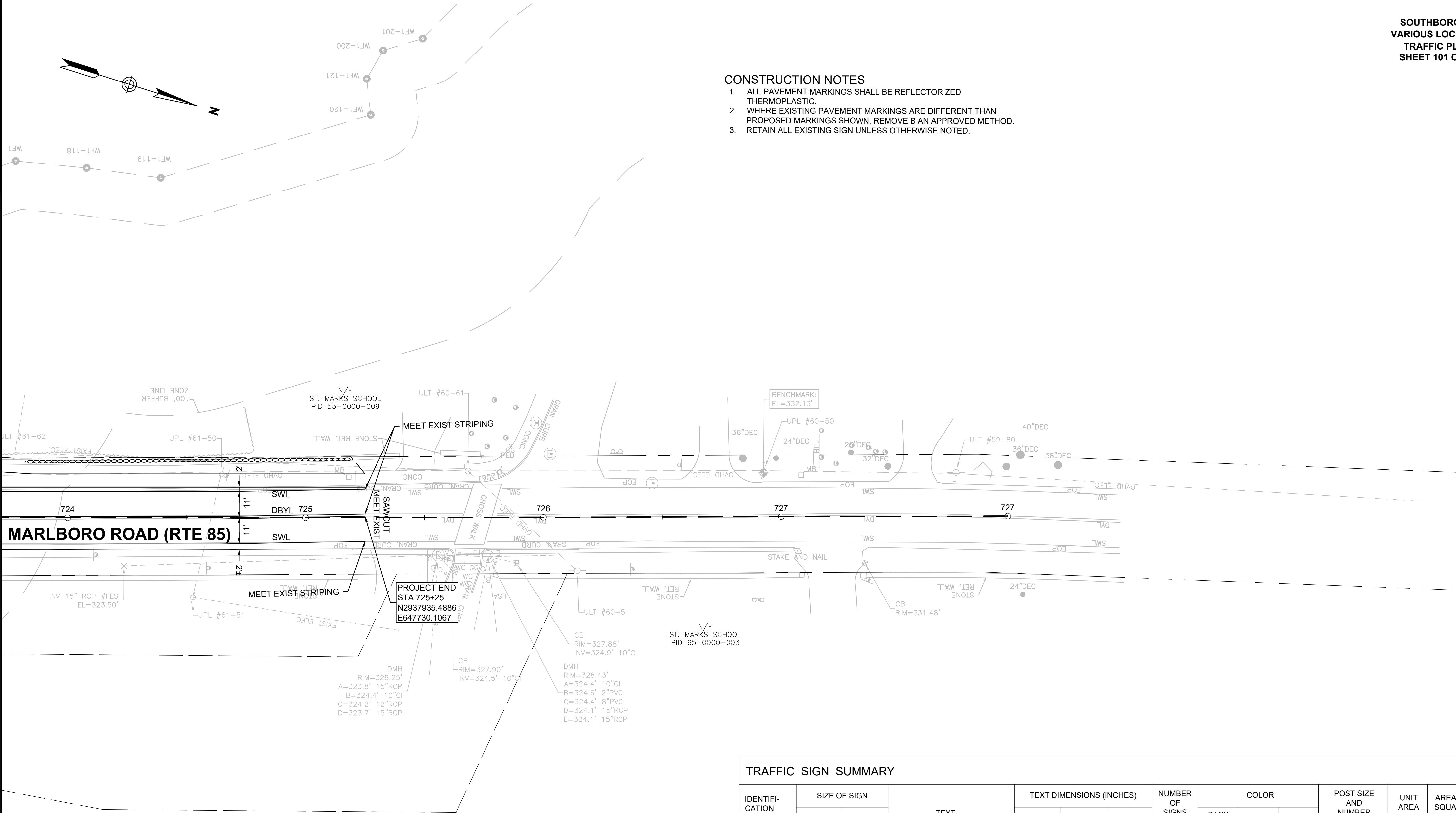


CONTINUED ON
SHEET NO. 88

CONTINUED ON
SHEET NO. 90

CONSTRUCTION NOTES

1. ALL PAVEMENT MARKINGS SHALL BE REFLECTORIZED THERMOPLASTIC.
2. WHERE EXISTING PAVEMENT MARKINGS ARE DIFFERENT THAN PROPOSED MARKINGS SHOWN, REMOVE B AN APPROVED METHOD.
3. RETAIN ALL EXISTING SIGN UNLESS OTHERWISE NOTED.

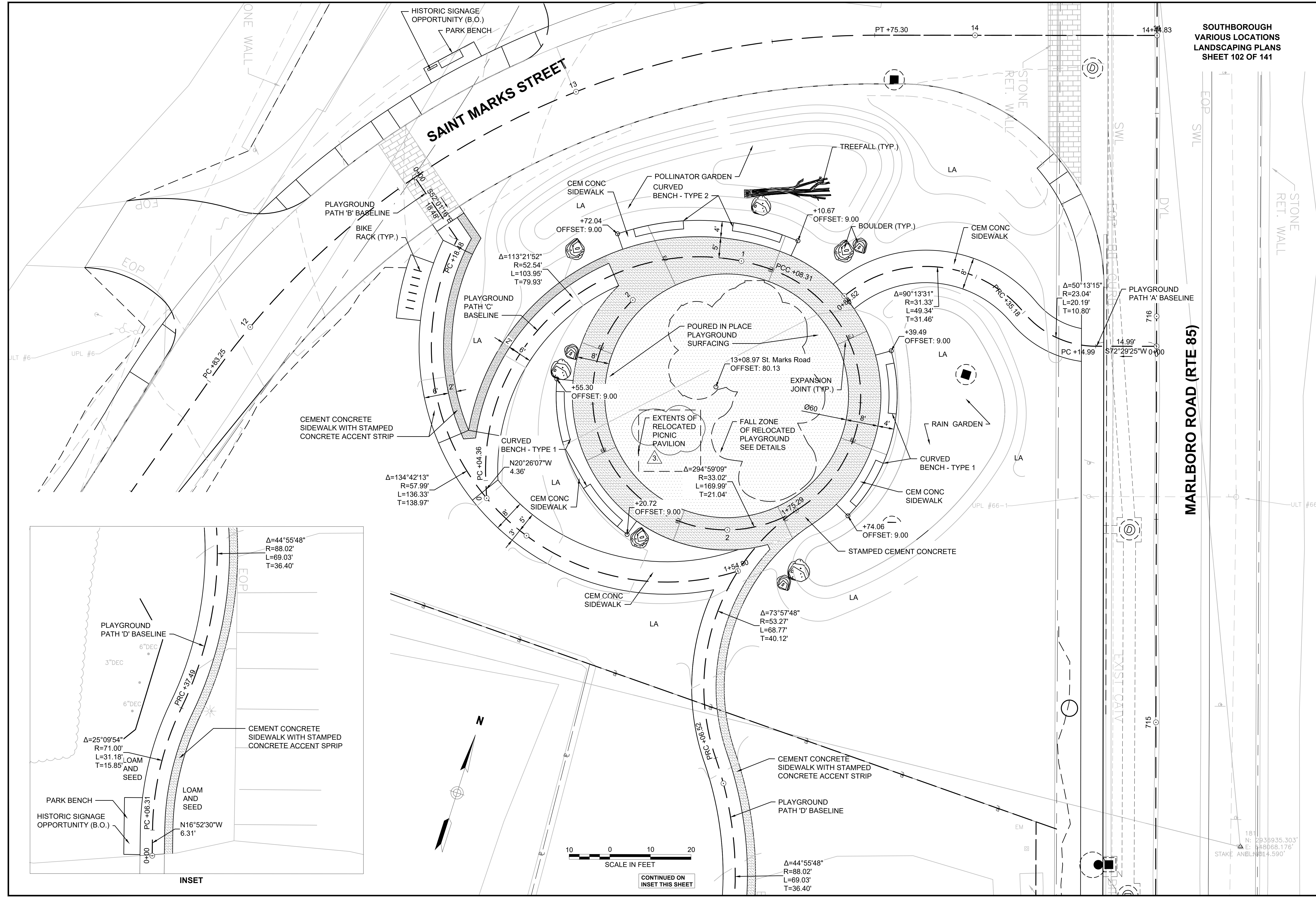


TRAFFIC SIGN SUMMARY													
IDENTIFI- CATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK- GROUND	LEGEND	BORDER			
W11-2	30"	30"		SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION"; AS AMENDED			3	FLUOR- ESCENT YELLOW /GREEN	BLACK	BLACK	P5-2	6.25	18.75
W16-7p(L)	24"	12"					2	FLUOR- ESCENT YELLOW /GREEN	BLACK	BLACK	2 MTD W/ OTHERS	2.00	4.00
W16-7p(R)	24"	12"					1	FLUOR- ESCENT YELLOW /GREEN	BLACK	BLACK	2 MTD W/ OTHERS	2.00	2.00

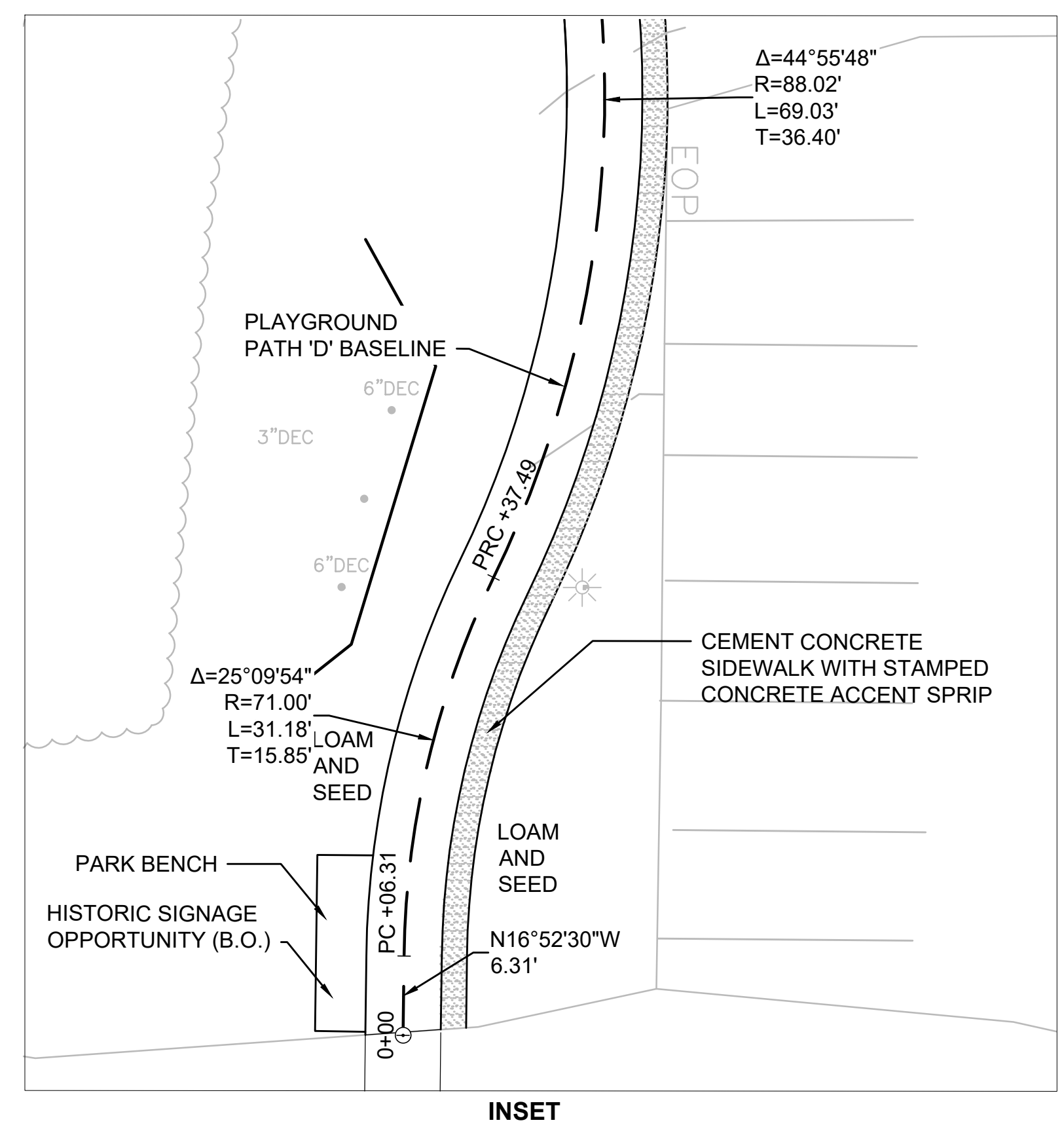
- NOTES:
1. HIGH INTENSITY REFLECTIVE SHEETING SHALL BE USED FOR ALL SIGNS. SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION" FOR TEXT DIMENSIONS, AS AMENDED; THE 1977 MASSHIGHWAY DEPARTMENT CONSTRUCTION AND TRAFFIC STANDARD DETAILS, AS AMENDED, FOR SIGNS AND SUPPORTS; AND THE MASSHIGHWAY DEPARTMENT SIGN LISTINGS 1993 EDITION, AS AMENDED.
 2. ALL SIGNS SHOWN GRAPHICALLY FOR INFORMATION ONLY. SIGN VENDOR SHALL FABRICATE ALL SIGNS IN ACCORDANCE WITH THE APPLICABLE STANDARDS.

CONTINUED ON
SHEET NO. 89



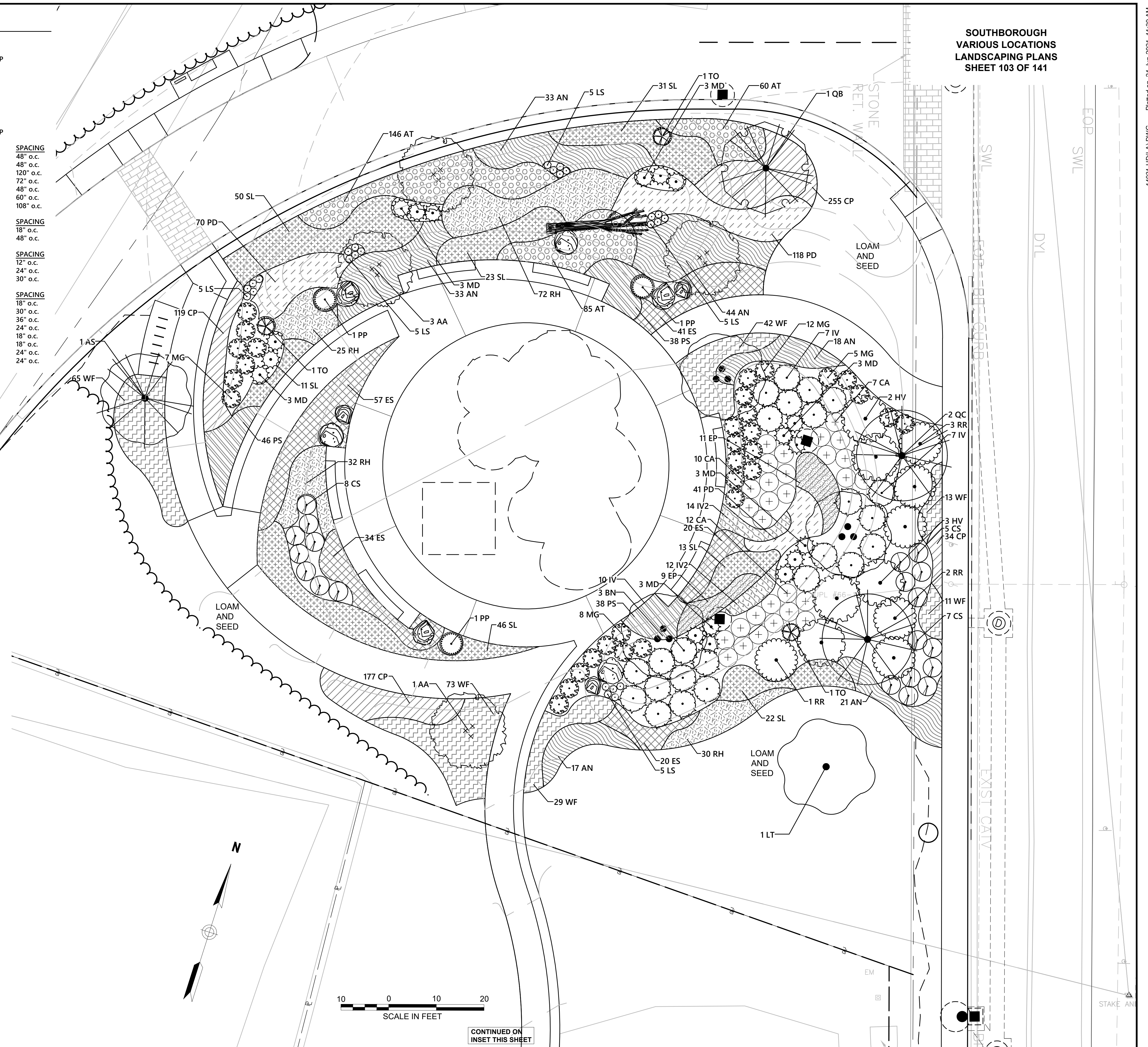
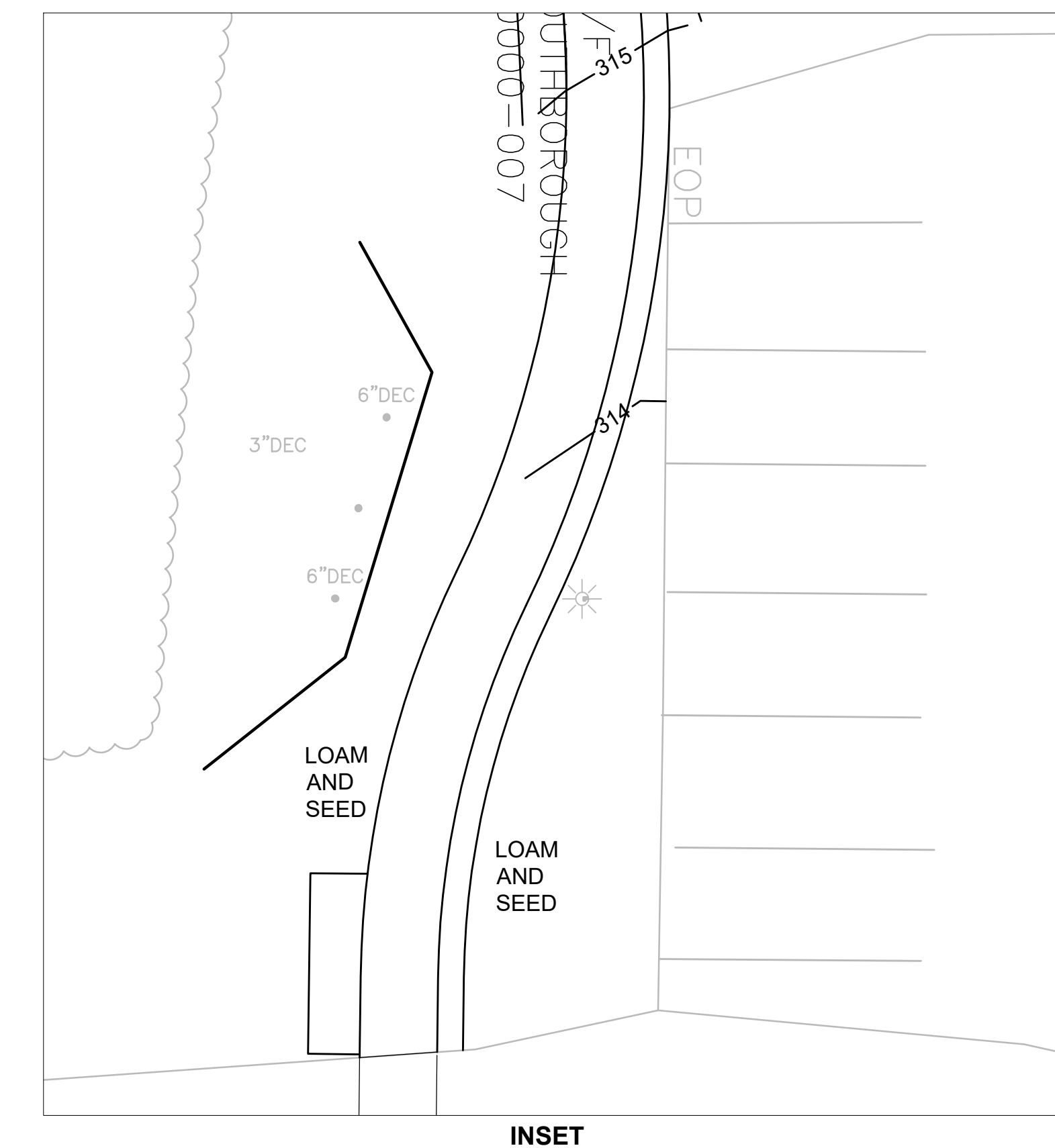


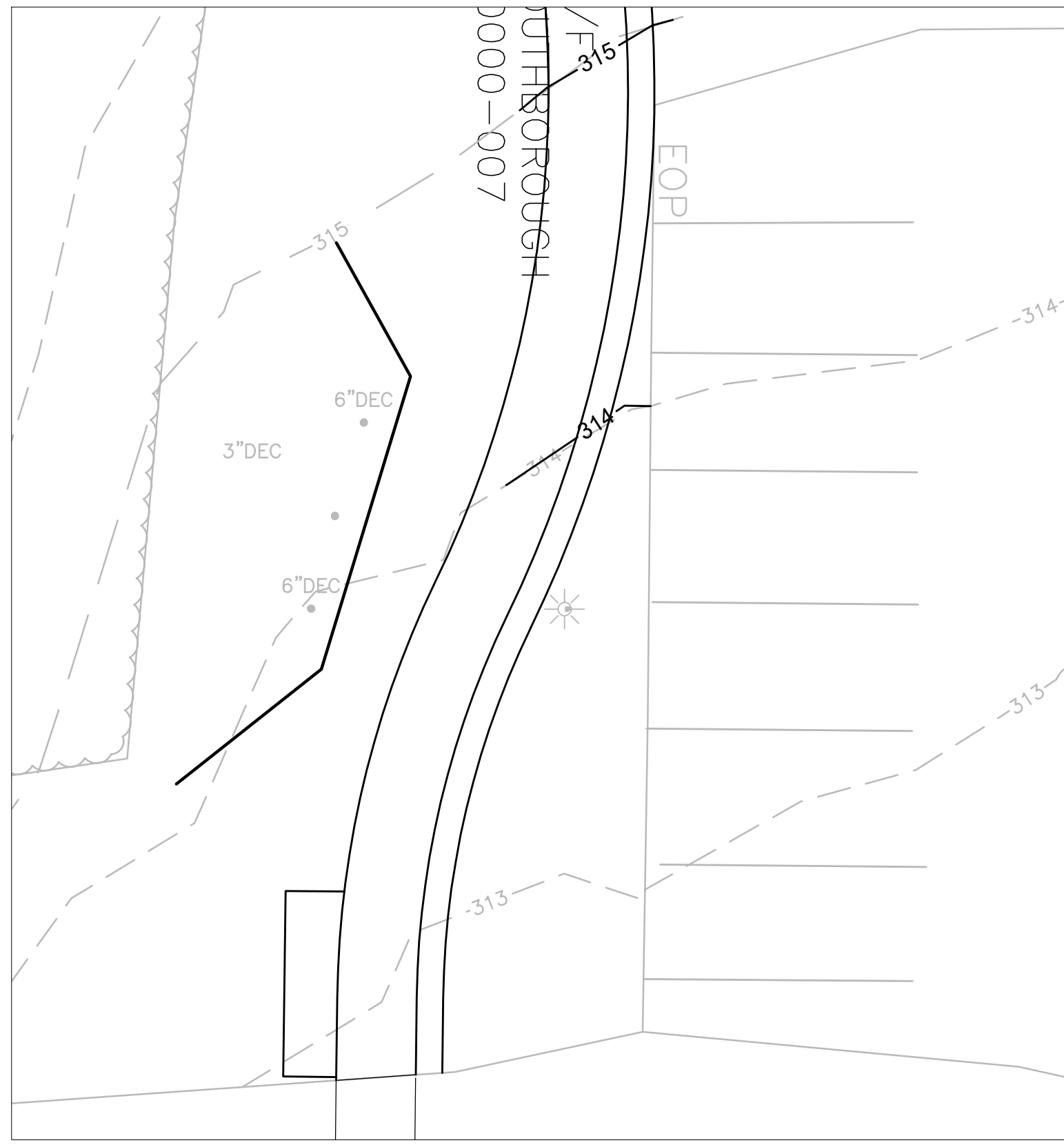
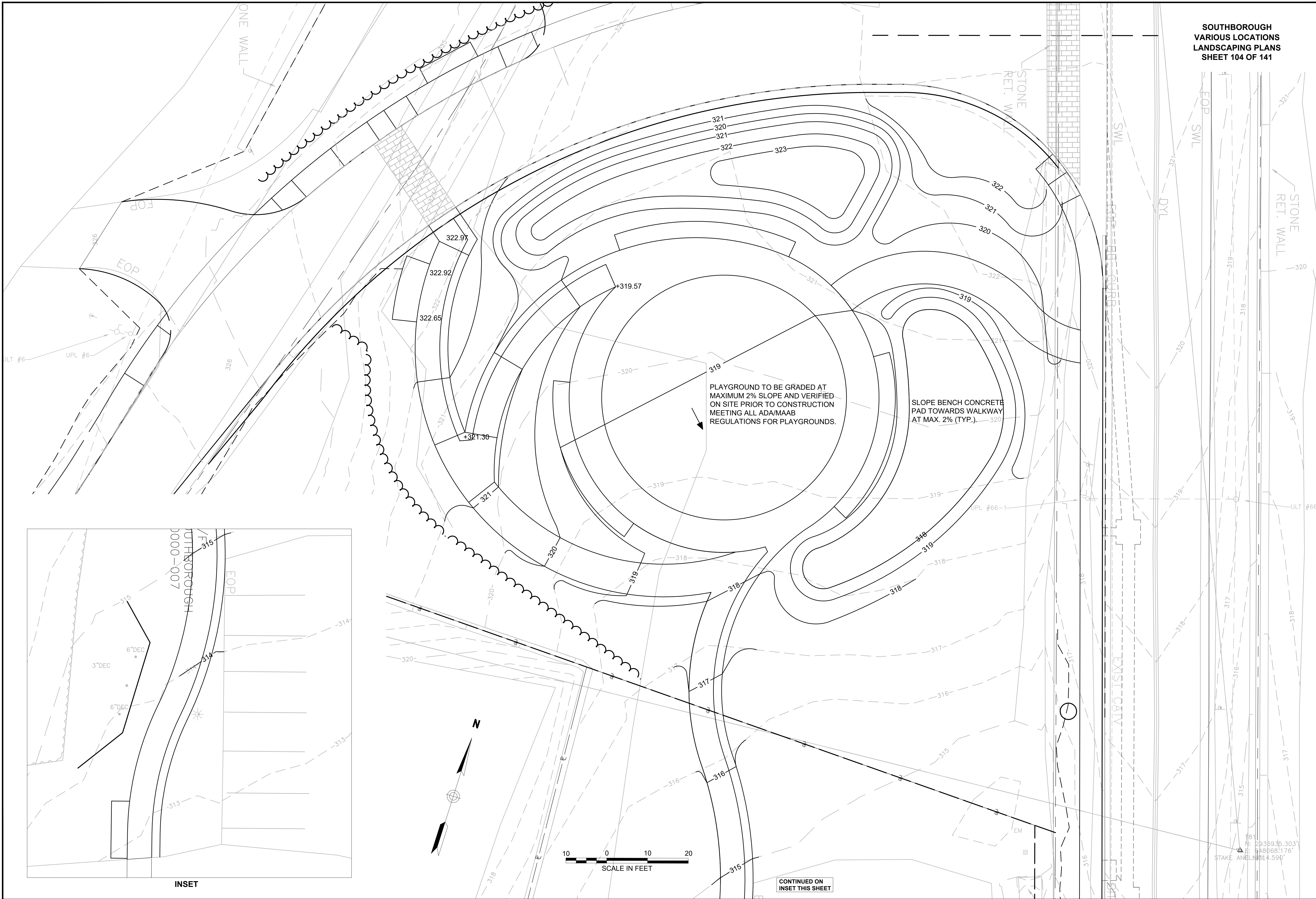
MARLBORO ROAD (RTE 85)

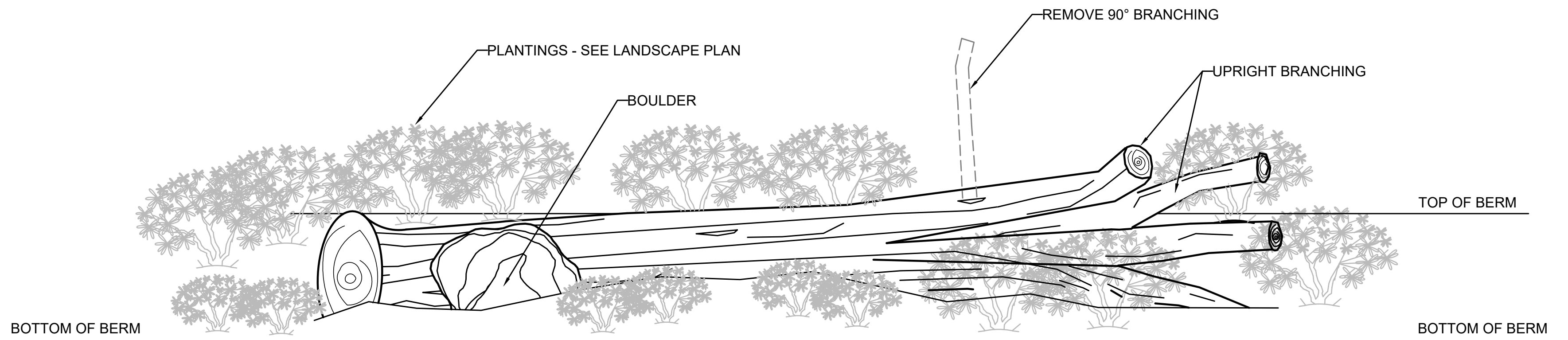


CONTINUED ON
INSET THIS SHEET

DECIDUOUS TREES		QTY	BOTANICAL NAME	COMMON NAME	SIZE	
AS	1	Acer saccharum	Sugar Maple	3 - 3 1/2' CAL.		
BN	1	Betula nigra - Clump	Birch River 'Heritage'	8 - 10' HT. CLUMP		
LT	1	Liriodendron tulipifera	Tulip Tree	3 - 3 1/2' CAL.		
QB	1	Quercus bicolor	Swamp White Oak	3 - 3 1/2' CAL.		
QC	2	Quercus coccinea	Scarlet Oak	3 - 3 1/2' CAL.		
EVERGREEN TREES		QTY	BOTANICAL NAME	COMMON NAME	SIZE	
TO	3	Thuja occidentalis 'Smaragd'	Emerald Green Arborvitae	5 - 6' HT.		
ORNAMENTAL TREES		QTY	BOTANICAL NAME	COMMON NAME	SIZE	
AA	4	Amelanchier arborea	Shad Tree - Downy Clump	8 - 10' HT., CLUMP		
SHRUBS		QTY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING
CA	29	Clethra alnifolia	Summersweet Shrub	2 - 3' HT.	48"	o.c.
CS	20	Cornus sericea 'Artic Fire'	Dogwood - Redosier 'Artic Fire'	2 - 3' HT.	48"	o.c.
HV	5	Hamelis virginiana	Common Witch Hazel	2 - 3' HT.	120"	o.c.
IV	24	Ilex verticillata 'Sparkleberry'	Sparkleberry Winterberry	3 - 4' HT.	72"	o.c.
MG	32	Myrica gale	Sweetgale	2 - 3' HT.	48"	o.c.
PP	3	Pinus mugo pumilio	Dwarf Mugo Pine	30 - 36" HT./SPD.	60"	o.c.
RR	6	Rhododendron maximum roseum	Pink Rosebay Rhododendron	3 - 4' HT.	108"	o.c.
PERENNIALS		QTY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING
LS	25	Liatris spicata	Spike Gayfeather	1 GAL.	18"	o.c.
MD	18	Monarda didyma	Bee Balm	1 GAL.	48"	o.c.
ORNAMENTAL GRASS DRIFTS		QTY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING
CP	585	Carex pensylvanica	Pennsylvania Sedge	1 GAL.	12"	o.c.
ES	172	Eragrostis spectabilis	Purple Love Grass	2 GAL.	24"	o.c.
SL	196	Schizachyrium scoparium	Little Bluestem	2 GAL.	30"	o.c.
PERENNIAL DRIFTS		QTY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING
AT	291	Asclepias tuberosa	Butterfly Milkweed	1 GAL.	18"	o.c.
AN	166	Aster novae-angliae	New England Aster	1 GAL.	30"	o.c.
EP	20	Eutrochium purpureum	Sweet Joe Pye Weed	1 GAL.	36"	o.c.
IV	26	Iris versicolor	Blue Flag	1 GAL.	24"	o.c.
PD	229	Penstemon digitalis	Beardtongue	1 GAL.	18"	o.c.
PS	122	Phlox subulata 'Emerald Pink'	Emerald Pink Creeping Phlox	1 GAL.	18"	o.c.
RH	159	Rudbeckia hirta	Black-eyed Susan	1 GAL.	24"	o.c.
WF	233	Waldsteina fragarioides	Appalachian Barren Strawberry	1 GAL.	24"	o.c.





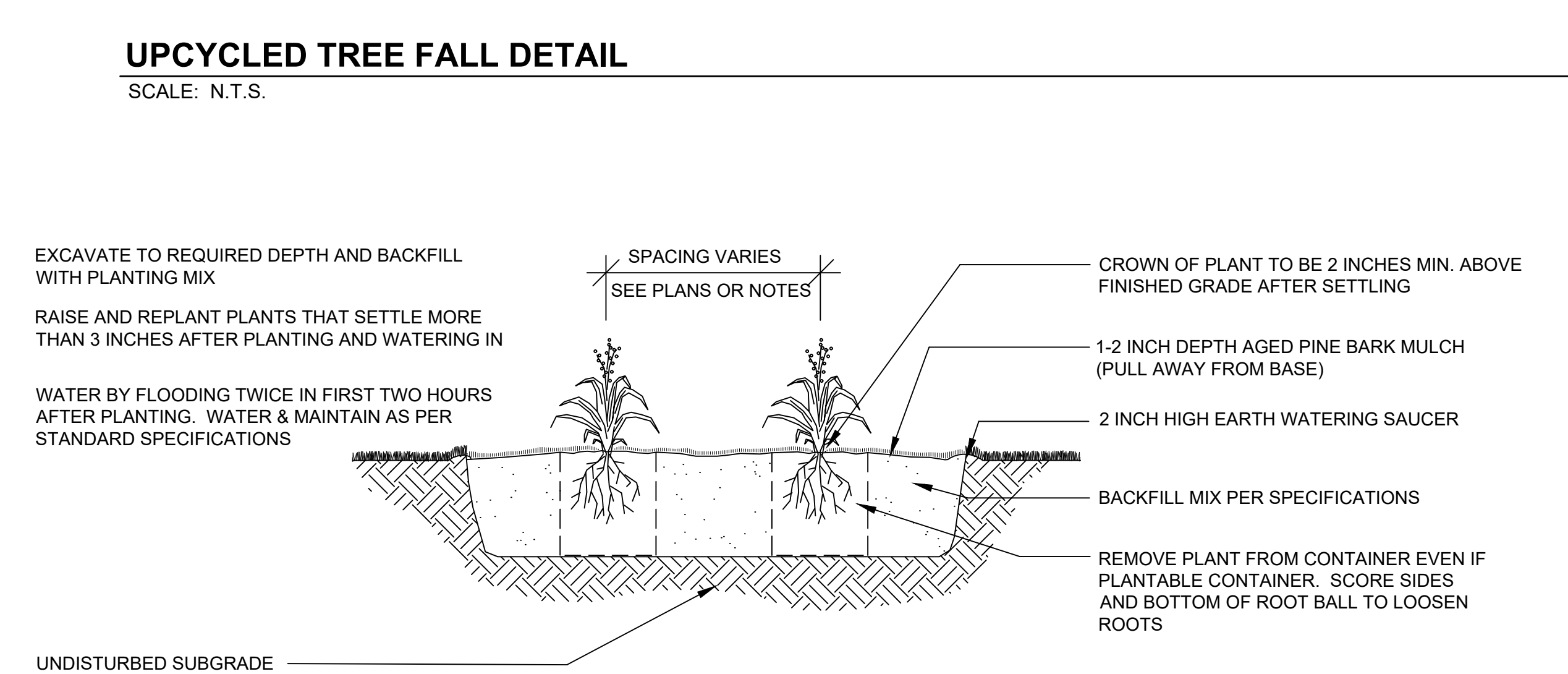


NOTES

1. CONTRACTOR TO PRE-SELECT 3 EXISTING TREES PRIOR TO DEMOLITION THAT MEET CRITERIA FOR TREE FALL AND REVIEW SELECTIONS WITH LANDSCAPE ARCHITECT. SELECTED TREE TO BE STORED ON SITE UNTIL SET INTO BERM DURING CONSTRUCTION.
2. TREE FALL TO BE APPROX. 21 FEET LONG WITH MULTIPLE UPRIGHT BRANCHES.
3. EMBED 1/4 TO 1/3 OF TREE WITHIN BERM.
4. SECURE WITH BOULDER.

