

NOTE: SEE SHEET 2A FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-----------------|-----------------------------|-------------|--------------|
| N.C. | B-4645 | 1 | 24 |
| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION | |
| 38452.1.1 | BRNHS-0052(25) | P.E. | |
| 38452.2.1 | BRNHS-0052(25) | RAW & UTL | |
| 38452.3.1 | BRNHS-0052(25) | CONST. | |

CONTENTS

| LINE | STATION | PLAN | PROFILE | XSECT |
|-------|----------------------|------|---------|-------|
| -L- | 10+00.00 to 40+46.83 | 4-6 | | 10-23 |
| -SBL- | 10+00.00 to 40+50.00 | 4-6 | 7-9 | 10-23 |

SAMPLE RESULTS 24

ROADWAY
SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 38452.1.1 (B-4645) F.A. PROJ. BRNHS-52(25)
COUNTY STOKES
PROJECT DESCRIPTION BRIDGES 29 & 30 OVER THE LITTLE YADKIN RIVER ON US 52

INVENTORY

CAUTION NOTICE

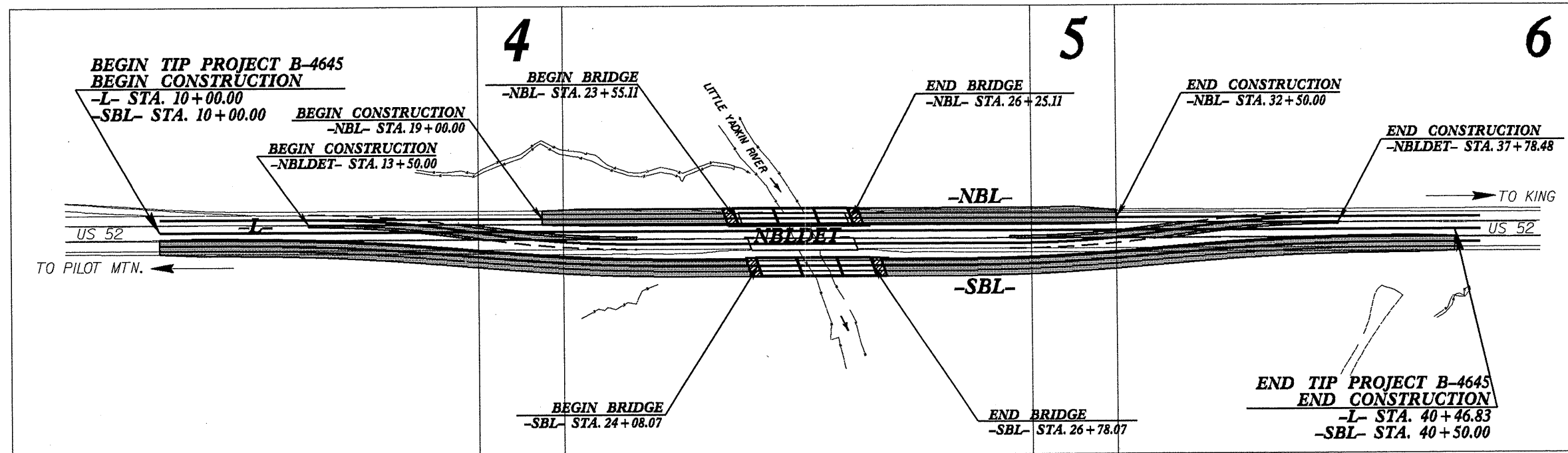
THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING, AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (UN-PLACED) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION, AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THIS PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

ID: B-4645

CONTRACT: C203205



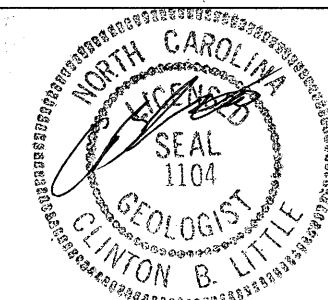
PERSONNEL
C.C. MURRAY
J.E. ESTEP
M.R. MOORE

INVESTIGATED BY **C.B. LITTLE**
CHECKED BY **C.B. LITTLE**
SUBMITTED BY **C.B. LITTLE**
DATE **MARCH 2012**

DRAWN BY: **J.K. McCLURE**

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IS IT CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

NOTE - BY HAVING REQUESTED THIS INFORMATION THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.



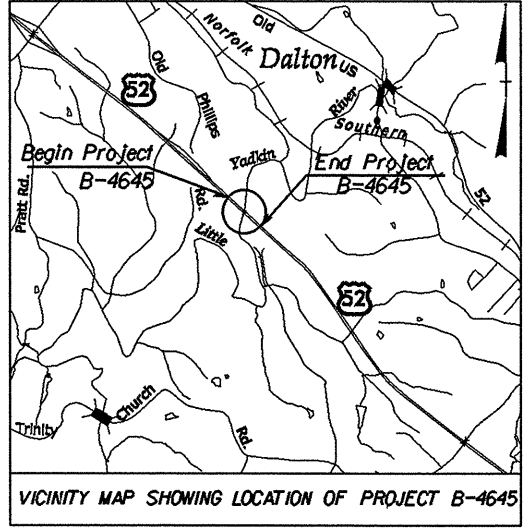
4-16-12

06-MAR-2012 13:42
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 jmcclure AT GEH257466

TIP PROJECT: B-4645

CONTRACT:

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP SHOWING LOCATION OF PROJECT B-4645

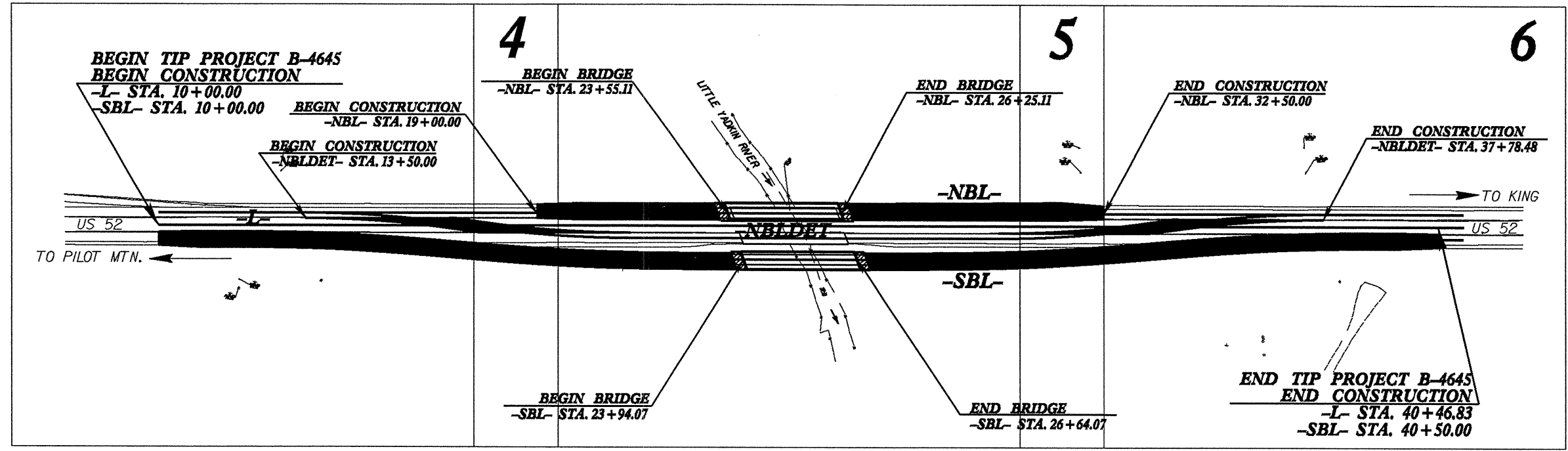
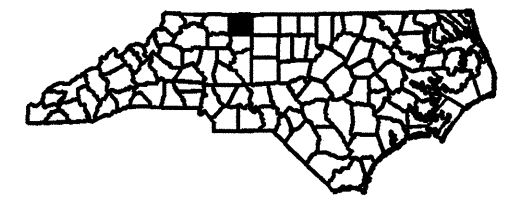
STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

STOKES COUNTY

**LOCATION: BRIDGES NO. 29 & 30 OVER
 THE LITTLE YADKIN RIVER ON US 52**

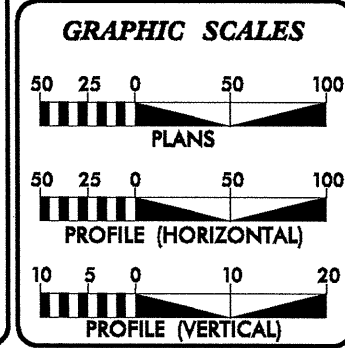
**TYPE OF WORK: GRADING, PAVING, DRAINAGE,
 AND STRUCTURES**

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-----------------|-----------------------------|-------------|--------------|
| N.C. | B-4645 | 2A | |
| STATE PROJ. NO. | P.A. PROJ. NO. | DESCRIPTION | |
| 38452.1.1 | BRNHS-52(25) | P.E. | |
| | | | |
| | | | |
| | | | |
| | | | |



THERE IS CONTROL OF ACCESS ON THIS PROJECT
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD

INCOMPLETE PLANS
 DO NOT USE FOR R/W ACQUISITION
 PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION



DESIGN DATA

| | |
|--------------|---------------------|
| ADT 2013 = | 50,300 |
| ADT 2033 = | 82,900 |
| DHV = | 10 % |
| D = | 60 % |
| T = | 19 % * |
| V = | 70 MPH |
| * TTST = | 12 DUAL 7 |
| FUNC CLASS = | INTERSTATE (FUTURE) |

PROJECT LENGTH

| | |
|--|-------------|
| LENGTH OF ROADWAY TIP PROJECT B-4645 = | 0.526 MILES |
| LENGTH OF STRUCTURE TIP PROJECT B-4645 = | 0.051 MILES |
| TOTAL LENGTH OF TIP PROJECT B-4645 = | 0.577 MILES |

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: AUGUST 17, 2012

LETTING DATE: AUGUST 20, 2013

TONY HOUSER, P.E.
 PROJECT ENGINEER

LEE ANN MOORE
 PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.

DIVISION OF HIGHWAYS
 STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

March 13, 2012

STATE PROJECT: 38452.1.1 (B-4645)
FEDERAL PROJECT: BRNHS-52(25)
COUNTY: Stokes
DESCRIPTION: Bridges 29 & 30 over The Little Yadkin River on US 52
SUBJECT: Geotechnical Report – Inventory

Project Description

The project is in southwestern Stokes County, north of King and south of Pilot Mountain. The existing structures were built in 1960. Both are 250' long with 28' roadway width reinforced concrete bridges. US 52 in the section is a divided four lane highway. The Little Yadkin River flows almost due south through the project. The stream width is 35' to 45', normal water surface elevation about 815'; typical flow depth is 1.5 feet. The 100 year flood elevation is reported at about 838 feet. The project will replace both bridges. The proposed project phasing will build the new southbound bridge relocated about fifty feet to the south (downstream), switch southbound traffic to the new bridge and detour northbound traffic to the old SBL bridge, then build the new northbound bridge.

The geotechnical field investigation concentrated on the relocated southbound lane roadway. It included nine Standard Penetration Test borings and six standard auger borings.

Areas of Special Geotechnical Interest

Rock: Some weathered rock and crystalline rock (as defined by SPT refusal and/or auger refusal) was encountered in two areas.

10+00 to 14+00 -L- Right: Borings along the existing ditch line encountered auger refusal at depths of one to three feet. One boring conducted on top of the existing cut slope encountered weathered rock. Weathered and/or crystalline rock is exposed in the existing cut slope.

33+00 to 36+00 -L- Right: Rock as defined by SPT refusal was encountered near the proposed ditch elevation in one boring at Station 34+50 -L-, 120' Right. Small quantities of rock were projected forward and back based on visual observation and geology.

Alluvial Soils: Soils associated with the floodplain of the Little Yadkin River were encountered from approximate Station 24+50 to 31+50 -L-. The borings are presented on the SBL profile. Near the stream, the soils are very loose to loose silty sands (A-2-4) with basal gravel. Away from the stream, they consist of medium stiff to stiff sandy silty clays (A-6, A-7-6).

Boulders in existing embankments: Boulders were observed in the side slopes and encountered in borings that attempted to penetrate the fill. In most cases, we were unable to advance the borings with augers.

Physiography and Geology

The roadway grade elevation is about 915 at the beginning of the project, dropping to 859 across the bridges, and then climbing to about 877 at the end. The maximum elevations within the project area are about 940', on top of the cut slopes at the beginning of the project. The elevation low is in the stream channel, at about 813'.

The existing roadway is in cut from the beginning of the project to approximate Station 14+00, then on embankment approaching and leaving the bridges. The embankment heights reach about 30' maximum. From about 30+50 -L- to 33+00 -L-, there is cut on the left and fill on the right. Most of the remainder is in cut. As noted above, weathered and crystalline rock is exposed in ditches and existing cut slopes, and numerous boulders appear to be present within the embankments.

The rock exposures are weathered and no core samples were obtained. The rock appears to be gneissic and the resulting soils contain some mica. The 1985 Geologic Map of NC places the site very near the boundary of Yg (granitic gneiss) and Czmg (schist and meta-graywacke).

