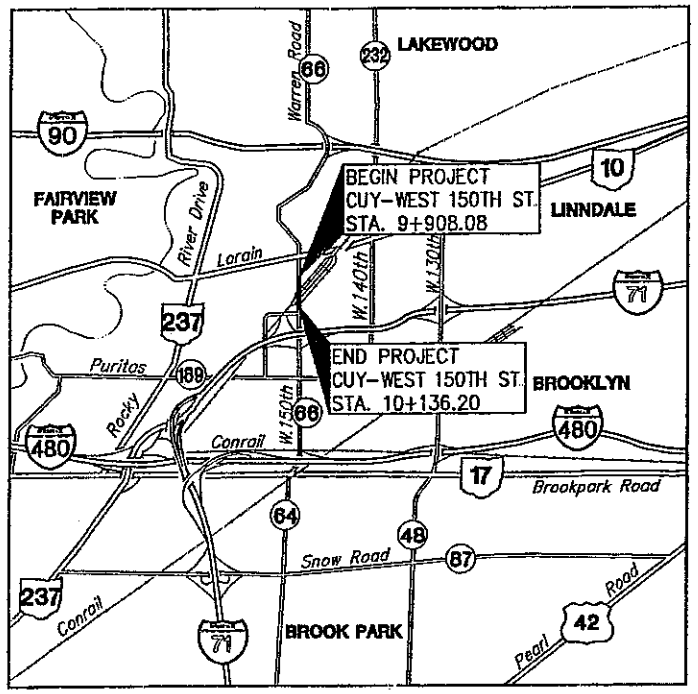
STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
CUY-WEST 150TH STREET
BRIDGE NO. 152 SLM 0194
REHABILITATION OF EXISTING SEPARATED CROSSING WITH THE CONSOLIDATED RAIL CORPORATION (CONRAIL) AND GREATER CLEVELAND REGIONAL TRANSIT AUTHORITY (GCRTA)
CITY OF CLEVELAND
CUYAHOGA COUNTY

metric units



LOCATION MAP

LATITUDE: N 41° 26' 50" LONGITUDE: W 81° 48' 15"

SCALE IN KILOMETERS 0 1 2 3 4 5 6 7

N

PORTION TO BE IMPROVED
INTERSTATE, U.S. & STATE ROUTES — 71 42 10
COUNTY ROADS — 66

PROJECT DESCRIPTION

REHABILITATION OF THE EXISTING STRUCTURE OVER THE CONRAIL AND GREATER CLEVELAND REGIONAL TRANSIT AUTHORITY BY REPLACEMENT OF THE BRIDGE DECK AND NEW APPROACH SLABS

DESIGN DESIGNATION

CURRENT ADT (1998)	29,515
DESIGN YEAR ADT (2018)	29,295
DESIGN HOURLY VOLUME (2018)	2,196
DIRECTIONAL DISTRIBUTION	54%
TRUCKS (24 HOUR B&C)	3%
DESIGN SPEED	70 KM.P.H
LEGAL SPEED	35 M.P.H.
FUNCTIONAL CLASSIFICATION	URBAN ARTERIAL

DESIGN EXCEPTIONS

NONE REQUIRED

INDEX OF SHEETS

BOARD OF COMMISSIONERS
CUYAHOGA COUNTY

DATE March 10, 1998

1997 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY, AND THAT PROVISIONS FOR MAINTENANCE AND SAFETY OF TRAFFIC WILL BE SET FORTH ON THE PLANS AND ESTIMATES.

9/28/00

APPROVED Thomas J. Neff P.E., P.S. DATE 2/19/98
COUNTY ENGINEER

APPROVED DATE 11MAR98
DISTRICT DEPUTY DIRECTOR

APPROVED DATE 3-19-98
DIRECTOR, DEPARTMENT OF TRANSPORTATION

UNDERGROUND UTILITIES
TWO WORKING DAYS
BEFORE YOU DIG
CALL 800-362-2764 (Toll Free)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS MUST BE CALLED DIRECTLY

PLAN PREPARED BY:
EUTHENICS INC.
CONSULTING ENGINEERS
975 Keynote Circle, Cleveland, Ohio

STATE OF OHIO — DONALD W. KAMINSKI 27899 — REGISTERED PROFESSIONAL ENGINEER

STANDARD CONSTRUCTION DRAWINGS										SUPPLEMENTAL SPECIFICATIONS	
BP-3.1M	10-28-94	TC-41.10M	3-31-94	MT-35.10M	1-30-95	AS-1-81M	10-25-94	HL-10.11M	5-1-95	815	5-30-96
BP-5.1M	10-28-94	TC-41.20M	7-01-94	MT-35.11M	1-30-95	EXJ-4-87M	3-20-95	HL-10.12M	5-1-95	845	7-17-95
BP-7.1M	10-28-94	TC-41.40M	3-31-94	MT-95.31M	4-25-94	VPF-1-90M	3-20-95	HL-10.13M	5-1-95	863	9-9-97
BP-2.4M	10-28-94	TC-42.20M	3-31-94	MT-95.32M	4-25-94			HL-20.14M	5-1-95	910	4-21-97
RM-4.2M	10-21-97	TC-52.10M	7-29-94	MT-95.41M	4-25-94			HL-30.11M	3-31-95	953	6-14-95
		TC-52.20M	7-29-94	MT-97.10M	4-25-94					816	4-21-97
CB-1.1M	7-12-95			MT-101.60M	4-25-94			HL-30.31M	5-1-95	806	9-9-97
				MT-105.10M	4-25-94			HL-50.21M	8-31-95		
				MT-105.11M	4-25-94			HL-60.11M	5-1-95		
				MT-110.20M	3-1-96						
				PCB-91M	3-20-95						

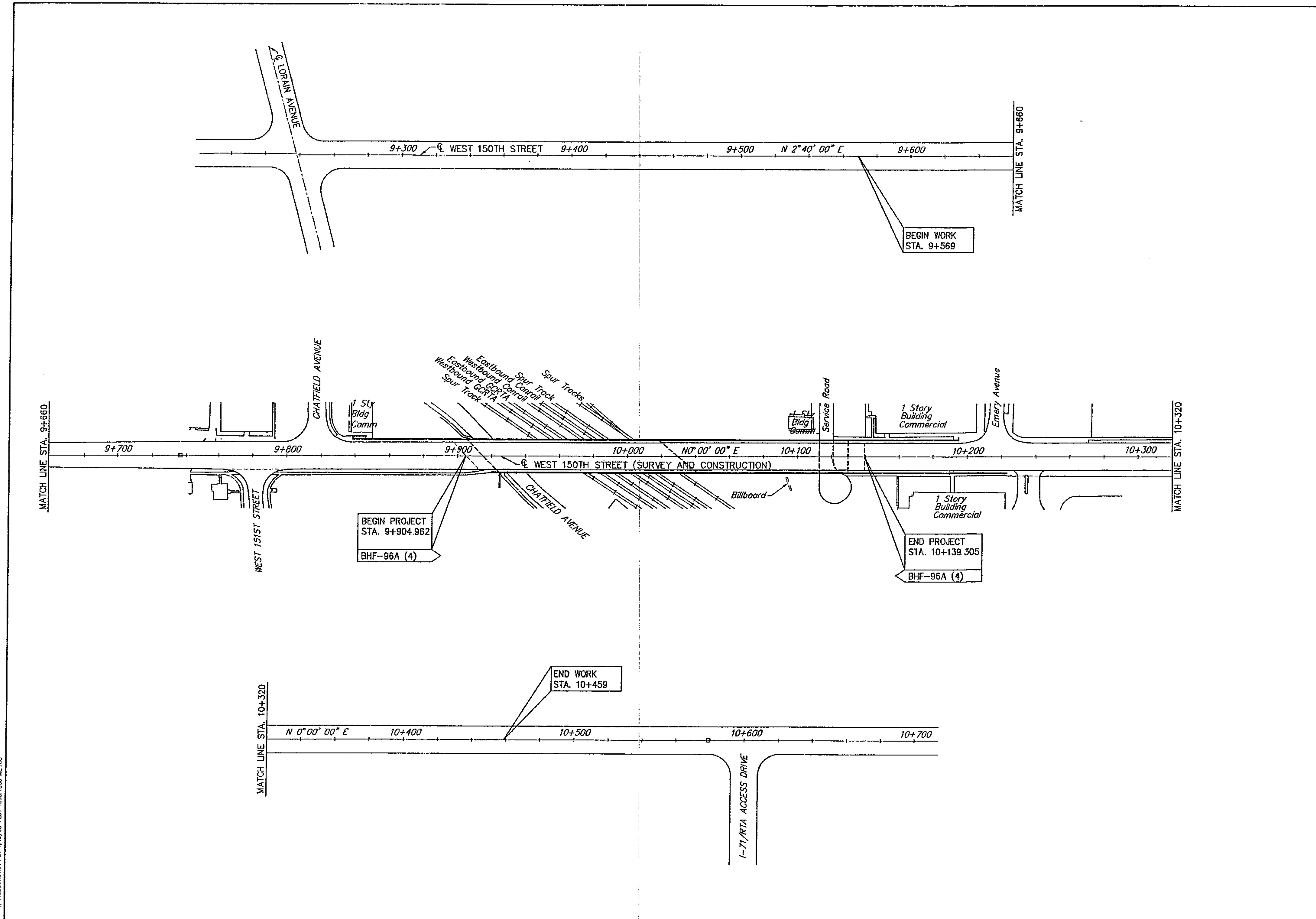
SPECIAL PROVISIONS

OHIO ENVIRONMENTAL PROTECTION AGENCY NOTIFICATION OF DEMOLITION AND RENOVATION 2-27-98

CUYAHOGA COUNTY ENGINEER
CLEVELAND, OHIO
REPORT NO 7223 AND B-NO 162

FEDERAL PROJECT NO. BHF-96A (4)
PID NO. 10899
CONSTRUCTION PROJECT NO.
RAILROAD INVOLVEMENT CONRAIL AND GCRTA
CUY-WEST 150TH STREET

CUY-WEST 150TH ST.
980366 06-C
73PGS DI



N

0 20 40

HORIZONTAL SCALE IN METERS

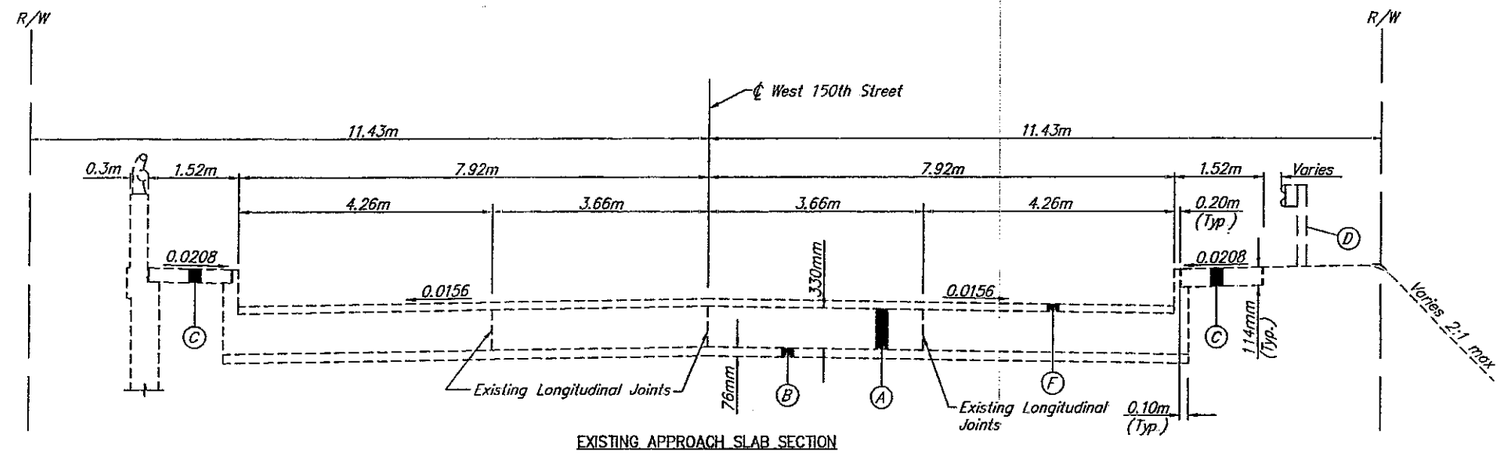
CALCULATED JEN

CHECKED EPS

SCHEMATIC PLAN

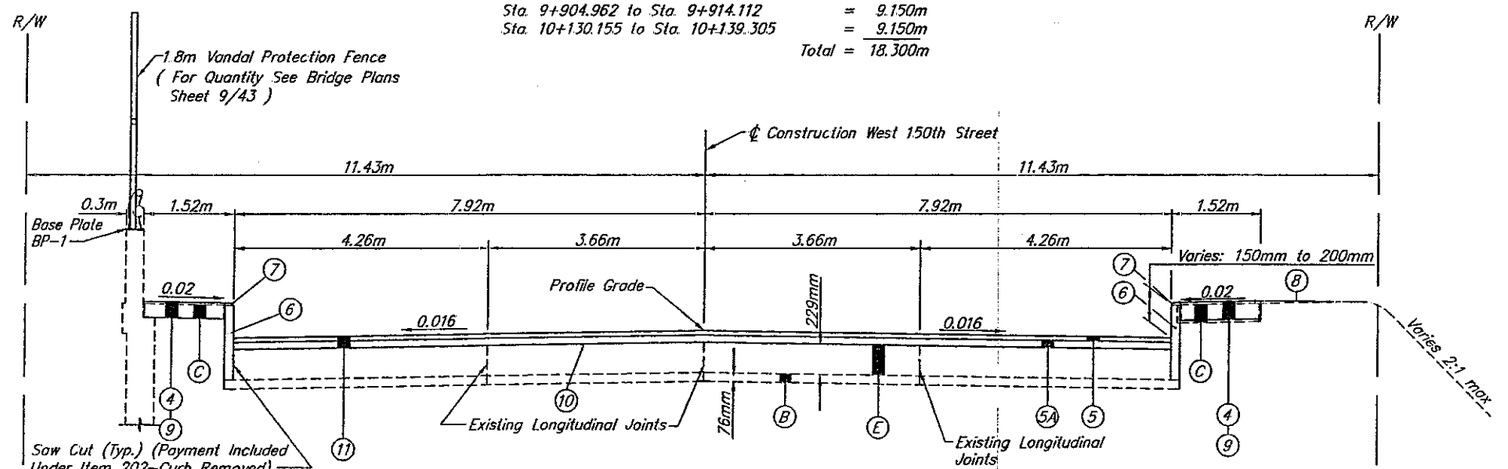
CUY-WEST 150TH STREET

TYPICAL SECTIONS



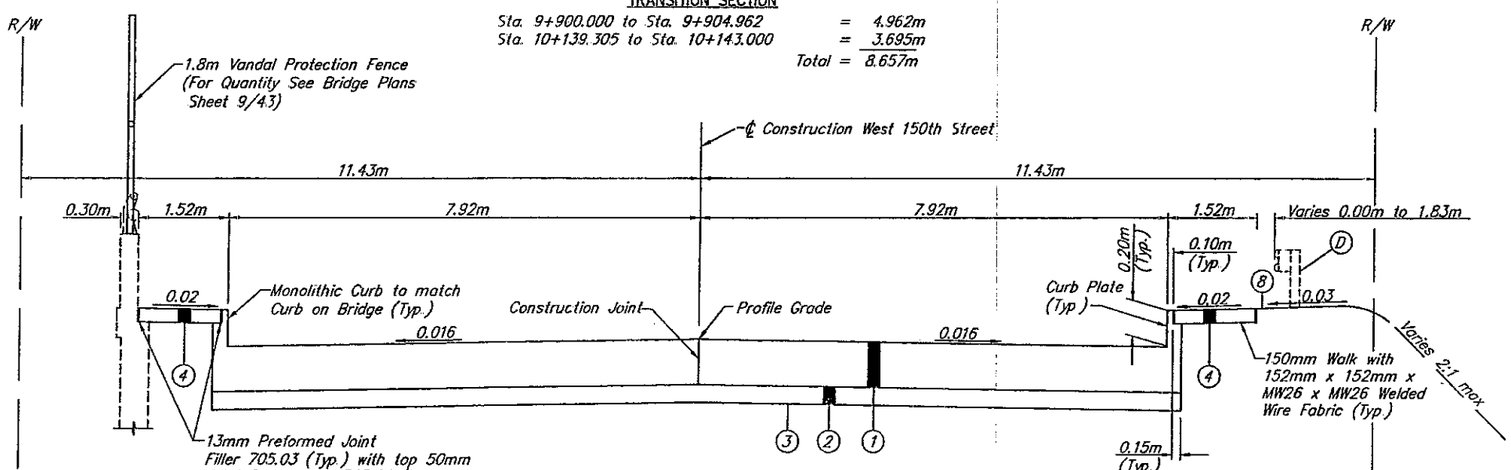
EXISTING APPROACH SLAB SECTION

Sta. 9+904.962 to Sta. 9+914.112 = 9.150m
Sta. 10+130.155 to Sta. 10+139.305 = 9.150m
Total = 18.300m



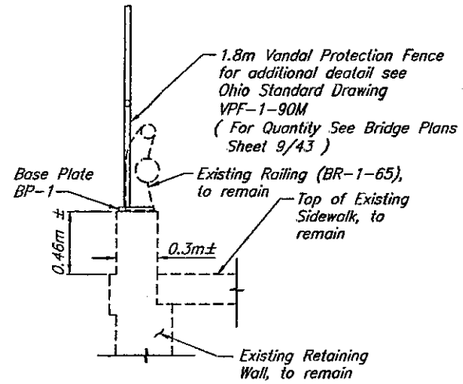
TRANSITION SECTION

Sta. 9+900.000 to Sta. 9+904.962 = 4.962m
Sta. 10+139.305 to Sta. 10+143.000 = 3.695m
Total = 8.657m



APPROACH SLAB SECTION

Sta. 9+904.962 to Sta. 9+914.112 = 9.150m
Sta. 10+130.155 to Sta. 10+139.305 = 9.150m
Total = 18.300m



TYPICAL RETAINING WALL
FENCE DETAIL

Sta. 9+839.42± to Sta. 9+900.00 (Lt. Side)
Sta. 10+143.00 to Sta. 10+193.80± (Lt. Side)
Sta. 10+143.00 to Sta. 10+221.72± (Rt. Side)

LEGEND

EXISTING

- (A) Approach Slab
- (B) Subbase
- (C) Concrete Walk
- (D) Guardrail
- (E) Concrete Slab With Integral Curb
- (F) Wearing Course

PROPOSED

- (1) Item 611 Reinforced Concrete Approach Slab (t=430mm), As Per Plan
- (2) Item 304 150mm Aggregate Base
- (3) Item 203 Subgrade Compaction
- (4) Item 608 150mm Concrete Walk, As Per Plan
- (5) Item 448 Asphalt Concrete Surface Course, Type 1, PG64-22, As Per Plan (32mm)
- (5A) Item 448 Asphalt Concrete Intermediate Course, Type 2, PG64-22, As Per Plan (44mm to 78mm)
- (6) Item 202 Curb Removed
- (7) Item 609 Curb, Type 6
- (8) Item 659 Seeding and Mulching, As Per Plan
- (9) Item 202 Walk Removed
- (10) Item 407 Tack Coat
- (11) Item 202 Wearing Course Removed

CALCULATED NNB
CHECKED EPS

TYPICAL SECTIONS
WEST 150th STREET

CUY-WEST 150th STREET

3/73

(P:/0035/318/PS/318TS01.DWG) PAK 1/15/98 PLOT 1000 50

GENERAL

UNDERGROUND UTILITIES

The locations of the underground utilities shown on the plans are as obtained from the owners of the utility as required by Section 153.64 of the Ohio Revised Code.

UTILITY OWNERSHIP

The following utilities and owners are located within the work limits of this project.

The Cleveland Electric Illuminating Co.
3601 Ridge Road
Cleveland, Ohio 44102
(216) 634-7303

Ameritech
13630 Lorain Ave.
Room 400
Cleveland, Ohio 44111
(216) 476-6142

The Cleveland Division of Water Pollution Control
12302 Kirby Ave.
Cleveland, Ohio 44108
(216) 664-2786

Cox Cable
12221 Plaza Dr.
Parma, Ohio 44130
(216) 676-8300

Jaytel (for LCI)
2666 Lexington Ave.
P.O. Box 3168
Mansfield, Ohio 44904
(419) 884-0400

The Cleveland Public Power
1300 Lakeside Ave.
Cleveland, Ohio 44114
(216) 664-4245

AT &T
3833 Weymouth Rd.
Medina, Ohio 44256
(330) 723-9135

The City of Cleveland
Water Department
1201 Lakeside Ave.
Cleveland, Ohio 44114
(216) 644-2444

The East Ohio Gas Company
1201 E. 55th Street
Cleveland, Ohio 44103
(216) 736-6675

Wiltel
120 Ravine Street
Akron, Ohio 44303
(330) 258-8267

Call Ohio Utilities Protection Service two (2) working days before you dig. Toll Free Telephone 1-800-362-2764.

Any and all work required for removing, relocating and construction of new facilities for private or public utilities will be done by and at the expense of the respective owners unless otherwise noted on the plans. The Contractor shall coordinate his operations with the work of the utility owners or others who may be making the relocations.

UTILITY LINES

All expense involved in the relocation of the affected utility lines shall be borne by the utilities. The Contractor and the utilities are to cooperate by arranging their work in such a manner that inconvenience to either will be held to a minimum. The Contractor shall use all precautions to see that these lines are not disturbed during the construction phase.

TYPICAL SECTIONS

Existing typical sections have been taken from the records and are believed to represent the existing pavement, but the State of Ohio does not guarantee the accuracy of the same.

For further information in regard to the existing typical sections the Contractor shall contact District Twelve.

CONTINGENCY QUANTITIES

The Contractor shall not order materials or perform work for plan items set up to be used "as directed by the Engineer" unless authorized by the Engineer. The actual work locations and quantities used at the Engineer's discretion shall be made a matter of record by incorporation into the final change order governing completion of the project.

ELEVATION DATUM

No U.S.G.S. benchmark used. Benchmarks established from existing plans converted to metric units.

WORK LIMITS

The Work Limits shown on these plans are for physical construction only. The installation and operation of all temporary traffic control and temporary traffic control devices required by these plans shall be provided by the contractor whether inside or outside these work limits.

ITEM 619 - FIELD OFFICE, TYPE B, AS PER PLAN

The field office shall, in addition to the items listed in the construction and material specifications, be furnished with a commercial grade base radio and two commercial grade hand held radio units capable of transmitting and receiving voice communication between the office and/or any areas on the project site, and a fax machine.

ROADWAY

ITEM 203 - EXCAVATION, NOT INCLUDING EMBANKMENT CONSTRUCTION AND EMBANKMENT

The following estimated quantities are included in the Contract to be used as directed by the Engineer.

Item 203 - Embankment	10 Cu Meter
Item 203 - Excavation not including Embankment construction	10 Cu Meter

ITEM 608 - 150mm CONCRETE WALK, AS PER PLAN

All concrete walk shall be a minimum of 150mm thick and have a 50mm compacted screenings bed which meets the requirements of 703.10 except that the minimum total percent passing the No. 100 (150 micrometer) sieve shall be five (5) percent. The cost for furnishing and placing the 50mm compacted screenings bed shall be included in the contract unit price bid for Item 608 - 150mm Concrete Walk, As Per Plan. In addition the walk shall be reinforced with MW 26 x MW 26 welded wire fabric in accordance with Item 509.

PAVEMENT

ITEM 407 - TACK COAT

The rate of application of the 407 tack coat shall be subject to adjustment as directed by the Engineer. Plan quantities indicate an average application rate of 0.34 liters per square meter of tack coat for estimating purposes only.

ITEM 448, PG64-22, AS PER PLAN

The coarse aggregate for any asphalt concrete course shall be crushed carbonate stone or crushed air-cooled slag.

For all intermediate, leveling or bituminous aggregate base courses, up to a maximum of 35 percent reclaimed material may be used; however PG58-28 binder shall be used for mixes containing more than 20 percent reclaimed material.

ITEM 611 - REINFORCED CONCRETE APPROACH SLAB (T = 430mm), AS PER PLAN

Integral curbs and curb plates shall be constructed as per detail shown on Typical Sections.

Materials, labor and installations shall be included with approach slabs for payment.

CONCRETE PAVEMENT PLANING FOR BUTT JOINT CONSTRUCTION PER BP-3.1M

All wedge-shaped concrete pavement removals required to construct butt joints per O.D.O.T. Standard Construction Drawing BP-3.1M, shall be performed and paid for in accordance with Item 254 - Pavement Planing, Portland Cement Concrete.

The following quantity has been carried over to the General Summary for use as directed by the Engineer.

Item 254 - Pavement Planing Portland Cement Concrete	25 Sq. Meter

DRAINAGE

REVIEW OF DRAINAGE FACILITIES

Before any work is started on the project, and again before final acceptance by the County, representatives of the County and the Contractor, along with representatives of the City/Village, shall make an inspection of the existing sewers within the work limits which are to remain in service and which may be affected by the work. The condition of the existing conduits and their appurtenances shall be determined from field observations. Records of the inspections shall be kept in writing by the County.

All new conduits, inlets, catch basins and manholes constructed as a part of the project shall be free of all foreign matter and in a clean condition before the project will be accepted by the County.

All existing sewers inspected initially by the above mentioned parties shall be maintained and left in a condition reasonably comparable to that determined by the original inspection. Any change in the condition resulting from the Contractor's operations shall be corrected by the Contractor to the satisfaction of the Engineer. Payment for all operations described above shall be included in the unit price bid for the pertinent items of the Contract.

EROSION CONTROL

ITEM 659 - SEEDING AND MULCHING, AS PER PLAN

When the above item is called for on the plans or in the proposal, all applicable provisions of Item 659 as set forth in the Construction and Material Specifications shall apply unless modified herein.

659.06 Mulching Methods: Upon the approval of the Engineer, other materials processed or manufactured for mulching purposes may be used. Asphalt emulsion shall not be used to prevent displacement of mulching materials.

659.09 Seeding and Mulching: Seeds shall be sown at a rate of 2.0 kg/100m². The mixture of seeds to be used shall be as follows, or as determined by the Engineer in the field for the area concerned.

RESIDENTIAL & URBAN AREAS	ALL OTHER AREAS
40% Kentucky Blue Grass	30% Kentucky Blue Grass
30% Manhattan or Penfine Ryegrass	40% Kentucky 31 Fescue
30% Creeping Red Fescue	30% Perenial Rygrass

At locations such as intersecting streets, private lawns, or parks, where the project seeding adjoins seeding of a higher type or quality, The Contractor shall, to the satisfaction of the Engineer, adjust the project seeding to duplicate or match the higher type seeding at no additional cost to the State (County).

The operation of the actual seed sowing will not be permitted at such times as the Engineer deems improper for seeding.

Seeding and mulching shall be applied to all areas of exposed soil between the right-of-way lines, and within the construction limits for areas outside the right-of-way lines covered by work agreement or slope easement.

Payment for this work shall be made at the contract unit price bid for the actually completed and accepted quantities of Item 659 - Seeding and Mulching, As Per Plan Sq. Meters, Item 659 - Agricultural Liming Kilograms and Item 659 - Commercial Fertilizer Kilograms.

The following estimated quantities are carried over to the General Summary for use as directed by the Engineer.

Item 659 - Seeding and Mulching, As Per Plan	100 Sq. Meter
Item 659 - Agricultural Liming	20 Kilogram
Item 659 - Commercial Fertilizer	20 Kilogram

TEMPORARY SOIL EROSION AND SEDIMENT CONTROL

The following estimated quantity is to be used as directed by the Engineer for temporary erosion and sediment control measures.

Item 207 - Temporary Seeding and Mulching	20 Sq. Meter

CALCULATED NWB | CHECKED EPS

GENERAL NOTES - WEST 150th STREET

CUY - WEST 150th STREET

4/73

ITEM 614 – MAINTAINING TRAFFIC

A minimum of one lane of traffic in each direction shall be maintained at all times by use of the existing pavement, the completed pavement, as shown on Sheets 9 through 15. Part width construction shall be used to facilitate maintaining two way traffic Work shall be done in phases as outlined in the sequence of operations and as indicated in the plans.

The Contractor shall maintain safe and satisfactory access to abutting property. The Contractor shall maintain adequate pedestrian walks at all intersections.

The Contractor shall divert traffic from normal channels by plastic drums, flashing arrow panels complying with MT–35.10M, and traffic signs and pavement markings, as shown on Sheets 9 through 15.

All construction traffic control devices used for this project shall conform to the Ohio Manual on Traffic Control Devices for Streets and Highways and shall be furnished, erected, maintained and removed by the Contractor, except as noted below.

The Contractor shall furnish and maintain all necessary safeguards, such as barricades, lighting, flaggers and such other traffic control devices as provided in Item 614, Maintaining Traffic, so as to avoid damage and/or injury to vehicles and persons using the roadway during construction.

Existing traffic control devices (signs and/or traffic signals), located within the work area, which are required for interim or permanent traffic control, shall be relocated to points approved by the Engineer. Appropriate traffic control devices shall be maintained, in compliance with the manual, at all times while traffic is maintained. The cost of relocation, if required, shall be included in the lump sum price bid for Item 614 – Maintaining Traffic

The length and duration of lane closures and or traffic restrictions shall be at the approval of the Engineer. It is the intent to minimize the impact to the traveling public. Lane closures or restrictions over segments of the project in which no work is anticipated within a reasonable time frame, as determined by the Engineer, shall not be permitted. The level of utilization of maintenance of traffic devices shall be commensurate with the work in progress.

All work and traffic control devices shall be in accordance with 614 and other applicable portions of the specifications, as well as the Ohio Manual of Uniform Traffic Control Devices. Payment for all labor, equipment and materials shall be included in the lump sum contract price for 614 – Maintaining Traffic, unless separately itemized in the plan.

NOTIFICATION

The Contractor shall notify, in writing, the following agencies at least one week prior to the start of construction and at least 72 hours before implementing any substantial change in traffic pattern for closing any street to traffic:

The O.D.O.T. District 12 Public Information Office
The Cuyahoga County Engineer
The Greater Cleveland Regional Transit Authority
The Cleveland Board of Education, and
The City of Cleveland Commissioner of Traffic Engineering, Police Traffic Commissioner, Commissioner of Emergency Medical Services,
Commissioner of Engineering and Construction and Fire Chief.

NOTICE OF CONSTRUCTION SIGNS

Notice of construction signs (OC–61A), as detailed in these plans, shall be erected by the Contractor at least one week in advance of the scheduled beginning of construction. The signs shall be erected on the right hand side of the road at Station 9+339 and Station 10+703, facing traffic. They shall be placed so as not to interfere with the visibility of any other traffic control signs.

The Contractor shall insert the scheduled date of the beginning of construction, duration (number of days from the start date to the project completion date) and information phone number on the sign in the proper positions.

TRAFFIC CONTROL DEVICES LOCATED OUTSIDE OF THE LIMITS OF CONSTRUCTION

In addition to the requirements of 614.03 (b) of the CMS, the Contractor shall furnish, erect, maintain, and subsequently remove such additional traffic control devices located outside of the limits of construction as are shown on the plans.

CONSTRUCTION TRAFFIC

All construction traffic shall use acceptable truck routes to access the construction area. Use of local residential streets is strictly prohibited unless allowed in writing by the local enforcement authority.

CONSTRUCTION NOISE

Activities and land use adjacent to this project may be affected by construction noise. In order to minimize any adverse construction noise impacts, any power–operated construction–type device shall not be operated between the hours of 10:00 p.m. and 6:00 a.m.

INSTALLATION OF PAVEMENT MARKINGS

The Contractor may reduce the number of through traffic lanes by 50%, as directed by the Engineer, in order to remove pavement markings, or to install temporary or permanent pavement markings. He shall limit the aforementioned closure to between the hours of 9:00 a.m. and 3:00 p.m., unless otherwise approved by the Engineer.

The temporary pavement markings and signs required for a particular lane closure or traffic pattern shall be installed on a single work day and the corresponding traffic pattern, as detailed on the plans, shall be implemented immediately.

FLASHING ARROW PANELS

When flashing arrow panels are shown on the plans, solar, electric or battery powered equipment shall be exclusively utilized when located within 100 meters of any residence. Diesel or gasoline powered generators will not be permitted in these areas, except when used intermittently for the sole purpose of charging internal batteries which provide the primary power for the equipment.

ITEM 642 – REMOVAL OF PAVEMENT MARKING

This Item shall be used to remove existing permanent pavement markings which are in conflict with the temporary or permanent markings as shown on the Traffic Maintenance Plans. Payment shall be based upon the actual length removed. Gaps shall not be included in the measured length. The following estimated quantity has been included in the General Summary to be used as outlined above:

Item 642 – Removal of Pavement Marking 1800 Meters

TEMPORARY MAINTENANCE OF EXISTING TRAFFIC SIGNALS

Incidental to the requirements for maintaining traffic in accordance with 614.03, existing traffic signals at the following intersections shall be temporarily maintained until the project is complete and the existing operation can be restored:

West 150th Street & Chatfield Avenue
West 150th Street & Emery Avenue

The existing signal heads (or additional traffic signal heads supplied by the Contractor) shall be positioned so as to provide a minimum of two traffic signal heads over the portion of the roadway used by each direction of traffic, as shown on the plans, and the operation shall be modified as shown in the plans. The number, location, visibility, and height of all traffic signals shall be in accordance with the provisions of the Ohio Manual of Uniform Traffic Control Devices for Street and Highways (OMUTCD).

Any costs for the temporary maintenance of existing traffic signals shall be included in the lump sum cost bid for Item 614 – Maintaining Traffic.

MAINTENANCE OF TRAFFIC SIGNAL INSTALLATIONS

The Contractor shall be responsible for maintaining traffic signal installations within the project under the following conditions:

A. Existing signal installations which the plans require the Contractor to adjust, modify, add onto, or remove, or which the Contractor actually adjusts, modifies or otherwise disturbs. The Contractor shall be responsible for the entire installation (at an intersection) from the time his operations first disturb the installation until the installation has been subsequently removed, modified, or restored to its original condition, and the work has been accepted.

B. New or reused signal installations or devices, installed by the Contractor. The Contractor shall be responsible for maintenance of these from the time of installation until the work is accepted.

The Contractor shall correct as quickly as possible all outages or malfunctions. He shall provide the municipality and the Engineer such addresses and phone numbers where his maintenance forces can be contacted. The Contractor shall provide one or more persons to receive all calls and dispatch the necessary maintenance forces to correct outages or malfunctions. Such a person or persons may be used to perform other duties as long as prompt attention is given to these calls, and a person is readily available continuously 24 hours per day, 7 days per week. All lamp outages, cable outages, electrical failures, equipment malfunctions and misaligned signal heads shall be corrected to the satisfaction of the Engineer, with the signal back in service within four (4) hours after the Contractor has been notified of the outage or malfunction.

In the event new signals are damaged prior to acceptance, all damaged equipment, except poles and control equipment, shall be replaced by the Contractor to the satisfaction of the Engineer with the signal back in service, within eight (8) hours after the Contractor has been notified of the damage.

If poles and/or control equipment are damaged and must be replaced, the Contractor shall make temporary repairs as necessary to bring the signal back into full operation within the allowed eight (8) hour period, and shall make permanent repairs or replacements as soon thereafter as possible.

None of the above shall be construed as collective or consecutive outage time periods at any one location. That is, where more than one outage or malfunction occurs concurrently at any one location, then the allotted time limit shall be for the worst single outage or malfunction.

Where outages or malfunctions are the direct result of a vehicle accident, the response of the Contractor shall be as outlined above. The Contractor shall be responsible for collection of any compensation for this work from those parties responsible for the damage.

Where the Contractor has failed to or cannot respond to an outage or signal equipment malfunction at those locations within his responsibility, the Engineer may invoke the provisions of Section 105.15, and any subsequent billings to the State or Municipality for police services and/or maintenance services by Municipal Forces or outside Contractors hired by the State or Municipality, shall be deducted from monies due or to become due to the Contractor in accordance with the provisions of Section 105.15.

The Contractor shall provide the maintenance service entirely with his forces or my may choose to enter into a cooperative understanding with the local maintaining agency. The Contractor shall inform the Engineer, in writing, of the maintenance method selected, and shall provide a copy of the agreement with the municipality in this regard.

The Contractor shall be responsible for any damage to any traffic signal components required to be handled during the relocation of poles and revisions to the signal system

When a traffic signal must be taken out of service by the Contractor, due to construction procedures, this outage shall not exceed 3 hours and shall not include the hours of 6:00 to 9:00 a.m., 12:00 to 1:00 p.m., and/or 4:00 to 7.00 p.m.

The following intersections, when the signal is out of service due to construction procedures, or due to an outage or equipment malfunction as described above, shall be protected by the Contractor by the installation of temporary "STOP" signs on the minor side streets:
West 150th Street & Chatfield Avenue
West 150th Street & Emery Avenue

Any vehicular traffic signal head, either new or existing, which will be out of operation, shall be covered in the manner described in 632.24.

All costs resulting from the above requirements shall be considered to be included in the lump sum price bid for Item 614 – Maintaining Traffic.

CALCULATED EPS CHECKED JEN

MAINTENANCE OF TRAFFIC GENERAL NOTES

CUY-WEST 150th STREET

ESTIMATED QUANTITIES FOR MAINTAINING TRAFFIC

The following estimated quantity has been included in the General Summary for use as directed by the Engineer for the Maintenance of Traffic.

614 Bituminous Concrete for Maintaining Traffic — 20 Cu. Meter

COVERING OF SIGNS

Where the plans call for any existing or proposed permanent sign to be covered, the Contractor shall do so in such a manner as to avoid damaging the permanent sign when the cover is removed. The cover shall be totally opaque. The use of adhesive tape applied directly to any existing or new sign face is strictly prohibited.

ITEM SPECIAL – REPLACEMENT SIGN

Flat sheet signs furnished by the Contractor in accordance with the requirements of the plans, specifications, and proposal which become damaged by traffic for reasons beyond the control of the Contractor shall be replaced in kind when ordered by the Engineer. Replacement signs shall be new. Other materials may be in used but good condition subject to the approval of the Engineer.

When additional signs are found by the Engineer to be necessary for the safe maintenance of traffic, above and beyond the signing shown in the plans and/or on the standard construction drawings, the Contractor shall furnish, erect, maintain and remove the additional signs under this item, as directed by the Engineer.

Payment for the new signs shall be made at the contract price per square meter for Item Special – Replacement Sign, and shall include the cost of removing and disposing of damaged signs, hardware and supports and providing the necessary replacement hardware, supports, etc.

An estimated quantity of ten (10) square meters has been provided in the General Summary.

ITEM 614 – BARRIER REFLECTORS
ITEM 614 – OBJECT MARKERS

The following items are estimated elsewhere in the plans (see Sheet 8) and are included for use as directed by the Engineer. Reflectors, object markers and their mountings shall conform to Item 626. In lieu of 626.03, spacing shall be as shown on Sheet 8.

Item 614 Barrier Reflector, Type B2	Each
Item 614 Object Marker	Each

ITEM 622 – PORTABLE CONCRETE BARRIER

It is anticipated that same barrier will be used in various phases of construction. Movement of the concrete barrier between phases shall be accomplished in one working day. Flaggers shall be utilized for protection of vehicular traffic until movement of the barrier is complete.

All costs involved in removing and reinstalling the concrete barrier will be included in the contract price for the pertinent Item 622–Portable Concrete Barrier.

The following quantities are estimated per phase on Sheet 8 and is included in General Summary.

Item 622 – Portable Concrete Barrier, 813 mm	Meter
Item 622 – Portable Concrete Barrier, 813mm, Bridge Mounted	Meter

DUST CONTROL

The Contractor shall furnish and apply water and calcium chloride for dust control as directed by the Engineer. The following contingency quantities have been included for dust control purposes.

Item 616 – Water	200 Cu. Meter
Item 616 – Calcium Chloride	5 Metric Ton

MAINTENANCE OF TRAFFIC STANDARD CONSTRUCTION DRAWINGS

Reference to Item 740.05, Type C and Item 740.05, Type B on the Standard Construction Drawings or elsewhere in these plans shall be considered to read as references to Item 740.06, Type I and 740.06, Type II, respectively.

ITEM SPECIAL – LAW ENFORCEMENT OFFICER WITH PATROL CAR

In addition to the requirements of 614 and the latest edition of the Ohio Manual of Uniform Traffic Control Devices (OMUTCD), a uniformed law enforcement officer (and official patrol car with working top mounted emergency flashing lights) shall be provided for controlling traffic for the following tasks:

a. For lane closures: During initial set-up periods, tear down periods, substantial shifts of a closure point or when new lane closure arrangements are initiated.

b. During the entire advance preparation and closure sequence where complete blockage of traffic is required.

c. During a temporary traffic signal installation

Law Enforcement Officers (L.E.O.'s) should not be used where the OMUTCD intends that flaggers be used. The LEO's are considered to be employed by the Contractor and the Contractor shall be responsible for their actions. Although they are employed by the Contractor, the Project Engineer shall have control over their placement. The official patrol car shall be a public safety vehicle as required by the Ohio Revised Code.

The Contractor shall make arrangements for these services with the City of Cleveland, Phone # (216) 623-5000.

Law enforcement officers (with patrol car) required by the traffic maintenance tasks above shall be paid for on a unit price (hourly) basis under Item 614–Law Enforcement Officer With Patrol Car. The following estimated quantities have been carried to the General Summary:

Item Special – Law Enforcement Officer with Patrol Car — 200 Hours.

The hours paid shall include minimum show-up time required by the law enforcement agency involved.

If the Contractor wishes to utilize LEO's for flagging and traffic control other than that required in these plans, he may do so at his own expense. Payment for the excess above the contract requirements will be included under Item 614 – Maintaining Traffic.

SEQUENCE OF OPERATIONS

GENERAL

The rehabilitation of West 150th Street (Bridge No. 152) will be accomplished in three roadway maintenance of traffic phases. The first phase will use the two existing southbound lanes to accommodate two-way traffic (one lane northbound, one lane southbound) while closing the two existing northbound lanes to traffic. Phase two will use the two finished northbound lanes to permit two-way traffic while closing the two existing southbound lanes. The third phase will again use the two finished southbound lanes to accommodate two-way traffic while closing the two finished northbound lanes. Pedestrian and two 3.3m minimum width lanes of vehicular traffic shall be maintained at all times.

PHASE 1

Add temporary vehicular traffic signals at the intersection of West 150th Street and Chatfield Avenue and at the intersection of West 150th Street and Emery Avenue as indicated in the plans. Add temporary pavement markings.

Place portable concrete barriers, 813mm, near the centerline of West 150th Street at locations shown in the Plans and maintain traffic on the western half of the existing bridge. Barriers placed on the existing bridge deck shall be anchored per PCB-91M.

Remove eastern half of existing bridge and construct new deck, parapet, sidewalk and fence, except wearing surface.

Place portable concrete barriers, anchored to deck, for Phase 2 construction at locations indicated in the Plans.

PHASE 2

Add temporary vehicular traffic signals at the intersection of West 150th Street and Chatfield Avenue and at the intersection of West 150th Street and Emery Avenue as indicated in the plans. Add temporary pavement markings.

Open eastern half of rehabilitated bridge to two-way traffic and remove western half of existing bridge.

Construct new deck, parapet, walk and fence. Closure pour between the two rehabilitated decks shall occur during this Phase 2 Maintenance of Traffic. Place proposed latex wearing surface to approximately the centerline of West 150th Street to allow room near the portable concrete barriers for the rails to be set for the finishing machine.

Place drums for Phase 3 construction at locations indicated in the plans.

PHASE 3

Add temporary vehicular traffic signals at the intersection of West 150th Street and Chatfield Avenue and at the intersection of West 150th Street and Emery Avenue as indicated in the plans. Add temporary pavement markings.

Close eastern half of bridge and maintain two-way traffic on western half of rehabilitated bridge. Place proposed latex wearing surface to complete overlay.

The Contractor shall complete the work in Phase 3 within 30 calendar days after completion of Phase 2.

Liquidated damages shall be assessed in accordance with Section 108.07 of the Construction and Materials Specifications. The amount set forth in the Schedule in Section 108.07 shall apply to the completion time specified for Phase 3 Construction.

EUTHENICS inc. CONSULTING ENGINEERS CLEVELAND, OHIO

C:\JOBS\316\GN\318GN02.DWG P.K. 2/13/98 PLOT 1000:1 METRIC

CALCULATED EPS CHECKED JEN

MAINTENANCE OF TRAFFIC GENERAL NOTES

CUY-WEST 150th STREET

ITEM SPECIAL – MAINTAINING TRAFFIC, MISC.; MAINTAINING EXISTING TRAFFIC SIGNALS

Incidental to the requirements for maintaining traffic in accordance with 614.03, the existing traffic signals at the locations listed in this note shall be temporarily maintained as noted below for all construction phases. It is the intent under this item of work to modify only those signals that are necessary to improve traffic flow for the various phases of work.

The Contractor shall be responsible for modifications to the traffic signals as directed by the Engineer. These modifications shall include the following:

1. Changing of signal phasing
2. Changing of signal timing
3. Covering signal heads due to phasing changes

The Contractor shall be responsible for these modifications from the time his operations first disturb the traffic patterns until the traffic patterns have been returned to their preconstruction conditions and the work has been accepted. It is the intent of this plan to modify the signals only by changing existing signal timing, changing existing signal phasing and/or covering existing signal heads due to phasing changes. Any additional controller hardware necessary to perform signal timing and/or phasing changes will be the responsibility of the City.

Any costs for the installation of any temporary signal heads and/or the relocation of existing signal heads necessary to provide a minimum of two traffic signal heads over the portion of roadway used by each direction of traffic, as shown on the plans shall be included in the lump sum cost bid for Item 614– Maintaining Traffic, and not as part of this item of work.

If the Engineer determines that a signal requires a timing change, The Contractor shall contact the City of Cleveland Department at (216) 420–8275 to arrange for the change(s). The City shall be given at least five working days notice prior to implementation of any phasing changes. The City will perform the work with its own forces at the Contractors expense.