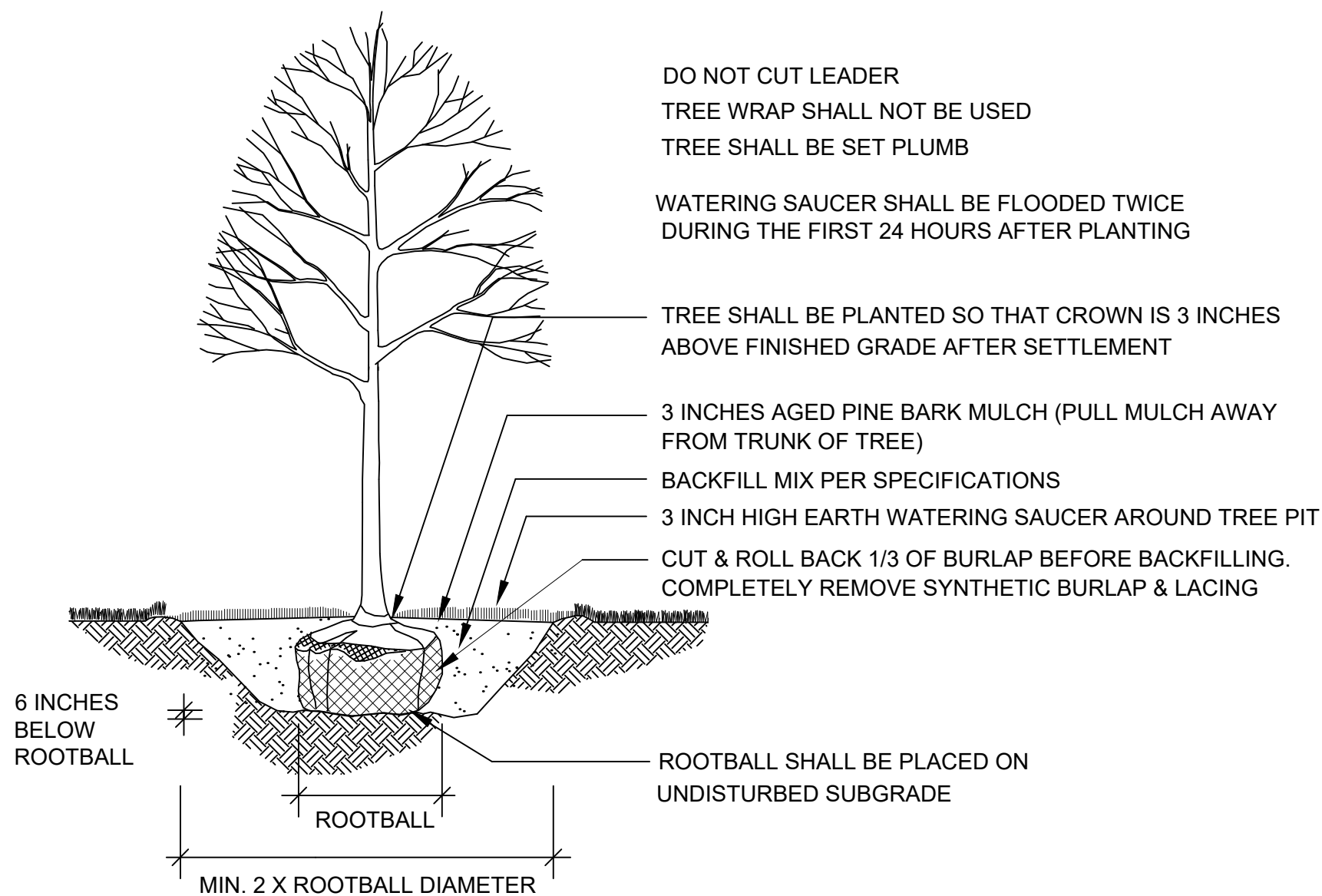
UPCYCLED TREE FALL DETAIL

SCALE: N.T.S.



PERENNIAL PLANTING

NOT TO SCALE

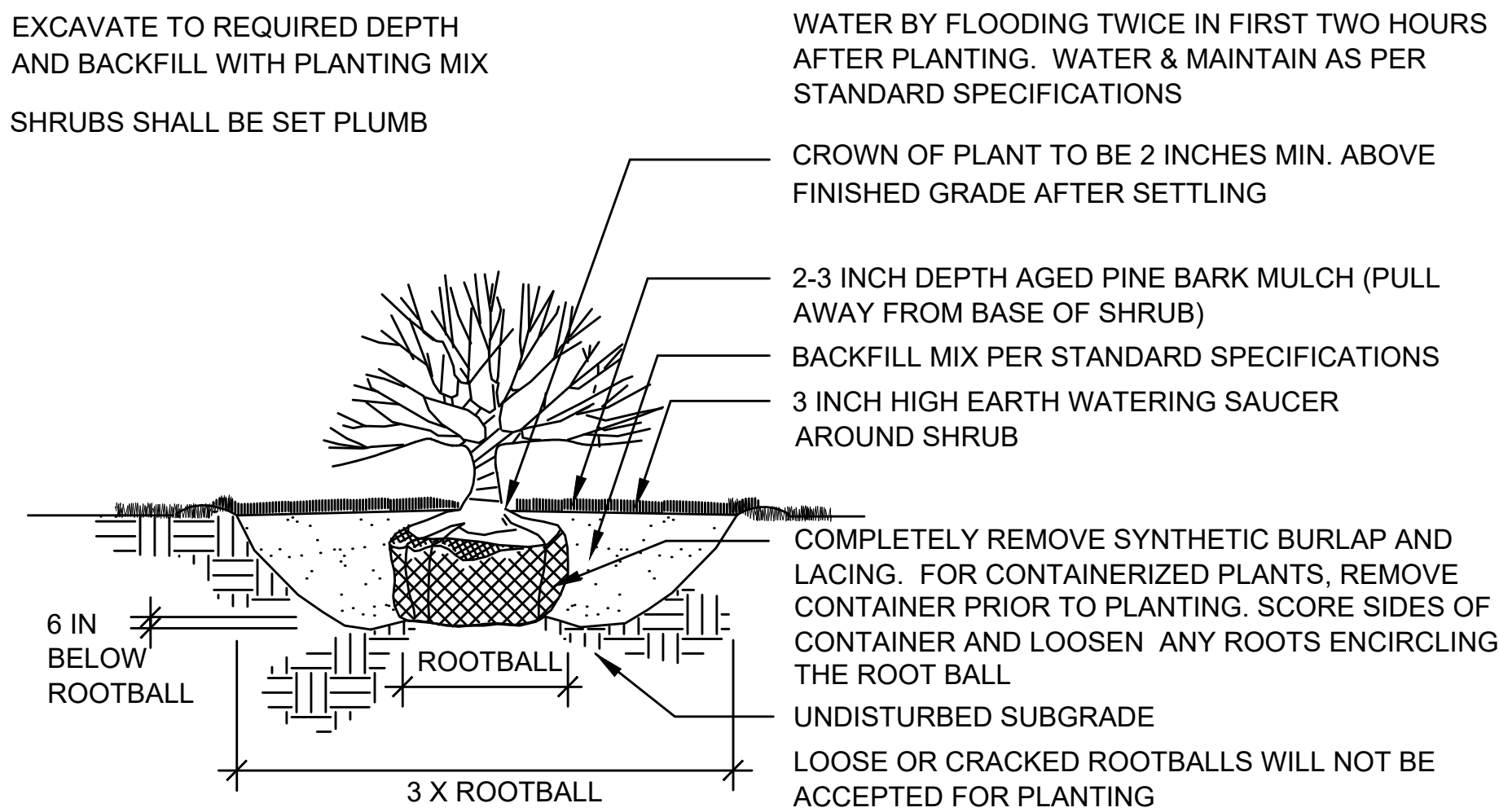


DECIDUOUS TREE PLANTING

NOT TO SCALE

EXCAVATE TO REQUIRED DEPTH AND BACKFILL WITH PLANTING MIX

SHRUBS SHALL BE SET PLUMB



SHRUB PLANTING

NOT TO SCALE

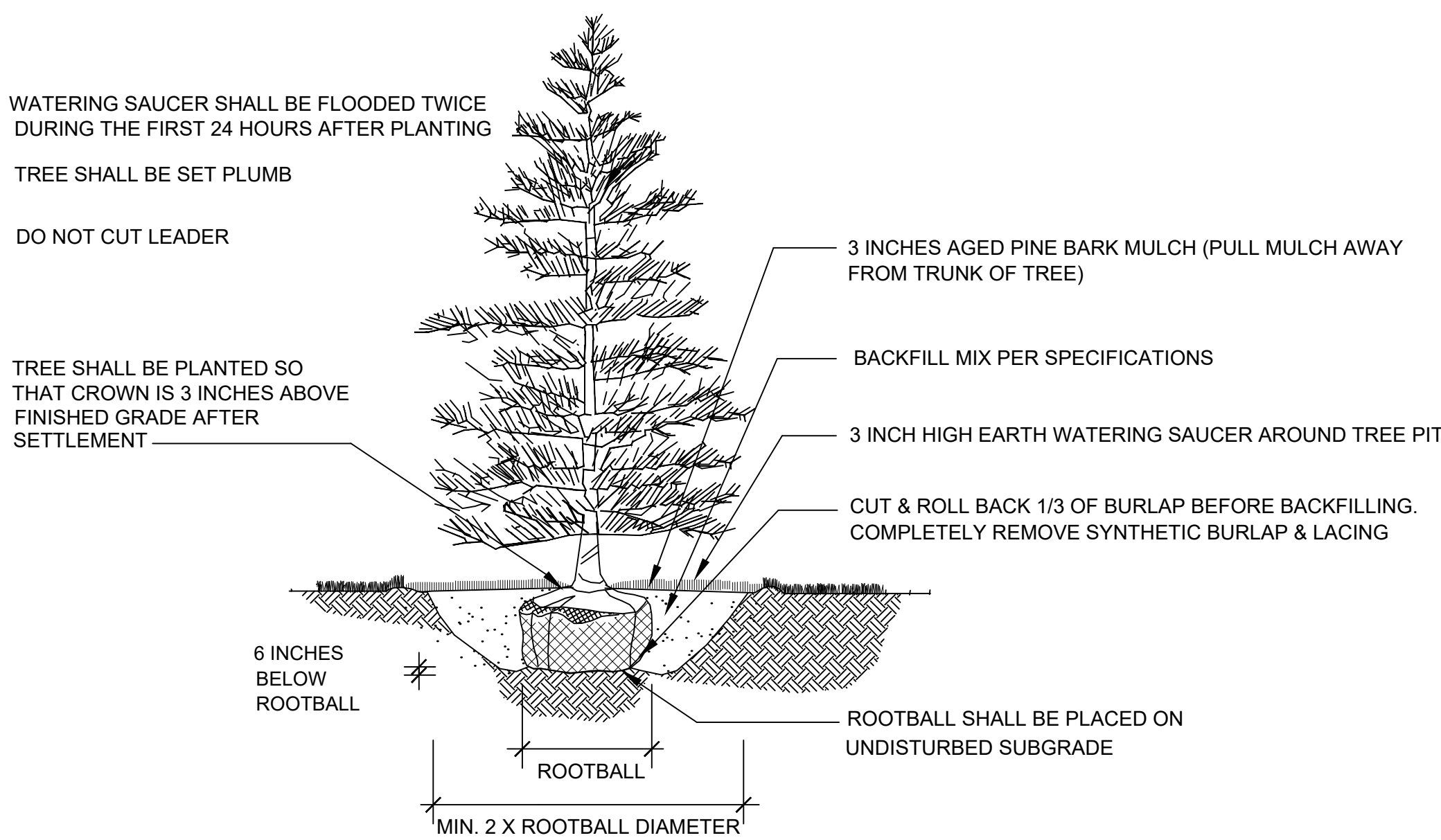
FEB 28, 2013

WATERING SAUCER SHALL BE FLOODED TWICE DURING THE FIRST 24 HOURS AFTER PLANTING

TREE SHALL BE SET PLUMB

DO NOT CUT LEADER

TREE SHALL BE PLANTED SO THAT CROWN IS 3 INCHES ABOVE FINISHED GRADE AFTER SETTLEMENT



EVERGREEN TREE PLANTING

NOT TO SCALE

Tree Protection

1. EXISTING TREES TO REMAIN SHALL BE PROTECTED WITH TEMPORARY CONSTRUCTION FENCE. ERECT FENCE AT EDGE OF THE TREE DRIPLINE PRIOR TO START OF CONSTRUCTION.
2. CONTRACTOR SHALL NOT OPERATE VEHICLES WITHIN THE TREE PROTECTION AREA. CONTRACTOR SHALL NOT STORE VEHICLES OR MATERIALS, OR DISPOSE OF ANY WASTE MATERIALS, WITHIN THE TREE PROTECTION AREA.
3. DAMAGE TO EXISTING TREES CAUSED BY THE CONTRACTOR SHALL BE REPAIRED BY A CERTIFIED ARBORIST AT THE CONTRACTOR'S EXPENSE.

Edge of Woods Clearing

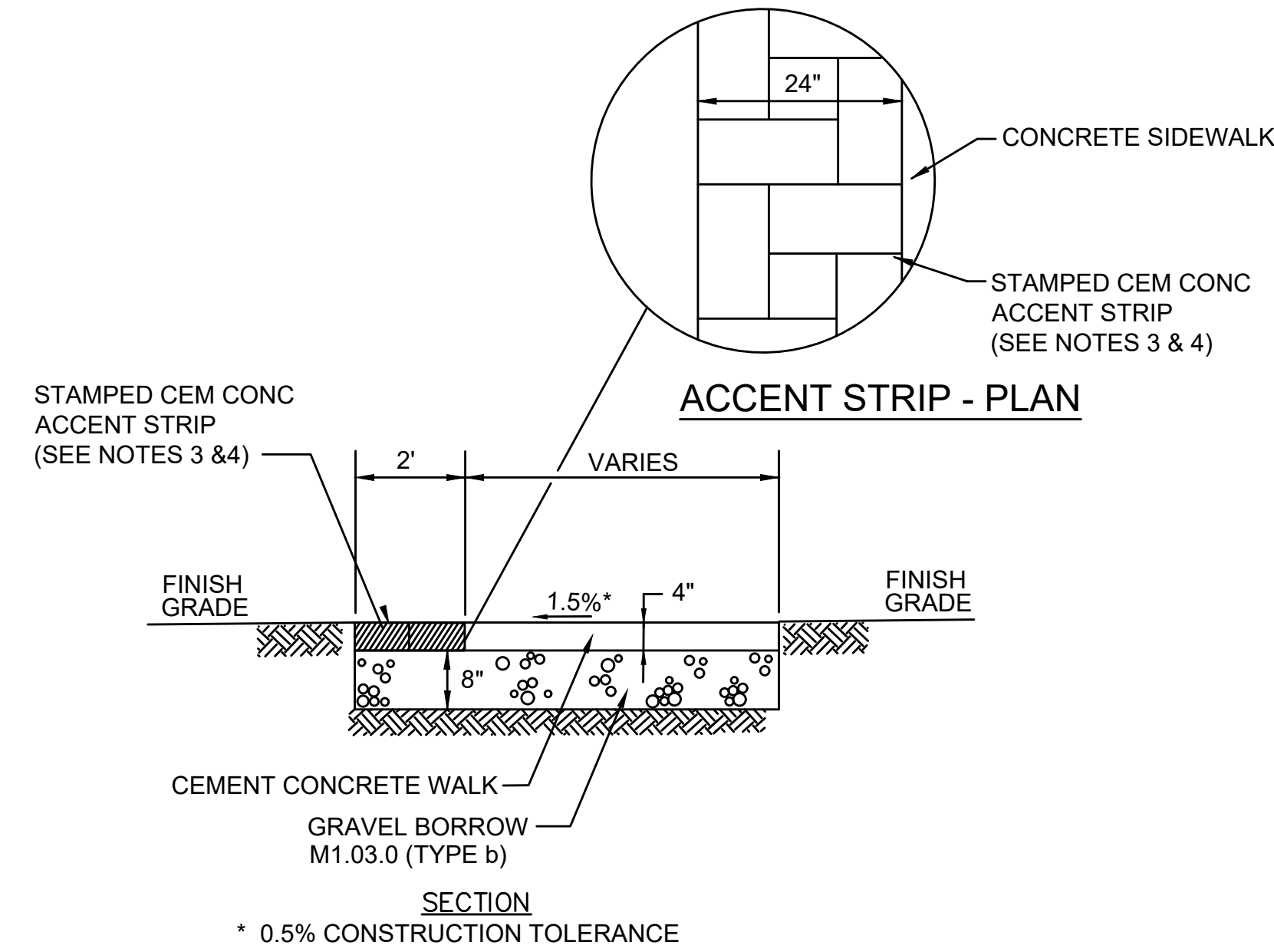
1. EXISTING TREES TO REMAIN SHALL BE PROTECTED WITH TEMPORARY EROSION CONTROL FENCE AND HAY BALE BARRIER. ERECT BARRIER AT EDGE OF THE EARTHWORK CUT LINE PRIOR TO TREE CLEARING. LAY OUT THIS LINE BY FIELD SURVEY.

Planting Notes

1. ALL PROPOSED PLANTING LOCATIONS SHALL BE STAKED AS SHOWN ON THE PLANS FOR FIELD REVIEW AND APPROVAL BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
2. CONTRACTOR SHALL VERIFY LOCATIONS OF ALL BELOW GRADE AND ABOVE GROUND UTILITIES AND NOTIFY OWNERS REPRESENTATIVE OF CONFLICTS.
3. NO PLANT MATERIALS SHALL BE INSTALLED UNTIL ALL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA. CONTRACTOR SHALL NOTIFY OWNER'S REPRESENTATIVE OF ANY CONFLICT.
4. A 3-INCH DEEP MULCH PER SPECIFICATION SHALL BE INSTALLED UNDER ALL TREES AND SHRUBS, AND IN ALL PLANTING BEDS, UNLESS OTHERWISE INDICATED ON THE PLANS, OR AS DIRECTED BY OWNER'S REPRESENTATIVE.
5. ALL TREES SHALL BE BALLED AND BURLAPPED, UNLESS OTHERWISE NOTED IN THE DRAWINGS OR SPECIFICATION, OR APPROVED BY THE OWNER'S REPRESENTATIVE.
6. FINAL QUANTITY FOR EACH PLANT TYPE SHALL BE AS GRAPHICALLY SHOWN ON THE PLAN. THIS NUMBER SHALL TAKE PRECEDENCE IN CASE OF ANY DISCREPANCY BETWEEN QUANTITIES SHOWN ON THE PLANT LIST AND ON THE PLAN. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES BETWEEN THE NUMBER OF PLANTS SHOWN ON THE PLANT LIST AND PLANT LABELS PRIOR TO BIDDING.
7. ANY PROPOSED PLANT SUBSTITUTIONS MUST BE REVIEWED BY LANDSCAPE ARCHITECT AND APPROVED IN WRITING BY THE OWNER'S REPRESENTATIVE.
8. ALL PLANT MATERIALS INSTALLED SHALL MEET THE SPECIFICATIONS OF THE "AMERICAN STANDARDS FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF NURSERYMEN AND CONTRACT DOCUMENTS.
9. ALL PLANT MATERIALS SHALL BE GUARANTEED FOR ONE YEAR FOLLOWING DATE OF FINAL ACCEPTANCE.
10. AREAS DESIGNATED "LOAM & SEED" SHALL RECEIVE MINIMUM 6" OF LOAM AND SPECIFIED SEED MIX. LAWNS OVER 2:1 SLOPE SHALL BE PROTECTED WITH EROSION CONTROL FABRIC.
11. ALL DISTURBED AREAS NOT OTHERWISE NOTED ON CONTRACT DOCUMENTS SHALL BE LOAM AND SEEDED OR MULCHED AS DIRECTED BY OWNER'S REPRESENTATIVE.
12. THIS PLAN IS INTENDED FOR PLANTING PURPOSES. REFER TO SITE / CIVIL DRAWINGS FOR ALL OTHER SITE CONSTRUCTION INFORMATION.

Plant Maintenance Notes

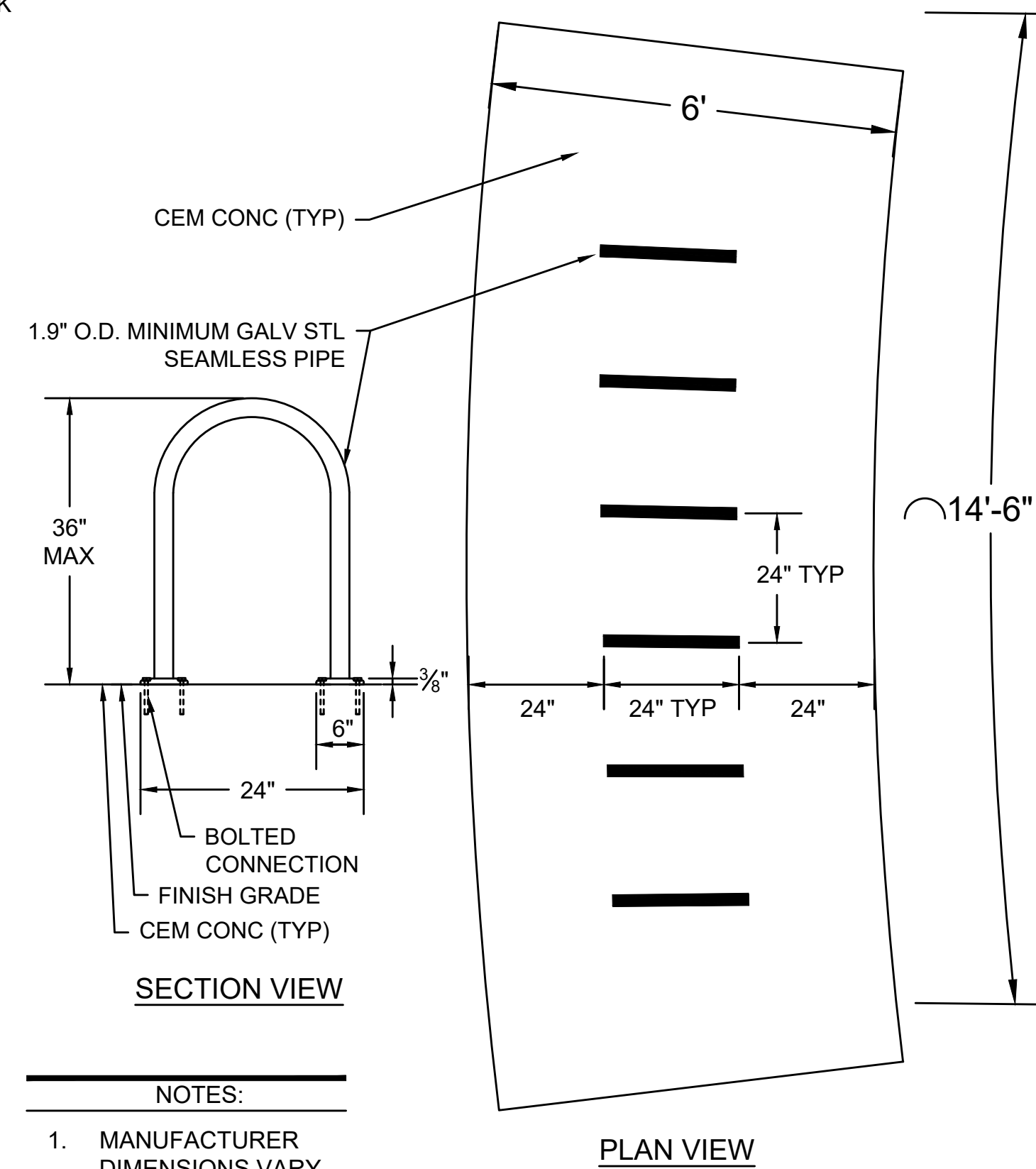
1. CONTRACTOR SHALL PROVIDE COMPLETE MAINTENANCE OF THE LAWNS AND PLANTINGS. NO IRRIGATION IS PROPOSED FOR THIS SITE. THE CONTRACTOR SHALL SUPPLY SUPPLEMENTAL WATERING FOR NEW LAWNS AND PLANTINGS DURING THE ONE YEAR PLANT GUARANTEE PERIOD.
2. CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR, AND EQUIPMENT FOR THE COMPLETE LANDSCAPE MAINTENANCE WORK. WATER SHALL BE PROVIDED BY THE CONTRACTOR.
3. WATERING SHALL BE REQUIRED DURING THE GROWING SEASON, WHEN NATURAL RAINFALL IS BELOW ONE INCH PER WEEK.
4. WATER SHALL BE APPLIED IN SUFFICIENT QUANTITY TO THOROUGHLY SATURATE THE SOIL IN THE ROOT ZONE OF EACH PLANT.
5. CONTRACTOR SHALL REPLACE DEAD OR DYING PLANTS AT THE END OF THE ONE YEAR GUARANTEE PERIOD. CONTRACTOR SHALL TURN OVER MAINTENANCE TO THE FACILITY MAINTENANCE STAFF AT THAT TIME.



- NOTES:
1. PROVIDE EXPANSION JOINTS AT MIN 30' O.C. WITH PRE-MOULDED JOINT FILLER.
 2. PROVIDE BROOM FINISH IN DIRECTION PERPENDICULAR TO PATH OF TRAVEL ON AREAS OF SIDEWALK WITHOUT SAWCUT.
 3. ACCENT STRIP SHALL BE COLORED CEM CONC THROUGHOUT STAMPED/IMPRINTED WITH A SLATE PATTERN.
 4. ACCENT STRIP SHALL BE PLACED PRIOR TO CEM CONC WALK SURFACE OR SIDEWALK.

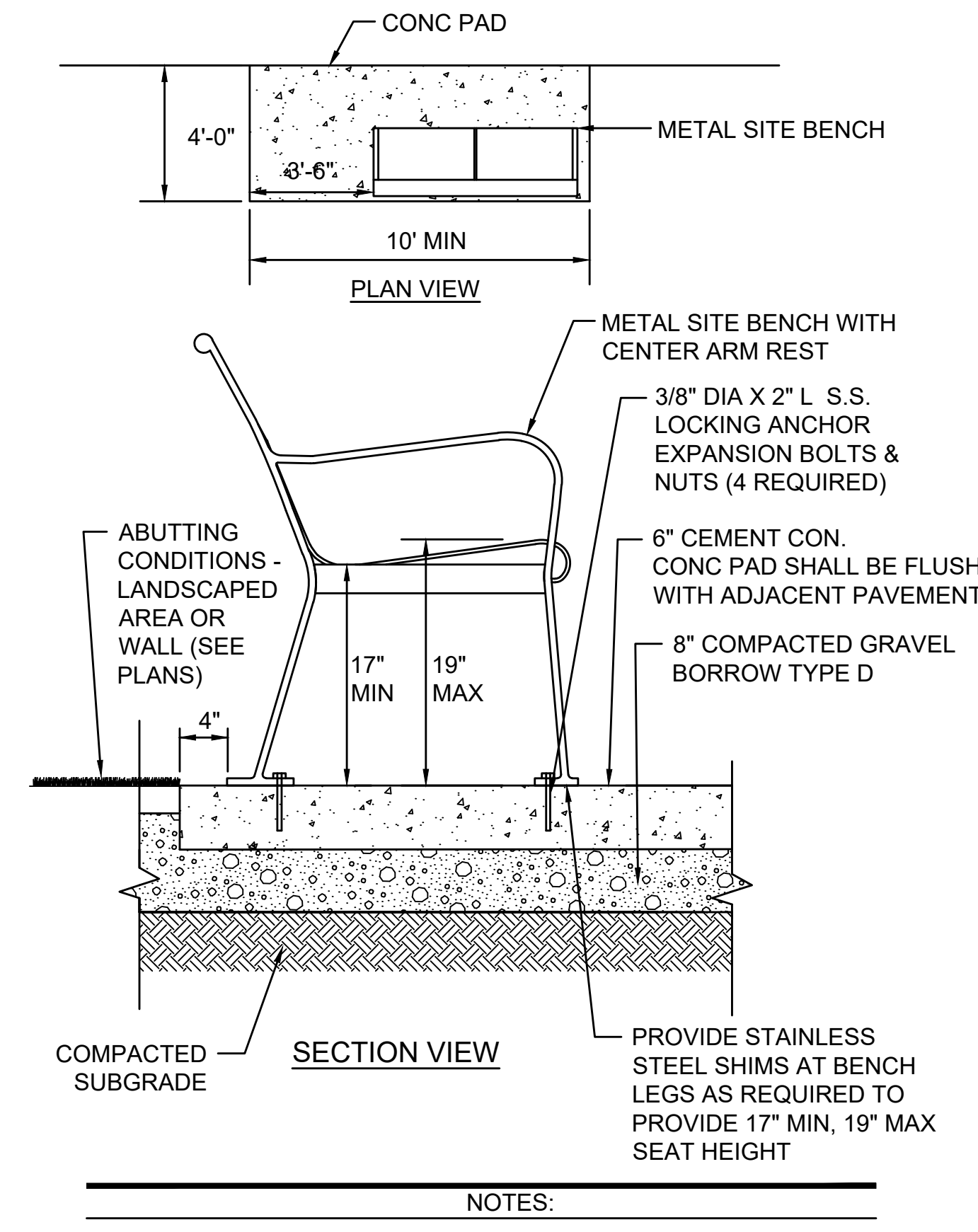
CEMENT CONCRETE SIDEWALK WITH STAMPED CONCRETE ACCENT STRIP

SCALE: N.T.S.



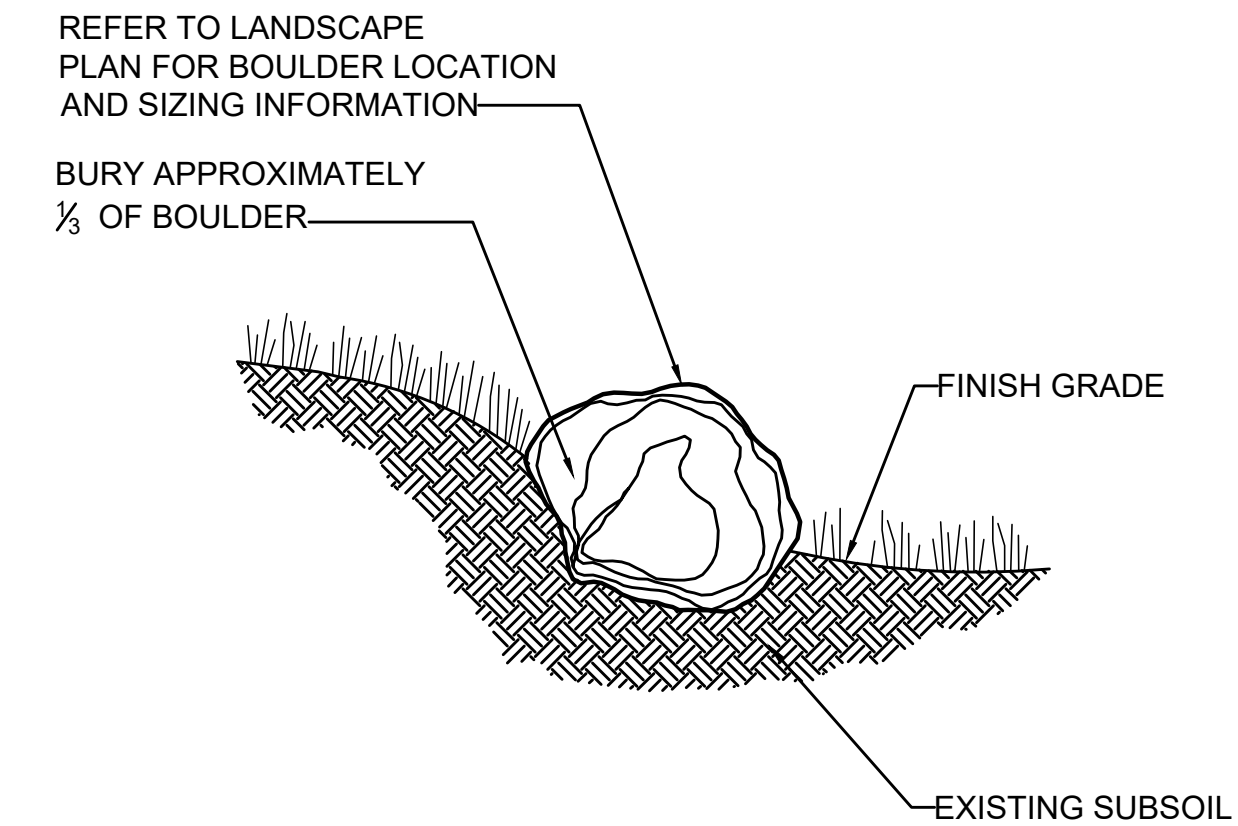
BIKE RACK

SCALE: N.T.S.



PARK BENCH

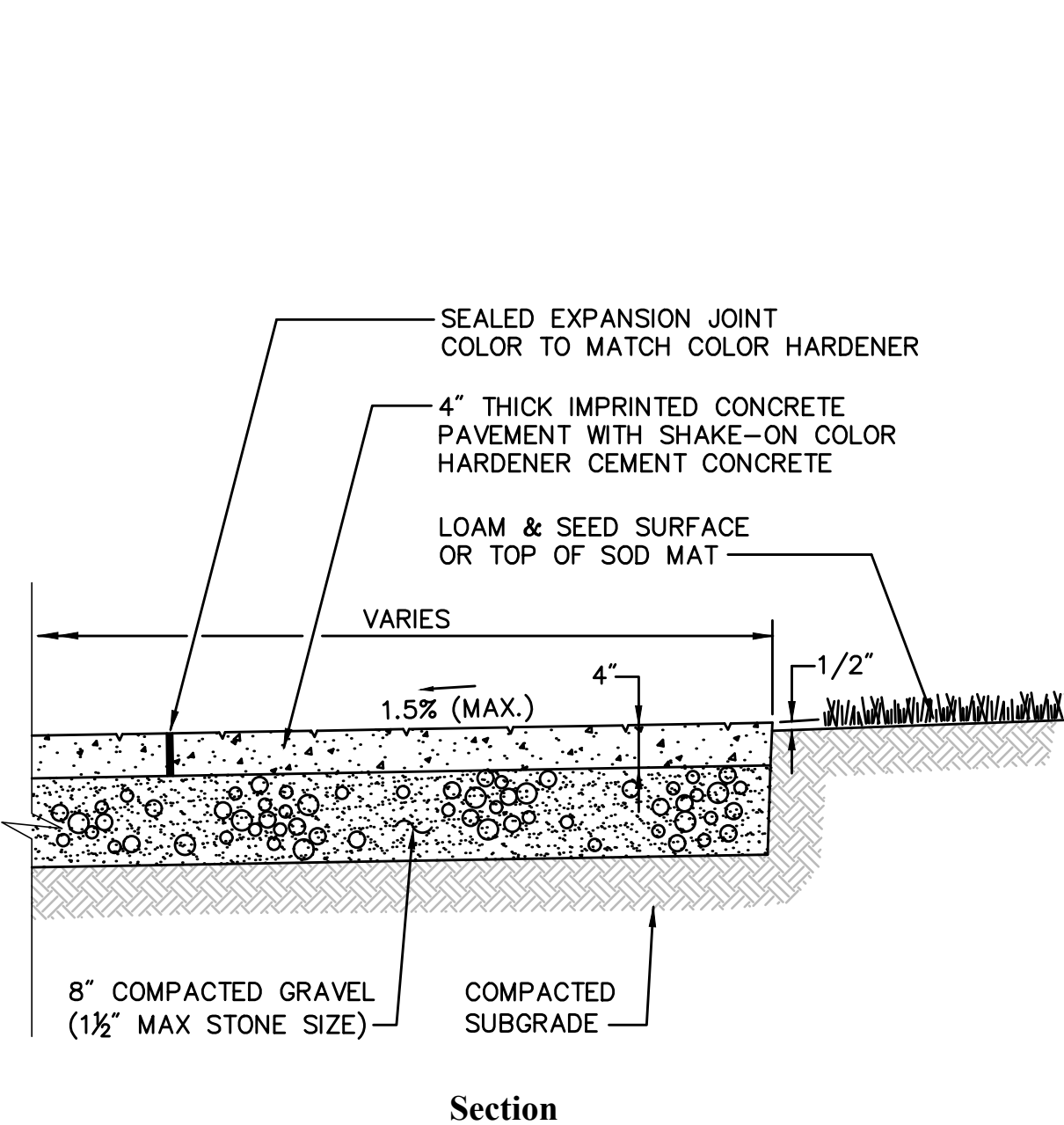
SCALE: N.T.S.