Soils

The residual soils are quite variable in composition and depth. They included A-6 and A-7 sandy clays (near the surface), A-2-4 silty sands, and A-4 or A-5 sandy silts with some mica. As previously discussed, the alluvial soils are sandy near the channel and fine-grained (sandy silty clay) nearer the margins.

Respectfully Submitted,

Clint Little
Project Geological Engineer

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING UNIT
1589 MAIL SERVICE CENTER
RALEIGH NC 27699-1589

TELEPHONE: 919-707-6850
Fax: 919-250-4237

www.ncdot.gov/doh/preconstruct/highway/geotech

LOCATION:
CENTURY CENTER COMPLEX
ENTRANCE B-2
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610

Earthwork Balance Sheet

3A

Volumes in Cubic Yards

PROJECT B-4645

COUNTY: Stokes

DATE: 5/16/2013

COMPILED BY: Matthew Lassiter

SHEET OF SHEETS

| STATION | STATION | EXCAVATION | | | | | EMBANKMENT | | | | BORROW | WASTE | | | | | |
|-----------------------|--------------------------------|----------------|-------|----------|------------------|-------------------|------------|-------|--------|--------------|--------|-------|----------|---------|-------|--|--------|
| | | TOTAL UNCLASS. | ROCK | UNDERCUT | UNSUIT. UNCLASS. | SUITABLE UNCLASS. | TOTAL | ROCK | EARTH | EMBANK. +20% | | ROCK | SUITABLE | UNSUIT. | TOTAL | | |
| | -SBL- CONSTRUCTION | | | | | | | | | | | | | | | | |
| | -L- 10+00 TO 19+00 RT | 4,729 | 1,102 | | | 3,627 | 2,666 | 1,102 | 1,564 | 2,979 | | | | 1,750 | | | 1,750 |
| | -L- 19+00 TO 24+08.07 RT | 39 | | | | 39 | 15,813 | | 15,813 | 18,976 | 18,937 | | | | | | |
| | -L- 26+78.07 TO 32+50 RT | 109 | | | | 109 | 20,841 | | 20,841 | 25,009 | 24,900 | | | | | | |
| | -L- 32+50 TO 40+46.83 RT | 8,165 | 131 | | | 8,034 | 135 | 131 | 4 | 136 | | | | 8,029 | | | 8,029 |
| | SUBTOTAL | 13,042 | 1,233 | | | 11,809 | 39,455 | 1,233 | 38,222 | 47,099 | 43,837 | | | 9,779 | | | 9,779 |
| | DETOUR CONSTRUCTION | | | | | | | | | | | | | | | | |
| | -NBLDET- 13+00 TO 21+50 | 225 | | | | 225 | 117 | | 117 | 140 | | | | 85 | | | 85 |
| | -NBLDET- 30+00 TO 37+72.27 | 171 | | | | 171 | 162 | | 162 | 194 | 23 | | | | | | |
| | SUBTOTAL | 396 | | | | 396 | 279 | | 279 | 334 | 23 | | | 85 | | | 85 |
| | -NBL- CONSTRUCTION | | | | | | | | | | | | | | | | |
| | -L- 19+00 TO 23+55.11 | 581 | | | | 581 | 614 | | 614 | 737 | 156 | | | | | | |
| | -L- 26+25.11 TO 32+50 | 1,056 | | | | 1,056 | 2,277 | | 2,277 | 2,732 | 1,676 | | | | | | |
| | SUBTOTAL | 1,637 | | | | 1,637 | 2,891 | | 2,891 | 3,469 | 1,832 | | | | | | |
| (EXIST. ROAD REMOVAL) | MEDIAN CONSTRUCTION | | | | | | | | | | | | | | | | |
| | -L- 10+00 TO 19+00 (LT SBL) | 1,110 | | | | 1,110 | 38 | | 38 | 46 | | | | 1,064 | | | 1,064 |
| | -L- 19+00 TO 24+08.07 (MED) | 2,971 | | | | 2,971 | | | | | | | | 2,971 | | | 2,971 |
| | -L- 26+78.07 TO 32+50 (MED) | 2,223 | | | | 2,223 | | | | | | | | 2,223 | | | 2,223 |
| | -L- 32+50 TO 40+46.83 (LT SBL) | 624 | | | | 624 | 60 | | 60 | 72 | | | | 552 | | | 552 |
| | SUBTOTAL | 6,928 | | | | 6,928 | 98 | | 98 | 118 | | | | 6,810 | | | 6,810 |
| | DETOUR REMOVAL | | | | | | | | | | | | | | | | |
| | -NBLDET- 13+00 TO 21+50 | 140 | | | | 140 | 225 | | 225 | 270 | 130 | | | | | | |
| | -NBLDET- 30+00 TO 37+72.27 | 194 | | | | 194 | 171 | | 171 | 205 | 11 | | | | | | |
| | SUBTOTAL | 334 | | | | 334 | 396 | | 396 | 475 | 141 | | | | | | |
| | SUBTOTAL | | | | | | | | | | | | | | | | |
| | SHEET TOTAL | 22,337 | 1,233 | | | 21,104 | 43,119 | 1,233 | 41,886 | 51,495 | 45,833 | | | 16,674 | | | 16,674 |

NOTE: EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

Earthwork Balance Sheet

3B

Volumes in Cubic Yards

PROJECT: B-4645 COUNTY: Stokes DATE: 5/16/2013 COMPILED BY: Matthew Lassiter SHEET __ OF __ SHEETS

| STATION | STATION | EXCAVATION | | | | | EMBANKMENT | | | | BORROW | WASTE | | | |
|--|--------------------|----------------|-------|----------|------------------|-------------------|------------|-------|--------|--------------|--------|-------|----------|---------|--------|
| | | TOTAL UNCLASS. | ROCK | UNDERCUT | UNSUIT. UNCLASS. | SUITABLE UNCLASS. | TOTAL | ROCK | EARTH | EMBANK. +20% | | ROCK | SUITABLE | UNSUIT. | TOTAL |
| | TOTAL FROM SHEET 1 | 22,337 | 1,233 | | | 21,104 | 43,119 | 1,233 | 41,886 | 51,495 | 45,833 | | 16,674 | | 16,674 |
| TOTAL | | 22,337 | 1,233 | | | 21,104 | 43,119 | 1,233 | 41,886 | 51,495 | 45,833 | | 16,674 | | 16,674 |
| MATERIAL FOR SHOULDER CONSTRUCTION LOSS DUE TO CLEARING & GRUBBING WASTE IN LIEU OF BORROW | | -600 | | | | -600 | 3,110 | | 3,110 | 3,732 | 3,732 | | -9,779 | | -9,779 |
| PROJECT TOTAL | | 21,737 | 1,233 | | | 20,504 | 46,229 | 1,233 | 44,996 | 55,227 | 40,386 | | 6,895 | | 6,895 |
| EST. 5% TO REPLACE TOP SOIL ON BORROW PIT | | | | | | | | | | | 2,019 | | | | |
| GRAND TOTAL | | 21,737 | 1,233 | | | 20,504 | 46,229 | 1,233 | 44,996 | 55,227 | 42,405 | | 6,895 | | 6,895 |
| SAY | | 22,000 | | | | | | | | | 42,500 | | | | |
| DDE | | 81 | CY | | | | | | | | | | | | |
| UNDERCUT EXCAVATION | | 1000 | CY | | | | | | | | | | | | |
| GEOTEXTILE FOR SOIL STABILIZATION | | 3500 | SY | | | | | | | | | | | | |
| CLASS 4 SUBGRADE STABILIZATION | | 1500 | TON | | | | | | | | | | | | |
| SHALLOW UNDERCUT | | 750 | CY | | | | | | | | | | | | |
| SELECT GRANULAR MATERIAL | | 2000 | CY | | | | | | | | | | | | |

NOTE: EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

8/17/99

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| | |
|--|---------------------|
| PROJECT REFERENCE NO. B-4645 | SHEET NO. 4 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION | |

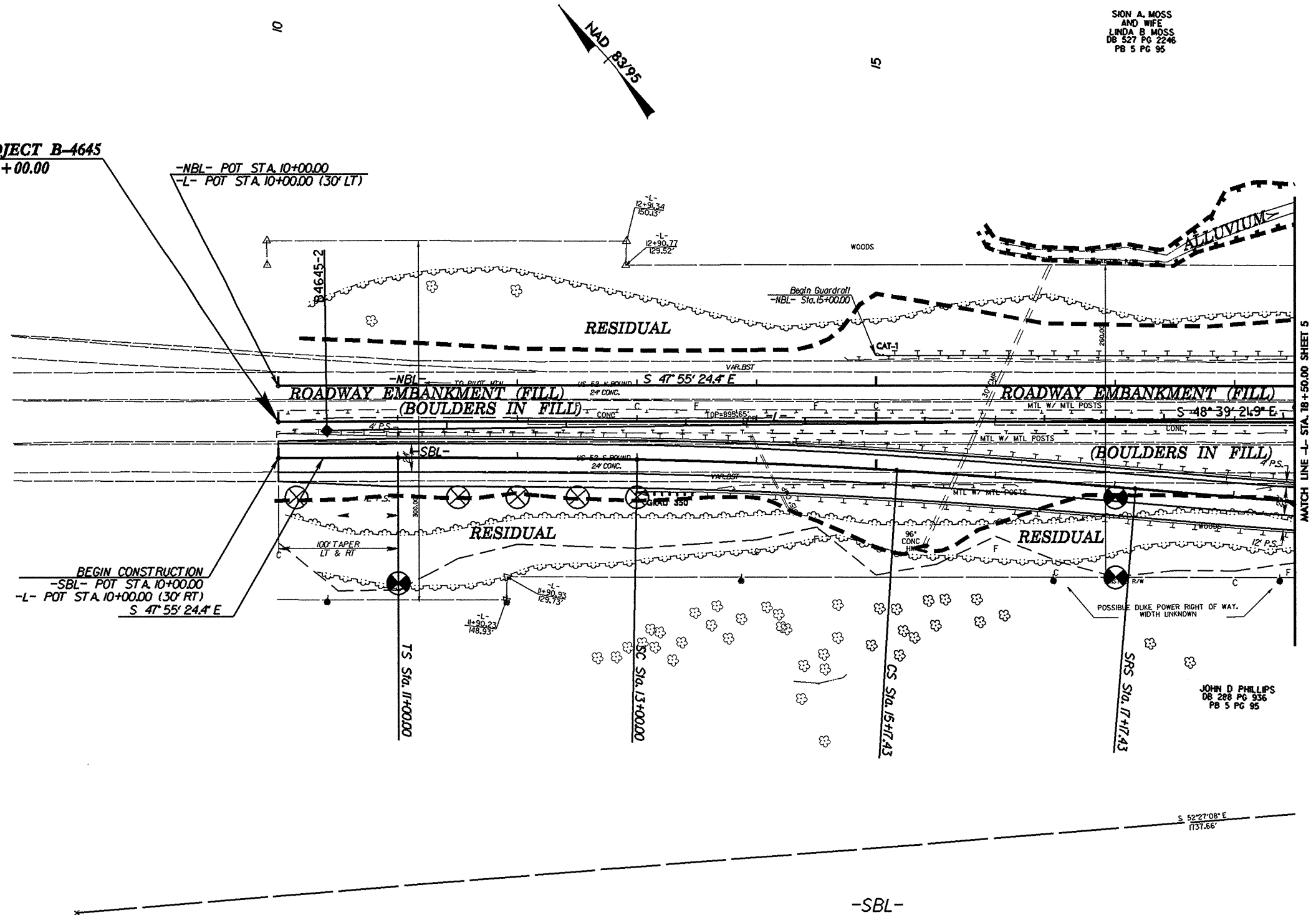
SHON A. MOSS
AND WIFE
LINDA B. MOSS
DB 527 PG 2246
PB 5 PG 95

REVISIONS

BEGIN TIP PROJECT B-4645
-L- POT STA. 10+00.00

-NBL- POT STA. 10+00.00
-L- POT STA. 10+00.00 (30' LT)