The normal maintenance of existing traffic signals shall be the responsibility of the City. Outages which occur due to the Contractor's negligence shall be the responsibility of the Contractor. If poles, signal heads, and/or control equipment are damaged and must be replaced due to the Contractor's negligence, the Contractor shall make temporary repairs as necessary to bring the signal back into full operation without undue delay, and shall make permanent repairs or replacements as soon thereafter as possible, at no additional cost to the State.

Once the project is complete, and the road reopened to full width, the Contractor shall arrange with the City to revert all adjusted signal phasing and timing back to the preconstruction settings.

Any time the Contractor must enter a signal controller to adjust signal timing and/or signal phasing, and/or cover a signal head or heads at an intersection due to a phasing change, shall constitute payment on an each basis under this item of work. All work necessary to implement a phasing change, such as timing and phasing changes in the controller, signal head adjustments, covering signal heads, etc., should be done concurrently, and will be considered as one occurrence for the purposes of payment under this item. However, multiple entries into the same controller shall be paid for each time the controller is subsequently entered at the direction of the Engineer to adjust timing and/or phasing. All costs including materials, labor, equipment, etc., resulting from the above requirements shall be paid for at the contract price bid for Item Special – Maintaining Traffic, Misc. Maintaining Existing Traffic Signals.

An estimated quantity of 10 each has been carried to the General Summary for this item of work at the following locations:

W. 150th and Chatfield Ave.
W. 150th and Emery Ave.

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CONSULTING ENGINEERS
CLEVELAND, OHIO

CALCULATED EPS
CHECKED JEN

MAINTENANCE OF TRAFFIC GENERAL NOTES

CUY-WEST 150th STREET

ITEM 614 MAINTAINING TRAFFIC

	R-3TR-600	OC-8-1500	OC-61A-1500	OW-60L-900	OW-6-750	OW-60R-900	OW-71-900	OW-122-900	OW-123-900 *	OW-128-900 *	OW-138-750	OW-143-600	R-23-600	R-121-600	R-177R-600	R-310-750	TYPE A FLASHING ARROW PANEL	R-177L-600	TYPE III BARRICADE
PHASE 1	1	2	2	1	1	1	7	1	1	5	2	2	1	4	1	4	2	1	2
PHASE 2	1	2	2	1	1	1	6	1	1	5	2	2		4	1	4	2	1	2
PHASE 3	1	2	2	1	1	1	6	1	1	5	2	2	1	4	1	4	2	1	2

QUANTITIES ARE FOR INFORMATION ONLY. PAYMENT TO BE INCLUDED IN LUMP SUM BID FOR ITEM 614 – MAINTAINING TRAFFIC.

* INDICATES SIGN WITH TYPE A WARNING LIGHT

PORTABLE CONCRETE BARRIER, 813 MM

Phase	Station From	Station To	Side	Meter
1	9+842	9+900	℄	58
1	10+142	10+200	℄	58
2	9+838	9+900	℄	62
2	10+142	10+205	℄	63
TOTAL				241

ITEM 622 PORTABLE CONCRETE BARRIER, 813 MM, BRIDGE MOUNTED

Phase	Station From	Station To	Side	Meter
1	9+900	10+142	℄	242
2	9+900	10+142	℄	242
TOTAL				484

TEMPORARY STOP LINE 740.06, TYPE I

Phase	Location	Length (Meters)	Subtotal	Applications	Total (Meters)
1	West 150th Street	24	24	1	24
1,2,3	Chatfield	8	8	2	16
1,2,3	Emery	5	5	2	10
2	West 150th Street	25	25	2	50
3	West 150th Street	24	24	1	24
					124

TEMPORARY CROSSWALK LINE 740.06, TYPE I

Phase	Location	Length (Meters)	Subtotal	Applications	Total (Meters)
1,2,3	West 150th Street	72	72	2	144
1,2,3	Chatfield	41	41	2	82
1,2,3	Emery	35	35	2	70
					296

TEMPORARY WORD "ONLY", 740.06, TYPE I

Phase	From	To	Each	Subtotal	Applications	Total (Each)
1	9+978		1	1	1	1
1	10+257		1	1	1	1
2	9+978		1	1	1	1
2	10+257		1	1	1	1
3	9+978		1	1	1	1
3	10+257		1	1	1	1
						6

TEMPORARY LANE ARROW, 740.06, TYPE I

Phase	From	To	Each	Subtotal	Applications	Total (Each)
1	9+776	9+800	2	2	1	2
1	10+247		1	1	1	1
2	9+776	9+800	2	2	1	2
2	10+247		1	1	1	1
3	9+776	9+800	2	2	1	2
3	10+247		1	1	1	1
						9

ITEM 614 – BARRIER REFLECTOR
ITEM 614 – OBJECT MARKER

STATIONING (FROM – TO) (SIDE)	SPACING	TYPE A W	TYPE A Y	TYPE B2 W	TYPE B2 Y	OBJECT MARKERS	REMARKS
9+842 to 10+200 Phase 1 Lt.	7.5				48	48	
9+836 to 10+205 Phase 2 Rt.	7.5				49	49	
TOTALS					97	97	
				97		97	

TEMPORARY CENTER LINE 740.06, TYPE I

Phase	From	To	Length (Meters)	Subtotal	Applications	Total (Meters)	Total (km)
1	9+676	9+915	239				
1	9+840	9+886	46				
1	10+135	10+331	196				
1	10+164	10+205	41				
1	10+265	10+310	45	567	1	567	
2	9+715	9+760	45				
2	9+715	9+915	200				
2	9+833	9+876	43				
2	10+135	10+401	266				
2	10+164	1+205	41				
2	10+275	10+310	35	630	2	1260	
3	9+715	9+765	50				
3	9+676	10+331	655				
3	10+265	10+331	66	771	1	771	
						2598	2.60

TEMPORARY CENTER LINE, 642 PAINT

Phase	From	To	Length (Meters)	Subtotal	Applications	Total (Meters)	Total (km)
1	9+915	10+135	220	220	1	220	
2	9+915	10+135	220	220	2	440	
						660	0.66

TEMPORARY LANE LINE, 740.06, TYPE I

Phase	From	To	Length (Meters)	Subtotal	Applications	Total (Meters)	Total (km)
2	10+222	10+322	100	100	2	200	
3	9+566	9+668	102	102	1	102	
3	9+725	9+803	78	78	1	78	
						380	0.38

TEMPORARY EDGE LINE, 642 PAINT

Phase	From	To	Length (Meters)	Subtotal	Applications	Total (Meters)	Total (km)
1	9+915	10+135	220	220	1	220	
2	9+915	10+135	220	220	2	440	
						660	0.66

TEMPORARY EDGE LINE 740.06, TYPE I

Phase	From	To	Length (Meters)	Subtotal	Applications	Total (Meters)	Total (km)
1	9+823	9+838	30				
1	9+838	9+915	77				
1	10+135	10+198	63				
1	10+198	10+213	30				
1	10+221	10+241	32				
1	10+241	10+459	218	459	1	459	
2	9+569	9+760	191				
2	9+760	9+777	24				
2	9+786	9+802	24				
2	9+802	9+915	113				
2	10+135	1+205	70	422	2	844	
3	Some Locations as Phase 1		459				
3	9+915	10+135	220	679	1	679	
						1,982	1.98

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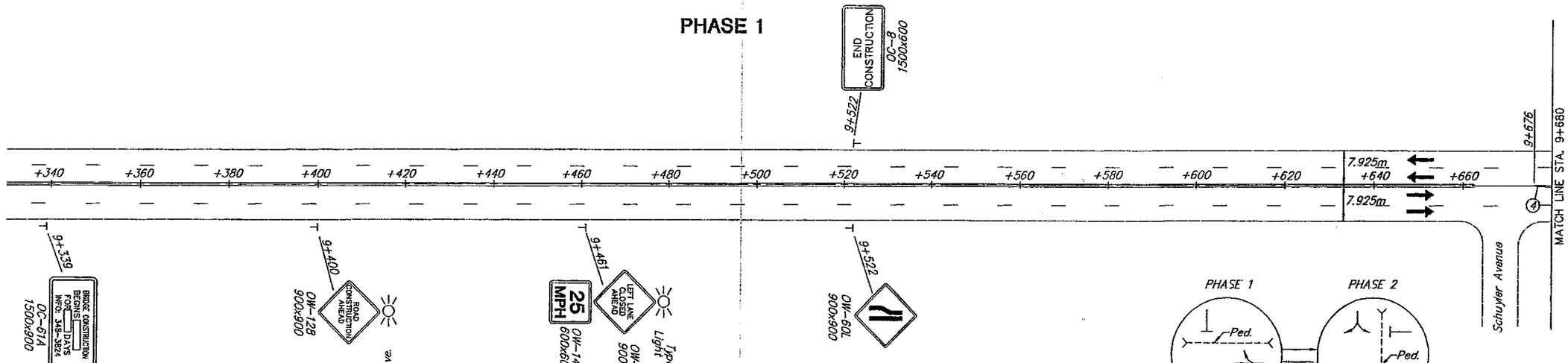
CLEVELAND, OHIO

CALCULATED JEN
CHECKED EPS

MAINTENANCE OF TRAFFIC SUB-SUMMARY

CUY-WEST 150th STREET

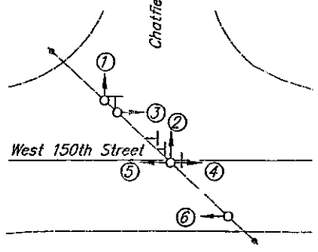
PHASE 1



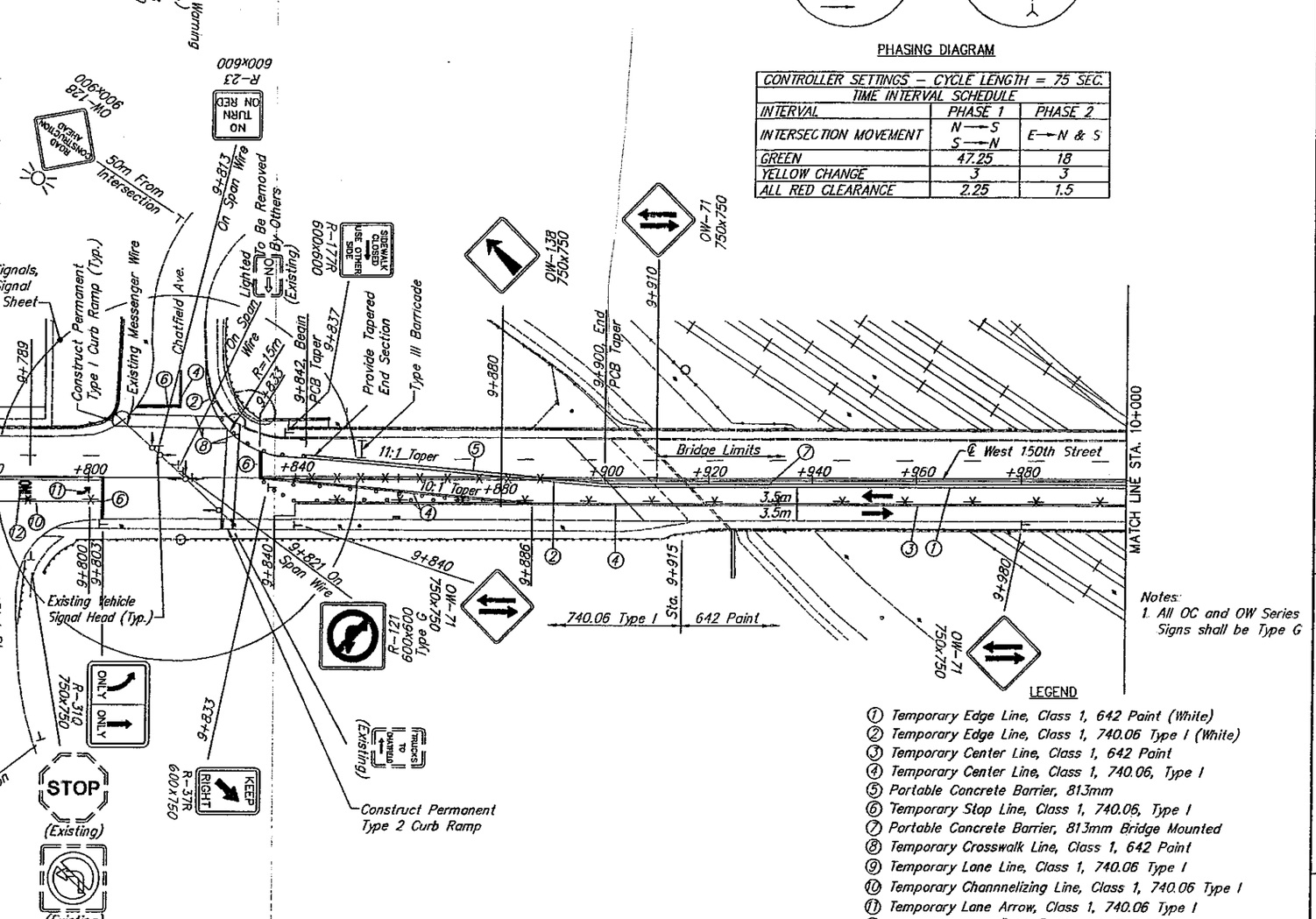
PHASING DIAGRAM

CONTROLLER SETTINGS – CYCLE LENGTH = 75 SEC.		
TIME INTERVAL SCHEDULE		
INTERVAL	PHASE 1	PHASE 2
INTERSECTION MOVEMENT	N→S S→N	E→N & S
GREEN	47.25	18
YELLOW CHANGE	3	3
ALL RED CLEARANCE	2.25	1.5

SIGNAL NUMBER	NORMAL SIGNAL PHASING					
	PHASE 1			PHASE 2		
	R/W	CLEAR	CLEAR	R/W	CLEAR	CLEAR
1	R	R	R	G	Y	R
2	R	R	R	G	Y	R
3	G	Y	R	R	R	R
4	G	Y	R	R	R	R
5	G	Y	R	R	R	R
6	G	Y	R	R	R	R



TRAFFIC SIGNAL LAYOUT



Notes:
1. All OC and OW Series Signs shall be Type G

LEGEND

1. Temporary Edge Line, Class 1, 642 Paint (White)
2. Temporary Edge Line, Class 1, 740.06 Type I (White)
3. Temporary Center Line, Class 1, 642 Paint
4. Temporary Center Line, Class 1, 740.06, Type I
5. Portable Concrete Barrier, 813mm
6. Temporary Stop Line, Class 1, 740.06, Type I
7. Portable Concrete Barrier, 813mm Bridge Mounted
8. Temporary Crosswalk Line, Class 1, 642 Paint
9. Temporary Lane Line, Class 1, 740.06 Type I
10. Temporary Channnelizing Line, Class 1, 740.06 Type I
11. Temporary Lane Arrow, Class 1, 740.06 Type I
12. Temporary Word "ONLY", Class 1, 740.06 Type I

N

0 10 20 SCALE IN METERS

CALCULATED JEN
CHECKED EPS

MAINTENANCE OF TRAFFIC PLAN - PHASE 1
STA. 9+330 TO STA. 10+000
CUY-WEST 150th STREET

9
73

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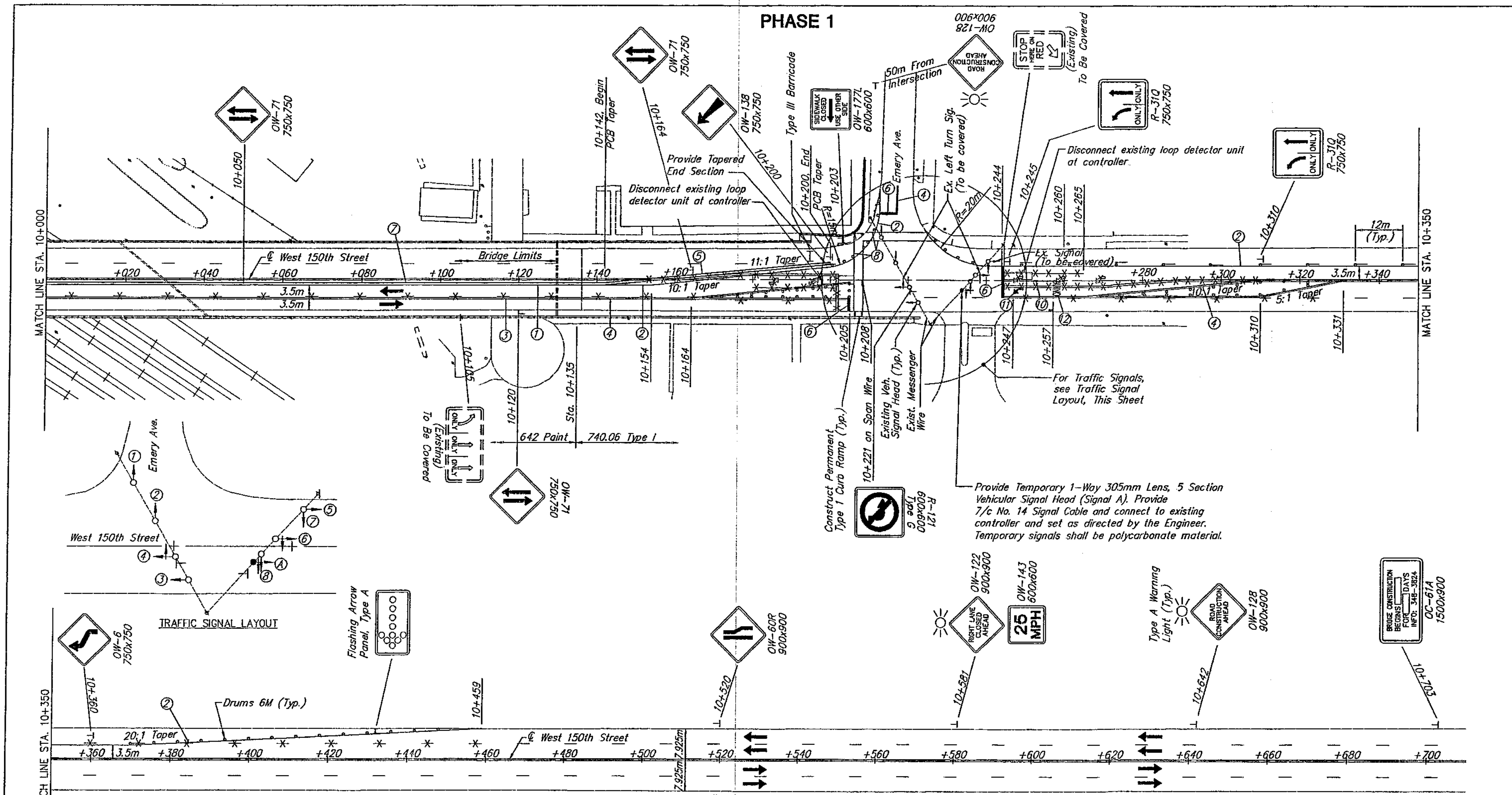
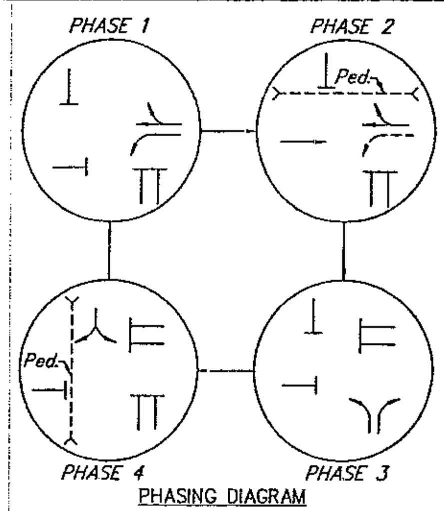
CLEVELAND, OHIO

[3]MOT01.DWG] ESF 2/17/98 PLOT 1000:500 METRIC

PHASE 1



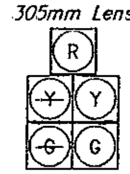


SIGNAL NUMBER	NORMAL SIGNAL PHASING											
	PHASE 1			PHASE 2			PHASE 3			PHASE 4		
	R/W	CLEAR	CLEAR	R/W	CLEAR	CLEAR	R/W	CLEAR	CLEAR	R/W	CLEAR	CLEAR
1	R	R	R	R	R	R	R	R	R	G	Y	R
2	R	R	R	R	R	R	R	R	R	G	Y	R
3	R	R	R	G	Y	R	R	R	R	R	R	R
4	R	R	R	G	Y	R	R	R	R	R	R	R
5	COVERED			COVERED			COVERED			COVERED		
6	G	G	G	G	Y	R	R	R	R	R	R	R
7	R	R	R	R	R	R	G	Y	R	R	R	R
8	R	R	R	R	R	R	G	Y	R	R	R	R
A	~~G~~ G	~~Y~~ G	G	G	Y	R	R	R	R	R	R	R

4 and 6 left turns signals are covered.

CONTROLLER SETTINGS – CYCLE LENGTH = 113 SEC.				
TIME INTERVAL SCHEDULE				
INTERVAL	PHASE 1	PHASE 2	PHASE 3	PHASE 4
INTERSECTION MOVEMENT	S—N, W & E	N—S S—N, W & E	W—N & S	E—N & S
MAX. GREEN	10	45	20	20
YELLOW CHANGE	3	3	3	3
ALL RED CLEARANCE	–	2	2	2
WALK	–	20	–	8
PEDESTRIAN CLEARANCE	–	25	–	12

305mm Lens



Temporary Signal A
(Polycarbonate)

Notes:
1. For Legend see Sheet 9.
2. All OC and OW Series Signs shall be Type G.

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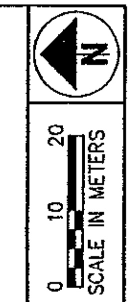
318MT01A.DWG] JEN 2/18/98 PLOT 1000:500 METRIC

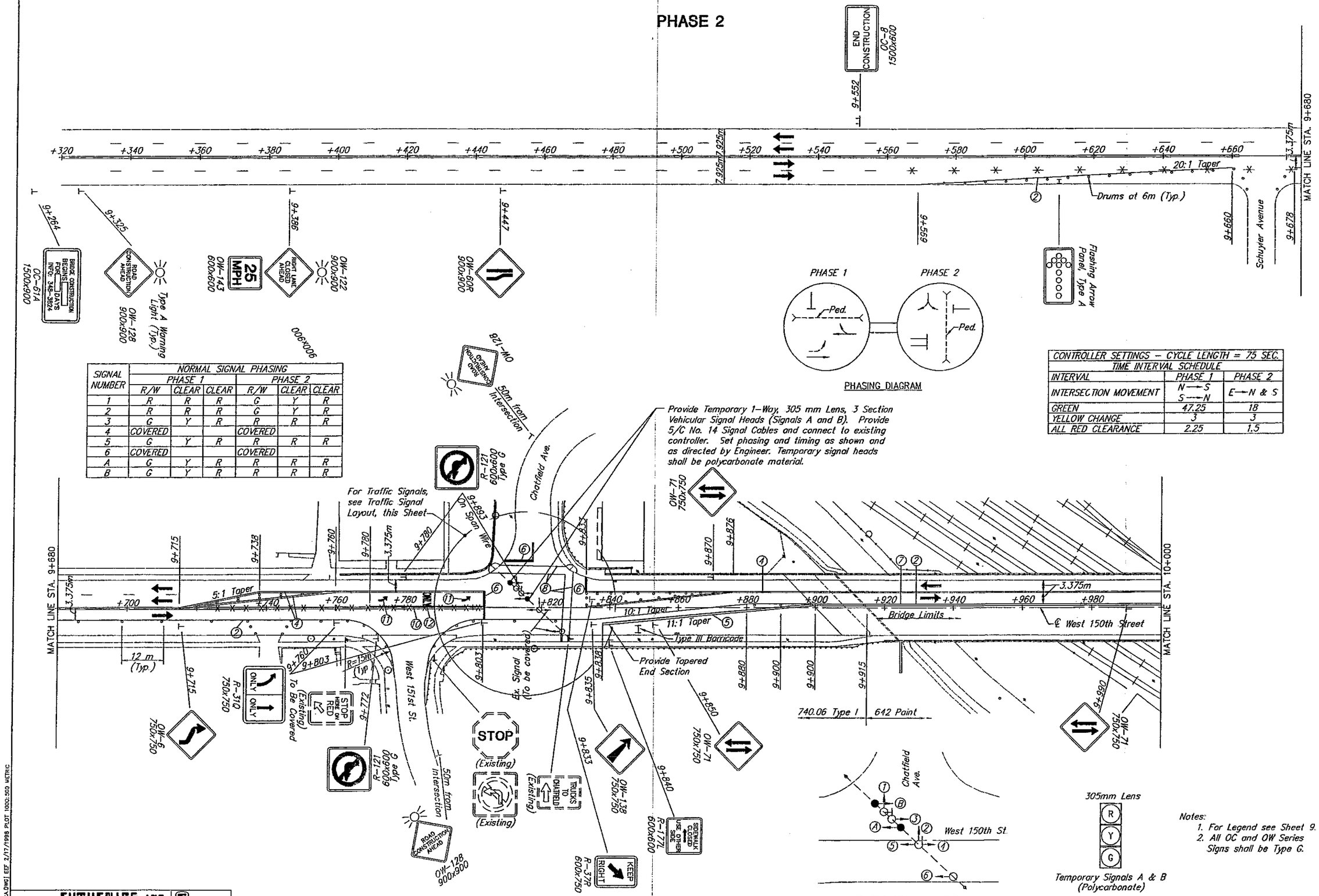


CALCULATED JEN
CHECKED EPS

MAINTENANCE OF TRAFFIC PLAN - PHASE 1
STA. 10+000 TO STA. 10+710

CUY-WEST 150th STREET

PHASE 2



SIGNAL NUMBER	NORMAL SIGNAL PHASING					
	PHASE 1			PHASE 2		
	R/W	CLEAR	CLEAR	R/W	CLEAR	CLEAR
1	R	R	R	G	Y	R
2	R	R	R	G	Y	R
3	G	Y	R	R	R	R
4	COVERED			COVERED		
5	G	Y	R	R	R	R
6	COVERED			COVERED		
A	G	Y	R	R	R	R
B	G	Y	R	R	R	R

CONTROLLER SETTINGS - CYCLE LENGTH = 75 SEC.		
TIME INTERVAL SCHEDULE		
INTERVAL	PHASE 1	PHASE 2
INTERSECTION MOVEMENT	N → S S → N	E → N & S
GREEN	47.25	18
YELLOW CHANGE	3	3
ALL RED CLEARANCE	2.25	1.5

TRAFFIC SIGNAL LAYOUT

Notes:
1. For Legend see Sheet 9.
2. All OC and OW Series Signs shall be Type G.

N

0 10 20 SCALE IN METERS

CALCULATED JEN CHECKED EPS

MAINTENANCE OF TRAFFIC PLAN - PHASE 2
STA. 9+320 TO STA. 10+000

CUY-WEST 150th STREET

11
73

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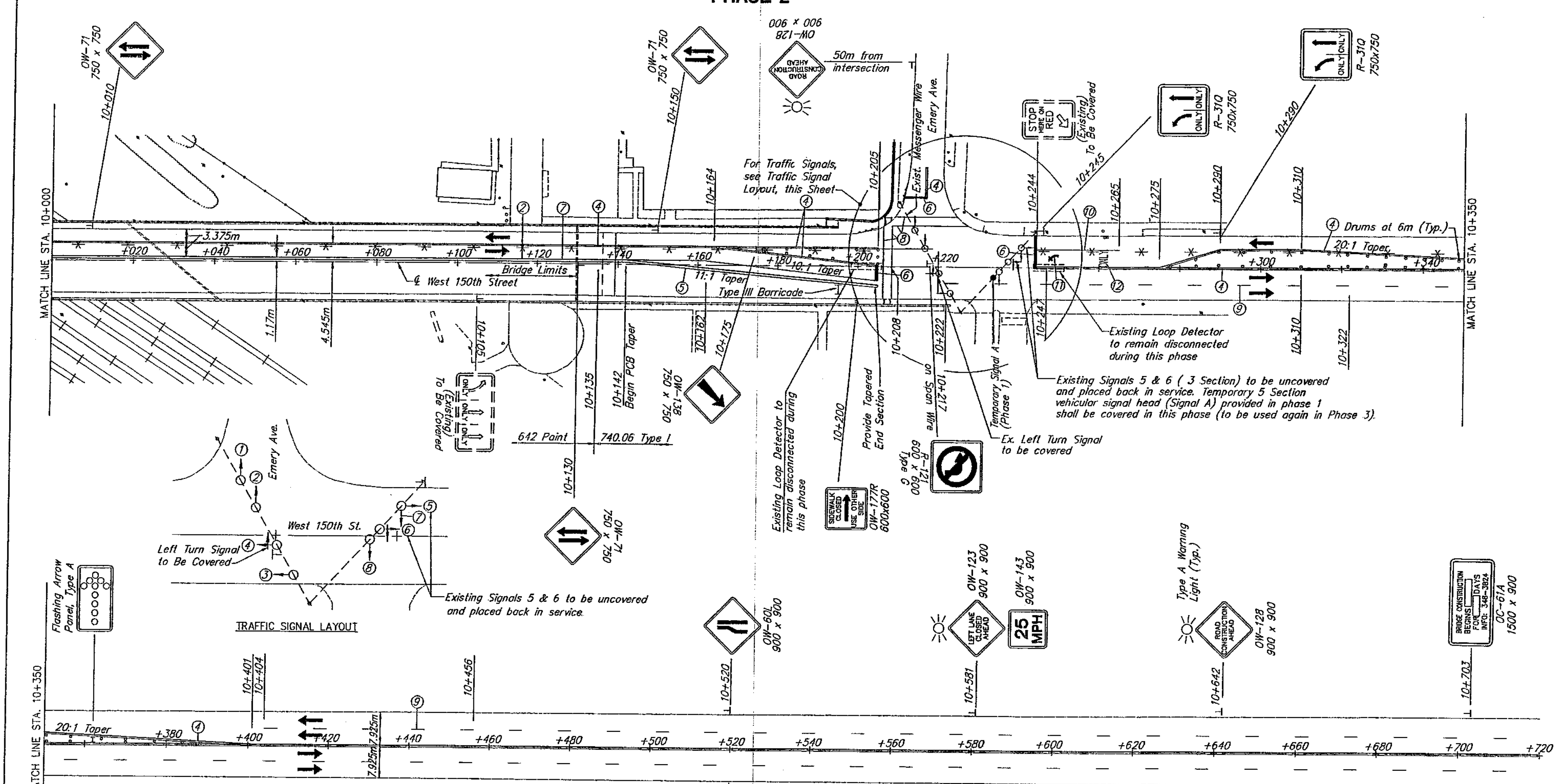
CLEVELAND, OHIO

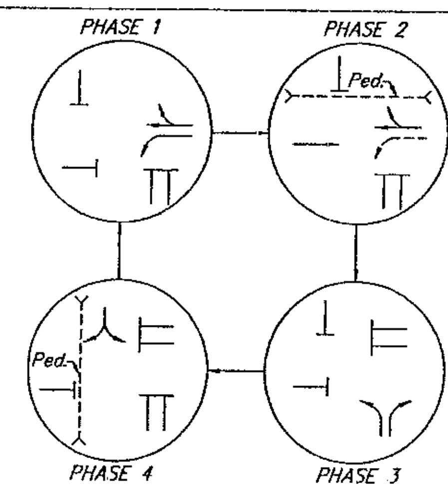
[316MTCA.DWG] EEF 2/17/1998 PLOT 1000.560 METRIC

PHASE 2



SIGNAL NUMBER	NORMAL SIGNAL PHASING											
	PHASE 1			PHASE 2			PHASE 3			PHASE 4		
	R/W	CLEAR	CLEAR	R/W	CLEAR	CLEAR	R/W	CLEAR	CLEAR	R/W	CLEAR	CLEAR
1	R	R	R	R	R	R	R	R	R	G	Y	R
2	R	R	R	R	R	R	R	R	R	G	Y	R
3	R	R	R	G	Y	R	R	R	R	R	R	R
4	R	R	R	G	Y	R	R	R	R	R	R	R
5	G	G	G	G	Y	R	R	R	R	R	R	R
6	~~G~~ G	~~Y~~ G	G	G	Y	R	R	R	R	R	R	R
7	R	R	R	R	R	R	G	Y	R	R	R	R
8	R	R	R	R	R	R	G	Y	R	R	R	R

No. 4 left turn signal is covered.



PHASING DIAGRAM

CONTROLLER SETTINGS – CYCLE LENGTH = 113 SEC.				
TIME INTERVAL SCHEDULE				
INTERVAL	PHASE 1	PHASE 2	PHASE 3	PHASE 4
INTERSECTION MOVEMENT	S—N, W & E	N—S S—N, W & E	W—N & S	E—N & S
MAX. GREEN	10	45	20	20
YELLOW CHANGE	3	3	3	3
ALL RED CLEARANCE	–	2	2	2
WALK	–	20	–	8
PEDESTRIAN CLEARANCE	–	25	–	12

Notes:
1. For Legend see Sheet 9.
2. All OC and OW Series Signs shall be Type G.

MAINTENANCE OF TRAFFIC PLAN - PHASE 2
STA. 10+000 TO STA. 10+720

CUY-WEST 150th STREET

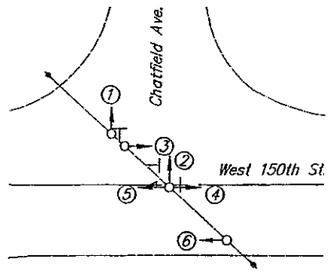
0 10 20 SCALE IN METERS

CALCULATED JEN CHECKED EPS

EUTHENICS INC. CONSULTING ENGINEERS CLEVELAND, OHIO

318MT2B.DWG] EEF 2/17/98 PLOT 1000:500 METRIC

PHASE 3

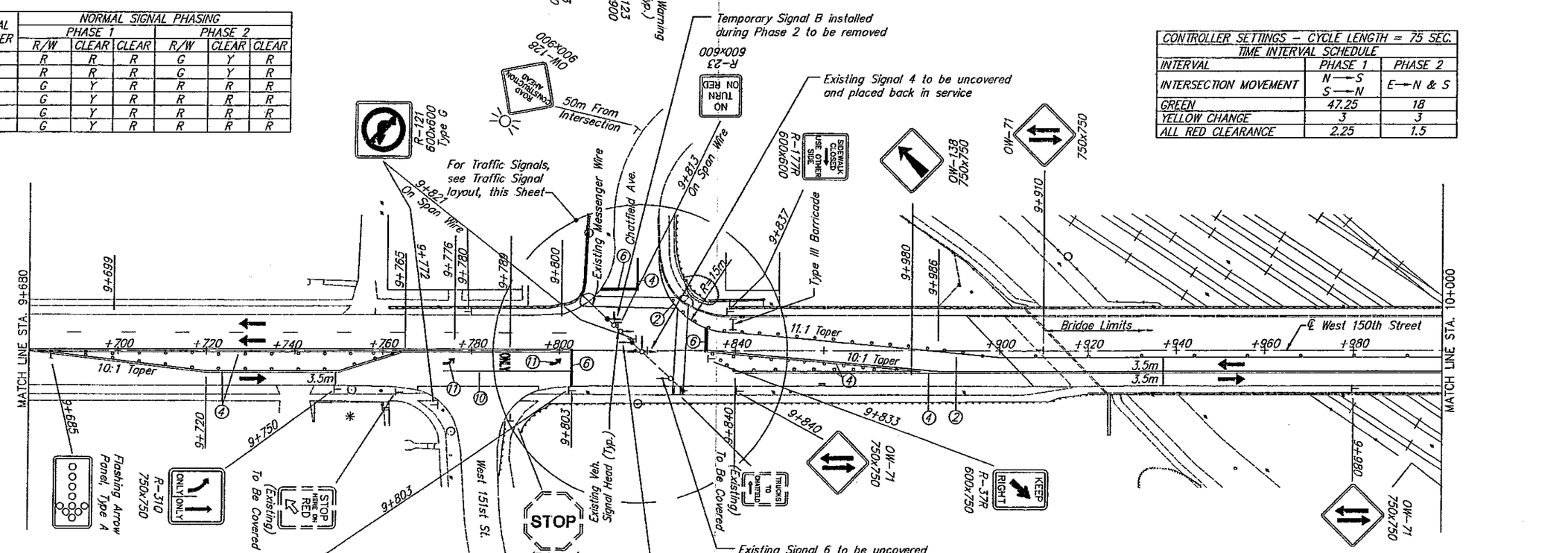


TRAFFIC SIGNAL LAYOUT

PHASING DIAGRAM

SIGNAL NUMBER	NORMAL SIGNAL PHASING					
	PHASE 1			PHASE 2		
	R/W	CLEAR	CLEAR	R/W	CLEAR	CLEAR
1	R	R	R	G	Y	R
2	R	R	R	G	Y	R
3	G	Y	R	R	R	R
4	G	Y	R	R	R	R
5	G	Y	R	R	R	R
6	G	Y	R	R	R	R

CONTROLLER SETTINGS – CYCLE LENGTH = 75 SEC. TIME INTERVAL SCHEDULE		
INTERVAL	PHASE 1	PHASE 2
INTERSECTION MOVEMENT	N ⟶ S, S ⟶ N	E ⟶ N & S
GREEN	47.25	18
YELLOW CHANGE	3	3
ALL RED CLEARANCE	2.25	1.5



Note: All temporary pavement markings in Phase 3 are 740.06, Type I.

Notes:
1. For Legend see Sheet 9.
2. All OC and OW Series Signs shall be Type G.

EUTHENICS INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

N

SCALE IN METERS 0 10 20

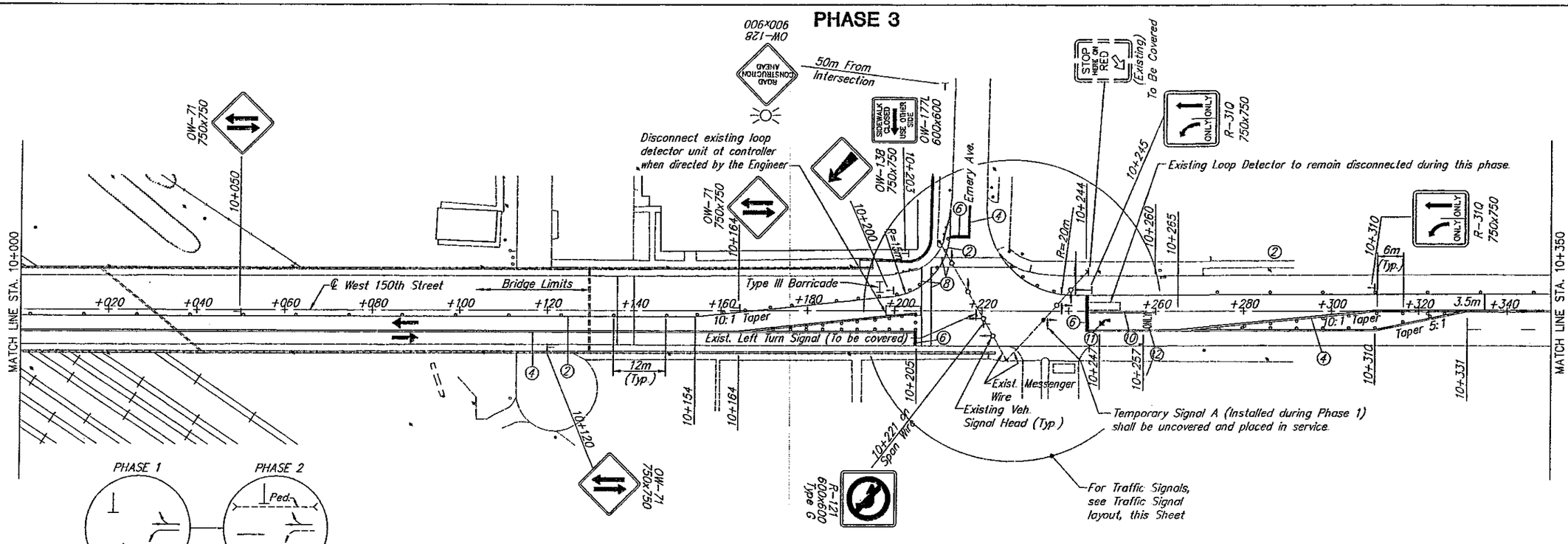
CALCULATED JEN
CHECKED EPS

MAINTENANCE OF TRAFFIC PLAN - PHASE 3
STA. 9+330 TO STA. 10+000

CUY-WEST 150th STREET

13
73

PHASE 3



CONTROLLER SETTINGS - CYCLE LENGTH = 113 SEC.				
TIME INTERVAL SCHEDULE				
INTERVAL	PHASE 1	PHASE 2	PHASE 3	PHASE 4
INTERSECTION MOVEMENT	S—N, W & E	S—N, W & E	W—N & S	E—N & S
MAX. GREEN	10	45	20	20
YELLOW CHANGE	3	3	3	3
ALL RED CLEARANCE	–	2	2	2
WALK	–	20	–	8
PEDESTRIAN CLEARANCE	–	25	–	12

SIGNAL NUMBER	NORMAL SIGNAL PHASING											
	PHASE 1			PHASE 2			PHASE 3			PHASE 4		
	R/W	CLEAR	CLEAR	R/W	CLEAR	CLEAR	R/W	CLEAR	CLEAR	R/W	CLEAR	CLEAR
1	R	R	R	R	R	R	R	R	R	G	Y	R
2	R	R	R	R	R	R	R	R	R	G	Y	R
3	R	R	R	G	Y	R	R	R	R	R	R	R
4	R	R	R	G	Y	R	R	R	R	R	R	R
5	COVERED			COVERED			COVERED			COVERED		
6	G	G	G	G	Y	R	R	R	R	R	R	R
7	R	R	R	R	R	R	G	Y	R	R	R	R
8	R	R	R	R	R	R	G	Y	R	R	R	R
A	-G- G	-Y- G	G	G	Y	R	R	R	R	R	R	R

4 and 6 left turns signals are covered.

Note: All temporary pavement markings in Phase 3 are 740.6, Type I.

Notes:
1. For Legend see Sheet 9.
2. All OC and OW Series Signs shall be Type G.

N

0 10 20 SCALE IN METERS

CALCULATED JEN | CHECKED EPS

MAINTENANCE OF TRAFFIC PLAN - PHASE 3
STA. 10+000 TO STA. 10+710

CUY-WEST 150th STREET

14/73

EUTHENICS INC. CONSULTING ENGINEERS CLEVELAND, OHIO

318MT03A.DWG] JEN 2/18/98 PLOT 1000:500 METRIC

NOTES:

1. Pedestrian and two lanes of vehicular traffic shall be maintained on West 150th Street at all times.
2. Two (2) anchors shall be provided for each bridge mounted portable concrete barrier segment. All bridge mounted barrier segments shall be fostened to the bridge deck using M27 high strength through bolts or approved resin anchors. When resin anchors are used they must be embedded a minimum of 165 mm into firm concrete. All anchors shall be placed on traffic side of the barrier with the anchor pattern symmetrical about the center of each segment.
3. The maintenance of traffic phases are as follows:

PHASE 1

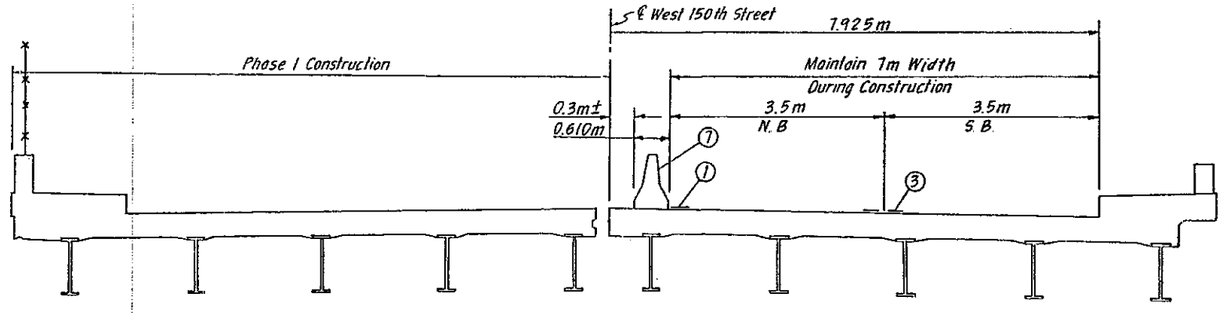
1. Place portable concrete barriers anchored to deck and maintain traffic on western half existing bridge.
2. Remove eastern half of the existing bridge.
3. Construct new deck, parapet, sidewalk and fence.
4. Place portable concrete barriers for Phase 2 Construction, anchored to deck

PHASE 2

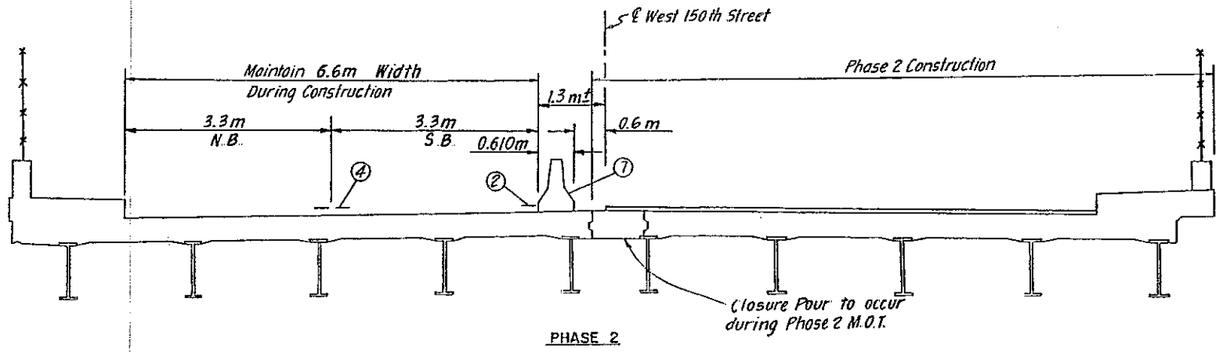
1. Maintain traffic on eastern half of the bridge.
2. Remove western half of the existing bridge.
3. Construct new deck, parapet, sidewalk and fence.
4. Place new wearing surface to centerline West 150th Street.
5. Place drums for Phase 3 construction.