- NOTES
1. GRANITE BOULDERS TO BE PLACED BY STRAPS OR CABLES WITH CARPET TO PREVENT SCARRING.
 2. BOULDERS WITH EXCESSIVE SCARRING WILL BE REJECTED.
 3. BOULDERS SHALL BE WEATHERED FIELD STONE.

BOULDER INSTALLATION

SCALE: N.T.S.



- NOTES:
1. PROVIDE SEALED EXPANSION JOINTS WITH PREFORMED JOINT FILLER AT 30 FEET OR CLOSER O.C. WHERE NOT OTHERWISE INDICATED ON THE PLANS.

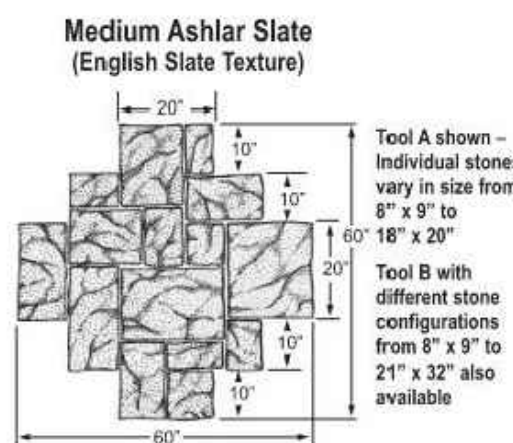
STAMPED CEMENT CONCRETE

SCALE: N.T.S.

STAMPED CONCRETE FIELD

INTEGRAL COLOR:
TRAVERTINE BEIGE

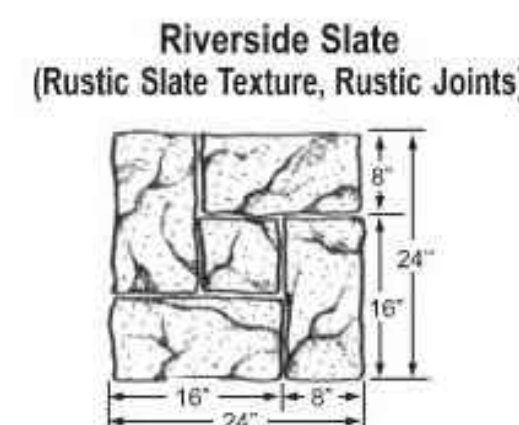
SHAKE ON COLOR
HARDENER:
GOBI DESERT
LIGHT COPPER



STAMPED CONCRETE ACCENT STRIP

INTEGRAL COLOR:
TRAVERTINE BEIGE

SHAKE ON COLOR
HARDENER:
GOBI DESERT
LIGHT COPPER



NOTE:
CONTRACTOR TO SUBMIT COLOR CHART FOR
REVIEW AND APPROVAL BY ENGINEER PRIOR
TO REQUIRED 48"X48" MOCK UP.

ADA COMPLIANCE

- 303 Changes in Level
- 303.1 General. Where changes in level are permitted in floor or ground surfaces, they shall comply with 303.
- EXCEPTIONS: 1. Animal containment areas shall not be required to comply with 303.
2. Areas of sport activity shall not be required to comply with 303.
- 303.2 Vertical. Changes in level of 1/4 inch (6.4 mm) high maximum shall be permitted to be vertical.



Figure 303.2 Vertical Change in Level

- 303.3 Beveled. Changes in level between 1/4 inch (6.4 mm) high minimum and 1/2 inch (13 mm) high maximum shall be beveled with a slope not steeper than 1:2.

Advisory 303.3 Beveled. A change in level of 1/2 inch (13 mm) is permitted to be 1/4 inch (6.4 mm) vertical plus 1/4 inch (6.4 mm) beveled. However, in no case may the combined change in level exceed 1/2 inch (13 mm). Changes in level exceeding 1/2 inch (13 mm) must comply with 405 (Ramps) or 406 (Curb Ramps).

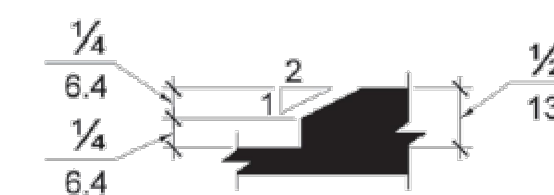
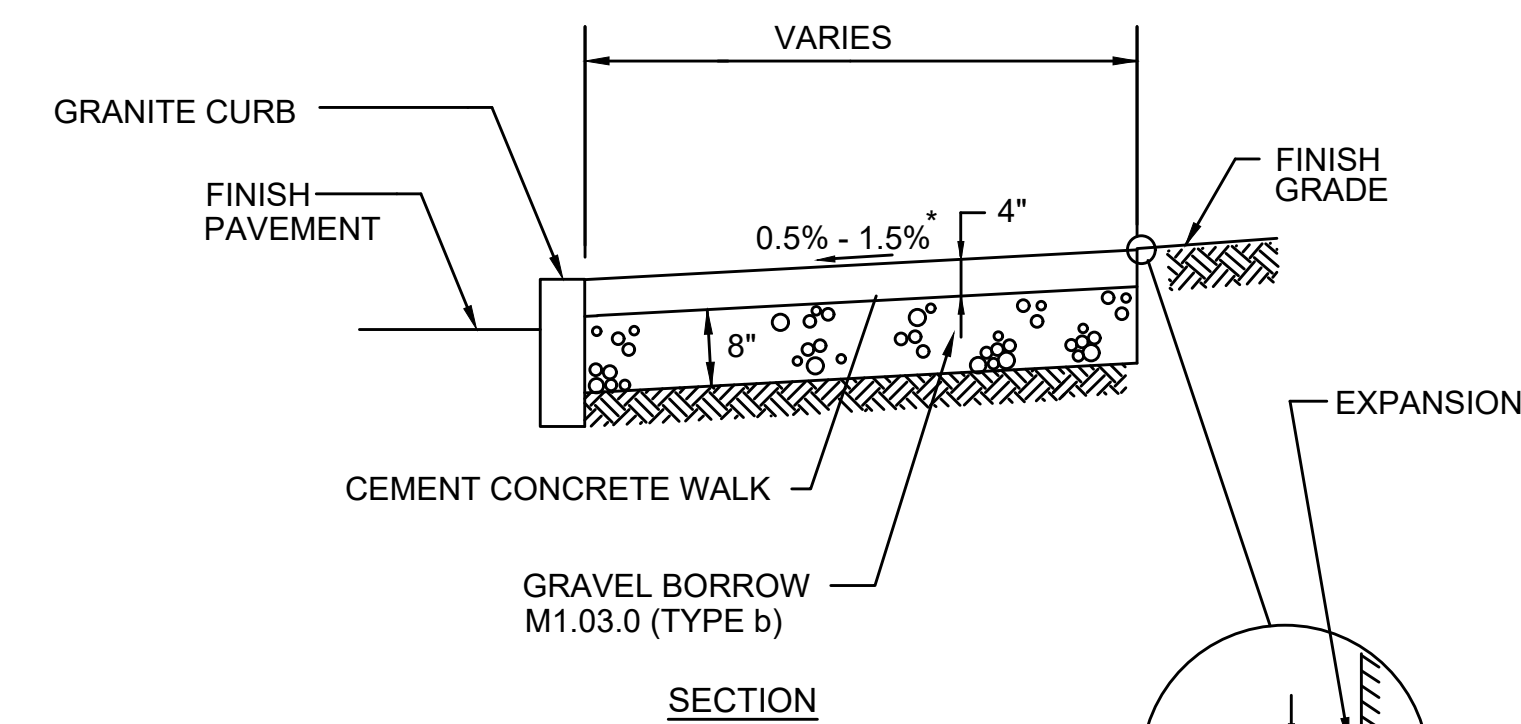


Figure 303.3 Beveled Change in Level



- NOTES:
1. PROVIDE EXPANSION JOINTS AT MIN 30' O.C. WITH PRE-MOULDED JOINT FILLER
 2. PROVIDE TOOLED DUMMY JOINTS PER DETAIL
- * 0.5% CONSTRUCTION TOLERANCE

CONCRETE SIDEWALK

1/2" PREFORMED
EXPANSION JOINT FILLER

BUILDING FACE OR
FIXED OBJECT

CEMENT CONCRETE SIDEWALK

SCALE: N.T.S.

ORDER #1146609

FOOTINGS TABLE			
TYPE	DIAMETER/SIDE	DEPTH	QTY.
A	1'-6" (45.72cm)	2'-6" (76.20cm)	60
B	1'-2" (35.56cm)	2'-6" (76.20cm)	22
D	2'-0" (60.96cm)	2'-6" (76.20cm)	12

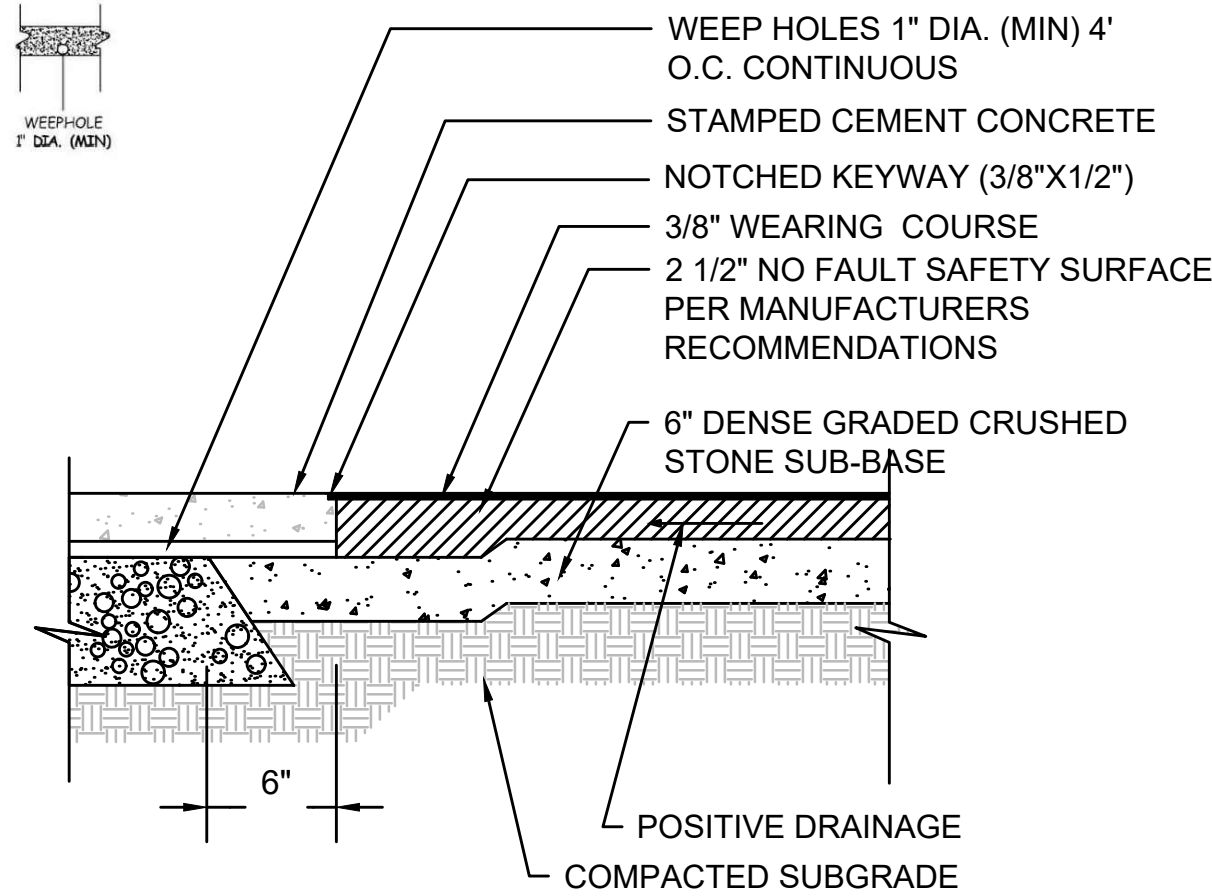
FOOTINGS ORDNATE TABLE			
HOLE	X	Y	DIAG
1	51'-10 1/2"	15'	54'
2	51'-10 1/2"	4'-4 1/2"	52'-0 1/2"
3	52'-11 1/2"	-21'-9"	57'-3"
4	53'-8 1/2"	48'-2 1/2"	70'-10 1/2"
5	53'-8 1/2"	43'-2 1/2"	68'-11"
6	55'-10 1/2"	12'-4"	57'-2 1/2"
7	56'-0 1/2"	6'-1 1/2"	56'-4 1/2"
8	57'-6"	-13'-9"	58'-1 1/2"
9	61'	16'-1 1/2"	63'-1"
10	61'-1 1/2"	15'-8 1/2"	63'-1"
11	61'-1 1/2"	11'-8 1/2"	62'-2 1/2"
12	61'-1 1/2"	7'-8 1/2"	61'-7"
13	61'-4 1/2"	-12'-11"	62'-8 1/2"
14	61'-9 1/2"	18'-11"	84'-7 1/2"
15	63'-1 1/2"	5'-11 1/2"	63'-5"
16	63'-2"	-13'-0 1/2"	64'-6"
17	65'-1 1/2"	15'-8 1/2"	66'-11 1/2"
18	65'-1 1/2"	11'-8 1/2"	66'-2"
19	65'-1 1/2"	7'-8 1/2"	65'-7"
20	65'-1 1/2"	-11'-10 1/2"	66'-11"
21	65'-10"	46'-2 1/2"	80'-8"
22	66'-1 1/2"	43'-2 1/2"	79'
23	67'-1 1/2"	21'-1"	70'-4"
24	67'-2"	-7'-9"	67'-7"
25	67'-4 1/2"	-4'-7"	67'-6 1/2"
26	68'-11 1/2"	-23'-0 1/2"	72'-8 1/2"
27	69'-1 1/2"	15'-8 1/2"	70'-10 1/2"
28	69'-1 1/2"	11'-8 1/2"	70'-1"
29	69'-1 1/2"	7'-8 1/2"	69'-6 1/2"
30	70'-1"	-10'-11"	70'-11"
31	70'-2"	10'-9 1/2"	71'
32	70'-2"	8'-7"	70'-8"
33	70'-6 1/2"	7'-3 1/2"	70'-11"
34	71'-4 1/2"	9'-5"	72'
35	71'-6 1/2"	1'-4 1/2"	71'-6 1/2"
36	71'-10"	1'-10"	71'-10 1/2"
37	72'-7"	-12'-8"	73'-8"
38	72'-9 1/2"	7'-3 1/2"	73'-2"
39	72'-11"	-22'-5"	76'-3 1/2"
40	73'-3"	8'-11"	73'-9 1/2"
41	74'-5 1/2"	16'-1 1/2"	76'-2"
42	74'-5 1/2"	13'-11 1/2"	75'-9"
43	75'-8"	7"	75'-8"
44	75'-8 1/2"	-19'-3"	78'-1"
45	75'-11"	-19'-9"	78'-5 1/2"
46	78'-2"	-2'-6 1/2"	78'-2 1/2"
47			

FOOTINGS ORDNATE TABLE			
HOLE	X	Y	DIAG
48	78'-6 1/2"	46'-2 1/2"	91'-2"
49	78'-6 1/2"	43'-2 1/2"	89'-8"
50	-10'-4 1/2"	-35'-11"	37'-4 1/2"
51	-8'-4 1/2"	-32'-5 1/2"	33'-6"
52	-8'-4 1/2"	-39'-4 1/2"	40'-3"
53	-8'-3"	42'-7 1/2"	43'-5"
54	-8'-3"	39'-7 1/2"	40'-5 1/2"
55	-4'-4 1/2"	-32'-5 1/2"	32'-9"
56	-4'-4 1/2"	-39'-4 1/2"	39'-7 1/2"
57	-4'-3 1/2"	-3'-8"	5'-8"
58	-2'-4 1/2"	-35'-11"	36'
59	0"	0"	0"
60	0"	-3'	3'
61	1'-6"	1'-7"	2'-2"
62	1'-6"	-8'-5"	8'-6 1/2"
63	3'	0"	3'
64	3'	-3'	4'-3"
65	3'-4 1/2"	2'-3 1/2"	4'-1"
66	4'-2 1/2"	42'-7 1/2"	42'-10"
67	4'-2 1/2"	39'-7 1/2"	39'-10"
68	4'-9 1/2"	3'-6"	5'-11"
69	5'-3"	5'-4 1/2"	7'-6 1/2"
70	5'-7"	2'-3 1/2"	6'-0 1/2"
71	5'-9 1/2"	-43'-5"	43'-9 1/2"
72	6'	0"	6'
73	6'	-3'	6'-8 1/2"
74	6'-10 1/2"	4'-11"	8'-5 1/2"
75	6'-10 1/2"	2'-8"	7'-4 1/2"
76	8'-6"	-42'-2"	43'
77	9'-1 1/2"	-10"	9'-2"
78	10'-4 1/2"	-2'-3"	10'-7"
79	11'-6"	-42'-2"	43'-8 1/2"
80	11'-9 1/2"	10'-6 1/2"	15'-10"
81	13'-8 1/2"	-4'-3 1/2"	14'-4 1/2"
82	14'-2 1/2"	-43'-5"	45'-8 1/2"
83	14'-5"	11'-10"	18'-7 1/2"
84	14'-6"	6'-5 1/2"	15'-10 1/2"
85	15'-1"	15'-8 1/2"	21'-9 1/2"
86	15'-5 1/2"	14'-6 1/2"	21'-2 1/2"
87	15'-7 1/2"	-3'-10"	16'-1 1/2"
88	16'-7 1/2"	42'-7 1/2"	45'-9"
89	16'-7 1/2"	39'-7 1/2"	42'-11 1/2"
90	17'-2"	-37'-5"	41'-2"
91	17'-11"	1'-9 1/2"	18'-0 1/2"
92	18'-5"	-1'-4 1/2"	18'-5 1/2"
93	20'-9"	-3'-3"	21'
94	24'-8"	-2'-4"	24'-9 1/2"

PLAYGROUND FOOTING SCHEDULE

SCALE: N.T.S.

SECTION DETAIL



PLAYGROUND SURFACE DETAIL

SCALE: N.T.S.

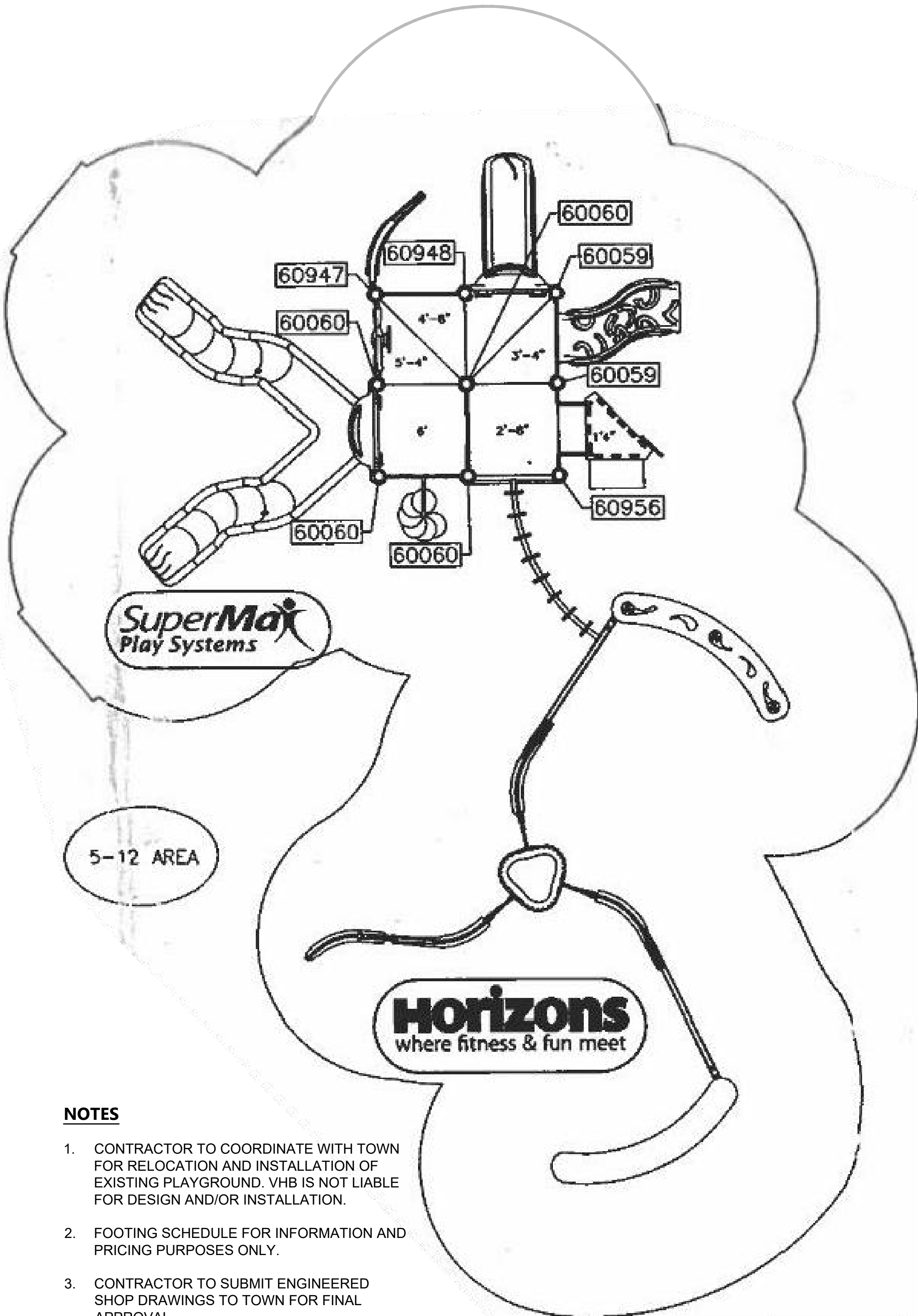
ORDER #1146609

UPRIGHT INFORMATION

UPRIGHT	DESCRIPTION
60059	10' GENERIC UPRIGHT w/CAP
60060	12' GENERIC UPRIGHT w/CAP
60178	8' GENERIC UPRIGHT w/CAP
60947	13' GENERIC UPRIGHT w/CAP
60948	11' GENERIC UPRIGHT w/CAP
60956	9' GENERIC UPRIGHT w/CAP
62007	10' GENERIC UPRIGHT w/CAP
62008	12' GENERIC UPRIGHT w/CAP
62013	6' GENERIC UPRIGHT w/CAP
62021	8' GENERIC UPRIGHT w/CAP

PLAYGROUND PART LIST

SCALE: N.T.S.



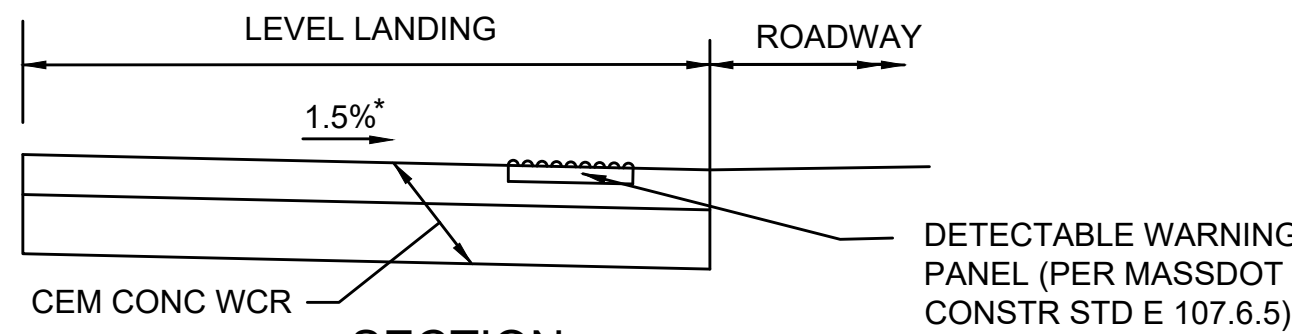
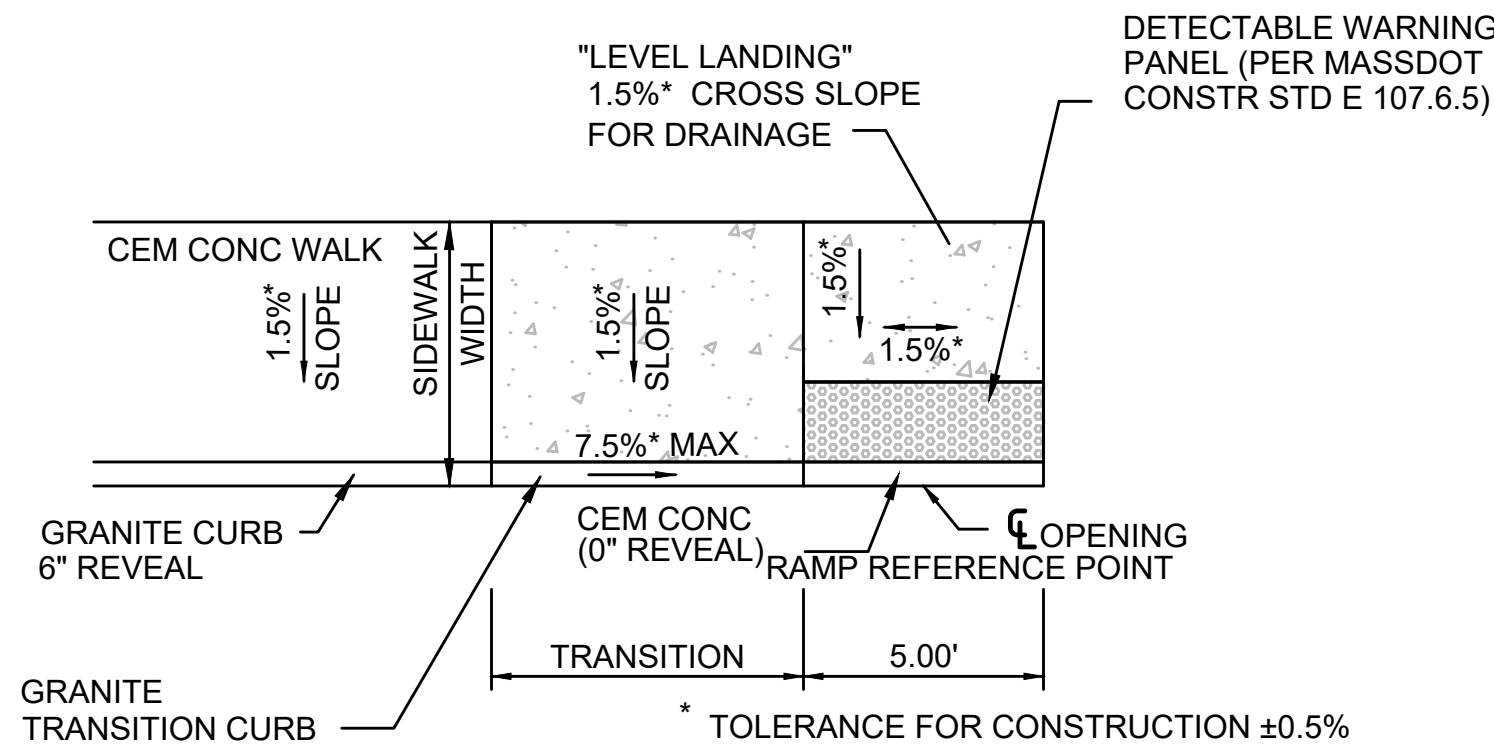
NOTES

- CONTRACTOR TO COORDINATE WITH TOWN FOR RELOCATION AND INSTALLATION OF EXISTING PLAYGROUND. VHB IS NOT LIABLE FOR DESIGN AND/OR INSTALLATION.
- FOOTING SCHEDULE FOR INFORMATION AND PRICING PURPOSES ONLY.
- CONTRACTOR TO SUBMIT ENGINEERED SHOP DRAWINGS TO TOWN FOR FINAL APPROVAL.
- PARTS LIST FOR INFORMATION ONLY.

PLAYGROUND PLAN

SCALE: N.T.S.

SOUTHBOROUGH
VARIOUS LOCATIONS
CONSTRUCTION DETAILS
SHEET 108 OF 141



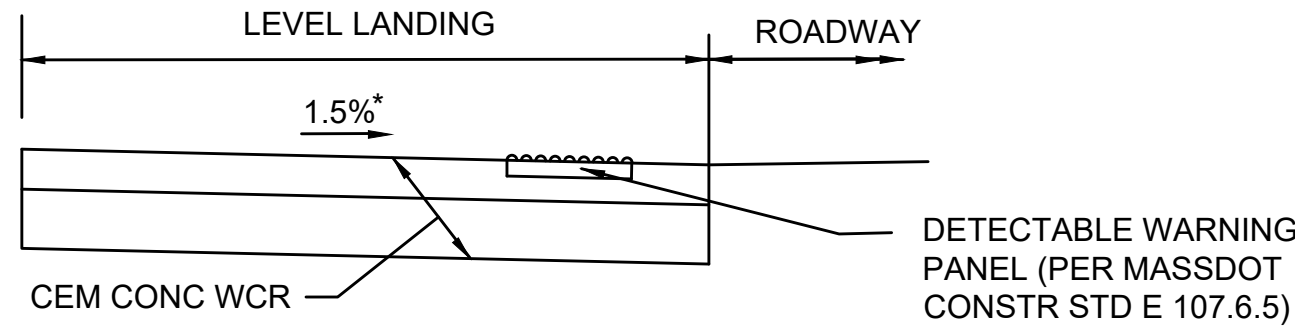
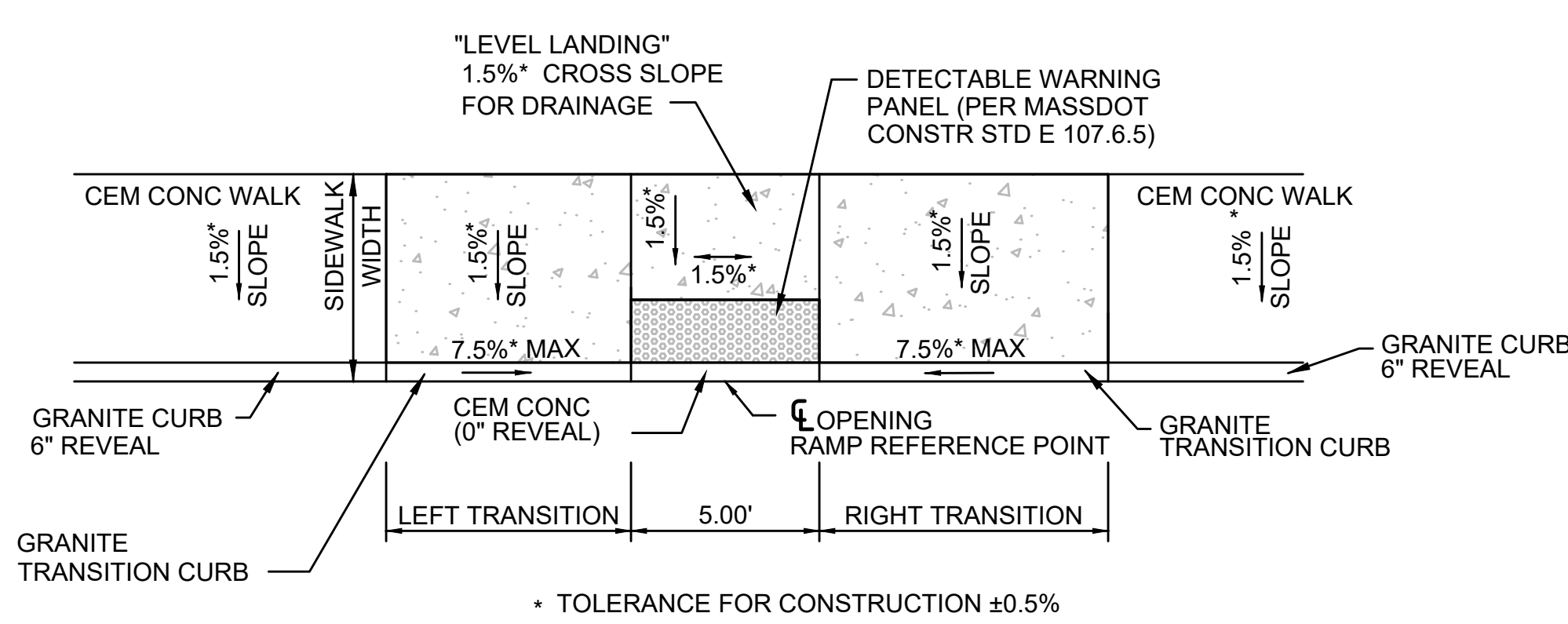
* TOLERANCE FOR CONSTRUCTION ±0.5%

WHEELCHAIR RAMP DATA							
NO.	LOCATION	SIDEWALK WIDTH	OPENING WIDTH	ROADWAY GUTTER	TRANSITION		℄ ELEV
					REVEAL	TRANS	
3	MARLBORO ROAD (RT. 85) 716+37.90, 23.6' LT	5.5'	5.0'	1.3%	6"	6'-6"	320.71

GUTTER SLOPES ARE IN THE DIRECTION OF THE BASELINE

WHEELCHAIR RAMP - ONE SIDE TRANSITION

SCALE: N.T.S.



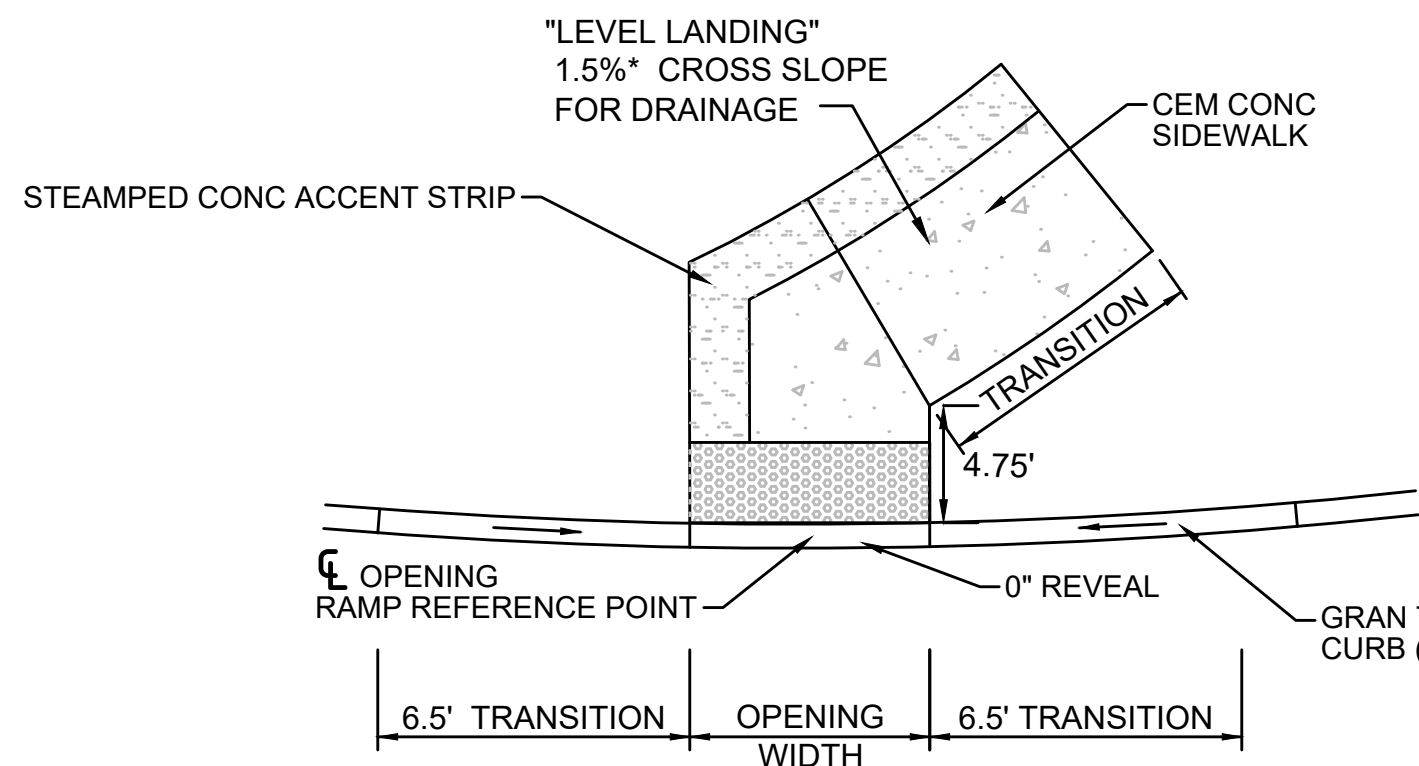
SECTION

WHEELCHAIR RAMP DATA									
NO.	LOCATION	SIDEWALK WIDTH	OPENING WIDTH	ROADWAY GUTTER	LEFT SIDE		RIGHT SIDE		℄ ELEV
					REVEAL	TRANS	REVEAL	TRANS	
1	ST MARKS STREET 12+56.26, 12.0' LT	5.5'	5.0'	-2.6%	6"	11'-0"	6"	6'-6"	323.11
4	MARLBORO ROAD (RT. 85) 717+00.70, 23.3' LT	5.5'	5.0'	1.5%	6"	6'-6"	6"	9'-0"	321.61
5	MARLBORO ROAD (RT. 85) 719+59.68, 13.0' LT	5.5'	5.0'	-0.3%	6"	7'-8"	6"	6'-6"	323.9

GUTTER SLOPES ARE IN THE DIRECTION OF THE BASELINE

WHEELCHAIR RAMP - TWO SIDE TRANSITION

SCALE: N.T.S.

