



OHIO Department of  
TRANSPORTATION

James A. Rhodes/Governor  
David L. Weir/Director  
25 South Front Street  
P. O. Box 899  
Columbus, Ohio 43216

District Seven  
P O Box 381  
Sidney, OH 45365

Frantz Brothers, Inc  
P O Box 59  
Sidney, OH 45365

RE: Project No. 405-81  
Logan County  
County Road 39

Dear Sirs:

Attached is the approved copy of Change Order NO. 1, relative to subject Project, for your records.

Sincerely,

Delbert L Leistner  
District Deputy Director

A handwritten signature in cursive script that reads "Jack R Siler".

Jack R Siler  
District Construction Engineer

JRS:TJR:hb  
cc: County ✓  
Project  
File

Encl. C O 1

**RECEIVED**

**DEC 2 1981**

**LOGAN COUNTY**  
1981

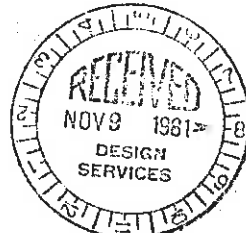
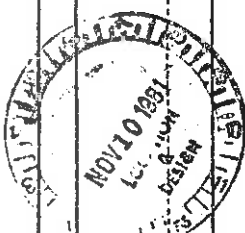
C-77 REV. Sheet 1 of 1 Contract No. 28974  
 County LOGAN Route No. C R 39-4.98  
 Project No. 81-605 Federal No. BRZ-4604(1)  
 1-YR-Prj. B  
 Change Order No. 17 18 Part. or Proposal No.

STATE OF OHIO  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 BUREAU OF CONSTRUCTION

CHANGE ORDER

PROPOSED WORK OR NON-PERFORMANCE IN CONNECTION  
 WITH CONTRACT ITEMS (See Directive No. DH - 23C)

Contract Ref. No.	Item No.	Location	Quantity Or Lump	Unit	Description	Unit Price Or Lump Sum Amt	Additions		Non-Per- formances
							33	39 A	
1 thru 49	Var	See Explan	01		Permission is granted for Bridge No. LOG-C R 39-4.98 to remain in place at elevation as built and to construct the roadway and approach pavement to the revised profile elevations as per attached plan at no additional cost to the Project.				
Totals									
GRAND TOTALS						0.00	0.00		



I hereby agree to perform the work and to the non-performance of work as listed above.

Frantz Brothers, Inc.  
 (Contractor)  
 By: Alan Whelan 10/19 1981  
 Title: Vice President

HLC/HAS 10/30/81  
 Requested by: Robert B. Hunter 10/20/81  
 (District Construction Engineer) (Date)  
 Recommended by: Robert B. Hunter 10/20/81  
 (District Deputy Director) (Date)  
 Design changes concurred in: Robert B. Hunter 11/5/1981  
 (Engineer of Design) (Date)  
 Design changes concurred in: Robert B. Hunter 12/1/1981  
 (Engineer of Roadway Design) (Date)  
 Approved by: Robert B. Hunter 11/3/1981  
 (Engineer of Construction) (Date)  
 179

PARTICIPATION CODE

01. 07126-0 BRZ-4604(1) No breakdown

REF NOS 1 thru 49- This Project includes a bid item for "construction layout stakes".

The Contractor established a supplementary bench mark that was used for construction of Bridge No LOG-C R 39-4.98. However, thru an error, an incorrect elevation was assigned to this bench mark. This error, which was not discovered until the bridge was completed, resulted in the bridge being built at an elevation lower than the proposed plan elevation.

After reviewing the elevation of the structure as built, it has been determined that this will not result in any detrimental effect to the Project and that the structure may remain in place. A copy of the letter of concurrence from the County Engineer is attached.

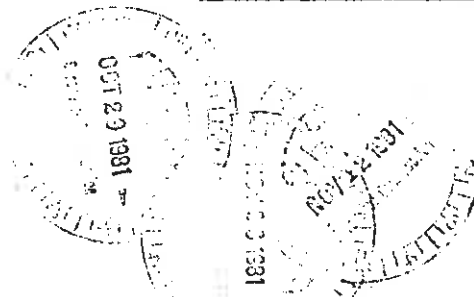
The roadway and approach pavement are to be constructed to the revised profile elevations as shown on the attached sheet. This revised profile will result in a nonperformance of embankment. The adjustments in earthwork and any other quantities as may be effected by the revised profile grade will be adjusted in final measurements.

EXPLANATION OF NECESSITY FOR ABOVE ITEMS

BRIDGE BUREAU

NOV 5 1981  
 REFER TO

RBP	CPD	BFN
MPB	NJB	BDH
DHS	UDJ	RLE
WJJ	FFE	REJ
SER	NRL	L



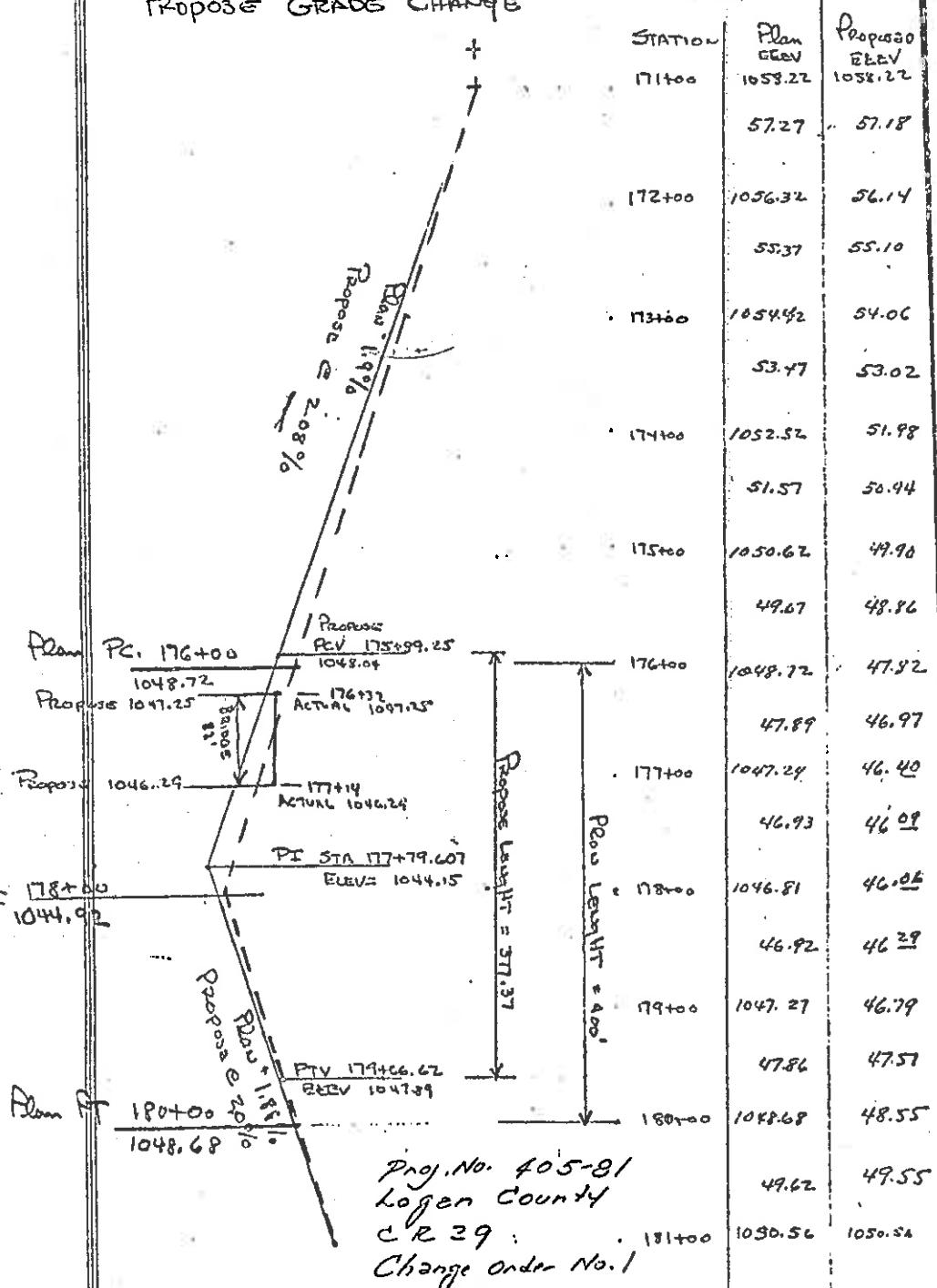
CURRENT STATUS OF ENGINEERING AND CONTINGENCY FUND (To be supplied by District Office)

1. Amount of original Engineering and Contingency Fund* (Enc. Est. No. C- 516056)	\$ 18,794.51
2. Additions to or deductions from Fund Amount* (Enc. Est. No. _____)	\$
3. Total Engineering and Contingency Fund (1+2)	\$ 18,794.51
4. Totals of Change Orders No. _____ to No. _____ inclusive	\$
5. This order	\$ 0.00
6. Totals	\$ 0.00
7. Total Non-performance from Line 8	\$ 0.00
8. Net increase (+) or decrease (-) due to Change Orders	\$ 0.00
Actual Engineering costs to date	9-5-81 \$ 2,346.30
Estimated additional Engineering to complete project	\$ 5,513.22
Algebraic sum of Lines 8, 9 and 10	\$ 7,859.52
Balance on hand	\$ 10,934.99

\* Do not include Detour Funds.

- Joe Stahovic 42-620

PROJECT 405 (80)  
PROPOSE GRADE CHANGE



STATION	Plan ELEV	Proposed ELEV
171+00	1058.22	1058.22
	57.27	57.18
172+00	1056.34	56.14
	55.37	55.10
173+00	1054.42	54.06
	53.47	53.02
174+00	1052.52	51.98
	51.57	50.94
175+00	1050.62	49.90
	49.67	48.86
176+00	1048.72	47.82
	47.89	46.97
177+00	1047.24	46.40
	46.93	46.09
178+00	1046.81	46.05
	46.92	46.29
179+00	1047.27	46.79
	47.86	47.57
180+00	1048.68	48.55
	49.62	49.55
181+00	1050.56	1050.54

Proj. No. 405-81  
Logan County  
CR 29  
Change Order No. 1

OFFICE OF THE  
**COUNTY ENGINEER**  
*Logan County*  
BELLEFONTAINE, OHIO 43311

CHESTER R. KURTZ, COUNTY ENGINEER

September 30, 1981

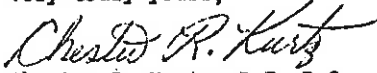
State of Ohio  
Department of Transportation  
District Seven  
P.O.Box 381  
Sidney, Ohio 45365  
Attention: Jack Siler  
District Construction Engineer

Re: Project BRZ-4604 (1)  
Logan County Bridge No.39-4.98

Dear Mr. Siler:

This is to advise you that I will agree with the revised approach elevation on the above bridge, as submitted on 9/28/81, to better conform to the bridge elevations as built.

Very truly yours,



Chester R. Kurtz, P.E., P.S.  
Logan County Engineer

CRK/ed

September 30, 1981

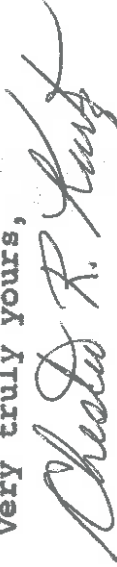
State of Ohio  
Department of Transportation  
District Seven  
P.O.Box 381  
Sidney, Ohio 45365  
Attention: Jack Siler  
District Construction Engineer

Re: Project BRZ-4604 (1)  
Logan County Bridge No.39-4.98

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Very truly yours,



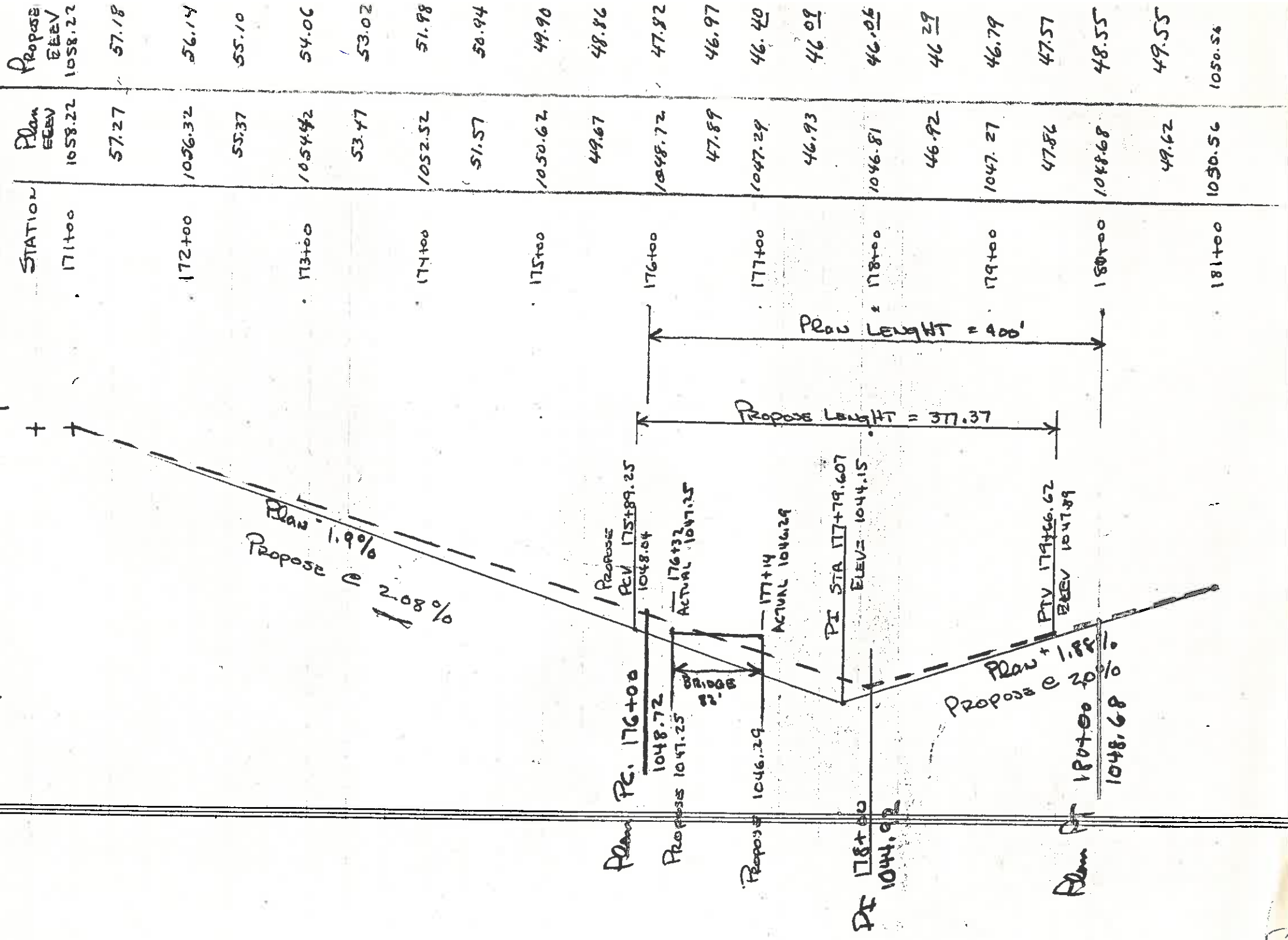
Chester R. Kurtz, P.E., P.S.  
Logan County Engineer

CRK/ed

COPY

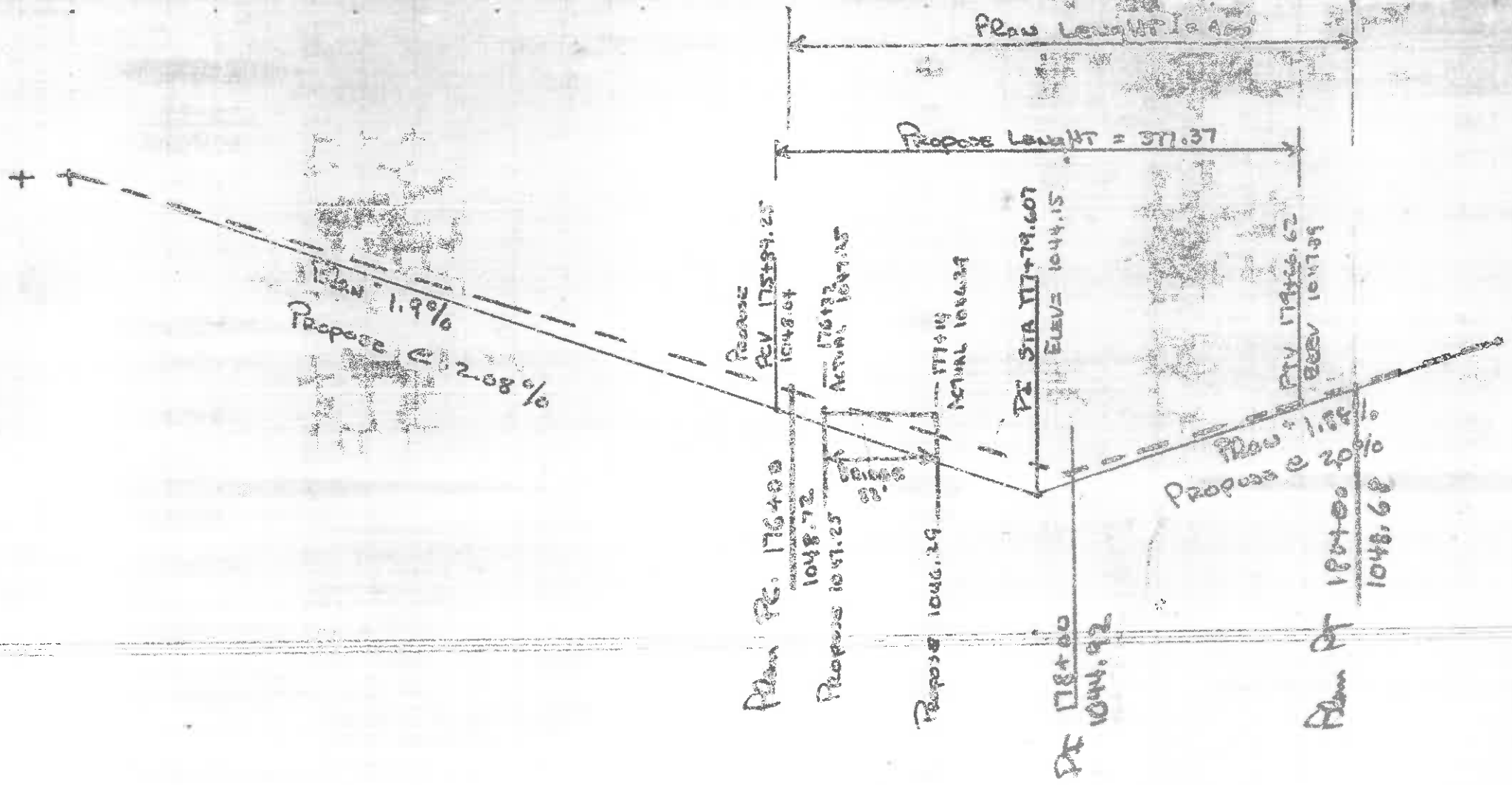
- Joe Stalovic 8/2-6/20

PROJECT 405 (81)  
PROPOSE GRADE CHANGE



Joe Station 762-6620

PROJECT 405 (80)  
 PROPOSE GRADE CHANGE



STATION	Plan ELEV	Propose ELEV
171+00	1058.22	1058.72
172+00	57.27	57.12
173+00	1036.32	56.11
173+00	53.37	55.16
174+00	1054.42	54.0
174+00	53.47	53.0
174+00	1052.52	51.5
175+00	51.57	50.4
175+00	1050.62	49.5
176+00	49.67	48.1
176+00	1048.72	47.0
177+00	47.89	46.5
177+00	1047.29	46.4
177+00	46.93	46.5
178+00	1046.81	46.5
178+00	46.92	46.5
179+00	1047.37	46.7
179+00	47.86	47.5
180+00	1046.88	48.5
181+00	49.62	49.5
181+00	1050.56	1050.52

Plan 1.9%  
 Propose @ 2.08%

Plan PC: 176+00  
 1048.72  
 Propose 1047.25

Propose 1046.29  
 ACTUAL 1047.05

PT 178+00  
 1044.92

Propose 1046.34  
 ACTUAL 1044.15

PT 178+00  
 1044.92

Plan PT 180+00  
 1048.68  
 Propose @ 1.35%  
 Propose @ 2.0%

Propose Length = 377.37

Propose Length = 377.37

(150-F)

Project No. 405 (1981)

Logan—County Road 39—4.98

BRZ-4604(1)

Type—404 on 301 & Structure

# PROPOSAL

STATE OF OHIO

## DEPARTMENT OF TRANSPORTATION

DAVID L. WEIR, Director

Letting — June 9, 1981

(Exact Prequalification Name and Address Must Appear Below)

DO NOT SUBMIT MORE THAN ONE BID PROPOSAL FOR EACH BID

Submitted by \_\_\_\_\_

Street \_\_\_\_\_

Postoffice \_\_\_\_\_

State \_\_\_\_\_ Zip Code \_\_\_\_\_

Have you double checked your bid ? ? ?





## PROJECT No. 405

## NOTICE TO BIDDERS

**Prequalification—**

Bidders must apply for prequalification with the department's Administrator, Contractor Qualifications, at least 10 days before the date set to open bids.

**EEO Prequalification—**

All bids of at least \$50,000 for projects in non-Designated Geographical Areas and all bids of at least \$50,000 and not more than \$500,000 in Designated Geographical Areas will not be read unless the bidder has met the "EEO Prequalification Requirements" dated September 14, 1977.

**Certificate of Compliance with Affirmative Action Programs—**

No contract shall be entered into unless the bidder possesses a valid Certificate of Compliance with Affirmative Action Programs, issued by the State EEO Coordinator, Certification Section, 30 East Broad Street, 35th Floor, Columbus, Ohio 43215, dated no earlier than ninety days prior to the date fixed for the opening of bids.

**Specifications—**

The State of Ohio Department of Transportation Construction and Material Specifications dated January 1, 1979, together with,

Required Contract Provisions for Federal Aid Projects, (Form PR-1273) dated Rev. September, 1975, Standard Federal Equal Employment Opportunity Construction Contract Specifications (Executive Order 11246) dated April 7, 1978,

Special Provisions of Federal-Aid Highway Program of Manual 6-4-1-2, dated June 26, 1975,

Supplemental Specification No. 1001

January 3, 1977

Supplemental Specification No. 836

March 12, 1975

**Special Provisions—**

Ohio Department of Transportation (ODOT) Minority Business Enterprise (MBE) Requirements dated August 1, 1980,

will govern this improvement with the following:

**Equal Employment Opportunity Obligations—**

Each bidder/contractor must fully comply with the requirements, terms and conditions of the Governor's Executive Order of January 27, 1972, relating to Equal Employment Opportunity in Ohio. By executing the EEO Certification Clause on the bid envelope the bidder/contractor makes a commitment to Appendices "A" and "B" of the State EEO Bid Conditions or has an acceptable Affirmative Action Plan approved within the past twelve months by the Engineer of Construction, Ohio Department of Transportation, or has filed an Acceptable Request for Exemption (ADM-5409M) with the Engineer of Construction at least five days prior to the opening of bids. Non-compliance with the foregoing requirements could cause the bid to be rejected as non-responsive.

**Minority Business Enterprise (MBE) Requirements—**

[49 CFR (Code of Federal regulations) Part 23, Federal Register, Vol. 45, No. 63, dated March 31, 1980]. See ODOT's Special Provisions entitled "Minority Business Enterprise (MBE) Requirements."

**POLICY.** It is the policy of the Ohio Department of Transportation that minority business enterprises shall have the maximum opportunity to participate in the performance of contracts financed in whole or in part with Federal funds. Consequently, the MBE requirements of 49 CFR Part 23 apply to this contract.

## PROJECT No. 405

**GOAL. FIVE PERCENT (5%) OF THIS CONTRACT SHALL BE SUBCONTRACTED TO MINORITY BUSINESS ENTERPRISE(S) OWNED AND CONTROLLED BY MINORITIES (M-MBE).**

The Bidder to whom a contract has been awarded, must, prior to execution of the contract by the Director of ODOT submit a properly executed Request to Sublet (Form C 92), to the proper District Deputy Director, Attention: District Construction Engineer and one (1) duplicate copy to the Administrator of Contractor Qualifications, Room 116, 25 South Front Street, Columbus, Ohio 43215, setting forth thereon the names of the MBE subcontractors, a description of the work each is to perform and the dollar value of each proposed MBE subcontract. In the event such bidder fails to meet the MBE percentage goal or to demonstrate sufficient reasonable efforts to attain such goals, such failure may constitute grounds for forfeiture of the bid guaranty.

**FAILURE OF THE SUCCESSFUL CONTRACTOR TO CARRY OUT THE ASSURANCES SET FORTH IN THIS CONTRACT MAY CONSTITUTE A BREACH OF CONTRACT, AND AFTER NOTIFICATION BY THE STATE MAY RESULT IN DEFAULT TERMINATION OF THE CONTRACT BY THE STATE OR SUCH REMEDY AS THE STATE DEEMS NECESSARY.**

**CONTRACTOR'S MBE OBLIGATION.** The contractor hereby agrees to take all necessary and reasonable steps in accordance with 49 CFR Part 23 to ensure that MBE's have the maximum opportunity to participate in the performance of this contract by competing for subcontracts and material supply agreements.

**Notice of Requirement of Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246)—**

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.
2. The goals for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Goals for minority participation is 9.9 percent for all crafts in the covered area of EA (16) shown in the attachment to ODOT letter of January 30, 1981. Goals for all other economic areas as discussed in the following paragraph are established per our letter dated January 30, 1981.

Goals for female participation in each trade for the "covered area" (Ohio) is 6.9 percent.

### **RULES AND REGULATIONS**

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

## PROJECT No. 405

**Safety—**

Section 107.01 of the Specifications requires, among other things, compliance with Chapter 4121:1-3 of the Ohio Administrative Code entitled "Specific Safety Requirements of The Industrial Commission of Ohio relating to Construction," effective November 1, 1979, and with the "Federal Occupational Safety and Health Act of 1970 and Code of Federal Regulations, Title 29, Chapter XVII, Part 1926."

**Environmental Pollution—**

The bidder's special attention is called to the fact that Section 107.01 of the Specifications includes but is not limited to the rules and regulations of the Ohio Environmental Protection Agency located at 361 East Broad Street, Columbus, Ohio (614-466-8565). (See "OPEN BURNING GUIDELINES FOR ODOT CONTRACTORS," dated June 7, 1974.)

**Implementation of Clean Air Act—**

(a) By signing this bid, the bidder will be deemed to have stipulated as follows:

- (1) That any facility to be utilized in the performance of this contract, unless such contract is exempt under the Clean Air Act, as amended (42 U.S.C. 1857 et seq., as amended by Pub. L. 91-604), Executive Order 11738, and regulations in implementation thereof (40 C.F.R., Part 15), is not listed on the U.S. Environmental Protection Agency (EPA) List of Violating Facilities pursuant to 40 C.F.R. 15.20.
- (2) That the State Highway Department (ODOT) shall be promptly notified prior to contract award of the receipt by the bidder of any communication from the Director, Office of Federal Activities, EPA, indicating that a facility to be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.

## PROJECT No. 405

**Federally Required EEO Certification Note—**

The Federally Required EEO Certification on the next to last page of this proposal is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7 (b) (1)), and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally only contracts or subcontracts of \$10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders or their implementing regulations.

