

# MASSACHUSETTS DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION

## PLAN AND PROFILE OF MONSON ROAD IMPROVEMENTS

### IN THE TOWN OF WALES HAMPDEN COUNTY

FEDERAL AID PROJECT NO. STP/HSI-0032(043)X

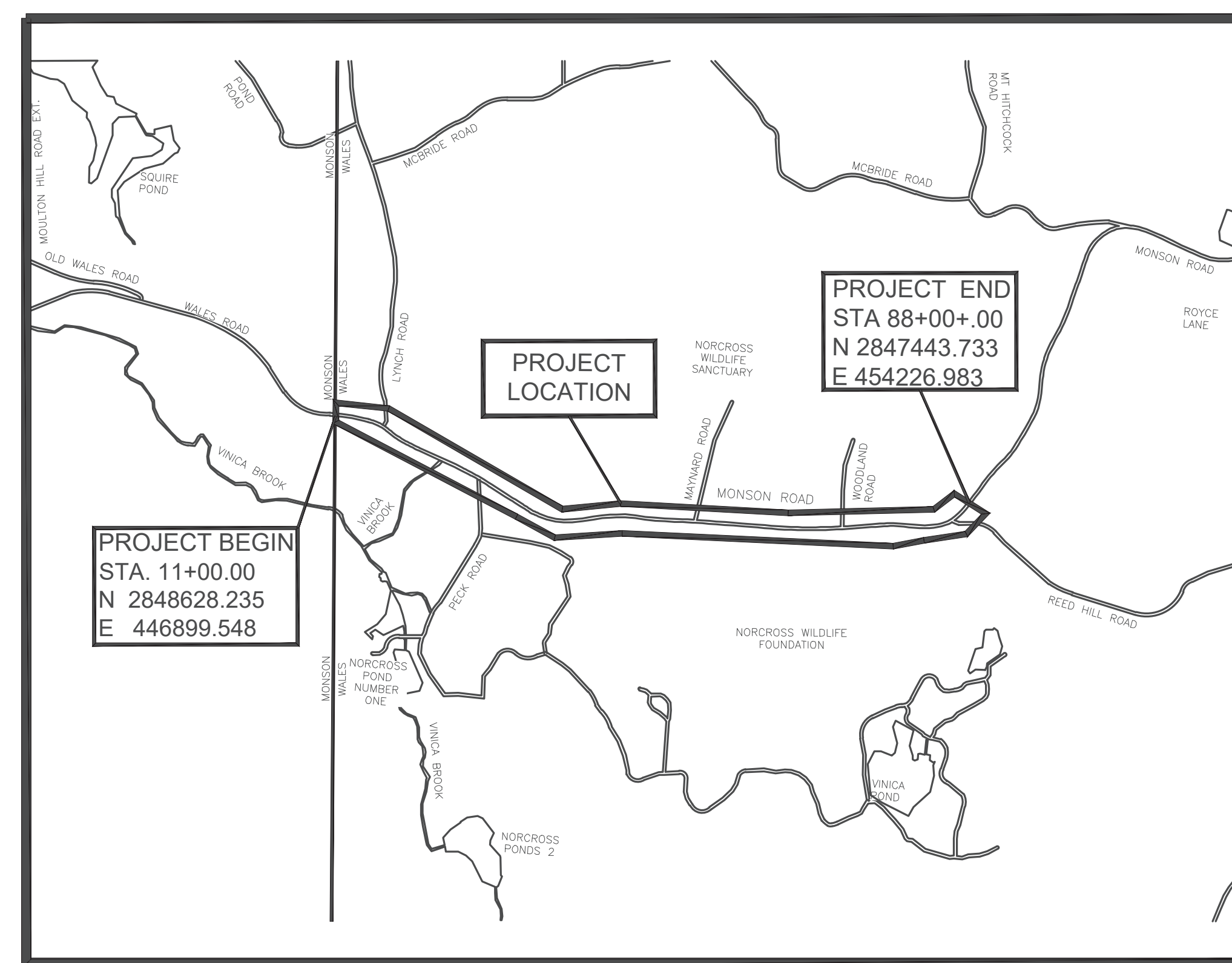
WALES MONSON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	1	182
PROJECT FILE NO.		608163	

TITLE SHEET & INDEX

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.

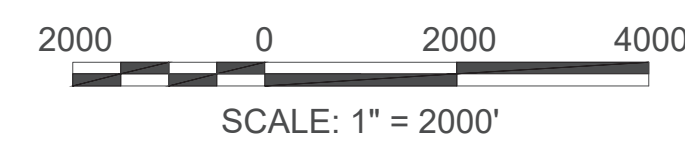
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PROJECT BEGIN  
STA. 11+00.00  
N 2848628.235  
E 446899.548

PROJECT END  
STA 88+00+00  
N 2847443.733  
E 454226.983



LENGTH OF PROJECT = 7700.00 FEET = 1.458 MILES

#### DESIGN DESIGNATION - MONSON ROAD

DESIGN SPEED	40 MPH
ADT (2017)	660
ADT (2025)	760
K	11%
D	52%
T (PEAK HOUR)	3.0%
T (AVERAGE DAY)	3.0%
DHV	85
DDHV	45
FUNCTIONAL CLASSIFICATION	RURAL MAJOR COLLECTOR



Scott Bruso  
Date: 2024.09.26 10:30:10 AM  
APP

**Weston & Sampson**  
712 Brook Street, Suite 103  
Rocky Hill, CT 06067  
860.513.1473  
www.westonandsampson.com



APPROVED  
*Carrie Lavelle* Digitally signed by Carrie Lavelle, P.E.  
Date: 2024.10.09 11:52:27 -0400  
10/09/2024  
CHIEF ENGINEER DATE

**NOTES:**

- BENCH MARK:  
 MAGNAIL U.P.L. LOCATED EAST OF NORTH STREET AT STATION 12+79.94 AND EL. 869'  
 MAGNAIL U.P.L. LOCATED WEST OF NORTH STREET AT STATION 21+37.43 AND EL. 877'  
 MAGNAIL U.P.L. LOCATED WEST OF NORTH STREET AT STATION 29+56.65 AND EL. 900'  
 BRASS RIVET LOCATED WEST OF NORTH STREET AT STATION 29+94.76 AND EL. 902'  
 SPIKE U.P.L. LOCATED WEST OF NORTH STREET AT STATION 38+22.13 AND EL. 938'  
 SPIKE U.P.L. LOCATED WEST OF NORTH STREET AT STATION 47+02.17 AND EL. 934'  
 SPIKE U.P.L. LOCATED WEST OF NORTH STREET AT STATION 56+22.73 AND EL. 957'  
 SPIKE U.P.L. LOCATED WEST OF NORTH STREET AT STATION 65+94.25 AND EL. 1007'  
 SPIKE U.P.L. LOCATED WEST OF NORTH STREET AT STATION 74.95.16 AND EL. 1022'  
 SPIKE U.P.L. LOCATED WEST OF NORTH STREET AT STATION 81+31.62 AND EL. 1006'  
 SPIKE U.P.L. LOCATED WEST OF NORTH STREET AT STATION 87+05.97 AND EL. 1008'  
 BRASS RIVET LOCATED WEST OF NORTH STREET AT STATION 87+15.35 AND EL. 1001'

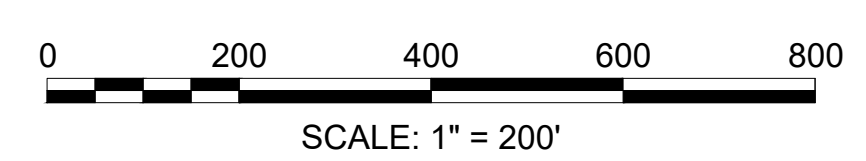
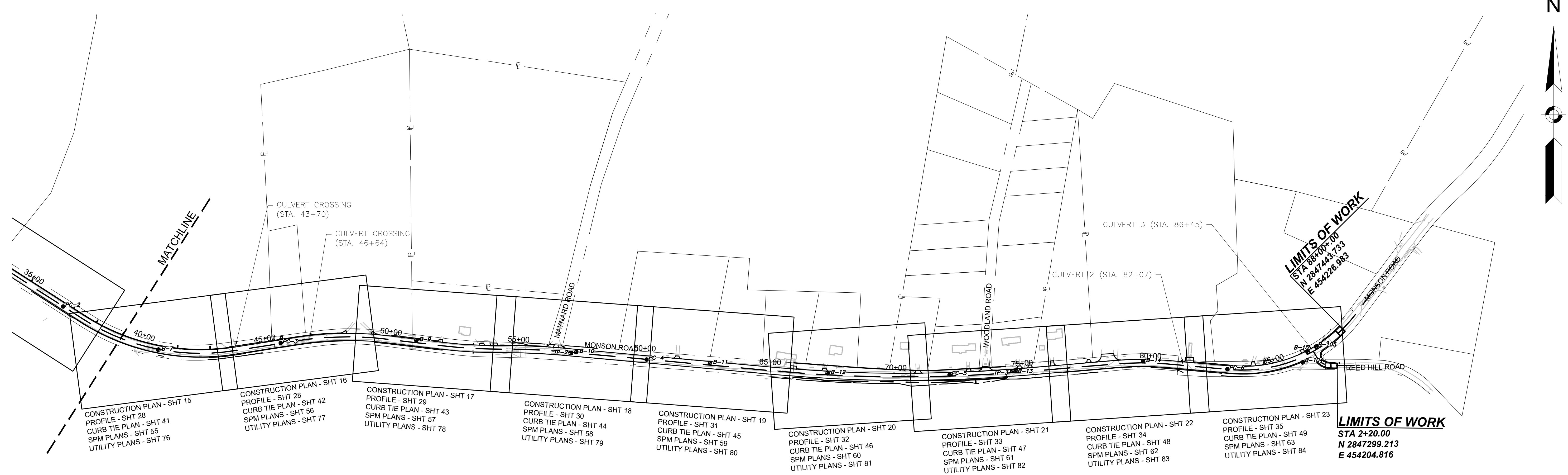
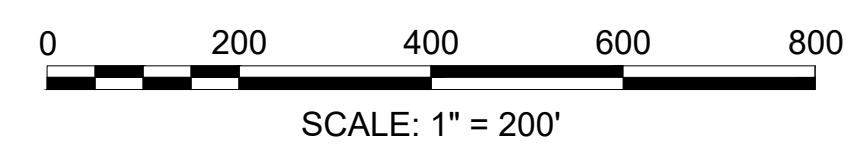
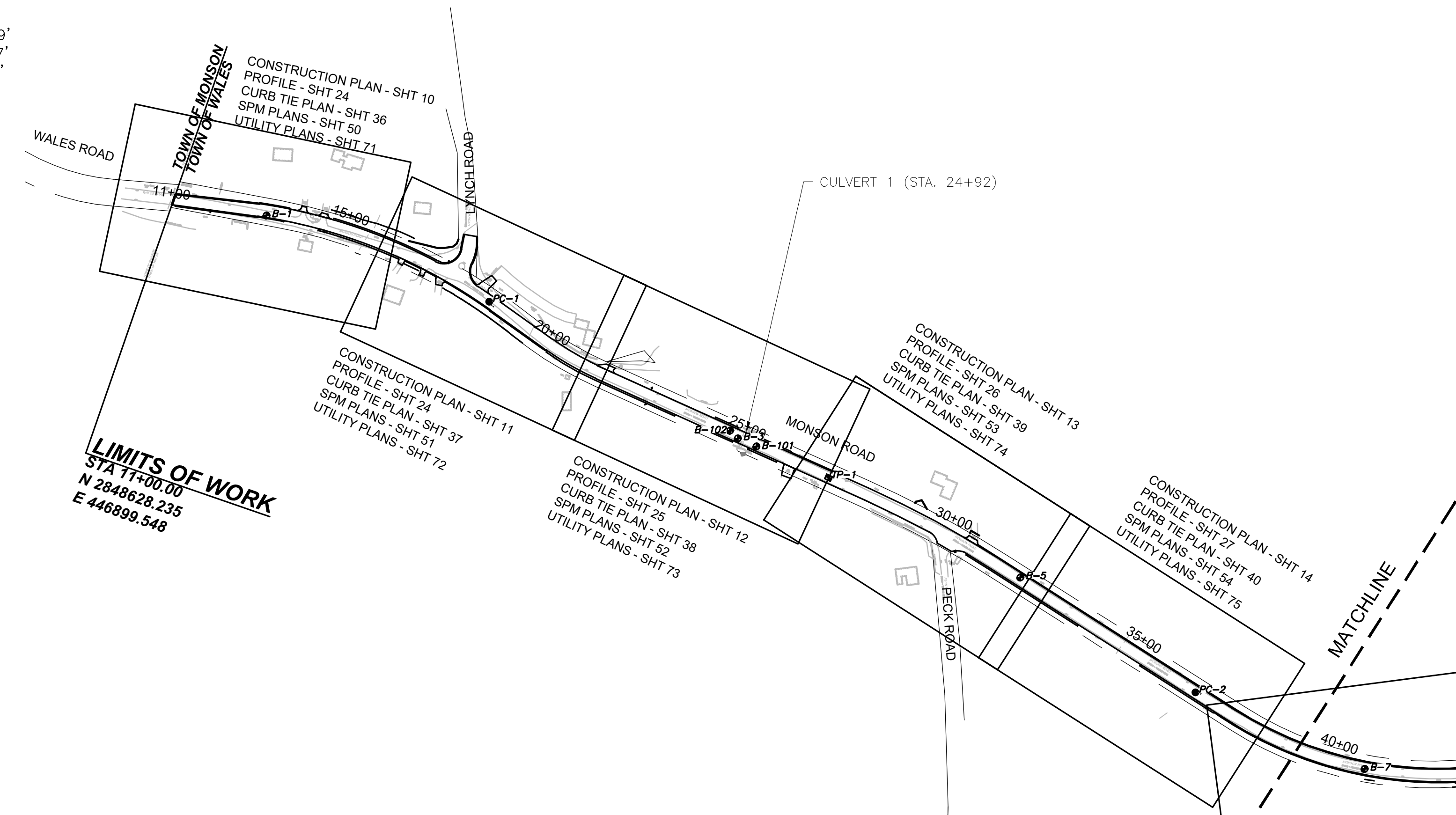
**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(04)X	2	182
PROJECT FILE NO.		608163	

**KEY PLAN**

**BORING LOCATIONS (FEET)**

BORING	NORTHING	EASTING	STATION	OFFSET	SURFACE EL.	H.B.E.
B-1	2,848,584	447,074	12+80	22.4 RT	868.0	861.5
B-3	2,848,121	448,154	24+56	10.0 LT	877.0	865.2
B-5	2,847,789	448,792	31+89	10.8 LT	902.0	897.5
B-7	2,847,423	449,318	38+27	18.1 RT	941.0	937.0
B-9	2,847,397	450,584	51+05	9.6 LT	933.0	916.5
B-10	2,847,355	451,197	57+19	6.7 LT	956.0	951.5
B-11	2,847,315	451,727	62+51	14.1 LT	989.0	984.5
B-12	2,847,272	452,354	68+80	16.0 LT	1011.0	1007.0
B-13	2,847,294	452,969	74+98	19.4 LT	1019.0	1014.5
B-14	2,847,322	453,443	79+72	12.1 LT	1009.0	1004.5
B-15	2,847,355	454,092	86+37	9.1 LT	1002.0	999.1
B-101	2,848,098	448,155	24+80	4.2 RT	877.1	861.9
B-102	2,848,103	448,186	25+06	12.85 LT	877.5	849.0
B-104	2,847,316	454,080	86+09	20.6 RT	1002.4	974.4
B-105	2,847,367	454,110	85+59	11.0 RT	1001.8	987.7





**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
		EROSION AND SEDIMENT CONTROL BARRIER
		TREE LINE
		LIMITS OF CLEARING AND GRUBBING
		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 AREA BUFFER
		STATE HIGHWAY LAYOUT
		TOWN OR CITY LAYOUT
		COUNTY LAYOUT
		RAILROAD SIDELINE
		TOWN OR CITY BOUNDARY LINE
		PROPERTY LINE OR APPROXIMATE PROPERTY LINE
		EASEMENT
		SIGN AND POST
		SIGN AND DOUBLE POST

**ABBREVIATIONS**

GENERAL	DESCRIPTION
AADT	ANNUAL AVERAGE DAILY TRAFFIC
ABAN	ABANDON
ADJ	ADJUST
APPROX.	APPROXIMATE
A.C.	ASPHALT CONCRETE
ACCM PIPE	ASPHALT COATED CORRUGATED METAL PIPE
BIT.	BITUMINOUS
BC	BOTTOM OF CURB
BD.	BOUND
BL	BASELINE
BLDG	BUILDING
BM	BENCHMARK
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
BR.	BRIDGE
CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CBCI-DB	DOUBLE GRATE CATCH BASIN W/ CURB INLET
CC	CEMENT CONCRETE
CCM	CEMENT CONCRETE MASONRY
CEM	CEMENT
CI	CURB INLET
CIP	CAST IRON PIPE
CLF	CHAIN LINK FENCE
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CSP	CORRUGATED STEEL PIPE
CO.	COUNTY
CONC	CONCRETE
CONT	CONTINUOUS
CONST	CONSTRUCTION
CR GR	CROWN GRADE
DHV	DESIGN HOURLY VOLUME
DI	DROP INLET
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DW	STEADY DON'T WALK - PORTLAND ORANGE
DWY	DRIVEWAY
ELEV (or EL.)	ELEVATION
EMB	EMBANKMENT
EOP	EDGE OF PAVEMENT
EXIST (or EX)	EXISTING
EXC	EXCAVATION
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
FDN.	FOUNDATION
FLDSTN	FIELDSTONE
GAR	GARAGE
GD	GROUND
GG	GAS GATE
GI	GUTTER INLET
GIP	GALVANIZED IRON PIPE
GRAN	GRANITE
GRAV	GRAVEL
GRD	GUARD
HDW	HEADWALL
HMA	HOT MIX ASPHALT
HOR	HORIZONTAL
HYD	HYDRANT
INV	INVERT
JCT	JUNCTION
L	LENGTH OF CURVE
LB	LEACH BASIN

**ABBREVIATIONS (cont.)**

GENERAL	DESCRIPTION
LP	LIGHT POLE
LT	LEFT
MAX	MAXIMUM
MB	MAILBOX
MH	MANHOLE
MHB	MASSACHUSETTS HIGHWAY BOUND
MIN	MINIMUM
NIC	NOT IN CONTRACT
NO.	NUMBER
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
PCR	PEDESTRIAN CURB RAMP
P.G.L.	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
POC	POINT ON CURVE
POT	POINT OF TANGENCY
PRC	POINT OF REVERSE CURVATURE
PROJ	PROJECT
PROP	PROPOSED
PSB	PLANTABLE SOIL BORROW
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PVMT	PAVEMENT
PWW	PAVED WATER WAY
R	RADIUS OF CURVATURE
R&D	REMOVE AND DISPOSE
RCCE	REINFORCED CONCRETE CULVERT END
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RDWY	ROADWAY
REM	REMOVE
RET	RETAIN
RET WALL	RETAINING WALL
ROW	RIGHT OF WAY
RR	RAILROAD
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
RT	RIGHT
SB	STONE BOUND
SHLD	SHOULDER
SMH	SEWER MANHOLE
ST	STREET
STA	STA
SSD	STOPPING SIGHT DISTANCE
SHLO	STATE HIGHWAY LAYOUT LINE
SW	SIDEWALK
SWTU	STORMWATER TREATMENT UNIT
T	TANGENT DISTANCE OF CURVE/TRUCK %
TAN	TANGENT
TEMP	TEMPORARY
TC	TOP OF CURB
TOS	TOP OF SLOPE
TYP	TYPICAL
UP	UTILITY POLE
VAR	VARIES
VERT	VERTICAL
VC	VERTICAL CURVE
WG	WATER GATE
WIP	WROUGHT IRON PIPE
WM	WATER METER/WATER MAIN
X-SECT	CROSS SECTION

**PAVEMENT MARKINGS SYMBOLS**

EXISTING	PROPOSED	DESCRIPTION
		12"-WIDE STOP LINE
		6"-WIDE SOLID WHITE LINE
		DOUBLE YELLOW LINE (2 - 6"-WIDE YELLOW LINES)

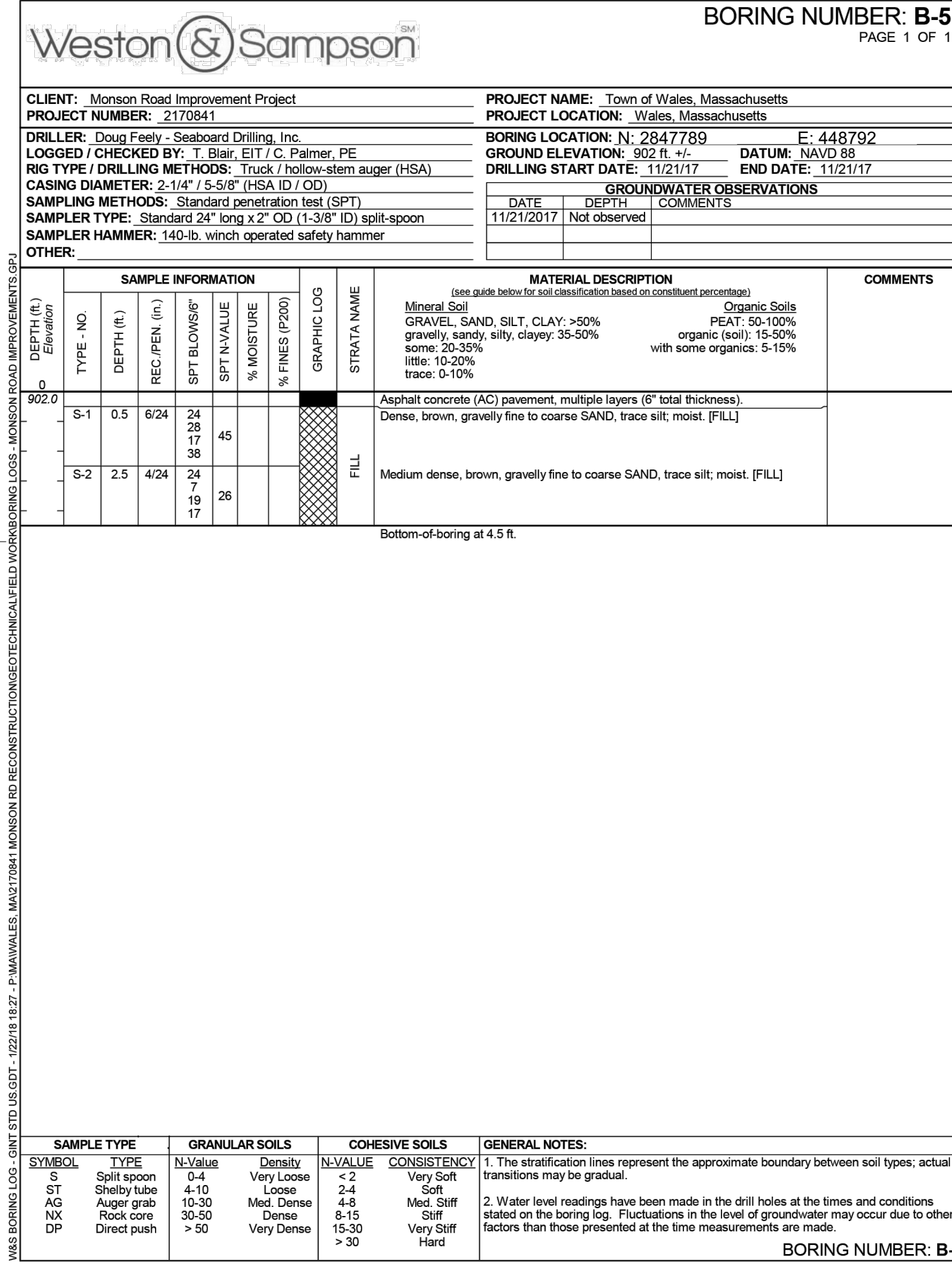
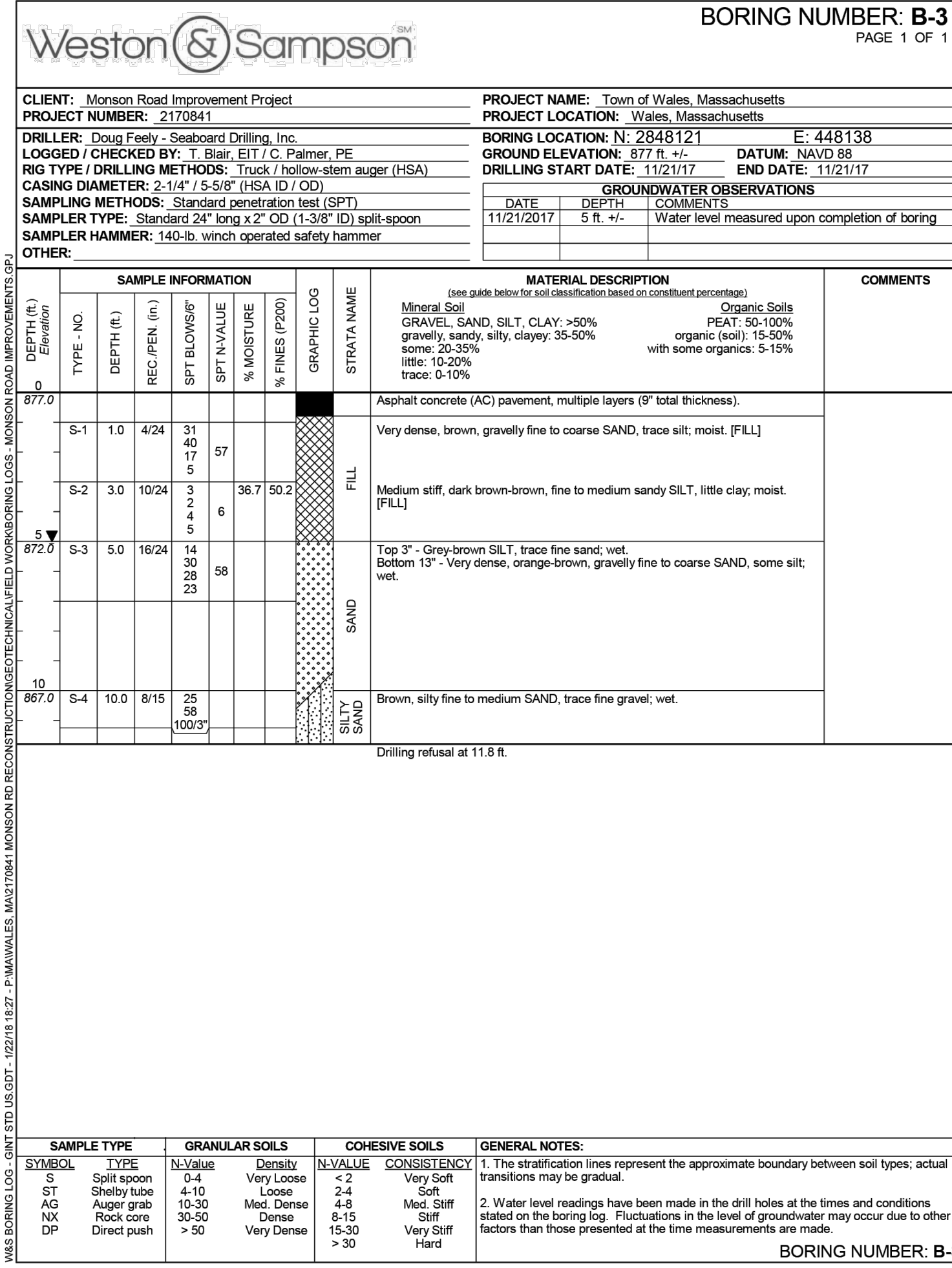
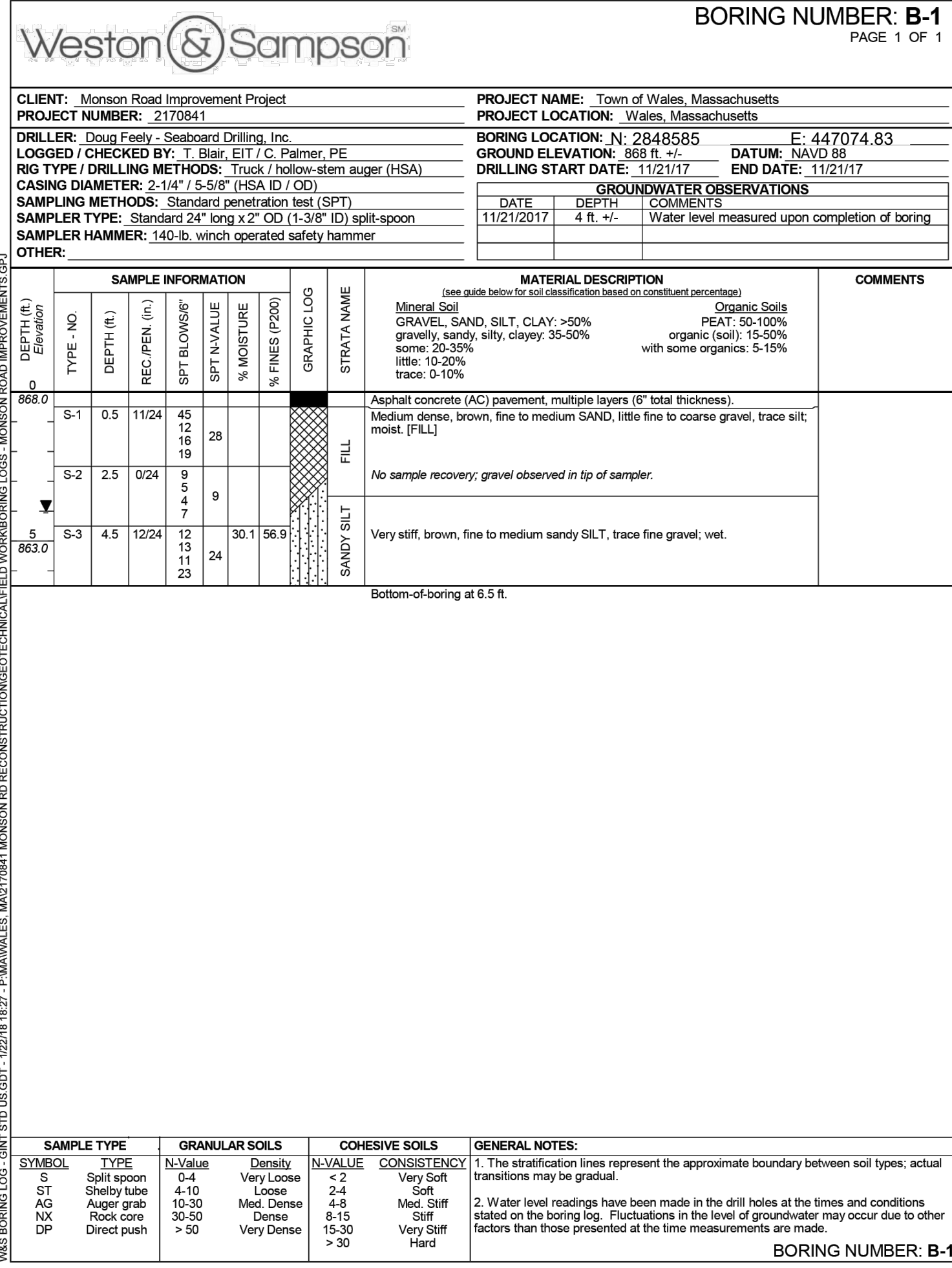
**WALES MONSON ROAD**

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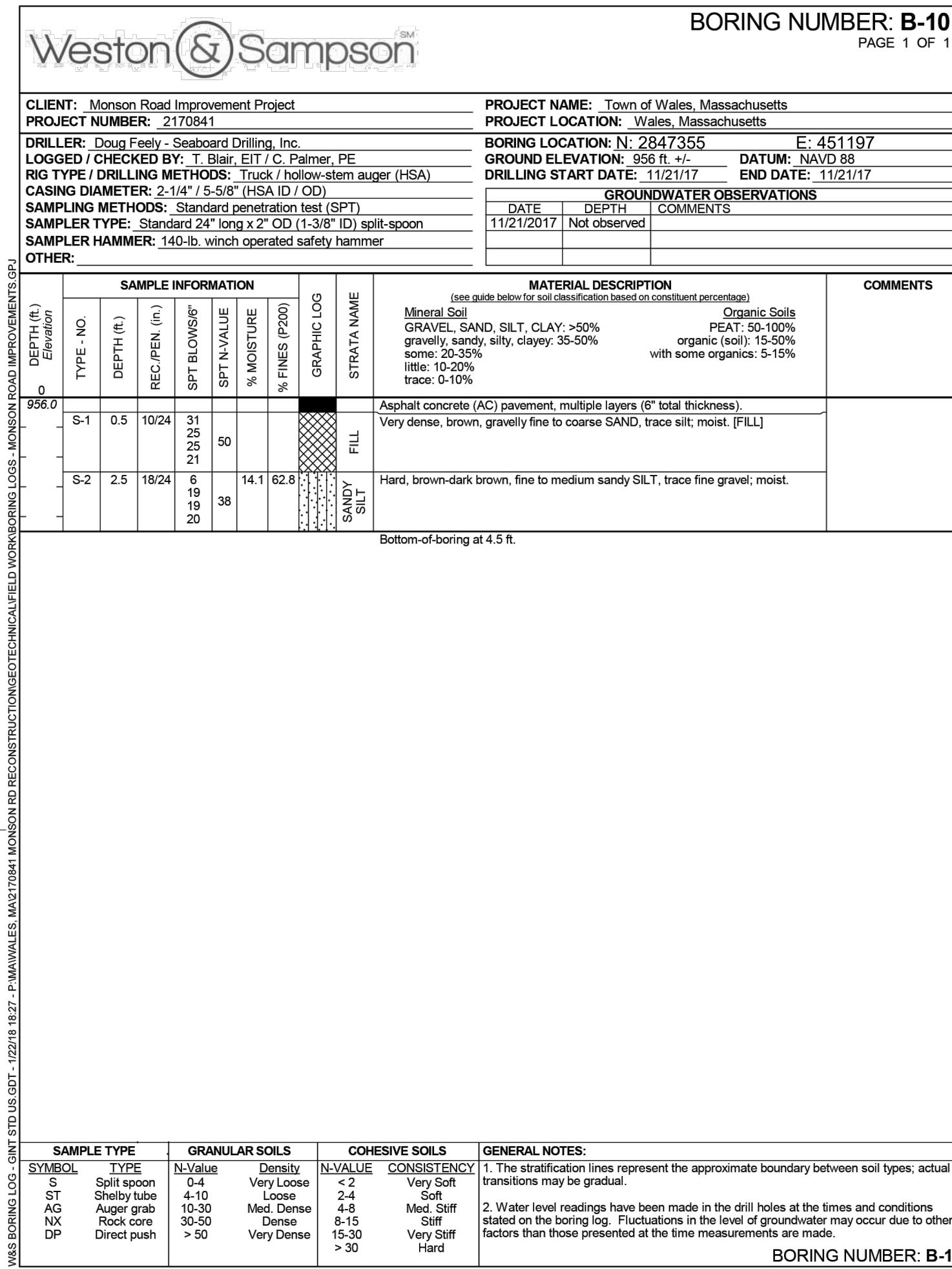
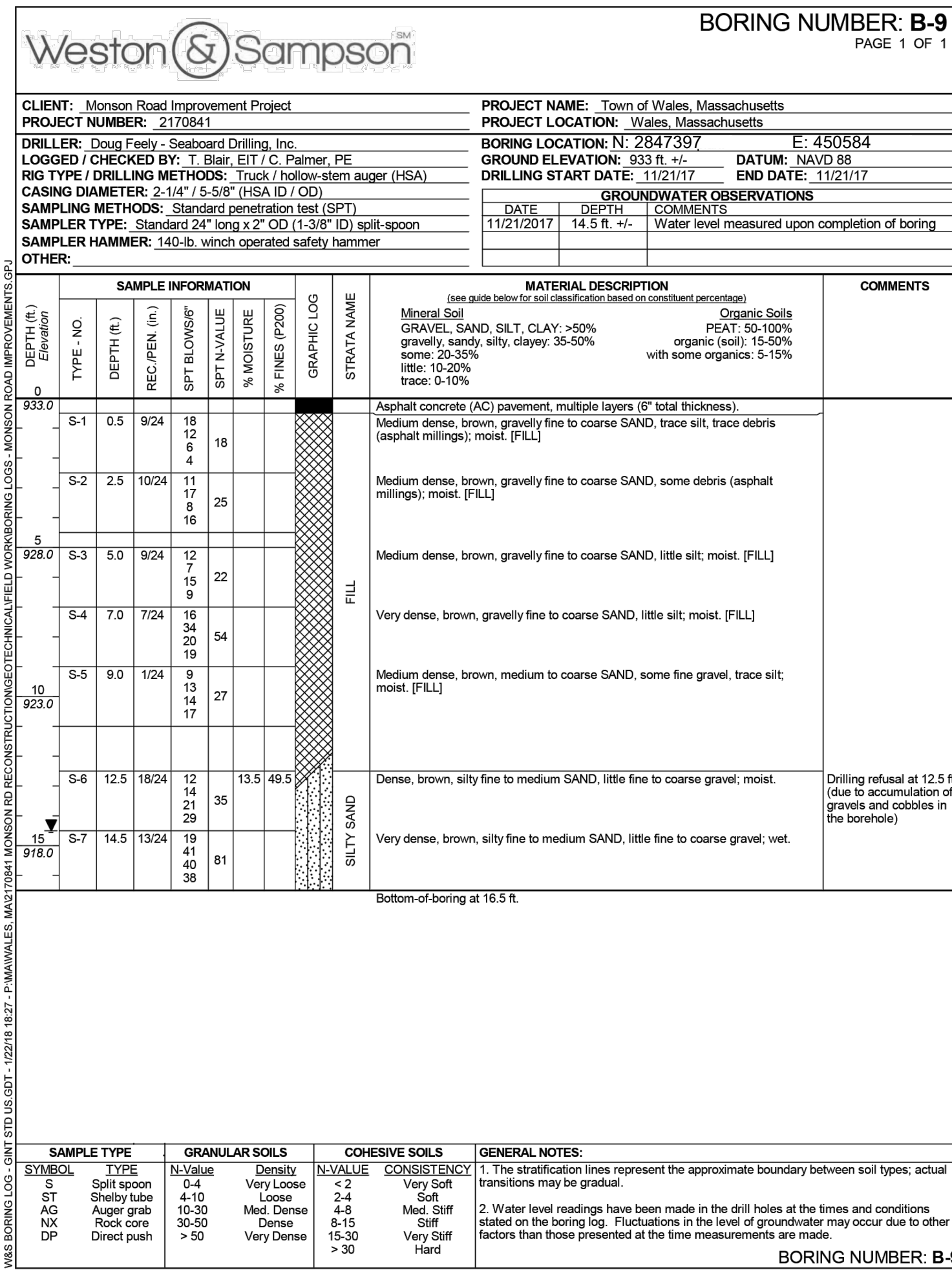
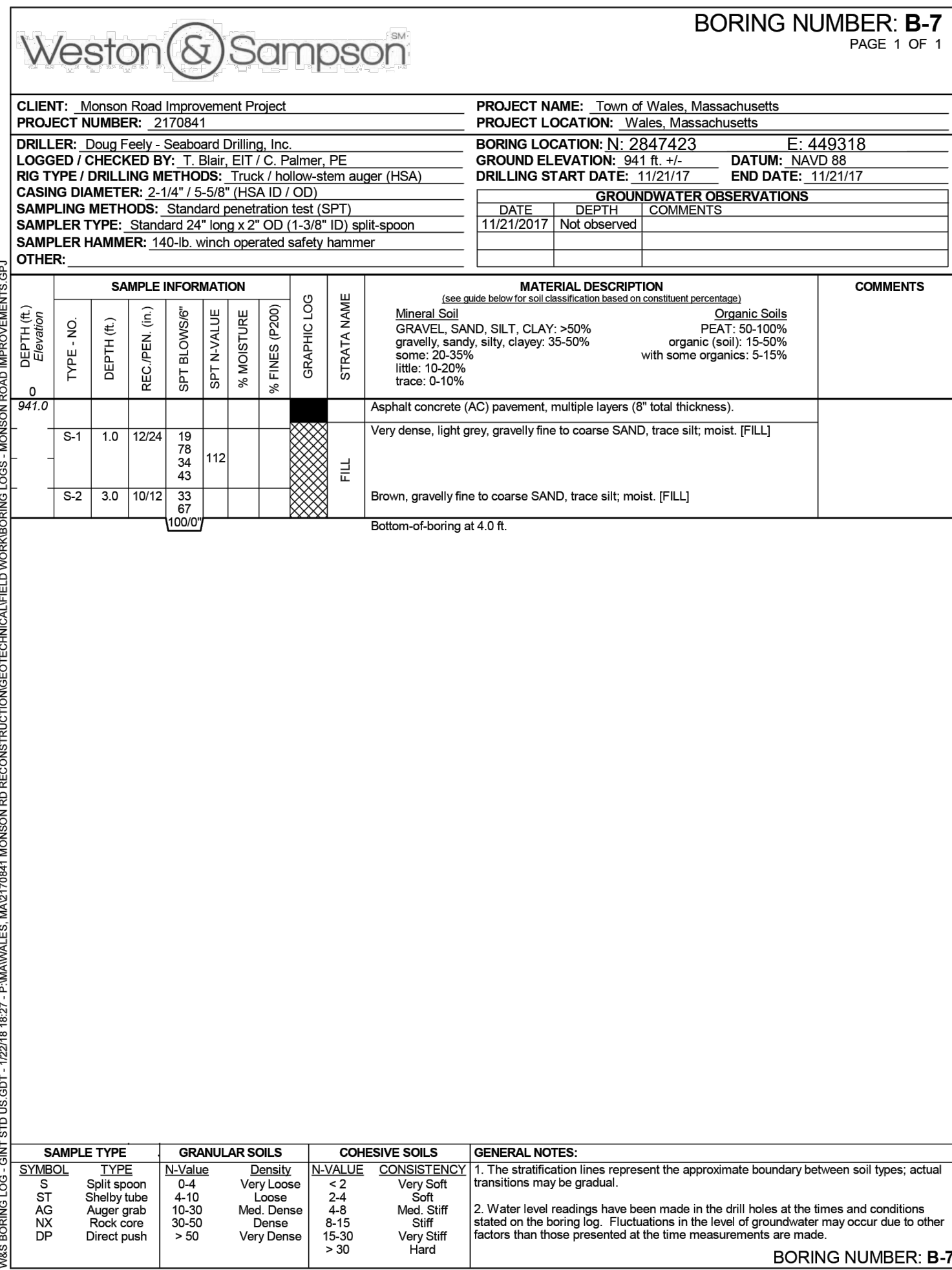
**LEGEND, ABBREVIATIONS & GENERAL NOTES**

**GENERAL NOTES:**

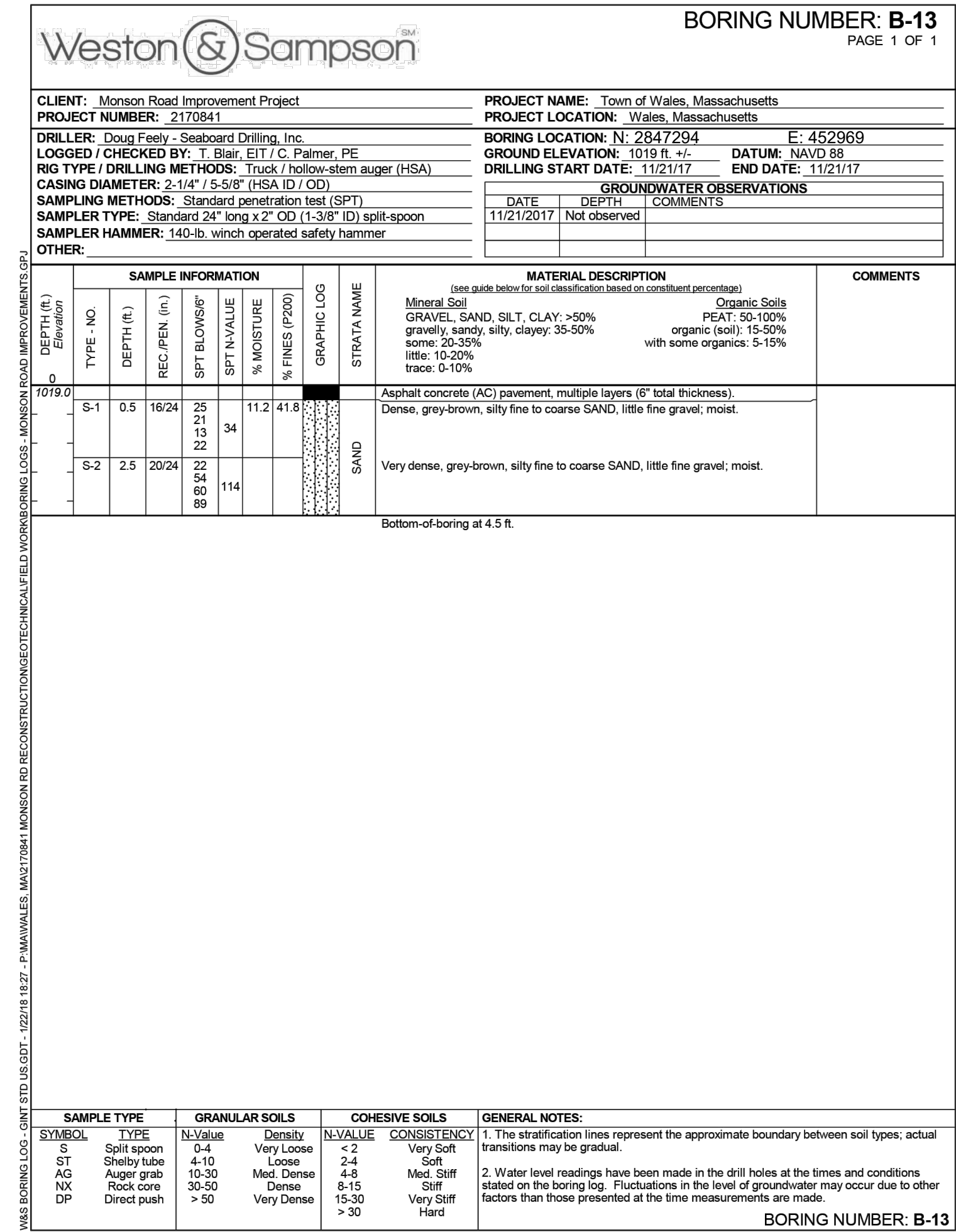
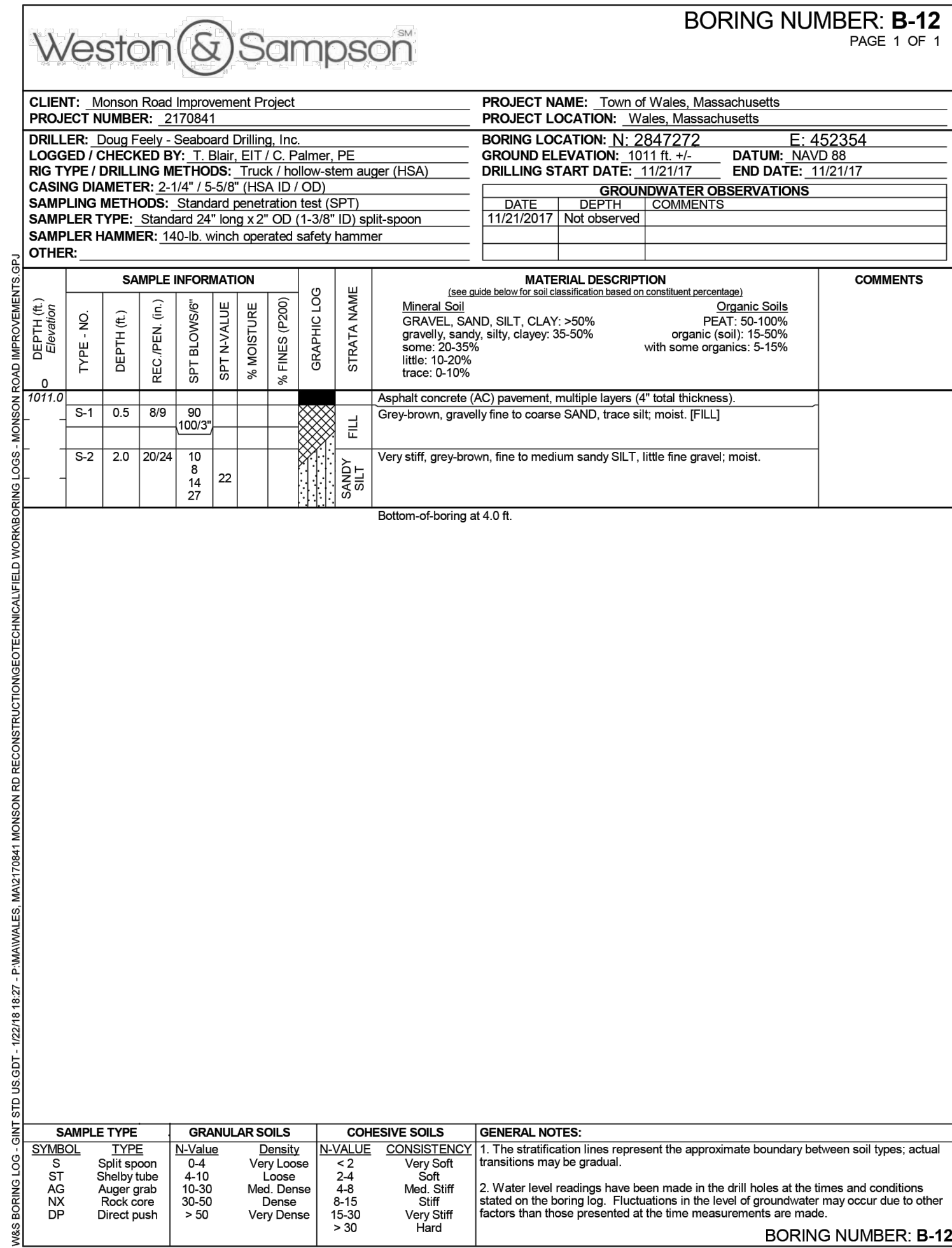
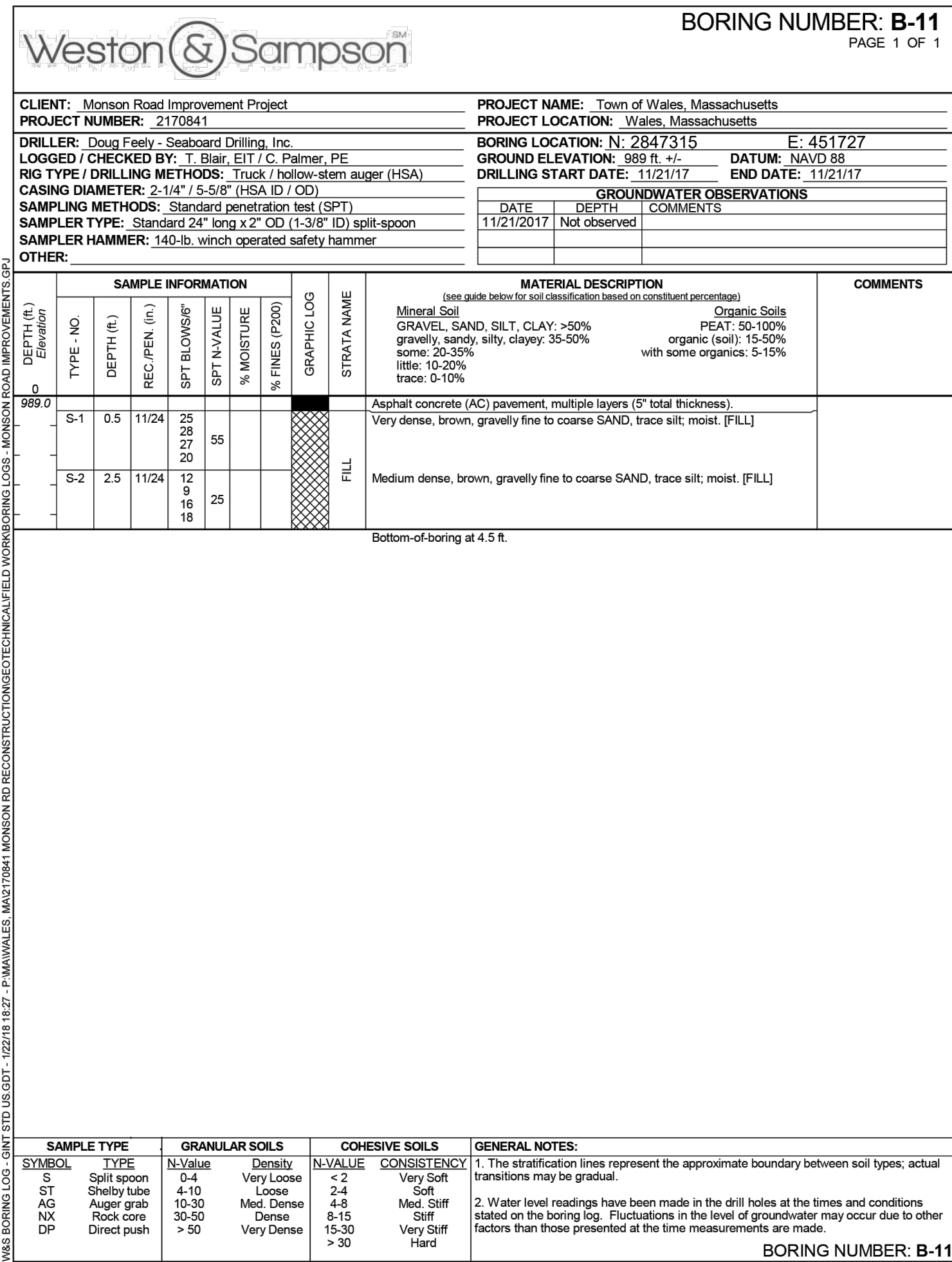
- TOPOGRAPHICAL INFORMATION BASED ON AN ON THE GROUND SURVEY PERFORMED BY CHAPPELL ENGINEERING ON DECEMBER 2017 AND SUPPLEMENTED BY CHAPPELL ENGINEERING IN OCTOBER 2023. WETLAND FLAGGING WAS PERFORMED BY WESTON & SAMPSON IN NOVEMBER 2020 AND REFLAGGED IN SEPTEMBER OF 2023.
- THE HORIZONTAL COORDINATES ARE BASED ON NAD 83, THE VERTICAL DATUM IS NAVD 88.
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL DIG TEST PITS WITH THE LOCATIONS BEING APPROVED BY THE ENGINEER PRIOR TO COMMENCEMENT OF WORK TO EXACTLY LOCATE EXISTING UTILITIES.
- 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.
- THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY OWNER. ANY ALTERATIONS SHALL BE INCIDENTAL TO THE PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR THE TEMPORARY SUPPORT OF ALL UTILITIES TO REMAIN IN PLACE AND SHALL DESCRIBE IN WRITING, TO THE SATISFACTION OF THE ENGINEER, HIS METHOD OF TEMPORARY SUPPORT.
- AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
- THE TERM "PROPOSED (PROP)" INDICATES WORK TO BE CONSTRUCTED USING NEW MATERIALS OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE AND RESET (R&R)".
- ALL EXISTING STATE, COUNTY AND TOWN LOCATION LINES AND PRIVATE PROPERTY LINES HAVE BEEN ESTABLISHED FROM AVAILABLE INFORMATION AND THEIR EXACT LOCATION ARE NOT GUARANTEED.
- ALL EXCESS MATERIAL FROM ROADWAY RECONSTRUCTION OR THE EXCAVATION PROCESS SHALL BE REUSED ON SITE OR REMOVED FROM THE SITE AND DISPOSED OF IN A LEGAL AND PROPER MANNER.
- THE CONTRACTOR SHALL CALL DIGSAFE AT 1-888-344-7233 AT LEAST 72 HOURS, SATURDAYS, AND HOLIDAYS EXCLUDED, PRIOR TO EXCAVATING AT ANY LOCATION. A COPY OF THE DIGSAFE PROJECT REFERENCE NUMBER(S) SHALL BE GIVEN TO THE TOWN PRIOR TO EXCAVATION.
- JOINTS BETWEEN HOT MIX ASPHALT TRENCH PAVEMENT AND SAWCUT EXISTING PAVEMENT SHALL BE SEALED WITH BITUMEN AND BACKSANDED.
- IF DEEMED NECESSARY DUE TO THE WORK, THE CONTRACTOR SHALL COORDINATE WITH THE TOWN OF WALES HIGHWAY DEPARTMENT, THE WALES FIRE DEPARTMENT, AND THE ENGINEER FOR APPROVAL OF SHUTTING DOWN ANY EXISTING WATER MAINS AND SHALL ALSO OBTAIN APPROVAL FOR DISRUPTING ANY EXISTING SEWER FLOWS.
- THE CONTRACTOR SHALL BE AWARE THAT ONLY TOWN PERSONNEL ARE ALLOWED TO OPERATE WATER GATES AND HYDRANTS. ANY REQUESTS TO OPERATE THE GATES SHALL BE COORDINATED THROUGH THE ENGINEER.
- THE CONTRACTOR SHALL COORDINATE ANY WORK FOR THE PROJECT WITH ALL ADJACENT/CONCURRENT PROJECTS AND CONTRACTORS.
- THE CONTRACTOR SHALL INSTALL PRIOR TO COMMENCEMENT OF WORK, MAINTAIN, AND REMOVE AT THE END OF THE PROJECT INLET SEDIMENT CONTROL BAGS IN ALL CATCH BASINS, WITHIN OR ADJACENT TO THE PROJECT LIMITS. THE CONTRACTOR SHALL ALSO MAINTAIN SILT FENCE AND COMPOST FILTER TUBES AS SHOWN ON THE PLANS THROUGHOUT THE DURATION OF THE PROJECT AND REMOVE AT THE END.
- ANY GRASS AREAS DISTURBED BY THE WORK SHALL BE RESTORED WITH LOAM AND SEED.
- ANY LANDSCAPED AREAS DISTURBED BY THE WORK SHALL BE RESTORED TO EXISTING CONDITIONS WITH EXISTING OR NEW GROUND COVER MATERIALS AS DIRECTED BY THE ENGINEER. ANY PLANTS, SHRUBS, OR FLOWERS DISTURBED BY THE WORK SHALL BE RESET TO EXISTING CONDITIONS OR REPLACED WITH NEW PLANTS, SHRUBS, OR FLOWERS AS DIRECTED BY THE ENGINEER. ALL WORK TO RESTORE LANDSCAPE AREAS, NEW GROUND COVER MATERIALS, NEW PLANTS, NEW SHRUBS, OR NEW FLOWERS REQUIRED BY THE ENGINEER SHALL BE INCIDENTAL TO THE PROJECT.
- CONTRACTOR TO COORDINATE WITH UTILITY POLE OWNERS IN AREAS WHERE UNDERGROUND UTILITY WORK IS WITHIN CLOSE PROXIMITY AND POSSIBLE UTILITY POLE SHORING IS REQUIRED WHILE INSTALLING PROPOSED UTILITIES.
- RAISE AND ADJUST FRAMES AND GRATES, FRAMES AND COVERS AND GATE BOXES PRIOR TO PAVEMENT OVERLAY, IF REQUIRED.
- CONTRACTOR IS RESPONSIBLE FOR REPLACING ANY PROPERTY PINS THAT ARE DAMAGED OR DESTROYED DURING CONSTRUCTION, TO THEIR LOCATION JUST PRIOR TO CONSTRUCTION.
- ALL TRAFFIC SIGNS WITHIN THE PROJECT LIMITS SHALL BE RETAINED UNLESS OTHERWISE NOTED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
- CONTRACTOR TO ESTABLISH TEMPORARY BENCHMARKS EVERY 1000 FEET BASED ON THE PERMANENT BENCHMARKS LOCATED AT STA 29+85.04, 24.73 LEFT AND STA 87+27.18, 41.17 LEFT OR AS REQUIRED BY THE ENGINEER.
- CONTRACTOR TO PROVIDE ADDITIONAL TRAVERSE POINTS AND TRAVERSE LINES IN THE VICINITY OF EXISTING TRAVERSE POINTS WHERE THE EXISTING TRAVERSE POINT IS LOCATED IN "SOFT GROUND" OR AS REQUIRED BY THE ENGINEER.
- ALL EXISTING STONE WALLS PROPOSED FOR RELOCATION SHALL NOT BE REMOVED FROM THE IMMEDIATE AREA SHOWN ON THE PLANS.



- WALES MONSON ROAD**
- | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|-------|--------------------|-----------|--------------|
| MA    | STP/HSI-0032(043)X | 4         | 182          |
- PROJECT FILE NO. 608163
- BORING LOGS**  
1 OF 3
- BORING NOTES:**
- LOCATION OF BORINGS SHOWN ON THE PLAN THIS:
  - LOCATION OF TEST PITS SHOWN ON THE PLAN THIS:
  - LOCATION OF PAVEMENT CORES SHOWN ON THE PLANS THIS:
  - BORINGS TAKEN FOR THE PURPOSE OF DESIGN AND SHOW CONDITIONS AT BORING POINTS ONLY, BUT DO NOT NECESSARILY SHOW THE NATURE OF THE MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.
  - WATER LEVELS SHOWN ON THE BORING LOGS WERE OBSERVED AT THE TIME OF TAKING BORINGS AND DO NOT NECESSARILY SHOW THE TRUE GROUND WATER LEVEL TO BE ENCOUNTERED DURING CONSTRUCTION.
  - FIGURES TO THE LEFT OF THE COLUMNS INDICATE DEPTH AND ELEVATION BELOW SURFACE AT BORING POINT.
  - FIGURES IN COLUMNS INDICATE NUMBER OF BLOWS REQUIRED TO DRIVE A 2" O.D. SPLIT SPOON SAMPLER 6" USING A 140 POUND WEIGHT FALLING 30 INCHES.
  - BORING SAMPLES MADE ON: 11/21/2017, 09/13/2023, 09/14/2023  
TEST PITS MADE ON: 05/25/2018  
PAVEMENT CORES MADE ON: 05/25/2018
  - BORINGS WERE MADE BY: SEABOARD DRILLING INC. 649 MEADOW ST, CHICOPPEE, MA 01013
  - BORING SAMPLES ARE STORED AT A STORAGE FACILITY LOCATED ON ROUTE 114 (219 WINTHROP AVE.) IN LAWRENCE, MA. THE CONTRACTOR MAY EXAMINE THE SOIL AND ROCK SAMPLES BY CONTACTING THE MASSDOT GEOTECHNICAL SECTION AT 10 PARK PLAZA, BOSTON, MA.







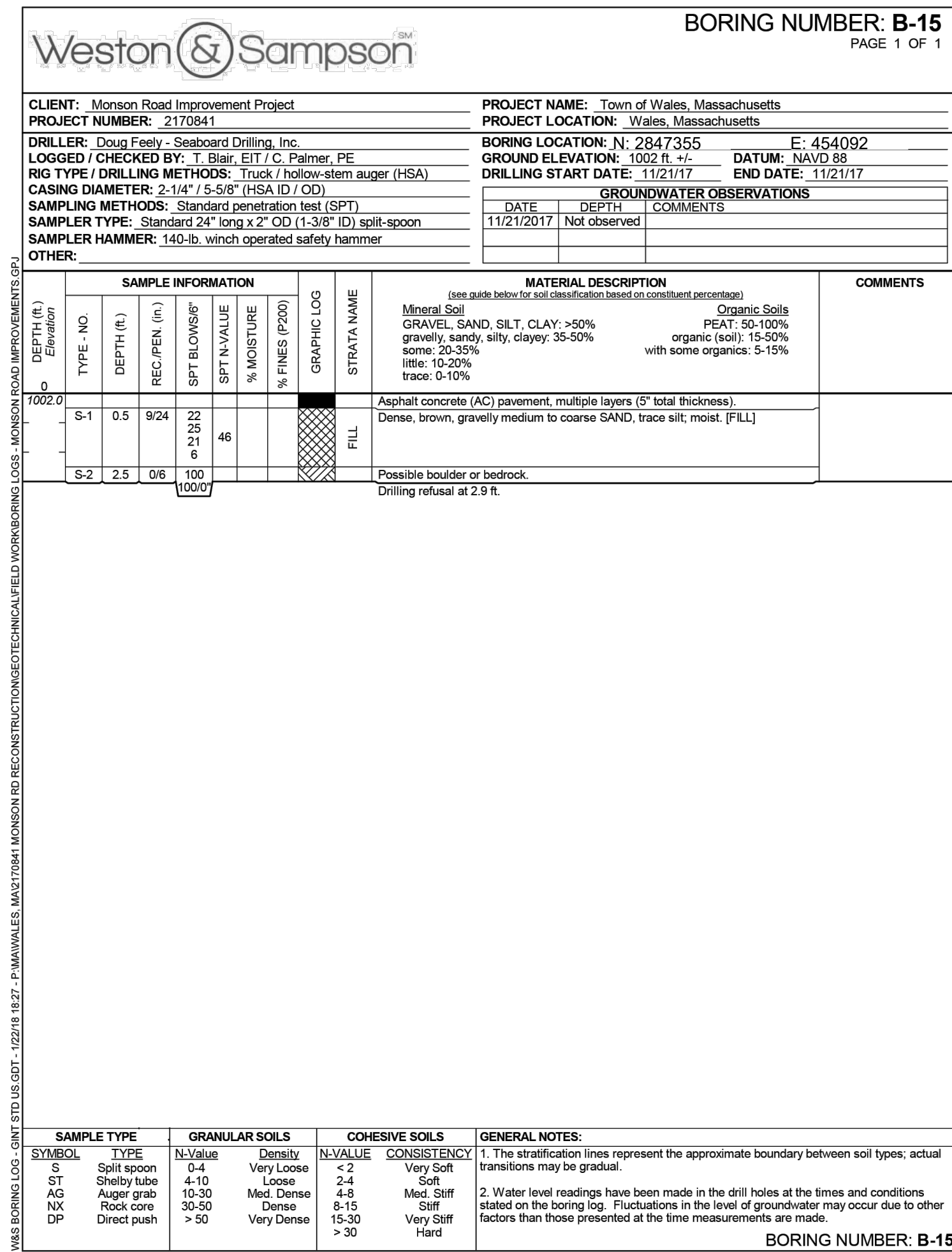
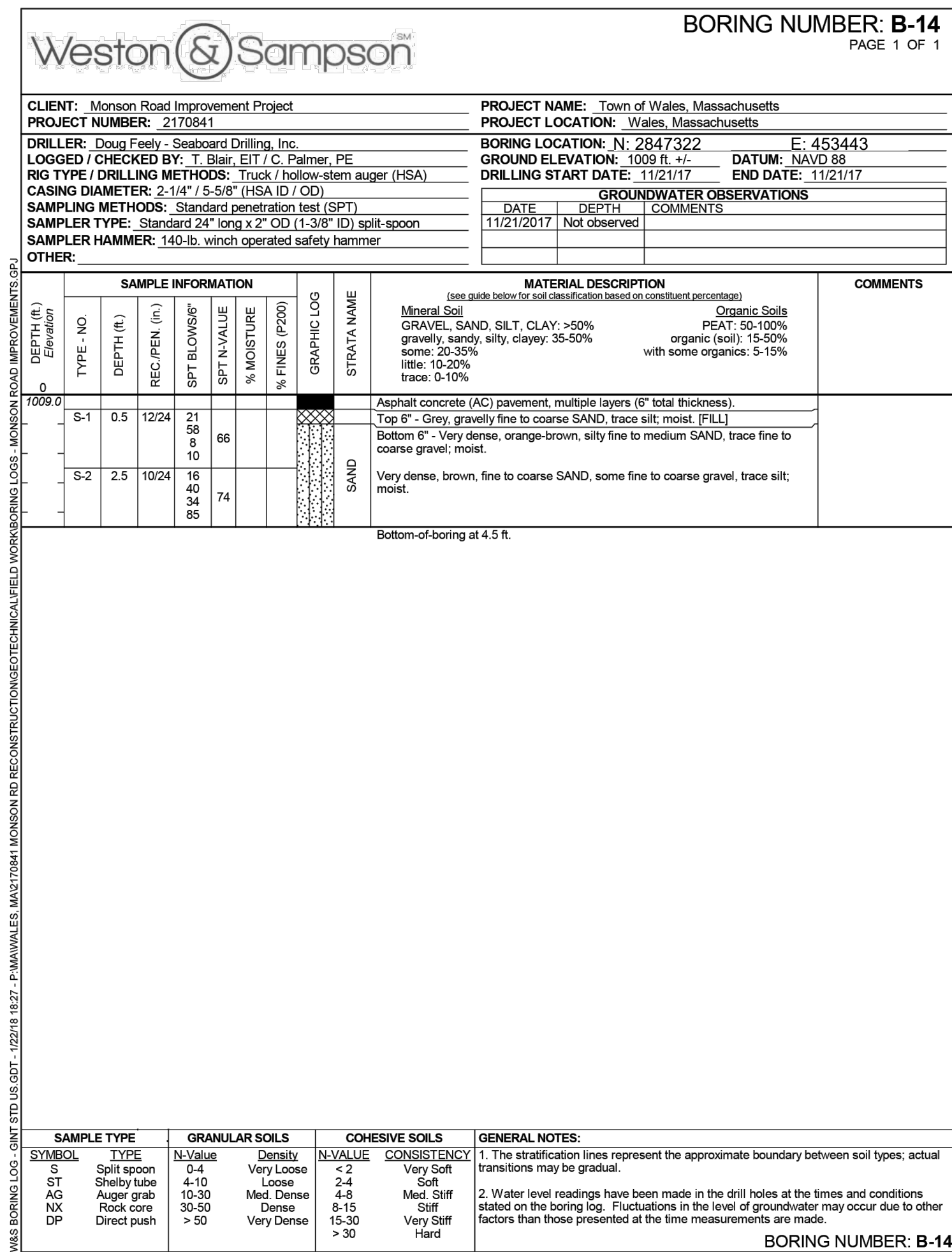
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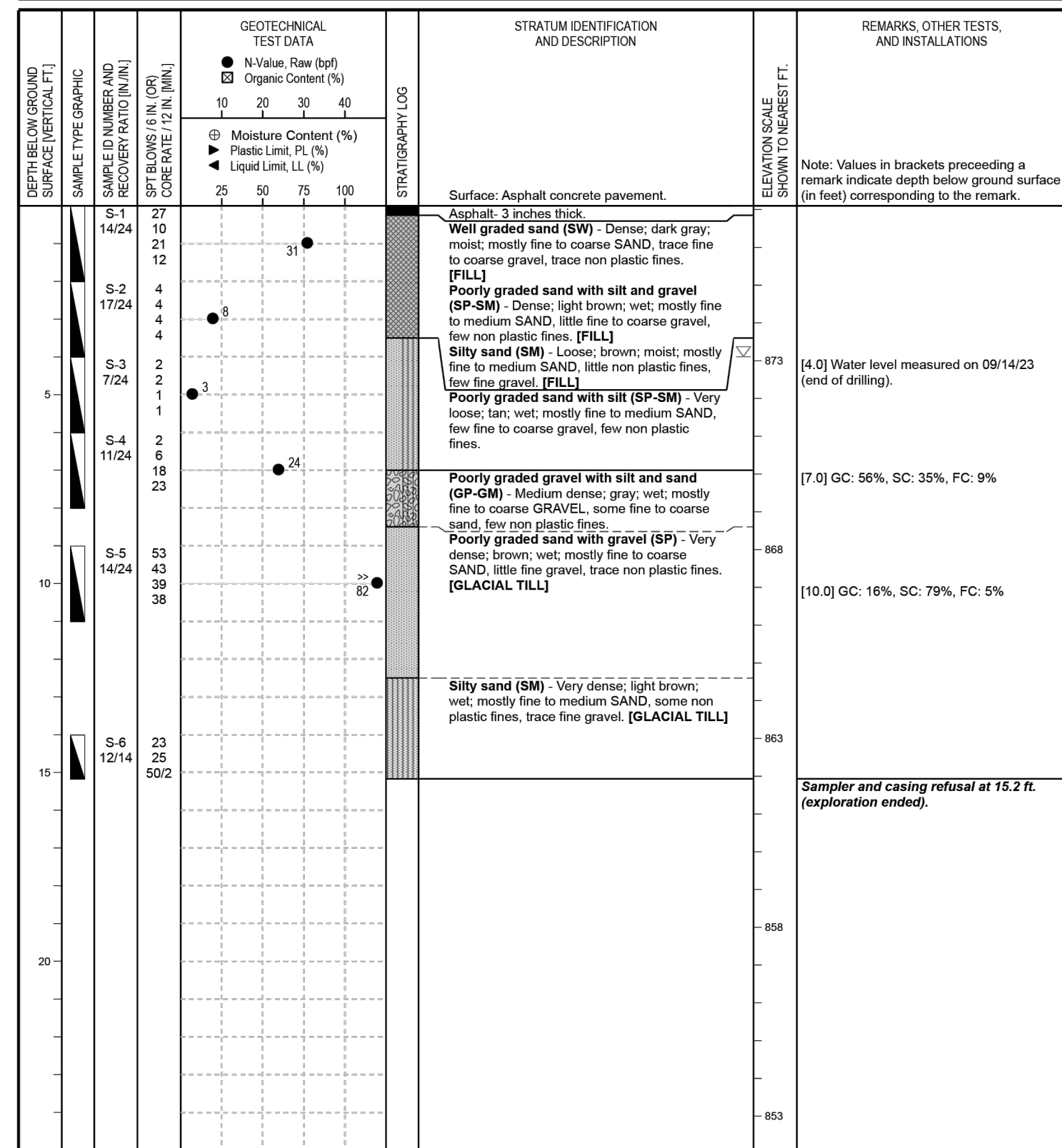
PROJECT FILE NO. 608163

**BORING LOGS**  
2 OF 3

- NOTES:  
1. FOR BORING NOTES, SEE SHEET 4.

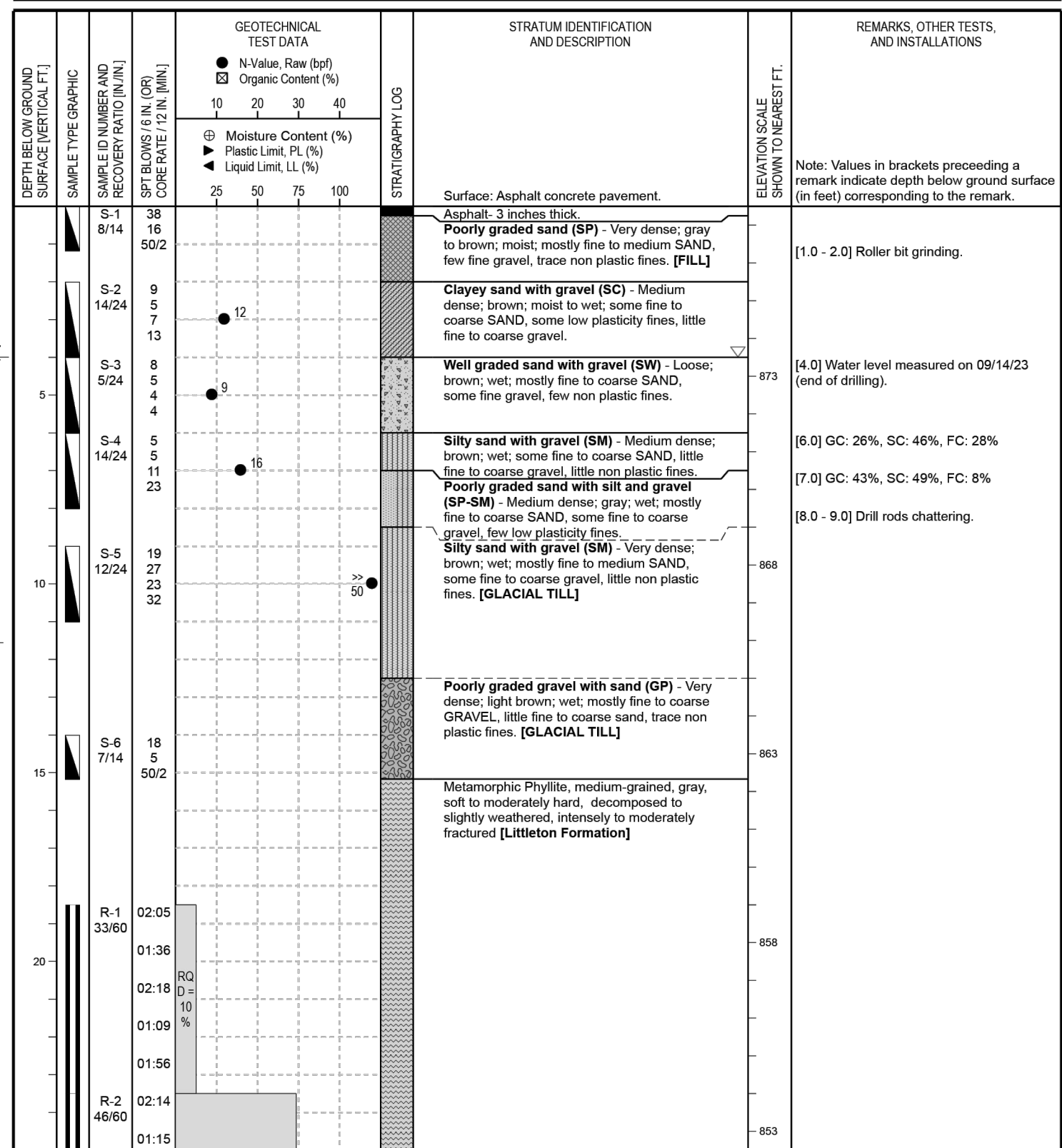


WSE Project: ENG23-0621 Page 1 of 1  
 CONTRACTOR: Northern Drill Service, Inc. BORING LOCATION: See Attached Figure DATE START: September 14, 2023  
 FOREMAN: Jon Beirholm ADVANCE METHOD: Rotary Wash Drilling DATE FINISH: September 14, 2023  
 LOGGED BY: A. Chabot, EIT AUGER DIAMETER: N/A GROUND EL.: 877.5 ± (NAVD88)  
 CHECKED BY: H. Flores, PE SUPPORT CASING: Driven Flush-Joint Casing (4" ID) FINAL DEPTH: 15.2 ft. (Refusal)  
 EQUIPMENT: Mobile B-57, Truck Mounted CORING METHOD: N/A GRID COORDS: N:284896.4650 / E:448154.5990  
 SPT HAMMER: Automatic (140-lb.) BACKFILL MATERIAL: Drill Cuttings and Asphalt Patch GRID SYSTEM: NAD83 State Plane (MA)



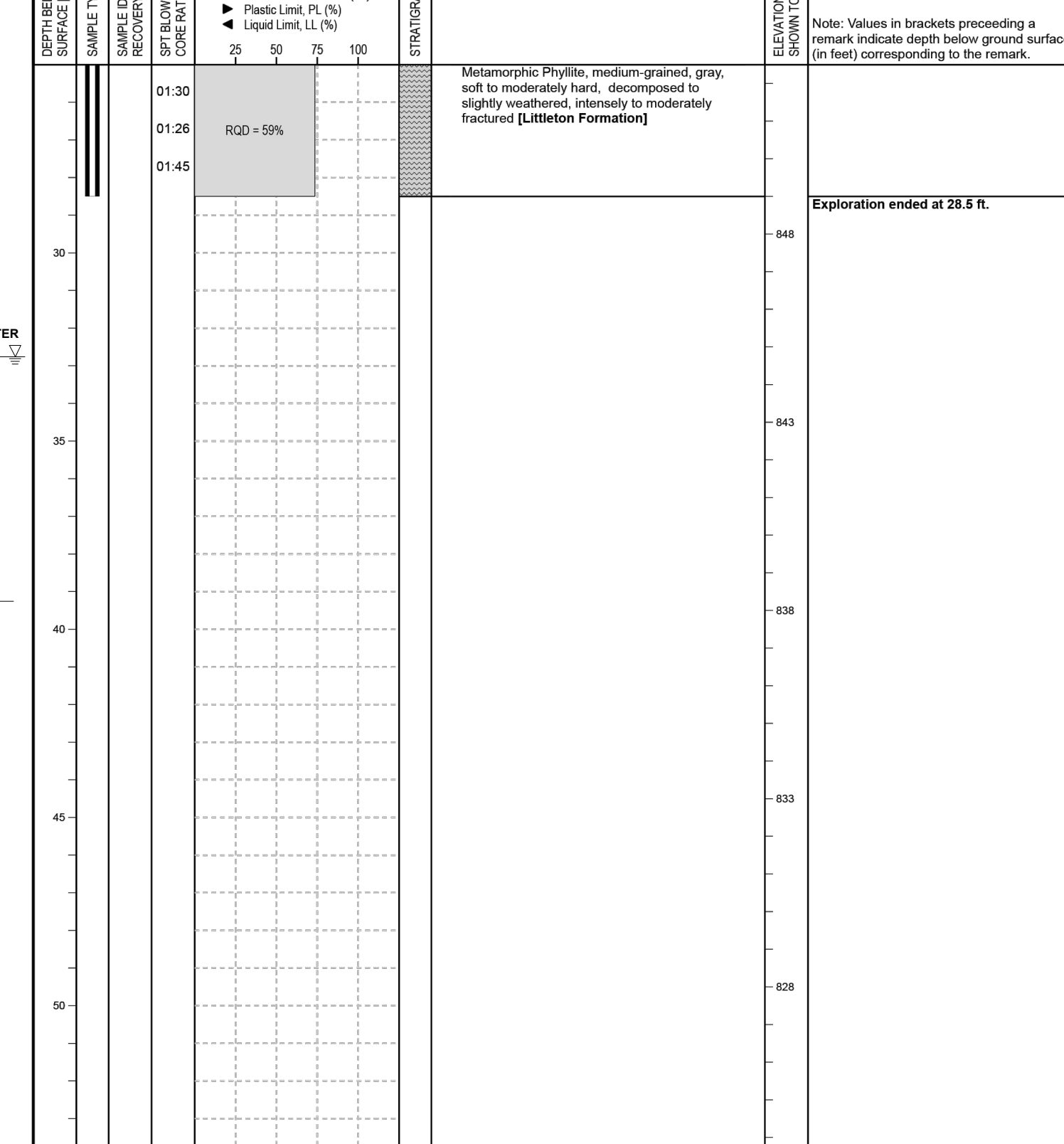
Refer to the attached index sheets for important information about this log including general notes, legends, and guidance on description methods and procedures.

WSE Project: ENG23-0621 Page 1 of 2  
 CONTRACTOR: Northern Drill Service, Inc. BORING LOCATION: See Attached Figure DATE START: September 13, 2023  
 FOREMAN: Jon Beirholm ADVANCE METHOD: Rotary Wash Drilling DATE FINISH: September 14, 2023  
 LOGGED BY: A. Chabot, EIT AUGER DIAMETER: N/A GROUND EL.: 877.5 ± (NAVD88)  
 CHECKED BY: H. Flores, PE SUPPORT CASING: Driven Flush-Joint Casing (4" ID) FINAL DEPTH: 28.5 ft.  
 EQUIPMENT: Mobile B-57, Truck Mounted CORING METHOD: NX Conventional GRID COORDS: N:284893.1880 / E:448185.5660  
 SPT HAMMER: Automatic (140-lb.) BACKFILL MATERIAL: NAD83 State Plane (MA)



Refer to the attached index sheets for important information about this log including general notes, legends, and guidance on description methods and procedures.

WSE Project: ENG23-0621 Page 2 of 2  
 CONTRACTOR: Northern Drill Service, Inc. BORING LOCATION: See Attached Figure DATE START: September 13, 2023  
 FOREMAN: Zachary Nader ADVANCE METHOD: Rotary Wash Drilling DATE FINISH: September 13, 2023  
 LOGGED BY: A. Chabot, EIT AUGER DIAMETER: N/A GROUND EL.: 1001.8 ± (NAVD88)  
 CHECKED BY: H. Flores, PE SUPPORT CASING: Driven Flush-Joint Casing (4" ID) FINAL DEPTH: 14.1 ft. (Refusal)  
 EQUIPMENT: Mobile B-57, Truck Mounted CORING METHOD: N/A GRID COORDS: N:2847367.4630 / E:454109.7660  
 SPT HAMMER: Automatic (140-lb.) BACKFILL MATERIAL: Drill Cuttings and Asphalt Patch GRID SYSTEM: NAD83 State Plane (MA)



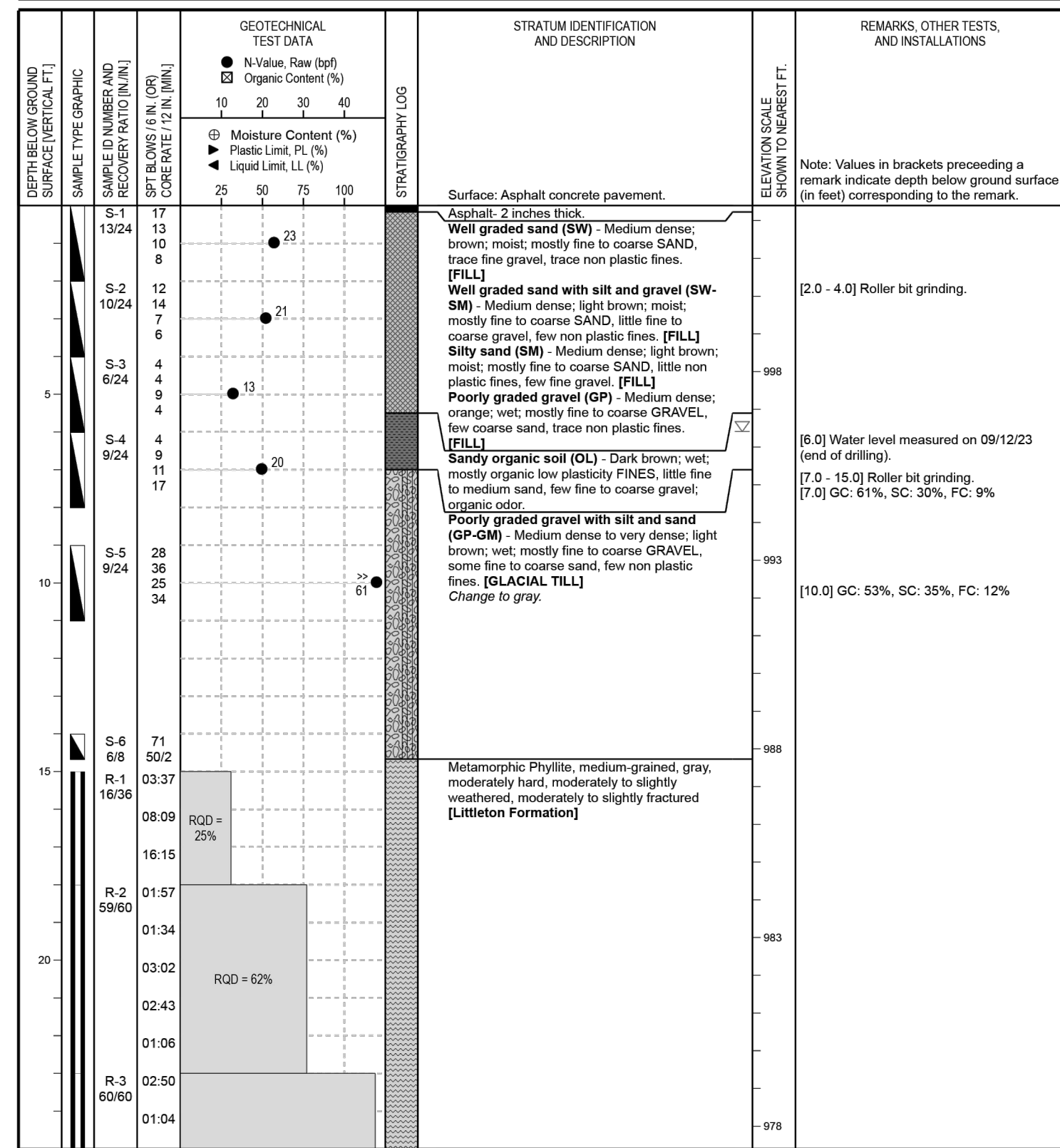
Refer to the attached index sheets for important information about this log including general notes, legends, and guidance on description methods and procedures.

WALES MONSON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	6	182
PROJECT FILE NO.		608163	

**BORING LOGS**  
3 OF 3

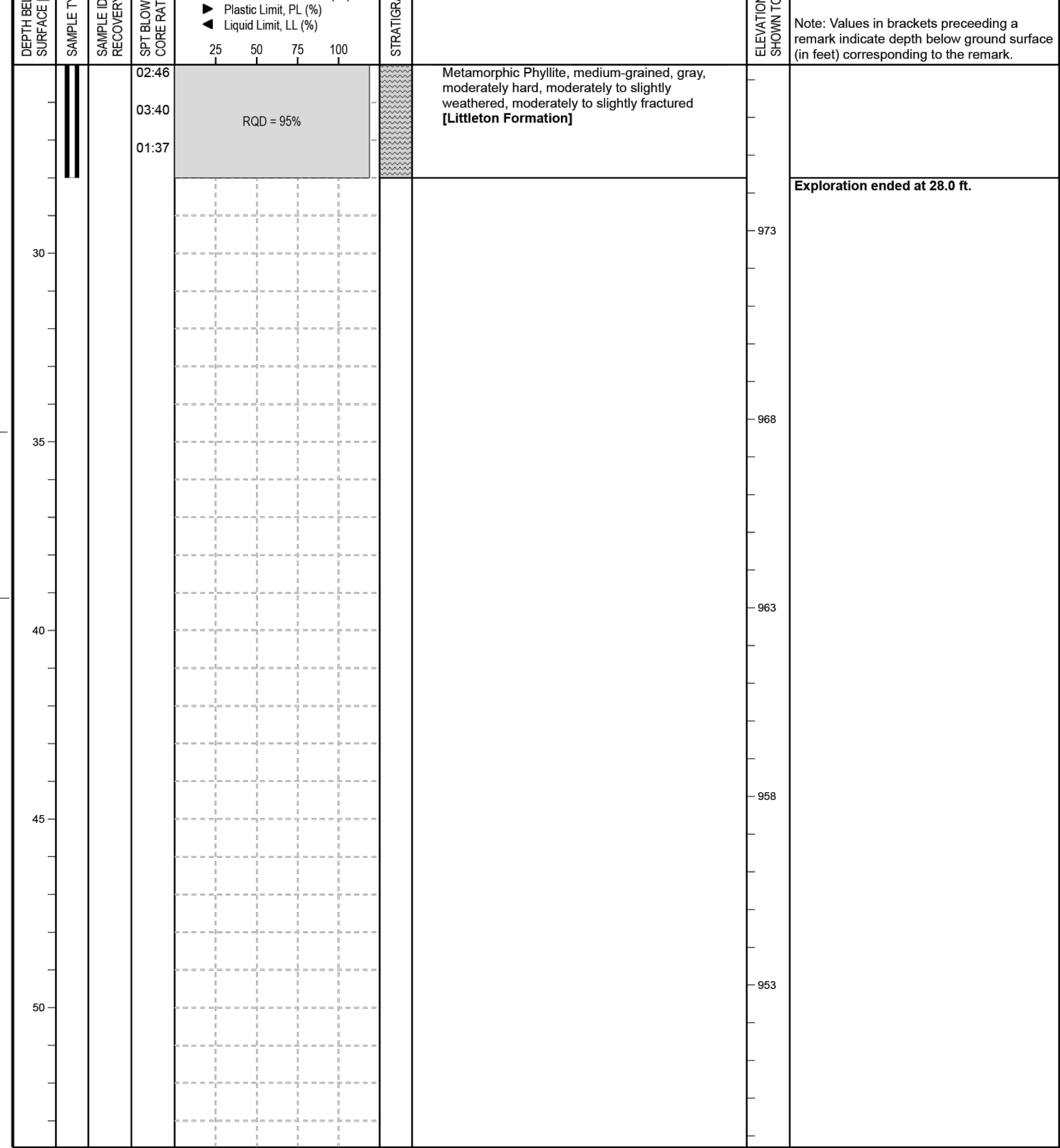
- NOTES:  
 1. FOR BORING NOTES, SEE SHEET 4.

WSE Project: ENG23-0621 Page 1 of 2  
 CONTRACTOR: Northern Drill Service, Inc. BORING LOCATION: See Attached Figure DATE START: September 12, 2023  
 FOREMAN: Zachary Nader ADVANCE METHOD: Rotary Wash Drilling DATE FINISH: September 12, 2023  
 LOGGED BY: A. Chabot, EIT AUGER DIAMETER: N/A GROUND EL.: 1002.4 ± (NAVD88)  
 CHECKED BY: H. Flores, PE SUPPORT CASING: Driven Flush-Joint Casing (4" ID) FINAL DEPTH: 28.0 ft.  
 EQUIPMENT: Mobile B-57, Truck Mounted CORING METHOD: NX Conventional GRID COORDS: N:2847316.0980 / E:454079.8980  
 SPT HAMMER: Automatic (140-lb.) BACKFILL MATERIAL: Drill Cuttings and Asphalt Patch GRID SYSTEM: NAD83 State Plane (MA)



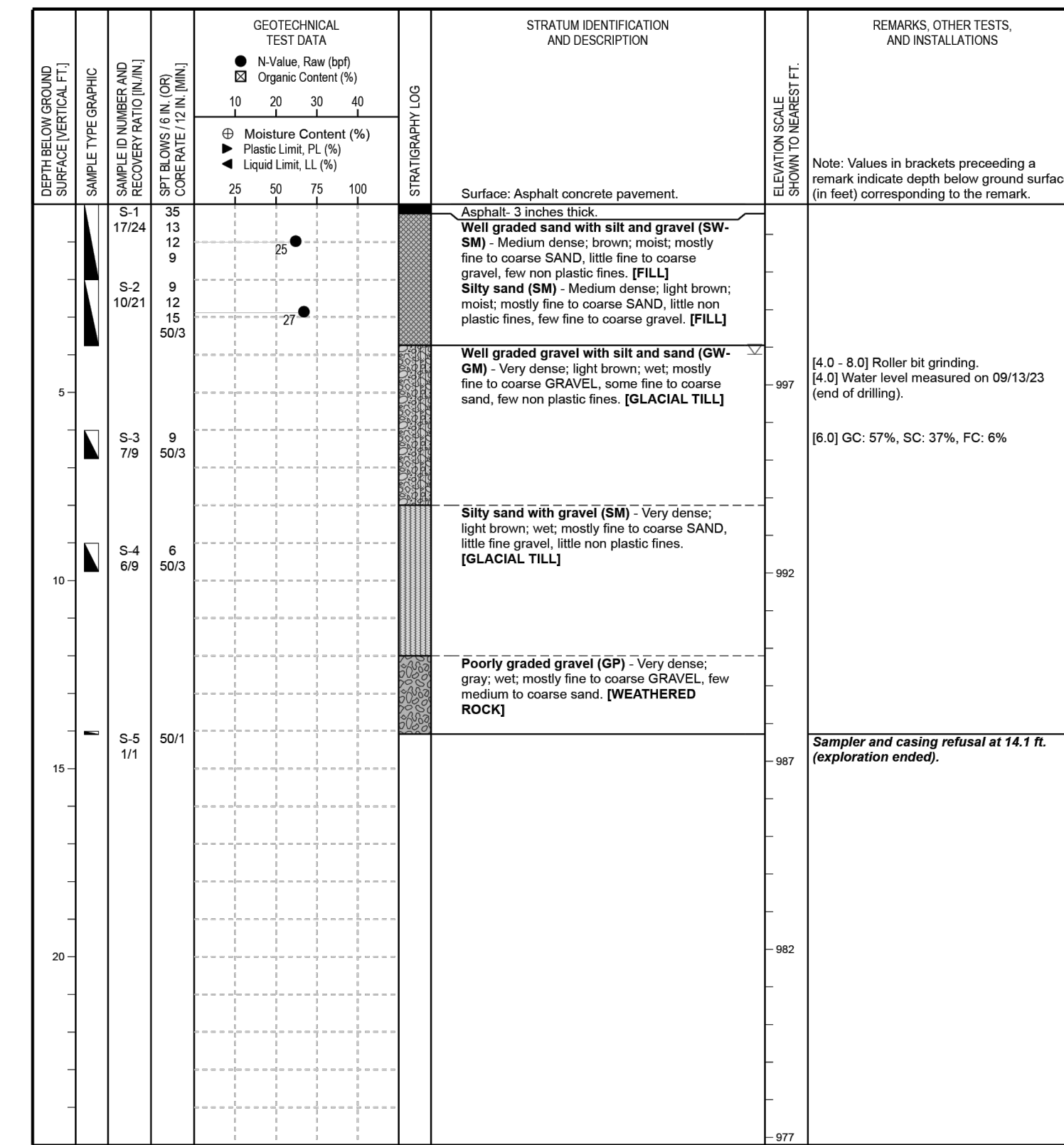
Refer to the attached index sheets for important information about this log including general notes, legends, and guidance on description methods and procedures.

WSE Project: ENG23-0621 Page 2 of 2  
 CONTRACTOR: Northern Drill Service, Inc. BORING LOCATION: See Attached Figure DATE START: September 12, 2023  
 FOREMAN: Zachary Nader ADVANCE METHOD: Rotary Wash Drilling DATE FINISH: September 12, 2023  
 LOGGED BY: A. Chabot, EIT AUGER DIAMETER: N/A GROUND EL.: 1002.4 ± (NAVD88)  
 CHECKED BY: H. Flores, PE SUPPORT CASING: Driven Flush-Joint Casing (4" ID) FINAL DEPTH: 28.0 ft.  
 EQUIPMENT: Mobile B-57, Truck Mounted CORING METHOD: NX Conventional GRID COORDS: N:2847316.0980 / E:454079.8980  
 SPT HAMMER: Automatic (140-lb.) BACKFILL MATERIAL: Drill Cuttings and Asphalt Patch GRID SYSTEM: NAD83 State Plane (MA)



Refer to the attached index sheets for important information about this log including general notes, legends, and guidance on description methods and procedures.

WSE Project: ENG23-0621 Page 1 of 1  
 CONTRACTOR: Northern Drill Service, Inc. BORING LOCATION: See Attached Figure DATE START: September 13, 2023  
 FOREMAN: Zachary Nader ADVANCE METHOD: Rotary Wash Drilling DATE FINISH: September 13, 2023  
 LOGGED BY: A. Chabot, EIT AUGER DIAMETER: N/A GROUND EL.: 1001.8 ± (NAVD88)  
 CHECKED BY: H. Flores, PE SUPPORT CASING: Driven Flush-Joint Casing (4" ID) FINAL DEPTH: 14.1 ft. (Refusal)  
 EQUIPMENT: Mobile B-57, Truck Mounted CORING METHOD: N/A GRID COORDS: N:2847367.4630 / E:454109.7660  
 SPT HAMMER: Automatic (140-lb.) BACKFILL MATERIAL: Drill Cuttings and Asphalt Patch GRID SYSTEM: NAD83 State Plane (MA)



Refer to the attached index sheets for important information about this log including general notes, legends, and guidance on description methods and procedures.



**WALES  
MONSON ROAD**

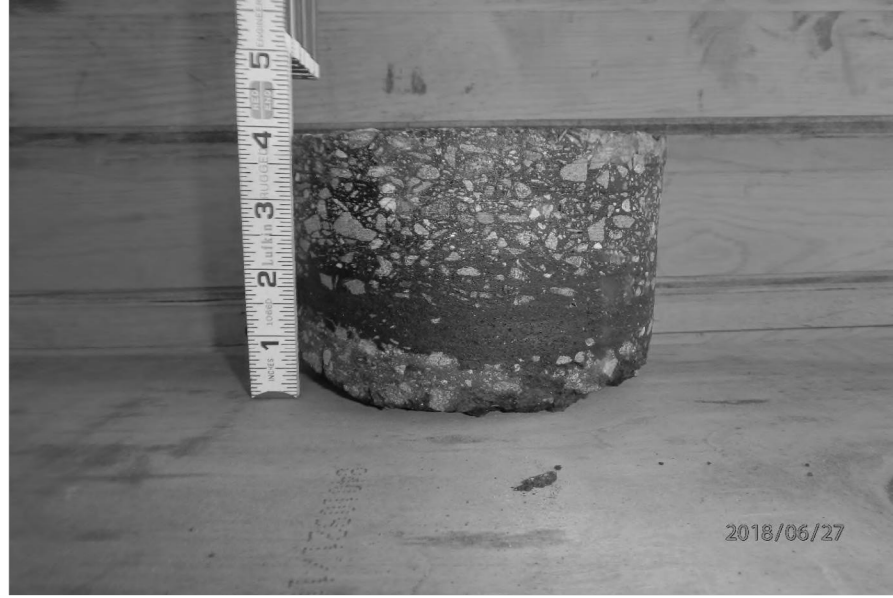
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	7	182
PROJECT FILE NO.		608163	

**PAVEMENT LOGS  
1 OF 1**

PAVEMENT CORE LOG				CORE NUMBERS	
PROJECT	Monson Road Improvement Project			PC-1, PC-2	
LOCATION	Wales, Massachusetts			Weston Sampson	
CLIENT	Town of Wales, Massachusetts				
COMPLETED BY	Concrete Cut & Core, Inc.	DATE	May 25, 2018		
OBSERVED BY	TJ Blair, PE	DATE	July 10, 2018		
CHECKED BY	Chris Palmer, PE	DATE	July 10, 2018		


**PC-1**  
MATERIAL: ASPHALT CONCRETE  
TOTAL THICKNESS: 4 INCHES



2018/06/27

**PC-2**  
MATERIAL: ASPHALT CONCRETE  
TOTAL THICKNESS: 5.5 INCHES



2018/06/27


**GENERAL NOTES:**  
1 - See attached plan for approximate location of each pavement core.  
2 - Pavement cores completed using a portable drill with a 6-inch diameter concrete coring barrel.  
3 - Thicknesses noted above are to the nearest 1/4-inch.

P:\M\Wales\_MA\217081 Monson Rd Reconstruction\Geotechnical\All Work\ Pavement Cores and Test Pits\ Pavement Cores and Test Pits Log - Monson Road.dwg(7)

PAVEMENT CORE LOG				CORE NUMBERS	
PROJECT	Monson Road Improvement Project			PC-3, PC-4	
LOCATION	Wales, Massachusetts			Weston Sampson	
CLIENT	Town of Wales, Massachusetts				
COMPLETED BY	Concrete Cut & Core, Inc.	DATE	May 25, 2018		
OBSERVED BY	TJ Blair, PE	DATE	July 10, 2018		
CHECKED BY	Chris Palmer, PE	DATE	July 10, 2018		

**PC-3**  
MATERIAL: ASPHALT CONCRETE  
TOTAL THICKNESS: 4.5 INCHES



2018/06/27

Core separated into two pieces at 2 inches from top.

**PC-4**  
MATERIAL: ASPHALT CONCRETE  
TOTAL THICKNESS: 5 INCHES



2018/06/27


**GENERAL NOTES:**  
1 - See attached plan for approximate location of each pavement core.  
2 - Pavement cores completed using a portable drill with a 6-inch diameter concrete coring barrel.  
3 - Thicknesses noted above are to the nearest 1/4-inch.

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PAVEMENT CORE LOG				CORE NUMBERS	
PROJECT	Monson Road Improvement Project			PC-5, PC-6	
LOCATION	Wales, Massachusetts			Weston Sampson	
CLIENT	Town of Wales, Massachusetts				
COMPLETED BY	Concrete Cut & Core, Inc.	DATE	May 25, 2018		
OBSERVED BY	TJ Blair, PE	DATE	July 10, 2018		
CHECKED BY	Chris Palmer, PE	DATE	July 10, 2018		


**PC-5**  
MATERIAL: ASPHALT CONCRETE  
TOTAL THICKNESS: 4.25 INCHES



2018/06/27

**PC-6**  
MATERIAL: ASPHALT CONCRETE  
TOTAL THICKNESS: 5.25 INCHES



2018/06/27

Core separated into two pieces at 1.25 inches from top.




**GENERAL NOTES:**  
1 - See attached plan for approximate location of each pavement core.  
2 - Pavement cores completed using a portable drill with a 6-inch diameter concrete coring barrel.  
3 - Thicknesses noted above are to the nearest 1/4-inch.




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**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	8	182
PROJECT FILE NO.		608163	

**TEST PIT LOGS**  
1 OF 1

TEST PIT LOG			
PROJECT Monson Road Improvement Project		TEST PIT NUMBER TP-1	
LOCATION Wales, Massachusetts	GROUND SURFACE TP-1		
CLIENT Town of Wales, Massachusetts	ELEVATION (FT.) 884 ±		
COMPLETED BY TJ Blair, PE	DATE May 25, 2018	DEPTH TO GROUNDWATER (FT.)	N/A
CHECKED BY Chris Palmer, PE	DATE July 10, 2018		
DEPTH (FT.)	MATERIAL DESCRIPTION	STRATUM DESCRIPTION	
Ground Surface	Asphalt concrete pavement.	Ground Surface	
	ASPHALT CONCRETE, 5 inches thick.	ASPHALT CONCRETE (5")	
1	Brown, fine to coarse sandy GRAVEL with numerous cobbles, occasional boulders up to 12" diameter, and trace silt; moist. [FILL]	SANDY GRAVEL WITH COBBLES & BOULDERS [FILL]	
2	Test pit ended at approximately 2.0 ft.		
3			
4			
5			
6			
TEST PIT PHOTOS			
 <p>Test pit following pavement removal.</p>		 <p>Cobbles and boulders removed from test pit.</p>	
<b>GENERAL NOTES:</b> 1 - Test pit excavated using an approximately 15,000-lb. backhoe (CAT 430F) with a toothed bucket. 2 - Pavement at test pit location was saw cut prior to excavating. 3 - Minor caving observed beneath pavement. 4 - Groundwater seepage was not observed. 5 - See attached plan for approximate location of test pit.		<b>TEST PIT NUMBER</b> TP-1 	

TEST PIT LOG			
PROJECT Monson Road Improvement Project		TEST PIT NUMBER TP-3	
LOCATION Wales, Massachusetts	GROUND SURFACE TP-3		
CLIENT Town of Wales, Massachusetts	ELEVATION (FT.) 1018 ±		
COMPLETED BY TJ Blair, PE	DATE May 25, 2018	DEPTH TO GROUNDWATER (FT.)	N/A
CHECKED BY Chris Palmer, PE	DATE July 10, 2018		
DEPTH (FT.)	MATERIAL DESCRIPTION	STRATUM DESCRIPTION	
Ground Surface	Asphalt concrete pavement.	Ground Surface	
	ASPHALT CONCRETE, 6 inches thick.	ASPHALT CONCRETE (6")	
1	Brown, fine to medium sandy GRAVEL with numerous cobbles, occasional boulders up to 12" diameter, and trace silt; moist. [FILL]	SANDY GRAVEL WITH COBBLES & BOULDERS [FILL]	
2	Test pit ended at approximately 2.0 ft.		
3			
4			
5			
6			
TEST PIT PHOTOS			
 <p>Completed test pit.</p>		 <p>Cobbles and boulders removed from test pit.</p>	
<b>GENERAL NOTES:</b> 1 - Test pit excavated using an approximately 15,000-lb. backhoe (CAT 430F) with a toothed bucket. 2 - Pavement at test pit location was saw cut prior to excavating. 3 - Minor caving observed beneath pavement. 4 - Groundwater seepage was not observed. 5 - See attached plan for approximate location of test pit.		<b>TEST PIT NUMBER</b> TP-3 	

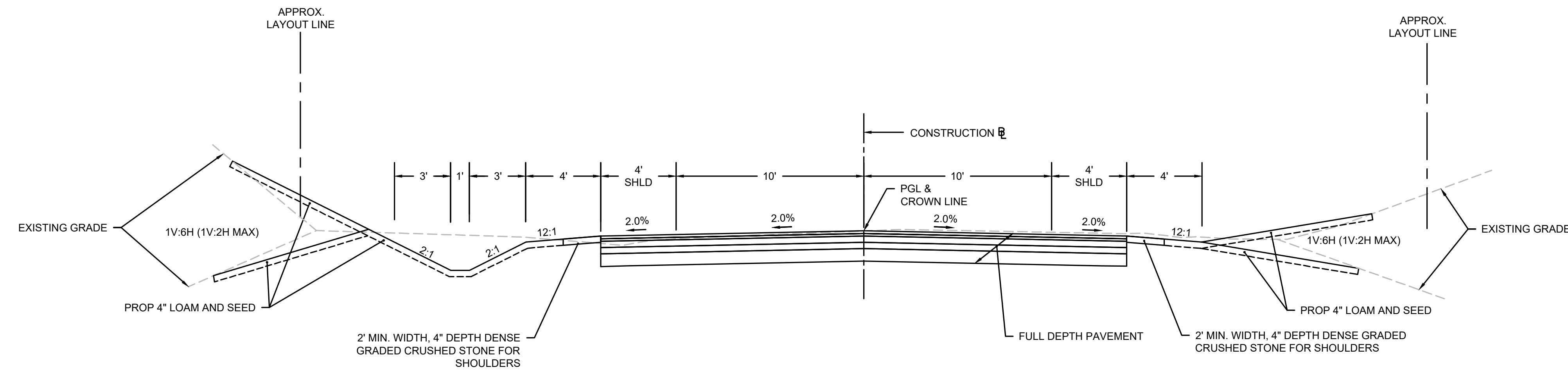
TEST PIT LOG			
PROJECT Monson Road Improvement Project		TEST PIT NUMBER TP-2	
LOCATION Wales, Massachusetts	GROUND SURFACE TP-2		
CLIENT Town of Wales, Massachusetts	ELEVATION (FT.) 956 ±		
COMPLETED BY TJ Blair, PE	DATE May 25, 2018	DEPTH TO GROUNDWATER (FT.)	N/A
CHECKED BY Chris Palmer, PE	DATE July 10, 2018		
DEPTH (FT.)	MATERIAL DESCRIPTION	STRATUM DESCRIPTION	
Ground Surface	Asphalt concrete pavement.	Ground Surface	
	ASPHALT CONCRETE, 6 inches thick.	ASPHALT CONCRETE (6")	
1	Brown, gravely fine to coarse SAND with occasional cobbles and trace silt; moist. [FILL]	GRAVELLY SAND WITH COBBLES [FILL]	
2	Test pit ended at approximately 2.0 ft.		
3			
4			
5			
6			
TEST PIT PHOTOS			
 <p>Completed test pit.</p>		 <p>Close up of test pit sidewall.</p>	
<b>GENERAL NOTES:</b> 1 - Test pit excavated using an approximately 15,000-lb. backhoe (CAT 430F) with a toothed bucket. 2 - Pavement at test pit location was saw cut prior to excavating. 3 - Minor caving observed beneath pavement. 4 - Groundwater seepage was not observed. 5 - See attached plan for approximate location of test pit.		<b>TEST PIT NUMBER</b> TP-2 	



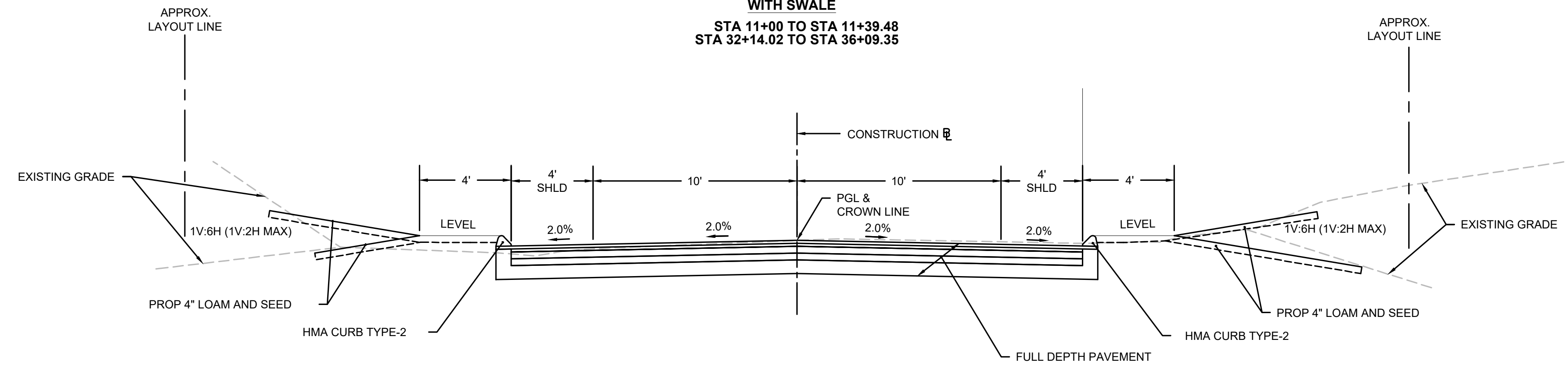
**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	9	182
PROJECT FILE NO.		608163	

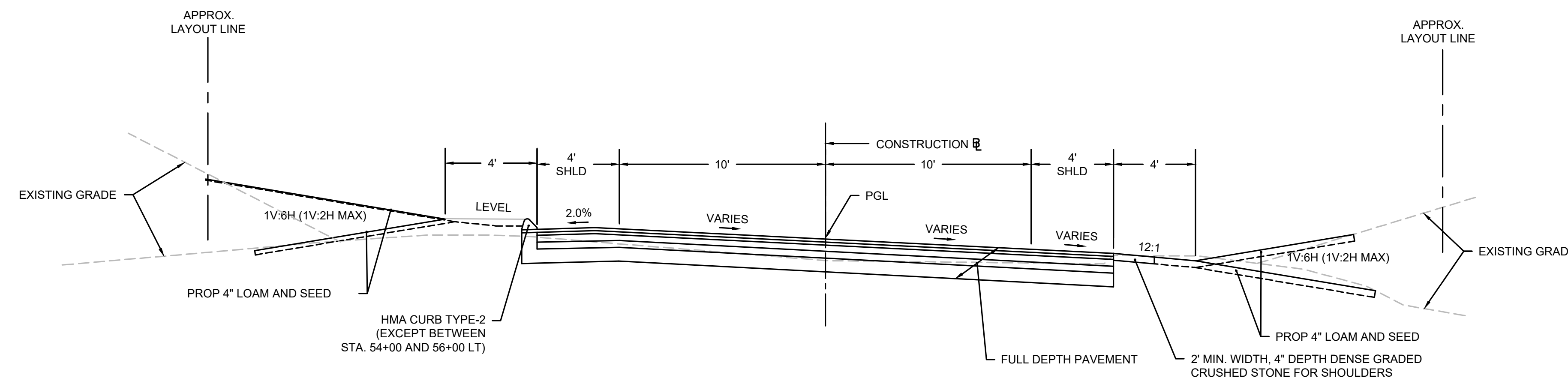
**TYPICAL SECTIONS**



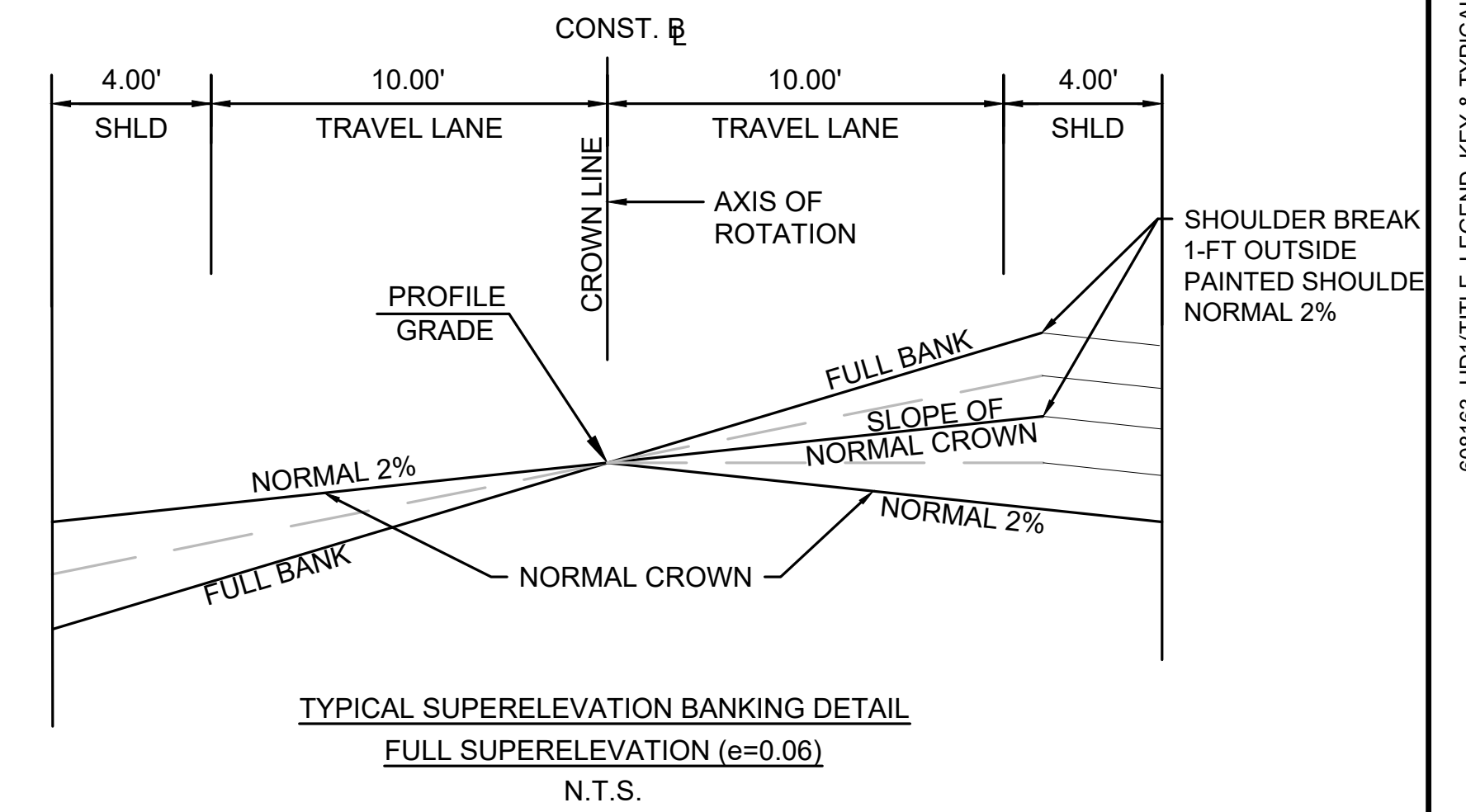
**MONSON ROAD TYPICAL SECTION  
WITH SWALE**  
STA 11+00 TO STA 11+39.48  
STA 32+14.02 TO STA 36+09.35



**MONSON ROAD TYPICAL SECTION  
WITH CURBING**  
STA 22+70.43 TO STA 26+98.72  
STA 57+46.79 TO STA 64+41.04  
STA 75+70.50 TO STA 77+39.51



**MONSON ROAD TYPICAL SECTION  
FULL SUPERELEVATION AND TRANSITIONS**  
STA 11+39.48 TO STA 22+70.43  
STA 26+98.72 TO STA 32+14.02  
STA 36+09.35 TO STA 57+46.79  
STA 64+41.04 TO STA 75+70.50  
STA 77+39.51 TO STA 88+00



**PAVEMENT NOTES**

**PROPOSED PAVEMENT MILLING AND OVERLAY:**

1.50" SUPERPAVE SURFACE COURSE 9.5 (SSC-9.5) OVER 1.50" PAVEMENT MILLING

**PROPOSED FULL DEPTH PAVEMENT:**

**SURFACE COURSE:** 1.50" SUPERPAVE SURFACE COURSE 9.5 (SSC-9.5) OVER 1.75" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC-12.5).

**BASE COURSE:** 3.25" SUPERPAVE INTERMEDIATE COURSE 19 (SIC-19.0) PLACED IN ONE LAYER.

**SUBBASE:** 4" DENSE GRADED CRUSHED STONE OVER 8" GRAVEL BORROW, TYPE B.

BITUMEN FOR TACK COAT (RS-1) TO BE APPLIED AT A RATE OF 0.07 TO 0.09 GAL/SY OVER MILLED SURFACES AND 0.06 TO 0.08 GAL/SY ON BASE AND INTERMEDIATE PAVEMENT COURSES.

**PROPOSED HOT MIX ASPHALT DRIVEWAY :**

**SURFACE COURSE:** 1.50" SUPERPAVE SURFACE COURSE 9.5 (SSC-9.5) OVER 2.50" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC-12.5)

**FOUNDATION:** 8" GRAVEL BORROW, TYPE B

**PROPOSED GRAVEL DRIVEWAY:**

8" GRAVEL BORROW, TYPE B

**PROPOSED CEMENT CONCRETE WALK**

4" CEMENT CONCRETE OVER

8" GRAVEL BORROW, TYPE B

**HIGHWAY GUARD DETAILS**

STA 14+65 TO STA 14+78 LT TANGENT END TREATMENT TL-3  
 STA 14+78 TO STA 16+88 LT (TL-3)  
 STA 14+50 TO STA 14+63 RT TANGENT END TREATMENT TL-3  
 STA 14+63 TO STA 16+02 RT (TL-3)

**TRAFFIC SIGNAL CONDUIT**

NONE

**WATER SUPPLY ALTERATIONS**

NONE

**DRAINAGE DETAILS**

SEE UTILITY PLANS

**PLANT SCHEDULE**

TREES	QTY (PER SHEET)	QTY (MASTER TOTAL)	BOTANICAL NAME	COMMON NAME	CALIPER	CONTAINER	REMARKS
CC	0	13	Cercis canadensis	Eastern Redbud	2-2.5"	B&B	Single-stem
AG	0	27	Amelanchier grandiflora 'Autumn Brilliance'	Serviceberry	2-2.5"	B&B	Single-stem
UA	1	13	Ulmus americana 'Princeton'	Elm	2-2.5"	B&B	
AR	0	2	Acer rubrum 'October Glory'	Red Maple	3-3.5"	B&B	

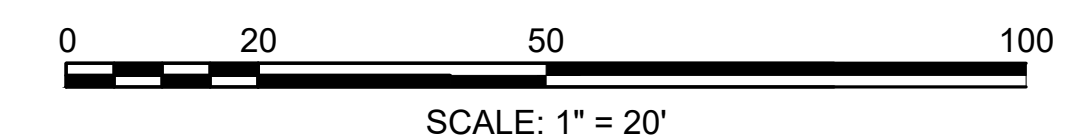
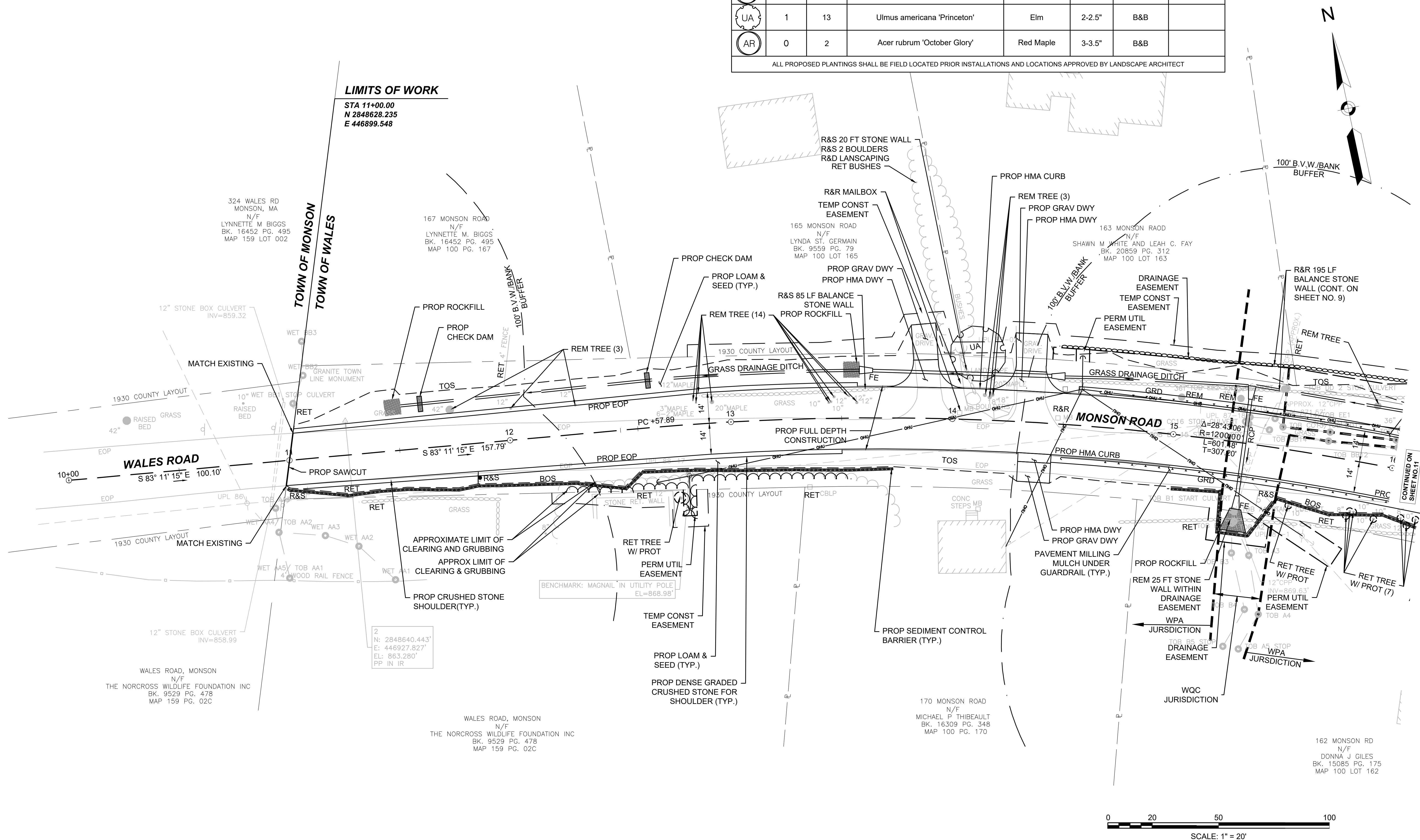
ALL PROPOSED PLANTINGS SHALL BE FIELD LOCATED PRIOR INSTALLATIONS AND LOCATIONS APPROVED BY LANDSCAPE ARCHITECT

**WALES MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	10	182

PROJECT FILE NO. 608163

**CONSTRUCTION PLANS**



FOR PROFILE SEE SHEET NO. 22



HIGHWAY GUARD DETAILS

STA 14+78 TO STA 16+88 LT (TL-3)  
 STA 16+88 TO STA 17+00 LT TANGENT END TREATMENT TL-3  
 STA 14+63 TO STA 16+02 RT (TL-3)  
 STA 16+02 TO STA 16+14 RT TANGENT END TREATMENT TL-3  
 STA 20+25 TO STA 20+37 RT TANGENT END TREATMENT TL-3  
 STA 20+37 TO STA 23+10 RT (TL-3)

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

NONE

DRAINAGE DETAILS

SEE UTILITY PLANS

PLANT SCHEDULE

TREES	QTY (PER SHEET)	BOTANICAL NAME	COMMON NAME	CALIPER	CONTAINER	REMARKS
CC	3	Cercis canadensis	Eastern Redbud	2-2.5"	B&B	Single-stem
AG	0	Amelanchier grandiflora 'Autumn Brilliance'	Serviceberry	2-2.5"	B&B	Single-stem
UA	4	Ulmus americana 'Princeton'	Elm	2-2.5"	B&B	
AR	0	Acer rubrum 'October Glory'	Red Maple	3-3.5"	B&B	

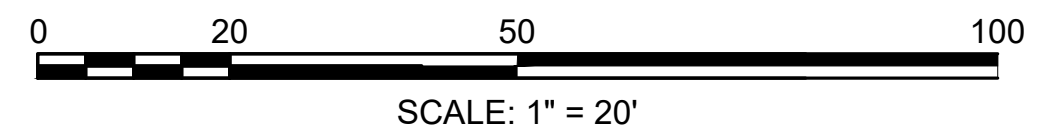
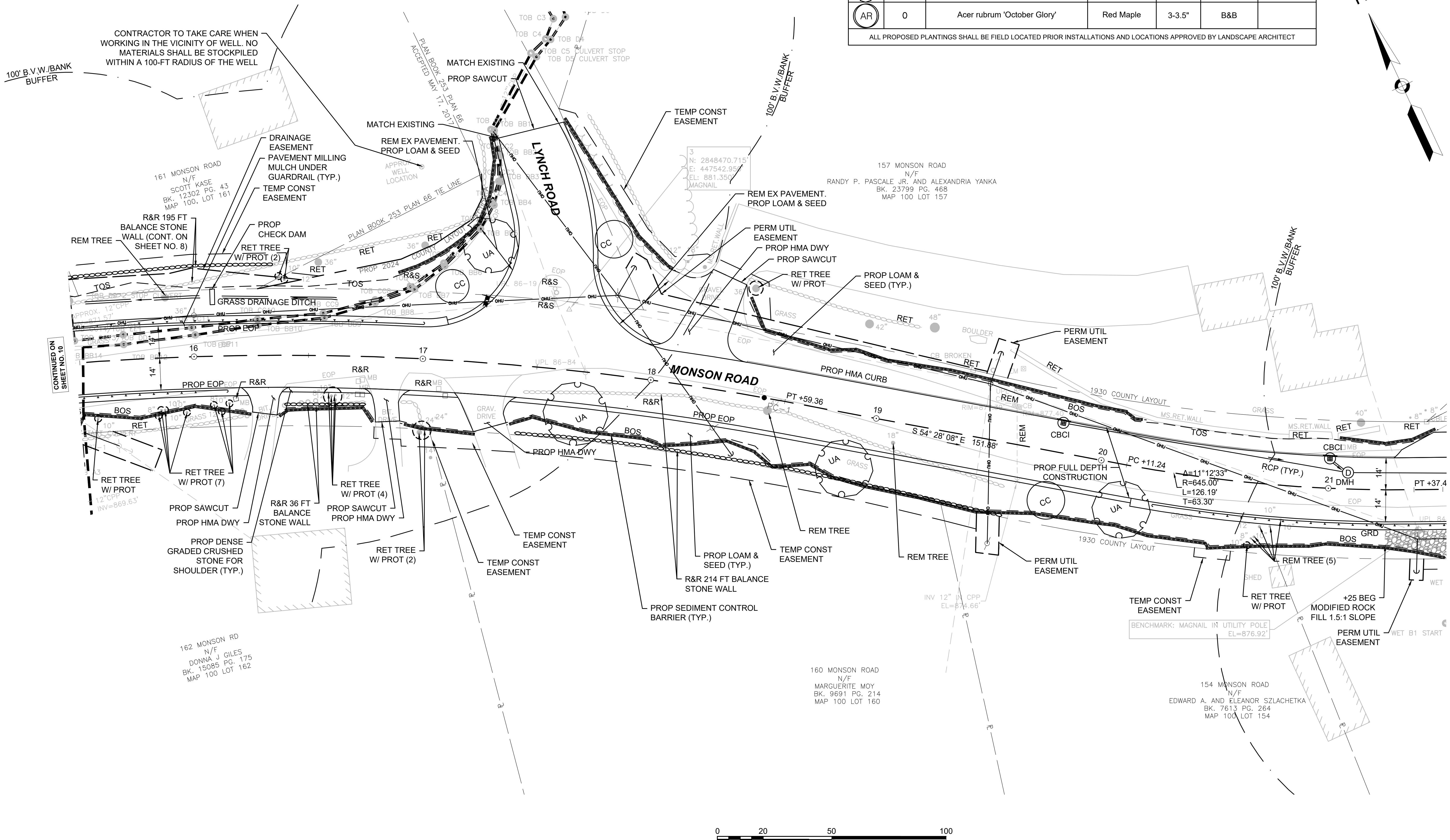
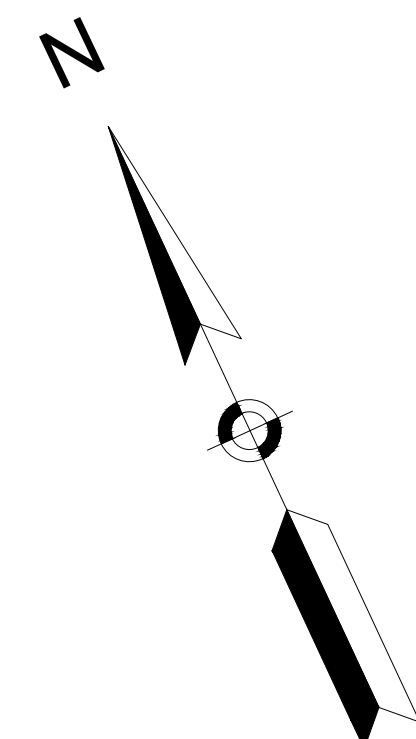
ALL PROPOSED PLANTINGS SHALL BE FIELD LOCATED PRIOR INSTALLATIONS AND LOCATIONS APPROVED BY LANDSCAPE ARCHITECT

**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	11	182

PROJECT FILE NO. 608163

**CONSTRUCTION PLANS**



FOR PROFILE SEE SHEET NO. 22

CONTINUED ON SHEET NO. 12

CONTINUED ON SHEET NO. 10

608163\_H03(03)CONSTRUCTION PLANS.DWG Plotted on 14-Oct-2024 12:06 PM

**HIGHWAY GUARD DETAILS**

STA 20+37 TO STA 23+10 RT (TL-3)  
 STA 23+10 TO STA 23+22 RT TANGENT END TREATMENT TL-3  
 STA 23+86 TO STA 23+98 RT TANGENT END TREATMENT TL-3  
 STA 23+98 TO STA 25+61 RT (TL-3)  
 STA 24+25 TO STA 24+37 RT TANGENT END TREATMENT TL-3  
 STA 24+25 TO STA 24+37 LT TANGENT END TREATMENT TL-3  
 STA 24+37 TO STA 24+77 RT TRANSITION TO BRIDGE RAIL (SINGLE FACED)  
 STA 24+37 TO STA 24+77 LT TRANSITION TO BRIDGE RAIL (SINGLE FACED)  
 STA 25+06 TO STA 25+46 RT TRANSITION TO BRIDGE RAIL (SINGLE FACED)  
 STA 25+06 TO STA 25+46 LT TRANSITION TO BRIDGE RAIL (SINGLE FACED)  
 STA 25+46 TO STA 25+60 RT (TL-3)  
 STA 25+46 TO STA 25+79 LT (TL-3)  
 STA 25+60 TO STA 25+72 RT TANGENT END TREATMENT TL-3  
 STA 25+79 TO STA 25+91 LT TANGENT END TREATMENT TL-3

**TRAFFIC SIGNAL CONDUIT**

NONE

**WATER SUPPLY ALTERATIONS**

NONE

**DRAINAGE DETAILS**

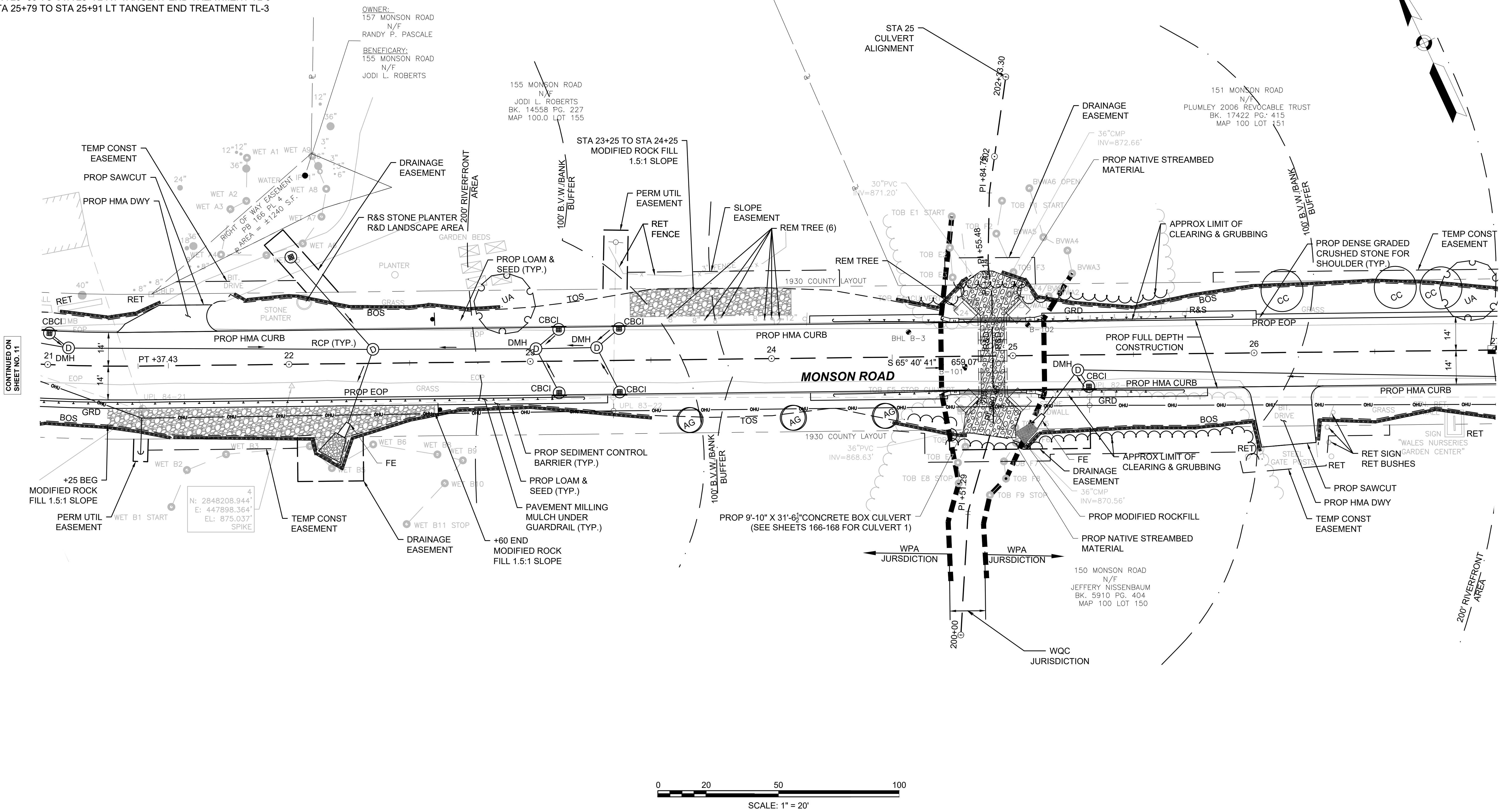
SEE UTILITY PLANS

PLANT SCHEDULE						
TREES	QTY (PER SHEET)	BOTANICAL NAME	COMMON NAME	CALIPER	CONTAINER	REMARKS
CC	3	Cercis canadensis	Eastern Redbud	2-2.5"	B&B	Single-stem
AG	3	Amelanchier grandiflora 'Autumn Brilliance'	Serviceberry	2-2.5"	B&B	Single-stem
UA	1	Ulmus americana 'Princeton'	Elm	2-2.5"	B&B	
AR	0	Acer rubrum 'October Glory'	Red Maple	3-3.5"	B&B	

ALL PROPOSED PLANTINGS SHALL BE FIELD LOCATED PRIOR INSTALLATIONS AND LOCATIONS APPROVED BY LANDSCAPE ARCHITECT

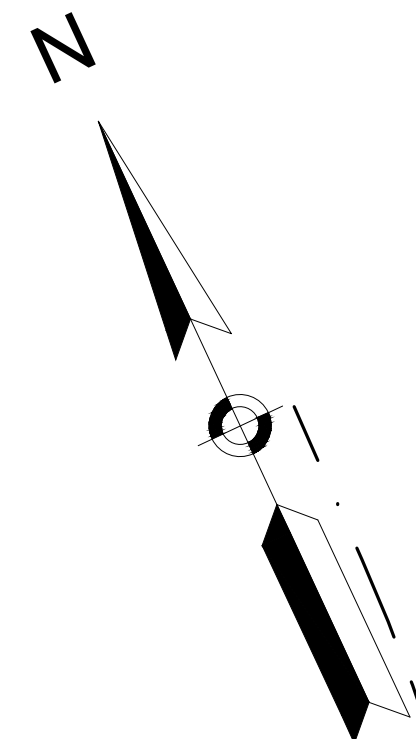
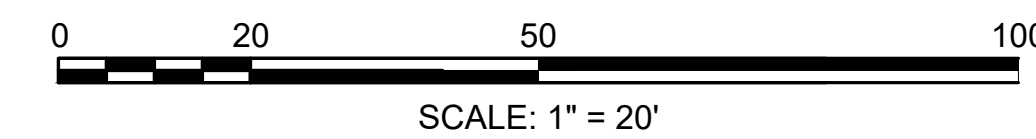
WALES MONSON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	12	182
PROJECT FILE NO.		608163	

**CONSTRUCTION PLANS**



CONTINUED ON SHEET NO. 11

CONTINUED ON SHEET NO. 12







HIGHWAY GUARD DETAILS

STA 30+75 TO STA 33+25 RT (TL-3)  
 STA 33+25 TO STA 33+38 RT TANGENT END TREATMENT TL-3  
 STA 35+22 TO STA 35+34 RT TANGENT END TREATMENT TL-3  
 STA 35+34 TO STA 36+84 RT (TL-3)  
 STA 36+84 TO STA 36+97 RT TANGENT END TREATMENT TL-3

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

NONE

DRAINAGE DETAILS

SEE UTILITY PLANS

PLANT SCHEDULE

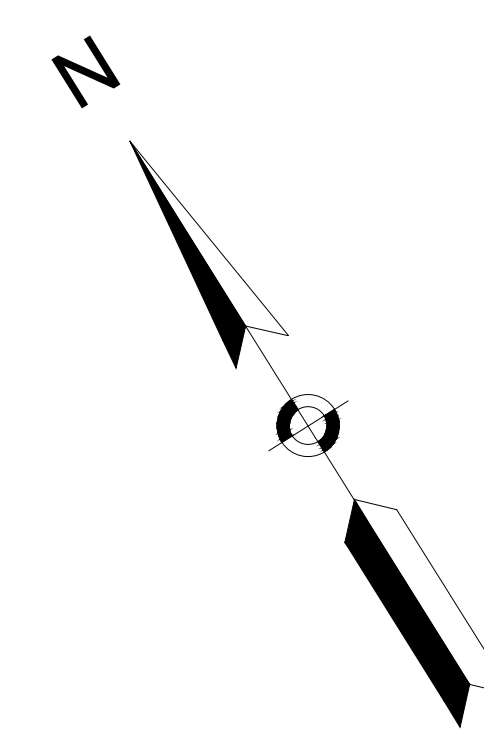
TREES	QTY (PER SHEET)	BOTANICAL NAME	COMMON NAME	CALIPER	CONTAINER	REMARKS
CC	0	Cercis canadensis	Eastern Redbud	2-2.5"	B&B	Single-stem
AG	3	Amelanchier grandiflora 'Autumn Brilliance'	Serviceberry	2-2.5"	B&B	Single-stem
UA	1	Ulmus americana 'Princeton'	Elm	2-2.5"	B&B	
AR	0	Acer rubrum 'October Glory'	Red Maple	3-3.5"	B&B	

ALL PROPOSED PLANTINGS SHALL BE FIELD LOCATED PRIOR INSTALLATIONS AND LOCATIONS APPROVED BY LANDSCAPE ARCHITECT

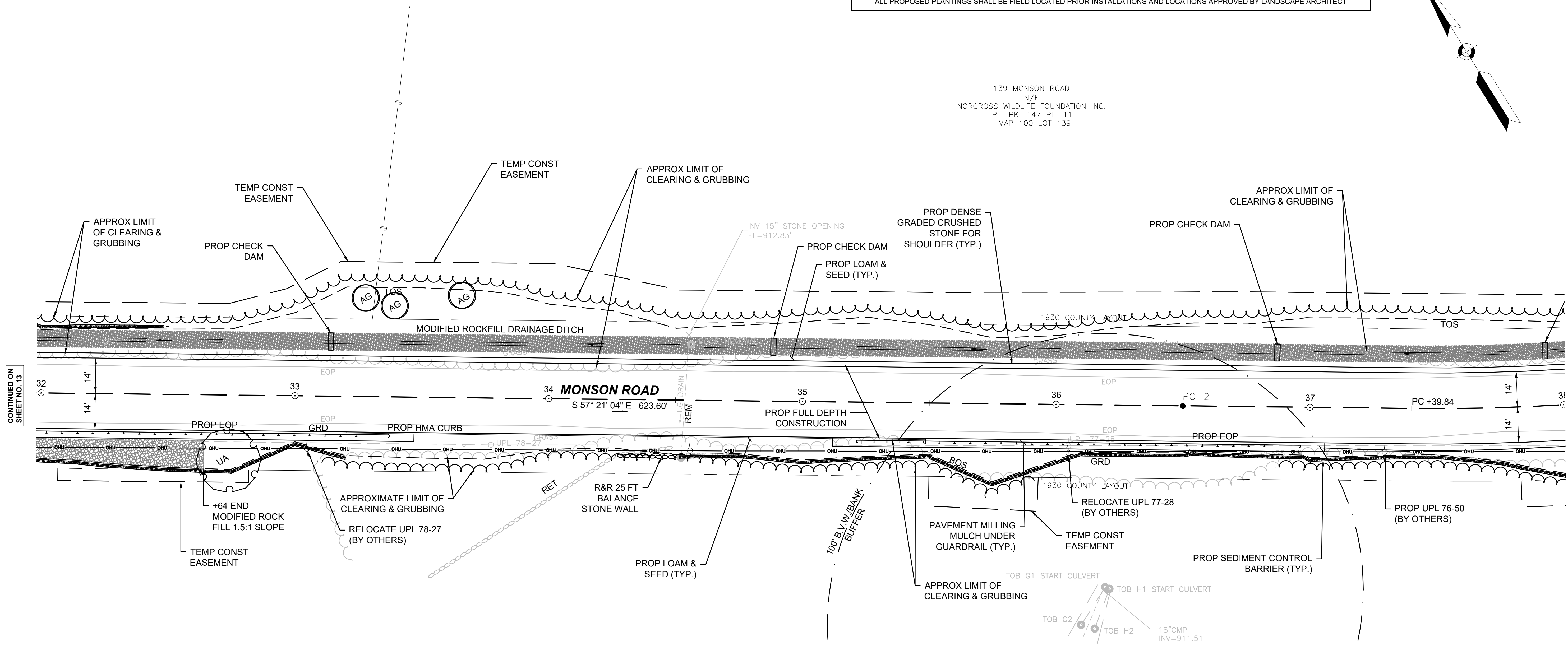
WALES  
MONSON ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	14	182
PROJECT FILE NO.		608163	

CONSTRUCTION PLANS

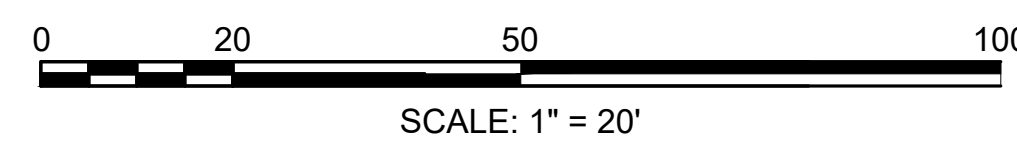


139 MONSON ROAD  
 N/F  
 NORCROSS WILDLIFE FOUNDATION INC.  
 PL. BK. 147 PL. 11  
 MAP 100 LOT 139



120 PECK ROAD  
 N/F  
 NORCROSS WILDLIFE SANCTUARY INC.  
 BK. 2082 PG.39  
 BK. 2099 PG. 244  
 BK.2158 PG. 397  
 BK. 2168 PG. 192  
 BK. 2433 PG. 283  
 BK. 2815 PG. 554  
 BK. 3184 PG. 407  
 BK. 3217 PG. 19  
 MAP 100 LOT 120

120 PECK ROAD  
 N/F  
 NORCROSS WILDLIFE SANCTUARY INC.  
 BK. 2082 PG.39  
 BK. 2099 PG. 244  
 BK.2158 PG. 397  
 BK. 2168 PG. 192  
 BK. 2433 PG. 283  
 BK. 2815 PG. 554  
 BK. 3184 PG. 407  
 BK. 3217 PG. 19  
 BK.  
 MAP 100 LOT 120



FOR PROFILE SEE SHEET NO. 25





**HIGHWAY GUARD DETAILS**

STA 42+87 TO STA 43+86 RT (TL-3)  
 STA 43+86 TO STA 43+98 RT TANGENT END TREATMENT TL-3  
 STA 43+57 TO STA 43+70 LT TANGENT END TREATMENT TL-3  
 STA 43+70 TO STA 44+57 LT (TL-3)  
 STA 44+57 TO STA 44+70 LT TANGENT END TREATMENT TL-3

**TRAFFIC SIGNAL CONDUIT**

NONE

**WATER SUPPLY ALTERATIONS**

NONE

**DRAINAGE DETAILS**

SEE UTILITY PLANS

**PLANT SCHEDULE**

TREES	QTY (PER SHEET)	BOTANICAL NAME	COMMON NAME	CALIPER	CONTAINER	REMARKS
CC	0	Cercis canadensis	Eastern Redbud	2-2.5"	B&B	Single-stem
AG	6	Amelanchier grandiflora 'Autumn Brilliance'	Serviceberry	2-2.5"	B&B	Single-stem
UA	0	Ulmus americana 'Princeton'	Elm	2-2.5"	B&B	
AR	0	Acer rubrum 'October Glory'	Red Maple	3-3.5"	B&B	

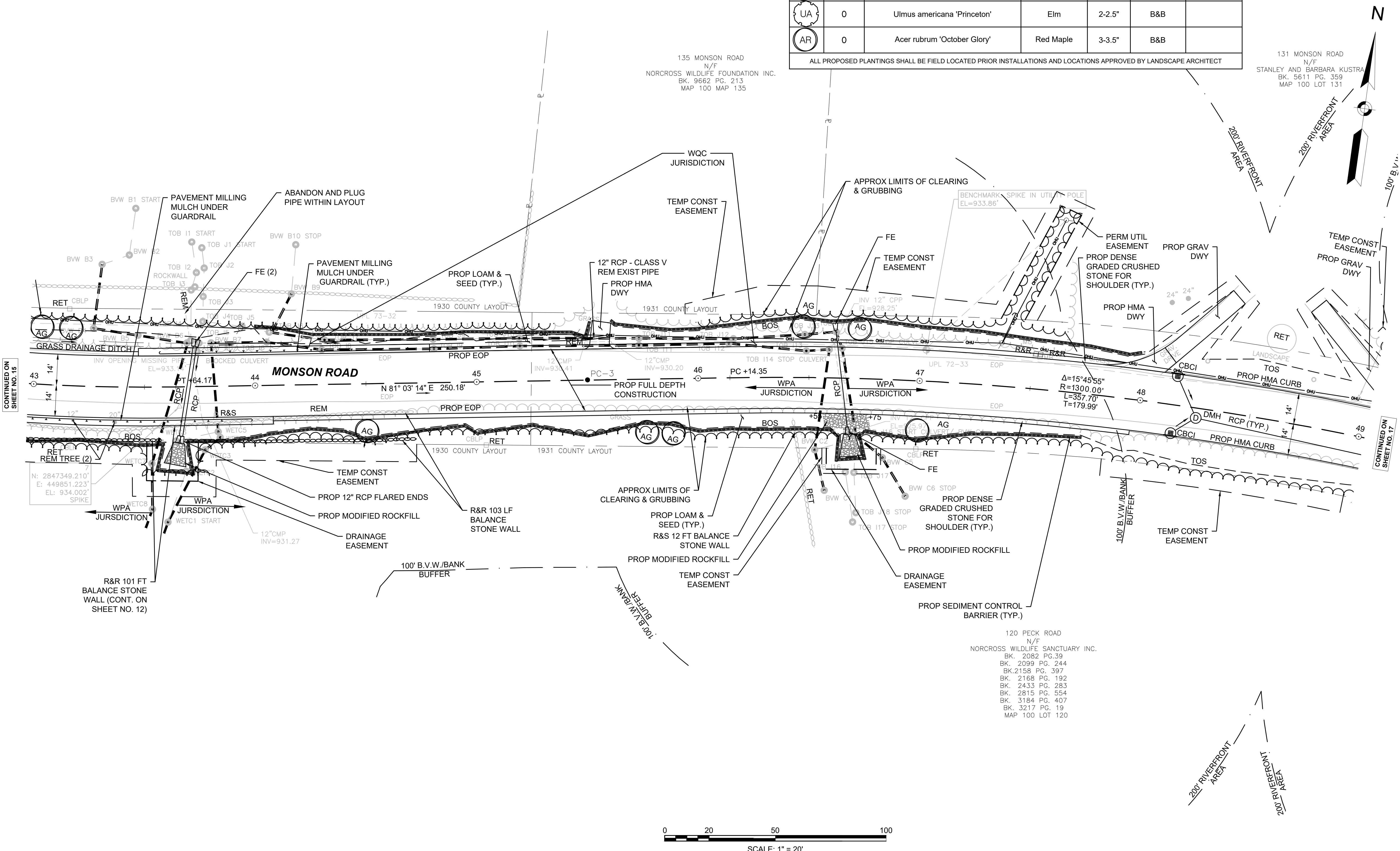
ALL PROPOSED PLANTINGS SHALL BE FIELD LOCATED PRIOR INSTALLATIONS AND LOCATIONS APPROVED BY LANDSCAPE ARCHITECT

**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	16	182

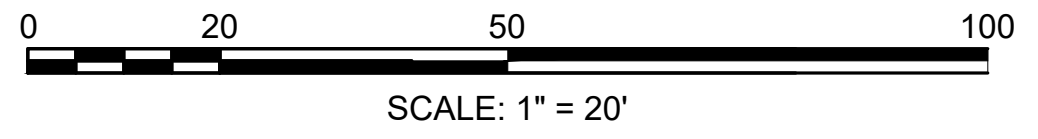
PROJECT FILE NO. 608163

**CONSTRUCTION PLANS**



CONTINUED ON SHEET NO. 15

CONTINUED ON SHEET NO. 17



FOR PROFILE SEE SHEET NO. 26



**HIGHWAY GUARD DETAILS**

STA 49+96 TO STA 50+08 LT TANGENT END TREATMENT TL-3  
 STA 50+08 TO STA 51+46 LT (TL-3)  
 STA 51+46 TO STA 51+58 LT TANGENT END TREATMENT TL-3  
 STA 49+33 TO STA 49+46 RT TANGENT END TREATMENT TL-3  
 STA 49+46 TO STA 51+71 RT (TL-3)  
 STA 51+71 TO STA 51+84 RT TANGENT END TREATMENT TL-3

**TRAFFIC SIGNAL CONDUIT**

NONE

**WATER SUPPLY ALTERATIONS**

NONE

**DRAINAGE DETAILS**

SEE UTILITY PLANS

**PLANT SCHEDULE**

TREES	QTY (PER SHEET)	BOTANICAL NAME	COMMON NAME	CALIPER	CONTAINER	REMARKS
CC	1	Cercis canadensis	Eastern Redbud	2-2.5"	B&B	Single-stem
AG	0	Amelanchier grandiflora 'Autumn Brilliance'	Serviceberry	2-2.5"	B&B	Single-stem
UA	1	Ulmus americana 'Princeton'	Elm	2-2.5"	B&B	
AR	0	Acer rubrum 'October Glory'	Red Maple	3-3.5"	B&B	

ALL PROPOSED PLANTINGS SHALL BE FIELD LOCATED PRIOR INSTALLATIONS AND LOCATIONS APPROVED BY LANDSCAPE ARCHITECT

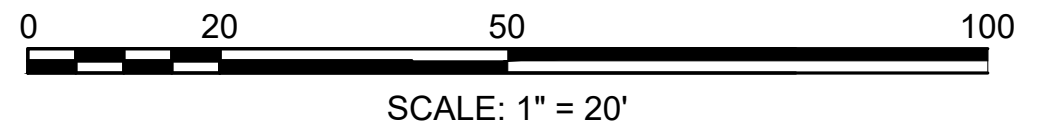
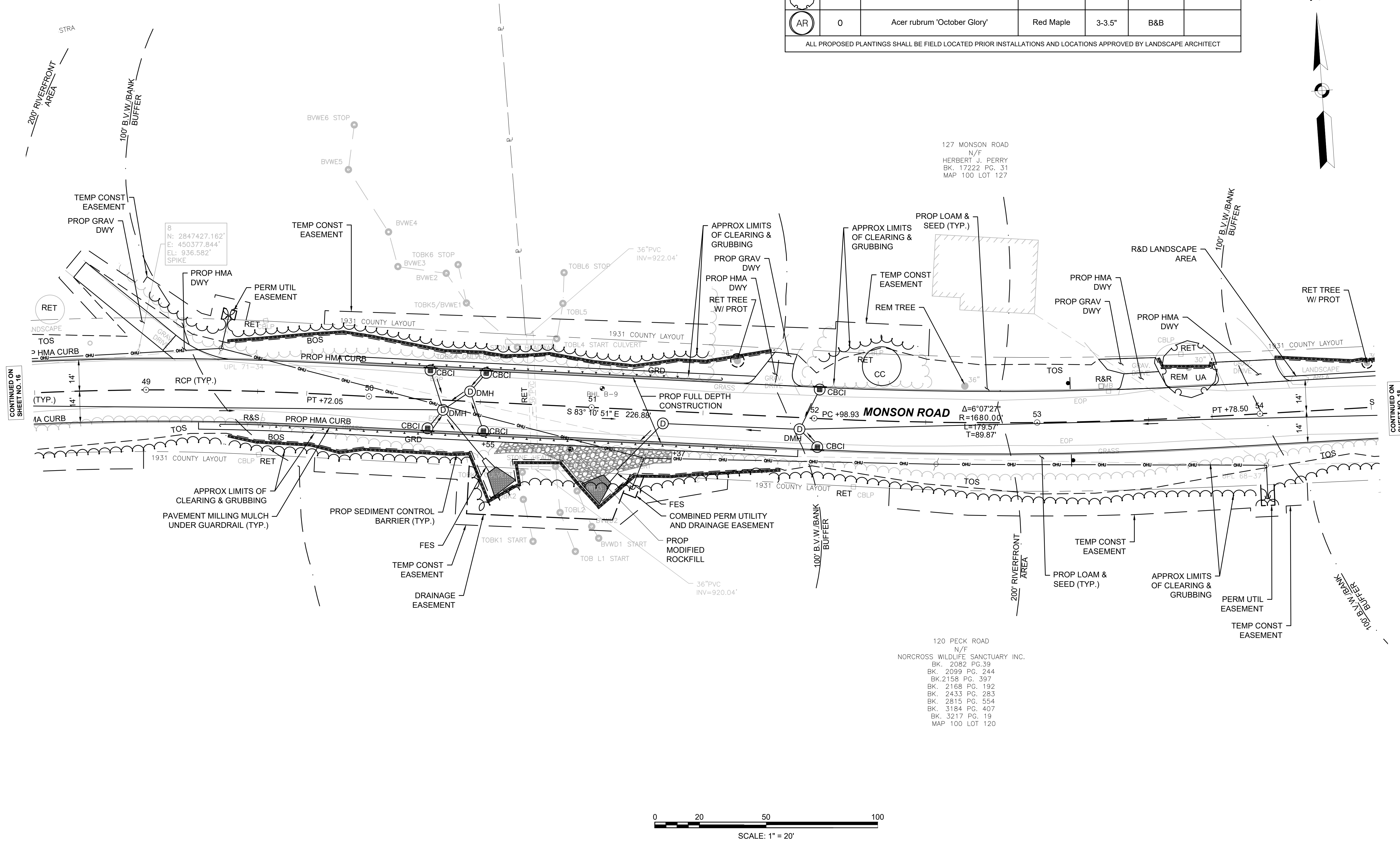
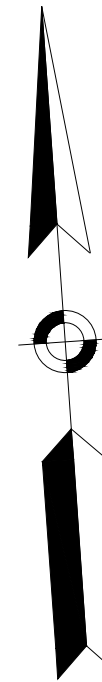
**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	17	182

PROJECT FILE NO. 608163

**CONSTRUCTION PLANS**

N



FOR PROFILE SEE SHEET NO. 27

CONTINUED ON SHEET NO. 16

CONTINUED ON SHEET NO. 18

608163\_HDS(CONSTRUCTION PLANS).DWG Plotted on 14-Oct-2024 12:08 PM

HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

NONE

DRAINAGE DETAILS

SEE UTILITY PLANS

PLANT SCHEDULE

TREES	QTY (PER SHEET)	BOTANICAL NAME	COMMON NAME	CALIPER	CONTAINER	REMARKS
CC	0	Cercis canadensis	Eastern Redbud	2-2.5"	B&B	Single-stem
AG	0	Amelanchier grandiflora 'Autumn Brilliance'	Serviceberry	2-2.5"	B&B	Single-stem
UA	0	Ulmus americana 'Princeton'	Elm	2-2.5"	B&B	
AR	0	Acer rubrum 'October Glory'	Red Maple	3-3.5"	B&B	

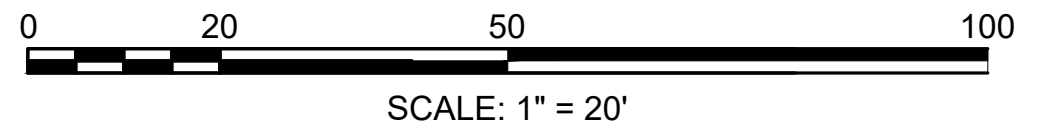
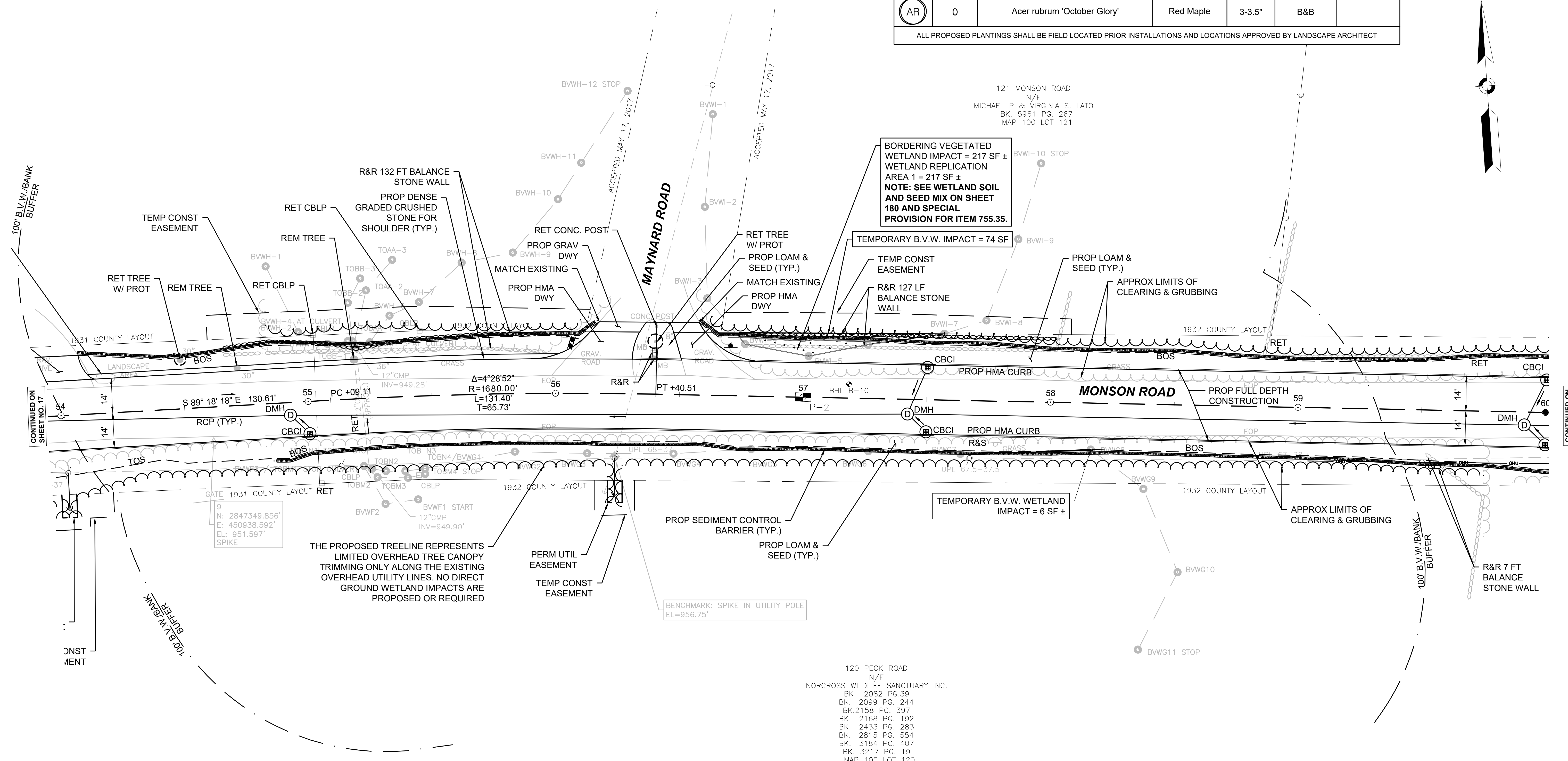
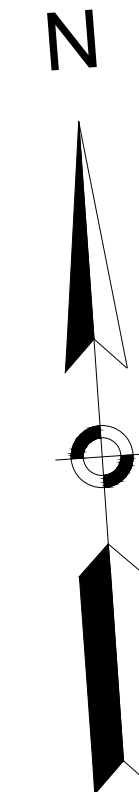
ALL PROPOSED PLANTINGS SHALL BE FIELD LOCATED PRIOR INSTALLATIONS AND LOCATIONS APPROVED BY LANDSCAPE ARCHITECT

WALES MONSON ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	18	182

PROJECT FILE NO. 608163

CONSTRUCTION PLANS



FOR PROFILE SEE SHEET NO. 28



HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

NONE

DRAINAGE DETAILS

SEE UTILITY PLANS

PLANT SCHEDULE

TREES	QTY (PER SHEET)	BOTANICAL NAME	COMMON NAME	CALIPER	CONTAINER	REMARKS
CC	0	Cercis canadensis	Eastern Redbud	2-2.5"	B&B	Single-stem
AG	0	Amelanchier grandiflora 'Autumn Brilliance'	Serviceberry	2-2.5"	B&B	Single-stem
UA	0	Ulmus americana 'Princeton'	Elm	2-2.5"	B&B	
AR	0	Acer rubrum 'October Glory'	Red Maple	3-3.5"	B&B	

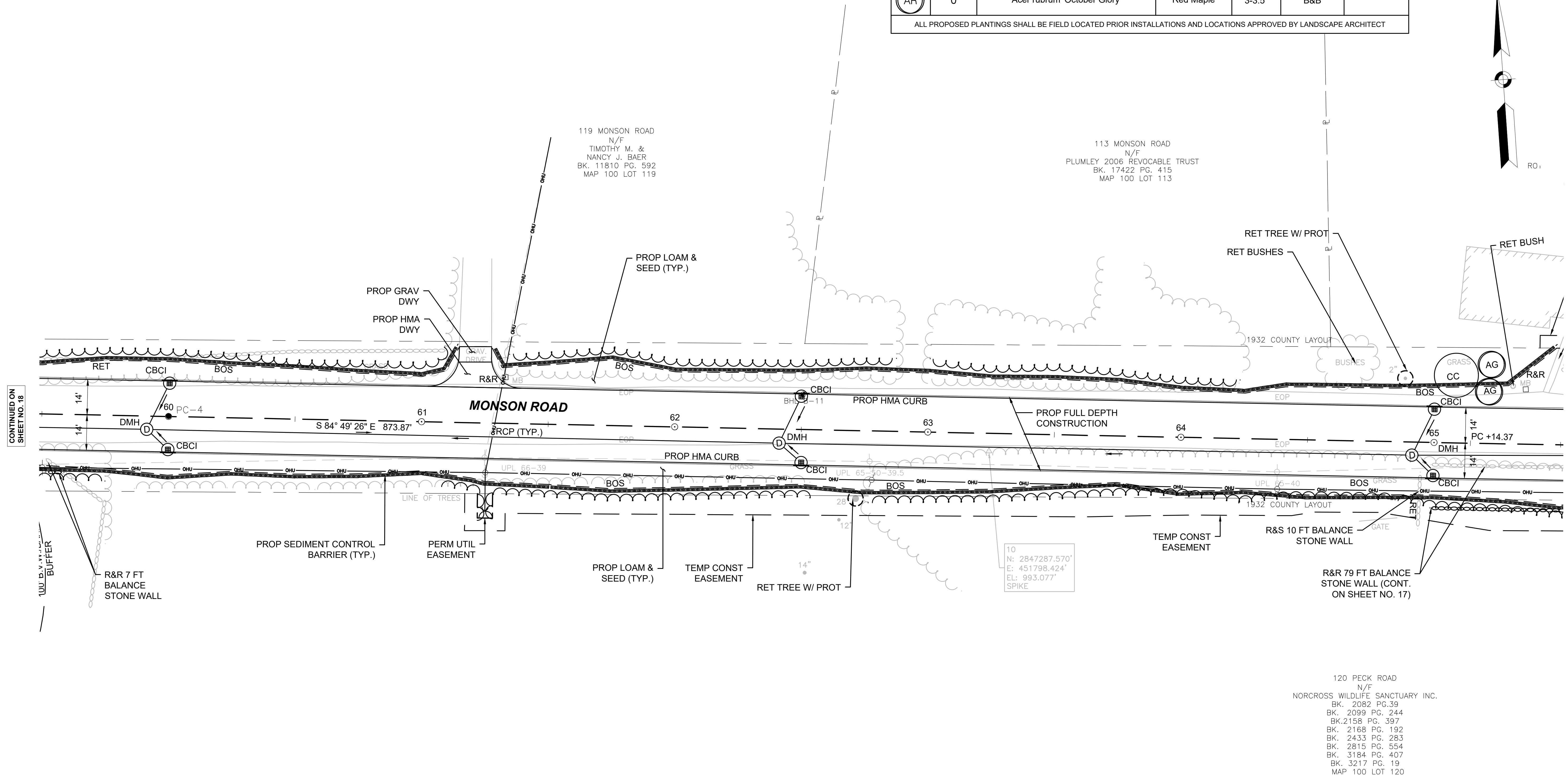
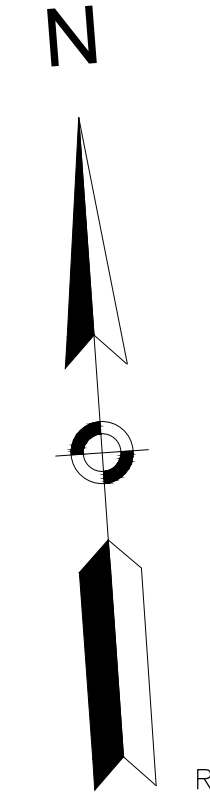
ALL PROPOSED PLANTINGS SHALL BE FIELD LOCATED PRIOR INSTALLATIONS AND LOCATIONS APPROVED BY LANDSCAPE ARCHITECT

WALES  
MONSON ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	19	182

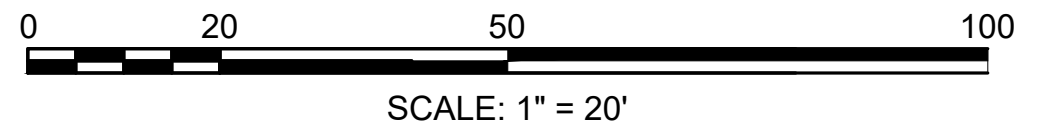
PROJECT FILE NO. 608163

CONSTRUCTION PLANS



CONTINUED ON SHEET NO. 18

CONTINUED ON SHEET NO. 20



FOR PROFILE SEE SHEET NO. 29

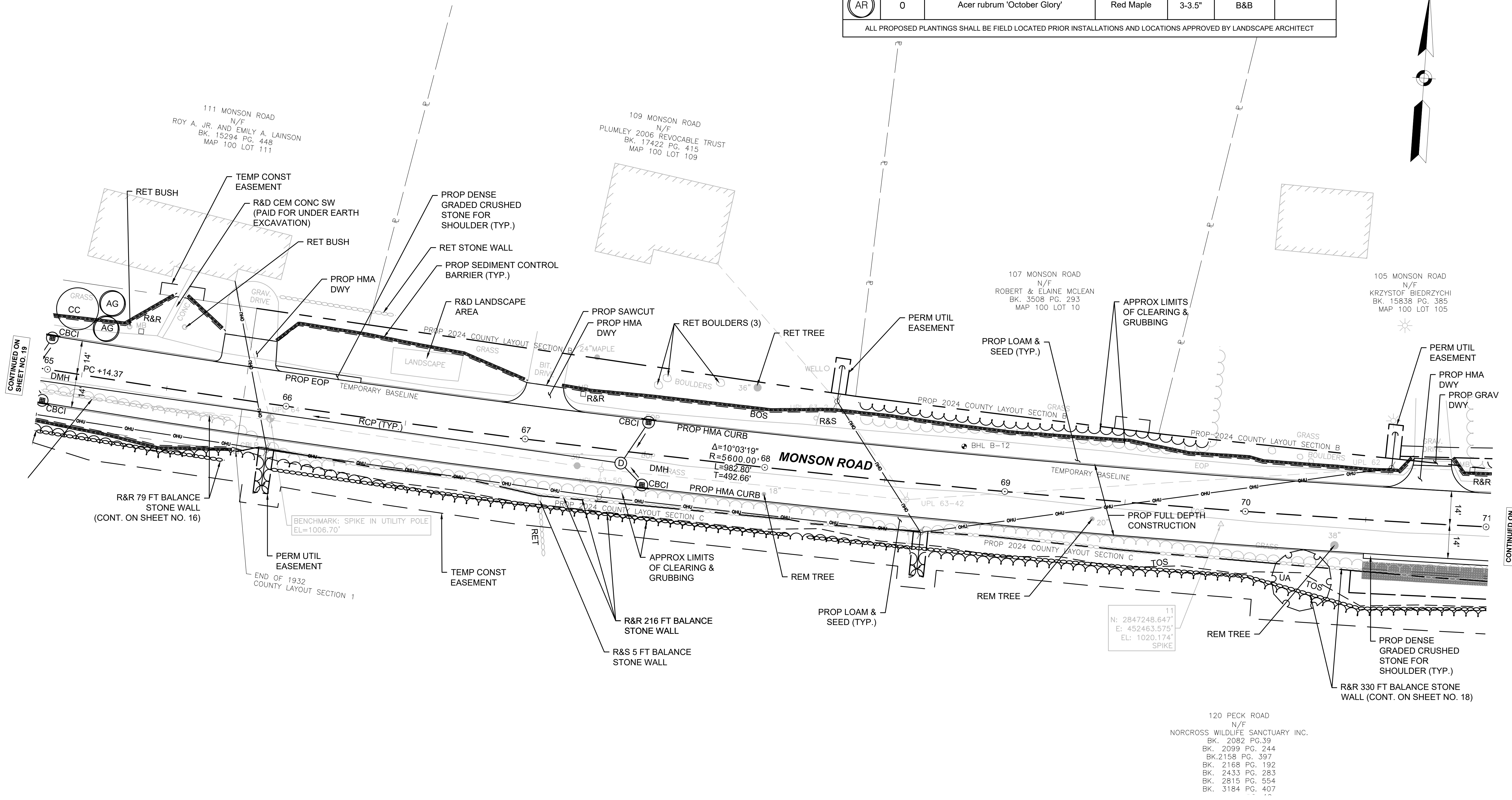
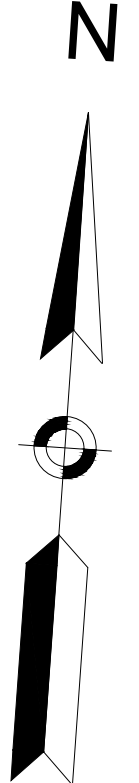
HIGHWAY GUARD DETAILS NONE  
 TRAFFIC SIGNAL CONDUIT NONE  
 WATER SUPPLY ALTERATIONS NONE  
 DRAINAGE DETAILS SEE UTILITY PLANS

PLANT SCHEDULE						
TREES	QTY (PER SHEET)	BOTANICAL NAME	COMMON NAME	CALIPER	CONTAINER	REMARKS
(CC)	1	Cercis canadensis	Eastern Redbud	2-2.5"	B&B	Single-stem
(AG)	2	Amelanchier grandiflora 'Autumn Brilliance'	Serviceberry	2-2.5"	B&B	Single-stem
(UA)	1	Ulmus americana 'Princeton'	Elm	2-2.5"	B&B	
(AR)	0	Acer rubrum 'October Glory'	Red Maple	3-3.5"	B&B	

ALL PROPOSED PLANTINGS SHALL BE FIELD LOCATED PRIOR INSTALLATIONS AND LOCATIONS APPROVED BY LANDSCAPE ARCHITECT

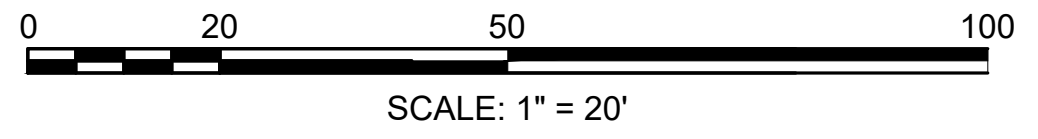
WALES MONSON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	20	182
PROJECT FILE NO.		608163	

CONSTRUCTION PLANS



CONTINUED ON SHEET NO. 19

CONTINUED ON SHEET NO. 21



120 PECK ROAD  
 N/F  
 NORCROSS WILDLIFE SANCTUARY INC.  
 BK. 2082 PG. 39  
 BK. 2099 PG. 244  
 BK. 2158 PG. 397  
 BK. 2168 PG. 192  
 BK. 2433 PG. 283  
 BK. 2815 PG. 554  
 BK. 3184 PG. 407

FOR PROFILE SEE SHEET NO. 30



HIGHWAY GUARD DETAILS

STA 71+83 TO STA 71+95 RT TANGENT END TREATMENT TL-3  
 STA 71+95 TO STA 74+07 RT (TL-3)  
 STA 74+07 TO STA 74+19 RT TANGENT END TREATMENT TL-3