PHASE 3

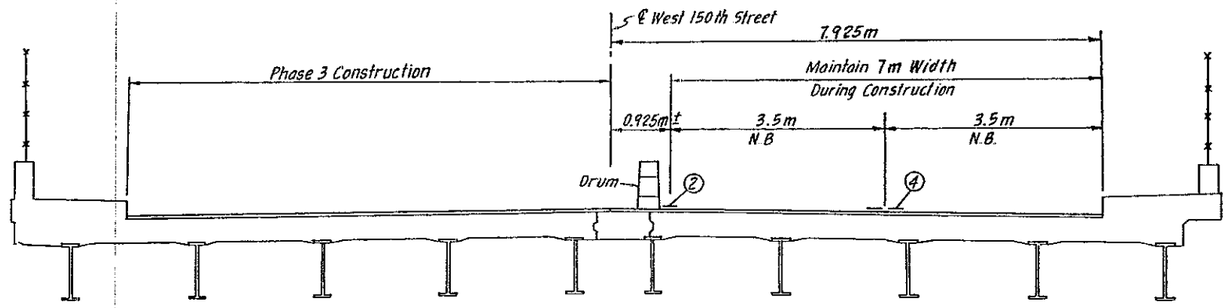
1. Maintain traffic on western half of the bridge.
2. Complete placement of new wearing surface.



PHASE 1



PHASE 2



PHASE 3

LEGEND

(1) Temporary Edge Line, Class 1, 642 Paint (White)
(2) Temporary Edge Line, Class 1, 740.06 Type I (White)
(3) Temporary Center Line, Class 1, 642 Paint
(4) Temporary Center Line, Class 1, 740.06 Type I
(7) Portable Concrete Barrier, 813 mm, Bridge Mounted

EUTHENICS INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

[3184T04.DWG] P.K 2/13/98 PLOT 1000:300 METRIC

CALCULATED JEN
CHECKED EPS

MAINTENANCE OF TRAFFIC DETAILS

CUY-WEST 150th STREET

15
73

SHEET NUMBER																			COST PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	AS PER PLAN REF. SHEET
					4	5	6	7	8			17	18	19	20	21	22		NORMAL PARTICIPATION							
																									ROADWAY	
												301							301		202	22900	301	SQ. METER	APPROACH SLAB REMOVED	
												427							427		202	23500	427	SQ. METER	WEARING COURSE REMOVED	
													12	45		51	17		125		202	30000	125	SQ. METER	WALK REMOVED	
													16	10		17	16		59		202	32000	59	METER	CURB REMOVED	
					10														10		203	12000	10	CU. METER	EXCAVATION, NOT INCLUDING EMBANKMENT CONSTRUCTION	
					10														10		203	20000	10	CU. METER	EMBANKMENT	
												299							299		203	50000	299	SQ. METER	SUBGRADE COMPACTION	
												96							96		608	13001	96	SQ. METER	150 MM CONCRETE WALK, AS PER PLAN	4
													13				22		35		608	53000	35	SQ. METER	CURB RAMP, TYPE 1	
													10						10		608	54000	10	SQ. METER	CURB RAMP, TYPE 2	
																									EROSION CONTROL	
					20														20		207	10000	20	SQ. METER	TEMPORARY SEEDING AND MULCHING	
					100														100		659	10001	100	SQ. METER	SEEDING AND MULCHING, AS PER PLAN	
					20														20		659	20000	20	KILOGRAM	COMMERCIAL FERTILIZER	
					20														20		659	30000	20	KILOGRAM	AGRICULTURAL LIMING	
																									PAVEMENT	
					25														25		254	01010	25	SQ. METER	PAVEMENT PLANING, PORTLAND CEMENT CONCRETE	
												45							45		304	20000	45	CU. METER	AGGREGATE BASE	
												47							47		407	10000	47	LITER	TACK COAT	
												9							9		448	46051	9	CU. METER	ASPHALT CONCRETE, INTERMEDIATE COURSE, TYPE 2, PG 64-22, AS PER PLAN	3,4
												5							5		448	47021	5	CU. METER	ASPHALT CONCRETE, SURFACE COURSE, TYPE 1, PG 64-22, AS PER PLAN	3,4
														16.50		16.50			33		SPECIAL	45132000	33	METER	PRESSURE RELIEF JOINT, TYPE C	
												27							27		609	26000	27	METER	CURB, TYPE 6	
												299							299		611	30001	299	SQ. METER	REINFORCED CONCRETE APPROACH SLAB (T = 430 mm), AS PER PLAN	4
																									WATERWORK	
															1				1		638	10800	1	EACH	VALVE BOX ADJUSTED TO GRADE	
																									MAINTENANCE OF TRAFFIC	
								200											200		614	11100	200	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR	7
							10												10		SPECIAL	61412500	10	SQ. METER	REPLACEMENT SIGN	6
							20												20		614	13000	20	CU. METER	BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC	
									97										97		614	13302	97	EACH	BARRIER REFLECTOR, TYPE B2	
									97										97		614	13350	97	EACH	OBJECT MARKER	
								10											10		SPECIAL	61418000	10	EACH	MAINTAINING TRAFFIC MISC.: MAINTAINING EXISTING TRAFFIC SIGNALS	7
									0.38										0.38		614	20200	0.38	KILOMETER	TEMPORARY LANE LINE, CLASS I, 740.06, TYPE I	
									0.66										0.66		614	21100	0.66	KILOMETER	TEMPORARY CENTER LINE, CLASS I, 642 PAINT	
									2.60										2.60		614	21200	2.60	KILOMETER	TEMPORARY CENTER LINE, CLASS I, 740.06, TYPE I	
									0.66										0.66		614	22100	0.66	KILOMETER	TEMPORARY EDGE LINE, CLASS I, 642 PAINT	
									1.98										1.98		614	22200	1.98	KILOMETER	TEMPORARY EDGE LINE, CLASS I, 740.06, TYPE I	
									124										124		614	26400	124	METER	TEMPORARY STOP LINE, CLASS I, 740.06, TYPE I	
									296										296		614	27400	296	METER	TEMPORARY CROSSWALK LINE, CLASS I, 740.06, TYPE I	
									9										9		614	30400	9	EACH	TEMPORARY LANE ARROW, CLASS I, 740.06, TYPE I	
									6										6		614	31400	6	EACH	TEMPORARY WORD ON PAVEMENT,1800 MM, CLASS I, 740.06, TYPE I	
							200												200		616	10000	200	CU. METER	WATER	
							5												5		616	20000	5	METRIC TON	CALCIUM CHLORIDE	
									241										241		622	40020	241	METER	PORTABLE CONCRETE BARRIER, 813 MM	
									484										484		622	40010	484	METER	PORTABLE CONCRETE BARRIER, 813 MM BRIDGE MOUNTED	
						1800													1800		642	30000	1800	METER	REMOVAL OF PAVEMENT MARKING	
																									FOR STRUCTURES OVER 6m SPAN QUANTITIES, SEE SHEET 39	
																									FOR TRAFFIC CONTROL, SEE SHEET 23	
																									FOR LIGHTING, SEE SHEET 27	
																			LUMP		614	11000	LUMP		MAINTAINING TRAFFIC	
																			18		806	16011	18	MONTH	FIELD OFFICE, TYPE B, AS PER PLAN	4
																			18		806	26000	18	MONTH	COMPUTER EQUIPMENT FOR FIELD OFFICE	
																			LUMP		623	10000	LUMP		CONSTRUCTION LAYOUT STAKES	
																			LUMP		624	10000	LUMP		MOBILIZATION	

CALCULATED N.N.B. CHECKED R.D.J.

GENERAL SUMMARY - WEST 150th STREET

CUY - WEST 150TH STREET

EUTHENICS INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

318/MISC/318GS01.DWG) P-X 2/16/98 PLOT 1:1 (NHP)

CALCULATED NNB | CHECKED RDJ

ITEM 202 – APPROACH SLAB REMOVED

STATION FROM	TO	LENGTH X WIDTH (m^2)	AREA (m^2)
9+904.962	9+914.112	9.150 x 16.44	150.43
10+130.155	10+139.305	9.150 x 16.44	150.43
		TOTAL	300.86

USE 301 m^2

ITEM 202 – WEARING COURSE REMOVED

STATION FROM	TO	LENGTH X WIDTH (m^2)	AREA (m^2)
9+900.000	9+914.112	14.112 x 15.84	223.53
10+130.155	10+143.000	12.845 x 15.84	203.46
		TOTAL	426.99

USE 427 m^2

ITEM 203 – SUBGRADE COMPACTION

STATION FROM	TO	LENGTH X WIDTH (m^2)	AREA (m^2)
9+904.962	9+914.112	9.150 x 16.340	149.51
10+130.155	10+139.305	9.150 x 16.340	149.51
		TOTAL	299.02

USE 299 m^2

ITEM 304 – 150 mm AGGREGATE BASE

STATION FROM	TO	LENGTH X WIDTH (m^2)	DEPTH (m)	VOLUME (m^3)
9+904.962	9+914.112	9.150 x 16.340	0.150	22.43
10+130.155	10+139.305	9.150 x 16.340	0.150	22.43
		TOTAL		44.86

USE 45 m^3

ITEM 407 – TACK COAT (Rate of Application 0.34 Liters/Sq. m)

STATION FROM	TO	LENGTH X WIDTH (m^2)	AREA (m^2)
9+900.000	9+904.962	(4.962 x 15.840)	78.6
10+139.305	10+143.000	(3.695 x 15.840)	58.6
		TOTAL	137 x 0.34= 46.6 Liters

USE 47 Liters

ITEM 448 – 32 mm ASPHALT CONCRETE, SURFACE COURSE, TYPE 1, PG64-22, AS PER PLAN

STATION FROM	TO	LENGTH X WIDTH (m^2)	DEPTH (m)	VOLUME (m^3)
9+900.000	9+904.962	4.962 X 15.840	0.032	2.51
10+139.305	10+143.000	3.695 x 15.840	0.032	1.87
		TOTAL		4.38

USE 5 m^3

ITEM 448 – ASPHALT CONCRETE, INTERMEDIATE COURSE, TYPE 2, PG64-22, AS PER PLAN (Avg. Thickness 61 mm)

STATION FROM	TO	LENGTH X WIDTH (m^2)	DEPTH (m)	VOLUME (m^3)
9+900.000	9+904.962	4.962 X 15.840	0.061	4.79
10+139.305	10+143.000	3.695 x 15.840	0.061	3.57
		TOTAL		8.36

USE 9 m^3

ITEM 608 – CONCRETE WALK, AS PER PLAN

STATION FROM	TO	SIDE	LENGTH X WIDTH (m^2)	AREA (m^2)
9+891.00	9+905.43	LT.	14.43 x 1.42	20.49
9+905.40	9+922.79	RT.	17.39 x 1.42	24.69
10+130.15	10+148.00	LT.	17.85 x 1.42	25.35
10+130.15	10+148.00	RT.	17.85 x 1.42	25.35
			TOTAL	95.88

USE 96 m^2

ITEM 609 – CONCRETE CURB, TYPE 6

STATION FROM	TO	SIDE	LENGTH (m)
9+891.00	9+897.64	LT.	6.64
9+909.28	9+912.28	RT.	3.00
10+139.30	10+148.00	LT.	8.70
10+139.30	10+148.00	RT.	8.70
		TOTAL	27.04

USE 27 m

ITEM 611 – REINFORCED CONCRETE APPROACH SLABS (T=430 mm), AS PER PLAN

STATION FROM	TO	LENGTH X WIDTH (m^2)	AREA (m^2)
9+904.962	9+914.112	9.150 x 16.340	149.51
10+130.155	10+139.305	9.150 x 16.340	149.51
		TOTAL	299.02

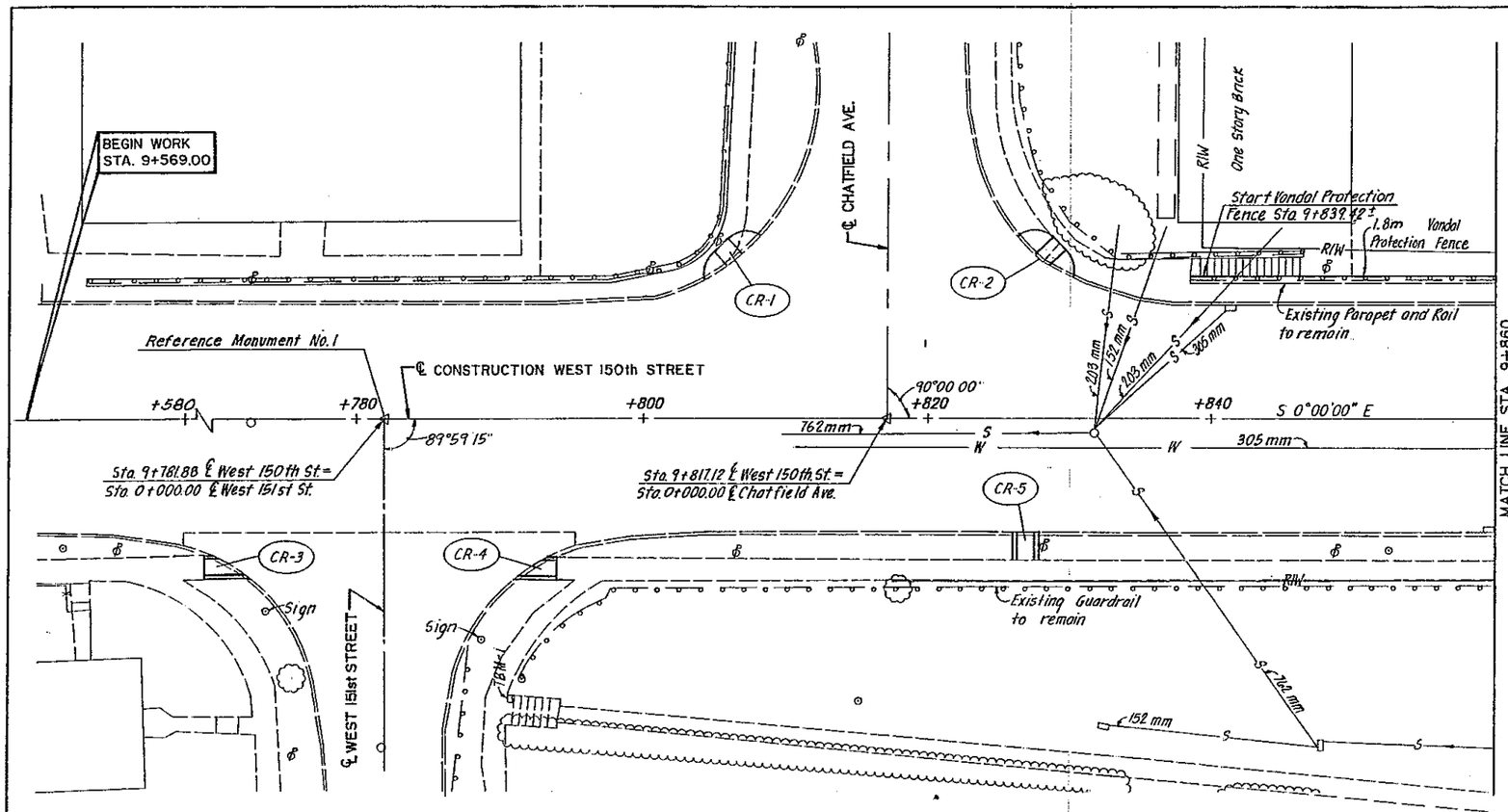
USE 299 m^2

EUTHENICS INC. CONSULTING ENGINEERS CLEVELAND, OHIO

QUANTITY CALCULATIONS - WEST 150th STREET

CUY - W 150th STREET

17/73



REFERENCE MONUMENT NO.1
Iron Pin Sta. 9+781.88 ℄ West 150th Street

TEMPORARY BENCH MARK NO.1
Top NE Corner of Concrete Steps Next to Top Handrail Post. Chisled ☐ Square Sta. 9+790.78, 19.50m Rt. Elev. 239.765m

ESTIMATED QUANTITIES

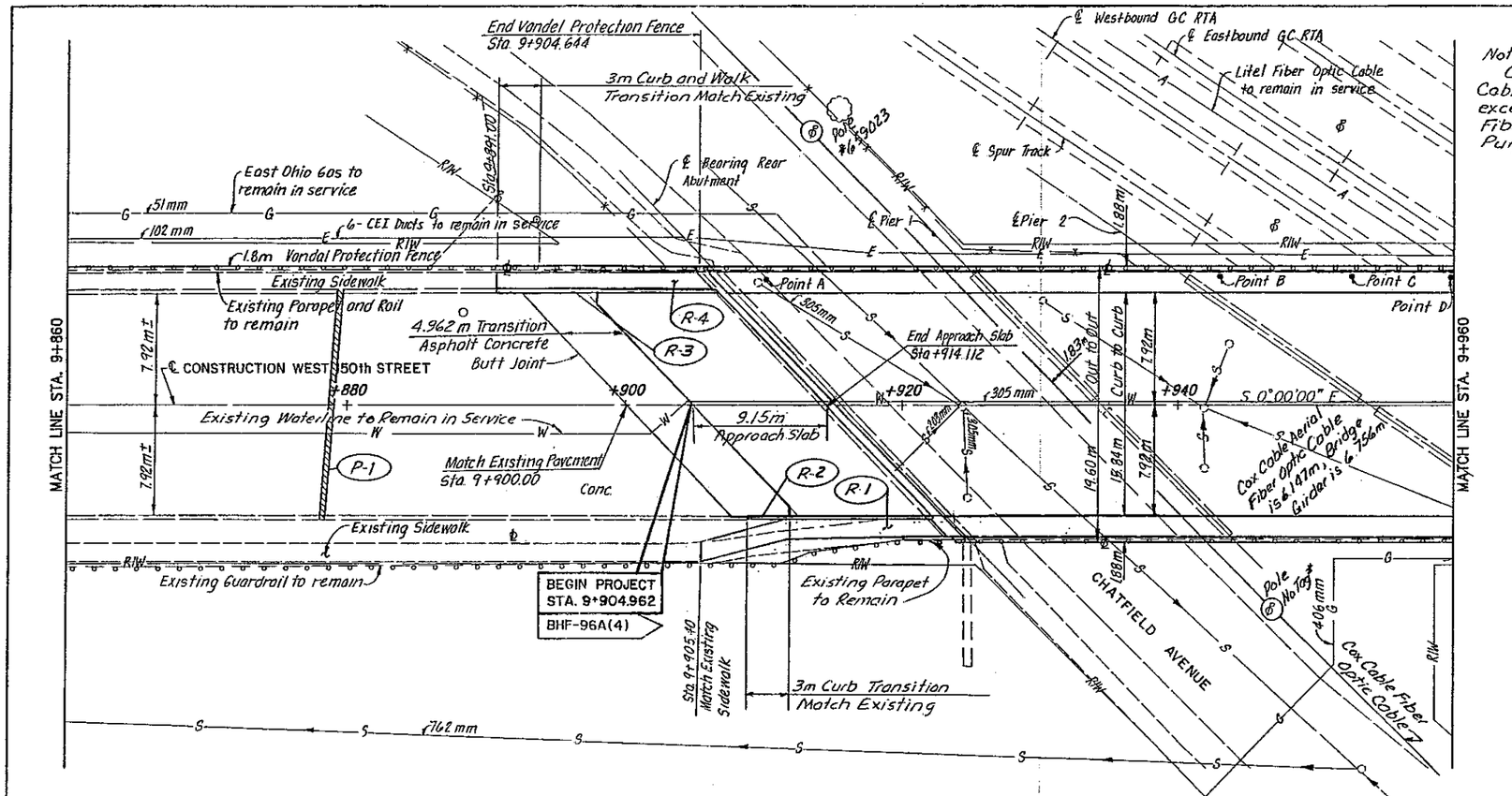
REF. NO.	STATION FROM	STATION TO	SIDE	608 Curb Ramp Type 1 SQ. M.	608 Curb Ramp Type 2 SQ. M.	202 Walk Removed SQ. M.	202 CURB REMOVED M
CR-1	9+807.00		L	6.2		4.0	5.2
CR-2	9+828.00		L	7.2		1.8	5.2
CR-3	9+771.00		R		3.2	3.2	1.8
CR-4	9+792.00		R		3.2	3.2	1.8
CR-5	9+827.00		R		3.6		1.8
	TOTALS			13.4	10.0	12.2	15.8

HORIZONTAL RATIO 1:200
VERTICAL RATIO 1:50
CALCULATED NNB
CHECKED EPS

PLAN AND PROFILE WEST 150th STREET
STA. 9+780 TO STA. 9+860

CUY-WEST 150th STREET

18/73



Note.
Cox Cable Fiber Optic Cable is in 30mm Aerial Duct except under the Bridge. The Fiber is Exposed for Slack Purposes.

ESTIMATED QUANTITIES

REF NO	STATION FROM	STATION TO	SIDE	202 Walk Removed SQ. M.	202 Curb Removed METER	SPECIAL Pressure Relief Joint, Type C METER
R-1	9+905.40	9+922.79	R	24.69		
R-2	9+909.28	9+912.28	R		3.00	
R-3	9+894.64	9+897.64	L		7.00	
R-4	9+894.64	9+905.43	L	20.49		
P-1	9+879±		L/R			16.50
TOTALS				45.18	10.00	16.50

HORIZONTAL RATIO 1:200
VERTICAL RATIO 1:50
CALCULATED NNB
CHECKED EPS

PLAN AND PROFILE - WEST 150th STREET STA. 9+860 TO STA. 9+960

CUY-WEST 150th STREET

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EXISTING STRUCTURE

TYPE: Unit 1 and 2 – Continuous composite steel beam with reinforced concrete deck and substructure

SPANS: Unit 1 – 19.20m±, 19.81m±, 27.74m±, 27.13m± and 20.22m±
Unit 2 – 20.22m±, 3 spans at 20.42m± and 18.29m±
C/C of bearings measured along ℄ West 150th St.

ROADWAY: 15.84m± face to face of curbs with two 1.52m± sidewalks

LOADING: CF=2000 and A.A.S.H.O. Alternate Loading
SKEW: Varies 0°to 56°–31'± Right Forward
WEARING SURFACE: Asphalt Concrete
APPROACH SLABS: 9.14m±
ALIGNMENT: Tangent
CROWN: Normal, 0.0156
DATE BUILT: 1967
STRUCTURE FILE NO.: 1833405

PROPOSED STRUCTURE

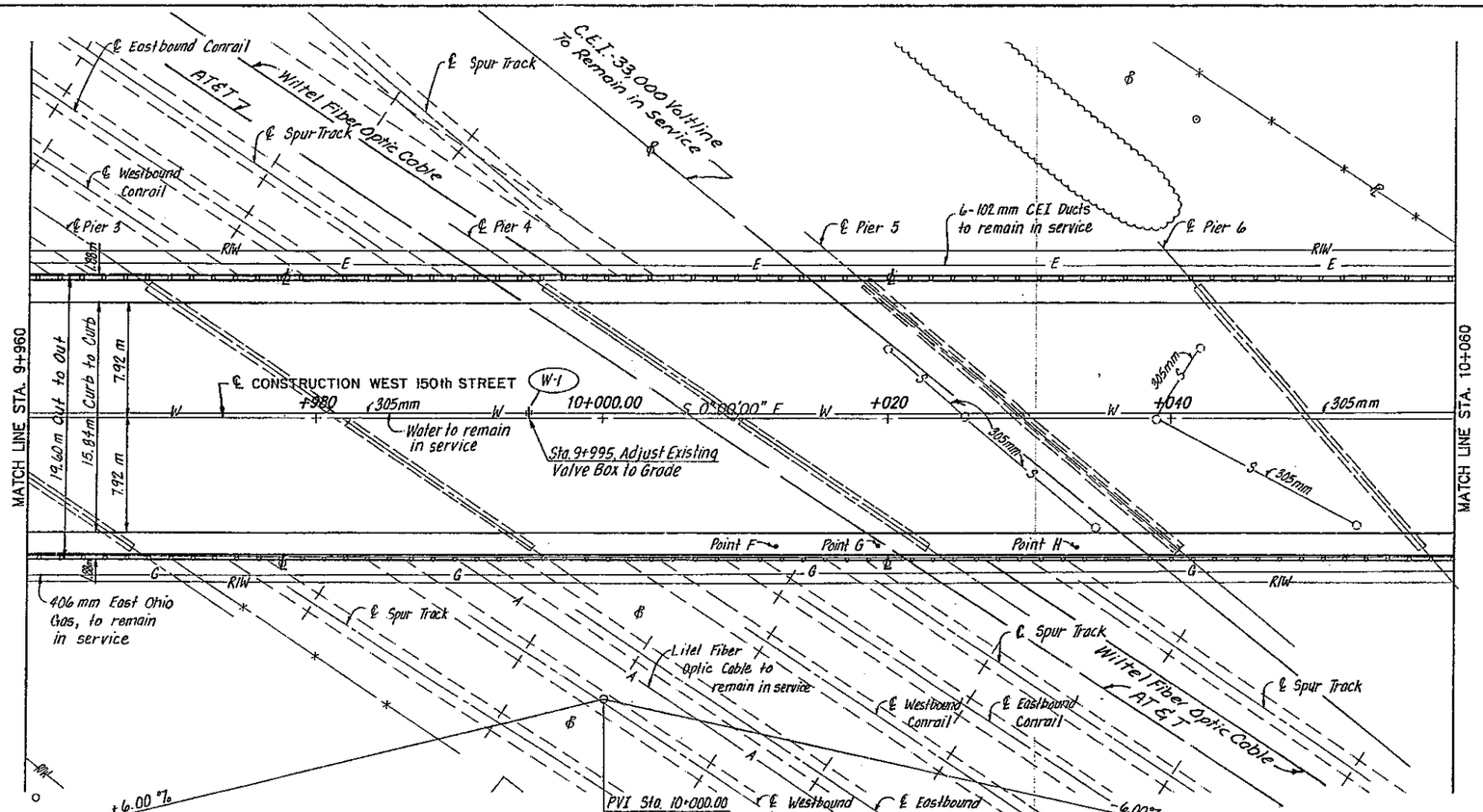
PROPOSED WORK: Remove and replace existing concrete deck, approach slabs, sidewalks & parapets. Repair existing structural steel, replace bearings, seal joints and repair, modify and seal existing sub–structure units and retaining wall.

TYPE: Unit 1 and 2 – Continuous composite steel beam with reinforced concrete deck and substructure.

SPANS: Unit 1 – 19.20m±, 19.81m±, 27.74m±, 27.13m± and 20.12m±
Unit 2 – 20.12m±, 3 spans at 20.42m± and 18.29m±
C/C of bearings measured along ℄ West 150th St.

ROADWAY: 15.84m toe to toe of curbs with two 1.52m sidewalks

LOADING: MS–18 Case II and the Alternate Military Loading
SKEW: Varies 0°to 56°–31'± Right Forward
WEARING SURFACE: 32mm Latex Modified Concrete
APPROACH SLABS: AS–1–81M (9.15m Long)
ALIGNMENT: Tangent
CROWN: Normal, 0.016



ESTIMATED QUANTITIES

REF.	STATION FROM	STATION TO	SIDE	638 Valve Box Adjusted to Grade EACH		
W-1	9+995±		Lt.	1		
TOTALS				1		

HORIZONTAL RATIO 1:200
VERTICAL RATIO 1:50

CALCULATED NNB
CHECKED EPS

PLAN AND PROFILE - WEST 150th STREET
STA. 9+960 TO STA. 10+060

CUY-WEST 150th STREET

20/73

ESTIMATED QUANTITIES						
REF NO	STATION		SIDE	202 Walk Removed	202 Curb Removed	
	FROM	TO		SQ. M.	METER	
R-1	10+130.15	10+148.00	L	25.35		
R-2	10+130.15	10+198.00	R	25.35		
R-3	10+139.30	10+148.00	L		8.70	
R-4	10+139.30	10+148.00	R		8.70	
TOTALS				50.70	17.40	

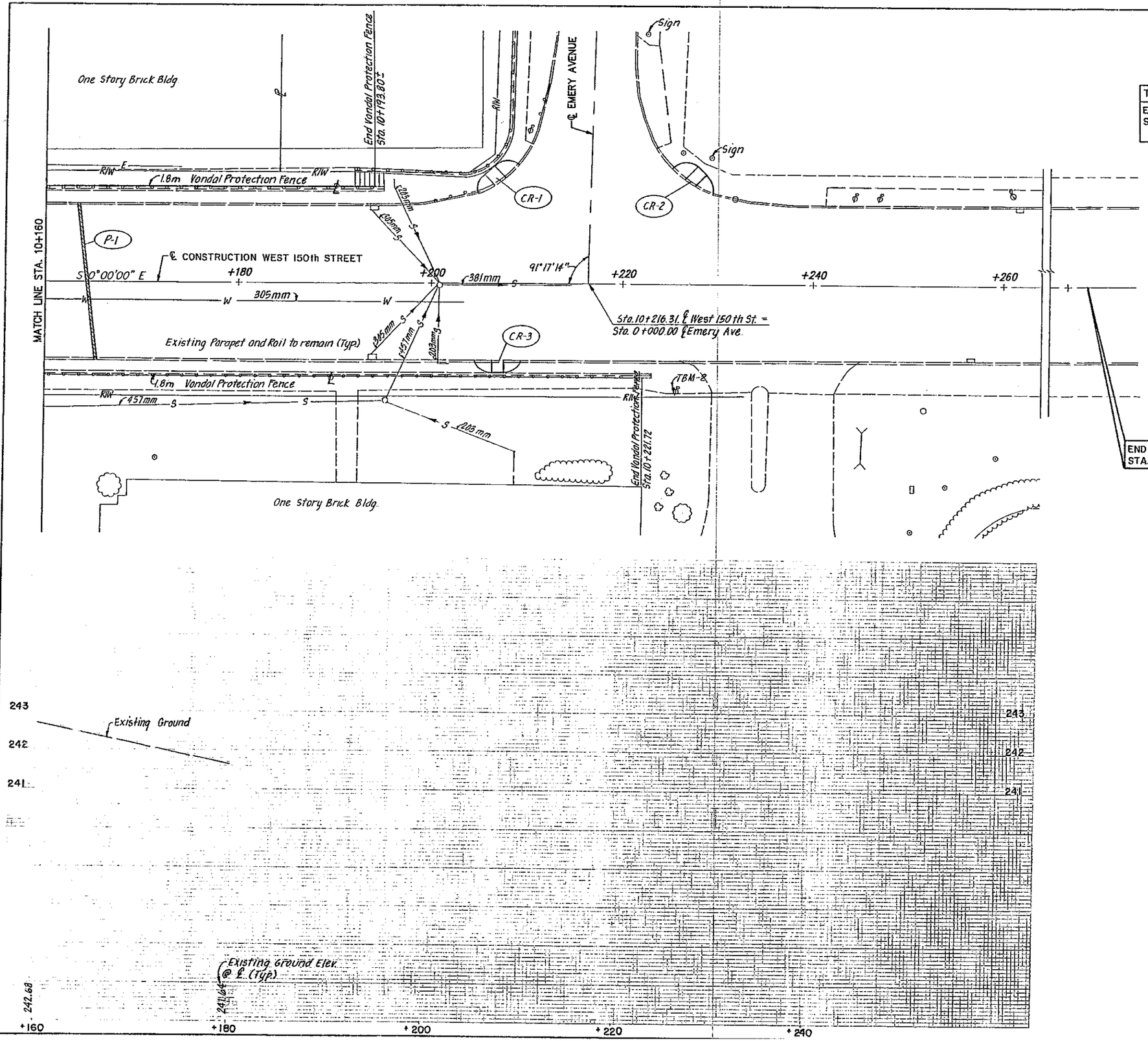
HORIZONTAL RATIO 1:200
VERTICAL RATIO 1:50

CALCULATED NNB
CHECKED EPS

PLAN AND PROFILE - WEST 150th STREET STA. 10+060 TO STA. 10+160

CUY-WEST 150th STREET

21/73



TEMPORARY BENCH MARK NO.2

East Bolt on Metal Strain Pole.
Sta. 10+225.25, 11.13m Rt.
Elev. 240.19m

ESTIMATED QUANTITIES

REF NO.	STATION FROM	STATION TO	SIDE	608 Curb Ramp Type I SQ. M.	202 CURB REMOVED M	202 Walk Removed SQ. M.	SPECIAL Pressure Relief Joint, Type C METER
CR-1	10+207.00		L	8.60	5.2	8.60	
CR-2	10+227.00		L	8.60	5.2	8.60	
CR-3	10+207.00		R	5.00	5.2		
P-1	10+164±		L/R				16.50
TOTALS				22.20	15.6	17.20	16.50

HORIZONTAL RATIO 1:200
VERTICAL RATIO 1:50
CALCULATED NNB
CHECKED EPS

PLAN AND PROFILE - WEST 150th STREET
STA. 10+160 TO STA. 10+240

CUY-WEST 150th STREET

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SHEET NUMBER	NORMAL PARTICIPATION	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	AS PER PLAN REF. SHEET
24						TRAFFIC CONTROL	
10.7	10.7	630	02100	10.7	METER	GROUND MOUNTED SUPPORT, NO. 2 POST	
24.6	24.6	630	03100	24.6	METER	GROUND MOUNTED SUPPORT, NO. 3 POST	
12	12	630	79500	12	EACH	SIGN SUPPORT ASSEMBLY, POLE MOUNTED	
2.9	2.9	630	80100	2.9	SQ. METER	SIGN, FLAT SHEET	
1.5	1.5	630	80101	1.5	SQ. METER	SIGN, FLAT SHEET, AS PER PLAN	25
0.6	0.6	630	80102	0.6	SQ. METER	SIGN, FLAT SHEET, TYPE G	
12	12	630	85000	12	EACH	REMOVAL OF GROUND MOUNTED SIGN AND STORAGE	
1.78	1.78	642	00202	1.78	KILOMETER	LANE LINE, TYPE 2	
0.980	0.980	642	00302	0.98	KILOMETER	CENTER LINE, TYPE 2	
65	65	644	00400	65	METER	CHANNELIZING LINE	
55	55	644	00500	55	METER	STOP LINE	
191	191	644	00600	191	METER	CROSSWALK LINE	
28	28	644	00700	28	METER	TRANSVERSE LINE	
4	4	644	01300	4	EACH	LANE ARROW	
2	2	644	01400	2	EACH	WORD ON PAVEMENT, 1800mm	

CALCULATED N.N.B.
CHECKED R.D.J.

GENERAL SUMMARY - WEST 150th STREET

CUY. - WEST 150TH STREET

EUTHENICS INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

ITEM 642 – CENTER LINE (SOLID DOUBLE)

STATION FROM	STATION TO	SIDE	CALCULATION	METER
WEST 150TH STREET				
9+569	10+459	℄	10459–9569	890.0
10+117	10+147	RT.	10147–10117	30.0
10+147	10+162	RT.	10162–10117	15.0
10+279	10+294	LT.	10294–10279	15.0
10+294	10+324	LT.	10324–10294	30.0
TOTAL				0.980 KILOMETER = 980.0

ITEM 642 – LANE LINE

STATION FROM	STATION TO	SIDE	CALCULATION	METER
WEST 150TH STREET				
9+569	10+459	Lt./Rt.	(10459–9569)x 2	1780
TOTAL				1.780 KILOMETER = 1780 METER

ITEM 644 – STOP LINE

STATION FROM	STATION TO	SIDE	CALCULATION	METER
WEST 150TH STREET				
9+808		RT.	1 x 8.2	8.2
9+833.4		LT.	1 x 8.9	8.9
10+205		RT.	1 x 9.8	9.8
10+245		LT.	1 x 10.1	10.1
WEST 151ST STREET				
9+782.5	9+788.5	RT.	1 x 6.0	6.0
CHATFIELD AVENUE				
0+019		LT.	1 x 4.9	4.9
EMERY ROAD				
0+021.5		LT.	1 X 6.5	6.5
TOTAL				54.4 USE 55.0 METER

ITEM 644 – LANE ARROW

STATION FROM	STATION TO	SIDE	CALCULATION	EACH
WEST 150TH STREET				
10+180		℄	1 x 1	1
10+202		℄	1 x 1	1
10+248		℄	1 x 1	1
10+270		℄	1 x 1	1
TOTAL				4 EACH

ITEM 644 – WORD "ONLY" ON PAVEMENT, 1800 MM

STATION FROM	STATION TO	SIDE	CALCULATION	EACH
WEST 150TH STREET				
10+189		℄	1 X 1	1
10+261		℄	1 X 1	1
TOTAL				2 EACH

ITEM 644 – CHANNELIZING LINE

STATION FROM	STATION TO	SIDE	CALCULATION	METER
WEST 150TH STREET				
10+168	10+205	RT.	10205–10168	37
10+245	10+273	LT.	10273–10245	28
TOTAL				65 METER

ITEM 644 – CROSSWALK LINE

STATION FROM	STATION TO	SIDE	CALCULATION	METER
WEST 150TH STREET				
9+781		RT.	23.8+18.7	42.5
9+817		LT.	18.4+20.2	38.6
9+826	9+829	℄	17.5+18.5	36.0
10+206.2	10+208	℄	17.7+17.2	34.9
10+216		LT.	17.9+20.9	38.8
TOTAL				190.8 USE 191 METER

ITEM 644 – TRANSVERSE LINE, YELLOW

STATION FROM	STATION TO	SIDE	CALCULATION	METER
WEST 150TH STREET				
10+117	10+162	℄	1.45(avg.) x 10	14.50
10+279	10+324	℄	1.35(avg.) x 10	13.50
TOTAL				28.0 METER

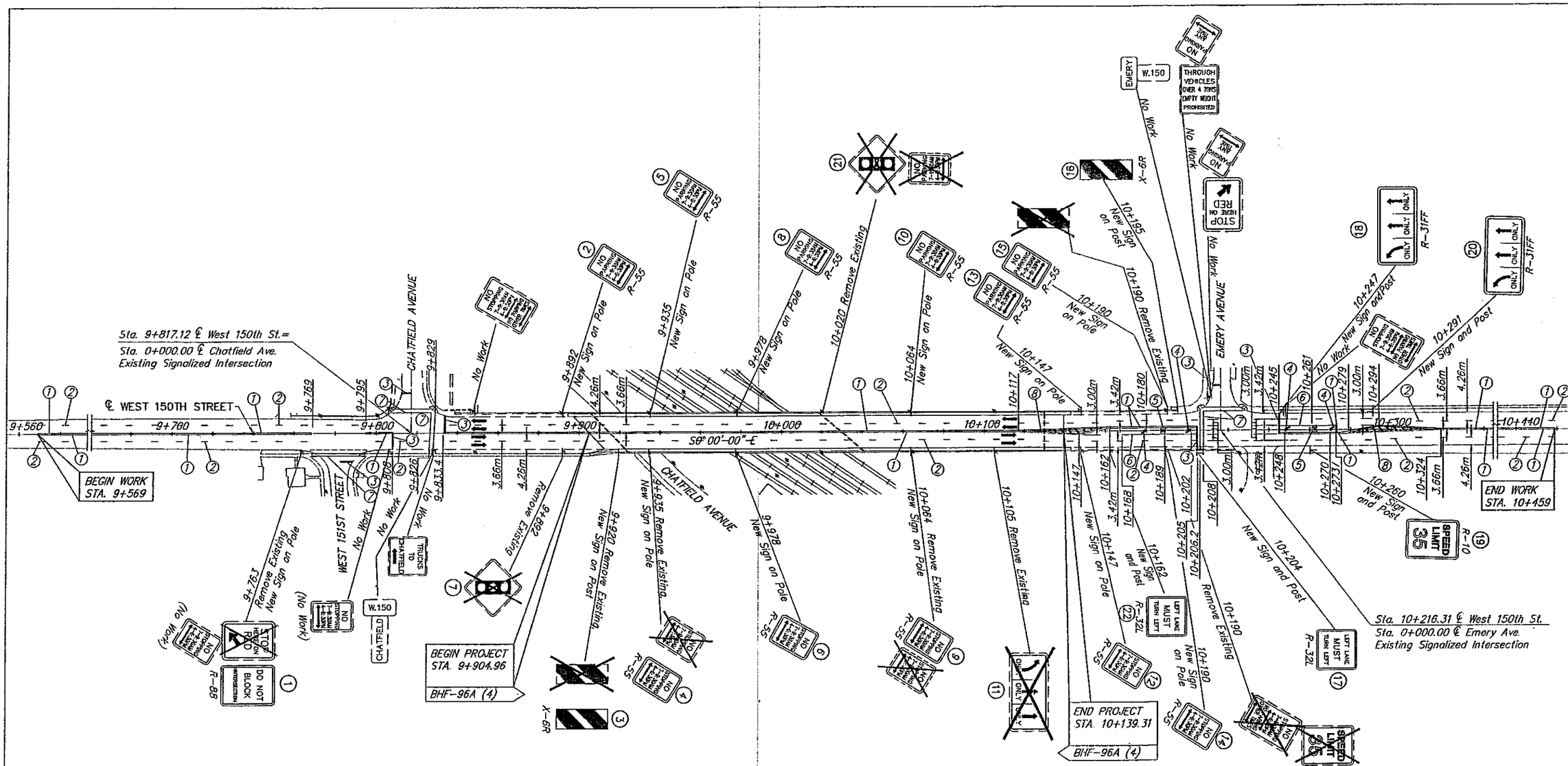
SIGN NUMBER	STATION	SIDE	CODE AND SIZE: X-6R 300mm x 900mm	R-98 600mm x 750mm	R-55 300mm x 450mm	R-31FF 1200mm x 750mm	R-10 600mm x 750mm	R-32L 750mm x 750mm	ITEM 630: Sign, Flat Sheet, As Per Plan Sq. Meter	Ground Mounted Support, No. 3 Post Meter	Ground Mounted Support, No. 2 Post Meter	Sign, Flat Sheet, Type G Sq. Meter	Sign Support Assembly Pole Mounted Each	Removal of Ground Mounted Sign and Storage Each	Sign, Flat Sheet Sq. Meter
1	9+763 WEST 150TH STREET	RT.		1									1	1	0.450
2	9+892 WEST 150TH STREET	LT.			1				0.135				1		
3	9+920 WEST 150TH STREET	RT.	1								3.3	0.27		1	
4	9+935 WEST 150TH STREET	RT.			1				0.135				1	1	
5	9+935 WEST 150TH STREET	Lt.			1				0.135				1		
6	9+978 WEST 150TH STREET	RT.			1				0.135				1		
7	9+892 WEST 150TH STREET	RT.												1	
8	9+978 WEST 150TH STREET	LT.			1				0.135				1		
9	10+064 WEST 150TH STREET	RT.			1				0.135				1	1	
10	10+064 WEST 150TH STREET	LT.			1				0.135				1		
11	10+105 WEST 150TH STREET	RT.												1	
12	10+147 WEST 150TH STREET	RT.			1				0.135				1		
13	10+147 WEST 150TH STREET	LT.			1				0.135				1		
14	10+190 WEST 150TH STREET	RT.			1				0.135				1	2	
15	10+190 WEST 150TH STREET	LT.			1				0.135				1	1	
16	10+195 WEST 150TH STREET	LT.	1								3.3	0.27		1	
17	10+204 WEST 150TH STREET	RT.						1		4.1					0.56
18	10+247 WEST 150TH STREET	LT.				1				4.1, 4.1					0.450
19	10+260 WEST 150TH STREET	RT.					1				4.1				0.450
20	10+291 WEST 150TH STREET	LT.				1				4.1, 4.1					0.450
21	10+020 WEST 150TH STREET	LT.												2	
22	10+204 WEST 150TH STREET	RT.						1		4.1					0.56
	TOTALS		2	1	10	2	1	2	1.5	24.6	10.7	0.6	12	12	2.9

CALCULATED N.N.B. CHECKED R.D.J.

SIGNING AND PAVEMENT MARKING QUANTITIES

CUY. - WEST 150TH STREET

24/73



ITEM 630 – SIGN, FLAT SHEET, AS PER PLAN

R-55-300 Signs Supplied Under this Item shall meet the Requirements of 630, Except that Reflective Sheeting will not be used. The Background Color of the Sign shall be White Paint Applied to the Flat Sheet Material.

The Contractor shall Contact the City of Cleveland, Division of Traffic Engineering Sign Shop, 4150 East 49th Street, Bldg. 5, Cuyahoga Heights, Ohio 44105 (216-420-8280), to Obtain a Sample of the Lettering Sizes and Fonts to be used.

SIGN LEGEND

New — New Sign

Existing, To Remain — No Work

Existing, To be Removed — Remove Existing

Ground Mounted Support – Single

Ground Mounted Support – Back to Back

Banded to Pole

LEGEND

1. Item 642 – Center Line (Solid Double)
2. Item 642 – Lane Line
3. Item 644 – Stop Line
4. Item 644 – Lane Arrow
5. Item 644 – Word "ONLY" on Pavement, 1800mm
6. Item 644 – Channelizing Line
7. Item 644 – Crosswalk Line
8. Item 644 – Transverse Line, Yellow 3.6m %c

Note: Mounting Height for signs on bridge retaining wall or parapet shall be 0.60m above top of fence.

See Sheet 24 for Metric Sign Sizes.

HORIZONTAL SCALE IN METERS 0 20 40

CALCULATED NNB
CHECKED RDJ

TRAFFIC CONTROL PLAN

CUY-WEST 150TH STREET

SPECIFICATION

These notes are supplemental to Items 625 and 713 of the State of Ohio Department of Transportation Construction and Material Specifications.

Reference shall be made to Standard Construction Drawings listed on the title sheet of these plans.

625.03 – GENERAL

The power supplying agency for the highway lighting on this project is.

Cleveland Public Power
1201 Lakeside Avenue
Cleveland, Ohio 44114
Phone: 664–3922

Power for the West 150th street lighting circuit "EX–23" will be provided by splicing into the existing power pole at Sta. 9+892± and at Sta. 10+148± Lt. & Rt. ℄ West 150th Street.