BEGIN CONSTRUCTION
-SBL- POT STA. 10+00.00
-L- POT STA. 10+00.00 (30' RT)
S 41° 55' 24.4" E



MATCH LINE -L- STA. 18+50.00 SHEET 5

JOHN D. PHILLIPS
DB 288 PG 936
PB 5 PG 95

-SBL-

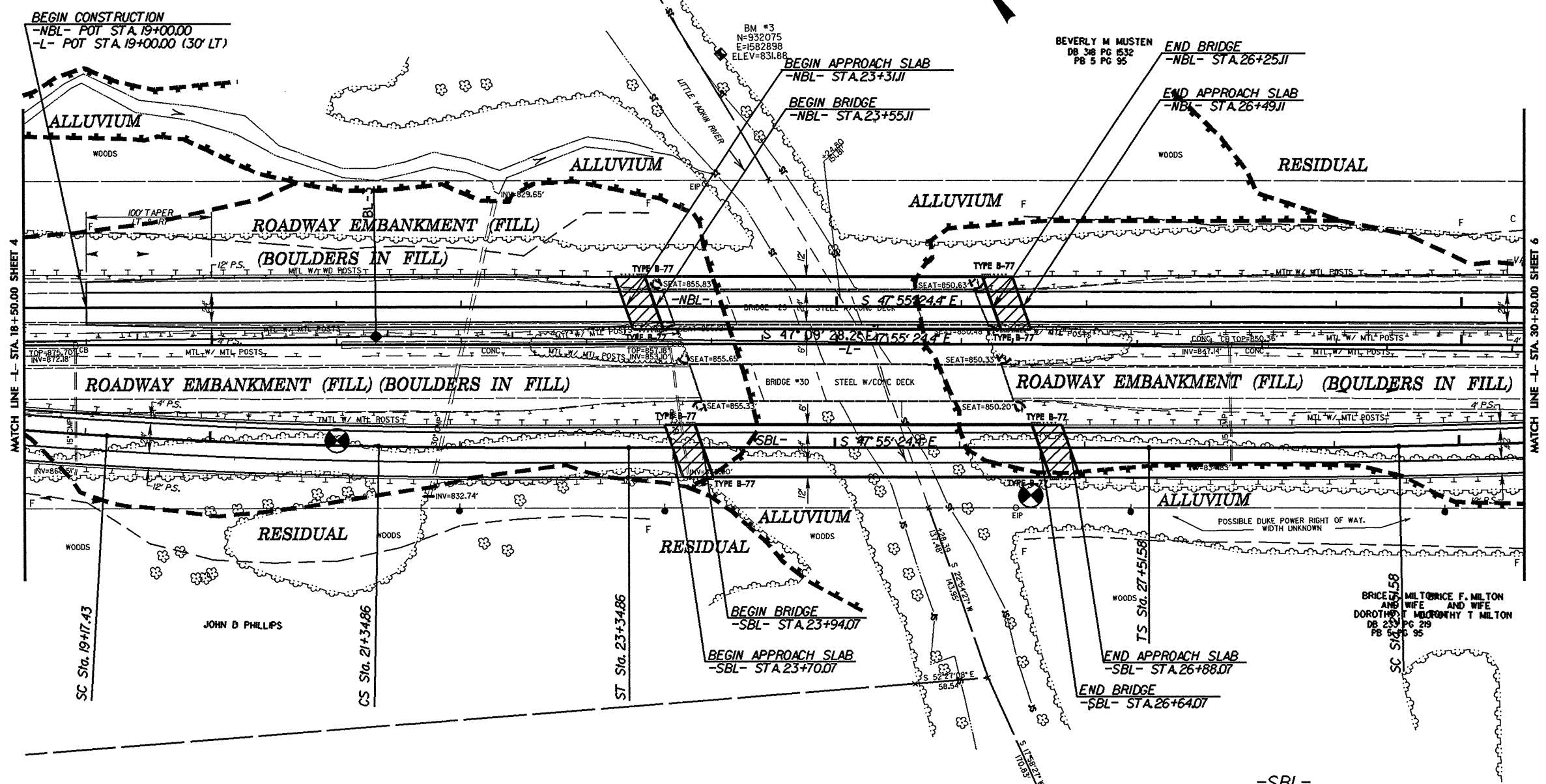
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|---|---|---|
| PI Sta 12+33.34 θs = 1° 08' 04.5" Ls = 200.00' LT = 133.34' ST = 66.67' | PI Sta 14+08.73 Δ = 2° 28' 00.8" (RT) D = 1° 08' 04.5" L = 217.43' T = 108.73' R = 5,050.00' | PI Sta 15+84.10 θs = 1° 08' 04.5" Ls = 200.00' LT = 133.34' ST = 66.67' |
|---|---|---|

FOR -SBL- PROFILE, SEE SHEET NO. 7

8/17/99

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| | |
|--|---------------------|
| PROJECT REFERENCE NO. B-4645 | SHEET NO. 5 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR ACQUISITION | |
| PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION | |

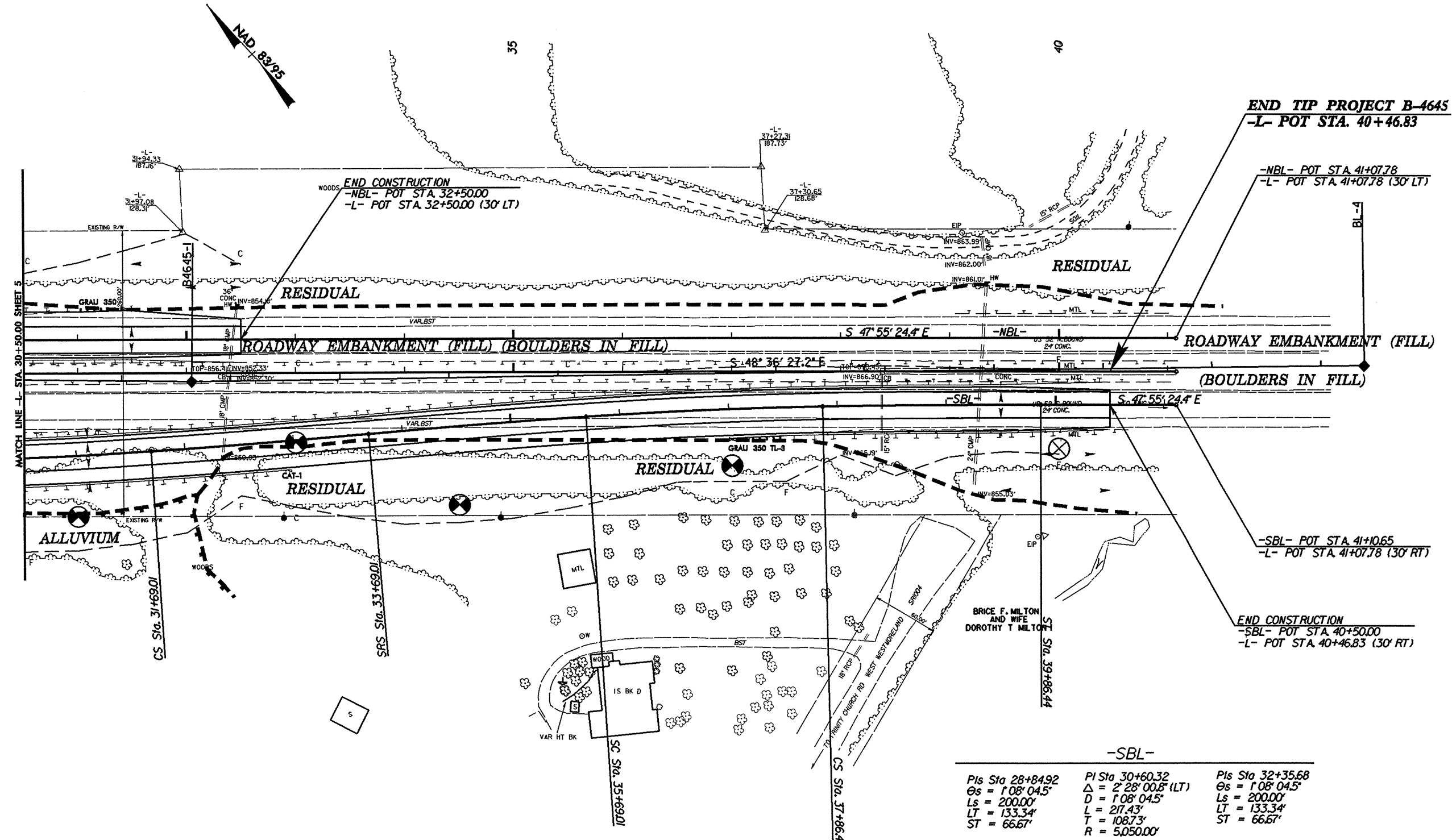


| | | |
|---|---|---|
| -SBL- | | |
| Pls Sta 18+50.77 $\Theta_s = 1'08''04.5''$ $L_s = 200.00'$ $LT = 133.34'$ $ST = 66.67'$ | Pls Sta 20+26.16 $\Delta = 2'28''00.8'' (LT)$ $D = 1'08''04.5''$ $L = 217.43'$ $T = 108.73'$ $R = 5,050.00'$ | Pls Sta 22+01.53 $\Theta_s = 1'08''04.5''$ $L_s = 200.00'$ $LT = 133.34'$ $ST = 66.67'$ |
| Pls Sta 28+84.92 $\Theta_s = 1'08''04.5''$ $L_s = 200.00'$ $LT = 133.34'$ $ST = 66.67'$ | Pls Sta 30+60.32 $\Delta = 2'28''00.8'' (LT)$ $D = 1'08''04.5''$ $L = 217.43'$ $T = 108.73'$ $R = 5,050.00'$ | Pls Sta 32+35.68 $\Theta_s = 1'08''04.5''$ $L_s = 200.00'$ $LT = 133.34'$ $ST = 66.67'$ |

FOR -SBL- PROFILE, SEE SHEET NO. 7.8

8/17/99
02-MAR-2012 08:55
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REVISIONS

| | |
|--|---------------------|
| PROJECT REFERENCE NO. | SHEET NO. |
| B-4645 | 6 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION | |
| PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION | |



-SBL-

| | | |
|--|---|--|
| PIs Sta 28+84.92 Θs = 1°08'04.5" Ls = 200.00' LT = 133.34' ST = 66.67' | PI Sta 30+60.32 Δ = 2°28'00.8" (LT) D = 1°08'04.5" L = 217.43' T = 108.73' R = 5,050.00' | PIs Sta 32+35.68 Θs = 1°08'04.5" Ls = 200.00' LT = 133.34' ST = 66.67' |
| PIs Sta 35+02.35 Θs = 1°08'04.5" Ls = 200.00' LT = 133.34' ST = 66.67' | PI Sta 36+77.75 Δ = 2°28'00.8" (RT) D = 1°08'04.5" L = 217.43' T = 108.73' R = 5,050.00' | PIs Sta 38+53.11 Θs = 1°08'04.5" Ls = 200.00' LT = 133.34' ST = 66.67' |

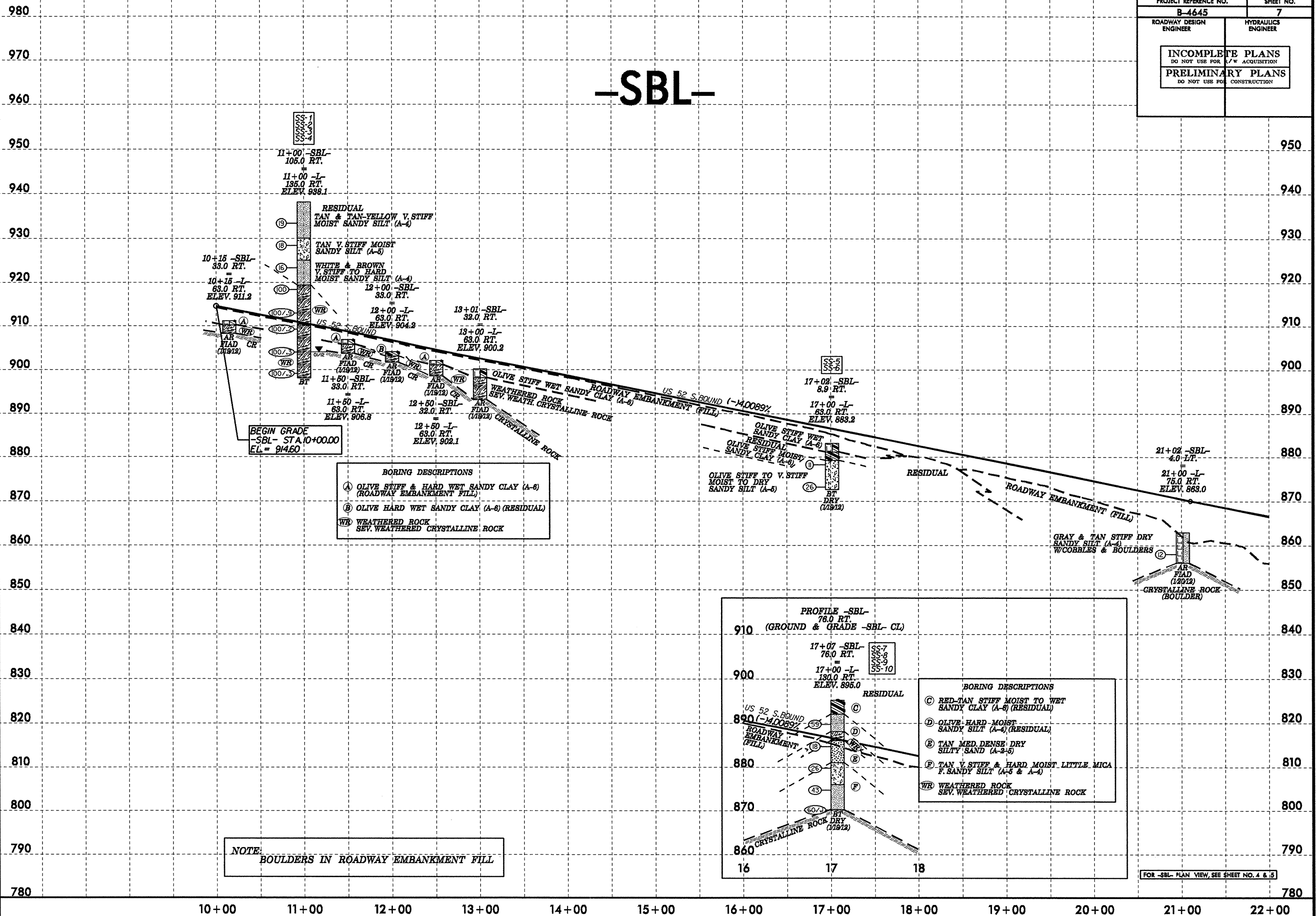
FOR -SBL- PROFILE, SEE SHEET NO. 8.9

5/14/99

06-MAR-2012 13:57 GEO. RDWY. Stokes\CADD_GEO\TECH\Plan\Prof\B4645.GEO.plt.007-STOKES.dgn

| | |
|---|-----------------------|
| PROJECT REFERENCE NO. B-4645 | SHEET NO. 7 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION | |
| PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION | |

-SBL-

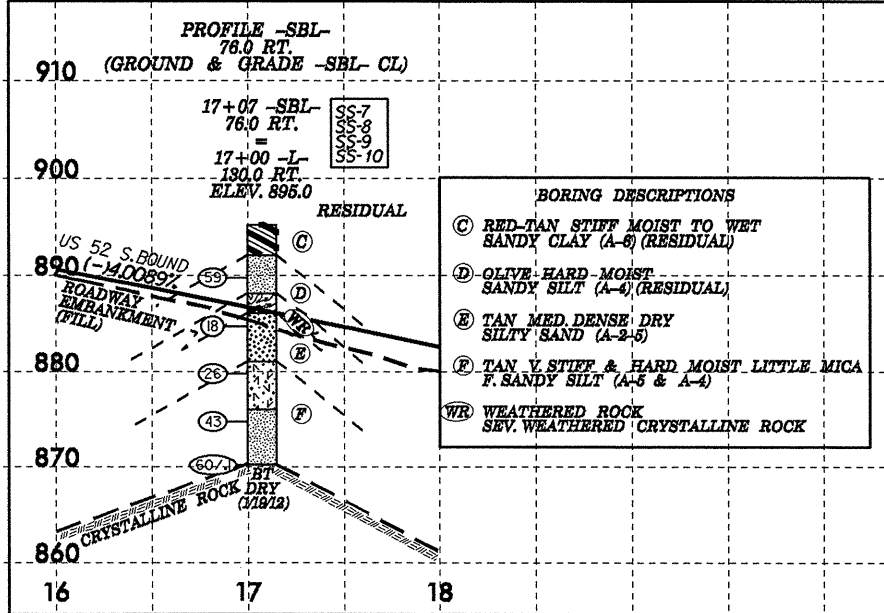


BEGIN GRADE
 SBL- STA. 10+00.00
 EL = 914.60

BORING DESCRIPTIONS

- (A) OLIVE STIFF & HARD WET SANDY CLAY (A-6) (ROADWAY EMBANKMENT FILL)
- (B) OLIVE HARD WET SANDY CLAY (A-6) (RESIDUAL)
- WR WEATHERED ROCK SEV. WEATHERED CRYSTALLINE ROCK

NOTE:
 BOULDERS IN ROADWAY EMBANKMENT FILL

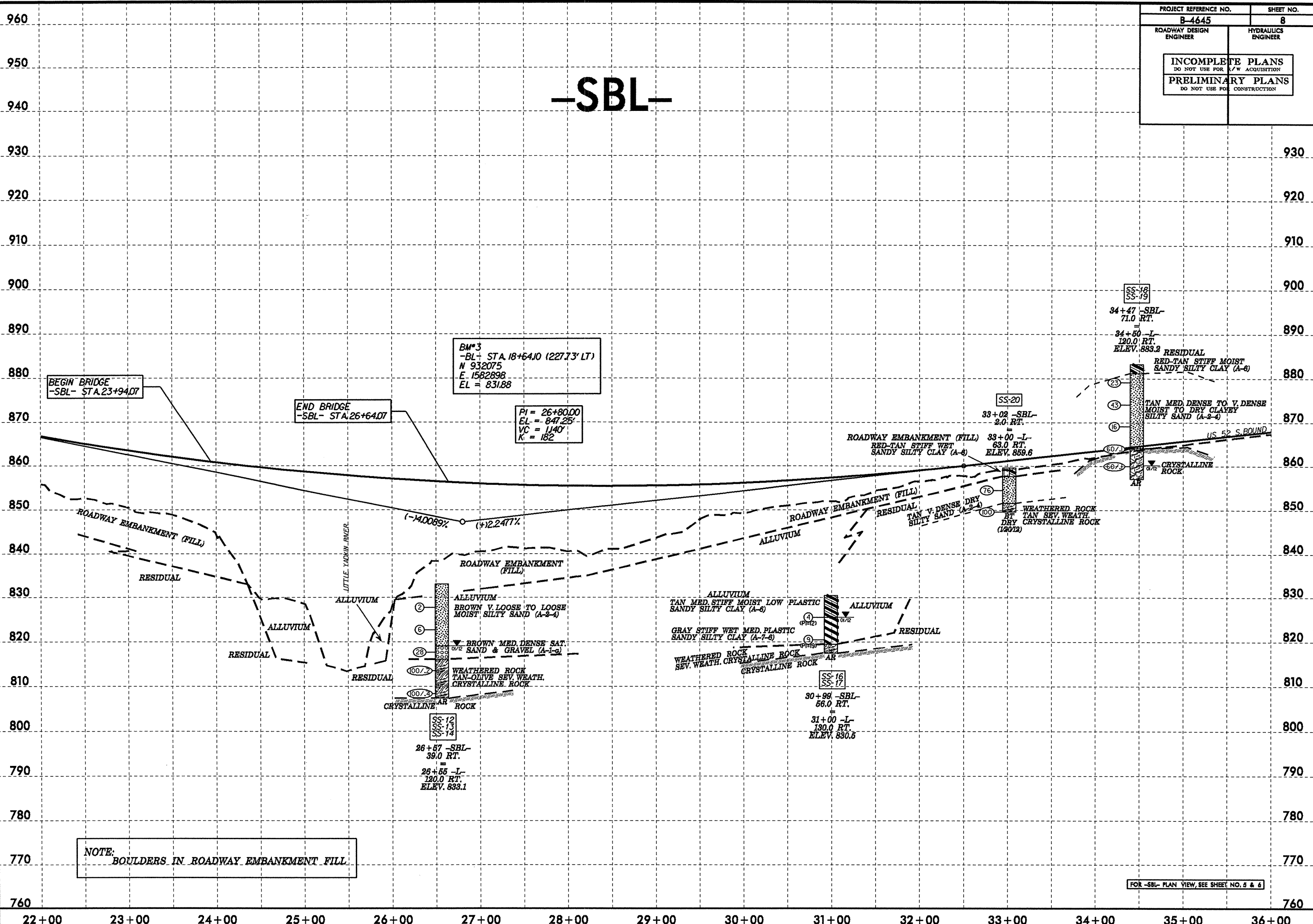


FOR -SBL- PLAN VIEW, SEE SHEET NO. 4 & 5

5/14/99
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| PROJECT REFERENCE NO. B-4645 | SHEET NO. 8 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION | |
| PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION | |

-SBL-



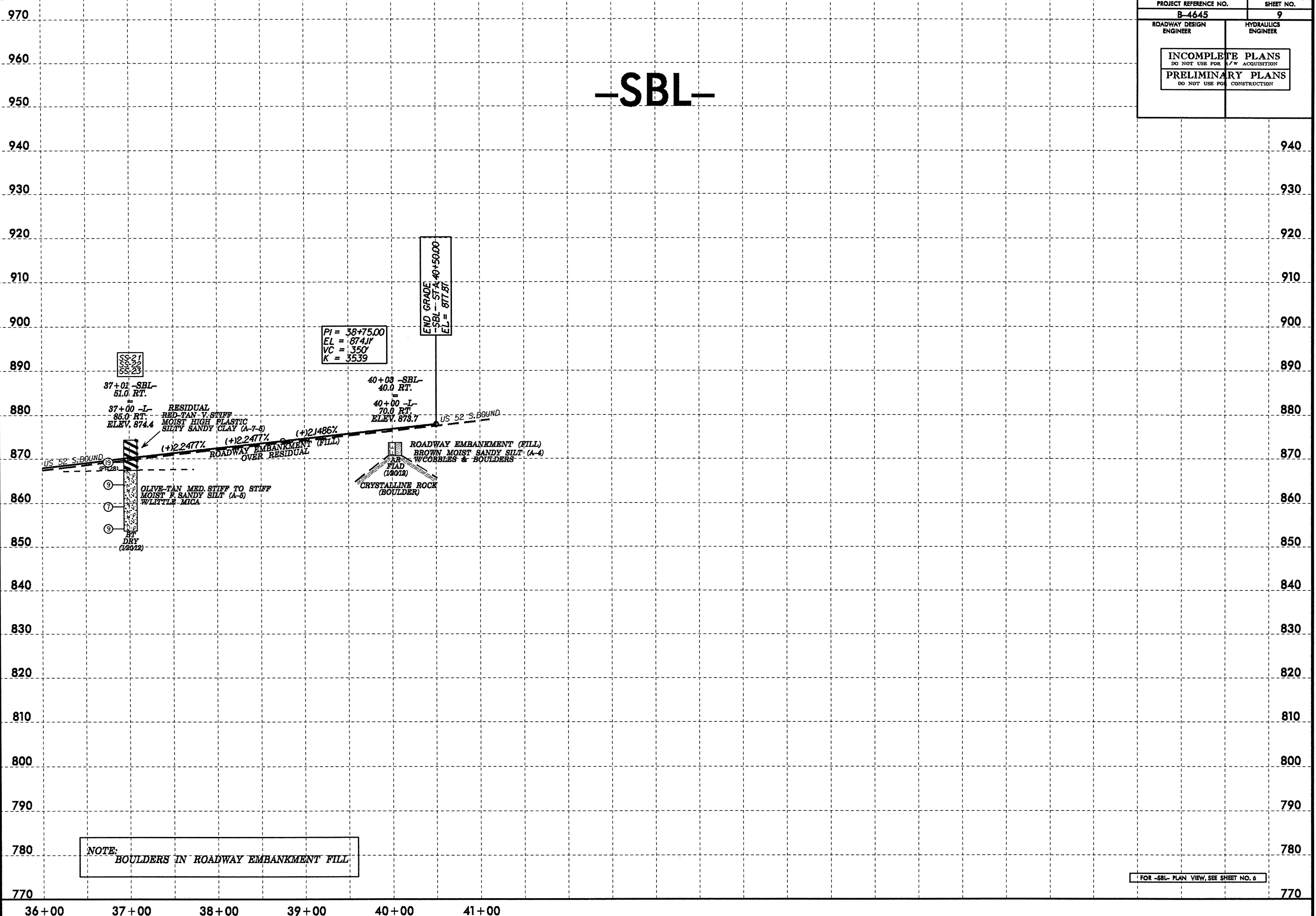
NOTE: BOULDERS IN ROADWAY EMBANKMENT FILL.

FOR -SBL- PLAN VIEW, SEE SHEET NO. 5 & 6

5/14/99
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| PROJECT REFERENCE NO. B-4645 | SHEET NO. 9 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION | |

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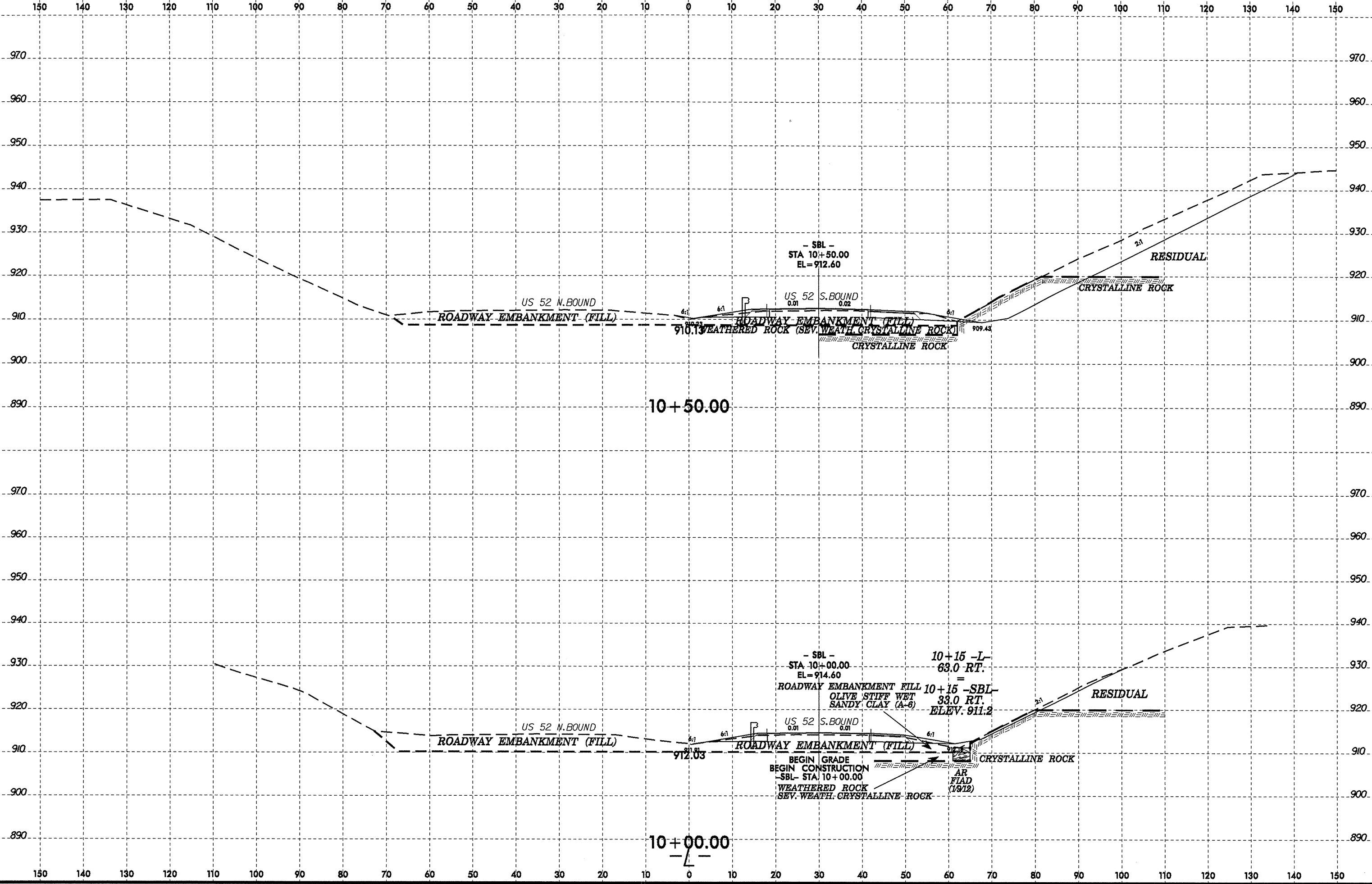