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

NONE

DRAINAGE DETAILS

SEE UTILITY PLANS

PLANT SCHEDULE

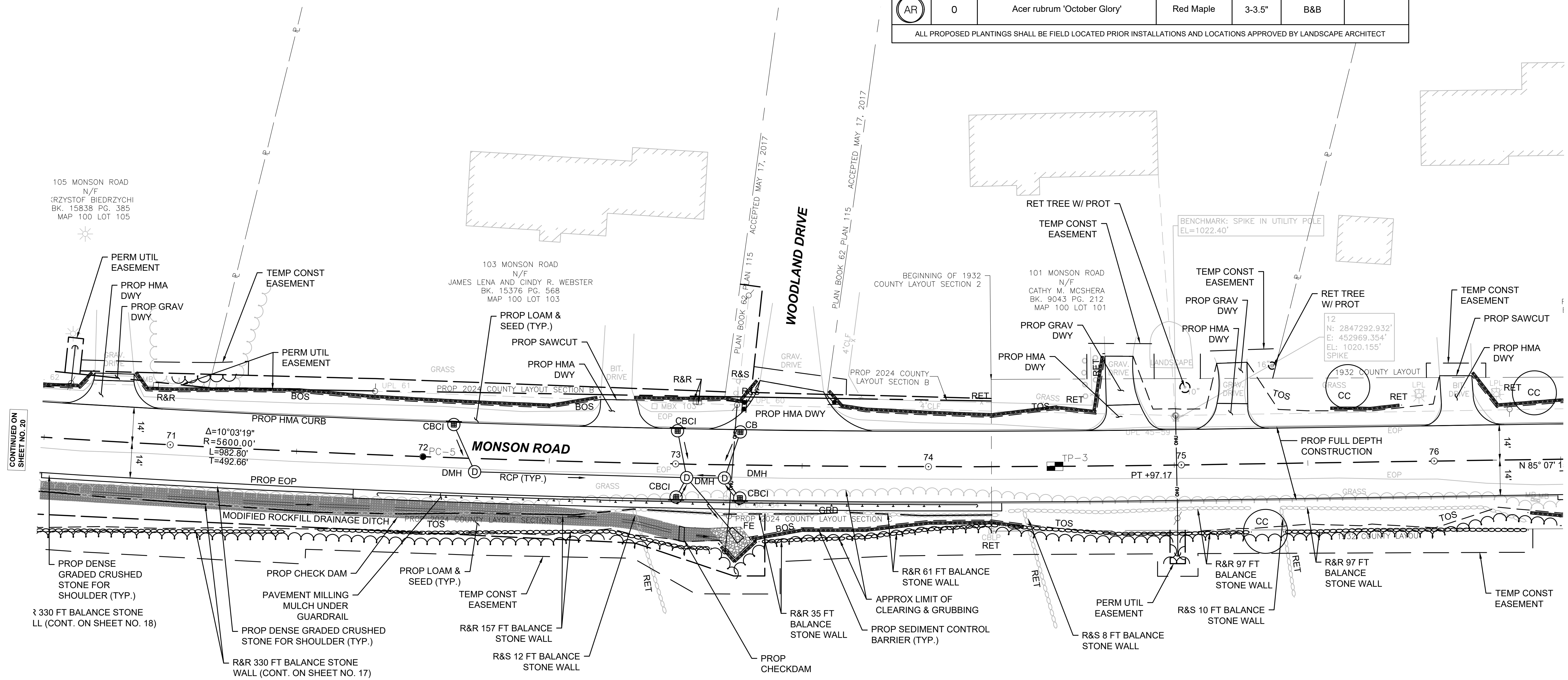
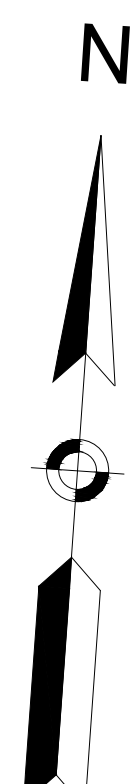
TREES	QTY (PER SHEET)	BOTANICAL NAME	COMMON NAME	CALIPER	CONTAINER	REMARKS
CC	2	Cercis canadensis	Eastern Redbud	2-2.5"	B&B	Single-stem
AG	0	Amelanchier grandiflora 'Autumn Brilliance'	Serviceberry	2-2.5"	B&B	Single-stem
UA	0	Ulmus americana 'Princeton'	Elm	2-2.5"	B&B	
AR	0	Acer rubrum 'October Glory'	Red Maple	3-3.5"	B&B	

ALL PROPOSED PLANTINGS SHALL BE FIELD LOCATED PRIOR INSTALLATIONS AND LOCATIONS APPROVED BY LANDSCAPE ARCHITECT

WALES  
MONSON ROAD

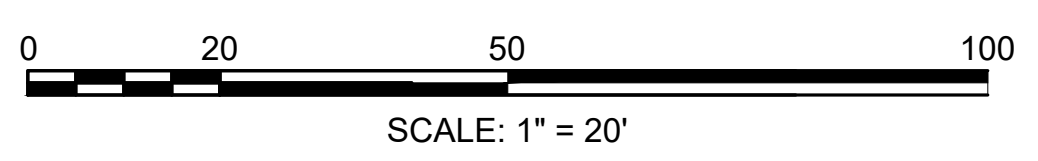
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSL-0032(043)X	21	182
PROJECT FILE NO.		608163	

CONSTRUCTION PLANS



CONTINUED ON SHEET NO. 20

CONTINUED ON SHEET NO. 22



120 PECK ROAD  
 N/F  
 NORCROSS WILDLIFE SANCTUARY INC.  
 BK. 2082 PG. 39  
 BK. 2099 PG. 244  
 BK. 2158 PG. 397  
 BK. 2168 PG. 192  
 BK. 2433 PG. 283  
 BK. 2815 PG. 554  
 BK. 3184 PG. 407  
 BK. 3217 PG. 19  
 MAP 100 LOT 120

FOR PROFILE SEE SHEET NO. 31

HIGHWAY GUARD DETAILS

STA 80+08 TO STA 80+21 RT TANGENT END TREATMENT TL-3  
 STA 80+21 TO STA 82+59 RT (TL-3)  
 STA 81+79 TO STA 81+92 LT TANGENT END TREATMENT TL-3  
 STA 81+92 TO STA 82+92 LT (TL-3)

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

NONE

DRAINAGE DETAILS

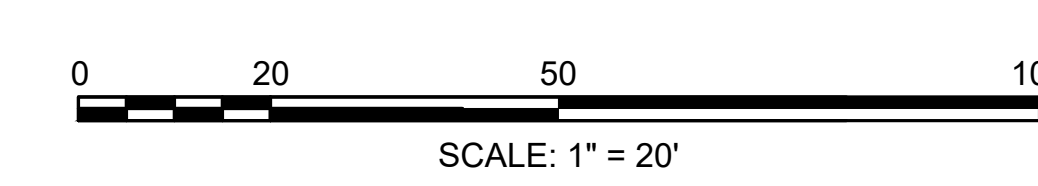
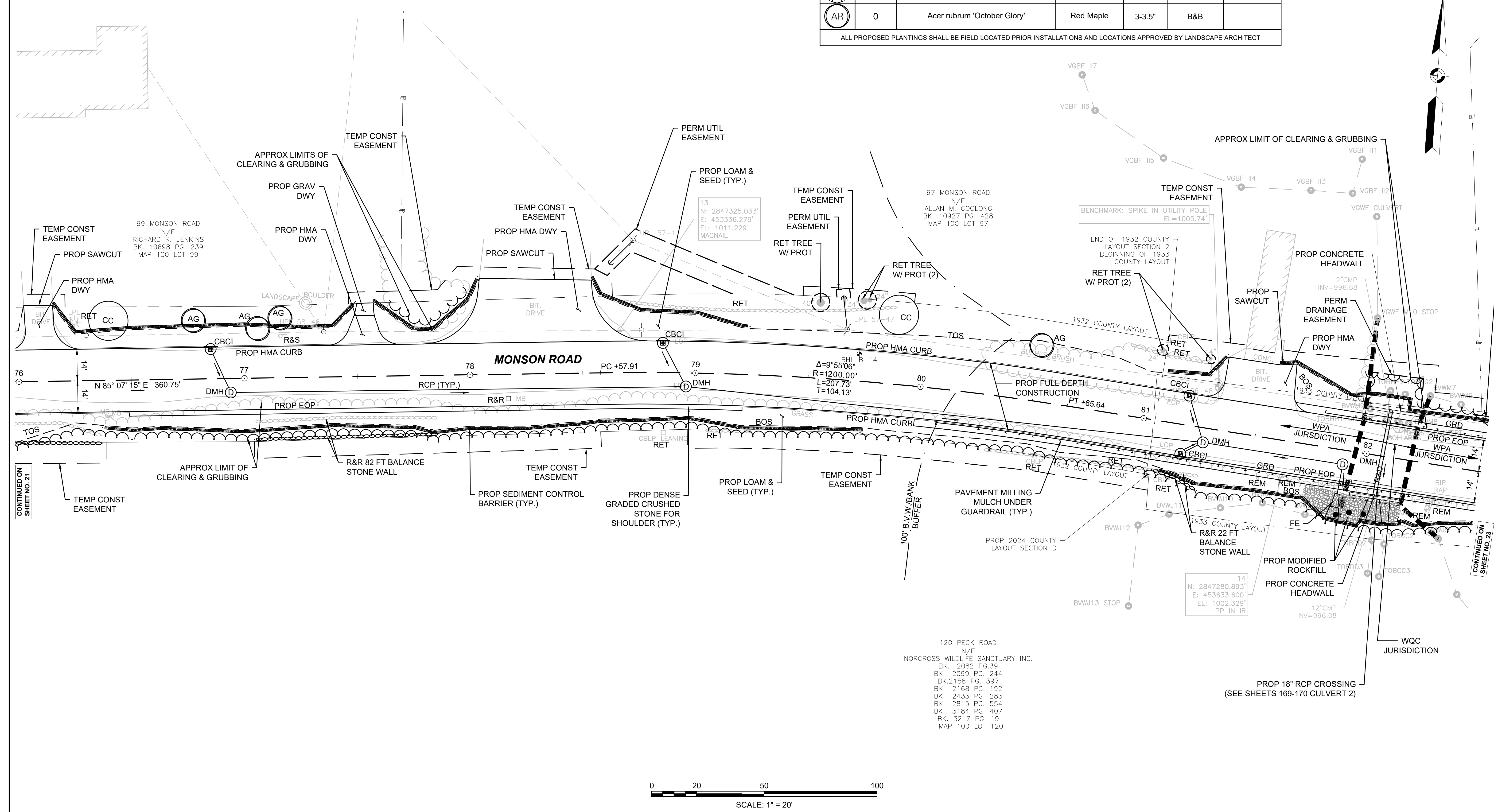
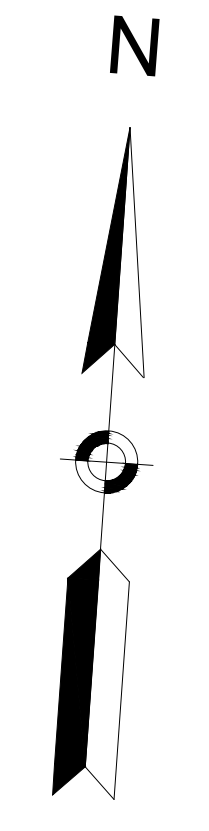
SEE UTILITY PLANS

PLANT SCHEDULE						
TREES	QTY (PER SHEET)	BOTANICAL NAME	COMMON NAME	CALIPER	CONTAINER	REMARKS
CC	2	Cercis canadensis	Eastern Redbud	2-2.5"	B&B	Single-stem
AG	4	Amelanchier grandiflora 'Autumn Brilliance'	Serviceberry	2-2.5"	B&B	Single-stem
UA	0	Ulmus americana 'Princeton'	Elm	2-2.5"	B&B	
AR	0	Acer rubrum 'October Glory'	Red Maple	3-3.5"	B&B	

ALL PROPOSED PLANTINGS SHALL BE FIELD LOCATED PRIOR INSTALLATIONS AND LOCATIONS APPROVED BY LANDSCAPE ARCHITECT

WALES MONSON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	22	182
PROJECT FILE NO.		608163	

CONSTRUCTION PLANS



CONTINUED ON SHEET NO. 21

CONTINUED ON SHEET NO. 23

FOR PROFILE SEE SHEET NO. 32



WALES MONSON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	23	182
PROJECT FILE NO.		608163	

**CONSTRUCTION PLANS**

**HIGHWAY GUARD DETAILS**

STA 80+21 TO STA 82+59 RT (TL-3)  
 STA 82+59 TO STA 82+72 RT TANGENT END TREATMENT TL-3  
 STA 81+92 TO STA 82+92 LT (TL-3)  
 STA 82+92 TO STA 83+04 LT TANGENT END TREATMENT TL-3  
 STA 84+54 TO STA 84+66 RT TANGENT END TREATMENT TL-3  
 STA 84+66 TO STA 85+64 RT (TL-3)  
 STA 85+64 TO STA 86+04 RT TRANSITION TO BRIDGE RAIL (SINGLE FACED)  
 STA 1+43 TO STA 1+83 RT TRANSITION TO BRIDGE RAIL (SINGLE FACED)  
 STA 1+83 TO STA 2+07 RT (TL-3)  
 STA 02+07 TO STA 02+20 RT TANGENT END TREATMENT TL-3

STA 02+20 TO STA 02+07 LT TANGENT END TREATMENT TL-3  
 STA 02+07 TO STA 87+79 RT (TL-3)  
 STA 87+79 TO STA 87+92 RT TANGENT END TREATMENT TL-3  
 STA 87+02 TO STA 87+42 LT TRANSITION TO BRIDGE RAIL (SINGLE FACED)  
 STA 87+42 TO STA 87+87 LT (TL-3)  
 STA 87+87 TO STA 88+00 LT TANGENT END TREATMENT TL-3

**TRAFFIC SIGNAL CONDUIT**

NONE

**WATER SUPPLY ALTERATIONS**

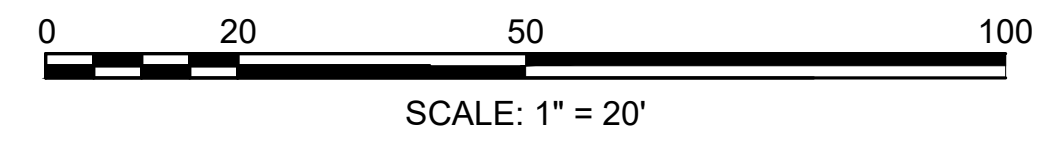
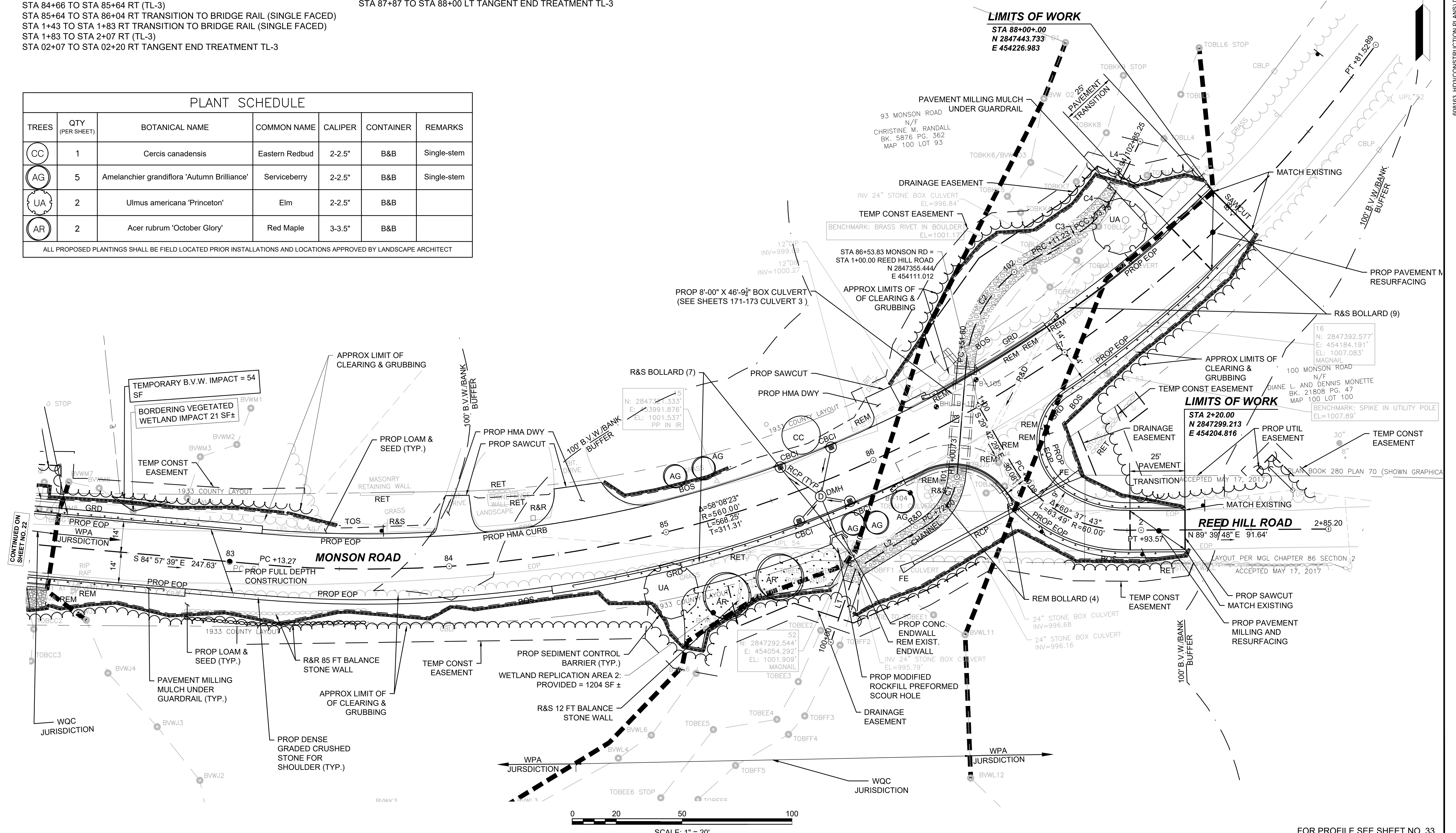
NONE

**DRAINAGE DETAILS**

SEE UTILITY PLANS

PLANT SCHEDULE						
TREES	QTY (PER SHEET)	BOTANICAL NAME	COMMON NAME	CALIPER	CONTAINER	REMARKS
CC	1	Cercis canadensis	Eastern Redbud	2-2.5"	B&B	Single-stem
AG	5	Amelanchier grandiflora 'Autumn Brilliance'	Serviceberry	2-2.5"	B&B	Single-stem
UA	2	Ulmus americana 'Princeton'	Elm	2-2.5"	B&B	
AR	2	Acer rubrum 'October Glory'	Red Maple	3-3.5"	B&B	

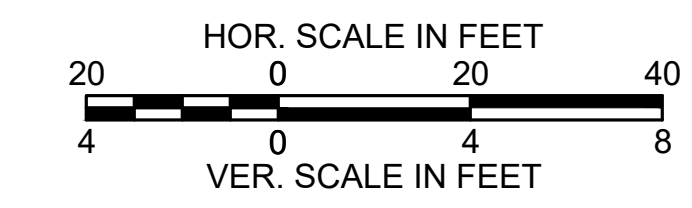
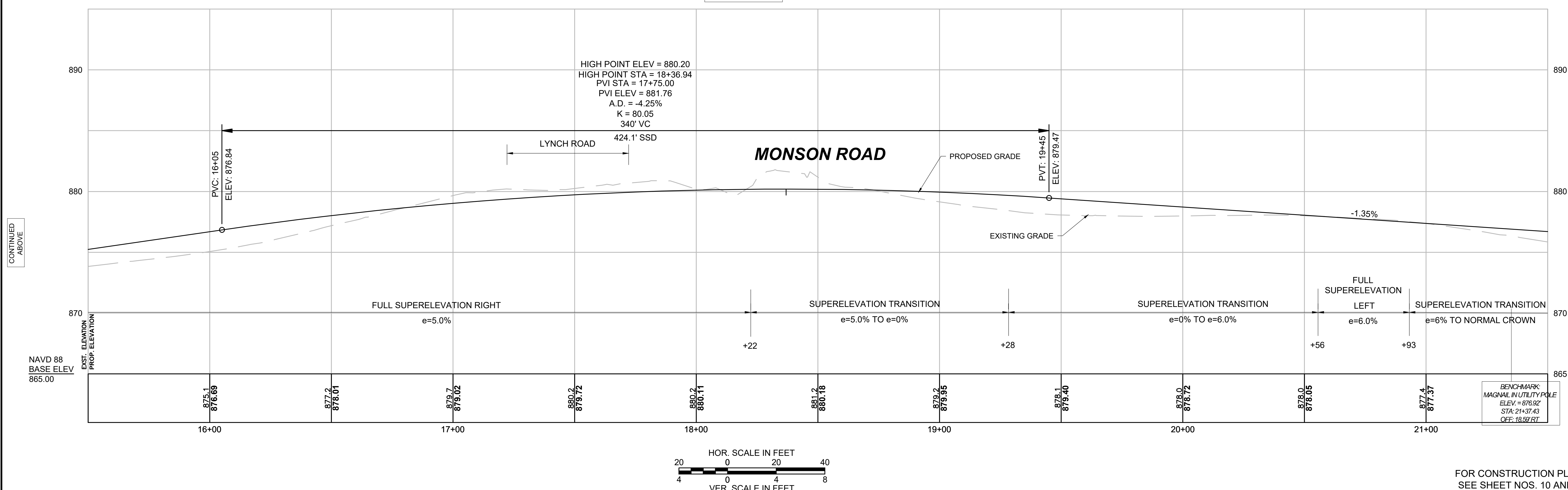
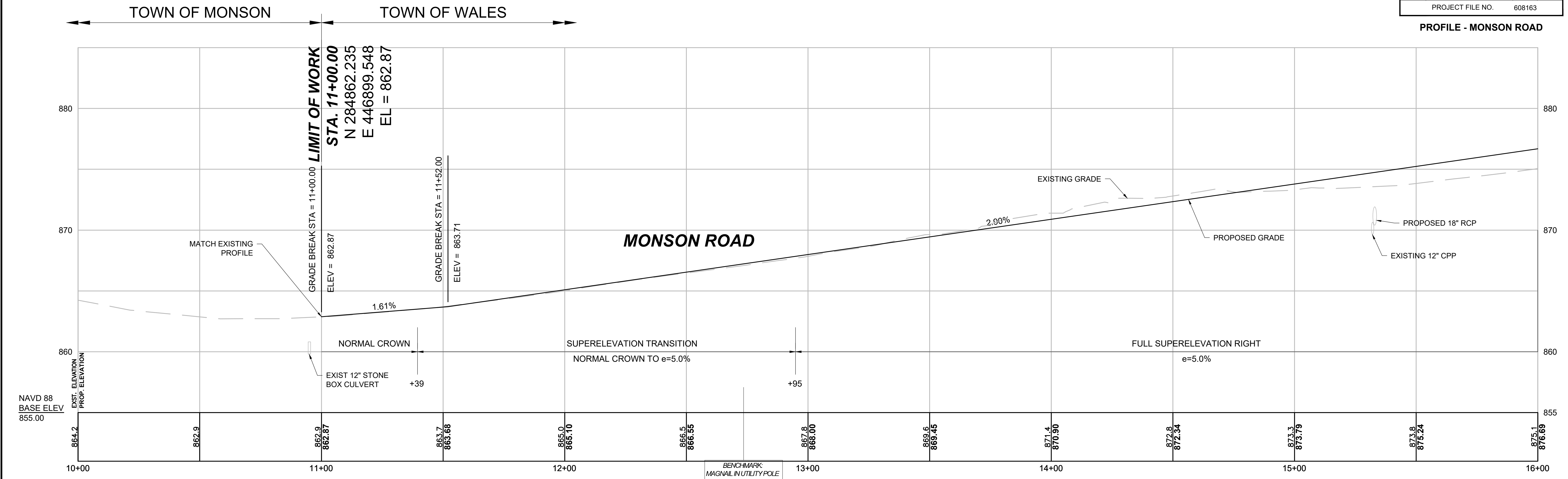
ALL PROPOSED PLANTINGS SHALL BE FIELD LOCATED PRIOR INSTALLATIONS AND LOCATIONS APPROVED BY LANDSCAPE ARCHITECT



FOR PROFILE SEE SHEET NO. 33

WALES MONSON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	24	182
PROJECT FILE NO. 608163			

PROFILE - MONSON ROAD



FOR CONSTRUCTION PLANS  
SEE SHEET NOS. 10 AND 11

CONTINUED ABOVE

CONTINUED ON SHEET NO. 25

CONTINUED BELOW



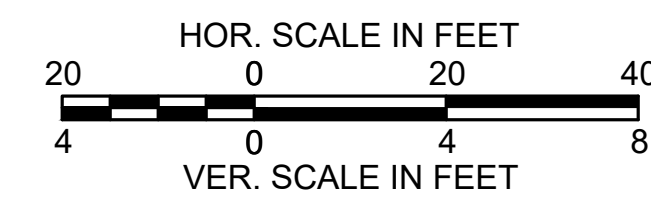
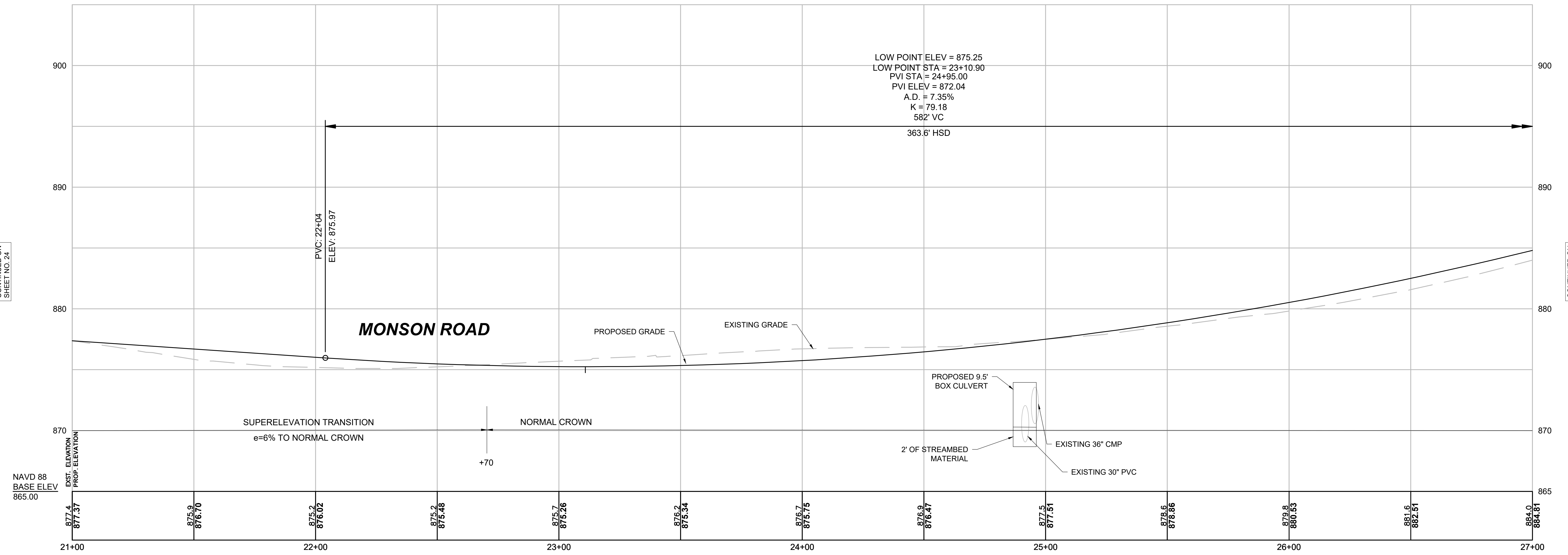
**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	25	182
PROJECT FILE NO.		608163	

**PROFILE - MONSON ROAD**

CONTINUED ON  
SHEET NO. 24

CONTINUED ON  
SHEET NO. 26

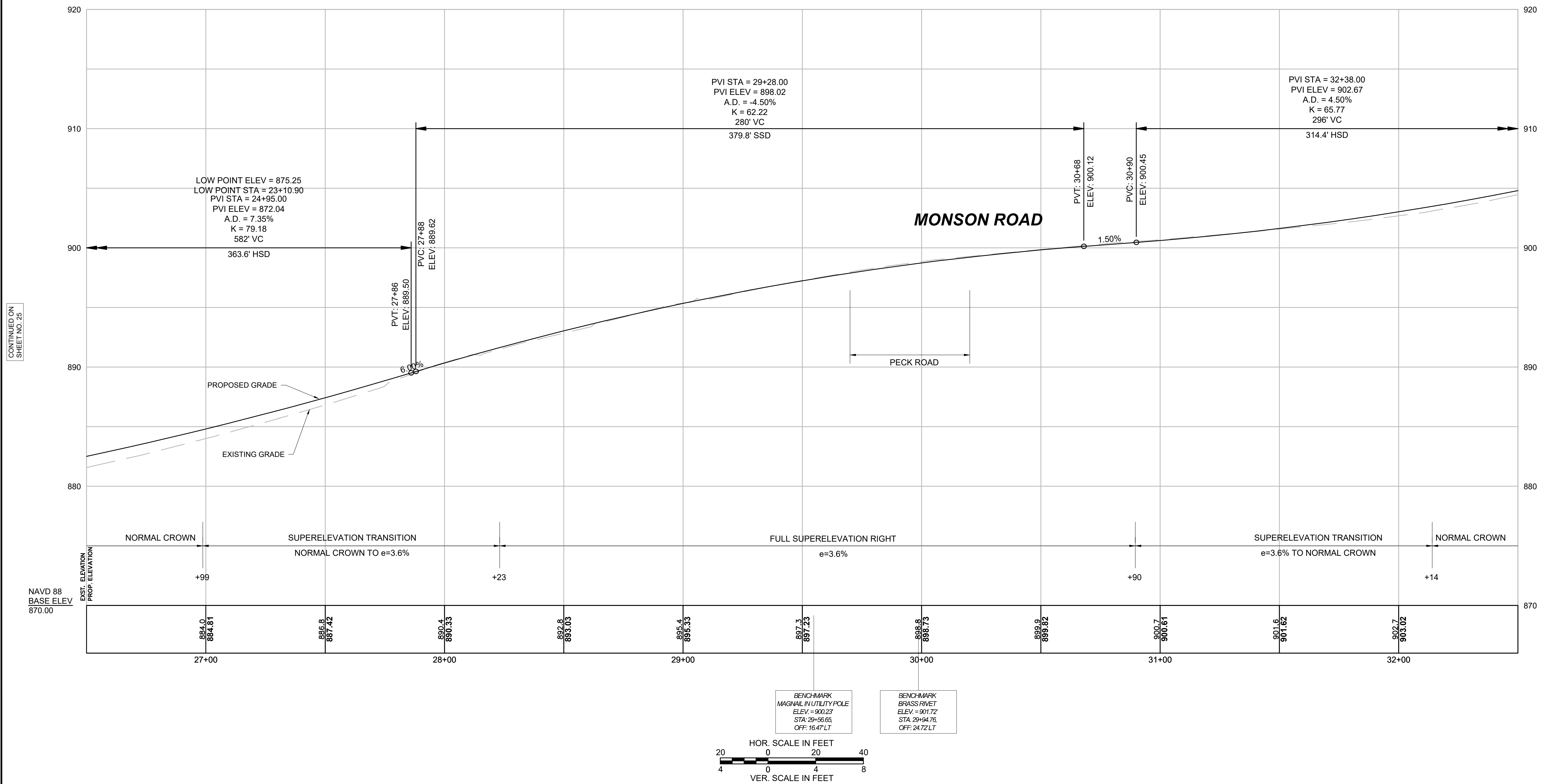


FOR CONSTRUCTION PLANS  
SEE SHEET NO. 12

**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	26	182
PROJECT FILE NO. 608163			

**PROFILE - MONSON ROAD**



CONTINUED ON  
SHEET NO. 25

CONTINUED ON  
SHEET NO. 27

FOR CONSTRUCTION PLANS  
SEE SHEET NO. 13

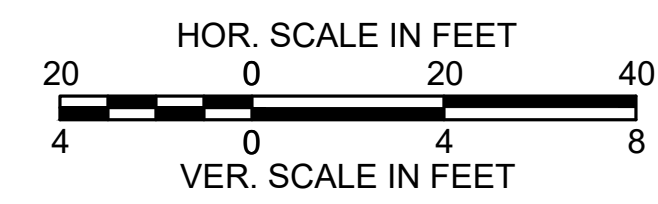
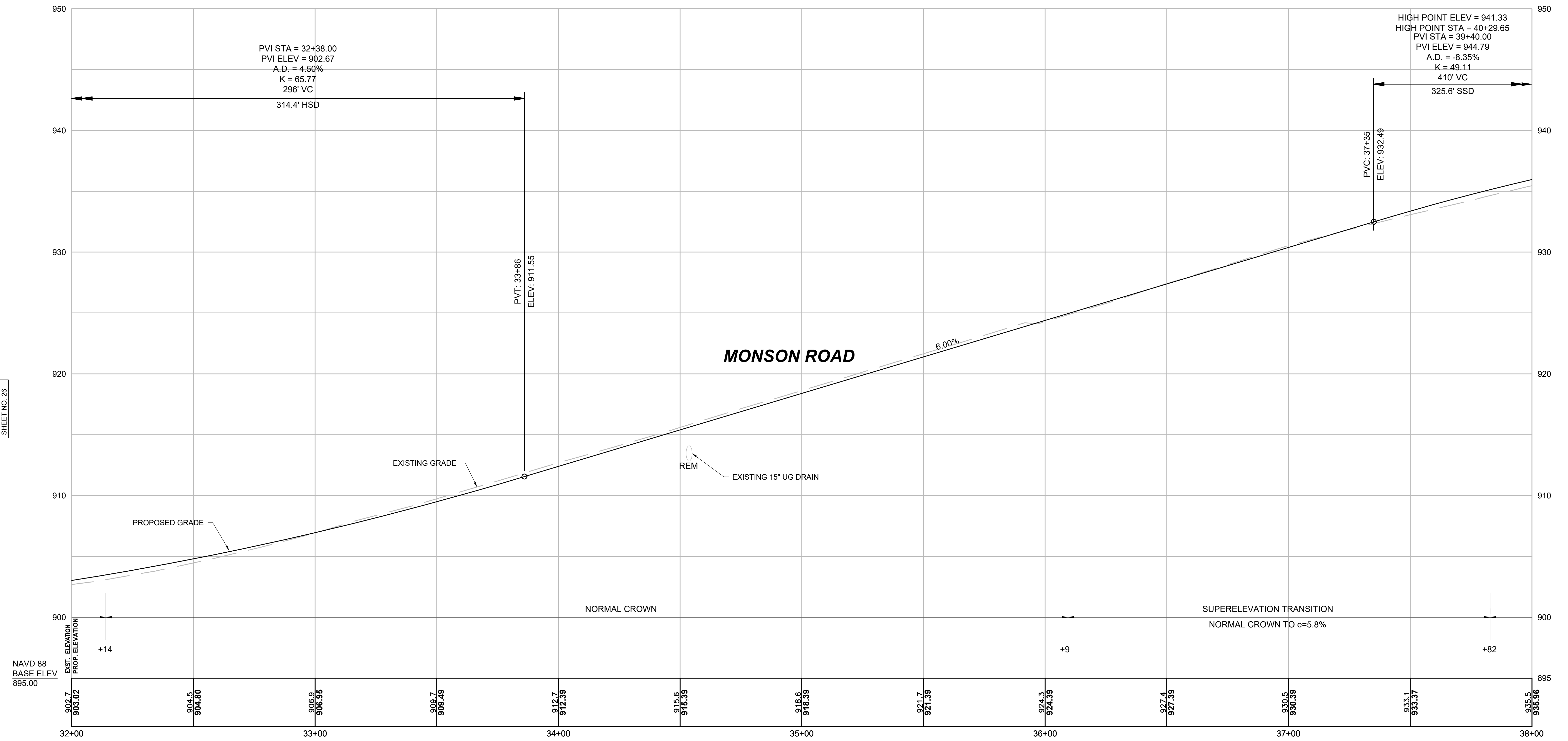
608163\_HDA(PROFILE).DWG Plotted on 14-Oct-2024 12:11 PM



**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	27	182
PROJECT FILE NO. 608163			

**PROFILE - MONSON ROAD**



CONTINUED ON  
SHEET NO. 26

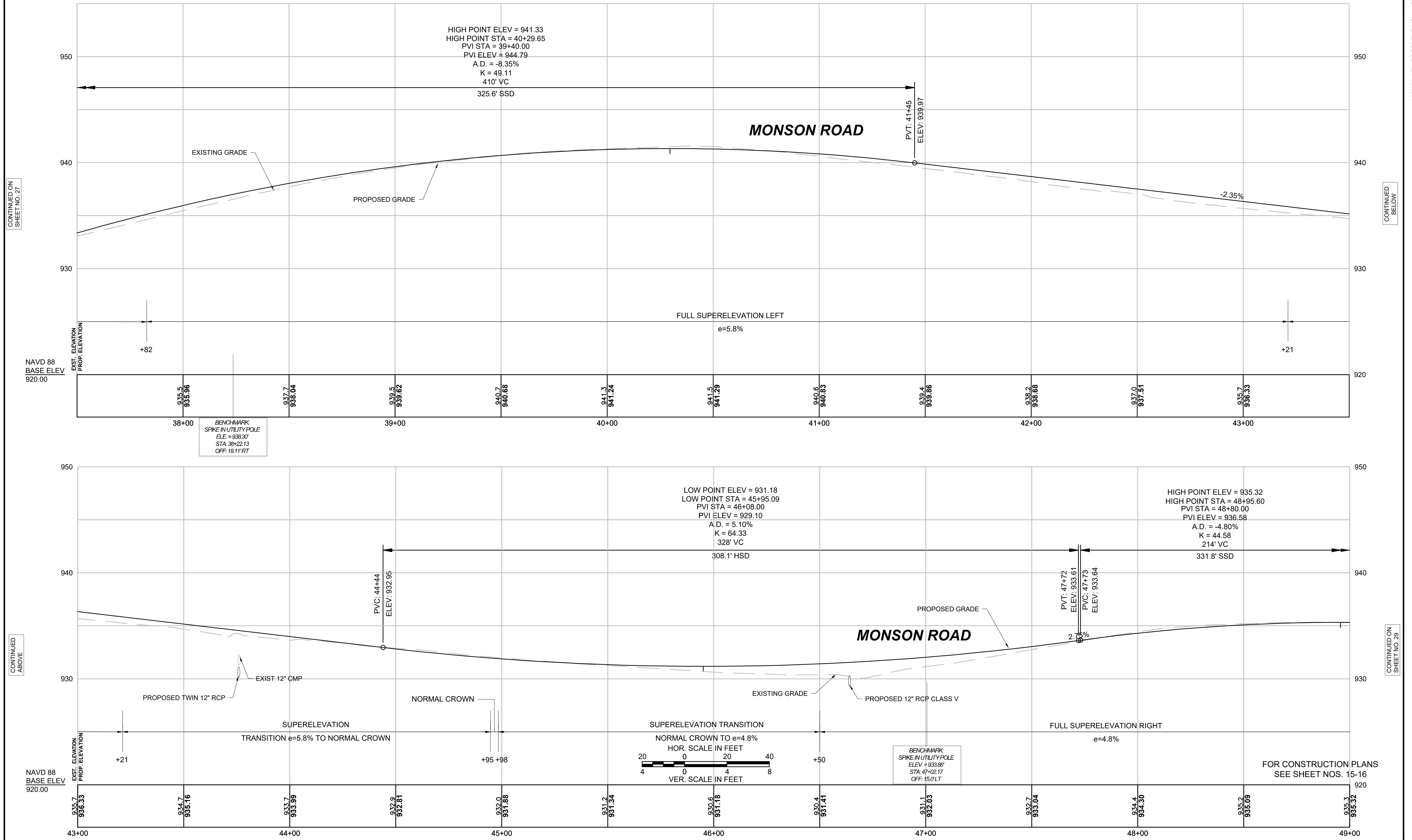
CONTINUED ON  
SHEET NO. 28

FOR CONSTRUCTION PLANS  
SEE SHEET NO. 14

**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	28	182
PROJECT FILE NO. 608163			

**PROFILE - MONSON ROAD**



CONTINUED ON  
SHEET NO. 27

CONTINUED  
BELOW

CONTINUED  
ABOVE

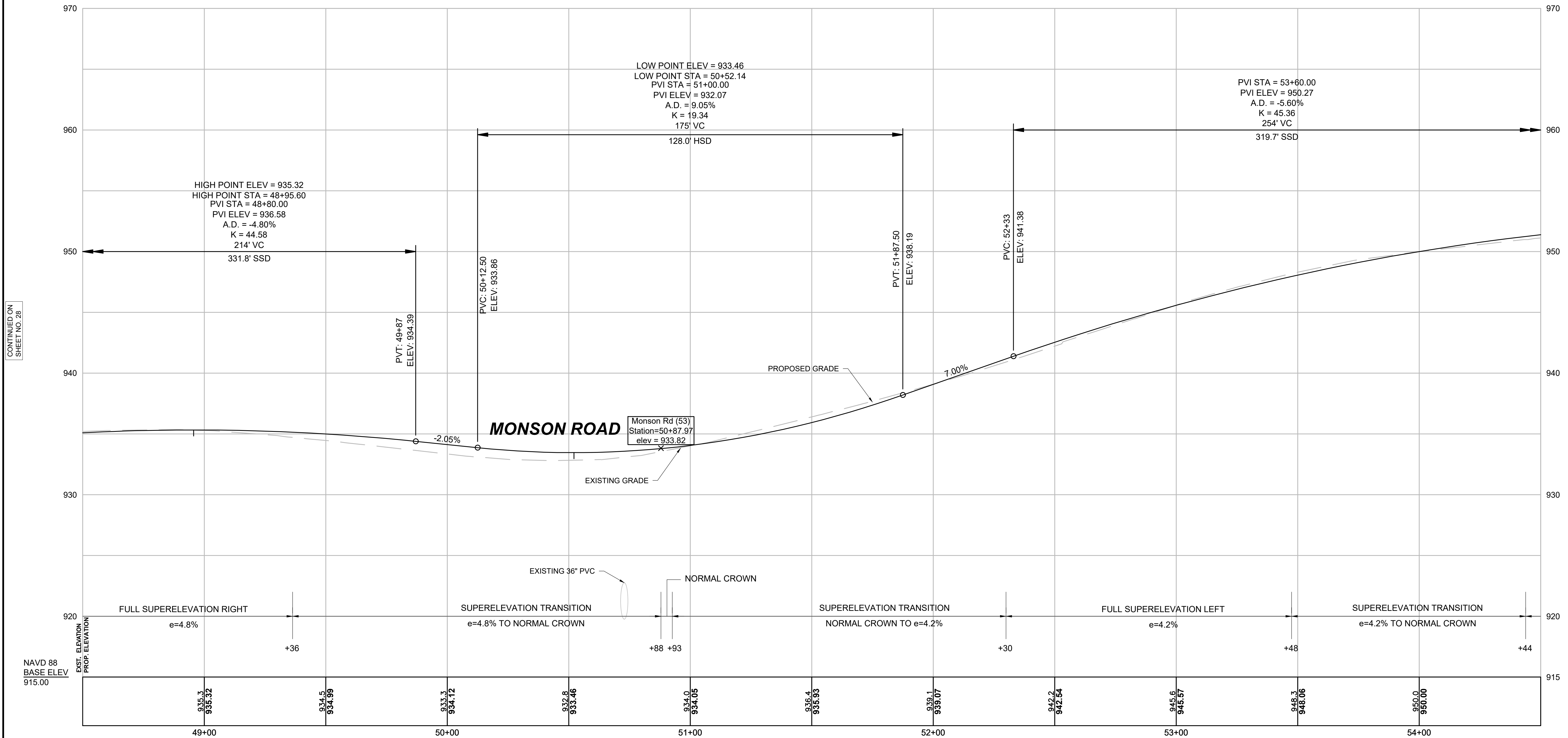
CONTINUED  
ON  
SHEET NO. 29



**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	29	182
PROJECT FILE NO.		608163	

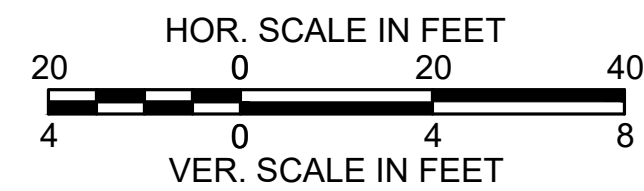
**PROFILE - MONSON ROAD**



CONTINUED ON SHEET NO. 28

CONTINUED ON SHEET NO. 30

NAVD 88  
BASE ELEV  
915.00

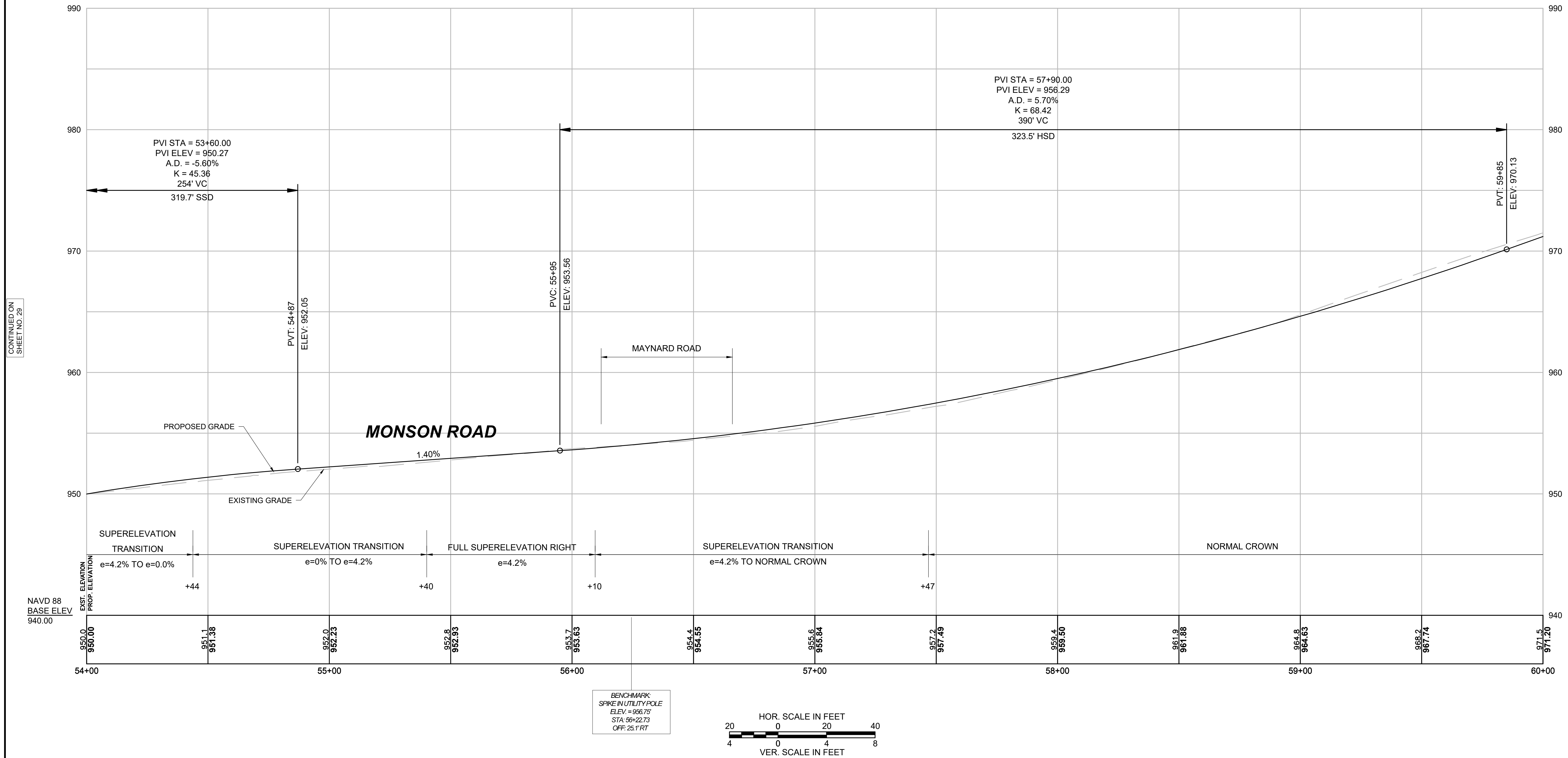


FOR CONSTRUCTION PLANS  
SEE SHEET NO. 17

**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	30	182
PROJECT FILE NO. 608163			

**PROFILE - MONSON ROAD**



CONTINUED ON SHEET NO. 29

CONTINUED ON SHEET NO. 31

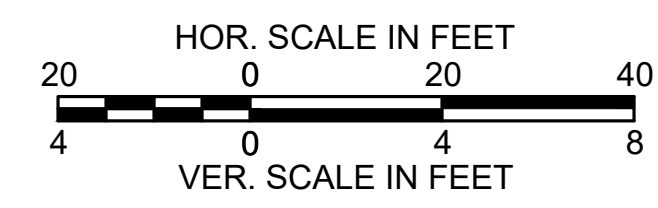
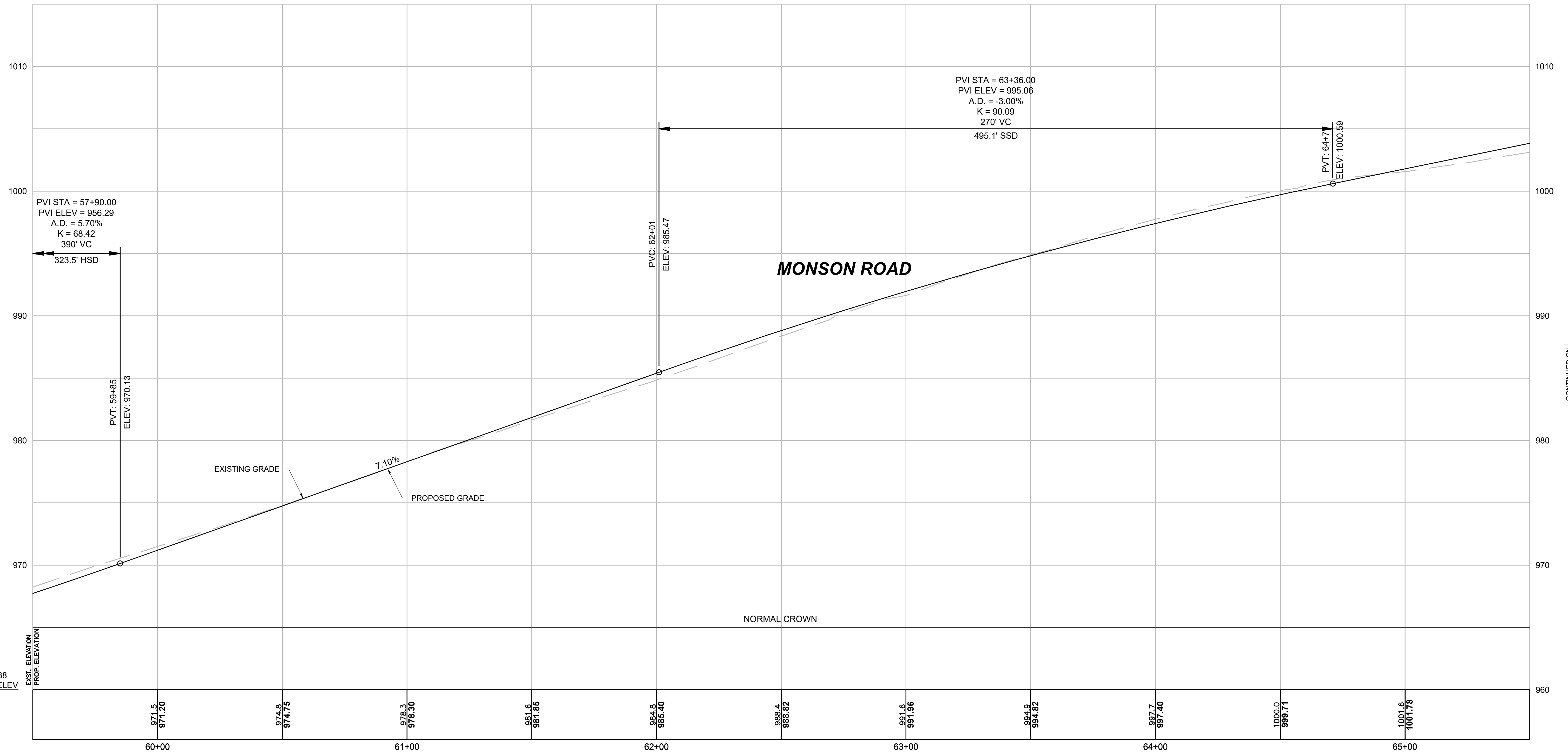
FOR CONSTRUCTION PLANS  
SEE SHEET NO. 18

608163\_HDA(PROFILE).DWG Plotted on 14-Oct-2024 12:13 PM

**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	31	182
PROJECT FILE NO.		608163	

**PROFILE - MONSON ROAD**



CONTINUED ON  
SHEET NO. 30

CONTINUED ON  
SHEET NO. 32

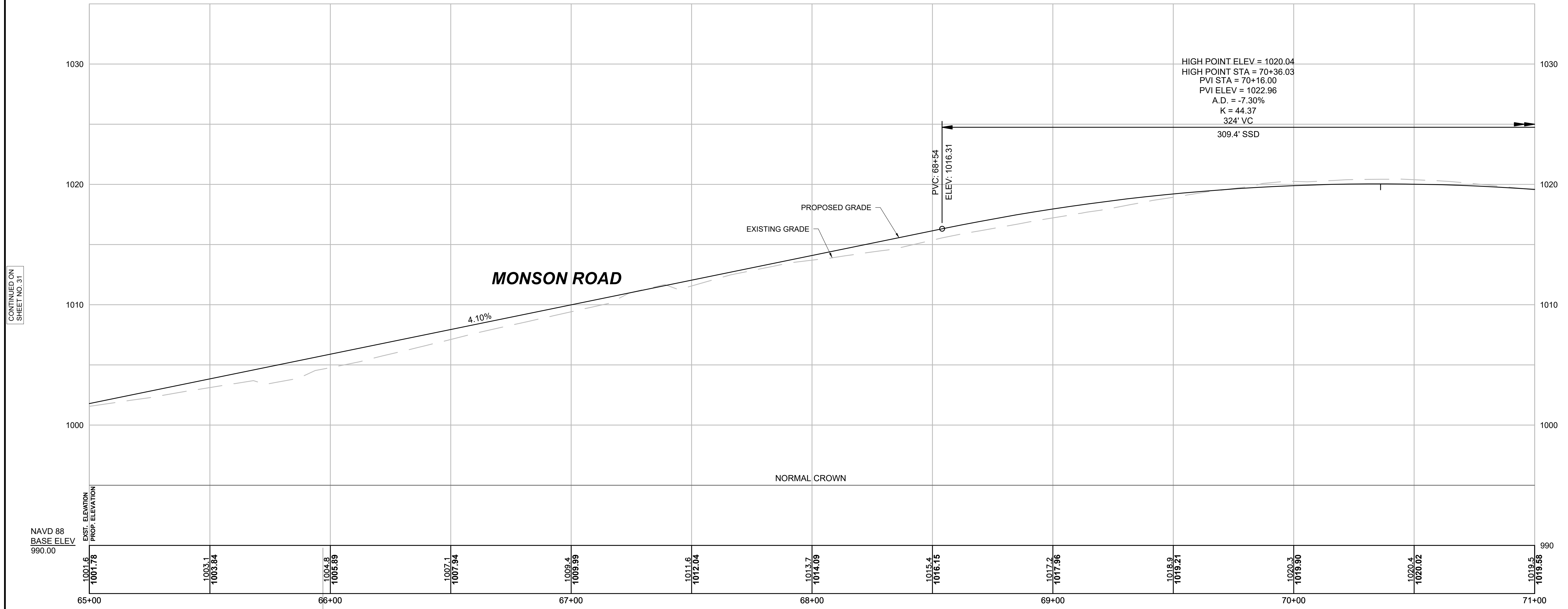
FOR CONSTRUCTION PLANS  
SEE SHEET NO. 19



**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	32	182
PROJECT FILE NO. 608163			

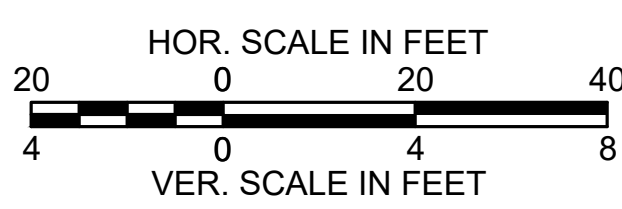
**PROFILE - MONSON ROAD**



CONTINUED ON  
SHEET NO. 31

CONTINUED ON  
SHEET NO. 33

BENCHMARK  
SPIKE IN UTILITY POLE  
ELEV. = 1006.70'  
STA: 65+94.25  
OFF: 5.83 RT

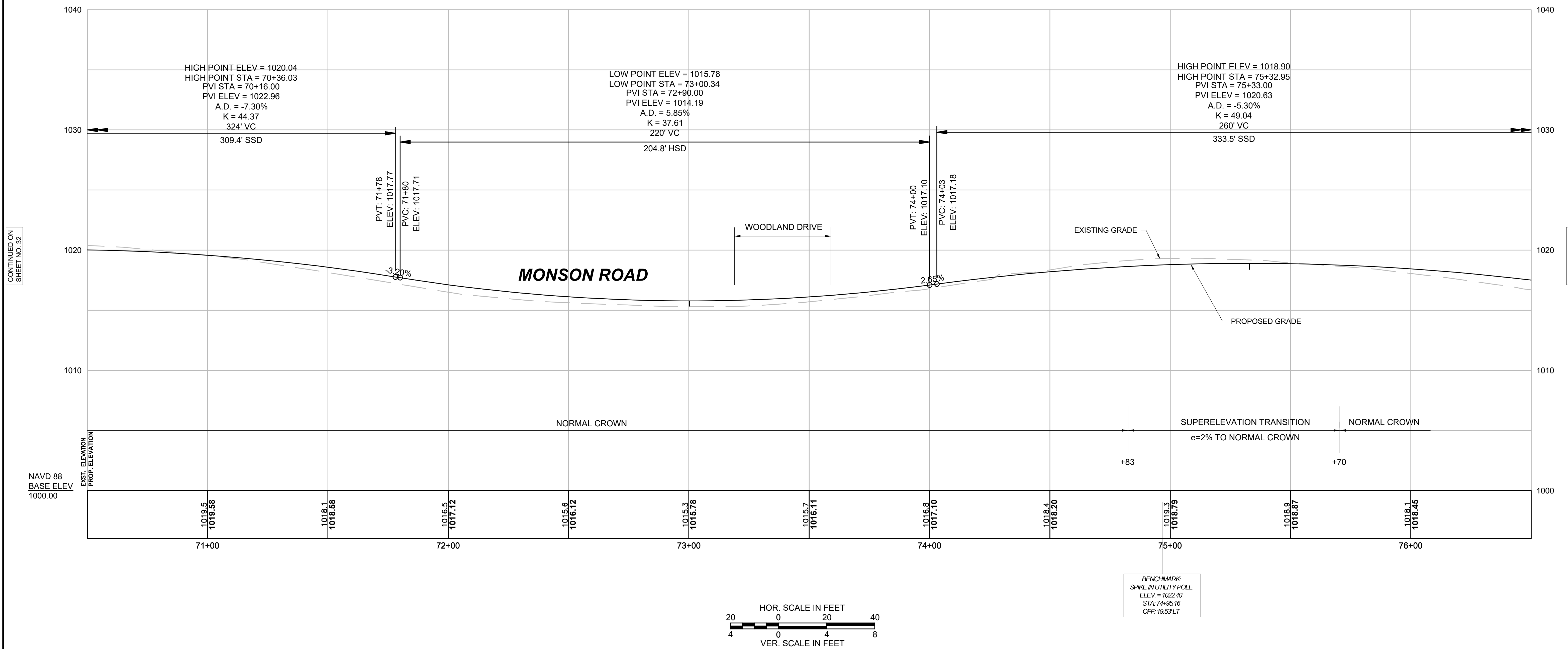


FOR CONSTRUCTION PLANS  
SEE SHEET NO. 20

**WALES  
MONSON ROAD**

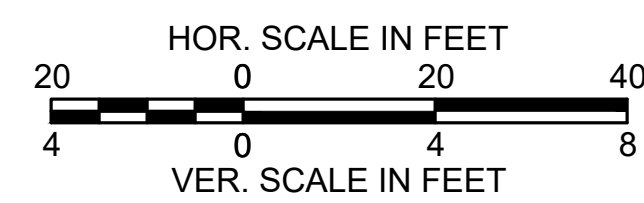
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	33	182
PROJECT FILE NO. 608163			

**PROFILE - MONSON ROAD**



CONTINUED ON SHEET NO. 32

CONTINUED ON SHEET NO. 34

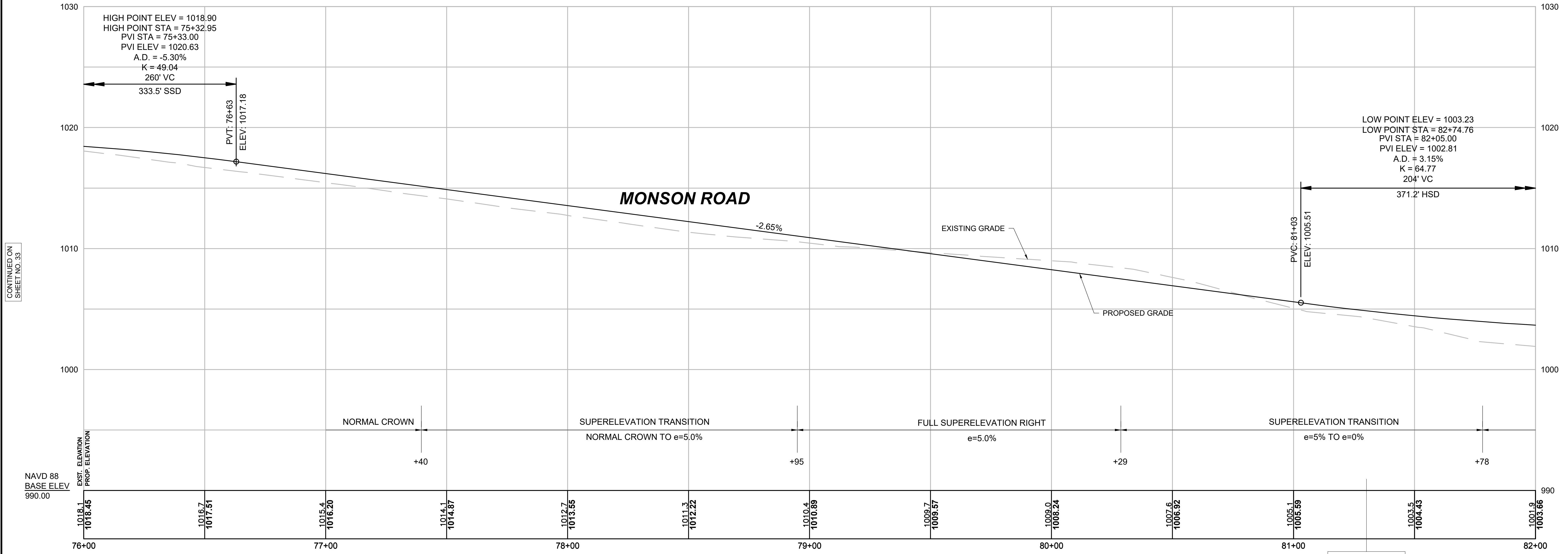


FOR CONSTRUCTION PLANS  
SEE SHEET NO. 21

**WALES  
MONSON ROAD**

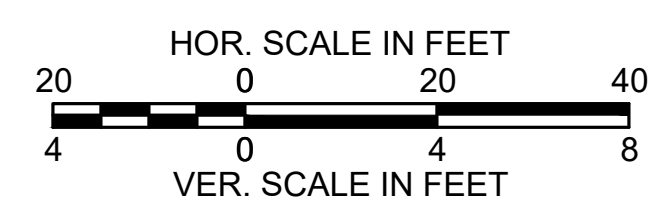
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	34	182
PROJECT FILE NO. 608163			

**PROFILE - MONSON ROAD**



CONTINUED ON  
SHEET NO. 33

CONTINUED ON  
SHEET NO. 35



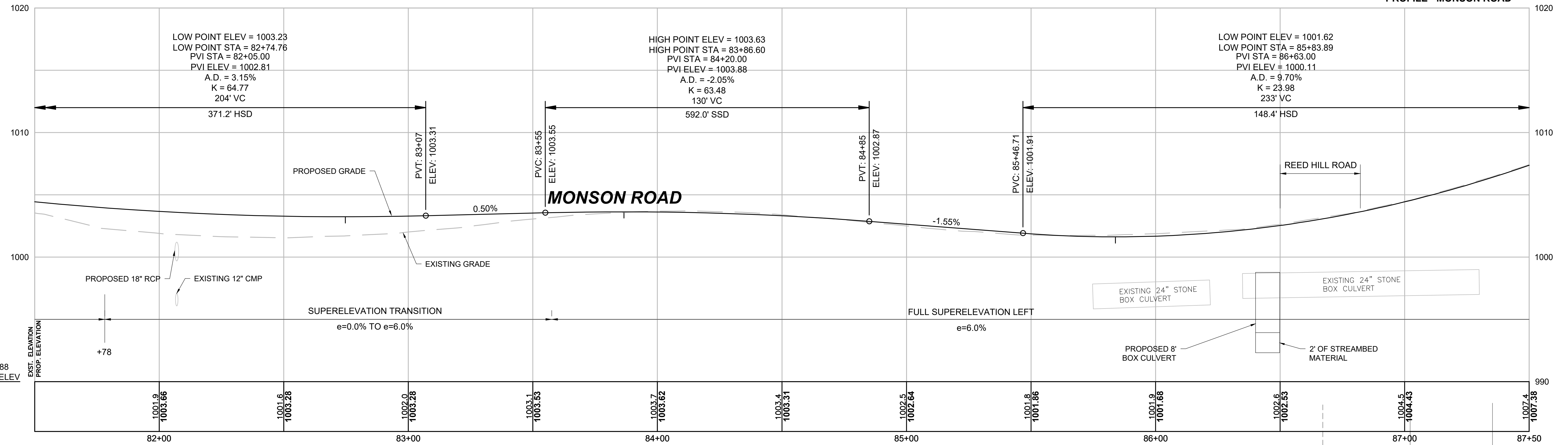
FOR CONSTRUCTION PLANS  
SEE SHEET NO. 22



**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	35	182
PROJECT FILE NO.		608163	

**PROFILE - MONSON ROAD**



CONTINUED ON  
SHEET NO. 34

NAVD 88  
BASE ELEV  
990.00

EXIST. ELEVATION  
PROP. ELEVATION

+78

PROPOSED 18" RCP

EXISTING 12" CMP

SUPERELEVATION TRANSITION

e=0.0% TO e=6.0%

FULL SUPERELEVATION LEFT

e=6.0%

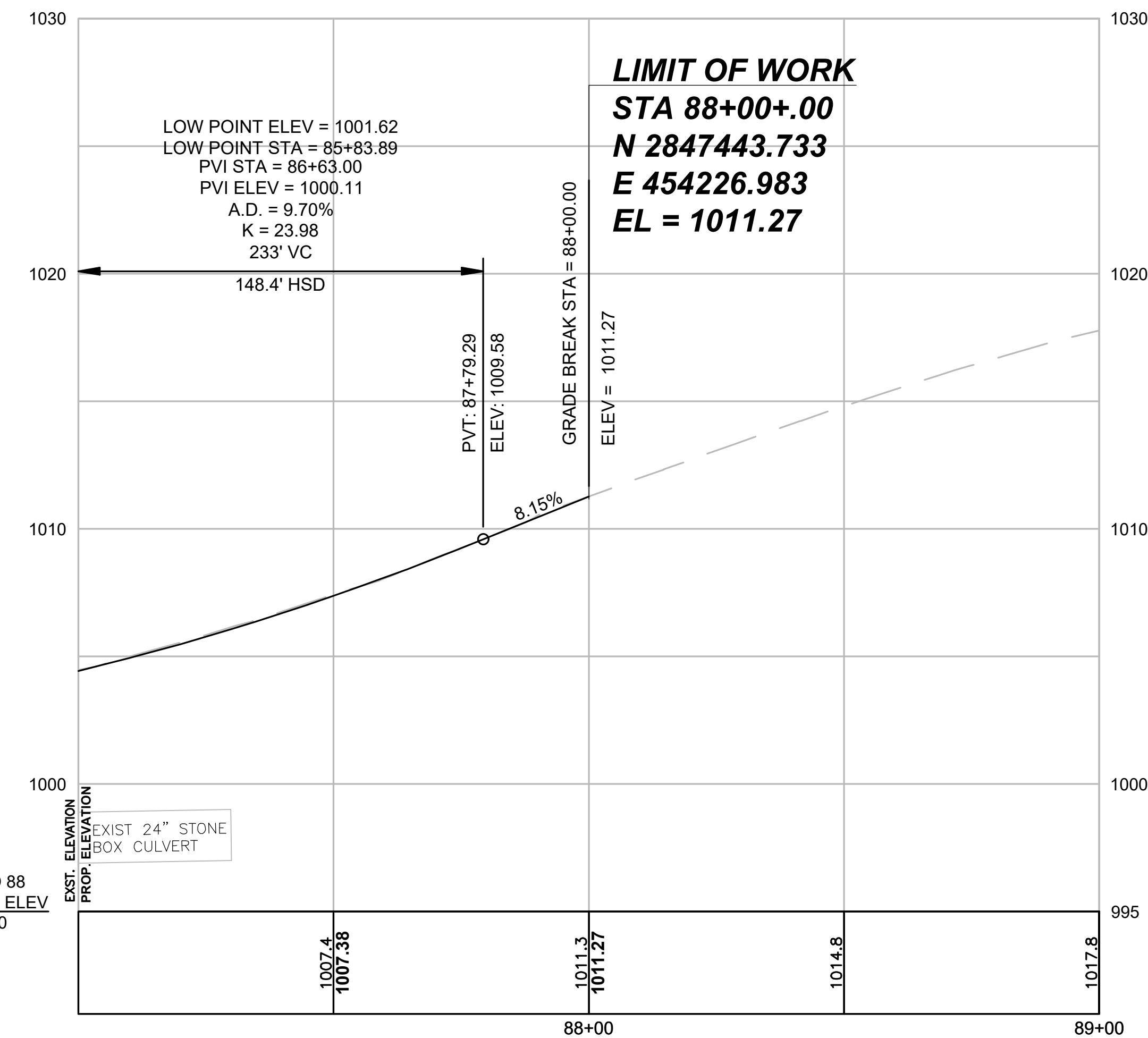
PROPOSED 8" BOX CULVERT

2' OF STREAMBED MATERIAL

REED HILL ROAD

EXISTING 24" STONE BOX CULVERT

EXISTING 24" STONE BOX CULVERT



**MONSON ROAD**

NAVD 88  
BASE ELEV  
995.00

EXIST. ELEVATION  
PROP. ELEVATION

EXIST 24" STONE BOX CULVERT

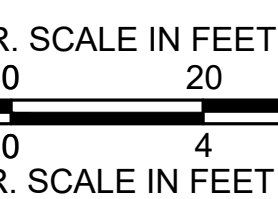
1007.4  
1007.38

88+00

1011.3  
1011.27

1014.8

89+00



NAVD 88  
BASE ELEV  
990.00

EXIST. ELEVATION  
PROP. ELEVATION

GRADE BREAK STA = 1+14.00  
ELEV = 1003.22

PROPOSED 18" RCP

PROPOSED GRADE

EXISTING GRADE

**LIMIT OF WORK**

STA 2+20.00

N 2847299.213

E 454204.816

EL = 1003.70

LOW POINT ELEV = 1002.46  
LOW POINT STA = 1+65.74  
PVI STA = 1+98.00  
PVI ELEV = 1001.64  
A.D. = 9.18%  
K = 11.93  
110' VC

93.0' HSD

PVC: 1+43.23  
ELEV: 1002.67

-1.89%

7.30%

PVT: 2+52.76  
ELEV: 1005.63

**REED HILL ROAD**

FOR CONSTRUCTION PLANS  
SEE SHEET NO. 23

STA 86+63.21 MONSON RD B  
STA 1+00.00 REED HILL RD B

BENCHMARK  
SPIKE IN UTILITY POLE  
ELEV = 1007.89  
STA: 87+06.97  
OFF: 18.87' RT

BENCHMARK  
BRASS RIVET  
ELEV = 1001.17  
STA: 87+15.35  
OFF: 41.26' LT

**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	36	182
PROJECT FILE NO.		608163	

**CURB TIE AND GRADING PLANS**

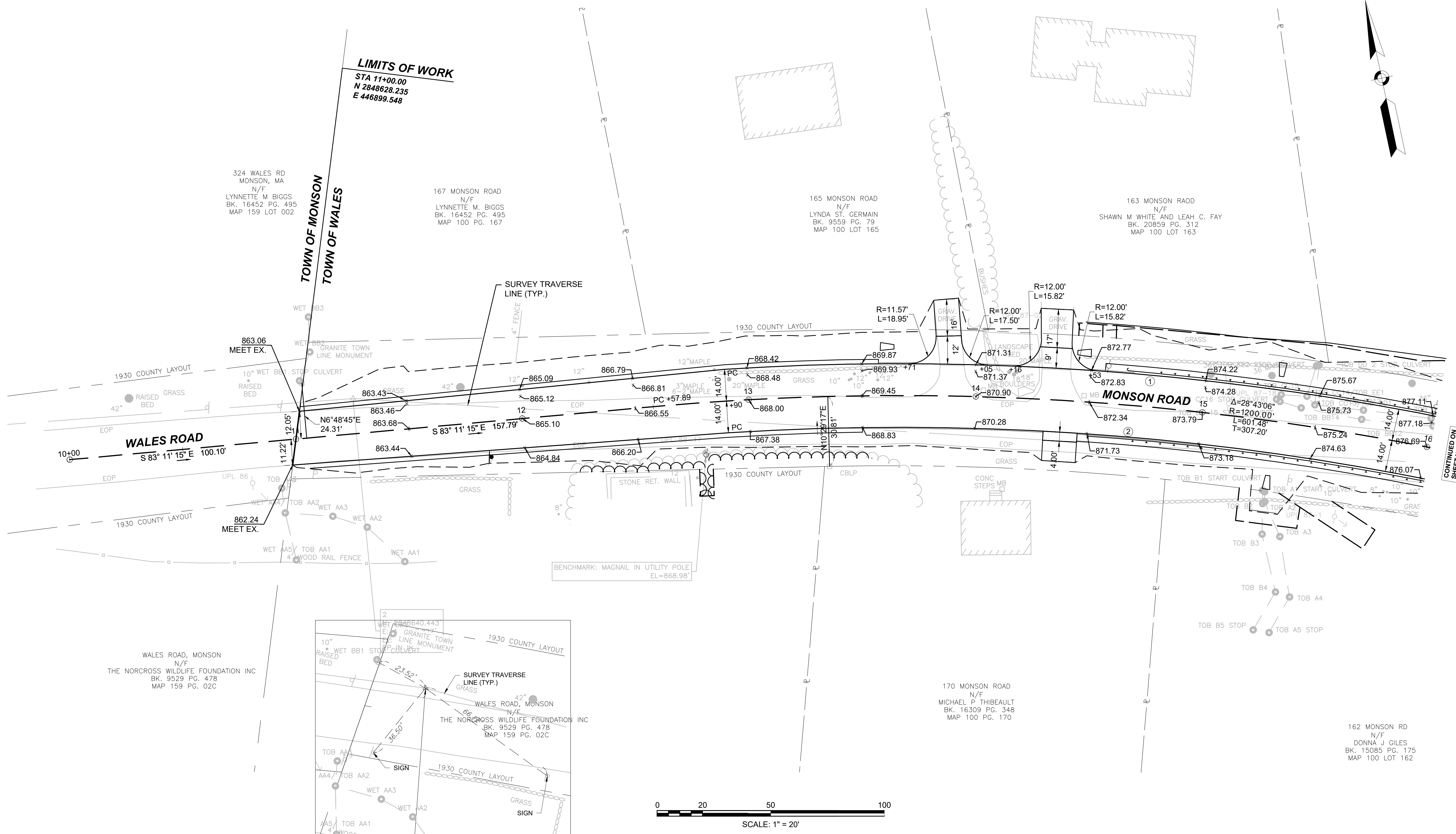
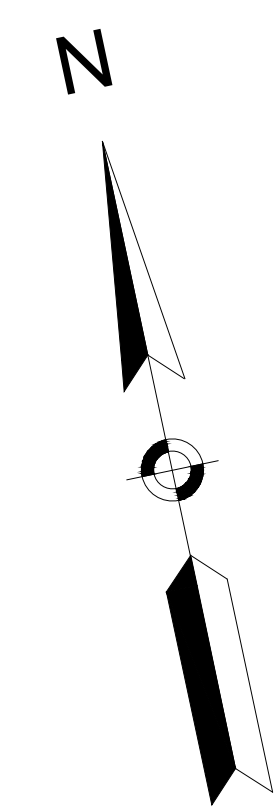
**BASELINE DATA**

DESCRIPTION	TANGENT/CURVE DATA	NORTHING	EASTING
BEGIN STA 11+00.00	L=157.79' S 83° 11' 14.50" E	2848628.223	446899.647
PC STA 12+57.885	R = 1200.00' Δ = 28° 43' 06.29" L=601.48' T = 307.20'	2848609.506	447056.318
PT STA 18+59.362		2848394.540	447611.344

**LEGEND**  
# CURVE

**CURVE DATA**

CURVE	LENGTH	RADIUS	DELTA	TANGENT
1	414.04	1214.00	19°32'27"	209.05
2	562.51	1186.00	7°09'43"	74.22



**LIMITS OF WORK**  
STA 11+00.00  
N 2848628.235  
E 446899.548

324 WALES RD  
MONSON, MA  
N/F  
LYNNETTE M. BIGGS  
BK. 16452 PG. 495  
MAP 159 LOT 002

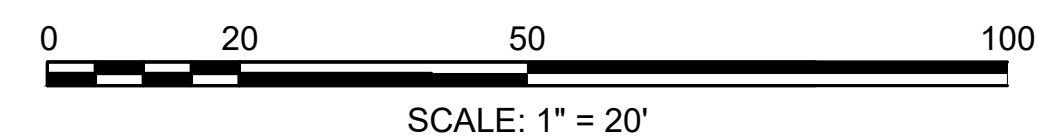
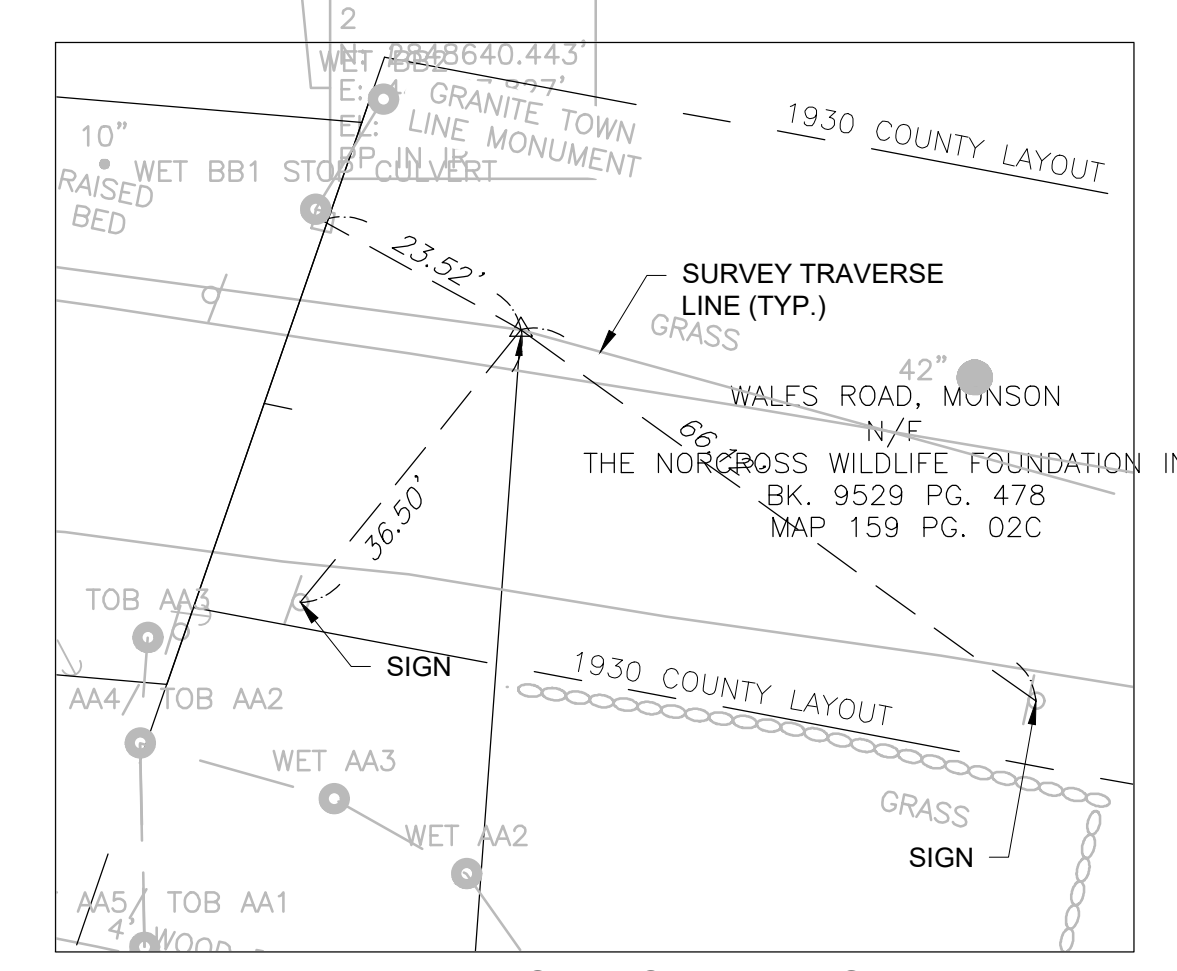
167 MONSON ROAD  
N/F  
LYNNETTE M. BIGGS  
BK. 16452 PG. 495  
MAP 100 PG. 167

165 MONSON ROAD  
N/F  
LYNDA ST. GERMAIN  
BK. 9559 PG. 79  
MAP 100 LOT 165

163 MONSON ROAD  
N/F  
SHAWN M. WHITE AND LEAH C. FAY  
BK. 20859 PG. 312  
MAP 100 LOT 163

**WALES ROAD**  
S 83° 11' 15" E 100.10'

**MONSON ROAD**  
Δ=28°43'06"  
R=1200.00'  
L=601.48'  
T=307.20'



CONTINUED ON SHEET NO. 37

**BASELINE DATA**

DESCRIPTION	TANGENT/CURVE DATA	NORTHING	EASTING
PC STA 12+57.885	R = 1200.00' Δ = 28° 43' 06.29" L=601.48' T = 307.20'	2848609.506	447056.318
PT STA 18+59.362	L=151.88' S 54° 28' 08.21" E	2848394.540	447611.344
PC STA 20+11.24	R = 645.00' Δ = 11° 12' 33.26" L=126.19' T = 63.295'	2848306.276	447734.943
PT STA 21+37.428	L=659.07' S 65° 40' 41.47" E	2848243.424	447844.130
PC STA 27+96.50		2847971.978	448444.706

**LEGEND**

③ CURVE

**CURVE DATA**

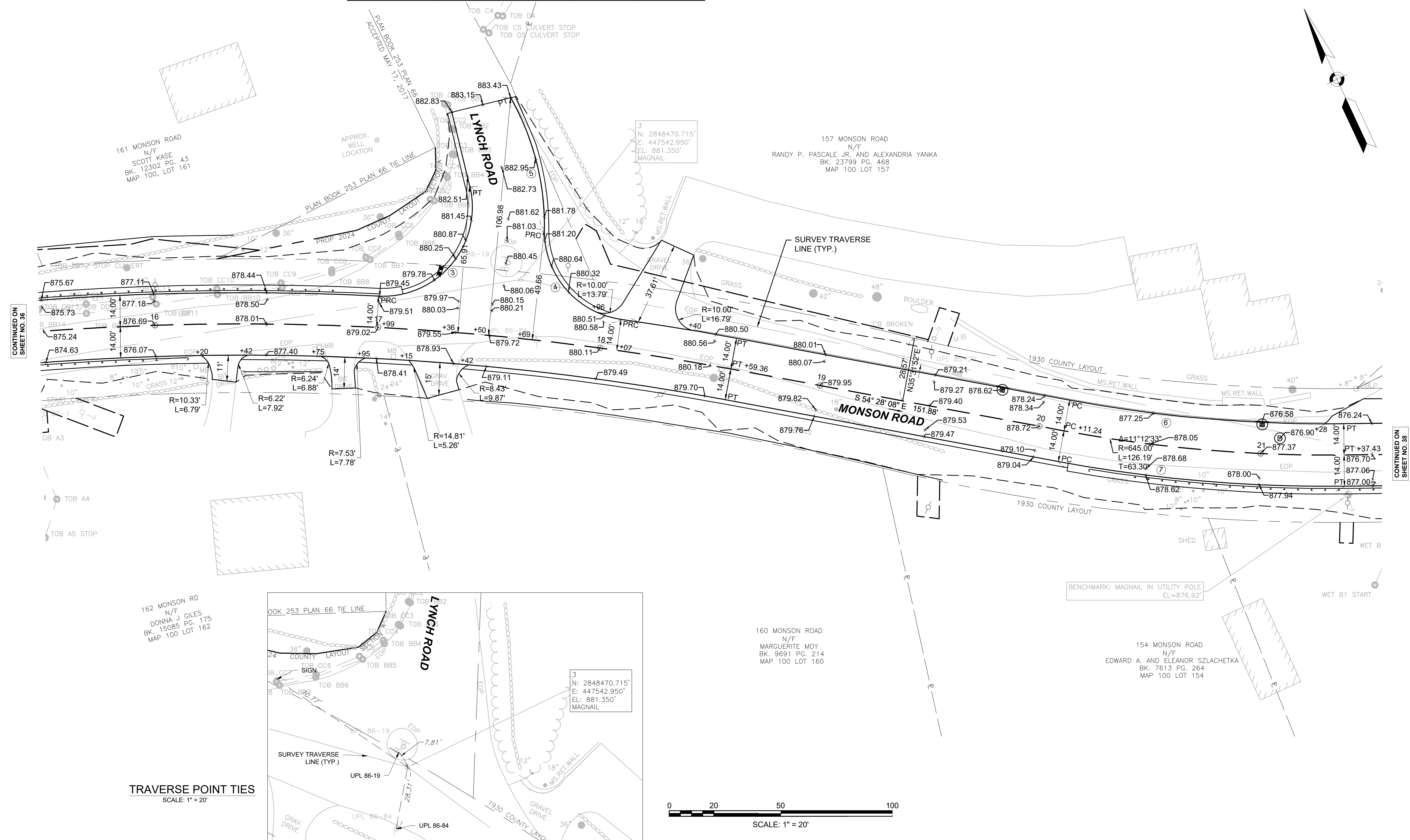
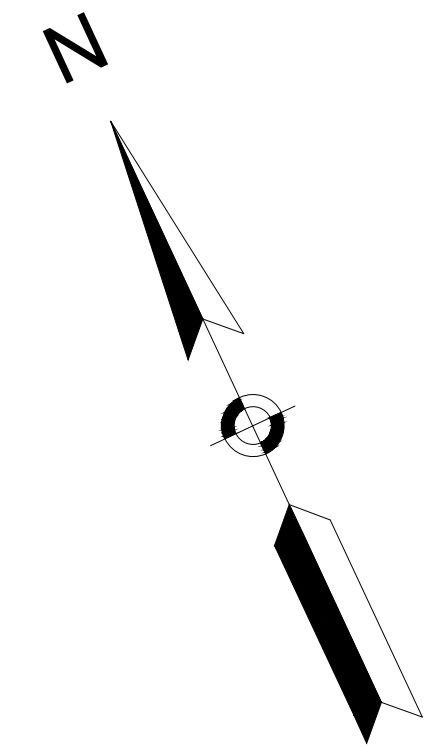
CURVE	LENGTH	RADIUS	DELTA	TANGENT
3	74.32	40.00	106°27'21"	53.52
4	57.85	40.00	82°51'25"	35.30
5	60.23	116.00	30°30'43"	31.64
6	123.45	631.00	10°22'02"	57.62
7	128.93	659.00	11°12'33"	64.67

**WALES  
MONSON ROAD**

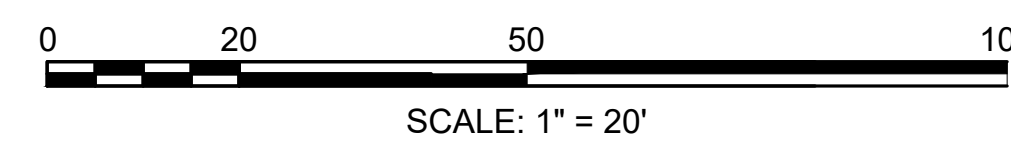
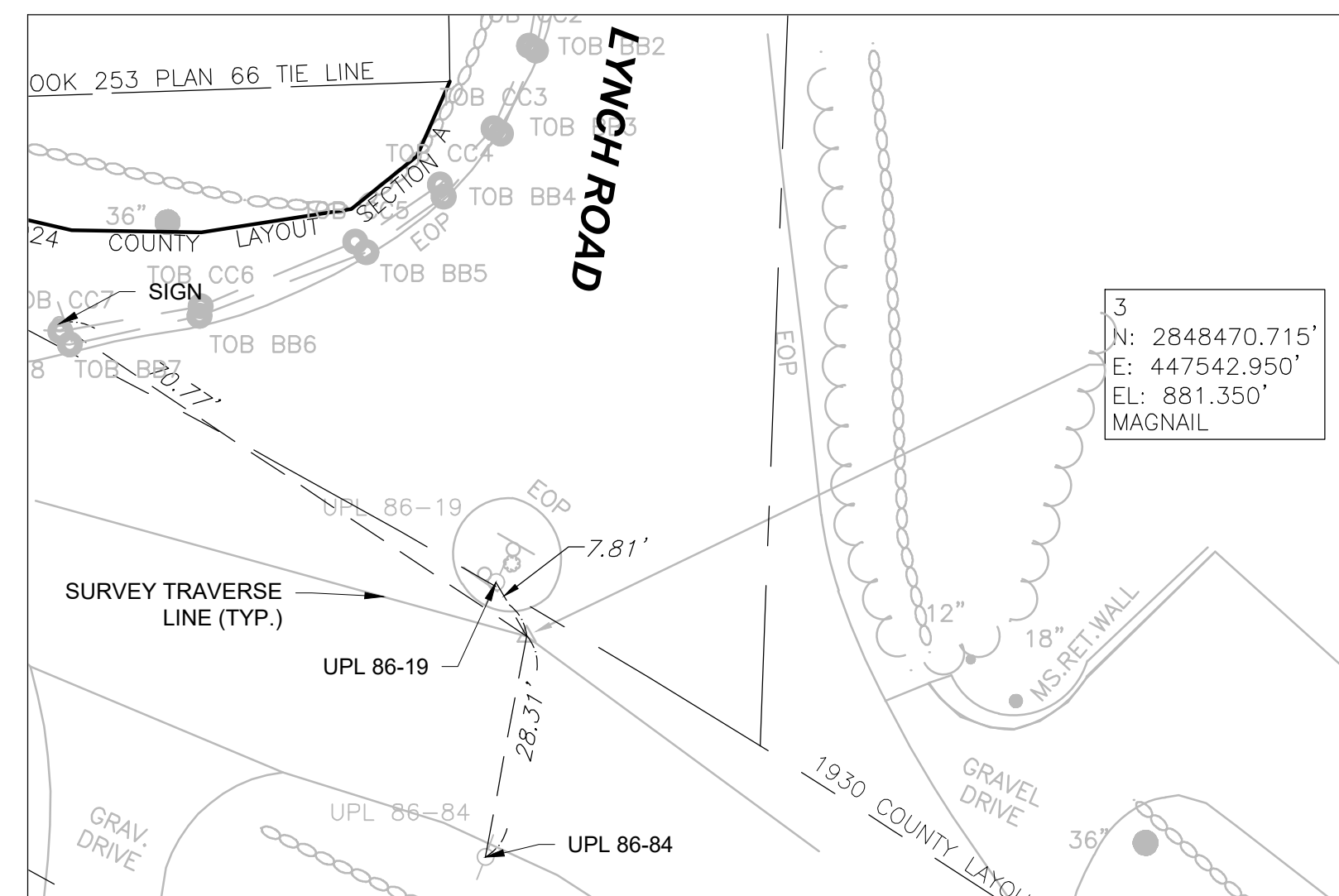
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	37	182

PROJECT FILE NO. 608163

**CURB TIE AND GRADING PLANS**



**TRAVERSE POINT TIES**  
SCALE: 1" = 20'



CONTINUED ON  
SHEET NO. 36

CONTINUED ON  
SHEET NO. 38



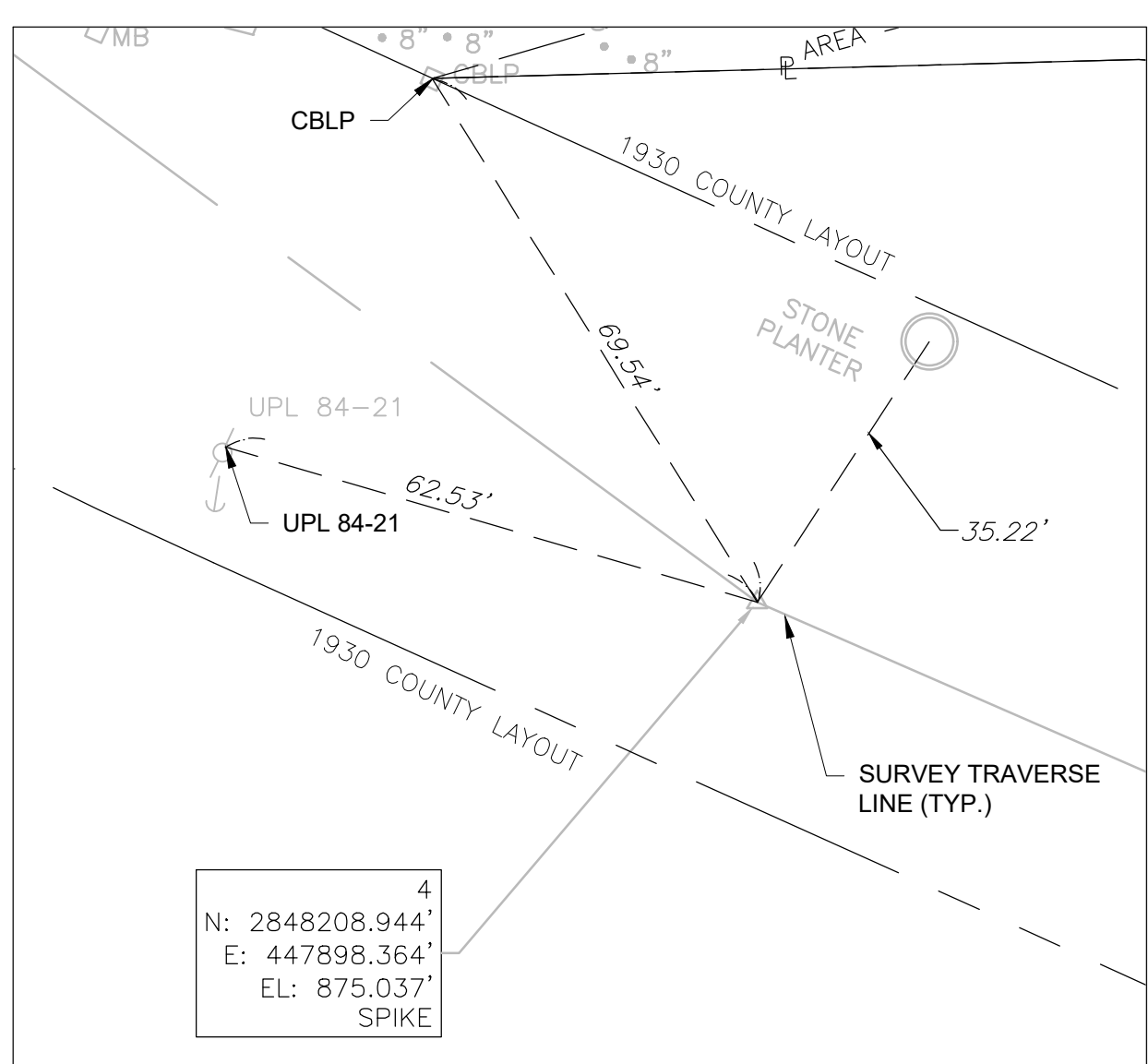
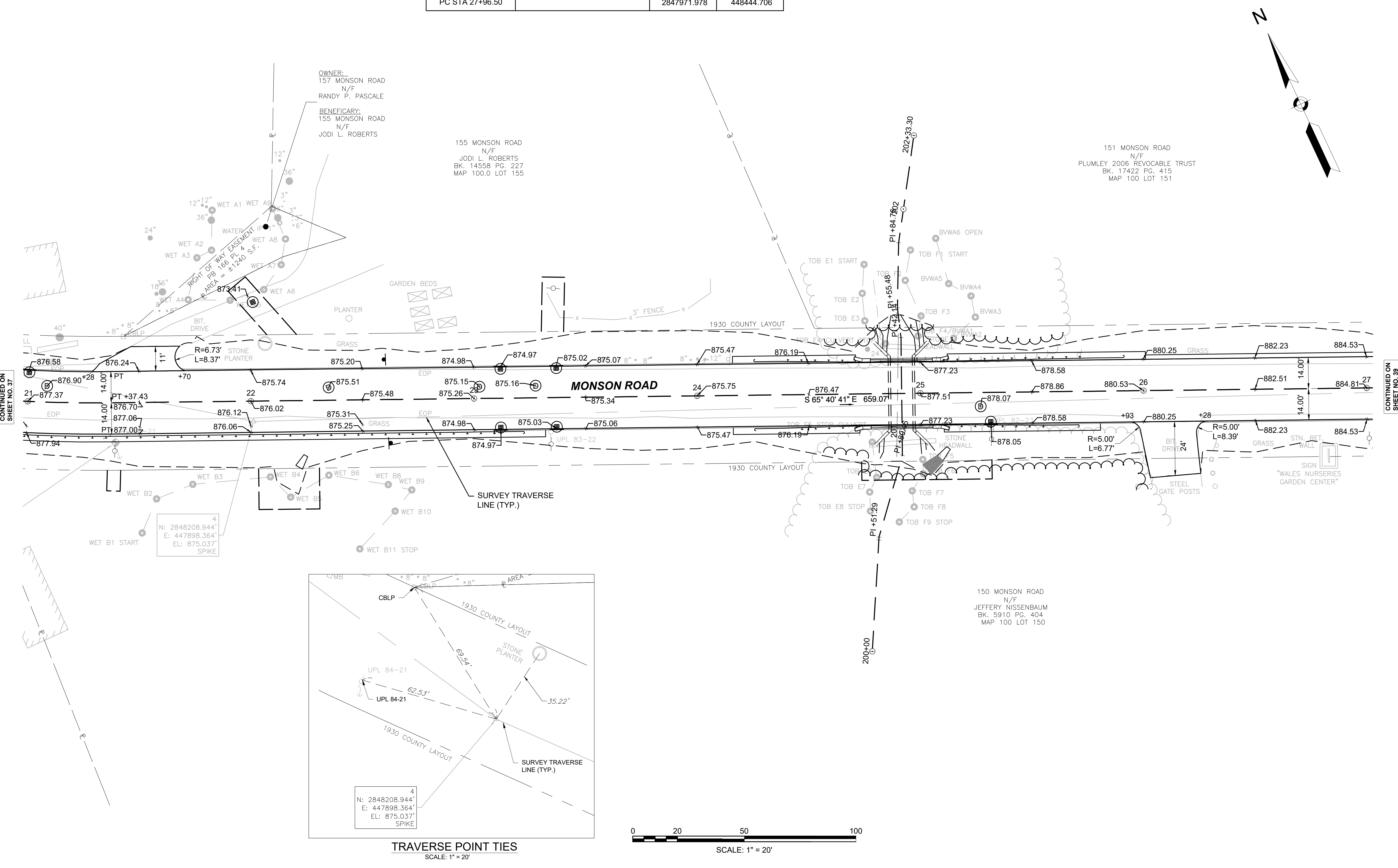
**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	38	182
PROJECT FILE NO. 608163			

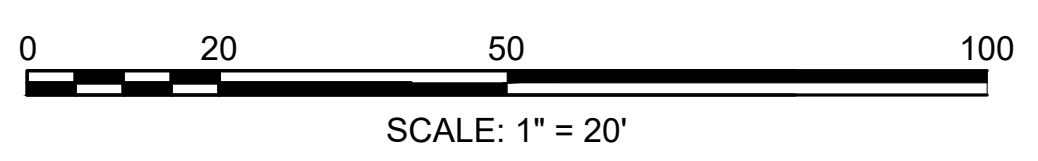
**CURB TIE AND GRADING PLANS**

**BASELINE DATA**

DESCRIPTION	TANGENT/CURVE DATA	NORTHING	EASTING
PT STA 21+37.428	L=659.07'    S 65° 40' 41.47" E	2848243.424	447844.130
PC STA 27+96.50		2847971.978	448444.706



**TRAVERSE POINT TIES**  
SCALE: 1" = 20'



CONTINUED ON SHEET NO. 37

CONTINUED ON SHEET NO. 39

WALES MONSON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	39	182
PROJECT FILE NO. 608163			

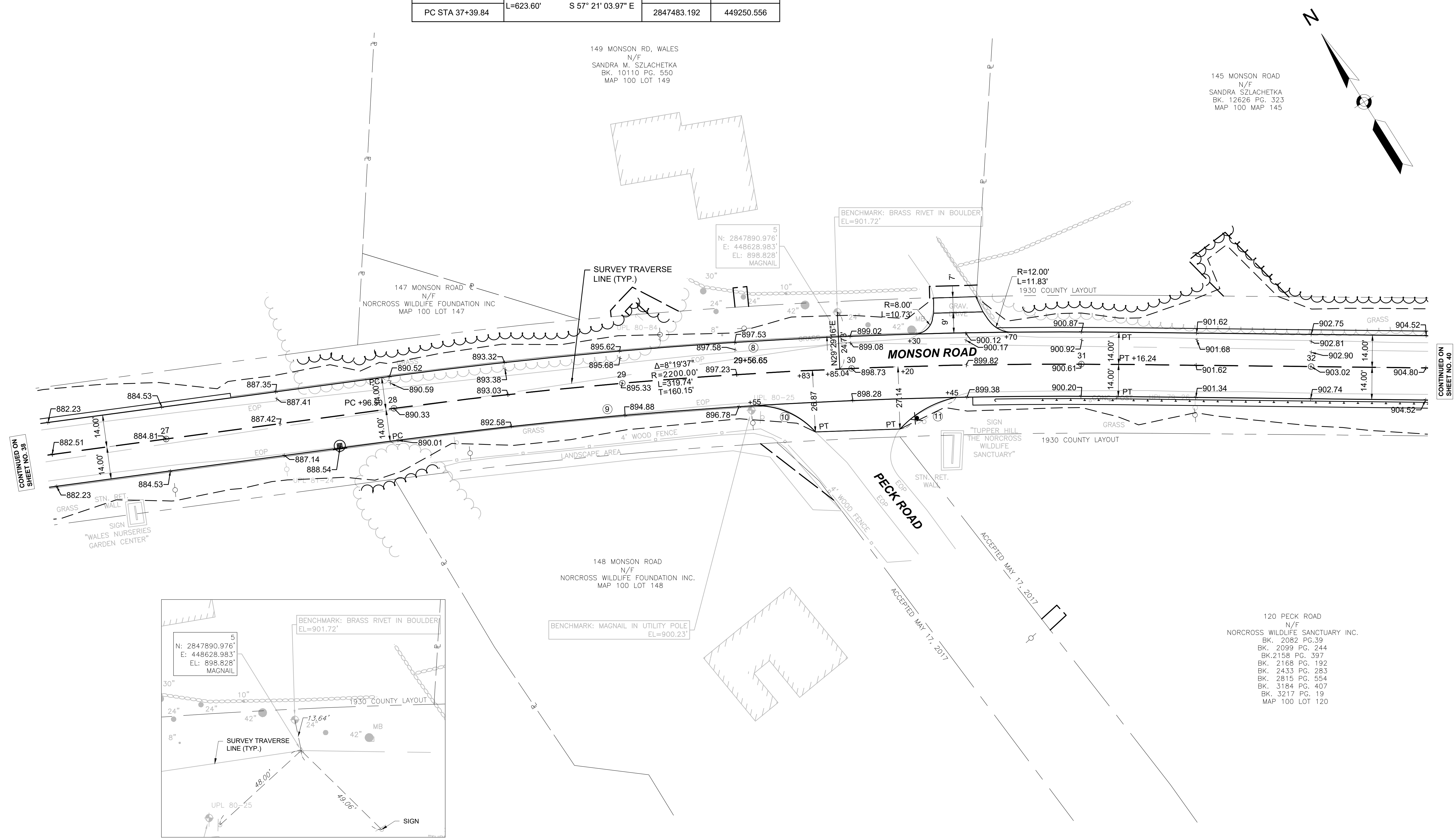
**CURB TIE AND GRADING PLANS**

BASELINE DATA				
DESCRIPTION	TANGENT/CURVE DATA		NORTHING	EASTING
PT STA 21+37.43	L=659.07'	S 65° 40' 41.47" E	2848243.424	447844.130
PC STA 27+96.50	R = 2200.00' L=319.74'	Δ = 08° 19' 37.50" T = 160.151'	2847971.978	448444.706
PT STA 31+16.24	L=623.60'	S 57° 21' 03.97" E	2847819.619	448725.488
PC STA 37+39.84	L=623.60'	S 57° 21' 03.97" E	2847483.192	449250.556

**LEGEND**

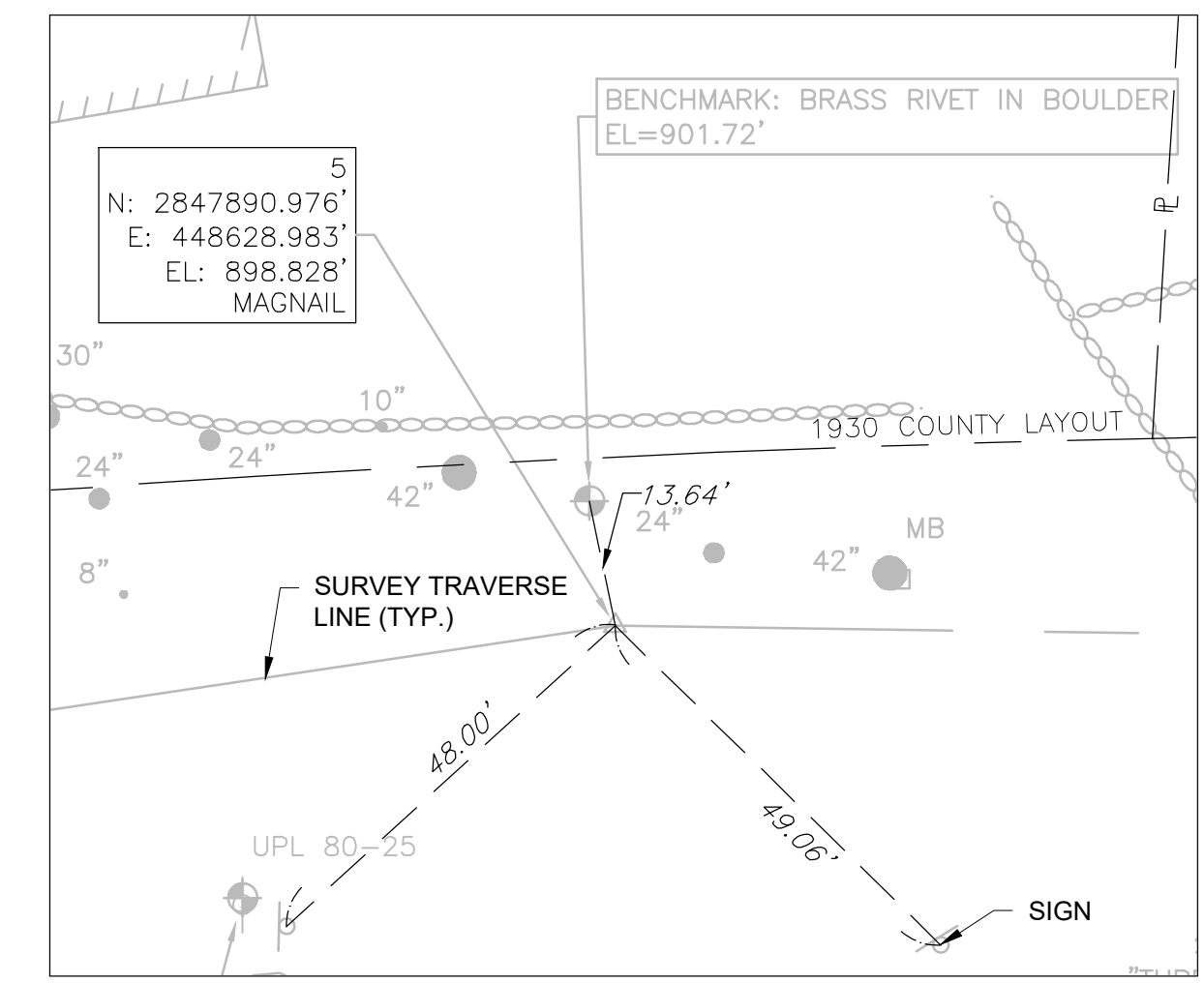
# CURVE

CURVE DATA				
CURVE	LENGTH	RADIUS	DELTA	TANGENT
8	321.77	2214.00	08°19'37"	161.17
9	317.70	2186.00	08°19'37"	159.13
10	31.68	34.54	52°32'57"	17.05
11	28.60	44.84	36°32'32"	14.80

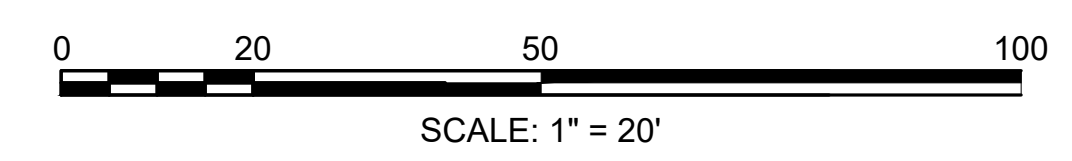


CONTINUED ON  
SHEET NO. 38

CONTINUED ON  
SHEET NO. 40



**TRAVERSE POINT TIES**  
SCALE: 1" = 20'



120 PECK ROAD  
N/F  
NORCROSS WILDLIFE SANCTUARY INC.  
BK. 2082 PG.39  
BK. 2099 PG. 244  
BK.2158 PG. 397  
BK. 2168 PG. 192  
BK. 2433 PG. 283  
BK. 2815 PG. 554  
BK. 3184 PG. 407  
BK. 3217 PG. 19  
MAP 100 LOT 120

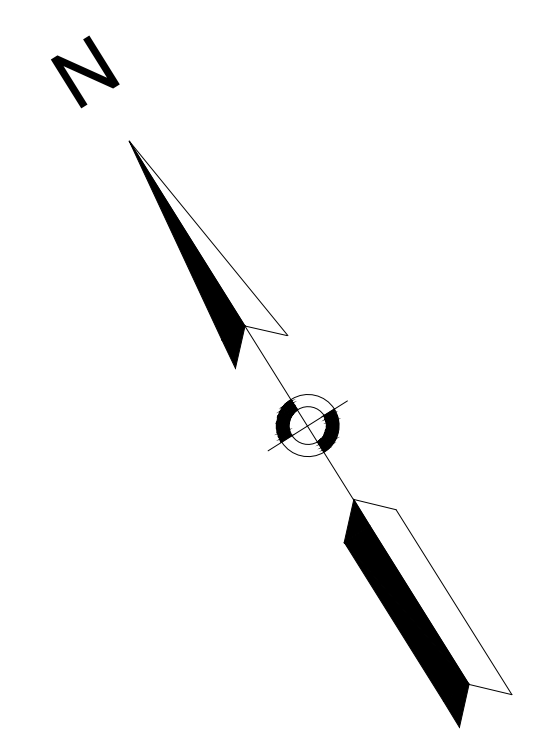
**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	40	182
PROJECT FILE NO.		608163	

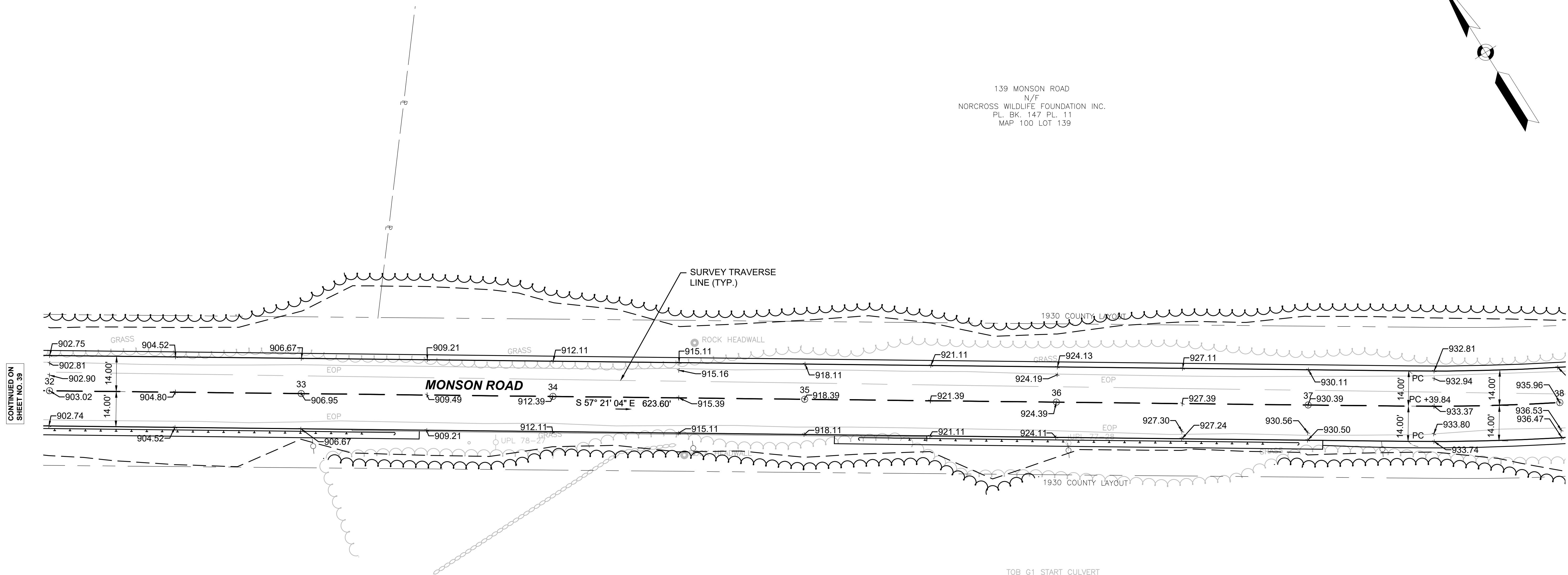
**CURB TIE AND GRADING PLANS**

**BASELINE DATA**

DESCRIPTION	TANGENT/CURVE DATA	NORTHING	EASTING
PT STA 31+16.24		2847819.619	448725.488
PC STA 37+39.84	L=623.60' S 57° 21' 03.97" E	2847483.192	449250.556
Pt STA 43+64.17	R = 860.00' Δ = 41° 35' 41.79" L=624.33' T = 326.64'	2847357.767	449848.250

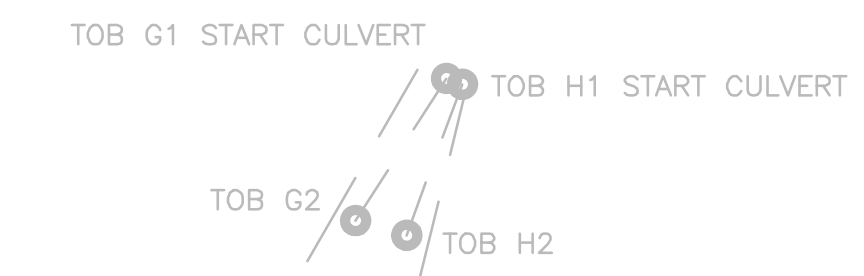


139 MONSON ROAD  
N/F  
NORCROSS WILDLIFE FOUNDATION INC.  
PL. BK. 147 PL. 11  
MAP 100 LOT 139



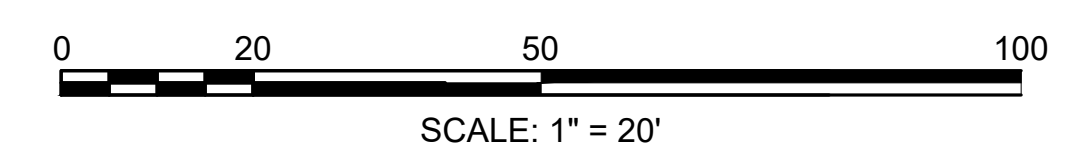
CONTINUED ON  
SHEET NO. 39

CONTINUED ON  
SHEET NO. 41



120 PECK ROAD  
N/F  
CROSS WILDLIFE SANCTUARY INC.  
BK. 2082 PG. 39  
BK. 2099 PG. 244  
BK. 2158 PG. 397  
BK. 2168 PG. 192  
BK. 2433 PG. 283  
BK. 2815 PG. 554  
BK. 3184 PG. 407  
BK. 3217 PG. 19  
MAP 100 LOT 120

120 PECK ROAD  
N/F  
NORCROSS WILDLIFE SANCTUARY INC.  
BK. 2082 PG. 39  
BK. 2099 PG. 244  
BK. 2158 PG. 397  
BK. 2168 PG. 192  
BK. 2433 PG. 283  
BK. 2815 PG. 554  
BK. 3184 PG. 407  
BK. 3217 PG. 19  
BK.  
MAP 100 LOT 120





**BASELINE DATA**

DESCRIPTION	TANGENT/CURVE DATA	NORTHING	EASTING
PC STA 37+39.84	R = 860.00' Δ = 41° 35' 41.79" L = 624.33' T = 326.64'	2847483.192	449250.556
PT STA 43+64.17		2847357.767	449848.250
PC STA 46+14.35	L = 250.18' N 81° 03' 14.24" E	2847396.671	450095.385

**CURVE DATA**

CURVE	LENGTH	RADIUS	DELTA	TANGENT
12	614.17	846.00	41°35'42"	321.32
13	634.50	874.00	41°35'42"	331.96

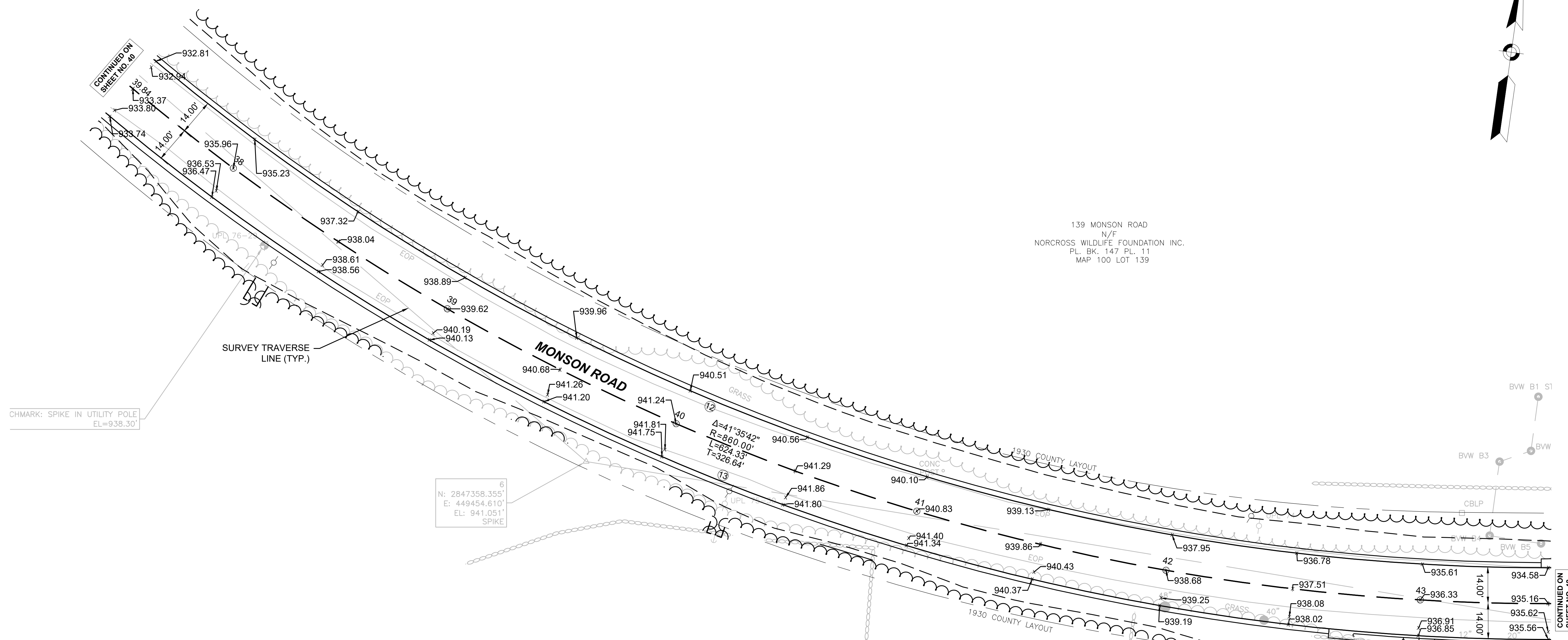
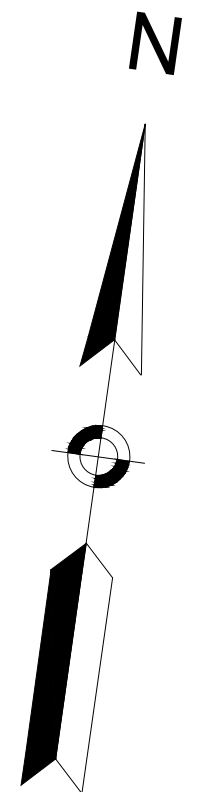
**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	41	182

PROJECT FILE NO. 608163  
**CURB TIE AND GRADING PLANS**

**LEGEND**

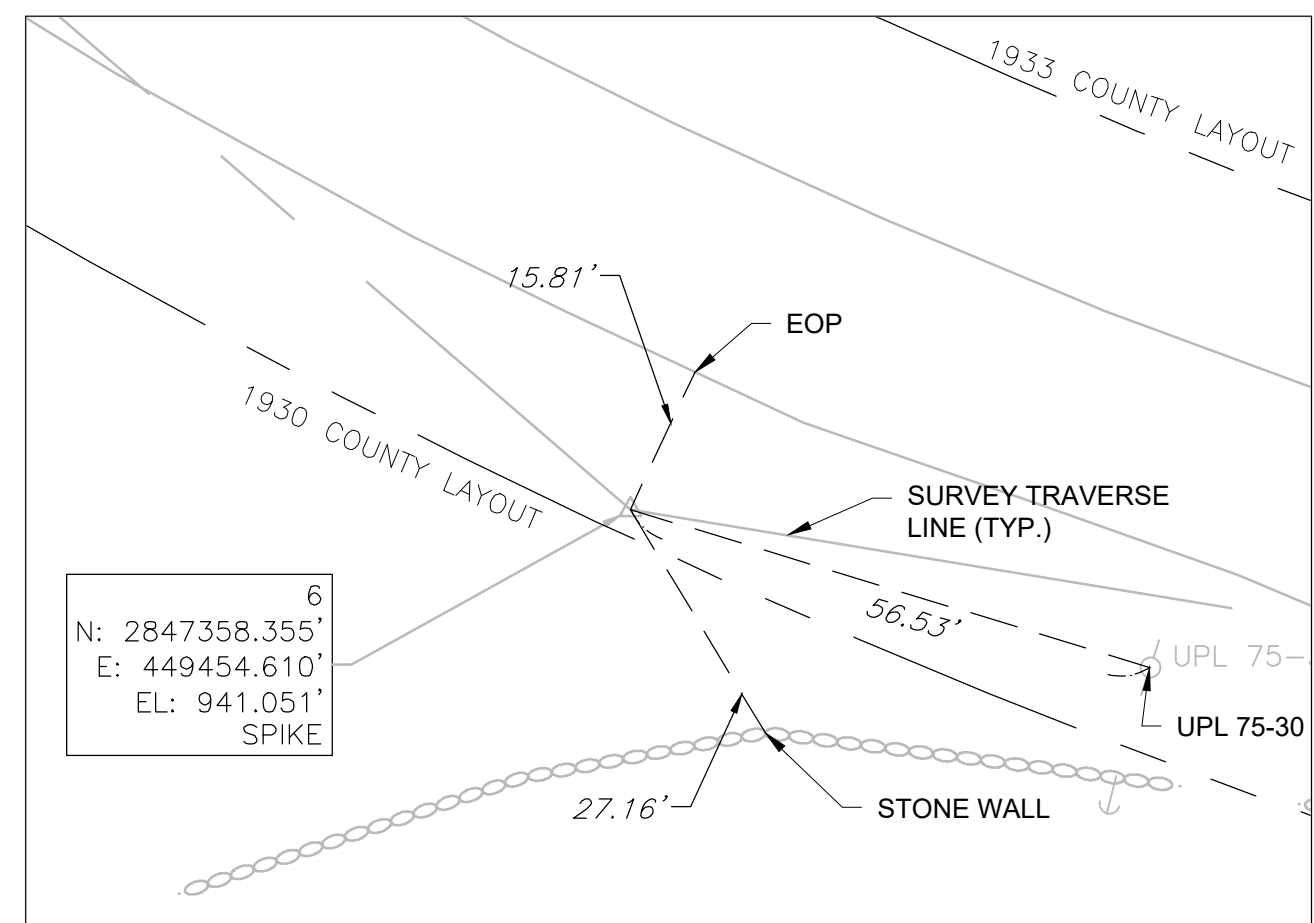
⊕ CURVE



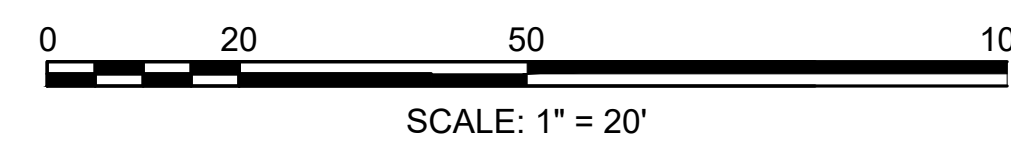
CHMARK: SPIKE IN UTILITY POLE  
EL = 938.30'

6  
N: 2847358.355'  
E: 449454.610'  
EL: 941.051'  
SPIKE

7  
N: 2847349.210'  
E: 449851.223'  
EL: 934.002'  
SPIKE



**TRAVERSE POINT TIES**  
SCALE: 1" = 20'



CONTINUED ON  
SHEET NO. 42

**BASELINE DATA**

DESCRIPTION	TANGENT/CURVE DATA	NORTHING	EASTING
PT STA 43+64.17	L=250.18' N 81° 03' 14.24" E	2847357.767	449848.250
PC STA 46+14.35	R = 1300.00' Δ = 15° 45' 54.63" L=357.70' T = 179.99'	2847396.671	450095.385
PT STA 49+72.05		2847403.289	450451.896

**CURVE DATA**

CURVE	LENGTH	RADIUS	DELTA	TANGENT
14	361.55	1314.00	15°45'55"	181.93
15	353.85	1286.00	15°45'55"	178.05

**WALES  
MONSON ROAD**

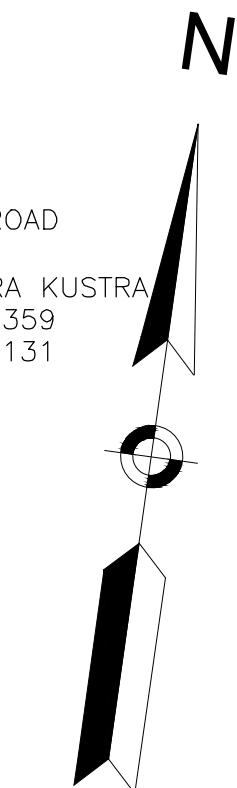
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	42	182

PROJECT FILE NO. 608163

**CURB TIE AND GRADING PLANS**

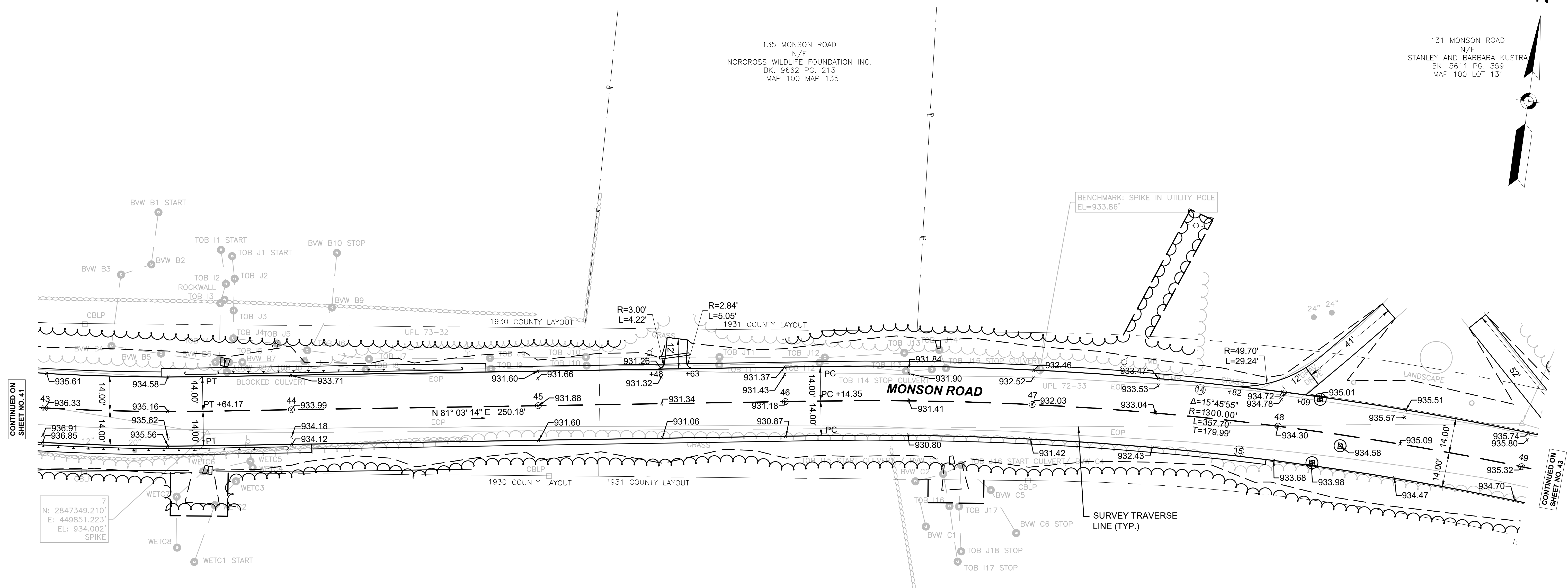
**LEGEND**

# CURVE



135 MONSON ROAD  
N/F  
NORCROSS WILDLIFE FOUNDATION INC.  
BK. 9662 PG. 213  
MAP 100 MAP 135

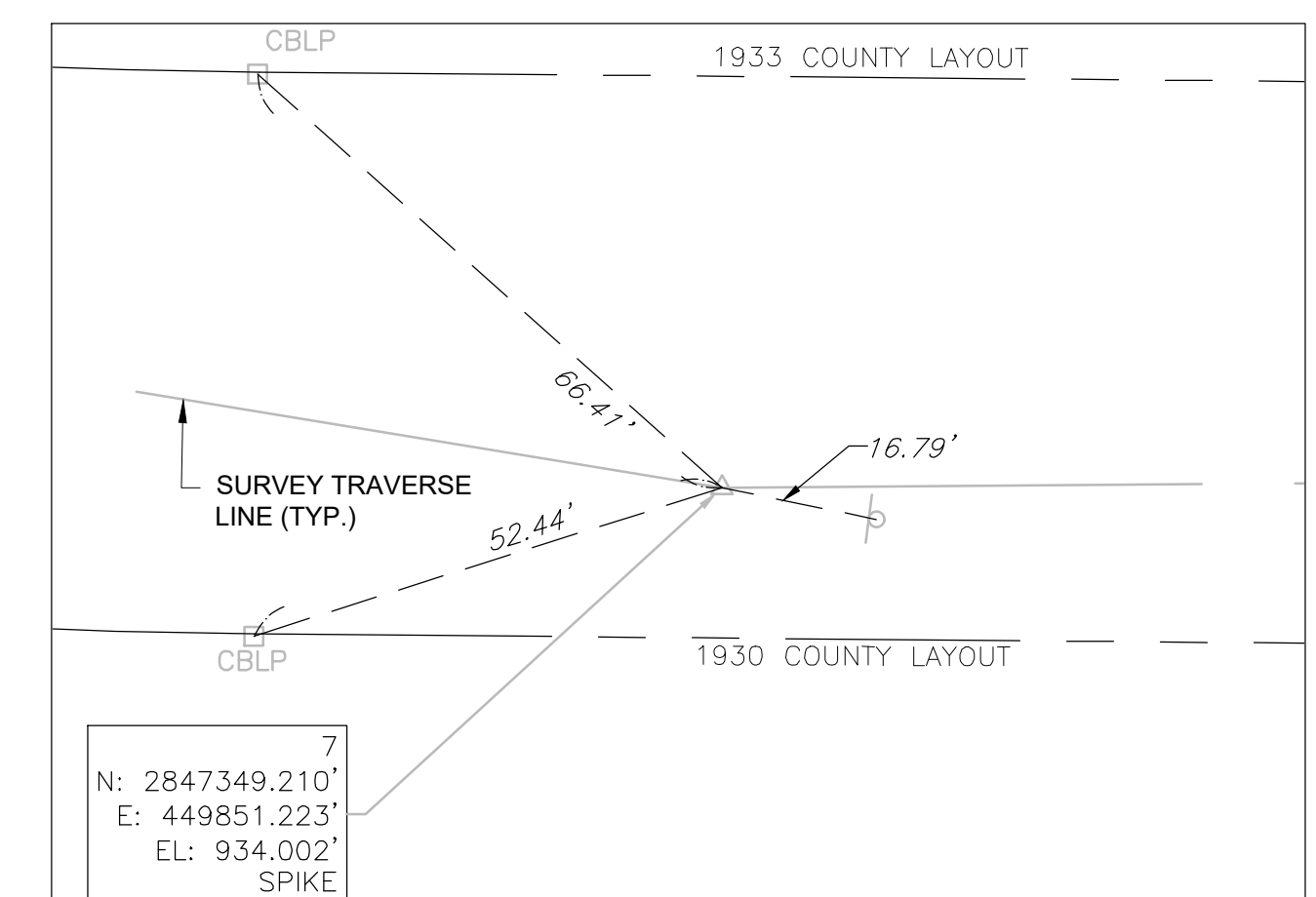
131 MONSON ROAD  
N/F  
STANLEY AND BARBARA KUSTRA  
BK. 5611 PG. 359  
MAP 100 LOT 131



CONTINUED ON SHEET NO. 41

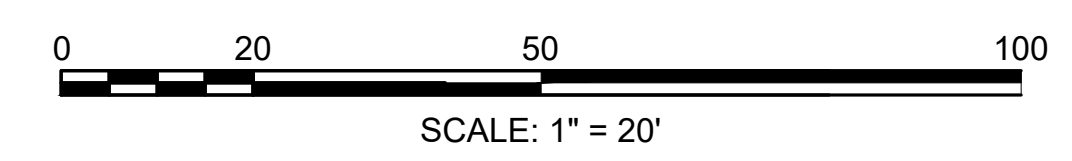
CONTINUED ON SHEET NO. 43

N: 2847349.210'  
E: 449851.223'  
EL: 934.002'  
SPIKE



**TRAVERSE POINT TIES**  
SCALE: 1" = 20'

120 PECK ROAD  
N/F  
NORCROSS WILDLIFE SANCTUARY INC.  
BK. 2082 PG. 39  
BK. 2099 PG. 244  
BK. 2158 PG. 397  
BK. 2168 PG. 192  
BK. 2433 PG. 283  
BK. 2815 PG. 554  
BK. 3184 PG. 407  
BK. 3217 PG. 19  
MAP 100 LOT 120



**BASELINE DATA**

DESCRIPTION	TANGENT/CURVE DATA	NORTHING	EASTING
PC STA 46+14.35	R = 1300.00' Δ = 15° 45' 54.63" L=357.70' T = 179.99'	2847396.671	450095.385
PT STA 49+72.05	L=250.18' N 81° 03' 14.24" E	2847403.289	450451.896
PC STA 51+98.93	R = 1680.00' Δ = 06° 07' 26.77" L=179.57' T = 89.87'	2847376.350	450677.172
PT STA 53+78.49	L=130.61' S 89° 18' 17.90" E	2847364.589	450856.269
PC STA 55+09.11		2847363.005	450986.872

**LEGEND**

# CURVE

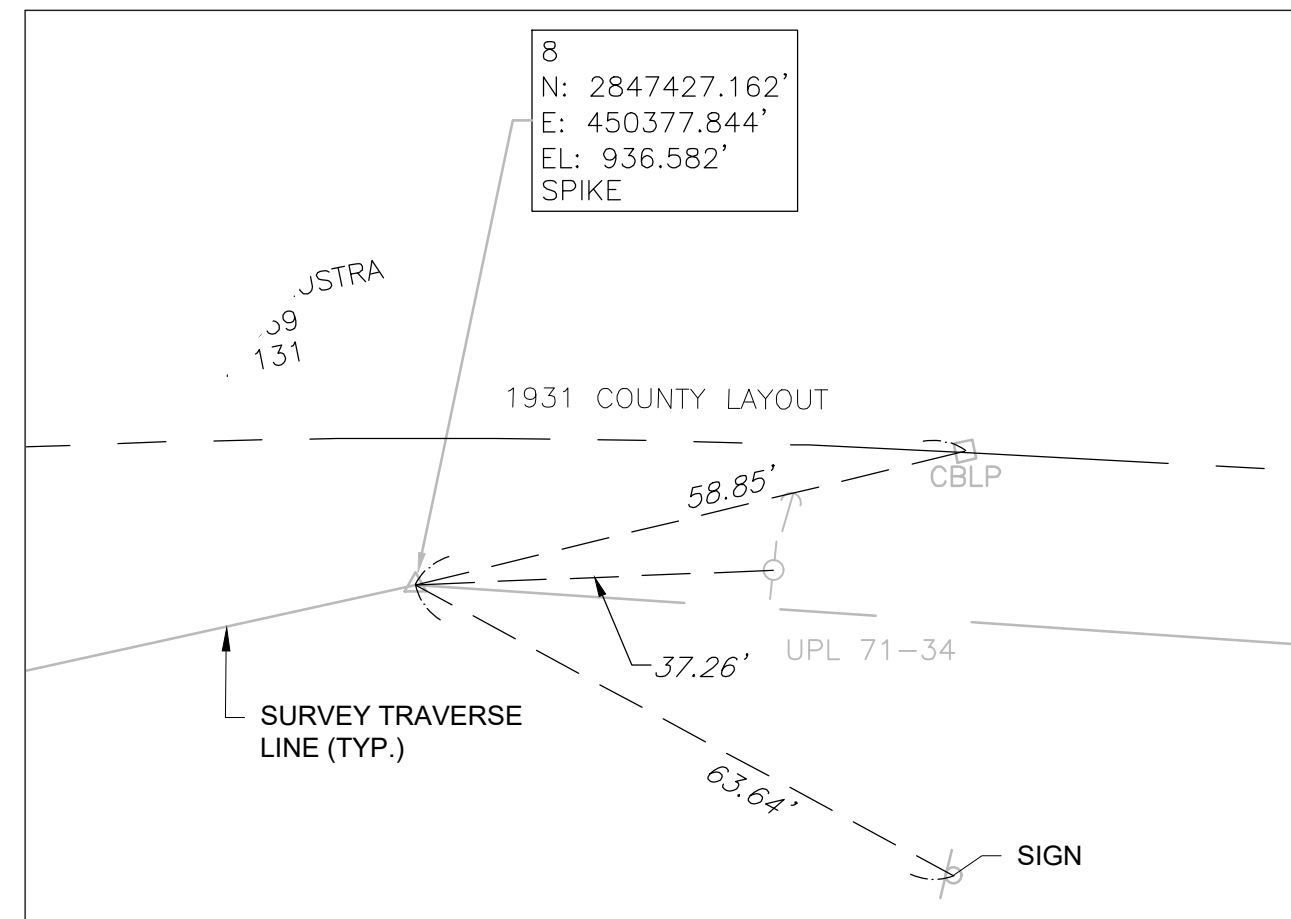
**CURVE DATA**

CURVE	LENGTH	RADIUS	DELTA	TANGENT
16	177.00	1666.00	6°05'15"	88.58
17	180.00	1694.00	6°05'15"	90.08

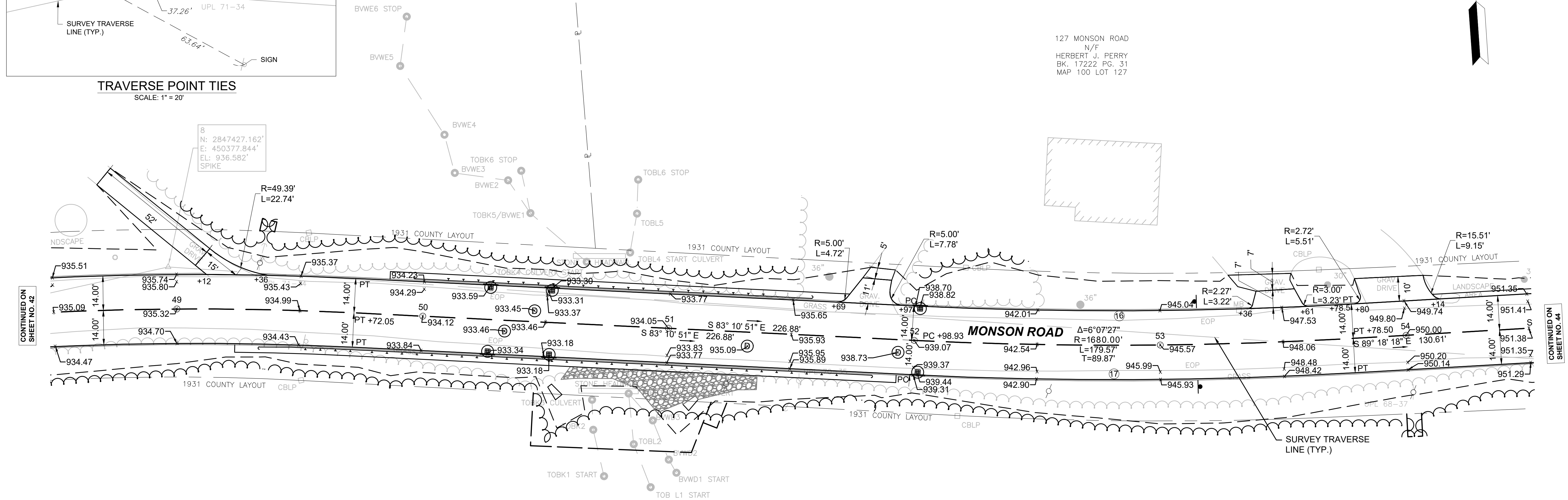
**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	43	182
PROJECT FILE NO.		608163	

**CURB TIE AND GRADING PLANS**



**TRAVERSE POINT TIES**  
SCALE: 1" = 20'



127 MONSON ROAD  
N/F  
HERBERT J. PERRY  
BK. 17222 PG. 31  
MAP 100 LOT 127

120 PECK ROAD  
N/F  
NORCROSS WILDLIFE SANCTUARY INC.  
BK. 2082 PG. 39  
BK. 2099 PG. 244  
BK. 2158 PG. 397  
BK. 2168 PG. 192  
BK. 2433 PG. 283  
BK. 2815 PG. 554  
BK. 3184 PG. 407  
BK. 3217 PG. 19  
MAP 100 LOT 120



CONTINUED ON  
SHEET NO. 42

CONTINUED ON  
SHEET NO. 44



**BASELINE DATA**

DESCRIPTION	TANGENT/CURVE DATA	NORTHING	EASTING
PT STA 53+78.49	L=130.61' S 89° 18' 17.90" E	2847364.589	450856.269
PC STA 55+09.11	R = 1680.00' Δ = 04° 28' 52.36" L=131.40' T = 65.73'	2847363.005	450986.872
PT STA 56+40.50	L=873.87' S 84° 49' 25.54" E	2847356.277	451118.062
PC STA 65+14.37		2847277.437	451988.364

**LEGEND**

⊕ CURVE

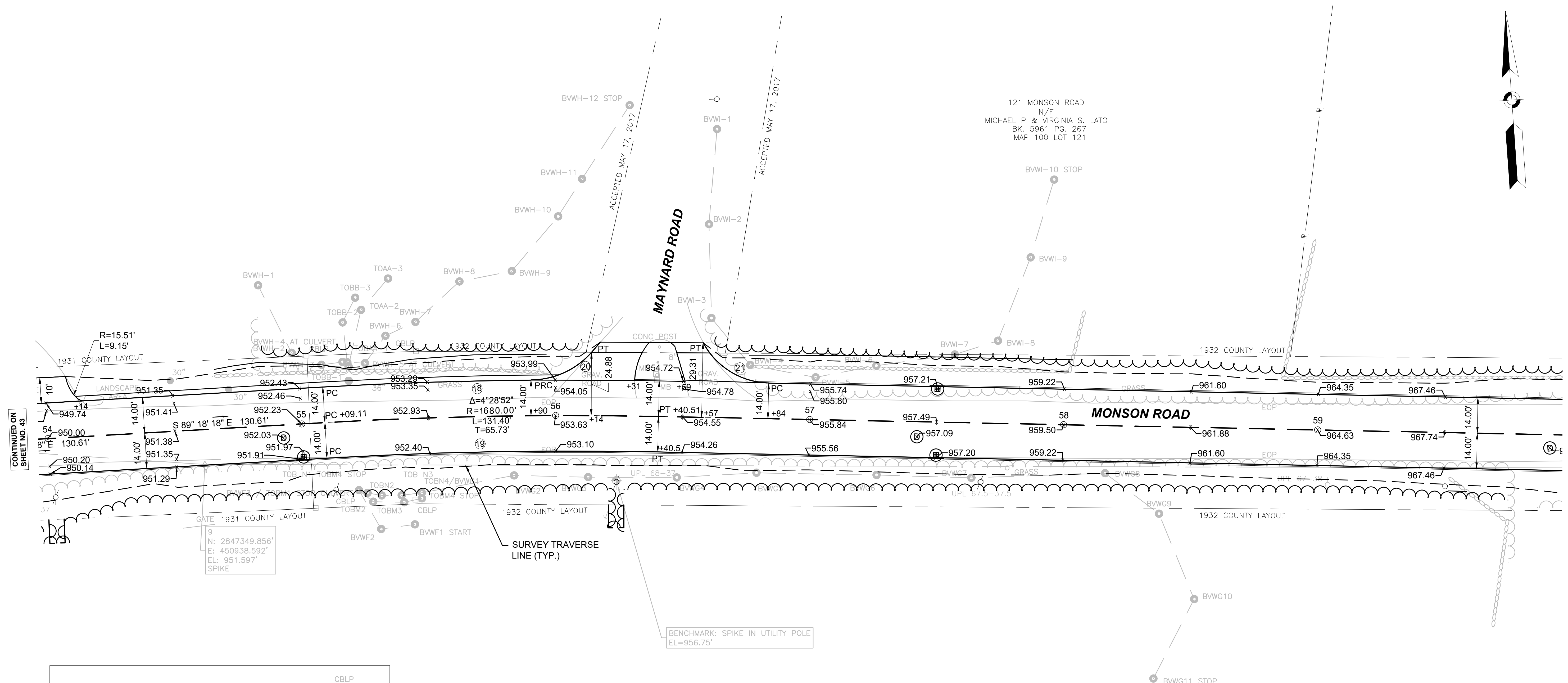
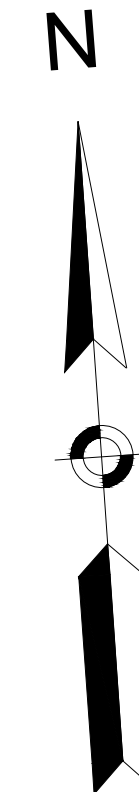
**CURVE DATA**

CURVE	LENGTH	RADIUS	DELTA	TANGENT
18	82.02	1694.00	02°46'27"	41.02
19	130.30	1666.00	04°28'52"	65.18
20	26.63	32.00	47°40'59"	14.14
21	31.77	30.00	60°43'00"	17.56

**WALES  
MONSON ROAD**

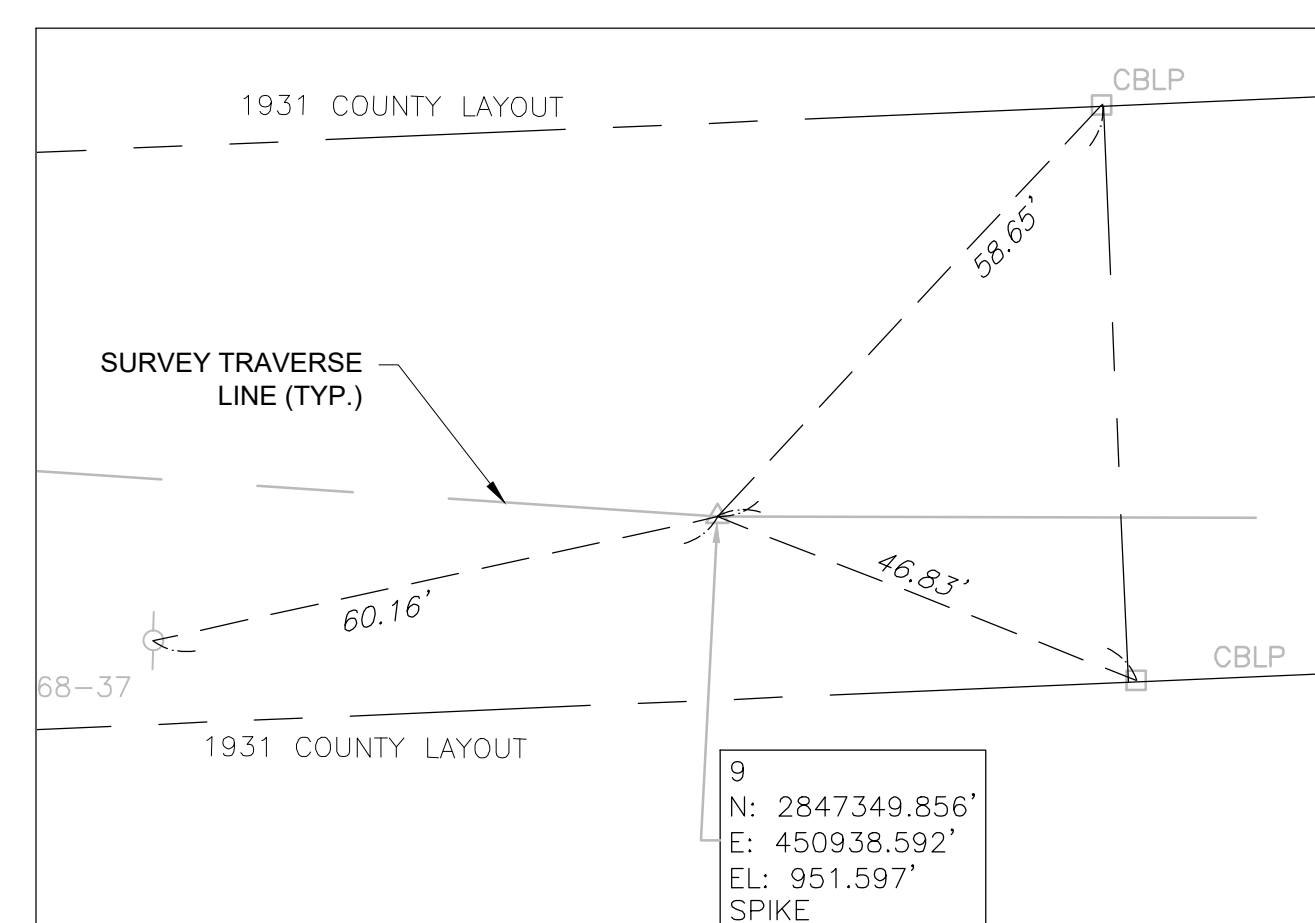
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	44	182
PROJECT FILE NO.		608163	

**CURB TIE AND GRADING PLANS**



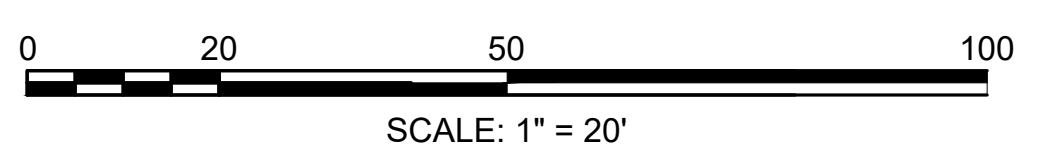
CONTINUED ON SHEET NO. 43

CONTINUED ON SHEET NO. 45



**TRAVERSE POINT TIES**  
SCALE: 1" = 20'

120 PECK ROAD  
N/F  
NORCROSS WILDLIFE SANCTUARY INC.  
BK. 2082 PG. 39  
BK. 2099 PG. 244  
BK. 2158 PG. 397  
BK. 2166 PG. 192  
BK. 2433 PG. 283  
BK. 2815 PG. 554  
BK. 3184 PG. 407  
BK. 3217 PG. 19  
MAP 100 LOT 120



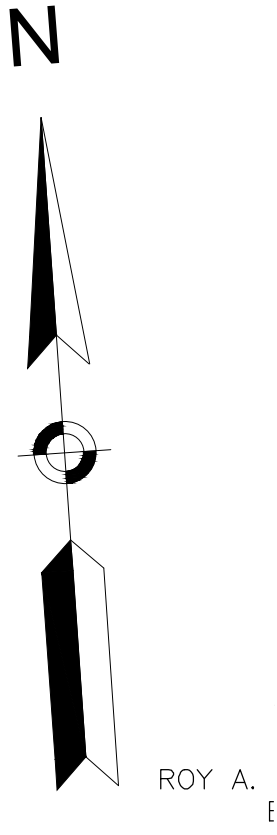
BASELINE DATA

DESCRIPTION	TANGENT/CURVE DATA	NORTHING	EASTING
PT STA 56+40.50	L=873.87' S 84° 49' 25.54" E	2847356.277	451118.062
PC STA 65+14.37	R = 5600.00' Δ = 10° 03' 19.38" L=982.80' T = 492.66'	2847277.437	451988.364
PT STA 74+97.17		2847274.893	452969.898

**WALES  
MONSON ROAD**

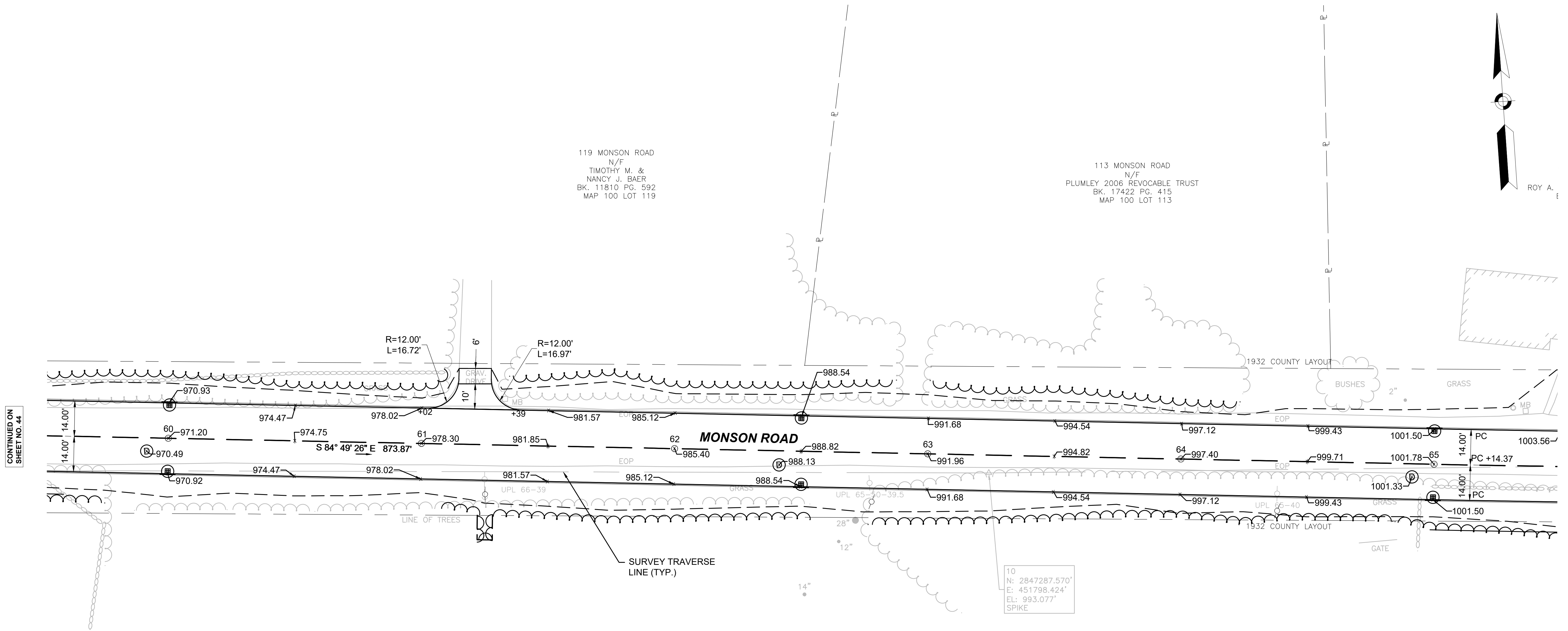
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	45	182
PROJECT FILE NO. 608163			

**CURB TIE AND GRADING PLANS**



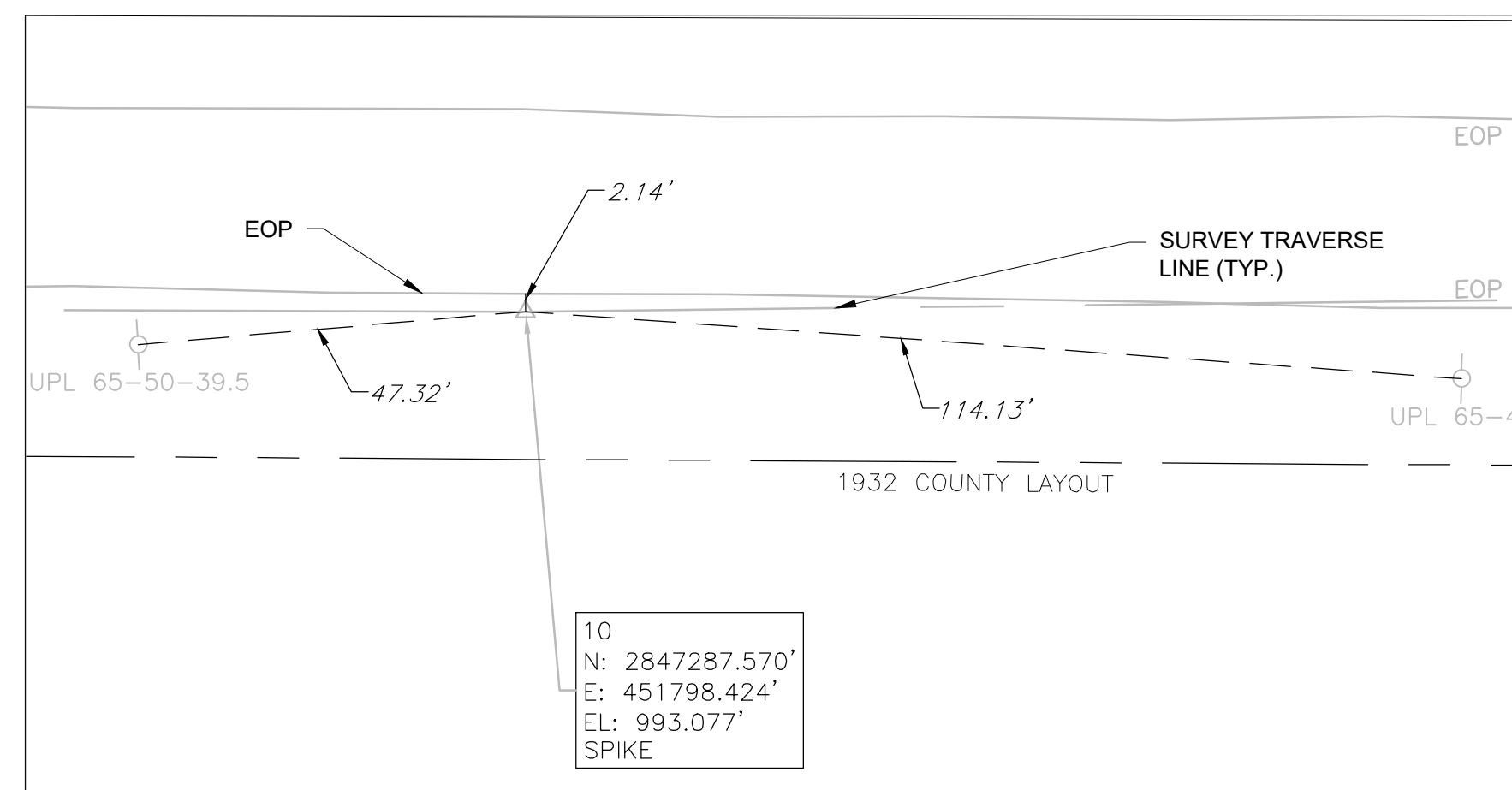
119 MONSON ROAD  
N/F  
TIMOTHY M. &  
NANCY J. BAER  
BK. 11810 PG. 592  
MAP 100 LOT 119

113 MONSON ROAD  
N/F  
PLUMLEY 2006 REVOCABLE TRUST  
BK. 17422 PG. 415  
MAP 100 LOT 113

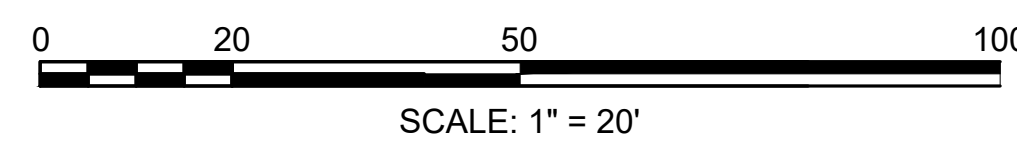


CONTINUED ON  
SHEET NO. 44

CONTINUED ON  
SHEET NO. 46



120 PECK ROAD  
N/F  
NORCROSS WILDLIFE SANCTUARY INC.  
BK. 2082 PG. 39  
BK. 2099 PG. 244  
BK. 2158 PG. 397  
BK. 2168 PG. 192  
BK. 2433 PG. 283  
BK. 2815 PG. 554  
BK. 3184 PG. 407  
BK. 3217 PG. 19  
MAP 100 LOT 120



**TRAVERSE POINT TIES**  
SCALE: 1" = 20'

**BASELINE DATA**

DESCRIPTION	TANGENT/CURVE DATA	NORTHING	EASTING
PC STA 65+14.37	R = 5600.00' Δ = 10° 03' 19.38" L = 982.80' T = 492.66'	2847277.437	451988.364
PT STA 74+97.17		2847274.893	452969.898

**LEGEND**

# CURVE

**CURVE DATA**

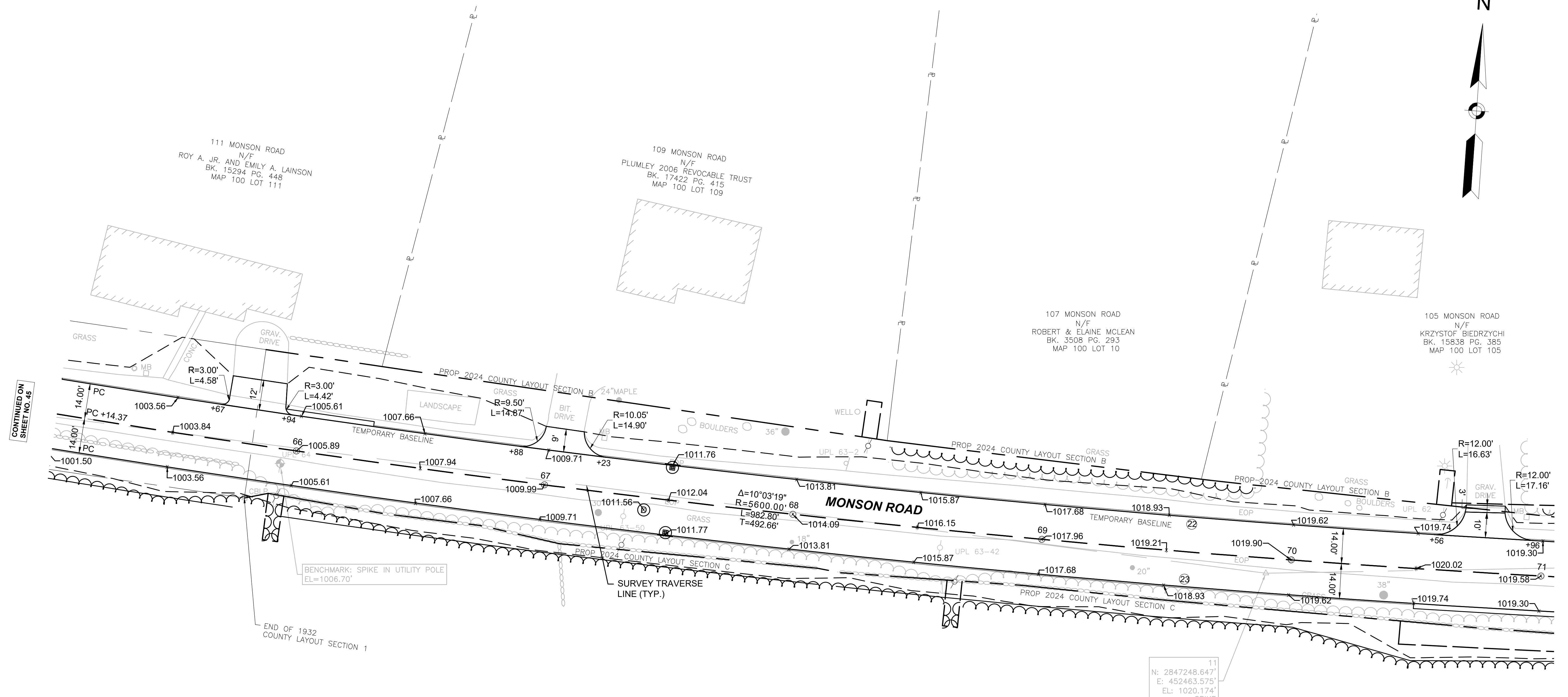
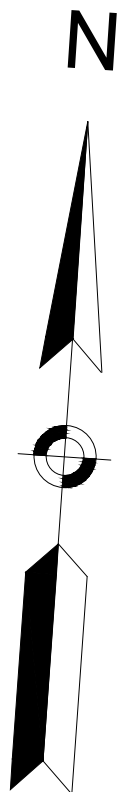
CURVE	LENGTH	RADIUS	DELTA	TANGENT
22	980.34	5586.00	10°03'19"	491.34
23	985.25	5614.00	10°03'19"	493.90

**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	46	182

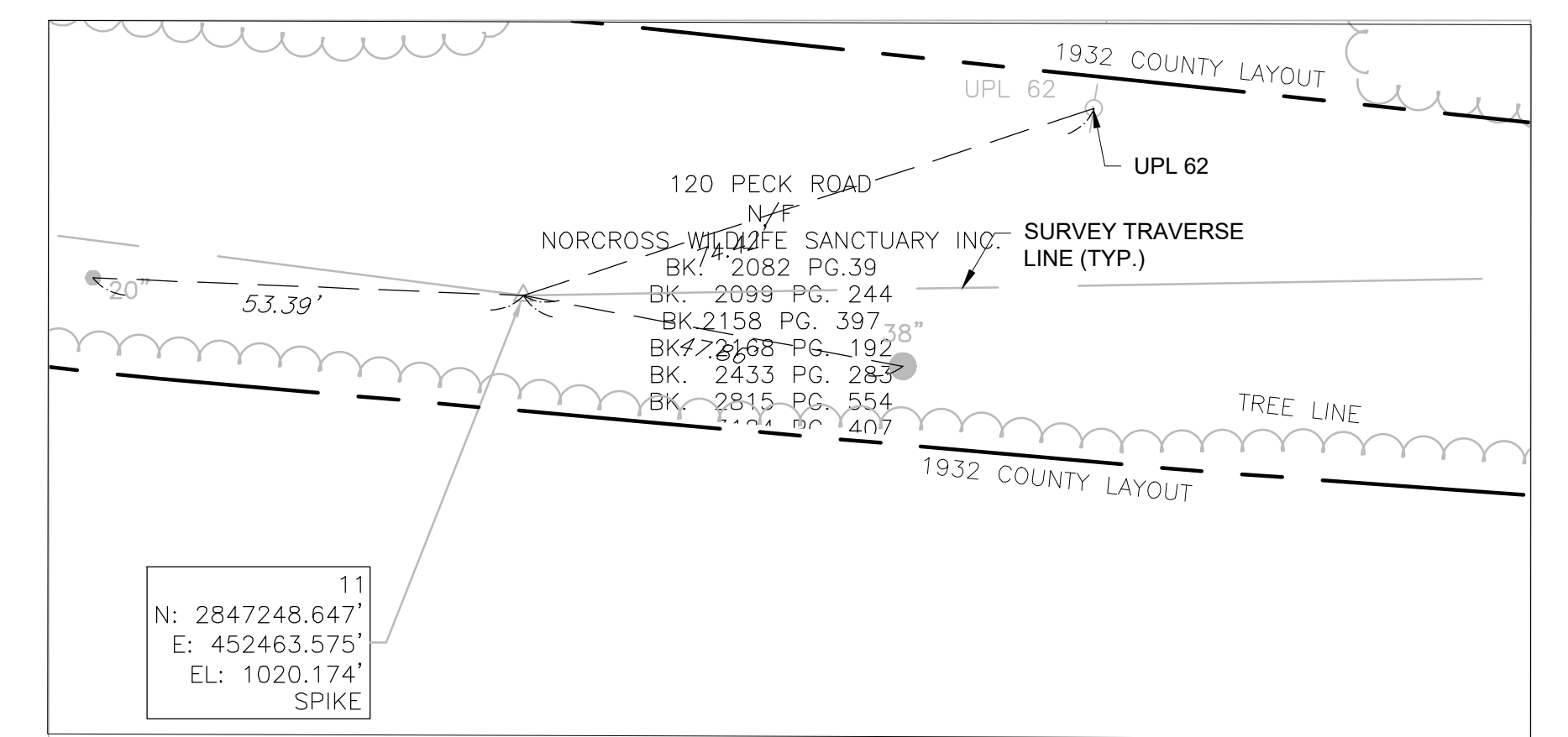
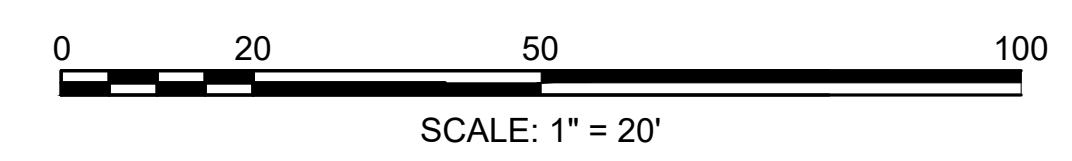
PROJECT FILE NO. 608163

**CURB TIE AND GRADING PLANS**



CONTINUED ON SHEET NO. 45

CONTINUED ON SHEET NO. 47



**TRAVERSE POINT TIES**  
SCALE: 1" = 20'



BASELINE DATA

DESCRIPTION	TANGENT/CURVE DATA	NORTHING	EASTING
PC STA 65+14.37	R = 5600.00' Δ = 10° 03' 19.38" L = 982.80' T = 492.66'	2847277.437	451988.364
PT STA 74+97.17		2847274.893	452969.898
PC STA 78+57.92	L = 360.75' N 85° 07' 15.07" E	2847305.576	453329.336

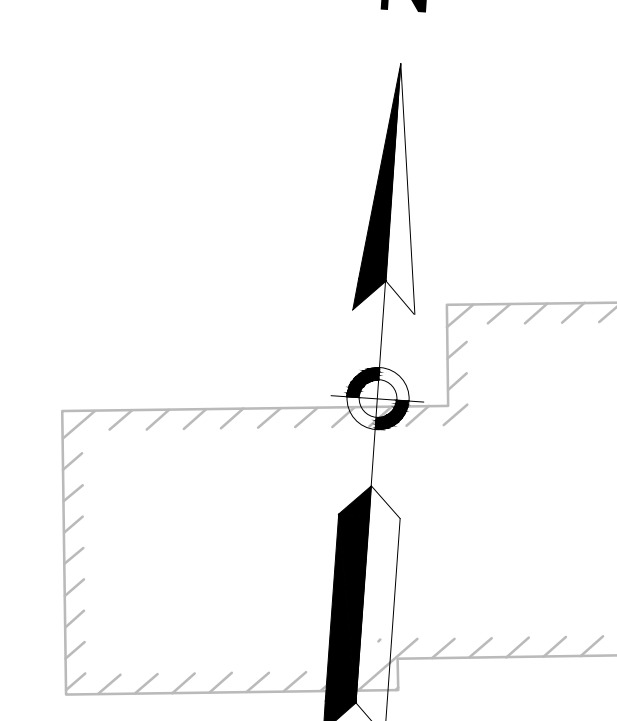
WALES  
MONSON ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	47	182
PROJECT FILE NO.		608163	

CURB TIE AND GRADING PLANS

TRAVERSE POINT TIES

SCALE: 1" = 20'



105 MONSON ROAD  
N/F  
RZYSTOF BIEDRZYCHI  
BK. 15838 PG. 385  
MAP 100 LOT 105

103 MONSON ROAD  
N/F  
JAMES LENA AND CINDY R. WEBSTER  
BK. 15376 PG. 568  
MAP 100 LOT 103

BEGINNING OF 1932  
COUNTY LAYOUT SECTION 2

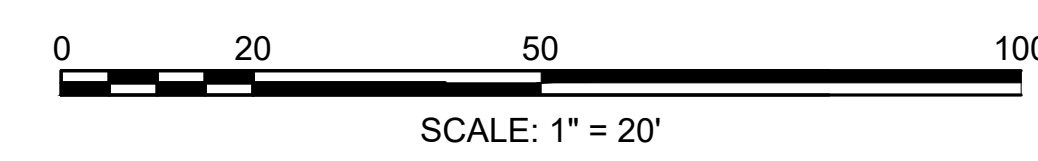
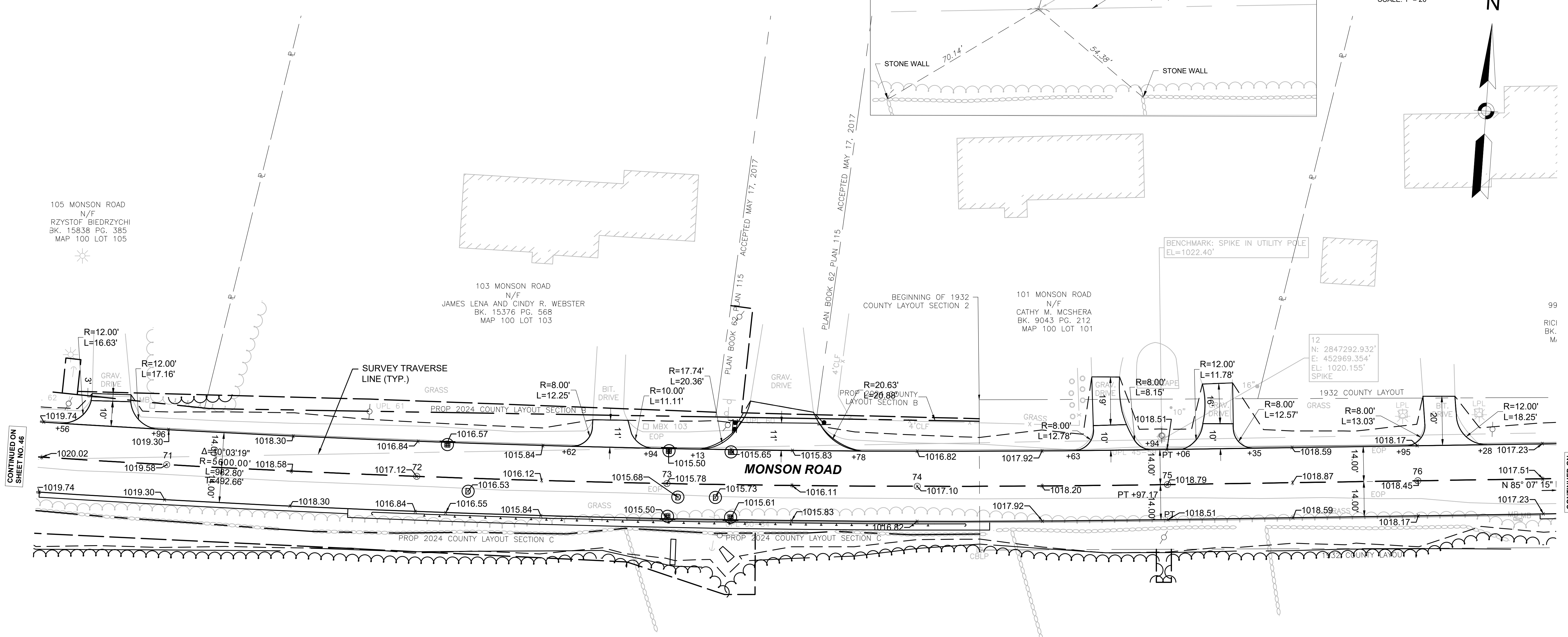
101 MONSON ROAD  
N/F  
CATHY M. MCSHERA  
BK. 9043 PG. 212  
MAP 100 LOT 101

99  
RICI  
BK.  
M.

12  
N: 2847292.932'  
E: 452969.354'  
EL: 1020.155'  
SPIKE

1932 COUNTY LAYOUT  
GRASS  
R=8.00'  
L=13.03'  
R=12.00'  
L=18.25'  
N 85° 07' 15"

120 PECK ROAD  
N/F  
NORCROSS WILDLIFE SANCTUARY INC.  
BK. 2082 PG. 39  
BK. 2099 PG. 244  
BK. 2158 PG. 397  
BK. 2168 PG. 192  
BK. 2433 PG. 283  
BK. 2815 PG. 554  
BK. 3184 PG. 407  
BK. 3217 PG. 19