The contractor shall contact Cleveland Public Power for additional information as to exact time periods for making the splice. The proposed lighting on West 150th street will be serviced by the 480 volts, three wire, grounded neutral line.

EXISTING LIGHTING

The existing highway overhead and underground lighting circuit EX–23 is 480 volts. Power is supplied by the Cleveland Public Power from existing pole with number 12316 at Lorain Avenue. The existing lighting system consist of steel and wood poles and eight–foot bracket arms with 400 watt HPS lamps.

EXISTING LIGHT POLES ON STRUCTURE

The existing light pole installations, including bracket arms, luminaires, lamps, poles, pole and bracket wiring and bases on structure CUY–WEST 150th STREET shall be removed and paid under the lump sum price bid in the bridge quantity "Structures Removed Over 6m Span, As Per Plan". The existing bracket arms, luminaires and lamps shall become the property of the Contractor.

ITEM 625 – POWER SERVICE, AS PER PLAN

The Contractor shall connect the electrical cables to the power source at location shown in the plans. The cost of the Power Connection, Weatherhead, Conduit Riser, Cable Splicing Kit in pull box, wire, ground rod. And other equipment needed to complete the work is incidental and shall be included in the unit price bid per each of Item 625 – Power Service, As Per Plan.

ITEM 625 – TEMPORARY OVERHEAD CABLE, AS PER PLAN

The Contractor shall provide temporary overhead wire connection at Sta. 9+892 (Lt./Rt.) and at Sta. 10+147 (Lt./Rt.) in order to keep existing continuous circuit north and south side of the bridge in operation during the construction of the project.

The work shall include disconnecting and connecting part of the existing wiring system as needed to keep existing lighting system in operation.

The cost of overhead wire, splicing kits and other equipment needed to complete the work is incidental and shall be included in the unit price bid per lump sum of Item 625 – Temporary Overhead Cable, As Per Plan.

ITEM 625 – STRUCTURE GROUNDING SYSTEM, AS PER PLAN

The Contractor shall include the work required to ground the bridge fence as per detail shown in the plans, in addition to the requirements of 625.20 Structure Grounds

625.07 – 713.11 LUMINAIRES

Style B Luminaires shall have single rated 480 volt, 400 watt, Constant Wattage, Isolation Type with Photocell Ballasts for use with high pressure sodium lamps and shall be General Electric M400, Crouse–Hinds OVM, American 25/26, or equal approved by the Engineer.

713.14 – LAMPS

High pressure sodium lamps shall be General Electric "Lucalox", Phillips "Ceramalux", Sylvania "Lumalux", or equal approved by the Engineer.

CONDUIT ON STRUCTURE

Expansion fittings for conduits on structures shall be OZ Type AX, Crouse Hinds Type XJ–4, Appleton Type XJ–4, or equal approved by the Engineer. Each expansion fitting shall have a Copper External Bonding Jumper.

The spare conduit is provided at the request of the City of Cleveland.

The cost of spare conduit shall be borne by the City of Cleveland.

CALCULATED NNB
CHECKED EPS

LIGHTING PLAN - GENERAL NOTES

CUY-WEST 150th STREET

SHEET NUMBER 28	SHEET NUMBER 29	SHEET NUMBER 30	100% LOCAL PARTICIPATION CITY OF CLEVELAND	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	AS PER PLAN REF. SHEET
								LIGHTING	
4	8	8		625	00500	20	EACH	CONNECTOR KIT, TYPE II	
2	4	4		625	10500	10	EACH	LIGHT POLE, MISC: A2.4 B5.5 STYLE IIA (BRIDGE MOUNTED)	
8	16	16		625	10600	40	EACH	LIGHT POLE ANCHOR L-BOLTS	
504	576	558		625	23200	1,638	METER	NO. 4 AWG 5000 VOLT DISTRIBUTION CABLE	
31.6	63.2	63.2		625	23400	158	METER	NO. 10 AWG POLE AND BRACKET CABLE	
312	360	348	510	625	25400	1,020	METER	CONDUIT, 51mm, 713.04	
2	4	4		625	26250	10	EACH	LUMINAIRE, CONVENTIONAL STYLE B, TYPE III, 400 WATT HIGH	
								PRESSURE SODIUM, 713.11, 480 VOLT WITH PHOTOCELL	
44		36		625	29002	80	METER	TRENCH, 0.6 M DEEP	
2	4	4		625	29920	10	EACH	STRUCTURE JUNCTION BOX	
2		2		625	31100	4	EACH	PULL BOX, 713.081, 250mm X 350mm	
	1			625	33001	1	EACH	STRUCTURE GROUNDING SYSTEM, AS PER PLAN	26, 29
2		2		625	34001	4	EACH	POWER SERVICE, AS PER PLAN	26,28,30
20		20		625	36221	40	METER	TEMPORARY OVERHEAD CABLE, AS PER PLAN	26,28,30

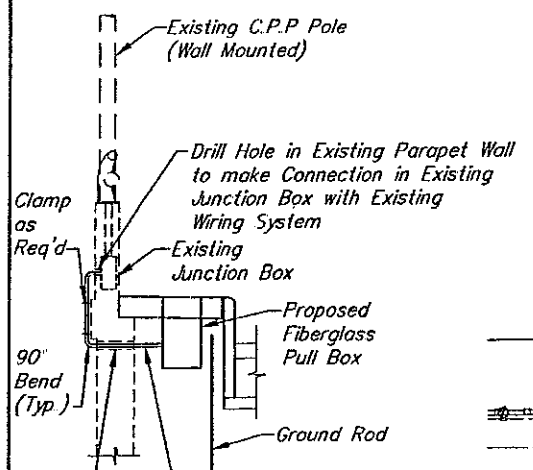
CALCULATED NNB CHECKED EPS

GENERAL SUMMARY - WEST 150th STREET

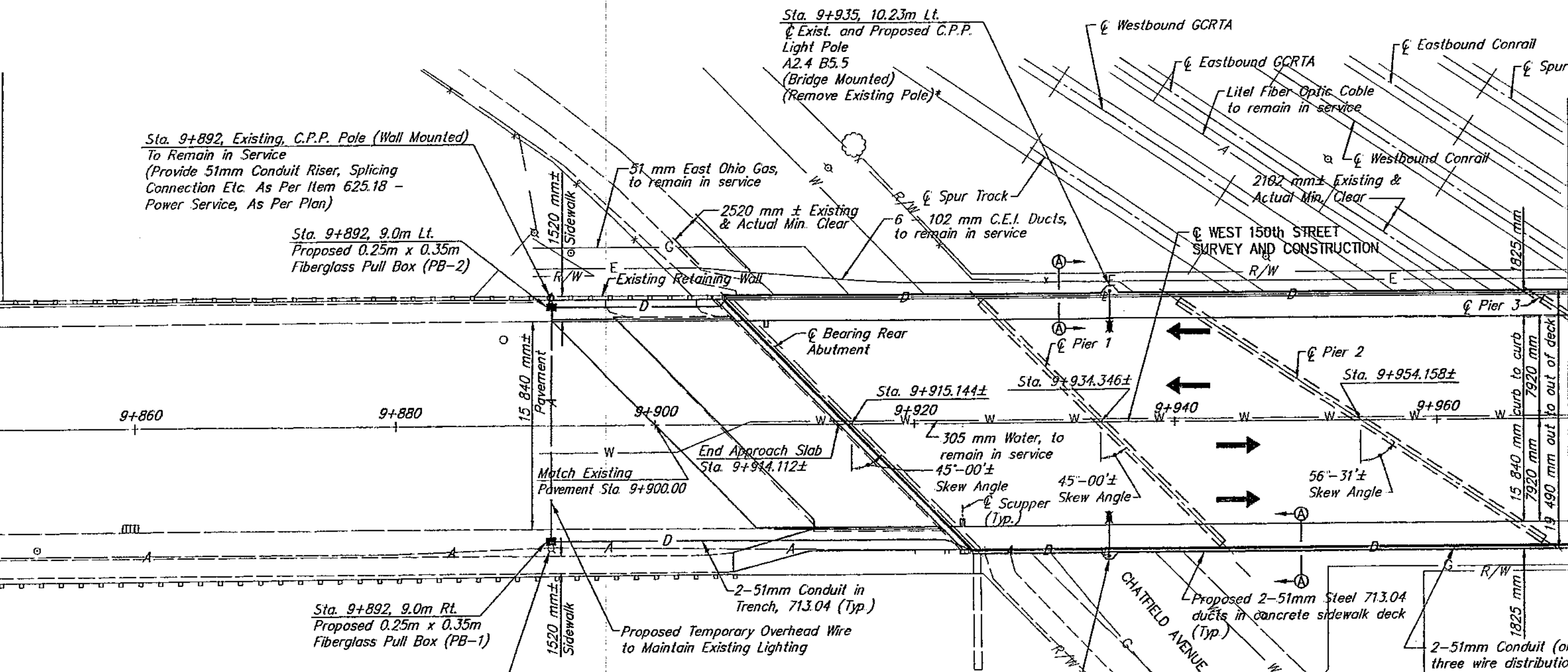
CUY - WEST 150TH STREET

EUTHENICS inc. CONSULTING ENGINEERS CLEVELAND, OHIO

\JOBS\317\LTG\318GS01.DWG) PJK 1/8/98 PLOT 1:1 (IMP)

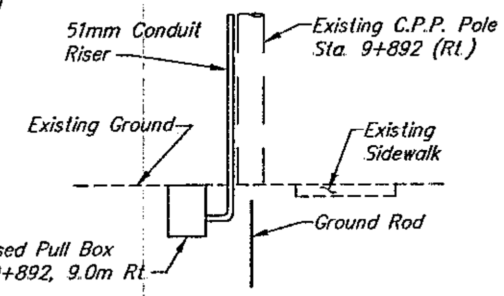


DETAIL POWER SERVICE, AS PER PLAN
STA. 9+892, LT.
STA. 10+147, LT. & RT.
No Scale



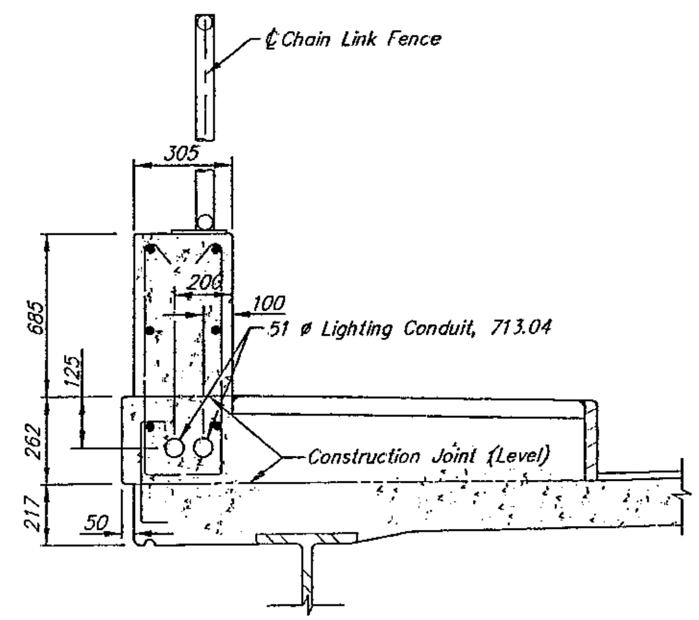
LEGEND

Φ	LIGHT POLE
—A—	EXISTING AERIAL WIRES (POWER OR LIGHT)
—D—	PROPOSED LIGHTING CONDUITS
	PROPOSED LIGHT POLE
	PULL BOX
C.P.P.	CLEVELAND PUBLIC POWER
C.E.I.	CLEVELAND ELECTRICAL ILLUMINATING COMPANY



DETAIL–POWER SERVICE, AS PER PLAN
STA. 9+892, RT.
No Scale

STATION		SIDE	625 Pull Box 713.081 250mm x 350mm	625 Conduit, 51mm, 713.04	625 No. 4 AWG 5000 Volt Distribution Cable (3 Required)	625 Light Pole, Misc. A2.4 B5.5, Style IIA (Bridge Mounted)	625 Light Pole, Anchor L-Bolts (For Structure)	625 Luminaire Conventional Style B Type III 400 Watt High Pressure Sodium 713.11, 480 Volt with Photocell	625 No. 10 AWG Pole and Bracket Cable	625 Connector Kit, Type II	625 Structure Junction Box	625 Trench 0.6m Deep	625 Temporary Overhead Cable, As Per Plan	625 Power Service, As Per Plan
From	To		Each	Meter	Meter	Each	Each	Each	Meter	Each	Each	Meter	Meter	Each
9+892	9+935	Lt.	1	86	138							13		1
9+935	9+970	Lt.		70	114	1	4	1	15.8	2	1			
9+892	9+935	Rt.	1	86	138							31		1
9+935	9+920	Rt.		70	114	1	4	1	15.8	2	1			
9+892		Lt./Rt.											20.00	
Total			2	312	504	2	8	2	31.6	4	2	44	20.00	2



SECTION A–A
No Scale

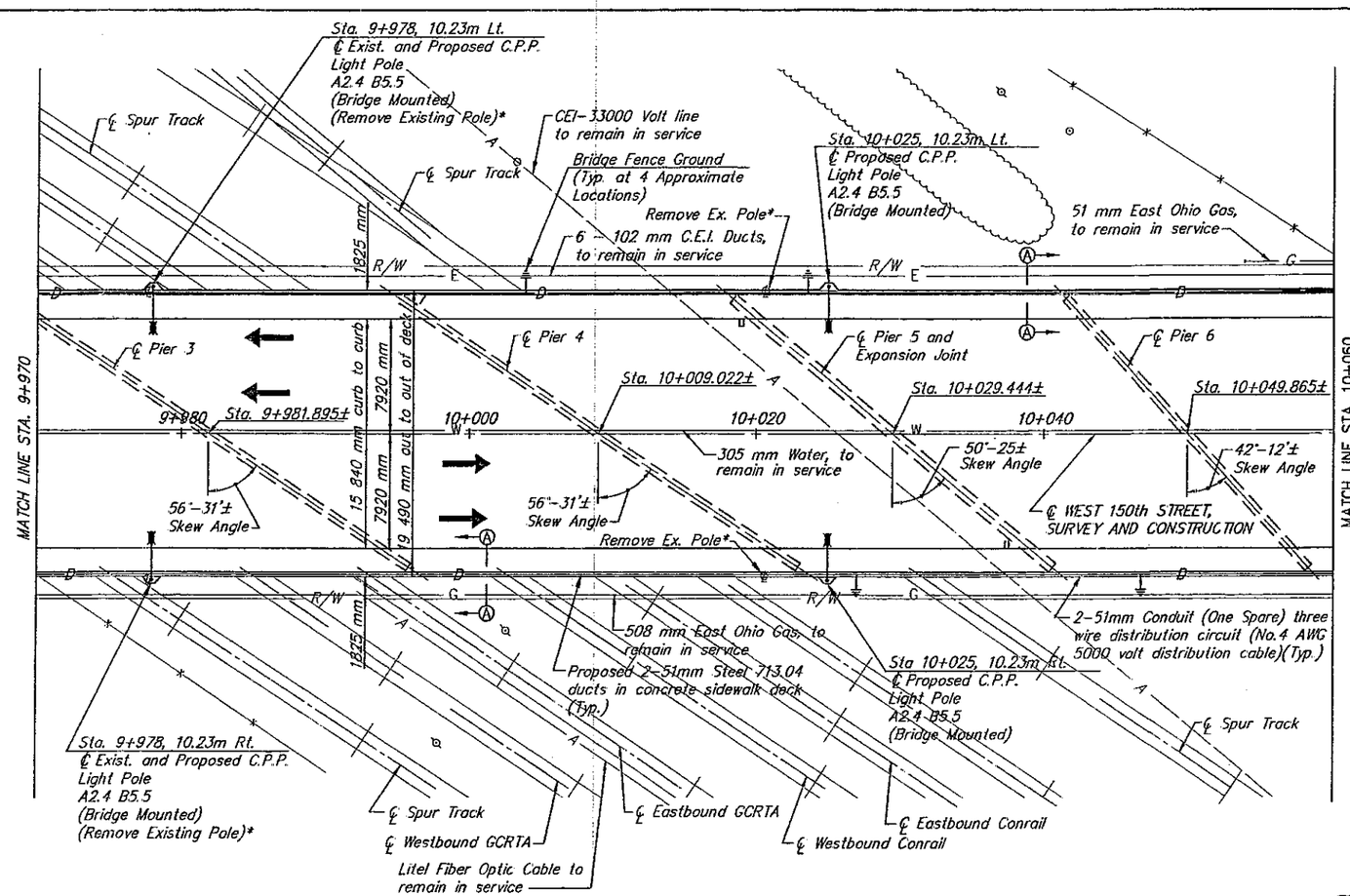
*Note:
Payment for removal to be included with unit price bid per Lump Sum of structures. (See Bridge Quantities)

0 5 10 HORIZONTAL SCALE IN METERS

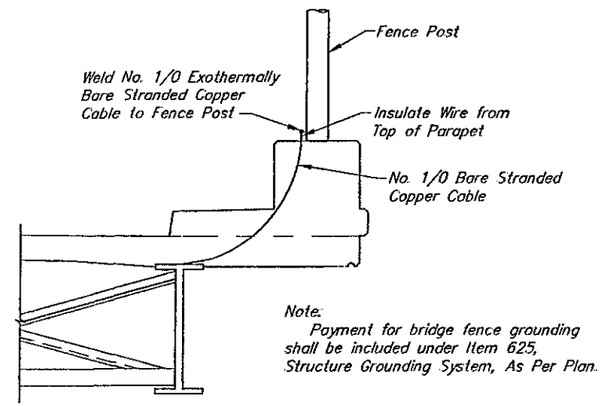
CALCULATED NNB
CHECKED EPS

LIGHTING PLAN
STA. 9+840.000 TO STA. 9+970.000

CUY-WEST 150th STREET



	STATION		SIDE	625 Conduit, 51mm, 713.04	625 Light Pole, Misc. A2.4 B5.5, Style IIA (Bridge Mounted)	625 Light Pole, Anchor L-Bolts (For Structure)	625 Luminaire Conventional Style B Type III 400 Watt High Pressure Sodium 713.11, 480 Volt with Photocell	625 No. 4 AWG 5000 Volt Distribution Cable (3 Required)	625 No. 10 AWG Pole and Bracket Cable	625 Connector Kit, Type II	625 Structure Junction Box	625 Structure Grounding System, As Per Plan
	From	To		Meter	Each	Each	Each	Meter	Meter	Each	Each	Each
	9+970	9+978	Lt.	16				24				
	9+978	10+025	Lt.	94	1	4	1	150	15.8	2	1	
	10+025	10+060	Lt.	70	1	4	1	114	15.8	2	1	
	9+970	9+978	Rt.	16				24				
	9+978	10+025	Rt.	94	1	4	1	150	15.8	2	1	
	10+025	10+060	Rt.	70	1	4	1	114	15.8	2	1	
	10+025		Lt./Rt.									1
Total				360	4	16	4	576	63.2	8	4	1



Note:
Payment for bridge fence grounding shall be included under Item 625, Structure Grounding System, As Per Plan.

BRIDGE FENCE GROUNDING DETAIL
No Scale
(4 Locations)

Note.

1. For Section A-A and legend See Sheet 28.
*2. Payment for removal to be included with unit price bid per lump sum of structures (See Bridge Quantities).

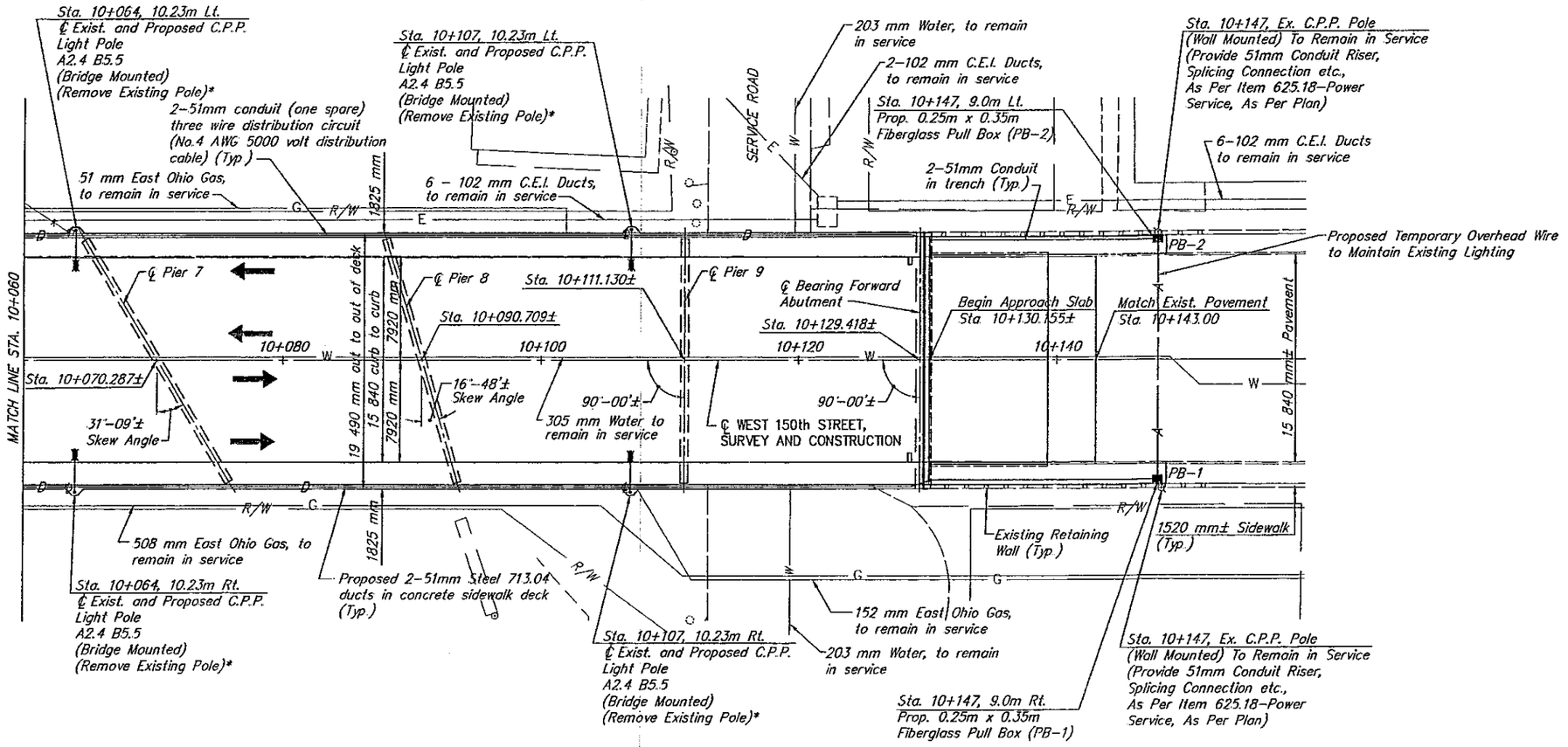
HORIZONTAL SCALE IN METERS
0 5 10

CALCULATED NNB
CHECKED EPS

LIGHTING PLAN
STA. 9+970.000 TO STA. 10+060.000

CUY-WEST 150th STREET

29
73



	STATION		SIDE	625 Conduit, 51mm, 713.04	625 No. 4 AWG 5000 Volt Distribution Cable (3 Required)	625 Light Pole, Misc. A2.4 B5.5, Style IIA (Bridge Mounted)	625 Light Pole, Anchor L–Bolts (For Structure)	625 Luminaire Conventional Style B Type III 400 Watt High Pressure Sodium 713.11, 480 Volt with Photocell	625 No. 10 AWG Pole and Bracket Cable	625 Connector Kit, Type II	625 Structure Junction Box	625 Trench, 0.6m Deep	625 Pull Box 713.081 250mm x 350mm	625 Temporary Overhead Cable, As Per Plan	625 Power Service, As Per Plan
	From	To		Meter	Meter	Each	Each	Each	Meter	Each	Each	Meter	Each	Meter	Each
	10+060	10+064	Lt.	8	12										
	10+064	10+107	Lt.	86	138	1	4	1	15.8	2	1				
	10+107	10+147	Lt.	80	129	1	4	1	15.8	2	1	18	1		1
	10+060	10+064	Rt.	8	12										
	10+064	10+107	Rt.	86	138	1	4	1	15.8	2	1				
	10+107	10+147	Rt.	80	129	1	4	1	15.8	2	1	18	1		1
	10+147		Lt./Rt.											20.00	
Total				348	558	4	16	4	63.2	8	4	36	2	20.00	2

Note:

1. For Section A–A and legend See Sheet 28.

*2. Payment for removal to be included with unit price included with unit price bid per lump sum of structures (See Bridge Quantities).

3. For Detail of Power Service, As Per Plan at Sta. 10+147 Lt./Rt. See Sheet 28.

HORIZONTAL SCALE IN METERS
0 5 10

CALCULATED NNB
CHECKED EPS

LIGHTING PLAN
STA. 10+060.000 TO STA. 10+143.000
CUY-WEST 150th STREET

30
73

GENERAL NOTES - STRUCTURE

STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS
REFERENCE SHALL BE MADE TO STANDARD DRAWINGS

AS-1-81M DATED 10-25-94
EXJ-4-87M DATED 3-20-95
VPF-1-90M DATED 3-20-95

AND TO SUPPLEMENTAL SPECIFICATIONS

815 DATED 5-30-96
845 DATED 7-17-95
863 DATED 9-9-97
910 DATED 4-21-97
953 DATED 6-14-95
816 DATED 4-21-97

DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1996 AND THE O.D.O.T. BRIDGE DESIGN MANUAL.

THE DESIGN DATA IS AS FOLLOWS:

DESIGN LOADING	– MS18 CASE II AND THE ALTERNATE MILITARY LOADING
CONCRETE CLASS S	– COMPRESSIVE STRENGTH 31.0 MPa (SUPERSTRUCTURE)
CONCRETE CLASS C	– COMPRESSIVE STRENGTH 27.5 MPa (SUBSTRUCTURE)
REINFORCING STEEL	– ASTM A615M, A616M OR A617M GRADE 400, MINIMUM YIELD STRENGTH 400 MPa
STRUCTURAL STEEL	– ASTM A36M – YIELD STRENGTH 250 MPa
DECK PROTECTION METHOD	– EPOXY COATED REINFORCING STEEL LATEX MODIFIED CONCRETE OVERLAY 75mm CONCRETE COVER
MONOLITHIC WEARING SURFACE	– MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 25mm THICK

PROPOSED WORK

THE WORK TO BE DONE UNDER THIS CONTRACT IS AS SHOWN ON THE CONSTRUCTION PLANS AND, IN GENERAL, INCLUDES THE FOLLOWING:

1. THE EXISTING CONCRETE DECK, SIDEWALKS AND PARAPETS SHALL BE REMOVED IN STAGES FOR MAINTENANCE OF TRAFFIC.
2. THE EXISTING STRUCTURAL STEEL BEAMS SHALL BE REPAIRED AND NEW SHEAR CONNECTORS INSTALLED.
3. INSTALL NEW BEARINGS, END CROSSFRAMES, STRIP SEALS AND MODULAR EXPANSION JOINTS.
4. MODIFY AND PATCH EXISTING SUBSTRUCTURE UNITS.
5. INSTALL NEW SCUPPERS AND DOWNSPOUTS.
6. INSTALL NEW INTERMEDIATE CROSS FRAMES BETWEEN BEAMS E AND F.
7. CONSTRUCT NEW CONCRETE DECK, SIDEWALKS, PARAPETS AND FENCE.
8. INSTALL NEW FENCE ON EXISTING RETAINING WALLS.
9. PAINT STRUCTURAL STEEL
10. SEAL CONCRETE SURFACES

CONSTRUCTION SEQUENCE

THE STRUCTURE WILL BE REHABILITATED IN STAGES IN ORDER TO MAINTAIN PEDESTRIAN AND VEHICULAR TRAFFIC. THE LEFT HALF OF THE STRUCTURE WILL BE REHABILITATED FOLLOWED BY THE RIGHT HALF. THE CONTRACTOR SHALL PERFORM ALL SUPERSTRUCTURE REMOVALS AND RECONSTRUCTION FROM THE DECK LEVEL. IF IT IS NECESSARY TO PERFORM WORK DURING EVENING AND NIGHT TIME HOURS, THE CONTRACTOR SHALL ADHERE TO ALL RESTRICTIONS IMPOSED BY THE CITY OF CLEVELAND.

THE CONSTRUCTION SEQUENCE IS AS FOLLOWS:

1. ANCHOR PORTABLE CONCRETE BARRIERS TO THE EXISTING DECK FOR MAINTENANCE OF TRAFFIC ON THE RIGHT HALF OF THE STRUCTURE.
2. REMOVE REINFORCED CONCRETE DECK, SIDEWALKS, PARAPETS AND END CROSSFRAMES FROM THE LEFT HALF OF THE STRUCTURE.
3. REMOVE PORTIONS OF THE APPROACH SLABS, EXCAVATE AND REMOVE PORTIONS OF THE ABUTMENT BACKWALLS.
4. PATCH EXISTING SUBSTRUCTURE UNITS AND PLACE NEW REINFORCED CONCRETE CAP ON PIERS.
5. REPAIR EXISTING STRUCTURAL STEEL, INSTALL NEW SHEAR CONNECTORS, EXPANSION JOINT ARMOR AND CROSSFRAMES.
6. CONSTRUCT NEW DRAINAGE SYSTEM, INCLUDING SCUPPERS, DOWNSPOUTS, CATCH BASINS, CONDUITS AND DUMPED ROCK.
7. PLACE NEW REINFORCED CONCRETE DECK, SIDEWALKS, CURBS, PARAPETS, FENCE AND LIGHTS. DO NOT PLACE LATEX MODIFIED CONCRETE OVERLAY.
8. PLACE ABUTMENT BACKWALLS AND APPROACH SLABS.
9. ANCHOR PORTABLE CONCRETE BARRIER TO THE NEW DECK AND DIVERT TRAFFIC TO THE LEFT HALF OF THE STRUCTURE.
10. REPEAT STEPS 2 THRU 8 FOR THE RIGHT HALF OF STRUCTURE.
11. INSTALL NEW CROSSFRAMES BETWEEN LEFT AND RIGHT HALVES AND PLACE DECK CLOSURE POUR.
12. PLACE LATEX MODIFIED OVERLAY ON RIGHT HALF OF STRUCTURE.
13. PLACE LATEX MODIFIED CONCRETE OVERLAY ON LEFT HALF OF STRUCTURE
14. PAINT STRUCTURAL STEEL AND SEAL CONCRETE SURFACES.
15. INSTALL ELASTOMERIC SEALS IN EXPANSION JOINTS.
16. OPEN NEW STRUCTURE TO TRAFFIC.

PORTIONS OF STRUCTURE REMOVED, OVER 6 METER SPAN, AS PER PLAN

DESCRIPTION:

THIS WORK SHALL CONSIST OF THE REMOVAL OF PORTIONS OF THE ABUTMENTS, THE CONCRETE DECK INCLUDING THE WEARING SURFACE, SIDEWALKS, PARAPETS, RAILING, DECK JOINTS, SCUPPERS, END CROSSFRAMES, BEARINGS, DRAINAGE TROUGHS, DOWNSPOUTS AND SUPPORTS. DOWNSPOUTS SHALL BE REMOVED 300 mm BELOW GROUND AND PLUGGED EXCEPT AS NOTED IN THE PLANS. CARE SHALL BE TAKEN DURING REMOVALS TO PROTECT PORTIONS THAT ARE TO BE SALVAGED AND INCORPORATED INTO THE PROPOSED STRUCTURE. IN THIS RESPECT, THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE-RAM TYPE OF EQUIPMENT IS PROHIBITED.

THE EXISTING LIGHT POLE INSTALLATIONS, INCLUDING BRACKET ARMS, LUMINAIRES, LAMPS, POLES, POLE AND BRACKET WIRING AND BASES SHALL BE REMOVED, EXISTING BRIDGE LIGHTING CIRCUITS SHALL BE DISCONNECTED. THE EXISTING BRACKET ARMS, LUMINAIRES AND LAMPS SHALL BECOME PROPERTY OF THE CONTRACTOR.

PROTECTION OF TRAFFIC:

PRIOR TO DEMOLITION OF ANY PORTIONS OF THE EXISTING SUPERSTRUCTURE, THE CONTRACTOR SHALL SUBMIT HIS PLANS FOR THE PROTECTION OF TRAFFIC (VEHICULAR, RAILWAY, PEDESTRIAN, ETC.) ADJACENT TO AND/OR UNDER THE STRUCTURE TO THE DIRECTOR FOR APPROVAL. THESE PLANS SHALL INCLUDE PROVISIONS FOR ANY DEVICES AND STRUCTURES THAT MAY BE NECESSARY TO INSURE SUCH PROTECTION. TEMPORARY VERTICAL CLEARANCES SPECIFIED ON THE PLANS OR IN THE PROPOSAL SHALL BE MAINTAINED AT ALL TIMES EXCEPT AS OTHERWISE APPROVED BY THE DIRECTOR.

PROTECTION OF STEEL SUPPORT SYSTEMS:

BEFORE DECK SLAB CUTTING IS PERMITTED, THE OUTLINE OF PRIMARY STEEL MEMBERS IN CONTACT WITH THE BOTTOM OF THE DECK SHALL BE DRAWN ON THE SURFACE OF THE DECK. SMALL DIAMETER PILOT HOLES SHALL BE DRILLED 50mm OUTSIDE THESE LINES TO CONFIRM THE LOCATION OF FLANGE EDGES. DECK CUTS OVER OR WITHIN 50mm OF FLANGE EDGES SHALL NOT EXTEND LOWER THAN THE BOTTOM LAYER OF DECK SLAB REINFORCING STEEL. CUTS MADE OUTSIDE 50mm OF FLANGE EDGES MAY EXTEND THE FULL DEPTH OF THE DECK. DURING CUTTING OF THE DECK SLAB, CARE SHALL BE TAKEN NOT TO DAMAGE STEEL MEMBERS THAT ARE TO BE INCORPORATED INTO THE PROPOSED STRUCTURE.

REMOVAL METHODS:

CONCRETE MAY BE REMOVED BY CUTTING AND BY MEANS OF HAND OPERATED PNEUMATIC HAMMERS EMPLOYING POINTED OR BLUNTED CHISEL TYPE TOOLS. FOR REMOVALS ABOVE STEEL MEMBERS, A HAMMER HEAVIER THAN 16 KILOGRAMS, BUT NOT TO EXCEED 41 KILOGRAMS MAY BE USED AT THE APPROVAL OF THE ENGINEER, TO ENSURE ADEQUATE DEPTH CONTROL AND TO PREVENT NICKING OR GOUGING THE PRIMARY STEEL MEMBERS.

DECK REMOVALS:

DUE TO THE POSSIBLE PRESENCE OF WELDED ATTACHMENTS TO EXISTING STRUCTURAL STEEL (FINISHING MACHINE, SCUPPER AND FORM SUPPORTS, ETC.) CARE SHALL BE TAKEN DURING DECK REMOVAL TO AVOID DAMAGING STRINGERS WHICH ARE TO REMAIN. STRINGERS DAMAGED BY THE CONTRACTOR'S REMOVAL OPERATIONS SHALL, AT NO COST TO THE PROJECT, BE REPLACED OR REPAIRED. PROPOSED REPAIRS, DEVELOPED BY A REGISTERED PROFESSIONAL ENGINEER, SHALL BE SUBMITTED IN WRITING FOR REVIEW AND APPROVAL BY THE DIRECTOR.

EXTRANEOUS MEMBERS:

EXISTING EXTRANEOUS MEMBERS (I.E., FINISHING MACHINE AND FORM SUPPORTS, ETC., AND THE SUPPORT FOR SCUPPERS WHICH ARE TO BE REMOVED) ATTACHED BY WELDED CONNECTIONS TO PORTIONS OF THE TOP FLANGES DESIGNATED "TENSION" SHALL BE REMOVED AND THE FLANGE SURFACE GROUND SMOOTH. GRINDING SHALL BE CAREFULLY DONE AND PARALLEL TO THE FLANGES.

LOADING LIMITATIONS:

NO PART OF THE STRUCTURE SHALL BE SUBJECTED TO UNIT STRESSES THAT EXCEED 136.5% OF THE ALLOWABLE UNIT STRESSES GIVEN IN THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES DUE EITHER TO DEMOLITION, ERECTION OR CONSTRUCTION METHODS, OR TO THE USE OR MOVEMENT OF DEMOLITION OR ERECTION EQUIPMENT ON OR ACROSS THE STRUCTURE. STRUCTURAL ANALYSIS COMPUTATIONS, BY A REGISTERED PROFESSIONAL ENGINEER, SHOWING THE ALLOWABLE STRESSES AND THE MAXIMUM STRESSES PRODUCED BY THE CONTRACTOR'S METHODS OR EQUIPMENT SHALL BE SUBMITTED TO THE DIRECTOR FOR REVIEW AND APPROVAL AT LEAST TWO WEEKS PRIOR TO THE START OF THE WORK.

PAYMENT:

THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE BID, WHICH PRICE AND PAYMENT SHALL BE FULL COMPENSATION FOR ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE WORK IN CONFORMANCE WITH THESE REQUIREMENTS, WITH PERTINENT PROVISIONS OF 202, AND TO THE SATISFACTION OF THE ENGINEER.

CUT LINE CONSTRUCTION JOINT PREPARATION

SAW CUT BOUNDARIES OF PROPOSED CONCRETE REMOVALS 25mm DEEP. REMOVE CONCRETE TO A ROUGH SURFACE. WHERE PRACTICABLE, THE EXISTING REINFORCING STEEL WHERE REQUIRED IN THE PLANS SHALL BE LEFT IN PLACE. INSTALL DOWEL BARS IF SPECIFIED. PRIOR TO CONCRETE PLACEMENT ABRASIVELY CLEAN JOINT SURFACE AND EXPOSED REINFORCEMENT TO REMOVE LOOSE AND DISINTEGRATED CONCRETE AND LOOSE RUST. THE JOINT SURFACE AND EXPOSED REINFORCEMENT SHALL BE THOROUGHLY CLEANED OF ALL DIRT, DUST, OR OTHER FOREIGN MATERIALS BY USE OF WATER, AIR UNDER PRESSURE OR OTHER METHODS THAT PRODUCE SATISFACTORY RESULTS. CONCRETE BONDING SURFACES SHALL BE WET WITHOUT FREE WATER AS CONCRETE IS PLACED.

SUBSTRUCTURE CONCRETE REMOVAL

SUBSTRUCTURE CONCRETE REMOVAL SHALL BE BY MEANS OF APPROVED PNEUMATIC HAMMERS EMPLOYING POINTED AND BLUNT CHISEL TOOLS. HYDRAULIC HOE-RAM TYPE HAMMERS WILL NOT BE PERMITTED. THE WEIGHT OF THE HAMMER SHALL NOT BE MORE THAN 16 KILOGRAMS FOR REMOVAL WITHIN 450mm OF PORTIONS TO BE PRESERVED. OUTSIDE THE 450mm LIMIT, A HAMMER HEAVIER THAN 16 KILOGRAMS, BUT NOT TO EXCEED 41 KILOGRAMS, MAY BE USED AT THE APPROVAL OF THE ENGINEER. PNEUMATIC HAMMERS SHALL NOT BE PLACED IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE.

ITEM 503, UNCLASSIFIED EXCAVATION, AS PER PLAN

STRUCTURE EXCAVATION NECESSARY TO REMOVE PORTIONS OF THE EXISTING STRUCTURE, AND ALL NECESSARY BACKFILL IN ADDITION TO THE POROUS BACKFILL, IS INCLUDED IN THE LUMP SUM BID FOR ITEM 503, UNCLASSIFIED EXCAVATION, AS PER PLAN FOR PAYMENT.

UNCLASSIFIED EXCAVATION SHALL BE IN ACCORDANCE WITH 503 EXCEPT THAT THE BACKFILL MATERIAL BEHIND THE ABUTMENTS SHALL BE 203 GRANULAR MATERIAL PLACED IN 150mm LIFTS AND COMPACTED IN ACCORDANCE WITH 304.04.

MAINTENANCE OF TRAFFIC

ONE LANE OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES ON WEST 150TH STREET.

ONE LANE OF TRAFFIC WITH A MINIMUM HORIZONTAL WIDTH OF 3600mm AND A MINIMUM VERTICAL CLEARANCE OF 4200mm SHALL BE MAINTAINED ON CHATFIELD AVENUE AND THE SERVICE ROAD AT ALL TIMES.

A MINIMUM HORIZONTAL WIDTH OF 2000mm FROM CENTERLINE OF TRACK AND A MINIMUM VERTICAL CLEARANCE OF 4880mm ABOVE THE TOP OF RAIL SHALL BE MAINTAINED ON THE GCRTA TRACKS AT ALL TIMES.

NO SCAFFOLD PLANKS OR OTHER EQUIPMENT SHALL BE SUSPENDED OR ERECTED ABOVE OR WITHIN 4600mm OF A CONRAIL OR SPUR TRACK RAIL.

EXISTING STRUCTURE VERIFICATION

DETAILS AND DIMENSIONS SHOWN IN THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO CMS SECTIONS 102.05, 105.02 AND 513.02.

CONTRACT BID PRICES SHALL BE BASED UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE BY THE CONTRACTOR. HOWEVER, ALL PROJECT WORK SHALL BE BASED UPON ACTUAL DETAILS AND DIMENSIONS WHICH HAVE BEEN VERIFIED BY THE CONTRACTOR IN THE FIELD.

EXISTING STRUCTURE PLANS ARE AVAILABLE FROM:

CUYAHOGA COUNTY ENGINEER'S OFFICE
1370 ONTARIO STREET #1926
CLEVELAND, OHIO 44113

REPLACEMENT OF EXISTING REINFORCING STEEL

ANY EXISTING REINFORCING BARS WHICH ARE TO BE INCORPORATED INTO THE NEW WORK AND WHICH ARE MADE UNUSABLE BY THE CONTRACTOR'S CONCRETE REMOVAL OPERATIONS OR ANY EXISTING REINFORCING BARS DEEMED BY THE ENGINEER TO BE UNUSABLE BECAUSE OF CORROSION SHALL BE REPLACED WITH NEW STEEL. THE COST OF ALL LABOR, MATERIAL AND INSTALLATION SHALL BE INCLUDED IN THE APPROPRIATE 511 ITEM.

DESIGN AGENCY EUTHENICS INC. CONSULTING ENGINEERS
DATE 9-96 | STRUCTURE FILE NUMBER 1833405
REVIEWED RAB | DRAWN BMG | REVISED | DESIGNED BMG | CHECKED KRD
GENERAL NOTES
BRIDGE NO. 152
West 150th Street over Conrail, GCRTA and Chatfield Ave.
CUY-WEST 150th STREET

GENERAL NOTES - STRUCTURE

EXISTING SHEAR CONNECTORS

EXISTING SHEAR CONNECTORS ARE TO BE INCORPORATED INTO THE NEW STRUCTURE. ANY CONNECTORS WHICH ARE MADE UNUSABLE BY THE CONTRACTOR'S DECK REMOVAL OPERATIONS SHALL BE REPLACED WITH NEW CONNECTORS AT HIS COST.

ITEM 516, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN

THIS ITEM SHALL CONSIST OF FURNISHING ALL NECESSARY LABOR, MATERIALS, AND EQUIPMENT TO RAISE OR REPOSITION ANY EXISTING STRUCTURES TO THE DIMENSIONS AND REQUIREMENTS DEFINED IN THE PROJECT PLANS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN, INSTALLATION AND OPERATION OF AN ADEQUATE JACKING SYSTEM, INCLUDING ANY TEMPORARY OR PERMANENT SUPPORTS NECESSARY TO PERFORM THE WORK DESCRIBED IN THE PROJECT PLANS. THREE (3) SETS OF JACKING PLANS, WHICH INCLUDE THE INFORMATION DESCRIBED IN THIS NOTE, SHALL BE SUBMITTED TO THE DIRECTOR FOR APPROVAL AT LEAST THIRTY (30) DAYS BEFORE ACTUAL WORK IS TO BEGIN. THE PLANS SHALL BE PREPARED AND STAMPED BY A REGISTERED PROFESSIONAL ENGINEER.

JACKING SUBMITTALS SHALL INCLUDE AT LEAST THE FOLLOWING:

1. THE SIGNATURE AND NUMBER, OR PROFESSIONAL SEAL, OF THE REGISTERED PROFESSIONAL ENGINEER WHO PREPARED THE SUBMITTAL.
2. CALCULATIONS AND ANALYSIS OF THE STRUCTURE TO DETERMINE AND DEFINE THE ACTUAL LOADING APPLIED AT THE CONTRACTOR'S SELECTION JACKING POINTS.
3. A DRAWING SHOWING THE PHYSICAL AND DIMENSIONAL POSITION OF THE JACKS WITH RESPECT TO THE STRUCTURE INCLUDING CLEARANCES AND CENTER OF LIFT.
4. A SCHEMATIC LAYOUT OF JACKS, CHECK VALVES, PUMPS WITH 3 WAY RETRACTOR VALVE, PRESSURE GAGES, FLOW CONTROL VALVES, ETC. IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. ALL JACKS FOR EACH ABUTMENT OR PIER SHALL BE CONNECTED TOGETHER. ALL JACKS AT EACH ABUTMENT OR PIER SHALL BE THE SAME SIZE.
5. ANALYSIS AND CALCULATIONS OF THE STRESSES INDUCED OR CREATED IN THE STRUCTURE AND ANY TEMPORARY OR PERMANENT SUPPORTS. DESIGN CALCULATIONS FOR ANY TEMPORARY OR PERMANENT SUPPORTS.
6. PHYSICAL DIMENSIONS, MATERIALS AND FABRICATION DETAILS OF ANY TEMPORARY OR PERMANENT SUPPORTS. HORIZONTAL AND VERTICAL MOVEMENT RESTRAINT SHALL BE PROVIDED.
7. A STEP BY STEP PROCEDURE DETAILING ALL STEPS IN THE JACKING OPERATION.
8. METHOD OF ATTACHMENT TO STRUCTURAL MEMBERS. WELDING TO TENSION AREAS WILL NOT BE PERMITTED.

