SEE SHEET 2 FOR INDEX OF SHEETS AND STANDARDS

RECORD PLANS	
CONTRACTOR:	WINTERSET, INC.– LYNDONVILLE, VT
RESIDENT ENGINEER:	TOM CHASE
CONSTRUCTION BEGAN:	APRIL 18, 2014
CONSTRUCTION COMPLETE:	SEPTEMBER 17, 2015
RECORD PLANS BY:	TOM CHASE & AARON JAMES

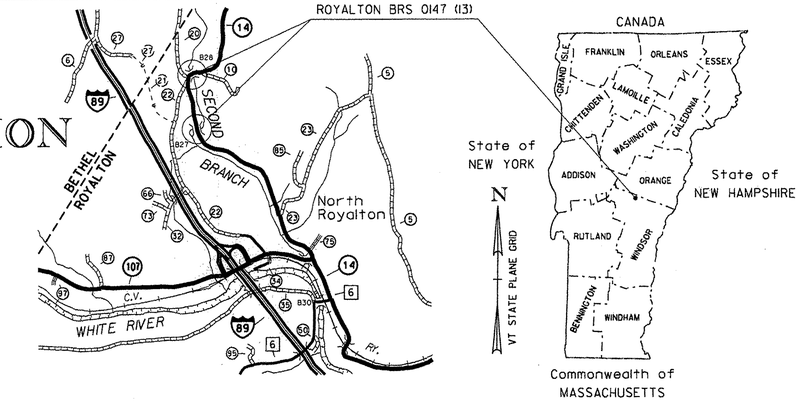
I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.

BY Thomas A. Chase RESIDENT ENGINEER

DATE 07/14/16

NOTE: Any further information concerning final quantities, amounts or other details relative to this project may be found at Central Files in the electronic archives.

STATE OF VERMONT
AGENCY OF TRANSPORTATION



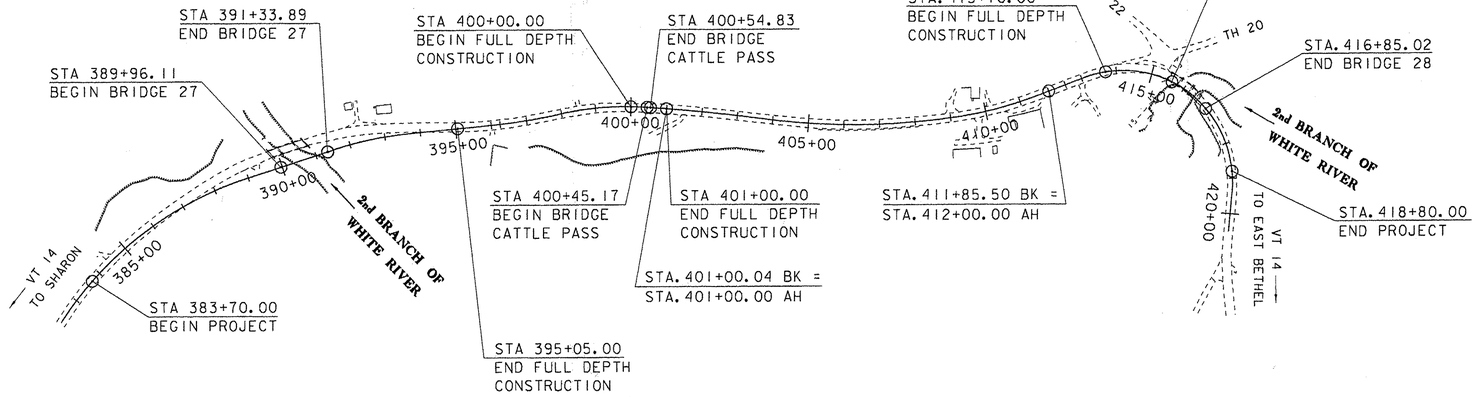
PROPOSED IMPROVEMENT
BRIDGE PROJECT
TOWN OF ROYALTON
COUNTY OF WINDSOR

ROUTE NO: VT 14 MAJOR COLLECTOR BRIDGES NO: 27 & 28 & CATTLE PASS

PROJECT LOCATION : BEGINNING AT A POINT ON VT 14 APPROXIMATELY 1.418 MILES NORTHWESTERLY FROM THE INTERSECTION OF VT 107 AND VT 14 AND EXTENDING NORTHERLY 0.665 MILES ALONG VT 14.

PROJECT DESCRIPTION : REPLACEMENT OF THE EXISTING BRIDGES INCLUDING RELATED APPROACH ROADWAY AND CHANNEL WORK AT EACH BRIDGE.

LENGTH OF STRUCTURE (BRIDGE 27):	137.78 FEET
LENGTH OF STRUCTURE (CATTLE PASS):	9.66 FEET
LENGTH OF STRUCTURE (BRIDGE 28):	123.65 FEET
LENGTH OF ROADWAY :	1473.91 FEET
LENGTH OF PROJECT :	1745.00 FEET



QUALITY ASSURANCE PROGRAM: LEVEL 2

CONVENTIONAL SYMBOLS

COUNTY LINE
TOWN LINE
LIMITS OF ACCESS
POINT OF ACCESS
FENCE LINE
STONE WALL
TRAVELED WAY
GUARD RAIL
RAILROAD
SURVEY LINE
CULVERT
POWER POLE
TELEPHONE POLE
TREES
CONTROL OF ACCESS
PROPERTY LINE
R.O.W. TAKING LINE
SLOPE RIGHTS SR SR SR
TOP OF CUT
TOE OF SLOPE

SURVEYED BY : R. GILMAN
SURVEYED DATE : 07-16-2001

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83 (96)

200 0 200
SCALE: 1" = 200'-0"

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE DIRECTOR OF PROGRAM DEVELOPMENT.

CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JULY 20, 2011 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

DIRECTOR OF PROGRAM DEVELOPMENT
APPROVED Kevin L. Marshia DATE 10/4/13

PROJECT MANAGER : C. CARLSON, P.E.

PROJECT NAME : ROYALTON
PROJECT NUMBER : BRS 0147 (13)

SHEET 1 OF 186 SHEETS

PLAN SHEETS

BRIDGE #27 PLAN SHEETS

CATTLE PASS PLAN SHEETS

BRIDGE #28 PLAN SHEETS

PERMIT AND REGULATOR PLAN SHEETS

STRUCTURES DETAIL SHEETS

SD-501.00 CONCRETE DETAILS AND NOTES	2/9/2012
SD-502.00 CONCRETE DETAILS AND NOTES	10/10/2012
SD-516.10 BRIDGE JOINT ASPHALTIC PLUG	8/29/2011
SD-516.11a BRIDGE EXPANSION JOINT, VERMONT	2/24/2011
SD-516.11b BRIDGE EXPANSION JOINT, VERMONT	2/24/2011
SD-601.00 STRUCTURAL STEEL DETAILS AND NOTES	6/4/2010
SD-602.00 STRUCTURAL STEEL PLATE GIRDER DETAILS AND NOTES	5/2/2011

STANDARDS LIST

B-5	SLOPE GRADING, EMBANKMENTS, MUCK	06-01-1994
D-1	PRECAST REINFORCED CONCRETE DROP INLET DETAILS	06-01-1994
D-15	PRECAST REINF CONC. MH-GRATES, CAST IRON GRATE WITH FRAME, TYPE D & E	06-01-1994
D-30	UNDERDRAIN CONSTRUCTION DETAILS	08-13-2007
E-134	BRIDGE NUMBER PLAQUE	08-08-1995
E-141	REGULATORY SIGN DETAILS	09-20-1995
E-191	PAVEMENT MARKING DETAILS	02-01-1999
E-193	PAVEMENT MARKING DETAILS	08-18-1995
G-1	STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS)	01-03-2000
G-1B	BOX BEAM GUARD RAIL	06-01-1994
G-1D	STEEL BEAM GUARDRAIL DETAILS (END TERMINAL, ANCHOR, MEDIAN)	01-03-2000
G-19	GENERIC GRADING PLANS FOR GUARDRAIL END TERMINALS	11-15-2002
J-3	MAIL BOX SUPPORT DETAILS	08-07-1995
T-1	TRAFFIC CONTROL GENERAL NOTES	08-06-2012
T-10	CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING	08-06-2012
T-17	TRAFFIC CONTROL MISCELLANEOUS DETAILS	08-06-2012
T-28	CONSTRUCTION SIGN DETAILS	08-06-2012
T-30	CONSTRUCTION SIGN DETAILS	08-06-2012
T-35	CONSTRUCTION ZONE LONGITUDNAL DROP-OFFS	08-06-2012
T-36	CONSTRUCTION ZONE LONGITUDNAL DROP-OFFS FOR PAVING	08-06-2012
T-45	SQUARE TUBE SIGN POST AND ANCHOR	08-06-2012
S-352A	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION	08-22-2012
S-352B	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION	08-22-2012
S-352C	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION	08-22-2012

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: s86e055indexofsheets.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
INDEX OF SHEETS

PLOT DATE: 08-OCT-2013
DRAWN BY: D. PETERSON
CHECKED BY: C. BURRALL

GENERAL INFORMATION

SYMBOLOGY LEGEND NOTE

THE SYMBOLOGY ON THIS SHEET IS INTENDED TO COVER STANDARD CONVENTIONAL SYMBOLOGY. THE SYMBOLOGY IS USED FOR EXISTING & PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROJECT ANNOTATION, AS NOTED ON PROJECT PLAN SHEETS. THIS LEGEND SHEET COVERS THE BASICS. SYMBOLOGY ON PLANS MAY VARY, PLAN ANNOTATIONS AND NOTES SHOULD BE USED TO CLARIFY AS NEEDED.

R.O.W. ABBREVIATIONS (CODES) & SYMBOLS

POINT	CODE	DESCRIPTION
	CH	CHANNEL EASEMENT
	CONST	CONSTRUCTION EASEMENT
	CUL	CULVERT EASEMENT
	D&C	DISCONNECT & CONNECT
	DIT	DITCH EASEMENT
	DR	DRAINAGE EASEMENT
	DRIVE	DRIVEWAY EASEMENT
	EC	EROSION CONTROL
	I&M	INSTALL & MAINTAIN EASEMENT
	LAND	LANDSCAPE EASEMENT
	R&RES	REMOVE & RESET
	R&REP	REMOVE & REPLACE
	SR	SLOPE RIGHT
	UE	UTILITY EASEMENT
	(P)	PERMANENT EASEMENT
	(T)	TEMPORARY EASEMENT
■	BNDNS	BOUND SET
⧈	BNDNS	BOUND TO BE SET
●	IPNS	IRON PIN SET
◎	IPNS	IRON PIN TO BE SET
⊠	CALC	EXISTING ROW POINT
○	PROW	PROPOSED ROW POINT
[LENGTH]		LENGTH CARRIED ON NEXT SHEET

COMMON TOPOGRAPHIC POINT SYMBOLS

POINT	CODE	DESCRIPTION
	APL	BOUND APPARENT LOCATION
	BM	BENCH MARK
	BND	BOUND
	CB	CATCH BASIN
	COMB	COMBINATION POLE
	DITHR	DROP INLET THROATED DNC
	EL	ELECTRIC POWER POLE
	FPOLE	FLAGPOLE
	GASFIL	GAS FILLER
	GP	GUIDE POST
	GSO	GAS SHUT OFF
	GUY	GUY POLE
	GUYW	GUY WIRE
	GV	GATE VALUE
	H	TREE HARDWOOD
	HCTRL	CONTROL HORIZONTAL
	HVCTRL	CONTROL HORIZ. & VERTICAL
	HYD	HYDRANT
	IP	IRON PIN
	IPIPE	IRON PIPE
	LI	LIGHT - STREET OR YARD
	MB	MAILBOX
	MH	MANHOLE (MH)
	MM	MILE MARKER
	PM	PARKING METER
	PMK	PROJECT MARKER
	POST	POST STONE/WOOD
	RRSIG	RAILROAD SIGNAL
	RRSL	RAILROAD SWITCH LEVER
	S	TREE SOFTWOOD
	SAT	SATELLITE DISH
	SHRUB	SHRUB
	SIGN	SIGN
	STUMP	STUMP
	TEL	TELEPHONE POLE
	TIE	TIE
	TSIGN	SIGN W/DOUBLE POST
	VCTRL	CONTROL VERTICAL
	WELL	WELL
	WSO	WATER SHUT OFF

THESE ARE COMMON VAOT SURVEY POINT SYMBOLS FOR EXISTING FEATURES, ALSO USED FOR PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROPOSED ANNOTATION.

PROPOSED GEOMETRY CODES

CODE	DESCRIPTION
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
CC	CENTER OF CURVE
PT	POINT OF TANGENCY
PCC	POINT OF COMPOUND CURVE
PRC	POINT OF REVERSE CURVE
POB	POINT OF BEGINNING
POE	POINT OF ENDING
STA	STATION PREFIX
AH	AHEAD STATION SUFFIX
BK	BACK STATION SUFFIX
D	CURVE DEGREE OF (100FT)
R	CURVE RADUIS OF
T	CURVE TANGENT LENGTH
L	CURVE LENGTH OF
E	CURVE EXTERNAL DISTANCE

UTILITY SYMBOLOGY

UNDERGROUND UTILITIES

- UT — TELEPHONE
- UE — ELECTRIC
- UC — CABLE (TV)
- UEC — ELECTRIC+CABLE
- UET — ELECTRIC+TELEPHONE
- UCT — CABLE+TELEPHONE
- UECT — ELECTRIC+CABLE+TELEP.
- G — GAS LINE
- W — WATER LINE
- S — SANITARY SEWER (SEPTIC)

ABOVE GROUND UTILITIES (AERIAL)

- T — TELEPHONE
- E — ELECTRIC
- C — CABLE (TV)
- EC — ELECTRIC+CABLE
- ET — ELECTRIC+TELEPHONE
- AER E&T — ELECTRIC+TELEPHONE
- CT — CABLE+TELEPHONE
- ECT — ELECTRIC+CABLE+TELEP.
- UTILITY POLE GUY WIRE

PROJECT CONSTRUCTION SYMBOLOGY

PROJECT DESIGN & LAYOUT SYMBOLOGY

- CZ — CLEAR ZONE
- PLAN LAYOUT MATCHLINE

PROJECT CONSTRUCTION FEATURES

- TOP OF CUT SLOPE
- TOE OF FILL SLOPE
- STONE FILL
- BOTTOM OF DITCH ℄
- CULVERT PROPOSED
- STRUCTURE SUBSURFACE
- PDF — PDF — PROJECT DEMARCATION FENCE
- BF — BF — BARRIER FENCE
- TREE PROTECTION ZONE (TPZ)
- STRIPING LINE REMOVAL
- SHEET PILES

CONVENTIONAL BOUNDARY SYMBOLOGY

BOUNDARY LINES

- TOWN LINE — TOWN BOUNDARY LINE
- COUNTY LINE — COUNTY BOUNDARY LINE
- STATE LINE — STATE BOUNDARY LINE
- PROPOSED STATE R.O.W. (LIMITED ACCESS)
- PROPOSED STATE R.O.W.
- STATE ROW (LIMITED ACCESS)
- STATE ROW
- TOWN ROW
- PERMANENT EASEMENT LINE (P)
- TEMPORARY EASEMENT LINE (T)
- SURVEY LINE
- P/L — PROPERTY LINE (P/L)
- SR SR SR — SLOPE RIGHTS
- 6F — 6F — 6F PROPERTY BOUNDARY
- 4F — 4F — 4F PROPERTY BOUNDARY
- HAZ — HAZ — HAZARDOUS WASTE

EPSC LAYOUT PLAN SYMBOLOGY

EPSC MEASURES

- FILTER CURTAIN
- SILT FENCE
- SILT FENCE WOVEN WIRE
- CHECK DAM
- DISTURBED AREAS REQUIRING RE-VEGETATION
- EROSION MATTING

ENVIRONMENTAL RESOURCES

- WETLAND BOUNDARY
- RIPARIAN BUFFER ZONE
- WETLAND BUFFER ZONE
- SOIL TYPE BOUNDARY
- T&E — THREATENED & ENDANGERED SPECIES
- HAZ — HAZ — HAZARDOUS WASTE AREA
- AG — AGRICULTURAL LAND
- HABITAT — FISH & WILDLIFE HABITAT
- FLOOD PLAIN — FLOOD PLAIN
- OHW — ORDINARY HIGH WATER (OHW)
- STORM WATER
- USDA FOREST SERVICE LANDS
- WILDLIFE HABITAT SUIT/CONN

ARCHEOLOGICAL & HISTORIC

- ARCH — ARCHEOLOGICAL BOUNDARY
- HISTORIC DIST — HISTORIC DISTRICT BOUNDARY
- HISTORIC — HISTORIC AREA
- Ⓗ HISTORIC STRUCTURE

CONVENTIONAL TOPOGRAPHIC SYMBOLOGY

EXISTING FEATURES

- ROAD EDGE PAVEMENT
- ROAD EDGE GRAVEL
- DRIVEWAY EDGE
- DITCH
- FOUNDATION
- FENCE (EXISTING)
- FENCE WOOD POST
- FENCE STEEL POST
- GARDEN
- ROAD GUARDRAIL
- RAILROAD TRACKS
- CULVERT (EXISTING)
- STONE WALL
- WALL
- WOOD LINE
- BRUSH LINE
- HEDGE
- BODY OF WATER EDGE
- LEDGE EXPOSED

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147(13)

FILE NAME: s86e055legend.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
CONVENTIONAL SYMBOLOGY - LEGEND

PLOT DATE: 08-OCT-2013
DRAWN BY: D. PETERSON
CHECKED BY: J. LACROIX
SHEET 3 OF 186

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011 AND ITS LATEST REVISIONS, THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FIFTH EDITION, DATED 2010 AND ITS LATEST REVISIONS AND THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS THIRD EDITION, DATED 2010 AND ITS LATEST REVISIONS.

2. BRIDGE #27 AND BRIDGE #28 WERE DESIGNED FOR THE HL-93 LIVE LOADS.

3. ALL DIMENSIONS SHOWN IN THE PLANS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, UNLESS OTHERWISE NOTED.

4. THE CATTLE PASS SHALL BE CONSTRUCTED PRIOR TO ANY WORK ON BRIDGE #27 AND BRIDGE #28.

5. THE DETAILS AND DIMENSIONS SHOW ON THE PROJECT SPECIFIC PLAN AND DETAIL SHEETS TAKE PRECEDENCE OVER THE MORE GENERAL “STRUCTURES DETAIL SHEETS” PROVIDED AFTER THE PLAN SHEETS.

6. ADDITIONAL FENCING MAY BE REQUIRED TO HELP IN MAINTAINING FULL PROTECTION OF THE CATTLE. PLACEMENT OF ADDITIONAL FENCE SHALL DETERMINED BY THE ENGINEER WITH INPUT FROM THE PROPERTY OWNER. THE FENCE SHALL BE SIMILAR IN KIND TO THE EXISTING CATTLE FENCE. PAYMENT FOR ADDITIONAL FENCING WILL BE INCIDENTAL TO ITEM 620.50 REMOVING AND RESETTING FENCE.

EARTHWORK AND RELATED ITEMS

7. THE CONTRACTOR MAY SUBSTITUTE SUBBASE OF DENSE GRADED CRUSHED STONE FOR THE SAND BORROW SHOWN ON THE PLANS. IF PLACEMENT OF SUBBASE IS IN LIEU OF SAND BORROW, PLACE A GEOTEXTILE MEETING THE REQUIREMENTS OF SECTION 649 FOR “GEOTEXTILE FOR ROAD BED SEPARATOR” BETWEEN THE SUBGRADE AND THE SUBBASE MATERIAL. ANY SUBSTITUTED MATERIAL WILL BE PAID UNDER ITEM 203.31, "SAND BORROW". ALL COSTS ASSOCIATED WITH THE INSTALLATION OF THE GEOTEXTILE FOR ROADBED SEPARATOR SHALL BE INCIDENTAL TO ITEM 203.31, “SAND BORROW”.

8. THE STONE FILL UNDER THE BRIDGES AS SHOWN IN THE PLANS SHALL BE PLACED BEFORE THE GIRDERS ARE SET.

9. THE GEOGRID USED FOR THE REINFORCED SOIL SLOPE SHALL HAVE A MINIMUM ULTIMATE TENSILE STRENGTH OF 3050 LB/FT.

10. PAYMENT FOR ITEM # 900.675, SPECIAL PROVISION (REINFORCED SOIL SLOPE) SHALL INCLUDE ALL GRANULAR BORROW AND GEOTEXTILE UNDER STONE FILL REQUIRED TO COMPLETE THE WORK.

11. ITEM 529.15 “REMOVAL OF STRUCTURE” SHALL INCLUDE:

    - THE REMOVAL OF THE EXISTING SUPERSTRUCTURE AND ANY PORTION OF THE EXISTING ABUTMENTS AND PIERS NOT REMOVED UNDER STRUCTURE EXCAVATION OR UNCLASSIFIED CHANNEL EXCAVATION.

    - THE CONCRETE PIERS SHALL BE REMOVED OR CUT OFF AT STREAM BED ELEVATION.

STRUCTURAL STEEL

12. ALL NEW STRUCTURAL STEEL SHALL CONFORM TO AASHTO M 270M/M 270, GRADE 50, WEATHERING STEEL.

13. CHARPY V-NOTCH TEST: TEST STRUCTURAL STEEL MEMBERS DESIGNATED "CVN" IN THE PLANS IN ACCORDANCE WITH SUBSECTION 714.01.

14. BOLTS FOR ALL BOLTED FIELD CONNECTIONS SHALL BE 7/8 INCH DIAMETER HIGH STRENGTH BOLTS IN 15/16 INCH DIAMETER HOLES UNLESS OTHERWISE NOTED.

15. CONNECTIONS NOT SHOWN IN THE PLANS SHALL BE DETAILED BY THE FABRICATOR IN THE FABRICATION DRAWINGS AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL.

16. AFTER THE SUPERSTRUCTURE STEEL HAS BEEN ERECTED, ELEVATIONS ALONG THE TOP OF GIRDERS SHALL BE TAKEN UNDER DIRECTION OF THE RESIDENT ENGINEER FOR USE IN DETERMINING THE FINAL GRADE AND HAUNCH DEPTHS.

17. CONCRETE PORTIONS OF ABUTMENTS AND WINGWALLS ABOVE ADJACENT BRIDGE SEAT ELEVATIONS SHALL NOT BE PLACED UNTIL FINISH GRADES HAVE BEEN DETERMINED BY THE ENIGNEER.

18. FLEMING BRACKETS OR SIMILAR FALSE WORK: SPACE FLEMING BRACKETS OR SIMILAR FALSEWORK AS REQUIRED BY DESIGN WITH A MAXIMUM SPACING OF 4’-0”. THE BRACKETS SHALL BEAR NEAR THE BOTTOM FLANGE AND IN NO CASE SHALL THEY BEAR ABOVE THE BOTTOM QUARTER OF THE WEB.

19. HOLES IN WEB: FILL ANY BOLT HOLES IN THE WEBS OF THE BEAMS NOT OTHERWISE FILLED WITH BUTTON HEAD OR HEX HEAD BOLTS MEETING AASHTO M164 TYPE I. TIGHTEN THE BOLTS IN ACCORDANCE WITH SUBSECTION 506.19 OF THE STANDARD SPECIFICATIONS.

20. GIRDER WEBS AND CROSS FRAMES/DIAPHRAGMS SHALL BE PLUMB IN THE FINAL POSITION.

CONCRETE

21. INDIVIDUAL POURED SEGMENTS ARE TO BE PLACED IN ONE CONTINUOUS POUR WITH A MAXIMUM DURATION OF EIGHT HOURS. IF CIRCUMSTANCES BEYOND THE CONTRACTOR’S CONTROL PREVENT THIS FROM BEING ACCOMPLISHED, A CONSTRUCTION JOINT SHALL BE USED BETWEEN ADJACENT POURS. A MINIMUM 96 HOUR DELAY BETWEEN ADJACENT POURS SHALL BE OBSERVED.

22. WATER REPELLENT, SILANE SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES, EXCEPT THE UNDERSIDE OF THE DECK BETWEEN DRIP NOTCHES.

23. All REINFORCING STEEL IN OR EXTENDING INTO CONCRETE, HPC A SHALL BE LEVEL II UNLESS OTHERWISE NOTED. REINFORCING STEEL WILL BE DENOTED AS LEVEL II ON THE REINFORCING STEEL SHEET BY PLACING “.2” AT THE END OF THE BAR MARK. (EX: 1A501.2). ALL OTHER REINFORCING STEEL SHALL BE LEVEL I. PAYMENT FOR REINFORCING STEEL WILL BE MADE UNDER THE APPROPRIATE SECTION 507 CONTRACT ITEM.

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)

FILE NAME: /Structures/86e055qty.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: D. PETERSON
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
PROJECT NOTES (1)	SHEET 4 OF 186

BRIDGE #27

EARTHWORK AND RELATED ITEMS

22. THE BACKFILL BEHIND THE ABUTMENTS SHALL NOT BE PLACED HIGHER THAN THE BRIDGE SEATS UNTIL THE ABUTMENTS AND DECK CONSTRUCTION IS COMPLETED. THE DIFFERENCE IN ELEVATION OF FILL BEHIND THE ABUTMENTS AT ANY TIME DURING BACKFILLING OPERATIONS SHALL NOT EXCEED 2 FEET.

23. IF LEDGE IS ENCOUNTERED IN THE SLOPE FROM APPROXIMATELY STA. 383+00 RT TO STA. 385+00 RT THE ENGINEER SHALL BE CONTACTED AND THE PLANS WILL BE REVISED ACCORDINGLY. PAYMENT FOR ANY LEDGE REMOVAL IN THE SLOPE SHALL BE PAID FOR UNDER ITEM 203.16, "SOLID ROCK EXCAVATION".

CONCRETE

24. ITEM 501.33, "CONCRETE, HIGH PERFORMANCE CLASS A" SHALL BE USED FOR THE DECK, BRIDGE RAIL, INTEGRAL ABUTMENT CURTAIN WALL AND WINGWALLS ABOVE THE PILE CAP CONSTRUCTION JOINT. ALL SUBSTRUCTURE BELOW THE BRIDGE SEATS AND THE APPROACH SLAB CONCRETE SHALL BE ITEM 501.34, "CONCRETE, HIGH PERFORMANCE CLASS B." THE RAIL CONCRETE WILL BE CONCRETE, HIGH PERFORMANCE CLASS SCC AND SHALL BE PAID FOR UNDER ITEM 525.45 BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION.

25. AESTHETIC DETAIL "B" SHALL BE USED ON THE TRAFFIC SIDE FACES OF THE CONCRETE FOR BRIDGE RAIL, GALVANIZED STEEL TUBING/CONCRETE COMBINATION. SEE STANDARD S-352A FOR DETAILS.

26. REINFORCING STEEL IN THE BRIDGE RAIL, DESIGNATED "BR" IN THE PLANS, SHALL BE PAID FOR UNDER ITEM 525.45 BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION. ALL BRIDGE RAIL REINFORCING STEEL SHALL BE LEVEL II.

SUBSTRUCTURE

27. ITEM 505.165 "STEEL PILING, HP 12 X 84". REINFORCE THE DRIVING TIP ACCORDING TO SUBSECTION 505.04(F).

28. ITEM 505.45 "DYNAMIC PILE LOADING TEST". A MINIMUM OF ONE DYNAMIC PILE TEST SHALL BE CONDUCTED PER ABUTMENT. MORE TESTS MAY BE REQUIRED BY THE RESIDENT ENGINEER. THE NOMINAL PILE DRIVING RESISTANCE FOR EACH PILE IS 612 KIPS. A PILE RESISTANCE FACTOR OF 0.65 WAS USED BASED ON THE DYNAMIC TESTING REQUIREMENT.

29. FOR ESTIMATING PURPOSES, THE PILE TIP ELEVATIONS WERE ASSUMED AND ARE SHOWN ON THE BORING LOGS. THE ACTUAL IN PLACE LENGTHS MAY VARY. PILES SHALL HAVE A MINIMUM EMBEDMENT OF 45 FT MEASUED FROM THE BOTTOM OF THE PILE CAP.

30. PILE SHOES SHALL BE REQUIRED AND SHALL CONFORM TO SUBSECTION 505.04.

TRAFFIC CONTROL

31. TRAFFIC SHALL BE MAINTAINED ON THE EXISTING BRIDGE #27 DURING CONSTRUCTION. ANY MAINTAINANCE OF THE EXISTING SUBSTRUCTURE, SUPERSTRUCTURE, OR BRIDGE SURFACE TO KEEP THE BRIDGE SAFE TO THE TRAVELLING PUBLIC WILL BE PAID UNDER ITEM 527.10 "MAINTENANCE OF STRUCTURES AND APPROACHES".

MISCELLANEOUS

32. THE 12 STONE POSTS FROM STA. 392+93.4 LT TO STA. 395+22.4 RT SHALL BE SAVED AND RETURNED TO THE PROPERTY OWNER.

33. A WOOD FENCE AND STONE WALL ON THE SMITH/FREEMAN PROPERTY CLOSE TO THE PROJECT LIMITS ARE NOT TO BE DISTURBED.

CATTLE PASS

CONCRETE

34. THE BOX CULVERT, HEADWALLS, WINGWALLS AND FOOTINGS SHALL BE PRECAST CONCRETE CONFORMING TO SECTION 540 OF THE SPECIFICATIONS, AND SHALL MEET THE DIMENSIONS INDICATED ON THE PLANS. ALL PRECAST COMPONENTS OF THE STRUCTURE WILL BE PAID FOR UNDER ITEM 540.10, "PRECAST CONCRETE STRUCTURE (8'-0" X 6'-0" X 36'-4" BOX)".

35. TRANSVERSE GROOVING SHALL BE PROVIDED ALONG THE LENGTH OF THE PRECAST BOX INVERT.

36. JOINTS BETWEEN ALL ABUTTING PRECAST UNITS SHALL BE WATERTIGHT AND MECHANICALLY CONNECTED.

SUBSTRUCTURE

37. ALL PRECAST CONCRETE COMPONENTS INCLUDING THE BOX CULVERT, HEADWALLS, WINGWALLS, FOOTINGS, AND ALL CONNECTIONS BETWEEN THESE COMPONENTS SHALL BE DESIGNED BY THE PRECAST FABRICATOR. THE SOIL PROPERTIES AND DESIGN PARAMETERS USED FOR THE BRIDGE SITE ARE AS INDICATED BELOW:

NOMINAL BEARING RESISTANCE:	4.0 KSF
FOUNDATION SOIL UNIT WEIGHT:	115 LB/SF
FOUNDATION SOIL FRICTION ANGLE:	29 DEGREES
BEARING RESISTANCE FACTOR:	0.45
SLIDING RESISTANCE FACTOR:	SEE AASHTO 10.6.3.4
DESIGN FILL OVER BOX:	IN ADDITION TO 9" OF PAVEMENT, APPROXIMATELY 30" OF SUBBASE WILL BE PLACED OVER THE BOX STRUCUTRE.

38. THE DESIGN OF THE PRECAST CONCRETE BOX SHALL BE FOR HL-93 LIVE LOADING AND FOR A 75 YEAR DESIGN LIFE.

39. ALL REINFORCING STEEL IN THE PRECAST BOX SHALL BE LEVEL I, EPOXY COATED.

40. MEMBRANE WATERPROOFING SHALL BE APPLIED TO THE ENTIRE TOP OF THE CONCRETE BOX. A TWO (2) FOOT WIDE STRIP OF MEMBRANE SHALL BE PLACED AT EACH VERTIAL JOINT (SIDES). MEMBRANE SHALL BE CENTERED ON THE JOINT AND COVER THE FULL HEIGHT. THE SIDES SHALL BE COVERED PRIOR TO THE TOP. ANY OVERLAPPING OF MEMBRANE SHALL BE DONE IN A SHINGLE TYPE STYLE TO SHED WATER AND SHALL OVERLAP A MINIMUM OF ONE FOOT. PAYMENT FOR MEMBRANE WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE CONTRACT ITEM 540.10.

TRAFFIC CONTROL

41. AT A MINIMUM, ONE-LANE SHALL BE OPEN TO TRAFFIC AT ALL TIMES.

MISCELLANEOUS

42. THE 5 STONE POSTS FROM STA. 399+70.48 RT TO STA. 400+80.69 RT SHALL BE REMOVED, SAVED AND RETURNED TO THE PROPERTY OWNER.

BRIDGE #28

STRUCTURAL STEEL

43. THE WESTERN ENDS OF ALL FIVE GIRDERS SHALL BE PAINTED FOR A DISTANCE OF 10 FEET FROM THE CENTERLINE OF BEARING AT ABUTMENT 1. ALL CROSS-FRAMES, DIAPHRAGMS AND CONNECTION OR STIFFENER PLATES IN THIS AREA SHALL ALSO BE PAINTED. THE FINAL COLOR SHALL BE BROWN IN CONFORMANCE WITH SUBSECTION 708.03 OF THE STANDARD SPECIFICATIONS. BROWN GREASE, CONFORMING TO SUBSECTION 708.04 SHALL BE APPLIED TO ALL PAINTED AREAS. PAYMENT WILL BE MADE UNDER ITEM 900.645 SPECIAL PROVISION (QC/QA CLEANING AND PAINTING STRUCTURAL COMPONENTS).

44. THE DOWNSPOUT LOCATED AT ABUTMENT #1 WILL BE PAID FOR UNDER ITEM 506.75, STRUCTURAL STEEL.

CONCRETE

45. ALL APPROACH SLAB AND SUBSTRUCTURE CONCRETE SHALL BE CONCRETE, HIGH PERFORMANCE CLASS B UNLESS OTHERWISE NOTED AND SHALL BE PAID FOR UNDER ITEM 501.34, "CONCRETE, HIGH PERFORMANCE CLASS B". THE DECK CONCRETE SHALL BE CONCRETE, HIGH PERFORMANCE CLASS A AND SHALL BE PAID FOR UNDER ITEM 501.33, "CONCRETE, HIGH PERFORMANCE CLASS A". ANY CONCRETE REQUIRED FOR SUBFOOTINGS SHALL BE CONCRETE, CLASS C AND SHALL BE PAID FOR UNDER ITEM 541.30 "CONCRETE, CLASS C". THE RAIL CONCRETE WILL BE CONCRETE, HIGH PERFORMANCE CLASS ~~SCC~~ AND SHALL BE PAID FOR UNDER ITEM 900.640 SPECIAL PROVISION (BRIDGE RAILING, TEXAS). CHANGED TO CONCRETE CLASS AA

46. REINFORCING STEEL IN THE BRIDGE RAIL, DESIGNATED "BR" IN THE PLANS, SHALL BE PAID FOR UNDER ITEM 900.640 SPECIAL PROVISION (BRIDGE RAILING, TEXAS). ALL BRIDGE RAIL REINFORCING STEEL SHALL BE LEVEL II.

SUBSTRUCTURE

47. IT IS ANTICIPATED THAT THE BEDROCK WILL BE SEVERELY SLOPED AND VARIABLE AT WINGWALL #3.

48. FOOTINGS OR SUBFOOTINGS FOR SUBSTRUCTURES FOUNDED ON BEDROCK SHALL BE PLACED ON CLEAN COMPETENT ROCK. ALL LOOSE ROCK AND DEBRIS SHALL BE REMOVED.

49. UPON COMPLETION OF THE EXCAVATION FOR SUBSTRUCTURES FOUNDED ON BEDROCK AND PRIOR TO PLACING FORMWORK, THE RESIDENT ENGINEER SHALL NOTIFY THE PROJECT MANAGER AND THE VTRANS SOILS AND FOUNDATION ENGINEER. THE SOILS AND FOUNDATION ENGINEER WILL DETERMINE IF THE BEDROCK IS COMPETENT TO OBTAIN THE NOMINAL BEARING RESISTANCE AS SHOWN ON THE PLANS. FIVE (5) WORKING DAYS FROM NOTIFICATION SHALL BE ALLOWED TO MAKE THE INSPECTION AND THE DETERMINATION FOR THE COMPETENCY OF THE BEDROCK.

50. ONCE THE ELEVATION OF COMPETENT BEDROCK HAS BEEN DETERMINED, THE CONTRACTOR SHALL PROVIDE A BEDROCK PROFILE TO THE PROJECT MANAGER TO DETERMINE WHETHER THE DESIGN BOTTOM OF FOOTING ELEVATION SHALL BE RAISED OR LOWERED AND WHETHER A SUBFOOTING SHALL BE REQUIRED. FOOTING ELEVATIONS SHALL NOT BE ADJUSTED WITHOUT APPROVAL OF THE PROJECT MANAGER. THREE (3) WORKING DAYS FROM RECEIPT OF THE BEDROCK PROFILE SHALL BE ALLOWED TO MAKE THIS DETERMINATION. NO WORK SHALL BE DONE ON THE FOOTINGS UNTIL A REPLY IS RECEIVED.

51. THE LIMITS OF SUBFOOTINGS SHALL BE 6" OUTSIDE OF THE HORIZONTAL LIMITS OF THE FOOTING. THE TOP SURFACE OF ALL SUBFOOTINGS SHALL BE INTENTIONALLY ROUGHENED TO 1/4" AMPLITUDE.

52. ANY BEDROCK THAT NEEDS TO BE REMOVED SHALL BE PAID FOR WITH THE CORRESPONDING EXCAVATION ITEM INCLUDED IN THE CONTRACT.

53. OVERBREAKAGE BEYOND THE AVERAGE MAXIMUM ALLOWANCE SPECIFIED IN SUBSECTIONS 204.09(B) (1) AND 208.11(C) SHALL BE AT THE CONTRACTOR'S EXPENSE.

54. DOWELS SHALL BE DRILLED AND GROUTED INTO BEDROCK WHEN SHOWN ON THE PLANS OR AS ORDERED BY THE ENGINEER. THE DOWELS SHALL HAVE A 2'-0" MINIMUM EMBEDMENT IN THE BEDROCK AND SHALL EXTEND IN THE FOOTING OR SUBFOOTING A MINIMUM OF 1'-6", UNLESS NOTED OTHERWISE.

TRAFFIC CONTROL

55. TRAFFIC SHALL BE MAINTAINED ON A TWO-WAY TEMPORARY BRIDGE PLACED DOWNSTREAM OF THE EXISTING BRIDGE.

56. THE TEMPORARY BRIDGE APPROACHES SHALL BE PAVED.

57. A 14 FT WIDE TAPERED SHOULDER SHALL BE MAINTAINED FOR THE DURATION OF THE TEMPORARY BRIDGE. THE LOCATION IS SHOWN ON TRAFFIC CONTROL SHEET 100.

58. LIMITS OF THE TEMPORARY DETOUR MUST BE WITHIN THE TEMPORARY DETOUR RIGHT-OF-WAY. SEE ROW SHEETS.

59. THE AREA AROUND THE EXISTING STONE MILL SHALL BE FENCED OFF AND AVOIDED DURING CONSTRUCTION. THE ABUTMENT FOR THE TEMPORARY BRIDGE SHALL BE PLACED SO THAT THIS AREA WILL NOT BE DISTURBED DURING CONSTRUCTION.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES

ROADWAY	TRAINING	EROSION CONTROL	BRIDGE NO. 27 (STA. 390+63)	BRIDGE CATTLE PASS (STA. 400+50)	BRIDGE NO. 28 (STA. 416+52)	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND
1							1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10	-
8040							8040		CY	COMMON EXCAVATION	203.15	20.71
90							90		CY	SOLID ROCK EXCAVATION	203.16	-
			1140		1640		2780		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27	15.51
1420							1420		CY	SAND BORROW	203.31	2.99
2205							2205		CY	TRENCH EXCAVATION OF EARTH	204.20	10.62
3							3		CY	TRENCH EXCAVATION OF ROCK	204.21	-
1							1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22	-
10			125	890			1025		CY	STRUCTURE EXCAVATION	204.25	8.72
			270	670	590		1530		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30	13.43
225							225		SY	DRILLING AND BLASTING OF SOLID ROCK SUBGRADE	205.20	-
					720		720		CY	COFFERDAM EXCAVATION, EARTH	208.30	7.72
					10		10		CY	COFFERDAM EXCAVATION, ROCK	208.35	-
					1		1		LS	COFFERDAM (ABUTMENT #1)	208.40	-
					1		1		LS	COFFERDAM (ABUTMENT #2)	208.40	-
1537							1537		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10	4.03
4790							4790		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35	65
334							334		CY	AGGREGATE SURFACE COURSE	401.10	2
41							41		CWT	EMULSIFIED ASPHALT	404.65	0.23
1							1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50	-
2952			72		68		3092		TON	SUPERPAVE BITUMINOUS CONCRETE PAVEMENT	490.30	1.8
1							1		LU	AIR VOIDS PAY ADJUSTMENT (N.A.B.I.)	490.31	-
1							1		LU	MAT DENSITY PAY ADJUSTMENT (N.A.B.I.)	490.32	-
			174		114		288		CY	CONCRETE, HIGH PERFORMANCE CLASS A (FPQ)	501.33	0.95
			129		365		494		CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34	0.39
			1				1		LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10	-
			588				588		LF	STEEL PILING, HP 12 X 84	505.165	-
			2				2		EACH	DYNAMIC PILE LOADING TEST	505.45	-
			170085				170085		LB	STRUCTURAL STEEL, PLATE GIRDER (FPQ)	506.55	1.6
					191903		191903		LB	STRUCTURAL STEEL, CURVED PLATE GIRDER (FPQ)	506.56	0.87
					1		1		LS	STRUCTURAL STEEL	506.75	-
			10009		34054		44063		LB	REINFORCING STEEL, LEVEL I	507.11	1.59
			42486		31275		73761		LB	REINFORCING STEEL, LEVEL II	507.12	0.27
					174		174		LF	DRILLING AND GROUTING DOWELS	507.16	-
			1				1		LS	SHEAR CONNECTORS (1080 - 7/8" X 7")	508.15	-
					1		1		LS	SHEAR CONNECTORS (1176 - 7/8" X 7")	508.15	-
			30	10	30		70		GAL	WATER REPELLENT, SILANE	514.10	0.78
			60				60		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10	-
					38		38		LF	BRIDGE EXPANSION JOINT, VERMONT (FPQ)	516.11	0.2
			429		405		834		SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED (FPQ)	519.20	0.56

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS
		EARTHWORKS SUMMARY
		BRIDGE #27 FILL AVAILABLE
4980	CY	COMMON EXCAVATION (4980 X 1.0)
342	CY	UNCLASSIFIED CHANNEL EXCAVATION (1140 X 0.3)
125	CY	TRENCH EXCAVATION OF EARTH (125 X 1)
41	CY	STRUCTURE EXCAVATION (135 X 0.3)
0	CY	COFFERDAM EXCAVATION, EARTH (0 X 0.3)
0	CY	COFFERDAM EXCAVATION, ROCK (0 X 1)
2	CY	ROUNDING
5490	**CY**	**TOTAL BRIDGE #27 FILL AVAILABLE**
		FILL REQUIRED
9970	CY	FACTORED FILL (8670 X 1.15)
0	CY	ROUNDING
9970	**CY**	**TOTAL BRIDGE #27 FILL REQUIRED**
		CATTLE PASS FILL AVAILABLE
1400	CY	COMMON EXCAVATION (1400 X 1.0)
0	CY	UNCLASSIFIED CHANNEL EXCAVATION (0 X 0.3)
0	CY	TRENCH EXCAVATION OF EARTH (0 X 1)
267	CY	STRUCTURE EXCAVATION (890 X 0.3)
0	CY	COFFERDAM EXCAVATION, EARTH (0 X 0.3)
0	CY	COFFERDAM EXCAVATION, ROCK (0 X 1)
3	CY	ROUNDING
1670	**CY**	**TOTAL CATTLE PASS FILL AVAILABLE**
		FILL REQUIRED
0	CY	FACTORED FILL (0 X 1.15)
0	CY	ROUNDING
0	**CY**	**TOTAL CATTLE PASS FILL REQUIRED**
		BRIDGE #28 FILL AVAILABLE
1660	CY	COMMON EXCAVATION (1660 X 1.0)
492	CY	UNCLASSIFIED CHANNEL EXCAVATION (1640 X 0.3)
2080	CY	TRENCH EXCAVATION OF EARTH (2080 X 1)
0	CY	STRUCTURE EXCAVATION (0 X 0.3)
216	CY	COFFERDAM EXCAVATION, EARTH (720 X 0.3)
10	CY	COFFERDAM EXCAVATION, ROCK (10 X 1)
2	CY	ROUNDING
4460	**CY**	**TOTAL BRIDGE #28 FILL AVAILABLE**
		FILL REQUIRED
322	CY	FACTORED FILL (280 X 1.15)
8	CY	ROUNDING
330	**CY**	**TOTAL BRIDGE #28 FILL REQUIRED**
5490	**CY**	**TOTAL BRIDGE #27 FILL AVAILABLE**
1670	**CY**	**TOTAL CATTLE PASS FILL AVAILABLE**
4460	**CY**	**TOTAL BRIDGE #28 FILL AVAILABLE**
-9970	**CY**	**TOTAL BRIDGE #27 FILL REQUIRED**
0	**CY**	**TOTAL CATTLE PASS FILL REQUIRED**
-330	**CY**	**TOTAL BRIDGE #28 FILL REQUIRED**
1320	**CY**	**TOTAL PROJECT WASTE**

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: /Structures/86e055qty.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
QUANTITY SHEET #1

PLOT DATE: 10-OCT-2013
DRAWN BY: D. PETERSON
CHECKED BY: J LACROIX
SHEET 6 OF 186

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
			ROADWAY	TRAINING	EROSION CONTROL	BRIDGE NO. 27 (STA. 390+63)	BRIDGE CATTLE PASS (STA. 400+50)	BRIDGE NO. 28 (STA. 416+52)	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
						60		31		91		LF	JOINT SEALER, HOT POURED	524.11	-			
						278				278		LF	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION (FPQ)	525.45	0.2			**BRIDGE #27 COMMON EXCAVATION**
																4965	CY	VT 14
			1							1		LS	MAINTENANCE OF STRUCTURES AND APPROACHES	527.10	-	9	CY	DRIVE #1
																6	CY	DRIVE #2
			1							1		LS	TWO-WAY TEMPORARY BRIDGE (5500 SF - EST.)	528.11	-			
																		BRIDGE #27 SAND BORROW
								1		1		EACH	REMOVAL OF STRUCTURE (2550 SF- EST.)	529.15	-	1100	CY	VT 14
						1				1		EACH	REMOVAL OF STRUCTURE (2600 SF - EST.)	529.15	-			**BRIDGE #27**
																		SUBBASE OF DENSE GRADED CRUSHED STONE
								10		10		EACH	BEARING DEVICE ASSEMBLY, HIGH LOAD MULTI-ROTATIONAL	531.15	-	3020	CY	VT 14
						8				8		EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17	-	40	CY	DRIVE #4
							1			1		LS	PRECAST CONCRETE STRUCTURE (8'-0" X 6'-0" X 36'-4" BOX)	540.10	-			**BRIDGE #27 AGGREGATE SURFACE COURSE**
																68	CY	VT 14
								10		10		CY	CONCRETE, CLASS C	541.30	-	18	CY	DRIVE #1
																38	CY	DRIVE #2
													BEGIN OPTION AA			38	CY	DRIVE #3
																		BRIDGE #27
			212							212		LF	18" CAAP .060 (2-2/3 X 1/2)	601.0215	-			**SUPERPAVE BITUMINOUS CONCRETE PAVEMENT**
																1824	TON	VT 14
			212							212		LF	18" PCCSP .064 (2-2/3 X 1/2)	601.0415	-	10	TON	DRIVE #4
			212							212		LF	18" RCP CLASS III	601.0815	-			
			212							212		LF	18" CPEP(SL)	601.2615	-			**CATTLE PASS COMMON EXCAVATION**
																1400	CY	VT 14
													END OPTION AA					
																		CATTLE PASS SAND BORROW
													BEGIN OPTION BB			0	CY	VT 14
			85							85		LF	24" CAAP .060 (2-2/3 X 1/2)	601.0225	-			**CATTLE PASS**
																		SUBBASE OF DENSE GRADED CRUSHED STONE
			85							85		LF	24" PCCSP .064 (2-2/3 X 1/2)	601.0425	-	65	CY	VT 14
			85							85		LF	24" RCP CLASS III	601.0825	-			**CATTLE PASS AGGREGATE SURFACE COURSE**
																70	CY	VT 14
			85							85		LF	24" CPEP(SL)	601.2620	-			
													END OPTION BB					**CATTLE PASS**
																		SUPERPAVE BITUMINOUS CONCRETE PAVEMENT
			1							1		EACH	PRECAST REINFORCED CONCRETE DROP INLET WITH CAST IRON GRATE	604.18	-	236	TON	VT 14
			96							96		LF	6 INCH UNDERDRAIN PIPE	605.10	-			
																		BRIDGE #28 COMMON EXCAVATION
			19							19		LF	6 INCH UNDERDRAIN CARRIER PIPE	605.20	-	1280	CY	VT 14
																95	CY	TH #20
			1							1		EACH	UNDERDRAIN FLUSHING BASIN	605.95	-	285	CY	TH #22
			56							56		CY	STONE FILL, TYPE I	613.10	1.17			**BRIDGE #28 SAND BORROW**
																320	CY	VT 14
			1680							1680		CY	STONE FILL, TYPE II	613.11	7.38			
						1280				1280		CY	STONE FILL, TYPE III	613.12	6.8			**BRIDGE #28**
																		SUBBASE OF DENSE GRADED CRUSHED STONE
								650		650		CY	STONE FILL, TYPE IV	613.13	3.64	1385	CY	VT 14
																60	CY	TH #20
																220	CY	TH #22
			1							1		EACH	RELOCATE MAILBOX, SINGLE SUPPORT	617.10	-			
																		BRIDGE #28 AGGREGATE SURFACE COURSE
			130							130		LF	CHAIN-LINK FENCE, 4 FEET	620.11	0.7	50	CY	VT 14
																30	CY	TH #20
			2392							2392		LF	REMOVING AND RESETTING FENCE	620.50	4.25	20	CY	TH #22
			88							88		LF	HD STEEL BEAM GUARDRAIL, GALVANIZED (FPQ)	621.21	-			**BRIDGE #28**
																		SUPERPAVE BITUMINOUS CONCRETE PAVEMENT
			175							175		LF	HD STEEL BEAM GUARDRAIL, GALVANIZED/NESTED (FPQ)	621.216	-	972	TON	VT 14
			1292							1292		LF	BOX BEAM GUARDRAIL (FPQ)	621.30	-	50	TON	DRIVE #22
			9							9		EACH	MANUFACTURED TERMINAL SECTION, TANGENT	621.51	-			
			4							4		EACH	ANCHOR FOR STEEL BEAM RAIL	621.60	-			
			624							624		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80	1.69			
			21							21		EACH	REMOVAL AND DISPOSAL OF GUIDE POSTS	621.81	-			

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: /Structures/86e055qty.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
QUANTITY SHEET #2

PLOT DATE: 28-OCT-2013
DRAWN BY: D. PETERSON
CHECKED BY: J LACROIX

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 3

SUMMARY OF ESTIMATED QUANTITIES								TOTALS		DESCRIPTIONS			
ROADWAY	TRAINING	EROSION CONTROL	BRIDGE NO. 27 (STA. 390+63)	BRIDGE CATTLE PASS (STA. 400+50)	BRIDGE NO. 28 (STA. 416+52)	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND
1							1		EACH	GUIDE POSTS	621.85	-
450							450		HR	UNIFORMED TRAFFIC OFFICERS	630.10	-
2500							2500		HR	FLAGGERS	630.15	-
						1	1		LS	FIELD OFFICE, ENGINEERS	631.10	-
						1	1		LS	TESTING EQUIPMENT, CONCRETE	631.16	-
						1	1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17	-
						3000	3000		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26	-
	1040						1040		HR	EMPLOYEE TRAINEESHIP	634.10	-
1							1		LS	MOBILIZATION/DEMOBILIZATION	635.11	-
4777							4777		LF	DURABLE 4 INCH WHITE LINE (FPQ)	646.400	-
4685							4685		LF	DURABLE 4 INCH YELLOW LINE (FPQ)	646.410	-
21							21		LF	DURABLE 24 INCH STOP BAR	646.480	-
1							1		EACH	DURABLE LETTER OR SYMBOL	646.490	-
		4250					4250		SY	GEOTEXTILE UNDER STONE FILL	649.31	10.34
		512					512		SY	GEOTEXTILE FOR SILT FENCE	649.51	2.59
		198					198		SY	GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED	649.515	0.44
		240					240		SY	GEOTEXTILE FOR FILTER CURTAIN	649.61	1.17
		250					250		LB	SEED	651.15	13.18
		150					150		LB	SEED, WINTER RYE	651.17	13.38
		700					700		LB	FERTILIZER	651.18	44.85
		6.25					6.25		TON	AGRICULTURAL LIMESTONE	651.20	1.78
		5					5		TON	HAY MULCH	651.25	1.88
		511					511		CY	TOPSOIL	651.35	5.39
		1460					1460		SY	GRUBBING MATERIAL	651.40	6.29
		1					1		LS	EPSC PLAN	652.10	-
		500					500		HR	MONITORING EPSC PLAN	652.20	-
		1					1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30	-
		4260					4260		SY	TEMPORARY EROSION MATTING	653.20	10.1
		270					270		SY	PERMANENT EROSION MATTING	653.21	1.81
		164					164		CY	TEMPORARY STONE CHECK DAM, TYPE I	653.25	1.44
		60					60		CY	VEHICLE TRACKING PAD	653.35	0.59
		4					4		EACH	INLET PROTECTION DEVICE, TYPE I	653.40	-
		1210					1210		LF	BARRIER FENCE	653.50	14.9
		3130					3130		LF	PROJECT DEMARCATION FENCE	653.55	9.58
63							63		SF	TRAFFIC SIGNS, TYPE A	675.20	0.47
260							260		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341	-
21							21		EACH	REMOVING SIGNS	675.50	-
1							1		LU	PRICE ADJUSTMENT, FUEL (N.A.B.I.)	690.50	-
8							8		EACH	SPECIAL PROVISION (GUARDRAIL APPROACH SECTION TO CONCRETE COMBINATION BRIDGE RAILING)	900.620	
					242		242		LF	SPECIAL PROVISION (BRIDGE RAILING, TEXAS) (FPQ)	900.640	0.06

DETAILED SUMMARY OF QUANTITIES		
QUANTITIES	UNIT	ITEMS

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: /Structures/86e055qty.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
QUANTITY SHEET #3

PLOT DATE: 28-OCT-2013
DRAWN BY: D. PETERSON
CHECKED BY: J LACROIX
SHEET 8 OF 186

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 4

SUMMARY OF ESTIMATED QUANTITIES									TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
	ROADWAY	TRAINING	EROSION CONTROL	BRIDGE NO. 27 (STA. 390+63)	BRIDGE CATTLE PASS (STA. 400+50)	BRIDGE NO. 28 (STA. 416+52)	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
						1		1		LS	SPECIAL PROVISION (QC/QA CLEANING AND PAINTING STRUCTURAL COMPONENTS)	900.645	-			
	1							1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE) (VT 14 - BRIDGE #27)	900.645	-			
	1							1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE) (VT 14 - BRIDGE #28)	900.645	-			
	1							1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE) (VT 14 - CATTLE PASS)	900.645	-			
	349							349		SY	SPECIAL PROVISION (REINFORCED SOIL SLOPE)	900.675	0.97			

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: /Structures/86e055qty.dgn	PLOT DATE: 28-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: D. PETERSON
DESIGNED BY: D. PETERSON	CHECKED BY: J LACROIX
QUANTITY SHEET #4	SHEET 9 OF 186

STATE OF VERMONT
AGENCY OF TRANSPORTATION

BRIDGE QUANTITY SHEET 1

SUMMARY OF BRIDGE QUANTITIES												TOTALS	DESCRIPTIONS			DETAILED SUMMARY OF QUANTITIES		
						SUPERSTRUCTURE	ABUTMENT NO. 1	ABUTMENT NO. 2	APPROACH SLAB NO. 1	APPROACH SLAB NO. 2	CHANNEL	BRIDGE TOTAL	UNIT	ITEMS	ITEM NUMBER	QUANTITIES	UNIT	ITEMS
											1140	1140	CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27			
							75	50				125	CY	STRUCTURE EXCAVATION	204.25			
							140	130				270	CY	GRANULAR BACKFILL FOR STRUCTURES	204.30			
						72						72	TON	SUPERPAVE BITUMINOUS CONCRETE PAVEMENT	490.30			
						114	30	30				174	CY	CONCRETE, HIGH PERFORMANCE CLASS A (FPQ)	501.33			
							37	40	26	26		129	CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34			
							1					1	LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10			
							315	273				588	LF	STEEL PILING, HP 12 X 84	505.165			
							1	1				2	EACH	DYNAMIC PILE LOADING TEST	505.45			
						170085						170085	LB	STRUCTURAL STEEL, PLATE GIRDER (FPQ)	506.55			
							1696	1820	3282	3211		10009	LB	REINFORCING STEEL, LEVEL I	507.11			
						26431	7752	7979	162	162		42486	LB	REINFORCING STEEL, LEVEL II	507.12			
						1						1	LS	SHEAR CONNECTORS (1080 - 7/8" X 7")	508.15			
						24	3	3				30	GAL	WATER REPELLENT, SILANE	514.10			
									30	30		60	LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10			
						429						429	SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED (FPQ)	519.20			
						60						60	LF	JOINT SEALER, HOT POURED	524.11			
						278						278	LF	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION (FPQ)	525.45			
						1						1	EACH	REMOVAL OF STRUCTURE (2600 SF - EST.)	529.15			
							4	4				8	EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17			
											1280	1280	CY	STONE FILL, TYPE III	613.12			

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)

FILE NAME: /Structures/86e055qty.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: D. PETERSON
DESIGNED BY: D. PETERSON	CHECKED BY: J LACROIX
BRIDGE 27 QUANTITY SHEET	SHEET 10 OF 186

STATE OF VERMONT
AGENCY OF TRANSPORTATION

BRIDGE QUANTITY SHEET 2

SUMMARY OF BRIDGE QUANTITIES	TOTALS	DESCRIPTIONS			DETAILED SUMMARY OF QUANTITIES		
CATTLE PASS	BRIDGE TOTAL	UNIT	ITEMS	ITEM NUMBER	QUANTITIES	UNIT	ITEMS
890	890	CY	STRUCTURE EXCAVATION	204.25			
670	670	CY	GRANULAR BACKFILL FOR STRUCTURES	204.30			
10	10	GAL	WATER REPELLENT, SILANE	514.10			
1	1	LS	PRECAST CONCRETE STRUCTURE (8'-0" X 6'-0" X 36'-4" BOX)	540.10			

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: /Structures/86e055qty.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
CATTLE PASS QUANTITY SHEET

PLOT DATE: 08-OCT-2013
DRAWN BY: D. PETERSON
CHECKED BY: J LACROIX
SHEET 11 OF 186

STATE OF VERMONT
AGENCY OF TRANSPORTATION

BRIDGE QUANTITY SHEET 3

SUMMARY OF BRIDGE QUANTITIES											TOTALS	DESCRIPTIONS			DETAILED SUMMARY OF QUANTITIES		
						SUPERSTRUCTURE	ABUTMENT NO. 1	ABUTMENT NO. 2	APPROACH SLAB NO.1	APPROACH SLAB NO. 2	CHANNEL	BRIDGE TOTAL	UNIT	ITEMS	ITEM NUMBER	QUANTITIES	UNIT	ITEMS
											1640	1640	CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27			
											590	590	CY	GRANULAR BACKFILL FOR STRUCTURES	204.30			
											720	720	CY	COFFERDAM EXCAVATION, EARTH	208.30			
							5	5				10	CY	COFFERDAM EXCAVATION, ROCK	208.35			
							1					1	LS	COFFERDAM (ABUTMENT #1)	208.40			
								1				1	LS	COFFERDAM (ABUTMENT #2)	208.40			
						68						68	TON	SUPERPAVE BITUMINOUS CONCRETE PAVEMENT	490.30			
						114						114	CY	CONCRETE, HIGH PERFORMANCE CLASS A (FPQ)	501.33			
							156	153	28	28		365	CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34			
						191903						191903	LB	STRUCTURAL STEEL, CURVED PLATE GIRDER (FPQ)	506.56			
							1					1	LS	STRUCTURAL STEEL	506.75			
							11718	15636	3475	3225		34054	LB	REINFORCING STEEL, LEVEL I	507.11			
						27039	2385	1851				31275	LB	REINFORCING STEEL, LEVEL II	507.12			
								174				174	LF	DRILLING AND GROUTING DOWELS	507.16			
						1						1	LS	SHEAR CONNECTORS (1176 - 7/8" X 7")	508.15			
						15	8	7				30	GAL	WATER REPELLENT, SILANE	514.10			
							38					38	LF	BRIDGE EXPANSION JOINT, VERMONT (FPQ)	516.11			
						405						405	SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED (FPQ)	519.20			
						31						31	LF	JOINT SEALER, HOT POURED	524.11			
						1						1	EACH	REMOVAL OF STRUCTURE (2550 SF- EST.)	529.15			
							5	5				10	EACH	BEARING DEVICE ASSEMBLY, HIGH LOAD MULTI-ROTATIONAL	531.15			
							5	5				10	CY	CONCRETE, CLASS C	541.30			
											650	650	CY	STONE FILL, TYPE IV	613.13			
						242						242	LF	SPECIAL PROVISION (BRIDGE RAILING, TEXAS) (FPQ)	900.640			
						1						1	LS	SPECIAL PROVISION (QC/QA CLEANING AND PAINTING STRUCTURAL COMPONENTS)	900.645			

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: /Structures/86e055qty.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 28 QUANTITY SHEET

PLOT DATE: 08-OCT-2013
DRAWN BY: D. PETERSON
CHECKED BY: J LACROIX
SHEET 12 OF 186

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE 27)

Version 09.02.03

LRFD

INDEX OF SHEETS

PLAN SHEETS

SEE SHEET 2 FOR INDEX OF SHEETS

STANDARDS LIST

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: December 2010

DRAINAGE AREA : 70.1 sq. mi.
CHARACTER OF TERRAIN : Mixture of woods and open fields
STREAM CHARACTERISTICS : Meandering and incised
NATURE OF STREAMBED : Silty sand

PEAK FLOW DATA

Q 2.33 =	3000 cfs	Q 50 =	6400 cfs
Q 10 =	4300 cfs	Q 100 =	7600 cfs
Q 25 =	5400 cfs	Q 500 =	10,300 cfs

DATE OF FLOOD OF RECORD unknown
ESTIMATED DISCHARGE: unknown
WATER SURFACE ELEV.: unknown
NATURAL STREAM VELOCITY : @ Q50 = 5.2 fps
ICE CONDITIONS : moderate
DEBRIS: light to moderate
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? no
IS ORDINARY RISE RAPID? no
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? no
IF YES, DESCRIBE:

WATERSHED STORAGE: <1% HEADWATERS:
UNIFORM: X
IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: 3-span concrete T-beam bridge
YEAR BUILT: 1927
CLEAR SPAN(NORMAL TO STREAM): 89'
VERTICAL CLEARANCE ABOVE STREAMBED: 12.5'
WATERWAY OF FULL OPENING: 755 sq. ft.
DISPOSITION OF STRUCTURE: Remove and replace
TYPE OF MATERIAL UNDER SUBSTRUCTURE: See borings

WATER SURFACE ELEVATIONS AT:

Q2.33 =	501.1'	VELOCITY =	9.0 fps
Q10 =	503.5'	"	8.2 fps
Q25 =	506.0'	"	7.7 fps
Q50 =	508.7'	"	8.9 fps
Q100 =	511.1'	"	9.7 fps

LONG TERM STREAMBED CHANGES: None

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes
FREQUENCY: Below Q50
RELIEF ELEVATION: 507.6'
DISCHARGE OVER ROAD @Q100: 820 cfs

UPSTREAM STRUCTURE

TOWN: Royalton DISTANCE: 3100'
HIGHWAY # : VT 14 STRUCTURE #: BR 28
CLEAR SPAN: 100' CLEAR HEIGHT: 15'
YEAR BUILT: 1925 FULL WATERWAY: 630 sq. ft.
STRUCTURE TYPE: 3-span concrete T-beam

DOWNSTRUCTURE STRUCTURE

TOWN: Royalton DISTANCE: 9230'
HIGHWAY # : VT 107 STRUCTURE #: BR 21
CLEAR SPAN: 148' CLEAR HEIGHT: 31'
YEAR BUILT: 1937 FULL WATERWAY: 3300 sq. ft.
STRUCTURE TYPE: 3-span rolled beam

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	HL-93	HL-93	3S2	6 AXLE	3A STR	4A STR	5A SEMI
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY	3.43	1.12					
POSTING							
OPERATING	4.44	1.45	2.94	1.77	3.04	2.69	
COMMENTS:							

PILE DRIVING AND TESTING REQUIREMENTS

1. NOMINAL PILE DRIVING CAPACITY	Rndr:	612.00 KIP
2. PILE TEST RESISTANCE FACTOR	ϕ:	0.65
3. MAXIMUM PILE TIP ELEVATION		455 FT
4. PERFORM ONE DYNAMIC LOAD TEST FOR EACH ABUTMENT.		

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span steel beam bridge

CLEAR SPAN(NORMAL TO STREAM): 107'
VERTICAL CLEARANCE ABOVE STREAMBED: 16.8'
WATERWAY OF FULL OPENING: 1280 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	500.7'	VELOCITY=	8.1 fps
Q10 =	503.2'	"	7.5 fps
Q25 =	505.5'	"	7.1 fps
Q50 =	507.7'	"	6.8 fps
Q100 =	509.8'	"	6.9 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: N/A
RELIEF ELEVATION: 512.9'
DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 509.3'
VERTICAL CLEARANCE: @ Q50 = 1.2'

SCOUR: 1.0' @ Q100 and 2.0' @ Q500

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW:	145 cfs	DEPTH OR ELEVATION:
ORDINARY LOW WATER:	70 cfs	2.0'
ORDINARY HIGH WATER:	1300 cfs	6.0'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: None required
CLEAR SPAN (NORMAL TO STREAM):
VERTICAL CLEARANCE ABOVE STREAMBED:
WATERWAY AREA OF FULL OPENING:

ADDITIONAL INFORMATION

NAVD 88 elevations

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN TWO-WAY TRAFFIC ON THE EXISTING STRUCTURE.
2. TRAFFIC SIGNALS ARE NOT NECESSARY.
3. SIDEWALKS ARE NOT NECESSARY

DESIGN VALUES

1. DESIGN LIVE LOAD		HL-93
2. FUTURE PAVEMENT	d_P:	---
3. DESIGN SPAN	L:	136.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	---
5. PRESTRESSING STRAND	f_y:	---
6. PRESTRESSED CONCRETE STRENGTH	f'_c:	---
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'_{ci}:	---
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f'_c:	---
9. CONCRETE, HIGH PERFORMANCE CLASS A	f'_c:	4.0 KSI
10. CONCRETE, HIGH PERFORMANCE CLASS B	f'_c:	3.5 KSI
11. CONCRETE, CLASS C	f'_c:	---
12. REINFORCING STEEL	f_y:	60 KSI
13. STRUCTURAL STEEL AASHTO M270 (WEATHERING)	f_y:	50 KSI
14. SOIL UNIT WEIGHT	γ:	0.140 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q_n:	---
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
17. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	---
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
19. NOMINAL AXIAL PILE RESISTANCE	q_p:	612.0 KIPS
20. PILE YIELD STRENGTH ASTM A572	f_y:	50 KSI
21. PILE SIZE		HP 12X 84
22. EST. PILE LENGTH	L_p:	58 FT
23. PILE RESISTANCE FACTOR	ϕ:	0.65
24. LATERAL PILE DEFLECTION	Δ:	0.52 INCH
25. BASIC WIND SPEED	V_{3s}:	---
26. MINIMUM GROUND SNOW LOAD	p_g:	---
27. SEISMIC DATA PGA: ---	S_s:	---
	S_1:	---

AS BUILT "REBAR" DETAIL

LEVEL I	LEVEL II	LEVEL III
TYPE:	TYPE:	TYPE:
GRADE:	GRADE:	GRADE:

TRAFFIC DATA

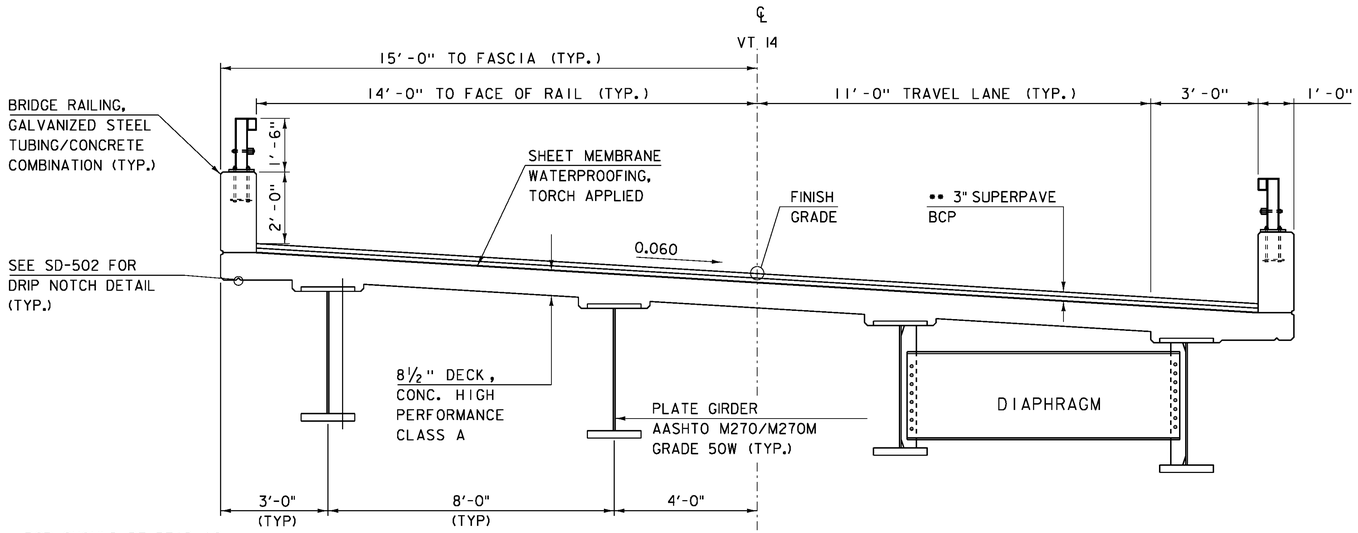
YEAR	ADT	DHV	% D	% T	ADTT
2003	1500	210	59	8	170
2023	2000	280	59	8	230

20 year ESAL for flexible pavement from 2003 to 2023 : 2667000
40 year ESAL for flexible pavement from 2003 to 2043 : 6477000
Design Speed : 50 mph

PROJECT NAME: **ROYALTON**
PROJECT NUMBER: **BRS 0147(13)**

FILE NAME: \BR 27\s86e055pi_27.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
PLOT DATE: 10/4/2013
DRAWN BY: D. PETERSON
CHECKED BY: C. CARLSON

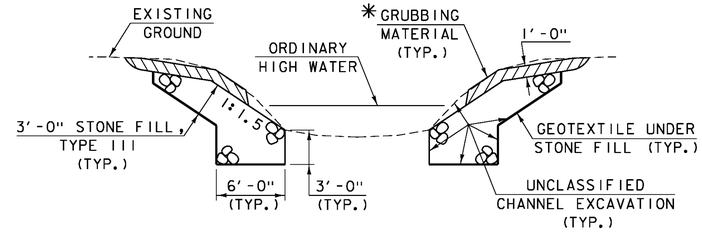
BRIDGE 27 PRELIMINARY INFORMATION



••BCP SHOULD BE READ AS BITUMINOUS CONCRETE PAVEMENT 1½" TYPE IVS, OVER 1½" TYPE IVS

BRIDGE 27 TYPICAL SECTION

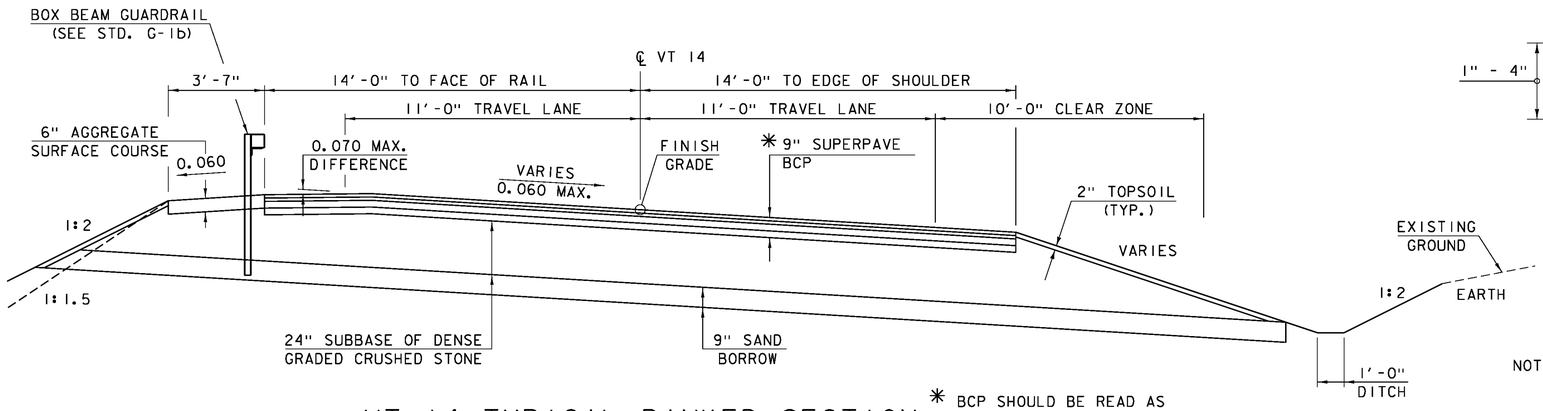
SCALE ½" = 1'-0"



CHANNEL TYPICAL SECTION

(NOT TO SCALE)

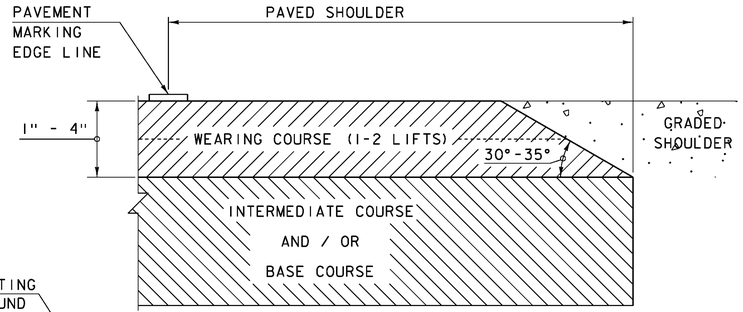
✳ GRUBBING MATERIAL SHALL NOT BE PLACED ON THE STONE FILL IN THE AREA UNDER THE BRIDGE. WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE, GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE.



VT 14 TYPICAL BANKED SECTION

SCALE: ⅜" = 1'-0"

✳ BCP SHOULD BE READ AS BITUMINOUS CONCRETE PAVEMENT 1½" TYPE IVS OVER 1½" TYPE IVS OVER 3" TYPE IIS OVER 3" TYPE IIS



SAFETY EDGE DETAIL

NOT TO SCALE

NOTES:
1. LEVELING COURSE MAY INCLUDE THE "SAFETY EDGE" AT THE CONTRACTOR'S CHOICE.
2. THE EDGE OF PAVEMENT SHALL BE FORMED IN SUCH A WAY THAT THE BITUMINOUS CONCRETE PAVEMENT IS EXTRUDED OR COMPRESSED TO FORM THE 30 TO 35 DEGREE ANGLE. DEVICES THAT SIMPLY STRIKE-OFF THE MIX WITHOUT PROVIDING ANY COMPACTIVE EFFORT WILL NOT BE ALLOWED.

MATERIAL TOLERANCES

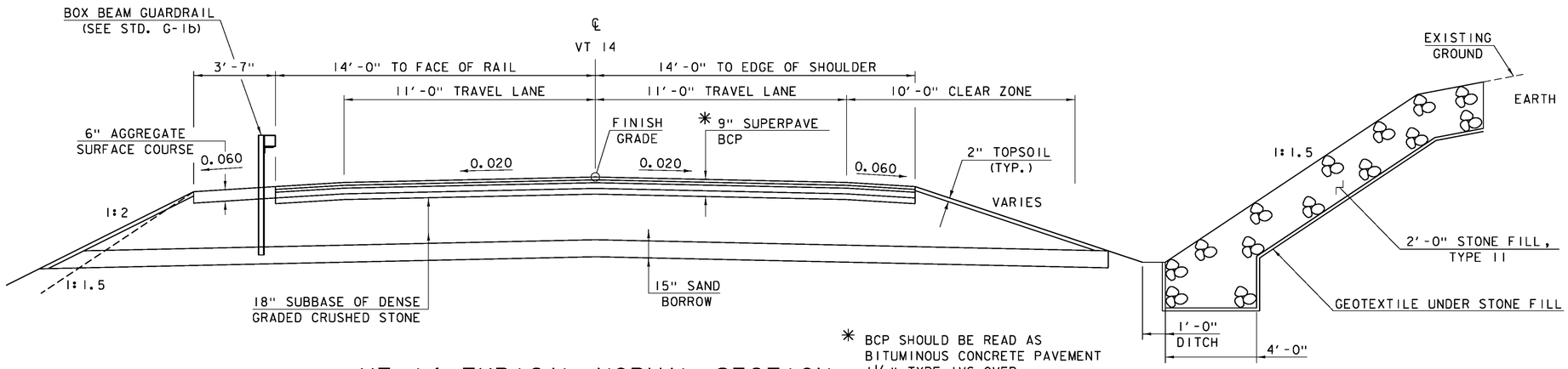
(IF USED ON PROJECT)

SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- ¼"
- AGGREGATE SURFACE COURSE	+/- ½"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR 27\s86e055typ_27.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 27 PROJECT TYPICAL SECTIONS (1)

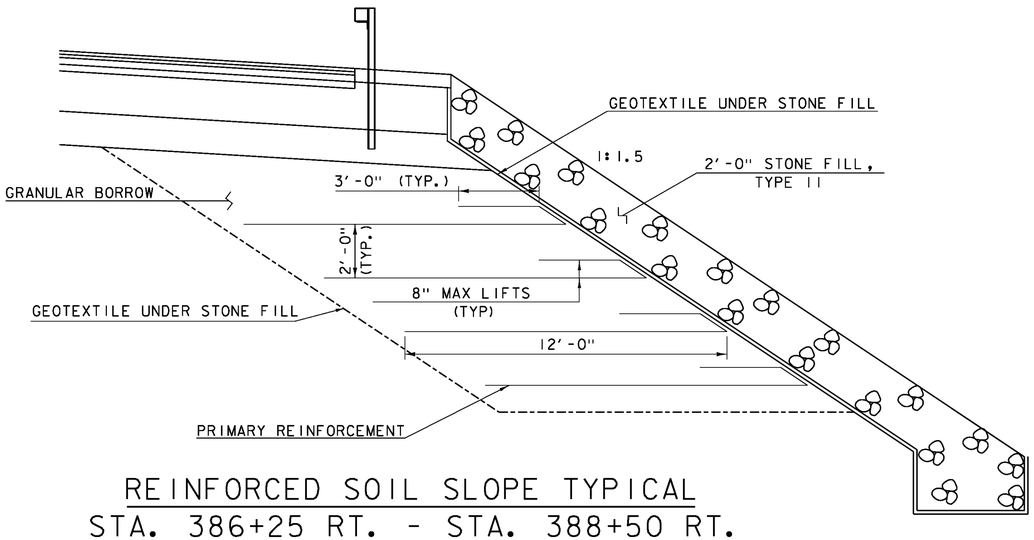
PLOT DATE: 08-OCT-2013
DRAWN BY: D. PETERSON
CHECKED BY: C. CARLSON
SHEET 14 OF 186



* BCP SHOULD BE READ AS
BITUMINOUS CONCRETE PAVEMENT
1½" TYPE IVS OVER
1½" TYPE IVS OVER
3" TYPE IIS OVER
3" TYPE IIS

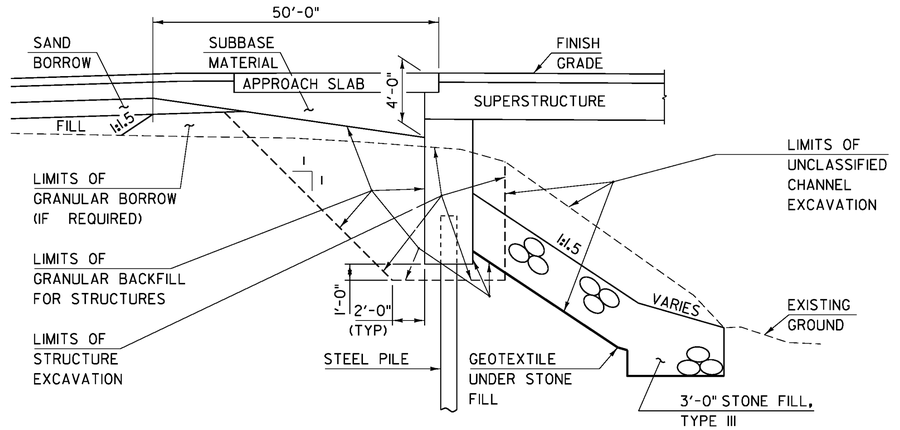
VT 14 TYPICAL NORMAL SECTION

1 0 1 2 3 4 5
SCALE: ⅜" = 1'-0"



REINFORCED SOIL SLOPE TYPICAL
STA. 386+25 RT. - STA. 388+50 RT.

1 0 1 2 3 4 5
SCALE: ⅜" = 1'-0"



ABUTMENT EARTHWORK TYPICAL SECTION

NTS

	SECTIONS 386+25 - 388+50
MINIMUM GEOGRID ULTIMATE TENSILE STRENGTH	3050 lb/ft
NUMBER OF REINFORCEMENT LAYERS	4
LENGTHS OF PRIMARY REINFORCEMENT	FOUR - 12 FT
VERTICAL SPACING OF PRIMARY REINFORCEMENT	2.0 FT
TOP REINFORCEMENT ELEVATION (NOT INCLUDING RE-IMBEDMENT HEIGHT)	VARIES, SEE CROSS SECTIONS FOR REINFORCEMENT ELEVATIONS

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR 27\s86e055typ_27.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 27 PROJECT TYPICAL SECTIONS (2)

PLOT DATE: 08-OCT-2013
DRAWN BY: D. PETERSON
CHECKED BY: C. CARLSON
SHEET 15 OF 186

GPS CONTROL POINTS

HVCTRL #1

STANDARD DISK STAMPED
Spaulding Az Mk
N = 490047.972
E = 1616877.024
ELEV. = 655.248

GENERAL LOCATION, ROYALTON, VT. OWNERSHIP, GEORGE AND AGNES SPAULDING, 7783 VT RTE 14, SOUTH ROYALTON, VT 05068. TO REACH FROM THE INTERSECTION OF VT ROUTE 14 AND VT ROUTE 107 IN NORTH ROYALTON GO NORTH ALONG VT ROUTE 14 FOR 2.0 MI (3.2 KM) TO THE INTERSECTION OF MORSE ROAD (TH 20) STRAIGHT, WATERMAN ROAD (TH 22) LEFT, AND VT ROUTE 14 RIGHT. TURN LEFT AND GO SOUTHWEST AND SOUTH ALONG WATERMAN ROAD FOR 0.3 MI (0.5 KM) TO A GATE IN A WIRE FENCE LINE AND THE SITE OF THE MARK ON THE LEFT IN A FIELD. THE MARK IS SET FLUSH WITH GROUND SURFACE IN THE TOP OF A LOW LYING ROCK OUTCROP. IT IS 9.8 M (32.2 FT) EAST OF AND ABOUT 0.2 M (0.7 FT) LOWER THAN THE CENTERLINE OF WATERMAN ROAD, 25.6 M (84.0 FT) NORTH NORTHEAST OF A 25 CM TRIPLE TRUNK APPLE, 5.5 M (18.0 FT) NORTHEAST OF THE MOST NORTHERLY GATE POST, AND 5.2 M (17.1 FT) EAST OF THE WIRE FENCE AND A FIBERGLASS WITNESS POST.

HVCTRL #2

STANDARD DISK STAMPED
Spaulding
N = 488849.386
E = 1617960.788
ELEV. = 502.952

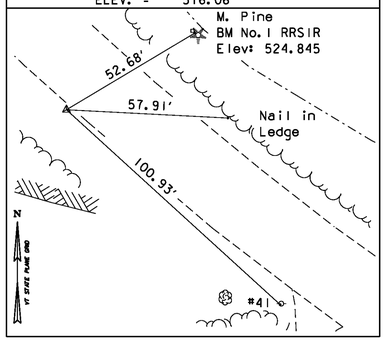
GENERAL LOCATION, ROYALTON, VT. -OWNERSHIP, GEORGE AND AGNES SPAULDING, 7783 VT RTE 14, SOUTH ROYALTON, VT 05068. TO REACH FROM THE INTERSECTION OF VT ROUTE 14 AND VT ROUTE 107 IN NORTH ROYALTON GO NORTH ALONG VT ROUTE 14 FOR 1.5 MI (2.4 KM) TO THE SITE OF THE MARK ON THE LEFT. IT IS ABOUT 95 M (311.7 FT) SOUTH OF THE SOUTH END OF A CONCRETE BRIDGE OVER THE SECOND BRANCH OF THE WHITE RIVER. THE MARK IS SET ABOUT 0.3 M (1.0 FT) ABOVE GROUND SURFACE IN THE TOP OF A MASSIVE ROCK OUTCROP. IT IS 15.5 M (50.9 FT) WEST NORTHWEST OF AND ABOUT 2.5 M (8.2 FT) LOWER THAN THE CENTERLINE OF VT ROUTE 14, 11.2 M (36.7 FT) NORTH NORTHEAST OF A 10 CM PINE, 3.9 M (12.8 FT) NORTH OF A GUY ANCHOR, AND 4.7 M (15.4 FT) WEST OF POLE NO 42 AND A FIBERGLASS WITNESS POST.

• DESCRIPTION PROVIDED BY VERMONT AGENCY OF TRANSPORTATION GEODETIC SURVEY UNIT

TRAVERSE TIES

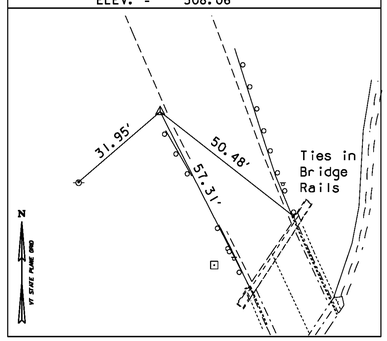
HVCTRL #3

NORTH = 488793.00
EAST = 1618076.20
ELEV. = 516.06



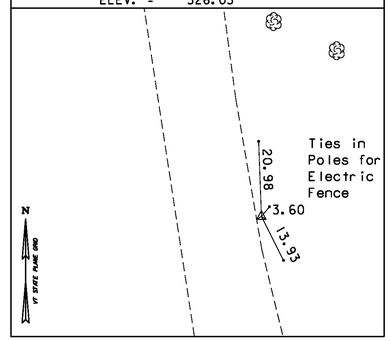
HVCTRL #4

NORTH = 489255.20
EAST = 1617722.18
ELEV. = 508.06



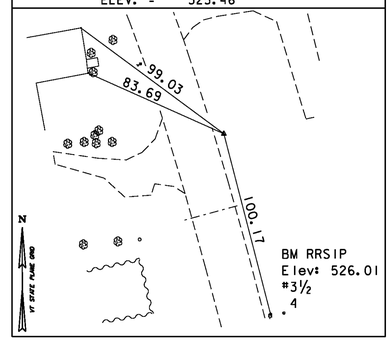
HVCTRL #5

NORTH = 490054.46
EAST = 1617524.92
ELEV. = 526.05



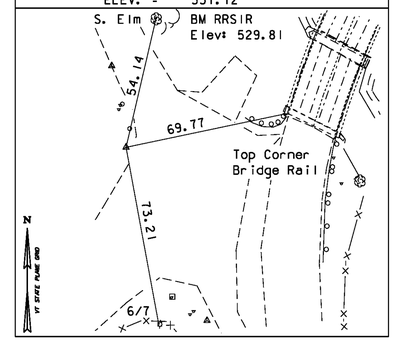
HVCTRL #6

NORTH = 491003.98
EAST = 1617393.08
ELEV. = 525.46



HVCTRL #7

NORTH = 491567.54
EAST = 1617078.16
ELEV. = 531.12

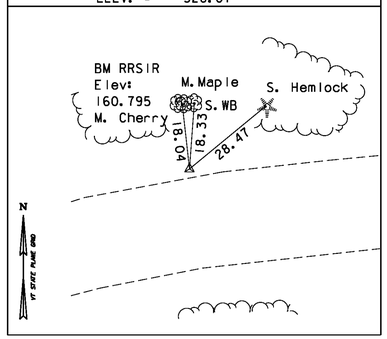


* MAIN TRAVERSE COMPLETED July 16,2001 Richard Gilman P.C. Paul Winters

TRAVERSE TIES

HVCTRL #8

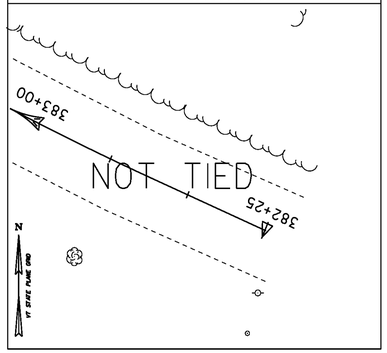
NORTH = 491820.81
EAST = 1617440.77
ELEV. = 526.01



ALIGNMENT TIES

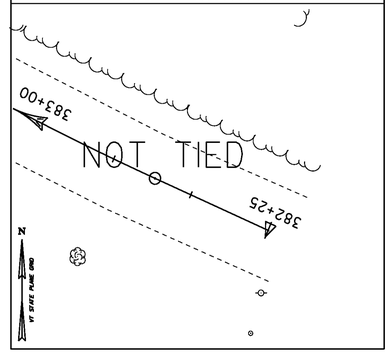
POB 382+25.00

NORTH = 488630.10
EAST = 1618370.07



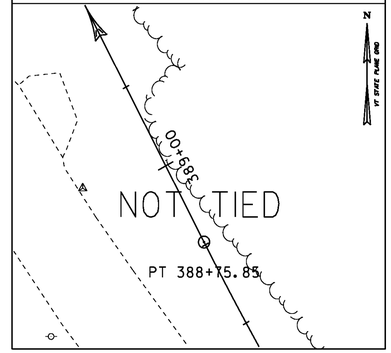
PC 382+61.60

NORTH = 488644.65
EAST = 1618336.48



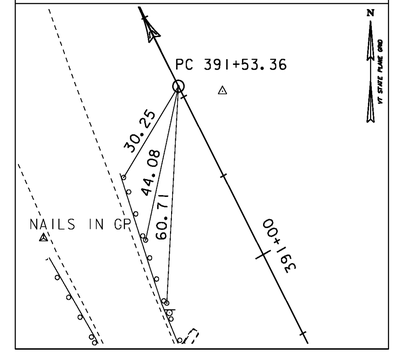
PT 388+75.86

NORTH = 489052.97
EAST = 1617893.06



PC 391+53.37

NORTH = 489297.71
EAST = 1617762.24



* Alignment Staked 06/05/06 by R.Gilman P.C. & P. Winters

DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (96)
ADJUSTMENT	Compass

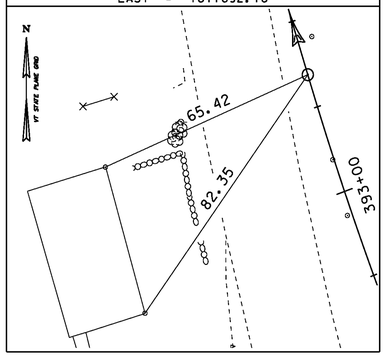
PROJECT NAME: Royalton
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: 86e055\survey\x86e055ti.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
Bridge 27 TIE SHEET (1)
PLOT DATE: 08-OCT-2013
DRAWN BY: R. Bullock
CHECKED BY: C. CARLSON
SHEET 16 OF 186

ALIGNMENT TIES

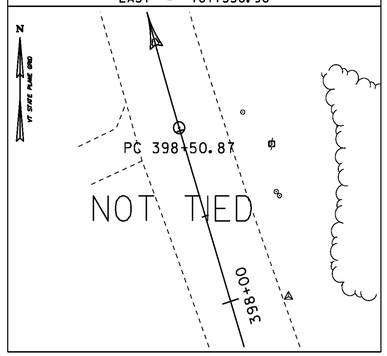
PT 393+34.42

NORTH = 489464.36
EAST = 1617692.16



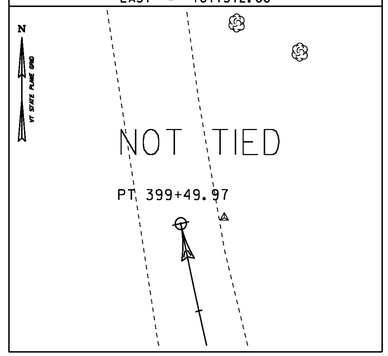
PC 398+50.88

NORTH = 489956.96
EAST = 1617536.96



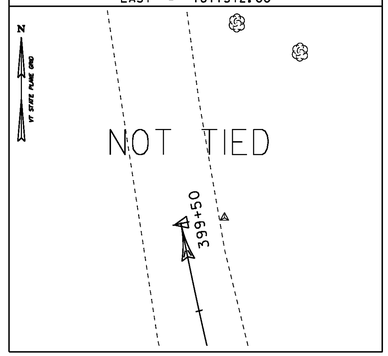
PT 399+49.98

NORTH = 490052.82
EAST = 1617512.00



POE 399+50.00

NORTH = 490052.84
EAST = 1617512.00



NORTH =
EAST =

DATUM

VERTICAL NAVD 88

HORIZONTAL NAD 83 (96)

ADJUSTMENT Compass

PROJECT NAME: Royalton
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: 86e055\survey\x86e055ti.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
Bridge 27 TIE SHEET (2)

PLOT DATE: 08-OCT-2013
DRAWN BY: R. Bullock
CHECKED BY: C. CARLSON
SHEET 17 OF 186

VT STATE PLANE GRID

N

DRIVE NO. 1 CURVE DATA
Δ = 38°04'44" LT
D = 114°35'30"
R = 50.00'
T = 17.25'
L = 33.23'
E = 2.89'

DRIVE NO. 1 PT
STA 10+36.24
N = 488704.4220
E = 1618163.7429

DRIVE NO. 1 POE
STA 10+75.00
N = 488665.7003
E = 1618165.3611

DRIVE NO. 1 PI
STA 10+20.27 BK =
STA 10+18.99 AH
Δ = 38°04'44" LT
N = 488721.6618
E = 1618163.0224

VT 14 PI NO. 1
STA 385+76.39 BK =
STA 385+49.27 AH
Δ = 39°06'47" RT
N = 488764.9561
E = 1618047.0274

DRIVE NO. 1 PC
STA 10+03.01
N = 488735.6767
E = 1618173.0879

VT 14 POB
STA 382+23.00
N = 488628.2432
E = 1618372.8966

383+00
384+00
10+00
385+00
386+00
387+00
388
STA 388+00

VT 14 STA 384+50.00 =
DRIVE NO. 1 STA 10+00.00 POB
Δ = 90° LT FROM CURVE TANGENT
N = 488738.1251
E = 1618174.8463

VT 14 PC NO. 1
STA 382+30.04
N = 488630.9657
E = 1618366.4072

MATCH LINE

VT 14 CURVE NO. 1 DATA
Δ = 39°06'47" RT
D = 5°52'35"
R = 975.00'
T = 346.35'
L = 665.58'
E = 59.69'

DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (96)
ADJUSTMENT	Compass

20 0 20
SCALE: 1" = 20'-0"

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147(13)

FILE NAME: \BR 27\s86e055alnbdr_27.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 27 ALIGNMENT LAYOUT (1)

PLOT DATE: 08-OCT-2013
DRAWN BY: L. BULLOCK
CHECKED BY: C. CARLSON
SHEET 18 OF 186

VT STATE PLANE GRID

N

DRIVE NO. 2 CURVE DATA NO. 1
Δ = 97°57′59" RT
D = 190°59′09"
R = 30.00′
T = 34.49′
L = 51.30′
E = 15.71′

CHANNEL LINE POE
STA 51+25.00
N = 489047.3263
E = 1617762.8914

DRIVE NO. 2 PI NO. 1
STA 20+50.25 BK =
STA 20+32.56 AH
Δ = 97°57′59" RT
N = 488982.5450
E = 1617876.7814

DRIVE NO. 2 PT NO. 1
STA 20+67.05
N = 489013.9771
E = 1617862.5820

DRIVE NO. 2 PC NO. 1
STA 20+15.76
N = 489000.9636
E = 1617905.9423

DRIVE NO. 2 POE
STA 21+25.00
N = 489066.7842
E = 1617838.7264

DRIVE NO. 4 CURVE DATA
Δ = 74°52′05" RT
D = 190°59′09"
R = 30.00′
T = 22.96′
L = 39.20′
E = 7.78′

DRIVE NO. 4 POE
STA 40+75.00
N = 489292.2799
E = 1617687.7131

DRIVE NO. 3 POE
STA 31+25.00
N = 489327.4629
E = 1617609.9639

DRIVE NO. 4 PI
STA 40+50.10 BK=
STA 40+43.37 AH
Δ = 74°52′05" RT
N = 489310.1178
E = 1617713.8365

DRIVE NO. 4 PT
STA 40+66.33
N = 489297.1677
E = 1617694.8712

DRIVE NO. 3 STA 30+32.60 =
DRIVE NO. 4 STA 40+00.00 POB
Δ = 90°16′12" LT
N = 489357.4293
E = 1617697.3659

DRIVE NO. 4 PC
STA 40+27.13
N = 489331.8061
E = 1617706.2862

VT 14 PI NO. 2
STA 392+60.88 BK =
STA 392+60.01 AH
Δ = 12°35′05" RT
N = 489392.5190
E = 1617711.5550

VT 14 PT NO. 1
STA 388+95.62
N = 489070.4010
E = 1617883.7476

VT 14 STA 389+75.00 =
CHANNEL STA 50+00.00
Δ = 110° LT
N = 489140.4051
E = 1617846.3260

VT 14 PC NO. 2
STA 391+53.37
N = 489297.7064
E = 1617762.2384

VT 14 STA 388+25.00 =
DRIVE NO. 2 STA 20+00.00 POB
Δ = 90°LT FROM CURVE TANGENT
N = 489009.3794
E = 1617919.2664

VT 14 STA 392+31.49 =
DRIVE NO. 3 STA 30+00.00 POB
Δ = 85°23′17" LT FROM CURVE TANGENT
N = 489368.0034
E = 1617728.2072

CHANNEL LINE POB
STA 48+75.00
N = 489233.4838
E = 1617929.7607

VT 14 CURVE NO. 2 DATA
Δ = 12°35′05" RT
D = 5°52′35"
R = 975.00′
T = 107.51′
L = 214.15′
E = 5.91′

STA 388+00
+00
MATCH LINE
389+00
50+00
390+00
N 28°07′38" W
℄ VT 14
391+00
392+00
30+00
31+00
S 71°04′31" W
393+00
STA 393+50
MATCH LINE
51+00
S 41°52′22" W
CHANNEL LINE
49+00

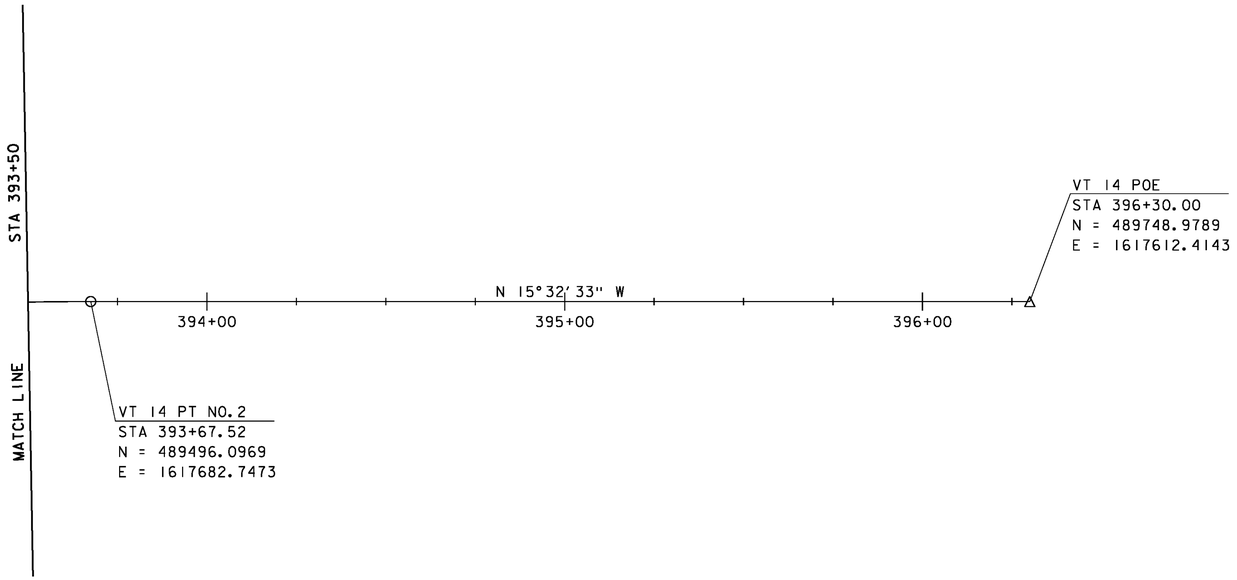
20 0 20
SCALE: 1" = 20′-0"

DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (96)
ADJUSTMENT	Compass

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147(13)

FILE NAME: \BR 27\s86e055alnbdr_27.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 27 ALIGNMENT LAYOUT (2)

PLOT DATE: 08-OCT-2013
DRAWN BY: L. BULLOCK
CHECKED BY: C. CARLSON
SHEET 19 OF 186



DATUM

VERTICAL NAVD 88

HORIZONTAL NAD 83 (96)

ADJUSTMENT Compass

20 0 20

SCALE: 1" = 20'-0"

PROJECT NAME: ROYALTON

PROJECT NUMBER: BRS 0147(13)

FILE NAME: \BR 27\s86e055alnbdr_27.dgn

PROJECT LEADER: C. CARLSON

DESIGNED BY: D. PETERSON

BRIDGE 27 ALIGNMENT LAYOUT (3)

PLOT DATE: 08-OCT-2013

DRAWN BY: L. BULLOCK

CHECKED BY: C. CARLSON

① VT 14 STA 382+75.0 RT - VT 14 STA 386+25.0 RT
CONSTRUCT NEW GRASS-LINED DITCH

② VT 14 STA 383+91.3 RT - VT 14 STA 385+83.2 RT
CONSTRUCT NEW DITCH LINED WITH STONE FILL, TYPE I

CONSTRUCT 5' WIDE PAVED APRON
VT 14 STA 384+28.7 LT - VT 14 STA 384+67.8 LT

CONSTRUCT GRAVEL DRIVE (10' WIDE)
VT 14 STA 384+50.0 LT

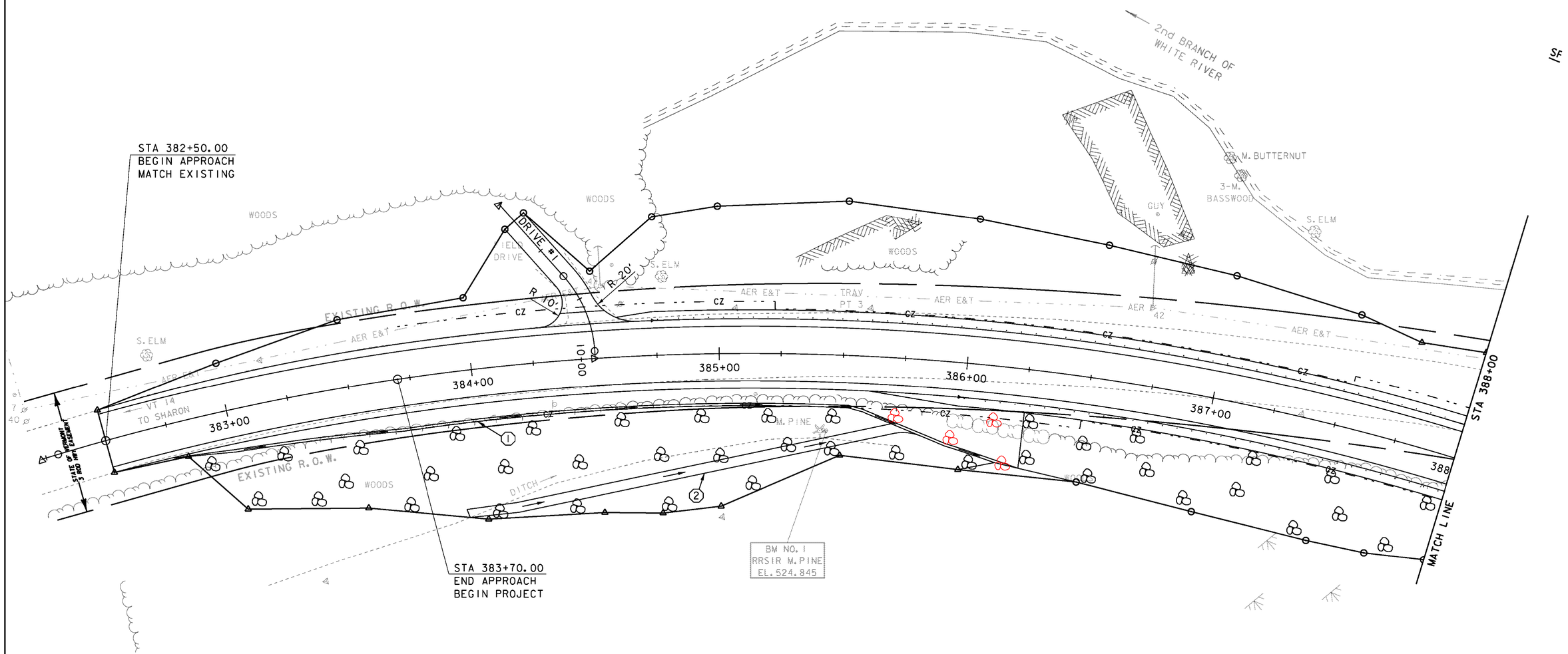
CONSTRUCT SLOPE W/ STONE FILL, TYPE II
VT 14 STA 382+80.9 RT - VT 14 STA 386+15.0 RT

SPECIAL PROVISION (REINFORCED SOIL SLOPE) W/ STONE FILL, TYPE II
VT 14 STA 386+25.0 RT - VT 14 STA 388+00.0 RT

BOX BEAM GUARDRAIL
VT 14 STA 384+87.1 LT - VT 14 STA 387+88.8 LT
VT 14 STA 386+11.7 RT - VT 14 STA 388+00.0 RT

MANUFACTURED TERMINAL SECTION, TANGENT
VT 14 STA 384+73.3 LT - VT 14 STA 384+87.1 LT
VT 14 STA 385+97.5 RT - VT 14 STA 386+11.7 RT
VT 14 STA 387+88.8 LT - VT 14 STA 388+00.0 RT

VT STATE PLANE GRID



20 0 20
SCALE: 1" = 20'-0"

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147(13)
FILE NAME: \BR 27\s86e055bdr_27.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: L. BULLOCK
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 27 LAYOUT (1)	SHEET 21 OF 186

CONSTRUCT 5' WIDE PAVED APRON

VT 14 STA 388+02.2 LT - VT 14 STA 388+43.1 LT

CONSTRUCT GRAVEL DRIVE (12' WIDE)

VT 14 STA 388+25.0 LT
DRIVE NO.3 STA 30+32.6 LT

CONSTRUCT PAVED DRIVE (10' WIDE)

VT 14 STA 392+31.5 LT

'ECIAL PROVISION (REINFORCED SOIL SLOPE) W/ STONE FILL, TYPE II

VT 14 STA 388+00.0 RT - VT 14 STA 388+50.0 RT

RELOCATE MAILBOX, SINGLE SUPPORT

FROM DRIVE NO.3 STA 30+50.5 RT TO VT 14 STA 392+50.0 LT.

REMOVING AND RESETTING FENCE

VT 14 STA 390+78.7 LT - VT 14 STA 392+04.7 LT
VT 14 STA 390+89.7 LT - VT 14 STA 393+50.0 RT
VT 14 STA 391+48.7 RT - VT 14 STA 393+50.0 RT
VT 14 STA 393+44.9 LT - VT 14 STA 393+50.0 LT

BOX BEAM GUARDRAIL

VT 14 STA 388+00.0 RT - VT 14 STA 389+66.8 RT
VT 14 STA 388+57.9 LT - VT 14 STA 389+56.3 LT
VT 14 STA 391+63.1 LT - VT 14 STA 391+89.7 LT
VT 14 STA 391+73.7 RT - VT 14 STA 392+74.1 RT

MANUFACTURED TERMINAL SECTION, TANGENT

VT 14 STA 388+00.0 LT - VT 14 STA 388+02.6 LT
VT 14 STA 388+44.0 LT - VT 14 STA 388+57.9 LT
VT 14 STA 391+89.7 LT - VT 14 STA 392+03.5 LT
VT 14 STA 391+74.1 RT - VT 14 STA 392+88.3 RT

REMOVAL AND DISPOSAL OF GUARDRAIL

VT 14 STA 389+34.8 LT - VT 14 STA 389+72.9 LT
VT 14 STA 389+46.6 LT - VT 14 STA 389+83.8 LT
VT 14 STA 390+78.7 LT - VT 14 STA 391+29.2 LT
VT 14 STA 390+89.7 LT - VT 14 STA 391+40.1 LT

REMOVAL AND DISPOSAL OF GUIDE POSTS

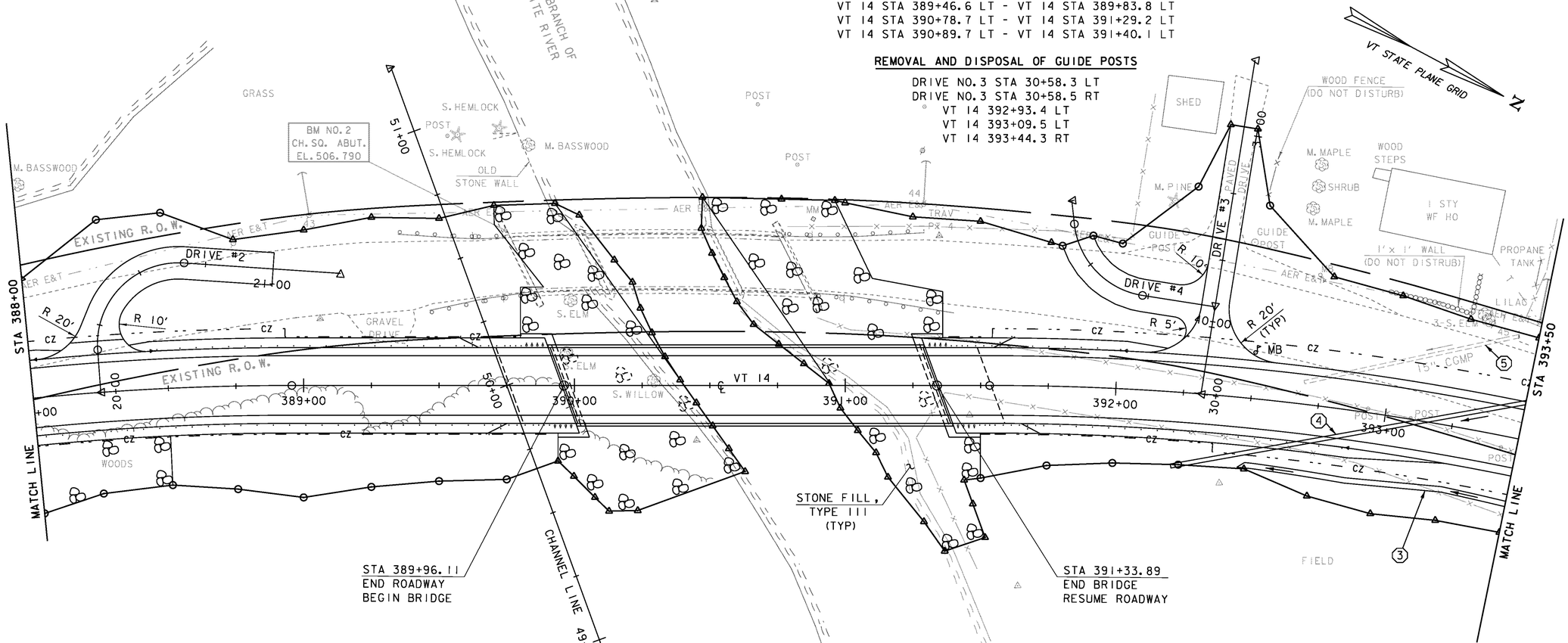
DRIVE NO.3 STA 30+58.3 LT
DRIVE NO.3 STA 30+58.5 RT
VT 14 392+93.4 LT
VT 14 393+09.5 LT
VT 14 393+44.3 RT

SPECIAL PROVISION (GUARDRAIL APPROACH SECTION TO CONCRETE COMBINATION BRIDGE RAILING)

VT 14 STA 389+56.3 LT - VT 14 STA 389+90.3 LT
VT 14 STA 389+66.8 RT - VT 14 STA 390+00.8 RT
VT 14 STA 391+29.2 LT - VT 14 STA 391+63.1 LT
VT 14 STA 391+39.7 RT - VT 14 STA 391+73.7 RT

BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION

VT 14 STA 389+90.3 LT - VT 14 STA 391+29.2 LT
VT 14 STA 390+00.8 RT - VT 14 STA 391+39.7 RT



③ VT 14 STA 392+47.3 RT - VT 14 STA 393+50.0 RT
CONSTRUCT NEW GRASS-LINED DITCH

④ VT 14 STA 392+22.2 RT - VT 14 STA 393+74.4 LT
NEW 18" X 160' PCCSP (0.064), CAAP (0.060),
RCP CL. III OR CPEP (SL) OPTION

⑤ VT 14 STA 392+68.9 LT - VT 14 STA 393+43.0 LT
EXISTING 15" CGMP & INLET HEADWALL - REMOVE

20 0 20
SCALE: 1" = 20'-0"

EXISTING BRIDGE DATA

THREE-SPAN CONCRETE T-BEAM SUPERSTRUCTURE WITH ASPHALT OVERLAY

CAST-IN-PLACE CONCRETE ABUTMENTS, WINGWALLS AND PIERS

BRIDGE LENGTH: 105'
BRIDGE WIDTH (FASCIA TO FASCIA): 23.7'
VERTICAL CLEARANCE UNDER BRIDGE: 12'

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147(13)

FILE NAME: \BR 27\s86e055bdr_27.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 27 LAYOUT (2)

PLOT DATE: 08-OCT-2013
DRAWN BY: L. BULLOCK
CHECKED BY: C. CARLSON
SHEET 22 OF 186

CONSTRUCT 5' WIDE PAVED APRON

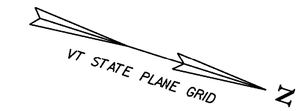
VT 14 STA 395+82.2 RT - VT 14 STA 396+21.4 RT

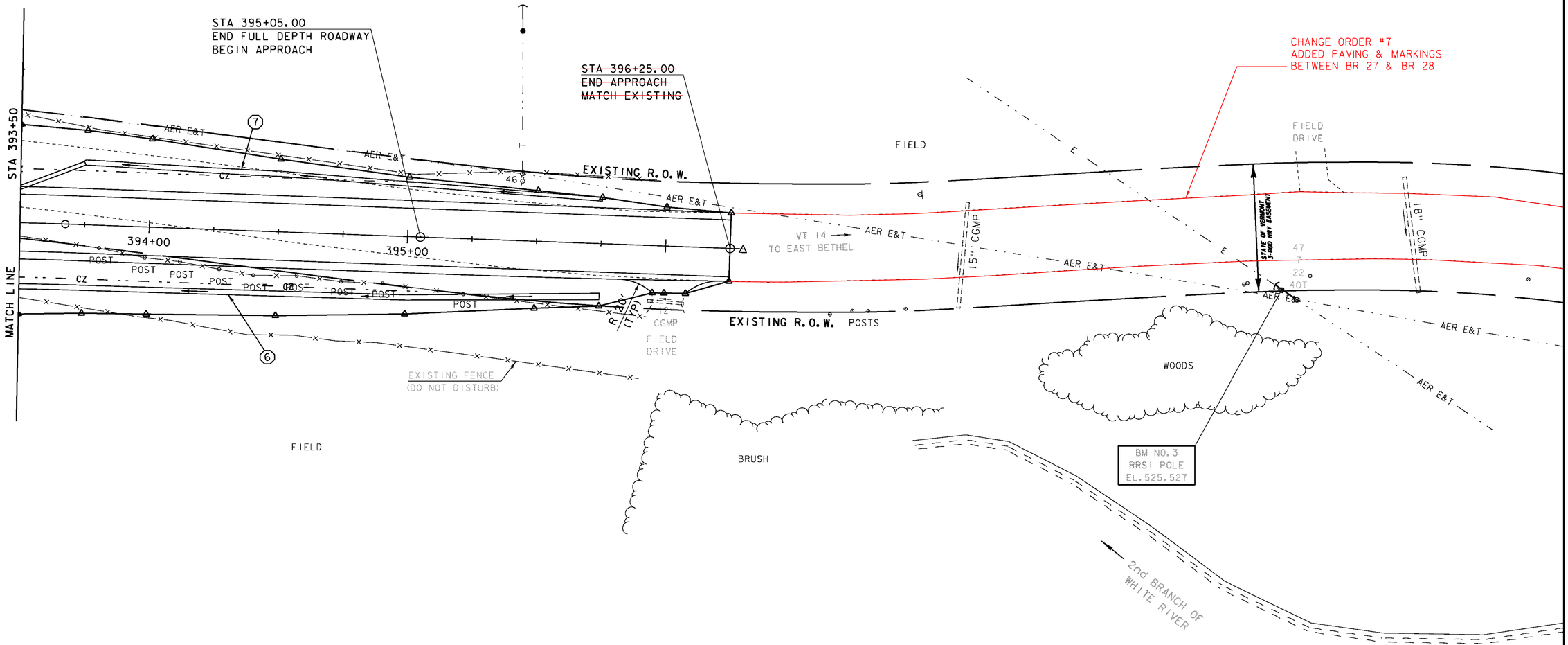
REMOVAL AND DISPOSAL OF GUIDE POSTS

VT 14 STA 393+80.9 RT
VT 14 STA 393+98.7 RT
VT 14 STA 394+12.4 RT
VT 14 STA 394+27.6 RT
VT 14 STA 394+40.9 RT
VT 14 STA 394+57.7 RT
VT 14 STA 394+74.9 RT
VT 14 STA 394+91.0 RT
VT 14 STA 395+22.4 RT

REMOVING AND RESETTING FENCE

VT 14 STA 393+50.0 RT - VT 14 STA 394+73.3 RT
VT 14 STA 393+50.0 RT - VT 14 STA 395+93.4 RT
VT 14 STA 393+50.0 RT - VT 14 STA 395+95.7 LT



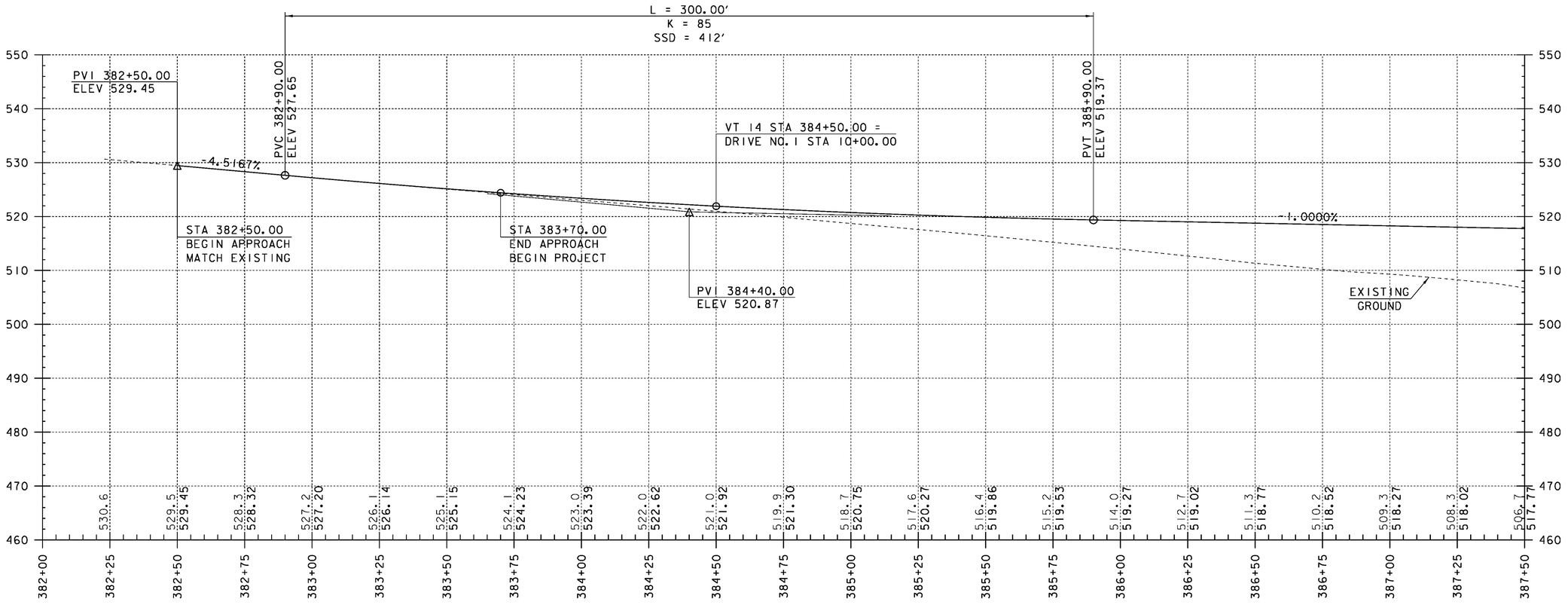


⑥ VT 14 STA 393+50.0 RT - VT 14 STA 395+75.0 RT
CONSTRUCT NEW GRASS-LINED DITCH

⑦ VT 14 STA 393+75.0 LT - VT 14 STA 395+75.0 LT
CONSTRUCT NEW GRASS-LINED DITCH

20 0 20
SCALE: 1" = 20'-0"

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147(13)
FILE NAME: \BR 27\s86e055bdr_27.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: L. BULLOCK
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 27 LAYOUT (3)	SHEET 23 OF 186



NOTE:

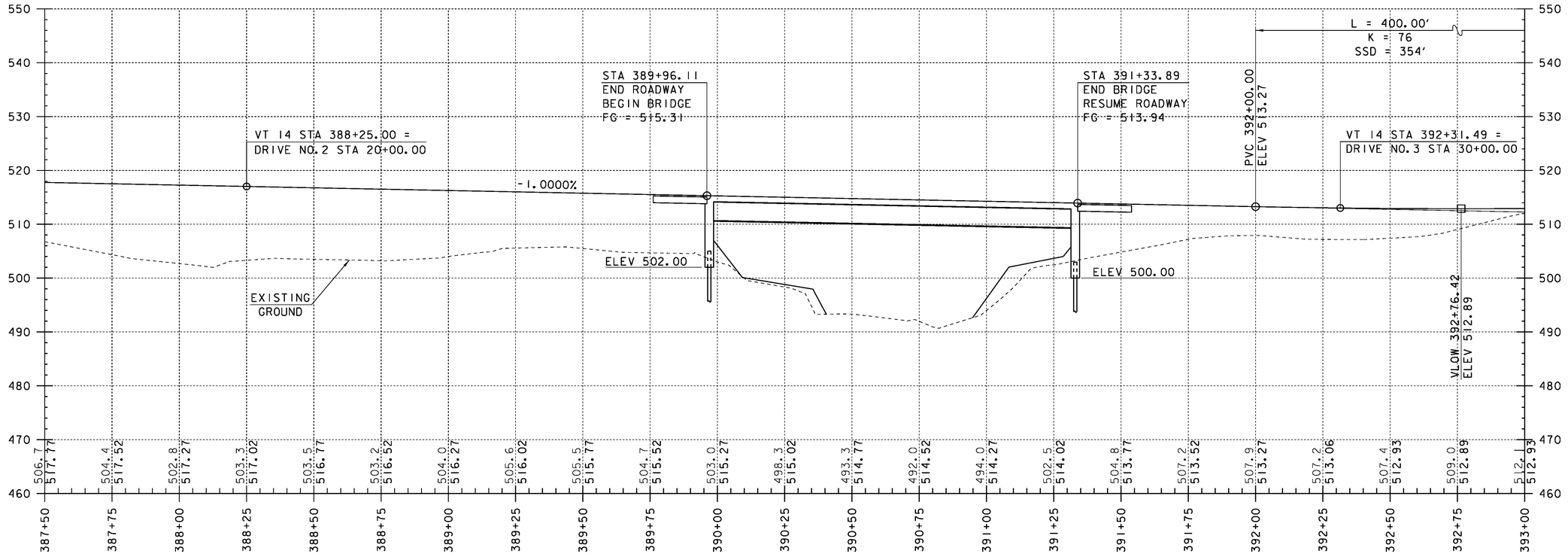
ELEVATIONS SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG PROPOSED CENTERLINE.

ELEVATIONS SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADES ALONG PROPOSED CENTERLINE.

PROFILE ALONG VT 14

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 10'-0"

PROJECT NAME: ROYALTON	
PROJECT NUMBER: BRS 0147 (13)	
FILE NAME: s86e055pro_27.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: D. PETERSON
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 27 VT 14 PROFILE SHEET (1)	SHEET 24 OF 186



NOTE:

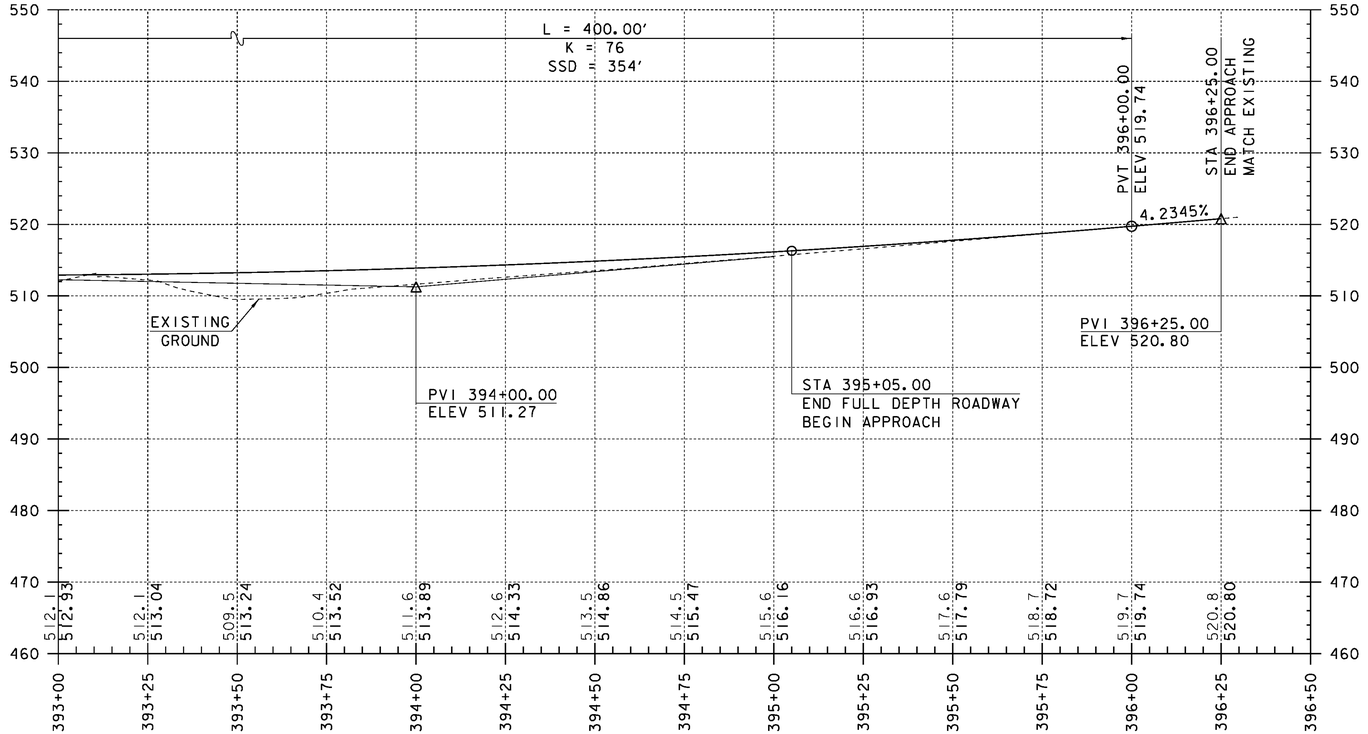
ELEVATIONS SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG PROPOSED CENTERLINE.

ELEVATIONS SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADES ALONG PROPOSED CENTERLINE.

PROFILE ALONG VT 14

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 10'-0"

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: s86e055pro_27.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: D. PETERSON
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 27 VT 14 PROFILE SHEET (2)	SHEET 25 OF 186



PROFILE ALONG VT 14

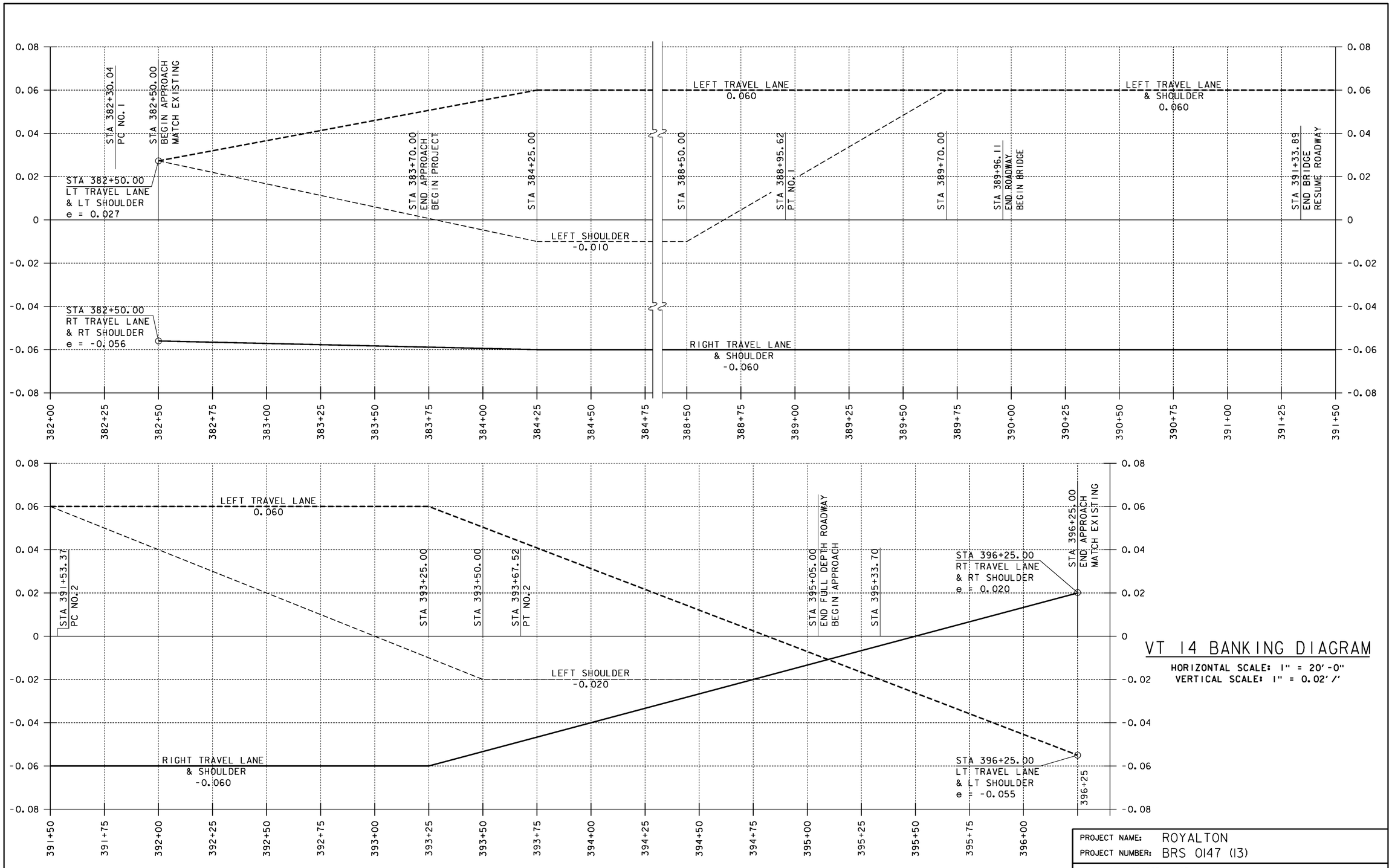
HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 10'-0"

NOTE:

ELEVATIONS SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG PROPOSED CENTERLINE.

ELEVATIONS SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADES ALONG PROPOSED CENTERLINE.

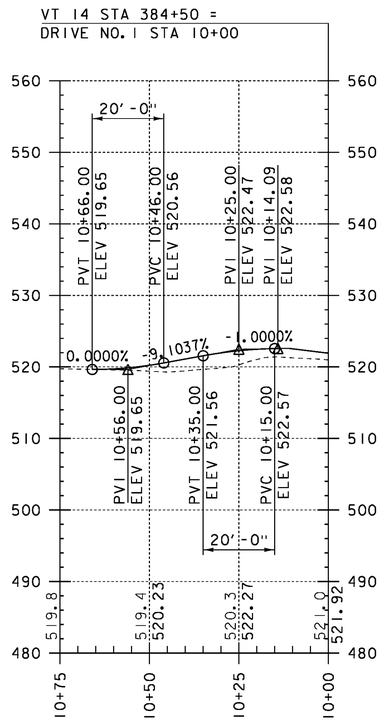
PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: s86e055pro_27.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: D. PETERSON
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 27 VT 14 PROFILE SHEET (3)	SHEET 26 OF 186



VT 14 BANKING DIAGRAM

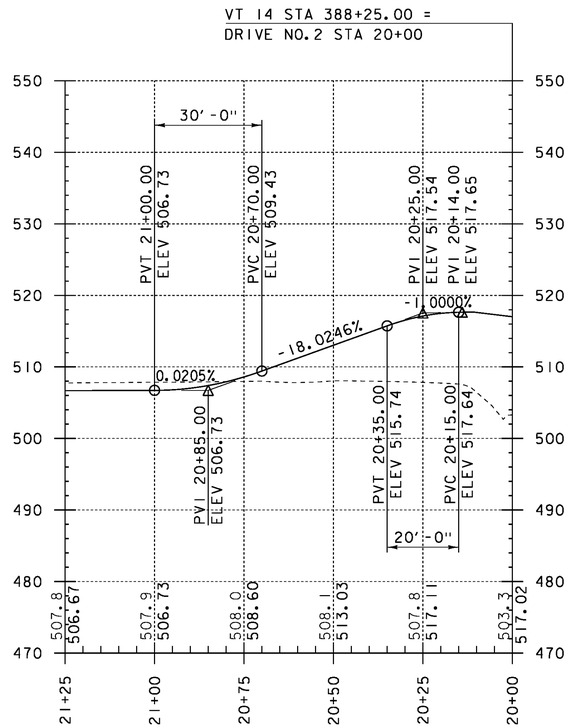
HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 0.02'/'

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: s86e055pro_27.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: D. PETERSON
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 27 VT 14 BANKING DIAGRAM	SHEET 27 OF 186



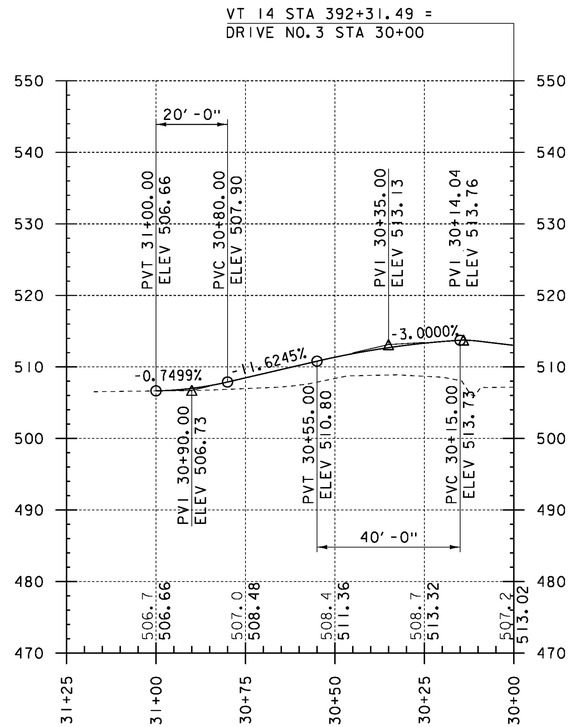
PROFILE ALONG DRIVE NO. 1

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 10'-0"



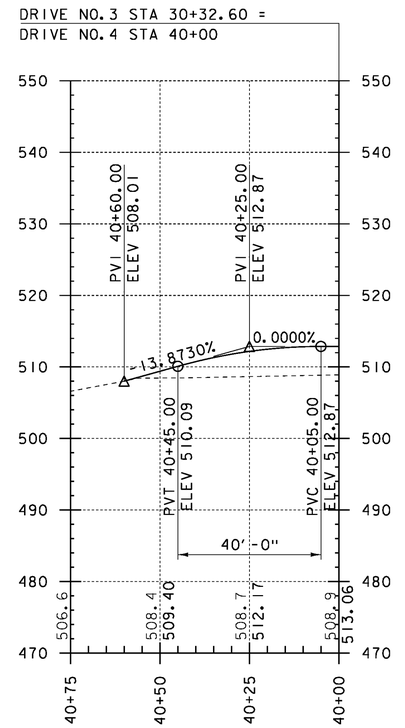
PROFILE ALONG DRIVE NO. 2

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 10'-0"



PROFILE ALONG DRIVE NO. 3

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 10'-0"



PROFILE ALONG DRIVE NO. 4

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 10'-0"

NOTE:

ELEVATIONS SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG PROPOSED CENTERLINE.

ELEVATIONS SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADES ALONG PROPOSED CENTERLINE.