Proposed prime contractors and subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7 (b) (1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

**Certification of Nonsegregated Facilities—**

- (a) A Certification of Nonsegregated Facilities, as required by the May 9, 1967, Order of the Secretary of Labor (32 F.R. 7439, May 19, 1967) on Elimination of Segregated Facilities (is included in the proposal and must be submitted prior to the award of a Federal-aid highway construction contract exceeding \$10,000 which is not exempt from the provisions of the Equal Opportunity clause).
- (b) Bidders are cautioned as follows: By signing this bid, the bidder will be deemed to have signed and agreed to the provisions of the "Certification of Nonsegregated Facilities" in this proposal. This certification provides that the bidder does not maintain or provide for his employees facilities which are segregated on a basis of race, creed, color, or national origin, whether such facilities are segregated by directive or on a de facto basis. The certification also provides that the bidder will not maintain such segregated facilities.
- (c) Bidders receiving Federal-aid highway construction contract awards exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity clause, will be required to provide for the forwarding of the following notice to prospective subcontractors for construction contracts and material suppliers where the subcontracts or material supply agreements exceed \$10,000 and are not exempt from the provisions of the Equal Opportunity clause.

**"Notice to Prospective Subcontractors and Material Suppliers of Requirement for Certification of Non-segregated Facilities"—**

- "(a) A Certification of Nonsegregated Facilities as required by the May 9, 1967, Order of the Secretary of Labor (32 F.R. 7439, May 19, 1967) on Elimination of Segregated Facilities, which is included in the proposal, or attached hereto, must be submitted by each subcontractor and material supplier prior to the award of the subcontract or consummation of a material supply agreement if such subcontract or agreement exceeds \$10,000 and is not exempt from the provisions of the Equal Opportunity clause.
- "(b) Subcontractors and material suppliers are cautioned as follows: By signing the subcontract or entering into a material supply agreement, the subcontractor or material supplier will be deemed to have signed and agreed to the provisions of the "Certification of Nonsegregated Facilities" in the subcontract or material supply agreement. This certification provides that the subcontractor or material supplier does not maintain or provide for his employees facilities which are segregated on the basis of race, creed, color, or national origin, whether such facilities are segregated by directive or on a de facto basis. The certification also provides that the subcontractor or material supplier will not maintain such segregated facilities.
- "(c) Subcontractors or material suppliers receiving subcontract awards or material supply agreements exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity clause will be required to provide for the forwarding of this notice to prospective subcontractors for construction contracts and material suppliers where the subcontracts or material supply agreements exceed \$10,000 and are not exempt from the provisions of the Equal Opportunity clause."

## PROJECT No. 405

**401.04 Mixing Plants—**

The requirements for bituminous concrete mixing plants are modified herein to permit the use of drum mix plants. In addition to the applicable requirements of Supplement 1001, drum mix plants shall conform to the following requirements and shall be subject to inspection and approval by the Director.

1. **Aggregate Storage and Handling.** Aggregates of the sizes required for the production of mix shall be stored in separate stockpiles and shall be controlled in such a manner that maintenance of uniform gradation will be assured. For each aggregate size, a separate cold feed bin shall be provided of sufficient size to maintain a continuous flow of aggregate. Proper proportioning of each aggregate size shall be accomplished by mechanical means to provide a uniform flow sufficient for the production rate of the plant. A sensor installed in each bin shall detect any interruption of proper bin flow and shall interrupt all feed systems simultaneously.
2. **Bituminous Storage and Handling.** Storage tanks, pumps, meters, and pipe lines shall be capable of maintaining bituminous materials at a uniform temperature. The delivery system shall be capable of metering the proper proportion of the bituminous material to the drum mixer. The delivery system shall be coupled to the aggregate flow rate in such a manner as to maintain the proper proportion of bituminous material to dry aggregate.
3. **Charging Belt Conveyor.** The belt charging the drum mixer shall be capable of measuring the rate of feed of combined aggregates. Means shall be provided to permit a check of the accuracy of this measuring system. The charging belt and measuring system shall be capable of maintaining continuous accuracy unaffected by variation of such factors as belt tension, residual material, and wind.
4. **Drum Mixer.** The drum mixer used for drying and mixing shall be of the parallel-flow type, and shall be capable of drying the aggregate and mixing with asphalt cement to result in a uniformly coated mixture of the correct temperature. The burner shall be automatically controlled by means of a temperature sensing device.
5. **Surge Bin.** A surge bin shall be provided capable of accepting the steady production of the drum mixer, providing temporary storage, and providing a means for loading the mix into trucks while maintaining uniform composition including aggregate gradation, asphalt content, and uniform temperature.
6. **Sensors, Controls, and Indicators.** The plant shall be designed to have all display readouts and indicators in a central location to permit the plant operator to monitor continuously all aspects of the mixing process and to maintain proper process control. Variables monitored and displayed shall include the following:
  - a. Aggregate cold feed rates from bins, for each aggregate size.
  - b. Total aggregate feed rate on charging belt.
  - c. Moisture compensation for aggregate feed on charging belt.
  - d. Bituminous material delivery rate.
  - e. Temperature of mixture at drum mixer discharge point.
  - f. Accumulated total aggregate weight.
  - g. Accumulated total bituminous material delivered.
7. **Plant Calibration.** Calibration of the plant shall be performed by the contractor for each aggregate combination and asphalt content for the mixtures to be produced.
8. **Accuracy of Delivery Systems.** Before the start of production of any mixture, the accuracy of the indicators and controls used in the calibration of the plant shall be demonstrated by the contractor. Included in the accuracy checks shall be a test of the aggregate delivery rate and asphalt delivery rate. Aggregate on the charging belt shall be diverted and delivered into a truck, loader, or other container for weighing. The weight indicated by instrumentation shall agree with actual weight of aggregate delivered within plus or minus two percent. Bituminous material delivered during the test shall be diverted into a distributor or other suitable container for measurement of the quantity of the bituminous material delivered. The actual amount of asphalt delivered will be compared with that required by the aggregate delivered and shall be within plus or minus two percent of the correct amount. The contractor may apply a dummy load for aggregate delivery for this accuracy check.
9. **Plant Operation and Process Control.** The plant shall be capable of maintaining proper cold feed aggregate proportions and shall permit positive adjustment of the asphalt feed rate to compensate for moisture content of the wet aggregates. The compensation for moisture shall be based on periodic moisture tests or on variations in moisture content of the aggregates as indicated by a moisture sensor. Adjustment shall be made for any variation of two percent or more in moisture content of the aggregates. It is the responsibility of the contractor to operate the plant in such a manner that a uniform mixture of the specified proportions and of the proper mix temperature will be produced regardless of variations of feed rate or aggregate moisture.

## PROJECT No. 405

**Load Limits—**

By signing this bid, the bidder will be deemed to have stipulated as follows:

- I. Any vehicle being used to haul materials to this project shall,
  - a) strictly adhere to Specification 105.13 in that it shall not exceed the legal maximum gross load on roads or bridges during that haul; and
  - b) 1) have painted in an obvious location on its side its legal maximum gross loaded weight in pounds or maximum legal load in cubic yards where loads are normally measured by volume, or
  - 2) carry at all times during said haul, a certified document which presents a description of the vehicle, the vehicle's current license plate number, and its legal maximum gross loaded weight in pounds or maximum legal load in cubic yards where loads are normally measured by volume.
- II. Drivers of all vehicles being used to haul materials to this project, for which a State Agent must write load tickets, shall be informed that tickets shall not be issued to overloads.
- III. Any vehicle entering onto this construction project site and found to be overloaded without an overload permit shall be cause for the contractor to be assessed a liquidated damage equal, in dollars, to the fine normally imposed by the State Highway Patrol on said overloaded vehicle as per Section 5577.99 (A) of the Ohio Revised Code. The amount of liquidated damage assessed will be determined from the following schedule.

**Schedule of Liquidated Damages to  
be Assessed per Overloaded Vehicle**

Overload	Liquidated Damage
to 2,000 lbs.	\$25.00
2,000 to 5,000	\$25.00 plus \$1.00 per 100 lbs. of total overload
5,000 to 10,000	\$25.00 plus \$2.00 per 100 lbs. of total overload
10,000 plus	\$25.00 plus \$3.00 per 100 lbs. of total overload

**Construction Signs, Drums and Barricades for Maintaining Traffic—**

The orange or silver white background on the construction signs and the orange and silver white stripes on the drums and barricades shall be constructed of reflective sheeting Type G which shall consist of glass spheres embedded within a transparent flexible film with a smooth outer surface. The film shall be of the shade or color and at brightness values not less than those shown on the following table. For light incidence angles of 4 degrees and 40 degrees, the minimum brightness value is given for divergence angles of 0.2, 0.5 and 1.5 degrees.

TYPE G BRIGHTNESS VALUES

COLOR		ORANGE			SILVER WHITE		
Divergence angle		0.2	0.5	1.5	0.2	0.5	1.5
Incidence angle	4	60	20	1.0	250	95	4
	40	25	13	0.4	120	40	2.5

The supplier and/or producer of the material shall provide certification that the material furnished meets the above brightness values.

The Bureau of Tests will conduct field tests on a random basis to verify the supplier's and /or producer's statement.

In lieu of the painting and marking requirements for drums in 614.03 (a), drums may be painted any color and shall be marked alternately with a minimum of 2 orange and 2 silver white circumferential bands of reflective sheeting. Each band shall be not less than 4 inches, nor more than 8 inches in width and any space between bands shall not exceed 2 inches.

## PROJECT No. 405

**Supportive Services Special Provision—FHPM 6-4-1-2—**

Your attention is hereby called to an agreement entered into by the Ohio Department of Transportation for services in support of training programs in accordance with the provisions of Federal-Aid Highway Program Manual, Volume 6, Chapter 4, Section 1, Subsection 2.

Said agreement may be examined in the office of the Engineer of Construction, Room 400, Ohio Department of Transportation Building, 25 South Front Street, Columbus, Ohio, 43215 (Tel. 614-466-4788).

**Steel Made in the United States (Sec. 153.011 G.R.C.)—**

Any steel products to be used or supplied in connection with this project shall be steel products rolled, formed, shaped, drawn, extruded, forged, cast, fabricated or otherwise similarly processed, or processed by a combination of two or more of such operations, from steel made in the United States by the open hearth, basic oxygen, electric furnace, Bessemer or other steel making process. "United States" means the United States of America and includes all territory, continental or insular, subject to the jurisdiction of the United States.

**Wage Rates—**

"Individuals comprising a survey party performing work which is primarily professional or subprofessional in character and who, incidental to their primary duties, perform a minor amount of manual work such as clearing brush and sharpening stakes, are not classed as laborers or mechanics under the Davis-Bacon Act and Section 113 of Title 23, U.S. Code.

Individuals whose primary duties are the performance of manual work such as clearing brush and sharpening stakes are classified as laborers within the meaning of the Davis-Bacon Act and Section 113 of Title 23, U. S. Code, and shall be paid at least the minimum wage rates determined by the Secretary of Labor."

**401.15 and 404.15 Joints—**

In lieu of the requirements for coating the face of cold joints, the following shall apply for all bituminous concrete courses that are opened to traffic for a period of 30 days or more, and to all surface courses.

The vertical face of all cold joints shall be coated using bituminous material 702.01, 702.02, or 702.04, applied at a rate of 0.25 gallon per square yard or, in lieu of this, the finished surface of the joint shall be coated with asphalt cement, 702.01 applied 6 inches wide at the rate of 0.15 gallon per square yard. When it is elected to coat the finished surface of joints, the coating shall be done prior to applying permanent pavement markings.

Bituminous material will be measured by the gallon and payment for accepted quantities complete in place will be made at the unit price bid for 407 tack coat.

If there is no pay item in the plans or proposal for 407 tack coat, the cost of sealing joints as described above shall be included in the unit price bid for the asphalt concrete surface course.

**Policy —**

It is the policy of the Department of Transportation that minority business enterprises as defined in 49 CFR Part 23 shall have the maximum opportunity to participate in the performance of contracts financed in whole or in part with Federal funds under this agreement. Consequently, the MBE requirements of 49 CFR Part 23 apply to this contract.

**MBE Obligation —**

The contractor agrees to ensure that minority businesses as defined in 49 CFR Part 23 have the maximum opportunity to participate in the performance of contracts and subcontracts financed in whole or in part with Federal funds provided under this contract. In this regard, all contractors shall take all necessary and reasonable steps in accordance with 49 CFR Part 23 to ensure that minority business enterprises have the maximum opportunity to compete for and perform contracts and subcontracts. Contractors shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of DOT-assisted contracts.

## PROJECT No. 405

**Item Special—Epoxy Coated Reinforcing Steel—****1.0 Description**

- 1.1 This item shall consist of furnishing and placing epoxy coated reinforcing steel of the quality, type, size and quantity designated.
- 1.2 All sections of Section 509, Reinforcing steel, of the CMS shall apply, except as herein described.

**2.0 Coating Process.** The epoxy coating shall be an organic powdered epoxy applied by the electrostatic spray method as specified by the coating supplier subject to the provisions and procedures which follow. Patching may be done by application of an approved liquid epoxy material.

**3.0 Coating and Patching Material**

- 3.1 All coating and patching material shall be prequalified in conformance with specifications outlined in Attachment A to the Federal Highway Administration Notice N5080.48, dated March 30, 1976. Prequalification shall be by a qualified independent testing laboratory, which shall certify as to the acceptability of the material and shall make available the results of the prequalification tests, or by a State Laboratory.
- 3.2 The coating and patching material shall be of the same composition and quality as that approved by prequalification.

**4.0 Surface Preparation**

- 4.1 The manufacturer shall specify the method and grade of metal surface preparation prescribed for the prequalification of the coating and patching products.
- 4.2 The coating and patching shall be applied to the cleaned dry surface as soon as possible after cleaning and before any visible oxidation of the surface occurs, but in no case shall more than eight hours elapse.
- 4.3 All traces of grit and dust from the blasting shall be removed.

**5.0 Coating Thickness.** The film thickness after curing shall be the same as the average of the prequalification thickness and shall not deviate by more than  $\pm 30$  percent or  $\pm 2$  mils, whichever is less. Thickness of the film shall be measured using ASTM G 12-72T.

**6.0 Coating Cure.** The coating applicator shall check each production lot, using the method he has found most effective for measuring cure, and shall certify that the entire production lot of coated bars supplied is in the fully cured condition.

**7.0 Continuity of Coating**

- 7.1 The coating shall be checked visually after cure for continuity. It shall be free from holes, voids, contamination, cracks and damaged areas.
- 7.2 The coating shall not have more than two holidays (pin holes not visible to the naked eye) in any linear foot of the coated bars. Holiday checks shall be made with 67½ volt holiday detector in accordance with the manufacturer's instructions.

**8.0 Fabrication**

- 8.1 Reinforcing bars may be coated either before or after fabrication.
- 8.2 Regardless of whether any bent bars are required to be coated, flexibility tests shall be made from a minimum of three random samples of coated bar stock for each lot of coating supplied. The tests shall be in accordance with Section 4.4 of the prequalification requirements, except that the thermal equilibrium shall be between 20 and 30 degrees C. The flexibility tests shall be performed and the material approved prior to shipment from the coating plant. Testing shall begin during an early stage of production.
- 8.3 Repair to the coating damage during fabrication of coating process shall be made by the fabricator using the coating manufacturer's prequalified material.

**9.0 Handling, Shipping and Storage**

- 9.1 The coating lot shall be recorded on each shipping notice.
- 9.2 All systems for handling coated bars shall have padded contact areas free of dirt and grit.
- 9.3 Coated bars, bundled for shipping, shall have provisions for preventing bar to bar abrasion. Bundling bands shall be padded.
- 9.4 Bundled coated bars shall be lifted with a strong back, multiple supports or a platform bridge to prevent sagging abrasion.
- 9.5 Bars or bundles shall not be dropped or dragged.
- 9.6 Coated bars shall be stored, both in the shop and in the field, on wooden or padded cribbing.



## PROJECT No. 405

**10.0 Coated Bar Placement and Field Patching**

- 10.1 Plastic coated or epoxy coated bar supports shall be employed to protect the coating from physical damage during placement.
- 10.2 Bars shall be carefully handled and installed so that patching at the job site will be kept to a minimum. It is not expected that the coated bars, when in final position ready for concrete placement, will be completely free of damaged areas. Neither will numerous nicks and scrapes which expose the steel be allowed, regardless of the stage when they occur subsequent to coating in the plant. All damage defined as significant damage shall be patched. At the discretion of the Engineer, numerous areas of damage not defined as significant damage shall also be patched. The latter type of patching can be avoided by careful observance of the requirements of Section 9.0.
- 10.3 Significant damage is defined as any opening in the coating which exposes the steel and which exceeds the following sizes:
- An area of 0.05 square inch (approximately  $\frac{1}{4}$ " square or  $\frac{1}{4}$ " diameter or equivalent).
  - An area of 0.012 square inch (approximately  $\frac{1}{8}$ " square or  $\frac{1}{8}$ " diameter) if the opening is within  $\frac{1}{4}$ " of another opening of the same or larger size.
  - 6 inches in length, regardless of area.
  - An aggregate area of 0.50 square inch in any one foot length. For example, twenty areas each  $\frac{3}{16}$ " diameter equals 0.55 square inch would require patching.
- 10.4 Where repair is required the damage areas shall be cleaned, repaired, and adequate cure time allowed before placing concrete. The installation shall be considered approved when patching has been done as outlined above.

**11.0 Documentation and Sampling**

- 11.1 The coating manufacturer shall provide written certification to the applicator that the coating and patching material is the same as that prequalified, and shall specify the thickness of the materials under which the prequalification was approved.
- 11.2 The coating applicator shall supply the Director with a representative sample of 8 ounces of each lot of coating material used. The sample shall be packaged in two individual air tight containers of 4 ounces each, identified by lot number. The applicator shall also supply the Director with two representative samples of one pint each of the patching material identified by lot number. If the field lot differs from the shop lot two pint samples of the field lot shall also be supplied to the Director.
- 11.3 The applicator shall supply the Engineer certification, including test results, showing compliance with Sections 3, 4, 5, 6, 7, and 8 for each size in each coating lot.
- 11.4 Three coated bars 8 feet long shall be supplied for each bar size in a coating lot to be used as splices where samples are taken.
- 11.5 Three samples 30 inches long shall be taken of each size bar in a coating lot.

12.0 **Method of Measurement.** The method of measurement of coated reinforcement shall be in accordance with 509.11 of the CMS based on the weight of the uncoated bars.

13.0 **Basis of Payment.** Payment will be made at contract price for:

Item	Unit	Description
Special	Pound	Epoxy Coated Reinforcing Steel

## PROJECT No. 405

**Use of Reclaimed Materials in Asphalt Pavements—**

On this project the Contractor may use all new materials or a blend of new materials in combination with reclaimed materials for all Items 301, 402, 403, 404 and 848. For surface courses, up to a maximum of 30 percent of reclaimed materials may be used. For all other courses, up to a maximum of 70 percent of reclaimed materials may be used. The Job Mix Formula shall fall within the limits of the item specified. The asphalt cement proposed for use in the mixture shall meet the requirements of AC-20, and may be a combination of reclaimed asphalt cement, new asphalt cement, and/or rejuvenating agents. The Contractor shall specify the percentages of reclaimed materials, new aggregates, new asphalt and rejuvenating agents (if used) required to meet the Job Mix Formula. The Contractor shall identify reclaimed material as to type and source. All materials used shall meet the quality requirements of the specification item.

The Contractor shall provide a Job Mix Formula obtained following the Marshall Design Method for the following criteria:

	<u>Base</u>	<u>Intermediate</u>	<u>Surface</u>
Stability	Table 2-2	Table 2-2	Table 2-2
Flow	Table 2-2	Table 2-2	Table 2-2
Percent Air Voids	3 to 8	Table 2-2	Table 2-2
Maximum size aggregate	2 inch	Table 2-2 1 inch	Table 2-2 1 inch

Acceptance shall follow 401 procedures except the following tolerances apply on the Job Mix Formula:

Passing No. 8 and larger	± 10%
Passing No. 16 - No. 100	± 6%
Passing No. 200	± 3%
Asphalt	± 1%

If recycled materials are used under 848 specifications then the 848 acceptance procedures will apply.

On this project, properties of mixtures shall be for medium traffic volumes.

TABLE 2-2:

**PROPERTIES OF MIXTURES  
FOR MEDIUM TRAFFIC VOLUMES**

<u>Property</u>	<u>Test Method</u>	<u>Acceptable Range of Values</u>	
		<u>Min.</u>	<u>Max.</u>
Stability, lb.	AASHTO T 245, 50 Blow	800	—
Flow, 0.01 in.	AASHTO T 245, 50 Blow	8	16
Percent air voids	Supplement 1036	3	5

**FOR HEAVY TRAFFIC VOLUMES**

<u>Property</u>	<u>Test Method</u>	<u>Acceptable Range of Values</u>	
		<u>Min.</u>	<u>Max.</u>
Stability, lb.	AASHTO T 245, 75 Blow	1100	—
Flow, 0.01 in.	AASHTO T 245, 75 Blow	8	16
Percent air voids	Supplement 1036	3	5

## PROJECT No. 405

**Price Adjustment, Asphalt Cement—**

The Bidder shall determine his unit bid prices using his current quoted price per ton for asphalt cement, and shall rely on provisions as set forth herein to provide an adjustment for any asphalt cement price changes which may occur.

Compensation the Contractor receives for work done each month under contract items designated below will be adjusted for the change in price of asphalt cement used in those items in accordance with the following formula, except that a price adjustment will not be made for any month in which Ip/Ib is between 0.95 and 1.05.

$$Pa = [(Ip/Ib) - 1.00] \times C \times Q$$

Where:

Pa = Price Adjustment

Ib = Bidding Index, the most recently published average price (from Platt's Oilgram)\* published at least seven (7) calendar days prior to opening of bids. This published Platt's Oilgram information (Ib) will be available at the Bureau of Contract Sales approximately 3 days prior to the letting date.

Ip = Placing Index, the average price (from Platt's Oilgram)\* published on the earliest day of the month in which the placement of the material occurs.

\*The average wholesale price for the asphalt cement, Detroit, Michigan, as published in Platt's Oilgram Price Report.

C = Asphalt cement cost of contract item in dollars per ton determined by multiplying Ib by the amount of asphalt cement used per ton.

$$C = \frac{(Ib) \times (\% \text{ Asph. Cement})}{100}$$

100

For bituminous mixtures, the percent of asphalt cement used in the mixture will be determined from the approved job mix formula.

For bituminous material applied, a gallon of any cutback asphalt will be considered to be 100% asphalt cement; a gallon of any undiluted emulsified asphalt will be considered to be 65% asphalt cement.

Q = Authorized constructed quantity in tons, placed in the month being considered.

When contract item is in Cu. Yd., multiply by 2.0 for limestone and gravel, or 1.8 for slag to convert to tons.

When contract item is in gallons, Q will be determined in tons by using the following equation:

$$Q = \frac{(\text{Authorized Gal. Used}) \times (8.328 \text{ lb/Gal.}) \times (\text{Sp. Gr.})}{2000 \text{ lb/ton}}$$

When bituminous materials are placed beyond approved contract completion time and liquidated damages are applicable for completion of the contract, price adjustment will be based on the Placing Index (Ip) as if material was placed during the last adjustable period before liquidated damages were applicable, or the Placing Index at the actual time of placing, whichever is less. Accumulative adjustment will be paid following completion of work required for each adjusted item.

The following items in this contract will be subject to compensation adjustment: 301, 403, 404.

**Specialty Items—**

The contractor shall perform, with his own organization, work amounting to not less than 50 per cent of the remainder obtained by subtracting from the total original contract value the sum of any items designated in the contract as "Specialty Items."

The following items in this contract, if sublet, will be treated as "Specialty Items": 517, 606, 659, 660.

PROJECT No. 405

Aggregate for Portland Cement Concrete—

On this project, the portion of 703.02 under Coarse Aggregate, section No. 3 "Amount finer than No. 200 sieve" shall be amended to read as follows:

The percentage of materials finer than the No. 200 sieve in the aggregate portion of the concrete mix shall not exceed the following:

	Percent by Weight	
	Superstructure	All other Concrete
Where the finer than No. 200 sieve material from the coarse aggregate consists of the dust of fracture essentially free from clay and shale .....	3.4	3.8
Where the finer than No. 200 sieve material from the coarse aggregate may consist of or include material other than dust of fracture .....	2.0	2.2

603.06 Joining Conduit—

Where banded joints are required for corrugated metal pipe furnished under 603, the pipe shall be provided with at least two circumferential corrugations at each end of each pipe length. The pipe lengths shall be jointed with coupling bands which have at least one circumferential corrugation that indexes into the inboard corrugations of each pipe. Bands with projections, i.e. dimple bands, shall not be used.

## PROJECT No. 405

**Preparation of Proposal—**

The blank spaces in the proposal must be filled in correctly, where indicated, and typed or written in ink.

**Supplemental Questionnaire—**

Blank Supplemental Questionnaires, furnished with each Proposal, must be filled out and attached to each bid submitted.

**Bid Guaranty—(Payable to the “Director of Transportation”)—**


Each bidder shall be required to file with his bid a certified check or cashier's check for an amount equal to five per cent of his bid, but in no event more than fifty thousand dollars, or a bid bond for ten per cent of his bid, payable to the “Director of Transportation.”

In the event a bidder chooses to use a bid bond, it must be submitted on the department's “Bid Bond” form, copies of which are enclosed herewith.

**Bid Proper—**

The bidder is required to fill in, in the “Unit Price Bid” column, a unit price for additions opposite each item for which there is a quantity given in the “Approximate Unit Quantities” column. The gross sum of the totals in the “Total Amount Bid” column shall equal the sum (shown on page 16 of this proposal) bid for the work.

The total given on page 16 is only for the convenience of the Director in reading bids. The attention of the bidder is directed to Sections 5525.11 and 5525.18 of the Revised Code of Ohio.

 *The unit prices specified in the “Unit Price Bid” column will govern the award of the contract.*

*The contractor shall make the extensions in “Total Amount Bid” column and also add up the totals. However, the unit prices specified, together with the approximate quantities shall determine the total amount of the bid. If there is an error made in the extensions by the bidder, the total shall be changed as only the unit prices shall govern.*

The quantities in the “Approximate Unit Quantities” column are those given in the engineer's approximate estimate and are those which will be used in determining the total amount of each proposal for this improvement and for the purpose of determining the lowest bidder. It is understood and agreed that these quantities are approximate only. The bidder must give a unit price for each item named. Failure to do so will render the bid informal at the discretion of the Director.

**Time for Submission of Bids—**

Bids to be received not later than

10:00 A.M.  
Ohio Standard Time  
Tuesday, June 9, 1981

**Address—**

Proposals must be sealed and addressed

“Bureau of Contract Sales  
Department of Transportation  
Ohio Department of Transportation Building  
25 South Front Street, Room 118  
Columbus, Ohio 43215”

and envelope marked—

“Project No. 405”

and with the name and address of the bidder.

Place—Bids to be opened and publicly read at

Hearing Room No. 2  
1st Floor State Office Building  
65 South Front Street  
Columbus, Ohio 43215

DAVID L. WEIR,  
Director.

To the Director of the Ohio Department of Transportation:

The undersigned, having full knowledge of the site, plans and specifications for the following improvement and the conditions of this proposal, hereby agrees to furnish all services, labor, materials, and equipment necessary to complete the entire project, according to the plans, specifications and completion dates, and to accept the unit prices specified below for each item as full compensation for the work in this proposal.

