

STORY COUNTY  
 BRIDGE REPLACEMENT-CCS  
 Proj. No. BRS-CHBP-C085(155)--GB-85  
 Letting Date Nov. 17, 2020

**PROJECT TRAFFIC CONTROL PLAN**

THIS ROAD WILL BE CLOSED TO THROUGH TRAFFIC DURING CONSTRUCTION. LOCAL TRAFFIC TO ADJACENT PROPERTIES WILL BE MAINTAINED AS PROVIDED FOR IN ARTICLE 1107.08 OF THE CURRENT STANDARD SPECIFICATIONS. TRAFFIC CONTROL DEVICES, PROCEDURES, LAYOUTS, SIGNING, AND PAVEMENT MARKINGS INSTALLED WITHIN THE LIMITS OF THIS PROJECT SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" AS ADOPTED BY THE DEPARTMENT PER 761 OF THE IOWA ADMINISTRATIVE CODE (IAC) CHAPTER 130.

ALL TRAFFIC CONTROL DEVICES SHALL BE FURNISHED, ERECTED, AND MAINTAINED BY THE CONTRACTOR.

DETOUR SIGNING TO BE FURNISHED, PLACED, AND MAINTAINED BY STORY COUNTY.

**UTILITIES INFORMATION**

IOWA REGIONAL UTILITIES ASSN.:  
 HEATHER LOSHAW: 641-792-7011  
 MIDLAND POWER COOP.:  
 BRUCE KEENEY: 515-386-4111  
 MINERVA VALLEY TELEPHONE & CABLE:  
 LEVI BAPPE: 641-487-7399  
 WINDSTREAM COMMUNICATIONS:  
 LOCATE DESK: 800-289-1901

**IOWA**  
**DEPARTMENT OF TRANSPORTATION**  
 Highway Division  
 PLANS OF PROPOSED IMPROVEMENT ON THE  
**FARM-TO-MARKET SYSTEM**  
**STORY COUNTY**  
**BRIDGE REPLACEMENT - CCS**

ON E18, OVER EAST INDIAN CREEK, ON  
 N. LINE OF SECTION 19-T85-R22.

Refer to Proposal Form for a list of applicable specifications.

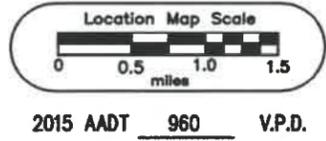
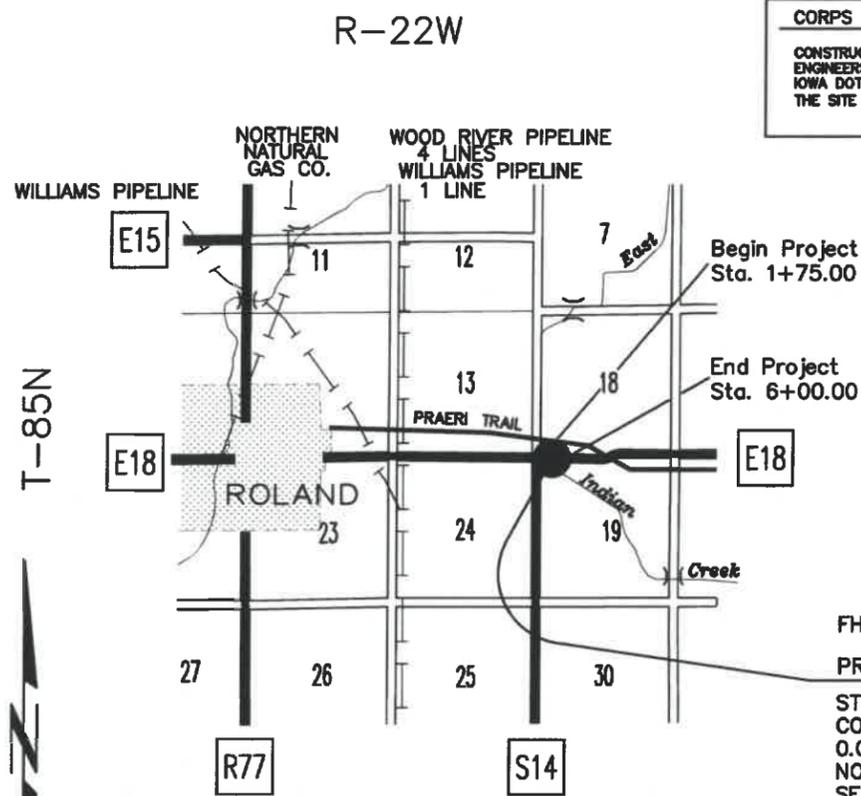
Scales: As Noted

**CORPS OF ENGINEERS PERMIT**

CONSTRUCT THIS PROJECT ACCORDING TO THE REQUIREMENTS OF U.S. ARMY CORPS OF ENGINEERS National Permit No. 14. A COPY OF THIS PERMIT IS AVAILABLE FROM THE IOWA DOT WEBSITE THE U.S. ARMY CORPS OF ENGINEERS RESERVES THE RIGHT TO VISIT THE SITE WITHOUT PRIOR NOTICE. (HTTP://WWW.ENVPERMITS.IOWADOT.GOV/).



SEND FALSEWORK DRAWINGS TO:  
 STORY COUNTY ENGINEER  
 837 N AVE.  
 NEVADA, IOWA 50201



DESIGN FOR:  
 THREE SPAN 80' x 30'  
 CONTINUOUS CONCRETE  
 SLAB BRIDGE ON 30' SKEW

FHWA No.: 316000  
 PROJECT LOCATION  
 STA 3+75.50; ON 130TH ST.;  
 COUNTY ROUTE E-18;  
 0.07 MILES EAST OF THE  
 NORTHWEST CORNER OF  
 SECTION 19-85-22.

Accepted by  
*Dawn Moore* 8-17-20  
 Story County Engineer Date

Project No. BRS-CHBP-C085(155)--GB-85  
 FHWA No.: 316000

INDEX OF SHEETS	
No.	Description
A.01	TITLE SHEET
C.01-.02	QUANTITY INFORMATION SHEETS
C.03	GENERAL NOTES SHEET
C.04	TYPICAL SECTIONS SHEET
C.05-.06	TABULATIONS SHEET
C.07	SOUNDING DATA SHEET
D.01	PLAN AND PROFILE SHEET
V.01	SITUATION PLAN SHEET
V.02	SUPERSTRUCTURE DATA SHEET
W.01-.06	CROSS SECTION SHEETS

MILEAGE SUMMARY			
Div.	Location	Lin. Ft.	Miles
I	STA. 1+75.00 TO STA. 6+00.00	425.00	0.080
Total		425.00	0.080

STANDARD ROAD PLANS		
Number	Date	Title
BA-200	04-18-19	STEEL BEAM GUARDRAIL COMPONENTS
BA-201	04-18-17	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION (MASH TL-3)
BA-202	04-21-15	STEEL BEAM GUARDRAIL BOLTED END ANCHOR
BR-101	04-21-15	BRIDGE APPROACH SECTION (GENERAL DETAILS)
BR-121	04-21-15	BRIDGE APPROACH DETAILS (SECONDARY ROADS)
DR-302	10-20-15	SUBDRAINS STANDARD (FARM TILE REPLACEMENT)
EC-201	10-15-19	SILT FENCE
EC-204	04-21-20	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICES
EW-101	10-17-17	EMBANKMENT AND REBUILDING EMBANKMENTS
EW-102	10-20-15	ALLOWABLE PLACEMENT OF UNSUITABLE SOILS IN EMBANKMENTS
EW-301	10-20-15	GUARDRAIL GRADING
EW-401	10-20-15	TEMPORARY STREAM CROSSING, CAUSEWAY, OR EQUIPMENT PAD
EW-501	10-20-15	RURAL ENTRANCES
PM-110	04-21-20	LINE TYPES
SI-173	04-19-16	OBJECT MARKERS
SI-211	10-18-16	OBJECT MARKER AND DELINEATOR PLACEMENT WITH GUARDRAIL
LS-625	04-19-16	STEEL BEAM GUARDRAIL INSTALLATION TANGENT END TERMINAL (NCHRP 350 TL-3)
LS-630	10-18-16	STEEL BEAM GUARDRAIL INSTALLATION AT BRIDGE END RAIL (NCHRP 350 TL-3)
TC-252	04-21-20	ROUTES CLOSED TO TRAFFIC

STANDARD BRIDGE PLANS							
Sheet	Revised	Sheet	Revised	Sheet	Revised	Sheet	Revised
J30-01A-08	08-13	J30-22-08	07-09	J30-39-08	07-08	J30-48-08	09-14
J30-04E-08	07-18	J30-23-08	05-14	J30-43-08	12-08	J30-48-08	07-18
J30-05E-08	07-09	J30-24-08	07-09	J30-44-08	07-16	P10L	07-19
J30-20-08	06-12	J30-36-08	06-13	J30-45-08	12-08		

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signed: *Tyler Sparks* 8-14-2020  
 Date: 8-14-2020  
 Tyler Sparks, P.E. 21419  
 My license renewal date is December 31, 2020

Pages or sheets covered by this seal:  
 (Entire submission unless specified here)

Approved Story County Board of Supervisors

ESTIMATED PROJECT QUANTITIES OF QUANTITIES  
(1 DIVISION PROJECT)

ITEM	ITEM CODE	ITEM	UNIT	TOTAL
1	2101-0850001	CLEARING AND GRUBBING	ACRE	0.7
2	2102-0425070	SPECIAL BACKFILL	TON	93.5
3	2102-2710070	EXCAVATION, CL 10, ROADWAY AND BORROW	CY	1060.3
4	2102-2710090	EXCAVATION, CL 10, WASTE	CY	396.3
5	2104-2710020	EXCAVATION, CL 10, CHANNEL	CY	25.0
6	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD	CY	221.0
7	2121-7425020	GRANULAR SHOULDERS, TYPE B	TON	58.5
8	2123-7450020	SHOULDER FINISHING, EARTH	STA	2.43
9	2301-0690220	BRIDGE APPROACH, SECONDARY ROADS	SY	116.9
10	2301-1033090	STANDARD OR SLIP FORM PORTLAND CEMENT CONCRETE PAVEMENT, CLASS C, CLASS 3 DURABILITY, 9 IN.	SY	195.6
11	2401-6745625	REMOVAL OF EXISTING BRIDGE	LS	1.00
12	2402-2720000	EXCAVATION, CLASS 20	CY	99.5
13	2403-0100010	STRUCTURAL CONCRETE (BRIDGE)	CY	189.1
14	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	47,721
15	2414-6424124	CONCRETE OPEN RAILING, TL-4	LF	182.9
16	2417-1040024	CULVERT, CORRUGATED METAL ENTRANCE PIPE, 24 IN. DIA.	LF	280.0
17	2501-0201042	PILES, STEEL, HP 10 X 42	LF	910.0
18	2501-5478042	CONCRETE ENCASMENT OF STEEL H PILES, HP 10 X 42 (P10L TYPE 3)	LF	150.9
19	2502-8215112	SUBDRAIN, CORRUGATED METAL PIPE, 12 IN. DIA.	LF	30.0
20	2505-4008410	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION, BA-201	EACH	4
21	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED	EACH	4
22	2505-4021710	STEEL BEAM GUARDRAIL TANGENT END TERMINAL, LS-625	EACH	4
23	2507-3250005	ENGINEER FABRIC	SY	646.1
24	2507-6800061	REVTMENT, CLASS E	TON	589.0
25	2510-6745850	REMOVAL OF PAVEMENT	SY	436.5
26	2527-9263109	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED	STA	4.62
27	2528-2518000	SAFETY CLOSURE	EACH	4
28	2528-8445110	TRAFFIC CONTROL	LS	1.00
29	2533-4980005	MOBILIZATION	LS	1.00
30	2601-2634100	MULCHING	ACRE	0.4
31	2601-2636015	NATIVE GRASS SEEDING	ACRE	0.4
32	2602-0000030	SILT FENCE FOR DITCH CHECKS	LF	240
33	2602-0000101	MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS	LF	240
34	2602-0000312	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICES	LF	200
35	2602-0010010	MOBILIZATIONS, EROSION CONTROL	EACH	1.00
36	2602-0010020	MOBILIZATIONS, EMERGENCY EROSION CONTROL	EACH	1.00