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: s86e055pro_27.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: D. PETERSON
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 27 DRIVE PROFILES	SHEET 28 OF 186

DURABLE 4 INCH WHITE LINE

VT 14 STA 382+50.0 RT - VT 14 STA 388+00.0 RT
VT 14 STA 382+50.0 LT - VT 14 STA 388+00.0 LT

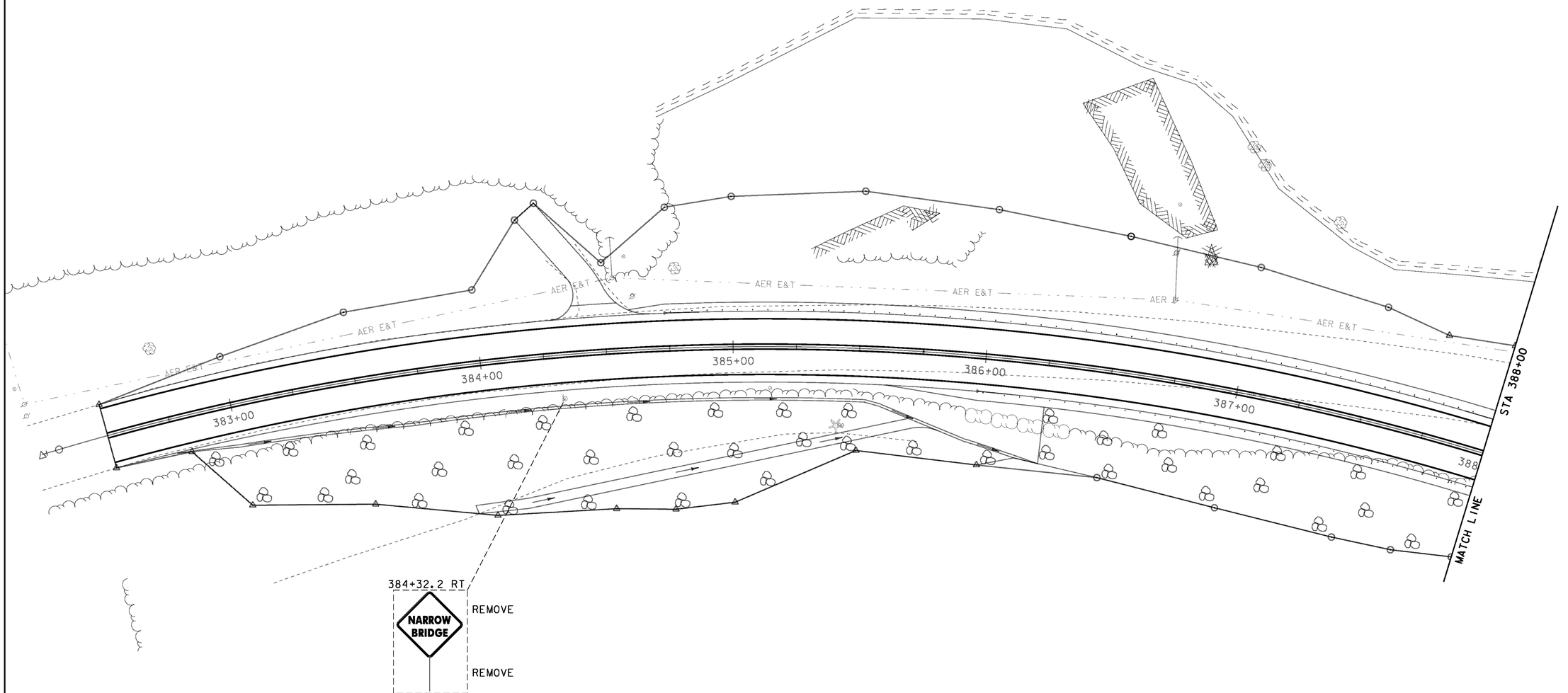
REMOVING SIGNS

VT 14 STA 384+32.2 RT

DURABLE 4 INCH YELLOW LINE

VT 14 STA 382+50.0 ℄ - VT 14 STA 388+00.0 ℄ (DOUBLE)

VT STATE PLANE GRID



20 0 20
SCALE: 1" = 20'-0"

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: \BR 27\s86e055trfbdr_27.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: D. PETERSON
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 27 SIGNS & PAVEMENT MARKINGS (1)	SHEET 29 OF 186

DURABLE 4 INCH WHITE LINE

VT 14 STA 388+00.0 RT - VT 14 STA 393+50.0 RT
VT 14 STA 388+00.0 LT - VT 14 STA 393+50.0 LT

DURABLE 4 INCH YELLOW LINE

VT 14 STA 388+00.0 ℄ - VT 14 STA 393+50.0 ℄ (DOUBLE)

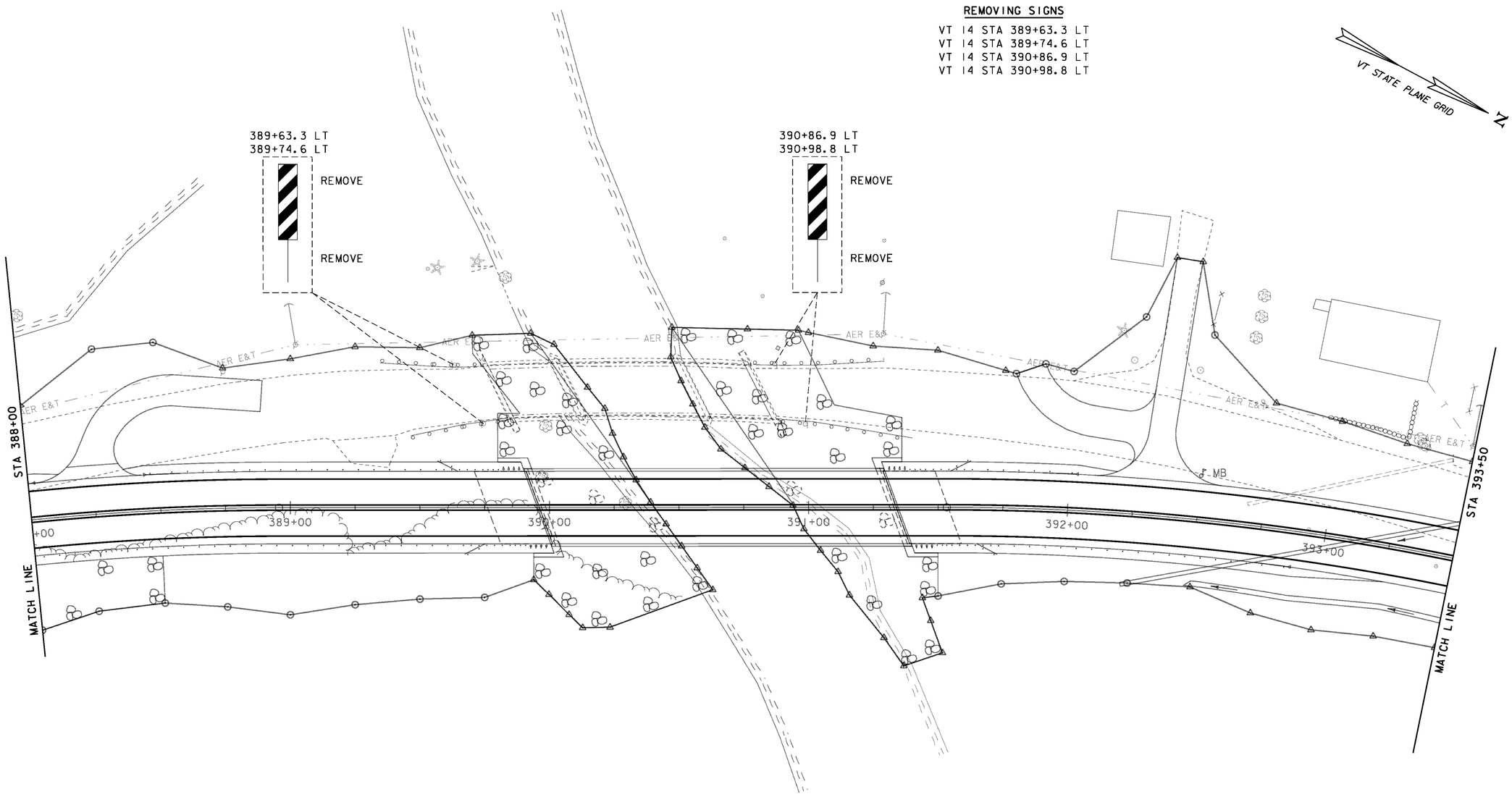
REMOVING SIGNS

VT 14 STA 389+63.3 LT
VT 14 STA 389+74.6 LT
VT 14 STA 390+86.9 LT
VT 14 STA 390+98.8 LT

VT STATE PLANE GRID N

389+63.3 LT
389+74.6 LT
REMOVE
REMOVE

390+86.9 LT
390+98.8 LT
REMOVE
REMOVE



20 0 20
SCALE: 1" = 20'-0"

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: \BR 27\s86e055trfbdr_27.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: D. PETERSON
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 27 SIGNS & PAVEMENT MARKINGS (2)	SHEET 30 OF 186

DURABLE 4 INCH WHITE LINE

VT 14 STA 393+50.0 RT - VT 14 ~~STA 396+25.0 RT~~
VT 14 STA 393+50.0 LT - VT 14 ~~STA 396+25.0 LT~~

DURABLE 4 INCH YELLOW LINE

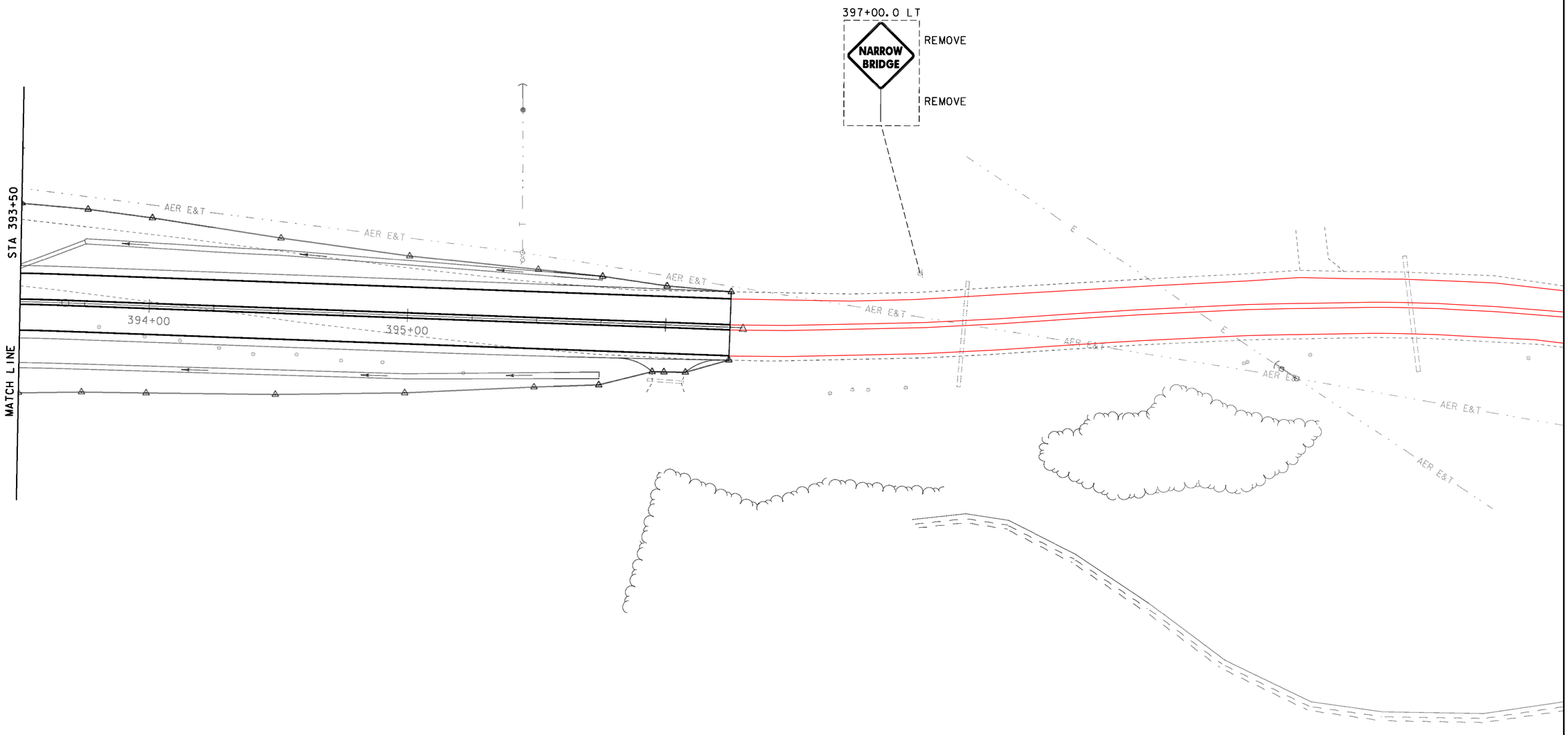
VT 14 STA 393+50.0 ℄ - VT 14 STA 396+25.0 ℄ (DOUBLE)

REMOVING SIGNS

VT 14 STA 397+00.0 LT

VT STATE PLANE GRID

N



20 0 20

SCALE: 1" = 20'-0"

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: \BR 27\s86e055trfbdr_27.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: D. PETERSON
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 27 SIGNS & PAVEMENT MARKINGS (3)	SHEET 31 OF 186

SOIL CLASSIFICATION

AASHTO	
A1	Gravel and Sand
A3	Fine Sand
A2	Silty or Clayey Gravel and Sand
A4	Silty Soil - Low Compressibility
A5	Silty Soil - Highly Compressible
A6	Clayey Soil - Low Compressibility
A7	Clayey Soil - Highly Compressible

ROCK QUALITY DESIGNATION

R.Q.D. (%)	ROCK DESCRIPTION
<25	Very Poor
25 to 50	Poor
51 to 75	Fair
76 to 90	Good
>90	Excellent

SHEAR STRENGTH

UNDRAINED SHEAR STRENGTH IN P.S.F.	CONSISTENCY
<250	Very Soft
250-500	Soft
500-1000	Med. Stiff
1000-2000	Stiff
2000-4000	Very Stiff
>4000	Hard

CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

DENSITY (GRANULAR SOILS)		CONSISTENCY (COHESIVE SOILS)	
N	DESCRIPTIVE TERM	N	DESCRIPTIVE TERM
<5	Very Loose	<2	Very Soft
5-10	Loose	2-4	Soft
11-24	Med. Dense	5-8	Med. Stiff
25-50	Dense	9-15	Stiff
>50	Very Dense	16-30	Very Stiff
		31-60	Hard
		>60	Very Hard

COMMONLY USED SYMBOLS

▼	Water Elevation
⊕	Standard Penetration Boring
⊕	Auger Boring
⊙	Rod Sounding
S	Sample
N	Standard Penetration Test Blow Count Per Foot For: 2" O.D. Sampler 1⅜" I.D. Sampler Hammer Weight Of 140 Lbs. Hammer Fall Of 30"
VS	Field Vane Shear Test
US	Undisturbed Soil Sample
B	Blast
DC	Diamond Core
MD	Mud Drill
WA	Wash Ahead
HSA	Hollow Stem Auger
AX	Core Size 1⅛"
BX	Core Size 1⅝"
NX	Core Size 2⅛"
M	Double Tube Core Barrel Used
LL	Liquid Limit
PL	Plastic Limit
PI	Plasticity Index
NP	Non Plastic
w	Moisture Content (Dry Wgt. Basis)
D	Dry
M	Moist
MTW	Moist To Wet
W	Wet
Sat	Saturated
Bo	Boulder
Gr	Gravel
Sa	Sand
Si	Silt
Cl	Clay
HP	Hardpan
Le	Ledge
NLTD	No Ledge To Depth
CNPF	Can Not Penetrate Further
TLOB	To Ledge Or Boulder
NR	No Recovery
Rec.	Recovery
%Rec.	Percent Recovery
RQD	Rock Quality Designation
CBR	California Bearing Ratio
<	Less Than
>	Greater Than
R	Refusal (N > 100)

COLOR

blk	Black	pnk	Pink
bl	Blue	pu	Purple
brn	Brown	rd	Red
dk	Dark	tn	Tan
gry	Gray	wh	White
gn	Green	yel	Yellow
lt	Light	mltc	Multicolored
or	Orange		

DEFINITIONS (AASHTO)

BEDROCK (LEDGE) - Rock in its native location of indefinite thickness.

BOULDER - A rock fragment with an average dimension > 12 inches.

COBBLE - Rock fragments with an average dimension between 3 and 12 inches.

GRAVEL - Rounded particles of rock < 3" and > 0.0787" (#10 sieve).

SAND - Particles of rock < 0.0787" (#10 sieve) and > 0.0029" (#200 sieve).

SILT - Soil < 0.0029" (#200 sieve), non or slightly plastic and exhibits no strength when air-dried.

CLAY - Fine grained soil, exhibits plasticity when moist and considerable strength when air-dried.

VARVED - Alternate layers of silt and clay.

HARDPAN - Extremely dense soil, cemented layer, not softened when wet.

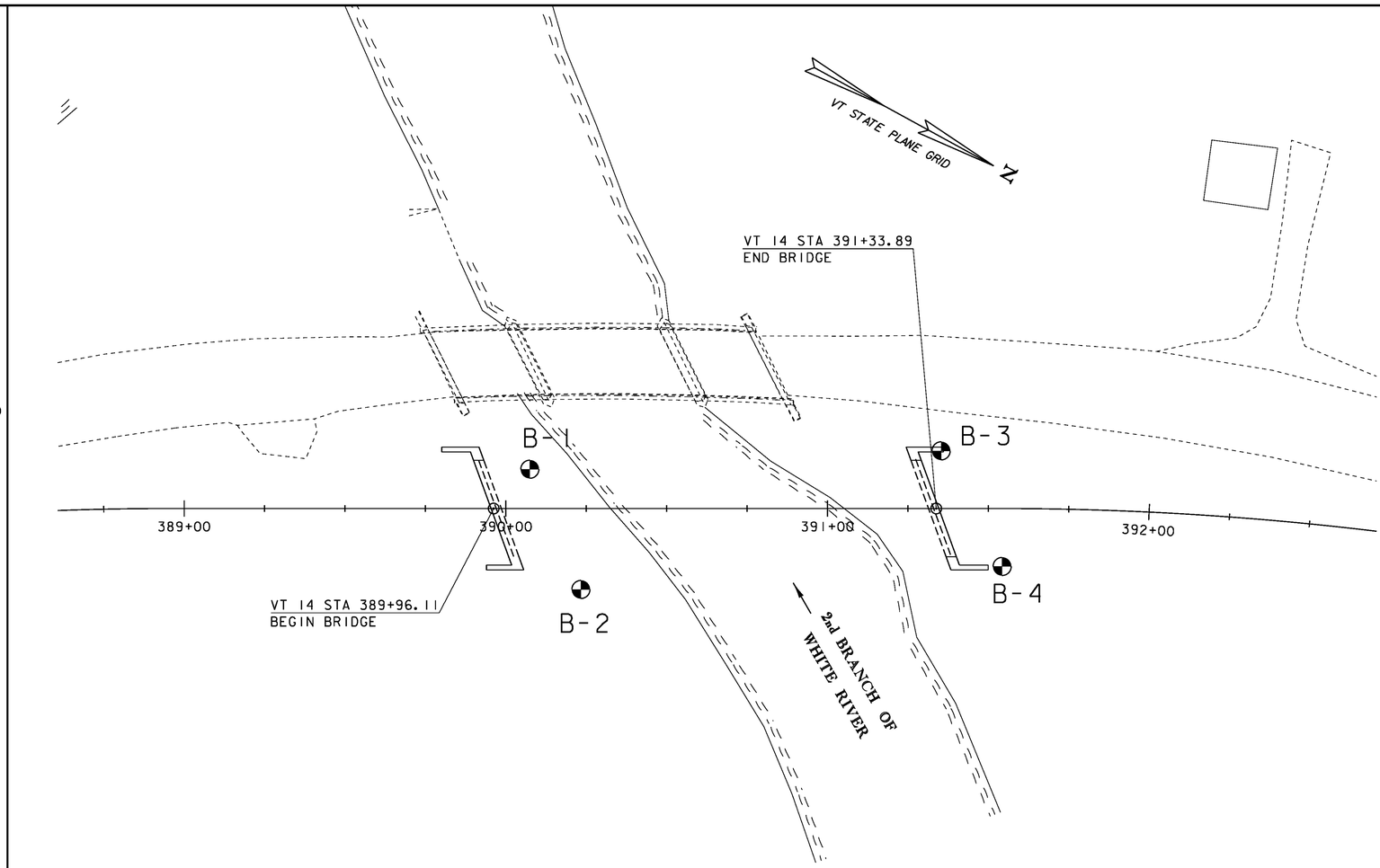
MUCK - Soft organic soil (containing > 10% organic material.

MOISTURE CONTENT - Weight of water divided by dry weight of soil.

FLOWING SAND - Granular soil so saturated (loose) that it flows into drill casing during extraction of wash rod.

STRIKE - Angle from magnetic north to line of intersection of bed with a horizontal plane.

DIP - Inclination of bed with a horizontal plane.



BORING CHART

HOLE NO.	STATION	OFFSET	GROUND ELEVATION	ELEV. TLOB	NORTHING	EASTING
B1	390+07.45	12.22' LT	499.35	444.35	489163.25	1617280.25
B2	390+23.33	25.18' RT	499.94	439.34	489194.90	1617845.74
B3	391+35.32	17.94' LT	504.61	448.61	489273.33	1617754.92
B4	391+54.31	18.02' RT	505.36	446.36	489307.02	1617777.69

GENERAL NOTES

1. The subsurface explorations shown herein were made between 01/17/1992 and 01/31/1992 by the Agency.
2. Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
3. Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
4. Engineering judgement was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgement by the Contractor.
5. Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.
6. Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.

20 0 20

SCALE: 1" = 20'-0"

PROJECT NAME: ROYALTON

PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR 27\s86e055bor_27.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 27 BORING LAYOUT

PLOT DATE: 08-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: D. PETERSON
SHEET 32 OF 186

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING NUMBER: B-1
SHEET 1 of 1
DATE STARTED: 1/30/92
DATE COMPLETED: 1/31/92

PROJECT NAME: ROYALTON
SITE NAME: BR-27 & BR-28
STATION: 390+07.45
OFFSET: -12.22
VTSPG: N 489163.25 ft E 1617280.25 ft

PROJECT NUMBER: BRS 0147(13)
SITE NUMBER: RT 14
GROUND ELEVATION: 499.35 ft
GROUNDWATER DEPTH: 4.3 ft
PROJECT PIN NUMBER: 86E055

BORING CREW
CREW CHIEF: McGLYNN
DRILLER: WILLIS
LOGGER: FELCH

BORING RIG:
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: CCB

BOT. ABUT. #1 EL. 502.00

APPROX. PILE TIP

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT / RUN	M.C. (%) / REC (%)	GRAVEL (%) / RQD (%)	SAND (%) / Dip (deg)	FINES (%) / Drill Rate (min/ft)
		No Recovery, 5.0 ft - 7.0 ft	2				
10		A-2-4, Sa, gry, Wet, Rec. = 1.2 ft	10	24.7			
		A-2-4, Sa, gry, Wet, Rec. = 1.6 ft	32	27.4			
20		A-2-4, Sa, gry, Wet, Rec. = 1.0 ft	24	11.9			
		Boulders, No recovery, 25.0 ft - 27.0 ft	60				
30		Boulders, No recovery, 30.0 ft - 32.0 ft	49				
		A-1-a, SaGr, gry, Wet, Rec. = 0.5 ft	44	8.1			
40		A-1-a, SaGr, gry, Wet, Rec. = 1.0 ft	57	16.0			
		A-4, GrSiSa, gry, Wet, Rec. = 1.0 ft	24	13.2			
50		Boulders, No Recovery, 50.0 ft - 52.0 ft	R				
		Possible Bedrock, No recovery, 55.0 ft - 55.5 ft	R				
60		Core consists of gray and light gray phyllite and schist. Phyllite is the dominant lithology. The core is moderately soft, unweathered, and competent., BXDC, 60.1 ft - 64.6 ft, Rec. = 4.5 ft	1	100	51	25	
		Same as Run #1, BXMDC, 64.6 ft - 69.6 ft, Rec. = 4.5 ft	2	90	36	25	
70		Hole stopped @ 69.6 ft					

LOG OF BORING ROYALTON BRS 0147(13).GPJ VT AOT.GDT 12/13/06

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING NUMBER: B-2
SHEET 1 of 1
DATE STARTED: 1/30/92
DATE COMPLETED: 1/31/92

PROJECT NAME: ROYALTON
SITE NAME: BR-27 & BR-28
STATION: 390+23.33
OFFSET: 25.18
VTSPG: N 489194.90 ft E 1617845.74 ft

PROJECT NUMBER: BRS 0147(13)
SITE NUMBER: RT 14
GROUND ELEVATION: 499.94 ft
GROUNDWATER DEPTH: 4.2 ft
PROJECT PIN NUMBER: 86E055

BORING CREW
CREW CHIEF: McGLYNN
DRILLER: WILLIS
LOGGER: FELCH

BORING RIG:
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: CCB

BOT. ABUT. #1 EL. 502.00

APPROX. PILE TIP

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT / RUN	M.C. (%) / REC (%)	GRAVEL (%) / RQD (%)	SAND (%) / Dip (deg)	FINES (%) / Drill Rate (min/ft)
		A-4, SaSi, brn, Moist, Rec. = 1.0 ft	4	51.6			
10		Wood, 10.0 ft - 12.0 ft					
		A-2-4, Sa, gry, Wet, Rec. = 0.8 ft	14	21.5			
20		A-2-4, SiSa, gry, Wet, Rec. = 0.9 ft	17	29.0			
		A-4, SiSa, gry, Wet, Rec. = 1.0 ft	15	26.6			
30		A-2-4, Sa, gry, Wet, Rec. = 1.3 ft	27	19.4			
		A-1-b, Sa, gry, Wet, Rec. = 0.8 ft	27	12.3			
40		A-2-4, SiGrSa, gry, Wet, Rec. = 0.6 ft	58	12.9			
		No recovery, 45.0 ft - 47.0 ft	37				
50		No recovery, 50.0 ft - 52.0 ft	25				
		A-1-b, Sa, gry, Wet, Rec. = 0.5 ft	28	13.5			
60		No recovery, 60.0 ft - 60.6 ft	R	Top of Bedrock @ 60.6 ft			
		Same as Run #2, BX, 60.6 ft - 62.6 ft, Rec. = 1.2 ft	1	60	0	45	
		Core consists of gray and light gray interbedded phyllite and schist. The rock is moderately soft, slightly weathered on widely spaced fractures and competent overall., BXMDC, 62.6 ft - 67.6 ft, Rec. = 5.0 ft	2	100	65	45	
		Same as Run #2, BXMDC, 67.6 ft - 71.6 ft, Rec. = 3.2 ft	3	80	38	45	
70		Hole stopped @ 71.6 ft					

LOG OF BORING ROYALTON BRS 0147(13).GPJ VT AOT.GDT 12/13/06

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR 27\s86e055bor_27.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 27 BORING LOGS (1)

PLOT DATE: 08-OCT-2013
DRAWN BY: C. MOONEY
CHECKED BY: G. ROY

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING NUMBER: B-3
SHEET 1 of 1
DATE STARTED: 1/24/92
DATE COMPLETED: 1/28/92

PROJECT NAME: ROYALTON
SITE NAME: BR-27 & BR-28
STATION: 391+35.32
OFFSET: -17.94
VTSPG: N 489273.33 ft E 1617754.92 ft

PROJECT NUMBER: BRS 0147(13)
SITE NUMBER: RT 14
GROUND ELEVATION: 504.61 ft
GROUNDWATER DEPTH: 13.1 ft
PROJECT PIN NUMBER: 86E055

BORING CREW
CREW CHIEF: McGLYNN
DRILLER: WILLIS
LOGGER: FELCH

BORING RIG:
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: CCB

BOT. ABUT. #2 EL. 500.00

APPROX. PILE TIP

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT / RUN	M.C. (%) / REC (%)	GRAVEL (%) / RQD (%)	SAND (%) / Dip (deg)	FINES (%) / Drill Rate (min/ft)
		A-3, Sa, gry, Moist, Rec. = 1.3 ft	7	31.2			
10		A-3, Sa, gry, Moist, Rec. = 0.8 ft	2	29.5			
		A-2-4, Sa, gry, Moist, Rec. = 1.4 ft	17	21.6			
20		A-2-4, Sa, gry, Moist, Rec. = 1.0 ft	17	18.6			
		A-2-4, Sa, gry, Moist, Rec. = 1.2 ft	22	19.9			
30		A-2-4, SiSa, gry, Moist, Rec. = 1.0 ft	32	22.9			
		A-1-a, SaGr, gry, Moist, Rec. = 0.5 ft	72	9.4			
40		A-1-a, SaGr, gry, Moist, Rec. = 1.0 ft	63	7.5			
		Boulders, No recovery, 45.0 ft - 47.0 ft	82				
50		A-1-a, Gr, gry, Wet	63	8.2			
		Field Note:, Gravel or soft ledge, BXDC, Rec. = 1.4					
				Top of Bedrock @ 56.0 ft			
60		Core consists of gray and light gray interbedded schist and phyllite. The rock is moderately soft, unweathered, and competent overall., BXMDC, 56.0 ft - 61.0 ft, Rec. = 4.8 ft	1	96	39	20	
		Same as Run #1, BXMDC, 61.0 ft - 66.0 ft, Rec. = 4.2 ft	2	84	64	20	
		Hole stopped @ 66.0 ft					
70							

LOG OF BORING ROYALTON BRS 0147(13)GPJ VT AOT.GDT 12/13/06

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING NUMBER: B-4
SHEET 1 of 1
DATE STARTED: 1/17/92
DATE COMPLETED: 1/21/92

PROJECT NAME: ROYALTON
SITE NAME: BR-27 & BR-28
STATION: 391+54.31
OFFSET: 18.02
VTSPG: N 489307.02 ft E 1617777.69 ft

PROJECT NUMBER: BRS 0147(13)
SITE NUMBER: RT 14
GROUND ELEVATION: 505.36 ft
GROUNDWATER DEPTH: 12.6 ft
PROJECT PIN NUMBER: 86E055

BORING CREW
CREW CHIEF: McGLYNN
DRILLER: WILLIS
LOGGER: FELCH

BORING RIG:
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: CCB

BOT. ABUT. #2 EL. 500.00

APPROX. PILE TIP

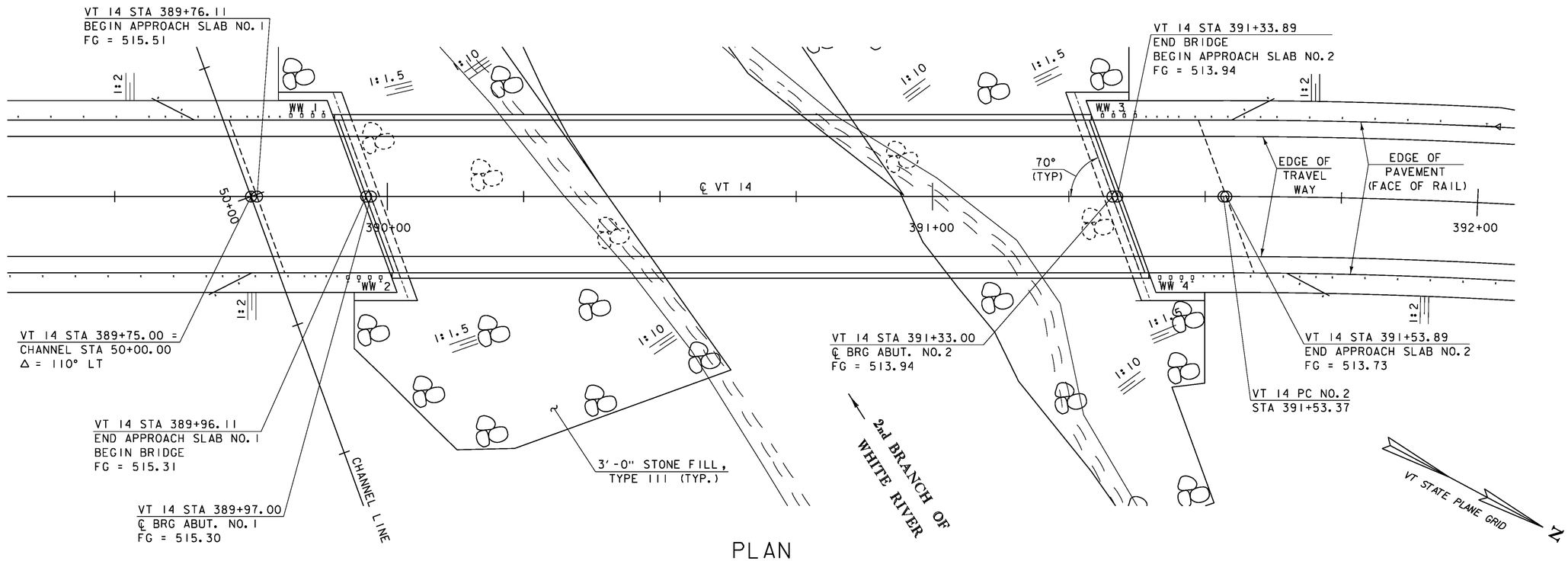
DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT / RUN	M.C. (%) / REC (%)	GRAVEL (%) / RQD (%)	SAND (%) / Dip (deg)	FINES (%) / Drill Rate (min/ft)
		A-4, SaSi, brn, Moist, Rec. = 2.0 ft	14	27.8			
		A-2-4, SiSa, brn, Moist, Rec. = 1.5 ft	8	29.2			
		A-4, SiSa, brn, Moist, Rec. = 1.0 ft	8	26.7			
		A-2-4, SiSa, brn, Moist, Rec. = 1.0 ft	4	15.6			
10		A-1-b, GrSa, gry, Moist, Rec. = 0.7 ft	8	15.9			
		A-2-4, GrSiSa, gry, Moist, Rec. = 1.0 ft	8	23.8			
		A-4, SaSi, gry, Wet, Rec. = 1.4 ft	9	26.4			
		A-4, SaSi, gry, Wet, Rec. = 1.3 ft	11	26.3			
		A-4, SiSa, gry, Wet, Rec. = 1.0 ft	10	22.5			
		A-4, SiSa, gry, Wet, Rec. = 0.8 ft	11	27.1			
20		A-2-4, Sa, gry, Wet, Rec. = 0.9 ft	9	23.3			
		A-2-4, Sa, gry, Wet, Rec. = 0.8 ft	17	24.3			
		A-2-4, SiSa, gry, Wet, Rec. = 1.9 ft	16	19.9			
		A-2-4, SiSa, gry, Wet, Rec. = 1.0 ft	25	22.2			
		A-2-4, SiSa, gry, Wet, Rec. = 0.9 ft	13	24.3			
30		A-2-4, SiSa, gry, Wet, Rec. = 1.0 ft	13	19.4			
		A-2-4, Sa, gry, Wet, Rec. = 1.0 ft	18	20.3			
		A-2-4, SiSa, gry, Wet, Rec. = 1.0 ft	27	16.6			
		A-2-4, Sa, gry, Wet, Rec. = 1.2 ft	34	20.7			
		A-2-4, Sa, gry, Wet, Rec. = 1.1 ft	28	22.4			
40		A-2-4, SiSa, gry, Wet, Rec. = 1.5 ft	9	19.0			
		A-2-4, Sa, gry, Wet, Rec. = 1.3 ft	48	12.4			
50		A-1-a, Gr, gry, Wet, Rec. = 0.8 ft	32	3.6			
		A-1-a, SaGr, gry, Wet, Rec. = 0.4 ft	22	8.4			
				Top of Bedrock @ 59.0 ft			
60		Core consists of interbedded gray and light gray phyllite and schist. The rock is moderately soft, slightly weathered, and competent overall., BXDC, 59.0 ft - 64.0 ft, Rec. = 2.8 ft	1	56	0	20	
		Same as Run #1, AXDC, 64.0 ft - 69.0 ft, Rec. = 1.9 ft	2	38	0	20	
70		Same as Run #1, AXDC, 69.0 ft - 74.0 ft, Rec. = 3.0 ft	3	60	0	20	
		Hole stopped @ 74.0 ft					

LOG OF BORING ROYALTON BRS 0147(13)GPJ VT AOT.GDT 12/13/06

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR 27\s86e055bor_27.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 27 BORING LOGS (2)

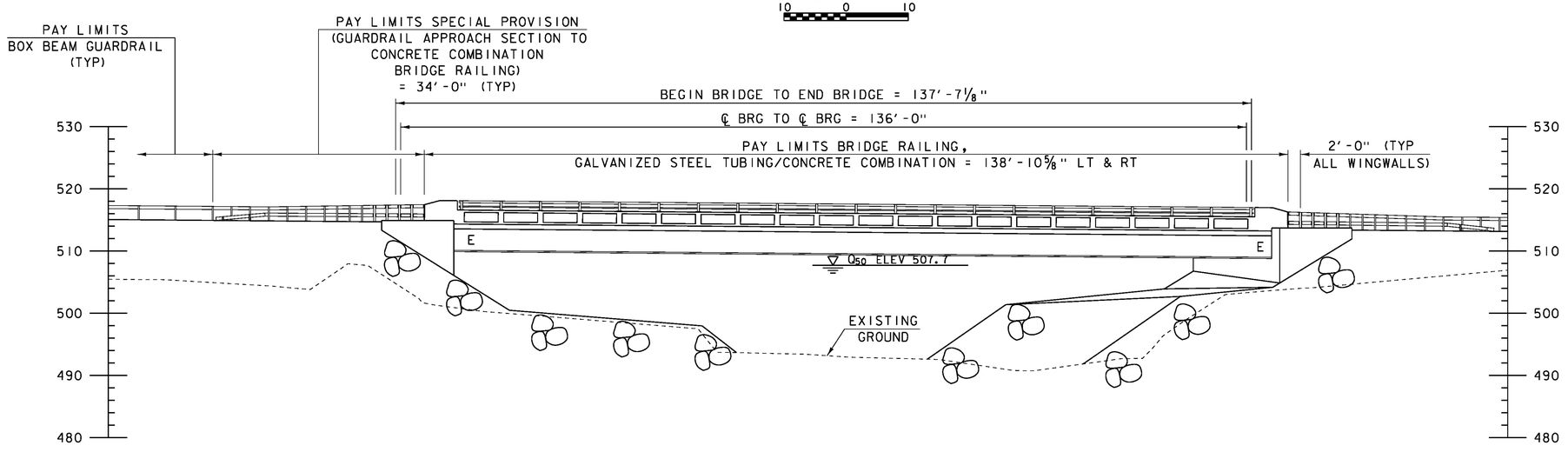
PLOT DATE: 08-OCT-2013
DRAWN BY: C. MOONEY
CHECKED BY: G. ROY
SHEET 34 OF 186



PLAN

SCALE 1" = 10'-0"

10 0 10

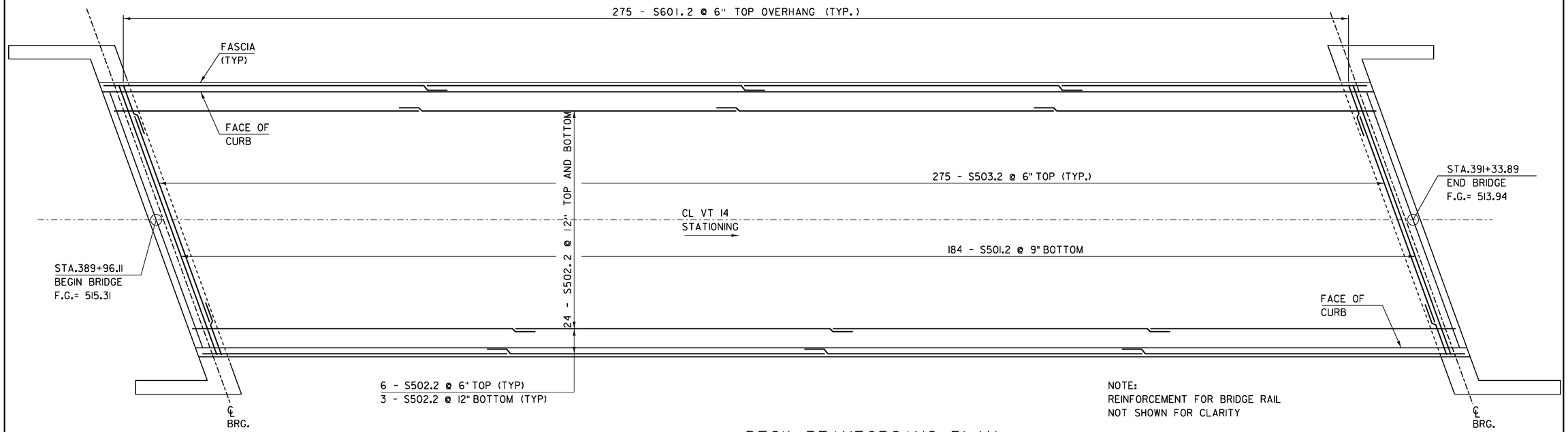


ELEVATION

SCALE 1" = 10'-0"

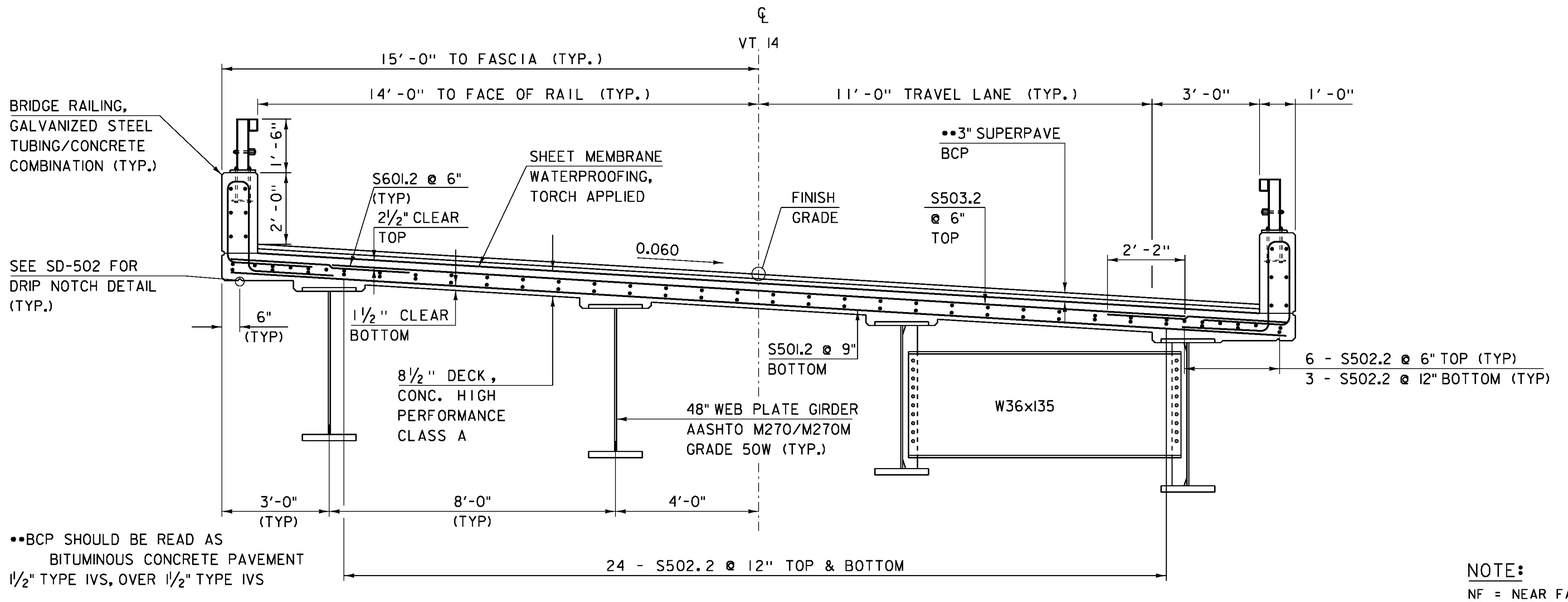
10 0 10

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: \BR 27\s86e055pe_27.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: D. PETERSON
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 27 PLAN AND ELEVATION	SHEET 35 OF 186



DECK REINFORCING PLAN

SCALE 3/16" = 1'-0"



••BCP SHOULD BE READ AS BITUMINOUS CONCRETE PAVEMENT 1½" TYPE IVS, OVER 1½" TYPE IVS

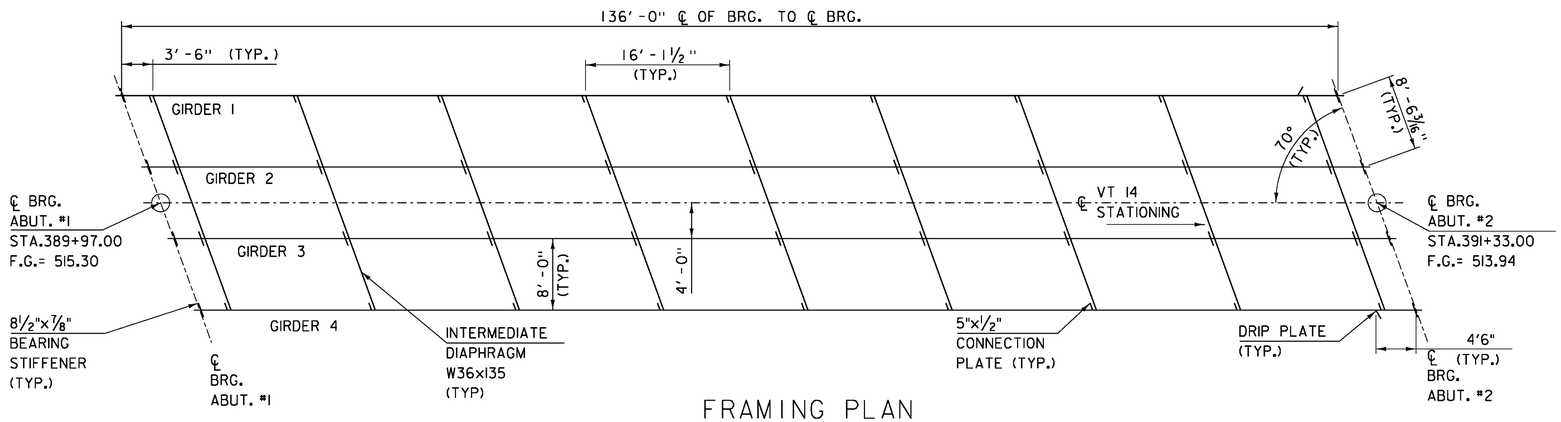
BRIDGE TYPICAL SECTION

SCALE ½" = 1'-0"

NOTE:

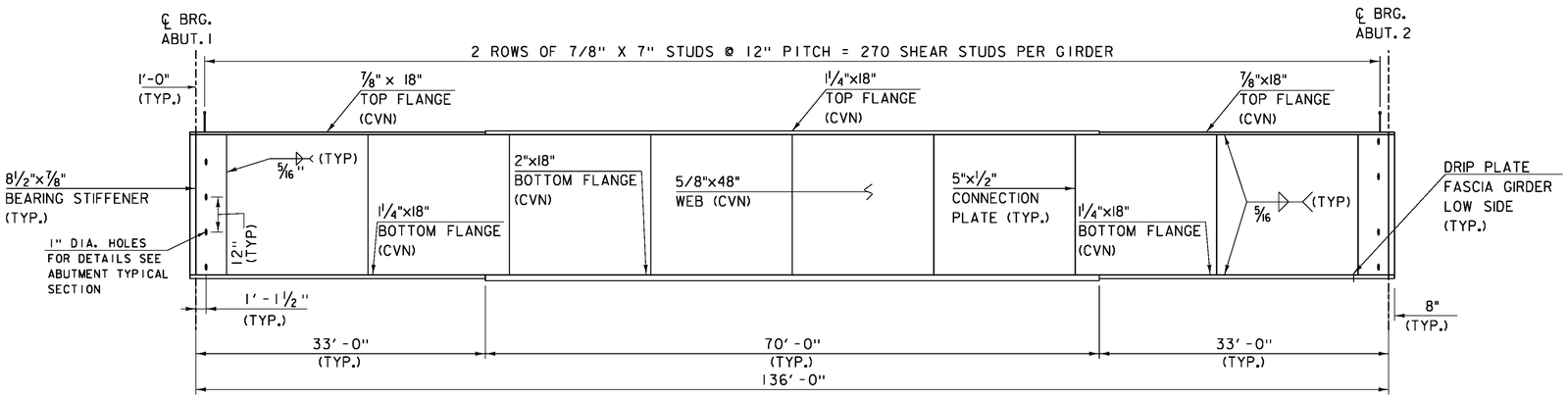
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147(13)
FILE NAME: s86e055sup.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: N. COVEY
DESIGNED BY: D. PETERSON	CHECKED BY: D. PETERSON
BRIDGE 27 DECK REINFORCING PLAN	SHEET 36 OF 186



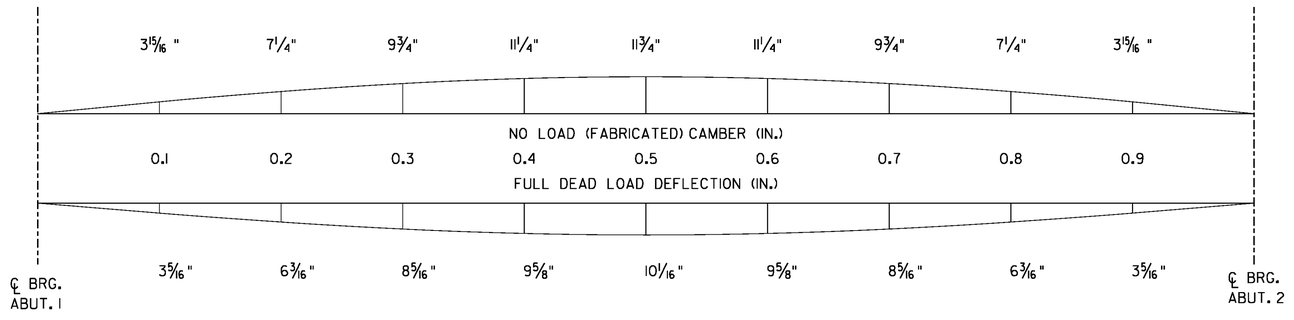
FRAMING PLAN

SCALE ⅛"=1'-0"



GIRDER ELEVATION

HORIZONTAL SCALE ⅛" = 1'-0"
VERTICAL SCALE ½" = 1'-0"



CAMBER AND DEAD LOAD DEFLECTION

HORIZONTAL SCALE ⅛" = 1'-0"
VERTICAL SCALE ½" = 1'-0"

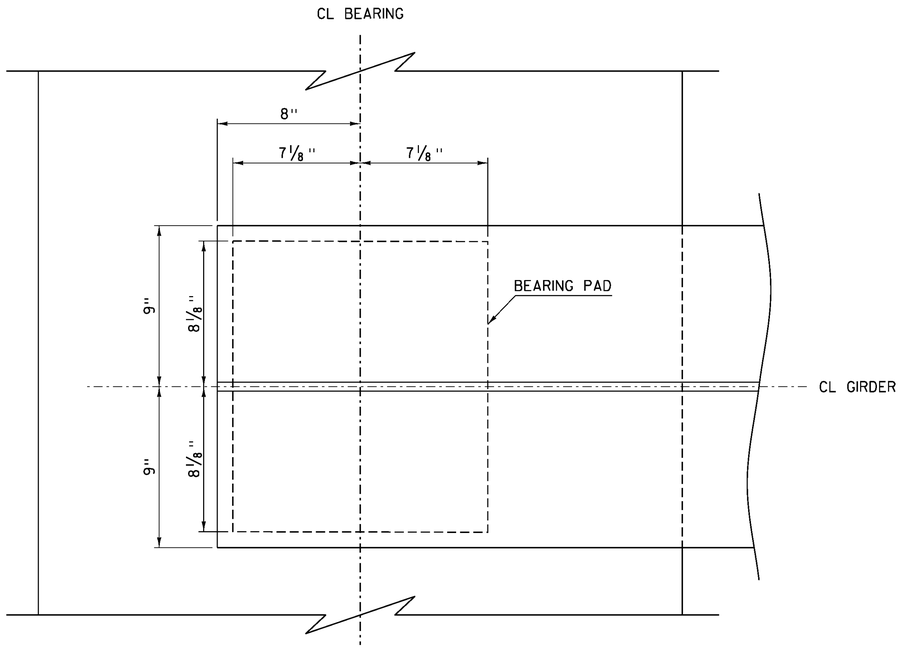
NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147(13)

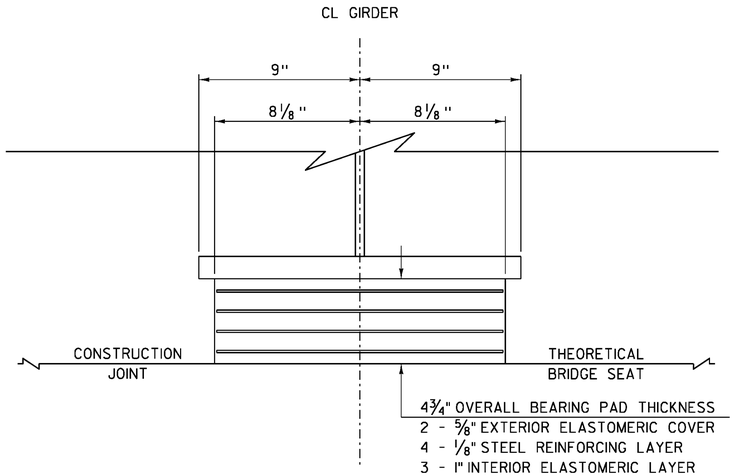
FILE NAME: s86e055sup.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 27 FRAMING PLAN

PLOT DATE: 08-OCT-2013
DRAWN BY: N. COVEY
CHECKED BY: D. PETERSON
SHEET 37 OF 186



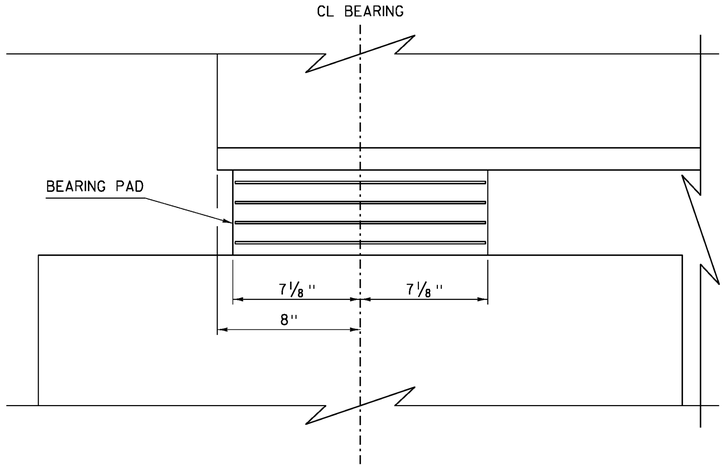
BEARING PLAN

SCALE: 3" = 1'-0"



BEARING SECTION

SCALE: 3" = 1'-0"



BEARING ELEVATION

SCALE: 3" = 1'-0"

BEARING DEVICE NOTES

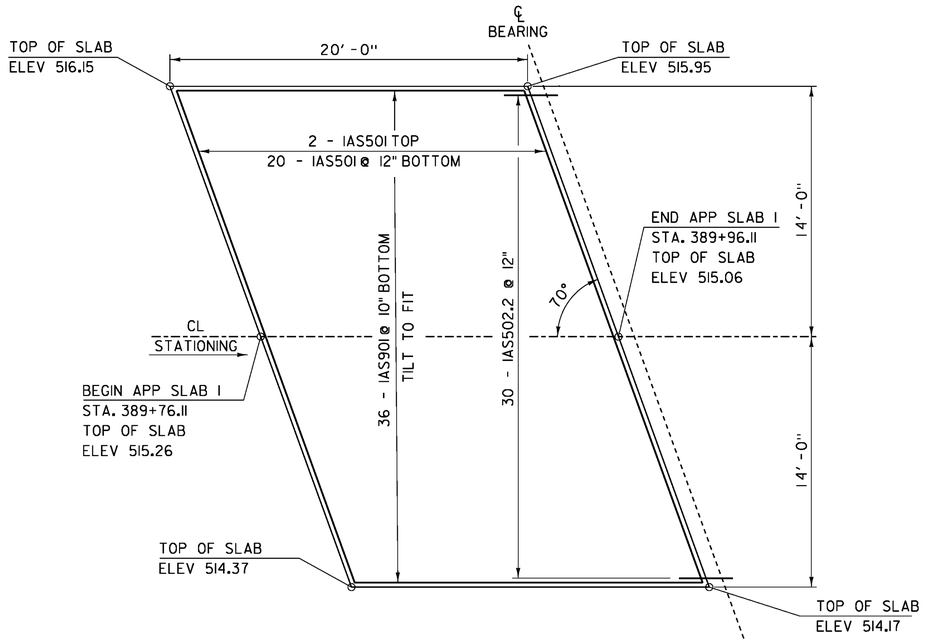
1. BEARINGS SHALL BE PAID FOR UNDER THE ITEM 531.17 "BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD" AND SHALL CONFORM TO APPLICABLE SUBSECTIONS OF SECTIONS 531 AND 731.

2. ALL REINFORCEMENT BETWEEN LAYERS OF ELASTOMERIC SHALL BE STEEL ASTM A36. ALL INTERNAL STEEL PLATES SHALL BE SAND BLASTED AND FREE OF COATINGS, RUST, AND MILL SCALE. THE PLATES SHALL BE FREE OF SHARP EDGES AND BURRS.

3. STEEL REINFORCED ELASTOMERIC PAD BEARINGS SHALL HAVE A MINIMUM OF 1/8" EDGE SEAL OF ELASTOMER INTEGRAL WITH THE BEARING OVER ALL INTERNAL PLATES.

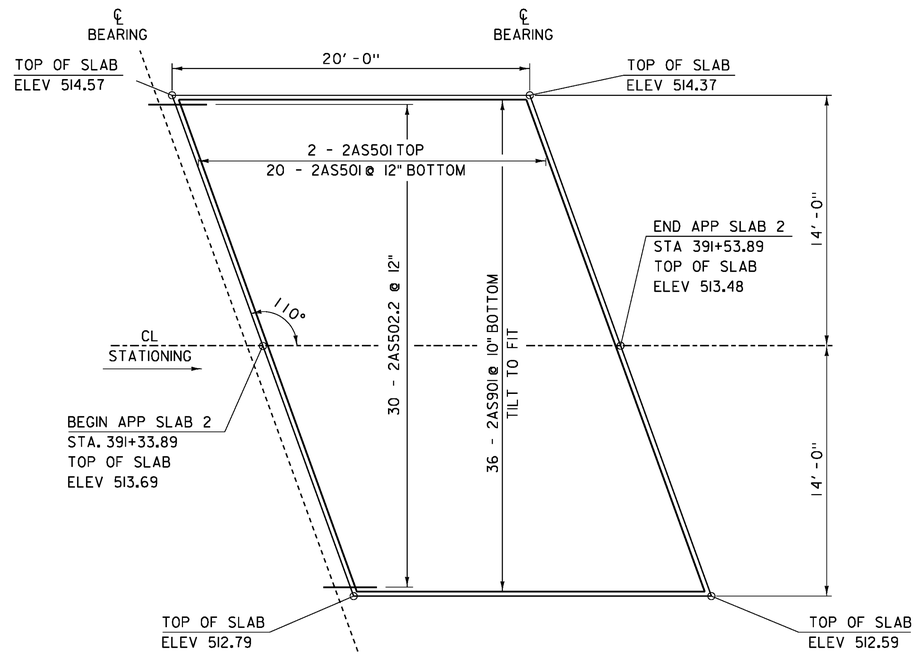
4. FOR ELASTOMERIC BEARINGS, ALL MATERIALS SHALL CONFORM TO AASHTO M251M/M251.

PROJECT NAME: ROYALTON	
PROJECT NUMBER: BRS 0147(13)	
FILE NAME: s86e055sup.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: N. COVEY
DESIGNED BY: D. PETERSON	CHECKED BY: D. PETERSON
BRIDGE 27 BEARING DETAILS	SHEET 38 OF 186



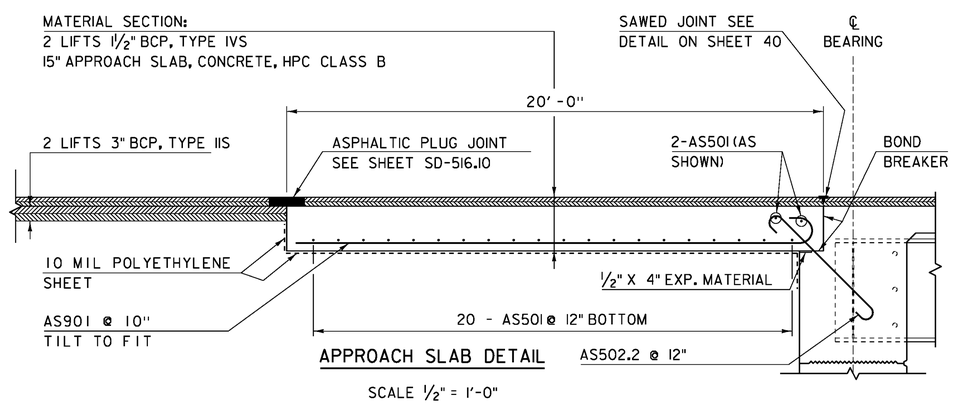
APPROACH SLAB 1 PLAN

SCALE 1/4" = 1'-0"



APPROACH SLAB 2 PLAN

SCALE 1/4" = 1'-0"



APPROACH SLAB DETAIL

SCALE ½" = 1'-0"

NOTES:

1. SUBBASE. COMPACT THE SUBBASE IN THE AREA UNDER THE APPROACH SLAB TO A SMOOTH SURFACE.

2. 10 MIL POLYETHYLENE SHEETING. MATERIAL FOR POLYETHYLENE SHEETING SHALL MEET THE REQUIREMENTS OF SUBSECTION 725.01(c) OF THE STANDARD SPECIFICATIONS. PLACE THE SHEETING ON TOP OF THE FINISHED SUBBASE FOR THE FULL LENGTH AND WIDTH OF THE APPROACH SLAB, AS SHOWN IN THE APPROACH SLAB DETAIL. LAP SHEETING AT LEAST 24 INCHES. PAYMENT FOR ITEM 501.34 "CONCRETE, HIGH PERFORMANCE CLASS B" SHALL INCLUDE THIS SHEETING.

3. CONCRETE. POUR APPROACH SLAB CONCRETE IN THE EARLY MORNING BEFORE THE SUPERSTRUCTURE EXPANDS.

4. BOND BREAKER. APPLY 2 COATS TAR EMULSION. PAYMENT FOR ITEM 501.34 "CONCRETE, HIGH PERFORMANCE CLASS B" SHALL INCLUDE THIS BOND BREAKER.

NOTE:

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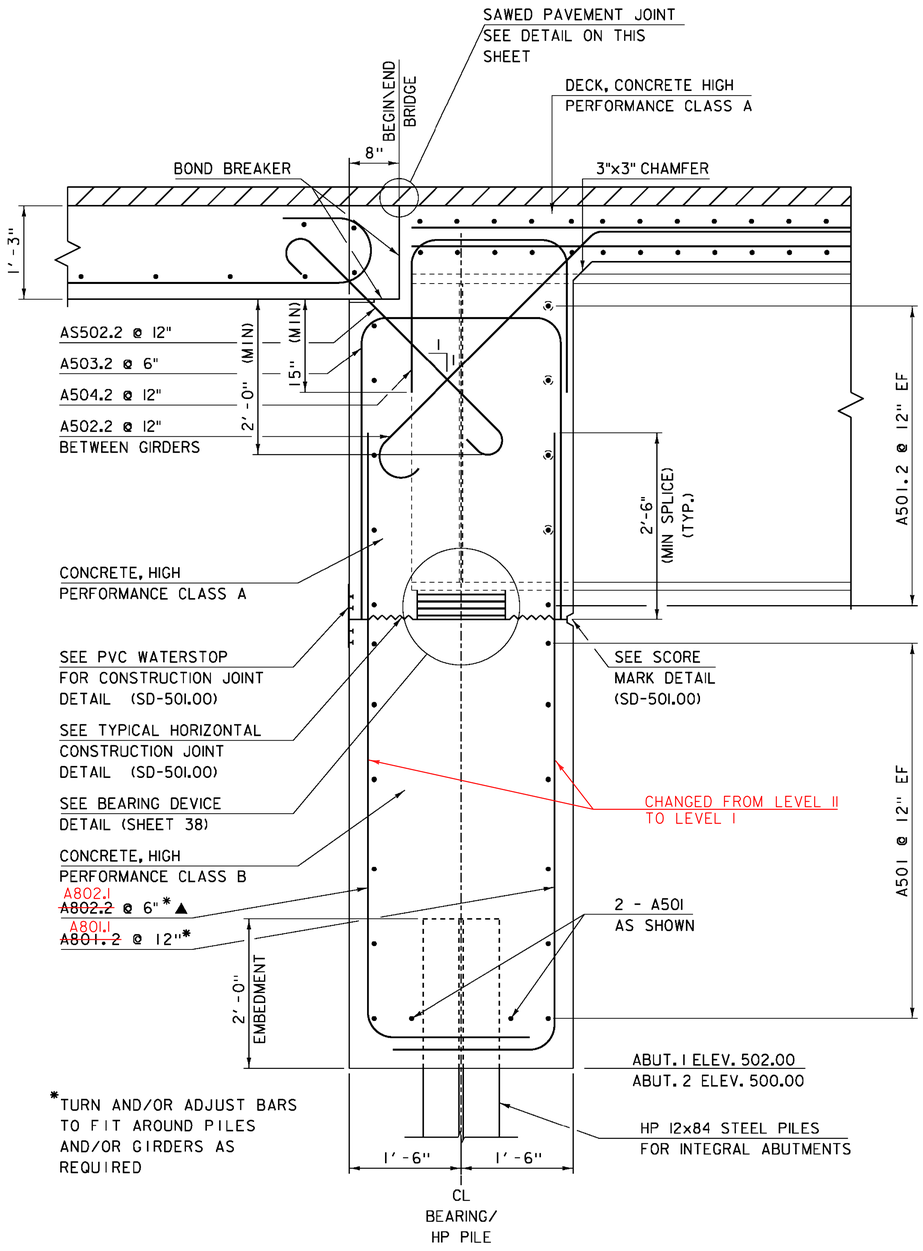
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147(13)

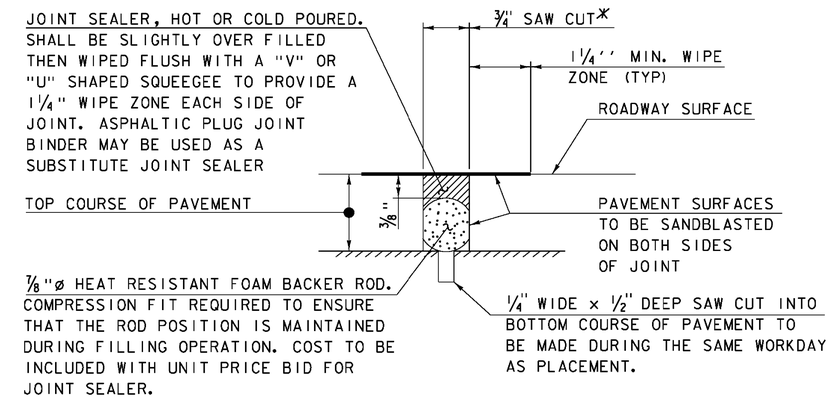
FILE NAME: s86e055sup.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 27 APPROACH SLAB DETAILS

PLOT DATE: 08-OCT-2013
DRAWN BY: N. COVEY
CHECKED BY: D. PETERSON
SHEET 39 OF 186



ABUTMENT 1 AND 2 TYPICAL

SCALE 1"=1'-0"



SAWED PAVEMENT JOINT DETAIL

(NOT TO SCALE)

*JOINT IS TO BE LOCATED ACCURATELY BY STRING LINING, OR OTHER MEANS, PRIOR TO PAVING, SO THAT THE SAW CUTS WILL BE MADE DIRECTLY OVER THE END OF CONCRETE DECK. JOINT SHALL BE CUT DRY IN A SINGLE PASS AND BE SEALED WITHIN 24 HOURS OR PRIOR TO EXPOSURE TO TRAFFIC. JOINT SHALL BE CLEANED PRIOR TO APPLYING THE JOINT SEALER.

NOTE:

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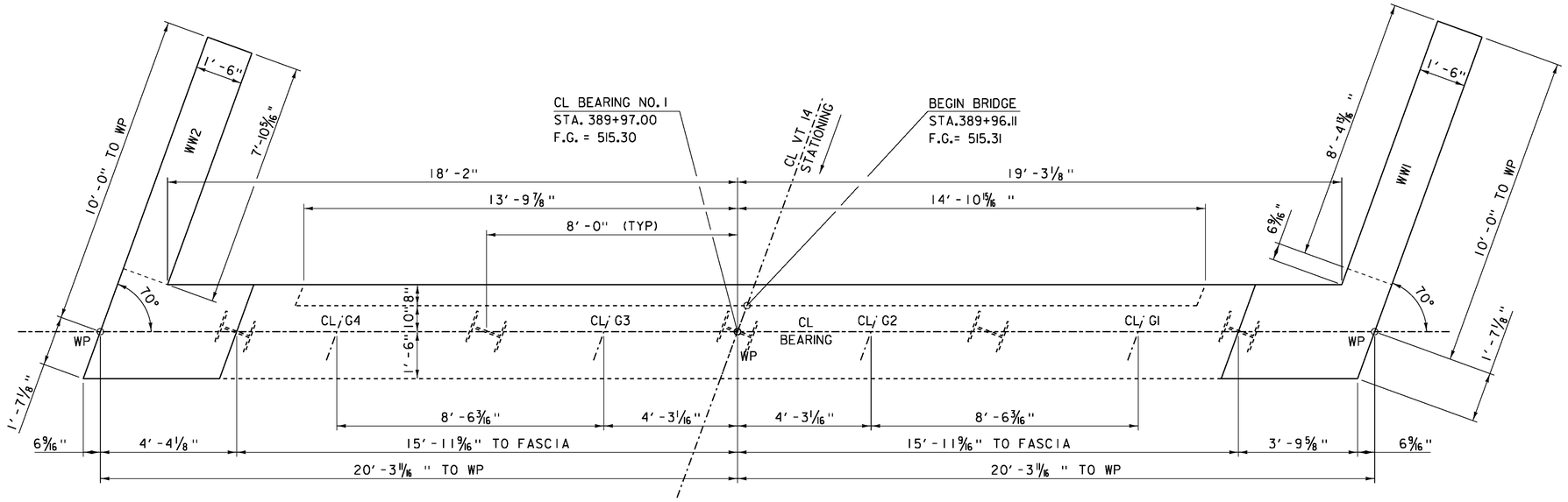
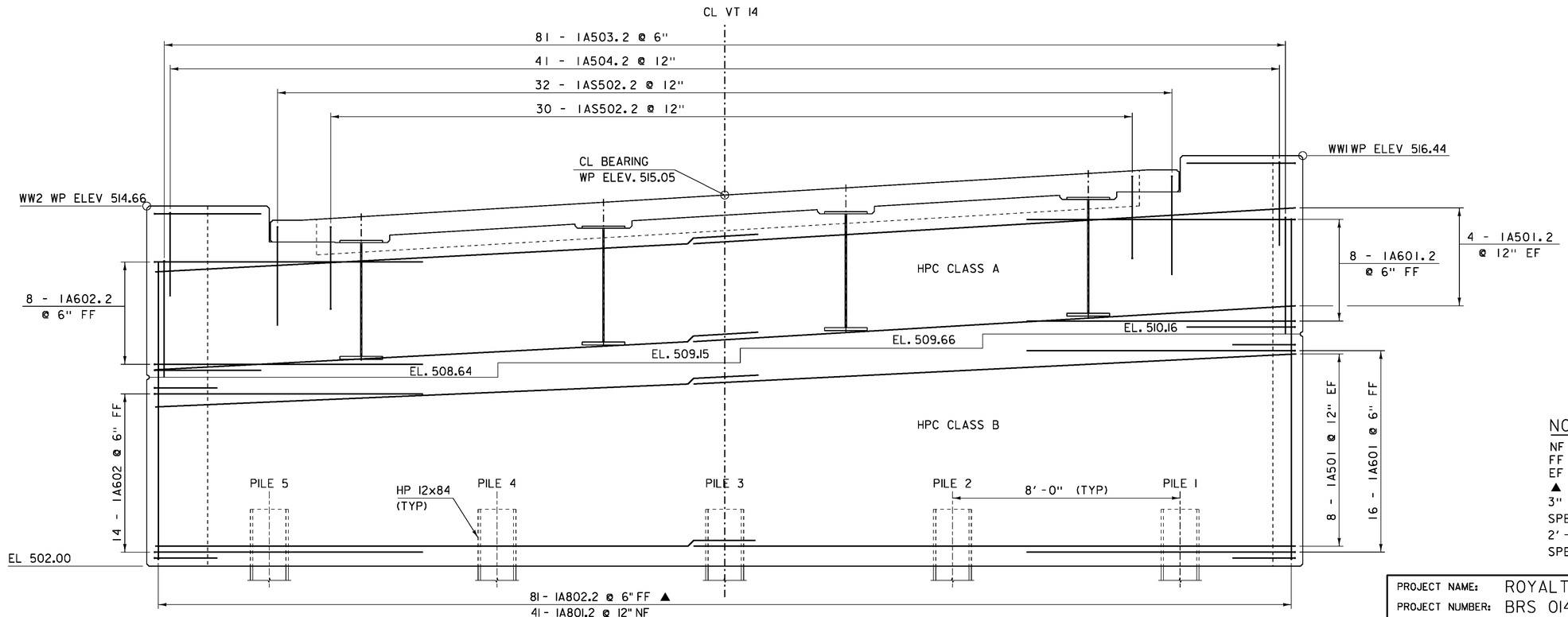
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147(13)
FILE NAME: s86e005sub.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: D. PETERSON	CHECKED BY: D. PETERSON
BRIDGE 27 ABUTMENT TYPICAL SHEET	SHEET 40 OF 186



INTEGRAL ABUTMENT NO. 1 PLAN

SCALE 1/2"=1'-0"



INTEGRAL ABUTMENT NO. 1 ELEVATION

SCALE 1/2"=1'-0"

NOTE:

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▲ = CUT TO FIT IN FIELD
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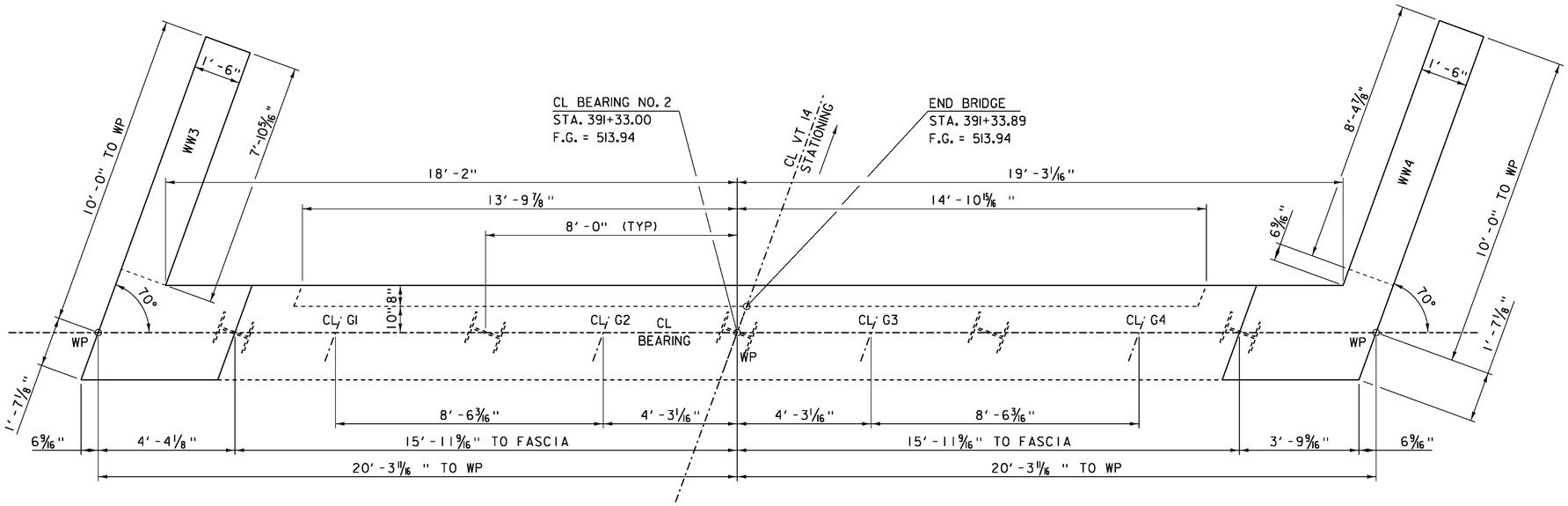
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147(13)

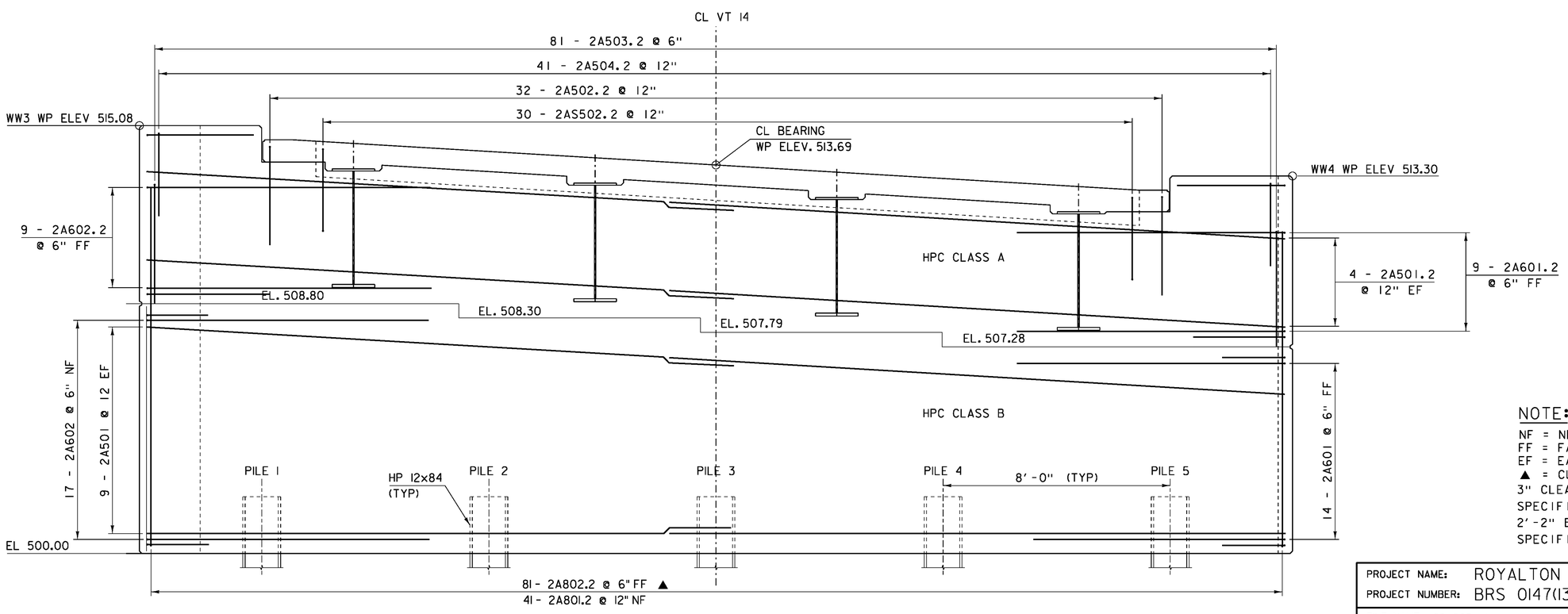
FILE NAME: s86e005sub.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 27 ABUTMENT 1 PLAN AND ELEVATION

PLOT DATE: 08-OCT-2013
DRAWN BY: C. MOONEY
CHECKED BY: J. LACROIX
SHEET 41 OF 186



INTEGRAL ABUTMENT NO. 2 PLAN

SCALE 1/2"=1'-0"



INTEGRAL ABUTMENT NO. 2 ELEVATION

SCALE 1/2"=1'-0"

NOTE:

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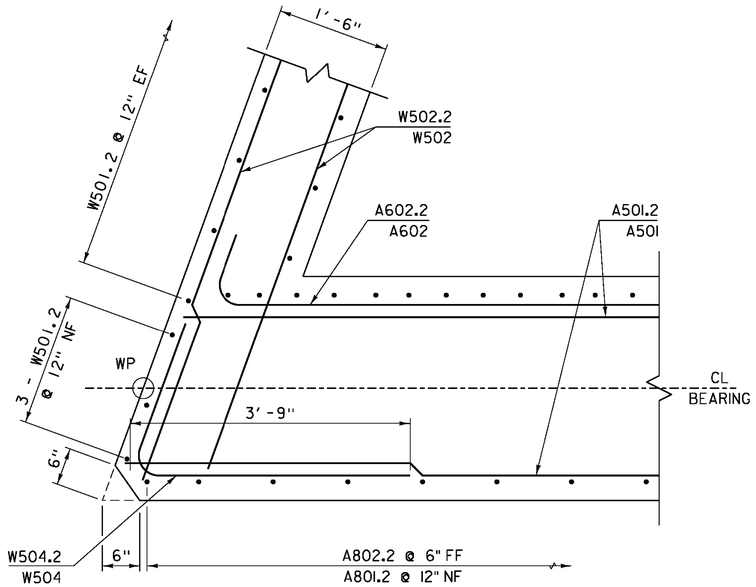
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

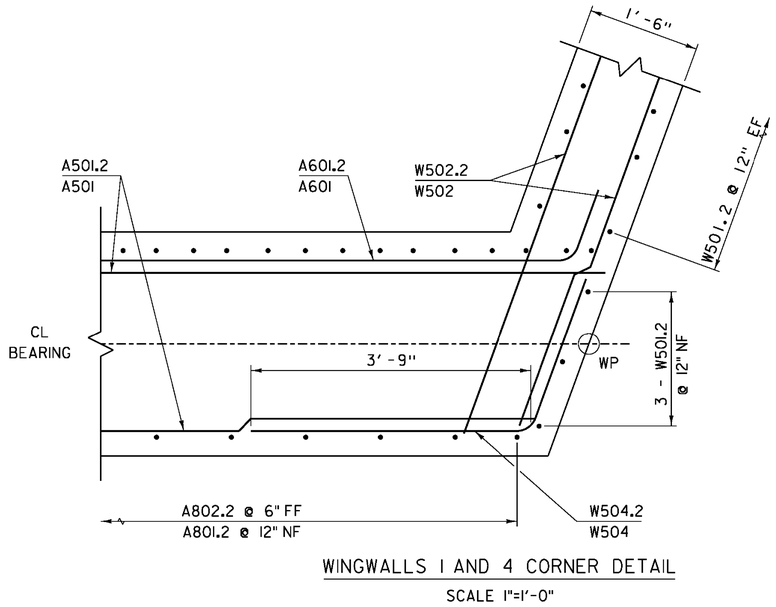
PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147(13)

FILE NAME: s86e005sub.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: D. PETERSON	CHECKED BY: J. LACROIX
BRIDGE 27 ABUTMENT 2 PLAN AND ELEVATION	SHEET 42 OF 186



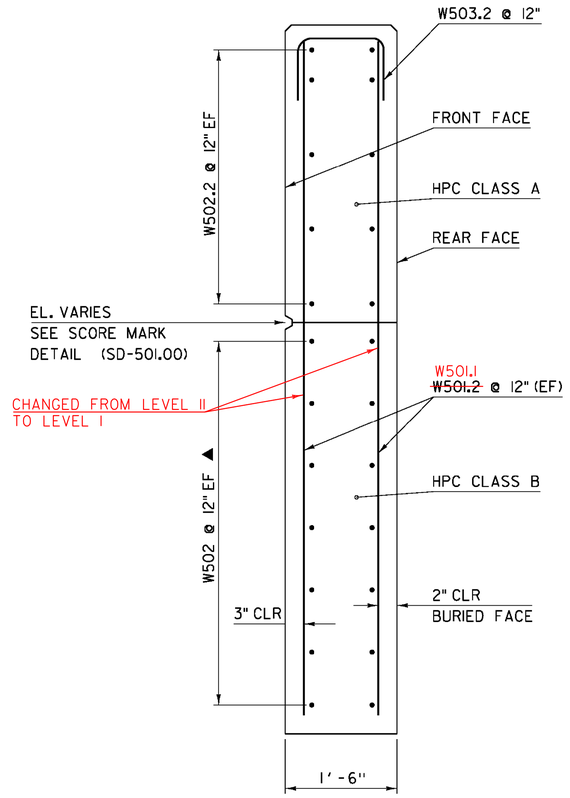
WINGWALLS 2 AND 3 CORNER DETAIL

SCALE 1"=1'-0"



WINGWALLS 1 AND 4 CORNER DETAIL

SCALE 1"=1'-0"



WINGWALL TYPICAL SECTION

SCALE 1"=1'-0"

NOTE:

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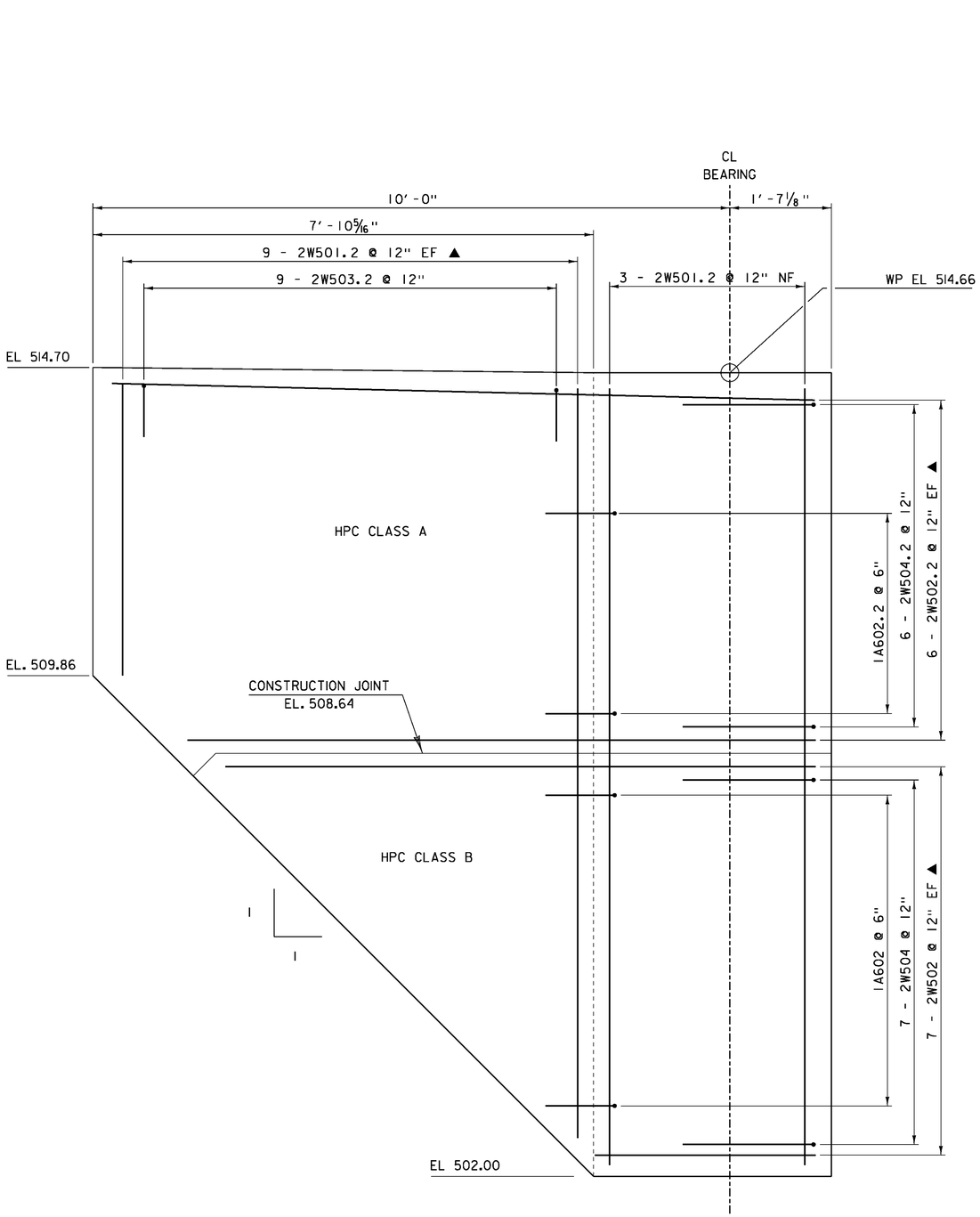
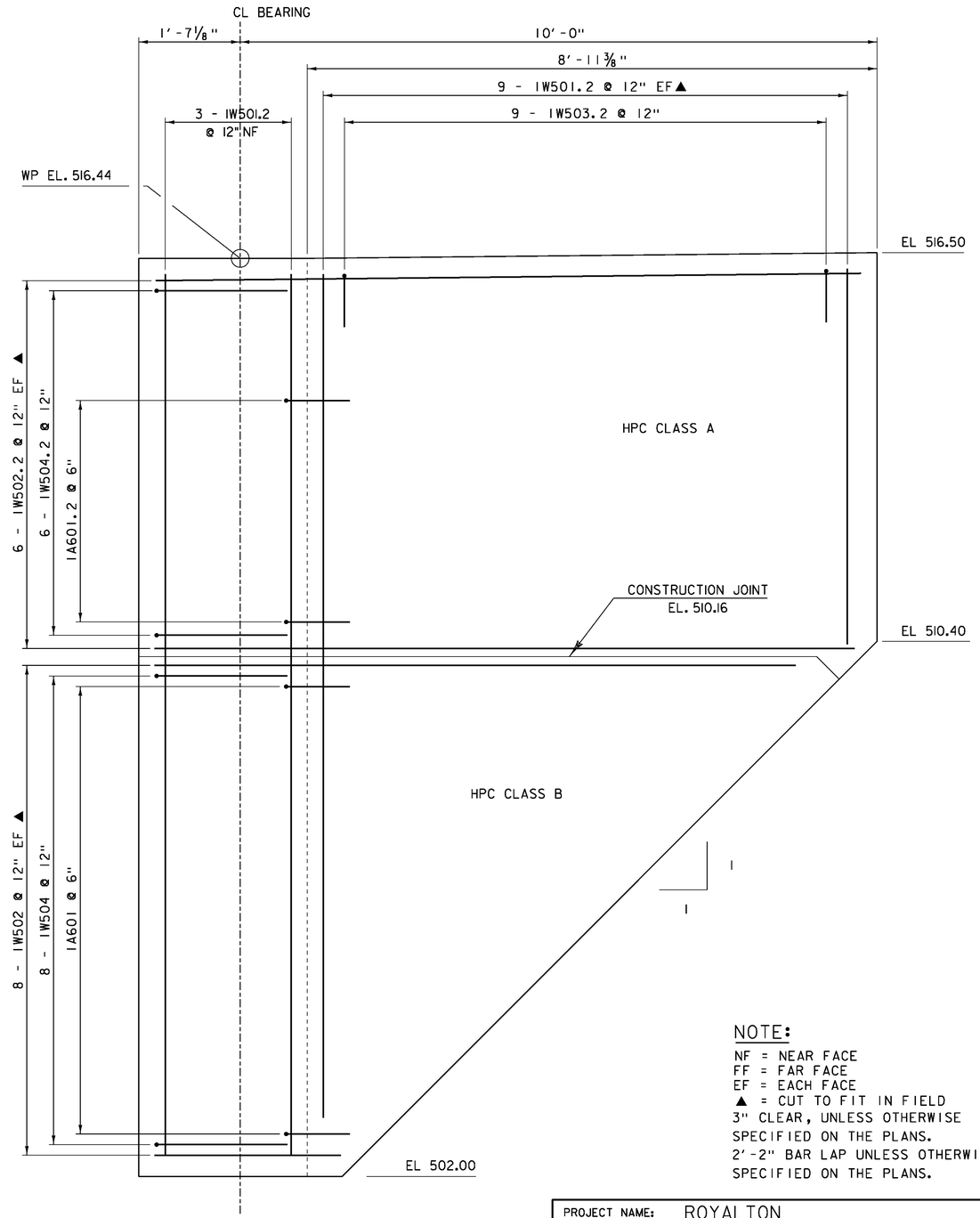
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147(13)
FILE NAME: s86e005sub.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: D. PETERSON	CHECKED BY: D. PETERSON
BRIDGE 27 WINGWALL DETAILS SHEET	SHEET 43 OF 186



WINGWALL 2 ELEVATION

SCALE 1"=1'-0"



WINGWALL 1 ELEVATION

SCALE 1"=1'-0"

NOTE:

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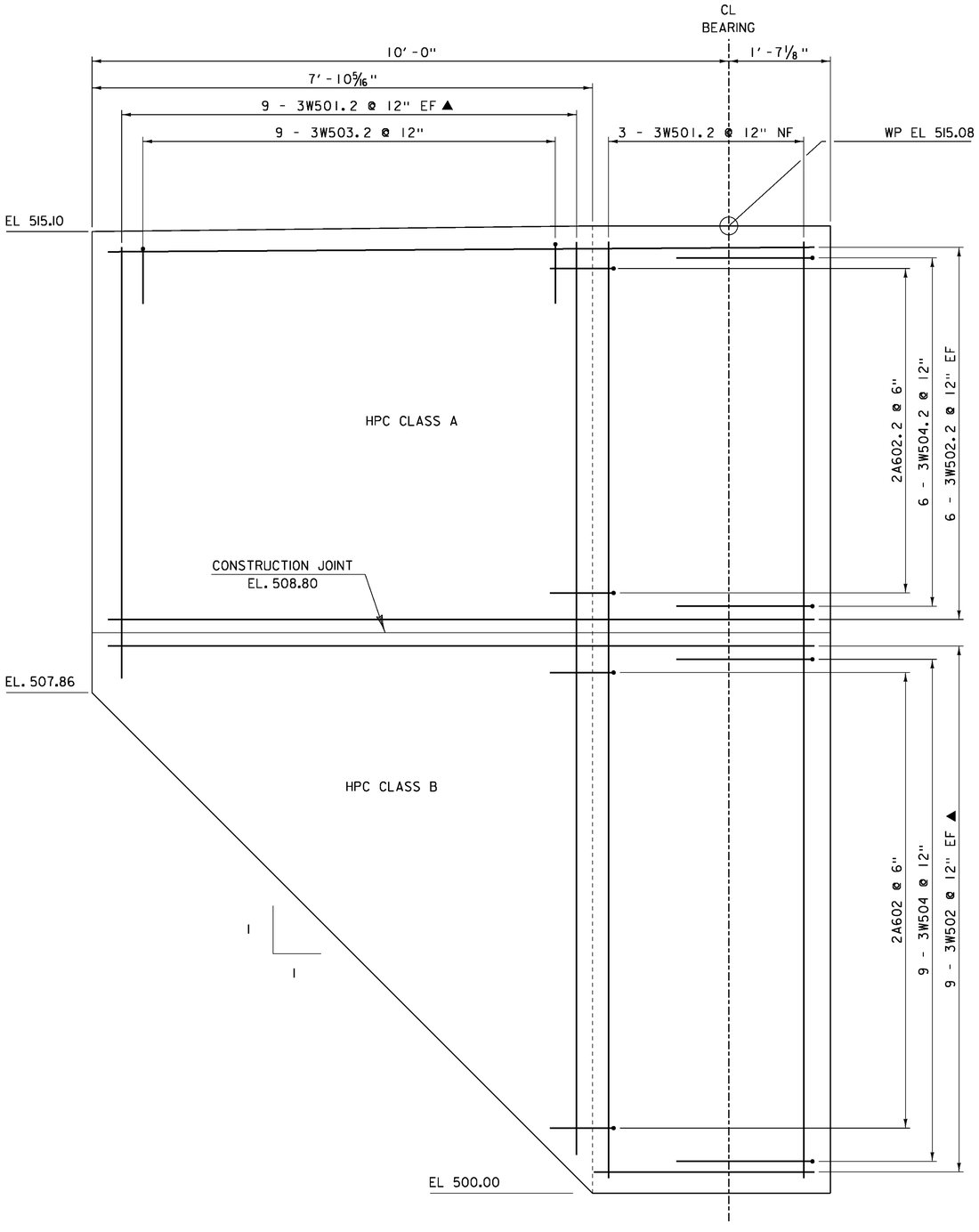
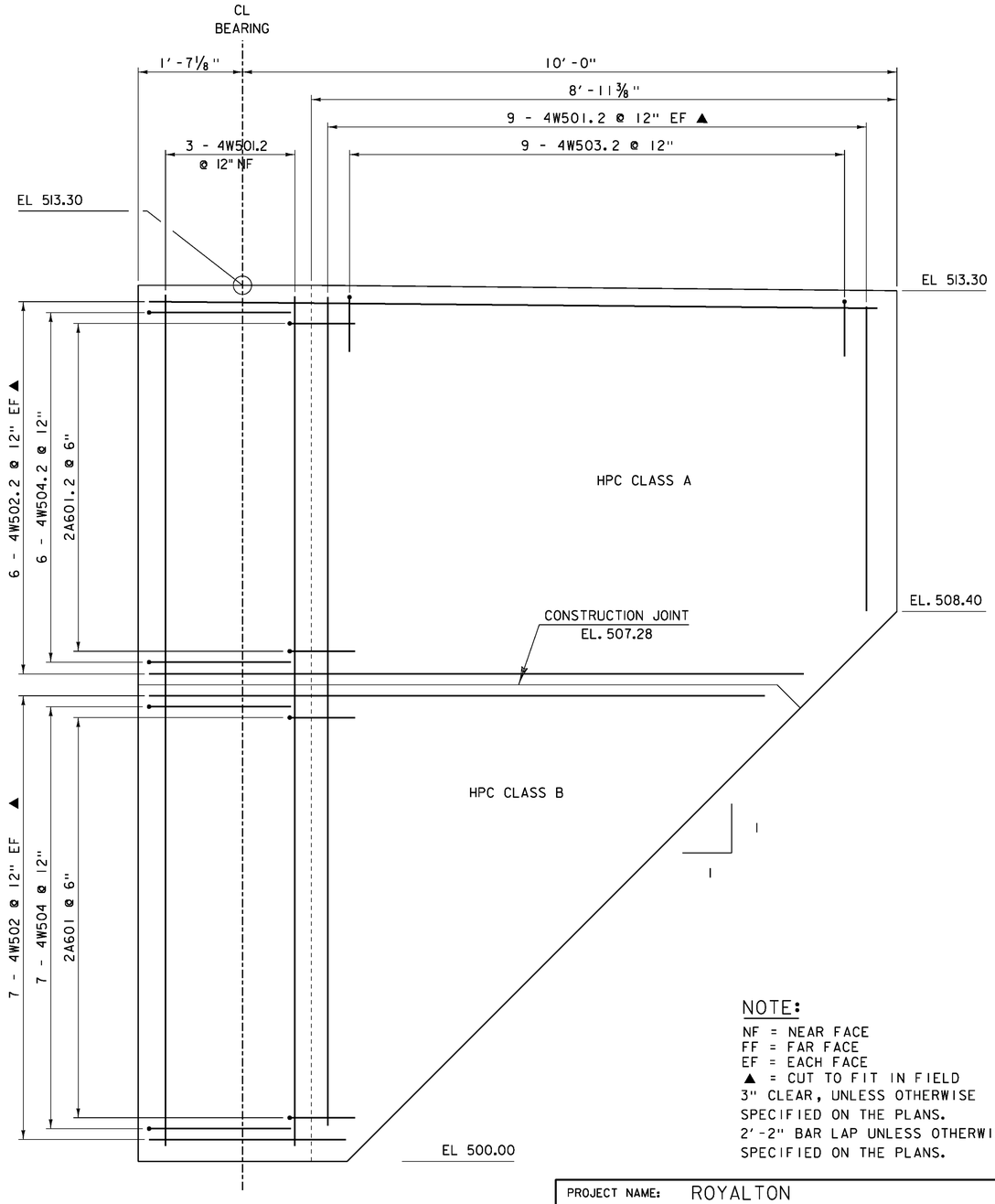
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147(13)
FILE NAME: s86e005sub.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: D. PETERSON	CHECKED BY: J. LACROIX
BRIDGE 27 WINGWALLS 1 AND 2 ELEVATIONS	SHEET 44 OF 186



WINGWALL 3 ELEVATION

SCALE 1"=1'-0"



WINGWALL 4 ELEVATION

SCALE 1"=1'-0"

NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147(13)

FILE NAME: s86e005sub.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 27 WINGWALLS 3 AND 4 ELEVATIONS

PLOT DATE: 08-OCT-2013
DRAWN BY: C. MOONEY
CHECKED BY: J. LACROIX
SHEET 45 OF 186

STATE OF VERMONT
AGENCY OF TRANSPORTATION

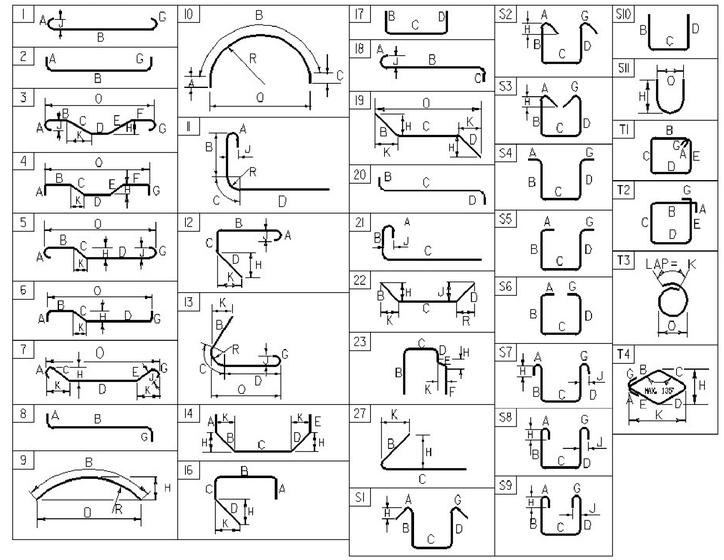
REINFORCING STEEL SCHEDULE

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	DECK																
	184	5	29'- 6"	S501.2	STR												
	264	5	36'- 1"	S502.2	STR												
	276	5	23'- 6"	S503.2	STR												
✳	551	6	4'- 11"	S601.2	STR												
	APPROACH SLAB #1																
	22	5	29'- 3"	1AS501	STR												
✳	37	9	20'- 9"	1AS901	1	1'- 3"	19'- 6"					---		1'- 0"			
	30	5	5'- 2"	1AS502.2	1	0'- 7"	4'- 0"					0'- 7"		0'- 5"			
	APPROACH SLAB #2																
	22	5	29'- 3"	2AS501	STR												
	36	9	20'- 9"	2AS901	1	1'- 3"	19'- 6"					---		1'- 0"			
	30	5	5'- 2"	2AS502.2	1	0'- 7"	4'- 0"					0'- 7"		0'- 5"			
	ABUTMENT #1																
	16	5	21'- 2"	1A501.2	STR												
	32	5	7'- 7"	1A502.2	5	0'- 7"	4'- 10"	2'- 2"	---			---	1'- 6"	---	1'- 6"		6'- 4"
	81	5	10'- 10"	1A503.2	S10		4'- 2"	2'- 6"	4'- 2"								
	41	5	7'- 8"	1A504.2	S10		2'- 11"	1'- 10"	2'- 11"								
	8	6	9'- 8"	1A601.2	19		8'- 8"	1'- 0"	---				0'- 11"		0'- 4"		9'- 0"
	8	6	9'- 8"	1A602.2	27		1'- 0"	8'- 8"	---				0'- 11"		0'- 4"		9'- 0"
✳+	42	8	14'- 4"	1A801.2|	17		2'- 2"	12'- 2"	---								
+▲	81	8	14'- 4"	1A802.2|	17		2'- 2"	12'- 2"	---								
	36	5	21'- 2"	1A501	STR												
	16	6	9'- 8"	1A601	19		8'- 8"	1'- 0"	---				0'- 11"		0'- 4"		9'- 0"
✳	15	6	9'- 8"	1A602	27		1'- 0"	8'- 8"	---				0'- 11"		0'- 4"		9'- 0"
	WINGWALL #1																
+▲	21	5	13'- 5"	1W501.2|	STR												
	12	5	11'- 1"	1W502.2	STR												
	9	5	2'- 9"	1W503.2	S10		0'- 10"	1'- 1"	0'- 10"								
	6	5	5'- 11"	1W504.2	19		2'- 2"	3'- 9"	---				2'- 0"		0'- 9"		4'- 6"
✳ ▲	17	5	11'- 1"	1W502	STR												
	8	5	5'- 11"	1W504	19		2'- 2"	3'- 9"	---				2'- 0"		0'- 9"		4'- 6"
	WINGWALL #2																
+▲	21	5	11'- 8"	2W501.2|	STR												
✳ ▲	13	5	11'- 1"	2W502.2	STR												
	9	5	2'- 9"	2W503.2	S10		0'- 10"	1'- 1"	0'- 10"								
	6	5	5'- 11"	2W504.2	27		2'- 2"	3'- 9"					2'- 0"		0'- 9"		
▲	14	5	11'- 1"	2W502	STR												
	7	5	5'- 11"	2W504	27		2'- 2"	3'- 9"					2'- 0"		0'- 9"		
	ABUTMENT #2																
	16	5	21'- 2"	2A501.2	STR												
	32	5	7'- 7"	2A502.2	5	0'- 7"	4'- 10"	2'- 2"	---			---	1'- 6"	---	1'- 6"		6'- 4"
	81	5	10'- 10"	2A503.2	S10		4'- 2"	2'- 6"	4'- 2"								
	41	5	7'- 8"	2A504.2	S10		2'- 11"	1'- 10"	2'- 11"								
	9	6	9'- 8"	2A601.2	19		8'- 8"	1'- 0"	---				0'- 11"		0'- 4"		9'- 0"
	9	6	9'- 8"	2A602.2	27		1'- 0"	8'- 8"	---				0'- 11"		0'- 4"		9'- 0"
+	41	8	15'- 0"	2A801.2|	17		2'- 2"	12'- 10"	---								
+▲	81	8	15'- 0"	2A802.2|	17		2'- 2"	12'- 10"	---								
	40	5	21'- 2"	2A501	STR												
	14	6	9'- 8"	2A601	19		8'- 8"	1'- 0"	---				0'- 11"		0'- 4"		9'- 0"
	17	6	9'- 8"	2A602	27		1'- 0"	8'- 8"	---				0'- 11"		0'- 4"		9'- 0"
	WINGWALL #3																
+▲	21	5	14'- 1"	3W501.2|	STR												
	12	5	11'- 1"	3W502.2	STR												
	9	5	2'- 9"	3W503.2	S10		0'- 10"	1'- 1"	0'- 10"								
	6	5	5'- 11"	3W504.2	27		2'- 2"	3'- 9"					2'- 0"		0'- 9"		
	18	5	11'- 1"	3W502	STR												
	9	5	5'- 11"	3W504	27		2'- 2"	3'- 9"					2'- 0"		0'- 9"		
	WINGWALL #4																
+▲	21	5	12'- 4"	4W501.2|	STR												
	12	5	11'- 1"	4W502.2	STR												
	9	5	2'- 9"	4W503.2	S10		0'- 10"	1'- 1"	0'- 10"								
	6	5	5'- 11"	4W504.2	19		2'- 2"	3'- 9"	---				2'- 0"		0'- 9"		4'- 6"
▲	14	5	12'- 4"	4W502	STR												
	7	5	5'- 11"	4W504	19		2'- 2"	3'- 9"	---				2'- 0"		0'- 9"		4'- 6"

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O

~ NOTES ~

1. UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO. 18 SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M 31 (ASTM A 615-SI). ALL BARS SHALL BE GRADE 60, UNLESS OTHERWISE DESIGNATED.
2. FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
3. BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
4. ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
5. "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
6. "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
7. WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
8. ▲ DENOTES BARS TO BE CUT IN FIELD.
9. ✳ DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
10. △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
11. E IN BAR MARK PREFIX DENOTES EPOXY COATED REINFORCING STEEL.
12. + DENOTES BARS CHANGED FROM LEVEL II TO LEVEL I.



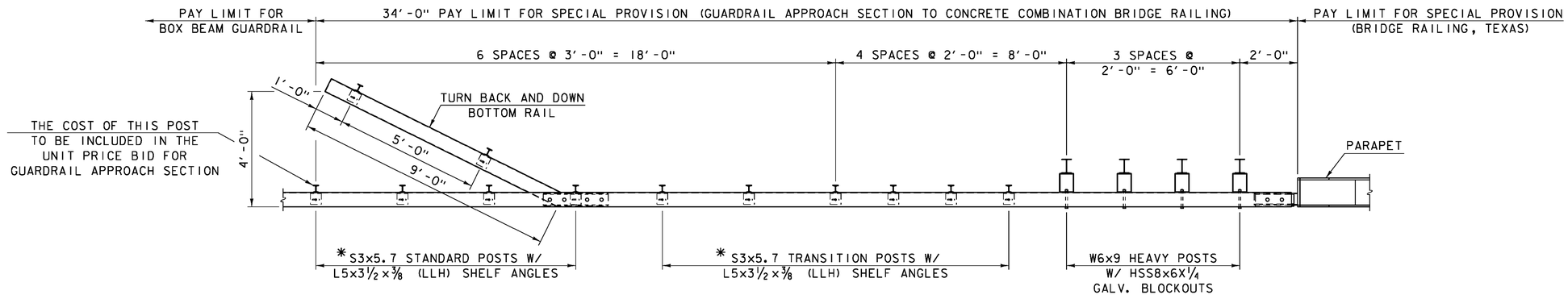
ASTM STANDARD REINFORCING BARS

BAR SIZE DESIGNATION	NOMINAL WEIGHT (MASS) PER FOOT	NOMINAL DIMENSIONS - ROUND SECTIONS		
		DIAMETER INCHES	AREA SQ. INCHES	PERIMETER INCHES
#3	0.376	0.375	0.11	1.178
#4	0.668	0.500	0.20	1.571
#5	1.043	0.625	0.31	1.963
#6	1.502	0.750	0.44	2.356
#7	2.04	0.875	0.60	2.749
#8	2.670	1.000	0.79	3.14
#9	3.400	1.13	1.00	3.54
#10	4.3	1.270	1.27	3.990
#11	5.31	1.410	1.56	4.430
#14	7.65	1.69	2.25	5.32
#18	13.60	2.26	4.00	7.09

~ REINFORCING STEEL CORROSION RESISTANCE LEVEL ~

THE REINFORCING STEEL MARKS IN THIS SCHEDULE INDICATE THE REQUIRED BAR CORROSION RESISTANCE LEVEL. CORROSION RESISTANCE LEVEL IS DENOTED WITH A .2 FOR LEVEL TWO SUFFIX OR .3 FOR LEVEL THREE SUFFIX .1 FOR LEVEL ONE IS TO BE OMITTED. THE BAR MATERIAL TYPE AND BAR STEEL GRADE PROIVEDED FOR EACH CORRIOSION LEVEL WILL BE RECORDED ON THE PLAN SET PI SHEET FOR AS-BUILT RECORD PLAN ARCHIVES.

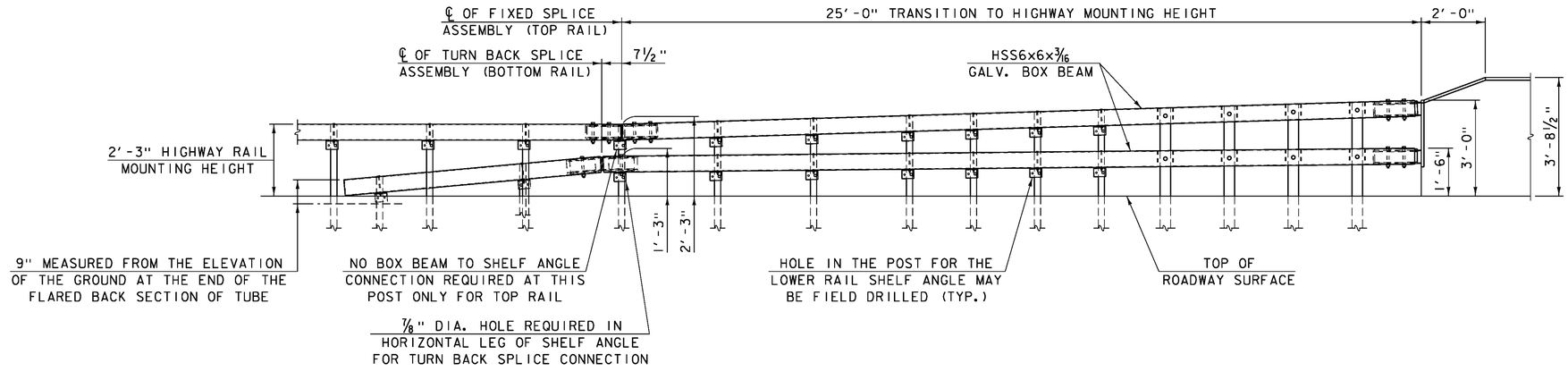
PROJECT NAME:	**ROYALTON**
PROJECT NUMBER:	**BRS 0147 (13**
FILE NAME: **\BR 27\s86e055rss_27**	PLOT DATE: **10/4/2013**
PROJECT MANAGER: **C. CARLSON**	DRAWN BY: **C. MOONEY**
DESIGNED BY: **D. PETERSON**	CHECKED BY: **D. PETERSON**
BRIDGE 27 REINFORCING STEEL SCHEDULE	SHEET **46** OF **186**



* SEE STD. GI-B FOR
POST CONNECTION DETAILS

APPROACH RAIL PLAN

NOT TO SCALE



APPROACH RAIL ELEVATION

NOT TO SCALE

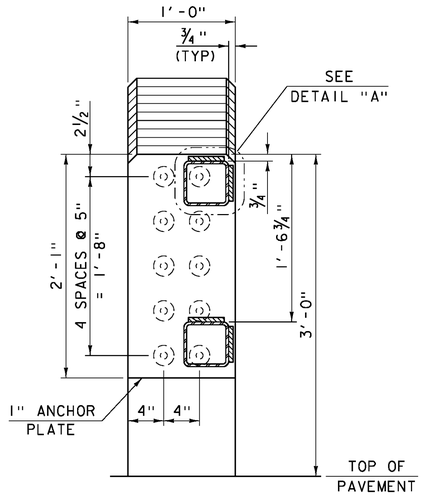
NOTES:

1. SEE STANDARDS S-352A, S-352B AND S-352C FOR MORE DETAILS OF BRIDGE RAILING.

2. THE FACE OF RAIL OF THE APPROACH RAIL SHALL FOLLOW THE EDGE OF SHOULDER ALONG CURVE.

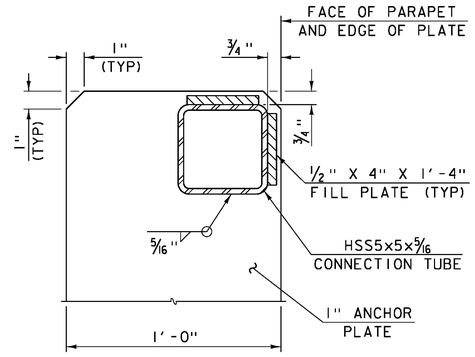
PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)

FILE NAME: \BR 27\s86e055rail_27.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: D. PETERSON
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 27 APPROACH RAIL PLAN AND ELEVATION	SHEET 47 OF 186



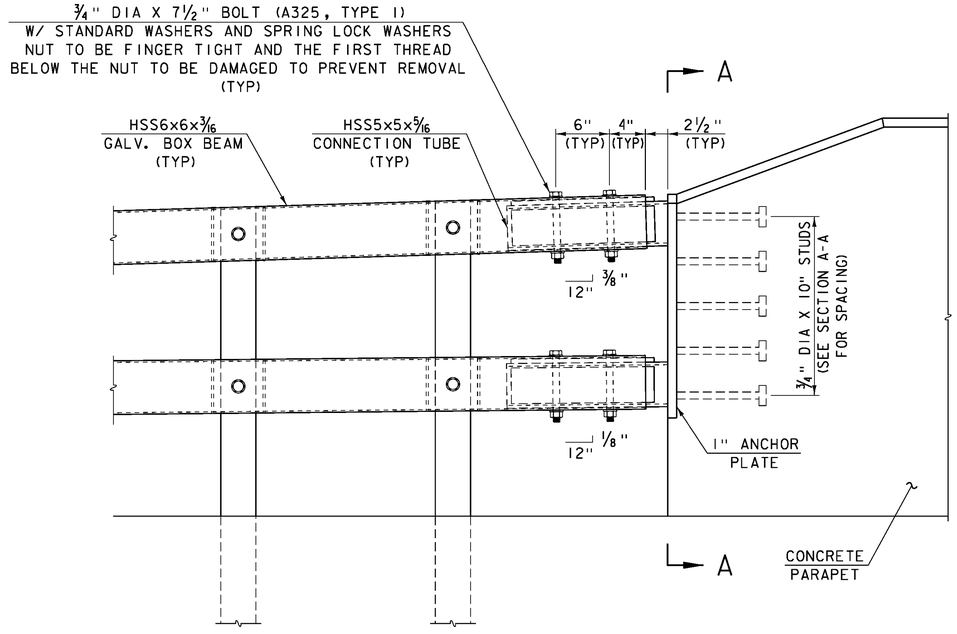
SECTION A-A

NOT TO SCALE



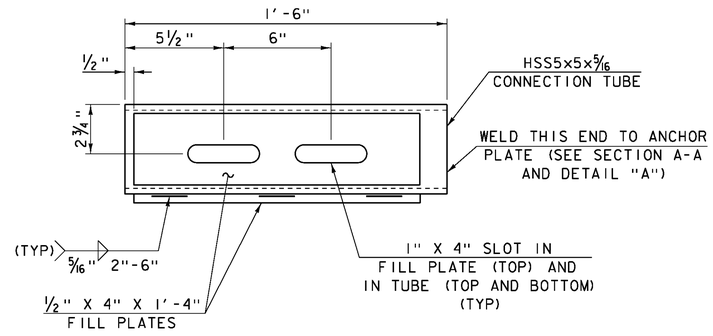
DETAIL "A"

NOT TO SCALE



APPROACH RAIL CONNECTION DETAIL

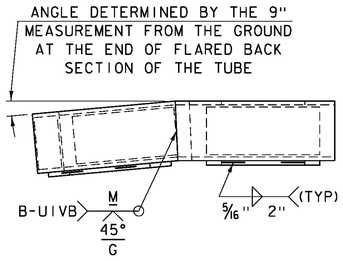
NOT TO SCALE



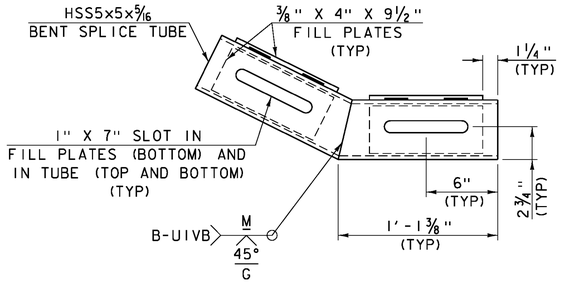
CONNECTION TUBE DETAIL PLAN

NOT TO SCALE

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: \BR 27\s86e055rail_27.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: D. PETERSON
DESIGNED BY: D. PETERSON	CHECKED BY: C.CARLSON
BRIDGE 27 APPROACH RAIL DETAILS (1)	SHEET 48 OF 186



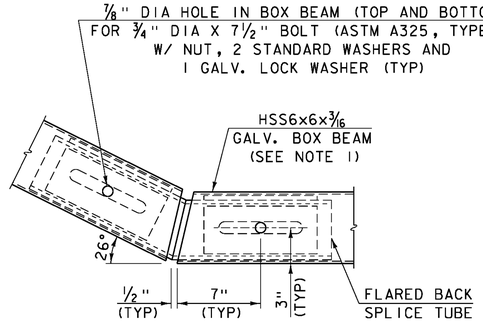
ELEVATION



PLAN

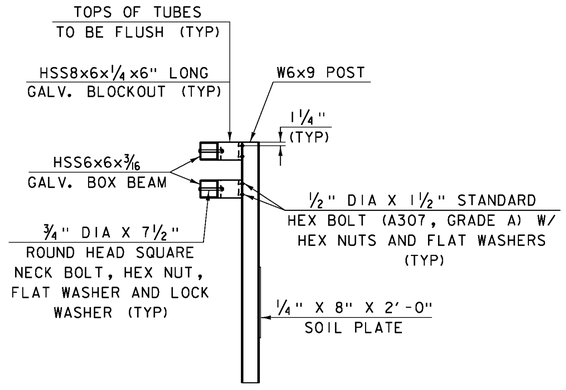
FLARED BACK SPLICE TUBE DETAIL

NOT TO SCALE



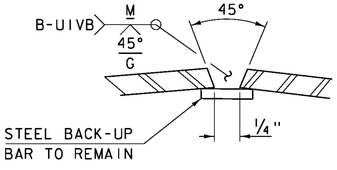
PLAN BOTTOM RAIL FLARE BACK DETAIL

NOT TO SCALE



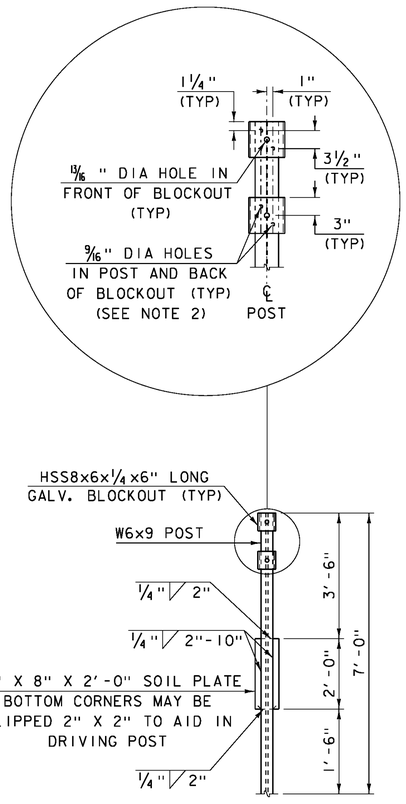
HEAVY POST ELEVATION

NOT TO SCALE



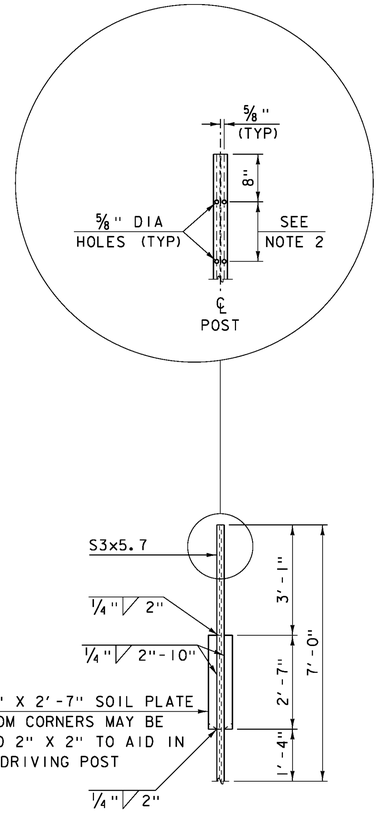
WELD DETAIL FOR SPLICE TUBE

NOT TO SCALE



HEAVY POST DETAIL

NOT TO SCALE



TRANSITION POST DETAIL

NOT TO SCALE

NOTES:

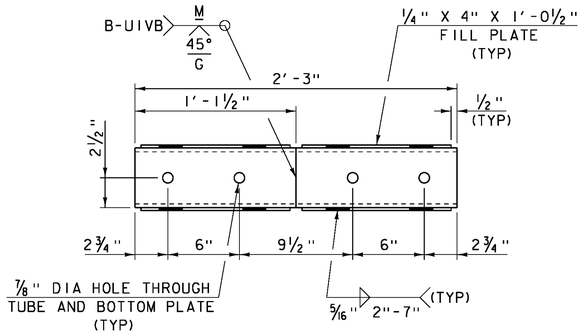
1. PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE BOX BEAM RAILS, SPLICE TUBES AND FILL PLATES.