Date Set for Completion: **October 15, 1981**

The total amount of the bid, based on the approximate quantities given below and the unit prices specified by the bidder amounts to the sum of

(in lank) \_\_\_\_\_ and \_\_\_\_\_ / 100 Dollars (\$ \_\_\_\_\_)

UNIT PRICE CONTRACT

For improving County Road 39-4.98 in Richland Township, Logan County, Ohio, in accordance with plans and specifications by grading, draining and paving with asphalt concrete on a bituminous aggregate base and by constructing:  
 Bridge No. LOG-C.R. 39-4.98, consisting of a continuous concrete slab on capped-pile substructure (spans 24'-30'-24', roadway 32' between guardrails), over a Branch of South Fork Miami River.

Pavement width Varies. Project length 825.00 ft. or 0.156 mile. Work length 1,150.00 ft. or 0.217 mile.

Ref. Item No.	Approximate Unit Quantities	ITEM	ITEMIZED PROPOSAL			
			Unit Price Bid		Total Amount Bid	
			\$	cts.	\$	cts.
ROADWAY						
1	201	clearing and grubbing				
2	202	lin. ft. pipe removed for storage, 24" and under				
3	203	1. cu. yds. excavation not including embankment construction				
4	203	2,684 cu. yds. embankment				
5	203	2,163 sq. yds. subgrade compaction				
6	606	536 lin. ft. guardrail, Type 5				
7	606	4 each bridge terminal assembly, Standard Type B				
8	606	4 each anchor assembly, Standard Type A				
9	410	50 cu. yds. traffic compacted surface, Type A or B				
10	616	50 M. gals. water				
			Lump Sum			

11 616 10 tons calcium chloride .....

12 Total Roadway .....

EROSION CONTROL

13 207 1,100 sq. yds. temporary seeding and mulching .....

14 207 30 each straw or hay bales .....

15 601 24 cu. yds. rock channel protection, Type B with bedding .....

16 601 5 cu. yds. rock channel protection, Type C without bedding .....

17 659 5,485 sq. yds. seeding and mulching .....

18 659 0.55 ton commercial fertilizer .....

19 659 300 sq. yds. repair seeding and mulching .....

20 659 9 M. gals. water .....

21 660 684 sq. yds. sodding .....

Total Erosion Control .....

DRAINAGE

23 603 46 lin. ft. 24" conduit, Type D .....

24 603 36 lin. ft. 12" conduit, Type D .....

25 603 100 lin. ft. 6" conduit, Type B .....

26 605 200 lin. ft. aggregate drains .....

27 603 100 lin. ft. 6" conduit, Type E .....

28 603 50 lin. ft. 6" conduit, Type F .....

Total Drainage .....

PAVEMENT

30 301 379 cu. yds. bituminous aggregate base: AC-20, RT-11 or RT-12 .....

31 408 75 cu. yds. asphalt concrete, AC-20 .....

32 404 75 cu. yds. asphalt concrete, AC-20 .....

33 404 6 cu. yds. asphalt concrete, AC-20 (driveways) .....

34 408 42 gals. bituminous prime coat: MC-30, MC-70, Primer 20, RT-2 or RT-3 .....

35 411 172 cu. yds. stabilized crushed aggregate .....

Total Pavement .....

STRUCTURE OVER 20 FOOT SPAN  
Bridge No. LOG-C.R. 39-4.98

37 202 lump structure removed .....

38 503 87 cu. yds. unclassified excavation .....

Lump Sum

39	Special	10,551 lbs. epoxy coated reinforcing steel .....			
40	505	lump test pile .....	Lump	Sum	
41	507	830 lin. ft. 14" cast-in-place reinforced concrete piles .....			
42	509	23,892 lbs. reinforcing steel .....			
43	511	134 cu. yds. Class "S" concrete, superstructure .....			
44	511	11 cu. yds. Class "C" concrete, pier caps .....			
45	511	37 cu. yds. Class "C" concrete, abutments .....			
46	516	7 sq. ft. 1" preformed expansion joint filler .....			
47	517	164.00 lin. ft. railing (deep beam rail with steel tubular backup and steel posts and bolts) .....			
48	518	18 cu. yds. porous backfill .....			
49	601	197 cu. yds. rock channel protection, Type B without bedding .....			
50		Total, Structure Over 20 Foot Span .....			
51	624	Lump Mobilization .....	Lump	Sum	
52	619	Lump Field Office .....	Lump	Sum	
53	103.05	Lump Premium for Contract Performance Bond and for Payment Bond .....	Lump	Sum	
54	623	Lump Construction Layout Stakes .....	Lump	Sum	
55	614	Lump Maintaining Traffic .....	Lump	Sum	
56		TOTAL AMOUNT OF THE BID .....			

Have you double checked your bid ? ? ? Errors or omissions could result in your bid's being declared informal.



PROJECT No. 405

Wage Scale—

“The wage rates for this project have been predetermined by the Secretary of Labor in accordance with Section 113 of Federal Aid Highway Act of 1968.”

State of Ohio  
Project No. 405

Decision No.— OH-81-2021  
Decision Date— 05-08-81

(Contractors shall use only the classification set forth herein when submitting payrolls to the District Office.)

This contract requires the payment of the total of the “basic hourly rates” plus the “fringe benefits payments” for each classification of “Laborer or Mechanic,” all in accordance with U.S. Department of Labor Regulations, Title 29, Subtitle A, Part 5, Sections 5.31 and 5.32, dated March 1, 1966.

The contractor shall submit his payrolls in a form which shall clearly and separately show the “basic hourly rates” paid and the amount and manner in which each “fringe benefits payment” has been irrevocably made.

**HEAVY AND HIGHWAY CONSTRUCTION**  
(Does Not Include Railroad Construction)

**POWER EQUIPMENT OPERATORS**  
Fringe Benefits Payments

Classifications	H & W	Pensions	Education and/or App. Tr.	Effective
	\$1.26	\$1.50	.15	05-01-81
				<b>Basic Hourly Rates</b>
<b>CLASS A</b> —Air compressor on steel erection, Asphalt plant engineer (Cleveland District only), Boiler op., compressor or generator when mounted on rig, Cableways, Combination concrete mixer and tower, Concrete plants (over 4 yds. cap.), Concrete pumps, Cranes (all types inc. A frames, boom trucks, cherry pickers), Derricks, Draglines, Dredge (dipper, clam or suction), Elevating grader or Euclid loader, Floating equipment (all types), Helicopter crew (hoist or winch), Hoes (all types), Hoisting engines (including shaft & tunnel work), Industrial type tractor, Jet engine dryer (D8 or D9) diesel tractor, Locomotives (standard gauge), Maintenance op., Class A, Mixer (paving, single or double drum), Mucking mach., Multiple scraper, Piledriving mach. (all types), Power shovel, Quad 9 (double pusher), Refrigerating mach. (freezer operation), Rotary drill on caisson work, Slip form paver, Tower derricks, Tree shredder, Trench mach. (over 24" wide), Truck mounted concrete pump, Tug boat, Tunnel mach., Mining mach., Wheel excavator .....				\$15.04
<b>CLASS B</b> —Asphalt paver, Automatic subgrader mach., self-propelled (CMI type), Boring mach. op. (more than 48"), Bulldozers, Endloader, Kolman loader (production type — dirt), Lead grease man, Maintenance op., Class B (in Zone 2 Portage & Summit Cos. only), Power grader, Power scraper, Push cat, Trench mach. (24" wide & under) .....				14.92
<b>CLASS C</b> —Air compressor on tunnel work (low pressure), Asphalt plant engineer (in Zone 2 Portage & Summit Counties only), Locomotive (narrow gauge), Concrete mixers (more than 1 bag capacity), Mixers (1 bag capacity — side loader), Power boiler over 15 lb. pressure, Pump operator installing and operating well points, Pumps (4" & over discharge), Rollers (asphalt), Utility operator (small equipment), Welding machines & generators .....				13.88
<b>CLASS D</b> —Back fillers, Bar (joint & mesh installing mach.), Batch plant, Boring mach. op. (48" or less), Bull floats, Burlap & curing mach., Compressors (portable, sewer, hvy. & hwy.), Concrete plant (4 yd. &				

## PROJECT No. 405

## SKILLED LABOR

Classifications	Basic Hourly Rates	Fringe Benefits Payments				Others
		H & W	Pensions	Vacations	Education and/or Appr. Tr.	
Bricklayers & Stonemasons .....	\$11.52	.85	1.10		.03	
Carpenters .....	13.92	.90	1.25		.04	
Piledrivermen .....	14.57	.90	1.25		.04	
Cement Masons .....	13.83	.70	.95		.02	
Electricians .....	13.70	1.10	3% + .43		.04	
Ironworkers, Structural, Ornamental & Reinforcing: West two-thirds of County:						
Within 15 mile radius of Local Union Office #290 .....	13.06	1.00	1.60		.06	
Outside 15 mile radius of Local Union Office #290 .....	13.21	1.00	1.60		.06	
East one-third of County .....	13.85	1.00	2.35		.05	
Linemen .....	14.43	.70	3%		½%	
Groundmen .....	9.48	.70	3%		½%	
Painters, Brush .....	*N.A.					
Painters, Structural .....	*N.A.					
Painters, Bridge .....	*N.A.					
Plumbers .....	14.25	.83	.85		.04	

## Footnote:

\* — Not Available.

PROJECT No. 405

COMMON LABOR

Fringe Benefits Payments

H & W	Pensions	Education and/or Appr. Tr.
.75	1.30	.05

Effective

05-01-81

Basic Hourly Rates

Classifications

<b>GROUP I</b> — Asphalt Laborer; Carpenter Tender; Concrete Curing Applicator; Dump Man (Batch Trucks); Flagman; Grade Checker; Guardrail & Fence Installers; Joint Setter; Laborers (Construction); Landscape Laborer; Mesh Handlers & Placers; Plant Laborers or Yardman; Right-of-way Laborers; Riprap Laborer & Grouter; Scaffold Erector; Seal Coating Surface Treatment or Road Mix Laborer; Sign Installer; Slurry Seal; Utility Man or Handyman; & Waterproofing Laborer .....	\$ 11.77
<b>GROUP II</b> — Asphalt Raker; Concrete Puddler; Kettle Man (Pipeline); Machine Driven Tools; Mason Tender; Mortar Mixer; Power Buggy or Power Wheelbarrow; Sheeting & Shoring Man; & Surface Grinder Man .....	11.895
<b>GROUP III</b> — Air Track & Wagon Drill; Bottom Man; Car Pusher (Without Air); Cofferdam (Below 25 feet deep); Concrete Saw Man; Cutting with Burning Torch; Form Setter; Hand Spiker (Railroad); Pipelayer; Tunnel Laborer (Without Air) and Caisson; Underground Man (Working in Sewer & Waterline, Cleaning, Repairing & Reconditioning); & Welder Tender (Pipeline) .....	11.97
<b>GROUP IV</b> — Blaster; Muckers; Powder Man; Top Lander; Wrencher (Mechanical Joints & Utility Pipeline); & Yarnner .....	12.12
<b>GROUP V</b> — Concrete Crew in Tunnels; Curb Setter & Cutter; Gunnite Nozzle Man; Miner Without Air; Utility Pipeline Tapper; & Waterline Caulker .....	12.42

The minimum wage to be paid to watchmen employed on this contract shall be in accordance with the "Schedule of Prevailing Hourly Wage Rates Ascertained and Determined by the Department of Industrial Relations applicable to State Highway Improvements in accordance with Chapter 4115 Ohio Revised Code."

Watchmen (rate per 40 hour week) ..... \$ 225.00\*

*H & W	Pensions	Appr. Tr.
.75	1.30	.05

405-1

ORIGINAL

FISCAL OFFICER'S CERTIFICATE  
(Chapter 5521 and Section 5705.41, Ohio Revised Code)

I hereby certify that the money, to wit: \$ 48,640.00

required for the payment of the cost other than that part thereof assumed by the Federal Government for the improvement of that portion of County Road No. 39, more particularly described as follows:

Replacement of the bridge on County Road No. 39, approximately 2.1 miles south of Belle Center over branch of South Fork Miami River. Total length of work being approximately 0.217 mile

has been lawfully appropriated for such purpose and is in the treasury to the credit of, or has been levied, placed on the duplicate and in process of collection for the appropriate fund, and not appropriated for any other purpose; or is being obtained by sale of bonds issued on account of said improvement, which bonds are sold and in process of delivery.

I further certify that this certificate was made, sealed and filed with the legislative authority of Logan County, Ohio, after said

legislative authority passed the final resolution in connection with the within described project; and that this certificate was forthwith recorded in the record of proceedings of said legislative authority, namely:

Legislative Authority's Journal, volume 3C, at Page 764

IN WITNESS WHEREOF, I have hereunto set my hand and official seal as said fiscal officer, this 15<sup>th</sup> day of April, 19 81

(Fiscal Officer's Seal)

*Darryl G. Slater*

Fiscal Officer of Logan County, Ohio

THE AGREEMENT HEREIN IS APPROVED  
AS TO FORM PURSUANT TO THE  
REQUIREMENTS OF LAW:

C O N T R A C T

(Chapter 5521, Ohio Revised Code)

*William J. Brown, Jr.*  
Attorney General of Ohio

*April 21*, 1981

Note: Before the signing of this contract the fiscal officer must make and seal and file with the Board of County Commissioners his certificate of funds in strict compliance with Chapter 5521 and Section 5705.41, Ohio Revised Code. The fiscal officer should record his certificate of funds in the Commissioner's journal.

This contract and agreement made in duplicate this 15th day of April, 1981, by and between the County of Logan, State of Ohio, hereinafter referred to as the County, and the State of Ohio, hereinafter referred to as the State, witnesseth:

WHEREAS, On the 2nd day of April, 1979 this Board of County Commissioners adopted a resolution proposing to cooperate with the State in the highway improvement which is to be made by and under the supervision of the Director of Transportation of County Road No. 39 said highway improvement being described as follows:

Replacement of the Bridge on County Road No. 39, approximately 2.1 miles south of Belle Center over branch of South Fork Miami River. Total length of work being approximately 0.217 mile

; and

WHEREAS, Thereafter, on the 18th day of May, 1979 the Director of Transportation accepted the proposal of said County to cooperate with the State in said highway improvement, said action of the Director of Transportation being recorded in the Director's journal, volume 64 at page 464

; and

WHEREAS, On the 30th day of April, 1981 the Director of Transportation determined to make the proposed improvement, when, in his judgement, conditions permit the advertising and awarding of a contract, therefor

; and

WHEREAS, Thereafter, on the 6th day of April, 1981 the Director of Transportation submitted plans and estimates for said highway improvement to the County Commissioners for approval

; and

WHEREAS, Thereafter, on the 13th day of April,

1981, said Board of County Commissioners duly adopted a final resolution, approving plans, proposing to co-operate, requesting the Director of Transportation to proceed, and resolving to enter into a contract with the State in conformity with previous resolutions, providing for the payment by said County of the estimated sum of Forty Eight Thousand Six Hundred Forty 00/100 Dollars, (\$48,640.00), as its share of the total estimated cost and expense of the matter of the proposed highway improvement

WHEREAS, The Clerk has reported to this Board that a certified copy of such Resolution has been duly transmitted to said Director of Transportation

; and

WHEREAS, This Board of County Commissioners assumes and agrees to pay as the County's share of the cost and expense of construction of said highway improvement the sum of money hereinbefore set forth, which moneys are now available for the purpose and the fiscal officer of said County has filed with said Board a certificate that such moneys are in fund, all as required by statute, a duplicate of which certificate has been filed with the Director of Transportation

; and

WHEREAS, Said County Commissioners agree to enter into a contract with the State for the payment of said sum of money as the County's share of assuming and contributing the total estimated cost and expense of the construction of said proposed improvement, less the amount of Federal Funds set aside by the Director of Transportation for the financing of this project from funds allocated by the Federal Highway Administration, and further, the County agrees to bear one hundred percent (100%) of the cost of the following items which shall not be a part of the State's Estimate.

1. Preliminary Engineering
2. Rights-of-way
3. All costs for added construction items generating extra work contracts under Ohio Laws, unless performance is approved by the State of Ohio and Federal Highway Administration before work is authorized.

The Director of Transportation notwithstanding the percentage basis of contribution may allocate the money contributed in whatever manner he may deem necessary in financing the cost of construction, rights-of-way, engineering and incidental expenses. The total share of the cost for Logan County is now estimated in the amount of Forty Eight Thousand Six Hundred Forty - - - - - 00/100 Dollars, (\$48,640.00), but said estimated amount is to be adjusted in order that the County's ultimate share of the cost of said improvement shall correspond with said percentages of actual cost when said actual costs are determined

; and

WHEREAS, Said Board of County Commissioners agree that the installation of all utility facilities on the right-of-way shall conform with the requirements of the Federal Highway Administration Policy and Procedure Memorandum 30-4, "Utility Relocations and Adjustments" and the Department of Transportation rules on Utility Accommodation

; and

WHEREAS, The Board of County Commissioners agrees that all rights-of-way required for the improvement will be acquired in accordance with all applicable State and Federal regulations in force and effect and further agrees to save the State harmless from any and all claims or damages arising from or growing out of the hereindescribed improvement

; and

WHEREAS, The County agrees that upon completion of the said improvement it will thereafter, keep said highway open to traffic at all times; and

- (a) Maintain the improvement and make ample financial and other provisions for such maintenance; and
- (b) Maintain the right-of-way and keep it free of obstructions, and hold said right-of-way inviolate for public highway purposes and permit no signs, posters, billboards, roadside stands or other private installations within the right-of-way limits; and
- (c) Will place and maintain all traffic control devices conforming to the Ohio Manual of Uniform Traffic Control Devices on the improvement in compliance with the provisions of Section 4511.11 and related sections of the Ohio Revised Code; and
- (d) Regulate parking in the following manner:  
Prohibit parking on the bridge and allow emergency parking only on the berms approaching the bridge.

; and

WHEREAS, The County agrees to arrange for the relocation, rearrangement or alteration of all utilities of any nature whatsoever whether privately, publicly or cooperatively owned, which will be affected by or interfere with said improvement and said rearrangements will be done at such time as requested by the Director of Transportation. The cost of the relocation, rearrangement and alteration of such utilities affected and payment therefor shall be in accordance with Ohio Department of Transportation Directive 28-A.

NOW, THEREFORE, In consideration of the foregoing and the construction of said improvement desired and determined by the Board of County Commissioners of Logan County, Ohio, we hereby contract and agree with the State that we will pay, the estimated sum of Forty Eight Thousand Six Hundred Forty - - - - - of - - - - 00/100 Dollars, (\$48,640.00), and that the same shall be paid by the proper County Officials upon the requisition of the Director of Transportation.

For Logan County, Ohio.

Attest: Judith L. Howe

Warren W. Smith

Donald A. Corwin

John G. Johnson  
Board of County Commissioners

of Logan County, Ohio.

Attest: Carol Ann Fisher

State of Ohio  
Accepted by: David H. Merri  
Director of Transportation

The State of Ohio  
Logan County, Ohio

}  
} Office of the Board of County Commissioners

This is to certify that we have compared the foregoing copy of contract with the original record thereof, found in the record of the proceedings of the Board of County Commissioners of Logan County, Ohio, and which contract was duly signed by the Board of County Commissioners of said Logan County, Ohio, on the 15th day of April, 1981, and that the same is a true and correct copy of the record of said contract and the action of said Board of County Commissioners thereon.

We further certify that said contract and the action of said Board of County Commissioners thereon is recorded in the journal of said Board of County Commissioners in volume 3C, at page 760-763, and under date of April 13, 1981.

IN WITNESS WHEREOF, We have hereunto set our hands and seal, this 13th day of April, 1981.

Mairen W. Smith  
President

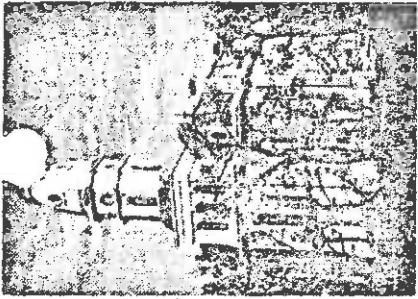
\*SEAL

Judith Z. Hase  
Clerk (Secretary Ex-Officio)

Board of County Commissioners  
of Logan County, Ohio.

\*Note: If the fiscal officer is secretary ex-officio of the Board of County Commissioners, his seal should be affixed. If there is no seal, this fact should be stated by separate letter and attached hereto.





*Office of*  
**COUNTY COMMISSIONERS**  
*Logan County*

WARREN W. SMITH, Chairman  
West Liberty, Ohio

DONALD E. CORWIN, V. Chairman  
Rushsylvania, Ohio

JOHN A. JEFFREY  
Bellevue, Ohio

JUDITH L. GROVE  
CLERK OF BOARD

BELLEFONTAINE, OHIO 43311

April 13, 1981

Re: County Seal

TO WHOM IT MAY CONCERN:

This is to inform you that there is no such County Seal available at this time.

Very truly yours,

*Judith L. Grove*

LOGAN COUNTY COMMISSIONERS  
Judith L. Grove, Clerk

## Estimated Piling Lengths

27' to 35' below existing ground  
used for piling lengths on abuts.

Sta. 176+32

$$\text{Grnd. Elevation} = 1047$$

$$\text{Bottom Elevation} = 1047 - 27 = 1020$$

$$\text{Cut off Elev.} = 1041.6 + 2 = 1043.6$$

$$\text{Total Length} = 1043.6 - 1020 = 23.6'$$

USE - 25'

Sta 176+38

$$\text{Grnd. Elevation} = 1035$$

$$\text{Bottom Elev.} = 1035 - 27 = 1008$$

$$\text{Cut off Elev.} = 1044.22 + 1.5 = 1045.72$$

$$\text{Total Length} = 1045.72 - 1008 = 38'$$

USE - 40'

Sta 176+38

$$\text{Grnd Elev.} = 1035$$

$$\text{Bottom Elev.} = 1035 - 27 = 1008$$

$$\text{Cut off Elev.} = 43.86 + 1.5 = 45.36$$

$$\text{Total Length} = 1045.36 - 1008 = 37.4'$$

USE - 40'

Sta 177+13

$$\text{Grnd. Elev.} = 1046$$

$$\text{Bottom Elev.} = 1046 - 27 = 1019$$

$$\text{Cut off Elev.} = 1040.6 + 2 = 1042.6$$

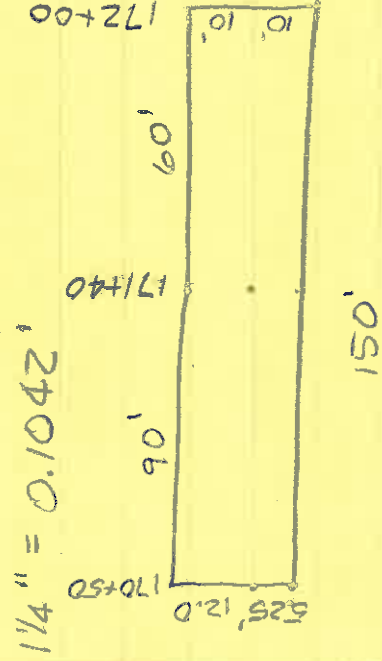
$$\text{Total Length} = 1042.6 - 1019 = 23.6'$$

USE - 25'

Abutment Piles use - 25'  
Pier Piles use - 40'

R.A.B.  
11-9-79

PAVEMENT CALCULATIONS



170+50 to 172+00

404 ± 403

$$V = [10(150) + \frac{1}{2}(2)(90) + \left(\frac{10+5.25}{2}\right)(150)] (0.1042) \div 27 = 10.55 \text{ cu yd}$$

301

$$V = [10.5(60) + \frac{12.5+10.5}{2}(90) + \frac{5.75+10.5}{2}(150)] (0.50) \div 27 = 53.40 \text{ cu yd}$$

172+00 to 175+00

404 ± 403

$$V = 20(300)(.1042) \div 27 = 23.16 \text{ cu yd}$$

301

$$V = 21(300)(.50) \div 27 = 116.67 \text{ cu yd}$$

Totals Sheet #4

404	33.71 cu yd
403	33.71 cu yd
301	170.07 cu yd

175+00 to 176+32

404 ± 403

$$V = 20(132)(.1042) \div 27 = 10.19 \text{ cu yd}$$

301

$$V = 21(132)(.50) \div 27 = 51.33 \text{ cu yd}$$

177+14 to 180+25

404 ± 403

$$V = 20(311)(.1042) \div 27 = 24.00 \text{ cu yd}$$

301

$$V = 21(311)(.5) \div 27 = 120.94 \text{ cu yd}$$

180+25 to 181+25

404 ± 403

$$V = [10(100) + \frac{10+7.67}{2}(100)] (0.1042) \div 27 = 7.27 \text{ cu yd}$$

301

$$V = [10.5(100) + \frac{10.5+8.17}{2}(100)] (0.5) \div 27 = 36.73 \text{ cu yd}$$

TOTALS SHEET #5

404 = 41.46 cu yd, 403 = 41.46 cu yd, 301 = 209.00 cu yd

RAB 11-9-79

Subgrade Compaction (Pavement Surface Area)

170+50 to 172+00

$$A = \left[ 10(150) + \frac{1}{2}(2)90 + \frac{10+5.25(150)}{2} \right] \div 9 \Rightarrow 303.75 \text{ Sq Yd}$$

172+00 to 175+00

$$A = 20(300) \div 9 = 666.67 \text{ Sq Yd}$$

Total for Sheet #4 = 970.42 Sq Yd.

175+00 to 176+32

$$A = 20(132) \div 9 = 293.33 \text{ Sq Yd}$$

177+14 to 180+25

$$A = 20(311) \div 9 = 691.11 \text{ Sq Yd}$$

180+25 to 181+25

$$A = \left[ 10(100) + \frac{10+7.67(100)}{2} \right] \div 9 = 209.28 \text{ Sq Yd}$$

Total for Sheet #5 = 1193.72 Sq Yd.