ESTIMATE REFERENCE INFORMATION

ITEM NO.	DESCRIPTION
1.	The entire project shall be cleared and grubbed from BOP to EOP and from ROW line to ROW line.
2.	Material is to be used as bridge approach pavement subbase. Contractor shall place Special Backfill using methods and precautions outlined in Section 2102. See roadway typical on Sheet C.04 for limits and dimensions.
3.-4.	Plan quantity is based on approximately 629.0 CY of fill (includes a 30% shrink factor), 35.0 CY for earth shoulder construction, 1060.3 CY of cut, and 396.3 CY of waste. Excess waste to become the property of the Contractor and removed from site. Type A compaction required. Includes quantities for bridge guardrail blisters. See tabulation on Sheet C.05 for blister details. Finished grades on all slopes and ditches shall be left low to accept topsoil thickness. No payment for overhaul will be made. See Cross Section sheets for station-by-station dirt quantities.
5.	Item for excavation below the classification line (streambed) for shaping the channel. Excavated material may be used as fill for any channel relocation or drained and used on roadway foreslopes. Quantity was estimated using proposed channel width from ROW line to ROW line. See situation plan and section on Sheet V.01 for dimensions.
6.	Item for the stockpiling and spreading of the topsoil. Contractor shall meet requirements for topsoil conservation practices. Topsoil to be spread to a minimum 4" on all disturbed areas from catch lines to the shoulders. Slopes to be finished smooth to allow for seeding. See tabulation on Sheet C.06 for quantity estimates and locations. It is assumed that the topsoil quantity is onsite.
7.	Item for the construction of granular shoulders. See typical section on Sheet C.04 for stationing and dimensions. Quantity was estimated using 140 pcf.
8.	Item for placing and finishing earth shoulders. See typical section on Sheet C.04 for stationing and dimensions. Quantity includes both left and right shoulder finishing. Class A compaction is required. Contractor shall use suitable onsite Class 10 Excavation to finish shoulders.
9.	Item for the construction of bridge approach paving. See tabulation on Sheet C.02 and Standard Road Plan BR-121 for details. Approaches will require 11.5 Tons of paving subbase.
10.	Certified Plant Inspection (CPI) shall apply. Item is for PCC roadway paving that abuts the reinforced bridge approach sections at each end of the proposed bridge. Contractor may use maturity method for determining time of opening. See typical section on Sheet C.04 and for stationing and dimensions. Paving will require 20.0 Tons of paving subbase.
11.	Contractor to remove an existing 26'x24' steel beam bridge with concrete deck and concrete high-wall abutments on a 30' skew at Sta. 3+75.50. Materials from the old structure shall become the property of the Contractor according to article 1104.08 of the Standard Specifications, and removed from site.
12.	Item for abutment footings excavation. Roadway Contractor shall have abutment berms built to the construction limits and dimensions shown in these plans prior to excavating for abutments. Quantity includes 99.5 cy for both abutments.
13.	Certified Plant Inspection (CPI) shall be included in bid price for Structural Concrete. Bridge deck concrete shall be Class C; substitution of Class D concrete is not allowed. Article 2428 deck smoothness requirements do not apply on this project. No additional payment will be allowed for heating and protecting of concrete, if necessary.
15.	Certified Plant Inspection (CPI) is required. Open rail concrete shall be Class C; no substitutions allowed.
16.	Item for the furnishing and placing of ditch culverts as per plan. See Sheet D.01 for plan view, and tabulation on Sheet C.05 for stationing and quantities. Material yardage for backfilling these culverts is already included in the Class 10 quantity. County will provide grade stakes for installation.
17.	See Pile Notes on Sheet C.03 and situation view on Sheet V.01 for details. Driving points are required, and shall be welded on in the field.
18.	Item for encasement of Type 3, P10L piling. Contractor may use either square or round encasement as per P10L specifications. See Sheet V.01 for dimensions per pile. Any excavation necessary for encasements shall be included in bid price for encasement. Cap steel is required.
23.	Item for placing fabric under revetment. All fabric laps should have upslope lap on top.
24.	Item for placing revetment stone on abutment berms and steep ditch slopes adjacent to the berms. See situation plan on Sheet V.01 for details. Quantity includes 115.8 Tons on the west bridge berm, 115.7 Tons on the east bridge berm, 173.7 Tons on the west ditch slopes, and 183.8 Tons on the east ditch slopes (all 1½ feet thick).
25.	Item includes 220.0 sy of existing 11" thick HMA from Sta. 2+72.84 to Sta. 3+62.82, and 216.5 sy of existing 11" thick HMA from Sta. 3+89.57 to Sta. 4+78.16. See Tabulation 110-1 on Sheet C.05 for further details. Item includes sawcuts.

## GENERAL NOTES

**SPECIFICATIONS:**

Design: AASHTO LRFD, Series 2004 with Interim 2005.

Construction: Iowa Department of Transportation Standard Specifications For Highway and Bridge Construction, Series 2015, plus applicable General Supplemental Specifications, Developmental Specifications, Supplemental Specifications and Special Provisions shall apply to construction work on this project.

**DESIGN STRESSES:**

Design stresses for the following materials are in accordance with the AASHTO LRFD Bridge Design Specifications, 3rd Ed., Series 2004:  
 Reinforcing steel in accordance with LRFD AASHTO Section 5, Grade 60.  
 Concrete in accordance with LRFD AASHTO Section 5, f'c = 3,500 psi.  
 Structural steel in accordance with LRFD AASHTO Section 6.  
 ASTM A709 Grade 36 or Grade 50 (AASHTO M270 Grade 36 or Grade 50').  
 n=9 for tension steel.  
 2n=18 for compression steel.  
 HL-93 live load plus 20 lbs. per sq. ft. for future wearing surface.  
 End span length is used to calculate equivalent width in live load distribution.  
 Six foot of approach slab dead & live load included in abutment loads.  
 Control of cracking by distribution of reinforcement for slab design based on pre 2005 LRFD Interims.

**GENERAL NOTES:**

Contractor to construct a three-span 80'x30' reinforced concrete slab bridge on a 30' skew on 130th St. (E-18) over East Indian Creek, and grade and pave the approaches. The bridge is an Iowa DOT standard J-Series. Standard Bridge Plans and Standard Road plans are available from the Iowa Department of Transportation website at <http://www.iowadot.gov/eri/index.html>

It shall be the contractor's responsibility to provide waste areas or disposal sites for excess material (excavated material or broken concrete) which is not desirable to be incorporated into the work involved on this project. These areas shall not impact wetlands or "Waters Of The U.S." No payment for overhaul will be allowed for material hauled to these sites. No material shall be placed within the right-of-way, unless specifically stated in the plans.

The prime Contractor shall be responsible for all erosion control measures and shall employ controls to reduce the erosiveness of the soils in the construction area adjacent to surface waters and wetlands, including placing and maintaining erosion control measures during and after construction.

**CONTRACTOR'S WORK AREA:**

The Contractor's work and material storage area shall be defined by the Contractor and noted to the Engineer. Upon project completion, the Contractor shall restore these areas to their original condition. Payment for any restorative work shall be paid for under the "Class 10 Excavation" bid item. Areas outside the Contractor's defined work and material storage areas that are disturbed by the Contractor shall be restored to their original condition by the Contractor and no additional payment shall be made for this work.

**STREAM CROSSING NOTES:**

The Contractor is encouraged to conduct construction activities during periods of low flow. Any temporary stream crossings shall include enough culverts to accommodate low flows and must be removed after completion of work on this project. Temporary stream crossings shall be constructed in accordance with Standard Road Plan EW-401.

Construction of any necessary stream crossing shall be done to prevent the dumping or spilling of material into streams, wetlands, or other bodies of water except as approved herein.

The Contractor shall employ measures to ensure that no petroleum products, chemicals, or other deleterious materials enter streams, wetlands, or other bodies of water.

Construction activities, equipment, and materials shall be kept out of the streams, wetlands, or other bodies of water to the maximum extent practicable.

**UTILITY NOTES:**

The Contractor shall call One Call at least 48 hours prior to beginning work. Utility companies found to be located with in the construction area are listed on the title sheet of these plans. See Section 1107.15 of the Iowa DOT Standard Specifications For Highway And Bridge Construction, Series 2015, regarding utility related responsibilities.

**PROPERTY ACCESS:**

Contractor shall maintain access to individual properties during construction. This work shall be considered incidental to this project.

**GENERAL PILE NOTES:**

Sounding and test boring data shown on these plans were accumulated for designing and estimating purposes. Their inclusion in these plans does not constitute a guarantee that conditions other than those indicated will not be encountered. For Piers subject to scour, the design bearing shall be obtained below the scour elevation. The scour elevation is calculated and shown on the Situation Plan on Sheet V.01.

This project uses the Load and Resistance Factor Design (LRFD) methodology for determining pile contract length and nominal axial bearing resistance. Nominal axial bearing resistances will be larger than bearing values in the past, but construction control blow counts will be approximately the same. The County will manage construction control with the WEAP analysis formula that gives the relationship between required nominal axial bearing resistance and blow count.

For the Contractor's bidding purposes, particularly for the sizing of the pile driving hammer, the approximate previous design methodology bearing values at End of Drive (EOD) are given below. These values shall not be used for construction control and are given only for comparative purposes.

Piling points are required due to embedment in rock and shall be welded on in the field.

**PILE DESIGN NOTES:**

The contract length of 35 feet for the Abut piles is based on a mixed soil classification, a total factored axial load per pile (Pu) of 70.0 kips, and a geotechnical resistance factor (Phi) of 0.65 for soil and 0.70 for rock end bearing. The nominal axial bearing resistance for construction control was determined from a mixed soil classification and a geotechnical resistance factor (Phi) of 0.65 for soil and 0.70 for rock end bearing. Piles are assumed to be driven from a start elevation at the bottom of footing.

The contract length of 35 feet for the Pier piles is based on a mixed soil classification, a total factored axial load per pile (Pu) of 100.0 kips, and a geotechnical resistance factor (Phi) of 0.65 and 0.70 for rock end bearing. The nominal axial bearing resistance for construction control was determined from a mixed soil classification and a geotechnical resistance factor (Phi) of 0.65. Design scour (100-year) was assumed to affect the upper 3.8 feet of embedded pile length and cause 2 kips of driving resistance.

**PILE DRIVING NOTES:**

The required nominal axial bearing resistance for Abut piles is 53 tons at End of Drive. The pile contract length shall be driven as per plan. Abut piles are to be driven a minimum of 3 feet into weathered limestone, or to full penetration where practical. Construction control requires a WEAP analysis with bearing graph, supplied by the County. Driving points shall be required in accordance with Material IM 468 and the cost shall be included in price bid for "Piles, Steel, HP 10 X 42" item.

The required nominal axial bearing resistance for Pier piles is 74 tons at End of Drive. The pile contract length shall be driven as per plan. Pier piles are to be driven a minimum of 3 feet into weathered limestone, or to full penetration where practical. Construction control requires a WEAP analysis with bearing graph, supplied by the County. Driving points shall be required in accordance with Material IM 468 and the cost shall be included in price bid for "Piles, Steel, HP 10 X 42" item.

**HAZARDOUS MATERIALS NOTES:**

A scrape sample was taken from one area of this bridge to get an indication of the existence of the level of total Chromium and total Lead. Analysis of total Lead on this sample was 280,000 parts per million (PPM). Analysis of total Chromium on this sample was 486 PPM. These analyses show the existence of these two toxic constituents. Levels indicated by these tests could create conditions above regulatory limits for health and safety requirements. No other constituents were analyzed. The bidder should not rely on the Department's testing and analysis for any purpose other than as an indication of the existence of these two toxic constituents.

The Contractor shall exercise care during the removal of existing structures to prevent any paint from coming off of painted surfaces. Should any paint come off, the Contractor shall collect and dispose of the paint according to Section 2508 of the Standard Specifications.