CONTINUED ON  
SHEET NO. 46

CONTINUED ON  
SHEET NO. 48

**BASELINE DATA**

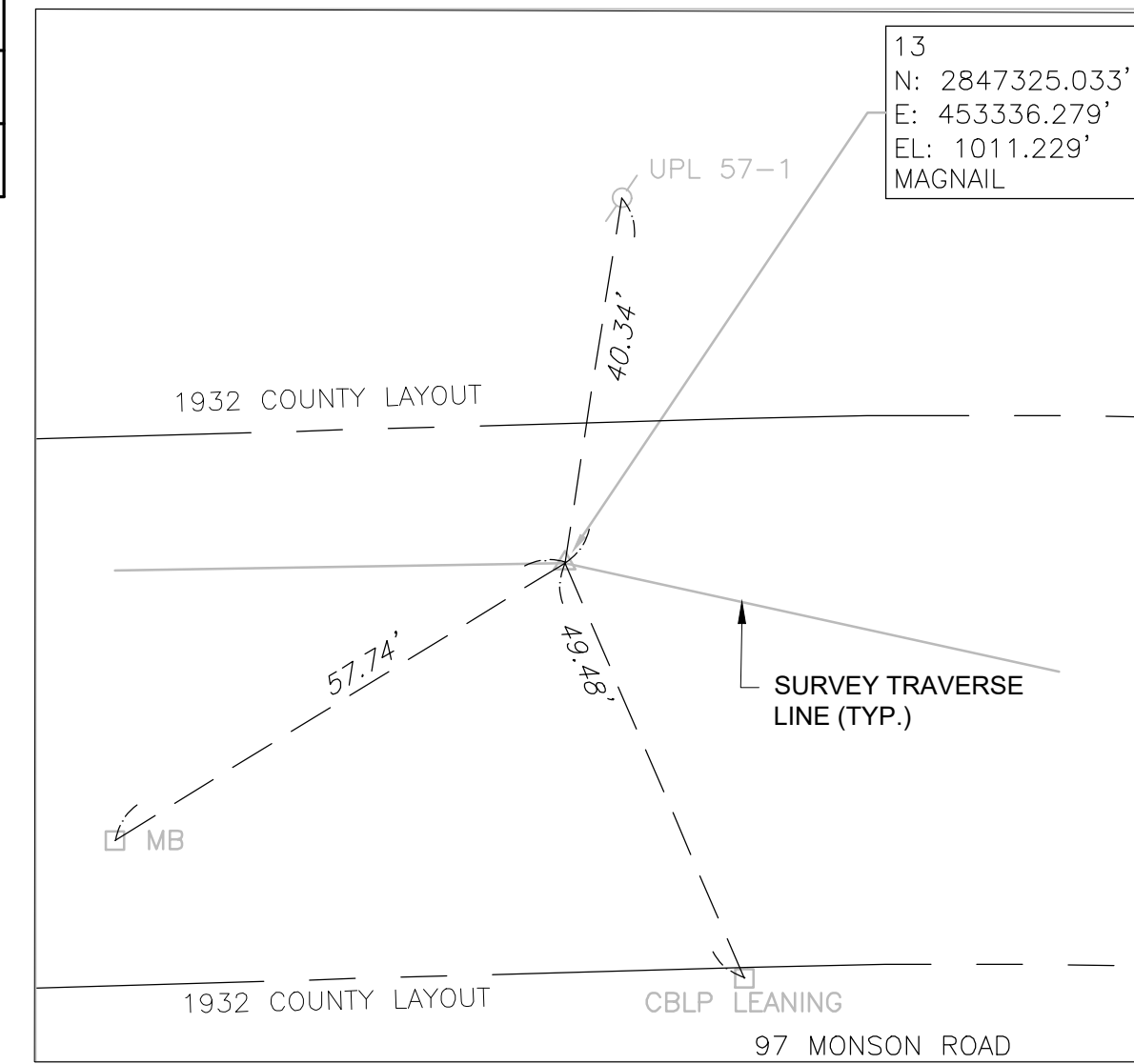
DESCRIPTION	TANGENT/CURVE DATA	NORTHING	EASTING
PT STA 74+97.17		2847274.893	452969.898
PC STA 78+57.91	L=360.75' N 85° 07' 15.07" E R = 1200.00' Δ = 09° 55' 06.20"	2847305.576	453329.336
PT STA 80+65.64	L= 207.73' T = 104.13'	2847305.286	453536.807
PC STA 83+13.27	L=247.63' S 84° 57' 38.72" E	2847283.534	453783.478

**LEGEND**

# CURVE

**TRAVERSE POINT TIES**

SCALE: 1" = 20'



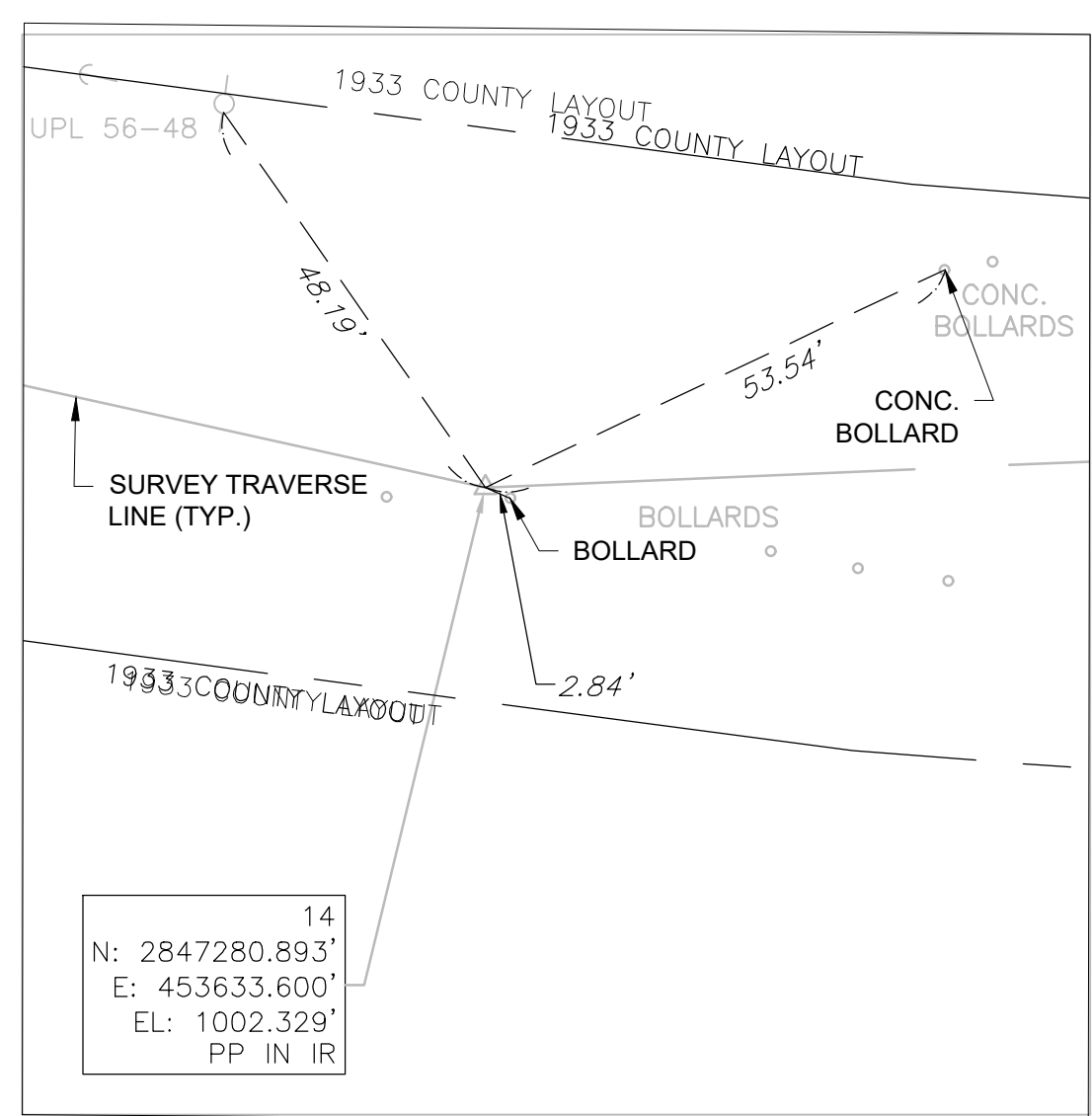
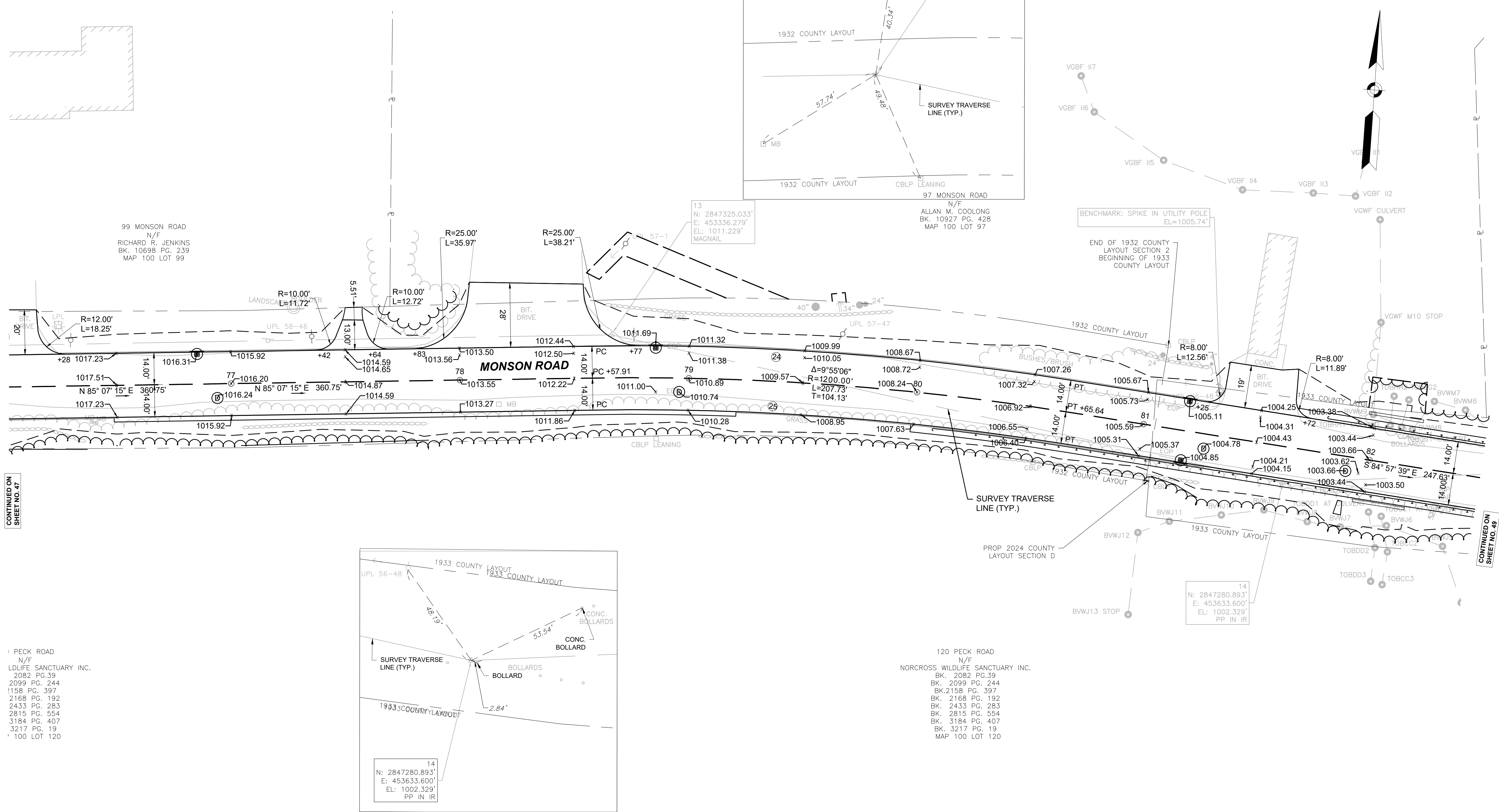
**CURVE DATA**

CURVE	LENGTH	RADIUS	DELTA	TANGENT
24	210.15	1214.00	09°55'06"	105.34
25	205.31	1186.00	09°55'06"	102.91

**WALES**  
**MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	48	182
PROJECT FILE NO.		608163	

**CURB TIE AND GRADING PLANS**



**TRAVERSE POINT TIES**

SCALE: 1" = 20'



SCALE: 1" = 20'

CONTINUED ON SHEET NO. 47

CONTINUED ON SHEET NO. 49

PECK ROAD  
N/F  
LDLIFE SANCTUARY INC.  
2082 PG. 39  
2099 PG. 244  
2158 PG. 397  
2168 PG. 192  
2433 PG. 283  
2815 PG. 554  
3184 PG. 407  
3217 PG. 19  
100 LOT 120

120 PECK ROAD  
N/F  
NORCROSS WILDLIFE SANCTUARY INC.  
BK. 2082 PG. 39  
BK. 2099 PG. 244  
BK. 2158 PG. 397  
BK. 2168 PG. 192  
BK. 2433 PG. 283  
BK. 2815 PG. 554  
BK. 3184 PG. 407  
BK. 3217 PG. 19  
MAP 100 LOT 120

**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	49	182
PROJECT FILE NO.		608163	

**CURB TIE AND GRADING PLANS**

**CURVE DATA**

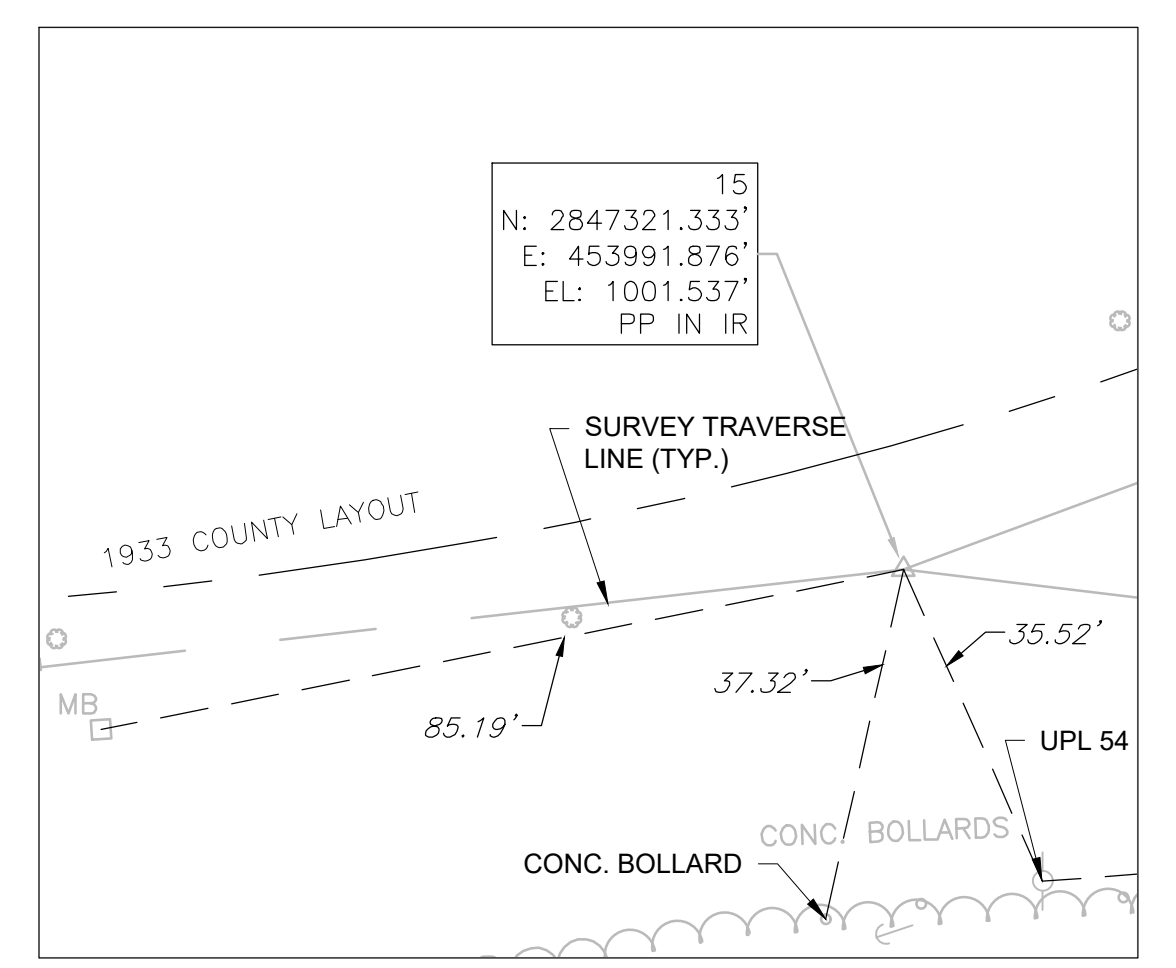
CURVE	LENGTH	RADIUS	DELTA	TANGENT
26	377.04	546.00	39°33'04"	196.38
27	312.70	574.00	31°12'49"	160.34
28	41.39	30.00	79°03'04"	24.75
29	64.14	69.00	53°15'39"	34.60
30	55.21	28.00	113°16'32"	42.41
31	29.64	51.00	33°18'04"	15.25
32	97.57	541.00	10°20'20"	48.92
33	102.36	573.00	10°13'43"	51.31

**BASELINE DATA**

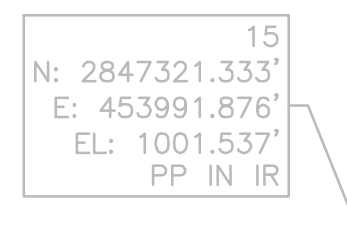
DESCRIPTION	TANGENT/CURVE DATA	NORTHING	EASTING
PT STA 80+65.64	L=247.63' S 84° 57' 38.72" E	2847305.286	453536.807
PC STA 83+13.27	R=560.00' Δ=58° 08' 22.91"	2847283.534	453783.478
PC STA 88+81.52	L=568.25' T=311.31'	2847505.138	454280.493

**LEGEND**

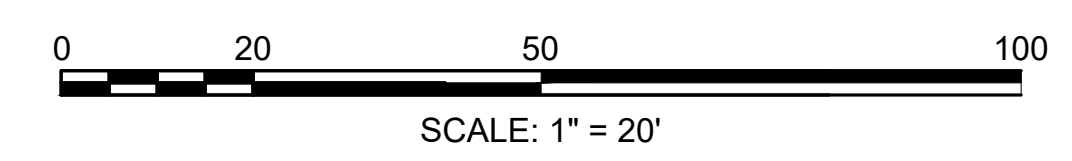
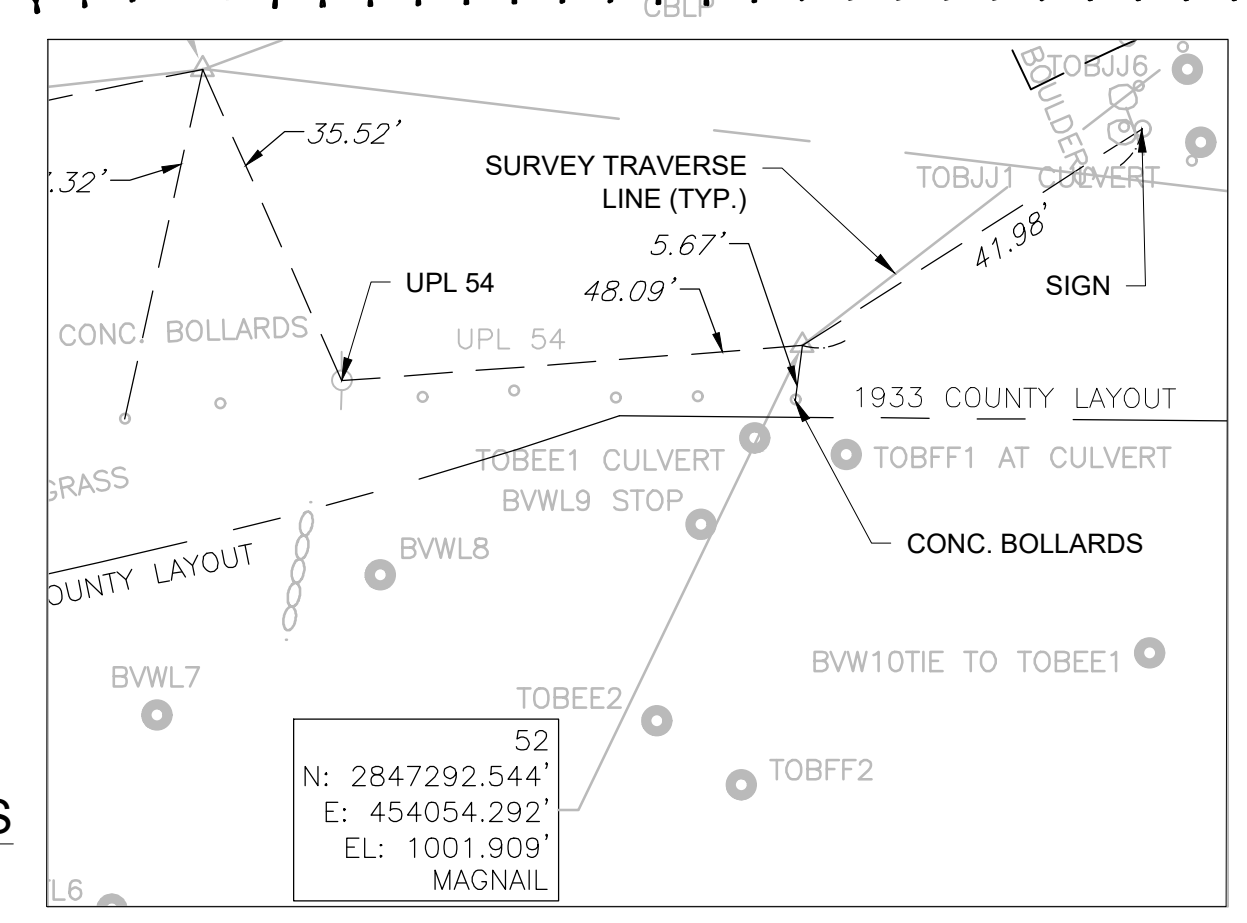
⊙ CURVE



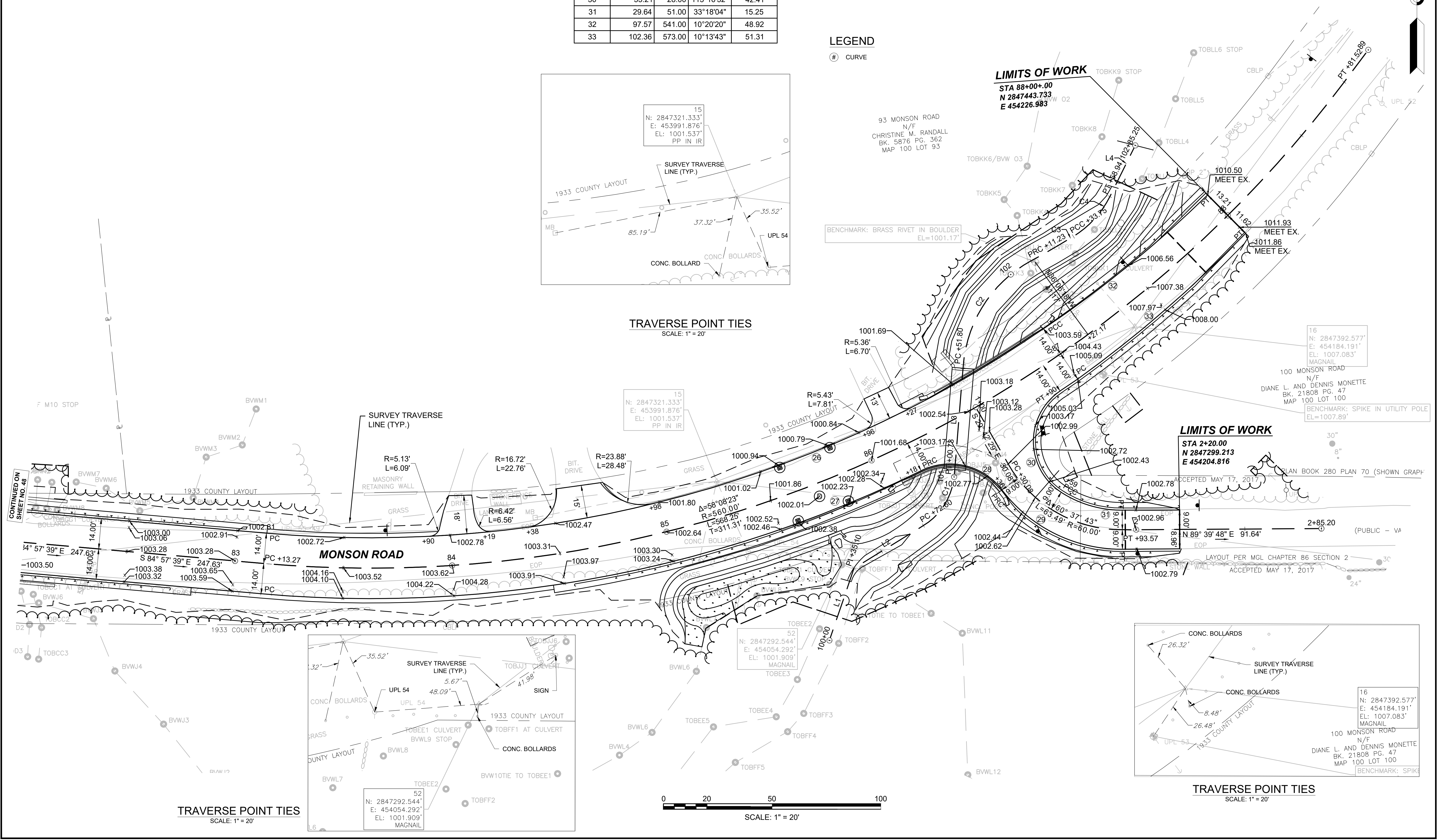
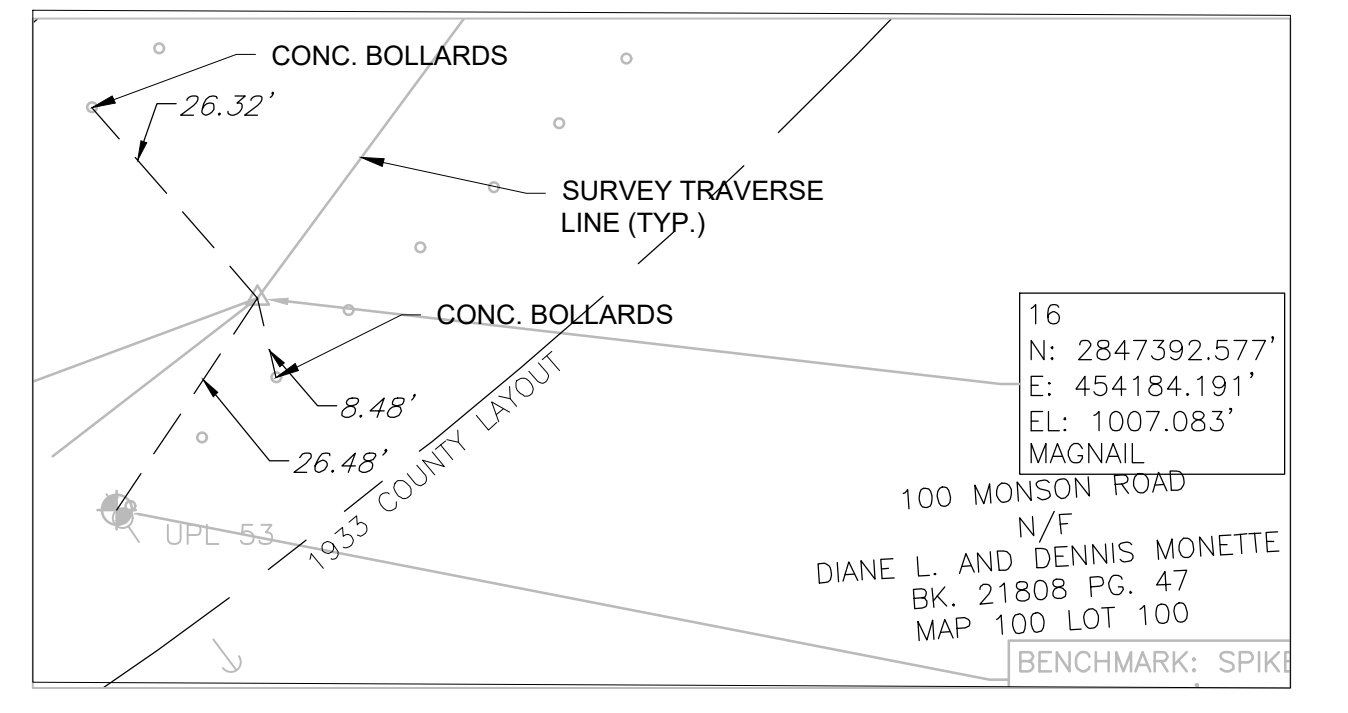
**TRAVERSE POINT TIES**  
SCALE: 1" = 20'



**TRAVERSE POINT TIES**  
SCALE: 1" = 20'



**TRAVERSE POINT TIES**  
SCALE: 1" = 20'

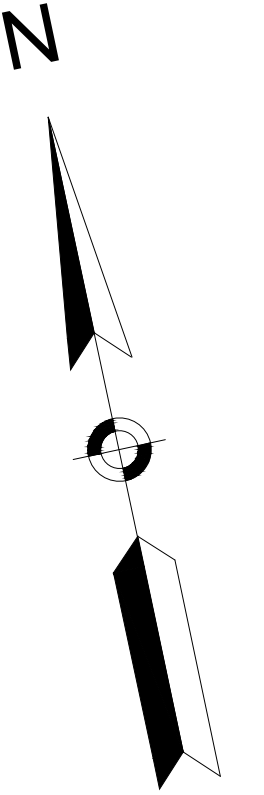




**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	50	182
PROJECT FILE NO.		608163	

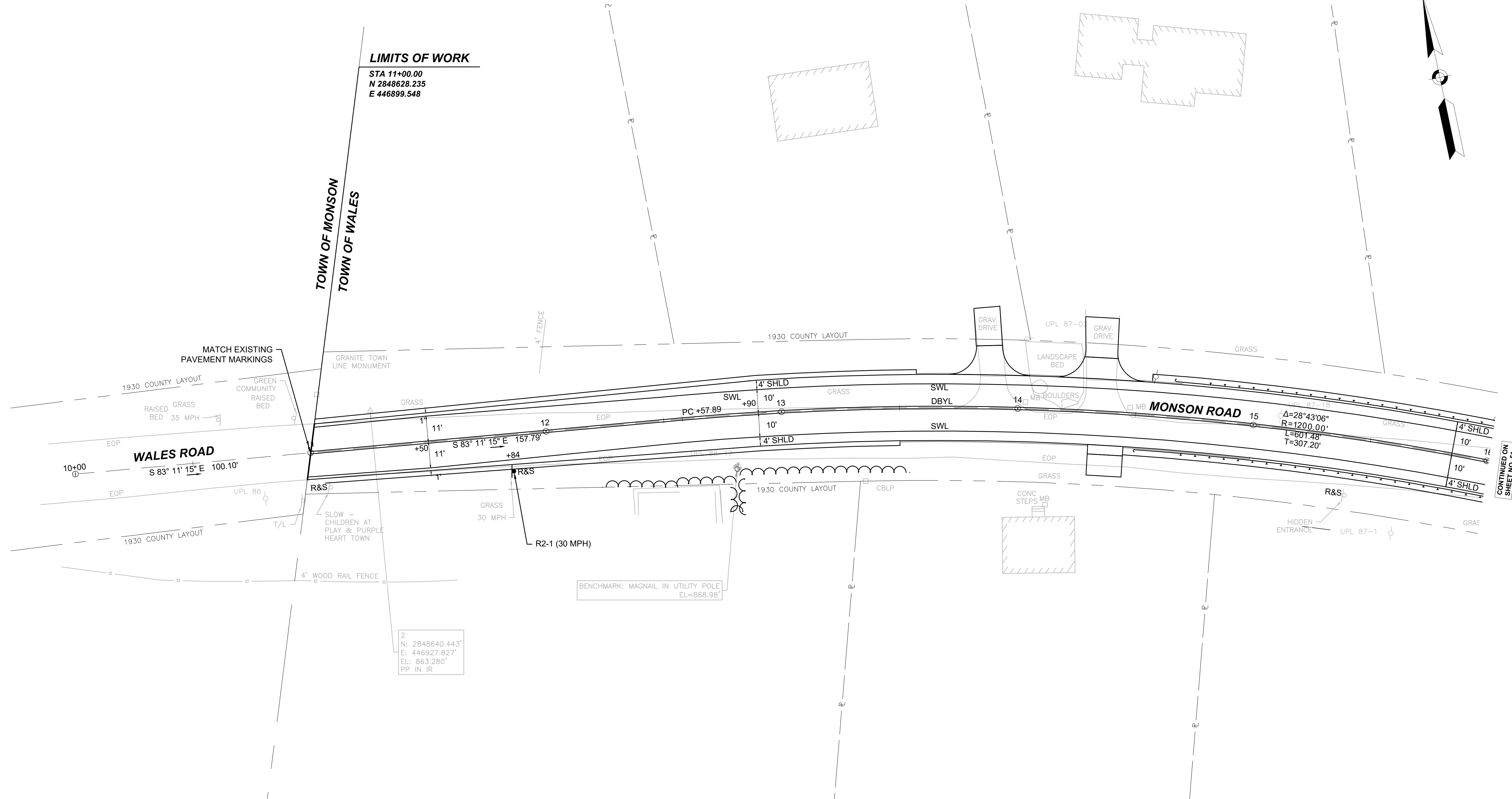
**TRAFFIC SIGN AND PAVEMENT MARKING PLANS**



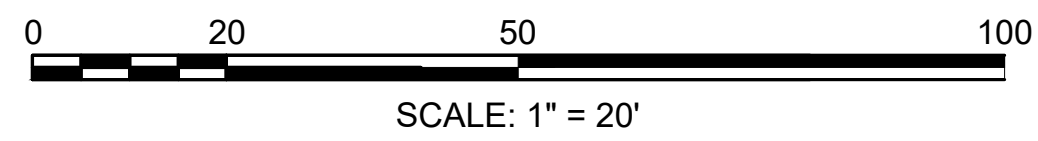
**LIMITS OF WORK**

STA 11+00.00  
N 2848628.235  
E 446899.548

TOWN OF MONSON  
TOWN OF WALES



CONTINUED ON  
SHEET NO. 51

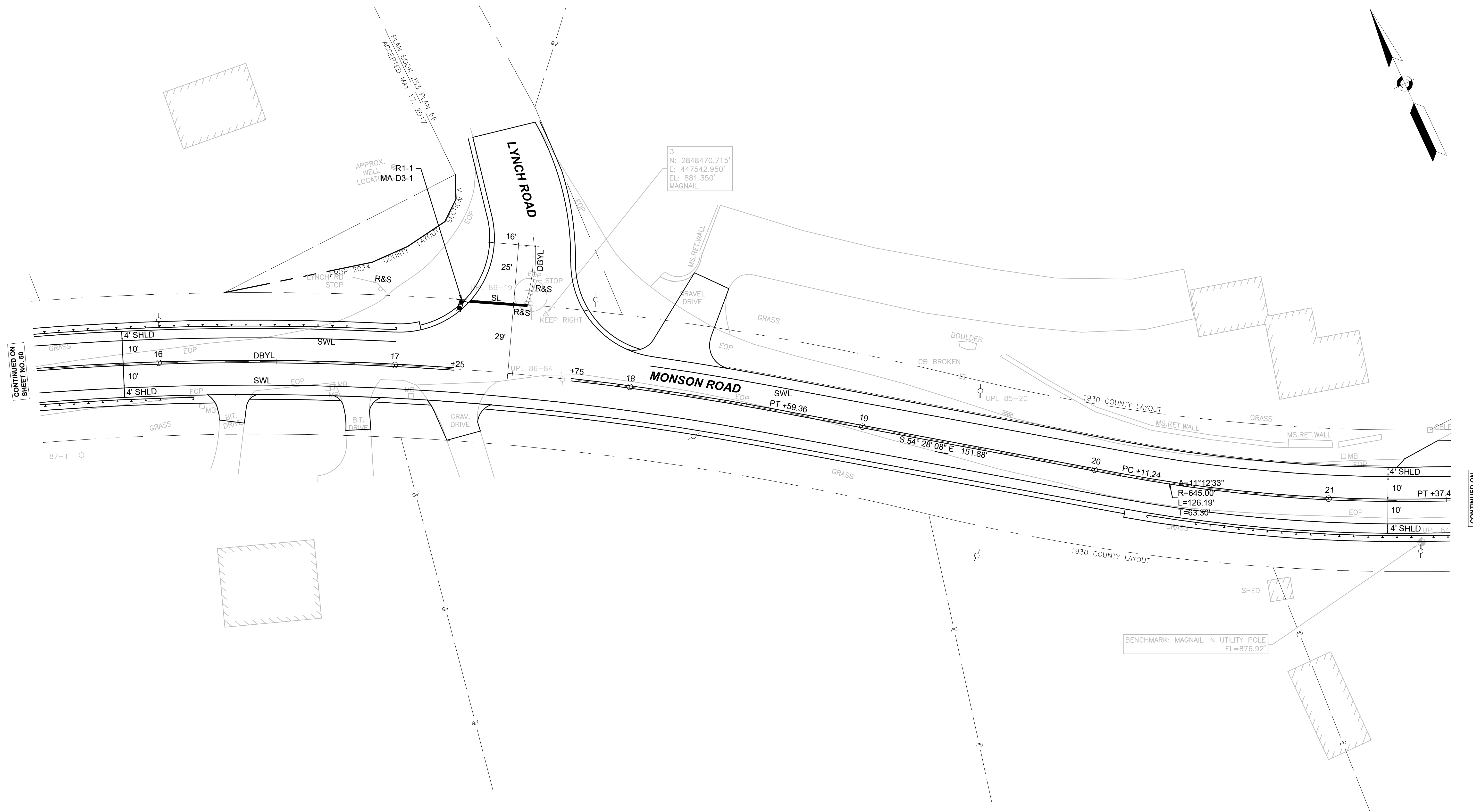
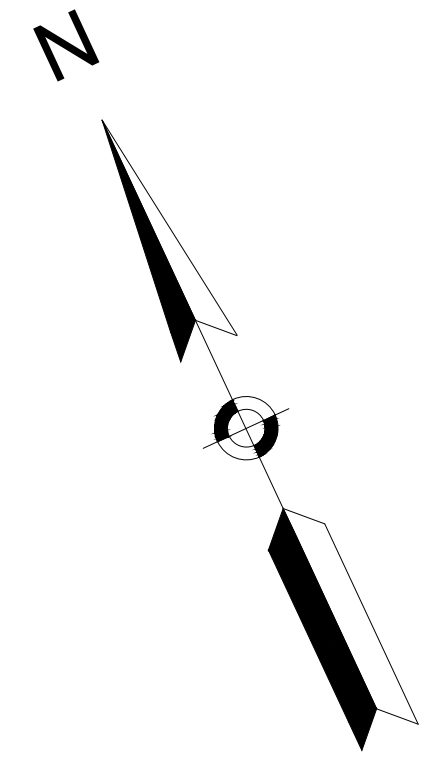


2  
N: 2848640.443'  
E: 446927.827'  
EL: 863.280'  
PP IN IR

**WALES  
MONSON ROAD**

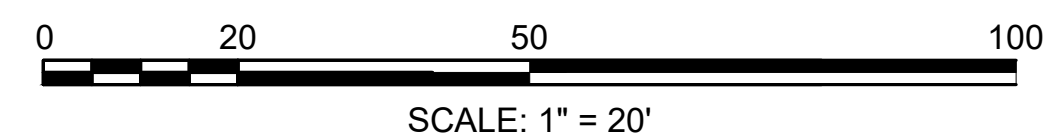
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	51	182
PROJECT FILE NO.		608163	

**TRAFFIC SIGN AND PAVEMENT MARKING PLANS**



CONTINUED ON SHEET NO. 50

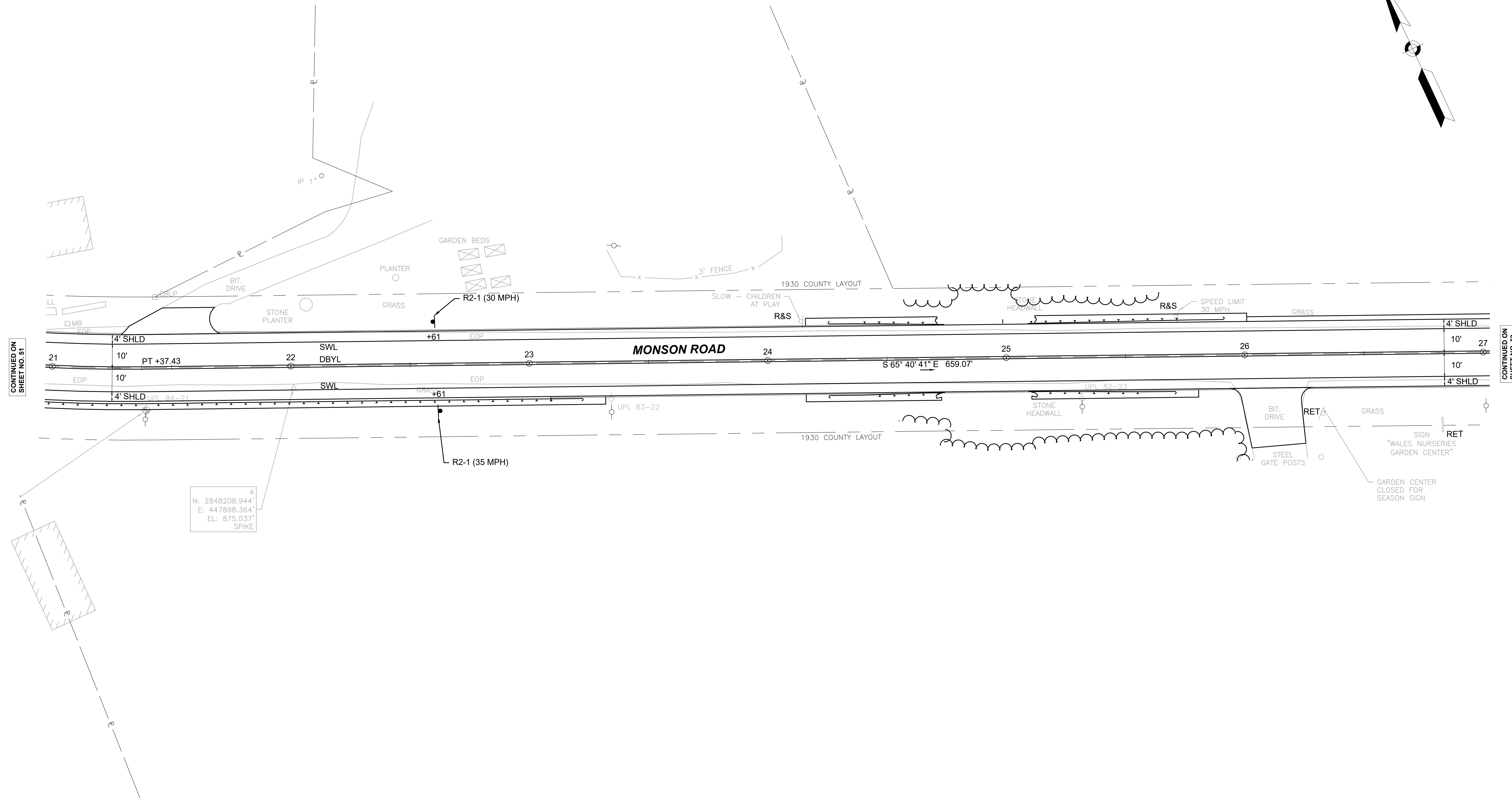
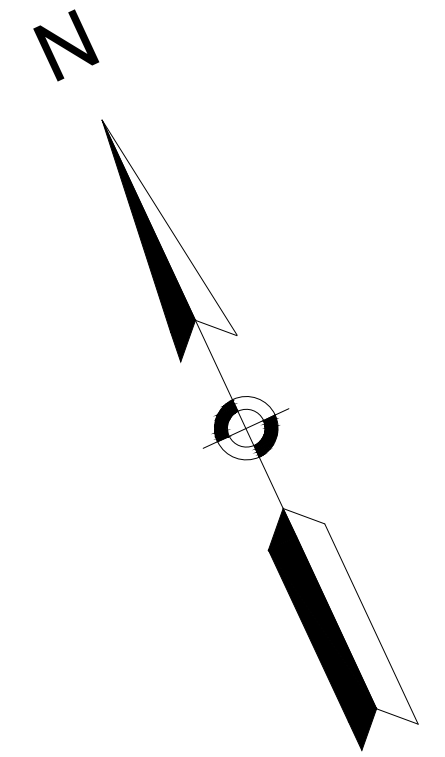
CONTINUED ON SHEET NO. 52



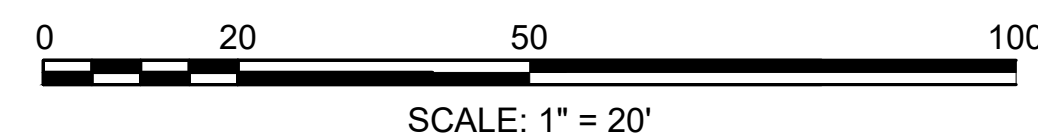
WALES  
MONSON ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	52	182
PROJECT FILE NO.		608163	

TRAFFIC SIGN AND PAVEMENT MARKING PLANS



4  
N: 2848208.944'  
E: 447898.364'  
EL: 875.037'  
SPIKE



CONTINUED ON  
SHEET NO. 51

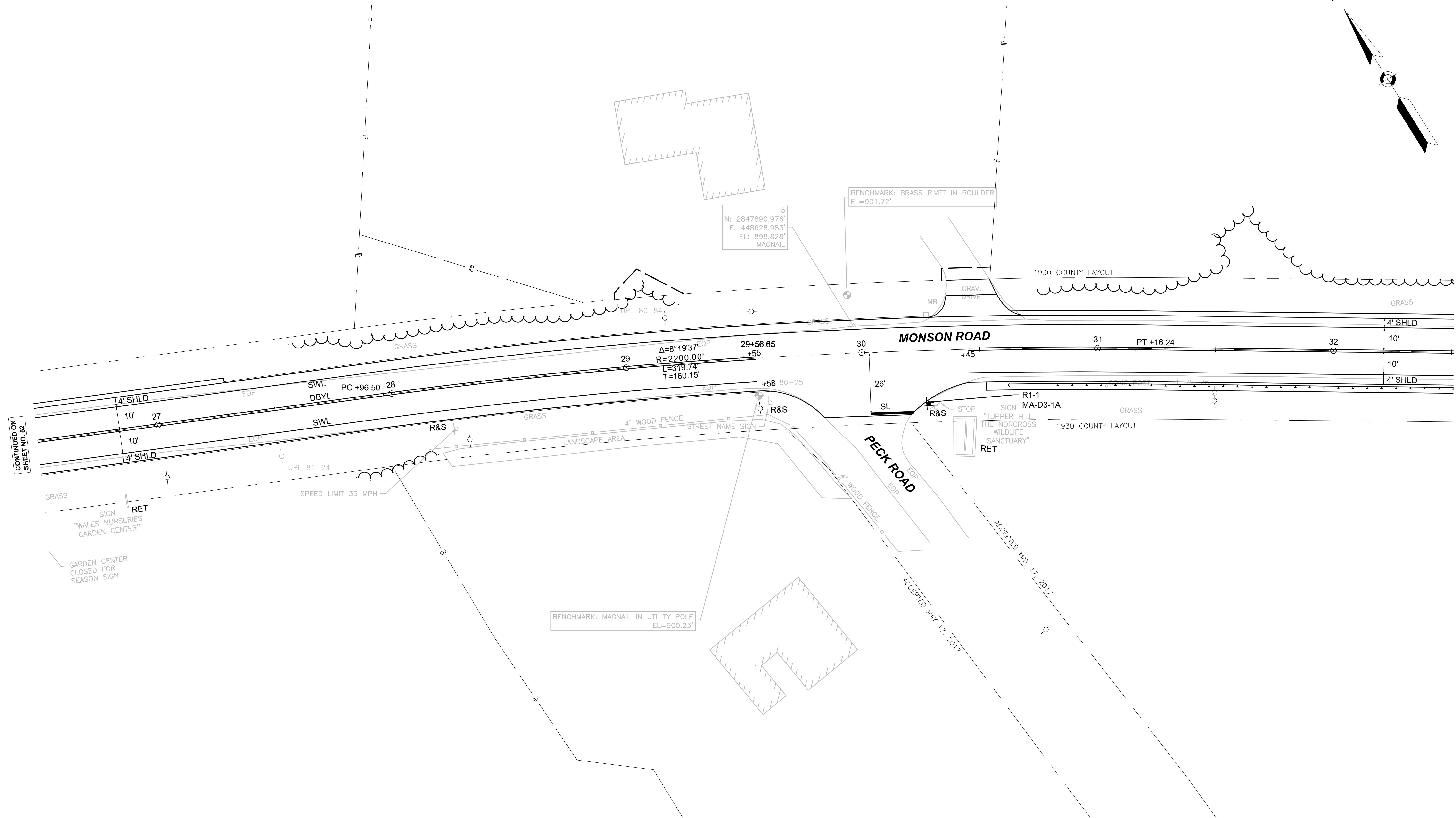
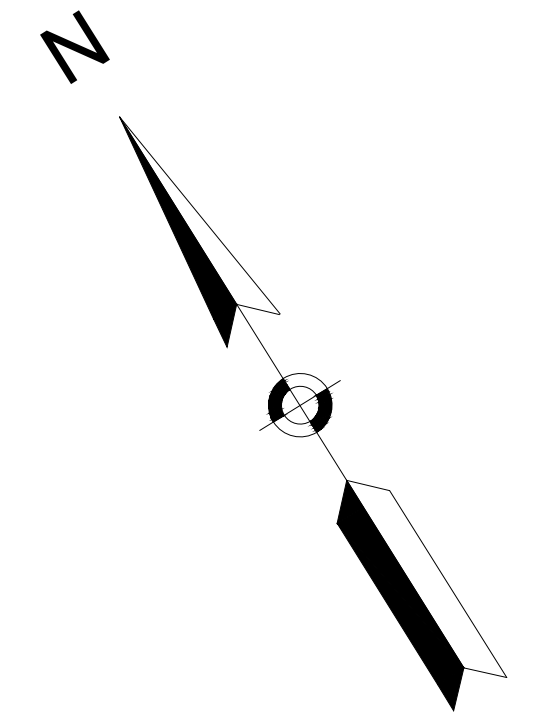
CONTINUED ON  
SHEET NO. 53



**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	53	182
PROJECT FILE NO.		608163	

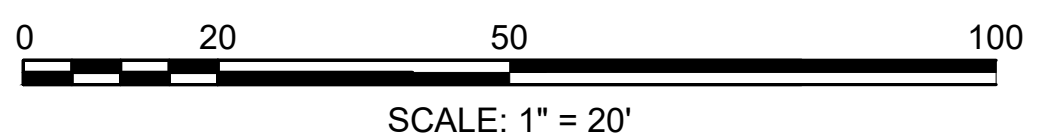
**TRAFFIC SIGN AND PAVEMENT MARKING PLANS**



N: 2847890.976'  
E: 448628.983'  
EL: 898.828'  
MAGNAIL

BENCHMARK: BRASS RIVET IN BOULDER  
EL=901.72'

BENCHMARK: MAGNAIL IN UTILITY POLE  
EL=900.23'



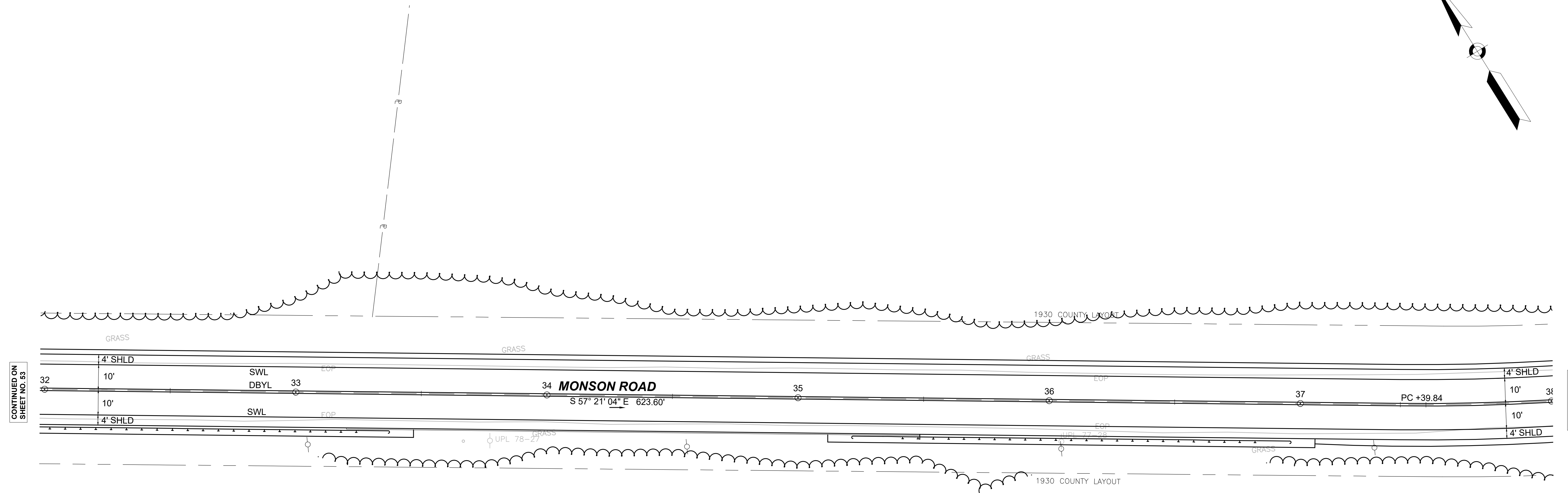
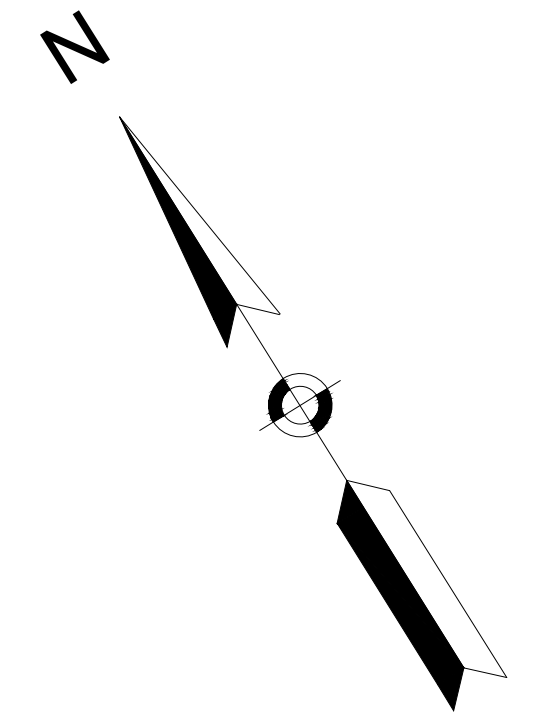
CONTINUED ON SHEET NO. 52

CONTINUED ON SHEET NO. 54

**WALES  
MONSON ROAD**

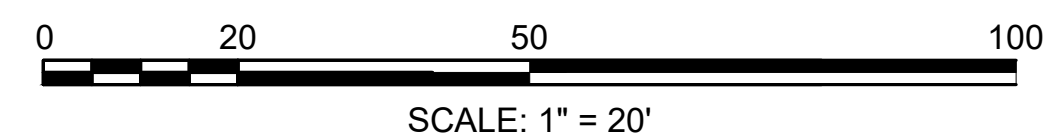
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	54	182
PROJECT FILE NO.		608163	

**TRAFFIC SIGN AND PAVEMENT MARKING PLANS**



CONTINUED ON  
SHEET NO. 53

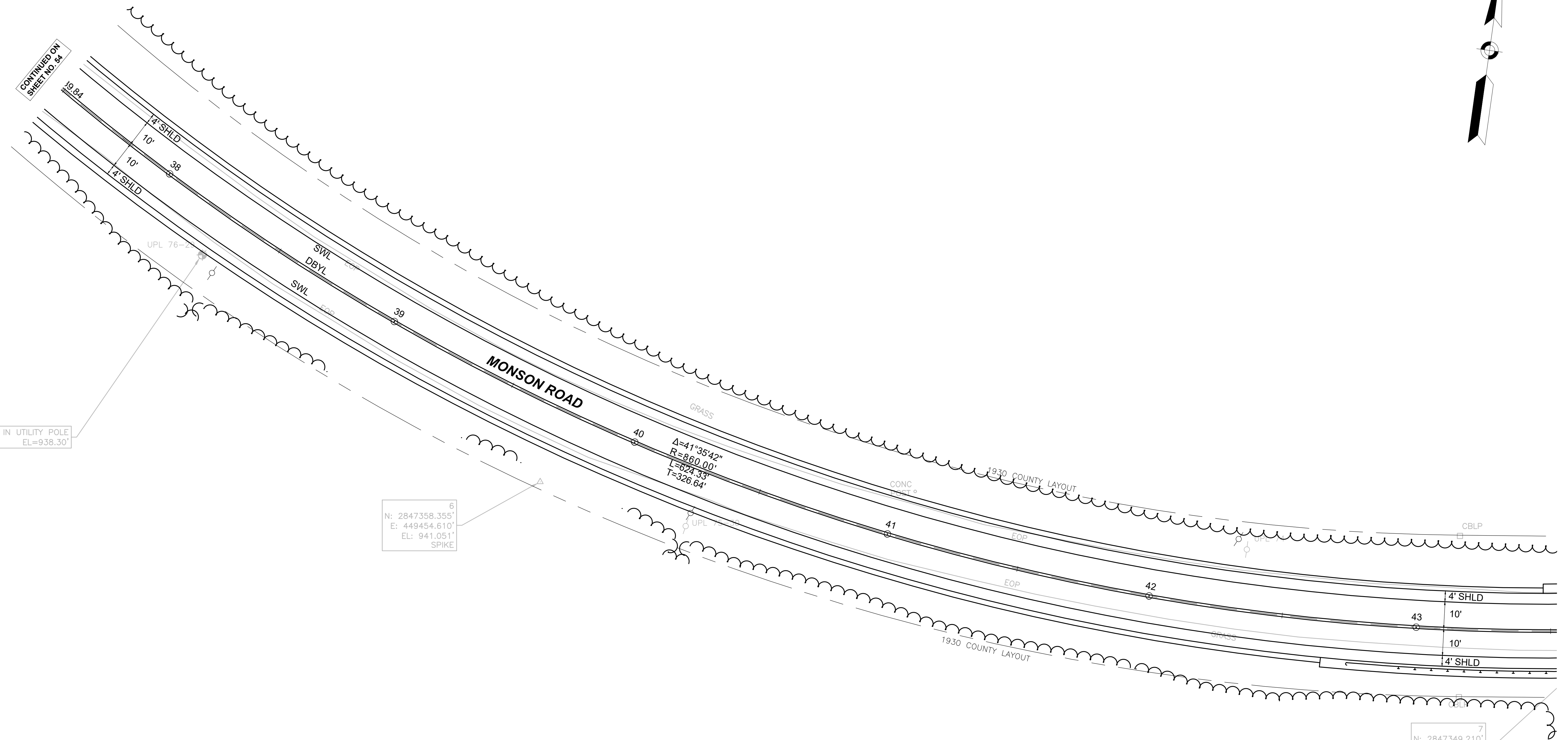
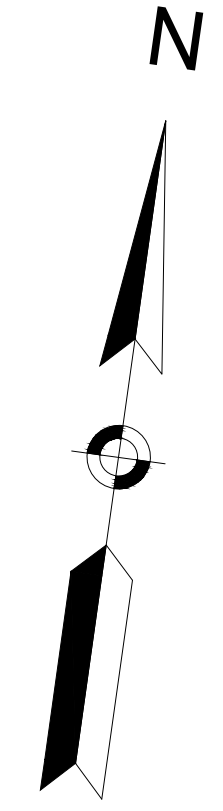
CONTINUED ON  
SHEET NO. 55



**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	55	182
PROJECT FILE NO.		608163	

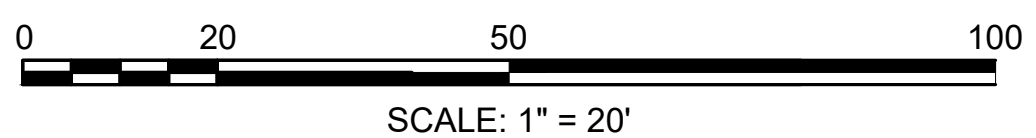
**TRAFFIC SIGN AND PAVEMENT MARKING PLANS**



BENCHMARK: SPIKE IN UTILITY POLE  
EL=938.30'

6  
N: 2847358.355'  
E: 449454.610'  
EL: 941.051'  
SPIKE

7  
N: 2847349.210'  
E: 449851.223'  
EL: 934.002'  
SPIKE



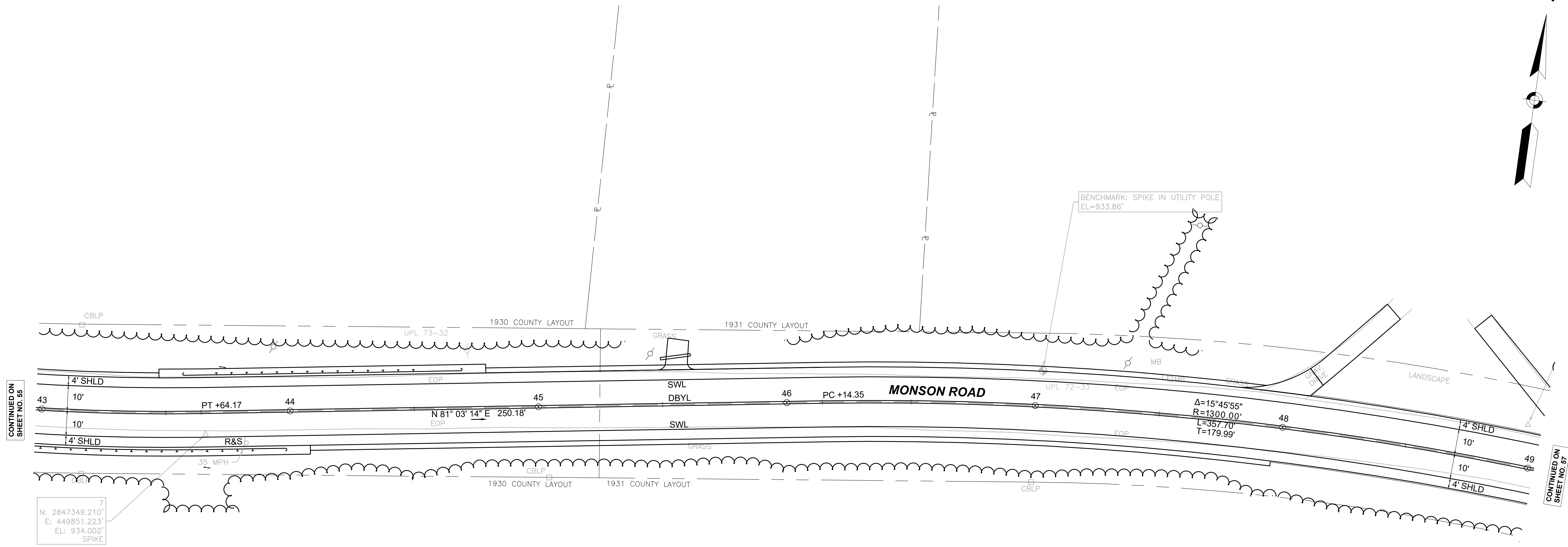
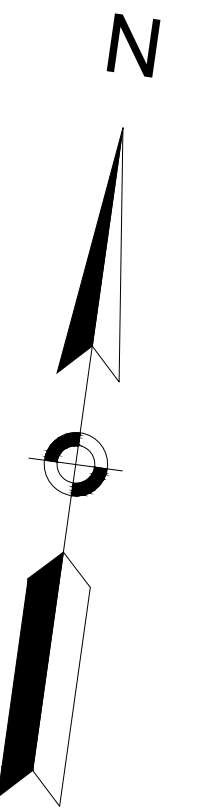
CONTINUED ON  
SHEET NO. 54

CONTINUED ON  
SHEET NO. 56

WALES  
MONSON ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	56	182
PROJECT FILE NO.		608163	

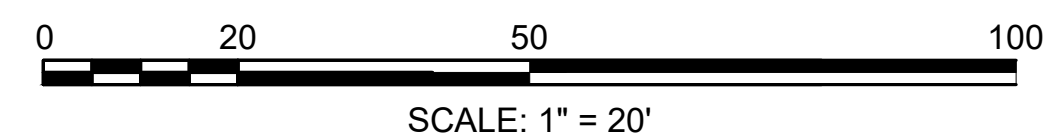
TRAFFIC SIGN AND PAVEMENT MARKING PLANS



CONTINUED ON SHEET NO. 55

CONTINUED ON SHEET NO. 57

7  
N: 2847349.210'  
E: 449851.223'  
EL: 934.002'  
SPIKE

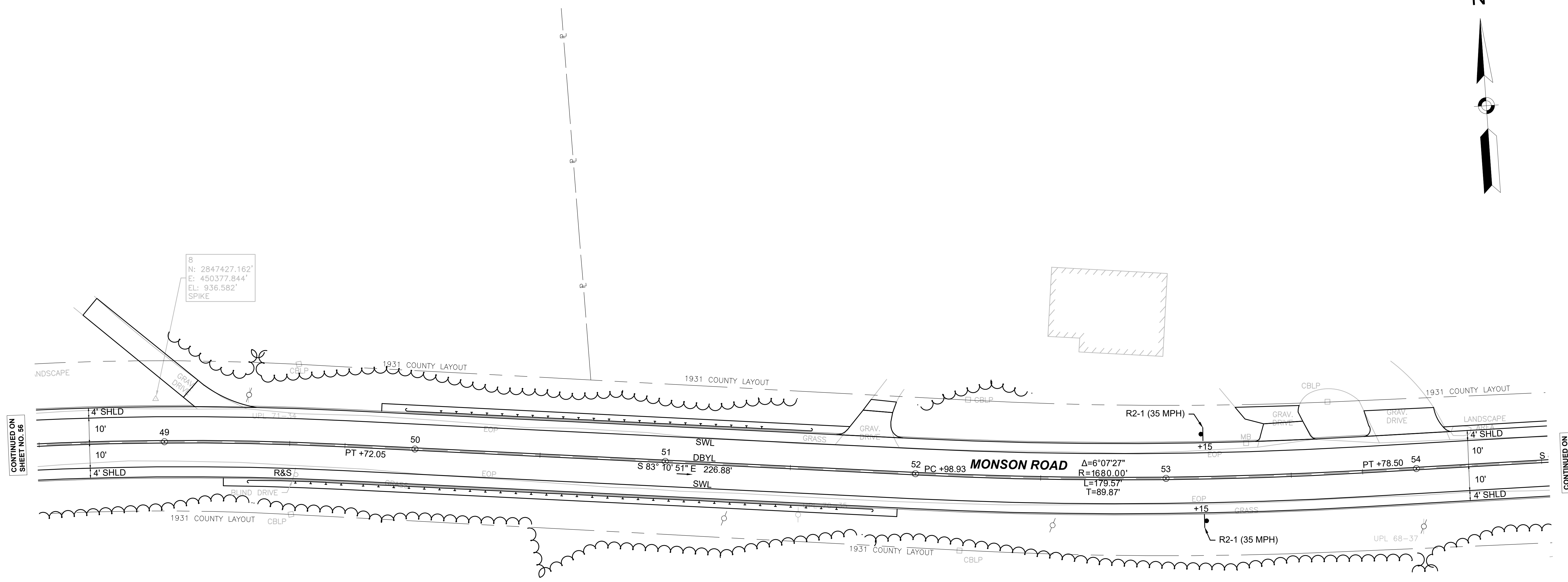
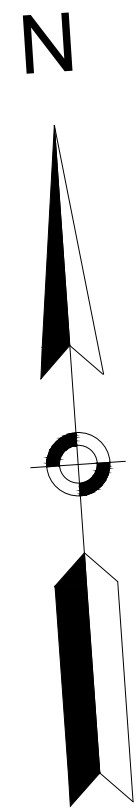




WALES  
MONSON ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	57	182
PROJECT FILE NO.		608163	

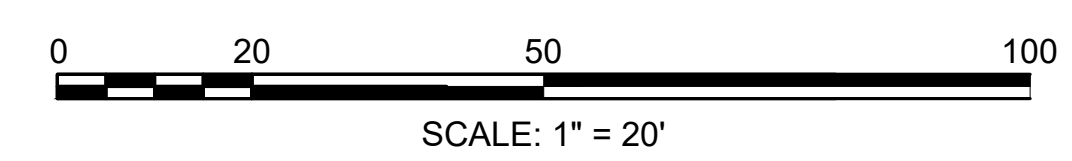
TRAFFIC SIGN AND PAVEMENT MARKING PLANS



8  
N: 2847427.162'  
E: 450377.844'  
EL: 936.582'  
SPIKE

CONTINUED ON  
SHEET NO. 56

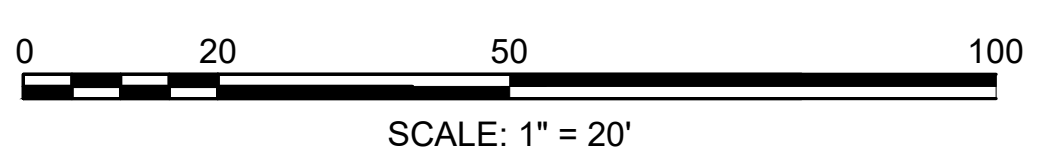
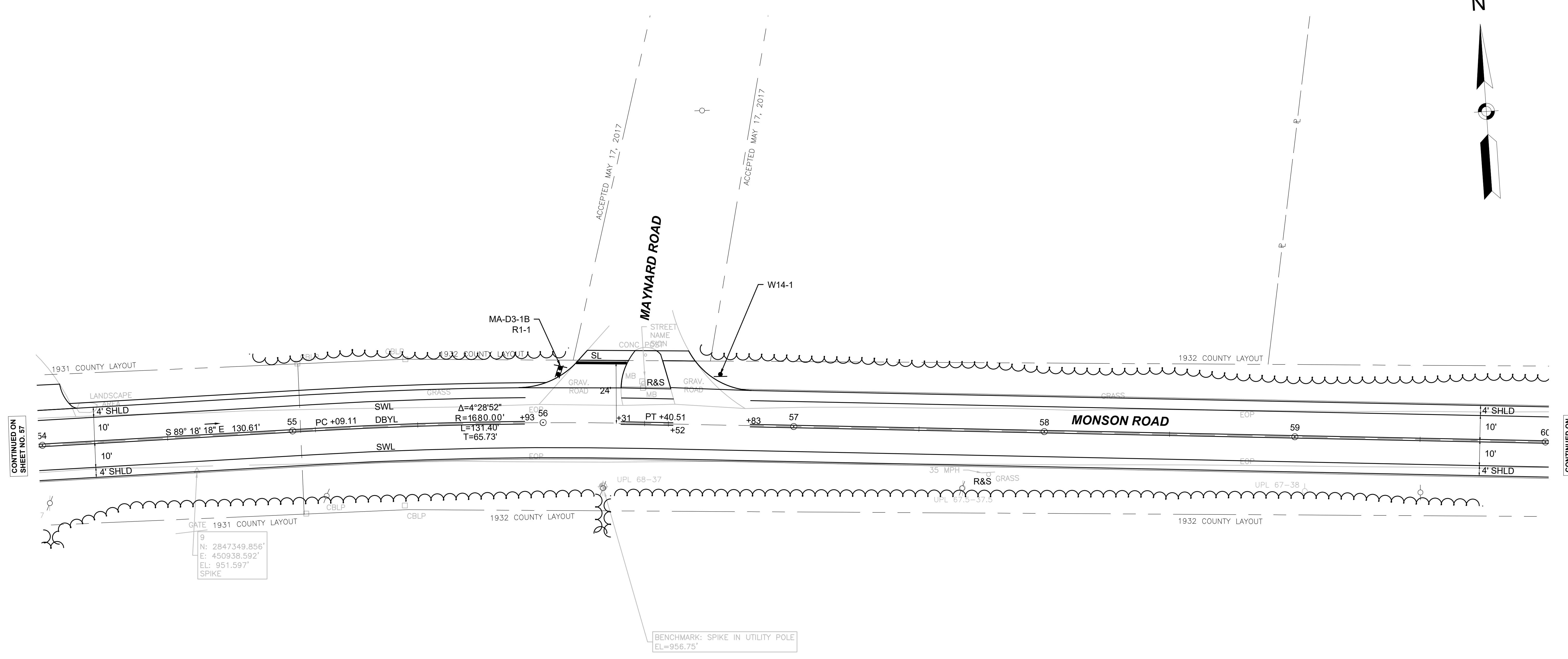
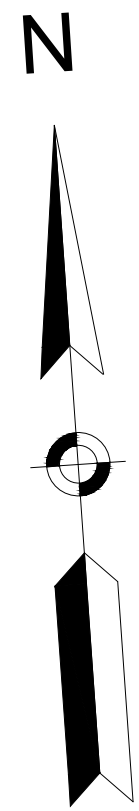
CONTINUED ON  
SHEET NO. 58



**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	58	182
PROJECT FILE NO.		608163	

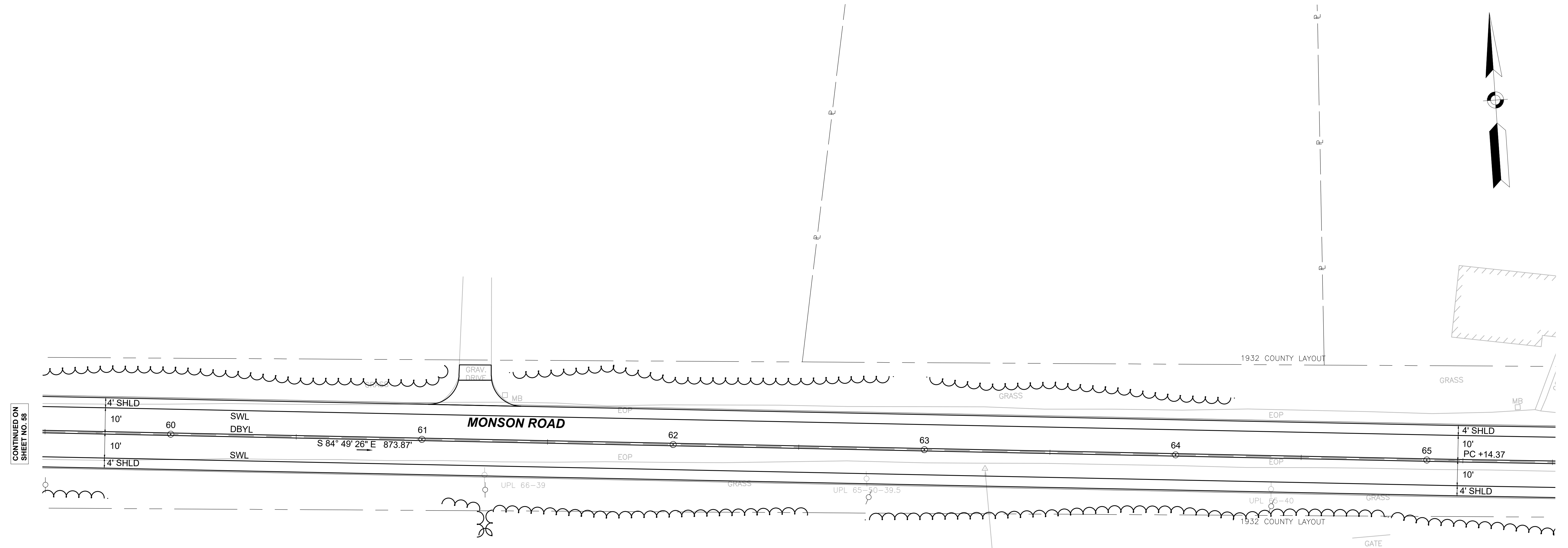
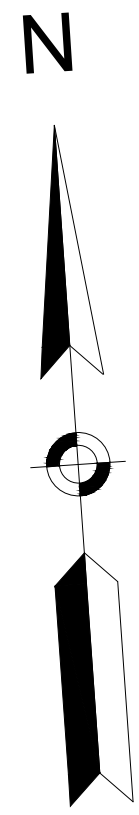
**TRAFFIC SIGN AND PAVEMENT MARKING PLANS**



**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	59	182
PROJECT FILE NO.		608163	

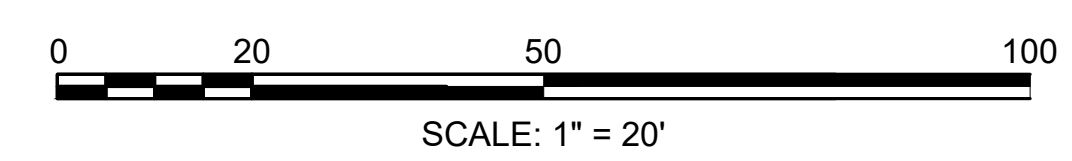
**TRAFFIC SIGN AND PAVEMENT MARKING PLANS**



10  
N: 2847287.570'  
E: 451798.424'  
EL: 993.077'  
SPIKE

CONTINUED ON  
SHEET NO. 58

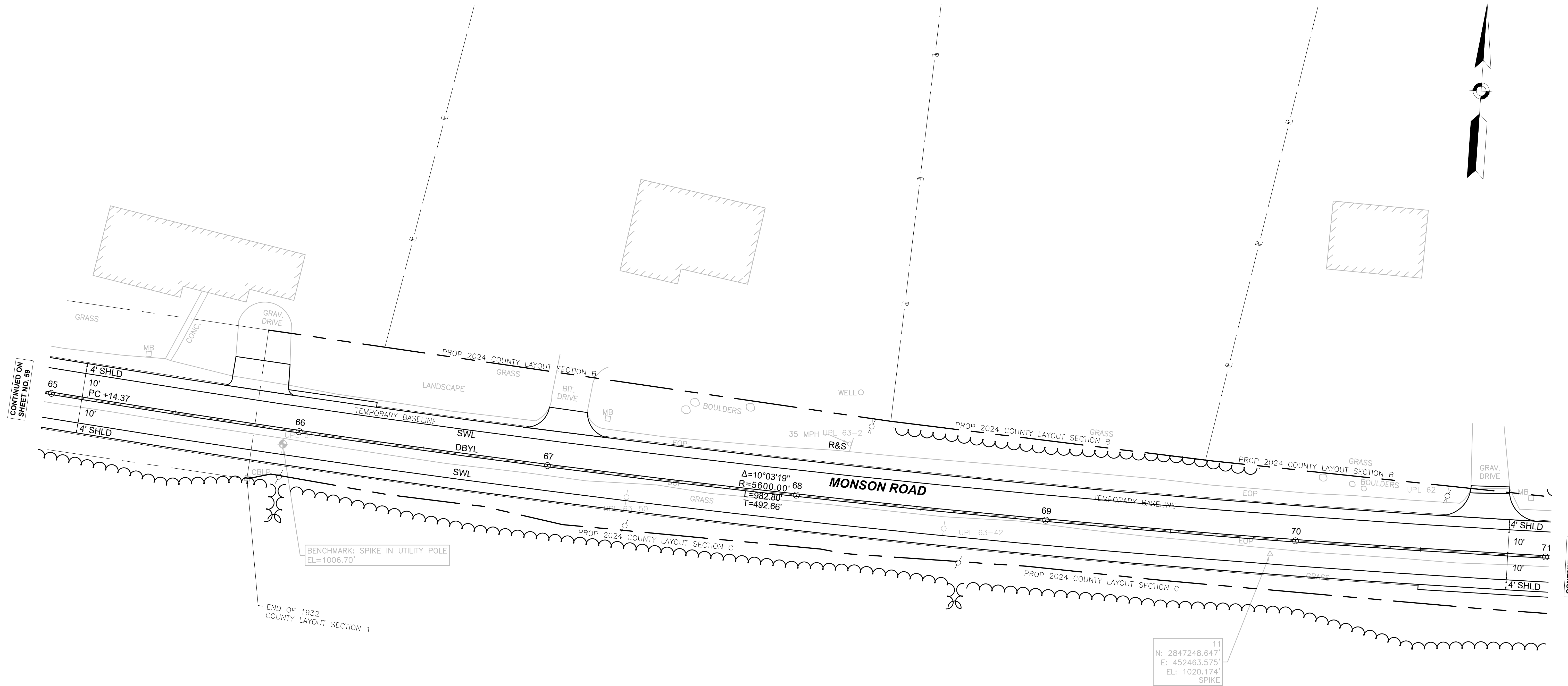
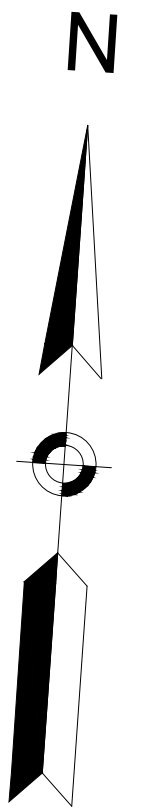
CONTINUED ON  
SHEET NO. 60



**WALES  
MONSON ROAD**

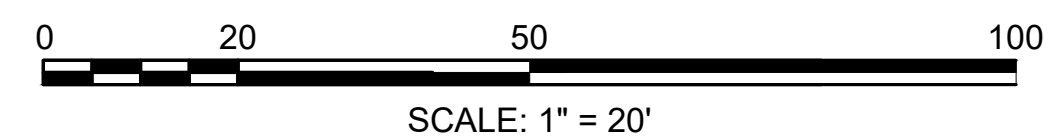
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	60	182
PROJECT FILE NO.		608163	

**TRAFFIC SIGN AND PAVEMENT MARKING PLANS**



CONTINUED ON SHEET NO. 59

CONTINUED ON SHEET NO. 61



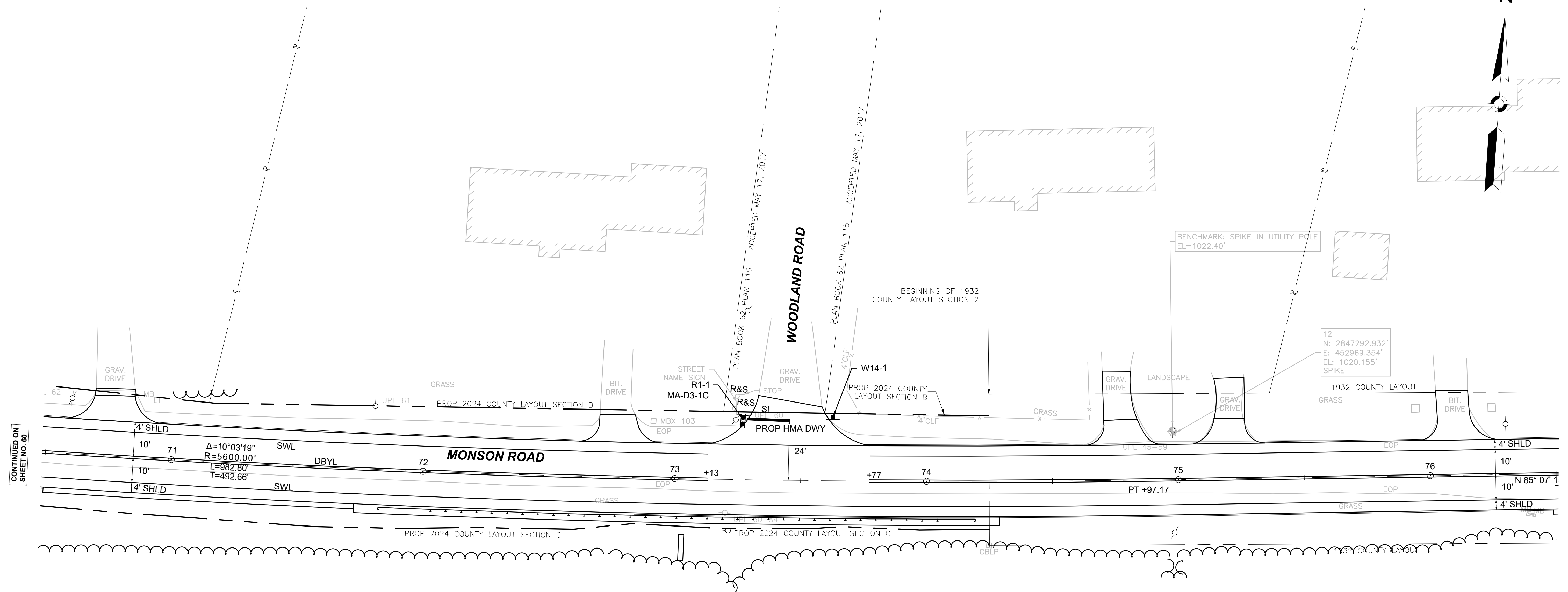
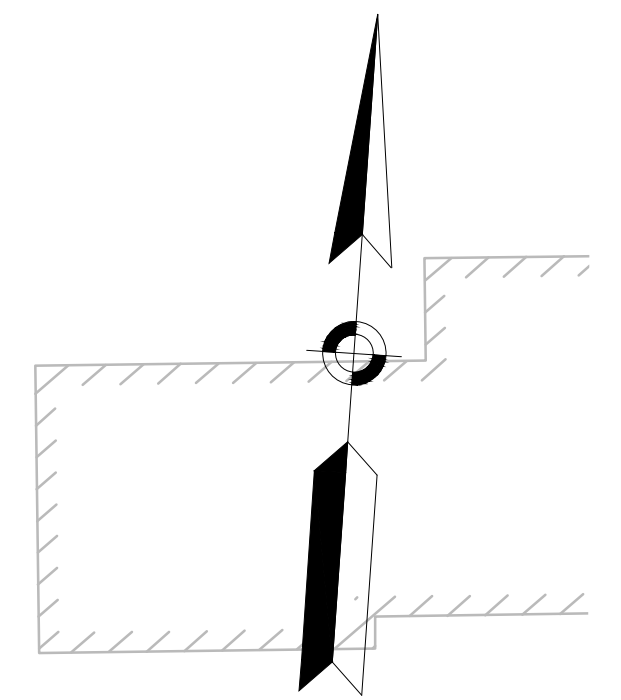


**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	61	182
PROJECT FILE NO.		608163	

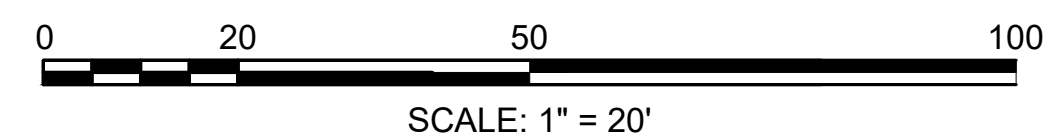
**TRAFFIC SIGN AND PAVEMENT MARKING PLANS**

N



CONTINUED ON  
SHEET NO. 60

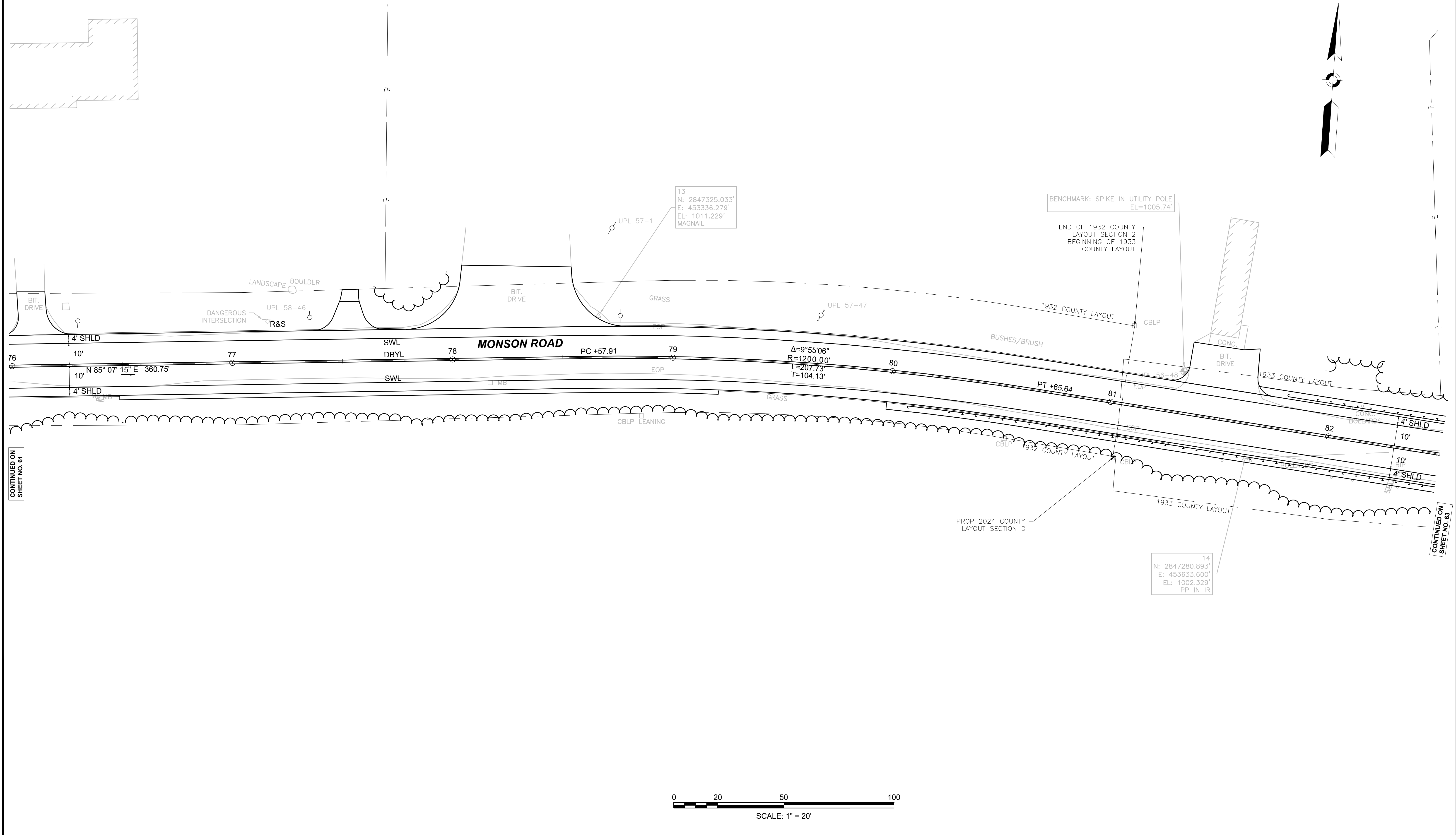
CONTINUED ON  
SHEET NO. 62



**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	62	182
PROJECT FILE NO.		608163	

**TRAFFIC SIGN AND PAVEMENT MARKING PLANS**

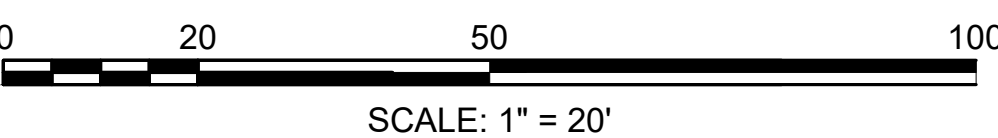


13  
N: 2847325.033'  
E: 453336.279'  
EL: 1011.229'  
MAGNAIL

BENCHMARK: SPIKE IN UTILITY POLE  
EL=1005.74'

END OF 1932 COUNTY  
LAYOUT SECTION 2  
BEGINNING OF 1933  
COUNTY LAYOUT

14  
N: 2847280.893'  
E: 453633.600'  
EL: 1002.329'  
PP IN IR



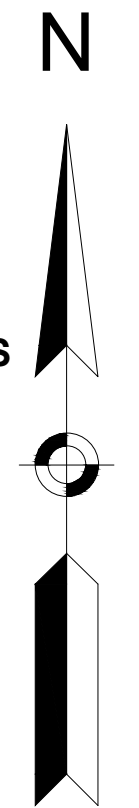
CONTINUED ON  
SHEET NO. 61

CONTINUED ON  
SHEET NO. 63

**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	63	182
PROJECT FILE NO.		608163	

**TRAFFIC SIGN AND PAVEMENT MARKING PLANS**



**LIMITS OF SIGNING**

STA 88+81.52  
N 2847505.138  
E 454280.494

**LIMITS OF WORK**

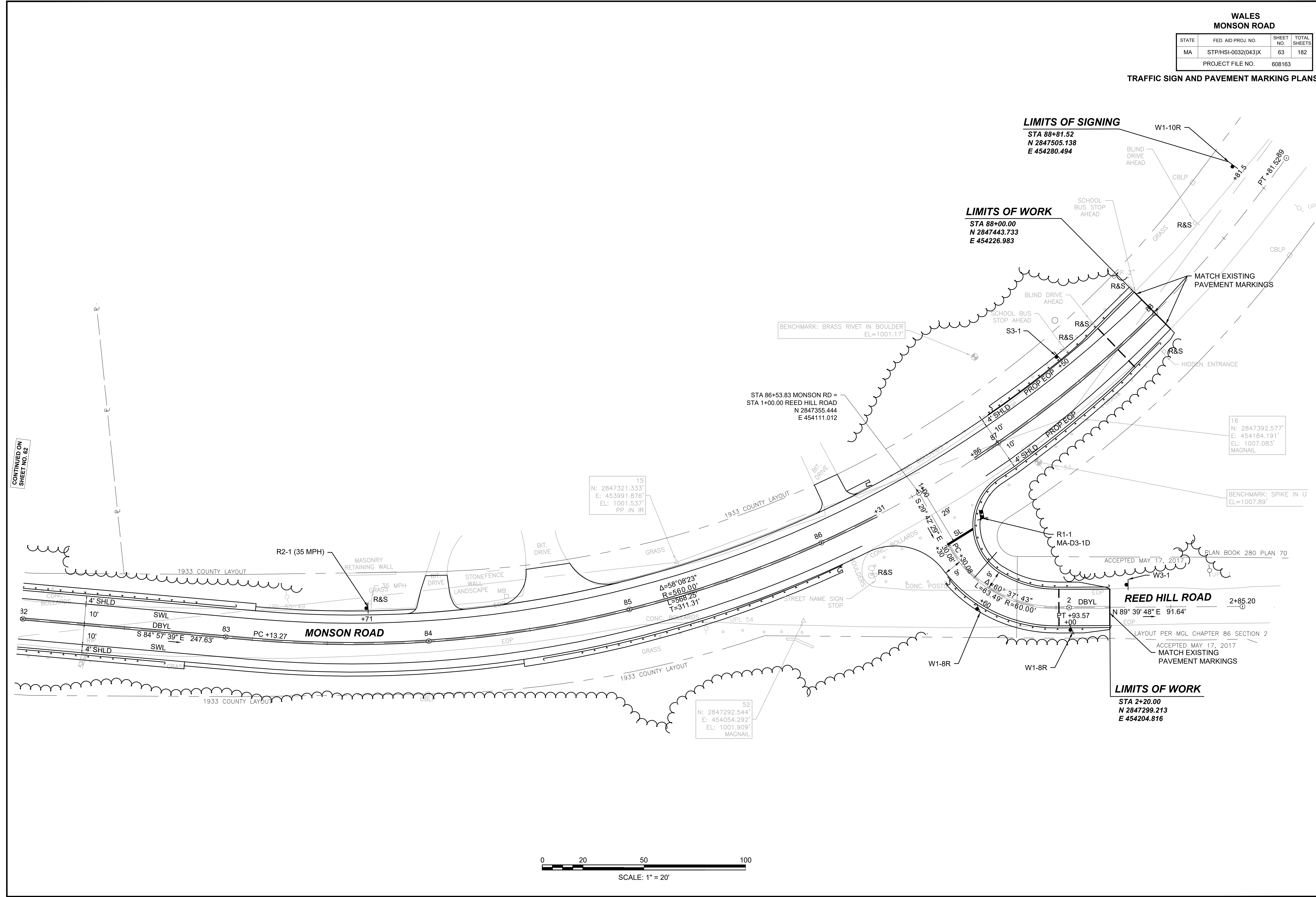
STA 88+00.00  
N 2847443.733  
E 454226.983

**REED HILL ROAD**

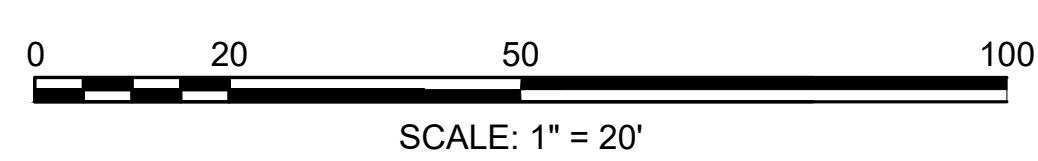
N 89° 39' 48" E 91.64'

**LIMITS OF WORK**

STA 2+20.00  
N 2847299.213  
E 454204.816




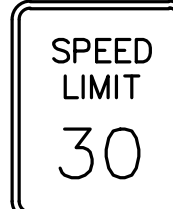
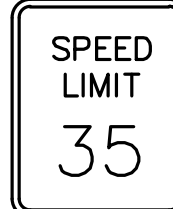

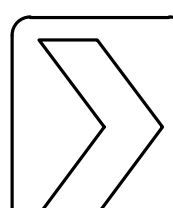
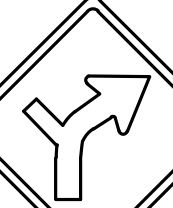
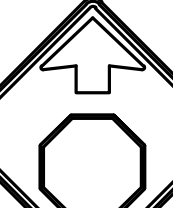

CONTINUED ON SHEET NO. 62



WALES  
MONSON ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	64	182
PROJECT FILE NO.		608163	

TRAFFIC SIGN SUMMARY

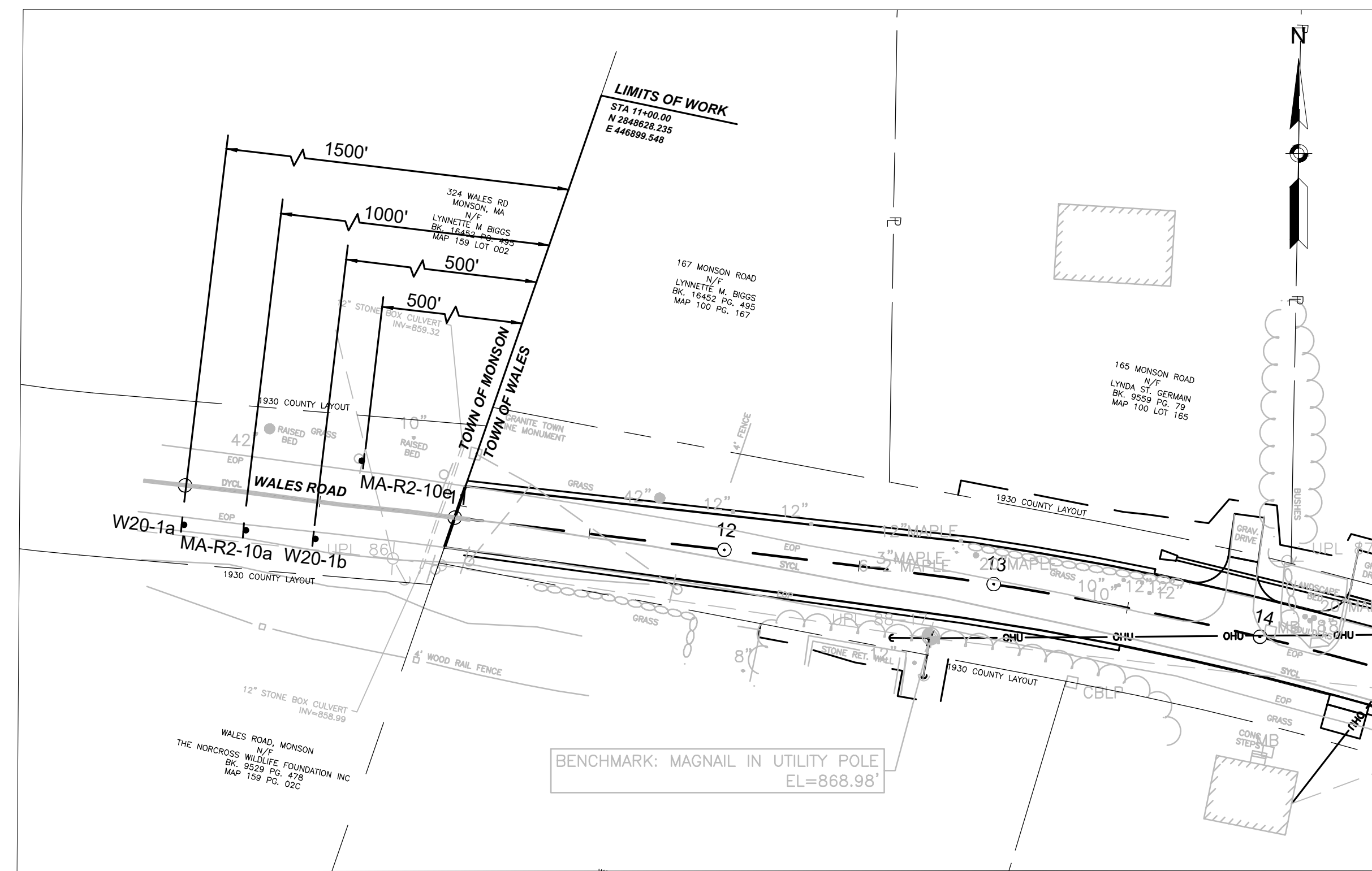
ITEM NUMBER	IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA IN SQUARE FEET
		WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK-GROUND	LEGEND	BORDER			
874.	MA-D3-1	42"	12"	Lynch Rd	6" / 4"	2.75" TO TOP 3.25" TO BOTTOM	N/A	2 (BACK TO BACK)	GREEN	WHITE	WHITE	P-5 (2) (MOUNT ABOVE R1-1)	EA	3.5
874.	MA-D3-1A	36"	12"	Peck Rd	6" / 4"	3.00" TO TOP 3.00" TO BOTTOM	N/A	2 (BACK TO BACK)	GREEN	WHITE	WHITE	P-5 (MOUNT ABOVE R1-1)	EA	3
874.	MA-D3-1B	51"	12"	Maynard Rd	6" / 4"	2.75" TO TOP 3.25" TO BOTTOM	N/A	2 (BACK TO BACK)	GREEN	WHITE	WHITE	P-5 (2) (MOUNT ABOVE R1-1)	EA	4.25
874.	MA-D3-1C	54"	12"	Woodland Rd	6" / 4"	3.00" TO TOP 3.00" TO BOTTOM	N/A	2 (BACK TO BACK)	GREEN	WHITE	WHITE	P-5 (2) (MOUNT ABOVE R1-1)	EA	4.5
874.	MA-D3-1D	54"	12"	Reed Hill Rd	6" / 4"	3.00" TO TOP 3.00" TO BOTTOM	N/A	2 (BACK TO BACK)	GREEN	WHITE	WHITE	P-5 (2) (MOUNT ABOVE R1-1)	EA	4.5
832.	R1-1	30"	30"					5	RED	WHITE	WHITE	MOUNT WITH STREET NAME SIGNS	6.25	31.25
832.	R2-1	24"	30"					2	WHITE	BLACK	BLACK	P-5 (2)	5	10
832.	R2-1	24"	30"					4	WHITE	BLACK	BLACK	P-5 (4)	5	20
832.	S3-1	36"	36"				SEE MUTCD AND STANDARD HIGHWAY SIGNS MANUAL, LATEST EDITIONS	1	FLUOR YELLOW / GREEN	BLACK / RED	BLACK	P-5 (1)	9	9
832.	W1-8R	18"	24"					2	YELLOW	BLACK	N/A	P-5 (2)	3	6
832.	W1-10R	36"	36"					1	YELLOW	BLACK	BLACK	P-5 (1)	9	9
832.	W3-1	30"	30"					1	YELLOW	BLACK / RED	BLACK	P-5 (1)	6.25	6.25
832.	W14-1	30"	30"					2	YELLOW	BLACK	BLACK	P-5 (2)	6.25	12.5

NOTES

- SEE TRAFFIC SIGNS AND PAVEMENT MARKING PLANS FOR SIGN LOCATIONS
- HIGH INTENSITY REFLECTIVE SHEETING SHALL BE USED FOR ALL SIGNS
- ERECT ALL SIGNS IN ACCORDANCE WITH THE LATEST "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD), AND "MASSHIGHWAY'S STANDARD DRAWINGS FOR SIGNS AND SUPPORTS", DATED 1990, AND GUIDE SIGN POLICY FOR SECONDARY STATE HIGHWAYS, 2005 EDITION



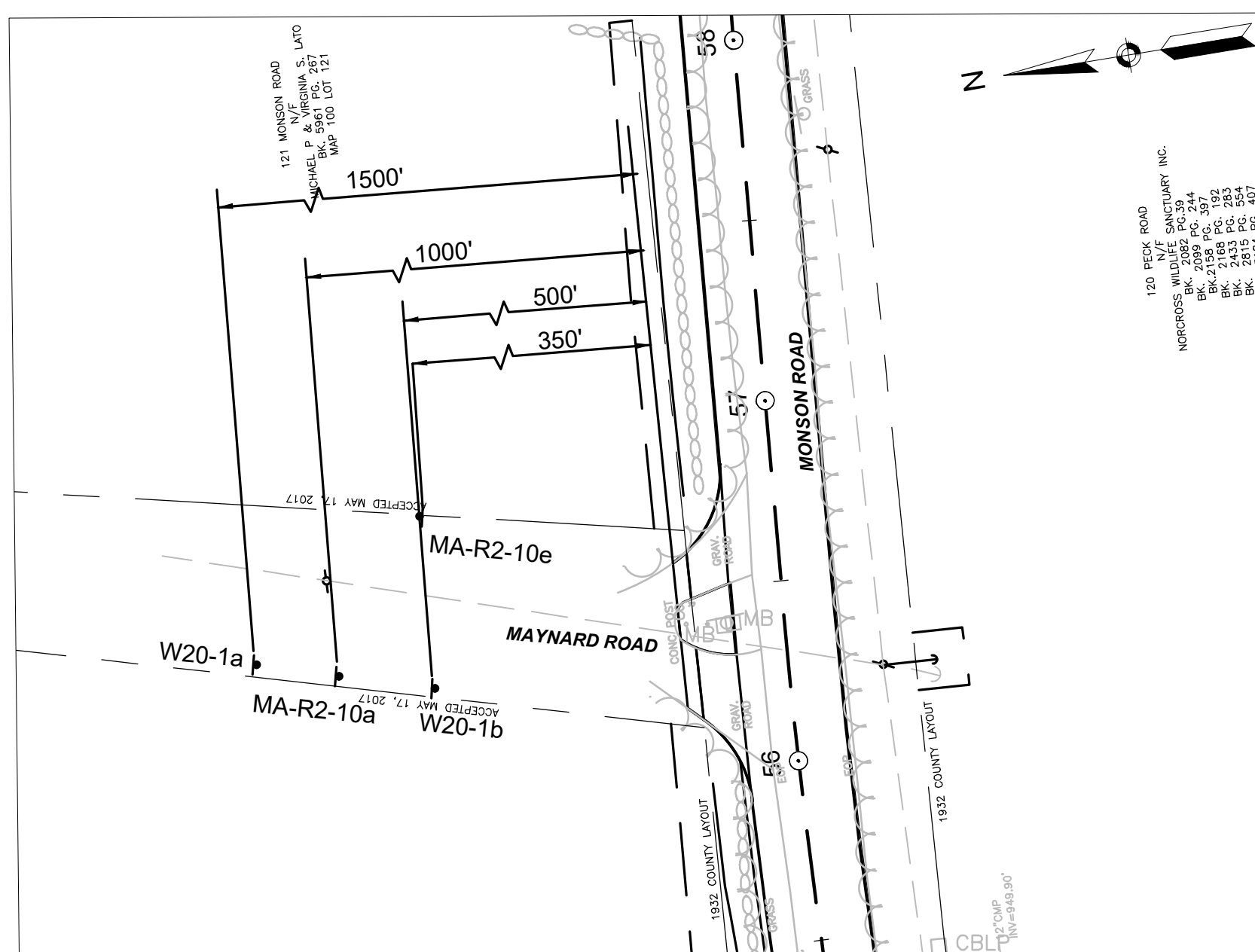
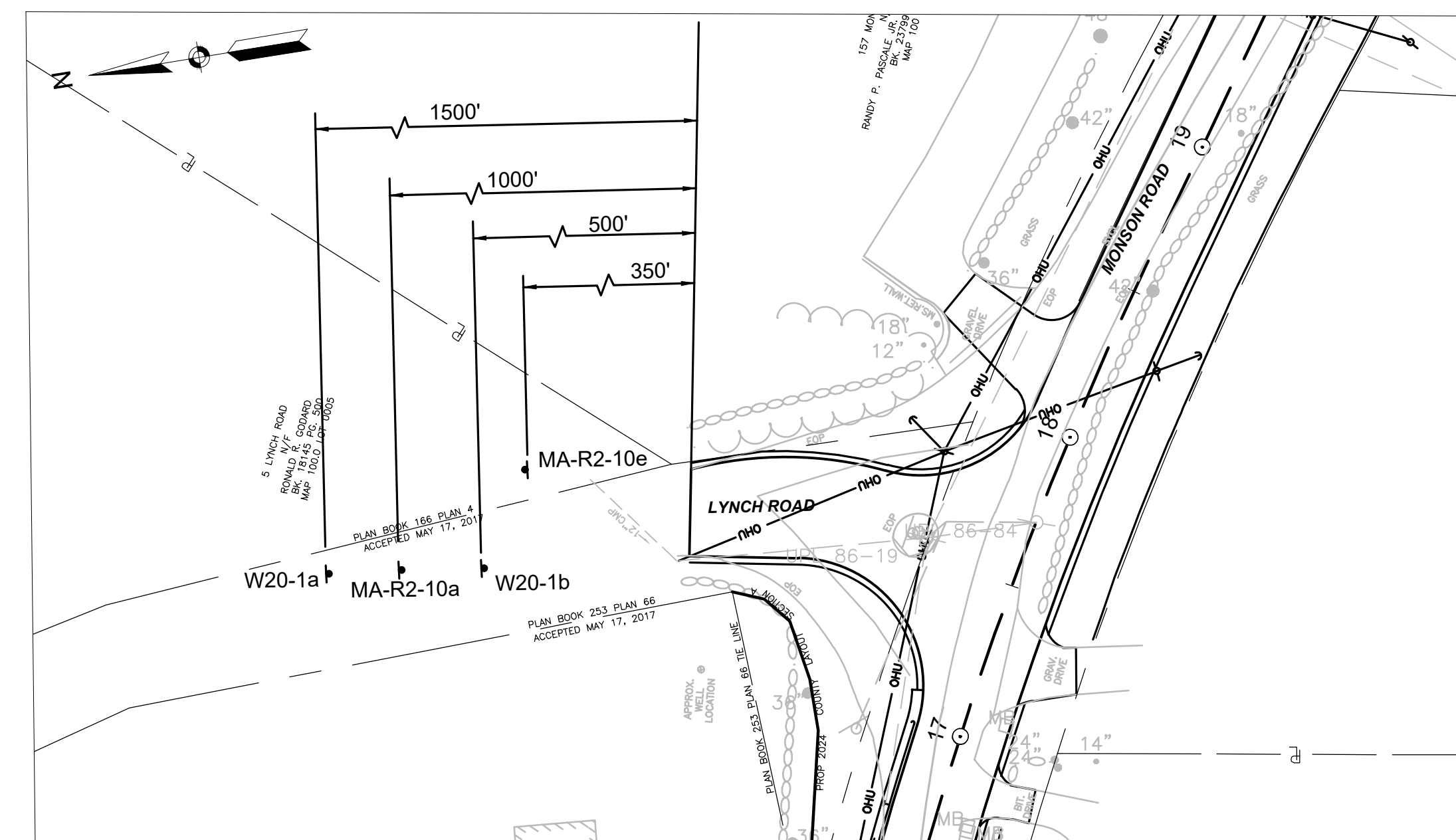
IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK-GROUND	LEGEND	BORDER			
MA-R2-10a	48"	36"	WORK ZONE SPEEDING FINES DOUBLED	SEE MASSDOT'S STANDARD SIGN BOOK, LATEST EDITION	↑	↑	7	FLUOR- ESCENT ORANGE WHITE	BLACK	BLACK	4" WOOD POST (7)	12	84
MA-R2-10e	36"	48"	END ROAD WORK DOUBLE FINES END					FLUOR- ESCENT ORANGE WHITE	BLACK	BLACK	4" WOOD POST (7)	12	84
W20-1a	36"	36"	ROAD WORK 1500FT	SEE MUTCD AND STANDARD HIGHWAY SIGNS MANUAL, LATEST EDITIONS	↑	↑	7	FLUOR- ESCENT ORANGE	BLACK	BLACK	4" WOOD POST (7)	9	63
W20-1b	36"	36"	ROAD WORK 500FT					FLUOR- ESCENT ORANGE	BLACK	BLACK	4" WOOD POST (7)	9	63



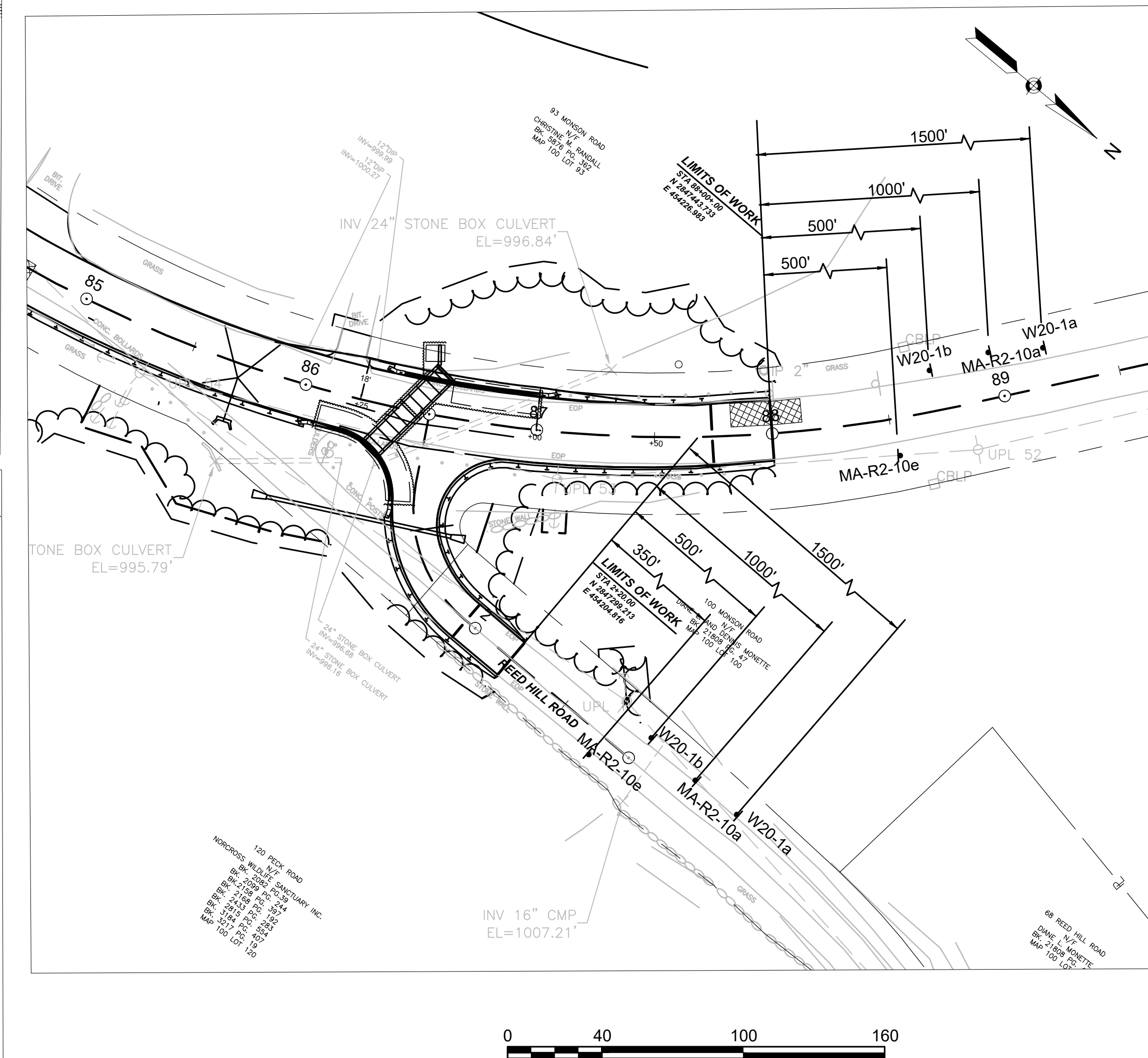
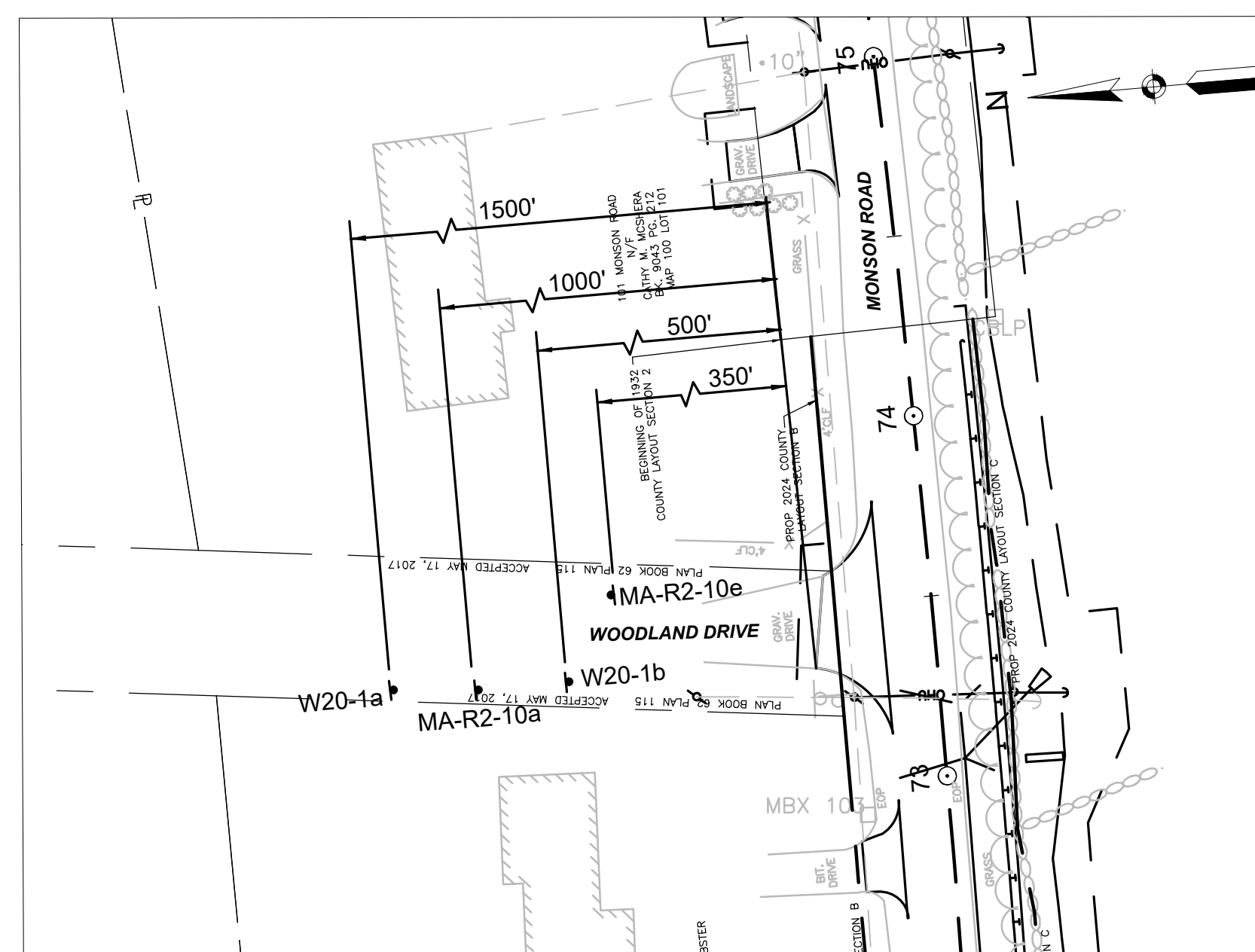
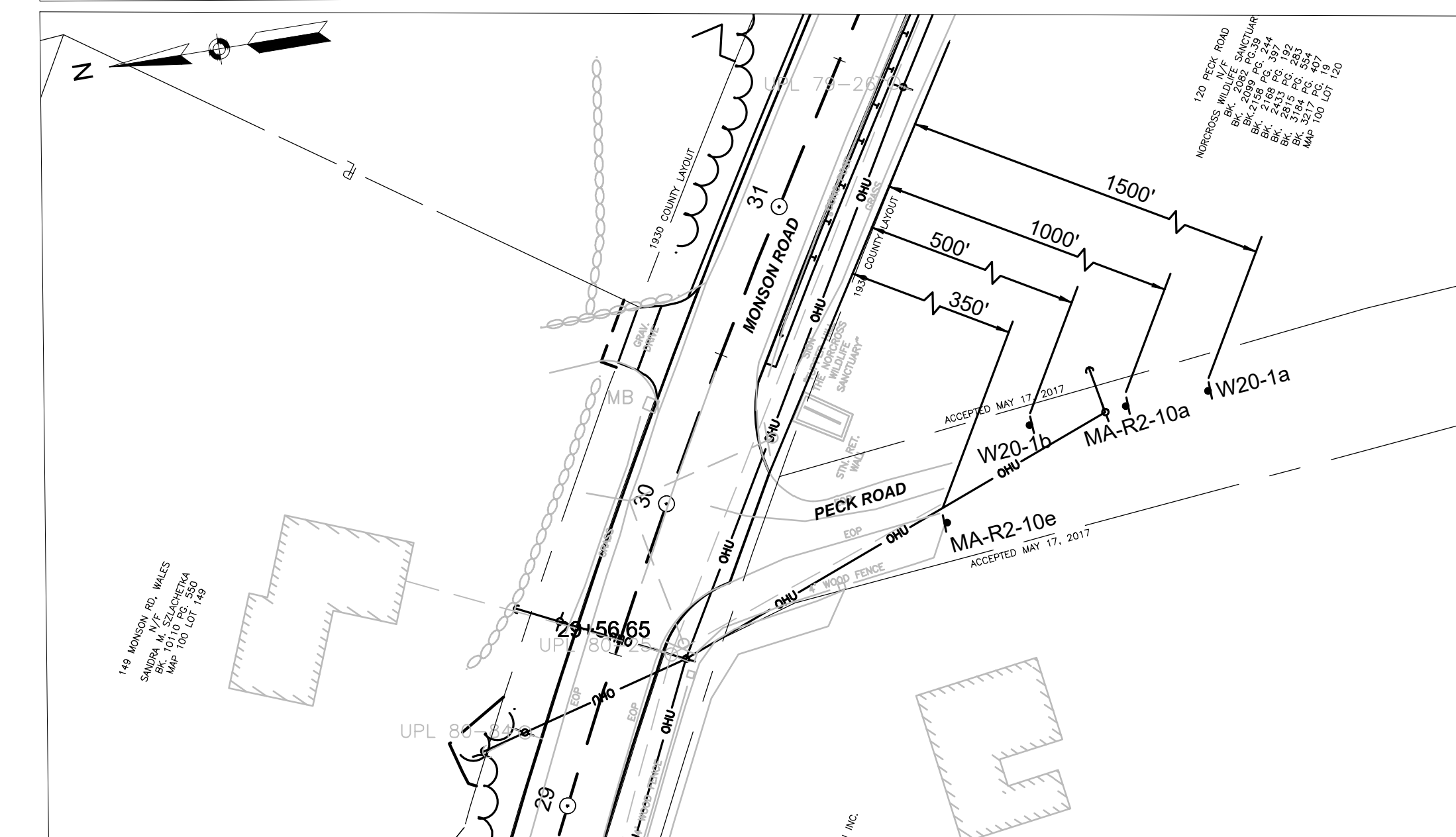
**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	65	182
PROJECT FILE NO.		608163	

**TEMPORARY TRAFFIC CONTROL &  
CONSTRUCTION SIGN SUMMARY**



NOTE: ALL SIGNAGE SHOWN AT THE LIMITS SHALL BE ERECT FOR THE DURATION OF THE PROJECT



STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	66	182
PROJECT FILE NO.		608163	

TEMPORARY TRAFFIC CONTROL DETAILS

TEMPORARY TRAFFIC SIGN SUMMARY

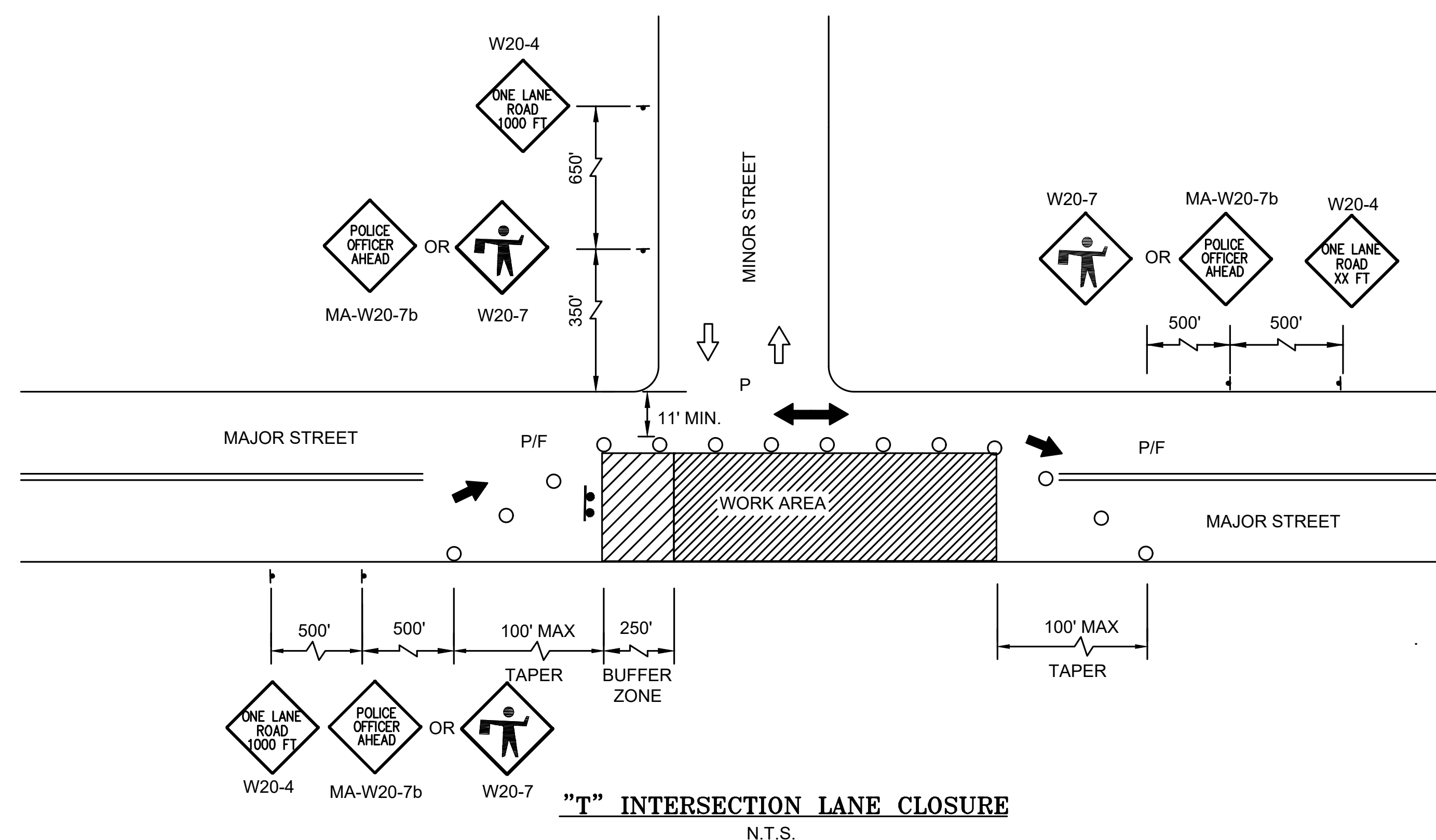
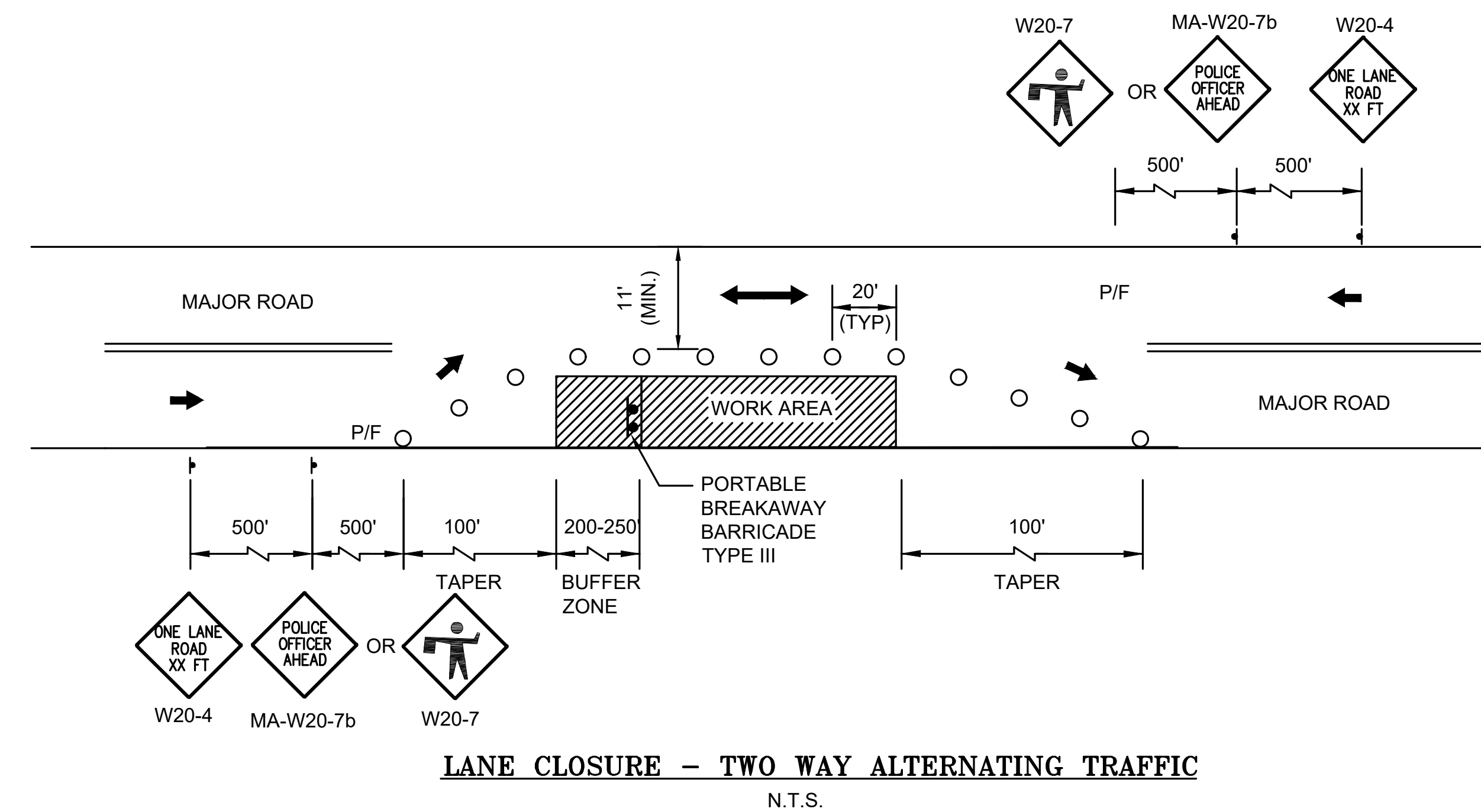
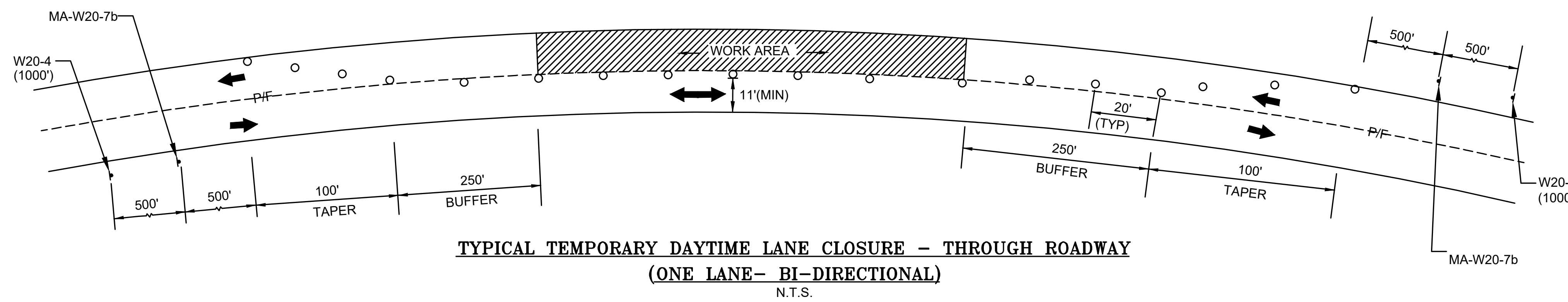
IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	COLOR			NOTES
	WIDTH	HEIGHT		BACK-GROUND	LEGEND	BORDER	
W3-3	30"	30"		YELLOW	BLACK	BLACK	
W4-1L	36"	36"		YELLOW	BLACK	BLACK	
W4-1R	36"	36"		YELLOW	BLACK	BLACK	
W13-1p	24"	36"		FLUORESCENT ORANGE	BLACK	BLACK	ADVISORY SPEED LIMIT AS DETERMINED BY THE ENGINEER
W20-4	36"	36"		FLUORESCENT ORANGE	BLACK	BLACK	
W20-7	36"	36"		FLUORESCENT ORANGE	BLACK	BLACK	
MA-W20-7b	36"	36"		FLUORESCENT ORANGE	BLACK	BLACK	
R10-6	24"	36"		WHITE	BLACK	BLACK	

NOTES:

1. PLACEMENT OF ALL CONSTRUCTION SIGNS, DRUMS, BARRICADES, TRAFFIC DEVICES AND THE SHAPE, SIZE & COLOR OF ALL TEMPORARY TRAFFIC SIGNS SHALL CONFORM WITH THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND ALL PREVISIONS.
2. ADVANCE WARNING SIGN PLACEMENT AND TAPER LENGTH SHALL BE ADJUSTED ACCORDING TO STREET CONDITIONS AND DRIVEWAY OPENINGS.
3. ALL DRUMS SHALL BE APPROXIMATELY PLACED AND RELOCATED AS NECESSARY TO MAINTAIN ADEQUATE ABUTTER ACCESS AT ALL TIMES.
4. THE CONTRACTOR SHALL NOTIFY EACH ABUTTER AT LEAST 24 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OF ACCESS, SUCH AS EXISTING PAVEMENT EXCAVATION, TEMPORARY DRIVEWAY PAVEMENT PLACEMENT AND SIMILAR OPERATIONS.
5. NONESSENTIAL TRAFFIC CONTROL DEVICES SHALL BE COVERED OR REMOVED DURING NON-WORKING HOURS.
6. PEDESTRIANS SHALL BE PROVIDED WITH ACCESS AND SAFE PASSAGE THROUGH THE TEMPORARY TRAFFIC CONTROL ZONE AT ALL TIMES.
7. ADVISORY SPEED PLATES (W13-1) SHALL BE USED IF APPLICABLE AND AS DIRECTED BY THE ENGINEER.
8. MA-R2-10a SIGN TO BE ERRECTED BETWEEN W20-1 AND W20-4 SIGN.
9. MAINTAIN ONE LANE (MIN. 11' WIDTH) AT ALL TIMES DURING CONSTRUCTION.
10. THE FIRST TEN PLASTIC DRUMS OF A TAPER SHALL BE MOUNTED WITH SEQUENTIAL FLASHING LIGHTS WHEN USED FOR NIGHT WORK BETWEEN DUSK AND DAWN.

LEGEND

	REFLECTORIZED CHANNELIZING DEVICE		CONSTRUCTION SIGN		P/F POLICE/FLAGGER DETAIL
	REFLECTORIZED DRUM		WORK AREA		PORTABLE BREAKAWAY BARRICADE TYPE III
	TRAFFIC FLOW DURING CONSTRUCTION		N.T.S. NOT TO SCALE		TEMPORARY IMPACT ATTENUATOR
	NORMAL TRAFFIC FLOW		ARROW BOARD		

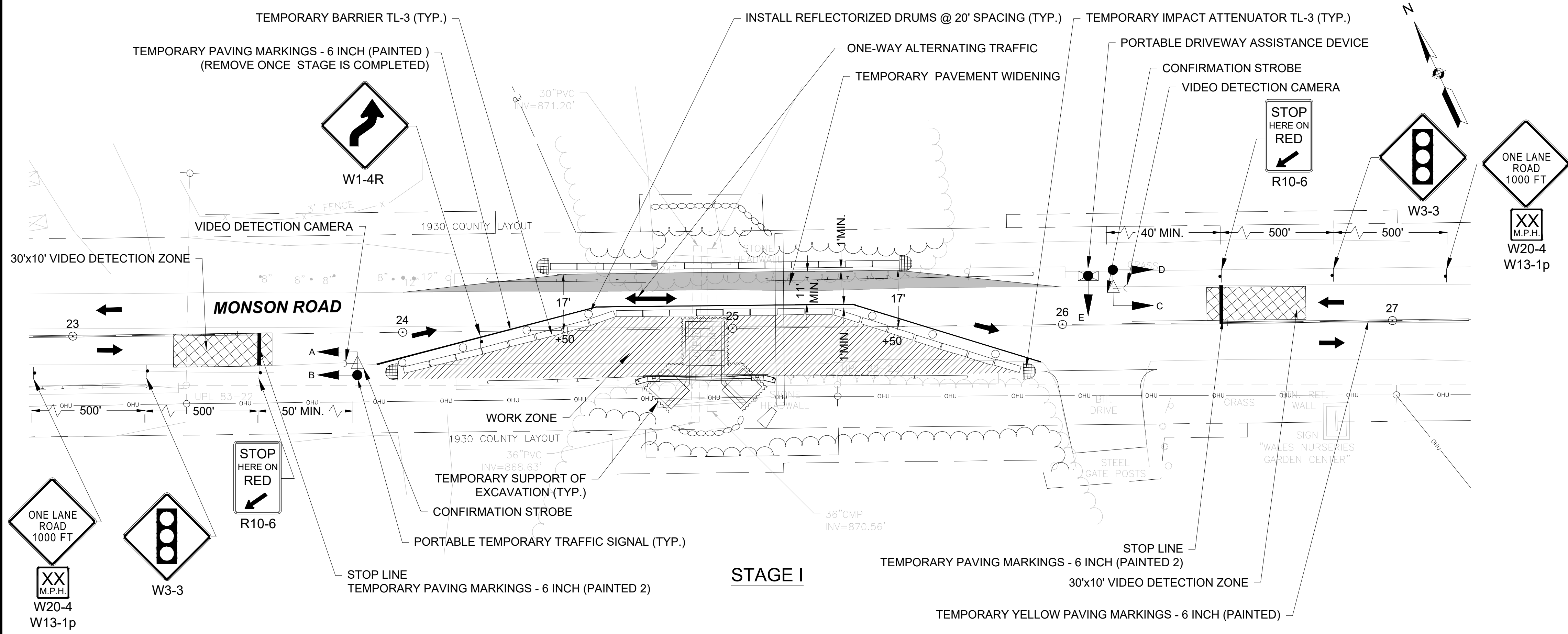




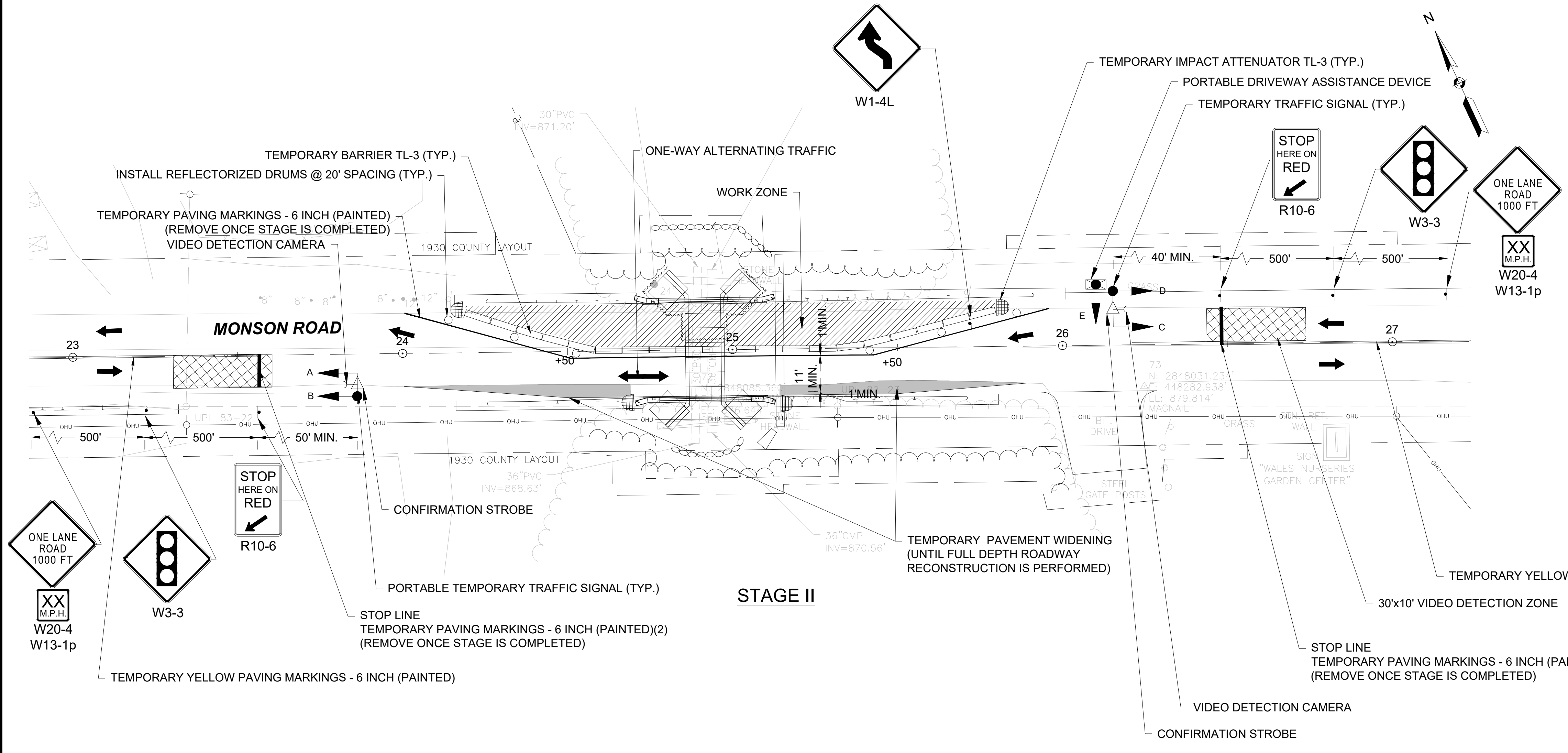
**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	67	182
PROJECT FILE NO.		608163	

**TEMPORARY TRAFFIC CONTROL DETAILS**



**STAGE I**



**STAGE II**

**CONSTRUCTION SEQUENCE**

**STAGE I**

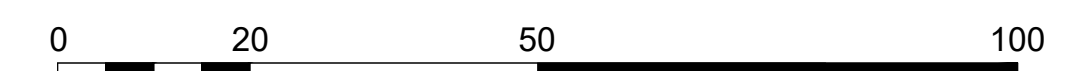
1. INSTALL SEDIMENT & EROSION CONTROLS.
2. INSTALL TEMPORARY BYPASS PIPE AND COFFERDAM. SEE TEMPORARY CONTROL OF WATER PLANS AND DETAILS.
3. REMOVE EXISTING 30" AND 36" DRAINAGE PIPES.
4. INSTALL TEMPORARY WIDENED ROADWAY.
5. INSTALL TEMPORARY SIGNAL & SIGNAGE.
6. INSTALL TEMPORARY PRECAST CONCRETE BARRIER CURB & TRAFFIC DRUMS.
7. ACTIVATE TEMPORARY SIGNAL AND ALTERNATING ONE-WAY TRAFFIC OPERATIONS.
8. EXCAVATE AS NEEDED & INSTALL TEMPORARY SUPPORT OF EXCAVATION.
9. INSTALL PRECAST CONCRETE BOX CULVERT AND DOWNSTREAM WESTERN WINGWALL AND PARAPET, CONSTRUCT WIDENED ROAD DRAINAGE PIPES AND FLARED ENDS WITHIN THE WORK ZONE.
10. INSTALL BRIDGE BARRIER AND TEMPORARY IMPACT ATTENUATOR AT PARAPET ENDS UNTIL GUIDERAIL IS INSTALLED.
11. BACKFILL CULVERT AND CONSTRUCT ROAD TO FINISH GRADE OF PAVEMENT BASE COURSE. INSTALL TEMPORARY WIDENED ROADWAY AS NEEDED DEPENDING ON STAGE OF ROADWAY IMPROVEMENTS.

**STAGE II**

1. RELOCATE TEMPORARY PRECAST TRAFFIC BARRIER CURB & TRAFFIC DRUMS.
2. INSTALL TEMPORARY SHORING AS NEEDED.
3. INSTALL REMAINING PRECAST CONCRETE CULVERT AND UPSTREAM WESTERN WINGWALL AND PARAPET, CONSTRUCT WIDENED ROAD.
4. INSTALL 2' OF NATURAL STREAMBED MATERIAL WITH A 6" LOW FLOW DEPRESSION IN CULVERT AS SHOWN ON THE STRUCTURAL PLANS AND DETAILS.
5. REMOVE COFFERDAM DIVERT FLOW INTO NEW CULVERT.
6. INSTALL BRIDGE BARRIER & GUARDRAIL AND EASTERN WINGWALLS FOLLOWING REMOVAL OF TEMPORARY BYPASS PIPE.
7. REMOVAL OR CUTOFF AND ABANDON IN PLACE TEMPORARY SUPPORT OF EXCAVATION.
8. BACKFILL CULVERT AND WINGWALLS AND CONSTRUCT ROAD TO FINISHED GRADE OF PAVEMENT BASE COURSE.
9. REMOVE ONE-WAY ALTERNATING TRAFFIC & SIGNAGE.
10. FINALIZE GRADING & SITE IMPROVEMENTS.
11. REMOVE SEDIMENT & EROSION CONTROLS.

**LEGEND**

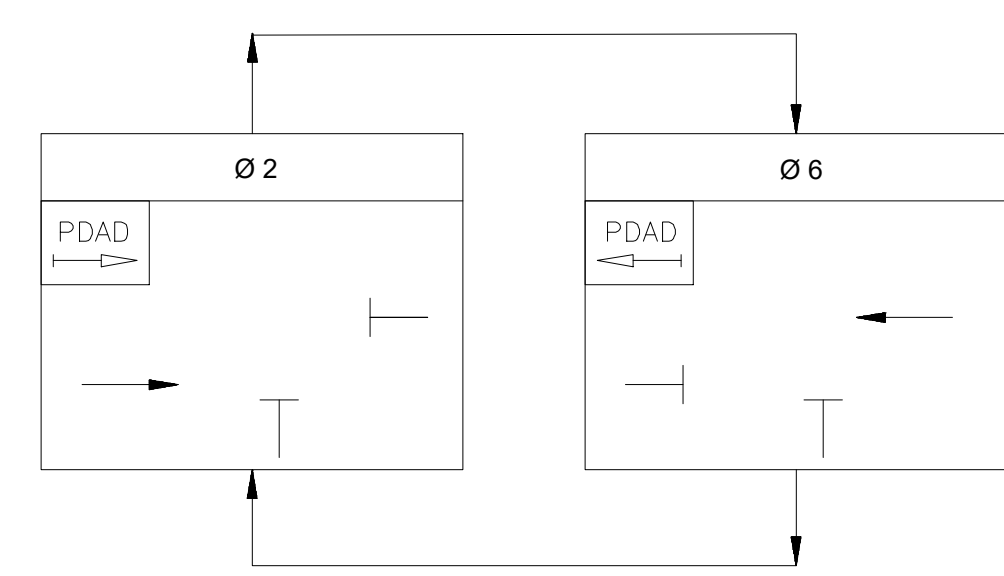
- ← DIRECTION OF TRAFFIC
- ▲ CONSTRUCTION SIGN
- TRAFFIC OR PEDESTRIAN SIGNAL
- ◻ TEMPORARY IMPACT ATTENUATOR
- ▨ WORK AREA
- ◻ TEMPORARY TRAFFIC BARRIER
- REFLECTORIZED DRUM
- ▨ VIDEO DETECTION ZONE
- ◁ VIDEO DETECTION CAMERA
- △ CONFIRMATION STROBES



MONSON ROAD			PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7	PHASE 8	EMERGENCY ONLY																
STREET	DIRECTION	HOUSINGS	NOT USED	PDAD	NOT USED	NOT USED	NOT USED	PDAD	NOT USED	NOT USED																	
MONSON ROAD	EB	A,B	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	FLASH OPER.
MONSON ROAD	WB	C,D																									FR
PORTABLE DRIVEWAY ASSISTANCE DEVICE (PDAD)	N/A	E				FRA	R	R										FLA	R	R							FR
																											SR
																											OFF
																											OFF
																											OFF

		TIMING IN SECONDS																									
MINIMUM GREEN																											10
VEHICLE EXTENSION																											3.0
MAXIMUM I (ALL TIMES)																											35
YELLOW CLEARANCE																											3
RED CLEARANCE																											14
PEDESTRIAN WALK																											
PEDESTRIAN CLEARANCE																											
RECALL																											SOFT
MEMORY																											NON-LOCK

**PREFERENTIAL PHASING SEQUENCE**



**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	68	182
PROJECT FILE NO.		608163	

**TEMPORARY TRAFFIC CONTROL DETAILS**

**PRE-EMPTION PHASING AND PRIORITY**

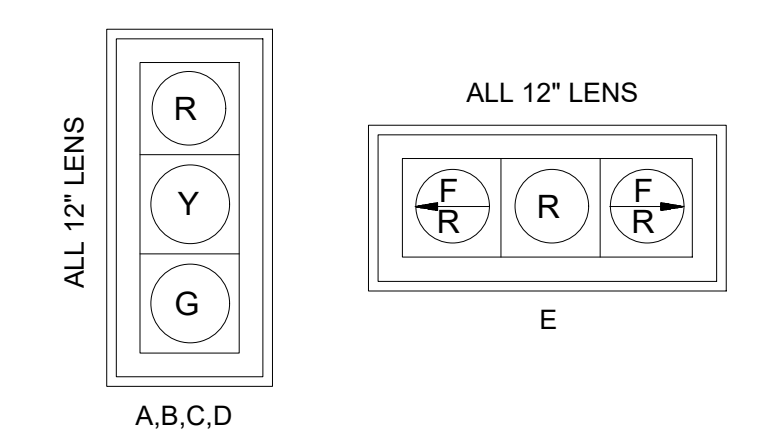
APPROACH	PREEMPTION PHASE	NEXT PHASE CALLED
EASTBOUND	2	6
WESTBOUND	6	2

NOTES:  
1. PREEMPTION FOR THE DRIVEWAY ASSISTED DEVICE IS A SOLID RED BALL FOR BOTH DIRECTIONS.

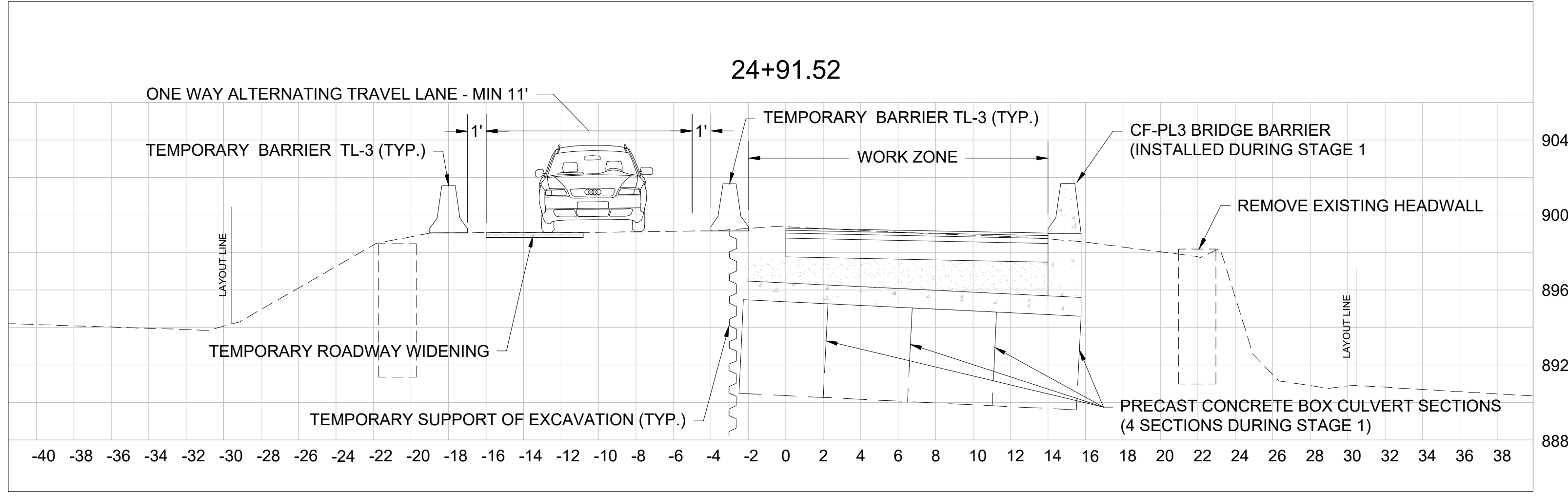
**TRAFFIC VOLUME DATA**

ADT (2019)	7641
PHV	683
PHV EB (D)	337 (49%)
PHV WB (D)	346 (51%)

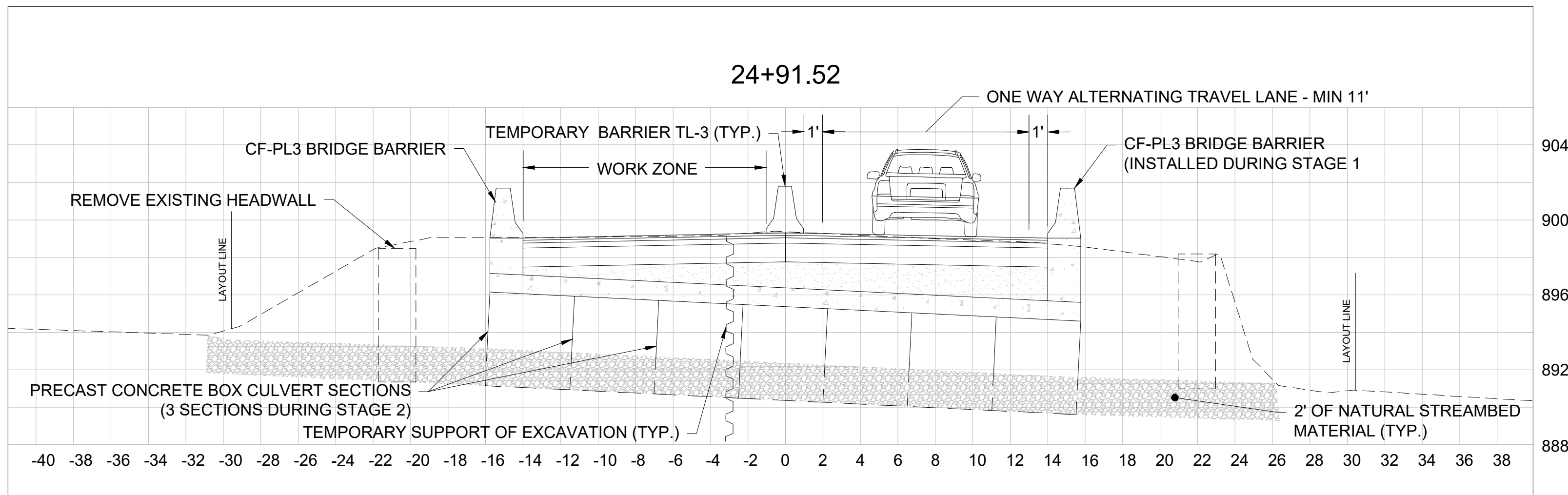
**SIGNAL IDENTIFICATION**



NOTES:  
1. ALL VEHICLE AND PEDESTRIAN LENSES SHALL BE LED TYPE.  
2. ALL HOUSINGS TO BE PROVIDED WITH TUNNEL VISORS AND 5\"/>



**STAGE I**



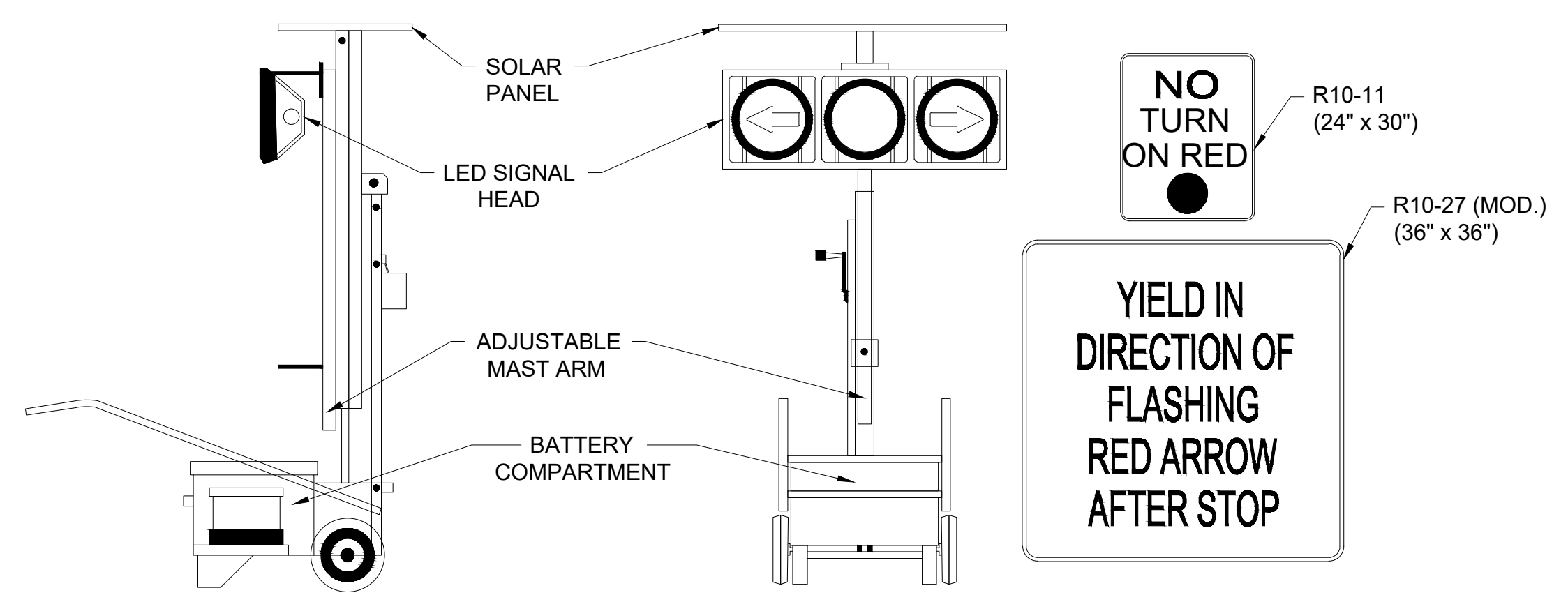
**STAGE II**

**VIDEO DETECTION ZONES**

DETECTION NUMBER	DETECTION ZONE	Ø CALLED	Ø EXT.	MODE A = PULSE B = PRES.	DELAY TIME	EXT. TIME
1	10' x 30'	Ø2	Ø2	B	---	---
2	10' x 30'	Ø6	Ø6	B	---	---

**SEQUENCE & TIMING NOTES:**

- IF CALL EXIST ON ALL PHASES. THE ASSIGNMENT OF RIGHT OF WAY SHALL BE IN ACCORDANCE WITH THE PREFERENTIAL PHASE SEQUENCE. THE SIGNAL SHALL PROVIDE STOP AND GO OPERATION 24 HOURS DAILY.
- THE CONTRACTOR SHALL MONITOR TRAFFIC CONDITIONS DURING CONSTRUCTION AND ADJUST SIGNAL TIMINGS AS NECESSARY AS DIRECTED BY THE ENGINEER.



**NOTES**

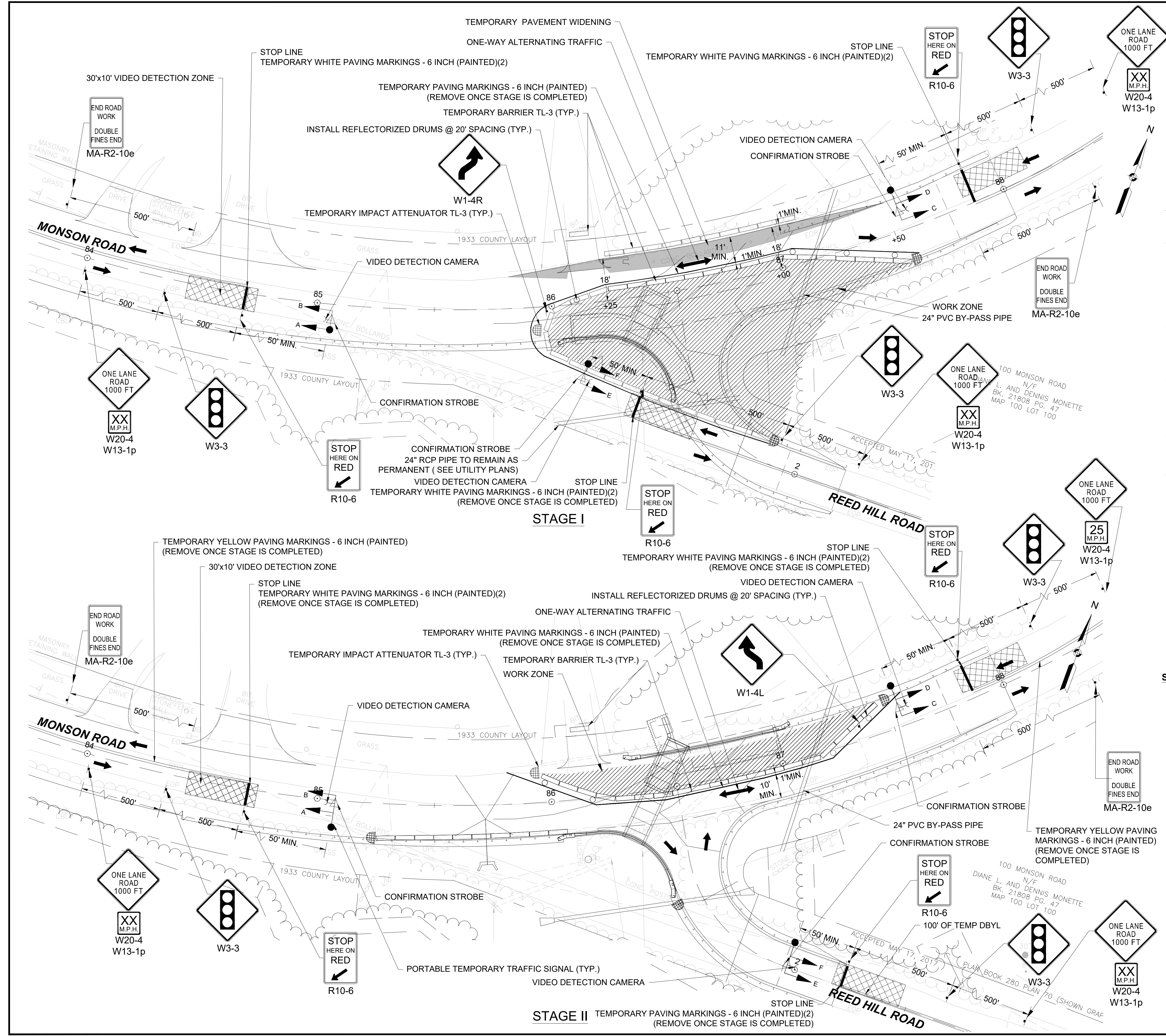
PORTABLE DRIVEWAY ASSISTANCE DEVICES SHALL DISPLAY A FLASHING RED ARROW IN DIRECTION OF TRAFFIC DURING Ø2 & Ø6 GREEN AND YELLOW CLEARANCE INTERVALS. A SOLID RED BALL SHALL BE DISPLAYED DURING ALL RED CLEARANCE INTERVALS.  
1. AFFIX ONE (1) R10-11 AND ONE (1) R10-27(MOD) SIGN, FACING THE SAME DIRECTION AS THE LENSES, TO EACH PORTABLE DRIVEWAY ASSISTANCE DEVICE.  
2. ANY SIGNS MOUNTED TO THE PORTABLE DRIVEWAY ASSISTANCE DEVICES SHALL BE CLEARLY VISIBLE TO THE INTENDED TARGET.



**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	69	182
PROJECT FILE NO.		608163	

**TEMPORARY TRAFFIC CONTROL DETAILS**



**CONSTRUCTION SEQUENCE**

**STAGE I**

1. INSTALL SEDIMENT & EROSION CONTROLS.
2. REMOVE CONCRETE BOLLARD AS NEEDED.
3. INSTALL TEMPORARY BYPASS PIPES AND COFFERDAMS. SEE TEMPORARY CONTROL OF WATER PLANS AND DETAILS.
4. REMOVE EXISTING DRAINAGE PIPES.
5. INSTALL TEMPORARY WIDENED ROADWAY.
6. INSTALL TEMPORARY SIGNAL & SIGNAGE.
7. INSTALL TEMPORARY PRECAST CONCRETE BARRIER CURB & TRAFFIC DRUMS.
8. ACTIVATE TEMPORARY SIGNAL AND ALTERNATING ONE-WAY TRAFFIC OPERATIONS.
9. EXCAVATE AS NEEDED & INSTALL TEMPORARY SUPPORT OF EXCAVATION.
10. INSTALL PRECAST CONCRETE BOX CULVERT AND DOWNSTREAM ENDWALL, WINGWALLS, PARAPET AND CONSTRUCT NEW REED HILL ROAD INTERSECTION AND APPROACH, DRAINAGE PIPES, FLARED ENDS WITHIN THE WORK ZONE.
11. INSTALL BRIDGE BARRIER AND TEMPORARY IMPACT ATTENUATOR AT PARAPET ENDS UNTIL GUIDERAIL IS INSTALLED.
12. BACKFILL CULVERT AND CONSTRUCT ROAD TO FINISHED GRADE OF PAVEMENT BASE COURSE.

**STAGE II**

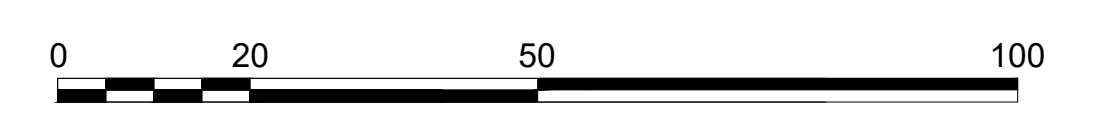
1. RELOCATE TEMPORARY PRECAST TRAFFIC BARRIER CURB & TRAFFIC DRUMS.
2. INSTALL TEMPORARY SUPPORT OF EXCAVATION AS SHOWN.
3. INSTALL REMAINING PRECAST CONCRETE CULVERT SECTIONS AND UPSTREAM WINGWALLS, PARAPET AND CHANNEL WITH 6" LOW FLOW DEPRESSION (SEE TYPICAL CHANNEL DETAIL). CONSTRUCT WIDENED ROAD.
4. INSTALL 2' OF NATURAL STREAMBED MATERIAL WITH A 6" LOW FLOW DEPRESSION IN CULVERT AS SHOWN ON THE STRUCTURAL PLANS AND DETAILS.
5. INSTALL BRIDGE BARRIER & GUARDRAIL ON UPSTREAM SIDE.
6. REMOVAL OR CUTOFF AND ABANDON IN PLACE TEMPORARY SUPPORT OF EXCAVATION.
7. REMOVE ONE-WAY ALTERNATING TRAFFIC & SIGNAGE.
8. BACKFILL CULVERT AND WINGWALLS AND CONSTRUCT ROAD TO FINISHED GRADE OF PAVEMENT BASE COURSE.
9. FINALIZE GRADING & SITE IMPROVEMENTS ON UPSTREAM SIDE.
10. REMOVE SEDIMENT & EROSION CONTROLS AFTER SITE STABILIZATION HAS OCCURRED.

**STAGE III**

1. RESTORE TWO-WAY TRAFFIC ON MONSON ROAD.
2. DIRECT TRAFFIC TO NEW INTERSECTION OF MONSON ROAD AT REED HILL ROAD.
3. EXCAVATE DOWNSTREAM CHANNEL, CREATE WETLAND REPLICATION AREA AND INSTALL DRAINAGE.
4. REMOVE COFFERDAM AND DIVERT FLOW INTO NEW CHANNEL AND CULVERT AT THE DIRECTION OF THE ENGINEER.
5. REMOVE TEMPORARY BYPASS PIPES.
6. FINALIZE GRADING AND SITE IMPROVEMENTS ON DOWNSTREAM SIDE
7. REMOVE SEDIMENT AND EROSION CONTROLS AFTER SITE STABILIZATION HAS OCCURRED TO THE SATISFACTION OF THE ENGINEER.

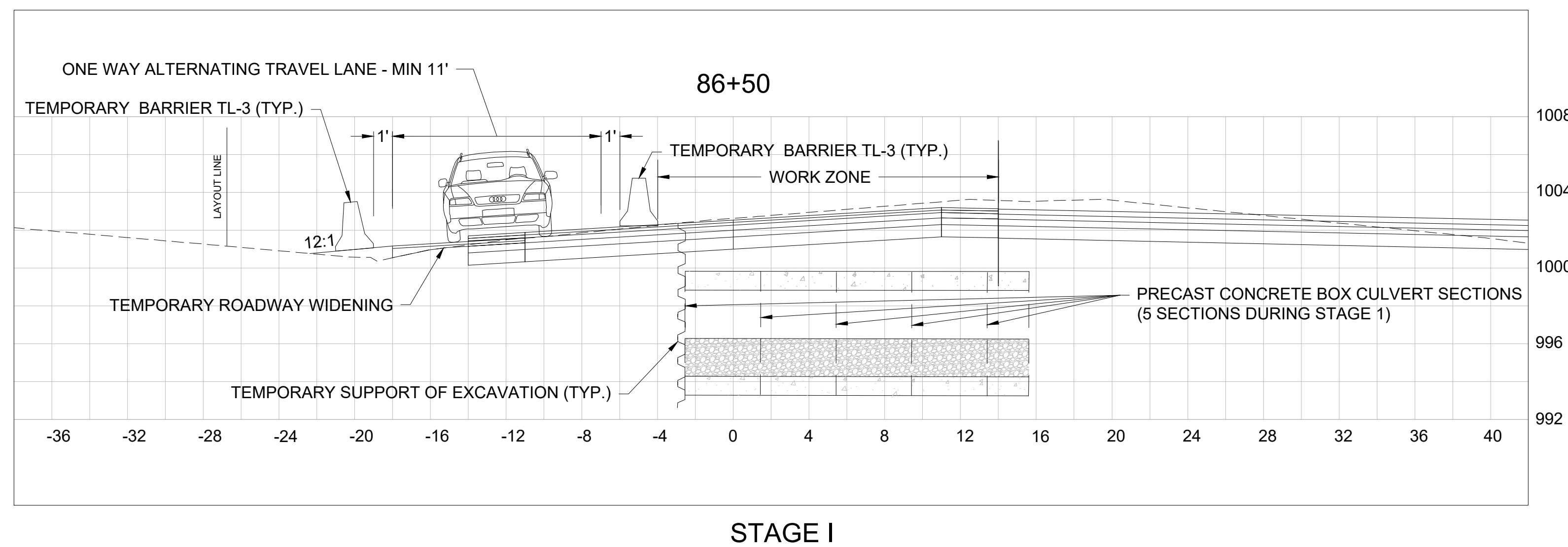
**LEGEND**

- ← DIRECTION OF TRAFFIC
- ▲ CONSTRUCTION SIGN
- TRAFFIC OR PEDESTRIAN SIGNAL
- ⊞ TEMPORARY IMPACT ATTENUATOR
- ▨ WORK AREA
- ▭ TEMPORARY TRAFFIC BARRIER
- REFLECTORIZED DRUM
- ▩ VIDEO DETECTION ZONE
- ⊞ VIDEO DETECTION CAMERA
- △ CONFIRMATION STROBES

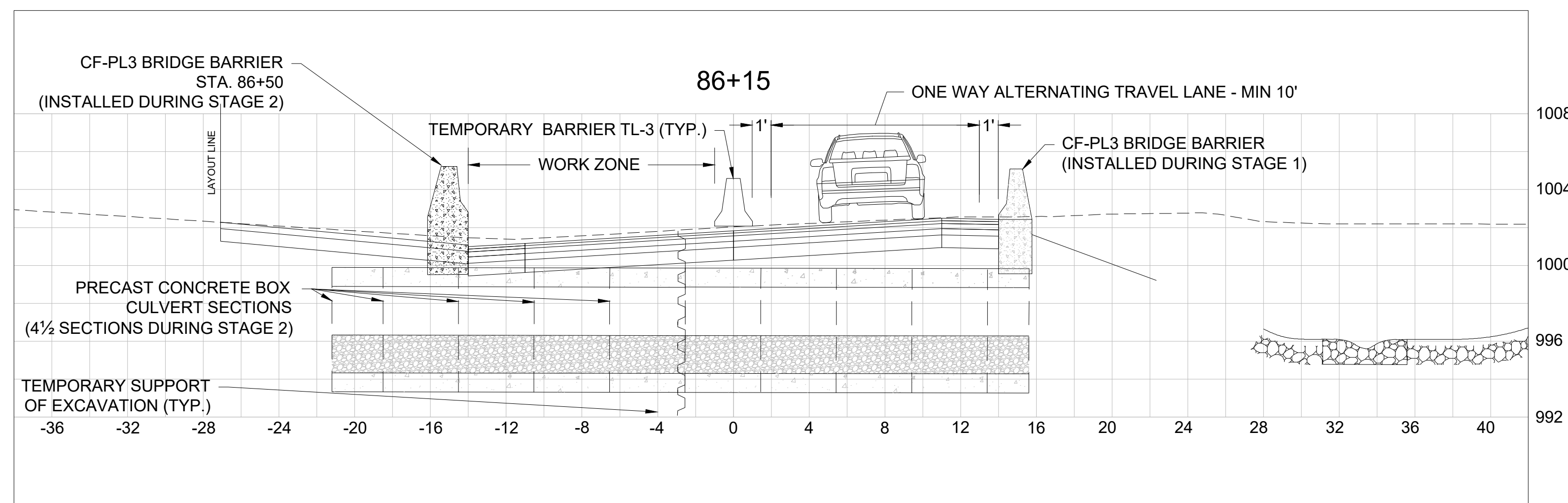


			PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7	PHASE 8	EMERGENCY ONLY																
MONSON ROAD REED HILL ROAD			NOT USED		NOT USED		NOT USED		NOT USED	NOT USED																	
STREET	DIRECTION	HOUSINGS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	FLASH OPER.
MONSON ROAD	EB	A,B				G	Y	R				R	R	R				R	R	R							FR
MONSON ROAD	WB	C,D				R	R	R				R	R	R				G	Y	R							FR
REED HILL ROAD	EB	E,F				R	R	R				G	Y	R				R	R	R							FR
																											OFF
																											OFF
																											OFF
																											OFF

	TIMING IN SECONDS																									
MINIMUM GREEN																										
VEHICLE EXTENSION																										
MAXIMUM I (ALL TIMES)																										
YELLOW CLEARANCE																										
RED CLEARANCE																										
PEDESTRIAN WALK																										
PEDESTRIAN CLEARANCE																										
RECALL																										
MEMORY																										

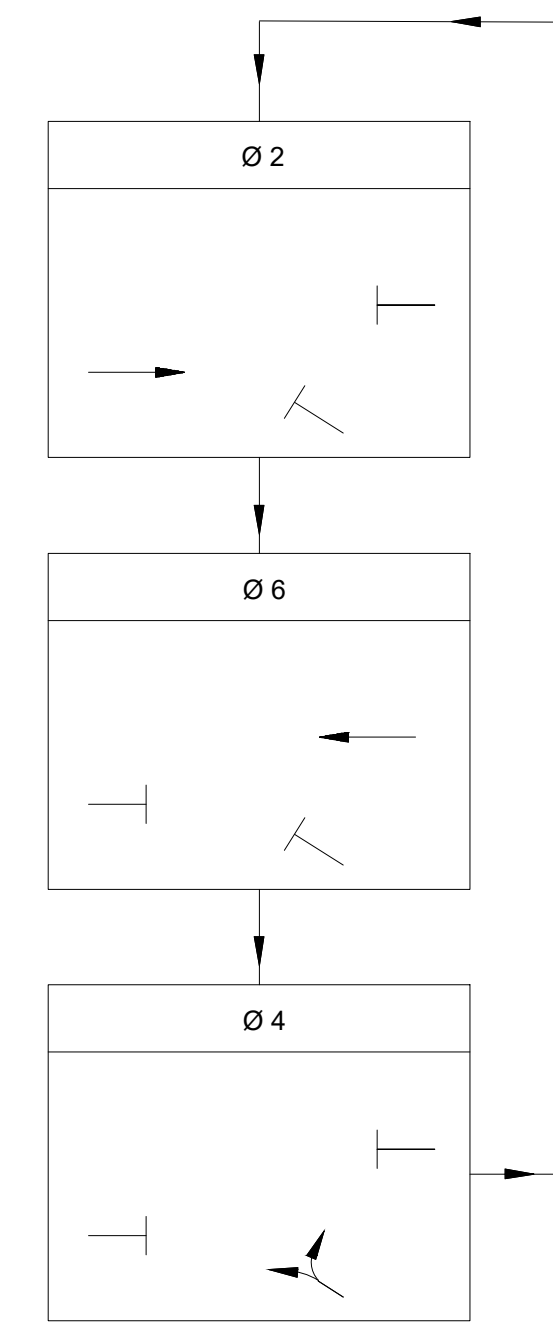


STAGE I



STAGE II

PREFERENTIAL PHASING SEQUENCE



**WALES  
MONSON ROAD**

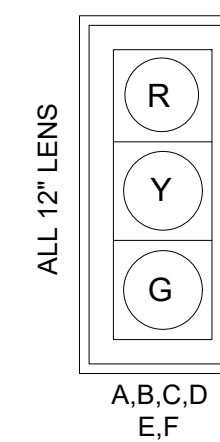
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	70	182
PROJECT FILE NO.		608163	

**TEMPORARY TRAFFIC CONTROL DETAILS**

TRAFFIC VOLUME DATA

ADT (2019)	XXXX
PHV	XXX
PHV EB (D)	XXX (49%)
PHV WB (D)	XXX (51%)

SIGNAL IDENTIFICATION



NOTES:

1. ALL VEHICLE AND PEDESTRIAN LENSES SHALL BE LED TYPE.
2. ALL HOUSINGS TO BE PROVIDED WITH TUNNEL VISORS AND 5" RETRO-REFLECTIVE LOUVERED BACKPLATES.
3. ALL HOUSINGS TO BE FIXED MOUNTED.