SODDING, 6' wide

170+50 to 174+04, Rt

$$171.29 + 136 = 57.6 = 364.9 \text{ USE } 365 \text{ L.F.}$$

$$\text{Sod} = 365 \times 6 \div 9 = 243 \text{ Sq Yd}$$

174+50 to 17500, Rt

$$\text{Sod} = 50 \text{ L.F.} - 8 \text{ L.F.} = 42 \text{ L.F.}$$

$$\text{Sod} = 42 \times 6 \div 9 = 28 \text{ Sq Yd}$$

$$\text{Sod} = 140 \times 6 \div 9 = 93 \text{ Sq Yd}$$

177+75 to 181+00 Rt,

$$22.53 + 217 + 75.3 = 315 \text{ L.F.} - 36 = 8 = 271 \text{ L.F.}$$

$$\text{Sod} = 271 \times 6 \div 9 = 181 \text{ Sq Yd}$$

$$132.9 + 75.3 = 208 \text{ L.F.}$$

$$\text{Sod} = 208 \times 6 \div 9 = 139 \text{ Sq Yd}$$

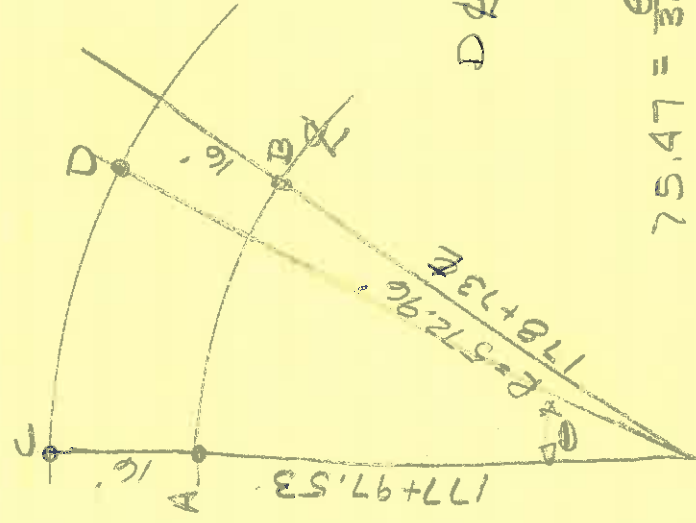
39-4.98 Guardrail

RAB

End of Run @ 178+73 & Sta

5-1-80

P.C. @ 177+97.53



$$R_{CD} = 572.96 + 16 = 588.96$$

$$L_c = 2\pi R$$

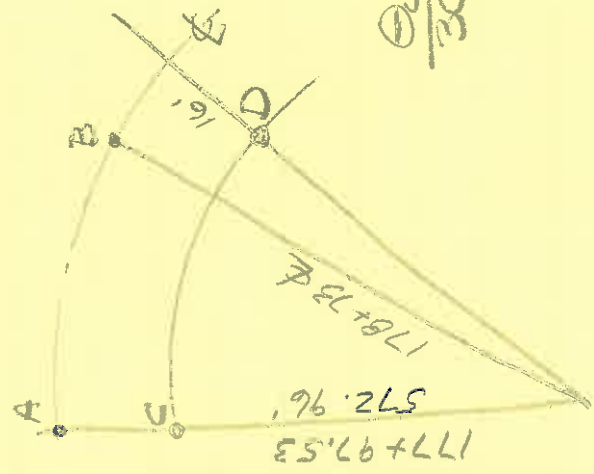
$$D\phi = 75.47'$$

$$75.47 = \frac{\theta}{360} (2)(\pi) 588.96$$

$$\theta = 7.342^\circ$$

$$L_{AB} = \frac{7.342}{360} (2)(\pi)(572.96) = 73.42'$$

∴ Sta. Lt. = Sta. 178 + 70.95



$$L_{CD} = 75.47'$$

$$\frac{\theta_{DC}}{360} (2)(\pi)(556.96) = 75.47$$

$$\theta_{DC} = 7.764^\circ$$

$$L_{AB} = \frac{7.764}{360} (2)(\pi)(572.96) = 77.64'$$

∴ Sta. Pt. = Sta 178 + 75.17

End of Run @ 174 + 73 (No Curves)

∴ Sta. Lt. = Sta 174 + 73

∴ Sta. Pt. = Sta 174 + 73



## Class C Concrete

3.27

### Abutment (Keyway deducted)

$$A_1 = 3' \times 3' \times 39'-4" = 354 \text{ ft}^3$$

$$A_2 = \left[ 2' \times 2' - \left( \frac{8}{12} \times \frac{2.5}{12} \right) \right] \times 32 = 123.56 \text{ ft}^3$$

$$A_3 = 2(3')(1.25)(3.29) + 2\left(\frac{8}{12}\right)(1.25)(2) = 28 \text{ ft}^3$$

$$\text{Total} = 505.56 \text{ ft}^3$$

Deduction for piles =  $0.8 \text{ ft}^3/\text{ft}$  sec 511.18

~~$\pi\left(\frac{7}{2}\right)^2 \Rightarrow 1.07 \text{ ft}^2$   $\therefore$  give  $1.07 \text{ ft}^3$  per foot~~

$$7 \text{ piles @ } 2'-0" = 14'-0"$$

$$V = 14' \times \frac{1.07 \text{ ft}^3/\text{ft}}{0.80} \Rightarrow 14.98 \text{ ft}^3 \approx 11.2$$

$$\text{Net Volume} = 505.56 - 14.98 = 490.58 \text{ ft}^3$$

$$\Rightarrow \underline{18.17 \text{ cu. Yds.}} \quad 18.31 \text{ cu Yds}$$

### Pier (Keyway not deducted)

$$A_1 = 2' \times (2.5) \times (29.5) = 147.5 \text{ ft}^3$$

$$A_2 = \pi(1.25)^2 \times 2 = \frac{9.82 \text{ ft}^3}{157.32 \text{ ft}^3}$$

Total

deduction for piles =  $6(1.5)\left(\frac{0.80}{12}\right) = 9.63 \text{ ft}^3$

$$\text{Net Volume} = 157.32 - 9.63 = 150.12 \text{ ft}^3 \Rightarrow \underline{5.47 \text{ cu. Yds.}}$$

### Superstructure Crown @ $\phi = 3'$ Class S

$$\text{Abutment Keyways} = 2\left(\frac{8}{12} \times \frac{2.5}{12}\right)(32) = 8.89 \text{ ft}^3$$

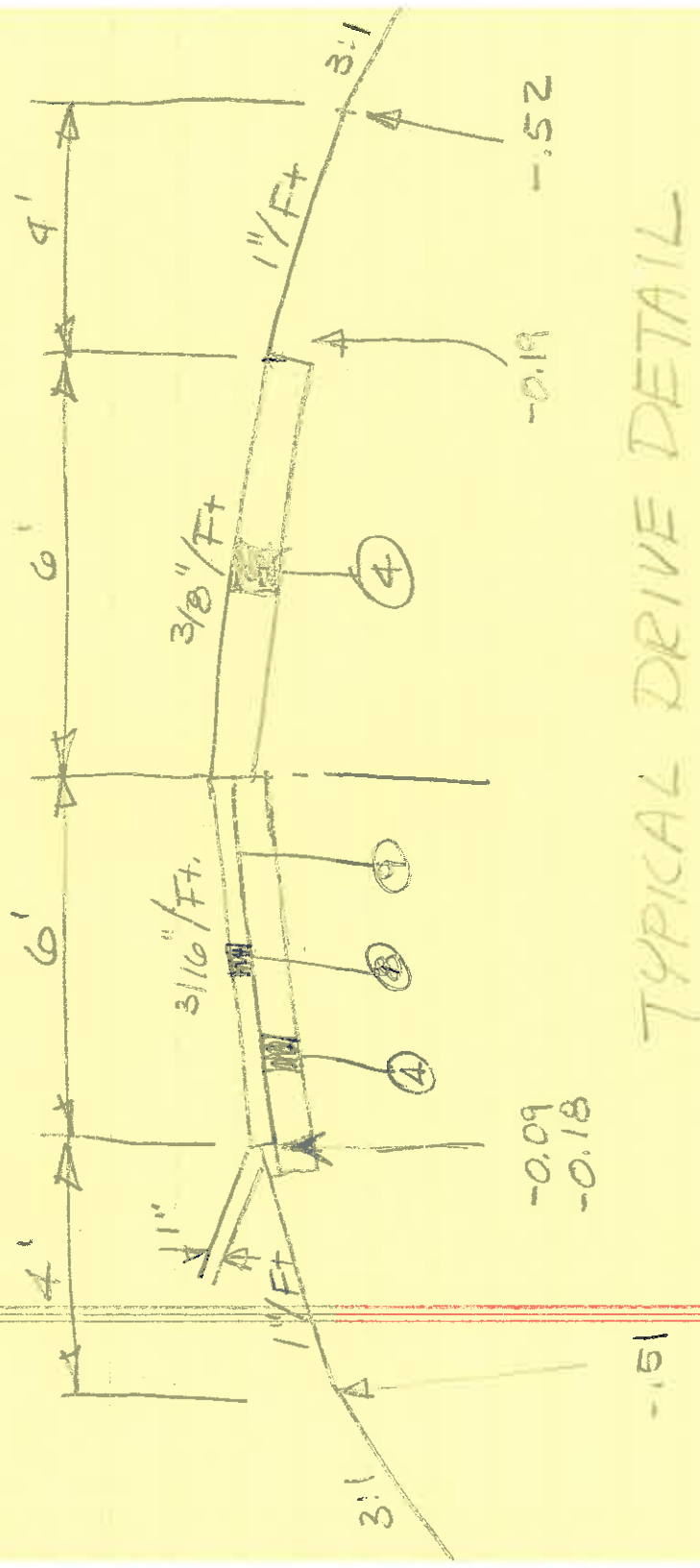
$$\text{Slab} = \frac{15.34}{12}(82)(33'-4") = 3587.5 \text{ ft}^3$$

$$\text{Abutment Crown} = \frac{3}{12}(16)(2) = 8 \text{ ft}^3$$

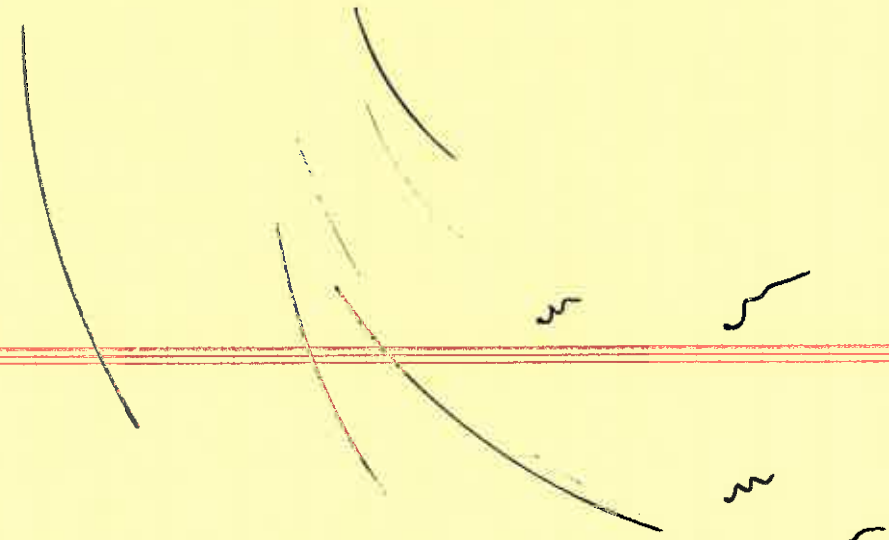
$$\text{Pier Crown} = \frac{3}{12}(16)(2.5) = 10 \text{ ft}^3$$

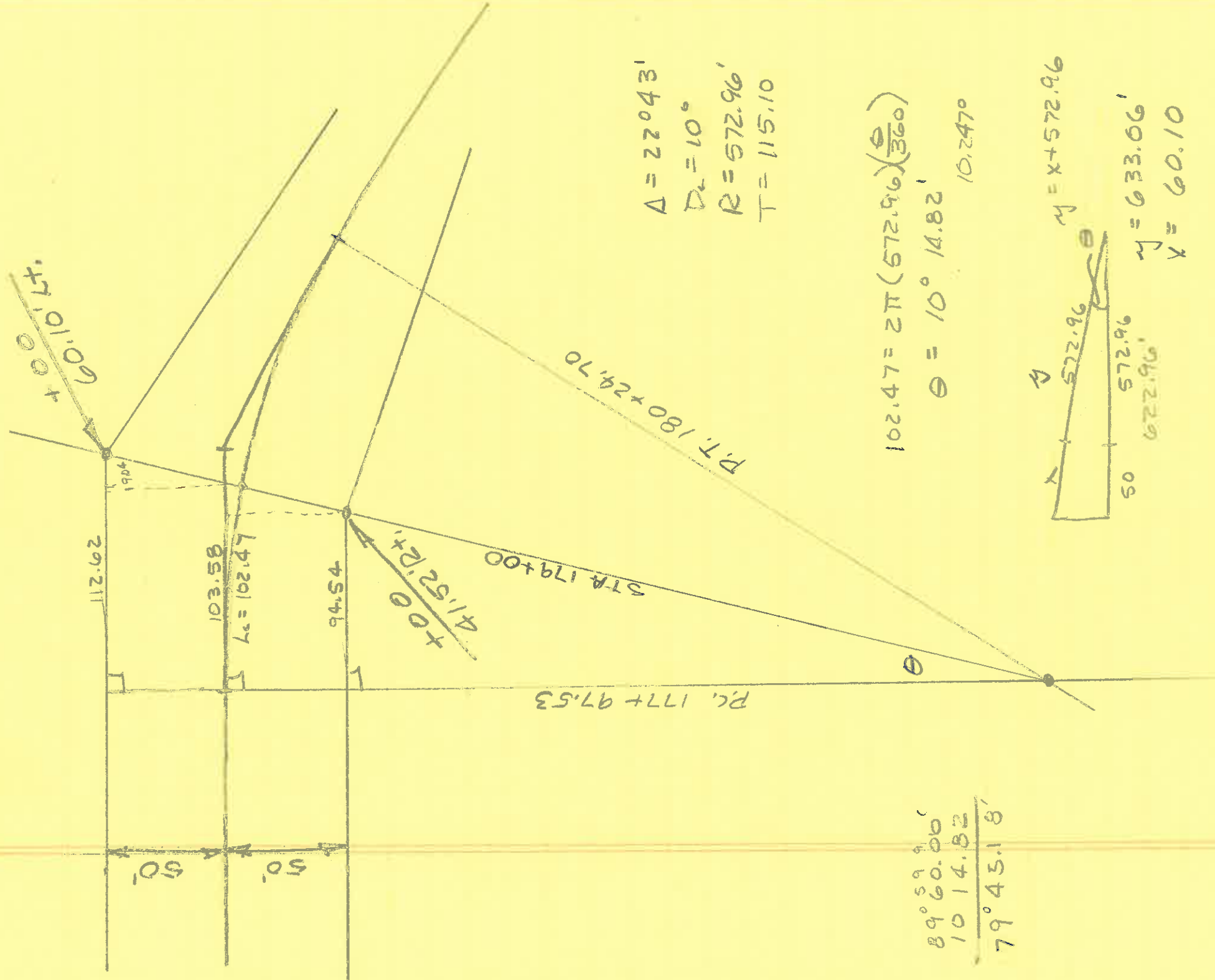
$$\text{Edges} = -2\left(\frac{1}{2}\right)\left(\frac{1}{2}\right)(2)(78) = -2.17 \text{ Edges @ abut. } \left(\frac{1}{4}\right)\left(\frac{1}{2}\right)32 = 0.22 \text{ ft}^3$$

$$\text{Edges @ pier} = +66.8\left(\frac{1}{2}\right)\left(\frac{1}{2}\right)(2) = 0.93 \text{ ft}^3 \text{ Dip} = -\pi\left(\frac{1.5}{2}\right)^2 78 = -0.43$$



TYPICAL DRIVE DETAIL





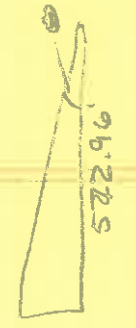
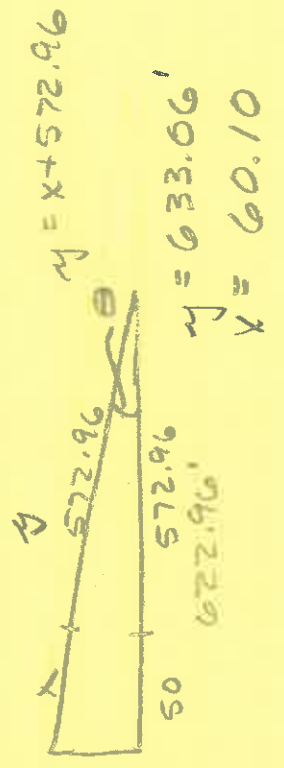
$\Delta = 22^\circ 43'$   
 $D_c = 10^\circ$   
 $R = 572.96'$   
 $T = 115.10$

$102.47 = 2\pi (572.96) \left(\frac{\theta}{360}\right)$   
 $\theta = 10^\circ 14.82'$   
 $10.247^\circ$

$89^\circ 59' 9.96''$   
 $1014.82$   


---

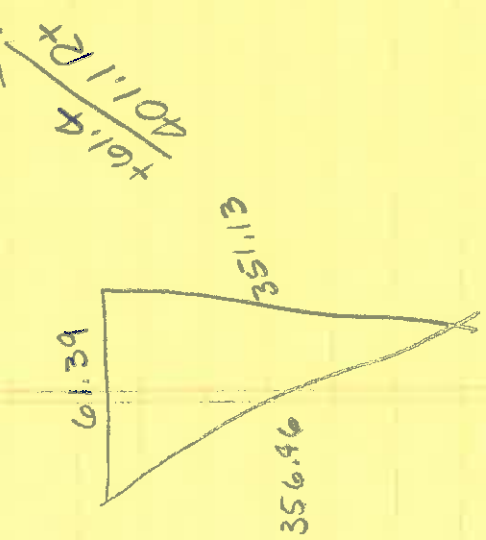
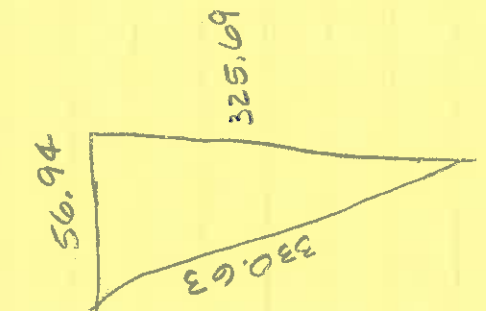
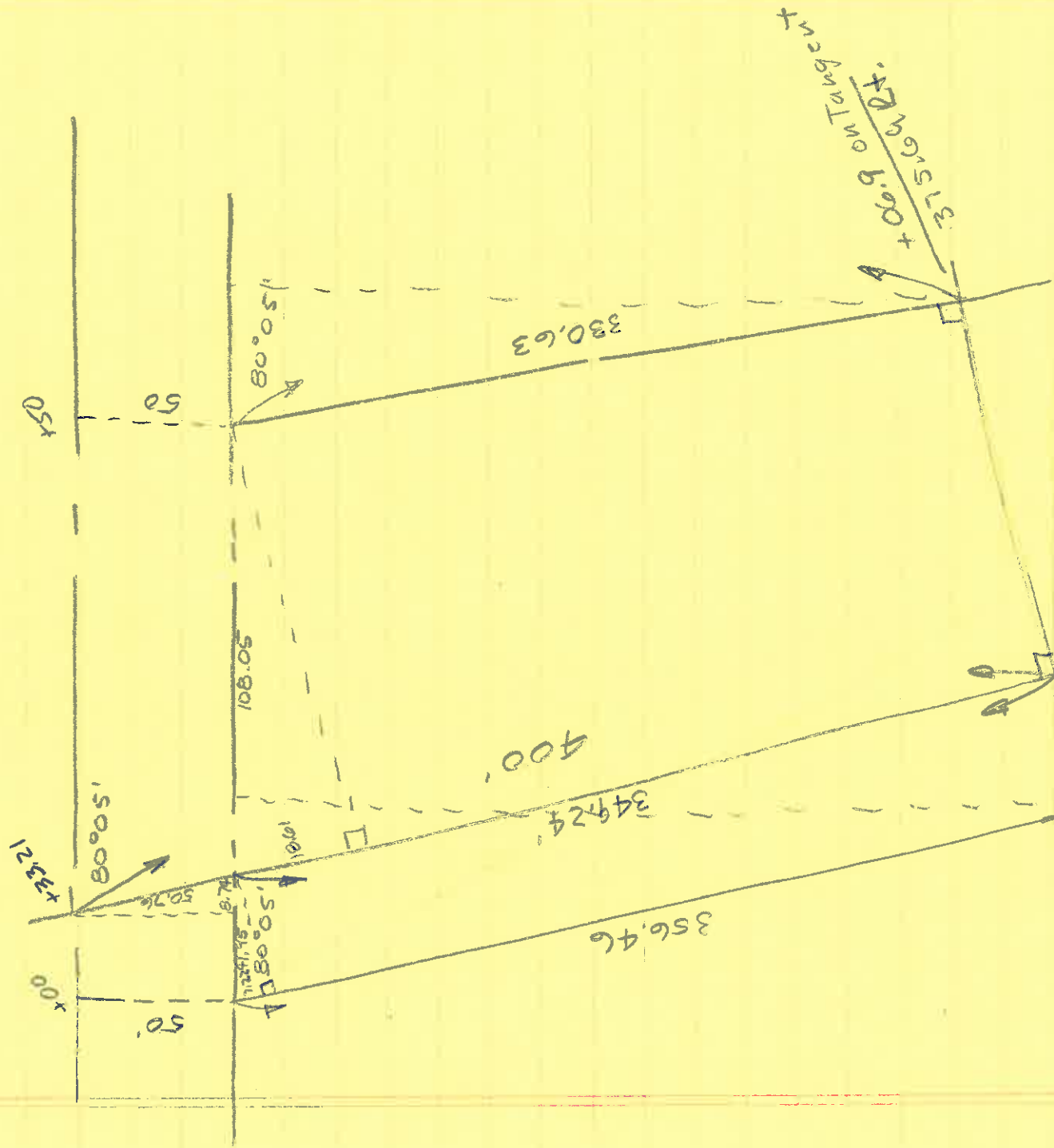
 $79^\circ 43.18'$



$z = 531.44$   
 $offset = 572.96 - 531.44 = 41.52'$







$$\frac{+61.4}{401.12} +$$

$$\frac{+33.21}{123.51} +$$



Construction Type Code 6203 unless otherwise shown  
ROADWAY

201 Cleaning and Grubbing  
202 ~~202~~ Pipe Removed for Storage, under 24"  
~~202~~

P 202 Fence Removed  
203 Excavation, not including Embankment Construction  
203 Embankment  
203 Subgrade Compaction

606 Guard Rail, Type S  
606 Bridge Terminal Assembly, Type B  
606 Anchor Assembly, Type A

12

EROSION CONTROL Type Code 4-008

601 Rock Channel Protection, Type B w/bedding  
659 Seeding and Mulching  
659 Commercial Fertilizer (12-12-12)  
660 Sodding

DRAINAGE

2603 24" Conduit, Type D

PAVEMENT

301 Bituminous Aggregate Base  
~~304~~ Aggregate Base  
403 Asphalt Concrete  
404 Asphalt Concrete  
404 Asphalt Concrete, Driveways  
408<sub>v</sub> Bituminous Prime Coat

MISCELLANEOUS

614 Maintaining Traffic  
4623 Construction Layout Stakes  
P. 619 Field Office

### Design Data

Monolithic wearing surface thickness is assumed to be 1"

### Proposed

Monolithic Concrete

Channel	Excavation	use	163' Cut
5+00 →	5+85	use	5+00
5+85 →	6+15	use	163' Cut
6+15 →	7+00	use	7+00

Dist	AREA		Vol	
	cut	Fill	Cut	Fill
85'	5+00	43	40	
30'	5+85	163	0	181
80	6+15	163	0	0
	7+00	134	120	440
				<u>178</u>
				<u>945</u>
				<u>241</u>

### Sodding

170+50 to 176+30 Rt. 6' wide  
 181+00 to 177+75 Rt. 6' wide  
 181+00 to 179+00 Lt. 6' wide

### Channel Excavation Through Br

5+80

130

195

L = 40' A = ~~129~~ 130' ⇒ 191 cu yd

6+20

(Channel Sodding =  $[60(82) - 2(25)(6)] \div 9 = 513 \Rightarrow 9 \text{ yd.}$   
 To 2/10 Line USE 515

174+00 to 174+70 R+ , No Berm  
 174+15 to 174+70 Lt, No Berm

A=1.52 ft' Aggregate Berms

STA      END AREAS      Deduct Fill      Added Cut      Deduct Fill      VOLUMES

STA	Added Cut	Deduct Fill	Added Cut	Deduct Fill	VOLUMES
170+00	0	0	2.7	0	0.1
+50	2.9	.14	5.5		.1
171+00	3.04	0	5.5		.1
+50	2.92	.12	4.1		1.5
172+00	1.52	1.52	2.8		2.8
+50	1.52	1.52	1.4		4.2
173+00	0	3.04	0		5.6
+50	0	3.04	0		5.6
174+00	0	3.04	0	R+	3.4
+50	0	3.04	0	Lt.	5.1
175+00	0	3.04	0		5.6
+50	0	3.04	0		5.6
176+00	0	3.04	0		5.6
+32	0	3.04	0		5.6
177+14	0	3.04	0		5.6
+50	0	3.04	0		5.6
178+00	0	3.04	0		5.6
+50	0	3.04	0		5.6
179+00	0	3.04	0		5.6
+50	0	3.04	0		5.6
180+00	1.52	1.52	1.4		4.2
+50	1.52	1.52	2.8		2.8
181+00	2.80	0.24	4.0		1.6
+50	0	0	2.6		.2
			<u>32.8</u>		<u>87.7</u>

USE

3%

88



# SUPER ELEVATION TABLE

Rate of Super =  $\frac{3}{4}$ "/Ft

Max Super = 1.25'

1"	1"	1"	1"	1"
Elev	width	Station	Profile	width
Lt Edge	Lt		Elev	Rt
				Rt Edge

P.C.

2.7, 4.3, 5.9, 7.5  
1/4"

L+ "A" "B" "C" R+

STATION TO STATION

170+50 to	171+40	17'-3" to 18'-1"	12'-0" to 10'-0"	5'-3" to 8'-1"
171+40 to	172+00	18'-1" to 20'-0"	10'-0"	8'-1" to 10'-0"
172+00 to	180+25	20'-0"	10'-0"	10'-0"
180+25 to	181+25	20'-0" to 17'-8"	10'-0" to 7'-8"	10'-0"

Super-elevated Sections

<u>Curve #1</u>	171+70 to	175+00	330 Lin Ft.
<u>Curve #2</u>	177+45 to	180+80	335 Lin Ft.