Before delivery of any salvaged materials that may contain toxic constituents, the Contractor shall provide a written notice to the receiving facility. This written notice shall contain at least:

- a copy of the lab results of the scrape sample
- a signature block for the receiving facility to confirm their receipt of this information
- notification that salvaged materials include paint that may contain toxic constituents at levels that may be hazardous to employees or the environment

A copy of this notice, signed by the receiving facility, shall be returned to the Engineer before any hazardous material is removed from the site.

All costs associated with removal and disposal of hazardous materials shall be incidental to the "Removal of Existing Bridge" bid item.

An asbestos survey was conducted and found no asbestos at this site. However, should the occasion arise that asbestos is still found at the time of bridge demolition, the the County will contract with a licensed asbestos contractor to remove any remaining asbestos during the bridge's demolition.

ESTIMATE REFERENCE INFORMATION

ITEM NO.	DESCRIPTION
26.	See tabulation on Sheet C.06 for stationing and quantity.
27.	See tabulation on Sheet C.06 for Safety Closure stationing and quantities.
28.	See Standard Road Plan TC-252 for details.
30.-31.	Contractor shall seed, fertilize, and mulch all areas disturbed by construction activities. Quantity includes 0.085 acres NW of the bridge, 0.106 acres SW of the bridge, 0.122 acres NE of the bridge, and 0.099 acres SE of the bridge.
32.	Erosion control measures shall be placed at the earliest practicable time. An Erosion Control Plan shall be submitted to the Engineer prior to the pre-construction meeting. See tabulations on Sheet C.06 and Standard Road Plans EC-201 and EC-204 for details. The tabulation includes estimated locations for placement of Silt Fence to address possible erosion during construction. Verify the specific locations with the Engineer prior to beginning placement.
33.	This item is included for cleanout and repair of the silt fence and silt fence for ditch checks during the project.
35.	Quantity is an estimate only. Contractor to be paid actual mobilizations and emergency mobilizations.

EMERALD ASH BORER NOTE:

Any living, dead, cut or fallen material of the ash (*Fraxinus* spp.) including trees, nursery stock, logs, firewood, stumps, roots, branches, and composted or uncomposted ash chips can be freely moved within the yellow areas of the most recent Federal EAB Quarantine & Authorized Transit.

[https://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/emerald\\_ash\\_b/downloads/eab\\_quarantine\\_map.pdf](https://www.aphis.usda.gov/plant_health/plant_pest_info/emerald_ash_b/downloads/eab_quarantine_map.pdf)

Obtain appropriate Compliance Agreements from USDA APHIS PPQ prior to moving any of the above listed ash articles to areas outside the yellow zone on the map. For questions, concerns, and general assistance, contact:

USDA APHIS PPQ, Iowa office, 515-414-3295

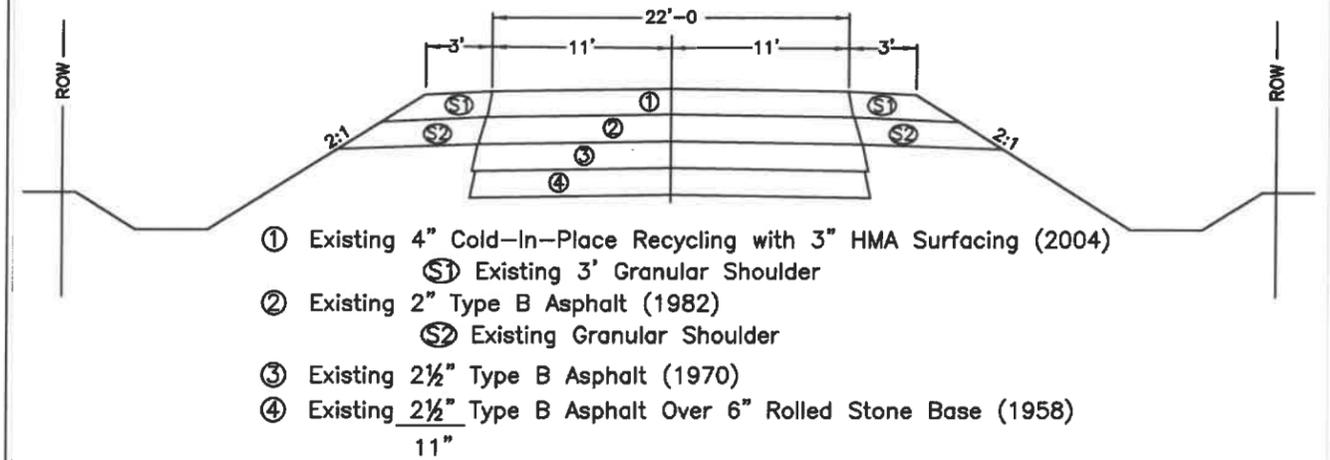
Or

Iowa Department of Agriculture & Land Stewardship  
515-725-1470

Entomology@IowaAgriculture.gov

PAVEMENT HISTORY

Sta. 1+75.00 to Sta. 6+00.00



GENERAL NOTES

Story County to stake bridge control, right-of-way, ditch culvert pipes, and place and maintain detour signing.

Contractor shall maintain access to individual properties during construction. This work shall be considered incidental to this project.

BRIDGE APPROACH SECTION

Refer to the BR Series.

\* Not a bid item.

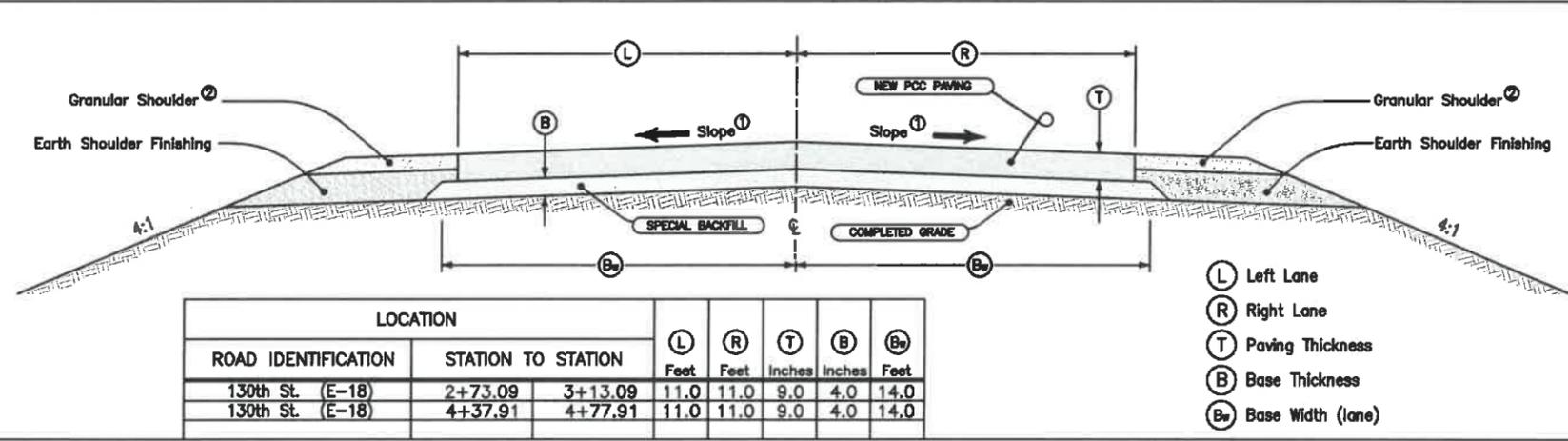
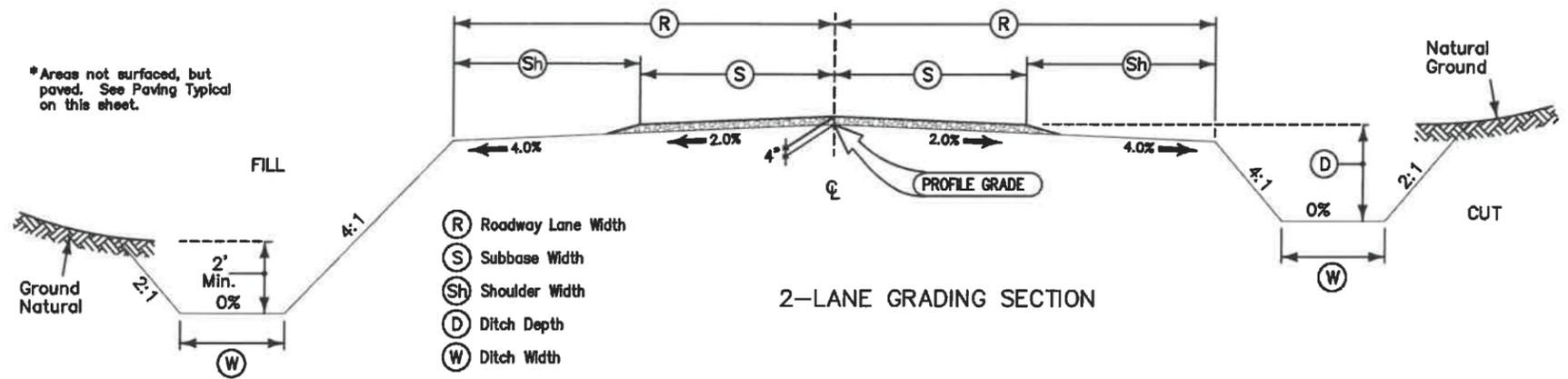
Location		Approach Pavement				Standard Road Plans BR Series			Subdrain							Remarks				
Bridge Station	End	Skew Ahead		Thickness (T)	Pay Length	Non-Reinf. Pavement Area SY	Single-Reinf. Pavement Area SY	Double-Reinf. Pavement Area SY	Approach	Fixed or Movable Abutment	Abutting Paving	Perforated Subdrain 4"	Subdrain Outlet		Porous Backfill		Class 'A' Crush. Stone Backfill	Modified Subbase	Polymer Grid	Special Backfill
		Degrees	LEFT										RIGHT	LF						
				Inches	FT	SY	SY	SY												
3+35.0	West		30	9.0	21.9		58.45		BR-121	Movable	11" HMA							5.5		
4+16.0	East		30	9.0	21.9		58.45		BR-121	Movable	11" HMA							5.5		

Normal section shown may be modified appropriately in areas of super-elevated curves or other locations specifically designated by the Engineer.

See Plan & Profile sheets and cross sections for additional details of ditches and backlopes.

\* Areas not surfaced, but paved. See Paving Typical on this sheet.

LOCATION		DIMENSIONS				
ROAD IDENTIFICATION	STATION TO STATION	(R) Feet	(S) Feet	(Sh) Feet	(D) Feet	(W) Feet
130th St.	2+72.84 3+33.77	17.8	14.0	3.8	var.	var.
130th St.	4+17.23 4+78.16	17.8	14.0	3.8	var.	var.