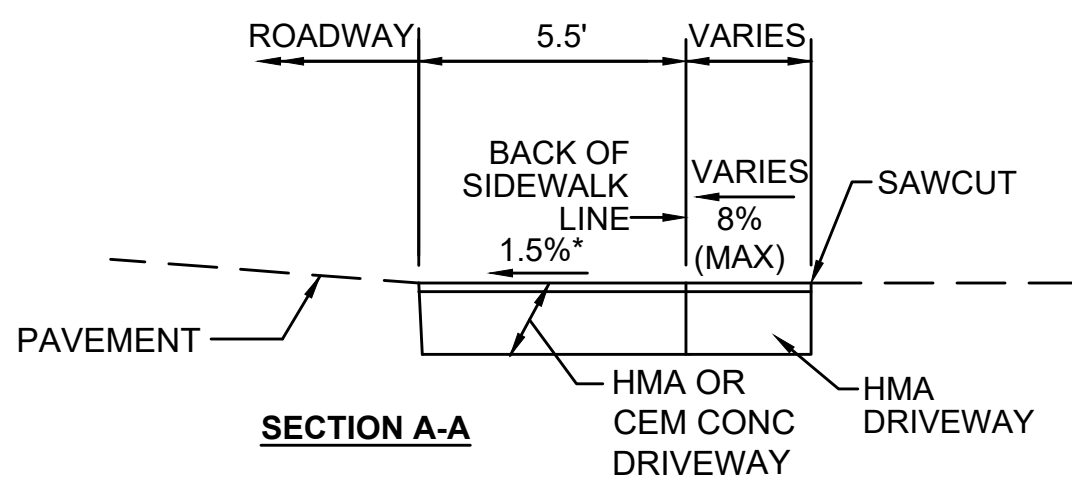
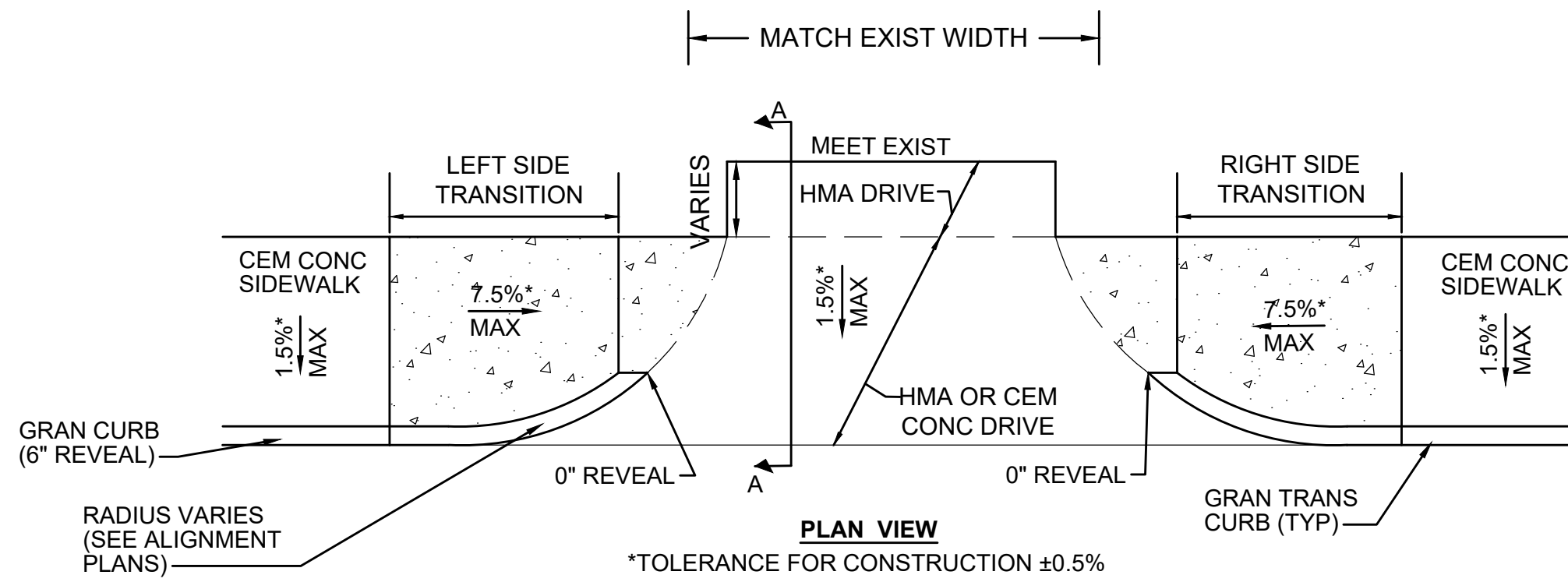


WHEELCHAIR RAMP DATA							
NO.	LOCATION	SIDEWALK WIDTH	OPENING WIDTH	ROADWAY GUTTER	TRANSITION		℄ ELEV
					REVEAL	TRANS	
2	ST MARKS STREET 12+56.05, 12.0' RT	6.0'	8.0'	-3.0%	6"	6'-6"	322.64

GUTTER SLOPES ARE IN THE DIRECTION OF THE BASELINE

WHEELCHAIR RAMP - PARK SIDEWALK

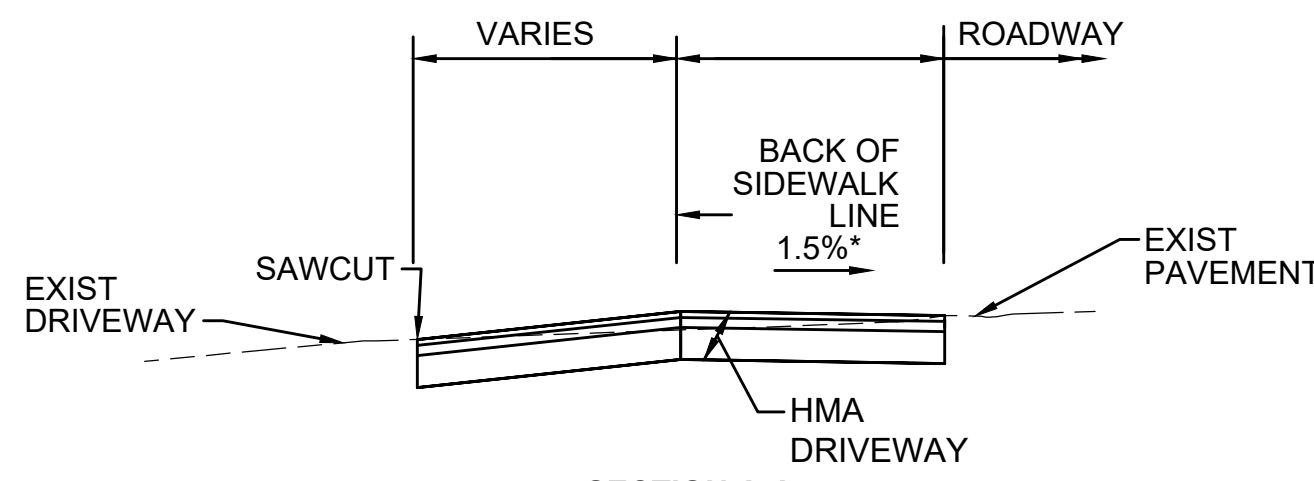
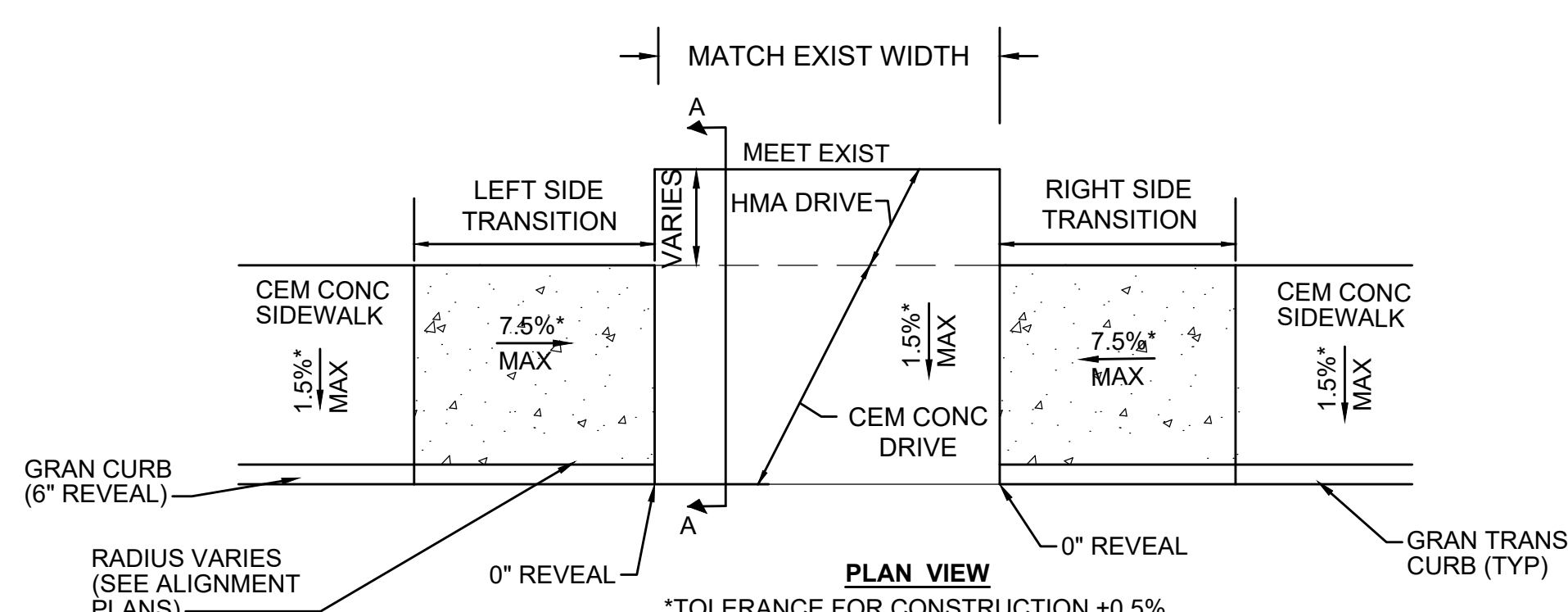
SCALE: N.T.S.



DRIVEWAY DATA								
NO.	LOCATION	SIDEWALK WIDTH	ROADWAY GUTTER	LEFT SIDE		RIGHT SIDE		OPENING ELEV.
				REVEAL	TRANS	REVEAL	TRANS	
1	10+23.73 9.5' LT	5.5'	-1.1%	6"	9'-0"	6"	6'-6"	331.17
2	12+08.00 12.0' LT	5.5'	-3.8%	6"	14'-0"	6"	6'-6"	324.74
3	13+13.89 12.0' LT	5.5'	-1.2%	6"	9'-0"	6"	6'-6"	321.92
4	714+24.99 13.0' LT	5.5'	3.2%	6"	6'-6"	6"	14'-0"	314.64

CEMENT CONCRETE WALK AT DRIVE - CURVED CURB TRANSITIONS

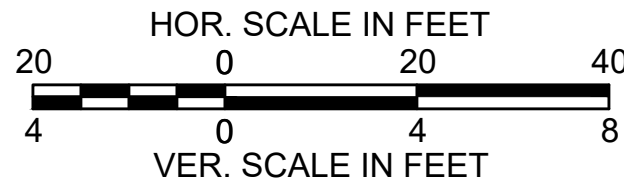
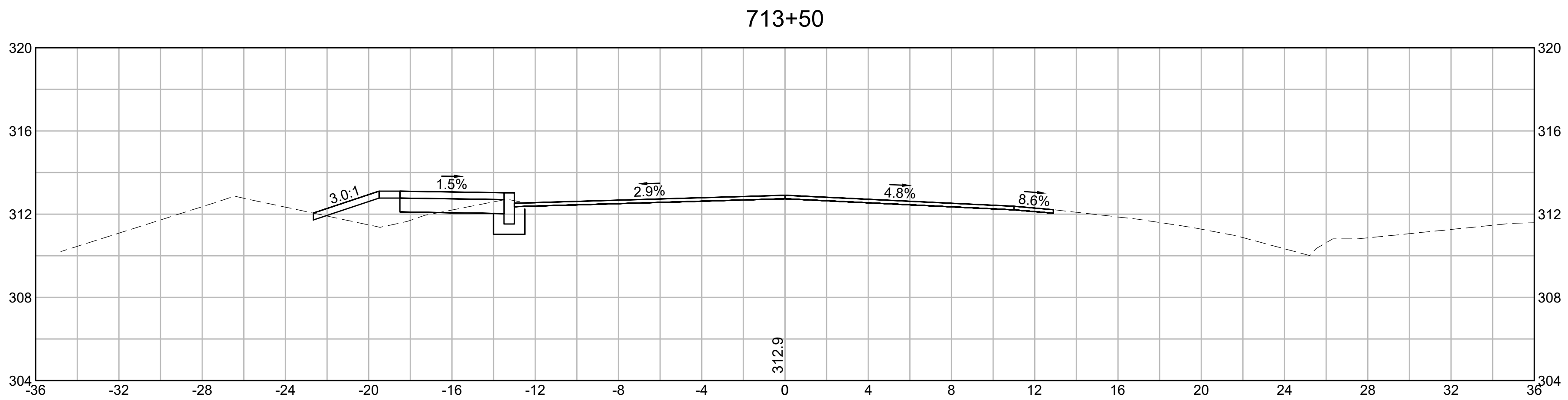
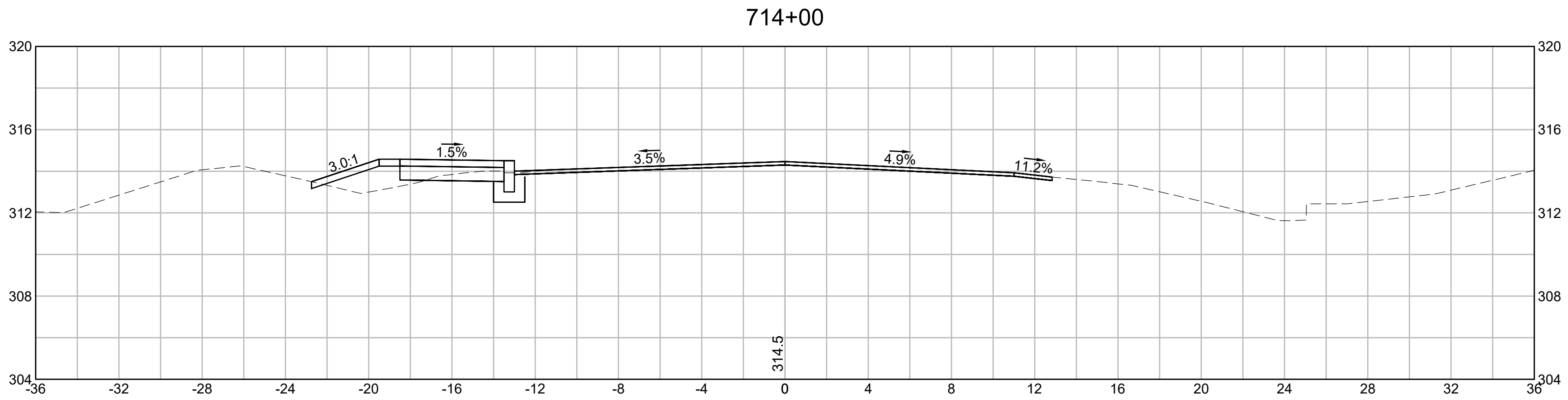
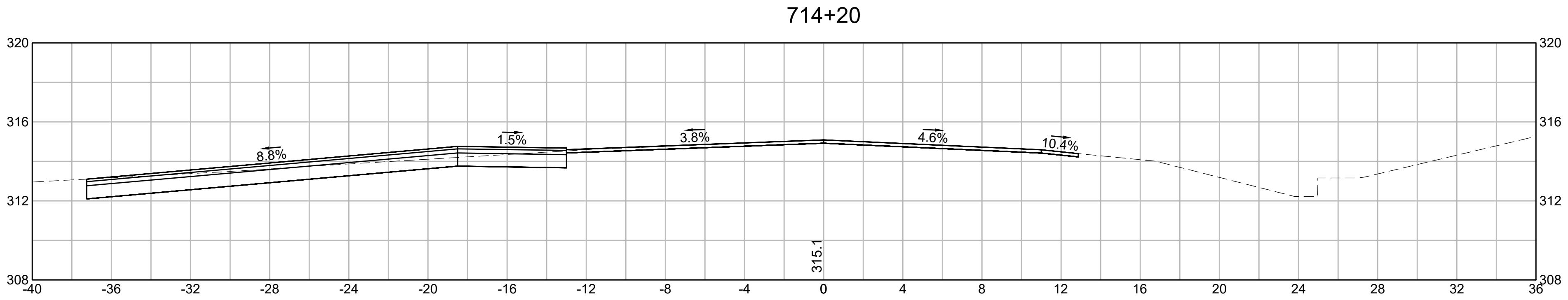
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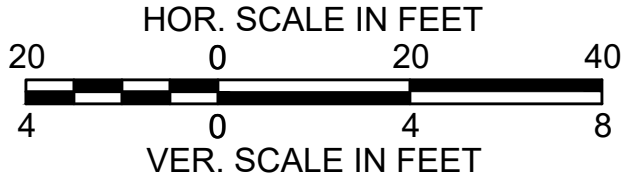
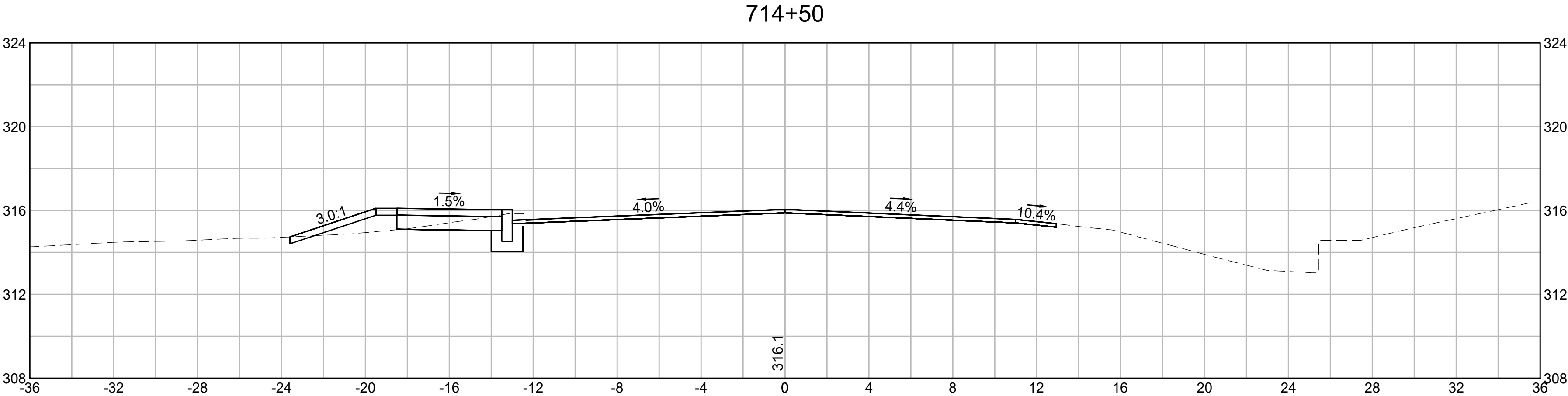
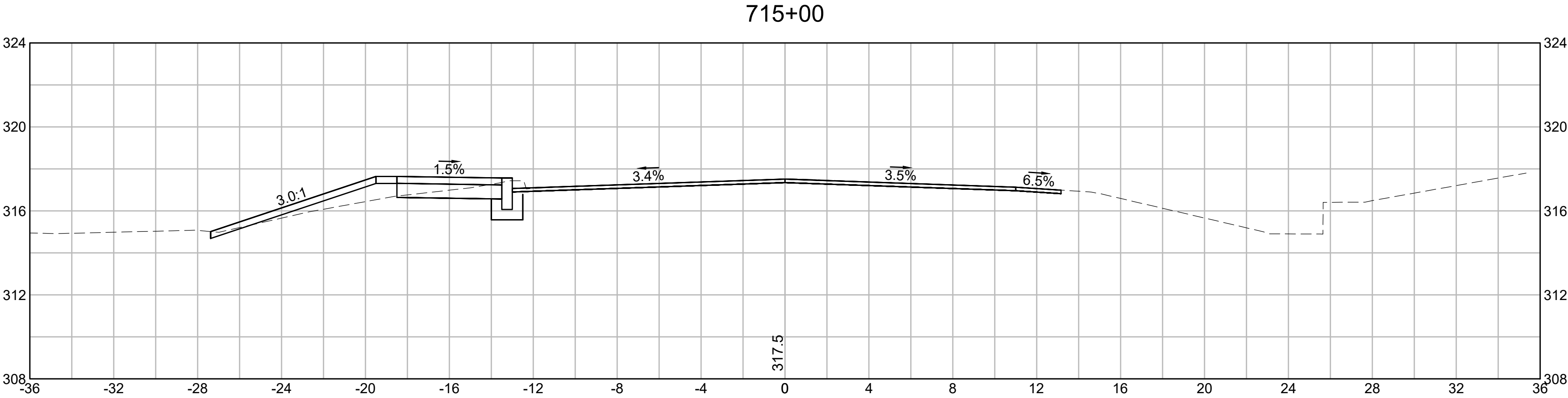
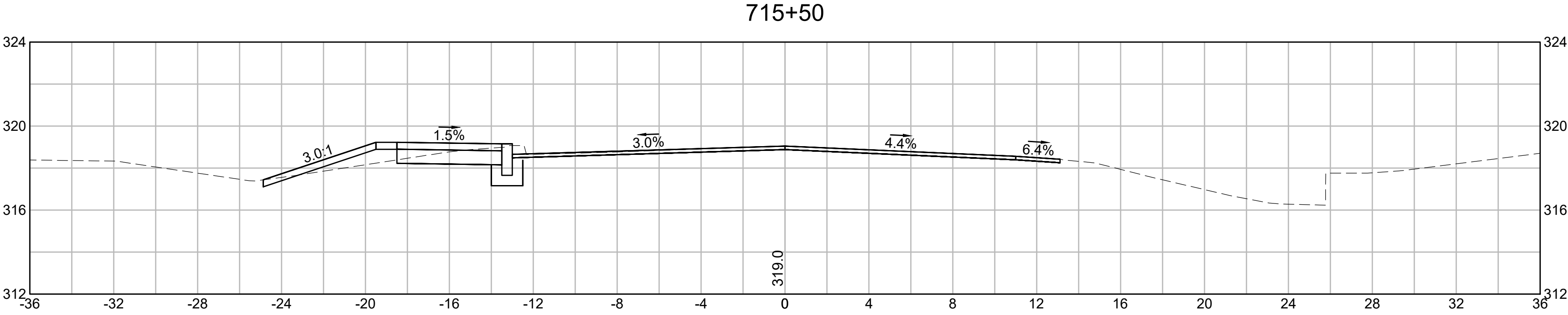


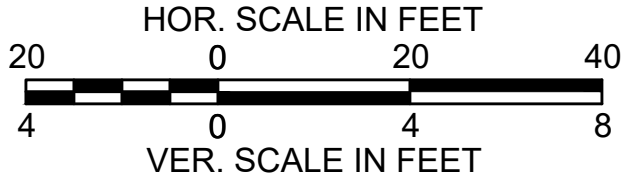
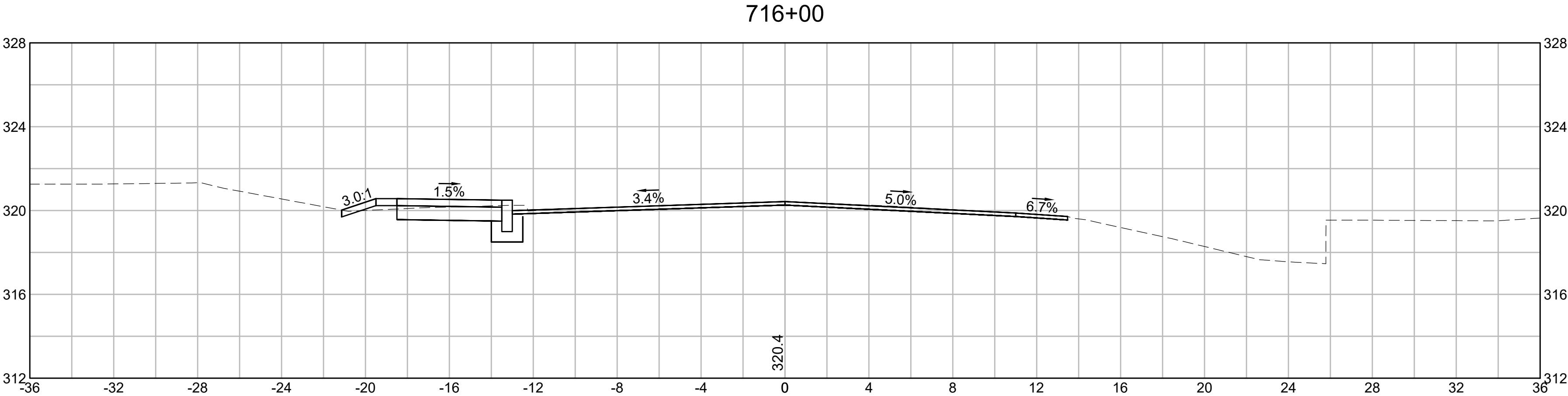
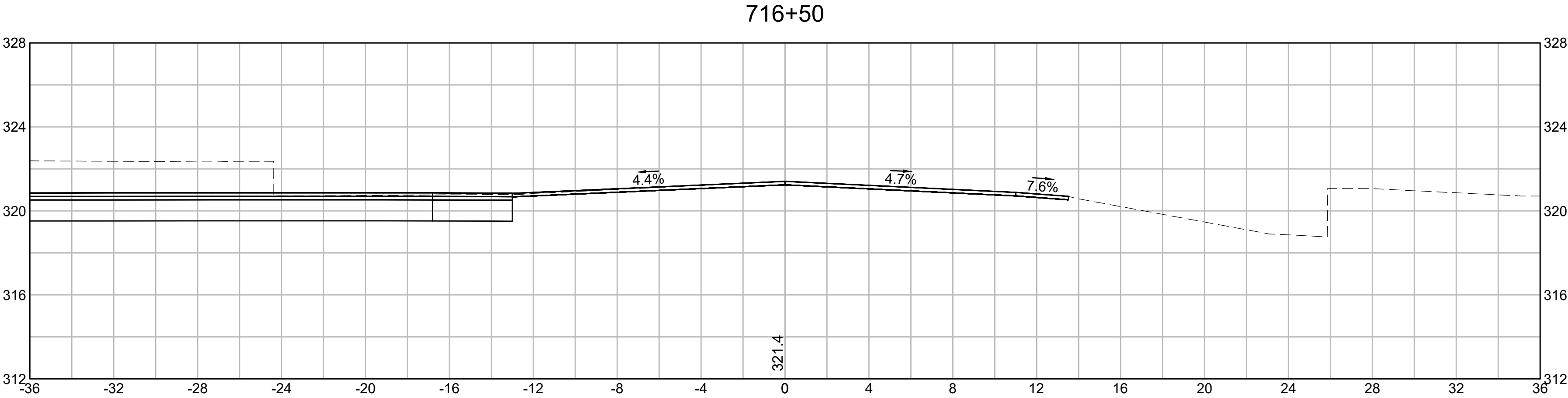
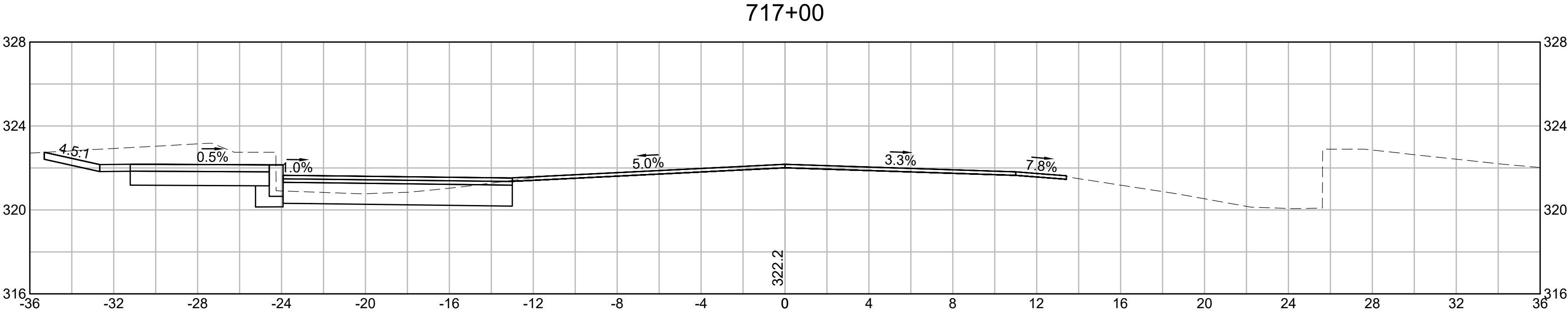
DRIVEWAY DATA								
NO.	LOCATION	SIDEWALK WIDTH	ROADWAY GUTTER	LEFT SIDE		RIGHT SIDE		OPENING ELEV.
				REVEAL	TRANS	REVEAL	TRANS	
5	720+65.44 13.0' LT	5.5'	-0.8%	6"	7'-8"	6"	6'-6"	323.5

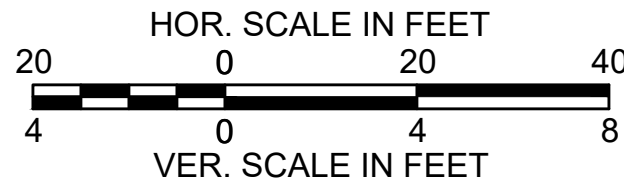
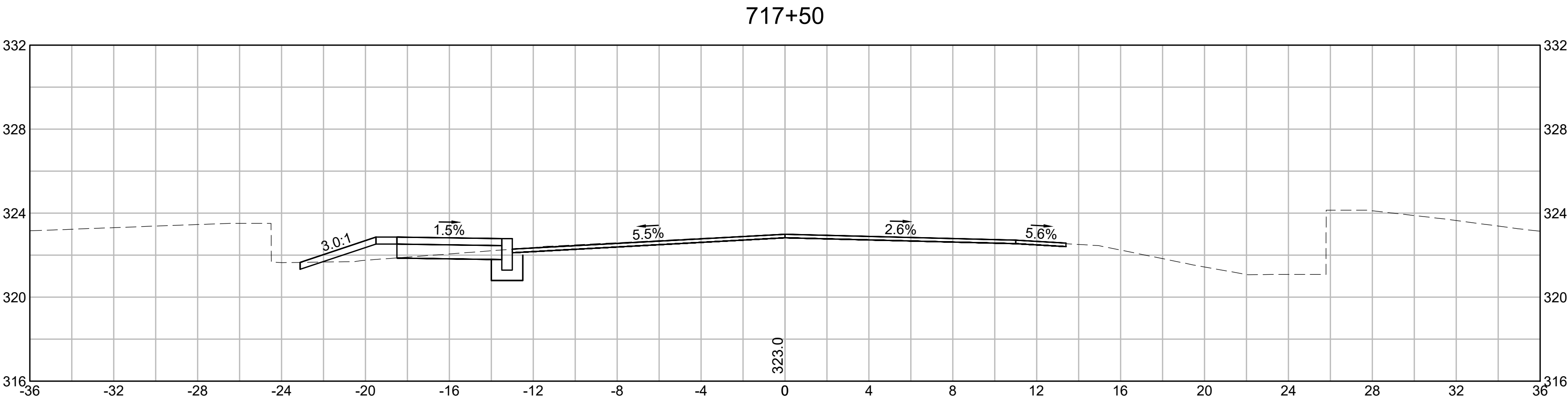
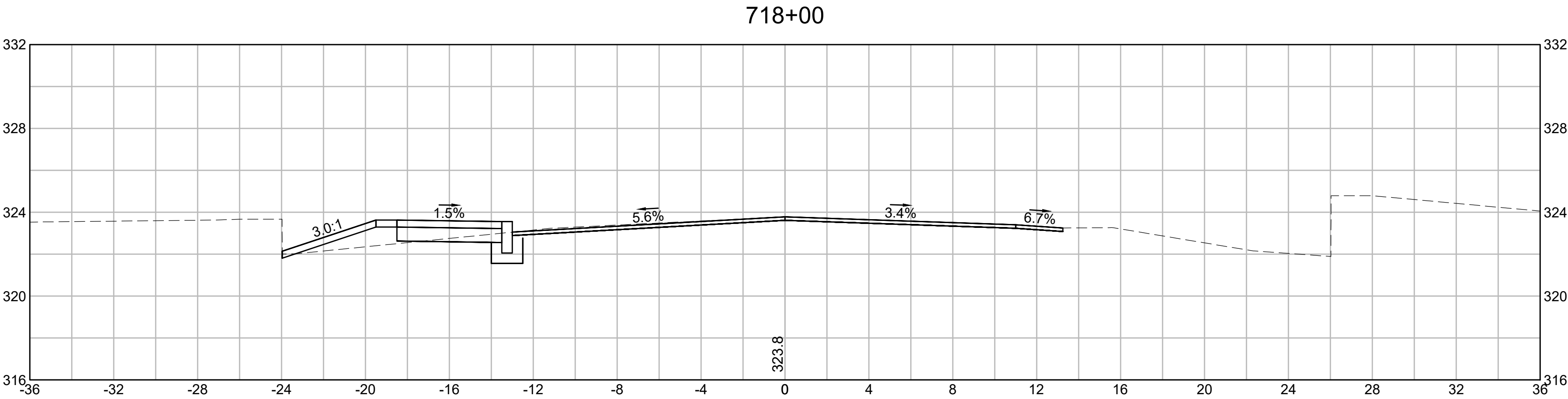
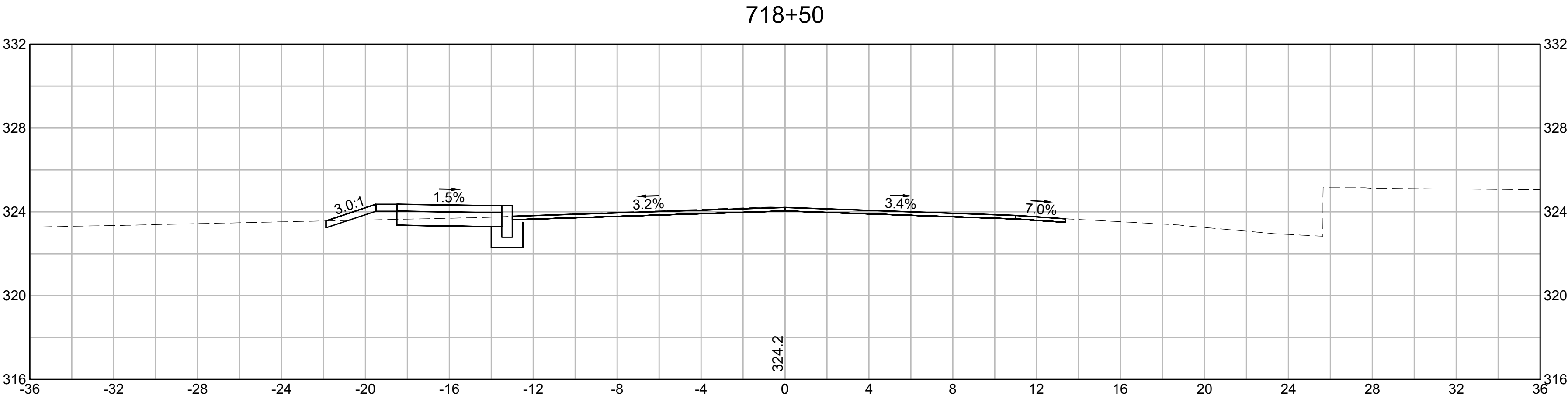
CEMENT CONCRETE WALK AT DRIVE - TWO SIDE TRANSITION