THE ENTIRE SYSTEM, INCLUDING JACKS, SHALL HAVE 20% MORE CAPACITY THAN REQUIRED BASED ON CALCULATED LOADS.

FOR LIFTS GREATER THAN 25mm, JACKS SHALL HAVE LOCKING NUTS TO POSITIVELY LOCK AND SUPPORT THE STRUCTURE DURING THE LIFT.

JACKS SHALL HAVE A SWIVEL LOAD CAP, A DOMED PISTON HEAD OR SOME OTHER DEVICE TO PROTECT AGAINST THE EFFECTS OF SIDE LOAD ON THE JACK.

JACKS ALONE SHALL NOT BE USED TO SUPPORT LOADS EXCEPT DURING THE ACTUAL JACKING OPERATION. TEMPORARY SUPPORTS, BLOCKING OR OTHER METHODS APPROVED BY THE DIRECTOR SHALL BE USED.

SINGLE ACTING RAMS WITH NO OVER-TRAVEL PROTECTION SYSTEM SHALL NOT BE USED.

SPARE EQUIPMENT SHALL BE AVAILABLE ON SITE FOR THE REQUIRED STRUCTURE RAISING TO PROCEED IN THE EVENT OF BREAKDOWN. A LIST OF SPARE EQUIPMENT SHALL BE PROVIDED TO THE ENGINEER.

AT A MINIMUM, A JACKING OPERATION SHALL LIFT ALL BEAMS AT ANY ONE ABUTMENT OR PIER SIMULTANEOUSLY.

MAXIMUM DIFFERENTIAL JACKING HEIGHT BETWEEN ANY ADJACENT ABUTMENTS OR PIERS SHALL BE 25mm OR LESS.

IF, DURING THE JACKING OPERATIONS, DAMAGE TO THE STRUCTURE IS VISUALLY OBSERVED, THE JACKING OPERATION SHALL IMMEDIATELY CEASE AND APPROVED SUPPORTS SHALL BE INSTALLED. THE CONTRACTOR SHALL THEN ANALYZE THE DAMAGE AND SUBMIT A METHOD OF CORRECTION TO THE ENGINEER FOR APPROVAL.

THE CONTRACTOR SHALL DEMONSTRATE TO THE ENGINEER THAT THE BRIDGE BEARINGS ARE FULLY SEATED BETWEEN ALL CONTACT AREAS. IF FULL SEATING IS NOT ATTAINED, SUITABLE MEANS OF REPAIR, SUBJECT TO THE APPROVAL OF THE ENGINEER, WILL REQUIRED AT THE CONTRACTOR'S EXPENSE.

THE JACKING OPERATION SHALL BE DIRECTED BY A PROFESSIONAL ENGINEER EMPLOYED BY THE CONTRACTOR. FAILURE TO HAVE A PROFESSIONAL ENGINEER PRESENT SHALL BE CAUSE FOR CEASING JACKING OPERATIONS.

PAYMENT SHALL BE MADE AT THE LUMP SUM PRICE BID FOR ITEM 516, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN AND SHALL INCLUDE ALL NECESSARY TOOLS, LABOR, EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE THIS ITEM OF WORK.

INSPECTION OF STRUCTURAL STEEL

THE ENGINEER SHALL VISUALLY INSPECT ALL EXISTING TOP FLANGE COVER PLATE FILLET WELDS TO ENSURE THAT THEY ARE FREE OF DEFECTS. THE DECK SLAB HAUNCH FORMS IMMEDIATELY ADJACENT TO SUCH WELDS SHALL NOT BE ERECTED UNTIL AFTER THE ENGINEER HAS COMPLETED THIS INSPECTION. THIS INSPECTION SHALL NOT TAKE PLACE UNTIL AFTER THE TOP FLANGES ARE CLEANED AS SPECIFIED IN 511.08, BUT IT SHALL BE DONE BEFORE THE DECK SLAB REINFORCEMENT IS INSTALLED. THE COST ASSOCIATED WITH THIS INSPECTION SHALL BE INCLUDED WITH ITEM 511, CLASS S CONCRETE, SUPERSTRUCTURE FOR PAYMENT.

CONCRETE PARAPETS

AS SOON AS A CONCRETE SAW CAN BE OPERATED WITHOUT DAMAGING THE FRESHLY PLACED CONCRETE, 25mm DEEP CONTROL JOINTS SHALL BE SAWED INTO THE PERIMETER OF THE CONCRETE PARAPET. THE SAW CUT SHALL BE MADE IN THE COMPLETE CIRCUMFERENCE OF THE PARAPET, STARTING AND ENDING AT THE ELEVATION OF THE SIDEWALK. THE SAWCUT SHALL BE PLACED AS SHOWN ON SHEET 34 OF 43. THE USE OF AN EDGE GUIDE, FENCE, OR JIG IS REQUIRED TO INSURE THAT THE CUT JOINT IS STRAIGHT, TRUE AND ALIGNED ON ALL FACES OF THE PARAPET. THE JOINT WIDTH SHALL BE THE WIDTH OF THE SAW BLADE, A NOMINAL WIDTH OF 6mm. THE PERIMETER OF THE DEFLECTION CONTROL JOINT SHALL BE SEALED TO A MINIMUM DEPTH OF 25mm WITH A CAULKING MATERIAL CONFORMING TO FEDERAL SPECIFICATION, TT-S-00227E.

FIELD PAINTING OF STRUCTURAL STEEL

NEW STRUCTURAL STEEL SHALL BE FIELD PAINTED WITH AN INTERMEDIATE AND FINISH COAT OF PAINT USING SYSTEM IZEU. THE COSTS FOR THIS WORK SHALL BE INCLUDED IN THE ITEM "FIELD PAINTING OF NEW STEEL, SYSTEM IZEU." EXISTING STEEL SHALL BE CLEANED AND PAINTED WITH A PRIME, INTERMEDIATE AND FINISH COAT OF PAINT USING SYSTEM OZEU. THE COST OF THIS WORK SHALL BE INCLUDED IN THE SEVERAL OZEU PAINTING ITEMS FOR PAYMENT.

FIELD PAINTING OF EXISTING STEEL, SYSTEM OZEU

THE SURFACE AREA PAY QUANTITY IS BASED ON THE SURFACE AREA OF THE MAIN MEMBERS INCREASED BY 20 PERCENT TO ACCOUNT FOR THE AREA OF CROSSFRAMES, AND OTHER STRUCTURAL STEEL INCIDENTALS TO BE CLEANED AND PAINTED.

ITEM 519 - PATCHING CONCRETE STRUCTURES, AS PER PLAN

WHERE THE DEPTH OF A PATCH EXCEEDS 150mm, ITEM 519 SHALL BE USED FOR REPAIR. A QUANTITY OF 50 SQUARE METERS HAS BEEN INCLUDED FOR THIS PURPOSE.

ITEM 516 - MODULAR EXPANSION JOINT, AS PER PLAN

DESCRIPTION

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING A MODULAR EXPANSION JOINT DEVICE, INCLUDING JOINT ARMOR, TEMPORARY SUPPORTS, SIDEWALK, PARAPET AND CURB COVER PLATES (HEREINAFTER REFEREED TO AS THE EXPANSION JOINT) OF THE SIZE SPECIFIED, IN ACCORDANCE WITH THESE SPECIFICATIONS AND WITHIN REASONABLY CLOSE CONFORMITY TO THE LINES, ELEVATIONS, LOCATIONS, DETAILS AND NOTES SHOWN ON THE PLANS.

THE MODULAR EXPANSION JOINT SHALL BE AS FOLLOWS:

1. "WABO-MODULAR JOINT SYSTEM" AS MANUFACTURED BY THE WATSON BOWMAN ACME CORPORATION, 95 PINEVIEW DRIVE, AMHERST, N.Y. 14228-2166
2. BROWN/MAURER "D" SYSTEM AS MANUFACTURED BY THE D.S. BROWN COMPANY, 300 EAST CHERRY STREET, NORTH BALTIMORE, OHIO 45872

OR APPROVED EQUAL.

THE EXPANSION JOINTS SHALL BE DESIGNED TO SUPPORT, IN ALL POSITIONS, A HIGHWAY LOADING OF CLASS MS-18 AS DEFINED AND ESTABLISHED IN ACCORDANCE WITH THE REQUIREMENTS OF AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES PLUS 100 PERCENT IMPACT. THE EXPANSION JOINT SHALL ALSO CONFORM TO THE APPLICABLE FATIGUE DESIGN REQUIREMENTS.

THE EXPANSION JOINT SHALL BE OF THE TYPE THAT WILL SEAL THE DECK SURFACE, GUTTERS AND CURBS TO PREVENT WATER AND OTHER CONTAMINANTS FROM DESCENDING ONTO THE SUBSTRUCTURE. THE ANCHORAGE SYSTEM FOR THE EXPANSION JOINT SHALL BE AS DETAILED ON THE PLANS. THERE SHALL BE NO APPRECIABLE CHANGE IN THE DECK SURFACE DUE TO EXPANSION AND CONTRACTION MOVEMENT OF THE EXPANSION JOINT.

EXPANSION AND CONTRACTION MOVEMENTS OF THE BRIDGE DECK SHALL BE TAKEN ENTIRELY BY DEFORMATION OF THE NEOPRENE SEAL ELEMENT. THE NEOPRENE SEAL ELEMENT SHALL BE RECESSED AND DESIGNED TO BE SELF-CLEANING AND POSITIVELY GRIPPED BY THE EXTRUDED STEEL SECTIONS THROUGHOUT THE RANGE OF THE ANTICIPATED MOVEMENT. THE SEAL ELEMENT SHALL BE FURNISHED AND INSTALLED IN ONE PIECE AND PROVIDED WITH AN END PLUG.

THE EXPOSED SURFACES OF THE SIDEWALK, PARAPET AND CURB COVER PLATES SHALL BE PAINTED IN ACCORDANCE WITH ITEM 816 - FIELD PAINTING OF NEW STEEL, SYSTEM IZEU.

MATERIALS

A. GENERAL

ALL PARTS AND ELEMENTS SHALL BE OF THE MATERIAL AND DESIGN INDICATED IN THE MANUFACTURER'S CATALOG EXCEPT AS OTHERWISE SPECIFIED IN THESE SPECIFICATIONS OR ON THE PLANS. THE CONTRACTOR SHALL FURNISH A GENERAL CERTIFICATION STATING THAT THE MATERIALS FURNISHED CONFORM TO THE REQUIREMENTS OF THESE SPECIFICATIONS.

B. METALS

ALL METALS USED IN FABRICATION OF THE EXPANSION JOINTS SHALL MEET THE REQUIREMENTS OF SUPPLEMENTAL SPECIFICATION 863.

THE EXTRUDED STEEL SECTIONS AND THE SUPPORT BARS SHALL BE FABRICATED FROM SOLID HIGH-STRENGTH LOW ALLOY STRUCTURAL STEEL MEETING THE REQUIREMENTS OF ASTM A572, GRADE 350.

STAINLESS STEEL SHEETS FOR THE SLIDING SURFACES OF THE SUPPORT BARS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A240, ALLOY 304 .508 MICROMETERS RMS. FINISH. MINIMUM THICKNESS OF THE STAINLESS STEEL SHEETS SHALL BE 7 mm.

ANCHOR BOLTS FOR SUPPORT BOXES SHALL CONFORM TO ASTM A-307. THE MANUFACTURER SHALL SUPPLY THE ANCHOR BOLTS AND A TEMPLATE FOR SPACING ANCHOR BOLTS FOR EACH JOINT.

ALL OTHER STEEL PLATES, BARS, AND SHAPES SHALL BE FABRICATED FROM HIGH STRENGTH, LOW ALLOY STEEL CONFORMING TO THE REQUIREMENTS OF ASTM A 572, GRADE 350.

BOLTS, NUTS AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A325.

THE METAL SURFACES IN DIRECT CONTACT WITH THE NEOPRENE SEAL ELEMENTS SHALL BE ABRASIVE BLASTED AND AN ADHESIVE USED TO PROVIDE A HIGH STRENGTH BOND BETWEEN THE NEOPRENE SEAL AND THE MATING METAL SURFACE.

ALL WELDING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SUPPLEMENTAL SPECIFICATION 863. SHOP OR FIELD WELDS SPLICING MAIN BEAMS, OR CONNECTIONS TO THE MAIN BEAMS SHALL BE FULL PENETRATION WELDED AND 100 PERCENT NON-DESTRUCTIVELY TESTED IN ACCORDANCE WITH AWS D1.5 BRIDGE WELDING CODE.

STEEL FABRICATION SHALL BE IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF SUPPLEMENTAL SPECIFICATION 863. FABRICATOR'S OF MODULAR DEVICES SHALL BE CERTIFIED FOR LEVEL FOUR (4) FABRICATION.

C. NEOPRENE SEAL

THE NEOPRENE SEAL ELEMENTS SHALL CONFORM TO ASTM DESIGNATION D2628M, EXCEPT AS NOTED HEREIN:

PROPERTY	REQUIREMENTS	ASTM METHODS
HARDNESS, TYPE A DUROMETER (MODIFIED) EXCLUDE RECOVERY TEST REQUIREMENTS	60 ± 7	D2240

D. SUPPORT BAR BEARINGS

SUPPORT BAR BEARINGS SHALL BE FABRICATED FROM SOLID URETHANE BONDED TO A STEEL SUBSTRATE, TO WHICH IS BONDED A TFE SHEET CONFORMING TO MANUFACTURER'S SPECIFICATIONS AND THE REQUIREMENTS LISTED HEREIN.

METHODS AND MATERIALS USED IN BONDING AND BEARING COMPONENTS TOGETHER SHALL BE THE MANUFACTURER'S STANDARD AND SHALL BE SUBJECT TO THE ENGINEER'S APPROVAL.

DESIGN AGENCY: EUTHENICS INC. CONSULTING ENGINEERS

DATE 9-96 | REVIEWED RAB | STRUCTURE FILE NUMBER 1833405 | DRAWN BMG | REVISED | DESIGNED BMG | CHECKED KRD

GENERAL NOTES
BRIDGE NO. 152
West 150th Street over Conrail, GCRTA and Chatfield Ave.

CUY-WEST 150th STREET

Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B-No. 162

GENERAL NOTES - STRUCTURE

URETHANE

URETHANE SHALL MEET THE FOLLOWING PROPERTIES

PROPERTY	ASTM TEST METHOD	
SPECIFIC GRAVITY:	D792	1.25
TENSILE STRENGTH:	D638	21.4 MPa
TEAR RESISTANCE :	D638	9.7 MPa
COMPRESSION SET:		
24 HR. AT 20C	D695	20 PERCENT
24 HR. AT 70C	D695	25 PERCENT
24 HR. AT 100C	D695	40 PERCENT
ELONGATION:		
100 PERCENT ELONGATION	D638	7.6 MPa
300 PERCENT ELONGATION	D638	13.8 MPa
ELONGATION AT BREAK	D638	25 PERCENT

TFE

FILLED OR UNFILLED PTFE SHEETS SHALL BE MANUFACTURED FROM VIRGIN PTFE (POLYTETRAFLUOROETHYLENE) RESIN. TFE RESIN SHALL MEET THE FOLLOWING REQUIREMENTS:

PROPERTY	ASTM TEST METHOD	
SPECIFIC GRAVITY:	D792	2.13 – 2.19
MELTING POINT:	D1457	328 °C ± 1
TENSILE STRENGTH (MIN):	D638	19.3 MPa
ELONGATION (MIN):	D638	200 PERCENT

FILLER MATERIAL, WHEN USED, SHALL BE MILLED GLASS FIBERS, CARBON, OR OTHER APPROVED INSERT FILLER MATERIAL.

FINISHED TFE SHEET CONTAINING GLASS FIBER OR CARBON SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

MECHANICAL	ASTM METHOD	15% GLASS FIBERS	25% CARBON
TENSILE STRENGTH (MIN):	D1457	13.8 MPa	9.0 MPa
ELONGATION (MIN):	D1457	150 PERCENT	75 PERCENT
PHYSICAL	**ASTM METHOD**	**15% GLASS FIBERS**	**25% CARBON**
SPECIFIC GRAVITY (MIN):	D792	2.20	2.10
MELTING POINT:	D1457	327°C ±10 °C	327°C ±10°C

E. CONTROL SPRINGS, COMPRESSION SPRINGS, AND PLASTIC MOLDINGS

CONTROL SPRINGS, COMPRESSION SPRINGS AND PLASTIC MOLDINGS SHALL BE THE MANUFACTURER'S STANDARD SUBJECT TO ENGINEER'S.

F. ADHESIVE

ADHESIVE SHALL BE SIKASTIX 360, FEL-POXY FP-101 OR AN APPROVED ALTERNATE.

PREPARATIONS FOR INSTALLATION: TO AVOID THE SUBSEQUENT CONTAMINATION OF PREPARED SURFACES, ALL SURFACES OF ELASTOMERIC STRIP SEALS SHALL BE CLEANED WITH METHYL ETHYL KETONE (MEK), TOLUNE (T) OR OTHER APPROVED SOLVENT USING CLEAN DISPOSABLE CLOTHS. THEN NOT MORE THAN SEVEN DAYS PRIOR TO THE SEAL INSTALLATION, A THIN COATING OF CYCLIZING PASTE SHALL BE APPLIED TO THE BONDING SURFACES (BULBED EDGES). AFTER 25 TO 40 MINUTES, THE PASTE SHALL BE WASHED FROM THE SURFACE WITH CLEAN WATER.

CYCLIZING PASTE IS A MIXTURE OF ONE KILOGRAM OF PITTSBURGH PLATE GLASS INDUSTRIES' HISIL 223 OR AN APPROVED ALTERNATE AND SIX KILOGRAMS OF CONCENTRATED SULFURIC ACID (18 MOLARO). TO MIX THE PASTE, ADD HISIL TO ACID SLOWLY WHILE STIRRING MIXTURE TO ACHIEVE A SMOOTH VISCOUS PASTE. NOTE: SINCE CONCENTRATED SULFURIC ACID IS VERY CORROSIVE AND HISIL IS AN EXTREMELY FINE NON-TOXIC POWDER, RUBBER GLOVES AND GLASSES SHOULD BE USED BY THOSE USING THE PASTE WHILE GLOVES, GLASSES AND A RESPIRATOR SHOULD BE USED BY THOSE MIXING THE PASTE.

THE BONDING SURFACES OF THE STEEL EXTRUSION (THE INTERIOR OF THE ANCHOR GROOVES) SHALL BE PREPARED TO GRADE SA 3, ASTM D2200. PREPARATION SHALL BE ACCOMPLISHED NOT MORE THAN 24 HOURS PRIOR TO ADHESIVE BONDING.

INSTALLATION: IMMEDIATELY PRIOR TO ADHESIVE APPLICATION BONDING SURFACES SHALL BE CLEAN, DRY AND WARMER THAN 7°C, AND THEY SHALL BE MAINTAINED AT OR ABOVE THE TEMPERATURE UNTIL THE ADHESIVE HAS CURED. ADHESIVE SHALL BE APPLIED LIBERALLY TO BOTH STEEL AND ELASTOMERIC BONDING SURFACES USING A STIFF BRUSH IF NECESSARY TO ACHIEVE A COMPLETE AND RELATIVELY UNIFORM COAT. THEN THE BULBED EDGES OF THE ELASTOMERIC SEAL SHALL BE INSERTED INTO THE ANCHOR GROOVES. AFTER INSTALLATION, EXCESS ADHESIVE SHALL BE REMOVED FROM THE EXPOSED SEAL SURFACES.

JOINT CLASSIFICATIONS

THE MOVEMENT CLASSIFICATION OF THE EXPANSION JOINT SHALL BE BASED ON APPROXIMATELY 145 mm.

THE EXPANSION JOINT, WHEN FULL EXPANDED OR COMPRESSED, SHALL NOT EXERT A FORCE GREATER THAN 400kg./m ONTO THE CONCRETE DECK. TOLERANCE OF MAXIMUM 5 PERCENT WILL BE PERMITTED.

CONSTRUCTION REQUIREMENTS

THE CONTRACTOR SHALL FURNISH SHOW DRAWINGS IN CONFORMANCE WITH THE REQUIREMENT OF SECTION 501.05 OF THE STANDARD SPECIFICATIONS. THE SHOP DRAWINGS SHALL INDICATE ALL MATERIAL SPECIFICATIONS AND DIMENSIONS AND ANY ADDITIONAL DETAILS NOT SHOWN ON THE PLANS, THE CONTRACTOR SHALL FURNISH ALONG WITH THE SHOP DRAWINGS, DESIGN CALCULATIONS SHOWING THAT THE JOINTS ARE DESIGNED TO SUPPORT, IN BOTH THE TRANSVERSE AND LONGITUDINAL DIRECTIONS AND UNDER TEMPERATURE CONDITIONS, A HIGHWAY LOADING CLASS MS-18, AS DESCRIBED PREVIOUSLY IN THESE SPECIFICATIONS. APPROVAL OF THE DESIGN CALCULATIONS AND THE SHOP DRAWINGS BY THE ENGINEER SHALL BE REQUIRED PRIOR TO FABRICATION AND INSTALLATION OF THE EXPANSION JOINT.

A REPRESENTATIVE OF THE JOINT SEAL MANUFACTURER SHALL BE PRESENT PRIOR TO AND DURING INITIAL SEAL INSTALLATION TO FURNISH TECHNICAL ASSISTANCE AND GUIDANCE TO THE CONTRACTOR AND ENGINEER. HE SHALL REMAIN ON THE PROJECT UNTIL HE IS SATISFIED THAT THE INSTALLATION OF THE SEALS IS BEING ACCOMPLISHED TO HIS SATISFACTION. WHERE SPECIAL INSTRUCTIONS ARE NOT CONTAINED HEREIN, DIRECTION FOR THE INSTALLATION SHALL BE ACCORDING TO THE RECOMMENDATIONS OF THIS REPRESENTATIVE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE MANUFACTURER'S REPRESENTATIVE OF THE DATE OF THE JOINT SEAL ADJUSTMENT AND INSTALLATION AND HE SHALL COORDINATE THE WORK AS NECESSARY TO ENSURE THAT THIS REPRESENTATIVE WILL BE AT THE SITE TO GIVE DIRECTION FOR THIS PHASE OF THE WORK. ALL JOINT ADJUSTMENTS MADE PRIOR TO INSTALLATION AND DURING FINAL ATTACHMENT OF THE JOINT SEAL TO THE STRUCTURE SHALL BE UNDER THE DIRECT SUPERVISION OF THIS REPRESENTATIVE.

THE EXPANSION JOINT SHALL BE SET AND CAREFULLY SHIMMED TO LINE AND GRADE UNTIL JOINTS UPPERMOST PLANE IS 6 mm BELOW THE FINISHED ROADWAY SURFACE AND MATCHES THE ROADWAY GRADIENT.

ALL REINFORCING STEEL AND ANCHORS FORMING PARTS OF THE ANCHORING SYSTEM SHALL BE INSTALLED.

THE SUPPORT BOXES SHALL BE POSITIVELY FIXED IN POSITION TO PREVENT ANY DISPLACEMENT OR MOVEMENT DURING OR AFTER THE CONCRETING PROCESS. THE GAP BETWEEN THE SUPPORT BOXES BOTTOM PLATE AND CONCRETE SHALL BE TOTALLY FILLED WITH POURABLE NON-SHRINKING GROUT.

THE JOINT SEAL GLANDS SHALL BE FABRICATED FULL WIDTH OF THE ROADWAY DECK AND SIDEWALKS (I.E., TRANSVERSE JOINTS IN THE SEAL GLANDS WILL NOT BE PERMITTED). THE JOINT SEAL RETAINING ELEMENTS SHALL BE FIELD SPLICED AS SHOWN IN THE PLANS FOR MAINTENANCE OF TRAFFIC. JOINTS IN RETAINING ELEMENTS SHALL HAVE WATERTIGHT, PARTIAL PENETRATION BUTT WELDS COMPLETELY AROUND THE OUTER PERIPHERY OF THE ABUTTING SURFACES. WELDS IN CONTACT WITH THE JOINT SEAL GLAND SHALL BE GROUND SMOOTH

THE EXPANSION JOINT SHALL BE FABRICATED, FULLY SHOP ASSEMBLED, AND SHIPPED WITH A JOINT SETTING DIMENSION AS SHOWN ON THE PLANS AND THE APPROVED SHOP DRAWINGS, ONCE IN PLACE, THE SETTING DIMENSION SHALL BE ADJUSTED TO THE PROPER AMBIENT TEMPERATURE DIMENSION BY MEANS OF PRESTRESSING DEVICES FURNISHED BY THE MANUFACTURER WHICH SHALL ACCOMPANY THE EXPANSION JOINT ASSEMBLY TO THE JOB SITE

THE EXPANSION JOINT INSTALLATION SHALL BE ADEQUATELY PROTECTED TO ENSURE THAT IT IS NOT DAMAGED DURING THE PLACEMENT AND FINISHING OF THE CONCRETE, THE BARRIERS OR ANY OTHER SUBSEQUENT CONSTRUCTION.

METHOD OF MEASUREMENT

MEASUREMENT FOR PAY PURPOSES SHALL BE BASED ON THE LINEAR METERS OF SEALED JOINT SYSTEM, MEASURED HORIZONTALLY ALONG THE CENTERLINE AND BETWEEN THE OUTER LIMITS OF THE FABRICATED JOINT.

BASIS OF PAYMENT

PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE PER LINEAR METER OF ITEM 516 – MODULAR EXPANSION JOINT, AS PER PLAN WHICH SHALL CONSTITUTE FULL COMPENSATION FOR ALL MATERIAL, LABOR, TOOLS, AND EQUIPMENT NECESSARY TO COMPLETE THIS ITEM ACCORDING TO THESE SPECIFICATIONS. NO EXTRA PAYMENT WILL BE MADE FOR FURNISHING AND INSTALLING THE SIDEWALK, PARAPET AND CURB COVER PLATES AND PAINTING, BUT THE COST THEREOF SHALL BE INCLUDED IN THE UNIT PRICE BID PER LINEAR FOOT FOR ITEM 516 MODULAR EXPANSION JOINT. AS PER PLAN.

REQUIREMENTS OF GCRTA

DESCRIPTION

A. THE WORK MUST BE CARRIED OUT ON AN OPERATING TRANSIT SYSTEM. RTA WILL MAINTAIN REVENUE SERVICE ON THE AFFECTED PORTION OF THE LINE THROUGHOUT THE DURATION OF THE CONTRACT. THE CURRENT SCHEDULED REGULAR OPERATING HOURS AND TRACK AVAILABILITY PERIODS ARE AS FOLLOWS:

AREA	DATE	DAYS	REGULAR OPERATING HOURS	TRACK AVAILABILITY HOURS
RED LINE:	9/14-5/14	7 DAYS A WEEK	3:30AM TO 10:30PM	10:30PM TO 3:00AM
	5/15-9/13	SUN THRU THUR.	3:30AM TO 10:30PM	10:30PM TO 3:00AM
	5/15-9/13	FRI. AND SAT.	24 HOURS A DAY	NONE

GENERALLY OPERATING HOURS ARE EXTENDED DURING SPECIAL EVENTS FOR 1-1/2 HOURS AFTER THE CONCLUSION OF THE EVENT. A SPECIAL EVENT IS DEFINED AS AN EVENT THAT IS LIKELY TO EXTEND BEYOND 9:00PM AND IS EXPECTED TO DRAW 10,000 PARTICIPANTS TO AN AREA LOCATED WITHIN 400 METERS OF AN RTA RAIL STATION.

B. CONTRACTOR MUST NOT INTERFERE WITH THE NORMAL TRANSIT OPERATIONS. WORK MAY ONLY BE PERFORMED BY PERMIT AS DELINEATED IN THIS NOTE.

C. THE OWNER RETAINS AUTHORITY OVER ALL RAIL TRAFFIC OPERATIONS. IN THE EVENT OF A CONFLICT, THE ENGINEER SHALL BE THE SOLE JUDGE OF THE ADEQUACY OF THE CONTRACTOR'S PROTECTIVE MEASURES TO ASSURE CONTINUITY OF THE AUTHORITY OPERATIONS.

D. ADDITIONAL SINGLE TRACKING OR STOPPING OF TRAIN TRAFFIC DURING THE ABOVE REGULAR OPERATING HOURS MAY BE PERMITTED. HOWEVER, IT IS NOT GUARANTEED AND THE CONTRACTOR MAY NOT RELY ON HAVING ACCESS TO TRACK AREAS DURING REGULAR OPERATING HOURS. WHEN PERMITTED, IT MAY BE ALLOWED UNDER THE FOLLOWING:
   1. THE CONTRACTOR HAS JUSTIFIED WHY A SINGLE TRACKING REQUEST IS NEEDED
   2. THE CONTRACTOR HAS INDICATED THE TIME FRAMES IN THE ORIGINAL CONSTRUCTION SCHEDULE
   3. THE REQUESTED TIME FRAME DOES NOT CONFLICT WITH THE FOLLOWING:
      A). THE RTA SPECIAL EVENTS CALENDAR
      B). RTA SYSTEM MAINTENANCE AND/OR EMERGENCY WORK
      C). OTHER ONGOING CONSTRUCTION PROJECTS
      D). WEATHER WHERE SNOWFALL EXCEEDS OR IS FORECAST TO EXCEED 127mm (5 INCHES)

RESTRICTIONS BY GCRTA

A. THE CONTRACTOR MUST RECEIVE A PERMIT PRIOR TO STARTING WORK THAT MAY AFFECT GCRTA PROPERTY AND FACILITIES. EACH CONTRACTOR MUST SUBMIT REQUESTS THROUGH THE E & C PROJECT MANAGER FOR PRIOR AUTHORITY APPROVAL FOR OCCUPYING THE RAIL RIGHT-OF-WAY. THESE REQUESTS WILL BE OF THREE TYPES:
   1. RAIL RIGHT-OF-WAY OCCUPANCY PERMIT-REQUIRED FOR ALL WORK PERFORMED ON THE RAIL RIGHT-OF-WAY.
   2. TRACK OUTAGE PERMIT-REQUIRED FOR ANY SINGLE TRACKING OPERATION WHERE ONE TRACK IS TAKEN OUT OF SERVICE.
   3. POWER OUTAGE PERMIT-REQUIRED FOR ANY WORK ON THE RAIL RIGHT-OF-WAY THAT IS WITHIN 1.5 METERS OF THE CONDUCTOR WIRE.

ALL REQUESTS MUST BE SUBMITTED IN WRITING TO THE DIRECTOR OF ENGINEERING AND CONSTRUCTION SUPPORT BY NO LATER THAN 12:00 NOON OF THE PRECEDING WEDNESDAY FOR CONSIDERATION BY THE SUPERINTENDENT OF RAIL OPERATIONS. DUE TO OTHER ONGOING CONSTRUCTION AND MAINTENANCE PROJECTS, THERE IS NO GUARANTEE THAT ANY REQUEST WILL BE APPROVED. ALL REQUEST WILL BE APPROVED OR DISAPPROVED IN WRITING.

DESIGN AGENCY: EUTHENICS INC. CONSULTING ENGINEERS

DESIGNED BMG | DRAWN BMG | CHECKED KRD | REVISED | REVIEWED RAB | DATE 9-96

STRUCTURE FILE NUMBER 1833405

GENERAL NOTES
BRIDGE NO. 152
West 150th Street over Conrail, GCRTA and Chatfield Ave.

CUY-WEST 150th STREET

Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B-No. 162

GENERAL NOTES - STRUCTURE

B. IN THE EVENT OF A REVERSAL BY EITHER GCRTA OR THE CONTRACTOR OF ANY TRACK OR POWER OUTAGE PERMIT, A GOOD FAITH EFFORT MUST BE MADE TO NOTIFY THE OTHER PARTY PRIOR TO THE SCHEDULED OUTAGE. FAILURE TO CANCEL 12 HOURS PRIOR TO THE SCHEDULED OUTAGE WILL RESULT IN THE CONTRACTOR BEING ASSESSED LIQUIDATED DAMAGES IN THE AMOUNT OF $500 FOR EACH OCCURRENCE. RTA WILL MAKE A GOOD FAITH EFFORT TO NOTIFY THE CONTRACTOR 12 HOURS PRIOR TO ANY CANCELLATION. HOWEVER IT IS UNDERSTOOD THAT EMERGENCIES MAY OCCUR WHICH MAY PREVENT RTA FROM CANCELING WITHIN THIS TIMEFRAME.

C. POWER OUTAGES WILL NOT BE ALLOWED DURING THE FOLLOWING CONDITIONS:
   1. ON HOLIDAYS OR DURING SPECIAL EVENTS.
   2. WHERE WEATHER CONDITIONS ARE SUCH THAT ICING OF THE CATENARY MAY OCCUR. RTA HAS EXPERIENCED ICING CONDITIONS WHEN THE TEMPERATURE IS BETWEEN −4° C (25° F) AND 2° C (35° F) DEGREES WITH A CHANCE OF PRECIPITATION.

TO CONFIRM WHETHER WEATHER CONDITIONS WILL BE AFFECTING RAIL OPERATIONS, THE CONTRACTOR MAY CALL EITHER THE TOWER AT 575−3918 OR THE LOAD DISPATCHER AT 575−3901.

D. ANY UNEXPECTED EFFECTS UPON OPERATIONS OF SCHEDULED/UNSCHEDULED TRAIN MOVEMENTS SHALL BE IMMEDIATELY CALLED INTO THE TOWER DISPATCHER AT 575−3918.

E. THE CONTRACTOR MUST RECEIVE A RIGHT−OF−WAY OCCUPANCY PERMIT PRIOR TO LIFTING ANY BRIDGE SPAN OVER TRACKS. GCRTA RAIL PERSONNEL SHALL BE PRESENT IN THE AREA TO ENSURE A SAFE AND CLEAR AREA AFTER SPAN LIFT. DEMOLITION WORK SHALL STOP WHEN TRAINS PASS THROUGH A DEMOLITION AREA OR TRAINS SHALL BE STOPPED AT A SAFE DISTANCE IF IMMINENT DANGER IS SHOWN.

F. ALL WORK OVER GCRTA TRACKS SHALL BE DONE WITH THE OVERHEAD POWER OFF UNLESS AUTHORIZED BY BOTH DIRECTOR OF RAIL OPERATIONS AND DIRECTOR OF ENGINEERING AND CONSTRUCTION SUPPORT. IF THE CONTRACTOR REQUIRES THE DE−ENERGIZATION OF THE OVERHEAD POWER TO THE CATENARY SYSTEM, A POWER OUTAGE PERMIT MUST BE APPROVED.

RESUMPTION OF REVENUE SERVICE

A. THE TRACK MUST BE RETURNED TO THE AUTHORITY ONE HALF HOUR BEFORE THE START OF SCHEDULED REVENUE SERVICE. AT THE COMPLETION OF THE WEEK NIGHT SHIFT AND THE COMPLETION OF WEEKEND WORK, THE CONTRACTOR IS TO INSPECT AND SUBSEQUENTLY RELEASE THE WORK ZONE BACK TO THE AUTHORITY FOR THE RESUMPTION OF REVENUE SERVICE. THIS WILL REQUIRE THE CONTRACTOR TO ADHERE TO THE FOLLOWING PROCEDURES:
   1. PRIOR TO RELEASE OF WORK ZONE, THE CONTRACTOR IS TO CLEAR HIS EQUIPMENT, MANPOWER AND MATERIALS FROM THE RIGHT−OF−WAY, AN AREA DEFINED AS 3 METERS FROM THE CENTERLINE OF EACH TRACK.
   2. THE CONTRACTOR, ALONG WITH ENGINEER WILL INSPECT THE ENTIRE WORK ZONE TO ASSURE THAT THE WORK COMPLETED COMPLIES WITH THE REQUIREMENTS OF THE AUTHORITY FOR THE RESUMPTION OF REVENUE SERVICE WITHIN THE WORK ZONE. THE CONSTRUCTION, AT A MINIMUM, MUST COMPLY WITH FRA CLASS 4 SAFETY STANDARDS FOR TRACK OR COMPLIANCE WITH THESE CONSTRUCTION TOLERANCES.
   3. OTHER REQUIREMENTS MAY BE IMPOSED BY THE AUTHORITY BASED ON AREA CONSTRUCTION TOLERANCES, PROCEDURES AND OR PRACTICES. IMPOSITION OF SLOW ORDERS AND OTHER MEANS CAN BE REQUESTED BY THE CONTRACTOR IN ORDER TO ASSURE THE RESUMPTION OF SAFE REVENUE OPERATIONS.
   4. WHEN EACH ITEM ABOVE HAS BEEN COMPLETED, THE ENGINEER SHALL NOTIFY THE TOWER DISPATCHER OF THE RELEASE OF THE WORK ZONE BACK TO THE AUTHORITY.
   5. AT THE COMPLETION OF EACH NIGHT SHIFT AND WEEKEND WORK, THE CONTRACTOR MUST INSPECT WORK SITE AND RELEASE IT TO RTA IN AN AESTHETICALLY PLEASING MANNER AS DETERMINED BY THE ENGINEER.

B. THE CONTRACTOR MUST COMPLY WITH THE PROVISIONS OF THESE NOTES AS REPRESENTING AN INTEGRAL PART OF HIS LEGAL OBLIGATION UNDER HIS CONTRACT.

TEMPORARY FALSE WORK AND PROTECTIVE STRUCTURES

A. IN ORDER TO PROTECT GCRTA TRAFFIC AGAINST DAMAGE FROM FALLING MATERIAL AND DEBRIS DURING ANY DEMOLITION OR CONSTRUCTION OVERHEAD, THE CONTRACTOR SHALL FURNISH AND ERECT AN ELECTRICALLY INSULATED RIGID TEMPORARY STRUCTURE UNDER THE SPANS THAT ARE DIRECTLY OVER THE GCRTA TRACKS.

B. THE FLOORING AND SIDING OF THE TEMPORARY STRUCTURE SHALL HAVE NO CRACKS OR OPENINGS THROUGH WHICH PARTICLES MAY FALL. AS A MINIMUM ONE LAYER OF 19mm PLYWOOD WITH LAPPED JOINTS OR AN EQUIVALENT DESIGN SHALL BE PLACED BETWEEN THE LOWER FLANGES OF THE STRUCTURAL STEEL BEAMS ABOVE THE TRACK BED AND THE SHOULDERS OF THE GCRTA TRACKS.

C. THE TEMPORARY FALSE WORK SHALL BE SUITABLE FOR ATTACHMENT OF THE LIVE CATENARY WIRE SYSTEM, AND ALL SIGNAL, POWER AND COMMUNICATION CABLES. THE FALSE WORK SHALL BE REMOVED BY THE CONTRACTOR WHEN WORK IS COMPLETED.

D. DETAILS OF THE TEMPORARY FALSE WORK AND PROTECTIVE STRUCTURES INCLUDING THE PROPOSED TEMPORARY UNDER CLEARANCES TO THE GCRTA TRACKS, SHALL BE PREPARED BY A PROFESSIONAL ENGINEER FOR APPROVAL BY GCRTA DIRECTOR OF ENGINEERING AND CONSTRUCTION SUPPORT PRIOR TO STARTING DEMOLITION OR CONSTRUCTION WORK.

E. THIS PROTECTIVE WORK SHALL BE PERFORMED AT THE CONTRACTOR'S COST.

F. BEFORE STARTING THE WORK OF ERECTING THE TEMPORARY FALSEWORK, THE CONTRACTOR MUST CONTACT LITEL COMMUNICATIONS SYSTEMS, INC., AT (216) 948−1884 FOR THE PURPOSE OF MAKING ARRANGEMENTS TO PROTECT AND REATTACH THE FIBER OPTIC CABLE

SPECIAL GCRTA REQUIREMENTS

A. OVERHEAD PROPULSION POWER CABLES (600 VOLTS, DC) SHALL ALWAYS BE CONSIDERED ENERGIZED. THE CONTRACTOR MUST NOT ASSUME THE POWER IS SHUT OFF UNTIL ACTUALLY CONFIRMED BY GCRTA ON A DAILY BASIS THAT SHUT DOWN HAS ACTUALLY BEEN ACCOMPLISHED. DESPITE POWER SHUT OFF, THE OVERHEAD PROPULSION CABLES ARE ALWAYS TO BE CONSIDERED HOT.

B. RTA AERIAL LINES ON GCRTA PROPERTY CAN BE RELOCATED BY GCRTA PERSONNEL IF NOTED AS SUCH ON THE PLANS. OTHERWISE RESPONSIBILITY FALLS TO THE CONTRACTOR WITH RTA APPROVAL THE CONTRACTOR SHALL USE ALL PRECAUTIONS NECESSARY TO SEE THE LINES TO ARE NOT DISTURBED DURING THE CONSTRUCTION STAGE AND SHALL COOPERATE WITH THE GCRTA IN THE RELOCATION OF THESE LINES. THE COST OF THE RELOCATION SHALL BE PAID BY THE CONTRACTOR.

C. NO EQUIPMENT OR MATERIAL SHALL BE SUSPENDED OR ERECTED ABOVE, WITHIN 5 METERS VERTICALLY OR HIGHER BASED ON EXISTING CATENARY HEIGHTS, OR WITHIN 2 METERS HORIZONTALLY FROM THE CENTER OF THE TRACK OVER WHICH TRAINS ARE OPERATING, UNLESS OTHERWISE APPROVED BY GCRTA.

D. TRACK BALLAST MUST BE PROTECTED FROM CONTAMINATION DURING DEMOLITION AND CONSTRUCTION. SIGNAL EQUIPMENT MUST ALSO BE PROTECTED THE CONTRACTOR MUST FURNISH DETAILS ON HOW HE PLANS TO PROTECT BOTH ITEMS.

E. NO EXCAVATION, REMOVAL OF EXISTING PIER FOUNDATIONS OR CONSTRUCTING NEW FOUNDATIONS ADJACENT TO GCRTA TRACKS SHALL BEGIN WITHOUT APPROVAL OF GCRTA. SHEETING MAY BE REQUIRED TO PREVENT UNDERMINING OF TRACK. IF SHEETING IS REQUIRED, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE AND INSTALL SUCH SHEETING. PROPOSED SHEETING SHALL BE PREPARED BY A PROFESSIONAL ENGINEER FOR APPROVAL BY GCRTA DIRECTOR OF ENGINEERING AND CONSTRUCTION SUPPORT PRIOR TO STARTING ANY DEMOLITION WORK.

F. IF PROPOSED CONSTRUCTION IS IN THE VICINITY OF A RAPID STATION, PEDESTRIAN TRAFFIC TO THE GCRTA STATION SHALL BE MAINTAINED AT ALL TIMES BY THE CONTRACTOR. STRUCTURALLY SOUND FENCING, BARRICADES, AND/OR SHELTERS SHALL BE PROVIDED TO PROTECT GCRTA USERS AT THE STATION ENTRANCES AND PLATFORMS. THE CONTRACTOR SHALL SUBMIT DETAILS OF THE PROTECTION SYSTEM FOR GCRTA'S APPROVAL BEFORE DEMOLITION IS STARTED.

G. NO CONSTRUCTION ACTIVITY SHALL TAKE PLACE WITHIN GCRTA CONSTRUCTION CLEARANCE LIMITS WHILE TRACK IS ACTIVE EXCEPT WITH FLAGGERS AND A RAIL RIGHT−OF−WAY OCCUPANCY PERMIT. DURING COMPLETE SHUTDOWN, CONTRACTOR IS CAUTIONED TO THE POSSIBILITY OF TRACK UTILIZATION BY RTA WORK TRAINS AND OTHER SERVICE EQUIPMENT.

H. NO AT GRADE CROSSING OF GCRTA TRACK IS PERMITTED BY VEHICLES OR EQUIPMENT, WITHOUT PRIOR APPROVAL OF THE SUPERINTENDENT OF RAIL OPERATIONS.

I. THE CONTRACTOR SHALL PROVIDE, INSTALL, ERECT AND MAINTAIN SUITABLE LIGHTING AND PROTECTIONS FOR SAFE AND EFFICIENT PROGRESS AND FOR ANY WORK THAT IS TO BE PERFORMED AFTER DAYLIGHT HOURS.

J. FLAGGERS SHALL BE PROVIDED BY THE CONTRACTOR, EITHER THROUGH COMPANIES WHO SUPPLY CERTIFIED FLAGGER (OBTAIN LIST FROM GCRTA) OR BY TRAINING AND CERTIFYING THEIR OWN EMPLOYEES THROUGH GCRTA. FOR FLAGGING PROCEDURES, FLAGGER TRAINING, AND SET−UP OF WORK ZONES, SEE SECTION 01502 − STANDARD RAIL FLAGGING PROCEDURES.

K. ANY VIOLATION TO GCRTA CONSTRUCTION RESTRICTIONS BY THE CONTRACTOR MAY RESULT IN IMMEDIATE SHUTDOWN OF CONSTRUCTION ACTIVITIES UNTIL VIOLATION IS CORRECTED.

L. THESE PROCEDURES ARE APPLICABLE WHENEVER ANY PERSONNEL OR EQUIPMENT OF ANY CONTRACTOR ARE ON AUTHORITY RAIL PROPERTY AND/OR MORE SPECIFICALLY, WITHIN A DISTANCE OF 10 FEET FROM THE CENTERLINE OF EACH TRACK, INCLUDING ANY AND ALL WORK PERFORMED OVER TRACKS INCLUDING WORK BEING PERFORMED ON OVERHEAD HIGHWAY STRUCTURES.

ITEM 511 − CLASS S CONCRETE, MISC.: SIDEWALK WEARING COURSE

GENERAL

THIS WORK SHALL CONFORM WITH ALL APPLICABLE PROVISIONS OF ITEM 511 EXCEPT AS MODIFIED HEREIN.