2. HOLES IN POST FOR LOWER RAIL MAY BE LOCATED AND DRILLED IN THE FIELD. IF SO, GALVANIZING SHALL BE REPAIRED.

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

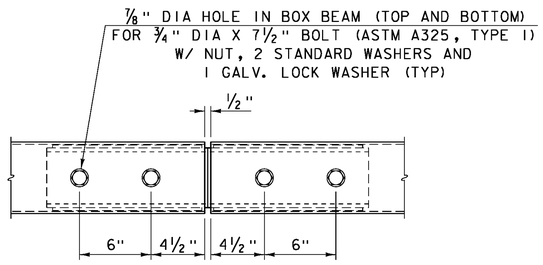
FILE NAME: \BR 27\s86e055rail_27.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 27 APPROACH RAIL DETAILS (2)

PLOT DATE: 08-OCT-2013
DRAWN BY: D. PETERSON
CHECKED BY: C.CARLSON
SHEET 49 OF 186



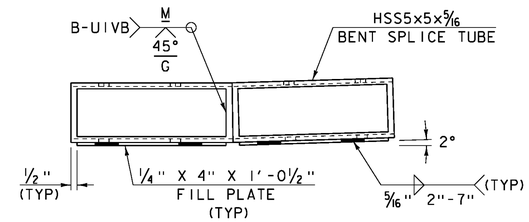
FIXED SPLICE TUBE PLAN

NOT TO SCALE



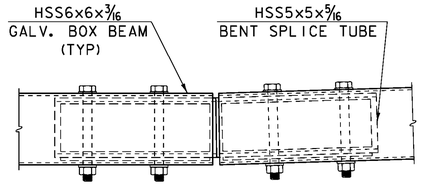
FIXED SPLICE ASSEMBLY PLAN

NOT TO SCALE



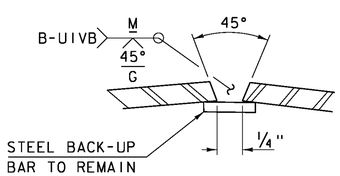
FIXED SPLICE TUBE ELEVATION

NOT TO SCALE



FIXED SPLICE ASSEMBLY ELEVATION

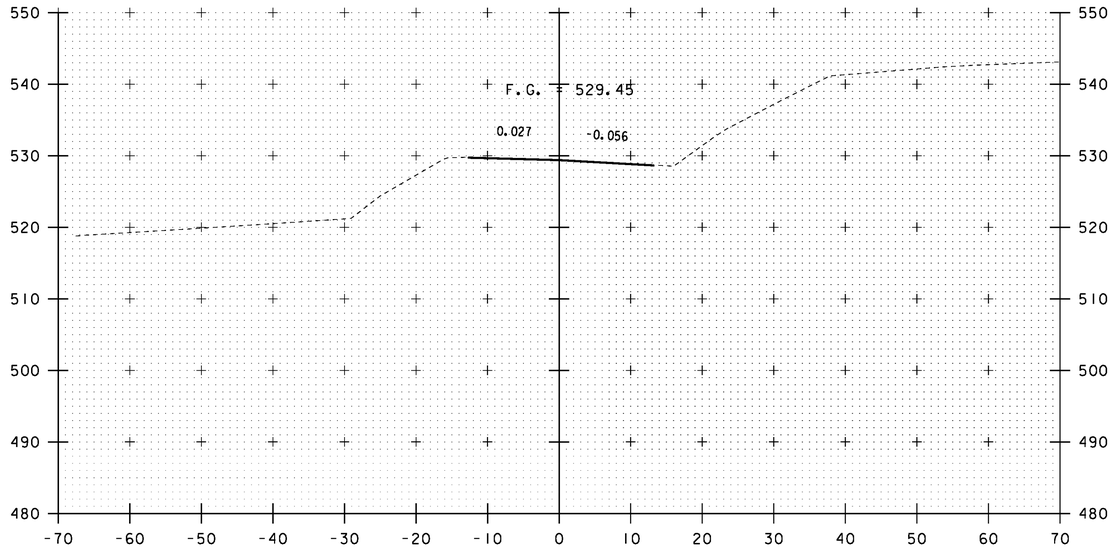
NOT TO SCALE



WELD DETAIL FOR SPLICE TUBE

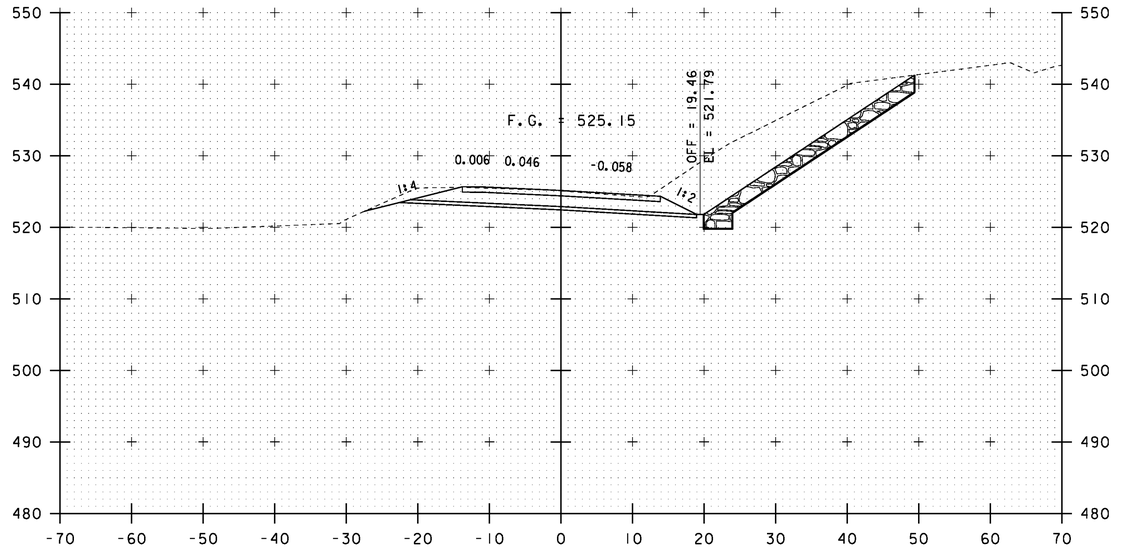
NOT TO SCALE

PROJECT NAME: ROYALTON	
PROJECT NUMBER: BRS 0147 (13)	
FILE NAME: \BR 27\s86e055rail_27.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: D. PETERSON
DESIGNED BY: D. PETERSON	CHECKED BY: C.CARLSON
BRIDGE 27 APPROACH RAIL DETAILS (3)	SHEET 50 OF 186

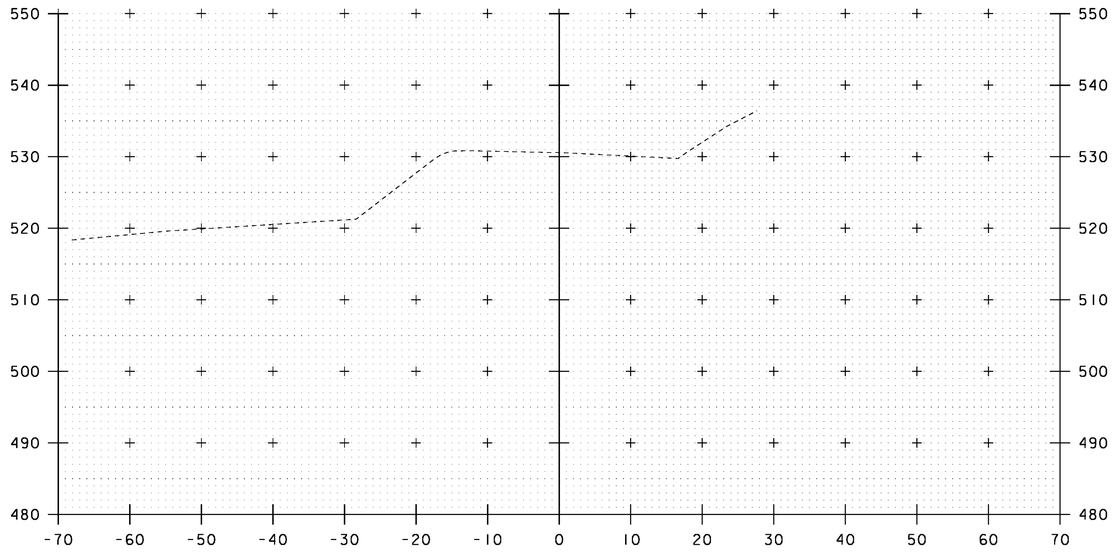


382+50

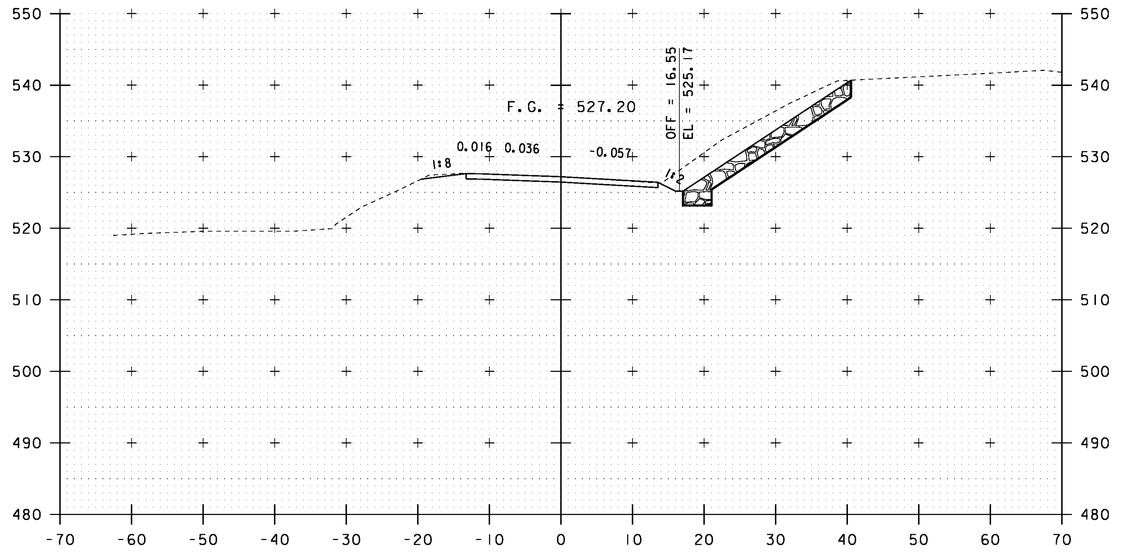
STA 382+50.00
BEGIN APPROACH
MATCH EXISTING



383+50



382+25



383+00

STA 382+80.9 RT - STA 386+15.0 RT
CONSTRUCT SLOPE W/ STONE FILL, TYPE II

STA 382+75.0 RT - STA 386+25.0 RT
CONSTRUCT NEW GRASS-LINED DITCH

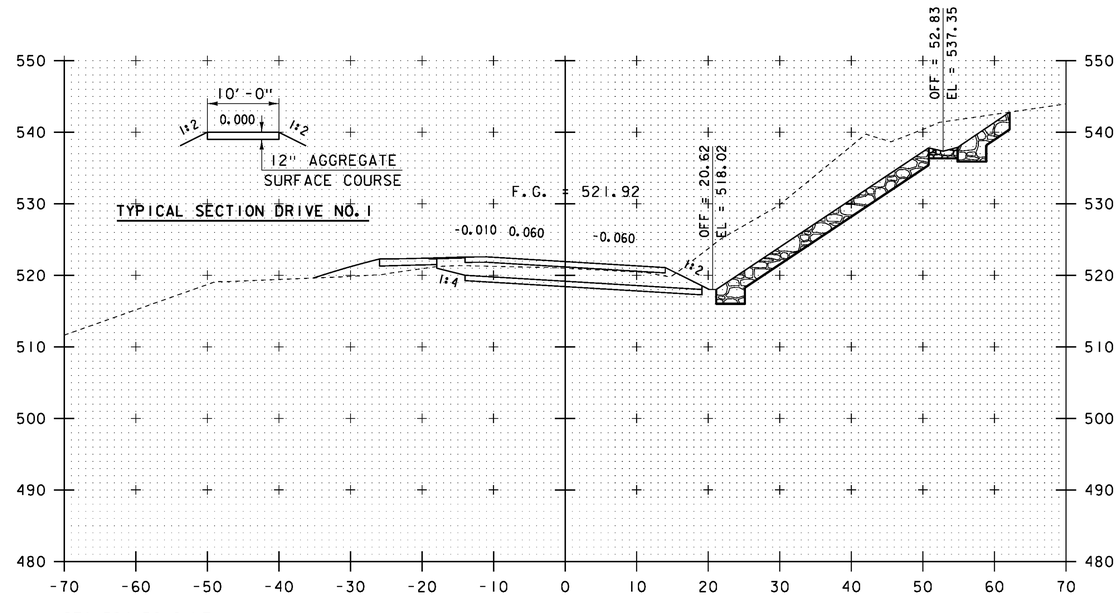
10 0 10
SCALE: 1" = 10'-0"

STA. 382+25 TO STA. 383+50

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

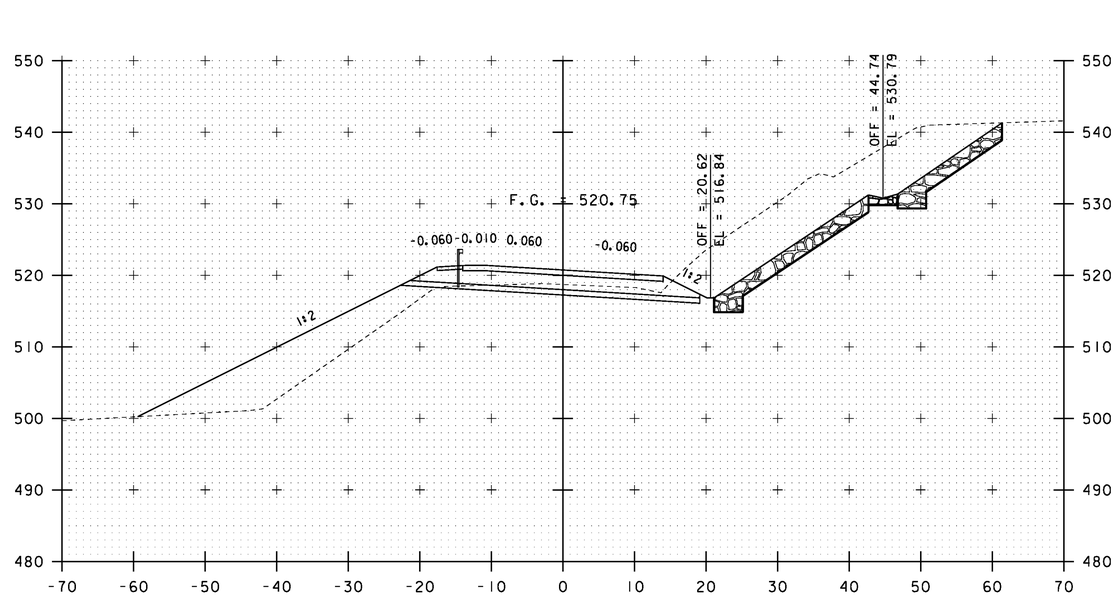
FILE NAME: \BR 27\s86e055xsl_27.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: G. ROY
BRIDGE 27 VT 14 CROSS SECTIONS (1)

PLOT DATE: 08-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: D. PETERSON
SHEET 51 OF 186

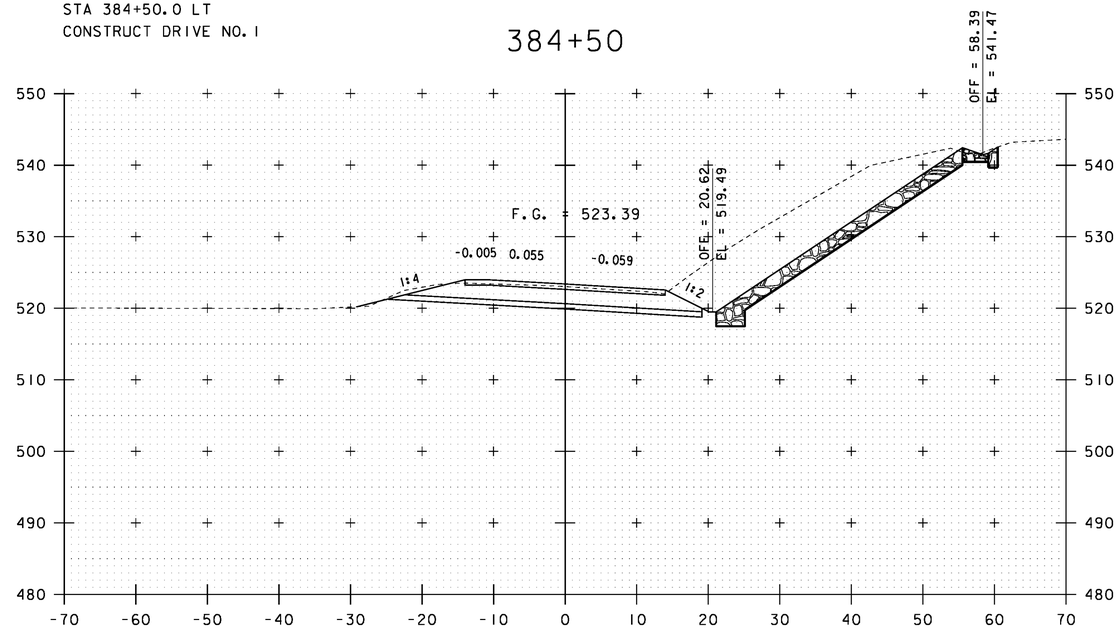


STA 384+50.0 LT
CONSTRUCT DRIVE NO. 1

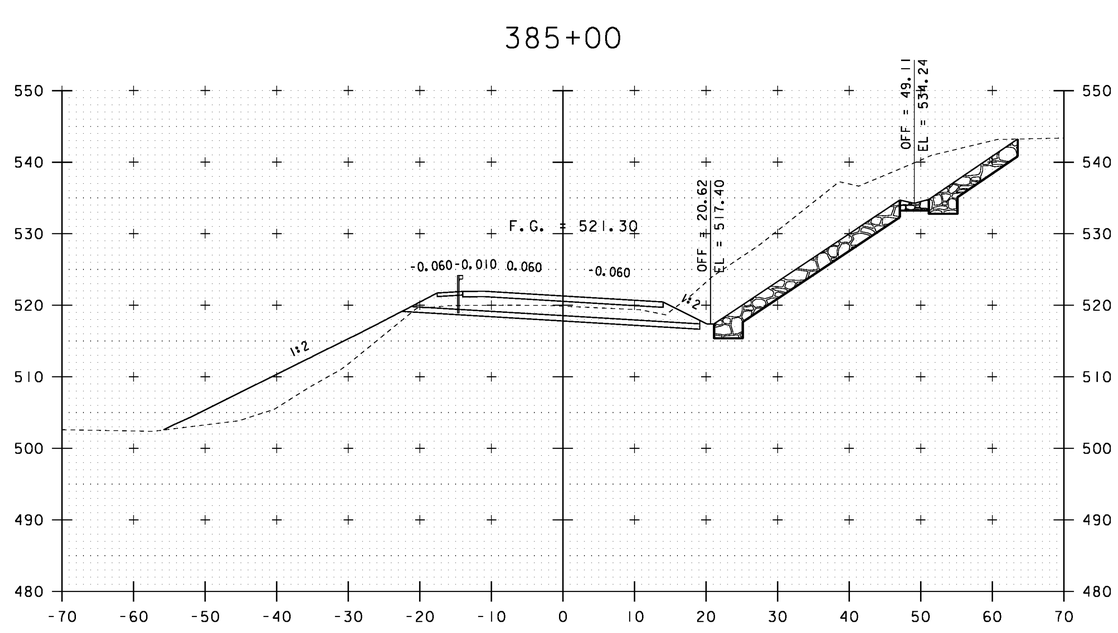
384+50



385+00



384+00



384+75

STA 383+91.3 RT - STA 385+83.2 RT
CONSTRUCT NEW DITCH LINED WITH STONE FILL, TYPE I

STA 383+70.00
END APPROACH
BEGIN PROJECT

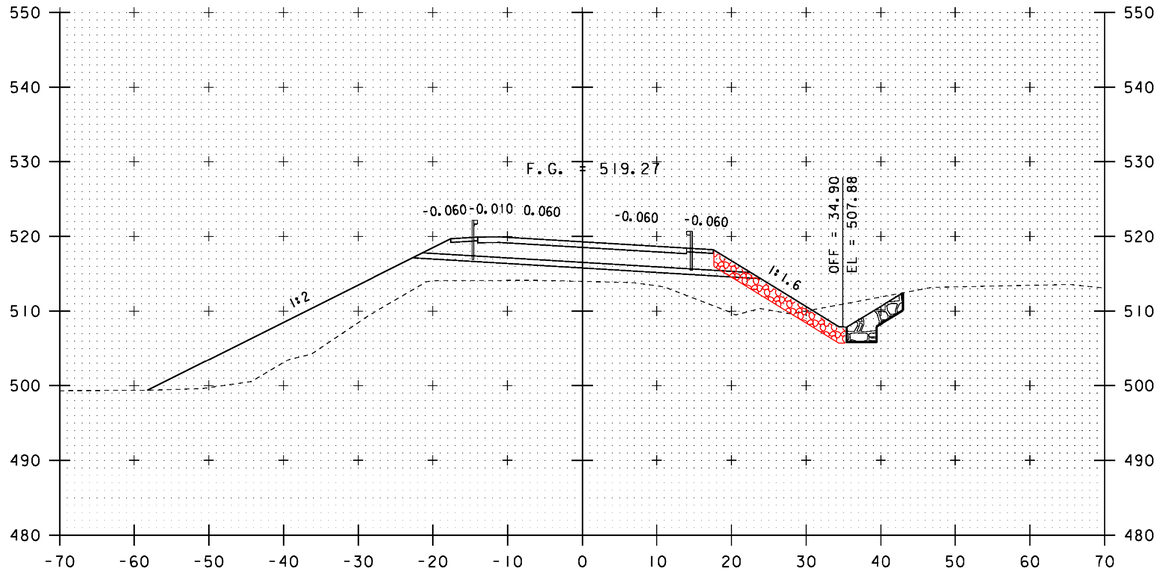
10 0 10
SCALE: 1" = 10'-0"

STA. 384+00 TO STA. 385+00

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

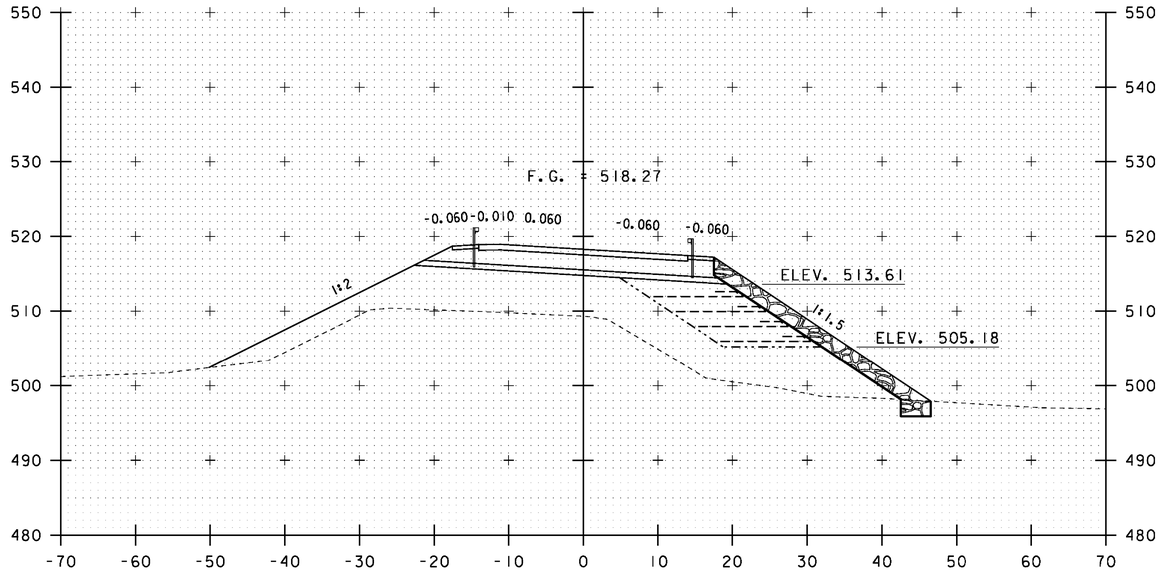
FILE NAME: \BR 27\s86e055xsl_27.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: G. ROY
BRIDGE 27 VT 14 CROSS SECTIONS (2)

PLOT DATE: 08-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: D. PETERSON
SHEET 52 OF 186

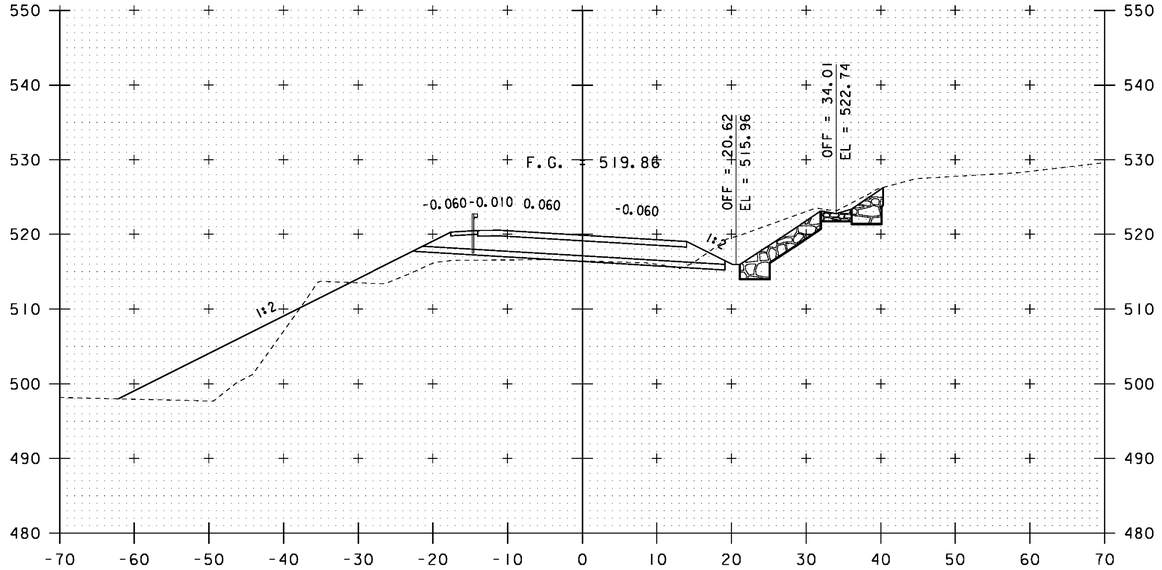


386+00

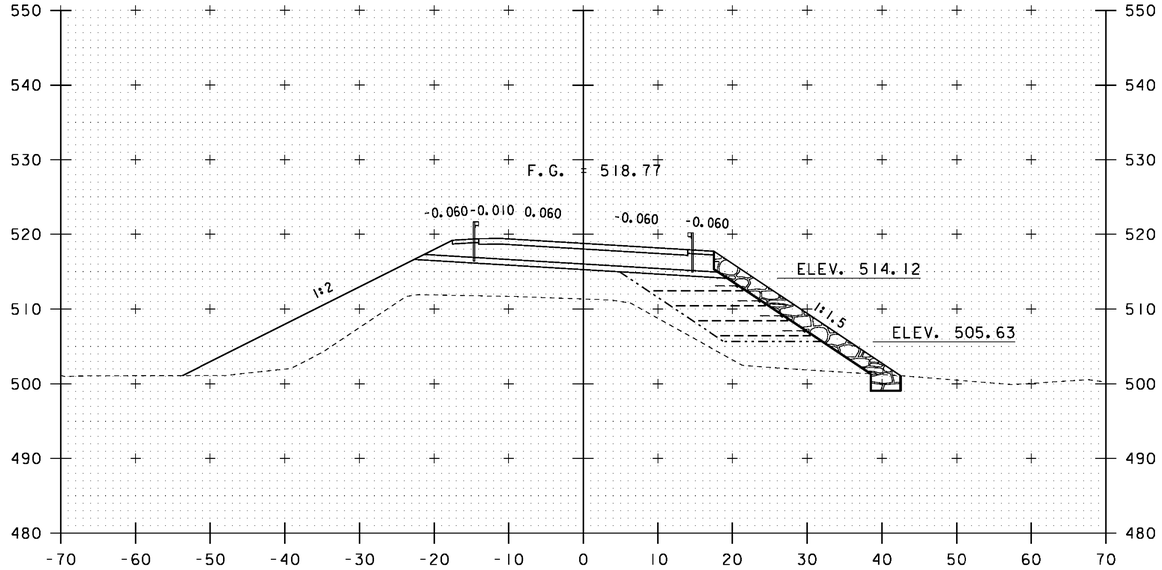
STA 383+70.00
END APPROACH
BEGIN PROJECT



387+00



385+50



386+50

STA 386+25.0 RT - STA 388+50.0 RT
CONSTRUCT REINFORCED SLOPE W/ STONE
FILL, TYPE II

10 0 10

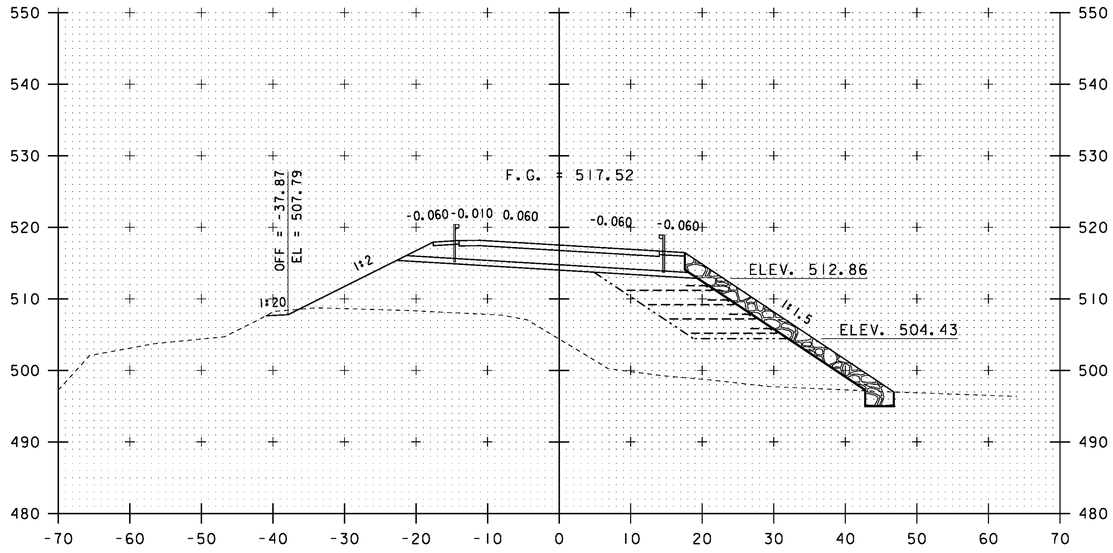
SCALE: 1" = 10'-0"

STA. 385+50 TO STA. 387+00

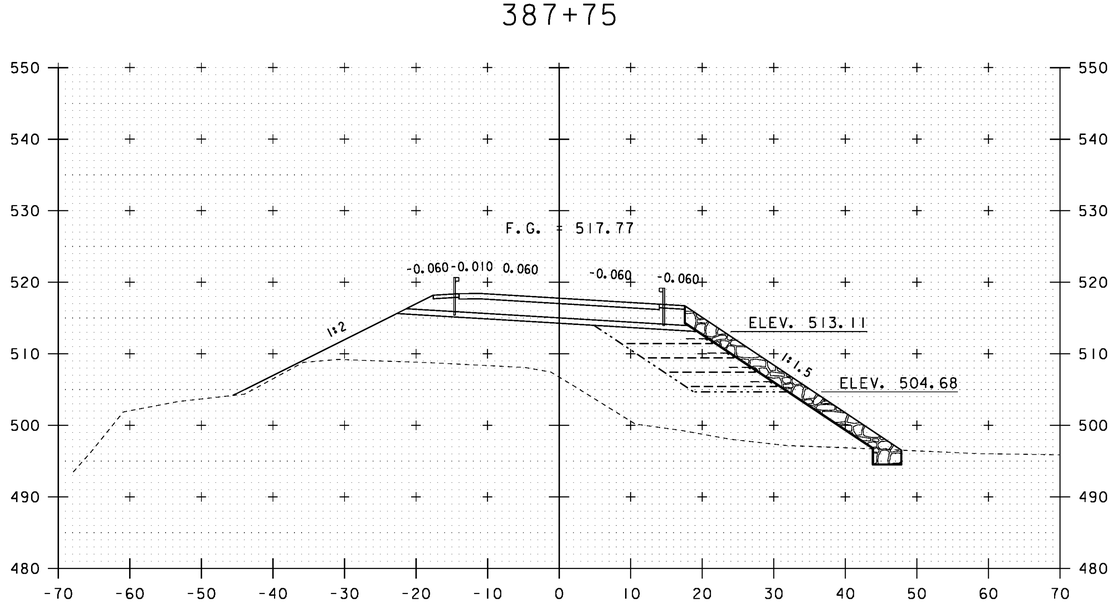
PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR 27\s86e055xsl_27.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: G. ROY
BRIDGE 27 VT 14 CROSS SECTIONS (3)

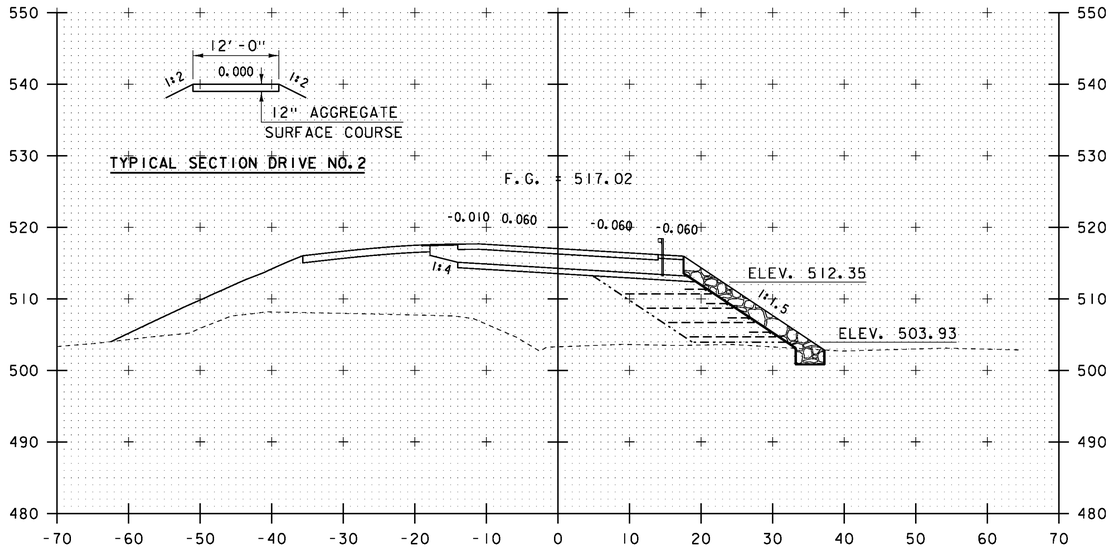
PLOT DATE: 08-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: D. PETERSON
SHEET 53 OF 186



387+75

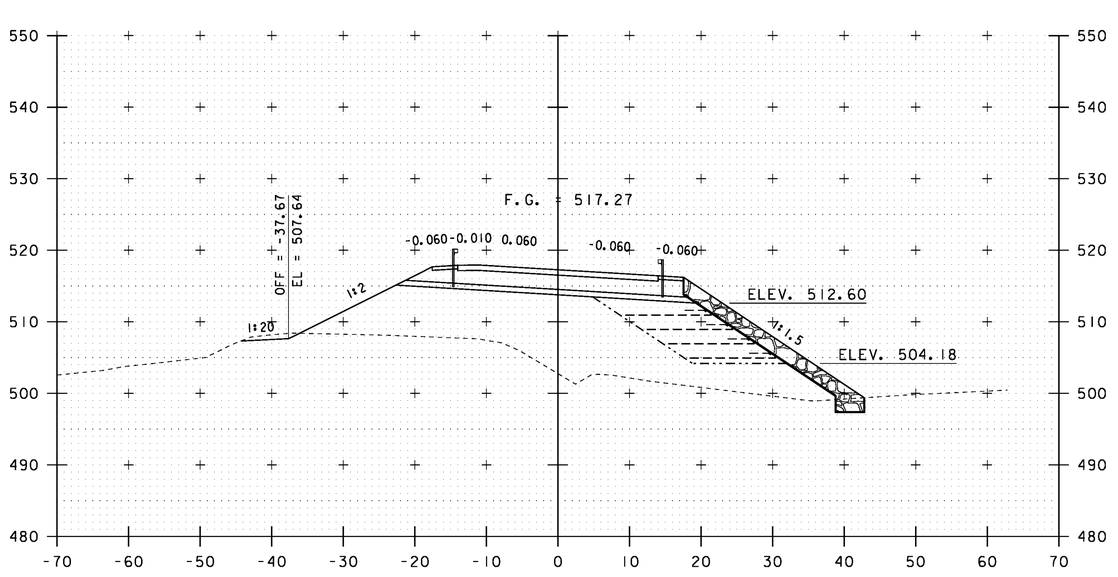


387+50



STA 388+25.0 LT
CONSTRUCT DRIVE NO. 2

388+25



388+00

10 0 10

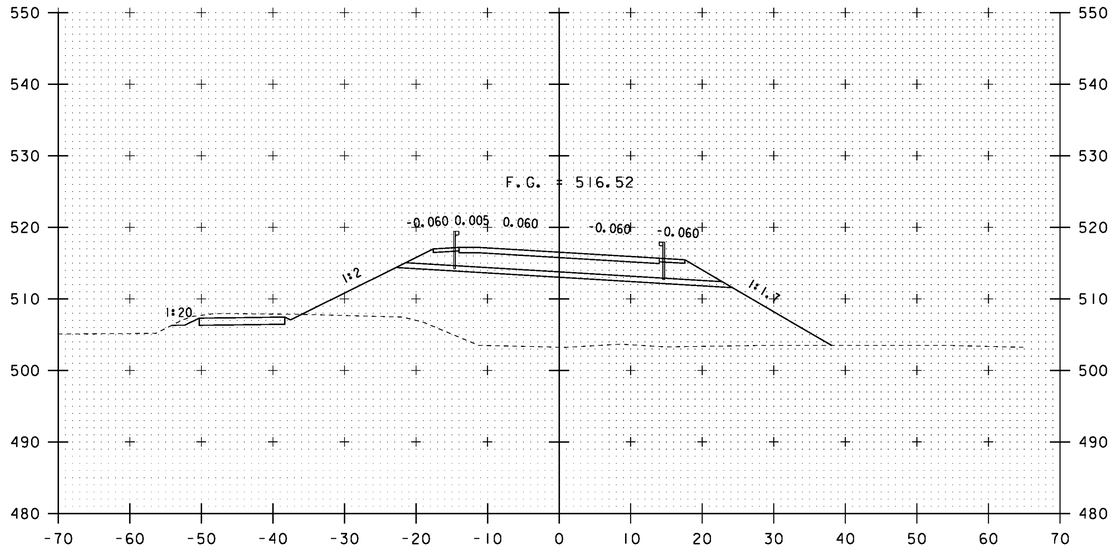
SCALE: 1" = 10'-0"

STA. 387+50 TO STA. 388+25

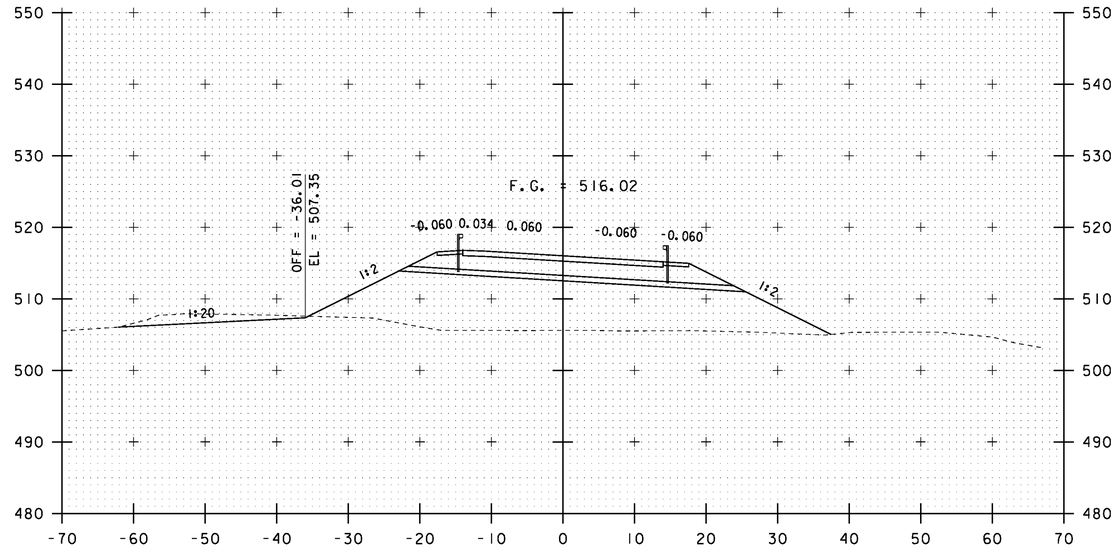
PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR 27\s86e055xsl_27.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: G. ROY
BRIDGE 27 VT 14 CROSS SECTIONS (4)

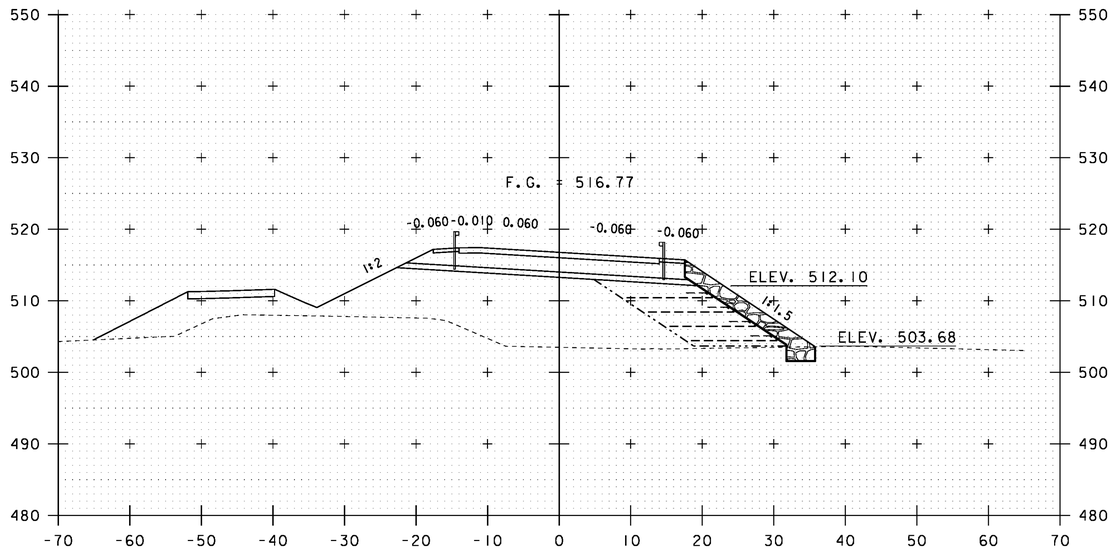
PLOT DATE: 08-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: D. PETERSON
SHEET 54 OF 186



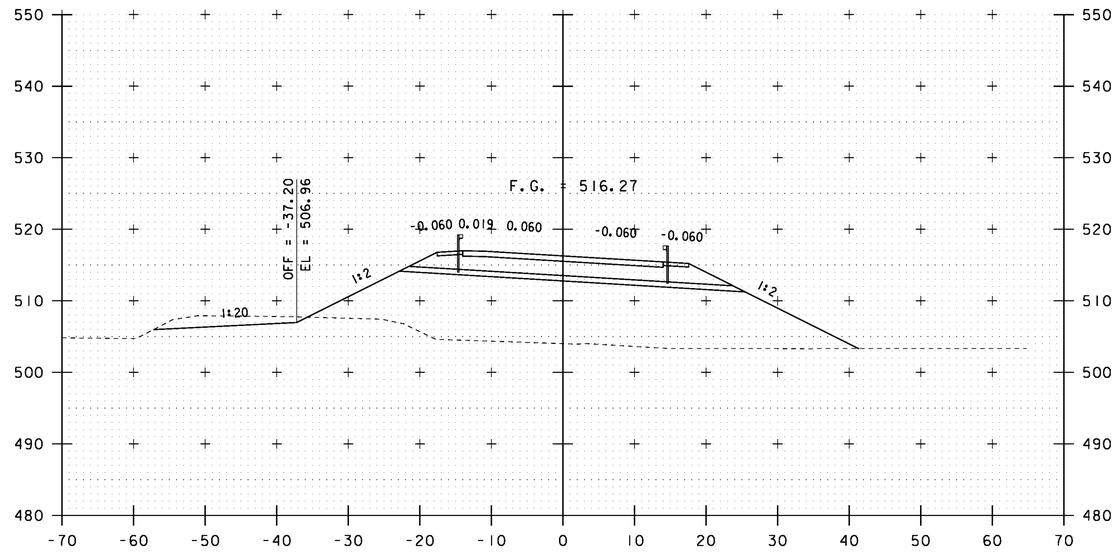
388+75



389+25



388+50



389+00

10 0 10

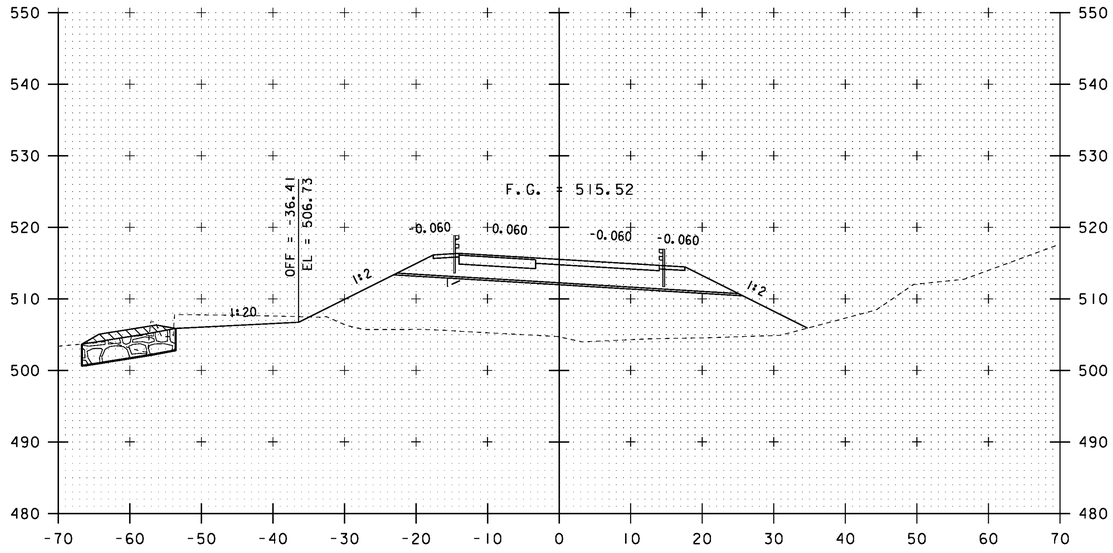
SCALE: 1" = 10'-0"

STA. 388+50 TO STA. 389+25

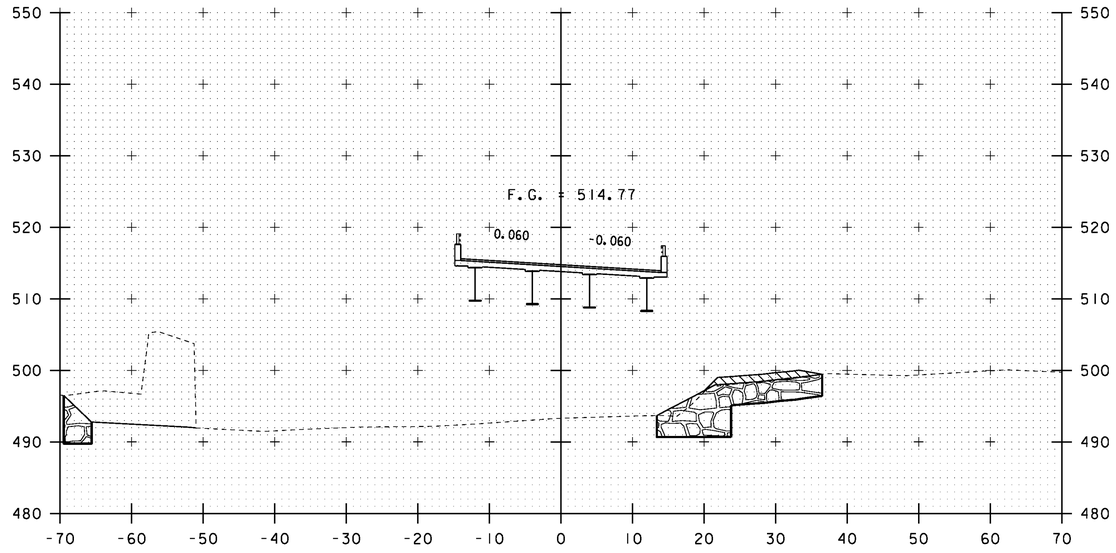
PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR 27\s86e055xsl_27.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: G. ROY
BRIDGE 27 VT 14 CROSS SECTIONS (5)

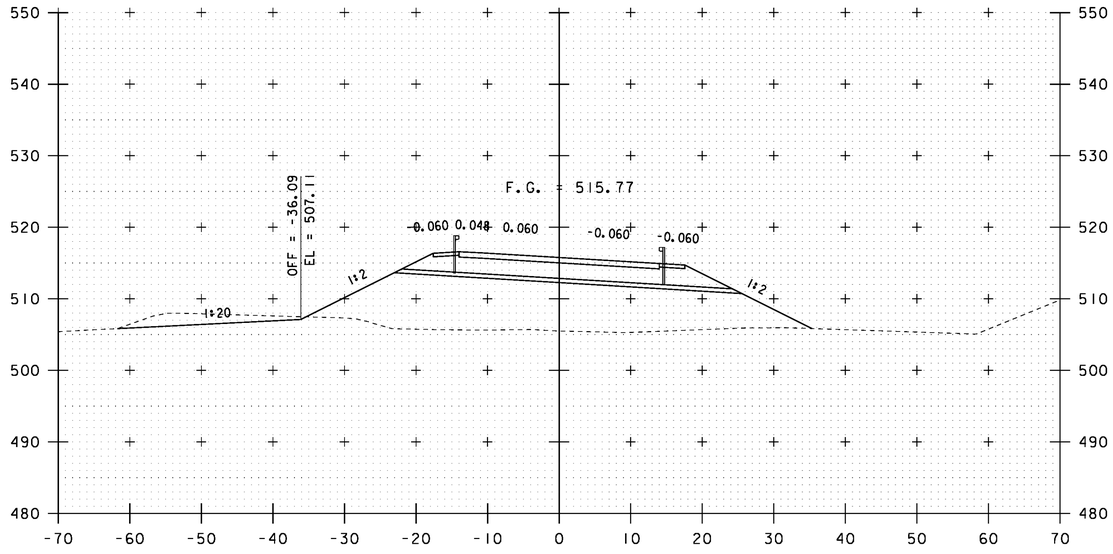
PLOT DATE: 08-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: D. PETERSON
SHEET 55 OF 186



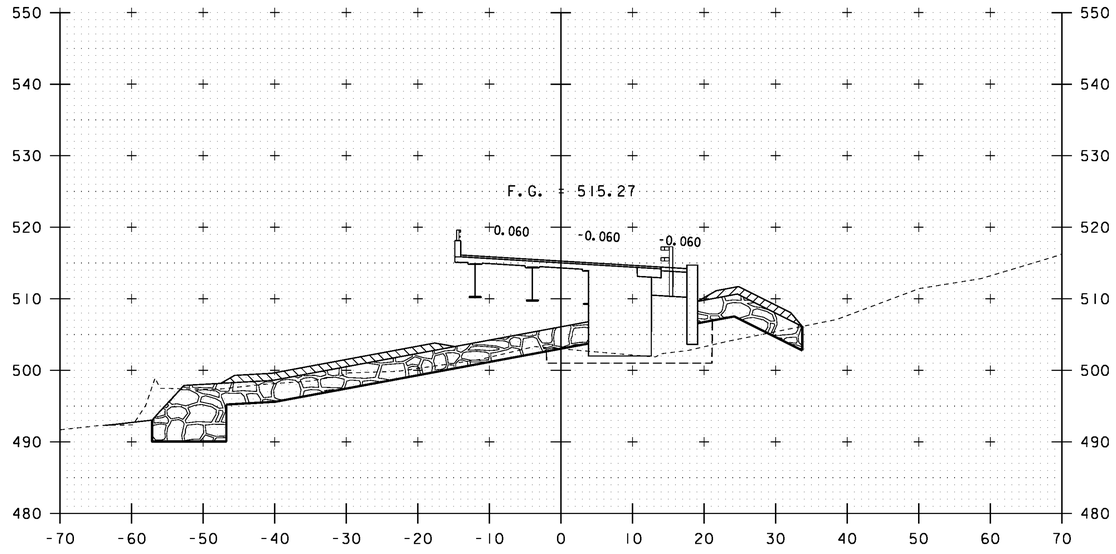
389+75



390+50



389+50



390+00

STA 389+96.11
END ROADWAY
BEGIN BRIDGE

10 0 10

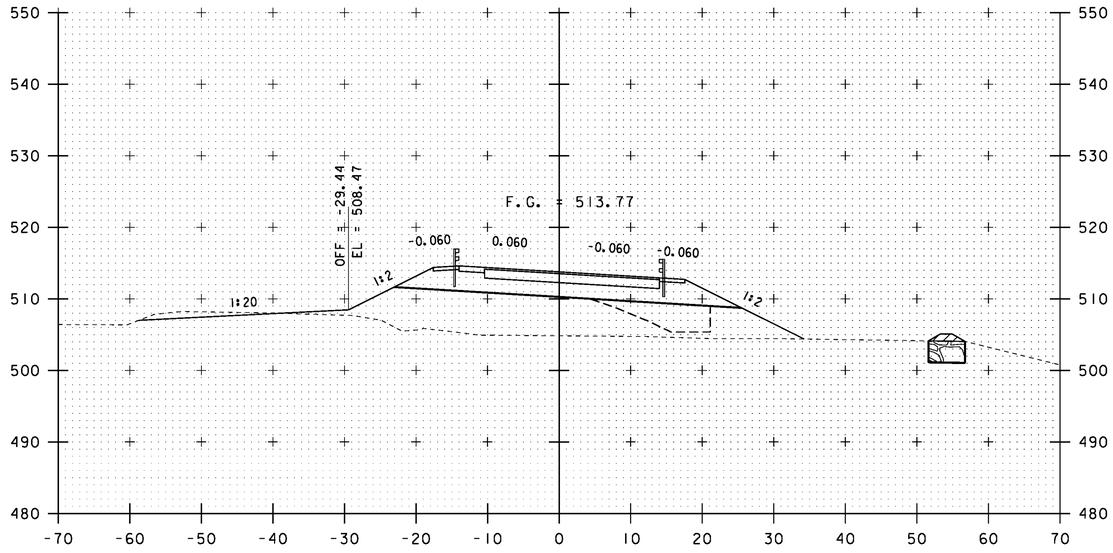
SCALE: 1" = 10'-0"

STA. 389+50 TO STA. 390+50

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

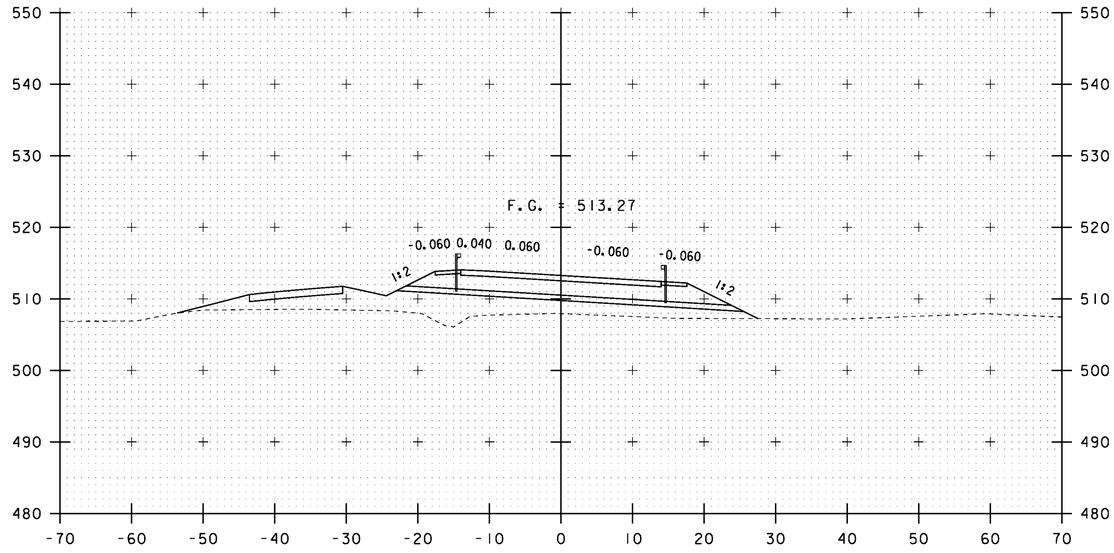
FILE NAME: \BR 27\s86e055xsl_27.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: G. ROY
BRIDGE 27 VT 14 CROSS SECTIONS (6)

PLOT DATE: 08-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: D. PETERSON
SHEET 56 OF 186

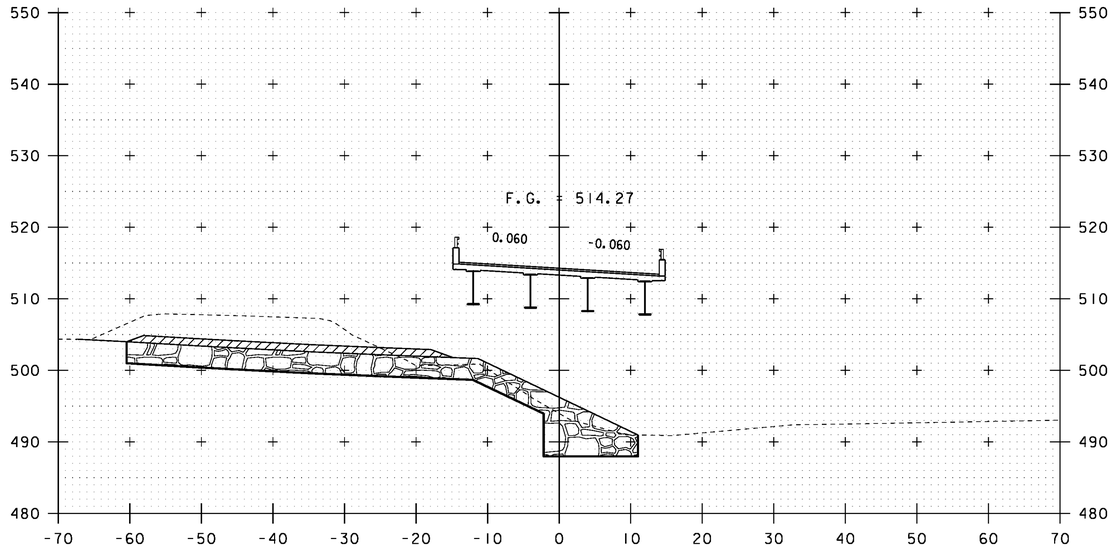


391+50

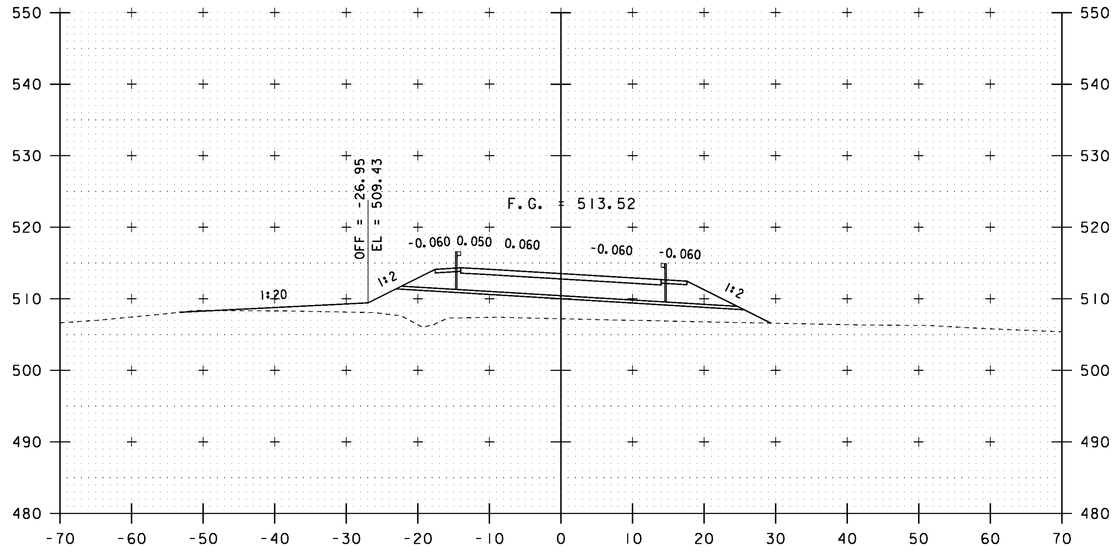
STA 391+33.89
END BRIDGE
RESUME ROADWAY



392+00



391+00



391+75

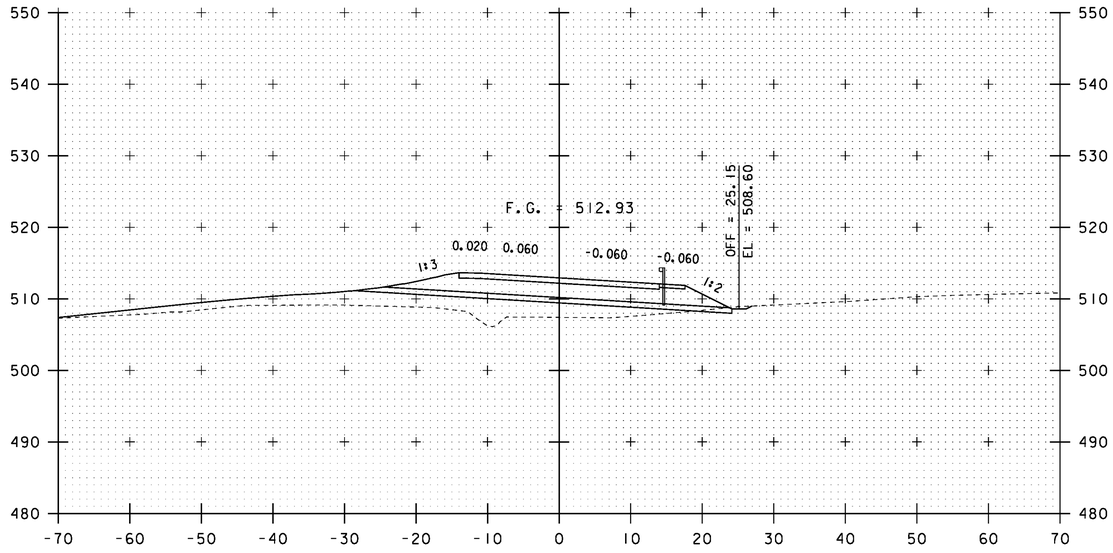
10 0 10
SCALE: 1" = 10'-0"

STA. 391+00 TO STA. 392+00

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

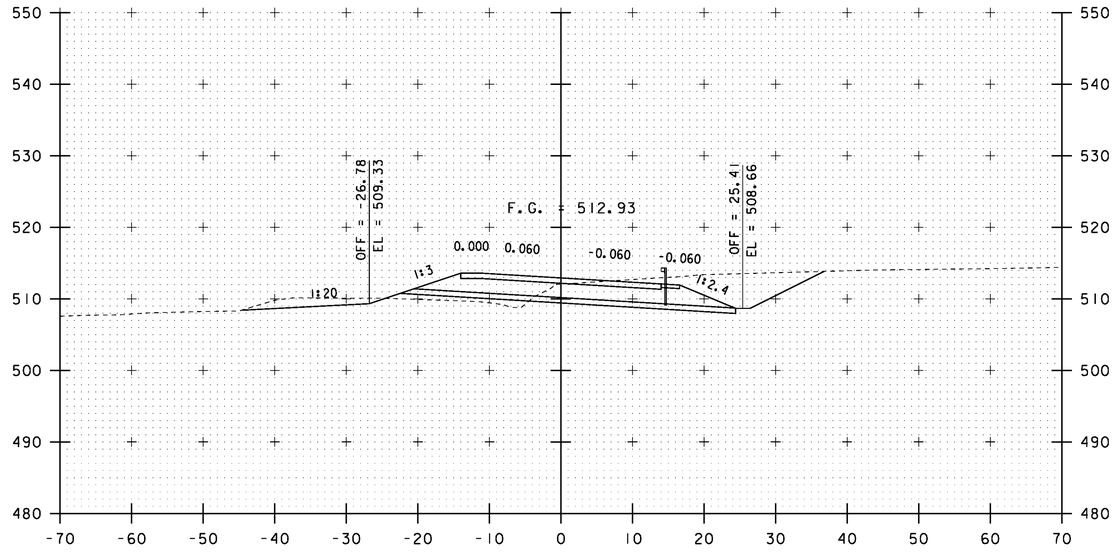
FILE NAME: \BR 27\s86e055xsl_27.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: G. ROY
BRIDGE 27 VT 14 CROSS SECTIONS (7)

PLOT DATE: 08-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: D. PETERSON
SHEET 57 OF 186

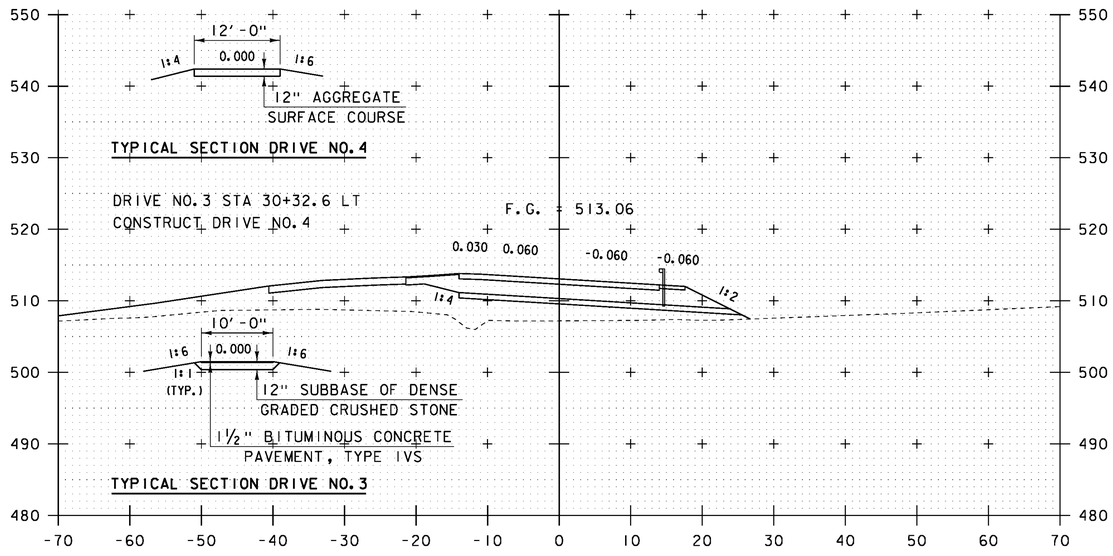


STA 392+47.3 RT - STA 393+75.0 RT
CONSTRUCT NEW GRASS-LINED DITCH

392+50

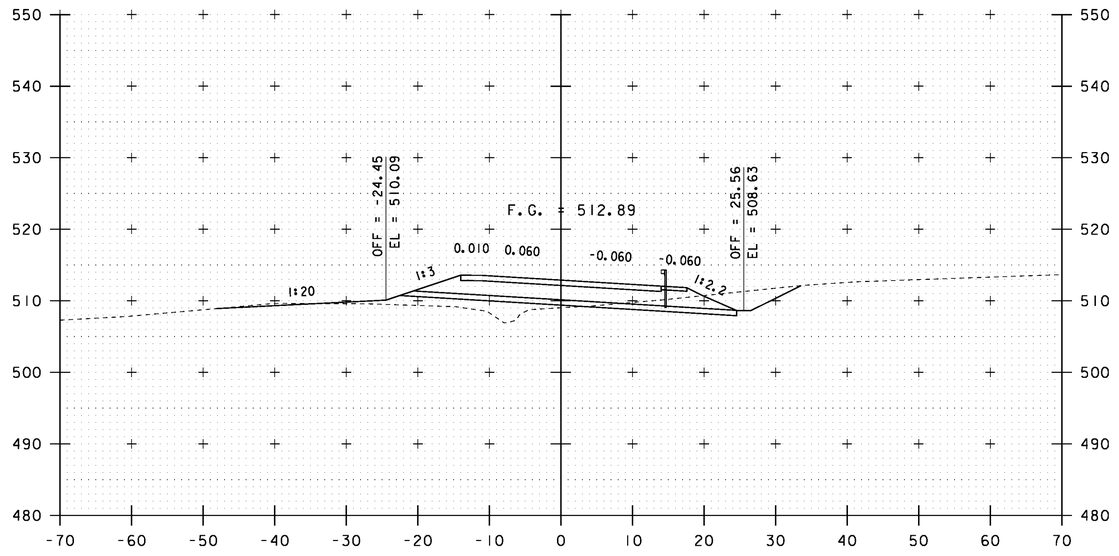


393+00



STA 392+31.5 LT
CONSTRUCT DRIVE NO. 3

392+25



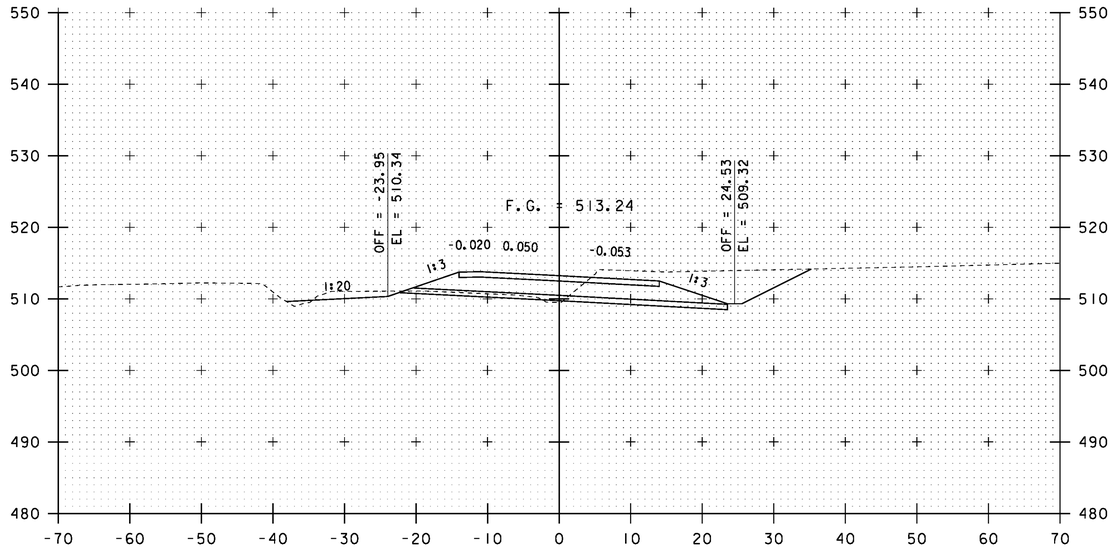
392+75

10 0 10
SCALE: 1" = 10'-0"

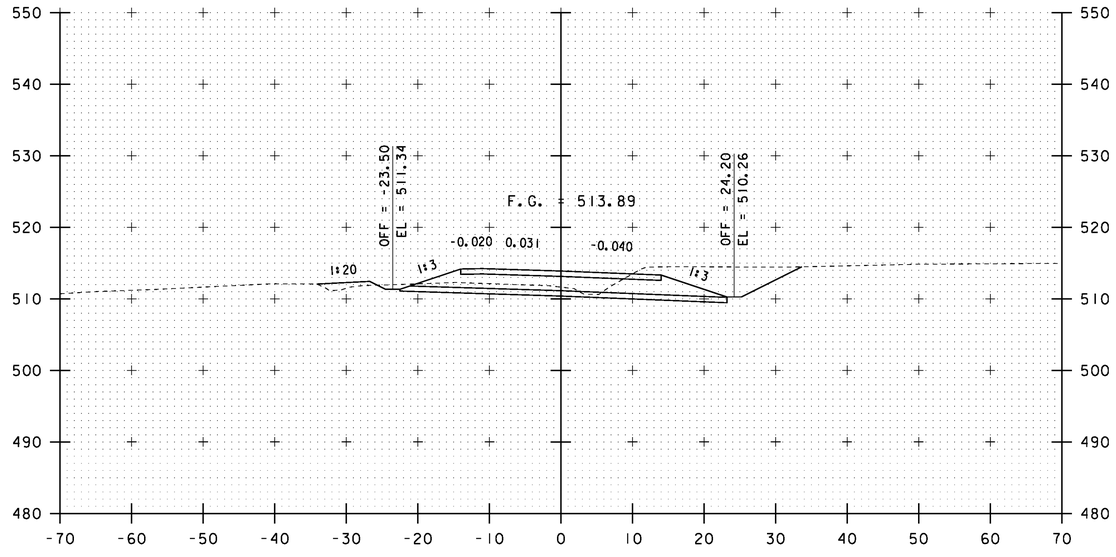
STA. 392+25 TO STA. 393+00

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)

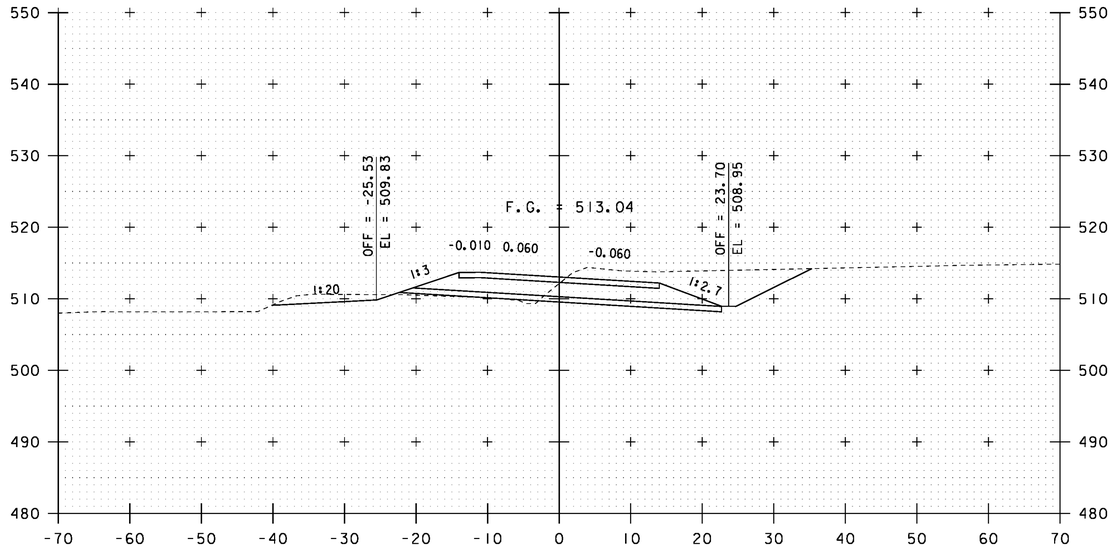
FILE NAME: \BR 27\s86e055xsl_27.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: G. ROY	CHECKED BY: D. PETERSON
BRIDGE 27 VT 14 CROSS SECTIONS (8)	SHEET 58 OF 186



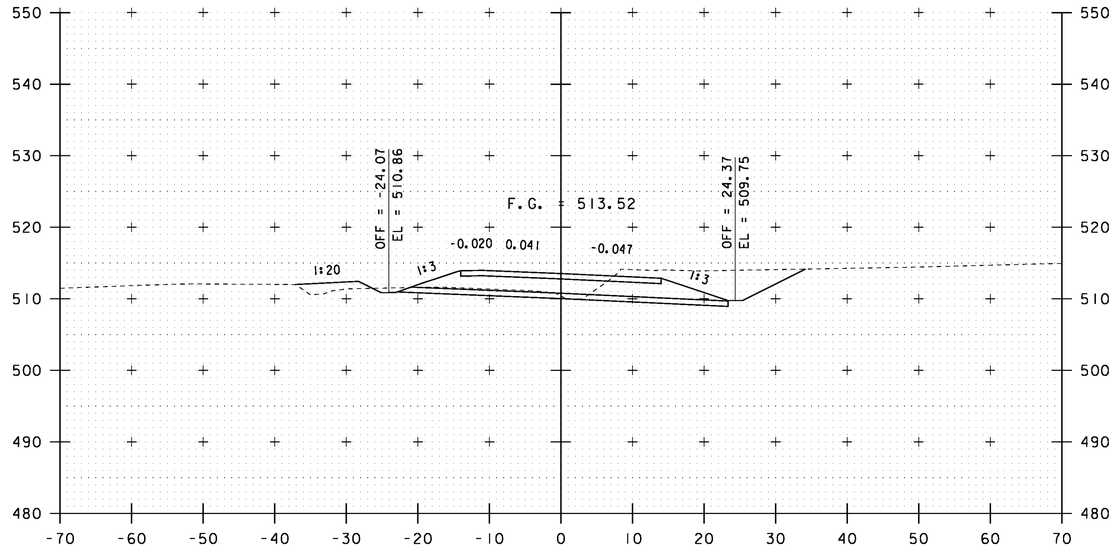
393+50



394+00



393+25



STA 393+75.0 LT - STA 395+75.0 LT
CONSTRUCT NEW GRASS-LINED DITCH

393+75

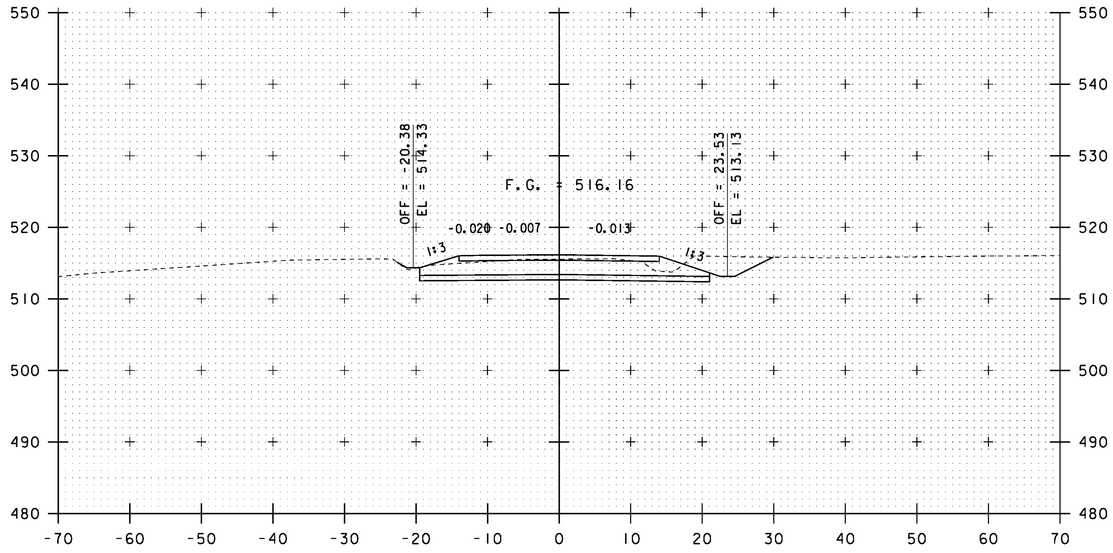
10 0 10
SCALE: 1" = 10'-0"

STA. 393+25 TO STA. 394+00

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

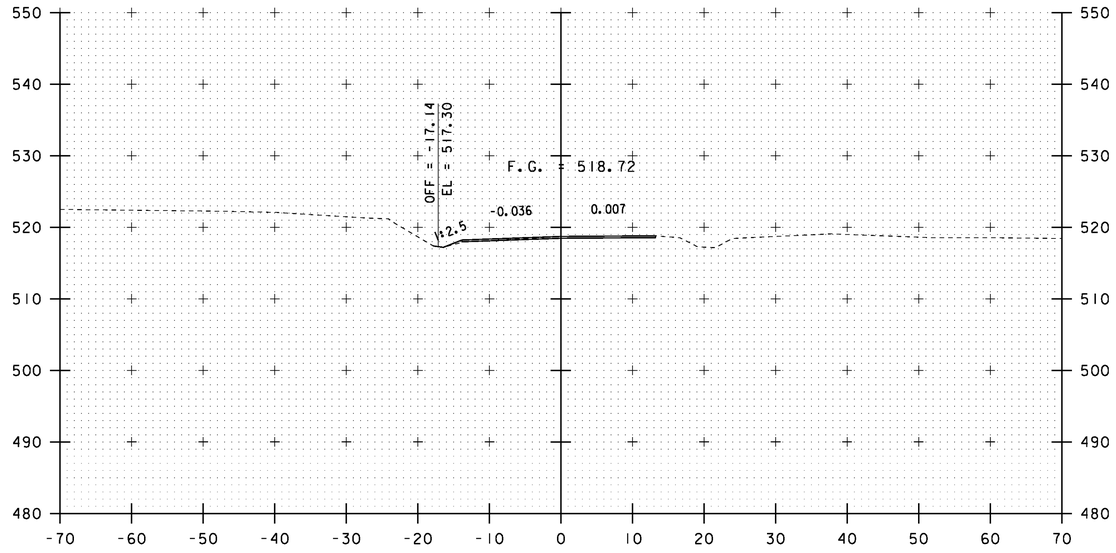
FILE NAME: \BR 27\s86e055xsl_27.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: G. ROY
BRIDGE 27 VT 14 CROSS SECTIONS (9)

PLOT DATE: 08-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: D. PETERSON
SHEET 59 OF 186

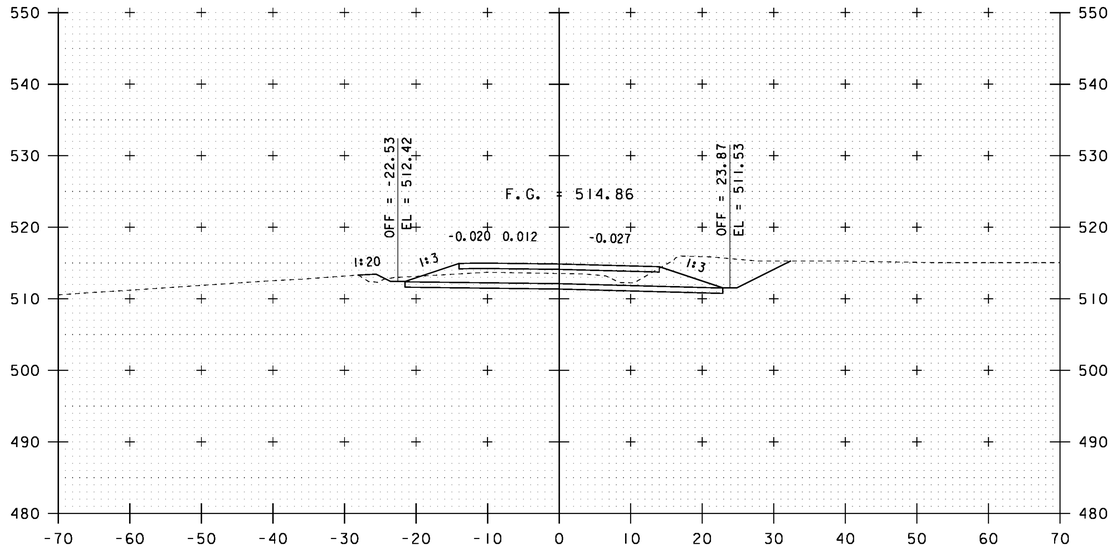


395+00

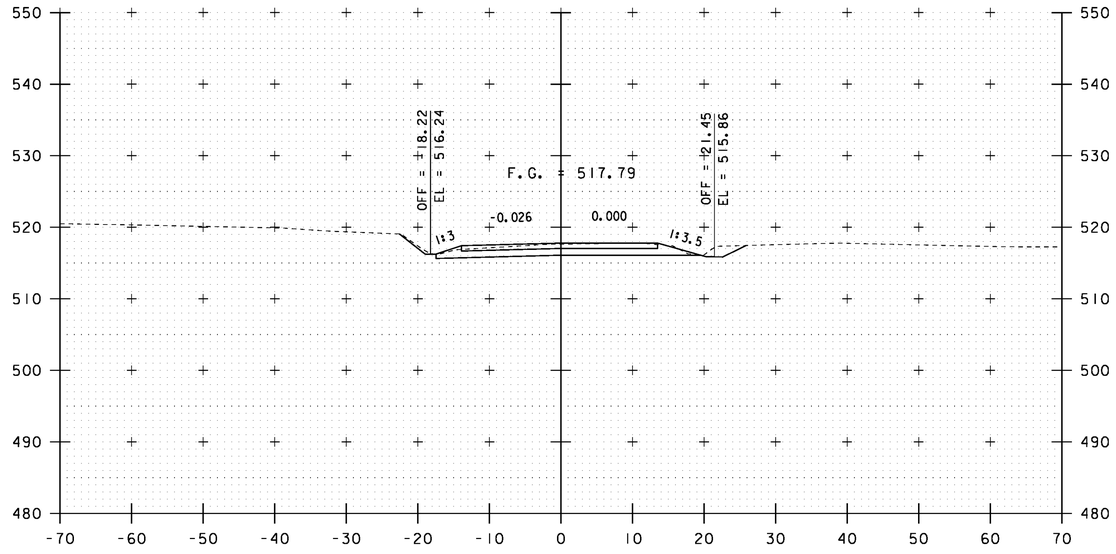
STA 395+05.00
END FULL DEPTH ROADWAY
BEGIN APPROACH



395+75



394+50

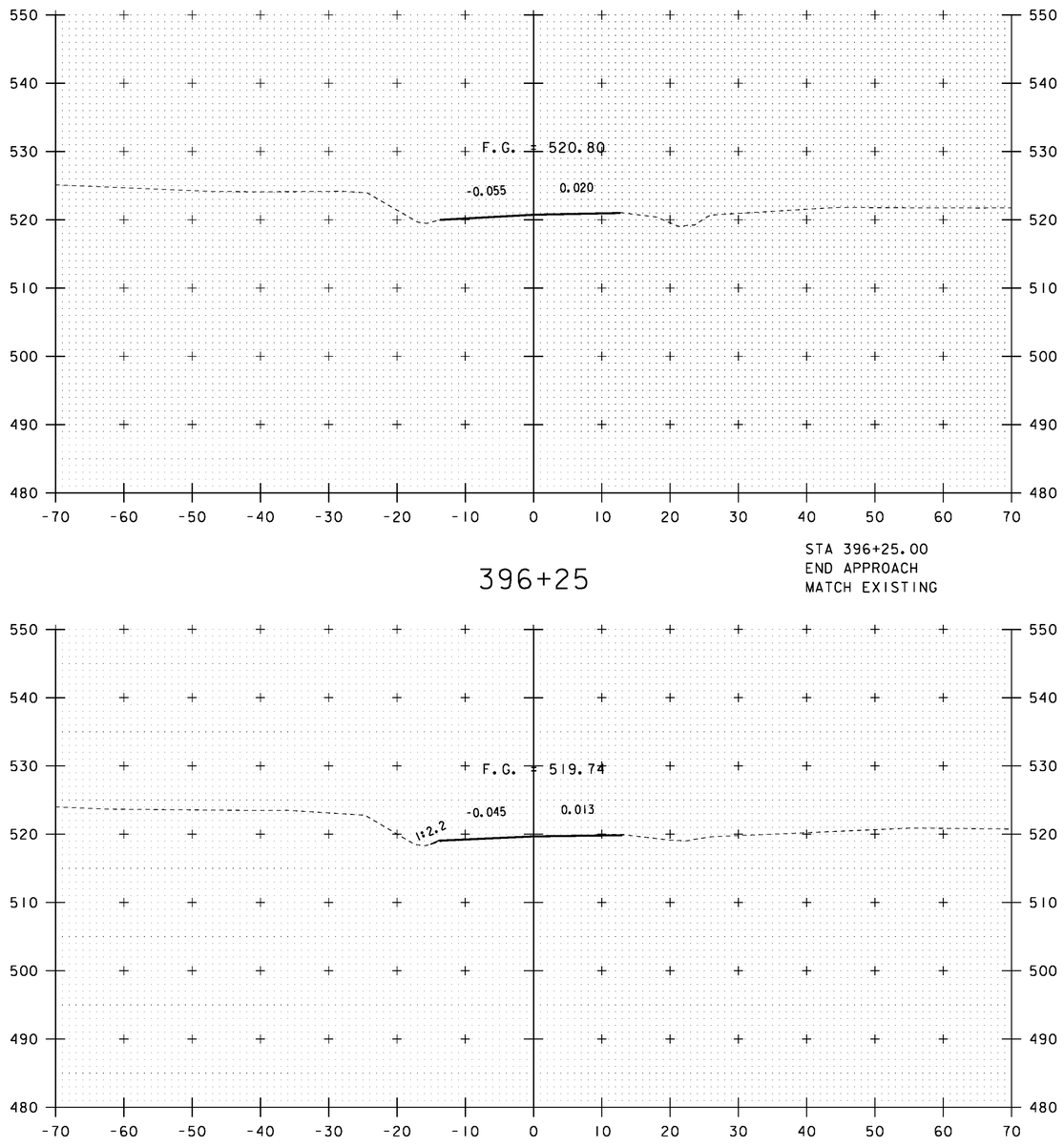


395+50

10 0 10
SCALE: 1" = 10'-0"

STA. 394+50 TO STA. 395+75

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: \BR 27\s86e055xsl_27.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: G. ROY	CHECKED BY: D. PETERSON
BRIDGE 27 VT 14 CROSS SECTIONS (10)	SHEET 60 OF 186



396+25

STA 396+25.00
END APPROACH
MATCH EXISTING

396+00

10 0 10

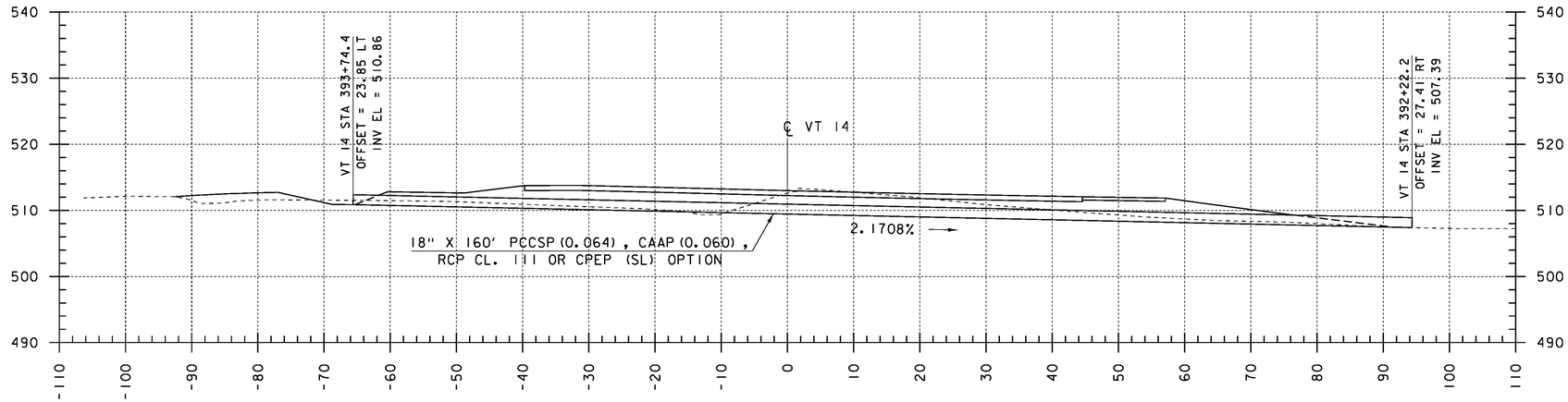
SCALE: 1" = 10'-0"

STA. 396+00 TO STA. 396+25

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

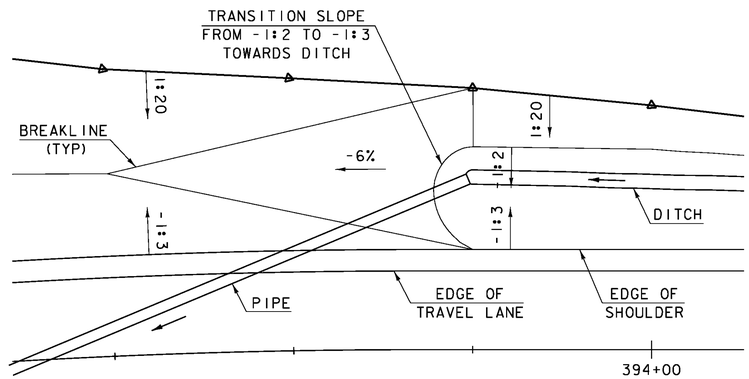
FILE NAME: \BR 27\s86e055xsl_27.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: G. ROY
BRIDGE 27 VT 14 CROSS SECTIONS (11)

PLOT DATE: 08-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: D. PETERSON
SHEET 61 OF 186



PIPE PROFILE

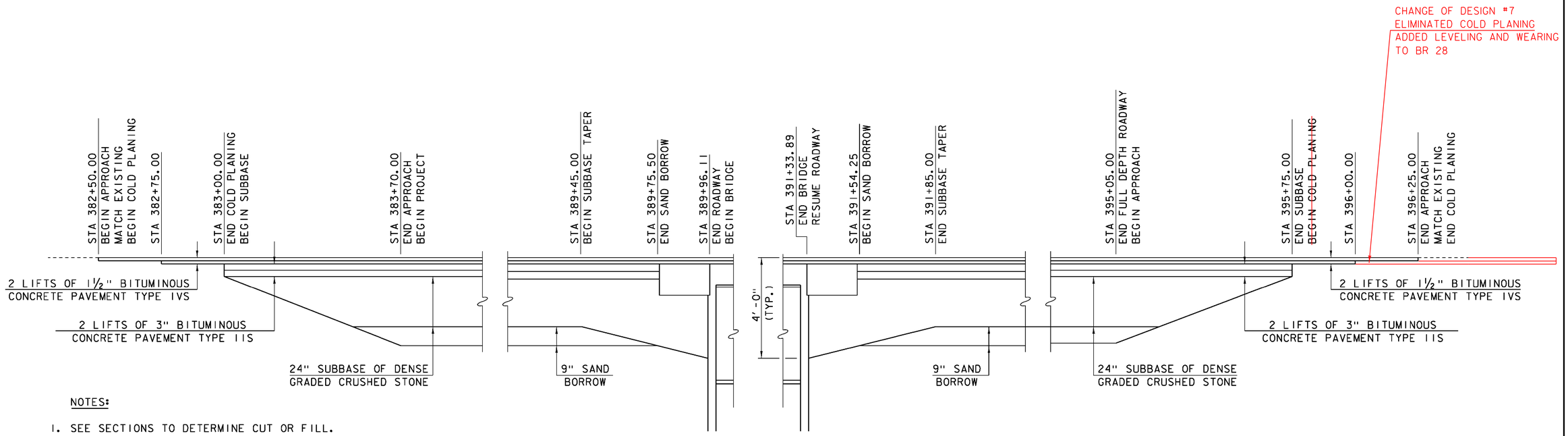
HORIZONTAL SCALE: 1" = 10'-0"
VERTICAL SCALE: 1" = 10'-0"



GRADING PLAN

SCALE: 1" = 10'-0"

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: \BR 27\s86e055xsl_27.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: G. ROY	CHECKED BY: D. PETERSON
BRIDGE 27 VT 14 PIPE PROFILE	SHEET 62 OF 186



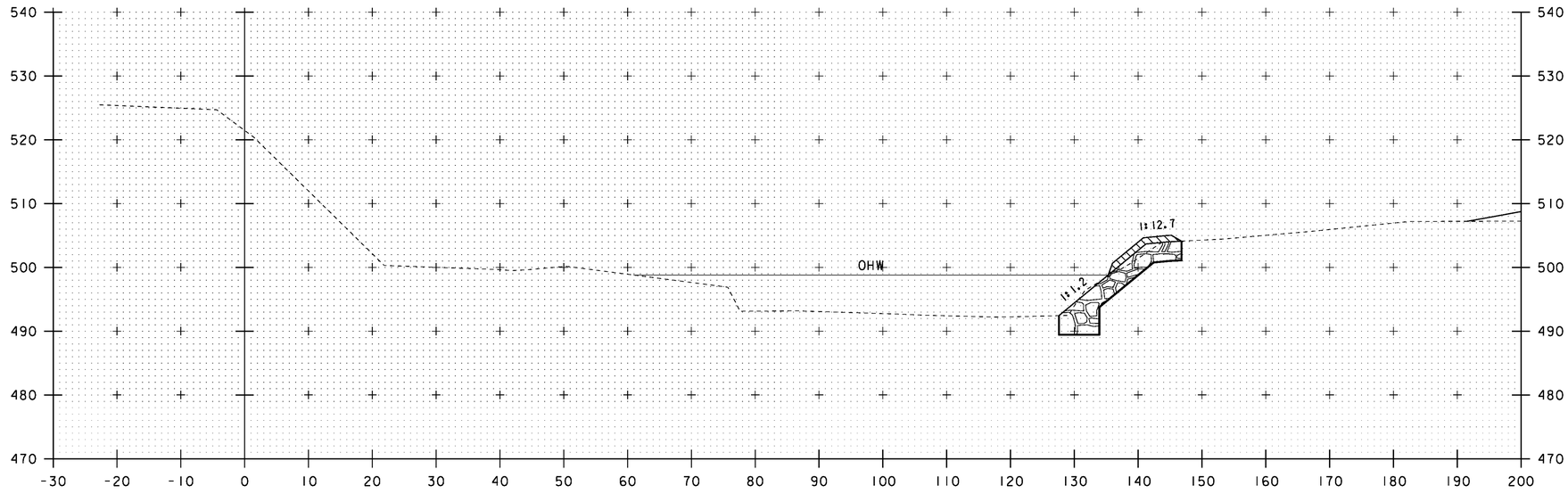
NOTES:

1. SEE SECTIONS TO DETERMINE CUT OR FILL.
2. SEE PROJECT TYPICAL SECTIONS FOR ABUTMENT EARTHWORK DETAILS.

VT 14 MATERIAL TRANSITION DETAIL

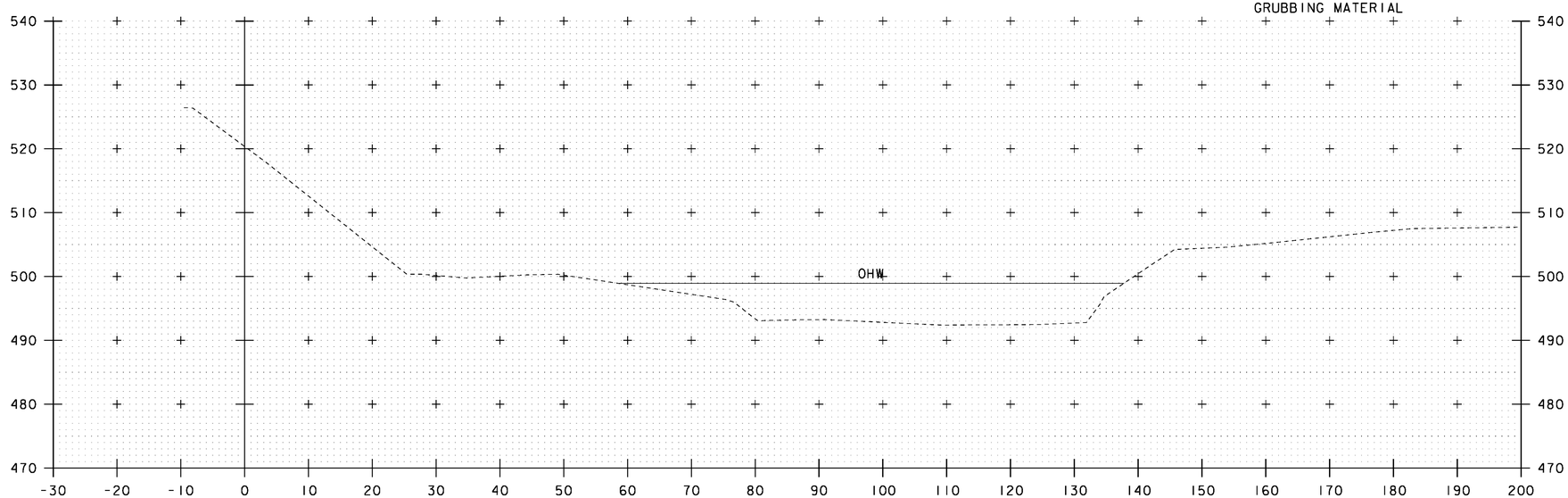
HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 2'-0"

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: s86e055pro_27.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: D. PETERSON
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 27 VT 14 MATERIAL TRANSITION	SHEET 63 OF 186



CHANNEL STA 48+87.2 FAR RT
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III
GRUBBING MATERIAL

49+00



48+75

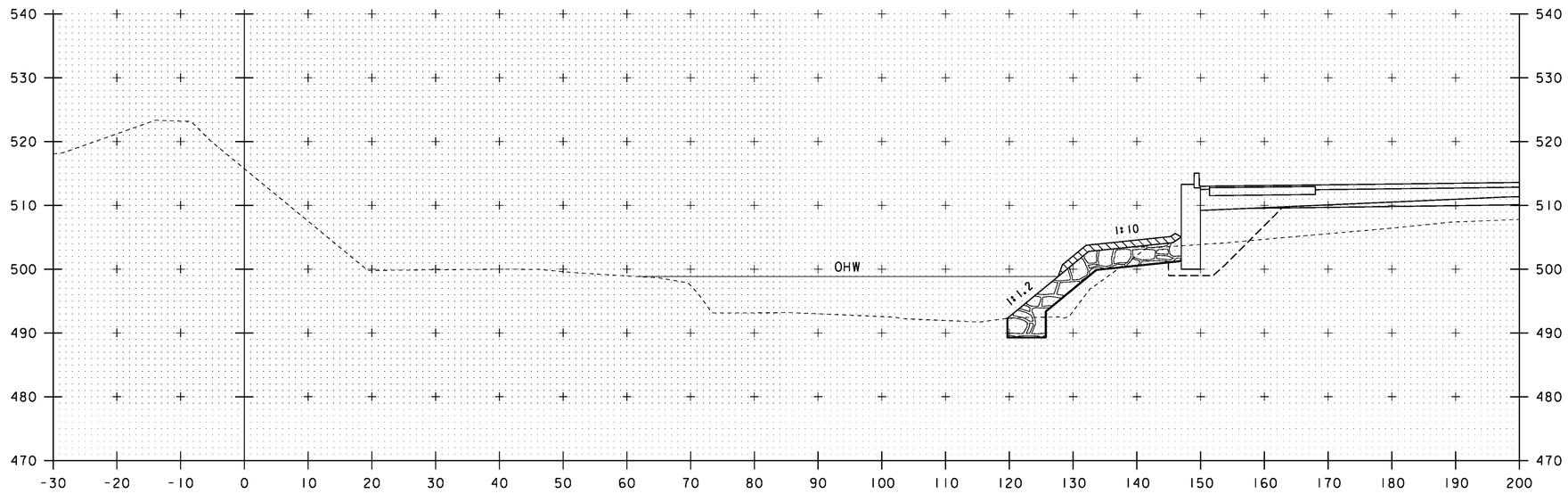
SCALE: 1" = 10'-0"

STA. 48+75 TO STA. 49+00

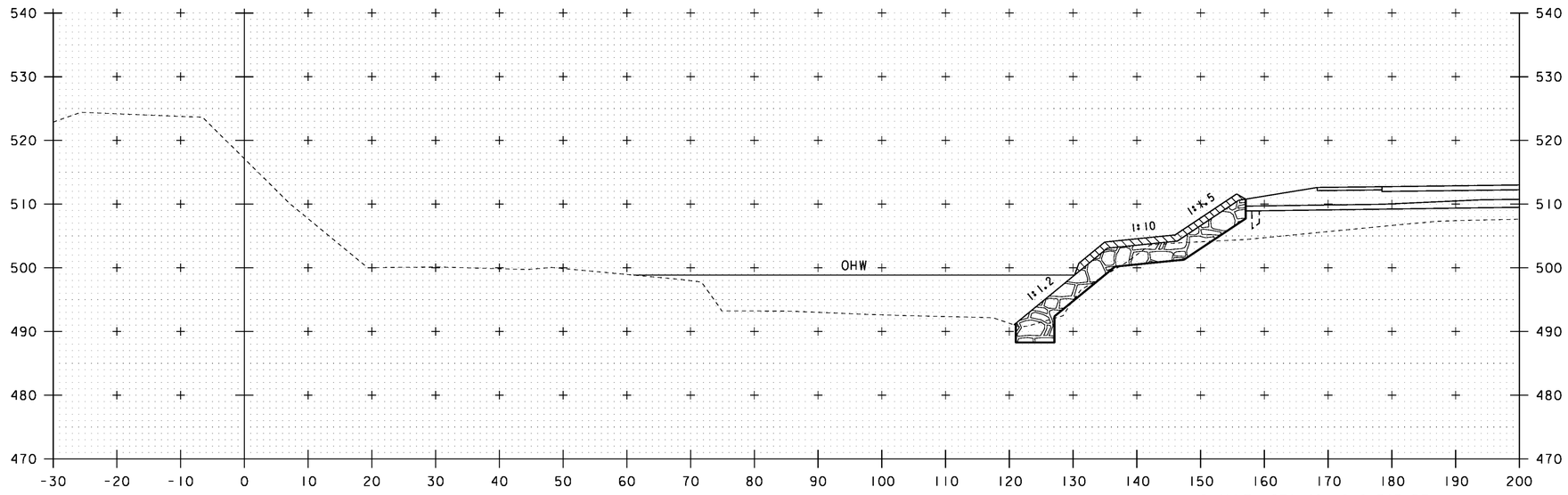
PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR 27\s86e055xsl_27.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: G. ROY
BRIDGE 27 CHANNEL LINE CROSS SECTIONS (1)

PLOT DATE: 08-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: D. PETERSON
SHEET 64 OF 186



49+30



CHANNEL STA 49+19.6 FAR RT
BEGIN STRUCTURE EXCAVATION
GRANULAR BACKFILL FOR STRUCTURES

49+20

10 0 10

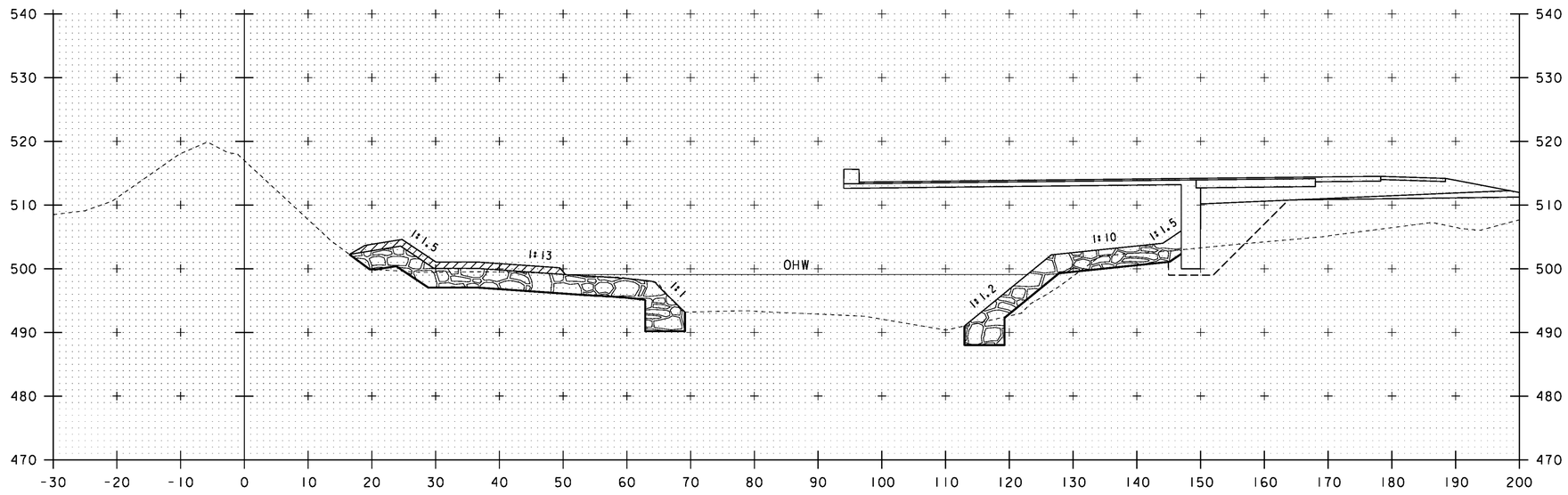
SCALE: 1" = 10'-0"

STA. 49+20 TO STA. 49+30

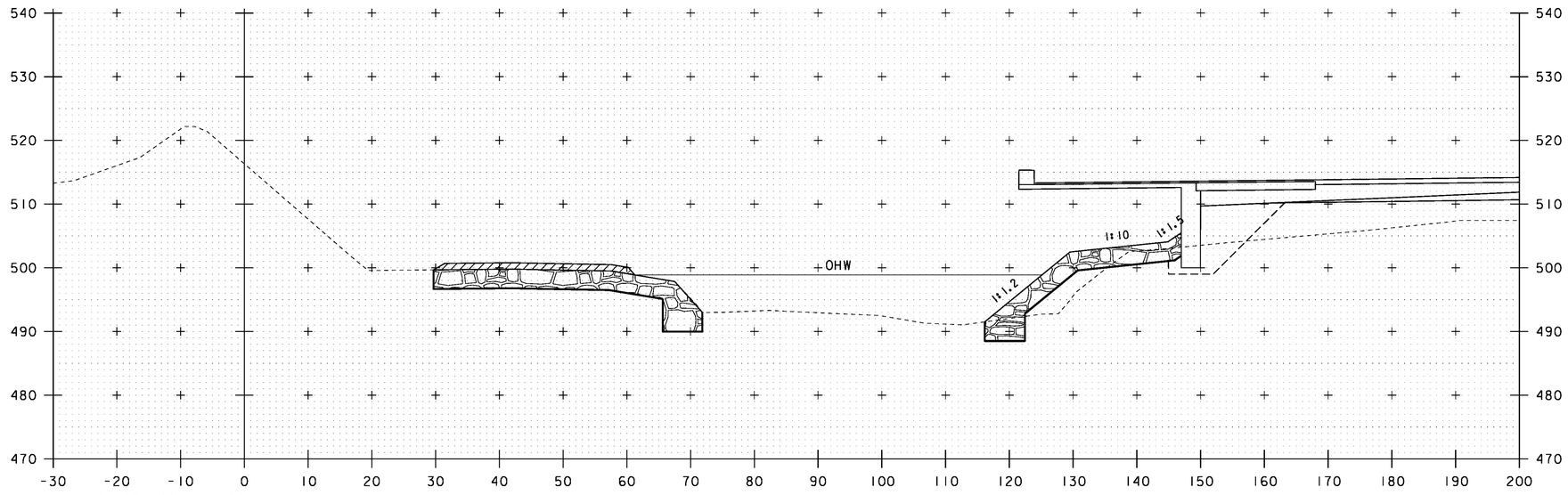
PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR 27\s86e055xsl_27.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: G. ROY
BRIDGE 27 CHANNEL LINE CROSS SECTIONS (2)

PLOT DATE: 08-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: D. PETERSON
SHEET 65 OF 186



49+50



CHANNEL STA 49+40.0 RT
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III
GRUBBING MATERIAL

49+40

10 0 10

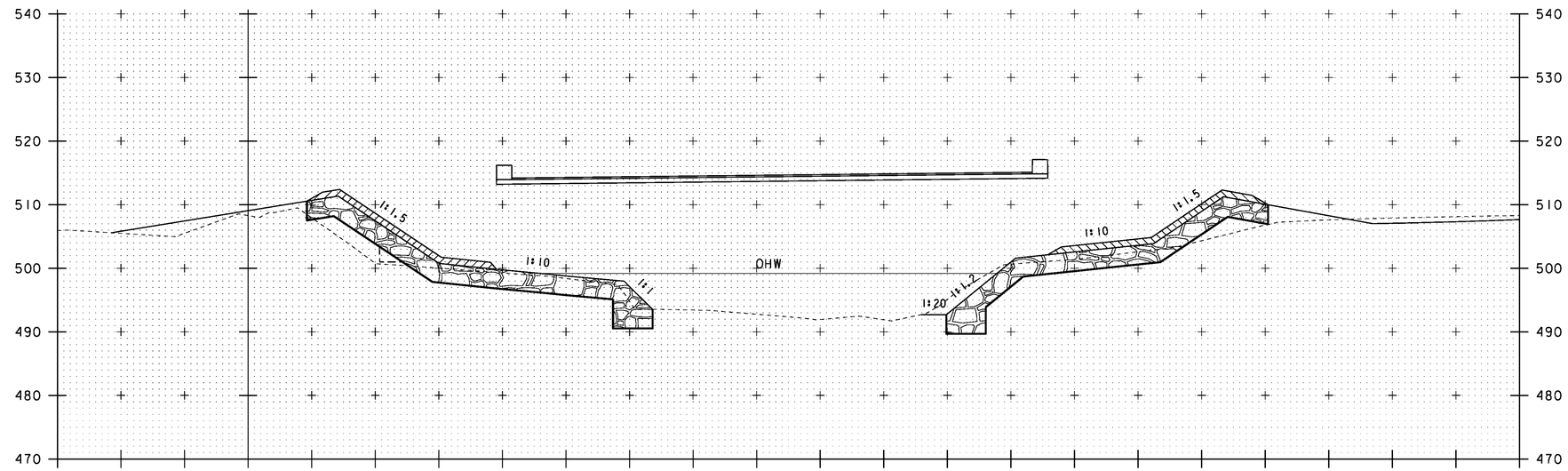
SCALE: 1" = 10'-0"

STA. 49+40 TO STA. 49+50

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR 27\s86e055xsl_27.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: G. ROY
BRIDGE 27 CHANNEL LINE CROSS SECTIONS (3)

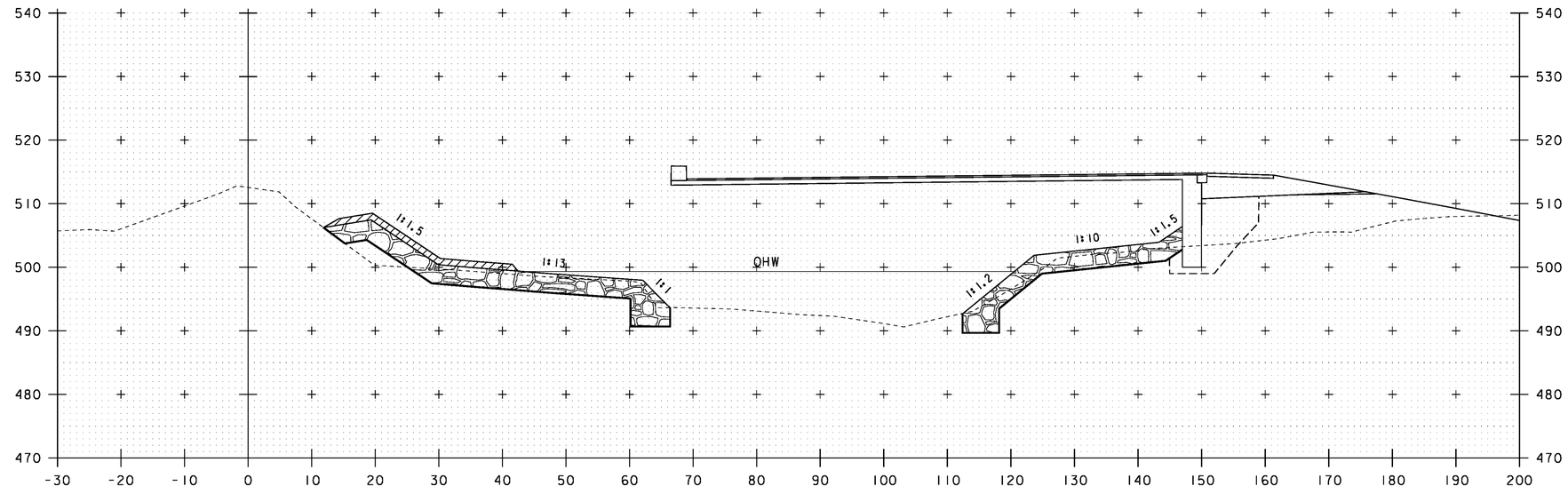
PLOT DATE: 08-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: D. PETERSON
SHEET 66 OF 186



CHANNEL STA 49+68.7 RT
BEGIN STRUCTURE EXCAVATION
GRANULAR BACKFILL FOR STRUCTURES

CHANNEL STA 49+69.7 FAR RT
END STRUCTURE EXCAVATION
GRANULAR BACKFILL FOR STRUCTURES

49+70



49+60

10 0 10

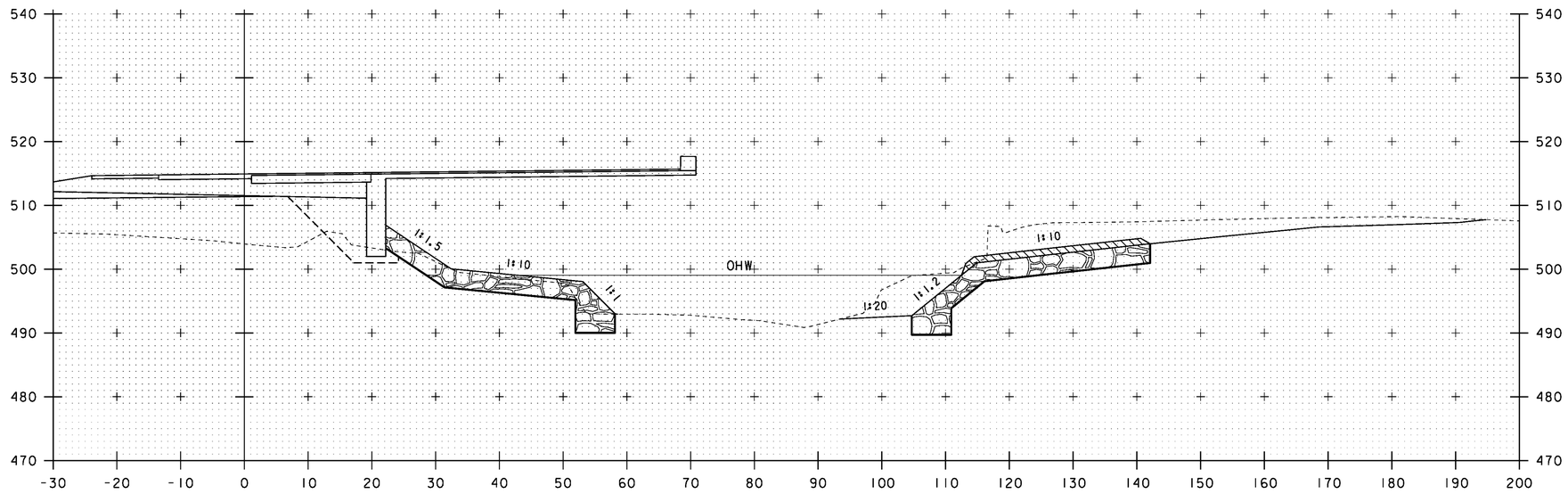
SCALE: 1" = 10'-0"

STA. 49+60 TO STA. 49+70

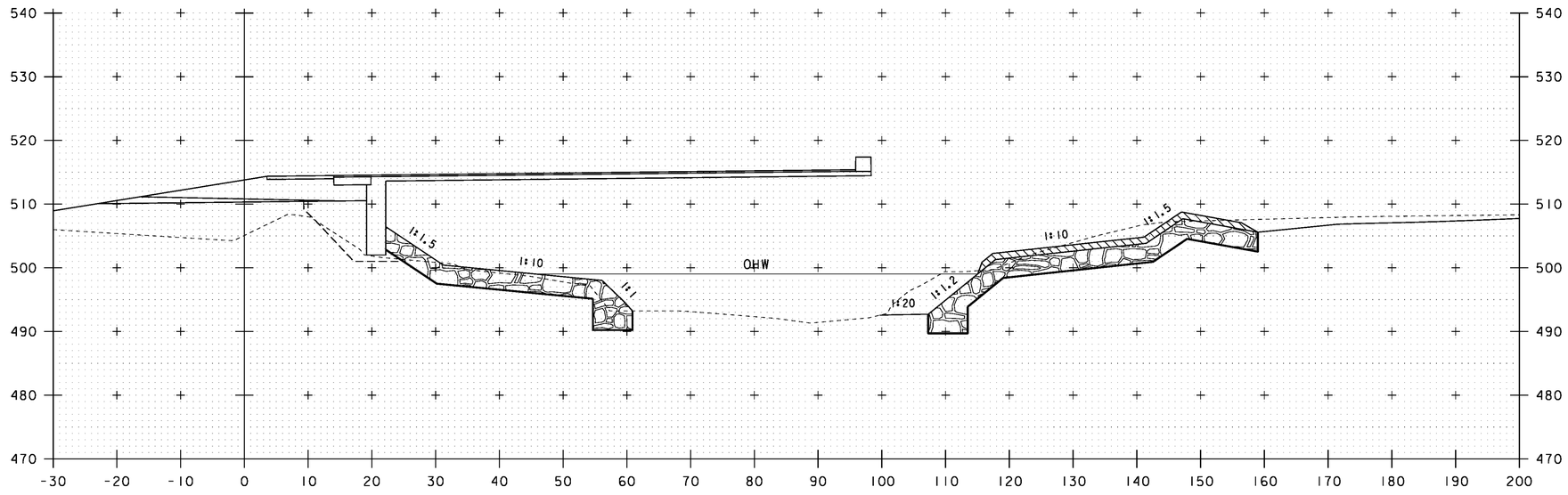
PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR 27\s86e055xsl_27.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: G. ROY
BRIDGE 27 CHANNEL LINE CROSS SECTIONS (4)

PLOT DATE: 08-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: D. PETERSON
SHEET 67 OF 186



49+90



49+80

10 0 10

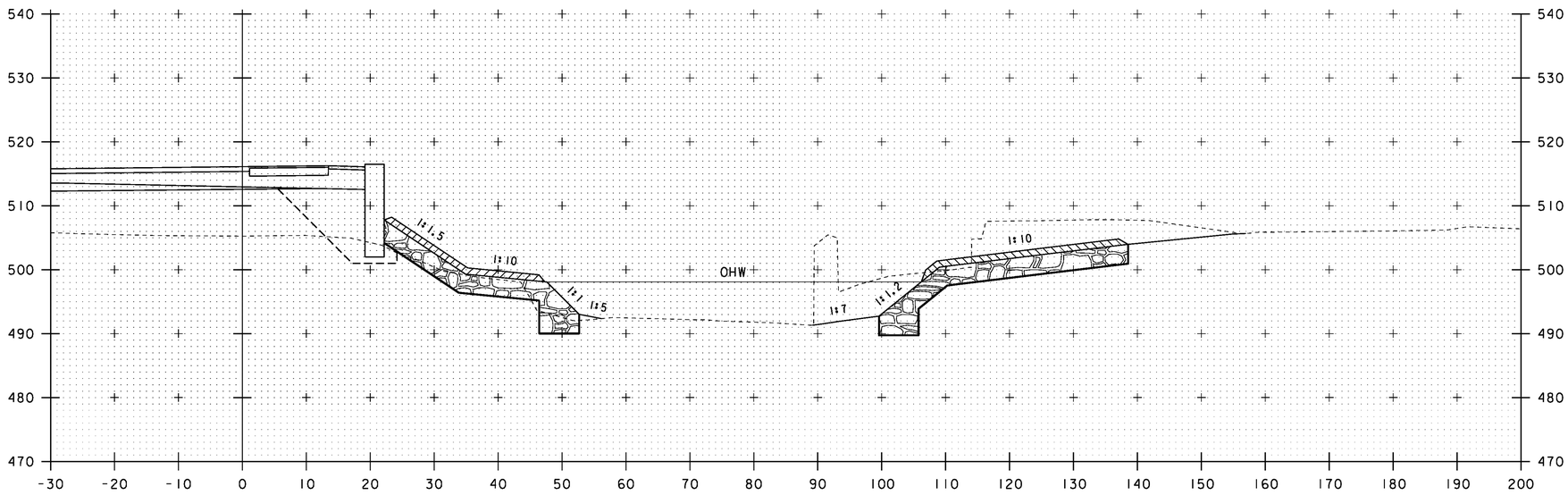
SCALE: 1" = 10'-0"

STA. 49+80 TO STA. 49+90

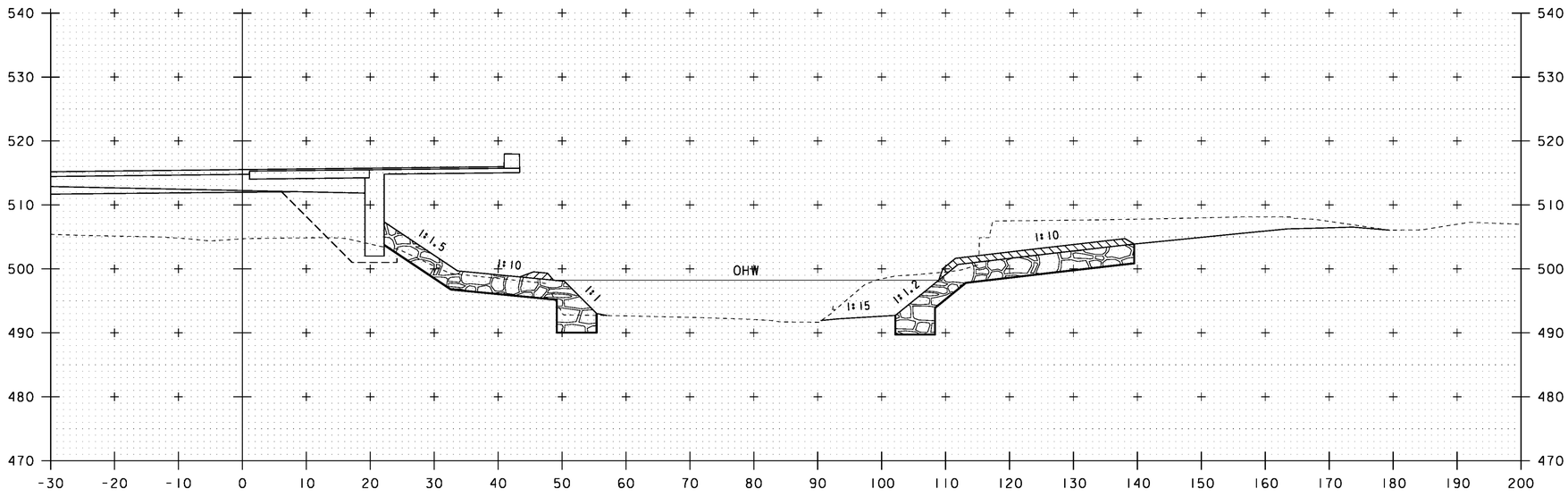
PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR 27\s86e055xsl_27.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: G. ROY
BRIDGE 27 CHANNEL LINE CROSS SECTIONS (5)

PLOT DATE: 08-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: D. PETERSON
SHEET 68 OF 186



50+10



50+00

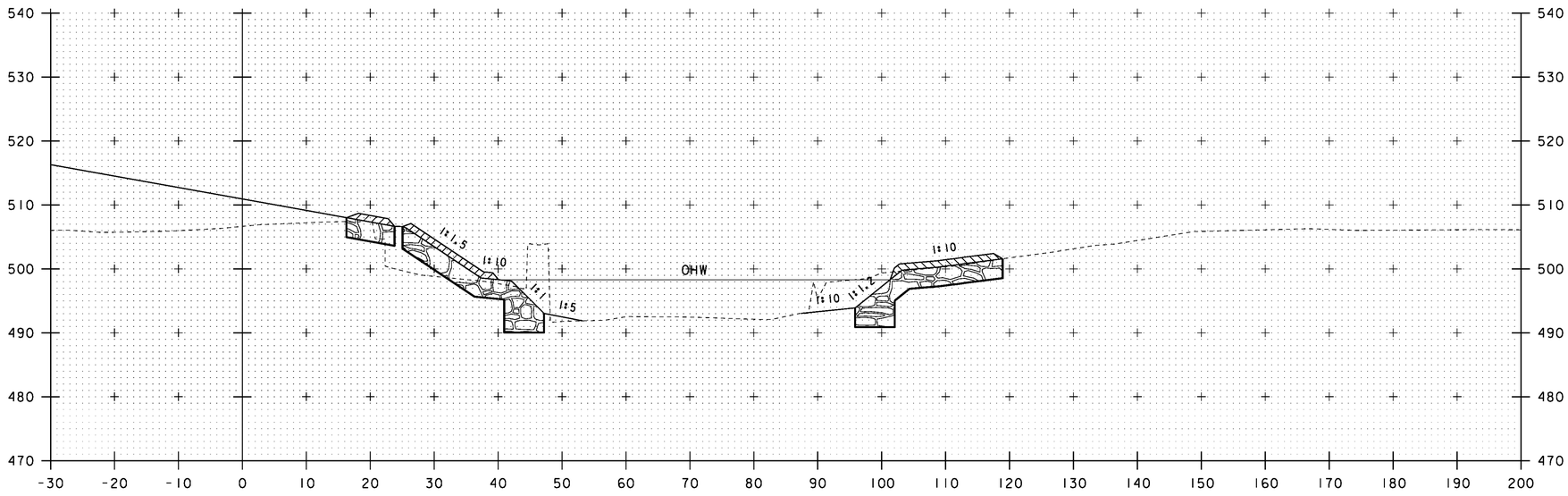
10 0 10

SCALE: 1" = 10'-0"

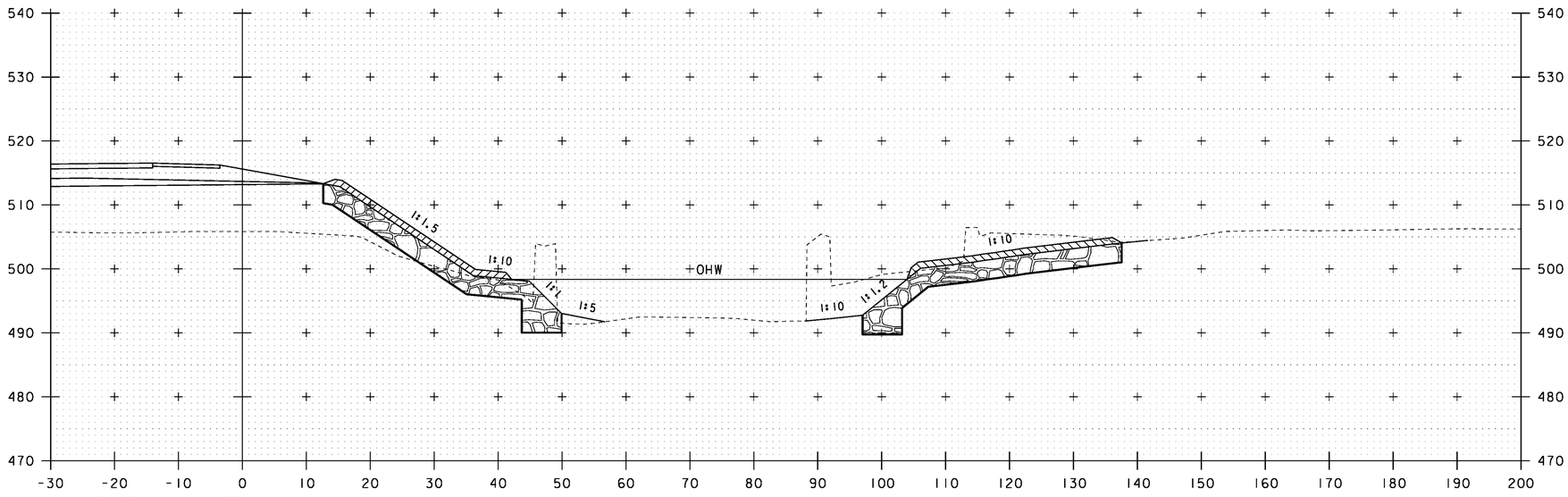
STA. 50+00 TO STA. 50+10

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)

FILE NAME: \BR 27\s86e055xsl_27.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: G. ROY	CHECKED BY: D. PETERSON
BRIDGE 27 CHANNEL LINE CROSS SECTIONS (6)	SHEET 69 OF 186



50+30



CHANNEL STA 50+18.8 RT
END STRUCTURE EXCAVATION
GRANULAR BACKFILL FOR STRUCTURES

50+20

10 0 10

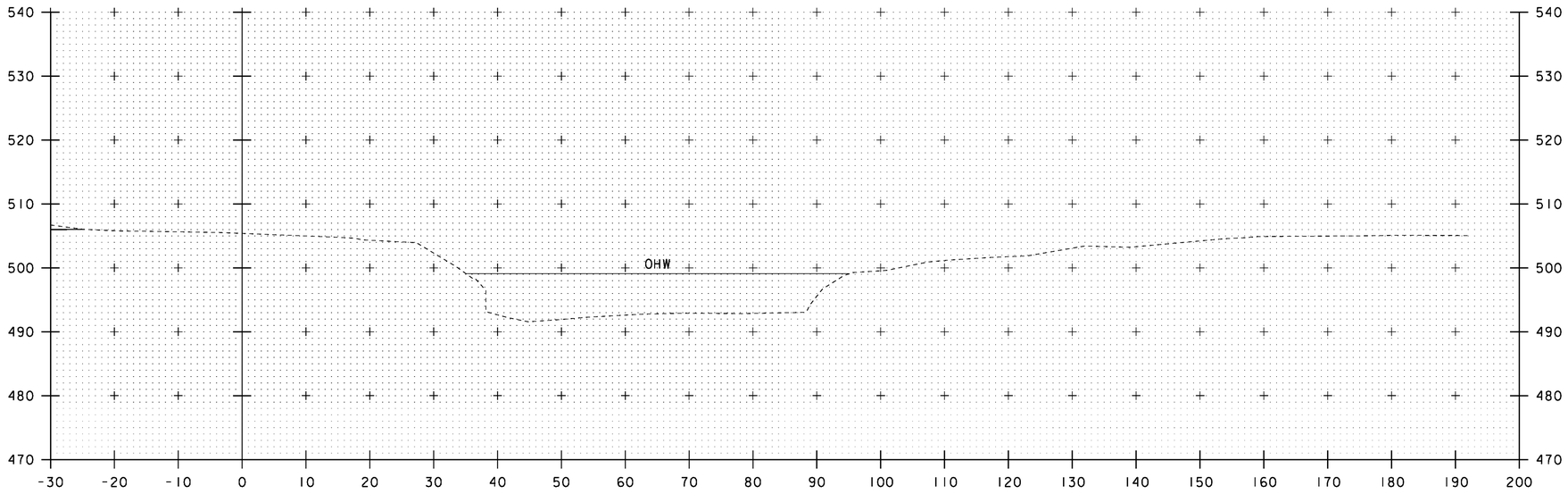
SCALE: 1" = 10'-0"

STA. 50+20 TO STA. 50+30

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

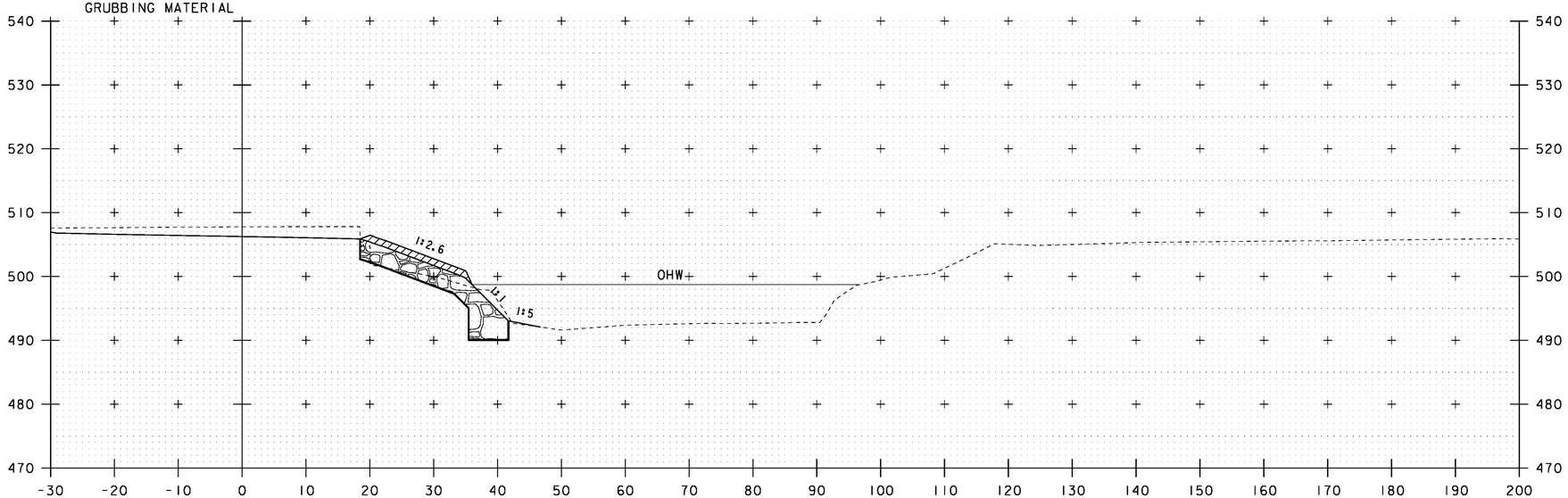
FILE NAME: \BR 27\s86e055xsl_27.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: G. ROY
BRIDGE 27 CHANNEL LINE CROSS SECTIONS (7)

PLOT DATE: 08-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: D. PETERSON
SHEET 70 OF 186



CHANNEL STA 50+64.1 RT
END UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III
GRUBBING MATERIAL

50+75



CHANNEL STA 50+40.6 FAR RT
END UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III
GRUBBING MATERIAL

50+50

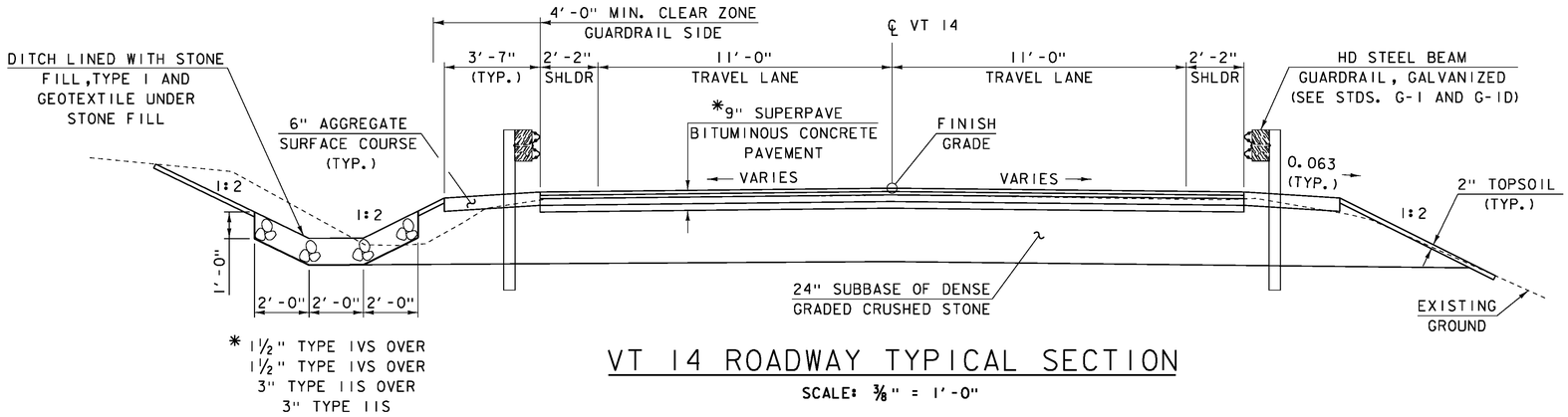
10 0 10
SCALE: 1" = 10'-0"

STA. 50+50 TO STA. 50+75

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

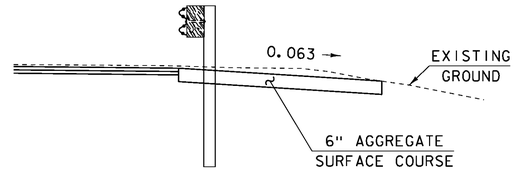
FILE NAME: \BR 27\s86e055xsl_27.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: G. ROY
BRIDGE 27 CHANNEL LINE CROSS SECTIONS (8)

PLOT DATE: 08-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: D. PETERSON
SHEET 71 OF 186



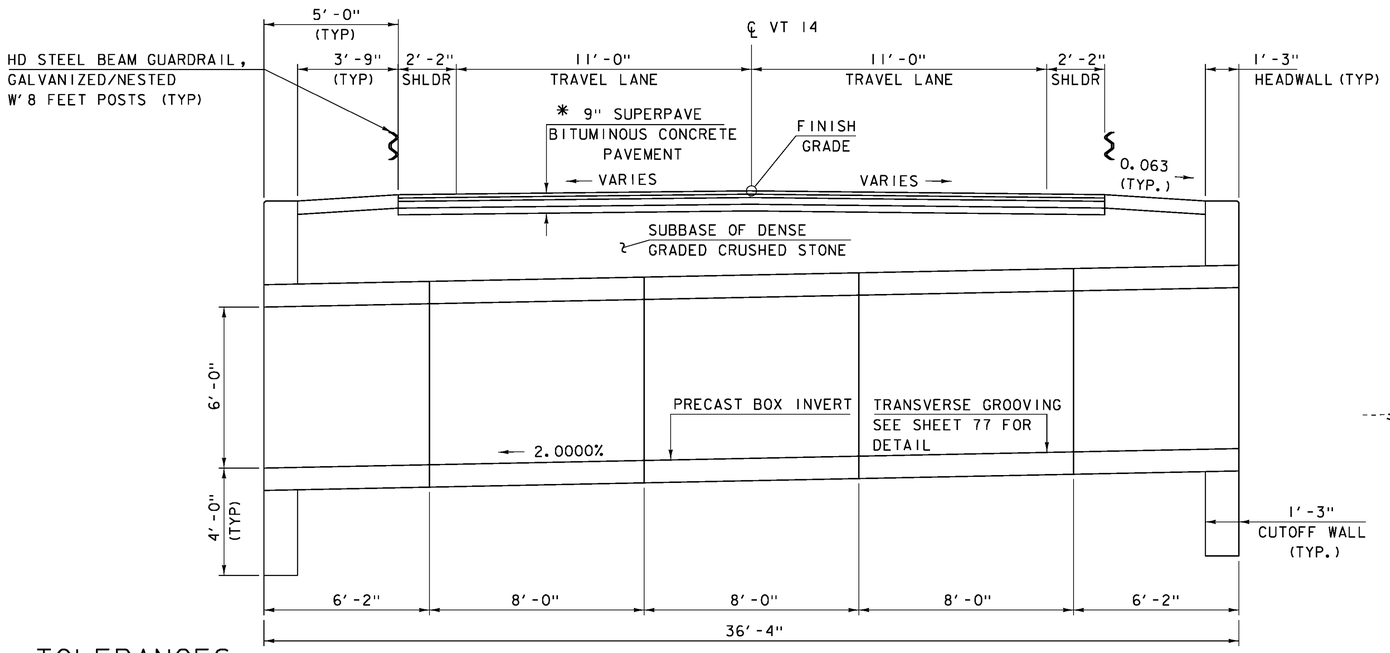
VT 14 ROADWAY TYPICAL SECTION

SCALE: ⅜" = 1'-0"



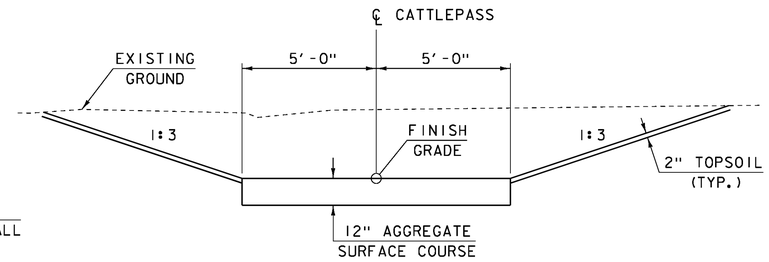
GUARDRAIL BUFFER DETAIL IN COLD PLANING AREAS

SCALE: ⅜" = 1'-0"



VT 14 ROADWAY SECTION @ PRECAST BOX

SCALE: ⅜" = 1'-0"



CATTLEPASS TYPICAL PATH SECTION

SCALE: ⅜" = 1'-0"

MATERIAL TOLERANCES

(IF USED ON PROJECT)

SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- ¼"
- AGGREGATE SURFACE COURSE	+/- ½"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"
GRANULAR BORROW	+/- 1"

1 0 1 2 3 4 5

SCALE: ⅜" = 1'-0"

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147(13)

FILE NAME: s86e055typ_cattlepass3.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: G. ROY
CATTLE PASS PROJECT TYPICAL SECTIONS

PLOT DATE: 08-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: D. PETERSON
SHEET 72 OF 186

HD STEEL BEAM GUARDRAIL, GALVANIZED
VT 14 STA 399+80.6 RT - VT 14 STA 400+05.68 RT
VT 14 STA 399+88.9 LT - VT 14 STA 400+06.80 LT
VT 14 STA 400+93.86 RT - VT 14 STA 401+12.3 RT
VT 14 STA 400+93.64 LT - VT 14 STA 401+18.2 LT

HD STEEL BEAM GUARDRAIL, GALVANIZED/NESTED
VT 14 STA 400+05.68 RT - VT 14 STA 400+93.86 RT
VT 14 STA 400+06.80 LT - VT 14 STA 400+93.64 LT

ANCHOR FOR STEEL BEAM RAIL
VT 14 STA 399+87.6 RT
VT 14 STA 399+95.7 LT
VT 14 STA 401+05.4 RT
VT 14 STA 401+11.0 LT

CONSTRUCT 5' PAVED APRON
VT 14 STA 401+32.2 RT - VT 14 STA 401+64.4 RT

CONSTRUCT STONE-LINED DITCH, TYPE I
VT 14 STA ~~399+50.0~~ LT - VT 14 STA 400+45.9 LT
VT 14 STA 400+55.0 LT - VT 14 STA ~~401+50.0~~ LT
400+30
400+70

VT STATE PLANE GRID

CATTLE PASS POE
STA 7+00.00

END CATTLE PASS
STA 6+65.70

VT 14 STA 400+50.00 =
CATTLE PASS STA 6+00.00
△ = 90° LT
FROM TANGENT TO CURVE

PCC
STA 400+42.01

STONE-LINED DITCH
TYPE I (TYP.)

STA 399+25.00
BEGIN APPROACH
MATCH EXISTING

PI NO. 1
STA 399+18.05 BK =
STA 399+16.31 AHD

STA 401+00.00
BEGIN APPROACH

STA 401+75.00
END APPROACH
MATCH EXISTING

CONSTRUCTION
LIMITS

PI NO. 2
STA 402+10.55 BK =
STA 402+10.43 AHD

S 83°59'26" W
CATTLE PASS

1:3 1:3

WW 1 WW 2 WW 3 WW 4

CZ 1:2

EXISTING R.O.W.

ELECTRIC FENCE

POST

WOODS

STATE OF VERMONT
3-ROD HWY EASEMENT

400+00 401+00 402+00

7+00 6+00 5+00

399+00 TO SHARON

402+00 TO WILLIAMSTOWN

CGMP

S ELM

M APPLE

M BUTTERNUT

FIELD DRIVE

0760

AER E&T

74
73

STA 400+00.00
END APPROACH

BEGIN CATTLE PASS
STA 5+53.59

CATTLE PASS POB
STA 5+00.00

CURVE DATA NO. 1
△ = 16°28'40"
D = 6°36'00"
R = 868.11'
T = 125.70'
L = 249.66'
E = 9.05'
BANK = VARIES

CURVE DATA NO. 2
△ = 3°44'43"
D = 1°06'41"
R = 5154.81'
T = 168.54'
L = 336.96'
E = 2.75'
BANK = VARIES

REMOVAL AND DISPOSAL OF GUARDRAIL
VT 14 STA 399+70.48 RT
VT 14 STA 400+22.18 RT
VT 14 STA 400+58.04 RT
VT 14 STA 400+69.21 RT
VT 14 STA 400+80.69 RT

REMOVING AND RESETTING FENCE
VT 14 STA 399+56.3 RT - VT 14 STA 401+53.6 RT
VT 14 STA 399+50.0 LT - VT 14 STA 401+50.0 LT

CHAIN LINK FENCE, 4 FEET
VT 14 STA 400+18.29 RT - VT 14 STA 400+78.58 RT
VT 14 STA 400+27.62 LT - VT 14 STA 400+72.20 LT

DURABLE 4 INCH YELLOW LINE
VT 14 STA 399+25 RT - VT 14 STA 401+75 RT
VT 14 STA 399+25 LT - VT 14 STA 401+75 LT

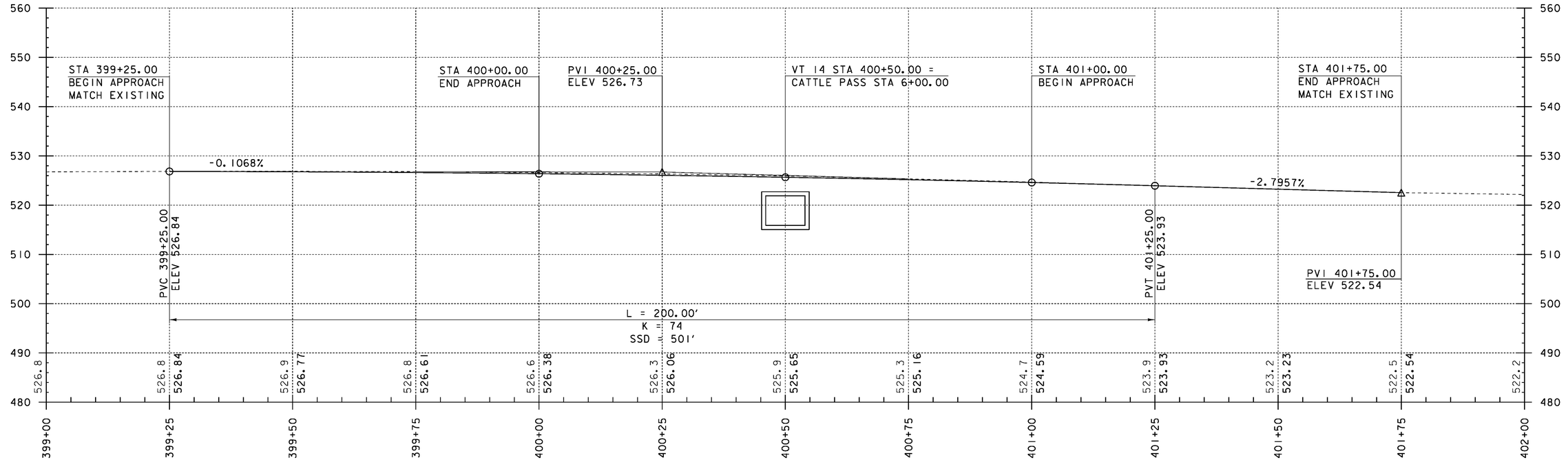
DURABLE 4 INCH WHITE LINE
VT 14 STA 399+25 RT - VT 14 STA 401+75 RT
VT 14 STA 399+25 LT - VT 14 STA 401+75 LT

10 0 10
SCALE: 1" = 10'-0"

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147(13)

FILE NAME: s86e055bdr_cattlepass3.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: G. ROY
CATTLE PASS LAYOUT

PLOT DATE: 28-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: D. PETERSON
SHEET 73 OF 186



NOTE:

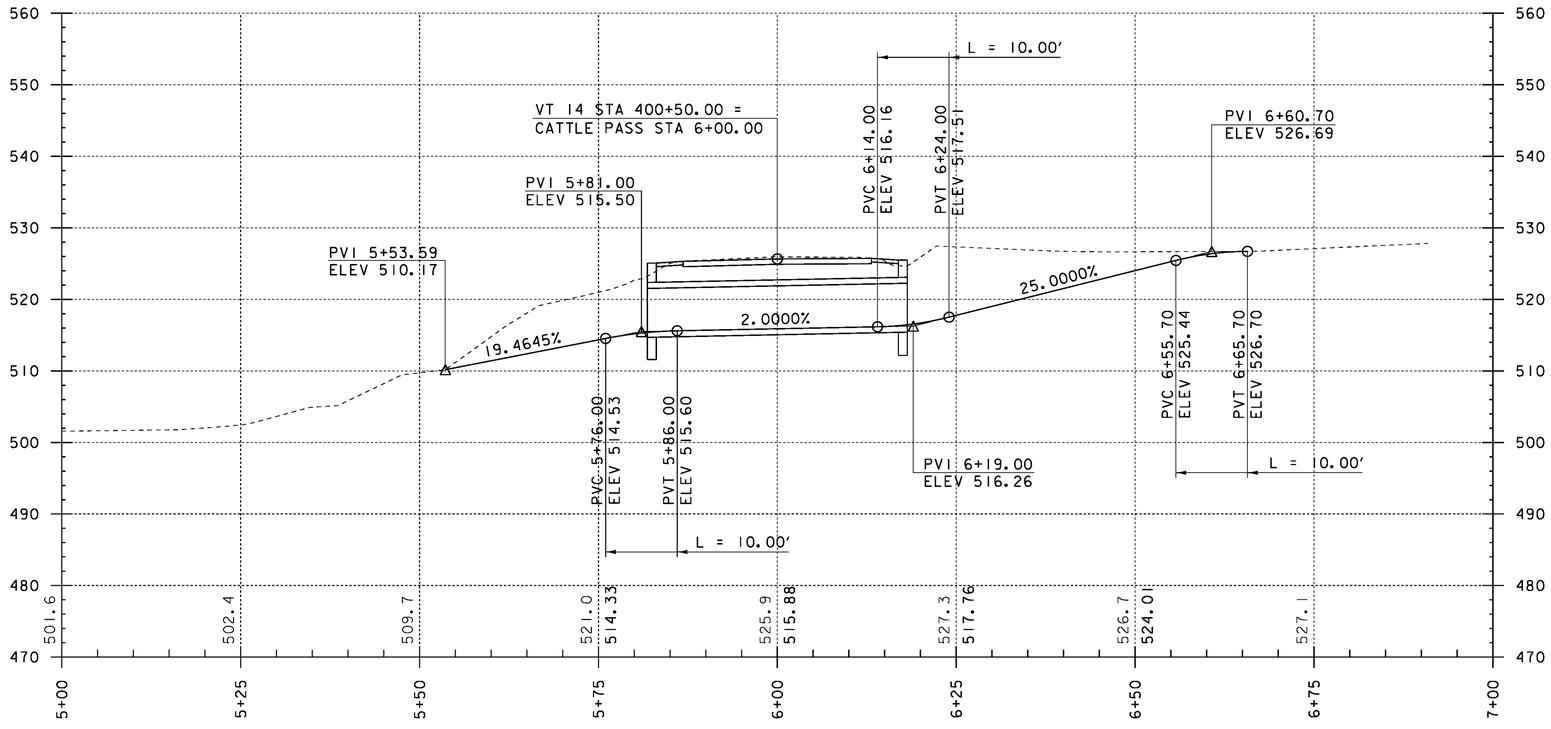
ELEVATIONS SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG PROPOSED CENTERLINE.

ELEVATIONS SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADES ALONG PROPOSED CENTERLINE.

PROFILE ALONG VT 14

HORIZONTAL SCALE: 1" = 10'-0"
VERTICAL SCALE: 1" = 10'-0"

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147(13)
FILE NAME: s86e055pro_cattlepass3.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: G. ROY	CHECKED BY: D. PETERSON
VT 14 PROFILE AT CATTLE PASS	SHEET 74 OF 186



NOTE:

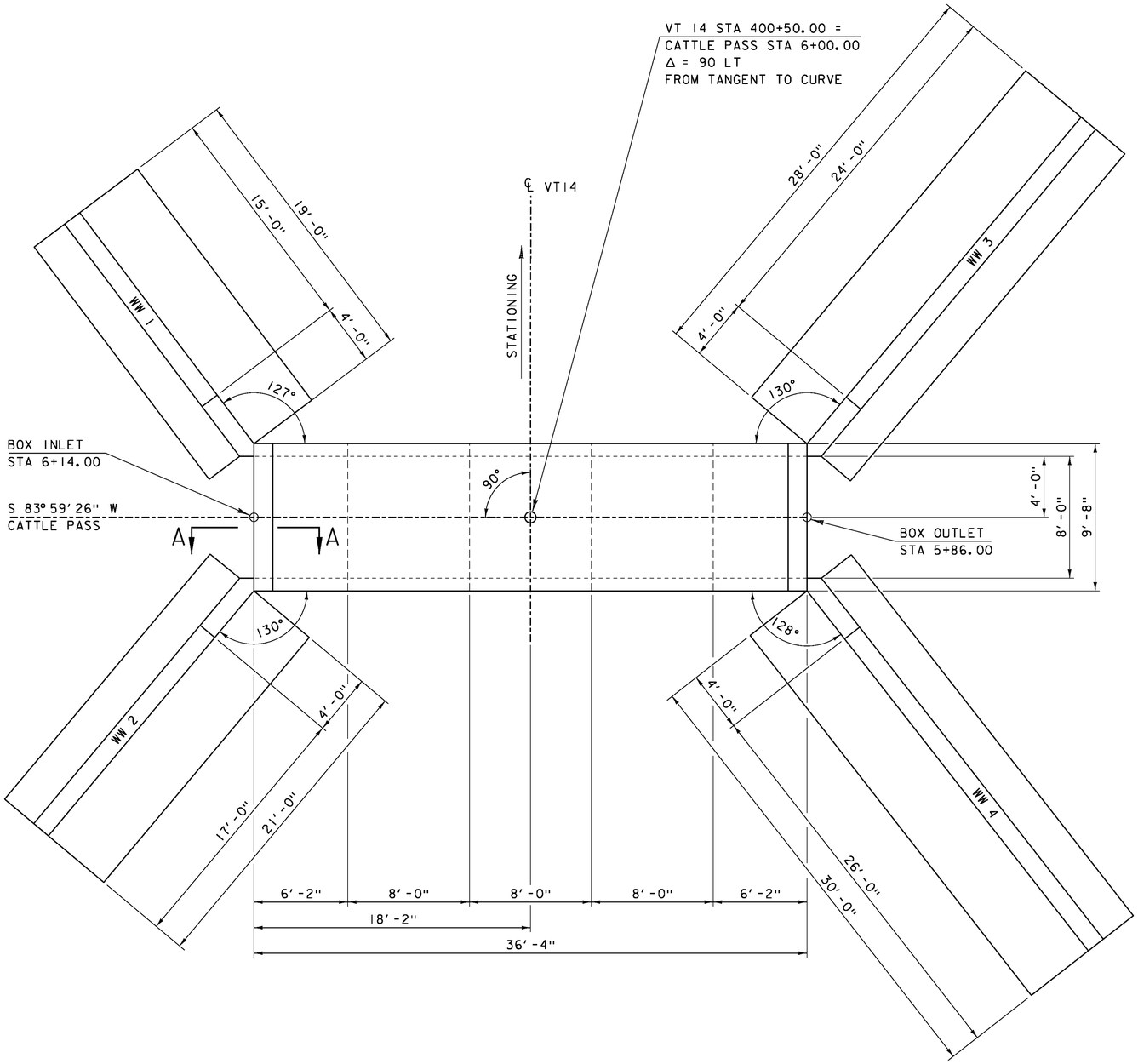
ELEVATIONS SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG PROPOSED CENTERLINE.