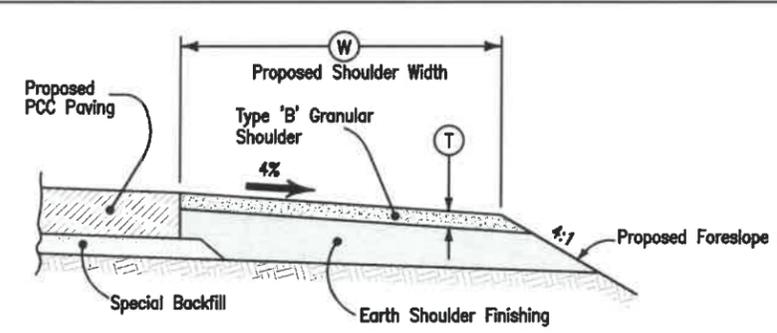
LOCATION		(L) Feet	(R) Feet	(T) Inches	(B) Inches	(Be) Feet
130th St. (E-18)	2+73.09 3+13.09	11.0	11.0	9.0	4.0	14.0
130th St. (E-18)	4+37.91 4+77.91	11.0	11.0	9.0	4.0	14.0

**Notes:**

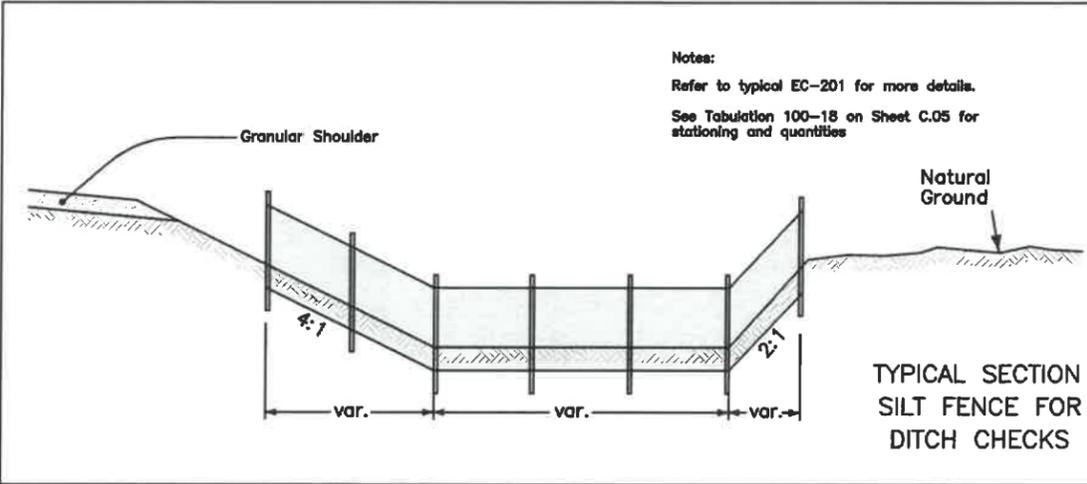
① Match finished slope to existing subgrade, except that the maximum allowable slope is 3.0%, minimum allowable slope is 2.0%. Section may be modified as directed by the Engineer through areas of special shaping.

Refer to tabulation listing of superelevation curves and Standard Road Plans for additional requirements through superelevated curves.

② Refer to shoulder typicals.



LOCATION			(W) Feet	(T) Inches
ROAD IDENTIFICATION	STATION TO STATION	SIDE		
130th St. (E-18)	1+75 1+86	Lt.	3	6
130th St. (E-18)	1+86 2+12	Lt.	var.	6
130th St. (E-18)	2+12 3+24	Lt.	6	6
130th St. (E-18)	4+08 5+22	Lt.	6	6
130th St. (E-18)	5+22 5+47	Lt.	var.	6
130th St. (E-18)	5+47 6+00	Lt.	3	6
130th St. (E-18)	1+75 2+03	Rt.	3	6
130th St. (E-18)	2+03 2+29	Rt.	var.	6
130th St. (E-18)	2+29 3+41	Rt.	6	6
130th St. (E-18)	4+27 5+39	Rt.	6	6
130th St. (E-18)	5+39 5+65	Rt.	var.	6
130th St. (E-18)	5+65 6+00	Rt.	3	6



**Notes:**

Refer to typical EC-201 for more details.

See Tabulation 100-18 on Sheet C.05 for stationing and quantities.

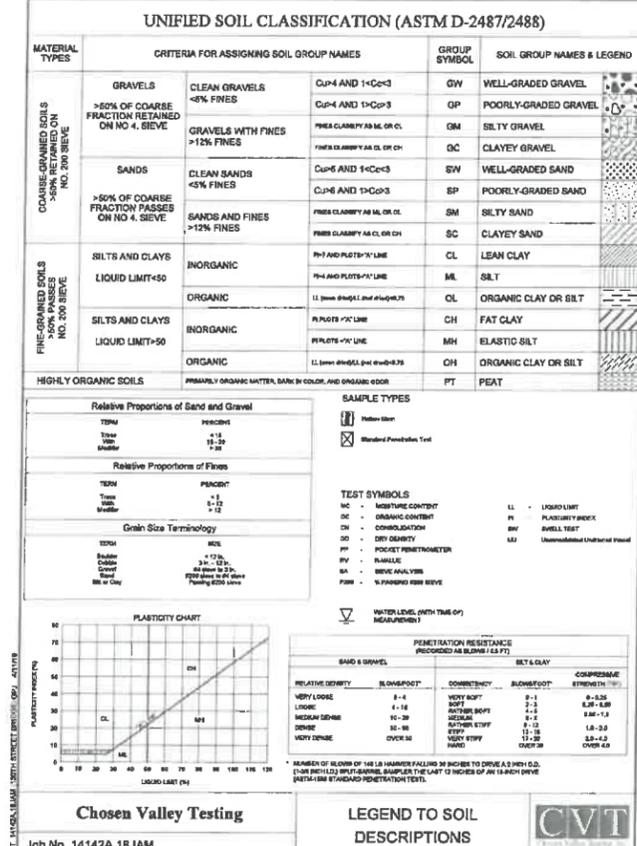
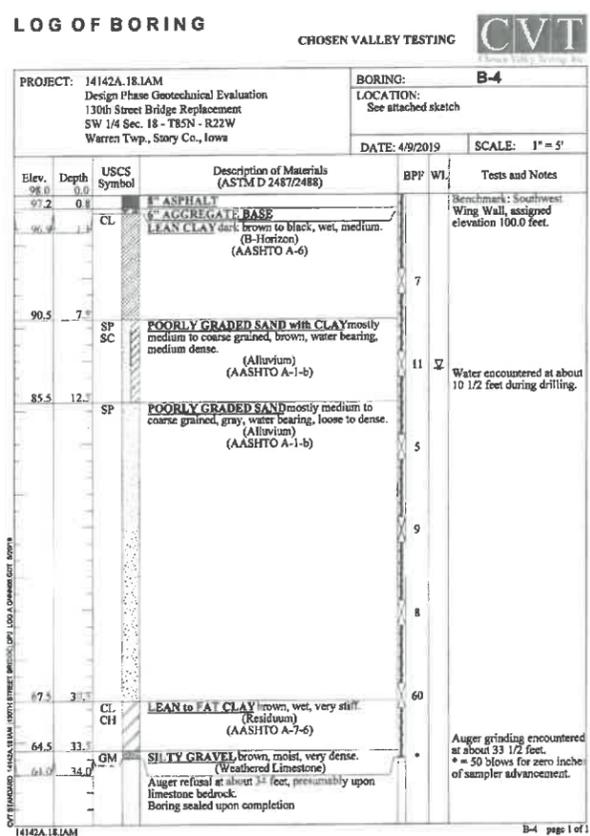
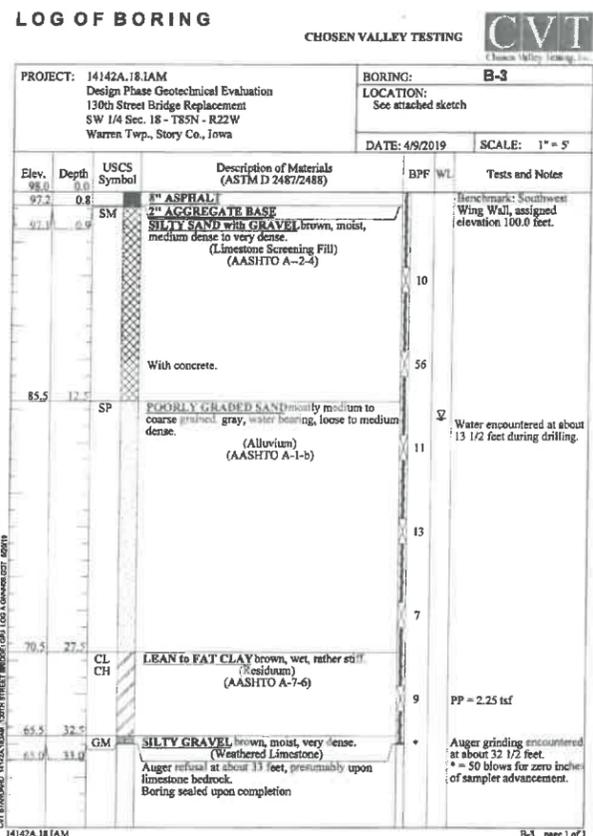
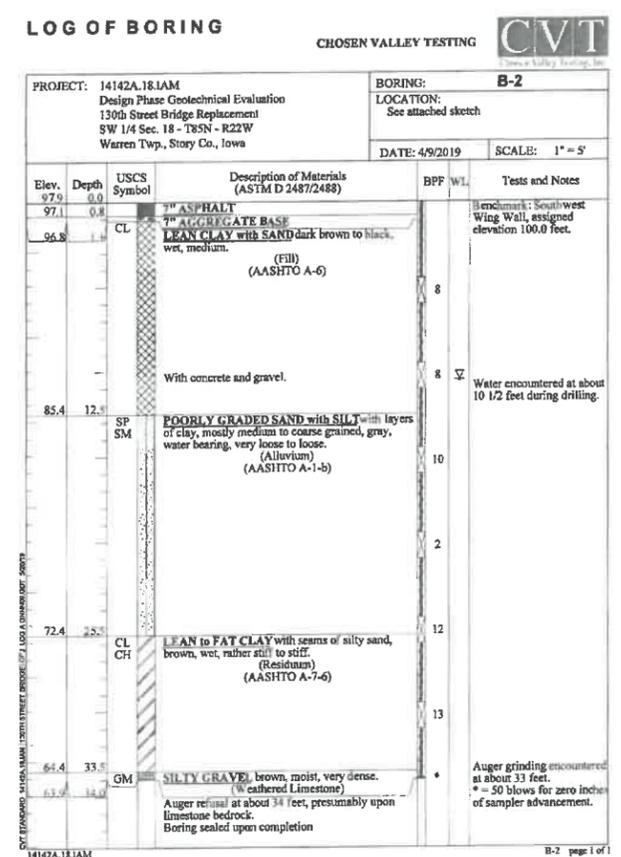
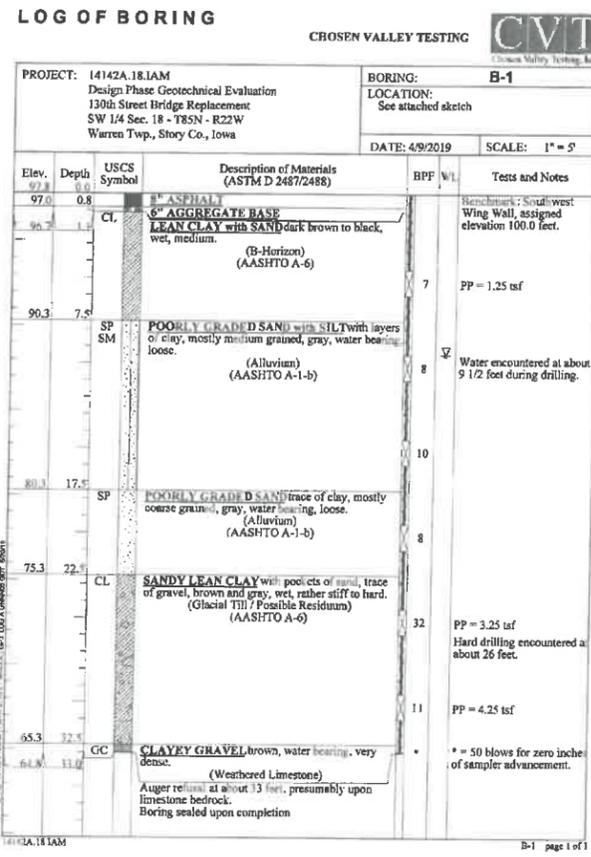
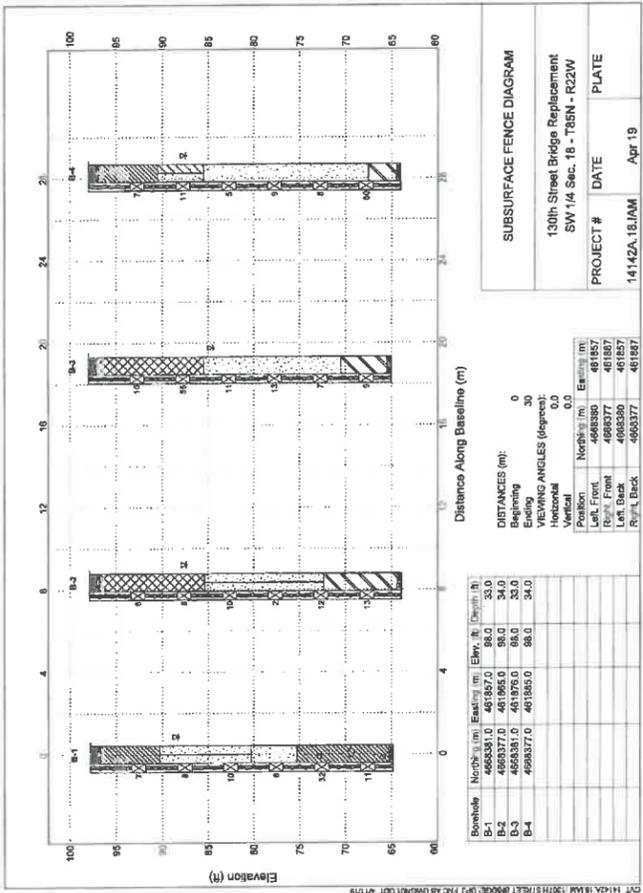
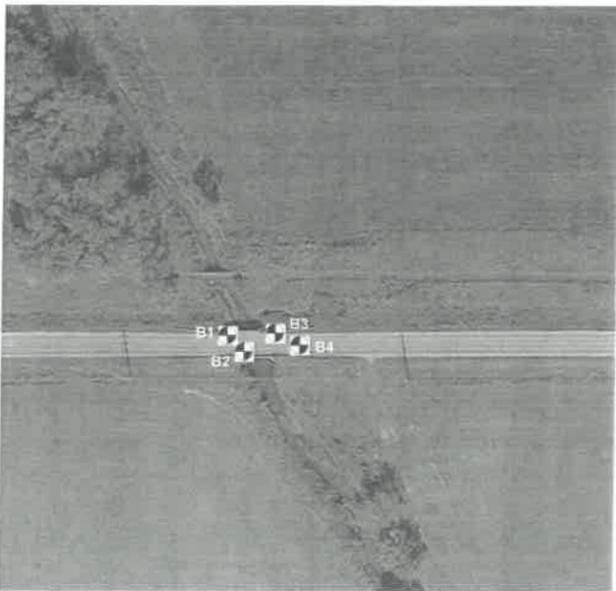