PRE-EMPTION PHASING AND PRIORITY

APPROACH	PREEMPTION PHASE	NEXT PHASE CALLED
EASTBOUND	2	4
WESTBOUND	6	4
REED HILL ROAD	4	2

VIDEO DETECTION ZONES

DETECTION NUMBER	DETECTION ZONE	Ø CALLED	Ø EXT.	MODE A = PULSE B = PRES.	DELAY TIME	EXT. TIME
1	10' x 30'	Ø2	Ø2	B	---	---
2	10' x 30'	Ø6	Ø6	B	---	---
3	10' x 30'	Ø4	Ø4	B	---	---

SEQUENCE & TIMING NOTES:

1. IF CALL EXIST ON ALL PHASES. THE ASSIGNMENT OF RIGHT OF WAY SHALL BE IN ACCORDANCE WITH THE PREFERENTIAL PHASE SEQUENCE. THE SIGNAL SHALL PROVIDE STOP AND GO OPERATION 24 HOURS DAILY.
2. THE CONTRACTOR SHALL MONITOR TRAFFIC CONDITIONS DURING CONSTRUCTION AND ADJUST SIGNAL TIMINGS AS NECESSARY AS DIRECTED BY THE ENGINEER.



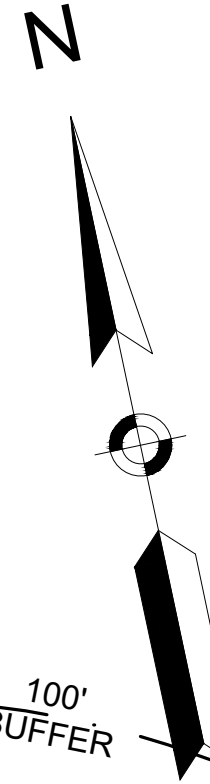
HIGHWAY GUARD DETAILS  
SEE CONSTRUCTION PLANS

TRAFFIC SIGNAL CONDUIT  
NONE

WATER SUPPLY ALTERATIONS  
NONE

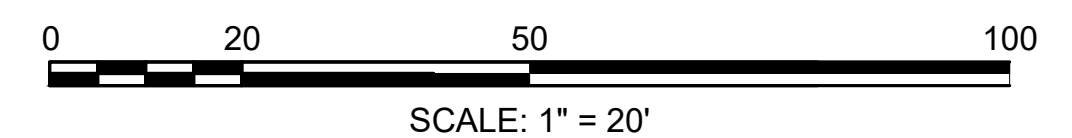
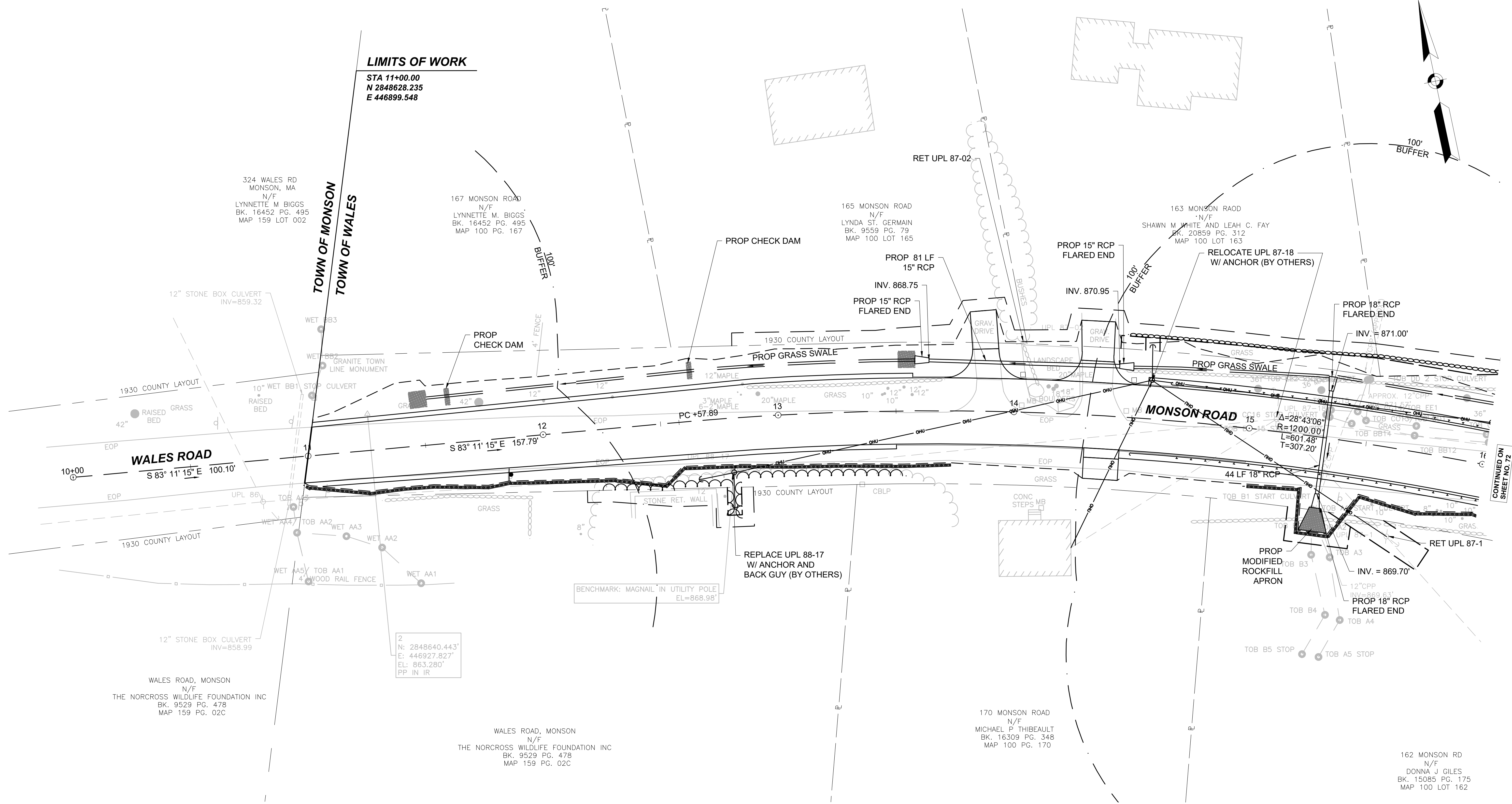
DRAINAGE DETAILS  
SEE BELOW

WALES MONSON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0032(043)X	71	182
PROJECT FILE NO.		608163	
UTILITY PLANS			



**LIMITS OF WORK**

STA 11+00.00  
N 2848628.235  
E 446899.548



CONTINUED ON SHEET NO. 72

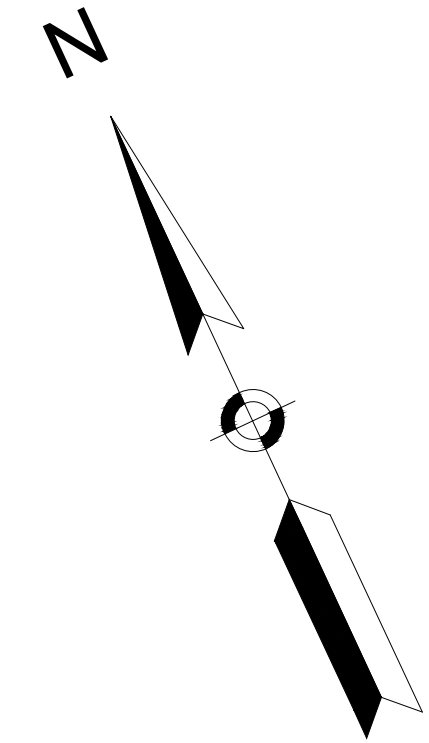
**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	72	182
PROJECT FILE NO.		608163	

**UTILITY PLANS**

DRAINAGE STRUCTURE TABLE					
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT
CB-1	19+80.74	13.0 L	878.65		I=873.42' (MH-1)
CB-2	21+00.12	13.0 L	876.63		I=872.26' (MH-1)
MH-1	21+08.39	7.2 L	876.90	I=872.16' (CB-1) I=872.16' (CB-2)	I=872.06' (MH-1A)

**NOTE: OFFSETS SHOWN FOR DRAINAGE STRUCTURES ARE TO THE PROPOSED CENTER OF THE STRUCTURE.**

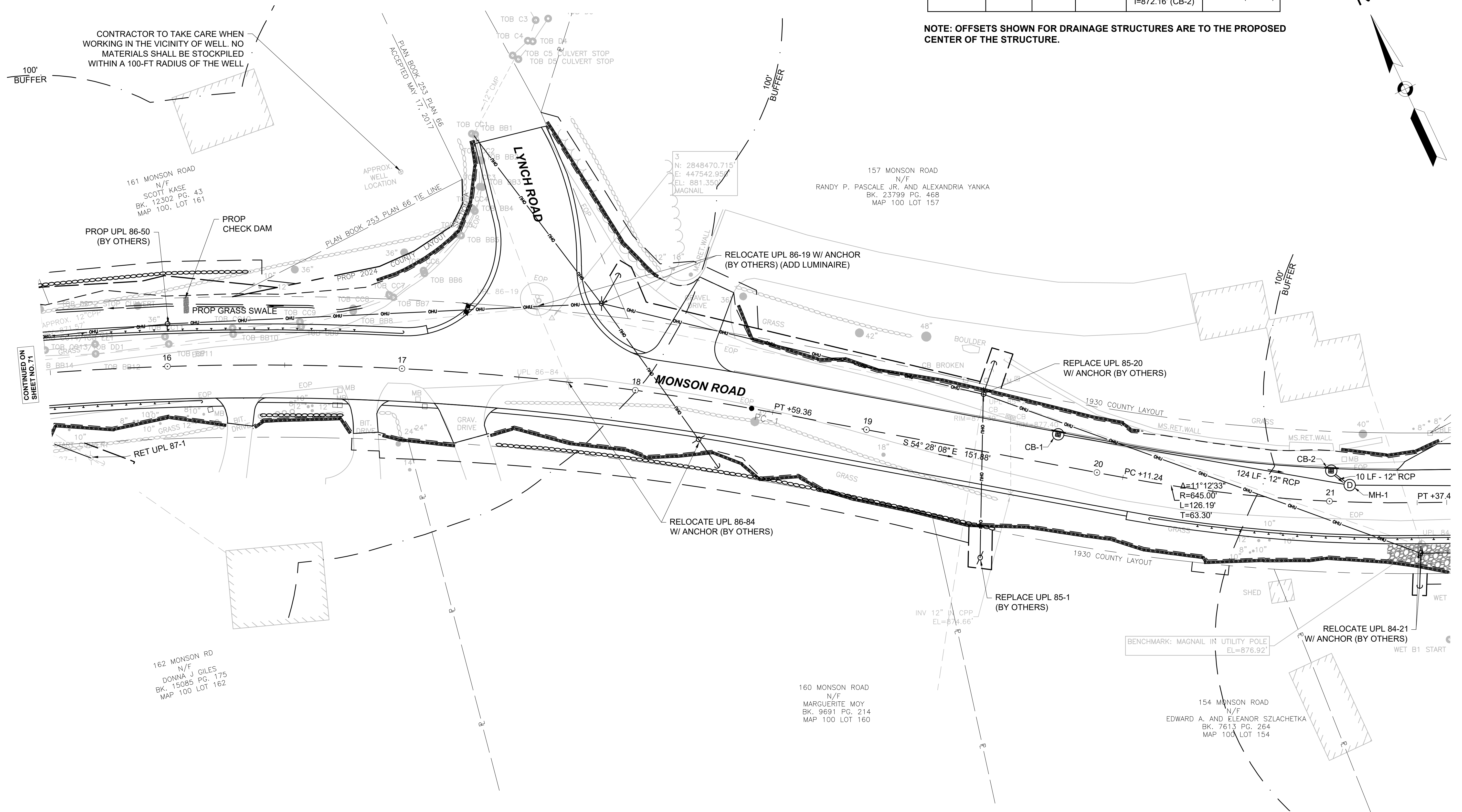


HIGHWAY GUARD DETAILS  
SEE CONSTRUCTION PLANS

TRAFFIC SIGNAL CONDUIT  
NONE

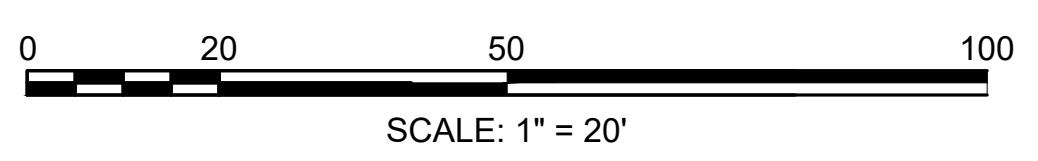
WATER SUPPLY ALTERATIONS  
NONE

DRAINAGE DETAILS  
SEE BELOW



CONTINUED ON  
SHEET NO. 71

CONTINUED ON  
SHEET NO. 73





HIGHWAY GUARD DETAILS  
SEE CONSTRUCTION PLANS

TRAFFIC SIGNAL CONDUIT  
NONE

WATER SUPPLY ALTERATIONS  
NONE

DRAINAGE DETAILS  
SEE BELOW

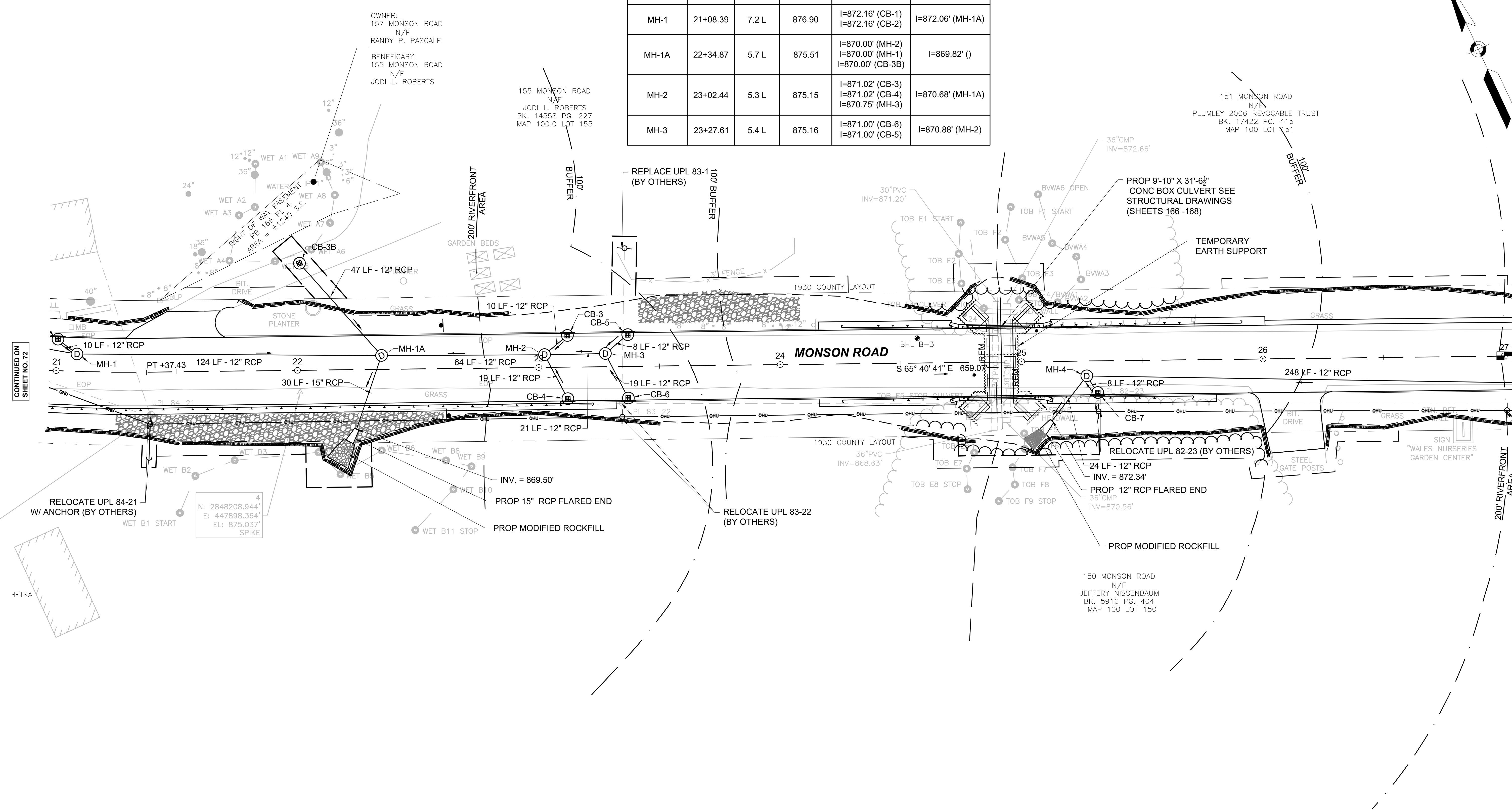
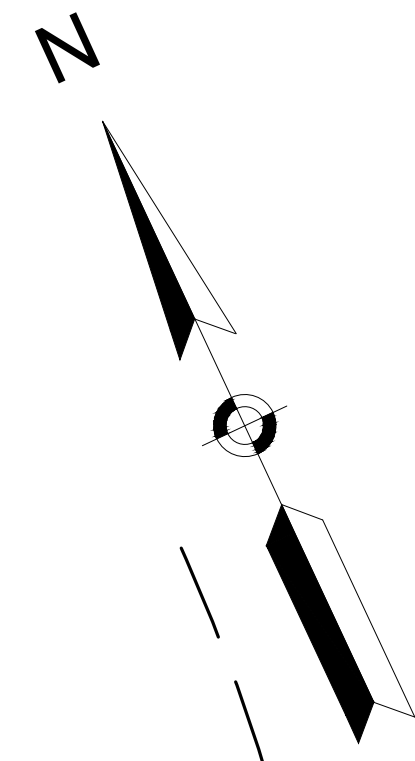
DRAINAGE STRUCTURE TABLE					
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT
CB-1	19+80.74	13.0 L	878.65		I=873.42' (MH-1)
CB-2	21+00.12	13.0 L	876.63		I=872.26' (MH-1)
CB-3	23+11.95	13.1 L	874.99		I=871.14' (MH-2)
CB-3B	22+01.33	44.4 L	873.36		I=870.55' (MH-1A)
CB-4	23+11.83	13.1 R	874.99		I=871.22' (MH-2)
CB-5	23+36.93	13.2 L	875.04		I=871.12' (MH-3)
CB-6	23+36.92	13.1 R	875.54		I=871.21' (MH-3)
MH-1	21+08.39	7.2 L	876.90	I=872.16' (CB-1) I=872.16' (CB-2)	I=872.06' (MH-1A)
MH-1A	22+34.87	5.7 L	875.51	I=870.00' (MH-2) I=870.00' (MH-1) I=870.00' (CB-3B)	I=869.82' ()
MH-2	23+02.44	5.3 L	875.15	I=871.02' (CB-3) I=871.02' (CB-4) I=870.75' (MH-3)	I=870.68' (MH-1A)
MH-3	23+27.61	5.4 L	875.16	I=871.00' (CB-6) I=871.00' (CB-5)	I=870.88' (MH-2)

DRAINAGE STRUCTURE TABLE					
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT
CB-7	25+31.40	13.1 R	878.06		I=873.06' (MH-4)
CB-8	27+74.43	13.0 R	888.55		I=883.55' (MH-4)
MH-4	25+26.93	6.2 R	878.07	I=872.92' (CB-7) I=872.92' (CB-8)	I=872.92' ()

WALES MONSON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	73	182
PROJECT FILE NO.		608163	

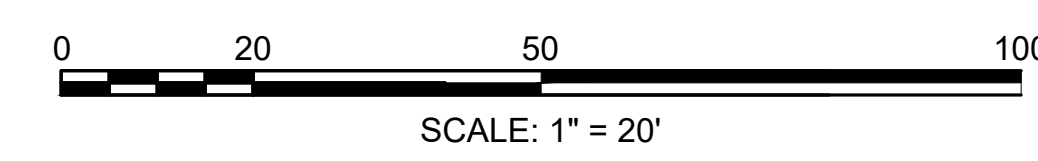
UTILITY PLANS

NOTE: OFFSETS SHOWN FOR DRAINAGE STRUCTURES ARE TO THE PROPOSED CENTER OF THE STRUCTURE.



CONTINUED ON  
SHEET NO. 72

CONTINUED ON  
SHEET NO. 74



HIGHWAY GUARD DETAILS  
SEE CONSTRUCTION PLANS

TRAFFIC SIGNAL CONDUIT  
NONE

WATER SUPPLY ALTERATIONS  
NONE

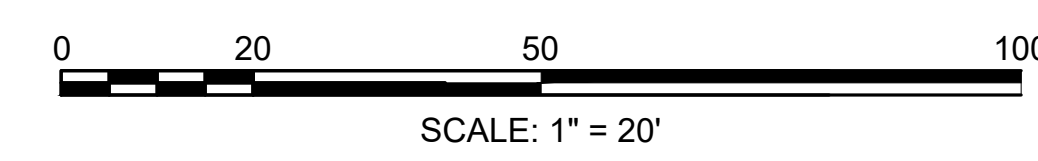
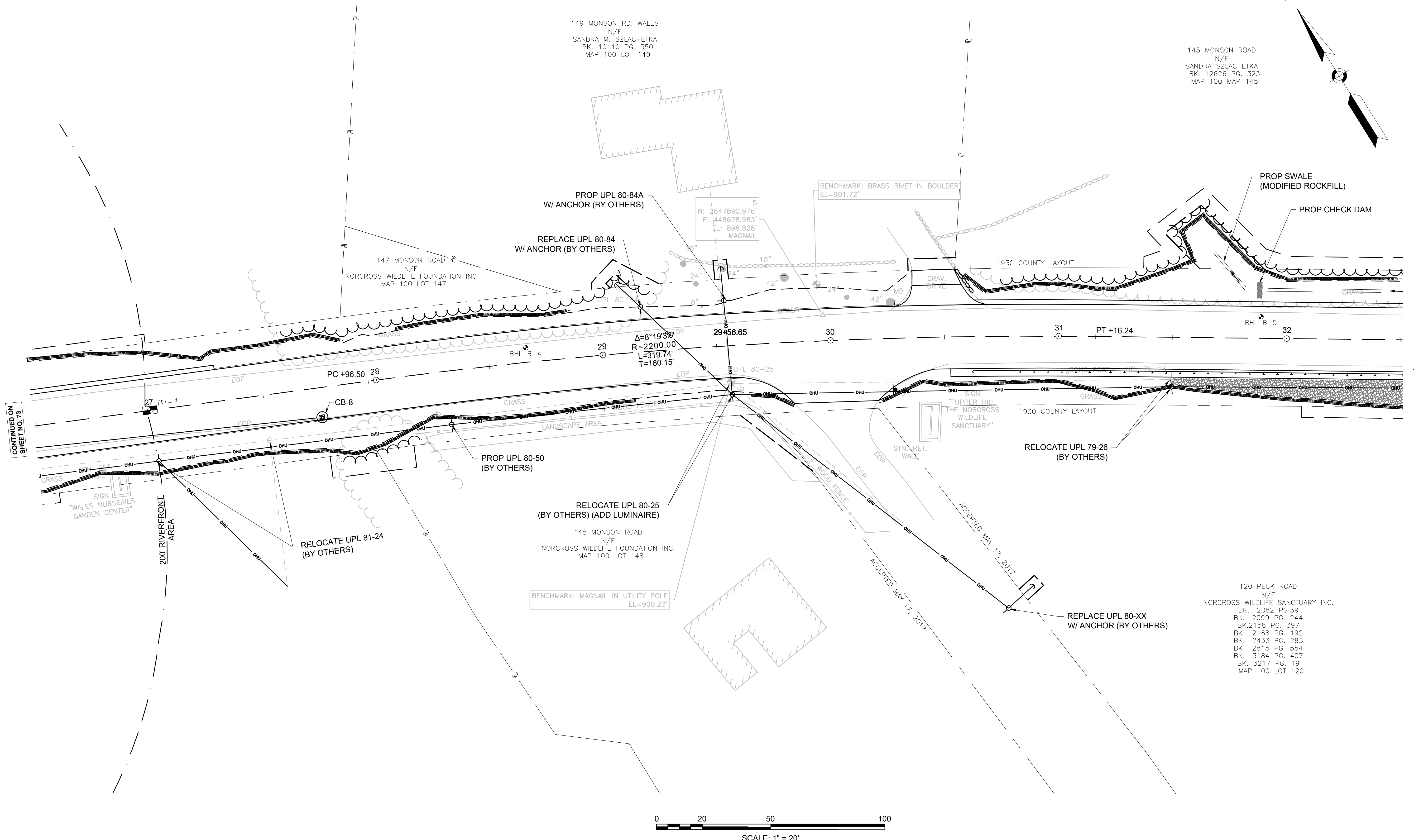
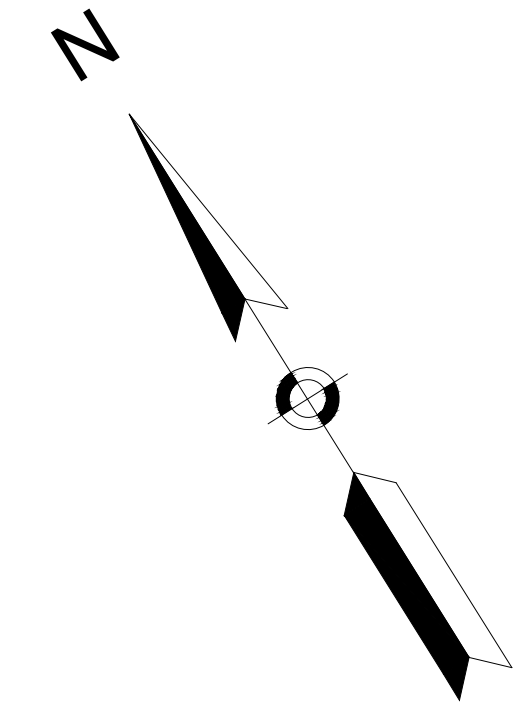
DRAINAGE DETAILS  
SEE BELOW

DRAINAGE STRUCTURE TABLE					
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT
CB-7	25+31.40	13.1 R	878.06		I=873.06' (MH-4)
CB-8	27+74.43	13.0 R	888.55		I=883.55' (MH-4)
MH-4	25+26.93	6.2 R	878.07	I=872.92' (CB-7) I=872.92' (CB-8)	I=872.92' ( )

NOTE: OFFSETS SHOWN FOR DRAINAGE STRUCTURES ARE TO THE PROPOSED CENTER OF THE STRUCTURE.

WALES MONSON ROAD				
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS	
MA	STP/HSI-0032(043)X	74	182	
PROJECT FILE NO.		608163		

UTILITY PLANS



CONTINUED ON SHEET NO. 73

CONTINUED ON SHEET NO. 75

HIGHWAY GUARD DETAILS  
SEE CONSTRUCTION PLANS

TRAFFIC SIGNAL CONDUIT  
NONE

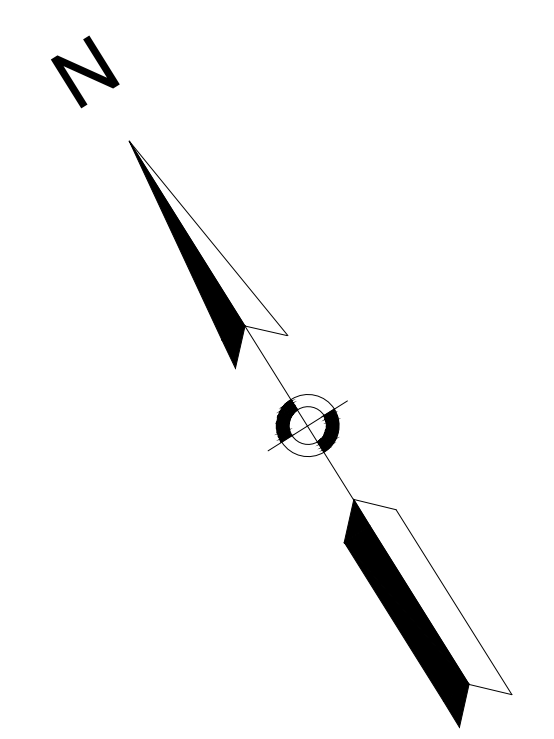
WATER SUPPLY ALTERATIONS  
NONE

DRAINAGE DETAILS  
SEE BELOW

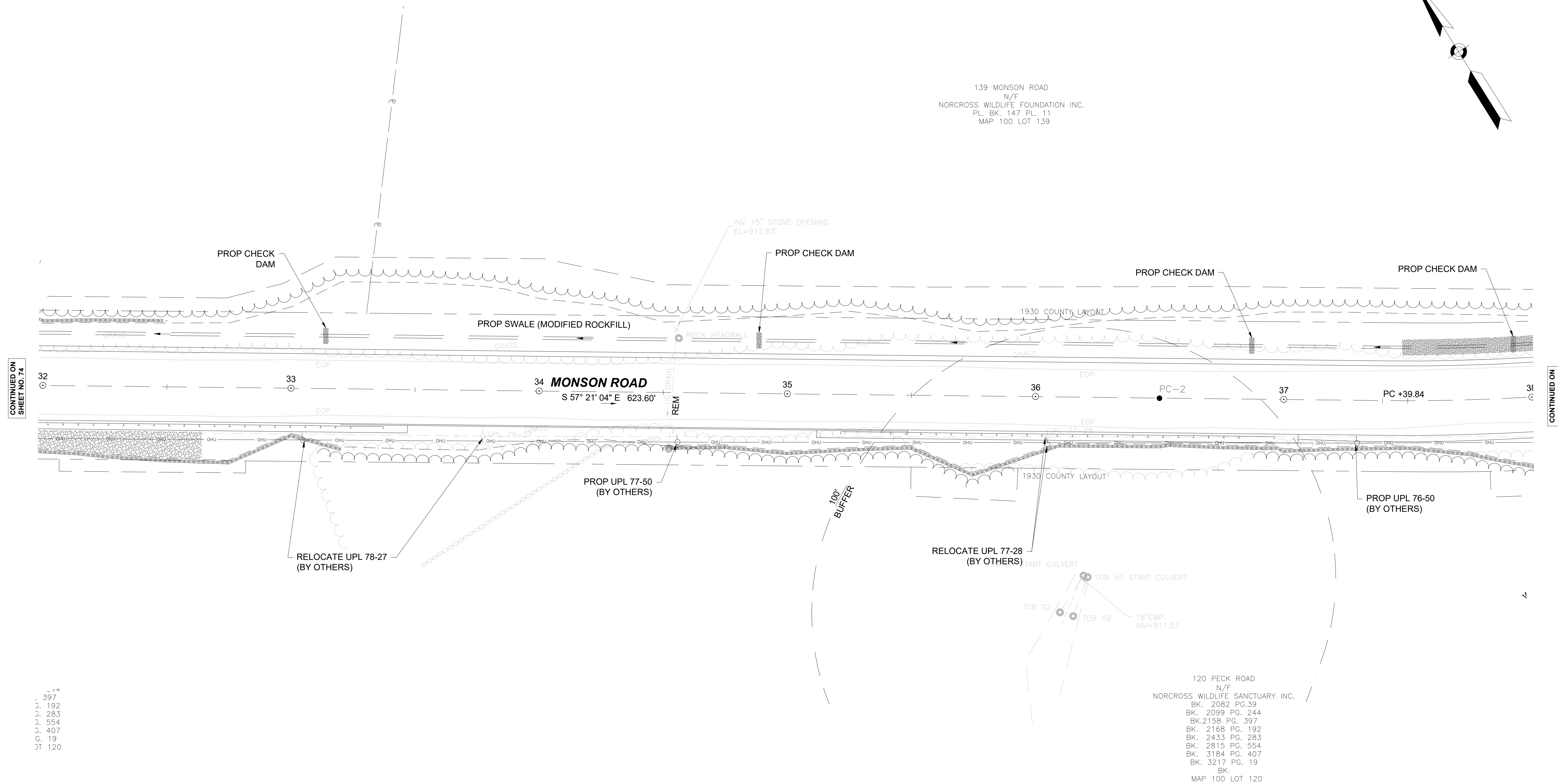
**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	75	182
PROJECT FILE NO.		608163	

**UTILITY PLANS**



139 MONSON ROAD  
N/F  
NORCROSS WILDLIFE FOUNDATION INC.  
PL. BK. 147 PL. 11  
MAP 100 LOT 139

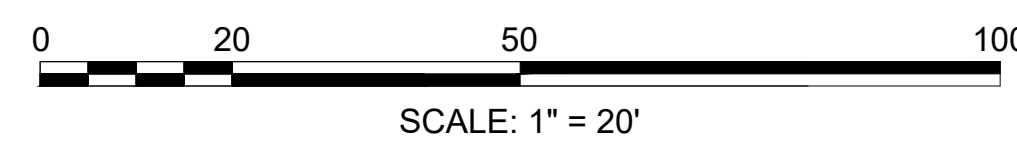


CONTINUED ON  
SHEET NO. 74

CONTINUED ON  
SHEET NO. 76

1-14  
397  
192  
283  
554  
407  
19  
120

120 PECK ROAD  
N/F  
NORCROSS WILDLIFE SANCTUARY INC.  
BK. 2082 PG. 39  
BK. 2099 PG. 244  
BK. 2158 PG. 397  
BK. 2168 PG. 192  
BK. 2435 PG. 283  
BK. 2815 PG. 554  
BK. 3184 PG. 407  
BK. 3217 PG. 19  
BK.  
MAP 100 LOT 120



**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	76	182
PROJECT FILE NO.		608163	

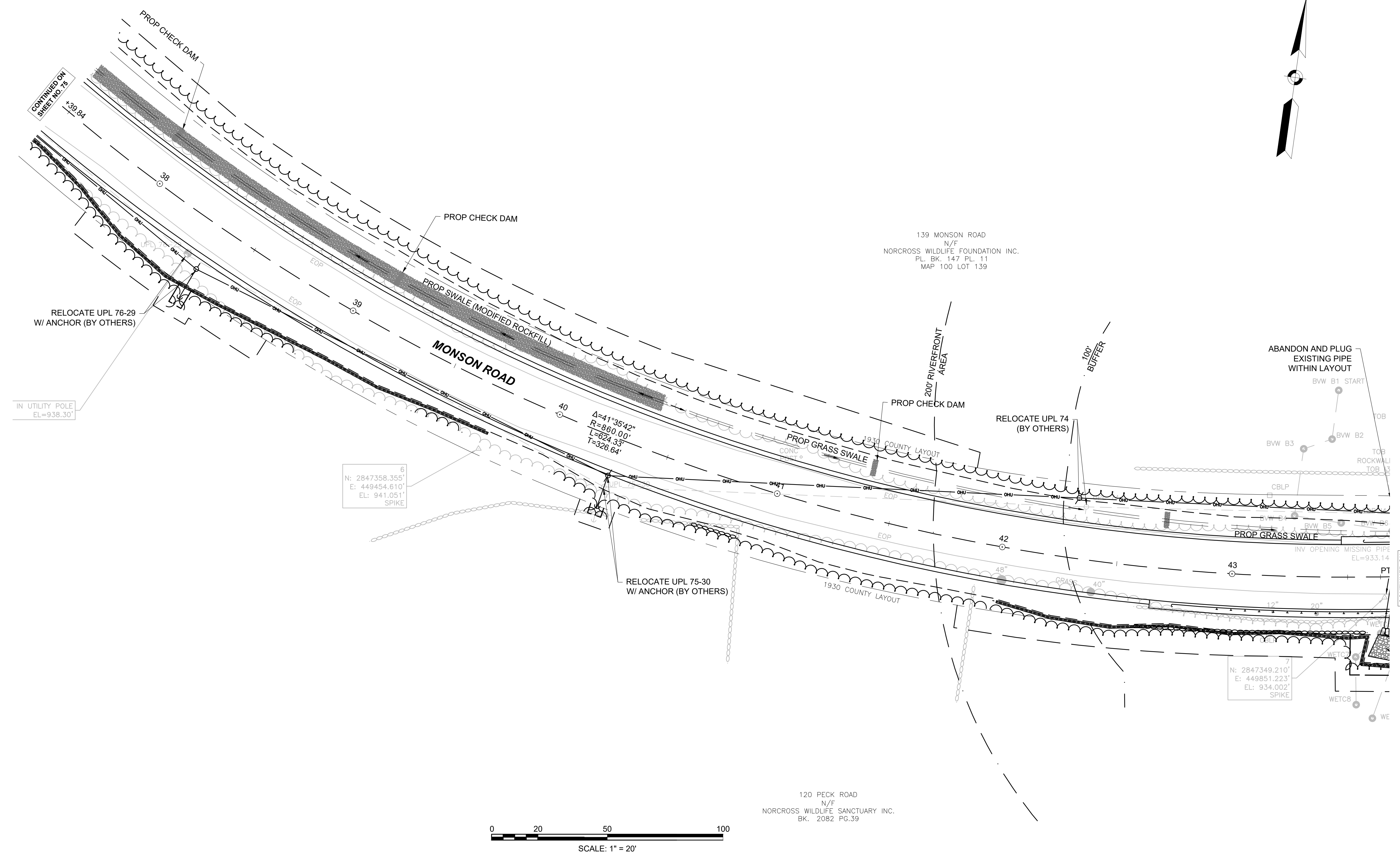
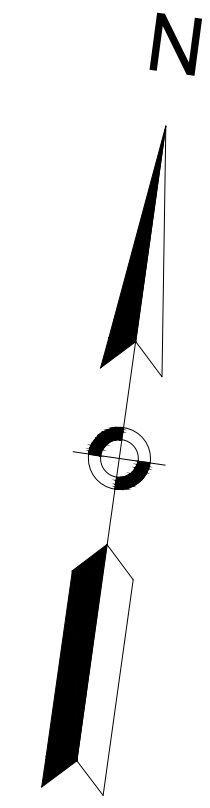
**UTILITY PLANS**

HIGHWAY GUARD DETAILS  
SEE CONSTRUCTION PLANS

TRAFFIC SIGNAL CONDUIT  
NONE

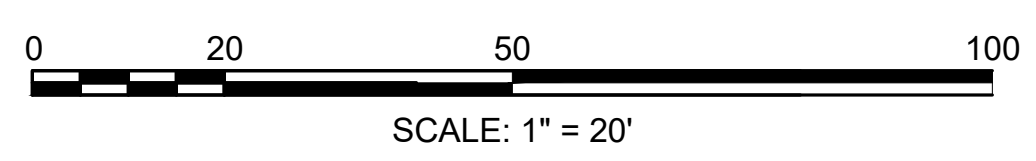
WATER SUPPLY ALTERATIONS  
NONE

DRAINAGE DETAILS  
SEE BELOW



6  
N: 2847358.355'  
E: 449454.610'  
EL: 941.051'  
SPIKE

7  
N: 2847349.210'  
E: 449851.223'  
EL: 934.002'  
SPIKE



120 PECK ROAD  
N/F  
NORCROSS WILDLIFE SANCTUARY INC.  
BK. 2082 PG.39

CONTINUED ON  
SHEET NO. 77



HIGHWAY GUARD DETAILS  
SEE CONSTRUCTION PLANS

TRAFFIC SIGNAL CONDUIT  
NONE

WATER SUPPLY ALTERATIONS  
NONE

DRAINAGE DETAILS  
SEE BELOW

DRAINAGE STRUCTURE TABLE					
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT
CB-14	48+15.37	13.0 L	935.03		I=930.00' (MH-8)
CB-15	48+15.60	12.9 R	934.02		I=928.97' (MH-8)
MH-8	48+25.98	4.5 R	934.58	I=929.80' (CB-14) I=928.84' (CB-15)	I=928.70' (MH-9 (8' DIA.))

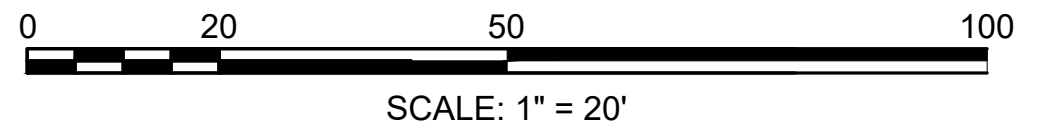
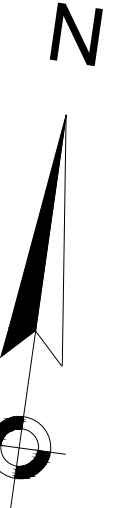
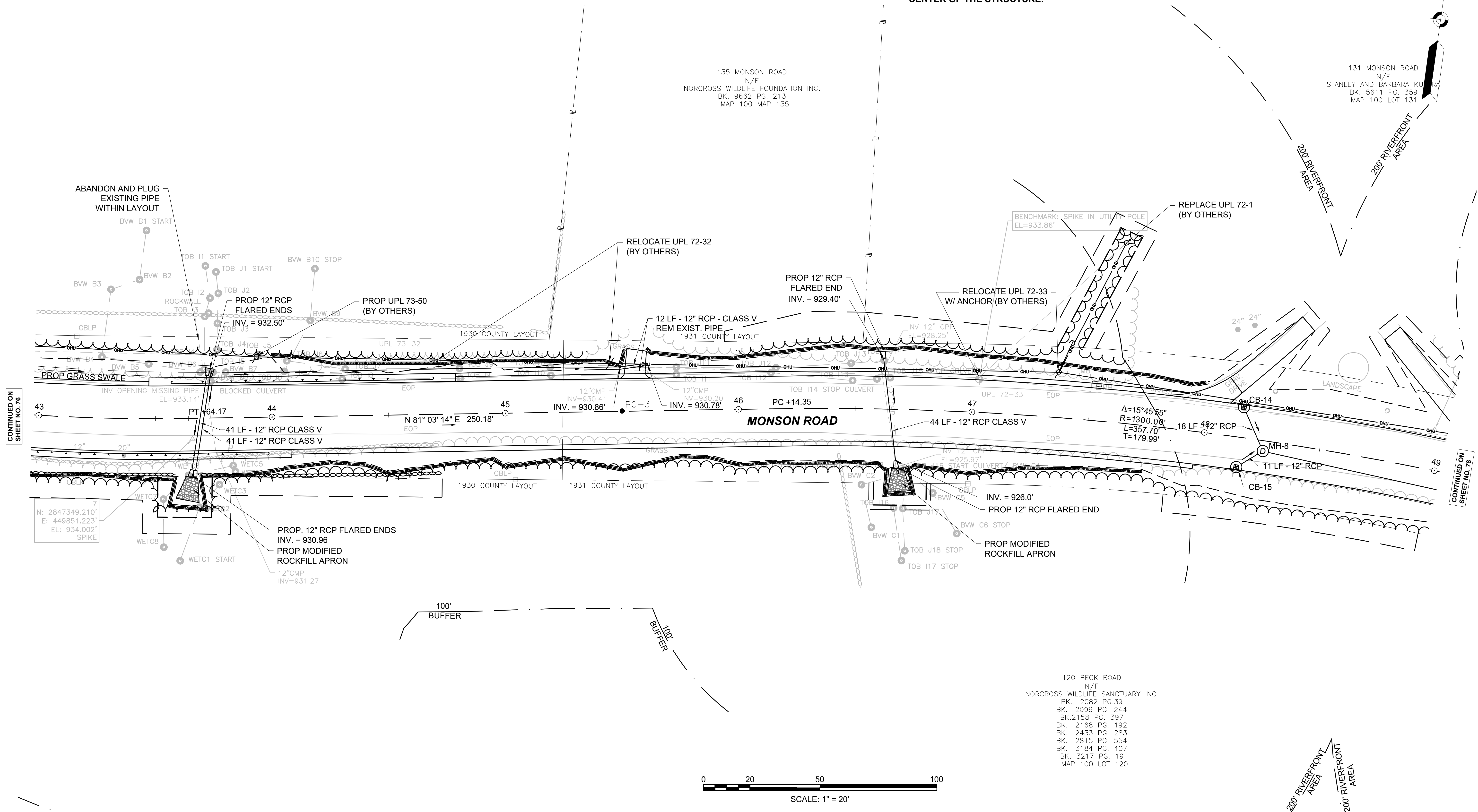
**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	77	182

PROJECT FILE NO. 608163

**UTILITY PLANS**

NOTE: OFFSETS SHOWN FOR DRAINAGE STRUCTURES ARE TO THE PROPOSED CENTER OF THE STRUCTURE.



CONTINUED ON SHEET NO. 76

CONTINUED ON SHEET NO. 78

HIGHWAY GUARD DETAILS  
SEE CONSTRUCTION PLANS

TRAFFIC SIGNAL CONDUIT  
NONE

WATER SUPPLY ALTERATIONS  
NONE

DRAINAGE DETAILS  
SEE BELOW

DRAINAGE STRUCTURE TABLE					
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT
CB-16	50+26.99	13.0 L	933.61		I=928.63' (MH-9 (8' DIA.))
CB-17	50+26.99	13.0 R	933.36		I=928.37' (MH-9 (8' DIA.))
CB-18	50+52.03	13.0 L	933.31		I=928.31' (MH-10)
CB-19	50+52.01	13.0 R	933.20		I=928.30' (MH-10)
MH-9 (8' DIA.)	50+33.44	4.4 R	933.46	I=927.85' (MH-10) I=925.85' (MH-8) I=928.26' (CB-17) I=928.44' (CB-16)	I=924.43' ( )
MH-10	50+45.27	4.4 L	933.45	I=928.11' (CB-19) I=928.20' (CB-18)	I=928.00' (MH-9 (8' DIA.))

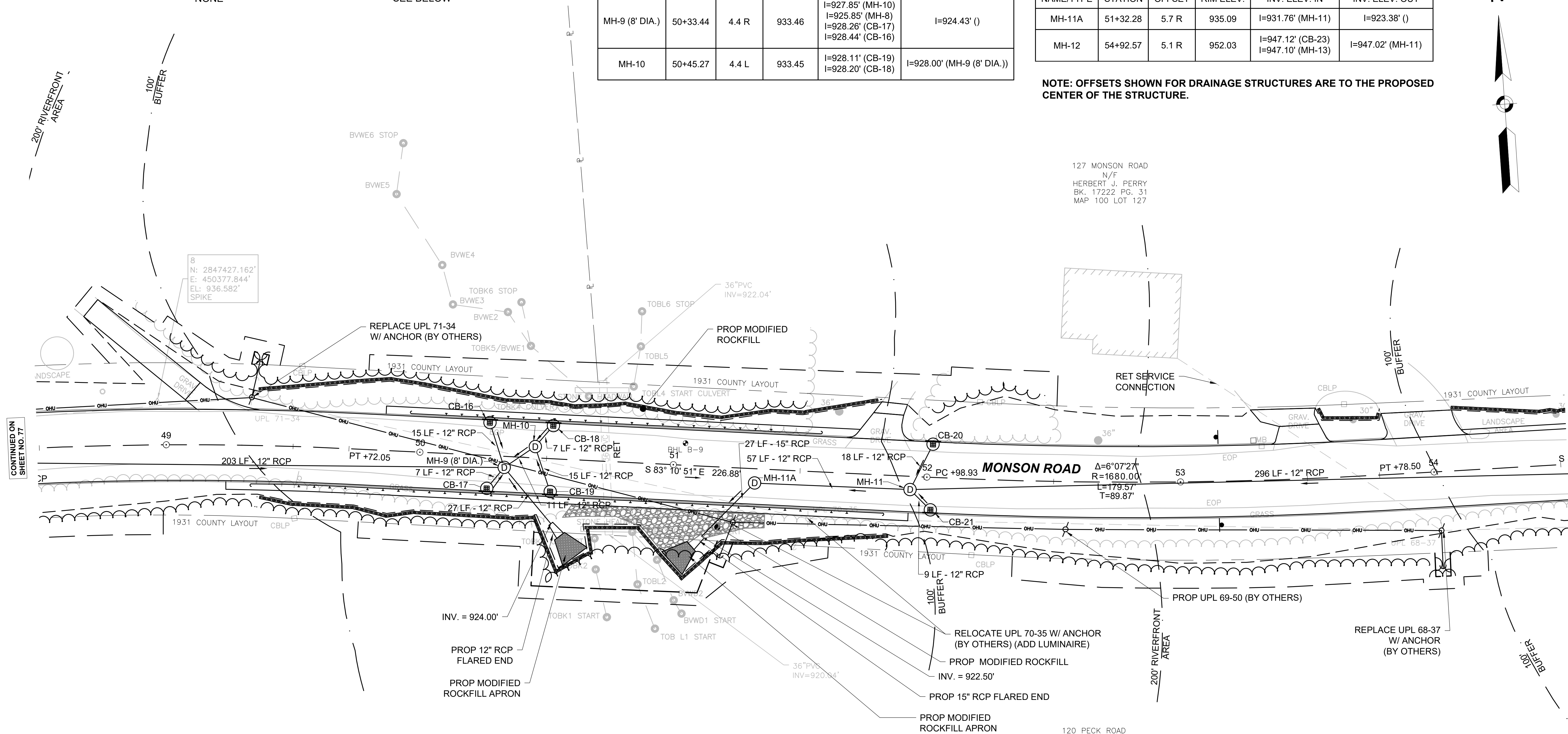
DRAINAGE STRUCTURE TABLE					
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT
CB-20	52+01.81	13.0 L	938.85		I=933.84' (MH-11)
CB-21	52+02	12.9 R	939.47		I=934.47' (MH-11)

DRAINAGE STRUCTURE TABLE					
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT
MH-11A	51+32.28	5.7 R	935.09	I=931.76' (MH-11)	I=923.38' ( )
MH-12	54+92.57	5.1 R	952.03	I=947.12' (CB-23) I=947.10' (MH-13)	I=947.02' (MH-11)

NOTE: OFFSETS SHOWN FOR DRAINAGE STRUCTURES ARE TO THE PROPOSED CENTER OF THE STRUCTURE.

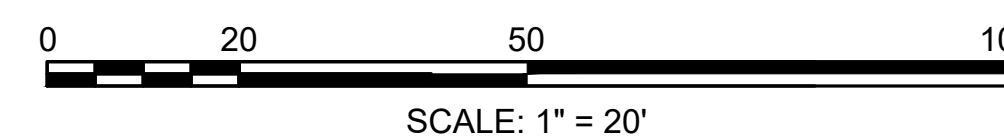
WALES MONSON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	78	182
PROJECT FILE NO.		608163	

UTILITY PLANS



127 MONSON ROAD  
N/F  
HERBERT J. PERRY  
BK. 17222 PG. 31  
MAP 100 LOT 127

120 PECK ROAD  
N/F  
NORCROSS WILDLIFE SANCTUARY INC.  
BK. 2082 PG. 39  
BK. 2099 PG. 244  
BK. 2158 PG. 397  
BK. 2168 PG. 192  
BK. 2433 PG. 283  
BK. 2815 PG. 554  
BK. 3184 PG. 407  
BK. 3217 PG. 19  
MAP 100 LOT 120



CONTINUED ON  
SHEET NO. 77

CONTINUED ON  
SHEET NO. 79

HIGHWAY GUARD DETAILS  
SEE CONSTRUCTION PLANS

TRAFFIC SIGNAL CONDUIT  
NONE

WATER SUPPLY ALTERATIONS  
NONE

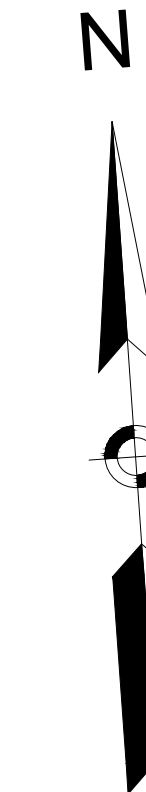
DRAINAGE DETAILS  
SEE BELOW

DRAINAGE STRUCTURE TABLE					
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT
CB-23	55+00	13.0 R	951.93		I=947.23' (MH-12)
CB-24	57+50.08	13.0 L	957.23		I=952.37' (MH-13)
CB-25	57+49.97	13.0 R	957.22		I=952.27' (MH-13)
CB-26	60+00.20	13.1 L	970.95		I=965.95' (MH-14)
CB-27	60+00.02	13.1 R	970.94		I=965.94' (MH-14)
CB-28	62+49.83	13.1 L	988.54		I=983.54' (MH-15)

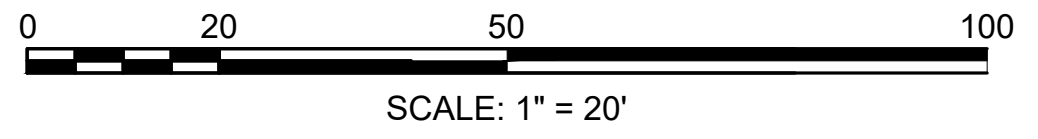
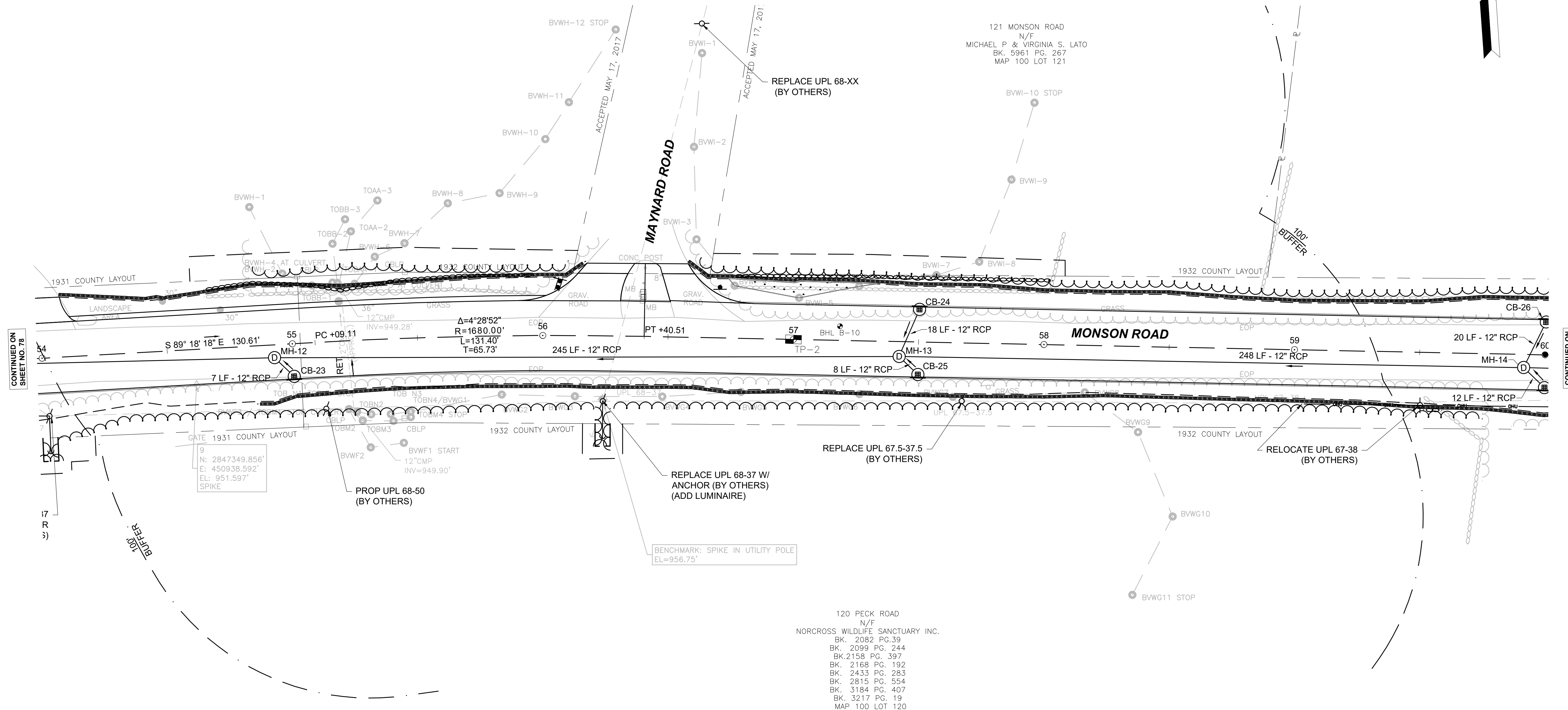
DRAINAGE STRUCTURE TABLE					
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT
MH-12	54+92.57	5.1 R	952.03	I=947.12' (CB-23) I=947.10' (MH-13)	I=947.02' (MH-11)
MH-13	57+42.32	5.9 R	957.09	I=952.17' (CB-24) I=952.17' (CB-25) I=952.17' (MH-14)	I=952.07' (MH-12)
MH-14	59+91.53	5.3 R	970.49	I=965.82' (CB-27) I=965.75' (CB-26) I=965.60' (MH-15)	I=965.50' (MH-13)

WALES MONSON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	79	182
PROJECT FILE NO.		608163	

UTILITY PLANS



NOTE: OFFSETS SHOWN FOR DRAINAGE STRUCTURES ARE TO THE PROPOSED CENTER OF THE STRUCTURE.



CONTINUED ON SHEET NO. 78

CONTINUED ON SHEET NO. 80

HIGHWAY GUARD DETAILS  
SEE CONSTRUCTION PLANS

TRAFFIC SIGNAL CONDUIT  
NONE

WATER SUPPLY ALTERATIONS  
NONE

DRAINAGE DETAILS  
SEE BELOW

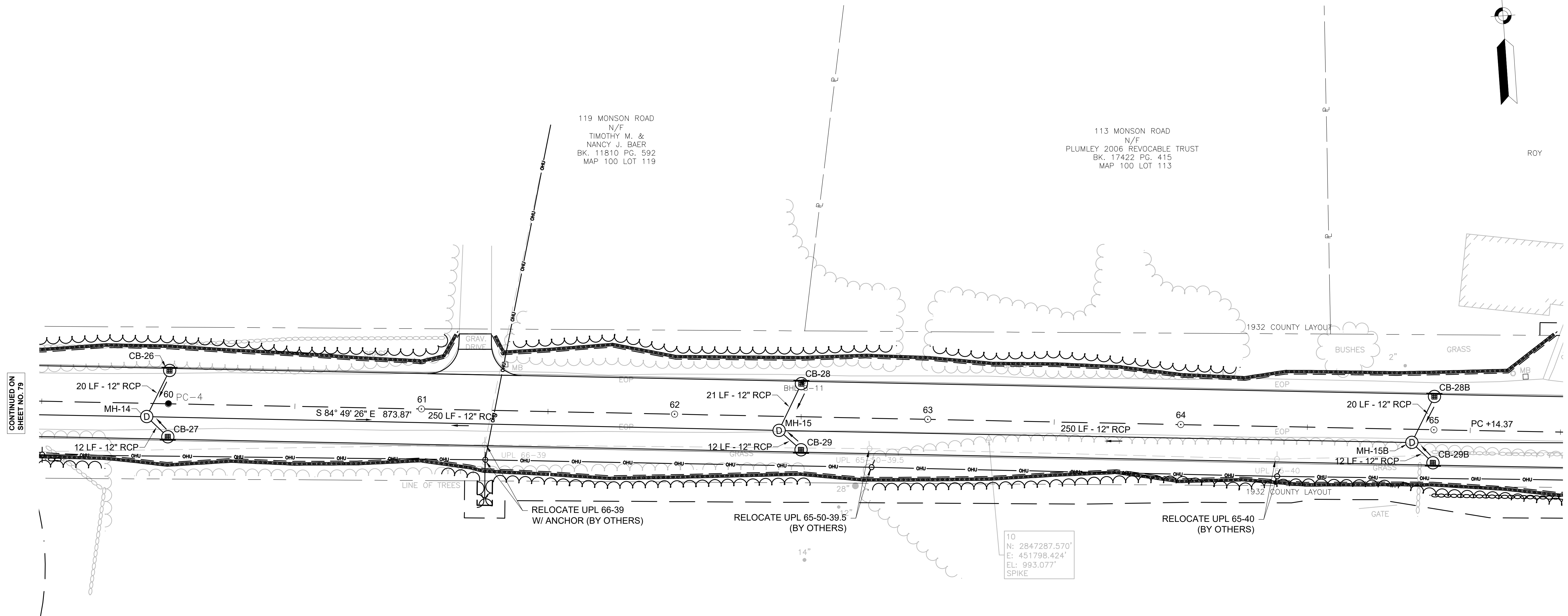
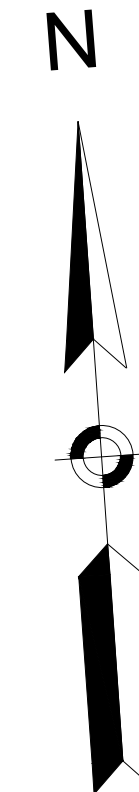
DRAINAGE STRUCTURE TABLE					
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT
CB-26	60+00.20	13.1 L	970.95		I=965.95' (MH-14)
CB-27	60+00.02	13.1 R	970.94		I=965.94' (MH-14)
CB-28	62+49.83	13.1 L	988.54		I=983.54' (MH-15)
CB-28B	64+99.93	13.1 L	1001.52		I=996.76' (MH-15B)
CB-29	62+50.22	13.1 R	988.57		I=983.57' (MH-15)
CB-29B	64+99.86	13.1 R	1001.52		I=996.78' (MH-15B)

DRAINAGE STRUCTURE TABLE					
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT
MH-14	59+91.53	5.3 R	970.49	I=965.82' (CB-27) I=965.75' (CB-26) I=965.60' (MH-15)	I=965.50' (MH-13)
MH-15	62+41.37	5.6 R	988.13	I=983.45' (CB-29) I=983.34' (CB-28) I=983.23' (MH-15B)	I=983.13' (MH-14)
MH-15B	64+91.38	5.2 R	1001.33	I=996.56' (MH-16) I=996.67' (CB-29B) I=996.56' (CB-28B)	I=996.46' (MH-15)

NOTE: OFFSETS SHOWN FOR DRAINAGE STRUCTURES ARE TO THE PROPOSED CENTER OF THE STRUCTURE.

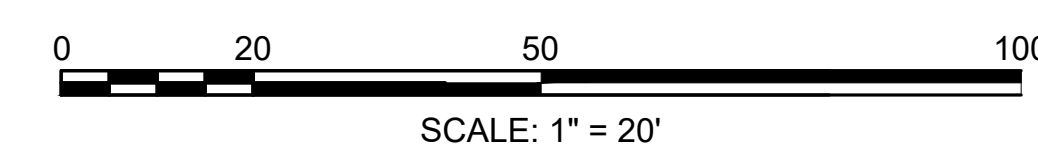
WALES MONSON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	80	182
PROJECT FILE NO.		608163	

UTILITY PLANS



CONTINUED ON SHEET NO. 79

CONTINUED ON SHEET NO. 81



120 PECK ROAD  
N/F  
NORCROSS WILDLIFE SANCTUARY INC.  
BK. 2082 PG. 39  
BK. 2099 PG. 244  
BK. 2158 PG. 397  
BK. 2168 PG. 192  
BK. 2433 PG. 283  
BK. 2815 PG. 554  
BK. 3184 PG. 407  
BK. 3217 PG. 19  
MAP 100 LOT 120



HIGHWAY GUARD DETAILS  
SEE CONSTRUCTION PLANS

TRAFFIC SIGNAL CONDUIT  
NONE

WATER SUPPLY ALTERATIONS  
NONE

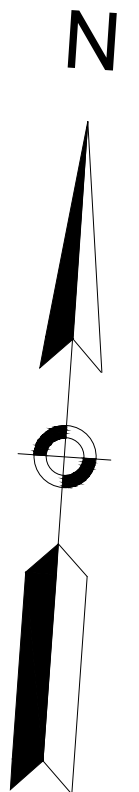
DRAINAGE DETAILS  
SEE BELOW

DRAINAGE STRUCTURE TABLE					
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT
CB-29	62+50.22	13.1 R	988.57		I=983.57' (MH-15)
CB-29B	64+99.86	13.1 R	1001.52		I=996.78' (MH-15B)
CB-30	67+50	13.1 L	1011.89		I=1007.06' (MH-16)
CB-31	67+50.28	13.1 R	1011.79		I=1007.19' (MH-16)

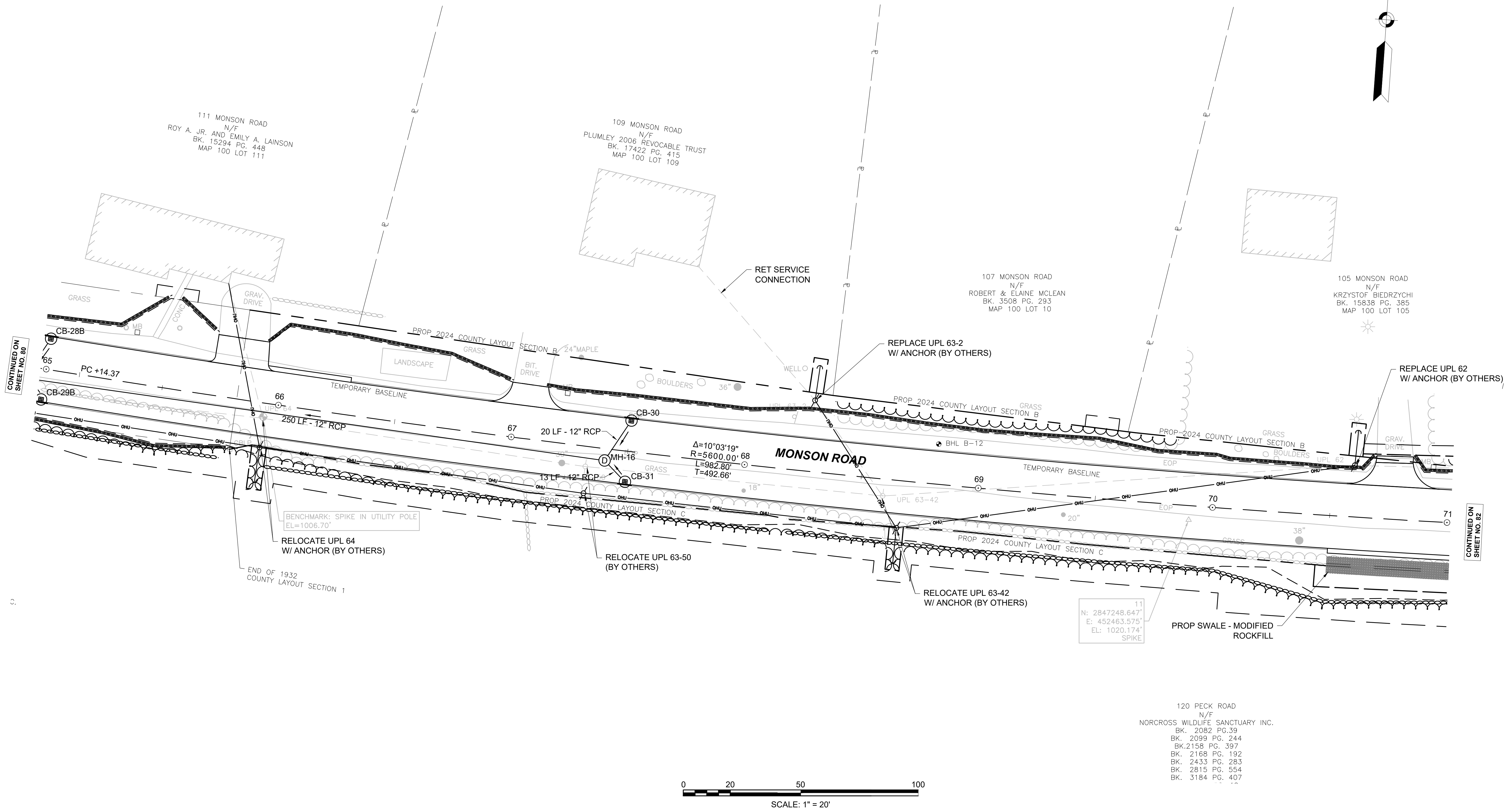
DRAINAGE STRUCTURE TABLE					
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT
MH-16	67+40.61	5.1 R	1011.56	I=1007.06' (CB-31) I=1006.86' (CB-30)	I=1006.76' (MH-15B)

WALES MONSON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	81	182
PROJECT FILE NO.		608163	

UTILITY PLANS



NOTE: OFFSETS SHOWN FOR DRAINAGE STRUCTURES ARE TO THE PROPOSED CENTER OF THE STRUCTURE.



CONTINUED ON SHEET NO. 80

CONTINUED ON SHEET NO. 82

120 PECK ROAD  
N/F  
NORCROSS WILDLIFE SANCTUARY INC.  
BK. 2082 PG.39  
BK. 2099 PG. 244  
BK.2158 PG. 397  
BK. 2168 PG. 192  
BK. 2433 PG. 283  
BK. 2815 PG. 554  
BK. 3184 PG. 407

HIGHWAY GUARD DETAILS  
SEE CONSTRUCTION PLANS

TRAFFIC SIGNAL CONDUIT  
NONE

WATER SUPPLY ALTERATIONS  
NONE

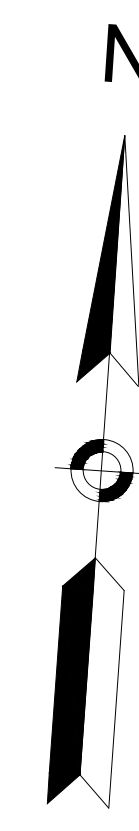
DRAINAGE DETAILS  
SEE BELOW

DRAINAGE STRUCTURE TABLE					
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT
CB-32	72+11.79	13.1 L	1016.58		I=1013.00' (MH-17)
CB-34	73+00.54	13.1 L	1015.52		I=1012.53' (MH-18 (8' DIA.))
CB-34B	73+25.42	13.1 L	1015.61		I=1012.63' (MH-18B)
CB-35	73+00.46	13.1 R	1015.52		I=1012.49' (MH-18 (8' DIA.))
CB-35B	73+25.60	13.1 R	1015.61		I=1012.60' (MH-18B)
MH-17	72+20.68	5.3 R	1017.23	I=1012.90' (CB-32)	I=1012.87' (MH-18 (8' DIA.))
MH-18 (8' DIA.)	73+04.46	5.4 R	1015.68	I=1012.44' (CB-34) I=1012.45' (CB-35) I=1012.45' (MH-17) I=1012.45' (MH-18B)	I=1012.43' ( )
MH-18B	73+19.42	5.2 R	1015.73	I=1012.53' (CB-34B) I=1012.55' (CB-35B)	I=1012.52' (MH-18 (8' DIA.))

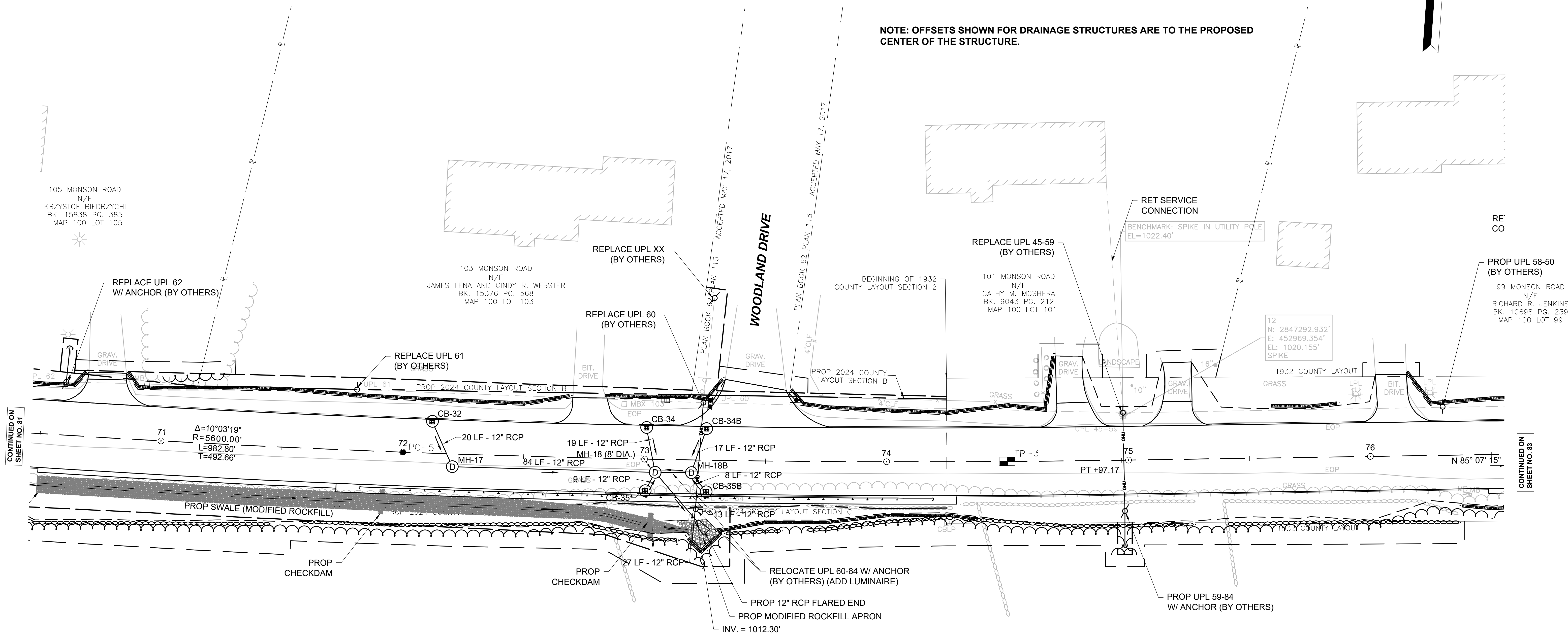
**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSL-0032(043)X	82	182
PROJECT FILE NO.		608163	

**UTILITY PLANS**

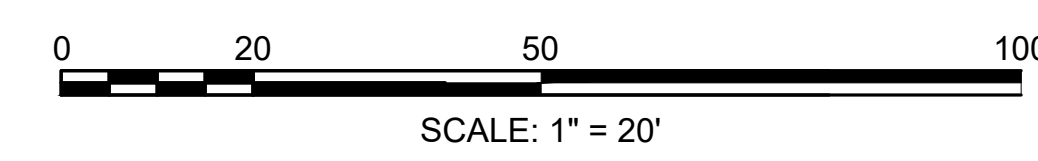


NOTE: OFFSETS SHOWN FOR DRAINAGE STRUCTURES ARE TO THE PROPOSED CENTER OF THE STRUCTURE.



CONTINUED ON SHEET NO. 81

CONTINUED ON SHEET NO. 83



120 PECK ROAD  
N/F  
NORCROSS WILDLIFE SANCTUARY INC.  
BK. 2082 PG.39  
BK. 2099 PG. 244

HIGHWAY GUARD DETAILS  
SEE CONSTRUCTION PLANS

TRAFFIC SIGNAL CONDUIT  
NONE

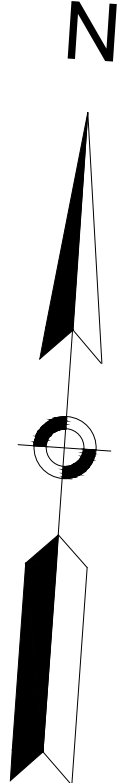
WATER SUPPLY ALTERATIONS  
NONE

DRAINAGE DETAILS  
SEE BELOW

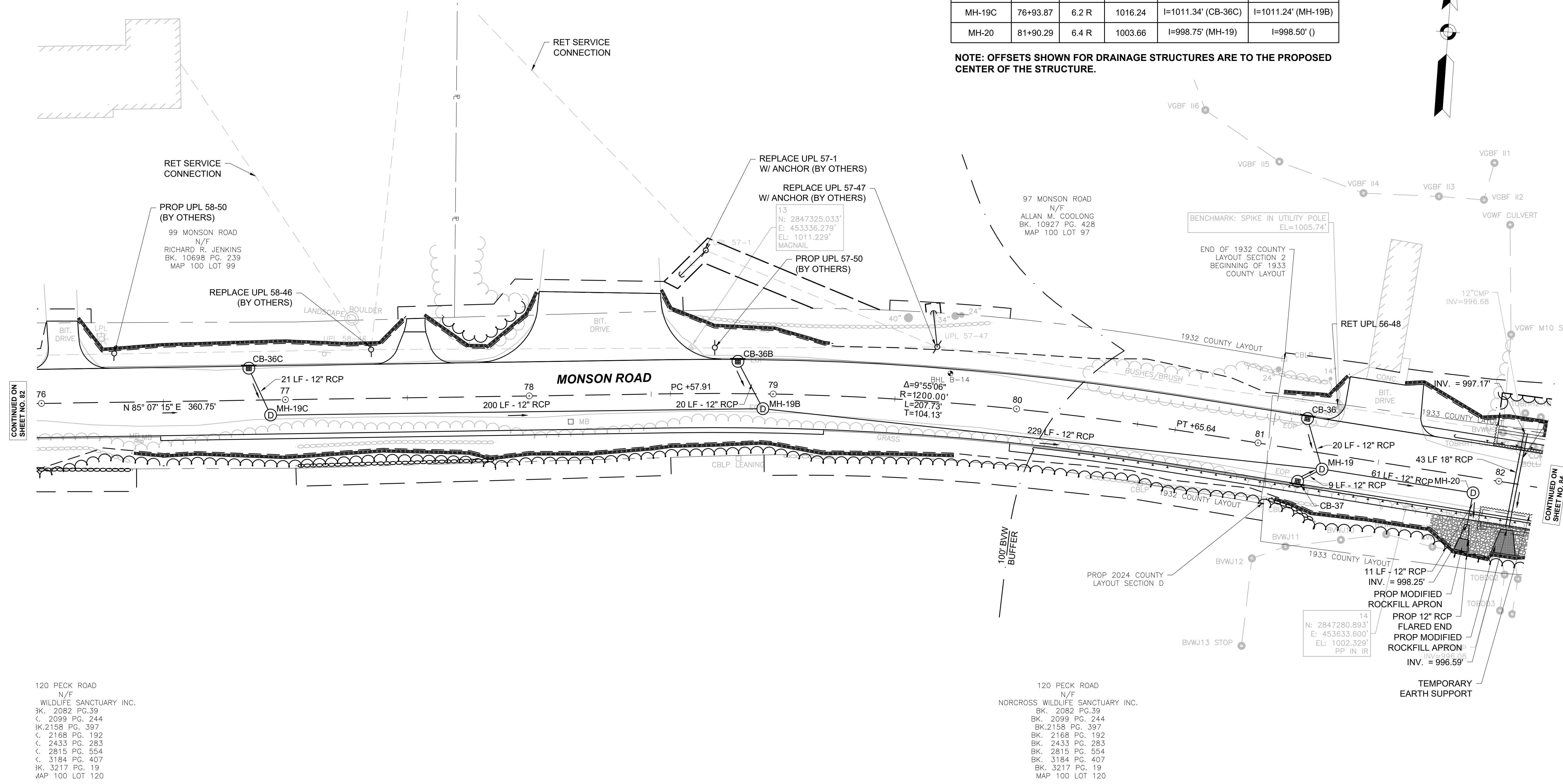
DRAINAGE STRUCTURE TABLE					
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT
CB-36	81+18.47	13.1 L	1005.13		I=1000.22' (MH-19)
CB-36B	78+85.45	13.1 L	1011.71		I=1006.67' (MH-19B)
CB-36C	76+85.21	13.1 L	1016.33		I=1011.55' (MH-19C)
CB-37	81+18.52	13.0 R	1004.86		I=1000.01' (MH-19)
MH-19	81+27.56	6.5 R	1004.78	I=1000.00' (CB-36) I=999.90' (CB-37) I=999.90' (MH-19B)	I=999.80' (MH-20)
MH-19B	78+95.88	6.1 R	1010.74	I=1006.45' (CB-36B) I=1005.80' (MH-19C)	I=1005.70' (MH-19)
MH-19C	76+93.87	6.2 R	1016.24	I=1011.34' (CB-36C)	I=1011.24' (MH-19B)
MH-20	81+90.29	6.4 R	1003.66	I=998.75' (MH-19)	I=998.50' ( )

WALES MONSON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	83	182
PROJECT FILE NO.		608163	

UTILITY PLANS



NOTE: OFFSETS SHOWN FOR DRAINAGE STRUCTURES ARE TO THE PROPOSED CENTER OF THE STRUCTURE.

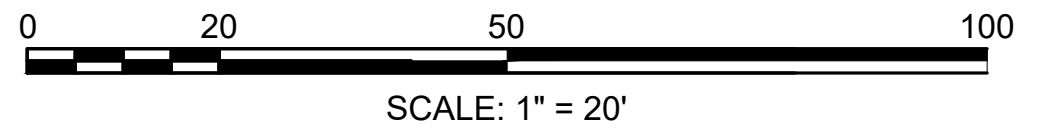


CONTINUED ON SHEET NO. 82

CONTINUED ON SHEET NO. 84

120 PECK ROAD  
N/F  
WILDLIFE SANCTUARY INC.  
BK. 2082 PG. 39  
C. 2099 PG. 244  
BK. 2158 PG. 397  
C. 2168 PG. 192  
C. 2433 PG. 283  
C. 2815 PG. 554  
C. 3184 PG. 407  
BK. 3217 PG. 19  
MAP 100 LOT 120

120 PECK ROAD  
N/F  
NORCROSS WILDLIFE SANCTUARY INC.  
BK. 2082 PG. 39  
BK. 2099 PG. 244  
BK. 2158 PG. 397  
BK. 2168 PG. 192  
BK. 2433 PG. 283  
BK. 2815 PG. 554  
BK. 3184 PG. 407  
BK. 3217 PG. 19  
MAP 100 LOT 120





HIGHWAY GUARD DETAILS  
SEE CONSTRUCTION PLANS

TRAFFIC SIGNAL CONDUIT  
NONE

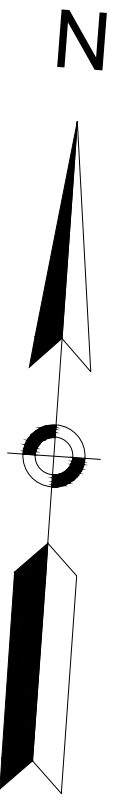
WATER SUPPLY ALTERATIONS  
NONE

DRAINAGE DETAILS  
SEE BELOW

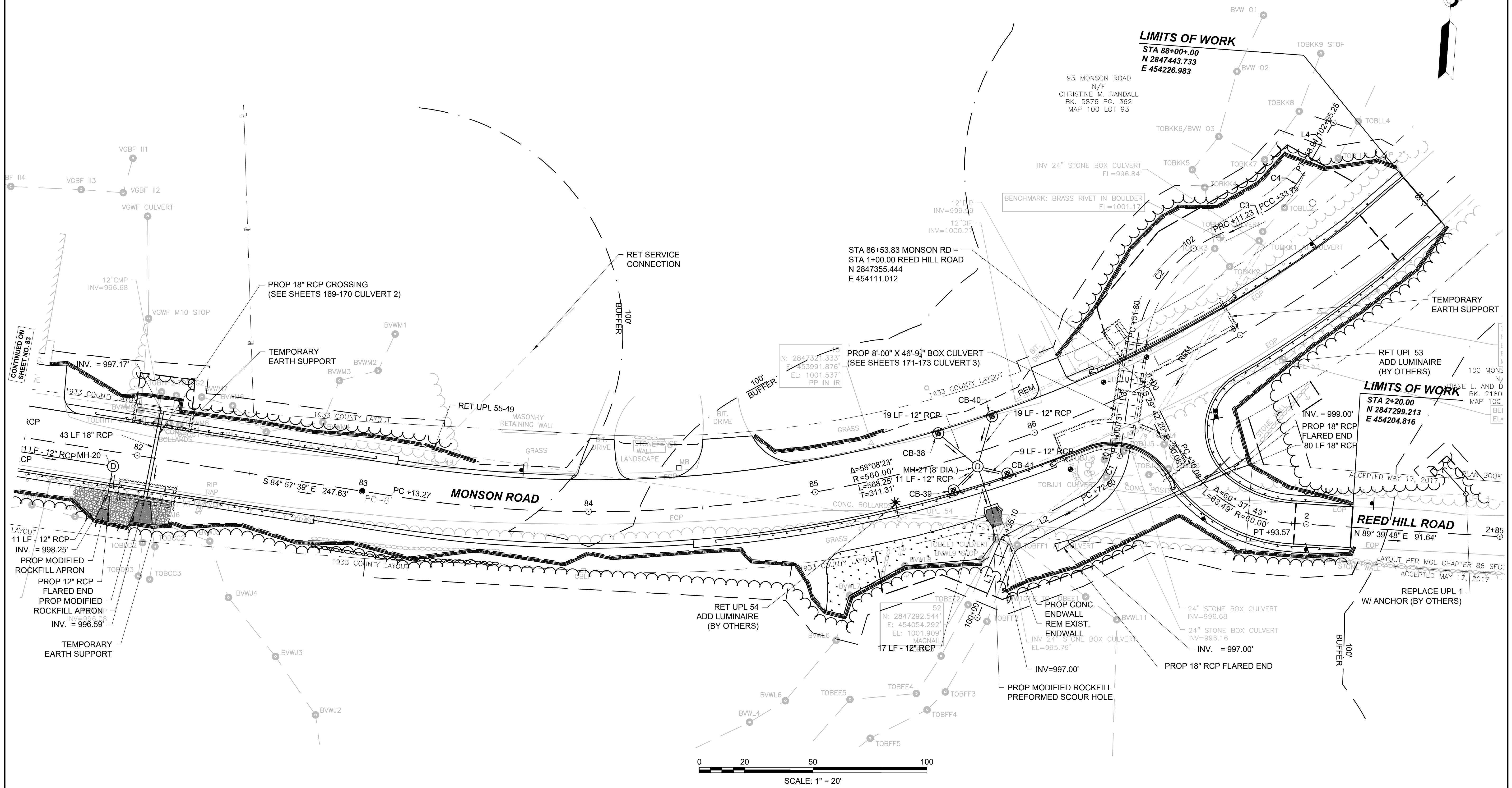
DRAINAGE STRUCTURE TABLE					
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT
CB-38	85+59.12	12.9 L	1001.00		I=997.25' (MH-21 (8' DIA.))
CB-39	85+58.70	13.0 R	1002.39		I=997.21' (MH-21 (8' DIA.))
CB-40	85+84.53	13.0 L	1000.85		I=997.25' (MH-21 (8' DIA.))
CB-41	85+82.92	13.0 R	1002.25		I=997.21' (MH-21 (8' DIA.))
MH-21 (8' DIA.)	85+71.65	6.0 R	1002.02	I=997.14' (CB-40) I=997.14' (CB-41) I=997.14' (CB-39) I=997.14' (CB-38)	I=997.14' ( )

WALES MONSON ROAD			
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UTILITY PLANS



NOTE: OFFSETS SHOWN FOR DRAINAGE STRUCTURES ARE TO THE PROPOSED CENTER OF THE STRUCTURE.



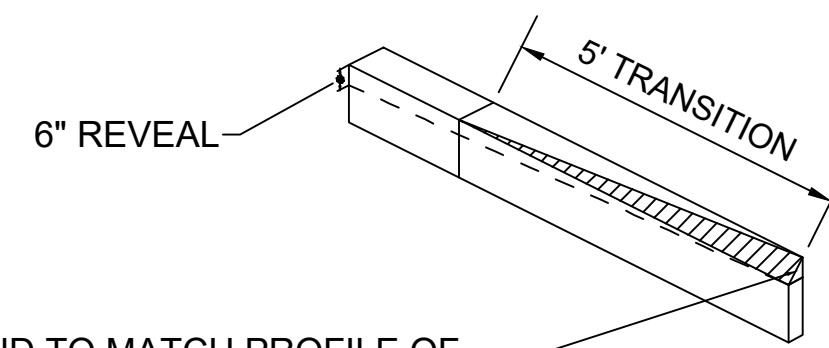
CONTINUED ON  
SHEET NO. 83



**WALES  
MONSON ROAD**

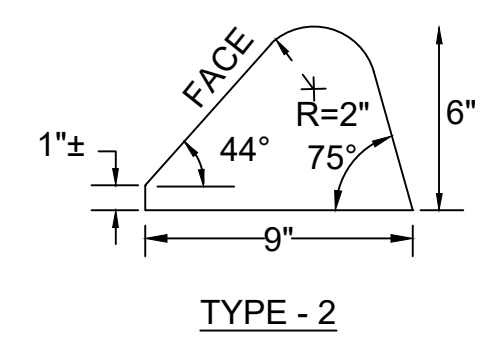
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	85	182
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**CONSTRUCTION DETAILS**

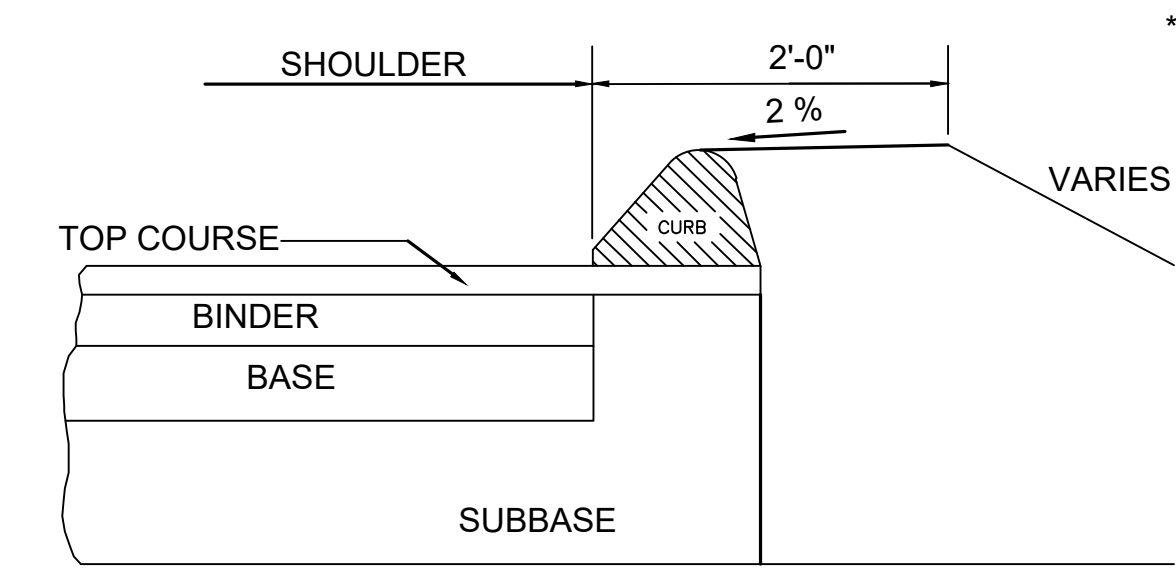


SPLAYED END TO MATCH PROFILE OF MODIFIED HMA CURB TYPE-2

**GRANITE CURB - SPLAYED END**  
NOT TO SCALE

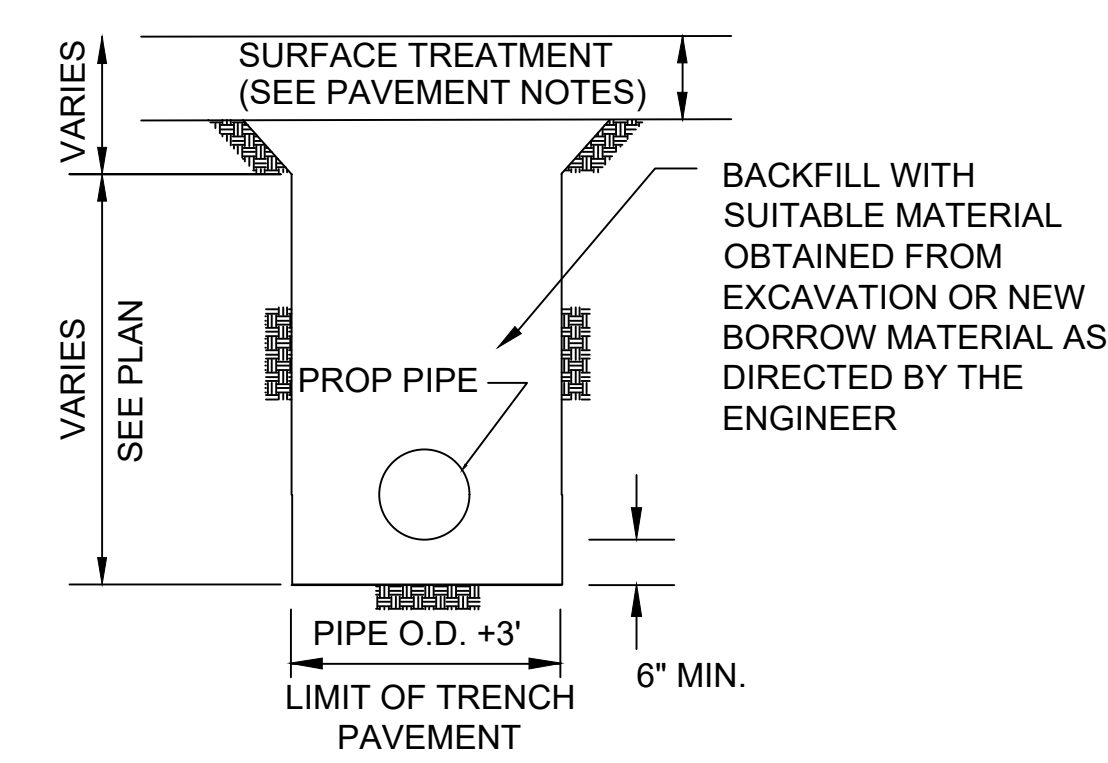


**TYPE - 2**

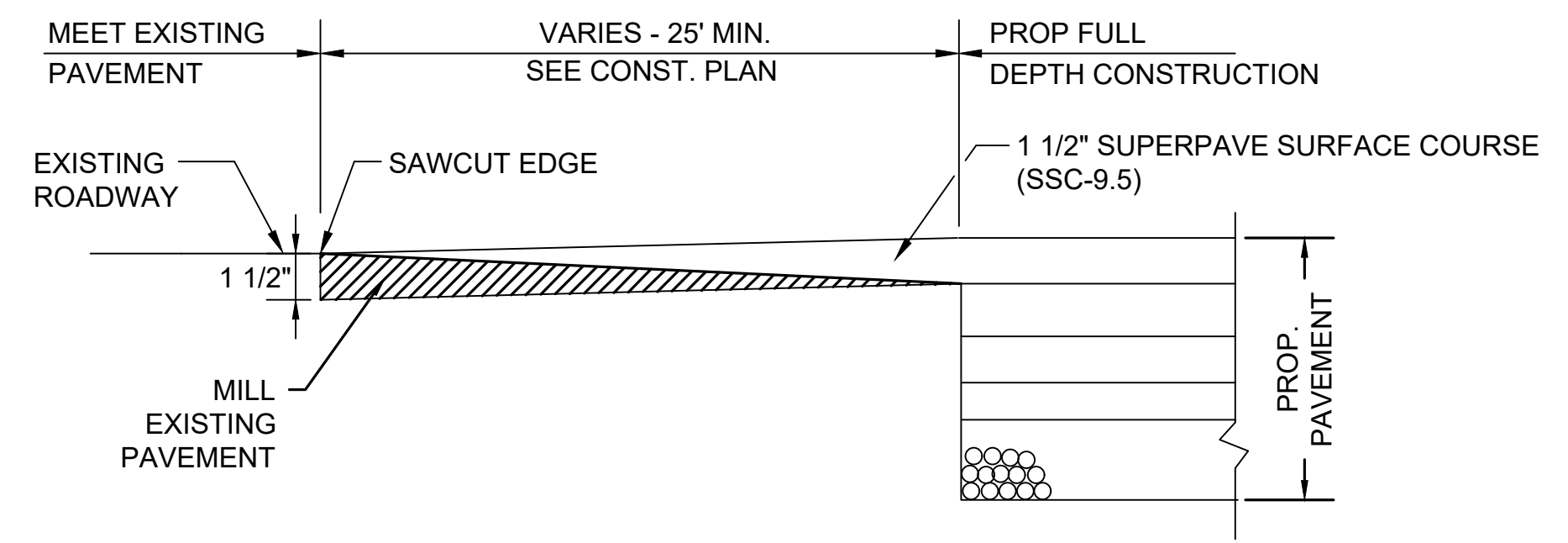


NOTE:  
\* SEE TYPICAL SECTIONS FOR PROJECT.

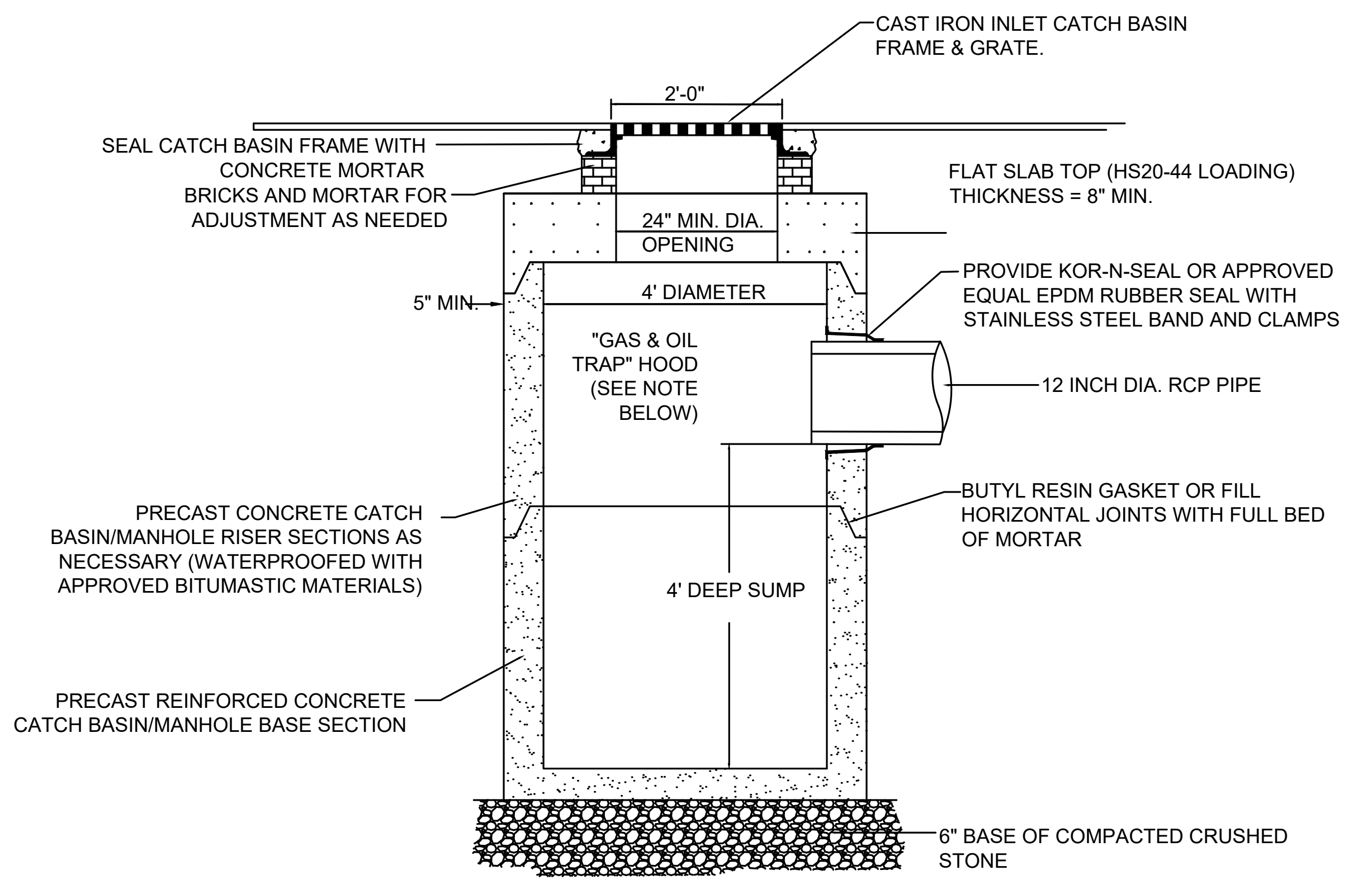
**HOT MIX ASPHALT CURB**  
NOT TO SCALE



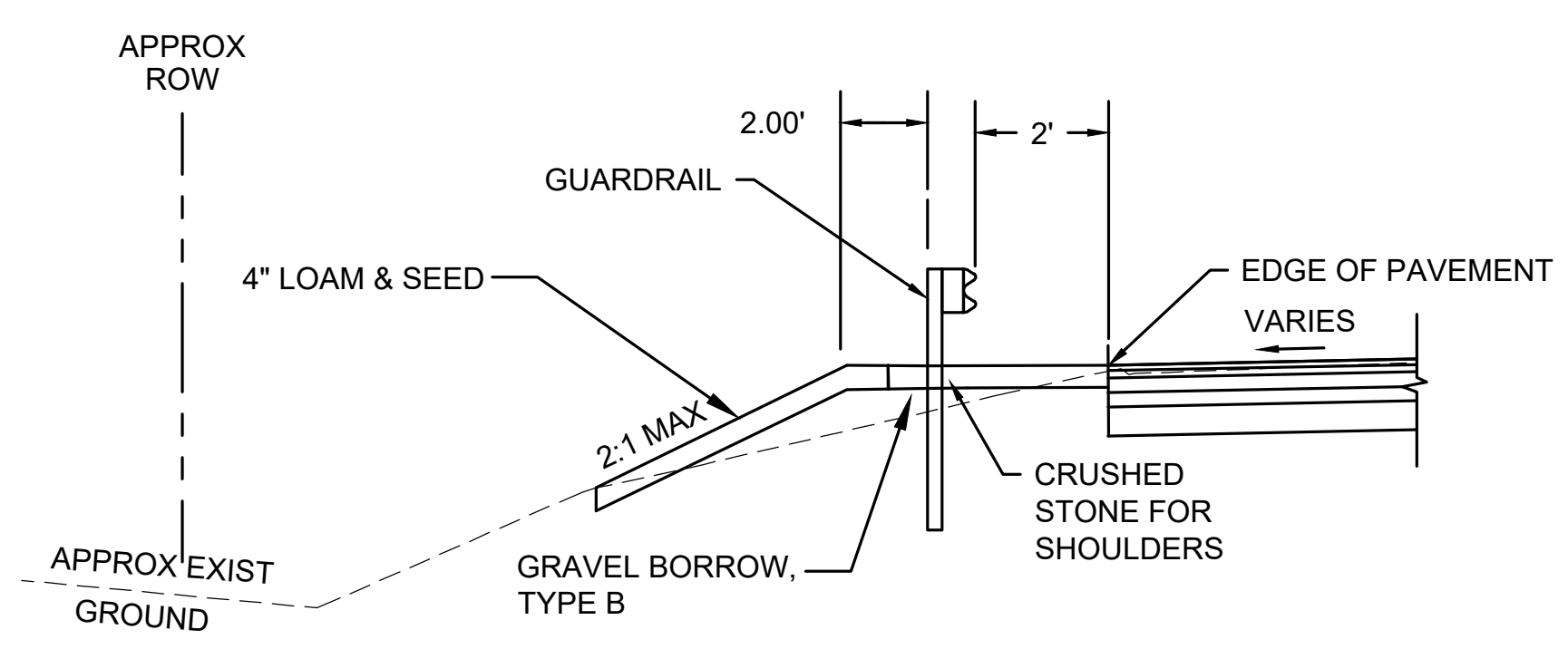
**DRAINAGE TRENCH**  
NOT TO SCALE



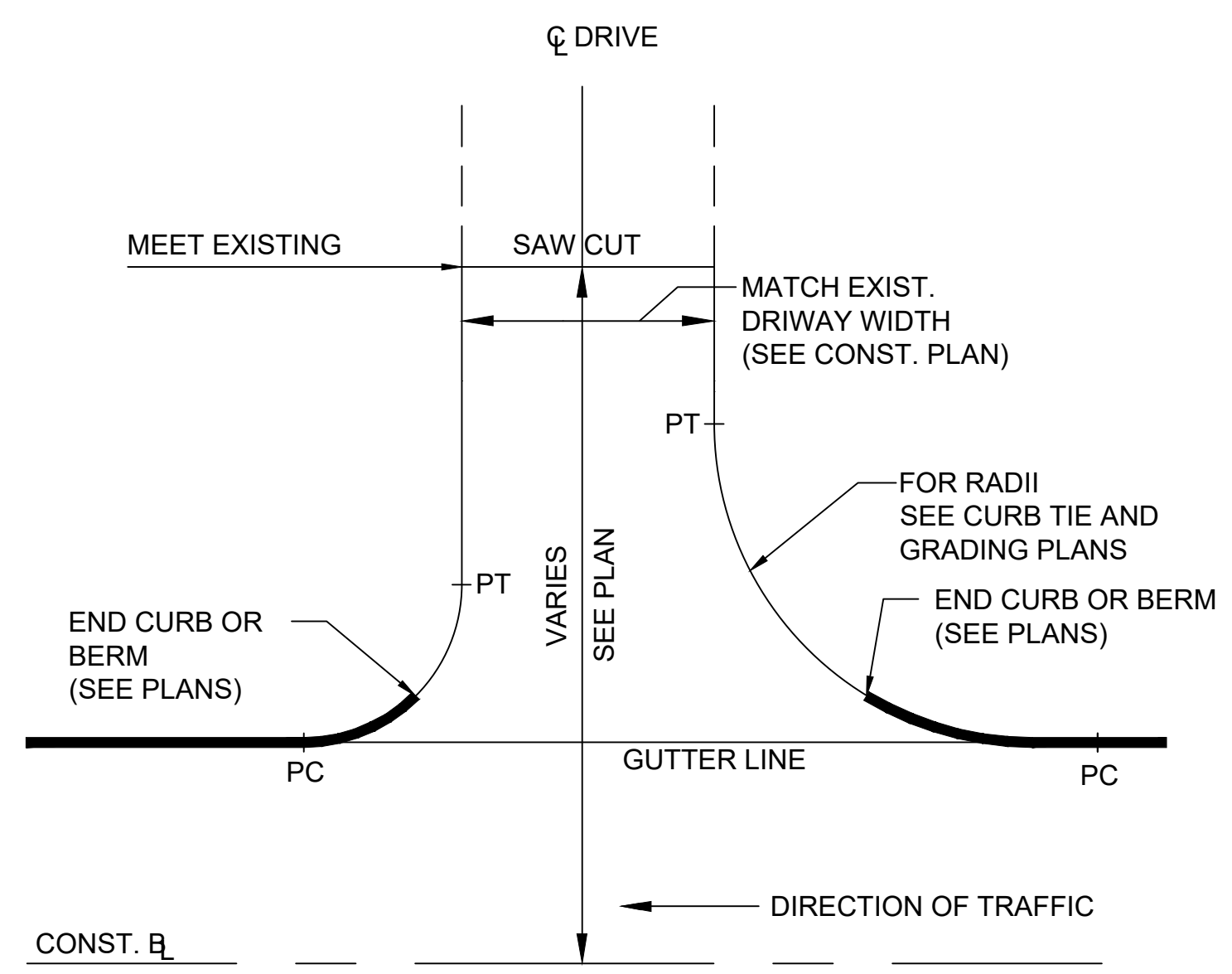
**PROPOSED PAVEMENT TRANSITION  
(LONGITUDINAL SECTION)**  
NOT TO SCALE



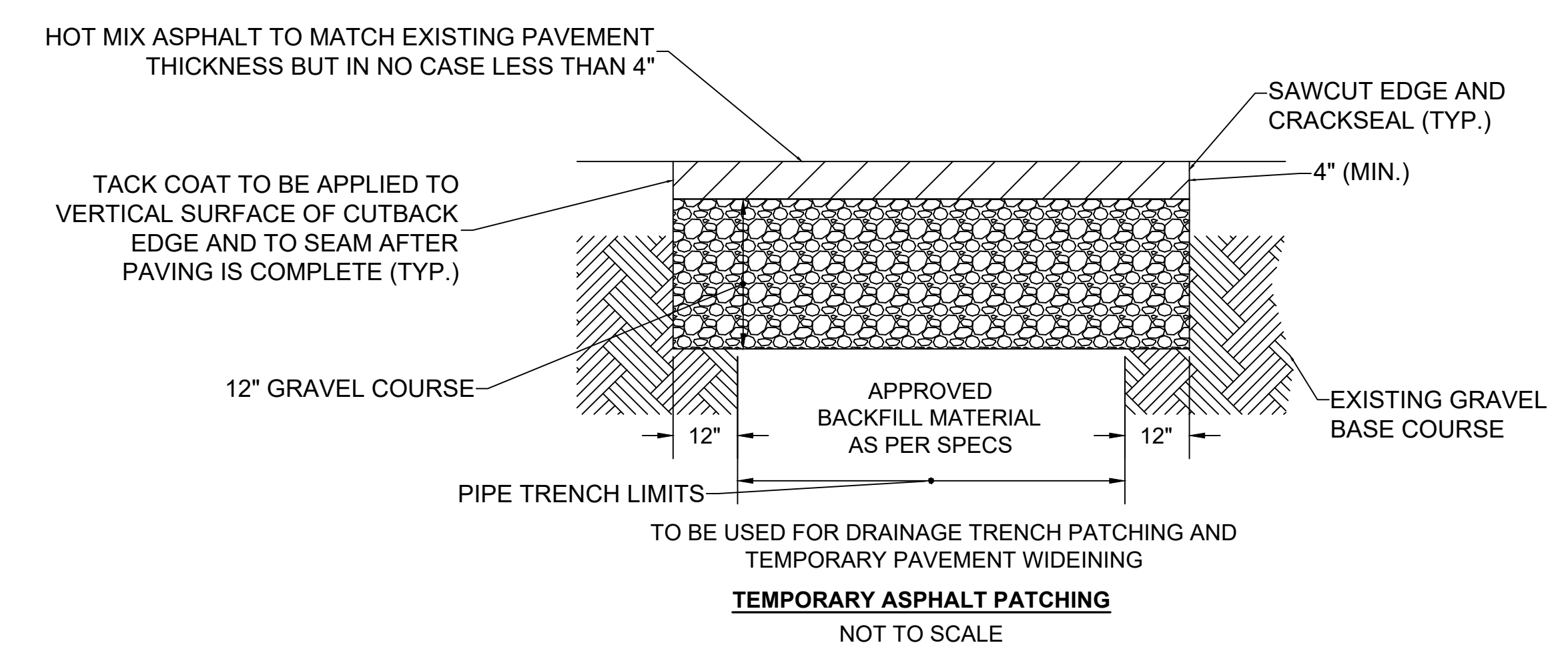
**DEEP SUMP CATCH BASIN**  
NOT TO SCALE



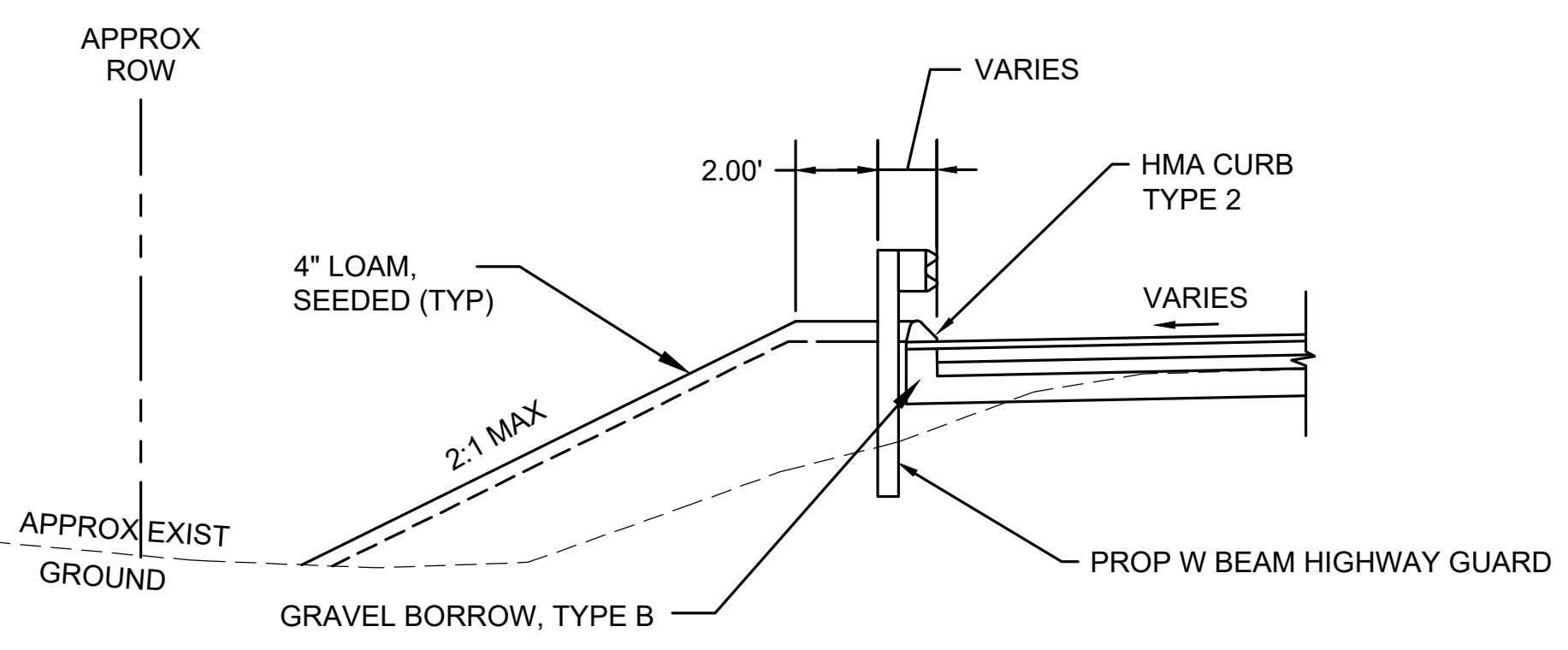
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NOT TO SCALE



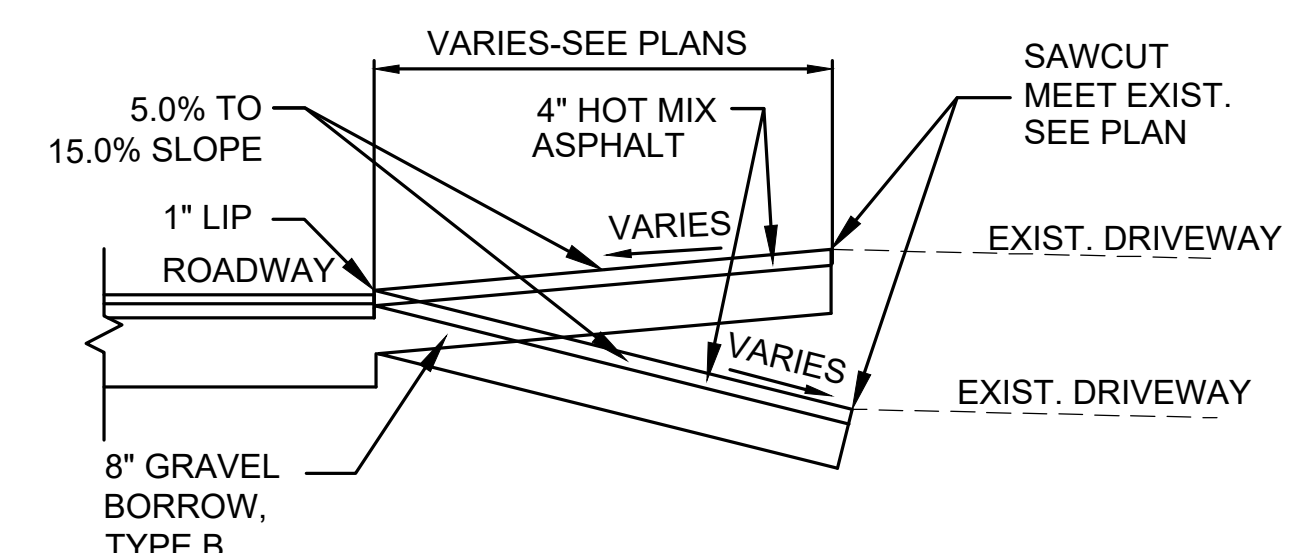
**TYPICAL HMA OR GRAVEL DRIVE ENTRANCE**  
NOT TO SCALE



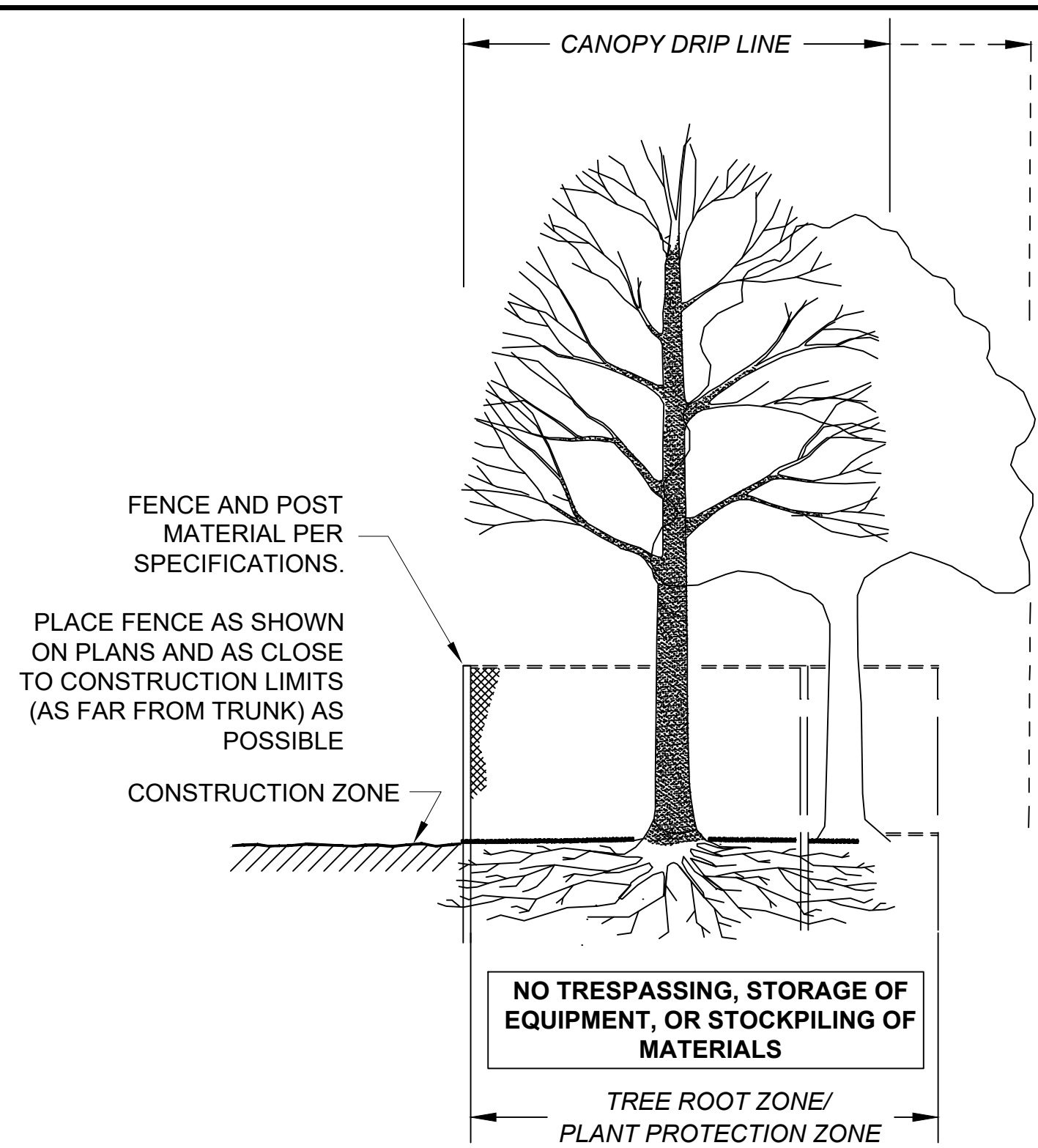
**TEMPORARY ASPHALT PATCHING**  
NOT TO SCALE



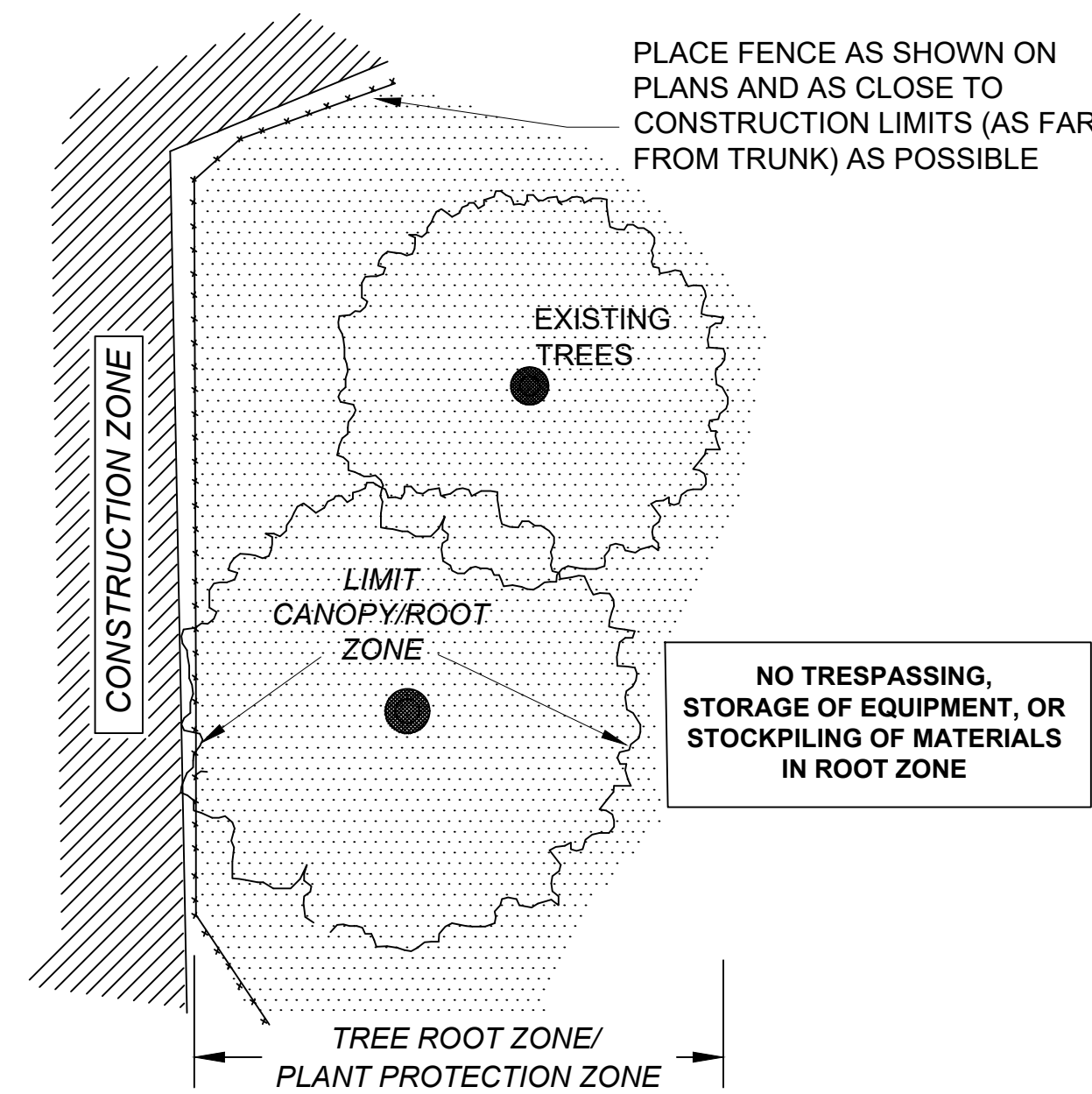
**HIGHWAY GUARD INSTALLATION DETAIL  
(WITH HMA CURB TYPE 2)**  
NOT TO SCALE



**HOT MIX ASPHALT DRIVEWAY APRON**  
NOT TO SCALE



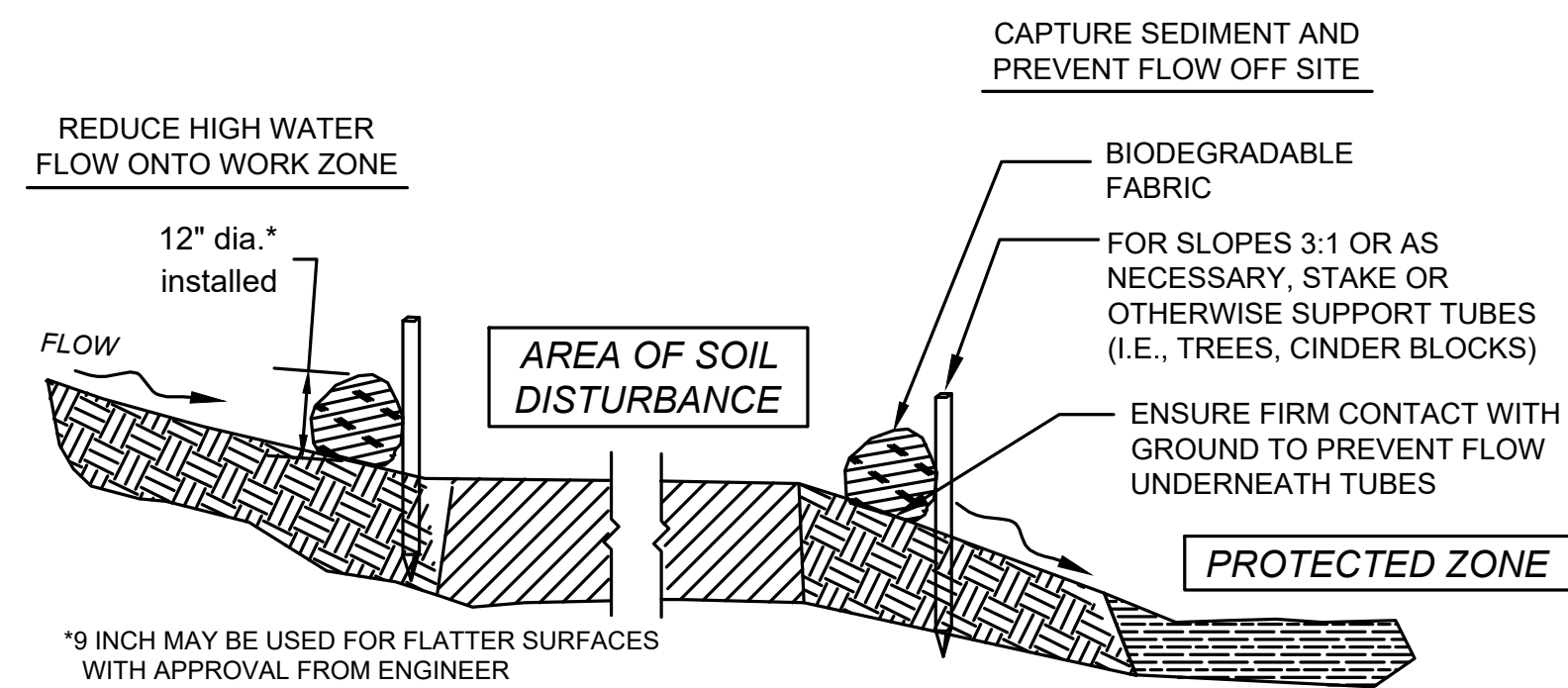
SECTION - FENCE PROTECTION OF ROOT ZONE



PLAN VIEW - FENCE PROTECTION OF ROOT ZONE

**TREE PROTECTION - ROOT ZONE**

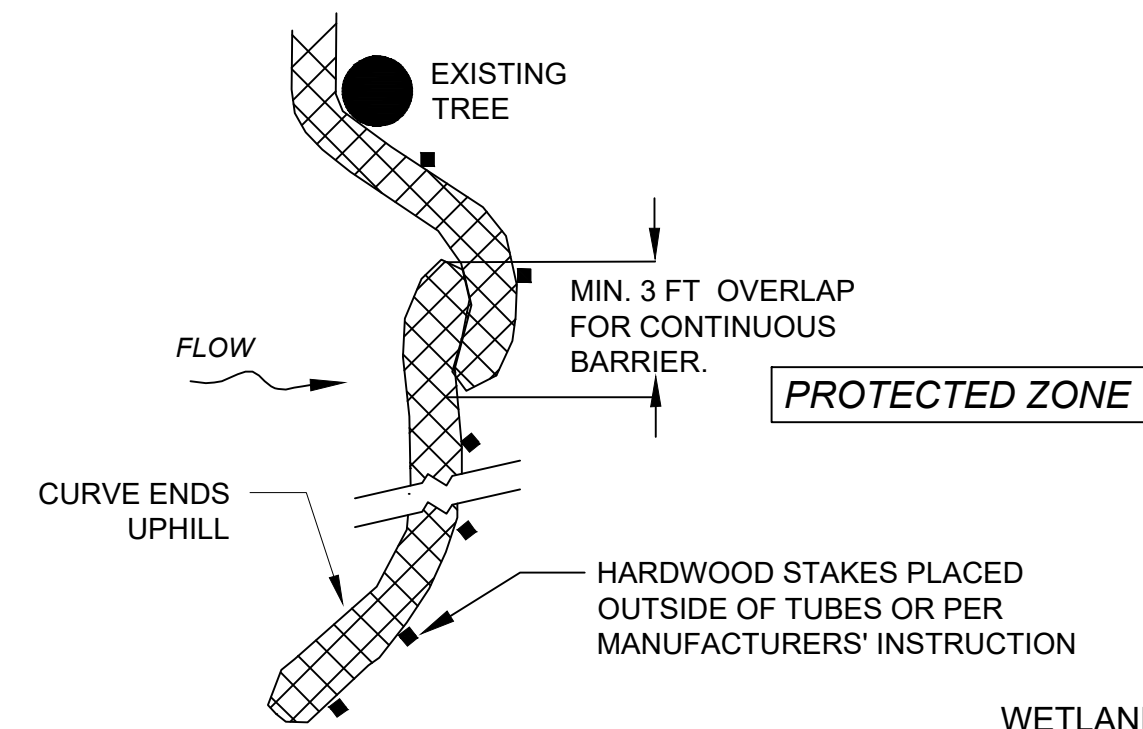
NOT TO SCALE



SECTION

**SEDIMENT BARRIER - COMPOST FILTER TUBE**

NOT TO SCALE



PLAN VIEW

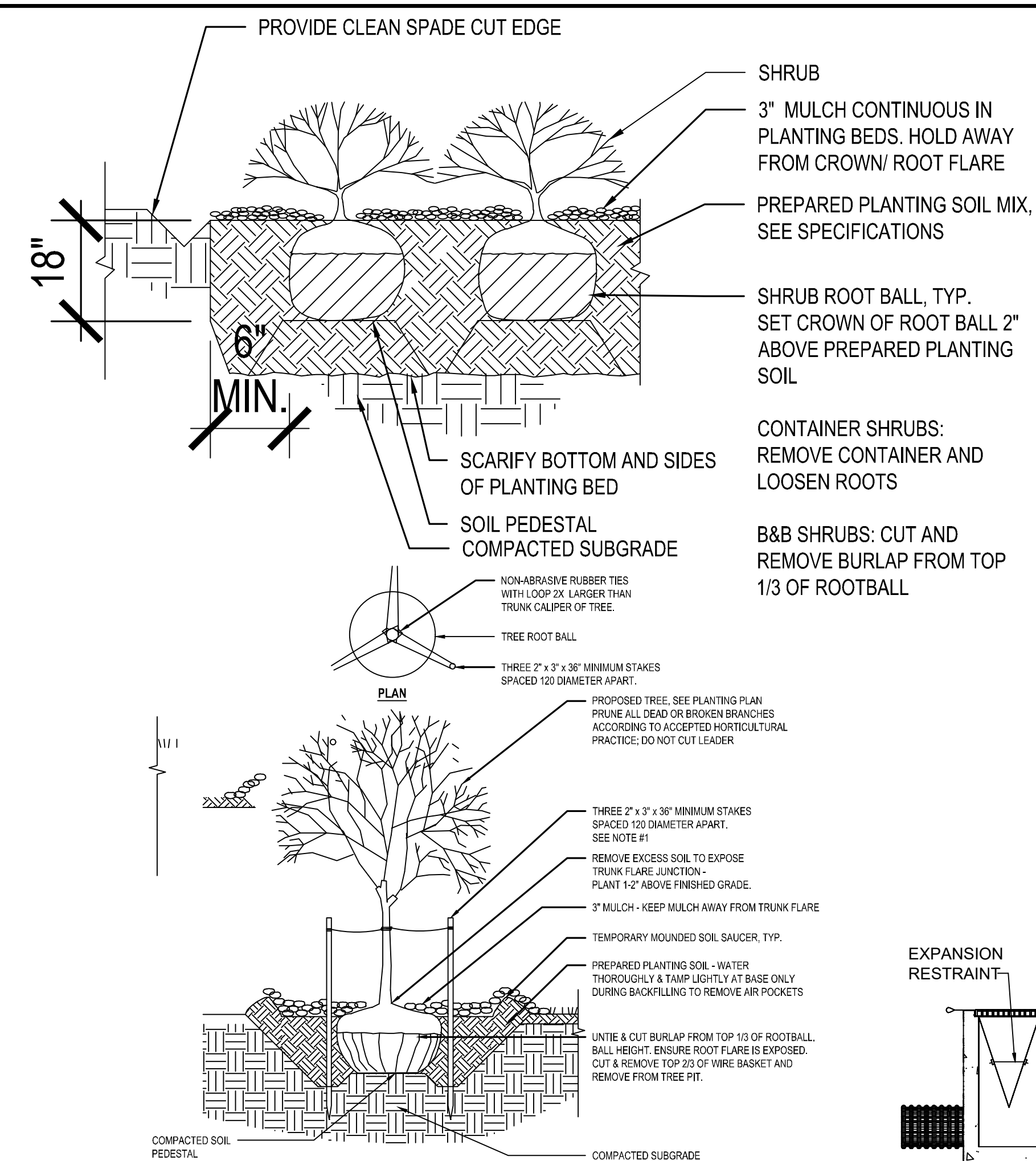
PLACE TUBE AS CLOSE TO LIMIT OF SOIL DISTURBANCE AS POSSIBLE, ALONG CONTOURS, AND PERPENDICULAR TO FLOW.  
ADJUST LOCATION AS REQUIRED FOR OPTIMUM EFFECTIVENESS. DO NOT INSTALL IN WATERWAYS.

**WETLAND SEED MIX -PART SHADE ROADSIDE MIX**

**BOTANICAL NAME**

GRASS	COMMON NAME	%PLS BY WEIGHT
FESTUCA RUBRA	CREeping RED FESCUE	25.70%
ELYMUS VIRGINICUS	VIRGINIA WILD RYE	24.00%
SCHIZACHYRIUM SCOARIUM	LITTLE BLUE STEM	22.50%
PANICUM VIRGATUM	SWITCH GRASS	10.00%
PANICUM CLANDESTINUM 'TIOGA'	DEER TOUNF 'TIOGA'	7.00%
CAREX VULPINOIDEA	FOX SEDGE	2.00%
AGROSTIS PERENNANS	UPLAND BENTGRASS	2.00%
JUNCUS EFFUSUS	SOFT RUSH	0.20%
		93.40%
CHAMAECRISTA FASCICULATA	PARTRIDGE PEA	3.00%
PENSTEMON DIGITALIS	BEARD-TONGUE	1.00%
ZIZIA AUREA	GOLDEN ALEXANDERS	0.30%
DESMODIUM CANADENSE	SHOWY TICK TREFOIL	0.3%
SOLIDAGO BICOLOR	WHITE GOLDENROD	0.20%
SOLIDAGO CAESIA	WOODLAND GOLDENROD	0.20%
RUDBECKIA HIRTA-VT ECOTYPE	BLACK-EYED SUSAN-VT ECOTYPE	0.20%
ASTER NOVAE-ANGLIAE	NEW ENGLAND ASTER	0.20%
SOLIDAGO ODORA	LICORICE SCENTED GOLDENROD	0.20%
ASTER DIVARICATUS	WHITE WOOD ASTER	0.20%
HELIOPSIS HELIANTHOIDES	OX-EYE SUNFLOWER	0.20%
PYCANTHEMUM TENUIFOLIATUM	SLENDER MOUNTAIN MINT	0.20%
MONARDA FISTULOSA	WILD BERGAMONT	0.10%
EUPATORIUM PERFOLIATUM	BONESET	0.10%
ASTER LATERIFLORUS	CALICO ASTER	0.10%
OENOTHERA FRUTICOSA VAR. FRUTICOSA	SUNDROPS	0.10%
		6.60%
		100.00%

SEED RATING:  
APPLY THIS MIX AT 15 LBS PLS/ACRE.



- NOTES:**
- CONTRACTOR IS RESPONSIBLE FOR KEEPING THE TREE UPRIGHT AND PLUMB IN ALL DIRECTIONS. DO NOT STAKE TREES EXCEPT WHERE SPECIFIED. STAKE ALL TREES UNLESS SPECIFIED.
  - IF STAKING IS SPECIFIED PROVIDE:  
3" CAL. OR LESS- PROVIDE 2 STAKES MINIMUM  
3" CAL. OR GREATER, PROVIDE 3 STAKES MINIMUM  
OR AS DIRECTED BY LANDSCAPE ARCHITECT
  - REMOVE STAKES AT END OF YEAR 1, UNLESS SPECIFIED BY LANDSCAPE ARCHITECT

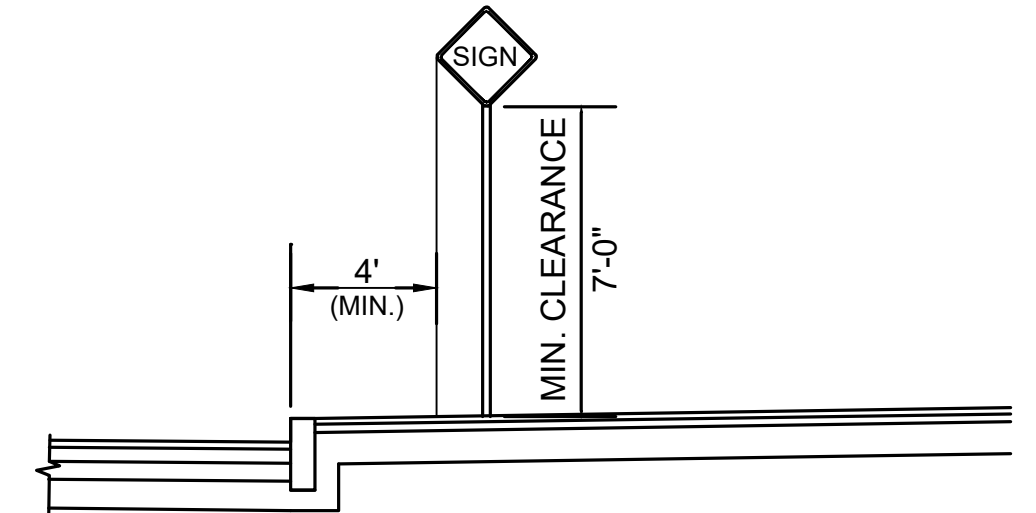
**TREE AND SHRUB INSTALLATION**

NOT TO SCALE

**WALES  
MONSON ROAD**

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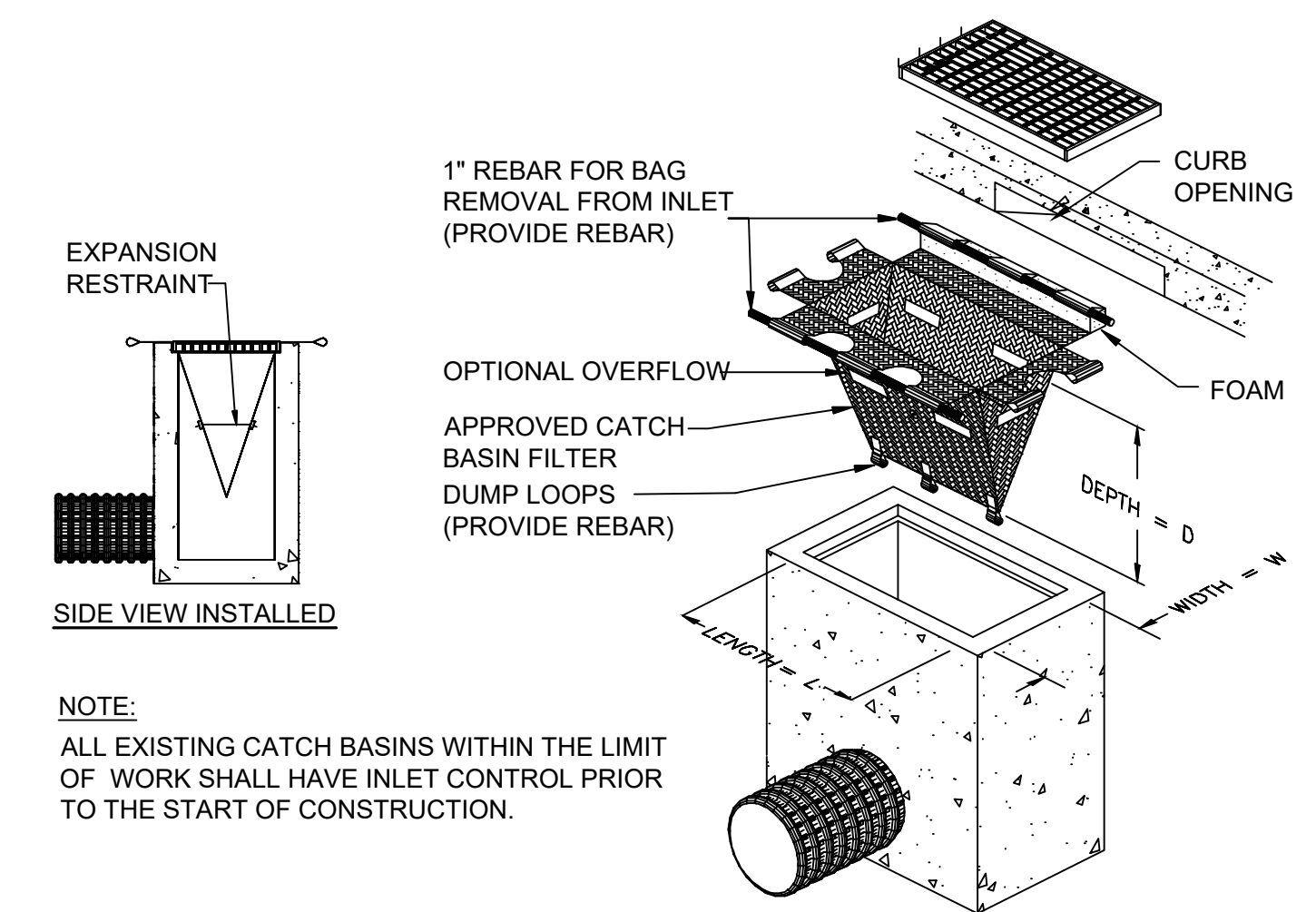
**CONSTRUCTION DETAILS**



- NOTES:**
- CHEVRON SIGNS (W1-8) SHOULD BE INSTALLED WITH 4' VERTICAL CLEARANCE FROM BOTTOM OF SIGN TO THE ELEVATION NEAR THE EDGE OF THE TRAVEL WAY.

**TRAFFIC SIGN PLACEMENT DETAIL**

NOT TO SCALE



**INLET SEDIMENT CONTROL**

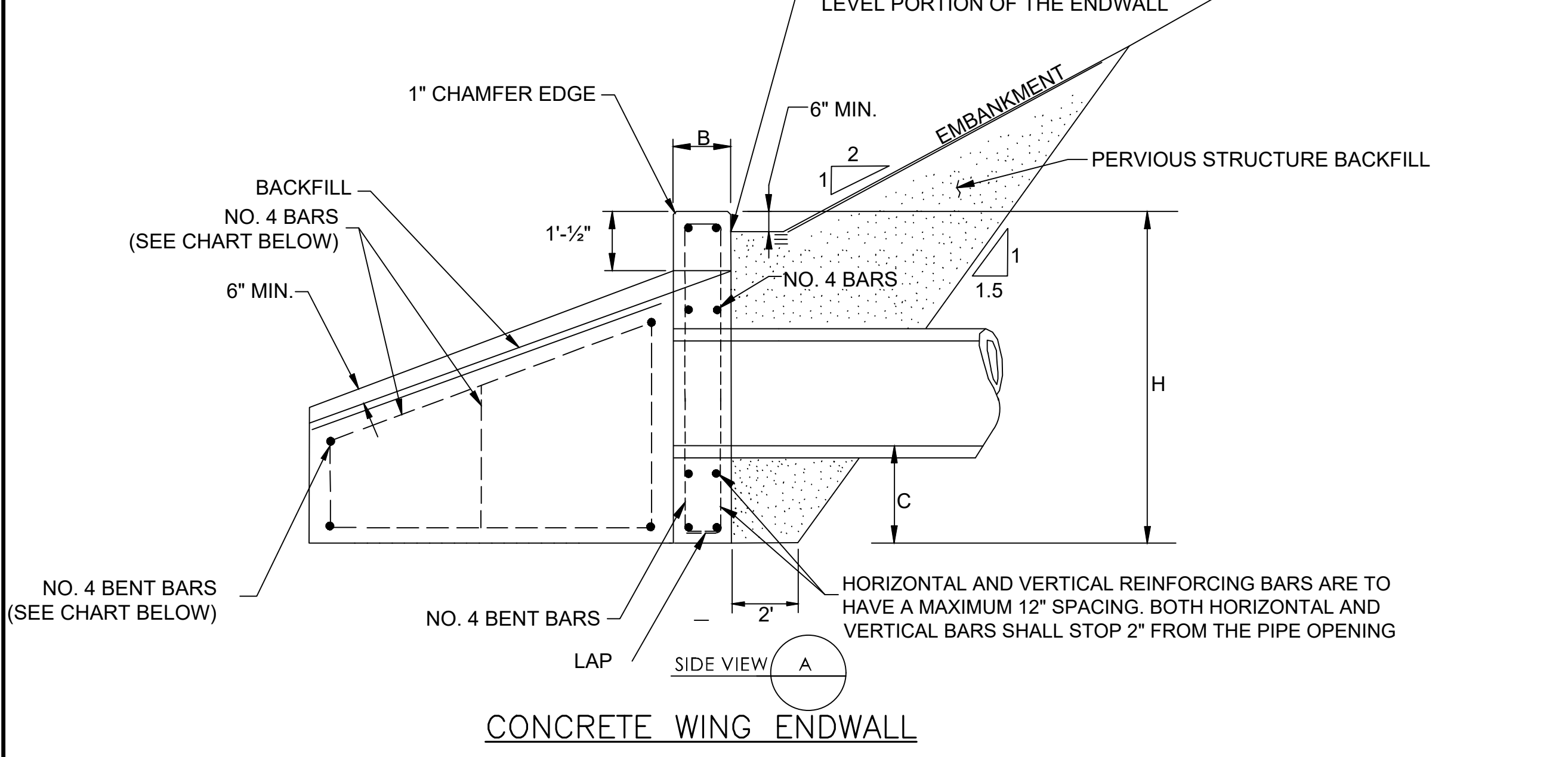
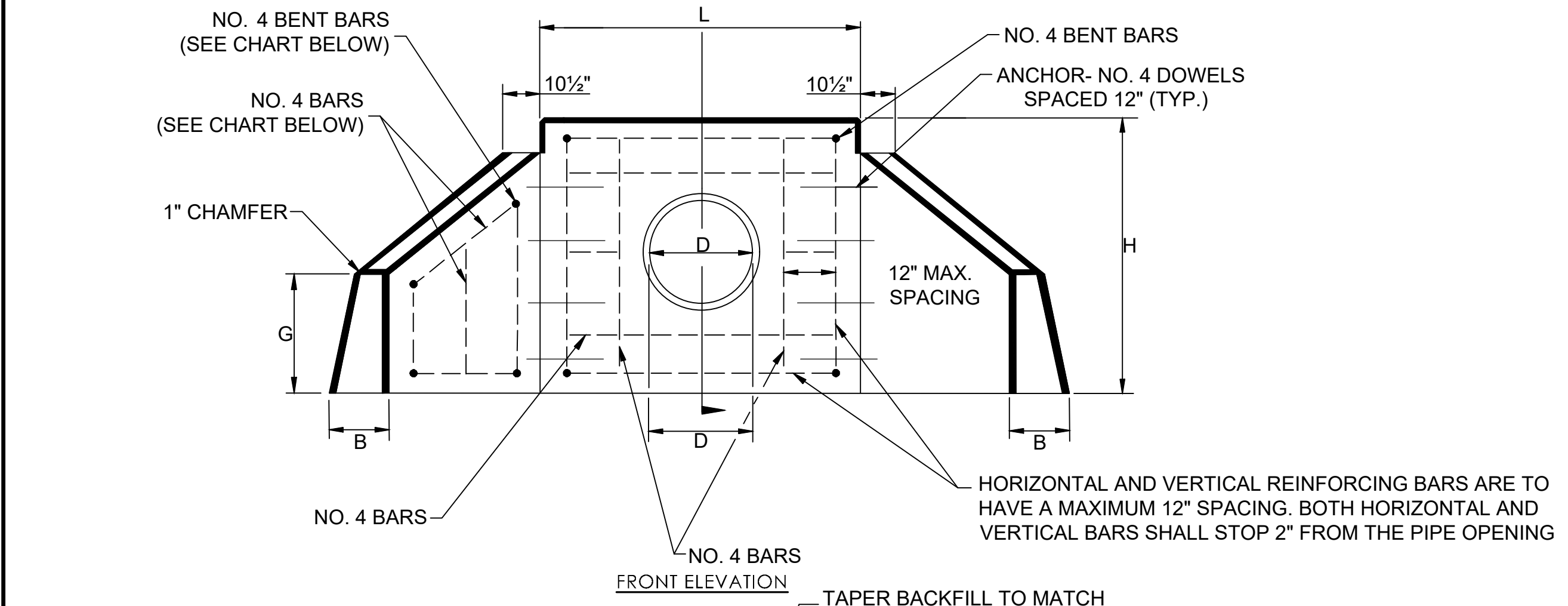
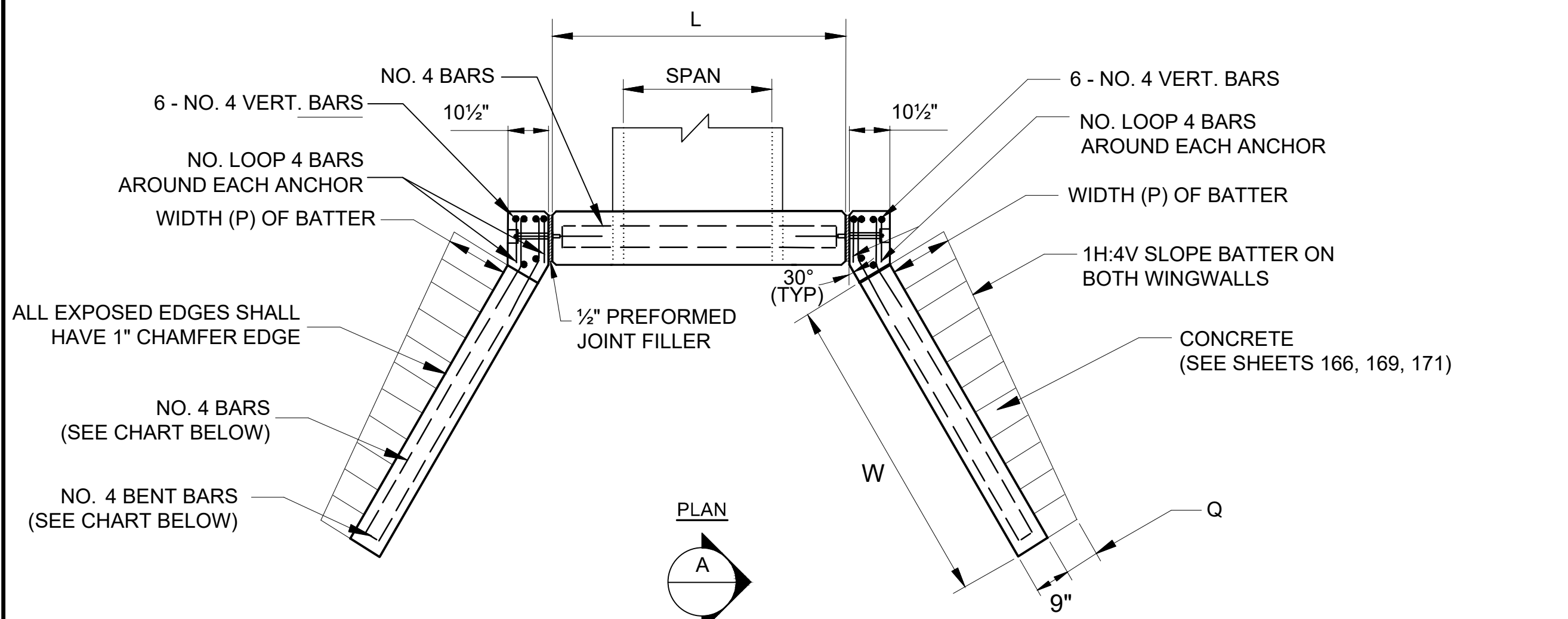
NOT TO SCALE

**CONSTRUCTION SPECIFICATIONS ON SILTATION & EROSION CONTROL**

- EROSION CONTROL MEASURES SHALL BE INCORPORATED IN THE SEQUENCE OF CONSTRUCTION TO PREVENT SEDIMENT LADEN WATER FROM LEAVING THE SITE.
- AREAS SUBJECT TO EROSION SHALL BE MINIMIZED IN TERMS OF TIME AND AREA.
- IN GENERAL, WORK REQUIRING EROSION CONTROL INCLUDES EXCAVATIONS, FILLS, DRAINAGE, SWALES AND DITCHES, ROUGH AND FINISH GRADING, AND STOCKPILING OF EARTH.
- DO NOT DISTURB VEGETATION AND TOPSOIL BEYOND THE PROPOSED LIMIT OF EROSION CONTROL BARRIERS (MULCH TUBE) ACTIVITIES.
- TEMPORARY SILT CONTROLS SHALL BE PLACED AS SHOWN ON THE PLAN. PERMANENTLY STABILIZE EACH COMPLETED SEGMENT OF CONSTRUCTION.
- THE CONTRACTOR SHALL REMOVE TEMPORARY SILT CONTROLS AND ALL ACCUMULATED SILT AND DEBRIS AFTER COMPLETION OF CONSTRUCTION OPERATIONS.
- SILT CONTROLS SHALL BE IN PLACE AT ALL TIMES DURING CONSTRUCTION.
- THE CONTRACTOR SHALL REMOVE AND LEGALLY DISPOSE OF ALL SILT AND DEBRIS FROM EACH DRAINAGE STRUCTURE UPON COMPLETION OF THE PROJECT.
- OBJECTS AND/OR AREAS DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION.
- ALL DISTURBED AREAS SHALL BE RESTORED TO EXISTING GRADE. INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE AS NEEDED.
- SILT CONTROLS SHALL BE REMOVED UPON THE SATISFACTORY COMPLETION OF ALL WORK SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
- SITE PERIMETER SHALL HAVE COMPOST FILTER TUBES INSTALLED AT THE LIMIT OF WORK.

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**CONSTRUCTION DETAILS**

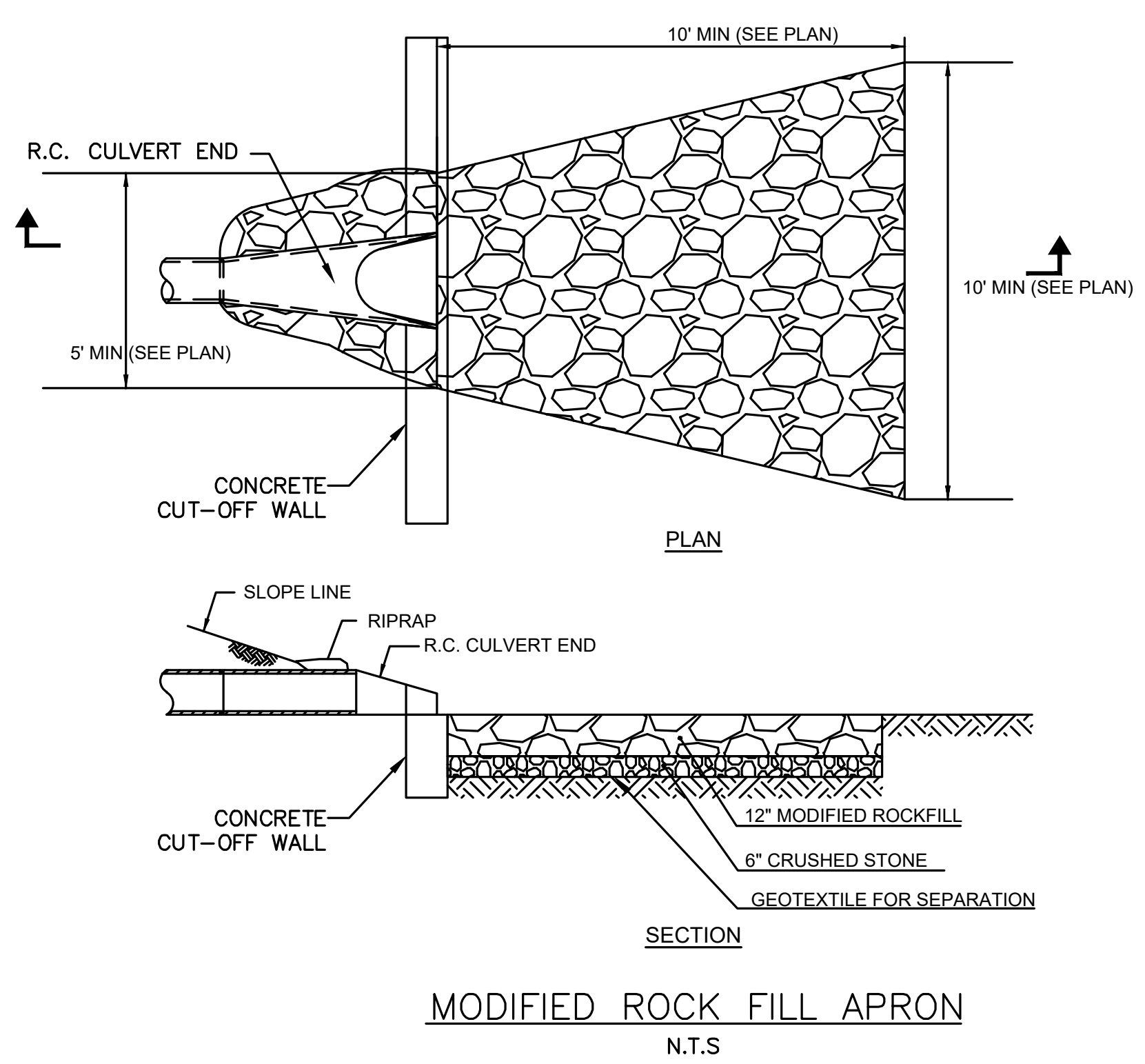
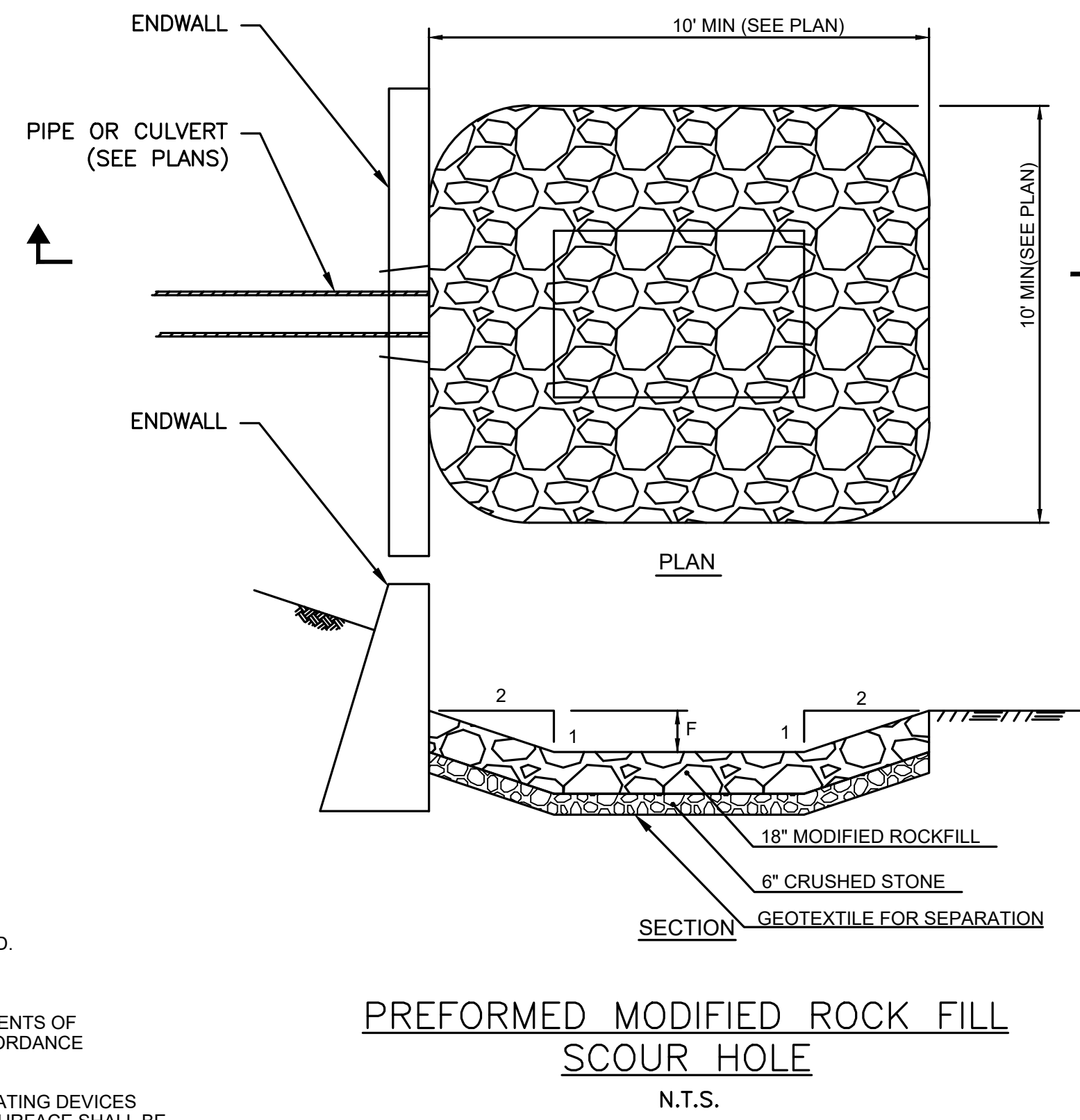
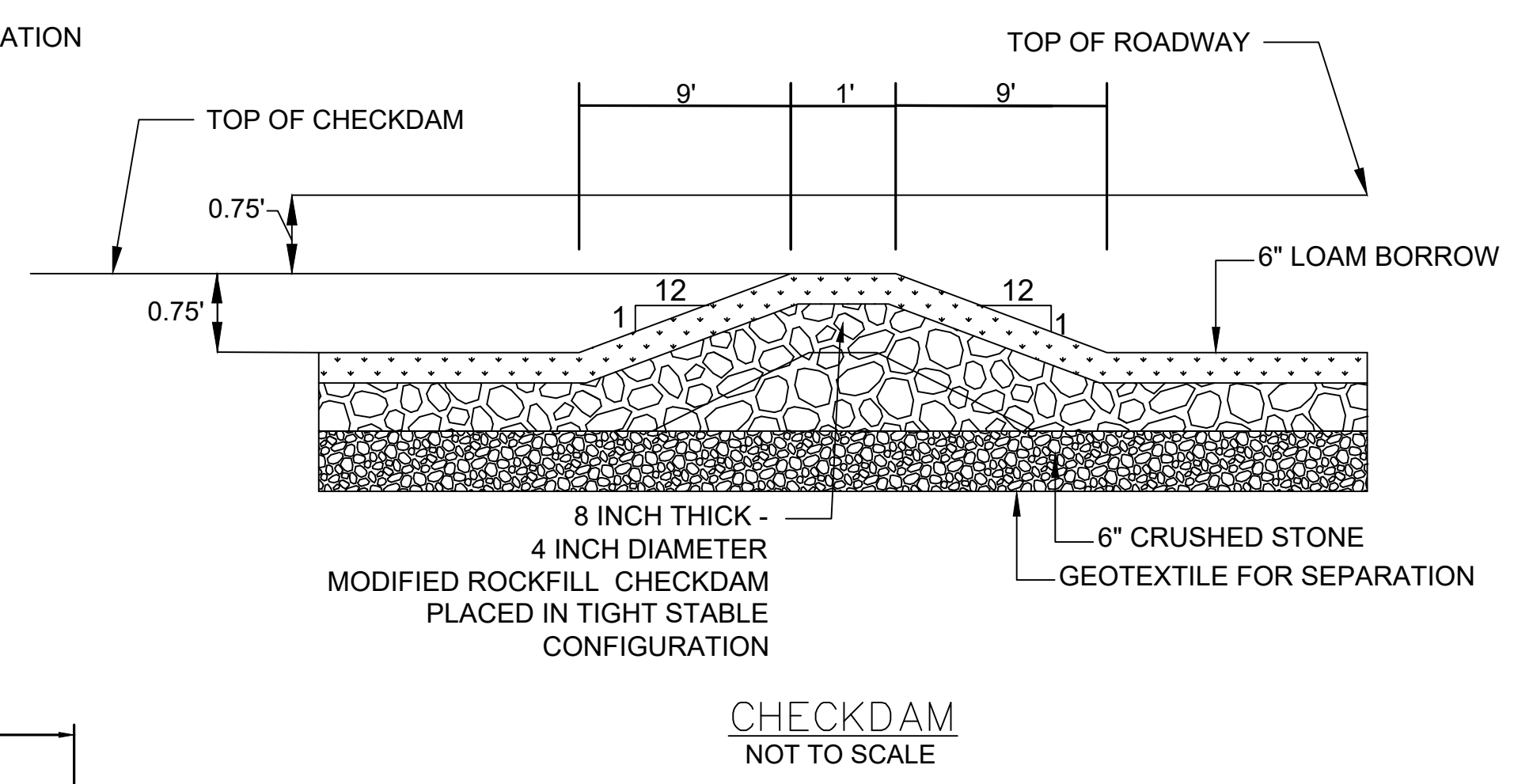
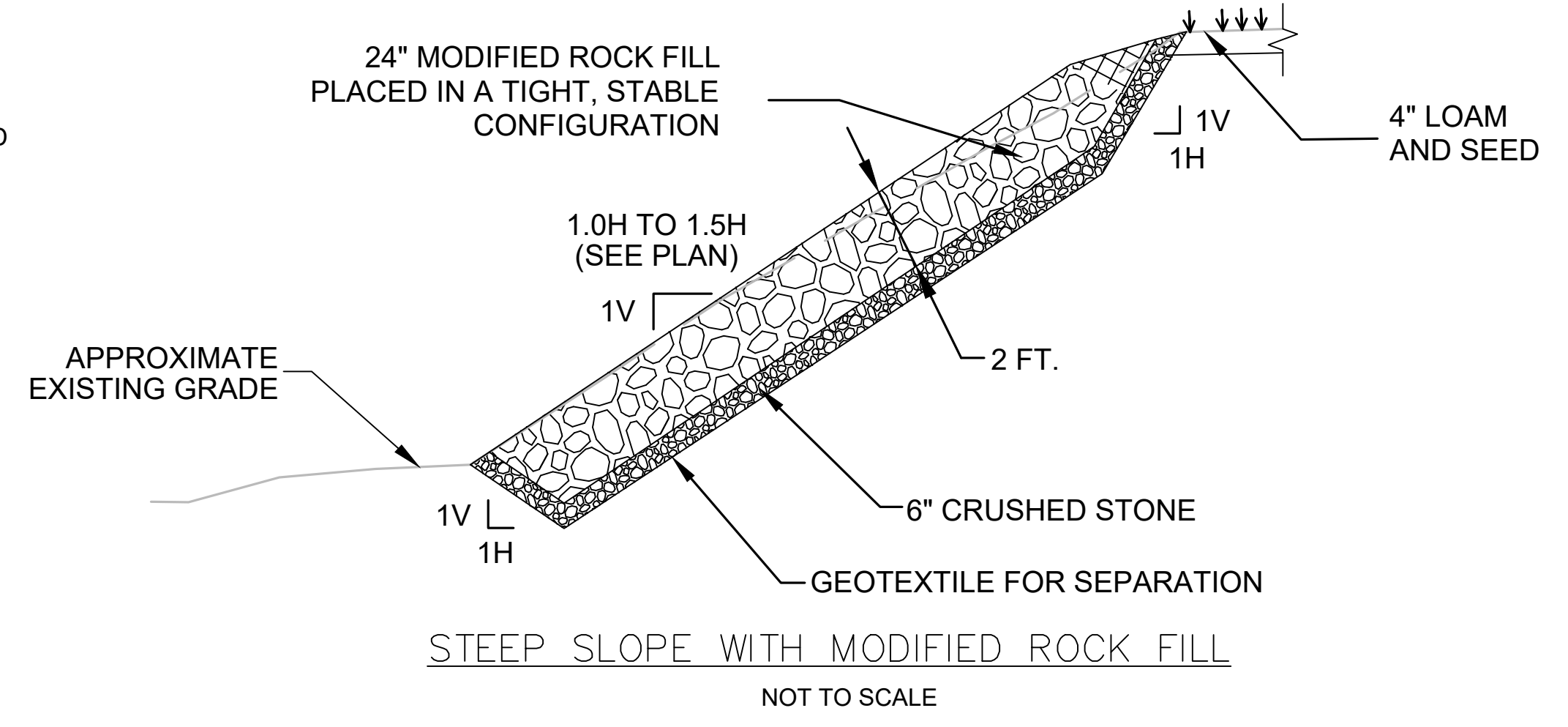
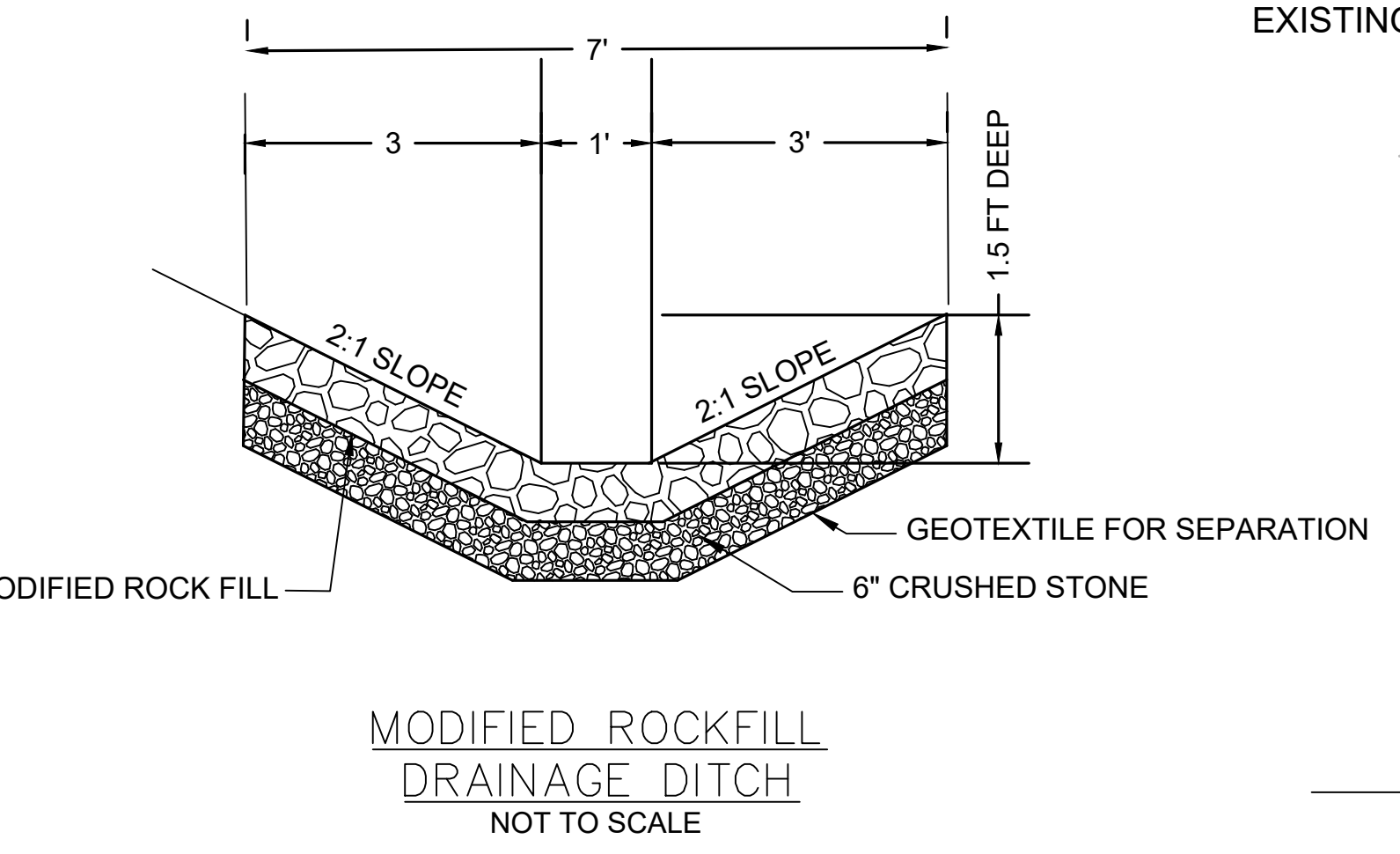
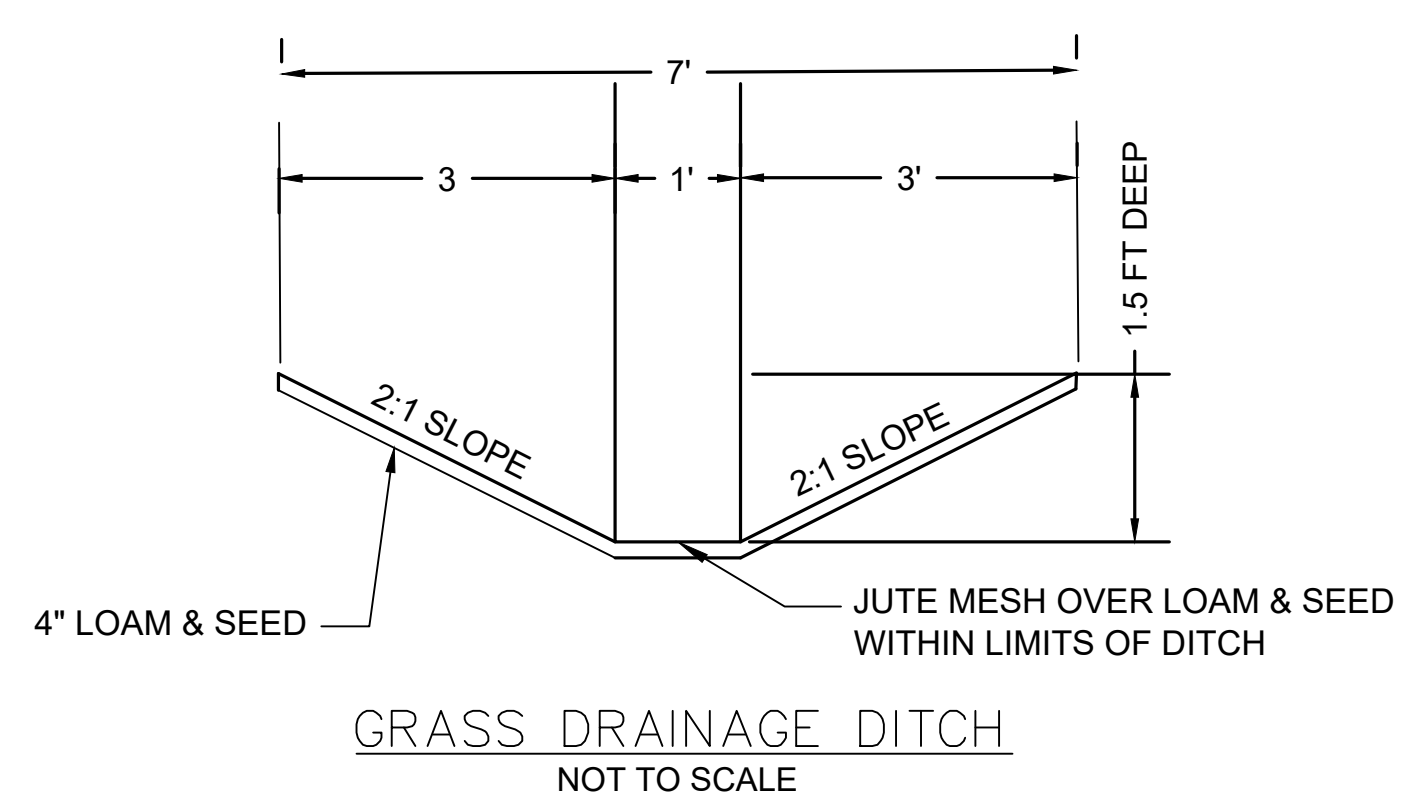


WING ENDWALL DIMENSIONS ONLY (SEE NOTE # 4 FOR STRAIGHT ENDWALL COMPONENT INFORMATION)									
CONCRETE									
DIAMETER (D)	BASE TO INVERT (B)	DEPTH OF CUTOFF WALL (C)	HEIGHT OF WINGWALL (G)	TOTAL HEIGHT (H)	LENGTH OF BATTER (L)	WIDTH OF BATTER AT ENDPOINT (P)	WIDTH OF BATTER AT ENDPOINT (Q)	TAPERED WINGWALL LENGTH (W)	VOLUME (C.Y.)
12"	1'-3"	2'-0"	2'-0"	4'-6"	4'-6"	0'-10 1/4"	0'-6"	2'-11"	1.8

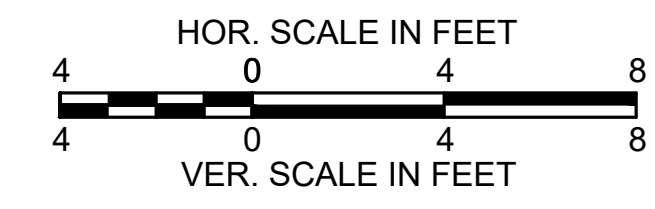
  

WINGWALL STEEL REINFORCEMENT			
DIAMETER (D)	NO. 4 BENT BARS	NO. 4 BARS	THREADED ROD CONNECTIONS PER WINGWALL
IN.	EA.	EA.	EA.
12"	4	8	3

- GENERAL NOTES:**
1. ALL REINFORCING BARS SHALL HAVE 2" COVER MIN.
  2. ALL REINFORCING BARS ARE TO BE TIED AND NOT WELDED.
  3. WET SETTING OF ANY STEEL IS NOT PERMITTED.
  4. REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM A615, GRADE 60 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A767, CLASS 1.
  5. WHEN USING PRECAST ALL PORTIONS OF LIFTING AND SEATING DEVICES THAT EXTEND TO OR BEYOND THE FINISHED CONCRETE SURFACE SHALL BE REMOVED. ALL FIXTURES OR HOLES CAST INTO THE SECTIONS FOR LIFTING OR SEATING SHALL BE COMPLETELY FILLED WITH NON-SHRINK GROUT AND FINISHED SMOOTH AND FLUSH WITH THE ADJACENT CONCRETE SURFACE.
  6. NON-SHRINK GROUT SHALL CONFORM TO SECTION M4. THE NON-SHRINK GROUT SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI PRIOR TO ALLOWING THE PASSAGE OF WATER OVER THE GROUT.