ELEVATIONS SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADES ALONG PROPOSED CENTERLINE.

PROFILE ALONG CATTLE PASS

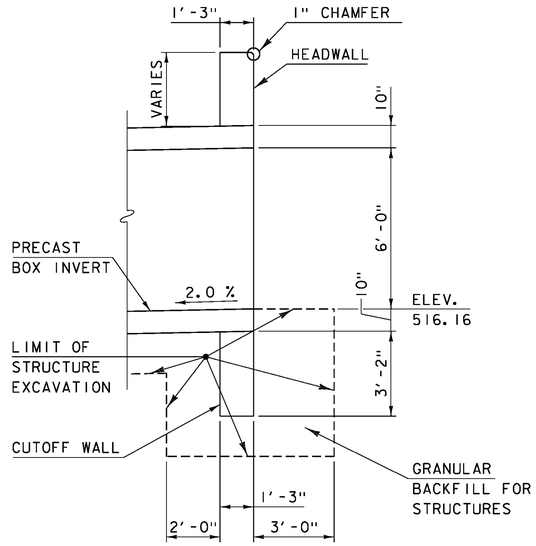
HORIZONTAL SCALE: 1" = 10'-0"
VERTICAL SCALE: 1" = 10'-0"

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147(13)
FILE NAME: s86e055pro_cattlepass3.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: G. ROY	CHECKED BY: D. PETERSON
CATTLE PASS PROFILE	SHEET 75 OF 186



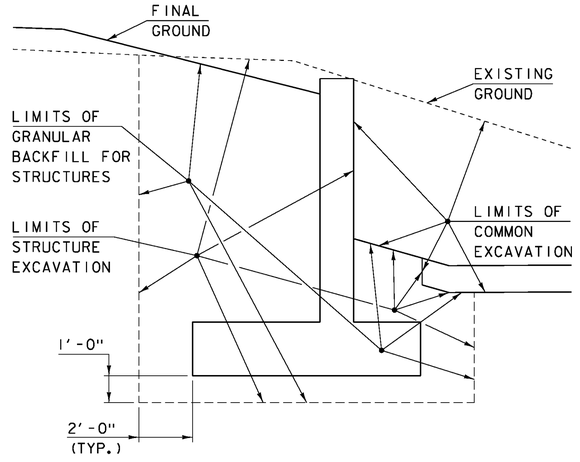
VT14 ROADWAY CATTLE PASS BOX PLAN

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



SECTION A-A

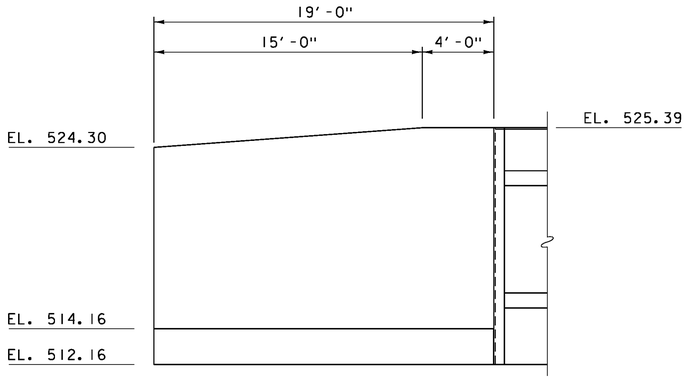
SCALE: 3/8" = 1'-0"



WINGWALL EXCAVATION AND FILL DETAIL

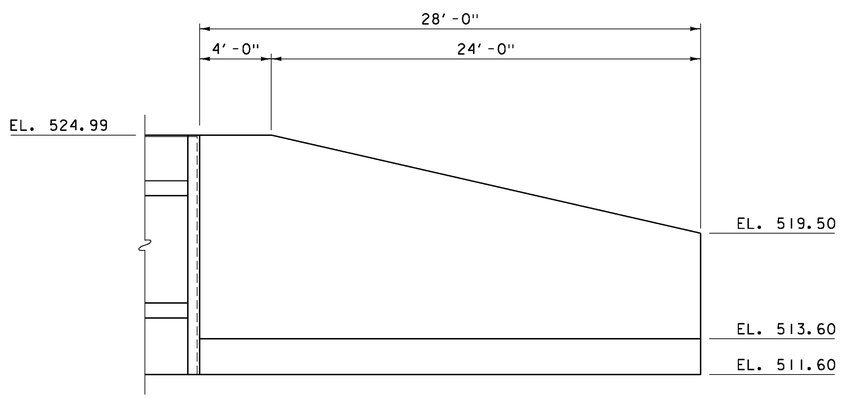
SCALE: 3/8" = 1'-0"

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147(13)
FILE NAME: s86e055box.cattlepass3.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: DZENAN K.
DESIGNED BY: G. ROY	CHECKED BY: D. PETERSON
CATTLE PASS BOX DETAILS	SHEET 76 OF 186



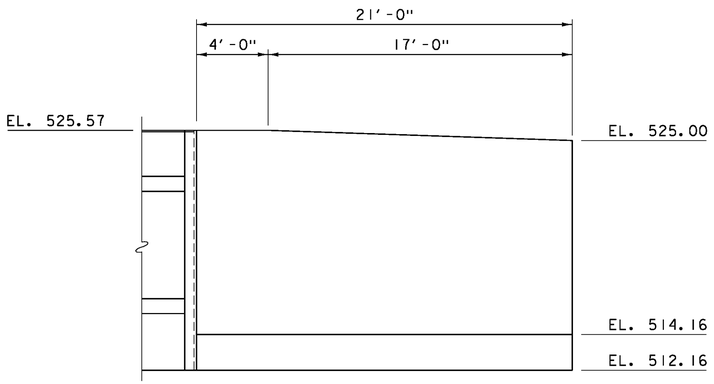
WINGWALL NO. 1 ELEVATION

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



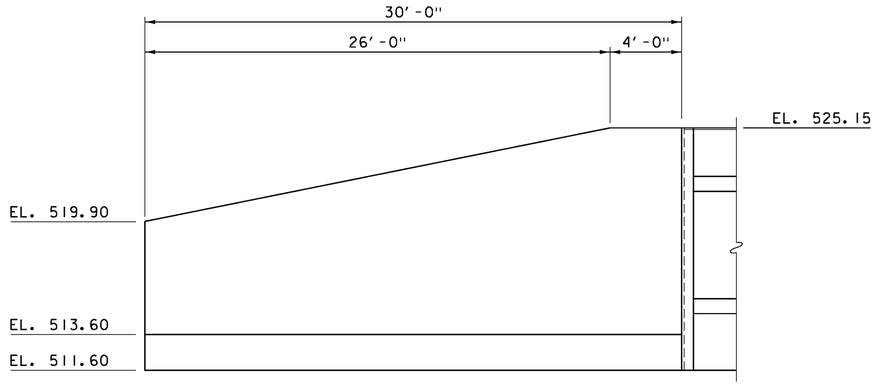
WINGWALL NO. 3 ELEVATION

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



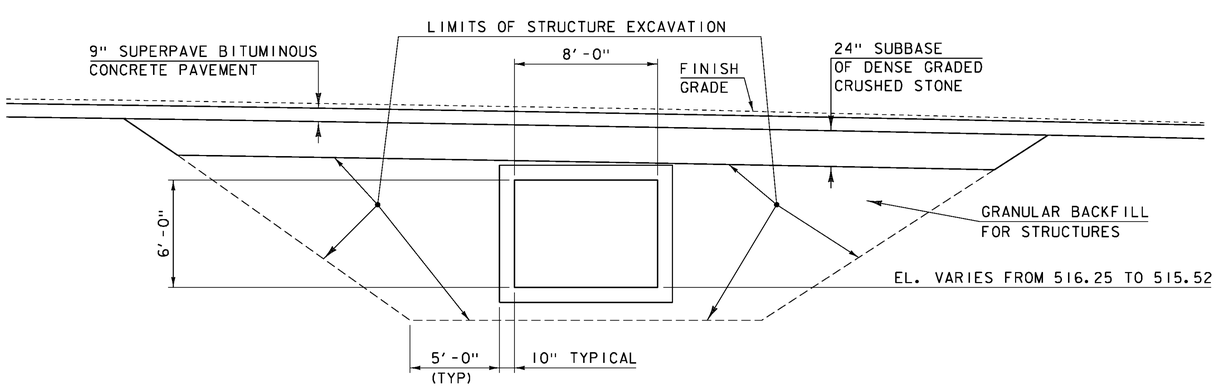
WINGWALL NO. 2 ELEVATION

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



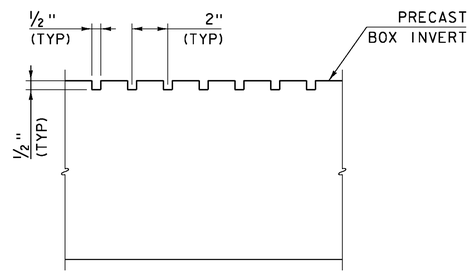
WINGWALL NO. 4 ELEVATION

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



VT14 ROADWAY CATTLE PASS BOX TYPICAL SECTION

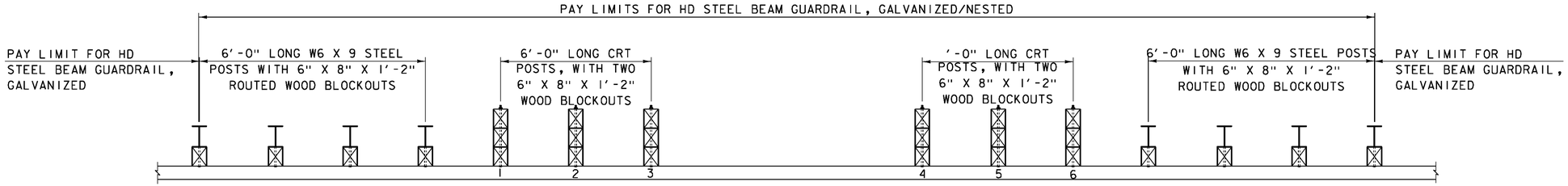
SCALE: 1/4" = 1'-0"



TRANSVERSE GROOVING DETAIL

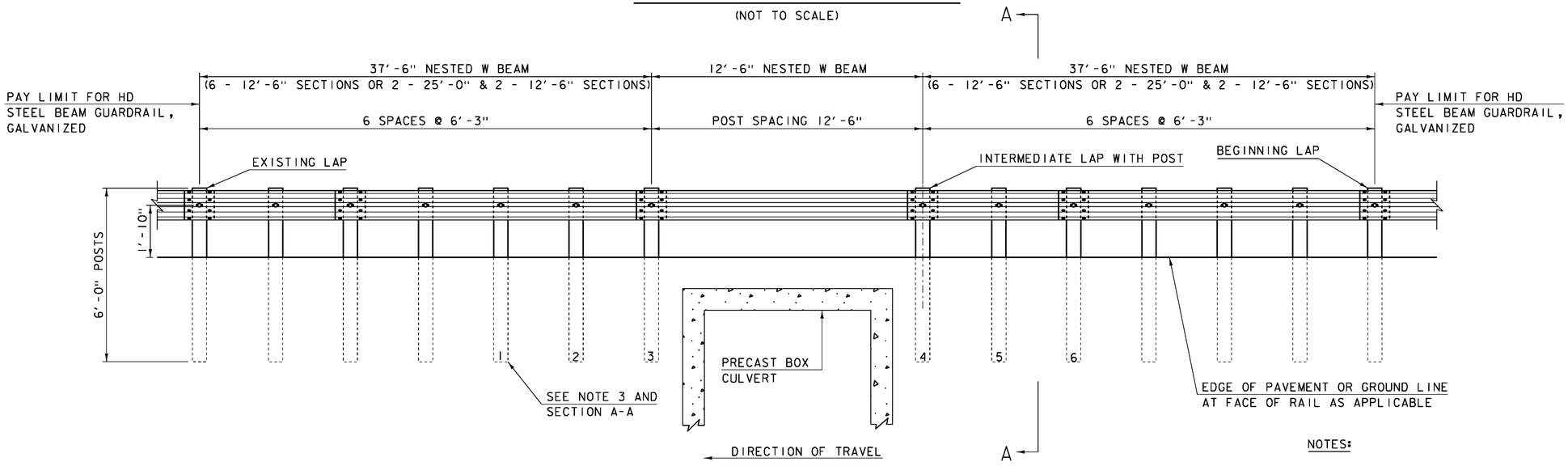
NOT TO SCALE

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147(13)
FILE NAME: s86e055box.cattlepass3.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: DZENAN K.
DESIGNED BY: G. ROY	CHECKED BY: D. PETERSON
CATTLE PASS BOX WINGWALL DETAILS	SHEET 77 OF 186



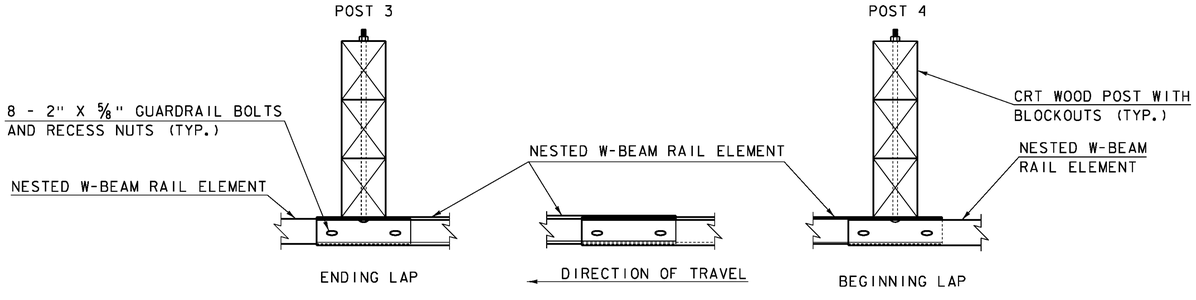
NESTED RAILING PLAN VIEW

(NOT TO SCALE)



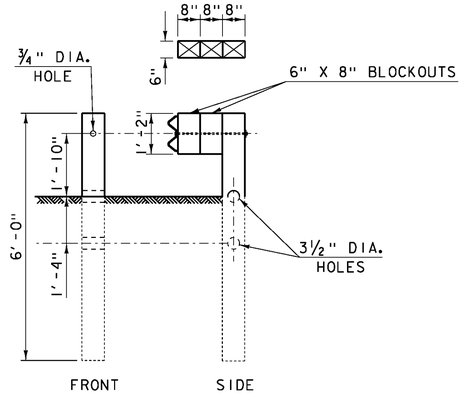
NESTED RAILING ELEVATION VIEW

(NOT TO SCALE)



INTERMEDIATE LAP WITHOUT POST

(NOT TO SCALE)



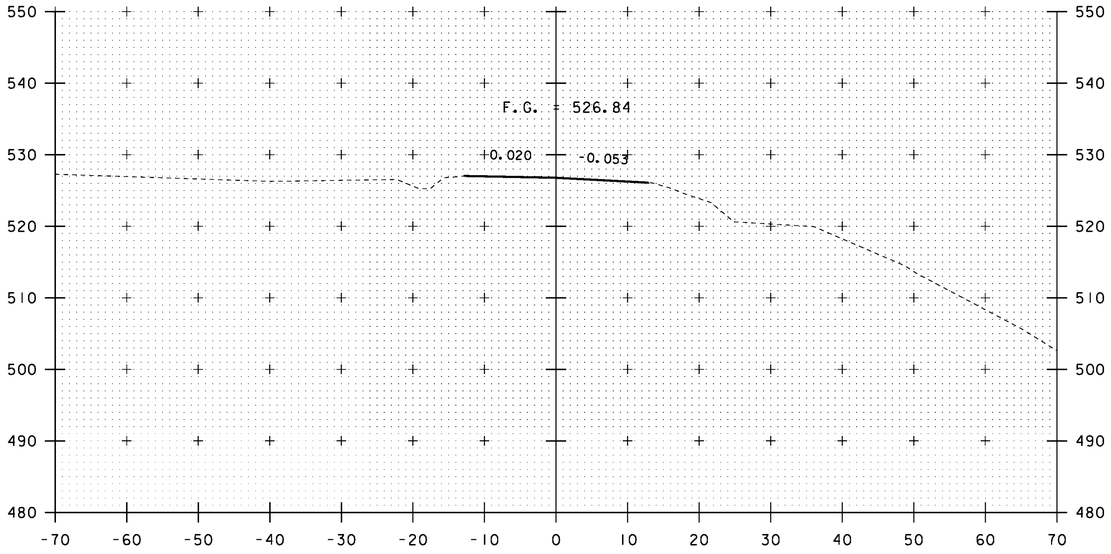
SECTION A-A (POSTS 1 THRU 6)

(SEE NOTES 3 & 4)

NOTES:

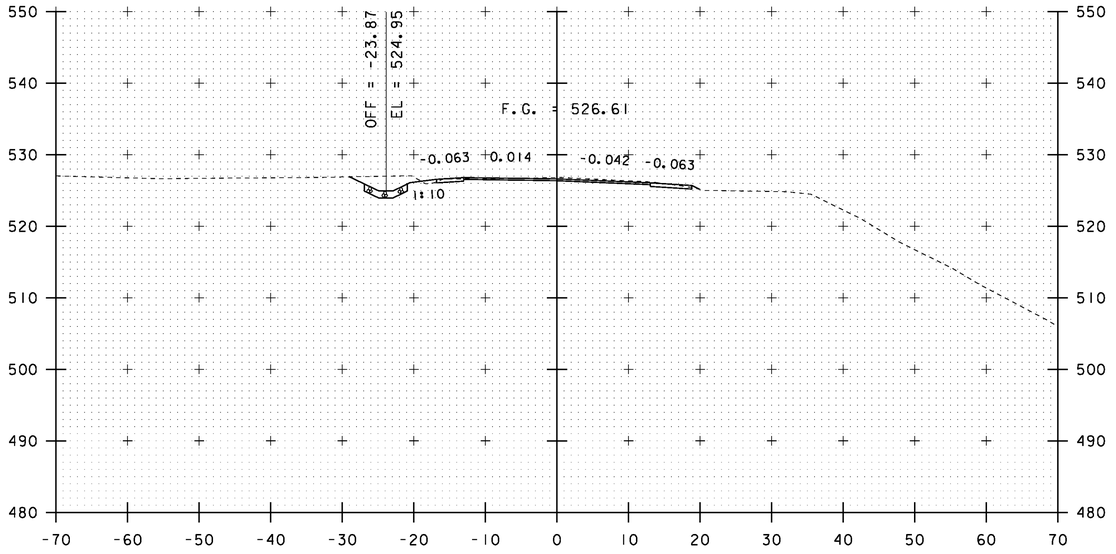
1. RAIL MEETS TEST LEVEL 3 REQUIREMENTS OF NCHRP REPORT 350.
2. POSTS 1 THRU 6 ARE BREAKAWAY CONTROLLED RELEASING TERMINAL (CRT) POSTS, SEE SECTION A-A FOR DETAILS.
3. POSTS 1 THRU 6 HAVE TWO, 6" X 8" BLOCKOUTS. SEE SECTION A-A FOR DETAILS.
4. ON POSTS 1 THRU 6, GUARDRAIL BOLT "D", AS SHOWN ON STD GI, SHALL BE 26" LONG.
5. ON ALL POSTS WHERE THE RAIL IS NESTED GUARDRAIL BOLT "A", AS SHOWN ON STD GI, SHALL BE 2" LONG.
6. CLEAR AREA BEHIND 12'-6" OPEN SPAN SHALL BE 5 FEET MINIMUM FROM FACE OF RAIL.
7. SEE STD GI FOR ADDITIONAL GUARDRAIL DETAILS.

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147(13)
FILE NAME: s86e055rail_cattlepass3.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: D. PETERSON
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
LONG SPAN GUARDRAIL DETAILS	SHEET 78 OF 186

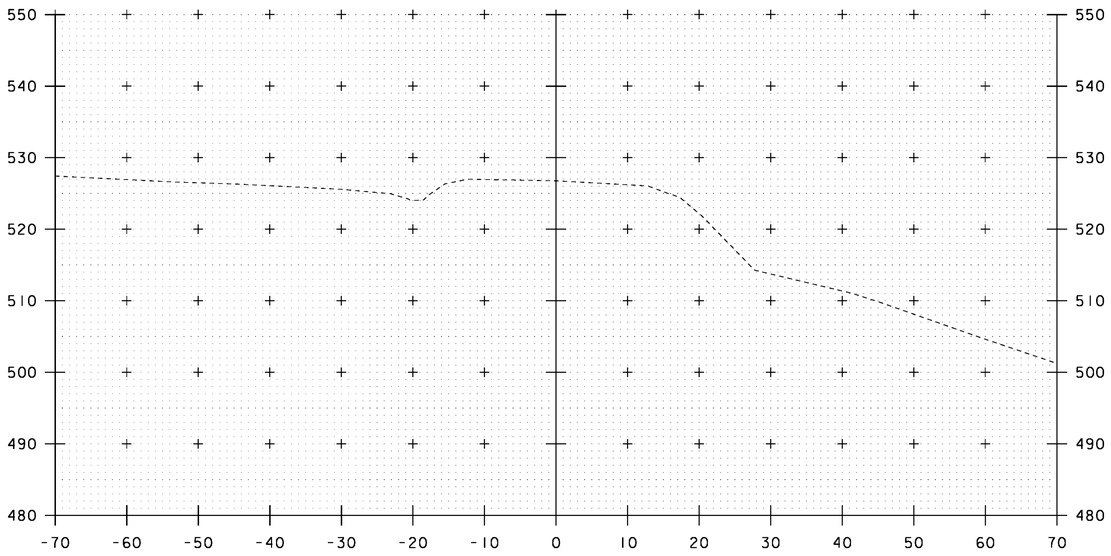


399+25

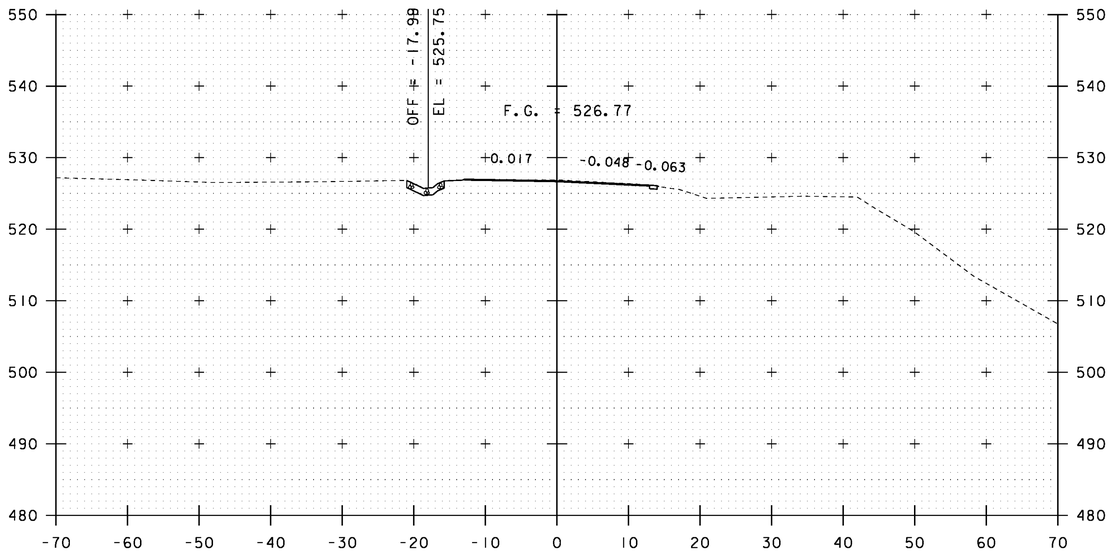
STA 399+25.00
BEGIN APPROACH
MATCH EXISTING



399+75



399+00



399+50

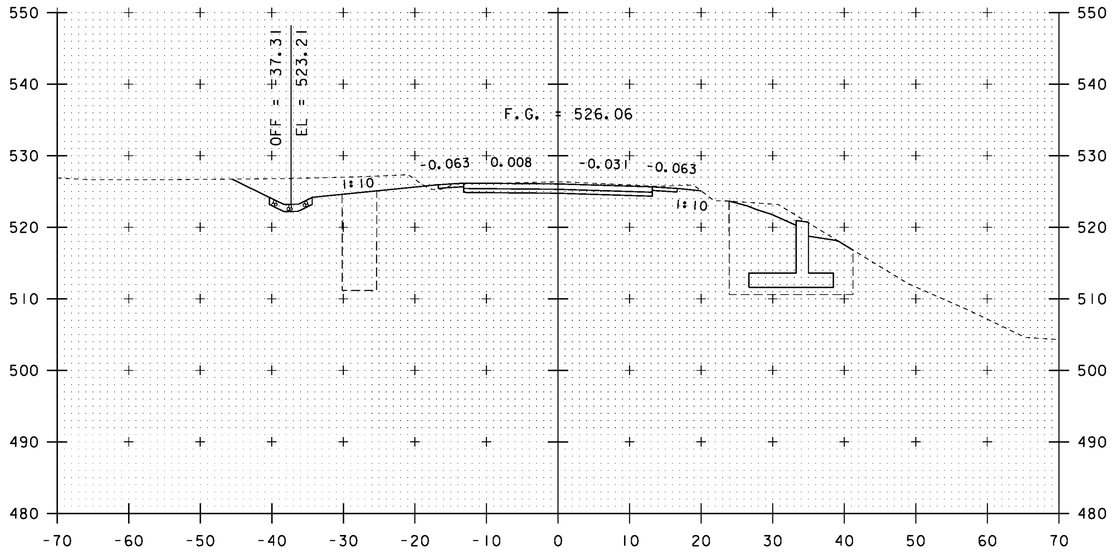
10 0 10
SCALE: 1" = 10'-0"

STA. 399+00 TO STA. 399+75

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147(13)

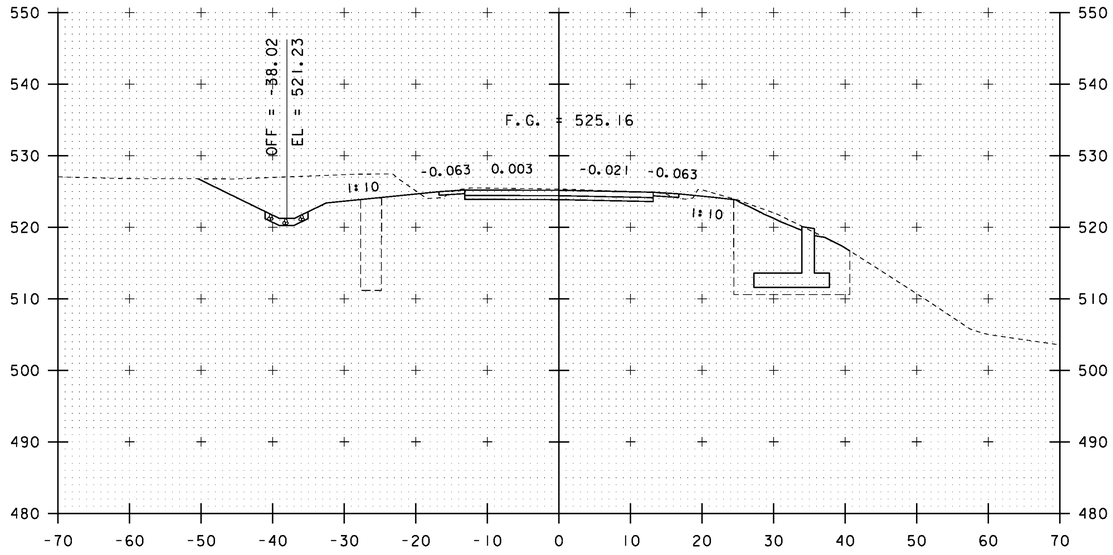
FILE NAME: s86e055xsl_cattlepass3.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: G. ROY
VT 14 CROSS SECTIONS AT CATTLE PASS (1)

PLOT DATE: 08-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: D. PETERSON
SHEET 79 OF 186



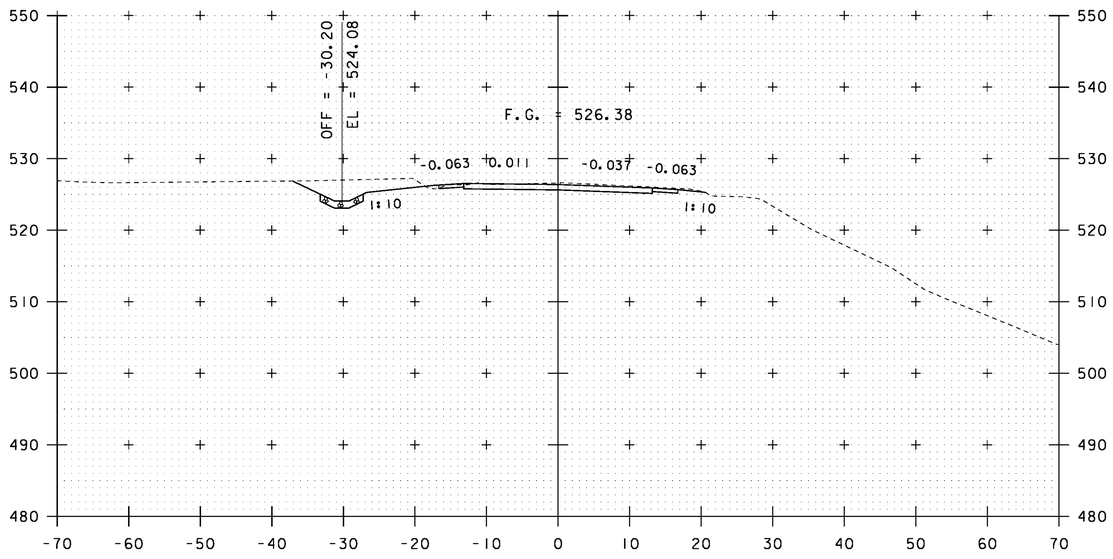
400+25

STA 400+25.00
BEGIN FULL DEPTH CONSTRUCTION



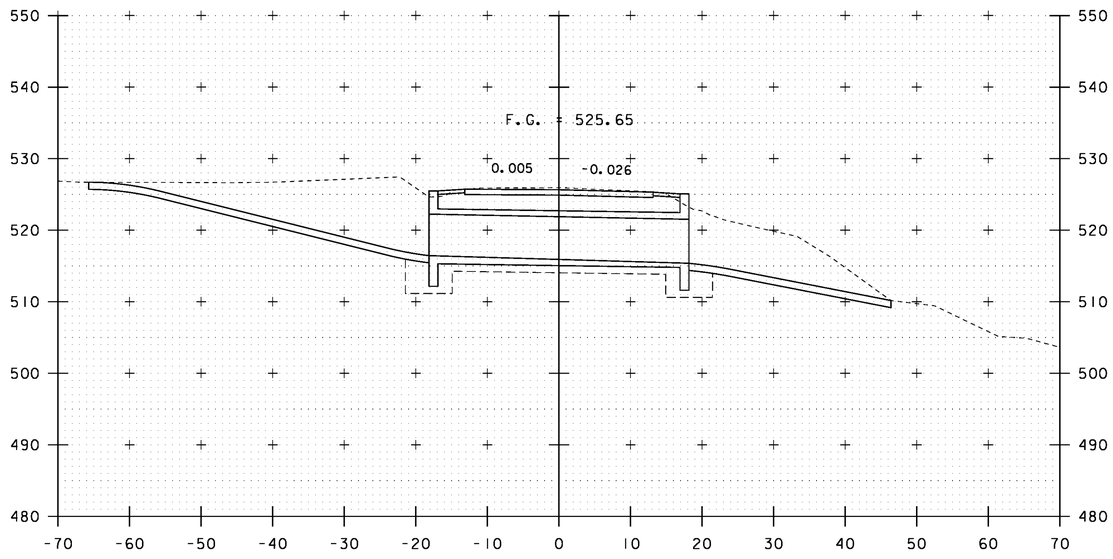
400+75

STA 400+75.00
END FULL DEPTH CONSTRUCTION



400+00

STA 400+00.00
END APPROACH



400+50

STA 400+50.00
CONSTRUCT 8' W X 6' H X 36-4" BOX

10 0 10

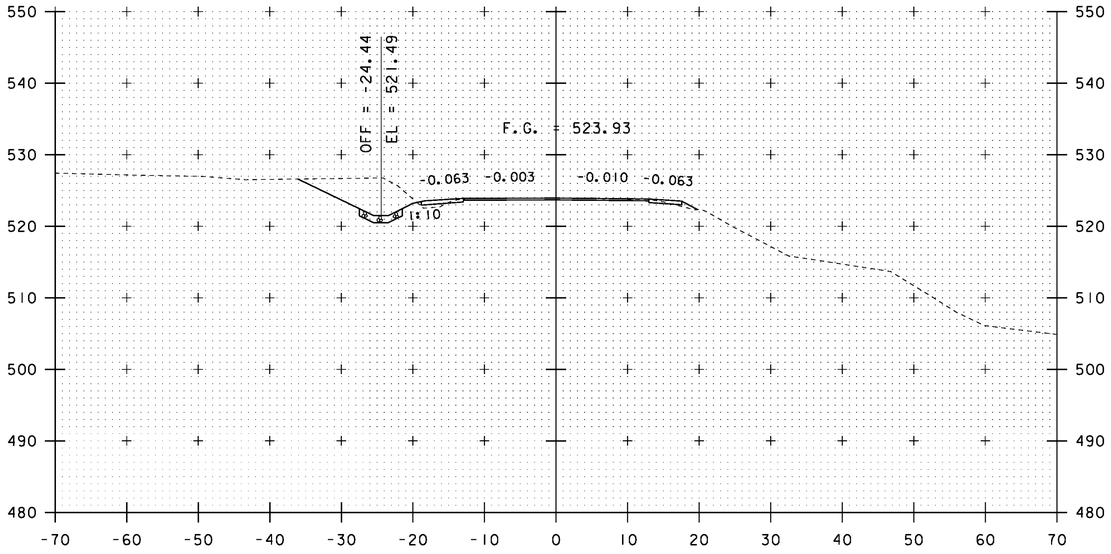
SCALE: 1" = 10'-0"

STA. 400+00 TO STA. 400+75

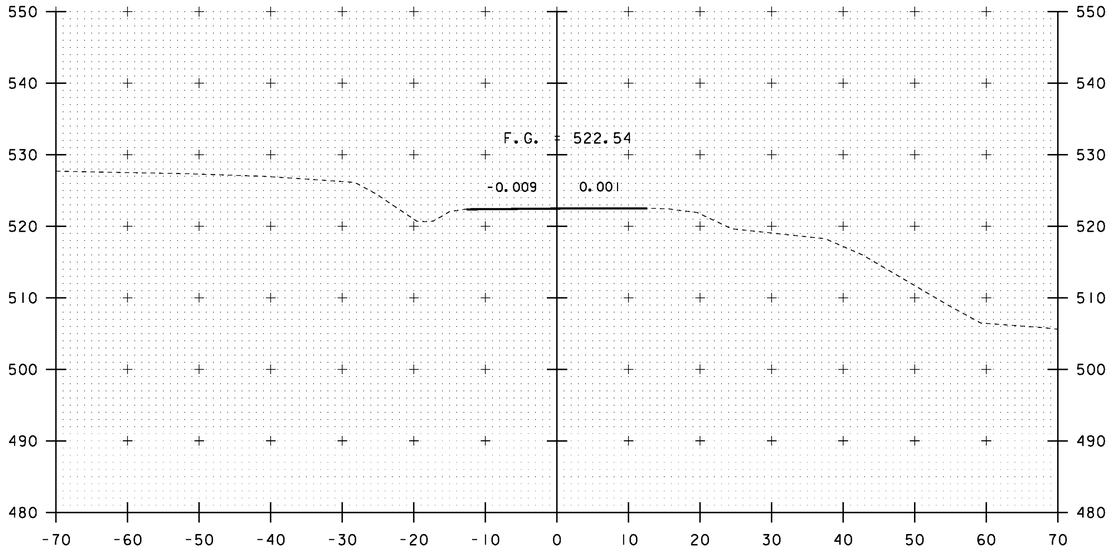
PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147(13)

FILE NAME: s86e055xsi_cattlepass3.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: G. ROY
VT 14 CROSS SECTIONS AT CATTLE PASS (2)

PLOT DATE: 08-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: D. PETERSON
SHEET 80 OF 186

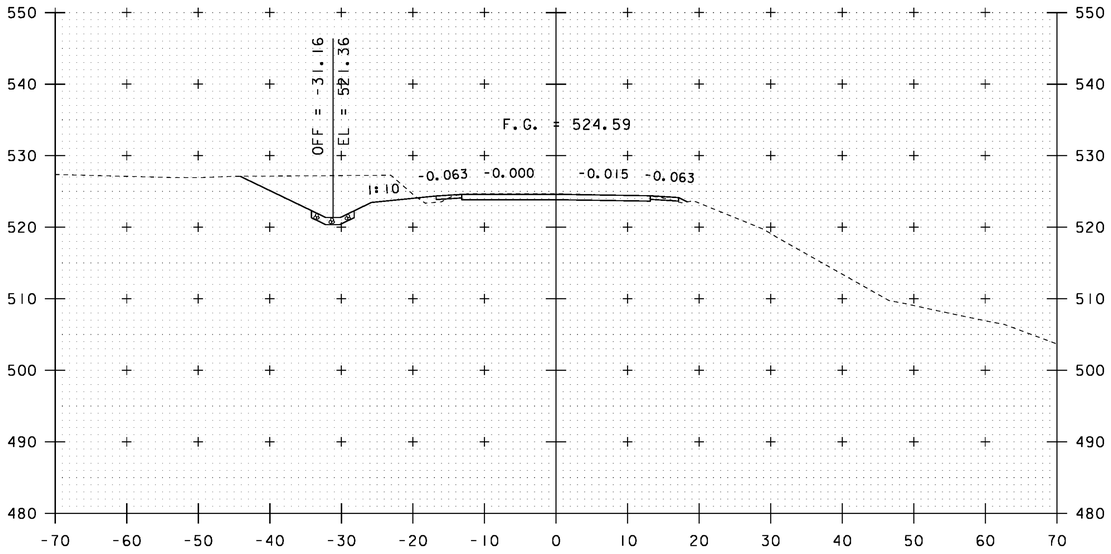


401+25



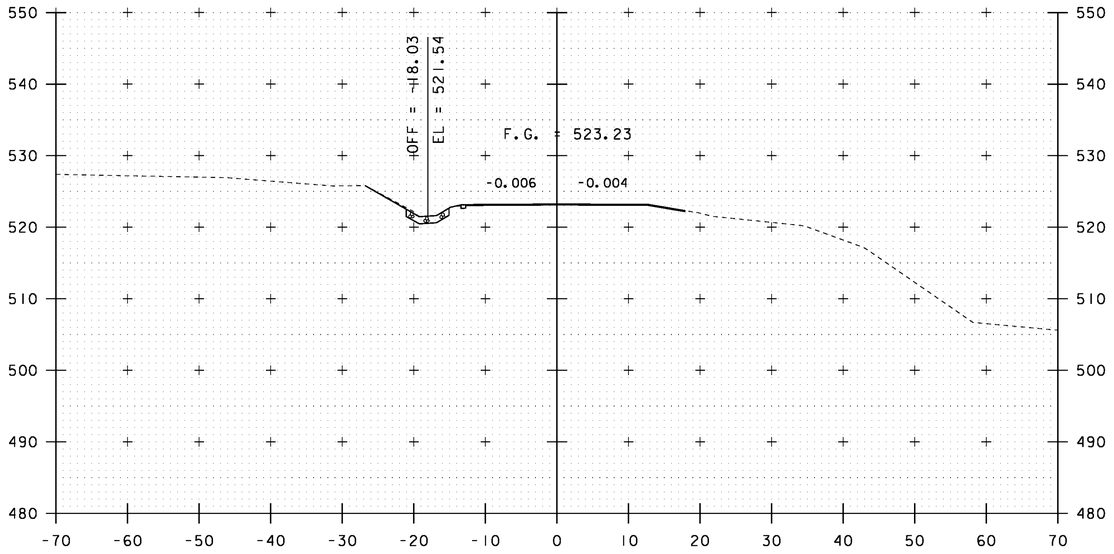
401+75

STA 401+75.00
END APPROACH
MATCH EXISTING



401+00

STA 401+00.00
BEGIN APPROACH



401+50

CONSTRUCT PAVED APRON
STA 401+32.2 - 401+64.4 RT

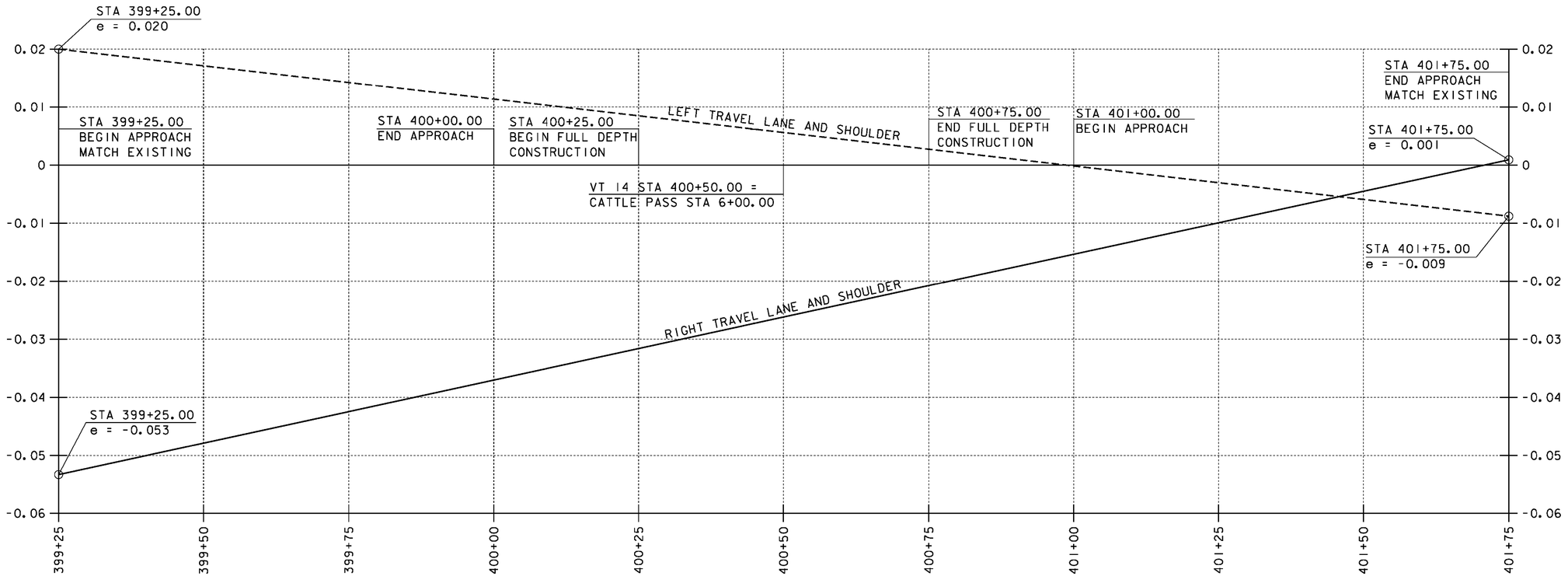
10 0 10
SCALE: 1" = 10'-0"

STA. 401+00 TO STA. 401+75

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147(13)

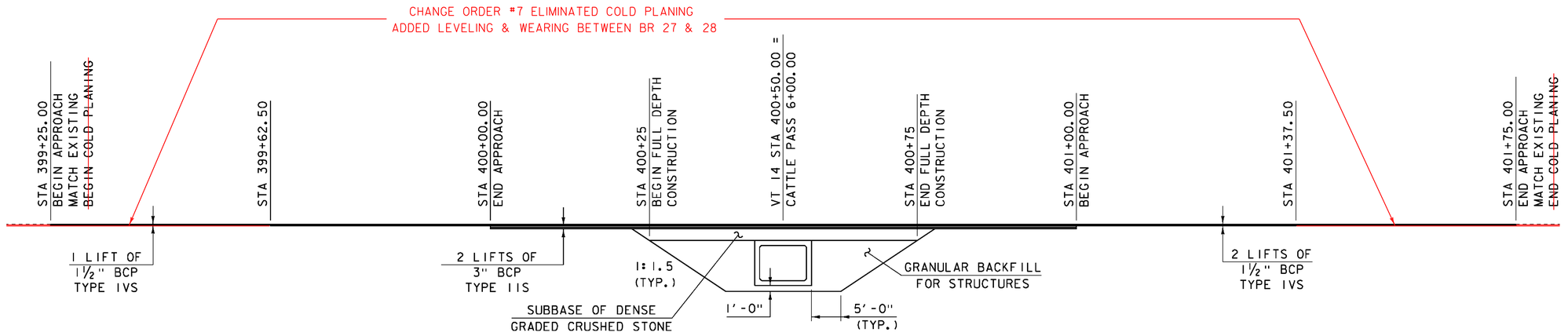
FILE NAME: s86e055xsl_cattlepass3.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: G. ROY
VT 14 CROSS SECTIONS AT CATTLE PASS (3)

PLOT DATE: 08-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: D. PETERSON
SHEET 81 OF 186



VT 14 BANKING DIAGRAM

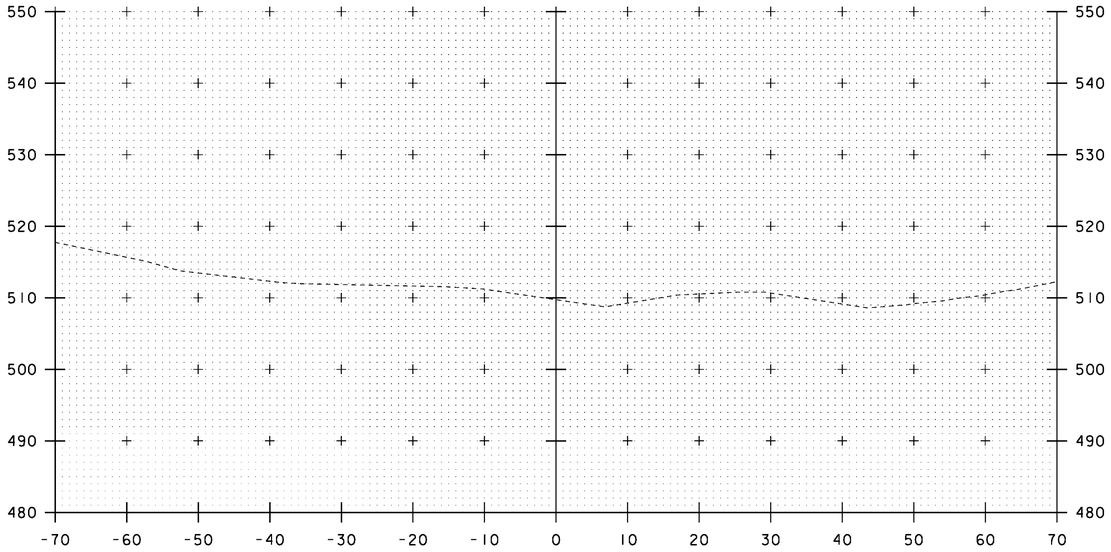
HORIZONTAL SCALE: 1" = 10'-0"
VERTICAL SCALE: 1" = 0.01'/'



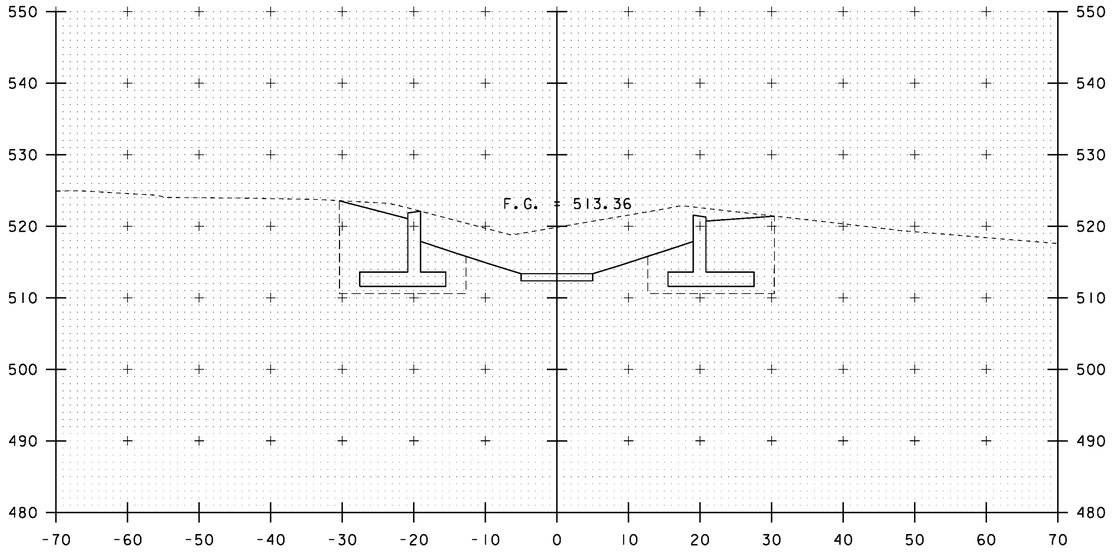
VT 14 MATERIAL TRANSITION DETAIL

HORIZONTAL SCALE: 1" = 10'-0"
VERTICAL SCALE: 1" = 10'-0"

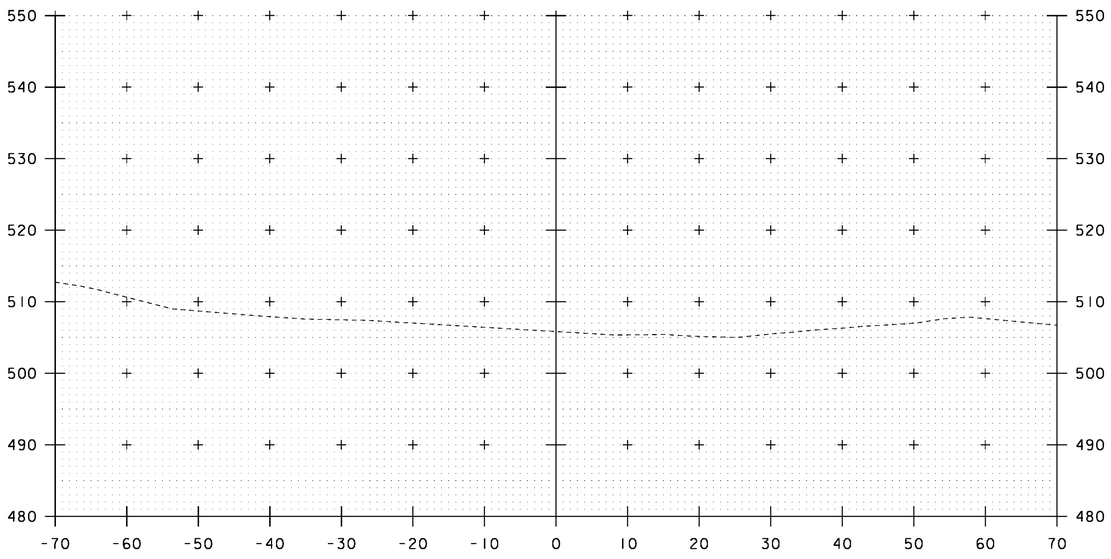
PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147(13)
FILE NAME: s86e055pro_cattlepass3.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: G. ROY	CHECKED BY: D. PETERSON
BANKING DIAGRAM AND MATERIAL TRANSITION	SHEET 82 OF 186



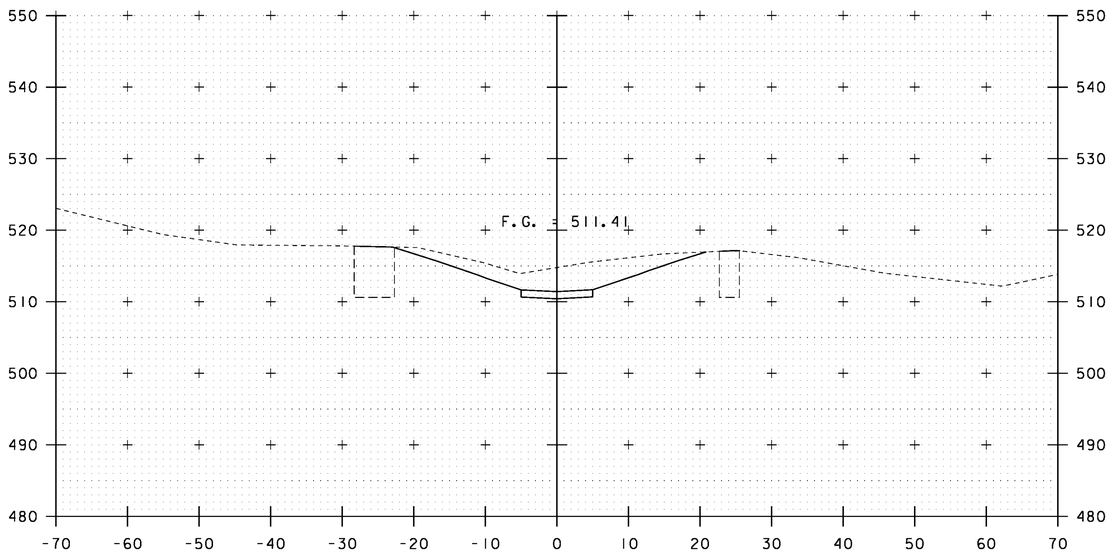
5+50



5+70



5+40



5+60

STA 5+53.59
BEGIN CATTLE PASS
MATCH EXISTING

10 0 10

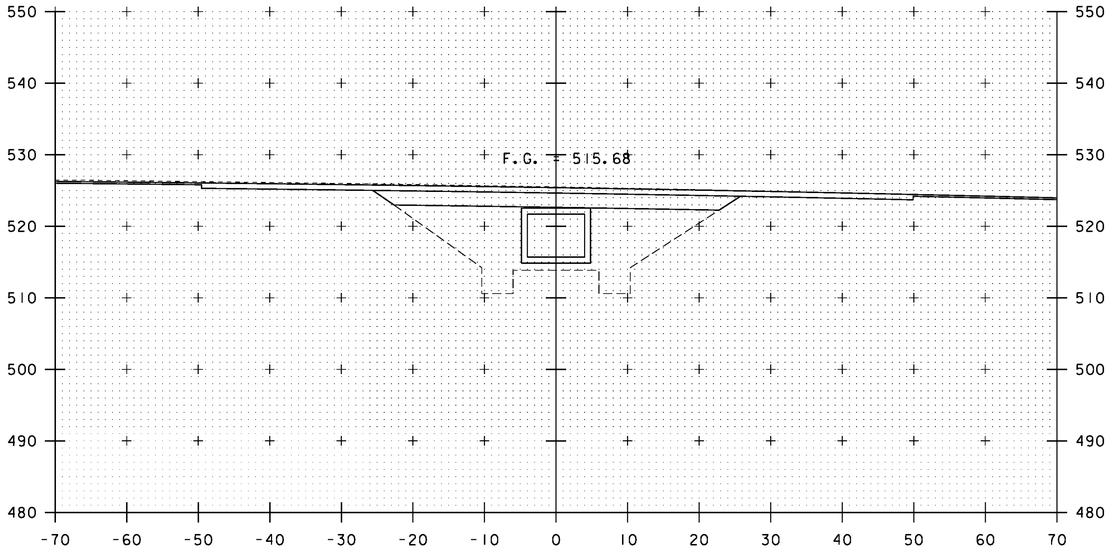
SCALE: 1" = 10'-0"

STA. 5+40 TO STA. 5+70

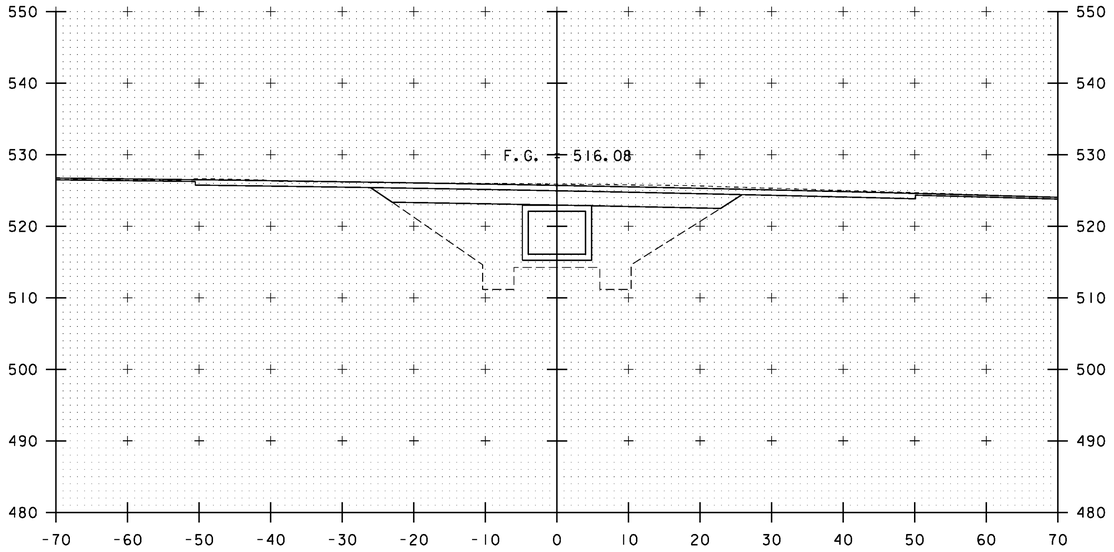
PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147(13)

FILE NAME: s86e055xsl_cattlepass3.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: G. ROY
CATTLE PASS CROSS SECTIONS (1)

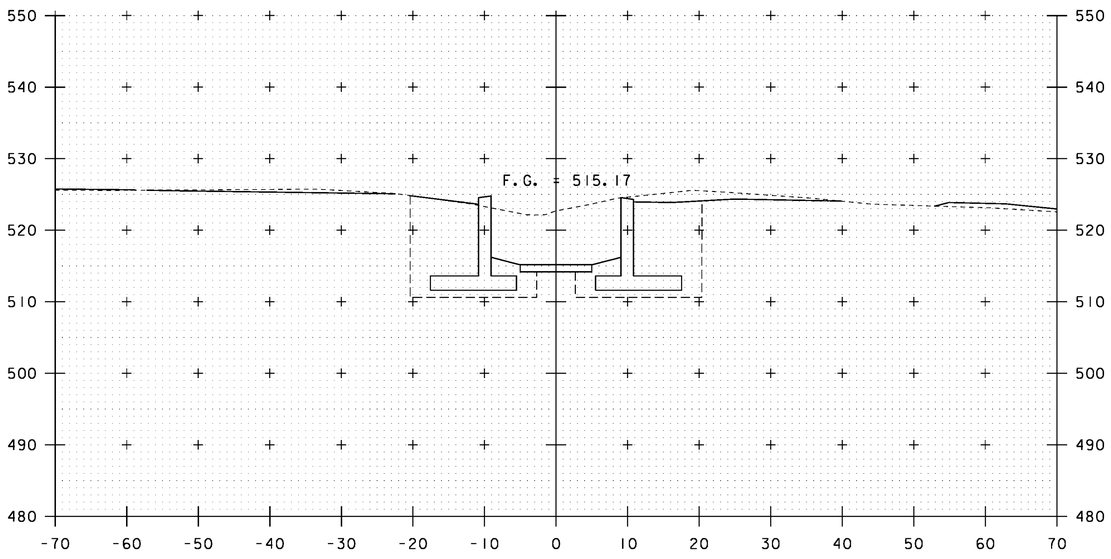
PLOT DATE: 08-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: D. PETERSON
SHEET 83 OF 186



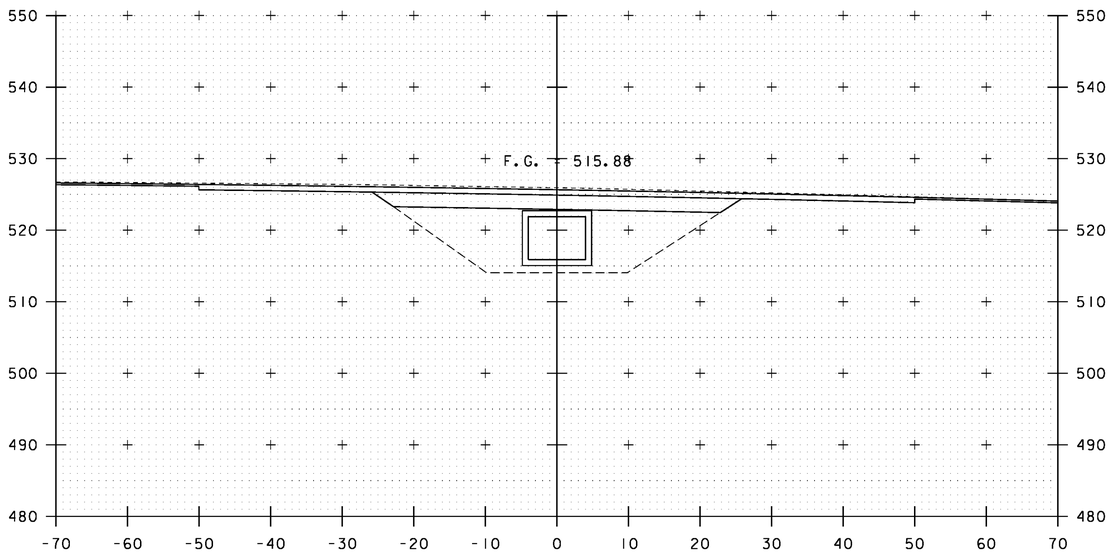
5+90



6+10



5+80



6+00

10 0 10

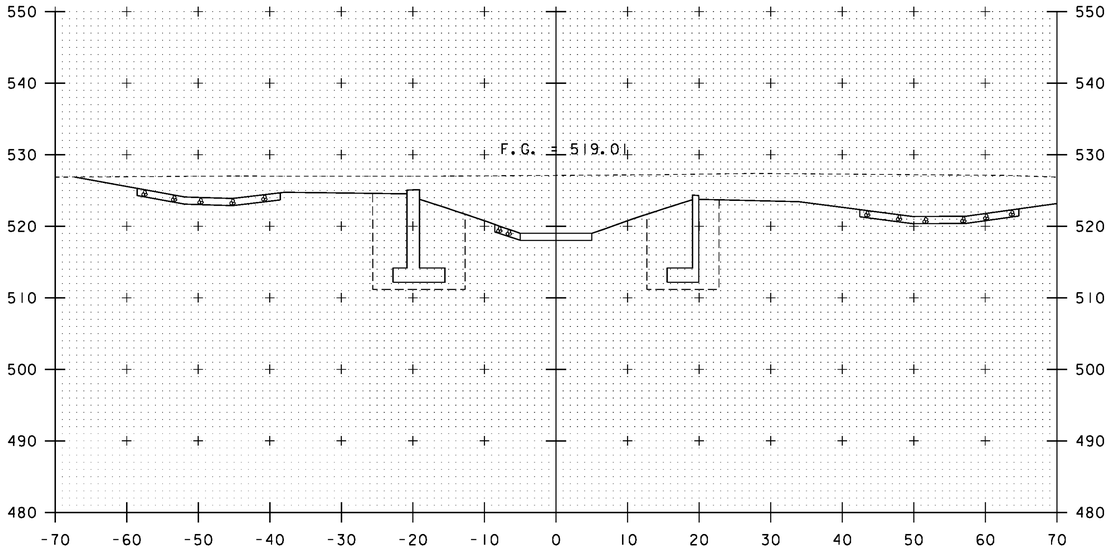
SCALE: 1" = 10'-0"

STA. 5+80 TO STA. 6+10

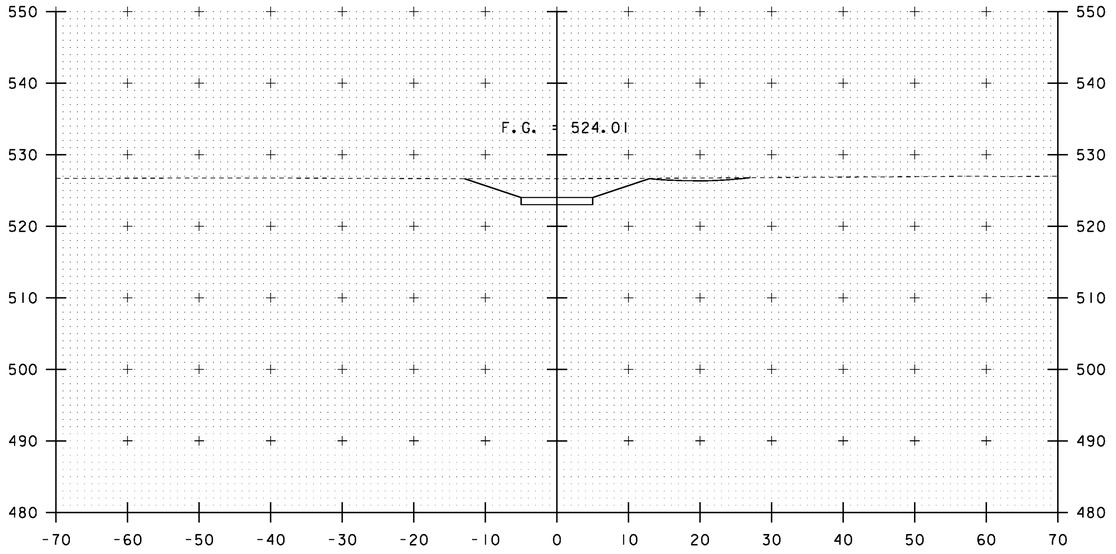
PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147(13)

FILE NAME: s86e055xsl_cattlepass3.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: G. ROY
CATTLE PASS CROSS SECTIONS (2)

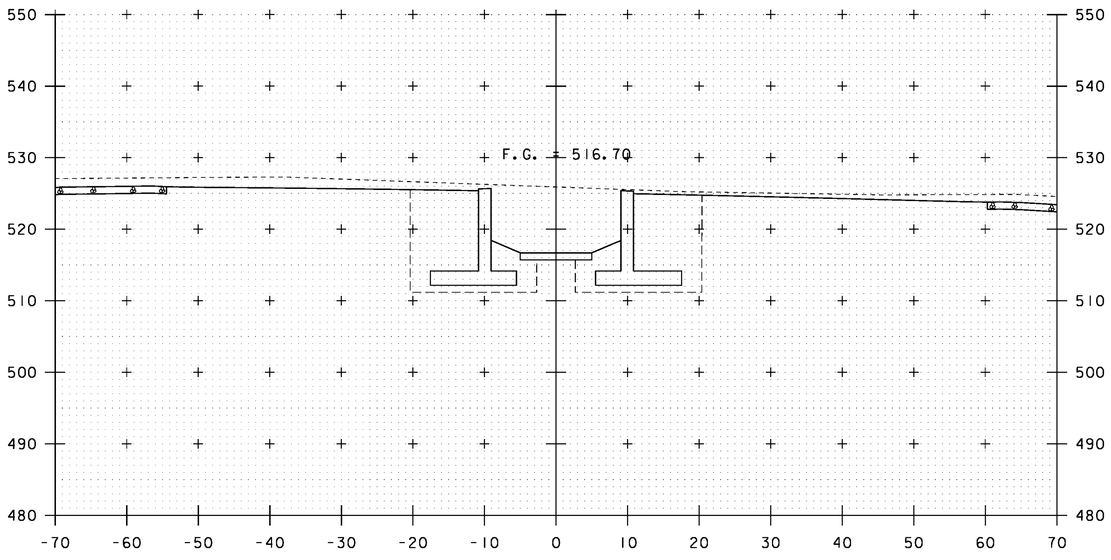
PLOT DATE: 08-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: D. PETERSON
SHEET 84 OF 186



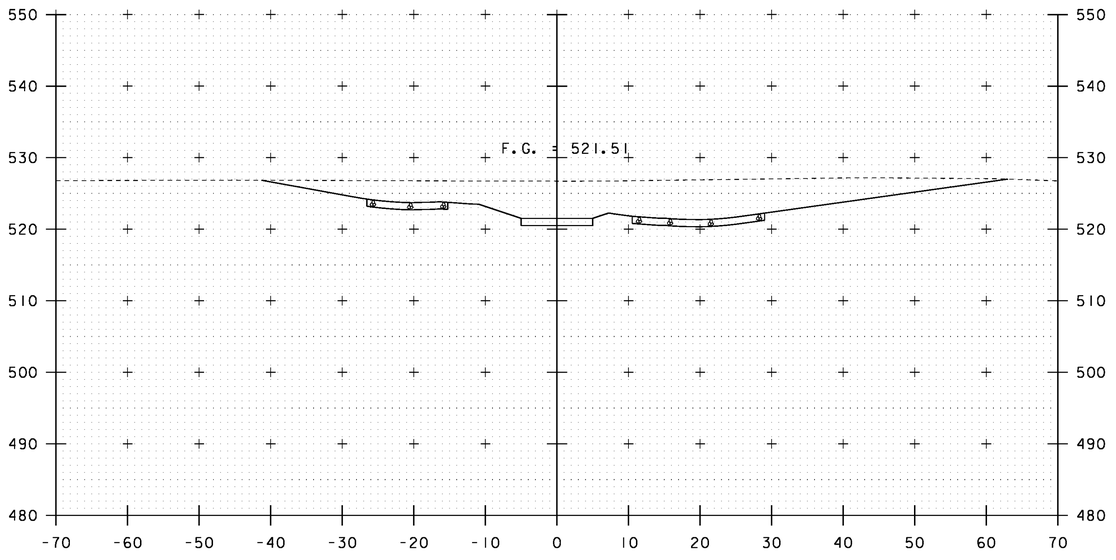
6+30



6+50



6+20



6+40

10 0 10

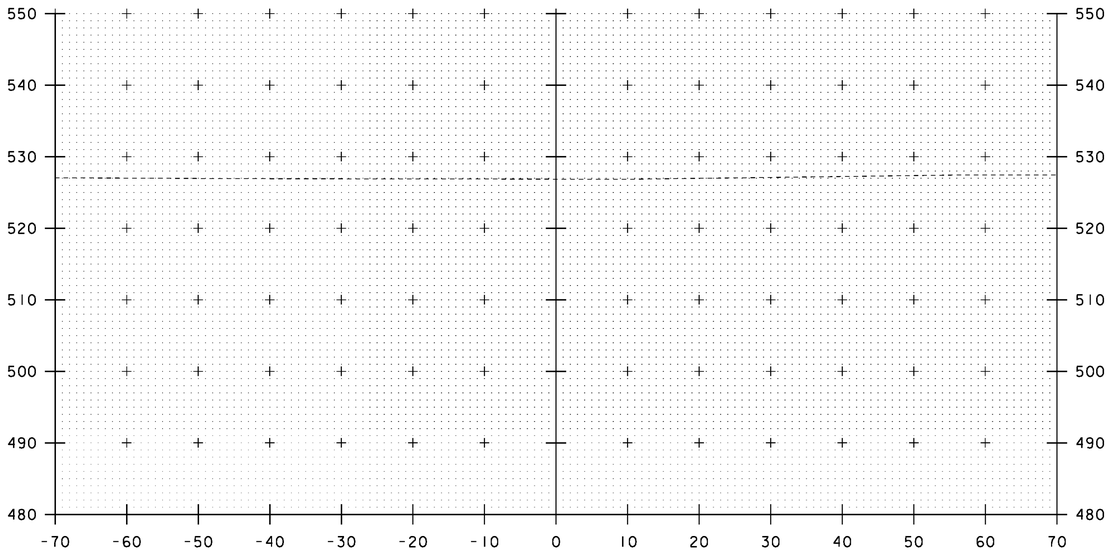
SCALE: 1" = 10'-0"

STA. 6+20 TO STA. 6+50

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147(13)

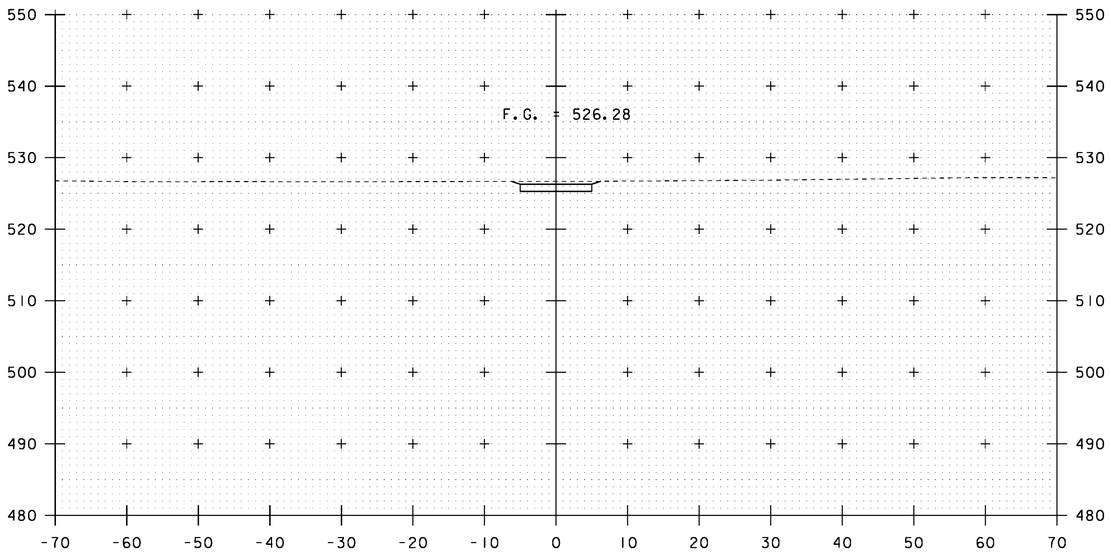
FILE NAME: s86e055xsl_cattlepass3.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: G. ROY
CATTLE PASS CROSS SECTIONS (3)

PLOT DATE: 08-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: D. PETERSON
SHEET 85 OF 186



6+70

STA 6+65.70
END CATTLE PASS
MATCH EXISTING



6+60

STA. 6+60 TO STA. 6+70

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147(13)

FILE NAME: s86e055xsl_cattlepass3.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: G. ROY
CATTLE PASS CROSS SECTIONS (4)

PLOT DATE: 08-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: D. PETERSON
SHEET 86 OF 186

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE 28)

Version 09.02.02

LRFD

INDEX OF SHEETS

PLAN SHEETS

SEE SHEET 2 FOR INDEX OF SHEETS

STANDARDS LIST

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: November 2010

DRAINAGE AREA : 69.5 sq. mi.
CHARACTER OF TERRAIN : Mixture of woods and open fields
STREAM CHARACTERISTICS : Meandering and incised
NATURE OF STREAMBED : Silty sand, ledge waterfall downstream

PEAK FLOW DATA

Q 2.33 =	3000 cfs	Q 50 =	6400 cfs
Q 10 =	4300 cfs	Q 100 =	7600 cfs
Q 25 =	5400 cfs	Q 500 =	10,300 cfs

DATE OF FLOOD OF RECORD: unknown
ESTIMATED DISCHARGE: unknown
WATER SURFACE ELEV.: unknown
NATURAL STREAM VELOCITY : @ Q50 = 10.6 fps
ICE CONDITIONS : moderate
DEBRIS: light to moderate
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? no
IS ORDINARY RISE RAPID? no
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? no
IF YES, DESCRIBE:

WATERSHED STORAGE: <1%
HEADWATERS:
UNIFORM: X
IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: 3-span concrete T-beam bridge
YEAR BUILT: 1925
CLEAR SPAN(NORMAL TO STREAM): 100'
VERTICAL CLEARANCE ABOVE STREAMBED: 15'
WATERWAY OF FULL OPENING: 630 sq. ft.
DISPOSITION OF STRUCTURE: Remove and replace
TYPE OF MATERIAL UNDER SUBSTRUCTURE: See borings

WATER SURFACE ELEVATIONS AT:

Q2.33 =	516.5'	VELOCITY =	16.3 fps
Q10 =	518.7'	"	18.5 fps
Q25 =	520.3'	"	19.9 fps
Q50 =	521.8'	"	21.1 fps
Q100 =	523.4'	"	20.1 fps

LONG TERM STREAMBED CHANGES: None

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: N/A
RELIEF ELEVATION: 524.9'
DISCHARGE OVER ROAD @Q100: None

UPSTREAM STRUCTURE

TOWN: Bethel — DISTANCE: 13,840'
HIGHWAY # : TH 6 — STRUCTURE #: BR 39
CLEAR SPAN: 49' — CLEAR HEIGHT: 12.5'
YEAR BUILT: 1938 — FULL WATERWAY:
STRUCTURE TYPE: Rolled beam

DOWNSTREAM STRUCTURE

TOWN: Royalton — DISTANCE: 3100'
HIGHWAY # : VT 14 — STRUCTURE #: BR 27
CLEAR SPAN: 89' — CLEAR HEIGHT: 12'
YEAR BUILT: 1927 — FULL WATERWAY: 755 sq. ft.
STRUCTURE TYPE: 3-span concrete T-beam

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	HL-93	HL-93	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
TONNAGE	**20**	**36**	**36**	**66**	**30**	**34.5**	**38**
INVENTORY	2.6	1.09					
POSTING							
OPERATING	3.36	1.14	2.34	1.39	2.43	2.14	
COMMENTS:							

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span steel beam bridge

CLEAR SPAN(NORMAL TO STREAM): 113'
VERTICAL CLEARANCE ABOVE STREAMBED: 13.5'
WATERWAY OF FULL OPENING: 1110 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	514.2'	VELOCITY=	15.4 fps
Q10 =	515.4'	"	16.6 fps
Q25 =	516.5'	"	17.5 fps
Q50 =	517.4'	"	18.1 fps
Q100 =	518.5'	"	18.8 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: N/A
RELIEF ELEVATION: 525.8'
DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 520.5'
VERTICAL CLEARANCE: @ Q50 = 3.1'

SCOUR: 2.0' @ Q100.

REQUIRED CHANNEL PROTECTION: Stone Fill, Type IV

PERMIT INFORMATION

		DEPTH OR ELEVATION:
AVERAGE DAILY FLOW:	145 cfs	
ORDINARY LOW WATER:	70 cfs	2.5'
ORDINARY HIGH WATER:	1300 cfs	6.0'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: 2-span bridge
CLEAR SPAN (NORMAL TO STREAM): 56.8' + 99.7' = 156.6'
VERTICAL CLEARANCE ABOVE STREAMBED: 518.7' minimum
WATERWAY AREA OF FULL OPENING: 650 sq. ft.

ADDITIONAL INFORMATION

NAVD 88 elevations

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN TWO-WAY TRAFFIC ON A TEMPORARY BRIDGE.
2. TRAFFIC SIGNALS ARE NOT NECESSARY.
3. SIDEWALKS ARE NOT NECESSARY
4. THE APPROACHES FOR THE TEMPORARY BRIDGE SHALL BE PAVED.

DESIGN VALUES

1. DESIGN LIVE LOAD		HL-93
2. FUTURE PAVEMENT	d_P:	3.0 INCH
3. DESIGN SPAN	L:	119.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	---
5. PRESTRESSING STRAND	f_y:	---
6. PRESTRESSED CONCRETE STRENGTH	f'_c:	---
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'_{ci}:	---
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f'_c:	4.0 KSI
9. CONCRETE, HIGH PERFORMANCE CLASS A	f'_c:	4.0 KSI
10. CONCRETE, HIGH PERFORMANCE CLASS B	f'_c:	3.5 KSI
11. CONCRETE, CLASS C	f'_c:	3.0 KSI
12. REINFORCING STEEL	f_y:	60 KSI
13. STRUCTURAL STEEL AASHTO M270 (WEATHERING)	f_y:	50 KSI
14. SOIL UNIT WEIGHT	γ:	0.140 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q_n:	4.0 KSF
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	0.50
17. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	45.0 KSF
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	0.45
19. NOMINAL AXIAL PILE RESISTANCE	q_p:	---
20. PILE YIELD STRENGTH ASTM A572	f_y:	---
21. PILE SIZE		---
22. EST. PILE LENGTH	L_p:	
23. PILE RESISTANCE FACTOR	ϕ:	---
24. LATERAL PILE DEFLECTION	Δ:	---
25. BASIC WIND SPEED	V_{3s}:	---
26. MINIMUM GROUND SNOW LOAD	p_g:	---
27. SEISMIC DATA PGA : ---	S_s:	---
	S_1:	---

PROJECT NAME: **ROYALTON**
PROJECT NUMBER: **BRS 0147(13)**

FILE NAME: \BR 28\s86e055pi_28.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 28 PRELIMINARY INFORMATION

PLOT DATE: 8/8/2013
DRAWN BY: L. BULLOCK
CHECKED BY: D. PETERSON
SHEET 87 OF 186

AS BUILT "REBAR" DETAIL

LEVEL I	LEVEL II	LEVEL III
TYPE:	TYPE:	TYPE:
GRADE:	GRADE:	GRADE:

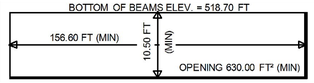
TRAFFIC DATA

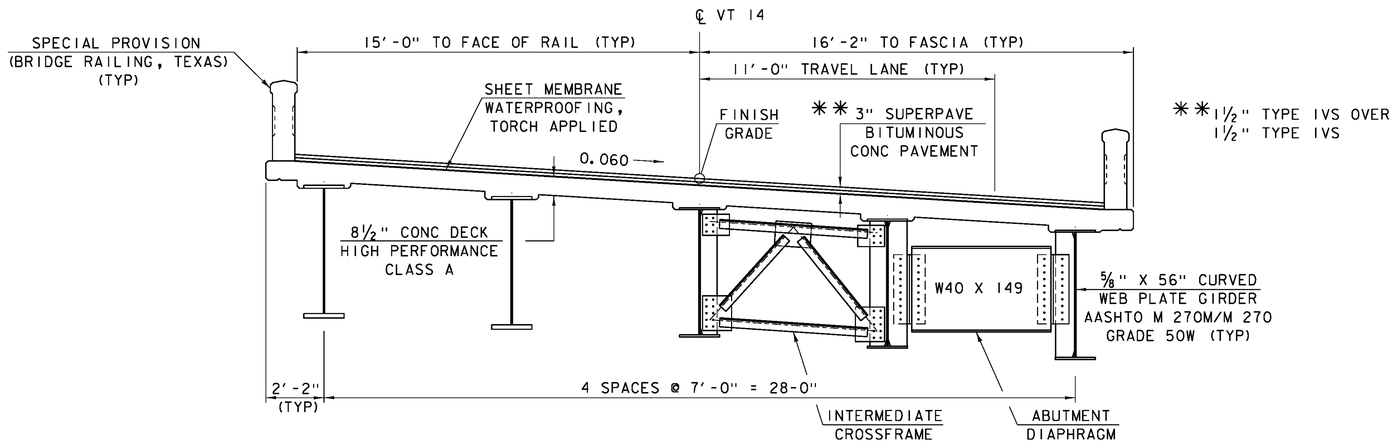
YEAR	ADT	DHV	% D	% T	ADTT
2003	1500	210	59	8	170
2023	2000	280	59	8	230

20 year ESAL for flexible pavement from 2003 to 2023 : 2667000
40 year ESAL for flexible pavement from 2003 to 2043 : 6477000
Design Speed : 30 mph

TEMPORARY BRIDGE PROFILE ALONG TEMP CL

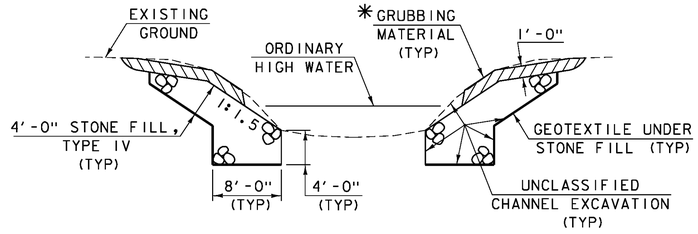
BOTTOM OF BEAMS ELEV. = 518.70 FT





BRIDGE 28 TYPICAL SECTION

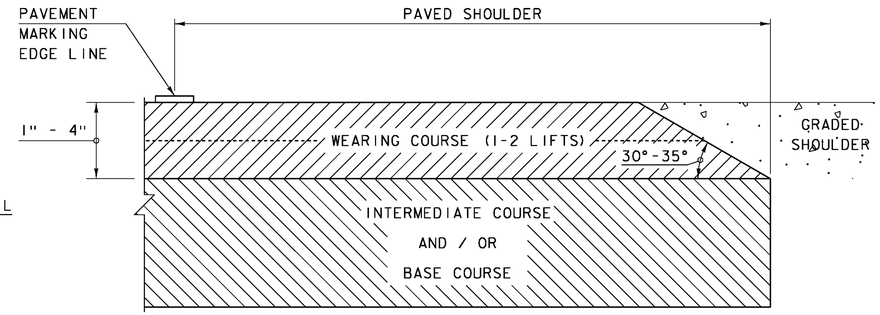
SCALE: ⅜" = 1'-0"



CHANNEL TYPICAL SECTION

(NOT TO SCALE)

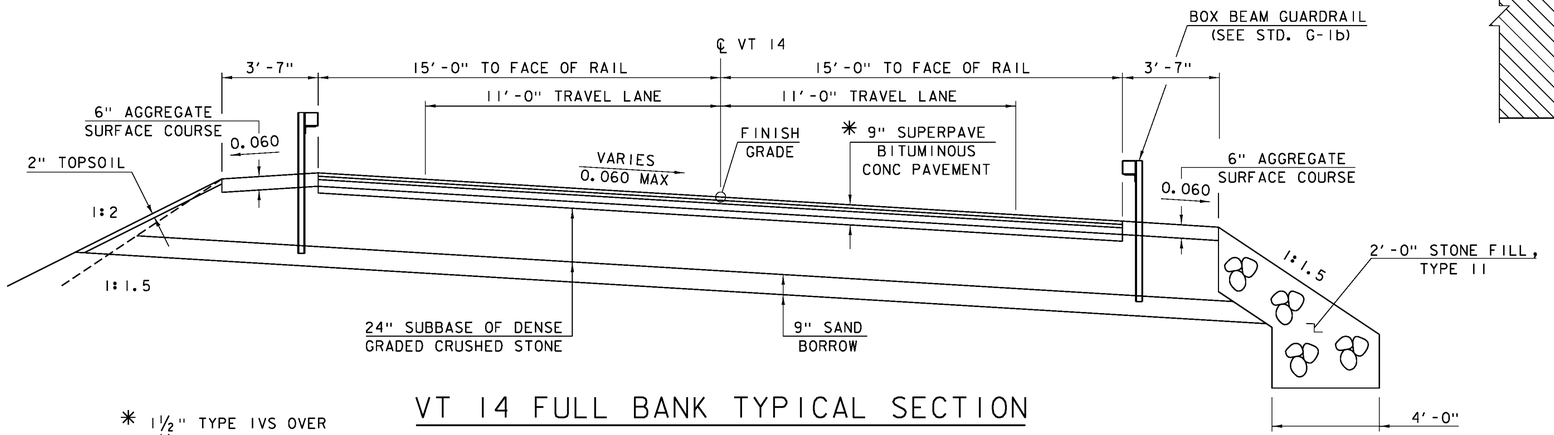
* GRUBBING MATERIAL SHALL NOT BE PLACED ON THE STONE FILL IN THE AREA UNDER THE BRIDGE. WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE, GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE.



SAFETY EDGE DETAIL

NOT TO SCALE

NOTES:
1. LEVELING COURSE MAY INCLUDE THE "SAFETY EDGE" AT THE CONTRACTOR'S CHOICE.
2. THE EDGE OF PAVEMENT SHALL BE FORMED IN SUCH A WAY THAT THE BITUMINOUS CONCRETE PAVEMENT IS EXTRUDED OR COMPRESSED TO FORM THE 30 TO 35 DEGREE ANGLE. DEVICES THAT SIMPLY STRIKE-OFF THE MIX WITHOUT PROVIDING ANY COMPACTIVE EFFORT WILL NOT BE ALLOWED.



VT 14 FULL BANK TYPICAL SECTION

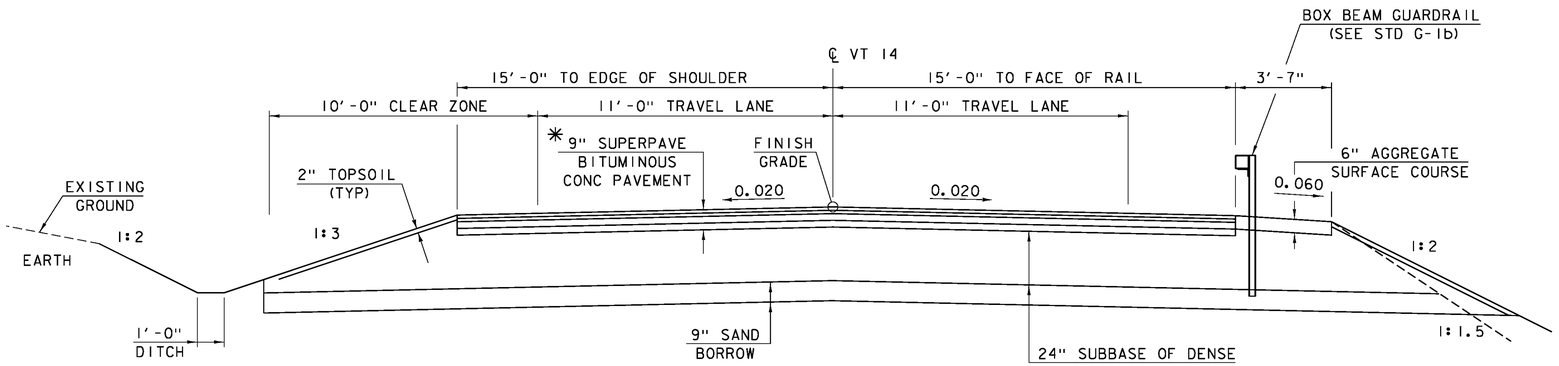
SCALE: ⅜" = 1'-0"

* 1½" TYPE IVS OVER 1½" TYPE IVS OVER 3" TYPE IIS OVER 3" TYPE IIS

MATERIAL ITEM	TOLERANCE
PAVEMENT	± ¼" TOTAL THICKNESS
AGGREGATE SURFACE COURSE	± ½"
BASE COURSE	± ½"
SUBBASE	± 1"
SAND BORROW	± 1"
GRANULAR BORROW	± 1"

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR 28\s86e055typ_28.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 28 PROJECT TYPICAL SECTIONS (1)
PLOT DATE: 08-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: C. CARLSON



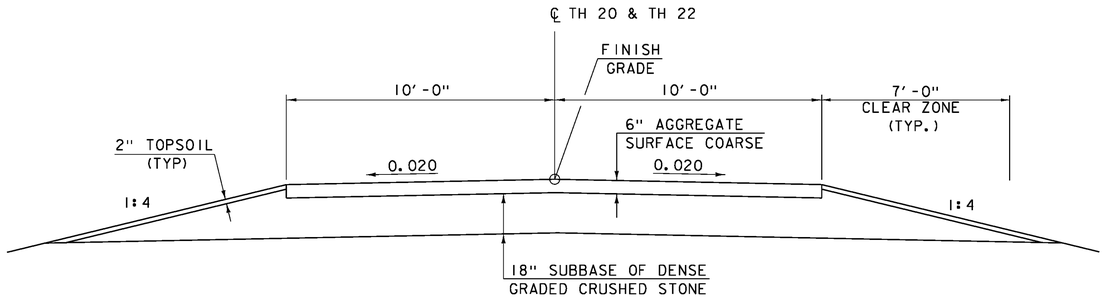
* 1½" TYPE IVS OVER
1½" TYPE IVS OVER
3" TYPE IIS OVER
3" TYPE IIS

VT 14 TYPICAL SECTION

SCALE: ⅜" = 1'-0"

NOTES

1. COFFERDAM LIMITS TO BE DETERMINED BY THE CONTRACTOR.
2. THE PAY LIMITS OF "COFFERDAM EXCAVATION, EARTH" AND "COFFERDAM EXCAVATION, ROCK" SHALL BE 2'-0" OUTSIDE THE PERIMETER OF THE FOOTING, UP TO EXISTING GROUND OR BOTTOM OF SUBBASE, WHICHEVER IS LOWER.
3. IF A COFFERDAM IS CONSTRUCTED WHICH IS LARGER THAN THE INDICATED COFFERDAM EXCAVATION PAY LIMITS, PAYMENT FOR ALL UNCLASSIFIED CHANNEL EXCAVATION, INCLUDING THAT PORTION WHICH IS INSIDE THE COFFERDAM BUT OUTSIDE THE COFFERDAM EXCAVATION PAY LIMITS, WILL BE MADE AT THE CONTRACT UNIT PRICE FOR UNCLASSIFIED CHANNEL EXCAVATION.

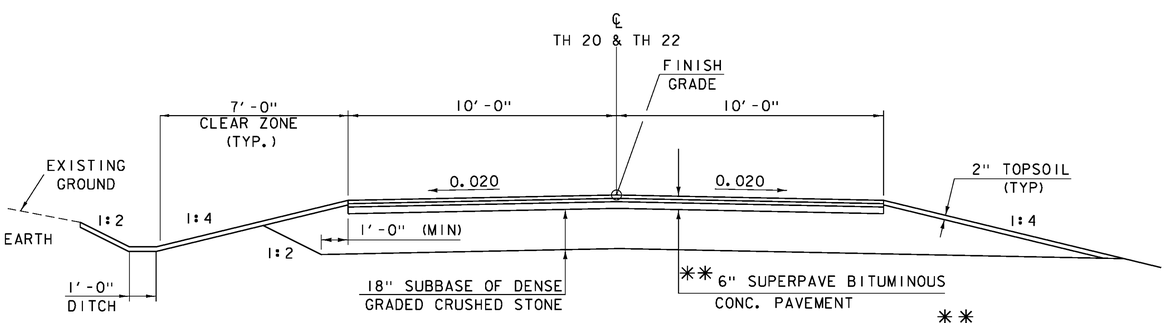


TH 20 TYPICAL SECTION

SCALE: ⅜" = 1'-0"

TH 22 TYPICAL SECTION
STA 31+00.00 - STA 31+50.00

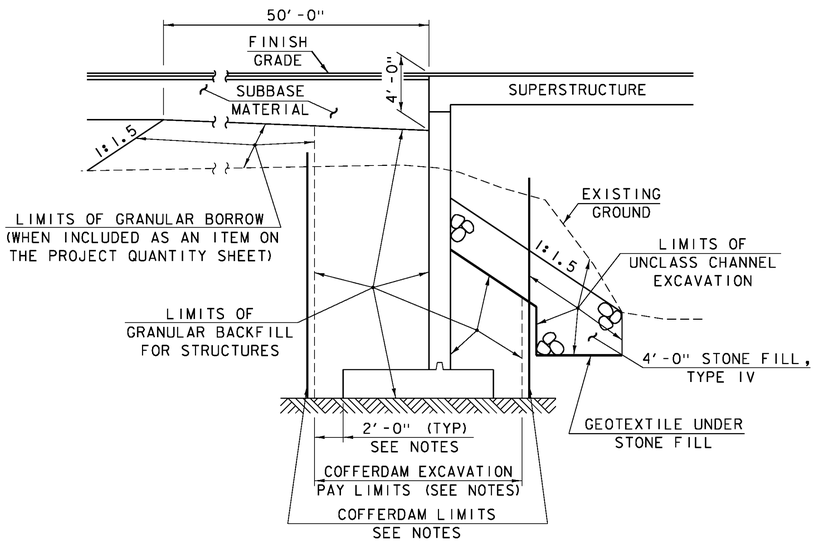
SCALE: ⅜" = 1'-0"



** 1½" TYPE IVS OVER
1½" TYPE IVS OVER
3" TYPE IIS

TH 22 TYPICAL SECTION
STA 30+15.02 - STA 31+00.00

SCALE: ⅜" = 1'-0"

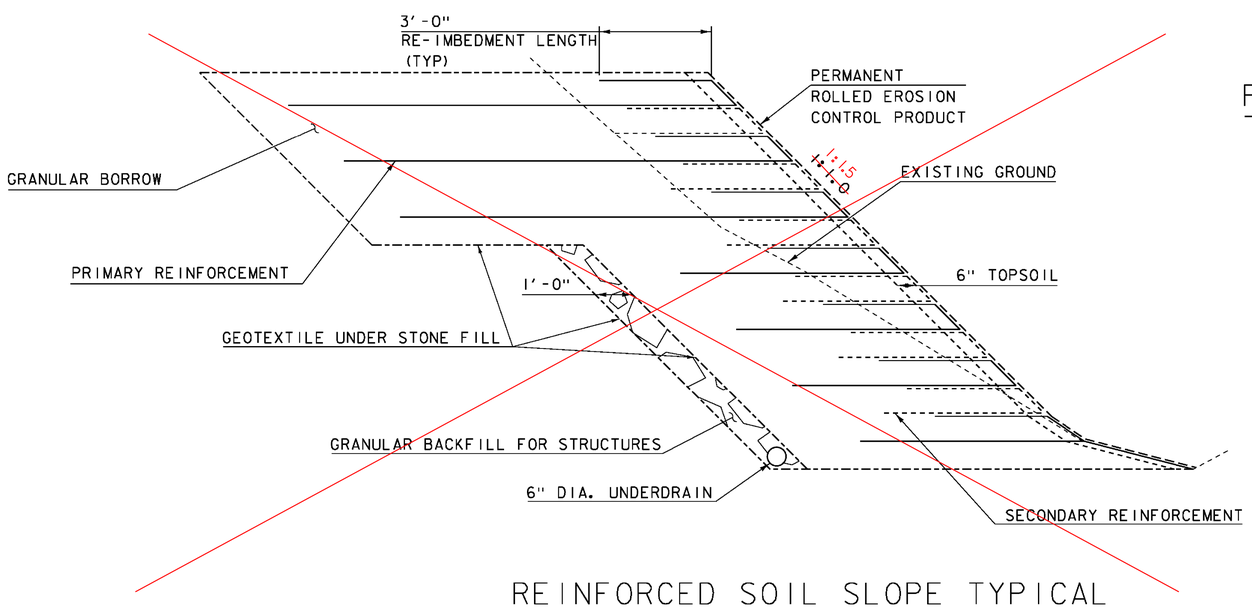


TYPICAL ABUTMENT SECTION

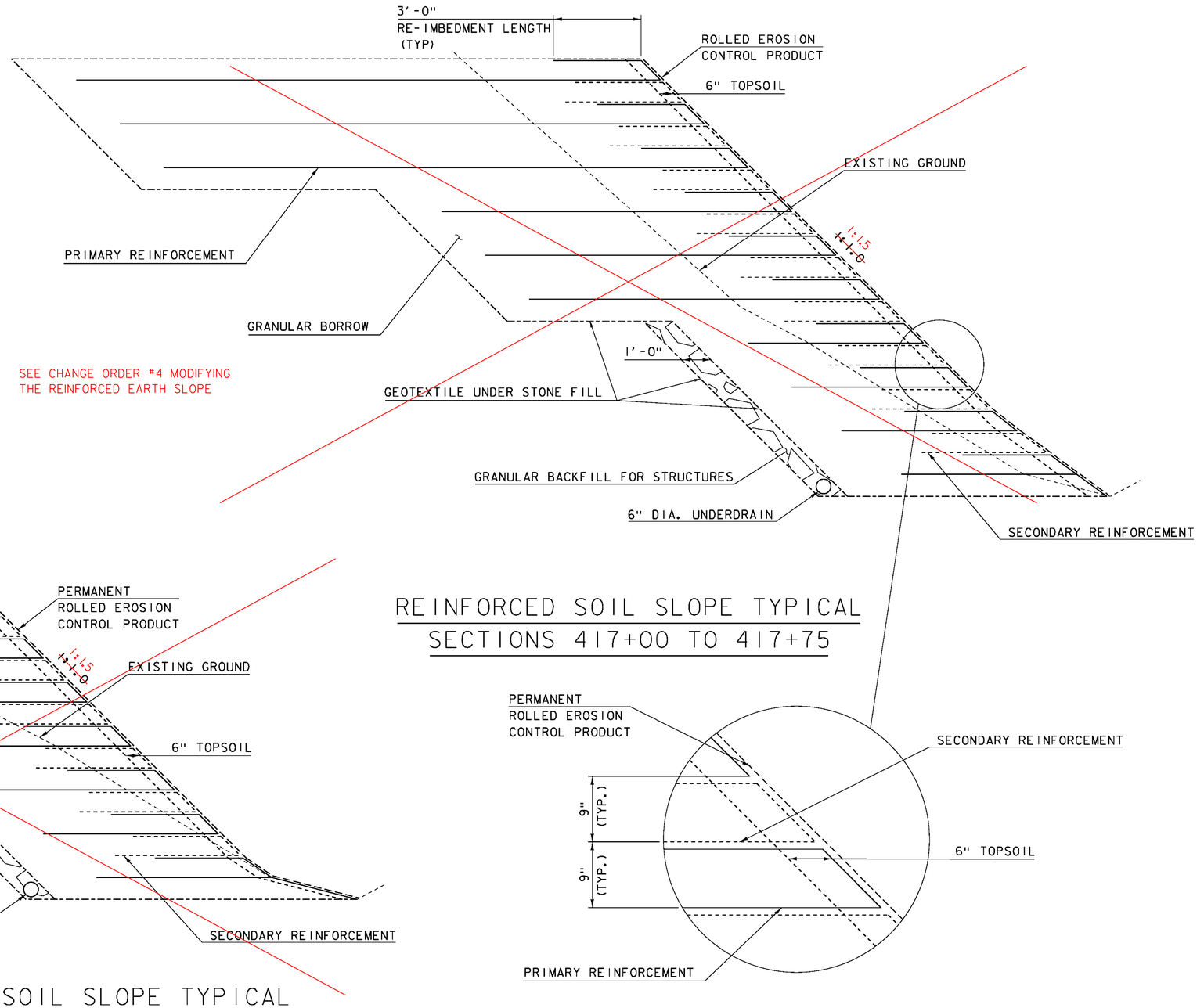
(NOT TO SCALE)

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: \BR 28\s86e055typ_28.dgn	PLOT DATE: 28-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 28 PROJECT TYPICAL SECTIONS (2)	SHEET 89 OF 186

	SECTIONS 417+00 - 417+75	SECTION 418+00
MINIMUM GEOGRID ULTIMATE TENSILE STRENGTH	3050 lb/ft	3050 lb/ft
NUMBER OF REINFORCEMENT LAYERS	10	7
LENGTHS OF PRIMARY REINFORCEMENT	THREE - 20 FT THREE - 12 FT FOUR - 6 FT	THREE - 12 FT FOUR - 6 FT
VERTICAL SPACING OF PRIMARY REINFORCEMENT	1.5 FT	1.5 FT
LENGTH OF SECONDARY REINFORCEMENT	4 FT	4 FT
VERTICAL SPACING OF SECONDARY REINFORCEMENT	1.5 FT	1.5 FT
TOP REINFORCEMENT ELEVATION (NOT INCLUDING RE-IMBEDMENT HEIGHT)	522.5 FT	522.5 FT



REINFORCED SOIL SLOPE TYPICAL SECTION 418+00



REINFORCED SOIL SLOPE TYPICAL SECTIONS 417+00 TO 417+75

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: \BR 28\s86e055typ_28.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: D. PETERSON
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 28 PROJECT TYPICAL SECTIONS (3)	SHEET 90 OF 186

GPS CONTROL POINTS

HVCTRL #1

STANDARD DISK STAMPED
Spaulding Az Mk
N = 490047.972
E = 1616877.024
ELEV. = 655.248

GENERAL LOCATION, ROYALTON, VT. OWNERSHIP, GEORGE AND AGNES SPAULDING, 7783 VT RTE 14, SOUTH ROYALTON, VT 05068. TO REACH FROM THE INTERSECTION OF VT ROUTE 14 AND VT ROUTE 107 IN NORTH ROYALTON GO NORTH ALONG VT ROUTE 14 FOR 2.0 MI (3.2 KM) TO THE INTERSECTION OF MORSE ROAD (TH 20) STRAIGHT, WATERMAN ROAD (TH 22) LEFT, AND VT ROUTE 14 RIGHT. TURN LEFT AND GO SOUTHWEST AND SOUTH ALONG WATERMAN ROAD FOR 0.3 MI (0.5 KM) TO A GATE IN A WIRE FENCE LINE AND THE SITE OF THE MARK ON THE LEFT IN A FIELD. THE MARK IS SET FLUSH WITH GROUND SURFACE IN THE TOP OF A LOW LYING ROCK OUTCROP. IT IS 9.8 M (32.2 FT) EAST OF AND ABOUT 0.2 M (0.7 FT) LOWER THAN THE CENTERLINE OF WATERMAN ROAD, 25.6 M (84.0 FT) NORTH NORTHEAST OF A 25 CM TRIPLE TRUNK APPLE, 5.5 M (18.0 FT) NORTHEAST OF THE MOST NORTHERLY GATE POST, AND 5.2 M (17.1 FT) EAST OF THE WIRE FENCE AND A FIBERGLASS WITNESS POST.

HVCTRL #2

STANDARD DISK STAMPED
Spaulding
N = 488849.386
E = 1617960.788
ELEV. = 502.952

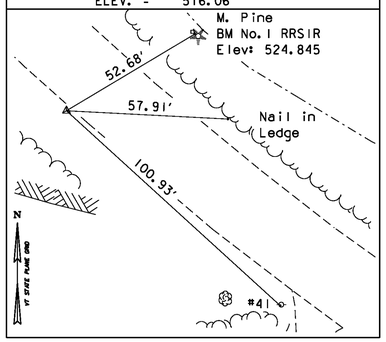
GENERAL LOCATION, ROYALTON, VT. -OWNERSHIP, GEORGE AND AGNES SPAULDING, 7783 VT RTE 14, SOUTH ROYALTON, VT 05068. TO REACH FROM THE INTERSECTION OF VT ROUTE 14 AND VT ROUTE 107 IN NORTH ROYALTON GO NORTH ALONG VT ROUTE 14 FOR 1.5 MI (2.4 KM) TO THE SITE OF THE MARK ON THE LEFT. IT IS ABOUT 95 M (311.7 FT) SOUTH OF THE SOUTH END OF A CONCRETE BRIDGE OVER THE SECOND BRANCH OF THE WHITE RIVER. THE MARK IS SET ABOUT 0.3 M (1.0 FT) ABOVE GROUND SURFACE IN THE TOP OF A MASSIVE ROCK OUTCROP. IT IS 15.5 M (50.9 FT) WEST NORTHWEST OF AND ABOUT 2.5 M (8.2 FT) LOWER THAN THE CENTERLINE OF VT ROUTE 14, 11.2 M (36.7 FT) NORTH NORTHEAST OF A 10 CM PINE, 3.9 M (12.8 FT) NORTH OF A GUY ANCHOR, AND 4.7 M (15.4 FT) WEST OF POLE NO 42 AND A FIBERGLASS WITNESS POST.

• DESCRIPTION PROVIDED BY VERMONT AGENCY OF TRANSPORTATION GEODETIC SURVEY UNIT

TRAVERSE TIES

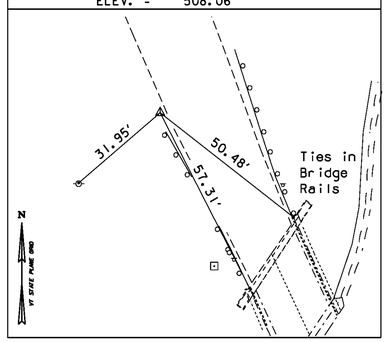
HVCTRL #3

NORTH = 488793.00
EAST = 1618076.20
ELEV. = 516.06



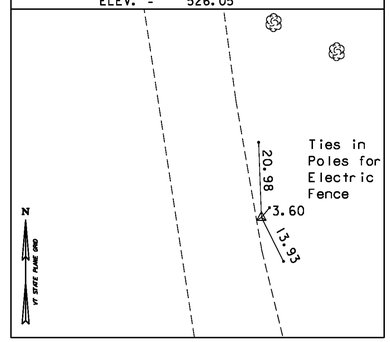
HVCTRL #4

NORTH = 489255.20
EAST = 1617722.18
ELEV. = 508.06



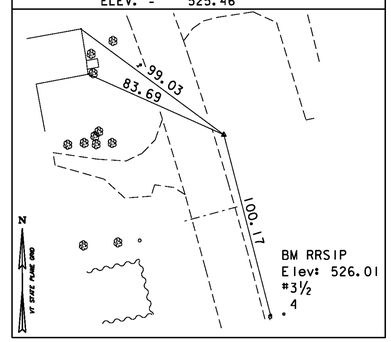
HVCTRL #5

NORTH = 490054.46
EAST = 1617524.92
ELEV. = 526.05



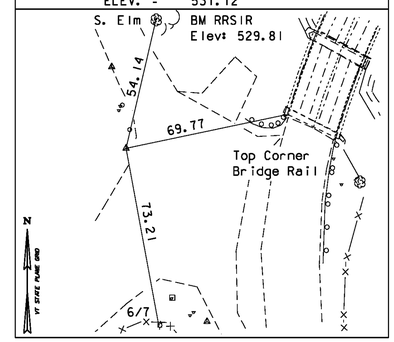
HVCTRL #6

NORTH = 491003.98
EAST = 1617393.08
ELEV. = 525.46



HVCTRL #7

NORTH = 491567.54
EAST = 1617078.16
ELEV. = 531.12

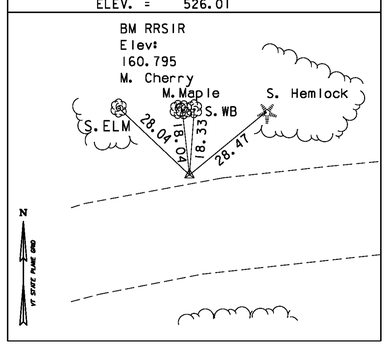


* MAIN TRAVERSE COMPLETED July 16,2001 Richard Gilman P.C. Paul Winters

TRAVERSE TIES

HVCTRL #8

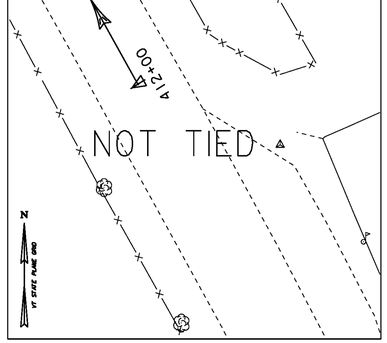
NORTH = 491820.81
EAST = 1617440.77
ELEV. = 526.01



ALIGNMENT TIES

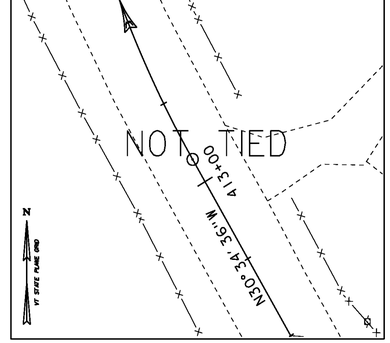
POB 412+00.00

NORTH = 491247.94
EAST = 1617258.68



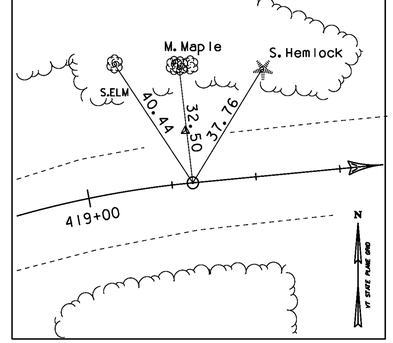
PC 413+07.24

NORTH = 491340.27
EAST = 1617204.13



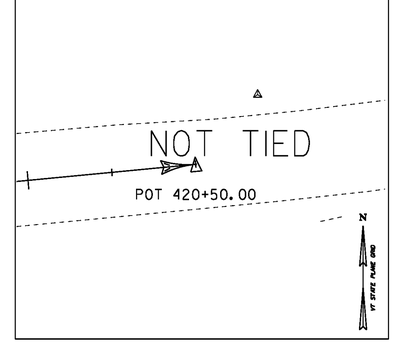
PT 419+31.18

NORTH = 491806.27
EAST = 1617442.98



POE 420+50.00

NORTH = 491816.93
EAST = 1617561.32

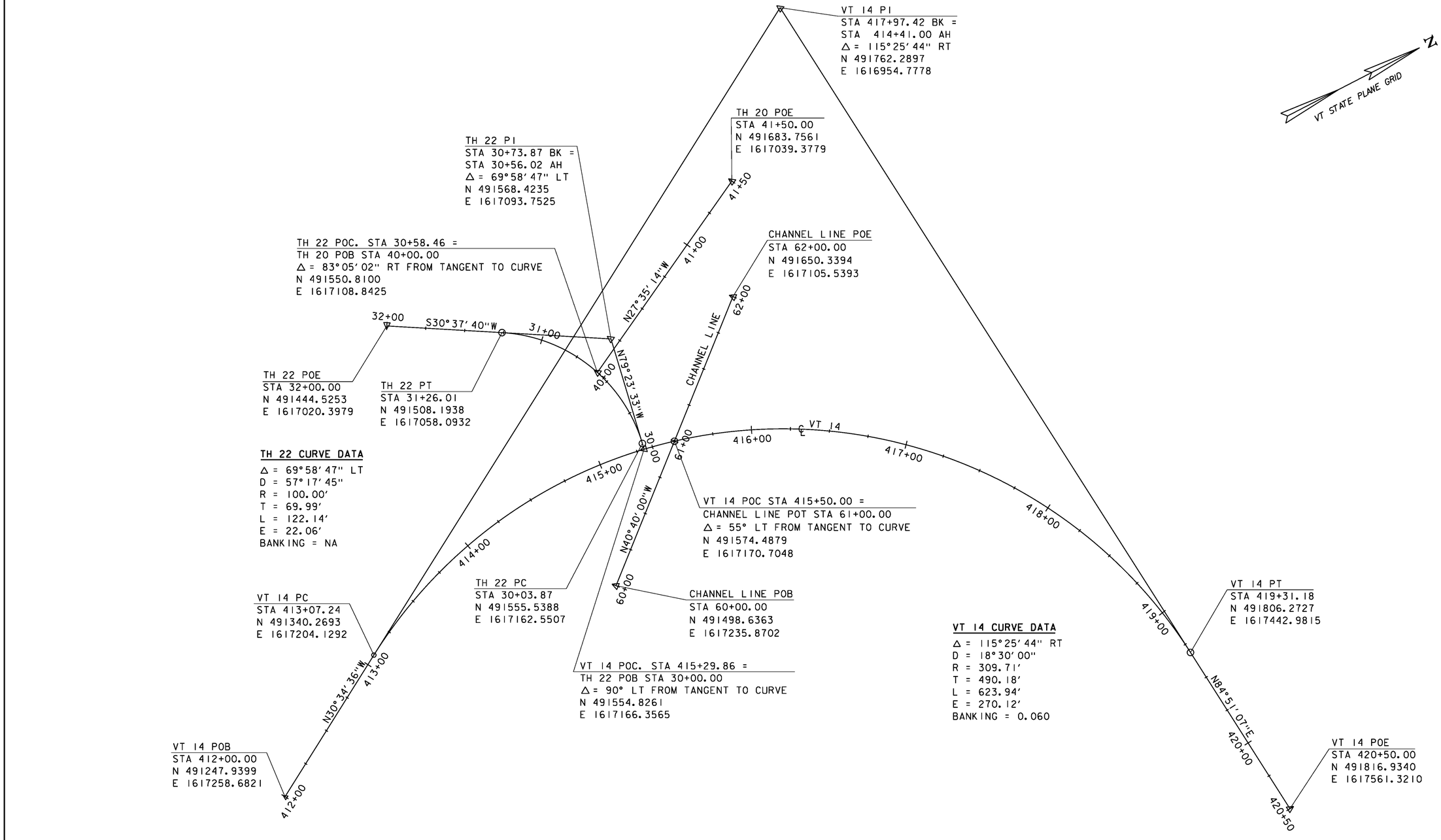


* Alignment Staked 06/05/06 by R.Gilman P.C. & P. Winters

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83 (96)
ADJUSTMENT Compass

PROJECT NAME: Royalton
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: 86e055\survey\x86e055ti.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
Bridge #28 TIE SHEET
PLOT DATE: 08-OCT-2013
DRAWN BY: R. Bullock
CHECKED BY: C. CARLSON
SHEET 91 OF 186



DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (96)
ADJUSTMENT	Compass

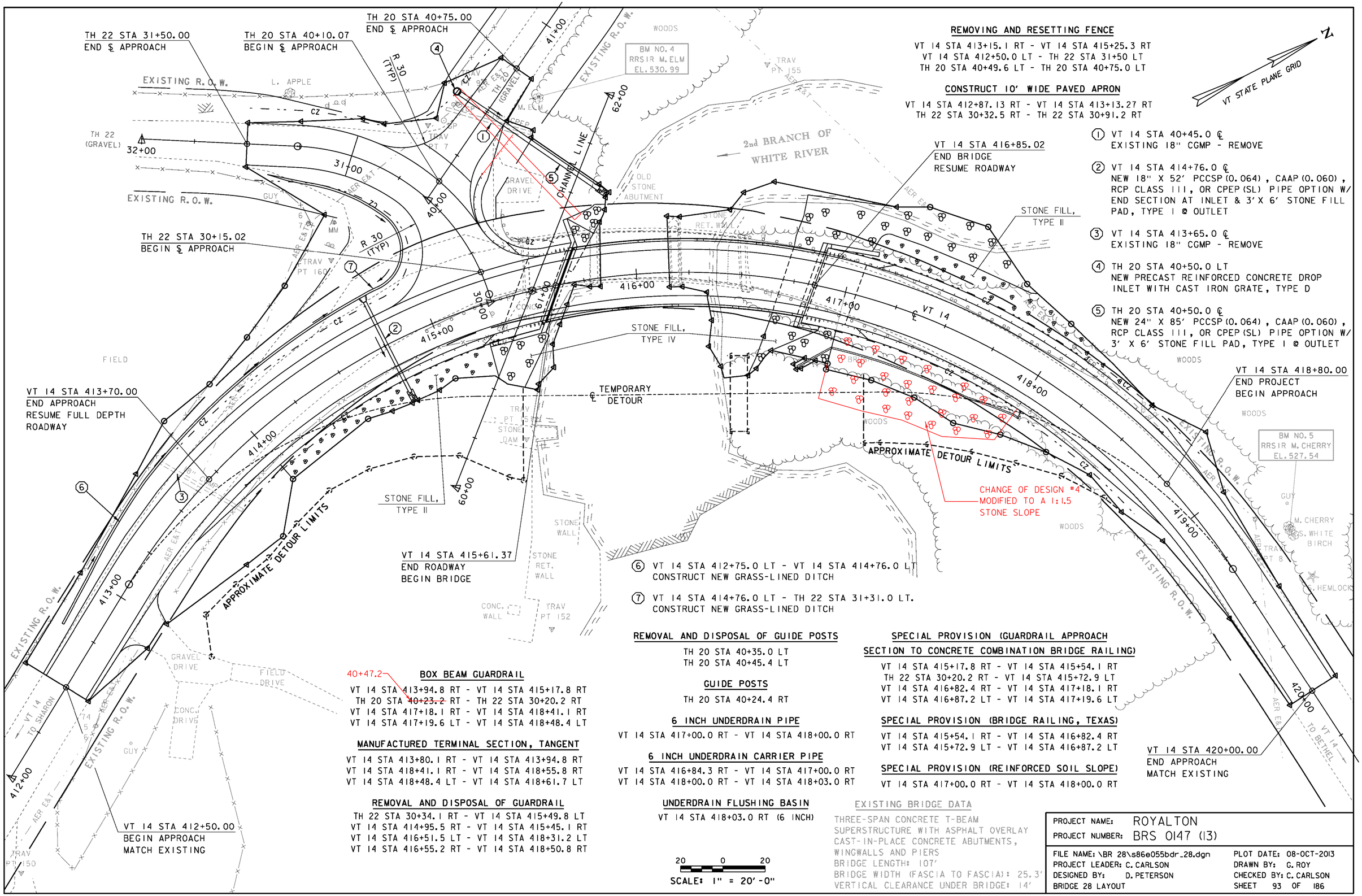
30 0 30

SCALE: 1" = 30'-0"

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR 28\s86e055alg_28.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: G. ROY
BRIDGE 28 ALIGNMENT LAYOUT

PLOT DATE: 08-OCT-2013
DRAWN BY: D. PETERSON
CHECKED BY: G. ROY
SHEET 92 OF 186



REMOVING AND RESETTING FENCE

VT 14 STA 413+15.1 RT - VT 14 STA 415+25.3 RT
VT 14 STA 412+50.0 LT - TH 22 STA 31+50 LT
TH 20 STA 40+49.6 LT - TH 20 STA 40+75.0 LT

CONSTRUCT 10' WIDE PAVED APRON

VT 14 STA 412+87.13 RT - VT 14 STA 413+13.27 RT
TH 22 STA 30+32.5 RT - TH 22 STA 30+91.2 RT

① VT 14 STA 40+45.0 ℄
EXISTING 18" CGMP - REMOVE

② VT 14 STA 414+76.0 ℄
NEW 18" X 52' PCCSP (0.064), CAAP (0.060), RCP CLASS III, OR CPEP (SL) PIPE OPTION W/ END SECTION AT INLET & 3' X 6' STONE FILL PAD, TYPE I @ OUTLET

③ VT 14 STA 413+65.0 ℄
EXISTING 18" CGMP - REMOVE

④ TH 20 STA 40+50.0 LT
NEW PRECAST REINFORCED CONCRETE DROP INLET WITH CAST IRON GRATE, TYPE D

⑤ TH 20 STA 40+50.0 ℄
NEW 24" X 85' PCCSP (0.064), CAAP (0.060), RCP CLASS III, OR CPEP (SL) PIPE OPTION W/ 3' X 6' STONE FILL PAD, TYPE I @ OUTLET

⑥ VT 14 STA 412+75.0 LT - VT 14 STA 414+76.0 LT
CONSTRUCT NEW GRASS-LINED DITCH

⑦ VT 14 STA 414+76.0 LT - TH 22 STA 31+31.0 LT.
CONSTRUCT NEW GRASS-LINED DITCH

BOX BEAM GUARDRAIL

40+47.2

VT 14 STA 413+94.8 RT - VT 14 STA 415+17.8 RT
TH 20 STA ~~40+23.2~~ RT - TH 22 STA 30+20.2 RT
VT 14 STA 417+18.1 RT - VT 14 STA 418+41.1 RT
VT 14 STA 417+19.6 LT - VT 14 STA 418+48.4 LT

MANUFACTURED TERMINAL SECTION, TANGENT

VT 14 STA 413+80.1 RT - VT 14 STA 413+94.8 RT
VT 14 STA 418+41.1 RT - VT 14 STA 418+55.8 RT
VT 14 STA 418+48.4 LT - VT 14 STA 418+61.7 LT

REMOVAL AND DISPOSAL OF GUARDRAIL

TH 22 STA 30+34.1 RT - VT 14 STA 415+49.8 LT
VT 14 STA 414+95.5 RT - VT 14 STA 415+45.1 RT
VT 14 STA 416+51.5 LT - VT 14 STA 418+31.2 LT
VT 14 STA 416+55.2 RT - VT 14 STA 418+50.8 RT

REMOVAL AND DISPOSAL OF GUIDE POSTS

TH 20 STA 40+35.0 LT
TH 20 STA 40+45.4 LT

GUIDE POSTS

TH 20 STA 40+24.4 RT

6 INCH UNDERDRAIN PIPE

VT 14 STA 417+00.0 RT - VT 14 STA 418+00.0 RT

6 INCH UNDERDRAIN CARRIER PIPE

VT 14 STA 416+84.3 RT - VT 14 STA 417+00.0 RT
VT 14 STA 418+00.0 RT - VT 14 STA 418+03.0 RT

UNDERDRAIN FLUSHING BASIN

VT 14 STA 418+03.0 RT (6 INCH)

SPECIAL PROVISION (GUARDRAIL APPROACH SECTION TO CONCRETE COMBINATION BRIDGE RAILING)

VT 14 STA 415+17.8 RT - VT 14 STA 415+54.1 RT
TH 22 STA 30+20.2 RT - VT 14 STA 415+72.9 LT
VT 14 STA 416+82.4 RT - VT 14 STA 417+18.1 RT
VT 14 STA 416+87.2 LT - VT 14 STA 417+19.6 LT

SPECIAL PROVISION (BRIDGE RAILING, TEXAS)

VT 14 STA 415+54.1 RT - VT 14 STA 416+82.4 RT
VT 14 STA 415+72.9 LT - VT 14 STA 416+87.2 LT

SPECIAL PROVISION (REINFORCED SOIL SLOPE)

VT 14 STA 417+00.0 RT - VT 14 STA 418+00.0 RT

20 0 20
SCALE: 1" = 20'-0"

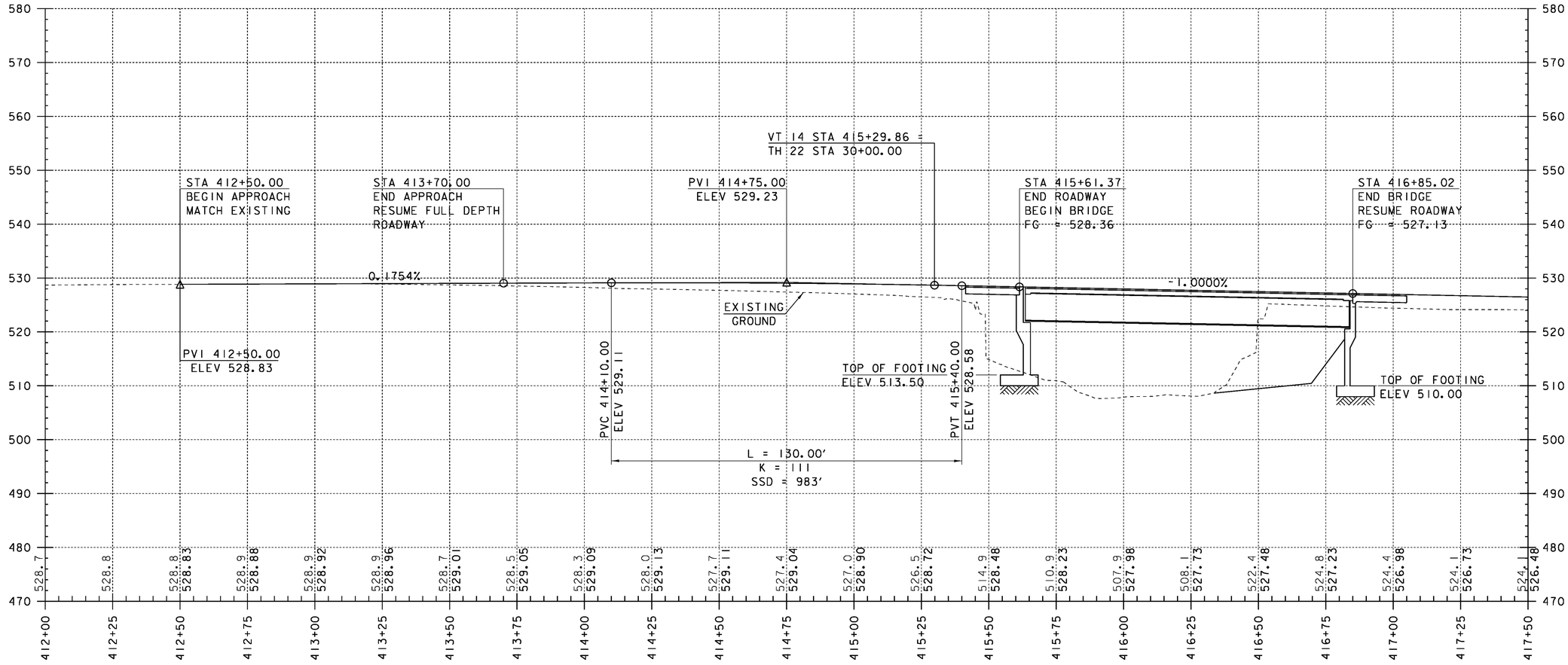
EXISTING BRIDGE DATA

THREE-SPAN CONCRETE T-BEAM
SUPERSTRUCTURE WITH ASPHALT OVERLAY
CAST-IN-PLACE CONCRETE ABUTMENTS,
WINGWALLS AND PIERS
BRIDGE LENGTH: 107'
BRIDGE WIDTH (FASCIA TO FASCIA): 25.3'
VERTICAL CLEARANCE UNDER BRIDGE: 14'

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR 28\s86e055bdr_28.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 28 LAYOUT

PLOT DATE: 08-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: C. CARLSON
SHEET 93 OF 186



NOTE:

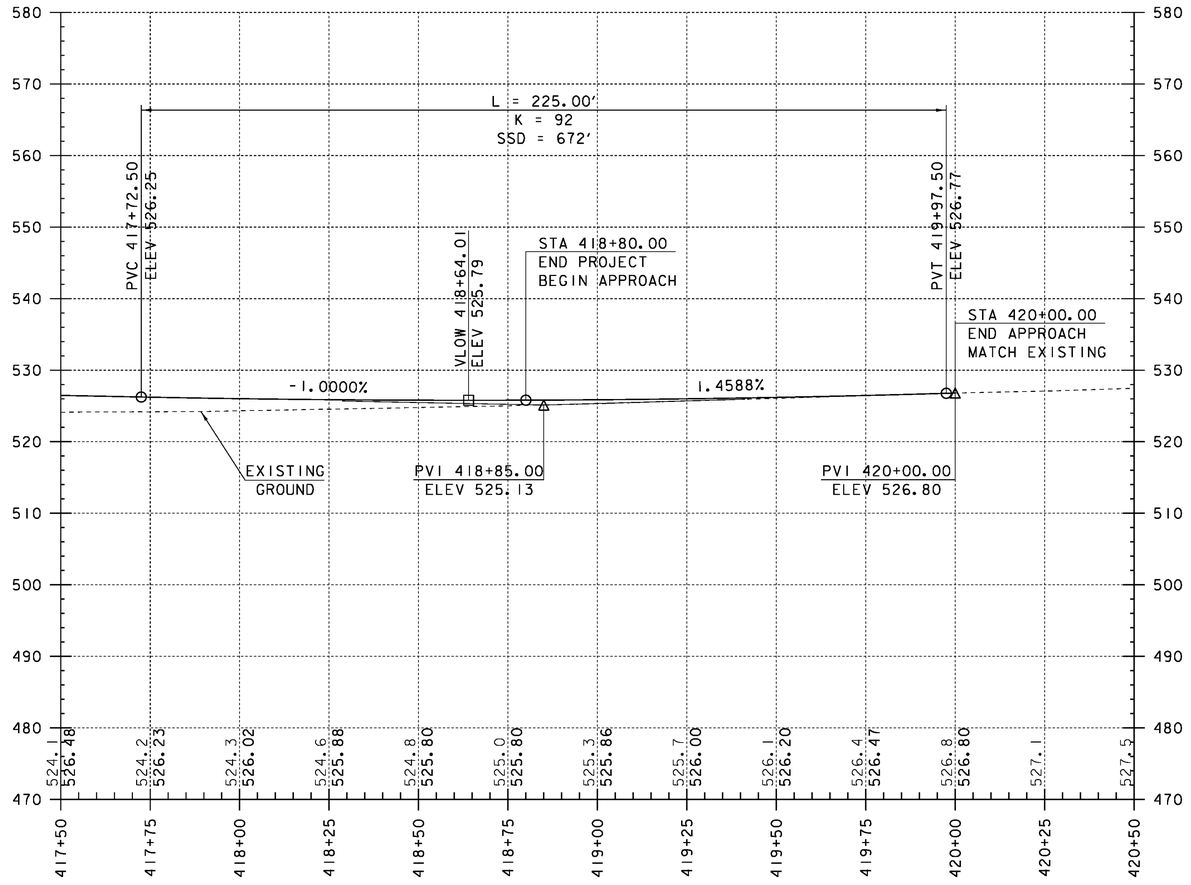
ELEVATIONS SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG PROPOSED CENTERLINE.

ELEVATIONS SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADES ALONG PROPOSED CENTERLINE.

PROFILE ALONG VT 14

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 10'-0"

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: \BR 28\s86e055pro_28.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 28 VT 14 PROFILE SHEET (1)	SHEET 94 OF 186



PROFILE ALONG VT 14

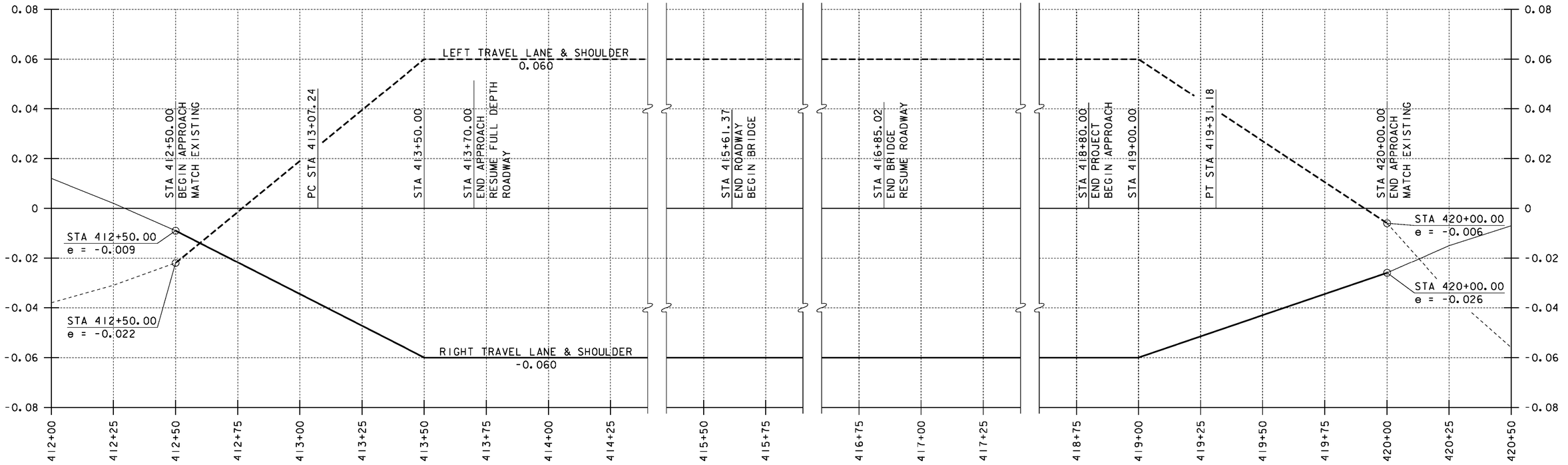
HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 10'-0"

NOTE:

ELEVATIONS SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG PROPOSED CENTERLINE.

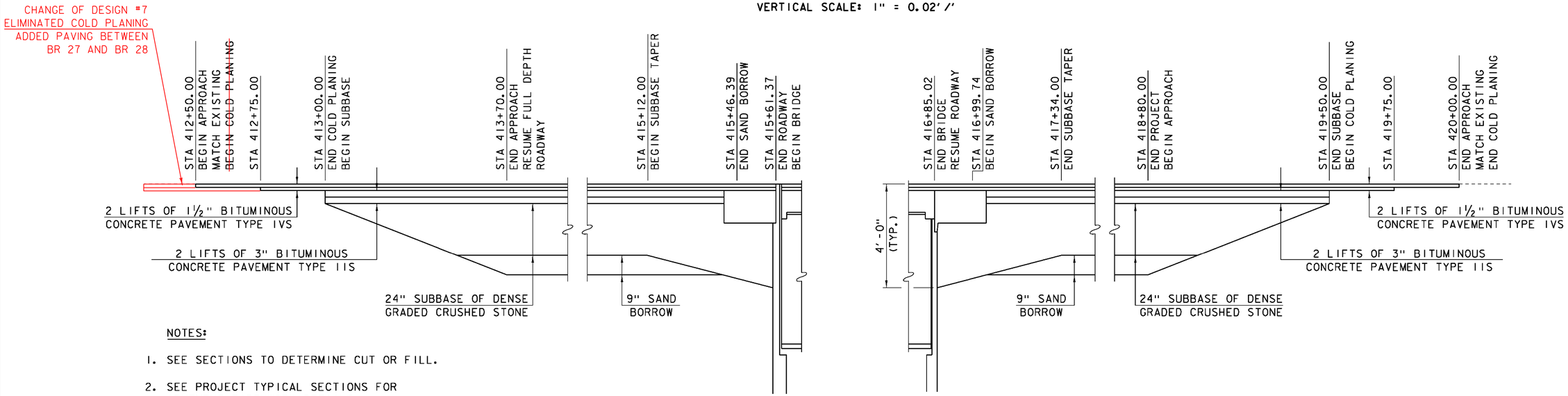
ELEVATIONS SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADES ALONG PROPOSED CENTERLINE.