PROJ No. BRS-CHBP-C085(155)-CB-85



**Soil Boring Location Sketch**  
 Proposed 130th Street Bridge Replacement  
 SW 1/4 Sec. 18 - T85N - R22W  
 Warren Twp., Story County, IA  
 14142A.18.IAM



**E. Piling Recommendations**

**E.1. Pile Depth and Capacities**

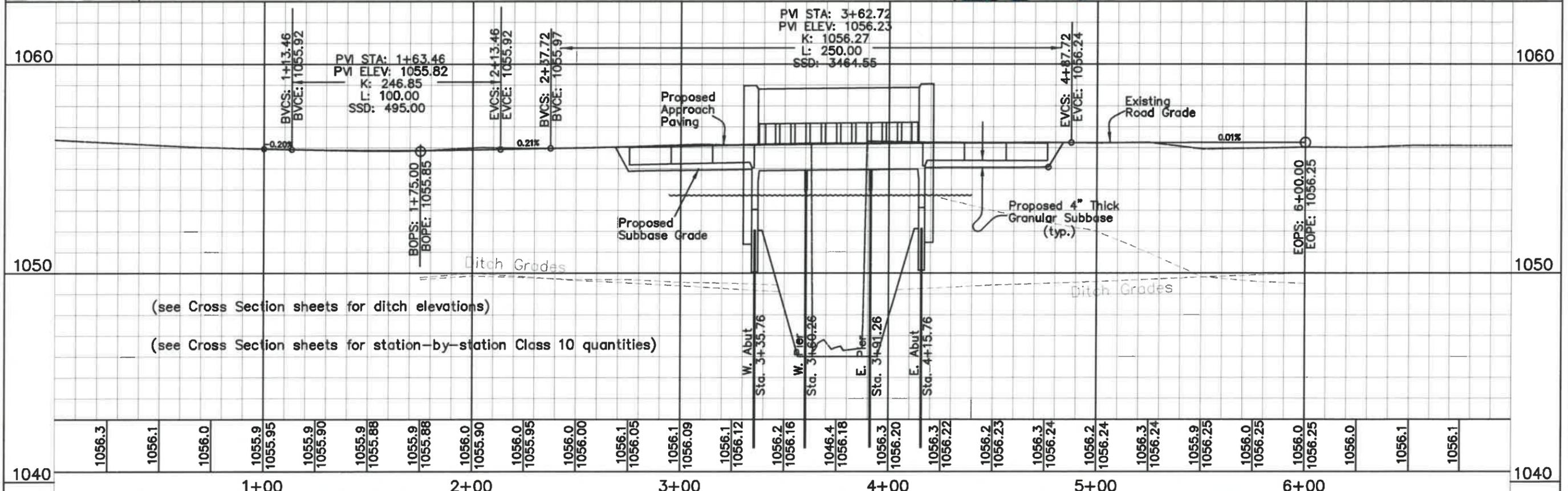
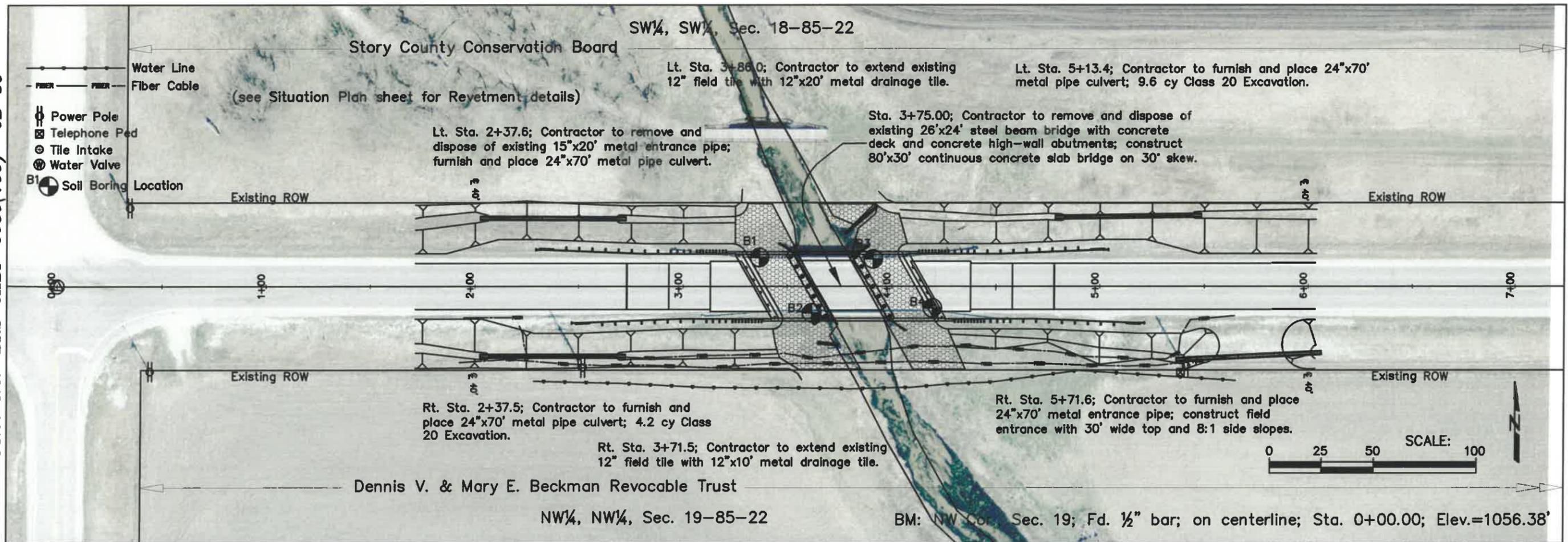
We expect that the desired capacities can be reached in the sand encountered at depth. The results of our analysis for steel 10x42 H-piles are presented in the following table. These values should be multiplied by the appropriate pile lengths and areas. The skin friction and end bearing capacities shown are the nominal values and should be reduced by a resistance factor (φ) of 0.6 for normal driving. For unusually severe driving conditions requiring driving points, these values may be reduced by a resistance factor (φ) of 0.5 (AASHTO-LRFD 6.5.4.2), as recommended by IADOT.

Boring	Soil Type	Elevation, using datum (feet)	Unit Weight (pcf)	Skin Friction (ksf)	End Bearing (ksf)
B-1	CL, Lean Clay	96.7-90.3	120	1.2	N/A
	SP-SM, Sand with Silt	90.3 - 80.3	120	1.2	N/A
	SP, Sand	80.3 - 75.3	120	2.0	N/A
	CL, Sandy Lean Clay	75.3 - 65.3	120	2.8	N/A
	GM, Weathered Limestone	65.3-64.8	120	4.0	12
B-2	CL, Lean Clay	96.8 - 85.4	120	1.2	N/A
	SP-SM, Sand with Silt	85.4 - 72.4	120	1.2	N/A
	CL-CH, Lean to Fat Clay	72.4 - 64.4	120	2.8	N/A
	GM, Weathered Limestone	64.4 - 63.9	120	4.0	12
	Limestone	63.9	120	4.0	18
B-3	SM, Silty Sand	97.1 - 85.5	120	1.2	N/A
	SP, Sand	85.5 - 70.5	120	2.0	N/A
	CL-CH, Lean to Fat Clay	70.5 - 65.5	120	2.8	N/A
	GM, Weathered Limestone	65.5 - 65.0	120	4.0	12
	Limestone	65	120	4.0	18
B-4	CL, Lean Clay	96.9 - 90.5	120	1.2	N/A
	SP-SC, Sand with Clay	90.5 - 85.5	120	1.6	N/A
	SP, Sand	85.5 - 67.5	120	1.2	N/A
	CL-CH, Lean to Fat Clay	67.5 - 64.5	120	2.8	N/A
	GM, Weathered Limestone	64.5 - 64.0	120	4.0	12