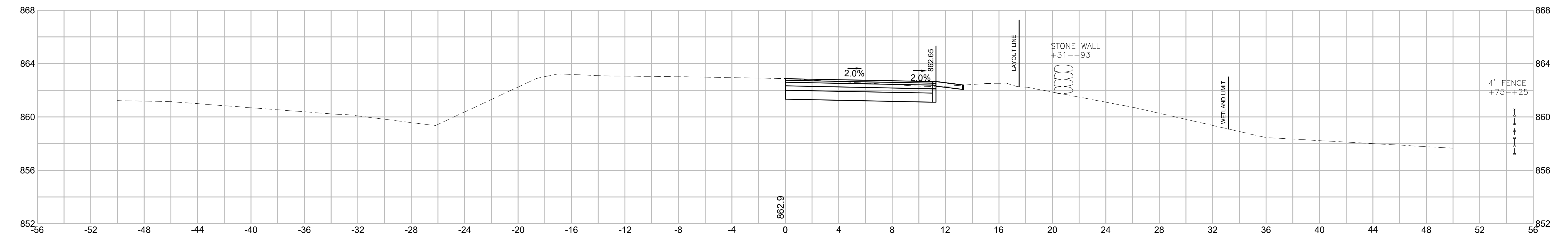


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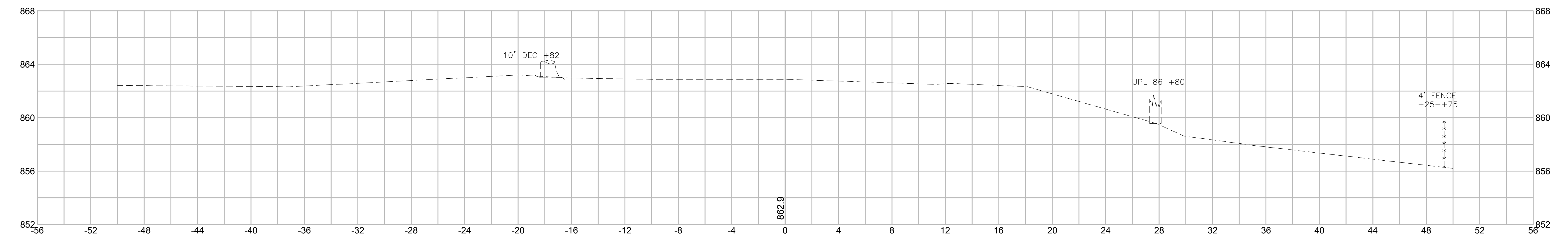
**CROSS SECTIONS**

11+00

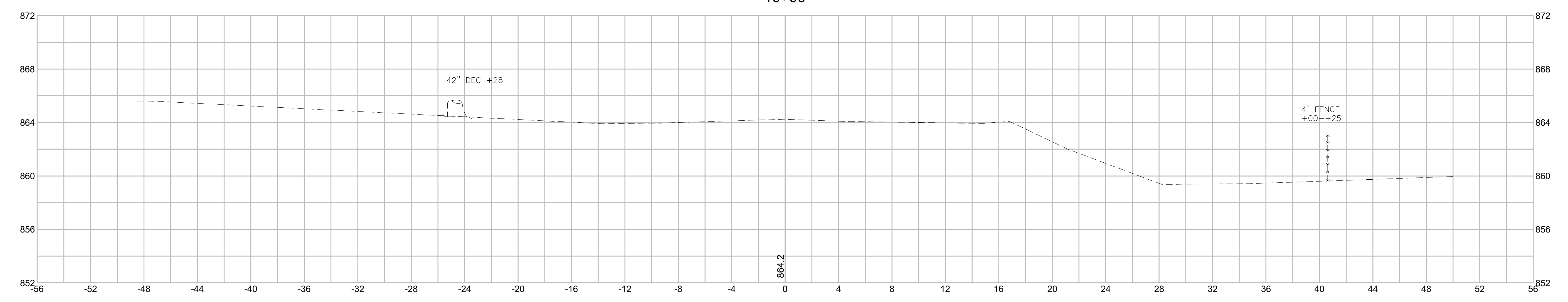


Cut: 47.3 S.F  
 Fill: 0.01 S.F

10+50



10+00

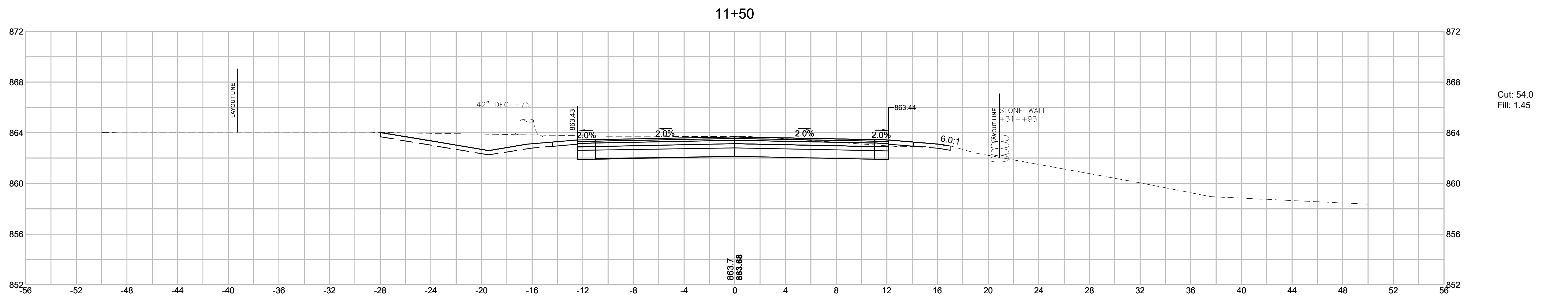
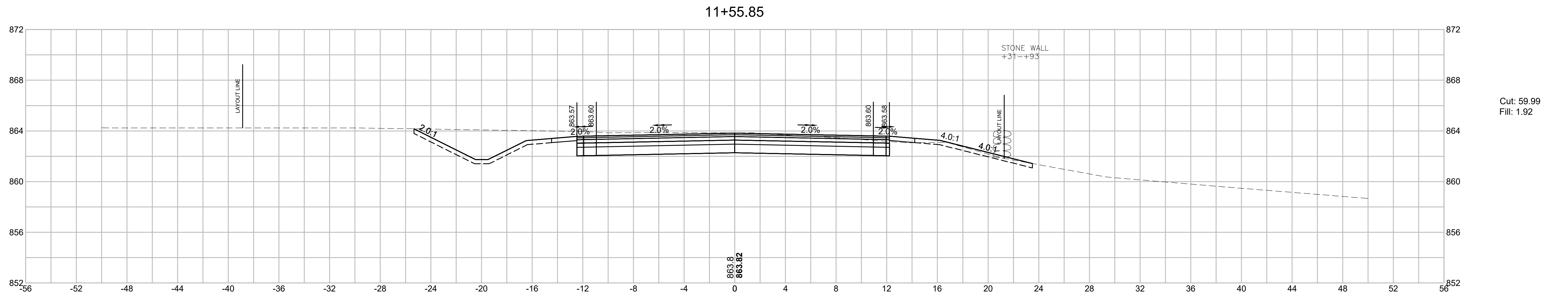
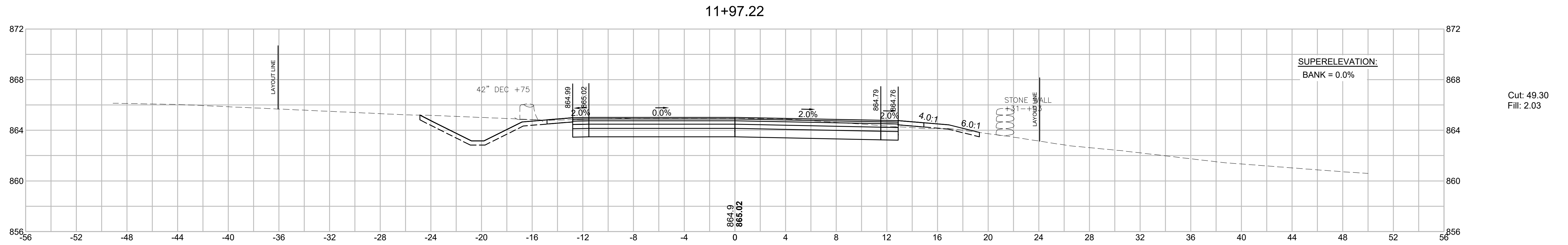
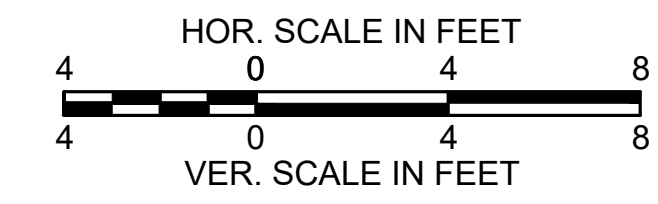


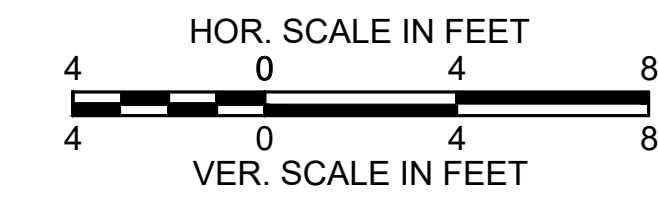


**WALES  
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STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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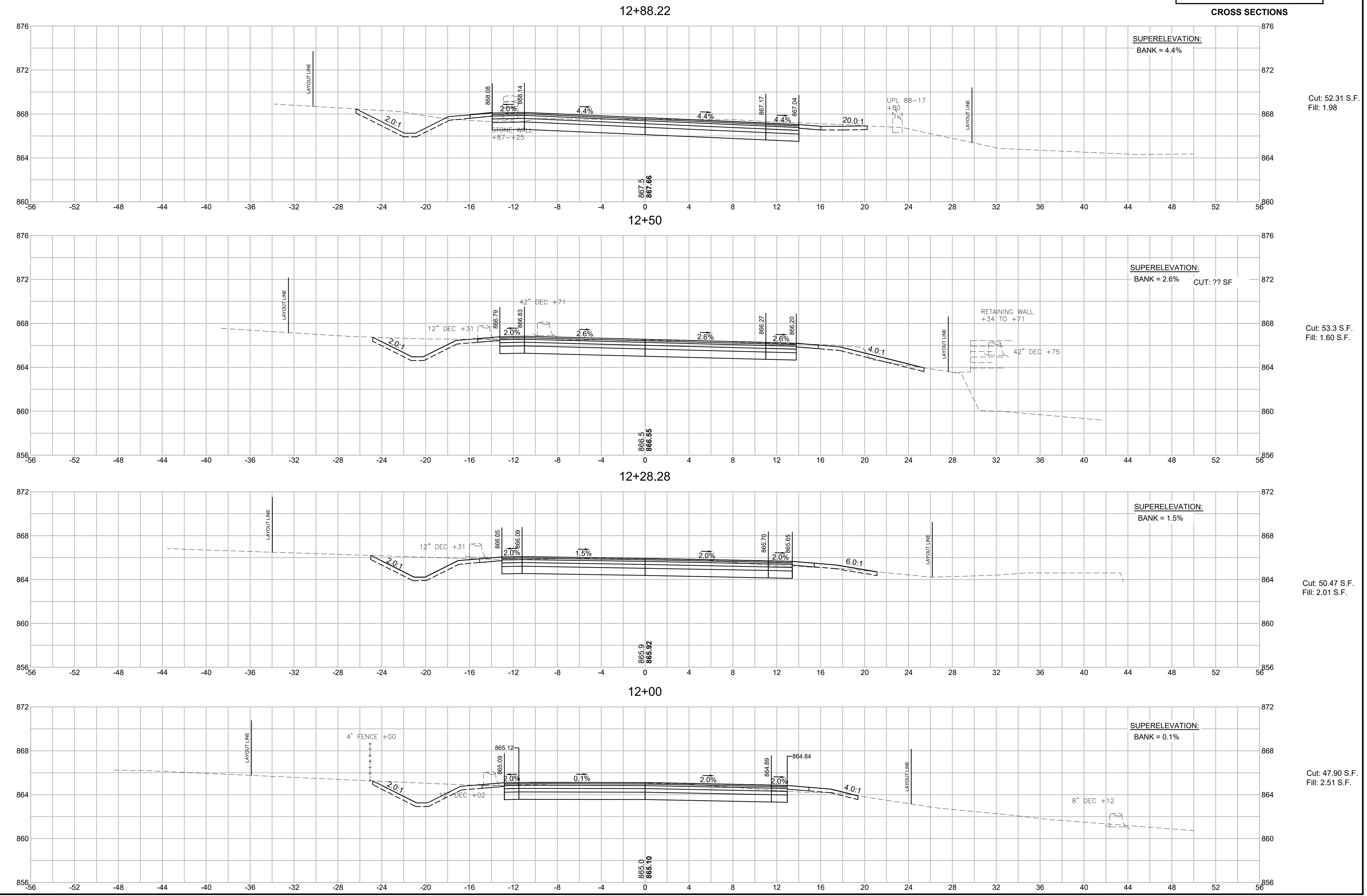
**CROSS SECTIONS**





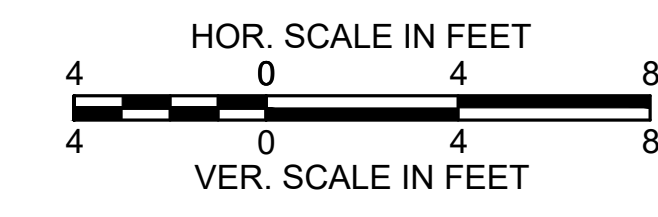
WALES MONSON ROAD			
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**CROSS SECTIONS**

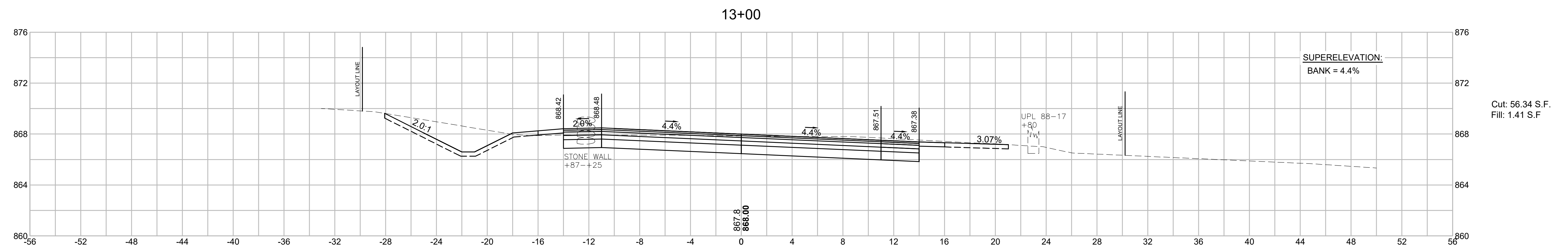
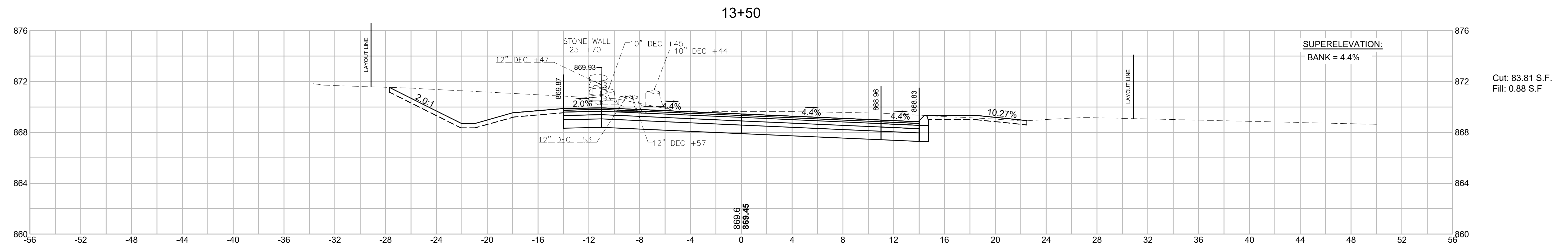
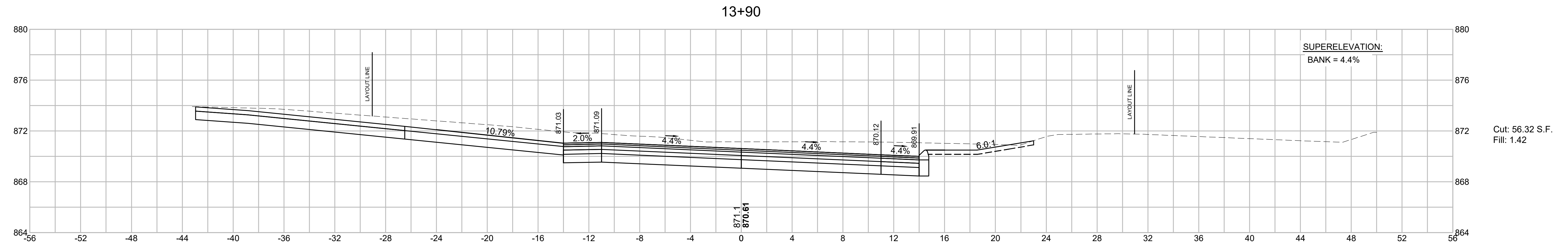


**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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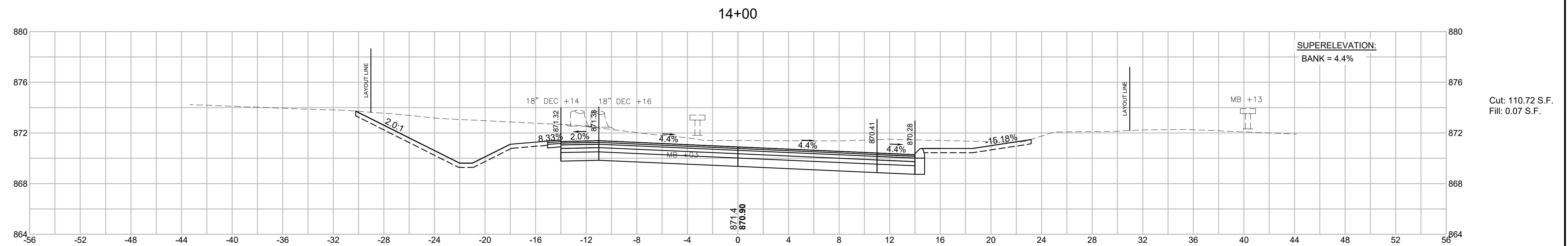
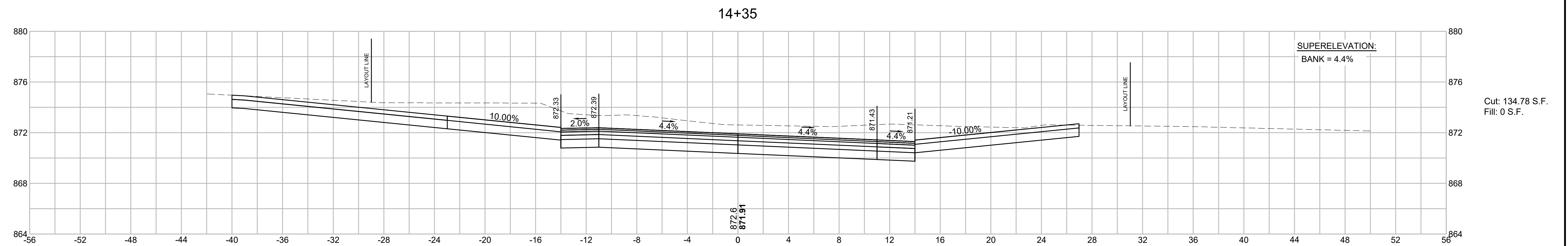
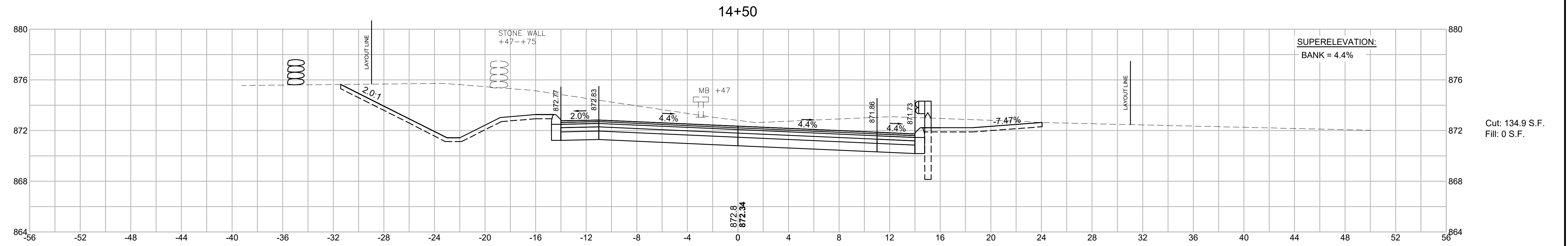
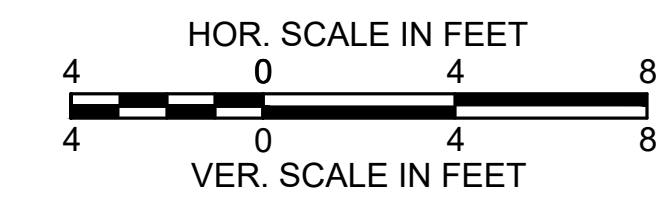
**CROSS SECTIONS**



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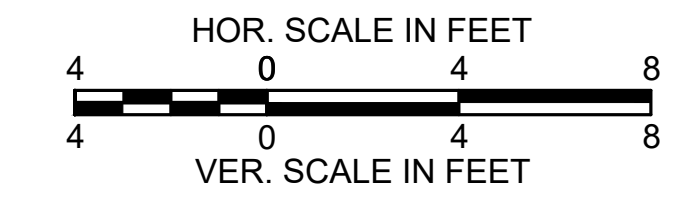
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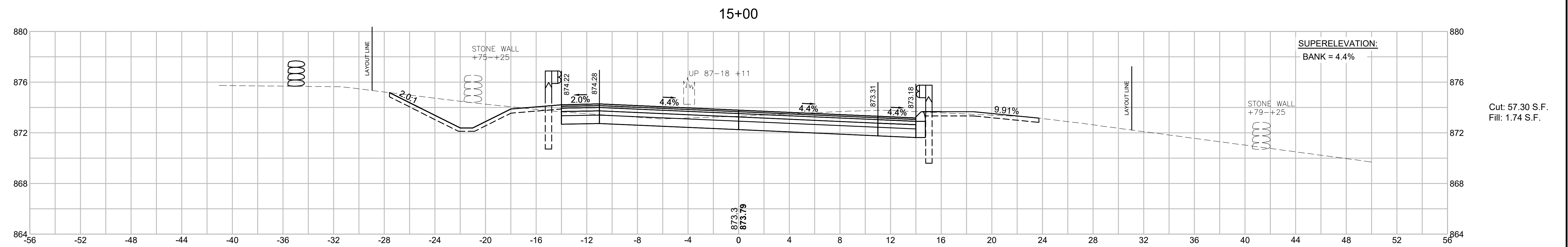
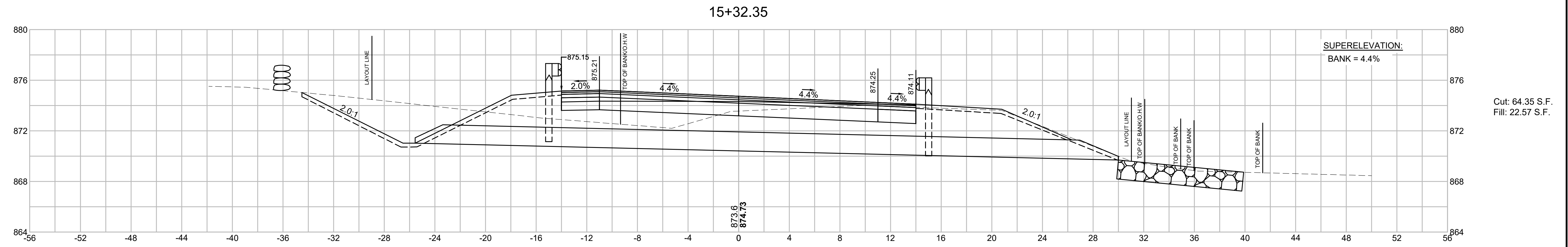
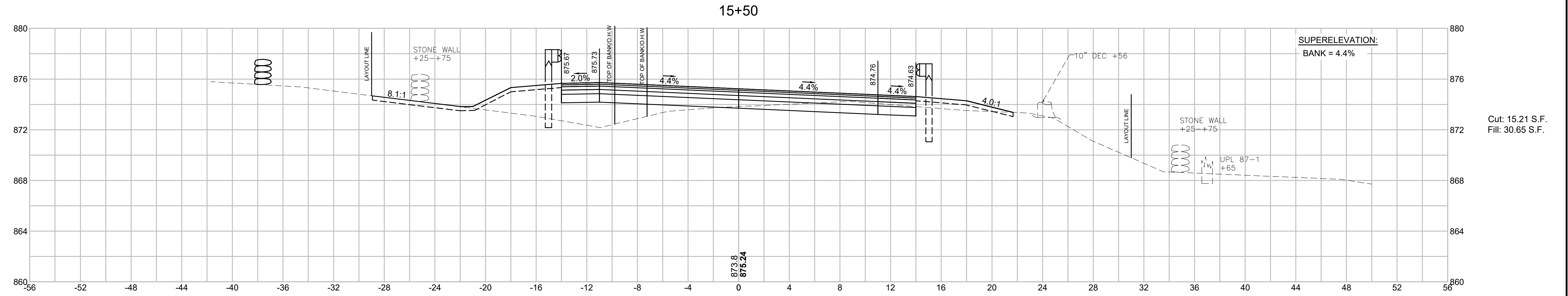


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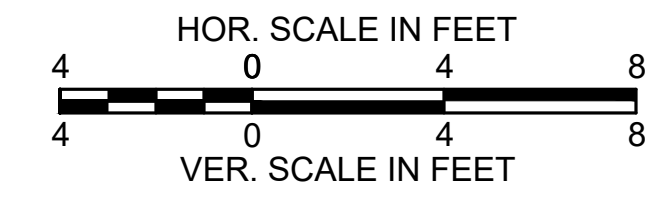


**CROSS SECTIONS**

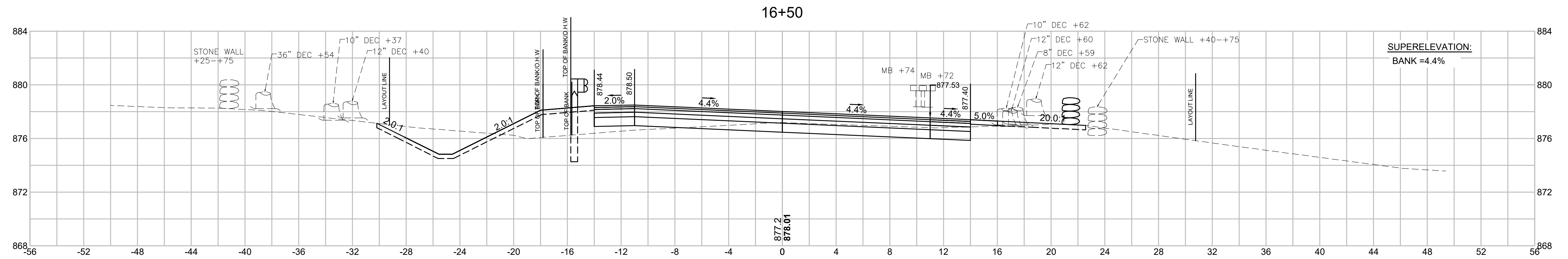


**WALES  
MONSON ROAD**

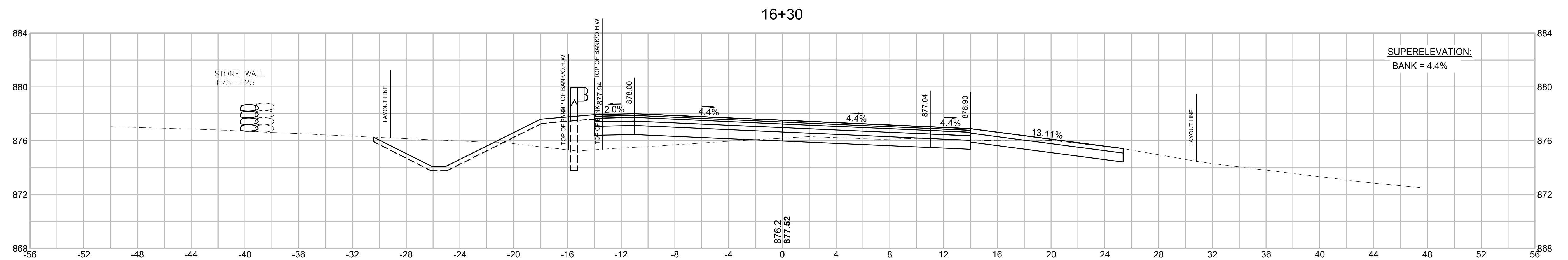
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MA	STP/HSI-0032(043)X	94	182
PROJECT FILE NO.		608163	



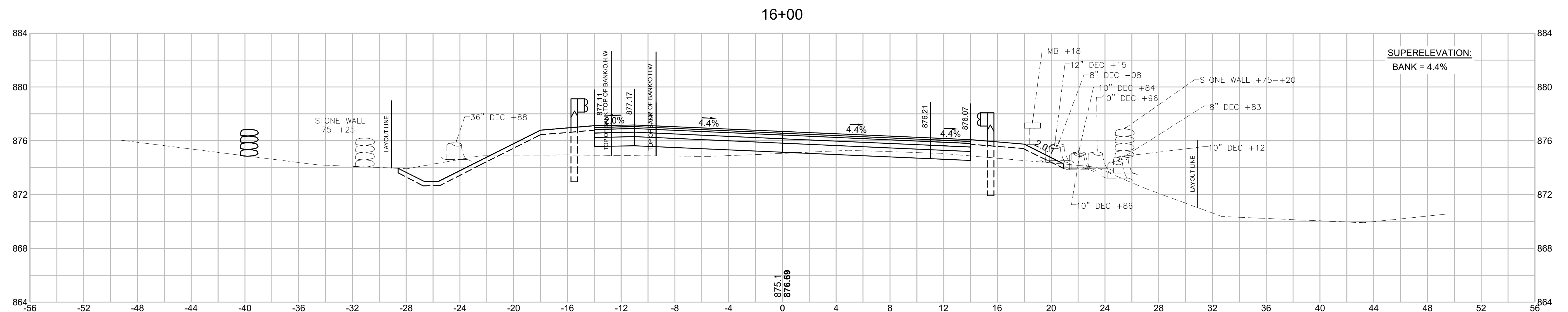
**CROSS SECTIONS**



Cut: 31.49 S.F.  
Fill: 15.48 S.F.



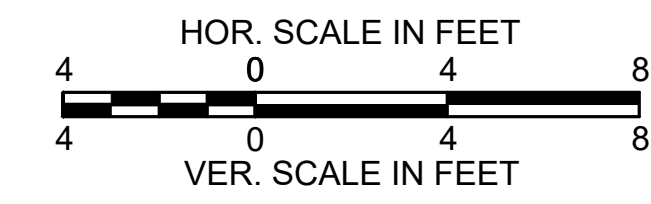
Cut: 33.24 S.F.  
Fill: 23.47 S.F.



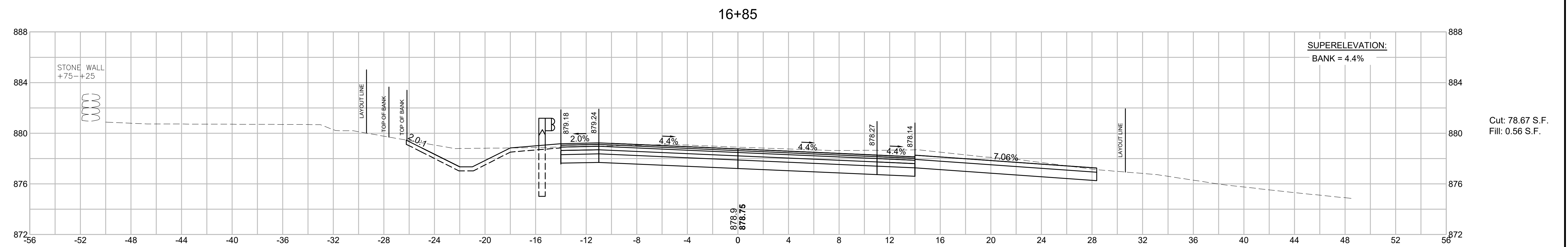
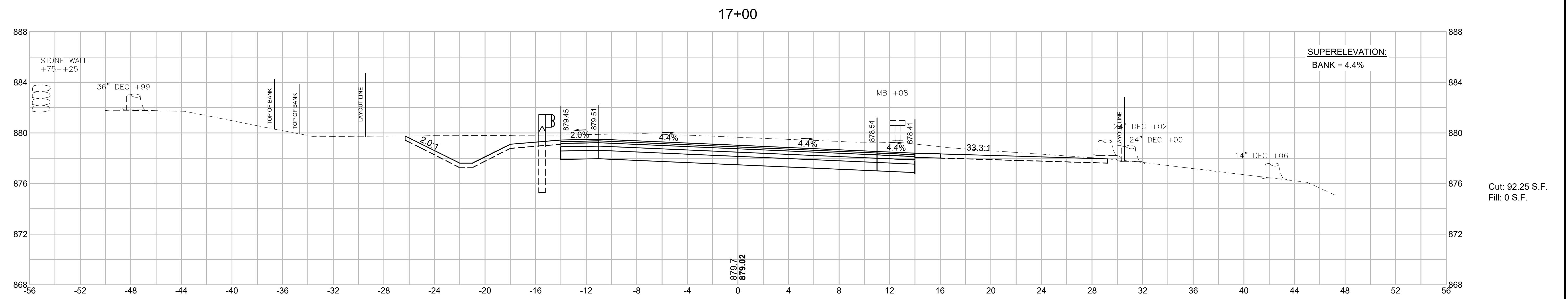
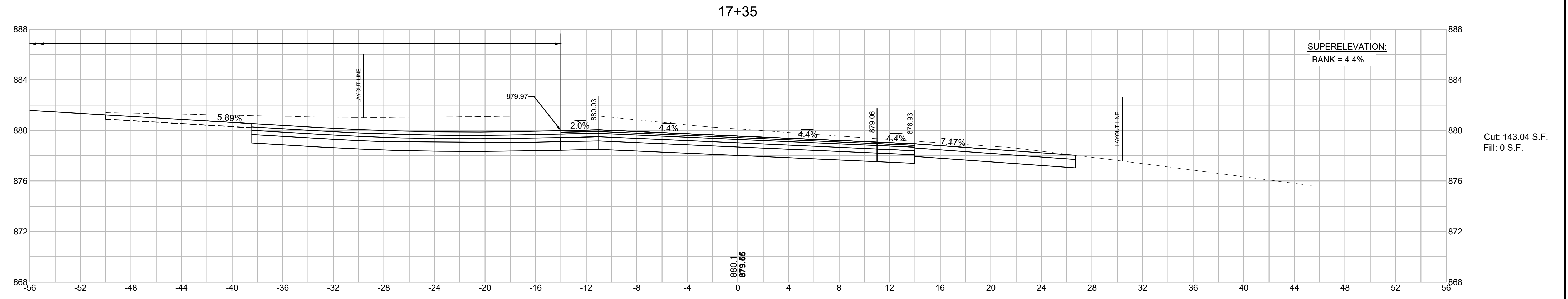
Cut: 18.04 S.F.  
Fill: 25.61 S.F.

**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	95	182
PROJECT FILE NO.		608163	

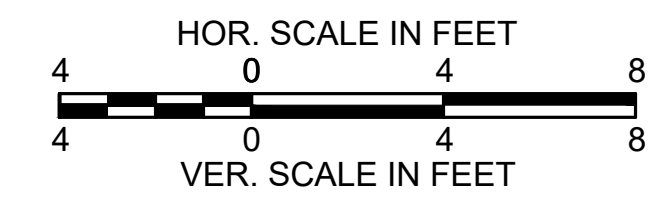


**CROSS SECTIONS**

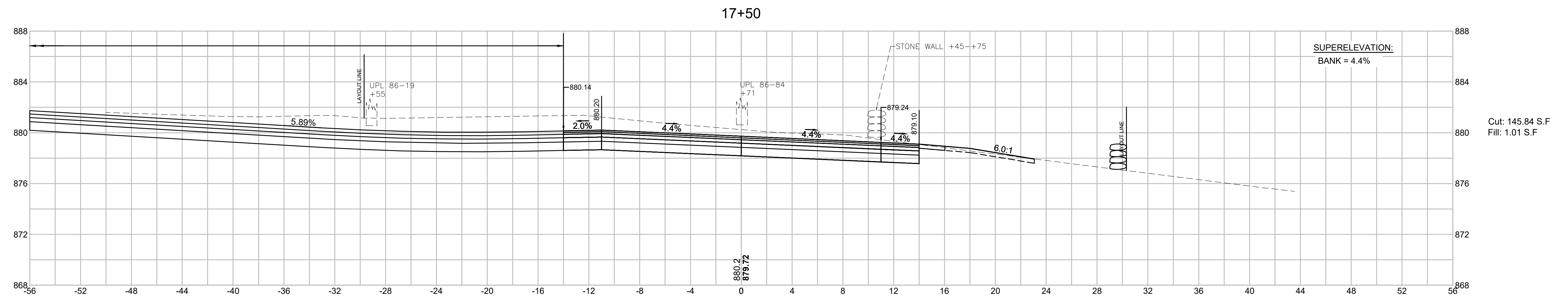
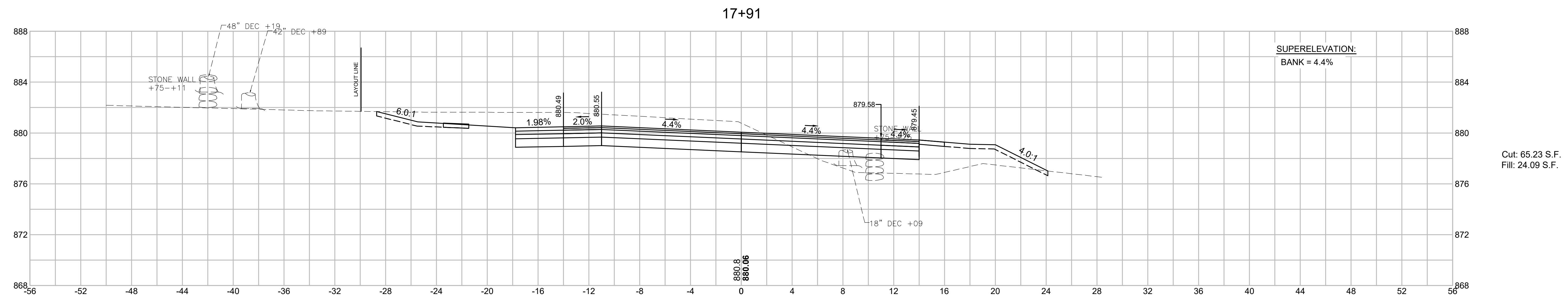
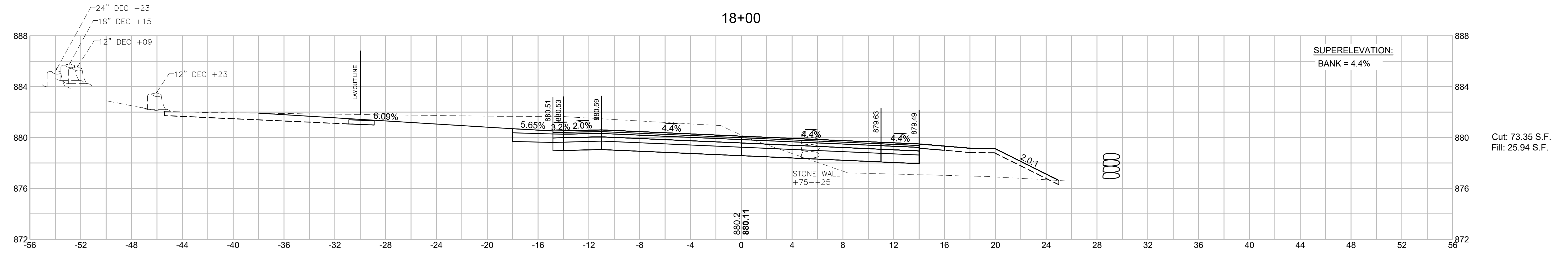


**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	96	182
PROJECT FILE NO.		608163	



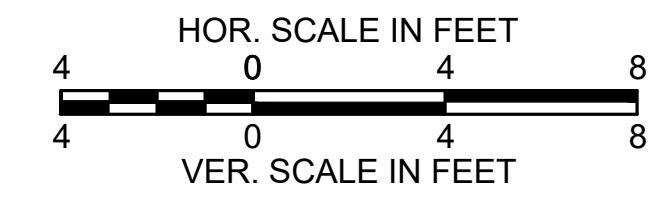
**CROSS SECTIONS**



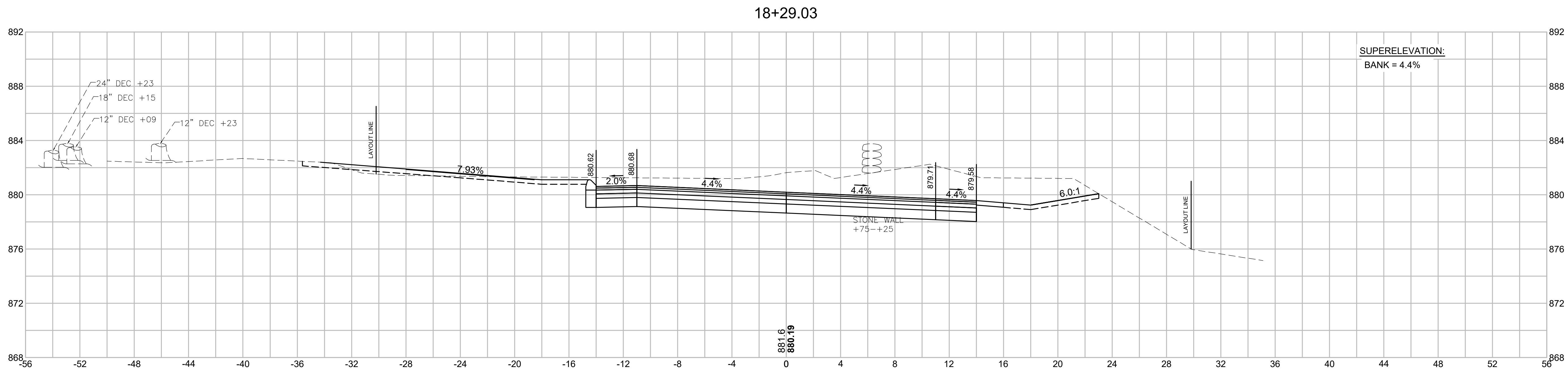
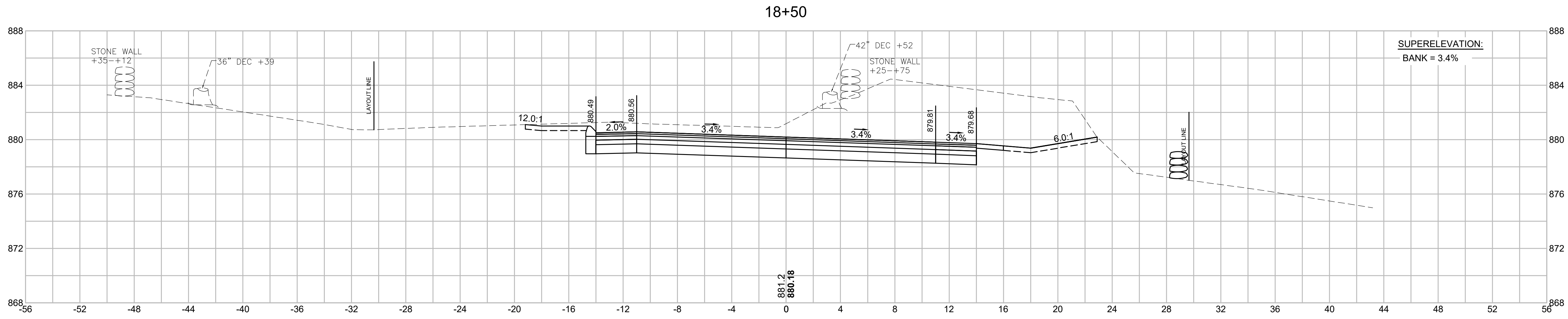
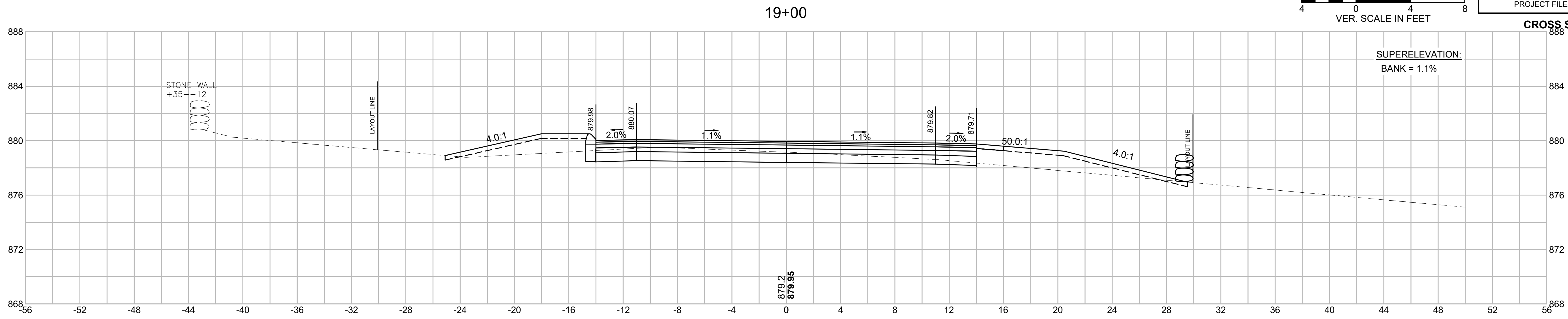


**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSL-0032(043)X	97	182
PROJECT FILE NO.		608163	



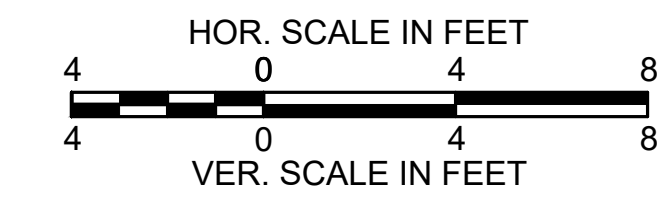
**CROSS SECTIONS**



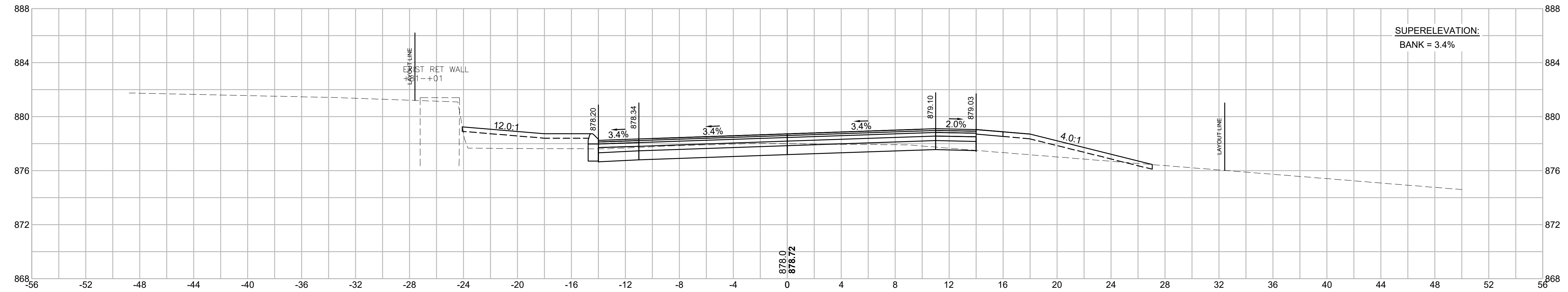
**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	98	182
PROJECT FILE NO.		608163	

**CROSS SECTIONS**

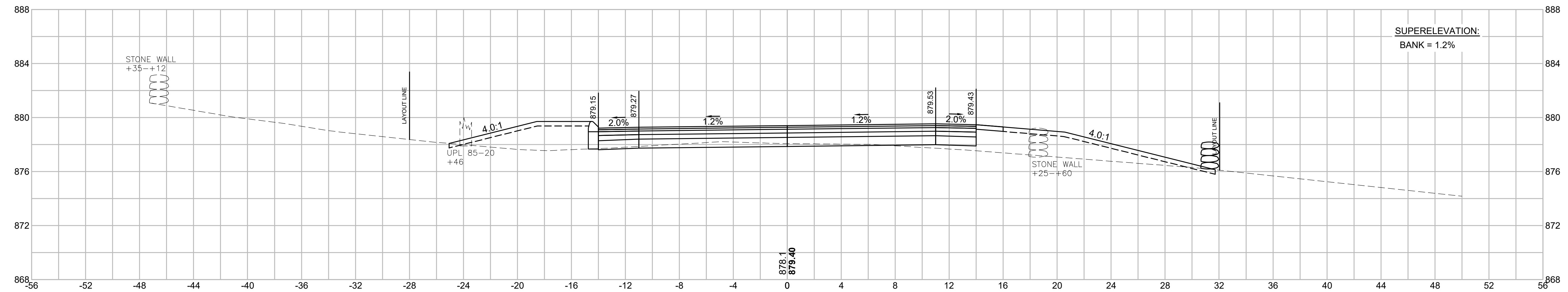


20+00



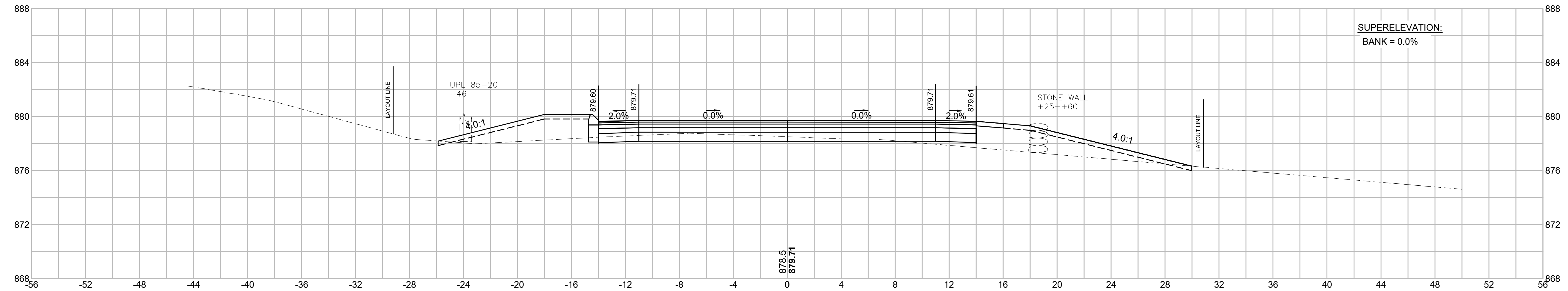
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Fill: 24.66 S.F.

19+50



Cut: 4.97 S.F.  
Fill: 39.52 S.F.

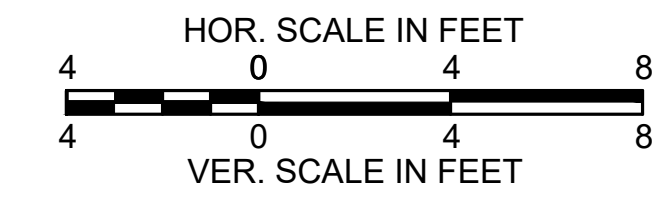
19+24.84



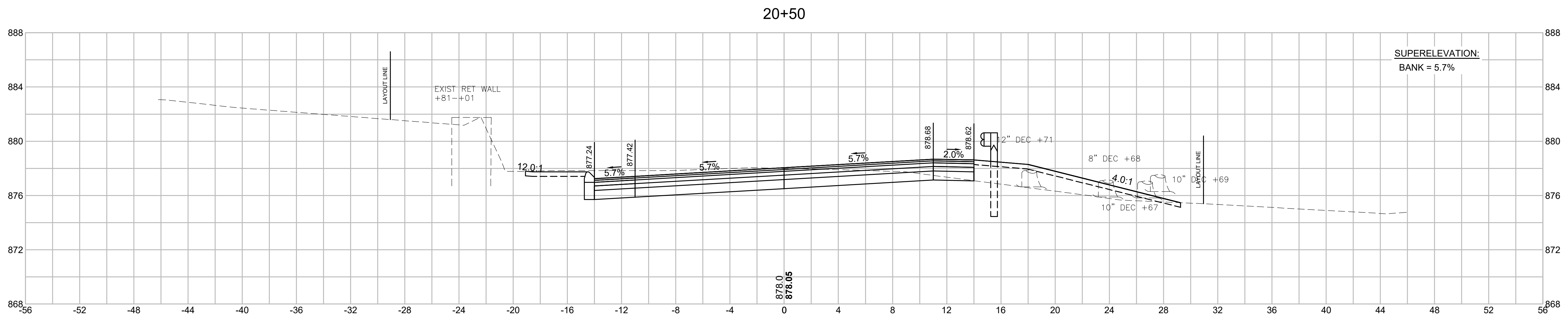
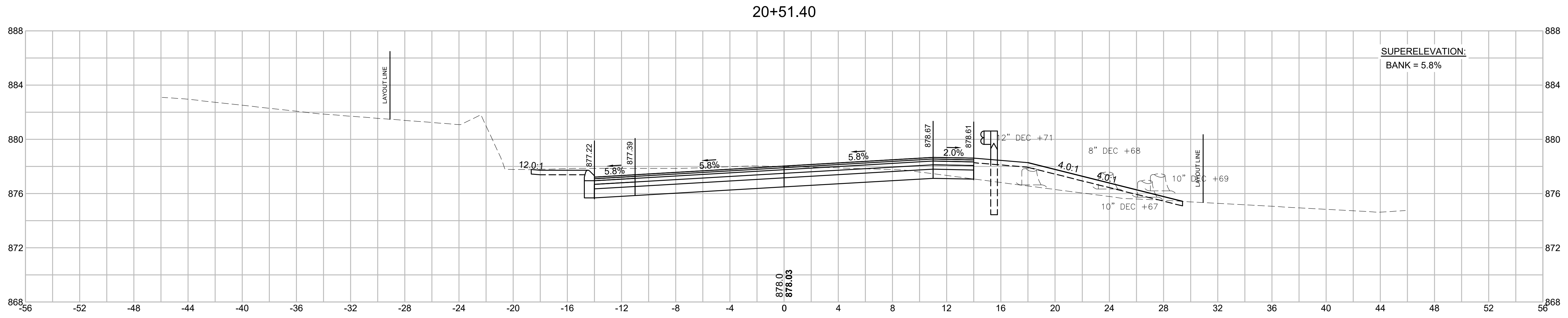
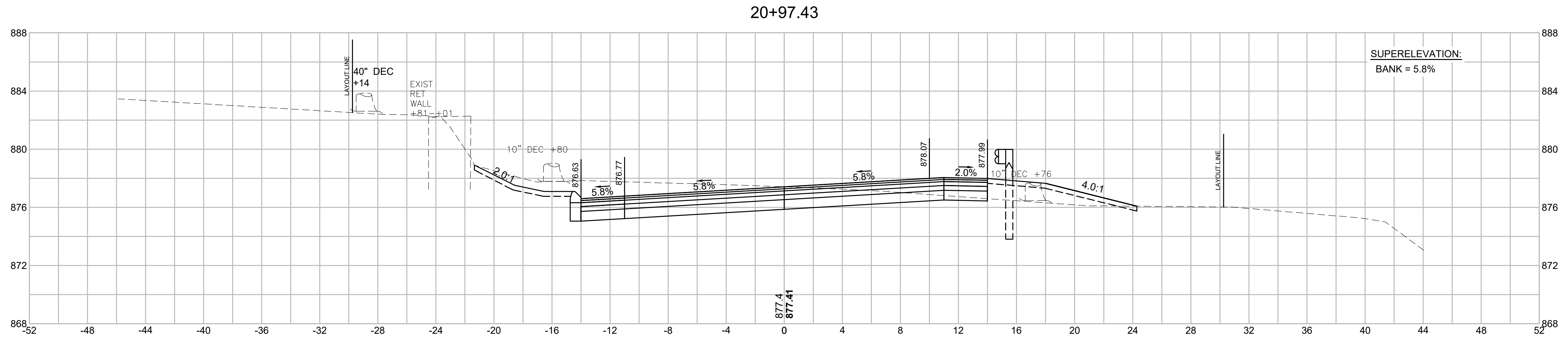
Cut: 8.99 S.F.  
Fill: 36.15 S.F.

**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	99	182
PROJECT FILE NO.		608163	

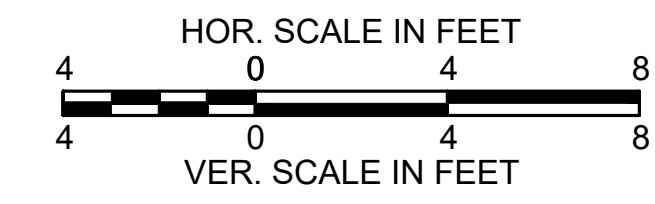


**CROSS SECTIONS**

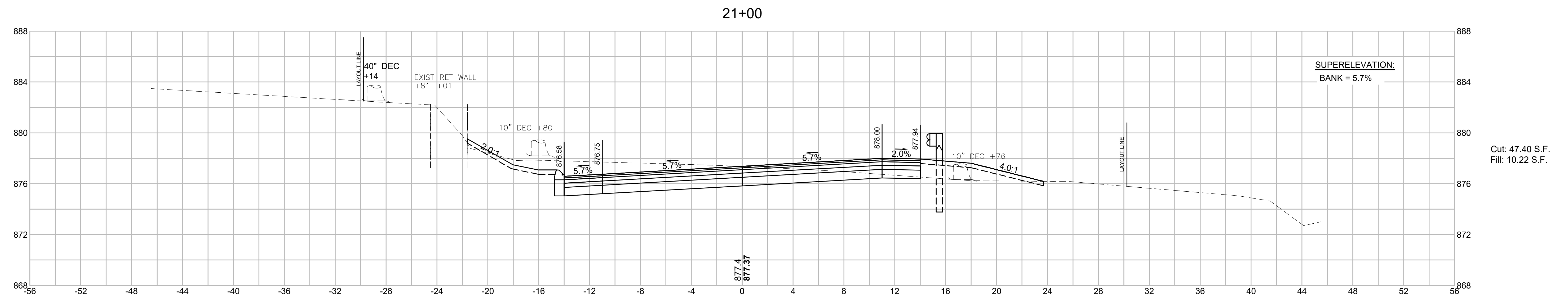
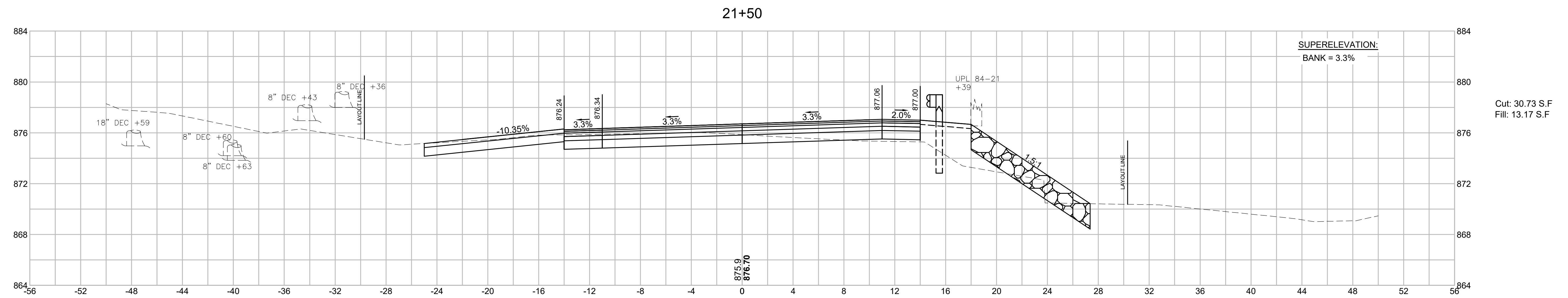
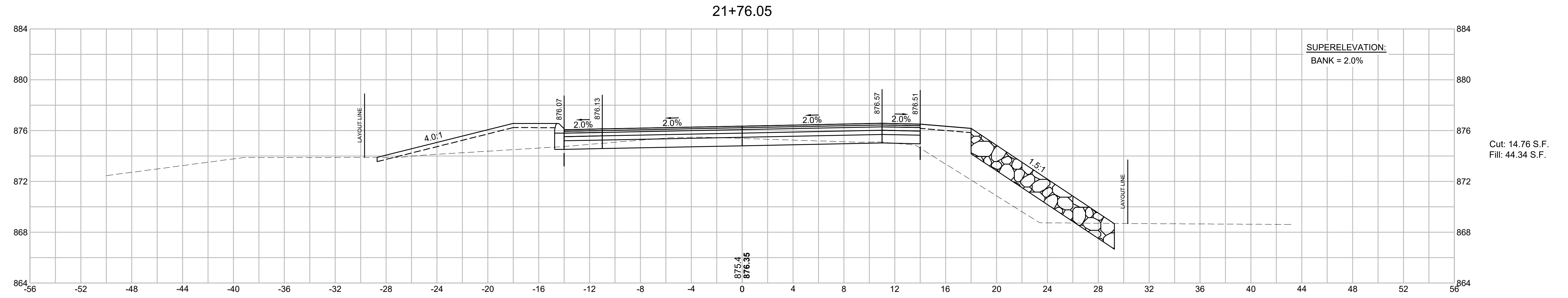


**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	100	182
PROJECT FILE NO.		608163	



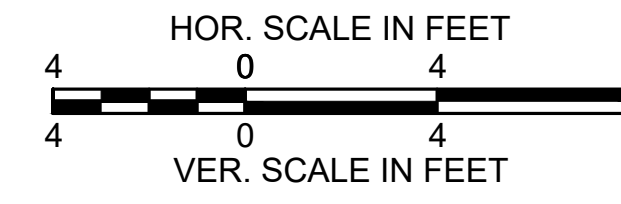
**CROSS SECTIONS**



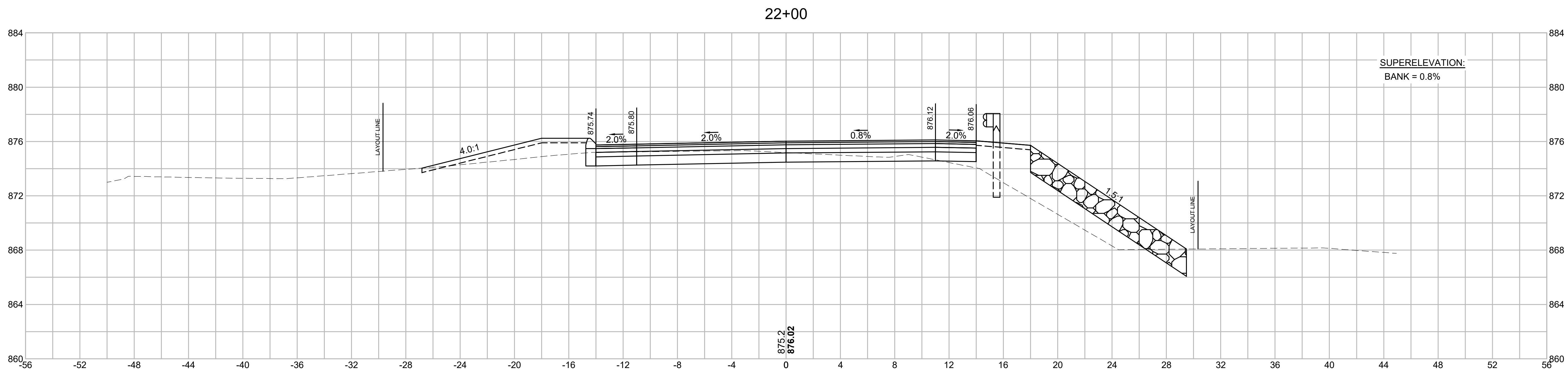
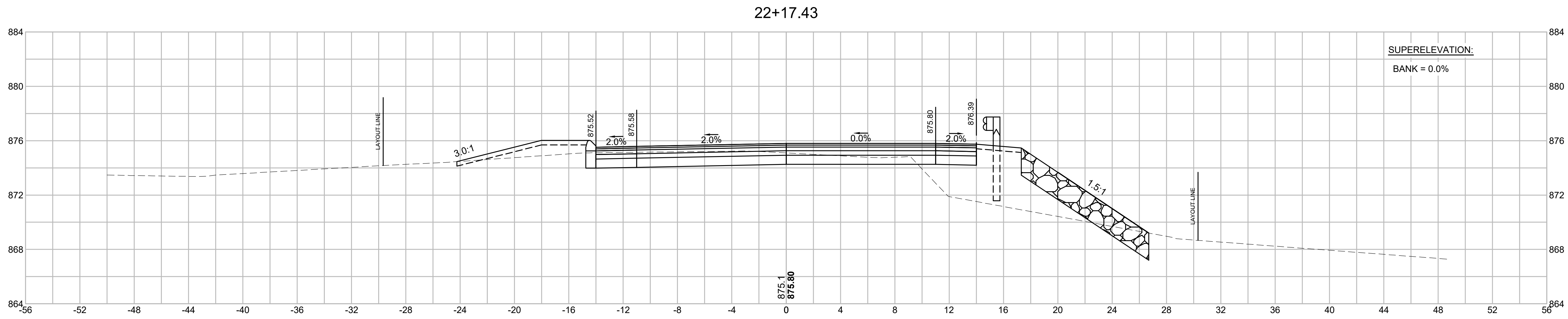
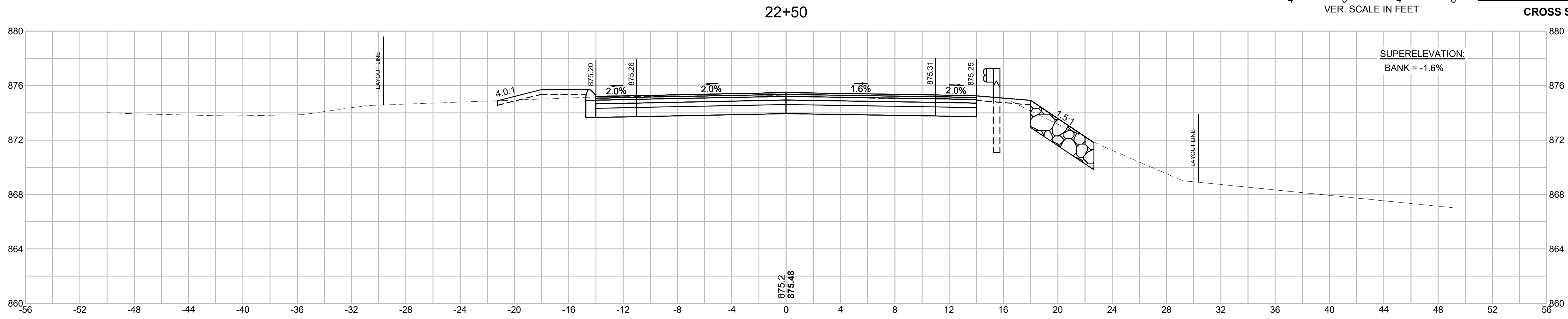


**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSL-0032(043)X	101	182
PROJECT FILE NO.		608163	

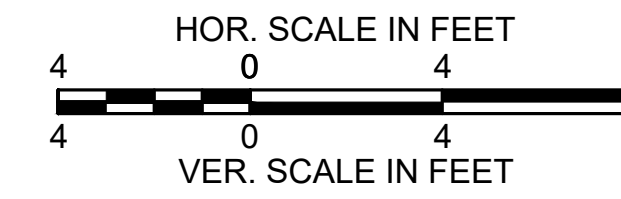


**CROSS SECTIONS**

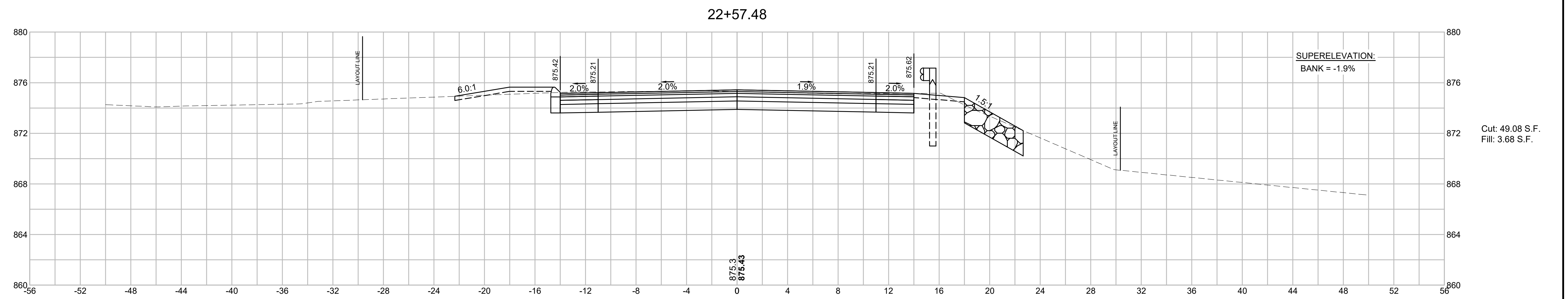
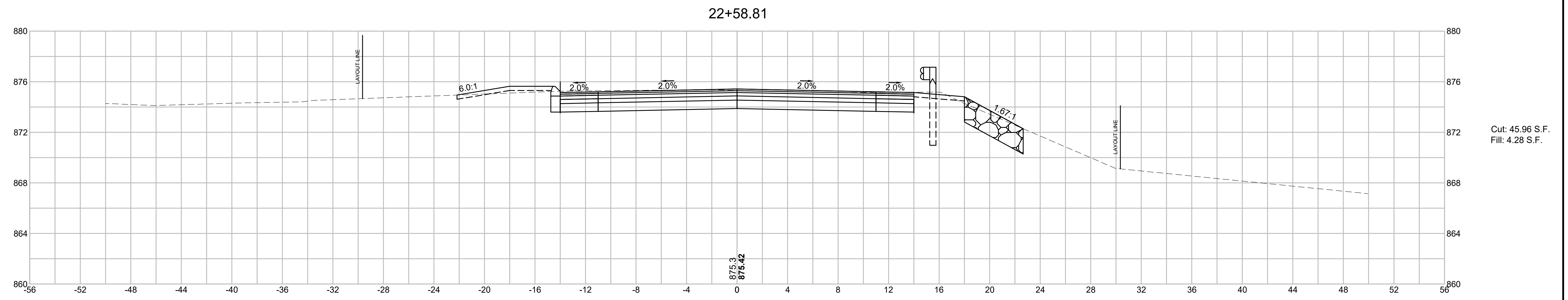
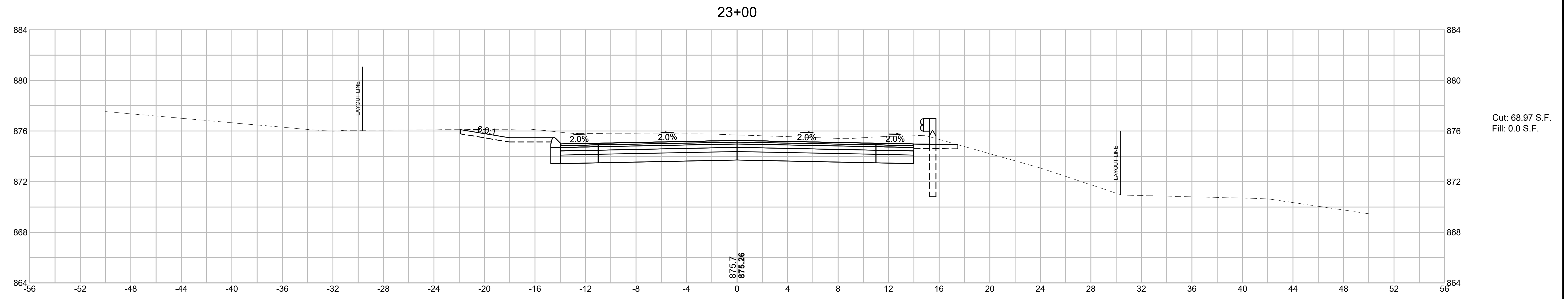


**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	102	182
PROJECT FILE NO.		608163	



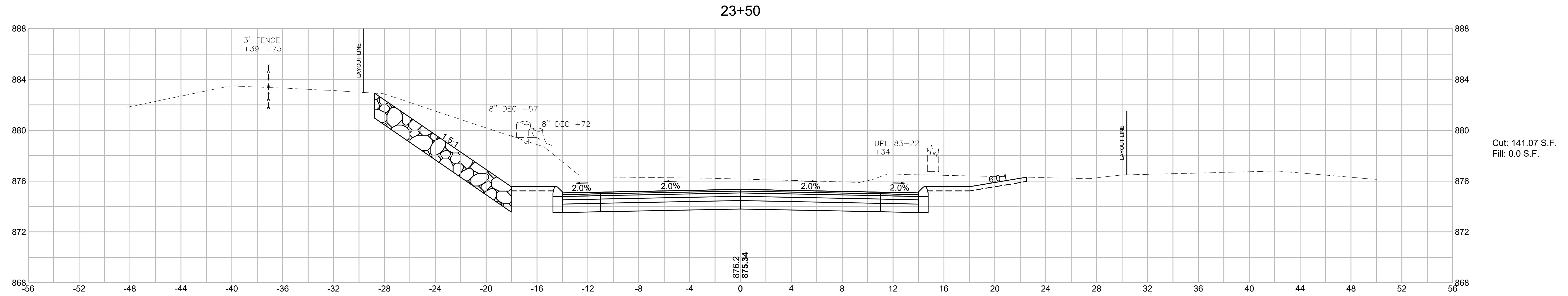
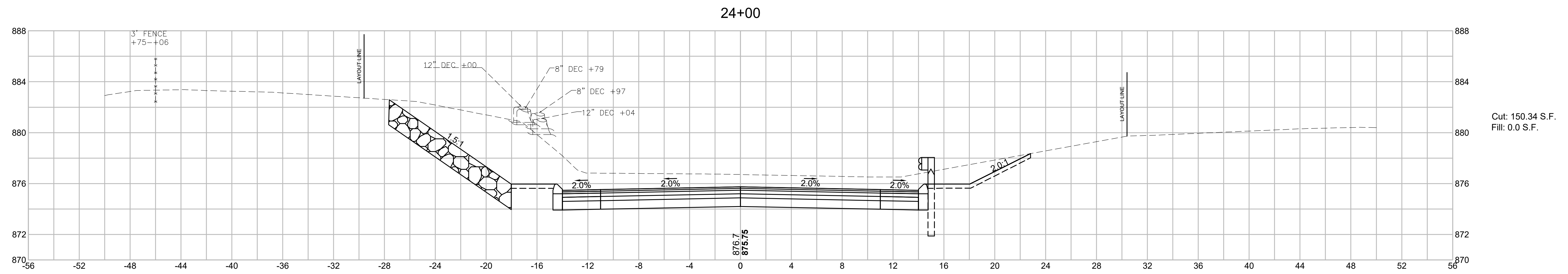
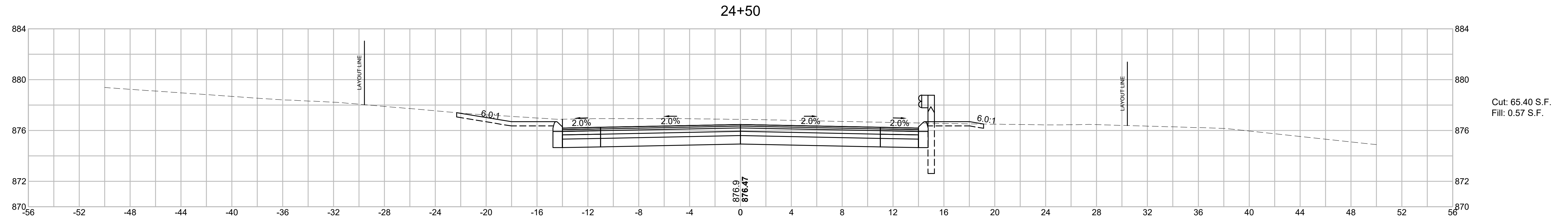
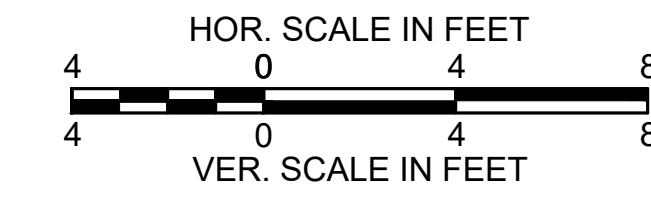
**CROSS SECTIONS**



**WALES  
MONSON ROAD**

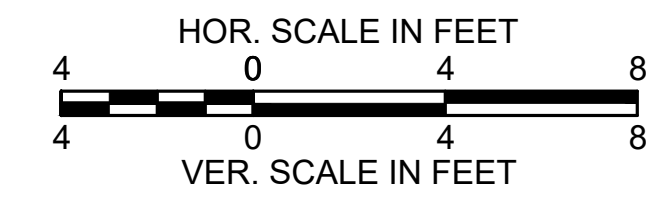
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	103	182
PROJECT FILE NO.		608163	

**CROSS SECTIONS**

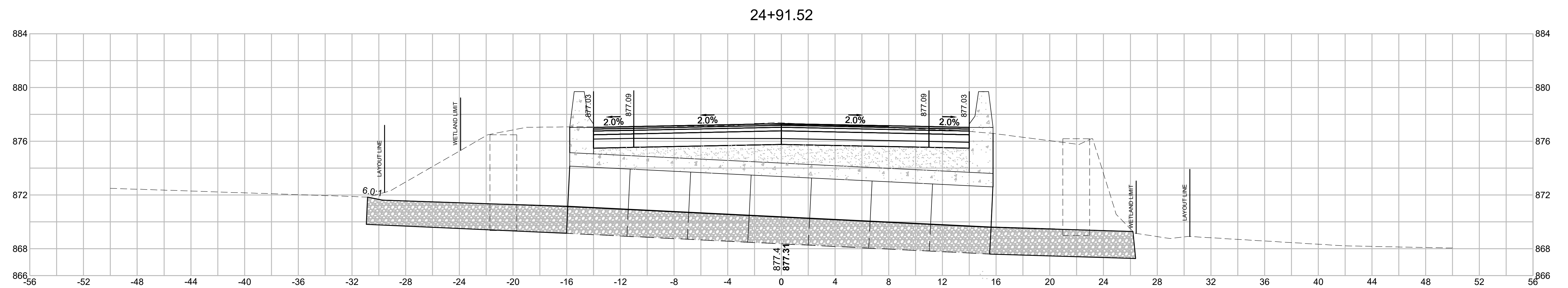
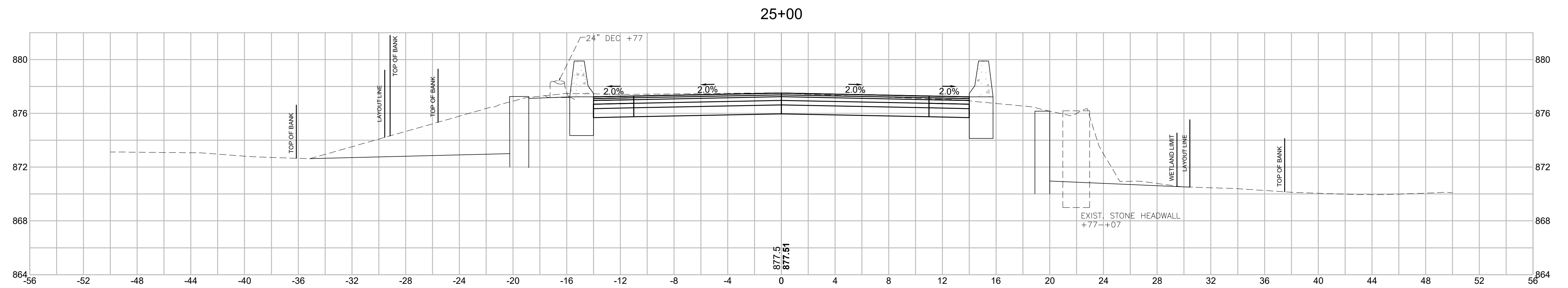
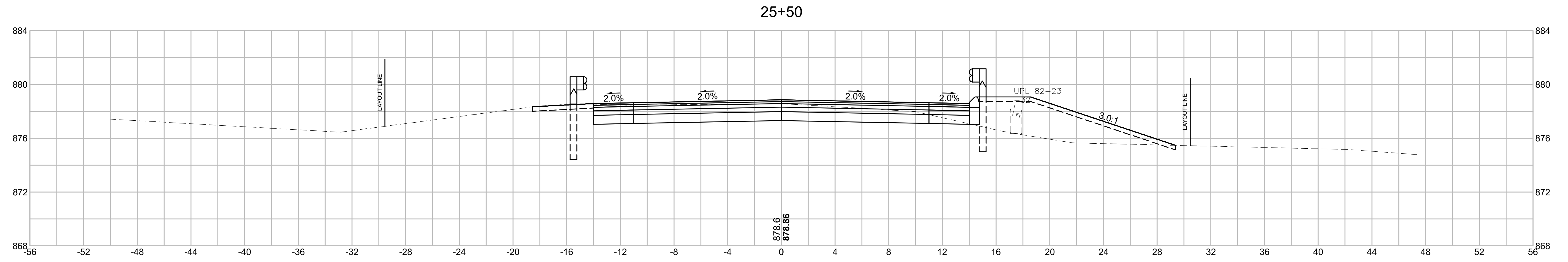


**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	104	182
PROJECT FILE NO.		608163	



**CROSS SECTIONS**

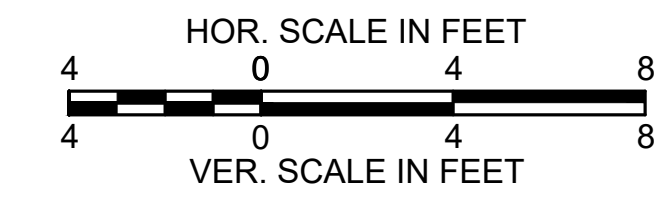




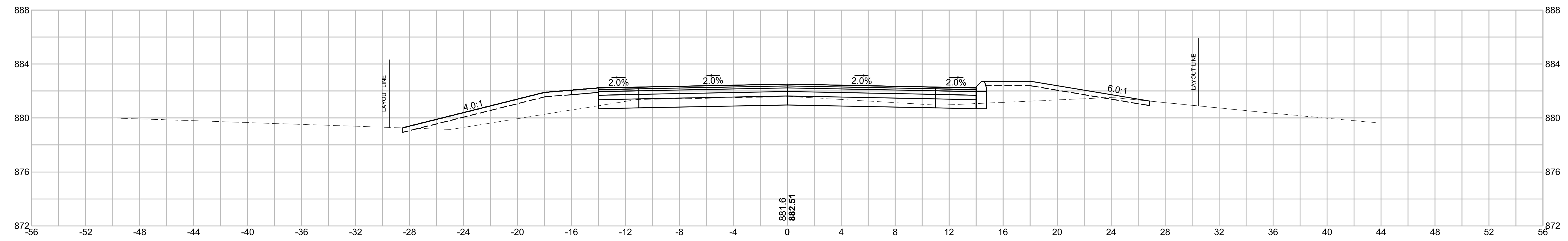
**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	105	182
PROJECT FILE NO.		608163	

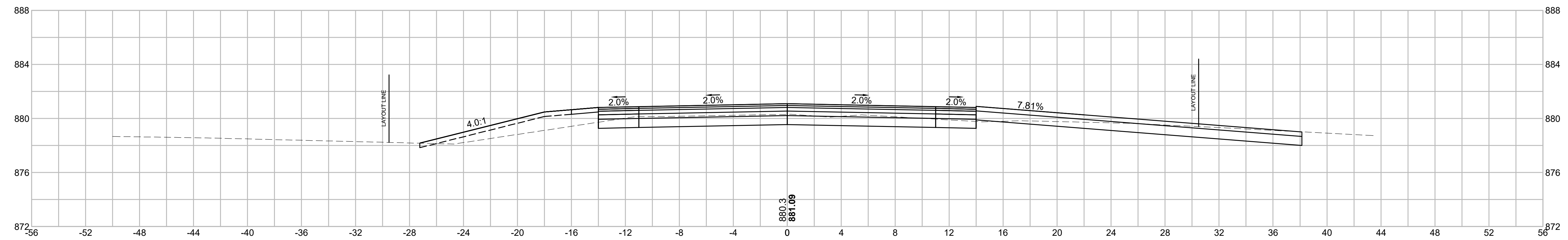
**CROSS SECTIONS**



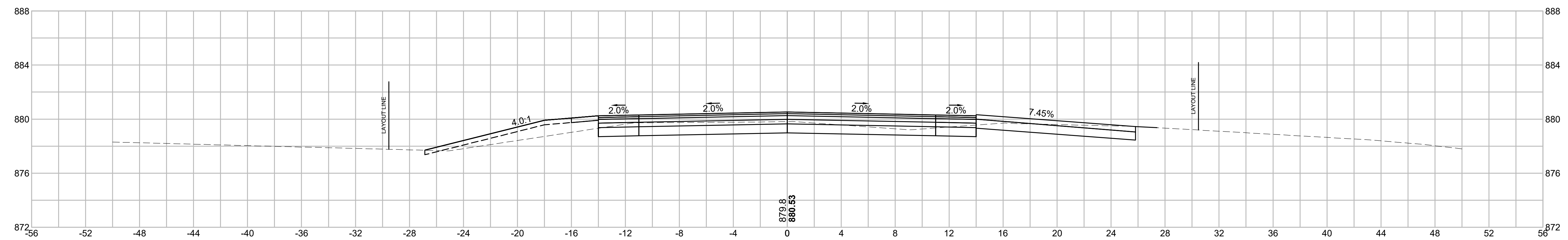
26+50



26+15



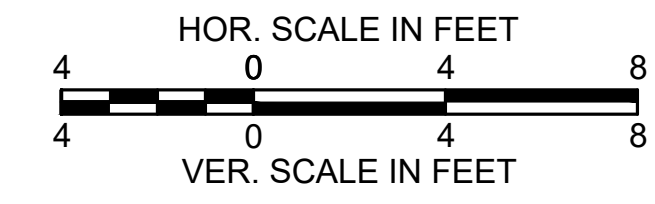
26+00



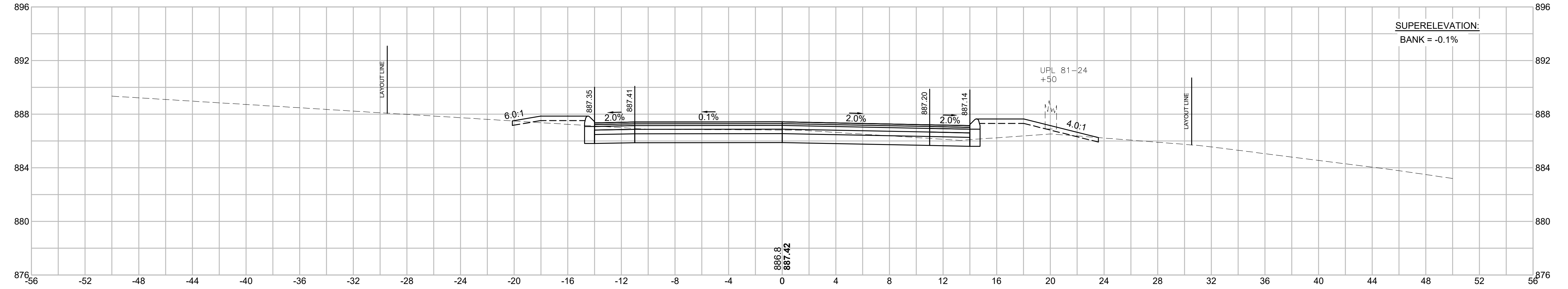
**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	106	182
PROJECT FILE NO.		608163	

**CROSS SECTIONS**

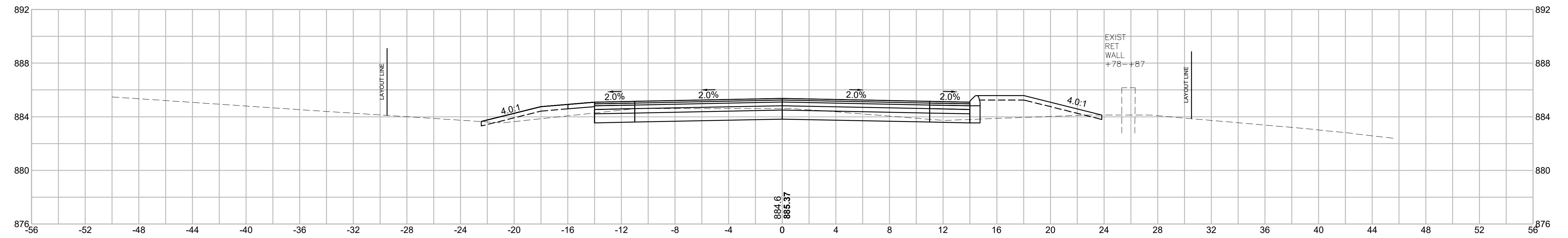


**27+50**



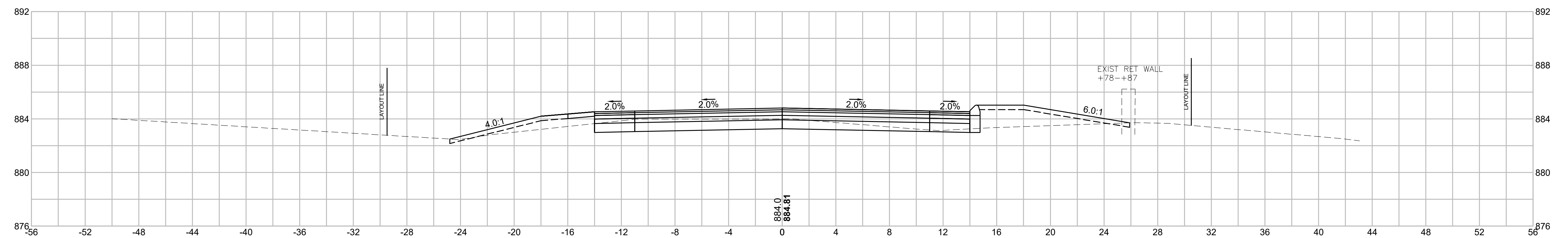
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Fill: 9.94 S.F.

**27+11.25**



Cut: 19.36 S.F.  
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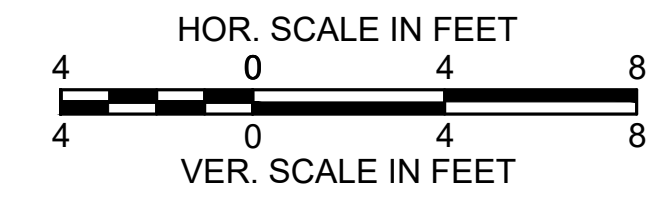
**27+00**



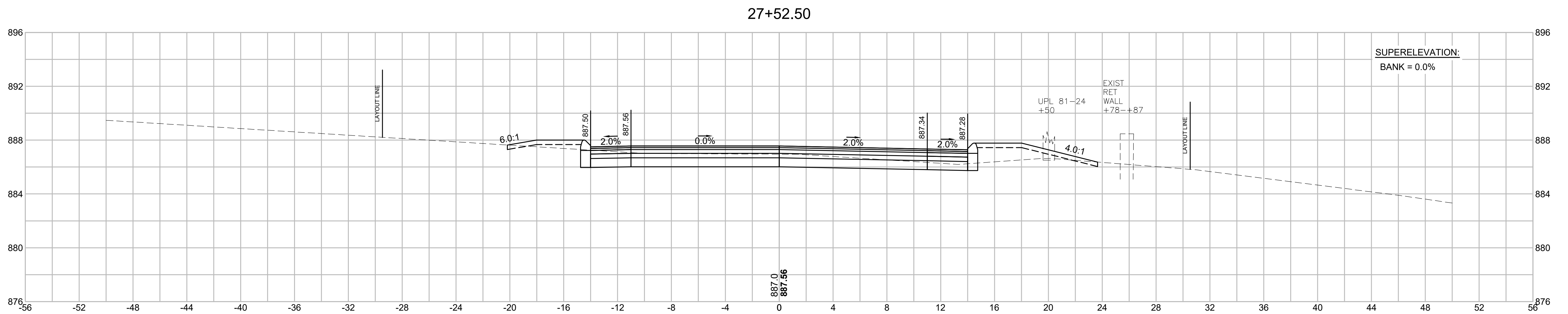
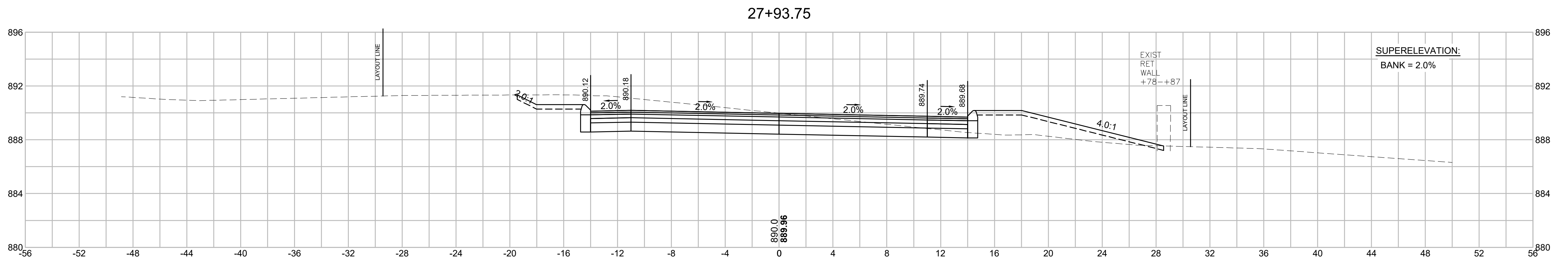
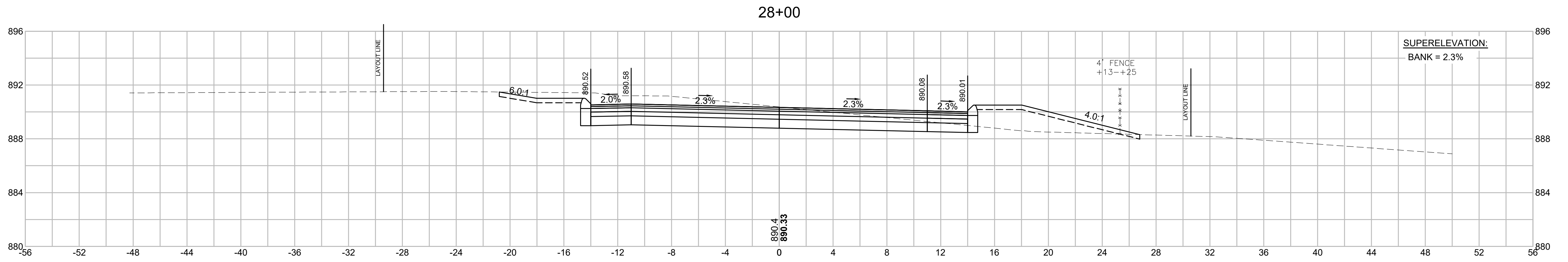
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**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	107	182
PROJECT FILE NO.		608163	

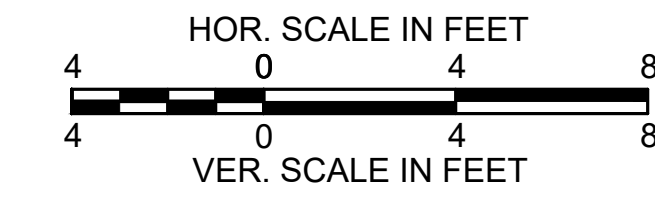


**CROSS SECTIONS**

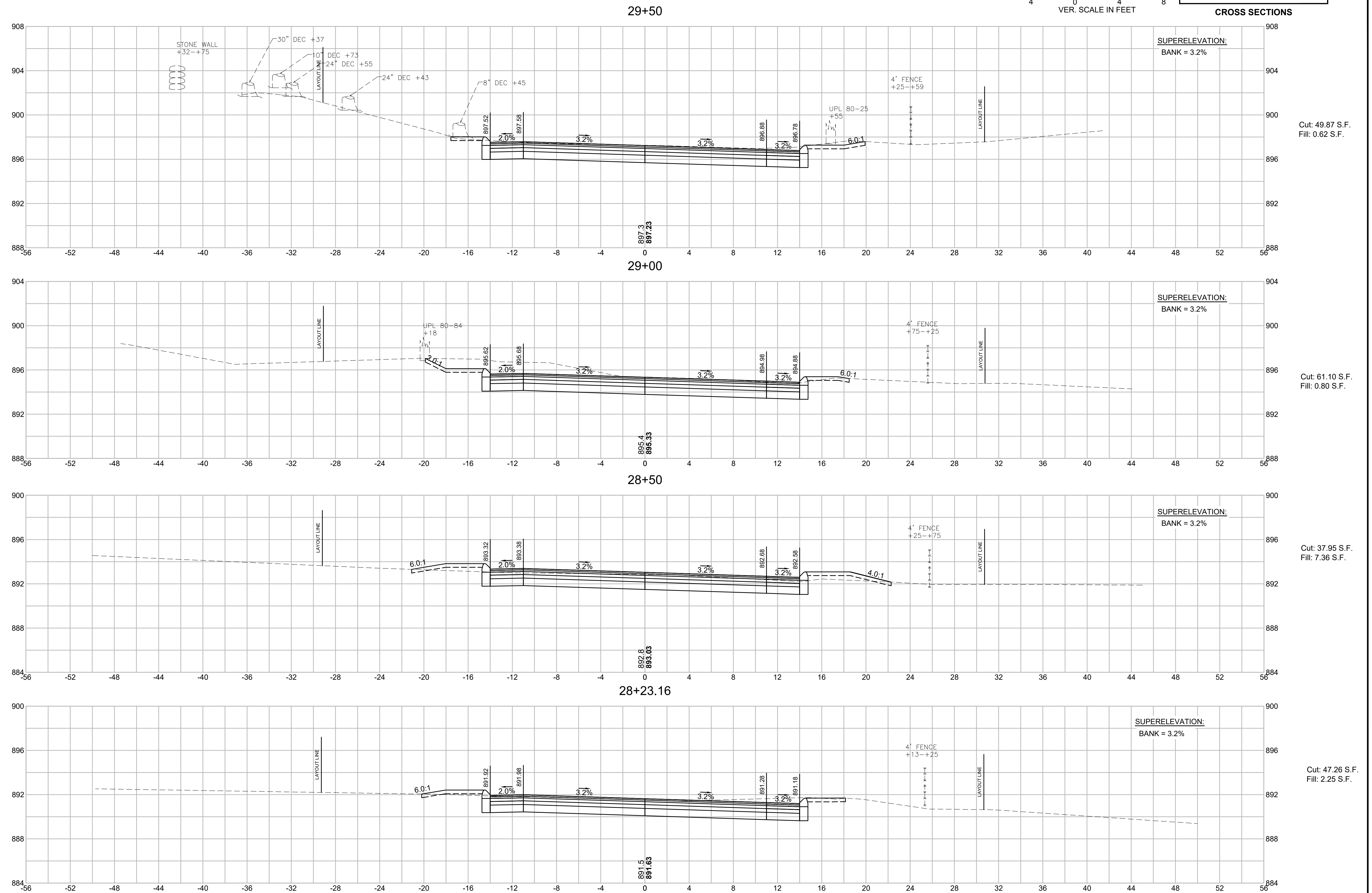


**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	108	182
PROJECT FILE NO.		608163	



**CROSS SECTIONS**

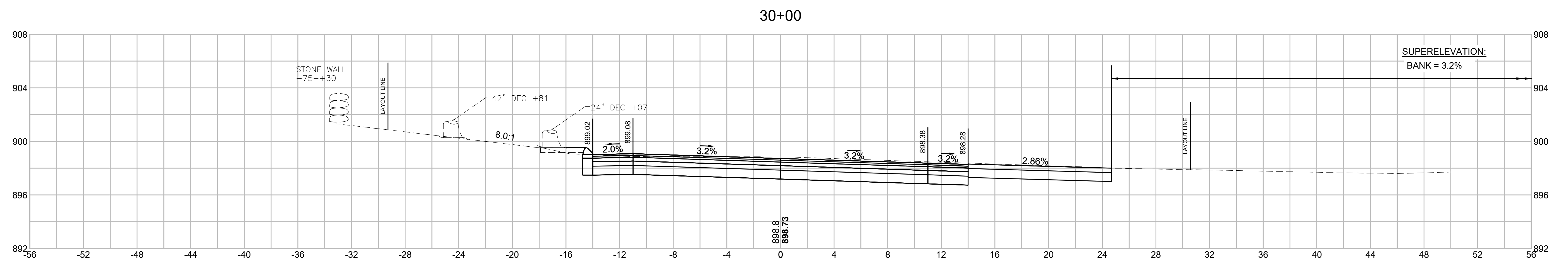
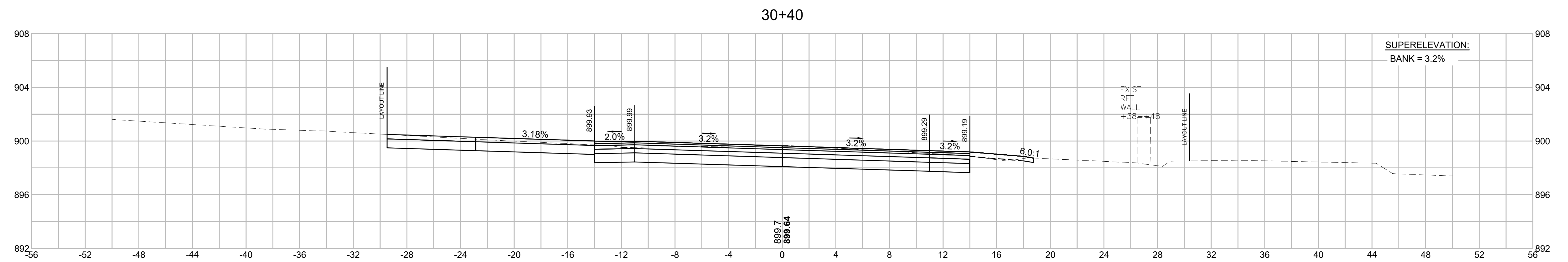
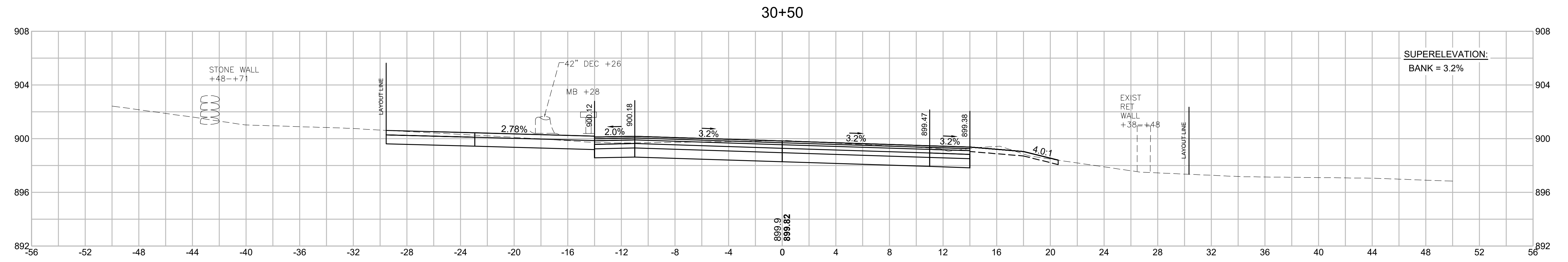
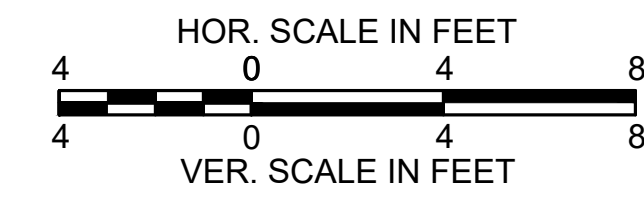




**WALES  
MONSON ROAD**

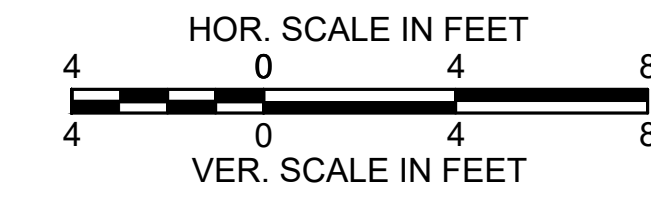
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	109	182
PROJECT FILE NO.		608163	

**CROSS SECTIONS**

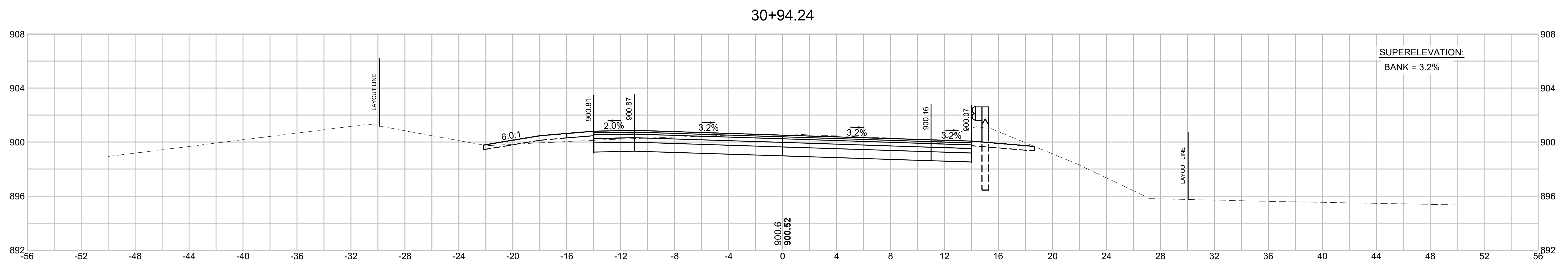
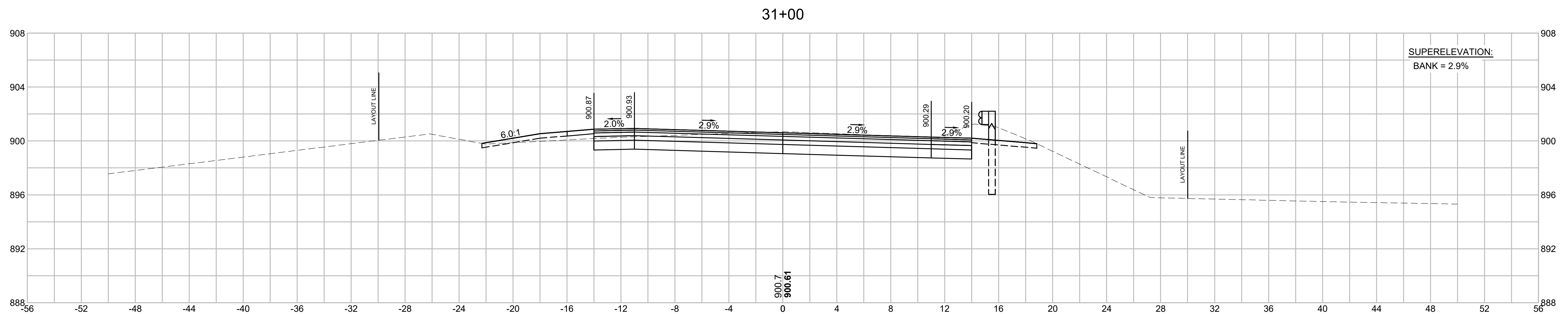
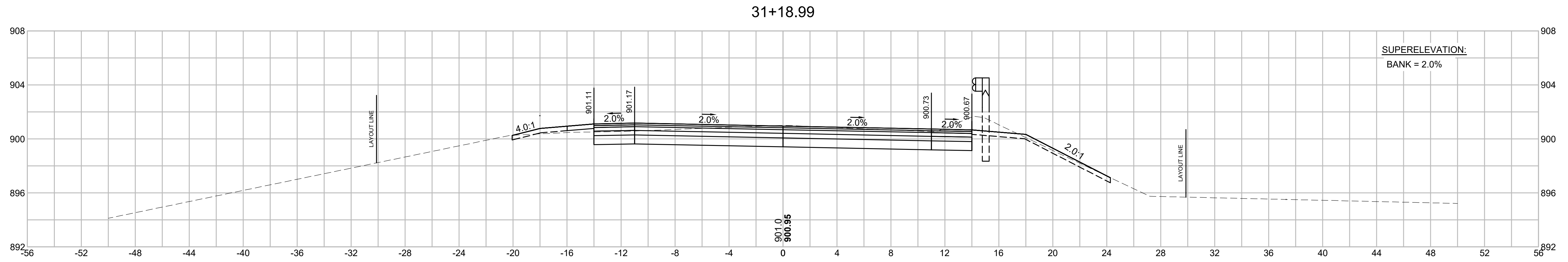


**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	110	182
PROJECT FILE NO.		608163	

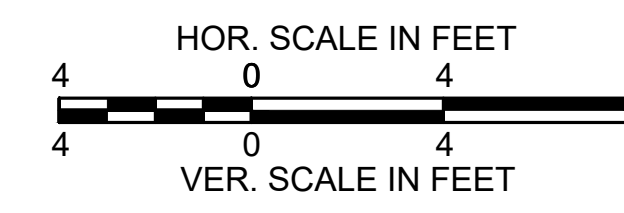


**CROSS SECTIONS**

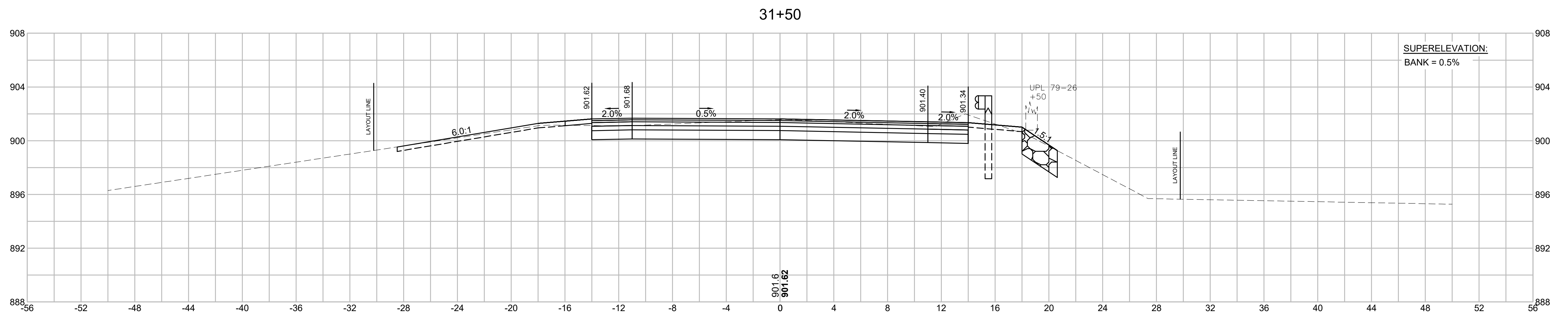
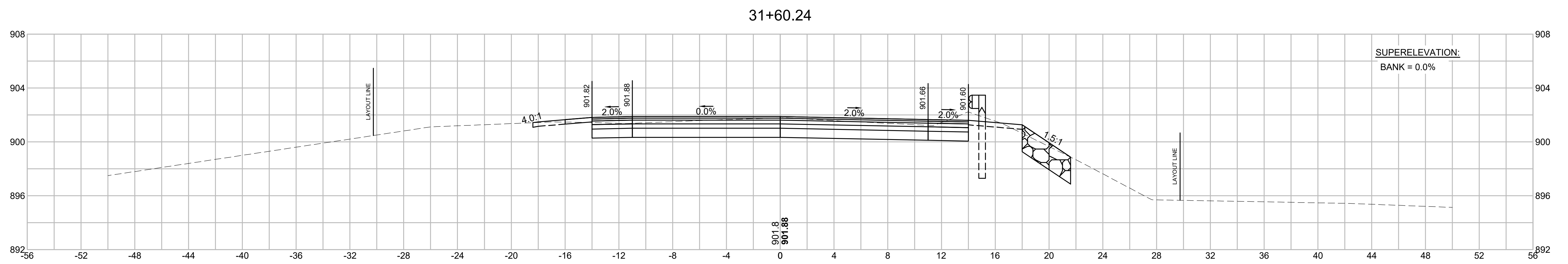
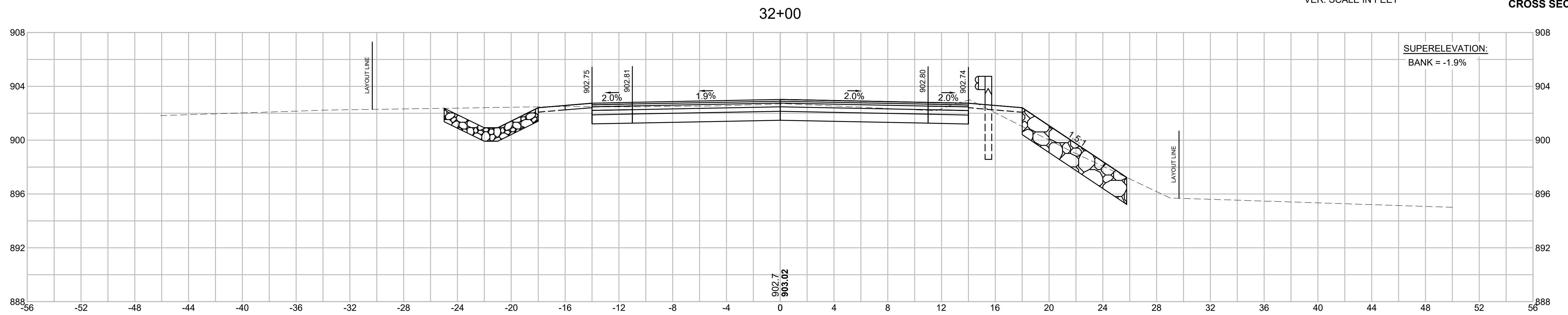


**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	111	182
PROJECT FILE NO.		608163	

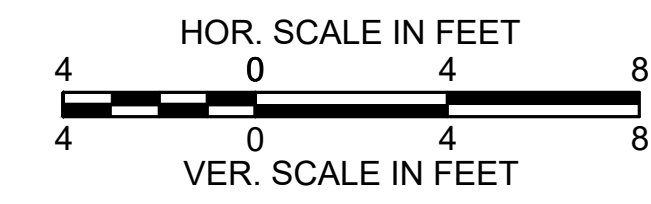


**CROSS SECTIONS**

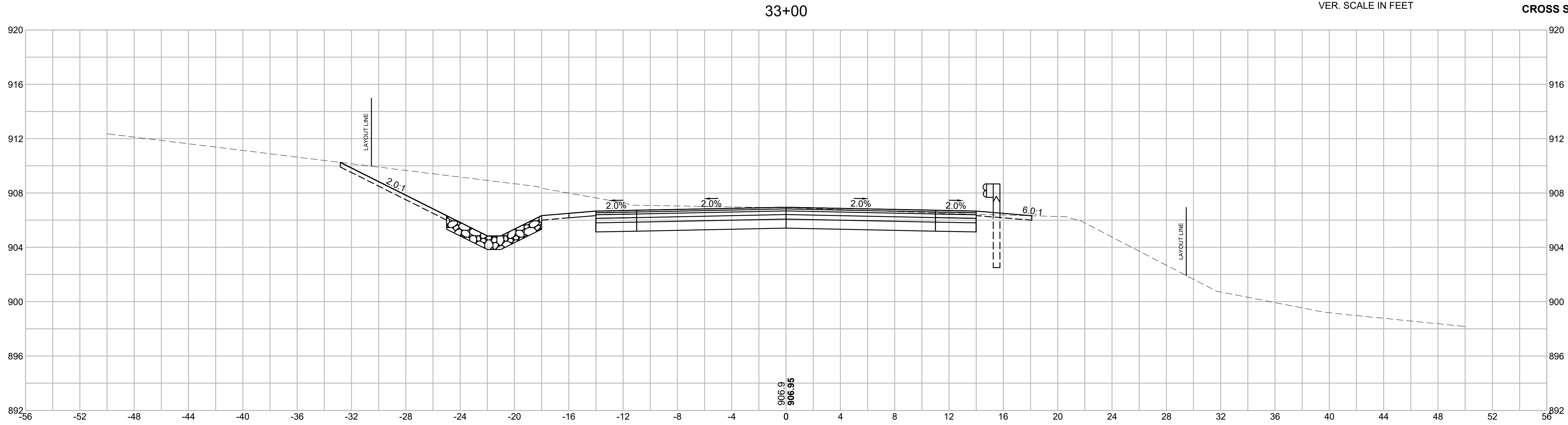


**WALES  
MONSON ROAD**

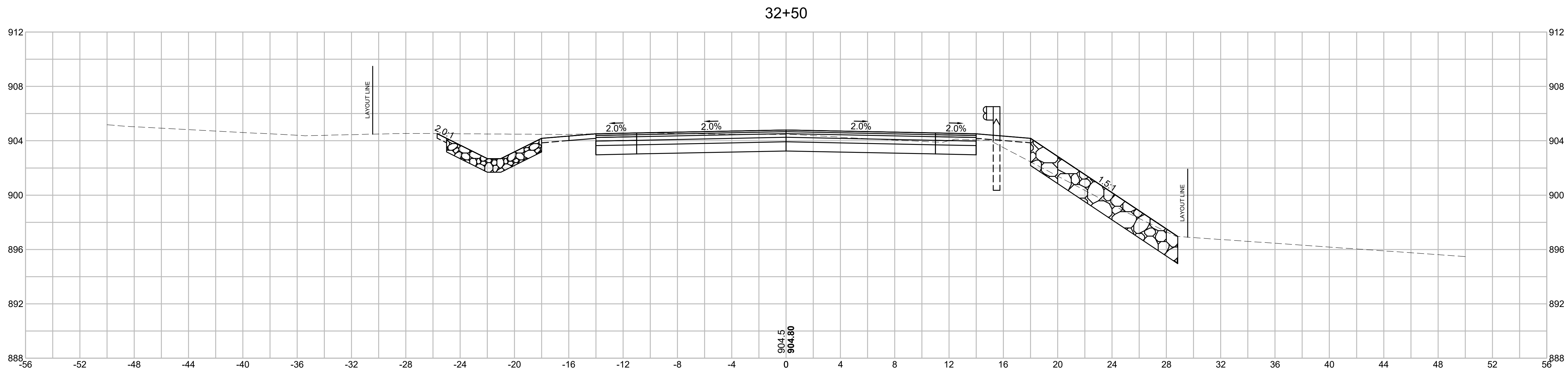
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	112	182
PROJECT FILE NO.		608163	



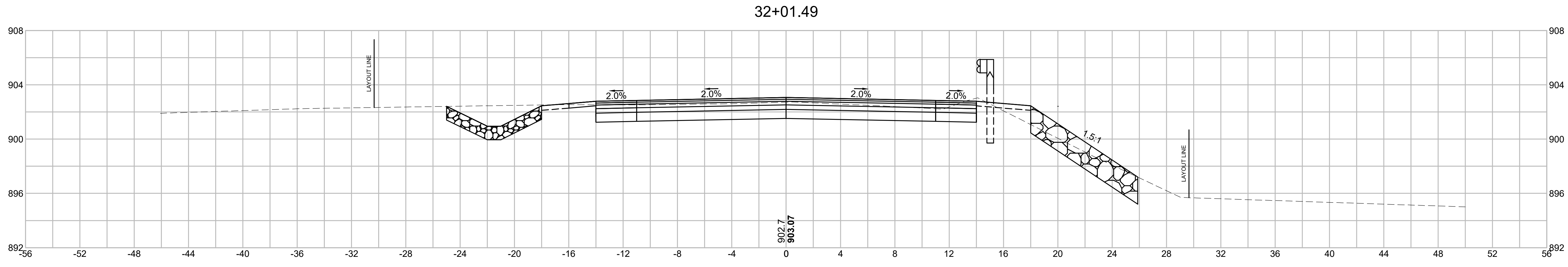
**CROSS SECTIONS**



Cut: 98.3 S.F.  
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Cut: 63.2 S.F.  
Fill: 3.65 S.F.

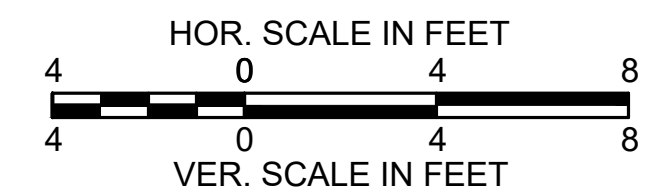


Cut: 57.32 S.F.  
Fill: 2.62 S.F.



**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	113	182
PROJECT FILE NO.		608163	



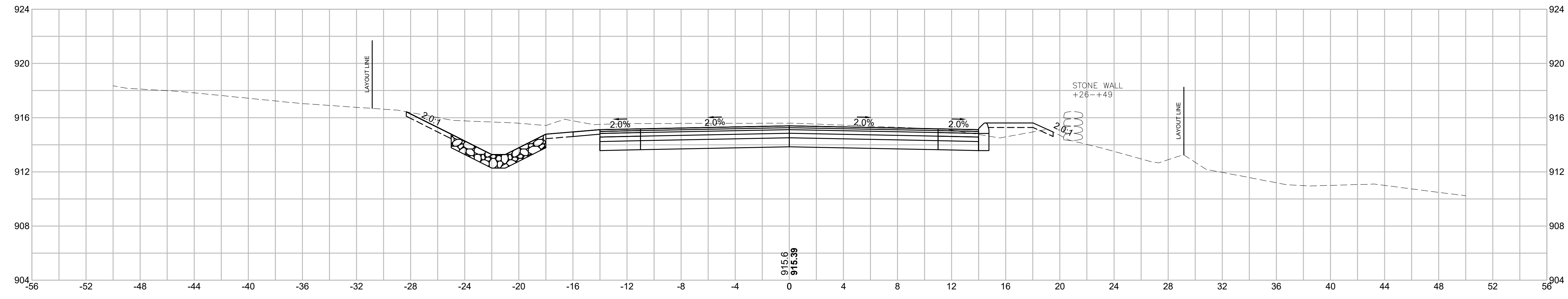
**CROSS SECTIONS**

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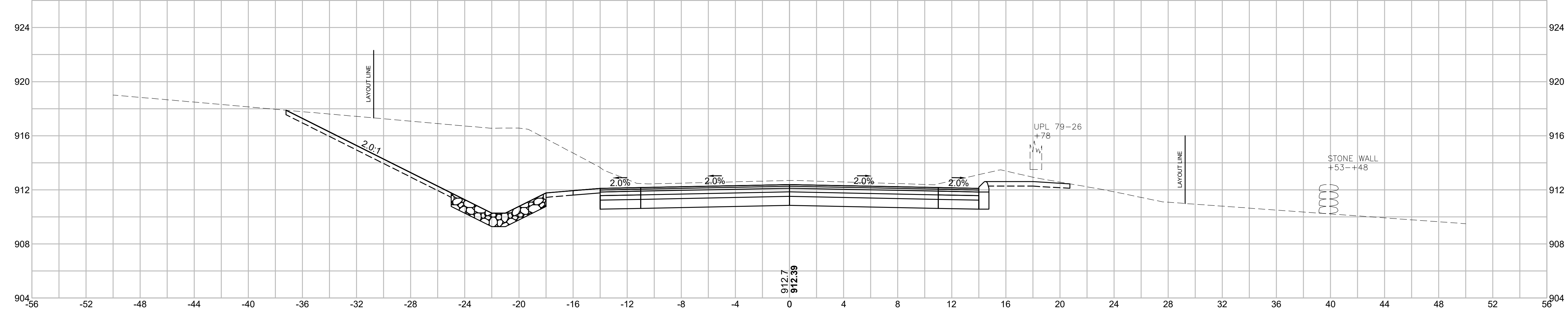
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Cut: 224.7 S.F.  
Fill: 0.0 S.F.

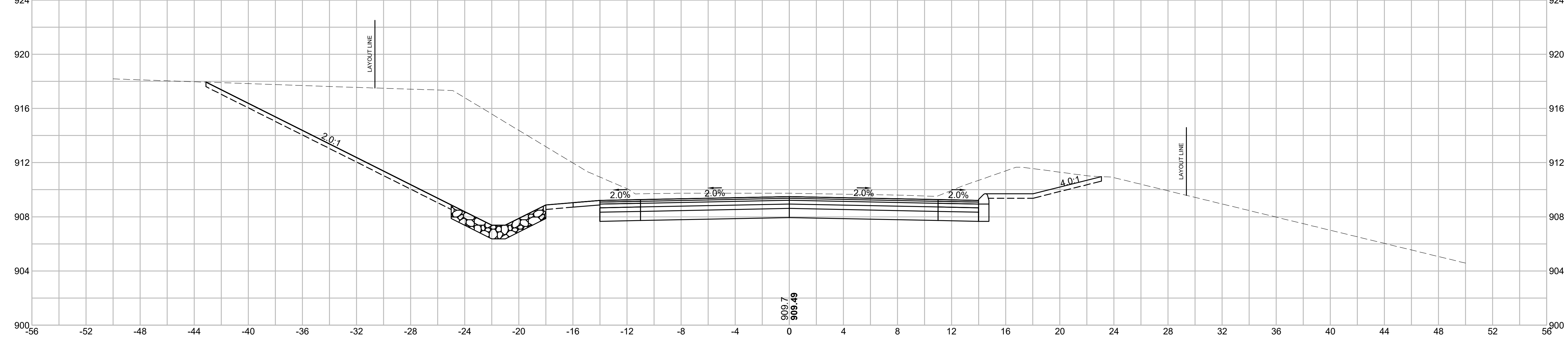
34+50



34+00

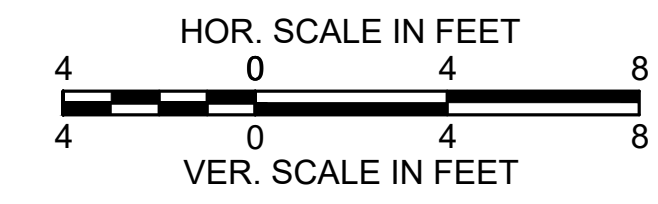


33+50



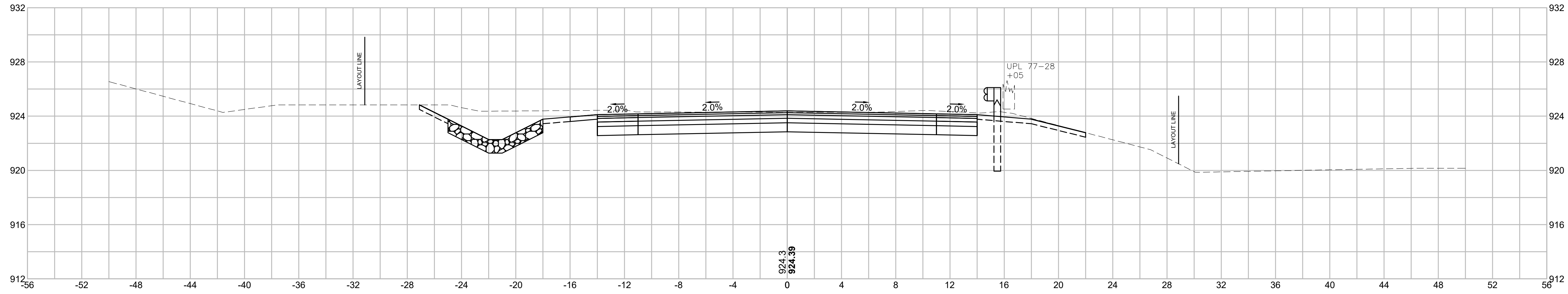
**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	114	182
PROJECT FILE NO.		608163	



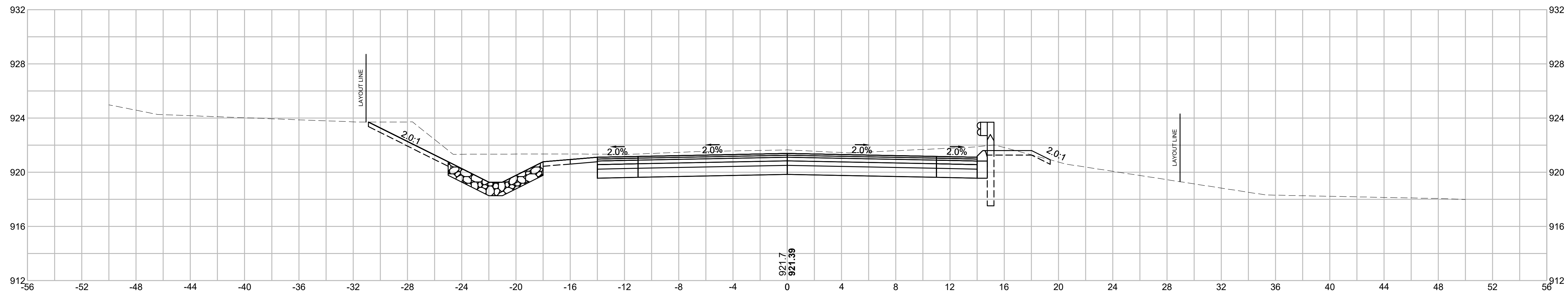
**CROSS SECTIONS**

36+00



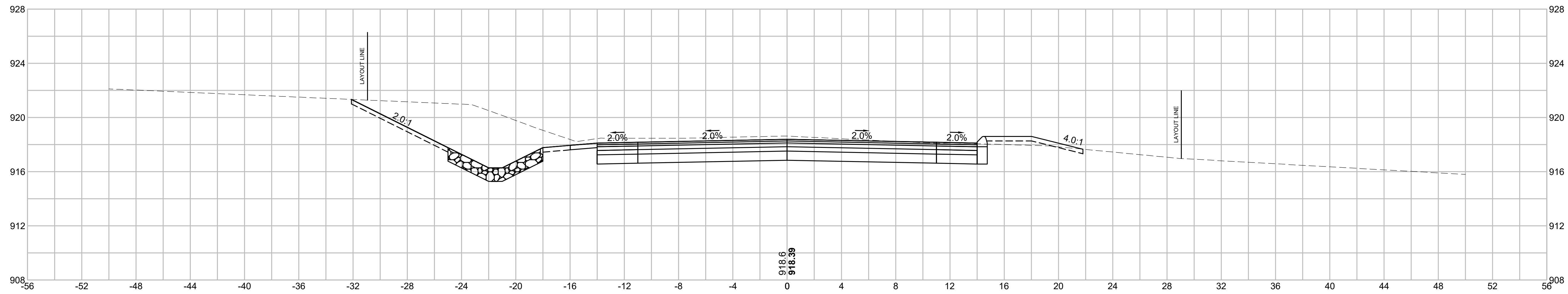
Cut: 71.9 S.F.  
Fill: 0.0 S.F.

35+50



Cut: 83.19 S.F.  
Fill: 0.41 S.F.

35+00

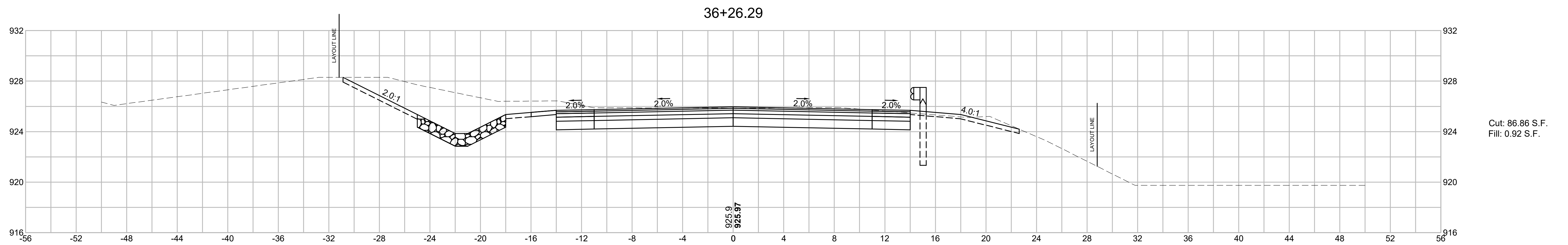
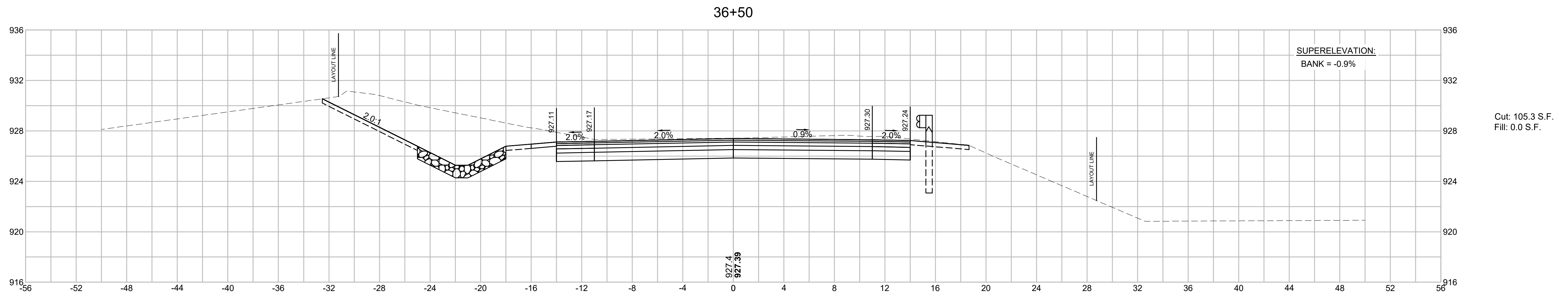
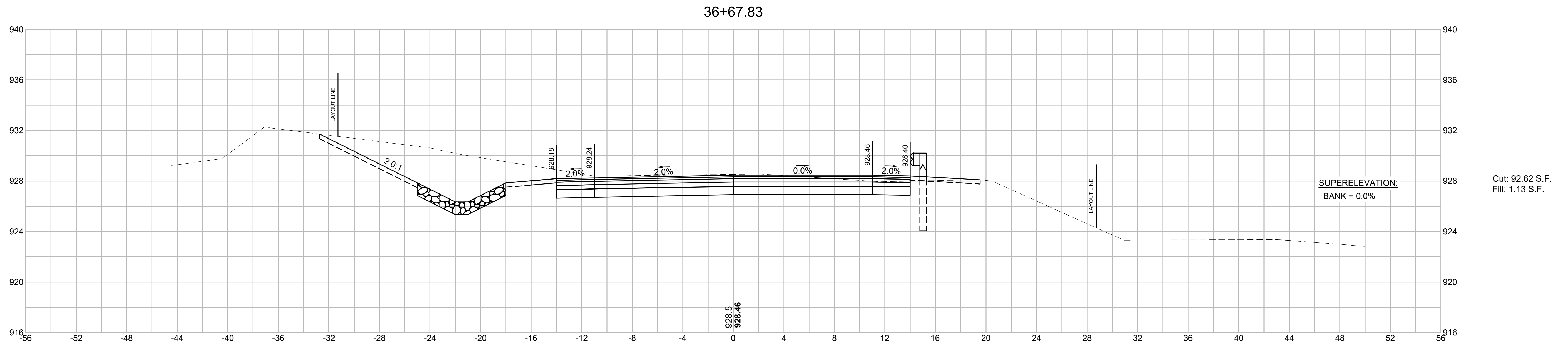
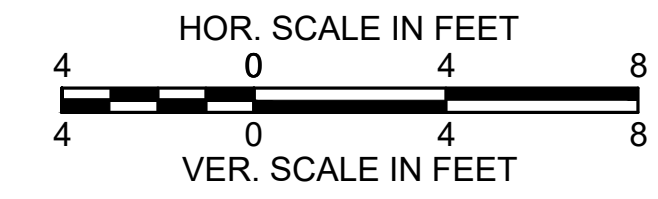


Cut: 97.26 S.F.  
Fill: 3.20 S.F.

**WALES  
MONSON ROAD**

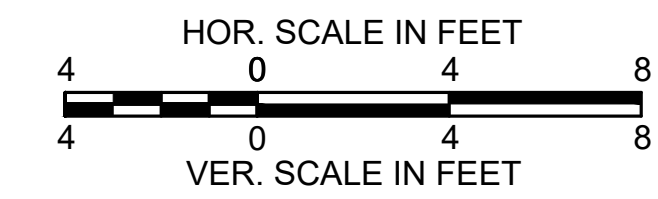
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	115	182
PROJECT FILE NO.		608163	

**CROSS SECTIONS**

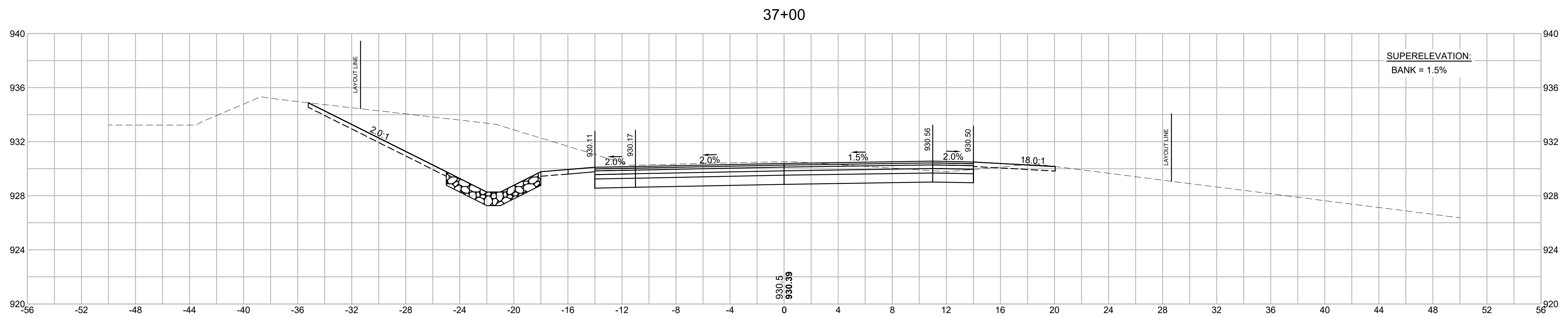
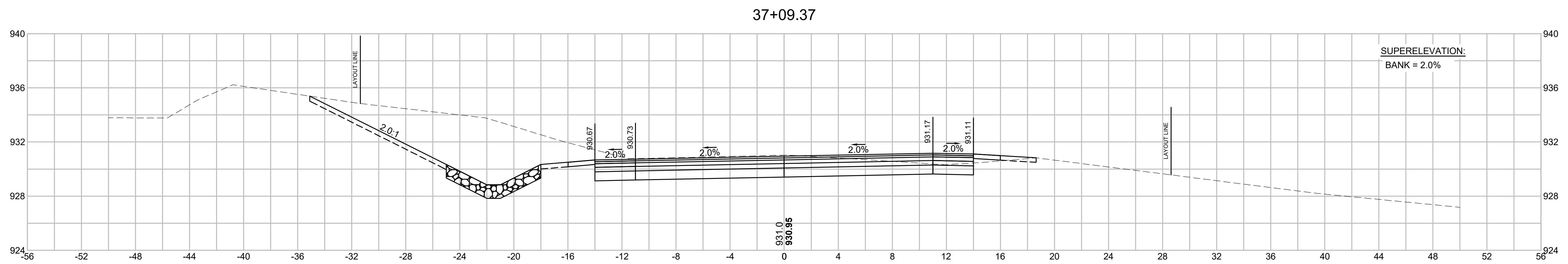
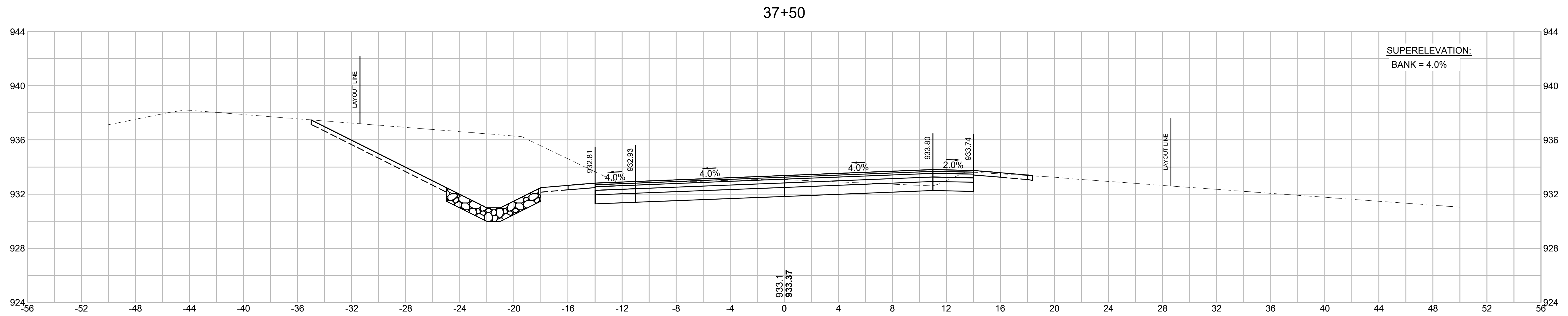


**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	116	182
PROJECT FILE NO.		608163	



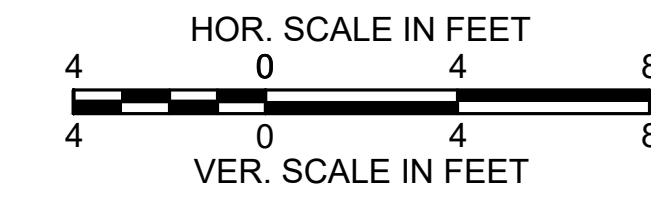
**CROSS SECTIONS**



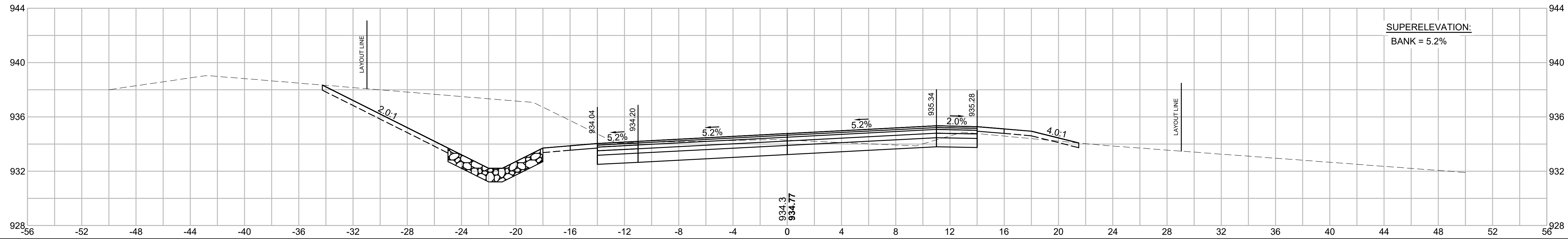
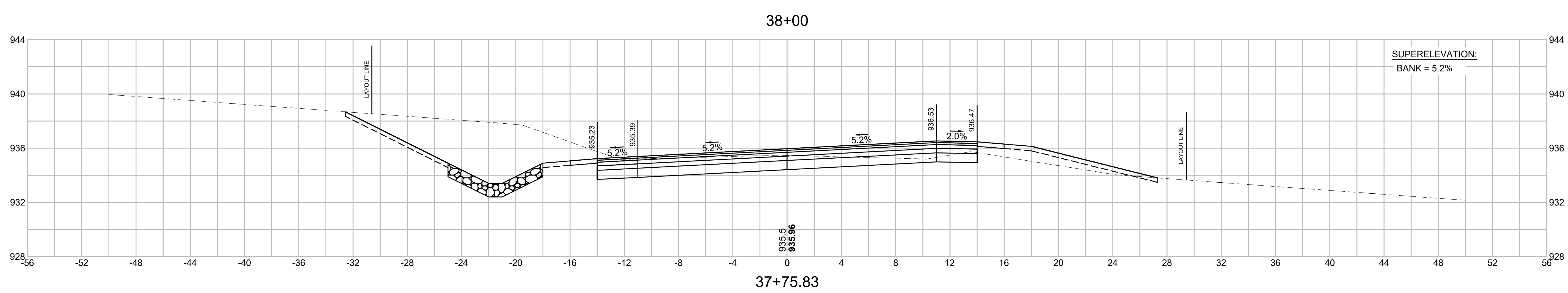
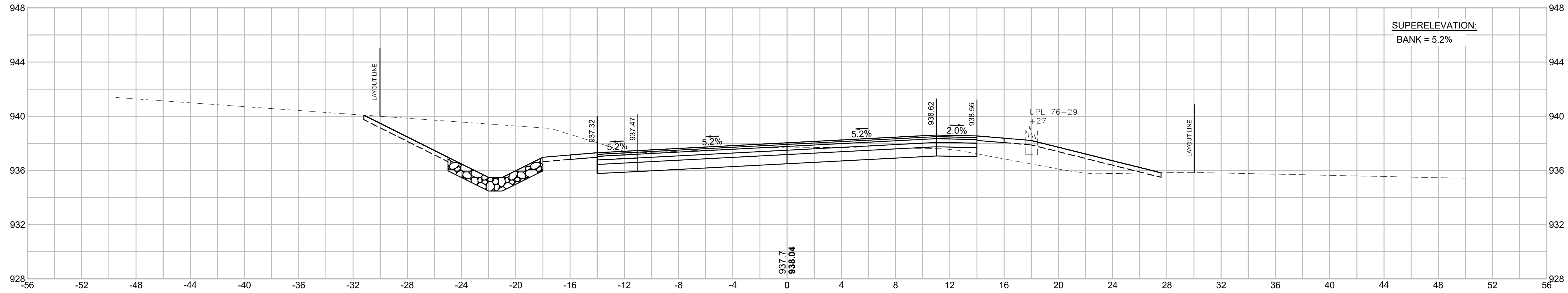
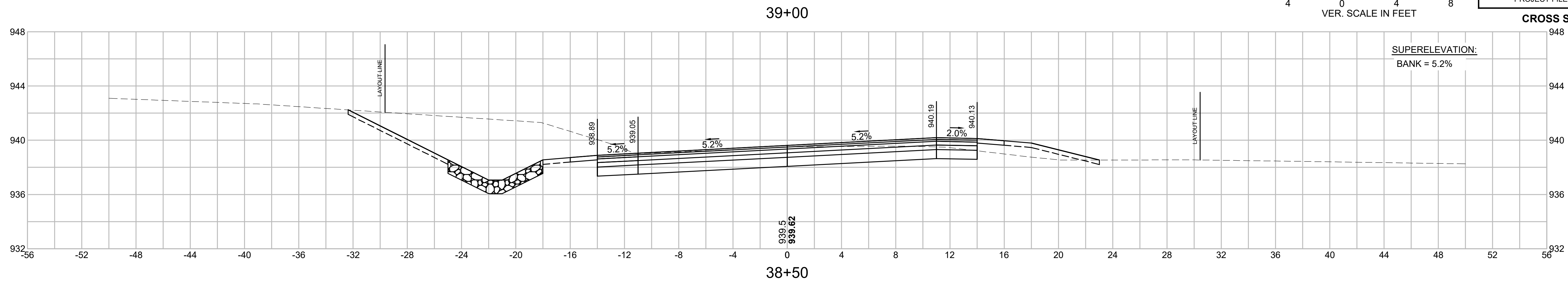


**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	117	182
PROJECT FILE NO.		608163	

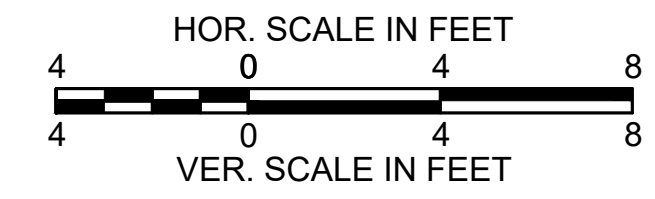


**CROSS SECTIONS**

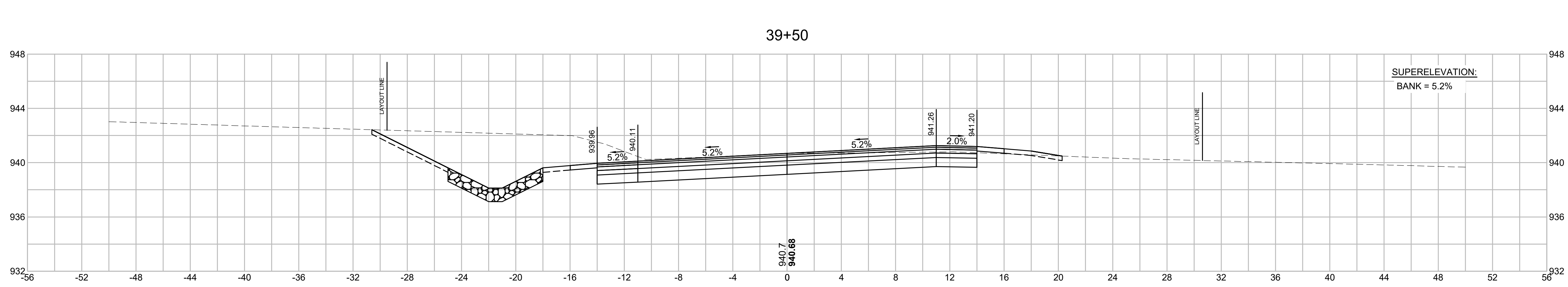
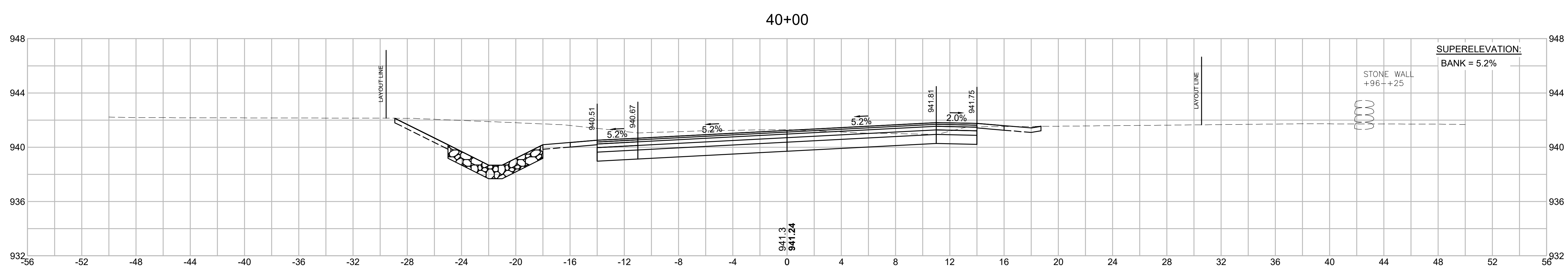
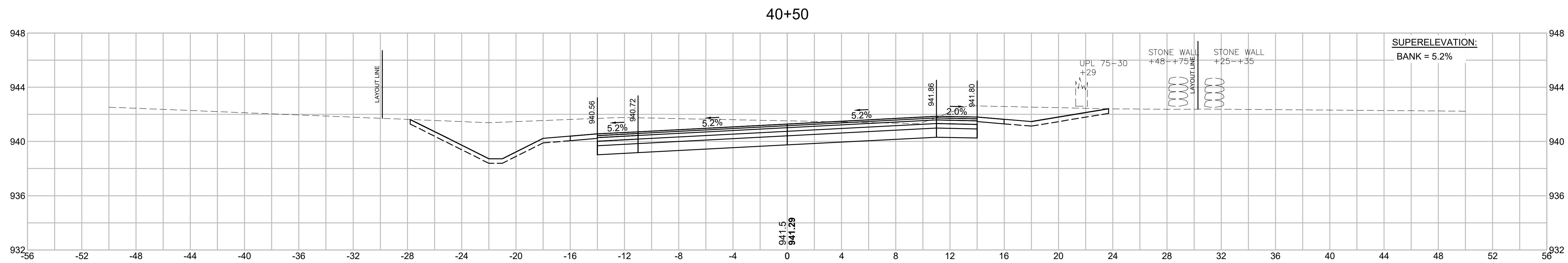
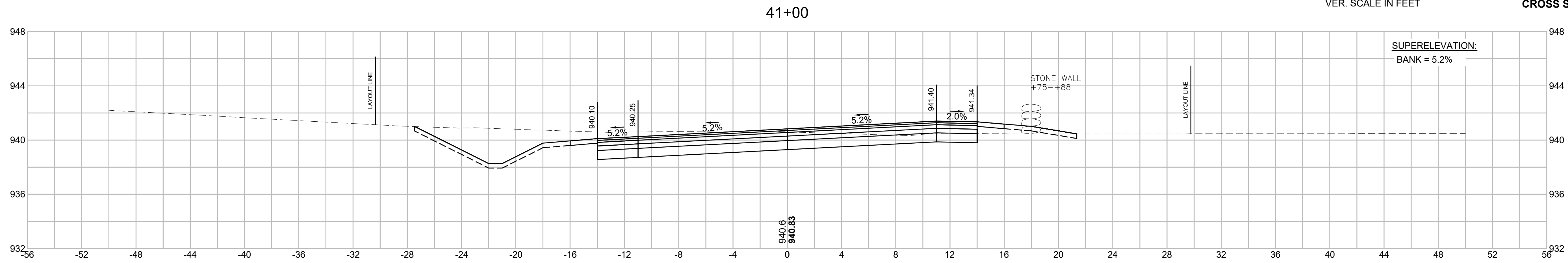


**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	118	182
PROJECT FILE NO.		608163	

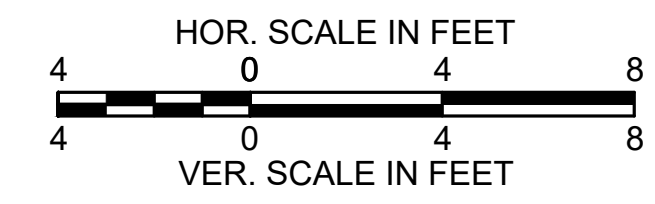


**CROSS SECTIONS**

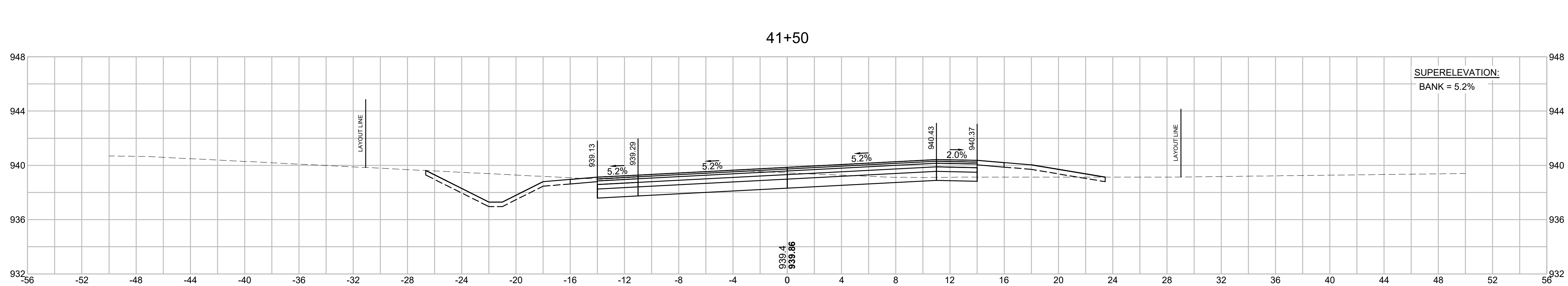
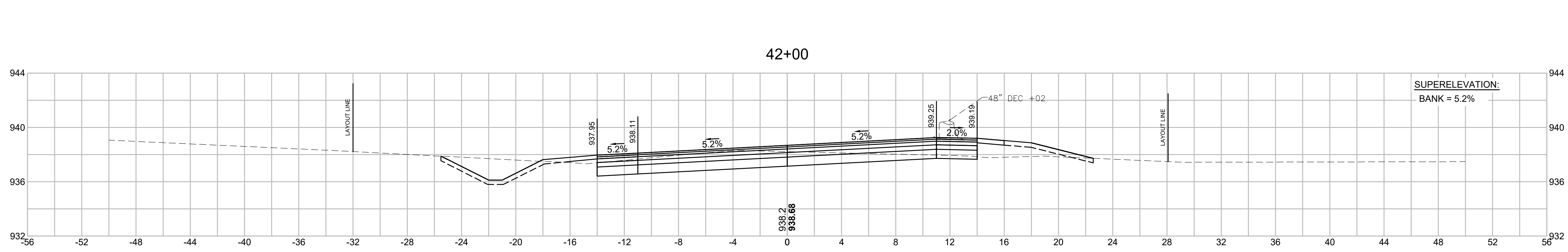
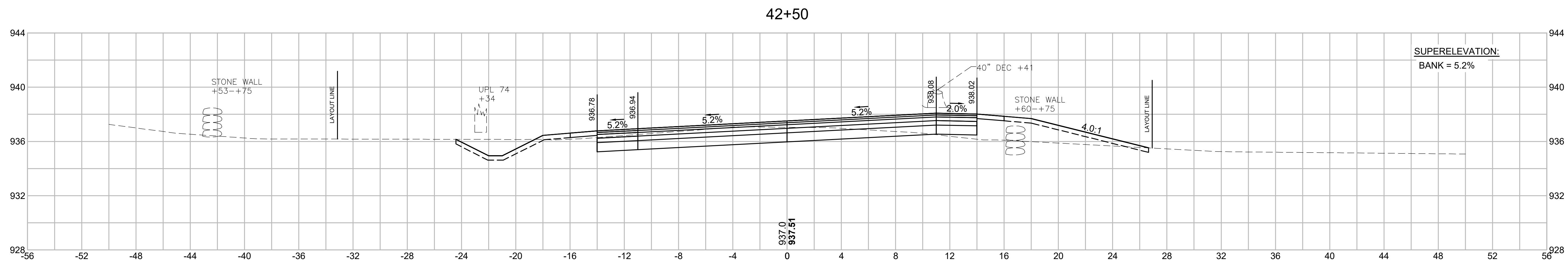
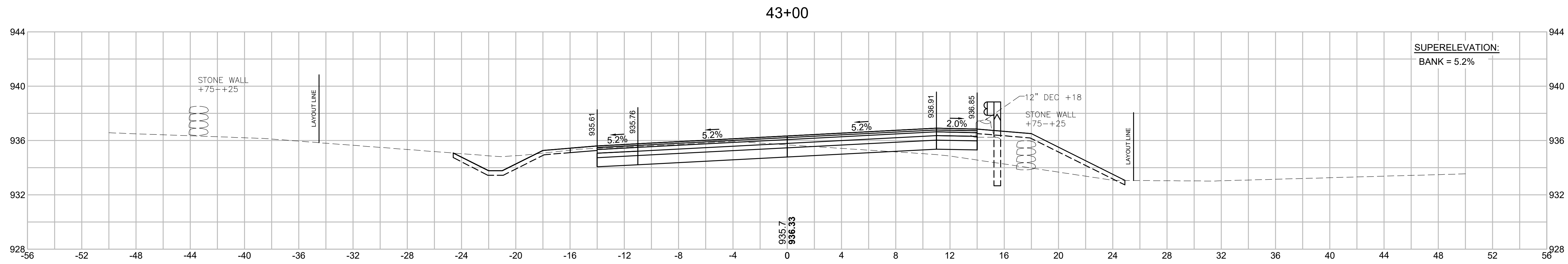


**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	119	182
PROJECT FILE NO.		608163	

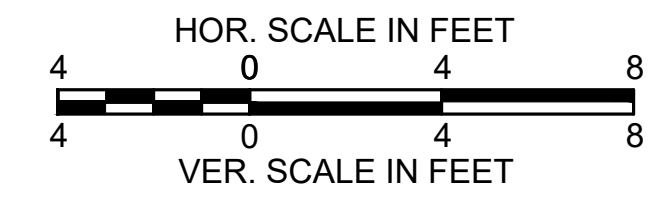


**CROSS SECTIONS**



**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	120	182
PROJECT FILE NO.		608163	



**CROSS SECTIONS**

SUPERELEVATION:  
BANK = 2.0%

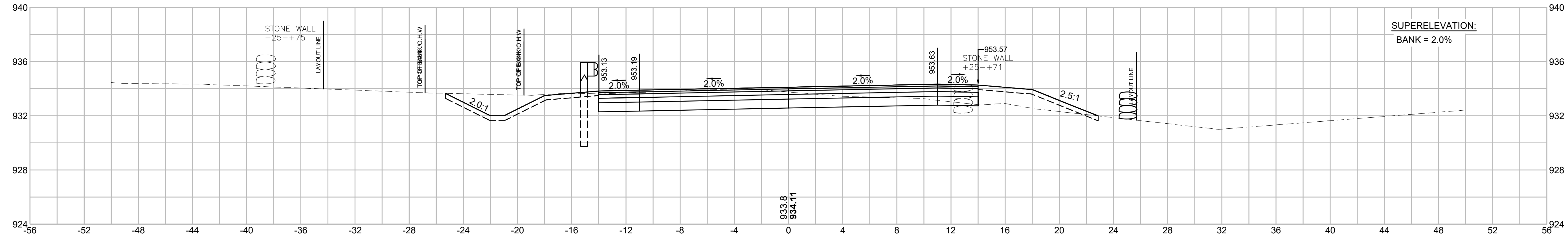
Cut: 39.15 S.F.  
Fill: 8.87 S.F.

Cut: 96.36 S.F.  
Fill: 12.89 S.F.

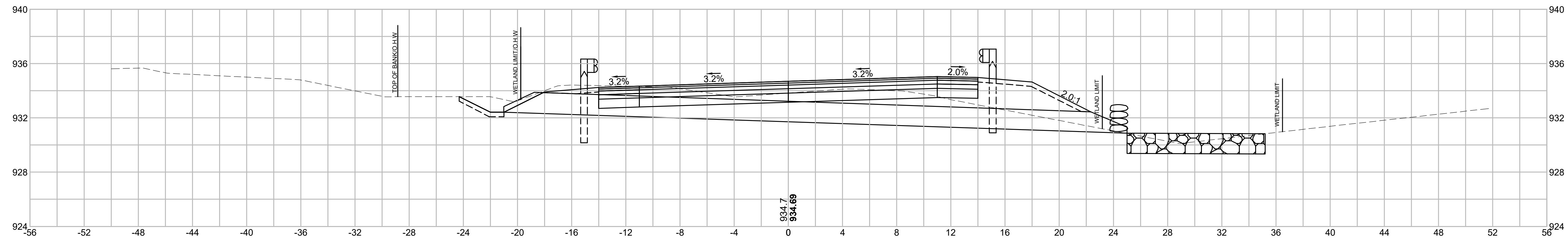
Cut: 35.54 S.F.  
Fill: 16.37 S.F.

Cut: 33.29 S.F.  
Fill: 14.32 S.F.

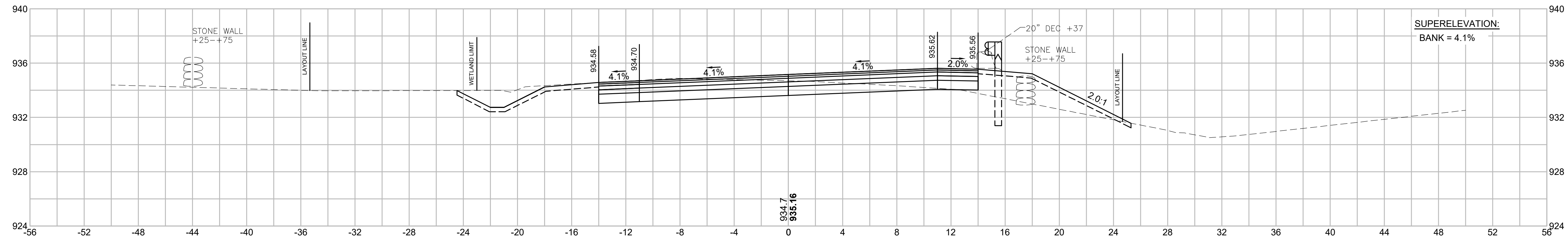
43+94.64



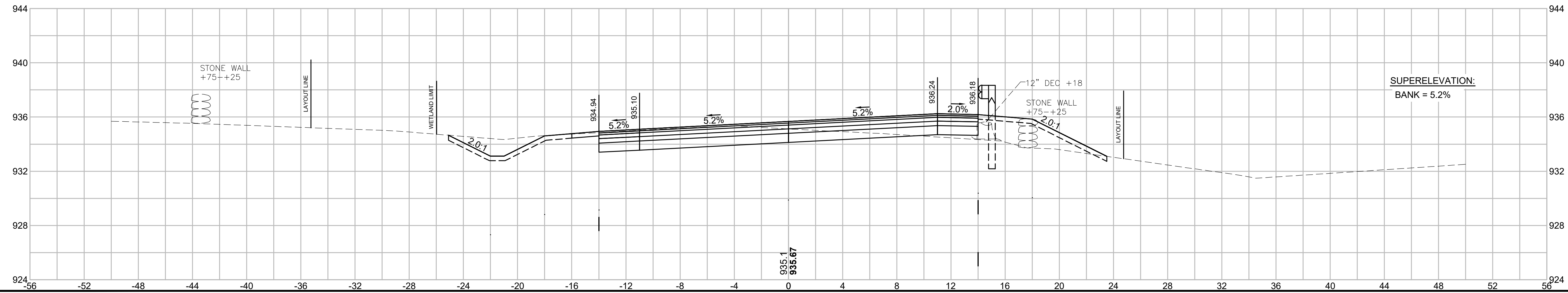
43+70 (SECTION CUT ALONG CENTERLINE OF PROPOSED CULVERT)



43+50



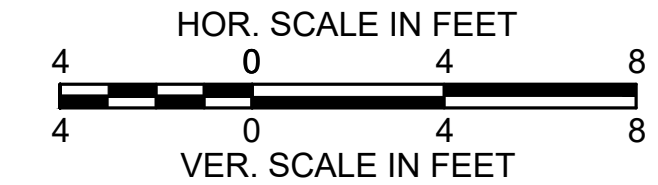
43+28.17



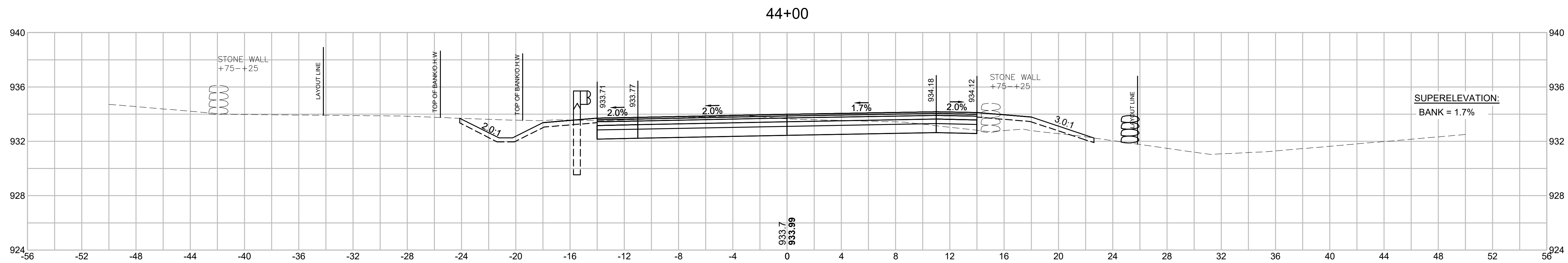
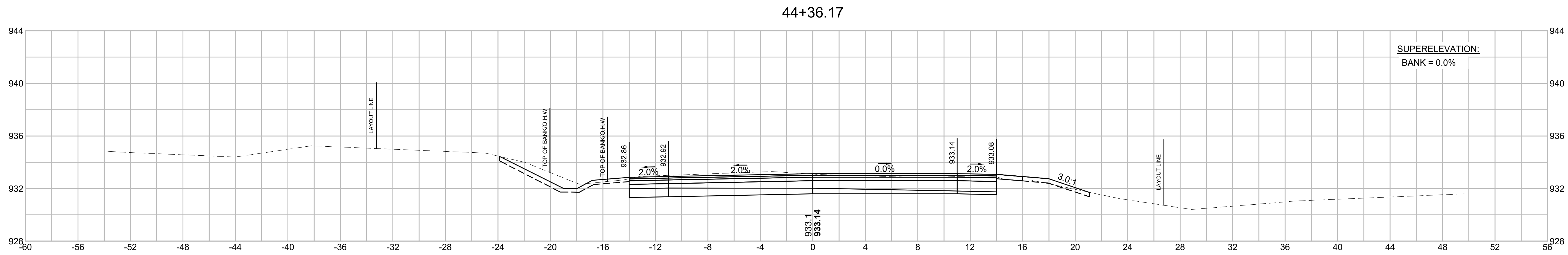
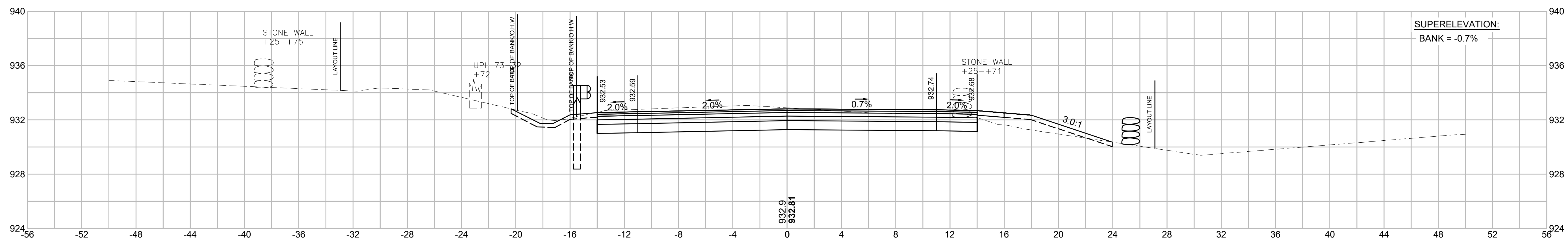
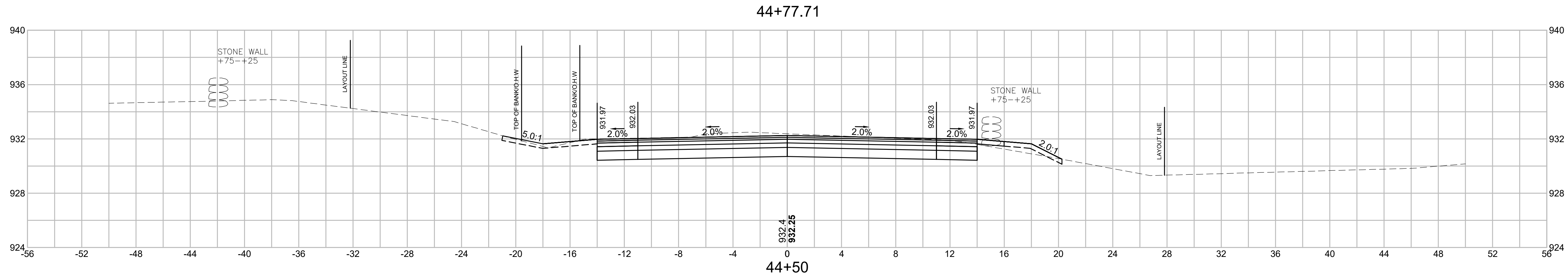


WALES  
MONSON ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	121	182
PROJECT FILE NO.		608163	

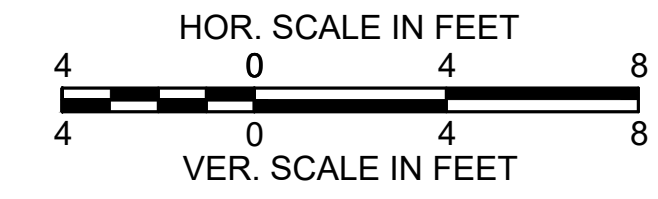


CROSS SECTIONS

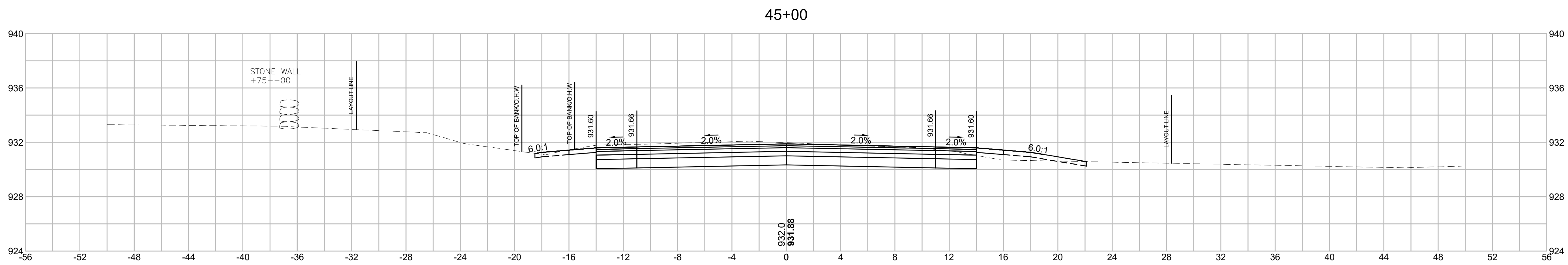
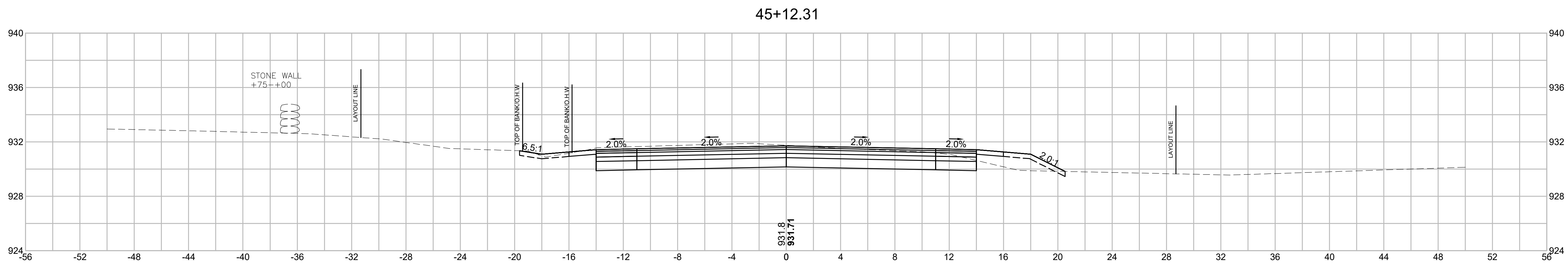
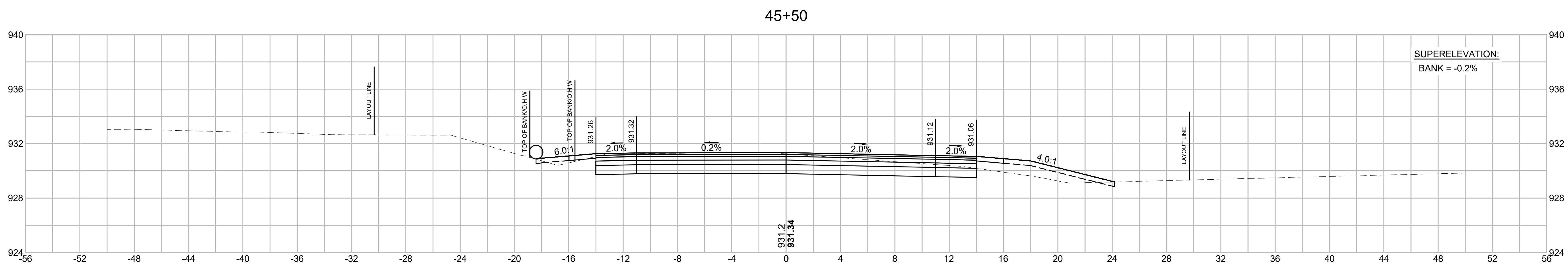
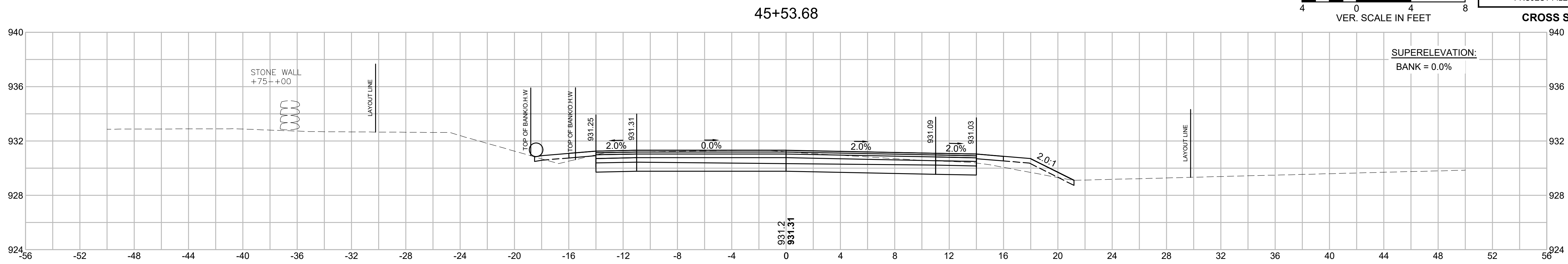


**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	122	182
PROJECT FILE NO.		608163	

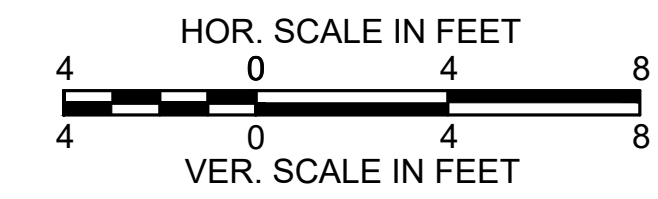


**CROSS SECTIONS**

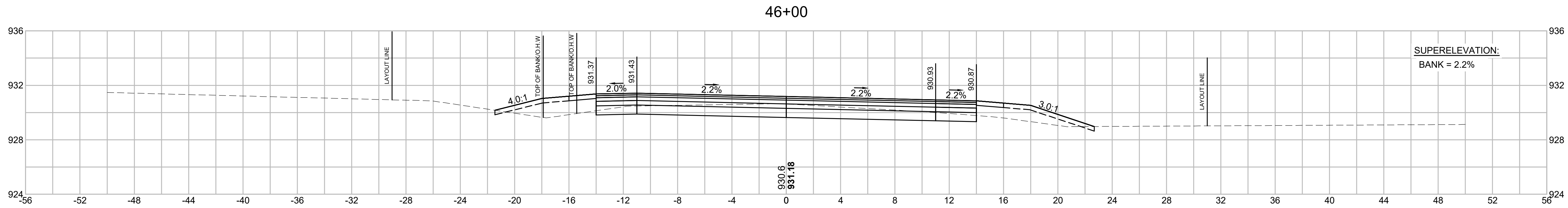


**WALES  
MONSON ROAD**

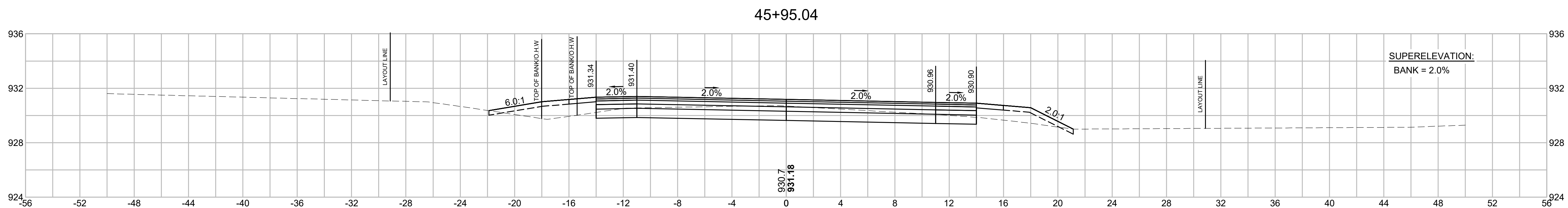
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	123	182
PROJECT FILE NO.		608163	



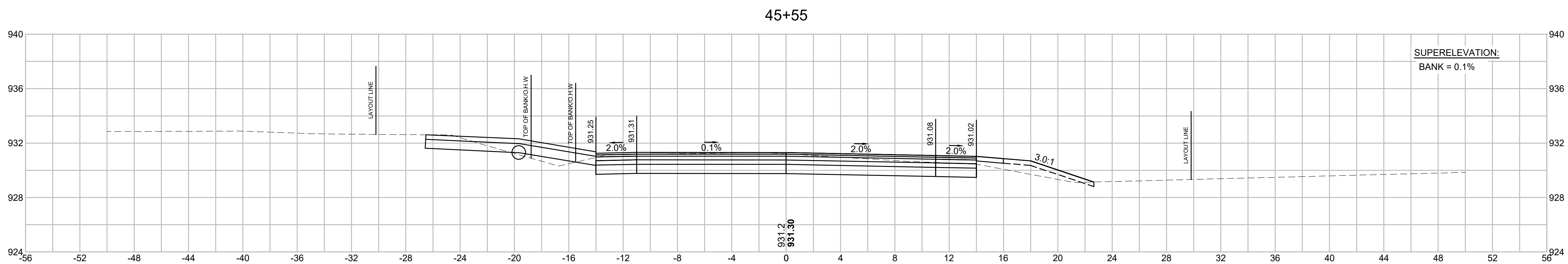
**CROSS SECTIONS**



Cut: 21.13 S.F.  
Fill: 15.44 S.F.