NOTE:
 BOULDERS IN ROADWAY EMBANKMENT FILL

FOR -SBL- PLAN VIEW, SEE SHEET NO. 6

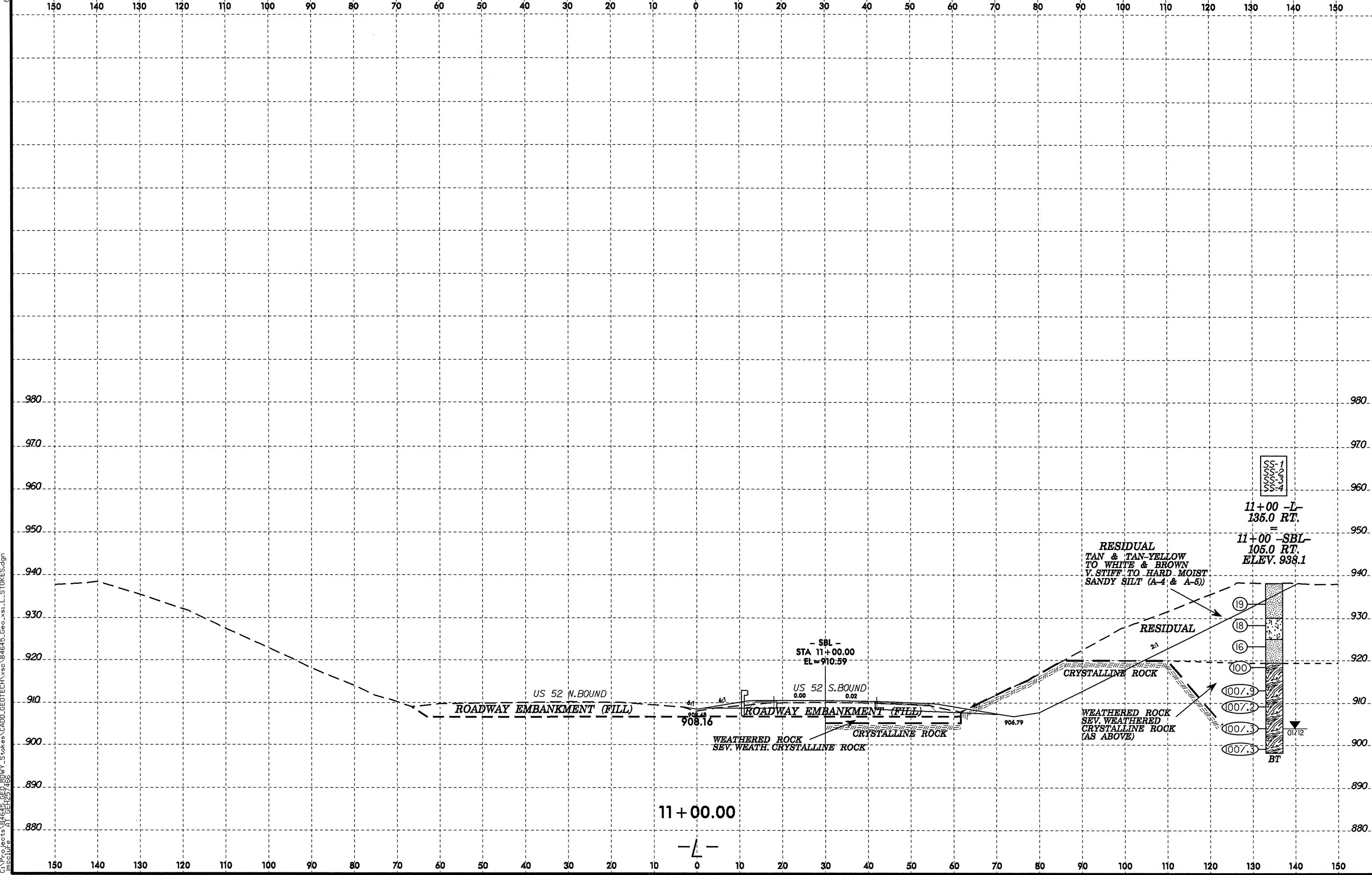
36+00 37+00 38+00 39+00 40+00 41+00

8/23/99



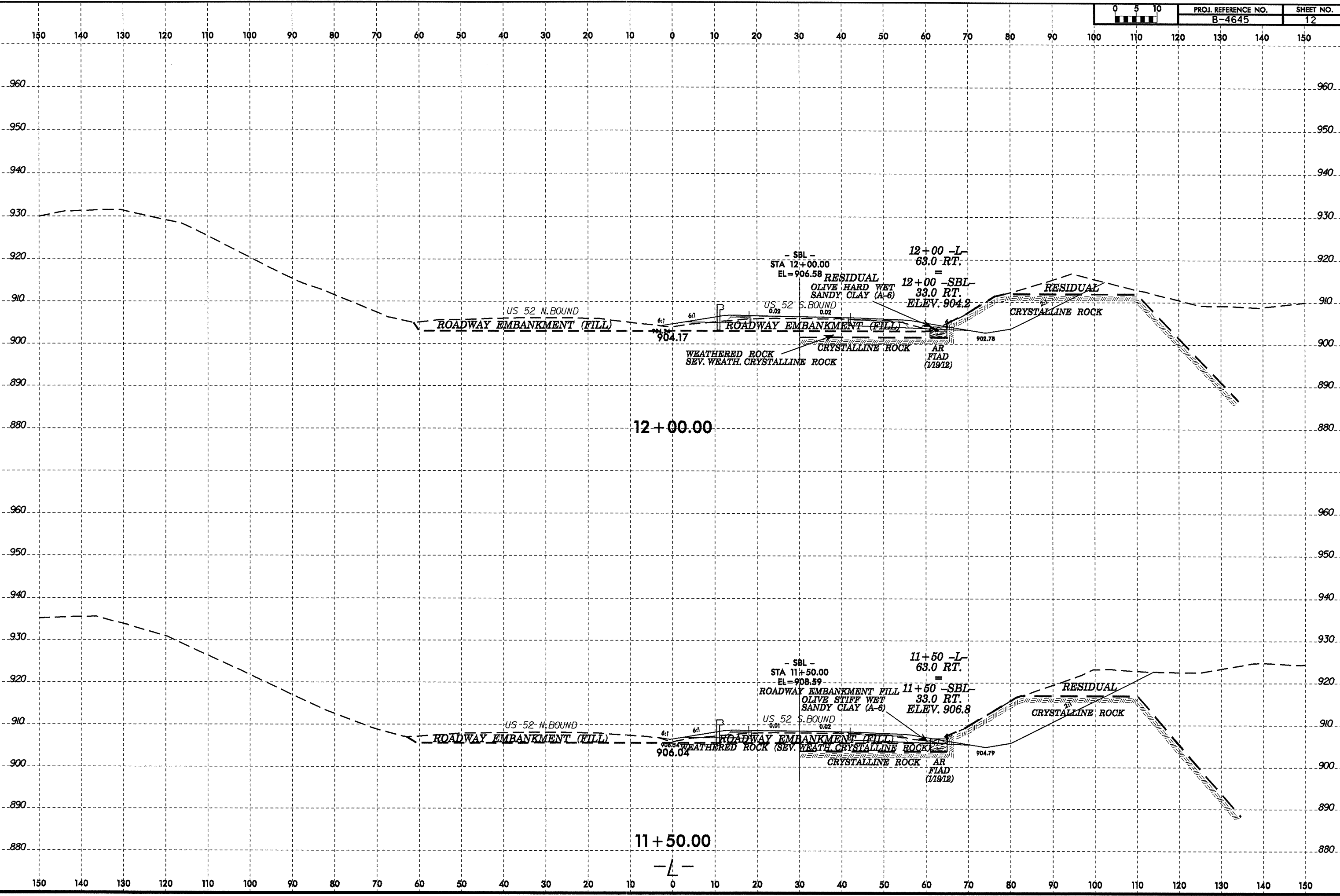
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8/23/99