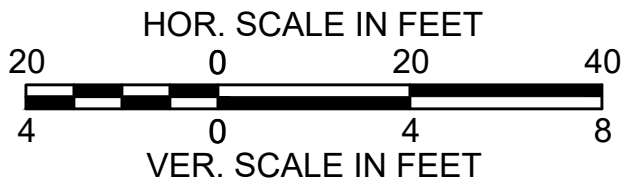
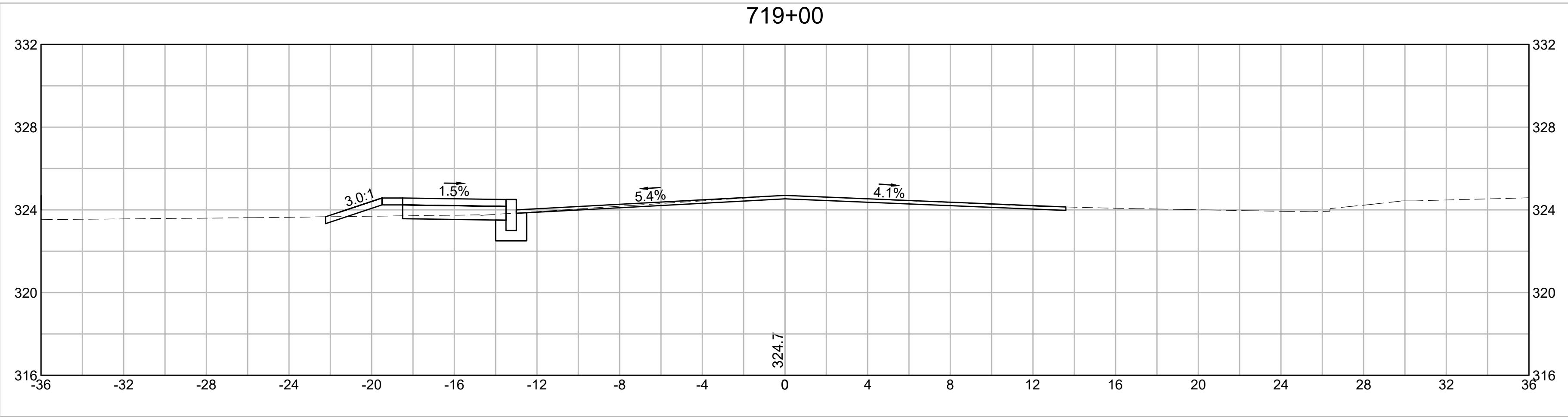
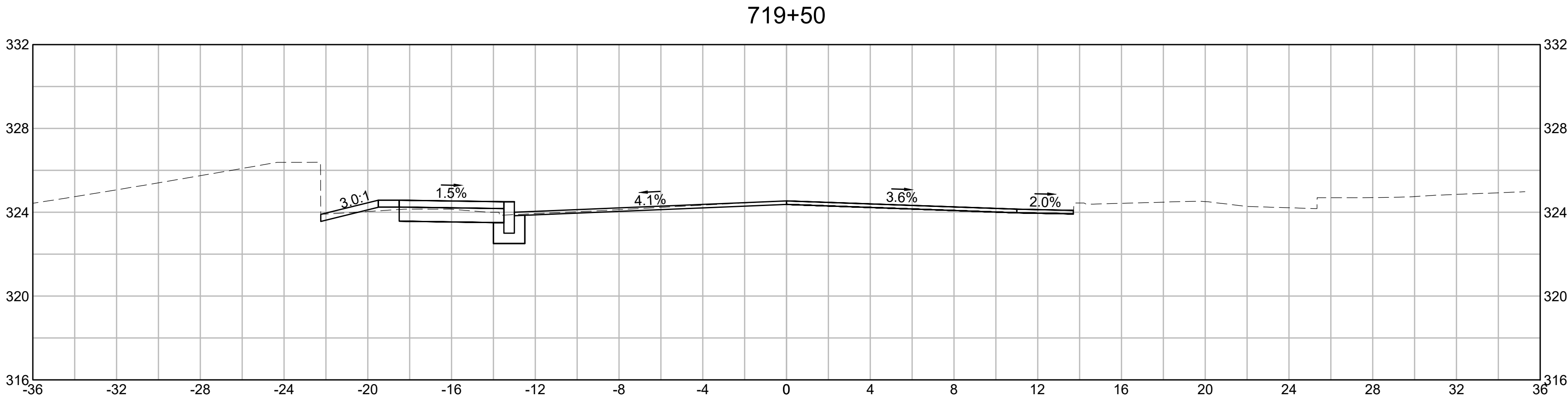
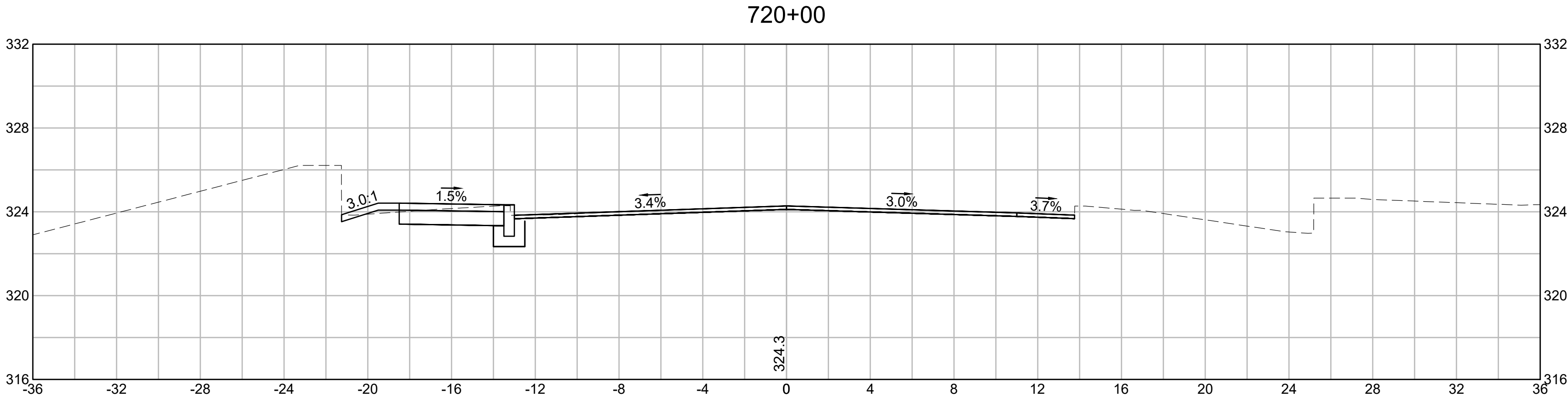
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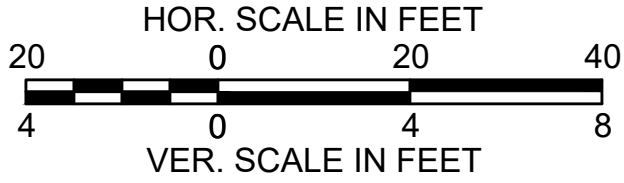
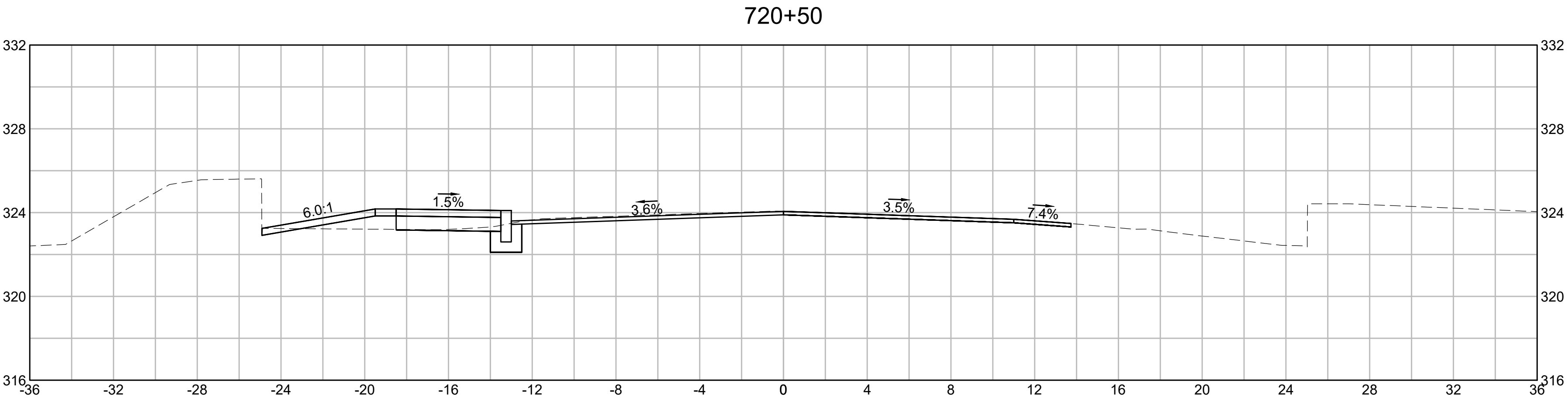
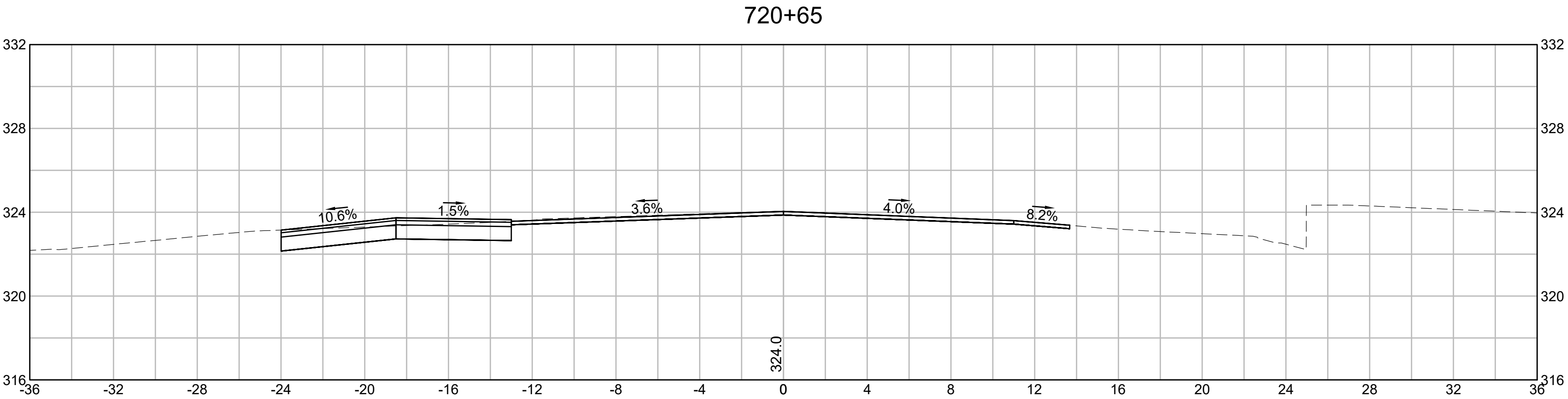
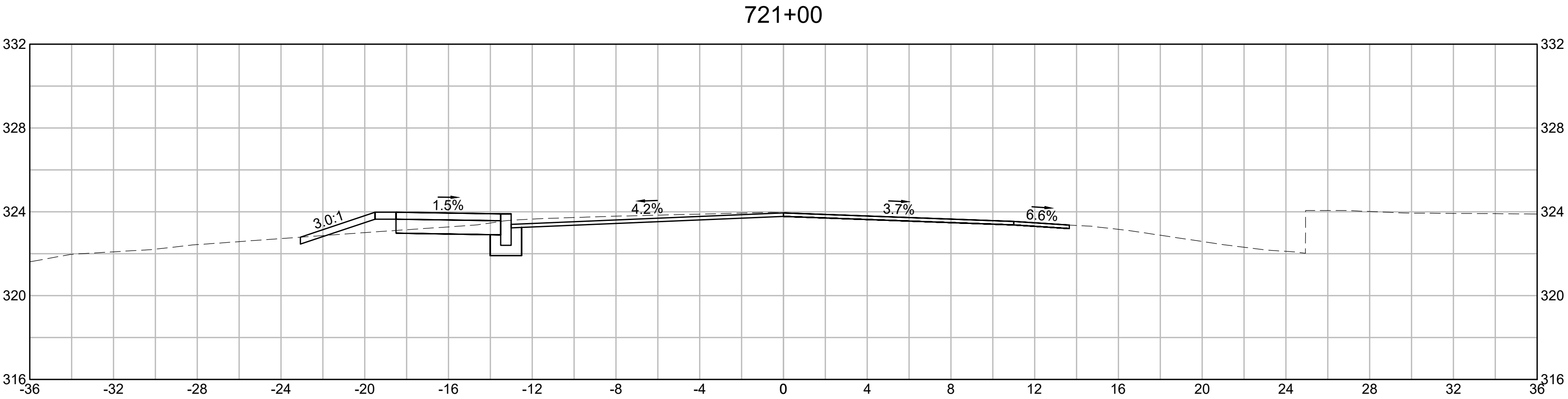


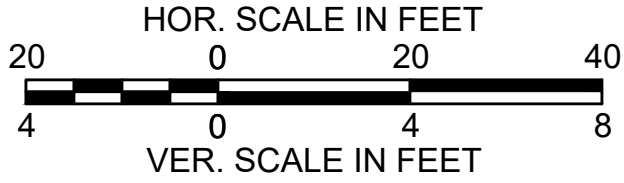
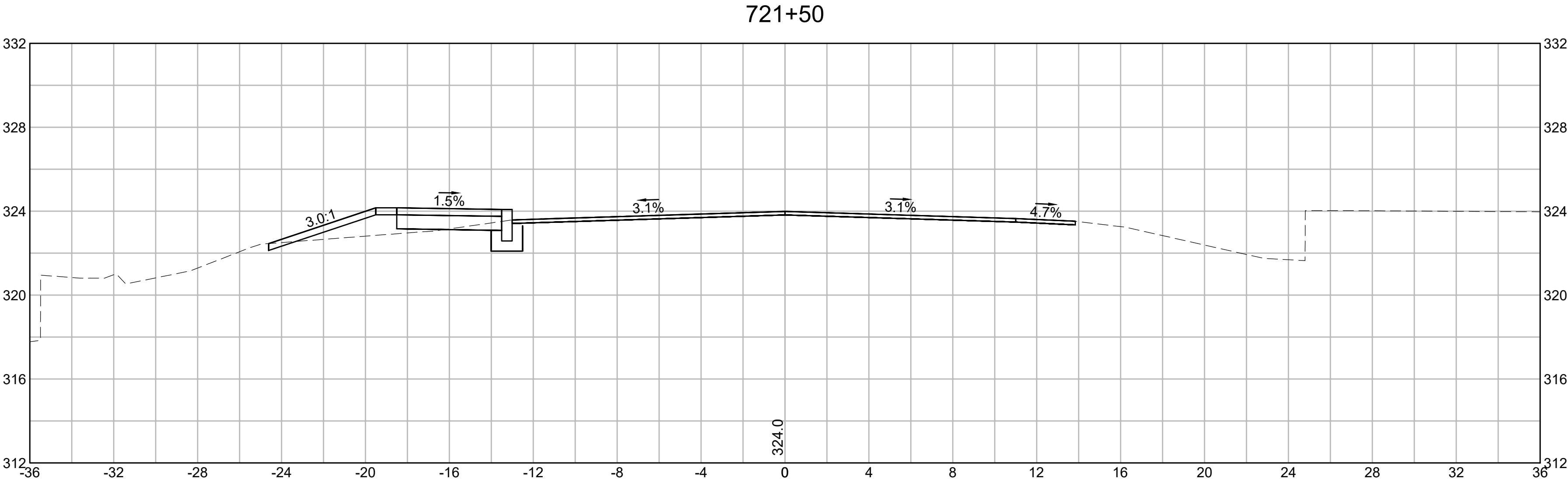
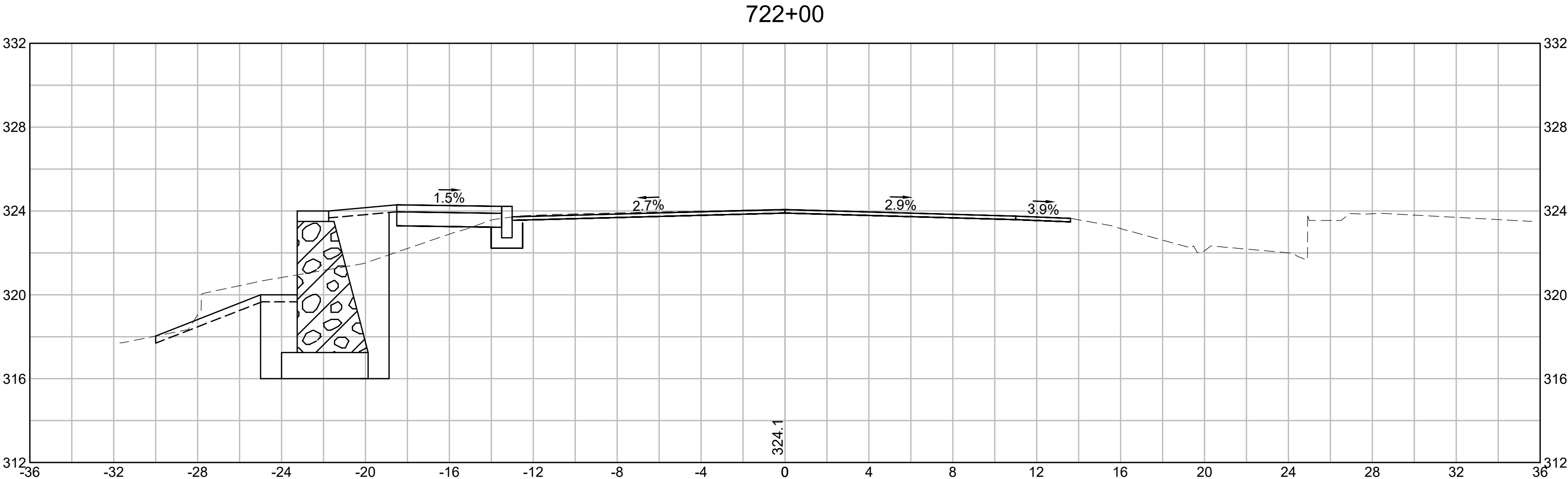
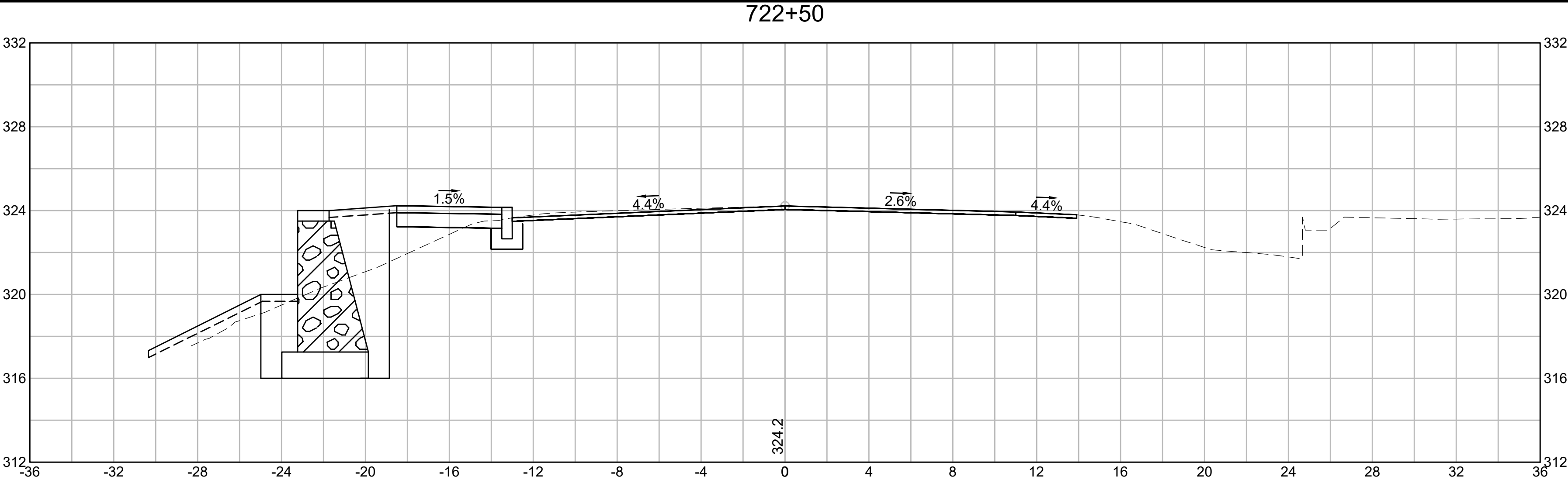


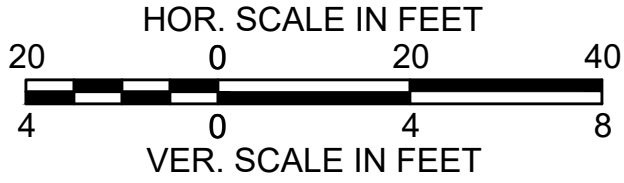
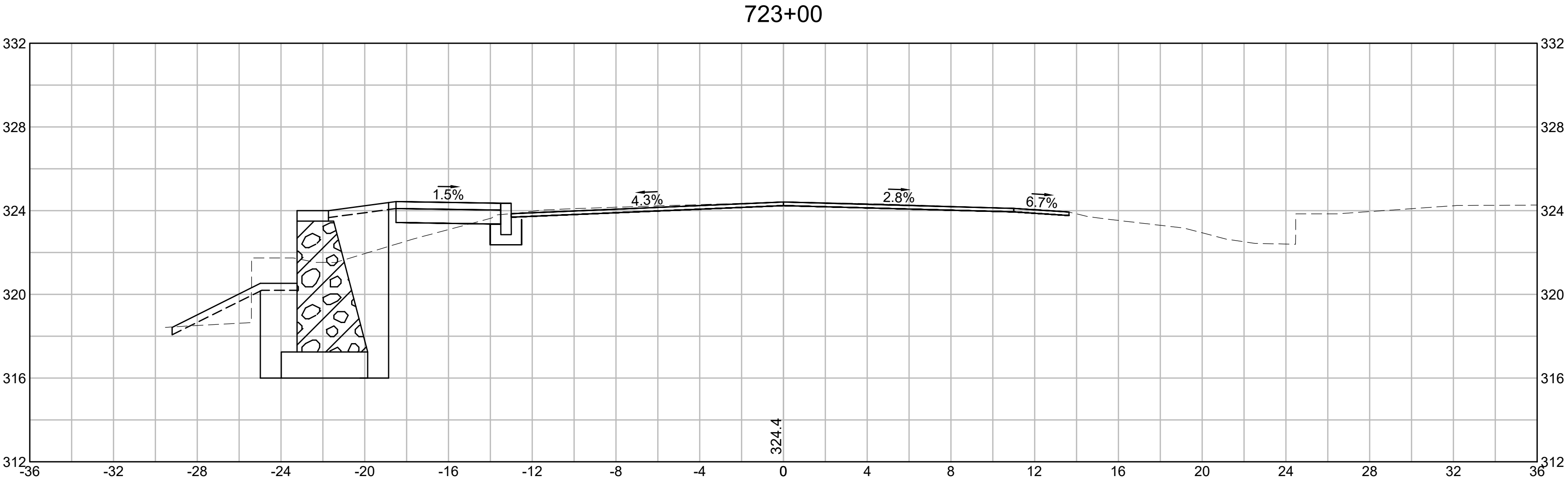
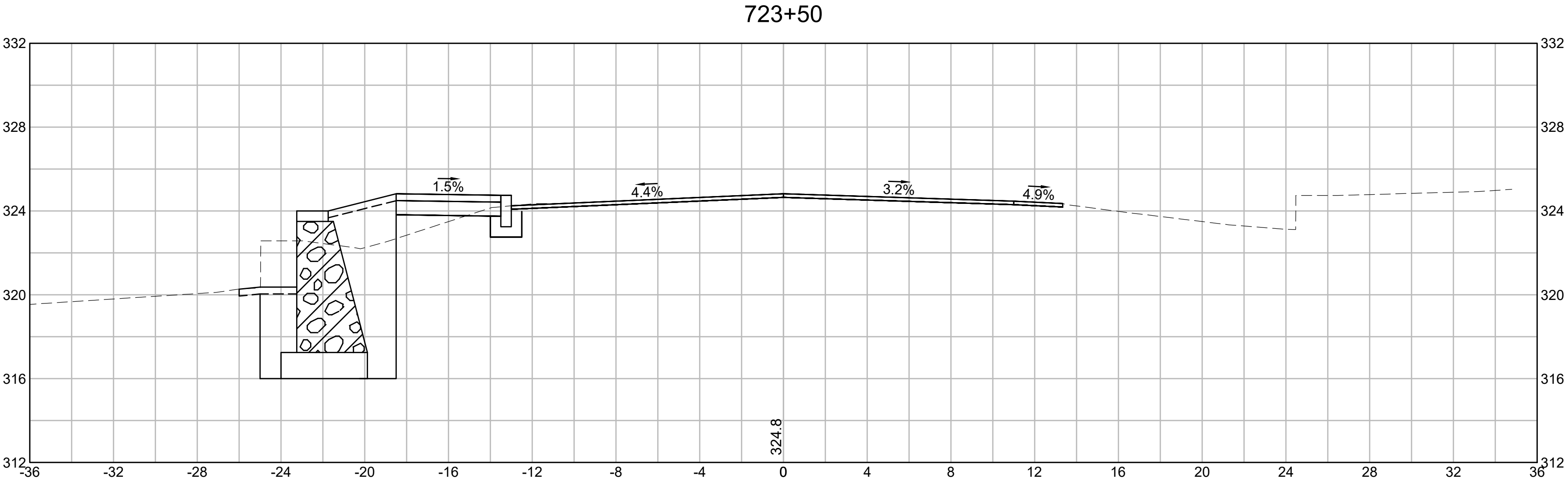
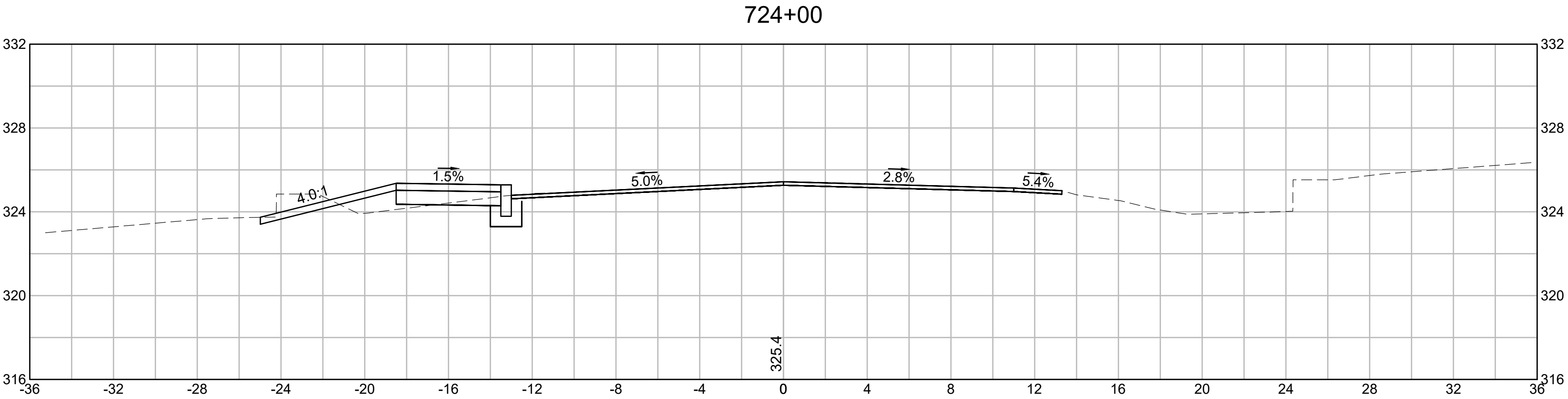


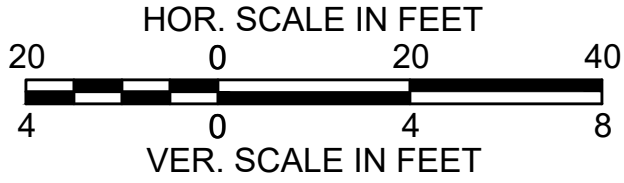
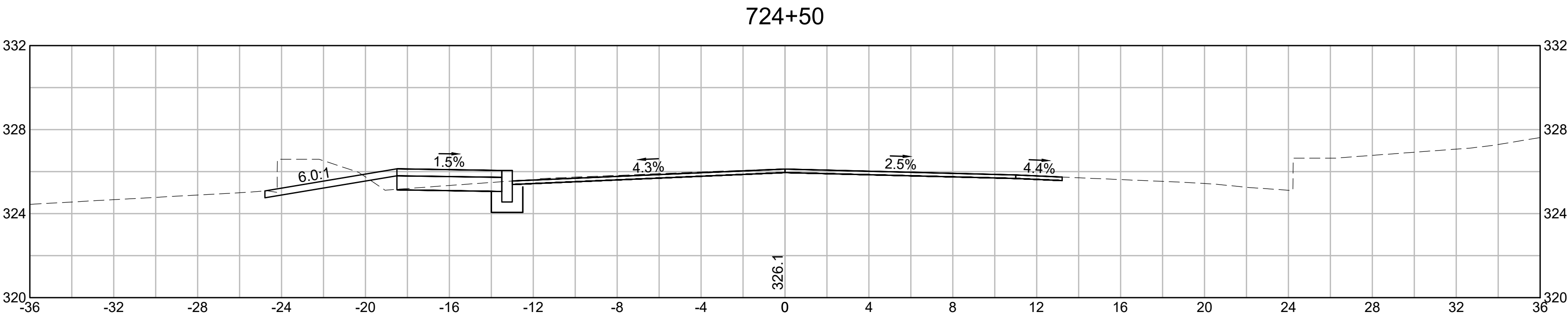
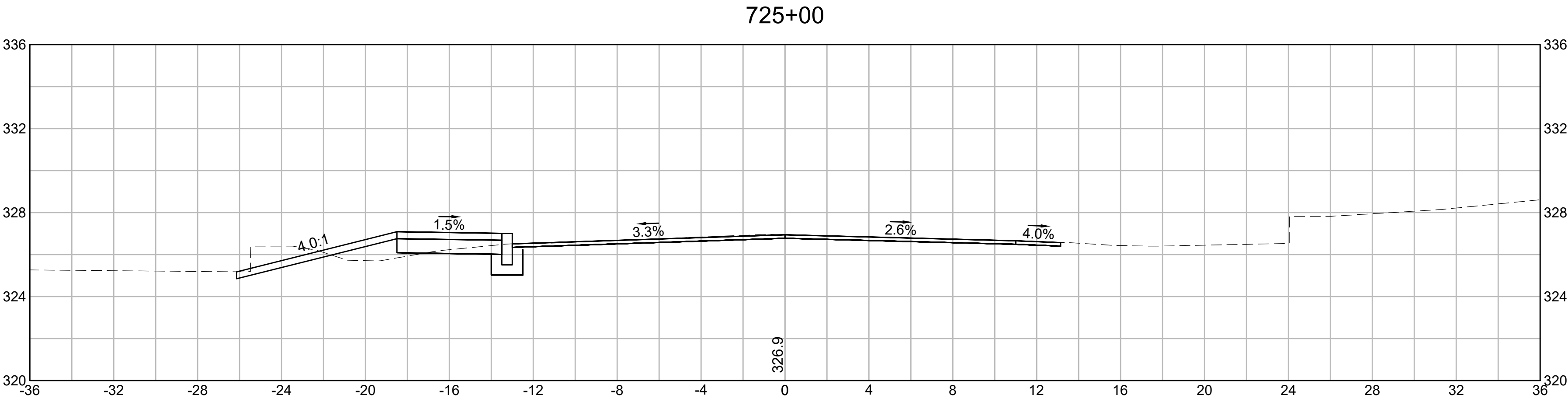


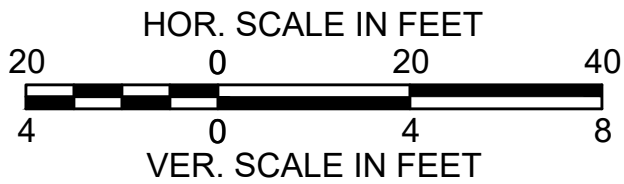
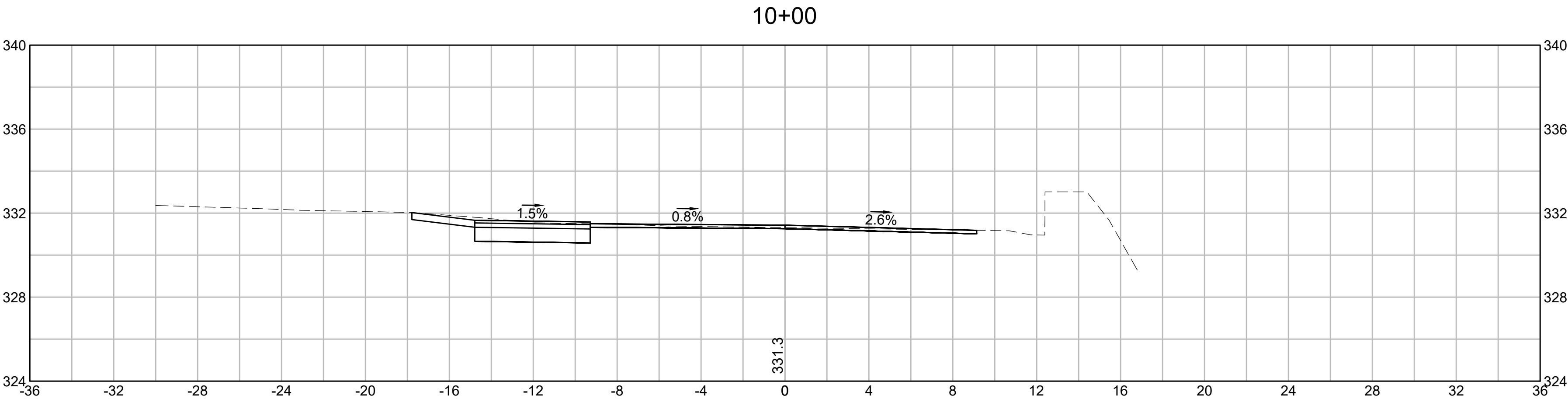
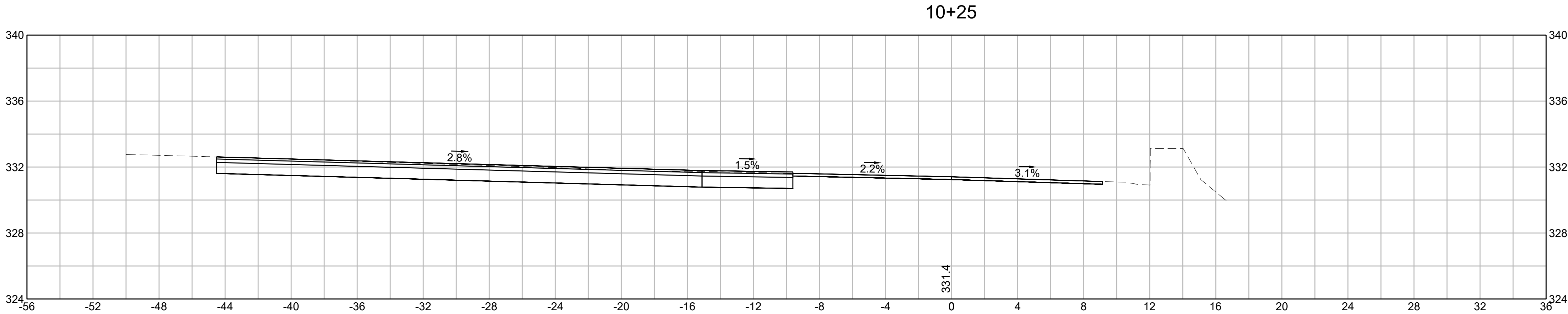
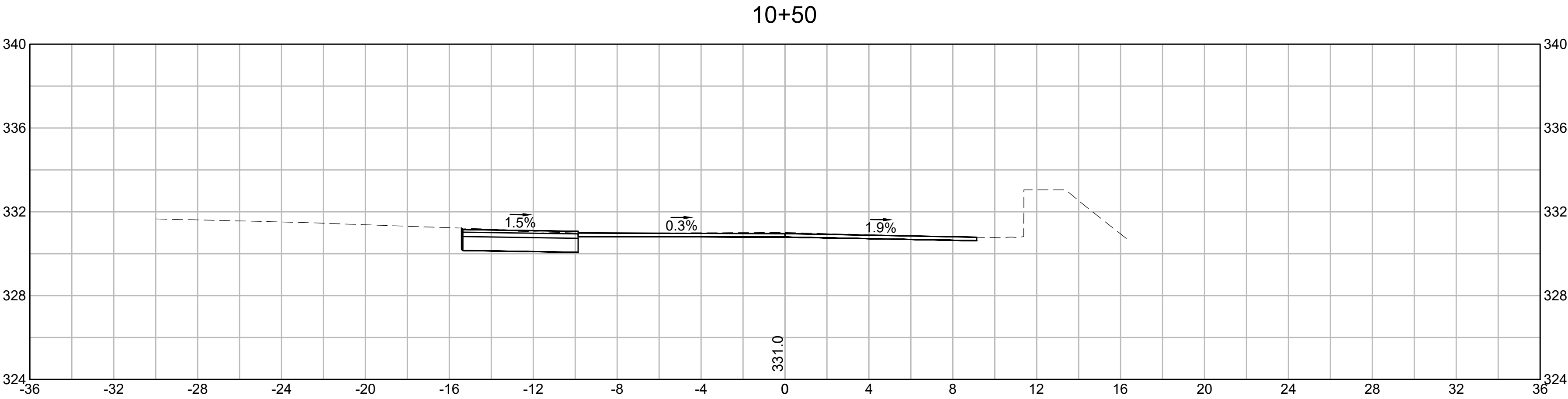