DESCRIPTION

THIS WORK SHALL CONSIST OF CONSTRUCTING A REINFORCED CONCRETE SIDEWALK WEARING COURSE IN REASONABLY CLOSE CONFORMITY WITH LINES, GRADES, AND DIMENSIONING SHOWN ON THE PLANS OR ESTABLISHED BY THE ENGINEER

MATERIAL

THE MATERIALS SHALL CONFORM TO THE FOLLOWING:

CONCRETE (CLASS S)	499	CURING MATERIALS	451.02
REINFORCING STEEL	709.10 AND 709.00	PRIMER COAT	512.04
JOINT SEALER	705.04	TYPE A WATERPROOFING	512.05 AS MODIFIED BELOW

PLACING AND FINISHING

THE CONCRETE SHALL BE DEPOSITED IN A SINGLE LAYER. IT SHALL BE STRUCK OFF WITH A TEMPLATE AND SMOOTHED WITH A FLOAT TO PRODUCE A SANDY TEXTURE. NO PLASTERING WILL BE PERMITTED. THE SURFACE SHALL BE DIVIDED INTO EQUALLY SPACED BLOCKS WITH TRANSVERSE JOINTS APPROXIMATELY 1500mm ON CENTER. ALL TRANSVERSE AND LONGITUDINAL JOINTS SHALL BE CONSTRUCTED AS DETAILED ON THE DRAWINGS AND SHALL BE FILLED WITH JOINT SEALER IN ACCORDANCE WITH 516.04. THE REINFORCING SHALL BE 150mm x 150mm − W18.7mm^2 x W18.7mm^2 EPOXY COATED WELDED WIRE FABRIC IN ACCORDANCE WITH 509.

CURING

EXPOSED SURFACES OF THE CONCRETE SIDEWALK WEARING COURSE SHALL BE CURED AS REQUIRED IN 451.10, USING THE CURING MATERIALS SPECIFIED ABOVE. WHEN THE WEATHER CONDITIONS ARE SUCH THAT IT IS IMPRACTICAL TO USE THE CURING COMPOUND, OTHER ACCEPTABLE MEANS FOR CURING THE CONCRETE MAY BE USED. HOWEVER, AFTER CONDITIONS BECOME FAVORABLE, THE CURING COMPOUND SHALL BE APPLIED RESIN CURING COMPOUND WILL NOT BE PERMITTED.

WATERPROOFING

THE CONCRETE SUBSTRATE UNDER THE CONCRETE SIDEWALK WEARING COURSE SHALL BE WATERPROOFED AS REQUIRED IN 512 EXCEPT THAT ONLY ONE COAT OF TYPE A WATERPROOFING OF NOT LESS THAN 1.6 LITERS OF ASPHALT OR PITCH PER SQUARE METER SHALL BE APPLIED OVER THE PRIMER COAT.

METHOD OF MEASUREMENT

THE SIDEWALK WEARING COURSE WILL BE MEASURED BY THE SQUARE METERS OF FINISHED SURFACE, COMPLETE AND ACCEPTED IN PLACE. ALL LABOR AND MATERIALS INCLUDING REINFORCING STEEL, JOINTS MATERIALS, CURING COMPOUNDS, WATERPROOFING, AND OTHER RELATED MISCELLANEOUS ITEMS NECESSARY TO COMPLETE THE WORK SHALL BE INCLUDED WITH THE CONCRETE SIDEWALK WEARING COURSE FOR PAYMENT.

ASBESTOS NOTIFICATION

AN ASBESTOS NOTIFICATION SURVEY OF THE SUBJECT BRIDGE SCHEDULED FOR REHABILITATION WAS COMPLETED IN DECEMBER, 1996 BY A CERTIFIED ASBESTOS HAZARD SPECIALIST. APPROXIMATELY 160 LINEAL METERS OF SUSPECT ASBESTOS CONTAINING BLACKFELT PIPE WRAP INSULATION LOCATED ON A 300 mm WATERLINE WAS IDENTIFIED ON THE SUBJECT BRIDGE. THE EXISTING WATERLINE IS TO REMAIN IN SERVICE DURING THE BRIDGE REHABILITATION AND THE BLACKFELT PIPE WRAP SHOULD NOT BE DISTURBED. IF THE WRAP IS DISTURBED, THE REMOVAL AND DISPOSAL OF THE BLACKFELT PIPE WRAP MUST COMPLY WITH THE OHIO ADMINISTRATIVE CODE, THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REGULATIONS, AND THE NATIONAL EMISSION STANDARD FOR HAZARDOUS AIR POLLUTANTS (NESHAP) STANDARD FOR ASBESTOS.

A COPY OF THE OHIO ENVIRONMENTAL PROTECTION AGENCY (OEPA) NOTIFICATION OF DEMOLITION AND RENOVATION FORM WITH SECTIONS I−VII AND XVI COMPLETED IS INCLUDED WITH THIS BID PACKAGE. A COPY OF THIS FORM SIGNED BY THE BRIDGE OWNER WILL BE PROVIDED TO THE SUCCESSFUL BIDDER. THE CONTRACTOR SHALL COMPLETE SECTION VIII−XIII OF THE SIGNED FORM AND SUBMIT THE COMPLETED FORM TO THE APPROPRIATE OEPA DISTRICT OFFICE OR THE LOCAL AIR AUTHORITY AT LEAST TEN (10) DAYS PRIOR TO REHABILITATION OF THE BRIDGE. THE CONTRACTOR SHALL PROVIDE A COPY OF THE COMPLETED FORM TO THE ENGINEER.

THE CONTRACTOR SHALL PROVIDE AN INDIVIDUAL TRAINED IN THE PROVISIONS OF NESHAP THAT WILL BE ON−SITE DURING THE REMOVAL OF THE BLACKFELT PIPE WRAP.

BASIS OF PAYMENT

THE CONTRACTOR SHALL FURNISH ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO COMPLETE, SUBMIT, AND COMPLY WITH THE OEPA NOTIFICATION FORM AND TO REMOVE, TRANSPORT AND DISPOSE OF THE BLACKFELT PIPE WRAP CONTAINING CATEGORY I NONFRIABLE ASBESTOS MATERIAL. PAYMENT OF THIS WORK SHALL BE INCLUDED WITH ITEM SPECIAL − ASBESTOS ABATEMENT.

ITEMS NOT INCLUDED IN BRIDGE PLANS

THE FOLLOWING ITEMS ARE NOT INCLUDED IN THE BRIDGE PLANS SEE ROADWAY PLANS

(A) LIGHTING AND SIGNING PLANS
(B) APPROACH SLAB DETAILS

DESIGN AGENCY
EUTHENICS INC. CONSULTING ENGINEERS

DESIGNED	DRAWN	REVIEWED	DATE
BMG	BMG	RAB	9−96
CHECKED	REVISED	STRUCTURE FILE NUMBER	
KRD		1833405	

GENERAL NOTES
BRIDGE NO. 152
West 150th Street over Conrail, GCRTA and Chatfield Ave.

CUY−WEST 150th STREET

3A / 43

33A / 73

Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B−No. 162

\OBS\318\BRIDGE\318GNSA.DWG PJK 2/12/98 PLOT @ 1000:1 METRIC

GENERAL NOTES - STRUCTURE

ITEM 516 - STEEL POT BEARINGS

1. DESCRIPTION

1.1 THIS ITEM SHALL CONSIST OF FURNISHING ALL MATERIALS, SERVICES, LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO DESIGN, FABRICATE, TEST AND INSTALL POT BEARINGS IN ACCORDANCE WITH THE PLANS AND THIS SPECIFICATION.

THE PROPOSAL NOTE 516, 517, 518 FABRICATED MEMBERS SHALL NOT APPLY TO THIS ITEM. SHOP DRAWINGS ARE REQUIRED FOR STEEL POT BEARINGS

1.2 THE POT BEARING SHALL CONSIST OF THE FOLLOWING PARTS:

(1) RECTANGULAR SOLE PLATE - TOP SIDE BEVELED TO THE SLOPE OF THE GIRDER AND FIELD WELDED TO THE GIRDER FLANGE. BOTTOM SIDE LEVEL AND FACED WITH STAINLESS STEEL FOR EXPANSION BEARINGS. ON GUIDED BEARINGS, SOLE PLATE SHALL HAVE A GUIDE BAR. SOLE PLATE RIDES ON PISTON.

(2) CIRCULAR PISTON - TOP FACED WITH PTFE FOR EXPANSION BEARINGS. ON GUIDED BEARINGS, PISTON IS TO HAVE RECESS FOR GUIDE BAR WITH VERTICAL SIDES FACED WITH PTFE. PISTON SITS IN STEEL POT ON LUBRICATING AND ELASTOMERIC DISCS.

(3) COMBINED RECTANGULAR SOLE PLATE - CIRCULAR PISTON (FOR FIXED BEARINGS) - TOP SIDE BEVELED TO THE SLOPE OF THE GIRDER AND WELDED TO THE GIRDER FLANGE. BOTTOM SIDE LEVEL AND SITS IN STEEL POT ON LUBRICATING AND ELASTOMERIC DISCS.

(4) ELASTOMERIC DISC - CONFINED WITHIN POT FOR THE PURPOSE OF PROVIDING ROTATION AND SUPPORT OF THE PISTON. LUBRICATING DISCS ARE PROVIDED ABOVE AND BELOW THE ELASTOMERIC DISC. THE DISC IS SEALED WITH BRASS SEALING RINGS.

(5) SEALING RINGS - SEAL BETWEEN POT AND PISTON USED TO CONTAIN THE ELASTOMERIC DISC.

(6) GUIDE BAR (FOR GUIDED BEARINGS) - ATTACHED TO OR INTEGRAL WITH SOLE PLATE FOR PURPOSE OF GUIDING EXPANSION BEARINGS AND TRANSMITTING LATERAL LOADS TO THE POT.

(7) CIRCULAR POT - CONTAINMENT FOR THE ELASTOMERIC DISC AND TRANSMISSION OF VERTICAL AND LATERAL LOADS TO MASONRY PLATES. FIELD WELDED TO MASONRY PLATES.

(8) MASONRY PLATE - DISTRIBUTE VERTICAL AND HORIZONTAL FORCES FROM THE STEEL POT TO THE CONCRETE BRIDGE SEAT. MASONRY PLATE SITS ON A BEARING PAD AND IS CONNECTED TO THE CONCRETE WITH ANCHOR BOLTS.

1.3 BEARING HEIGHT

(1) THE TOTAL BEARING HEIGHT SHOWN IN THE PLANS SHALL BE MET BY INCREASING THE SOLE PLATE THICKNESS OR POT BASE THICKNESS OR MASONRY PLATE THICKNESS OR ADDING A MAKE-UP PLATE BETWEEN THE POT AND MASONRY PLATE OR A COMBINATION THEREOF.

(2) IF A MAKE-UP PLATE IS USED IT SHALL HAVE A MINIMUM THICKNESS OF 13 MM, AN OUTSIDE DIAMETER OF 32 MM GREATER THAN THE POT AND BE SHOP WELDED TO THE POT BY A 8 MM FILLET WELD.

2. DESIGN AND MATERIALS REQUIREMENTS

2.1 THE DESIGN CRITERIA AND MATERIALS REQUIREMENTS SHALL BE GOVERNED BY THESE PROVISIONS AND ALL APPLICABLE SECTIONS OF AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DIVISION I, SECTION 19 AND DIVISION II, SECTION 18.3.

2.2 SOLE PLATE

(1) ASTM A588M OR A572M GRADE 350 STEEL WITH STAINLESS STEEL SLIDING SURFACE ON UNDER SIDE. TOP SIDE BEVELED TO THE SLOPE OF THE GIRDER. BOTTOM SIDE LEVEL.

(2) STAINLESS STEEL SHEET SURFACE SHALL CONFORM TO ASTM A167 OR A240 TYPE 304. THE MINIMUM THICKNESS SHALL BE 2 MM. STAINLESS STEEL IN CONTACT WITH PTFE SHALL HAVE A .508 MICRO-METER RMS FINISH OR BETTER. THE SURFACE SHALL BE MECHANICALLY POLISHED. MATERIAL AND FINISH SHALL BE SUCH THAT THE REQUIREMENTS OF A 4.2(2) ARE MET.

(3) RECTANGULAR OR SQUARE IN PLAN.

(4) MINIMUM PLAN DIMENSIONS SHALL BE POT DIAMETER PLUS TWICE THE ONE WAY DESIGN MOVEMENT SHOWN IN THE PLANS PLUS 50 MM.

(5) MINIMUM THICKNESS SHALL BE 19 MM.

(6) FOR GUIDED EXPANSION BEARING GUIDE BAR IN SOLE PLATE, SEE 2.7.

2.3 PISTON

(1) ASTM A572M GRADE 350 OR A588M STEEL.

(2) DIAMETER IF PISTON SHALL BE 0.76 MM LESS THAN THE INSIDE DIAMETER OF THE POT.

(3) PISTON THICKNESS SHALL BE SUFFICIENT TO PROVIDE A CLEARANCE OF (0.02 X POT O.D. + 3) MM BETWEEN THE TOP OF THE POT WALL AND SURFACE ABOVE (GUIDE BAR IF GUIDED OR BOTTOM OF SOLE PLATE) THE POT WALL WHEN THE PISTON IS IN AN UNROTATED POSITION.

ON GUIDED EXPANSION BEARINGS, THE PISTON THICKNESS SHALL BE SUFFICIENT TO TRANSMIT A LATERAL LOAD EQUAL TO 10% OF THE VERTICAL LOADS SHOWN IN THE PLANS FROM THE GUIDE BAR TO THE POT WALL WITHOUT DEFLECTION/DISTORTION.

(4) PISTON WALLS SHALL BE TAPERED INWARD, TOWARD THE TOP, TO PRESENT BINDING AGAINST THE POT WALLS DURING ROTATION, AND THE BOTTOM EDGE SHALL BE ROUNDED WITH A MACHINED 3 MM RADIUS.

(5) THE PISTON SHALL BE MACHINED FROM A SINGLE PIECE OF STRUCTURAL STEEL.

(6) ON GUIDED BEARINGS, THE BOTTOM OF THE RECESS SHALL BE A MINIMUM OF 10 MM CLEAR TO GUIDE BAR IN SOLE PLATE.

(7) THE THICKNESS OF THE PISTON SHALL ENSURE THAT THE BOTTOM OF THE PISTON SHALL BE ENTIRELY BELOW THE TOP OF THE POT UP TO 200 PERCENT OF MAXIMUM DESIGN ROTATION.

(8) THE TOP OF THE PISTON AND THE SIDES OF GUIDE BAR RECESS ON GUIDED BEARINGS USED FOR EXPANSION BEARING S SHALL BE FACED WITH PTFE. THE PTFE SURFACE SHALL CONSIST OF FINISHED UNFILLED PTFE SHEET MADE FROM VIRGIN PTFE RESIN OR 100 PERCENT PTFE FABRIC MADE FROM VIRGIN PTFE MULTI-FILAMENT FIBER. MATERIAL AND FINISH SHALL BE SUCH THAT THE REQUIREMENTS OR 4.2(2) ARE MET.

(9) PTFE FABRIC FIBERS SHALL CONFORM TO THE FOLLOWING:

A. THE RESIN FROM WHICH THE FIBERS ARE PRODUCED SHALL BE 100 PERCENT PTFE CONFORMING AS ASTM D1457.

B. TENSILE STRENGTH - ASTM D2256 - 165 MPA (MINIMUM).

C. ELONGATION - ASTM D2256 - 75 PERCENT (MINIMUM).

D. THE TFE FABRIC SHALL HAVE A MINIMUM THICKNESS OF 1.59 MM (COMPRESSED). MAXIMUM THICKNESS SHALL BE 3.18 MM (COMPRESSED).

(10) FINISHED UNFILLED PTFE SHEET SHALL BE MADE FROM 100 PERCENT VIRGIN PTFE RESIN AND SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

A. TENSILE STRENGTH D1457 19.3 MPA (MINIMUM).

B. ELONGATION ASTM D1457 - 200 PERCENT (MINIMUM).

C. SPECIFIC GRAVITY - ASTM D1457 - 2.13 (MINIMUM).

D. MELTING POINT - ASTM D1457 - 327 DEG C + 10.

E. MINIMUM THICKNESS SHALL BE 4.75 MM. SHEET SHALL BE RECESSED ONE HALF ITS THICKNESS INTO STEEL SUBSTRATE.

F. PTFE SHEET SHALL BE COMMERCIALLY ETCHED ON ITS BONDING SIDE.

2.4 COMBINED SOLE PLATE AND PISTON

(1) ALL APPLICABLE PROVISIONS OF 2.2 AND 2.3 SHALL APPLY.

(2) THE PISTON THICKNESS SHALL BE SUFFICIENT TO TRANSMIT A LOAD EQUAL TO 10% OF THE VERTICAL LOAD SHOWN IN THE PLANS TO THE POT WALL WITHOUT DEFLECTION/DISTORTION.

2.5 ELASTOMERIC DISC

(1) THE ELASTOMERIC DISC SHALL MEET THE FOLLOWING AVERAGE COMPRESSIVE STRESS REQUIREMENTS.

A. MAXIMUM OF 24.13 MPA WHEN THE BEARING VERTICAL DESIGN CAPACITY SPECIFIED IN THE PLAN IS APPLIED TO THE AREA OF THE DISC.

B. MINIMUM OF 4.83 MPA WHEN THE LESSOR OF THE DEAD LOAD OR 20% OF THE BEARING VERTICAL DESIGN CAPACITY SPECIFIED IN THE PLAN IS APPLIED TO THE AREA OF THE DISC.

(2) MINIMUM DISC THICKNESS SHALL BE 0.067 X DISC DIAMETER.

(3) THE ELASTOMERIC DISC SHALL CONSIST OF 100 PERCENT VIRGIN POLYCHLOROPRENE (NEOPRENE) MEETING THE REQUIREMENTS OF CMS ITEM 711.23 OR 100 PERCENT VIRGIN NATURAL POLYISOPRENE (NATURAL RUBBER) MEETING THE REQUIREMENTS OF THE CURRENT AASHTO M251.

(4) HARDNESS SHALL BE 50 DUROMETER +/- 10.

(5) THE DISC SHALL CONSIST OF ONE SOLID PIECE OF ELASTOMER.

(6) THE ELASTOMERIC DISC SHALL BE LUBRICATED BY MEANS OF 0.38 MM THICK UNFILLED PTFE DISC THE SAME INSIDE DIAMETER AS THE POT, ONE LOCATED ABOVE AND ONE BELOW THE ELASTOMERIC DISC OR BY A LUBRICANT RECOMMENDED BY THE MANUFACTURER AND APPROVED BY THE DIRECTOR.

(7) TWO FLAT BRASS SEALING RINGS SHALL BE USED TO SEAL THE DISC. THE UPPER EDGE OF THE DISC SHALL BE RECESSED TO RECEIVE THE SEALING RINGS SO THAT THEY SIT FLUSH WITH THE UPPER SURFACE OF THE TOP LUBRICATING DISC.

2.6 SEALING RING

(1) RINGS SHALL BE FLAT AND MADE OF BRASS CONFORMING TO THE REQUIREMENTS OF ASTM B36. HALF HARD.

(2) MINIMUM WIDTH SHALL BE 10 MM.

(3) MINIMUM THICKNESS SHALL BE 1.3 MM.

(4) THE RINGS SHALL HAVE A SMOOTH FINISH OF 1.60 MICRO-METER (RMS) OR LESS.

(5) TWO RINGS ARE REQUIRED.

(6) THE RINGS SHALL BE SPLIT AND SNUGLY FIT THE RECESS IN THE ELASTOMERIC DISC AS WELL AS THE INSIDE DIAMETER OF THE POT. THE ENDS OF THE RINGS AT THE SPLIT SHALL BE CUT AT 45 DEGREES TO THE VERTICAL. THE MAXIMUM GAP SHALL BE 1.27 MM WHEN INSTALLED. THE RINGS SHALL BE ARRANGED TO HAVE THE SPLITS STAGGERED A MINIMUM OF 90 DEGREES RELATIVE TO ONE ANOTHER.

2.7 GUIDE BARS

(1) ASTM A36M, A472M GRADE 350 OR A588M FACED WITH STAINLESS STEEL.

(2) GUIDE BARS MAY BE INTEGRAL BY MACHINING FROM A SOLID SOLE PLATE OR THEY MAY BE ATTACHED TO THE SOLE PLATE BY PRESS FIT INTO RECESS AND WELDING THE ENDS. THE SIDE SURFACES OF THE GUIDE BARS SHALL BE FACES WITH STAINLESS STEEL, SEE 2.2(2). WELDING OF GUIDE BARS TO THE SOLE PLATE SHALL BE PERFORMED PRIOR TO WELDING OF STAINLESS STEEL TO THE

GENERAL NOTES - STRUCTURE

SOLE PLATE OR GUIDE BARS.

(3) THE TOTAL SPACE (BOTH SIDES) BETWEEN THE GUIDE BARS AND GUIDED MEMBERS SHALL BE 3.18 MM MINUS 0, PLUS 1.59 MM.

(4) THE GUIDE BARS SHALL BE DESIGNED FOR NO LESS THAN A LATERAL HORIZONTAL FORCE EQUAL TO 10% OF THE VERTICAL FORCE.

(5) GUIDING ARRANGEMENTS SHALL BE DESIGNED SO THAT THE GUIDED MEMBER IS ALWAYS WITHIN THE GUIDES AT ALL POINTS OF TRANSLATION AND ROTATION OF THE BEARING.

(6) SEE 2.3(6).

2.8 POT

(1) A572M GRADE 350 OR A588M STEEL.

(2) THE POT SHALL CONSIST OF A SOLID PLATE INTO WHICH A CIRCULAR RECESS HAS BEEN MACHINED.

(3) DEPTH OF THE CIRCULAR RECESS SHALL BE EQUAL TO OR GREATER THAN ((.02 + R)XD/2 + 2.54 MM + THICKNESS OF THE ELASTOMERIC AND LUBRICATING DISCS) WHERE R = DESIGN ROTATION; D = ELASTOMER DIAMETER.

(4) THE POT INSIDE DIAMETER SHALL BE THE SAME AS THE ELASTOMERIC DISC, SEE 2.5.

(5) THE OUTSIDE OF THE POT SHALL BE CIRCULAR

(6) THE THICKNESS OF THE POT WALL SHALL BE SUFFICIENT TO TRANSMIT A LATERAL HORIZONTAL FORCE EQUAL TO 10% OF THE VERTICAL LOAD SHOWN IN THE PLANS TO THE POT BASE WITH THE LOAD APPLIED AT A POINT CONTACT AT TWO TIMES THE DESIGN ROTATION WITHOUT CAUSING DEFLECTION/DISTORTION TO THE POT WALL OR BASE

(7) THE MINIMUM THICKNESS OF THE POT BENEATH THE ELASTOMER FOR A BEARING DIRECTLY ON A MASONRY PLATE SHALL BE THE GREATER OR MORE OF THE 0.045 X POT I.D. OR 13 MM AND MEET THE REQUIREMENT OF 2.8(6).

2.9 MAKE-UP PLATE

(1) ASTM A572M GRADE 350 OR A588M STEEL

2.10 MASONRY PLATE

(1) ASTM A572M GRADE 350 OR A588M STEEL

2.11 BEARING PAD SHEET LEAD SHALL CONFORM TO ASTM B-29.

3. FABRICATION

3.1 ATTACHMENT OF SHEET PTFE TO SUBSTRATE

(1) PTFE SHEET SHALL BE RECESSED INTO AND BONDED TO A STEEL SUBSTRATE.

(2) PTFE SHALL BE RECESSED FOR ONE HALF ITS THICKNESS.

(3) THE BONDING SURFACE OF THE STEEL SHALL BE CLEANED OF RUST, SCALE, OIL AND GREASE BY BLAST CLEANING AND THEN WIPED CLEAN WITH A CLEANING SOLVENT. BLAST CLEANING SHALL BE PERFORMED WITHIN A MAXIMUM OF FOUR HOURS PRIOR TO BONDING.

(4) THE ADHESIVE MATERIAL AND THE BONDING PROCEDURES TO BE USED SHALL BE SUBMITTED TO THE DIRECTOR FOR APPROVAL PRIOR TO PERFORMANCE OF THE BONDING OPERATION. THE BONDING OPERATION SHALL THEN BE PERFORMED UNDER CONTROLLED CONDITIONS AND IN ACCORDANCE WITH THESE APPROVED PROCEDURES.

(5) AFTER COMPLETION OF THE BONDING OPERATION, THE PTFE SURFACE SHALL BE SMOOTH AND FREE FROM BUBBLES.

3.2 ATTACHMENT OF PTFE FABRIC TO SUBSTRATE

(1) PTFE FABRIC SHALL BE MECHANICALLY INTERLOCKED AND BONDED TO THE STEEL SUBSTRATE.

(2) THE BONDING SURFACE OF THE STEEL SHALL BE CLEANED OF RUST, SCALE, OIL AND GREASE BY BLAST CLEANING AND THEN CLEANED WITH A SOLVENT. BLAST CLEANING SHALL BE PERFORMED WITHIN A MAXIMUM OF FOUR HOURS PRIOR TO BONDING.

(3) THE MECHANICAL INTERLOCK AND ADHESIVE BONDING MATERIAL AND PROCEDURES SHALL BE SUBMITTED TO THE DIRECTOR FOR APPROVAL PRIOR TO PERFORMANCE OF THE BONDING OPERATION. THE BONDING OPERATION SHALL THEN BE PERFORMED UNDER CONTROLLED CONDITIONS AND IN ACCORDANCE WITH THESE APPROVED PROCEDURES AS APPROVED BY THE DIRECTOR.

(4) MIGRATION OF EPOXY THROUGH THE FABRIC WILL NOT BE PERMITTED.

(5) FABRIC SHALL BE FURNISHED IN ONE PIECE. EDGES SHALL BE OVERSEWN OR RECESSED SO THAT NO CUT FABRIC EDGES ARE EXPOSED

3.3 ATTACHMENT OF SHEET STAINLESS STEEL

(1) STAINLESS STEEL SHALL BE ATTACHED TO ITS STEEL SUBSTRATE WITH AN APPROVED EPOXY TO ENSURE COMPLETE CONTACT, AND THEN SEAL WELDED. SEAL WELDS SHALL BE CONTINUOUS FOR THE ENTIRE PERIPHERY OF THE STAINLESS OVERLAY. THE ENTIRE STAINLESS STEEL SURFACE SHALL CONFORM TO THE REQUIREMENTS OF SECTION 2.2(2) AFTER WELDING.

3.4 CORROSION PROTECTION

(1) ALL STEEL SURFACES (INCLUDING A588M STEEL) EXPOSED TO THE ATMOSPHERE, EXCEPT STAINLESS STEEL SURFACES, SHALL BE SHOP PRIME COATED IN ACCORDANCE WITH ITEM 514, SYSTEM IZEU

3.5 WELDING

(1) WELDING AS A MEANS OF ATTACHMENT SHALL BE DONE IN A CONTROLLED MANNER AND SHALL CONFORM TO CMS ITEM 513. WELDING TO A STEEL PLATE WHICH HAS BONDED TFE SURFACE MAY BE PERMITTED PROVIDING WELDING PROCEDURES ARE ESTABLISHED WHICH RESTRICT THE MAXIMUM TEMPERATURE REACHED BY THE BOND AREA TO LESS THAN 150 DEGREES (C), AS DETERMINED BY TEMPERATURE, INDICATING PENCILS, OR OTHER SUITABLE MEANS.

3.6 TOLERANCES

(1) GENERAL FLATNESS CRITERIA

A. FLATNESS TOLERANCES SHALL BE DEFINED AS:

1. CLASS A TOLERANCE = 0.0005 X NOMINAL DIMENSION.
2. CLASS B TOLERANCE = 0.001 X NOMINAL DIMENSION.
3. CLASS C TOLERANCE = 0.002 X NOMINAL DIMENSION.
4. NOMINAL DIMENSION SHALL BE DEFINED AS THE ACTUAL DIMENSION OF THE PLATE, IN INCHES, SPANNED BY THE STRAIGHTEDGE.

B. FLATNESS SHALL BE DETERMINED BY PLACING A STRAIGHTEDGE, LONGER THAN THE NOMINAL DIMENSION TO BE MEASURED, IN CONTACT WITH THE SURFACE TO BE MEASURED OR AS PARALLEL TO IT AS POSSIBLE. SELECT A FEELER GAUGE HAVING A TOLERANCE OF + OR - 0.025 MM AND ATTEMPT TO INSERT IT UNDER THE STRAIGHTEDGE. (THE SMALLEST NUMBER OF BLADES SHALL BE USED.). FLATNESS IS ACCEPTABLE IF THE FEELER DOES NOT PASS UNDER THE STRAIGHTEDGE. THE STRAIGHTEDGE MAY BE LOCATED AT ANY POSITION ON THE SURFACE AND NOT NECESSARILY AT 90 DEGREES TO THE EDGES.

C. TOLERANCES - SOLE PLATE

1. PLAN DIMENSIONS OVER 762 MM: -0 MM, + 6 MM.
2. PLAN DIMENSIONS UNDER 762 MM: -0 MM, + 5 MM
3. FLATNESS OF SURFACE IN CONTACT WITH BEAM OR GIRDER - CLASS B.
4. FLATNESS OF BACKING SURFACE FOR STAINLESS STEEL - CLASS A (EXPANSION BEARINGS).
5. THICKNESS: -0.80 MM X + 3.18 MM

D. TOLERANCES - PISTON

1. DIAMETERS GREATER THAN 508 MM, + 0.18 MM
2. DIAMETERS LESS THAN 508 MM: + 0.13 MM
3. FOR EXPANSION BEARINGS WHERE UPPER SIDE IS FACED WITH PTFE, FLATNESS OF UPPER SIDE SHALL BE CLASS A
4. FLATNESS OF LOWER SIDE: CLASS B.

E. TOLERANCES - SOLE PLATE/PISTON

1. ALL APPLICABLE PROVISIONS OF C AND D

F. TOLERANCES - ELASTOMERIC DISC

1. DIAMETERS GREATER THAN 508 MM: + 2.38 MM
2. DIAMETERS LESS THAN 508 MM: + 1.59 MM
3. THICKNESS: -0 MM, + 3.18 MM

G. TOLERANCES - GUIDE BAR

1. LENGTH (UNLESS INTEGRAL): + 3.18 MM
2. FLATNESS OF BACKING SURFACE FOR STAINLESS STEEL: CLASS A
3. INSIDE OF BAR TO INSIDE OF BAR: NOMINAL DIMENSION + OR - 0.80 MM
4. GUIDE BARS SHALL BE NOT MORE THAN 0.80 MM OUT OF PARALLEL
5. CROSS SECTIONAL DIMENSIONS: + 1.59 MM

H. TOLERANCES - POT

1. THE INSIDE DIAMETER SHALL BE MACHINED TO A TOLERANCE OF + 0.13 MM UP TO 508 MM DIAMETER AND + 0.18 MM OVER 508 MM DIAMETER.
2. POT UNDERSIDE SHALL BE MACHINED PARALLEL TO THE INSIDE TO A CLASS TOLERANCE.

I. TOLERANCES - PTFE SUBSTRATES

1. SUBSTRATE FLATNESS: CLASS A

J. TOLERANCE OF STEEL (NOT STAINLESS) IN CONTACT WITH STEEL (NOT STAINLESS): CLASS B

K. THE EDGES OF ALL PARTS SHALL BE BROKEN BY GRINDING SO THAT THERE ARE NO SHARP EDGES.

L. TOLERANCES - OVERALL HEIGHTS OF BEARING: -1.59 MM, AND 3.18 MM

M. TOLERANCE - MAKE-UP PLATE

1. PLAN DIMENSION: -0 MM, + 6.35 MM
2. THICKNESS: - 0.80 MM, + 3.18 MM
3. FLATNESS: CLASS B TOP AND BOTTOM

N. TOLERANCES - MASONRY PLATE

DESIGN AGENCY
EUTHENICS INC.
CONSULTING ENGINEERS

DESIGNED	DRAWN	REVIEWED	DATE
KRD	PJK	RAB	2-98
CHECKED	REVISED	STRUCTURE FILE NUMBER	
GFH		1833405	

GENERAL NOTES
BRIDGE NO. 152
West 150th Street over Conrail, GCRTA and Chatfield Ave.

CUY-WEST 150th STREET

3C / 43

Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B-No. 162

33C / 73

[\JOBS\316\BRIDGE\316GNS3C.DWG] PJK 2/23/98 PLOT @ 1000:1 METRIC

GENERAL NOTES - STRUCTURE

1. PLAN DIMENSIONS: -0 MM, + 6.35 MM

2. THICKNESS: - 0.80 MM, + 3.18 MM

3. FLATNESS - CLASS C FOR THE UNDERSIDE, CLASS B FOR THE UPPERSIDE.

4 TESTING

4.1 GENERAL

(1) TESTS SHALL BE PERFORMED BY THE MANUFACTURER OR BY AN INDEPENDENT TESTING LABORATORY. THE TESTING AGENT CHOSEN BY THE CONTRACTOR WILL BE SUBJECT TO APPROVAL BY THE DIRECTOR. APPROVAL WILL BE BASED ON 1) THE ABILITY OF THE TESTING FACILITY TO PERFORM THE REQUIRED TEST - POSSESSION OF PROPER TESTING EQUIPMENT AND TRAINED PERSONNEL, AND 2) SUBMITTAL OF A REPORT DESCRIBING THE TESTING PROCEDURES TO BE USED INCLUDING SETUP OF TESTING APPARATUS, STEPS TO BE FOLLOWED IN THE TESTING APPARATUS, STEPS TO BE FOLLOWED IN THE TESTING PROCEDURES, READINGS CONVERSION OF READINGS TO FINAL DATA, AND SAMPLE CALCULATIONS SHOWING HOW FINAL RESULTS ARE OBTAINED FROM RAW DATA.

(2) SAMPLING

A. ONE GUIDED EXPANSION BEARING AND ONE FIXED BEARING SHALL BE CHOSEN, SELECTED AT RANDOM, FROM EACH APPLICABLE LOT OF COMPLETED BEARINGS.

1. ONE LOT SHALL CONSIST OF NO MORE THAN 25 BEARINGS OF ONE LOAD CATEGORY.

2. ONE LOAD CATEGORY SHALL CONSIST OF BEARINGS HAVING VERTICAL LOAD CAPACITY WITHIN A RANGE OF NO MORE THAN 890 kN.

4.2 FRICTION TEST SHALL BE PERFORMED ON EXPANSION BEARING SAMPLES CHOSEN AS DESCRIBED IN SECTION 4.1(2) ABOVE.

(1) THE TEST SHALL BE CONDUCTED AT THE MAXIMUM WORKING STRESS FOR THE BEARING WITH THE LOAD APPLIED CONTINUOUSLY FOR 12 HOURS PRIOR TO MEASURING THE FRICTION. MAXIMUM WORKING STRESS SHALL BE DETERMINED BY DIVIDING THE MAXIMUM VERTICAL FORCE (OBTAINED FROM THE PLANS) BY THE AREAS OF PTFE USED ON TOP OF THE PISTON.

(2) THE STATIC AND DYNAMIC COEFFICIENT OF FRICTION SHALL BE DETERMINED. A SLIDING SPEED OF LESS THAN 25 MM PER MINUTE SHALL BE USED. THE COEFFICIENT OF FRICTION THUS DETERMINED SHALL NOT EXCEED 0.04.

4.3 PROOF LOAD TEST SHALL BE PERFORMED ON BEARING SAMPLES CHOSEN AS DESCRIBED IN SECTION 4.1(2) ABOVE. THE EXPANSION BEARING MAY BE THE ONES USED FOR THE FRICTION TEST DESCRIBED IN 4.2 ABOVE.

(1) A TEST BEARING SHALL BE LOADED TO 150 PERCENT OF THE BEARING'S RATED DESIGN CAPACITY AND SIMULTANEOUSLY SUBJECT TO A ROTATIONAL RANGE OF 0.02 RADIANS (1.146°) OR DESIGN ROTATION, WHICHEVER IS GREATER, FOR A PERIOD OF ONE (1) HOUR. THE BEARING WILL BE VISUALLY EXAMINED BOTH DURING THE TEST AND UPON DISASSEMBLY AFTER THE TEST. ANY RESULTANT VISUAL DEFECTS, SUCH AS EXTRUDED OR DEFORMED ELASTOMER, POLYETHER URETHANE OR TFE, DAMAGED SEALS OR LIMITED RINGS, OR CRACKED STEEL, SHALL BE CAUSE FOR REJECTION OF THE LOT.

(2) DURING THE TEST, FOR POT BEARINGS THE STEEL BEARING PLATE AND STEEL PISTON SHALL MAINTAIN CONTINUOUS AND UNIFORM CONTACT FOR THE DURATION OF THE TEST. ANY OBSERVED LIFT-OFF WILL BE CAUSE FOR REJECTION OF THE LOT. BEARINGS NOT DAMAGED DURING TESTING MAY BE USED IN THE WORK.

4.4 ADHESION BETWEEN THE PTFE AND SUBSTRATE SHALL BE TESTED ON A TEST SPECIMEN IN ACCORDANCE WITH ASTM D429, METHOD B. THE MINIMUM PEEL STRENGTH SHALL BE 4.4 kN PER MM. THIS TEST IS IN ADDITION TO ADHESION DETERMINED UNDER 4.2 AND 4.3 ABOVE.

4.5 TEST RESULTS SHALL BE PRESENTED IN A REPORT SHOWING RAW TEST DATA, REDUCED TEST DATA, SAMPLE CALCULATIONS, AND FINAL RESULTS ALONG WITH PHOTOGRAPHS AND CONCLUSIONS.

4.6 CERTIFIED TEST DATA FOR ALL STAINLESS STEEL, A36M, A572M OR A588M STEEL AND PTFE SHALL BE FURNISHED TO THE DIRECTOR SHOWING COMPLIANCE WITH THE REQUIREMENTS OF THIS SPECIFICATION.

4.7 THE DIRECTOR MAY REQUIRE ADDITIONAL BEARINGS TO BE TESTED EVEN THOUGH REQUIRED BEARING TESTS HAVE BEEN ACCEPTABLE. SUCH ADDITIONAL TESTS WILL BE PAID FOR UNDER ITEM SPECIAL, ADDITIONAL BEARING TESTS, POT BEARINGS.

5. SHIPPING AND PACKING

5.1 BEARINGS SHALL BE SECURELY BANDED TOGETHER AS UNITS SO THAT THEY MAY BE SHIPPED TO THE JOB SITE AND STORED WITHOUT RELATIVE MOVEMENT OF THE BEARING PARTS OR DISASSEMBLY AT ANY TIME. THIS REQUIREMENT DOES NOT APPLY TO THE MASONRY PLATE OR 3 MM SHEET LEAD WHICH SHALL BE SHIPPED FOR SEPARATE INSTALLATION. BEARINGS SHALL BE WRAPPED IN MOISTURE PROOF AND DUST PROOF MATERIAL TO PROTECT AGAINST SHIPPING AND JOB SITE CONDITIONS.

5.2 CARE SHALL BE TAKEN TO ENSURE THAT BEARINGS AT THE JOB SITE ARE STORED IN A DRY, SHELTERED AREA FREE FROM DIRT OR DUST UNTIL INSTALLATION.

5.3 CENTERLINES SHALL BE MARKED ON APPROPRIATE BEARING PARTS FOR CHECKING ALIGNMENT IN THE FIELD AND BE SHOWN ON SHOP DRAWINGS.

5.4 EACH BEARING, MASONRY PLATE AND PAD SHALL HAVE A MARK NUMBER AND THE MARK NUMBER AND PLACEMENT LOCATION SHALL BE SHOWN ON THE SHOP DRAWINGS.

6. INSTALLATION

6.1 FIELD WELDING OF BEARING TO MASONRY PLATE SHALL MEET THE REQUIREMENT OF 3.5(1).

6.2 BEARING SHALL BE EVENLY SUPPORTED OVER THEIR UPPER AND LOWER SURFACES UNDER ALL ERECTION AND SERVICE CONDITIONS.

6.3 ALIGN THE CENTERLINES OF THE BEARING ASSEMBLY WITH THOSE OF THE SUBSTRUCTURE AND SUPERSTRUCTURE OR ON GUIDED BEARINGS, ALIGN THE BEARINGS TO ALLOW FOR THE DESIGNATED EXPANSION DIRECTING OF THE STRUCTURE.

6.4 ERECTION BARS SHALL BE FASTENED TO THE BEAM FLANGE TO ACCURATELY POSITION THE GIRDER ONTO THE SOLE PLATE OF THE BEARING. THE GUIDE BAR ON GUIDED BEARINGS MUST BE IN PARALLEL WITH THE GIRDER. TOLERANCE IN SETTING THE GUIDE BAR SHALL BE 0.80 MM IN THE LENGTH OF THE BAR OUT OF PARALLEL.

6.5 BEARING STRAPS OR RETAINING CLAMPS SHALL BE LEFT IN PLACE AS LONG AS POSSIBLE TO ENSURE PARTS OF BEARINGS ARE NOT INADVERTENTLY DISPLACED RELATIVE TO EACH OTHER.

6.6 SET OFFSETS OF UPPER AND LOWER BEARING PARTS TO COMPENSATE FOR AMBIENT TEMPERATURE AND AS REQUIRED BY PLANS.

6.7 CONCRETE BEARING SEATS SHALL BE PREPARED AT THE CORRECT ELEVATION AND SHALL BE LEVEL WITHIN 1:200.

6.8 FIELD PAINT EXPOSED STEEL IN ACCORDANCE WITH ITEM 514, SYSTEM IZEU.

7. METHOD OF MEASUREMENT

7.1 THE QUANTITY SHALL BE THE ACTUAL NUMBER OF POT BEARINGS FURNISHED WITHIN THE CATEGORIES LISTED BELOW. A COMPLETE AND ACCEPTABLE BEARING SYSTEM FURNISHED AND INSTALLED INCLUDING BEARING, MASONRY PLATE, BEARING PAD AND ANCHOR BOLTS WILL BE MEASURED ON AN EACH BASIS. NO DISTINCTION WILL BE MADE BETWEEN FIXED OR EXPANSION BEARINGS. THE CATEGORY OF EACH BEARING IS DETERMINED BY THE MAXIMUM VERTICAL REACTION LISTED IN THE CONSTRUCTION DRAWINGS.

7.2 ADDITIONAL BEARING TESTS, IF REQUIRED BY THE DIRECTOR, WILL BE MEASURED ON AN EACH BASIS FOR A SUCCESSFULLY TESTED AND ACCEPTED BEARING. TESTS RESULTING IN A REJECTED BEARING WILL NOT BE MEASURED AND PAID FOR.

8. BASIS OF PAYMENT

8.1 PAYMENT FOR POT BEARINGS WILL BE MADE AT THE CONTRACT UNIT PRICE PER EACH LISTED UNDER: ITEM 516 - STEEL POT BEARINGS

8.2 NO SEPARATE PAYMENT WILL BE MADE FOR THE WORK LISTED UNDER TESTING AND ACCEPTANCE OF THIS SPECIFICATION. THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE BEARINGS.

DESIGN AGENCY: EUTHENICS INC. CONSULTING ENGINEERS

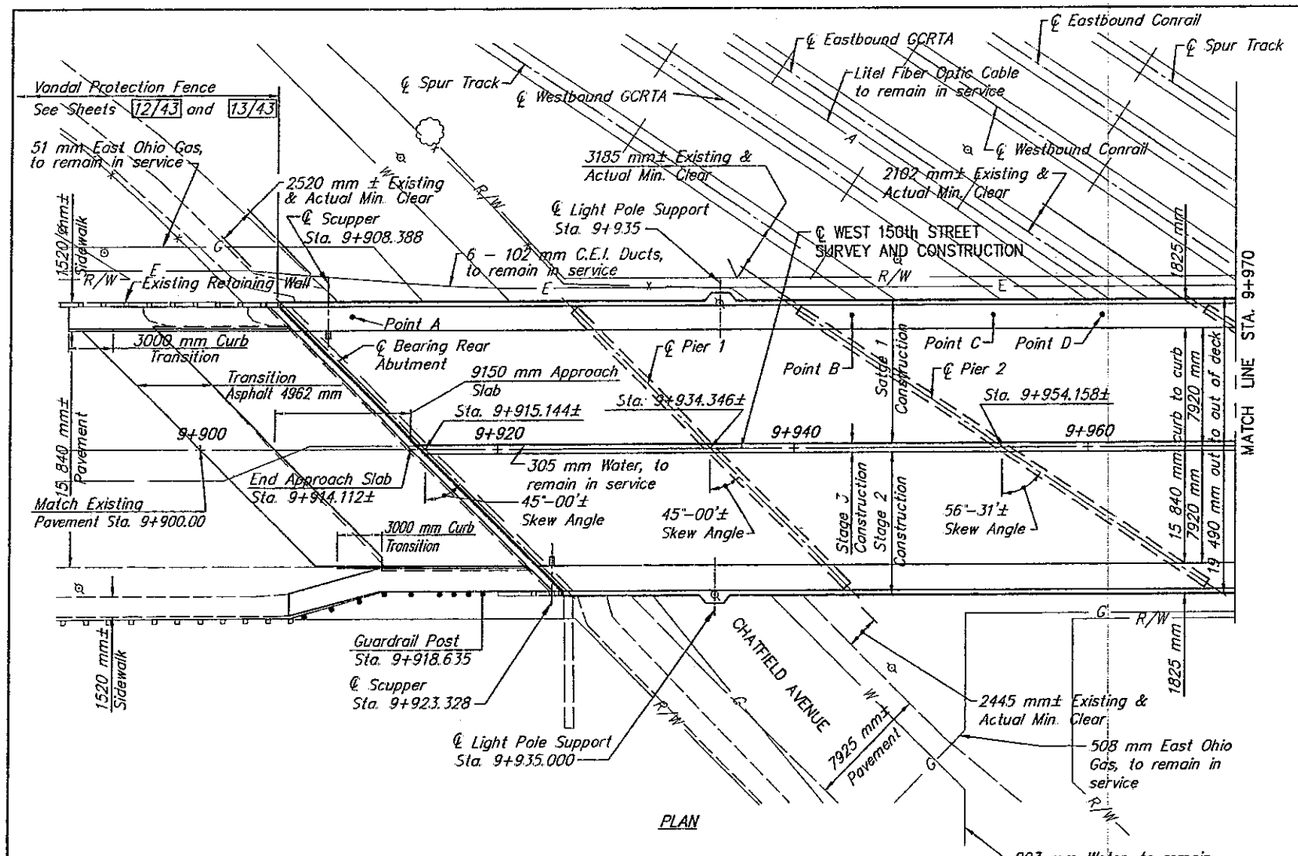
DESIGNED	DRAWN	REVIEWED	DATE
KRD	PJK	RAB	2-98
CHECKED	REVISED	STRUCTURE FILE NUMBER	
GFH		1833405	

GENERAL NOTES
BRIDGE NO. 152
West 150th Street over Conrail, GCRTA and Chatfield Ave.