05-MAR-2012 11:28 AM
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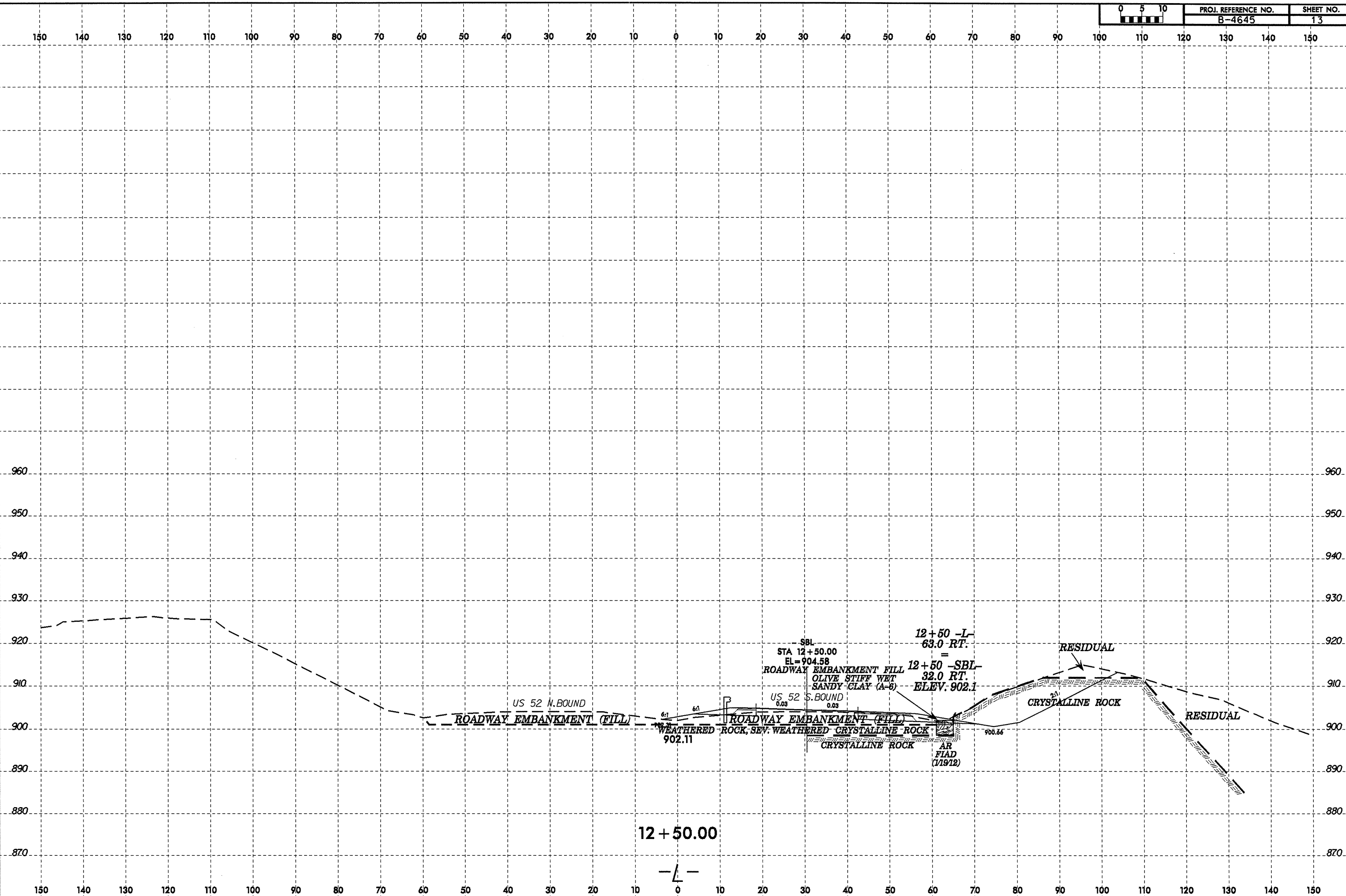
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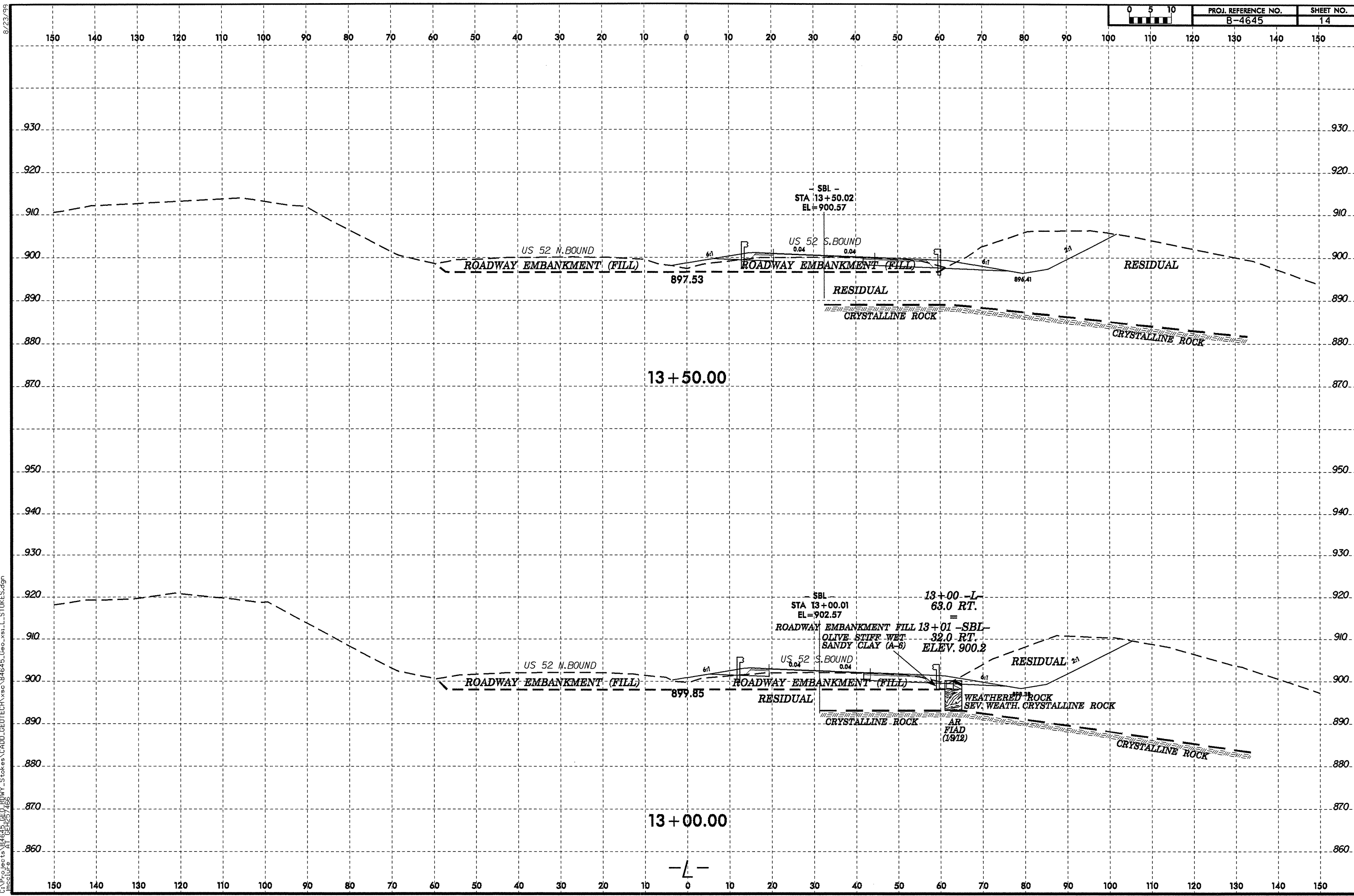
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| | B-4645 | 13 |



12 + 50.00

- L -



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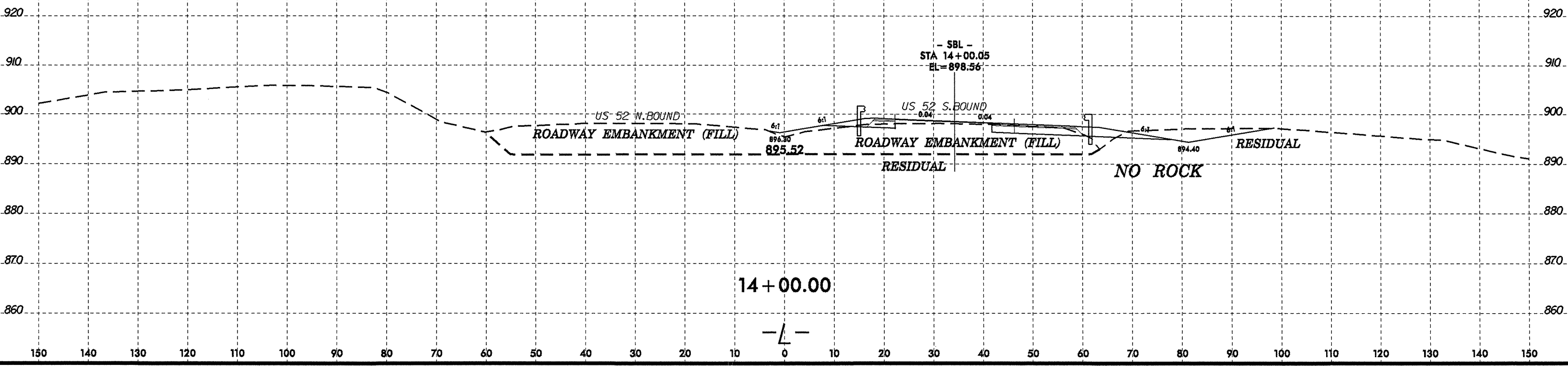
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8/23/99

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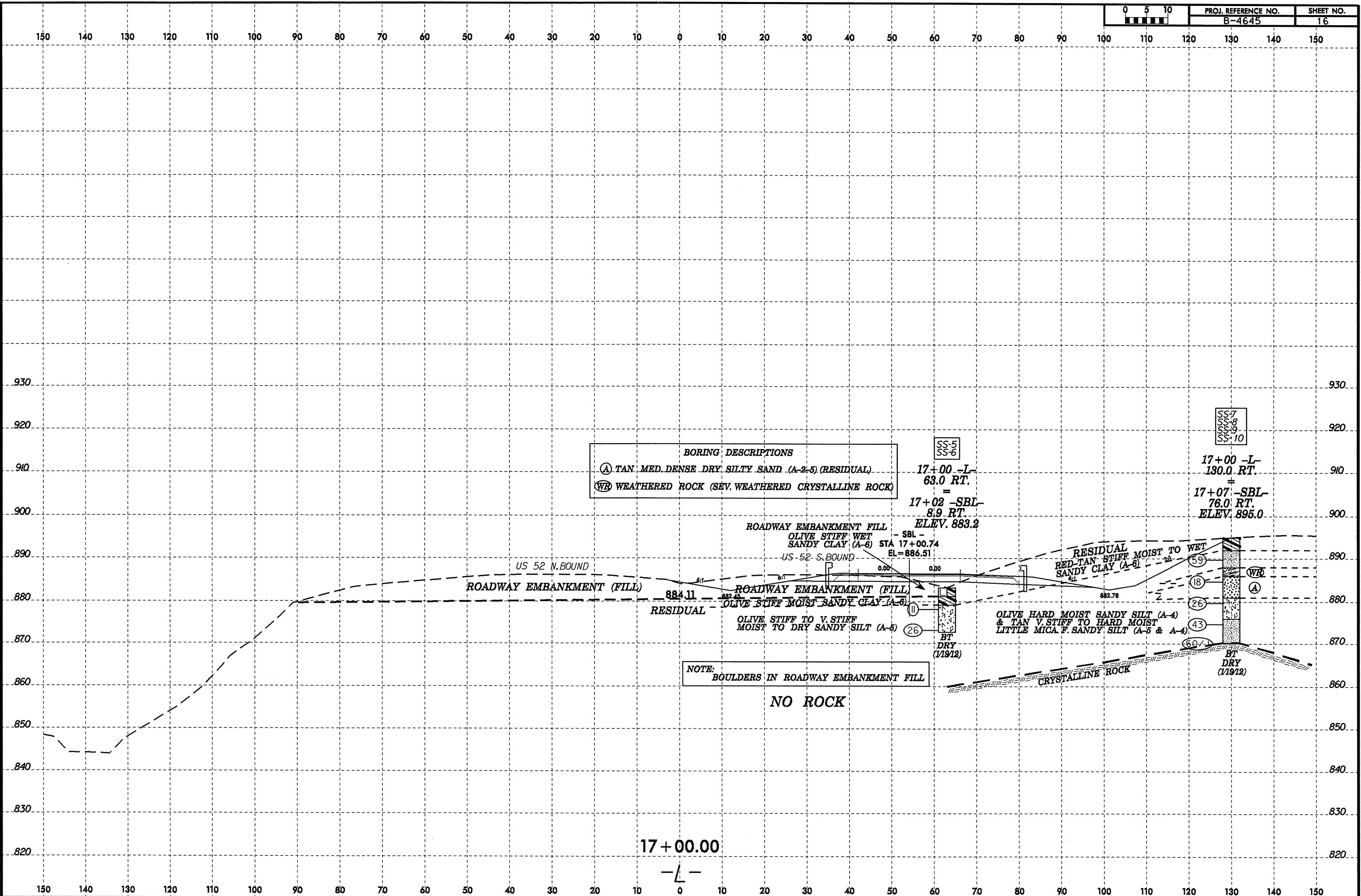
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14 + 00.00

- L -

06-MAR-2012 14:00 C:\Projects\B4645-Geo\B4645-Geo_xsi.L\STOKES.dgn



BORING DESCRIPTIONS
(A) TAN. MED. DENSE DRY SILTY SAND (A-2-5) (RESIDUAL)
(WR) WEATHERED ROCK (SEV. WEATHERED CRYSTALLINE ROCK)