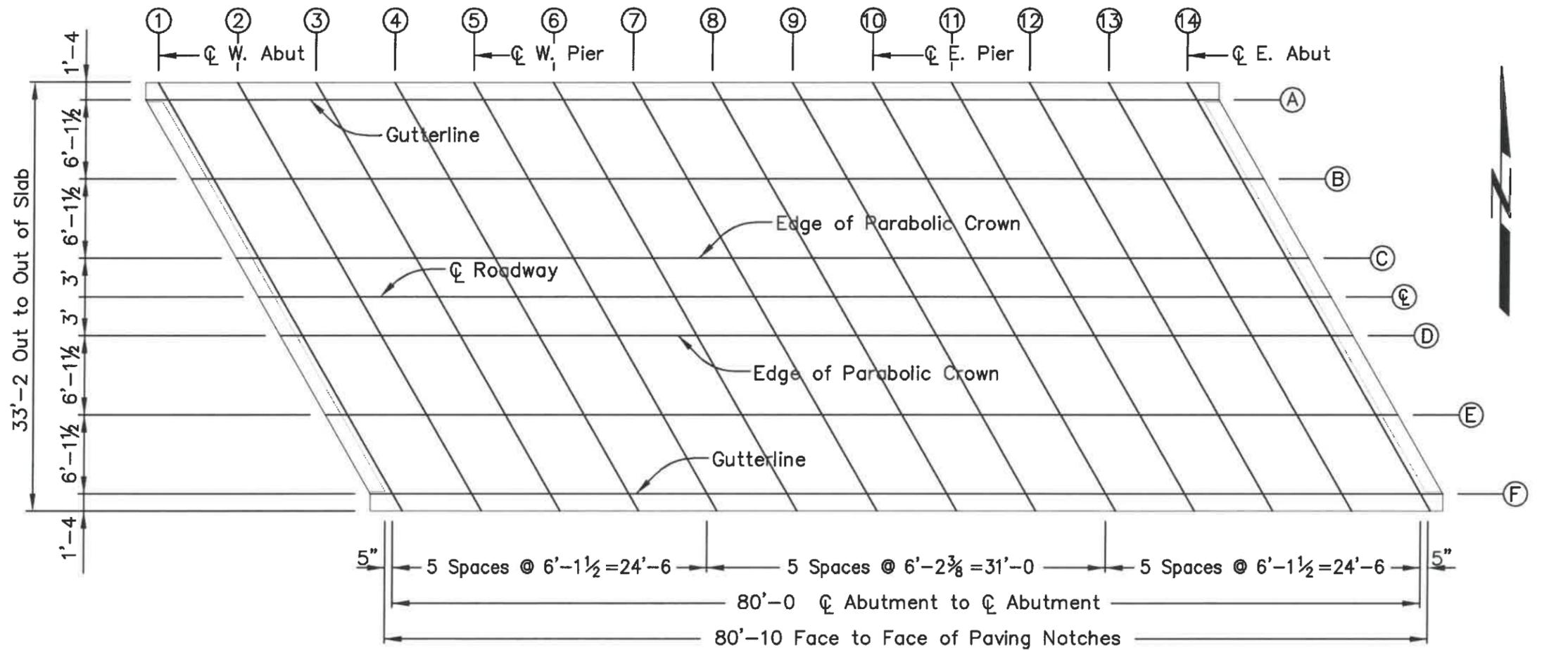
SOUNDING DATA SHEET

PROJ No. BRS-CHBP-C085(155)--CB-85

PLAN AND PROFILE SHEET



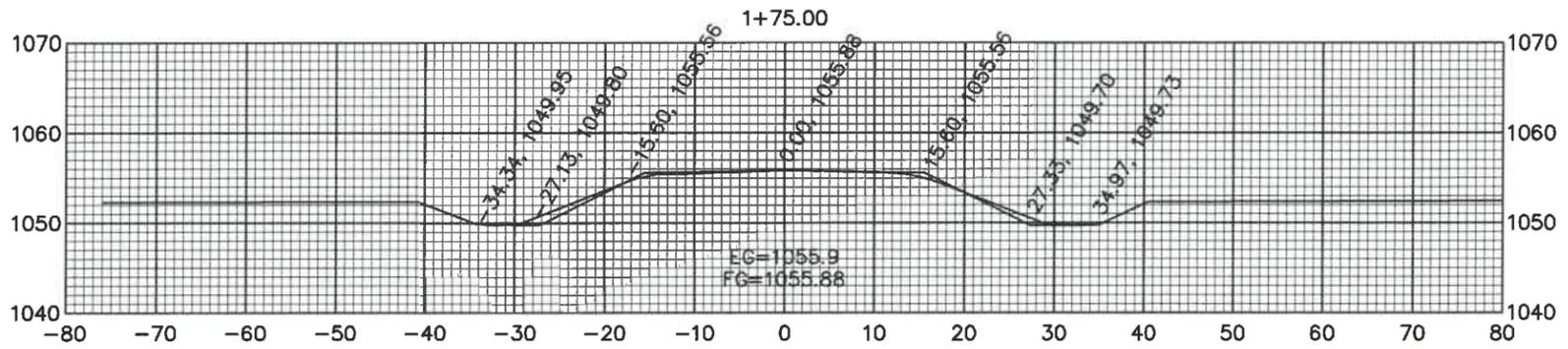
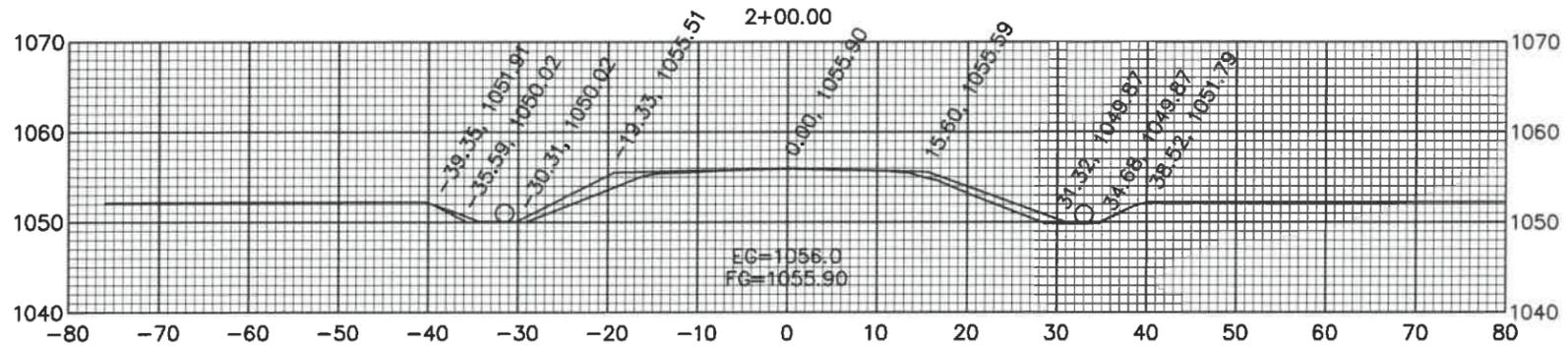
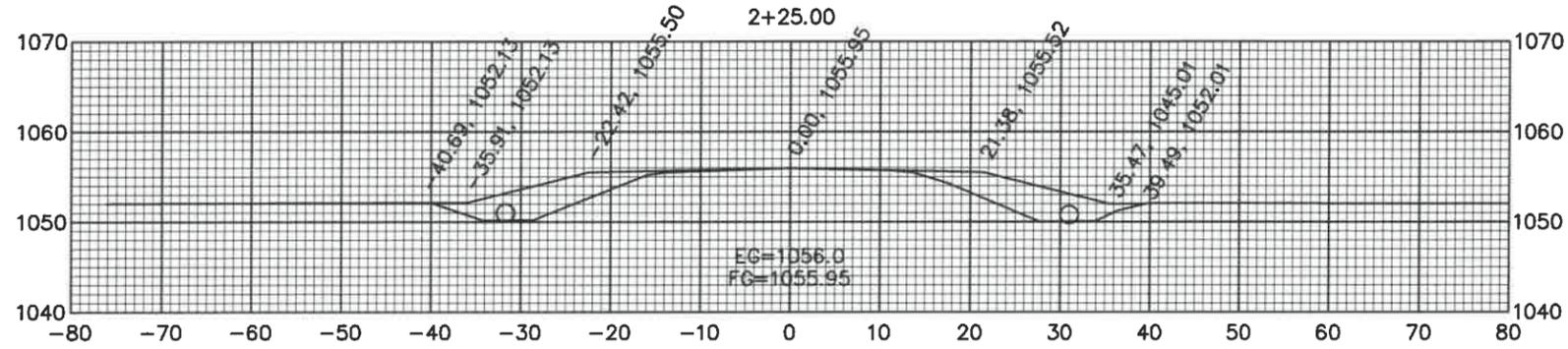


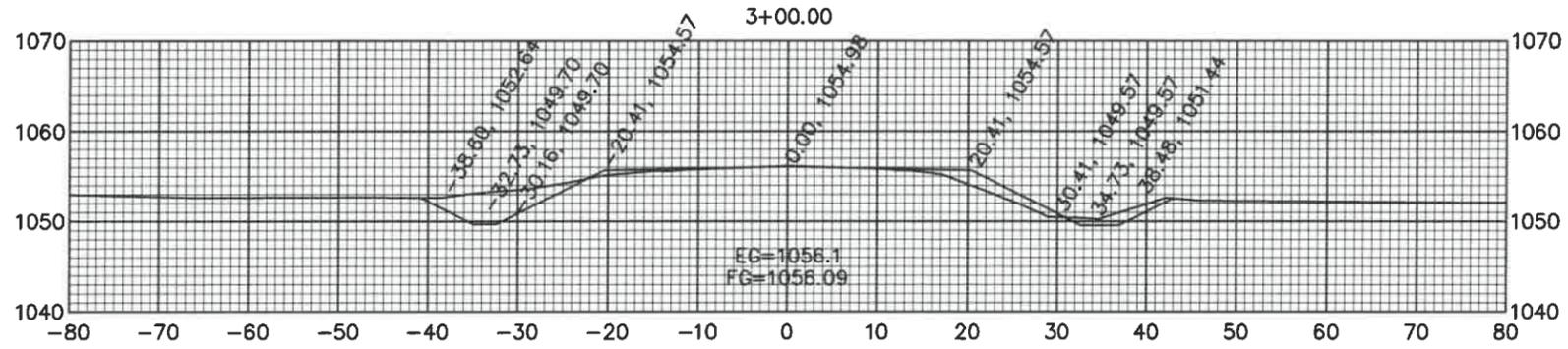


	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	
Elevation Table	1055.87	1055.88	1055.89	1055.90	1055.90	1055.91	1055.92	1055.93	1055.94	1055.94	1055.95	1055.96	1055.96	1055.97	A
	1055.99	1056.00	1056.01	1056.02	1056.03	1056.04	1056.05	1056.06	1056.06	1056.07	1056.08	1056.08	1056.09	1056.09	B
	1056.12	1056.13	1056.14	1056.15	1056.16	1056.17	1056.18	1056.18	1056.19	1056.20	1056.20	1056.21	1056.21	1056.22	C
	1056.16	1056.17	1056.18	1056.18	1056.19	1056.20	1056.21	1056.22	1056.22	1056.23	1056.23	1056.24	1056.24	1056.25	℄
	1056.13	1056.14	1056.15	1056.16	1056.16	1056.17	1056.18	1056.19	1056.19	1056.20	1056.20	1056.21	1056.21	1056.22	D
	1056.01	1056.02	1056.03	1056.04	1056.05	1056.05	1056.06	1056.07	1056.07	1056.08	1056.09	1056.09	1056.09	1056.10	E
	1055.89	1055.90	1055.91	1055.92	1055.93	1055.94	1055.94	1055.95	1055.96	1055.96	1055.97	1055.97	1055.97	1055.98	F

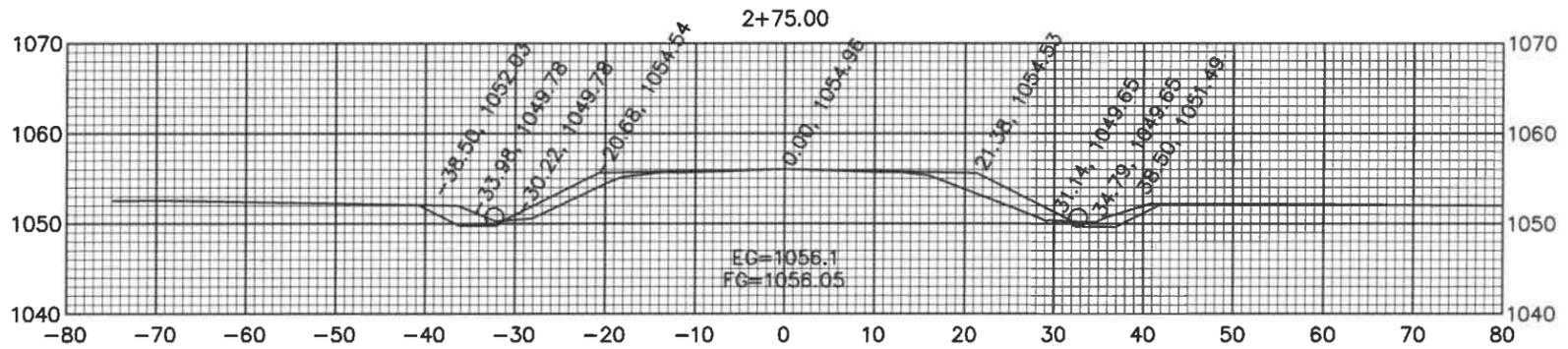
Top of Slab Elevations

BM: NW Cor., Sec. 19; Fd. 1/2" bar; on centerline; Sta. 0+00.00; Elev.=1056.38'