Cut: 23.29 S.F.  
Fill: 13.40 S.F.



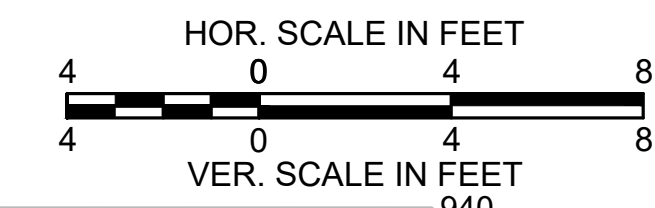
Cut: 41.69 S.F.  
Fill: 7.24 S.F.

**WALES  
MONSON ROAD**

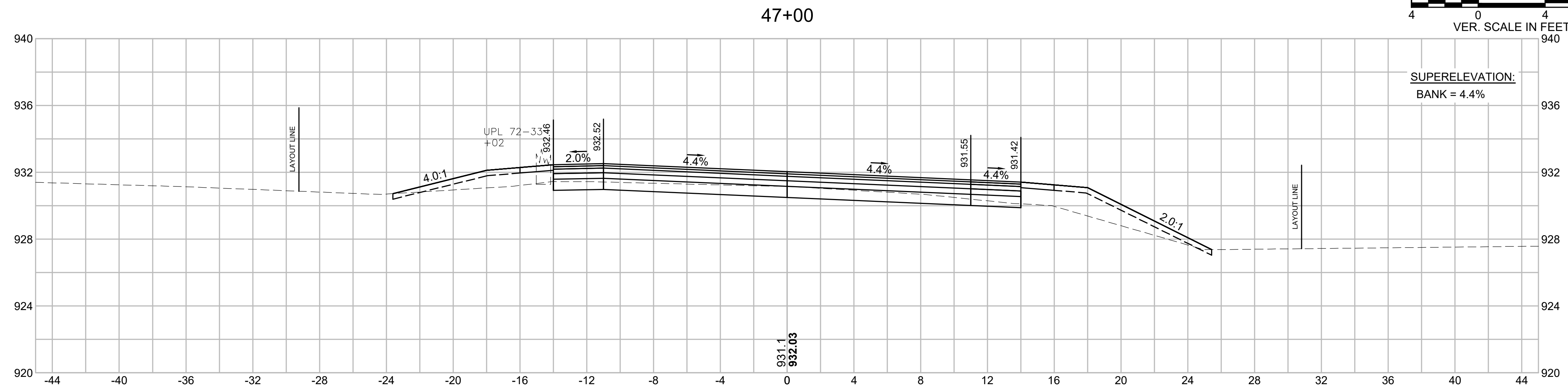
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HHSI-0032(043)X	124	182

PROJECT FILE NO. 608163

**CROSS SECTIONS**

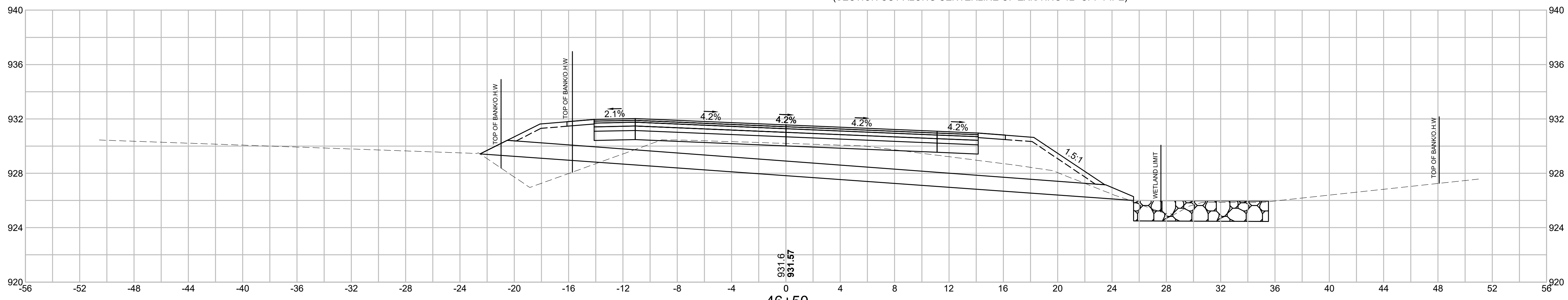


SUPERELEVATION:  
BANK = 4.4%



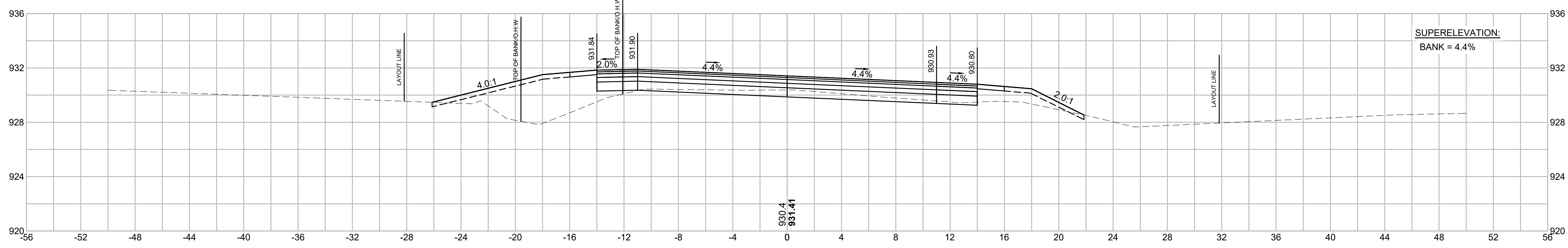
Cut: 15.09 S.F.  
Fill: 19.53 S.F.

46+64.76 (SECTION CUT ALONG CENTERLINE OF EXISTING 12" CPP PIPE)



Cut: 85.75 S.F.  
Fill: 36.70 S.F.

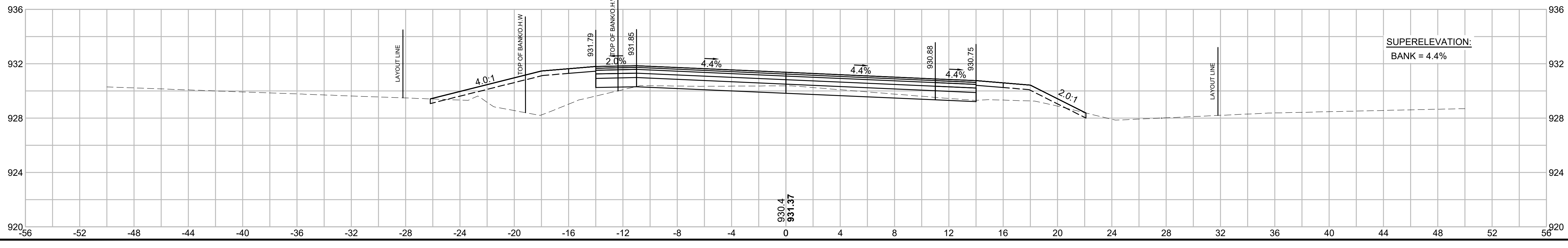
46+50



SUPERELEVATION:  
BANK = 4.4%

Cut: 7.89 S.F.  
Fill: 32.80 S.F.

46+44.68



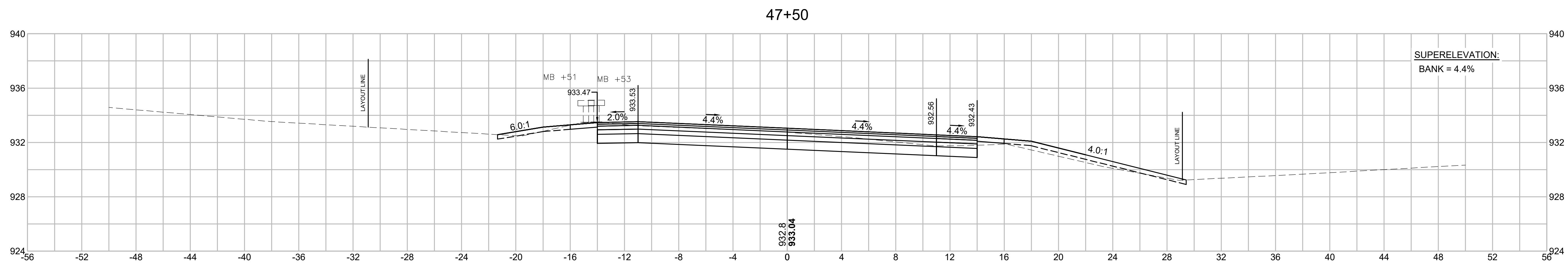
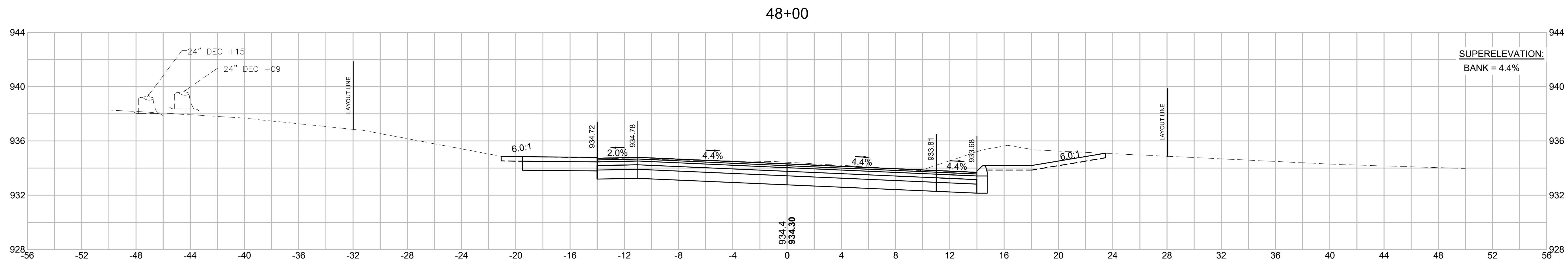
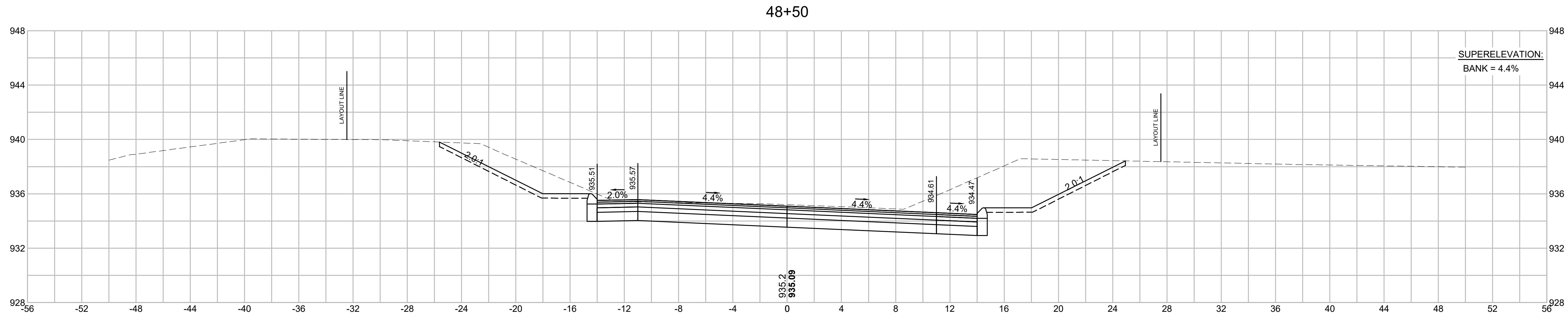
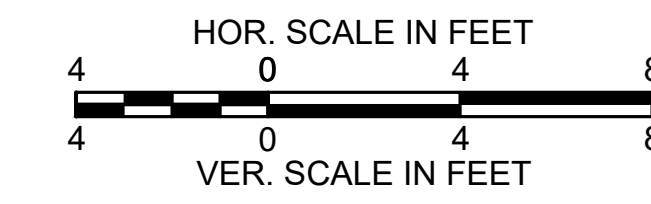
SUPERELEVATION:  
BANK = 4.4%

Cut: 8.27 S.F.  
Fill: 30.60 S.F.

**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	125	182
PROJECT FILE NO.		608163	

**CROSS SECTIONS**

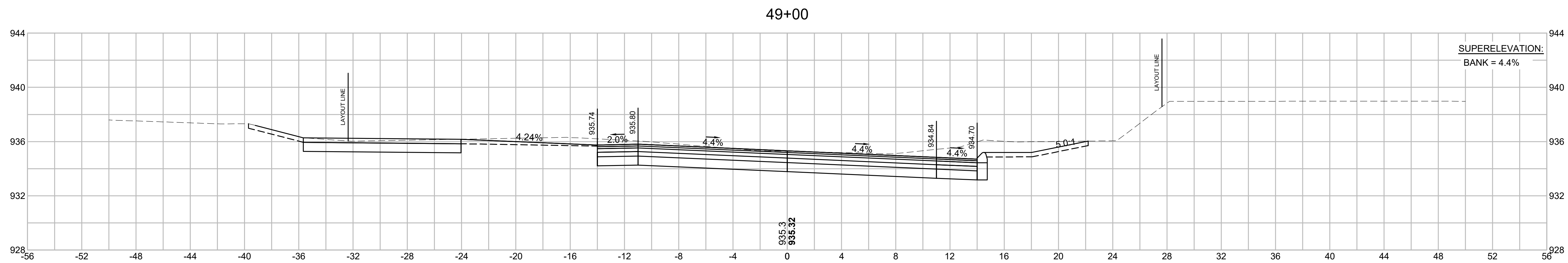
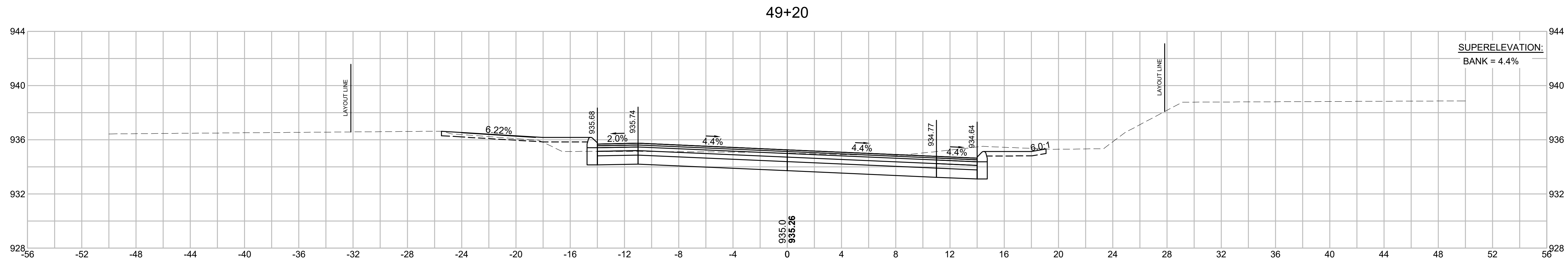
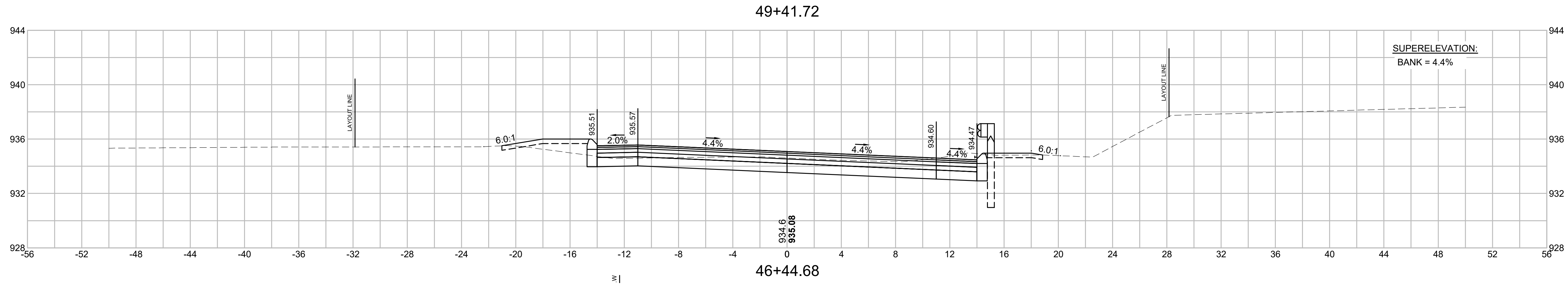
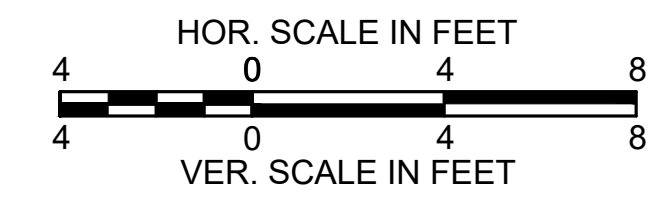




**WALES  
MONSON ROAD**

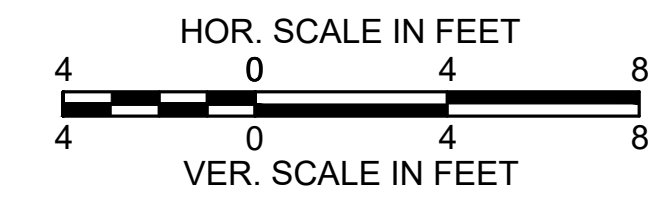
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	126	182
PROJECT FILE NO.		608163	

**CROSS SECTIONS**

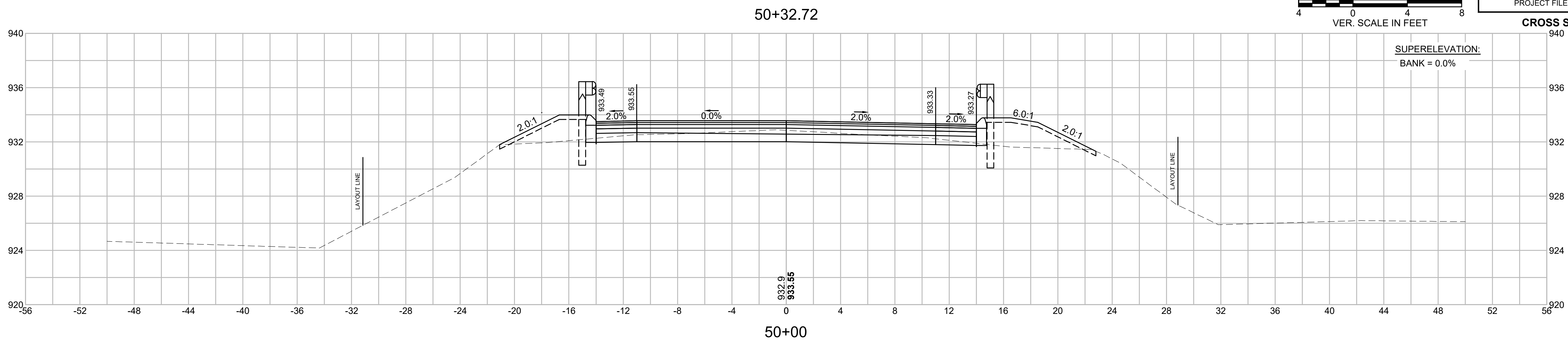


**WALES  
MONSON ROAD**

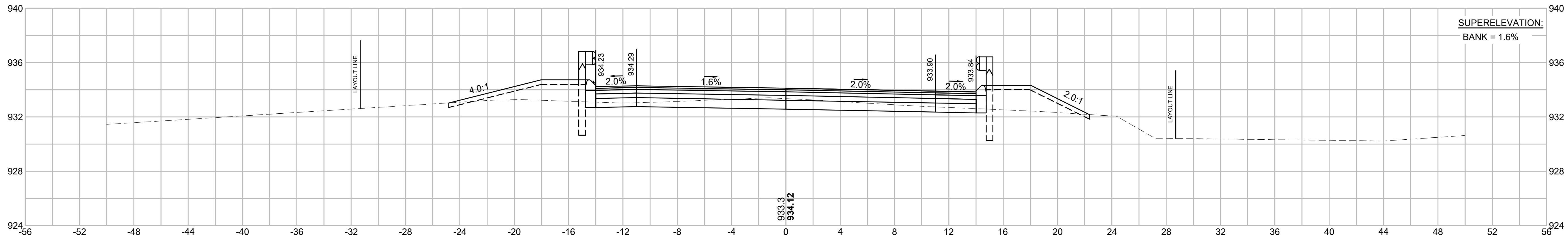
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	127	182
PROJECT FILE NO.		608163	



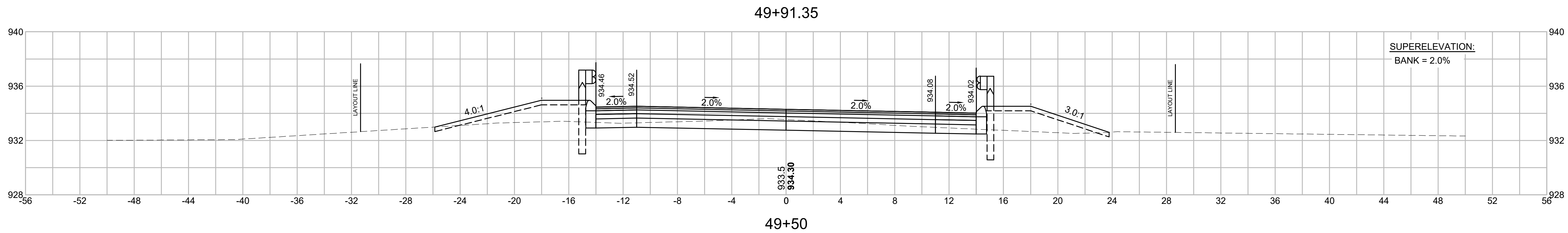
**CROSS SECTIONS**



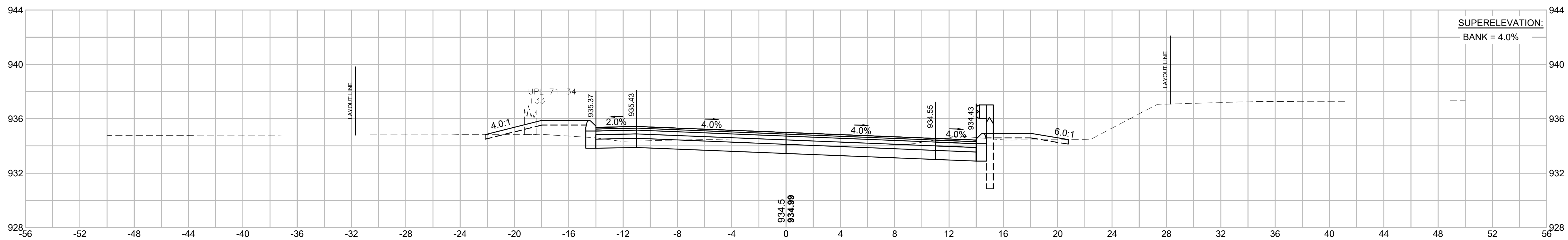
Cut: 17.50 S.F.  
Fill: 19.59 S.F.



Cut: 15.56 S.F.  
Fill: 19.90 S.F.



Cut: 16.43 S.F.  
Fill: 22.60 S.F.

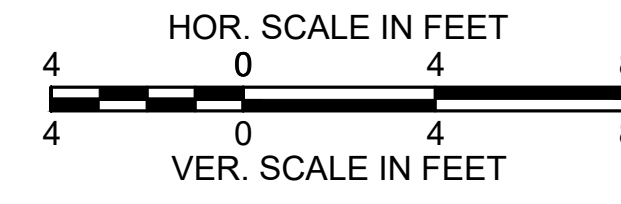


Cut: 29.22 S.F.  
Fill: 8.02 S.F.

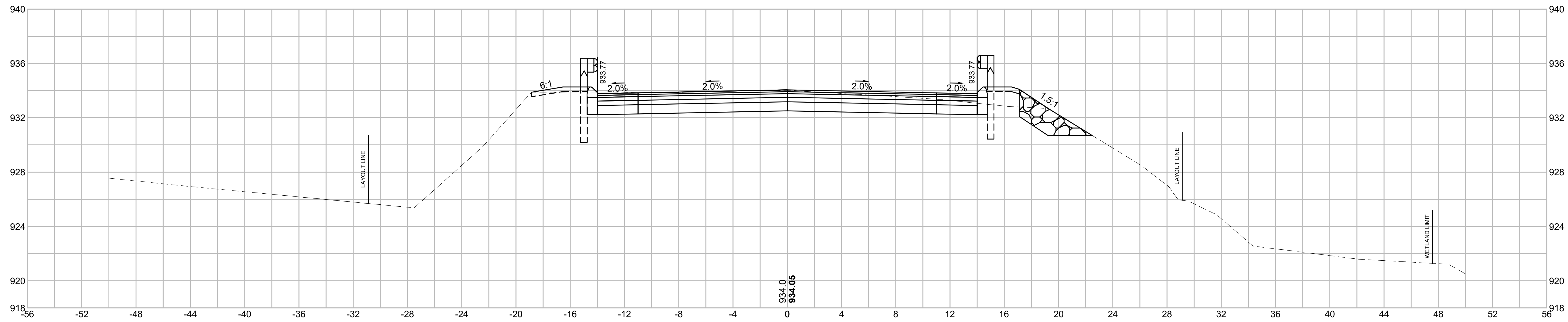
**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	128	182
PROJECT FILE NO.		608163	

**CROSS SECTIONS**

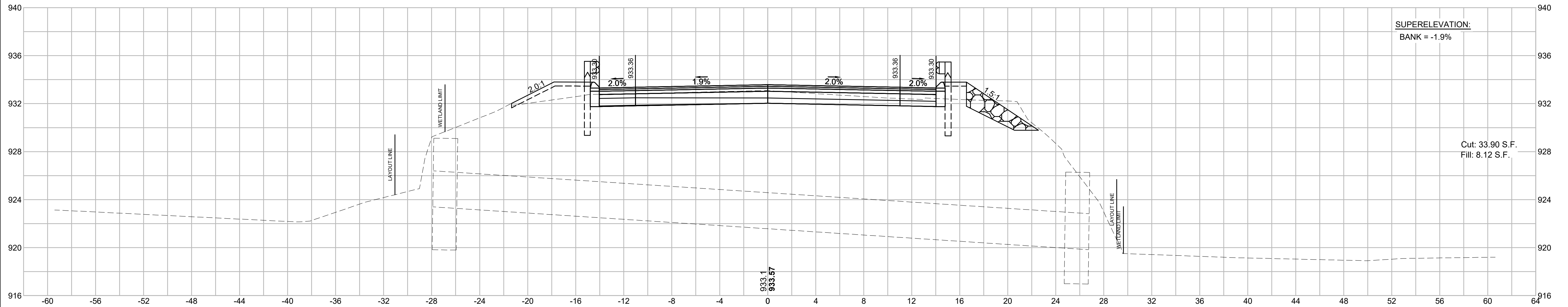


51+00



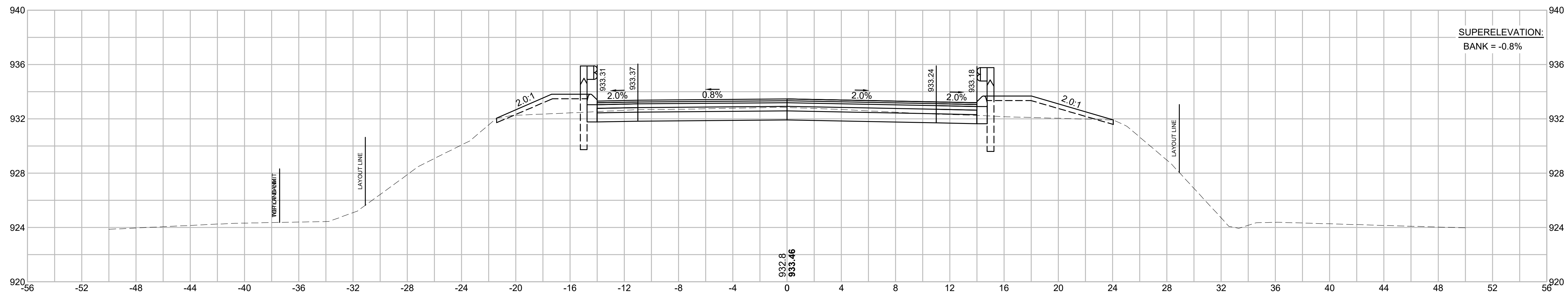
Cut: 47.14 S.F.  
Fill: 4.41 S.F.

50+72.94 (SECTION CUT ALONG CENTERLINE OF EXISTING CULVERT)



Cut: 33.90 S.F.  
Fill: 8.12 S.F.

50+50

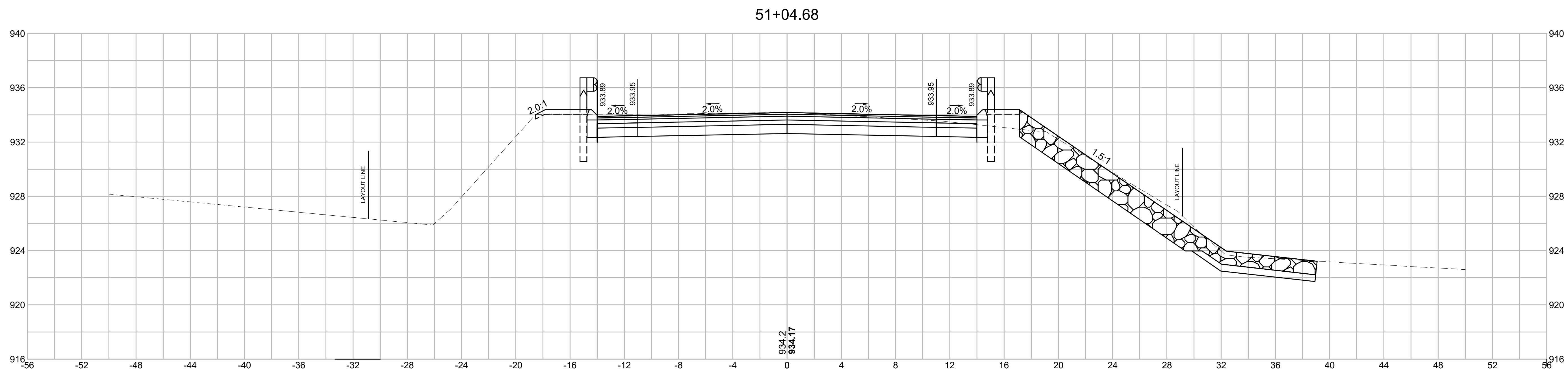
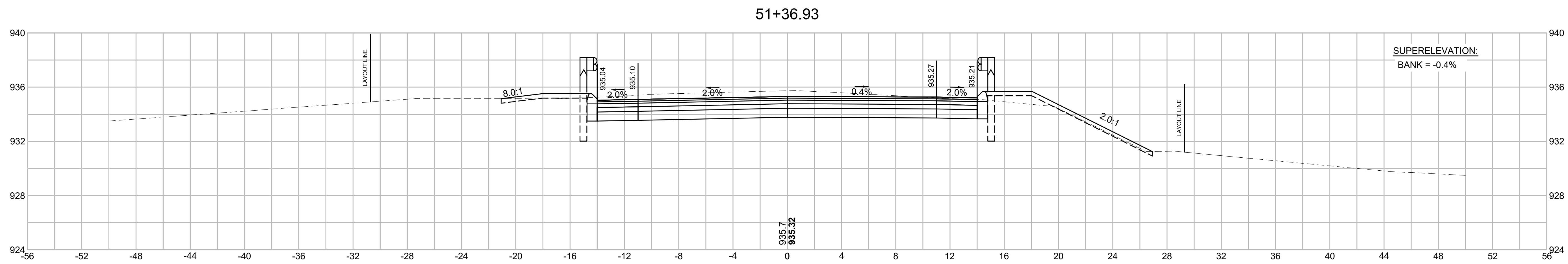
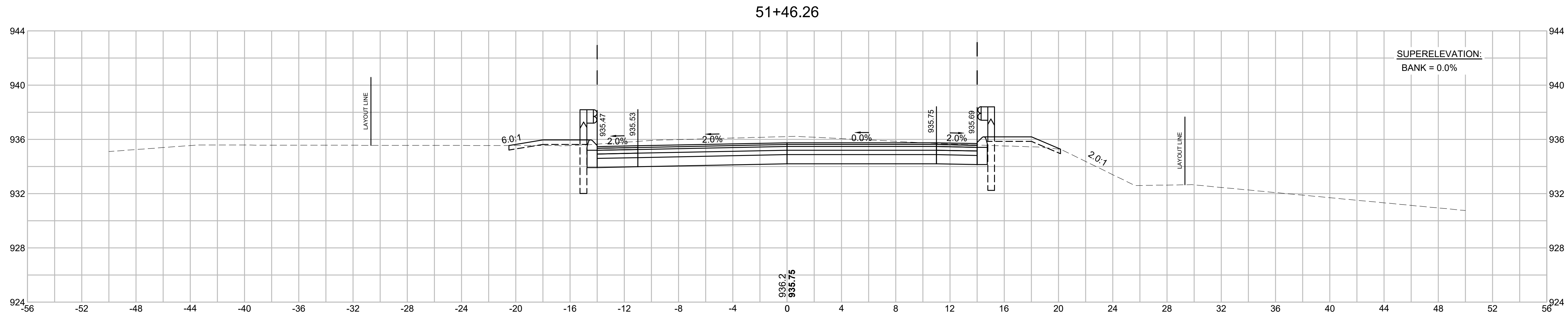
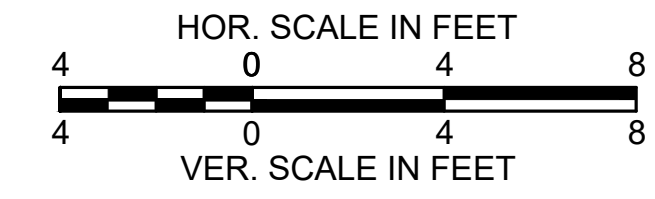


Cut: 24.21 S.F.  
Fill: 16.09 S.F.

**WALES  
MONSON ROAD**

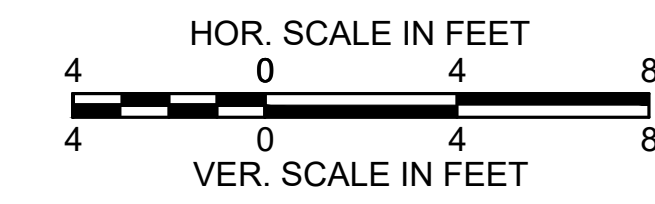
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	129	182
PROJECT FILE NO.		608163	

**CROSS SECTIONS**

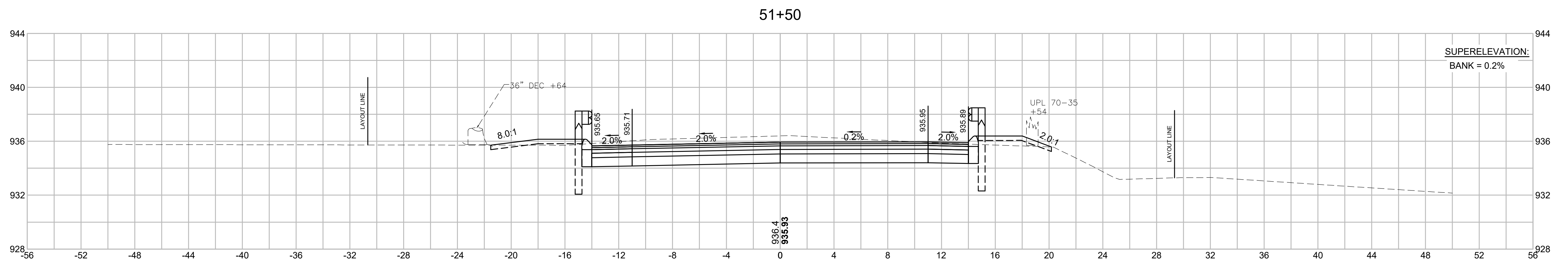
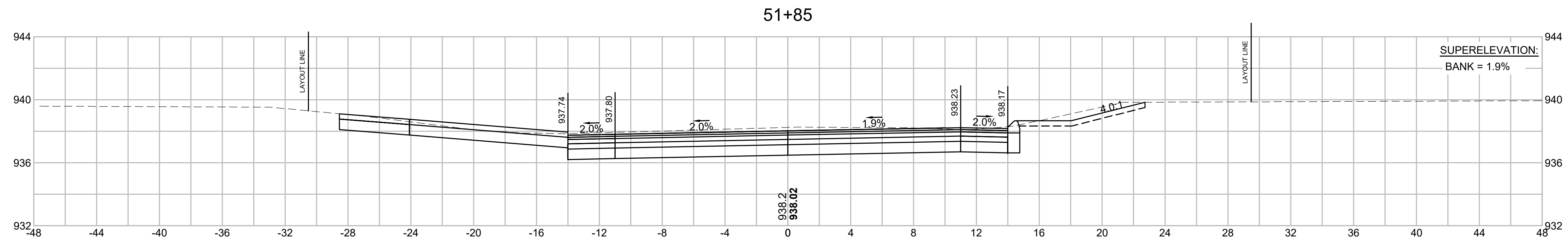
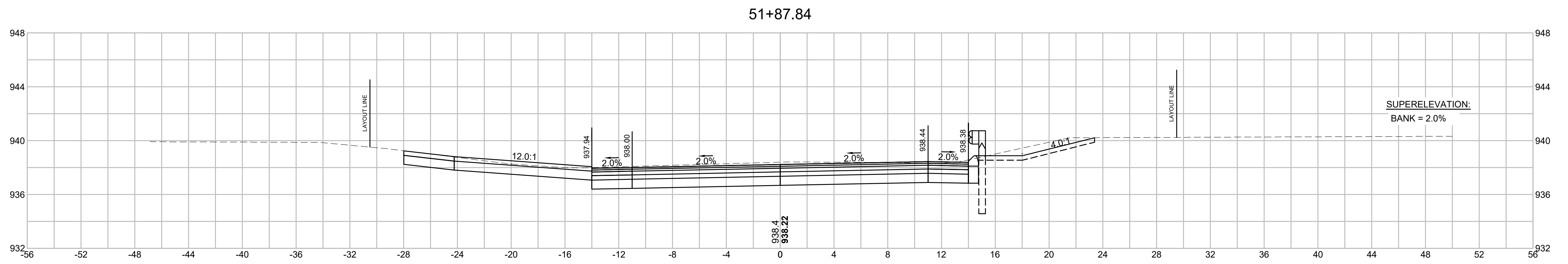
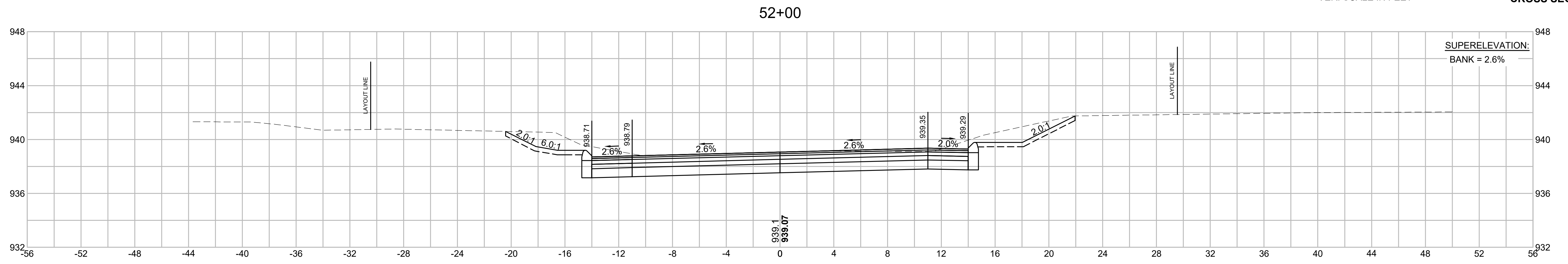


**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	130	182
PROJECT FILE NO.		608163	



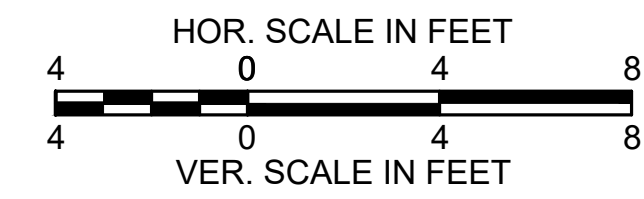
**CROSS SECTIONS**





**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	131	182
PROJECT FILE NO.		608163	



**CROSS SECTIONS**

SUPERELEVATION:  
BANK = 3.8%

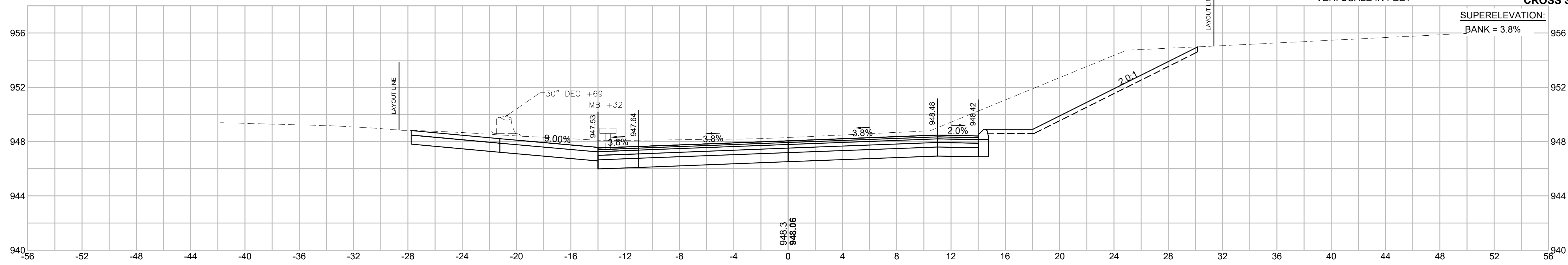
Cut: 113.21 S.F.  
Fill: 0.0 S.F.

Cut: 136.50 S.F.  
Fill: 0.0 S.F.

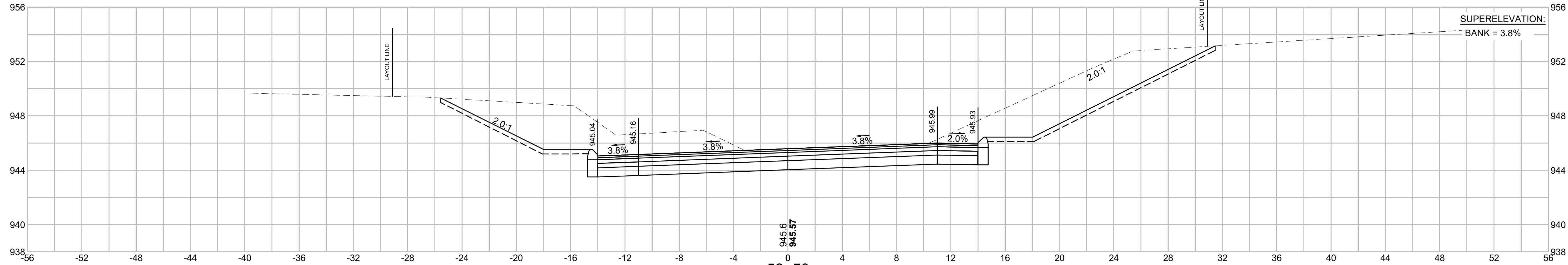
Cut: 99.13 S.F.  
Fill: 0.0 S.F.

Cut: 92.26 S.F.  
Fill: 0.0 S.F.

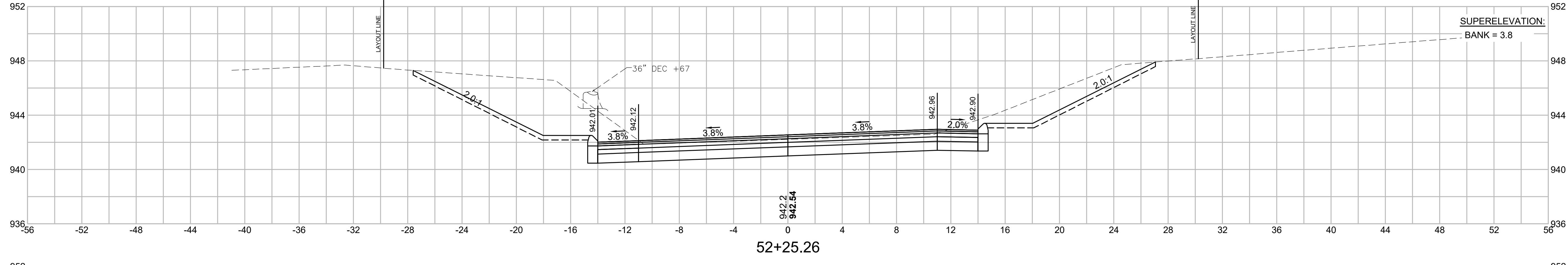
53+50



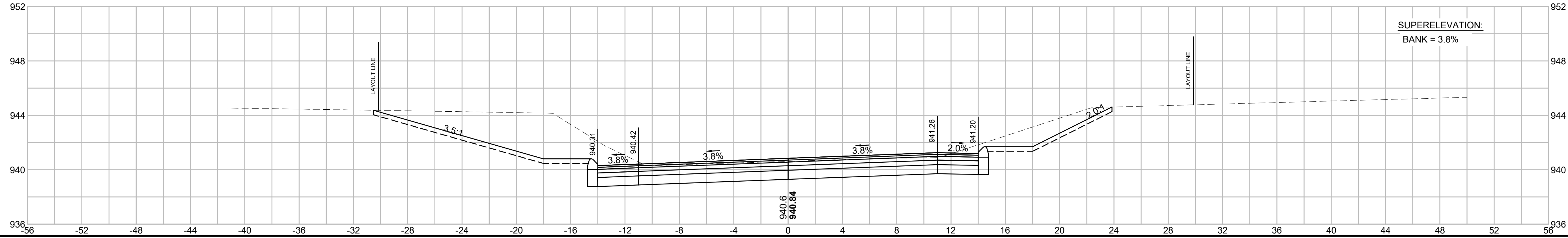
53+00



52+50

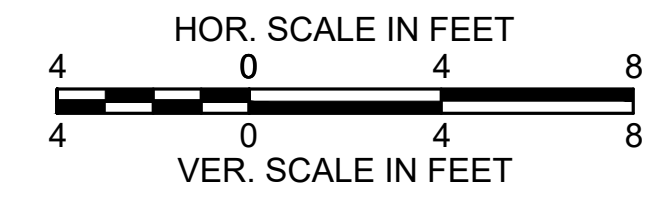


52+25.26

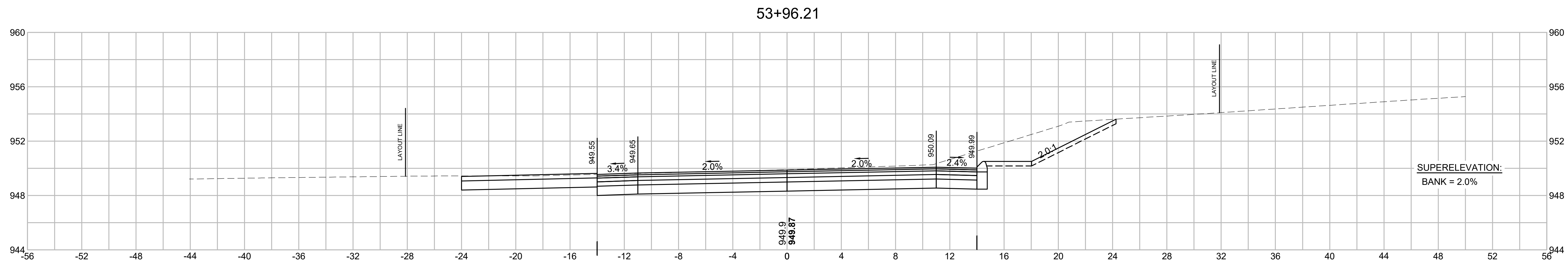
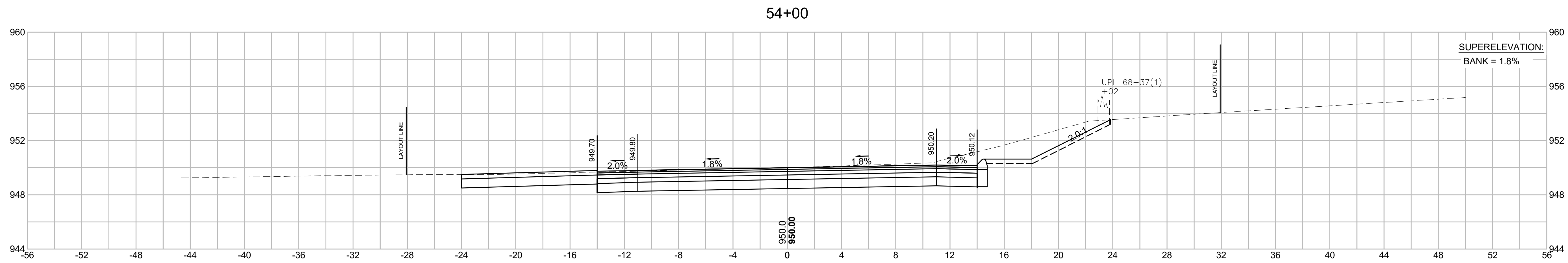
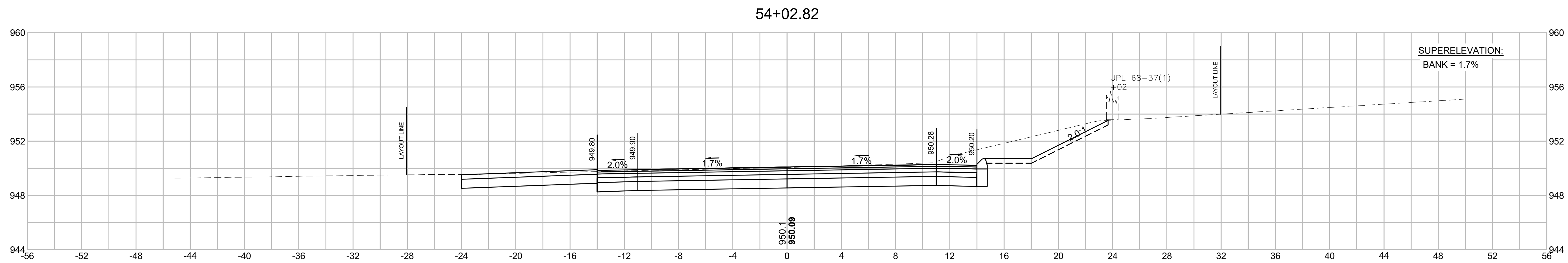
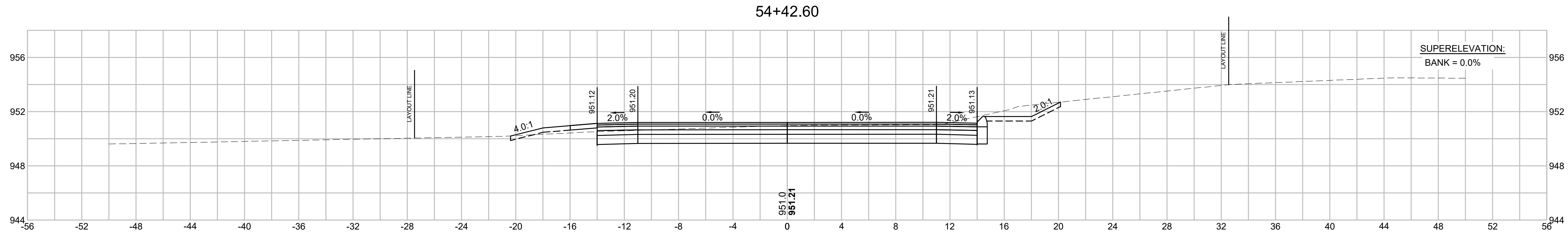


**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	132	182
PROJECT FILE NO.		608163	

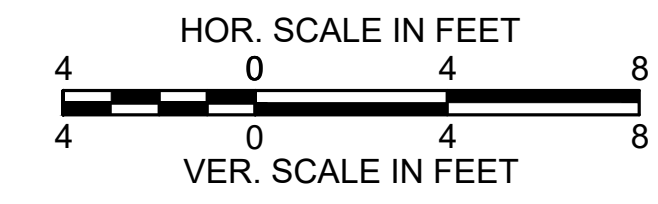


**CROSS SECTIONS**

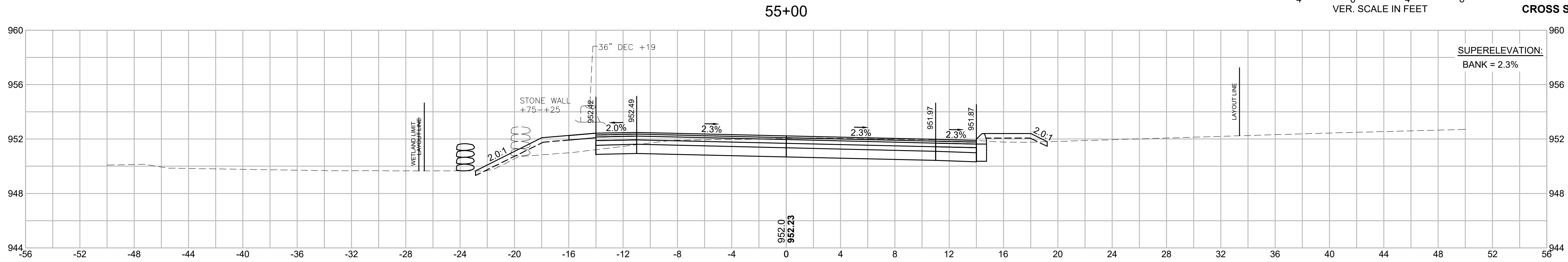


**WALES  
MONSON ROAD**

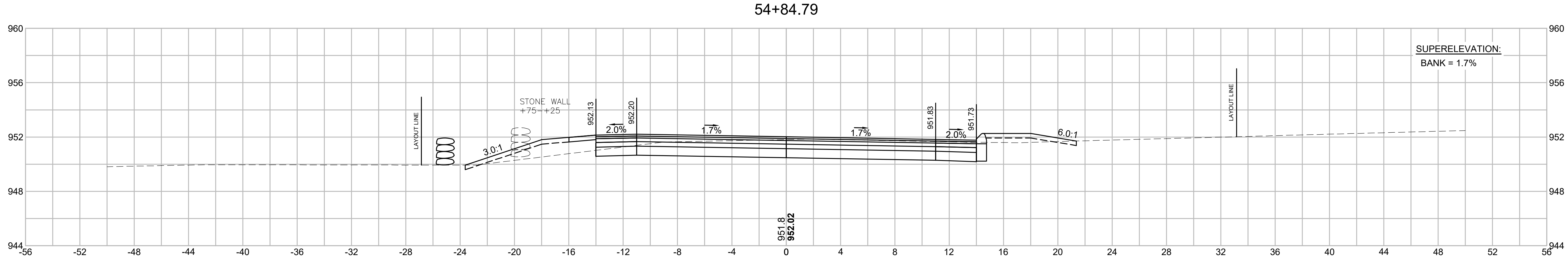
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	133	182
PROJECT FILE NO.		608163	



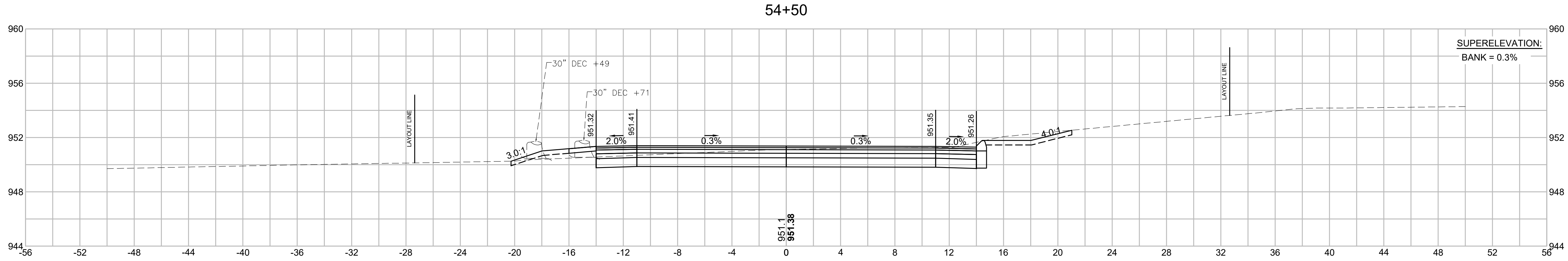
**CROSS SECTIONS**



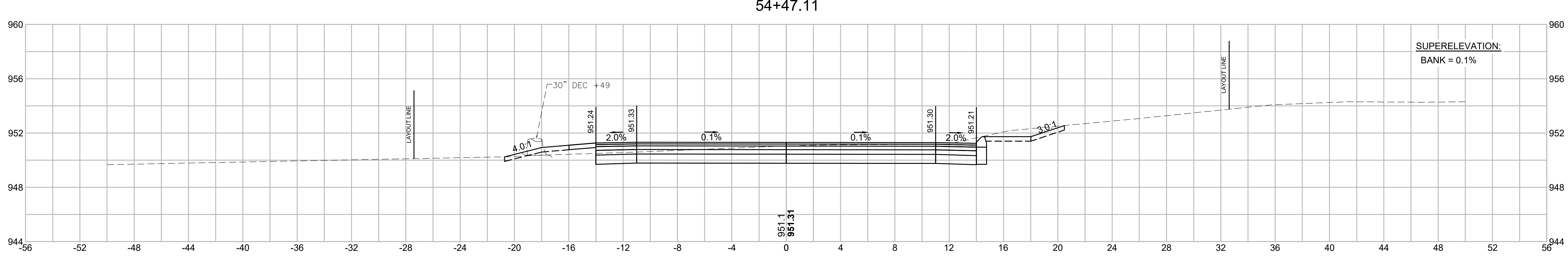
Cut: 35.75 S.F.  
Fill: 10.35 S.F.



Cut: 35.3 S.F.  
Fill: 11.90 S.F.



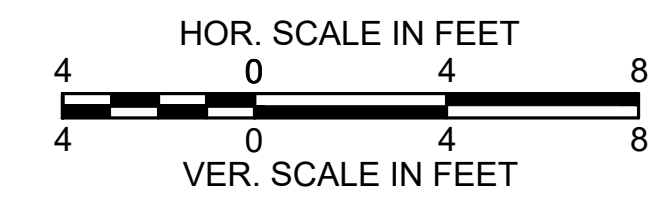
Cut: 39.68 S.F.  
Fill: 3.47 S.F.



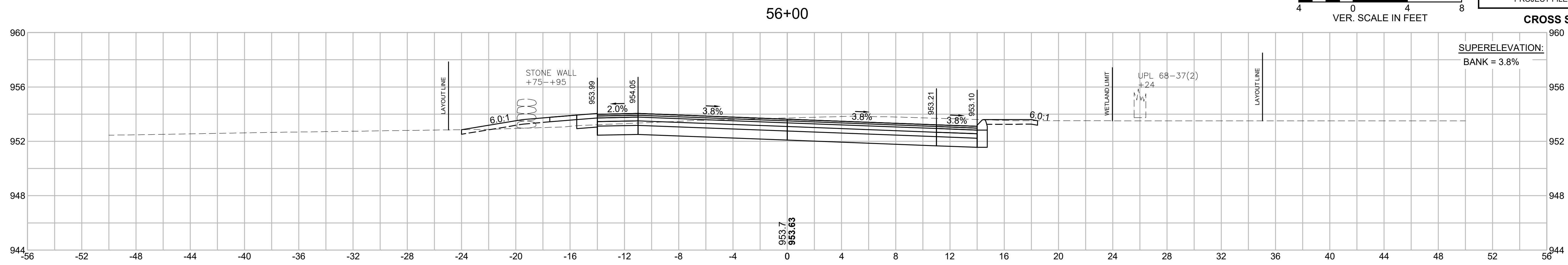
Cut: 39.59 S.F.  
Fill: 3.46 S.F.

**WALES  
MONSON ROAD**

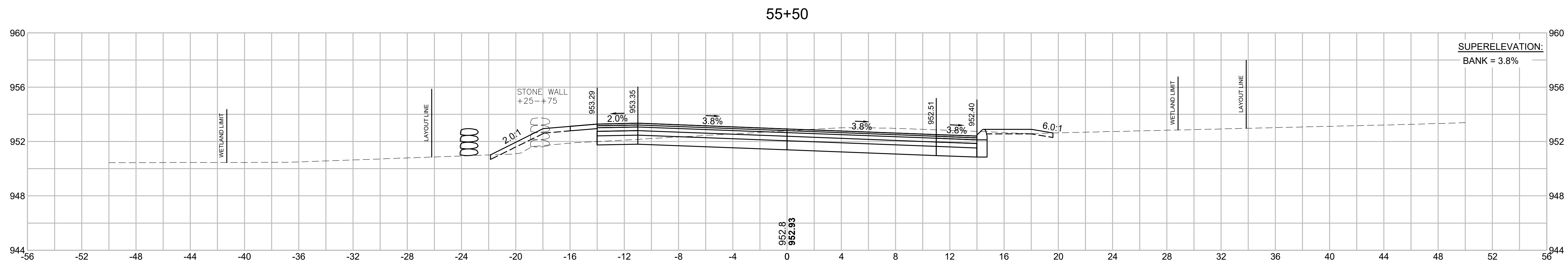
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	134	182
PROJECT FILE NO.		608163	



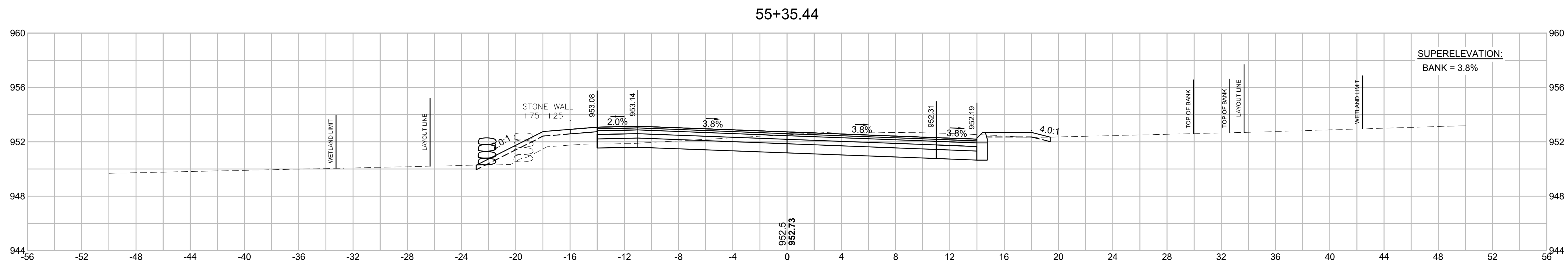
**CROSS SECTIONS**



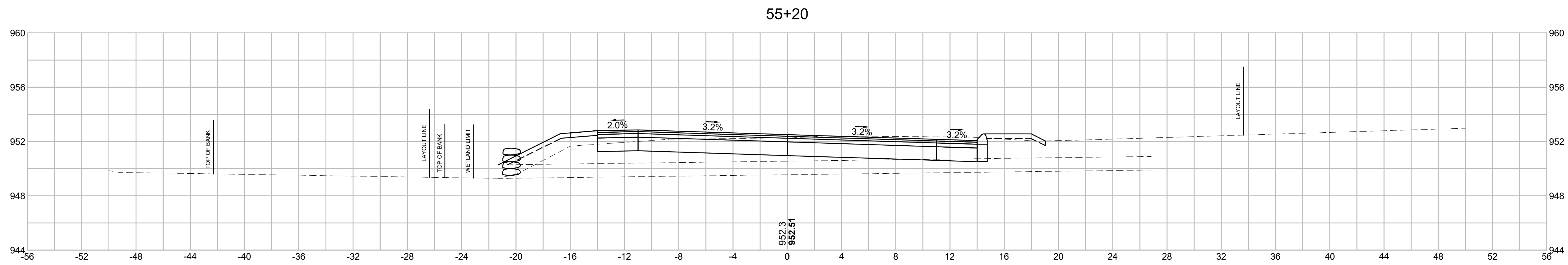
Cut: 46.20 S.F.  
Fill: 4.56 S.F.



Cut: 37.71 S.F.  
Fill: 8.90 S.F.



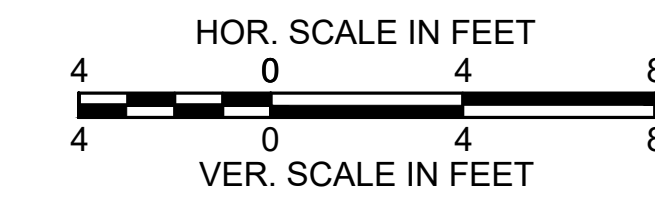
Cut: 36.3 S.F.  
Fill: 10.40 S.F.



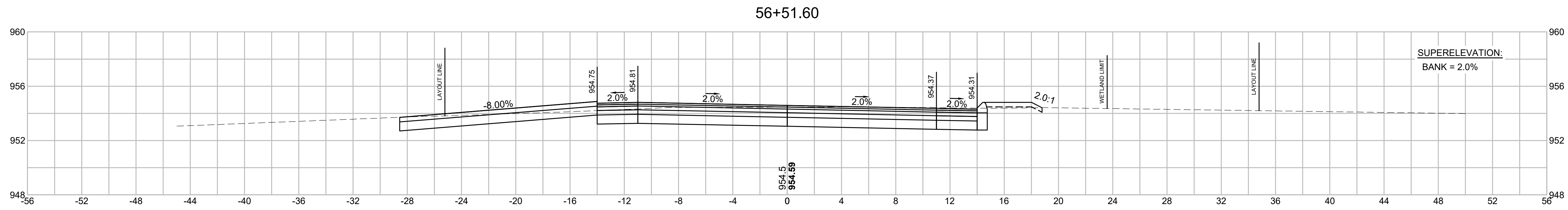
Cut: 36.90 S.F.  
Fill: 8.64 S.F.

**WALES  
MONSON ROAD**

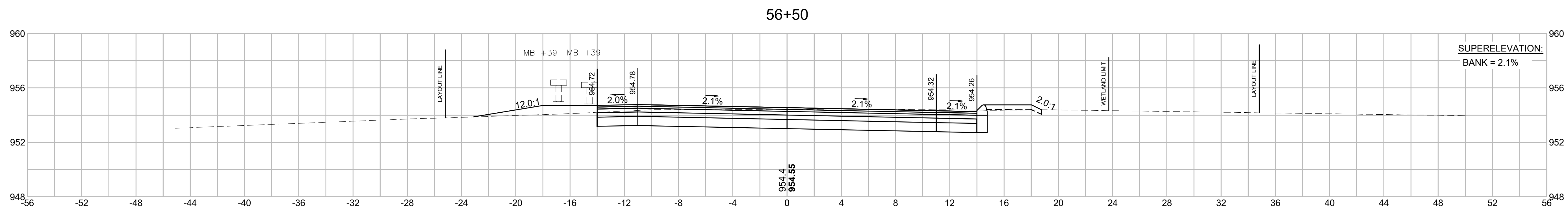
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	135	182
PROJECT FILE NO.		608163	



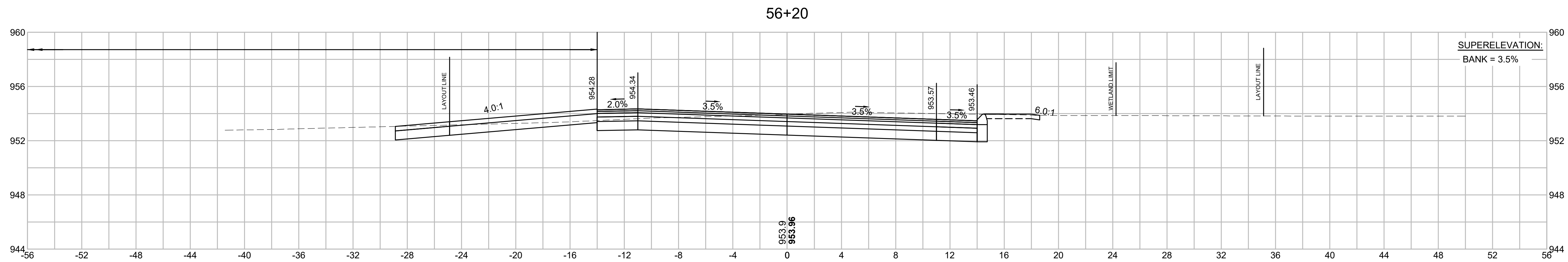
**CROSS SECTIONS**



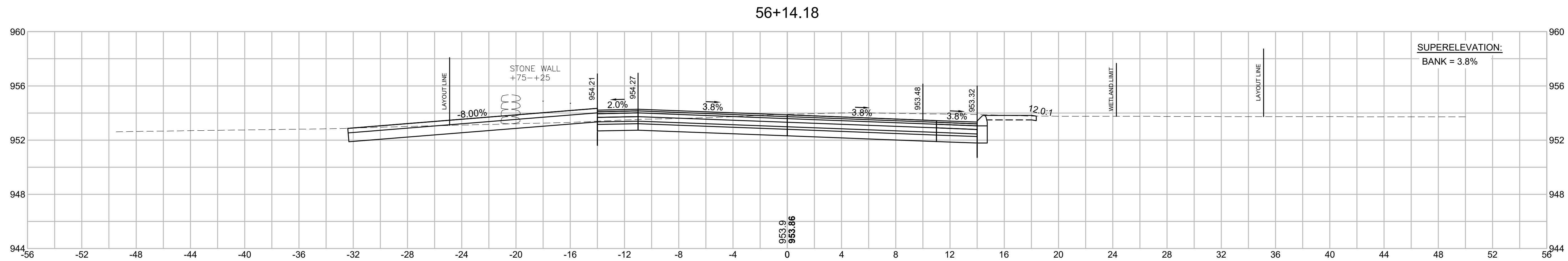
Cut: 49.56 S.F.  
Fill: 1.53 S.F.



Cut: 51.20 S.F.  
Fill: 1.46 S.F.



Cut: 52.22 S.F.  
Fill: 0.16 S.F.

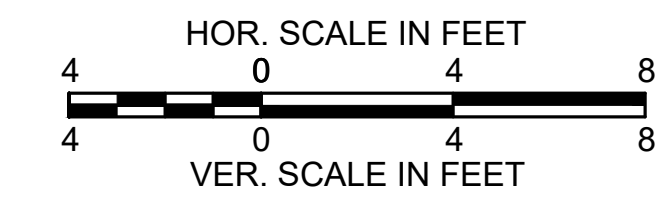


Cut: 54.10 S.F.  
Fill: 0.06 S.F.

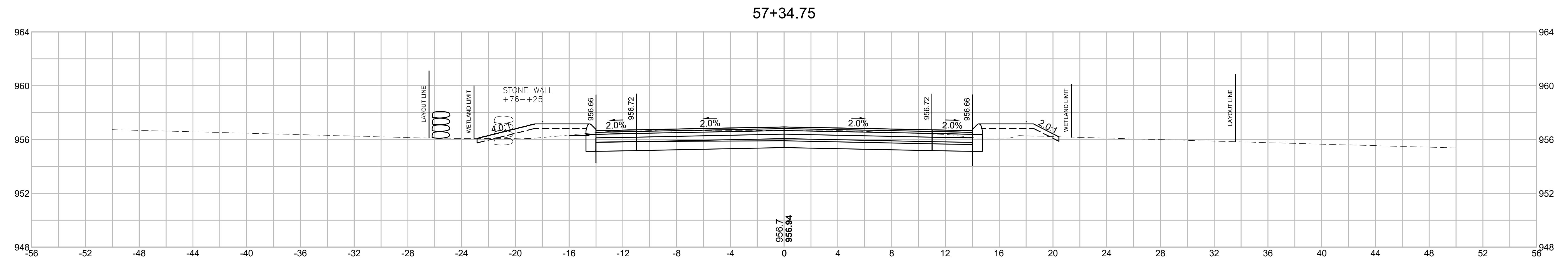


**WALES  
MONSON ROAD**

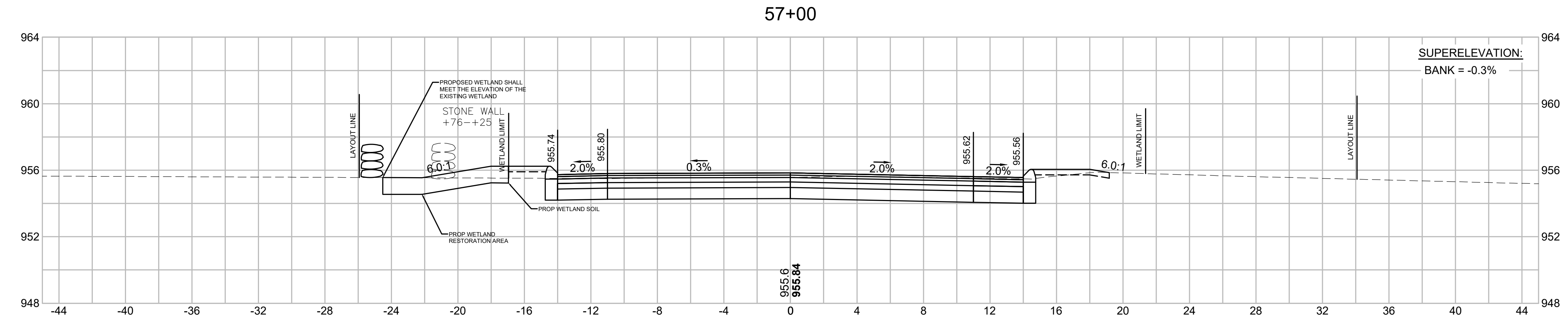
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	136	182
PROJECT FILE NO.		608163	



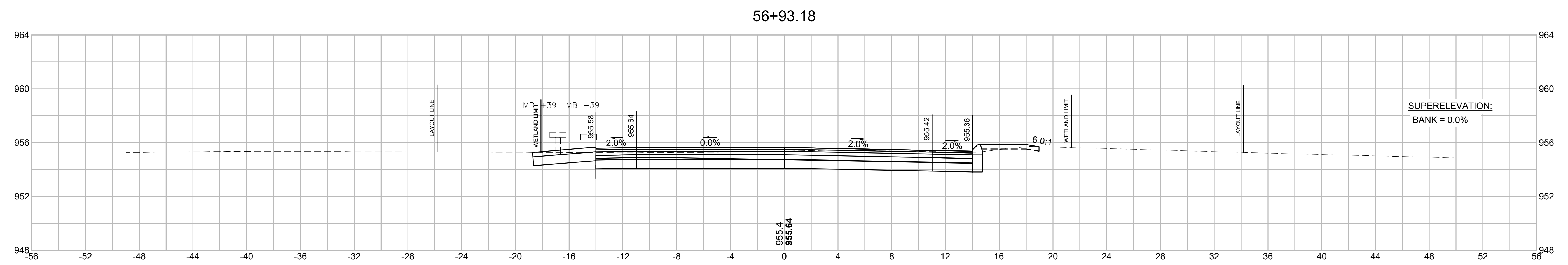
**CROSS SECTIONS**



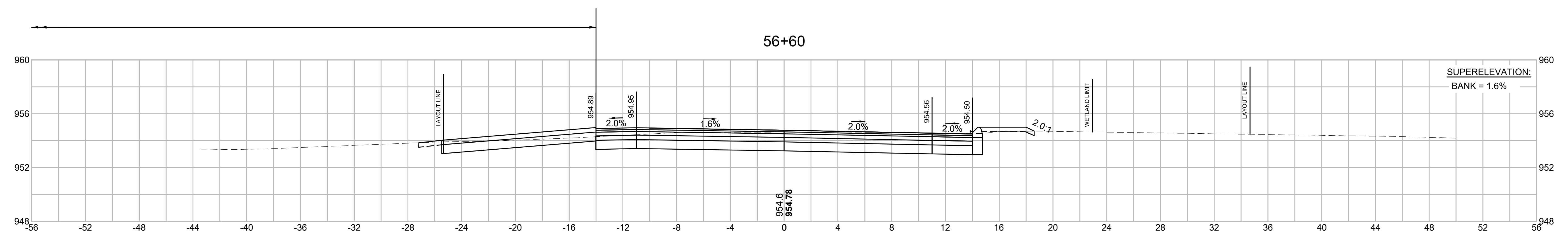
Cut: 39.6 S.F.  
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Cut: 40.32 S.F.  
Fill: 5.17 S.F.



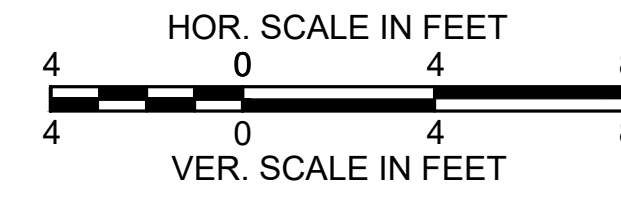
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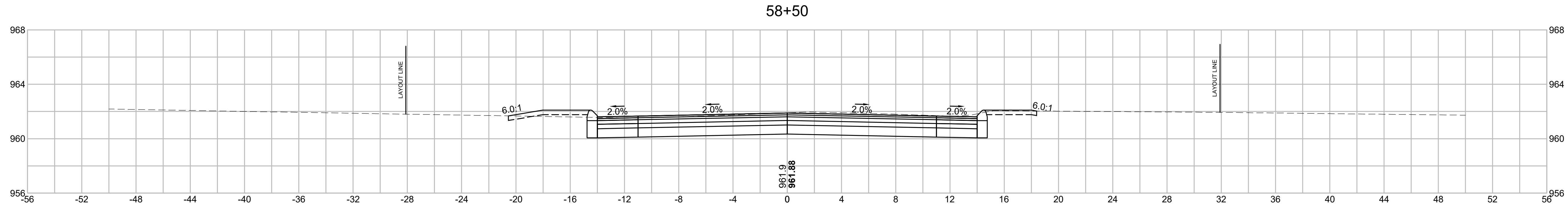
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**WALES  
MONSON ROAD**

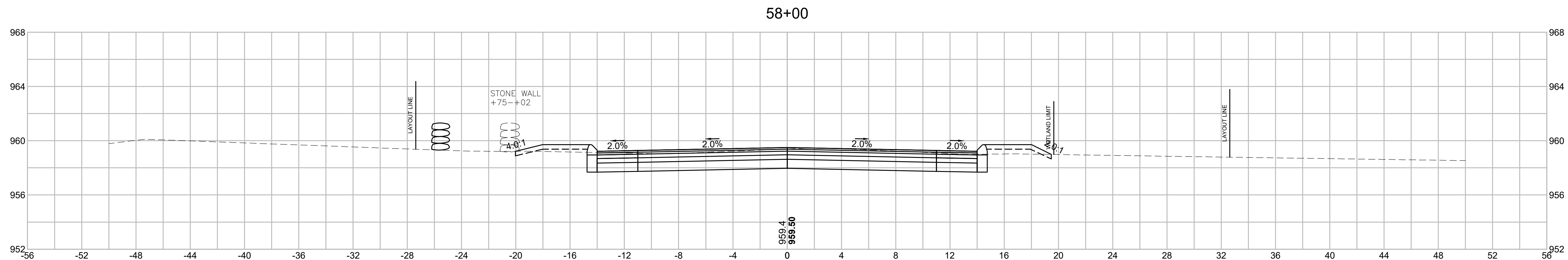
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	137	182
PROJECT FILE NO.		608163	



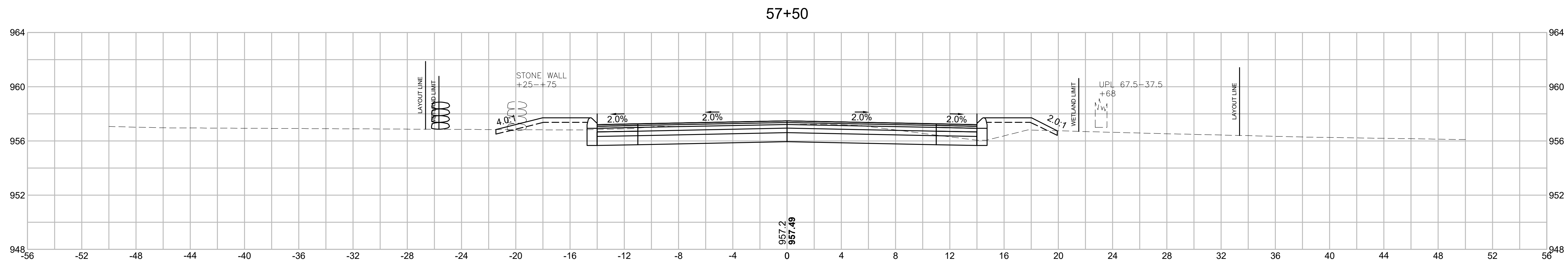
**CROSS SECTIONS**



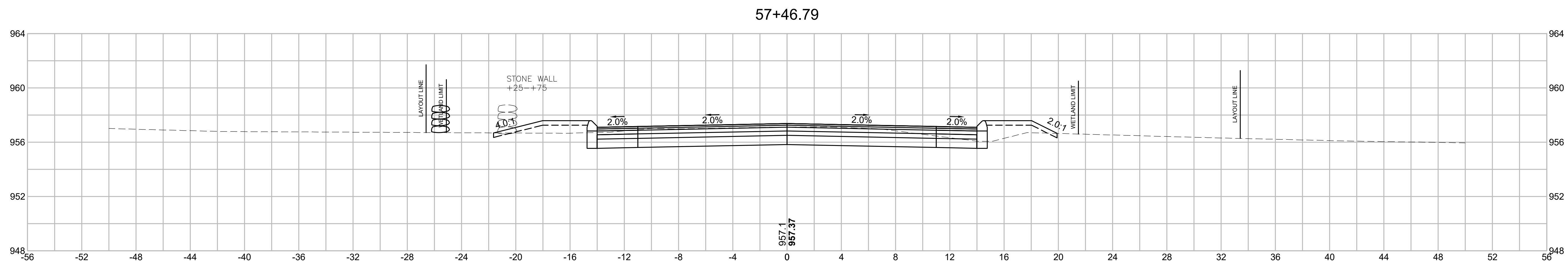
Cut: 47.05 S.F.  
Fill: 2.44 S.F.



Cut: 41.36 S.F.  
Fill: 5.13 S.F.



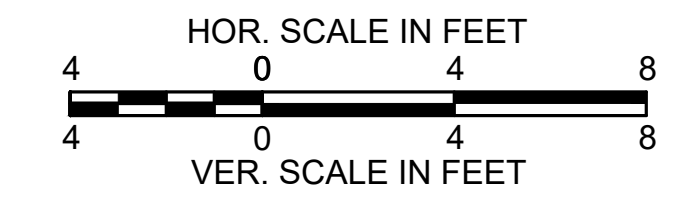
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Fill: 9.34 S.F.



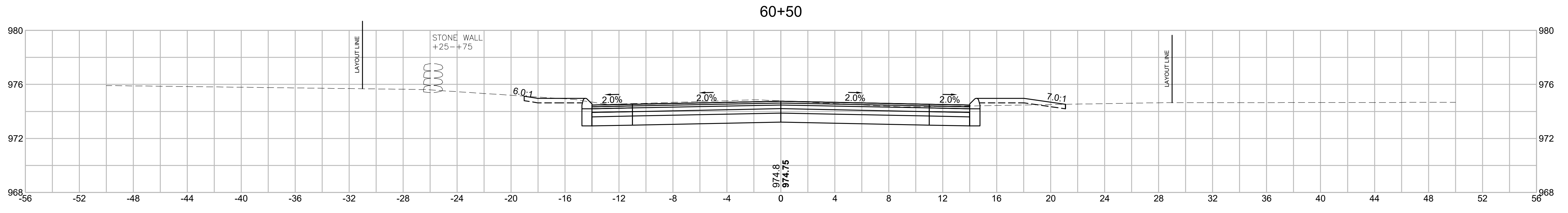
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Fill: 9.52 S.F.

**WALES  
MONSON ROAD**

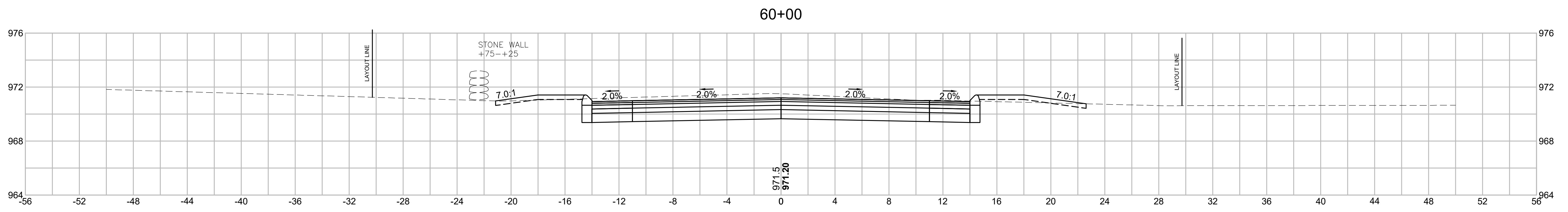
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	138	182
PROJECT FILE NO.		608163	



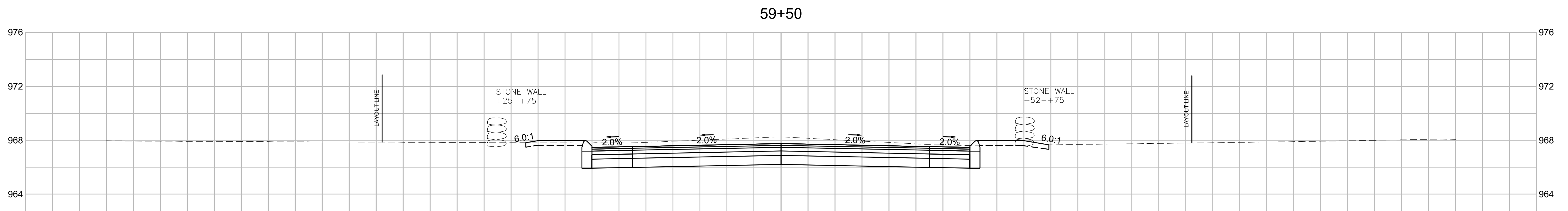
**CROSS SECTIONS**



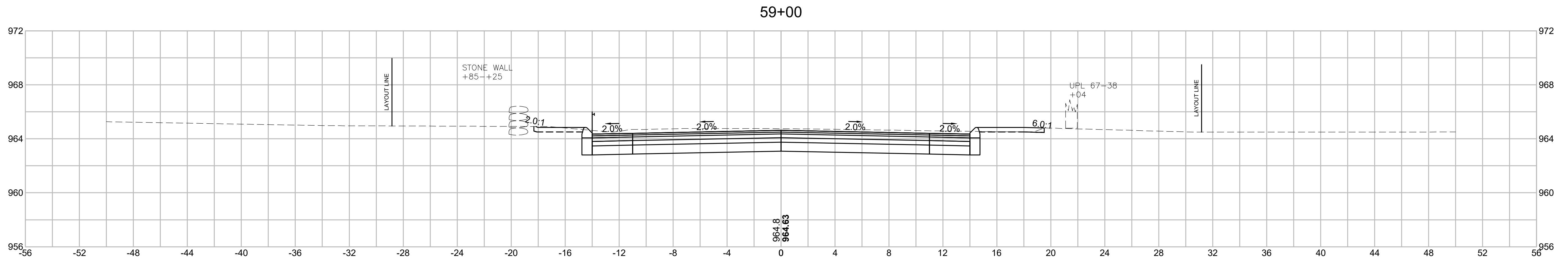
Cut: 47.05 S.F.  
Fill: 2.63 S.F.



Cut: 52.37 S.F.  
Fill: 4.69 S.F.



Cut: 56.17 S.F.  
Fill: 2.10 S.F.

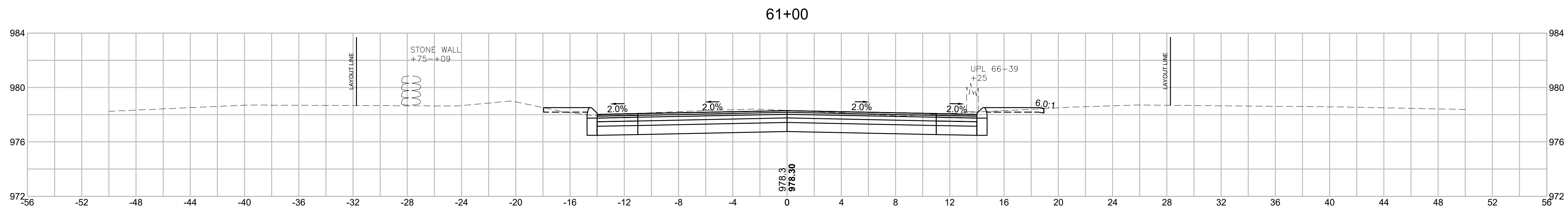
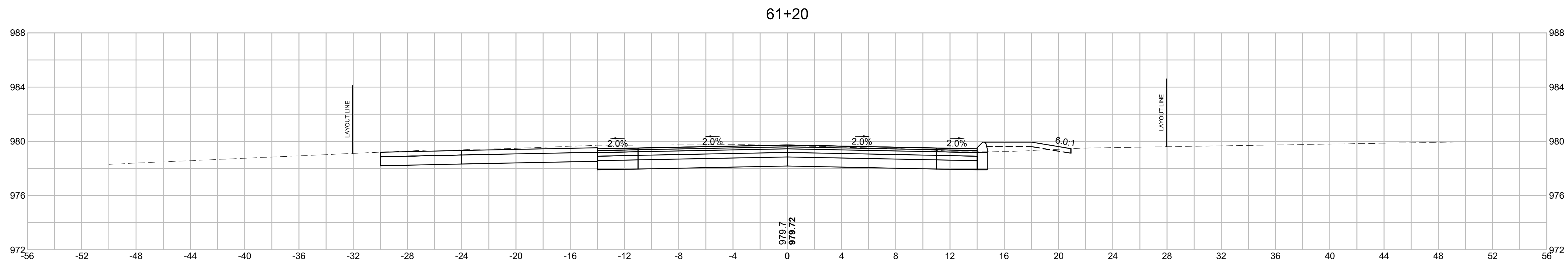
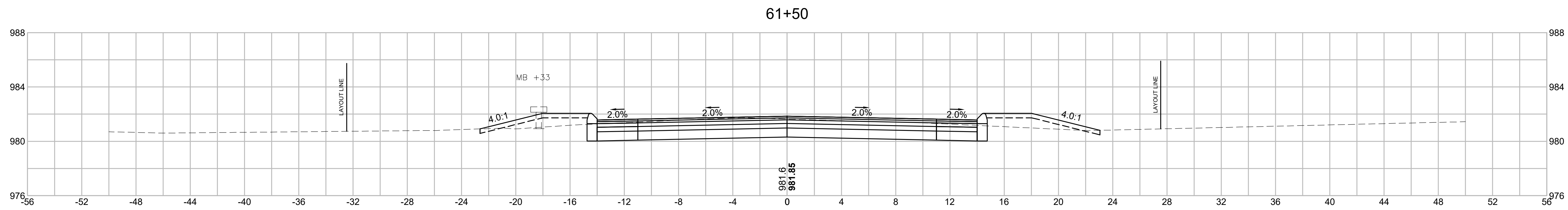
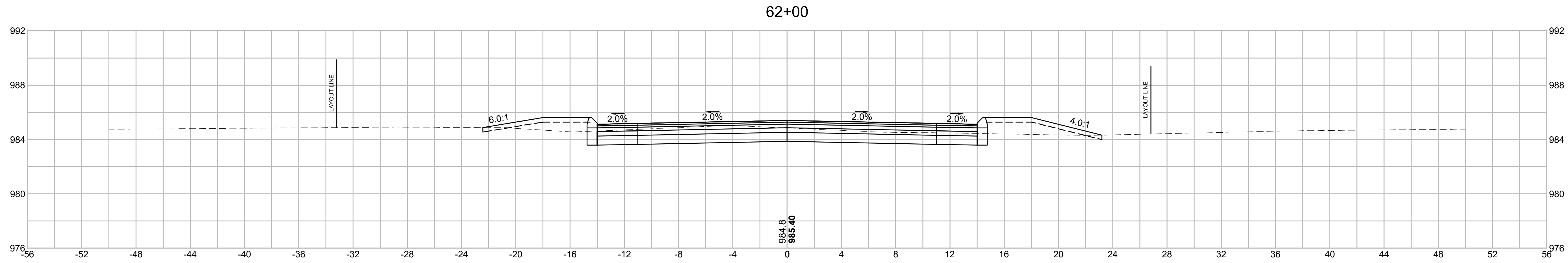
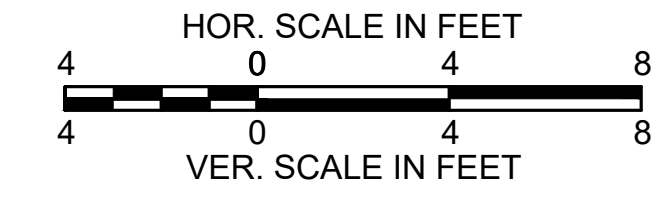


Cut: 52.50 S.F.  
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**WALES  
MONSON ROAD**

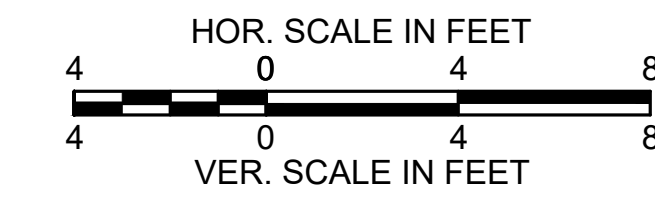
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	139	182
PROJECT FILE NO.		608163	

**CROSS SECTIONS**

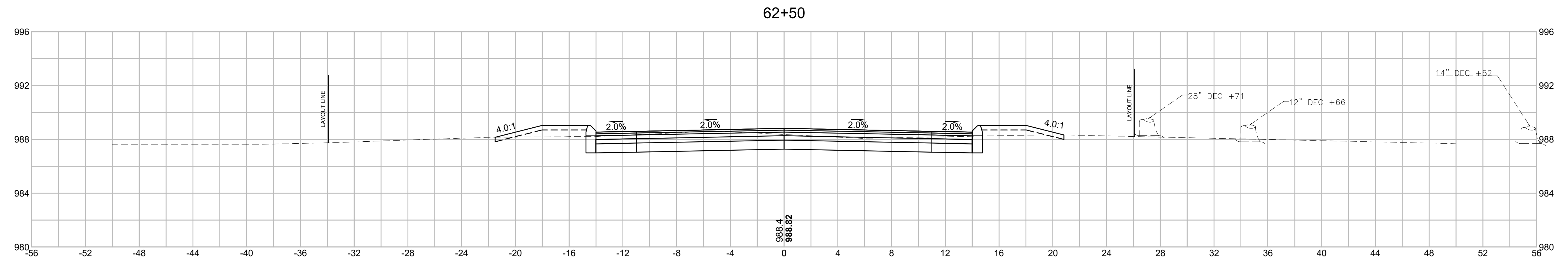
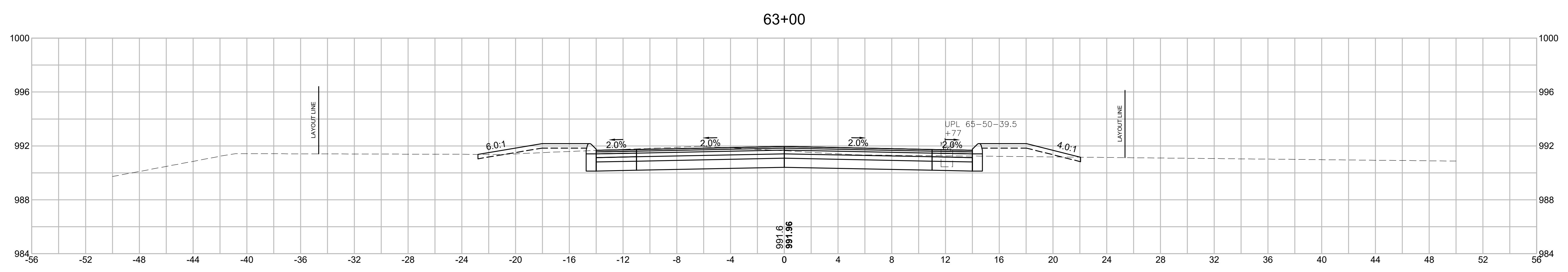
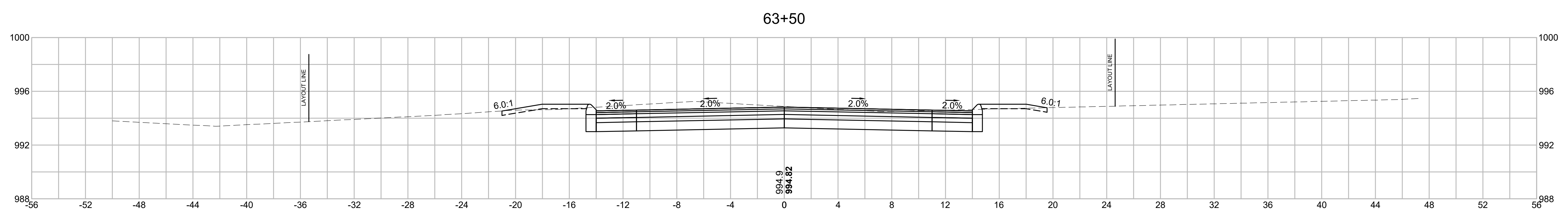
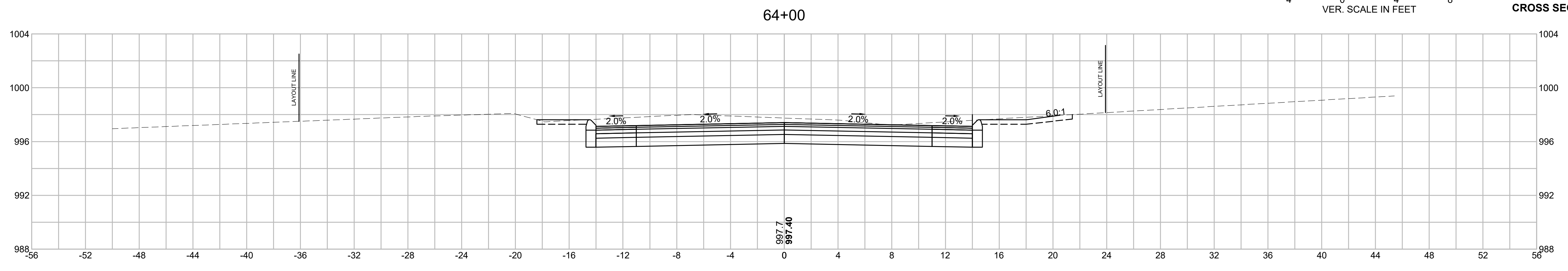


**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	140	182
PROJECT FILE NO.		608163	



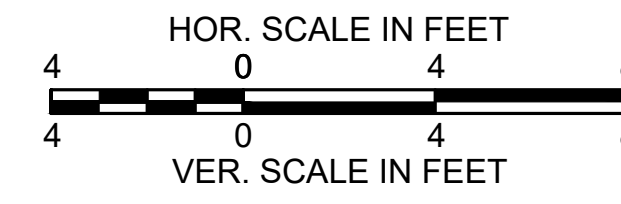
**CROSS SECTIONS**



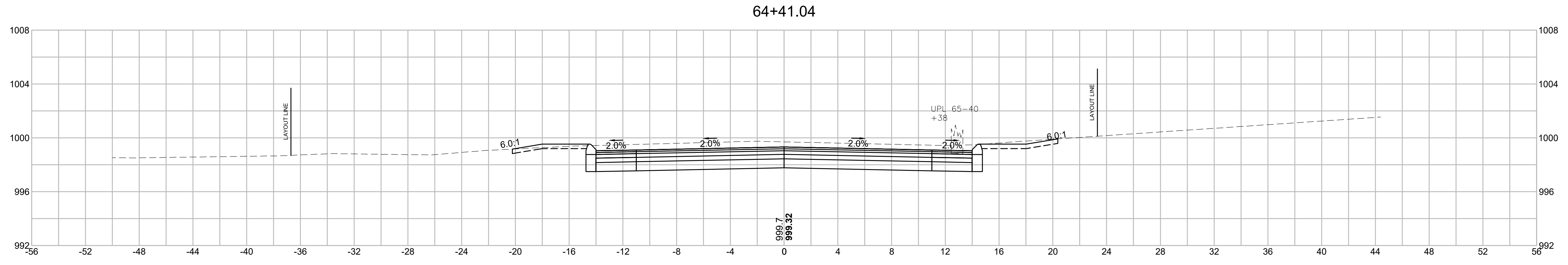
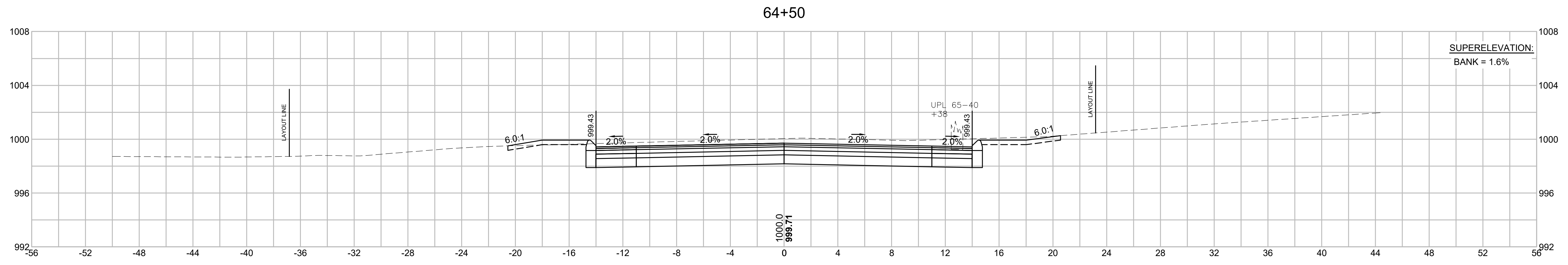
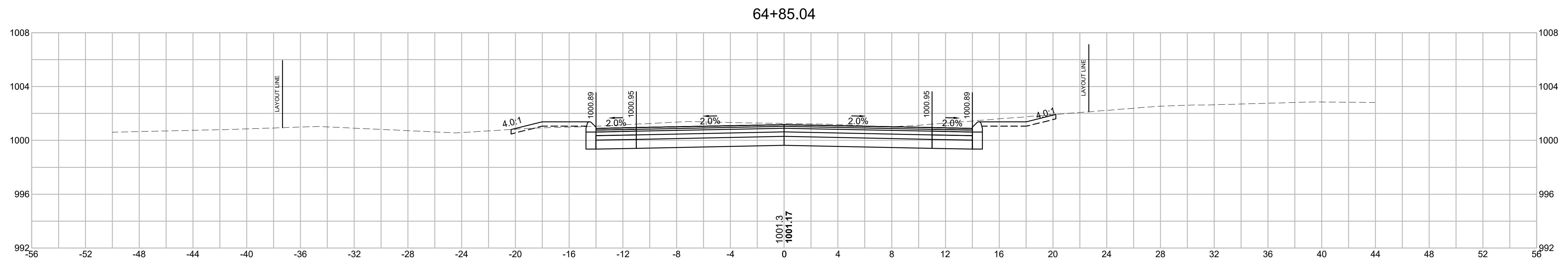
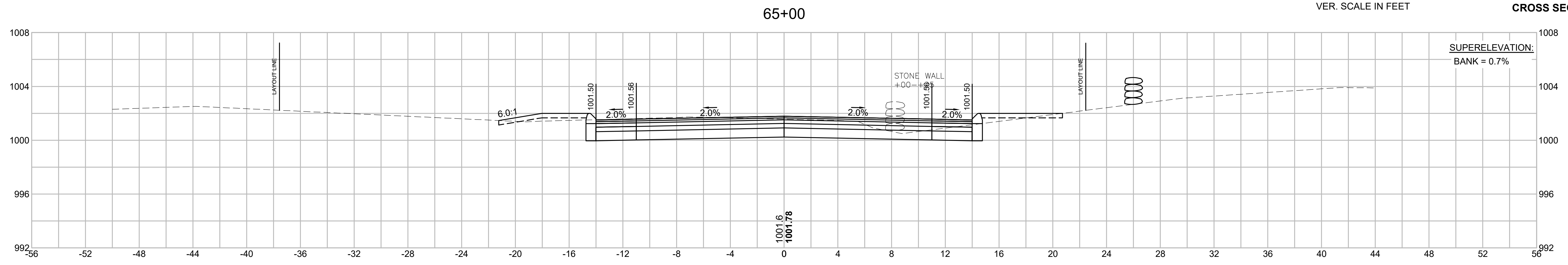


**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	141	182
PROJECT FILE NO.		608163	



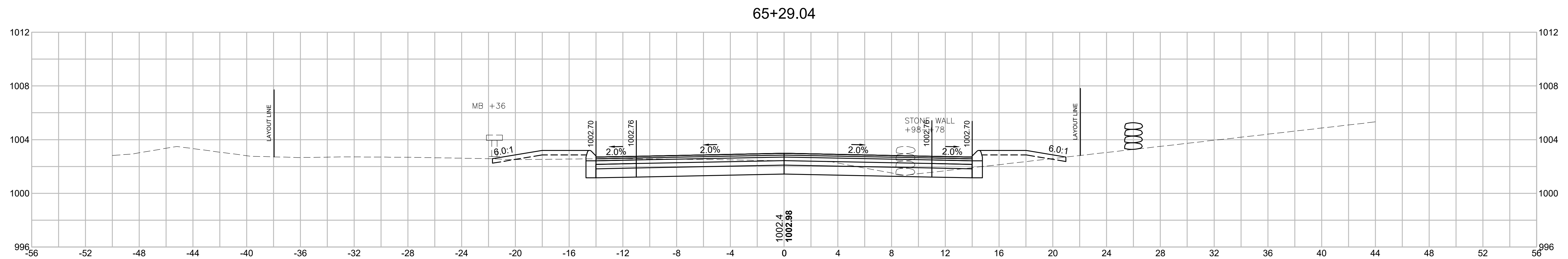
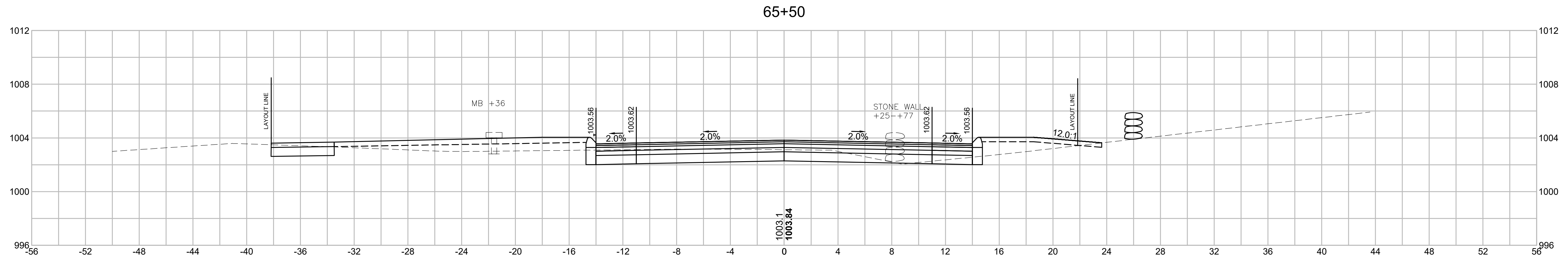
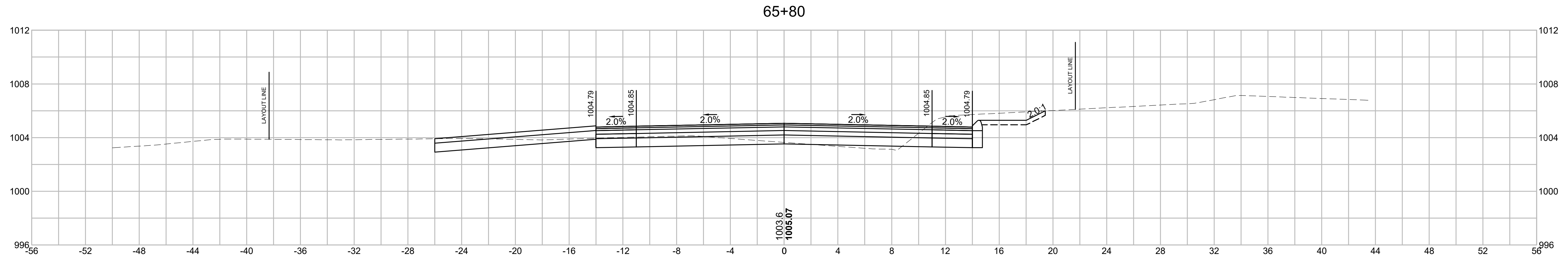
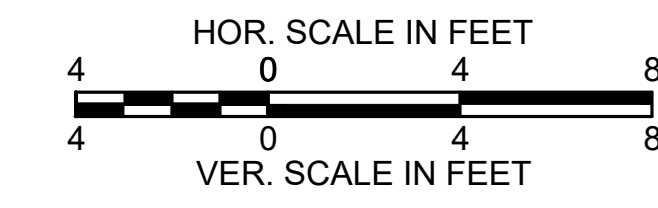
**CROSS SECTIONS**



**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	142	182
PROJECT FILE NO.		608163	

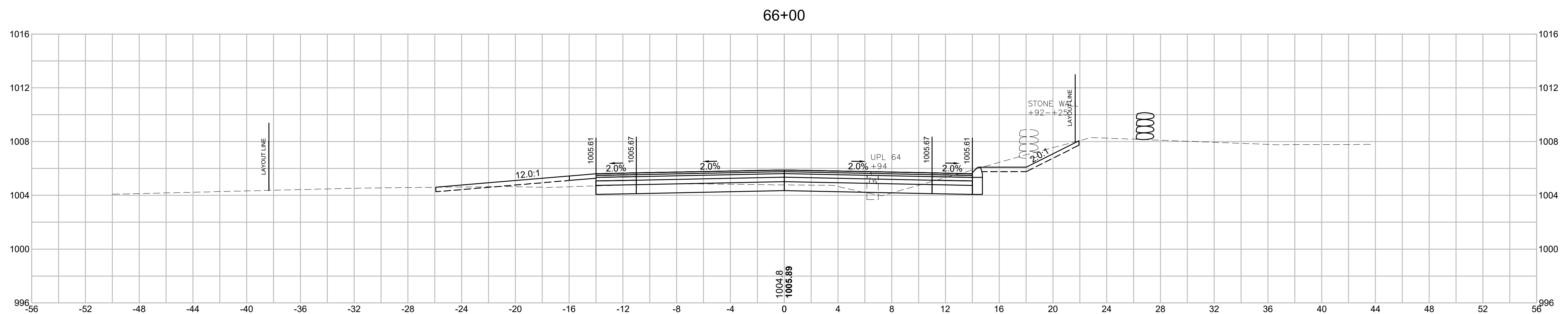
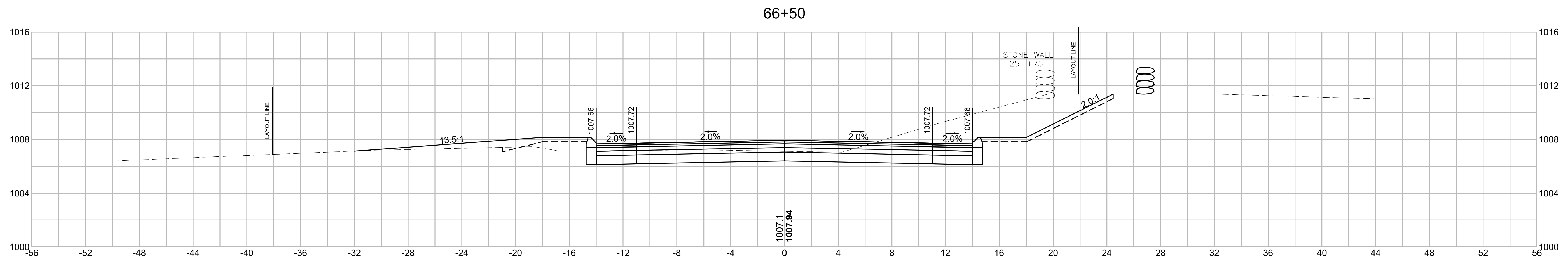
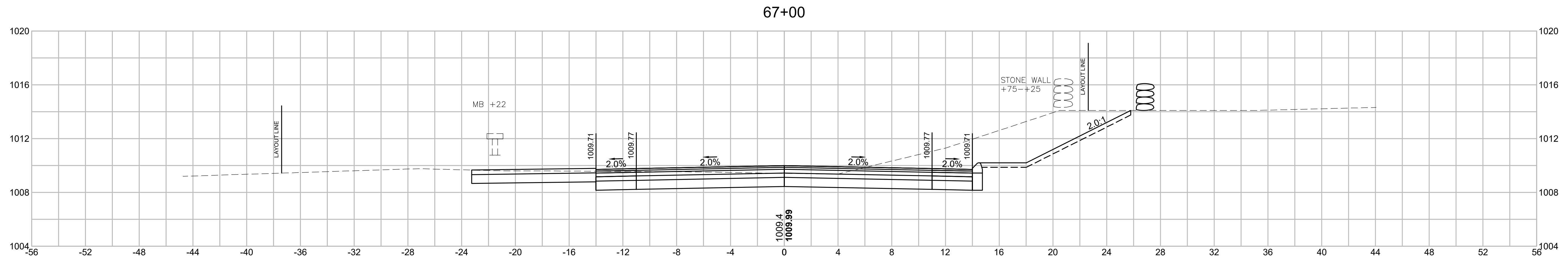
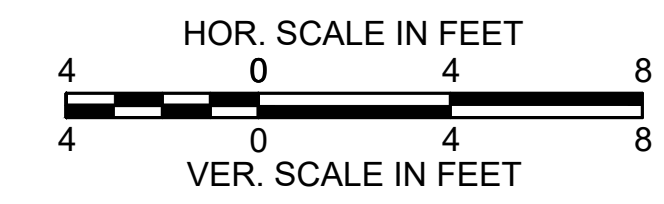
**CROSS SECTIONS**



**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	143	182
PROJECT FILE NO. 608163			

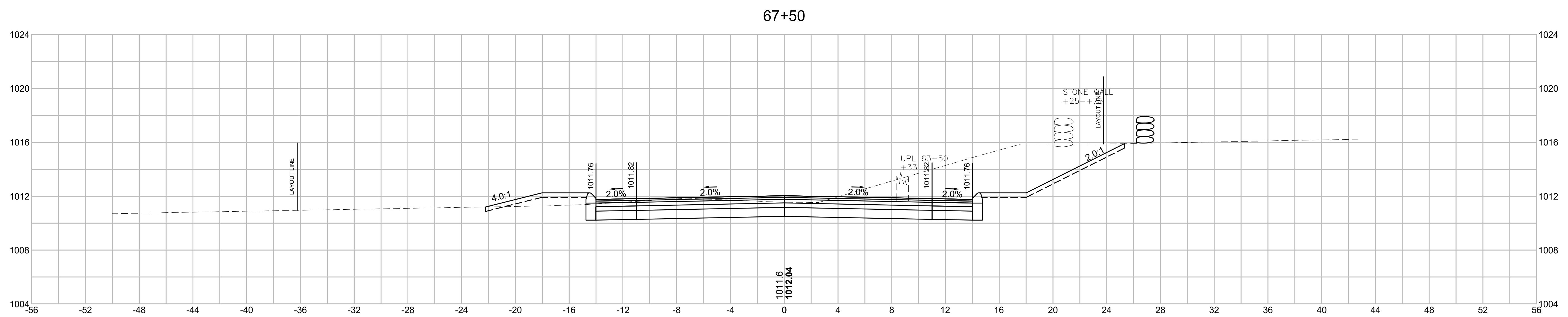
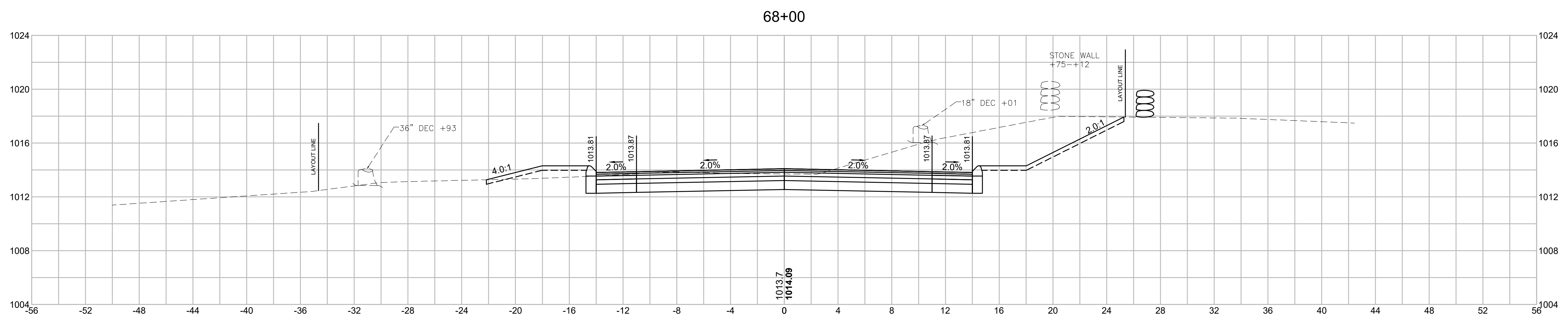
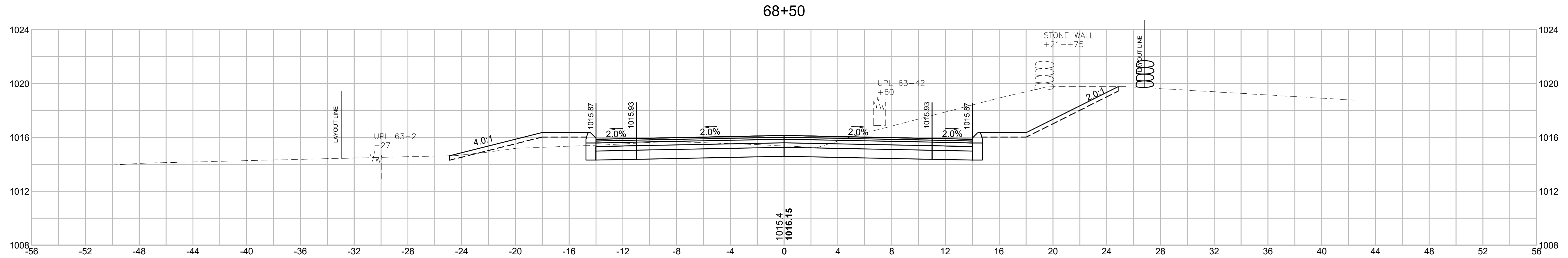
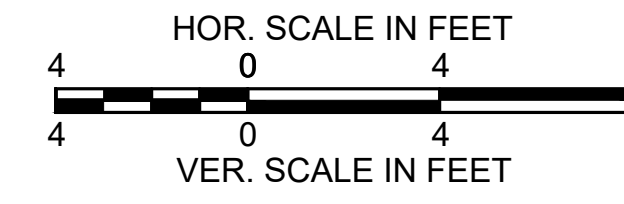
**CROSS SECTIONS**



**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	144	182
PROJECT FILE NO.		608163	

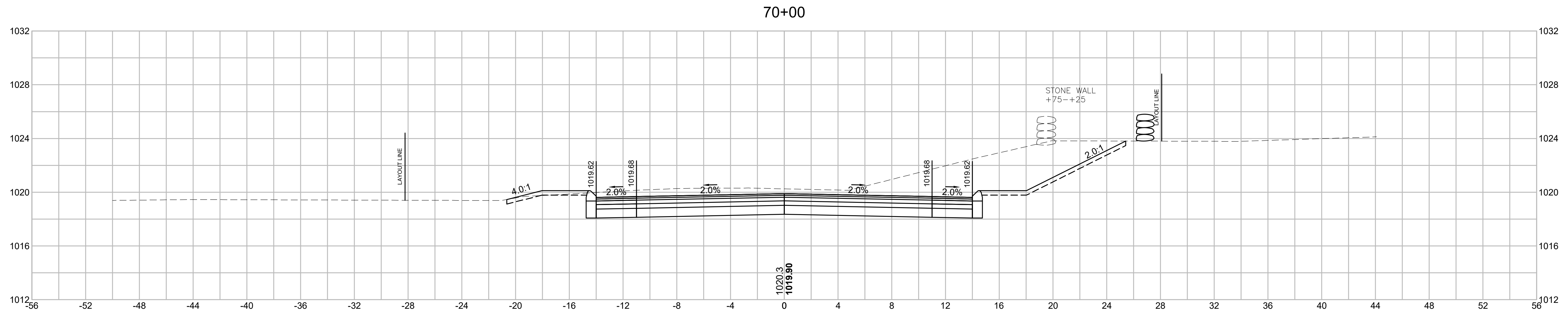
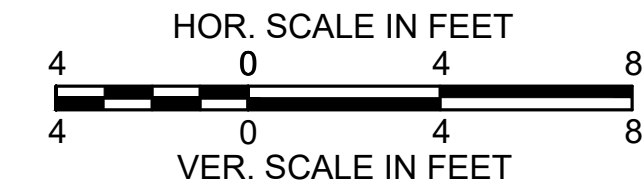
**CROSS SECTIONS**



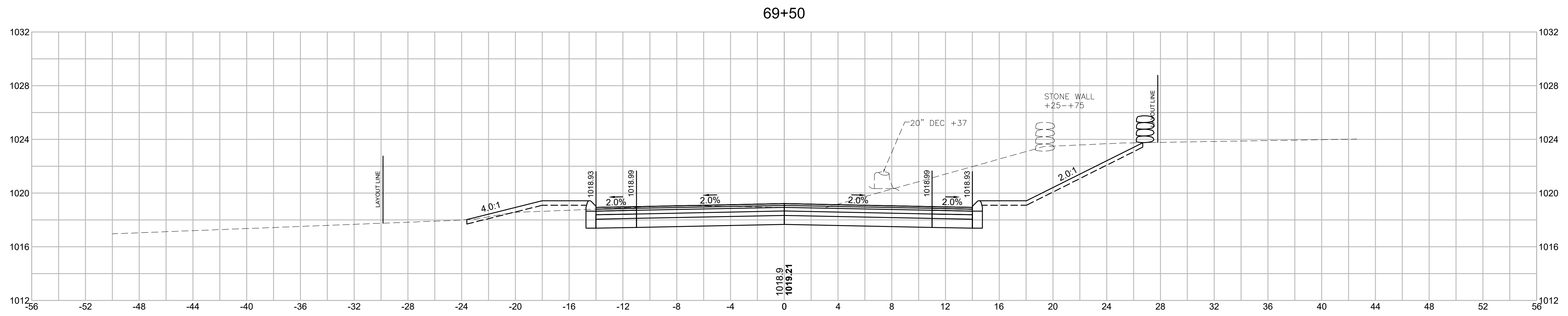
**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	145	182
PROJECT FILE NO.		608163	

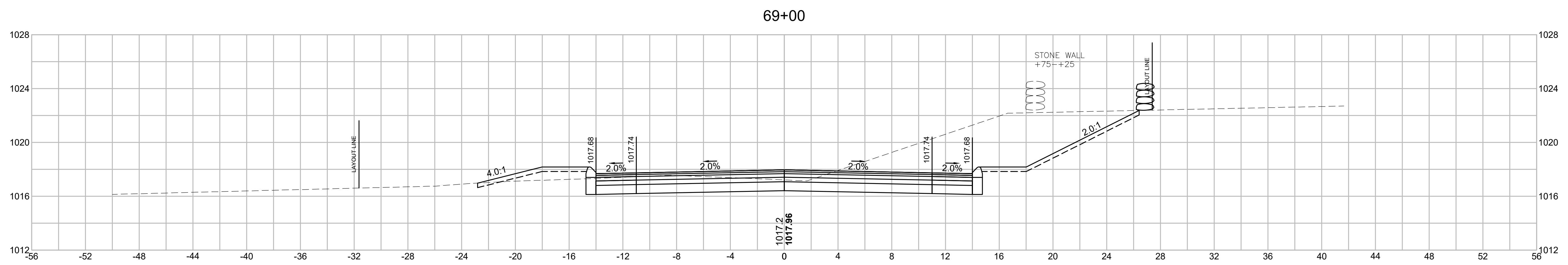
**CROSS SECTIONS**



Cut: 98.06 S.F.  
Fill: 1.25 S.F.



Cut: 93.16 S.F.  
Fill: 4.26 S.F.



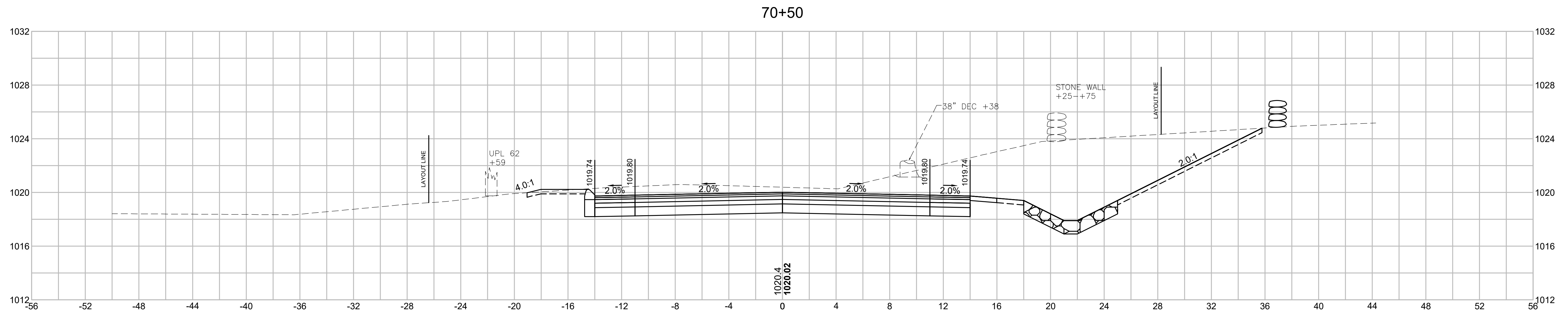
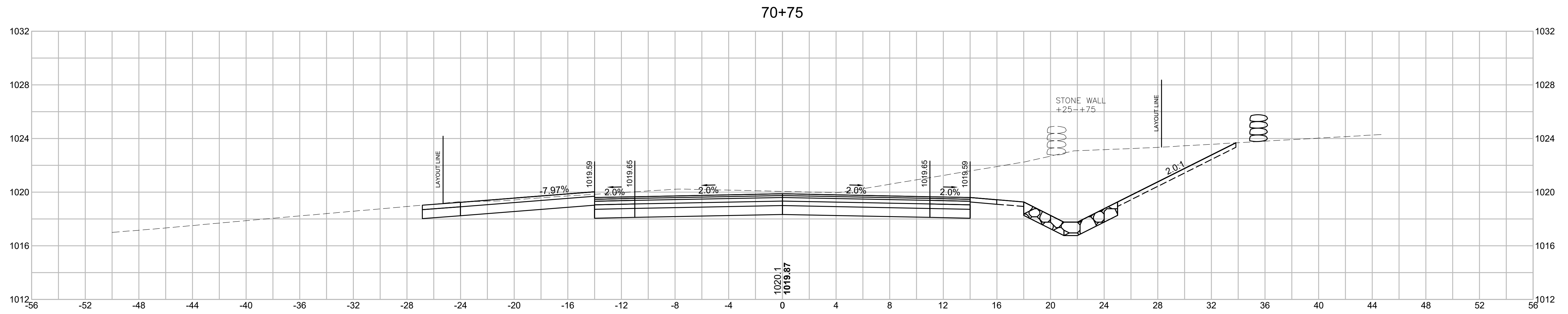
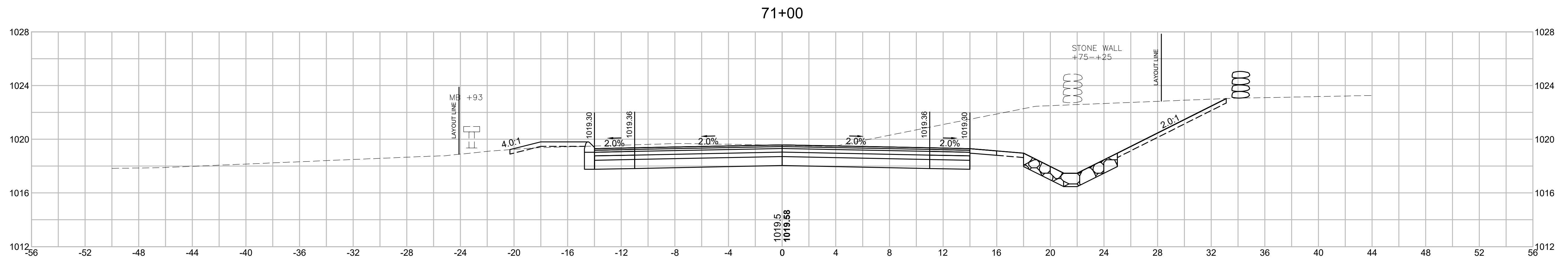
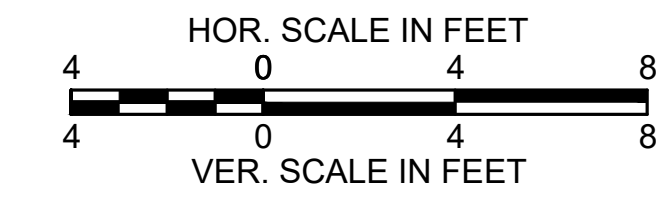
Cut: 91.73 S.F.  
Fill: 5.36 S.F.



**WALES  
MONSON ROAD**

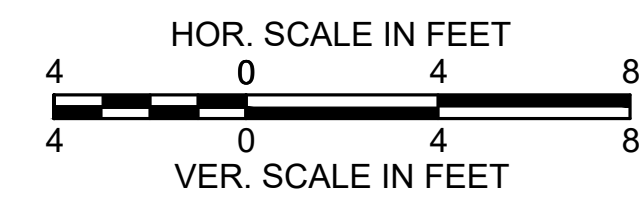
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	146	182
PROJECT FILE NO.		608163	

**CROSS SECTIONS**

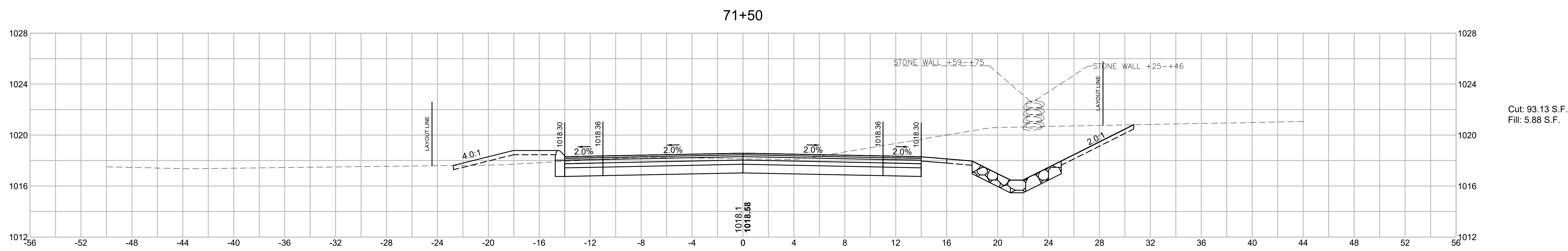
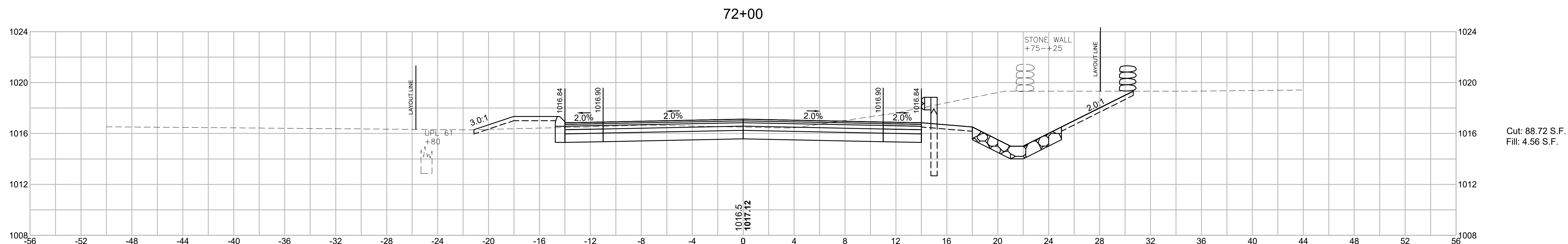
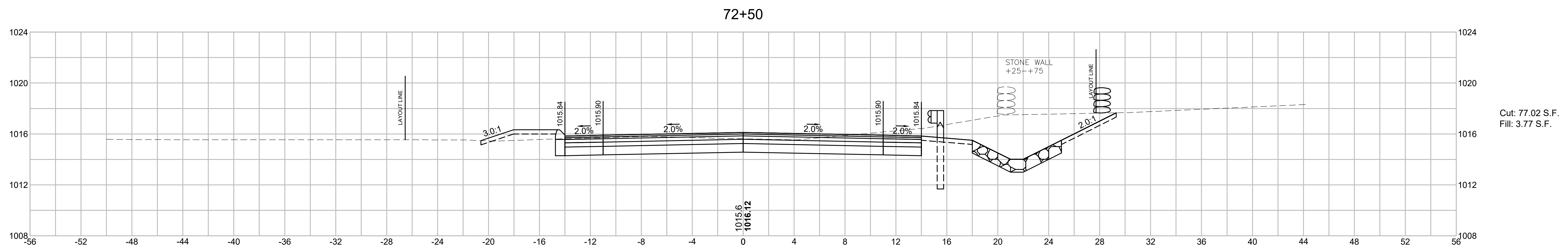
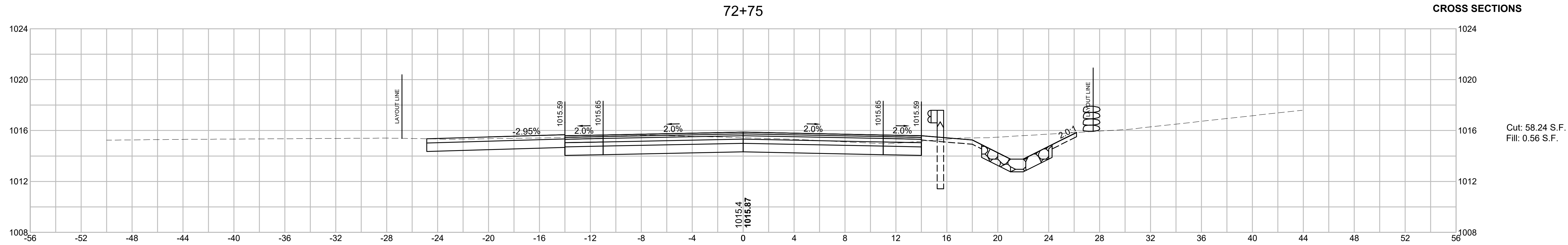


**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	147	182
PROJECT FILE NO.		608163	



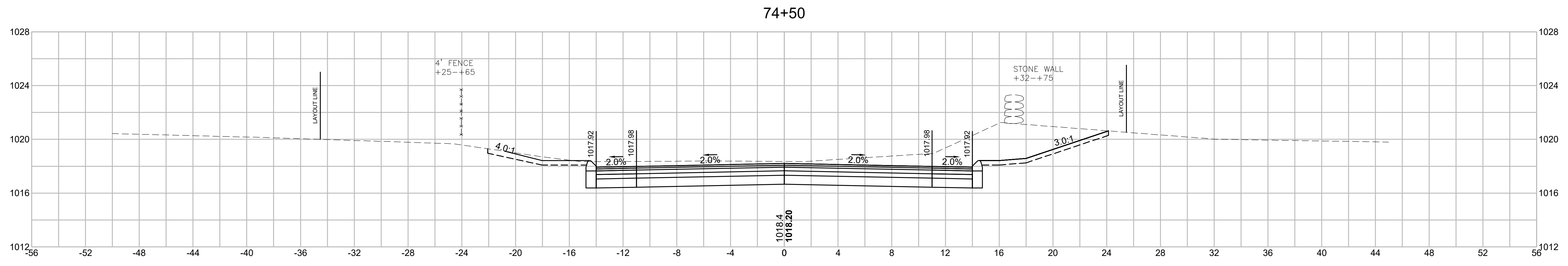
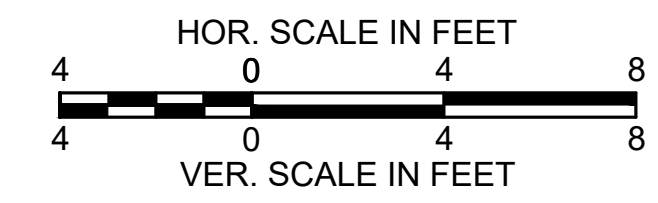
**CROSS SECTIONS**



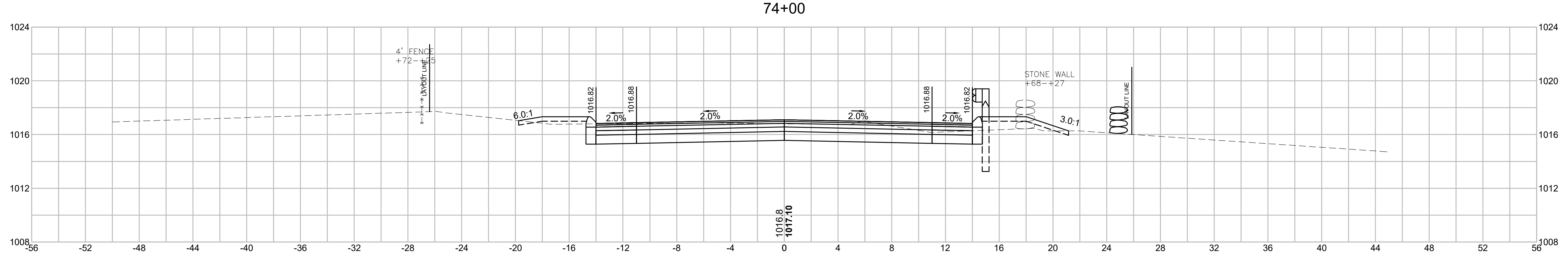
**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	148	182
PROJECT FILE NO. 608163			

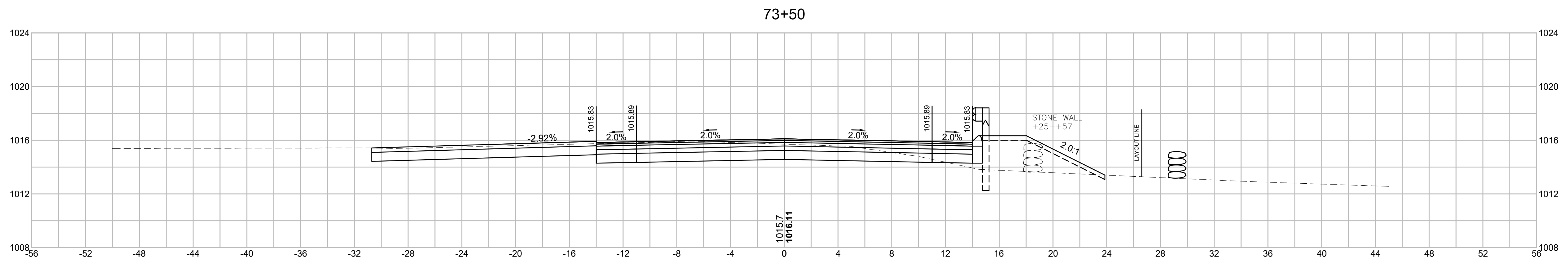
**CROSS SECTIONS**



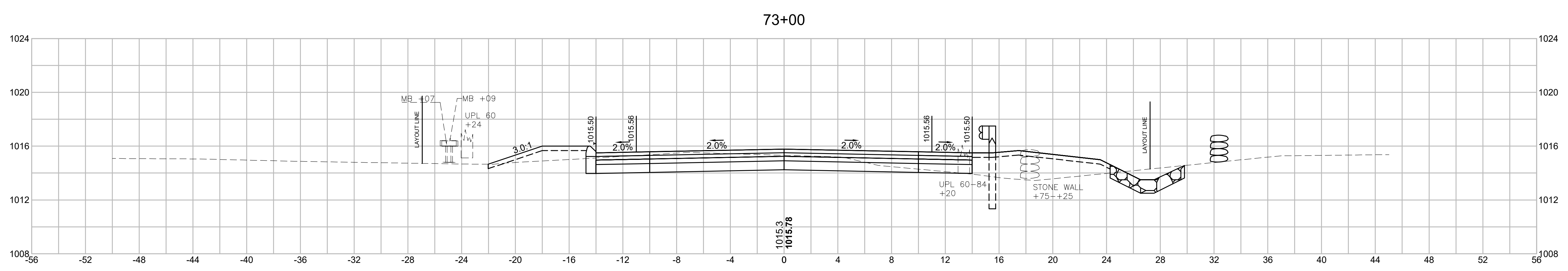
Cut: 85.20 S.F.  
Fill: 0.07 S.F.



Cut: 38.35 S.F.  
Fill: 7.60 S.F.



Cut: 43.89 S.F.  
Fill: 16.92 S.F.

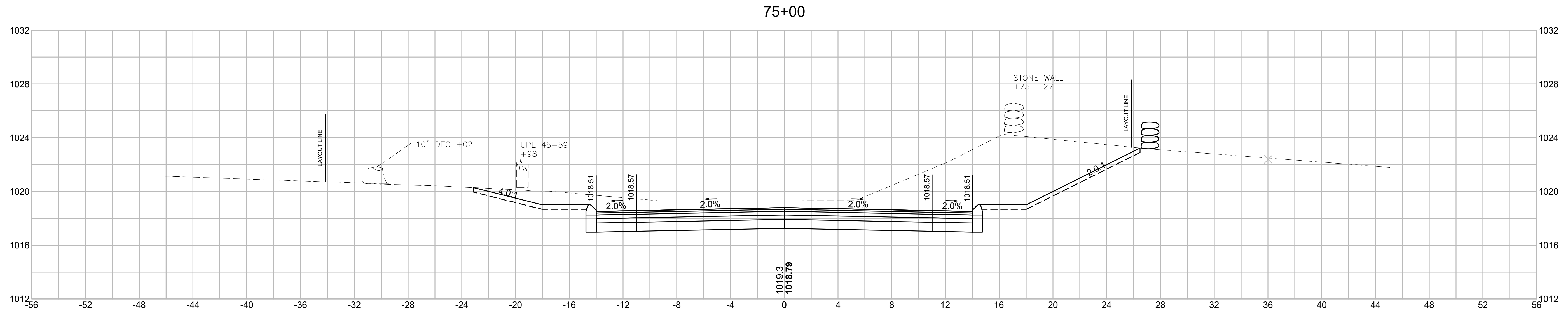
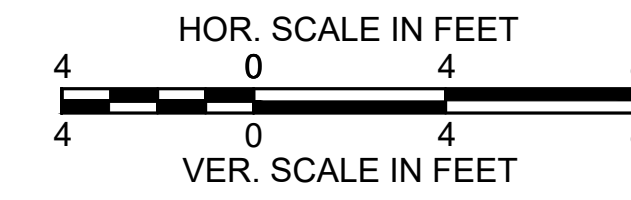


Cut: 38.63 S.F.  
Fill: 22.82 S.F.

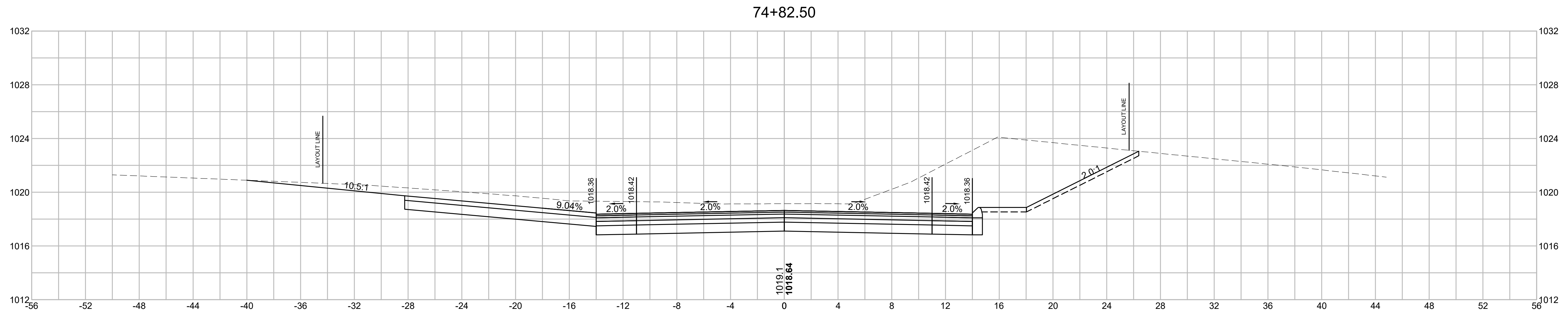
**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	149	182
PROJECT FILE NO.		608163	

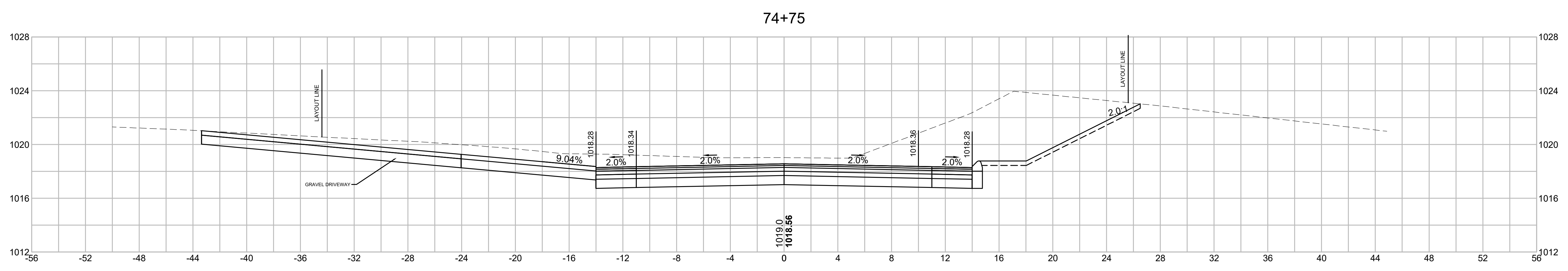
**CROSS SECTIONS**



Cut: 135.28 S.F.  
Fill: 0.0 S.F.



Cut: 152.96 S.F.  
Fill: 0.0 S.F.

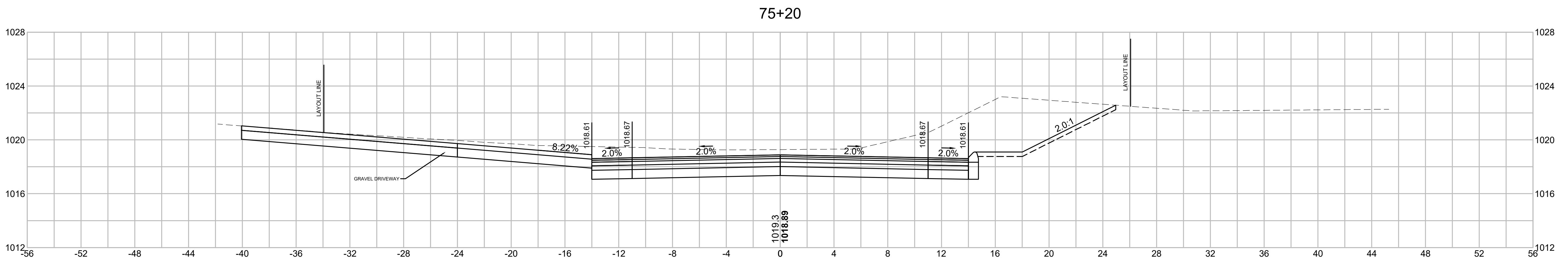
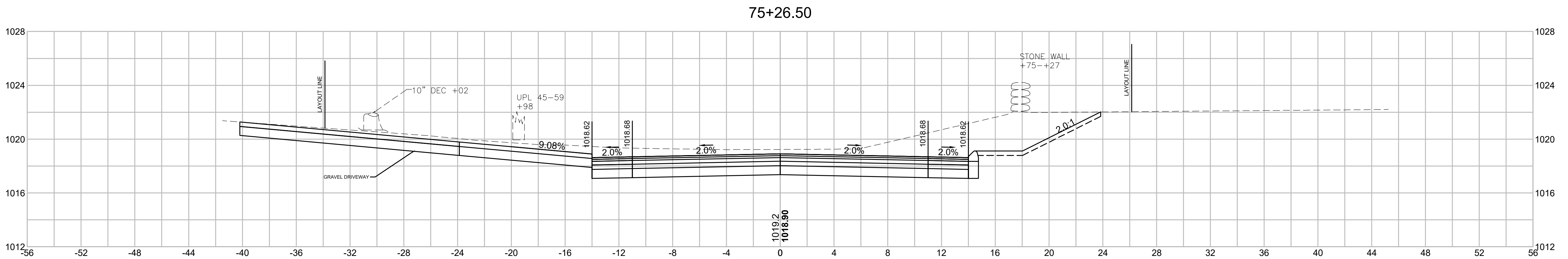
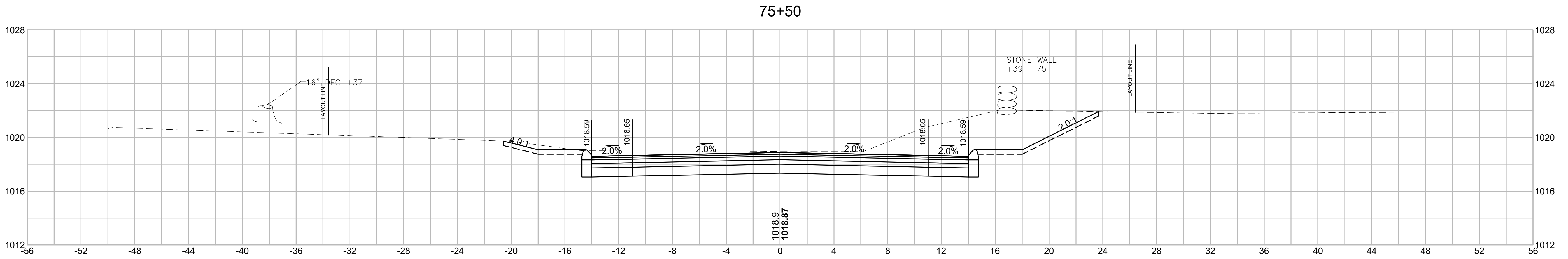
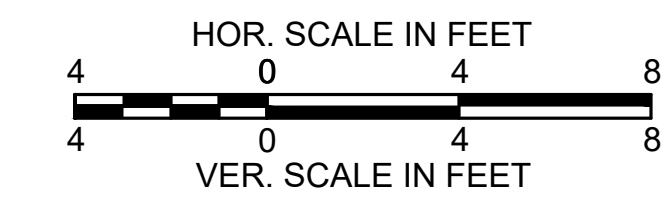


Cut: 165.77 S.F.  
Fill: 0.0 S.F.

**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	150	182
PROJECT FILE NO.		608163	

**CROSS SECTIONS**

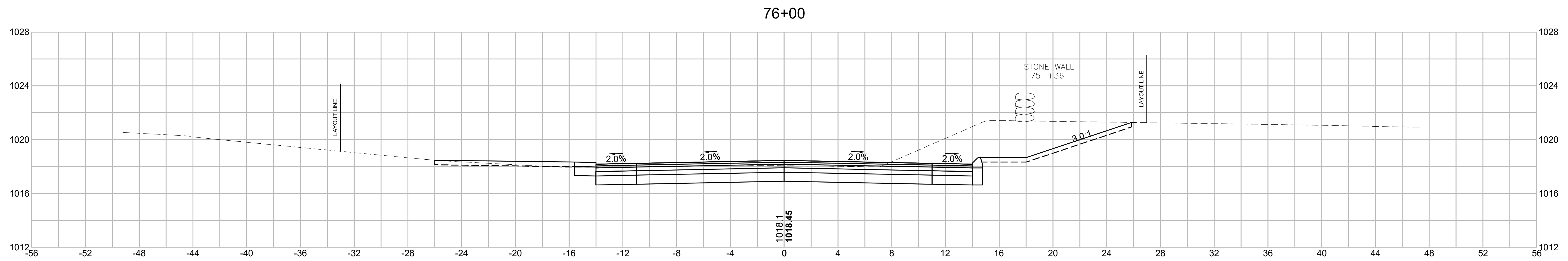
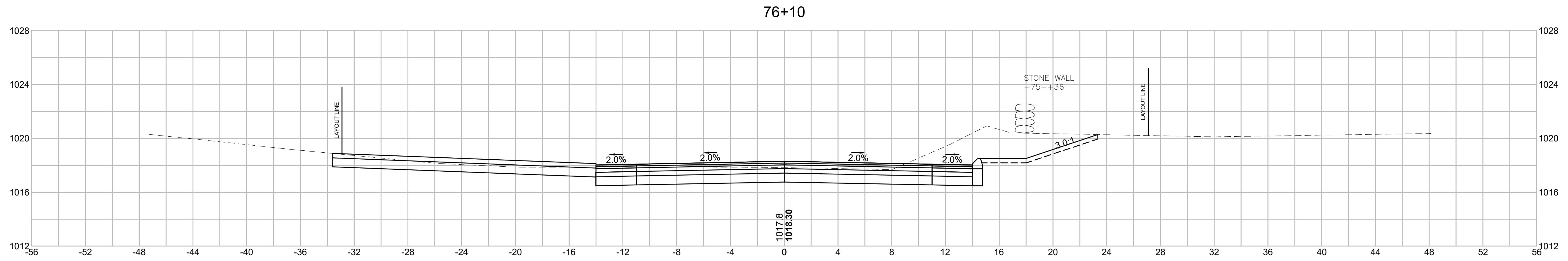
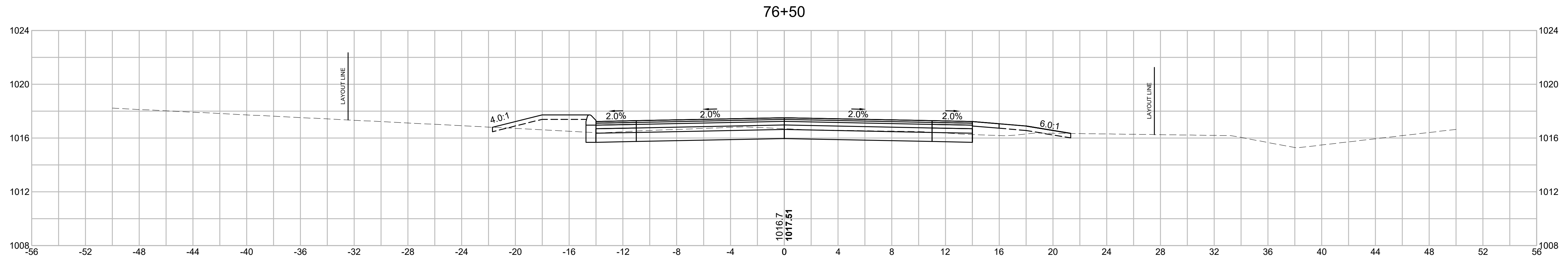
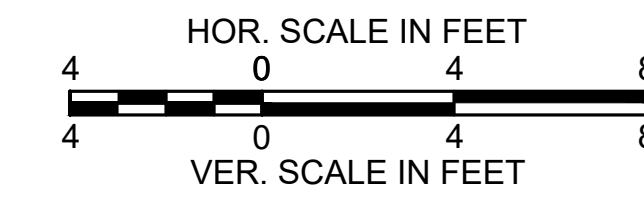




**WALES  
MONSON ROAD**

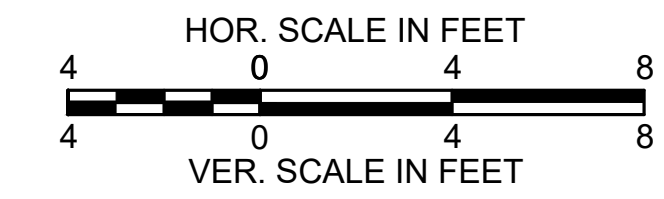
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	151	182
PROJECT FILE NO.		608163	

**CROSS SECTIONS**



**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	152	182
PROJECT FILE NO.		608163	



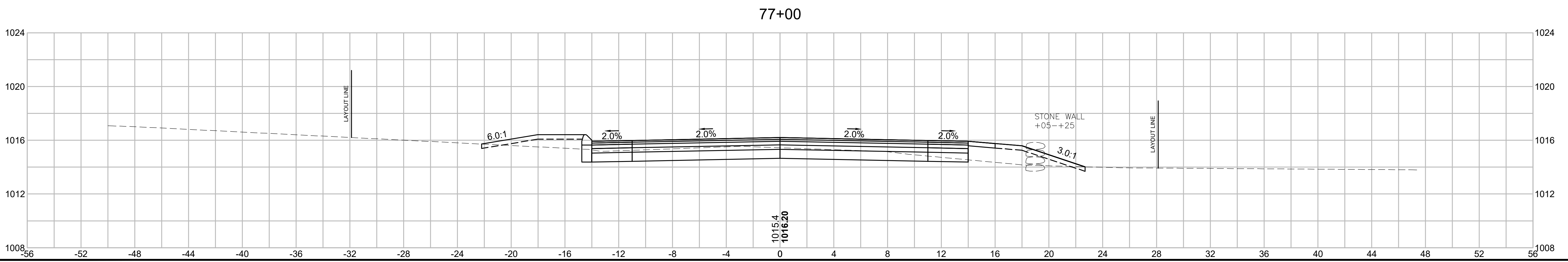
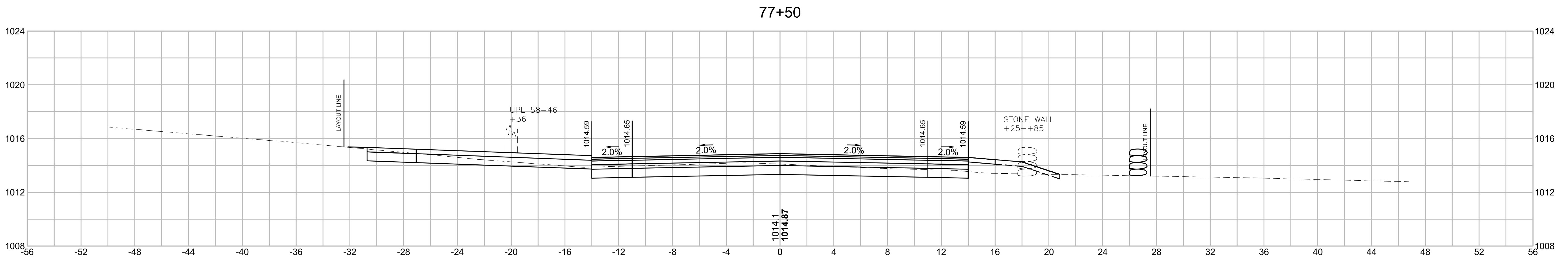
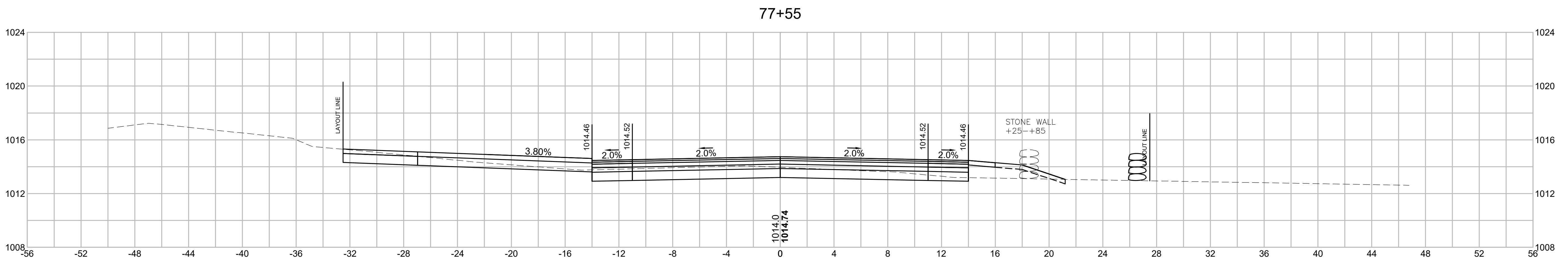
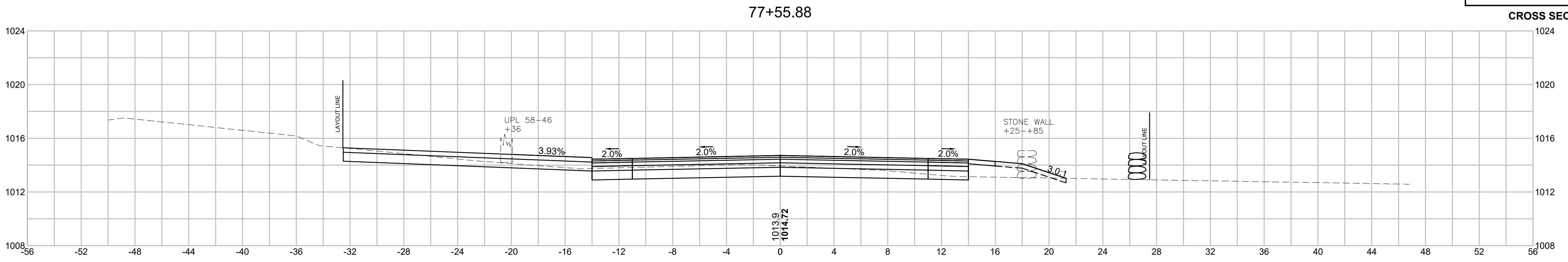
**CROSS SECTIONS**

Cut: 29.41 S.F.  
Fill: 6.34 S.F.

Cut: 29.32 S.F.  
Fill: 6.20 S.F.

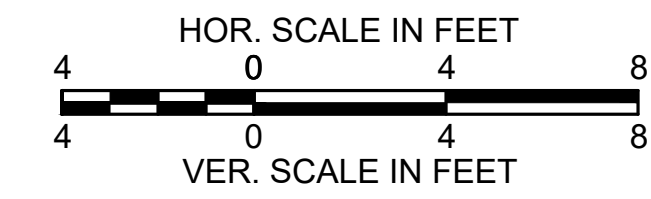
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Fill: 5.37 S.F.

Cut: 21.40 S.F.  
Fill: 14.12 S.F.

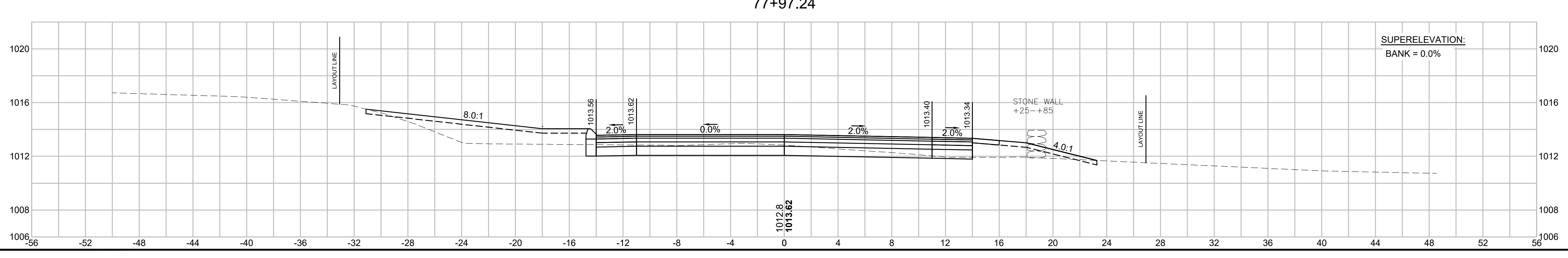
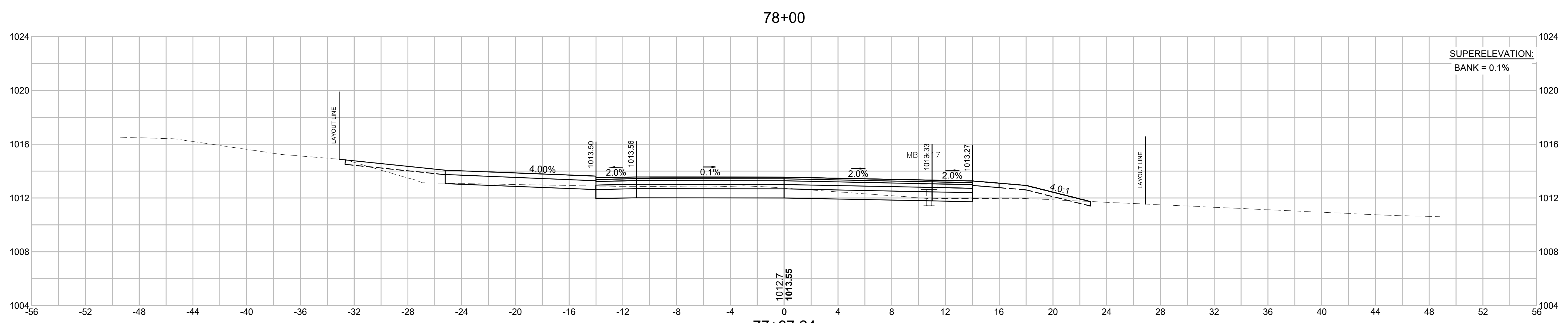
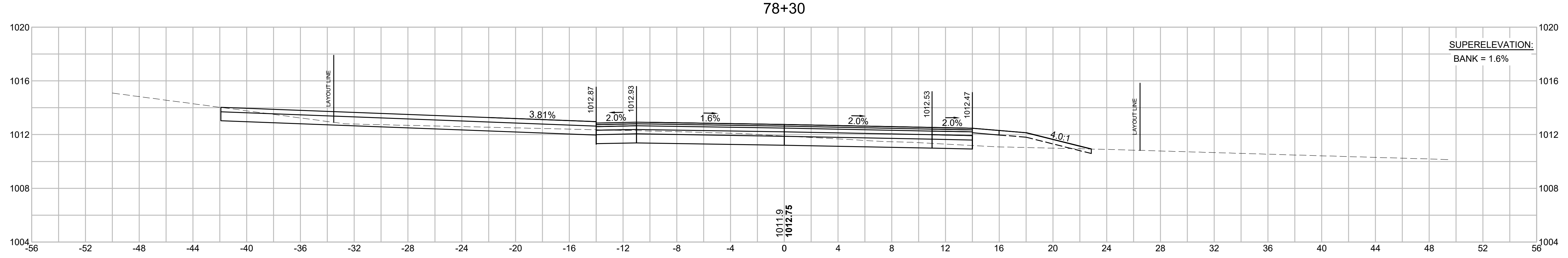
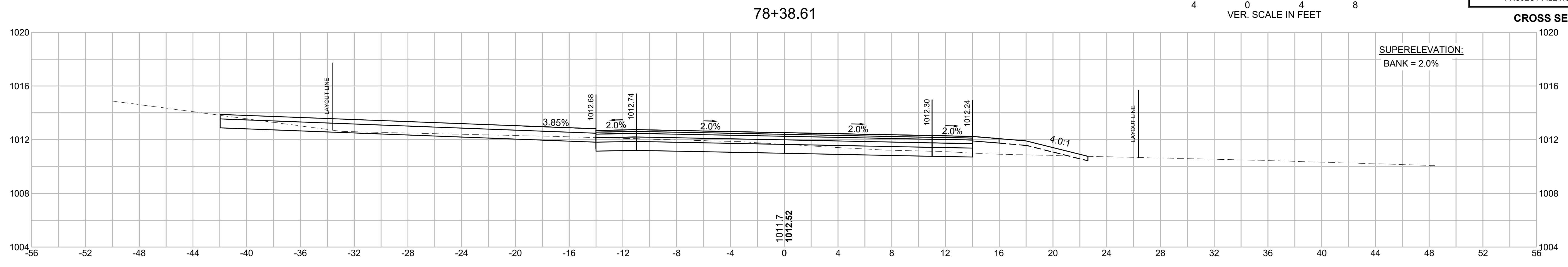


**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	153	182
PROJECT FILE NO.		608163	

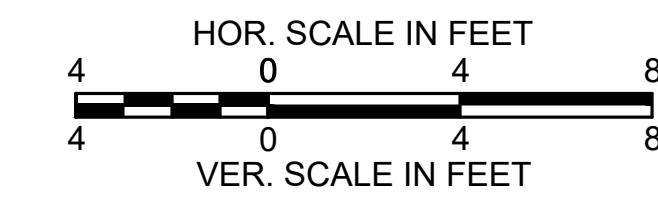


**CROSS SECTIONS**

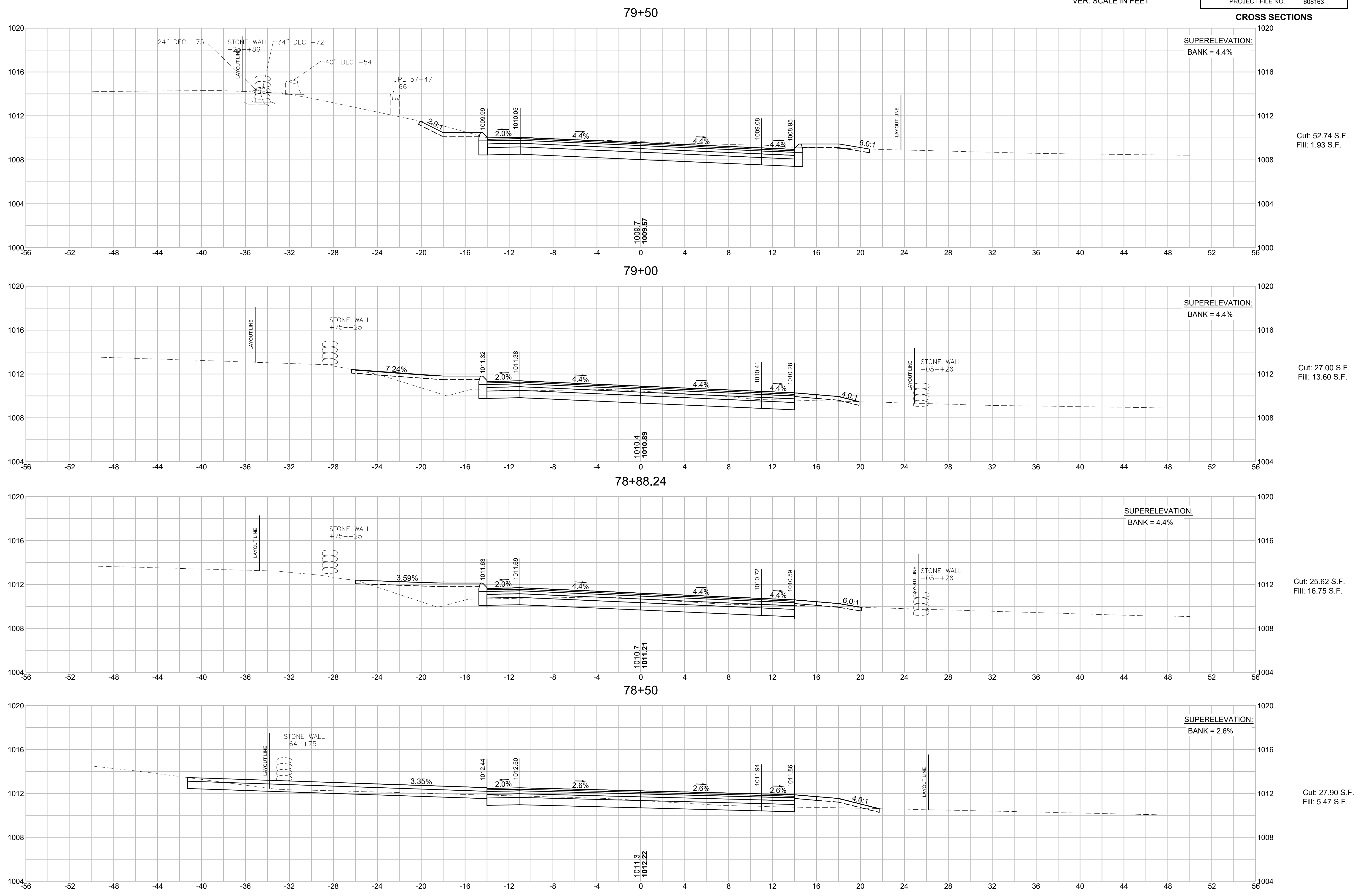


**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	154	182
PROJECT FILE NO.		608163	



**CROSS SECTIONS**



Cut: 52.74 S.F.  
Fill: 1.93 S.F.

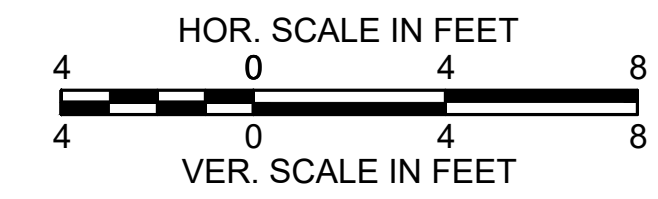
Cut: 27.00 S.F.  
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Cut: 25.62 S.F.  
Fill: 16.75 S.F.