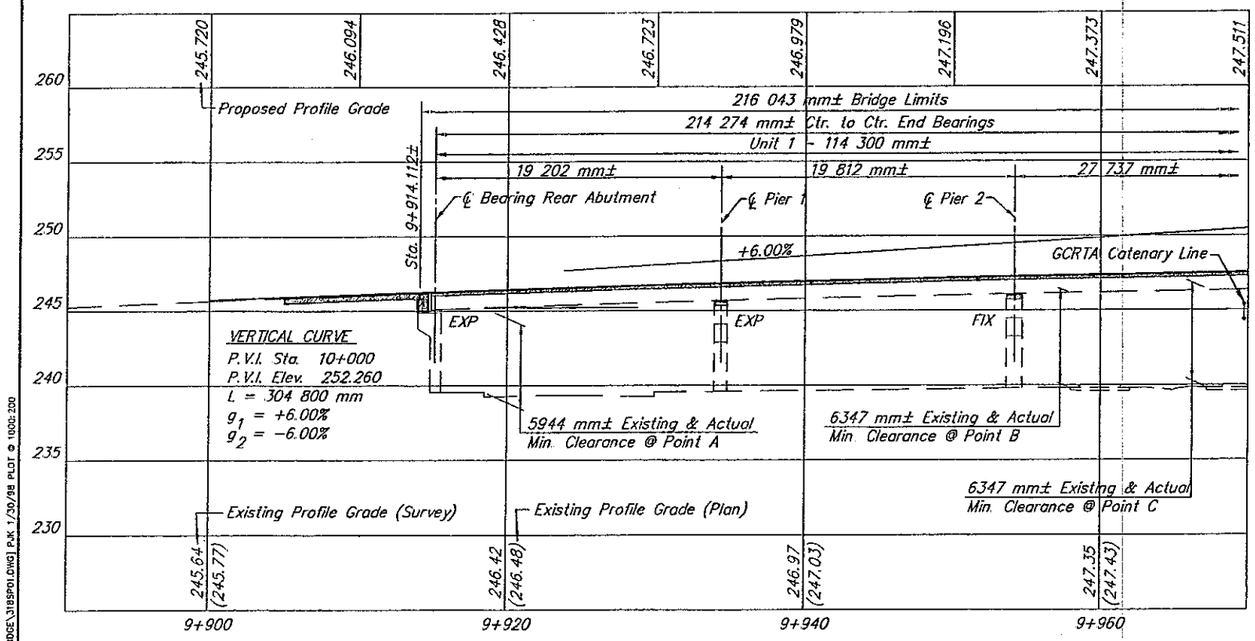
CUY-WEST 150th STREET

Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B-No. 162

P:\JOBS\318\BRIDGE\318GNS3D.DWG PJK 2/23/98 PLOT @ 1000:1 METRIC



PLAN



SECTION ON CENTERLINE – WEST 150TH STREET

TEMPORARY BENCH MARK
East Bolt on Metal Strain Pole. Sta. 10+225.247, 11 125 mm Right Elev. 240.192

N

TRAFFIC DATA – WEST 150TH STREET

(1997)	A.D.T.	= 29,525
	A.D.T.T.	= 443
(2017)	A.D.T.	= 29,305
	A.D.T.T.	= 440

Note:
Actual minimum vertical clearance at Point A occurs at the intersection of the North curb line of Chatfield Avenue and the East edge of the east exterior beam.
Actual minimum vertical clearance at Points B, C and D occurs 2000 mm North of the centerline of track at the East edge of the east exterior beam.
The following clearances, unless otherwise approved by the railroads, shall be maintained during construction on tracks which trains are operating:

	GCRTA	Conrail
Vertical	4.9m	Existing
Horizontal	2.3m	3.0m

Stations and elevations are given in meters.
For approach slab details see Roadway Plans.

EXISTING STRUCTURE

TYPE: Unit 1 and 2 – Continuous composite steel beam with reinforced concrete deck and substructure.

SPANS: Unit 1 – 19 202 mm±, 19 812 mm±, 27 737 mm±, 27 127 mm± and 20 218 mm±
Unit 2 – 20 218 mm±, 3 spans at 20 422 mm±, and 18 288 mm± C/C of bearings measured along ℄ West 150th St.

ROADWAY: 15 840 mm± face to face of curbs with two 1520 mm± sidewalks

LOADING: CF=2000 and A.A.S.H.O. Alternate Loading

SKEW: Varies 0°to 56°–31'± Right Forward

WEARING SURFACE: Asphalt Concrete

APPROACH SLABS: 9144 mm±

ALIGNMENT: Tangent

CROWN: Normal, 0.0156

DATE BUILT: 1967

STRUCTURE FILE NO.: 1833405

PROPOSED STRUCTURE

PROPOSED WORK: Remove and replace existing concrete deck, approach slabs, sidewalks and parapets. Repair existing structural steel, replace bearings, seal joints and repair, modify and seal existing sub–structure units and retaining wall.

TYPE: Unit 1 and 2 – Continuous composite steel beam with reinforced concrete deck and substructure

SPANS: Unit 1 – 19 202 mm±, 19 812 mm±, 27 737 mm±, 27 127 mm± and 20 124 mm±
Unit 2 – 20 124 mm±, 3 spans at 20 422 mm±, and 18 288 mm± C/C of bearings measured along ℄ West 150th St.

ROADWAY: 15 840 mm toe to toe of curbs with two 1520 mm sidewalks

LOADING: MS–18 Case II and the Alternate Military Loading

SKEW: Varies 0° to 56°–31'± Right Forward

WEARING SURFACE: 32mm Latex Modified Concrete

APPROACH SLABS: AS–1–81M (9150 mm Long)

ALIGNMENT: Tangent

CROWN: Normal, 0.016

DESIGN AGENCY: EUTHENICS INC. CONSULTING ENGINEERS
DATE: 9–96
REVIEWED: RAB
STRUCTURE FILE NUMBER: 1833405
DRAWN: BMG
REVISED:
DESIGNED: BMG
CHECKED: KRD

CUYAHOGA COUNTY STA. 9+914.112± to STA. 10+130.155±

SITE PLAN
BRIDGE NO. 152
West 150th Street over Conrail, GCRTA and Chatfield Ave.

CUY-WEST 150th STREET

4 / 43

Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B–No. 162

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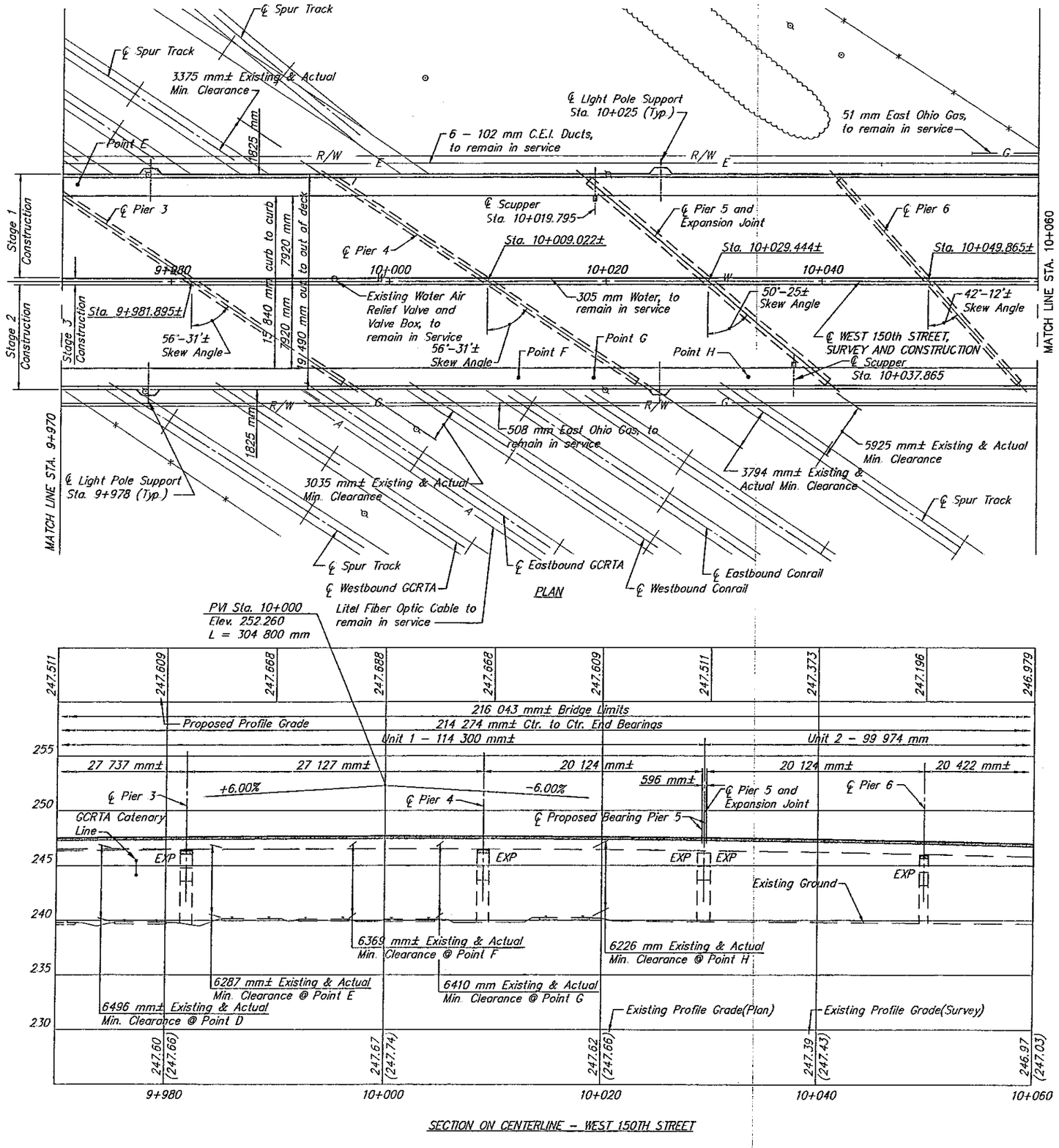


Note:
Actual minimum vertical clearance at Points D and E occurs 2000 mm North of the centerline of track at the East edge of the east exterior beam.
Actual minimum vertical clearance at Points F, G and H occurs 2000 mm South of the centerline of track at the West edge of the west exterior beam.
For details of water air relief valve and valve box see Roadway Plans.

DESIGN AGENCY
EUTHENICS INC
CONSULTING ENGINEERS

DESIGNED	DRAWN	REVIEWED	DATE
BMG	BMG	RAB	9-96
CHECKED	REVISED	STRUCTURE FILE NUMBER	
KRD		1833405	

CUYAHOGA COUNTY
STA. 9+914.112± to STA. 10+130.155±

SITE PLAN
BRIDGE NO. 152
West 150th Street over Conrail, GCRTA and Chatfield Ave.

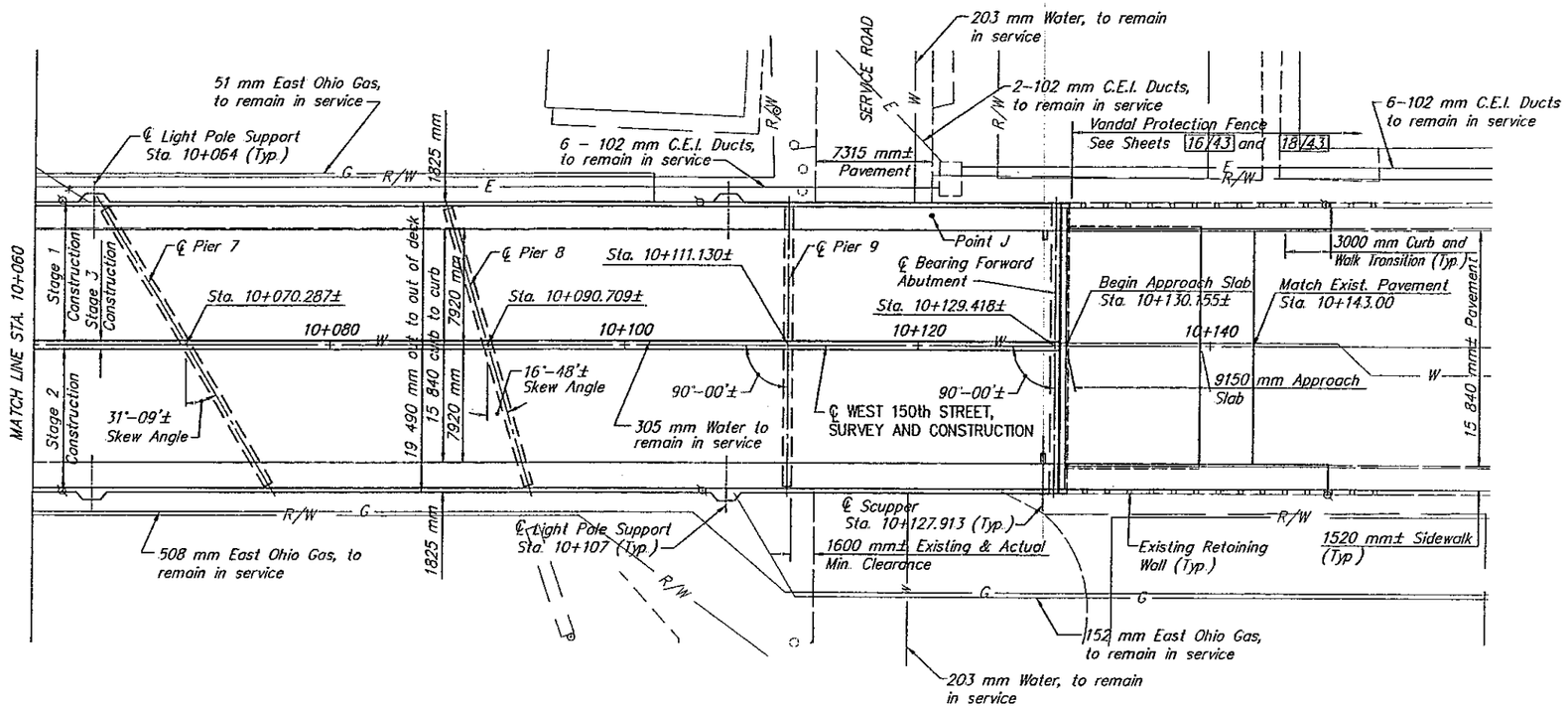
CUY-WEST 150th STREET

5 / 43

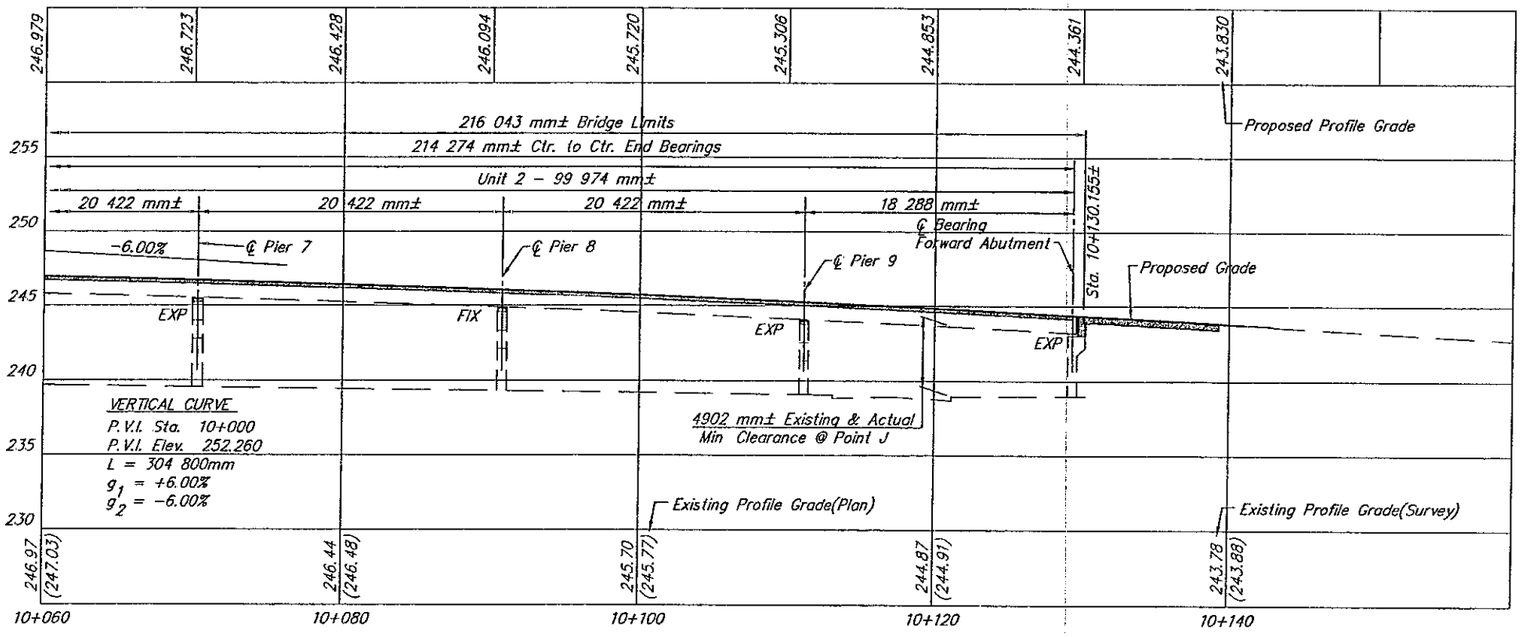
Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B-No. 162

35 / 73

L:\JOBS\318\BRIDGE\318SP02.DWG| PLOT: 1/30/98 PLOT @ 1000-200



PLAN



SECTION ON CENTERLINE - WEST 150TH STREET

Note.
Actual minimum vertical clearance at Point J occurs at the intersection of the South curb line of the Service Road and the East edge of the east exterior beam.

DESIGN AGENCY
EUTHENICS INC. CONSULTING ENGINEERS

DESIGNED	DRAWN	REVIEWED	DATE
BMG	BMG	RAB	9-96
CHECKED	REVISED	STRUCTURE FILE NUMBER	
KRD		18.33405	

CUYAHOGA COUNTY
STA. 9+914.112± to STA. 10+130.155±

SITE PLAN
BRIDGE NO. 152
West 150th Street over Conrail, GCRTA and Chatfield Ave.

CUY-WEST 150th STREET

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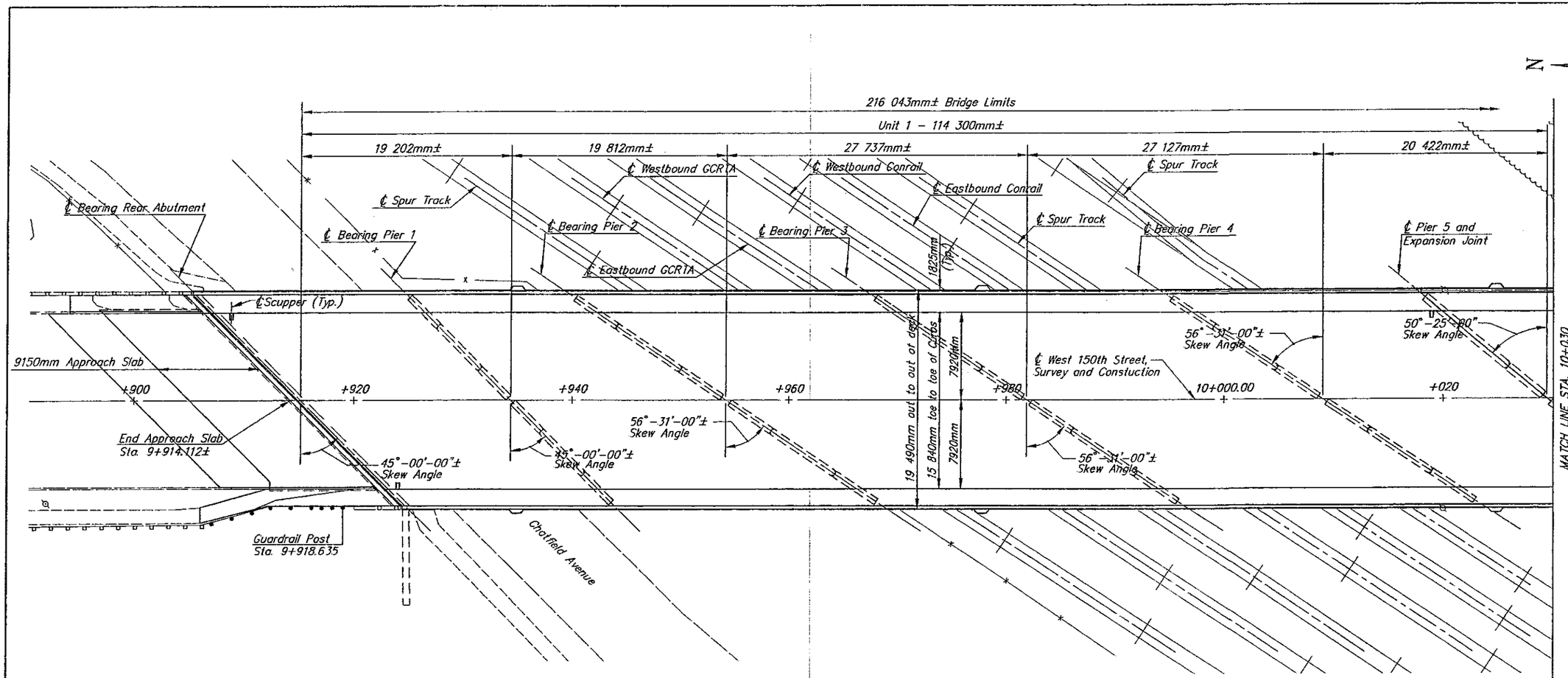
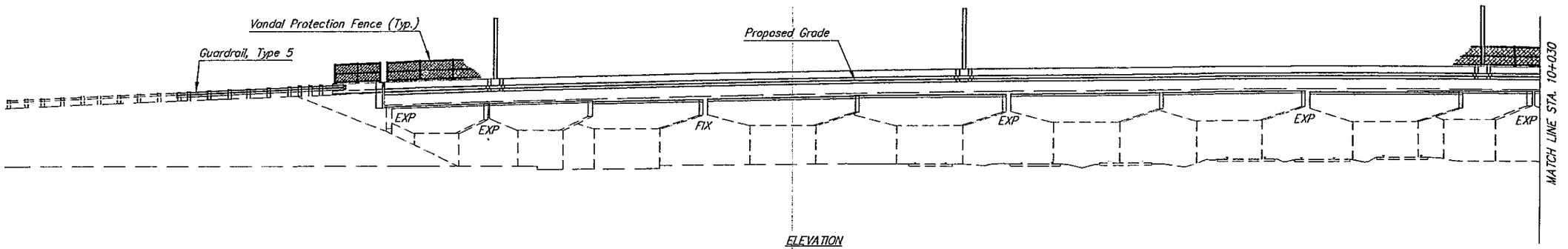
Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B-No. 162

[\OBS\318\BRIDGE\318SP03.DWG] PJK 1/30/98 PLOT @ 1000:200



GENERAL PLAN



ELEVATION

GENERAL PLAN AND ELEVATION
BRIDGE NO. 152
West 150th Street over Conrail, GCRTA and Chatfield Ave.

CUY-WEST 150th STREET

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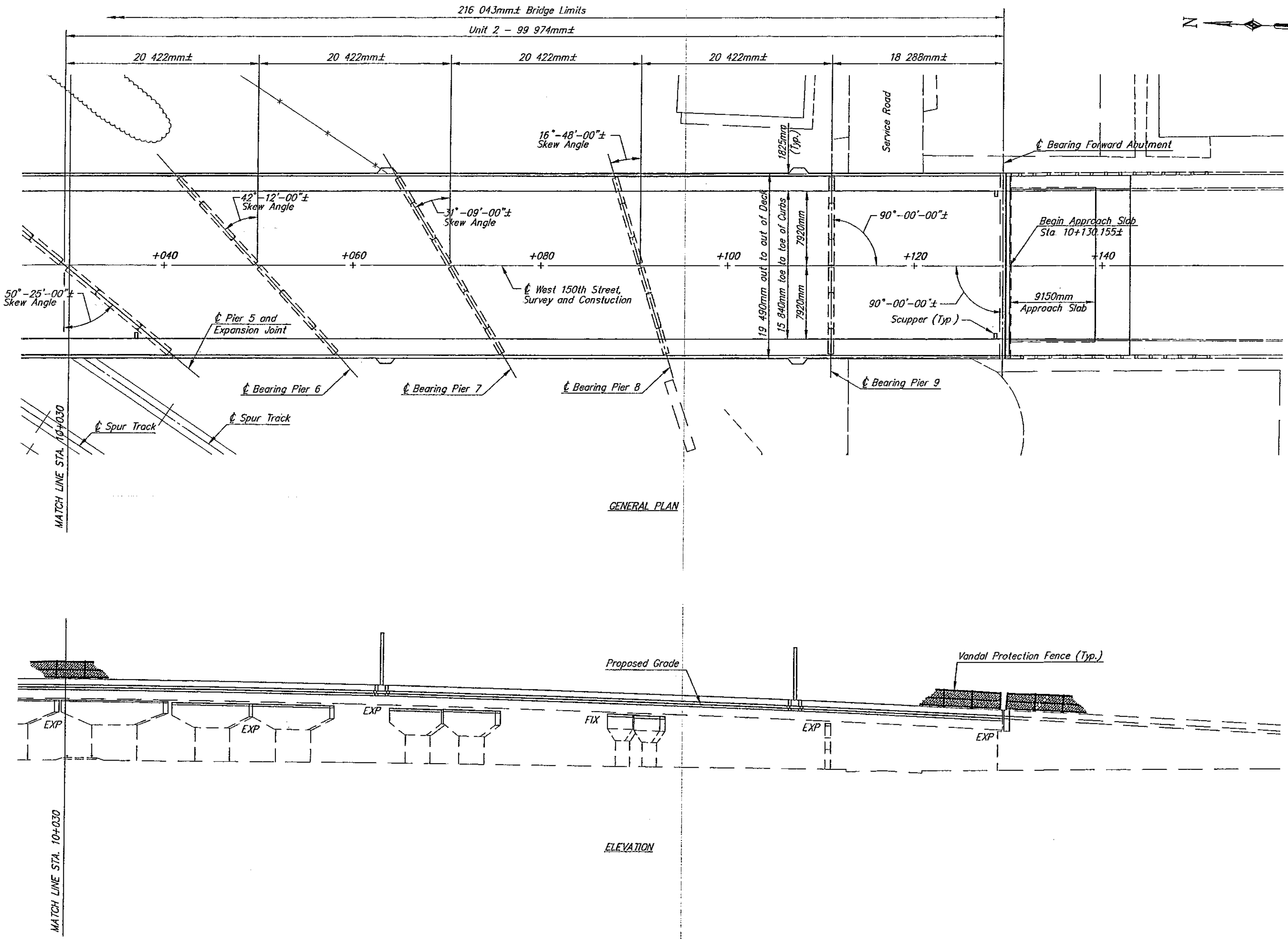
Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B–No. 162

DESIGN AGENCY
EUTHENICS INC.
CONSULTING ENGINEERS

DESIGNED	DRAWN	REVIEWED	DATE
BMG	BMG	RAB	9–96
CHECKED	REVISED	STRUCTURE FILE NUMBER	
KRD		1833405	



DESIGN AGENCY: EUTHENICS INC. CONSULTING ENGINEERS

DESIGNED	DRAWN	REVIEWED	DATE
BMG	BMG	RAB	9-96
CHECKED	REVISED	STRUCTURE FILE NUMBER	
KRD		1833405	

GENERAL PLAN AND ELEVATION
BRIDGE NO. 152
West 150th Street over Conrail, GCRTA and Chatfield Ave.

CUY-WEST 150th STREET

8 / 43

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Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B-No. 162

\JOBS\318\BRIDGE\318GP02.DWG1 PJK 1/31/96 PLOT @ 1000:200

CALC. BY: BMG DATE: 9-95 — ESTIMATED QUANTITIES — CHK'D. BY: KRD DATE: 4-96

ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	SHEET NUMBERS	ABUT-MENTS	PIER	SUPER-STRUCTURE	GENERAL	
202	11203	LUMP	LUMP	PORTIONS OF STRUCTURE REMOVED, OVER 6 METER SPAN, AS PER PLAN	1/43				LUMP	
503	11100	LUMP	LUMP	COFFERDAMS, CRIBS AND SHEETING					LUMP	
503	21301	LUMP	LUMP	UNCLASSIFIED EXCAVATION, AS PER PLAN	1/43	LUMP				
511	31504	1001	CU. M.	CLASS S CONCRETE, SUPERSTRUCTURE				1001		
*511	33404	1001	CU. M.	CLASS S CONCRETE, SUPERSTRUCTURE (USING SHRINKAGE COMPENSATING CEMENT) (SEE PROPOSAL NOTE) 701.08				1001		
SPECIAL	69071000	LUMP	LUMP	ASBESTOS ABATEMENT	3A/43				LUMP	
*511	33410	LUMP	LUMP	CLASS S CONCRETE, USING SHRINKAGE COMPENSATING CEMENT, FOR PRE-PLACEMENT TESTING (SEE PROPOSAL NOTE) 701.08				LUMP		
511	34440	648	SQ. M.	CLASS S CONCRETE, MISC.: SIDEWALK WEARING COURSE	3A/43			648		
511	43200	28	CU. M.	CLASS C CONCRETE, PIER			28			
511	45700	32	CU. M.	CLASS C CONCRETE, ABUTMENT		32				
512	33300	43	SQ. M.	TYPE A WATERPROOFING		43				
512	44400	2	SQ. M.	TYPE B WATERPROOFING		2				
SPECIAL	51267504	648	SQ. M.	SEALING OF CONCRETE SURFACES (NON-EPOXY) (SEE PROPOSAL NOTE)				648		
SPECIAL	51267510	5041	SQ. M.	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE) (SEE PROPOSAL NOTE)		1767	1984	1290		
SPECIAL	51267520	148	SQ. M.	SEALING CONCRETE SURFACES WITH TINTED SILANE (SEE PROPOSAL NOTE)			148			
816	00610	14 950	kg.	FIELD PAINTING OF NEW STEEL, INTERMEDIATE AND FINISH COAT, SYSTEM IZEU				14 950		
516	11210	46	M.	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL				46		
516	14600	30	M.	MODULAR EXPANSION JOINT, AS PER PLAN	2/43			30		
516	45000	120	EACH	STEEL POT BEARING	3B/3C/3D/43	20	100			
516	47001	LUMP	LUMP	JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN	2/43			LUMP		
517	75300	429	M.	RAILING, CONCRETE PARAPET WITH CHAIN LINK FENCE				429		
518	12201	6	EACH	SCUPPER, INCLUDING SUPPORTS, AS PER PLAN	41/43			6		
518	21200	26	CU. M.	POROUS BACKFILL WITH FILTER FABRIC		26				
518	51100	42	M.	200mm PIPE DOWNSPOUT, INCLUDING SPECIALS		28	14			
SPECIAL	51912600	16	M.	CONCRETE REPAIR BY EPOXY INJECTION		16				
519	11101	50	SQ. M.	PATCHING CONCRETE STRUCTURES, AS PER PLAN	2/43				50	
520	11100	240	SQ. M.	PNEUMATICALLY PLACED MORTAR		106	134			
601	28000	3	CU. M.	DUMPED ROCK FILL, TYPE D					3	
603	02000	2	M.	200mm CONDUIT, TYPE C					2	
604	04500	2	EACH	CATCH BASIN, NO. 2-2B					2	
SPECIAL	60739900	218	M.	VANDAL PROTECTION FENCE, 1.8 METER STRAIGHT, COATED FABRIC					218	
815	00050	6860	SQ. M.	SURFACE PREPARATION OF EXISTING STEEL, SYSTEM OZEU				6860		
815	00056	6860	SQ. M.	FIELD PAINTING OF EXISTING STEEL, PRIME COAT, SYSTEM OZEU				6860		
815	00060	6860	SQ. M.	FIELD PAINTING OF EXISTING STEEL, INTERMEDIATE COAT, SYSTEM OZEU				6860		
815	00066	6860	SQ. M.	FIELD PAINTING OF EXISTING STEEL, FINISH COAT, SYSTEM OZEU				6860		
**845	10200	3398	SQ. M.	LATEX MODIFIED CONCRETE OVERLAY (32 mm THICK) (SEE PROPOSAL NOTE)				3398		
863	10200	14 950	kg.	STRUCTURAL STEEL MEMBERS, MISCELLANEOUS LEVEL FABRICATION				14 950		
863	20000	1520	EACH	WELDED STUD SHEAR CONNECTORS				1520		
SPECIAL	10000300	LUMP	LUMP	PREMIUM ON RAILROAD'S PROTECTIVE PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE					LUMP	

* Alternate Bid Item: These two items constitute one alternate bid to class S Concrete, Superstructure. The additional cost for shrinkage compensating cement and the preplacement test are funded 100% by Cuyahoga County.

** Funded 100% by Cuyahoga County

DESIGN AGENCY: EUTHENICS INC. CONSULTING ENGINEERS

DESIGNED: BMG | CHECKED: KRD | DRAWN: BMG | REVISED: | REVIEWED: RAB | DATE: 9-96 | STRUCTURE FILE NUMBER: 1833405

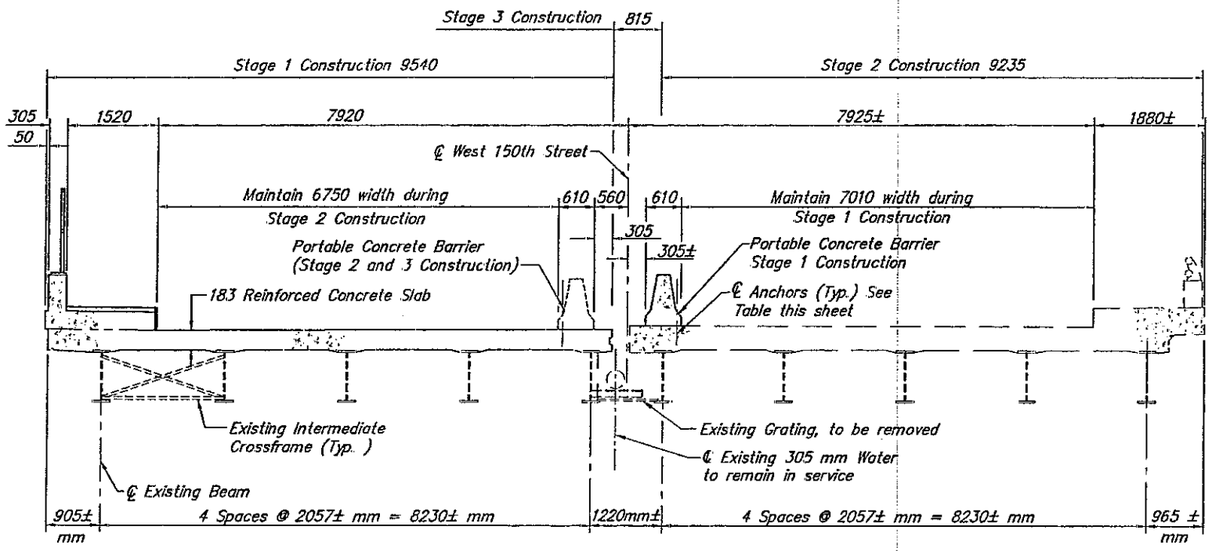
ESTIMATED QUANTITIES

BRIDGE NO. 152

West 150th Street over Conrail, GCRTA and Chatfield Ave.

CUY-WEST 150th STREET

Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B-No. 162



TRANSVERSE SECTION
Stage Construction

813 mm BRIDGE MOUNTED, PORTABLE CONCRETE BARRIER ANCHORS	
STAGE	NO. ANCHORS / 3050 mm SECTION
1	2
2	2

Note:

The Latex Modified Concrete Overlay shall not be placed during Stage 1 Construction. Traffic for Stage 2 and 3 Construction shall be maintained on the reinforced concrete deck without the overlay.

After Stage 3 Construction and the new concrete deck has cured for 28 days, the overlay shall be placed on the right half of the bridge. The overlay shall be placed on the left half of the bridge during Stage 4 Construction.

See sheet 41 | 43 for details.

Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B-No. 162

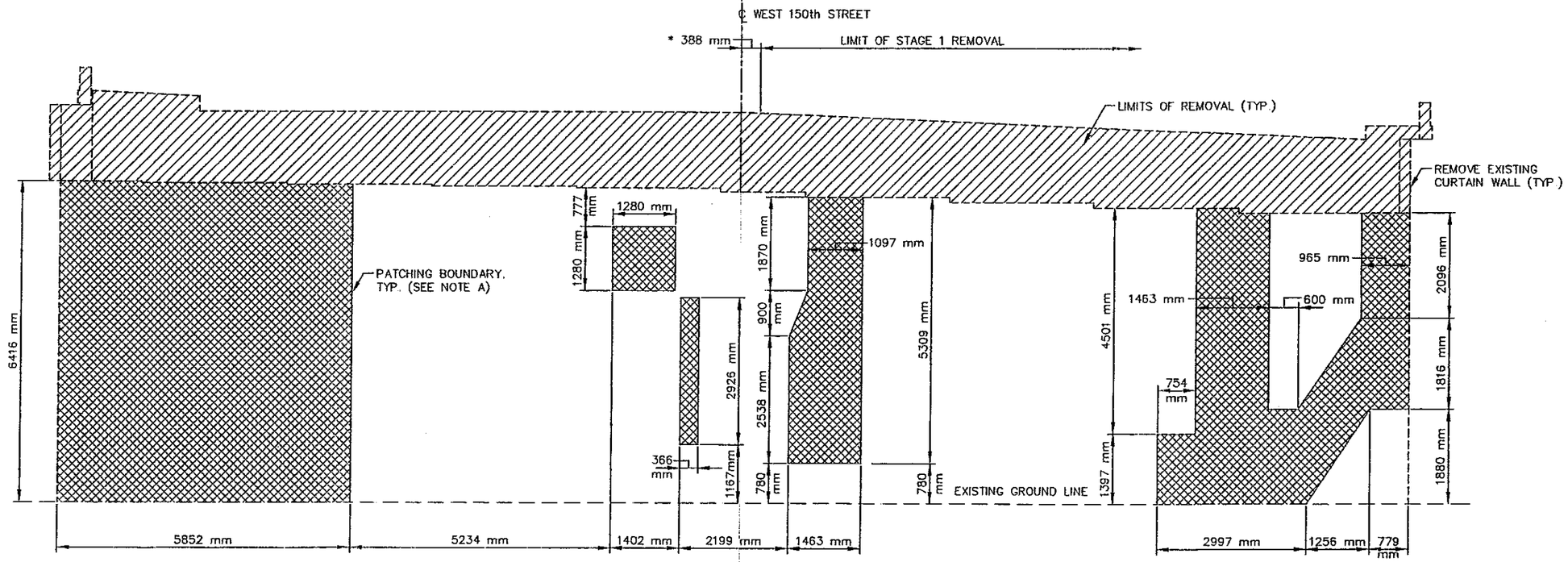
DESIGN AGENCY: EUTHEMES INC. CONSULTING ENGINEERS
DESIGNED: BMG | DRAWN: BMG | CHECKED: KRD | REVIEWED: RAB | DATE: 9/96
REVISED | STRUCTURE FILE NUMBER 1833405

STAGE CONSTRUCTION
BRIDGE NO. 152
West 150th Street over Conrail, GCRTA and Chatfield Ave.

CUY-WEST 150th STREET

10 / 43

40 / 73



EXISTING REAR ABUTMENT - BREASTWALL ELEVATION

NOTE A: PROVIDE PATCHES WITH STRAIGHT BOUNDARIES TO ENCOMPASS THE IRREGULAR DETERIORATED AREAS SHOWN ON THE PLANS.

NOTE B: STATIONS AND ELEVATIONS ARE GIVEN IN METERS UNLESS OTHERWISE NOTED.

* : MEASURED ALONG FRONT FACE OF BACKWALL.

▨ – ITEM 520 PNEUMATICALLY PLACED MORTAR

▨ – ITEM 202 PORTIONS OF STRUCTURES REMOVED, OVER 6 METER SPAN, AS PER PLAN

ABBREVIATIONS

CONT.	=	CONTINUOUS
ELEV.	=	ELEVATION
E.F.	=	EACH FACE
F.F	=	FAR FACE
M	=	MIDDLE
N.F.	=	NEAR FACE
SPA.	=	SPACES
TYP.	=	TYPICAL

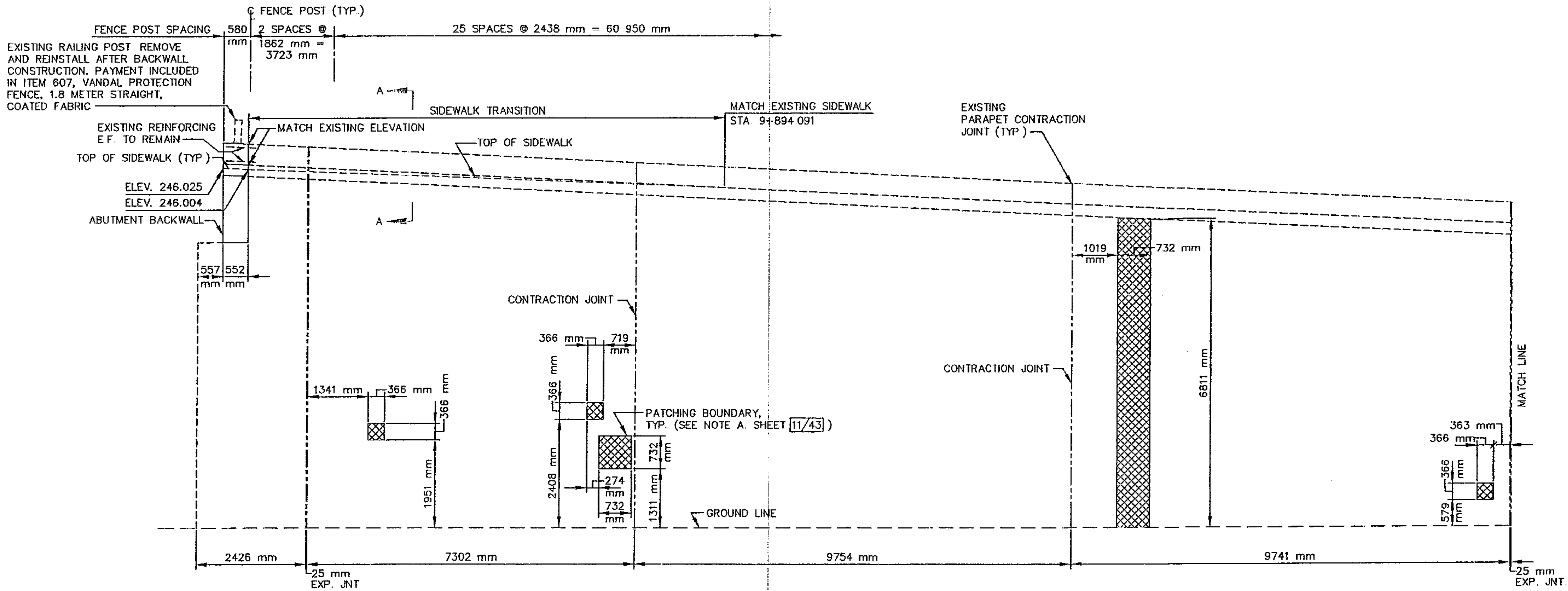
Cuyahoga County Engineer
Cleveland, Ohio
Report No 7223 and B-No 162

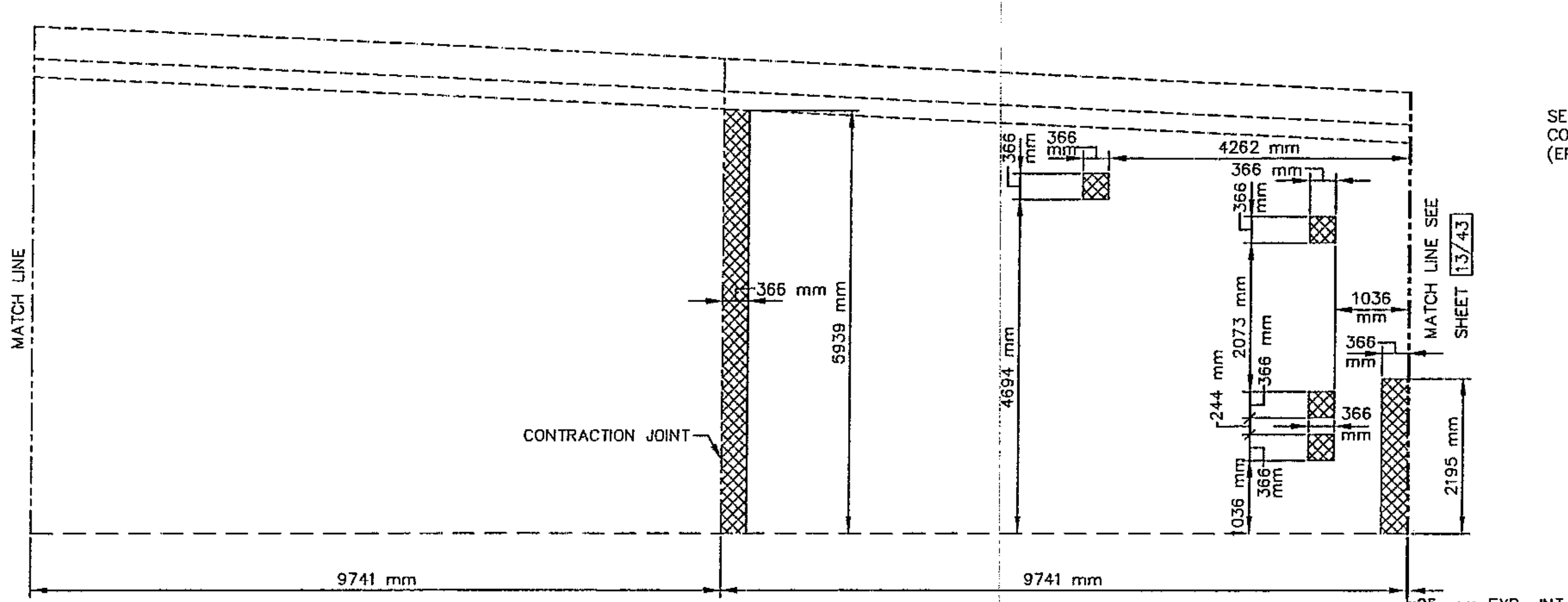
DESIGN AGENCY
JOHN E. FOSTER AND ASSOCIATES, INC.
3999 PAYNE AVENUE
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
B.M.G.	D.M.T.	R.A.B.	9-96
CHECKED	REVISED	STRUCTURE FILE NUMBER	
H.S.S.		1833405	

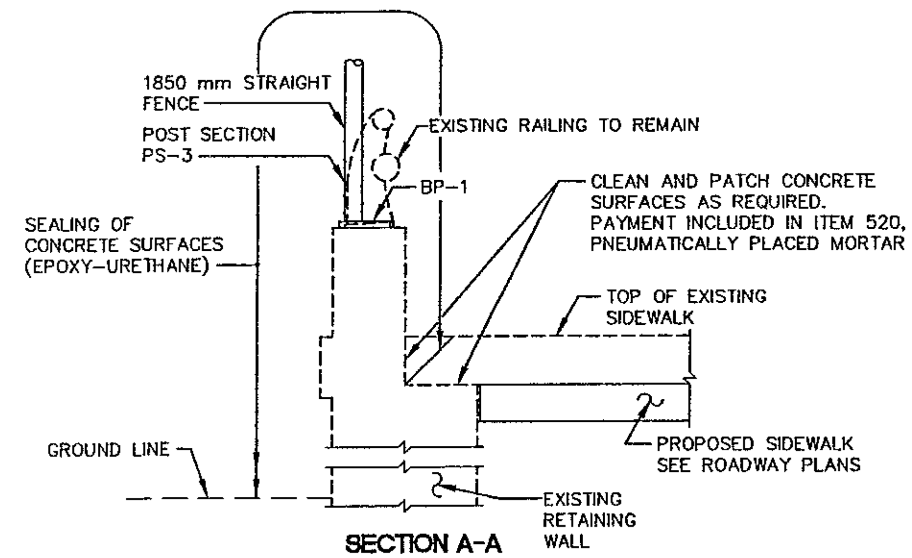
EXISTING REAR ABUTMENT - BREASTWALL ELEVATION
BRIDGE No. 152
WEST 150th STREET OVER CONRAIL, GCRTA AND CHATFIELD AVE.