Normal Sections

170+50 to	171+70	120 Lin Ft.
175+00 to	177+45	245 Lin Ft.
180+80 to	181+25	45 Lin Ft.
		<u>1075 Lin Ft.</u>

NOEIMAL SECTION  
LIMITING STATIONS

SUPER ELEVATED SECTION  
LIMITING STATIONS



~~Payment~~  
~~40.1~~

normal 20' pavement .0625  
 Max Super =  $\frac{3}{4}$ " / Ft  
 1/2 super rate @ PG.  $\frac{3}{8}$ " / Ft  
 Rotate about  $\phi$  .03125

LEFT @ 10'  $\phi$   
 59.20  
 58.70

Elev.  
 1059.20  
 1058.70

TAN  $\Delta$

STA +50

RIGHT @ 10'  $\phi$   
 7

170	+75		1058.22	58.06	58.22	58.06
171						
	+25		1057.75	57.59	57.75	57.59
	+40		1057.46	57.30	57.46	57.30
	+50		1057.27	57.11	57.27	57.17
	+75		1056.80	56.64	56.80	56.84
172			1056.32	56.16	56.32	56.50
P.C.	+21.29		1055.92	55.64	55.92	56.22
	+25		1055.85	55.55	55.85	56.17
	+50		1055.37	54.93	55.37	55.83
	+75		1054.90	54.32	54.90	55.50
	+80		1054.80	54.19	54.80	55.43
	173		1054.42	53.80	54.42	55.05
	+25		1053.95	53.33	53.95	54.58
	+50		1053.47	52.85	53.47	54.10
	+75		1053.00	52.38	53.00	53.63
	+90		1052.52	52.09	52.71	53.34
	174		1052.52	51.97	52.52	53.09
	+25		1052.05	51.64	52.05	52.98
	+29		1051.97	51.57	51.97	52.38
P.T.	+42.62		1051.97	51.40	51.71	52.04
	+50		1051.57	51.30	51.57	51.86
	+70		1051.19	51.03	51.19	51.57
	+75		1051.10	50.94	51.10	51.25
	175		1050.62	50.46	50.62	50.63
	+25		1050.15	49.99	50.15	50.02
	+30		1050.05	49.89	50.05	49.89
	+50		1049.67	49.51	49.67	49.51
	+75		1049.20	49.04	49.30	49.04
176			1048.72	48.56	48.72	48.56
	+25		1048.25	48.12	48.25	48.12
	+30		1048.15	48.03	48.19	48.03
	+32		1048.11	48.00	48.16	48.00
	+50		1047.77	47.73	47.89	47.73
	+75		1047.30	47.41	47.57	47.41
177			1046.82	47.13	47.29	47.13
	+14		1046.55	47.00	47.16	47.00
	+15		1046.52	47.00	47.16	47.00
	+25		1046.35	46.99	47.09	46.93
	+50		1045.87	46.97	46.93	46.77
	+75		1045.40	47.03	46.85	46.69
P.C.	+97.53		1044.97	47.12	46.81	46.52
178			1044.92	47.13	46.81	46.51

0.52  
 2+52.16 Lt. 51.46  
 +38 1051.80  
 for drive

92



1:175

CROWN REMOVE .16' = 28'



full

$$\begin{array}{r} .63' = 110' \\ \underline{.79} \quad 138' \\ -56' \\ \hline 82' \end{array}$$

$$(.63 - .31) 175 = 56'$$

Begin Transition 82' before P.C.  
 full super 56' past P.C.

$$\begin{array}{r} .79 \\ \hline 140 \end{array}$$

$$\begin{array}{r} 56 \\ \hline 40 \\ +96 \\ \hline \end{array}$$



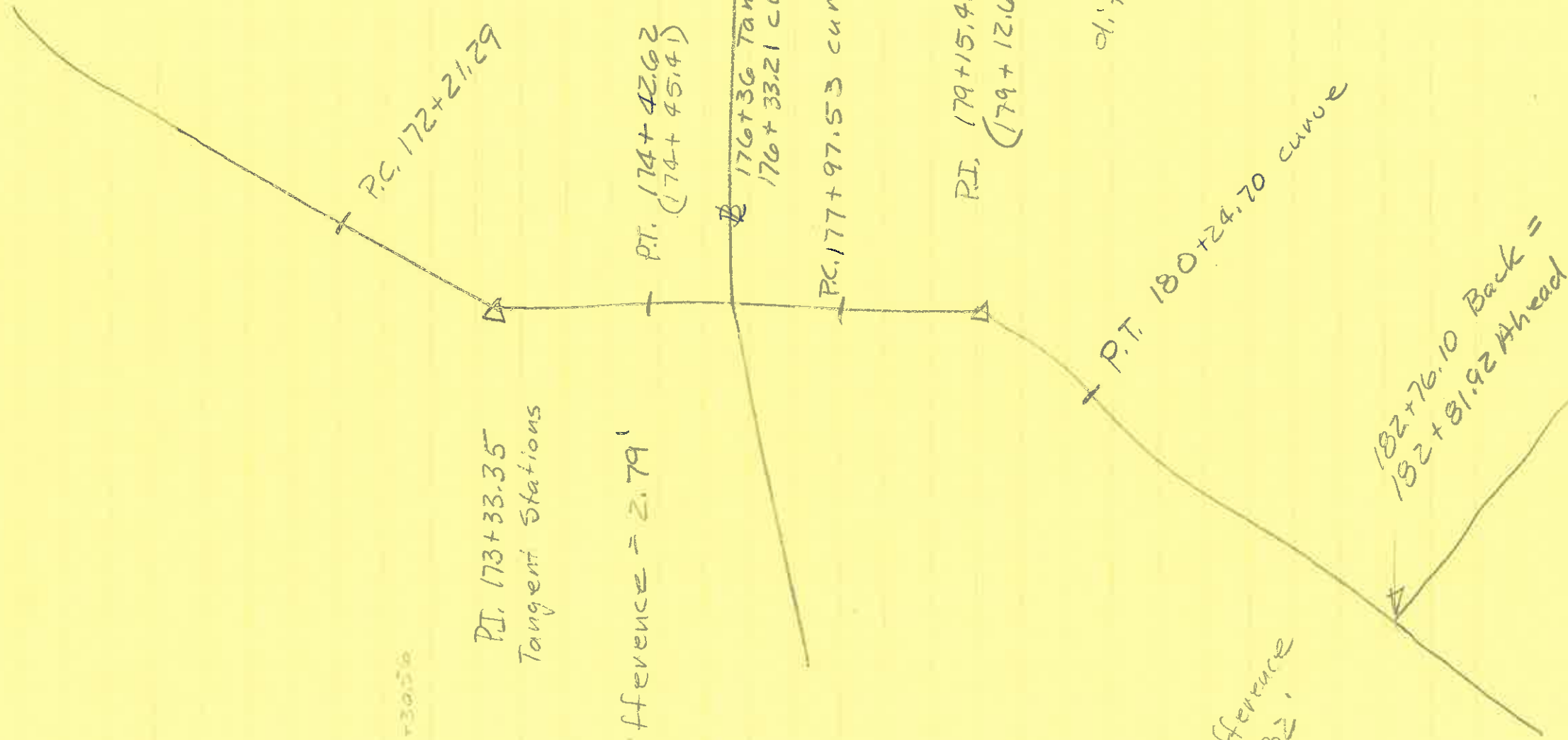
1125

91

.79/140

104'

$$\begin{array}{r} .57 \\ \hline -1.16 \\ \hline .41 \end{array}$$

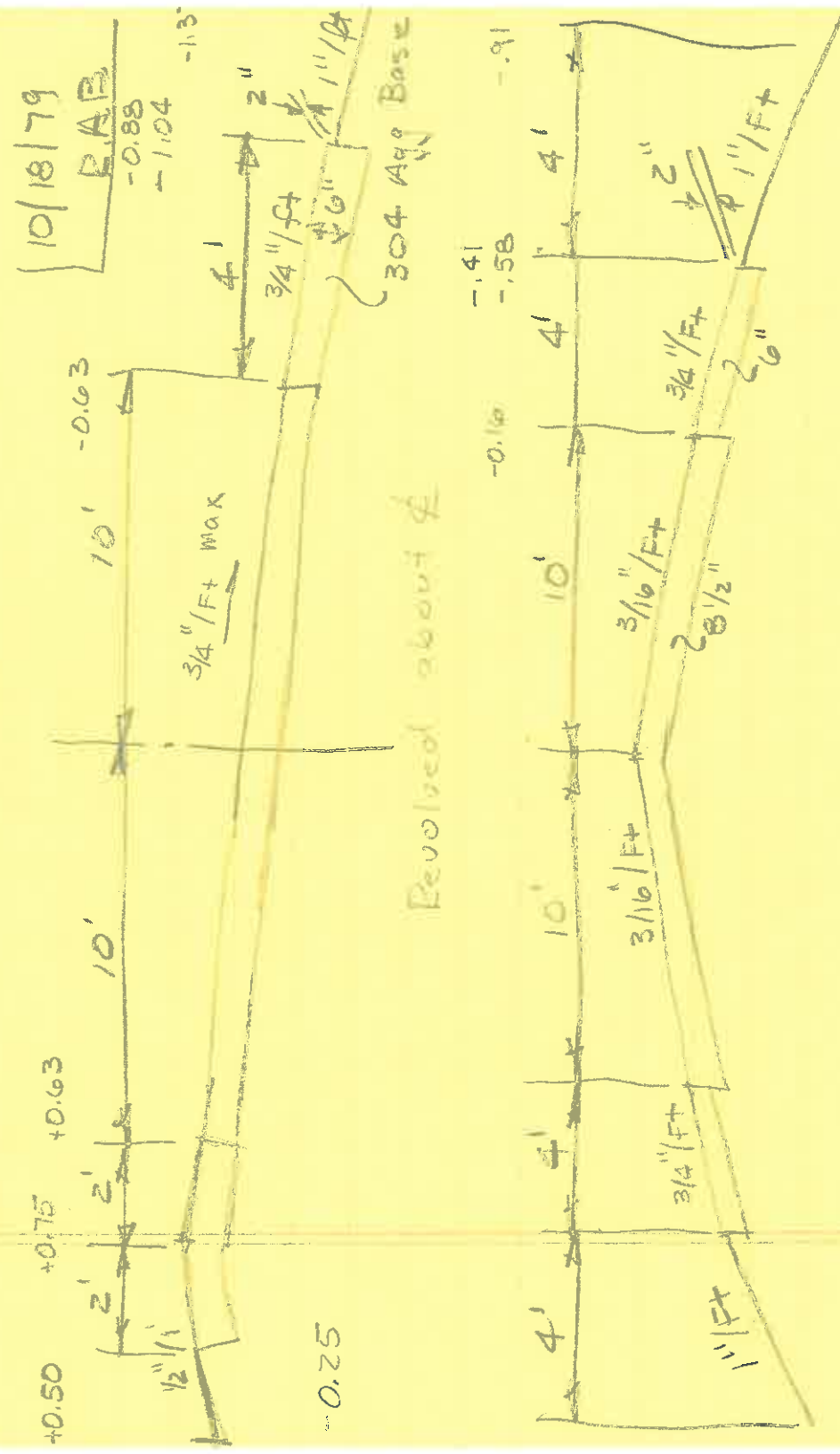


173+30.50

difference = 2.79'

difference = 3.03

difference = 5.82'



20' wide Pavement throughout  
8' shoulders, with 4' stabilized, throughout

Normal Section

E.P. - 0.16' from  $\phi$   
Edge Shoulder  $\phi\phi$ ' - 0.75 from E.P.

PAVEMENT TAPERS

Full Depth 170+50 to 181+25

170+50 to 172+00	Rt.	6' → 10'
170+50 to 171+40	Lt.	12' → 10'
171+40 to 181+25	Rt.	10'
172+00 to 180+25	Lt.	10'
180+25 to 181+25	Lt.	10'-8"



Curve #1

P.C. @ 172 + 21.29

Begin Transition & ~~taper~~ @ 171 + 40 <sup>140'</sup>  
Full Super @ 172 + 80

P.T. @ 174 + 42.62

End full super @ 173 + 90 <sup>140'</sup>  
End Transition & ~~taper~~ @ 175 + 30

Curve #2

P.C. @ 177 + 97.53

Begin transition & ~~taper~~ @ 177 + 15 <sup>140'</sup>  
Begin Full Super @ 178 + 55

P.T. @ 180 + 24.70

End full super @ 179 + 70 <sup>140'</sup>  
End transition & ~~taper~~ @ 181 + 10

### PAVEMENT TAPERS

169 + 60	to	171 + 40	Rt	6' → 10'
170 + 75	to	172 + 20	Lt	12'
171 + 40	to	172 + 20	Rt.	10' → 12'
172 + 20	to	174 + 50	Lt. & Rt.	12'
174 + 50	to	175 + 30	Lt. & Rt.	12' → 10'
175 + 30	to	177 + 15	Lt. & Rt.	10'
177 + 15	to	178 + 00	Lt. & Rt.	10' → 12'
178 + 00	to	180 + 25	Lt. & Rt.	12'
180 + 25	to	181 + 10	Lt. & Rt.	12' → 10'
<del>181 + 10</del>	to	<del>181 + 25</del>	<del>Rt.</del>	<del>10.0' → 10.5'</del>
181 + 10	to	181 + 85	Lt	10' → 8.2'

## Guard Rail, Type 5

4 cond  
Type B, Bridge Terminal  
Type 5

(Br. Term.) (Anchor)

Term  
con.

(+73)

$$(177+10.5) + 12.5' + 25.0 + (1.40) + 2.5 \Rightarrow \underline{\underline{177+74.4}}$$

End of  
G.R. Run

$$(176+35.5) - 12.5 - 25 - 25 - 1.4 \Rightarrow \underline{\underline{175+71.6}}$$

End of  
G.R. Run

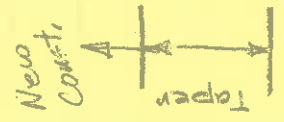
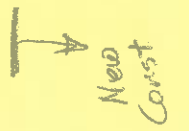
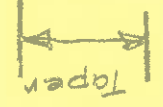
8' Shoulders 175+75 to 177+75, 200'

175+50, 6' → 175+75, 8'

177+75, 8' → 178+00, 6'

Proposed Pavement Widths

	<u>Lt.</u>	<u>Rt.</u>	<u>TOTAL</u>
169+00	13	6	19
+00	13	5.5	18.5
170+00	12.3	6.5	18.8
+50	12.5	7.75	20.3
+75	12'	8.4	20.4
171	12'	9	21.0
+40	12'	10	22.0
+50	12'	10.25	22.3
172	12'	11.5	23.5
* +20	12'	12'	24'
+50	12	12	24'
173	12	12	24'
+50	12	12	24'
174	12	12	24'
+29	12	12	24'
* +50	12	12	24'
175	10.75	10.75	21.5'
+30	10	10	20'
+50	10	10	20'
176	10	10	20'
+30	10	10	20'
177	10	10	20'
+15	10	10	20'
+50	10.8	10.8	21.6'
* 178	12	12	24'
+50	12	12	24'
179	12	12	24'
+50	12	12	24'
180	12	12	24'
+25	12	12	24'
+50	11.4	11.4	22.8'
181	10.2	10.2	20.4'
+10	10	10	20'
+25	9.6	10.5	20.9
+50	9.0	9.9	18.9
+85	8.2	9.2	17.4



6'  
8'  
8'  
8'  
8'  
8'  
6'

Normal Section, 6' shoulders

	Total
10' Pavmt	0.16
1" shoulder drop	0.08
Shoulder	0.50
	0.74

12' Pavmt	0.19	0.19
Drop	0.08	0.27
Shoulder	0.50	0.77

Normal Section, 8' shoulders

10' Pavmt	0.16	0.16
Drop	0.08	0.24
Shoulder	0.67	0.91

Super Section

Low Side, 6' shoulder 24' pavmt, max super  
172+80 to 173+90      § 178+55 to 179+70

12' Pavmt	0.75	=	0.75
Drop	0.08'	=	0.83
Should	0.50	=	1.33

High Side

12' Pavmt	0.75	+0.75
Benm	0.13	+0.88
Shoulder	0.33	+0.55



Br. 39-

March 29, 1978

RECEIVED

MAR 31 1978

LOGAN COUNTY  
ENGINEER

Logan County Engineering Department  
Box 427  
Bellefontaine, Ohio 43311

Attention Mr. Chester Kurtz  
County Engineer

Reference: Soils Exploration  
Proposed Bridges

Gentlemen:

In reply to your inquiry regarding the above-referenced work, we are pleased to offer the following proposal.

5/26/78  
C.R. KURTZ

Final

A. DRILLING

1. Mobilization and Demobilization	\$100.00	100.00
2. Drilling of test holes including standard penetration tests and the obtaining of liner samples 4 borings to 30 feet, 120 feet total at \$5.00 per linear foot	<u>600.00</u>	550.00

Note: Should unknown conditions result in less than 60 feet of drilling, our minimum day-rate charge of \$350.00 per day will apply.

TOTAL DRILLING \$700.00

650.00



B. LABORATORY TESTING

1. Estimated 30 liner samples 1-1/2 inch O.D., 1-3/8 inch I.D. liner secured inside Split-Spoon sampler including moisture, density, and unconfined compression at \$7.50 per sample.	\$225.00	# 187.50
2. Specific Gravity tests, 4 at \$15.00 <i>Loss by ignition 80%</i>	60.00	40.00
3. Hydrometer Analysis tests, 4 at \$22.00	88.00	
4. Atterberg Limit tests, 4 at \$14.00	<u>56.00</u>	
TOTAL LABORATORY TESTING	\$429.00	# <u>227.50</u>

C. ENGINEERING SERVICES

1. The services of engineering Geologist or Soils Engineer to layout borings, record surface elevations, check out existing underground utilities, and supervise drilling, estimated 6 hours at \$25.00 per hour	\$150.00	150.00
2. Engineering drafting for the preparation of site location plan, boring logs and soil profile, estimated 4 hours at \$15.00 per hour	60.00	60.00
3. Engineering evaluation and report including the review of field logs and borings; designation of laboratory tests; analyzing and evaluating the soil's total and differential settlement; dictation of report including recommendations for safe design values, control of ground water together with other pertinent data, estimated 8 hours at \$27.50 per hour.	<u>220.00</u>	220.00
TOTAL ENGINEERING SERVICES	\$430.00	<u>430.00</u>



Total = # 1307.50

Logan County Engineering Department  
CTL Project No. 78-5048  
March 29, 1978  
Page Three

D. OTHER CHARGES

1. Typing, Xeroxing and Assembly. Please note that three copies will be included at no charge. Additional copies will be charged at \$10.00 each.
2. Bulldozer rental, if required, will be charged at cost plus 15 percent and is not included in the "not to exceed" price below.

On the basis of the amount of work requested, it is estimated that our total fee for these professional engineering services will not exceed \$1,560.00. This estimated cost may be higher or lower pertaining to findings. If an additional four borings are required, the estimated total cost will not exceed \$2,300.00.

All work will be performed in accordance with current ASTM procedures. Drilling work will be started within one week. The soils report will be completed within three to four weeks thereafter.

We appreciate the opportunity to work with you on this project. Should you have any questions, please do not hesitate to call me.

If this proposal meets with your approval, please sign the acceptance and return one copy to us.

Respectfully submitted,

CTL ENGINEERING, INC.

  
Bjørn Kvammen, Jr., Ph.D., P.E.

Chief Soils Engineer

THIS PROPOSAL IS HEREBY ACCEPTED

BY: Chester R. Kurty, P.E. & P.S.  
DATE: 4-3-78

BK:sk





AMERICAN COUNCIL OF INDEPENDENT LABORATORIES

AGREEMENT FOR GEOTECHNICAL ENGINEERING SERVICES



THIS AGREEMENT is by and between Logan County Engineering Department  
Box 427, Bellefontaine, Ohio 43311

Attention Mr. Chester Kurtz, County Engineer

hereinafter called CLIENT and CTL Engineering, Inc.

2860 Fisher Road, Columbus, Ohio 43204

hereinafter called CONSULTANT, who agree as follows:

1. **DECLARATIONS.** CLIENT desires to engage CONSULTANT to provide Geotechnical Engineering, related technical services and other services in connection with CLIENT's project. ("THE PROJECT") described as follows: Soils Exploration

Proposed Bridges, Logan, Ohio, CTL Project No. 78-5048

CONSULTANT has submitted a fee schedule to CLIENT, a copy of which is attached hereto and made a part hereof as Exhibit "A," for geotechnical engineering and related technical services, which fee schedule is acceptable to CLIENT.

Note: See attached proposal for fee schedule.

2. **SCOPE OF WORK.** CONSULTANT shall provide geotechnical engineering and related technical services for THE PROJECT in accordance with the accompanying proposed "scope of services" made a part hereof as Exhibit "B," and "terms and conditions" made a part of this agreement.

Note: See attached proposal for scope of services.

Executed This 3<sup>rd</sup> day of April, 19 78.

By Chester R. Kurtz  
CLIENT

Executed This 29 day of March, 19 78

By Gordon K. Hammer Jr.  
CONSULTANT

PREPARED FOR:

LOGAN COUNTY ENGINEERING DEPARTMENT

BY

CTL ENGINEERING, INC.

SOILS EXPLORATION  
PROPOSED BRIDGE NO. 39-4.98  
RICHLAND TOWNSHIP  
LOGAN COUNTY, OHIO  
CTL PROJECT NO. 78-5048  
MAY 23, 1978



ACIL  NSPE  ASTM  ACI  AWS  ASCE  ASNT  AAPT  CEO  ANS  ASME  ACS  ASEE  AAAS  ASM

Formerly Columbus Testing Laboratory, Inc., Since 1927

May 23, 1978

Logan County Engineering Department  
Box 427  
Bellefontaine, Ohio 43311

Attention Mr. Chester Kurtz  
County Engineer

Reference: Soils Exploration  
Proposed Bridge No. 39-4.98  
CTL Project No. 78-5048

Gentlemen:

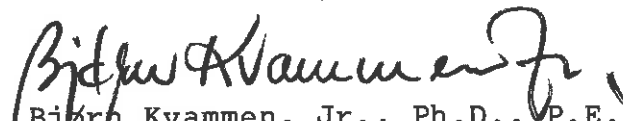
In accordance with your request, we have performed a soils exploration on the site of the above referenced project. This consisted of four soil test borings ranging in depth from 20 to 30 feet below the existing ground surface. Enclosed are the results of this investigation together with our recommendations.

Soil samples will be retained in our laboratory for a period of 60 days after which they will be discarded unless instructions are received from you as to their disposal.

We appreciate the opportunity to be of service to you on this project. Should you have any questions pertaining to the contents of this report or if we may be of further assistance during the design and construction phases, please feel free to call upon me.

Respectfully submitted,

CTL ENGINEERING, INC.

  
Bjørn Kvammen, Jr., Ph.D., P.E.  
Chief Geotechnical Engineer

BK:sk  
Enclosures  
cc: Addressee (3)



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## SYNOPSIS

### BACKGROUND

The soils exploration described in this report consisted of locating and performing soil test borings, securing and testing all samples, analyzing subsoil conditions and test results, and recommending safe design bearing pressures and other pertinent data for the proposed project.

### THE REPORT

This report is presented in three sections.

Section I describes the location of site and borings, as well as the existing soil conditions. Furthermore, analysis of the results with our recommendations are contained in this section.

Site and boring location plans are shown in Section II. Field data obtained from boring and sampling, and the results of field and laboratory testing are appended in this section in the form of soil boring logs, tables, and other graphic forms.

Section III briefly describes the procedure generally adopted for use in soils exploration and equipment used in the field and laboratory for the determination of important engineering properties.

### PROCEDURES

The laboratory testing in this report has been conducted in accordance with standard ASTM procedures, and the analysis and recommendations are based on the engineer's judgment and experience, engineer's code of ethics, and theory of foundation engineering.





SECTION I

INVESTIGATION FOR PROPOSED PROJECT



## 1. LOCATION OF SITE AND BORINGS

The site of the proposed Bridge No. 39-4.98 for which this soils exploration was conducted is located in Richland Township, Logan County, Ohio.

A total of four soil test borings were made at the locations shown on the enclosed plan. The boring depths range from 20 to 30 feet below the existing ground surface.

Surface elevation was taken at each boring location and referenced to a bench mark elevation of 1045.22 feet on top of the R/W monument 25 feet right of station 179 + 10.4. (See plan).

## 2. EXISTING SOIL CONDITIONS

### A. Geology on Site

The site under investigation is located on the glacial-drift plain of Central Ohio. This plain is primarily composed of thick layers of glacial till which contain strata of sand and gravel.

Both the till and sand layers were deposited by glacial action. An advancing ice sheet collected materials as it proceeded across Canada and Northern Ohio. The material it collected became worked into the ice in the form of great chunks of earth and rock. When the ice melted, the soils washed down and out of the ice sheet to form the glacial-till plain. As the water flow continued away from the ice, the materials were sorted out producing the out-washed sand and gravel layers which are found throughout the till. These granular deposits were later overridden and buried by other deposits.

Glacial till is composed of varying proportions of clay, silt, sand, and gravel. A simple description for the till is a

mixture of sand and gravel in a silt/clay matrix.

Boulders are usually found when excavating into glacial till.

#### B. Soil Profile and Description

Examination of the soils encountered at the four boring locations reveals the soil conditions across the site to be somewhat variant. In general, 3 to 4 inches of topsoil exists at each boring location. The topsoil overlies varying strata of brown to gray silt, silty sand and gravel, clayey silt, sand, silty clay, clayey sand and clay.

Detailed descriptions of the soils encountered at each boring location can be found on the representative soil boring logs and soil profile enclosed.

#### C. Ground Water

Medium to heavy volumes of ground water seepage were recorded during drilling of test boring Nos. 1 and 2 at the depth of 12.5 feet. Water was standing in borings 1 and 2 at completion of drilling at the depths of 14 feet and 12 feet, respectively.

Trace amounts of ground water seepage were recorded during drilling of test boring No. 4 at the depth of 8.5 feet. No water was recorded in the borehole at completion of drilling.

No ground water seepage was recorded during drilling or at completion of test boring No. 3.

### 3. SOIL TESTS AND RESULTS

Standard penetration tests performed during sampling of the soils show their shear strength and/or density to vary from low to extremely high with blow counts ranging from 4 to 59 for 12 inches penetration.

Liner soil samples were collected during drilling. Laboratory tests were conducted on the soils to obtain their actual moisture and density. They were classified according to Burmeister's Soils Classification System and subjected to unconfined compressive strength tests and/or hand penetrometer tests. The unconfined compressive strength test result was somewhat lower than would normally be expected when compared to the standard penetration indices. This result is mainly caused by the silty texture of the soil which causes the sample to fail at low strain when tested under unconfined compression.

In addition to the above, selected samples were also subjected to Loss By Ignition tests.

Results from all of the above tests are listed on the accompanying soil boring logs and appended data sheets.

#### 4. ANALYSIS AND RECOMMENDATIONS

##### A. Design Data Provided

It is understood that the existing steel truss bridge is to be replaced by a three-span continuous reinforced concrete slab bridge with capped pile substructures. The bridge spans are to be 24 feet, 30 feet, and 24 feet. Abutments are to have seven (7) piles each at a design load of 22 tons per pile, and piers are to have six(6) piles each at a design load of 36 tons per pile. The deck elevation is to be at an elevation of 1047.00 feet, while bottom of pile caps is to be at elevations of 1043.42 feet and 1040.42 feet for piers and abutments, respectively.

Cast-in-place reinforced concrete piles of 14 inch diameter are planned for support of piers and abutments.

Based on the preceding considerations the following recommendations have been made.



**B. Foundation Support**

It is recommended that:

- (1) The proposed bridge be supported on piling.
- (2) It is suggested that the closed-end pipe piles of 14 inches in diameter be used, to be compatible with the intended use of 14 inch cast-in-place piles for support of piers and abutments.

A pipe pile system should comply with the following:

- (a) The boot plate should be 1- $\frac{3}{4}$  inches thick, 14 $\frac{1}{2}$  inches in diameter of A-36 steel, in accordance with ODOT specification 507.06, 1977.
- (b) The piling splicing and boot plate welding should be in accordance with the enclosed drawing.
- (c) The pipe pile shall be driven with a Vulcan "80 C" pile hammer having a rated energy of 24,450 foot pounds per blow or equivalent.
- (d) The final penetration resistance shall be 6 or more blows for the last 3 inches of penetration (36 ton capacity) or 4 to 5 blows for the last 3 inches (22 ton capacity).
- (e) Piles should be watertight after driving and should be inspected their entire length with an inspection light.
- (f) It is estimated that the pile should be driven to an elevation ranging from about 27 to 35 feet below the existing ground surface; however, due to the variability in the soils encountered, the actual depth should be determined in the field by the soils engineer.
- (g) The working compressive capacity should not exceed 36 tons per pile or 22 ton capacity, as noted above.

Other piling systems may be used if desired, and recommendations for other systems will be provided upon request.

C. Inspection

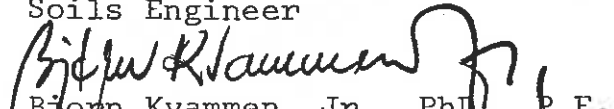
Due to normal variations in soils conditions between tests at specific locations, it is recommended that pile installation be inspected by the soils engineer to verify driving conditions and proper driving methods, including verification of penetration resistance.

Respectfully submitted,

CTL ENGINEERING, INC.