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: \BR 28\s86e055pro_28.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 28 VT 14 PROFILE SHEET (2)	SHEET 95 OF 186



VT 14 BANKING DIAGRAM

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 0.02'/'



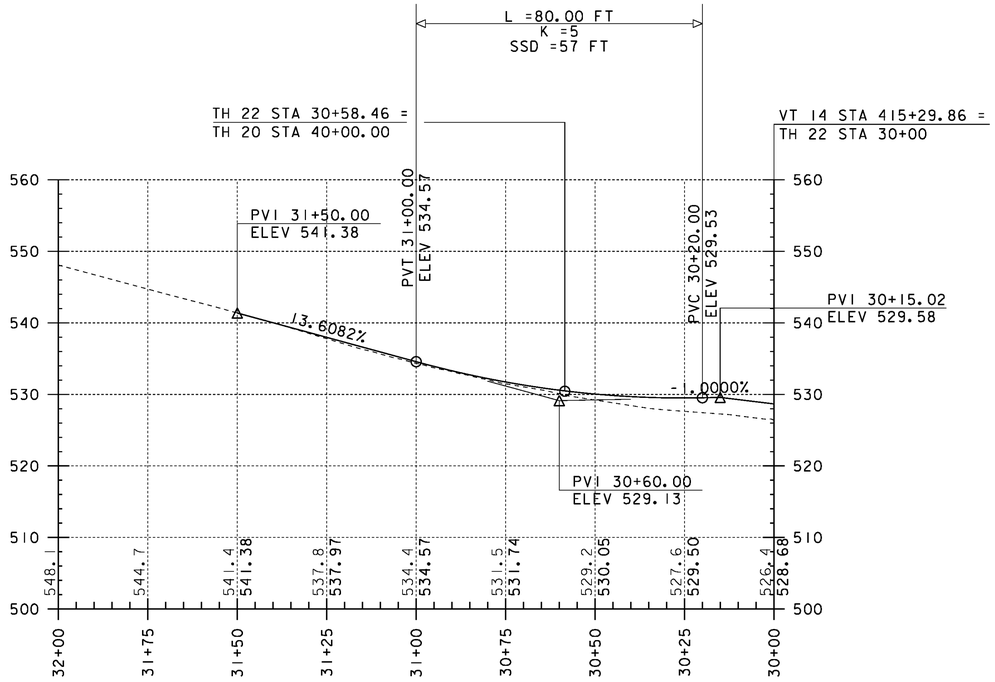
NOTES:

1. SEE SECTIONS TO DETERMINE CUT OR FILL.
2. SEE PROJECT TYPICAL SECTIONS FOR ABUTMENT EARTHWORK DETAILS.

VT 14 MATERIAL TRANSITION DETAIL

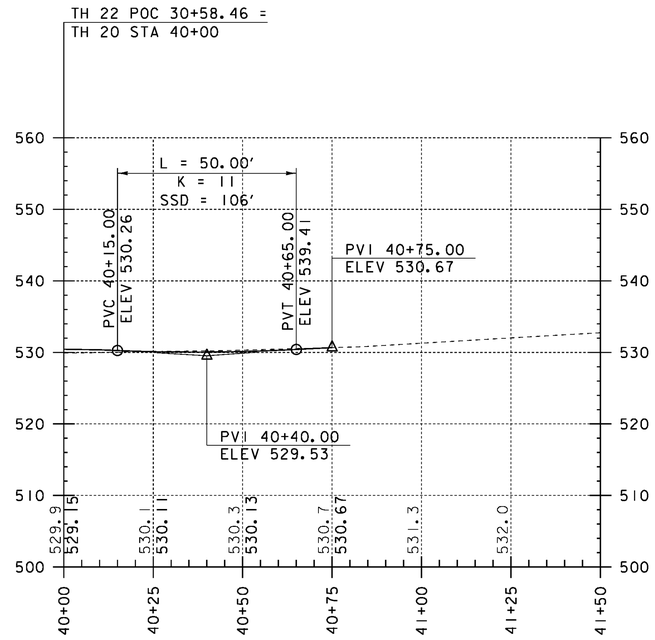
HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 2'-0"

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: \BR 28\s86e055pro_28.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 28 VT 14 BANKING DIAGRAM AND MATERIAL TRANSITION	SHEET 96 OF 186



PROFILE ALONG TH 22

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 10'-0"



PROFILE ALONG TH 20

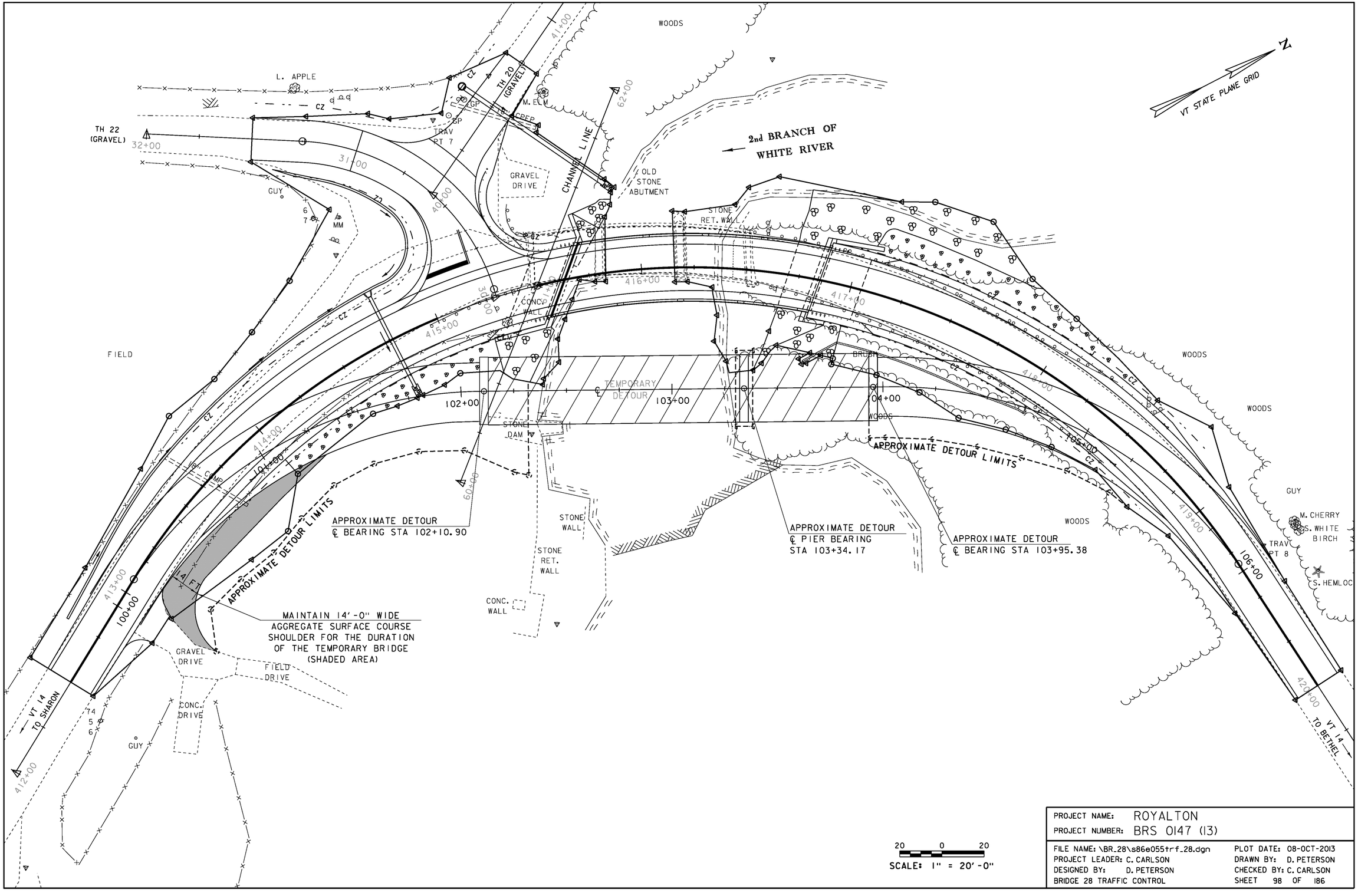
HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 10'-0"

NOTE:

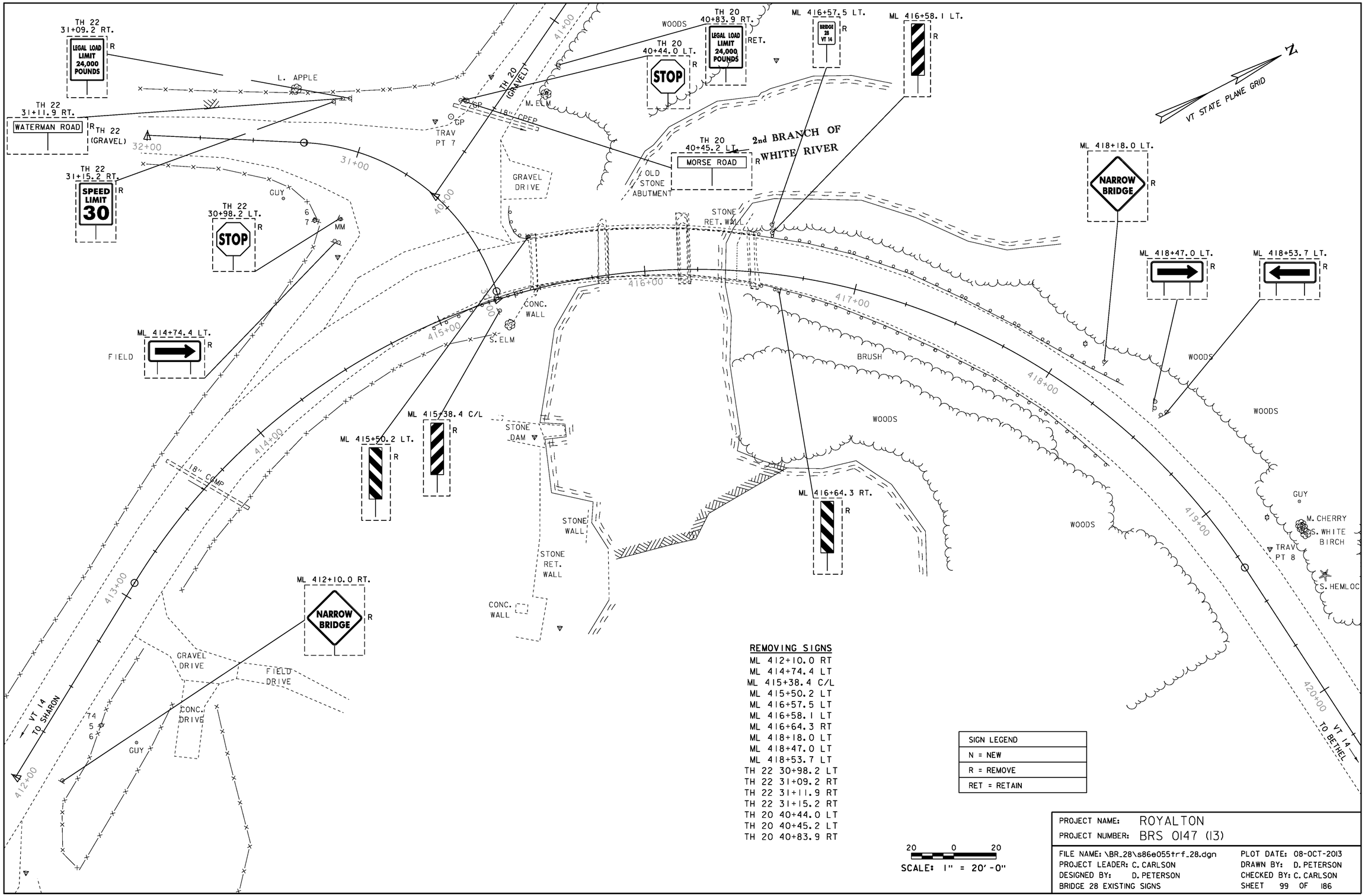
ELEVATIONS SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG PROPOSED CENTERLINE.

ELEVATIONS SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADES ALONG PROPOSED CENTERLINE.

PROJECT NAME: ROYALTON	
PROJECT NUMBER: BRS 0147 (13)	
FILE NAME: \BR 28\s86e055pro_28.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
TH 20 AND TH 22 PROFILES	SHEET 97 OF 186



PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: \BR_28\s86e055trf_28.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: D. PETERSON
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 28 TRAFFIC CONTROL	SHEET 98 OF 186



REMOVING SIGNS

ML 412+10.0 RT
ML 414+74.4 LT
ML 415+38.4 C/L
ML 415+50.2 LT
ML 416+57.5 LT
ML 416+58.1 LT
ML 416+64.3 RT
ML 418+18.0 LT
ML 418+47.0 LT
ML 418+53.7 LT
TH 22 30+98.2 LT
TH 22 31+09.2 RT
TH 22 31+11.9 RT
TH 22 31+15.2 RT
TH 20 40+44.0 LT
TH 20 40+45.2 LT
TH 20 40+83.9 RT

SIGN LEGEND
N = NEW
R = REMOVE
RET = RETAIN

20 0 20

SCALE: 1" = 20'-0"

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR_28\s86e055trf_28.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 28 EXISTING SIGNS

PLOT DATE: 08-OCT-2013
DRAWN BY: D. PETERSON
CHECKED BY: C. CARLSON
SHEET 99 OF 186

TH 22
31+00.0 RT.
LEGAL LOAD LIMIT 24,000 POUNDS N
SPEED LIMIT 30 N

TH 22
30+29.7 LT.
WATERMAN ROAD N

TH 22
30+34.4 LT.
STOP N

TH 20
40+30.0 LT.
STOP N

TH 20
40+26.9 LT.
MORSE ROAD N

ML 416+90.0 LT.
BRIDGE 28 VT 14 N

ML 418+47.2 LT. N

ML 418+52.3 LT. N

ML 414+54.5 LT. N

ML 414+49.3 LT. N

ML 415+18.7 RT.
BRIDGE 28 VT 14 N

VT STATE PLANE GRID

32+00
31+00
40+00
41+00
31+00
416+00
417+00
415+00
414+00
418+00
413+00
419+00
420+00
412+00

CHANGE ORDER #7
PAVED AND LINE STRIPED
BETWEEN BR 27 & BR 28

DURABLE 4 INCH YELLOW LINE

~~ML 412+50.0 C/L~~ - ML 415+00.0 C/L (DOUBLE)
~~ML 415+50.0 C/L~~ - ML 420+00.0 C/L (DOUBLE)
~~TH #22 30+19.8 C/L~~ - TH #22 30+37.5 C/L (DOUBLE)

DURABLE 24" STOP BAR

TH #22 30+20.2 LT. - TH #22 30+22.2 LT.

DURABLE LETTER OR SYMBOL

TH #22 30+27.3 LT. - TH #22 30+35.3 LT. (STOP)

DURABLE 4" WHITE LINE

ML 412+50.0 RT. - ML 420+00.0 RT.
ML 412+50.0 LT. - ML 414+83.5 LT.
ML 414+83.5 LT. - TH #22 31+00.0 LT.
TH #22 30+32.45 RT. - ML 420+00.0 LT.

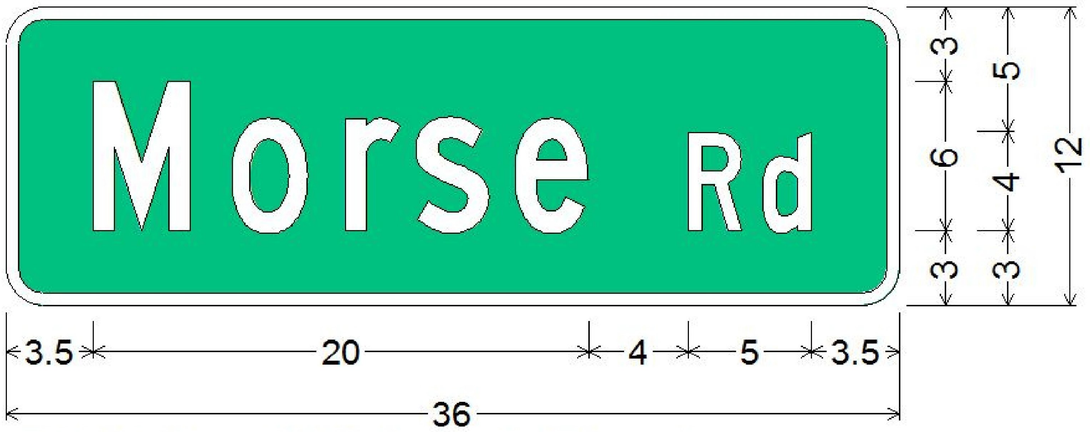
SIGN LEGEND
N = NEW
R = REMOVE
RET = RETAIN

20 0 20
SCALE: 1" = 20'-0"

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR_28\s86e055trf_28.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 28 NEW SIGNS AND PAVEMENT MARKINGS

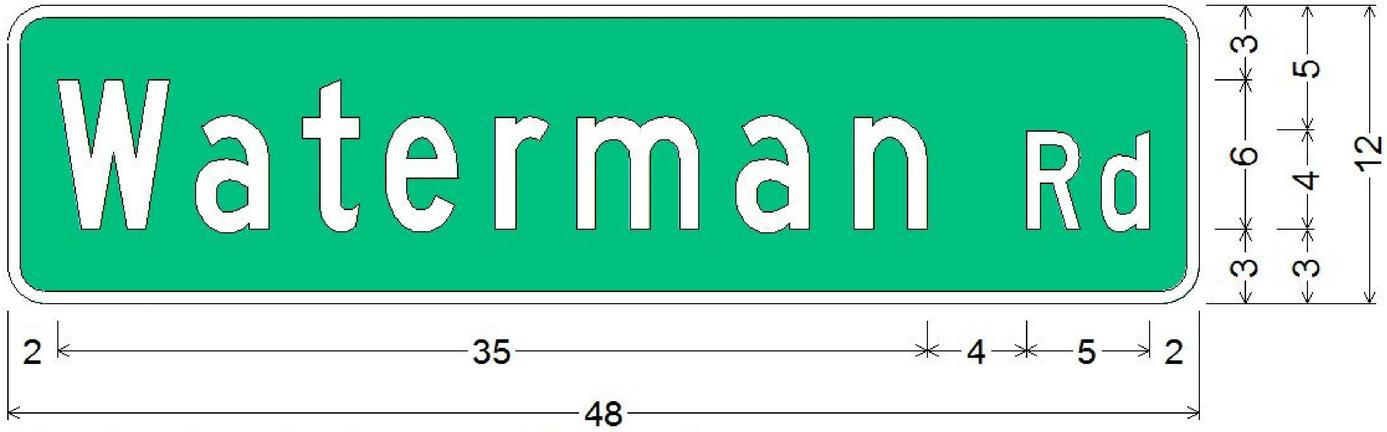
PLOT DATE: 08-OCT-2013
DRAWN BY: D. PETERSON
CHECKED BY: C. CARLSON
SHEET 100 OF 186



1.500" Radius, 0.500" Border, White on Green;

NOTES:

ALL DIMENSIONS IN INCHES



1.500" Radius, 0.500" Border, White on Green;

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: \BR_28\s86e055trf_28.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: D. PETERSON
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 28 SIGN DETAILS	SHEET 101 OF 186

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS EA	WIDTH (in)	HEIGHT (in)	NEW & SALVAGED SIGNS "A"	"B"	SALV SIGN	SALV TIS	EXIST POST RETAIN	SALVAGE	NEW SIGN POSTS NO. OF POSTS	FLANGED CHANNEL lb/ft 1.12	2.0	3.0	SQUARE STEEL (in) lb/ft 1.75 1.88	2.0 2.16	2.5 3.35	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (in) lb/ft 3.0 1.3	4.0 1.7	4.0 MOD 1.7	FOUNDATION	TUBULAR STEEL Ø (in) lb/ft 3.0 7.6	3.5 9.0	4.0 10.8	5.0 14.6	W-SHAPE STEEL FTG. SIZE 24"	30"	WEIGHT	POST SIZE	SIGN REMAINED REQUIRED	REMARKS	SIGN DETAIL DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
											OPTION ITEMS																									
VT 14 414+49.3 LT.	→	1	48"	24"	8.0						2					15.7 X 14.8		X																MUTCD W1-6		
VT 14 414+54.5 LT.	←	1	48"	24"	8.0						2					15.6 X 14.75		X																MUTCD W1-6		
VT 14 415+18.7 RT.	BRIDGE 28 VT 14	1	6"	8"	0.3						1				~~X~~	8.6 X		X																VD-701		E-134
VT 14 416+90.0 LT.	BRIDGE 28 VT 14	1	6"	8"	0.3						1				~~X~~	8.7 X		X																VD-701		E-134
VT 14 418+47.2 LT.	→	1	48"	24"	8.0						2					13.75 X 14.25		X																MUTCD W1-6		
VT 14 418+52.3 LT.	←	1	48"	24"	8.0						2					13.75 X 14.25		X																MUTCD W1-6		
TH #22 30+29.7 LT.	WATERMAN ROAD	1	48"	12"	4.0						2					13.2 X 13.5		X																MUTCD D3-1, WHITE ON GREEN		
TH #22 30+34.4 LT.	STOP	1	30"	30"	6.3						1					14.5 X		X																MUTCD R1-1		
TH #22 31+00.0 RT.	LEGAL LOAD LIMIT 24,000 POUNDS	1	24"	30"	5.0					X	1					~~X~~		X																VR-017		E-141
TH #22 31+00.0 RT.	SPEED LIMIT 30	1	24"	30"	5.0						1					15.0 X		X																MUTCD R2-1		
TH #20 40+26.9 LT.	MORSE ROAD	1	36"	12"	3.0						1					11.2 X 11.0		X																MUTCD D3-1, WHITE ON GREEN		
TH #20 40+30.0 LT.	STOP	1	30"	30"	6.3						1					13.5 X		X																MUTCD R1-1		
VT 14 411+00 RT.	Y 35 MPH		36" 18"	36" 18"	9.0 2.25					X																							ADDED DURING FINAL INSPECTION		
VT 14 422+00 LT.	Y 35 MPH		36" 18"	36" 18"	9.0 2.25					X																							ADDED DURING FINAL INSPECTION		
VT 14 389+95 RT. 390+34 LT.	BRIDGE 27 VT 14 / BRIDGE 27 VT 14		6" 6"	8" 8"	0.3 0.3											8.7 X 8.7																		ADDED DURING FINAL INSPECTION		
												FT	FT	FT	FT ~~30~~	FT 243.45 ~~230~~	FT		EA	LB	LB	LB		LB	LB	LB	LB								
TOTALS					SF 86.3 ~~62.2~~	SF	EA.	SF				FT				FT 243.45 ~~260~~					LB			EA.		LB			EA.	EA.	LB					

FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE TRAFFIC & SAFETY DIVISION'S "SIGN POST DESIGN GUIDELINE."

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR_28\s86e055trf_28.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: L. BULLOCK
BRIDGE 28 TRAFFIC SIGN SUMMARY

PLOT DATE: 08-OCT-2013
DRAWN BY: L. BULLOCK
CHECKED BY: D. PETERSON
SHEET 102 OF 186

SOIL CLASSIFICATION

AASHTO	
A1	Gravel and Sand
A3	Fine Sand
A2	Silty or Clayey Gravel and Sand
A4	Silty Soil - Low Compressibility
A5	Silty Soil - Highly Compressible
A6	Clayey Soil - Low Compressibility
A7	Clayey Soil - Highly Compressible

ROCK QUALITY DESIGNATION

R.Q.D. (%)	ROCK DESCRIPTION
<25	Very Poor
25 to 50	Poor
51 to 75	Fair
76 to 90	Good
>90	Excellent

SHEAR STRENGTH

UNDRAINED SHEAR STRENGTH IN P.S.F.	CONSISTENCY
<250	Very Soft
250-500	Soft
500-1000	Med. Stiff
1000-2000	Stiff
2000-4000	Very Stiff
>4000	Hard

CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

DENSITY (GRANULAR SOILS)		CONSISTENCY (COHESIVE SOILS)	
N	DESCRIPTIVE TERM	N	DESCRIPTIVE TERM
<5	Very Loose	<2	Very Soft
5-10	Loose	2-4	Soft
11-24	Med. Dense	5-8	Med. Stiff
25-50	Dense	9-15	Stiff
>50	Very Dense	16-30	Very Stiff
		31-60	Hard
		>60	Very Hard

COMMONLY USED SYMBOLS

▼	Water Elevation
⊕	Standard Penetration Boring
⊕	Auger Boring
⊙	Rod Sounding
S	Sample
N	Standard Penetration Test Blow Count Per Foot For: 2" O.D. Sampler 1⅜" I.D. Sampler Hammer Weight Of 140 Lbs. Hammer Fall Of 30"
VS	Field Vane Shear Test
US	Undisturbed Soil Sample
B	Blast
DC	Diamond Core
MD	Mud Drill
WA	Wash Ahead
HSA	Hollow Stem Auger
AX	Core Size 1⅛"
BX	Core Size 1⅝"
NX	Core Size 2⅛"
M	Double Tube Core Barrel Used
LL	Liquid Limit
PL	Plastic Limit
PI	Plasticity Index
NP	Non Plastic
w	Moisture Content (Dry Wgt. Basis)
D	Dry
M	Moist
MTW	Moist To Wet
W	Wet
Sat	Saturated
Bo	Boulder
Gr	Gravel
Sa	Sand
Si	Silt
Cl	Clay
HP	Hardpan
Le	Ledge
NLTD	No Ledge To Depth
CNPF	Can Not Penetrate Further
TLOB	To Ledge Or Boulder
NR	No Recovery
Rec.	Recovery
%Rec.	Percent Recovery
RQD	Rock Quality Designation
CBR	California Bearing Ratio
<	Less Than
>	Greater Than
R	Refusal (N > 100)

COLOR			
blk	Black	pnk	Pink
bl	Blue	pu	Purple
brn	Brown	rd	Red
dk	Dark	tn	Tan
gry	Gray	wh	White
gn	Green	yel	Yellow
lt	Light	mltc	Multicolored
or	Orange		

DEFINITIONS (AASHTO)

BEDROCK (LEDGE) - Rock in its native location of indefinite thickness.

BOULDER - A rock fragment with an average dimension > 12 inches.

COBBLE - Rock fragments with an average dimension between 3 and 12 inches.

GRAVEL - Rounded particles of rock < 3" and > 0.0787" (#10 sieve).

SAND - Particles of rock < 0.0787" (#10 sieve) and > 0.0029" (#200 sieve).

SILT - Soil < 0.0029" (#200 sieve), non or slightly plastic and exhibits no strength when air-dried.

CLAY - Fine grained soil, exhibits plasticity when moist and considerable strength when air-dried.

VARVED - Alternate layers of silt and clay.

HARDPAN - Extremely dense soil, cemented layer, not softened when wet.

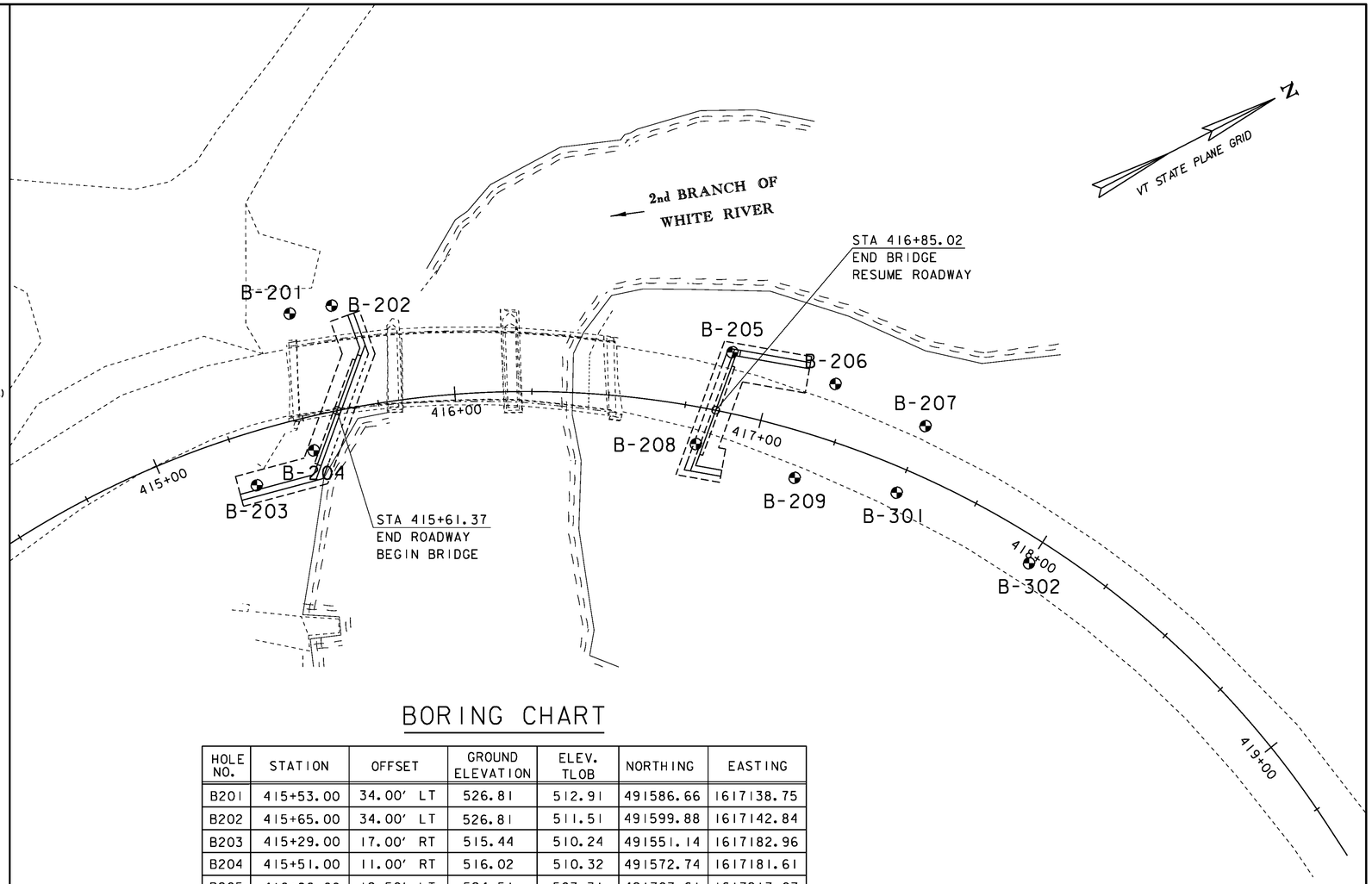
MUCK - Soft organic soil (containing > 10% organic material.

MOISTURE CONTENT - Weight of water divided by dry weight of soil.

FLOWING SAND - Granular soil so saturated (loose) that it flows into drill casing during extraction of wash rod.

STRIKE - Angle from magnetic north to line of intersection of bed with a horizontal plane.

DIP - Inclination of bed with a horizontal plane.



BORING CHART

HOLE NO.	STATION	OFFSET	GROUND ELEVATION	ELEV. TLOB	NORTHING	EASTING
B201	415+53.00	34.00' LT	526.81	512.91	491586.66	1617138.75
B202	415+65.00	34.00' LT	526.81	511.51	491599.88	1617142.84
B203	415+29.00	17.00' RT	515.44	510.24	491551.14	1617182.96
B204	415+51.00	11.00' RT	516.02	510.32	491572.74	1617181.61
B205	416+86.00	19.50' LT	524.51	507.31	491707.61	1617217.07
B206	417+19.51	18.00' LT	524.42	500.92	491732.35	1617241.83
B207	417+50.00	15.50' LT	524.55	502.35	491751.73	1617267.58
B208	416+81.00	12.00' RT	523.03	508.03	491683.23	1617237.85
B209	417+16.00	15.00' RT	521.52	503.52	491706.37	1617262.54
B301	417+50.00	8.00' RT	523.30	494.70	491733.36	1617282.29
B302	418+00.00	8.00' RT	523.50	482.70	491760.57	1617322.62

GENERAL NOTES

1. The subsurface explorations shown herein were made between 06/14/2006 and 08/26/2006 by the Agency.
2. Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
3. Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
4. Engineering judgement was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgement by the Contractor.
5. Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.
6. Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.

20 0 20

SCALE: 1" = 20'-0"

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR 28\s86e055bor_28.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 28 BORING LAYOUT

PLOT DATE: 08-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: D. PETERSON
SHEET 103 OF 186

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING NUMBER: B-201
SHEET 1 of 1
DATE STARTED: 7/27/06
DATE COMPLETED: 8/02/06

PROJECT NAME: ROYALTON
SITE NAME: BR-27 & BR-28
STATION: 415+53.00
OFFSET: -34.00
VTSPG: N 491586.66 ft E 1617138.75 ft

PROJECT NUMBER: BRS 0147(13)
SITE NUMBER: RT 14
GROUND ELEVATION: 526.81 ft
GROUNDWATER DEPTH: 7.5 ft 8/02/06
PROJECT PIN NUMBER: 86E055

BORING CREW
CREW CHIEF: GARROW
DRILLER: RUSSELL
LOGGER: WERNER

BORING RIG: LARGE SKID RIG w/AUTO HAMMER
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: CCB

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT / RUN	M.C. (%) / REC (%)	GRAVEL (%) / RQD (%)	SAND (%) / Dip (deg)	FINES (%) / Drill Rate (min/ft)
2.5		A-4, SiSa, brn, Moist, Rec. = 0.2 ft Field Class:, Boulder 0.3'-1.8', Cleaned out casing.	R	17.8	14.6	47.7	37.7
5.0		A-4, SaSi, brn, Moist, Rec. = 0.8 ft	5	25.1	10.3	38.2	51.5
7.5 ▽							
10.0		A-8, Organic Soil (20.4%), Dk/brn, MTW, Rec. = 0.6 ft	2	106.6			
		A-4, SaSi, gry, Moist, Rec. = 0.3 ft		40.2	0.2	28.6	71.2
12.5		Top of Bedrock @ 13.9 ft					
15.0		Gray, Meta-Limestone, with thin quartz veins, Competent., Moderately hard, Unweathered, NXMDC, 13.9 ft - 18.9 ft, Rec. = 4.6 ft	1	92	87	30	11 9 14 16 15
17.5		Hole stopped @ 18.9 ft					

TOP OF FOOTING ABUT. #1 EL. 513.50

LOG OF BORING ROYALTON BRS 0147(13)RP1 VT ADT.GDT 12/13/06

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING NUMBER: B-202
SHEET 1 of 1
DATE STARTED: 7/19/06
DATE COMPLETED: 7/24/06

PROJECT NAME: ROYALTON
SITE NAME: BR-27 & BR-28
STATION: 415+65.00
OFFSET: -34.00
VTSPG: N 491599.88 ft E 1617142.84 ft

PROJECT NUMBER: BRS 0147(13)
SITE NUMBER: RT 14
GROUND ELEVATION: 526.81 ft
GROUNDWATER DEPTH: 12.8 ft 7/24/06
PROJECT PIN NUMBER: 86E055

BORING CREW
CREW CHIEF: GARROW
DRILLER: GARROW
LOGGER: RUSSELL

BORING RIG: LARGE SKID RIG w/AUTO HAMMER
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: CCB

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT / RUN	M.C. (%) / REC (%)	GRAVEL (%) / RQD (%)	SAND (%) / Dip (deg)	FINES (%) / Drill Rate (min/ft)
2.5		A-4, SiSa, brn, Moist, Rec. = 0.6 ft	2	13.0	16.2	46.9	36.9
5.0		A-4, SaSi, brn, Moist, Rec. = 0.8 ft	6	36.6	10.2	25.0	64.8
7.5		NXCDC, Concrete, 7.2 ft - 8.6 ft					
10.0		Field Note:, After six inches the sampler dropped in a void. trace of Si Sa in sampler.	2				
12.5 ▽		Field Note:, Advanced casing. Hit a Boulder from 12.8'-14.3', NXMDC.					
		Field Note:, Rock break from 14.3'-15.3'					
15.0		Top of Bedrock @ 15.3 ft					
		Gray, Meta-Limestone, Competent. Core barrel got caught in rock. Could not advance drilling., Moderately hard, Unweathered, NXMDC, 15.3 ft - 17.8 ft, Rec. = 2.3 ft	1	92	47	50	
17.5		Hole stopped @ 17.8 ft					

TOP OF FOOTING ABUT. #1 EL. 513.50

LOG OF BORING ROYALTON BRS 0147(13)RP1 VT ADT.GDT 12/13/06

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING NUMBER: B-203
SHEET 1 of 1
DATE STARTED: 6/14/06
DATE COMPLETED: 6/15/06

PROJECT NAME: ROYALTON
SITE NAME: BR-27 & BR-28
STATION: 415+29.00
OFFSET: 17.00
VTSPG: N 491551.14 ft E 1617182.96 ft

PROJECT NUMBER: BRS 0147(13)
SITE NUMBER: RT 14
GROUND ELEVATION: 515.44 ft
GROUNDWATER DEPTH: 1.8 ft 6/15/06
PROJECT PIN NUMBER: 86E055

BORING CREW
CREW CHIEF: GARROW
DRILLER: GARROW
LOGGER: RUSSELL

BORING RIG: SMALL SKID RIG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: CCB

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT / RUN	M.C. (%) / REC (%)	GRAVEL (%) / RQD (%)	SAND (%) / Dip (deg)	FINES (%) / Drill Rate (min/ft)
2.5		A-2-4, SaSiGr, brn, Moist, Rec. = 0.5 ft	3	21.4	34.4	31.6	34.0
		A-4, SaSi, brn-gry, Moist, Rec. = 1.6 ft	8	28.3	5.6	25.8	68.6
		A-4, SaSi, brn, Moist, Rec. = 0.4 ft	R	24.0	14.2	35.4	50.4
5.0		Top of Bedrock @ 5.2 ft					
7.5		Gray, Meta-Limestone, Competent, Moderately hard, Unweathered, NXMDC, 5.2 ft - 10.2 ft, Rec. = 5.0 ft	1	100	78	30	21 8 7 11 9
10.0		Gray, Meta-Limestone, Competent, Moderately hard, Unweathered, NXMDC, 10.2 ft - 15.2 ft, Rec. = 5.0 ft	2	100	93	30	8 7 10 8 7
12.5							
15.0		Hole stopped @ 15.2 ft					
17.5							

LOG OF BORING ROYALTON BRS 0147(13)RP1 VT ADT.GDT 12/13/06

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR 28\s86e055bor_28.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 28 BORING LOGS (1)

PLOT DATE: 08-OCT-2013
DRAWN BY: C. MOONEY
CHECKED BY: G. ROY
SHEET 104 OF 186

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING NUMBER: B-204
SHEET 1 of 1
DATE STARTED: 6/19/06
DATE COMPLETED: 6/20/06

PROJECT NAME: ROYALTON
SITE NAME: BR-27 & BR-28
STATION: 415+51.00
OFFSET: 11.00
VTSPG: N 491572.74 ft E 1617181.61 ft

PROJECT NUMBER: BRS 0147(13)
SITE NUMBER: RT 14
GROUND ELEVATION: 516.02 ft
GROUNDWATER DEPTH: No Water Found 6/22/06
PROJECT PIN NUMBER: 86E055

BORING CREW
CREW CHIEF: GARROW
DRILLER: GARROW
LOGGER: RUSSELL

BORING RIG: SMALL SKID RIG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: CCB

TOP OF FOOTING ABUT. #1 EL. 513.50

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT RUN	M.C. (%) REC (%)	GRAVEL (%) RQD (%)	SAND (%) Dip (deg)	FINES (%) Drill Rate (min/ft)
0.0		A-4, SlSa, brn, Moist, Rec. = 1.0 ft	6	16.0	17.0	43.4	39.6
2.5		A-4, SlSa, brn, Moist, Rec. = 0.3 ft, Sample had Concrete material that was removed before testing.	3	16.6	18.5	40.8	40.7
5.0		Visual Class:, SlSa with broken rock (possible bedrock) material., brn, Moist, Rec. = 1.3 ft	13	22.5			
				Top of Bedrock @ 5.7 ft			
7.5		Gray, Meta-Limestone, Upper portion of core run contains zones of punky weathered limestone, Competent below 7.0', Moderately hard, NXMDC, 5.7 ft - 10.7 ft, Rec. = 4.2 ft	1	84	44	50	8 7 9 10
10.0							9
12.5		Gray, Phyllite, Competent, Moderately hard, Unweathered, NXMDC, 10.7 ft - 13.2 ft, Rec. = 4.4 ft	2	88	88	50	6 7 9
		Gray, Meta-Limestone, Competent, Moderately hard, Unweathered, 13.2 ft - 15.7 ft					10
15.0							8
17.5		Hole stopped @ 15.7 ft					

LOG OF BORING ROYALTON BRS 0147(13).GPJ VT_AOT.GDT 12/13/06

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING NUMBER: B-205
SHEET 1 of 1
DATE STARTED: 8/04/06
DATE COMPLETED: 8/07/06

PROJECT NAME: ROYALTON
SITE NAME: BR-27 & BR-28
STATION: 416+86.00
OFFSET: -19.50
VTSPG: N 491707.61 ft E 1617217.07 ft

PROJECT NUMBER: BRS 0147(13)
SITE NUMBER: RT 14
GROUND ELEVATION: 524.51 ft
GROUNDWATER DEPTH: 14.8 ft 8/07/06
PROJECT PIN NUMBER: 86E055

BORING CREW
CREW CHIEF: GARROW
DRILLER: RUSSELL
LOGGER: WERNER

BORING RIG: SMALL SKID RIG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: CCB

TOP OF FOOTING ABUT. #2 EL. 510.00

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT RUN	M.C. (%) REC (%)	GRAVEL (%) RQD (%)	SAND (%) Dip (deg)	FINES (%) Drill Rate (min/ft)
0.0		A-1-b, GrSa, brn, Moist, Rec. = 0.8 ft	2	10.8	28.5	56.2	15.3
5.0		Field Class:, Wood 4.0'-5.0', NXGDC No recovery, Wood in end of sampler., 5.0 ft - 7.0 ft	5				
10.0		A-4, Sl, brn, Moist, Rec. = 0.8 ft	4	33.8	1.1	14.6	84.3
15.0		A-4, SaSl, brn, Moist, Rec. = 0.3 ft	5	35.4	0.5	44.0	55.5
		A-4, SaSl with a trace of organics (2.4%), Dk/brn-gry, Moist, Rec. = 1.0 ft		42.8	0.0	48.4	51.6
				Top of Bedrock @ 17.2 ft			
		Gray, Meta-Limestone, Competent, Moderately hard, Unweathered, NXMDC, 17.2 ft - 18.9 ft, Rec. = 4.7 ft	1	94	90	15	13 12
20.0		Gray, Phyllite, Competent, Moderately hard, Unweathered, 18.9 ft - 22.2 ft					13 16 18
25.0		Hole stopped @ 22.2 ft					

LOG OF BORING ROYALTON BRS 0147(13).GPJ VT_AOT.GDT 12/13/06

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING NUMBER: B-206
SHEET 1 of 1
DATE STARTED: 8/06/06
DATE COMPLETED: 8/11/06

PROJECT NAME: ROYALTON
SITE NAME: BR-27 & BR-28
STATION: 417+19.51
OFFSET: -18.00
VTSPG: N 491732.35 ft E 1617241.83 ft

PROJECT NUMBER: BRS 0147(13)
SITE NUMBER: RT 14
GROUND ELEVATION: 524.42 ft
GROUNDWATER DEPTH: 15.0 ft 8/11/06
PROJECT PIN NUMBER: 86E055

BORING CREW
CREW CHIEF: GARROW
DRILLER: RUSSELL
LOGGER: WERNER

BORING RIG: SMALL SKID RIG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: CCB

TOP OF FOOTING ABUT. #2 EL. 510.00

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT RUN	M.C. (%) REC (%)	GRAVEL (%) RQD (%)	SAND (%) Dip (deg)	FINES (%) Drill Rate (min/ft)
0.0		A-1-b, GrSa, brn, Moist, Rec. = 0.6 ft	4	18.9	31.9	51.5	16.6
5.0		Field Note:, Cleaned out casing 4.2'-5.0' with NXDC. No recovery, 5.0 ft - 7.0 ft	6				
10.0		A-4, SaSl, brn, Moist, Rec. = 1.3 ft	7	37.1	2.3	22.0	75.7
15.0		A-2-4, SlSa, brn, Moist, Rec. = 1.0 ft	2	37.5	1.8	63.3	34.9
20.0		A-4, Sl, gry, Moist, Rec. = 1.6 ft	5	33.2	0.8	17.1	82.1
					Top of Bedrock @ 23.5 ft		
25.0		Gray, Meta-Limestone, grading to phillite, Competent., Moderately hard, Unweathered, NXMDC, 23.5 ft - 26.5 ft, Rec. = 3.0 ft	1	100	83	30	22 18 26
		Alternating gray, Meta-Limestone and Phyllite, Competent., Moderately hard, Unweathered, NXMDC, 26.5 ft - 28.5 ft, Rec. = 2.0 ft	2	100	95	30	14 18
		Hole stopped @ 28.5 ft					

LOG OF BORING ROYALTON BRS 0147(13).GPJ VT_AOT.GDT 12/13/06

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR 28\s86e055bor_28.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 28 BORING LOGS (2)

PLOT DATE: 08-OCT-2013
DRAWN BY: C. MOONEY
CHECKED BY: G. ROY
SHEET 105 OF 186

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING NUMBER: B-207
SHEET 1 of 1
DATE STARTED: 8/08/06
DATE COMPLETED: 8/09/06

PROJECT NAME: ROYALTON
SITE NAME: BR-27 & BR-28
STATION: 417+50.00
OFFSET: -15.50
VTSPG: N 491751.73 ft E 1617267.58 ft

PROJECT NUMBER: BRS 0147(13)
SITE NUMBER: RT 14
GROUND ELEVATION: 524.55 ft
GROUNDWATER DEPTH: 18.5 ft 8/09/06
PROJECT PIN NUMBER: 86E055

BORING CREW
CREW CHIEF: GARROW
DRILLER: GARROW
LOGGER: RUSSELL

BORING RIG: SMALL SKID RIG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: CCB

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT RUN	M.C. (%) REC (%)	GRAVEL (%) RQD (%)	SAND (%) Dip (deg)	FINES (%) Drill Rate (min/ft)
0		A-1-b, GrSa, brn, Moist, Rec. = 0.6 ft	4	4.9	34.7	51.5	13.8
5		No recovery, Stone in end of sampler., 5.0 ft - 7.0 ft	3				
10		A-4, SaSi, brn, Moist, Rec. = 1.1 ft	8	25.6	4.0	29.4	66.6
15		No recovery, 15.0 ft - 17.0 ft	11				
20		A-4, SaSi, gry, Moist, Rec. = 1.2 ft	4	31.0	4.1	28.3	67.6
				Top of Bedrock @ 22.2 ft			
25		Gray, Meta-Limestone, with thin quartz veins, Competent. Part of rock recovery remained in hole., Moderately hard, Unweathered, NXMDC, 22.2 ft - 27.2 ft, Rec. = 2.7 ft	1	54	40	30	9 7 13 15 14
		Hole stopped @ 27.2 ft					

TOP OF FOOTING ABUT. #2 EL. 510.00

LOG OF BORING ROYALTON BRS 0147(13)LP1 VT ADT.GDT 12/13/06

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING NUMBER: B-208
SHEET 1 of 1
DATE STARTED: 6/22/06
DATE COMPLETED: 6/23/06

PROJECT NAME: ROYALTON
SITE NAME: BR-27 & BR-28
STATION: 416+81.00
OFFSET: 12.00
VTSPG: N 491683.23 ft E 1617237.85 ft

PROJECT NUMBER: BRS 0147(13)
SITE NUMBER: RT 14
GROUND ELEVATION: 523.03 ft
GROUNDWATER DEPTH: 14.0 ft 6/27/06
PROJECT PIN NUMBER: 86E055

BORING CREW
CREW CHIEF: GARROW
DRILLER: GARROW
LOGGER: RUSSELL

BORING RIG: SMALL SKID RIG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: CCB

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT RUN	M.C. (%) REC (%)	GRAVEL (%) RQD (%)	SAND (%) Dip (deg)	FINES (%) Drill Rate (min/ft)
0		A-1-b, GrSa, brn, Moist, Rec. = 0.3 ft	2	7.7	24.0	60.1	15.9
5		A-4, SaSi, gry, Moist, Rec. = 1.0 ft	4	25.6	2.2	20.0	77.8
10		A-4, SaSi, gry-brn, Moist, Rec. = 1.2 ft	3	30.7	1.7	30.5	67.8
				Top of Bedrock @ 15.0 ft			
15		Gray, Phyllite, Competent, Moderately hard, Unweathered, NXGDC, 15.0 ft - 17.0 ft, Rec. = 2.0 ft	1	100	67	30	9 13
		Gray, Garnet phillite and meta-limestone, Competent., Moderately hard, Unweathered, NXMDC, 17.0 ft - 22.0 ft, Rec. = 5.0 ft	2	100	76	30	9 8 10 9 7
20		Gray, Garnet phillite and meta-limestone, Competent., Moderately hard, Unweathered, NXMDC, 22.0 ft - 25.0 ft, Rec. = 2.5 ft	3	83	80	30	19 8 8
25		Hole stopped @ 25.0 ft					

TOP OF FOOTING ABUT. #2 EL. 510.00

LOG OF BORING ROYALTON BRS 0147(13)LP1 VT ADT.GDT 12/13/06

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING NUMBER: B-209
SHEET 1 of 1
DATE STARTED: 7/12/06
DATE COMPLETED: 7/13/06

PROJECT NAME: ROYALTON
SITE NAME: BR-27 & BR-28
STATION: 417+16.00
OFFSET: 15.00
VTSPG: N 491706.37 ft E 1617262.54 ft

PROJECT NUMBER: BRS 0147(13)
SITE NUMBER: RT 14
GROUND ELEVATION: 521.52 ft
GROUNDWATER DEPTH: See Driller's Notes.
PROJECT PIN NUMBER: 86E055

BORING CREW
CREW CHIEF: GARROW
DRILLER: GARROW
LOGGER: RUSSELL

BORING RIG: SMALL SKID RIG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: CCB

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT RUN	M.C. (%) REC (%)	GRAVEL (%) RQD (%)	SAND (%) Dip (deg)	FINES (%) Drill Rate (min/ft)
0		A-1-b, GrSa, brn, Moist, Rec. = 0.4 ft	2	4.4	21.9	63.6	14.5
5		A-4, Si, gry, Moist, Rec. = 1.1 ft	3	32.8	3.7	11.3	85.0
10		A-4, Si, gry-brn, Moist, Rec. = 0.8 ft	4	34.4	2.8	15.8	81.4
15		A-4, Si, gry, Moist, Rec. = 0.8 ft, Sample was tested for Limits.	5	38.9	0.7	11.4	87.9
		Field Class:, Wood					
				Top of Bedrock @ 18.0 ft			
20		Gray, meta-limestone and garnet phyllite, Competent., Moderately hard, Unweathered, NXMDC, 18.0 ft - 23.0 ft, Rec. = 4.6 ft	1	92	90	50	10 13 15 9 12
25		Hole stopped @ 23.0 ft					

DRILLER'S NOTES:
1. Groundwater Elevation was 10.0' on 07/13/06.
2. No Groundwater Elevation was found on 07/14/06.

TOP OF FOOTING ABUT. #2 EL. 510.00

LOG OF BORING ROYALTON BRS 0147(13)LP1 VT ADT.GDT 12/13/06

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR 28\s86e055bor_28.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 28 BORING LOGS (3)

PLOT DATE: 08-OCT-2013
DRAWN BY: C. MOONEY
CHECKED BY: G. ROY
SHEET 106 OF 186

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING LOG

ROYALTON
BRS 0147(13)
VT-14 BR-28

Boring No.: B-301
Page No.: 1 of 1
Pin No.: 86E055
Checked By: CEE

Boring Crew: GARROW, WERNER, PORTER
Date Started: 8/24/10 Date Finished: 8/24/10
VTSPG NAD83: N 491733.36 ft E 1617282.29 ft
Station: 417+50.00 Offset: 8.00
Ground Elevation: 523.3 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	2.5 in	1.25 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C SKID	CE = 1.33

Groundwater Observations

Date	Depth (ft)	Notes
08/24/10		None taken. (Road)

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Asphalt pavement, Rec. = 1.5 ft, 0.0 ft – 1.5 ft								
		A-4, SaSi, brn, Wet, Rec. = 0.5 ft				14-9-6-8 (15)	22.5	19.4	29.7	50.9
5		Field Note:, No Recovery, Advanced with rollercone to 6 feet.				13-8-4-5 (12)				
		A-4, SaSi, brn, Wet, Rec. = 1.4 ft				2-1-1-1 (2)	29.6	5.7	38.7	55.6
		A-2-4, SlSa, brn, Wet, Rec. = 0.6 ft				WH-WH-3-4 (3)	22.4	15.8	51.3	32.9
10		A-4, SlSa, brn, Wet, Rec. = 1.0 ft				9-12-6-6 (18)	23.3	8.5	47.6	43.9
		A-4, SaSi, brn, Wet, Rec. = 0.8 ft				7-4-5-2 (9)	28.5	8.7	20.0	71.3
15		A-4, Si, brn, Wet, Rec. = 1.2 ft, A small amount of wood was within sample.				WH-WH-2-3 (2)	40.1	1.6	17.2	81.2
		A-4, Si, brn, Wet, Rec. = 1.4 ft				WH-WH-2-2 (2)	38.5	0.4	11.1	88.5
		A-4, SaSi, brn, Wet, Rec. = 1.4 ft				1-1-1-1 (2)	33.0	1.9	36.3	61.8
20		Visual Classification, Wood with some sand, brn, Wet, Rec. = 0.9 ft, Rollerconed ahead and advanced casing to 24 feet.				4-13-3-18 (16)				
		Field Note:, No Recovery, Wood pieces in sampler. Rollerconed to 26 feet.				5-4-3-3 (7)				
25		A-4, SaSi, gry, Wet, Rec. = 1.3 ft				5-3-5-5 (8)	27.6	1.3	33.0	65.7
		A-4, Si, gry, Wet, Rec. = 0.3 ft				2-16-R	31.5	2.1	11.6	86.3
		28.6 ft – 29.0 ft, Gray, Meta-Limestone, with quartz veins. Hard, Unweathered, Fair rock, BXMDC	1 (?)	40 (0)	18	Top of Bedrock @ 28.6 ft				
30		29.0 ft – 34.0 ft, Gray, Meta-Limestone, with quartz veins. Hard, Unweathered, Fair rock, BXMDC	2 (20)	100 (35)	14 8 7 8					
		Hole stopped @ 34.0 ft								
35										

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. CE is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING LOG 2 ROYALTON BRS 0147(13).GPJ VERMONT AOT.GDT 9/2/10

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING LOG

ROYALTON
BRS 0147(13)
VT-14 BR-28

Boring No.: B-302
Page No.: 1 of 1
Pin No.: 86E055
Checked By: CEE

Boring Crew: GARROW, WERNER, PORTER
Date Started: 8/26/10 Date Finished: 8/26/10
VTSPG NAD83: N 491760.57 ft E 1617322.62 ft
Station: 418+00.00 Offset: 8.00
Ground Elevation: 523.5 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	3.5 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C SKID	CE = 1.33

Groundwater Observations

Date	Depth (ft)	Notes
08/26/10		None taken

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Asphalt Pavement, 0.0 ft – 1.5 ft								
		A-1-b, GrSa, brn, Moist, Rec. = 0.6 ft				8-6-5-5 (11)	10.1	38.5	47.0	14.5
		A-4, Si, brn, Moist, Rec. = 0.6 ft					26.8	1.7	17.6	80.7
5		A-4, Si, brn, Moist, Rec. = 1.2 ft				2-2-4-2 (6)	30.2	6.0	5.2	88.8
		A-4, Si, brn, Wet, Rec. = 1.4 ft				2-2-2-3 (4)	35.2	7.9	2.8	89.3
		A-4, Si, brn, Wet, Rec. = 1.0 ft				WH-1-2-1 (3)	33.9	2.0	7.5	90.5
10		A-4, SaSi, brn, Wet, Rec. = 0.8 ft				WH-WH-2-2 (2)	26.2	2.0	31.8	66.2
		A-4, Si, brn, MTW, Rec. = 1.1 ft				5-5-5-5 (10)	28.6	13.8	14.7	71.5
15		A-4, Si, brn, Wet, Rec. = 1.5 ft, Small concretions were within sample.				4-4-4-3 (8)	30.1	11.4	10.7	77.9
		A-4, SaSi, brn, Wet, Rec. = 1.5 ft, Small concretions were within sample.				3-3-4-2 (7)	24.6	7.5	38.8	53.7
		A-4, SaSi, brn, Wet, Rec. = 1.0 ft, Small concretions were within sample.				5-7-7-10 (14)	22.6	10.1	42.5	47.4
20		A-2-4, SlSa, brn, Wet, Rec. = 1.0 ft				1-2-1-2 (3)	29.7	0.1	78.2	21.7
		A-2-4, Sa, gry, Wet, Rec. = 1.3 ft				4-3-5-6 (8)	27.1	0.2	82.7	17.1
25		A-2-4, Sa, gry, Wet, Rec. = 1.2 ft				4-5-5-7 (10)	25.1		83.2	16.8
		A-3, Sa, gry, Wet, Rec. = 1.6 ft				8-8-7-7 (15)	23.8		90.1	9.9
		A-3, Sa, gry, Wet, Rec. = 2.0 ft				5-7-8-7 (15)	25.0		93.1	6.9
30		A-3, Sa, gry, Wet, Rec. = 2.0 ft				1-2-1-2 (3)	22.8		90.0	10.0
		A-3, Sa, gry, Wet, Rec. = 2.0 ft				3-3-6-9 (9)	22.8	0.1	89.9	10.0
35		A-2-4, SlSa, gry, Wet, Rec. = 1.0 ft				3-4-4-4 (8)	24.2	0.5	75.5	24.0
		A-4, Si, gry, Wet, Rec. = 2.0 ft				5-5-5-5 (10)	31.3	0.2	17.5	82.3
		A-4, Si, gry, Wet, Rec. = 1.6 ft				2-2-1-2 (3)	33.3	0.4	3.2	96.4
40		A-4, Si, gry, Wet, Rec. = 0.3 ft, Advanced casing to 40.8 ft.				39-R	30.1		2.7	97.3
		40.8 ft – 45.8 ft, Gray, Meta-Limestone, with 0.85 ft thick phyllite zone at 42.11 feet. Hard, Unweathered, Fair rock, BXMDC	1 (20)	95 (47)	3 3 3 3 4 3	Top of Bedrock @ 40.8 ft				
45		Hole stopped @ 45.8 ft								

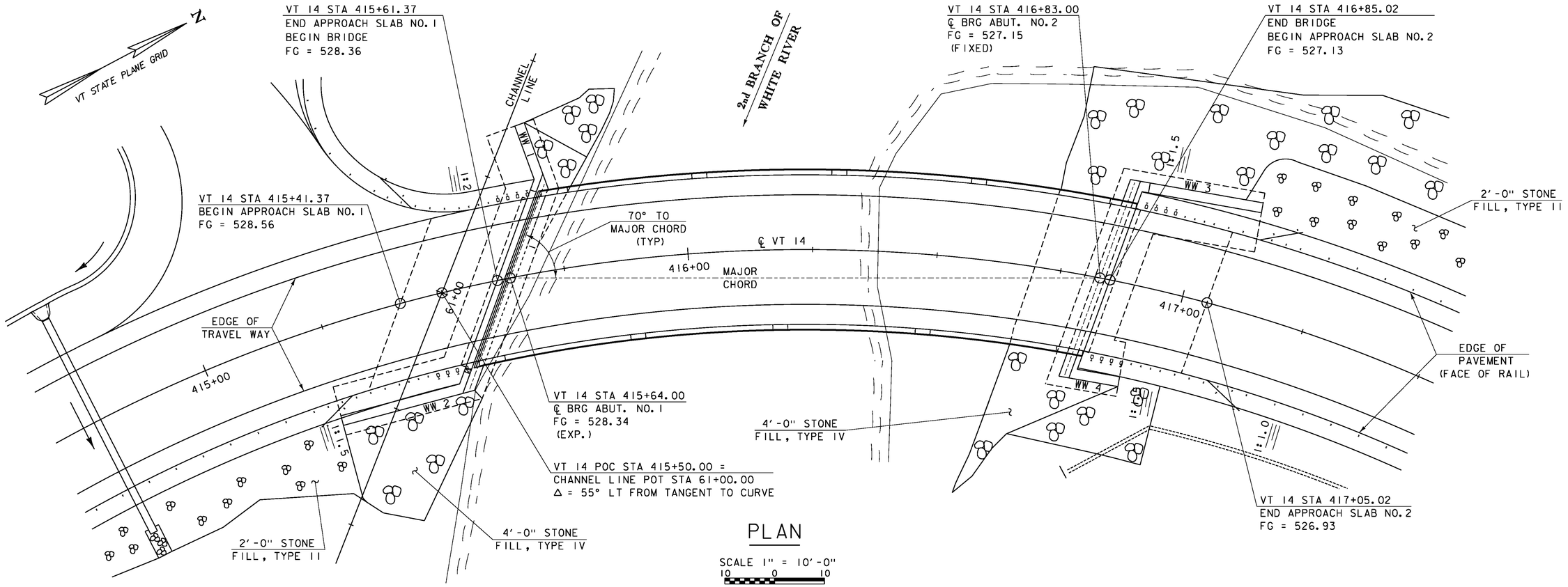
Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. CE is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING LOG 2 ROYALTON BRS 0147(13).GPJ VERMONT AOT.GDT 9/2/10

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR 28\s86e055bor_28.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 28 BORING LOGS (4)

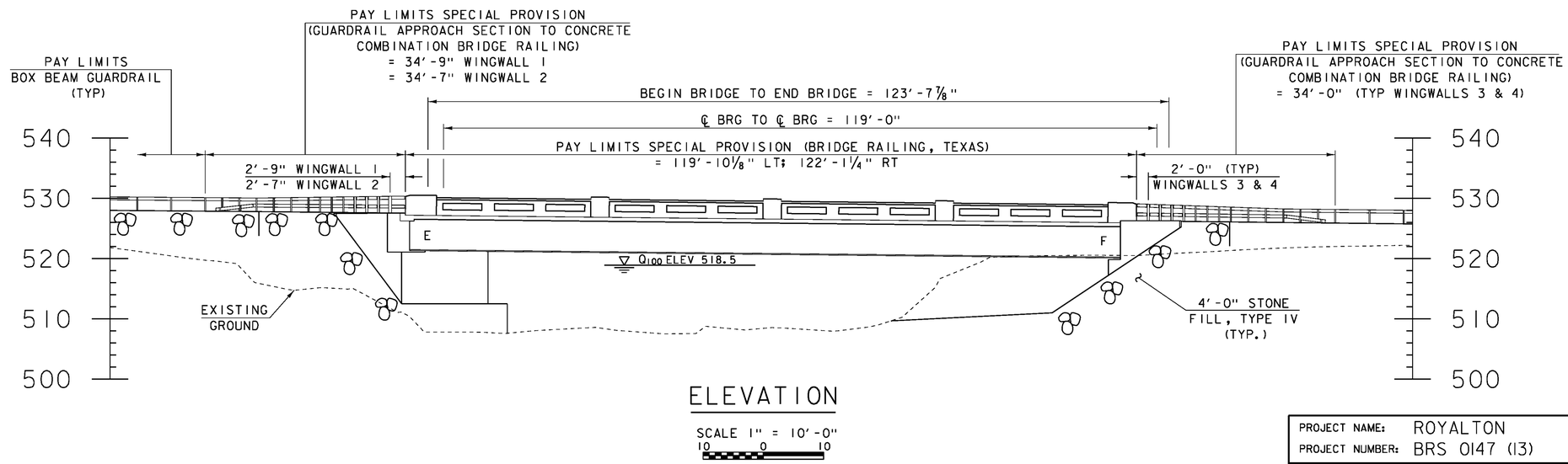
PLOT DATE: 08-OCT-2013
DRAWN BY: C. MOONEY
CHECKED BY: G. ROY
SHEET 107 OF 186



PLAN

SCALE 1" = 10'-0"

10 0 10

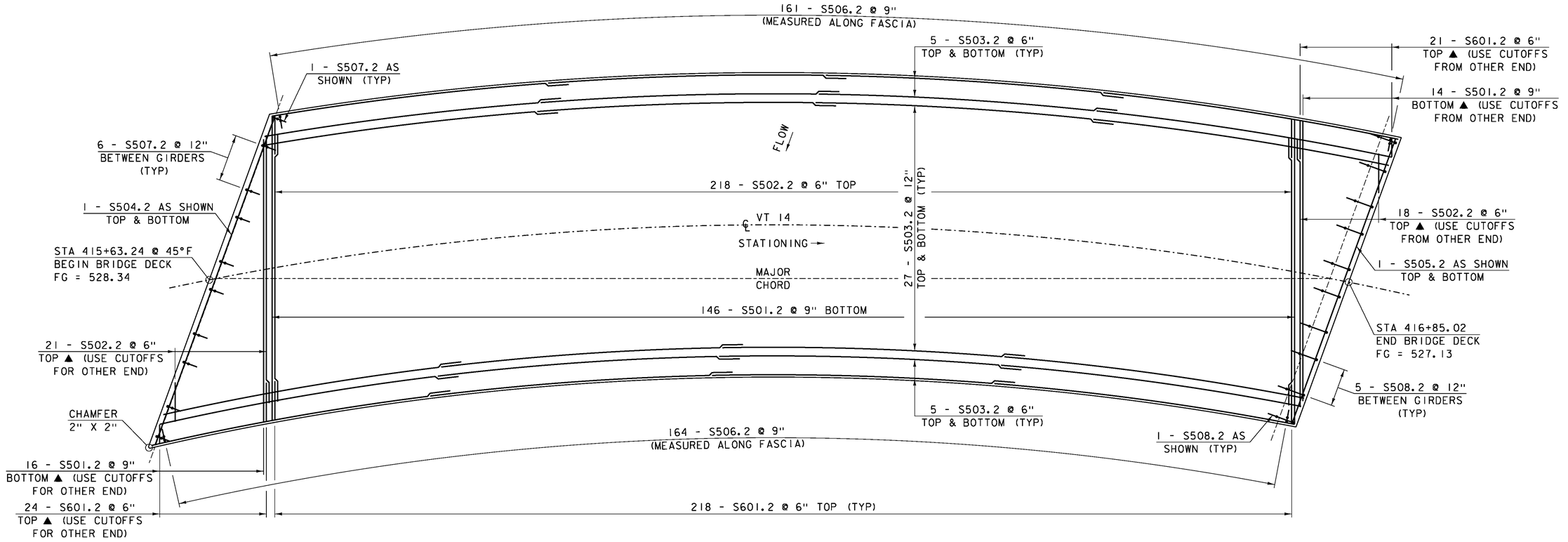


ELEVATION

SCALE 1" = 10'-0"

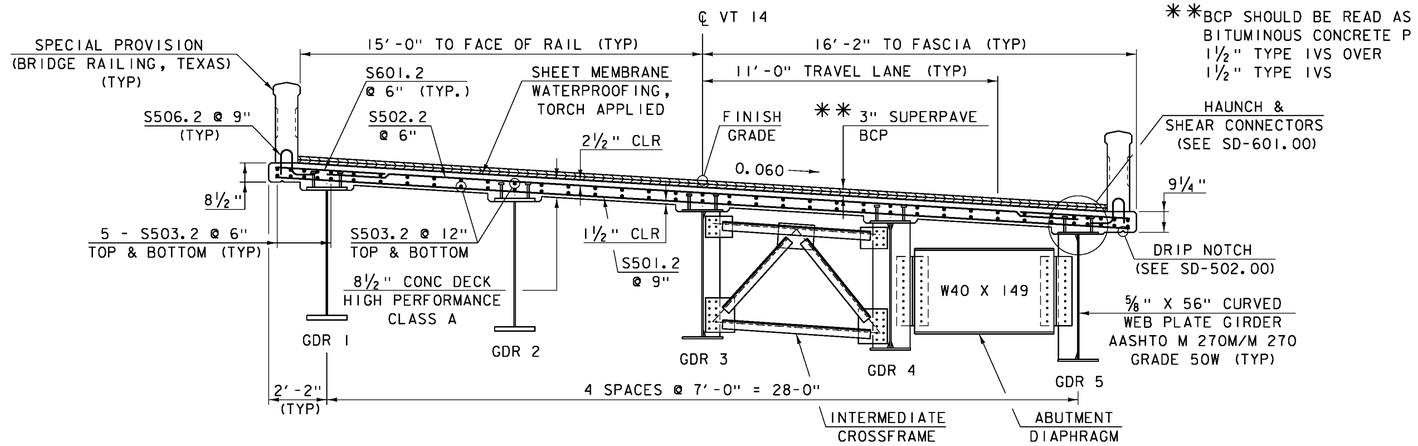
10 0 10

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: \BR 28\s86e055pe_28.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: STR3
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 28 PLAN AND ELEVATION	SHEET 108 OF 186



DECK REINFORCING PLAN

SCALE: 3/16" = 1'-0"



BRIDGE 28 TYPICAL SECTION

SCALE: 3/8" = 1'-0"

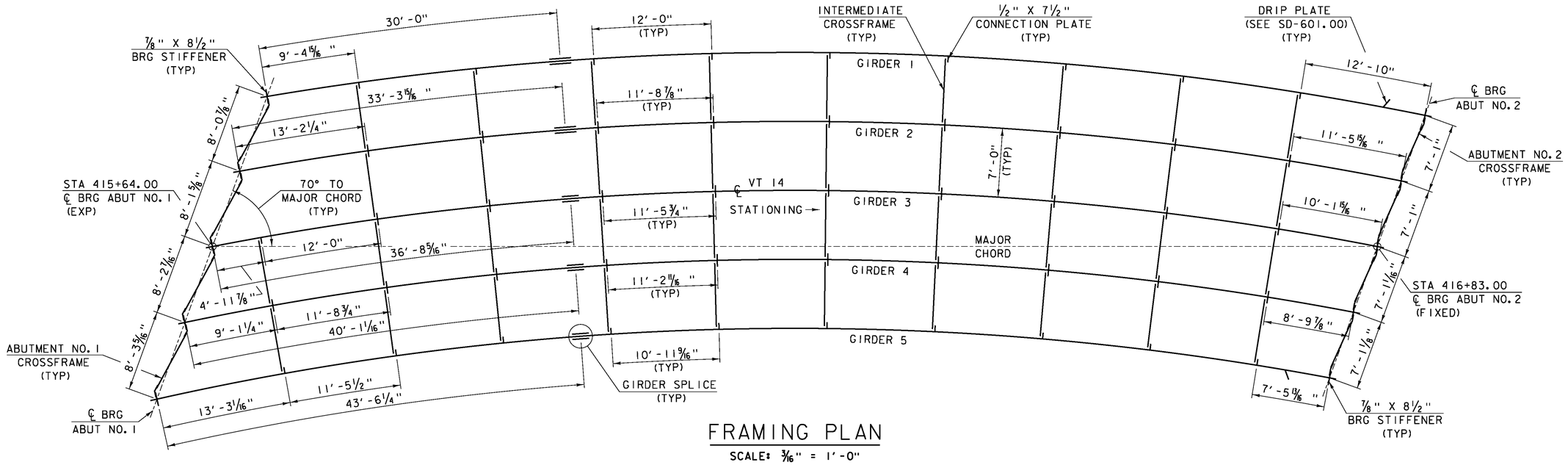
NOTES:

▲ = CUT TO FIT IN FIELD

3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.

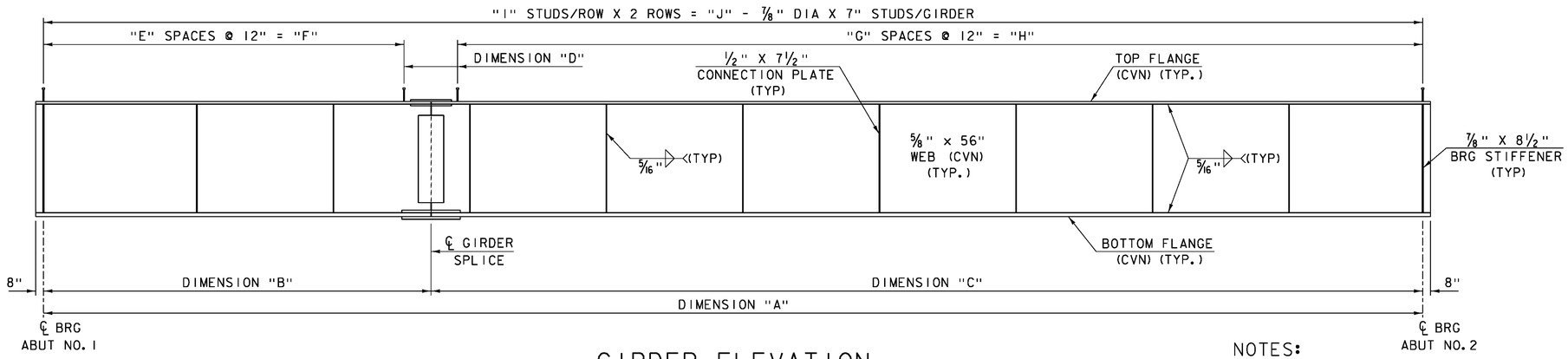
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: \BR 28\s86e055sup_28.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: D. PETERSON	CHECKED BY: D. PETERSON
BRIDGE 28 DECK REINFORCING DETAILS	SHEET 109 OF 186



FRAMING PLAN

SCALE: 3/16" = 1'-0"



GIRDER ELEVATION

HORIZONTAL SCALE: 3/16" = 1'-0"
VERTICAL SCALE: 3/8" = 1'-0"

GIRDER DIMENSIONS TABLE

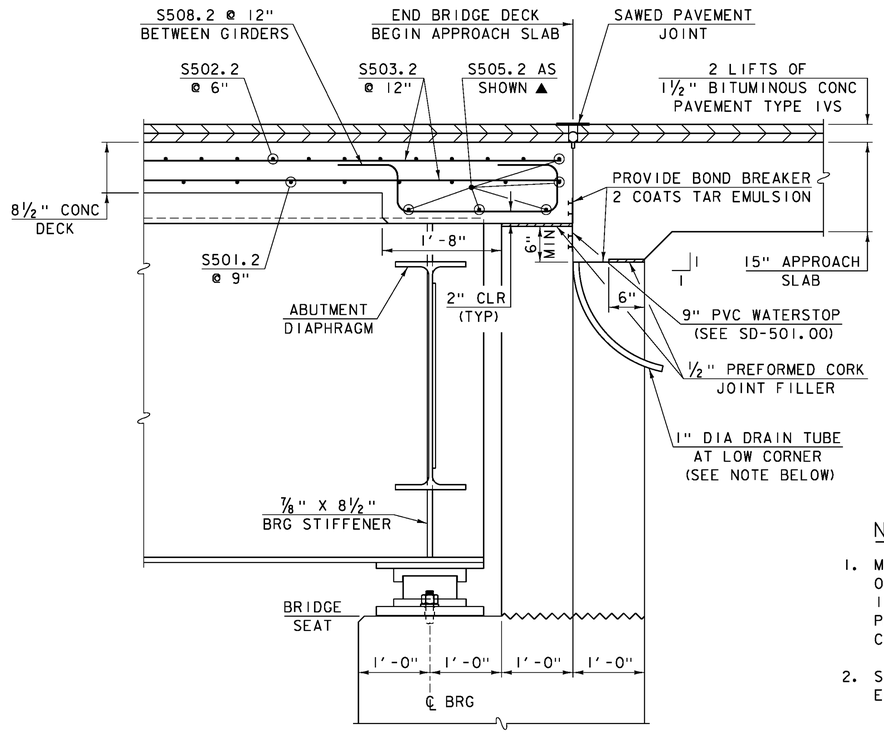
GIRDER	TOP FLANGE	BOTTOM FLANGE	RADIUS	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"I"	"J"
1	1 3/8" X 18"	2" X 18"	323.71'	118'-2 15/16"	30'-0"	88'-2 15/16"	4'-2 15/16"	28	28'-0"	86	86'-0"	116	232
2	1 3/8" X 18"	2" X 18"	316.71'	118'-7 1/4"	33'-3 15/16"	85'-3 5/16"	4'-7 1/4"	31	31'-0"	83	83'-0"	116	232
3	7/8" X 18"	7/8" X 18"	309.71'	119'-0"	36'-8 5/16"	82'-3 11/16"	3'-0"	35	35'-0"	81	81'-0"	118	236
4	7/8" X 18"	7/8" X 18"	302.71'	119'-5 1/8"	40'-1 1/16"	79'-4 1/16"	2'-5 1/8"	39	39'-0"	78	78'-0"	119	238
5	7/8" X 18"	7/8" X 18"	295.71'	119'-10 11/16"	43'-6 1/4"	76'-4 7/16"	2'-10 11/16"	42	42'-0"	75	75'-0"	119	238

NOTES:

1. DIMENSIONS SHOWN ARE ALONG THE ARC ℄ OF THE GIRDER.
2. ENDS OF GIRDERS SHALL BE FABRICATED SO THAT THEY WILL BE PLUMB UNDER FULL DEAD LOAD.
3. BEARING STIFFENERS SHALL BE PLUMB TO THE WEB IN THEIR FINAL POSITION.
4. CVN - SHALL MEET CHARPY V-NOTCH REQUIREMENTS FOR MAIN MEMBERS AS INDICATED IN SECTION 714.
5. ALL STEEL SHALL BE AASHTO M 270M/M 270, GRADE 50W.

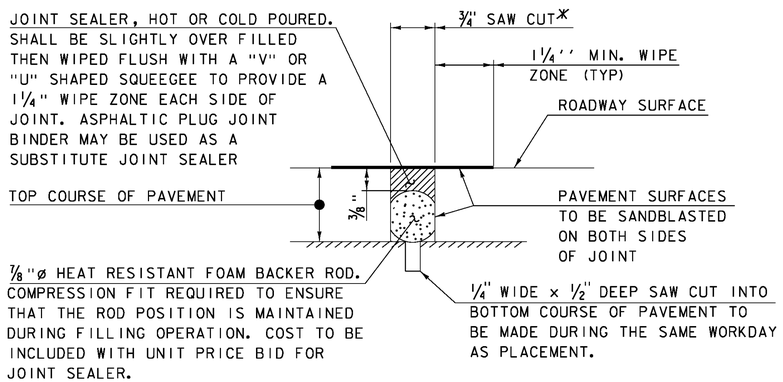
PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR 28\s86e055sup_28.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 28 FRAMING PLAN AND GIRDER ELEVATION
PLOT DATE: 08-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: D. PETERSON
SHEET 110 OF 186



ABUTMENT NO. 2 END DETAIL

(NORMAL TO ℄ BEARING)
SCALE: 1" = 1'-0"



SAWED PAVEMENT JOINT DETAIL

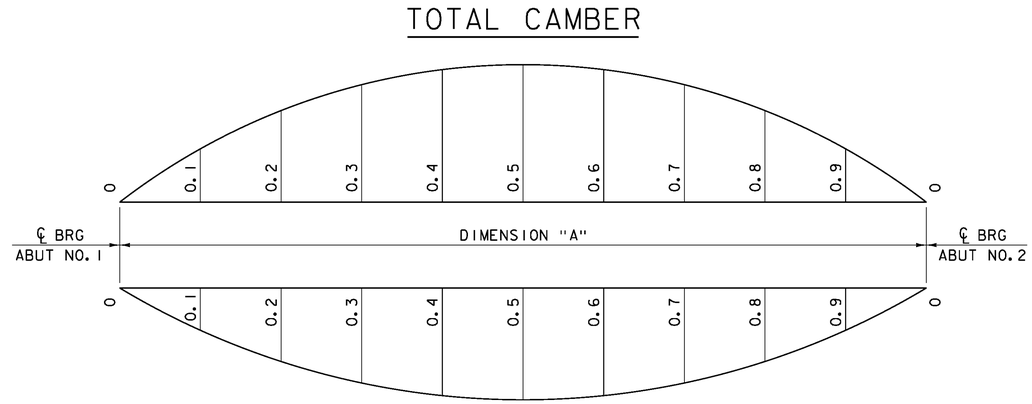
(NOT TO SCALE)

*JOINT IS TO BE LOCATED ACCURATELY BY STRING LINING, OR OTHER MEANS, PRIOR TO PAVING, SO THAT THE SAW CUTS WILL BE MADE DIRECTLY OVER THE END OF CONCRETE DECK. JOINT SHALL BE CUT DRY IN A SINGLE PASS AND BE SEALED WITHIN 24 HOURS OR PRIOR TO EXPOSURE TO TRAFFIC. JOINT SHALL BE CLEANED PRIOR TO APPLYING THE JOINT SEALER.

NOTES:

1. MATERIAL FOR TUBE SHALL MEET THE REQUIREMENTS OF SUBSECTION 740.01. PAYMENT FOR TUBE AND ITS INSTALLATION SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 501.34, "CONCRETE, HIGH PERFORMANCE CLASS B".
2. SEE SD-516.11a AND SD-516.11b FOR ABUTMENT NO. 1 END DETAILS WITH EXPANSION JOINT.

TOTAL CAMBER



DEAD LOAD DEFLECTION

CAMBER AND DEFLECTION MEASUREMENTS ARE GIVEN IN IN INCHES AT TENTH POINTS. MEASUREMENTS INCLUDE GIRDER SELF-WEIGHT.

TOTAL CAMBER

GIRDER	"A"	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	118'-2 15/16"	2 1/2"	4 11/16"	6 5/16"	7 3/8"	7 3/4"	7 3/8"	6 5/16"	4 5/8"	2 1/2"
2	118'-7 1/4"	2 3/16"	4 1/8"	5 5/8"	6 5/8"	6 15/16"	6 11/16"	5 3/4"	4 1/4"	2 1/4"
3	119'-0"	2"	3 11/16"	5 1/16"	5 15/16"	6 1/4"	6"	5 1/4"	3 7/8"	2 1/16"
4	119'-5 1/8"	1 15/16"	3 3/8"	4 9/16"	5 3/8"	5 5/8"	5 7/16"	4 11/16"	3 1/2"	1 7/8"
5	119'-10 11/16"	1 11/16"	3 1/16"	4 3/16"	4 13/16"	5"	4 13/16"	4 1/8"	3 1/16"	1 5/8"

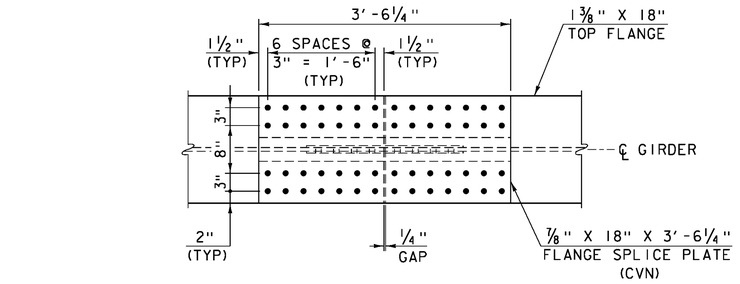
DEAD LOAD DEFLECTION

GIRDER	"A"	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	118'-2 15/16"	1 15/16"	3 11/16"	5 1/16"	5 15/16"	6 1/4"	5 15/16"	5 1/16"	3 11/16"	1 15/16"
2	118'-7 1/4"	1 5/8"	3 1/8"	4 3/8"	5 3/16"	5 7/16"	5 1/4"	4 1/2"	3 5/16"	1 3/4"
3	119'-0"	1 7/16"	2 3/4"	3 13/16"	4 1/2"	4 3/4"	4 9/16"	3 15/16"	2 15/16"	1 9/16"
4	119'-5 1/8"	1 1/4"	2 3/8"	3 5/16"	3 15/16"	4 1/8"	4"	3 7/16"	2 1/2"	1 3/8"
5	119'-10 11/16"	1 1/8"	2 1/8"	2 7/8"	3 3/8"	3 1/2"	3 3/8"	2 7/8"	2 1/16"	1 1/8"

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

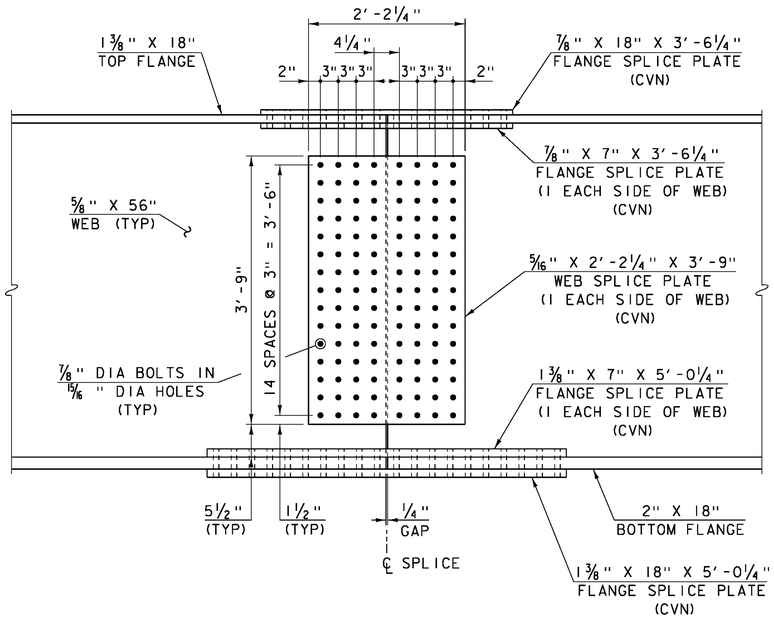
FILE NAME: \BR 28\s86e055sup_28.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 28 ABUT. NO. 2 END DETAIL AND CAMBER TABLES

PLOT DATE: 08-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: D. PETERSON
SHEET III OF 186



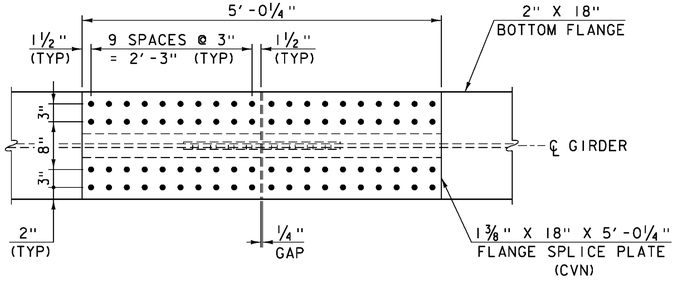
GIRDERS 1 & 2 TOP FLANGE PLAN

SCALE: 1" = 1'-0"



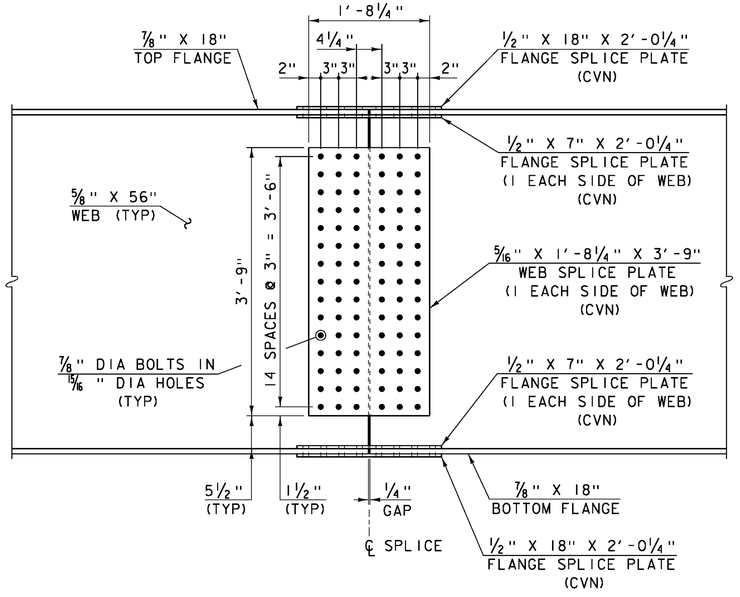
GIRDERS 1 & 2 WEB ELEVATION

SCALE: 1" = 1'-0"



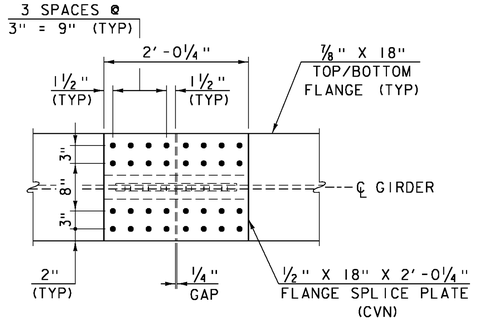
GIRDERS 1 & 2 BOTTOM FLANGE PLAN

SCALE: 1" = 1'-0"



GIRDERS 3-5 WEB ELEVATION

SCALE: 1" = 1'-0"



GIRDERS 3-5 TOP/BOTTOM FLANGE PLAN

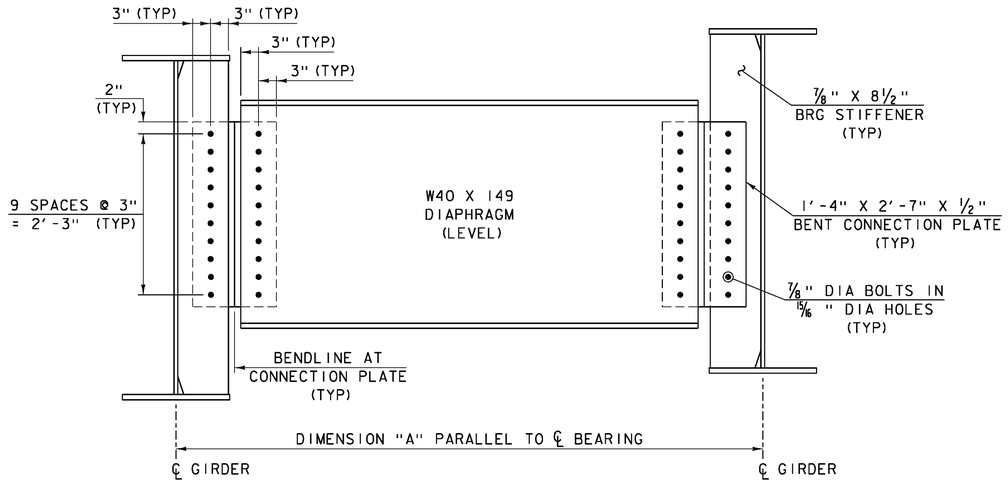
SCALE: 1" = 1'-0"

NOTES:

CVN - SHALL MEET CHARPY V-NOTCH REQUIREMENTS FOR MAIN MEMBERS AS INDICATED IN SECTION 714.

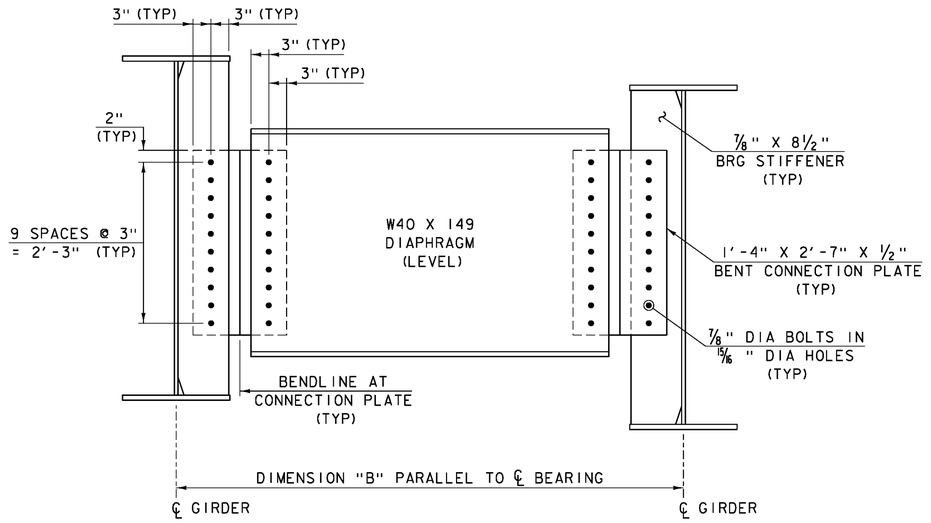
ALL STEEL SHALL BE AASHTO M 270M/M 270, GRADE 50W.

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: \BR 28\s86e055sup_28.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: D. PETERSON	CHECKED BY: D. PETERSON
BRIDGE 28 GIRDER SPLICE DETAILS	SHEET 112 OF 186



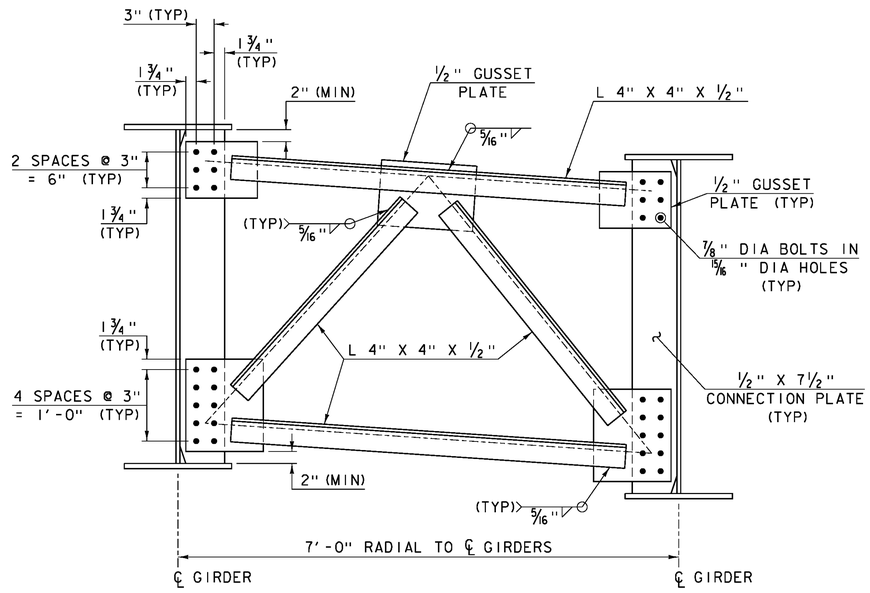
ABUTMENT NO. 1 CROSSFRAME

(LOOKING DOWNSTATION)
SCALE: 1" = 1'-0"



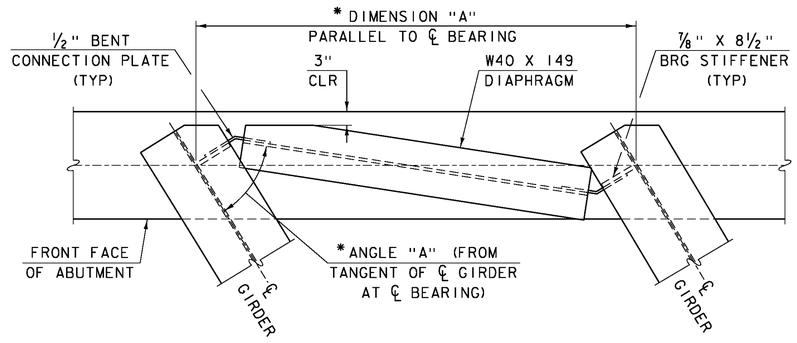
ABUTMENT NO. 2 CROSSFRAME

(LOOKING UPSTATION)
SCALE: 1" = 1'-0"



INTERMEDIATE CROSSFRAME

(LOOKING UPSTATION)
SCALE: 1" = 1'-0"



PLAN VIEW ABUTMENT NO. 1 CROSSFRAME

SCALE: 3/4" = 1'-0"
(ABUTMENT NO. 2 SIMILAR)

* DIMENSION "B" & ANGLE "B" FOR ABUTMENT NO. 2

CROSSFRAME TABLE

GIRDERS	DIMENSION "A"	ANGLE "A"	DIMENSION "B"	ANGLE "B"
1 - 2	8'-0 7/8"	51°11'42"	7'-1"	77°15'45"
2 - 3	8'-1 5/8"	50°22'15"	7'-1"	77°00'41"
3 - 4	8'-2 7/16"	49°30'30"	7'-1 1/16"	76°44'44"
4 - 5	8'-3 5/16"	48°49'52"	7'-1 1/8"	76°28'19"

NOTES:

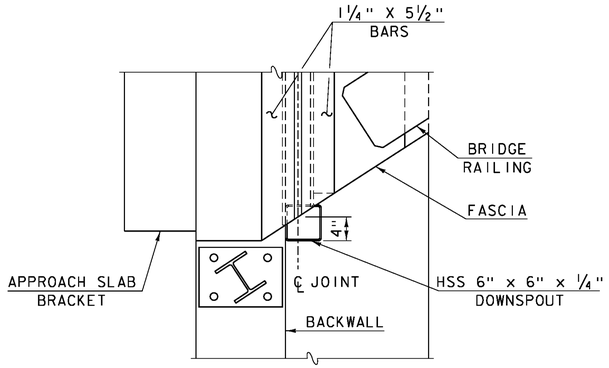
SEE SD-602.00 FOR WELD TERMINATION AND COPING DETAILS.

SEE SD-602.00 FOR WELD LOCATION DETAIL AT CROSSFRAMES.

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

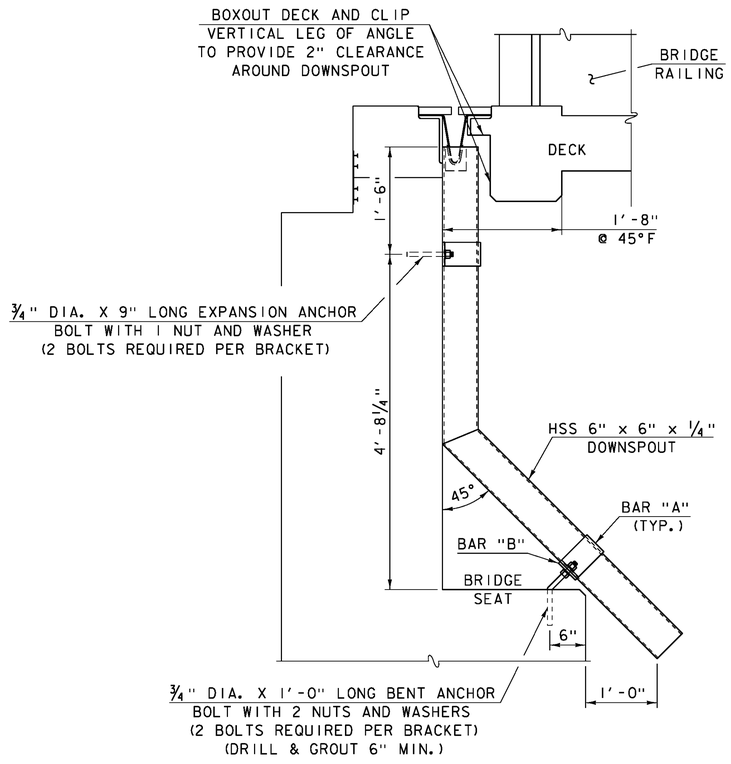
FILE NAME: \BR 28\s86e055sup_28.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 28 CROSSFRAME DETAILS

PLOT DATE: 08-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: D. PETERSON
SHEET 113 OF 186



DOWNSPOUT PLAN

SCALE: 1" = 1'-0"

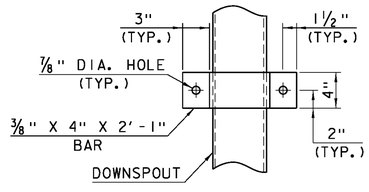


DOWNSPOUT ELEVATION

SCALE: 1" = 1'-0"

DOWNSPOUT NOTES

1. HOLLOW STRUCTURAL STEEL TUBING SHALL CONFORM TO SECTION 506.02 OF THE STANDARD SPECIFICATIONS.
2. ALL PLATES, BARS, AND ANGLES SHALL CONFORM TO SECTION 714.02 OF THE STANDARD SPECIFICATIONS.
3. DOWNSPOUT SHALL BE GALVANIZED IN ACCORDANCE WITH 726.08 OF THE STANDARD SPECIFICATIONS AFTER FABRICATION.
4. ALL BOLTS AND RELATED HARDWARE SHALL BE ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 (AASHTO M232).
5. AREAS WHERE THE GALVANIZING HAS BEEN REMOVED FROM THE DOWNSPOUTS EITHER BY CUTTING, BURNING, WELDING, PLACING, OR ANY OTHER MEANS SHALL BE REPAIRED IN CONFORMANCE WITH SECTION 726.08 OF THE STANDARD SPECIFICATIONS.
6. ALL MATERIALS AND INSTALLATION COSTS FOR THE DOWNSPOUTS, INCLUDING STEEL TUBING, RELATED HARDWARE, AND ANCHOR BOLTS SHALL BE PAID FOR UNDER ITEM 506.75 "STRUCTURAL STEEL".

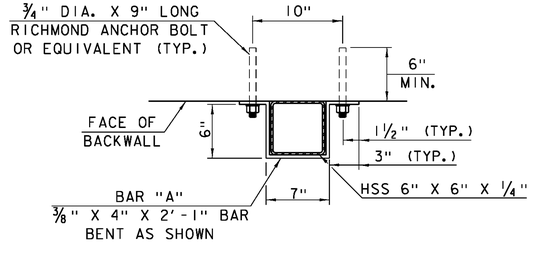


ELEVATION VIEW BAR "A"

SCALE: 1½" = 1'-0"

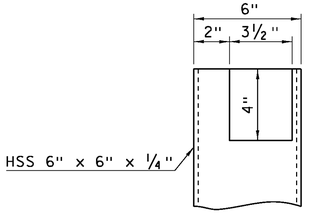
ELEVATION VIEW BAR "B"

SCALE: 1½" = 1'-0"



DOWNSPOUT ATTACHMENT TO BACKWALL PLAN VIEW

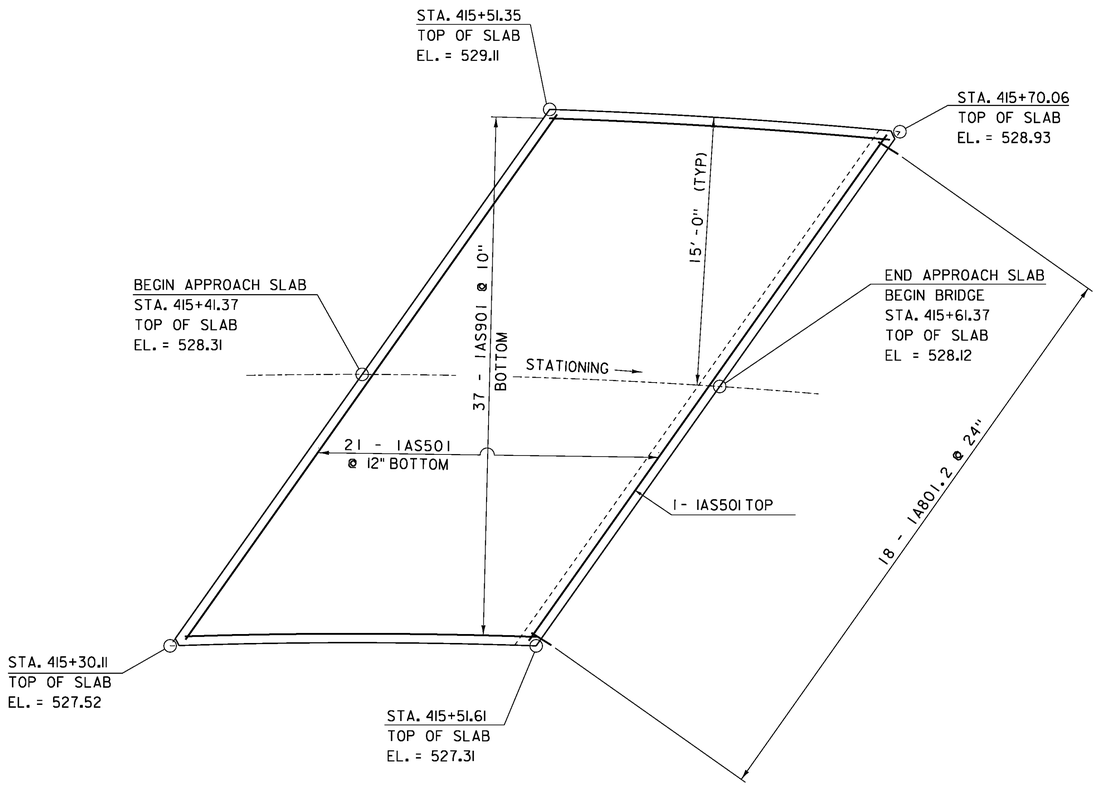
SCALE: 1½" = 1'-0"



DOWNSPOUT CUTOUT DETAIL

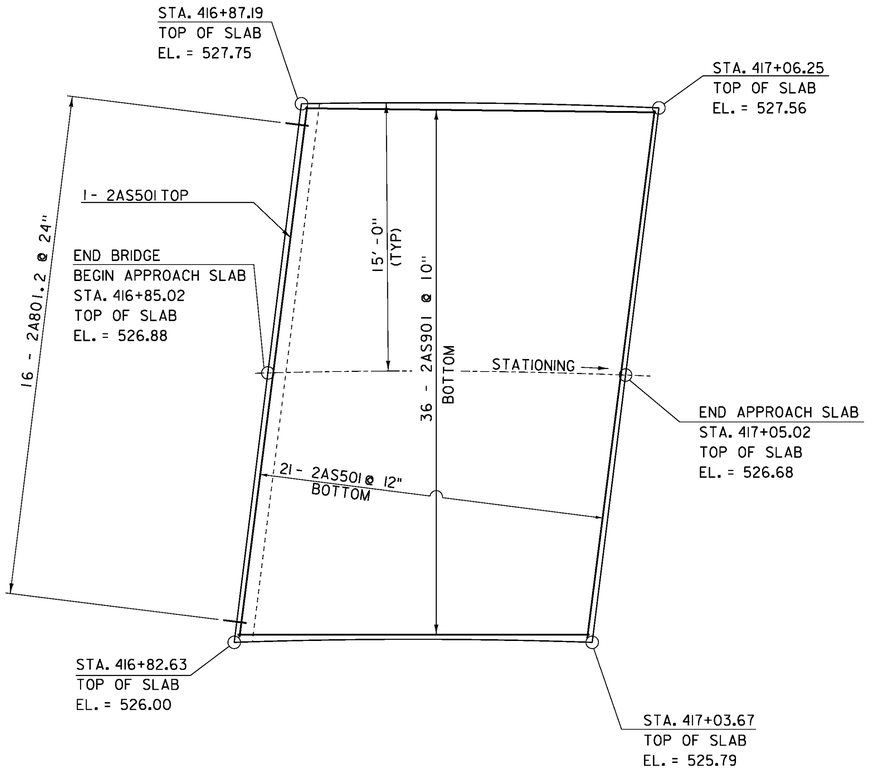
SCALE: 3" = 1'-0"

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: \BR 28\s86e055sup_28.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: D. PETERSON	CHECKED BY: D. PETERSON
BRIDGE 28 DOWNSPOUT DETAILS	SHEET 114 OF 186



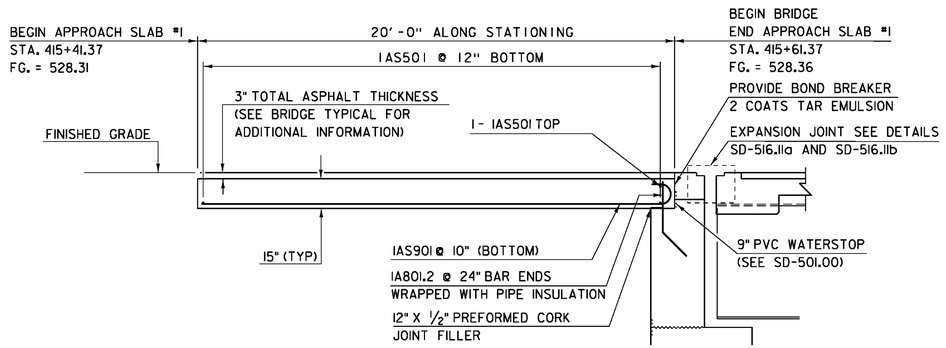
APPROACH SLAB PLAN NO. 1 TYPICAL

SCALE 1/4" = 1'-0"



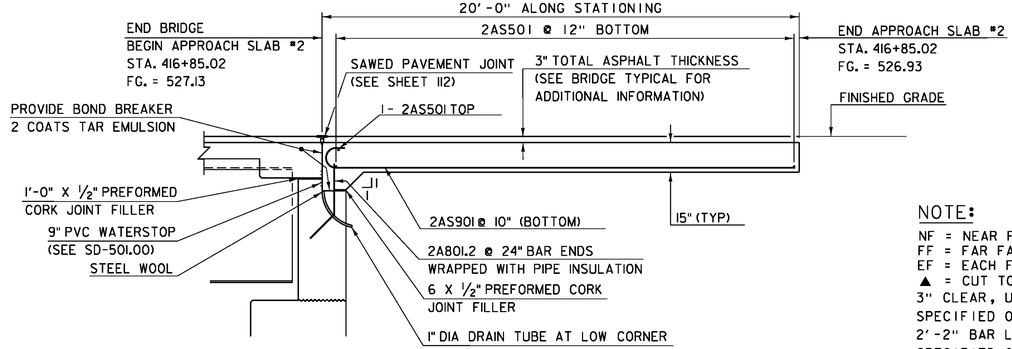
APPROACH SLAB PLAN NO. 2 TYPICAL

SCALE 1/4" = 1'-0"



APPROACH SLAB NO. 1 TYPICAL

SCALE 1/4" = 1'-0"



APPROACH SLAB NO. 2 TYPICAL

SCALE 1/4" = 1'-0"

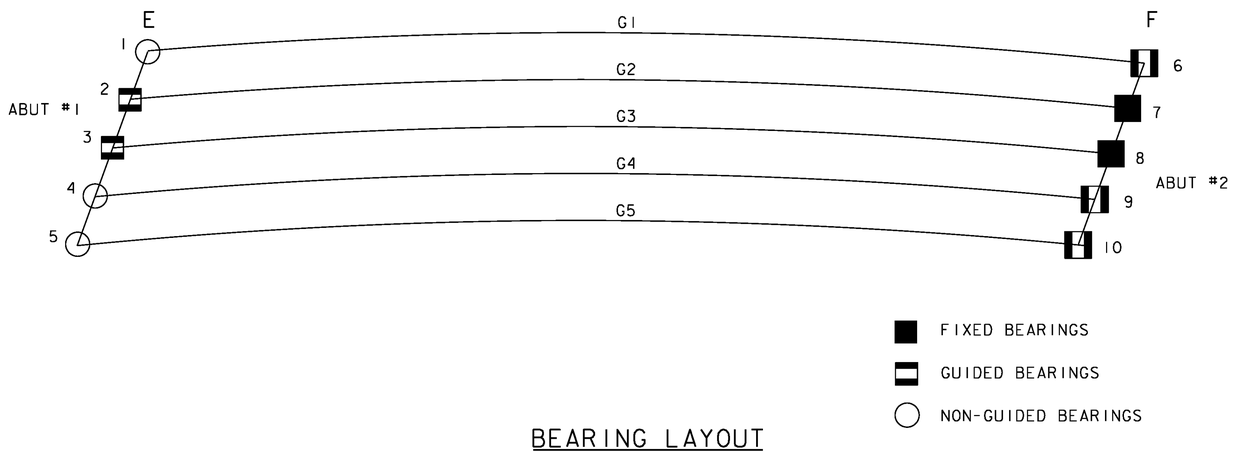
NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: 86e055/STR/86e055sub.dgn
PROJECT LEADER: C.CARLSON
DESIGNED BY: D.PETERSON
BRIDGE 28 APPROACH SLAB 1 AND 2 TYPICALS

PLOT DATE: 08-OCT-2013
DRAWN BY: G.ROKES
CHECKED BY: D.PETERSON



BEARING LAYOUT
NOT TO SCALE

ABUTMENT #1 (VERTICAL LOADS)		
BEARING NO.	*UNFACTORED DEAD LOAD	*UNFACTORED LIVE LOAD
1	168 KIPS	224 KIPS
2	104 KIPS	156 KIPS
3	70 KIPS	129 KIPS
4	53 KIPS	118 KIPS
5	63 KIPS	93 KIPS

ABUTMENT #2 (VERTICAL LOADS)		
BEARING NO.	*UNFACTORED DEAD LOAD	*UNFACTORED LIVE LOAD
6	130 KIPS	186 KIPS
7	123 KIPS	175 KIPS
8	75 KIPS	130 KIPS
9	70 KIPS	127 KIPS
10	38 KIPS	78 KIPS

BEARING NOTES

1. BEARINGS SHALL CONFORM TO APPLICABLE SUBSECTIONS OF SECTIONS 531 & 731.

2. BEARINGS SHALL BE PAID FOR UNDER ITEM 531.15 "BEARING DEVICE ASSEMBLY, HIGH LOAD MULTI-ROTATIONAL".

3. FABRICATION DRAWINGS CONFORMING TO SUBSECTION 531.03 SHALL BE SUBMITTED.

4. THE CONCRETE SURFACE UNDER THE BEARING DEVICES SHALL BE LEVEL.

5. DESIGN CRITERIA:
   A. BASE PLATE TO CONCRETE DESIGN PRESSURE = 1.20 ksi MAXIMUM.
   B. MINIMUM DESIGN ROTATION = 0.030 radians
   C. MINIMUM DESIGN TRANSLATION: TRANSVERSE = 1"
      LONGITUDINAL = 2"
   D. HORIZONTAL CAPACITY SHALL BE A MINIMUM OF 25% OF THE VERTICAL LOAD.
   E. VERTICAL DESIGN LOAD PER TABLE ON THIS SHEET.

6. ALL POTS, PLATES, NUTS, WASHERS AND ANCHOR BOLTS, UNLESS OTHERWISE NOTED, SHALL BE GALVANIZED OR METALIZED AS PER SUBSECTIONS 531.04(B) AND 506.14 OF THE STANDARD SPECIFICATIONS. IF THE BEARINGS ARE METALIZED, THEY SHALL BE SEALED WITH AN APPROVED SEALER AS SPECIFIED IN SUBSECTION 531.04(B) OF THE STANDARD SPECIFICATIONS. AREAS OF GALVANIZING OR METALIZING DAMAGED BY FIELD WELDING OR HANDLING SHALL BE REPAIRED IN CONFORMANCE WITH SUBSECTION 726.08. THE INSIDE OF THE POTS SHALL NOT BE GALVANIZED OR METALIZED.

7. ALL STEEL IN BEARING DEVICES SHALL BE AASHTO M270M/M270 GRADE 345, UNLESS NOTED OTHERWISE.

8. ANCHOR BOLTS SHALL HAVE A MINIMUM OF 15" EMBEDMENT INTO THE CONCRETE AND SHALL CONFORM TO SUBSECTION 714.08.

9. THE CONNECTION BETWEEN THE POT BEARING AND SOLE PLATE AND POT BEARING AND THE MASONRY PLATE SHALL BE DESIGNED AND DETAILED BY THE SUPPLIER.

10. ALL DESIGNS DONE FOR THE BEARINGS SHALL BE PER THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 5TH EDITION AND ITS LATEST REVISIONS.

11. ALTERNATE CONFIGURATIONS FOR BEARINGS MAY BE SUBMITTED FOR APPROVAL. ANY ALTERNATE SUBMITTED SHALL BE DESIGNED AND CERTIFIED TO MEET THE DESIGN LOADS AND CRITERIA SHOWN ON THE PLANS.

12. ALL BEARINGS SHALL BE MARKED PRIOR TO SHIPPING. THE MARKS SHALL INCLUDE THE BEARING LOCATION ON THE BRIDGE AND A DIRECTION ARROW THAT POINTS UP-STATION. ALL MARKS SHALL BE PERMANENT AND BE VISIBLE AFTER THE BEARING IS INSTALLED.

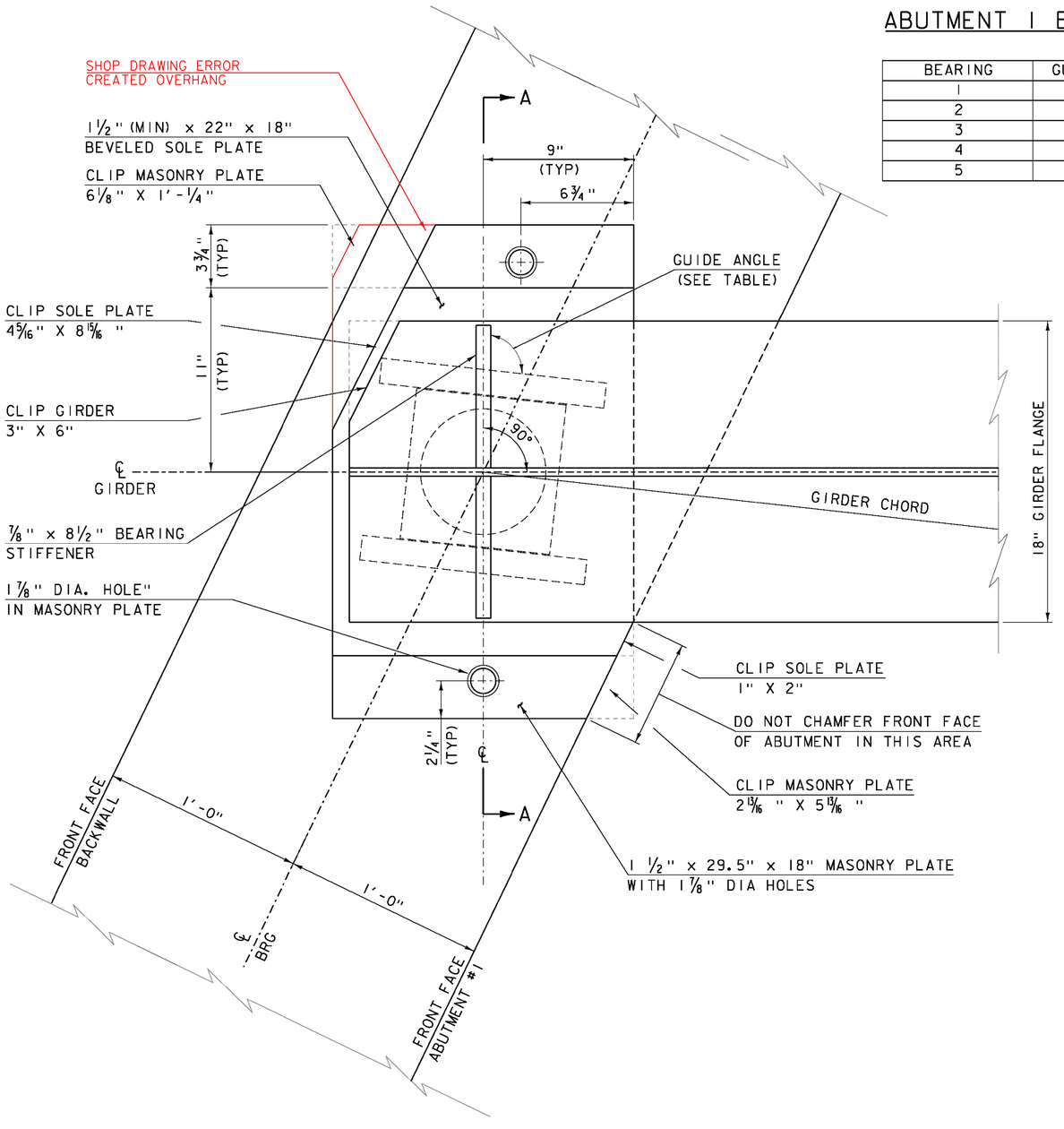
PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR 28\s86e055brg_28.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 28 BEARING NOTES

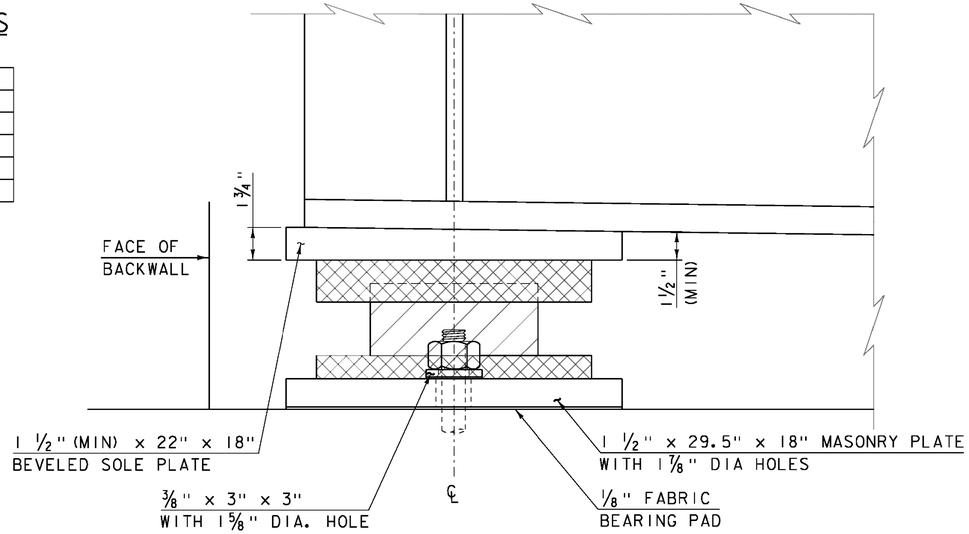
PLOT DATE: 08-OCT-2013
DRAWN BY: DZENAN K.
CHECKED BY: D.PETERSON
SHEET 116 OF 186

ABUTMENT 1 BEARINGS

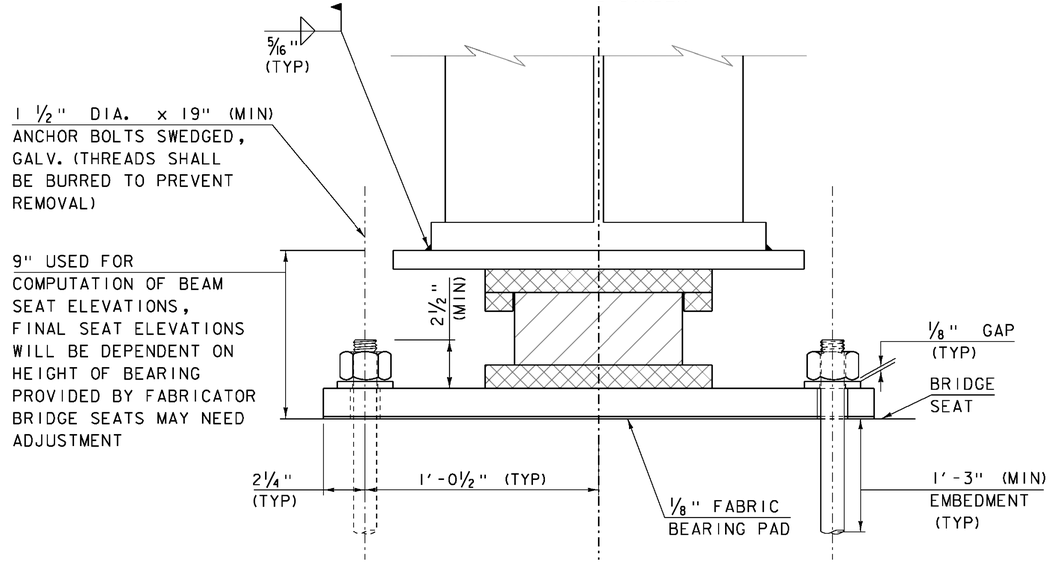
BEARING	GUIDE ANGLE
1	NONE
2	100°-43'
3	101°-0'
4	NONE
5	NONE



PLAN VIEW
SCALE 3"=1'-0"



SIDE ELEVATION
SCALE 3"=1'-0"



SECTION A-A
SCALE 3"=1'-0"

NOTES:

1. THE HATCHED COMPONENTS OF THE POT BEARINGS ARE SHOWN FOR REPRESENTATIVE PURPOSES ONLY. THE ACTUAL CONFIGURATION OF THE COMPONENTS WILL BE DEPENDENT UPON THE BEARING FABRICATOR.

2. SEE BRIDGE 28 BEARING NOTES, SHEET 116 FOR ADDITIONAL BEARING NOTES.

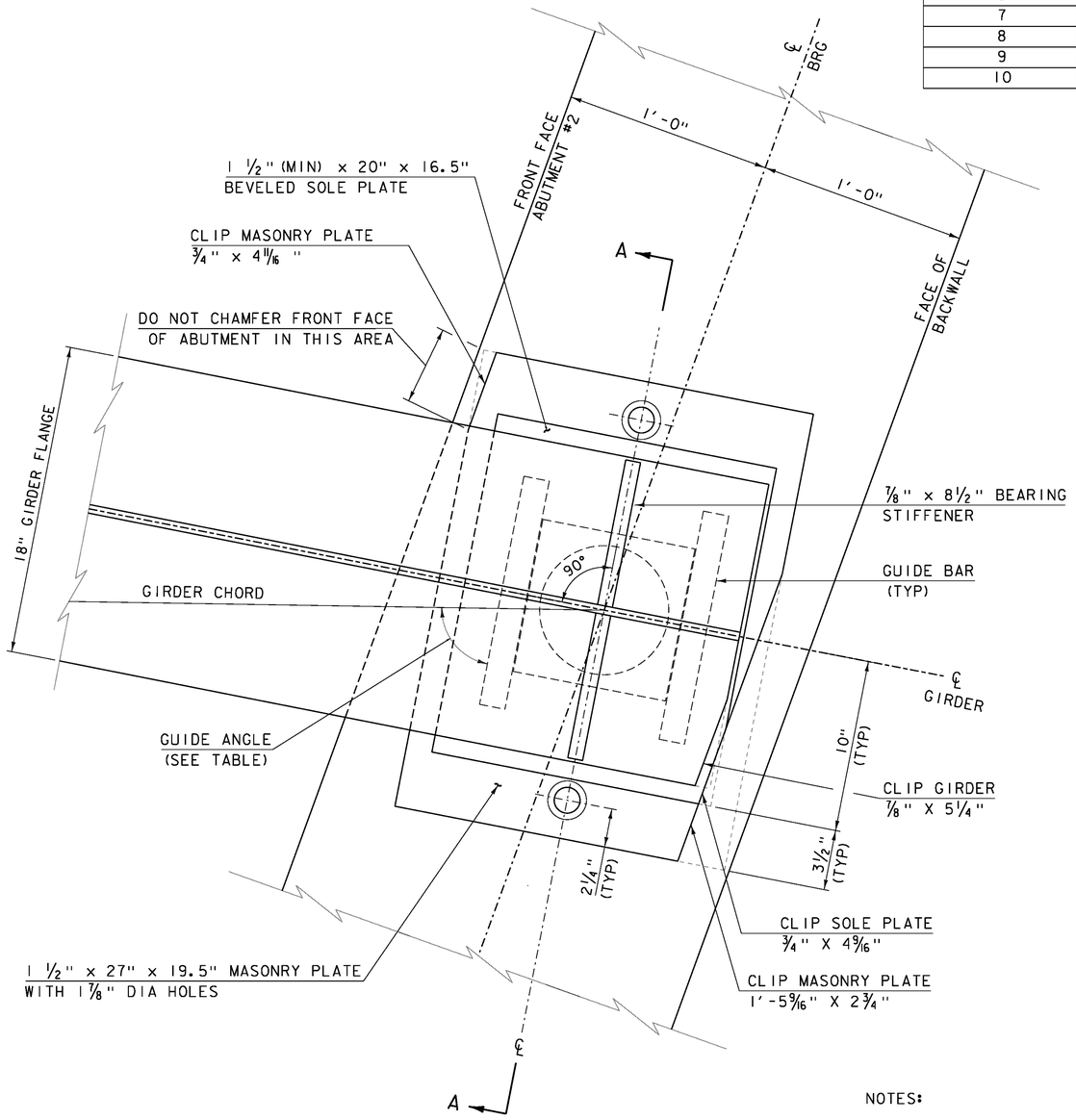
PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR 28\s86e055brg_28.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 28 EXPANSION BEARING DETAILS

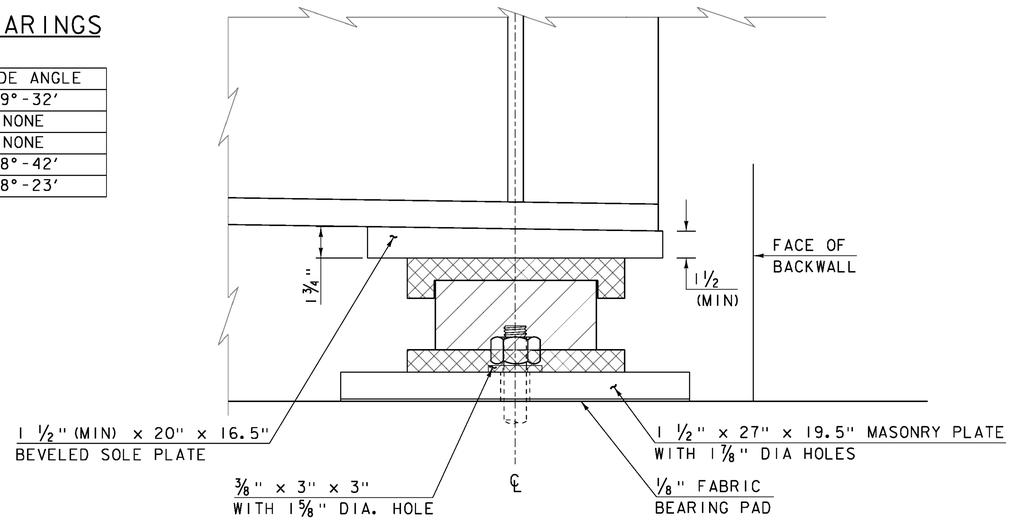
PLOT DATE: 08-OCT-2013
DRAWN BY: DZENAN K.
CHECKED BY: D. PETERSON
SHEET 117 OF 186

ABUTMENT 2 BEARINGS

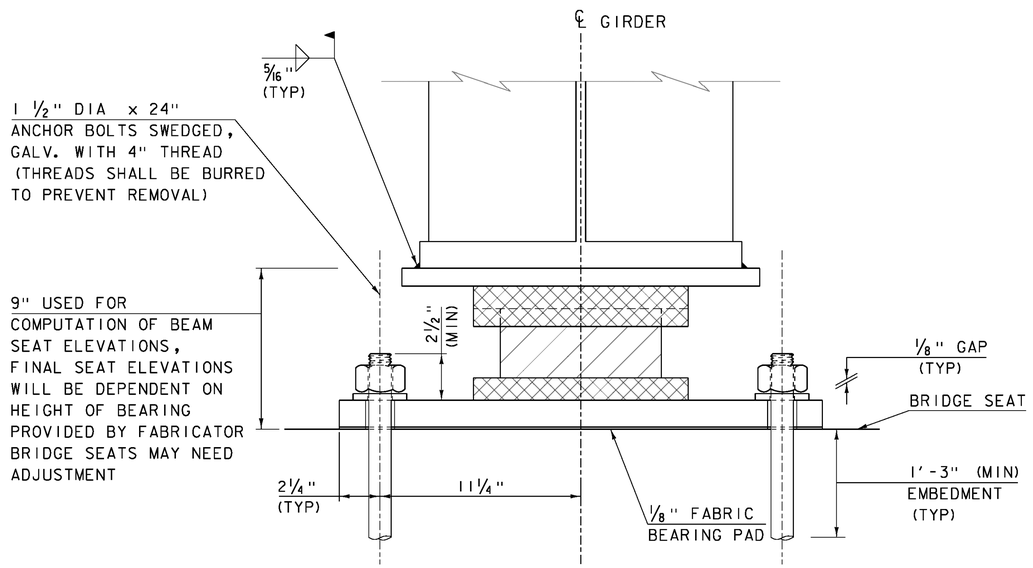
BEARING	GUIDE ANGLE
6	79°-32'
7	NONE
8	NONE
9	78°-42'
10	78°-23'



PLAN VIEW
SCALE 3"=1'-0"



SIDE ELEVATION
SCALE 3"=1'-0"



SECTION A-A
SCALE 3"=1'-0"

NOTES:

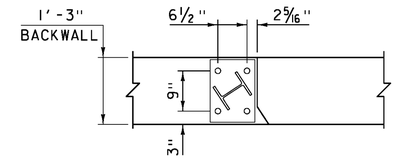
1. THE HATCHED COMPONENTS OF THE POT BEARINGS ARE SHOWN FOR REPRESENTATIVE PURPOSES ONLY. THE ACTUAL CONFIGURATION OF THE COMPONENTS WILL BE DEPENDENT UPON THE BEARING FABRICATOR.

2. SEE BRIDGE 28 BEARING NOTES, SHEET 116 FOR ADDITIONAL BEARING NOTES.

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

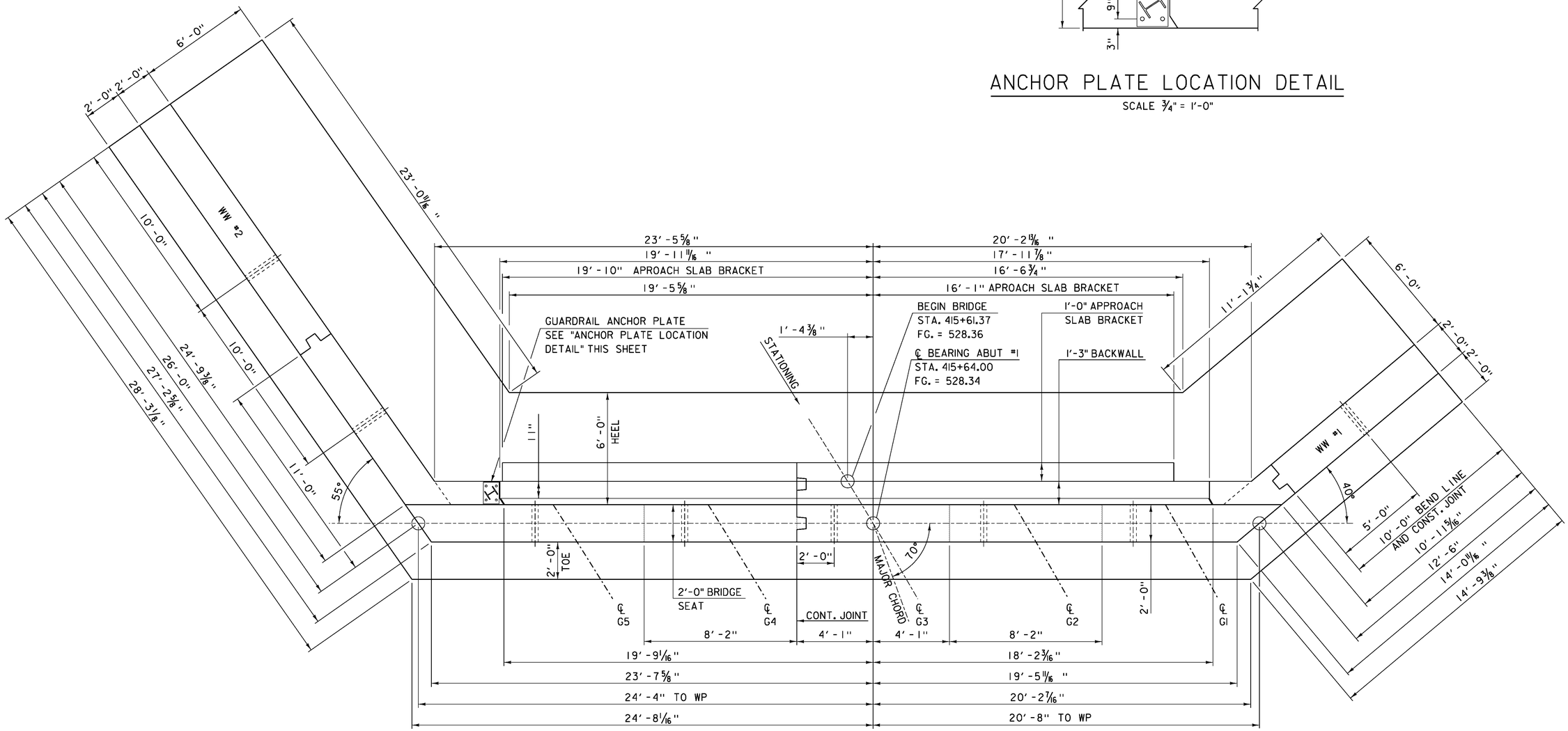
FILE NAME: \BR 28\s86e055brg_28.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 28 GUIDED BEARING DETAILS

PLOT DATE: 08-OCT-2013
DRAWN BY: DZENAN K.
CHECKED BY: D. PETERSON
SHEET 118 OF 186



ANCHOR PLATE LOCATION DETAIL

SCALE ¾" = 1'-0"

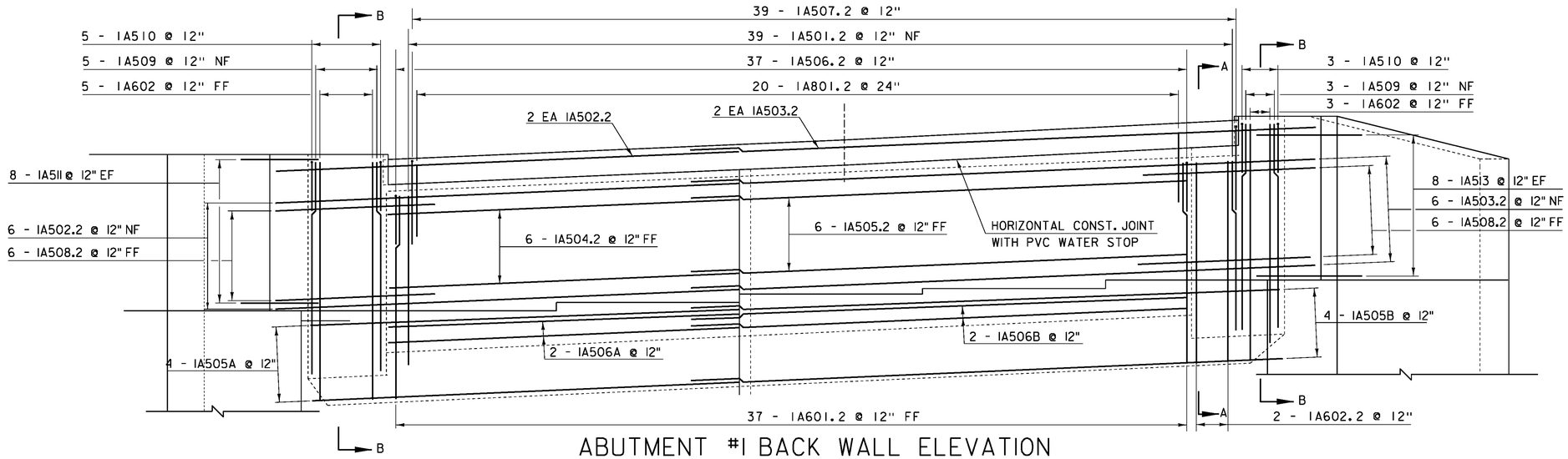


ABUTMENT #1 PLAN

SCALE ⅜" = 1'-0"

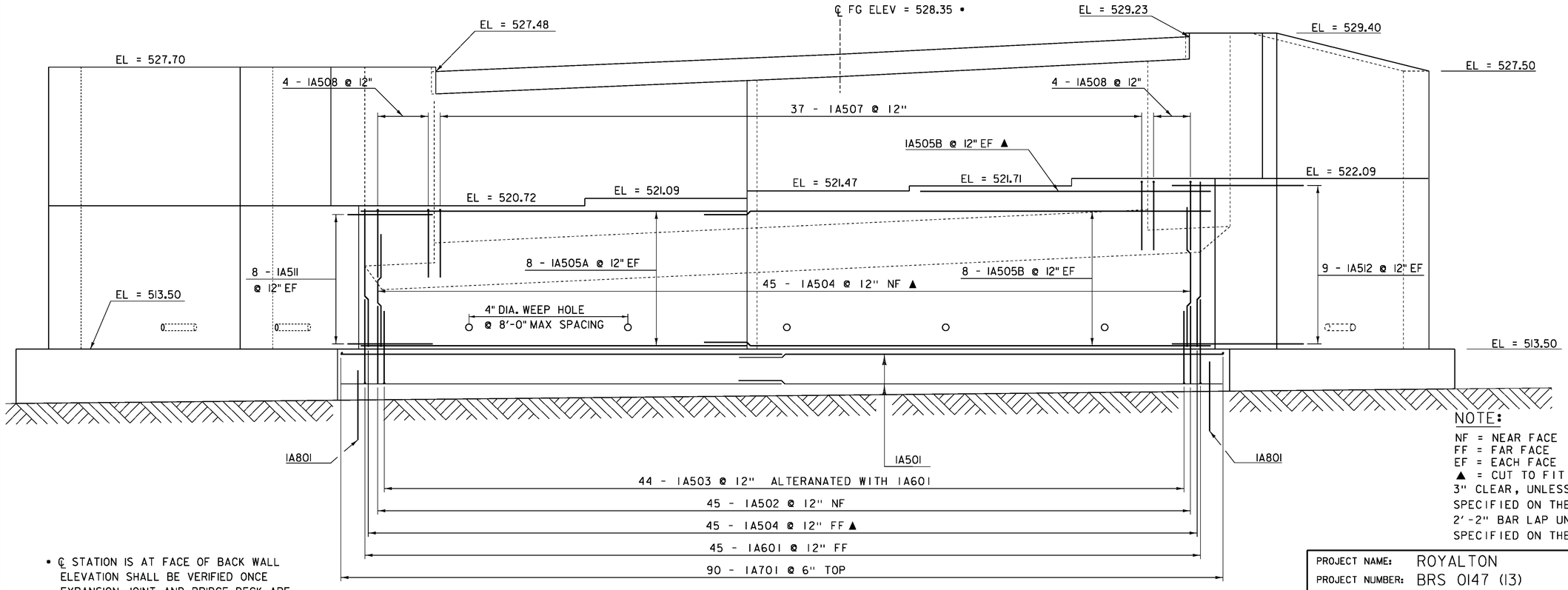
PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)

FILE NAME: 86e055/STR/86e055sub.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C.CARLSON	DRAWN BY: G.ROKES
DESIGNED BY: D.PETERSON	CHECKED BY: D.PETERSON
BRIDGE 28 ABUTMENT 1 PLAN	SHEET 119 OF 186



ABUTMENT #1 BACK WALL ELEVATION

SCALE 3/8" = 1'-0"



ABUTMENT #1 ELEVATION

SCALE 3/8" = 1'-0"

• ℄ STATION IS AT FACE OF BACK WALL ELEVATION SHALL BE VERIFIED ONCE EXPANSION JOINT AND BRIDGE DECK ARE PLACED.