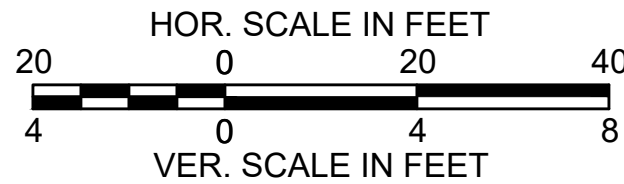
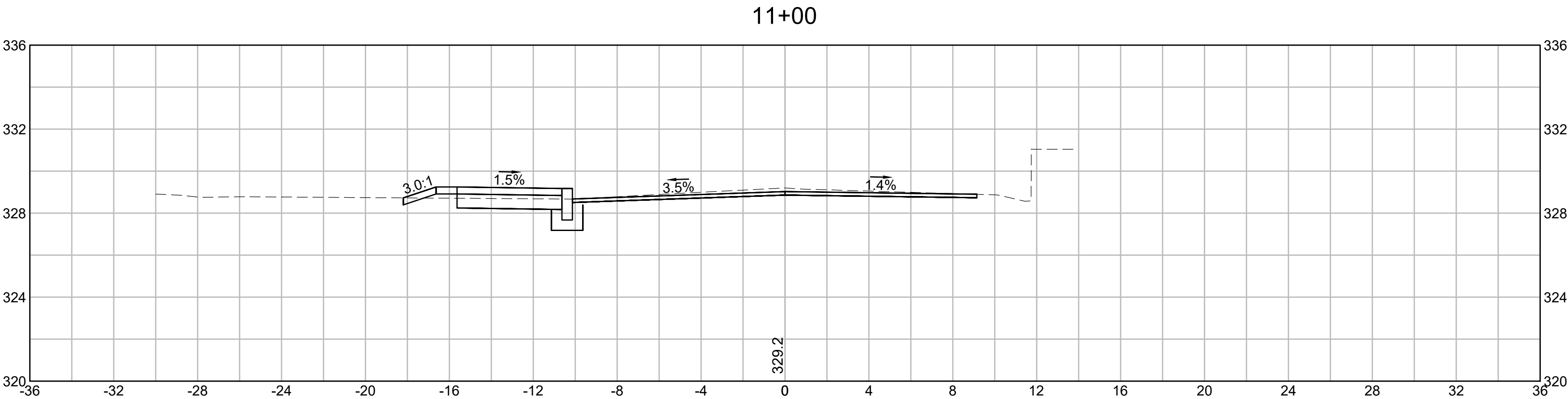
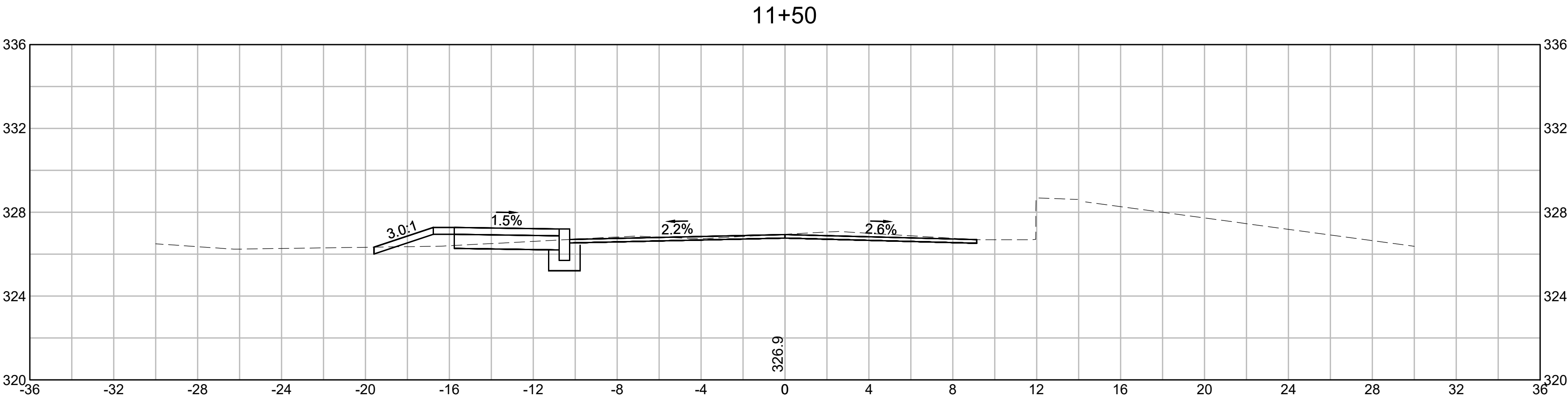
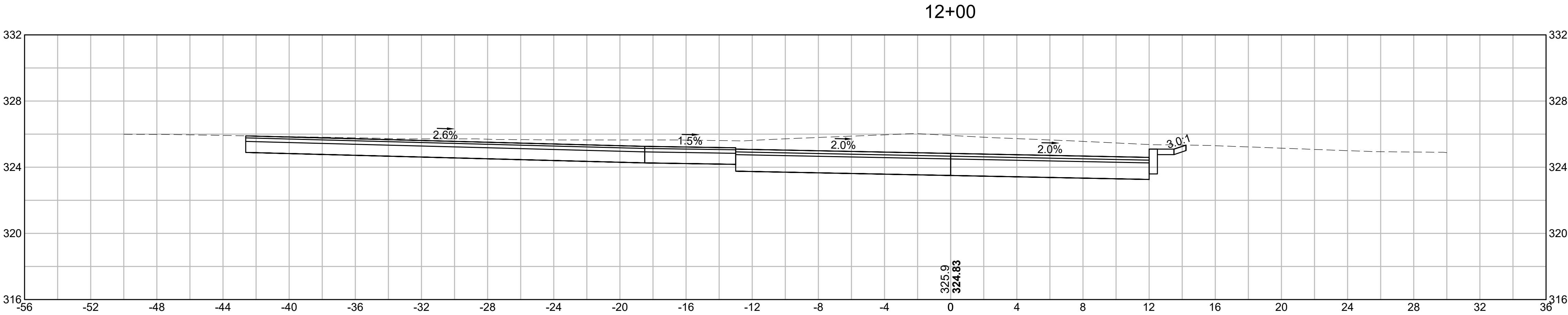




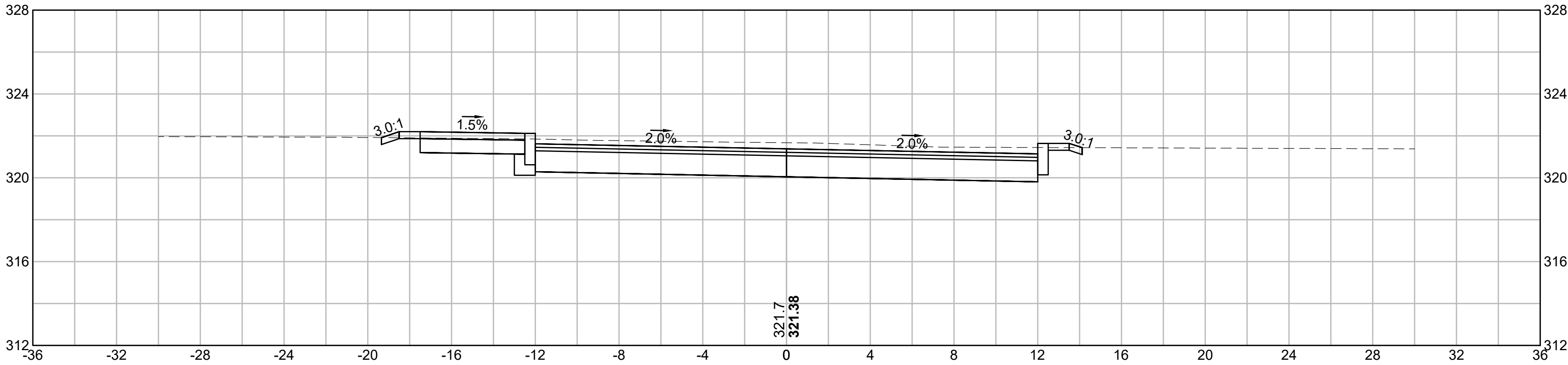




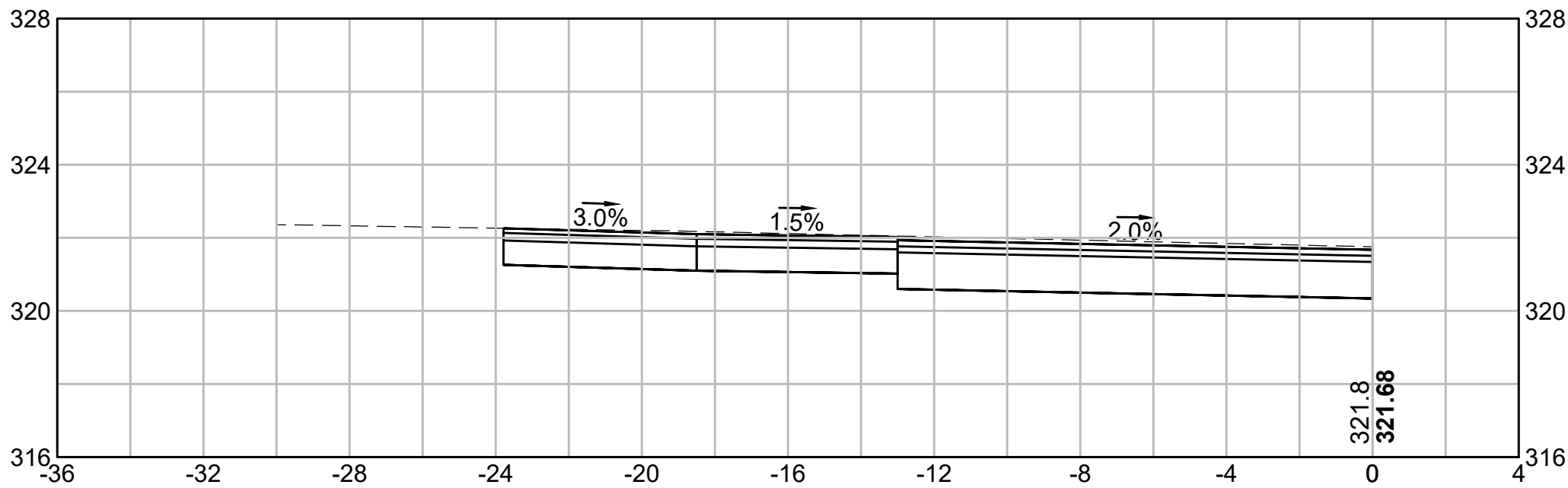




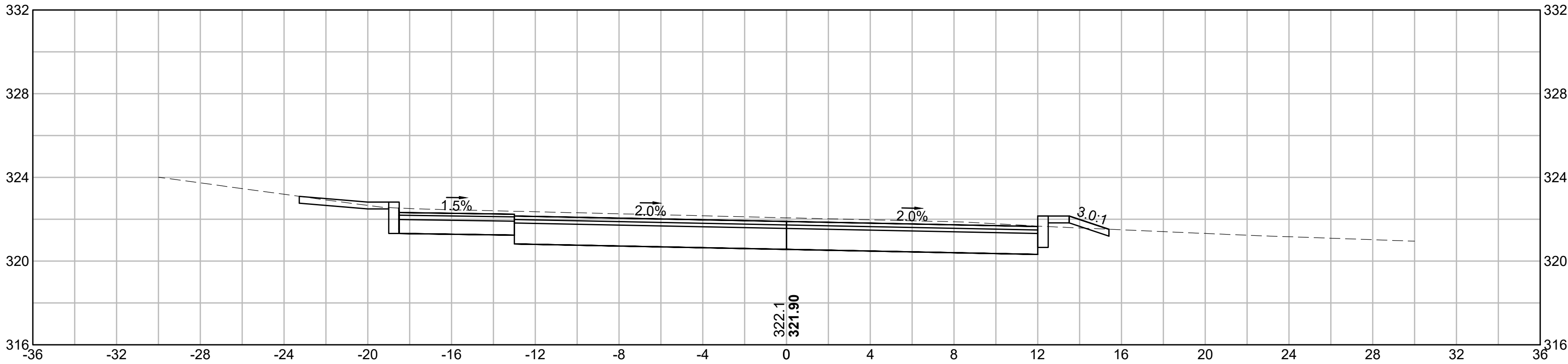
13+50



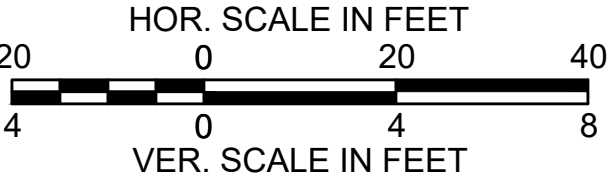
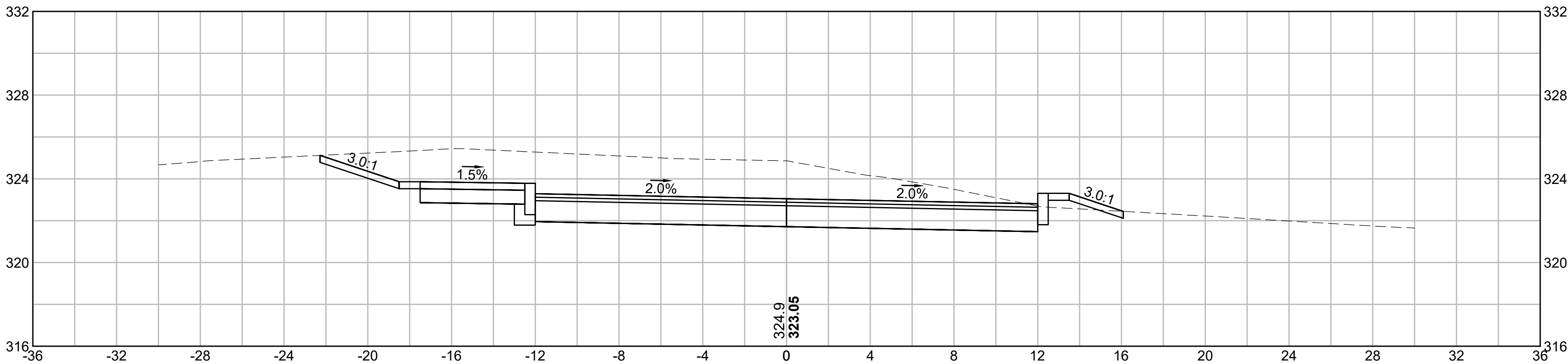
13+15

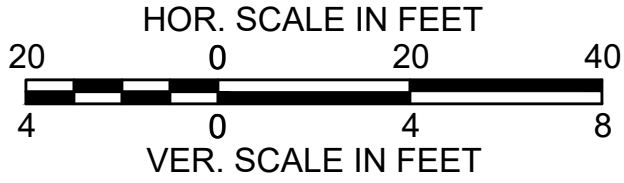
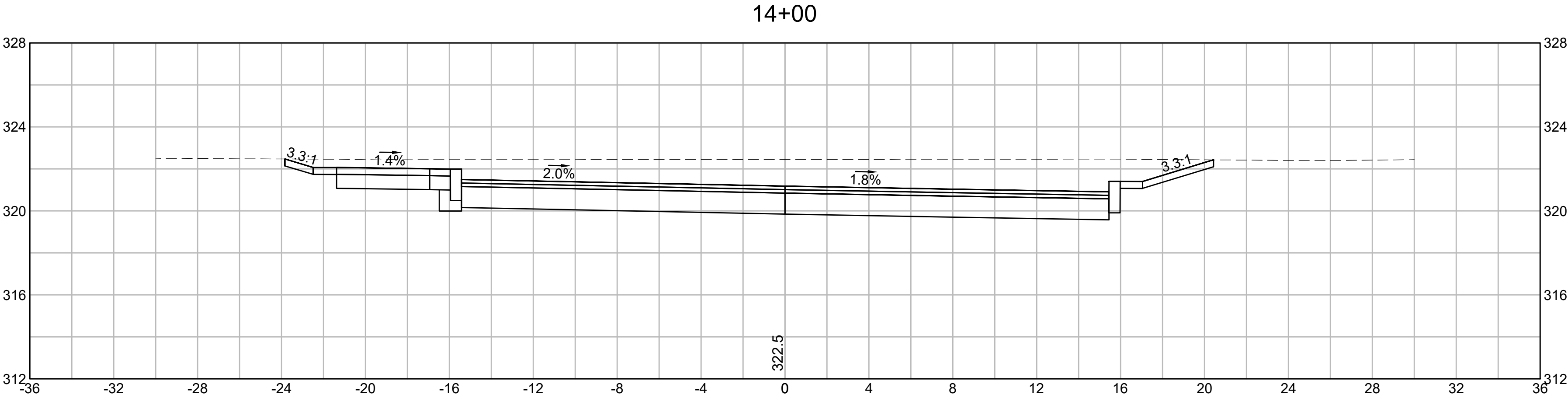


13+00



12+50





TRANSPORTATION IMPROVEMENT PROJECT

DEERFOOT ROAD & FLAGG ROAD

INTERSECTION IMPROVEMENTS

IN THE TOWN OF

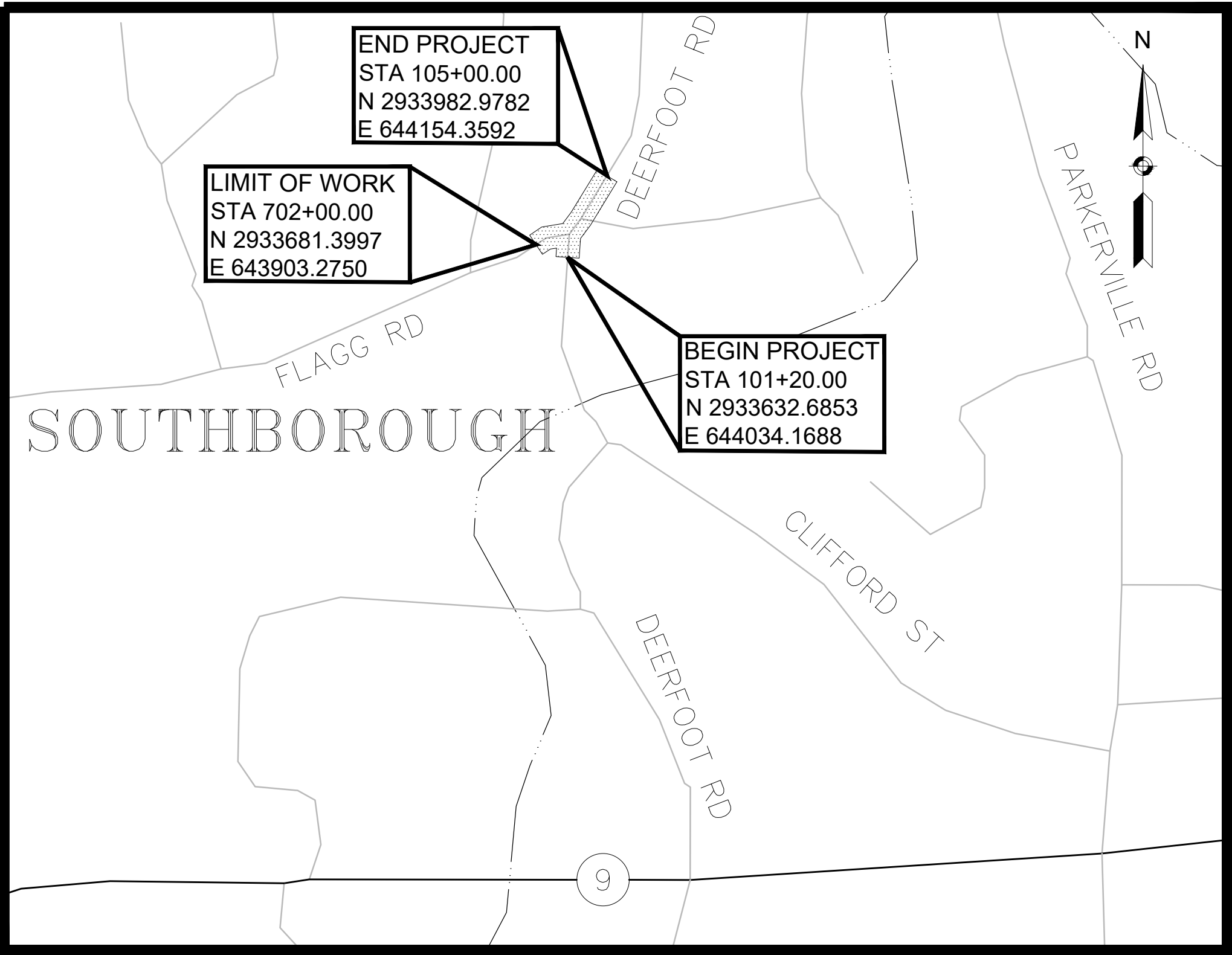
SOUTHBOROUGH WORCESTER COUNTY

SOUTHBOROUGH
VARIOUS LOCATIONS
TITLE SHEET
SHEET 122 OF 141

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 1988 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK.

LOCATION 4

SHEET NO.	DESCRIPTION
122	TITLE SHEET & INDEX
123	TYPICAL SECTIONS
124	CONSTRUCTION PLANS
125	PROFILES
126	ALIGNMENT & GRADING PLANS
127-128	CONSTRUCTION DETAILS
129-138	CROSS SECTIONS AT DEERFOOT ROAD
139-141	CROSS SECTIONS AT FLAGG ROAD



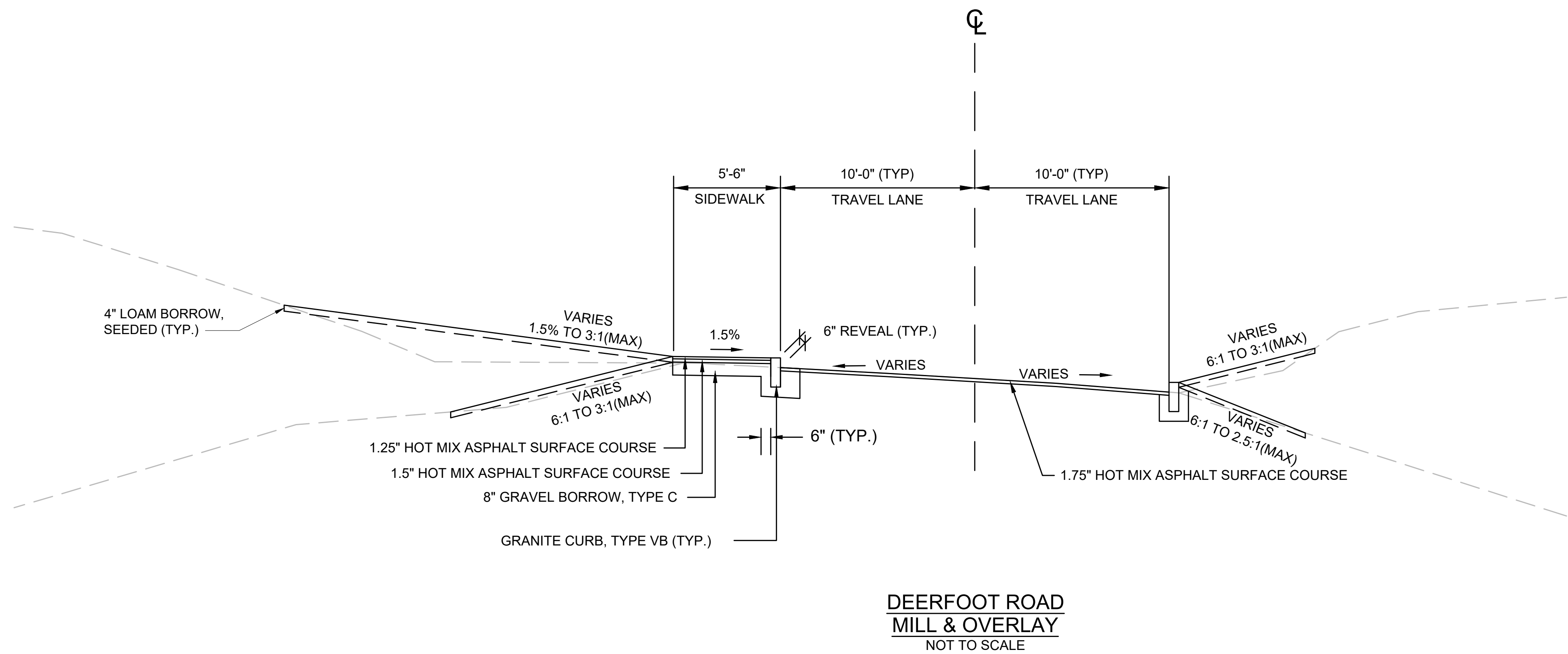
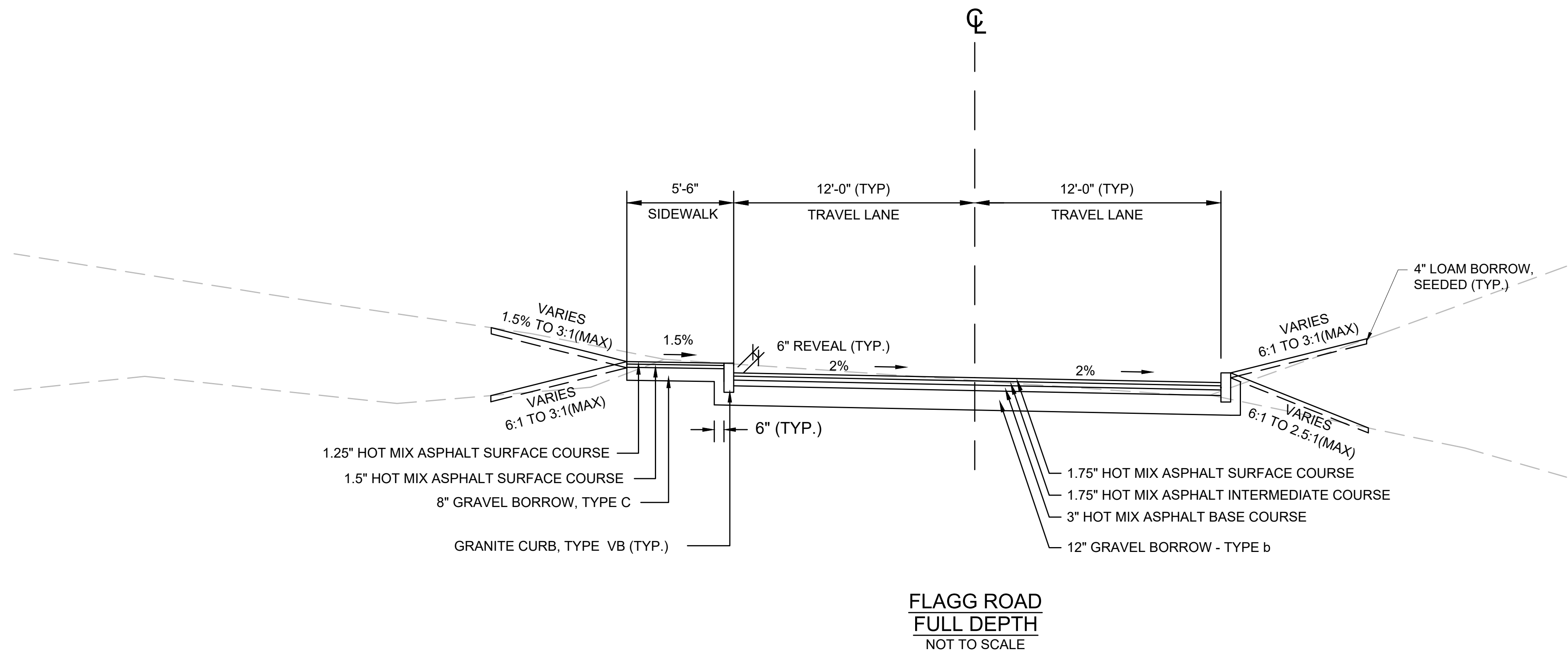
LENGTH OF PROJECT = 530 FEET = 0.10 MILES

DESIGN DESIGNATION (DEERFOOT ROAD)

DESIGN SPEED	25 MPH
ADT (2016)	1,733
ADT (2026)	1,820
K	15%
D	58% NB
T (PEAK HOUR)	1%
T (AVERAGE DAY)	1%
DHV	252
DDHV	145
FUNCTIONAL CLASSIFICATION	URBAN MAJOR COLLECTOR

DESIGN DESIGNATION (FLAGG ROAD)

DESIGN SPEED	25 MPH
ADT (2017)	1,144
ADT (2027)	1,200
K	11%
D	62% SB
T (PEAK HOUR)	0%
T (AVERAGE DAY)	0%
DHV	126
DDHV	78
FUNCTIONAL CLASSIFICATION	URBAN MAJOR COLLECTOR



PROPOSED FULL DEPTH PAVEMENT

SURFACE: 1.75" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5) OVER

BASE: 2.75" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC-12.5) OVER

SUBBASE: 4" DENSE GRADED CRUSHED STONE OVER
8" GRAVEL BORROW (TYPE b)

PROPOSED PAVEMENT MILLING & OVERLAY

SURFACE: 1.75" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5) OVER
1.75" PAVEMENT MICROMILLING

PROPOSED HOT MIX ASPHALT WALK

SURFACE: 1.25" SUPERPAVE SURFACE COURSE 9.5 (SSC-9.5) OVER
1.5" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC-12.5) OVER

FOUNDATION: 8" GRAVEL BORROW, TYPE b

PROPOSED HOT MIX ASPHALT DRIVEWAY

SURFACE: 1.5" SUPERPAVE SURFACE COURSE - 9.5 (SSC-9.5)
2.5" SUPERPAVE INTERCOURSE - 12.5 (SIC-12.5)

FOUNDATION: 8" GRAVEL BORROW, TYPE b

PROPOSED CEMENT CONCRETE WALK / WHEELCHAIR RAMP

SURFACE: 4" CEMENT CONCRETE
AIR ENTRAINED 4000PSI, 3/4", 610

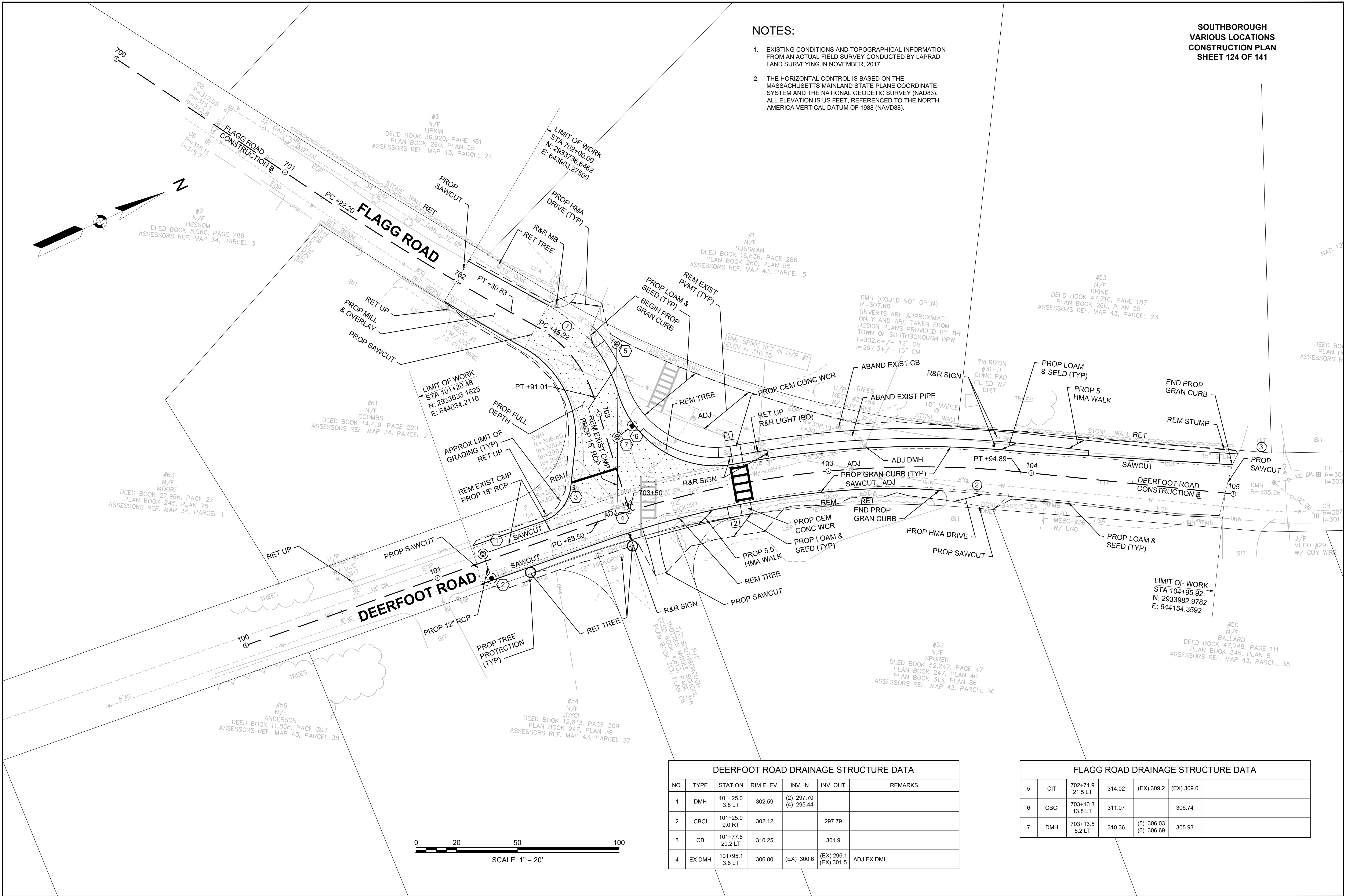
FOUNDATION: 8" GRAVEL BORROW, TYPE b

NOTES:

- 1) ASPHALT EMULSION FOR TACK COAT SHALL BE (RS-1H) TO RESIST TRACKING BY HAUL VEHICLES AND BOND HMA LAYERS FOR FLEXURAL STRENGTH. TACK COAT WILL BE APPLIED AT 0.07 GAL/SY OVER SMOOTH PAVEMENT (BASE AND INTERMEDIATE COURSES).
- 2) HMA WALKS AND DRIVEWAYS SHALL BE IN ACCORDANCE WITH SECTION 702. AND SHALL BE 50 GYRATION MIXTURES.
- 3) EXISTING GRAVEL BORROW MEETING MATERIAL SPECIFICATIONS SHALL BE RETAINED AND USED ON SITE FOR SUBBASE AS APPROVED BY ENGINEER.

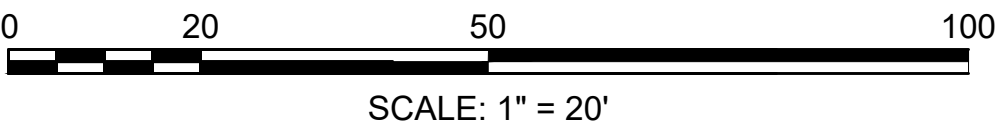
NOTES:

- EXISTING CONDITIONS AND TOPOGRAPHICAL INFORMATION FROM AN ACTUAL FIELD SURVEY CONDUCTED BY LAPRAD LAND SURVEYING IN NOVEMBER, 2017.
- THE HORIZONTAL CONTROL IS BASED ON THE MASSACHUSETTS MAINLAND STATE PLANE COORDINATE SYSTEM AND THE NATIONAL GEODETIC SURVEY (NAD83). ALL ELEVATION IS US FEET, REFERENCED TO THE NORTH AMERICA VERTICAL DATUM OF 1988 (NAVD88).