Jeffrey A. Tarbutton, P.E.  
Soils Engineer



Bjorn Kvammen, Jr., Ph.D., P.E.  
Chief Soils Engineer

BK/kj

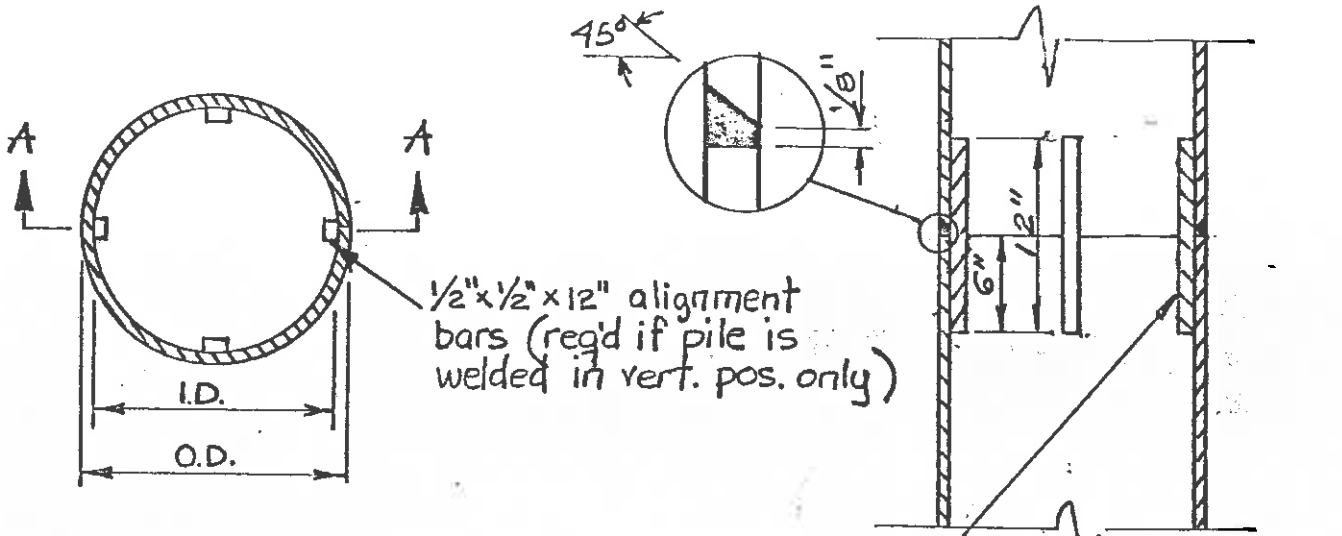


SECTION II

FIELD AND LABORATORY TEST RESULTS

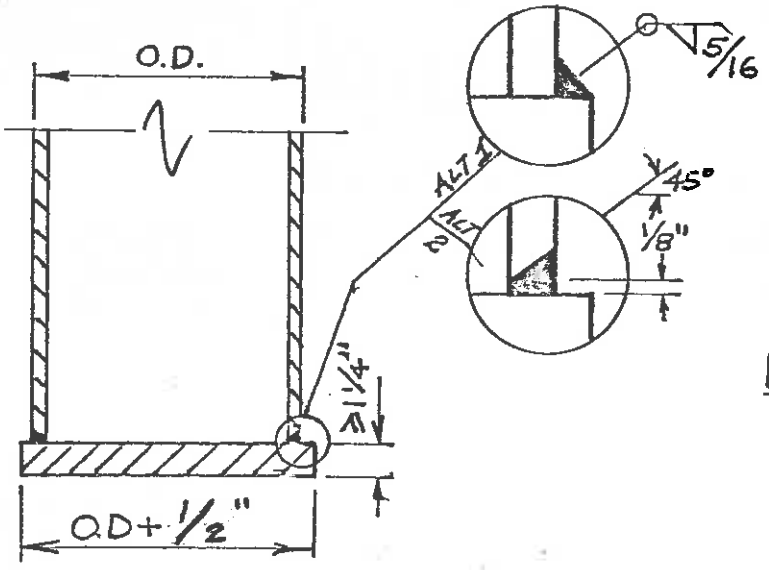






SECTIONAL PLAN @ SPLICE

SECTION A-A



BOOT FL. DETAIL

- NOTES:
- (1) Steel pipe shall be in acc. w/ASTM A252 Grade 2;  $E_y \geq 35$  ksi
  - (2) Welding to be in acc w/AWS & AISC Spec's.
  - (3) Boot FL's shall be of A36 Steel

RECOMMENDED PIPE PILE,  
BOOT FL AND WELDING  
DETAILS (No Scale)



Prepared by: B. Klammen Jr  
 Checked by: J. Crowley  
 Date: 8/30-76

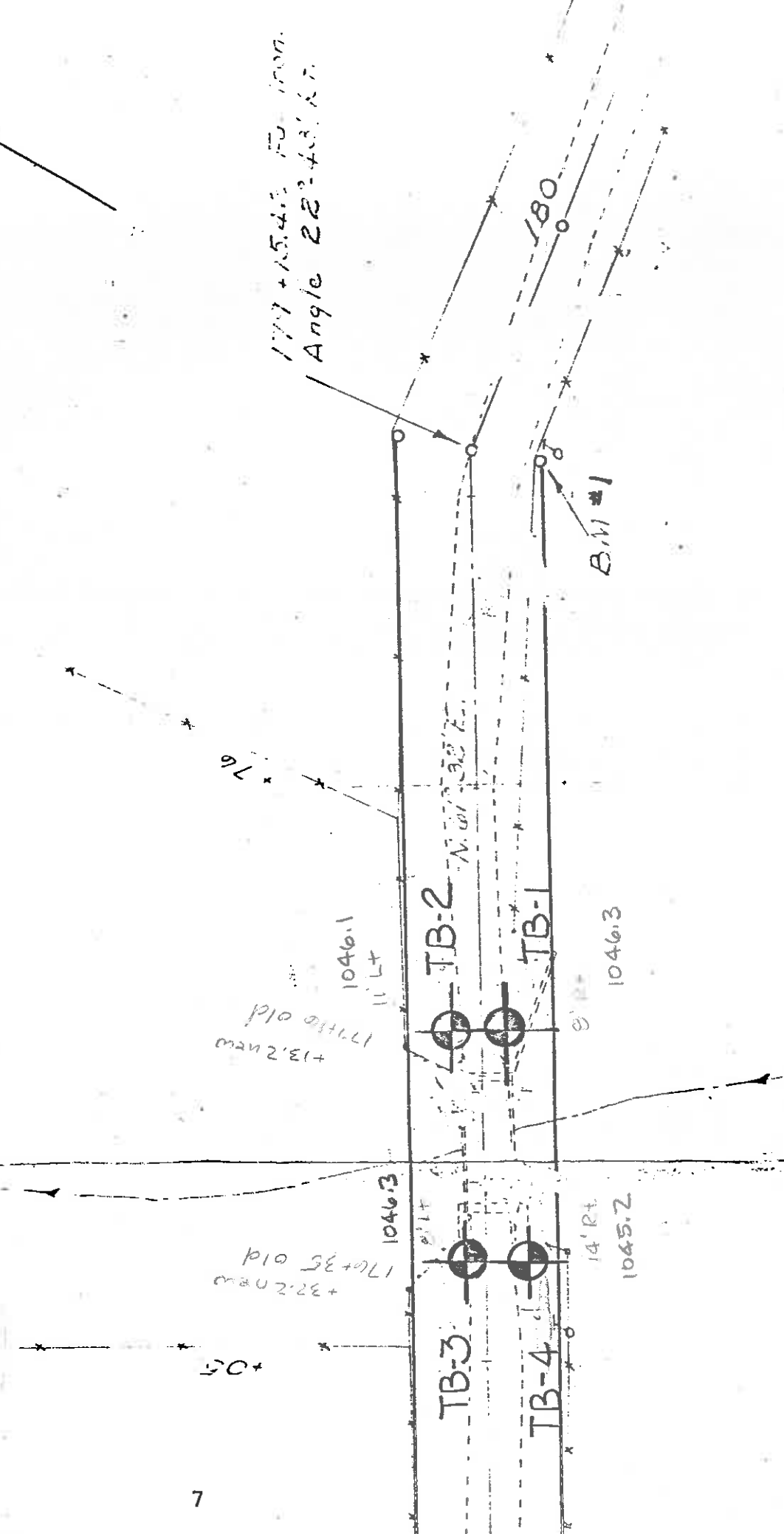
TEST BORING LOCATION PLAN

CTL PROJECT NO. 78-5048

14.50 AC.

0

7



1777 + 15.475 FU from  
Angle 28° 43' 27"

1777 + 13.285W  
177° 10' 01"

176 + 35' old  
+ 32.285W

TB-2

TB-1

TB-3

TB-4

B.M. #1

1046.1  
11' LT

1046.3

1046.3

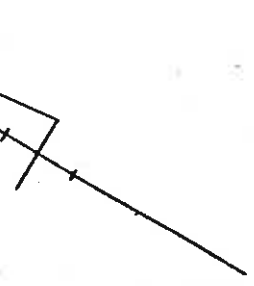
14' RT

1045.2

180

76

50

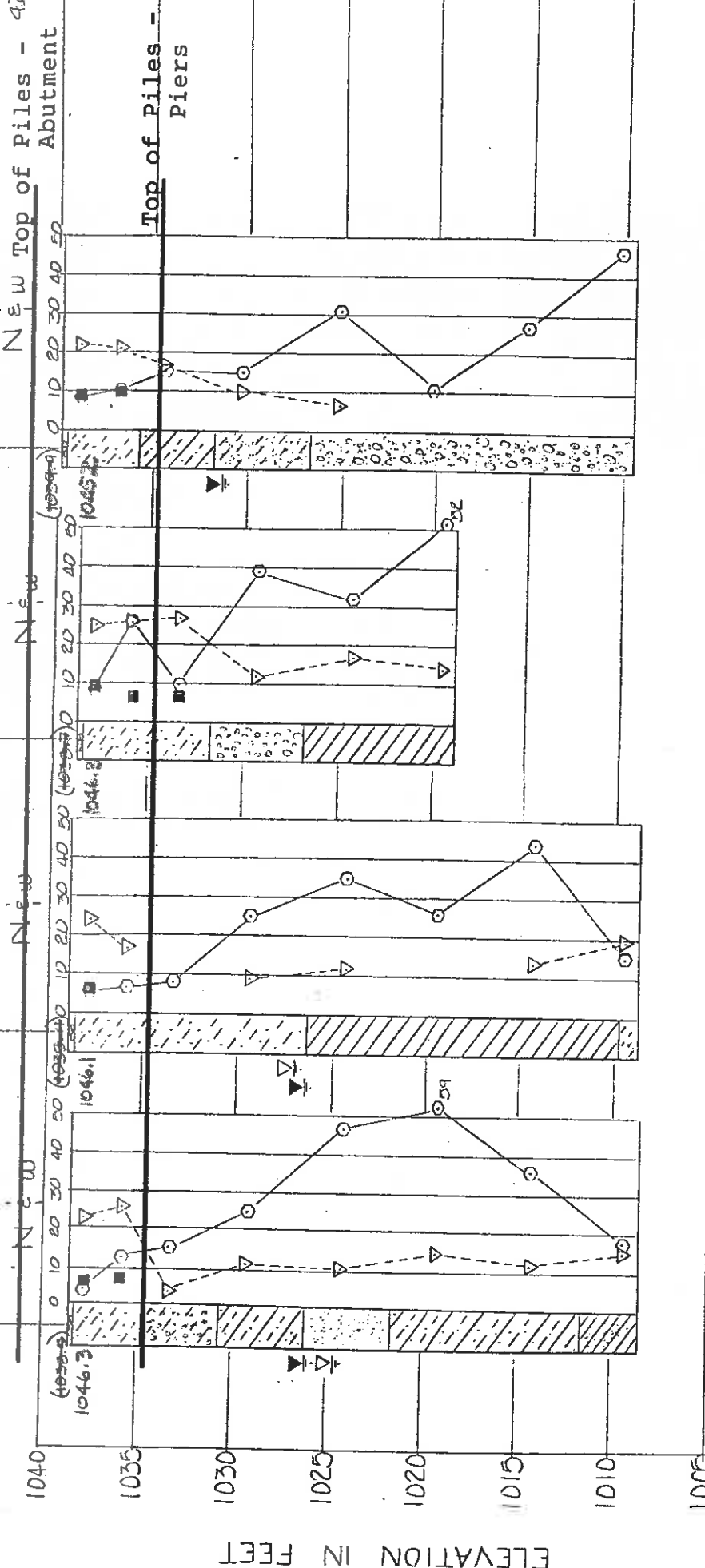


TEST BORING NO.

Roadway 1047

1045 piers

New Top of Piles - 425  
Abutment


























SOIL PROFILE  
PROPOSED BRIDGE  
LOGAN COUNTY, OHIO  
CTL PROJECT NO. 78-5048



CTL ENGINEERING, INC.

SOIL BORING LOG AND SOIL PROFILE LEGEND

Note: For complete color description of soil strata see boring log

	TOPSOIL		Ground Water During Drilling
	SILT with varying proportions of Clay, Sand and Gravel		Ground Water at Completion of Drilling
	CLAY with varying proportions of Silt, Sand and Gravel		Moisture Content in Percent (w)
	SAND with varying proportions of Silt, Clay and Gravel		Standard Penetration blows per foot (N)
	SAND and GRAVEL or GRAVEL with Silt and Clay		Organic Content in Percent
	BOULDERS		Atterberg Limits
	Silty CLAY or Clayey SILT with varying prop. of Sand & Gravel		Elevation in Feet (See Site Plan for B.M. reference)
	Sandy SILT or Silty SAND with varying prop. of Sand & Gravel		
	SHALE, Hardpan or Rock		
	CONCRETE (Portland Cement)		
	BITUMINOUS CONCRETE		
	FILL (see Boring Logs for complete description).		
	LIMESTONE		
			
			
			

SAMPLE TYPE

- A Auger
- C Rock Core
- D Dry
- L Liner
- SS Split Spoon
- ST Shelby Tube
- W Washed





Project: Proposed Bridge, Logan County, Ohio  
 CTL Project No.: 78-5048 Date Drilled: 4-3-78  
 Boring No.: 1 Station El. 1046.3  
 G.W. Encountered at 12'6" Heavy   
 G.W. at Completion 14'0" Medium   
 G.W. Volume: Light

SAMPLE NO. & TYPE	DEPTH FT.	LEGEND	SOIL DESCRIPTION	PENETRATION, BLOWS PER		NATURAL DENSITY $\gamma_s$ , PCF	UNCOMPIED COMP. STRENGTH $q_u$ , PSF	STRAIN $\epsilon$ , %	GRADATION, %										
				6 IN.	12 IN.				NO.	LL %	PL %	W.P.	C.S.	M.S.	F.S.	CUR			
L1	1		3" Topsoil	2	4														
L2	2		Soft Brown SILT, Little F/C Sand, Trace F/C Gravel, Trace Clay (Organic)	2	4	119.1													
L2	3		Stiff Brown Same (Organic)	3															
L3	4		4'0" --- 1042.3	10	13	115.9	3,500	*											
L3	5		Very Compact Brown Silty F/C SAND and F/C GRAVEL	8															
L3	6			7															
L3	7			9	16														
L4	8		8'0" --- 1038.3																
L4	9		Very Stiff Gray Clayey SILT, Little F/C Sand, Little F/C Gravel	12															
L4	10			13	25	134.2	9,000+	*											
L5	11		$\nabla$ 12'6" Water Seepage 1033.8																
L5	12																		
L5	13																		
L5	14		Extremely Compact Brown-Gray F/C SAND, Little Silt, Little Clay, Trace F/C Gravel	15															
L5	15			20															
L5	16			27	47	142.0													
L6	17		17'0" --- 1029.3																
L6	18																		
L6	19		Extremely Stiff Brown Gray Silty CLAY, Little F/C Sand, Trace F/C Gravel (Sand Layers)	17															
L6	20			27															
L6	21			32	59	133.5	6,500	*											



**Project:** Proposed Bridge, Logan County, Ohio  
**CTL Project No.:** 78-5048 **Date Drilled:** 4-3-78  
**Boring No.:** 2 **Station:** --- **El.:** ---

**G.W. Encountered at:** 12'6"  
**G.W. at Completion:** 12'0"  
**G.W. Volume:** Light  Medium  Heavy

SAMPLE NO. & TYPE	DEPTH FT.	LEGEND	SOIL DESCRIPTION	PENETRATION, BLOWS PER		NATURAL DENSITY, $\gamma_s$ , PCF	UNDEFINED COMP. STRENGTH, $q_u$ , PSF	STRAIN $\epsilon_1$ , %	PL	NATURAL			GRADATION, %
				6-IN.	12-IN.					LL	PL	LI	
	1		4-1/2" Topsoil	2									
L1	2		Firm Brown SILT, Some Clay, Some F/C Sand, Some F/C Gravel	2		119.6							
	3			3									
L2	4			4		129.7	2,000	*					
	5			2									
	6		No Recovery	3									
	7			5									
	8			8									
	9			12									
	10		Very Stiff Gray Same (Boulder)	12									
	11			12									
	12			13	25	144.8	9,000+	*					
	13												
	14		Extremely Stiff Brown CLAY, Little F/C Sand, Trace F/C Gravel (Gray Sand Layers)	16									
	15			17	35	139.5	9,000+	*					
	16												
	17												
	18		No Recovery	13									
	19			13									
	20			13	26								

12'6" 1033.6







Project: Proposed Bridge, Logan County, Ohio

G.W. Encountered at: None

CTL Project No.: 78-5048 Date Drilled: 4-3-78

G.W. at Completion: None

Boring No.: 3 Station: El.

1038.7

SAMPLE NO. & TYPE	DEPTH FT.	LEGEND	SOIL DESCRIPTION	PENETRATION, BLUNTS PER		NATURAL DENSITY, $\gamma_s$ , PCF	UNCONFINED COMP. STRENGTH, $q_u$ , PSF	STRAIN $\epsilon_r$ , %	PL	NATURAL LL %	GRADATION, %
				6 IN.	12 IN.						
L1	1	0.0	4" Topsoil	3							
	2	0.0	Extremely Stiff Gray SILT, Little Clay, Little F/C Sand (Organic)	3		111.3					
	5	0.0		8							
L2	3	0.0		12		113.1					
	4	0.0		14	26						
	5	0.0	Stiff Gray Same (Organic)	4							
	6	0.0		5		122.7	4,500	*			
L3	7	0.0		5	10						
	8	0.0	7'0" 1039.3								
	9	0.0		19							
	10	0.0		22							
L4	10	0.0	Extremely Compact F/C GRAVEL, Some F/C Sand, Trace Clay	17	39						
	11	0.0									
	12	0.0		12'0" 1034.3							
	13	0.0	Extremely Stiff Gray CLAY, Some F Sand, Little Silt (Sand Layers)								
	14	0.0		10							
L5	15	0.0		17		134.7	5,000	*			
	16	0.0		15	32						
	17	0.0	Extremely Stiff Gray Same (Sand Layers)								
	18	0.0									
L6	19	0.0		17		137.7	4,500	*			
	20	0.0	25								
		0.0	27	52							
		0.0	BOTTOM OF BORING 20'0" 1026.3								

Project: Proposed Bridge, Logan County, Ohio  
 CTL Project No.: 78-5048 Date Drilled: 4-3-78  
 Boring No.: 4 Station: --- El. 1039.9

G.W. Encountered at 8'6" Trace  
 G.W. at Completion None  
 G.W. Volume: Light  Medium  Heavy

SAMPLE NO. & TYPE	DEPTH FT.	LEGEND	SOIL DESCRIPTION	PENETRATION, BLOWS PER		NATURAL DENSITY $\gamma_s$ , PCF	UNCONFINED COMP. STRENGTH, $q_u$ , PSF	STRAIN $\epsilon_r$ , %	PL	LL %	GRADATION, %			
				6-IN.	12-IN.						NO. 10	NO. 40	NO. 200	
L1	1		3" Topsoil		2									
L2	2-4		Stiff Brown SILT, Some F/C Sand, Little F/C Gravel, Little Clay (Organic) 4'0" - 1041.2		3, 3, 7	122.4	2,000	*						
L3	5-9		Stiff Brown Silty CLAY, Some F/C Sand, Some F/C Gravel		5, 6, 9	128.4	6,000	*						
L4	10-13		8'0" $\nabla$ 8'6" 1036.7 Stiff Gray Sandy SILT, Some F/C Gravel, Little Clay		10, 7, 8	148.3	9,000+	*						
L5	14-20		13'0" 1032.2 Extremely Compact Gray F/C SAND and F/C GRAVEL, Trace Silt		10, 14, 17									
			No Recovery		6, 5, 6									



Report on Sample of SOIL

Report No. 78-5048

Columbus, Ohio, April 19, 1978

Client Logan County Engineering Department

Project Proposed Bridge, Logan County, Ohio

Identification \_\_\_\_\_

LOSS BY IGNITION TEST DATA

<u>TEST BORING NO.</u>	<u>SAMPLE NO.</u>	<u>PERCENT ORGANIC CONTENT</u>
1	1	7.0%
1	2	7.5%
2	1	6.0%
3	1	8.5%
3	2	6.0%
3	3	6.0%
4	1	8.5%
4	2	9.5%

Respectfully submitted,

*Peter K. Kammmer Jr.*



ACIL  NSPE  ASTM  ACI  AWS  ASCE  
 ASNT  AAPT  OACE  ANS  ASM  WACEL  
 Also Columbus Testing Laboratory, Inc., Since 1927

SECTION III

GENERAL FIELD AND LABORATORY TESTING PROCEDURE



5/1/2019

1. BORING, SAMPLING AND GROUND WATER OBSERVATION

A variety of drilling equipment and procedures is used in performing the soil test borings, and the choice depends upon the nature of the soil, the depths of borings, and the particular type of samples required to obtain the specific information.

Where caving soils are encountered, drill casing or hollow-stem augers are used to stabilize the drill hole and to shut off ground water. This permits undisturbed liner samples of Shelby Tube samples to be obtained in a relatively dry hole. Where the soils are of a cohesive character or where caving is not experienced, the drill hole can also be advanced by continuous flight augers, 4 inches to 6 inches in diameter, depending upon sample requirements. These holes are drilled to depths required (to over 100 feet if necessary). Where soft clays are encountered, water or drilling mud is circulated to stabilize and maintain the sides of the test holes.

Samples of the soils are obtained at significant changes or at depth intervals of not more than 5 feet. In general, the first sample is secured at a depth of 2 feet 6 inches where shallow footings are placed, and the second and third samples are obtained at depths of 5 feet and 9 feet, respectively, in the region where most basement structures are founded. The other samples are obtained at intervals of 5 feet thereafter. Liner samples are obtained utilizing a standard sampler having an inside diameter of 1-3/8 inches and an outside diameter of 2 inches. Inside this sampler, a series of brass tubes consist of a 3-inch long section a 1-inch long section, and two 3-inch long

sections. The liner sample within the sampler is removed after the sampler has been withdrawn from the drill hole. The sample is then placed in a steel shipping container which is sealed against moisture loss during transportation to the laboratory. During freezing conditions, the samples are stored and shipped in insulated containers. Shelby-Tube samples are thin-walled tubing which are forced into soil strata by utilizing the hydraulic feed system of the drill rig or an Osterberg Sampler. Other sampling procedures and field testing devices are used for special applications and information. A description of these is found in the section entitled "Testing".

It may be noted that while the test borings are drilled and sampled by experienced drillers, it is sometimes impossible to record changes in stratification of the soils within narrow limits, especially at great depths. In the absence of foreign substances, it is sometimes difficult to distinguish between discolored soils and clean soil fill. Furthermore, the soil profile reflects soil conditions in a particular boring only, and other soil variations may occur between locations.

Ground water levels and volumes are carefully recorded at the time the borings are drilled. Subsequent rainfall or seasonal changes may vary these levels and volumes, and this should be accounted for in the planning and scheduling of construction. Where the borings are made in the fine-grained soils, the ground water may not enter the borings during the time of the investigation.

## 2. TESTING

### A. Field Testing

A standard penetration test (according to current ASTM D-1452 and D-1586 procedures) is performed to obtain liner samples. These procedures specify that the sampler be driven into the soils using a drop hammer weighing 140 pounds falling freely through a distance of 30 inches. The number of blows required to drive a standard sampler through three successive increments of 6 inches is recorded on the soil boring log. The standard penetration index (blows per foot) is obtained by adding the second and third increment values.

The type of sample and its identifying number, the depth of the sample, and the penetration results are found on the boring logs. Continuous logs of consistency, moisture, color and description of the soils are recorded during boring and sampling; other pertinent field notes are furnished whenever significant.

### B. Laboratory Testing

Cohesive or clay samples are subjected to routine tests for moisture content, natural density, and unconfined compressive strength. Granular or non-cohesive soils are subjected to routine tests for moisture content, natural density, and composition.

#### (1) Moisture Content and Density

A portion of each sample consisting of the soil contained in the 1-inch liner ring is weighed, oven dried at 105 degrees and reweighed to obtain the weight of water. The moisture content is defined as the ratio of the weight of water to the weight of the dry soil



expressed as a percentage. The natural density is obtained from the weight and known volume of the sample.

(2) Composition

In addition, CTL Engineering, Inc., has adapted a general classification system based on Dr. D. M. Burmeister's recommendations. The primary soil component is defined as containing more than 50 percent of the sample by weight. Minor components are defined as containing:

- 35 to 50 percent - And
- 20 to 35 percent - Some
- 10 to 20 percent - Little
- 1 to 10 percent - Trace

On the boring logs, the primary component is shown first and in capital letters. Minor components follow with their relative amounts as shown by the terms And, Some, Little, and Trace. General color of the sample is normally shown preceding the major component.

Major components are GRAVEL, SAND, SILT, or CLAY with further description of F-fine, M-medium, or C-coarse used to classify gravels and sands. Silts and clays are classified according to the plasticity with non-plastic, fine-size particles described as silt and highly plastic particles described as clay. The terms silty clay or clayey silt are often used to further define the silt-clay fractions. The composition of granular materials is obtained by passing known weight

of dried material through a set of sieves ranging from #40 to #200 (U.S. Standard Sieve). This procedure is in accordance with ASTM D-442. When grain distribution of particles smaller than #200 sieve is required, a Hydrometer Analysis, described in the second part of the ASTM D-442 procedure, is performed fulfilling a complete mechanical analysis.

(3) Unconfined Compressive Strength

Undisturbed liner Shelby-Tube samples of the cohesive soils are subjected to unconfined compressive strength tests in accordance with the ASTM D-2166 procedures. In this test, a cylinder of soil is subjected to an axial static loading without lateral support using a controlled rate of strain. The stress (load per unit area) is then measured at intervals of 30 seconds. A stress-strain curve is plotted, and the ultimate strength is taken at failure, or at 20 percent strain if the sample fails by general squeezing. In utilizing test results for determination of allowable bearing capacities, allowance is made for failure of brittle samples at a low percentage of strain.

Specialized tests, such as Consolidation Tests, Triaxial Tests, Direct Shear Tests, Permeability Tests, Vane Shear Tests, Percolation Tests, Atterberg Limit Tests, etc., are performed where required and where special problems are encountered. The results of these specialized tests are appended in a section following the boring logs, whenever encountered.