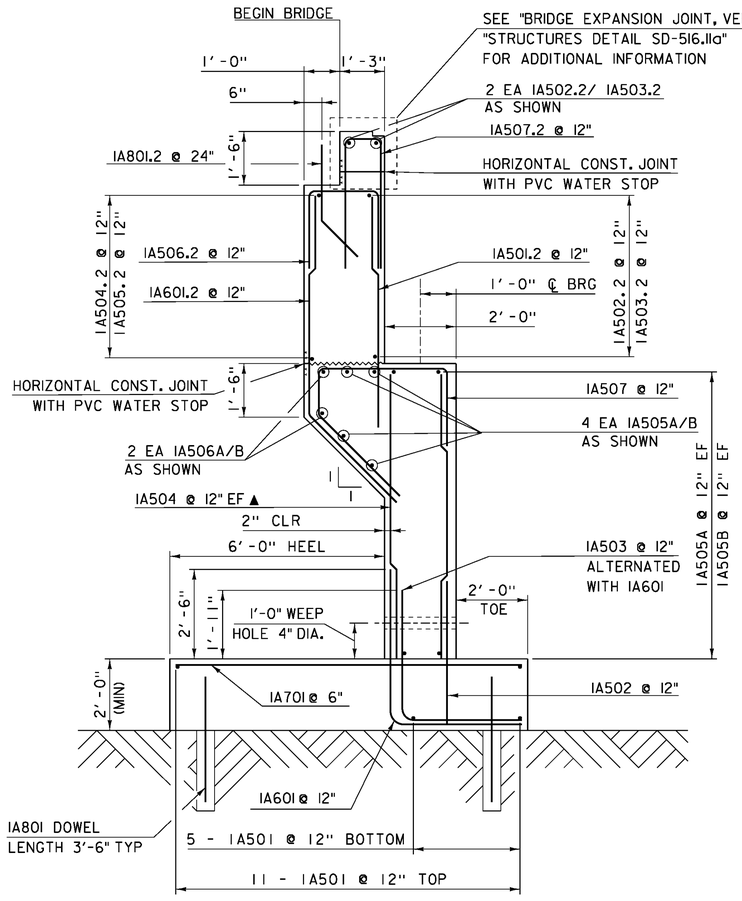
NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

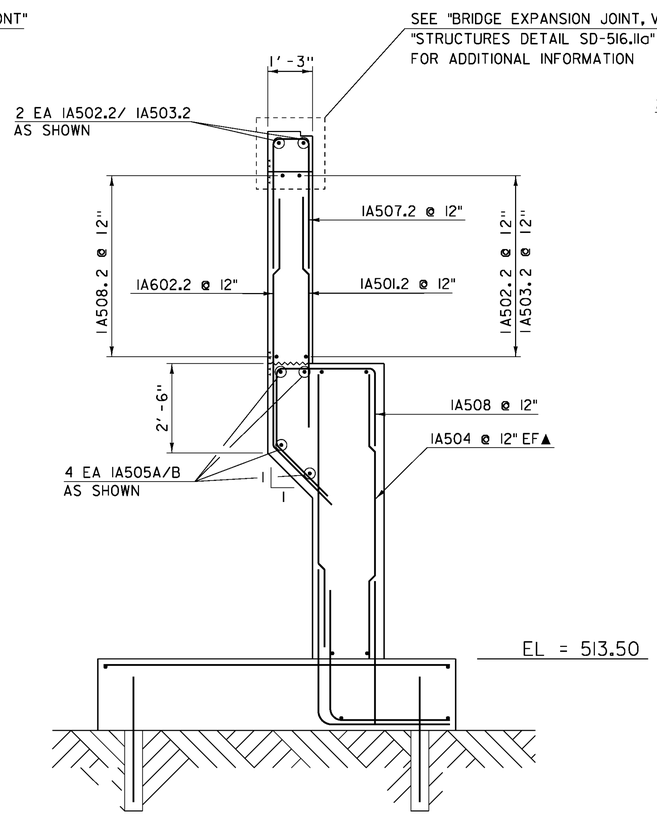
FILE NAME: 86e055/STR/86e055sub.dgn
PROJECT LEADER: C.CARLSON
DESIGNED BY: D.PETERSON
BRIDGE 28 ABUTMENT 1 ELEVATION

PLOT DATE: 08-OCT-2013
DRAWN BY: G.ROKES
CHECKED BY: D.PETERSON
SHEET 120 OF 186



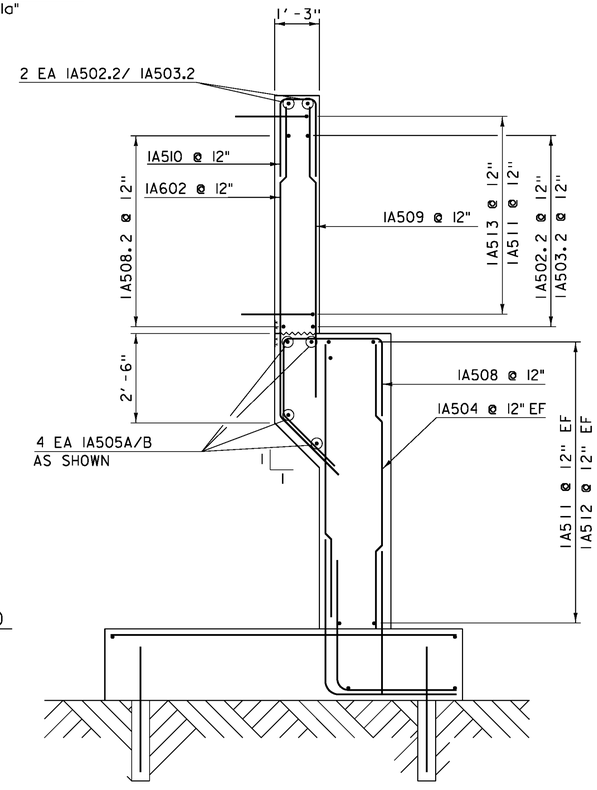
ABUTMENT #1 TYPICAL

SCALE ½" = 1'-0"



A-A SECTION ABUTMENT #1

SCALE ½" = 1'-0"



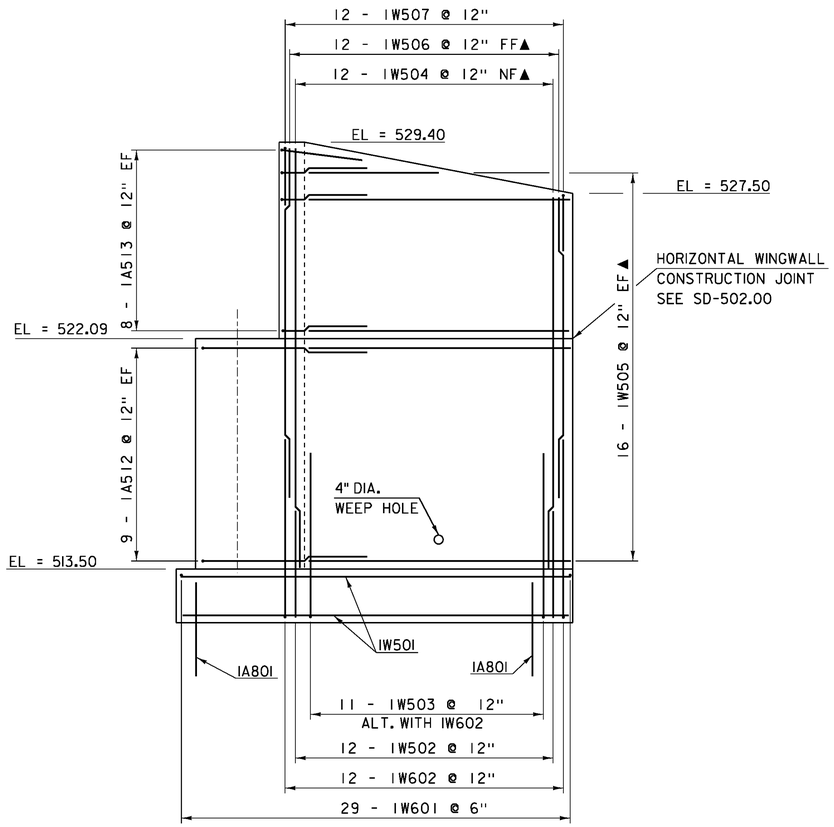
B-B SECTION ABUTMENT #1

SCALE ½" = 1'-0"

NOTE:

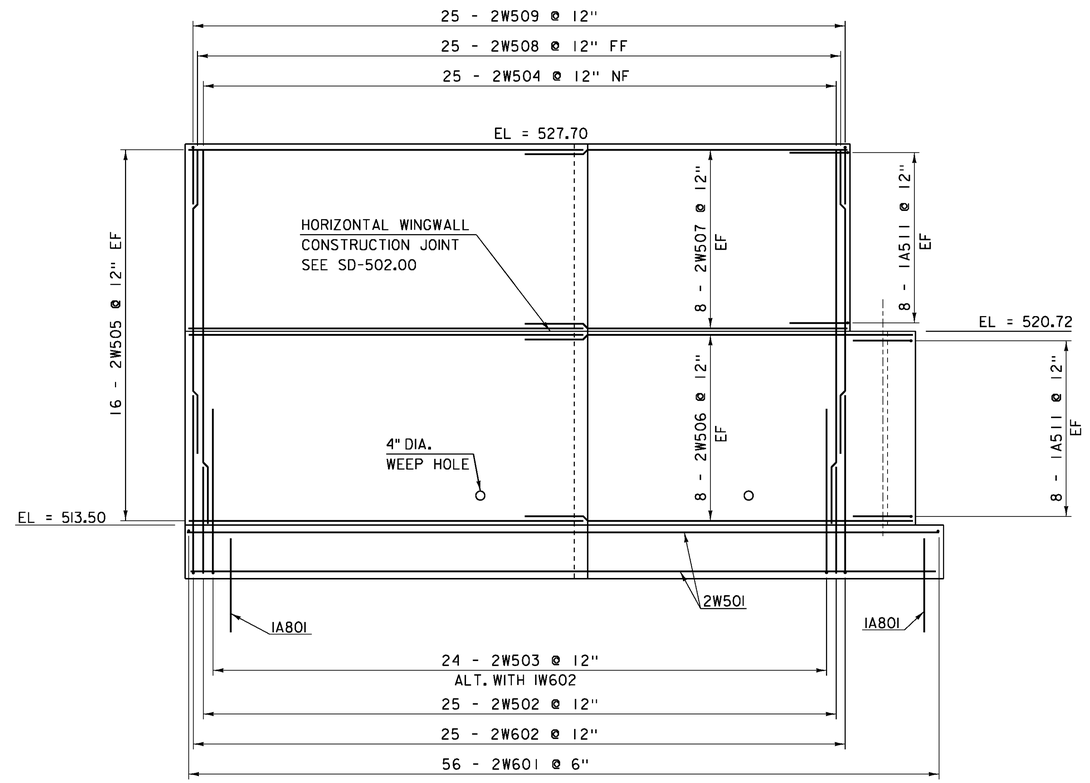
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: 86e055/STR/86e055sub.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C.CARLSON	DRAWN BY: G.ROKES
DESIGNED BY: D.PETERSON	CHECKED BY: D.PETERSON
BRIDGE 28 ABUTMENT 1 TYPICAL	SHEET 121 OF 186



WINGWALL #1 ELEVATION

SCALE 3/8" = 1'-0"



WINGWALL #2 ELEVATION

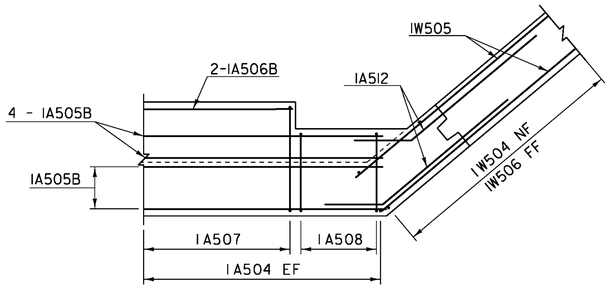
SCALE 3/8" = 1'-0"

NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

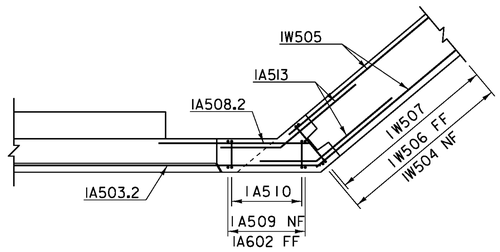
PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)

FILE NAME: 86e055/STR/86e055sub.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C.CARLSON	DRAWN BY: G.ROKES
DESIGNED BY: D.PETERSON	CHECKED BY: D.PETERSON
BRIDGE 28 WINGWALL 1 AND 2 ELEVATIONS	SHEET 122 OF 186



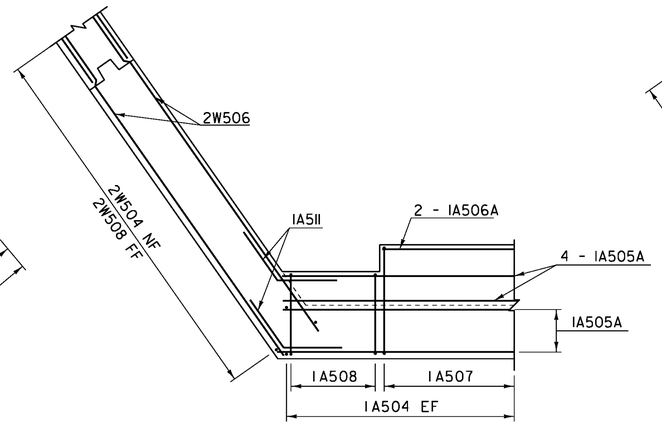
WINGWALL #1 CORNER BELOW BRIDGE SEAT

SCALE 3/8" = 1'-0"



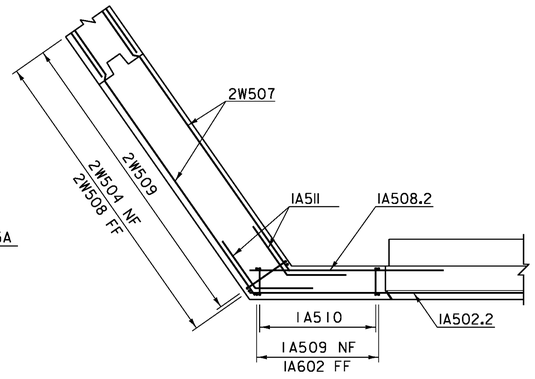
WINGWALL #1 CORNER ABOVE BRIDGE SEAT

SCALE 3/8" = 1'-0"



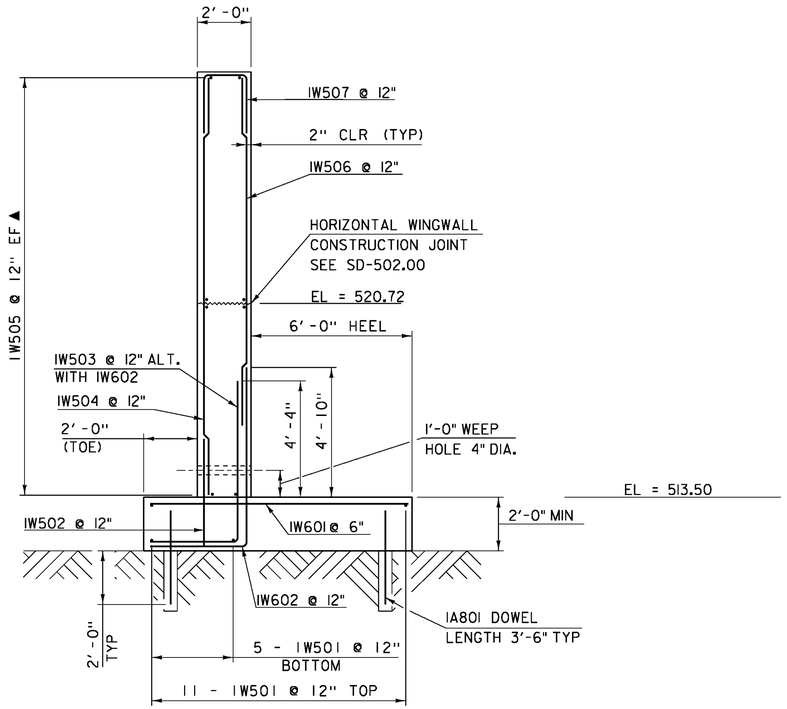
WINGWALL #2 CORNER BELOW BRIDGE SEAT

SCALE 3/8" = 1'-0"



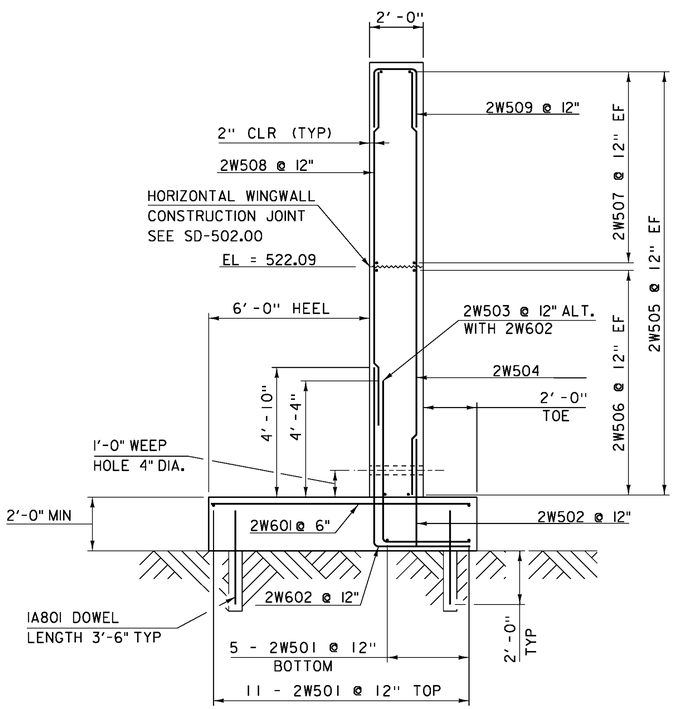
WINGWALL #2 CORNER ABOVE BRIDGE SEAT

SCALE 3/8" = 1'-0"



WINGWALL #1 TYPICAL

SCALE 3/8" = 1'-0"



WINGWALL #2 TYPICAL

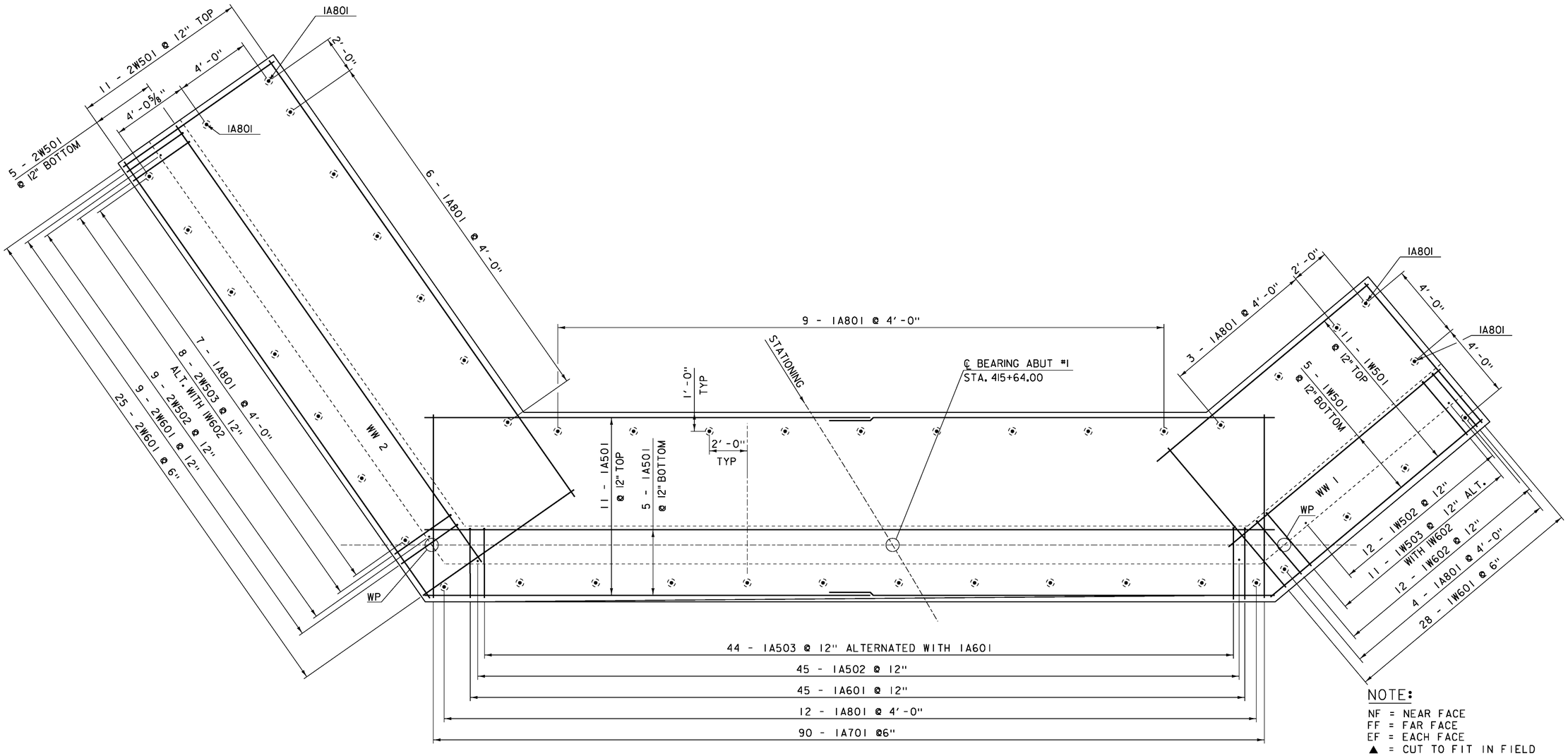
SCALE 3/8" = 1'-0"

NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)

FILE NAME: 86e055/STR/86e055sub.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C.CARLSON	DRAWN BY: G.ROKES
DESIGNED BY: D.PETERSON	CHECKED BY: D.PETERSON
BRIDGE 28 WINGWALL 1 AND 2 TYPICALS	SHEET 123 OF 186



ABUTMENT #1 FOOTING REINFORCING PLAN

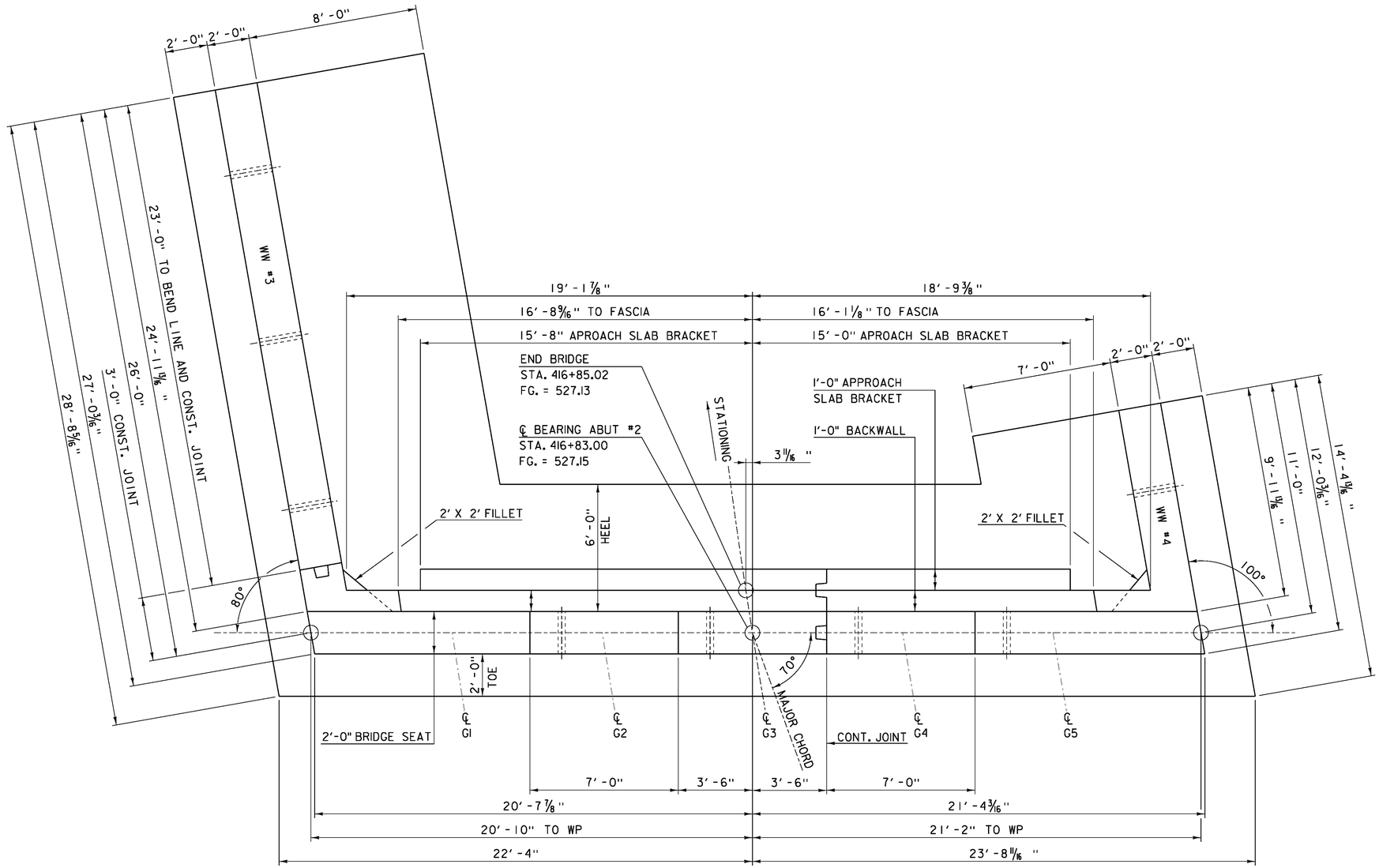
SCALE 3/8" = 1'-0"

NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)

FILE NAME: 86e055/STR/86e055sub.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C.CARLSON	DRAWN BY: G.ROKES
DESIGNED BY: D.PETERSON	CHECKED BY: D.PETERSON
BRIDGE 28 ABUTMENT 1 FOOTING PLAN	SHEET 124 OF 186



ABUTMENT #2 PLAN

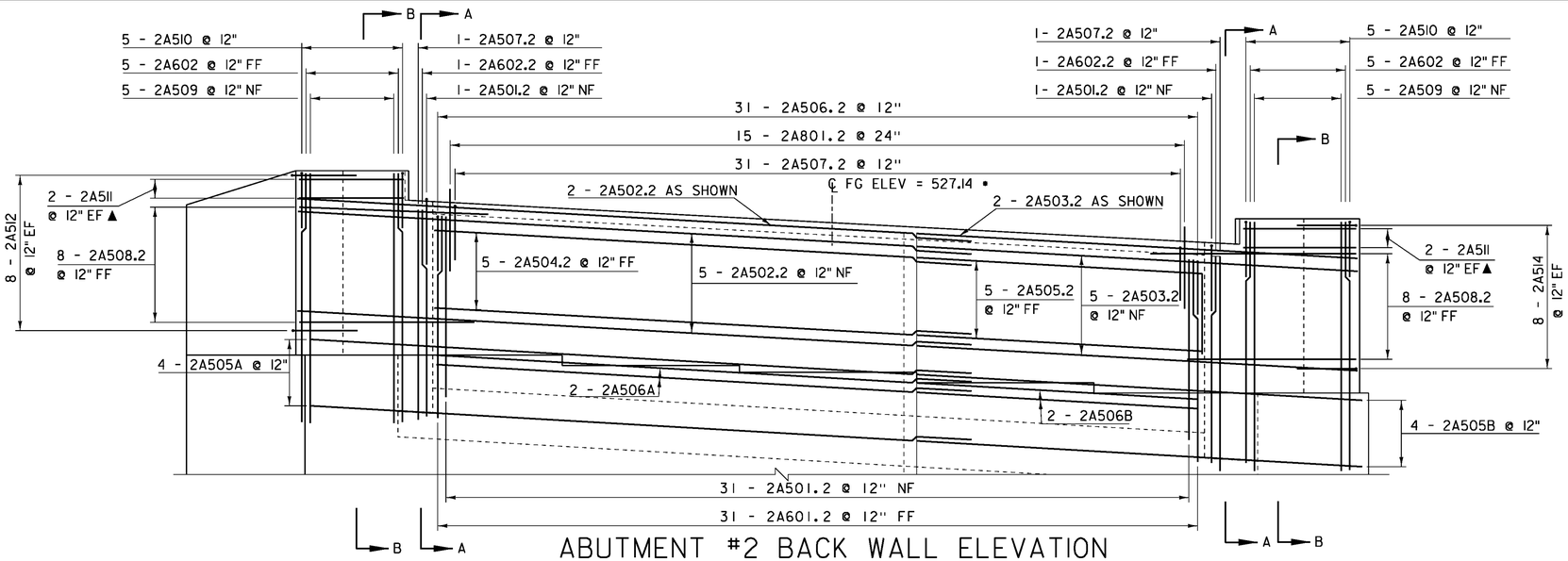
SCALE ⅜" = 1'-0"

NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

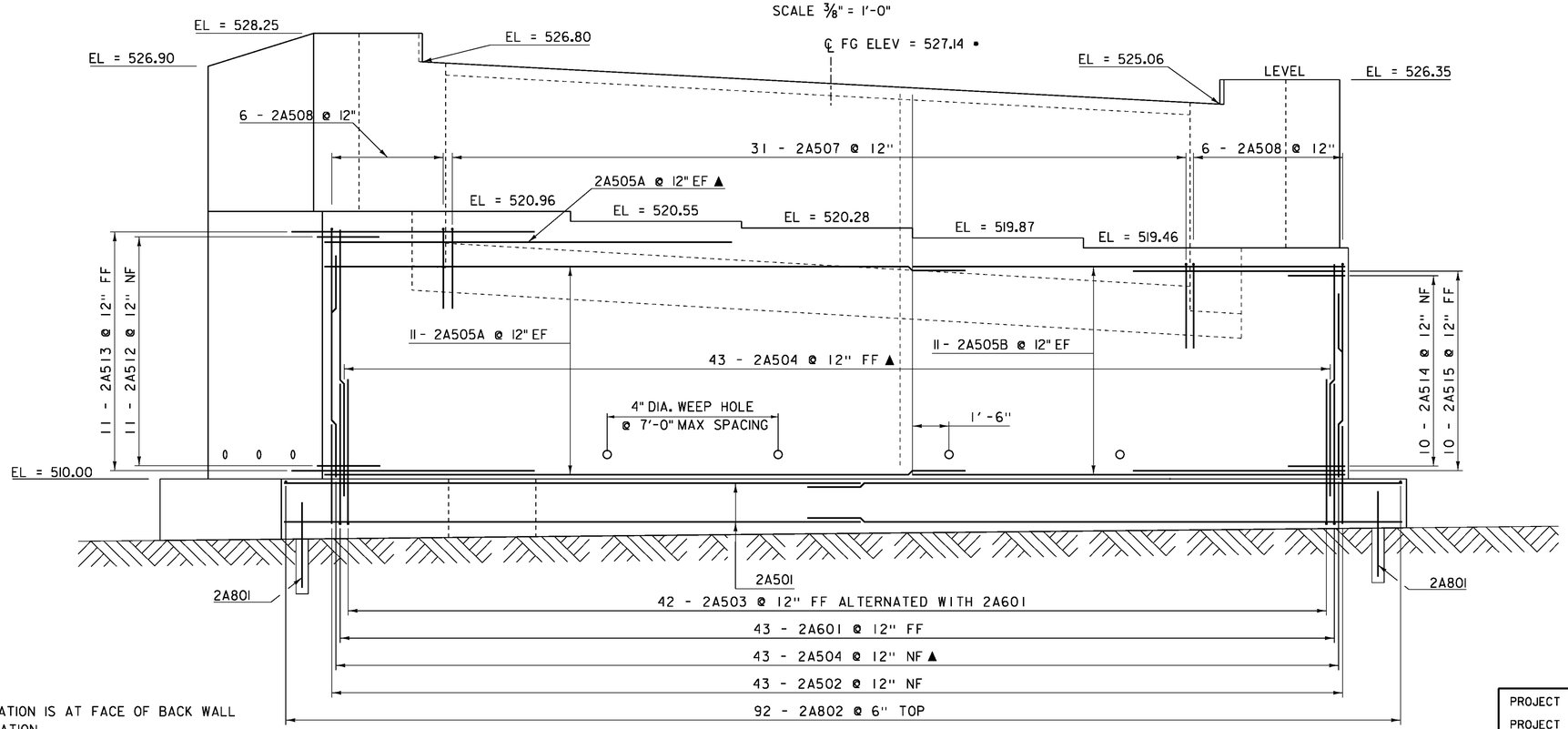
PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)

FILE NAME: 86e055/STR/86e055sub.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C.CARLSON	DRAWN BY: G.ROKES
DESIGNED BY: D.PETERSON	CHECKED BY: D.PETERSON
BRIDGE 28 ABUTMENT 2 PLAN	SHEET 125 OF 186



ABUTMENT #2 BACK WALL ELEVATION

SCALE 3/8" = 1'-0"



ABUTMENT #2 ELEVATION

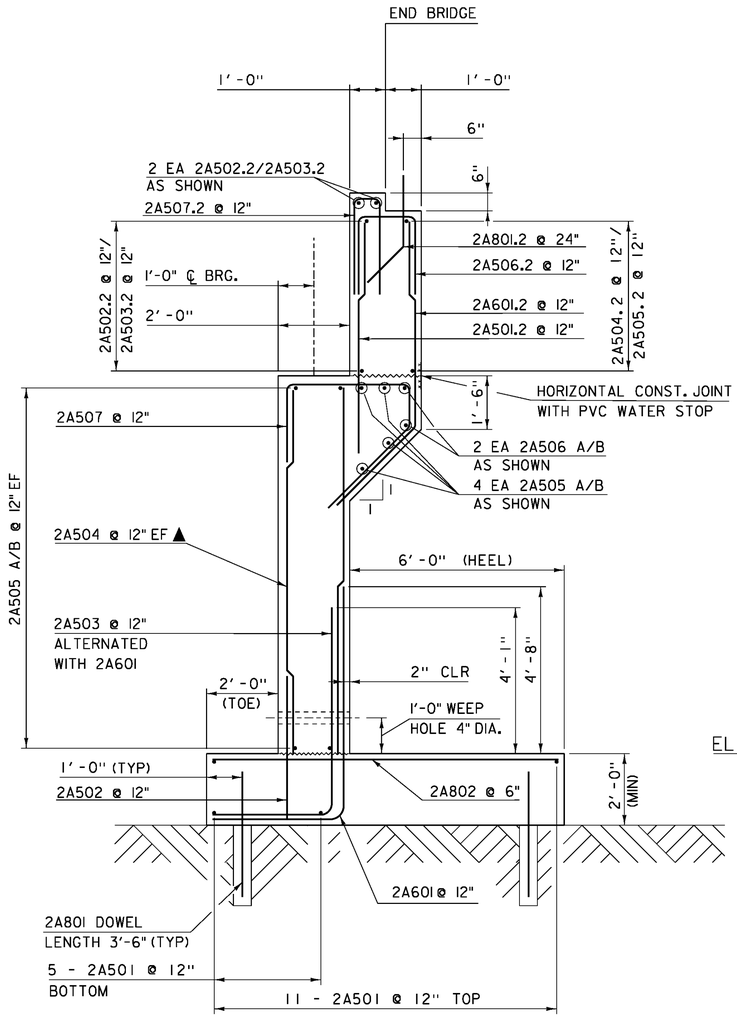
SCALE 3/8" = 1'-0"

• ℄ STATION IS AT FACE OF BACK WALL ELEVATION

NOTE:

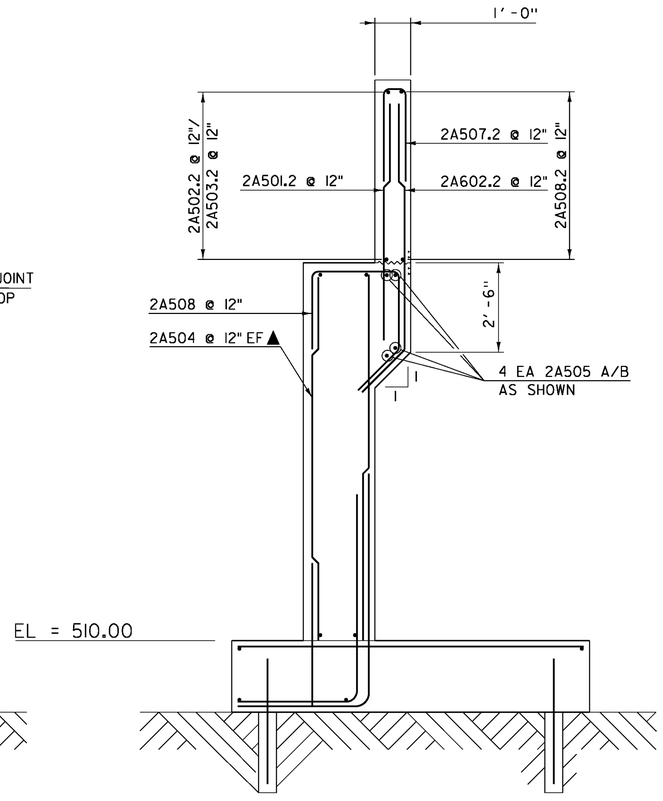
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: 86e055/STR/86e055sub.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C.CARLSON	DRAWN BY: G.ROKES
DESIGNED BY: D.PETERSON	CHECKED BY: D.PETERSON
BRIDGE 28 ABUTMENT 2 ELEVATION	SHEET 126 OF 186



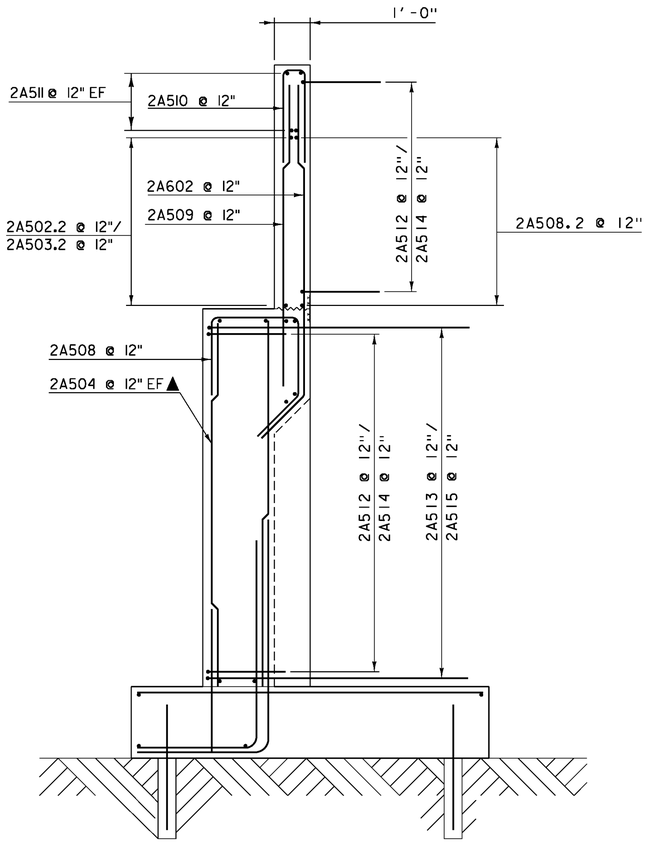
ABUTMENT #2 TYPICAL

SCALE ½" = 1'-0"



A-A SECTION ABUTMENT #2

SCALE ½" = 1'-0"



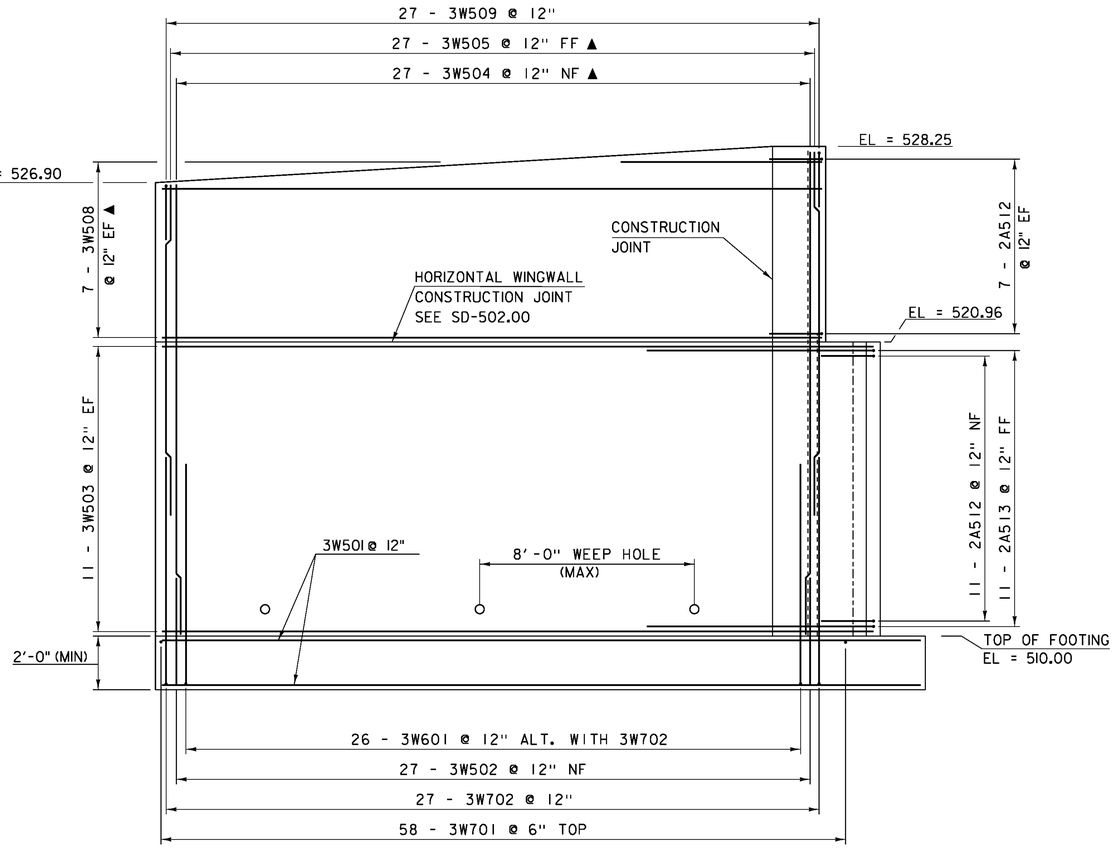
B-B SECTION ABUTMENT #2

SCALE ½" = 1'-0"

NOTE:

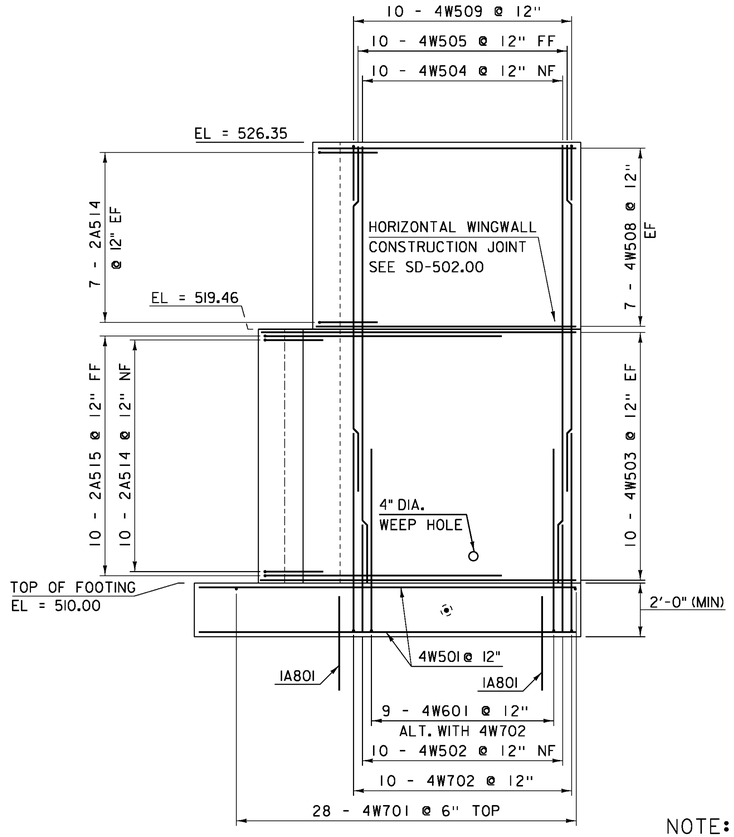
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: 86e055/STR/86e055sub.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C.CARLSON	DRAWN BY: G.ROKES
DESIGNED BY: D.PETERSON	CHECKED BY: D.PETERSON
BRIDGE 28 ABUTMENT 2 TYPICAL	SHEET 127 OF 186



WINGWALL #3 ELEVATION

SCALE 3/8" = 1'-0"



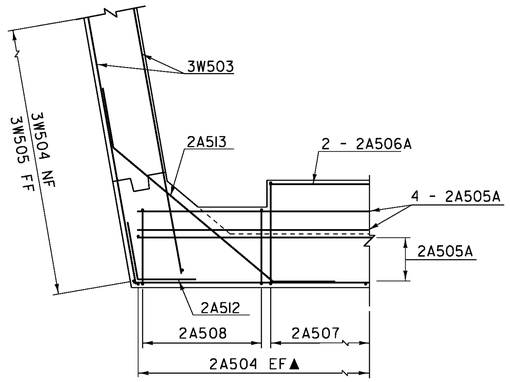
WINGWALL #4 ELEVATION

SCALE 3/8" = 1'-0"

NOTE:

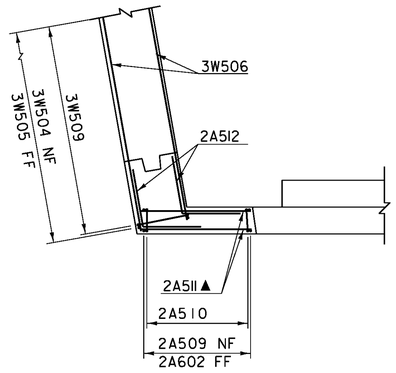
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: 86e055/STR/86e055sub.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C.CARLSON	DRAWN BY: G.ROKES
DESIGNED BY: D.PETERSON	CHECKED BY: D.PETERSON
BRIDGE 28 WINGWALL 3 AND 4 ELEVATIONS	SHEET 128 OF 186



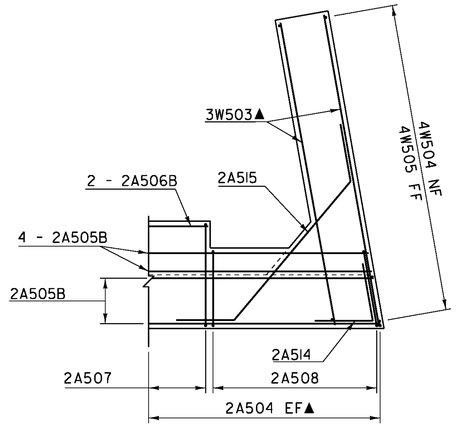
WINGWALL #3 CORNER BELOW BRIDGE SEAT

SCALE 3/8" = 1'-0"



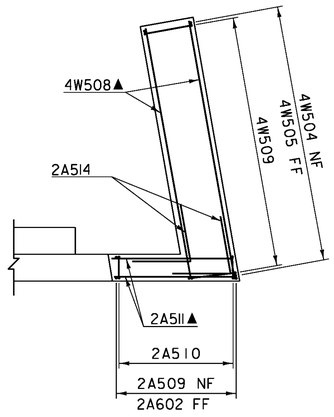
WINGWALL #3 CORNER ABOVE BRIDGE SEAT

SCALE 3/8" = 1'-0"



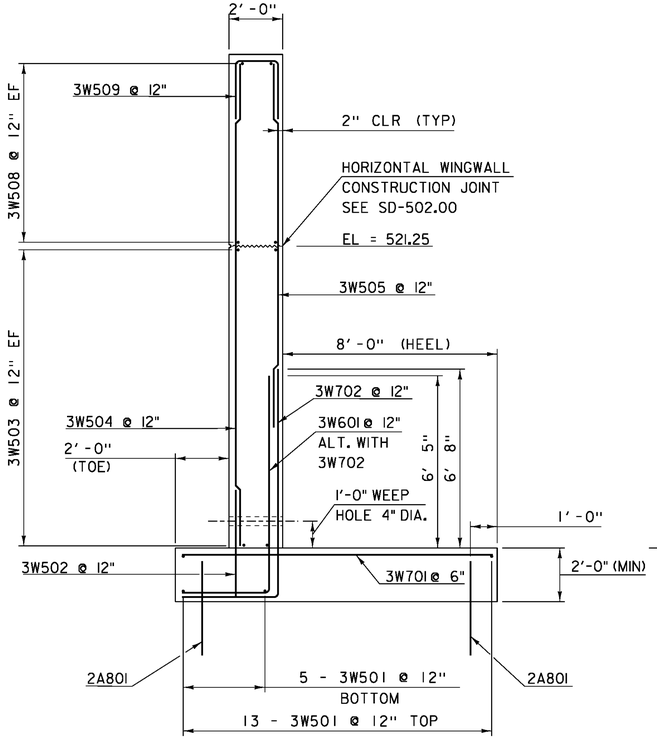
WINGWALL #4 CORNER BELOW BRIDGE SEAT

SCALE 3/8" = 1'-0"



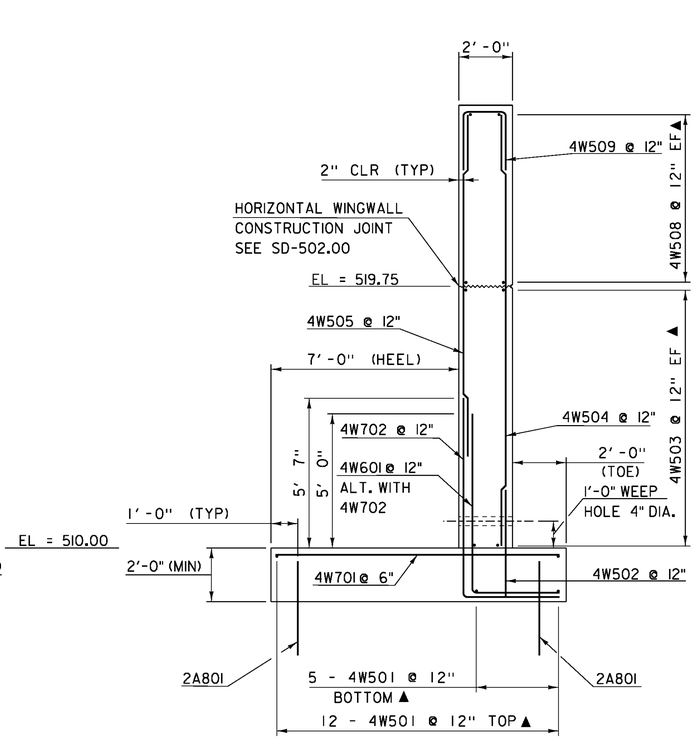
WINGWALL #4 CORNER ABOVE BRIDGE SEAT

SCALE 3/8" = 1'-0"



WINGWALL #3 TYPICAL

SCALE 3/8" = 1'-0"



WINGWALL #4 TYPICAL

SCALE 3/8" = 1'-0"

NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: 86e055/STR/86e055sub.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C.CARLSON	DRAWN BY: G.ROKES
DESIGNED BY: D.PETERSON	CHECKED BY: D.PETERSON
BRIDGE 28 WINGWALL 3 AND 4 TYPICALS	SHEET 129 OF 186

STATE OF VERMONT
AGENCY OF TRANSPORTATION

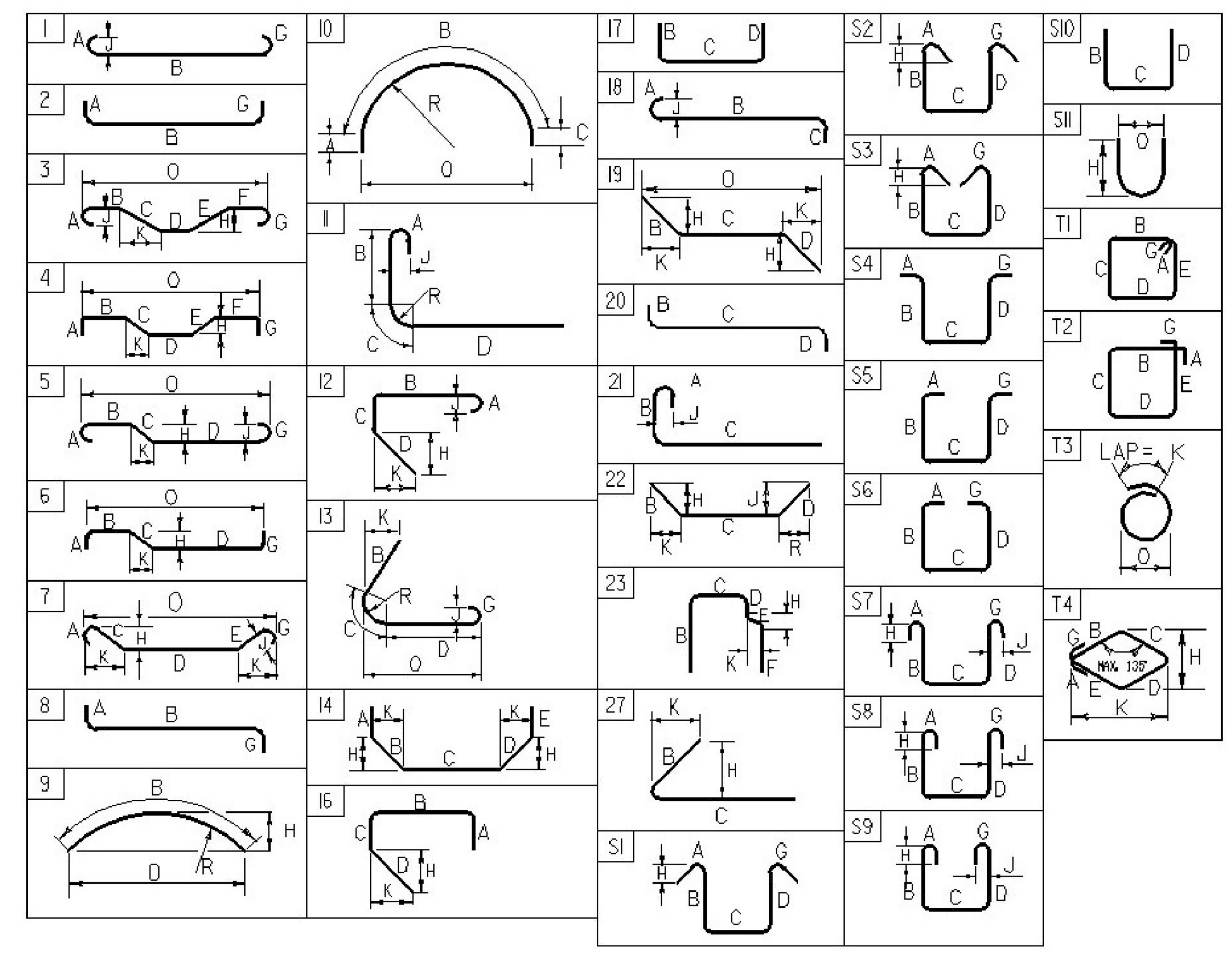
REINFORCING STEEL SCHEDULE

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	DECK																
▲	162	5	32'- 4"	S501.2	STR												
▲	240	5	28'- 6"	S502.2	STR												
	296	5	32'- 3"	S503.2	STR												
	4	5	37'- 2"	S504.2	STR												
	5	5	32'- 2"	S505.2	STR												
	325	5	3'- 1"	S506.2	S5	---	0'- 11"	0'- 5"	0'- 11"			0'- 10"					
	26	5	3'- 9"	S507.2	S5	0'- 10"	0'- 9"	0'- 7"	0'- 9"			0'- 10"					
	22	5	5'- 5"	S508.2	S5	0'- 10"	0'- 9"	2'- 3"	0'- 9"			0'- 10"					
▲	462	6	4'- 2"	S601.2	STR												
	APPROACH SLAB NO. 1																
	21	5	36'- 3"	1AS501	STR												
✳	38	9	20'- 9"	1AS901	1	1'- 3"	19'- 6"					---		1'- 0"			
	APPROACH SLAB NO. 2																
	22	5	29'- 10"	2AS501	STR												
	36	9	20'- 9"	2AS901	1	1'- 3"	19'- 6"					---		1'- 0"			
	ABUTMENT NO. 1																
	32	5	23'- 7"	1A501	STR												
	45	5	3'- 11"	1A502	STR												
✳ ▲	91	5	8'- 4"	1A504	STR												
	20	5	19'- 5"	1A505A	STR												
▲	22	5	25'- 7"	1A505B	STR												
	2	5	15'- 6"	1A506A	STR												
	2	5	22'- 1"	1A506B	STR												
	8	5	9'- 4"	1A509	STR												
✳	91	7	9'- 6"	1A701	STR												
	45	8	3'- 6"	1A801	STR												
	44	5	7'- 3"	1A503	17		3'- 8"	3'- 7"	---								
	37	5	10'- 7"	1A507	16	2'- 2"	3'- 10"	1'- 2"	3'- 5"				2'- 5"		2'- 5"		
	8	5	9'- 2"	1A508	16	2'- 2"	2'- 10"	2'- 2"	2'- 0"				1'- 5"		1'- 5"		
	8	5	5'- 2"	1A510	S10		2'- 2"	0'- 10"	2'- 2"								
	32	5	4'- 4"	1A511	22		2'- 2"	2'- 2"	---				1'- 9"	---	1'- 3"	---	
	18	5	8'- 3"	1A512	22		2'- 2"	6'- 1"	---				1'- 5"	---	1'- 8"	---	
	16	5	5'- 4"	1A513	22		2'- 1"	3'- 3"	---				1'- 4"	---	1'- 8"	---	
	45	6	7'- 10"	1A601	17		4'- 3"	3'- 7"	---								
	8	6	11'- 6"	1A602	22		2'- 0"	9'- 6"	---				1'- 5"	---	1'- 5"	---	
✳	40	5	7'- 7"	1A501.2	STR												
	8	5	20'- 9"	1A502.2	STR												
	8	5	27'- 11"	1A503.2	STR												
	6	5	15'- 6"	1A504.2	STR												
	6	5	22'- 1"	1A505.2	STR												
	12	5	7'- 9"	1A508.2	STR												
	37	5	6'- 2"	1A506.2	S10		2'- 2"	1'- 10"	2'- 2"								
	39	5	8'- 2"	1A507.2	S10		3'- 8"	0'- 10"	3'- 8"								
	37	6	9'- 11"	1A601.2	22		3'- 3"	6'- 8"	---				2'- 4"	---	2'- 4"	---	
	2	6	9'- 5"	1A602.2	22		1'- 9"	7'- 8"	---				1'- 3"	---	1'- 3"	---	
	20	8	3'- 5"	1A801.2	22		1'- 5"	2'- 0"	---				1'- 0"	---	1'- 0"	---	
	WINGWALL NO. 1																
	16	5	14'- 5"	1W501	STR												
	12	5	3'- 11"	1W502	STR												
▲	12	5	15'- 8"	1W504	STR												
▲	32	5	9'- 9"	1W505	STR												
▲	12	5	13'- 0"	1W506	STR												
✳	30	6	9'- 6"	1W601	STR												
	11	5	9'- 8"	1W503	17		3'- 7"	6'- 1"	---								
	12	5	5'- 11"	1W507	S10		2'- 2"	1'- 7"	2'- 2"								
	12	6	10'- 2"	1W602	17		3'- 7"	6'- 7"	---								
	WINGWALL NO. 2																
	16	5	27'- 12"	2W501	STR												
	25	5	3'- 11"	2W502	STR												
	25	5	13'- 11"	2W504	STR												
	32	5	14'- 9"	2W505	STR												
	16	5	14'- 2"	2W506	STR												
	16	5	11'- 8"	2W507	STR												
	25	5	11'- 3"	2W508	STR												

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	56	6	9'- 6"	2W601	STR												
	24	5	9'- 8"	2W503	17		3'- 7"	6'- 1"	---								
	25	5	5'- 11"	2W509	S10		2'- 2"	1'- 7"	2'- 2"								
	25	6	10'- 2"	2W602	17		3'- 7"	6'- 7"	---								
	ABUTMENT NO. 2																
	32	5	24'- 1"	2A501	STR												
	43	5	3'- 11"	2A502	STR												
▲	86	5	11'- 0"	2A504	STR												
▲	28	5	26'- 1"	2A505A	STR												
	26	5	17'- 7"	2A505B	STR												
	2	5	21'- 1"	2A506A	STR												
	2	5	11'- 3"	2A506B	STR												
	10	5	8'- 11"	2A509	STR												
▲	8	5	4'- 0"	2A511	STR												
	42	8	3'- 6"	2A801	STR												
✳	93	8	9'- 6"	2A802	STR												
	42	5	9'- 5"	2A503	17		5'- 10"	3'- 7"	---								
	31	5	9'- 11"	2A507	16	2'- 2"	3'- 7"	1'- 2"	3'- 0"				2'- 6"		2'- 6"		
	12	5	8'- 7"	2A508	16	2'- 2"	2'- 7"	2'- 2"	1'- 8"				1'- 5"		1'- 5"		
	10	5	4'- 11"	2A510	S10		2'- 2"	0'- 7"	2'- 2"								
	37	5	12'- 4"	2A512	22		2'- 2"	8'- 0"	2'- 2"				1'- 5"	1'- 5"	1'- 8"	1'- 8"	
	11	5	4'- 4"	2A513	22		2'- 2"	2'- 2"	---				2'- 2"	---	0'- 5"	---	
	36	5	11'- 1"	2A514	22		2'- 2"	6'- 9"	2'- 2"				1'- 8"	1'- 8"	1'- 5"	1'- 5"	
	10	5	4'- 4"	2A515	22		2'- 2"	2'- 2"	---				2'- 2"	---	0'- 5"	---	
	43	6	8'- 0"	2A601	17		6'- 5"	1'- 7"	---								
	33	5	7'- 3"	2A501.2	STR												
	7	5	26'- 5"	2A502.2	STR												
	7	5	17'- 1"	2A503.2	STR												
	5	5	21'- 1"	2A504.2	STR												
	5	5	11'- 3"	2A505.2	STR												
	16	5	7'- 9"	2A508.2	STR												
	31	5	5'- 11"	2A506.2	S10		2'- 2"	1'- 7"	2'- 2"								
	33	5	5'- 11"	2A507.2	S10		2'- 8"	0'- 7"	2'- 8"								
✳	32	6	8'- 11"	2A601.2	22		2'- 10"	6'- 1"	---				2'- 0"	---	2'- 0"	---	
	2	6	8'- 6"	2A602.2	22		1'- 5"	7'- 1"	---				1'- 0"	---	1'- 0"	---	
	15	8	3'- 5"	2A801.2	22		1'- 5"	2'- 0"	---				1'- 0"	---	1'- 0"	---	
	WINGWALL NO. 3																
	17	5	28'- 3"	3W501	STR												
	26	5	3'- 11"	3W502	STR												
	22	5	26'- 6"	3W503	STR												
▲	27	5	18'- 0"	3W504	STR												
▲	27	5	13'- 6"	3W505	STR												
▲	14	5	24'- 6"	3W508	STR												
	58	7	11'- 6"	3W701	STR												
	27	5	5'- 11"	3W509	S10		2'- 2"	1'- 7"	2'- 2"								
	26	6	11'- 9"	3W601	17		3'- 7"	8'- 2"	---								
	27	7	12'- 0"	3W702	17		3'- 7"	8'- 5"	---								
	WINGWALL NO. 4																
	16	5	13'- 11"	4W501	STR												
	10	5	3'- 11"	4W502	STR												
	20	5	11'- 6"	4W503	STR												
	10	5	16'- 1"	4W504	STR												
	10	5	12'- 8"	4W505	STR												
	14	5	9'- 6"	4W508	STR												
	28	7	10'- 6"	4W701	STR												
	10	5	5'- 11"	4W509	S10		2'- 2"	1'- 7"	2'- 2"								
	9	6	10'- 4"	4W601	17		3'- 7"	6'- 9"	---								
	10	7	10'- 11"	4W702	17		3'- 7"	7'- 4"	---								

~ NOTES ~

1. UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO. 18 SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M 31 (ASTM A 615-SI). ALL BARS SHALL BE GRADE 60, UNLESS OTHERWISE DESIGNATED.
2. FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
3. BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
4. ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
5. "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
6. "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
7. WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
8. ▲ DENOTES BARS TO BE CUT IN FIELD.
9. ✳ DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
10. △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
11. E IN BAR MARK PREFIX DENOTES EPOXY COATED REINFORCING STEEL.



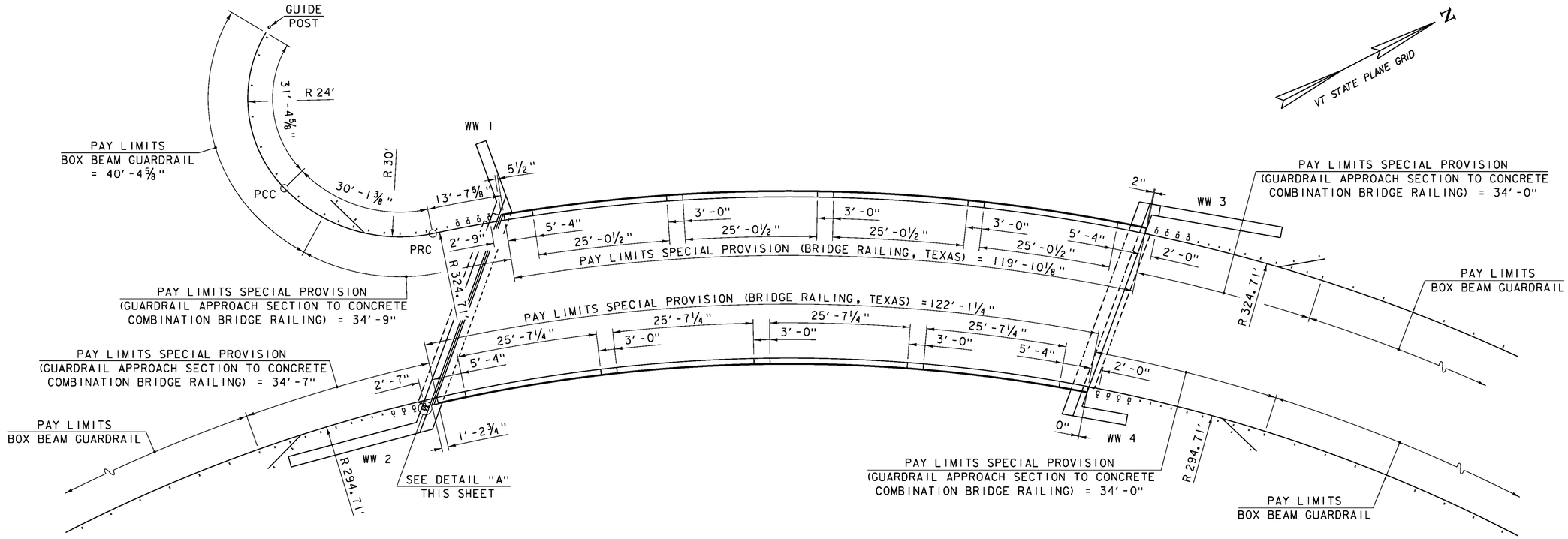
ASTM STANDARD REINFORCING BARS				
#3	0.376	0.375	0.11	1.178
#4	0.668	0.500	0.20	1.571
#5	1.043	0.625	0.31	1.963
#6	1.502	0.750	0.44	2.356
#7	2.04	0.875	0.60	2.749
#8	2.670	1.000	0.79	3.14
#9	3.400	1.13	1.00	3.54
#10	4.3	1.270	1.27	3.990
#11	5.31	1.410	1.56	4.430
#14	7.65	1.69	2.25	5.32
#18	13.60	2.26	4.00	7.09

~ REINFORCING STEEL CORROSION RESISTANCE LEVEL ~

THE REINFORCING STEEL MARKS IN THIS SCHEDULE INDICATE THE REQUIRED BAR CORROSION RESISTANCE LEVEL. CORROSION RESISTANCE LEVEL IS DENOTED WITH A .2 FOR LEVEL TWO SUFFIX OR .3 FOR LEVEL THREE SUFFIX, .1 FOR LEVEL ONE IS TO BE OMITTED. THE BAR MATERIAL TYPE AND BAR STEEL GRADE PROVIEDED FOR EACH CORRIOSION LEVEL WILL BE RECORDED ON THE PLAN SET PI SHEET FOR AS-BUILT RECORD PLAN ARCHIVES.

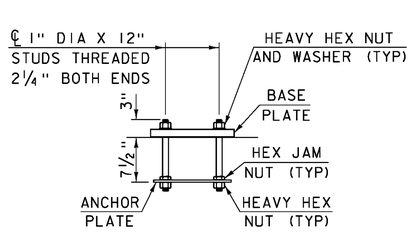
PROJECT NAME: **ROYALTON**
PROJECT NUMBER: **BRS 0147(13)**

FILE NAME: **\BR 28\s85e066rss.dgn** PLOT DATE: **8/27/2013**
PROJECT MANAGER: **C. CARLSON** DRAWN BY: **G. ROKES**
DESIGNED BY: **D. PETERSON** CHECKED BY: **D. PETERSON**
BRIDGE 28 REINFORCING STEEL SCHEDULE SHEET 130 OF 186



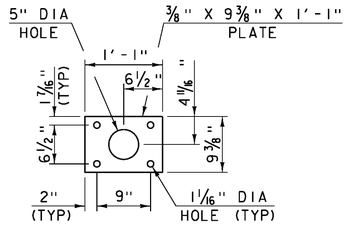
RAIL LAYOUT

SCALE: 1" = 10'-0"



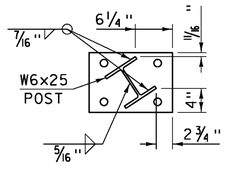
POST ANCHORAGE

SCALE: 1" = 1'-0"



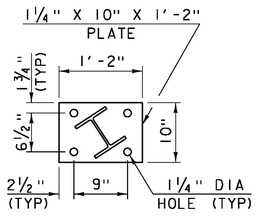
ANCHOR PLATE DETAIL

SCALE: 1" = 1'-0"



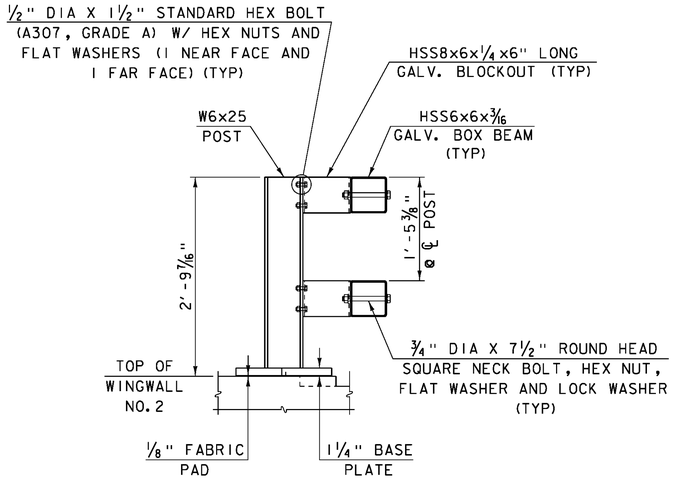
POST LOCATION DETAIL

SCALE: 1" = 1'-0"



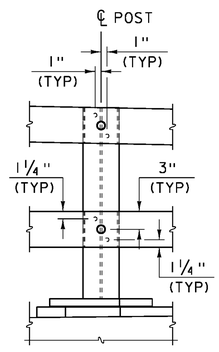
BASE PLATE DETAIL

SCALE: 1" = 1'-0"



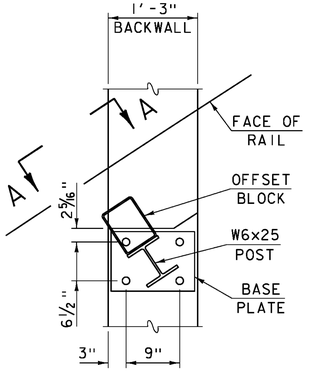
RAIL SECTION

SCALE: 1" = 1'-0"



VIEW "A-A"

SCALE: 1" = 1'-0"

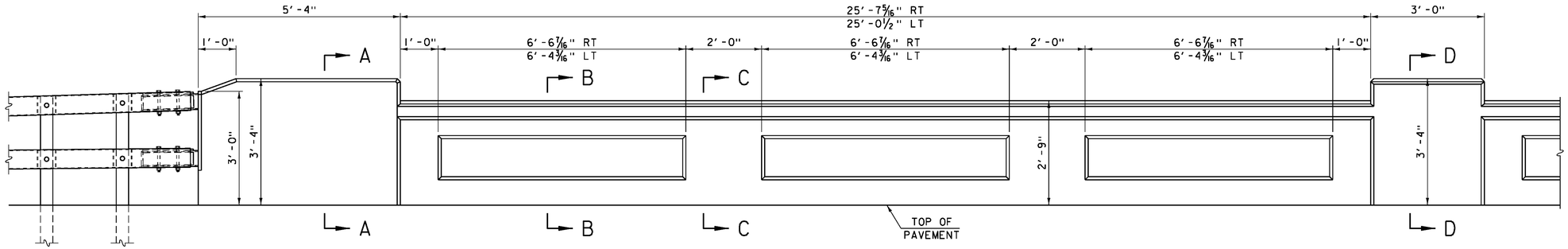


DETAIL "A"

SCALE: 1" = 1'-0"

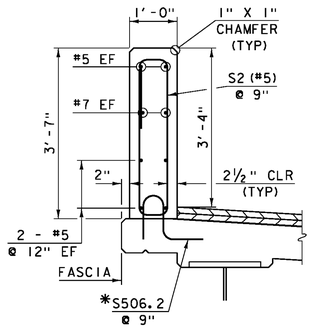
NOTE:
HOLES FOR BLOCKOUT AND RAIL ATTACHMENT SHALL BE 1/16" LARGER THAN BOLT SIZE.

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: \BR 28\s86e055rail_28.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: G. ROY	CHECKED BY: D. PETERSON
BRIDGE 28 RAIL LAYOUT	SHEET 131 OF 186



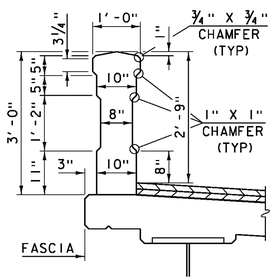
PARTIAL BRIDGE RAIL ELEVATION
(VIEWED FROM CENTERLINE OF ROADWAY)

SCALE: 3/4" = 1'-0"



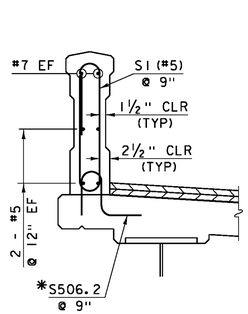
SECTION "A-A"

SCALE: 3/4" = 1'-0"



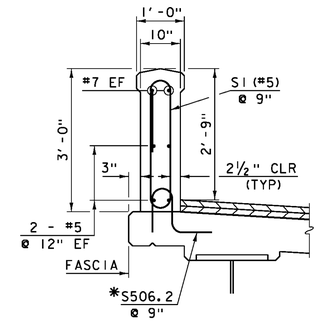
SECTION "B-B"
WITHOUT REINFORCING

SCALE: 3/4" = 1'-0"



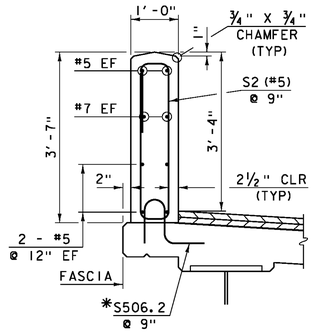
SECTION "B-B"

SCALE: 3/4" = 1'-0"



SECTION "C-C"

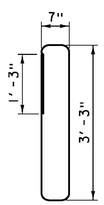
SCALE: 3/4" = 1'-0"



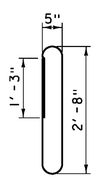
SECTION "D-D"

SCALE: 3/4" = 1'-0"

*PAID FOR UNDER PAY ITEM 507.12, "REINFORCING STEEL, LEVEL II".



S2 (#5)



S1 (#5)

BRIDGE RAIL REINFORCING DETAILS

SCALE: 3/4" = 1'-0"

NOTES:

1. ALL REINFORCING STEEL IN THE BRIDGE RAIL SHALL BE LEVEL II.
2. LAP SPLICES FOR #7 BARS SHALL BE 3'-0".

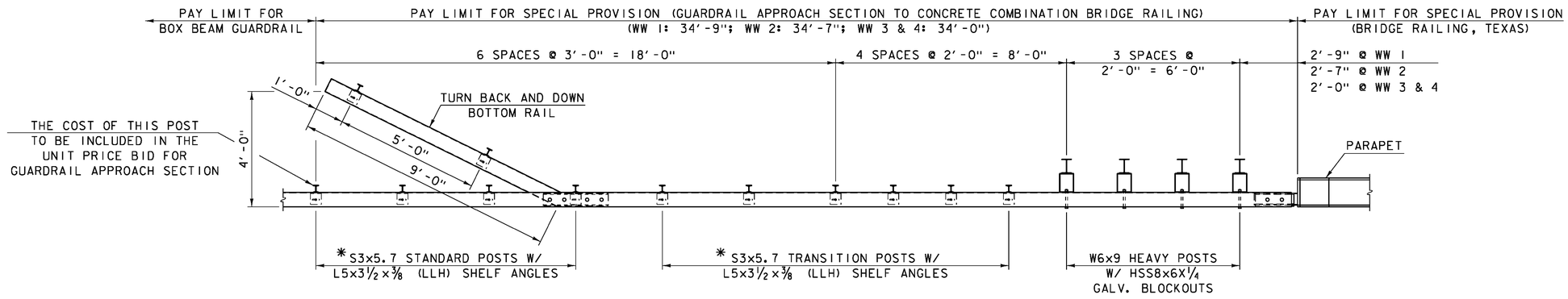
NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR 28\s86e055rail_28.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 28 BRIDGE RAIL DETAILS

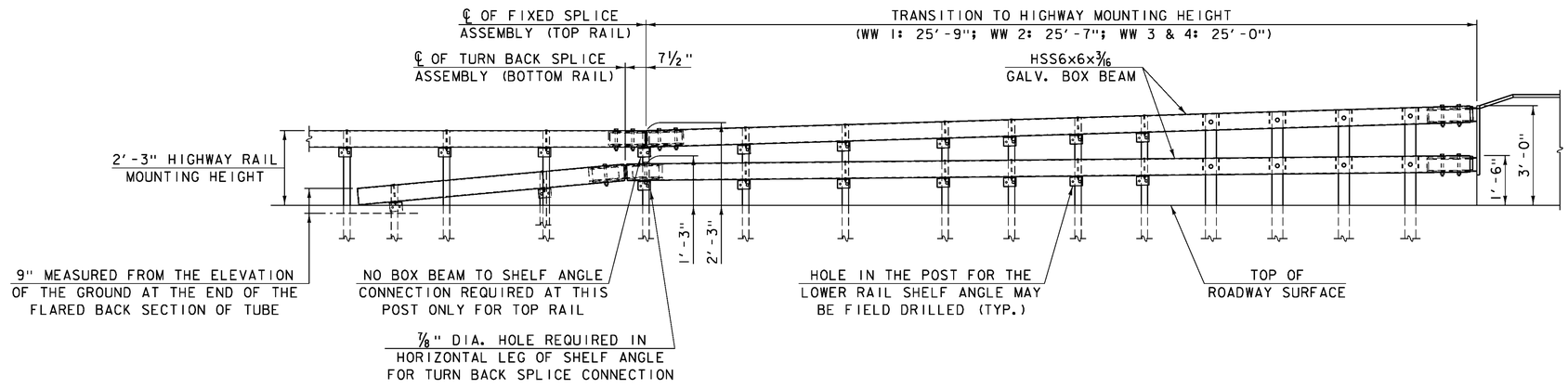
PLOT DATE: 08-OCT-2013
DRAWN BY: R. PELLETT
CHECKED BY: D. PETERSON
SHEET 132 OF 186



* SEE STD. GI-B FOR
POST CONNECTION DETAILS

APPROACH RAIL PLAN

NOT TO SCALE

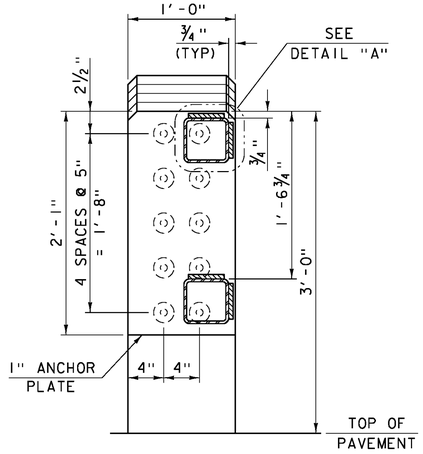


APPROACH RAIL ELEVATION

NOT TO SCALE

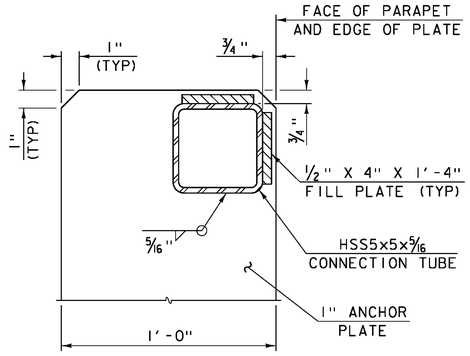
PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)

FILE NAME: \BR 28\s86e055rail_28.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: D. PETERSON	CHECKED BY: D. PETERSON
BRIDGE 28 APPROACH RAIL PLAN AND ELEVATION	SHEET 133 OF 186



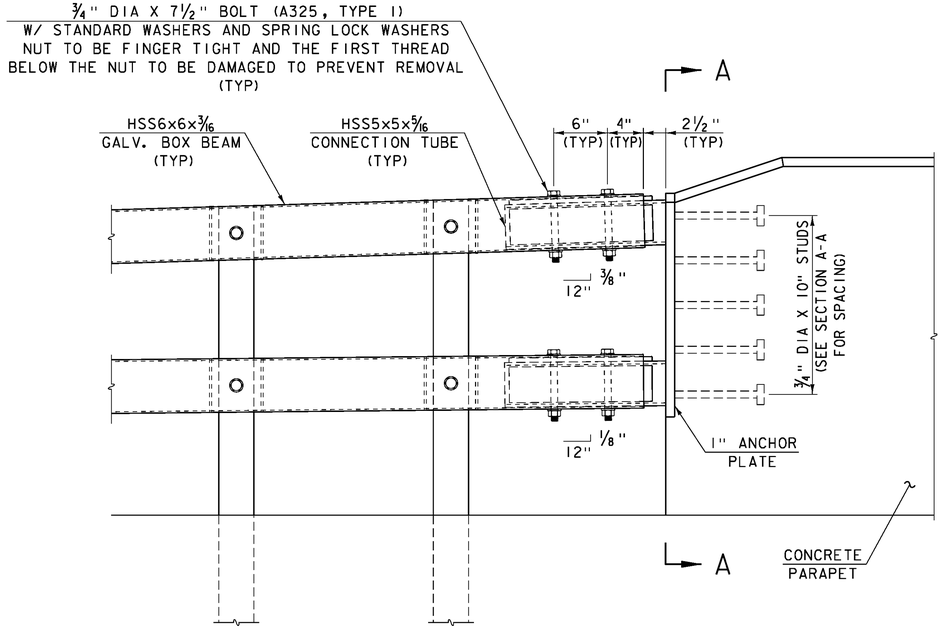
SECTION A-A

NOT TO SCALE



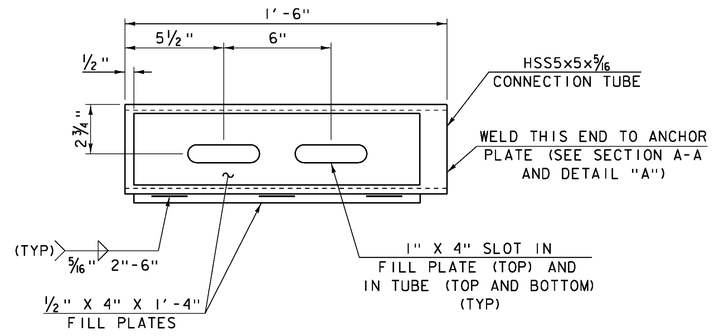
DETAIL "A"

NOT TO SCALE



APPROACH RAIL CONNECTION DETAIL

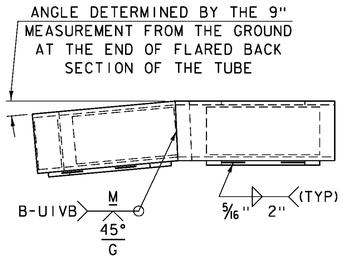
NOT TO SCALE



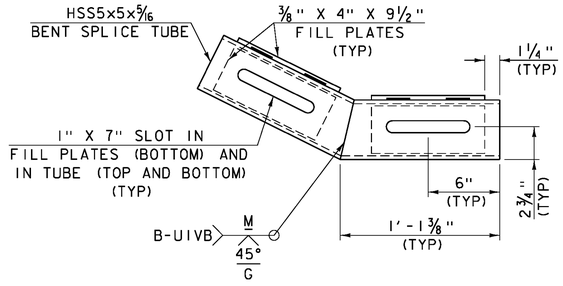
CONNECTION TUBE DETAIL PLAN

NOT TO SCALE

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: \BR 28\s86e055rail_28.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: G. ROY	CHECKED BY: D. PETERSON
BRIDGE 28 APPROACH RAIL DETAILS (1)	SHEET 134 OF 186



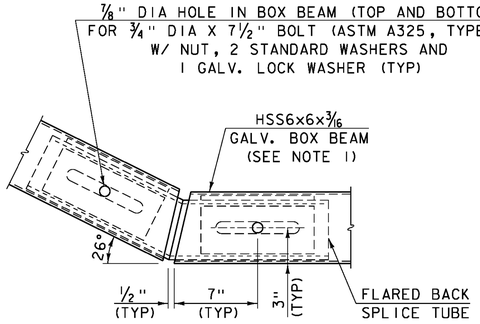
ELEVATION



PLAN

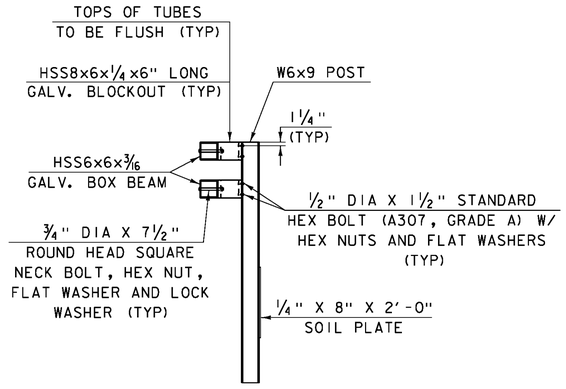
FLARED BACK SPLICE TUBE DETAIL

NOT TO SCALE



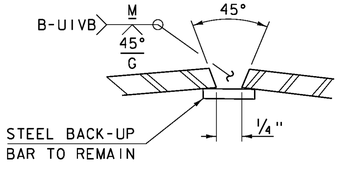
PLAN BOTTOM RAIL FLARE BACK DETAIL

NOT TO SCALE



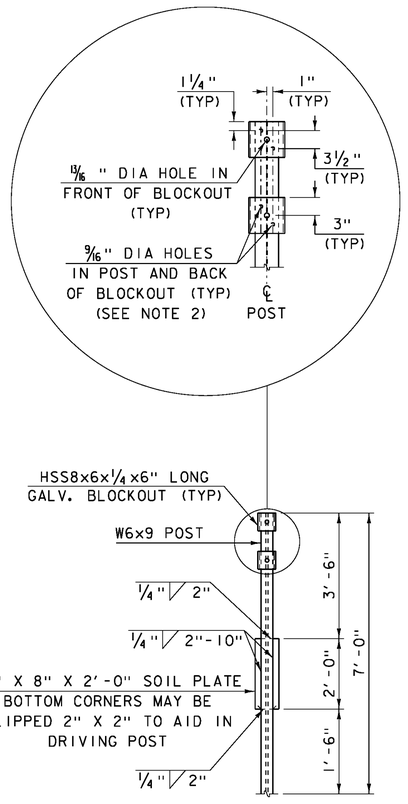
HEAVY POST ELEVATION

NOT TO SCALE



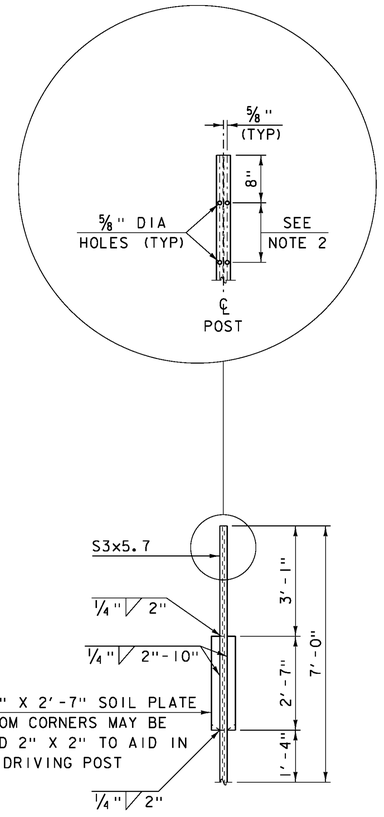
WELD DETAIL FOR SPLICE TUBE

NOT TO SCALE



HEAVY POST DETAIL

NOT TO SCALE



TRANSITION POST DETAIL

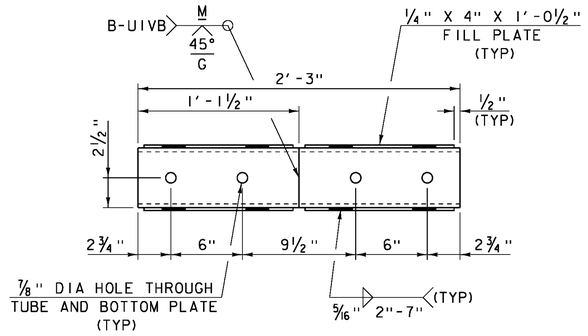
NOT TO SCALE

NOTES:

1. PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE BOX BEAM RAILS, SPLICE TUBES AND FILL PLATES.

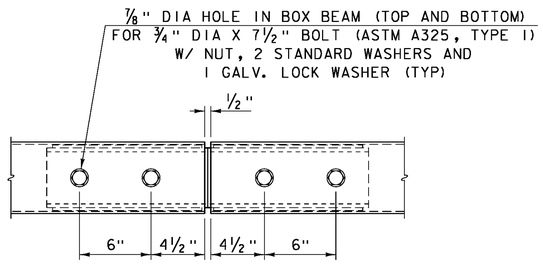
2. HOLES IN POST FOR LOWER RAIL MAY BE LOCATED AND DRILLED IN THE FIELD. IF SO, GALVANIZING SHALL BE REPAIRED.

PROJECT NAME: ROYALTON	
PROJECT NUMBER: BRS 0147 (13)	
FILE NAME: \BR 28\s86e055rail_28.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: G. ROY	CHECKED BY: D. PETERSON
BRIDGE 28 APPROACH RAIL DETAILS (2)	SHEET 135 OF 186



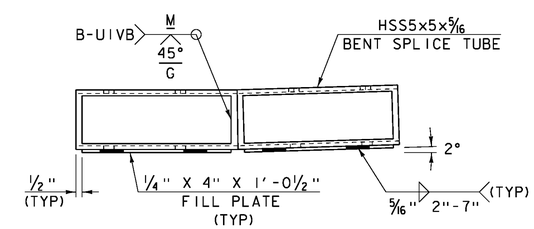
FIXED SPLICE TUBE PLAN

NOT TO SCALE



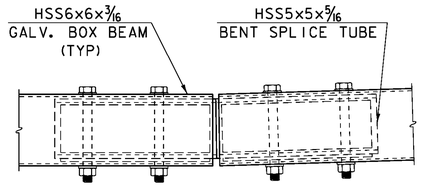
FIXED SPLICE ASSEMBLY PLAN

NOT TO SCALE



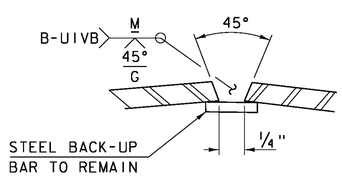
FIXED SPLICE TUBE ELEVATION

NOT TO SCALE



FIXED SPLICE ASSEMBLY ELEVATION

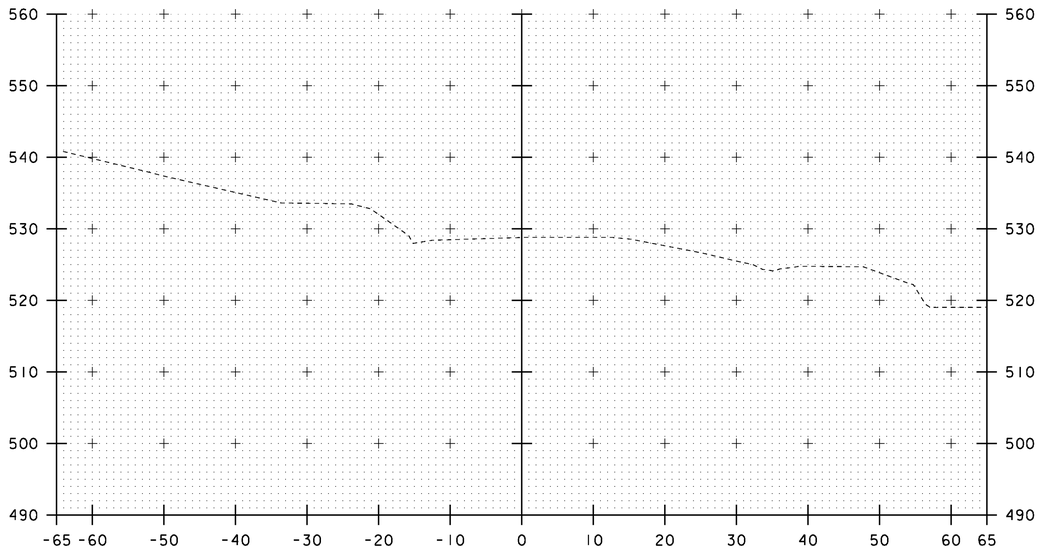
NOT TO SCALE



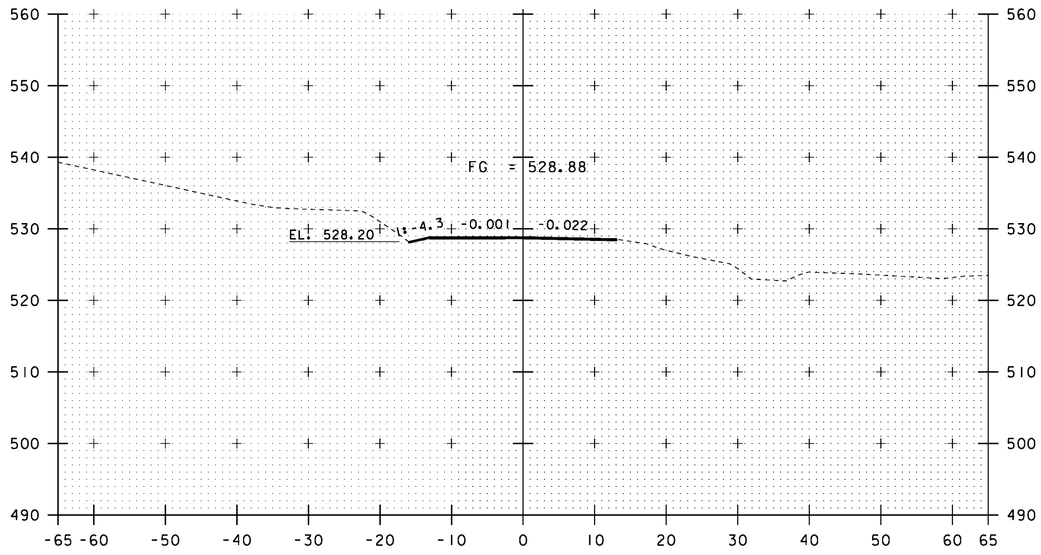
WELD DETAIL FOR SPLICE TUBE

NOT TO SCALE

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: \BR 28\s86e055rail_28.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: G. ROY	CHECKED BY: D. PETERSON
BRIDGE 28 APPROACH RAIL DETAILS (3)	SHEET 136 OF 186

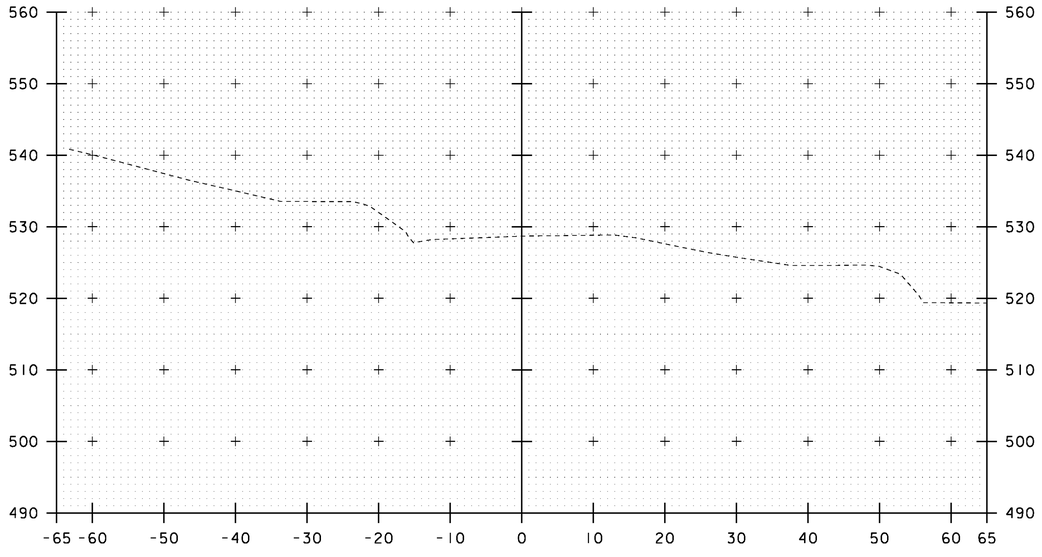


412+25

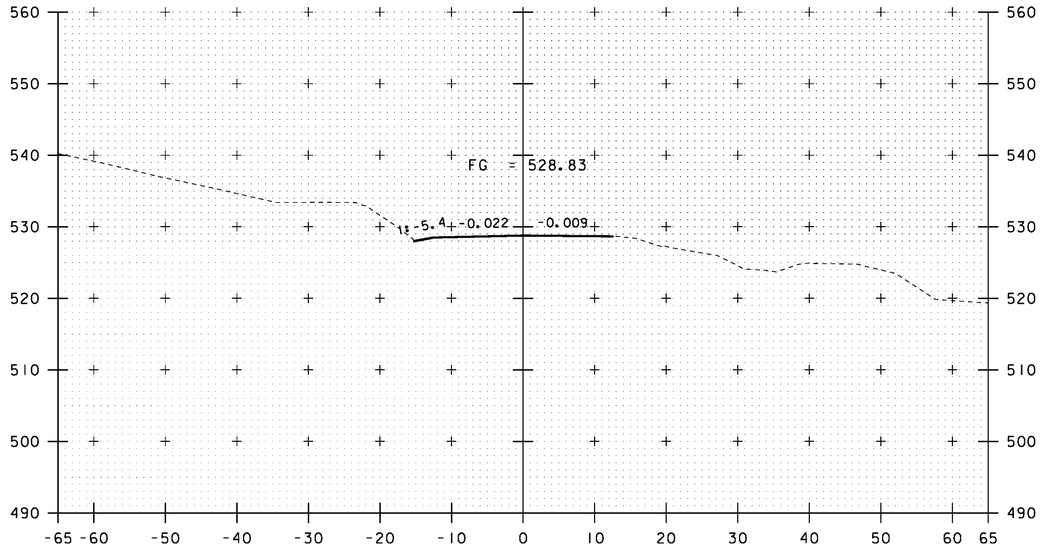


412+75

STA 412+75.00 LT. - TH #22 STA 31+40 LT
CONSTRUCT GRASS-LINED DITCH



412+00



412+50

BEGIN APPROACH
MATCH EXISTING

10 0 10

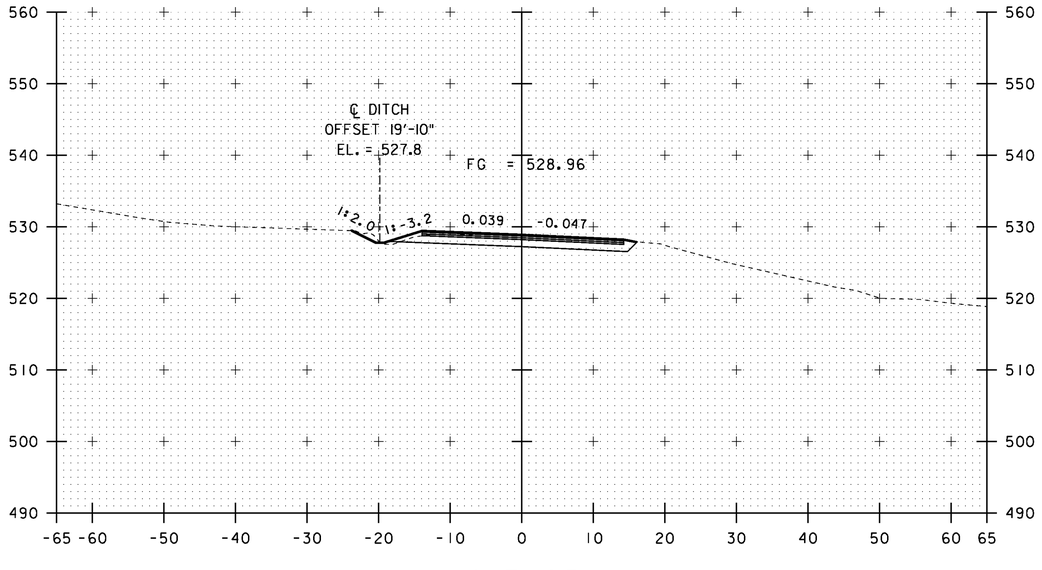
SCALE: 1" = 10'-0"

STA. 412+00 TO STA. 412+75

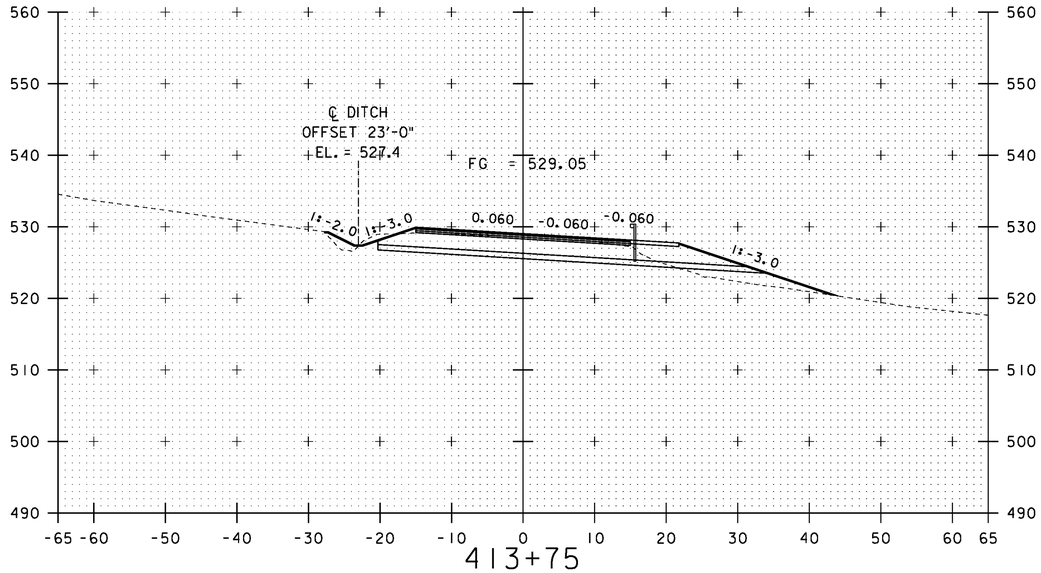
PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR_28\s86e055xsl_28.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 28 VT 14 CROSS SECTIONS (1)

PLOT DATE: 08-OCT-2013
DRAWN BY: STR3
CHECKED BY: C. CARLSON
SHEET 137 OF 186



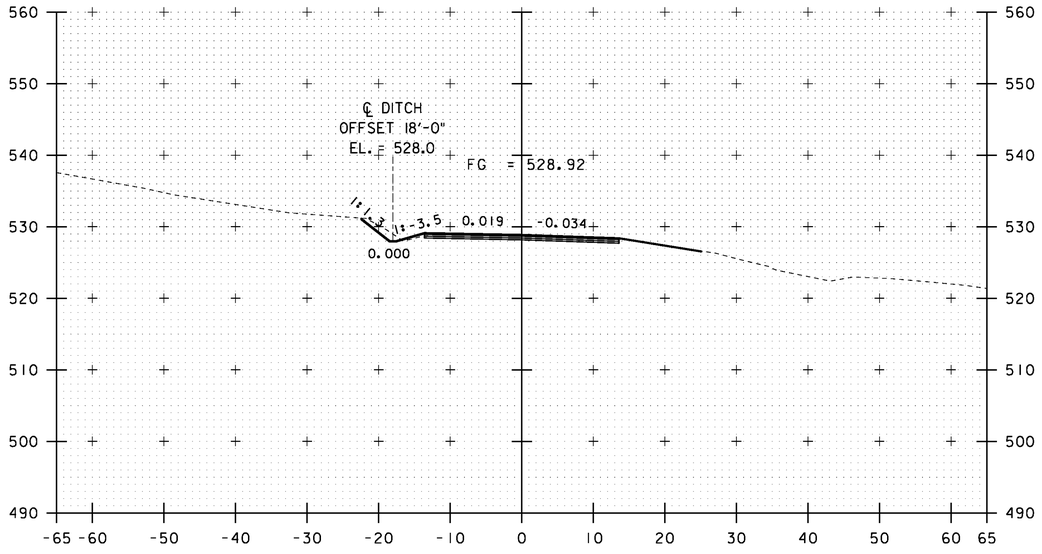
413+25



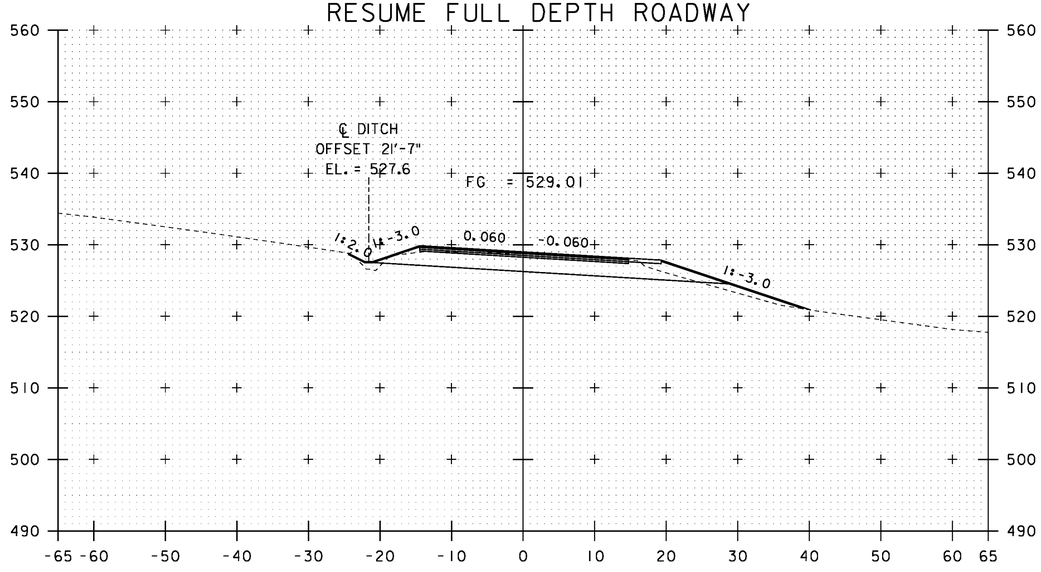
413+75

413+70.00
END APPROACH
RESUME FULL DEPTH ROADWAY

STA 413+65.00 C/L
REMOVE EXISTING 18" CGMP



413+00

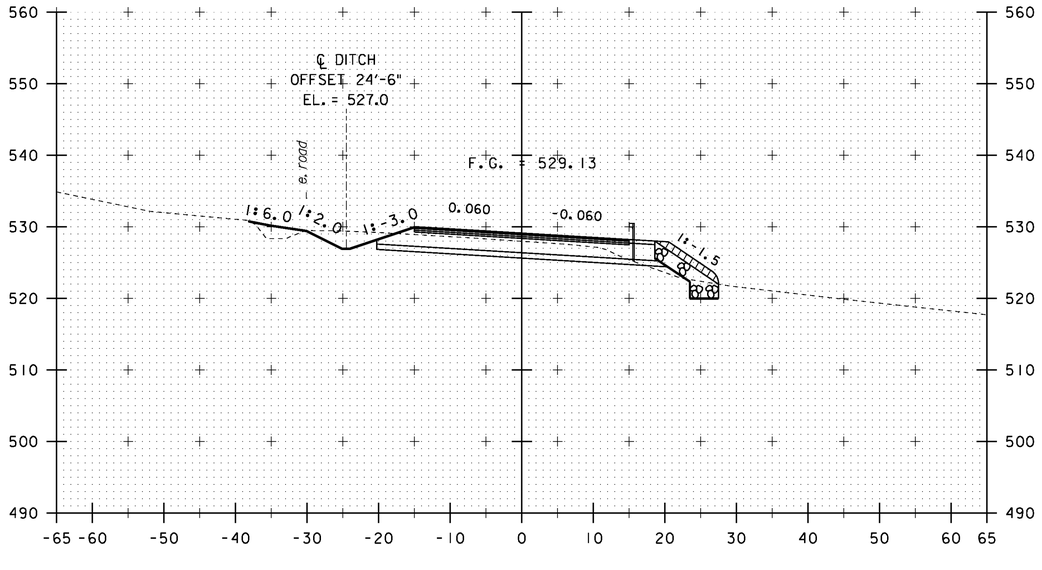


413+50

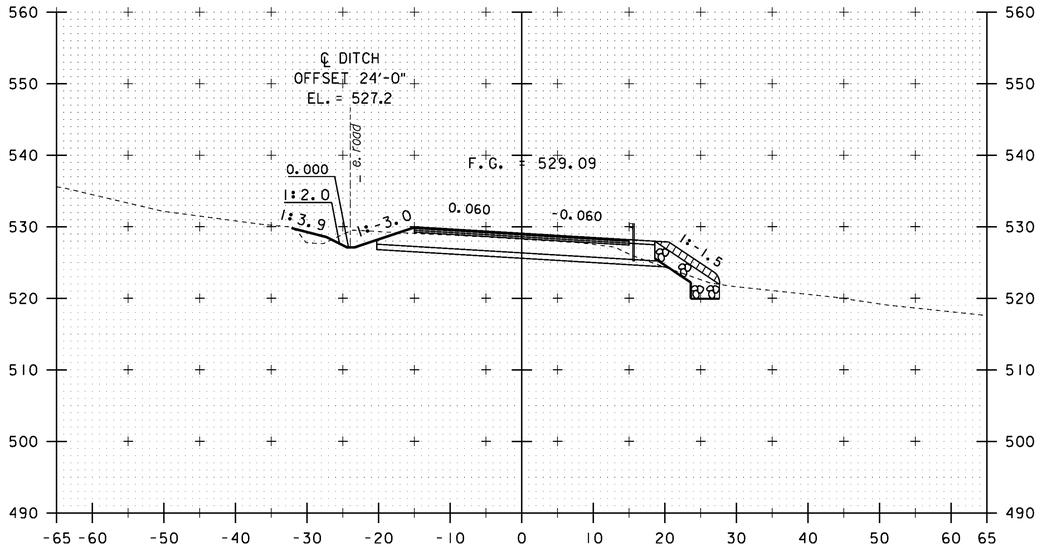
10 0 10
SCALE: 1" = 10'-0"

STA. 413+00 TO STA. 413+75

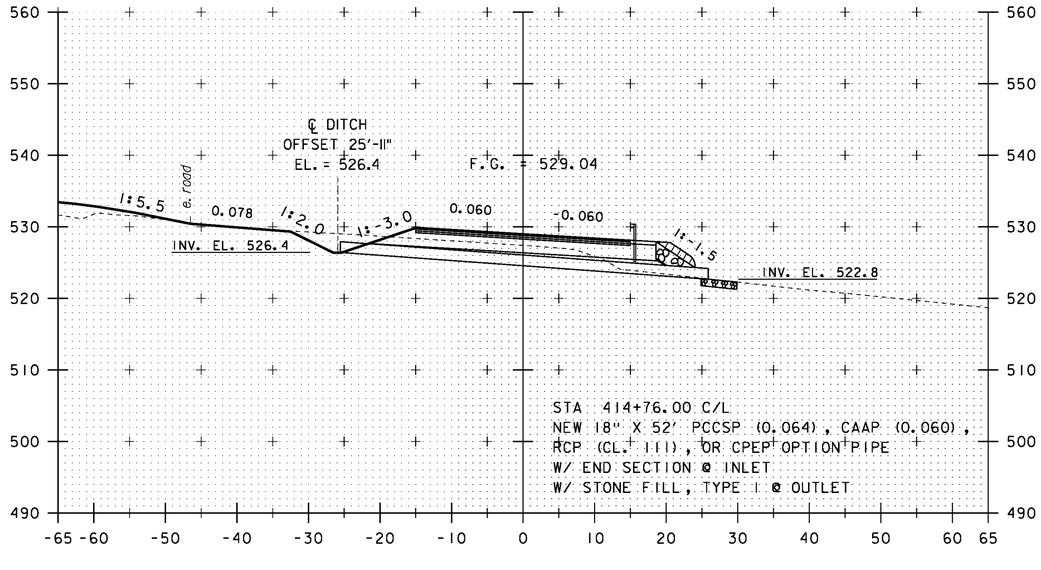
PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: \BR_28\s86e055xsl_28.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: STR3
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 28 VT 14 CROSS SECTIONS (2)	SHEET 138 OF 186



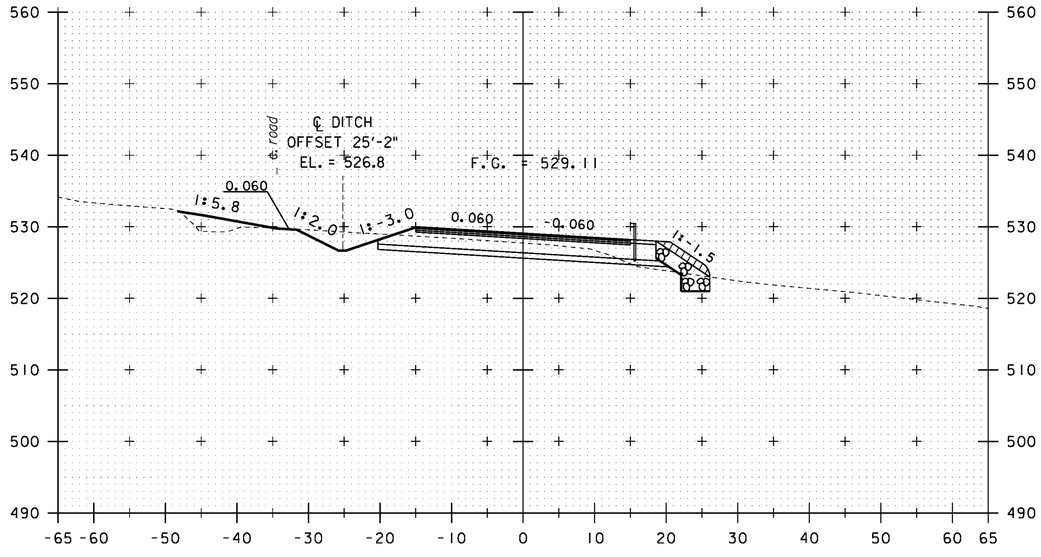
414+25



414+00



414+75



414+50

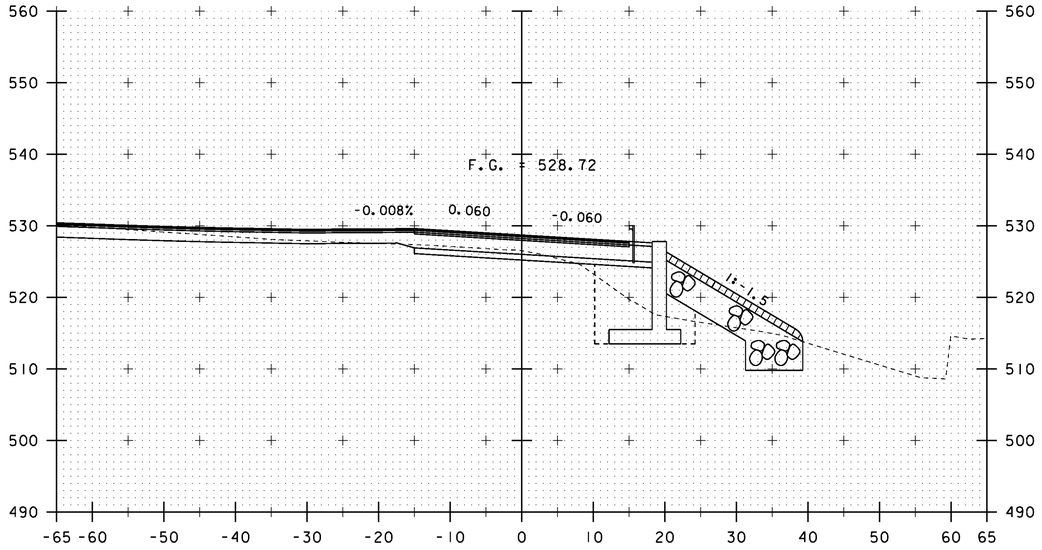
10 0 10

SCALE: 1" = 10'-0"

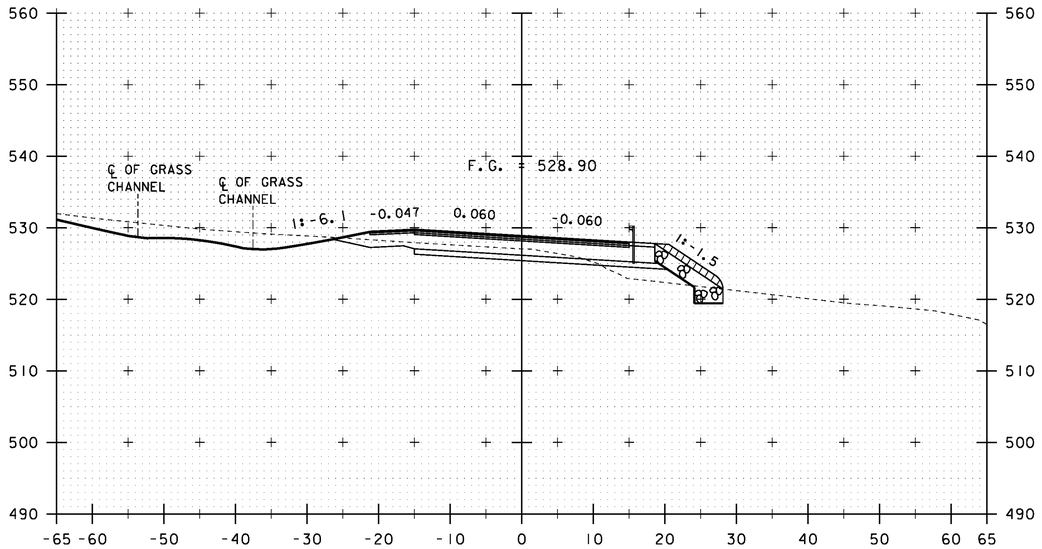
STA. 414+00 TO STA. 414+75

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)

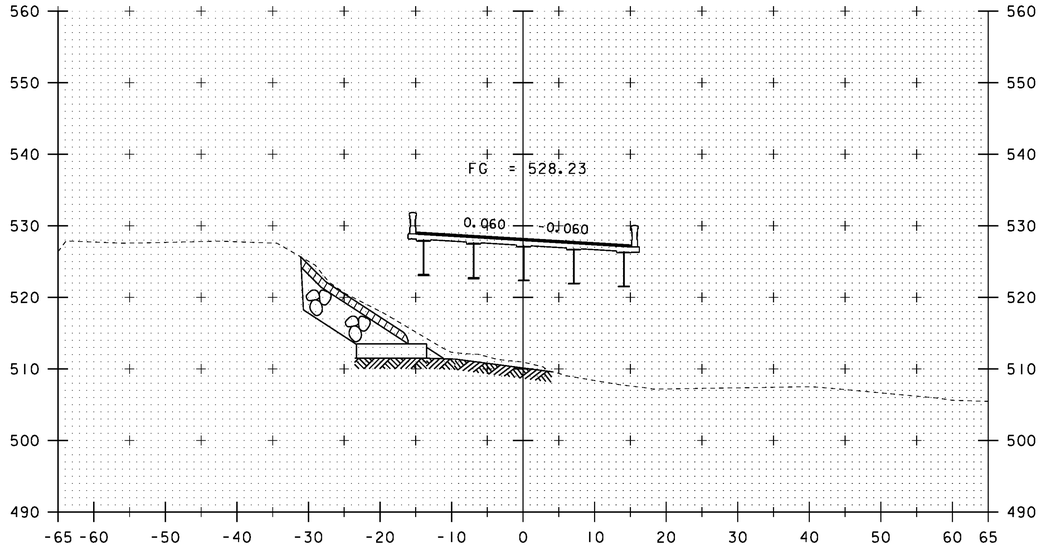
FILE NAME: \BR_28\s86e055xsl_28.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: STR3
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 28 VT 14 CROSS SECTIONS (3)	SHEET 139 OF 186



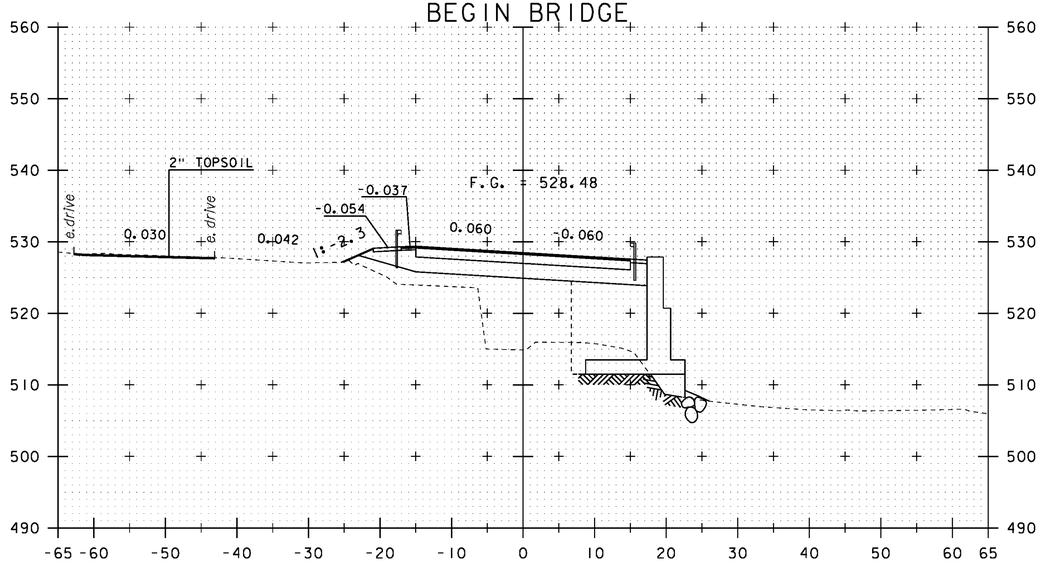
415+25



415+00



415+75
STA 415+61.37
END ROADWAY
BEGIN BRIDGE



415+50

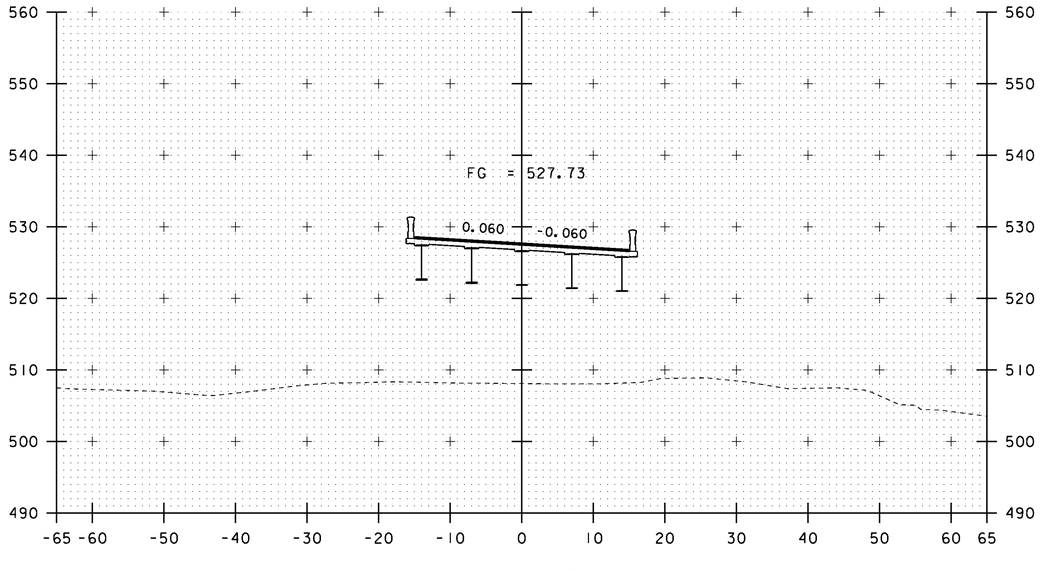
10 0 10
SCALE: 1" = 10'-0"

STA. 415+00 TO STA. 415+75

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

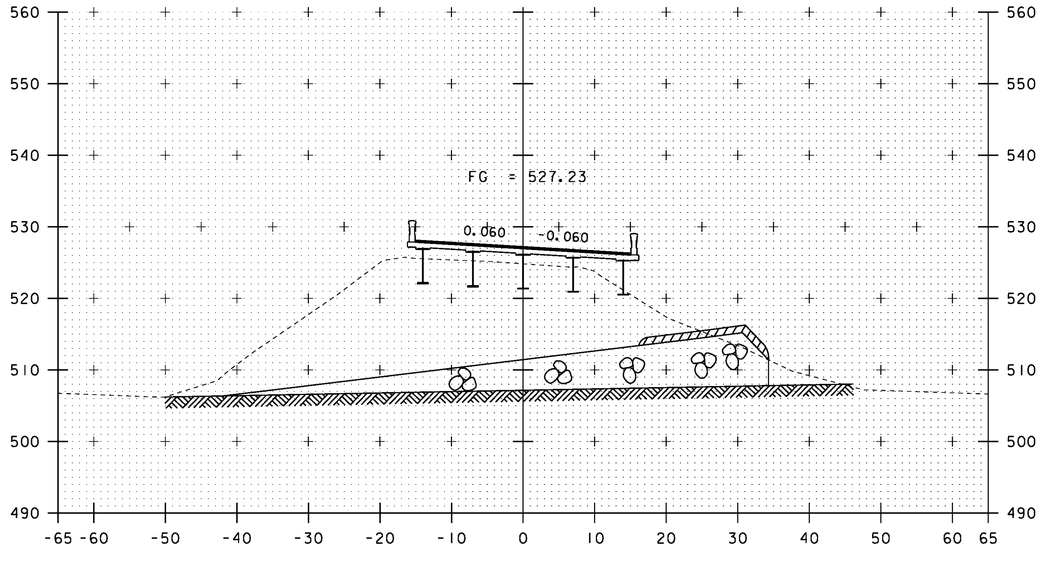
FILE NAME: \BR_28\s86e055xsl_28.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 28 VT 14 CROSS SECTIONS (4)

PLOT DATE: 08-OCT-2013
DRAWN BY: STR3
CHECKED BY: C. CARLSON
SHEET 140 OF 186

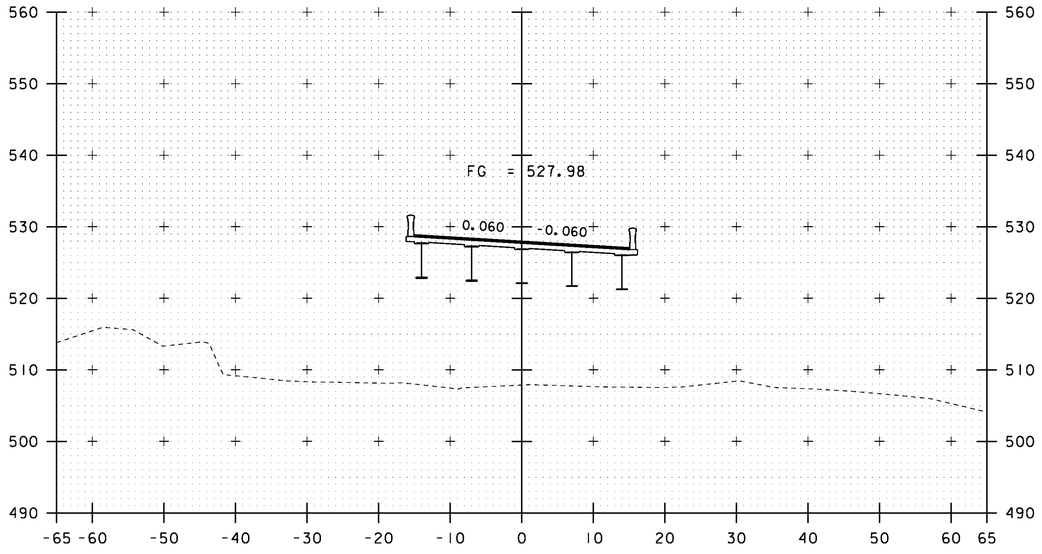


416+25

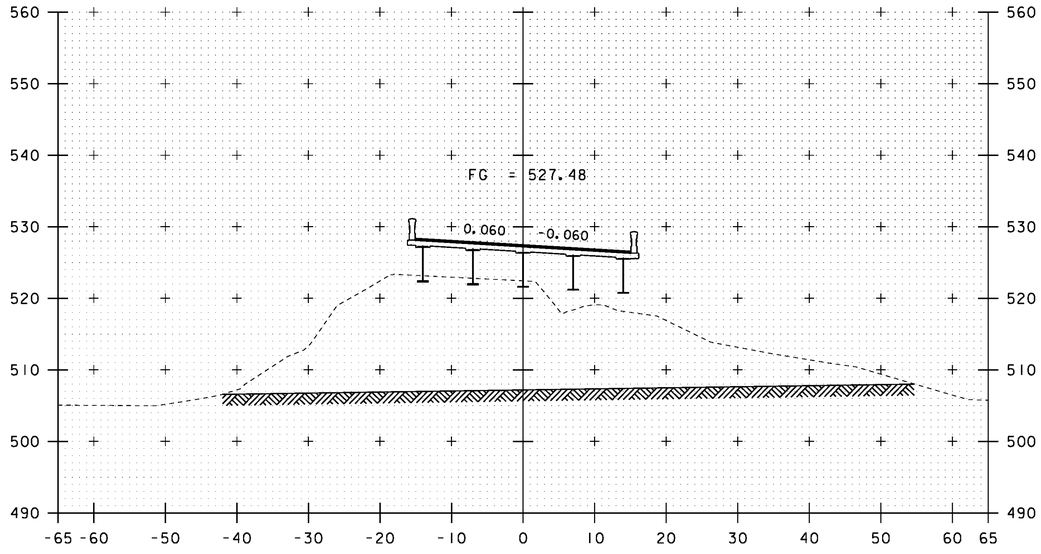
STA 416+85.02
END BRIDGE
RESUME ROADWAY



416+75



416+00



416+50

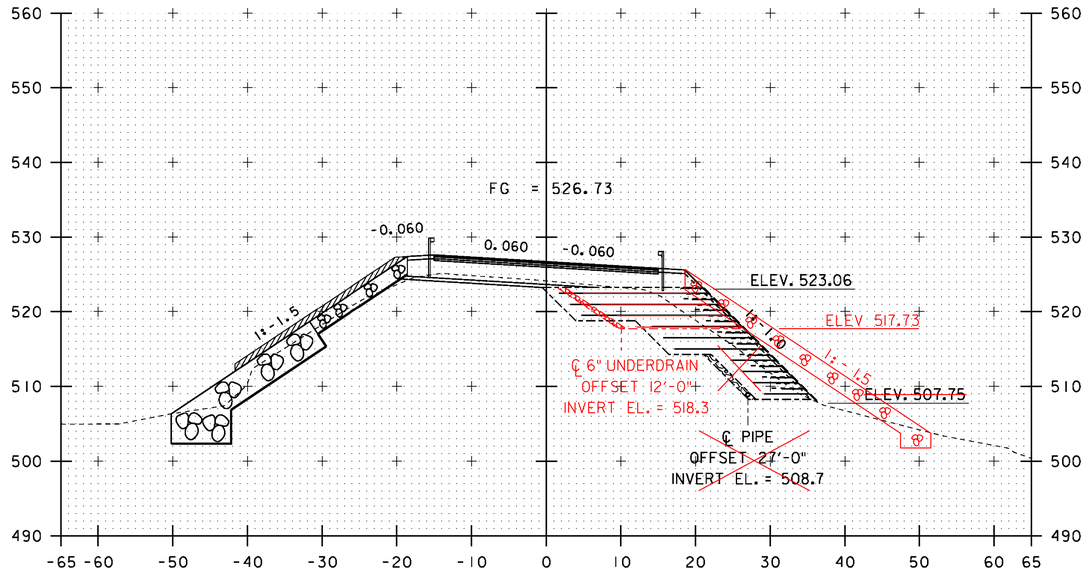
10 0 10
SCALE: 1" = 10'-0"

STA. 416+00 TO STA. 416+75

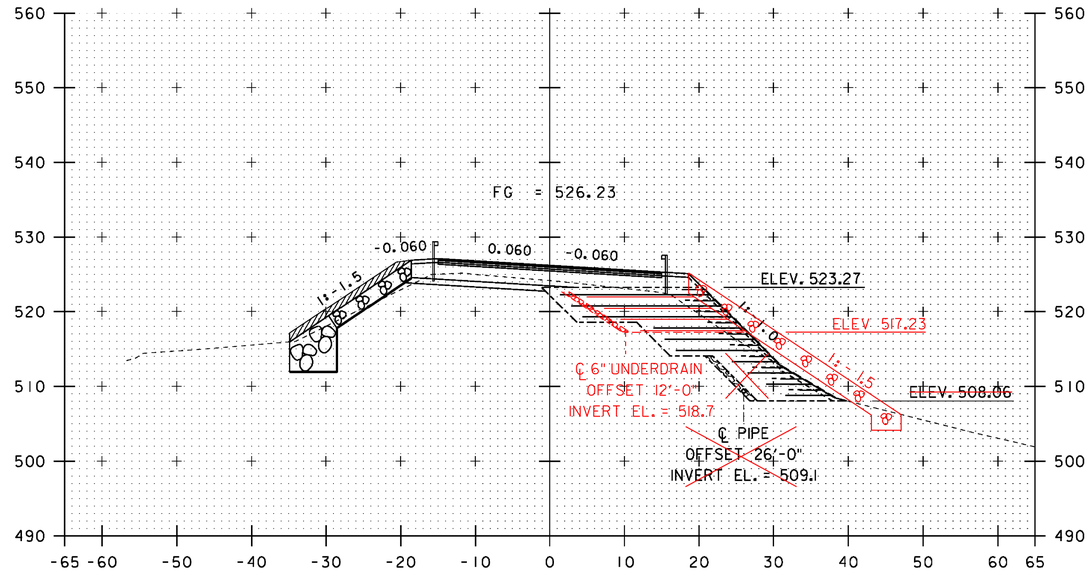
PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR_28\s86e055xsl_28.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 28 VT 14 CROSS SECTIONS (5)

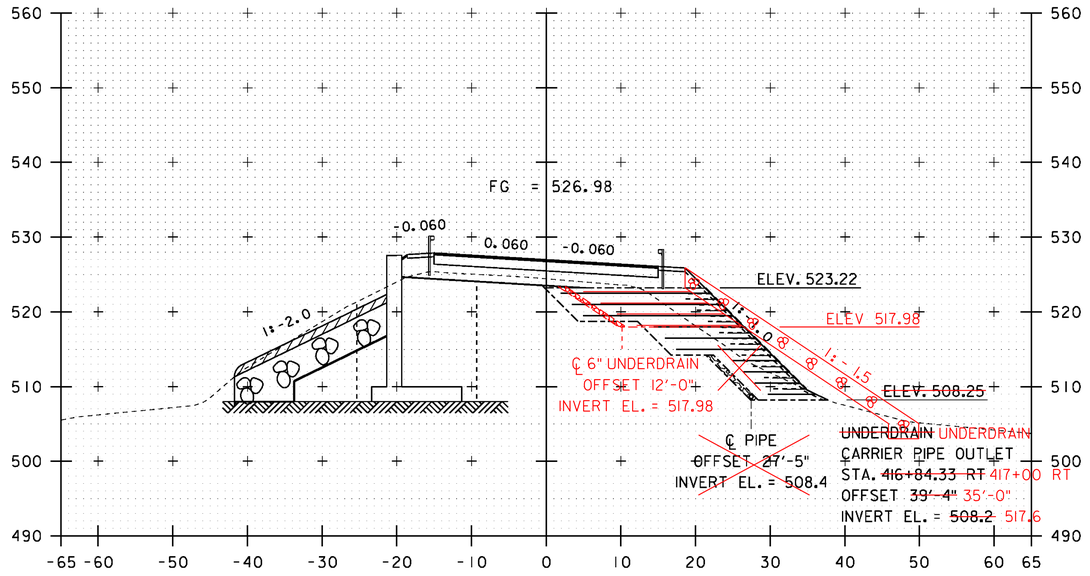
PLOT DATE: 08-OCT-2013
DRAWN BY: STR3
CHECKED BY: C. CARLSON
SHEET 141 OF 186



417+25



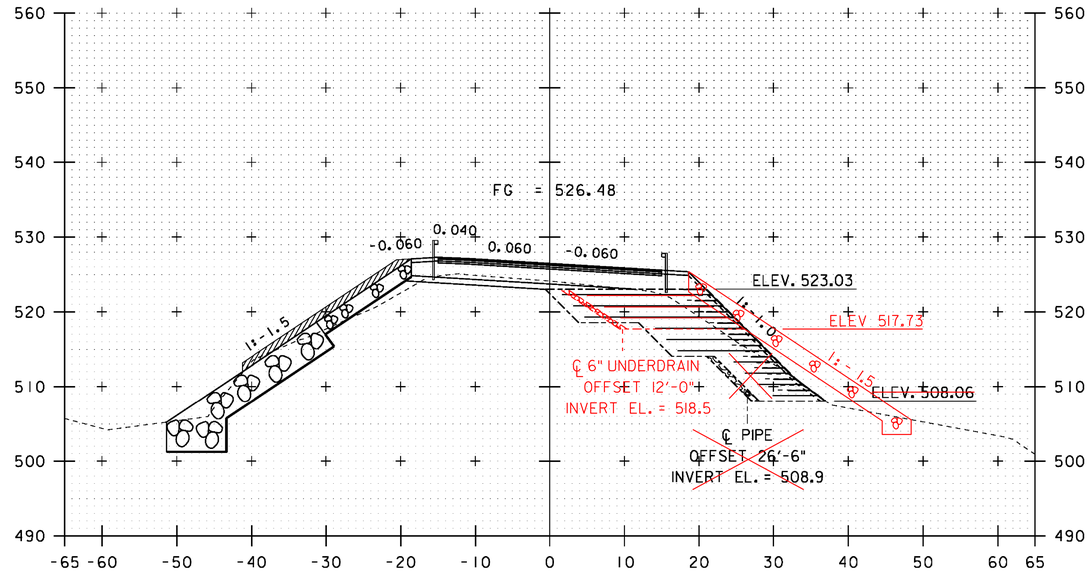
417+75



417+00

STA 417+06.90 LT.
BEGIN STONE FILL, TYPE II
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL

STA 417+00.00 RT.
BEGIN REINFORCED SOIL SLOPE
BEGIN STONE FILL, TYPE II
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL



417+50

10 0 10

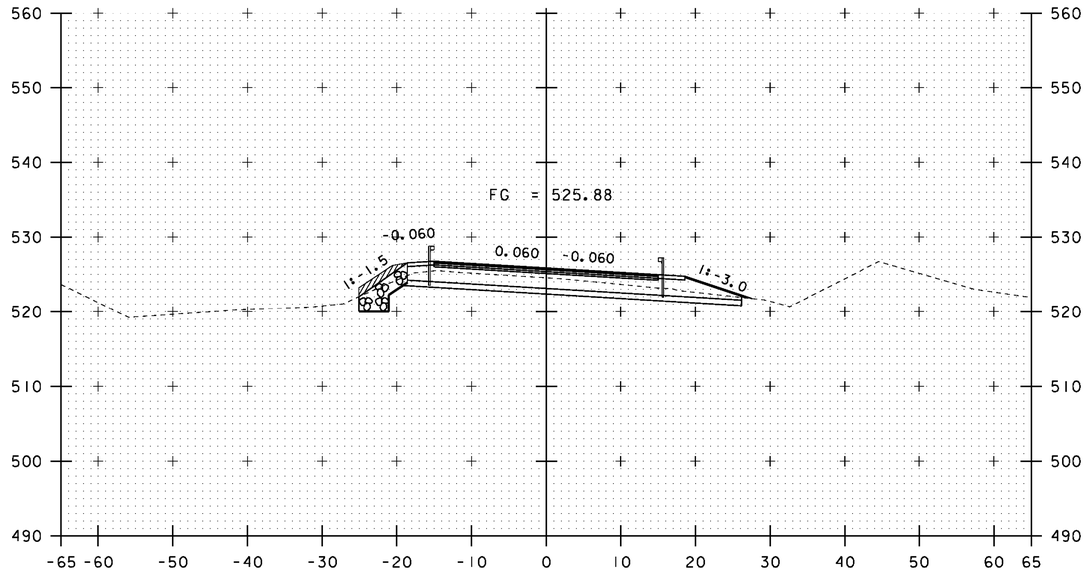
SCALE: 1" = 10'-0"

STA. 417+00 TO STA. 417+75

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

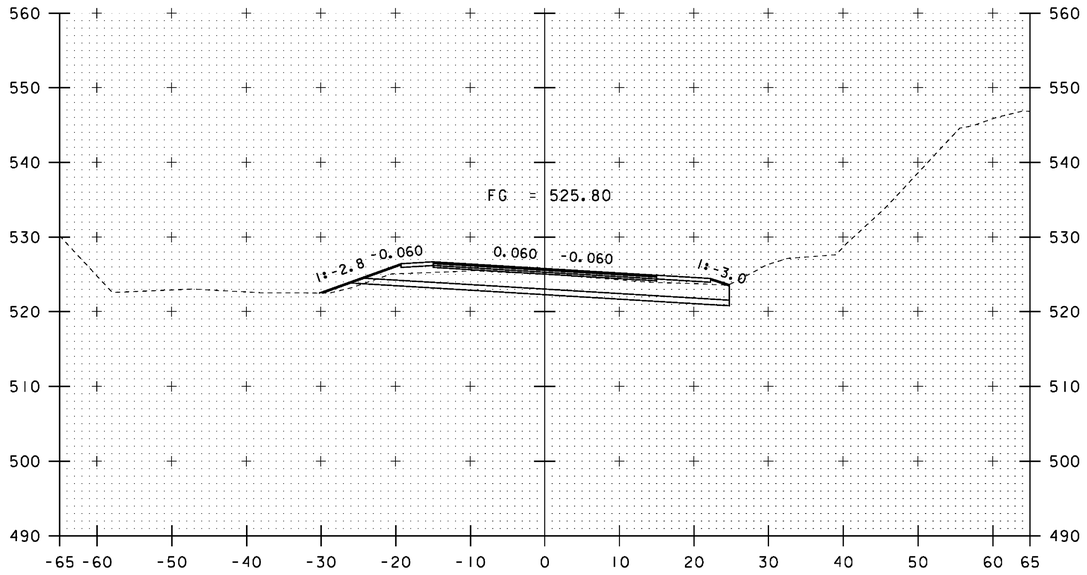
FILE NAME: \BR_28\s86e055xsl_28.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 28 VT 14 CROSS SECTIONS (6)