SS-5
SS-6
17+00 -L-
63.0 RT.
= 17+02 -SBL-
8.9 RT.
ELEV. 883.2

SS-7
SS-8
SS-9
SS-10
17+00 -L-
130.0 RT.
= 17+07 -SBL-
76.0 RT.
ELEV. 895.0

NOTE:
BOULDERS IN ROADWAY EMBANKMENT FILL

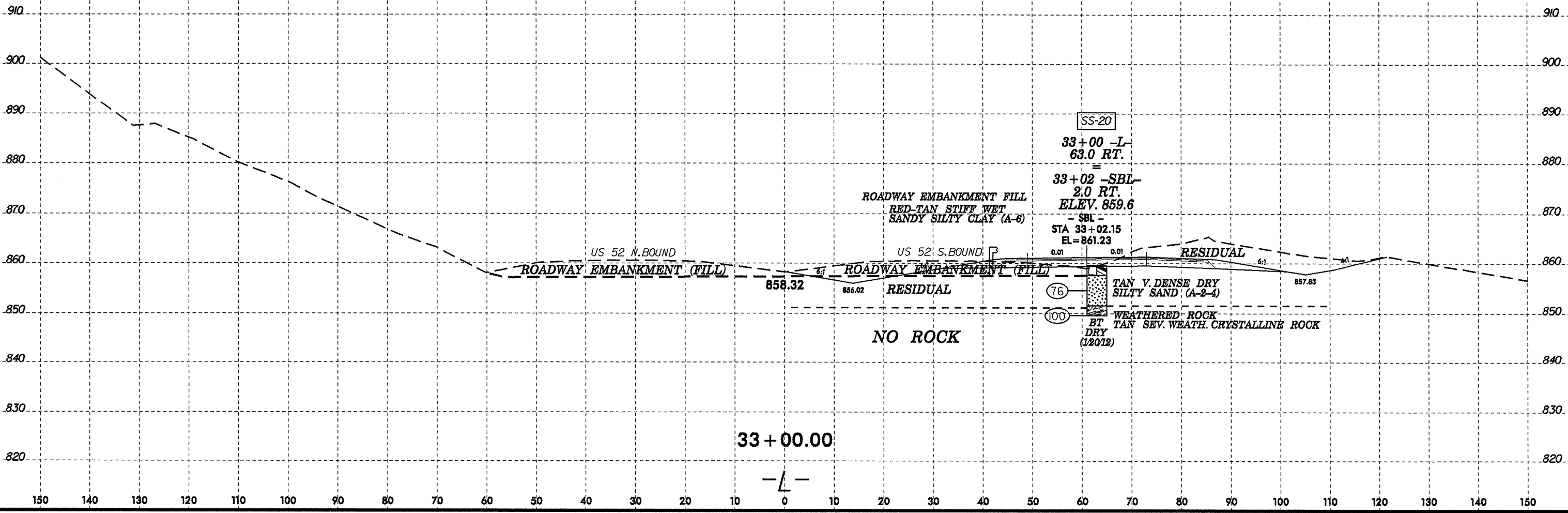
NO ROCK

17+00.00

-L-

8/23/99

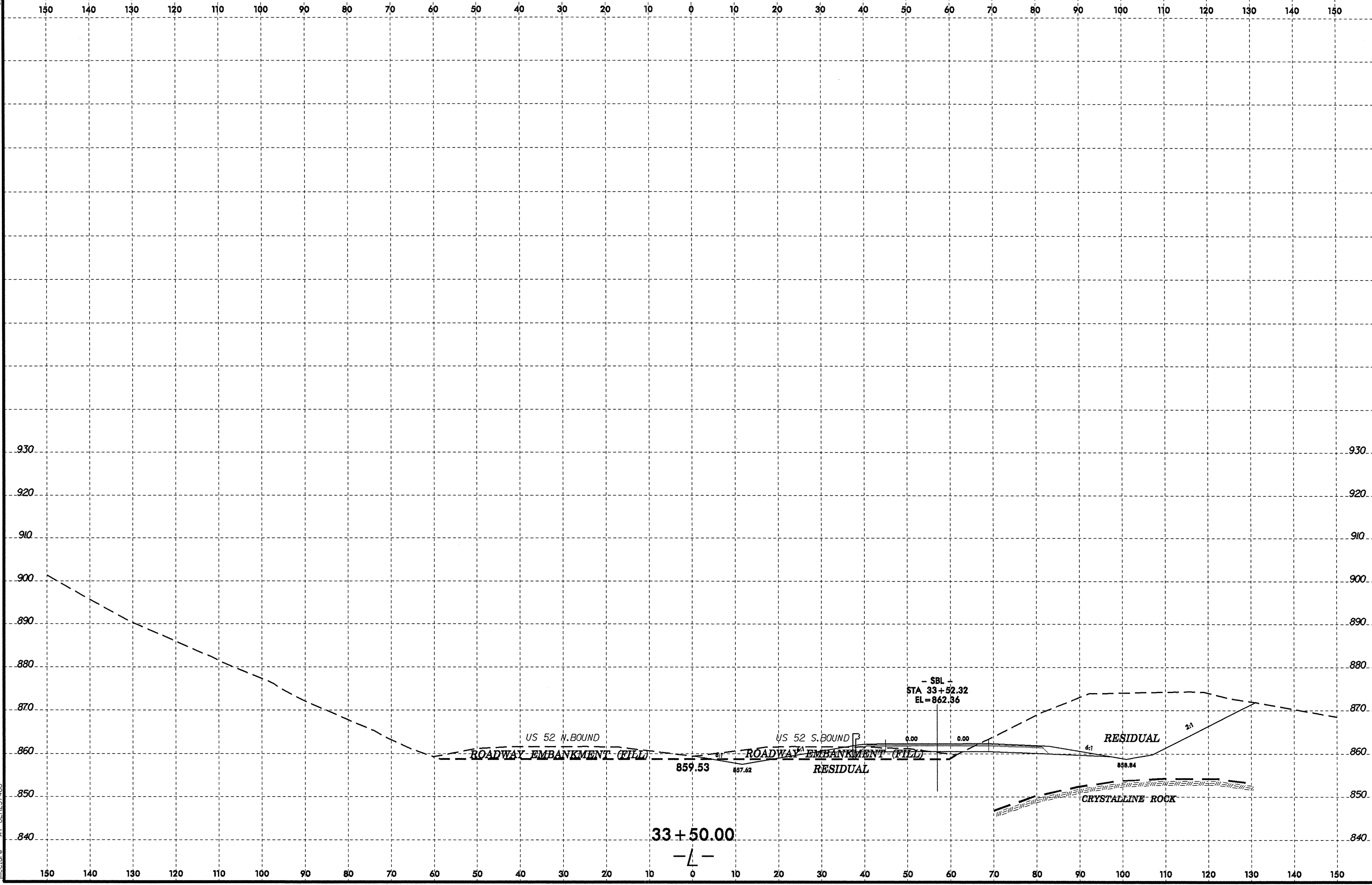
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| | B-4645 | 18 |



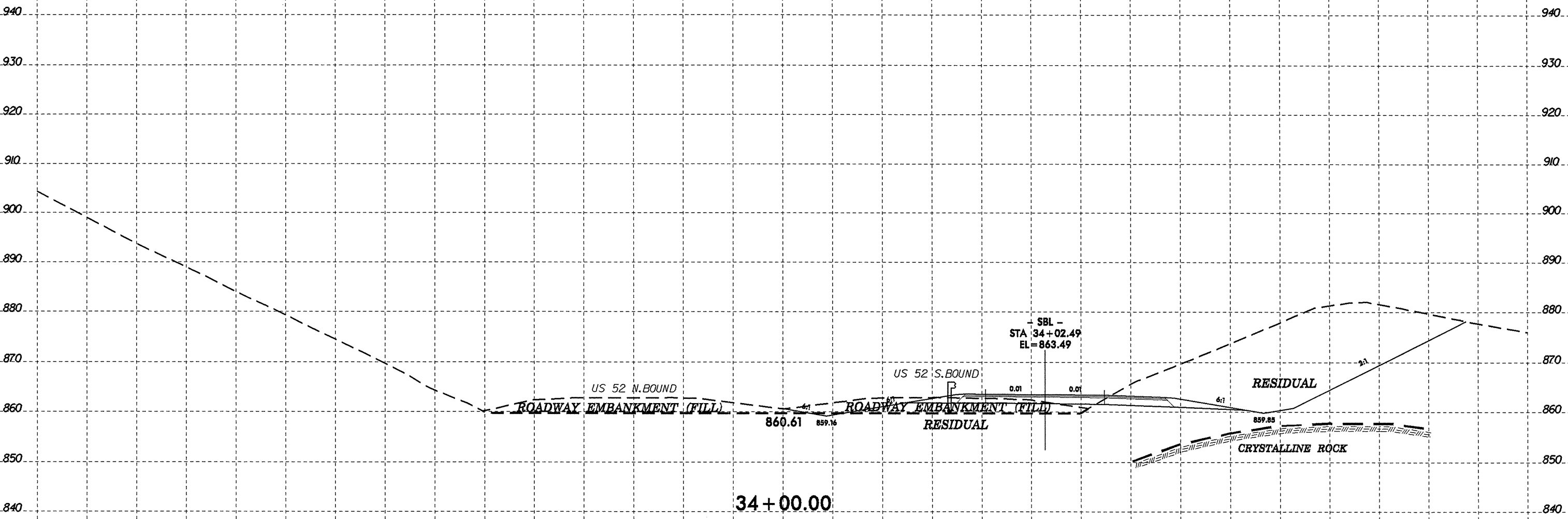
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PROJ. REFERENCE NO.
B-4645

SHEET NO.
19

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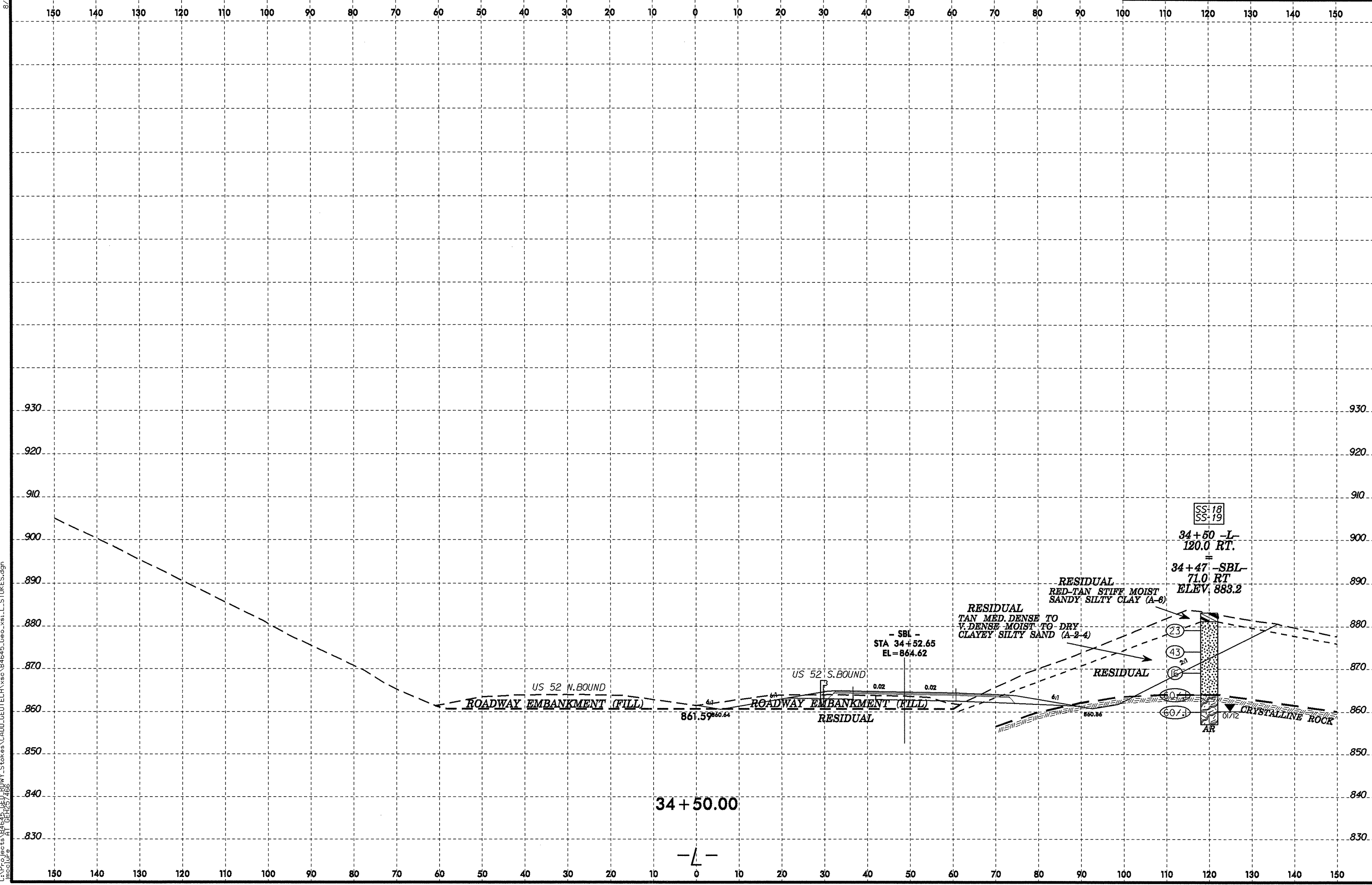