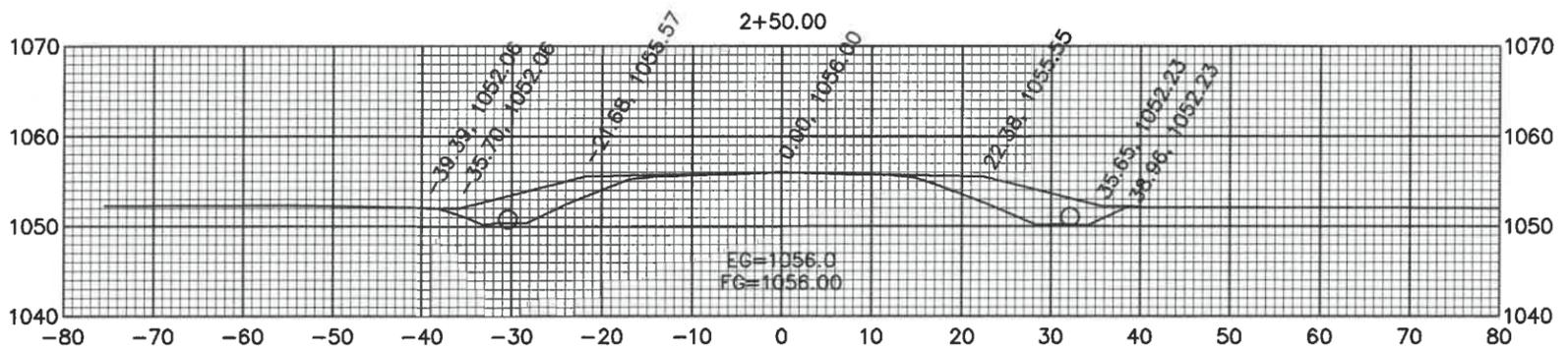




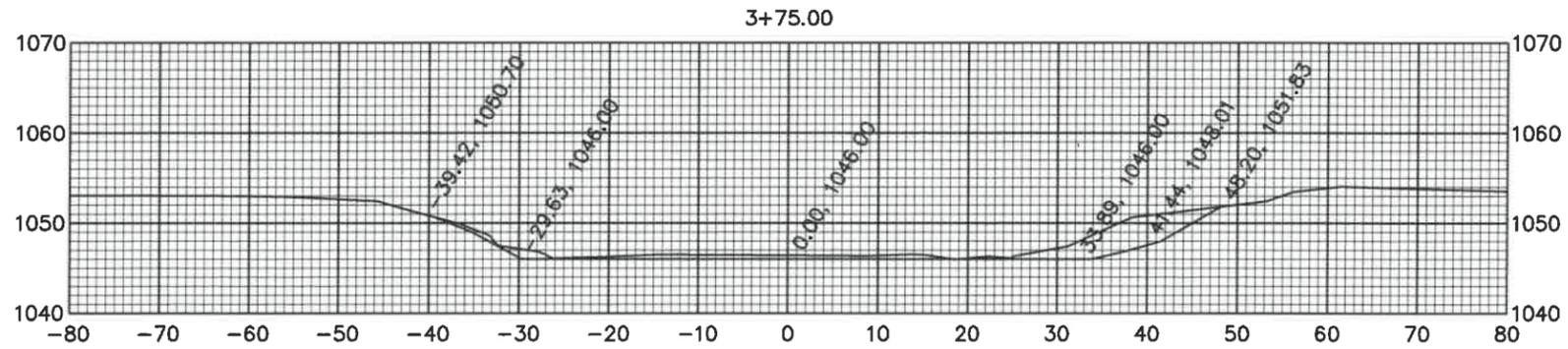
Sta. 3+00.00	
Cut Area	83.98
Fill Area	1.93
Cut Vol	59.99
Fill Vol	7.88



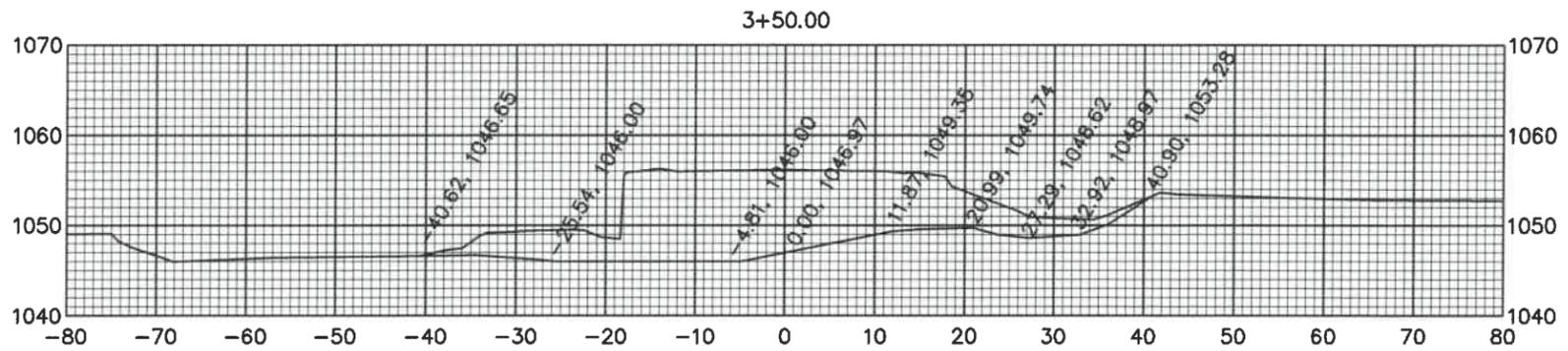
Sta. 2+75.00	
Cut Area	45.60
Fill Area	11.16
Cut Vol	21.12
Fill Vol	68.39



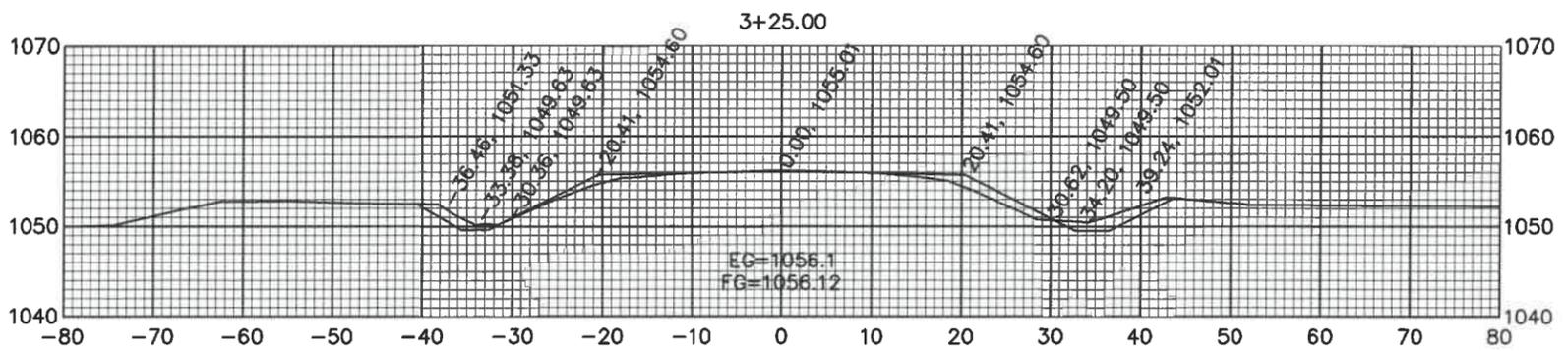
Sta. 2+50.00	
Cut Area	0.01
Fill Area	102.48
Cut Vol	0.08
Fill Vol	129.36



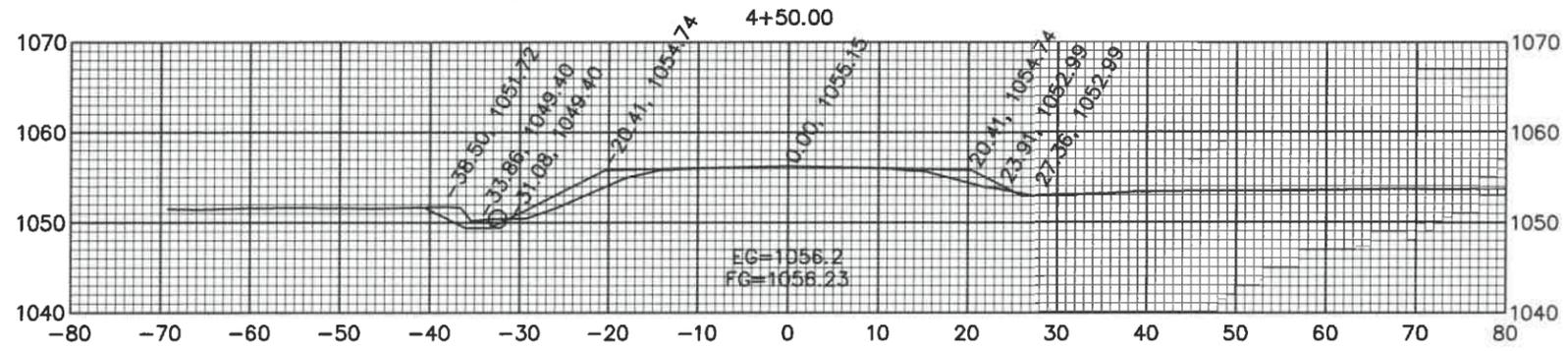
Sta. 3+75.00	
Cut Area	76.55
Fill Area	0.10
Cut Vol	229.73
Fill Vol	3.00



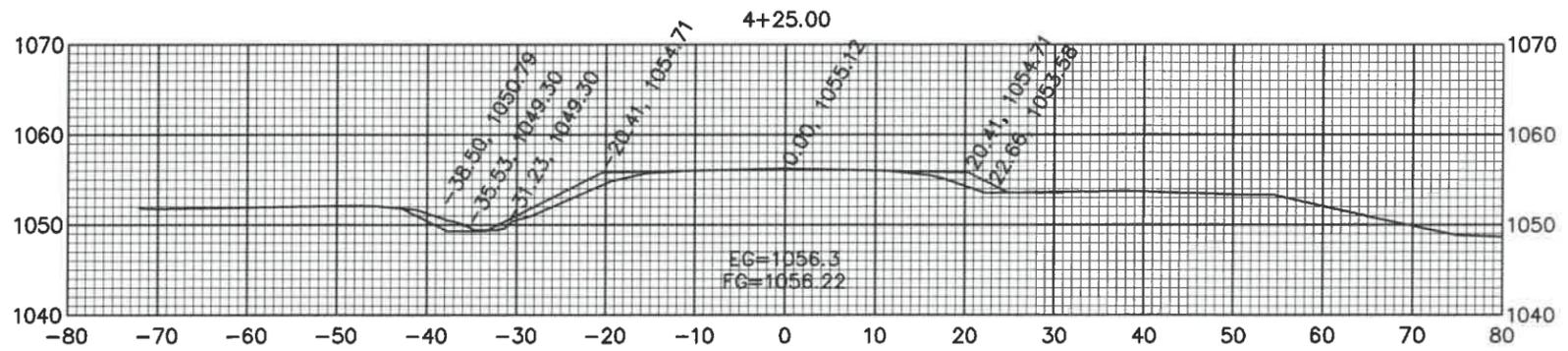
Sta. 3+50.00	
Cut Area	419.67
Fill Area	4.89
Cut Vol	219.60
Fill Vol	3.32



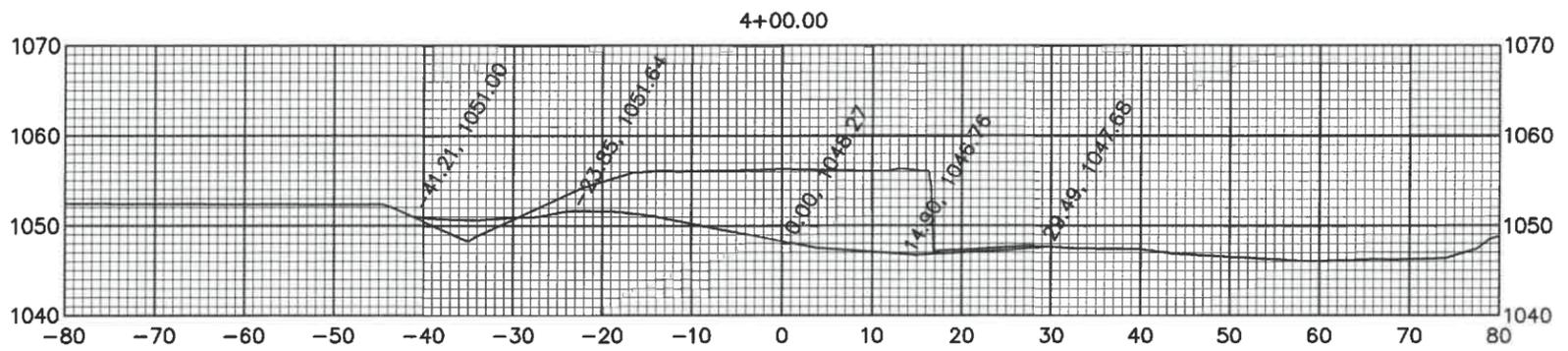
Sta. 3+25.00	
Cut Area	54.67
Fill Area	0.63
Cut Vol	64.19
Fill Vol	1.54