PLOT DATE: 08-OCT-2013
DRAWN BY: STR3
CHECKED BY: C. CARLSON
SHEET 142 OF 186

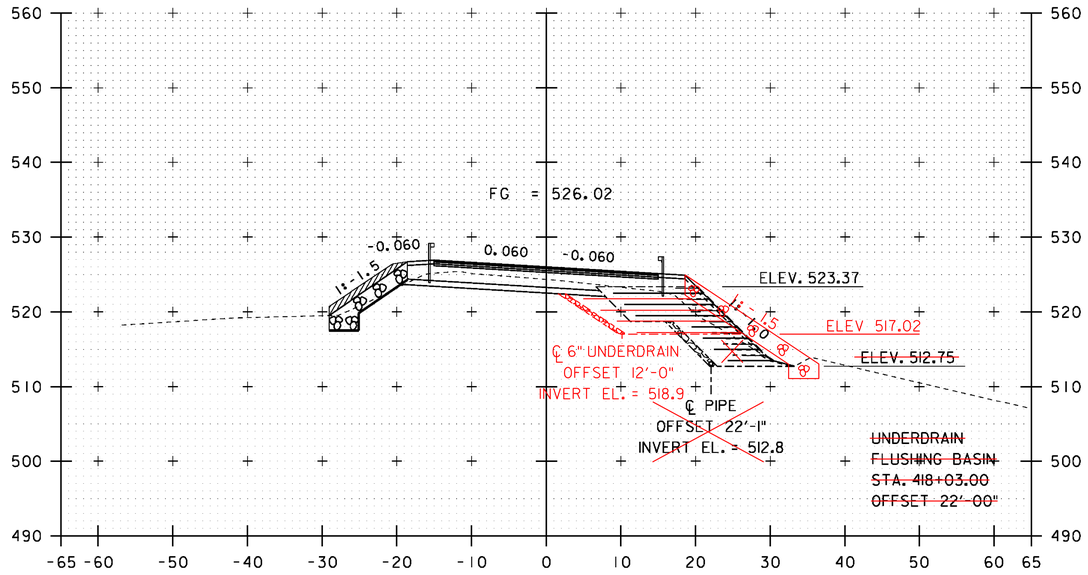


418+25

STA 418+80.00
END PROJECT
BEGIN APPROACH

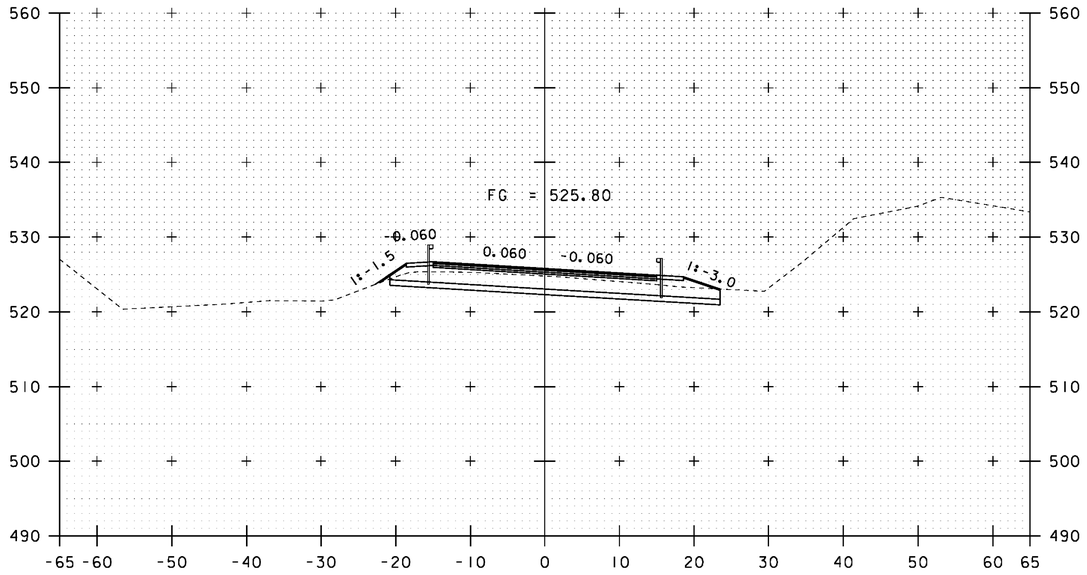


418+75



418+00

STA 418+00.00 RT.
END REINFORCED SOIL SLOPE
STONE FILL, TYPE II
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL



418+50

STA 418+50.00 LT.
END STONE FILL, TYPE II
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL

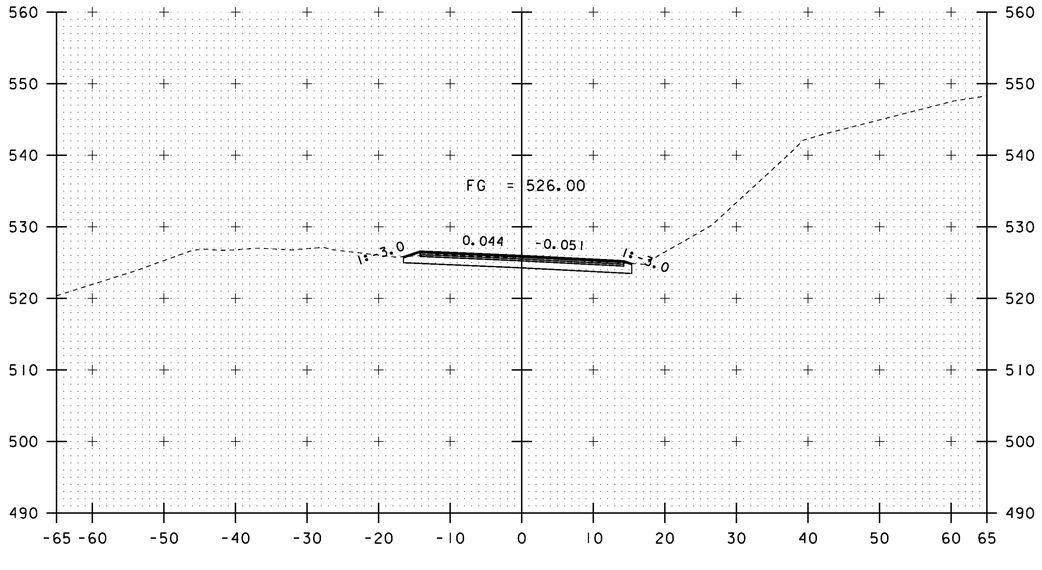
10 0 10
SCALE: 1" = 10'-0"

STA. 418+00 TO STA. 418+75

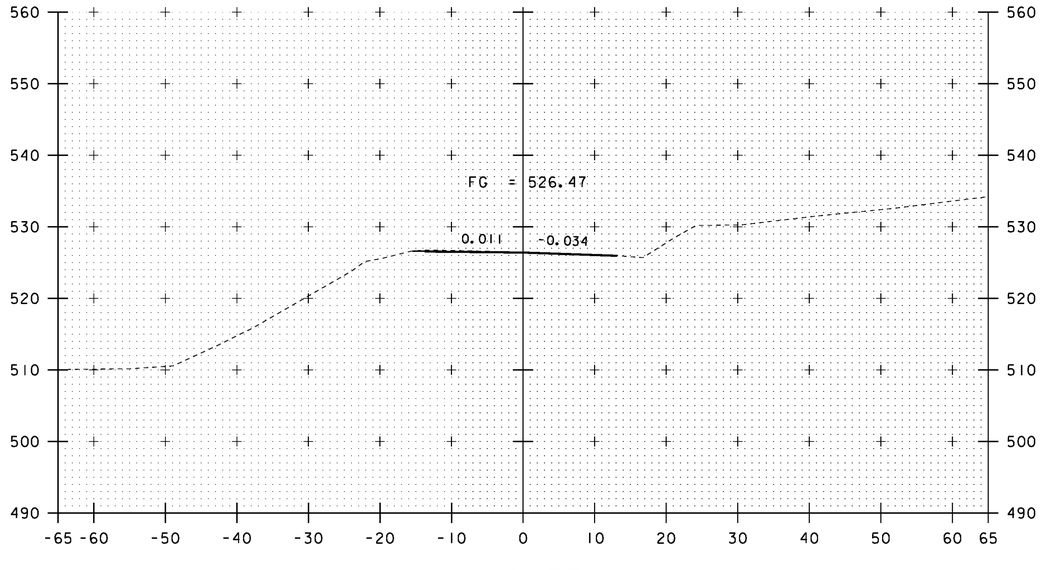
PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR_28\s86e055xsl_28.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 28 VT 14 CROSS SECTIONS (7)

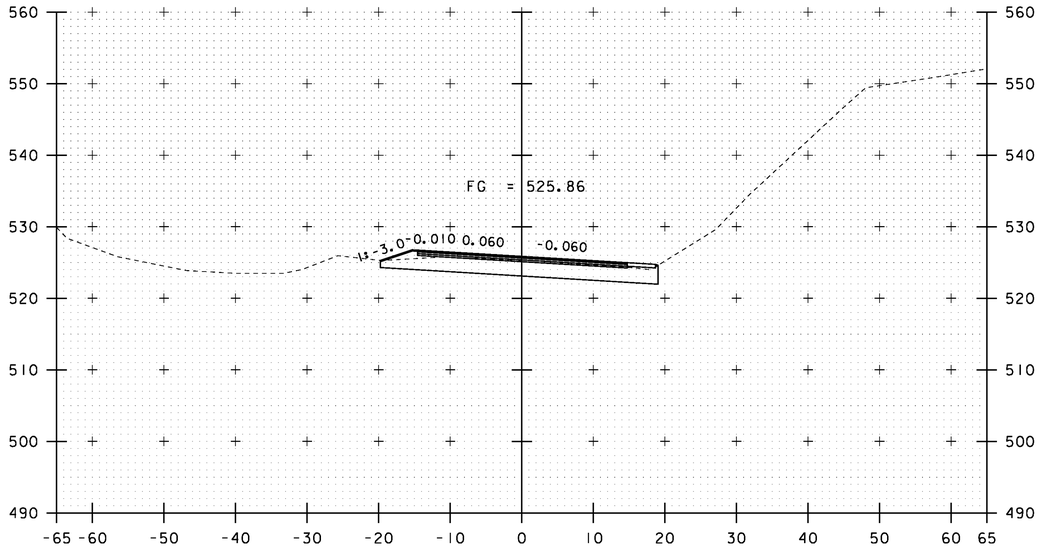
PLOT DATE: 08-OCT-2013
DRAWN BY: STR3
CHECKED BY: C. CARLSON
SHEET 143 OF 186



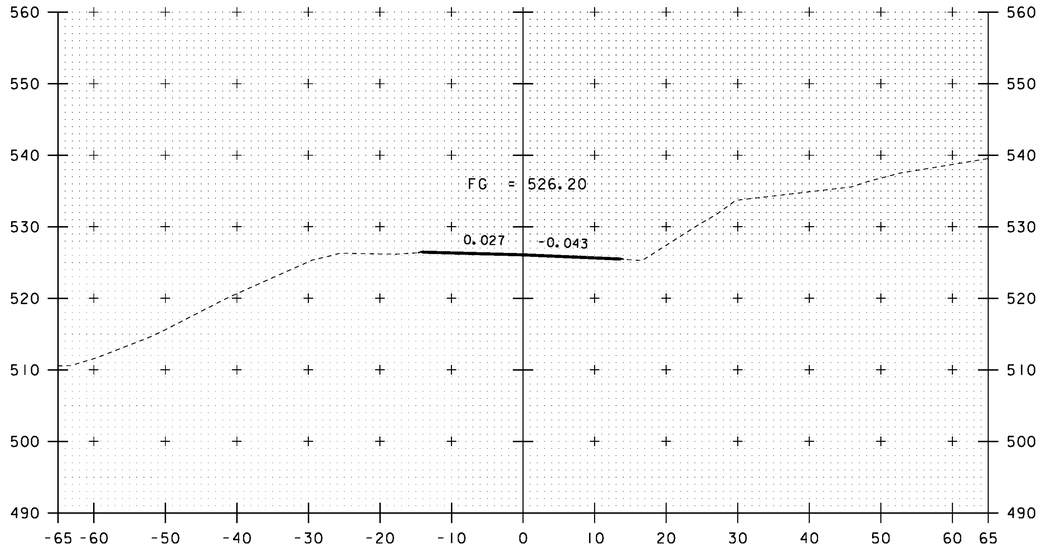
419+25



419+75



419+00



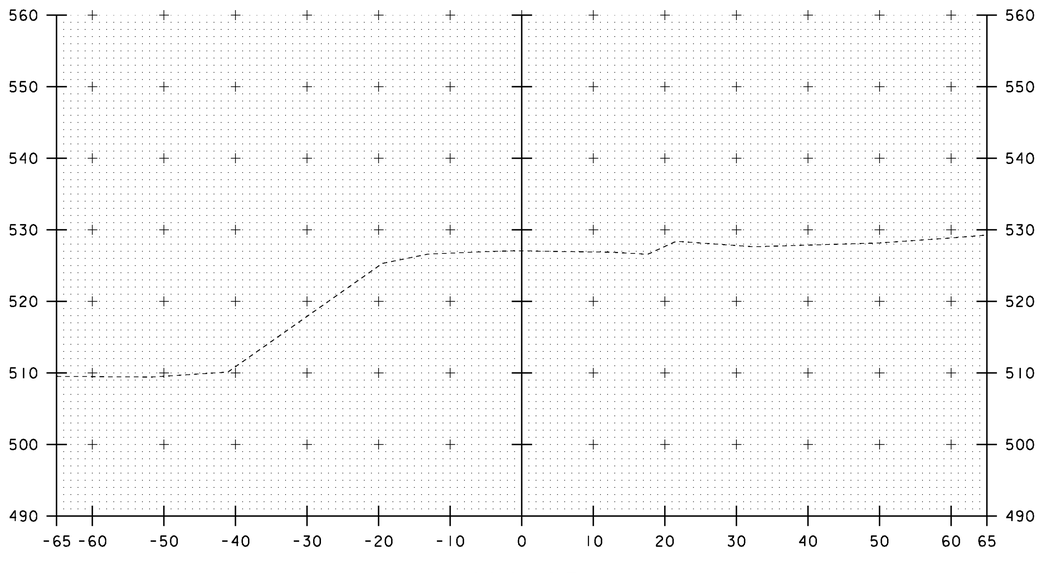
419+50

10 0 10

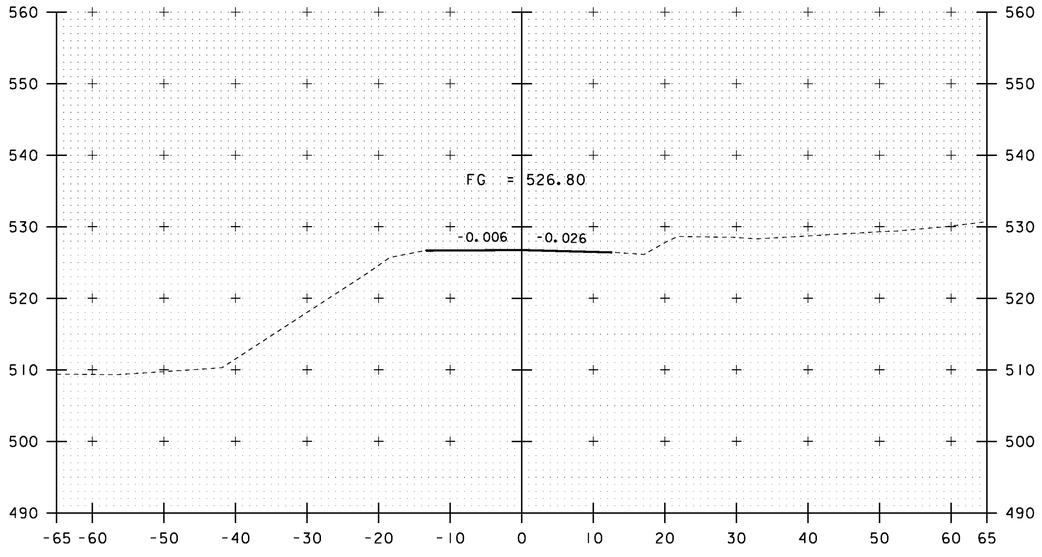
SCALE: 1" = 10'-0"

STA. 419+00 TO STA. 419+75

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: \BR_28\s86e055xsl_28.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: STR3
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 28 VT 14 CROSS SECTIONS (8)	SHEET 144 OF 186

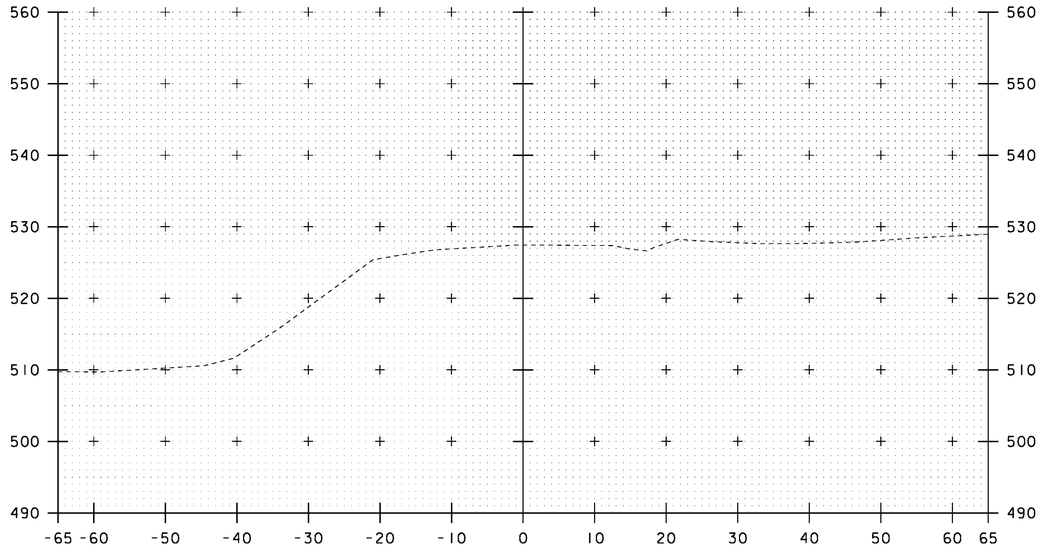


420+25



420+00

END APPROACH
MATCH EXISTING



420+50

10 0 10

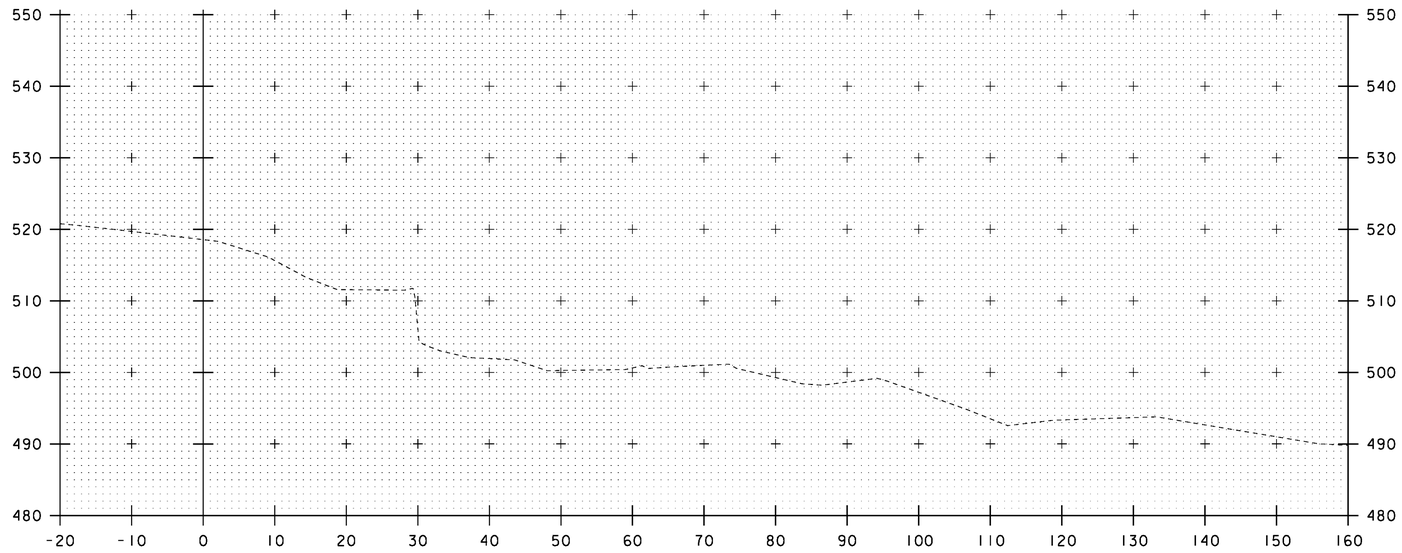
SCALE: 1" = 10'-0"

STA. 420+00 TO STA. 420+50

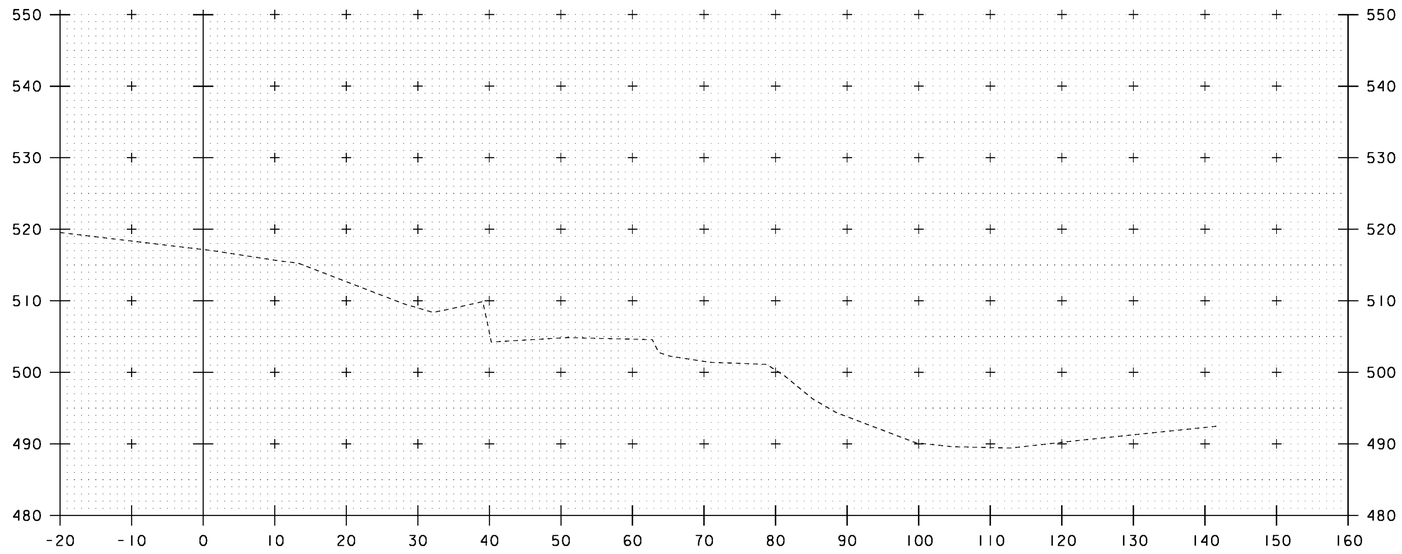
PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR_28\s86e055xsl_28.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 28 VT 14 CROSS SECTIONS (9)

PLOT DATE: 08-OCT-2013
DRAWN BY: STR3
CHECKED BY: C. CARLSON
SHEET 145 OF 186



60+25



60+00

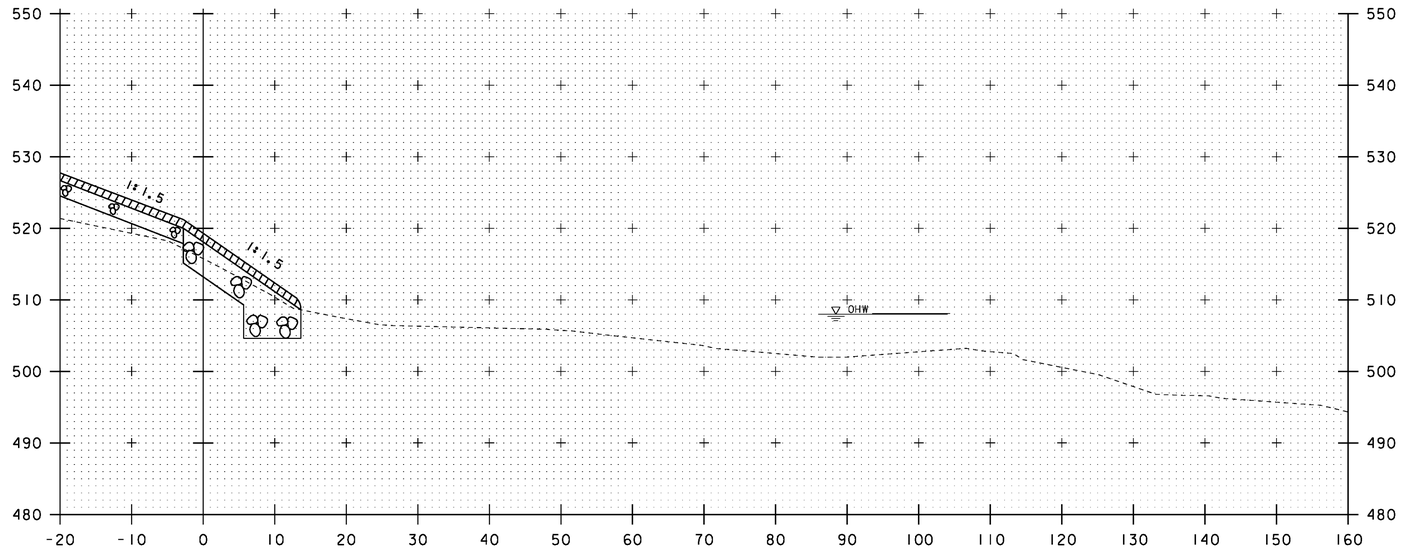
10 0 10

SCALE: 1" = 10'-0"

STA. 60+00 TO STA. 60+25

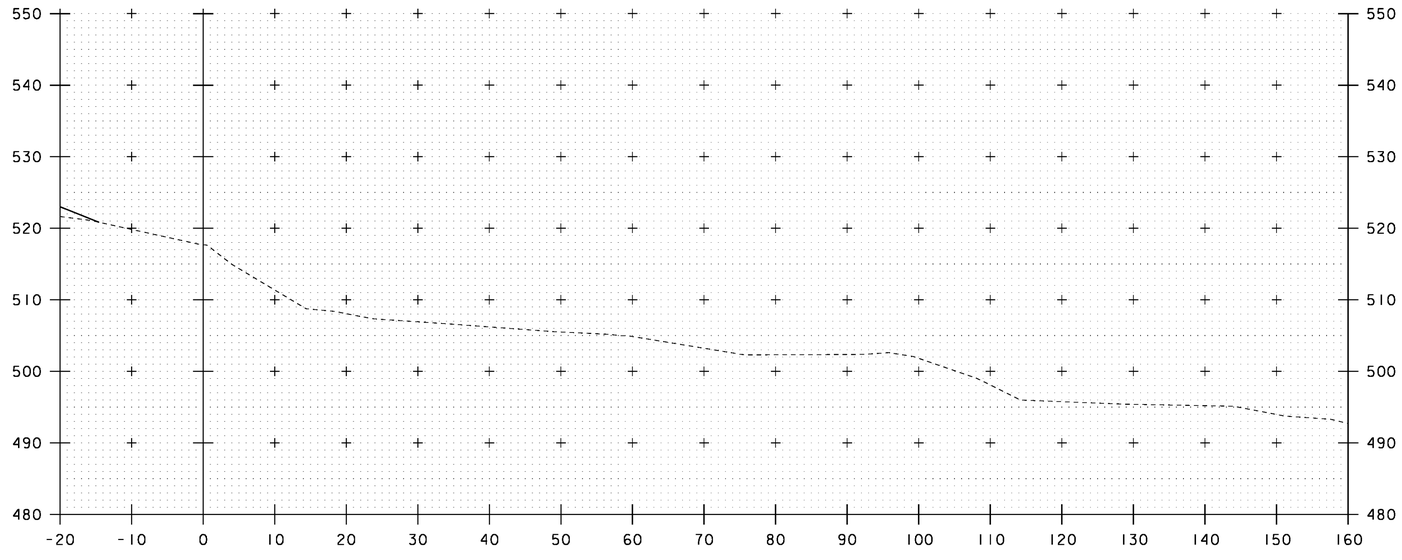
PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR_28\s86e055xsl_28.dgn PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON DRAWN BY: STR3
DESIGNED BY: D. PETERSON CHECKED BY: C. CARLSON
BRIDGE 28 CHANNEL LINE CROSS SECTIONS(1) SHEET 146 OF 186



STA 60+54.58 LT
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE IV
GRUBBING MATERIAL

60+60



60+50

10 0 10

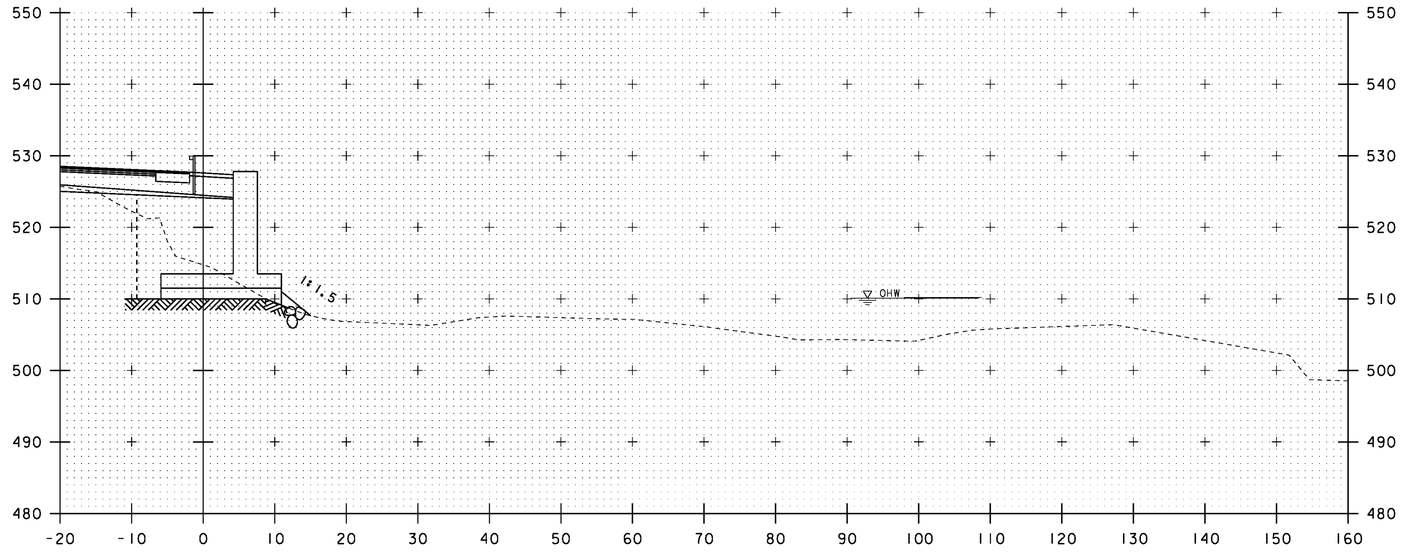
SCALE: 1" = 10'-0"

STA. 60+50 TO STA. 60+60

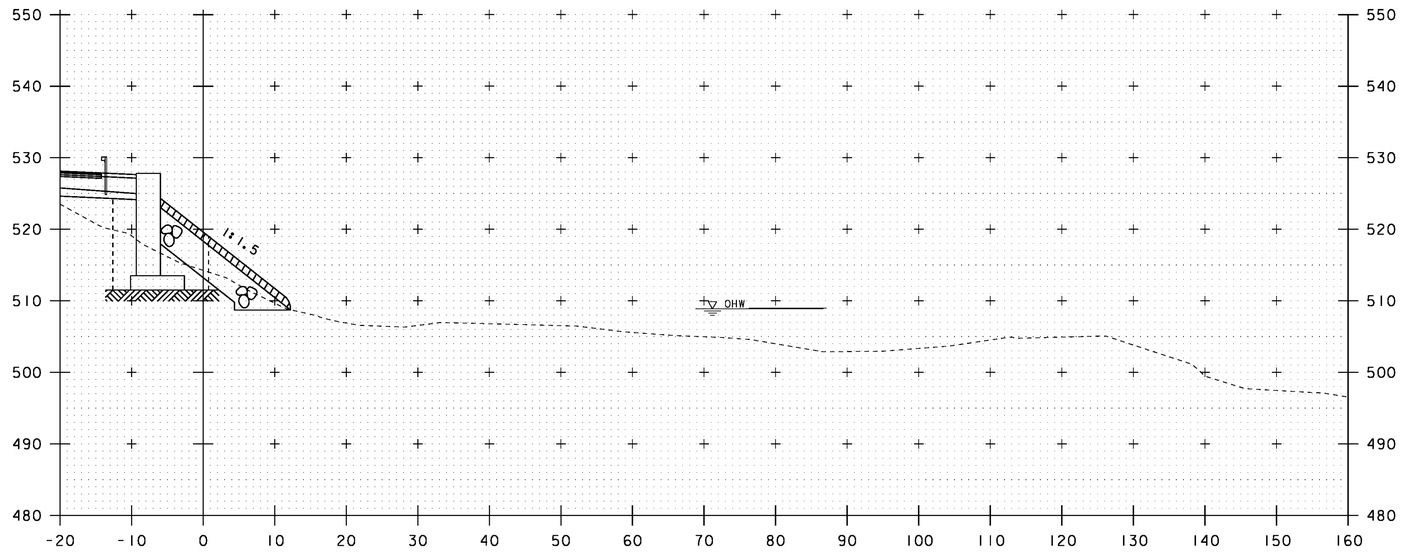
PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR_28\s86e055xsl_28.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 28 CHANNEL LINE CROSS SECTIONS (2)

PLOT DATE: 08-OCT-2013
DRAWN BY: STR3
CHECKED BY: C. CARLSON
SHEET 147 OF 186



60+80



60+70

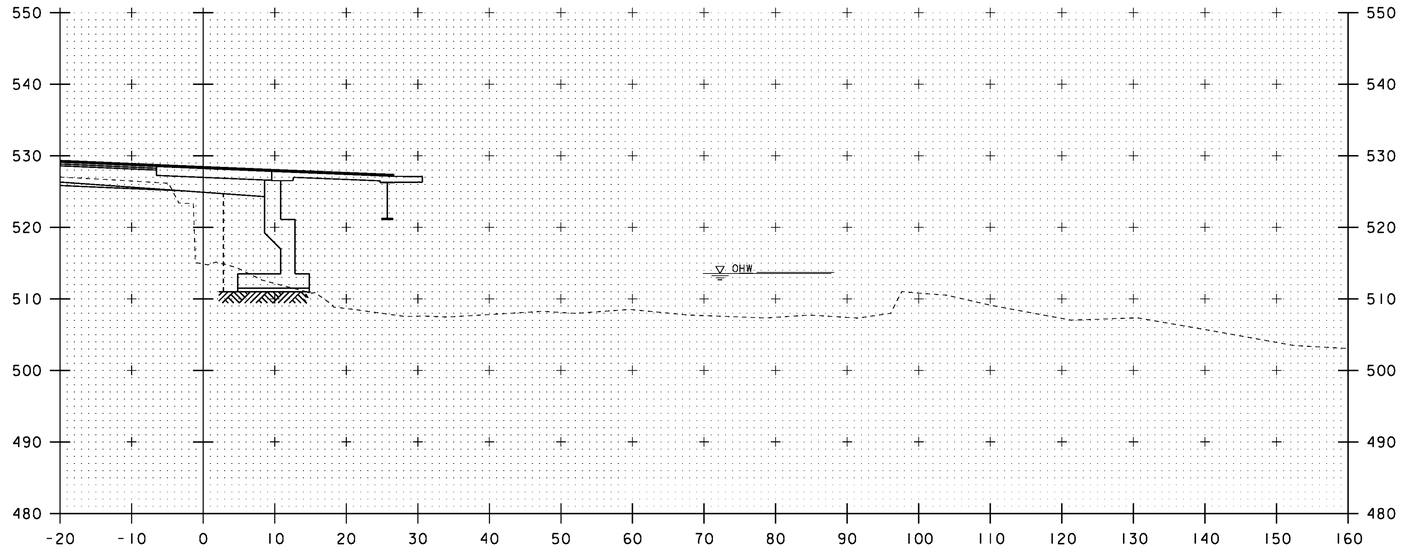
10 0 10

SCALE: 1" = 10'-0"

STA. 60+70 TO STA. 60+80

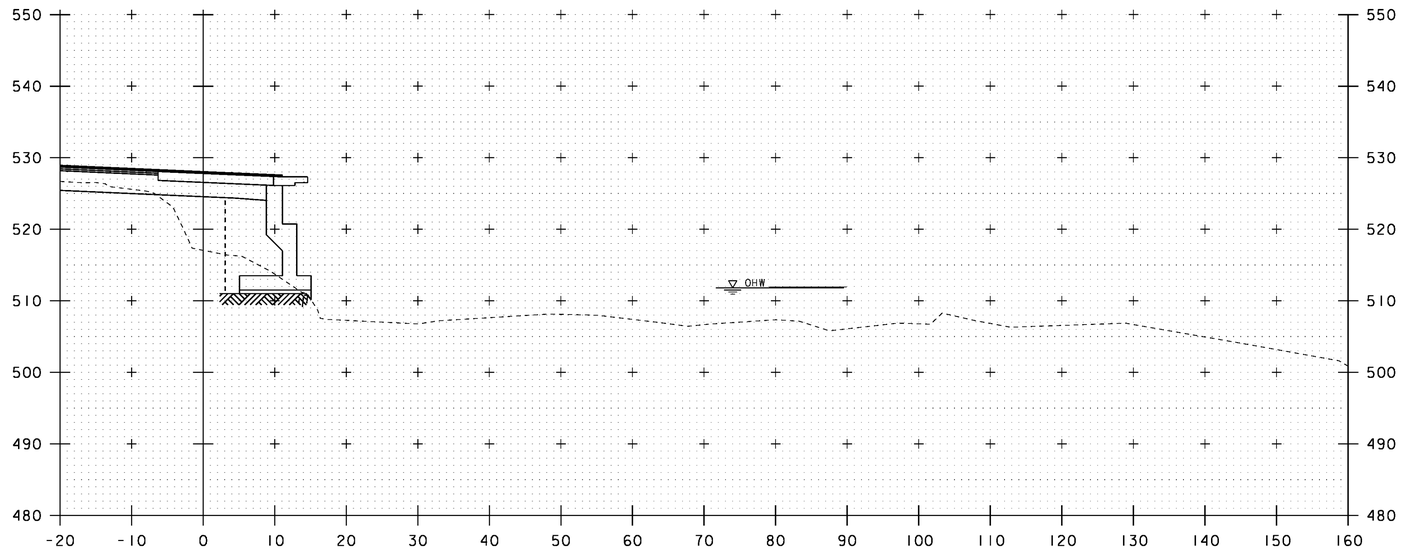
PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR_28\s86e055xsl_28.dgn PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON DRAWN BY: STR3
DESIGNED BY: D. PETERSON CHECKED BY: C. CARLSON
BRIDGE 28 CHANNEL LINE CROSS SECTIONS (3) SHEET 148 OF 186



STA 60+84.06 LT
END GRUBBING MATERIAL
STONE FILL, TYPE IV
GEOTEXTILE UNDER STONE FILL

61+00



60+90

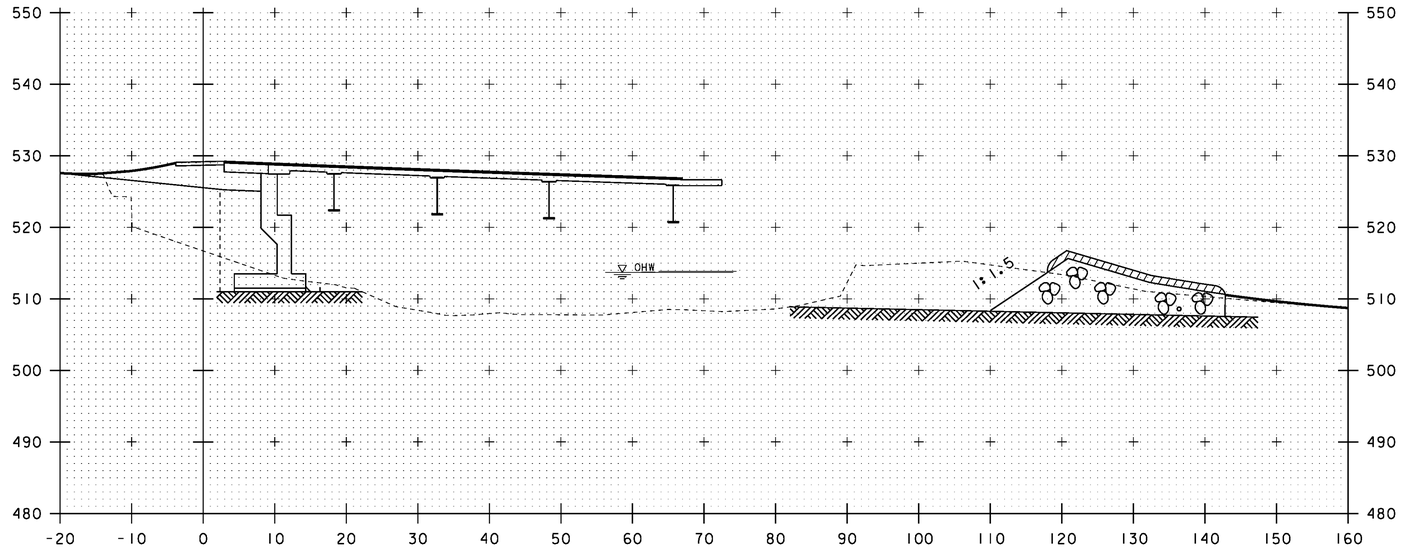
10 0 10

SCALE: 1" = 10'-0"

STA. 60+90 TO STA. 61+00

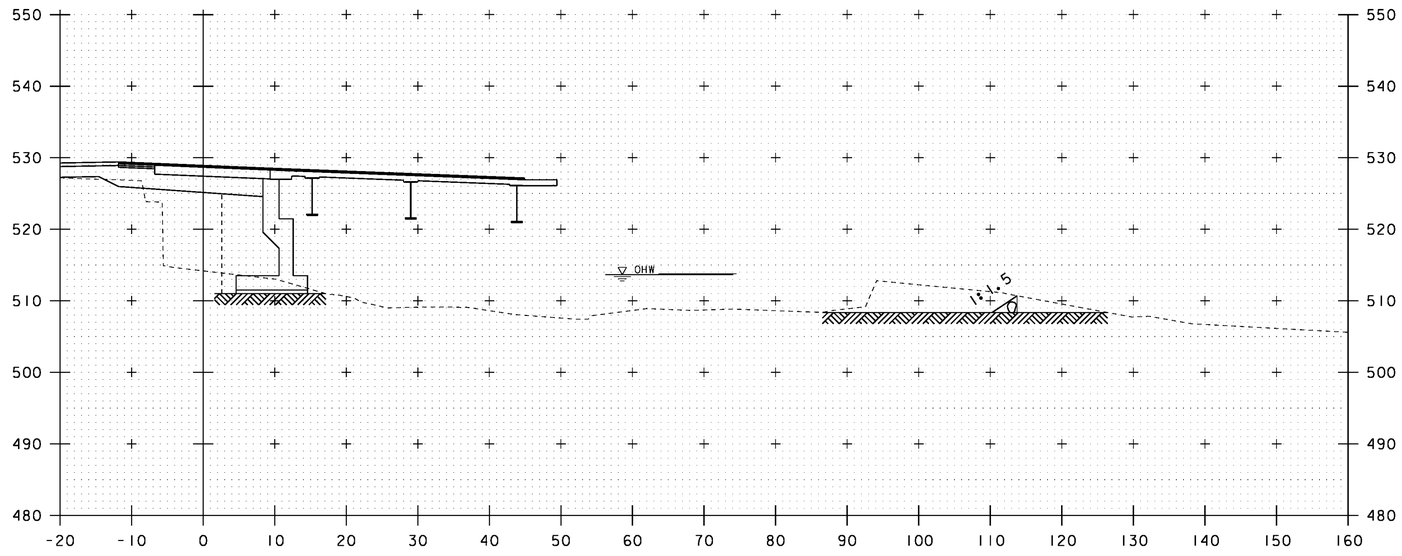
PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR_28\s86e055xsl_28.dgn PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON DRAWN BY: STR3
DESIGNED BY: D. PETERSON CHECKED BY: C. CARLSON
BRIDGE 28 CHANNEL LINE CROSS SECTIONS (4) SHEET 149 OF 186



STA 61+15.00 LT
RESUME STONE FILL, TYPE IV
GEOTEXTILE UNDER STONE FILL

61+20



61+10

STA 61+00.03 RT
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE IV
GRUBBING MATERIAL

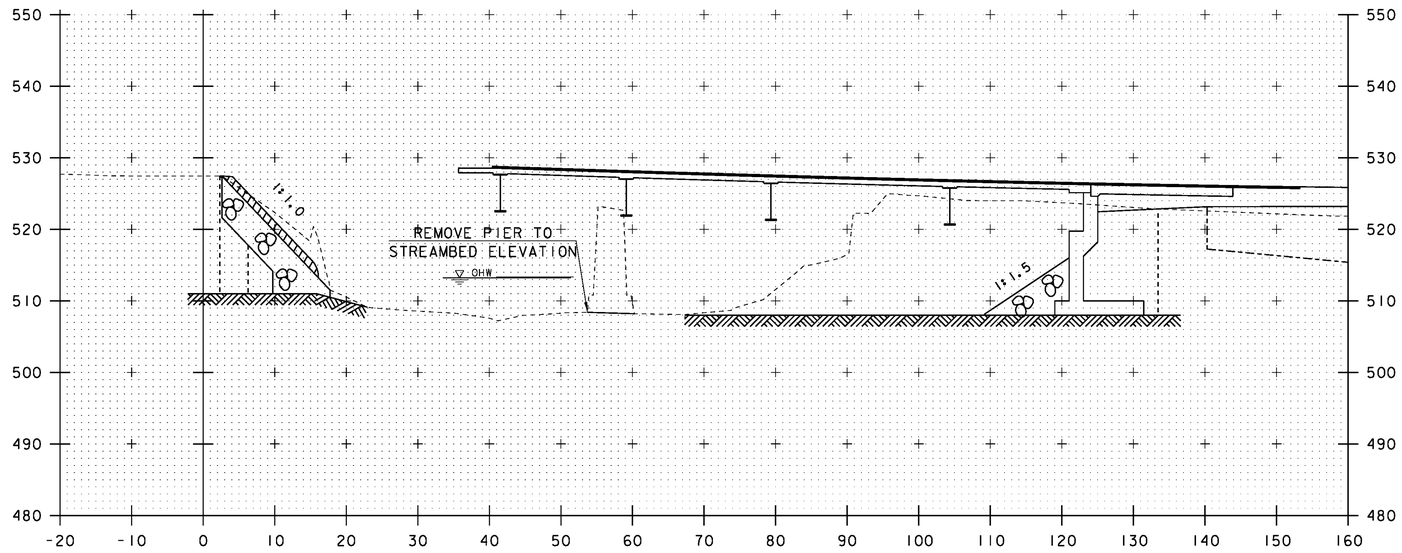
10 0 10

SCALE: 1" = 10'-0"

STA. 61+10 TO STA. 61+20

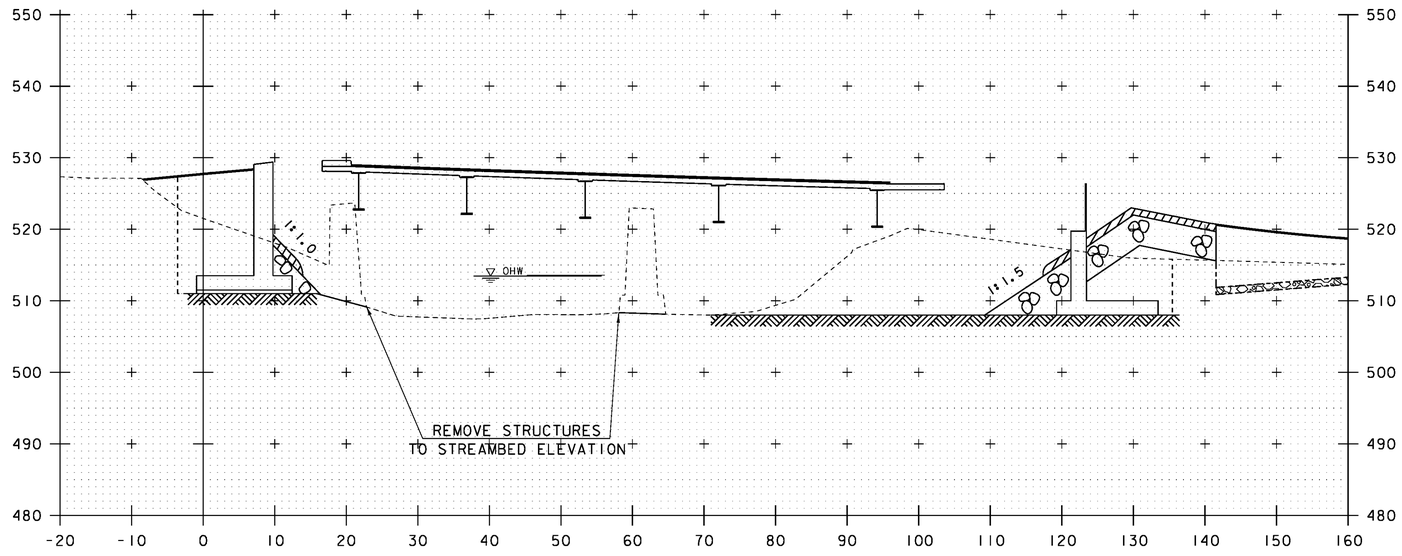
PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR_28\s86e055xsl_28.dgn PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON DRAWN BY: STR3
DESIGNED BY: D. PETERSON CHECKED BY: C. CARLSON
BRIDGE 28 CHANNEL LINE CROSS SECTIONS (5) SHEET 150 OF 186



61+40

STA 61+33.21 RT
END GRUBBING MATERIAL



STA 61+27.04 LT
RESUME GRUBBING MATERIAL

61+30

10 0 10

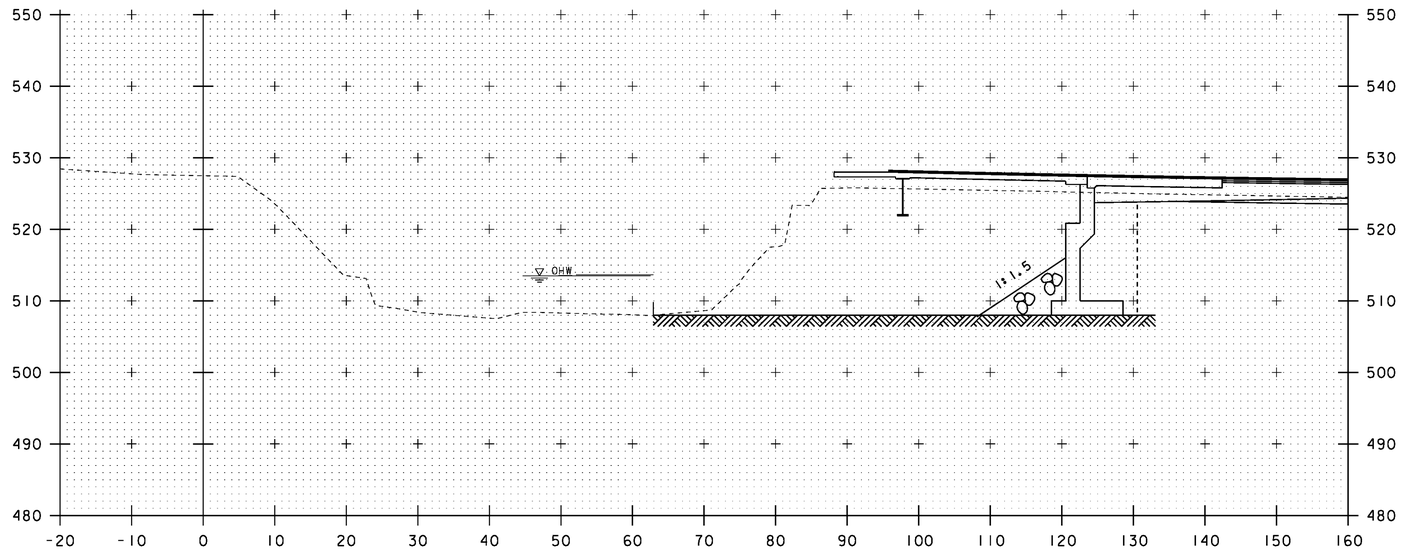
SCALE: 1" = 10'-0"

STA. 61+30 TO STA. 61+40

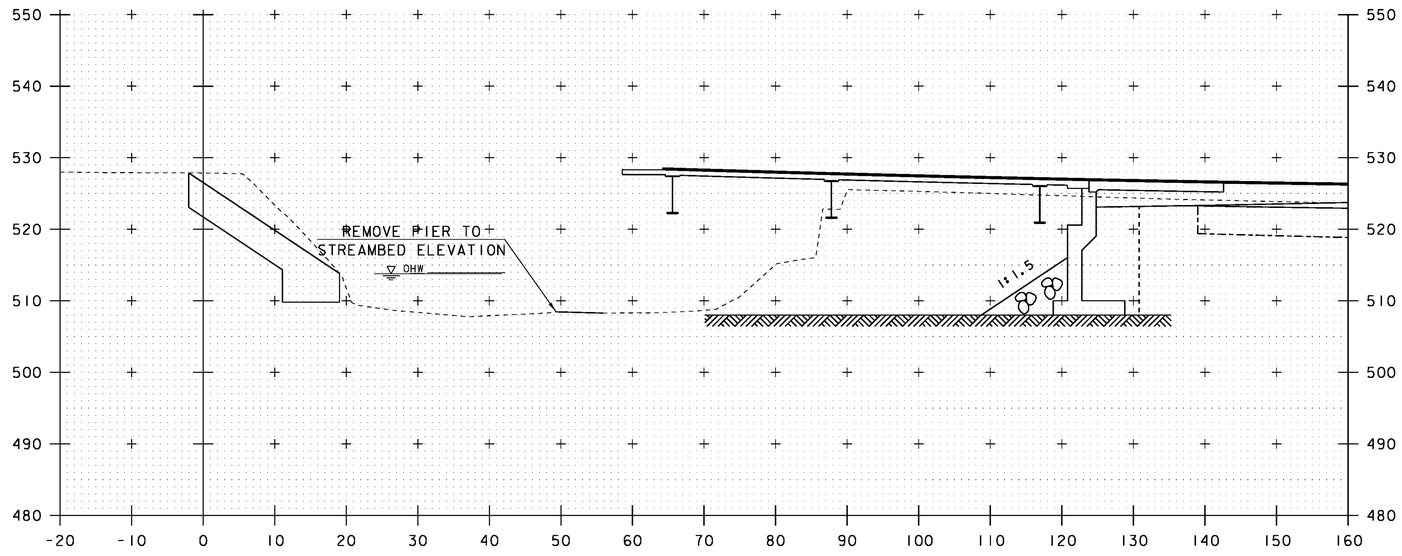
PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR_28\s86e055xsl_28.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 28 CHANNEL LINE CROSS SECTIONS (6)

PLOT DATE: 08-OCT-2013
DRAWN BY: STR3
CHECKED BY: C. CARLSON
SHEET 151 OF 186



61+60



STA 61+46.13 LT
END UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE IV
GRUBBING MATERIAL

61+50

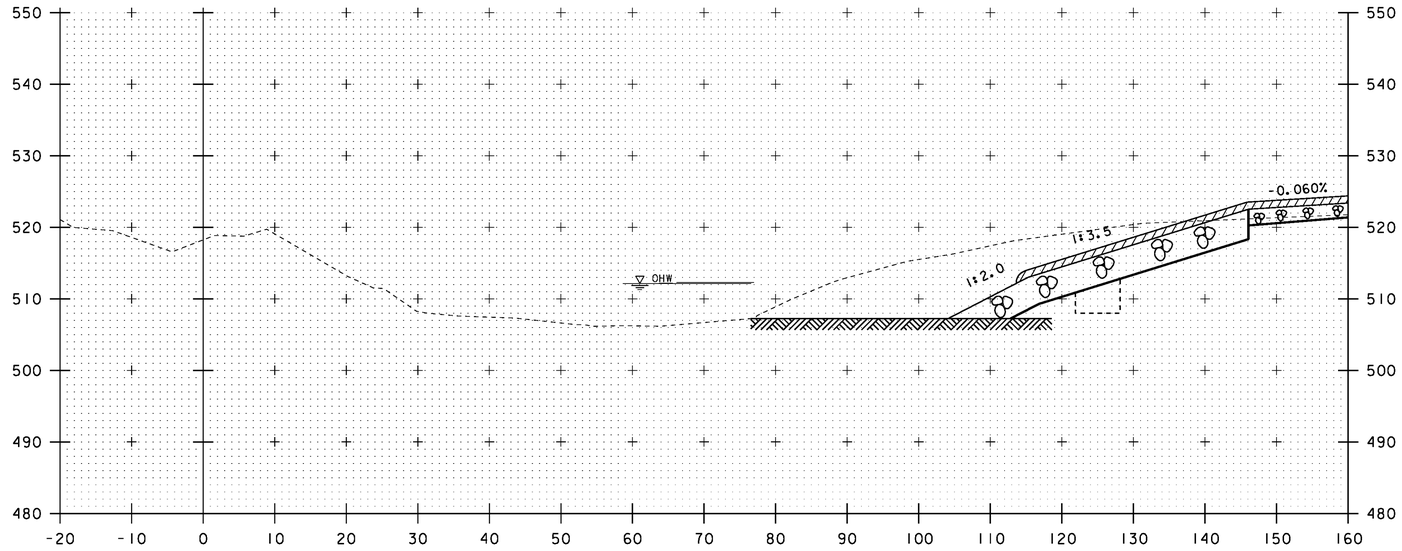
10 0 10

SCALE: 1" = 10'-0"

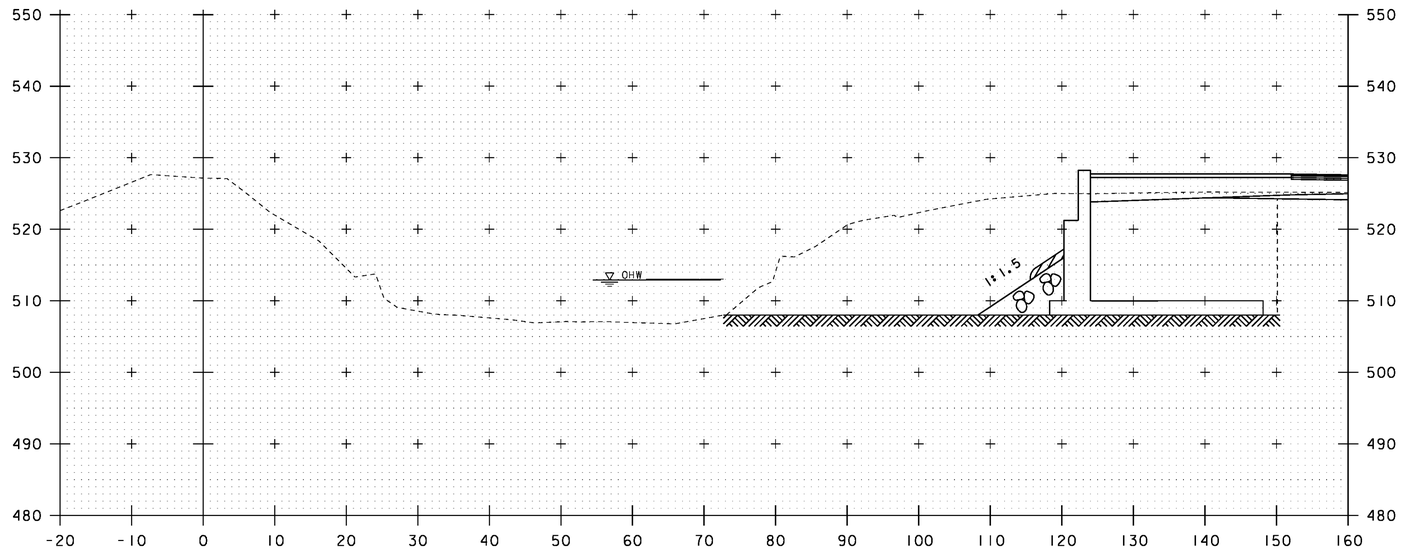
STA. 61+50 TO STA. 61+60

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR_28\s86e055xsl_28.dgn PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON DRAWN BY: STR3
DESIGNED BY: D. PETERSON CHECKED BY: C. CARLSON
BRIDGE 28 CHANNEL LINE CROSS SECTIONS (7) SHEET 152 OF 186



61+80



61+70

STA 61+65.00 RT
BEGIN GRUBBING MATERIAL

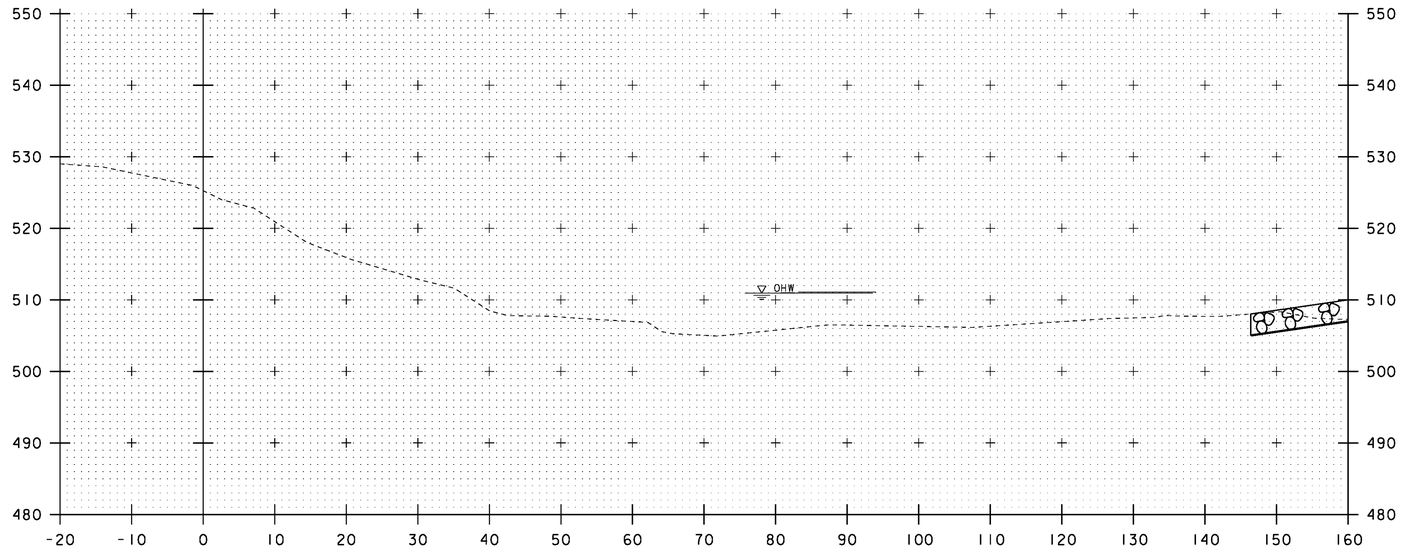
10 0 10

SCALE: 1" = 10'-0"

STA. 61+70 TO STA. 61+80

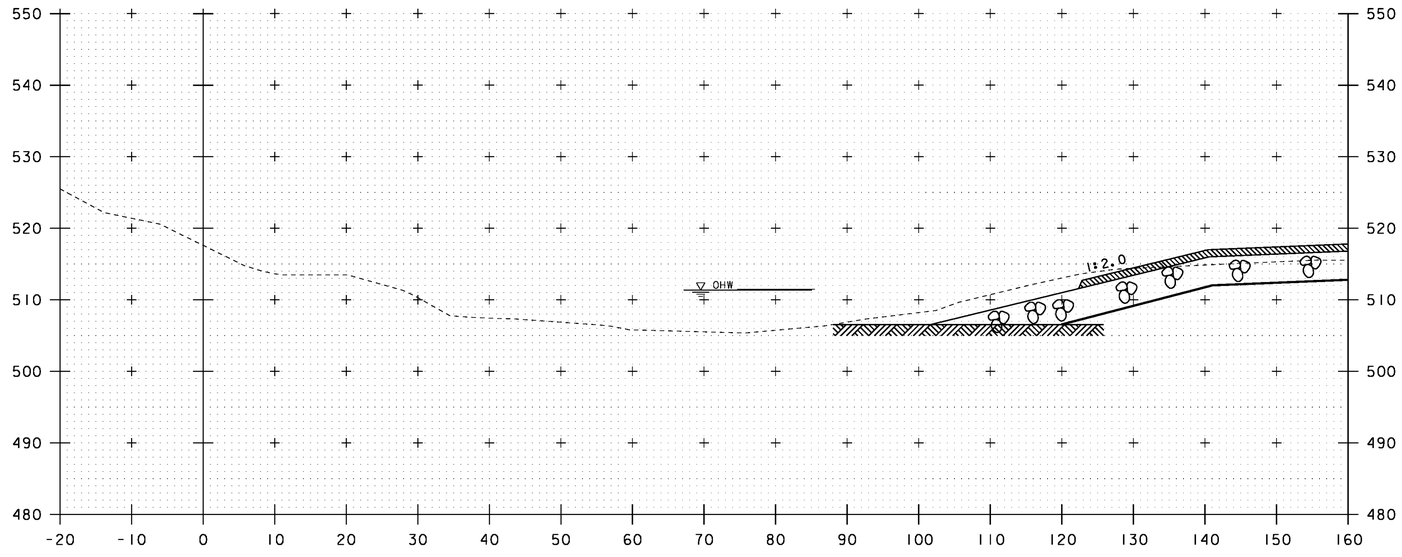
PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR_28\s86e055xsl_28.dgn PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON DRAWN BY: STR3
DESIGNED BY: D. PETERSON CHECKED BY: C. CARLSON
BRIDGE 28 CHANNEL LINE CROSS SECTIONS (8) SHEET 153 OF 186



62+00

STA 62+00
END UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE IV
GRUBBING MATERIAL



61+90

10 0 10

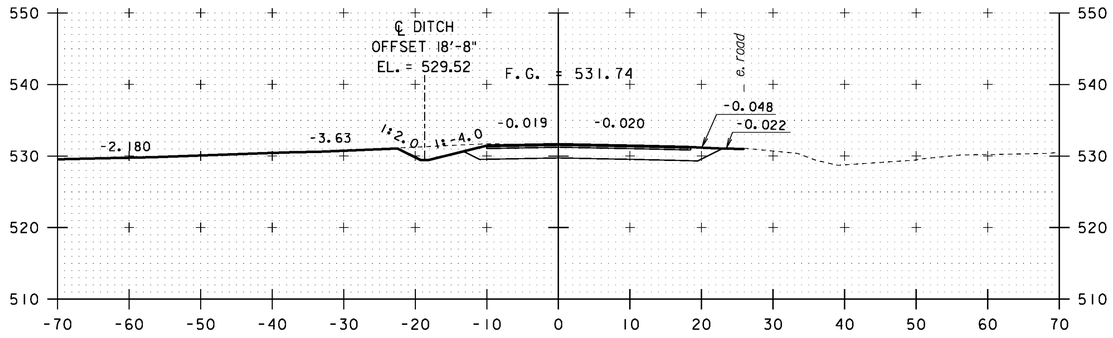
SCALE: 1" = 10'-0"

STA. 61+90 TO STA. 62+00

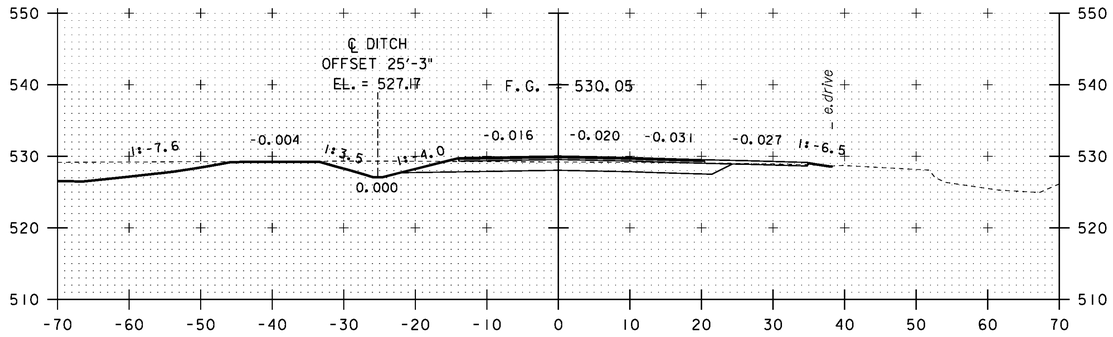
PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR_28\s86e055xsl_28.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 28 CHANNEL LINE CROSS SECTIONS (9)

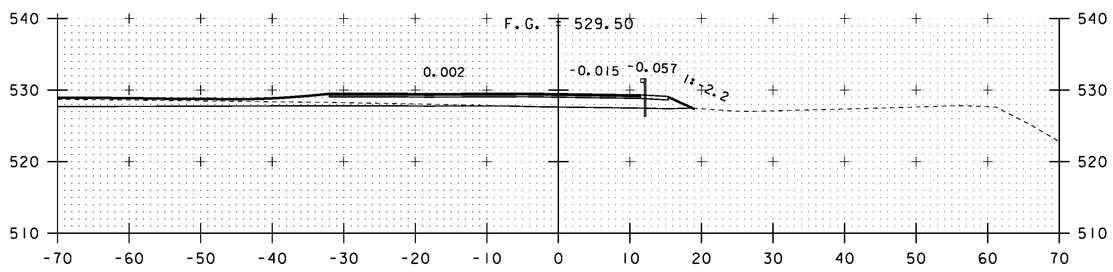
PLOT DATE: 08-OCT-2013
DRAWN BY: STR3
CHECKED BY: C. CARLSON
SHEET 154 OF 186



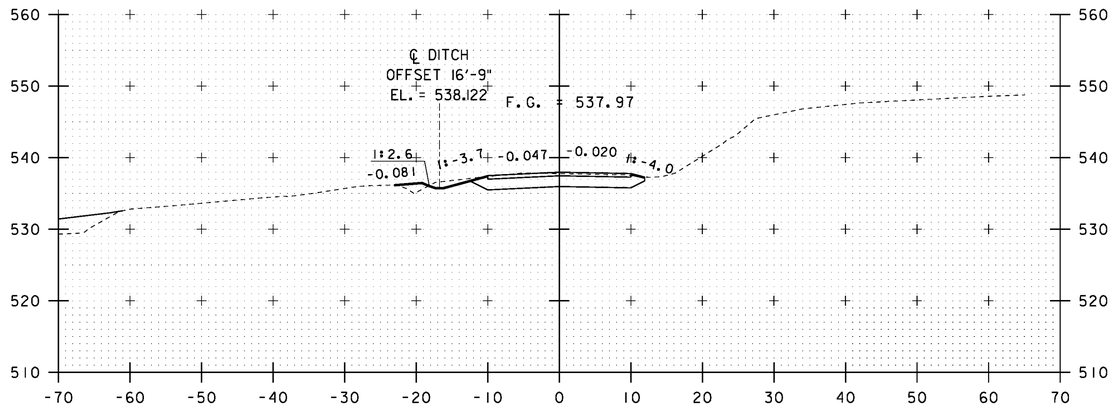
30+75



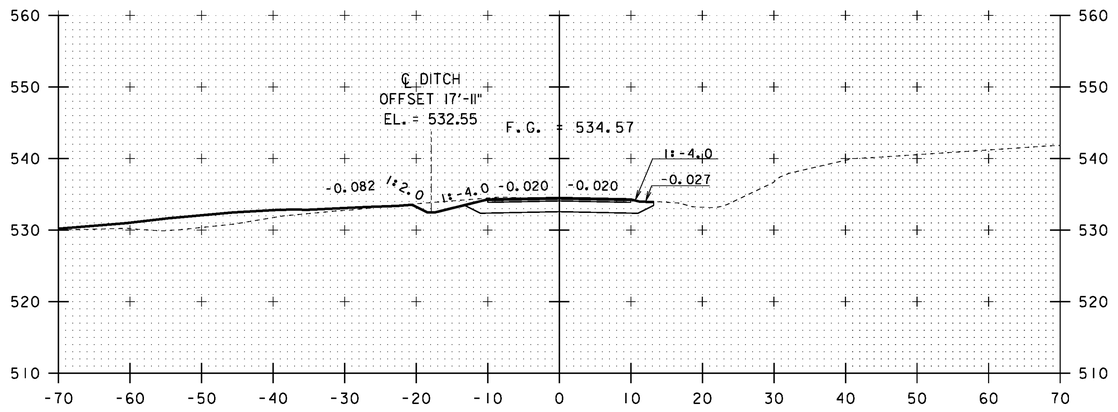
30+50



30+25



31+25



31+00

10 0 10

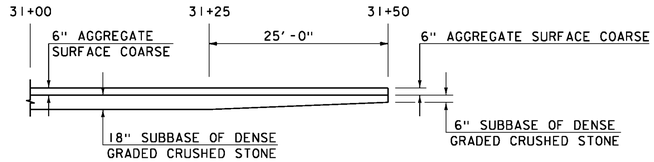
SCALE: 1" = 10'-0"

STA. 30+25 TO STA. 31+25

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

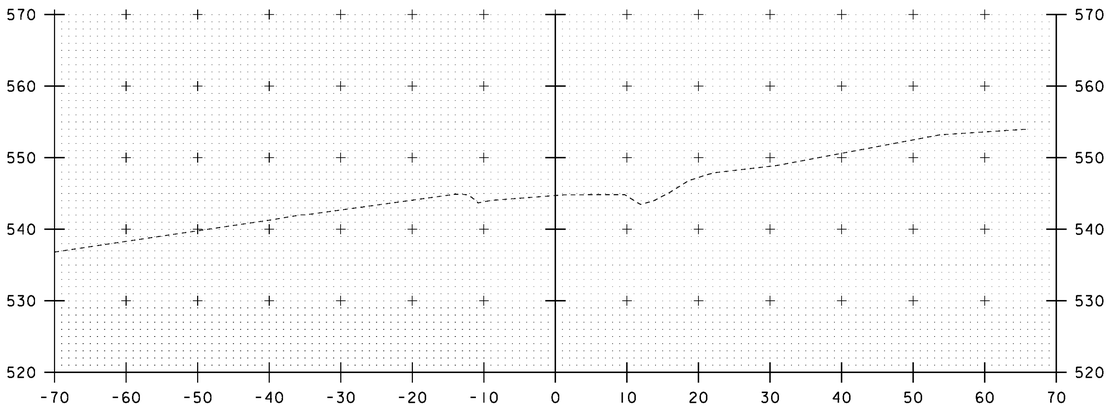
FILE NAME: \BR_28\s86e055xsl_28.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 28 TH 22 CROSS SECTIONS (1)

PLOT DATE: 08-OCT-2013
DRAWN BY: STR3
CHECKED BY: C. CARLSON
SHEET 155 OF 186

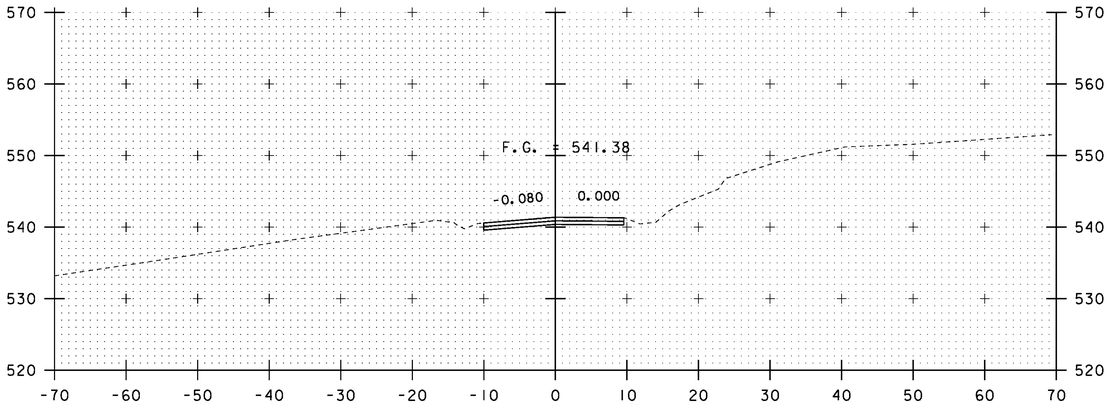


MATERIAL TRANSITION DIAGRAM
TH #22

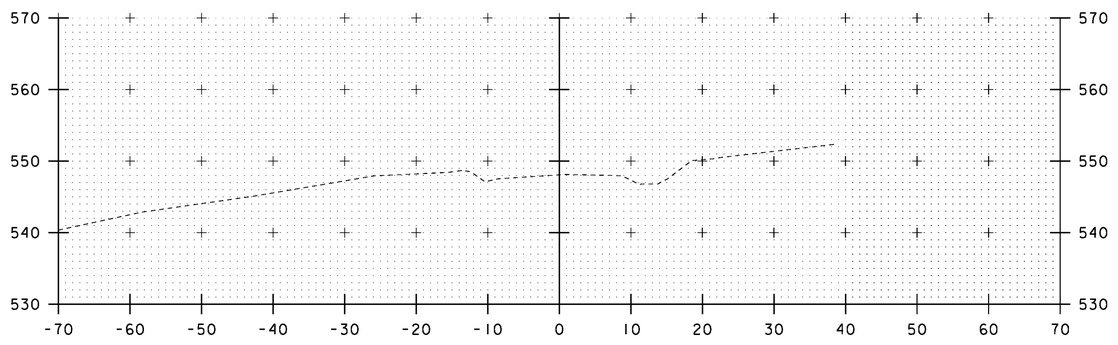
NTS



31+75



31+50
END APPROACH



32+00

10 0 10

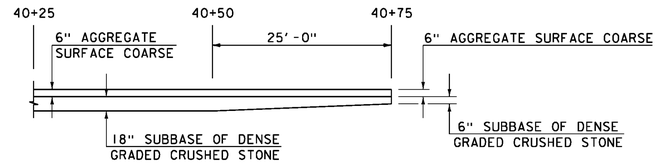
SCALE: 1" = 10'-0"

STA. 31+50 TO STA. 32+00

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

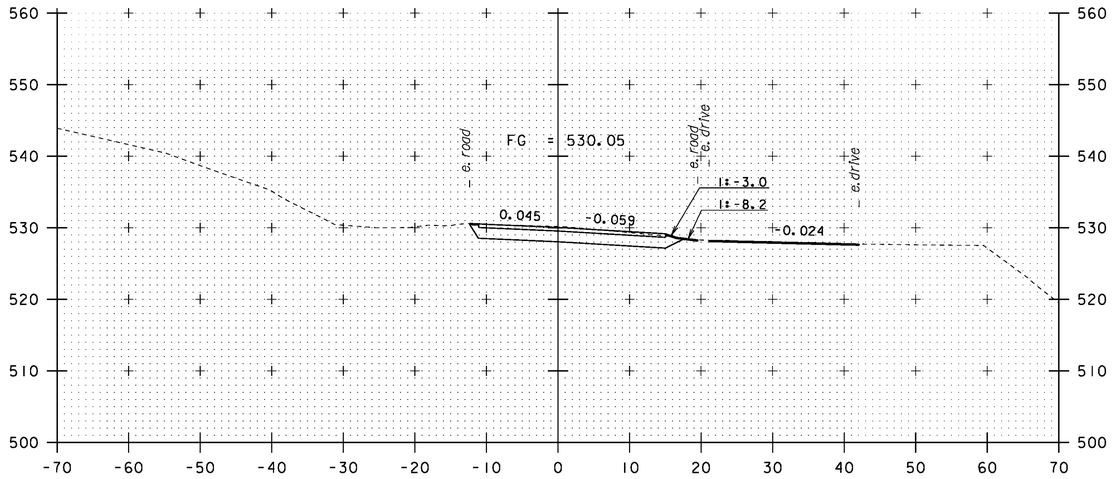
FILE NAME: \BR_28\s86e055xsl_28.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 28 TH 22 CROSS SECTIONS (2)

PLOT DATE: 08-OCT-2013
DRAWN BY: STR3
CHECKED BY: C. CARLSON
SHEET 156 OF 186

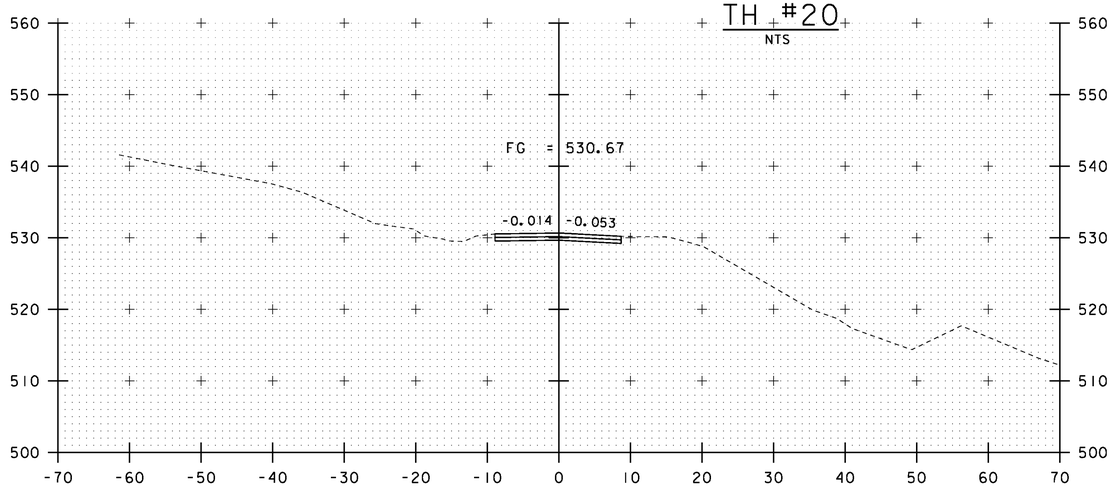


MATERIAL TRANSITION DIAGRAM

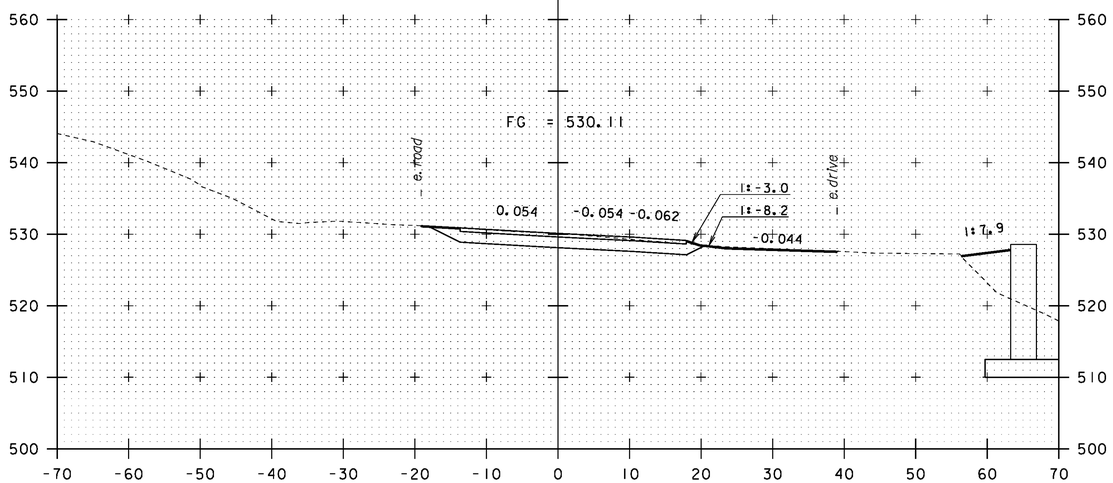
TH #20
NTS

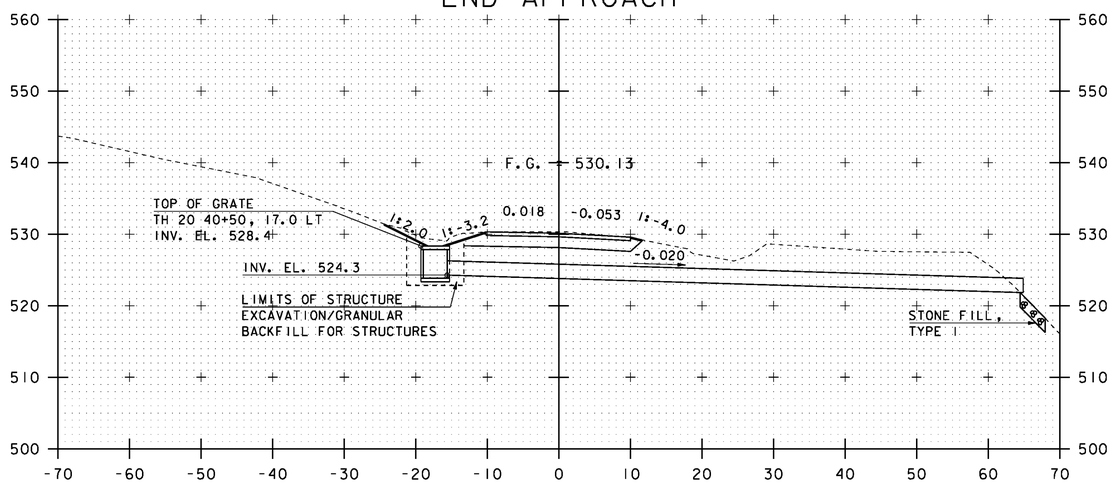


40+25



40+50





TH #20 STA 40+50 C/L
NEW PRECAST REINFORCED CONCRETE DROP INLET WITH CAST IRON GRATE, TYPE D. NEW 24" X 85' PCCSP (0.064), CAAP (0.060), RCP (CL. III), OR CPEP (SL) OPTION W/ STONE FILL, TYPE I @ OUTLET

10 0 10

SCALE: 1" = 10'-0"

STA. 40+25 TO STA. 40+75

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR_28\s86e055xsl_28.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 28 TH 20 CROSS SECTIONS

PLOT DATE: 08-OCT-2013
DRAWN BY: STR3
CHECKED BY: C. CARLSON
SHEET 157 OF 186

1. **PROJECT DESCRIPTION**

THIS PROJECT INVOLVES THE CONSTRUCTION OF THE NEW BRIDGES #27 AND #28 AND THE INSTALLATION OF A NEW CATTLE PASS IN THE TOWN OF ROYALTON. BRIDGE #27 WILL BE BUILT ALONG A NEW ALIGNMENT UPSTREAM OF THE CURRENT BRIDGE.THE NEW BRIDGE #27 WILL BE INTEGRAL ABUTMENT SPANNING 137.6 FEET OVER THE 2ND BRANCH OF THE WHITE RIVER. BRIDGE #27 IS LOCATED IN THE TOWN OF ROYALTON, ON VT ROUTE 14, APPROXIMATELY 1.4 MILES NORTH FROM THE INTERSECTIONS OF VT ROUTE 107 AND VT ROUTE 14.
THE CATTLE PASS WILL BE A PRECAST CONCRETE BOX WITH CONCRETE WINGWALLS. IT IS LOCATED APPROXIMATELY 0.20 MILES NORTH OF BRIDGE #27.
BRIDGE #28 WILL BE BUILT ALONG AN ALIGNMENT SIMILAR TO THE EXISTING BRIDGE.THE NEW BRIDGE WILL BE A SINGLE SPAN CURVED GIRDER SPANNING 122.6 FEET OVER THE 2ND BRANCH OF THE WHITE RIVER. BRIDGE #28 IS LOCATED IN THE TOWN OF ROYALTON, ON VT ROUTE 14, APPROXIMATELY 2 MILES NORTH FROM THE INTERSECTIONS OF VT ROUTE 107 AND VT ROUTE 14.

2. **AREA OF DISTURBANCE**

TOTAL AREA OF DISTURBANCE AS SHOWN ON THE ATTACHED EPSC PLAN IS APPROXIMATELY 4.84 ACRES.SEE BREAKDOWN OF DISTURBANCE PER AREA IN # 5 BELOW.

3. **CONSTRUCTION SEQUENCE**

THE CONTRACTOR SHALL SEQUENCE CONSTRUCTION ACTIVITIES TO MINIMIZE THE EXTENT OF DISTURBED SOILS LEFT OPEN TO EROSION AT ANY GIVEN TIME. LIMIT TOTAL AREA OF DISTURBANCE FOR ALL SITES TO < 2 ACRES.
A PROPOSED GENERAL SEQUENCE FOR EACH OF THE MAJOR CONSTRUCTION ACTIVITIES IS AS FOLLOWS:

- **ALL SITES-(THIS WORK SHALL BE DONE PRIOR TO ANY WORK LISTED FOR A SPECIFIC SITE.)**
  1) ESTABLISH PERIMETER CONTROLS AND MARK BOUNDARIES FOR SENSITIVE RESOURCE AREAS, SUCH AS WETLANDS AND RIPARIAN BUFFER ZONES.
  2) INSTALL SEDIMENT CONTROL MEASURES.
  3) CLEARING.
  4) BEGIN CUT & FILL OPERATIONS.

- **CATTLE PASS**
  1) CONCURRENTLY INSTALL TEMPORARY AND PERMANENT STABILIZATION AND EPSC MEASURES AND AS WORK PROGRESSES SO THAT EMBANKMENT IS STABILIZED PRIOR TO ALLOWING RUNOFF TO DISCHARGE TO IT.
  2) THE DITCH ON THE WEST SIDE OF THE ROADWAY SHALL BE MAINTAINED UNTIL WORK ON THAT SIDE BEGINS.
  3) INSTALLATION OF STRUCTURE WILL BE DONE IN PHASED CONSTRUCTION. THE EAST HALF OF THE ROADWAY WILL BE CUT DOWN TO GRADE FIRST AND HALF OF THE BOX, ONE HEADWALL AND THE TWO WINGWALLS WILL BE PLACED.
  4) PLACE SUBBASE MATERIAL FOR FIRST HALF OF THE ROADWAY AND STABILIZE ALL EARTH DISTURBANCE AS WORK PROGRESSES.
  5) THE CONTRACTOR SHALL INSTALL TEMPORARY RUNOFF MEASURES DURING CONSTRUCTION TO CAPTURE OR DIVERT RUNOFF IN THE DITCH ON THE WEST SIDE OF THE ROAD. THIS DITCH ON THE WEST SIDE, SOUTH OF THE CATTLE PASS WILL BE MAINTAINED TO DRAIN SOUTH TO THE EXISTING PIPE.
  6) SWITCH TRAFFIC TO THE COMPLETED SIDE AND CUT THE REMAINING SIDE DOWN TO GRADE.
  7) INSTALL THE REST OF THE BOX AND SECOND HEADWALL AND WINGWALLS.
  8) PLACE SUBBASE MATERIAL FOR SECOND HALF OF THE ROADWAY AND STABILIZE ALL EARTH DISTURBANCES AS WORK FINISHES.
  9) ONCE VEGETATION HAS BEEN ESTABLISHED AND THE STONE-LINED DITCHES INSTALLED, REMOVE THE INSTALLED TEMPORARY RUNOFF MEASURES AND DIVERT WATER INTO THE STONE-LINED DITCHES AS SHOWN ON THE PLANS.
  10) PAVE ROADWAY.

- **BRIDGE #27**
  1) CONSTRUCT TEMPORARY OUTLET CONTROL AND DRAINAGE PIPES FOR USE AS TEMPORARY SEDIMENT BASIN AT LOCATION SHOWN ON THE PLANS.
  2) BEGIN CUT/FILL OPERATIONS
  3) CONCURRENTLY INSTALL TEMPORARY STABILIZATION AND EPSC MEASURES AS WORK PROGRESSES.
  4) INSTALL NEW BRIDGE SUBSTRUCTURE. NO DEWATERING REQUIRED.
  5) PLACE SUBBASE MATERIAL UP TO TOP OF PILE CAP.
  6) INSTALL NEW BRIDGE SUPERSTRUCTURE.
  7) PLACE THE REST OF THE SUBBASE MATERIAL UP TO GRADE.
  8) WITH TRAFFIC MOVED TO NEW STRUCTURE, FORM NEW DITCH ALONG LEFT SIDE OF THE ROAD.
  9) ONCE PERMANENT STABILIZATION MEASURES ARE IN PLACE AND VEGETATION HAS BEEN ESTABLISHED, DRAIN SEDIMENT BASIN, REMOVE ACCUMULATED SEDIMENTS.
  10) DIVERT RUNOFF FROM SEDIMENT BASIN TO THE NEW DITCH.

- **BRIDGE #28**
  1) CONSTRUCT TEMPORARY BRIDGE.
  2) CONSTRUCT BRIDGE ABUTMENTS. DEWATER EXCAVATIONS AS NECESSARY.
  3) BACKFILL AROUND ABUTMENTS.
  4) CONSTRUCT BRIDGE.
  5) PLACE SUBBASE MATERIAL FOR ROADWAY APPROACHES.
  6) PAVE ROADWAY AND SHOULDERS WITH BASE COURSE OF PAVEMENT AS SOON AS SUFFICIENT LENGTH OF ROADWAY IS CONSTRUCTED.
  7) REMOVE TEMPORARY BRIDGE AND FINAL GRADE SIDE SLOPES.
  8) APPLY PERMANENT STABILIZATION MEASURES TO ALL REMAINING EXPOSED SOIL AREAS.

4. **STABILIZATION OF EXPOSED SOILS**

- SEED AND MULCH WILL BE USED FOR BOTH PERMANENT AND TEMPORARY STABILIZATION MEASURES. ROLLED EROSION CONTROL PRODUCT (RECP) WILL BE USED IN PLACE OF MULCH FOR SLOPES GREATER THAN 1V:3H. MULCH IS TO BE APPLIED AT A MINIMUM APPLICATION RATE AS SHOWN IN THE PLANS, UNLESS DIRECTED OTHERWISE BY THE ENGINEER.

- DISTURBED AREAS AND SOIL STOCKPILES THAT WILL NOT BE WORKED FOR MORE THAN 7 DAYS SHALL BE TEMPORARILY STABILIZED WITH MULCH/RECP WITHIN 48 HOURS.

- DISTURBED AREAS AND SOIL STOCKPILES THAT WILL NOT BE WORKED FOR MORE THAN 30 DAYS SHALL BE TEMPORARILY STABILIZED WITH SEED AND MULCH/RECP WITHIN 48 HOURS.

- EXPOSED AREAS THAT HAVE ACHIEVED FINAL GRADE SHALL BE PERMANENTLY STABILIZED WITHIN 48 HOURS.

- IN AREAS WHERE VEGETATIVE COVER WILL PROVIDE PERMANENT STABILIZATION, SEEDING TO BE COMPLETED BETWEEN APRIL 15 AND SEPTEMBER 15.

5. **DRAINAGE AREAS AND DISCHARGE POINTS**

THE PROJECT HAS THREE DISCRETE DISCHARGE POINTS TO THE RECEIVING WATER, THE 2ND BRANCH OF THE WHITE RIVER. EACH DISCHARGE CORRESPONDS TO A DRAINAGE AREA IN WHICH THE PROJECT HAS BEEN DIVIDED.

- **DRAINAGE AREA 1**
  INCLUDES THE AREA NORTH AND SOUTH OF BRIDGE #27. THE ASSOCIATED AREA OF DISTURBANCE IS 2.76 ACRES. RUNOFF WILL GENERALLY FLOW WEST TO EAST TOWARD THE WETLAND AREA ON THE SOUTH SIDE OF THE BRIDGE. NORTH OF THAT WATER WILL FLOW NORTH TOWARD THE 2ND BRANCH OF THE WHITE RIVER. ON THE NORTH SIDE OF THE BRIDGE WATER WILL FLOW SOUTH ON EACH SIDE OF THE ROADWAY TOWARD THE 2ND BRANCH OF THE WHITE RIVER.

- **DRAINAGE AREA 2**
  INCLUDES MOST OF THE AREA AROUND THE INSTALLATION OF THE CATTLE PASS. THE ASSOCIATED AREA OF DISTURBANCE IS 0.35 ACRE. RUNOFF ON THE WEST SIDE OF THE ROAD WILL FLOW IN VEGETATED SWALES TOWARD THE CATTLE PASS AND RUN THROUGH THE CATTLE PASS TO THE EAST SIDE OF THE ROAD. FROM HERE THE WATER WILL RUN TO THE 2ND BRANCH OF THE WHITE RIVER.

- **DRAINAGE AREA 3**
  CONSISTS OF THE AREA NORTH AND SOUTH OF BRIDGE #28. THE ASSOCIATED AREA OF DISTURBANCE IS 1.73 ACRES. RUNOFF WILL GENERALLY FLOW NORTH TO SOUTH AND INTO THE 2ND BRANCH OF THE WHITE RIVER. MOST RUNOFF WILL BE DISCHARGED TO VEGETATED TREATMENT SWALES WHICH DISCHARGE TO THE RECEIVING WATER.

DRAINAGE AREA SUMMARY

DRAINAGE AREA	TOTAL DISTURB. (ACRES)	LIMIT OF CONCURRENT DISTURBANCE	RECEIVING WATER
1	2.76	2 ACRE*	2ND BRANCH OF WHITE RIVER
2	0.35	2 ACRE*	2ND BRANCH OF WHITE RIVER
3	1.73	2 ACRE*	2ND BRANCH OF WHITE RIVER

*ONLY 2 ACRES OF TOTAL DISTURBANCE ALLOWED FOR ALL 3 SITES COMBINED, AT ONE TIME.

6. **WASTE, BORROW, AND STAGING AREAS**

- OFF-SITE WASTE AND BORROW AREAS HAVE NOT BEEN IDENTIFIED FOR THIS PROJECT. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO IDENTIFY AND PERMIT, AS NECESSARY, ANY OFF-SITE WASTE AND BORROW AREAS THAT ARE NEEDED. ALL EROSION PREVENTION AND SEDIMENT CONTROL MEASURES NECESSARY FOR WASTE, BORROW, AND STAGING AREAS OUTSIDE THE PROJECT LIMITS SHALL BE PAID FOR PER SUBSECTION 105.29 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

- LOCATE ADDITIONAL AREAS FOR DISPOSAL OF STUMPS, EXCESS SOILS AND COLLECTED SEDIMENT, IF NECESSARY. DISPOSE OF THESE MATERIALS IN A MANNER THAT WILL NOT RESULT IN SEDIMENTS ENTERING WATERS OF THE STATE.

- DISPOSAL SITES REQUIRE RELATIVELY LEVEL TERRAIN WITH AN ISOLATION DISTANCE OF AT LEAST 100 FT FROM ANY SURFACE WATERS, INCLUDING WETLANDS.

- VEHICLE AND EQUIPMENT STORAGE AREAS OR AREAS ADJACENT TO CONSTRUCTION TRAILERS OR OTHER HIGH TRAFFIC AREAS SHALL BE COVERED WITH GEOTEXTILE FABRIC AND 12 INCHES OF GRAVEL. FOLLOWING COMPLETION OF CONSTRUCTION, ALL NON-NATIVE MATERIALS SHALL BE REMOVED FROM THE STAGING AREA. COMPACTED, RUTTED, OR OTHERWISE DISTURBED SOILS SHALL BE TILLED, RAKED, SEEDED AND MULCHED.

- ERODIBLE MATERIALS STOCKPILED WITHIN THE MATERIAL STORAGE AREAS SHALL BE ISOLATED WITH SILT FENCE OR OTHER ACCEPTABLE SEDIMENT BARRIER. SOIL STOCKPILED ON THE SITE SHALL BE SEEDED AND MULCHED.

7. **WINTER CONSTRUCTION REQUIREMENTS**

IT IS EXPECTED THAT CONSTRUCTION ACTIVITIES WILL CONTINUE INTO THE WINTER CONSTRUCTION SEASON, DEPENDING ON ACTUAL FIELD AND WEATHER CONDITIONS. IF ACTIVITIES ARE ON-GOING BETWEEN OCTOBER 15 AND APRIL 15, THE CONTRACTOR SHALL FOLLOW REQUIREMENTS FOR WINTER CONSTRUCTION, AS DEFINED IN SPECIFIC PERMIT CONDITIONS AND AS FOLLOWS:

- ENLARGED ACCESS POINTS. STABILIZED TO PROVIDE FOR SNOW STOCKPILING.
- LIMITS OF DISTURBANCE MOVED OR REPLACED TO REFLECT BOUNDARY OF WINTER WORK.
- DEVELOPMENT OF A SNOW MANAGEMENT PLAN THAT INCLUDES:
  - ADEQUATE STORAGE AND CONTROL OF MELT-WATER
  - STORAGE OF CLEARED SNOW TO BE PLACED DOWN SLOPE OF DISTURBED AREAS AND OUT OF STORMWATER TREATMENT STRUCTURES
- A MINIMUM 7.5-METER (25-FOOT) BUFFER SHALL BE MAINTAINED FROM PERIMETER CONTROLS.
- DRAINAGE STRUCTURES MUST BE KEPT OPEN AND FREE OF SNOW AND ICE DAMS.
- SILT FENCE AND OTHER PRACTICES REQUIRING EARTH DISTURBANCE MUST BE INSTALLED AHEAD OF FROZEN GROUND.
- MULCH TO BE APPLIED AT TWICE THE REGULAR RATE, AS SHOWN IN THE PLANS, UNLESS DIRECTED OTHERWISE BY THE ENGINEER.
- AREAS OF DISTURBED SOILS MUST BE STABILIZED AT THE END OF EACH WORK DAY, WITH THE FOLLOWING EXCEPTIONS:
  - IF NO PRECIPITATION WITHIN 24 HOURS IS FORECAST AND WORK WILL RESUME IN THE SAME AREA WITHIN 24 HOURS.
  - DISTURBED AREAS THAT COLLECT AND RETAIN RUNOFF, SUCH AS OPEN UTILITY TRENCHES, MUST BE STABILIZED AT THE END OF EACH WORK WEEK.
- PRIOR TO STABILIZATION, SNOW OR ICE MUST BE REMOVED TO LESS THAN 1 INCH IN THICKNESS.

CONTRACTOR RESPONSIBILITIES, LIMITATIONS & PROHIBITIONS

1. **GENERAL NOTES**

- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO AMEND/UPDATE ALL PLANS AND EXISTING PERMITS WHEN ADDING DETAILED CONSTRUCTION PHASING OR ANYTHING ELSE THAT MAY DEVIATE FROM THE APPROVED PLANS AS DIRECTED BY THE RESIDENT ENGINEER.

- OTHER THAN THOSE SHOWN ON THE PLANS ALL LAND DISTURBANCES WITHIN 50 FT OF ALL WATER BODIES, MEASURED FROM THE TOP OF BANK, AND WETLANDS, ARE PROHIBITED WITHOUT FURTHER REGULATORY REVIEW.

- CONTRACTOR TO MAINTAIN ALL EXISTING STREAMS AND RIPARIAN BUFFER ZONES IN THEIR NATURAL CONDITION.

- OFF-SITE DISCHARGES OF ANY MATERIAL OTHER THAN STORMWATER, SUCH AS VEHICLE AND EQUIPMENT MAINTENANCE SPILLS, FUELS, WASH WATER, CONSTRUCTION DEBRIS, OIL, WET CONCRETE (INCLUDING WASHOUT WATER FROM CONCRETE BATCH TRUCKS OR EQUIPMENT USED TO MIX CONCRETE), AND OTHER SUBSTANCES, ARE PROHIBITED.

- THE FAILURE TO PROMPTLY ABATE THE DISCHARGE OF SEDIMENT OR ANY OTHER WASTE WHICH CAUSES A VISIBLE DISCOLORATION OF SURFACE WATERS (INCLUDING WETLANDS), OR IS FOUND TO BE VIOLATING WATER QUALITY STANDARDS BASED ON MONITORING, IS PROHIBITED. ANY CORRECTIVE ACTION UNDERTAKEN TO REMOVE SEDIMENT FROM A WETLAND IS ALSO PROHIBITED.

- WEATHER CONDITIONS WILL BE MONITORED DURING THE CONSTRUCTION SEASON. IF AN EXTENDED RAIN PERIOD OR HEAVY RAIN IS PREDICTED, EXPOSED SOIL AREAS WILL BE MULCHED PRIOR TO AND DAILY DURING THE RAIN EVENT. IF DETERMINED NECESSARY BY THE RESIDENT ENGINEER, WORK MAY BE SUSPENDED OR LIMITED DURING THE STORM.

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: s86e055ero_narrative.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
EPSC NARRATIVE (1)

PLOT DATE: 08-OCT-2013
DRAWN BY: G. ROY
CHECKED BY: C. CARLSON

1. **EPSC PLAN**

THE CONTRACTOR SHALL SUBMIT AN EPSC PLAN IN ACCORDANCE WITH SPECIAL PROVISION SECTION 652 AND PROJECT PERMITS. THE PLAN AT A MINIMUM SHALL TAKE INTO CONSIDERATION THE FOLLOWING:

- **ALL AREAS**
  THE DISTURBANCE AT ANY ONE TIME IN ALL AREAS COMBINED SHALL BE LIMITED TO 2 ACRES.

- **DRAINAGE AREA 1**
  - SOIL INFORMATION - ONDAWA FINE SANDY LOAM, 0 TO 3 PERCENT SLOPES, OCCASIONALLY FLOODED, K=0.24. MEDIUM ERODIBILITY.
  - ACCESS TO THE AREA, INCLUDING TEMPORARY AND PERMANENT STABILIZATION OF THE PROPOSED ACCESS DURING AND THEN FOLLOWING CONSTRUCTION OF THE PROJECT
  - STORMWATER RUNOFF TO BE CONTROLLED PRIOR TO, DURING, AND THEN FOLLOWING THE FULL COMPLETION OF STONE FACING THE RIVER EMBANKMENT ON THE SOUTH SIDE OF THE RIVER.

- **DRAINAGE AREA 2**
  - SOIL INFORMATION - BUCKLAND LOAM, 8 TO 15 PERCENT SLOPES, K=0.32. HIGHLY ERODIBLE.
  - ACCESS TO THE AREA, INCLUDING TEMPORARY AND PERMANENT STABILIZATION OF THE PROPOSED ACCESS DURING AND THEN FOLLOWING CONSTRUCTION OF THE PROJECT
  - STORMWATER RUNOFF TO BE CONTROLLED PRIOR TO, DURING, AND THEN FOLLOWING THE FULL COMPLETION OF STONE FACING THE RIVER EMBANKMENT ON THE NORTH SIDE OF THE RIVER.

- **DRAINAGE AREA 3**
  - SOIL INFORMATION - HITCHCOCK SILT LOAM, 25 TO 50 PERCENT SLOPES, ERODED, K=0.49 AND BUCKLAND LOAM, 8 TO 15 PERCENT SLOPES, K=0.32. HIGHLY ERODIBLE.
  - ACCESS TO THE AREA, INCLUDING TEMPORARY AND PERMANENT STABILIZATION OF THE PROPOSED ACCESS DURING AND THEN FOLLOWING CONSTRUCTION OF THE PROJECT
  - STORMWATER RUNOFF TO BE CONTROLLED PRIOR TO, DURING, AND THEN FOLLOWING THE FULL COMPLETION OF STONE FACING THE RIVER EMBANKMENT ON THE SOUTH SIDE OF THE RIVER.

THE EPSC PLAN SHALL ALSO INCLUDE INFORMATION REGARDING:
- THE CONSTRUCTION OF STONE PADS, INCLUDING STREAM DIVERSION PLANS
- CONSTRUCTION OF TEMPORARY BRIDGES (OR TEMPORARY FILL)
- METHOD FOR TREATMENT OF DISCHARGE FROM DEWATERING.
- CONSTRUCTION OF HAUL ROADS.

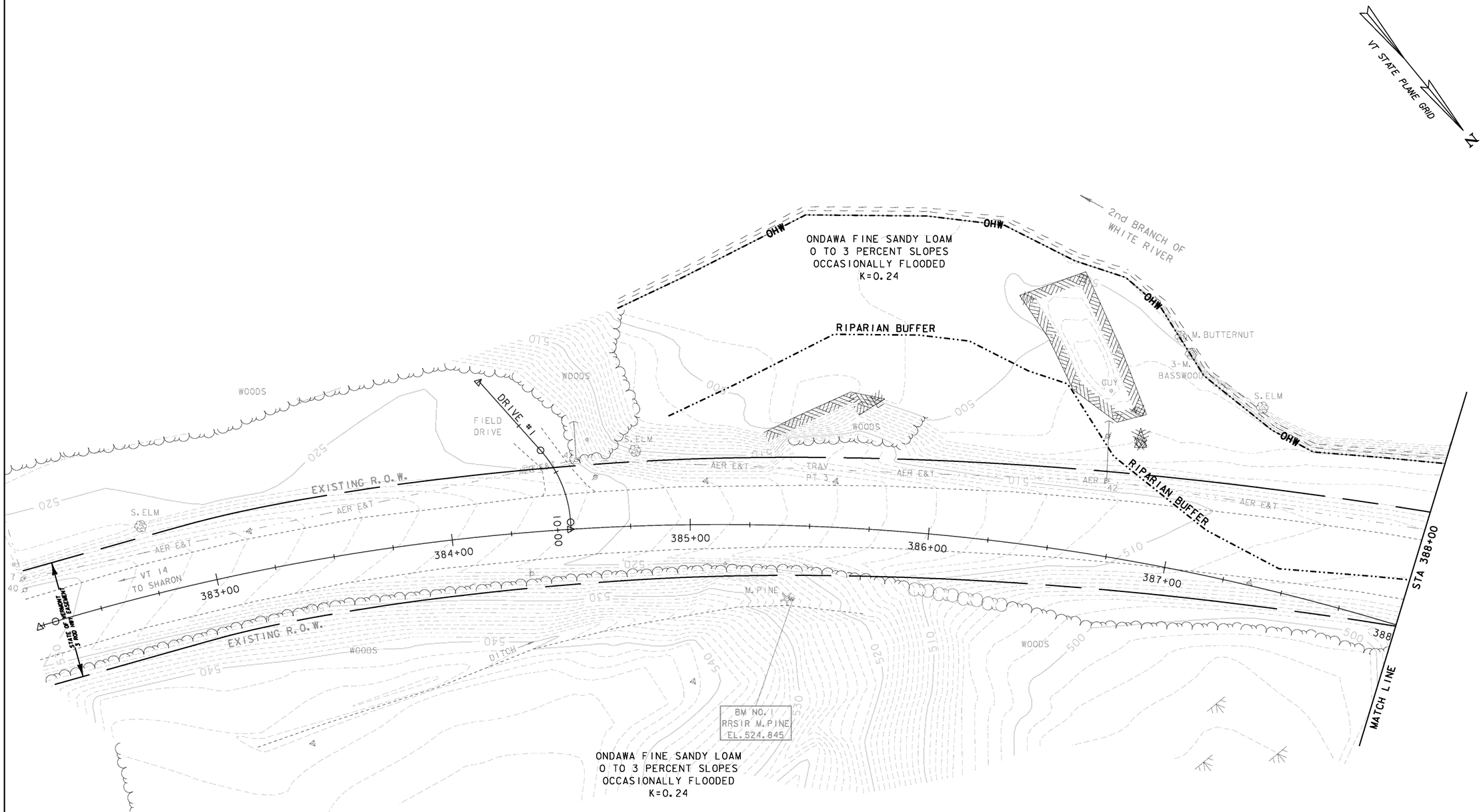
2. **INSPECTION & MONITORING NOTES**

- CONTRACTOR TO CONDUCT INSPECTIONS AND MONITORING IN ACCORDANCE WITH THE SPECIAL PROVISIONS AND PERMIT SPECIFIC REQUIREMENTS.

THE CONTRACTOR SHALL KEEP ONE (1) TURBIDITY MONITOR ONSITE AND HAVE PERSONNEL ON HAND THAT ARE TRAINED IN ITS OPERATION.

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)

FILE NAME: s86e055ero_narrative.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
EPSC NARRATIVE (2)	SHEET 159 OF 186



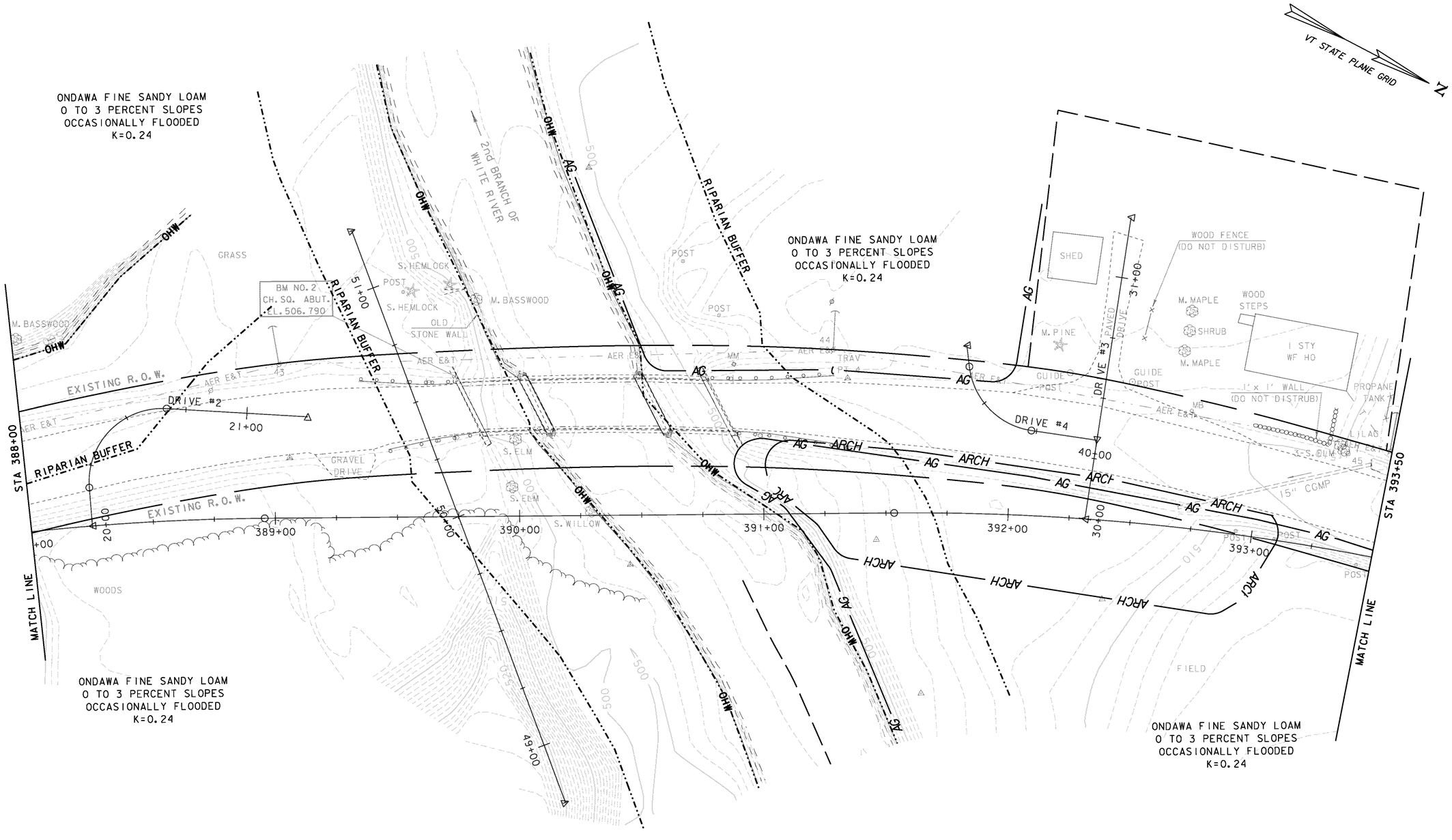
NOTE:

1. SEE SHEET 175 FOR EPSC LAYOUT PLAN SYMBOLOGY LEGEND

20 0 20

SCALE: 1" = 20'-0"

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: \BR 27\s86e055erobdr_27.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: D. PETERSON
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 27 EPSC EXISTING CONDITION (1)	SHEET 160 OF 186



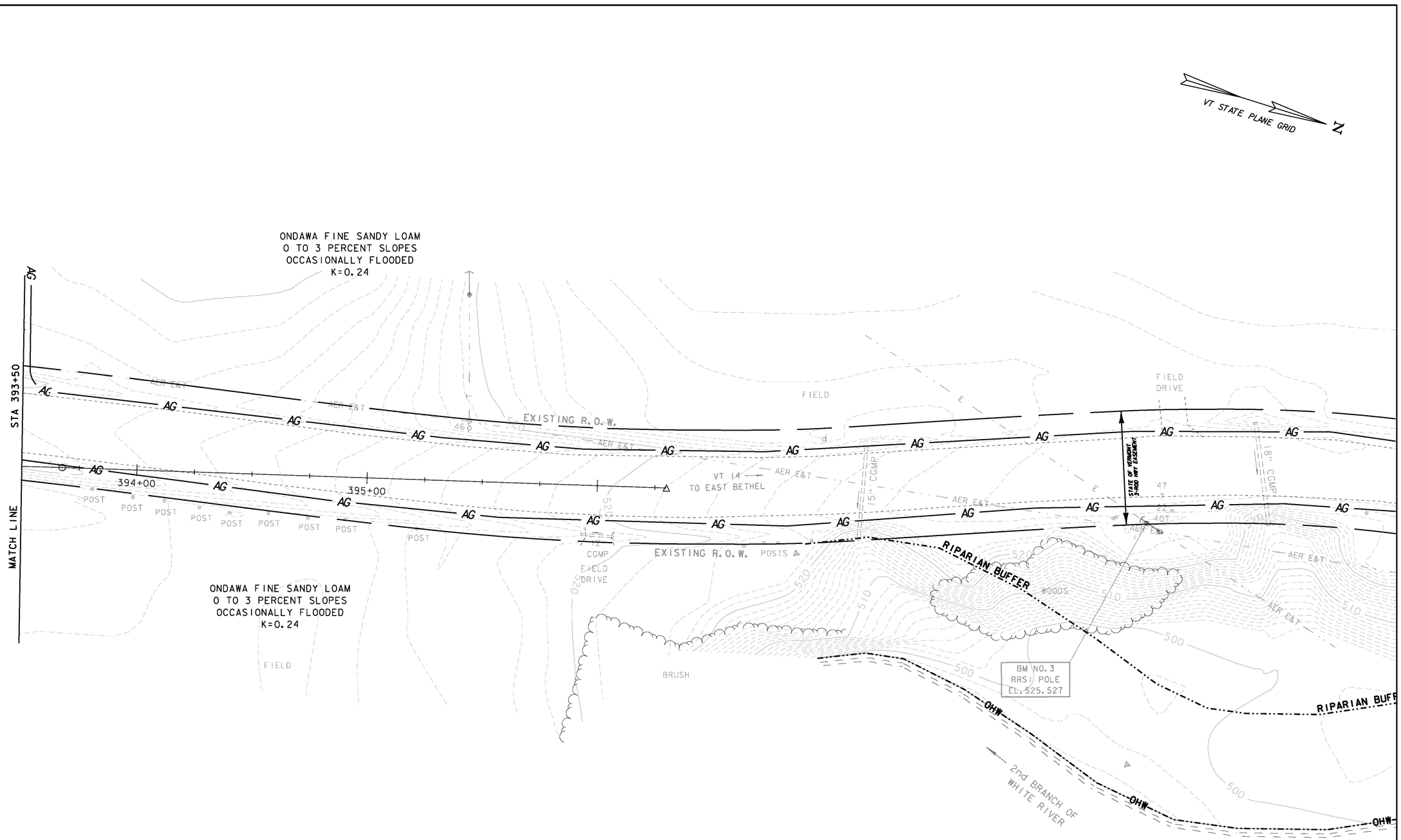
NOTE:

1. SEE SHEET 175 FOR EPSC LAYOUT PLAN SYMBOLOGY LEGEND

20 0 20

SCALE: 1" = 20'-0"

PROJECT NAME: ROYALTON	
PROJECT NUMBER: BRS 0147 (13)	
FILE NAME: \BR 27\s86e055erobdr_27.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: D. PETERSON
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 27 EPSC EXISTING CONDITION (2)	SHEET 161 OF 186



NOTE:

1. SEE SHEET 175 FOR EPSC LAYOUT PLAN SYMBOLOGY LEGEND

20 0 20

SCALE: 1" = 20'-0"

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: \BR 27\s86e055erobdr_27.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: D. PETERSON
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 27 EPSC EXISTING CONDITION (3)	SHEET 162 OF 186

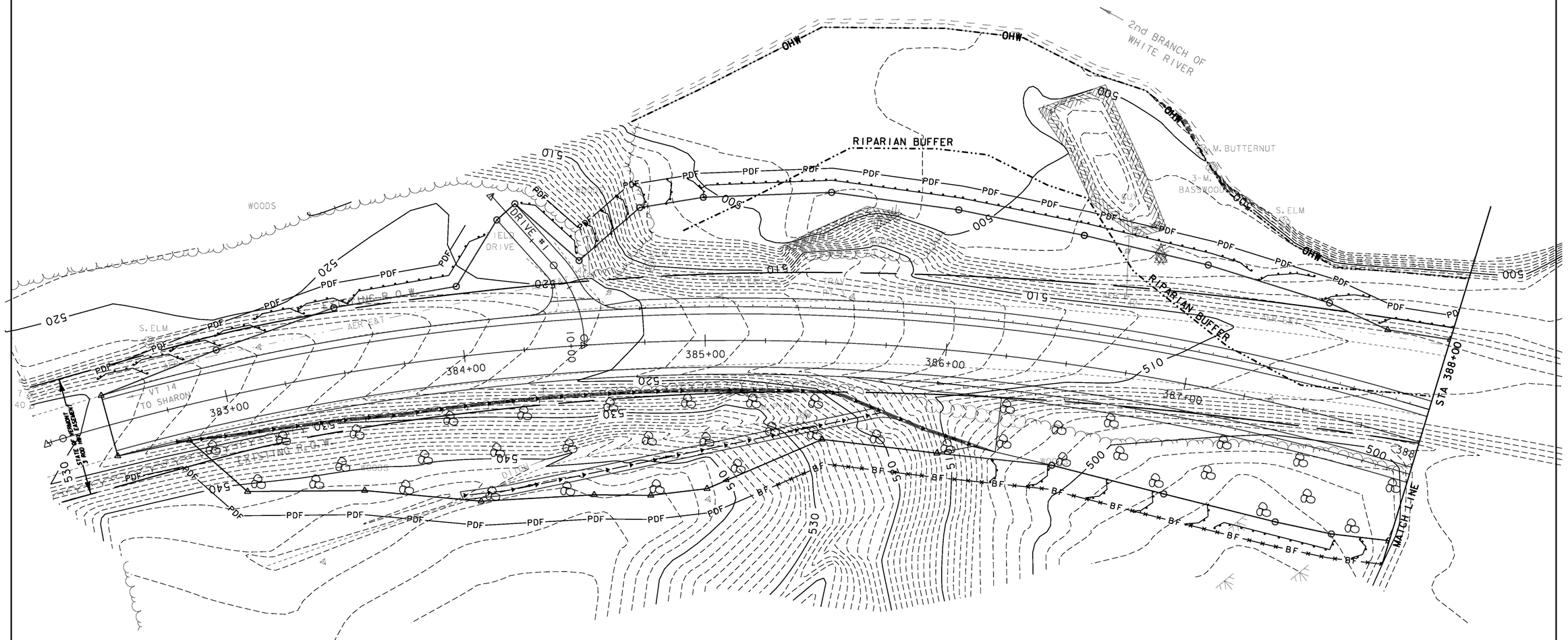
NOTES:

1. SILT FENCE INSTALLATION MAY REQUIRE PHASING TO MAXIMIZE EFFECTIVENESS. INSTALL AND/OR MOVE SILT FENCE AS CONSTRUCTION PROGRESSES TO OBTAIN THE GREATEST PREVENTION OF SEDIMENT TRANSPORT.

2. SEE SHEET 175 FOR EPSC LAYOUT PLAN SYMBOLOGY LEGEND

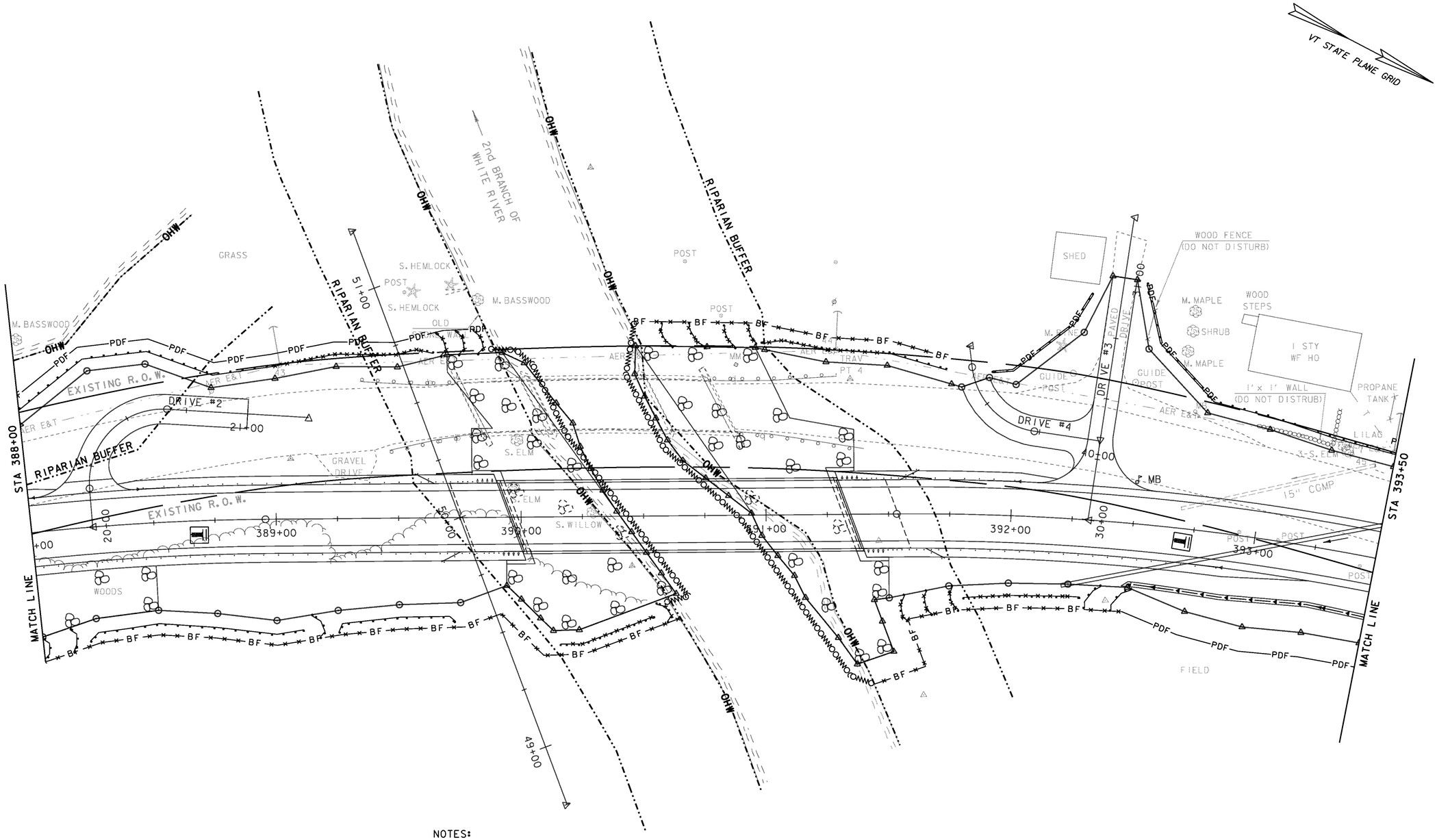
VT STATE PLANE GRID

N



SCALE: 1" = 20'-0"

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: \BR 27\s86e055erobdr_27.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: D. PETERSON
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 27 EPSC CONSTRUCTION CONDITION (1)	SHEET 163 OF 186



NOTES:

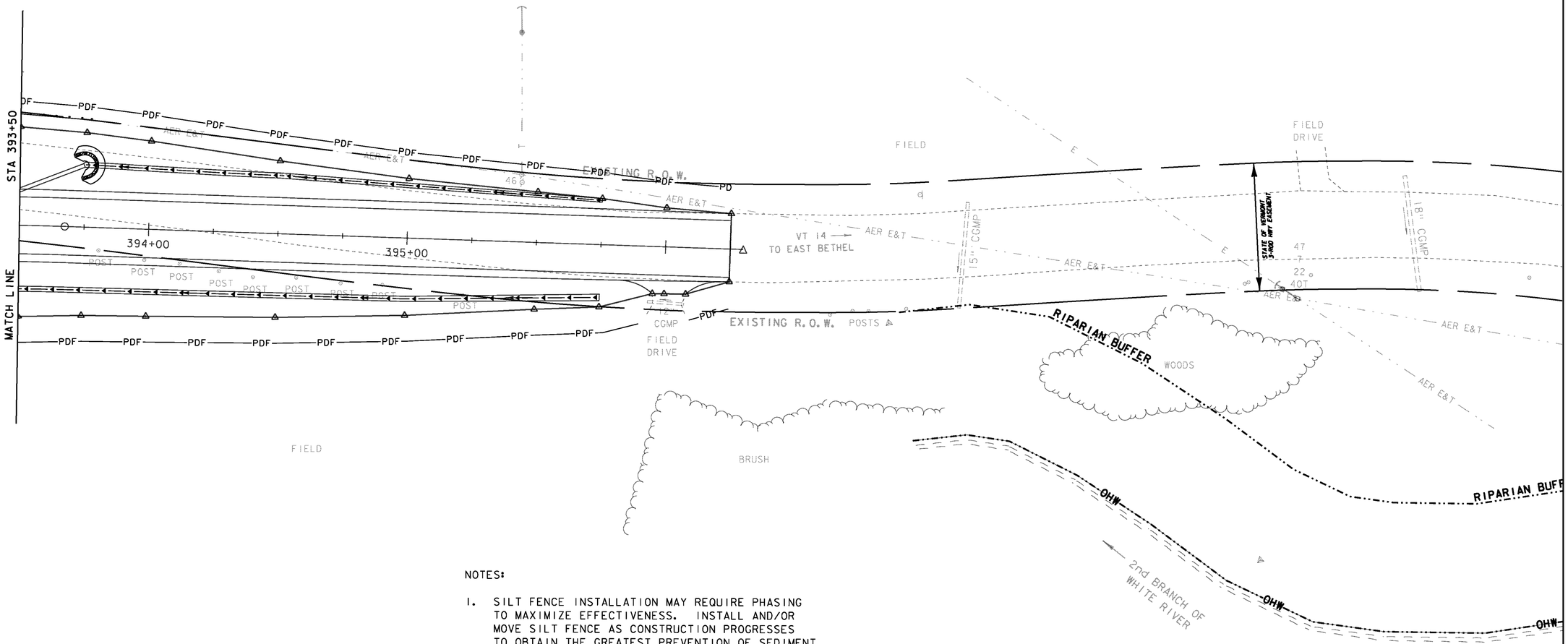
1. SILT FENCE INSTALLATION MAY REQUIRE PHASING TO MAXIMIZE EFFECTIVENESS. INSTALL AND/OR MOVE SILT FENCE AS CONSTRUCTION PROGRESSES TO OBTAIN THE GREATEST PREVENTION OF SEDIMENT TRANSPORT.

2. SEE SHEET 175 FOR EPSC LAYOUT PLAN SYMBOLOGY LEGEND

20 0 20

SCALE: 1" = 20'-0"

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: \BR 27\s86e055erobdr_27.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: D. PETERSON
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 27 EPSC CONSTRUCTION CONDITION (2)	SHEET 164 OF 186



NOTES:

1. SILT FENCE INSTALLATION MAY REQUIRE PHASING TO MAXIMIZE EFFECTIVENESS. INSTALL AND/OR MOVE SILT FENCE AS CONSTRUCTION PROGRESSES TO OBTAIN THE GREATEST PREVENTION OF SEDIMENT TRANSPORT.

2. SEE SHEET 175 FOR EPSC LAYOUT PLAN SYMBOLOGY LEGEND

20 0 20

SCALE: 1" = 20'-0"

PROJECT NAME:	ROYALTON
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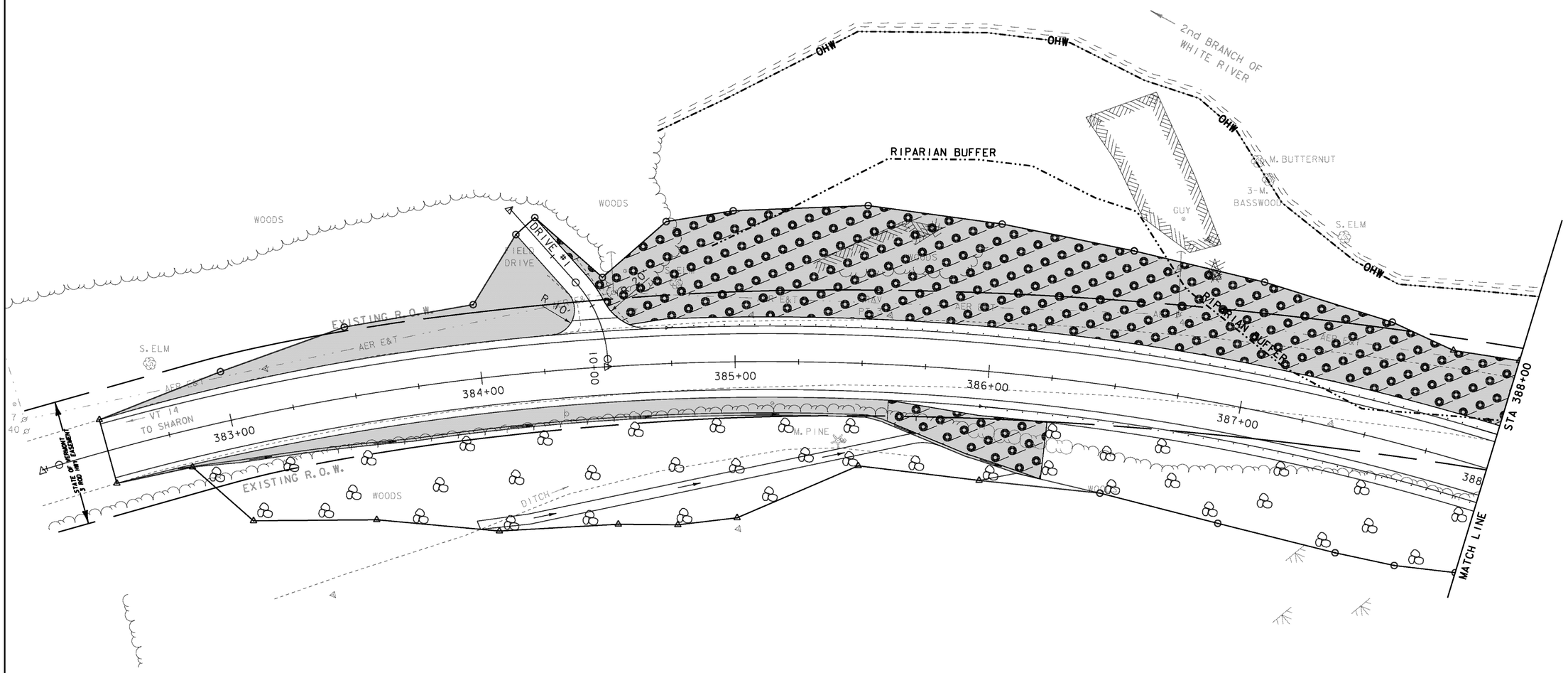
PROJECT LEADER: C. CARLSON	DRAWN BY: D. PETERSON
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 27 EPSC CONSTRUCTION CONDITION (3)	SHEET 165 OF 186

NOTES:

1. SEE CROSS SECTIONS FOR FINAL GRADE INFORMATION.
2. SEE SHEET 175 FOR EPSC LAYOUT PLAN SYMBOLOGY LEGEND

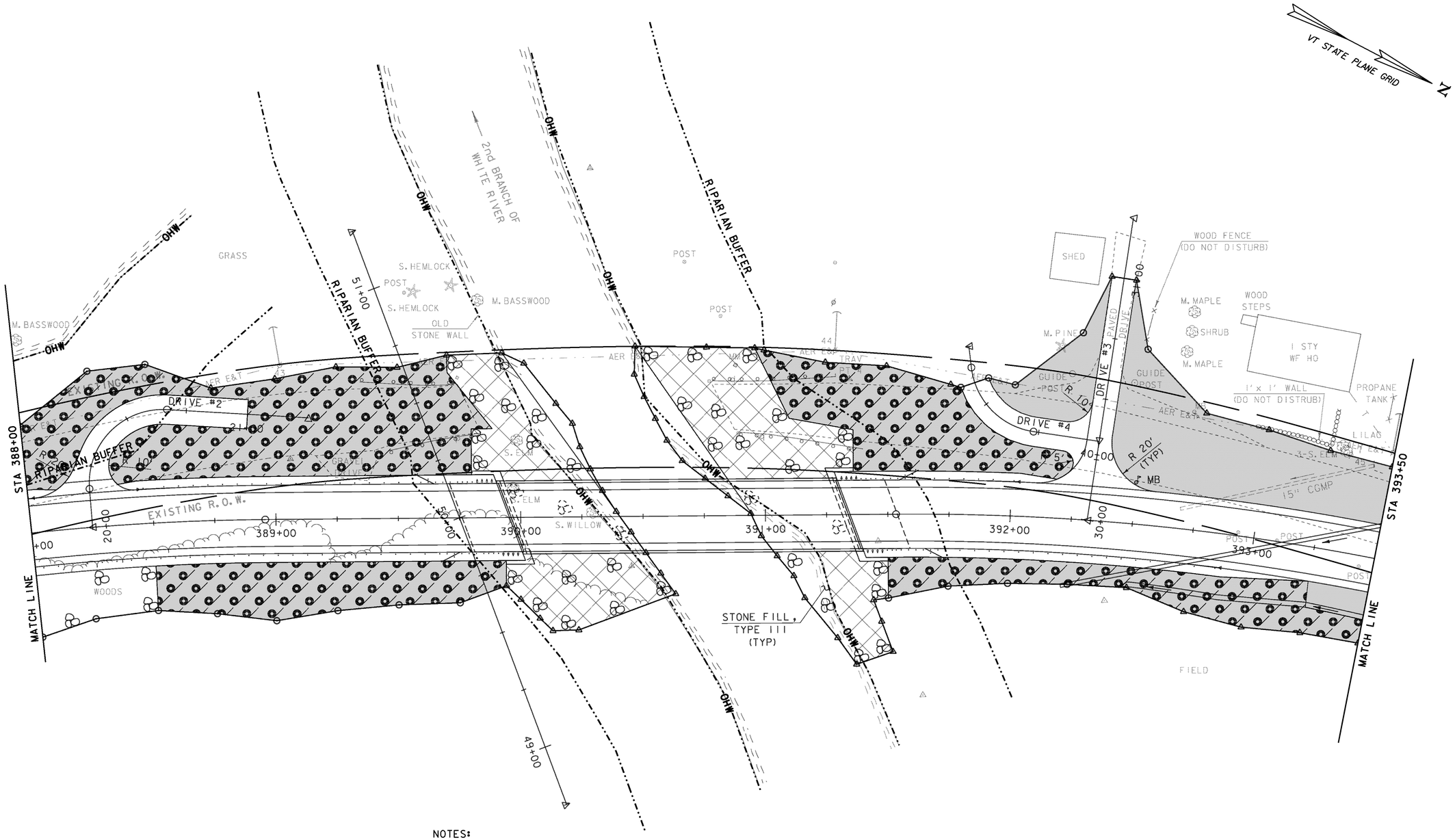
VT STATE PLANE GRID



20 0 20

SCALE: 1" = 20'-0"

PROJECT NAME: ROYALTON	
PROJECT NUMBER: BRS 0147 (13)	
FILE NAME: \BR27\s86e055erobdr_27.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: D. PETERSON
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 27 EPSC FINAL CONDITION (1)	SHEET 166 OF 186



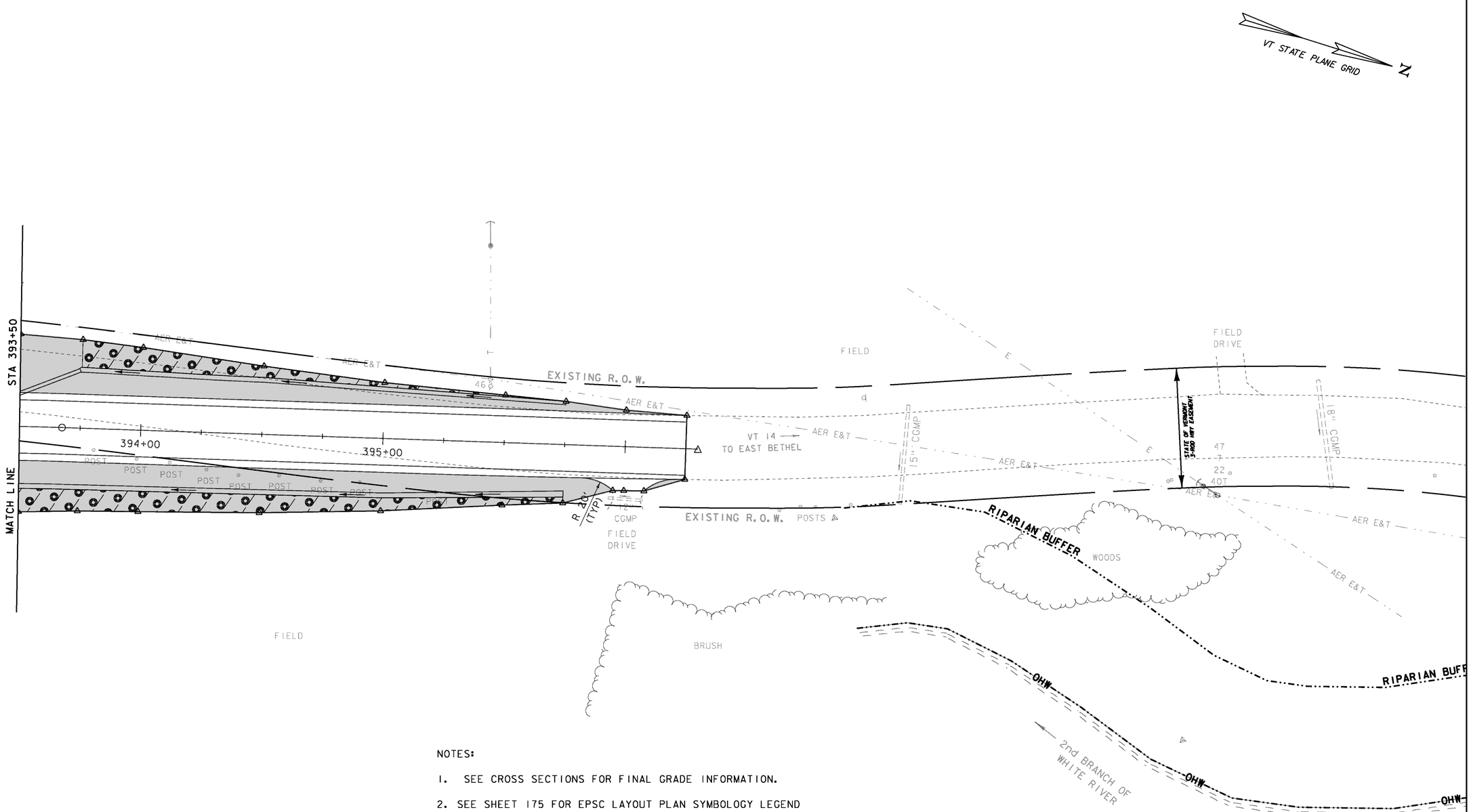
NOTES:

1. SEE CROSS SECTIONS FOR FINAL GRADE INFORMATION.
2. SEE SHEET 175 FOR EPSC LAYOUT PLAN SYMBOLOGY LEGEND

20 0 20

SCALE: 1" = 20'-0"

PROJECT NAME: ROYALTON	
PROJECT NUMBER: BRS 0147 (13)	
FILE NAME: \BR 27\s86e055erobdr_27.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: D. PETERSON
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 27 EPSC FINAL CONDITION (2)	SHEET 167 OF 186



NOTES:

1. SEE CROSS SECTIONS FOR FINAL GRADE INFORMATION.
2. SEE SHEET 175 FOR EPSC LAYOUT PLAN SYMBOLOGY LEGEND

20 0 20

SCALE: 1" = 20'-0"

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: \BR 27\s86e055erobdr_27.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: D. PETERSON
DESIGNED BY: D. PETERSON	CHECKED BY: C. CARLSON
BRIDGE 27 EPSC FINAL CONDITION (3)	SHEET 168 OF 186

LEGEND

—— AG —— AGRICULTURAL RESOURCE

-·-·-·-·-·- 50' RIPARIAN BUFFER

NOTE:

1. SEE SHEET 175 FOR EPSC LAYOUT PLAN SYMBOLOGY LEGEND

BUCKLAND LOAM
8 TO 15 PERCENT SLOPES
K=0.32

BUCKLAND LOAM
8 TO 15 PERCENT SLOPES
K=0.32

VT STATE PLANE GRID

N

WOODS

S 83°59'26" W

7+00

6+00

5+00

EXISTING R.O.W.