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39-4.98

PROCESSING KEY	
STRUCTURE FILE NO.	TRANS. CODE
4633539C	

OHIO DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

BRIDGE INVENTORY & APPRAISAL CODE SHEET

BR-87  
REV. 5-74

JAN 10 1988

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_  
CODED BY \_\_\_\_\_ DATE \_\_\_\_\_

CARD NO.	(1) ODOT DISTRICT		(2) CITY OR TOWN		(3) INVENTORY ROUTE						(4) FEATURE(S) INTERSECTED	(5) INV. RTE. BRIDGE NO.	(6) UNIT NUMBER		(7) SECTION I. D. NUMBER	(8) INVENTORY ROUTE A.D.T. (TENS)	(9) A.D.T. YEAR	(10) FED. AID SYSTEM	(11) ADMIN. JURISD.	(12) FUNCTIONAL CLASS	
	ON/UNDER SYSTEM	ROUTE NUMBER	DIRECT. BUFFER	DESIGNATION	PREF. ROUTE	COUNTY	STRAIGHT LINE MILEAGE	SPECIAL DESIGNATION													
1	10	12	16	17	18	23	24	25	26		61	54	59	61	65	71	73	75	77	79	80

CARD NO.	(13) DEFENSE			(14) TOT. MIN HORIZONTAL CLEAR.		(15) PRACTICAL MAXIMUM VERTICAL CLEAR.		(16)	(17) INTERSECTED ROUTE			(18) FEATURE(S) INTERSECTED	(19) INTER. RTE. BRIDGE NO.								
	SECTION NUMBER	MILEPOINT BEGIN SECTION	SECTION LENGTH	NON-CARD. OPENING	CARDINAL OPENING	FT.	IN.		ON/UNDER SYSTEM	ROUTE NUMBER	DIRECT. BUFFER			DESIGNATION	PREF. ROUTE	COUNTY	UNIT NUMBER				
2	10	15	19	22	25	28	30	32	36	37	38	43	44	45	46		71	74		78	80

CARD NO.	(20) INTERSECTED ROUTE A.D.T. (TENS)	(21) A.D.T. YEAR	(22) FED. AID SYSTEM	(23) ADMIN. JURISD.	(24) FUNCTIONAL CLASS	(25) DEFENSE			(26) TOT. MIN HORIZONTAL CLEAR.		(27) PRACTICAL MAXIMUM VERTICAL CLEAR.		(28)	(29) BY-PASS LENGTH	(30) COORDINATES				(31) PHYS. VULNER.	(32) TOLL	(33) YEAR BUILT		(34) NO. LANES		(35) HORIZ. CURVE		(36) SKEW	(37) DESIGN LOADING	
						SECTION NUMBER	MILEPOINT BEGIN SECTION	SECTION LENGTH	NON-CARD. OPENING	CARDINAL OPENING	FT.	IN.			DEGREES	MINUTES	DEGREES	MINUTES			ORIG. CONS.	MAJOR RECON.	ON STRUCT.	UNDER STRUCT.	DEG.	MIN.			
3	10	16	18	20	22	24	29	33	36	39	42	44	46	50	52	54	57	60	63	64	65	67	69	71	73	75	77	79	80

CARD NO.	(38) APPROACH ROADWAY WIDTH	(39) MEDIAN TYPE	40	(41) BRIDGE ROADWAY WIDTH (CB/CB)	(42) DECK WIDTH (OUT/OUT)	43	44	(45) SIDEWALKS		46	(47) WEARING SURFACE		(48) STRUCTURE TYPE				(49) TOTAL NO. SPANS	(50) MAXIMUM SPAN LENGTH	(51) OVERALL STRUCTURE LENGTH	(52) TYPE SERVICE	(53) BRIDGE DESCRIPTION	(54) MINIMUM VERTICAL CLEAR. ON BRIDGE		(55)	(56)	57
								RAIL. TYPE	DECK DRAIN.		LEFT	RIGHT	FLOOR SLAB TYPE	THICKNESS (INCH)	NUMBER	TYPE CODE						NUMBER	TYPE CODE			
4	10	13	16	17	21	25	26	27	30	33	34	35	37	40	43	46	49	52	56	62	64	66	69	70	76	80

CARD NO.	(58) SUBSTRUCTURE										59	(60) MIN. VERT. UNDERCLEAR. (MAIN LANES)				(61) MIN. LATERAL UNDERCLEAR. TO EDGE OF LANE				(62) NAVIGATION		(63)	(64)	(65)							
	ABUTMENTS		PIERS									NON-CARD. OPENING	CARDINAL OPENING	NON-CARD. DIRECT.		CARDINAL DIRECT.		CONTROLLED	VERT. CLEAR.	HORIZ. CLEAR.	OHIO ORIGINAL CONSTR. PROJ. NO.			MICROFILM REEL NO.	ORIGINAL CONSTRUCTION FEDERAL AID PROJECT NUMBER						
	REAR	FWD.	PREDOMINATE	OTHER	OTHER	OTHER	OTHER	OTHER	OTHER	OTHER				OTHER	OTHER	OTHER	OTHER								OTHER	OTHER	OTHER	OTHER	OTHER	OTHER	OTHER
5	10	11	12	13	14	16	17	18	20	21	22	23	24	25	26	27	28	29	31	33	35	38	41	44	47	48	51	55	61	67	80

CARD NO.	(66) LOAD RATING				67	68	(69) APPRAISAL										(70) PROPOSED IMPROVEMENTS						(71) COST OF IMPROVEMENTS					72		
	OPERATING RATING	INVENTORY RATING	OHIO % OF LEGAL	RATING YEAR			INSP. RESP.	MAINT. RESP.	DECK DEGR.	UNDERCLEAR.	SAFE LOAD CAP.	WATERWAY ADEQ.	APPR. ALIGN.	REMAIN. LIFE	YEAR NEEDED	TYPE SERVICE	TYPE WORK	LENGTH OF IMPROVEMENT	IMPR. DES. LOAD	PROPOSED ROAD WIDTH	NUMBER LANES	DESIGN A.D.T. (TENS)	YEAR A.D.T.	ADJ. ROWY.	TOTAL COST (\$1000'S)	YEAR OF COSTS	PRELIM. ENG.		DEMO-LITION	SUB-STRUCTURE
6	10	13	16	19	21	22	23	24	25	26	27	28	29	31	32	35	40	42	46	48	54	56	58	59	64	66	69	72	76	80

REMARKS:

OFFICIAL USE ONLY

O.A. CODE \_\_\_\_\_

REVIEWED BY \_\_\_\_\_

DATE \_\_\_\_\_

DATA RECORDER (STAMP)

DATE \_\_\_\_\_



39-4.98

PROCESSING KEY	
STRUCTURE FILE NO.	TRANS. CODE
46.3.3.5.3.9.C	

OHIO DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

BRIDGE INVENTORY & APPRAISAL CODE SHEET

BR-87  
REV. 5-74

CHECKED BY Curtis Dill DATE 2-25-80

CARD NO.	(1) DISTRICT	(2) CITY OR TOWN	(3) INVENTORY ROUTE			(4) FEATURE(S) INTERSECTED	(5) INV. RTE. BRIDGE NO.		(6) SECTION I. D. NUMBER	(7) INVENTORY ROUTE A.D.T. (TENS)	(8) A.D.T. YEAR	(9) FED. AID SYSTEM	(10) ADMIN. JURISD.	(11) FUNCTIONAL CLASS	(12)						
			ON/UNDER SYSTEM	ROUTE NUMBER	DIRECT. SUFFIX		DESIGNATION	PREF. ROUTE								COUNTY	UNIT NUMBER				
9	10	12	16	17	18	23	24	25	26	51	54	59	61	65	71	73	75	77	79	80	
1																					

CARD NO.	(13) DEFENSE			(14) TOT. MIN HORIZONTAL CLEAR.		(15) PRACTICAL MAXIMUM VERTICAL CLEAR.	(16)	(17) INTERSECTED ROUTE			(18) FEATURE(S) INTERSECTED	(19) INTER. RTE. BRIDGE NO.									
	SECTION NUMBER	MILEPOINT BEGIN SECTION	SECTION LENGTH	NON-CARD. OPENING	CARDINAL OPENING			FT.	IN.	ON/UNDER SYSTEM		ROUTE NUMBER	DIRECT. SUFFIX	DESIGNATION	PREF. ROUTE	COUNTY	UNIT NUMBER	STRAIGHT LINE MILEAGE	SPECIAL DESIGNATION		
9	10			19	22	25	28	30	32	36	37	38	43	44	45	48	71	74	79	80	
2																					

CARD NO.	(20) INTERSECTED ROUTE A.D.T. (TENS)	(21) A.D.T. YEAR	(22) FED. AID SYSTEM	(23) ADMIN. JURISD.	(24) FUNCTIONAL CLASS	(25) DEFENSE			(26) TOT. MIN HORIZONTAL CLEAR.	(27) PRACTICAL MAXIMUM VERTICAL CLEAR.	(28)	(29) BY-PASS LENGTH	(30) COORDINATES		91	92	(33) YEAR BUILT		(34) NO. LANES		(35) HORIZ. CURVE		(36) SKEW	(37) DESIGN LOADING							
						SECTION NUMBER	MILEPOINT BEGIN SECTION	SECTION LENGTH					NON-CARD. OPENING	CARDINAL OPENING			FT.	IN.	DEGREES	MINUTES	DEGREES	MINUTES			PHYS. VULNER.	TOLL	ORIG. CONS.	MAJOR RECON.	ON STRUCT.	UNDER STRUCT.	DEG.
9	10		16	18	20	22	24	29	33	36	39	42	44	46	50	52	54	57	60	63	64	65	67	69	71	73	75	77	79	80	
3																															

CARD NO.	(38) APPROACH ROADWAY WIDTH	(39) MEDIAN TYPE	40	(41) BRIDGE ROADWAY WIDTH (CB/CB)	(42) DECK WIDTH (OUT/OUT)	43	44	(45) SIDEWALKS		46	(47) HEARING SURFACE THICKNESS (INCH)	(48) STRUCTURE TYPE		(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	57										
								LEFT	RIGHT			FLOOR SLAB TYPE	NUMBER										TYPE CODE	NUMBER	TYPE CODE	TOTAL NO. SPANS	MAXIMUM SPAN LENGTH	OVERALL STRUCTURE LENGTH	TYPE SERVICE	BRIDGE DESCRIPTION	MINIMUM VERTICAL CLEAR. ON BRIDGE	FT.
9	10	13	16	17	21	25	26	27	30	33	34	35	37	40	43	46	49	52	56	62	64	66	68	70	75	80						
4																																

CARD NO.	(58) SUBSTRUCTURE										59	(60) MIN. VERT. UNDERCLEAR. (MAIN LANES)				(61) MIN. LATERAL UNDERCLEAR. TO EDGE OF LANE				(62) NAVIGATION		(63)	(64)	(65)								
	ABUTMENTS		PIERS				PILING	NON-CARD. OPENING		CARDINAL OPENING		NON-CARD. DIRECT.		CARDINAL DIRECT.		CONTROLLED	VERT. CLEAR.	HORIZ. CLEAR.	OHIO ORIGINAL CONSTR. PROJ. NO.	MICROFILM REEL NO.	ORIGINAL CONSTRUCTION FEDERAL AID PROJECT NUMBER											
	REAR	FWD.	PREDOMINATE	OTHER	OTHER	NON-CARD. OPENING		CARDINAL OPENING	NON-CARD. DIRECT.	CARDINAL DIRECT.		LEFT	RIGHT	LEFT	RIGHT																	
9	10	11	12	13	14	16	17	18	20	21	22	24	25	26	27	29	31	33	35	38	41	44	47	48	51	55	61	67	80			
5																																

CARD NO.	(66) LOAD RATING			67	68	(69) APPRAISAL					(70) PROPOSED IMPROVEMENTS							(71) COST OF IMPROVEMENTS					72									
	OPERATING RATING	INVENTORY RATING	OHIO % OF LEGAL RATING YEAR			INSP. RESP.	MAINT. RESP.	DECK GEOM.	UNDERCLEAR.	SAFE LOAD CAP.	WATERWAY ADEQ.	APPR. ALIGN.	REMAIN. LIFE	YEAR NEEDED	TYPE SERVICE	TYPE WORK	LENGTH OF IMPROVEMENT	IMPR. DES. LOAD	PROPOSED ROAD WIDTH	NUMBER LANES	DESIGN A.D.T. (TENS)	YEAR A.D.T.		ADJ. ROWY.	TOTAL COST (\$1000'S)	YEAR OF COSTS	PRELIM. ENG.	DEMO-LITION	SUB-STRUCTURE	SUPER-STRUCTURE	PRIORITY	
9	10	13	16	19	21	22	23	24	25	26	27	28	29	31	32	35	40	42	46	48	54	56	58	59	64	66	69	72	76	80		
6																																

REMARKS:

OFFICIAL USE ONLY

O.A. CODE \_\_\_\_\_  
 REVIEWED BY \_\_\_\_\_  
 DATE \_\_\_\_\_

DATA RECORDER (STAMP)  
 V78  
 FEB 03 1981  
 DATE \_\_\_\_\_

BRIDGE INVENTORY & APPRAISAL CODE SHEET

39-498

PROCESSING KEY	
STRUCTURE FILE NO.	TRANS. CODE
4,6,3,3,5,3,9	C

CHECKED BY RABruce DATE 2/14/79

CARD NO.	(1) ODOT DISTRICT	(2) CITY OR TOWN	(3) INVENTORY ROUTE			(4) FEATURE(S) INTERSECTED	(5) INV. RTE. BRIDGE NO.	(6) COUNTY	(7) SECTION I. D. NUMBER		(8) INVENTORY ROUTE A.D.T. (TENS)	(9) A.D.T. YEAR	(10) FED. AID SYSTEM	(11) ADMIN. JURISD.	(12) FUNCTIONAL CLASS					
			ON/UNDER SYSTEM	ROUTE NUMBER	DIRECT. SUFFIX				DESIGNATION	PREF. ROUTE						STRAIGHT LINE MILEAGE	SPECIAL DESIGNATION			
1	10	12	16	17	18	23	24	25	26	51	54	59	61	65	71	73	75	77	79	80
1			14			C0039	1							000039	77					

CARD NO.	(13) DEFENSE			(14) TOT. MIN. HORIZONTAL CLEAR.		(15) PRACTICAL MAXIMUM VERTICAL CLEAR.		(16)	(17) INTERSECTED ROUTE			(18) FEATURE(S) INTERSECTED	(19) INTER. RTE. BRIDGE NO.							
	SECTION NUMBER	MILEPOINT BEGIN SECTION	SECTION LENGTH	NON-CARD. OPENING	CARDINAL OPENING	FT.	IN.		ON/UNDER SYSTEM	ROUTE NUMBER	DIRECT. SUFFIX			DESIGNATION	PREF. ROUTE	COUNTY	UNIT NUMBER			
2	9	10	15	19	22	25	28	30	32	36	37	38	43	44	45	46	71	74	79	80
2					000	1.58														

CARD NO.	(20) INTERSECTED ROUTE A.D.T. (TENS)	(21) A.D.T. YEAR	(22) FED. AID SYSTEM	(23) ADMIN. JURISD.	(24) FUNCTIONAL CLASS	(25) DEFENSE		(26) TOT. MIN. HORIZONTAL CLEAR.	(27) PRACTICAL MAXIMUM VERTICAL CLEAR.		(28)	(29) BY-PASS LENGTH	(30) COORDINATES				91	92	(33) YEAR BUILT	(34) NO. LANES	(35) HORIZ. CURVE		(36) SKEW	(37) DESIGN LOADING						
						SECTION NUMBER	MILEPOINT BEGIN SECTION		SECTION LENGTH	NON-CARD. OPENING			CARDINAL OPENING	FT.	IN.	DEGREES					MINUTES	DEGREES			MINUTES	PHYS. VULNER.	TOLL	DEG.	MIN.	
3	9	10	16	18	20	22	24	29	33	36	38	42	44	46	50	52	54	57	60	63	64	65	67	69	71	73	75	77	79	80
3																														

CARD NO.	(38) APPROACH ROADWAY WIDTH	(39) MEDIAN TYPE	40	(41) BRIDGE ROADWAY WIDTH (CB/CB)	(42) DECK WIDTH (OUT/OUT)	43	44	(45) SIDEWALKS		46	(47) WEARING SURFACE	(48) STRUCTURE TYPE				(49) TOTAL NO. SPANS	(50) MAXIMUM SPAN LENGTH	(51) OVERALL STRUCTURE LENGTH	(52) TYPE SERVICE	(53) BRIDGE DESCRIPTION	(54) MINIMUM VERTICAL CLEAR. ON BRIDGE		(55)	(56)	57		
								LEFT	RIGHT			FLOOR SLAB	THICKNESS (INCH)	NUMBER	TYPE CODE						NUMBER	TYPE CODE				FT.	IN.
4	9	10	13	16	17	21	26	26	27	30	33	34	35	37	40	43	46	49	52	56	62	64	66	68	70	75	80
4				01.58	01.58		9				2	01	00	1	3	4	4	000	000		0048	0000	49				5

CARD NO.	(58) SUBSTRUCTURE					59	(60) MIN. VERT. UNDERCLEAR. (MAIN LANES)				(61) MIN. LATERAL UNDERCLEAR. TO EDGE OF LANE				(62) NAVIGATION		(63) OHIO ORIGINAL CONSTR. PROJ. NO.	(64) MICROFILM REEL NO.	(65) ORIGINAL CONSTRUCTION FEDERAL AID PROJECT NUMBER											
	ABUTMENTS		PIERS				NON-CARD. OPENING	CARDINAL OPENING	NON-CARD. DIRECT.		CARDINAL DIRECT.		CONTROLLED	VERT. CLEAR.	HORIZ. CLEAR.	PRELIM. ENG.			DEMO-LITION	SUB-STRUCTURE	SUPER-STRUCTURE									
	REAR	FWD.	PREDOMINATE	OTHER	OTHER				FT.	IN.	FT.	IN.										LEFT	RIGHT	LEFT	RIGHT					
5	9	10	11	12	13	14	16	17	18	20	21	22	24	25	26	27	29	31	33	35	38	41	44	47	48	51	55	61	67	80
5																														

CARD NO.	(66) LOAD RATING				(68) APPRAISAL				(70) PROPOSED IMPROVEMENTS								(71) COST OF IMPROVEMENTS				72																													
	OPERATING RATING	INVENTORY RATING	OHIO % OF LEGAL	RATING YEAR	INSP. RESP.	MAINT. RESP.	DECK GEOM.	UNDERCLEAR.	SAFE LOAD CAP.	WATERWAY ADQB.	APPR. ALIGN.	REMAIN. LIFE	YEAR NEEDED	TYPE SERVICE	TYPE WORK	LENGTH OF IMPROVEMENT	IMPR. DES. LOAD	PROPOSED ROAD WIDTH	NUMBER LANES	DESIGN A.D.T. (TENS)		YEAR A.D.T.	ADJ. ROWY.	TOTAL COST (\$1000'S)	YEAR OF COSTS	PRELIM. ENG.	DEMO-LITION	SUB-STRUCTURE	SUPER-STRUCTURE	PRIORITY																				
6	9	10	13	16	18	21	22	23	24	25	26	27	28	29	31	32	35	40	42	46	48	54	56	58	59	64	66	69	72	76	80																			
6	9	08	9	03	02	020	7	03	3	2	N	2	6	4	0	7	9	1	3	1	1	00	08	0	50	00	3	2	02	0000	67	9	9	7	9	2	0000	75	7	9	0	1	0	00	05	00	24	00	36	A

REMARKS:

OFFICIAL USE ONLY

O.A. CODE \_\_\_\_\_

REVIEWED BY \_\_\_\_\_

DATE \_\_\_\_\_

DATA RECORDER (S) \_\_\_\_\_

MAY 1 1979

DATE \_\_\_\_\_



OHIO DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

BRIDGE INVENTORY & APPRAISAL CODE SHEET

PROCESSING KEY		
STRUCTURE FILE NO.	TRANS. CODE	
1	7	8
4 6 3 3 5 3 9	A	

CODED BY Carl Ricketts DATE 6-29-73 REVIEWED BY DATE

CARD NO.	(1) ODDT DISTRICT	(2) CITY OR TOWN	(3) INVENTORY ROUTE			(4) FEATURE(S) INTERSECTED	(5) INV. RTE. BRIDGE NO.	(6) COUNTY	(7) INVENTORY ROUTE A.D.T. (TENS)		(8) A.D.T. YEAR	(9) FED-AID. SYSTEM	(10) ADMIN. JURISD.	(11) FUNCTIONAL CLASS	(12)					
			DN/UNDER	SYSTEM	ROUTE NUMBER				DIRECT. SUFFIX	DESIGNATION						PREF. ROUTE	UNIT NUMBER	SECTION I. D. NUMBER		
8	10	12	16	17	18	23	24	25	26	51	54	59	61	65	71	79	75	77	79	80
1	0 7	0 0 0 0	1	4	3 9	1	MIAMI RIVER			L 0 G	0 4 9 8			0 0 0 0 2 8	7 1	0 3	4 0	0 2		

CARD NO.	(13) DEFENSE			(14) TOT. MIN. HORIZONTAL CLEAR.		(15) PRACTICAL MAXIMUM VERTICAL CLEAR.		(16)	(17) INTERSECTED ROUTE			(18) FEATURE(S) INTERSECTED	(18) INTR. RTE. BRIDGE NO.								
	SECTION NUMBER	MILEPOINT BEGIN SECTION	SECTION LENGTH	NON-CARD. OPENING	CARDINAL OPENING	FT.	IN.		DN/UNDER	SYSTEM	ROUTE NUMBER			DIRECT. SUFFIX	DESIGNATION	PREF. ROUTE	COUNTY	UNIT NUMBER	STRAIGHT LINE MILEAGE	SPECIAL DESIGNATION	
8	10	15	19	22	25	28	30	32	36	37	38	43	44	45	46	71	74			79	80
2				0 0 0	1 6 0	9 9	9 9														

CARD NO.	(20) INTERSECTED ROUTE A.D.T. (TENS)	(21) A.D.T. YEAR	(22) FED. AID SYSTEM	(23) ADMIN. JURISD.	(24) FUNCTIONAL CLASS	(25) DEFENSE		(26) TOT. MIN. HORIZONTAL CLEAR.	(27) PRACTICAL MAXIMUM VERTICAL CLEAR.		(28)	(29) BY-PASS LENGTH	(30) COORDINATES				PHYS. VULNER.	TOLL	(33) YEAR BUILT		(34) NO. LANES		(35) HORIZ. CURVE		(36) SKEW	(37) DESIGN LOADING			
						SECTION NUMBER	MILEPOINT BEGIN SECTION		SECTION LENGTH	NON-CARD. OPENING			CARDINAL OPENING	FT.	IN.	DEGREES			MINUTES	DEGREES	MINUTES	ORIG. CONS.	MAJOR RECON.	ON STRUCT.			UNDER STRUCT.	DEG.	MIN.
8	10	18	18	20	22	24	29	39	36	38	42	44	46	50	52	54	57	60	63	64	65	67	68	71	79	75	77	79	80
3											0 1							0 1	0 0	0 0	0 0	0 1	0 0				0 0	0 0	

CARD NO.	(38) APPROACH ROADWAY WIDTH	(39) MEDIAN TYPE	40 FLARED	(41) BRIDGE ROADWAY WIDTH (CB/CB)	(42) DECK WIDTH (OUT/OUT)	43 RAIL. TYPE	44 DECK DRAIN.	(45) SIDEWALKS		46 FLOOR SLAB	(47) WEARING SURFACE	(48) STRUCTURE TYPE				(49) TOTAL NO. SPANS	(50) MAXIMUM SPAN LENGTH	(51) OVERALL STRUCTURE LENGTH	(52) TYPE SERVICE	(53) BRIDGE DESCRIPTION	(54) MINIMUM VERTICAL CLEAR. ON BRIDGE		(55)	(56)	57 BEARING TYPE	
								LEFT	RIGHT			NUMBER	TYPE CODE	NUMBER	TYPE CODE						FT.	IN.				
8	10	19	18	17	21	25	26	27	30	39	34	35	37	40	43	46	49	52	56	62	64	66	68	70	75	80
4	0 2 3	0 0 0	0	0 1 6 0	0 1 6 0	7	1	0 0 0	0 0 0	2	2	0 2	0 0 1	3 4 1	0 0 0	0 0 0	0 0 1	0 4 3 0	0 0 0 4 9 0	1 5		9 9	9 9			3

CARD NO.	(58) SUBSTRUCTURE										59 PILING	(60) MIN. VERT. UNDERCLEAR. (MAIN LANES)				(61) MIN. LATERAL UNDERCLEAR. TO EDGE OF LANE				(62) NAVIGATION		(63) OHIO ORIGINAL CONSTR. PROJ. NO.	(64) MICROFILM REEL NO.	(65) ORIGINAL CONSTRUCTION FEDERAL AID PROJECT NUMBER					
	ABUTMENTS		PIERS						NON-CARD. OPENING	CARDINAL OPENING		NON-CARD. DIRECT.	CARDINAL DIRECT.	CONTROLLED	VERT. CLEAR.	HORIZ. CLEAR.	FT.	IN.											
	REAR	FWD.	PREDOMINATE	OTHER	OTHER	OTHER	OTHER	FT.											IN.	FT.	IN.			LEFT	RIGHT	LEFT	RIGHT		
8	10	11	12	13	14	16	17	18	20	21	22	24	25	26	27	29	31	33	35	38	41	44	47	48	51	55	61	67	80
5	1	1	3	1	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	4	0 0 0	0 0 0	0 0 0	0 0 0	9 9 9	9 9 9	9 9 9	9 9 9	0 0 0	0 0 0	0 0 0	0 0 0					

CARD NO.	(66) LOAD RATING				(69) APPRAISAL				(70) PROPOSED IMPROVEMENTS										(71) COST OF IMPROVEMENTS					72 PRIORITY	79						
	OPERATING RATING	INVENTORY RATING	OHIO % OF LEGAL	INSP. RESP.	MAINT. RESP.	DECK GEOM.	UNDERCLEAR.	SAFE LOAD CAP.	WATERWAY ADEQ.	APPR. ALIGN	REMAIN. LIFE	YEAR NEEDED	TYPE SERVICE	TYPE WORK	LENGTH OF IMPROVEMENT	IMPR. LOAD DES.	PROPOSED ROAD WIDTH	NUMBER LANES	DESIGN A.D.T. (TENS)	YEAR A.D.T.	ADJ. RDWY.	TOTAL COST (\$1000'S)	YEAR OF COSTS			PRELIM. ENG.	DEMO-LITION	SUB-STRUCTURE	SUPER-STRUCTURE		
8	10	19	16	19	20	21	22	23	24	25	26	27	28	30	31	34	38	41	45	47	53	55	57	58	69	65	68	71	75	79	80
0	0 0 8	0 0 6	0 2 1	3	3	4	N	2	6	8	1	0	0 0 0	0 0 0 0 0	0 0	0 0 0 0 0	0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0	0 0	0	0 0 0 0 0 0	0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0		

BR-87

SAE  
10/15/73

DATA RECORDER (STAMP)  
NOV 0 1973  
DATE \_\_\_\_\_

August 11, 1981. Replace bridge 39-498  
9:00 A.M. Closed CR-39 between SR-274  
and CR-105.

1 Type III Portable barricade with lights, Logan  
County 39 Route Marker, Route closed, 3 1/2 Miles  
Ahead Sign and Right Detour Arrow on CR 39 at  
SR-274.

1 Type III Portable barricade with lights, Road  
closed sign and Bridge out 3 1/4 Miles Ahead Sign  
on CR-39 at CR-222.

1 Type III Portable barricade with lights, Road  
closed Sign and Bridge out 2 1/4 Miles Ahead Sign  
on CR-39 at TR 108.

1 Type III Portable barricade with lights, Road  
closed Sign, and Bridge out 1 1/2 Miles Ahead on  
CR 39 at TR-100.

1 Type III Portable barricade with lights, Road  
closed Sign and best Detour Arrow on CR 39  
at CR-105.

1-0W-120 Road closed ahead sign on CR 39  
100 feet South of contact or fence

1-0W-120 Road closed ahead sign on CR-39

1000 feet north barricade at CR 39 and CR 105

Detour east on SR 274 to CR 49, north on CR 49

to CR 105 west on CR 105 to CR 39.