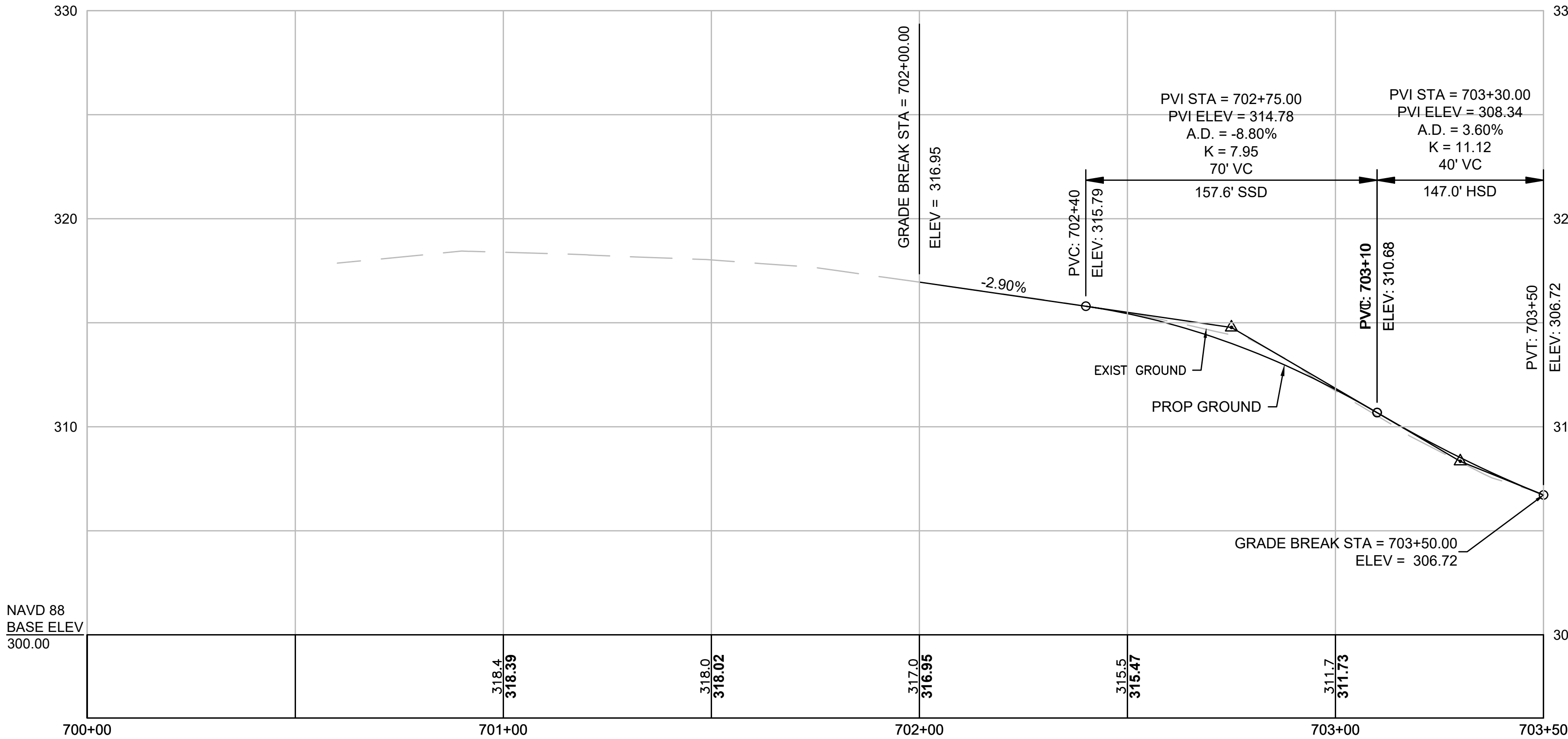


DEERFOOT ROAD DRAINAGE STRUCTURE DATA						
NO.	TYPE	STATION	RIM ELEV.	INV. IN	INV. OUT	REMARKS
1	DMH	101+25.0 3.8 LT	302.59	(2) 297.70 (4) 295.44		
2	CBCI	101+25.0 9.0 RT	302.12		297.79	
3	CB	101+77.6 20.2 LT	310.25		301.9	
4	EX DMH	101+95.1 3.6 LT	306.80	(EX) 300.6	(EX) 296.1 (EX) 301.5	ADJ EX DMH

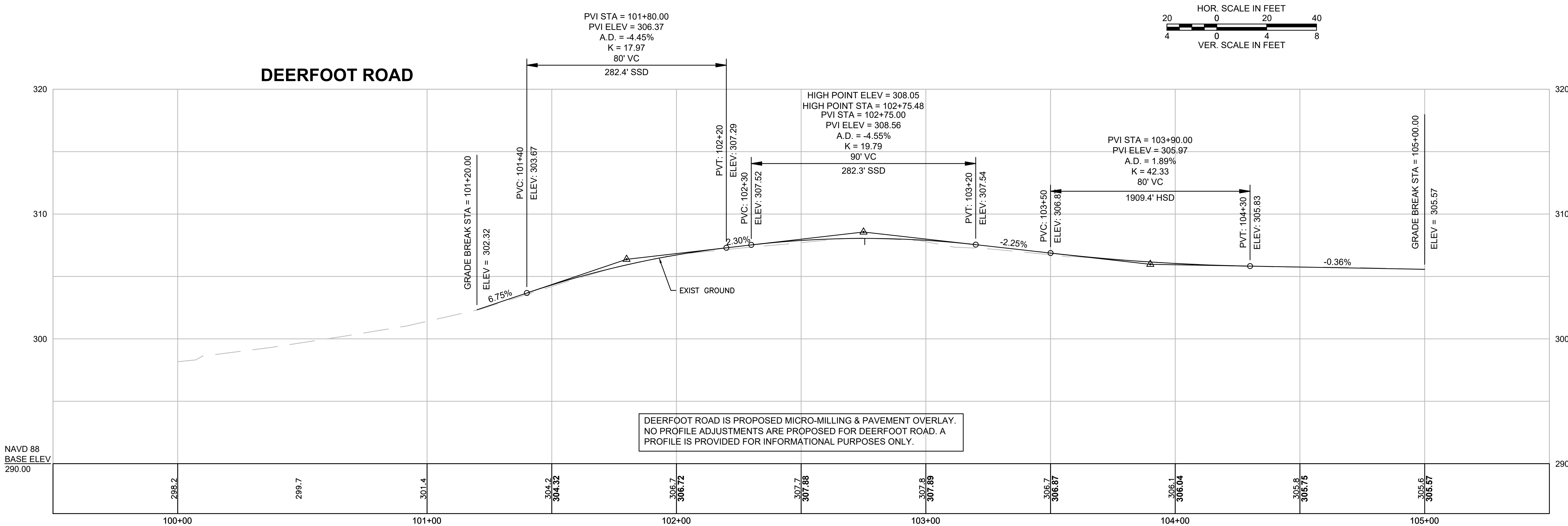
FLAGG ROAD DRAINAGE STRUCTURE DATA						
5	CIT	702+74.9 21.5 LT	314.02	(EX) 309.2	(EX) 309.0	
6	CBCI	703+10.3 13.8 LT	311.07		306.74	
7	DMH	703+13.5 5.2 LT	310.36	(5) 306.03 (6) 306.69	305.93	



FLAGG ROAD



DEERFOOT ROAD



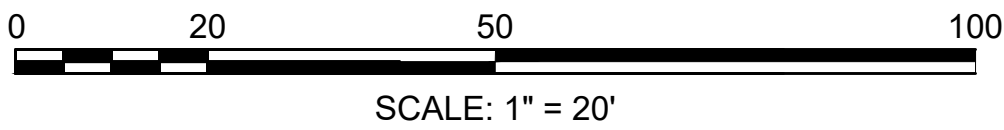
SOUTHBOROUGH
VARIOUS LOCATIONS
ALIGNMENT & GRADING PLAN
SHEET 126 OF 141

FLAGG ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L3	700+00.00	2933574.2224	643734.4592		N58°16'59"E 122.20'	701+22.20	2933638.4643	643838.4068
C2	701+22.20	2933638.4643	643838.4068	R= 1250.00' Δ= 4°58'45" L=108.63' T=54.35'		702+30.83	2933699.5144	643928.2173
L4	702+30.83	2933699.5144	643928.2173		N53°18'14"E 14.40'	702+45.22	2933708.1172	643939.7604
C3	702+45.22	2933708.1172	643939.7604	R= 60.00' Δ= 43°43'07" L=45.78' T=24.07'		702+91.01	2933719.5581	643982.9502
L5	702+91.01	2933719.5581	643982.9502		N82°58'39"W 58.99'	703+50.00	2933712.3461	644041.4975

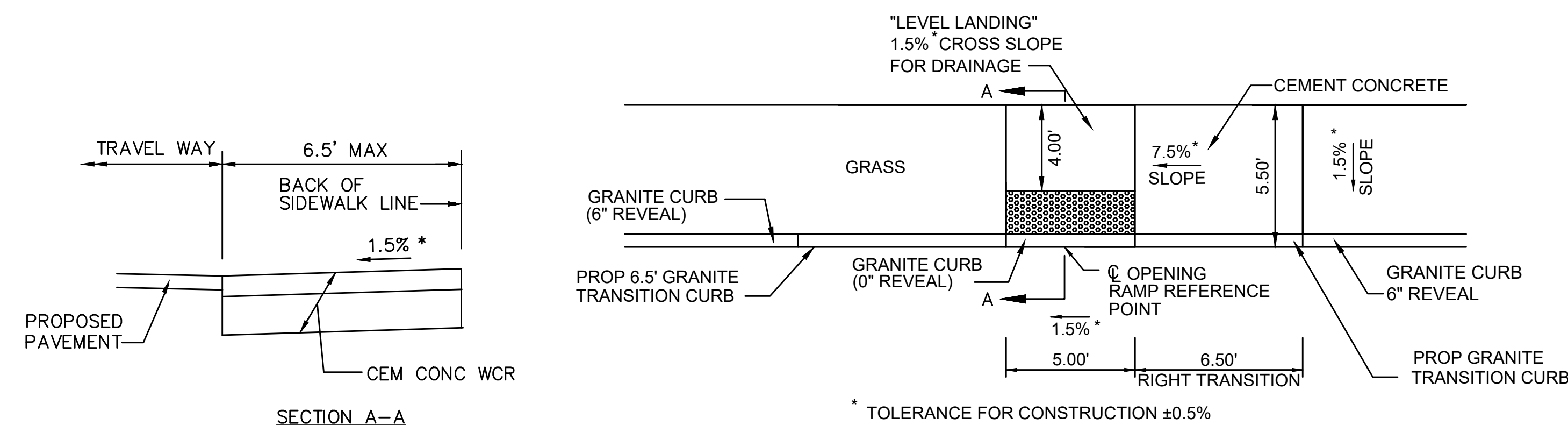
NOTE: CURB REVEAL IS 6" UNLESS OTHERWISE NOTED

DEERFOOT RD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L1	100+00.00	2933513.1517	644023.5988		N5°03'12"E 183.50'	101+83.50	2933695.9418	644039.7623
C1	101+83.50	2933695.9418	644039.7623	R= 480.00' Δ= 25°13'55" L=211.38' T=107.43'		103+94.89	2933895.7295	644103.4050
L2	103+94.89	2933895.7295	644103.4050		N30°17'07"E 105.11'	105+00.00	2933986.4972	644156.4143

Curve Table			
Curve #	Delta	Radius	Length
①	2°34'44"	1000.00	45.01
②	19°55'13"	74.00	25.73
③	67°01'38"	50.00	58.49
④	84°09'55"	50.00	73.45
⑤	64°30'36"	20.00	22.52
⑥	6°27'36"	470.00	52.99
⑦	16°40'17"	490.00	142.57
⑧	4°46'03"	400.00	33.28
⑨	7°06'53"	250.00	31.04



**SOUTHBOROUGH
VARIOUS LOCATIONS
CONSTRUCTION DETAILS
SHEET 127 OF 141**

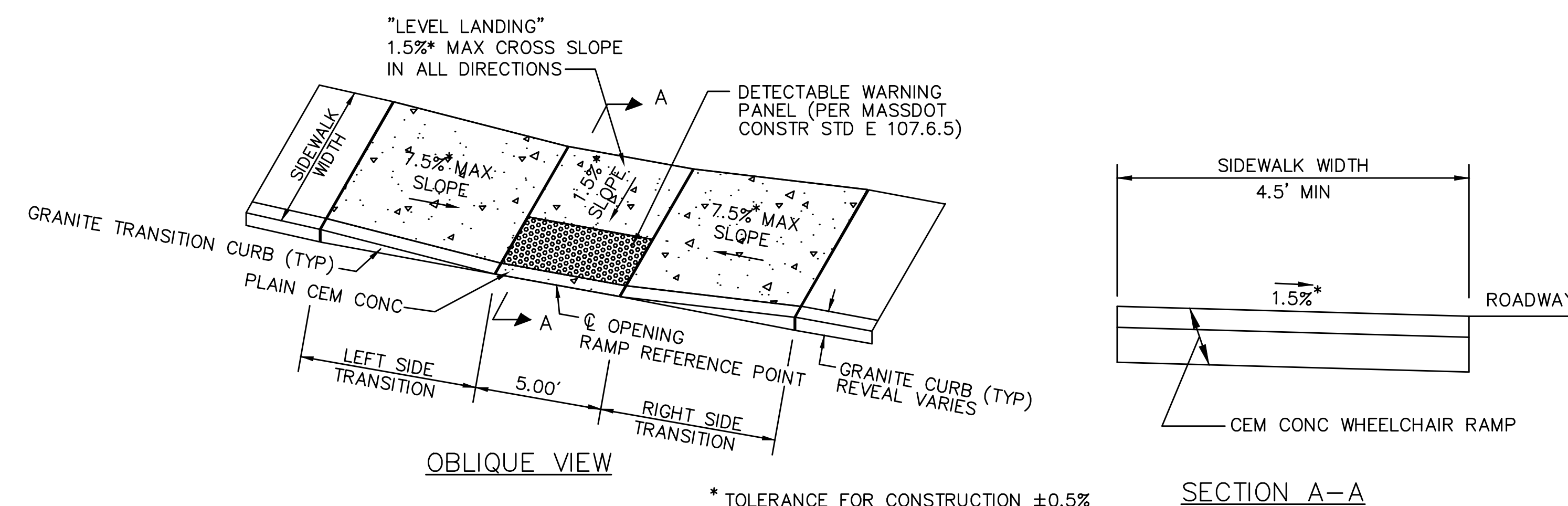


WHEELCHAIR RAMP DATA						
NO.	LOCATION	SIDEWALK WIDTH	OPENING WIDTH	ROADWAY GUTTER	TRANSITION	
					REVEAL	TRANS
3	DEERFOOT ROAD 102+56.84, 10.0' RT	5.5'	5.0'	-1.5%	6"	6'-6"

GUTTER SLOPES ARE IN THE DIRECTION OF THE BASELINE

**WHEEL CHAIR RAMP - ONE WING
SIDEWALK LESS THAN 6.5'**

SCALE: N.T.S. DWG: WCR-02

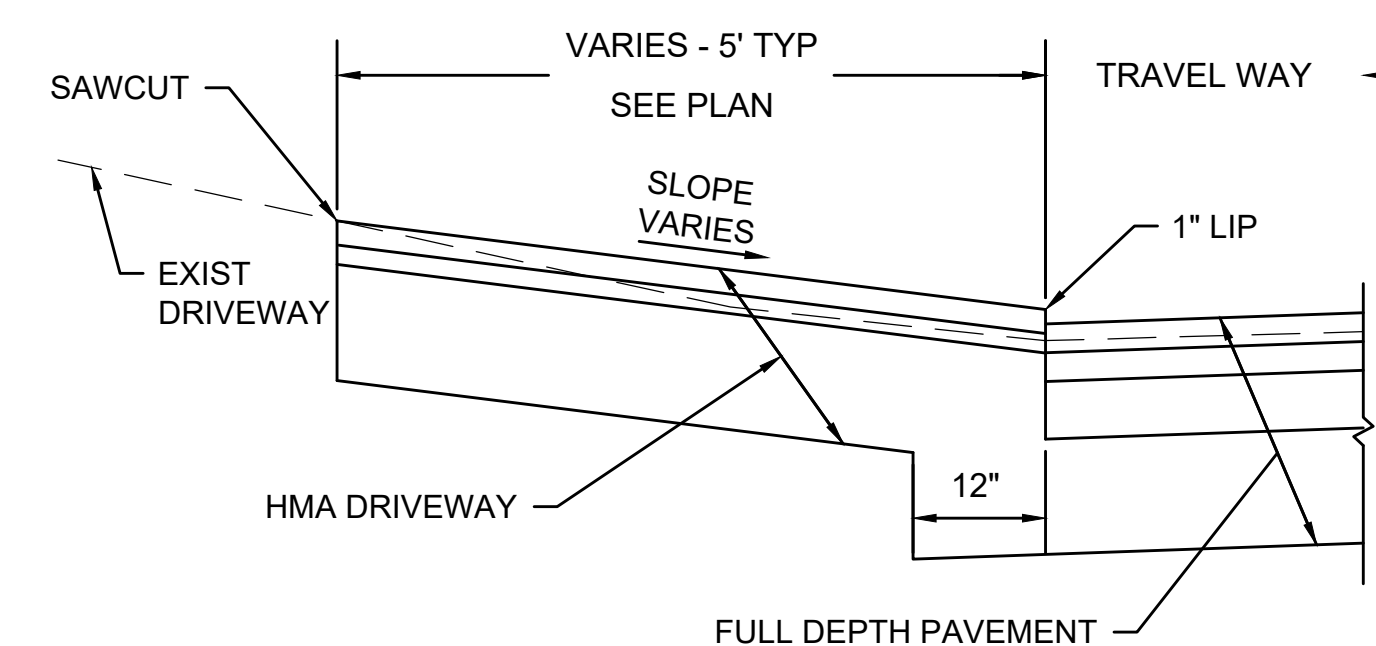


WHEELCHAIR RAMP DATA								
NO.	LOCATION	SIDEWALK WIDTH	OPENING WIDTH	ROADWAY GUTTER	LEFT SIDE		RIGHT SIDE	
					REVEAL	TRANS	REVEAL	TRANS
2	DEERFOOT ROAD 102+56.97, 10.0' LT	5.5'	5.0'	-0.1%	6"	7'-8"	6"	6'-6"

GUTTER SLOPES ARE IN THE DIRECTION OF THE BASELINE

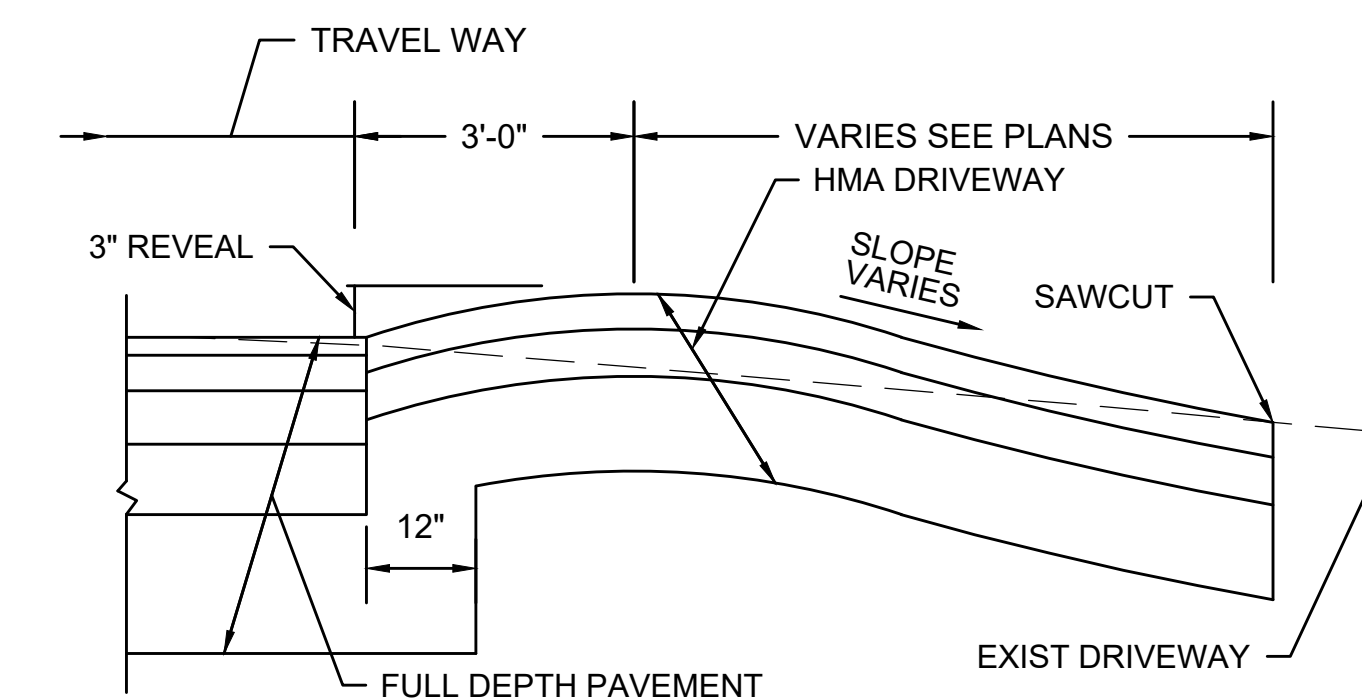
WHEEL CHAIR RAMP WIDTH LESS THAN 6.5 FT

SCALE: N.T.S. DWG: WCR-03



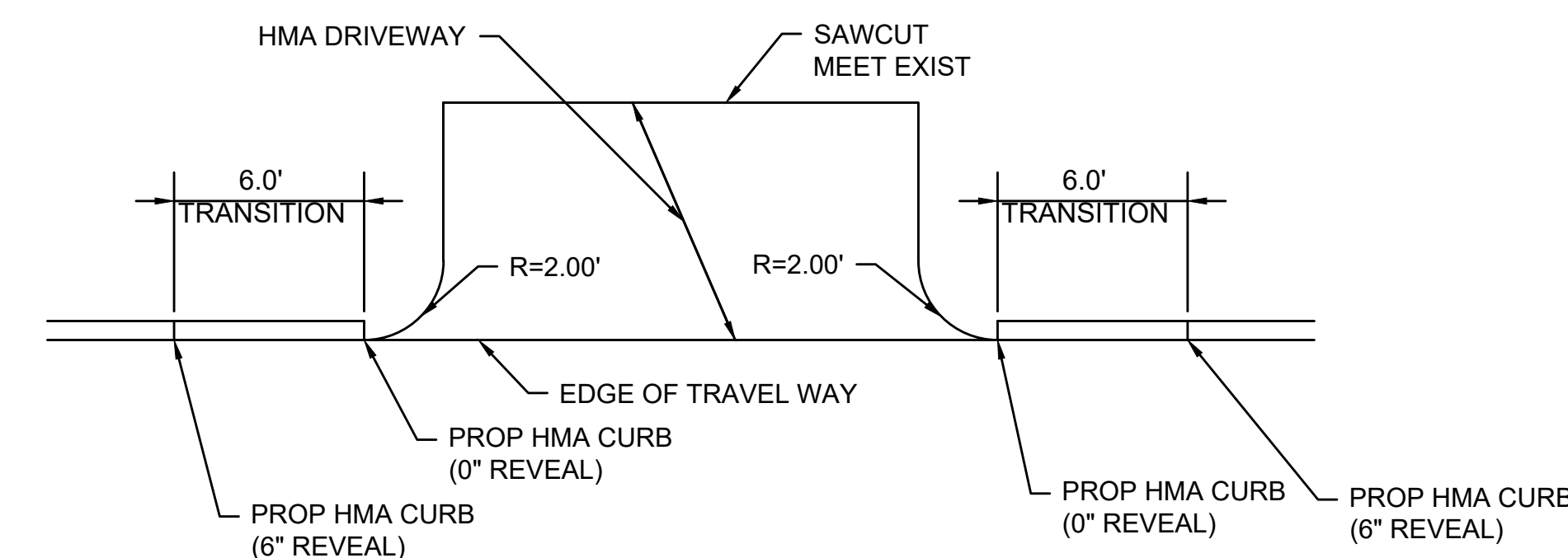
TYPICAL DRIVEWAY SECTION WITHOUT SIDEWALK TYPE II

SCALE: N.T.S.



TYPICAL DRIVEWAY SECTION WITHOUT SIDEWALK TYPE I

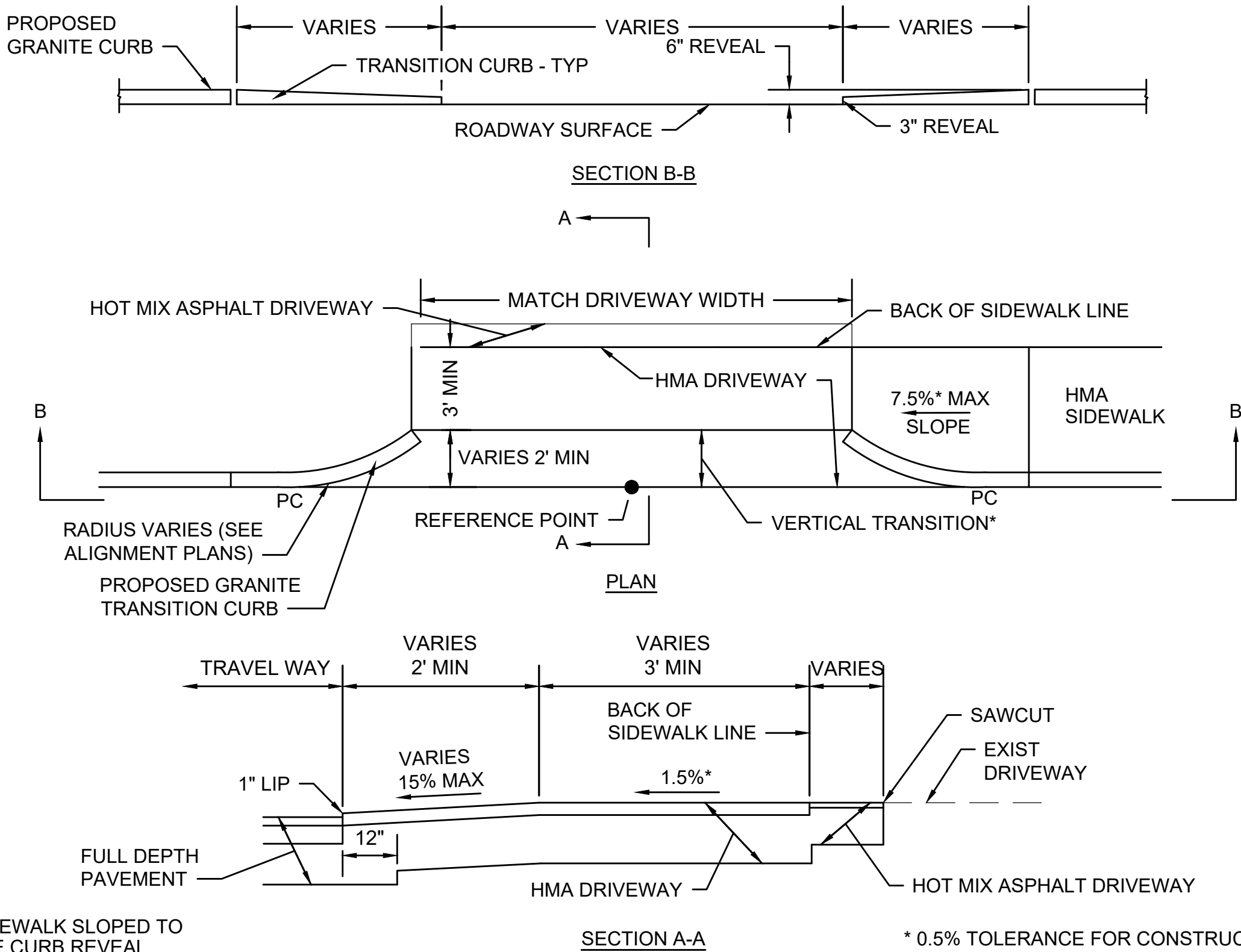
SCALE: N.T.S.



TYPICAL DRIVEWAY SECTION WITHOUT SIDEWALK TYPE I/II PLAN VIEW

SCALE: N.T.S.

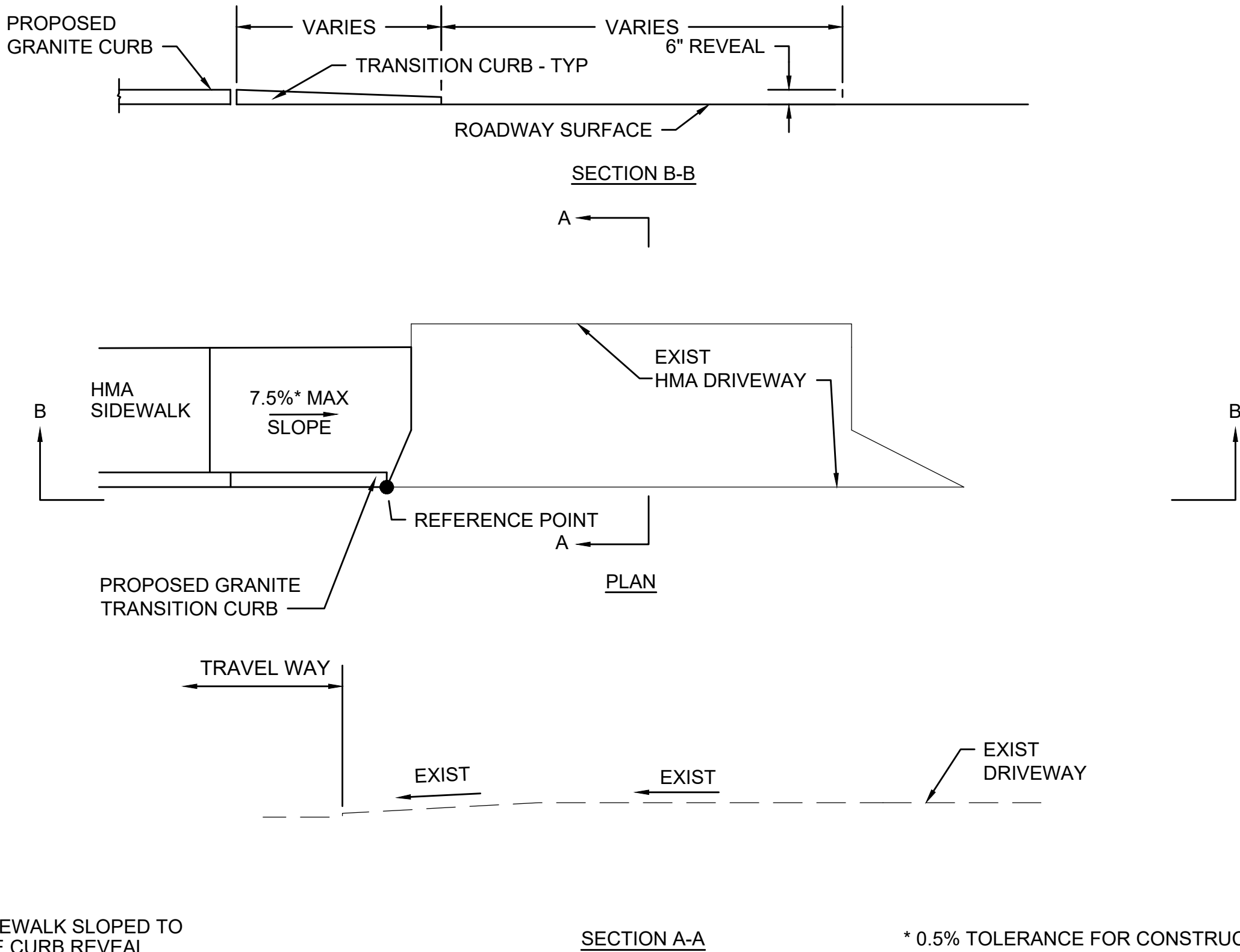
DRIVEWAY DATA						
NO.	LOCATION (REF POINT)	ROADWAY GUTTER	SIDEWALK WIDTH	RIGHT SIDE REVEAL	TRANS	COMMENTS
FLAGG ROAD						
1	702+59.98, 11.8' LT	-5.6%	5'-6"	6"	6'-5"	



TYPICAL DRIVEWAY WITH SIDEWALK AND CURVED TRANSITION CURB - RIGHT SIDE

SCALE: N.T.S.

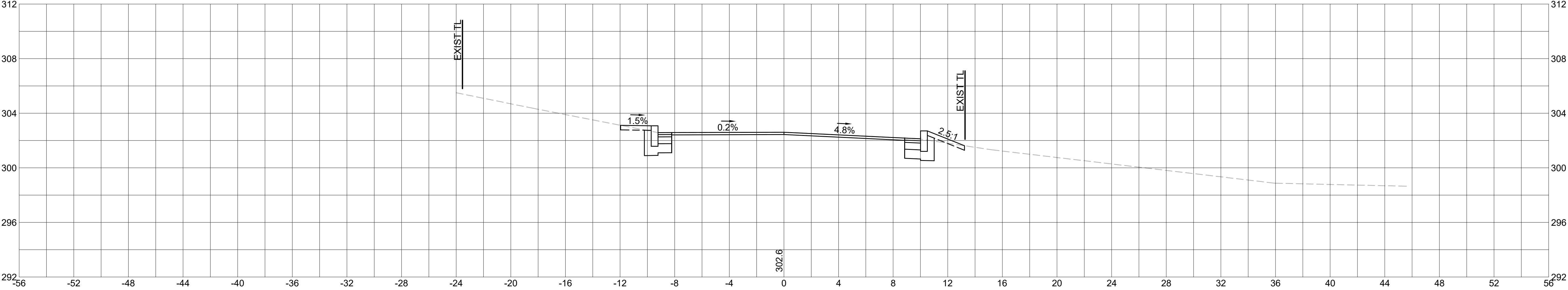
DRIVEWAY DATA						
NO.	LOCATION (REF POINT)	ROADWAY GUTTER	SIDEWALK WIDTH	LEFT SIDE REVEAL	TRANS	COMMENTS
FLAGG ROAD						
3	104+98.04, 14.2' LT	-0.36%	5'-6"	6"	6'-5"	



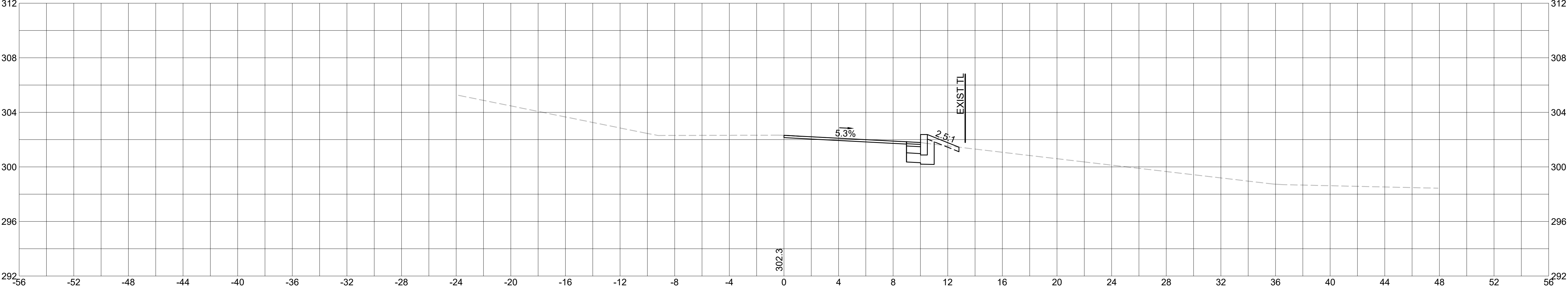
TYPICAL DRIVEWAY WITH SIDEWALK AND CURVED TRANSITION CURB - LEFT SIDE

SCALE: N.T.S.