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11/25/98
imc@lpr

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

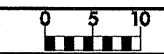
34 + 00.00
— L —

8/23/09



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8/23/98

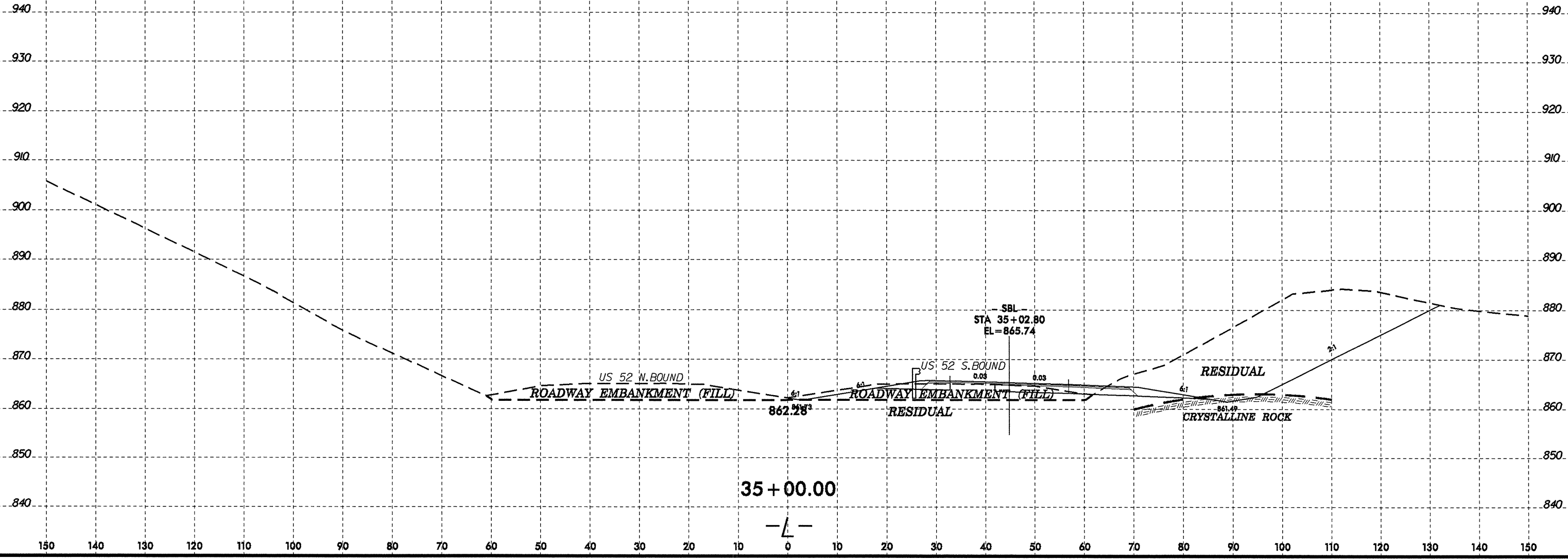


PROJ. REFERENCE NO.
B-4645

SHEET NO.
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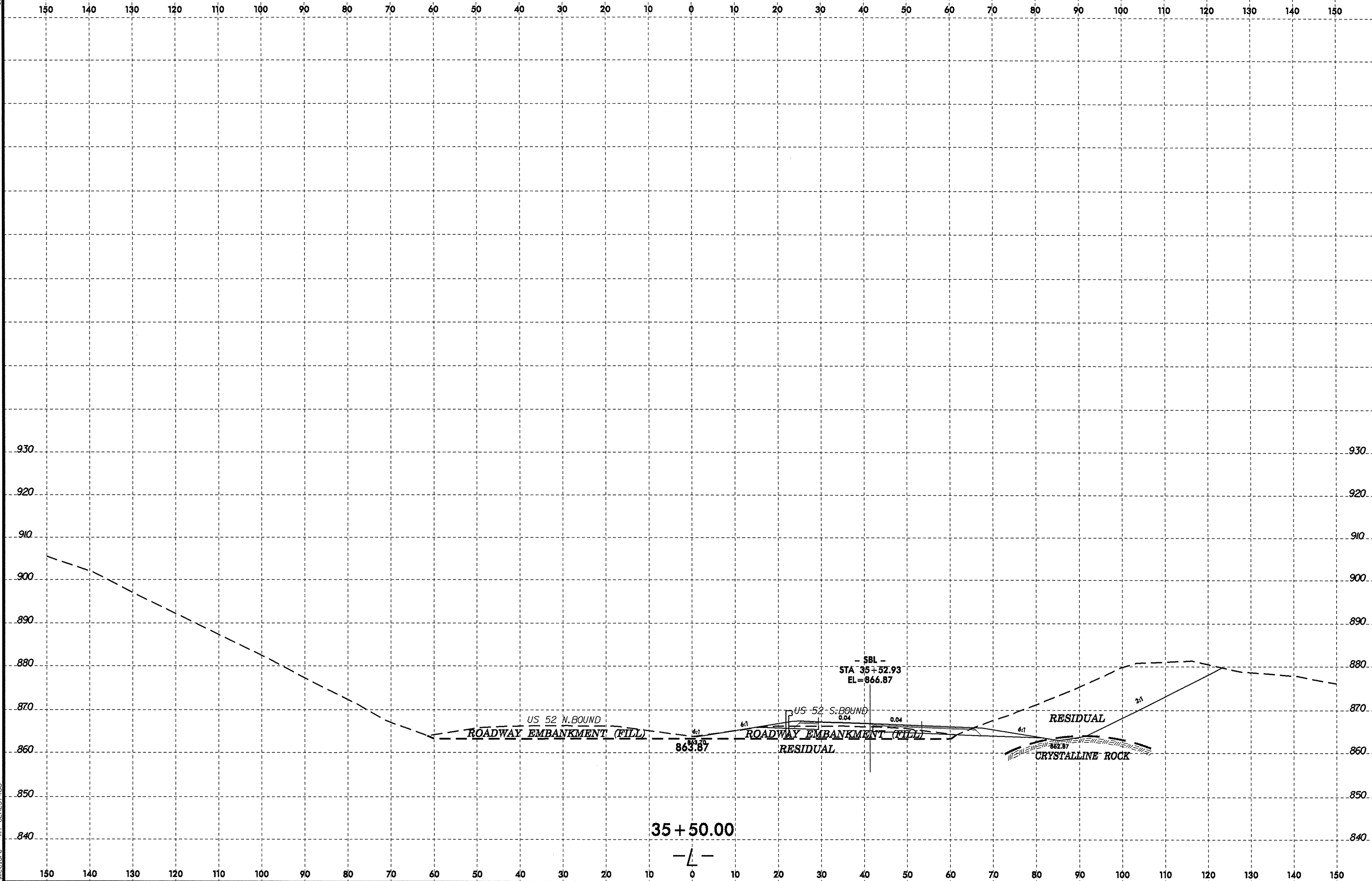
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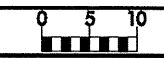


8/23/99
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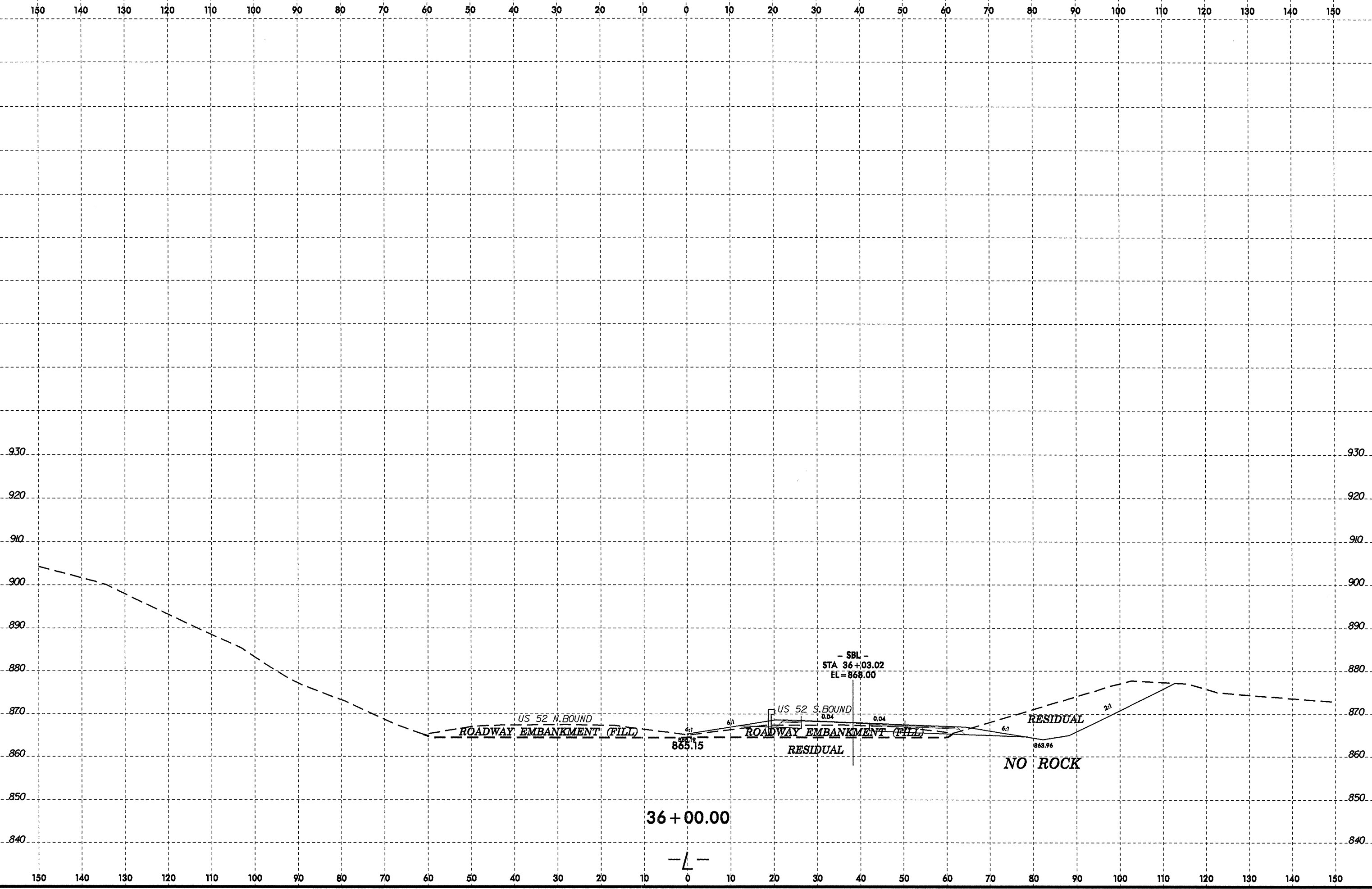
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| | B-4645 | 22 |



8/23/99



| | |
|---------------------|-----------|
| PROJ. REFERENCE NO. | SHEET NO. |
| B-4645 | 23 |



06-MAR-2002 14:27
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 imccur AT GEP27468

| SOIL TEST RESULTS | | | | | | | | | | | | | | | | Line or Boring ID |
|--------------------------|--------|---------|-------------------|------------------|------|------|-------------|--------|------|------|--------------------|----|-----|---------------|--------------|----------------------|
| SAMPLE NO. | OFFSET | STATION | DEPTH INTERVAL | AASHTO CLASS. | L.L. | P.I. | % BY WEIGHT | | | | % PASSING (SIEVES) | | | % MOISTURE | % ORGANIC | |
| | | | | | | | C.SAND | F.SAND | SILT | CLAY | 10 | 40 | 200 | | | |
| SS-1 | 135 RT | 11+00 | 3.7-5.2 | A-4(0) | 40 | NP | 13.9 | 40.4 | 37.6 | 8.0 | 100 | 96 | 50 | - | - | L |
| SS-2 | 135 RT | 11+00 | 8.7-10.2 | A-5(0) | 46 | NP | 12.1 | 46.7 | 35.2 | 6.0 | 100 | 97 | 47 | - | - | L |
| SS-3 | 135 RT | 11+00 | 13.7-15.2 | A-4(0) | 39 | NP | 8.2 | 47.3 | 36.4 | 8.0 | 100 | 98 | 51 | - | - | L |
| SS-4 | 135 RT | 11+00 | 18.7-20.2 | A-4(0) | 31 | NP | 15.7 | 42.5 | 37.8 | 4.0 | 99 | 93 | 44 | - | - | L |
| SS-5 | 63 RT | 17+00 | 4.0-5.5 | A-5(0) | 48 | NP | 13.9 | 48.5 | 31.6 | 6.0 | 100 | 98 | 42 | - | - | L |
| SS-6 | 63 RT | 17+00 | 9.0-10.5 | A-5(0) | 42 | NP | 12.9 | 45.7 | 35.4 | 6.0 | 99 | 95 | 45 | - | - | L |
| SS-7 | 130 RT | 17+00 | 4.3-5.8 | A-4(0) | 34 | NP | 19.3 | 45.3 | 31.4 | 4.0 | 99 | 92 | 37 | - | - | L |
| SS-8 | 130 RT | 17+00 | 9.3-10.8 | A-2-5(0) | 41 | NP | 22.3 | 46.3 | 29.4 | 2.0 | 70 | 62 | 24 | - | - | L |
| SS-9 | 130 RT | 17+00 | 14.3-15.8 | A-5(0) | 41 | NP | 9.3 | 51.9 | 34.8 | 4.0 | 97 | 95 | 42 | - | - | L |
| SS-10 | 130 RT | 17+00 | 19.3-20.8 | A-4(0) | 40 | NP | 8.5 | 52.1 | 35.4 | 4.0 | 100 | 99 | 44 | - | - | L |
| SS-12 | 120 RT | 26+55 | 4.4-5.9 | A-2-4(0) | 26 | NP | 35.8 | 47.6 | 12.6 | 4.0 | 100 | 94 | 17 | - | - | L |
| SS-13 | 120 RT | 26+55 | 9.4-10.9 | A-2-4(0) | 26 | NP | 23.5 | 48.9 | 13.5 | 14.1 | 100 | 97 | 28 | - | - | L |
| SS-14 | 120 RT | 26+55 | 14.4-15.9 | A-1-a(0) | 28 | NP | 60.6 | 22.7 | 14.7 | 2.0 | 33 | 18 | 6 | - | - | L |
| SS-16 | 130 RT | 31+00 | 4.0-5.5 | A-6(6) | 34 | 12 | 7.0 | 28.6 | 34.2 | 30.2 | 100 | 97 | 66 | - | - | L |
| SS-17 | 130 RT | 31+00 | 9.0-10.5 | A-7-6(15) | 42 | 19 | 3.0 | 17.7 | 37.0 | 42.3 | 100 | 99 | 80 | - | - | L |
| SS-18 | 120 RT | 34+50 | 3.1-4.6 | A-2-4(0) | 32 | NP | 33.4 | 33.0 | 23.5 | 10.1 | 95 | 77 | 33 | - | - | L |
| SS-19 | 120 RT | 34+50 | 8.1-9.6 | A-2-4(0) | 36 | NP | 30.0 | 35.0 | 27.0 | 8.0 | 79 | 65 | 30 | - | - | L |
| SS-20 | 63 RT | 33+00 | 4.0-5.5 | A-2-4(0) | 36 | NP | 29.0 | 39.8 | 25.2 | 6.0 | 91 | 76 | 29 | - | - | L |
| SS-21 | 85 RT | 37+00 | 4.2-5.7 | A-7-5(17) | 58 | 28 | 16.1 | 21.3 | 16.3 | 46.3 | 100 | 93 | 63 | - | - | L |
| SS-22 | 85 RT | 37+00 | 9.2-10.7 | A-5(1) | 56 | 6 | 11.3 | 49.3 | 31.4 | 8.0 | 100 | 96 | 43 | - | - | L |
| SS-23 | 85 RT | 37+00 | 14.2-15.7 | A-5(0) | 53 | NP | 20.3 | 45.7 | 26.0 | 8.0 | 100 | 93 | 36 | - | - | L |