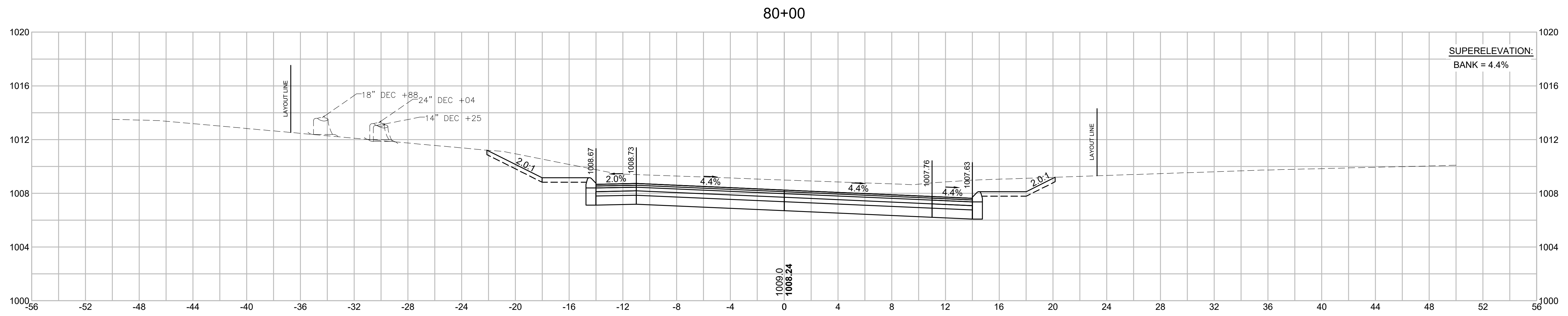
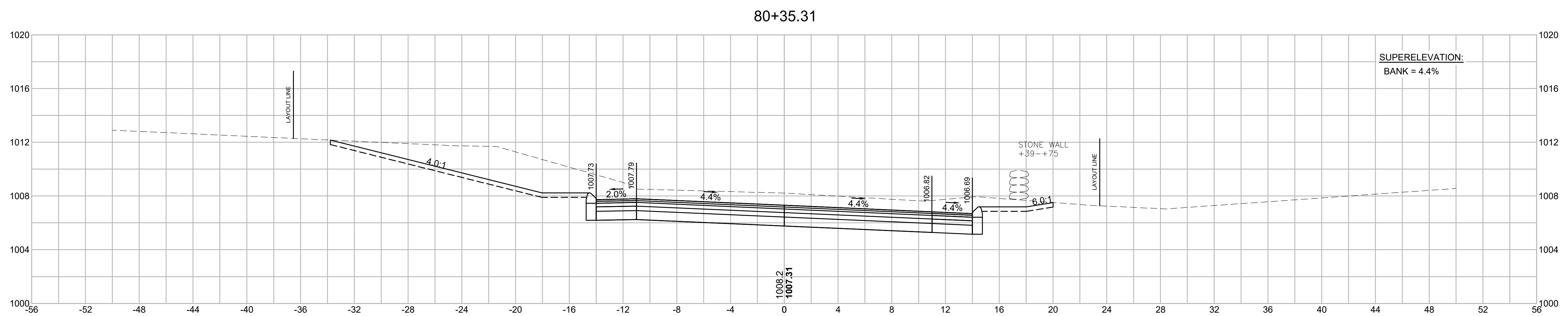
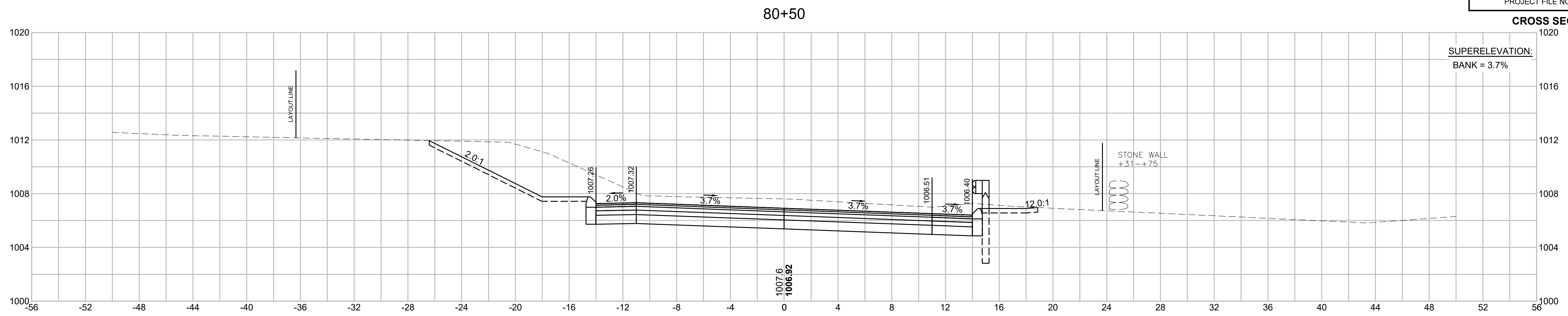
Cut: 27.90 S.F.  
Fill: 5.47 S.F.

**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	155	182
PROJECT FILE NO.		608163	



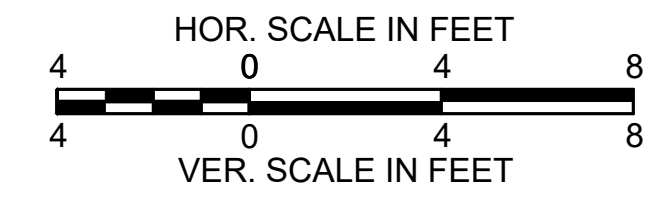
**CROSS SECTIONS**



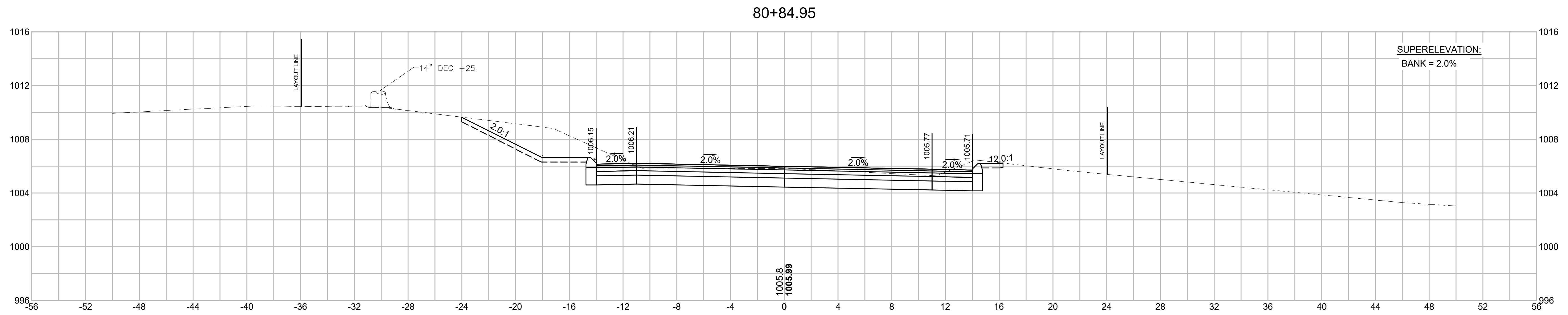
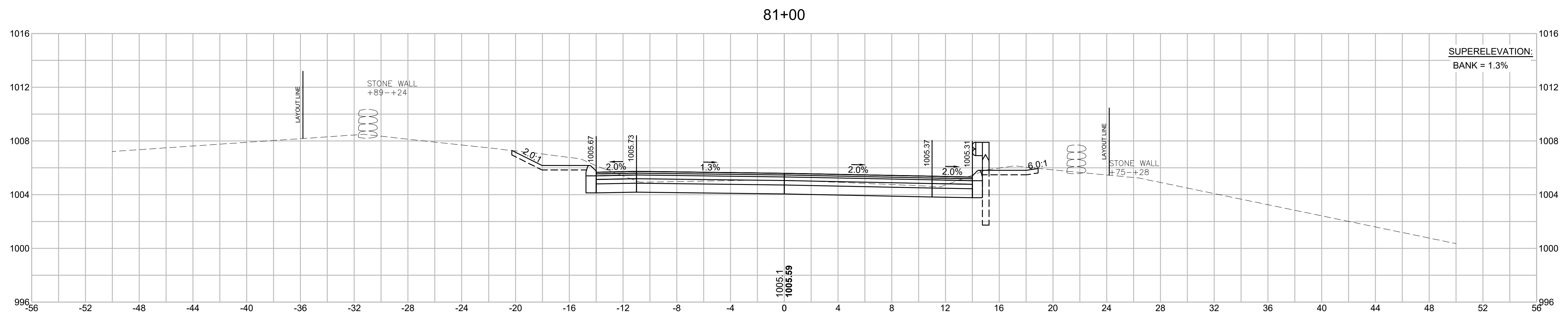
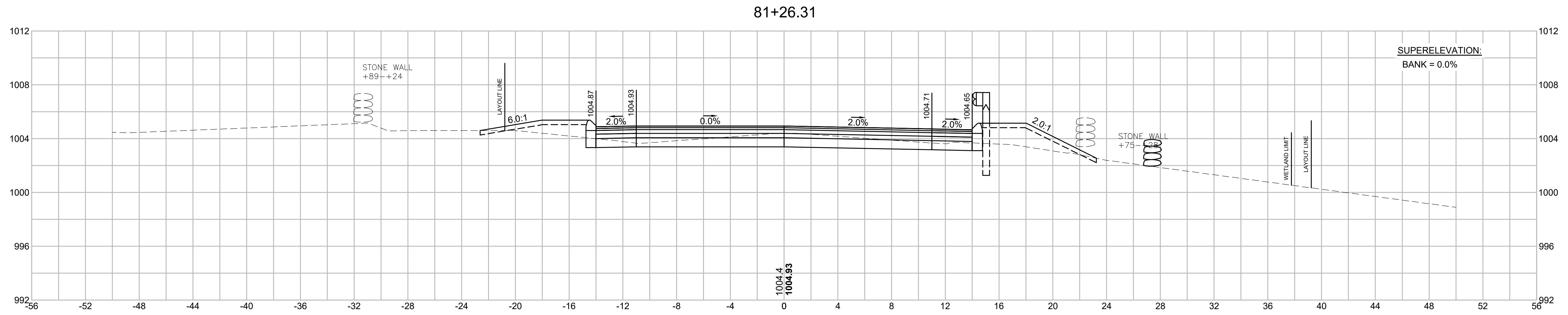


**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	156	182
PROJECT FILE NO. 608163			



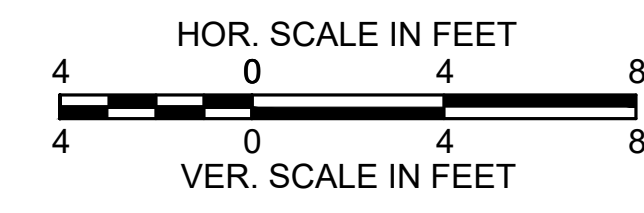
**CROSS SECTIONS**



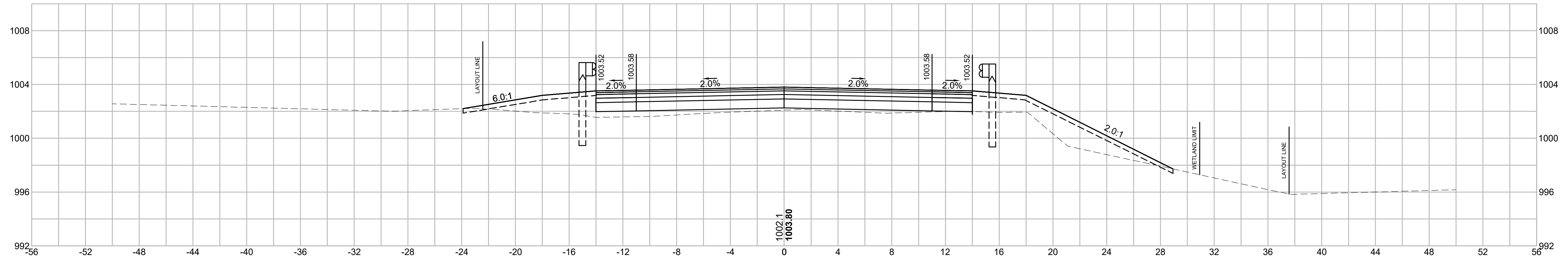
**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	157	182
PROJECT FILE NO.		608163	

**CROSS SECTIONS**

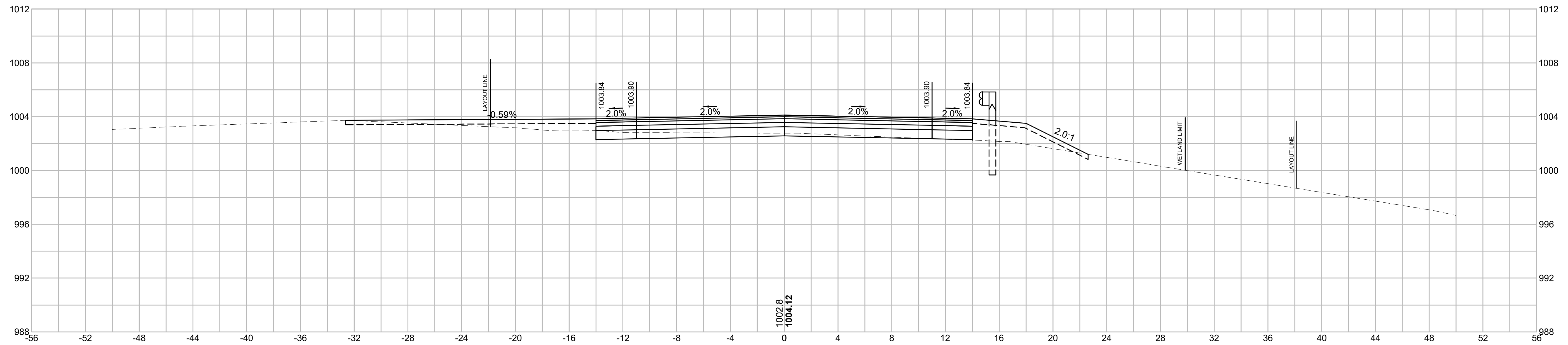


81+89.27



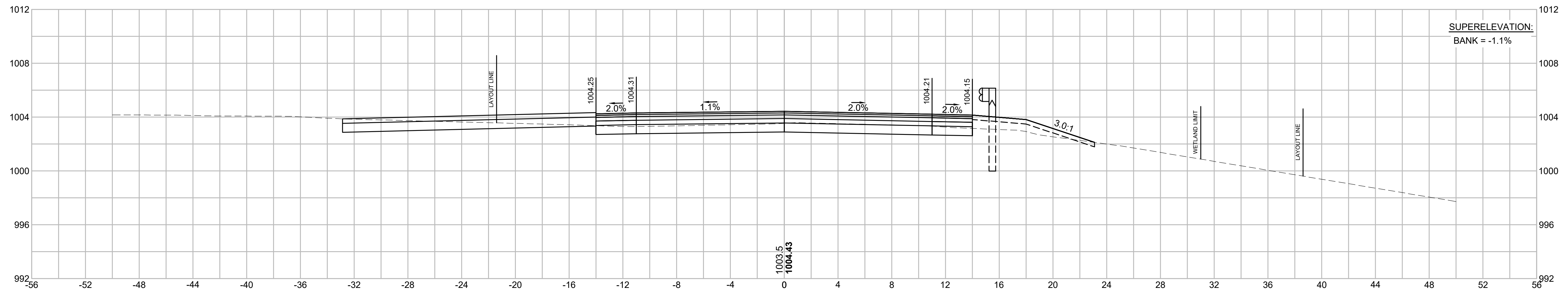
Cut: 0.54 S.F.  
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81+67.68

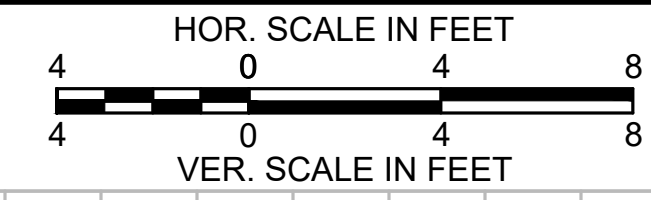


Cut: 7.80 S.F.  
Fill: 18.58 S.F.

81+50



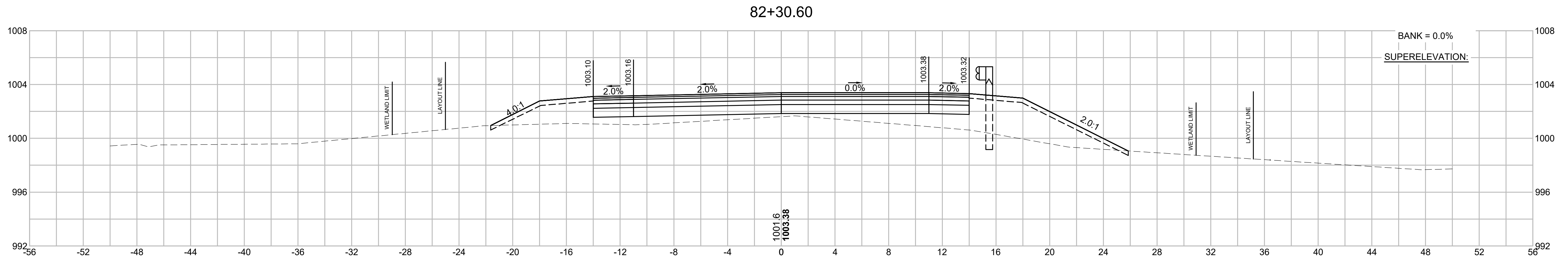
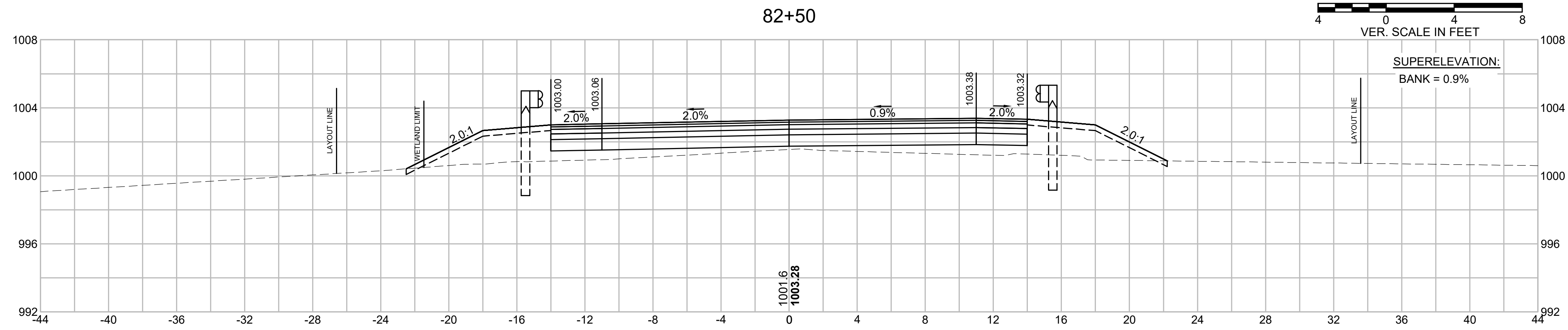
Cut: 27.4 S.F.  
Fill: 6.20 S.F.



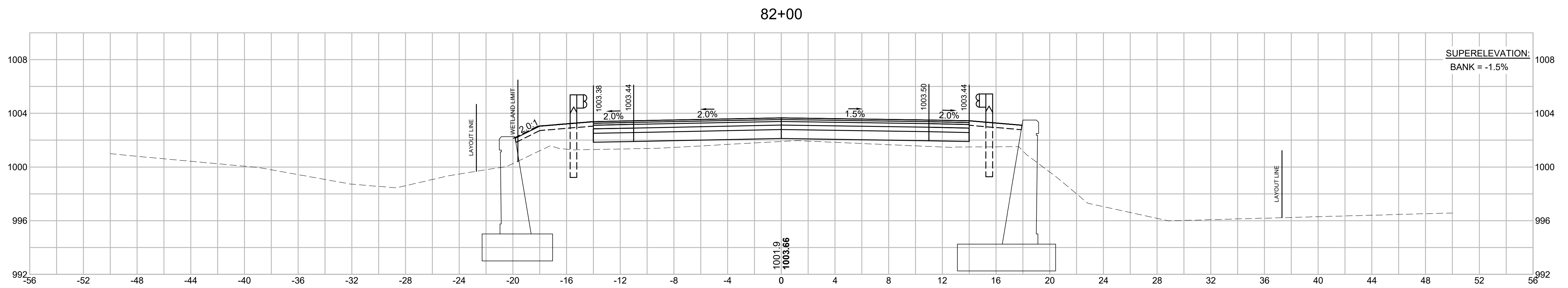
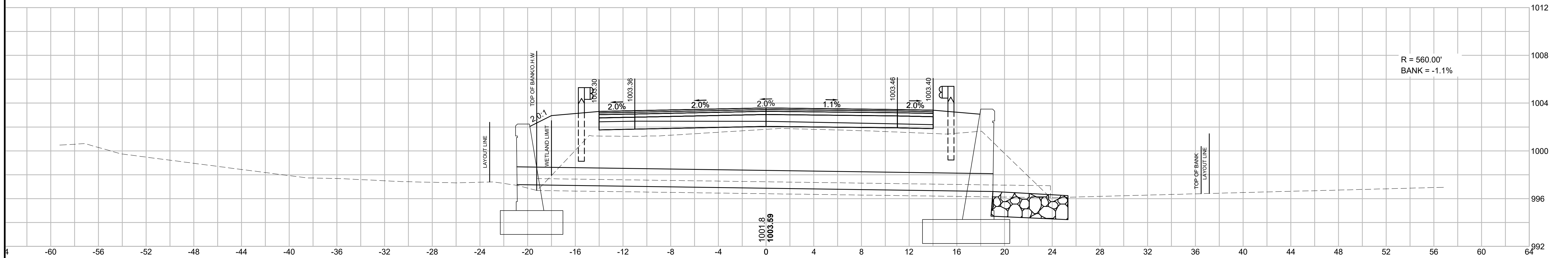
**WALES  
MONSON ROAD**

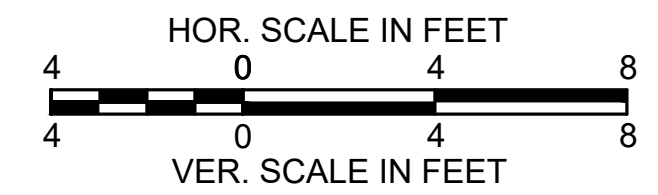
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	158	182
PROJECT FILE NO.		608163	

**CROSS SECTIONS**



**82+07.06 (SECTION CUT ALONG CENTERLINE OF EXISTING CULVERT)**

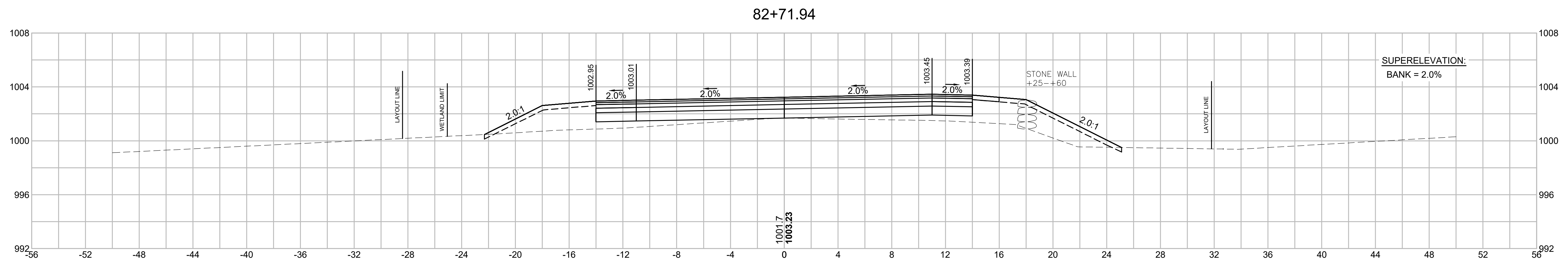
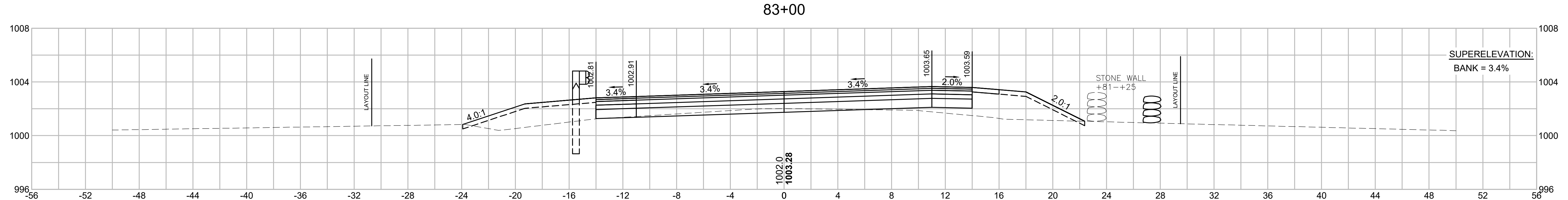
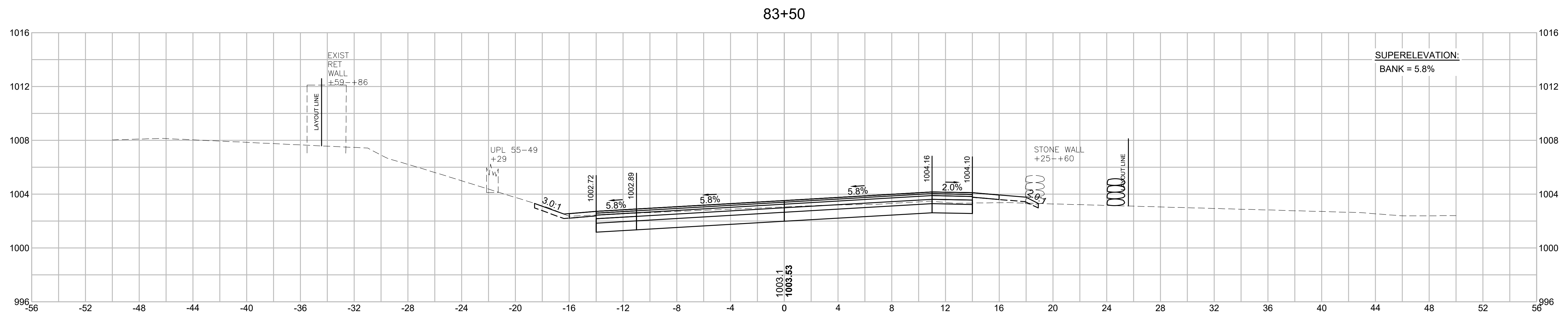
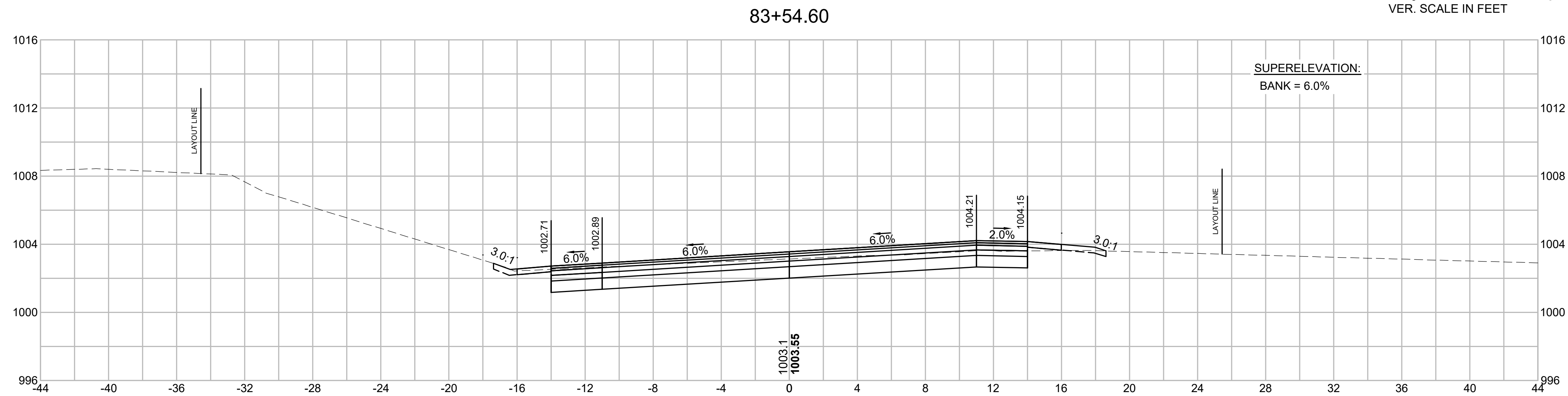




**WALES  
 MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	159	182
PROJECT FILE NO.		608163	

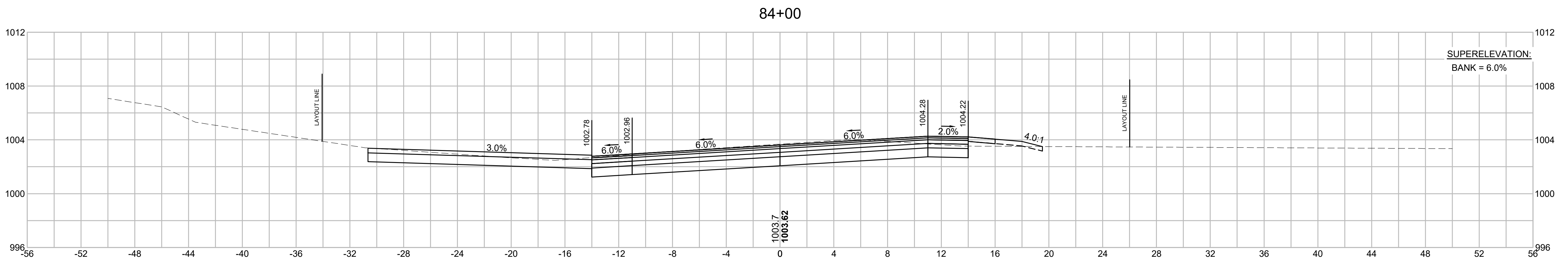
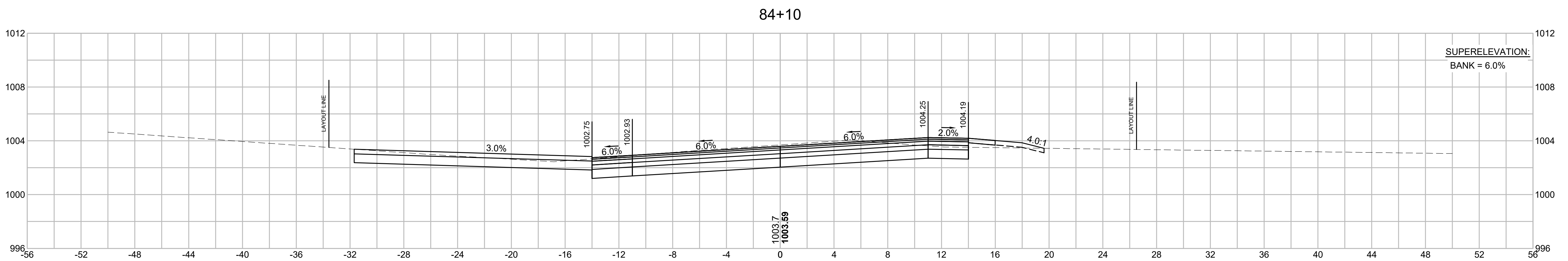
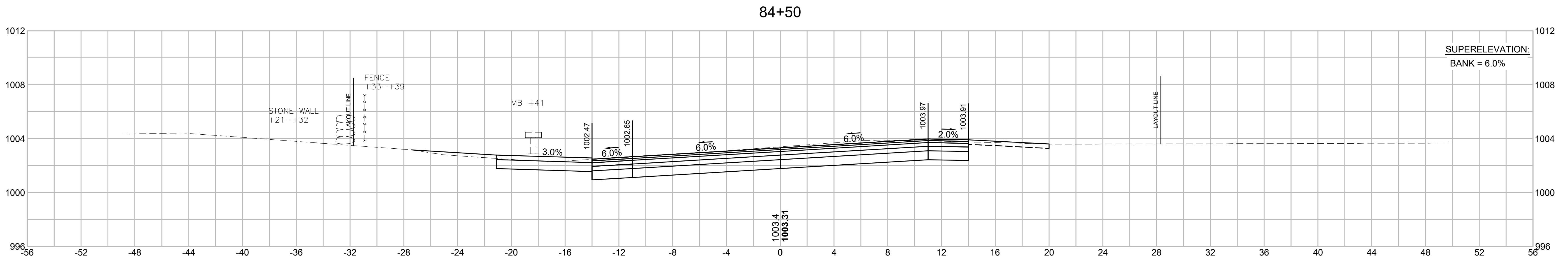
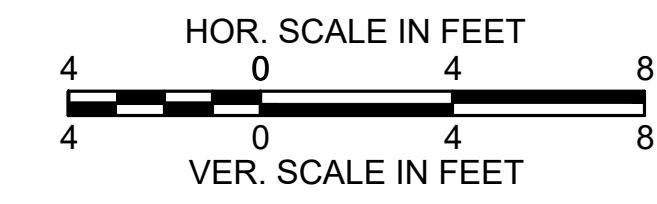
**CROSS SECTIONS**



**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	160	182
PROJECT FILE NO.		608163	

**CROSS SECTIONS**

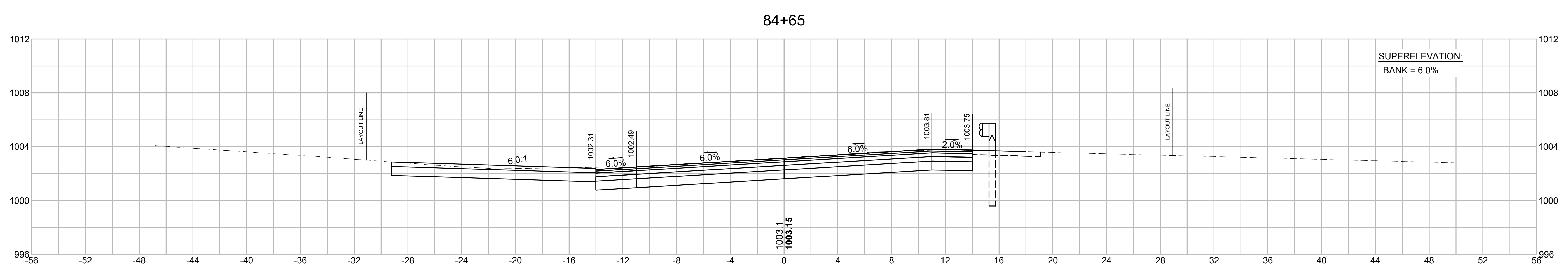
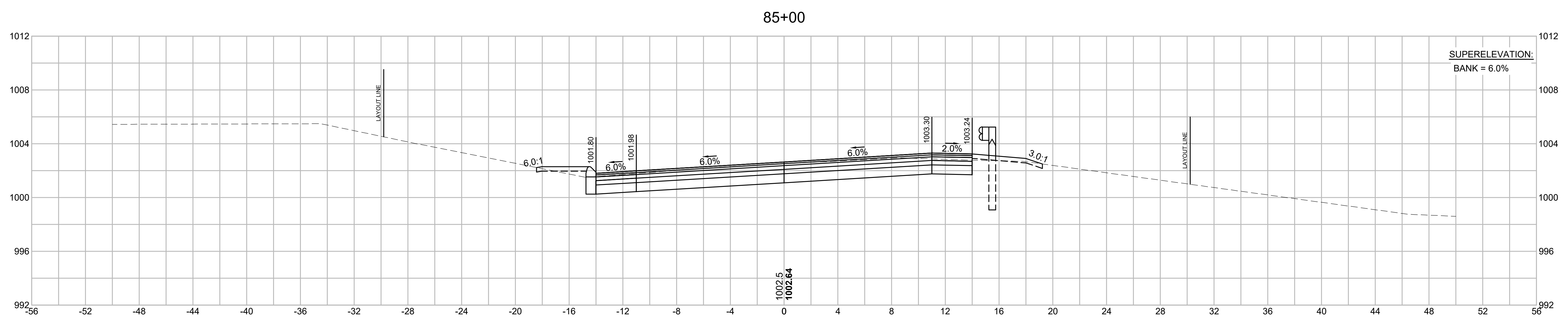
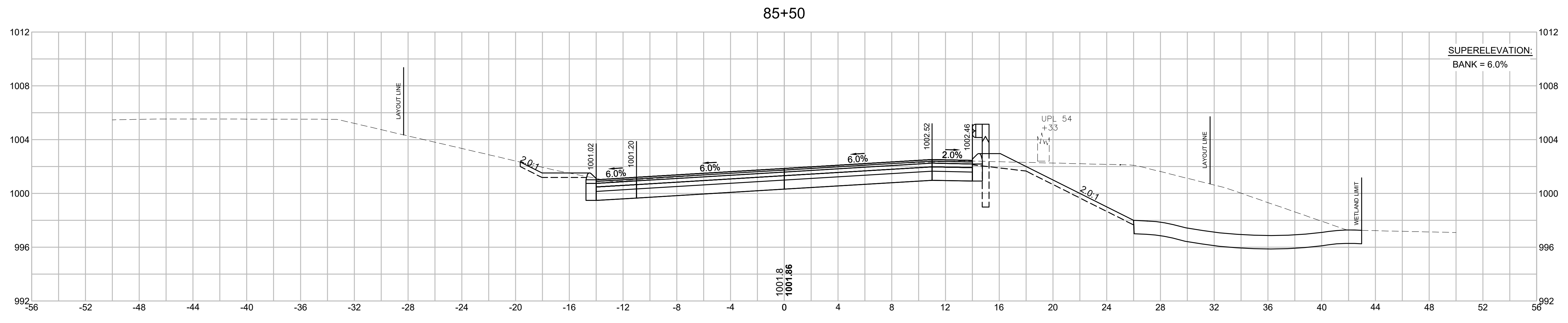
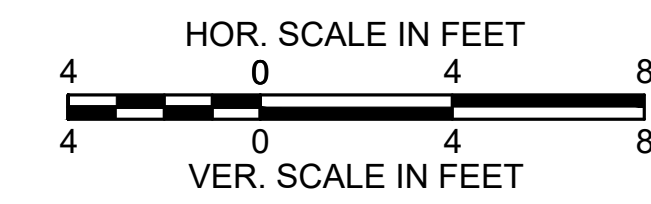




**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	161	182
PROJECT FILE NO.		608163	

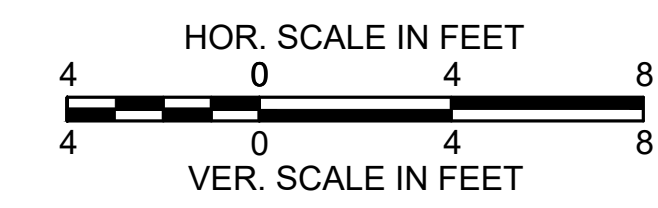
**CROSS SECTIONS**



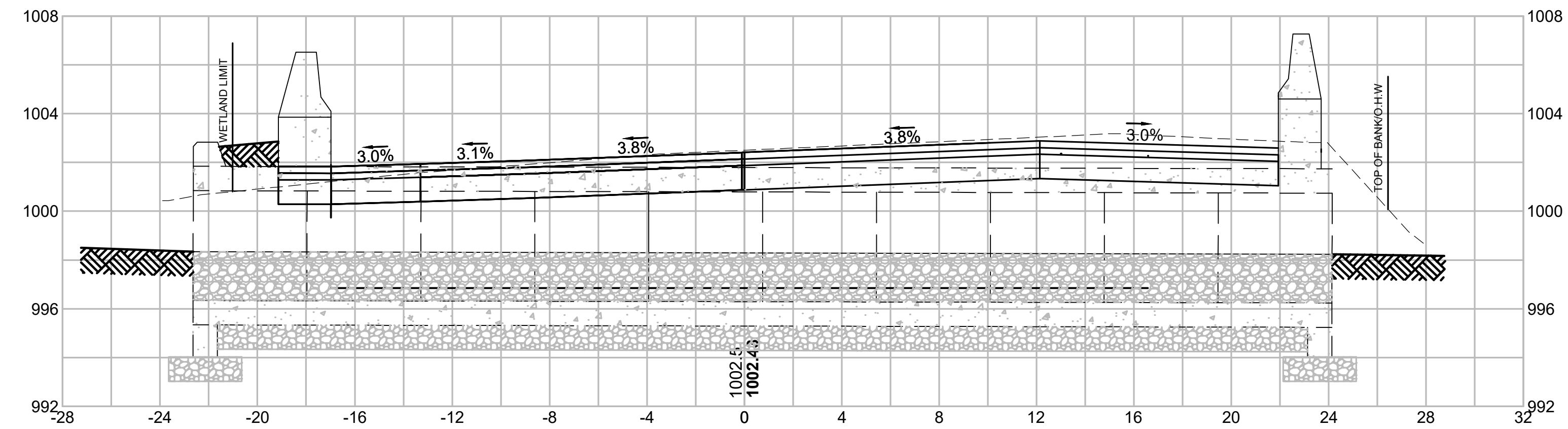
**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	162	182
PROJECT FILE NO.		608163	

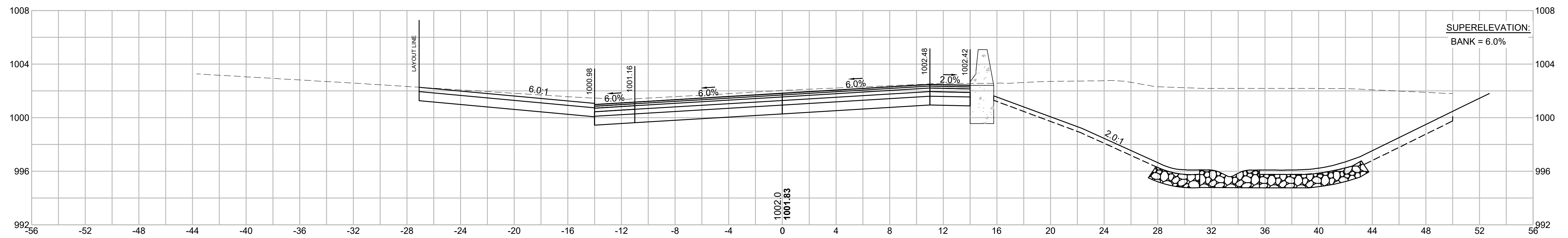
**CROSS SECTIONS**



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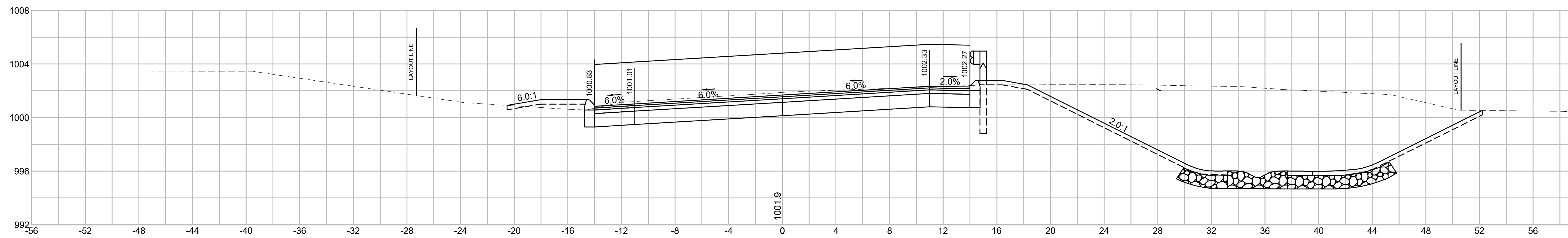


**86+15**



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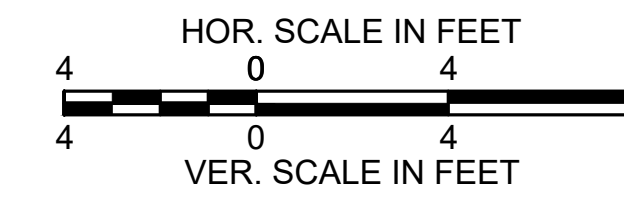
**86+00**



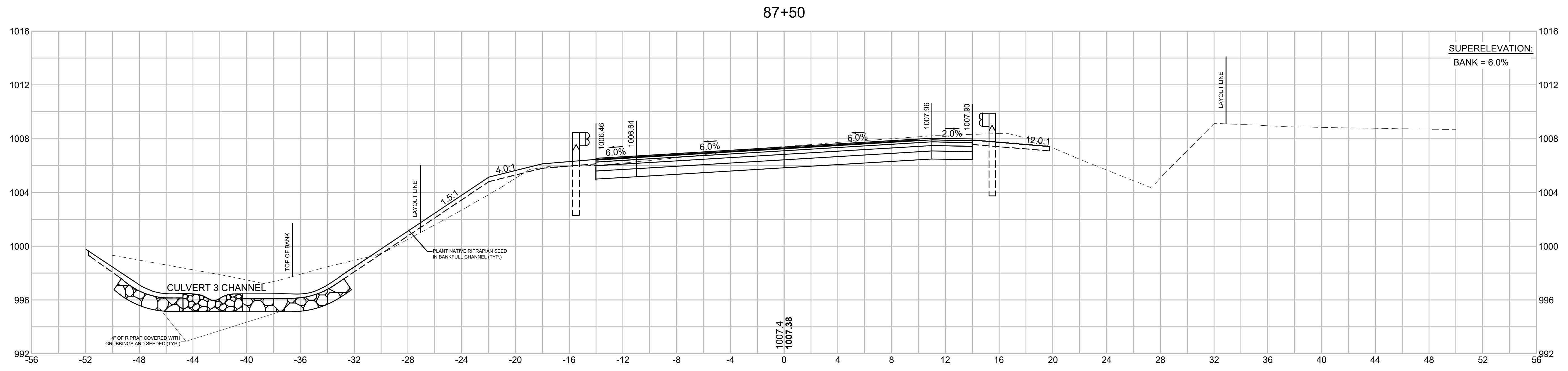
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**WALES  
MONSON ROAD**

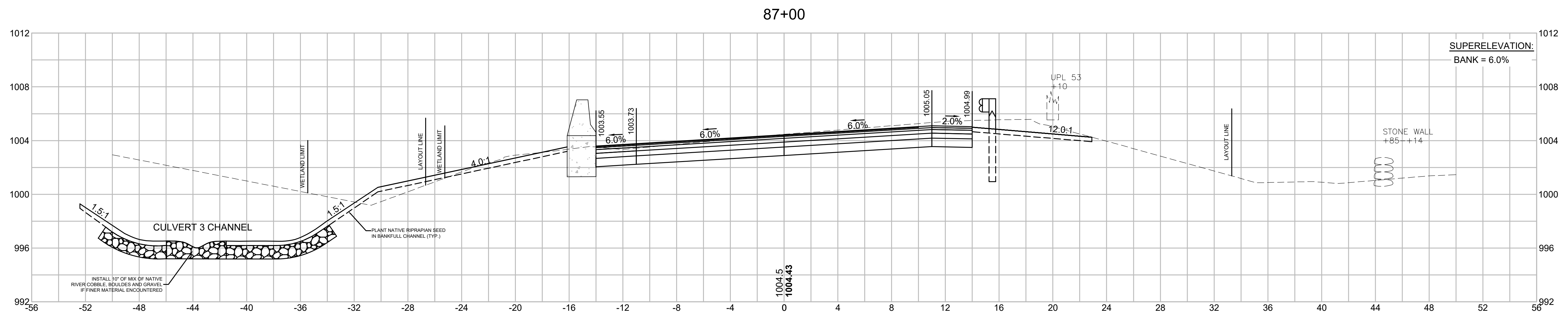
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	163	182
PROJECT FILE NO.		608163	



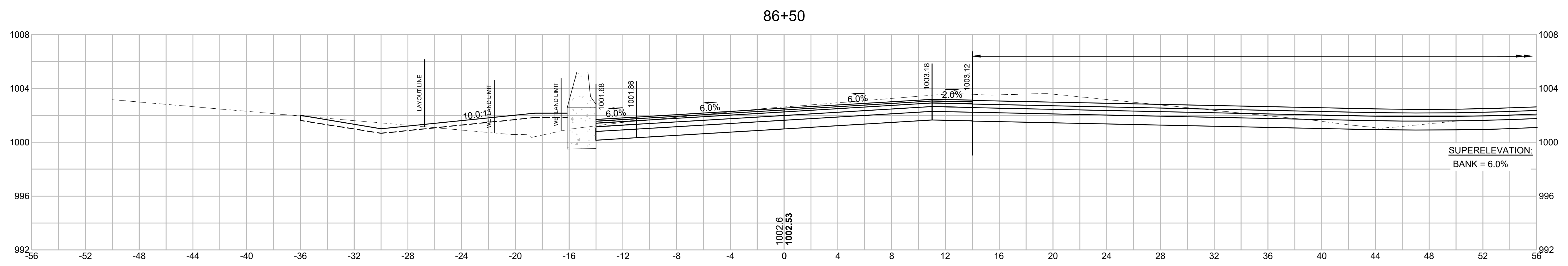
**CROSS SECTIONS**



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Fill: 5.58 S.F.

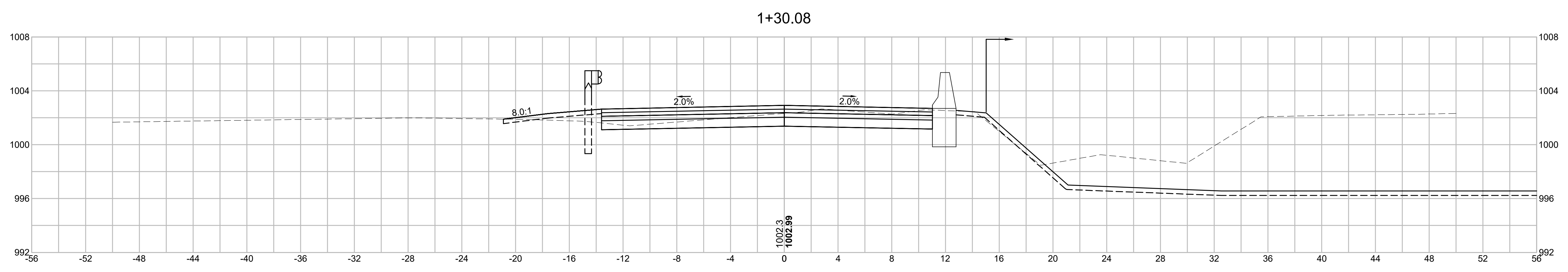
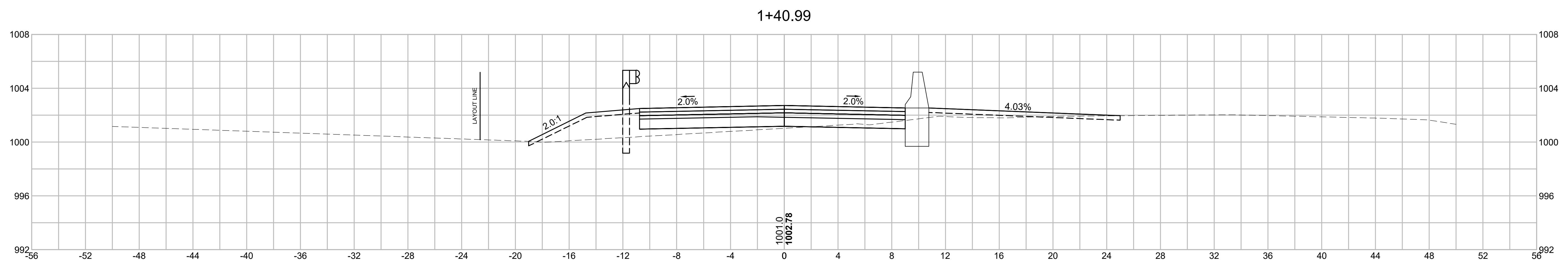
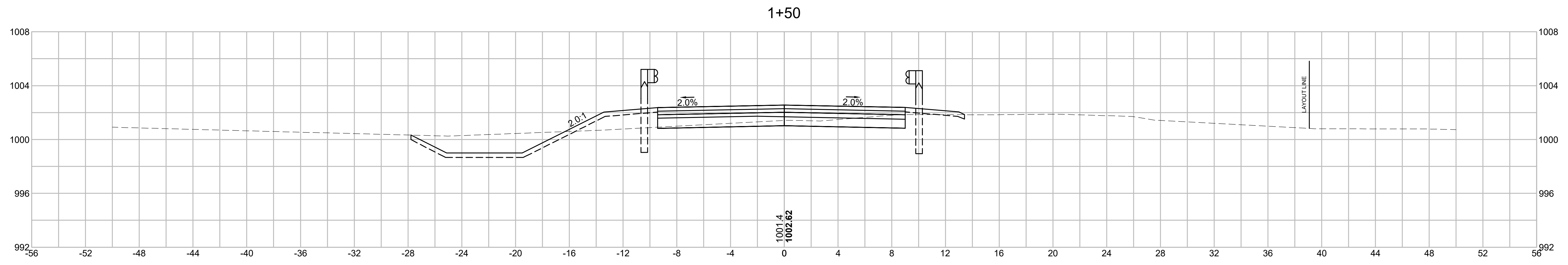
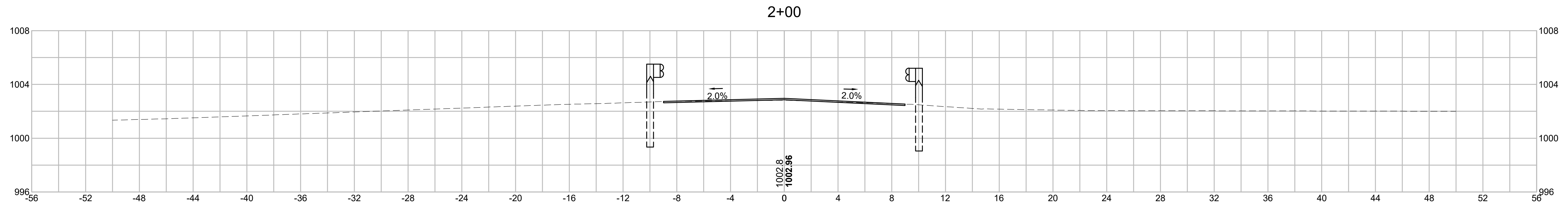
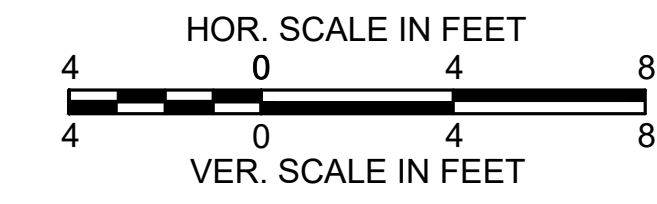


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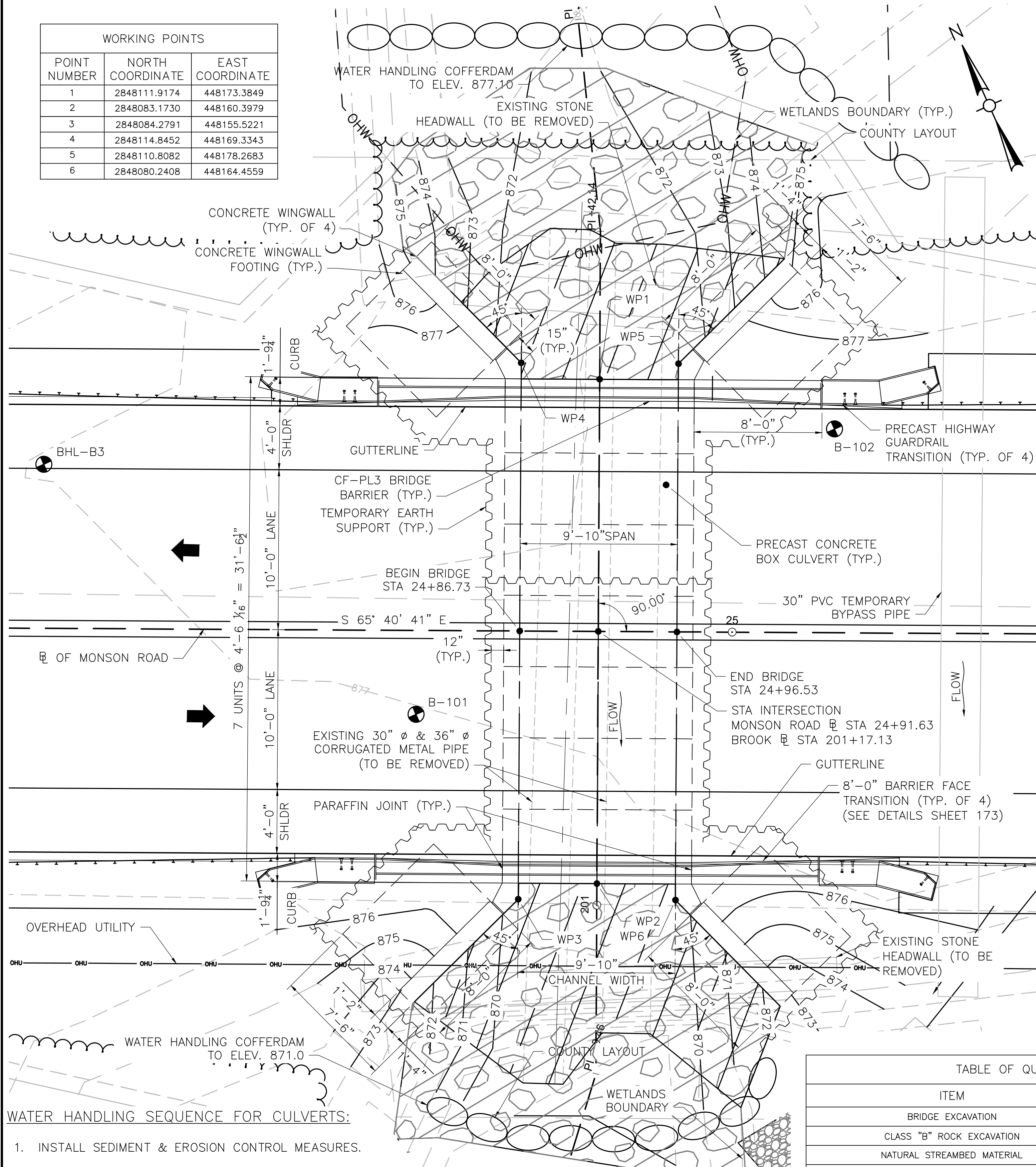
**WALES  
REED HILL ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	164	182
PROJECT FILE NO.		608163	

**CROSS SECTIONS**



WORKING POINTS		
POINT NUMBER	NORTH COORDINATE	EAST COORDINATE
1	2848111.9174	448173.3849
2	2848083.1730	448160.3979
3	2848084.2791	448155.5221
4	2848114.8452	448169.3343
5	2848110.8082	448178.2683
6	2848080.2408	448164.4559



- WATER HANDLING SEQUENCE FOR CULVERTS:**
1. INSTALL SEDIMENT & EROSION CONTROL MEASURES.
  2. INSTALL THE TEMPORARY BY PASS PIPE AND INSTALL THE COFFERDAMS ON THE UPSTREAM END OF THE PROPOSED CULVERT WHILE MAINTAINING FLOW THROUGH THE BY PASS PIPE.
  3. REMOVE THE EXISTING CULVERT AND PIPES.
  4. INSTALL THE NEW CULVERT.
  5. REMOVE THE BY PASS PIPE, ALLOW THE WATER TO FLOW THROUGH THE CULVERT.
  6. RECONFIGURE THE COFFERDAMS, INSTALL OUTLET PROTECTION, FINALIZE GRADING, AND INSTALL GUARD RAIL.
  7. REMOVE THE COFFERDAMS, REMOVE THE SEDIMENT & EROSION CONTROL MEASURES.

**CULVERT 1 PLAN (STA 24+92)**  
SCALE: 1" = 4'

TABLE OF QUANTITIES		
ITEM	UNIT	QUANTITY
BRIDGE EXCAVATION	C.Y.	345
CLASS "B" ROCK EXCAVATION	C.Y.	61
NATURAL STREAMBED MATERIAL	C.Y.	26
GRAVEL BORROW FOR BRIDGE FOUNDATIONS	C.Y.	32
GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES	C.Y.	180
PRECAST HIGHWAY GUARDRAIL TRANSITION	EA.	4
5000 PSI, 3/4", 685 HP CEMENT CONCRETE	C.Y.	74
STEEL REINFORCEMENT FOR STRUCTURES - EPOXY COATED	LB.	14870
DAMP PROOFING	S.F.	1255
PRECAST CONCRETE BOX CULVERT - SITE 1	L.S.	1
TEMPORARY SUPPORT OF EARTH - SITE 1	L.S.	1
CONTROL OF WATER - STRUCTURE NO. 1	L.S.	1

- NOTES:**
1. THE FACTORED BEARING PRESSURE = 2.06 KSF AS PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS STRENGTH I LOAD COMBINATION.
  - FACTORED BEARING RESISTANCE = 5.04 KSF. FACTORED BEARING RESISTANCE IS THE PRODUCT OF THE NOMINAL BEARING RESISTANCE AND A RESISTANCE FACTOR OF 0.45.

**DESIGN:**  
IN ACCORDANCE WITH THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS LRFD BRIDGE DESIGN SPECIFICATIONS, WITH CURRENT INTERIM SPECIFICATIONS 9TH EDITION, 2020, FOR HL-93 LOADING.

**EXISTING CONDITIONS:**  
DIMENSIONS SHOWN AND DETAILS DEPICTED ARE BASED UPON THE ORIGINAL BRIDGE PLANS AND ARE NOT GUARANTEED. THE CONTRACTOR SHALL DETERMINE AND ESTABLISH ALL DIMENSIONS AND DETAILS NECESSARY FOR COMPLETION OF ALL WORK BY FIELD MEASUREMENT AND SURVEY. THE CONTRACTOR SHALL BE RESPONSIBLE AND NOT ORDER ANY MATERIAL OR COMMENCE ANY FABRICATION UNTIL HE/SHE HAS MADE THE REQUIRED MEASUREMENTS ON THE ACTUAL STRUCTURE AND THE EXTENT OF THE PROPOSED WORK HAS BEEN APPROVED BY THE ENGINEER.

**BENCH MARK:**  
BENCHMARK STA 21+38± (RT) MAGNAIL IN UTILITY POLE: EL. 876.92 FT  
BENCHMARK STA 29+60± (RT) MAGNAIL IN UTILITY POLE: EL. 900.23 FT  
BENCHMARK STA 29+90± (LT) MAGNAIL BRASS RIVET: EL. 901.72 FT  
ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988

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

**UNSUITABLE MATERIALS:**  
ALL UNSUITABLE MATERIAL SHALL BE REMOVED WITHIN THE LIMITS OF THE FOUNDATIONS OF THE STRUCTURE, AS DIRECTED BY THE ENGINEER.

**REINFORCEMENT:**  
REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M31 GRADE 60. UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS, ALL BARS SHALL BE LAPPED AS FOLLOWS:

MODIFICATION CONDITION	#4 BARS	#5 BARS	#6 BARS
1. NONE	16"	19"	23"
2. 12" OF CONCRETE BELOW BAR	20"	25"	30"
3. COATED BARS, COVER < 3d <sub>b</sub> , OR CLEAR SPACING < 6d <sub>b</sub>	23"	29"	34"
4. COATED BARS, ALL OTHER CASES	18"	23"	27"
5. CONDITION 2. AND 3.	26"	32"	39"
6. CONDITION 2. AND 4.	24"	30"	36"

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

**EPOXY COATED BARS:**  
REINFORCING PROTECTION PER ELEMENT SHALL BE AS FOLLOWS:  
EPOXY COATED BARS: BARRIER CURB, CULVERT, WINGWALLS AND WINGWALL FOOTINGS

**CONCRETE MIX:**  
THE CEMENT CONCRETE SPECIFIED BELOW SHALL BE USED ON THE FOLLOWING BRIDGE COMPONENTS:  
5000 PSI, 3/4", 685 HP CEMENT CONCRETE.....CF-PL3 BARRIER CURB, TRANSITION BARRIER CURB, WINGWALLS

**UTILITIES:**  
THE CONTRACTOR SHALL LOCATE AND PROTECT FROM DAMAGE ALL EXISTING UTILITIES.

WALES MONSON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0032(043)X	165	182
PROJECT FILE NO. 608163			

**CULVERT 1 KEY PLAN AND NOTES**

TRAFFIC DATA		
	ROADWAY OVER	ROADWAY UNDER
DESIGN YEAR	2025	-
AVERAGE DAILY TRAFFIC - PRESENT	660	-
AVERAGE DAILY TRAFFIC - DESIGN YEAR	760	-
DESIGN HOURLY VOLUME	85	-
DIRECTIONAL DISTRIBUTION	52%	-
TRUCK PERCENTAGE - AVERAGE DAY	3%	-
TRUCK PERCENTAGE - PEAK HOUR	3%	-
DESIGN SPEED	40 MPH	-
DIRECTIONAL DESIGN HOURLY VOLUME	45	-

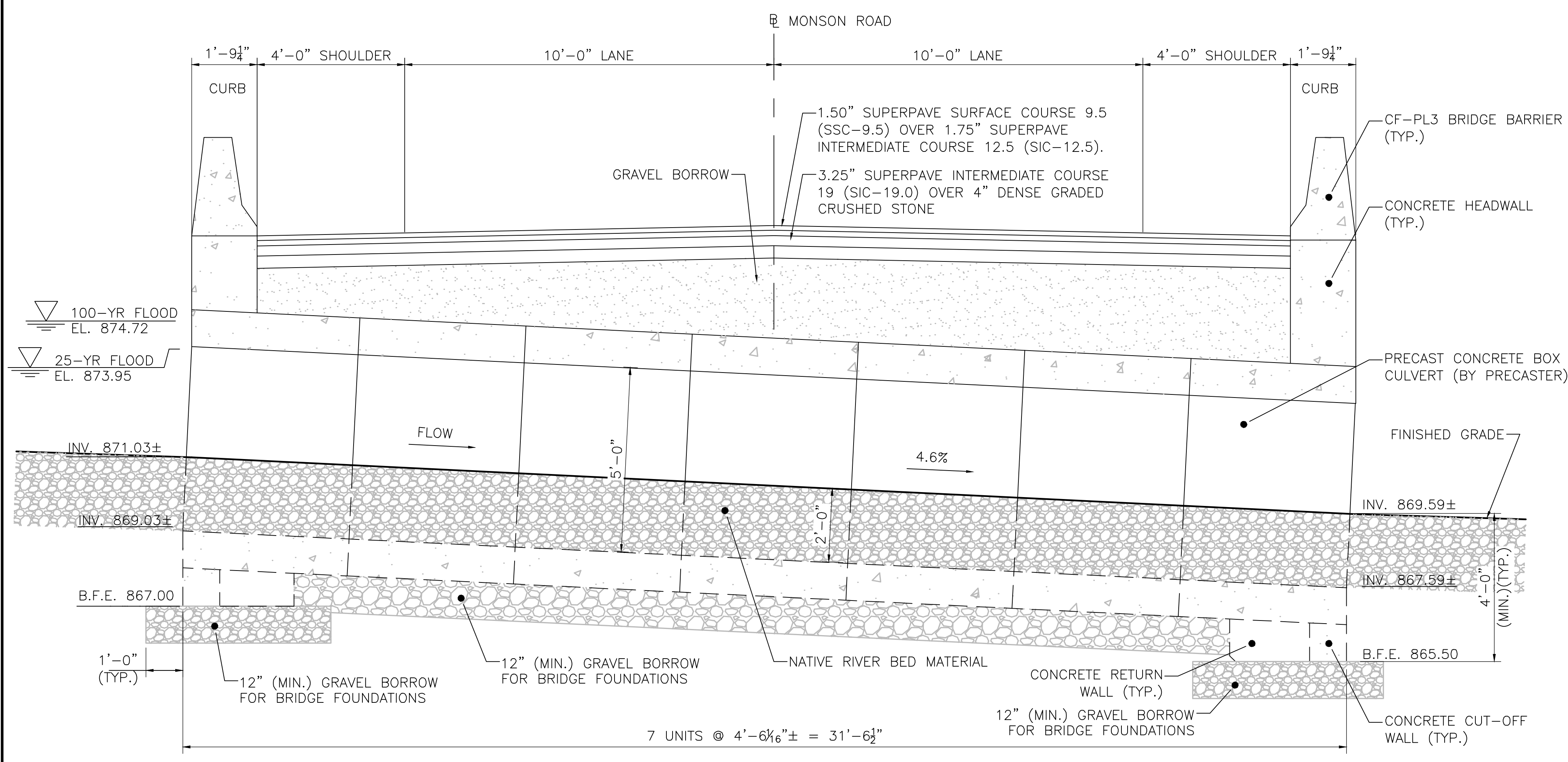
SEISMIC DESIGN CRITERIA	
DESIGN RETURN PERIOD:	1000 YR
DESIGN SPECTRA	
A <sub>s</sub>	0.071g
S <sub>Ds</sub>	0.156g
S <sub>D1</sub>	0.063g
SITE CLASS	C
SEISMIC DESIGN CATEGORY (SDC)	A

HYDRAULIC DESIGN DATA	
DRAINAGE AREA (SQ. MILES)	0.903
DESIGN FLOOD DISCHARGE (C.F.S.)	123
DESIGN FLOOD FREQUENCY (YEARS)	25
DESIGN FLOOD VELOCITY (F.P.S.)	6.32
DESIGN FLOOD ELEVATION (FEET, NAVD)	873.95
BASE (100-YEAR) FLOOD DATA	
BASE FLOOD DISCHARGE (C.F.S.)	174
BASE FLOOD ELEVATION (FEET, NAVD)	874.72
DESIGN AND CHECK SCOUR DATA	
DESIGN SCOUR FLOOD EVENT RETURN FREQUENCY (YEARS)	50
DESIGN FLOOD ABUTMENT SCOUR DEPTH (FEET)	N/A
DESIGN FLOOD PIER SCOUR DEPTH (FEET)	N/A
CHECK SCOUR FLOOD EVENT RETURN FREQUENCY (YEARS)	50
CHECK FLOOD ABUTMENT SCOUR DEPTH (FEET)	N/A
CHECK FLOOD PIER SCOUR DEPTH (FEET)	N/A
FLOOD OF RECORD	
DISCHARGE (C.F.S.)	UNKNOWN
FREQUENCY (IF KNOWN, YEARS)	UNKNOWN
MAXIMUM ELEVATION (FEET, NAVD)	UNKNOWN
DATE (MM/YYYY)	UNKNOWN
HISTORY OF ICE FLOES	NONE
EVIDENCE OF SCOUR AND EROSION	NONE

TEMPORARY WATER CONTROL DESIGN DATA	
DESIGN FLOOD DISCHARGE (C.F.S.)	43
DESIGN FLOOD FREQUENCY (YEARS)	2
DESIGN FLOOD VELOCITY (F.P.S.)	7.72
DESIGN FLOOD ELEVATION (FEET, NAVD)	876.1

- REFERENCE NOTES:**
1. FOR CULVERT 1 HEADWALL ELEVATIONS, SEE SHEET NO. 167.
  2. FOR CULVERT 1 WINGWALL ELEVATIONS, SEE SHEET NO. 168.
  3. FOR CONCRETE HEADWALL DETAILS, CUT-OFF AND RETURN WALL DETAILS, PARAFFIN JOINT DETAILS AND WINGWALL DETAILS, SEE SHEET NO. 174.
  4. FOR BARRIER TRANSITION AND PRECAST GUARDRAIL TRANSITION DETAILS, SEE SHEET NO. 175.





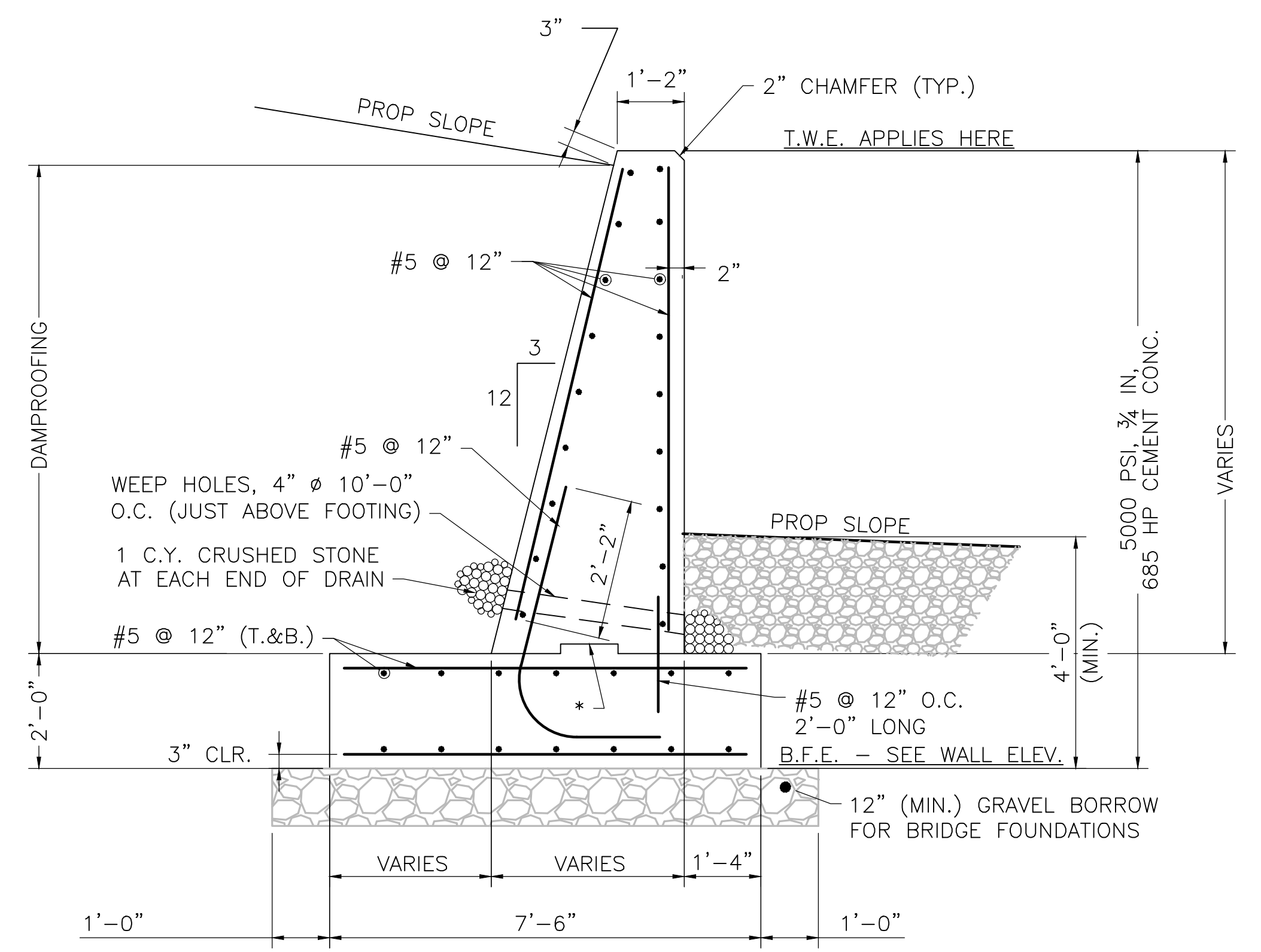
**CULVERT 1 LONGITUDINAL SECTION**  
SCALE: 1/2" = 1'-0"

**NOTES:**

- INSTALL 4" WEEP HOLES @ 10'-0" O.C. PROVIDE 1 CUBIC YARD OF CRUSHED STONE AT EACH END OF THE WEEP HOLE.
  - THE FACTORED BEARING PRESSURE = 2.06 KSF AS PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS STRENGTH I LOAD COMBINATION.
- FACTORED BEARING RESISTANCE = 5.04 KSF.  
FACTORED BEARING RESISTANCE IS THE PRODUCT OF THE NOMINAL BEARING RESISTANCE AND A RESISTANCE FACTOR OF 0.45.

WALES MONSON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	166	182
PROJECT FILE NO. 608163			

**CULVERT 1 SECTION & DETAILS**



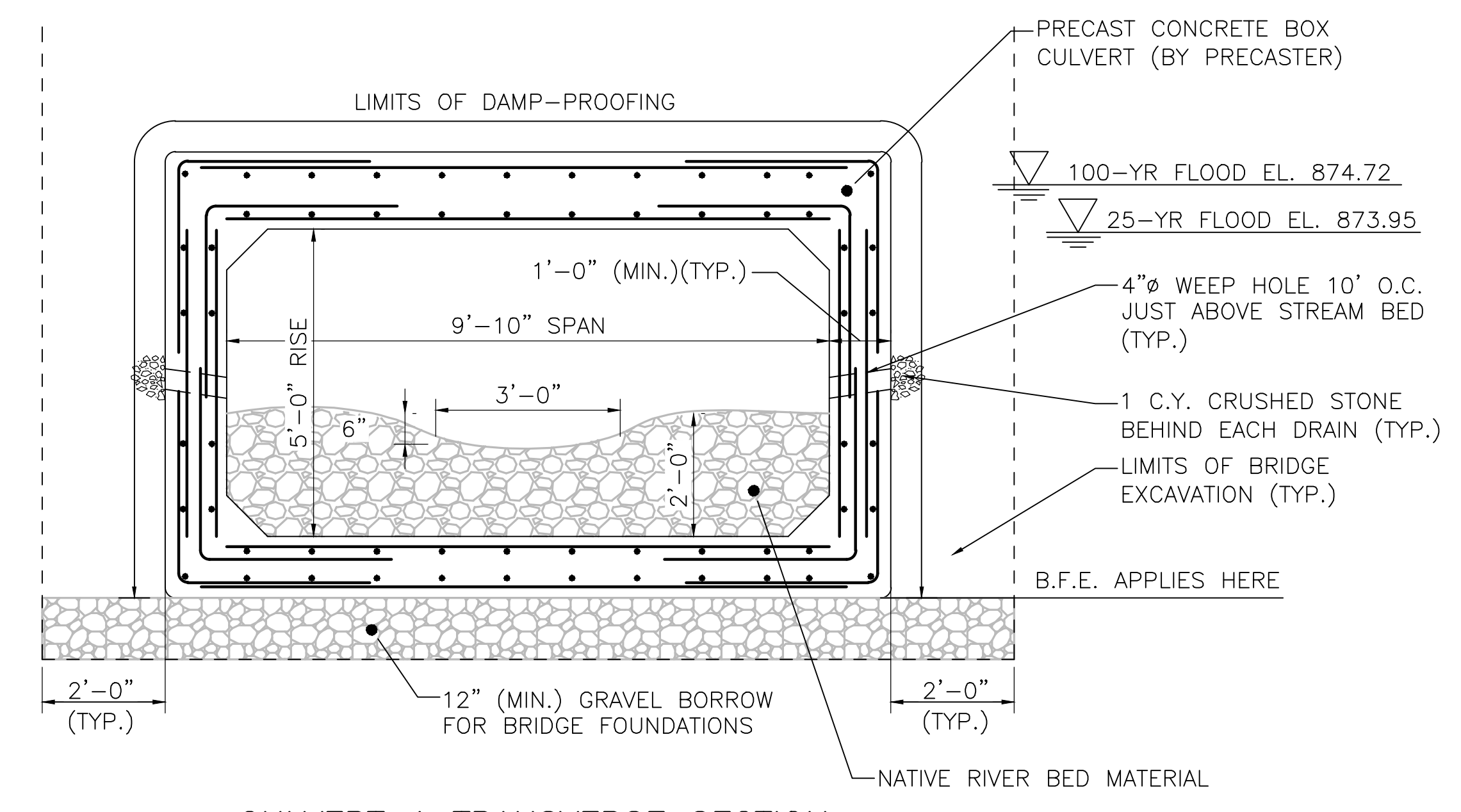
**WINGWALL TYPICAL SECTION**  
SCALE: 1/2" = 1'-0"

**PRECAST BOX CULVERT NOTES:**

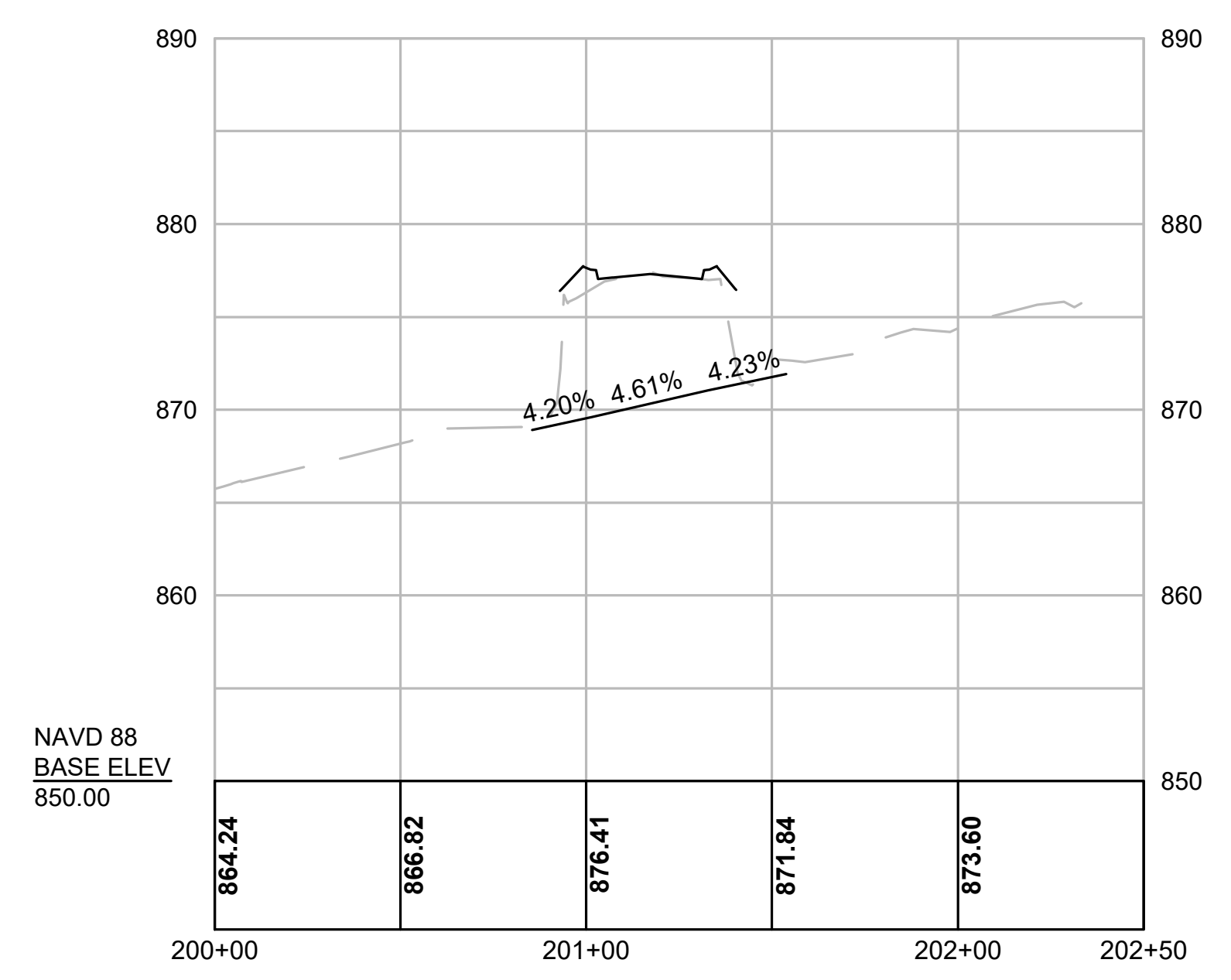
- THE SECTION IS A PRECAST BOX CULVERT TO BE MONOLITHICALLY CAST OF REINFORCED CONCRETE. THE INSIDE SHALL BE SMOOTH AS TO NOT RESTRICT FLOW.
- THE INTERNAL DIMENSIONS OF THE BOX CULVERT AT THIS SITE ARE 9'-10" WIDE, 5'-0" HIGH AND A MINIMUM 10" SLAB AND WALL THICKNESS.
- DESIGN CRITERIA:
  - DESIGN SHALL BE IN ACCORDANCE WITH THE 2020 AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIAL (AASHTO) LRFD BRIDGE DESIGN SPECIFICATIONS (AASHTO 9th EDITION) FOR HL-93 LOADING.
  - STEEL REINFORCEMENT SHALL BE GRADED CONFORMING TO AASHTO M31.
  - MINIMUM 5000 PSI CEMENT CONCRETE STRENGTH @ 28 DAYS.
  - CONCRETE COVER FOR REINFORCING STEEL BARS SHALL BE 2 INCHES.

**REFERENCE NOTES:**

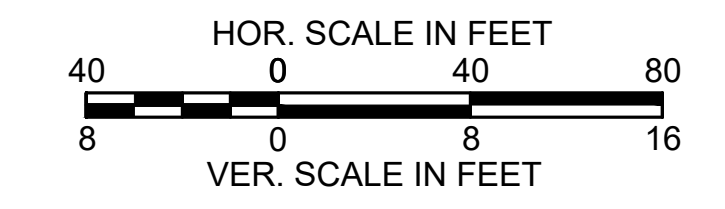
- FOR CULVERT 1 HEADWALL ELEVATIONS, SEE SHEET NO. 167.
- FOR CULVERT 1 WINGWALL ELEVATIONS, SEE SHEET NO. 168.
- FOR CONCRETE HEADWALL DETAILS, CUT-OFF AND RETURN WALL DETAILS, STRIATION DETAILS, AND WINGWALL DETAILS, SEE SHEET NO. 174.



**CULVERT 1 TRANSVERSE SECTION**  
SCALE: 1/2" = 1'-0"



**CULVERT 1 CHANNEL PROFILE**



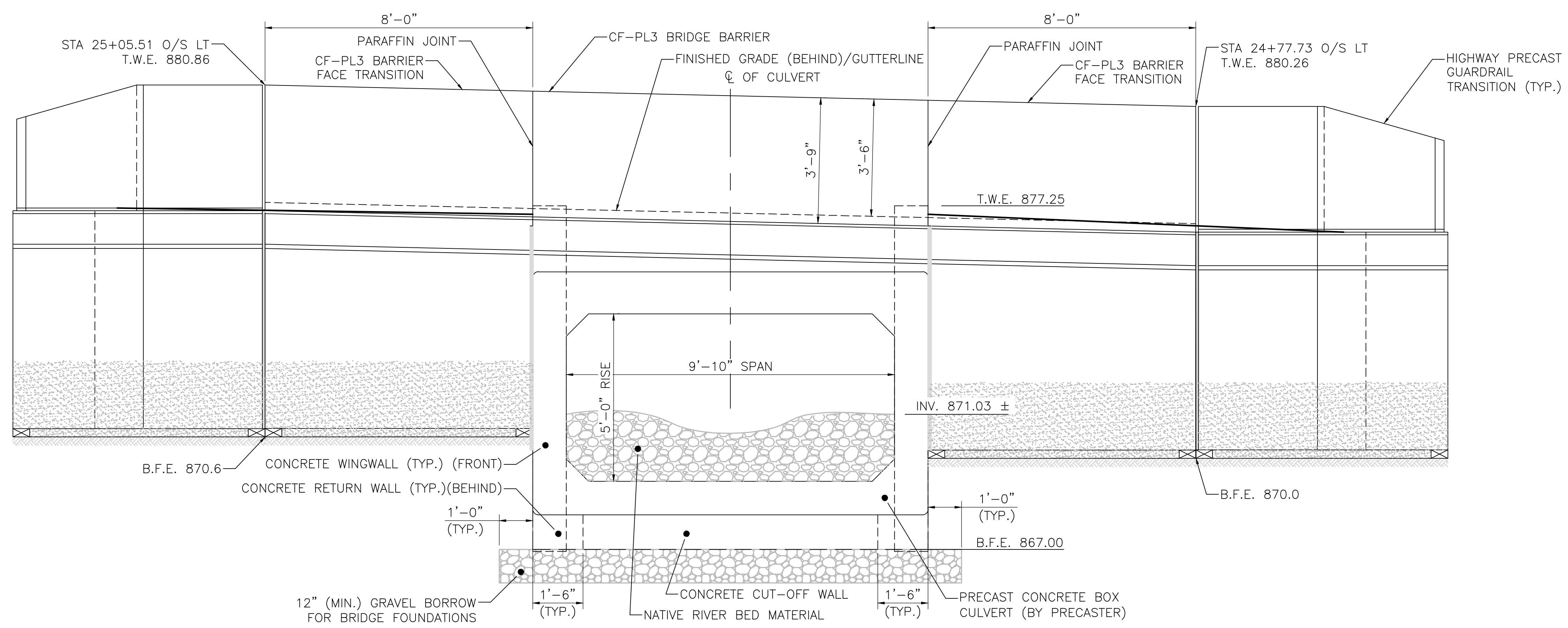
**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	167	182
PROJECT FILE NO.		608163	

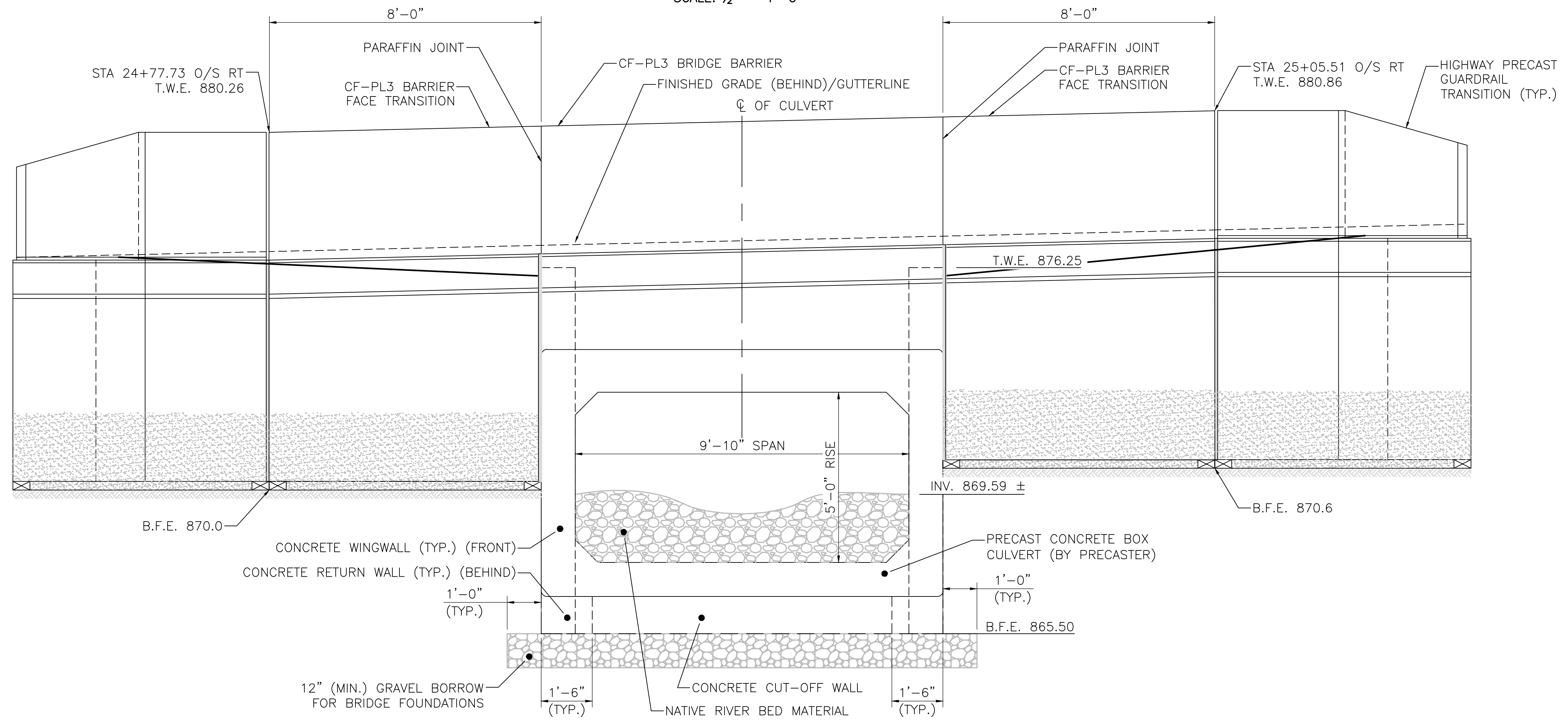
**CULVERT 1 HEADWALL ELEVATIONS**

REFERENCE NOTES:

- FOR CULVERT 1 WINGWALL ELEVATIONS, SEE SHEET NO. 168
- FOR CONCRETE HEADWALL DETAILS, CUT-OFF AND RETURN WALL DETAILS, PARAFFIN JOINT DETAILS AND WINGWALL DETAILS, SEE SHEET NO. 174.



**CULVERT 1 INLET ELEVATION**  
SCALE: 1/2" = 1'-0"

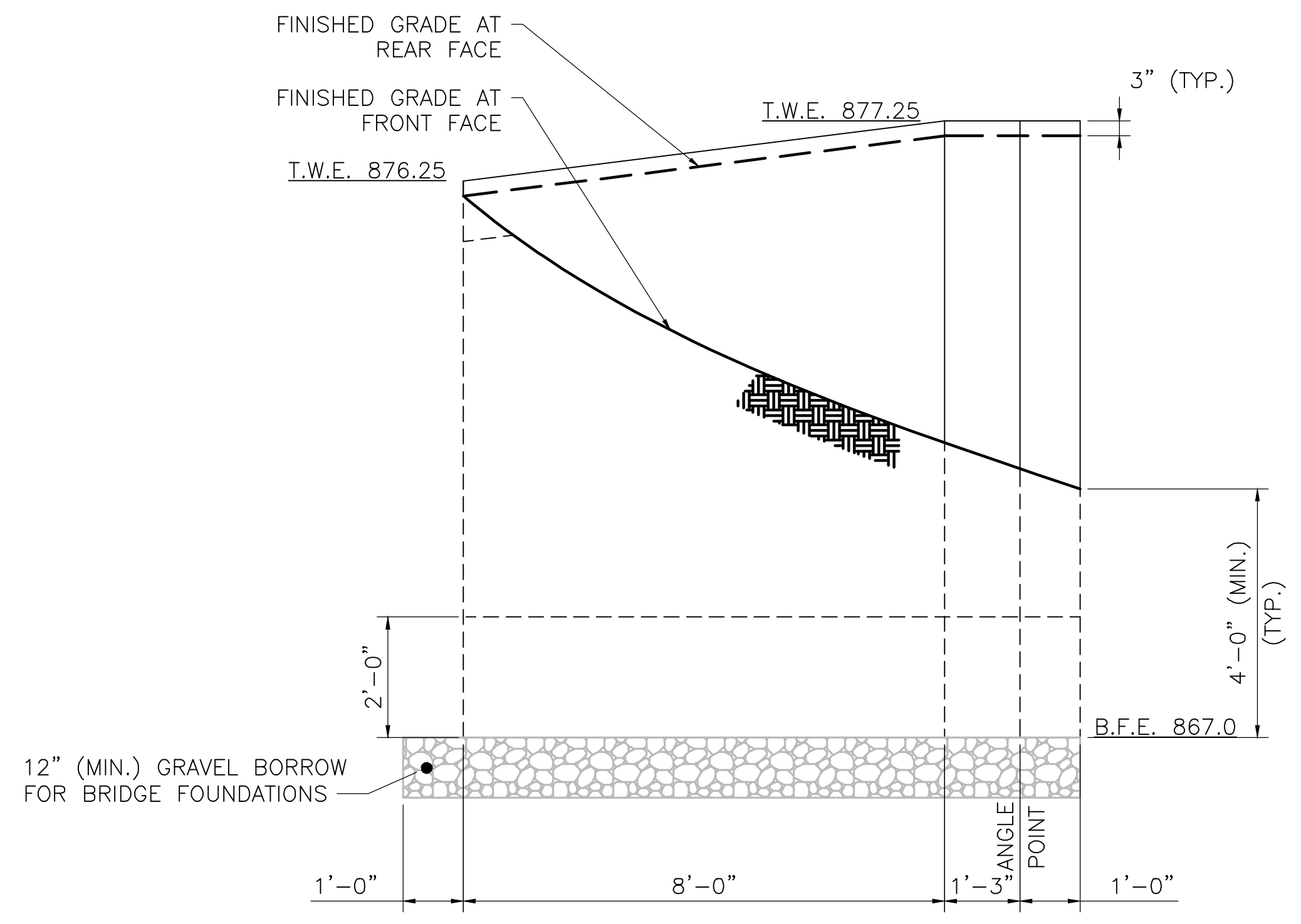


**CULVERT 1 OUTLET ELEVATION**  
SCALE: 1/2" = 1'-0"

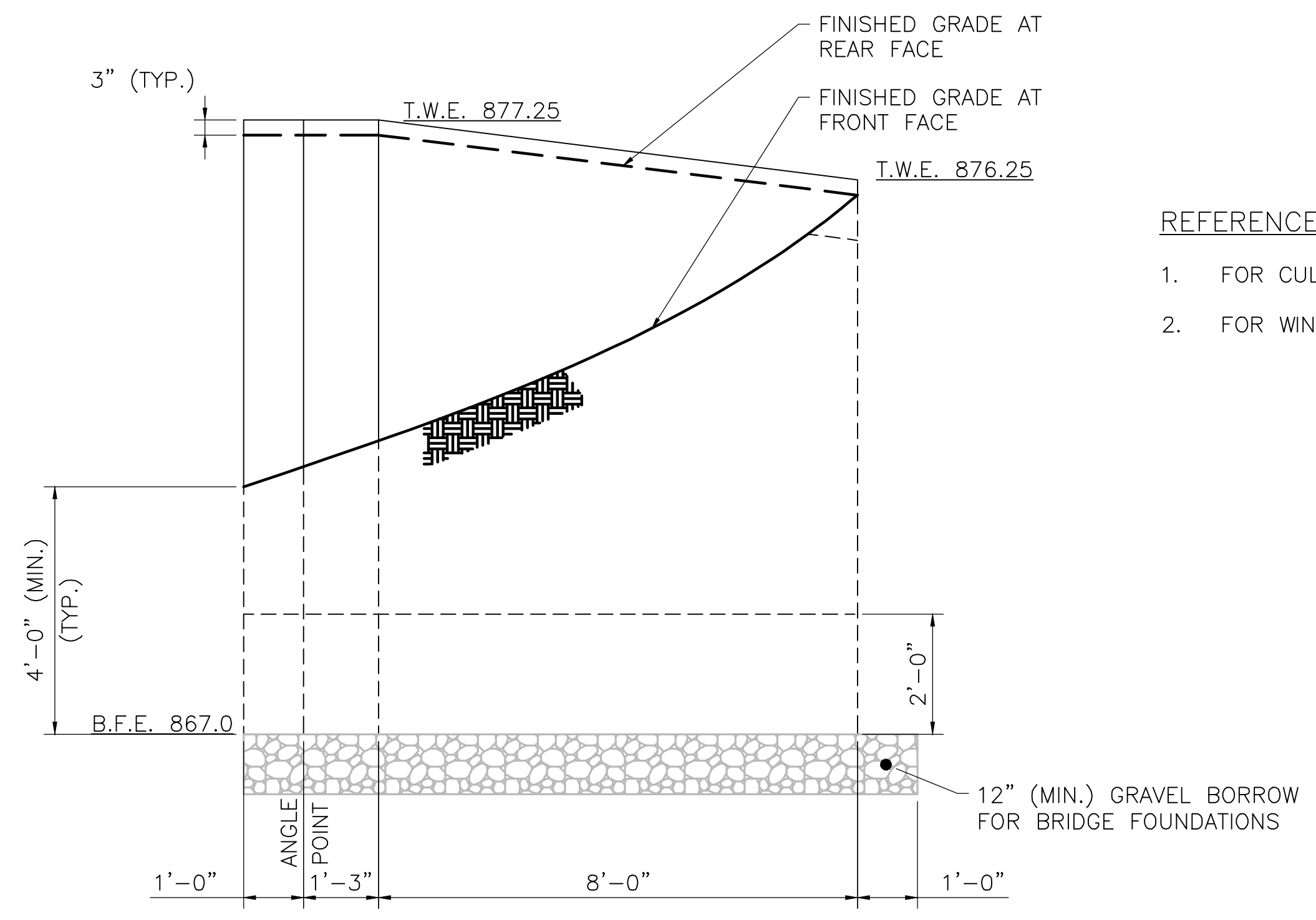
**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	168	182
PROJECT FILE NO.		608163	

**CULVERT 1 WINGWALL ELEVATIONS**

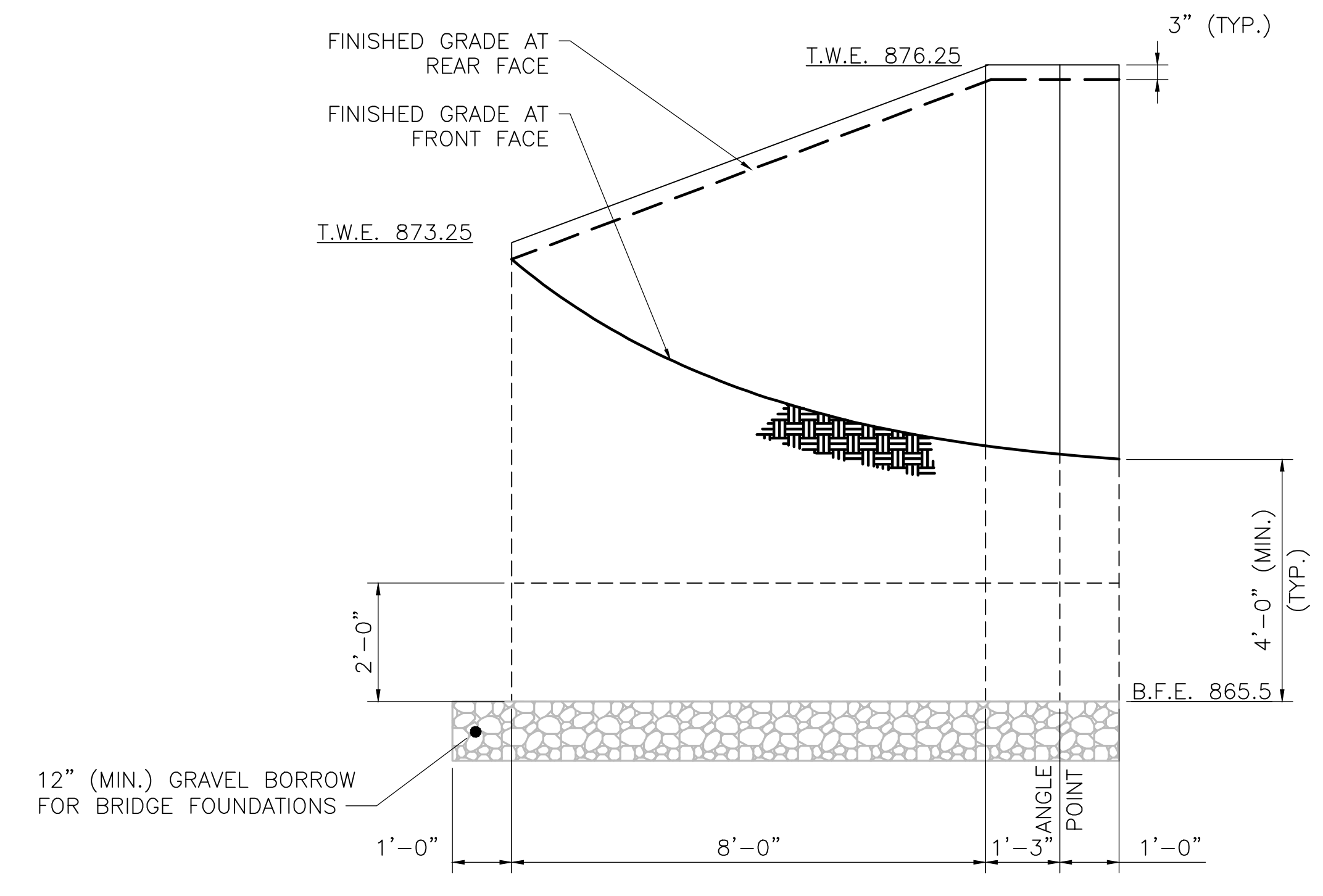


**NORTHEAST WINGWALL DEVELOPED ELEVATION**  
SCALE: 1/2" = 1'-0"

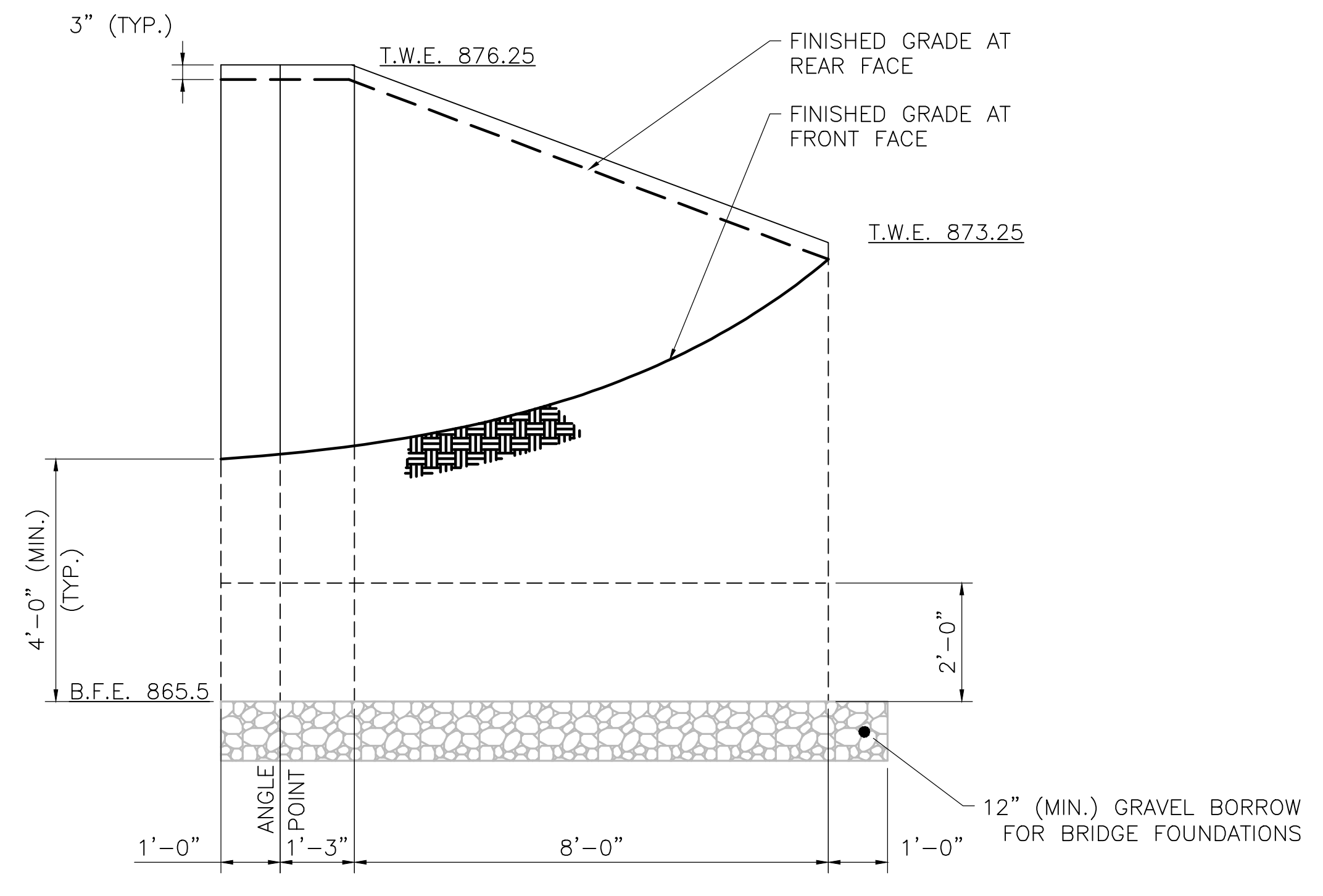


**NORTHWEST WINGWALL DEVELOPED ELEVATION**  
SCALE: 1/2" = 1'-0"

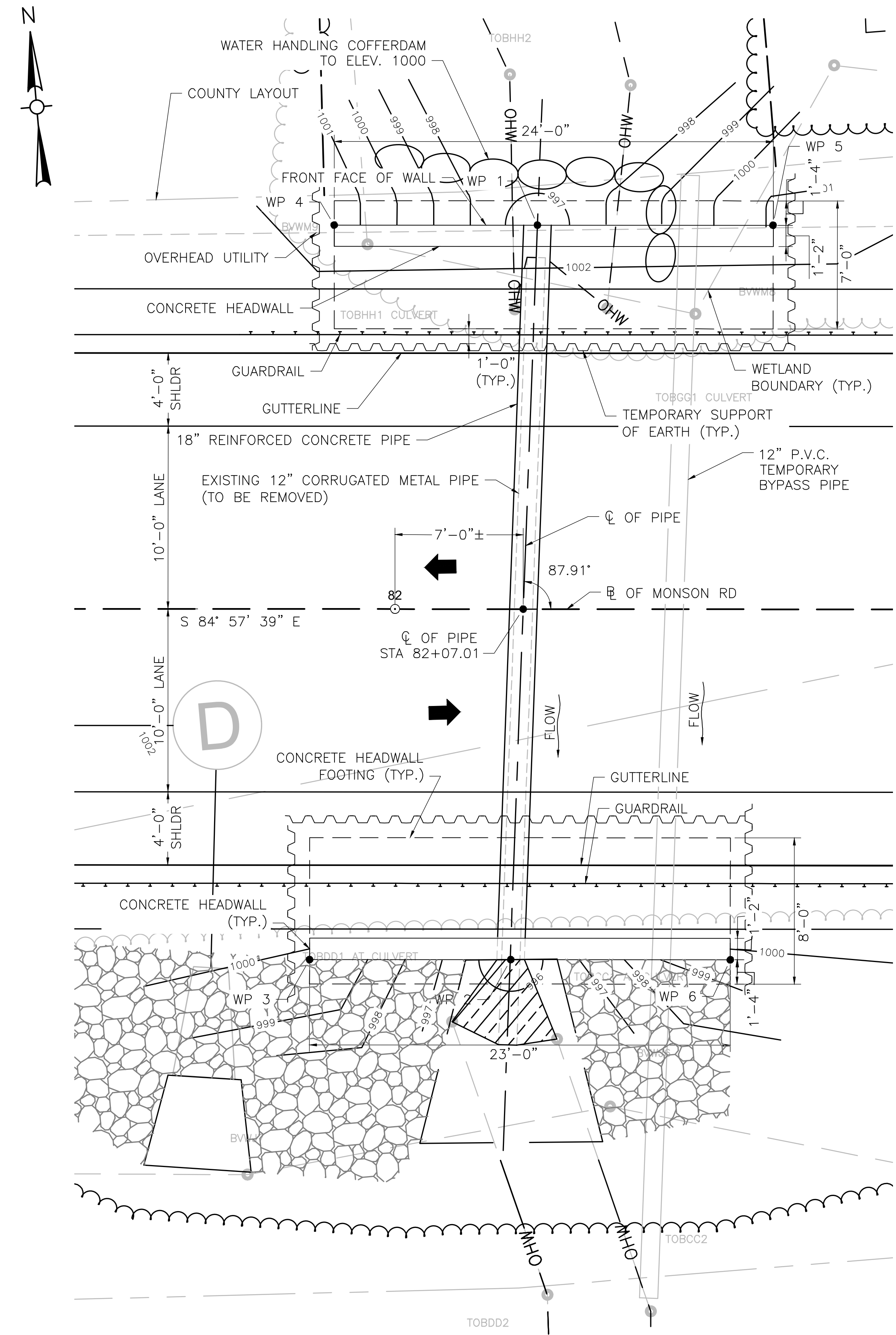
- REFERENCE NOTES:
- FOR CULVERT 1 WINGWALL SECTION, SEE SHEET NO. 166.
  - FOR WINGWALL DETAILS, SEE SHEET NO. 174.



**SOUTHWEST WINGWALL DEVELOPED ELEVATION**  
SCALE: 1/2" = 1'-0"



**SOUTHEAST WINGWALL DEVELOPED ELEVATION**  
SCALE: 1/2" = 1'-0"



**CULVERT 2 PLAN (STA 82+07)**  
SCALE: 1" = 4'

**NOTES:**

1. THE FACTORED BEARING PRESSURE = 2.18 KSF AT THE INLET HEADWALL AND 2.64 KSF AT THE OUTLET HEADWALL AS PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS STRENGTH I LOAD COMBINATION.  
  
FACTORED BEARING RESISTANCE = 5.35 KSF AT THE INLET HEADWALL AND 5.52 KSF AT THE OUTLET HEADWALL. FACTORED BEARING RESISTANCE IS THE PRODUCT OF THE NOMINAL BEARING RESISTANCE AND A RESISTANCE FACTOR OF 0.45.

**DESIGN:**

IN ACCORDANCE WITH THE 2020 AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS LRFD BRIDGE DESIGN SPECIFICATIONS, WITH CURRENT INTERIM SPECIFICATIONS FOR HL-93 LOADING.

**EXISTING CONDITIONS:**

DIMENSIONS SHOWN AND DETAILS DEPICTED ARE BASED UPON THE ORIGINAL BRIDGE PLANS AND ARE NOT GUARANTEED. THE CONTRACTOR SHALL DETERMINE AND ESTABLISH ALL DIMENSIONS AND DETAILS NECESSARY FOR COMPLETION OF ALL WORK BY FIELD MEASUREMENT AND SURVEY. THE CONTRACTOR SHALL BE RESPONSIBLE AND NOT ORDER ANY MATERIAL OR COMMENCE ANY FABRICATION UNTIL HE/SHE HAS MADE THE REQUIRED MEASUREMENTS ON THE ACTUAL STRUCTURE AND THE EXTENT OF THE PROPOSED WORK HAS BEEN APPROVED BY THE ENGINEER.

**BENCH MARK:**

BENCHMARK STA 81+25± (LT) SPIKE IN UTILITY POLE: EL. 1005.74

ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988

**FOUNDATIONS:**

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

**UNSUITABLE MATERIALS:**

ALL UNSUITABLE MATERIAL SHALL BE REMOVED WITHIN THE LIMITS OF THE FOUNDATIONS OF THE STRUCTURE, AS DIRECTED BY THE ENGINEER.

**REINFORCEMENT:**

REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M31 GRADE 60. UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS, ALL BARS SHALL BE LAPPED AS FOLLOWS:

MODIFICATION CONDITION	#4 BARS	#5 BARS	#6 BARS
1. NONE	16"	19"	23"
2. 12" OF CONCRETE BELOW BAR	20"	25"	30"
3. COATED BARS, COVER < 3c <sub>b</sub> , OR CLEAR SPACING < 6c <sub>b</sub>	23"	29"	34"
4. COATED BARS, ALL OTHER CASES	18"	23"	27"
5. CONDITION 2. AND 3.	26"	32"	39"
6. CONDITION 2. AND 4.	24"	30"	36"

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

**EPOXY COATED BARS:**

REINFORCING PROTECTION PER ELEMENT SHALL BE AS FOLLOWS:

EPOXY COATED BARS: HEADWALLS AND HEADWALL FOOTINGS

**CONCRETE MIX:**

THE CEMENT CONCRETE SPECIFIED BELOW SHALL BE USED ON THE FOLLOWING BRIDGE COMPONENTS:

5000 PSI, ¾", 685 HP CEMENT CONCRETE.....HEADWALLS,  
HEADWALL FOOTINGS

**UTILITIES:**

THE CONTRACTOR SHALL LOCATE AND PROTECT FROM DAMAGE ALL EXISTING UTILITIES.

**WATER HANDLING SEQUENCE FOR CULVERTS:**

1. INSTALL SEDIMENT & EROSION CONTROL MEASURES.
2. INSTALL THE TEMPORARY BY PASS PIPE AND INSTALL THE COFFERDAMS ON THE UPSTREAM END OF THE PROPOSED CULVERT WHILE MAINTAINING FLOW THROUGH THE BY PASS PIPE.
3. REMOVE THE EXISTING PIPES.
4. INSTALL THE PROPOSED PIPE & HEADWALLS.
5. REMOVE THE BY PASS PIPE, ALLOW THE WATER TO FLOW THROUGH THE PROPOSED CULVERT.
6. RECONFIGURE THE COFFERDAMS, INSTALL OUTLET PROTECTION, FINALIZE GRADING, AND INSTALL GUARD RAIL.
7. REMOVE THE COFFERDAMS, REMOVE THE SEDIMENT & EROSION CONTROL MEASURES.

TABLE OF QUANTITIES		
ITEM	UNIT	QUANTITY
BRIDGE EXCAVATION	C.Y.	157
CLASS "B" ROCK EXCAVATION	C.Y.	12
GRAVEL BORROW FOR BRIDGE FOUNDATIONS	C.Y.	20
GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES	C.Y.	90
5000 PSI ¾" 685 HP CEMENT CONCRETE	C.Y.	58
STEEL REINFORCEMENT FOR STRUCTURES - EPOXY COATED	LB.	10120
DAMPPOOFING	S.F.	426
TEMPORARY SUPPORT OF EARTH - SITE 2	L.S.	1
CONTROL OF WATER - STRUCTURE NO. 2	L.S.	1

WORKING POINTS		
POINT NUMBER	NORTH COORDINATE	EAST COORDINATE
1	2847313.7204	453680.2286
2	2847273.8336	453675.2733
3	2847274.8008	453664.3163
4	2847314.6939	453669.1581
5	2847312.5891	453693.0567
6	2847272.7828	453687.1995

TRAFFIC DATA		
	ROADWAY OVER	ROADWAY UNDER
DESIGN YEAR	2025	-
AVERAGE DAILY TRAFFIC - PRESENT	660	-
AVERAGE DAILY TRAFFIC - DESIGN YEAR	760	-
DESIGN HOURLY VOLUME	85	-
DIRECTIONAL DISTRIBUTION	52%	-
TRUCK PERCENTAGE - AVERAGE DAY	3%	-
TRUCK PERCENTAGE - PEAK HOUR	3%	-
DESIGN SPEED	40 MPH	-
DIRECTIONAL DESIGN HOURLY VOLUME	45	-

SEISMIC DESIGN CRITERIA	
DESIGN RETURN PERIOD:	1000 YR
DESIGN SPECTRA	
As	0.071g
SDs	0.156g
SD1	0.063g
SITE CLASS	C
SEISMIC DESIGN CATEGORY (SDC)	A

HYDRAULIC DESIGN DATA	
DRAINAGE AREA (SQ. MILES)	10.24
DESIGN FLOOD DISCHARGE (C.F.S.)	9
DESIGN FLOOD FREQUENCY (YEARS)	25
DESIGN FLOOD VELOCITY (F.P.S.)	0.14
DESIGN FLOOD ELEVATION (FEET, NAVD)	996.14
BASE (100-YEAR) FLOOD DATA	
BASE FLOOD DISCHARGE (C.F.S.)	9
BASE FLOOD ELEVATION (FEET, NAVD)	999.20
DESIGN AND CHECK SCOUR DATA	
DESIGN SCOUR FLOOD EVENT	50
RETURN FREQUENCY (YEARS)	50
DESIGN FLOOD ABUTMENT SCOUR DEPTH (FEET)	N/A
DESIGN FLOOD PIER SCOUR DEPTH (FEET)	N/A
CHECK SCOUR FLOOD EVENT	50
RETURN FREQUENCY (YEARS)	50
CHECK FLOOD ABUTMENT SCOUR DEPTH (FEET)	N/A
CHECK FLOOD PIER SCOUR DEPTH (FEET)	N/A
FLOOD OF RECORD	
DISCHARGE (C.F.S.)	UNKNOWN
FREQUENCY (IF KNOWN, YEARS)	UNKNOWN
MAXIMUM ELEVATION (FEET, NAVD)	UNKNOWN
DATE (MM/YYYY)	UNKNOWN
HISTORY OF ICE FLOES	NONE
EVIDENCE OF SCOUR AND EROSION	NONE

TEMPORARY WATER CONTROL DESIGN DATA	
DESIGN FLOOD DISCHARGE (C.F.S.)	5
DESIGN FLOOD FREQUENCY (YEARS)	2
DESIGN FLOOD VELOCITY (F.P.S.)	6.70
DESIGN FLOOD ELEVATION (FEET, NAVD)	998.46

**REFERENCE NOTES:**

1. FOR HEADWALL ELEVATIONS, SEE SHEET NO. 170.



**WALES  
MONSON ROAD**

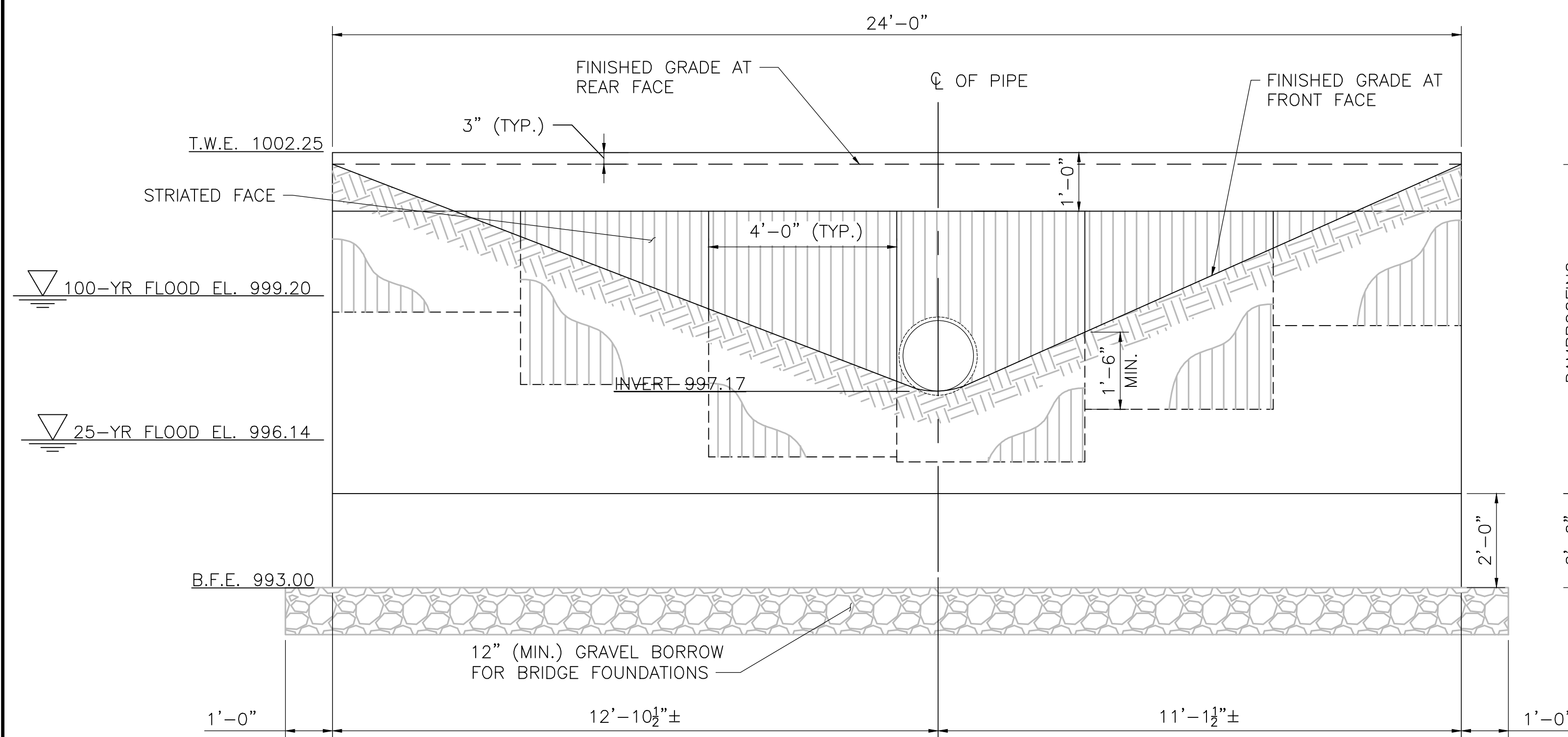
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	170	182
PROJECT FILE NO.		608163	

**CULVERT 2 WALL DETAILS**

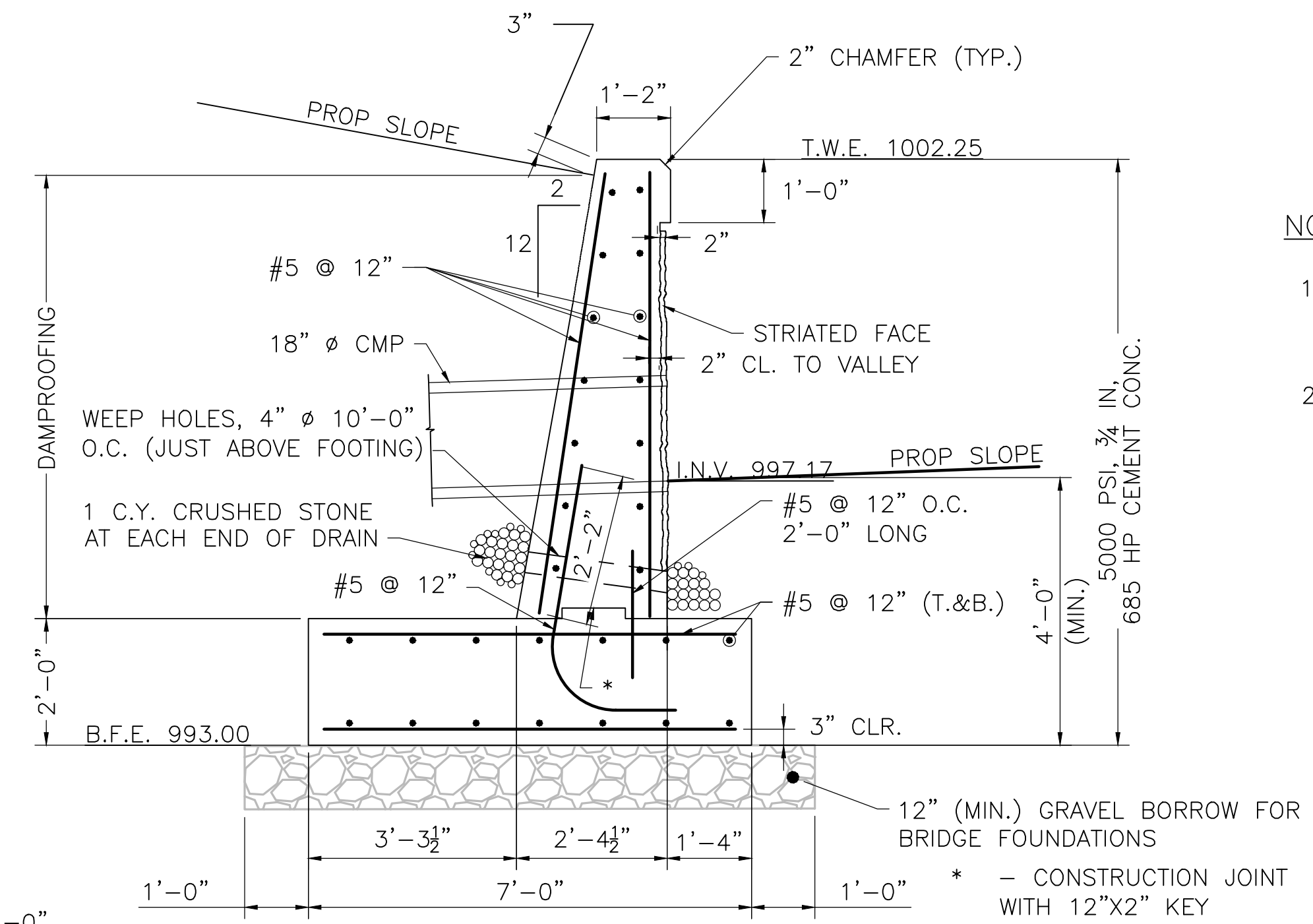
**NOTES:**

- INSTALL 4" WEEP HOLES @ 10'-0" O.C. PROVIDE 1 CUBIC YARD OF CRUSHED STONE AT EACH END OF THE WEEP HOLE.
- THE FACTORED BEARING PRESSURE = 2.18 KSF AT THE INLET HEADWALL AND 2.64 KSF AT THE OUTLET HEADWALL AS PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS STRENGTH I LOAD COMBINATION.

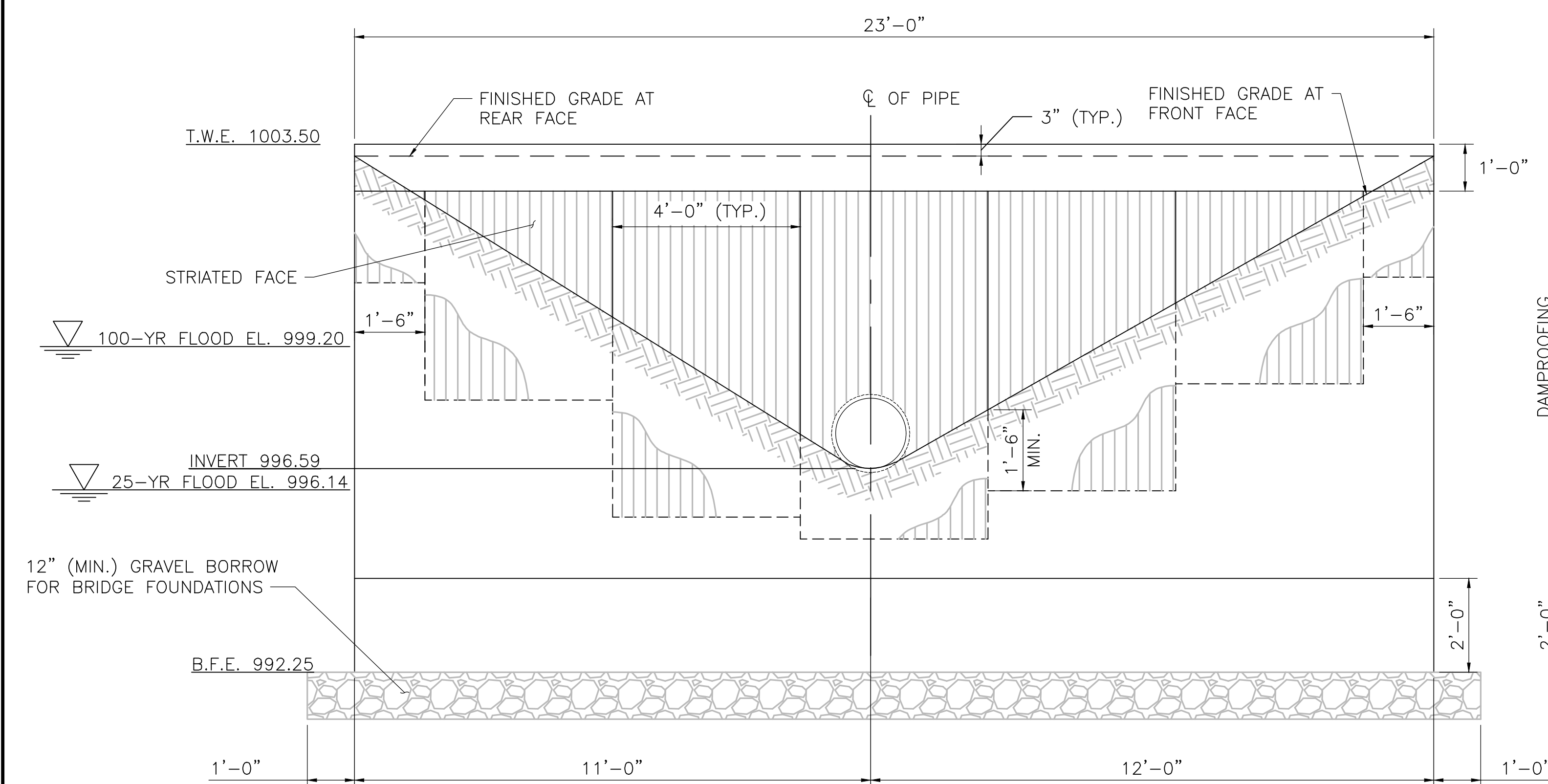
FACTORED BEARING RESISTANCE = 5.35 KSF AT THE INLET HEADWALL AND 5.52 KSF AT THE OUTLET HEADWALL. FACTORED BEARING RESISTANCE IS THE PRODUCT OF THE NOMINAL BEARING RESISTANCE AND A RESISTANCE FACTOR OF 0.45.



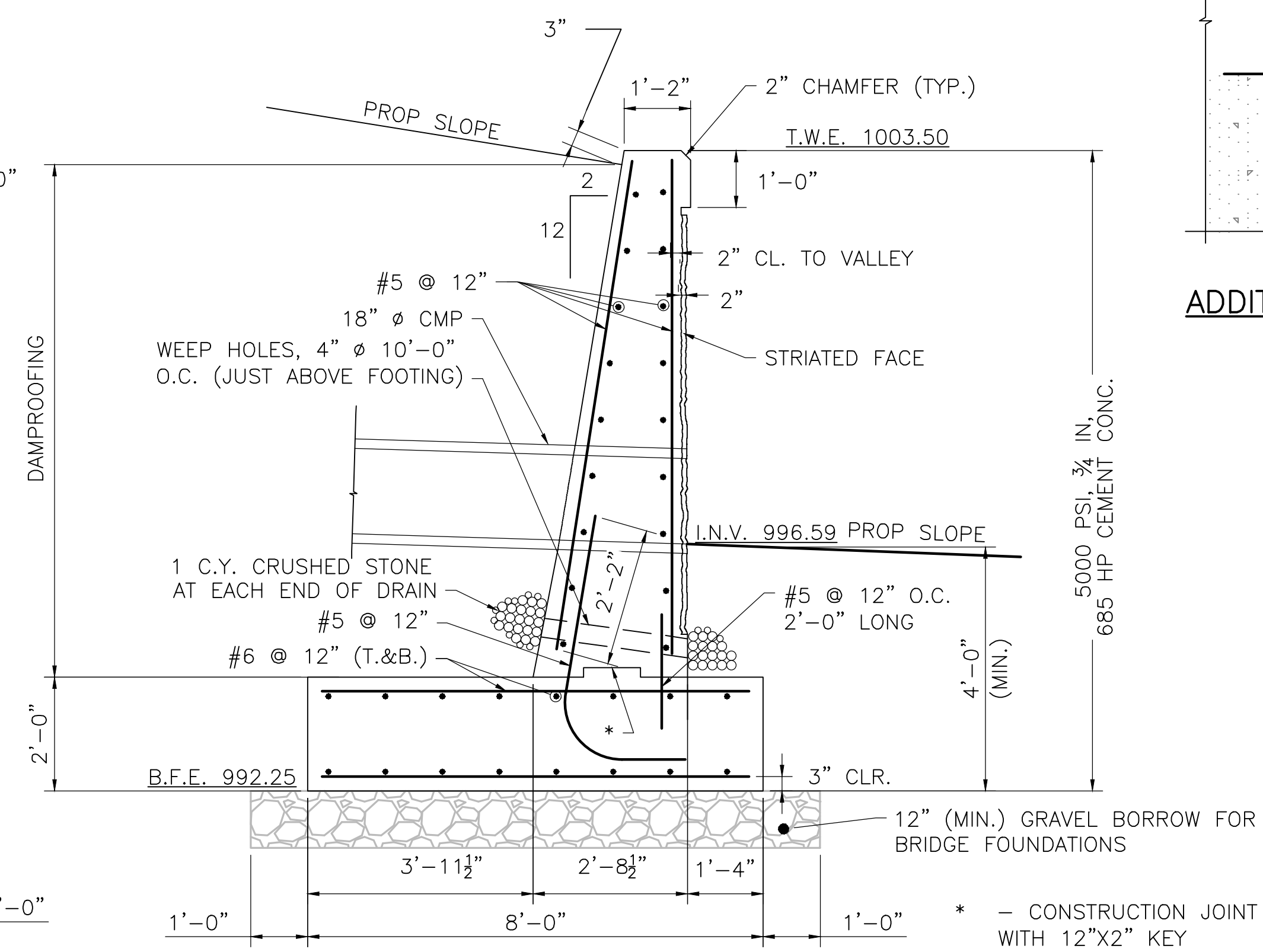
**NORTH INLET HEADWALL ELEVATION**  
SCALE: 1/2" = 1'-0"



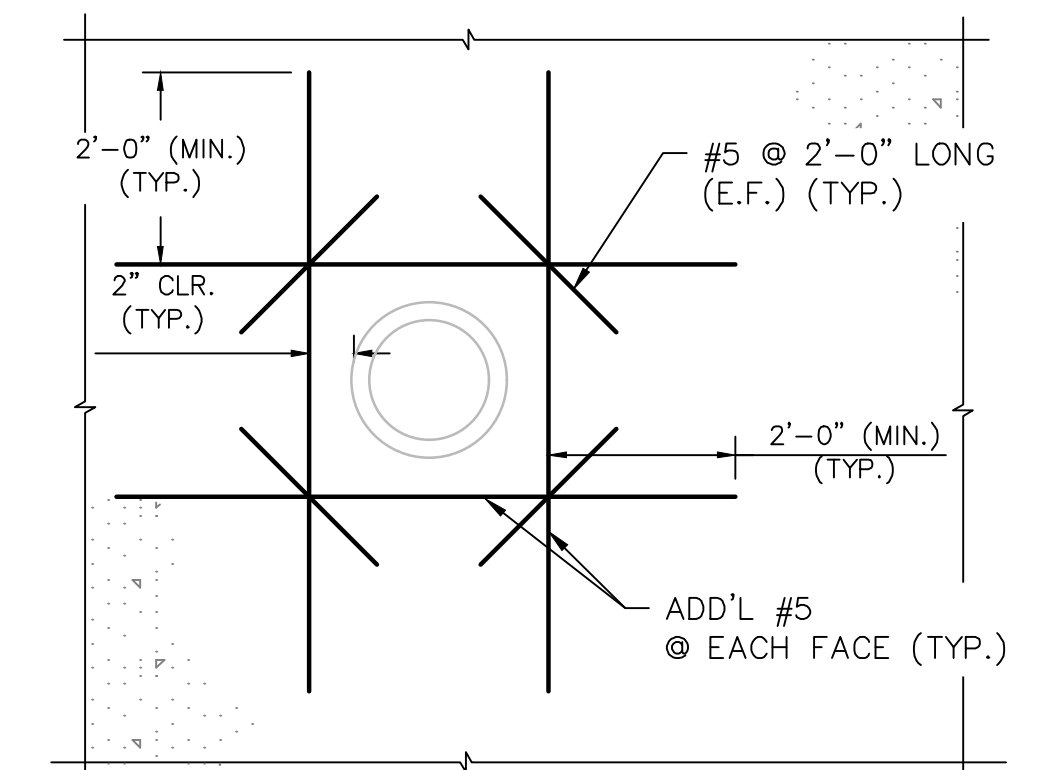
**NORTH INLET HEADWALL SECTION**  
SCALE: 1/2" = 1'-0"



**SOUTH OUTLET HEADWALL ELEVATION**  
SCALE: 1/2" = 1'-0"



**SOUTH OUTLET HEADWALL SECTION**  
SCALE: 1/2" = 1'-0"



**ADDITIONAL REINFORCEMENT AT PIPE**  
SCALE: 1/2" = 1'-0"

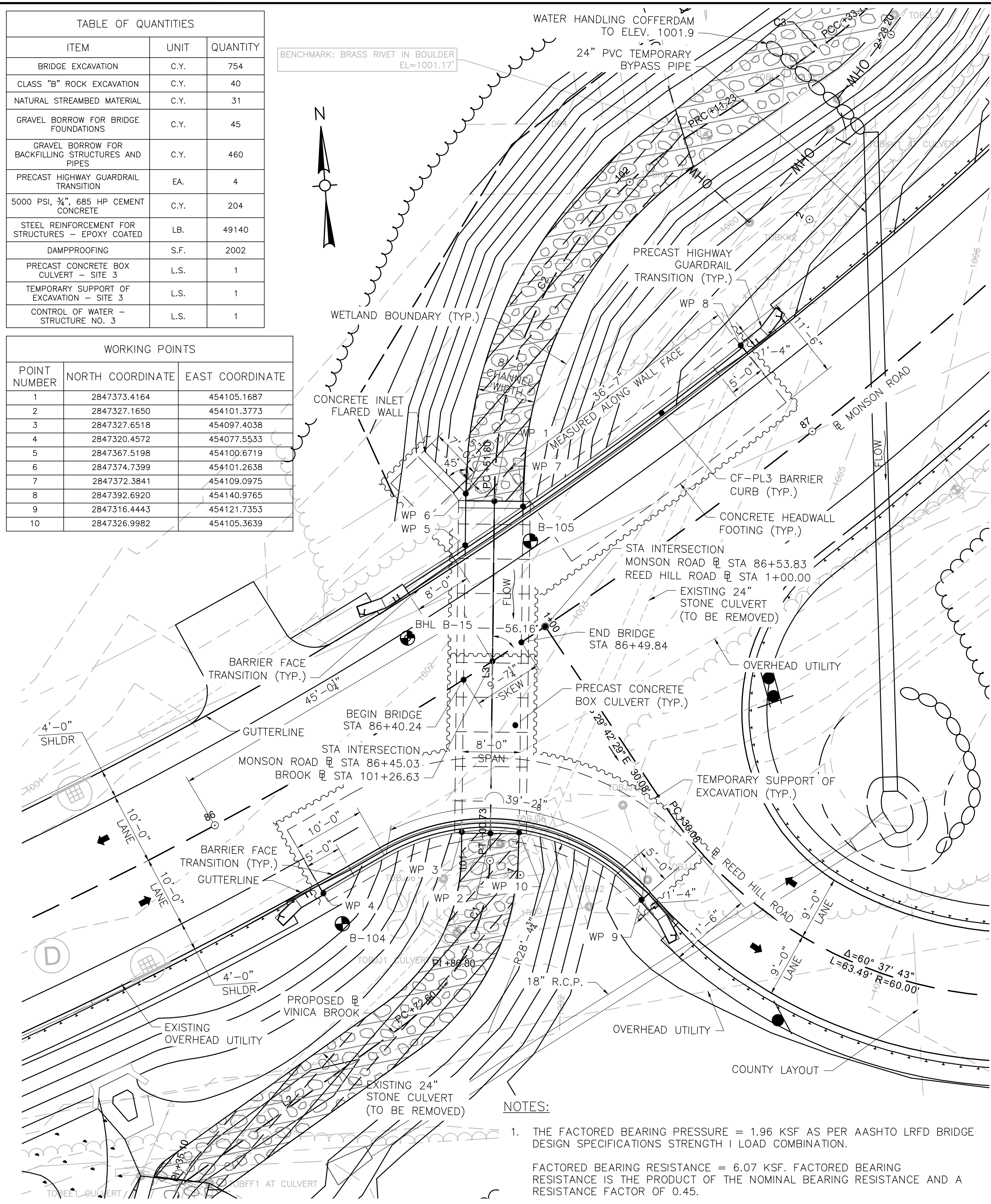
**REFERENCE NOTES:**

- FOR STRIATION DETAILS, SEE SHEET NO. 174.



TABLE OF QUANTITIES		
ITEM	UNIT	QUANTITY
BRIDGE EXCAVATION	C.Y.	754
CLASS "B" ROCK EXCAVATION	C.Y.	40
NATURAL STREAMBED MATERIAL	C.Y.	31
GRAVEL BORROW FOR BRIDGE FOUNDATIONS	C.Y.	45
GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES	C.Y.	460
PRECAST HIGHWAY GUARDRAIL TRANSITION	EA.	4
5000 PSI, 3/4", 685 HP CEMENT CONCRETE	C.Y.	204
STEEL REINFORCEMENT FOR STRUCTURES - EPOXY COATED	LB.	49140
DAMPPOOFING	S.F.	2002
PRECAST CONCRETE BOX CULVERT - SITE 3	L.S.	1
TEMPORARY SUPPORT OF EXCAVATION - SITE 3	L.S.	1
CONTROL OF WATER - STRUCTURE NO. 3	L.S.	1

WORKING POINTS		
POINT NUMBER	NORTH COORDINATE	EAST COORDINATE
1	2847373.4164	454105.1687
2	2847327.1650	454101.3773
3	2847327.6518	454097.4038
4	2847320.4572	454077.5533
5	2847367.5198	454100.6719
6	2847374.7399	454101.2638
7	2847372.3841	454109.0975
8	2847392.6920	454140.9765
9	2847316.4443	454121.7353
10	2847326.9982	454105.3639



**CULVERT 3 PLAN (STA 86+45)**  
SCALE: 1" = 8'

- NOTES:**
- THE FACTORED BEARING PRESSURE = 1.96 KSF AS PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS STRENGTH I LOAD COMBINATION.  
FACTORED BEARING RESISTANCE = 6.07 KSF. FACTORED BEARING RESISTANCE IS THE PRODUCT OF THE NOMINAL BEARING RESISTANCE AND A RESISTANCE FACTOR OF 0.45.

**DESIGN:**

IN ACCORDANCE WITH THE 2020 AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS LRFD BRIDGE DESIGN SPECIFICATIONS, WITH CURRENT INTERIM SPECIFICATIONS FOR HL-93 LOADING.

**EXISTING CONDITIONS:**

DIMENSIONS SHOWN AND DETAILS DEPICTED ARE BASED UPON THE ORIGINAL BRIDGE PLANS AND ARE NOT GUARANTEED. THE CONTRACTOR SHALL DETERMINE AND ESTABLISH ALL DIMENSIONS AND DETAILS NECESSARY FOR COMPLETION OF ALL WORK BY FIELD MEASUREMENT AND SURVEY. THE CONTRACTOR SHALL BE RESPONSIBLE AND NOT ORDER ANY MATERIAL OR COMMENCE ANY FABRICATION UNTIL HE/SHE HAS MADE THE REQUIRED MEASUREMENTS ON THE ACTUAL STRUCTURE AND THE EXTENT OF THE PROPOSED WORK HAS BEEN APPROVED BY THE ENGINEER.

**BENCH MARK:**

BENCHMARK STA 87+10± (RT) SPIKE IN UTILITY POLE: EL. 1007.89 FT  
BENCHMARK STA 87+20± (LT) BRASS RIVET: EL. 1001.17 FT  
ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988

**FOUNDATIONS:**

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

**UNSUITABLE MATERIALS:**

ALL UNSUITABLE MATERIAL SHALL BE REMOVED WITHIN THE LIMITS OF THE FOUNDATIONS OF THE STRUCTURE, AS DIRECTED BY THE ENGINEER.

**REINFORCEMENT:**

REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M31 GRADE 60. UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS, ALL BARS SHALL BE LAPPED AS FOLLOWS:

MODIFICATION CONDITION	#4 BARS	#5 BARS	#6 BARS
1. NONE	16"	19"	23"
2. 12" OF CONCRETE BELOW BAR	20"	25"	30"
3. COATED BARS, COVER < 3d <sub>b</sub> , OR CLEAR SPACING < 6d <sub>b</sub>	23"	29"	34"
4. COATED BARS, ALL OTHER CASES	18"	23"	27"
5. CONDITION 2. AND 3.	26"	32"	39"
6. CONDITION 2. AND 4.	24"	30"	36"

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

**EPOXY COATED BARS:**

REINFORCING PROTECTION PER ELEMENT SHALL BE AS FOLLOWS:

EPOXY COATED BARS: BARRIER CURB, CULVERT, HEADWALLS, HEADWALL FOOTINGS, INLET FLARED WALL, FLARED WALL FOOTING

**CONCRETE MIX:**

THE CEMENT CONCRETE SPECIFIED BELOW SHALL BE USED ON THE FOLLOWING BRIDGE COMPONENTS:

5000 PSI, 3/4", 685 HP CEMENT CONCRETE.....CF-PL3 BARRIER CURB AND TRANSITION BARRIER CURB, HEADWALLS AND INLET FLARED WALL

**UTILITIES:**

THE CONTRACTOR SHALL LOCATE AND PROTECT FROM DAMAGE ALL EXISTING UTILITIES.

**WATER HANDLING SEQUENCE FOR CULVERTS:**

- INSTALL SEDIMENT & EROSION CONTROL MEASURES.
- INSTALL THE TEMPORARY BY PASS PIPE AND INSTALL THE COFFERDAMS ON THE UPSTREAM END OF THE PROPOSED CULVERT WHILE MAINTAINING FLOW THROUGH THE BY PASS PIPE.
- REMOVE THE EXISTING CULVERT AND PIPES.
- INSTALL THE NEW CULVERT.
- REMOVE THE BY PASS PIPE, ALLOW THE WATER TO FLOW THROUGH THE CULVERT.
- RECONFIGURE THE COFFERDAMS, INSTALL OUTLET PROTECTION, FINALIZE GRADING, AND INSTALL GUARD RAIL.
- REMOVE THE COFFERDAMS, REMOVE THE SEDIMENT & EROSION CONTROL MEASURES.

WALES MONSON ROAD			
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**CULVERT 3 KEY PLAN AND NOTES**

TRAFFIC DATA		
	ROADWAY OVER	ROADWAY UNDER
DESIGN YEAR	2025	-
AVERAGE DAILY TRAFFIC - PRESENT	660	-
AVERAGE DAILY TRAFFIC - DESIGN YEAR	760	-
DESIGN HOURLY VOLUME	85	-
DIRECTIONAL DISTRIBUTION	52%	-
TRUCK PERCENTAGE - AVERAGE DAY	3%	-
TRUCK PERCENTAGE - PEAK HOUR	3%	-
DESIGN SPEED	40 MPH	-
DIRECTIONAL DESIGN HOURLY VOLUME	45	-

SEISMIC DESIGN CRITERIA	
DESIGN RETURN PERIOD:	1000 YR
DESIGN SPECTRA	
As	0.071g
SDs	0.156g
SD1	0.063g
SITE CLASS	C
SEISMIC DESIGN CATEGORY (SDC)	A

HYDRAULIC DESIGN DATA	
DRAINAGE AREA (SQ. MILES)	0.33
DESIGN FLOOD DISCHARGE (C.F.S.)	52
DESIGN FLOOD FREQUENCY (YEARS)	25
DESIGN FLOOD VELOCITY (F.P.S.)	3.22
DESIGN FLOOD ELEVATION (FEET, NAVD)	998.40
BASE (100-YEAR) FLOOD DATA	
BASE FLOOD DISCHARGE (C.F.S.)	73
BASE FLOOD ELEVATION (FEET, NAVD)	998.77
DESIGN AND CHECK SCOUR DATA	
DESIGN SCOUR FLOOD EVENT	50
RETURN FREQUENCY (YEARS)	N/A
DESIGN FLOOD ABUTMENT SCOUR DEPTH (FEET)	N/A
DESIGN FLOOD PIER SCOUR DEPTH (FEET)	N/A
CHECK SCOUR FLOOD EVENT	50
RETURN FREQUENCY (YEARS)	50
CHECK FLOOD ABUTMENT SCOUR DEPTH (FEET)	N/A
CHECK FLOOD PIER SCOUR DEPTH (FEET)	N/A
FLOOD OF RECORD	
DISCHARGE (C.F.S.)	UNKNOWN
FREQUENCY (IF KNOWN, YEARS)	UNKNOWN
MAXIMUM ELEVATION (FEET, NAVD)	UNKNOWN
DATE (MM/YYYY)	UNKNOWN
HISTORY OF ICE FLOES	NONE
EVIDENCE OF SCOUR AND EROSION	NONE

TEMPORARY WATER CONTROL DESIGN DATA	
DESIGN FLOOD DISCHARGE (C.F.S.)	18
DESIGN FLOOD FREQUENCY (YEARS)	2
DESIGN FLOOD VELOCITY (F.P.S.)	8.91
DESIGN FLOOD ELEVATION (FEET, NAVD)	1001.42

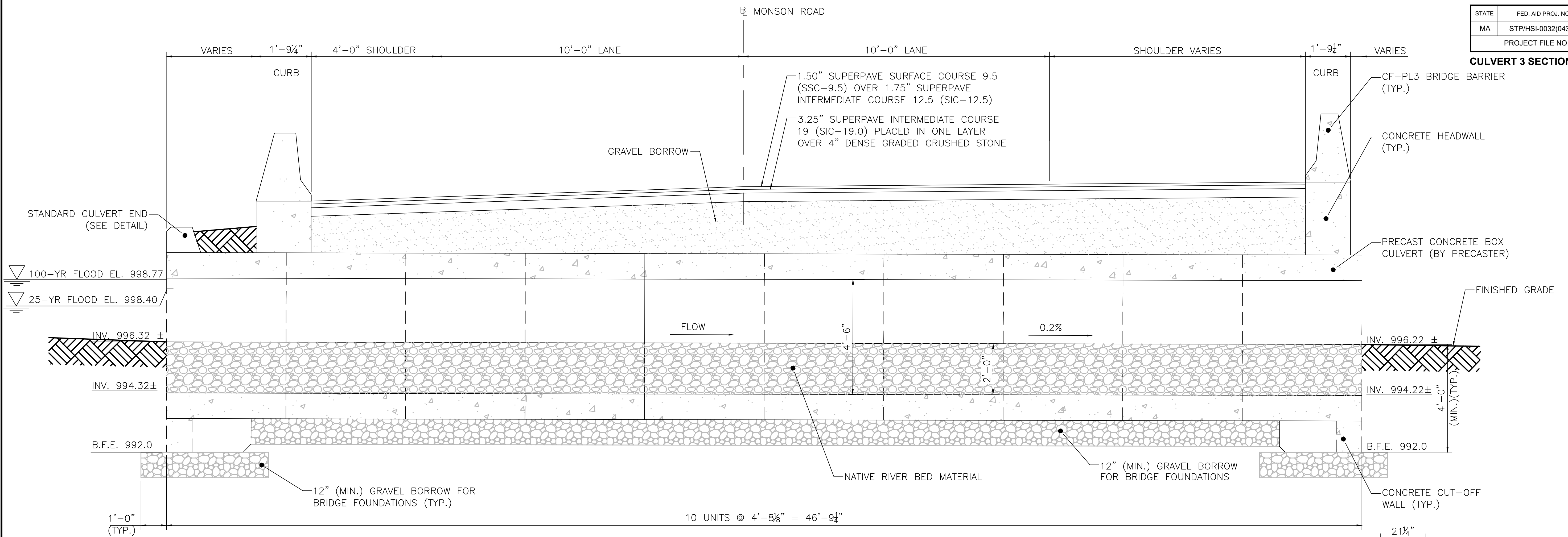
**REFERENCE NOTES:**

- FOR CULVERT 3 HEADWALL ELEVATIONS, SEE SHEETS NO. 172 AND 173.
- FOR CULVERT 3 INLET FLARED WALL DETAILS, SEE SHEET NO. 173.
- FOR CONCRETE HEADWALL DETAILS, CUT-OFF AND RETURN WALL DETAILS, PARAFFIN JOINT DETAILS AND WINGWALL DETAILS, SEE SHEET NO. 174.
- FOR BARRIER TRANSITION AND PRECAST GUARDRAIL TRANSITION DETAILS, SEE SHEET NO. 175.

**WALES  
MONSON ROAD**

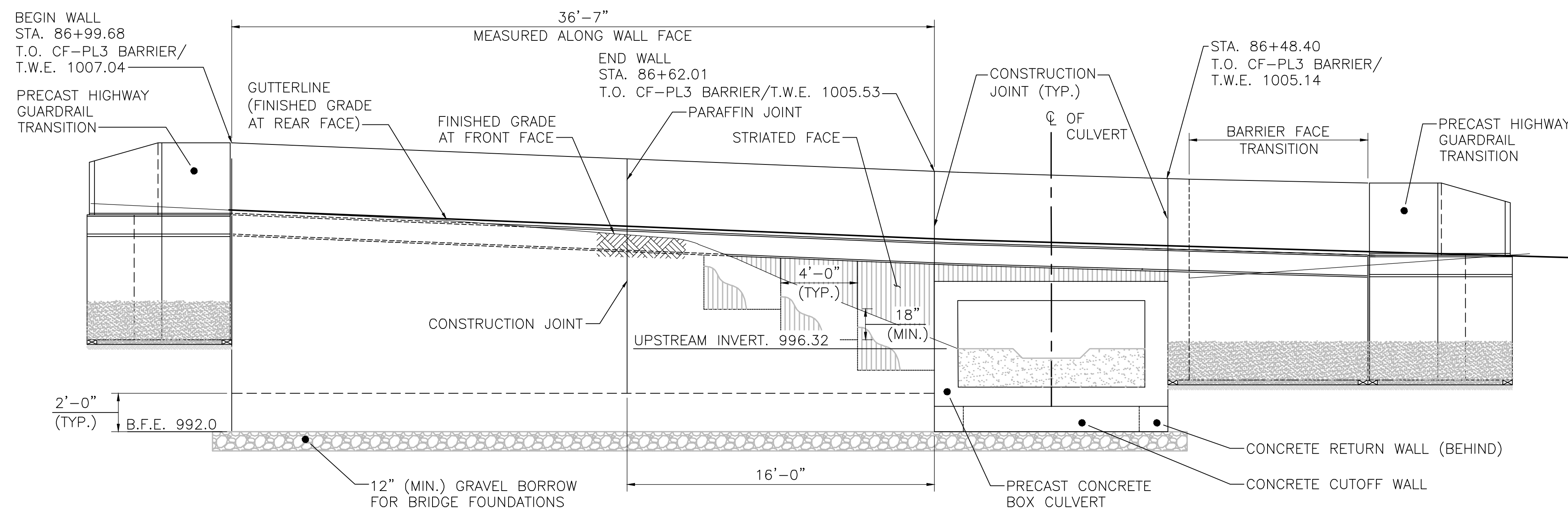
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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PROJECT FILE NO.		608163	

**CULVERT 3 SECTION AND DETAILS**



**CULVERT 3 LONGITUDINAL SECTION - ALONG STREAM BASELINE**

SCALE: 1/2" = 1'-0"



**CULVERT 3 INLET NORTH ELEVATION**

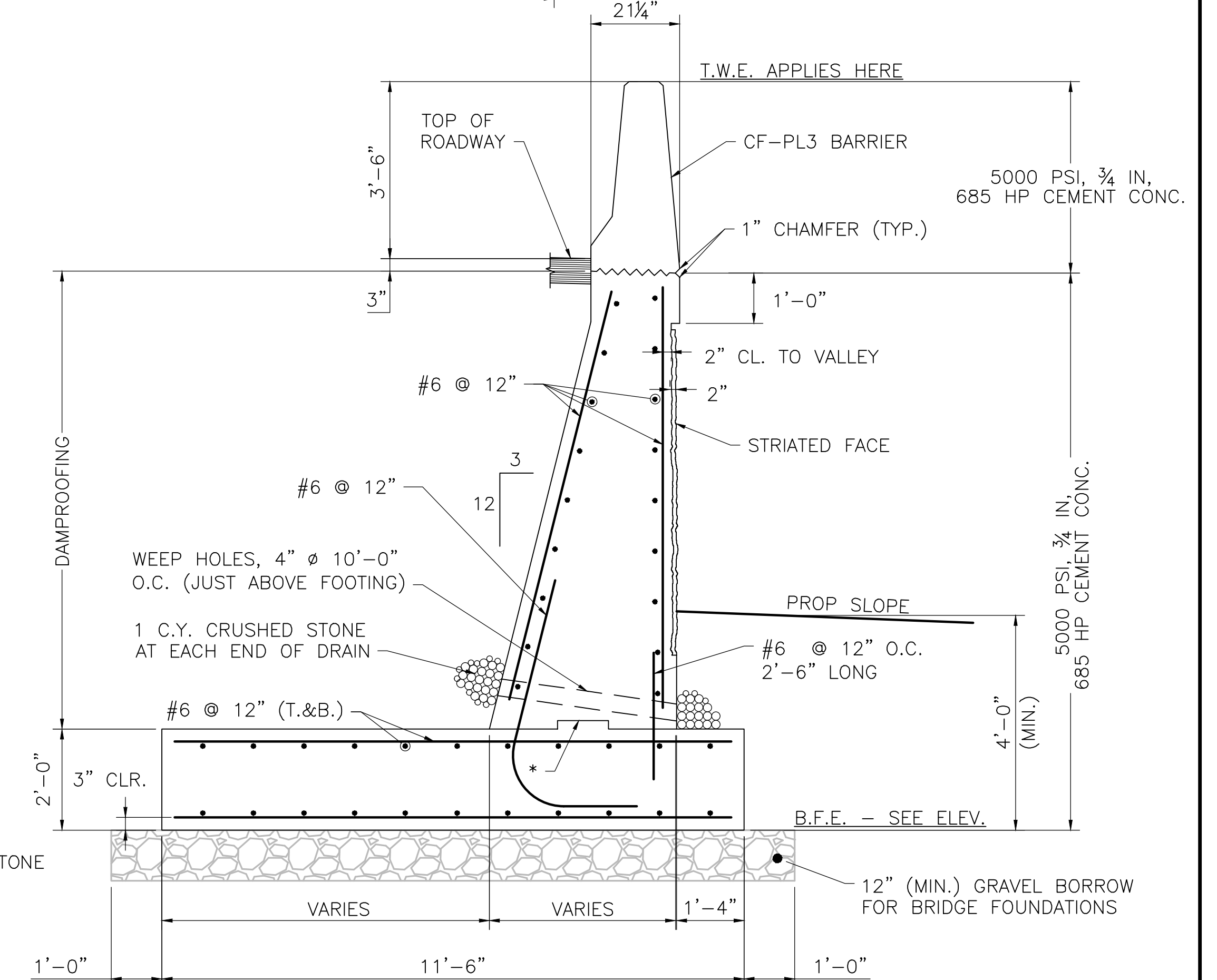
SCALE: 1/4" = 1'-0"

**REFERENCE NOTES:**

- FOR CONCRETE HEADWALL DETAILS, CUT-OFF AND RETURN WALL DETAILS, STRIATION DETAILS, CONCRETE END WALL DETAIL, PARAFFIN JOINT DETAIL AND WINGWALL DETAILS, SEE SHEET NO. 174.

**NOTES:**

- INSTALL 4" WEEP HOLES @ 10'-0" O.C. PROVIDE 1 CUBIC YARD OF CRUSHED STONE AT EACH END OF THE WEEP HOLE.
- THE FACTORED BEARING PRESSURE = 1.96 KSF AS PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS STRENGTH I LOAD COMBINATION.  
FACTORED BEARING RESISTANCE = 6.07 KSF. FACTORED BEARING RESISTANCE IS THE PRODUCT OF THE NOMINAL BEARING RESISTANCE AND A RESISTANCE FACTOR OF 0.45.



**RETAINING WALL SECTION**

SCALE: 1/2" = 1'-0"

\* - CONSTRUCTION JOINT WITH 12"x2" KEY

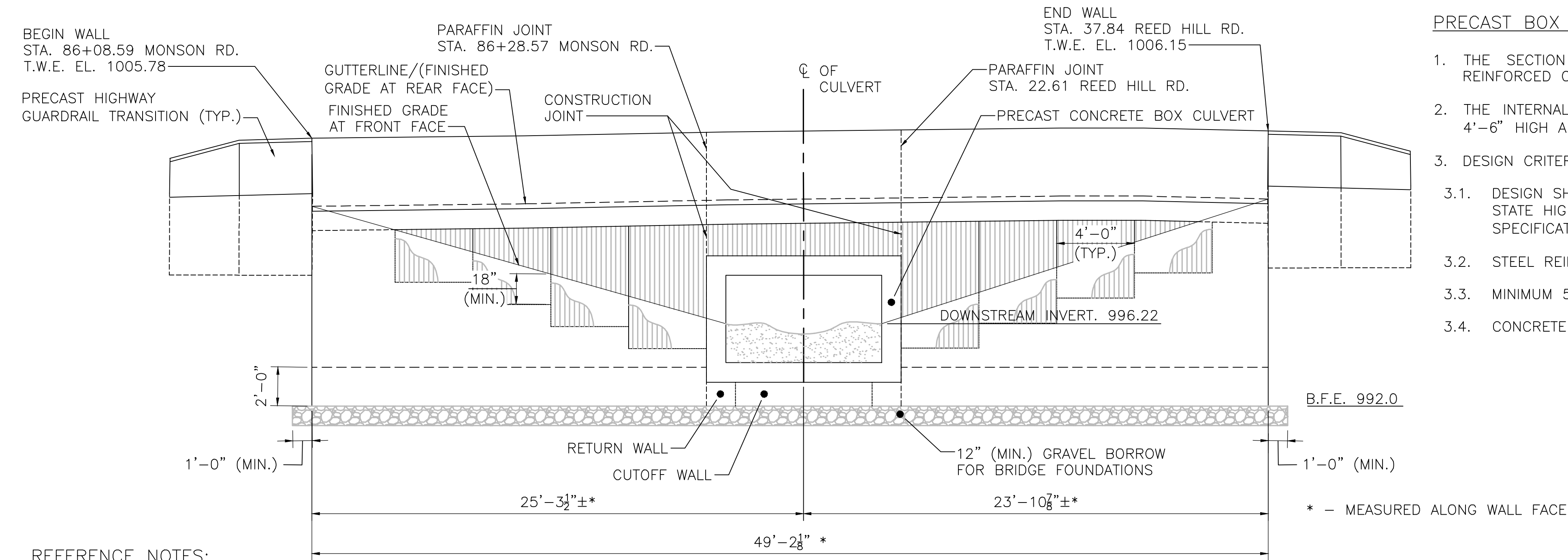


WALES MONSON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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**CULVERT 3 WALL ELEVATION AND DETAILS**

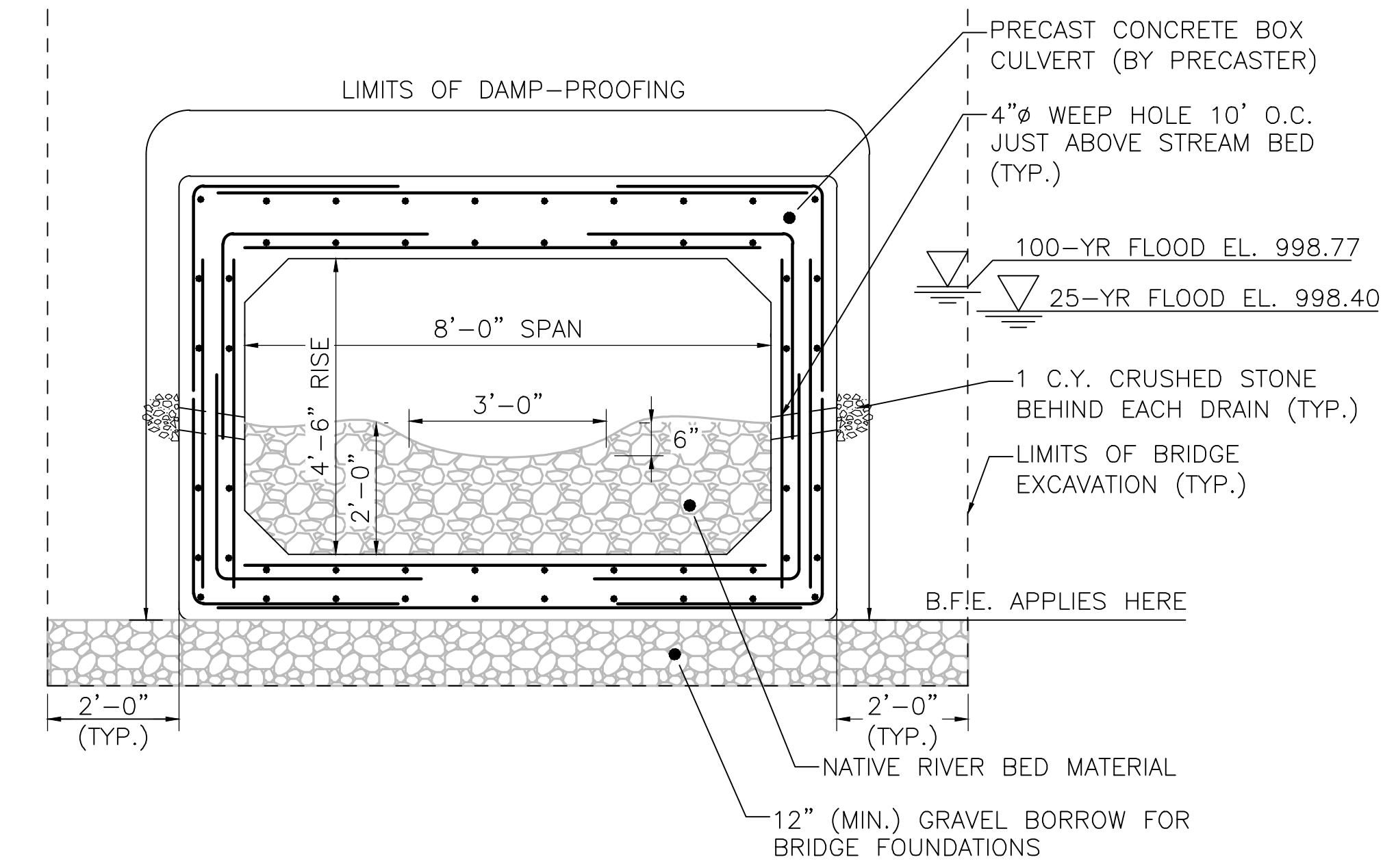
**PRECAST BOX CULVERT NOTES:**

1. THE SECTION IS A PRECAST BOX CULVERT TO BE MONOLITHICALLY CAST OF REINFORCED CONCRETE. THE INSIDE SHALL BE SMOOTH AS TO NOT RESTRICT FLOW.
2. THE INTERNAL DIMENSIONS OF THE BOX CULVERT AT THIS SITE ARE 8'-0" WIDE, 4'-6" HIGH AND A MINIMUM 10" SLAB AND WALL THICKNESS.
3. DESIGN CRITERIA:
  - 3.1. DESIGN SHALL BE IN ACCORDANCE WITH THE 2020 AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIAL (AASHTO) LRFD BRIDGE DESIGN SPECIFICATIONS (9th EDITION) FOR HL-93 LOADING.
  - 3.2. STEEL REINFORCEMENT SHALL BE GRADED CONFORMING TO AASHTO M31.
  - 3.3. MINIMUM 5000 PSI CEMENT CONCRETE STRENGTH @ 28 DAYS.
  - 3.4. CONCRETE COVER FOR REINFORCING STEEL BARS SHALL BE 2 INCHES.

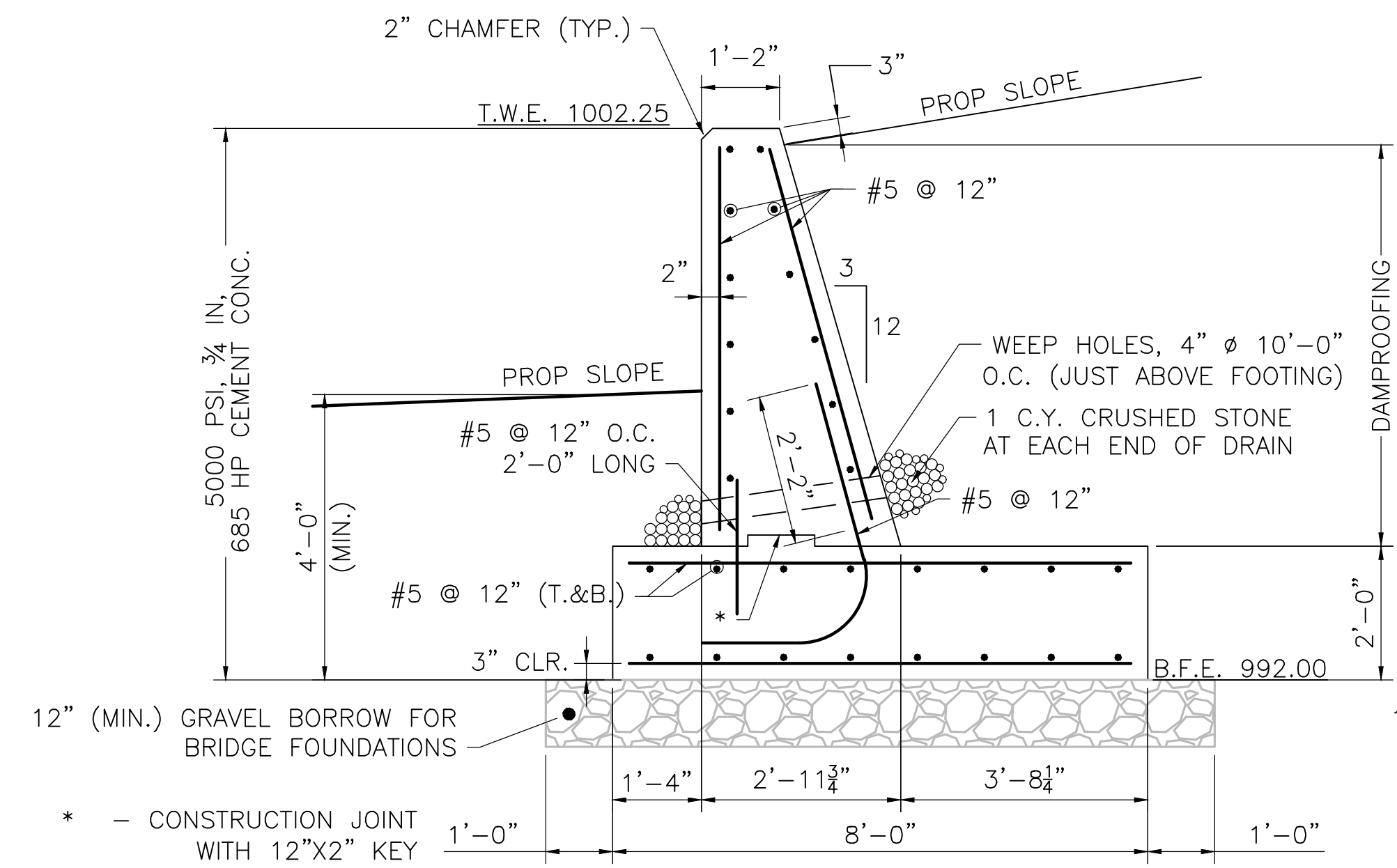


**CULVERT 3 OUTLET/SOUTH ELEVATION**  
SCALE: 1/4" = 1'-0"

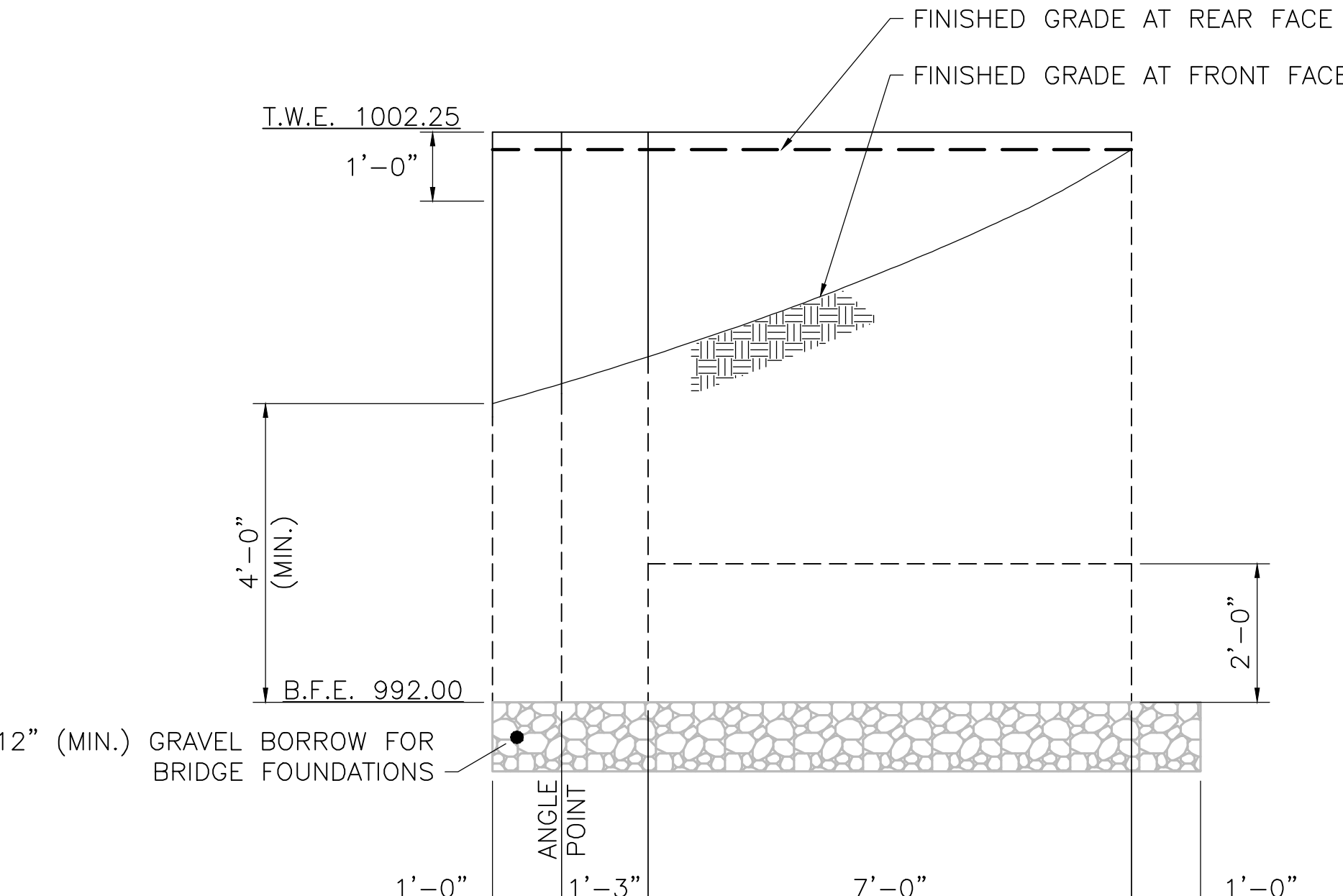
- REFERENCE NOTES:**
1. FOR CONCRETE HEADWALL DETAILS, CUT-OFF AND RETURN WALL DETAILS, STRIATION DETAILS, CONCRETE END WALL DETAIL AND WINGWALL DETAILS, SEE SHEET NO. 172.