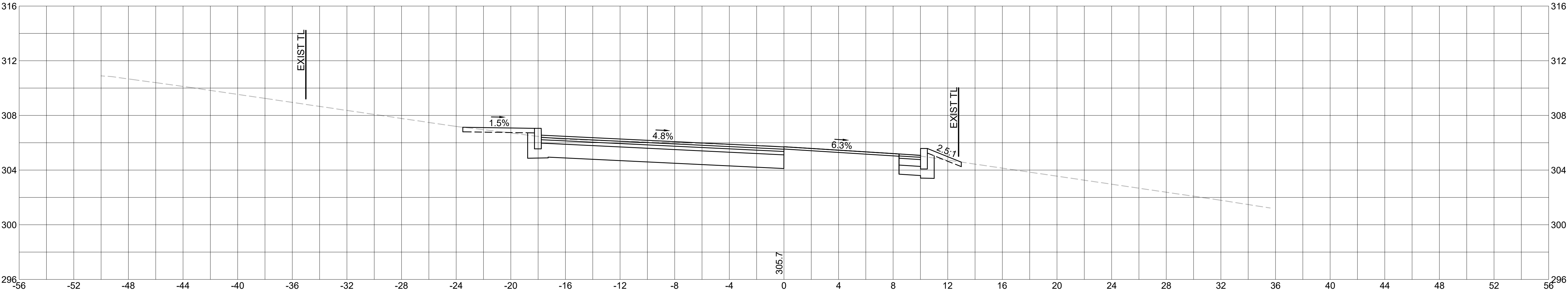
101+25



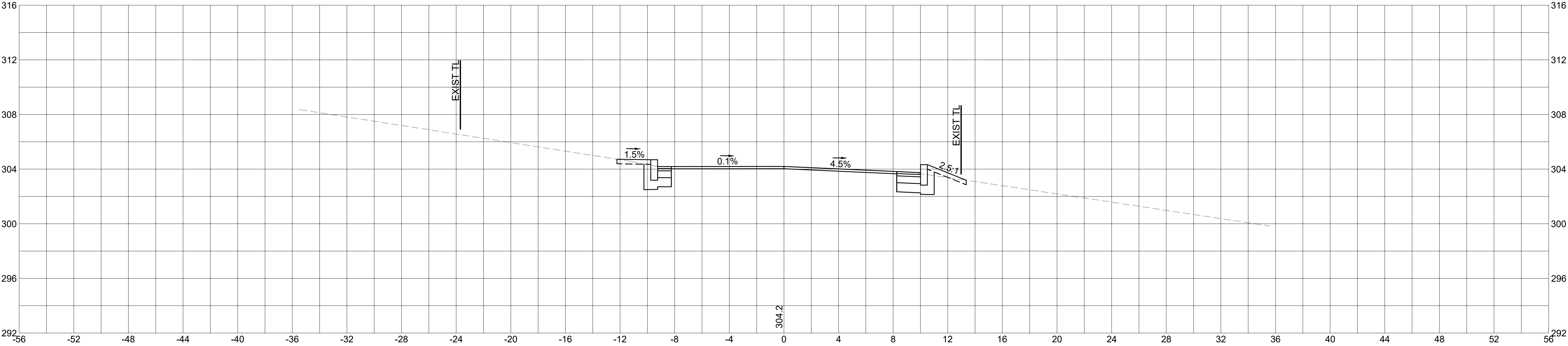
101+20



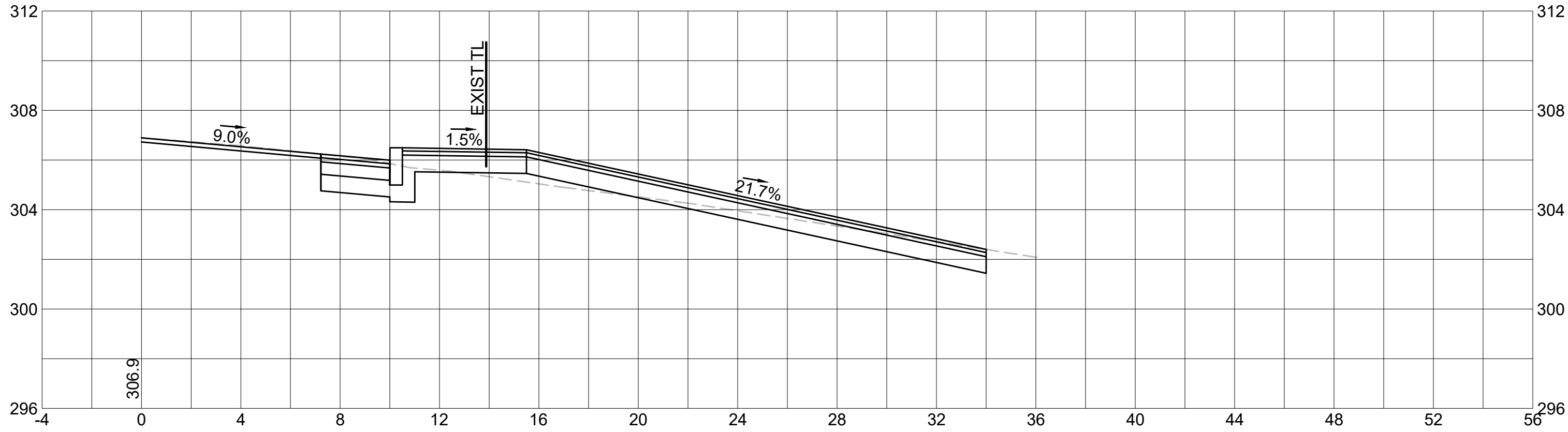
101+75



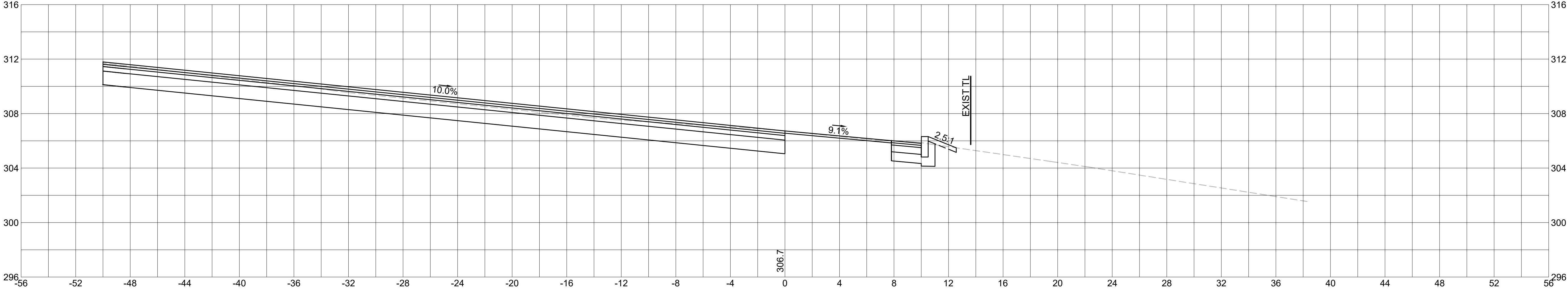
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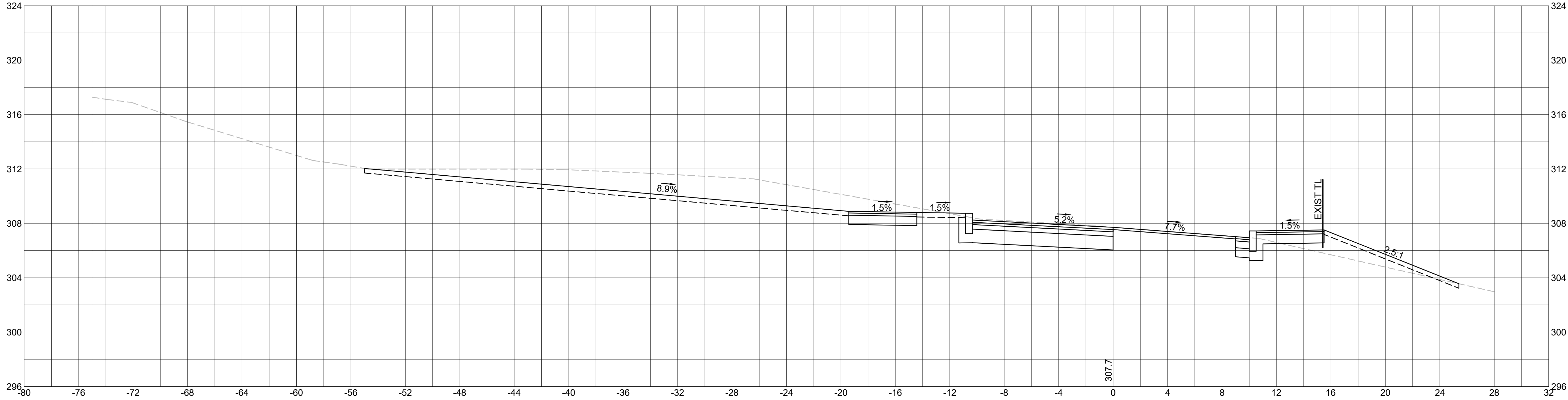
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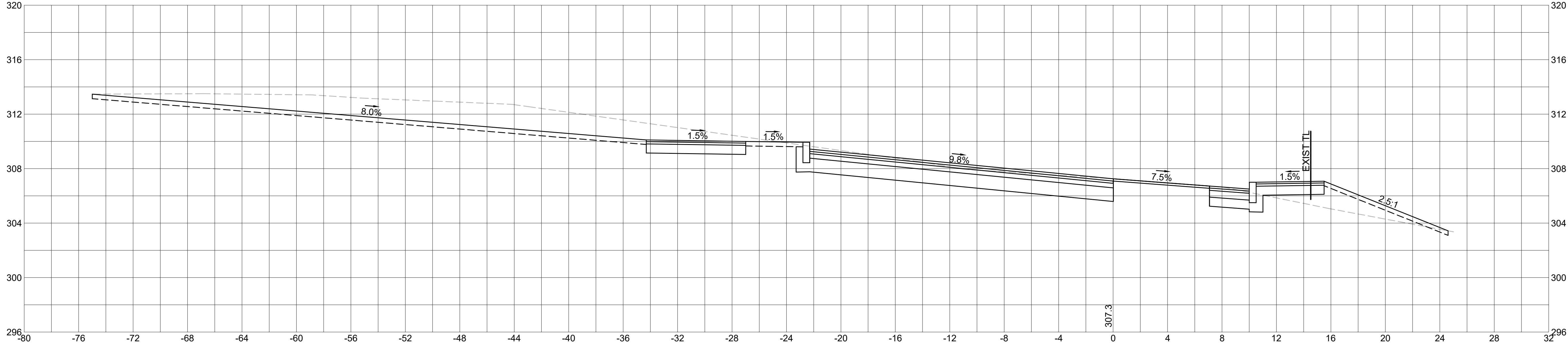
102+00



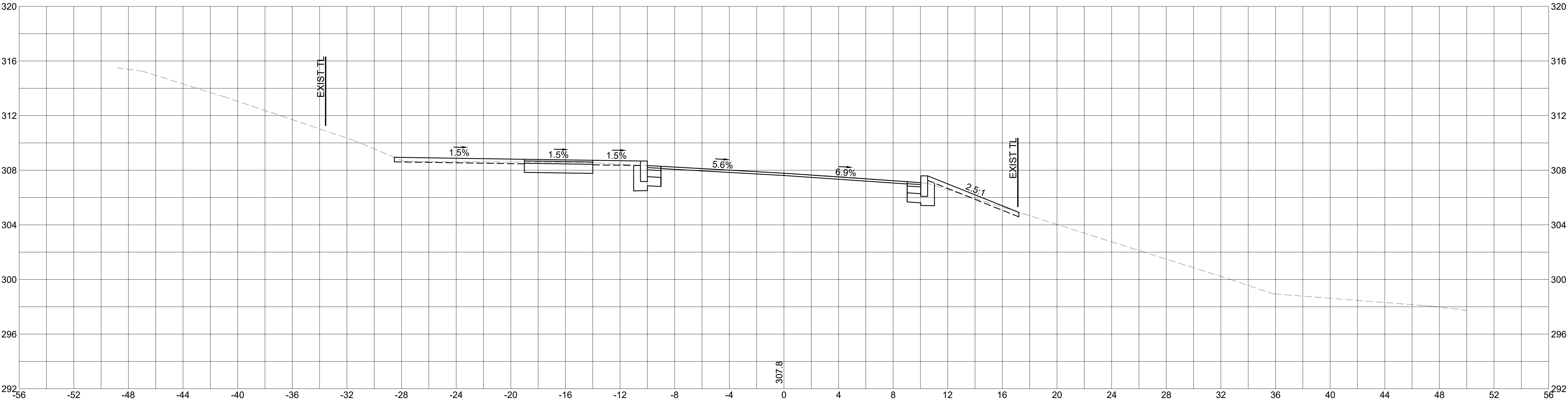
102+50



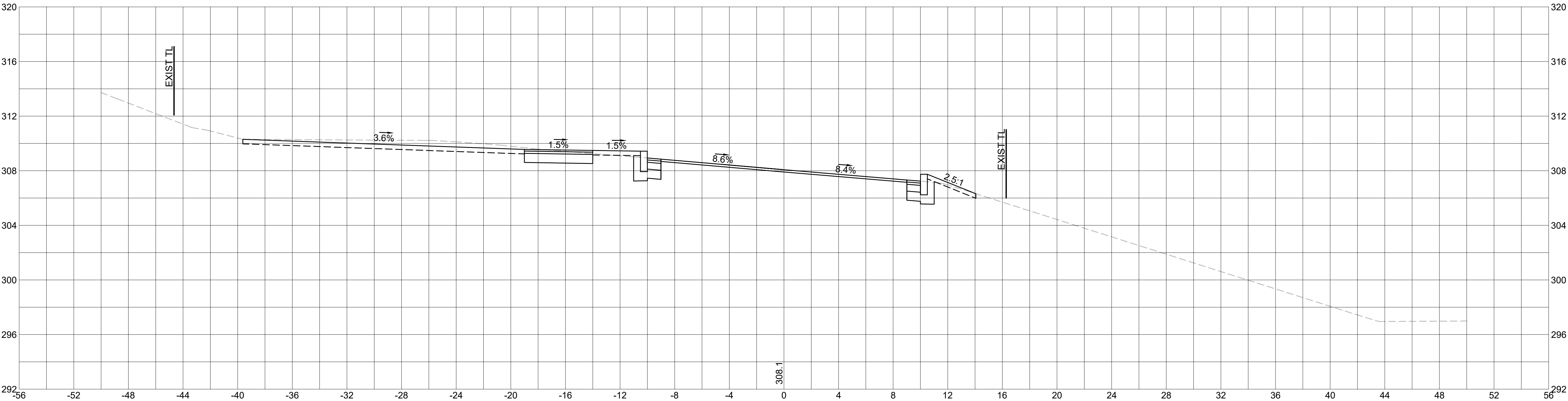
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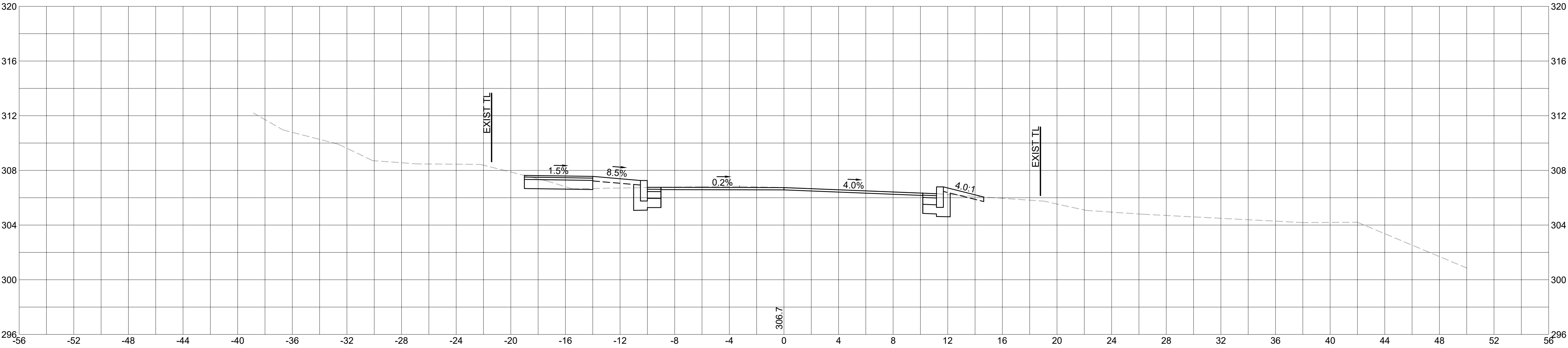
103+00



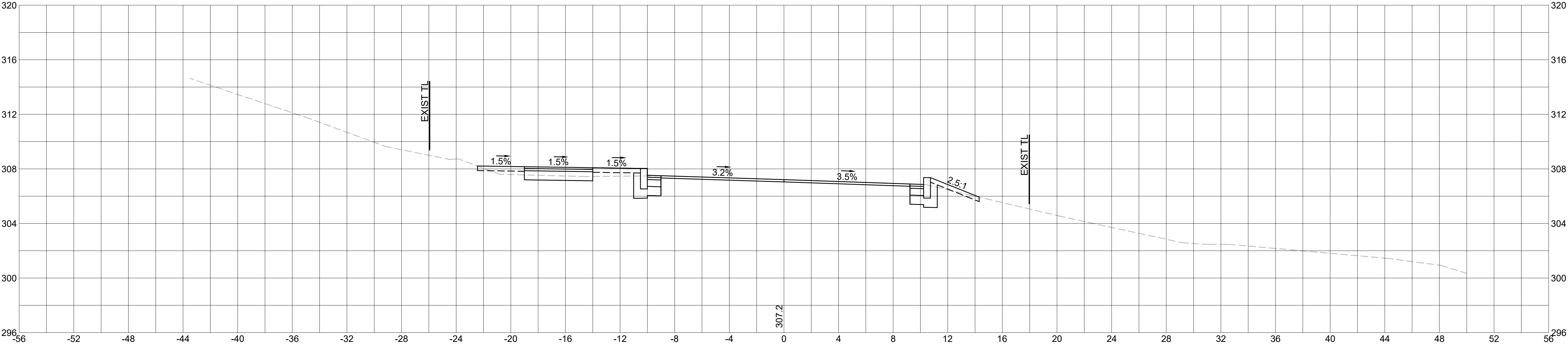
102+75



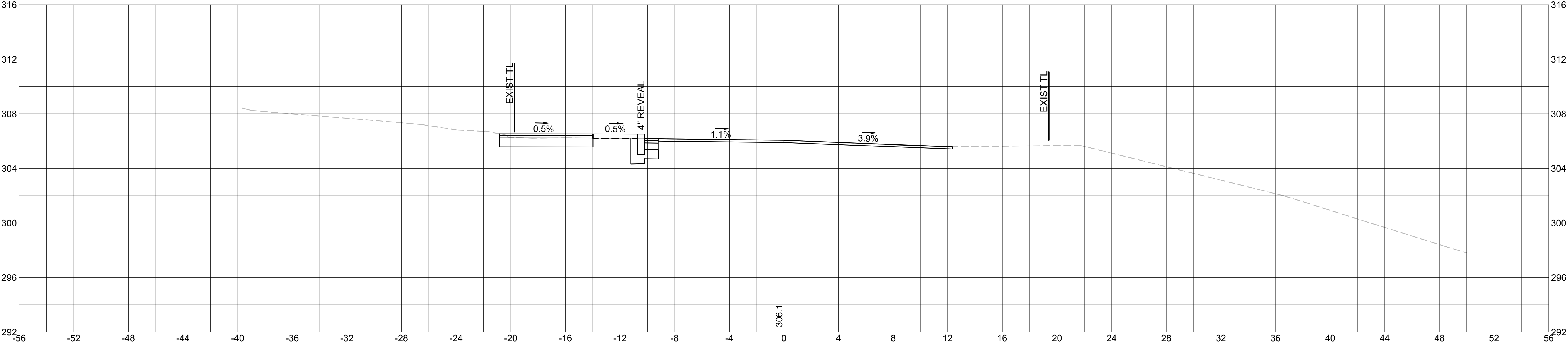
103+50



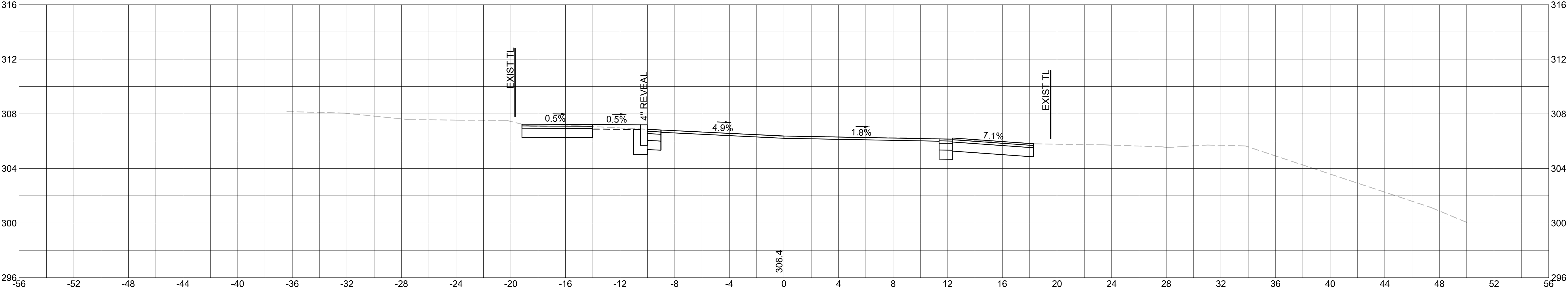
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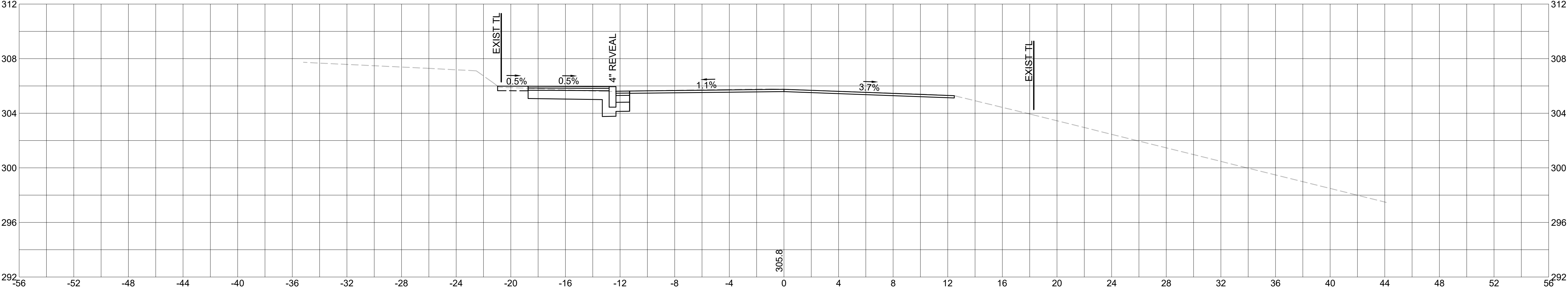
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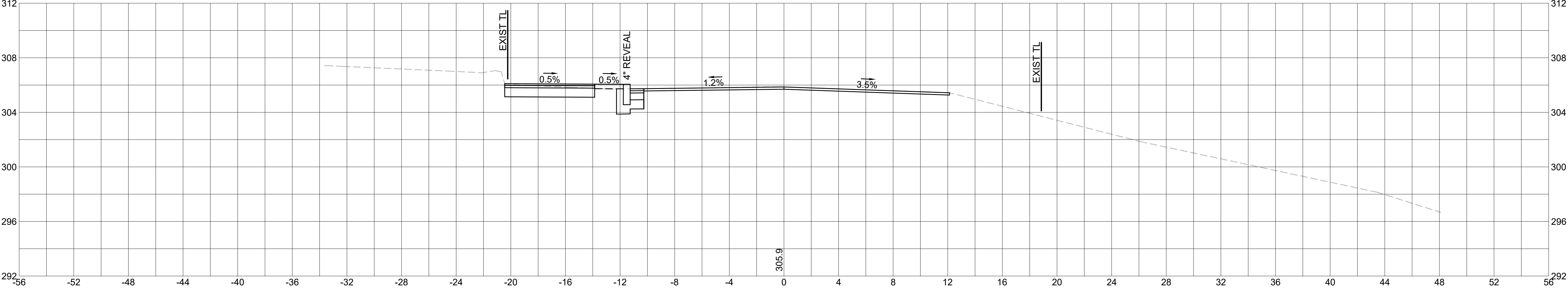
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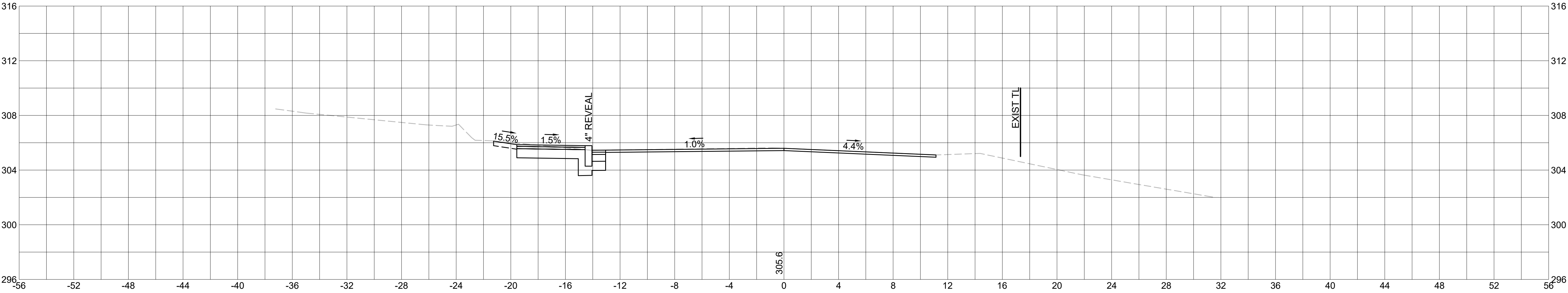
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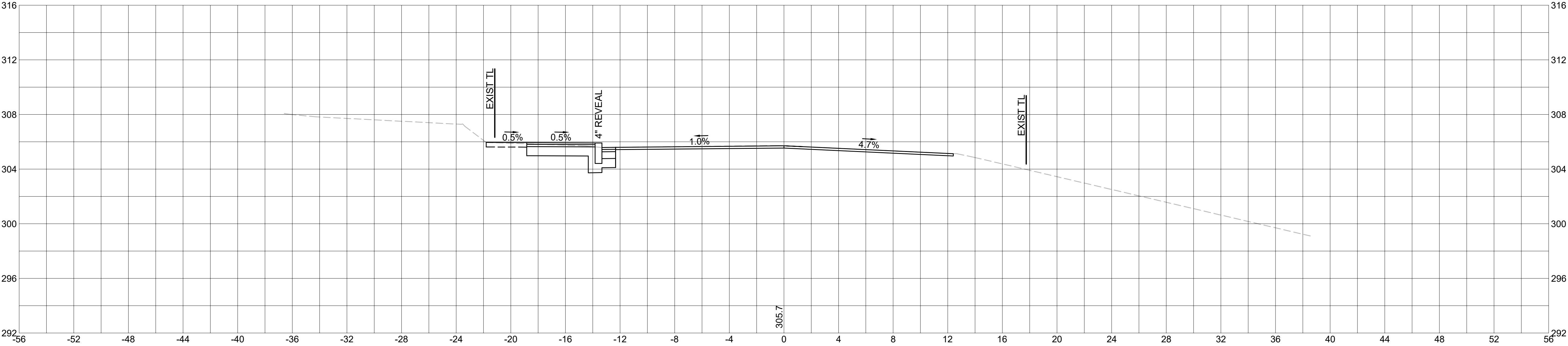
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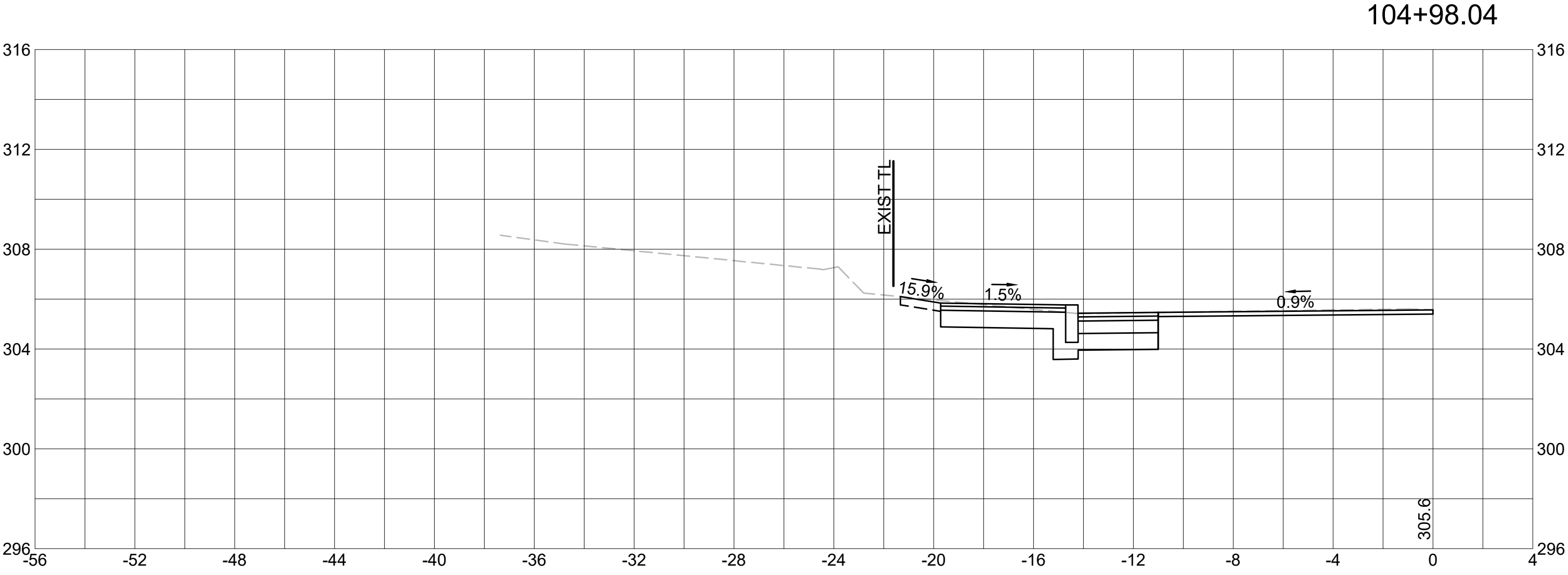


104+94

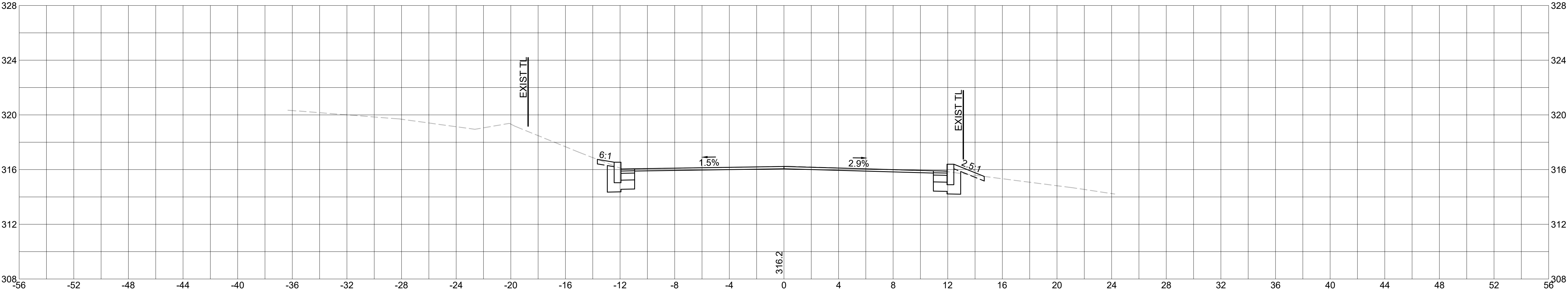


104+75

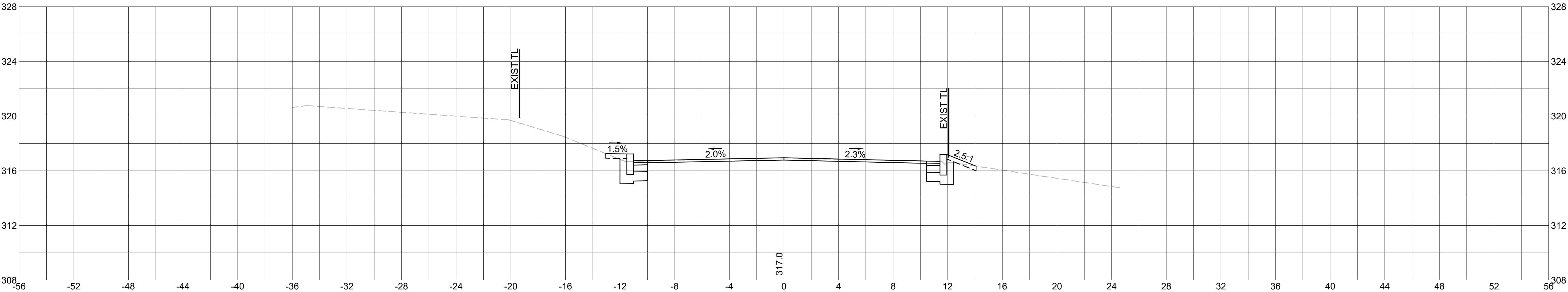




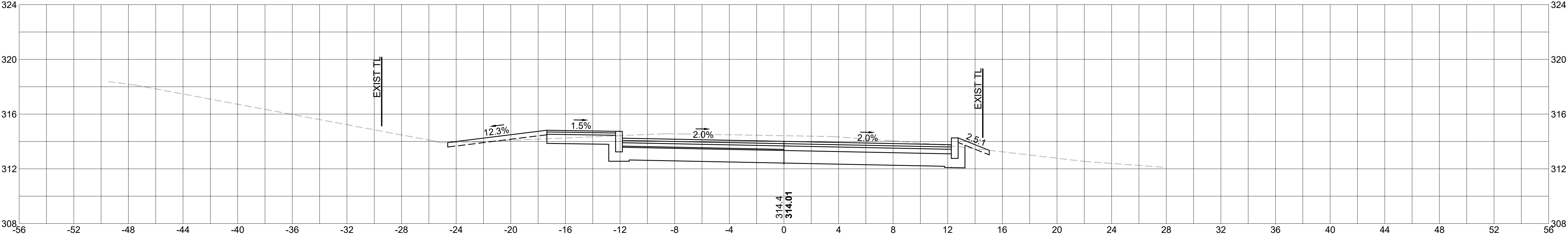
702+25



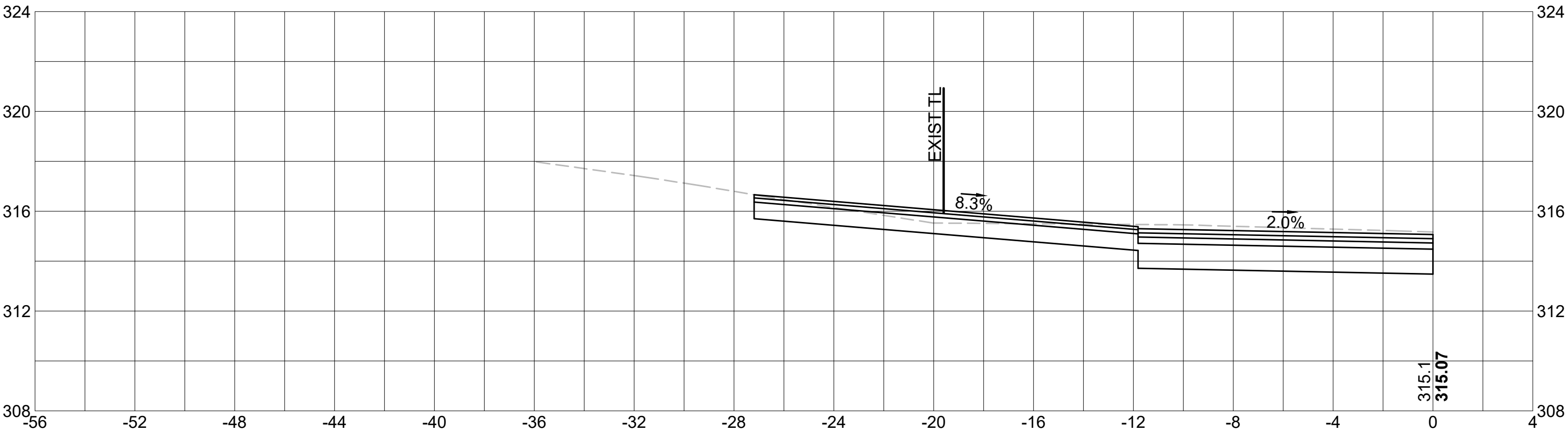
702+00



702+75



702+58



702+50