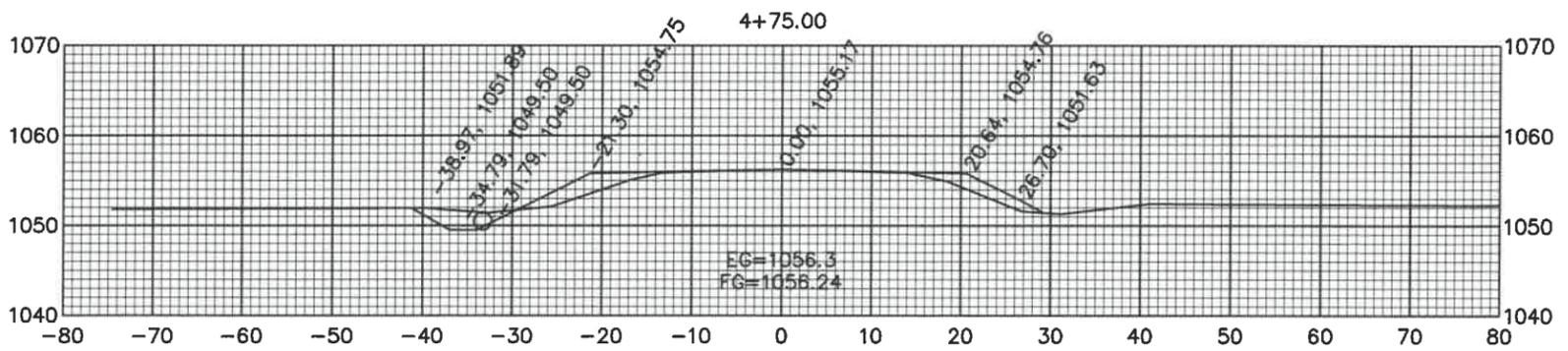
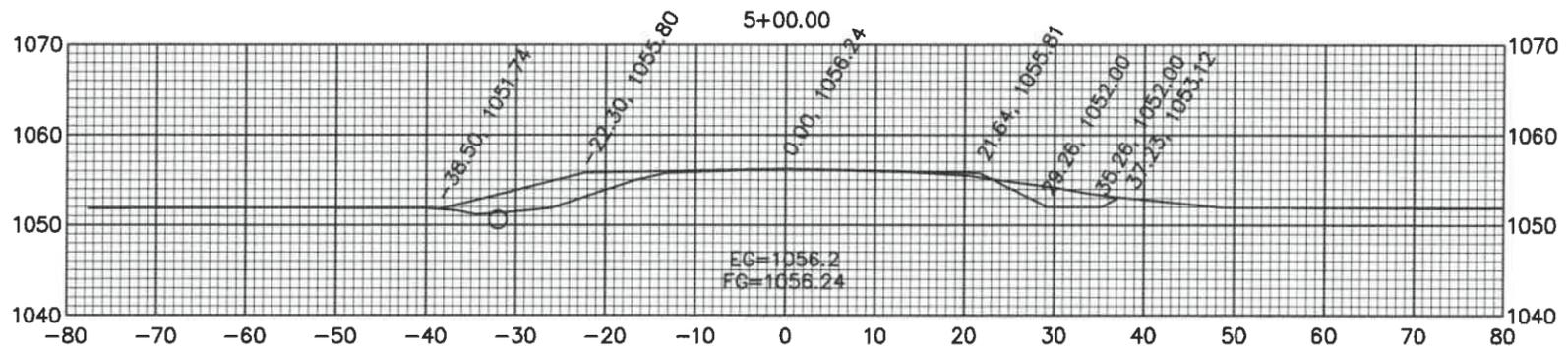
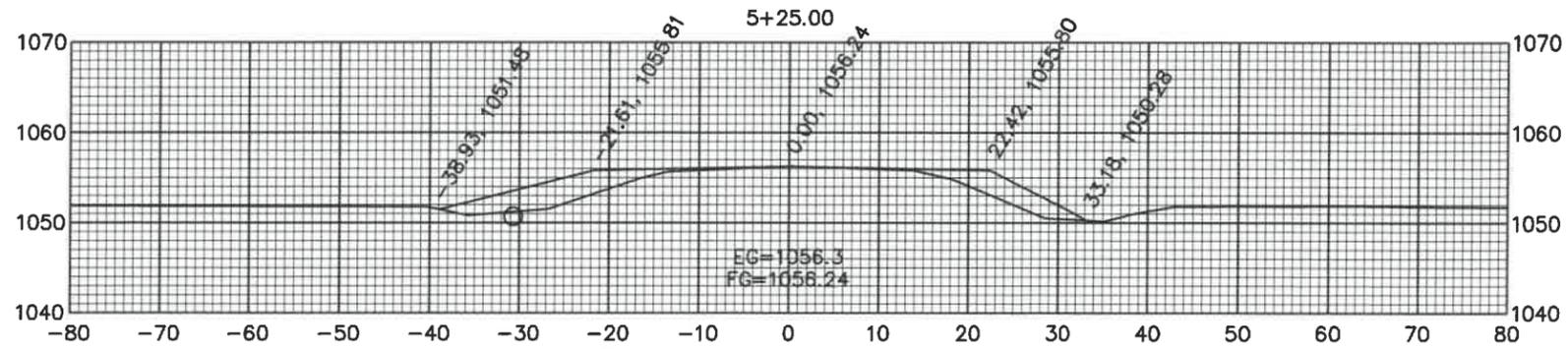
Sta. 4+50.00	
Cut Area	42.57
Fill Area	5.18
Cut Vol	38.42
Fill Vol	4.30

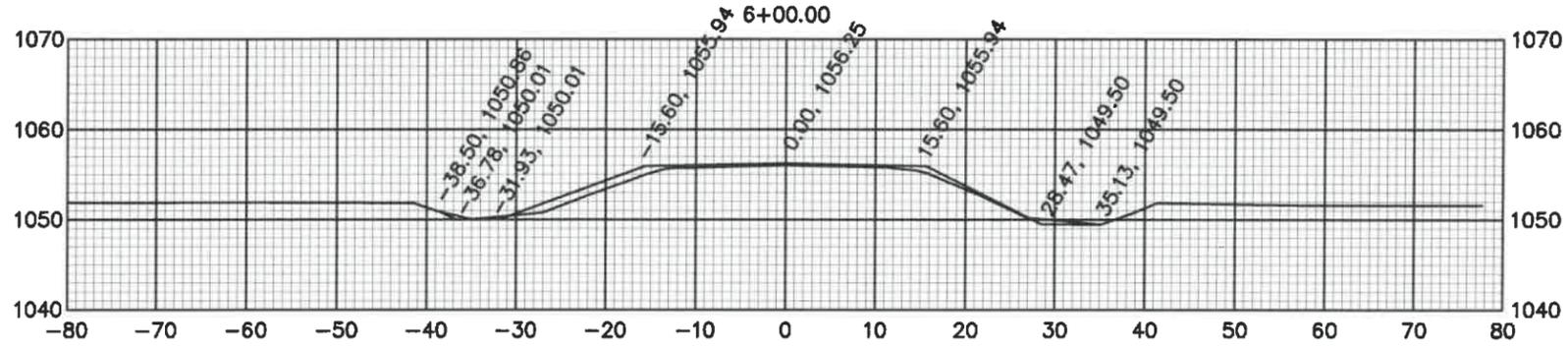


Sta. 4+25.00	
Cut Area	40.42
Fill Area	1.97
Cut Vol	153.13
Fill Vol	18.78

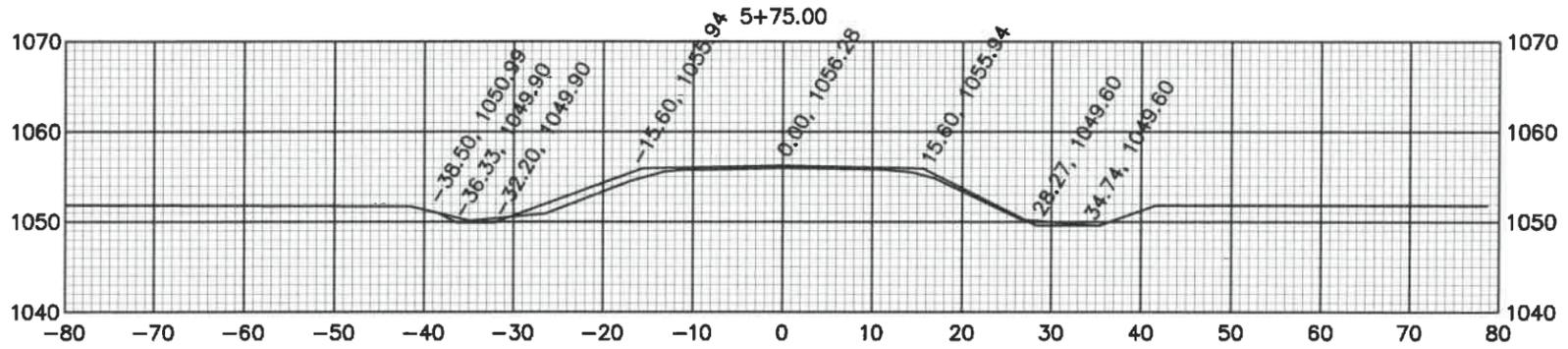


Sta. 4+00.00	
Cut Area	290.35
Fill Area	29.24
Cut Vol	169.86
Fill Vol	17.66

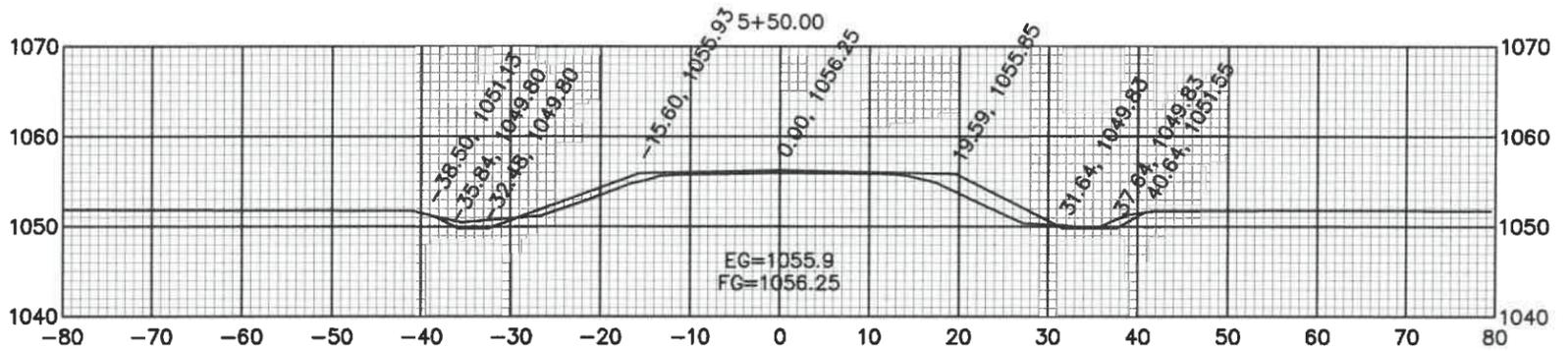




Sta. 5+75.00	
Cut Area	3.63
Fill Area	26.22
Cut Vol	3.82
Fill Vol	31.74



Sta. 5+75.00	
Cut Area	4.62
Fill Area	26.52
Cut Vol	6.23
Fill Vol	40.85



Sta. 5+50.00	
Cut Area	8.84
Fill Area	41.36
Cut Vol	4.10
Fill Vol	74.18