**CULVERT 3 TRANSVERSE SECTION**  
SCALE: 1/2" = 1'-0"



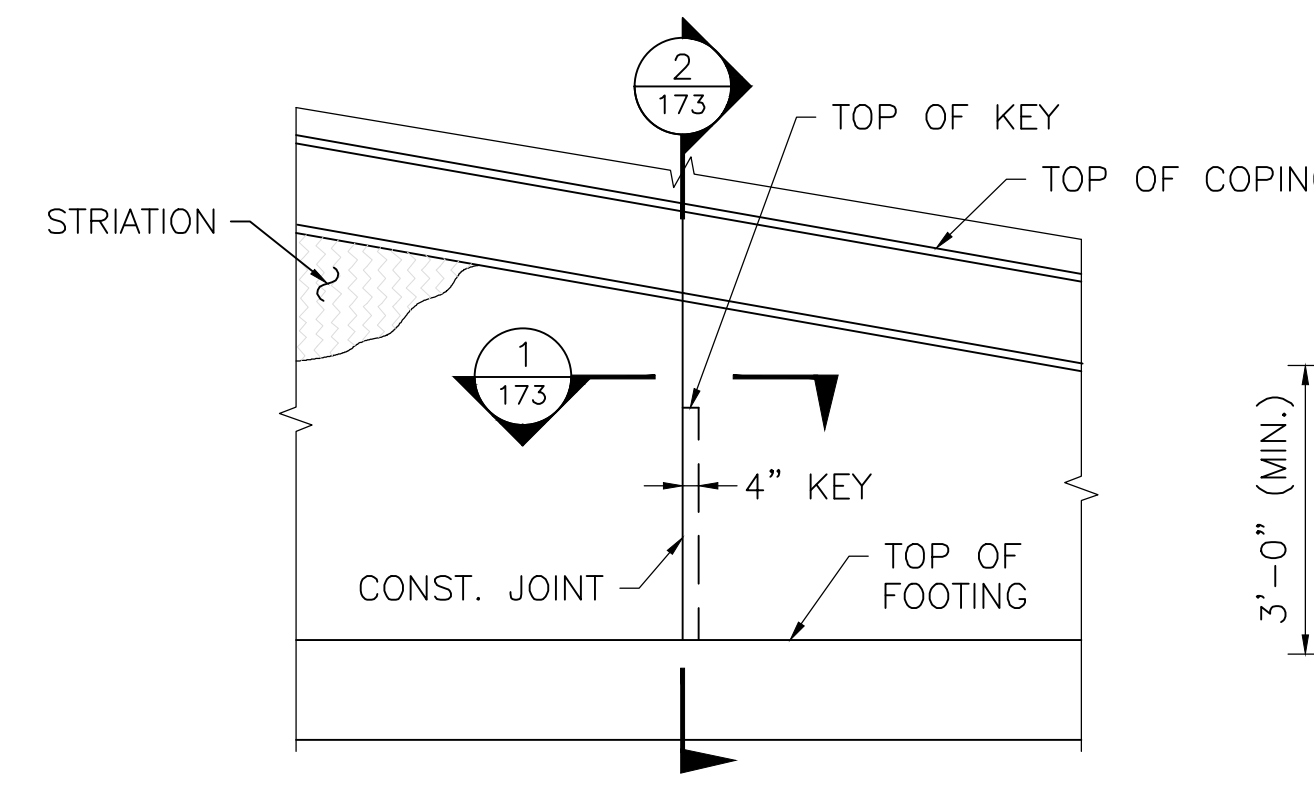
**CULVERT 3 INLET FLARED WALL - SECTION**  
SCALE: 1/2" = 1'-0"



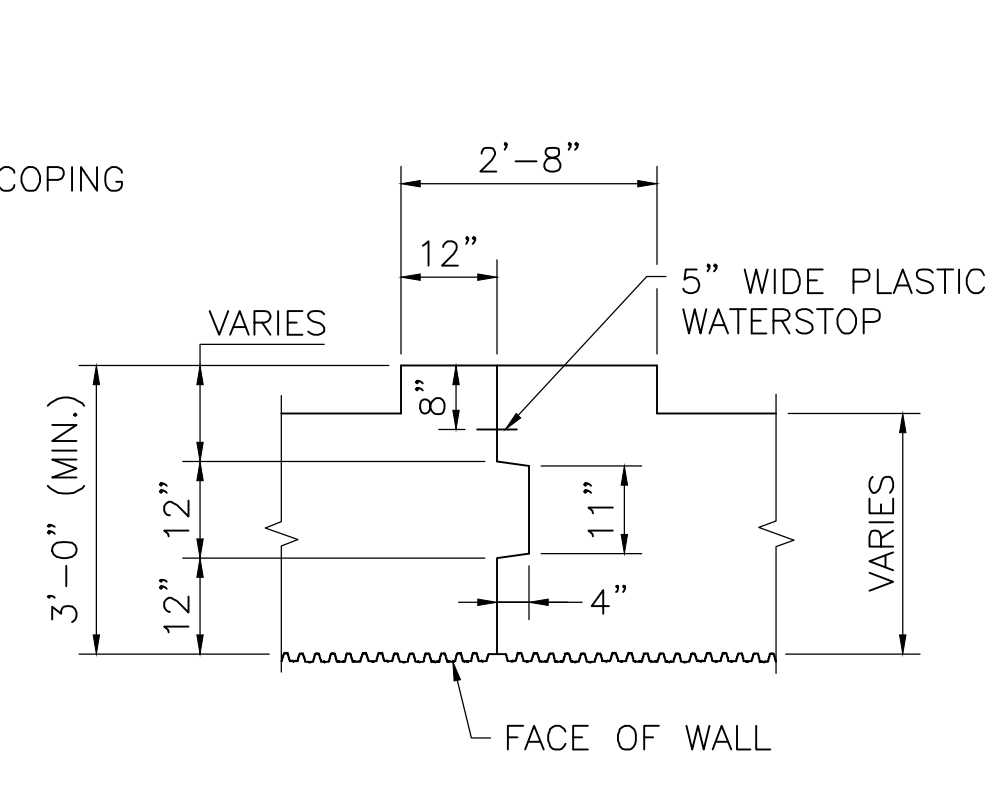
**CULVERT 3 INLET FLARED WALL - ELEVATION**  
SCALE: 1/2" = 1'-0"

- NOTES:**
1. INSTALL 4" WEEP HOLES @ 10'-0" O.C. PROVIDE 1 CUBIC YARD OF CRUSHED STONE AT EACH END OF THE WEEP HOLE.
  2. THE FACTORED BEARING PRESSURE = 1.90 KSF AS PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS STRENGTH I LOAD COMBINATION.  
FACTORED BEARING RESISTANCE = 5.27 KSF. FACTORED BEARING RESISTANCE IS THE PRODUCT OF THE NOMINAL BEARING RESISTANCE AND A RESISTANCE FACTOR OF 0.45.

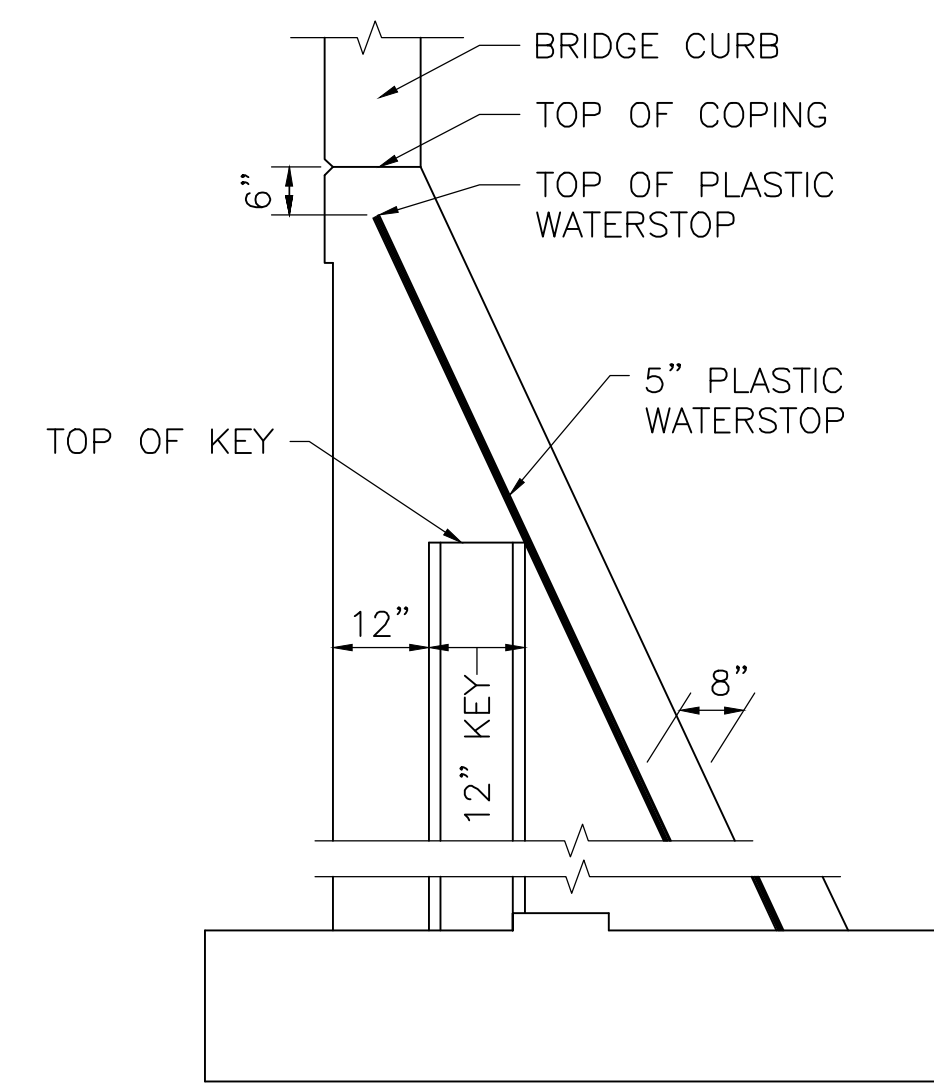
- REFERENCE NOTES:**
1. FOR CONCRETE HEADWALL DETAILS, CUT-OFF AND RETURN WALL DETAILS, STRIATION DETAILS, CONCRETE END WALL DETAIL, PARAFFIN JOINT DETAIL AND WINGWALL DETAILS, SEE SHEET NO. 174.



**WALL ELEVATION AT CONSTRUCTION JOINT**  
SCALE: 1/2" = 1'-0"

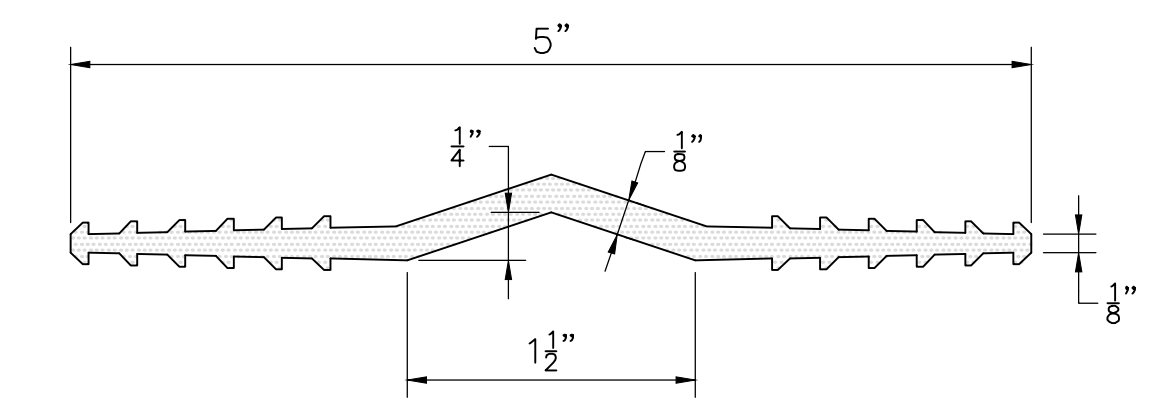


**SECTION 1**  
SCALE: 1/2" = 1'-0"



**NOTE:**  
REINFORCEMENT SHALL BE CONTINUOUS THROUGH CONSTRUCTION JOINTS.

**SECTION 2**  
SCALE: 1/2" = 1'-0"

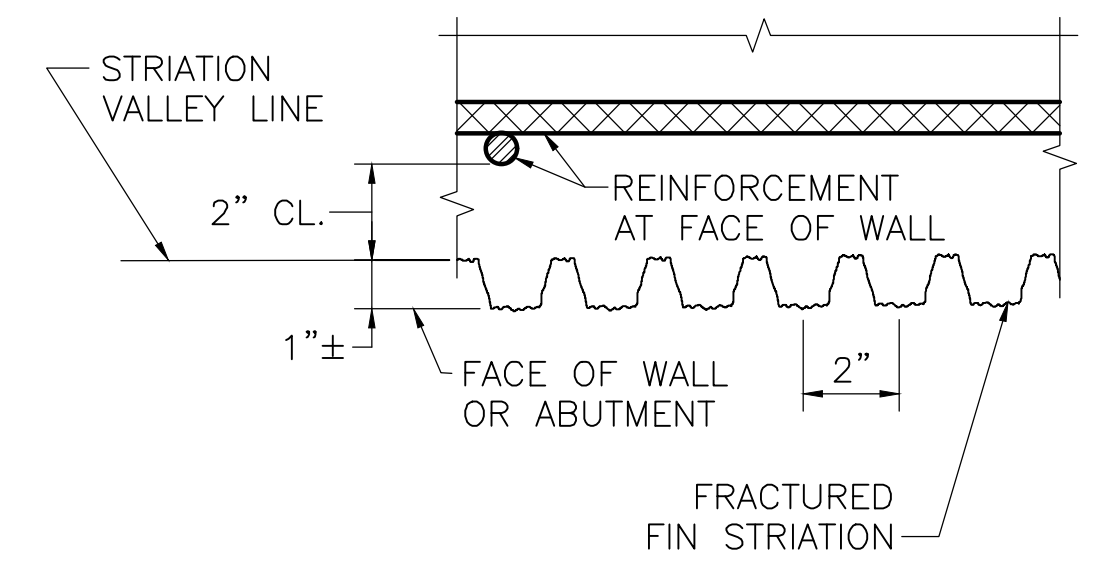
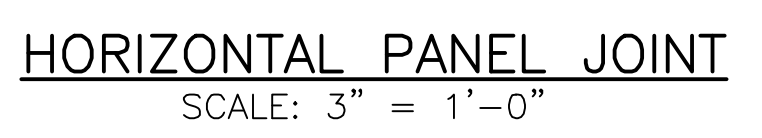
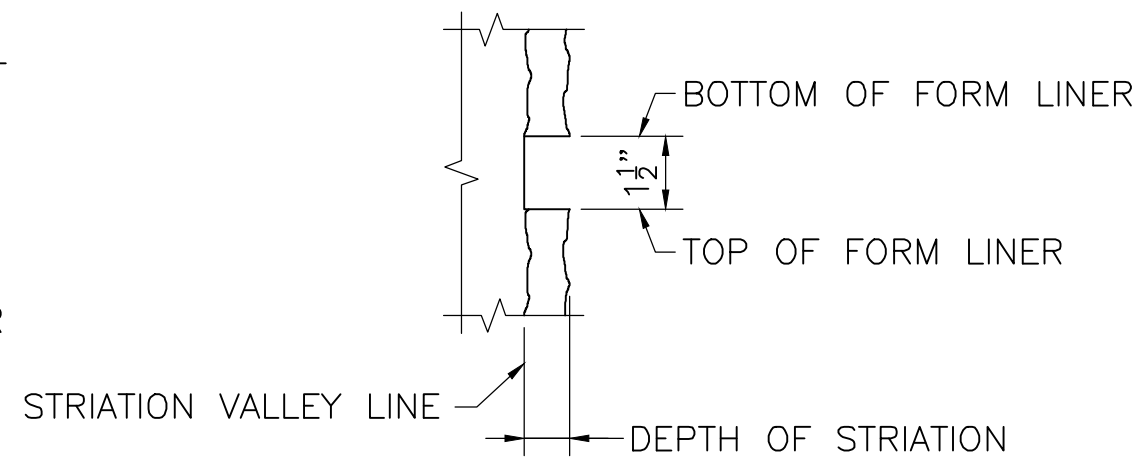
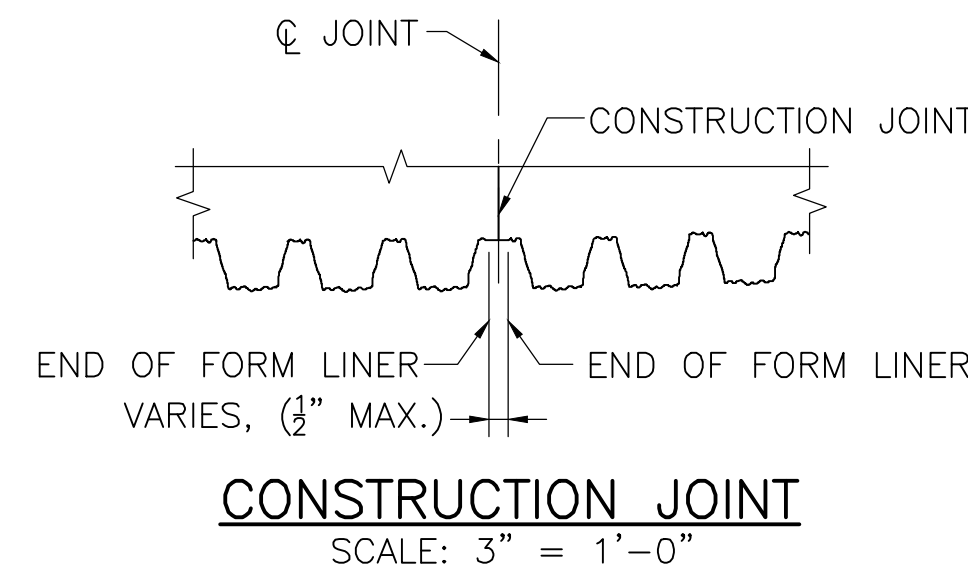


**5" WATERSTOP**  
FULL SIZE

**WALES  
MONSON ROAD**

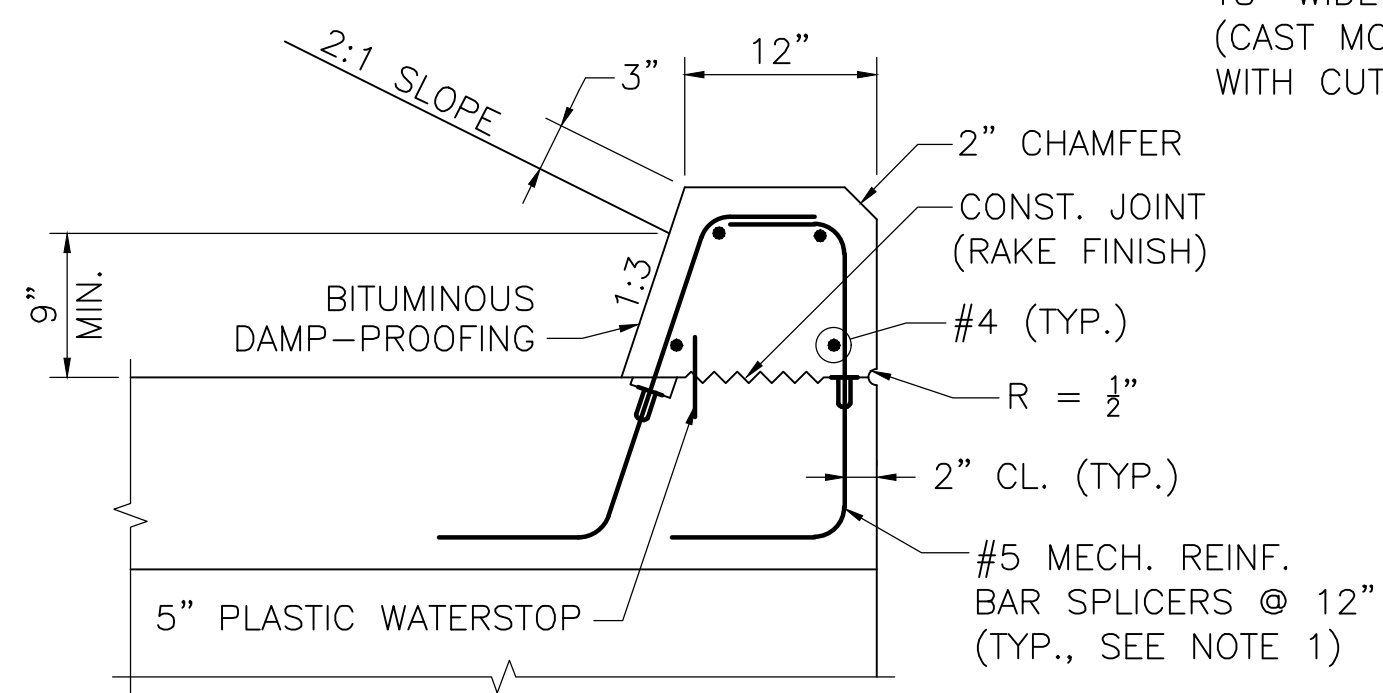
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSL-0032(043)X	174	182
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**CULVERT & WALL DETAILS**



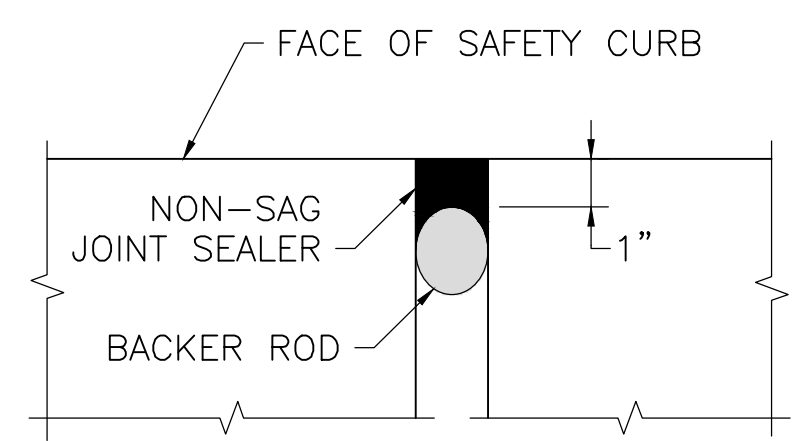
- NOTES:**
- THE CONTRACTOR SHALL MAKE SURE THAT THE STRIATION FINS ARE PLUMB AND LINED UP VERTICALLY FROM PANEL TO PANEL FOR THE FULL HEIGHT OF THE WALL.
  - THE HORIZONTAL JOINT MAY BE OMITTED IF THE CONTRACTOR CAN DEMONSTRATE THAT THE FORM LINER PANELS CAN BE INSTALLED END TO END WITHOUT CREATING A VISIBLE SEAM IN THE FINAL CAST CONCRETE.

**TYPICAL STRIATION DETAIL**  
SCALE: 3" = 1'-0"

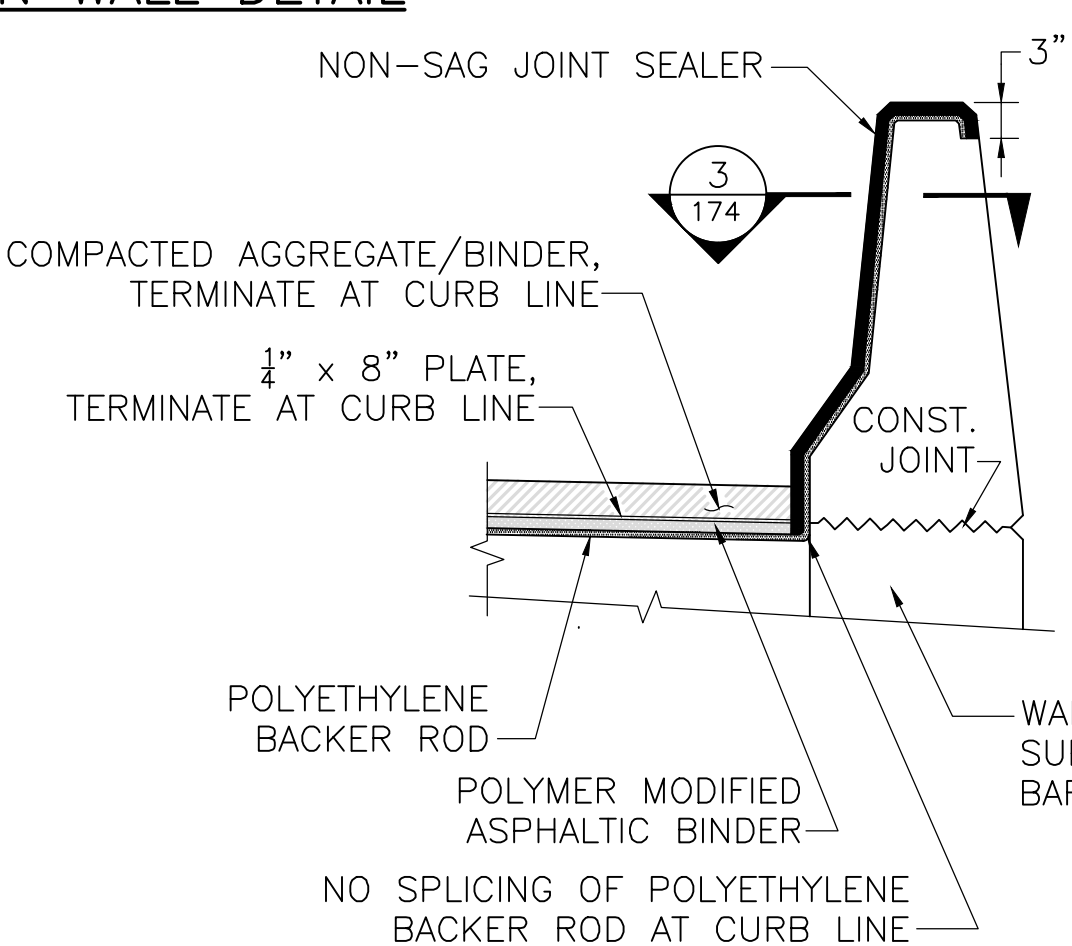


- NOTES:**
- THE CONTRACTOR MAY SUBSTITUTE #5 J DOWELS, FOR MECHANICAL REINFORCING BAR SPLICERS AND THREADED REBARS.
  - CULVERT REINFORCEMENT IS NOT SHOWN FOR CLARITY.

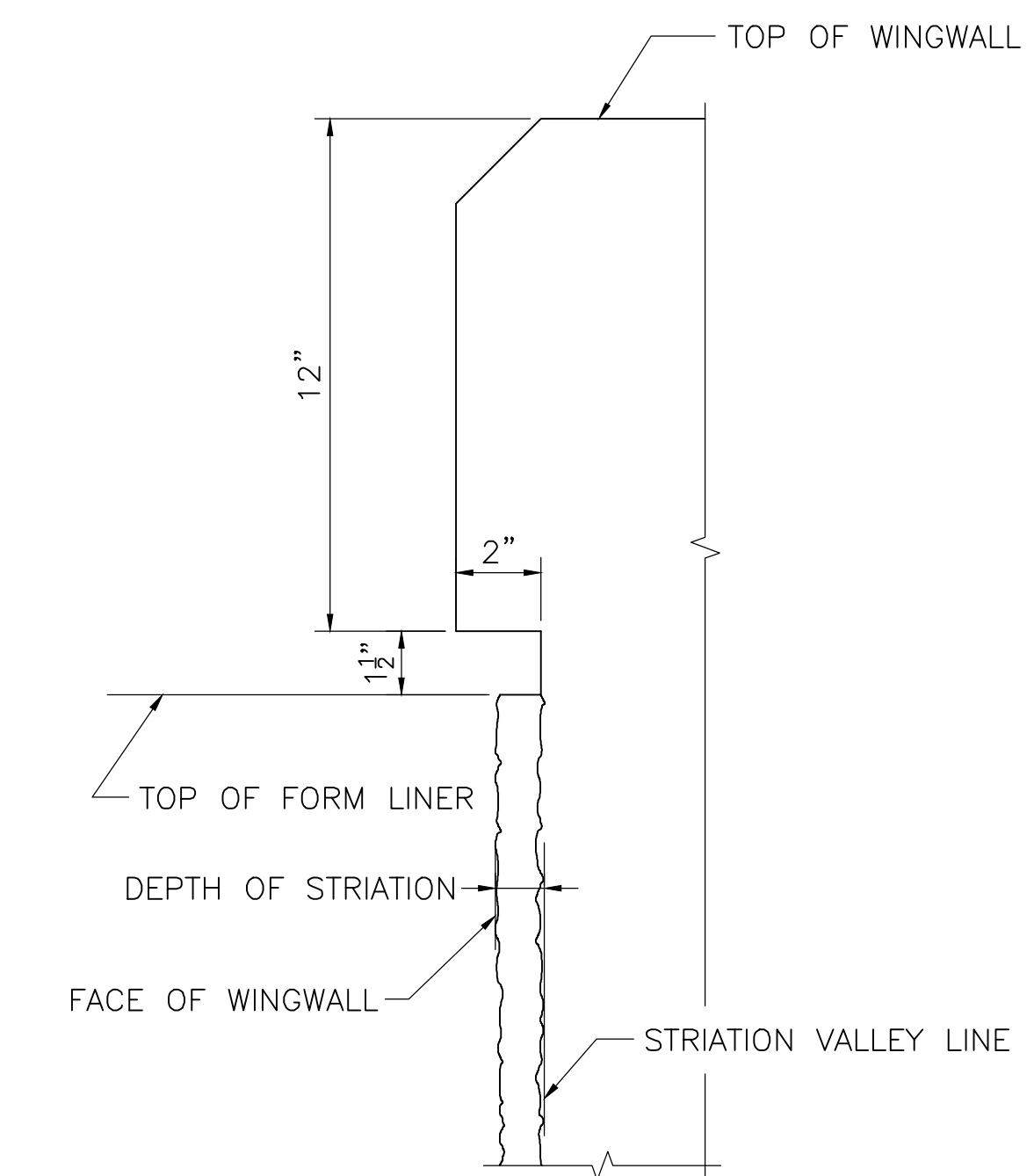
**CUT-OFF AND RETURN WALL DETAIL**  
SCALE: 1/2" = 1'-0"



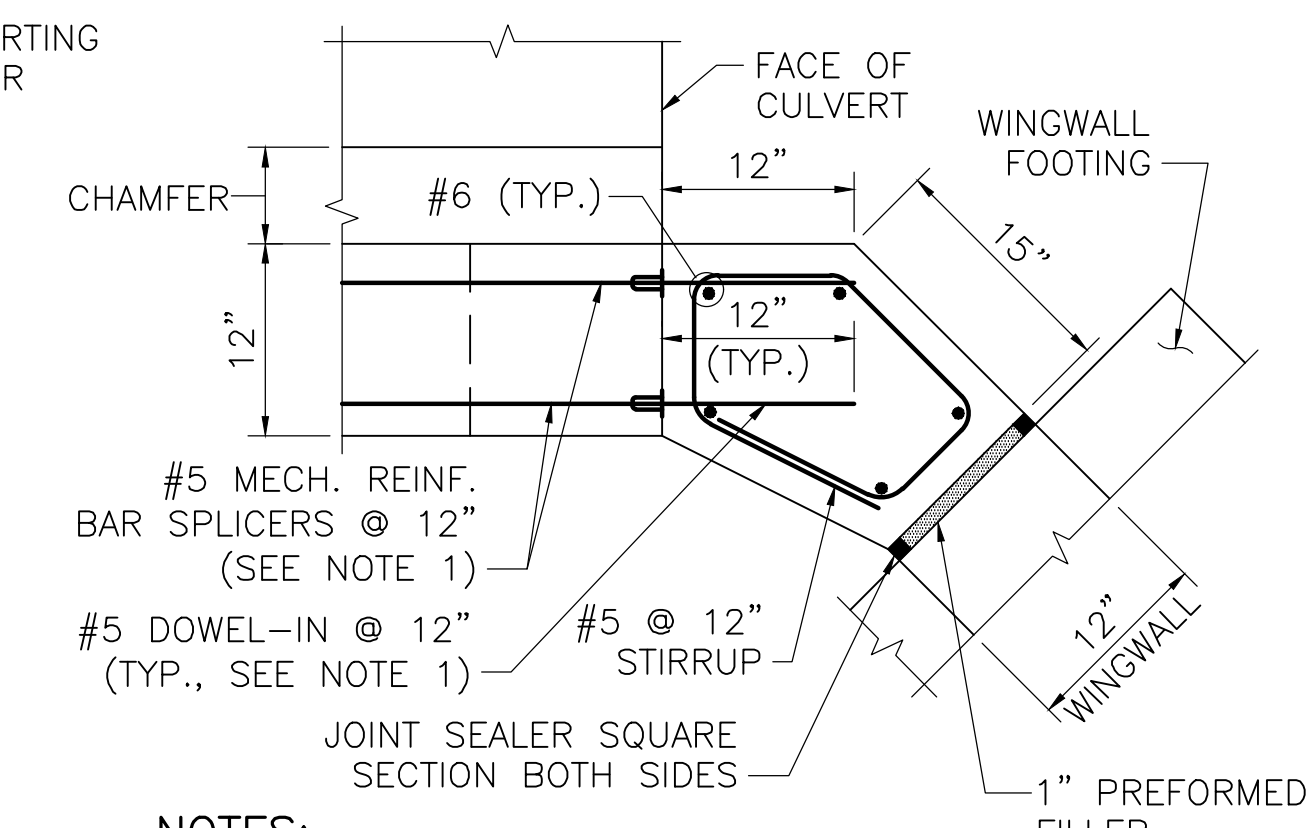
**SECTION 3**  
SCALE: 3" = 1'-0"



**JOINT DETAIL AT CF BARRIERS**  
SCALE: 3/4" = 1'-0"

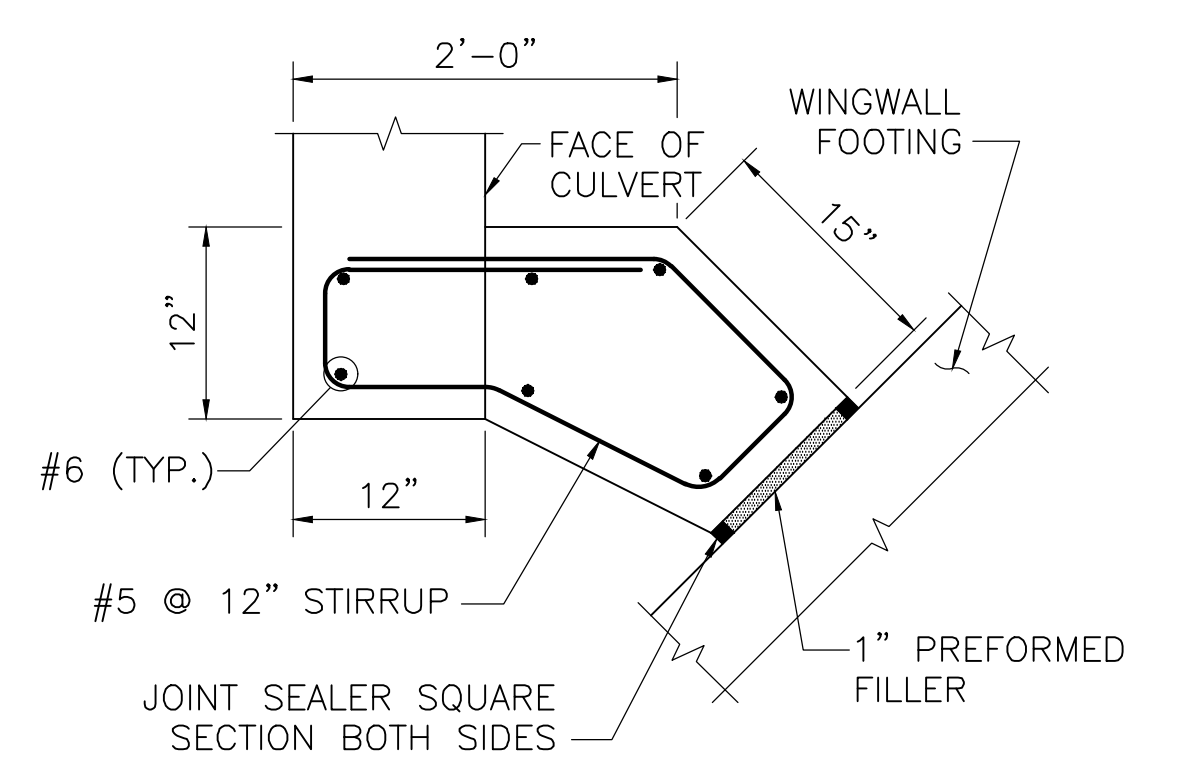


**DETAIL AT TOP OF WINGWALL**  
SCALE: 3" = 1'-0"



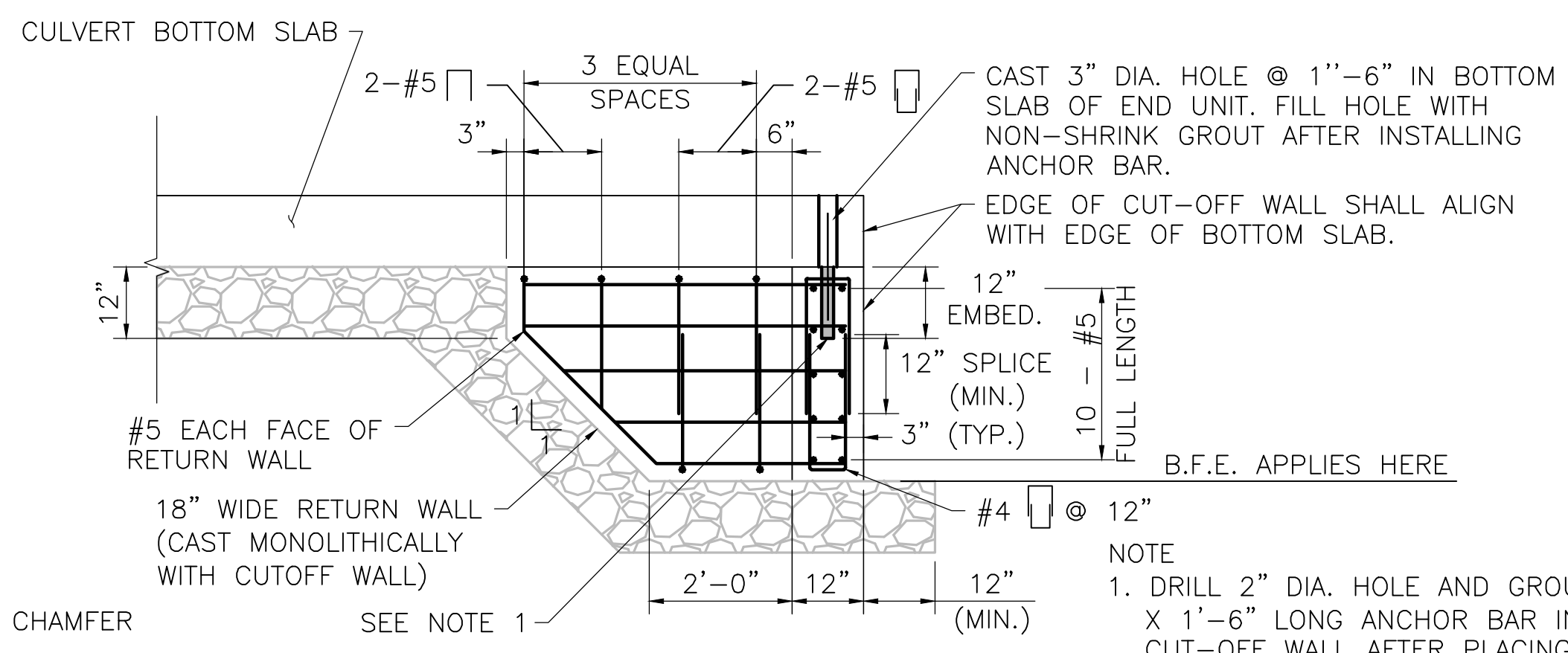
- NOTES:**
- THE CONTRACTOR MAY SUBSTITUTE #5 DOWELS, 3'-0" LONG, FOR MECHANICAL REINFORCING BAR SPLICERS AND THREADED REBARS.
  - CULVERT REINFORCEMENT IS NOT SHOWN FOR CLARITY.

**SECTION 1**  
SCALE: 1" = 1'-0"

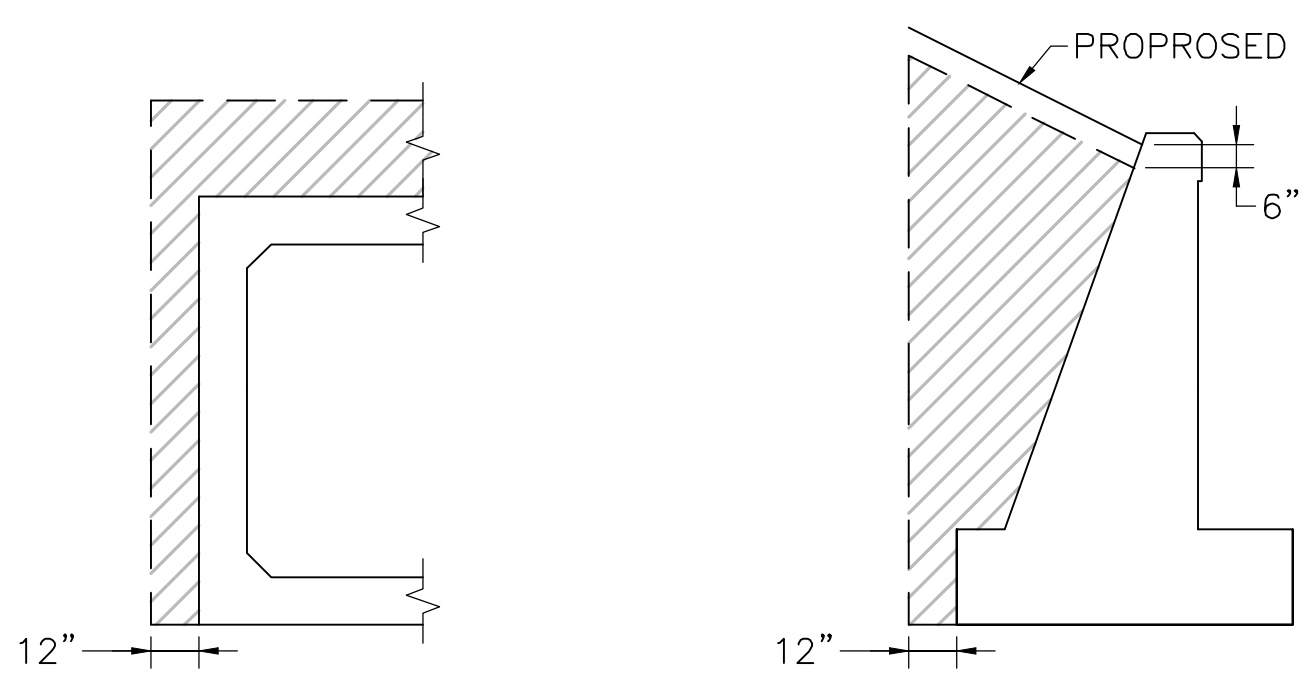


- NOTE:**
- CULVERT REINFORCEMENT IS NOT SHOWN FOR CLARITY.

**SECTION 2**  
SCALE: 1" = 1'-0"

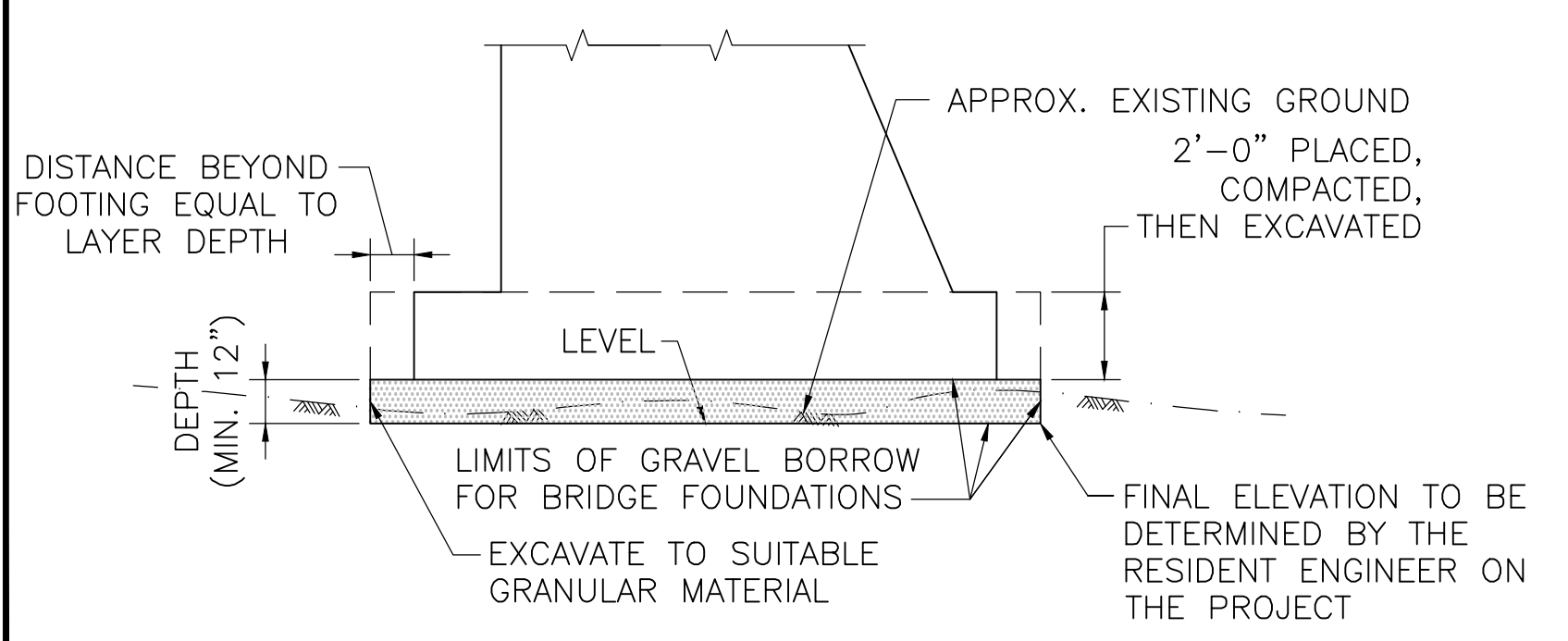


- NOTE**
- DRILL 2" DIA. HOLE AND GROUT #6 X 1'-6" LONG ANCHOR BAR INTO CUT-OFF WALL AFTER PLACING END UNIT. USE NON-SHRINK GROUT. CENTER ANCHOR BAR IN HOLE IN BOTTOM SLAB.



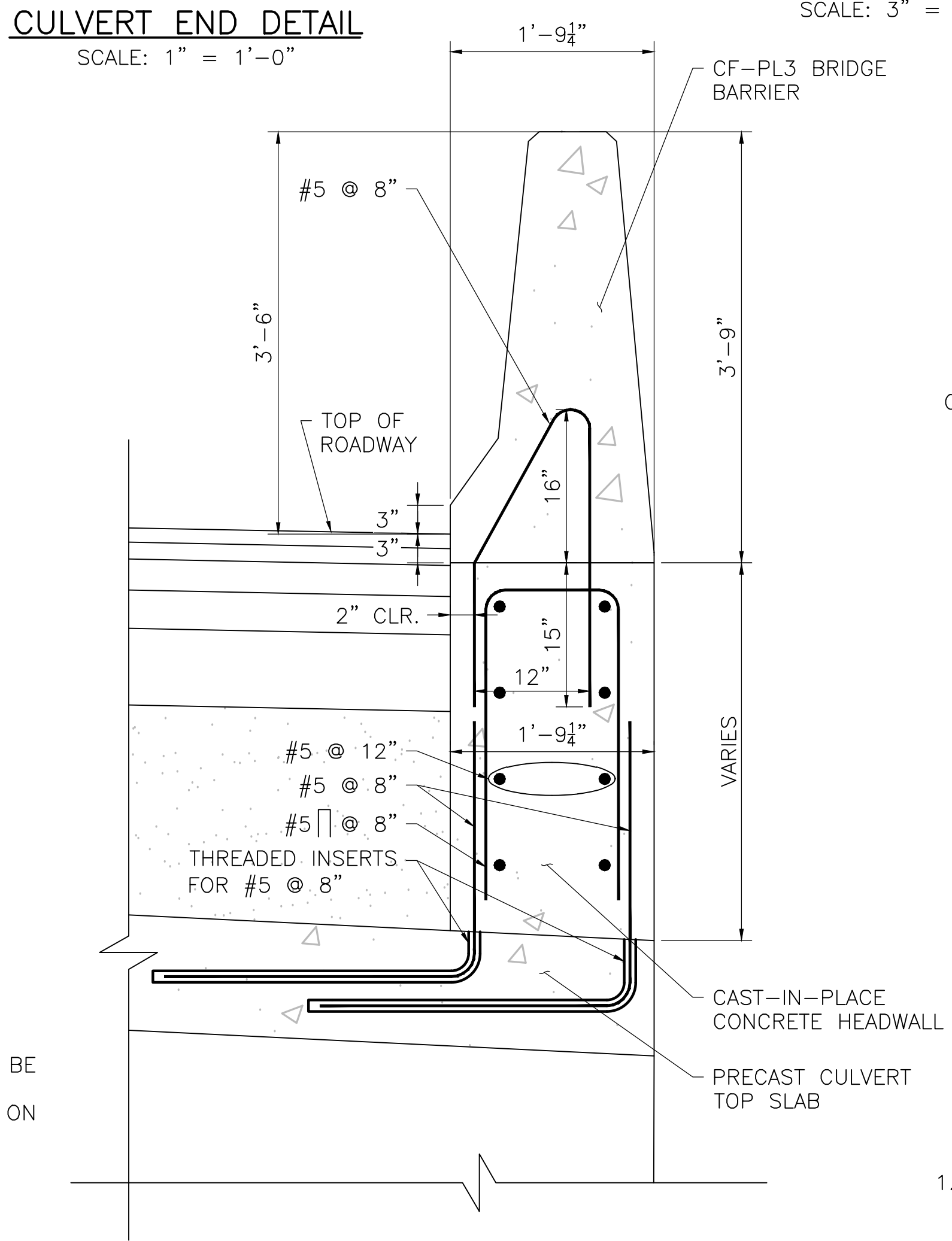
- NOTE:**
- HATCHED AREA INDICATES LIMITS OF GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES.

**LIMITS OF GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES**  
SCALE: 3/4" = 1'-0"

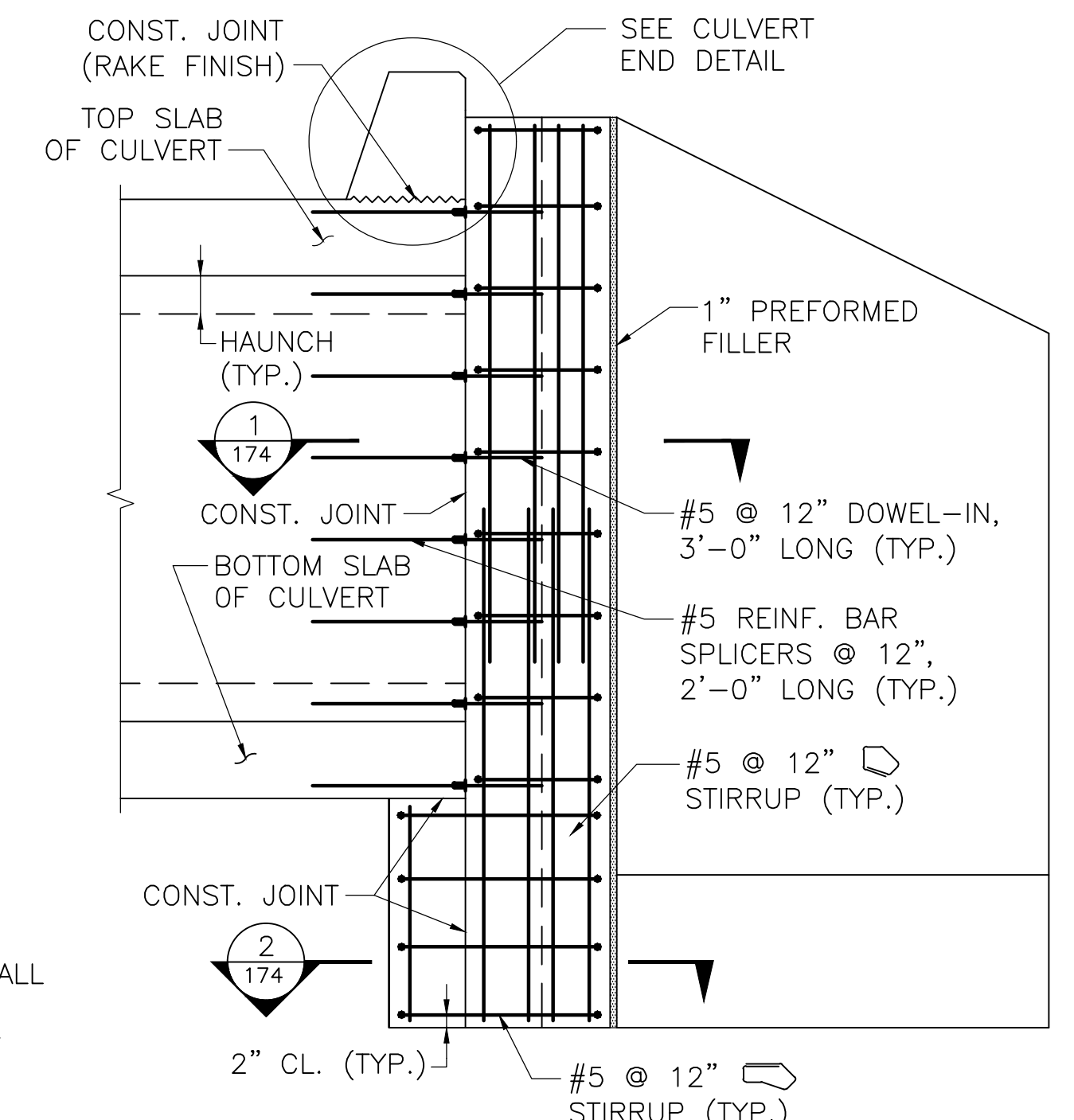


- NOTES:**
- SAME TREATMENT IS TO BE USED AT ENDS OF WALLS.

**LIMITS OF GRAVEL BORROW FOR BRIDGE FOUNDATIONS**  
NOT TO SCALE



**SECTION AT BOX CULVERT HEADWALL**  
SCALE: 1/2" = 1'-0"

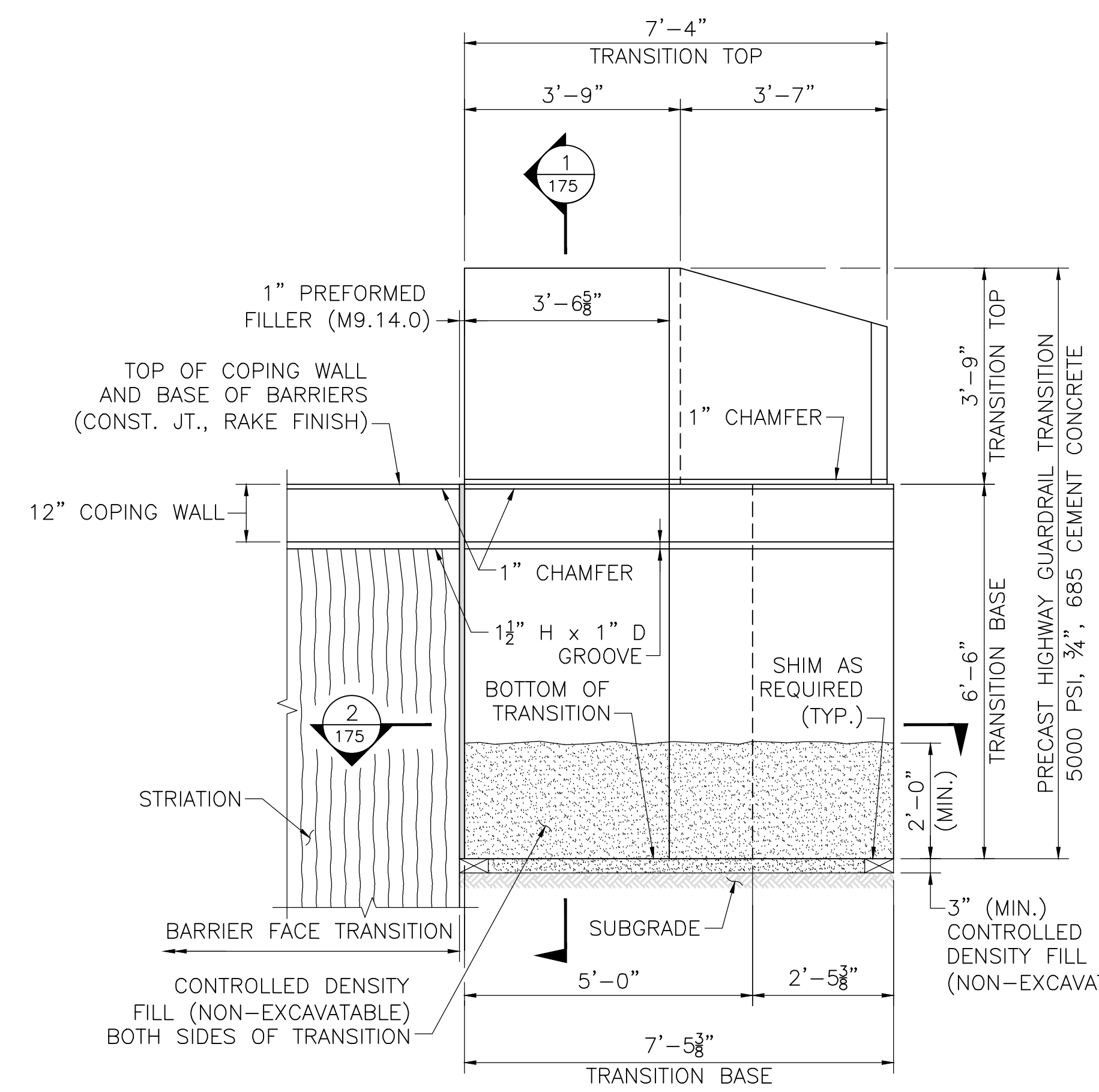


- NOTES:**
- THE CONTRACTOR MAY SUBSTITUTE #5 DOWELS, 3'-0" LONG FOR MECHANICAL REINFORCING BAR SPLICERS AND THREADED REBARS.
  - CULVERT REINFORCEMENT IS NOT SHOWN FOR CLARITY.

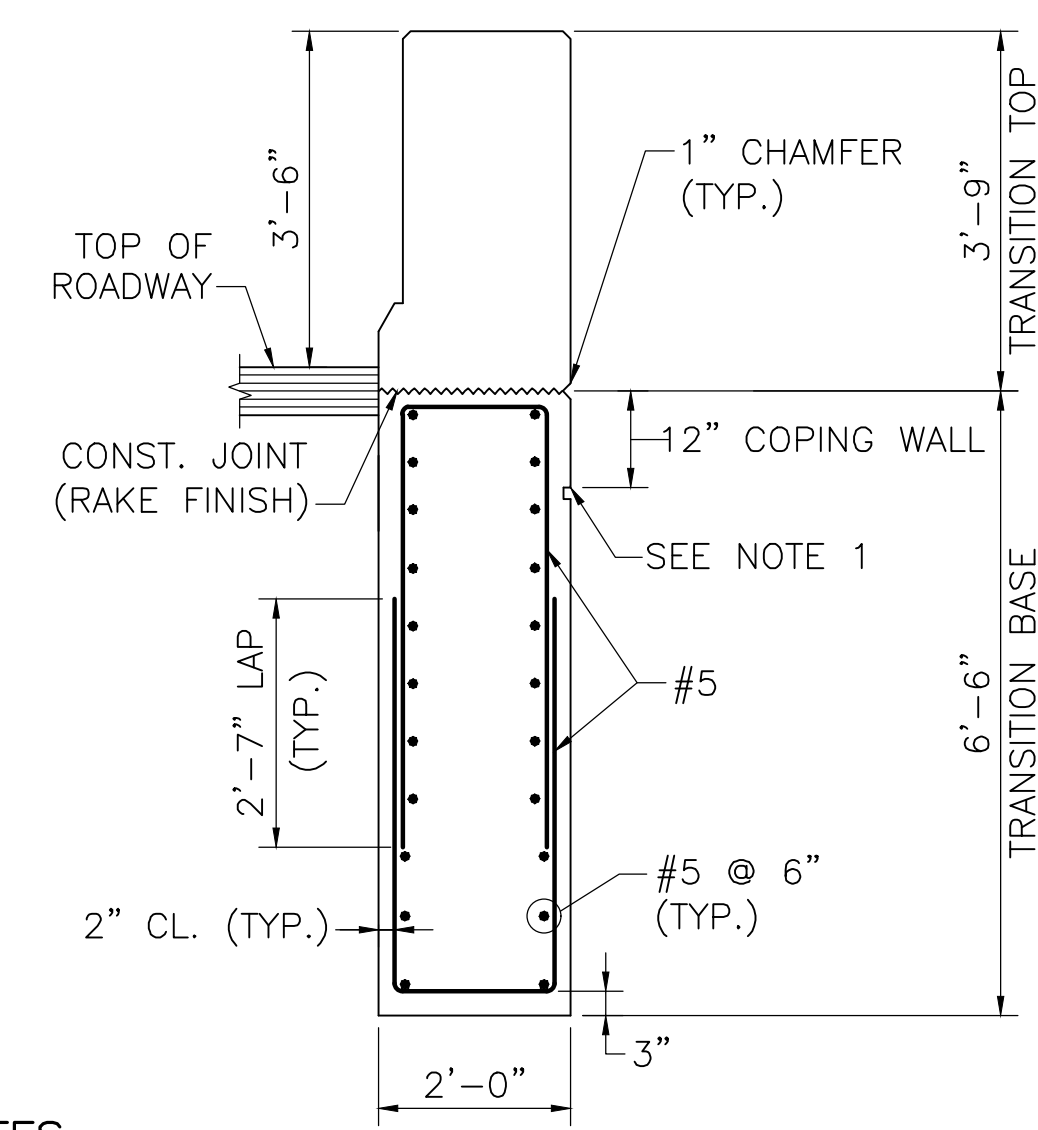
**SECTION AT WINGWALL**  
SCALE: 3/4" = 1'-0"

WALES MONSON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	175	182
PROJECT FILE NO.		608163	

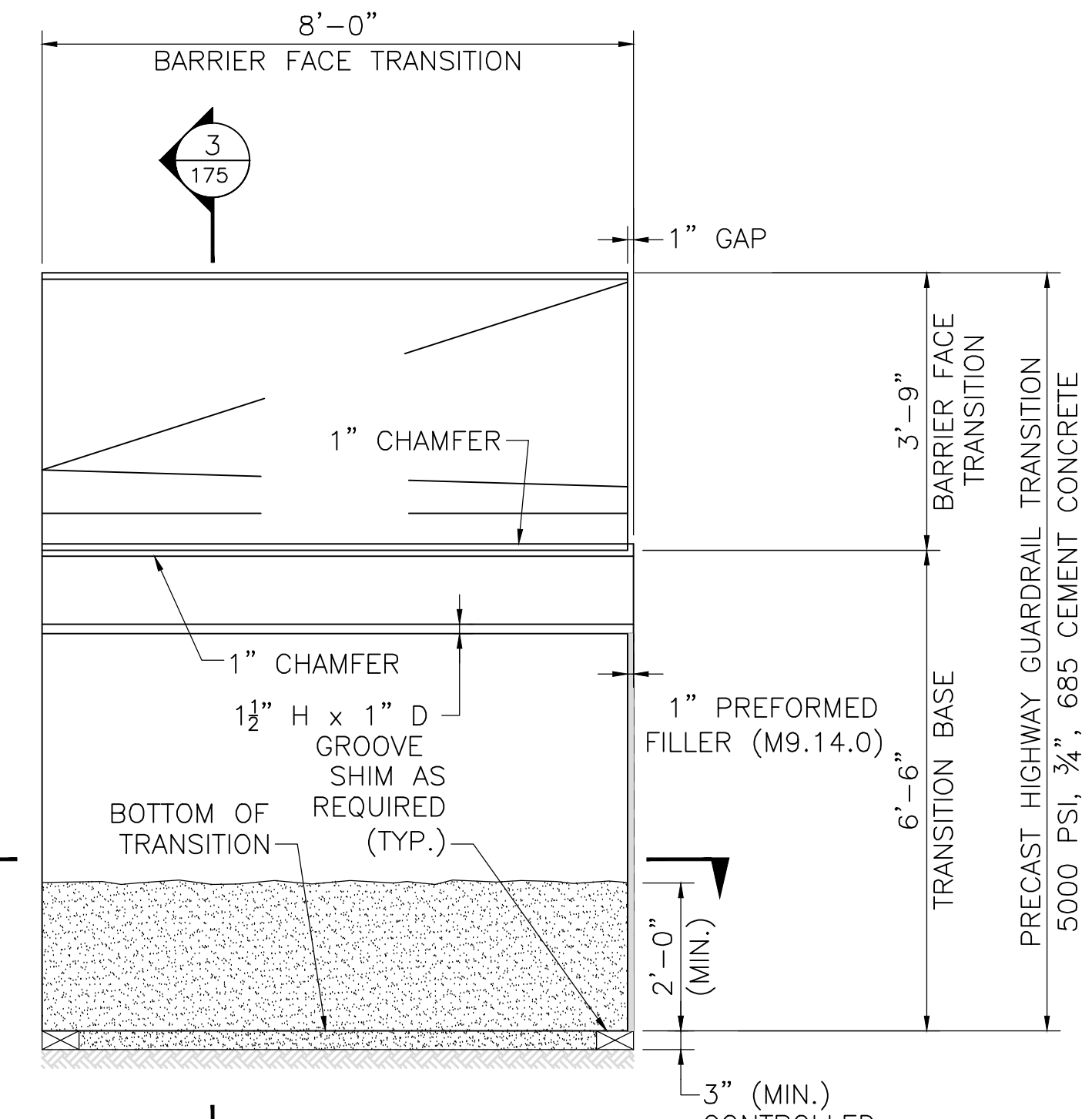
**BARRIER CURB DETAILS**



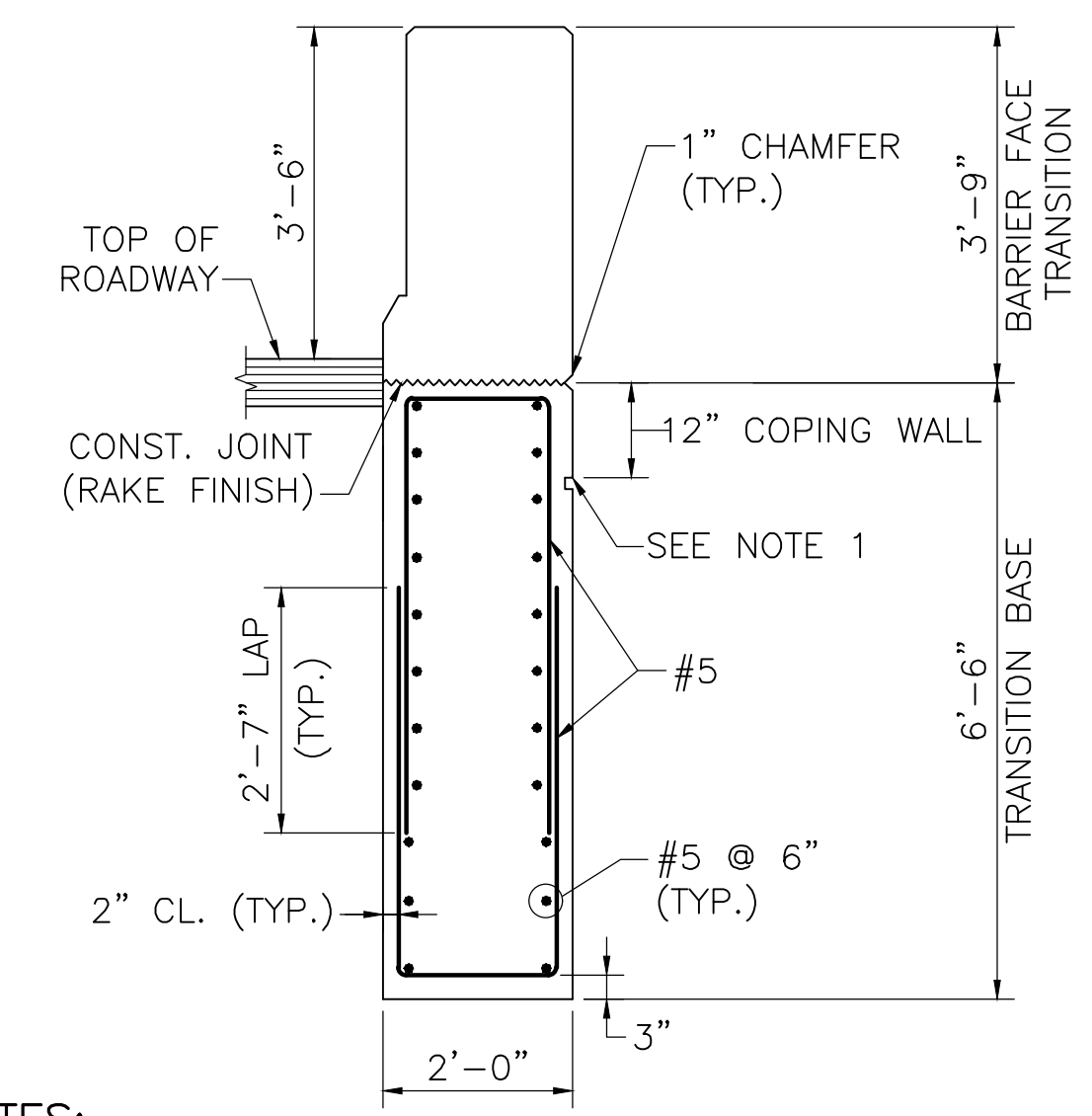
**PRECAST GUARDRAIL TRANSITION  
ELEVATION AT U-WINGWALL**  
SCALE: 1/2" = 1'-0"



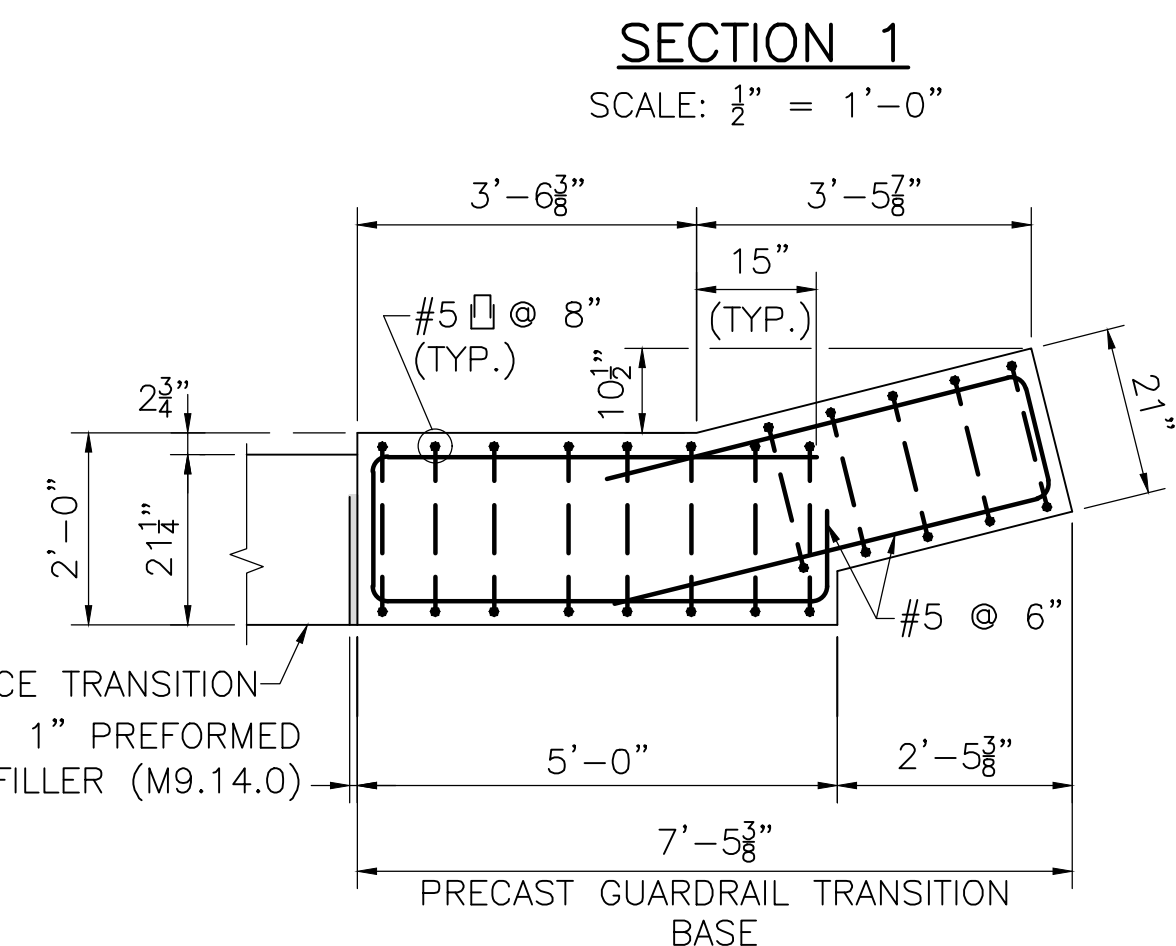
**NOTES:**  
1. 1 1/2" H x 1" D GROOVE. ALIGN WITH GROOVE AT TOP OF STRIATIONS.  
2. REINFORCEMENT OF THE TRANSITION TOP IS NOT SHOWN FOR CLARITY.



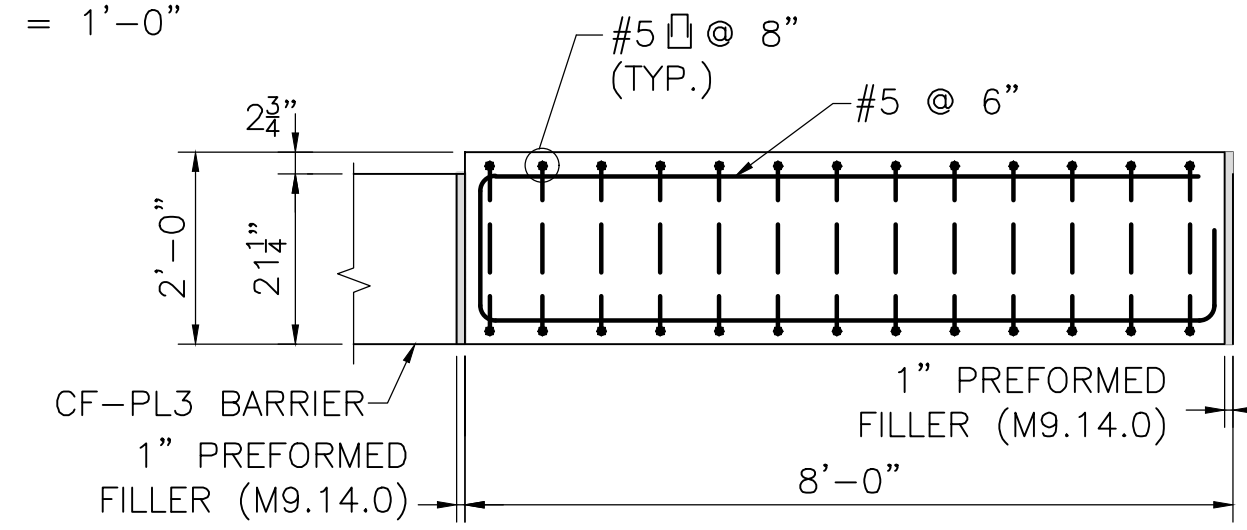
**BARRIER FACE TRANSITION CURB**  
SCALE: 1/2" = 1'-0"



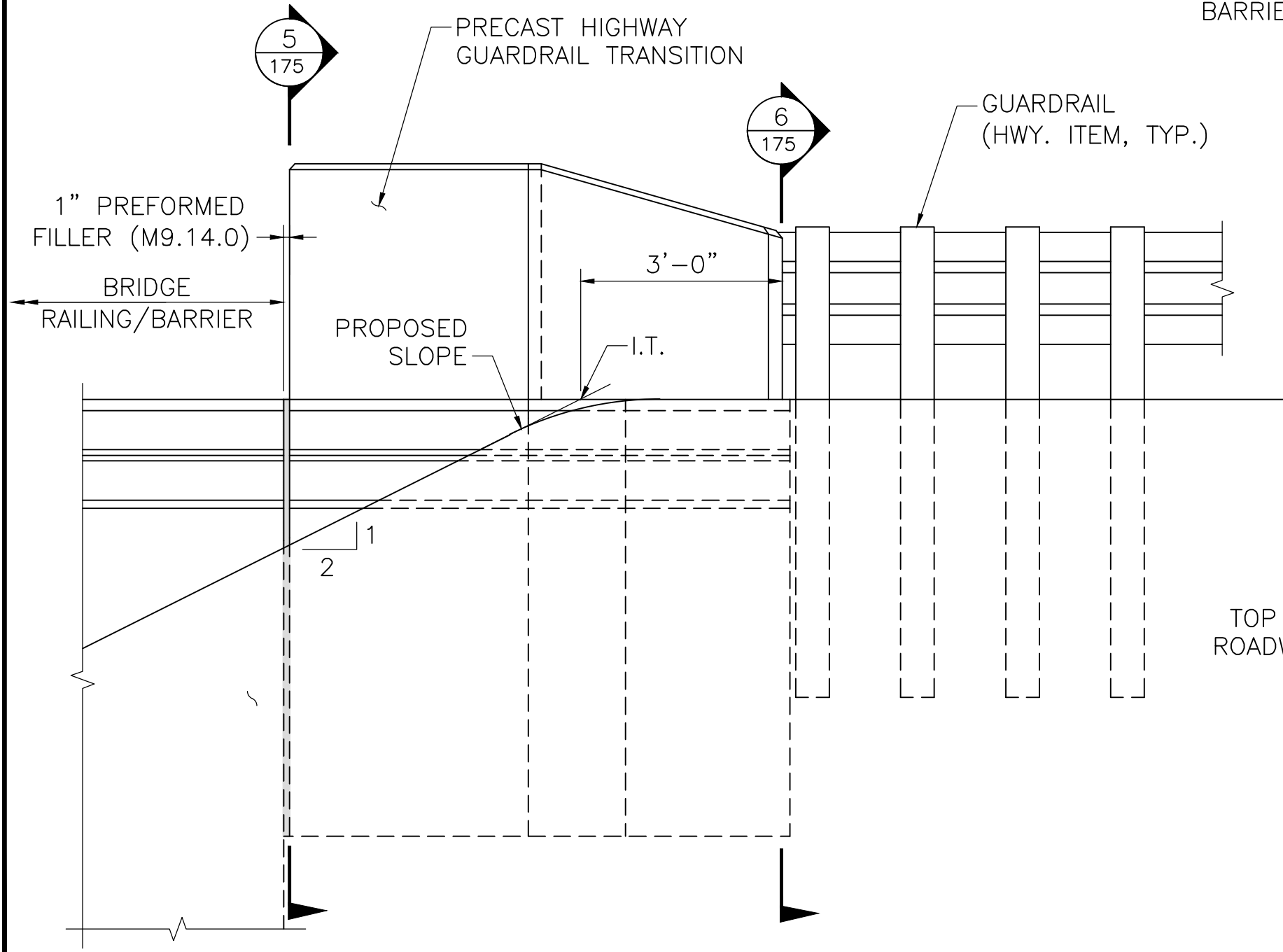
**NOTES:**  
1. 1 1/2" H x 1" D GROOVE. ALIGN WITH GROOVE AT TOP OF STRIATIONS.  
2. REINFORCEMENT OF THE TRANSITION TOP IS NOT SHOWN FOR CLARITY.



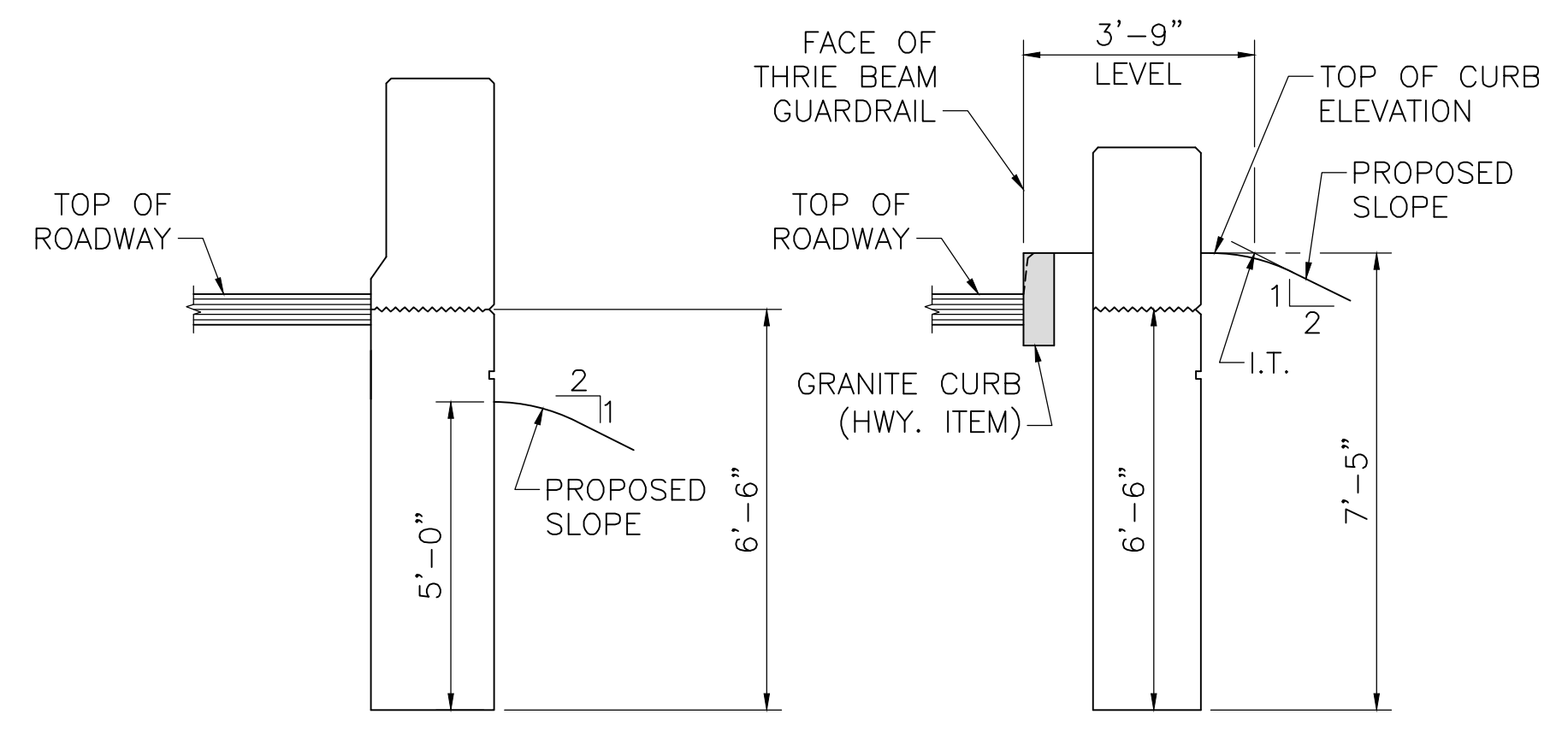
**NOTE:**  
WINGWALL REINFORCEMENT AND STRIATIONS NOT SHOWN FOR CLARITY.



**SECTION 4**  
SCALE: 1/2" = 1'-0"

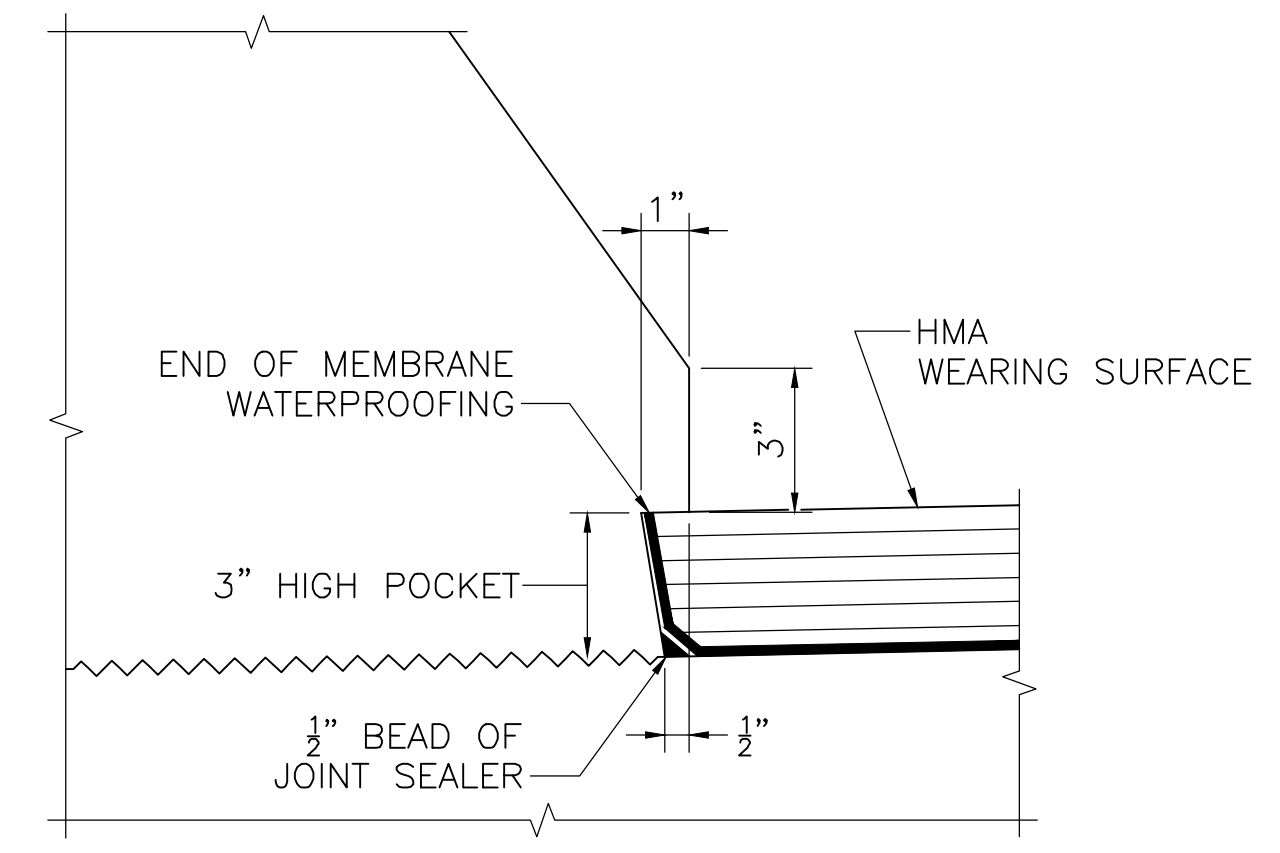


**GRADING REQUIREMENTS  
ELEVATION**  
SCALE: 1/2" = 1'-0"



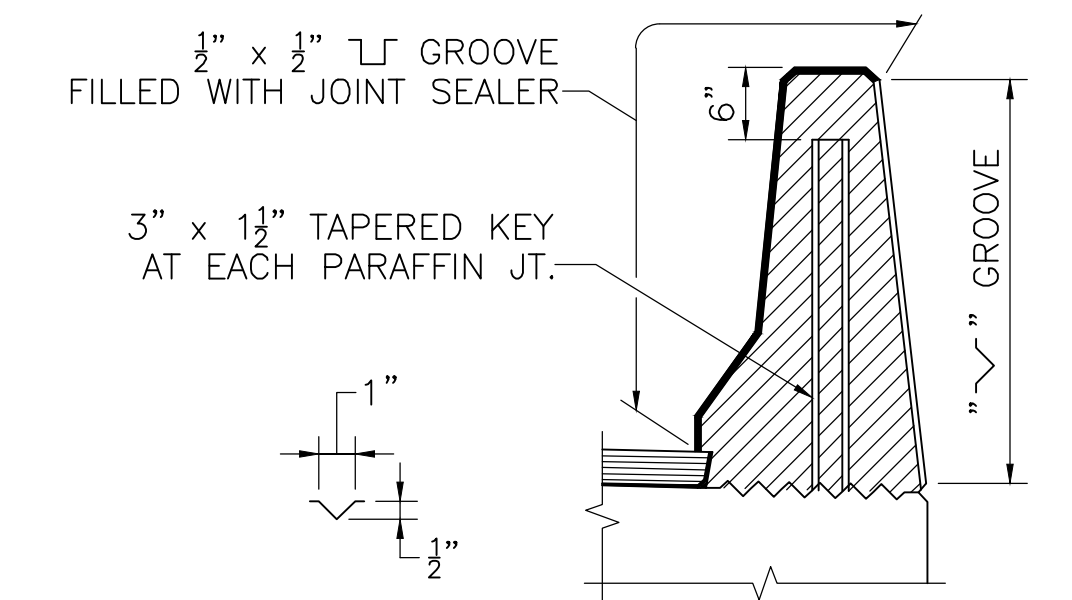
**SECTION 5**  
SCALE: 3/8" = 1'-0"

**SECTION 6**  
SCALE: 3/8" = 1'-0"



**NOTE:**  
TURN MEMBRANE UP INTO 3" HIGH POCKET.

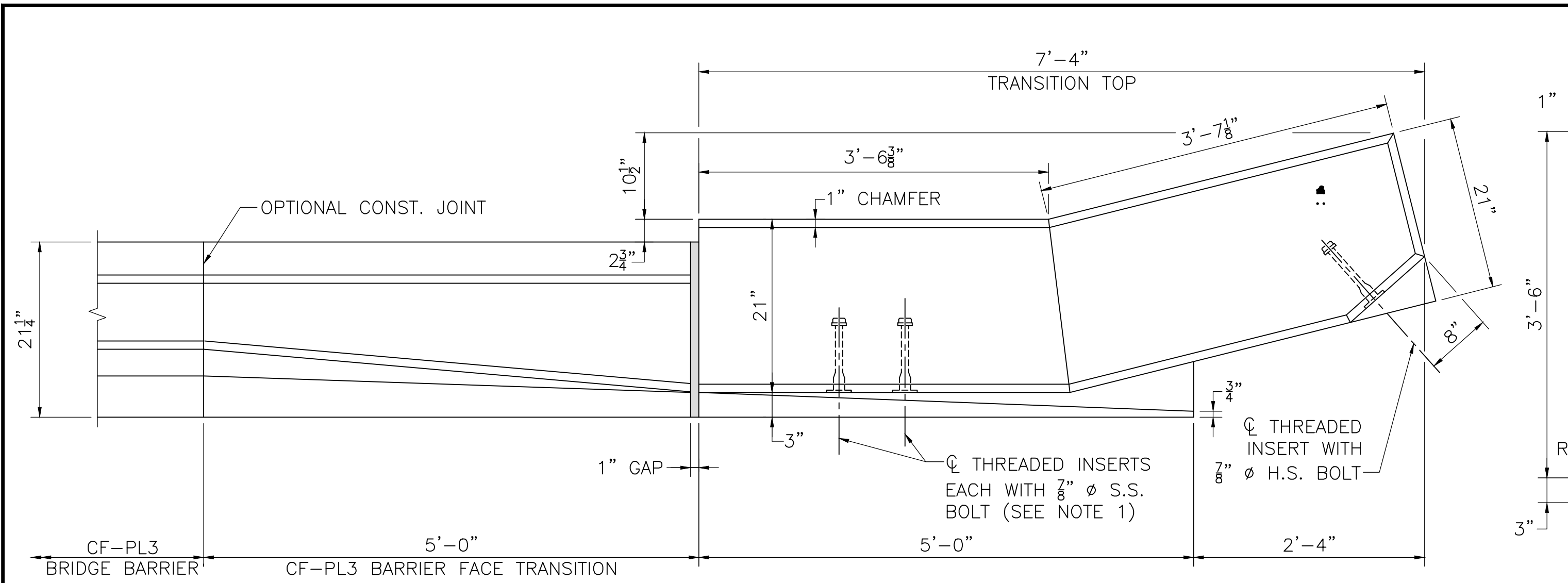
**FACE OF SAFETY CURB DETAILS**  
SCALE: 3" = 1'-0"



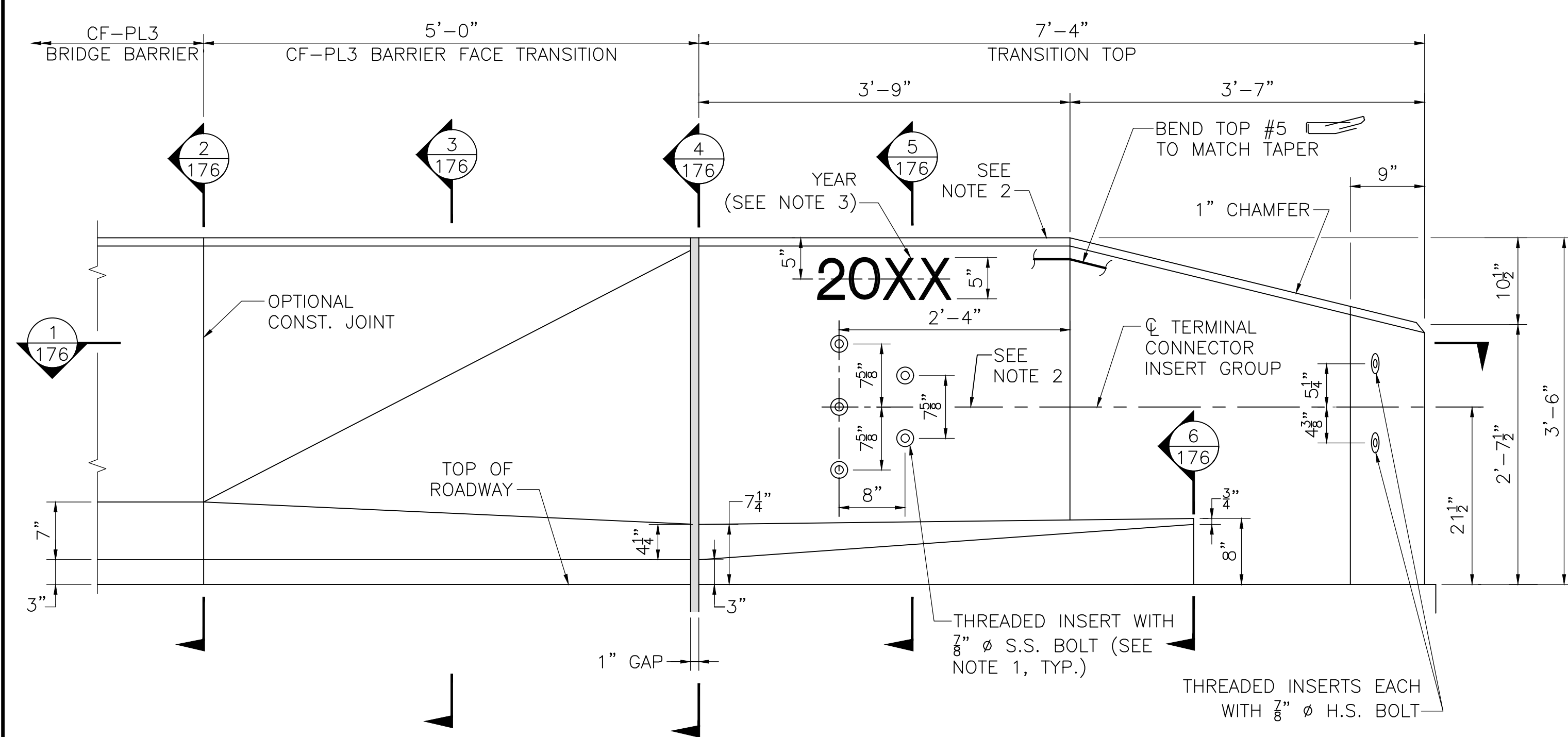
**NOTES:**  
1. ALL CONCRETE ABOVE SLAB SHALL BE POURED IN ALTERNATING SECTIONS WITH NOT LESS THAN 3 DAYS BETWEEN POURS.  
2. DO NOT CARRY LONGITUDINAL BARS THROUGH THE PARAFFIN JOINTS. END THE REINFORCEMENT 2" CLEAR OF JOINT.  
3. JOINT SHALL BE SQUARE TO FACE OF CURB (or coping).

**PARAFFIN JOINT DETAILS**  
SCALE: 3/4" = 1'-0"

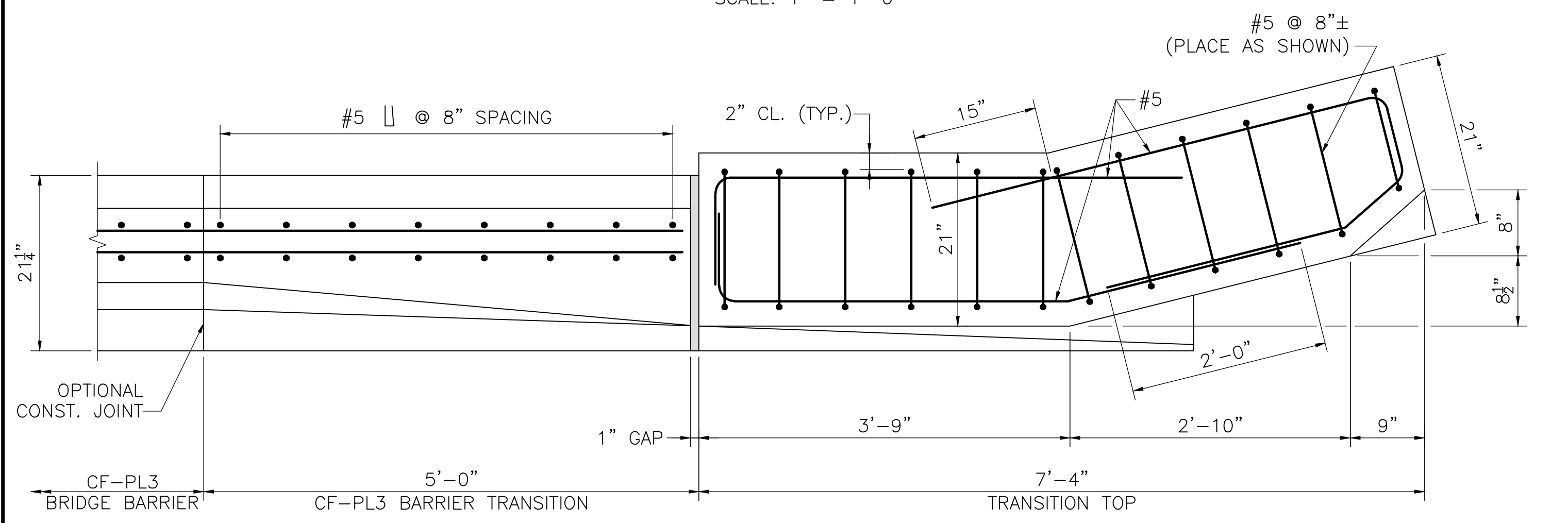




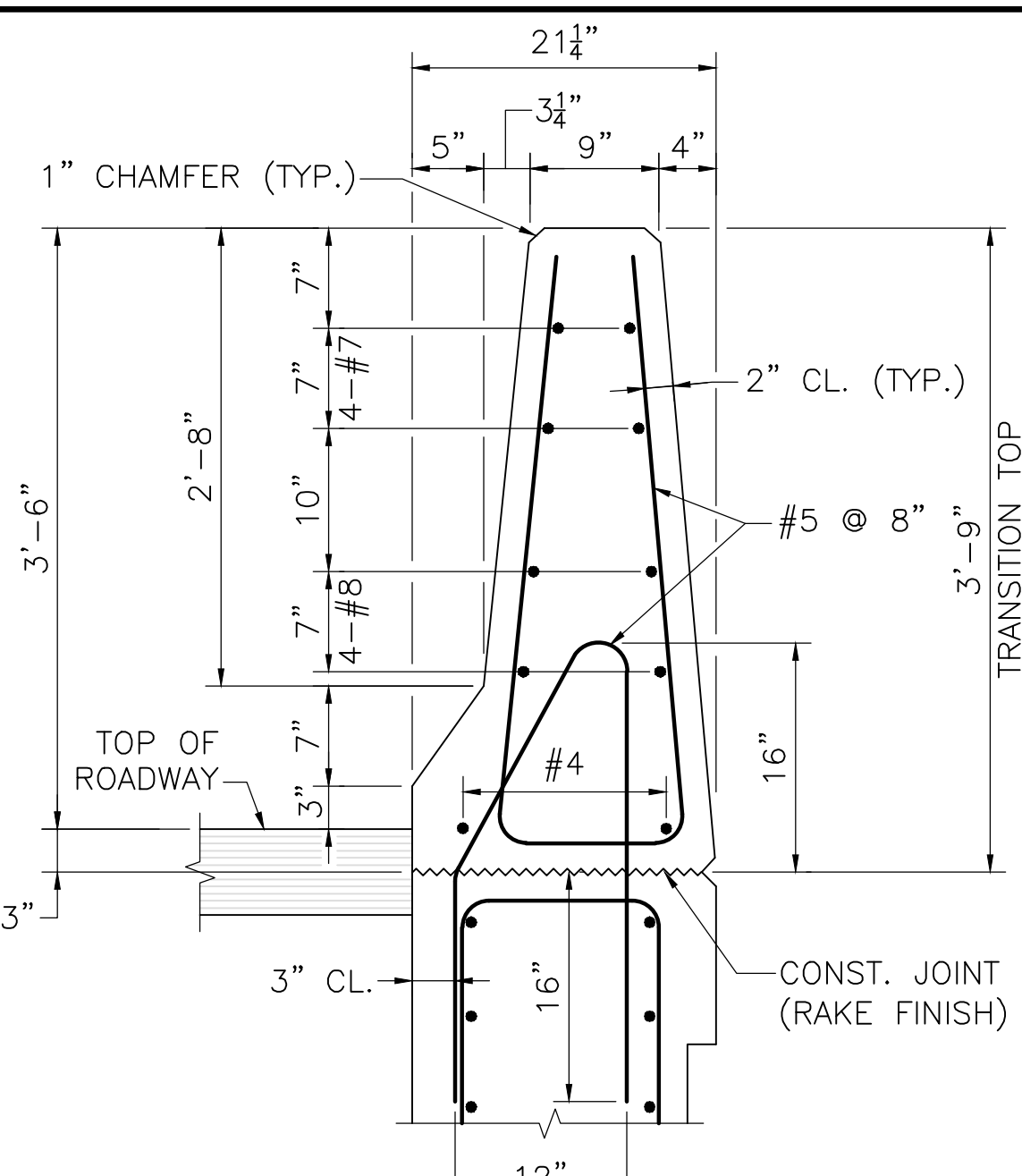
**PLAN**  
SCALE: 1" = 1'-0"



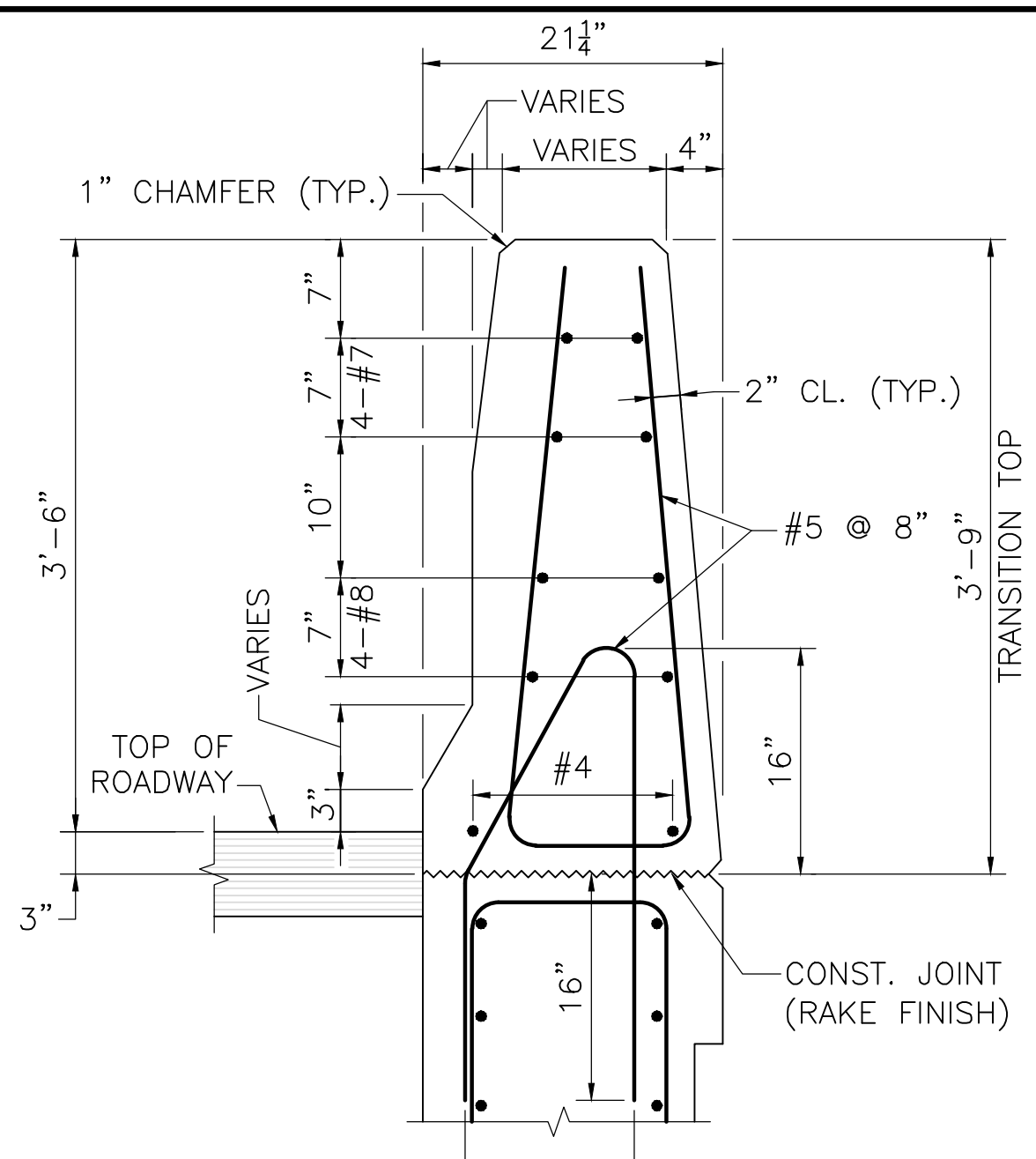
**ELEVATION**  
SCALE: 1" = 1'-0"



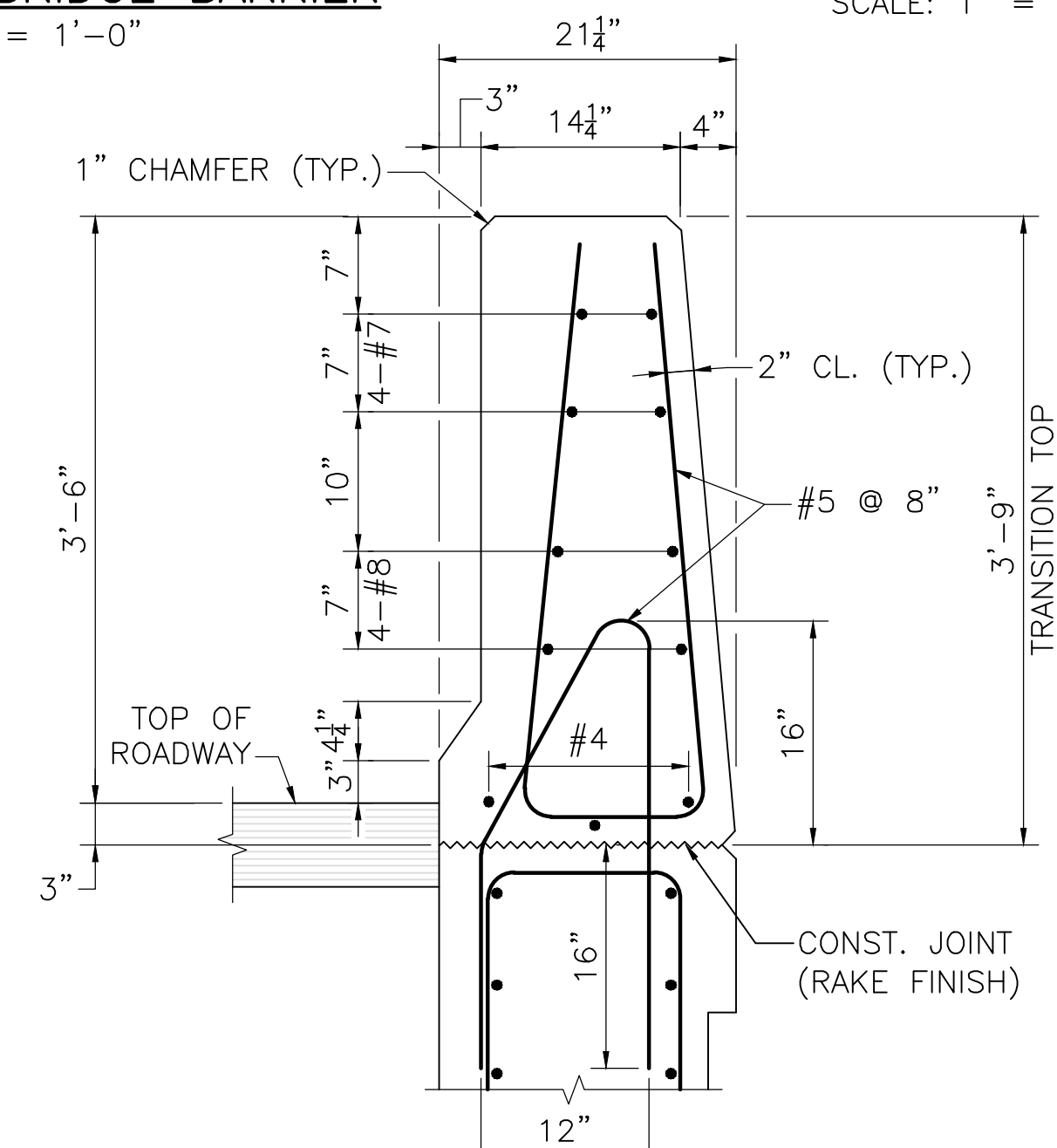
**SECTION 1**  
SCALE: 1" = 1'-0"



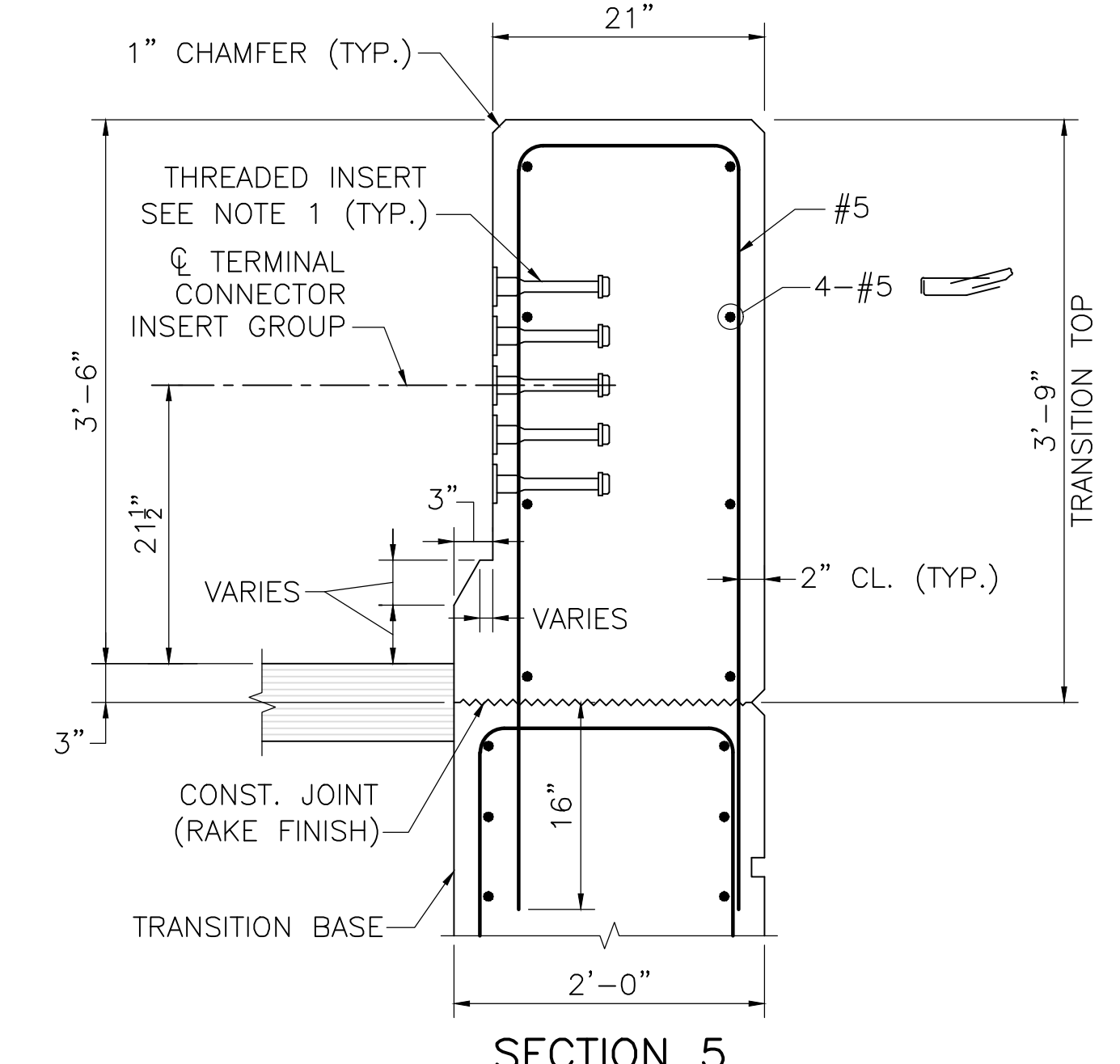
**SECTION 2**  
TYPICAL CF-PL3 BRIDGE BARRIER  
SCALE: 1" = 1'-0"



**SECTION 3**  
SCALE: 1" = 1'-0"



**SECTION 4**  
SCALE: 1" = 1'-0"

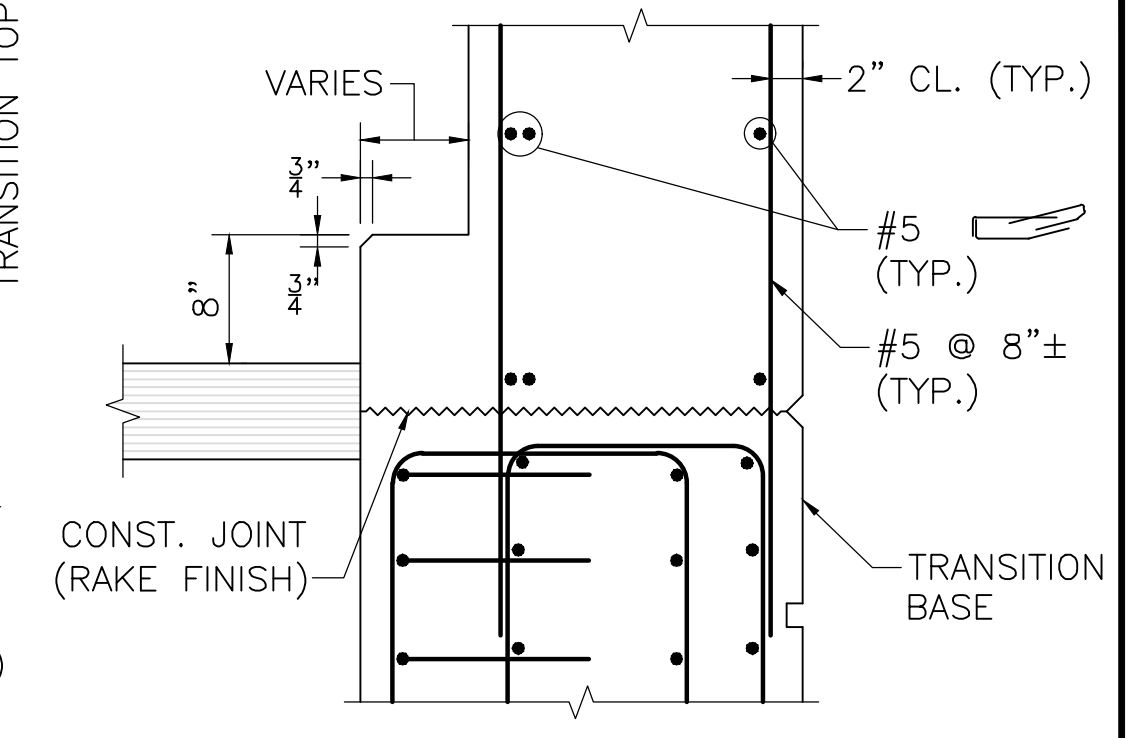


**SECTION 5**  
SCALE: 1" = 1'-0"

**WALES**  
**MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	176	182
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**CF-PL3 BARRIER DETAILS**



**SECTION 6**  
SCALE: 1" = 1'-0"

**NOTES:**

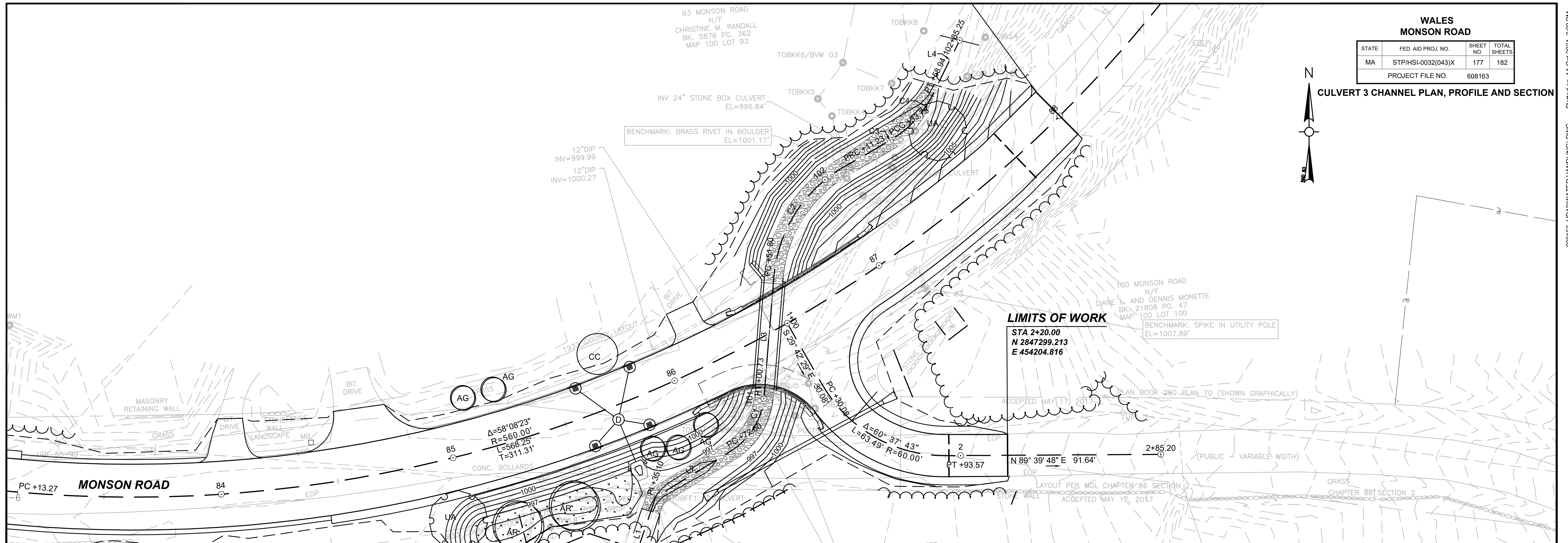
1. THREADED INSERTS SHALL BE PREQUALIFIED BY THE MANUFACTURER AS BEING CAPABLE OF DEVELOPING A NOMINAL SHEAR RESISTANCE OF 20 KIPS PER  $\frac{7}{8}$ "  $\phi$  S.S. BOLT. S.S. BOLTS SHALL BE  $\frac{7}{8}$ "  $\phi$  x  $1\frac{1}{2}$ " LONG FULLY THREADED AISI TYPE 304N STAINLESS STEEL. INSERTS FOR  $\frac{7}{8}$ " S.S. BOLTS SHALL BE GALVANIZED AND CAST INTO THE TRANSITION.
2. FOR AN APPROACH GRADE UP TO 3%, THE TRANSITION MAY BE CAST SQUARE AND SET PLUMB WITH THE MINIMUM EMBEDMENT DEPTH SHOWN. THE TERMINAL CONNECTOR INSERT GROUP SHALL BE SQUARE TO THE POST.  
FOR AN APPROACH GRADE IN EXCESS OF 3%, THE TRANSITION TOP AND THE TOP OF THE BRIDGE BARRIERS SHALL FOLLOW THE APPROACH GRADE. THE HEIGHT OF THE TRANSITION TOP SHALL VARY PROVIDED THAT THE MINIMUM DIMENSIONS SHOWN ON THE CONSTRUCTION DRAWINGS ARE MET. THE BOTTOM OF THE TRANSITION BASE SHALL BE SET LEVEL WITH THE MINIMUM EMBEDMENT DEPTH SHOWN. THE TERMINAL CONNECTOR INSERT GROUP SHALL BE SLOPED TO FOLLOW THE APPROACH GRADE.
3. USE LATEST CONTRACT COMPLETION YEAR IN EFFECT WHEN THE FIRST GUARDRAIL TRANSITION IS CAST. USE THIS YEAR FOR ALL GUARDRAIL TRANSITIONS.
4. ALL CONCRETE FOR THE PRECAST HIGHWAY GUARDRAIL TRANSITION SHALL BE 5000 PSI,  $\frac{3}{4}$ ", 685 HP CEMENT CONCRETE.
5. LIFTING DEVICES (NOT SHOWN), INCLUDING THEIR NUMBER AND LOCATION, SHALL BE DESIGNED AND DETAILED BY THE PRECASTER. THEY SHALL BE GALVANIZED AND SHALL BE PLACED AND RECESSED IN POCKETS TO PROVIDE  $1\frac{1}{2}$ " CLEAR COVER TO THE FACE OF THE TRANSITION CONCRETE. THESE DEVICES SHALL BE CLEARLY SHOWN ON THE SHOP DRAWINGS ALONG WITH ALL SUPPORTING CALCULATIONS AND/OR CATALOG CUTS. ONCE THE PRECAST TRANSITION IS SET IN PLACE, THE LIFTING DEVICE POCKETS SHALL BE FILLED WITH A NON-SHRINK GROUT THAT MATCHES THE COLOR OF THE TRANSITION CONCRETE WHEN CURED AND THE FILLED POCKETS SHALL BE RUBBED WITH A CORUNDUM STONE TO BLEND OUT THE JOINTS.

**TOP OF PRECAST HIGHWAY GUARDRAIL TRANSITION FOR CF-PL3 BARRIER**

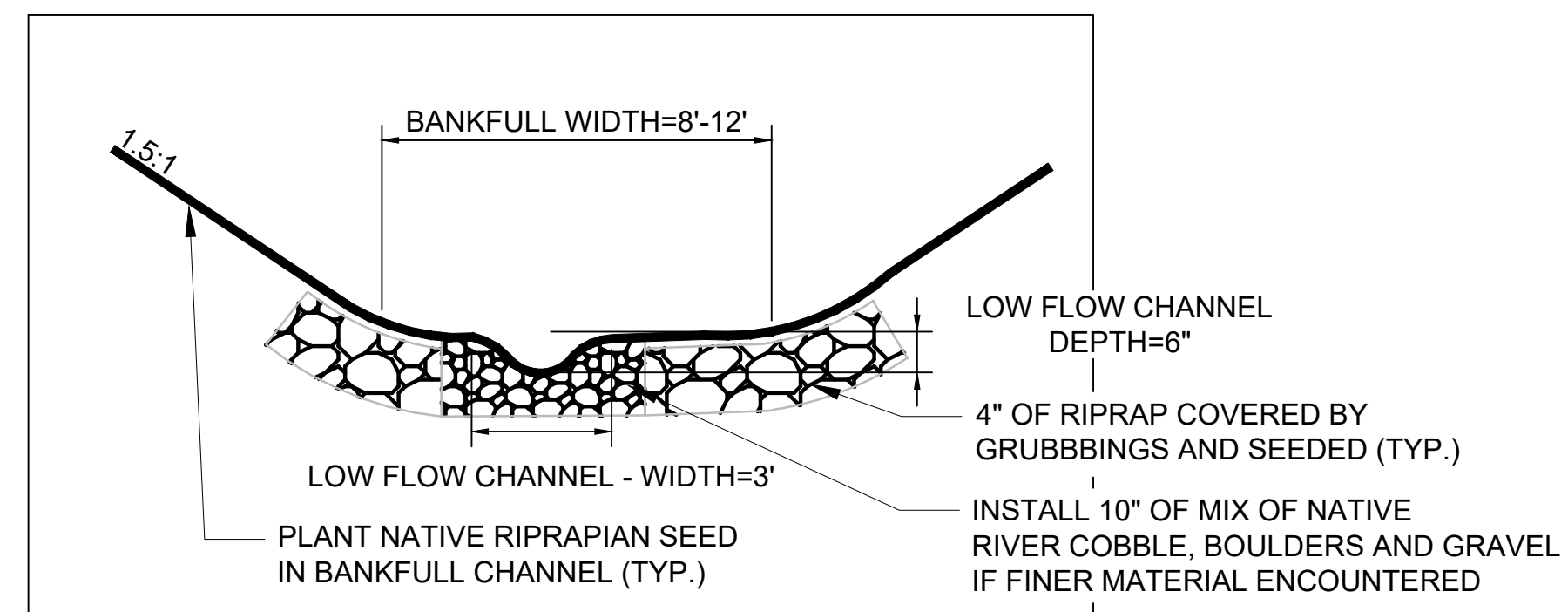
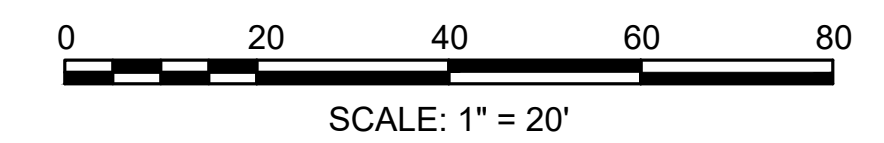
**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	177	182
PROJECT FILE NO.		608163	

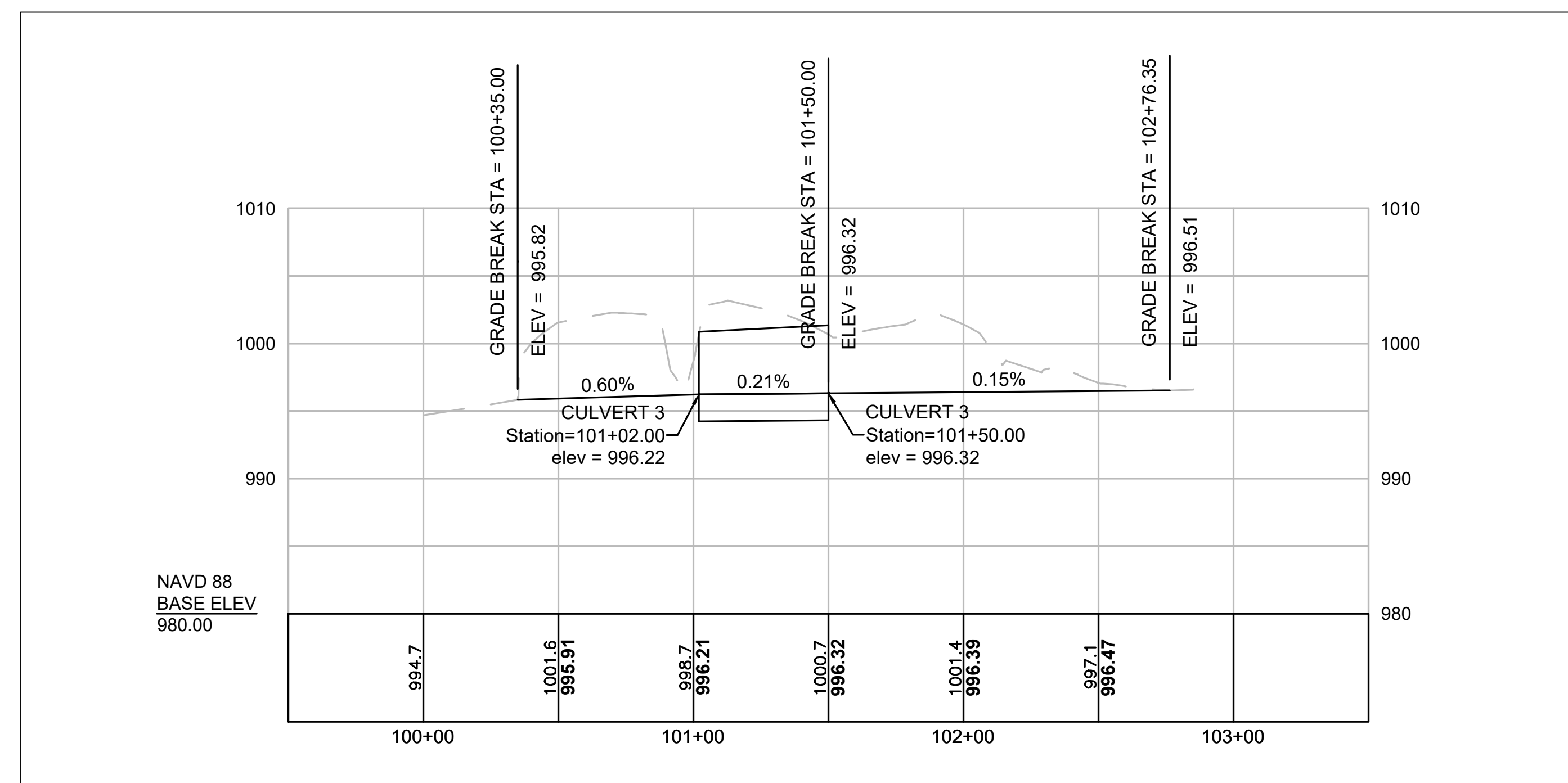
**CULVERT 3 CHANNEL PLAN, PROFILE AND SECTION**



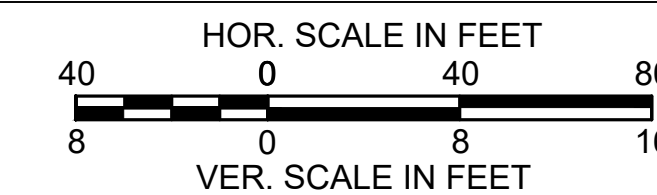
CULVERT 3 CHANNEL PLAN



CULVERT 3 CHANNEL TYPICAL SECTION



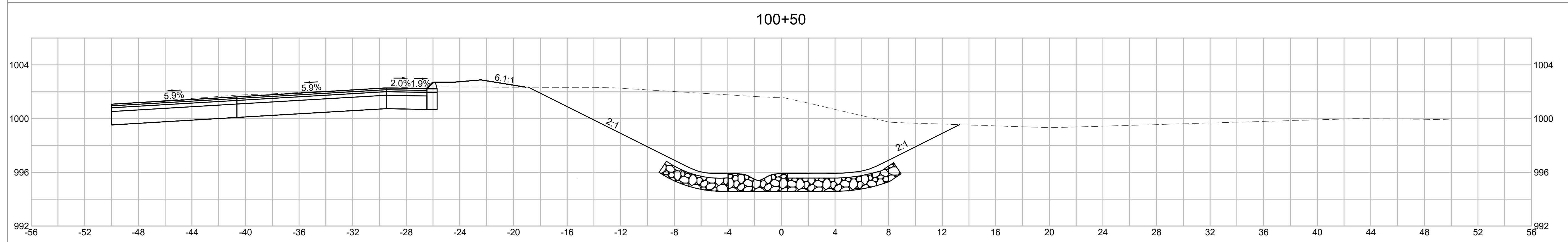
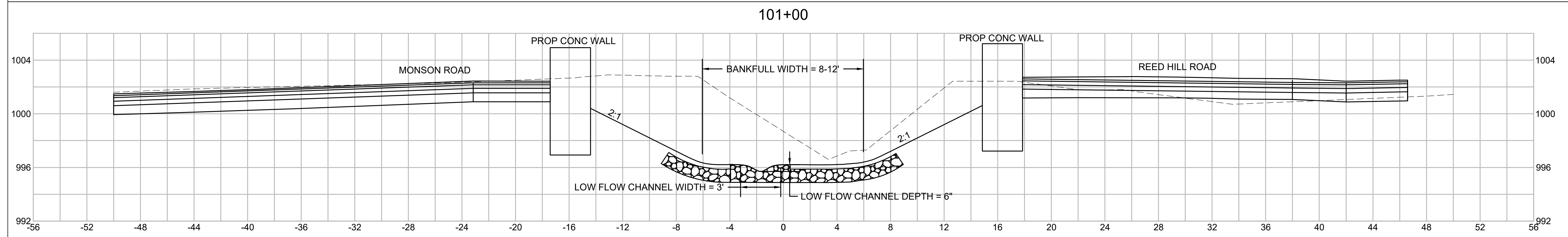
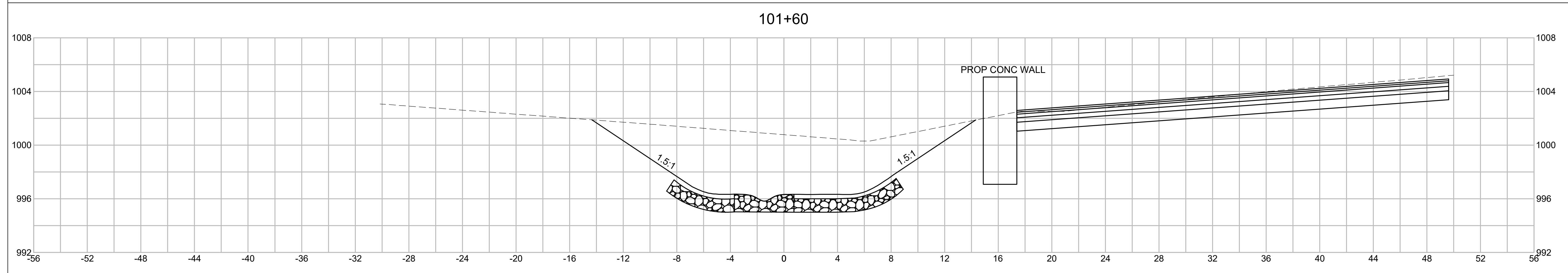
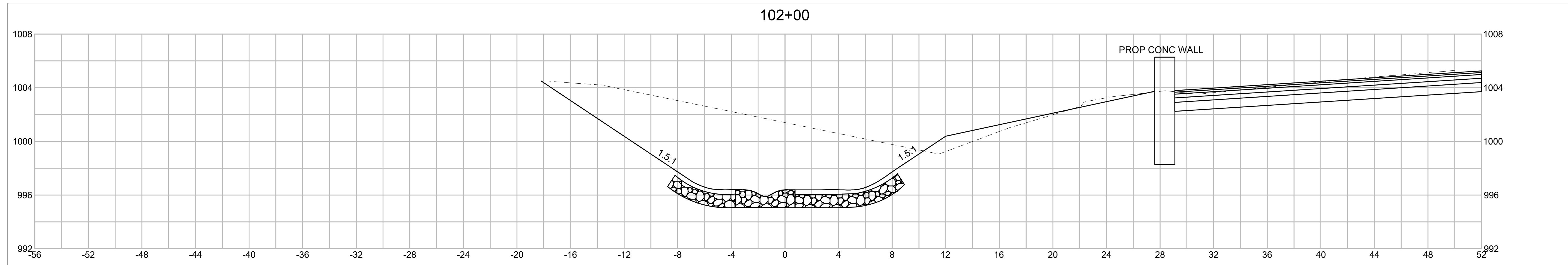
CULVERT 3 CHANNEL PROFILE



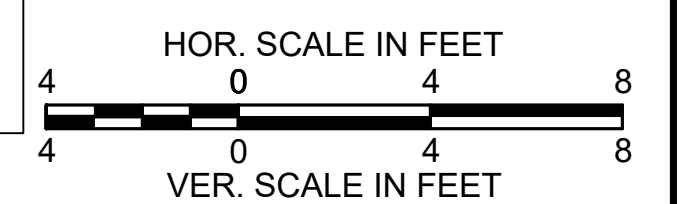
**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	178	182
PROJECT FILE NO.		608163	

**CULVERT 3 CHANNEL CROSS SECTIONS**



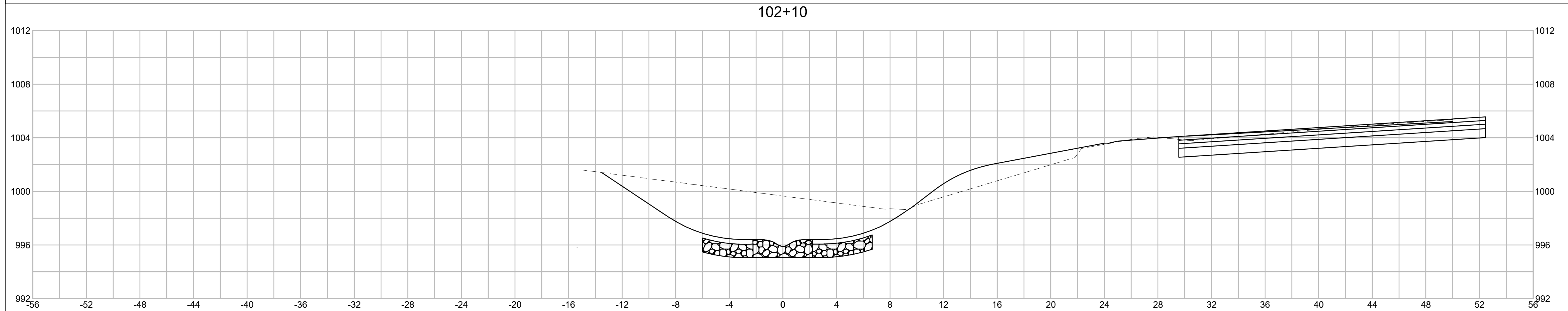
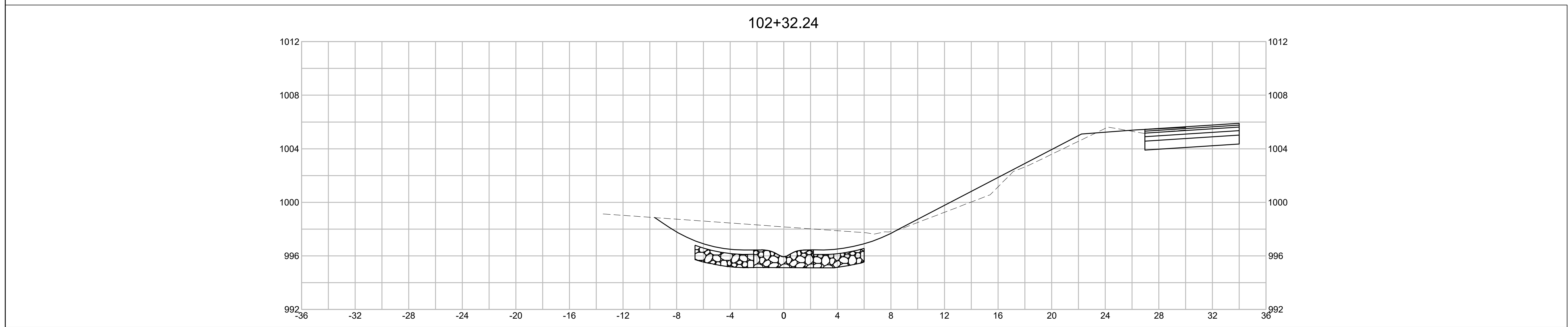
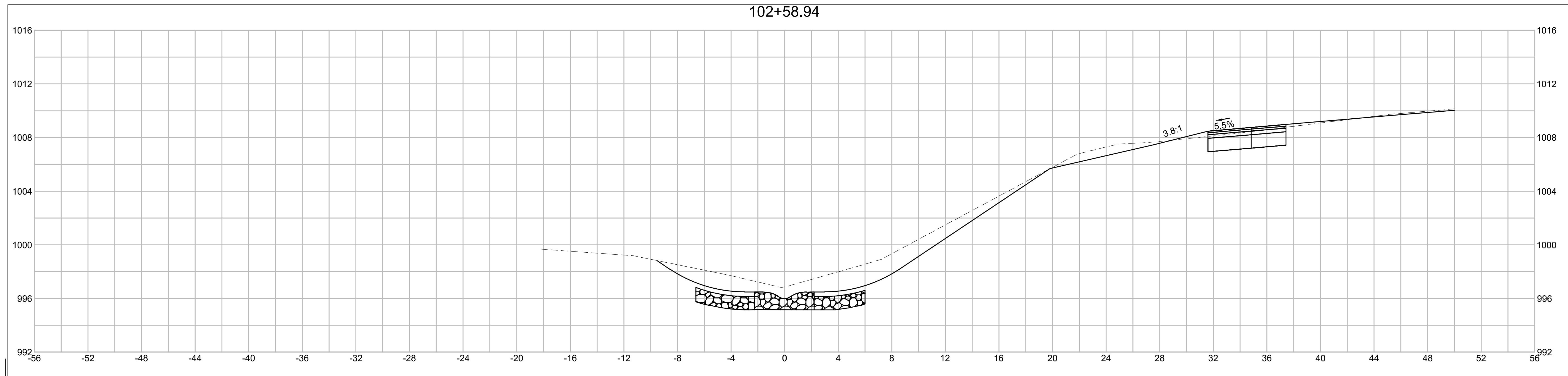
**REED HILL ROAD CHANNEL CROSS SECTIONS**



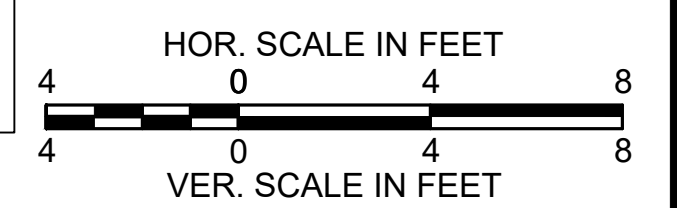
**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	179	182
PROJECT FILE NO.		608163	

**CULVERT 3 CHANNEL CROSS SECTIONS**



**REED HILL ROAD CHANNEL CROSS SECTIONS**





**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	180	182
PROJECT FILE NO.		608163	

**CONTROL OF WATER PLANS**

REFER TO TEMPORARY TRAFFIC CONTROL PLANS AND STRUCTURAL PLANS FOR SPECIFIC STAGE CONSTRUCTION REQUIREMENTS.

**CONTROL OF WATER SEQUENCE FOR CULVERTS:**

PLANS AND CALCULATIONS FOR ALL SANDBAGGING, DIKES, OPTIONAL SHEETING AND OTHER WATER CONTROL MEASURES SHALL BE DEVELOPED BY THE CONTRACTOR. THESE PLANS AND CALCULATIONS SHALL BE PREPARED AND STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE COMMONWEALTH OF MASSACHUSETTS AND SHALL BE SUBMITTED FOR APPROVAL OF THE ENGINEER PRIOR TO THE START OF CONSTRUCTION.

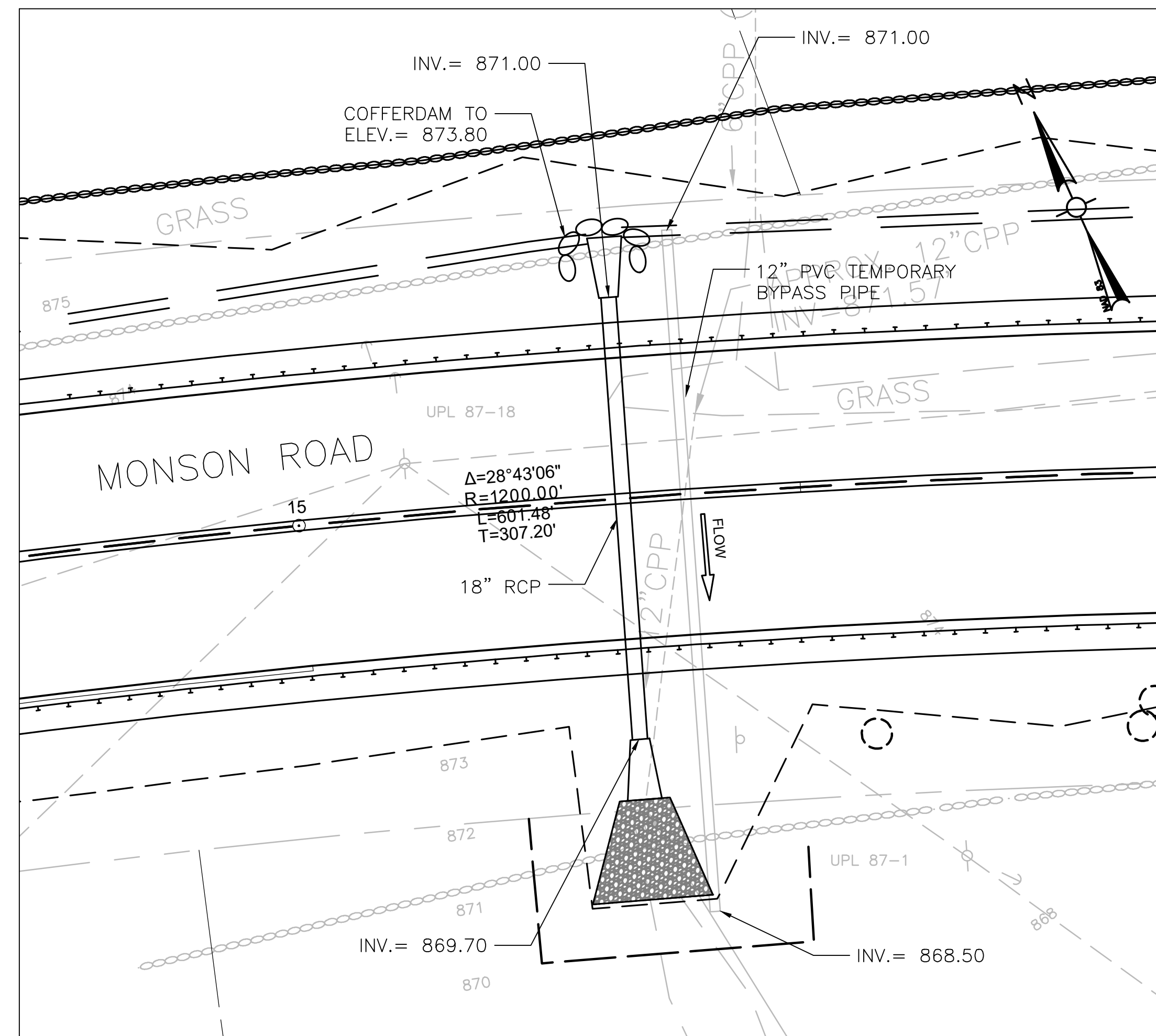
1. INSTALL SEDIMENT & EROSION CONTROL MEASURES.
2. INSTALL THE TEMPORARY BY PASS PIPE (SEE PLAN FOR SIZE AND INVERT ELEVATIONS) AND INSTALL THE COFFERDAMS ON THE UPSTREAM END OF THE PROPOSED CULVERT WHILE MAINTAINING FLOW THROUGH THE BY PASS PIPE. SEE PLAN FOR HEIGHT OF COFFERDAM.
3. REMOVE THE EXISTING CULVERT AND PIPES.
4. INSTALL THE NEW CULVERT.
5. REMOVE THE BY PASS PIPE, ALLOW THE WATER TO FLOW THROUGH THE CULVERT.
6. RECONFIGURE THE COFFERDAMS, INSTALL OUTLET PROTECTION, FINALIZE GRADING, AND INSTALL GUARD RAIL.
7. REMOVE THE COFFERDAMS, REMOVE THE SEDIMENT & EROSION CONTROL MEASURES.

REFER TO TEMPORARY TRAFFIC CONTROL PLANS AND STRUCTURAL PLANS FOR SPECIFIC STAGE CONSTRUCTION REQUIREMENTS.

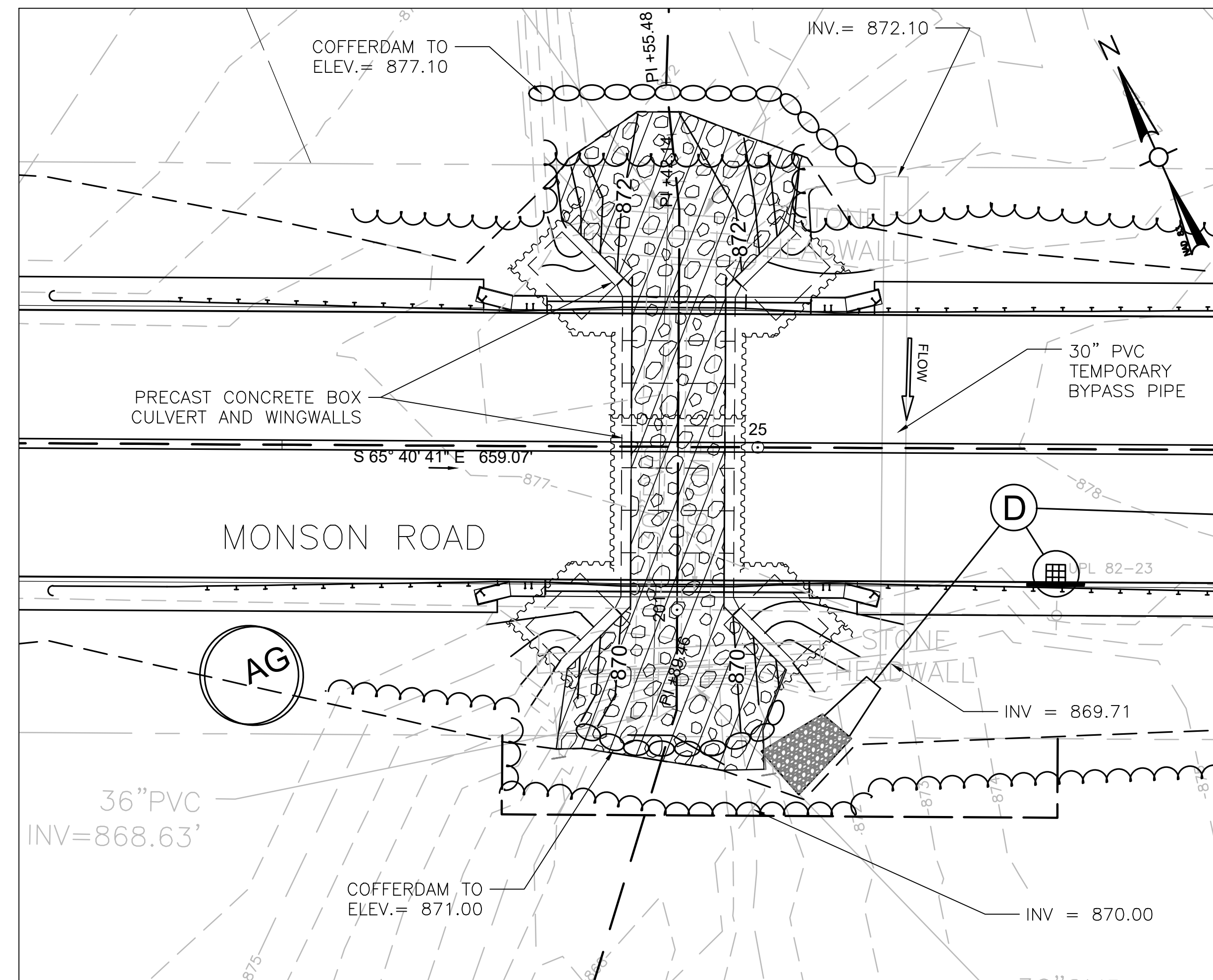
**CONTROL OF WATER SEQUENCE FOR CULVERTS AND END WALLS**

PLANS AND CALCULATIONS FOR ALL SANDBAGGING, DIKES, OPTIONAL SHEETING AND OTHER WATER CONTROL MEASURES SHALL BE DEVELOPED BY THE CONTRACTOR. THESE PLANS AND CALCULATIONS SHALL BE PREPARED AND STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE COMMONWEALTH OF MASSACHUSETTS AND SHALL BE SUBMITTED FOR APPROVAL OF THE ENGINEER PRIOR TO THE START OF CONSTRUCTION.

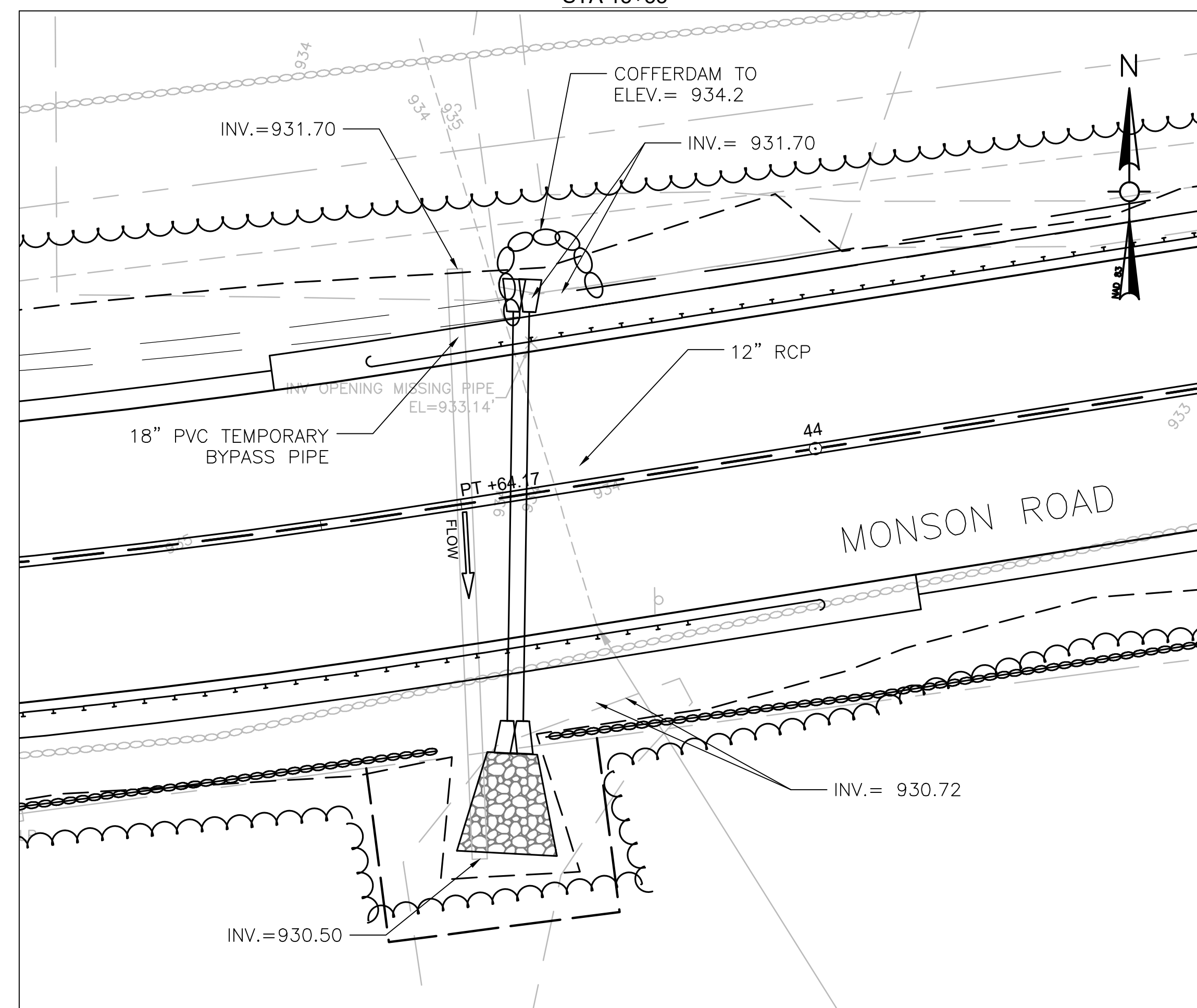
1. INSTALL SEDIMENT & EROSION CONTROL MEASURES.
2. INSTALL THE TEMPORARY BY PASS PIPE (SEE PLAN FOR SIZE) AND INSTALL THE COFFERDAMS IN THE STREAM ON BOTH ENDS OF THE PROPOSED CULVERT WHILE MAINTAINING FLOW THROUGH THE BY PASS PIPE.
3. REMOVE THE EXISTING CULVERT AND ENDWALLS.
4. INSTALL THE NEW CULVERT.
5. INSTALL THE END WALLS.
6. REMOVE THE BY PASS PIPE, ALLOW THE WATER TO FLOW THROUGH THE CULVERT. RECONFIGURE THE COFFERDAMS AROUND THE SIDE THAT WILL BE CONSTRUCTED NEXT.
7. RECONFIGURE THE COFFERDAMS, INSTALL OUTLET PROTECTION, FINALIZE GRADING, AND INSTALL GUARD RAIL.
8. REMOVE THE COFFERDAMS, REMOVE THE SEDIMENT & EROSION CONTROL MEASURES.



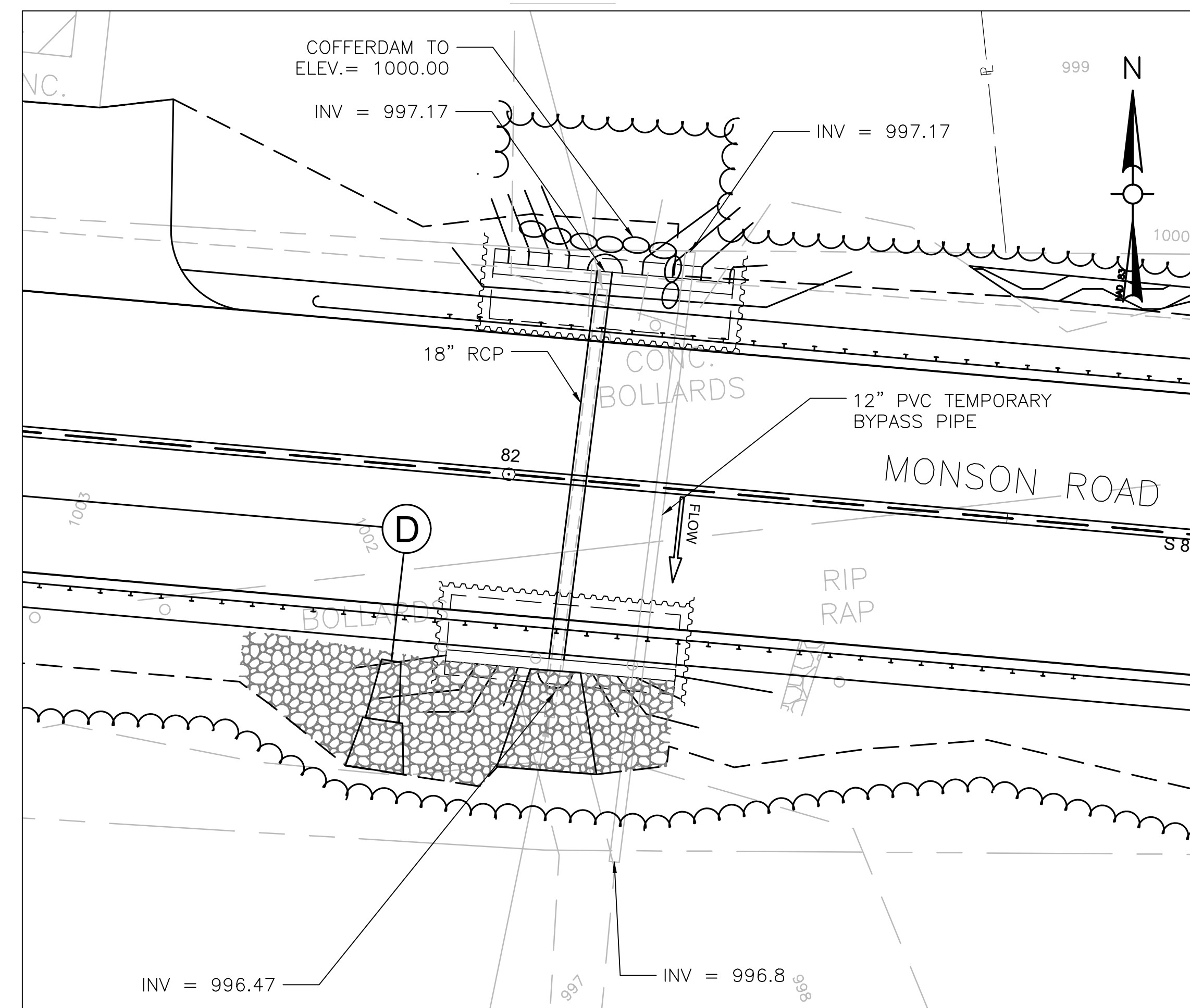
**LOCATION 1  
STA 15+33**



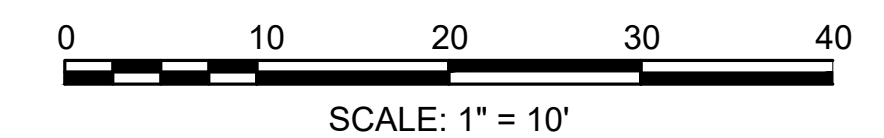
**LOCATION 2  
STA 24+92**



**LOCATION 3  
STA 43+76**



**LOCATION 4  
STA 82+07**





**WALES  
MONSON ROAD**

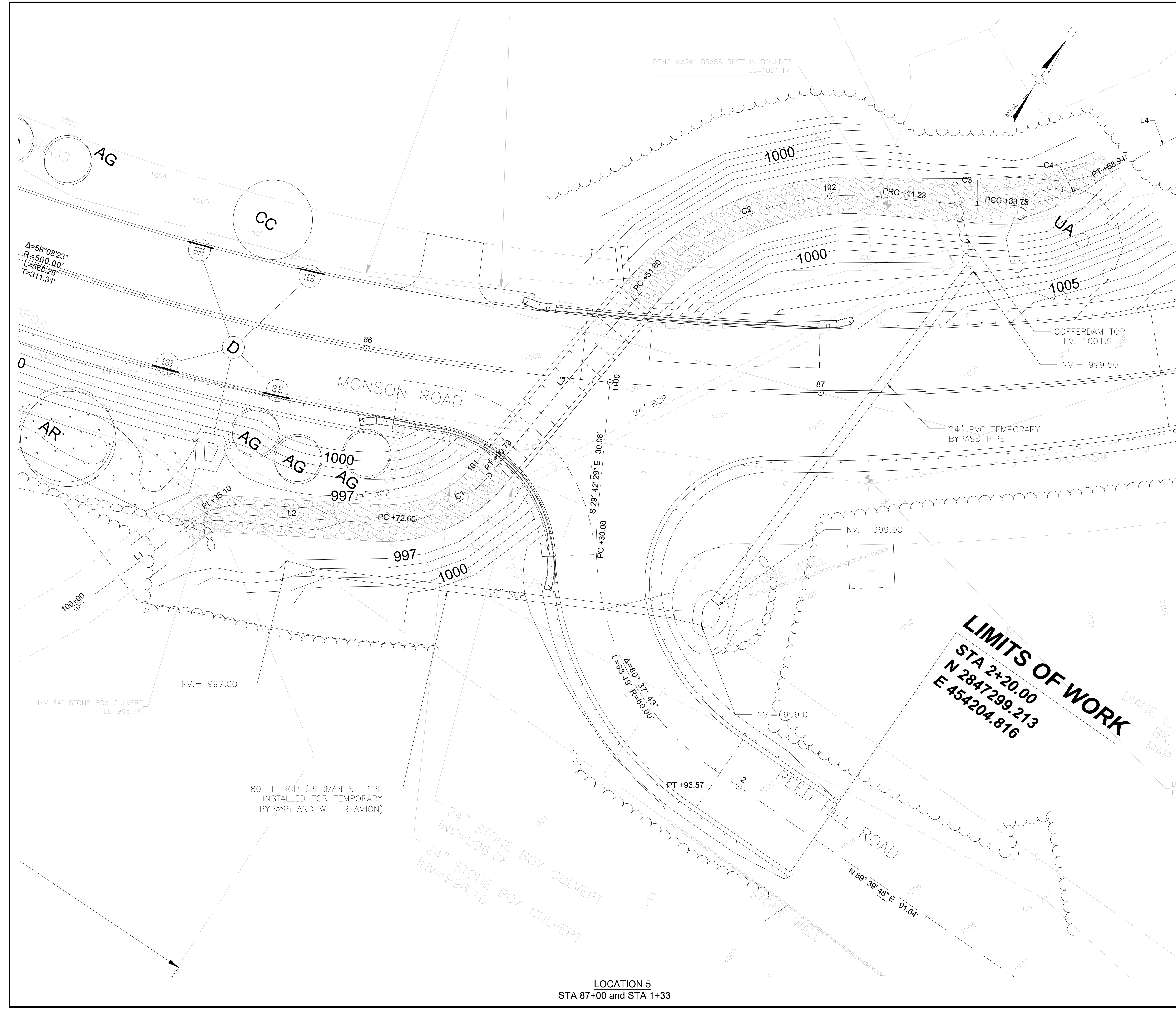
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	181	182
PROJECT FILE NO.		608163	

**CONTROL OF WATER PLAN - CULVERT 3**

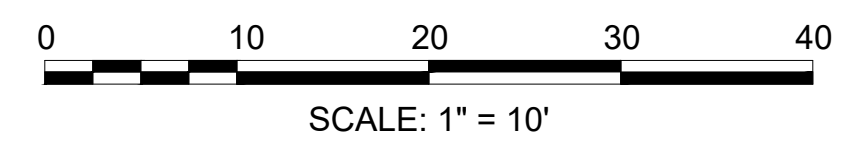
REFER TO TEMPORARY TRAFFIC CONTROL PLANS AND STRUCTURAL PLANS FOR SPECIFIC STAGE CONSTRUCTION REQUIREMENTS.

**CONTROL OF WATER SEQUENCE:**

1. INSTALL SEDIMENT & EROSION CONTROL MEASURES.
2. INSTALL THE TEMPORARY BY PASS PIPE (SEE PLAN FOR SIZE AND INVERT ELEVATIONS) AND INSTALL THE COFFERDAMS ON THE UPSTREAM END OF THE PROPOSED CULVERT WHILE MAINTAINING FLOW THROUGH THE BY PASS PIPE. SEE PLAN FOR HEIGHT OF COFFERDAM.
3. REMOVE THE EXISTING CULVERT
4. INSTALL THE NEW CULVERT.
5. REMOVE THE BY PASS PIPE, ALLOW THE WATER TO FLOW THROUGH THE CULVERT.
6. RECONFIGURE THE COFFERDAMS, INSTALL OUTLET PROTECTION, FINALIZE GRADING, AND INSTALL GUARD RAIL.
7. REMOVE THE COFFERDAMS, REMOVE THE SEDIMENT & EROSION CONTROL MEASURES.



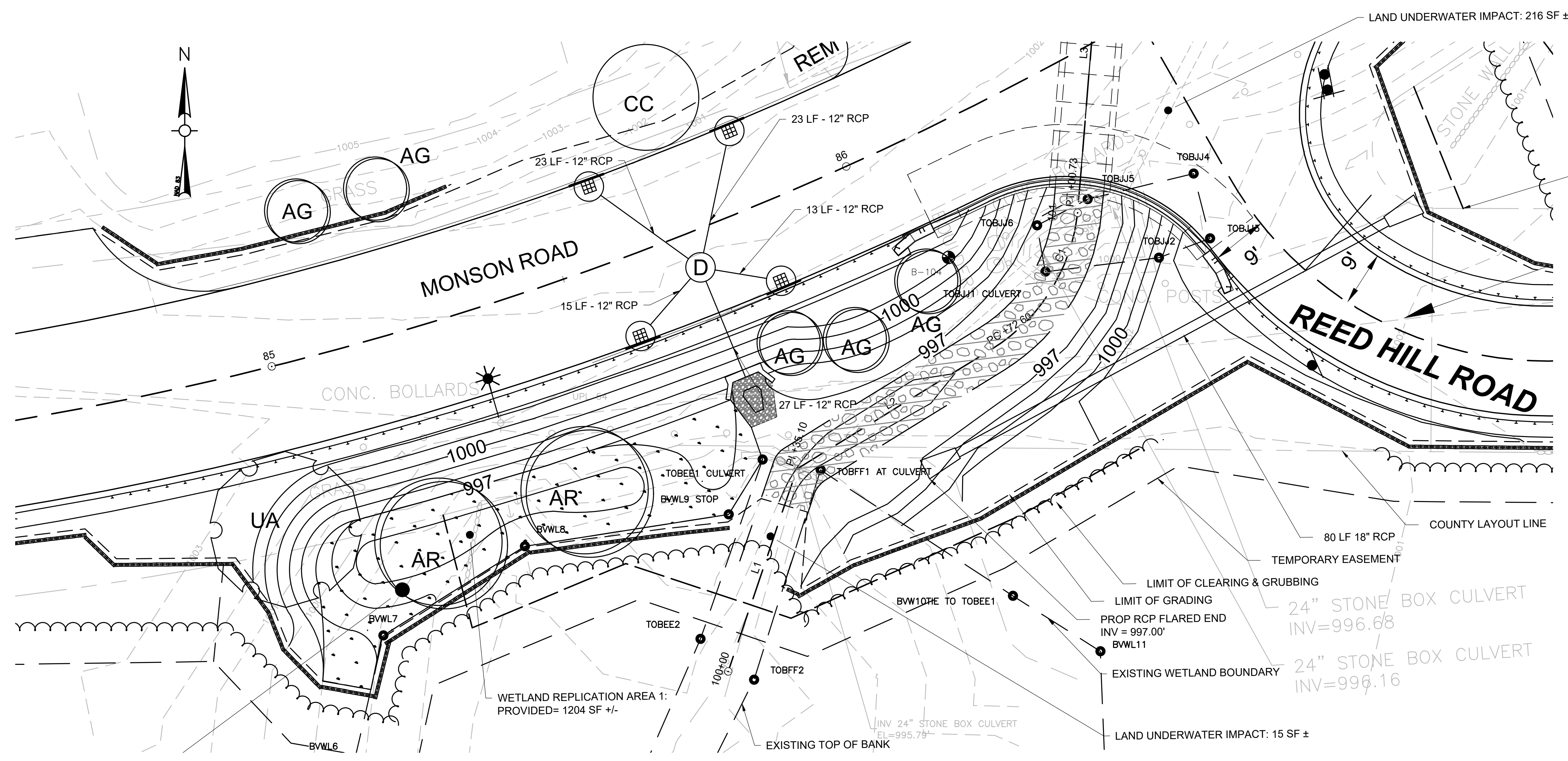
LOCATION 5  
STA 87+00 and STA 1+33



**WALES  
MONSON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP/HSI-0032(043)X	182	182
PROJECT FILE NO.		608163	

WETLAND REPLICATION AREA DETAIL

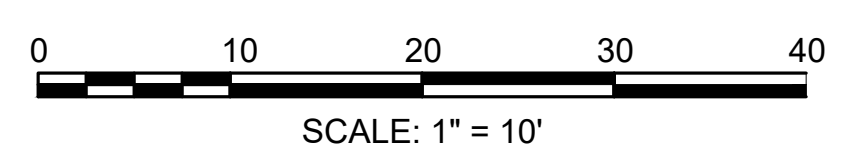


WETLAND SEED MIX - OBLIGATE MIX

BOTANICAL

GRASS	COMMON NAME	%PLS BY WEIGHT	
CAREX VULPINOIDEA	FOX SEDGE	26.50%	
CAREX LURIDA	SHALLOW SEDGE	15.00%	
SAPERGANIUM EURYCARPUM	GIANT BUR REED ECO PA	10.00%	
CAREX LUPULINA	HOP SEDGE	7.00%	
CAREX CRINITA	FRINGED SEDGE	6.00%	
SCRIPUS CYPERINUS	WOOLGRASS	4.00%	
JUNCUS EFFUSUS	SOFT RUSH	3.00%	
CAREX COMOSA	BEADED SEDGE	3.00%	
SCRIPUS ATRUVIRENS	GREEN BULRUSH	3.00%	
SPARGANIUM AMERICANUM	BURRWEED	2.50%	
SCRIPUS VALIDUS	BULRUSH, SOFT-STEM	2.00%	
CAREX STRICTA	TUSsock SEDGE	1.00%	
GLYCERIA CANADENSIS	MANNA GRASS	1.00%	
		<b>86.00%</b>	
VERBENA HASTATA		BLUE VERVAIN	4.00%
ASTER PUNICEUS		ASTER - SWAMP	2.00%
EUPATORIUM MACULATUM		JOE-PYE WEED	1.50%
EUPATORIUM PERFOLIATUM		BONESET	2.00%
IRIS VERSICOLOR		BLUE FLAG IRIS	2.00%
ALISMA SUBCORDATUM		MUD PLANTAIN	1.00%
VERONIA NOVEBORACENSIS		NEW YORK IRONWEED	1.00%
BUDENS CERNUA		NODDING BURR MARIGOLD	1.00%
SOLIDAGO PATULA		ROUGHLEAF GOLDENROD	0.50%
MIMULUS RINGENS		MONKEY FLOWER	0.50%
CHELONE GLABRA		WHITE TURTLEHEAD	0.50%
		<b>14.00%</b>	
		<b>100.00%</b>	

**WETLAND REPLICATION AREA 1 GRADING PLAN**



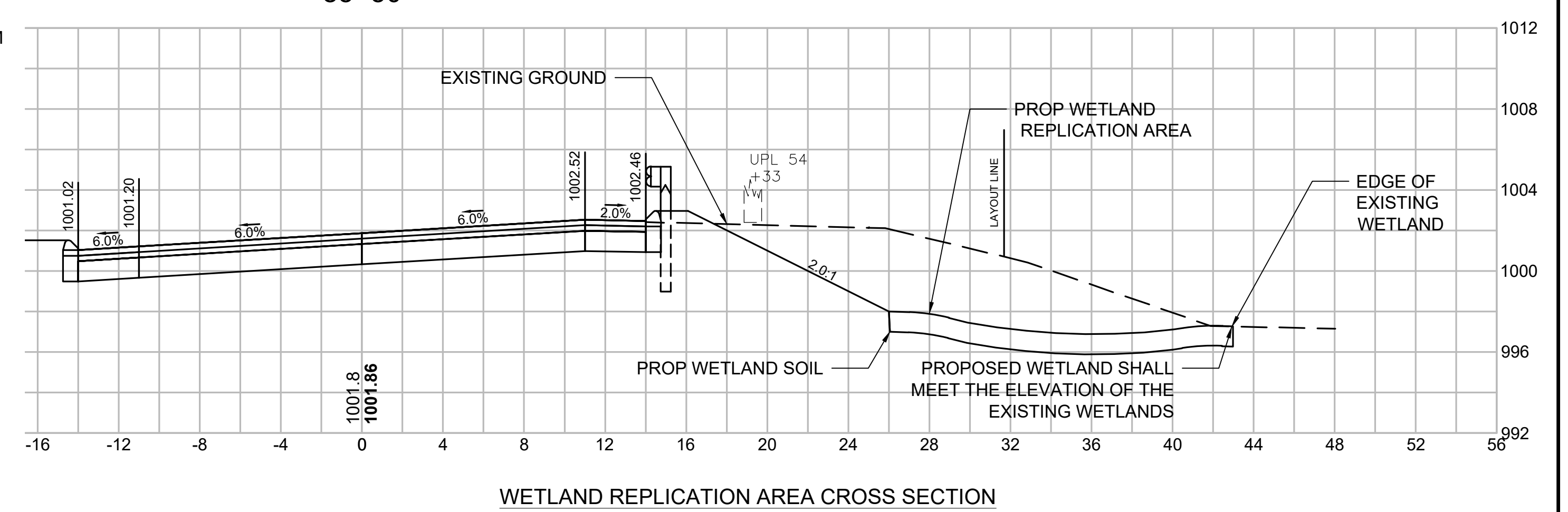
**WETLAND REPLACEMENT AREA 1 NOTES:**

- A WETLAND SCIENTIST SHALL BE PROVIDED ON-SITE TO MONITOR CONSTRUCTION OF THE WETLAND MITIGATION AREA TO ENSURE COMPLIANCE WITH THE MITIGATION PLAN.
- AT LEAST 12 INCHES OF NATURAL OR MANMADE WETLAND SOIL SHALL BE INSTALLED IN THE WETLAND REPLICATION AREA.
- ONLY PLANT MATERIALS NATIVE AND INDIGENOUS TO THE REGION SHALL BE USED. SPECIES NOT SPECIFIED IN THE REPLICATION PLAN SHALL NOT BE USED WITHOUT WRITTEN APPROVAL FROM THE REGULATORY AUTHORITIES. PLANT SPECIES ON THE INVASIVE SPECIES PLANT LIST IN THE CORPS MITIGATION INTRODUCTION: PERFORMANCE STANDARDS AND SUPPLEMENTARY INFORMATION DATED 2/21/01 SHALL NOT BE USED IN AND WITHIN 100 FEET OF MITIGATION SITES.
- A SUPPLY OF DEAD AND DYING WOODY DEBRIS SHALL COVER between 5%-20% OF THE GROUND THROUGHOUT THE MITIGATION SITE AFTER THE COMPLETION OF CONSTRUCTION OF THE MITIGATION SITE. THESE MATERIALS SHOULD NOT INCLUDE INVASIVE SPECIES.
- TEMPORARY DEVICES AND STRUCTURES TO CONTROL EROSION AND SEDIMENTATION IN AND AROUND MITIGATION SITES SHALL BE DISASSEMBLED AND PROPERLY DISPOSED OF NO LATER THAN NOVEMBER 1 THREE FULL GROWING SEASON AFTER PLANTING. SEDIMENT COLLECTED BY THESE DEVICES SHALL BE REMOVED AND PROPERLY DISPOSED OF IN A MANNER THAT PREVENT ITS EROSION AND TRANSPORT TO A WATERWAY OR WETLAND.

**WETLAND REPLICATION AREA 1 PLANTING PLAN**

- SHRUBS**  
 Highbush Blueberry (Vaccinium corymbosum): 4 PLANTS, SPACED 10 FEET ON CENTER MINIMUM  
 Winterberry (Ilex verticillata): 4 PLANTS, SPACED 10 FEET ON CENTER MINIMUM
- FERNS**  
 Cinnamon Fern (Osmunda cinnamomea): 50 PLANTS, SPACED 2 FEET ON CENTER, PUT IN CLUSTERS OF AT LEAST 5 TOGETHER IN SAME AREA TO PROVIDE A NATURAL PATTERN.  
 Sensitive Fern (Onoclea sensibilis): 50 PLANTS, SPACED 2 FEET ON CENTER, PUT IN CLUSTERS OF AT LEAST 5 TOGETHER IN SAME AREA TO PROVIDE A NATURAL PATTERN.
- SEED MIX**  
 IN WETLAND REPLICATION AREA: SEE WETLAND SEED - OBLIGATE MIX - THIS SHEET (SAME MIX TO BE USED ON PLAN SHEET 16 FOR WETLAND RESTORATION AREA 1)  
 FOR ALL AREA OUTSIDE AND ADJACENT TO WETLAND RESTORATION AND/OR REPLICATION AREAS PROVIDE PART SHADE ROADSIDE SEED MIX AS INDICATED ON CONSTRUCTION DETAIL SHEET 84.
- TREES**  
 October Glory (Acer rubrum): 2 TREES SPACED 25 FEET ON CENTER, WITH A 3 INCH TO 3.5 INCH CALIPER, TO PROVIDE A NATURAL PATTERN.  
 Princeton (Ulmus americana): 1 TREE WITH A 2 INCH TO 2.5 INCH CALIPER.

85+50



WETLAND REPLICATION AREA CROSS SECTION

SEED RATING:  
 SPECIES ECOTYPE SHALL BE AS NATIVE TO NEW ENGLAND REGION AS POSSIBLE. APPLY THIS MIX AT 20 LBS PLS/ACRE.