AG

VT 14

399+00

400+00

401+00

402+00

STATE OF VERMONT
3-ROD HWY EASEMENT

POST

S ELM

M APPLE

M BUTTERNUT

AER E&T

520

510

WV
0140
1416
0760

FIELD
DRIVE

74

73

BUCKLAND LOAM
8 TO 15 PERCENT SLOPES
K=0.32

BUCKLAND LOAM
8 TO 15 PERCENT SLOPES
K=0.32

RIPARIAN BUFFER

RIPARIAN BUFFER

10 0 10

SCALE: 1" = 10'-0"

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147(13)
FILE NAME: s86e055erobdr_cattlepass3.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: G. ROY	CHECKED BY: D. PETERSON
CATTLE PASS EPSC EXISTING CONDITION	SHEET 169 OF 186

LEGEND

PDF— PROJECT DEMARCATION FENCE

SILT FENCE

50' RIPARIAN BUFFER

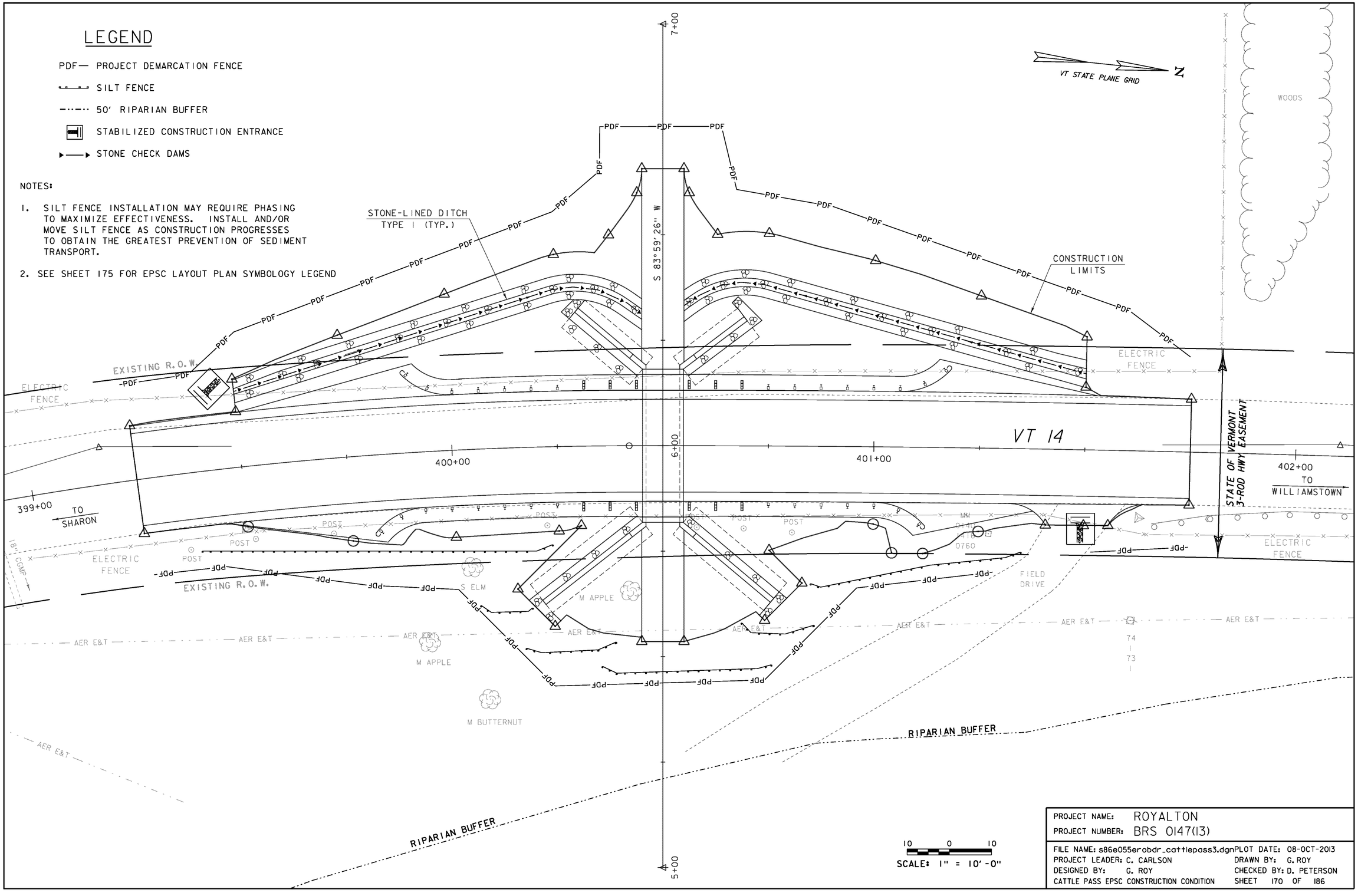
STABILIZED CONSTRUCTION ENTRANCE

STONE CHECK DAMS

NOTES:

1. SILT FENCE INSTALLATION MAY REQUIRE PHASING TO MAXIMIZE EFFECTIVENESS. INSTALL AND/OR MOVE SILT FENCE AS CONSTRUCTION PROGRESSES TO OBTAIN THE GREATEST PREVENTION OF SEDIMENT TRANSPORT.

2. SEE SHEET 175 FOR EPSC LAYOUT PLAN SYMBOLOGY LEGEND



SCALE: 1" = 10'-0"

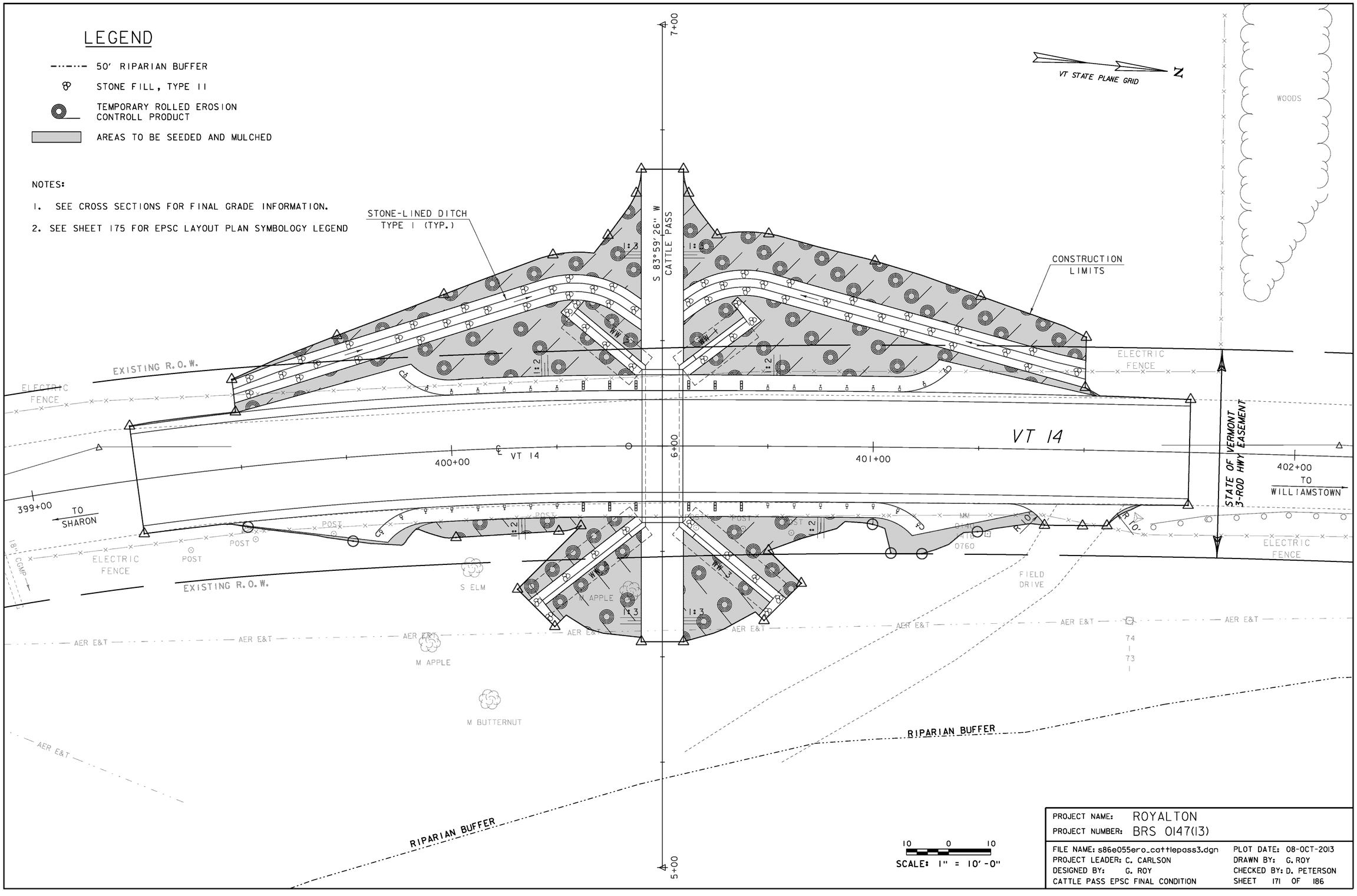
PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147(13)
FILE NAME: s86e055erobdr_cattlepass3.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: G. ROY	CHECKED BY: D. PETERSON
CATTLE PASS EPSC CONSTRUCTION CONDITION	SHEET 170 OF 186

LEGEND

- 50' RIPARIAN BUFFER
- STONE FILL, TYPE II
- TEMPORARY ROLLED EROSION CONTROLL PRODUCT
- AREAS TO BE SEEDED AND MULCHED

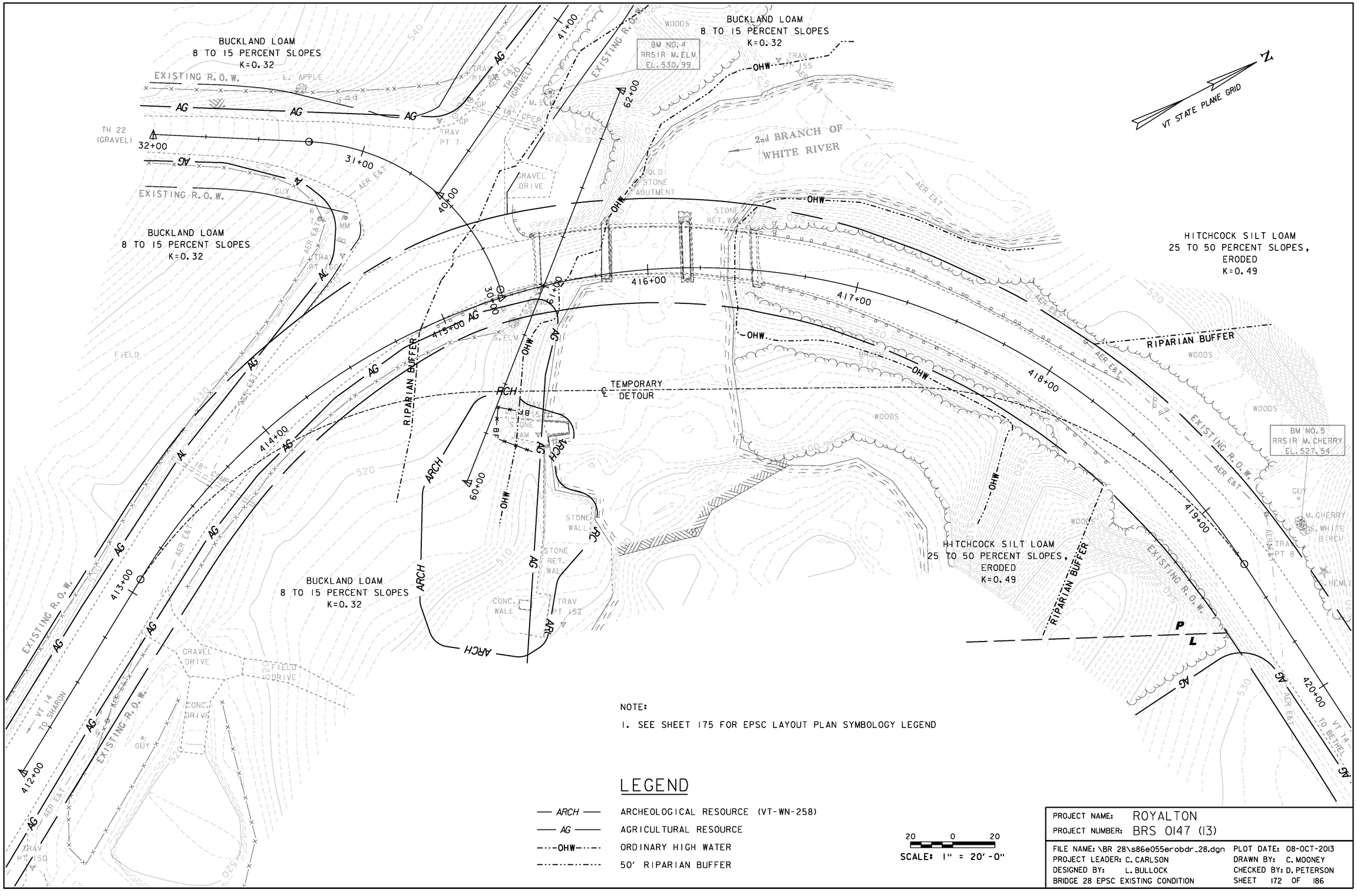
NOTES:

1. SEE CROSS SECTIONS FOR FINAL GRADE INFORMATION.
2. SEE SHEET 175 FOR EPSC LAYOUT PLAN SYMBOLOGY LEGEND



SCALE: 1" = 10'-0"

PROJECT NAME: ROYALTON	
PROJECT NUMBER: BRS 0147(13)	
FILE NAME: s86e055ero_cattlepass3.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: G. ROY	CHECKED BY: D. PETERSON
CATTLE PASS EPSC FINAL CONDITION	SHEET 171 OF 186



NOTE:

1. SEE SHEET 175 FOR EPSC LAYOUT PLAN SYMBOLOGY LEGEND

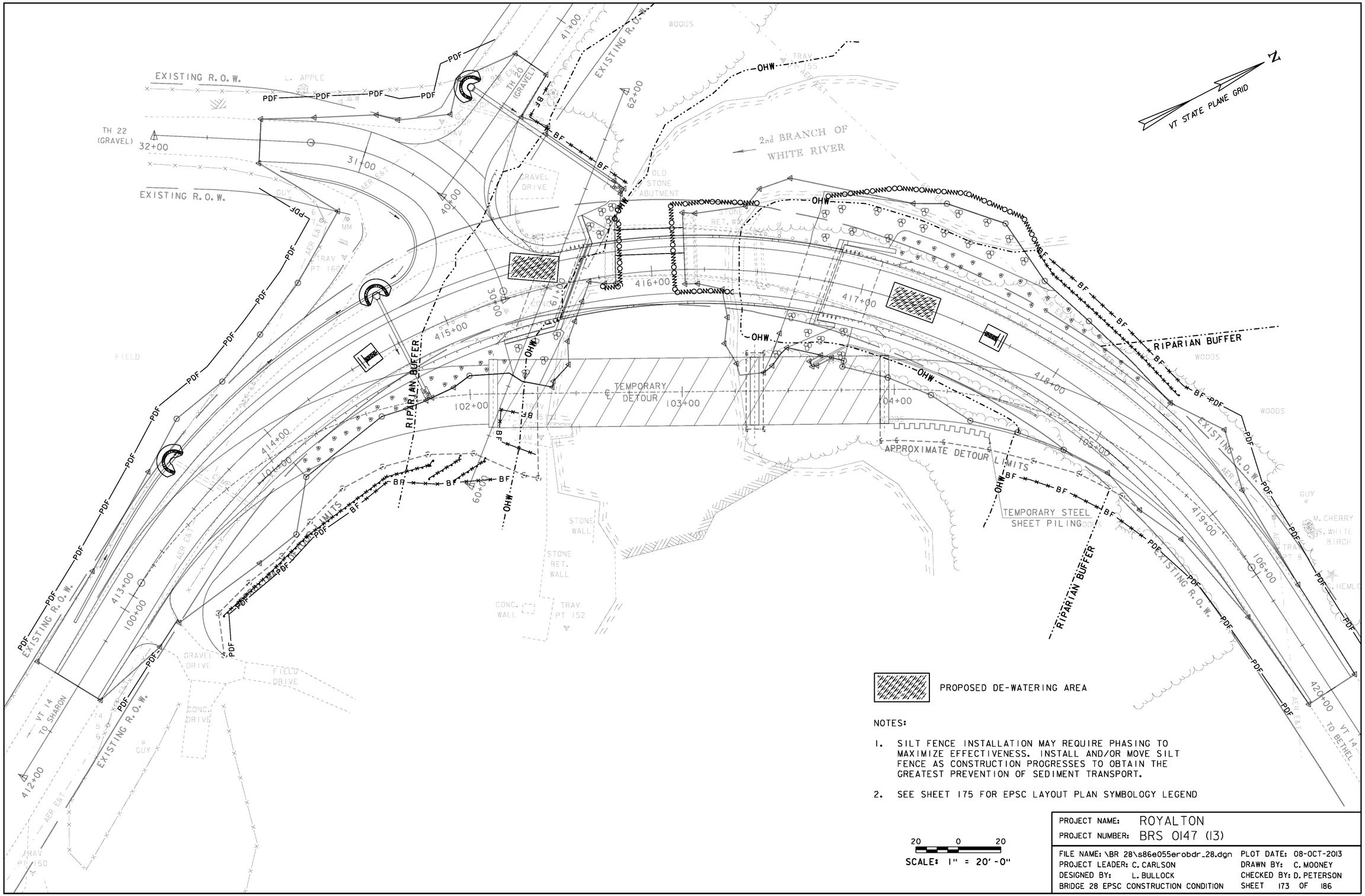
LEGEND

—— ARCH ——	ARCHEOLOGICAL RESOURCE (VT-WN-258)
—— AG ——	AGRICULTURAL RESOURCE
----OHW----	ORDINARY HIGH WATER
-----------	50' RIPARIAN BUFFER

20 0 20

SCALE: 1" = 20'-0"

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: \BR 28\s86e055erobdr_28.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: L. BULLOCK	CHECKED BY: D. PETERSON
BRIDGE 28 EPSC EXISTING CONDITION	SHEET 172 OF 186



PROPOSED DE-WATERING AREA

NOTES:

1. SILT FENCE INSTALLATION MAY REQUIRE PHASING TO MAXIMIZE EFFECTIVENESS. INSTALL AND/OR MOVE SILT FENCE AS CONSTRUCTION PROGRESSES TO OBTAIN THE GREATEST PREVENTION OF SEDIMENT TRANSPORT.
2. SEE SHEET 175 FOR EPSC LAYOUT PLAN SYMBOLOGY LEGEND

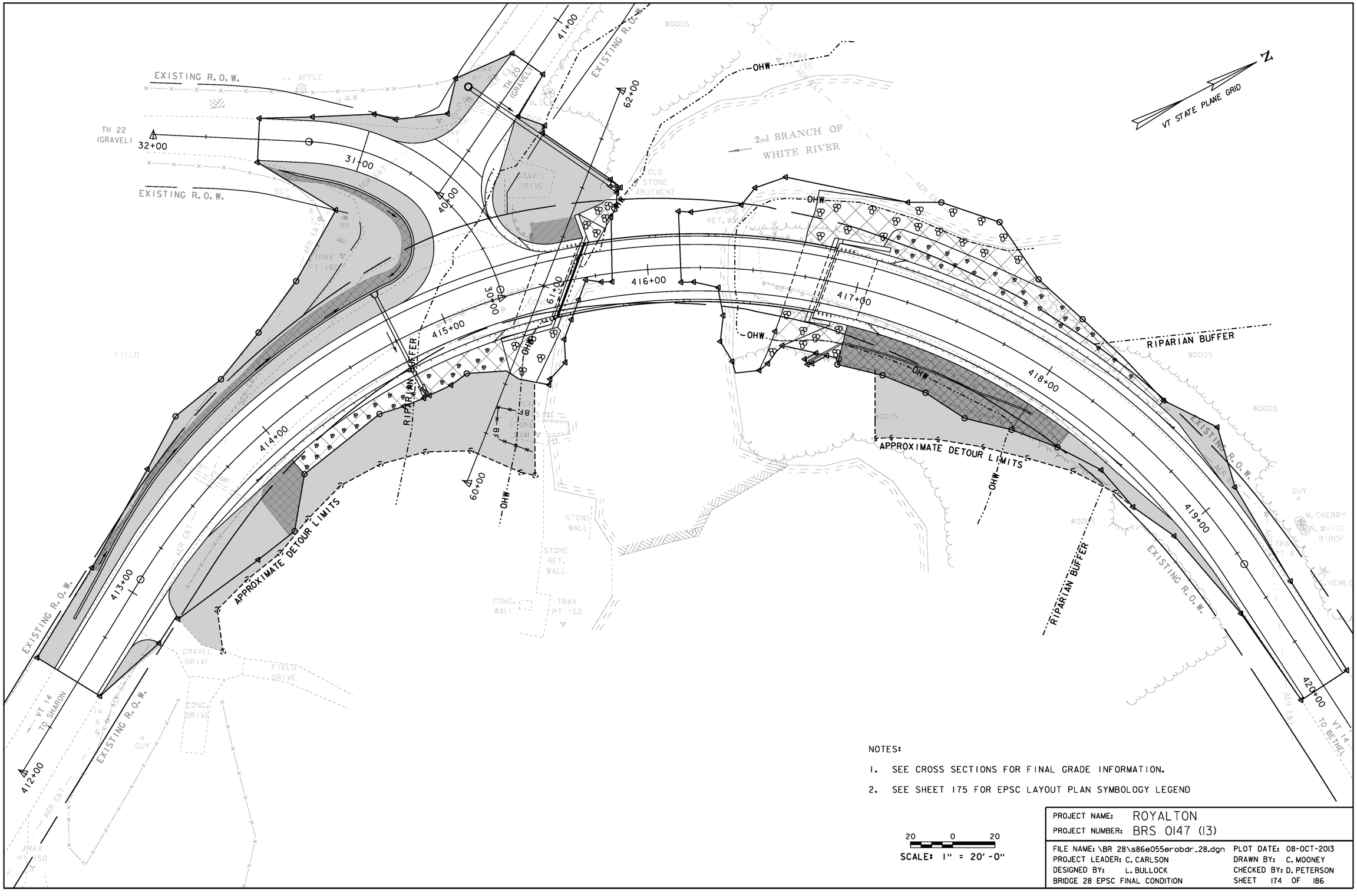
20 0 20

SCALE: 1" = 20'-0"

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: \BR 28\s86e055erobdr_28.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: L. BULLOCK
BRIDGE 28 EPSC CONSTRUCTION CONDITION

PLOT DATE: 08-OCT-2013
DRAWN BY: C. MOONEY
CHECKED BY: D. PETERSON
SHEET 173 OF 186



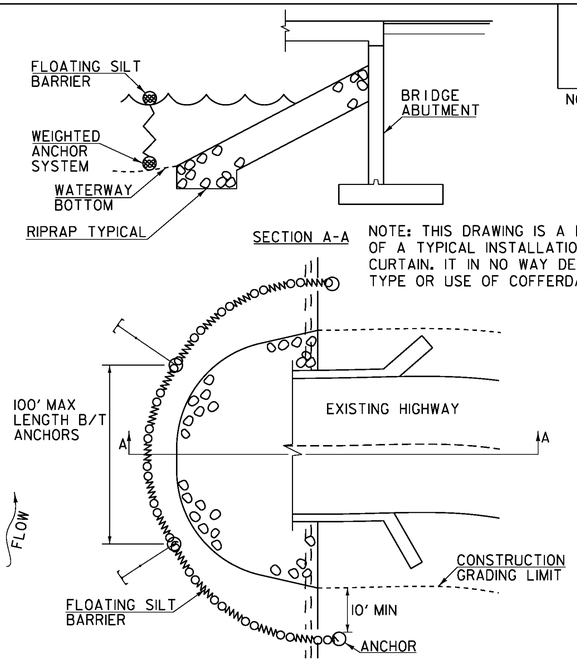
NOTES:

1. SEE CROSS SECTIONS FOR FINAL GRADE INFORMATION.
2. SEE SHEET 175 FOR EPSC LAYOUT PLAN SYMBOLOGY LEGEND

20 0 20

SCALE: 1" = 20'-0"

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)
FILE NAME: \BR 28\s86e055erobdr_28.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: L. BULLOCK	CHECKED BY: D. PETERSON
BRIDGE 28 EPSC FINAL CONDITION	SHEET 174 OF 186



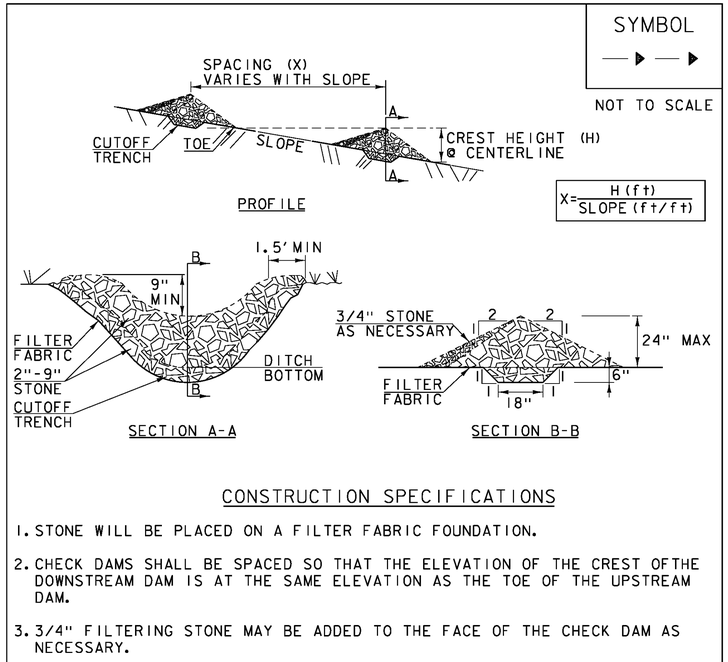
CONSTRUCTION SPECIFICATIONS

1. FILTER CURTAIN SHALL NOT BE PLACED ACROSS A FLOWING WATERWAY, OR IN A WATERWAY WITH STREAM VELOCITIES GREATER THAN 1.5 FEET/SECOND.
2. MAXIMUM 100' LENGTH BETWEEN ANCHORS.
3. LAST SECTION SHALL TERMINATE A MINIMUM OF 10' BEYOND LIMIT OF DISTURBANCE.
4. THE WEIGHTED ANCHOR SYSTEM SHALL BE A TYPE WHICH ALLOWS THE CURTAIN TO CONFORM TO THE BOTTOM OF THE WATERWAY.
5. THE CURTAIN SHALL BE REMOVED BY SLOWLY PULLING TOWARD THE SHORE MINIMIZING THE ESCAPE OF SEDIMENTS INTO WATERWAY.

FILTER CURTAIN

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 FOR GEOTEXTILE FOR FILTER CURTAIN (PAY ITEM 649.61).

REVISIONS	
APRIL 1, 2008	WHF
JANUARY 13, 2009	WHF
SEPTEMBER 4, 2009	WHF



CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION.
2. CHECK DAMS SHALL BE SPACED SO THAT THE ELEVATION OF THE CREST OFTHE DOWNSTREAM DAM IS AT THE SAME ELEVATION AS THE TOE OF THE UPSTREAM DAM.
3. 3/4" FILTERING STONE MAY BE ADDED TO THE FACE OF THE CHECK DAM AS NECESSARY.
4. EXTEND THE STONE A MINIMUM OF 1.5' BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
5. PROTECT CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
6. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.
7. MAXIMUM DRAINAGE AREA 2 ACRES.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

CHECK DAM

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR TEMPORARY STONE CHECK DAM, TYPE I (PAY ITEM 653.25)

REVISIONS	
MARCH 21, 2008	WHF
JANUARY 8, 2009	WHF

EPSC LAYOUT PLAN SYMBOLOGY LEGEND

PROJECT BOUNDARY FENCE
- PDF —— PDF — PROJECT DEMARCATION FENCE
- BF —×—×— BF — BARRIER FENCE

EPSC MEASURES
- FILTER CURTAIN
- SILT FENCE
- SILT FENCE WOVEN WIRE
- CHECK DAM
- DISTURBED AREAS REQUIRING RE-VEGETATION
- EROSION MATTING

ENVIRONMENTAL RESOURCES
- WETLAND BOUNDARY
- RIPARIAN BUFFER ZONE
- WETLAND BUFFER ZONE
- SOIL TYPE BOUNDARY
- T&E — THREATENED & ENDANGERED SPECIES
- HAZ — HAZARDOUS WASTE AREA
- AG — AGRICULTURAL LAND
- HABITAT — FISH & WILDLIFE HABITAT
- FLOOD PLAIN — FLOOD PLAIN
- OHW — ORDINARY HIGH WATER (OHW)
- STORM WATER
- USDA FOREST SERVICE LANDS
- WILDLIFE HABITAT SUIT/CONN

ARCHEOLOGICAL & HISTORIC
- ARCH — ARCHEOLOGICAL BOUNDARY
- HISTORIC DIST — HISTORIC DISTRICT BOUNDARY
- HISTORIC — HISTORIC AREA
- (H) HISTORIC STRUCTURE

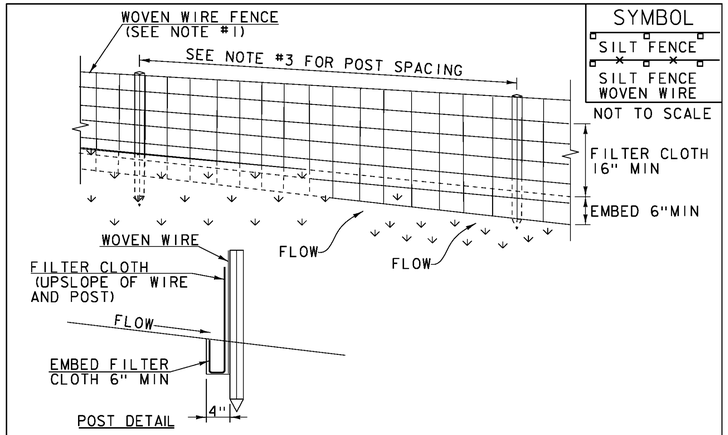
UTILITY SYMBOLOGY
- AER E&T — AREAL ELECTRIC & TELEPHONE
- E — AREAL ELECTRIC
- UE — UNDERGROUND ELECTRIC
- UT — UNDERGROUND TELEPHONE
- UC — UNDER GROUND TV
- G — GAS LINE
- W — WATER LINE

CONSTRUCTION FEATURES
- TOE OF SLOPE CUT OR FILL
- STONE FILL, TYPE III
- STONE FILL, TYPE II
- STONE FILL, TYPE I

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: s86e055ero_det.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
EPSC DETAILS (1)

PLOT DATE: 08-OCT-2013
DRAWN BY: D. PETERSON
CHECKED BY: C. CARLSON
SHEET 175 OF 186



SYMBOL

SILT FENCE

SILT FENCE WOVEN WIRE

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE REINFORCED FENCE IS REQUIRED WITHIN 100' UPSLOPE OF RECEIVING WATERS WHEN THE PROJECT FALLS UNDER A CONSTRUCTION STORMWATER PERMIT. WOVEN WIRE SHALL BE A MIN. 14 GAUGE WITH A 6" MAX. MESH OPENING.
2. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI100X, STABILINKA T140N OR APPROVED EQUIVALENT.
3. POST SPACING FOR WIRE-BACKED FENCE SHALL BE 10' MAXIMUM. FOR FILTER-CLOTH FENCE, WHEN ELONGATION IS >50%, POST SPACING SHALL NOT EXCEED 4' AND WHEN ELONGATION IS <50%, POST SPACING SHALL NOT EXCEED 6'.
4. WOVEN WIRE FENCE IS TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES. FILTER CLOTH IS TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY 6" AND FOLDED.
6. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT REACHES HALF OF FABRIC HEIGHT.

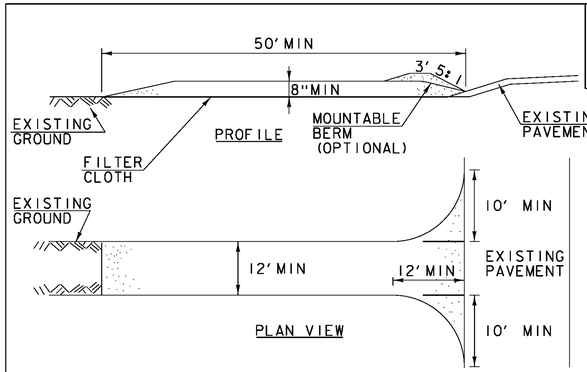
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SILT FENCE

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 AND AS SHOWN IN THE PLANS FOR GEOTEXTILE FOR SILT FENCE (PAY ITEM 649.51) OR GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED (PAY ITEM 649.515).

REVISIONS	
MARCH 21, 2008	WHF
DECEMBER 11, 2008	WHF
JANUARY 13, 2009	WHF



SYMBOL

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. STONE SIZE- USE 1-4" STONE, RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH- NOT LESS THAN 50' (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30' MINIMUM LENGTH APPLIES).
3. THICKNESS- NOT LESS THAN 8".
4. WIDTH- 12' MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. 24' IF SINGLE ENTRANCE TO SITE.
5. GEOTEXTILE MUST BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.
6. SURFACE WATER- ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED ACCORDING TO PERMIT REQUIREMENTS.

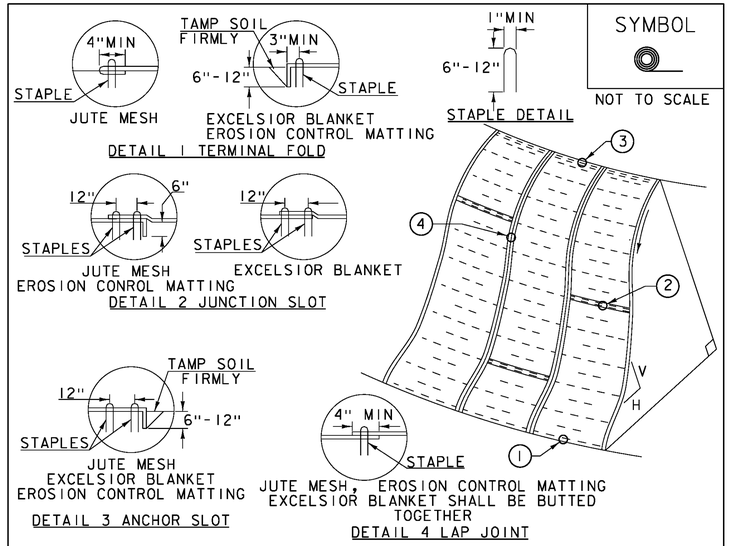
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

STABILIZED CONSTRUCTION ENTRANCE

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR VEHICLE TRACKING PAD (PAY ITEM 653.35) OR AS SPECIFIED IN THE CONTRACT.

REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF



SYMBOL

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. APPLY TO SLOPES GREATER THAN 3H:1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4'X225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4'X150' ROLL OF MATERIAL.
4. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.
5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

ROLLED EROSION CONTROL PRODUCT (RECP) SIDE SLOPE

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 AND AS SHOWN IN THE PLANS FOR TEMPORARY EROSION MATTING (PAY ITEM 653.20) OR PERMANENT EROSION MATTING (PAY ITEM 653.21).

REVISIONS	
APRIL 16, 2007	JMF
JANUARY 13, 2009	WHF

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: s86e055ero_det.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
EPSC DETAILS (2)

PLOT DATE: 08-OCT-2013
DRAWN BY: D. PETERSON
CHECKED BY: C. CARLSON
SHEET 176 OF 186

VAOT RURAL AREA MIX					
	LBS/AC				
% WEIGHT	BROADCAST	HYDROSEED	NAME	GERM %	PURITY %
37.5%	22.5	45	CREEPING RED FESCUE	85%	98%
37.5%	22.5	45	TALL FESCUE	90%	95%
5.0%	3	6	RED TOP	90%	95%
15.0%	9	18	BIRDSFOOT TREFOIL	85%	98%
5.0%	3	6	ANNUAL RYE GRASS	85%	95%
100%	60	120			

VAOT URBAN AREA MIX					
	LBS/AC				
% WEIGHT	BROADCAST	HYDROSEED	NAME	GERM %	PURITY %
42.5%	34	68	CREEPING RED FESCUE	85%	98%
10.0%	8	16	PERENNIAL RYE GRASS	90%	95%
42.5%	34	68	KENTUCKY BLUE GRASS	85%	85%
5.0%	4	8	ANNUAL RYE GRASS	85%	95%
100%	80	160			

SOIL AMENDMENT GUIDANCE			
FERTILIZER		LIME	
BROADCAST	HYDROSEED	BROADCAST	HYDROSEED
10-20-10	*FOLLOW*	PELLETIZED	*FOLLOW*
500 LBS/AC	*MANUFACTURER*	2 TONS/AC	*MANUFACTURER*

CONSTRUCTION GUIDANCE

1. RURAL SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED UPLAND (NON WETLAND) AREAS DISTURBED BY THE CONTRACTOR.
2. URBAN SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED LAWN AREAS DISTURBED BY THE CONTRACTOR.
3. ALL SEED MIXTURES: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
4. FERTILIZER AND LIMESTONE: SHALL FOLLOW RATES SHOWN ON PLAN OR AS DIRECTED BY THE ENGINEER
5. HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, ACHIEVE 90% GROUND COVER OR AS DIRECTED BY THE ENGINEER.
6. TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.
7. HYDROSEEDING: ALTHOUGH GUIDANCE IS GIVEN ABOVE THE SITE CONDITIONS AND THE TYPE OF HYDROSEED WILL ULTIMATELY DICTATE THE AMOUNTS AND TYPES OF SOIL AMENDMENTS TO BE APPLIED
8. TURF ESTABLISHMENT: PLACING SEED, FERTILIZER, LIME AND MULCH PRIOR TO SEPTEMBER 15 AND AFTER APRIL 15 CAN BETTER ENSURE A VIGOROUS GROWTH OF GRASS.

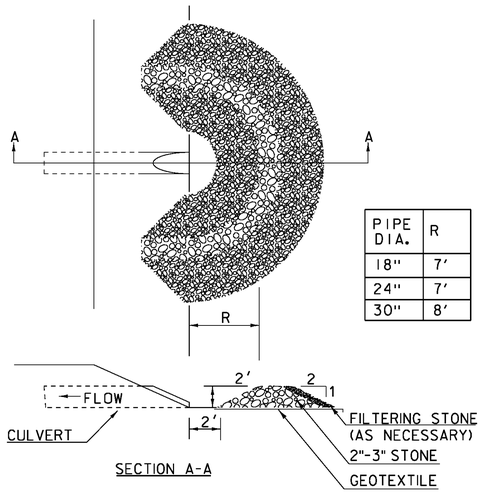
ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES

TURF ESTABLISHMENT

REVISIONS	
JUNE 23, 2009	WHF
JANUARY 15, 2010	WHF
FEBRUARY 16, 2011	WHF

SYMBOL

NOT TO SCALE



PIPE DIA.	R
18"	7'
24"	7'
30"	8'

CONSTRUCTION SPECIFICATIONS

1. USE 2" TO 3" STONE. FILTERING STONE SHALL BE 3/4".
2. PLACE STONE OVER GEOTEXTILE.
3. ONCE THE AREAS UPSTREAM FROM THE CHECK DAM ARE STABILIZED WITH VEGETATION, THE SEDIMENT TRAPPED BEHIND THE DAM SHALL BE DISPOSED OF IN AN APPROVED WASTE AREA.
4. THE CHECK DAM(S) SHALL BE FLATTENED AND GRADED IN A MANNER WHICH PROTECTS THE AREA FROM EROSION AND CHANNEL BLOCKAGE . (GEOTEXTILE MUST BE REMOVED).
5. THE GEOTEXTILE MUST BE DISPOSED OF APPROPRIATELY.
6. THE AREA CONTRIBUTING TO THE CHECK DAM SHALL NOT EXCEED 4 ACRES.

ADAPTED FROM DETAILS PROVIDED BY: ILLINOIS USDA-NRCS
ORIGINALLY DEVELOPED BY USDA-NRCS

PIPE INLET PROTECTION

REVISIONS	
MARCH 6, 2008	WHF
JANUARY 13, 2009	WHF

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR INLET PROTECTION DEVICE, TYPE I (PAY ITEM 653.40).

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: s86e055ero_det.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
EPSC DETAILS (3)

PLOT DATE: 08-OCT-2013
DRAWN BY: D. PETERSON
CHECKED BY: C. CARLSON
SHEET 177 OF 186

STATE OF VERMONT
AGENCY OF TRANSPORTATION

RIGHT - OF - WAY DETAIL SHEET

TABLE OF PROPERTY ACQUISITION

PARCEL NO.	PROPERTY OWNER	SHEET NO.	BEGINNING STATION	ENDING STATION	TAKE	REMAINDER	RIGHT			RECORDING DATA					REMARKS
					AREA±	AREA±	TYPE	(T)/(P)	AREA ±	TITLE	DATE	TOWN / CITY	BOOK	PAGE	
1A	SPAULDING, GEORGE F. & AGNES W.	4-7, 10	382+63 LT	384+19 LT			CONST.	(T)	1190 SF	WD	07/12/13	ROYALTON	105	259-262	INCLUDES PDF, BF & EC
			383+42 LT	384+38 LT			SLOPE	(T)	712 SF						
			384+26 LT	389+90 LT			CONST.	(T)	0.14 A						INCLUDES PDF, BF & EC; 5,938 SF±
			384+22 LT	384+50 LT			DRIVE	(T)							10' WIDE GRAVEL DRIVE
			384+50 LT	387+58 LT			SLOPE	(T)	0.16 A						6,991 SF±
			388+09 LT	388+65 LT			SLOPE	(T)	393 SF						
			390+45 LT	391+75 LT			CONST.	(T)	884 SF						INCLUDES PDF, BF & EC
			391+88 LT	392+06 LT			CONST.	(T)	13 SF						INCLUDES PDF, BF & EC
			393+47 LT	396+04 LT			CONST.	(T)	858 SF						INCLUDES PDF, BF & EC
			399+40 LT	401+72 LT			CONST.	(T)	2,430 SF						INCLUDES PDF, BF & EC
			399+57.12 LT	401+50.00 LT			DITCH & DRAINAGE	(P)	3547 SF						
			400+16.07 LT	400+83.06 LT			INSTALL & MAINTAIN	(P)	1,239 SF						WINGWALLS
			400+50 LT				INSTALL	(T)							10' WIDE GRAVEL FOR CATTLE PASS
			412+50 LT	414+78 LT			CONST.	(T)	2,510 SF						INCLUDES PDF, BF & EC
			412+50 LT	TH 22 31+50 LT			REMOVE & RESET	(T)							WIRE FENCE
			413+33 LT	414+84 LT			SLOPE	(T)	1,328 SF						
1B		10	TH 22 30+79 RT	TH 22 31+37 RT			REMOVE & RESET	(T)							WIRE FENCE
			TH 22 31+29 RT	TH 20 40+68 LT			CONST.	(T)	641 SF						INCLUDES PDF, BF & EC
1C		10	TH 20 40+10 RT	TH 20 40+54 RT			CONST.	(T)	1247 SF						INCLUDES PDF, BF & EC
			TH 20 40+50.00 RT				CUL., DIT. & DR.	(P)							
			415+44 LT				REMOVE	(T)							GUARDRAIL
			416+43 LT	417+12 LT			SLOPE	(T)	500 SF						
			416+74.06 LT	417+81.02 LT			CHANNEL	(P)	1,741 SF						
			417+08.20 LT	418+42.72 LT			SLOPE	(P)	920 SF						
			417+61 LT	419+41 LT			CONST.	(T)	1,585 SF						INCLUDES PDF, BF & EC
			418+52 LT	418+90 LT			SLOPE	(T)	163 SF						
1D		5,6,7	390+45.82+ RT	395+62.17 RT	0.26 A										11,537 SF±
			391+11.48 RT	391+49.97 RT			CHANNEL	(P)	883 SF						
			391+26.2 RT	394+73.3 RT			REMOVE & RESET	(T)							WIRE FENCE
			391+36 RT	396+21 RT			CONST.	(T)	0.11 A						INCLUDES PDF, BF & EC; 4,808 SF±
			391+50 RT	392+22 RT			SLOPE	(P)	295 SF						
			392+22 RT	392+35 RT			CULV.& DRAIN	(P)							
			392+28 RT	395+75 RT			DITCH & DRAINAGE	(P)	2,355 SF						
			395+82.2 RT	396+21.4 RT											FIELD DRIVE
			399+56.44 RT	400+08 RT			CONST.	(T)	247 SF						INCLUDES PDF, BF & EC
			400+08.53 RT	400+89.95 RT			INSTALL & MAINTAIN	(P)	1,489 SF						WINGWALLS
			400+19 RT	400+77 RT			CONST.	(T)	183 SF						
			400+50 RT				INSTALL	(T)							10' WIDE GRAVEL FOR CATTLE PASS
			400+50 RT				DRAINAGE	(P)							
			400+90 RT	401+36 RT			CONST.	(T)	282 SF						
			401+04.49 RT	401+11.86 RT			SLOPE	(T)	8 SF						
1E		10	413+01.06 RT	417+00 RT	0.19 A										8,486 SF±
			412+98.47 RT	418+58.70 RT			DETOUR	(T)	0.47 A						20,280 SF±
			412+99.48 RT	415+24.76 RT			CONST.	(T)	1,475 SF						INCLUDES PDF, BF & EC
			413+01.10 RT	413+88.03 RT			SLOPE	(T)	326 SF						
			414+76.00 RT				DRAINAGE	(P)							
			417+00.00 RT	418+27.76 RT			SLOPE	(P)	675 SF						
			416+58 RT	419+24.24 RT			CONST.	(T)	2,083 SF						INCLUDES PDF, BF & EC
1F		5, -10	382+50.00 CL	420+00.00 CL	3.84 A		ALL R.T. & I.								VT RTE. 14; HIGHWAY EASE.
			390+78.7 LT	392+04.7 LT			REMOVE & RESET	(T)							WIRE FENCE
			390+89.7 LT	395+93.4 RT			REMOVE & RESET	(T)							WIRE FENCE
			393+44.9 LT	395+95.7 LT			REMOVE & RESET	(T)							WIRE FENCE

TABLE OF REVISIONS

REVISION NO.	SHEET NO.	DESCRIPTION	DATE
1	3,5	PARCEL NO. 3 SMITH. CHANGE "GRAVEL" DRIVE AT STA.	12/04/12
		392+31.5 LT TO "PAVED" DRIVE. PER C.O. 9784	
		MADE BY: MR APPROVED BY: HP	
2	3,4	PARCEL NO.3 CHANGE TAKE AREA FROM 0.01A TO 0.09A	01/28/13
		PER C.O. 9788	
		MADE BY: J.B. APPROVED BY: H.P.	
3	2,5	PARCEL NO. 1 SPAULDING. ADD 0.09A± OF ALL R.T. & I.	03/27/13
		IN HWY. EASE. FROM PARCEL 3B TO THE 3.74A± IN PARCEL	
		1F, MAKING A NEW TOTAL OF 3.84A± FOR PARCEL 1F.	
		CHANGE BEGINNING STA. OF REMOVE & RESET (T) FOR	
		WIRE FENCE AT STA. 393+47.63 LT. TO 393+44.9 LT.	
		PER C.O. 9793	
		MADE BY: MR APPROVED BY: HP	
4	3,5	PARCEL NO. 3 SMITH & FREEMAN. DELETE PARCEL 3B.	03/27/13
		THIS PARCEL BELONGS TO THE SPAULDINGS.	
		PER C.O. 9794	
		MADE BY: MR APPROVED BY: HP	
5	2,10	PARCEL NO. 1 SPAULDING. AMEND ENDING STATION OF	05/16/13
		CONSTRUCTION EASEMENT FROM TH 40+69 TO 40+54. AMEND	
		AREA FROM 922 S.F. TO 1,247 S.F. AMEND DRAINAGE RIGHT	
		TO CUL., DIT. & DR. PER C.O. 9813	
		MADE BY: MR APPROVED BY: HP	

PLOT DATE 08/01/13

PLAN LEGEND

- EXISTING RIGHT-OF-WAY
- TAKING WITH ACCESS
- TAKING WITHOUT ACCESS
- CLEAR ZONE (CZ)
- PROPERTY LINE (P / L)
- TOE OF SLOPE
- TOP OF CUT
- SLOPE RIGHT (SR (P))
- CONSTRUCTION RIGHT (CONST. (T))
- PROJECT DEMARCATION FENCE (PDF — PDF)

EC -EROSION CONTROL
(P) -PERMANENT
(T) -TEMPORARY
DR. -DRAINAGE RIGHT
DIT. -DITCHING RIGHT
CH. -CHANNEL RIGHT
DRIVE -DRIVE RIGHT
CUL. -CULVERT RIGHT
C&T -CLEARING & TRIMMING RIGHT
SR -SLOPE RIGHT
UE -UTILITY EASEMENT

BF -BARRIER FENCE

APPROVED: HARRY PETROVS DATE: 11-01-2012
CHIEF, PLANS & TITLES

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: r86e055_detail.xls
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
ROW DETAIL SHEET #1

PLOT DATE:
DRAWN BY: MR
CHECKED BY: JB

ROW SHEET 178 OF 186

STATE OF VERMONT
AGENCY OF TRANSPORTATION

RIGHT - OF - WAY DETAIL SHEET

TABLE OF PROPERTY ACQUISITION

PARCEL NO.	PROPERTY OWNER	SHEET NO.	BEGINNING STATION	ENDING STATION	TAKE	REMAINDER	RIGHT			RECORDING DATA					REMARKS
					AREA±	AREA±	TYPE	(T)/(P)	AREA ±	TITLE	DATE	TOWN / CITY	BOOK	PAGE	
2A	STOCK, ROBERT J. & PEGGY A. -	4, 5	382+73.99 RT	390+89.24 RT±	0.31 A					WD	06/18/13	ROYALTON	105	105-	
	CO-TRUSTEES OF THE ROBERT J. STOCK		382+75.87 RT	390+64.75 RT			CONST.	(T)	0.18 A					107	INCLUDES PDF, BF & EC; 7,796 SF±
	REVOCABLE TRUST		382+88.42 RT	388+50.14 RT			SLOPE	(P)	0.29 A						INCL. DRAINAGE DITCHES:12,574 SF±
			388+50.14 RT	389+94 RT			SLOPE	(T)	1,661 SF						
			389+94 RT	390+63.01 RT			CHANNEL	(P)	996 SF						
2B		4, 5	382+50.00 RT	390+45.82± LT	0.45 A		ALL R.T. & I.								VT RTE. 14; HIGHWAY EASE.
3	SMITH, MELLISSA	5	392+05.47 LT	392+34.00 LT			CONST.	(T)	235 SF	GTR	06/20/13	ROYALTON	105	114-115	INCLUDES PDF, BF & EC
	FREEMAN, KEVIN J.		392+31.50 LT				DRIVE	(T)							10', PAVED, MM 22.85
			392+43 LT	392+79 LT			CONST.	(T)	308 SF						INCLUDES PDF, BF & EC
			DRIVE 30+58.30 LT				REMOVE	(T)							GUIDE POST
			DRIVE 30+58.50 RT				REMOVE	(T)							GUIDE POST
4	TOWN OF ROYALTON	10	TH 22 30+38.72 CL	TH 22 31+50.00 CL			APPROACH	(T)		QCD					TH# 22
			TH 20 40+10.07 CL	TH 20 40+75.00 CL			APPROACH	(T)							TH# 20; INCLUDES REMOVAL OF EXISTING
			414+95.00 LT	415+00.00 LT			DITCH & DRAIN.	(P)	24 SF						CULVERT, INSTALLATION OF NEW
															CULVERT, REMOVAL OF 2 GUIDE POST
			415+60 LT	415+74 LT			INSTALL	(P)							GUARDRAIL
	MAINTENANCE AGREEMENT ZONE 1		TH 20 & TH 22 30+15.02 CL	TH 20& TH 22 30+38.72 CL											TH # 20 & TH # 22; L=23.69'

TABLE OF REVISIONS

REVISION NO.	SHEET NO.	DESCRIPTION	DATE

PLOT DATE 08/01/13

PLAN LEGEND

- EXISTING RIGHT-OF-WAY
- TAKING WITH ACCESS
- TAKING WITHOUT ACCESS
- CLEAR ZONE (CZ)
- PROPERTY LINE (P / L)
- TOE OF SLOPE
- TOP OF CUT
- SLOPE RIGHT (SR (P))
- CONSTRUCTION RIGHT (CONST.(T))
- PROJECT DEMARCATION FENCE (PDF — PDF)

EC -EROSION CONTROL
(P) -PERMANENT
(T) -TEMPORARY
DR. -DRAINAGE RIGHT
DIT. -DITCHING RIGHT
CH. -CHANNEL RIGHT
DRIVE -DRIVE RIGHT
CUL. -CULVERT RIGHT
C&T -CLEARING & TRIMMING RIGHT
SR -SLOPE RIGHT
UE -UTILITY EASEMENT

BF -BARRIER FENCE

APPROVED: HARRY PETROVS DATE: 11-01-2012
CHIEF, PLANS & TITLES

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147 (13)

FILE NAME: r86e055_detail.xls
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
R.O.W. DETAIL SHEET #2

PLOT DATE:
DRAWN BY: MR
CHECKED BY: JB
ROW SHEET 179 OF 186

① VT 14 STA 382+75.0 RT - VT 14 STA 386+25.0 RT
CONSTRUCT NEW GRASS-LINED DITCH

② VT 14 STA 383+91.3 RT - VT 14 STA 385+83.2 RT
CONSTRUCT NEW DITCH LINED WITH STONE FILL, TYPE I

CONSTRUCT 5' WIDE PAVED APRON
VT 14 STA 384+28.7 LT - VT 14 STA 384+67.8 LT

CONSTRUCT GRAVEL DRIVE (10' WIDE)
VT 14 STA 384+50.0 LT

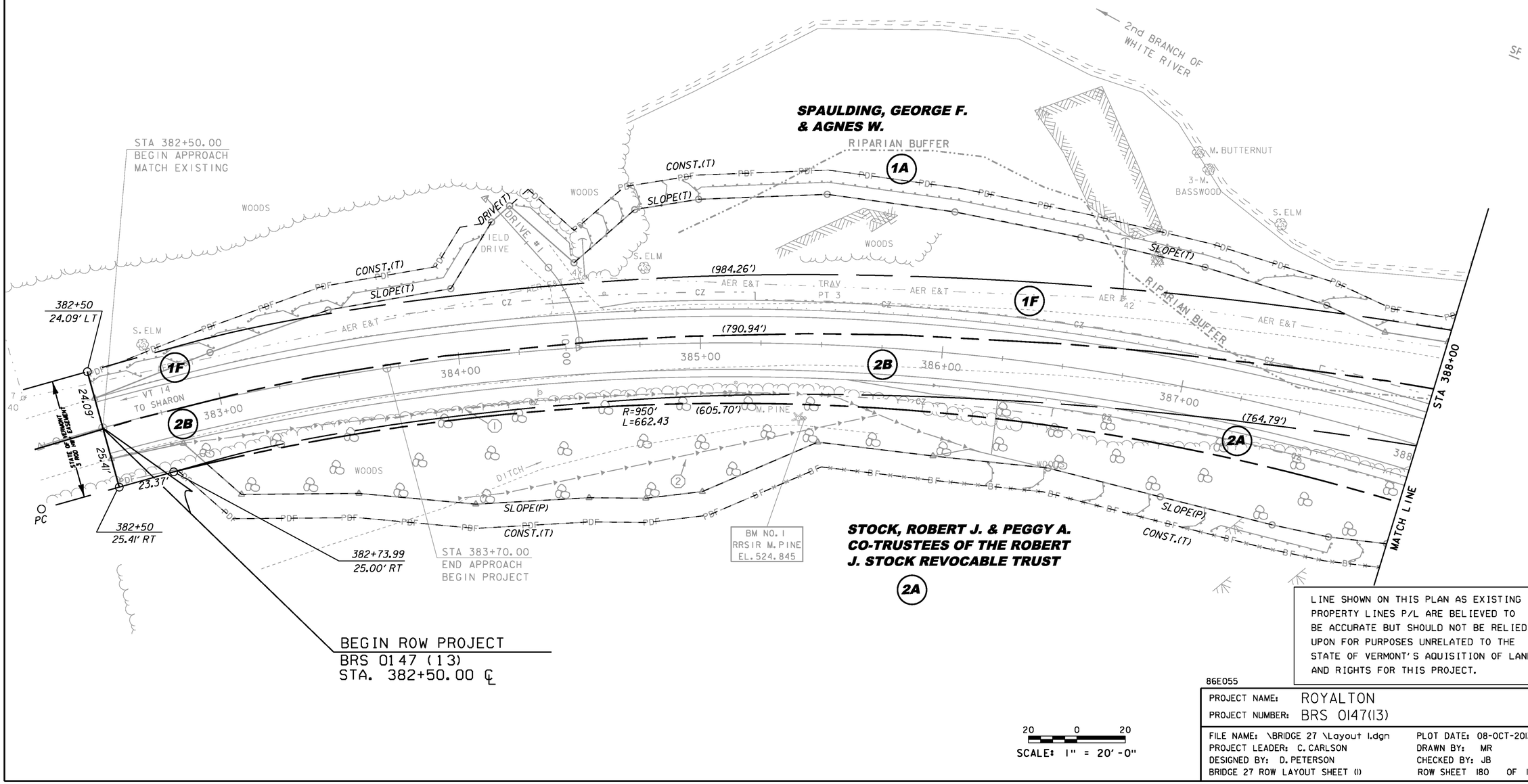
CONSTRUCT SLOPE W/ STONE FILL, TYPE II
VT 14 STA 382+80.9 RT - VT 14 STA 386+15.0 RT

SPECIAL PROVISION (REINFORCED SOIL SLOPE) W/ STONE FILL, TYPE II
VT 14 STA 386+25.0 RT - VT 14 STA 388+00.0 RT

BOX BEAM GUARDRAIL
VT 14 STA 384+87.1 LT - VT 14 STA 387+88.8 LT
VT 14 STA 386+11.7 RT - VT 14 STA 388+00.0 RT

MANUFACTURED TERMINAL SECTION, TANGENT
VT 14 STA 384+73.3 LT - VT 14 STA 384+87.1 LT
VT 14 STA 385+97.5 RT - VT 14 STA 386+11.7 RT
VT 14 STA 387+88.8 LT - VT 14 STA 388+00.0 LT

VT STATE PLANE GRID N



BEGIN ROW PROJECT
BRS 0147 (13)
STA. 382+50.00 ℄

LINE SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S AQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

SCALE: 1" = 20'-0"

86E055

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147(13)

FILE NAME: \BRIDGE 27 \Layout 1.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 27 ROW LAYOUT SHEET (1)
PLOT DATE: 08-OCT-2013
DRAWN BY: MR
CHECKED BY: JB
ROW SHEET 180 OF 186

CONSTRUCT 5' WIDE PAVED APRON

VT 14 STA 388+02.2 LT - VT 14 STA 388+43.1 LT

CONSTRUCT GRAVEL DRIVE (12' WIDE)

VT 14 STA 388+25.0 LT
DRIVE NO.3 STA 30+32.6 LT

CONSTRUCT PAVED DRIVE (10' WIDE)

VT 14 STA 392+31.5 LT

SPECIAL PROVISION (REINFORCED SOIL SLOPE) W/ STONE FILL, TYPE II

VT 14 STA 388+00.0 RT - VT 14 STA 388+50.0 RT

RELOCATE MAILBOX, SINGLE SUPPORT

FROM DRIVE NO.3 STA 30+50.5 RT TO VT 14 STA 392+50.0 LT.

REMOVING AND RESETTING FENCE

VT 14 STA 390+78.7 LT - VT 14 STA 392+04.7 LT
VT 14 STA 390+89.7 LT - VT 14 STA 393+50.0 RT
VT 14 STA 391+48.7 RT - VT 14 STA 393+50.0 RT
VT 14 STA 393+44.9 LT - VT 14 STA 393+50.0 LT

BOX BEAM GUARDRAIL

VT 14 STA 388+00.0 RT - VT 14 STA 389+66.8 RT
VT 14 STA 388+57.9 LT - VT 14 STA 389+56.3 LT
VT 14 STA 391+63.1 LT - VT 14 STA 391+89.7 LT
VT 14 STA 391+73.7 RT - VT 14 STA 392+74.1 RT

MANUFACTURED TERMINAL SECTION, TANGENT

VT 14 STA 388+00.0 LT - VT 14 STA 388+02.6 LT
VT 14 STA 388+44.0 LT - VT 14 STA 388+57.9 LT
VT 14 STA 391+89.7 LT - VT 14 STA 392+03.5 LT
VT 14 STA 391+74.1 RT - VT 14 STA 392+88.3 RT

REMOVAL AND DISPOSAL OF GUARDRAIL

VT 14 STA 389+34.8 LT - VT 14 STA 389+72.9 LT
VT 14 STA 389+46.6 LT - VT 14 STA 389+83.8 LT
VT 14 STA 390+78.7 LT - VT 14 STA 391+29.2 LT
VT 14 STA 390+89.7 LT - VT 14 STA 391+40.1 LT

REMOVAL AND DISPOSAL OF GUIDE POSTS

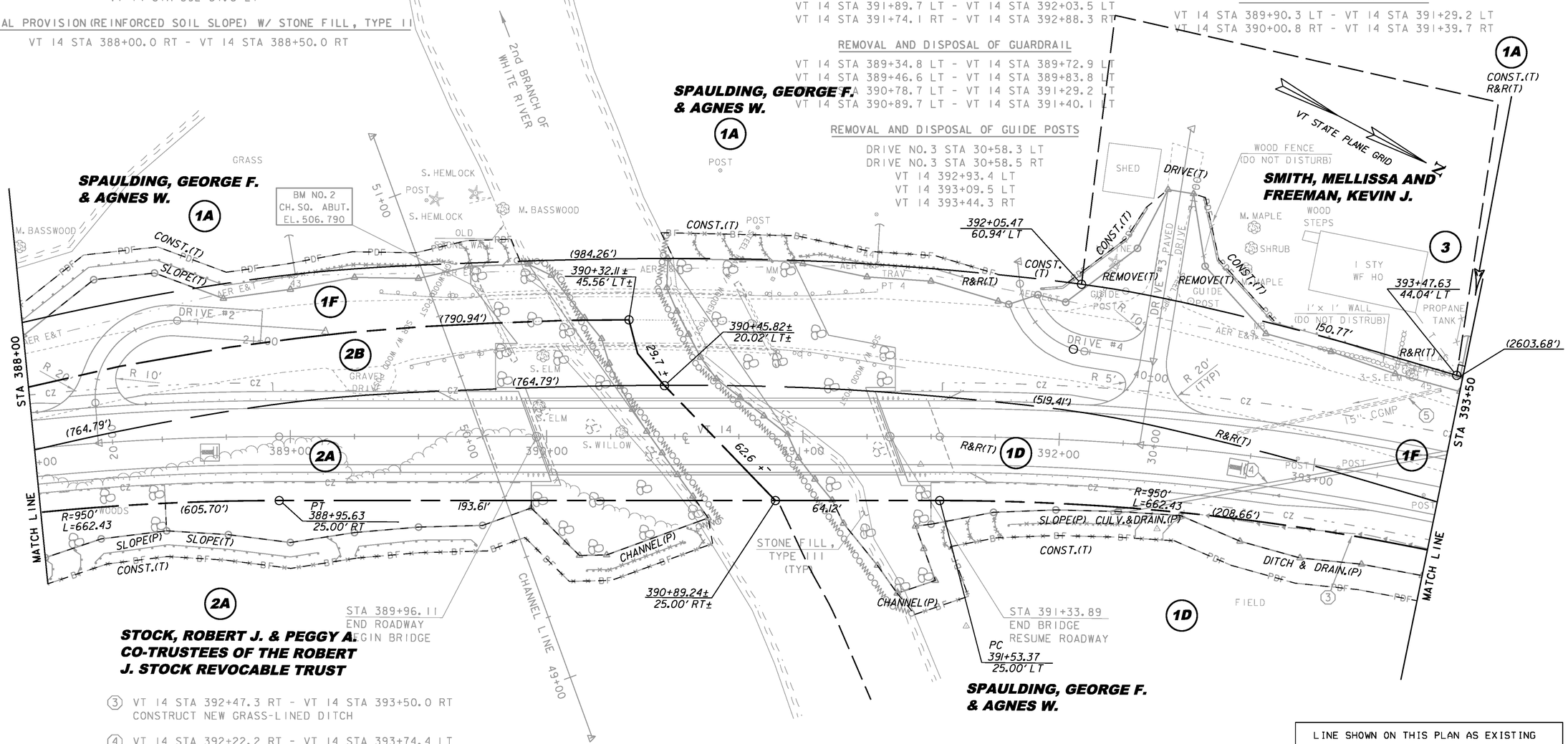
DRIVE NO.3 STA 30+58.3 LT
DRIVE NO.3 STA 30+58.5 RT
VT 14 392+93.4 LT
VT 14 393+09.5 LT
VT 14 393+44.3 RT

SPECIAL PROVISION (GUARDRAIL APPROACH SECTION TO CONCRETE COMBINATION BRIDGE RAILING)

VT 14 STA 389+56.3 LT - VT 14 STA 389+90.3 LT
VT 14 STA 389+66.8 RT - VT 14 STA 390+00.8 RT
VT 14 STA 391+29.2 LT - VT 14 STA 391+63.1 LT
VT 14 STA 391+39.7 RT - VT 14 STA 391+73.7 RT

BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION

VT 14 STA 389+90.3 LT - VT 14 STA 391+29.2 LT
VT 14 STA 390+00.8 RT - VT 14 STA 391+39.7 RT



(3) VT 14 STA 392+47.3 RT - VT 14 STA 393+50.0 RT
CONSTRUCT NEW GRASS-LINED DITCH

(4) VT 14 STA 392+22.2 RT - VT 14 STA 393+74.4 LT
NEW 18" X 160' PCCSP (0.064), CAAP (0.060), RCP CL. III OR CPEP (SL) OPTION

(5) VT 14 STA 392+68.9 LT - VT 14 STA 393+43.0 LT
EXISTING 15" CGMP & INLET HEADWALL - REMOVE

20 0 20
SCALE: 1" = 20'-0"

EXISTING BRIDGE DATA

THREE-SPAN CONCRETE T-BEAM SUPERSTRUCTURE WITH ASPHALT OVERLAY

CAST-IN-PLACE CONCRETE ABUTMENTS, WINGWALLS AND PIERS

BRIDGE LENGTH: 105'
BRIDGE WIDTH (FASCIA TO FASCIA): 23.7'
VERTICAL CLEARANCE UNDER BRIDGE: 12'

LINE SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S AQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

86E055

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147(13)

FILE NAME: \BRIDGE 27 \Layout 2.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 27 ROW LAYOUT SHEET (2)

PLOT DATE: 08-OCT-2013
DRAWN BY: MR
CHECKED BY: JB
ROW SHEET 181 OF 186

CONSTRUCT 5' WIDE PAVED APRON

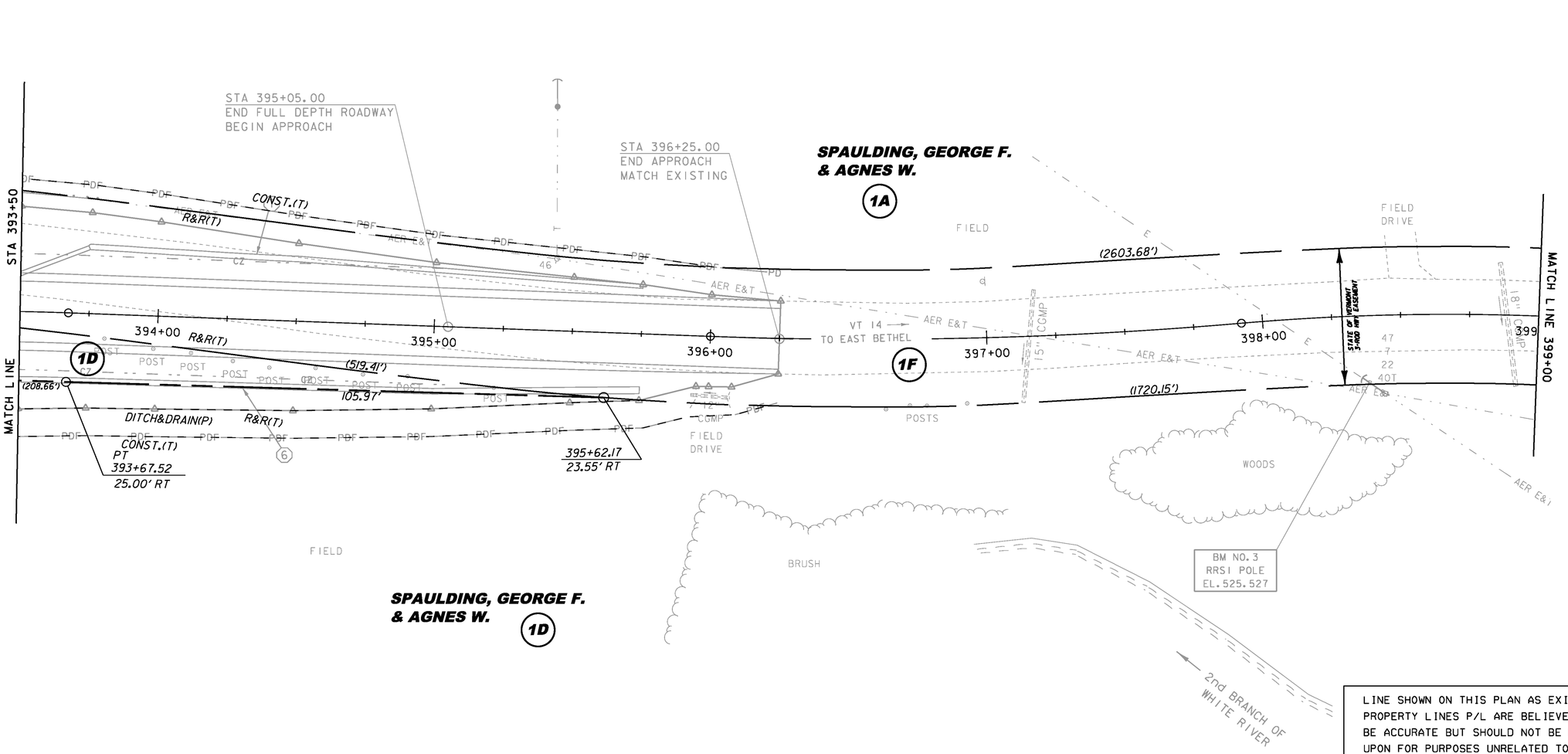
VT 14 STA 395+82.2 RT - VT 14 STA 396+21.4 RT

REMOVAL AND DISPOSAL OF GUIDE POSTS

VT 14 STA 393+80.9 RT
VT 14 STA 393+98.7 RT
VT 14 STA 394+12.4 RT
VT 14 STA 394+27.6 RT
VT 14 STA 394+40.9 RT
VT 14 STA 394+57.7 RT
VT 14 STA 394+74.9 RT
VT 14 STA 394+91.0 RT
VT 14 STA 395+22.4 RT

REMOVING AND RESETTING FENCE

VT 14 STA 393+50.0 RT - VT 14 STA 394+73.3 RT
VT 14 STA 393+50.0 RT - VT 14 STA 395+93.4 RT
VT 14 STA 393+50.0 RT - VT 14 STA 395+95.7 LT



⑥ VT 14 STA 393+50.0 RT - VT 14 STA 395+75.0 RT
CONSTRUCT NEW GRASS-LINED DITCH

⑦ VT 14 STA 393+75.0 LT - VT 14 STA 395+75.0 LT
CONSTRUCT NEW GRASS-LINED DITCH

20 0 20
SCALE: 1" = 20'-0"

LINE SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S AQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

86E055

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147(13)

FILE NAME: \BRIDGE 27 \Layout 3.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BRIDGE 27 ROW LAYOUT SHEET (3)
PLOT DATE: 08-OCT-2013
DRAWN BY: MR
CHECKED BY: JB
ROW SHEET 182 OF 186

HD STEEL BEAM GUARDRAIL, GALVANIZED
VT 14 STA 399+80.6 RT - VT 14 STA 400+05.68 RT
VT 14 STA 399+88.9 LT - VT 14 STA 400+06.80 LT
VT 14 STA 400+93.86 RT - VT 14 STA 401+12.3 RT
VT 14 STA 400+93.64 LT - VT 14 STA 401+18.2 LT

HD STEEL BEAM GUARDRAIL, GALVANIZED/NESTED
VT 14 STA 400+05.68 RT - VT 14 STA 400+93.86 RT
VT 14 STA 400+06.80 LT - VT 14 STA 400+93.64 LT

ANCHOR FOR STEEL BEAM RAIL
VT 14 STA 399+87.6 RT
VT 14 STA 399+95.7 LT
VT 14 STA 401+05.4 RT
VT 14 STA 401+11.0 LT

CONSTRUCT 5' PAVED APRON
VT 14 STA 401+32.2 RT - VT 14 STA 401+64.4 RT

CONSTRUCT STONE-LINED DITCH, TYPE I
VT 14 STA 399+50.0 LT - VT 14 STA 400+45.9 LT
VT 14 STA 400+55.0 LT - VT 14 STA 401+50.0 LT

VT STATE PLANE GRID
N

CATTLE PASS POE
STA 7+00.00

END CATTLE PASS
STA 6+65.70

VT 14 STA 400+50.00 =
CATTLE PASS STA 6+00.00
△ = 90° LT
FROM TANGENT TO CURVE

SPAULDING, GEORGE F.
& AGNES W.

PCC
STA 400+42.01

STA 401+00.00
BEGIN APPROACH

STA 401+75.00
END APPROACH
MATCH EXISTING

CONSTRUCTION
LIMITS

STA 399+25.00
BEGIN APPROACH
MATCH EXISTING

PI NO. 1
STA 399+18.05 BK =
STA 399+16.31 AHD

PI NO. 2
STA 402+10.55 BK =
STA 402+10.43 AHD

CONST.(T)
DITCH&DRAIN(P)
INSTALL(T)
I&M(P)
S.83°59'26" W
CATTLE PASS
(2603.68')
(1720.15')
SLOPE(T)
INSTALL(T)
DRAINAGE(P)
CONST. (T)
PDF
CZ

1A
1D
1F

VT 14

400+00
401+00
402+00
TO
WILLIAMSTOWN
TO
SHARON
6+00
5+00
7+00

STATE OF VERMONT
3-ROD HWY EASEMENT

MATCH LINE 399+00
MATCH LINE 402+12

AER E&T

CURVE DATA NO. 1
△ = 16°28'40"
D = 6°36'00"
R = 868.11'
T = 125.70'
L = 249.66'
E = 9.05'
BANK = VARIES

STA 400+00.00
END APPROACH

BEGIN CATTLE PASS
STA 5+53.59

CATTLE PASS POB
STA 5+00.00

SPAULDING, GEORGE F.
& AGNES W.

REMOVING AND RESETING FENCE
VT 14 STA 399+56.3 RT - VT 14 STA 401+53.6 RT
VT 14 STA 399+50.0 LT - VT 14 STA 401+50.0 LT

LINE SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S AQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

REMOVAL AND DISPOSAL OF GUARDRAIL
VT 14 STA 399+70.48 RT
VT 14 STA 400+22.18 RT
VT 14 STA 400+58.04 RT
VT 14 STA 400+69.21 RT
VT 14 STA 400+80.69 RT

CHAIN LINK FENCE, 4 FEET
VT 14 STA 400+18.29 RT - VT 14 STA 400+78.58 RT
VT 14 STA 400+27.62 LT - VT 14 STA 400+72.20 LT

CURVE DATA NO. 2
△ = 3°44'43"
D = 1°06'41"
R = 5154.81'
T = 168.54'
L = 336.96'
E = 2.75'
BANK = VARIES

DURABLE 4 INCH YELLOW LINE
VT 14 STA 399+25 RT - VT 14 STA 401+75 RT
VT 14 STA 399+25 LT - VT 14 STA 401+75 LT

DURABLE 4 INCH WHITE LINE
VT 14 STA 399+25 RT - VT 14 STA 401+75 RT
VT 14 STA 399+25 LT - VT 14 STA 401+75 LT

10 0 10
SCALE: 1" = 10'-0"

86E055

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147(13)

FILE NAME: \Layout 4-Cattle Pass.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
CATTLE PASS - ROW LAYOUT SHEET (4)
PLOT DATE: 08-OCT-2013
DRAWN BY: MR
CHECKED BY: JB
ROW SHEET 183 OF 186

VT STATE PLANE GRID

N

SPAULDING, GEORGE F.
& AGNES W.

MATCH LINE 402+12

403+00

404+00

PRC STA 403+78.93

STATE OF VERMONT 3-ROD HWY EASEMENT

1F

405+00

VT 14

406+00

TO WHITE DIVED JCT

N 2°14' W

407+00

406

MATCH LINE 408+00

SPAULDING, GEORGE F.
& AGNES W.

LINE SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S AQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

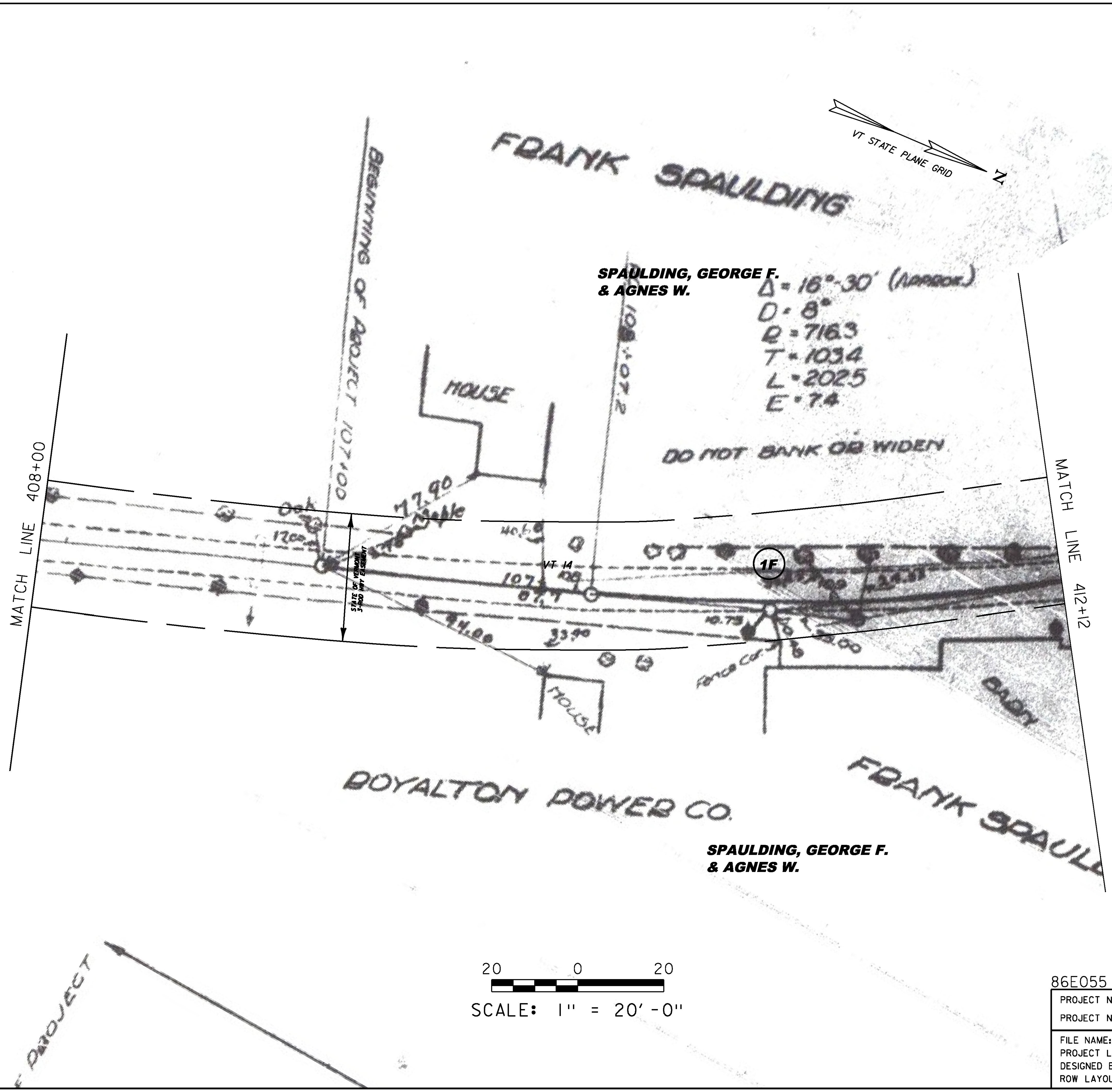
20 0 20

SCALE: 1" = 20'-0"

86E055

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147(13)

FILE NAME: \Layout 5.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: MR
DESIGNED BY: D. PETERSON	CHECKED BY: JB
ROW LAYOUT SHEET (5)	ROW SHEET 184 OF 186



20 0 20

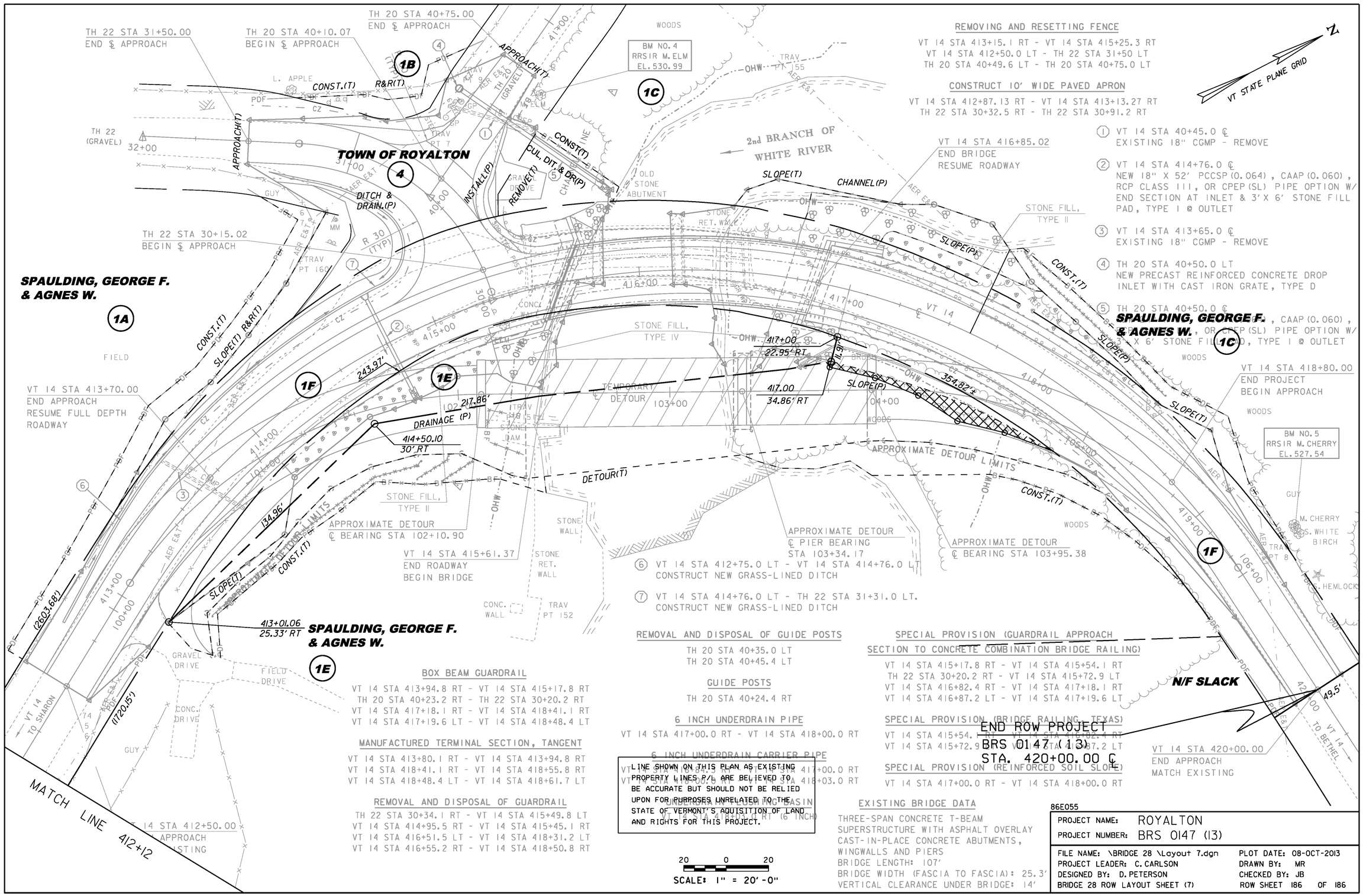
SCALE: 1" = 20'-0"

LINE SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S AQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

86E055

PROJECT NAME: ROYALTON
PROJECT NUMBER: BRS 0147(13)

FILE NAME: \Layout 6.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: MR
DESIGNED BY: D. PETERSON	CHECKED BY: JB
ROW LAYOUT SHEET (6)	ROW SHEET 185 OF 186



REMOVING AND RESETTING FENCE

VT 14 STA 413+15.1 RT - VT 14 STA 415+25.3 RT
VT 14 STA 412+50.0 LT - TH 22 STA 31+50 LT
TH 20 STA 40+49.6 LT - TH 20 STA 40+75.0 LT

CONSTRUCT 10' WIDE PAVED APRON

VT 14 STA 412+87.13 RT - VT 14 STA 413+13.27 RT
TH 22 STA 30+32.5 RT - TH 22 STA 30+91.2 RT

1. VT 14 STA 40+45.0 ℄
EXISTING 18" CGMP - REMOVE

2. VT 14 STA 414+76.0 ℄
NEW 18" X 52' PCCSP (0.064), CAAP (0.060), RCP CLASS III, OR CPEP (SL) PIPE OPTION W/ END SECTION AT INLET & 3' X 6' STONE FILL PAD, TYPE I @ OUTLET

3. VT 14 STA 413+65.0 ℄
EXISTING 18" CGMP - REMOVE

4. TH 20 STA 40+50.0 LT
NEW PRECAST REINFORCED CONCRETE DROP INLET WITH CAST IRON GRATE, TYPE D

5. TH 20 STA 40+50.0 ℄
NEW 18" X 52' PCCSP (0.064), CAAP (0.060), RCP CLASS III, OR CPEP (SL) PIPE OPTION W/ 3' X 6' STONE FILL PAD, TYPE I @ OUTLET

6. VT 14 STA 412+75.0 LT - VT 14 STA 414+76.0 LT
CONSTRUCT NEW GRASS-LINED DITCH

7. VT 14 STA 414+76.0 LT - TH 22 STA 31+31.0 LT.
CONSTRUCT NEW GRASS-LINED DITCH

BOX BEAM GUARDRAIL

VT 14 STA 413+94.8 RT - VT 14 STA 415+17.8 RT
TH 20 STA 40+23.2 RT - TH 22 STA 30+20.2 RT
VT 14 STA 417+18.1 RT - VT 14 STA 418+41.1 RT
VT 14 STA 417+19.6 LT - VT 14 STA 418+48.4 LT

MANUFACTURED TERMINAL SECTION, TANGENT

VT 14 STA 413+80.1 RT - VT 14 STA 413+94.8 RT
VT 14 STA 418+41.1 RT - VT 14 STA 418+55.8 RT
VT 14 STA 418+48.4 LT - VT 14 STA 418+61.7 LT

REMOVAL AND DISPOSAL OF GUARDRAIL

TH 22 STA 30+34.1 RT - VT 14 STA 415+49.8 LT
VT 14 STA 414+95.5 RT - VT 14 STA 415+45.1 RT
VT 14 STA 416+51.5 LT - VT 14 STA 418+31.2 LT
VT 14 STA 416+55.2 RT - VT 14 STA 418+50.8 RT

REMOVAL AND DISPOSAL OF GUIDE POSTS

TH 20 STA 40+35.0 LT
TH 20 STA 40+45.4 LT

GUIDE POSTS

TH 20 STA 40+24.4 RT

6 INCH UNDERDRAIN PIPE

VT 14 STA 417+00.0 RT - VT 14 STA 418+00.0 RT

6 INCH UNDERDRAIN CARRIER PIPE

VT 14 STA 416+85.5 RT - VT 14 STA 417+00.0 RT
VT 14 STA 416+00.6 RT - VT 14 STA 418+03.0 RT
UNDERDRAIN OUTLET BASIN
VT 14 STA 418+03.0 RT (6 INCH)

LINE SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S AQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

20 0 20
SCALE: 1" = 20'-0"

SPECIAL PROVISION (GUARDRAIL APPROACH SECTION TO CONCRETE COMBINATION BRIDGE RAILING)

VT 14 STA 415+17.8 RT - VT 14 STA 415+54.1 RT
TH 22 STA 30+20.2 RT - VT 14 STA 415+72.9 LT
VT 14 STA 416+82.4 RT - VT 14 STA 417+18.1 RT
VT 14 STA 416+87.2 LT - VT 14 STA 417+19.6 LT

SPECIAL PROVISION (BRIDGE RAILING, TEXAS)

VT 14 STA 415+54.1 RT - VT 14 STA 416+82.4 RT
VT 14 STA 415+72.9 LT - VT 14 STA 416+87.2 LT

SPECIAL PROVISION (REINFORCED SOIL SLOPE)

VT 14 STA 417+00.0 RT - VT 14 STA 418+00.0 RT

EXISTING BRIDGE DATA

THREE-SPAN CONCRETE T-BEAM
SUPERSTRUCTURE WITH ASPHALT OVERLAY
CAST-IN-PLACE CONCRETE ABUTMENTS,
WINGWALLS AND PIERS
BRIDGE LENGTH: 107'
BRIDGE WIDTH (FASCIA TO FASCIA): 25.3'
VERTICAL CLEARANCE UNDER BRIDGE: 14'

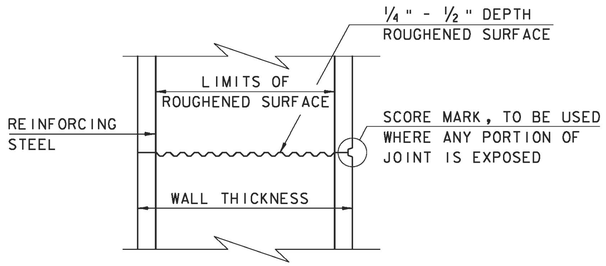
86E055

PROJECT NAME:	ROYALTON
PROJECT NUMBER:	BRS 0147 (13)

FILE NAME: \BRIDGE 28 \Layout 7.dgn	PLOT DATE: 08-OCT-2013
PROJECT LEADER: C. CARLSON	DRAWN BY: MR
DESIGNED BY: D. PETERSON	CHECKED BY: JB
BRIDGE 28 ROW LAYOUT SHEET (7)	ROW SHEET 186 OF 186

CONCRETE GENERAL NOTES

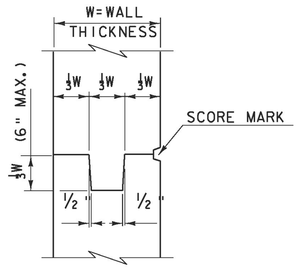
1. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" x 1"



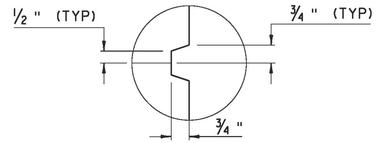
TYPICAL HORIZONTAL CONSTRUCTION JOINT
(NOT TO SCALE)

1. THE SURFACE OF THE CONCRETE CONSTRUCTION JOINTS SHALL BE CLEANED AND FREE OF LAITANCE.

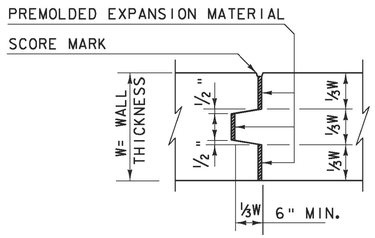
2. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.



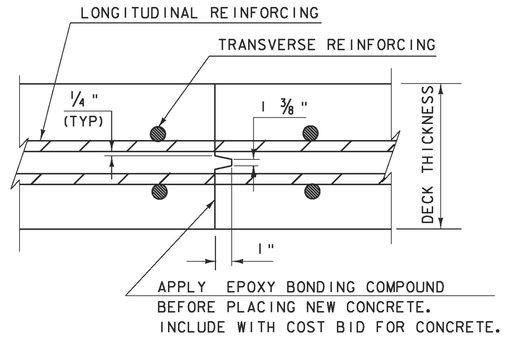
TYPICAL CONCRETE CONSTRUCTION JOINT
(NOT TO SCALE)



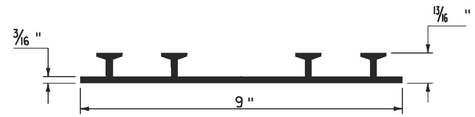
SCORE MARK DETAIL
(NOT TO SCALE)



TYPICAL CONCRETE EXPANSION JOINT
(NOT TO SCALE)



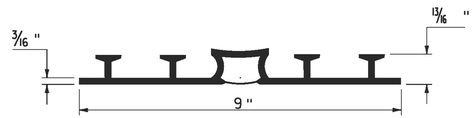
TRANSVERSE BRIDGE SLAB
CONSTRUCTION JOINT DETAILS
(NOT TO SCALE)



P.V.C. WATERSTOP FOR
CONSTRUCTION JOINTS
(NOT TO SCALE)

PAYMENT FOR THE P.V.C. WATERSTOP SHALL BE INCIDENTAL TO THE UNIT BID PRICE FOR THE ADJACENT CONCRETE.

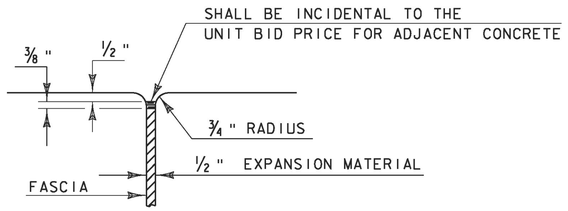
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



P.V.C. WATERSTOP FOR
EXPANSION JOINTS
(NOT TO SCALE)

PAYMENT FOR THE P.V.C. WATERSTOP SHALL BE INCIDENTAL TO THE UNIT BID PRICE FOR THE ADJACENT CONCRETE.

OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



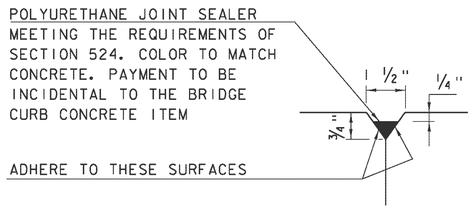
JOINT BETWEEN FASCIA
AND WINGWALL
(NOT TO SCALE)

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION

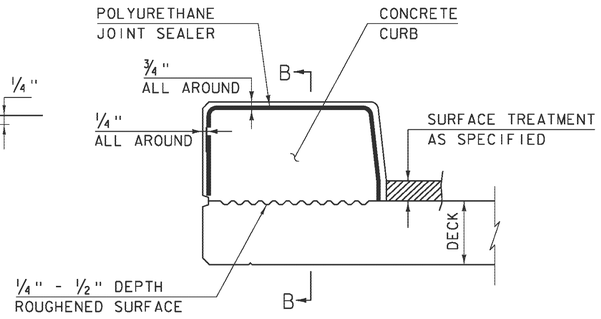
CONCRETE DETAILS AND NOTES

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

STRUCTURES DETAIL
SD-501.00

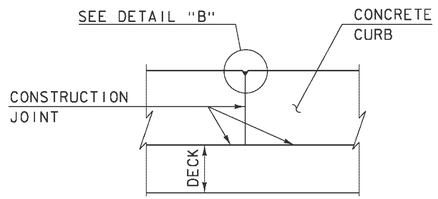


DETAIL "B"
(NOT TO SCALE)

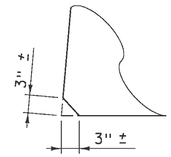


CONCRETE CURB JOINT SECTION
(NOT TO SCALE)

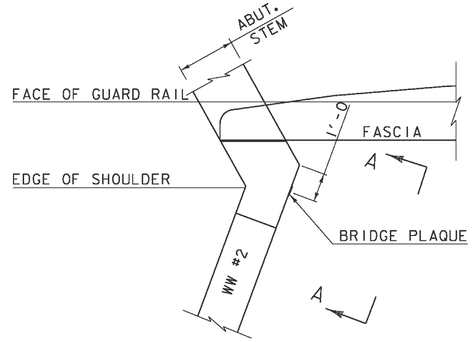
1. SEE TYPICAL HORIZONTAL CONSTRUCTION JOINT DETAIL FOR ADDITIONAL INFORMATION



SECTION B - B
(NOT TO SCALE)



ACUTE ANGLE CLIP DETAIL
(NOT TO SCALE)



PLAN

CONCRETE CURB JOINT NOTES

1. CONCRETE CURBS MAY BE PLACED IN ONE CONTINUOUS OPERATION IF AN APPROVED SHRINKAGE REDUCING ADMIXTURE LISTED IN THE SPECIAL PROVISIONS IS USED WITH THE CONCRETE MIX DESIGN. PAYMENT FOR THE SHRINKAGE REDUCING ADMIXTURE WILL BE INCIDENTAL TO THE BRIDGE CURB CONCRETE ITEM.

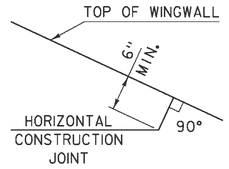
2. IF THE CONTRACTOR CHOOSES NOT TO USE AN APPROVED SHRINKAGE REDUCING ADMIXTURE, THE CURBS SHALL BE CONSTRUCTED WITH CONSTRUCTION JOINTS SPACED AT A MAXIMUM OF 15'-0" CENTER TO CENTER AND 2'-0" MINIMUM FROM THE CENTER OF NEAREST BRIDGE RAILING POST.

3. ON MULTI-SPAN CONTINUOUS SUPERSTRUCTURES, REGARDLESS OF WHETHER APPROVED SHRINKAGE REDUCING ADMIXTURE IS USED, CURB JOINTS SHALL BE LOCATED OVER THE CENTERLINE OF PIERS AND 7'-0" EACH SIDE OF THE CENTERLINE OF EACH PIER.

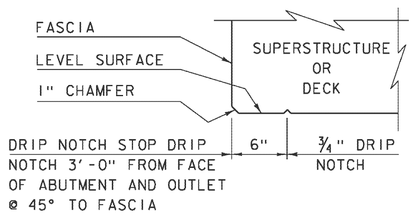
4. WHEN CURB JOINTS ARE USED THE CURBS SHALL BE PLACED IN ALTERNATE SECTIONS WITH A MINIMUM OF 48 HOUR DELAY BETWEEN ADJACENT PLACEMENTS.

5. LONGITUDINAL REINFORCING SHALL BE CONTINUOUS THROUGH CURB CONSTRUCTION JOINTS. CURB STIRRUP BARS SHALL BE TURNED AS NECESSARY TO MAINTAIN COVER IN THE FLARED CURB ENDS.

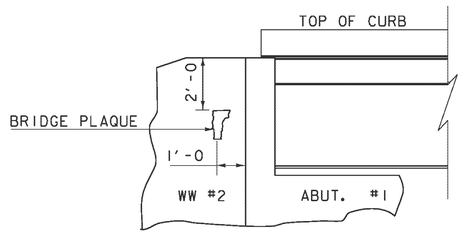
6. THE JOINT SPACING AND DETAILS SHOWN SHALL APPLY TO SIDEWALKS WHEN SHOWN IN THE PLANS.



HORIZONTAL WINGWALL CONSTRUCTION JOINT
(NOT TO SCALE)



DRIP NOTCH DETAIL
(NOT TO SCALE)



VIEW "A - A"

BRIDGE PLAQUE
(NOT TO SCALE)

THE BRIDGE PLAQUE WILL BE SUPPLIED BY THE AGENCY OF TRANSPORTATION AND SHALL BE INSTALLED BY THE CONTRACTOR AT ABUTMENT #1 ON THE RIGHT SIDE AS SHOWN OR AS DIRECTED BY THE ENGINEER.

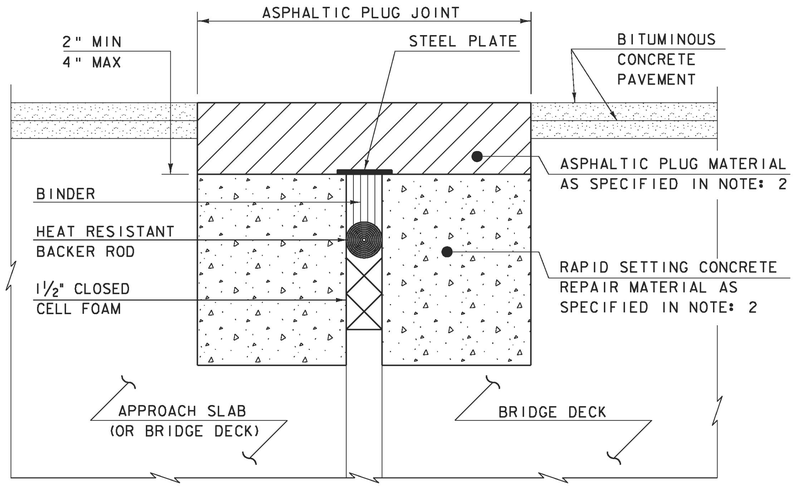
PAYMENT FOR INSTALLATION OF THE BRIDGE PLAQUE SHALL BE INCIDENTAL TO THE ADJACENT CONCRETE.

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
JUNE 4, 2010	MODIFIED AND ADDED TWO DETAILS
OCTOBER 10, 2012	MODIFIED HORZ. JOINT WINGWALL ADD 6" MIN. DIMENSION

CONCRETE DETAILS AND NOTES

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

STRUCTURES DETAIL
SD-502.00



ASPHALTIC PLUG-TYPE JOINT DETAIL - REHAB

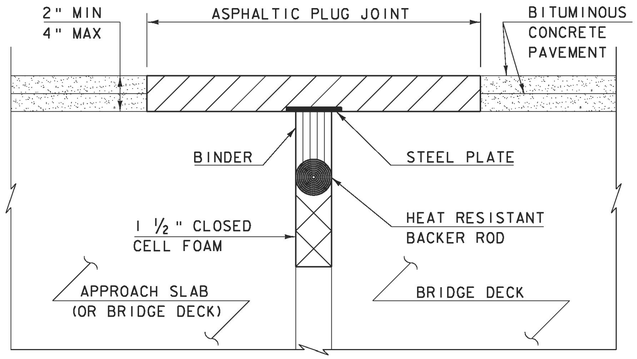
(NOT TO SCALE)

NOTES:

1. THE CONTRACTOR SHALL REMOVE ALL ASPHALTIC PLUG JOINT MATERIAL AND DETERIORATED CONCRETE AS DIRECTED BY THE ENGINEER. REMOVAL OF THE FIRST 4 INCHES OF MATERIAL SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 516.10 BRIDGE EXPANSION JOINT, ASPHALTIC PLUG. ANY REMOVAL OF MATERIAL GREATER THAN 4 INCHES SHALL BE INCLUDED IN THE BID PRICE OF ITEM 580.20 RAPID SETTING CONCRETE REPAIR MATERIAL WITH COURSE AGGREGATE.

2. THE CONTRACTOR SHALL REPLACE REMOVED MATERIAL THAT IS LESS THAN 4" FROM FINISHED GRADE WITH ASPHALTIC PLUG JOINT MATERIAL MEETING THE REQUIREMENTS OF SUBSECTION 707.15. ALL REMOVED MATERIAL THAT IS GREATER THAN 4 INCHES FROM FINISHED GRADE SHALL BE REPLACED WITH RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE MEETING THE REQUIREMENTS OF SUBSECTION 780.04.

3. REINFORCING STEEL NOT SHOWN FOR CLARITY.



ASPHALTIC PLUG-TYPE JOINT DETAIL - NEW

(NOT TO SCALE)

ASPHALTIC PLUG JOINT NOTES

INSTALLATION:

1. LOCATE THE JOINT CENTRALLY OVER THE DECK OVERLAY EXPANSION GAP OR FIXED JOINT, MARKED OUT TO THE MANUFACTURER'S RECOMMENDED WIDTH.
2. REMOVE THE BITUMINOUS CONCRETE PAVEMENT FULL DEPTH AS SHOWN ON THE PLANS. THE PAVEMENT SHALL BE DRY AND SAW CUT TO THE LIMITS REQUIRED TO PLACE THE JOINT. A PNEUMATIC HAMMER AND CHISEL MAY BE USED ADJACENT TO THE CURB ONLY WHEN SAW CUTTING IS NOT POSSIBLE.
3. BLAST CLEAN THE JOINT AREA OF DEBRIS, ASPHALT AND SHEET MEMBRANE. THOROUGHLY DRY THE JOINT AREA WITH COMPRESSED AIR PRIOR TO APPLYING BINDER MATERIAL.
4. REPAIR MATERIAL GREATER THAN 4 INCHES FROM FINISHED GRADE WITH RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE MEETING THE REQUIREMENTS OF SUBSECTION 780.04.
5. PLACE PROPERLY SIZED HEAT RESISTANT BACKER ROD IN THE MOVEMENT GAP ALLOWING FOR 1" +/- OF BINDER ABOVE THE ROD.
6. HEAT AND PLACE THE BINDER MATERIAL AS RECOMMENDED BY THE MANUFACTURER.
7. PLACE 1/4" THICK BY 8" WIDE SECTIONS OF STEEL PLATE OVER THE CENTER OF THE MOVEMENT GAP. SECURE THE PLATES FROM MOVING BY INSERTING LOCATING PINS THROUGH THE PRE-STAMPED HOLES INTO BACKER ROD AND COVER WITH HOT BINDER. THE STEEL PLATES MAY BE OMITTED WHERE THE ENGINEER DETERMINES THAT THE APPROACH SLAB OR BRIDGE DECK WILL PROVIDE INADEQUATE SUPPORT AND WHERE VERTICAL MOVEMENT OF THE PLATES MIGHT OCCUR.
8. HEAT AND MIX THE BINDER MATERIAL AND AGGREGATE AS RECOMMENDED BY THE MANUFACTURER.
9. INSTALLATION OF MATERIAL, COMPACTION, AND TOP COATING SHALL BE AS RECOMMENDED BY THE MANUFACTURER.
10. IMMEDIATELY AFTER TOP COATING, CAST AN ANTI-SKID MATERIAL OVER THE JOINT TO REDUCE THE RISK OF TRACKING.
11. ONCE THE JOINT REACHES 82 DEG C (180 DEG F) +/-, WATER MAY BE USED TO EXPEDITE THE COOLING PROCESS.
12. PROTECT JOINT FROM TRAFFIC UNTIL THE MATERIAL HAS COOLED TO 51 DEG C (125 DEG F) +/-.

WEATHER LIMITATIONS

APPLY BINDER MATERIAL ONLY WHEN THE FOLLOWING CONDITIONS PREVAIL OR AS RECOMMENDED BY THE MANUFACTURER:

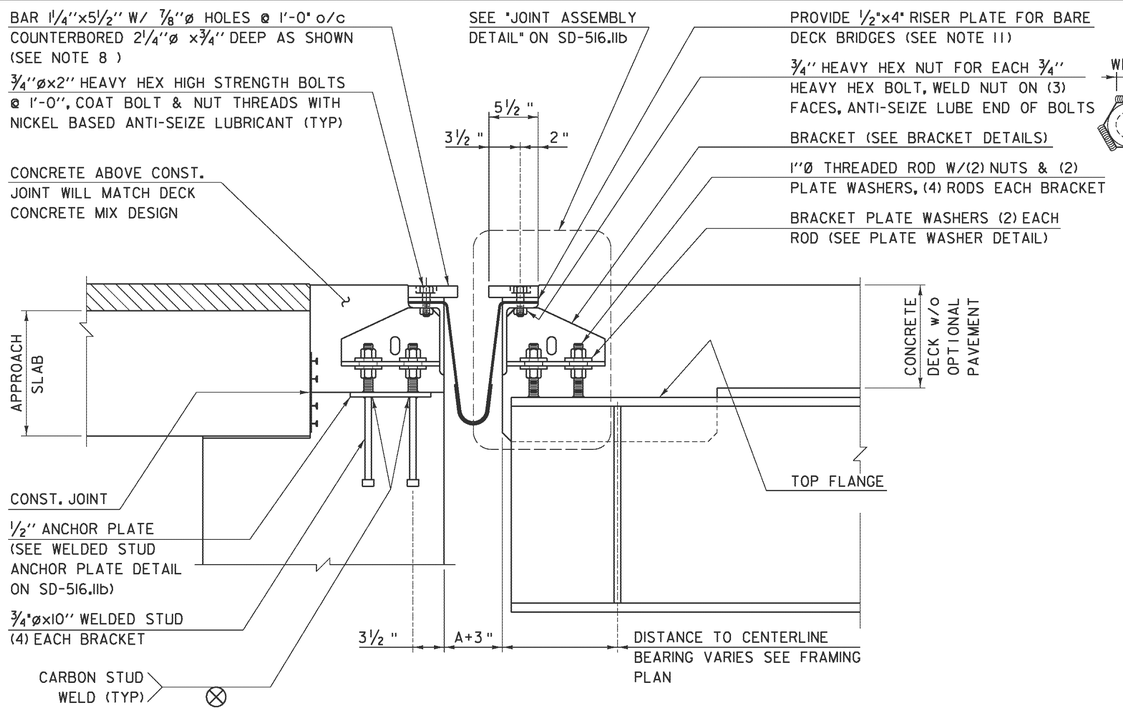
1. THE AMBIENT AIR TEMPERATURE IS AT LEAST 10 DEG C (50 DEG F) AND RISING.
2. THE ROAD SURFACE IS DRY.
3. WEATHER CONDITIONS OR OTHER CONDITIONS ARE FAVORABLE AND ARE EXPECTED TO REMAIN SO FOR THE PERFORMANCE OF SATISFACTORY WORK.

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION

BRIDGE JOINT
ASPHALTIC PLUG

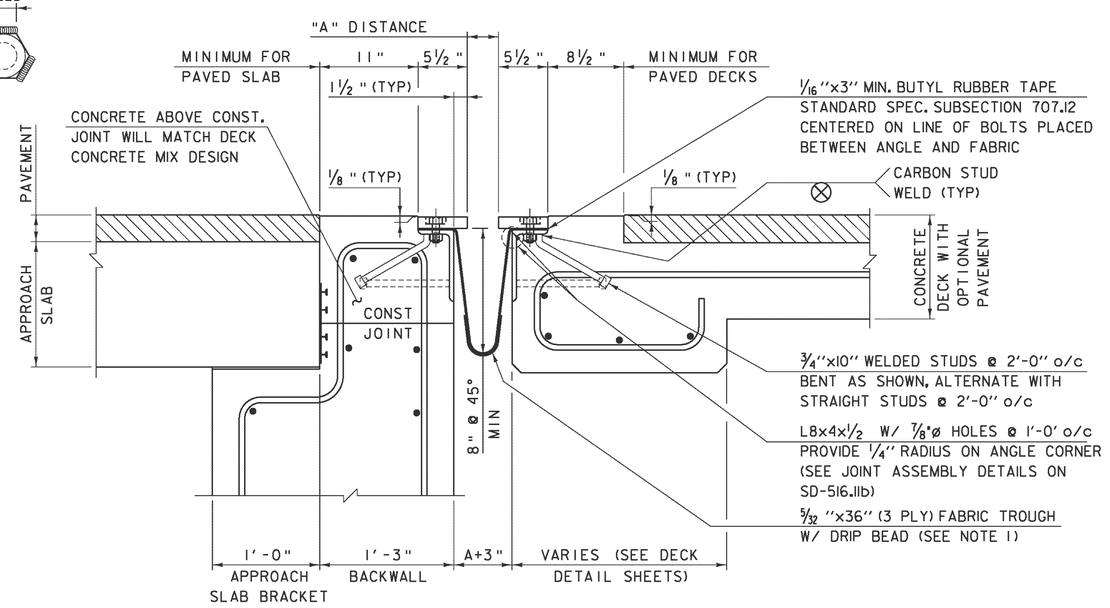
VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - DIVISION

STRUCTURES DETAIL
SD-516.10



TYPICAL SECTION AT GIRDERS

SCALE 1½" = 1'-0"

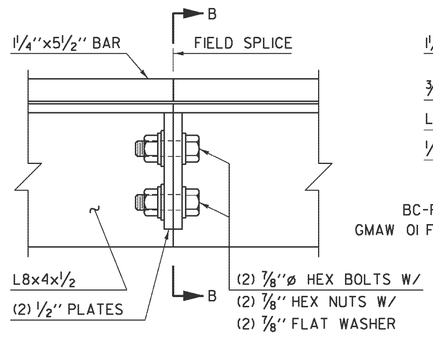


TYPICAL SECTION BETWEEN GIRDERS

SCALE 1½" = 1'-0"

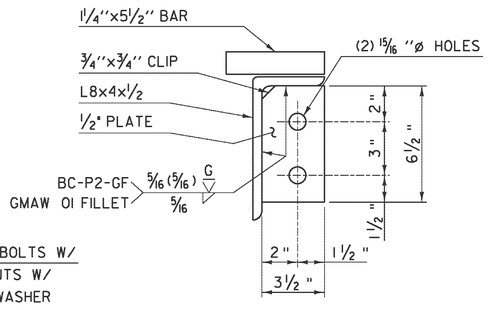
NOTES FOR ITEM 516.11 "BRIDGE EXPANSION JOINT, VERMONT"

1. FABRIC TROUGH SHALL BE THOROUGHLY CLEANED AND FLUSHED AFTER PAVING OPERATION. A DRIP BEAD OF 1/4"x7" STRIP OF PREFORMED FABRIC MATERIAL SHALL BE CEMENTED TO THE BOTTOM OF THE FABRIC TROUGH USING AN ADHESIVE APPROVED BY THE MANUFACTURER. THE DRIP BEAD SHALL BE APPLIED 1" FROM THE DOWNSPOUT END OF THE TROUGH. PREFORMED FABRIC MATERIAL SHALL BE CONTINUOUS FOR THE FULL LENGTH OF THE JOINT.
2. THE EXPANSION DEVICE SHALL BE COVERED TO PROTECT THE FINISH DURING PLACING OF BRIDGE DECK CONCRETE.
3. SEE "JOINT GAP DIMENSION TABLE" FOR DISTANCE "A" VALUES IN TEMPERATURE RANGE PROVIDED.
4. JOINT BRACKET LENGTH "X" VARIES DEPENDENT ON THE BRIDGE SKEW ANGLE. THE BRACKET MUST BE LOCATED SUCH THAT THE THREADED RODS ARE NOT LESS THAN 1½" FROM GIRDERS END OR FLANGE SIDES.
5. ALL STEEL COMPONENTS SHALL BE GALVANIZED OR METALIZED AND MEET THE REQUIREMENTS OF SUBSECTION 516.02. PRIOR TO GALVANIZING OR METALIZING, ALL CORNERS AND EDGES OF STEEL PLATES, SHAPES, ETC., SHALL BE GROUND TO A 1/16" INCH RADIUS. THREADED RODS SHALL CONFORM TO THE REQUIREMENTS OF 714.04. THE "WELDED STUD ANCHOR PLATE" AND WELDED STUDS MAY BE SUPPLIED WITHOUT GALVANIZING OR METALIZING.
6. THE 4"x8"x1/2" ANGLES MAY BE FURNISHED AS ONE CONTINUOUS PIECE OR SPLICED AS SHOWN IN THE FIELD SPLICE DETAIL WHEN SPECIFIED. THE 1¼"x5 ½" BARS EACH SIDE OF THE JOINT SHALL BE PROVIDED IN TWO EQUAL LENGTHS.
7. PROJECTING THREADS OF THE 3/4" Ø BOLTS IN THE JOINT SHALL BE GREASED BY THE CONTRACTOR PRIOR TO PLACING ADJACENT CONCRETE. THIS WILL FACILITATE BOLT REMOVAL IF REQUIRED IN THE FUTURE.
8. FILL COUNTERBORED HOLES WITH HOT POURED JOINT SEALER (STD. SPEC. 707.04) AFTER BOLT INSTALLATION. PAYMENT FOR THE WORK SHALL BE INCIDENTAL TO ITEM 516.11 "BRIDGE EXPANSION JOINT, VERMONT".
9. THE EXPANSION JOINT, INCLUDING THE FABRIC TROUGH, SHALL BE SHOP ASSEMBLED AND SHIPPED AS ONE UNIT. IF THE EXPANSION JOINT HAS A FIELD SPLICE SPECIFIED, THE FABRIC TROUGH SHALL BE SHIPPED WITH ONE UNIT AND ASSEMBLED WITH THE SECOND UNIT PRIOR TO CONCRETE PLACEMENT.
10. TEMPORARY SHIPPING ATTACHMENTS SHALL BE ATTACHED BY BOLTING; WELDING WILL NOT BE PERMITTED.
11. BARE DECK "RISER PLATE" AS SHOWN IN "TYPICAL SECTION AT GIRDERS" DRAWING SHALL BE INCLUDED ON BRIDGES WITH BARE CONCRETE DECK SPECIFIED. RISER PLATES SHALL BE INCLUDED FOR BOTH SIDES AND MATCH THE LENGTHS OF THE 1¼"x5½" BARS. THE RISER PLATE CAN BE REMOVED IF THE DECK IS MILLED IN THE FUTURE.



FIELD SPLICE DETAIL

SPLICE ONLY WHEN SPECIFIED ON PLANS.



SECTION "B-B"

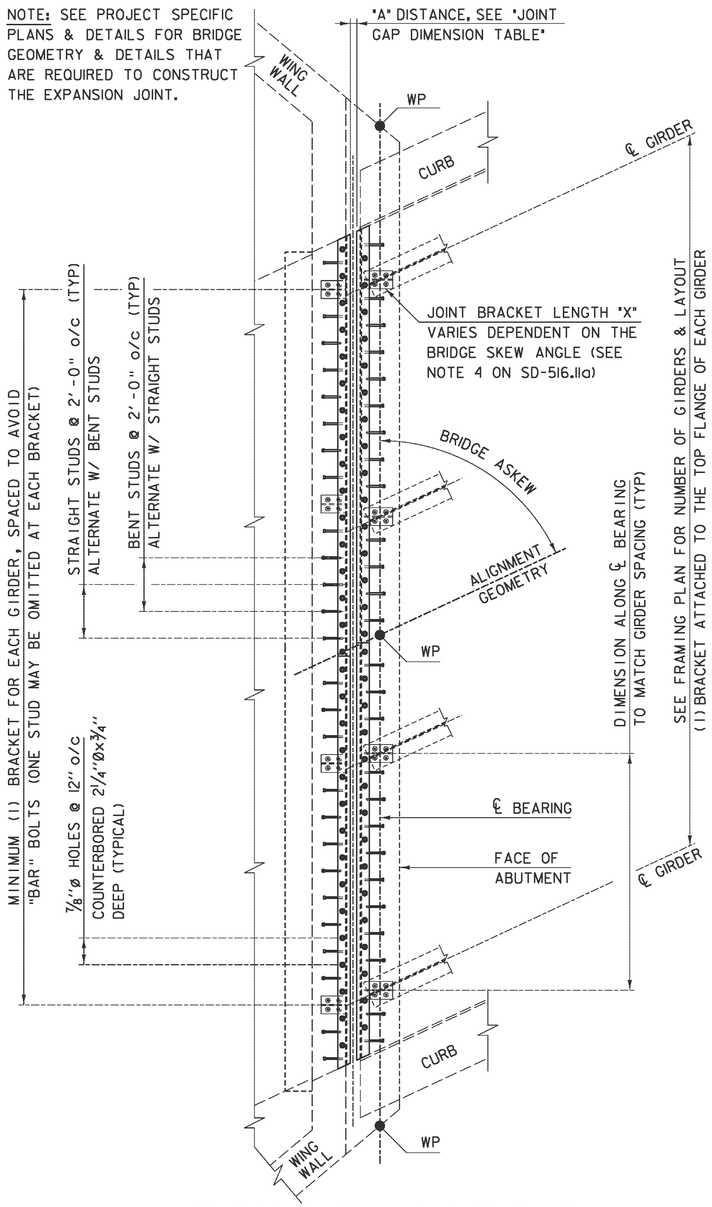
REVISIONS	
FEBRUARY 24, 2011	APPROVED FOR USE BY VAOT STRUCTURES SECTION

BRIDGE EXPANSION JOINT, VERMONT

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

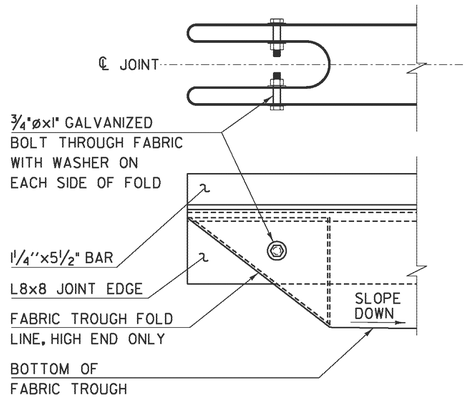
STRUCTURES DETAIL

SD-516.11a



EXPANSION JOINT PLAN

SCALE 3/8" = 1'-0"



FOLDED TROUGH END DETAIL

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

1. TROUGH SHALL BE FOLDED AT HIGH ENDS. TROUGH SHALL SLOPE AT MIN 2% DOWN TOWARD THE NEAREST DRAINAGE SPOUT HOPPER LOCATION.
2. BOLTS, NUTS AND WASHERS FOR FOLD SHALL MEET REQUIREMENTS OF SUBSECTION 714.04 AND SHALL BE GALVANIZED.

JOINT GAP DIMENSION TABLE

Temp (°F)	"A" Distance (in) Expansion Length (ft)				
	100 - 120	>120 - 140	>140 - 160	>160 - 180	>180 - 200
0	1 5/8	1 13/16	1 7/8	1 15/16	2 1/8
15	1 1/2	1 5/8	1 11/16	1 3/4	1 7/8
30	1 5/16	1 1/2	1 1/2	1 1/2	1 5/8
45	1 3/16	1 5/16	1 5/16	1 5/16	1 7/16
60	1 1/16	1 1/8	1 1/8	1 1/16	1 3/16
75	15/16	1	15/16	7/8	15/16
90	3/4	13/16	3/4	11/16	11/16
105	5/8	11/16	9/16	7/16	1/2

1) Expansion Length: Length of span, from Expansion Joint to nearest Fixed Bearing.
2) "A" Distance: measured distance during joint placement.
3) Temp: Approximate temperature of steel during joint placement.

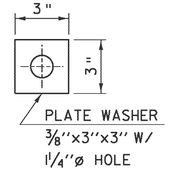
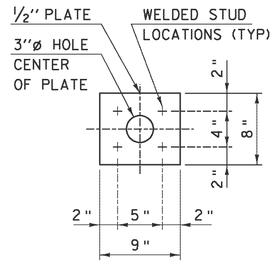


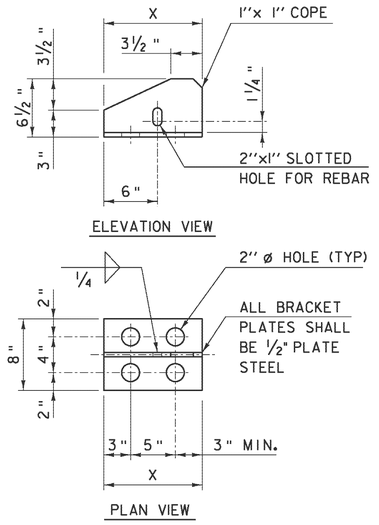
PLATE WASHER DETAIL

SCALE 3" = 1'-0"



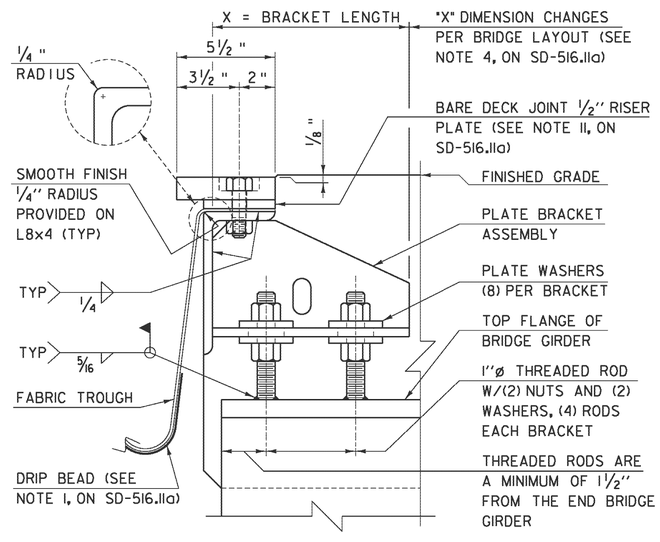
WELDED STUD ANCHOR PLATE DETAIL

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



BRACKET DETAILS

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



JOINT ASSEMBLY DETAIL

SCALE 3" = 1'-0"

REVISIONS	
FEBRUARY 24, 2011	APPROVED FOR USE BY VAOT STRUCTURES SECTION

BRIDGE EXPANSION JOINT, VERMONT

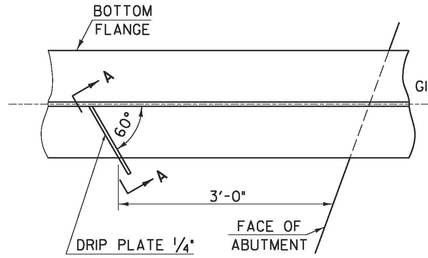
VERMONT AGENCY OF TRANSPORTATION · STRUCTURES - SECTION

STRUCTURES DETAIL

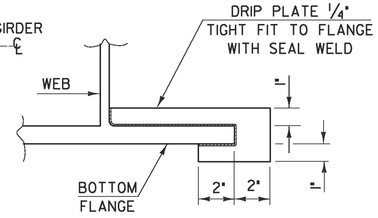
SD-516.11b

STRUCTURAL STEEL GENERAL NOTES:

1. ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER HIGH-STRENGTH BOLTS IN 15/16" DIAMETER HOLES, PER SUBSECTION 506.19, UNLESS OTHERWISE SPECIFIED.
2. ALL HOLES IN THE WEBS OF THE FASCIA GIRDERS THAT ARE NOT OTHERWISE FILLED, SHALL BE FILLED WITH EITHER BUTTON HEAD OR HEX HEAD BOLTS. THESE BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH SUBSECTION 506.19.
3. ALL WELDING SHALL CONFORM TO THE PROVISIONS OF SUBSECTION 506.10.
4. ANY CONNECTIONS THAT ARE NOT DETAILED ON THE PLANS SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE STRUCTURES ENGINEER FOR APPROVAL.
5. STRUCTURAL STEEL MEMBERS DESIGNATED "CVN" IN THE PLANS SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH SUBSECTION 714.01 OF THE STANDARD SPECIFICATIONS.
6. ENDS OF GIRDERS ARE TO BE VERTICAL IN THEIR FINAL POSITION.
7. AFTER SUPERSTRUCTURE STEEL HAS BEEN ERECTED, ELEVATIONS ALONG THE TOP OF THE GIRDERS SHALL BE TAKEN AS DIRECTED BY THE RESIDENT ENGINEER FOR USE IN DETERMINING FINISHED GRADES.

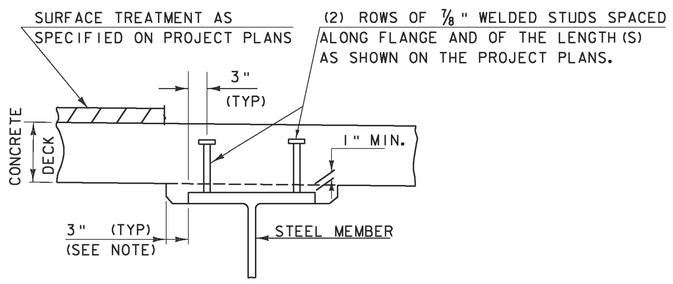


PLAN DRIP PLATE



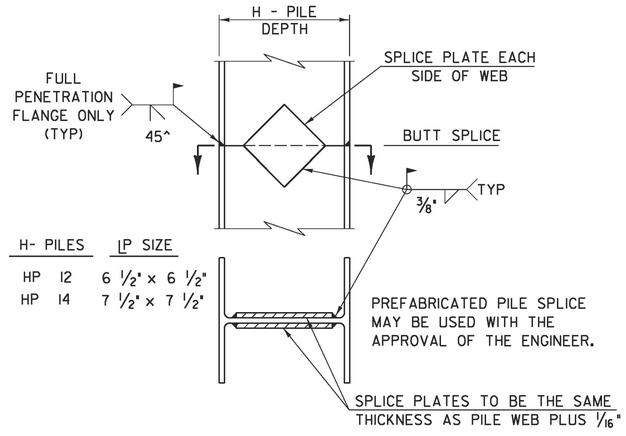
SECTION A - A

NOTE: DRIP PLATES SHALL BE PLACED ON OUTSIDE EDGE OF FASCIA GIRDERS ON THE HIGH SIDE OF ALL PIERS AND ABUTMENTS OR AS INDICATED ON PROJECT PLANS.



NOTE:
THE 3" HORIZONTAL SECTION MAY BE ELIMINATED FOR FORMING SYSTEMS DESIGNED FOR THE CONSTRUCTION OF VERTICAL HAUNCHES. ANY VOIDS RESULTING FROM FORMING SYSTEM ELEMENTS SHALL BE FILLED WITH JOINT SEALER, POLYURETHANE MEETING THE REQUIREMENTS OF SECTION 524. THE COST OF THE JOINT SEALER, POLYURETHANE SHALL BE INCIDENTAL TO THE ADJACENT CONCRETE.

HAUNCH AND SHEAR CONNECTOR DETAIL



DETAIL OF PILE SPLICE

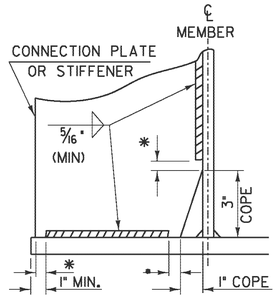
DETAILS ON THIS SHEET ARE "NOT TO SCALE" UNLESS NOTED OTHERWISE.

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
JUNE 4, 2010	MODIFIED NOTES

STRUCTURAL STEEL DETAILS & NOTES

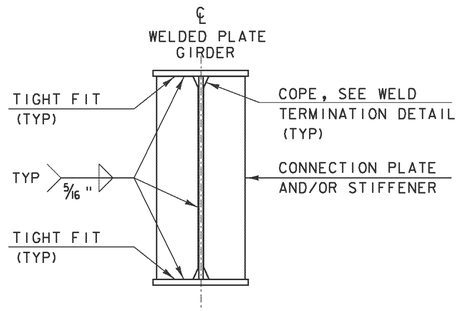
VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

STRUCTURES DETAIL
SD-601.00



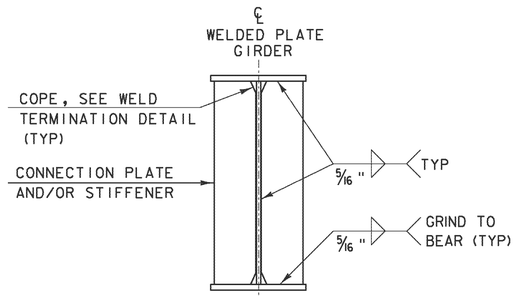
WELD TERMINATION AND COPING DETAILS FOR STEEL MEMBERS

*NO WELD FOR 3/8" MIN. 7/8" MAX. (EXCEPT MUST MAINTAIN 1" MINIMUM FROM EDGE OF FLANGE)

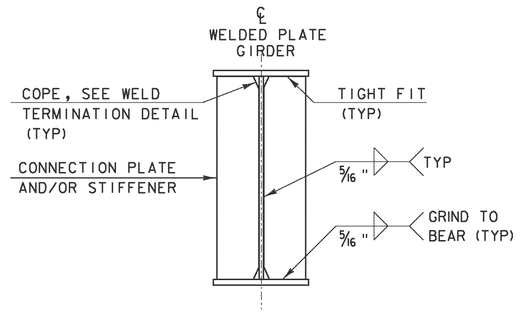


INTERMEDIATE CONNECTION PLATES AND/OR STIFFENERS FOR WELDED PLATE GIRDERS

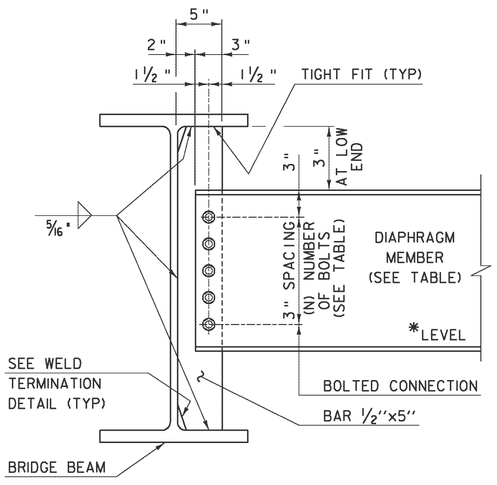
INTERMEDIATE DETAIL IS ONLY USED WHEN PLATE DOES NOT OCCUR AT AN ABUTMENT OR PIER.



ABUTMENT BEARING STIFFENERS AND/OR CONNECTION PLATES FOR WELDED PLATE GIRDERS



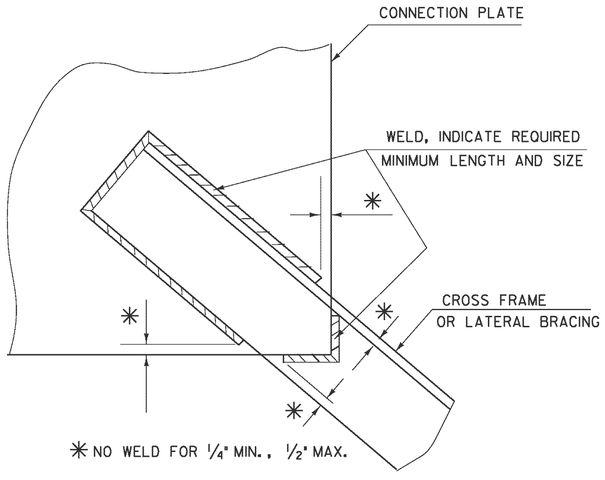
PIER BEARING STIFFENERS AND/OR CONNECTION PLATES FOR WELDED PLATE GIRDERS



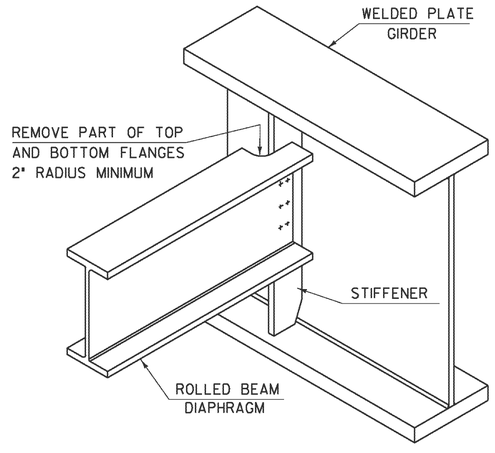
DEPTH		DIAPHRAGM MEMBER	(N) BOLTS
ROLLED BEAM	24" 30"	C15x33.9	4
	31" 36"	MC18x42.7	5
	37" 42"	W21x44	6
PLATE GIRDER WEB	31" 36"	W27x84	7
	37" 42"	W33x118	9
	43" 48"	W36x135	10

INTERMEDIATE DIAPHRAGMS FOR 24" TO 48" BRIDGE BEAMS

*IF CLEARANCE CANNOT BE MET, DIAPHRAGM MAY BE SLOPED.



WELD LOCATION DETAIL AT CROSS FRAMES AND LATERAL BRACING



SEE CONTRACT DRAWINGS FOR SIZES OF MEMBERS AND CONNECTION DETAILS

ROLLED BEAM USED AS DIAPHRAGM

DETAILS ON THIS SHEET ARE "NOT TO SCALE" UNLESS NOTED OTHERWISE.

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
MAY 2, 2011	ADD INTERMEDIATE DIAPHRAGMS DETAIL & ADD NOT TO SCALE NOTE

STRUCTURAL STEEL PLATE GIRDER DETAILS AND NOTES

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

STRUCTURES DETAIL
SD-602.00