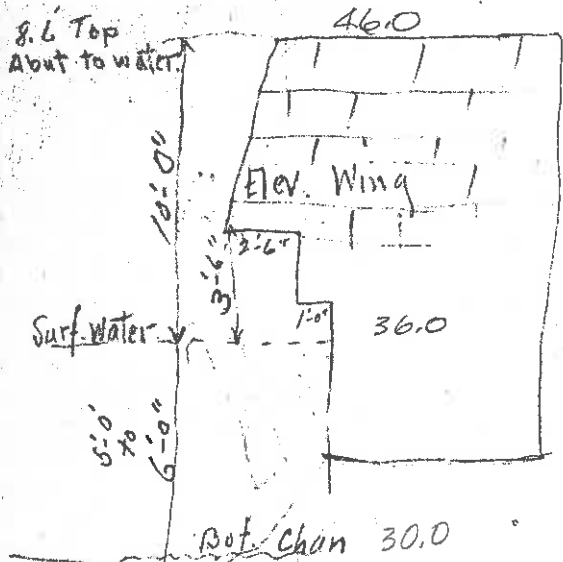
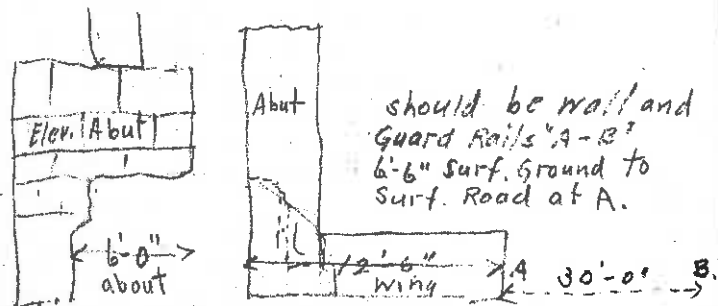
Detour East CR 105 to CR 49 South on CR 49 to SR 274  
West on SR 274 to CR 39.

Jackie, Mark Jonathan  
8-11-81

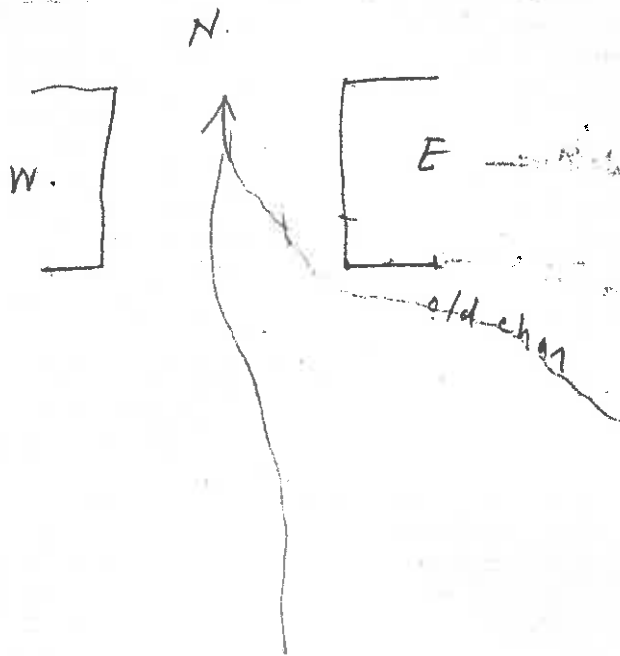


68 Bridge No 270 Over Miami  
River Near Wright Farm  
S.W. of New Richland Richland Tp

S.E. L of East Abut and wing down in  
at bottom



3/31 X John Buckenroth 1/2 day 80



Br. 39-4.98  
County Share

TRANSFER RESOLUTION NO. 184-81

Mr. John A. Jeffrey moved that the following Resolution be accepted.

BE IT RESOLVED, by the Board of Commissioners of Logan County, Ohio, there be and hereby is transferred the sum of \$48,640.00 from Appropriation Account No. K-26

Material Auto & Gas  
DEPARTMENT NAME OF FUND

to and into Appropriation Account No. K-30

Contracts-Projects Auto & Gas  
DEPARTMENT NAME OF FUND

Mr. Donald E. Corwin seconded the motion.

ADOPTED at a regular open meeting of the Board of Commissioners of Logan County, Ohio, this 13th day of April, 1981.

William W. Smith  
Donald E. Corwin  
John A. Jeffrey  
Board of County Commissioners

I hereby certify that the foregoing is a true and correct copy of a Resolution adopted by the Board of Commissioners of Logan County, Ohio in session on this day.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the SEAL of the Office of the Commissioners of Logan County, Ohio this 13th day of April, 1981.

Judith Y. Shores  
Clerk, Board of Commissioners  
Logan County, Ohio





GENERAL INFORMATION FROM TAX MAPS AND CONSTRUCTION PLANS  
(To be Read in Conjunction with Right of Way Plan)

On 39 Sec VMS #9950 Co., O. Par. No. 3, 3-T

Prepared by Rick Bruce 7/12 1981 On Property of Herbert J. & Ruth E. Milroy

(All statements below are from the plans as presently drawn within limits of captioned parcels)

- (1) New Pavement to be 404 Asphalt Concrete, 20' wide
- (2) Center of New Highway to be on existing centerline survey
- (3) Grade of new pavement to be raised between 2' and 3'±
- (4) Roadway drainage will remain the same, side ditches will be reconstructed to direct runoff to the stream.
- (5) Driveways Existing residence drive to be reconstructed & paved with 404 Asphalt Concrete, Field drive to be reconstructed and paved with fill Aggregate.
- (6) Access Same as before construction
- (7) Fencing Wire fence must be removed & replaced on the new R/W line by the owner, payment will be made.
- (8) Trees None
- (9) New right of way line will be 25' south of existing R/W line tapering to the existing R/W line on both ends.
- (10) Items within the new right of way that will have to be moved or destroyed fence by owner
- (11) Other None

WHOLE PROPERTY <u>65.02 AC</u>		Sketch Showing Whole Property and Take. Not to Scale	
EXISTING R OF W <u>0.633 AC</u>			
NET USABLE LAND <u>64.387 AC</u>			
Par. No.	Area		
<u>3</u>	<u>0.465 AC</u>	<u>93.922 AC</u>	

FOR IMMEDIATE RELEASE

FROM: LOGAN COUNTY ENGINEER  
SUBJECT: PROPOSED C.R. 39 BRIDGE REPLACEMENT

BELLEFONTAINE -- The Logan County Engineer is proposing to replace the County Road 39 bridge over a branch of the South Fork of the Miami River just south of New Richland in Richland Township.

The existing truss bridge is posted for an 80% reduction of legal loads, is narrow and in very poor condition.

Logan County Engineer, Chester R. Kurtz, P.E., P.S., said proposals include a wider bridge with raised approaches. Approximately 600 feet of new pavement will be constructed west of the new bridge and 400 feet east.

As the project is in the planning stage, Mr. Kurtz urged citizens and groups with comments or opinions on the proposed improvement to express them in writing to: Logan County Engineer, P.O. Box 427, Bellefontaine, Ohio 43311. If feasible, these suggestions will be included in the final design of the bridge replacement.

Mr. Kurtz added that he has applied for federal funding for the proposed improvement and that at this time no time table exists for eventual construction of the project.

chet, please read & see if it is good enough for  
Burling's news release. ~~OK~~

FOR IMMEDIATE RELEASE

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SUBJECT: PROPOSED C.R. 39 BRIDGE REPLACEMENT

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# OHIO Department of TRANSPORTATION

James A. Rhodes/Governor  
David L. Well/Director  
25 South Front Street  
P. O. Box 899  
Columbus, Ohio 43216

DISTRICT SEVEN  
P.O. Box 381  
Sidney, Ohio  
45365

January 6, 1981

Chester R. Kurtz, P. E.  
Logan County Engineer  
Tidewater Road  
Bellevue, Ohio 43311

Attention: Rick Bruce

Dear Mr. Bruce:

Enclosed are comments and a reduced set of prints showing suggested changes to your C.R. 39 project. You may have already made most of the changes as a result of the C.R.-1 review. Also enclosed is a sample soil profile plan.

If you have any questions please call.

Delbert L. Leistner, P. E.,  
District Deputy Director

A handwritten signature in cursive script, appearing to read "Hugh W. Simpson".

Hugh W. Simpson, P. E.,  
Design & Planning Engineer

HWS:rba  
Attach.  
cc: File Steva (2)



LOG

7

DEC 15 1980

CR 39

LOGAN COUNTY

December 9, 1980

D. L. Leistner, District Deputy Director

Hugh W. Simpson, D&P Engr.

R. B. Pfeifer, Engineer of Bridges

C. P. Dorian, Consultant  
Projects Engineer

Detail Plan Review, Logan CR 39 Bridge over Branch of South Fork of  
Miami River

We have reviewed the detail plans for the subject structure and have the following comments.



All the sheets should have been initialed by the Checker prior to submission.

We wonder why the standards were not used. That would have eliminated most drafting.

Sheet 1 of 5

- ~~1.~~ In the plan show a partial cone of earth at each end of both abutments, to get from the slope down to the bench under the slab.
- ~~2.~~ With a traffic count of only 775, the 10 year high water should have been used as the Design High Water to compute clearance (TS&L Letter dated April 29, 1980).
- ~~3.~~ In the Proposed Structure Block add "Approach Slab: None."

Sheet 2 of 5

NG 10 32'E

- ~~4.~~ Add a north arrow in the Plan. Label the rear and forward abutments. ?
- ~~5.~~ In the section on centerline show the bench elevations to the nearest tenth. To match the bench and channel elevations the embankment slopes should be 2.2:1 (rear), and 2.4:1 (forward). The slopes should also match those shown on the site plan.
- ~~6.~~ Since the plans provided bidders are reduced, the scale references could cause confusion. We suggest that they either be removed, or a note added to indicate that they apply to certain size sheets.

CCC  
Pfeifer  
Leistner  
Simpson

- ~~7.~~ In the Estimated Quantity Table, we suggest that only one item column be provided.
  - ~~8.~~ Provide Pay Item 505, Lump Sum, Test Pile.
  - ~~9.~~ Provide Pay Item Special, Pounds, Epoxy coated reinforcing steel (See Proposal Note).
  - ~~10.~~ Make the Superstructure Concrete Class S.
  - ~~11.~~ Deduct the necessary amount of reinforcing from 509. (That which will be epoxy coated).
  - ~~12.~~ Add the following to the General Notes:  
  
Reference shall be made to Standard Drawing DBR-2-73, dated April 10, 1973 and to Supplemental Specification 836, dated March 12, 1975.  
  
Deck Protection Method: Epoxy coated reinforcing steel, top mat only.
  - ~~13.~~ Make the Superstructure Concrete Class S.
  - ~~14.~~ Remove "bend tests shall be..." from the reinforcing steel note.
  - ~~15.~~ Insert "for design purposes" in the Monolithic wearing surface note, after "assumed".
- Sheet 3 of 5
- ~~16.~~ In the Pier Details use a symbol to denote that the P1001 bars are epoxy coated.
  - ~~17.~~ In the abutment plan and elevation indicate forward abutment and rear abutment with the elevations and stations.
- Sheet 4 of 5
- ~~18.~~ In Section B-B, etc., show the clearance to the top reinforcing as 2 1/2", and FHWA requirement. In order to avoid making the slab 1/2" thicker show the N401 bars below the longitudinal bars. (Section A-A also). **(what about M402 bars @ edge?)**
  - ~~19.~~ Use a symbol to denote that the bars in the top mat are epoxy coated. (Also bar M402).

~

~

Delbert L. Leistner  
December 9, 1980  
Page 3

~~16.~~ We suggest that another M601 bar be furnished near the abutment, in Section A-A, since 8" more of deck has been furnished. It is not necessary to make the K501 bar longer than the bar shown on the standard.

Sheet 5 of 5

~~17.~~ Indicate that the P1001 bar as well as those in the top mat of the deck are epoxy coated.

~~18.~~ The bar size note is not necessary. That information is in the Construction and Material Specifications.

When the plans have been revised to comply with these comments, and those on the IOC from Richard L. Engel dated December 8, 1980, or the comments resolved, they will be acceptable to this office subject to a final review of the tracings.

RBP:CPD:tt5

cc: ✓ C. R. Kurtz, Logan County Engr. - R. H. Henderson - R. F. Arledge -  
C. P. Dorian - File

①

12/19/80

LOGAN COUNTY C.R. - 4.98  
Office Review Comments by T. Steva  
Sheet No 1 Title Sheet

- ~~a.)~~ Add Fed Proj No Upper Rt corner as indicated, BRZ-4604(1).
- ~~b.)~~ Add date 4-10-73 to Standard Construction Drawing DBR-2-73.
- ~~c.)~~ Begin Project should be 172+00 and End Project should be 180+25, Total Length of Project = 825.00 lin. Ft. or 0.156 miles.
- ~~d.)~~ Use 1981 Specifications.

Sheet No 2 ~~Title Sheet~~ **Typical Sections**  
~~a.)~~ Identify the First Typical as No 1 and the second as No 2.

~~b.)~~ Under limiting stations for Typical No 1 give the station limits for Struct No 39-4.98 and list as (deduct). Give a Total which should be 328 lin. Ft.

~~c.)~~ Give a Total under Typical No 2 which would be 665 lin. Ft.

~~d.)~~ On Typical No 2 at each edge of Pavement indicate "See Superlevation Tables.

~~e.)~~ Under Code ③ eliminate the references to 702.01 and 702.09.

~~f.)~~ Under Code ④ Consider Changing this to Item 617 ~~411~~ ~~Stabilized Crushed Aggregate~~ ~~Compacted Aggregate~~. This

would eliminate the use of larger aggregate which has been a problem on some of our jobs.

Sheet No 3 General Notes, Calculations, Superlevation.

~~a.)~~ Add "SUPERELEVATION" to designation in lower border.

~~b.)~~ Field Office note, delete remainder of note after "floor space".

~~c.)~~ Water Pollution, Soil Erosion, and Siltation Control: Add Item 207 Straw or Hay Bales — 25 Each.

- (2)
- ~~d.) Add Std. Note 1405.69 FARM DRAINS .~~
  - ~~e.) Add Std. Note 1405.33 REMOVAL OF EXISTING PIPE .~~
  - ~~f.) Driveways note: Add (BP-6) after Type 1.~~

Sheet N<sup>o</sup> 4 "General Summary  
a.) Under "Erosion Control" add an Item  
for 207 Straw or Hay Bales Round  
off the the 659 Water quantity to 15 M Gal.  
b.) Under "Drainage" for the 603 Conduit  
Type "D" Items delete the 706.02, 706.08 E.S.,  
or 707.01

Sheet N<sup>o</sup> 5

- ~~a.) Begin Project should be at Station 172+00,  
the first full width, full depth pavement section.~~
- ~~b.) Add Fed. Project N<sup>o</sup>. BRZ-4604(1) to  
Flag.~~
- ~~c.) Add T to Temporary R/w line proposed  
around driveways at 174+43±Lt. & 174+38 Rt.~~
- ~~d.) Give angle of intersection of  $\perp$  of Drive Rt.  
of 174+38 and  $\perp$  of C.R. N<sup>o</sup> 39.~~

~~e.) Give bearing on Forward Tangent of curve~~

~~F. I. Sta. 173+33.35.~~

- ~~f.) Use an 8' x 6' x 18" Thick pad of 601  
Rock Channel Protection Type B w/bedding at the  
outlet of the prop 24" Type D conduit at 174±50  
right.~~
- ~~g.) Add initials and date of Plan Checker, upper  
Rt. Corner.~~

Sheet N<sup>o</sup> 6

- ~~a.) End Project should be at 180+25 the last full width,  
full depth pavement section.~~
- ~~b.) Indicate width and depth of proposed rock channel  
protection for 1-D and 3-D~~
- ~~c.) Add a pad of rock channel protection Type "B"  
8' x 6' x 18" at the outlet end of the prop. drive pipe  
at 178 + 81.2 - Rt.~~

③

~~d.)~~ Add initials and date of plan checker, upper Rt. Corner.

Sheet No 7

~~a.)~~ Change Begin Project to Sta 172+00

~~b.)~~ Complete initial block upper Rt. Corner here  
and Sheets 8 thru 12

Sheet No 9

~~a.)~~ Probably need to allow for some embankment  
within the Bridge limits on this Sheet on  
Sheet No 12

Sheet No 10

~~a.)~~ Indicate Project at Sta 180+25

Sheet No 11

~~a.)~~ Indicate "End Full Depth Pavement" at  
Sta 181+25. This would also affect the earthwork  
calculations.

Sheets Nos 13 thru 17 were previously reviewed by  
Central Office Bridge Bureau

Sheet No 18 was not reviewed critically as  
the County will be obtaining the needed R/W  
for this project.



39-4.98

December 8, 1980

Delbert L. Leistner, District Deputy Director

Hugh W. Simpson,  
D&P Engineer

Robert B. Pfeifer, Engineer of Bridges

Richard L. Engel,  
Foundation Engineer

Foundation Review, CR 39-4.98 over South Fork of Miami River

We have reviewed the proposed foundation design for the above subject structure, as indicated on the Site Plan which was submitted with the proposed structure's detail plans. The Site Plan was prepared by the Logan County Engineer's Office. The foundation investigation was performed by CTL Engineering, Inc.

Our review comments are as follows:

- ✓1. We agree with the use of 14 inch cast-in-place reinforced concrete piles at all proposed substructure units.
- ✓2. The estimated average pay lengths for the piles can be 25 feet at the abutments and 40 feet at the piers.
- ✓3. The following note shall be placed with the structure General Notes or with the abutment details: "12 inch diameter cast-in-place reinforced concrete piles may be substituted for the 14 inch diameter cast-in-place reinforced concrete piles at the Contractor's option, for the abutments only." The plans shall indicate 14 inch diameter cast-in-place reinforced concrete piles at all substructure units and the pay item shall be 507, 14 inch cast-in-place reinforced concrete piles.
4. A Bridge Foundation Investigation Report prepared on full size plan sheets is required to be included with the project plans as per our "Specifications for Subsurface Investigations" dated August, 1977.

If you have any questions concerning our comments, please feel free to contact us.

RBP:RLE:om11

cc: Chester R. Kurtz - Logan County Engineer, CTL Engineering, Inc.



DEC 15 1980

LOGAN COUNTY

LOG

7

CR 39

December 9, 1980

D. L. Leistner, District Deputy Director

Hugh W. Simpson, D&P Engr.

R. B. Pfeifer, Engineer of Bridges

C. P. Dorian, Consultant  
Projects Engineer

Detail Plan Review, Logan CR 39 Bridge over Branch of South Fork of  
Miami River

We have reviewed the detail plans for the subject structure and have the following comments.

All the sheets should have been initialed by the Checker prior to submission.

We wonder why the standards were not used. That would have eliminated most drafting.

Sheet 1 of 5

1. In the plan show a partial cone of earth at each end of both abutments, to get from the slope down to the bench under the slab.
2. With a traffic count of only 775, the 10 year high water should have been used as the Design High Water to compute clearance (TS&L letter dated April 29, 1980).
3. In the Proposed Structure Block add "Approach Slab: None."

Sheet 2 of 5

4. Add a north arrow in the Plan. Label the rear and forward abutments.
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Delbert L. Leistner  
December 9, 1980  
Page 2

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Sheet 3 of 5

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RBP:CPD:tt5

cc: ✓ C. R. Kurtz, Logan County Engr. - R. H. Henderson - R. F. Arledge -  
C. P. Dorian - File

LOG 7

C.R. 39

April 29, 1980

Delbert L. Leistner, District Deputy  
Director  
Robert B. Pfeifer, Engineer of Bridges

Hugh W. Simpson, D&P  
Engineer  
Norbert J. Baltzer,  
Prelim. Design Engineer

TS&L Review C.R. 39-4.98 over South Fork of Miami River

We have reviewed the preliminary site plan for the above named structure and offer the following suggestions:

1. We assume that the County Engineer has determined that this bridge replacement, with respect to waterway opening, is in the public interest based on past flood experience.
2. Calculate clearance to design high water and note on site plan.
3. In upper right hand corner change BR. to CR.
4. Show 2 to 1 slopes in the plan and profile views.
5. Designer, checker and reviewer should initial site plan.
6. Earth work limits note should be on site plan.
7. We suggest using standard drawing CPA-2-73 with 3'3" bench for the abutments.

TS&L approved subject to the above comments and results of the foundation investigation.

RBP:NJB:of2

cc: Chester R. Kurtz, Logan County Engineer ✓  
Richard Henderson  
Charles Tripp  
D. H. Sparks  
File

**RECEIVED**

**MAY 5 1980**

**LOGAN COUNTY  
ENGINEER**

OHIO DEPARTMENT OF TRANSPORTATION

DISTRICT 07  
PF NO. LOG-017 REV 9

PROJECT PROGRAM FORM

DATE OF ORIGINAL PF 3/21/79  
DATE OF LATEST PF10 79/03/21  
YY MM DD

COUNTY	ROUTE	SECTION	PROJECT LENGTH (MI-KM)		
			MUNIC	RURAL	TOTAL
16 LOG	19 CR 39	25 4.98		0.00	= 25 00.00
34	37	43			= 47
51	54	80			= 64
68	71	77			= 98
102	105	111			= 132
TOTALS				0.00	= 00.00

CENTRAL OFFICE USE

PHASE OF WORK	JOB NO. 1	JOB NO. 2
PRELIM. ENG'G 136	071 260	
RIGHT-OF-WAY 148	071 260	
CONSTR. ENG'G 160	071 260	
JOB NO. ID.		

HIGHWAY SYSTEM

STATE FUNCTIONAL		FEDERAL		OTHER	
RURAL	URBAN	(1)	(2)	(1)	(2)
173 <u>Minor Collector</u>		175 <u>Non-Federal Aid</u>	176	177 <u>County</u>	178
180	181	182	183	184	185
187	188	189	190	191	192
194	195	196	197	198	199
201	202	203	204	205	206

↓ PICA      ↓ ELITE

PROJECT TERMINI AND LOCATION

207 2.1 mi. south of Belle Center over      BRANCH OF SOUTH FORK MIAMI RIVER

267 \_\_\_\_\_

47 \_\_\_\_\_

127 \_\_\_\_\_

EXISTING CONDITIONS

PAVEMENT WIDTH 20'      ROADWAY WIDTH 25'

TRAFFIC-PASSENGER CAR & "A" 370      "B" & "C" 30      TOTAL 400      YEAR 77

CAPAC. RTG.      SER. & SAF. RTG.      STR. RTG.      SUFF. RTG. <sup>207</sup> <sub>210</sub>

ACCIDENT DATA \_\_\_\_\_

RR CROSSING NAME & NUMBER \_\_\_\_\_

AIRPORTS — (WITHIN 2 MI) NAME \_\_\_\_\_ (SHOW LOCATION ON MAP)

STRUCTURE FILE NO. 4633539

BRIDGES >20' SPAN-WIDTH \_\_\_\_\_

BRIDGES >20' SPAN-LENGTH \_\_\_\_\_

GENERAL APPRAISAL (RTG.) \_\_\_\_\_

PURPOSE AND DESCRIPTION OF WORK

Replacement of existing structurally deficient truss bridge with a three span continuous reinforced concrete slab bridge.

Work length = 1200' ±

PE REPORT BY: Logan County

DESIGN REPORT BY: Logan County

ROADWAY PLANS BY: Logan County

EIS/4 (f) BY: Logan County

PARTICIPATING AGENCIES

AGENCY	ORD. NO.	CONSENT /% LUMP SUM
<u>County</u>	<u>#114-77</u>	<u>NEP/PS/CK/ELW</u>

RR AGREEMENT \_\_\_\_\_

YEAR	PROGRAM STATUS	MAP		LETTER	COMPLEXITY	LOCAL COOPERATION	NUMBER OF LANES	WIDEN/RESURFACE	RECONSTRUCTION	NEW LOCATION	RR GRADE SEP.	OTHER BRIDGES	LIMITED ACCESS	MISCELLANEOUS	TYPE OF WORK
		NUMBER	LETTER												
361	63	364		67	68	370	72	73	74	75	376	78	79	380	382

FEDERAL PROJECT NUMBER	
363	<u>BR 2-4604(1)</u>
3	
23	
43	
63	
83	

REMARKS 123

RECOMMENDED BY: Charles R. Hunt, Logan Co. ENGINEER      DATE 3-21-79

RECOMMENDED BY: Joseph M. Sengstacke, Logan Co. DE 1-3      ENGR. DATE 3-22-79

RECOMMENDED BY: Robert J. Wilson      DISTRICT ENGR. DATE 3/22/79

REVIEWED BY: Donald E. Wilson, Proj Engr      DATE 3/22/79

PF NO. LOG-17

C-R-S

LOG CR-39

RECEIVED

JUN 15 1979

LOGAN COUNTY ENGINEER

**COST ESTIMATE**

C-R-S LOG CR 39

PF NO. LOG-17

PRELIMINARY ENG'G by County  
 RIGHT-OF-WAY by County  
 CONSTRUCTION ENG'G by County  
 ROADWAY & PAVEMENT 40,000  
 STRUCTURES 70,000  
 CONTINGENCIES 10,000  
 TOTAL 120,000

79,000  
 150,000

UTILITY RELOCATION COST 156 by County  
 RELOCATION ASSISTANCE COST 163 0  
 TOTAL OWNERSHIPS 171 02  
 RELOCATION ASSISTANCE  
 RESIDENTIAL 174 0  
 BUSINESS 178 0

**CENTRAL OFFICE USE**

	TOTAL FEDERAL	TOTAL STATE	TOTAL OTHER	TOTAL PROGRAM
PRELIM. ENG'G	181	189	197 COUNTY	COUNTY
RIGHT OF WAY	205	213	221 COUNTY	COUNTY
CONSTR. ENG'G	229	237	245 COUNTY	COUNTY
CONSTRUCTION	253 88,000	261	269 22,000	110,000
CONTINGENCIES	277 8,000	285	293 2,000	100,000
TOTAL	301 96,000	309	317 24,000	120,000

FEDERAL	FUND 1 325 (BRZ)	FUND 2 328 ( )	FUND 3 331 ( )	FUND 4 334 ( )
MILEAGE	337	341	345	349
PRELIM. ENG'G	353	361	369	377
RIGHT OF WAY	385	393	1	9
CONSTR. ENG'G	17	25	33	41
CONSTRUCTION	49 88,000	57	65	73
CONTINGENCIES	81 8,000	89	97	105
TOTAL	113 96,000	121	129	137

OTHER (LOCAL)	145 LOG CR	160	175	Σ	STATE SPECIAL
MILEAGE	190	194	198	X	202
PRELIM. ENG'G	205 COUNTY	214	222	X	
RIGHT OF WAY	238 COUNTY	246	254	X	230
CONSTR. ENG'G	270 COUNTY	278	286	X	262
CONSTRUCTION	302 22,000	310	318	X	284
CONTINGENCIES	334 2,000	342	350	X	326
TOTAL	366 24,000	374	382	X	358

**COST BREAKDOWN (DISTRICT)**

COMPLETE COST BREAKDOWN WHEN PART OF JOB IS WITHIN A PARTICIPATING MUNICIPALITY, OR WHEN BOTH URBAN AND RURAL FUNDS ARE TO BE USED. ON IR JOBS COMPLETE ONLY MUNICIPAL AND RURAL BREAKDOWNS. IDENTIFY COST BREAKDOWN IN TITLE BLOCKS.

SYSTEM				TOTAL
MILEAGE				
PRELIM. ENG'G				
RIGHT OF WAY				
CONSTR. ENG'G				
CONSTRUCTION				
CONTINGENCIES				
TOTAL				

SYSTEM				TOTAL
MILEAGE				
PRELIM. ENG'G				
RIGHT OF WAY				
CONSTR. ENG'G				
CONSTRUCTION				
CONTINGENCIES				
TOTAL				

THIS FORM IS THE OFFICIAL PROJECT PROGRAM FORM OF THE BUREAU OF PROGRAMMING. THIS FORM IS ALSO USED AS THE INPUT SOURCE DOCUMENT FOR THE COMPUTERIZED PF-FORM SYSTEM.

NOTE: ATTACH AN ORIGINAL 8.5x14 MAP SHOWING LOCATION OF PROJECT.

**RECEIVED**

**JUN 15 1979**

**LOGAN COUNTY ENGINEER**