CUY-WEST 150th STREET





EXISTING LEFT REAR RETAINING WALL ELEVATION



SECTION A-A
(SIDEWALK TRANSITION)

NOTES:

A FOR VANDAL PROTECTION FENCE NOTES AND DETAILS SEE OHIO STANDARD DRAWING VPF-1-90M SHEETS 1, 3, 5, 6 AND 7 OF 7.
PAYMENT FOR THE VANDAL PROTECTION FENCE ON THE EXISTING PARAPETS SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 607, VANDAL PROTECTION FENCE, 1.8 METER STRAIGHT, COATED FABRIC.

B FOR ADDITIONAL NOTES SEE SHEET 11/43

Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B-No 162

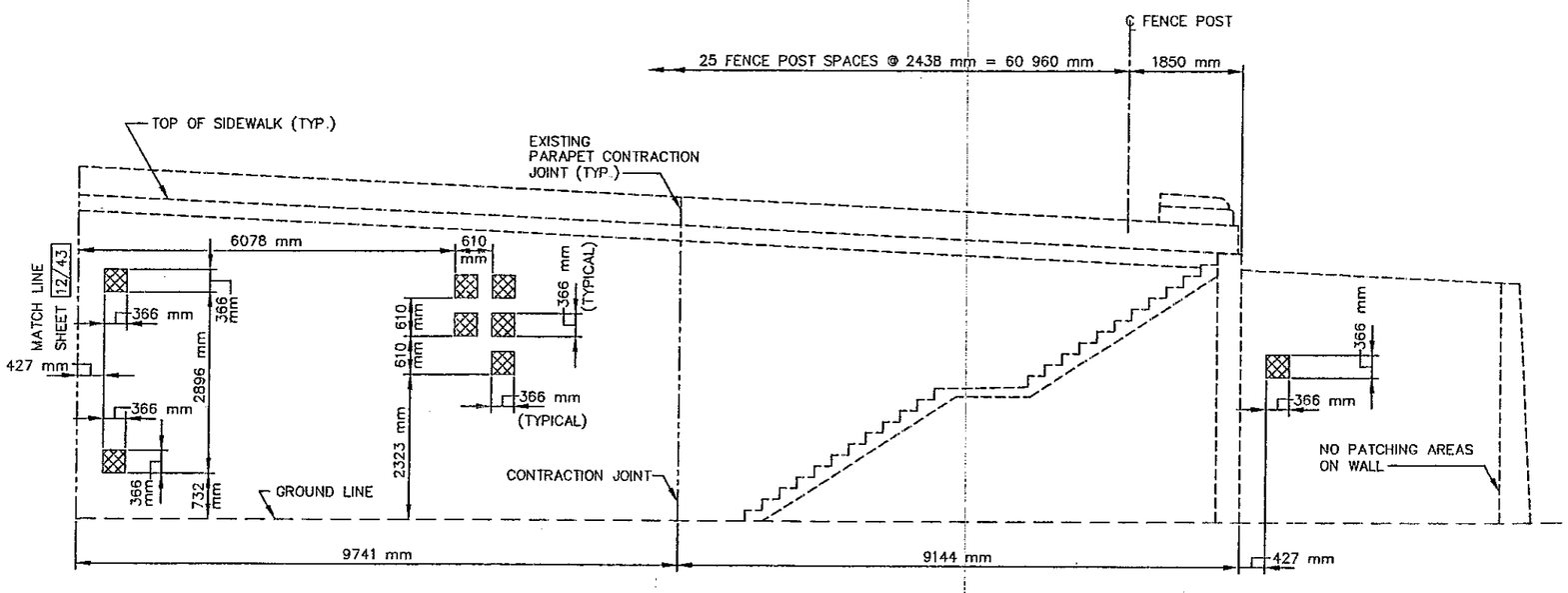
DESIGN AGENCY: JOHN E. FOSTER AND ASSOCIATES, INC.

DESIGNED B.M.G. | DRAWN D.M.T. | REVIEWED R.A.B. | DATE 9-96 | CHECKED H.S.S. | REVISED | STRUCTURE FILE NUMBER 1833405

EXISTING LEFT REAR RETAINING WALL ELEVATION
BRIDGE No. 152
WEST 150th STREET OVER CONRAIL, GCRTA AND CHATFIELD AVE.

CUY-WEST 150th STREET

12/43



EXISTING LEFT REAR RETAINING WALL ELEVATION (CONT.)

NOTE:

A. NO PATCHING AREAS ON RIGHT REAR RETAINING WALLS.

B. FOR ADDITIONAL NOTES SEE SHEET 11/43

Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B-No. 162

DESIGN AGENCY
JOHN E. FOSTER AND ASSOCIATES, INC.
2999 PAYNE AVENUE
CLEVELAND, OHIO 44114

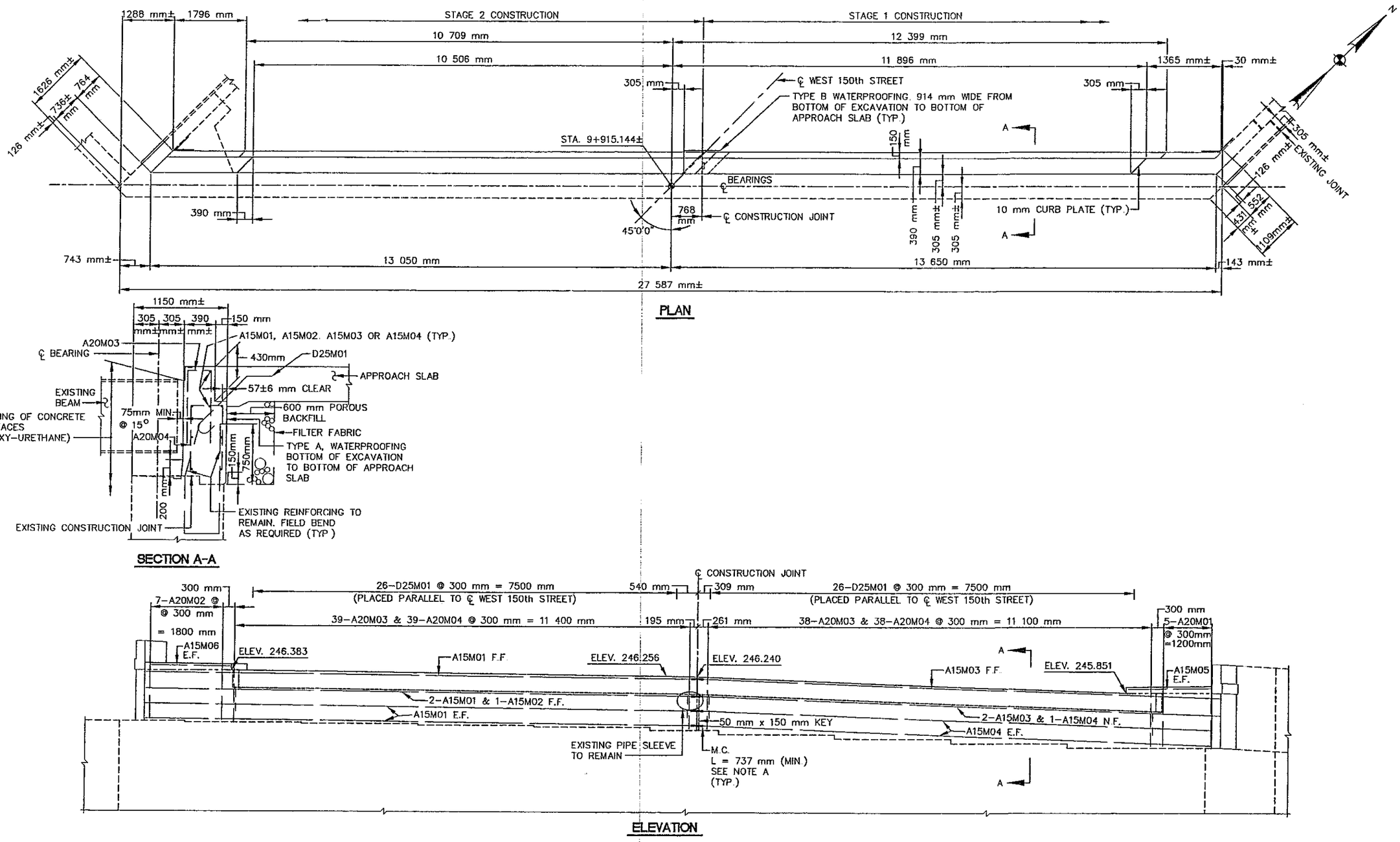
DESIGNED	DRAWN	REVISED	DATE
B.M.G.	D.M.T.	R.A.B.	9-98
CHECKED	REVISED	STRUCTURE FILE NUMBER	
H.S.S.		1833405	

EXISTING LEFT REAR RETAINING WALL ELEVATION (CONT.)
BRIDGE No. 152
WEST 150th STREET OVER CONRAIL, GCRTA AND CHATFIELD AVE.

CUY-WEST 150th STREET

13/43

43/73



NOTE A: MECHANICAL CONNECTOR: AN APPROVED TYPE OF MECHANICAL CONNECTOR FOR REINFORCING BARS SHALL BE PROVIDED. INSTALLATION OF CONNECTORS SHALL CONFORM WITH MANUFACTURER'S RECOMMENDED PROCEDURES. IF A DOWEL BAR SPLICE TYPE OF CONNECTOR IS FURNISHED, THE MINIMUM DOWEL BAR LENGTH TO BE INCLUDED WITH THE CONNECTOR SHALL BE AS GIVEN BY THE DIMENSION "L" SHOWN ON THE PLANS.

CONNECTORS AND DOWEL BARS USED WITH EPOXY COATED BARS SHALL BE EPOXY COATED. COATING FOR BOTH CONNECTORS AND BARS SHALL CONFORM TO THE SAME SPECIFICATIONS. COATINGS WHICH HAVE BEEN DAMAGED OR WHICH OTHERWISE DO NOT MEET SPECIFICATIONS WITH RESPECT TO COLOR, CONTINUITY AND UNIFORMITY MAY BE REPAIRED AS DIRECTED BY THE ENGINEER OR THEY SHALL BE REPLACED WITH MATERIAL WHICH MEETS THE SPECIFICATIONS.

CONNECTORS AND BAR EXTENSIONS SHALL CONFORM WITH ITEM 509 AND BE INCLUDED IN THE BID PRICE FOR ITEM 511, CLASS C CONCRETE, ABUTMENT.

NOTE B: FIELD CUT REINFORCING AS REQUIRED AT PIPE SLEEVE.

NOTE C: FOR ADDITIONAL NOTES SEE SHEET 11/43.

DESIGN AGENCY
JOHN E. FOSTER AND ASSOCIATES, INC
8999 PAYNE AVENUE
CLEVELAND, OHIO 44114

DESIGNED B.M.G. | DRAWN D.M.T. | CHECKED H.S.S. | REVISED | REVISED R.A.B. | DATE 9-98 | STRUCTURE FILE NUMBER 1833405

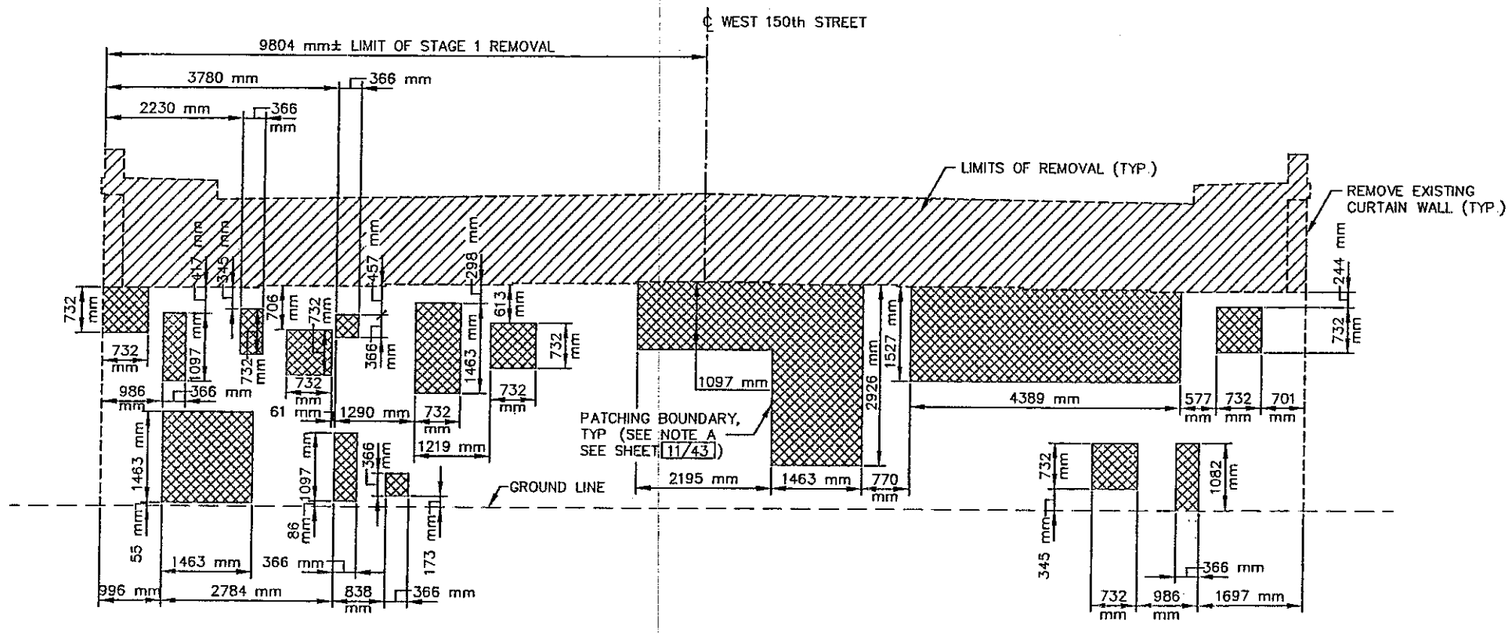
EXISTING REAR ABUTMENT PLAN AND ELEVATION
BRIDGE No. 152
WEST 150th STREET OVER CONRAIL, GCRTA AND CHATFIELD AVE.

CUY-WEST 150th STREET

14/43

44/73

Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B-No. 162



EXISTING FORWARD ABUTMENT - BREASTWALL ELEVATION

NOTES:
A. FOR ADDITIONAL NOTES SEE SHEET 11/43

DESIGN AGENCY
JOHN E. FOSTER AND ASSOCIATES, INC.
2999 PAYNE AVENUE
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
B.M.G.	D.M.T.	R.A.B.	9-96
CHECKED	REVISED	STRUCTURE FILE NUMBER	
H.S.S.		1833405	

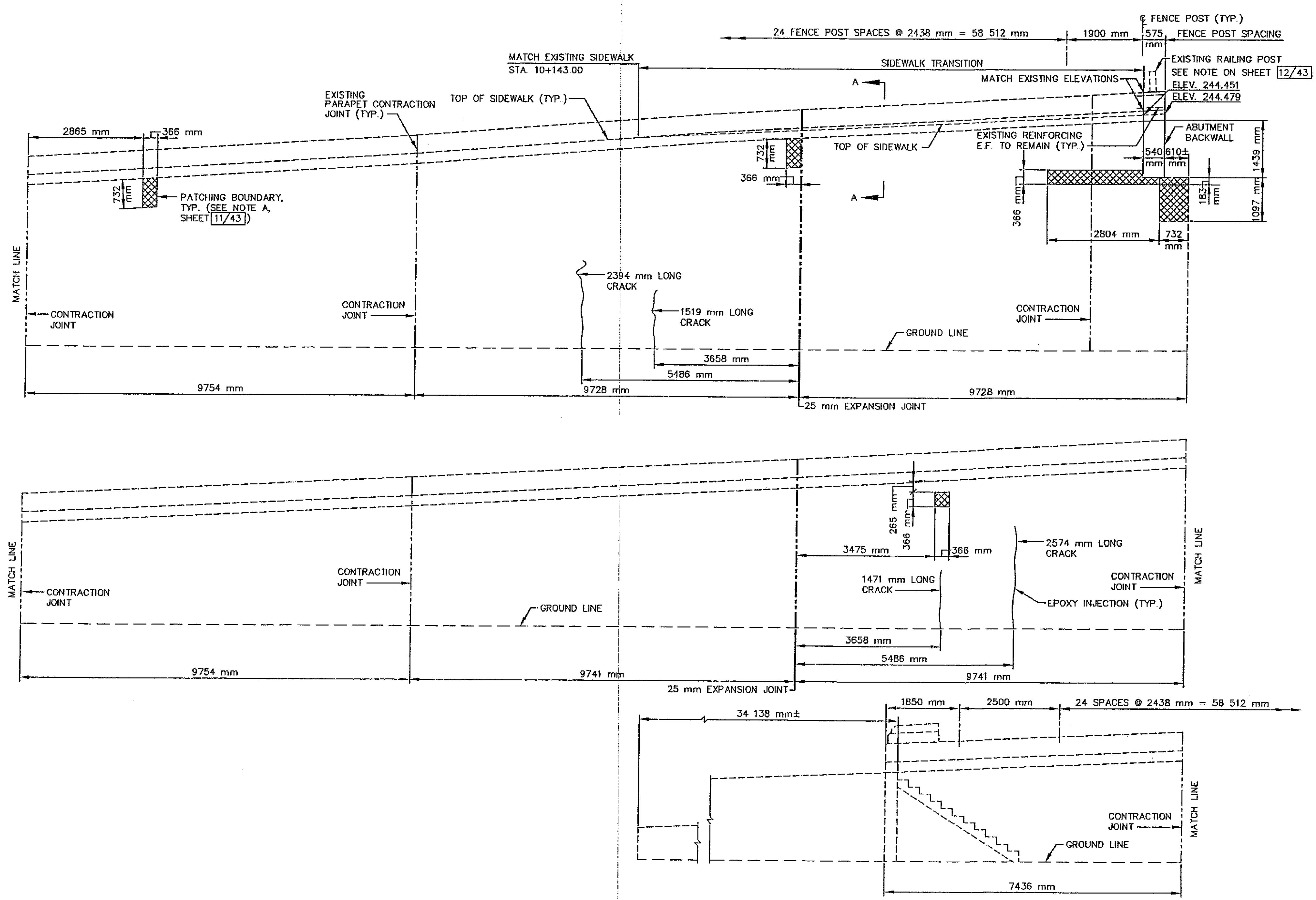
EXISTING FORWARD ABUTMENT - BREASTWALL ELEVATION
BRIDGE No. 152
WEST 150th STREET OVER CONRAIL, GCRTA AND CHATFIELD AVE.

CUY-WEST 150th STREET

15/43

Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B-No. 162

45/73



EXISTING LEFT FORWARD RETAINING WALL ELEVATION

NOTE:
A. FOR ADDITIONAL NOTES SEE SHEET 11/43.
B. FOR SECTION A-A SEE SHEET 12/43.

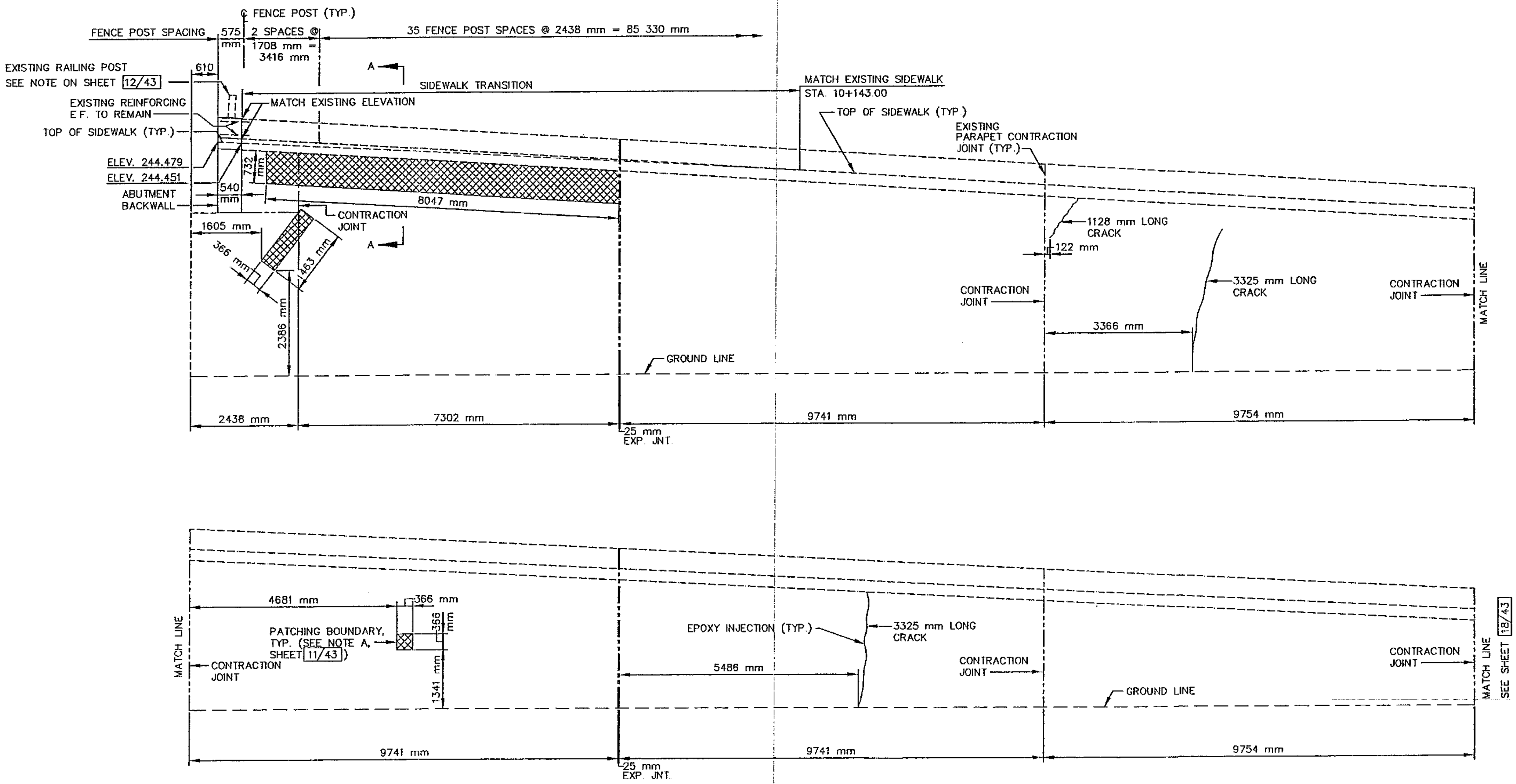
JOHN E. FOSTER AND ASSOCIATES, INC.
2020 PAYNE AVENUE
CLEVELAND, OHIO 44114

DESIGNED	CHECKED	DRAWN	REVISED	REVIEWED	DATE	STRUCTURE FILE NUMBER
B.M.G.	H.S.S.	D.M.T.		R.A.B.	9-98	1833405

EXISTING LEFT FORWARD RETAINING WALL ELEVATION
BRIDGE No. 152
WEST 150th STREET OVER CONRAIL, GCRTA AND CHATFIELD AVE.

CUY-WEST 150th STREET

16/43



EXISTING RIGHT FORWARD RETAINING WALL ELEVATION

NOTES:
A. FOR ADDITIONAL NOTES SEE SHEET 11/43.
B. FOR SECTION A–A SEE SHEET 12/43.

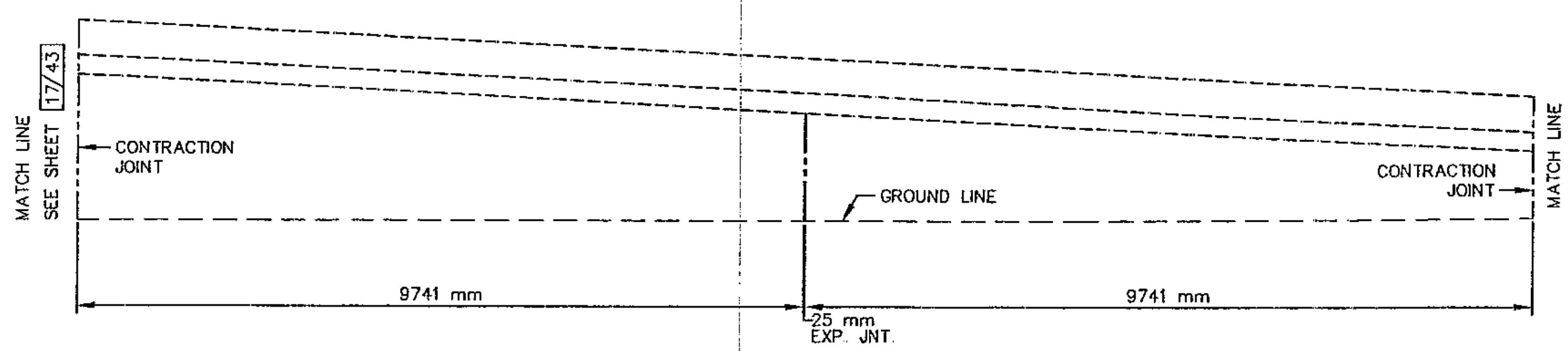
Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B-No. 162

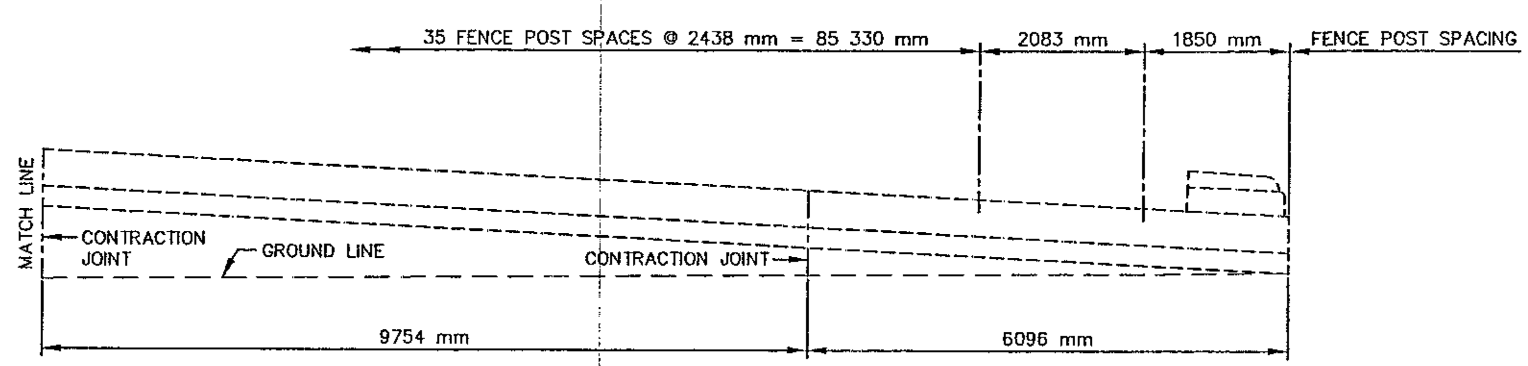
DESIGN AGENCY: JOHN E. FOSTER AND ASSOCIATES, INC. 3900 PAYNE AVENUE CLEVELAND, OHIO 44114

DATE 9-96 | REVIEWED R.A.B. | STRUCTURE FILE NUMBER 1833405 | DRAWN D.M.T. | DESIGNED B.M.G. | CHECKED H.S.S.

EXISTING RIGHT FORWARD RETAINING WALL ELEVATION
BRIDGE No. 152
WEST 150th STREET OVER CONRAIL, GCRTA AND CHATFIELD AVE.

CUY-WEST 150th STREET





EXISTING RIGHT FORWARD RETAINING WALL ELEVATION

NOTES:

A. FOR ADDITIONAL NOTES SEE SHEET 11/43

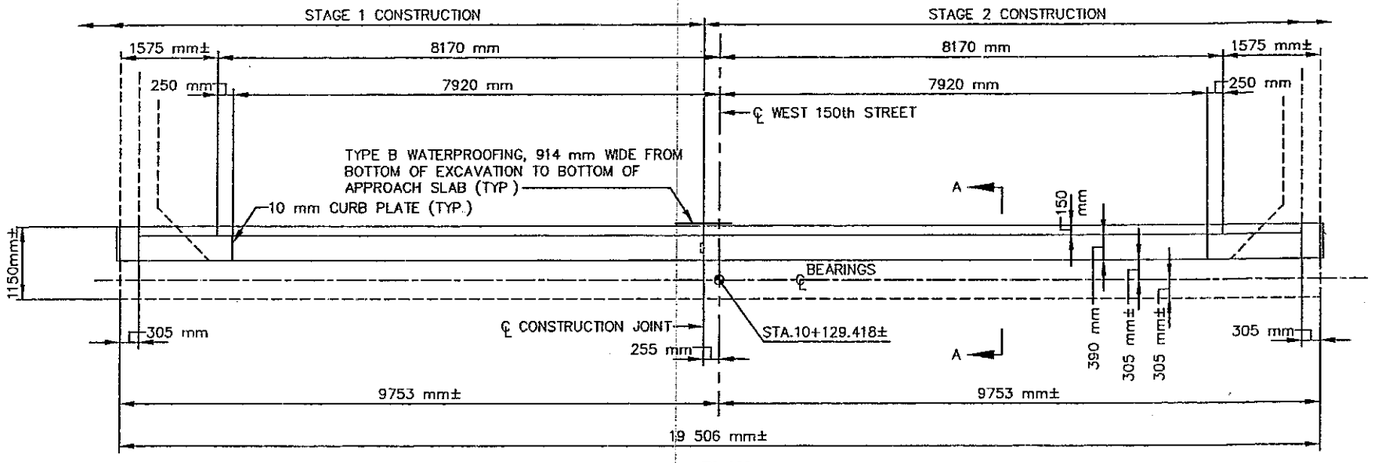
DESIGN AGENCY
JOHN E. FOSTER AND ASSOCIATES, INC.
8800 PAYNE AVENUE
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
B.M.G.	D.M.T.	R.A.B.	9-96
CHECKED	REVISED	STRUCTURE FILE NUMBER	
H.S.S.		1833405	

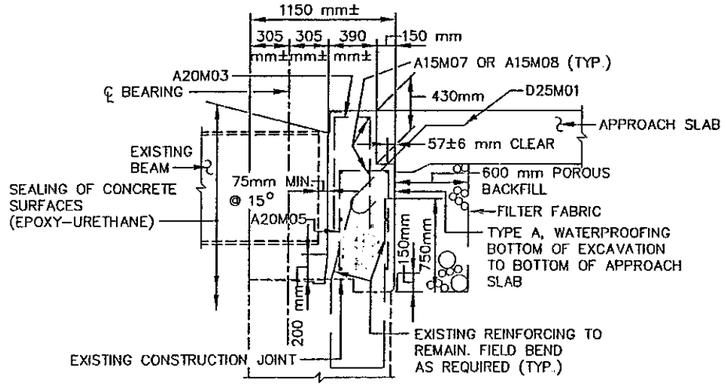
EXISTING RIGHT FORWARD RETAINING WALL ELEVATION (CONT.)
BRIDGE No. 152
WEST 150th STREET OVER CONRAIL, GCRTA AND CHATFIELD AVE.

CUY-WEST 150th STREET

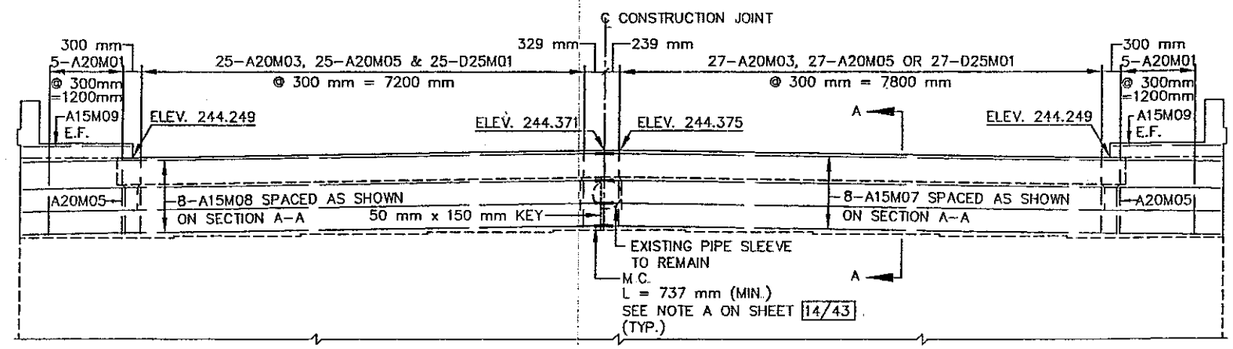
Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B-No. 162



PLAN



SECTION A-A



ELEVATION

NOTE A: FIELD CUT REINFORCING AS REQUIRED AT PIPE SLEEVE.

NOTE B: FOR ADDITIONAL NOTES SEE SHEET 11/43

N

DESIGN AGENCY
JOHN E. FOSTER AND ASSOCIATES, INC.
2000 PAYNE AVENUE
CLEVELAND, OHIO 44114

DESIGNED B.M.G.
DRAWN D.M.T.
REVIEWED R.A.B.
DATE 9-98
CHECKED H.S.S.
REVISED
STRUCTURE FILE NUMBER 1833405

EXISTING FORWARD ABUTMENT PLAN AND ELEVATION
BRIDGE No. 152
WEST 150th STREET OVER CONRAIL, GCRTA AND CHATFIELD

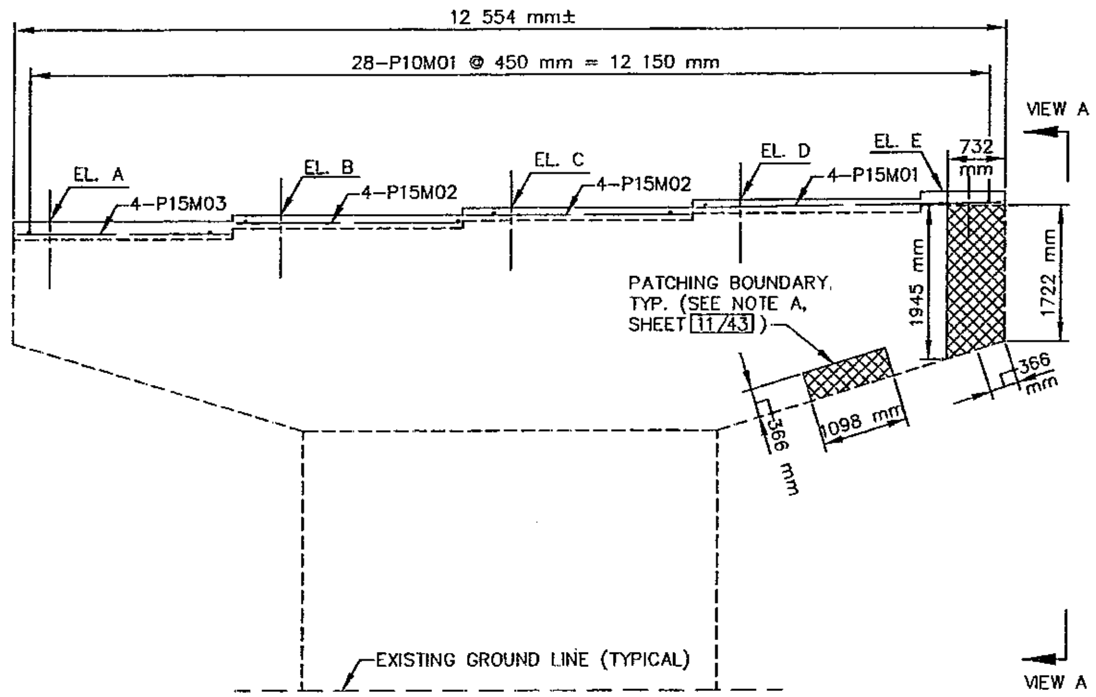
CUY-WEST 150th STREET

19/43

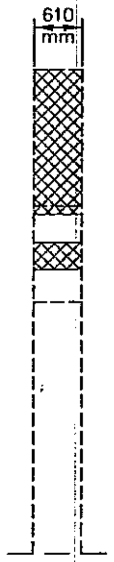
49/73

Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B-No. 162

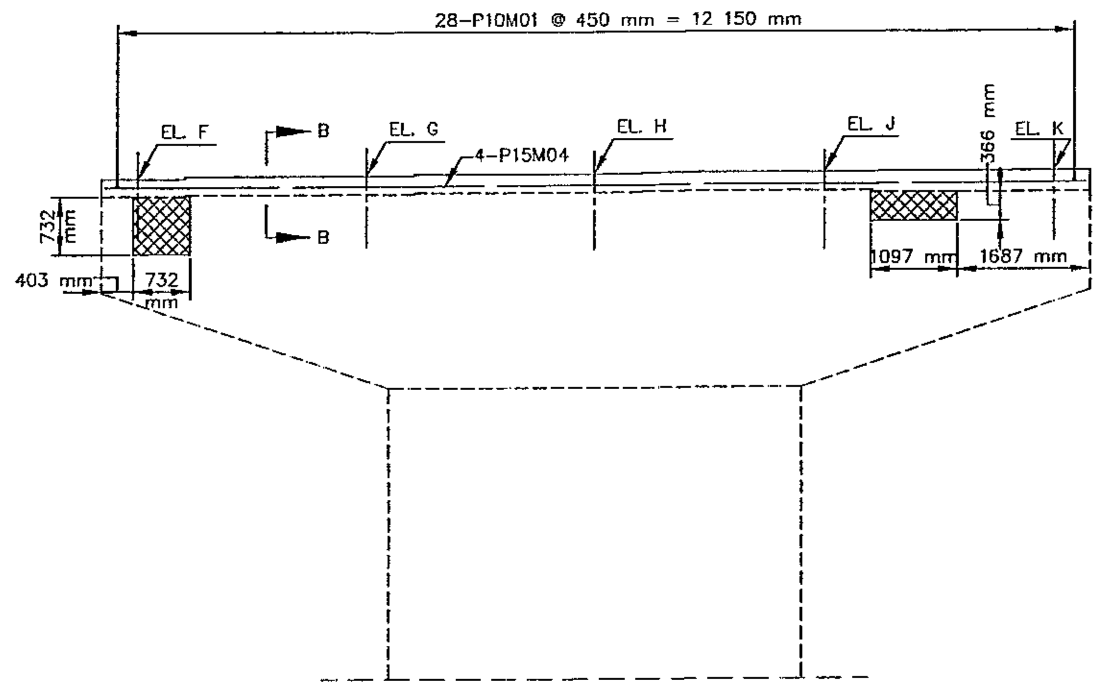
PLOT: 1=48



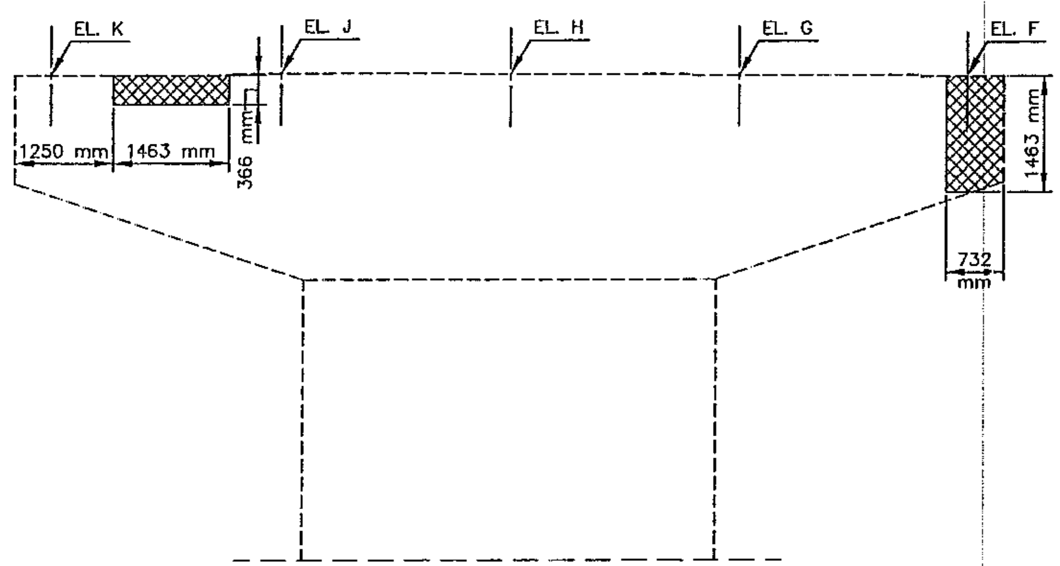
NORTH ELEVATION
LOOKING SOUTH



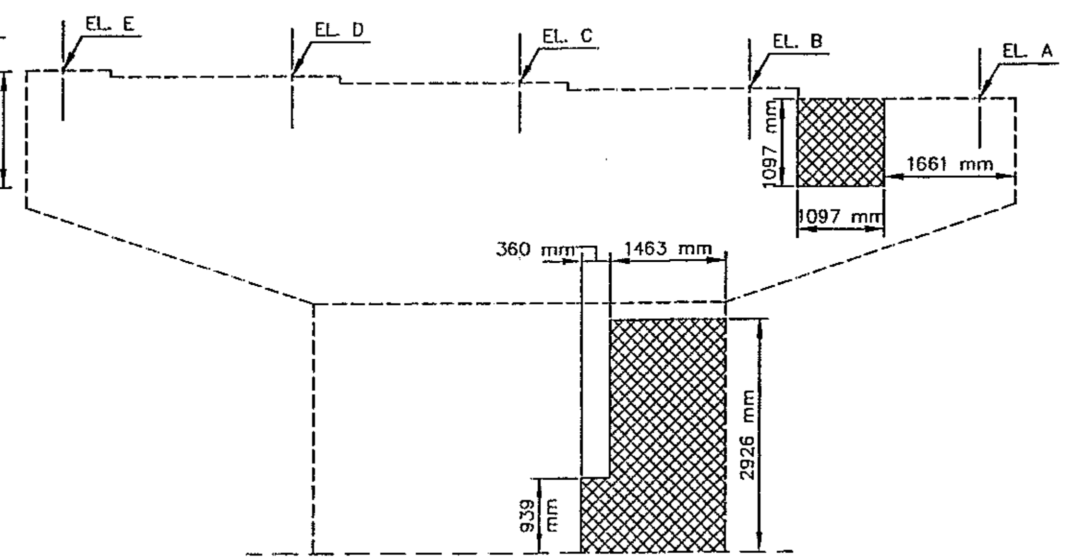
VIEW A - A



NORTH ELEVATION
LOOKING SOUTH



SOUTH ELEVATION
LOOKING NORTH



SOUTH ELEVATION
LOOKING NORTH

NOTE:
FOR SECTION B-B AND TOP OF MASONARY ELEVATIONS SEE SHEET 29/43.
FOR ADDITIONAL NOTES SEE SHEET 11/43.

EXISTING PIER No. 1 - ELEVATIONS

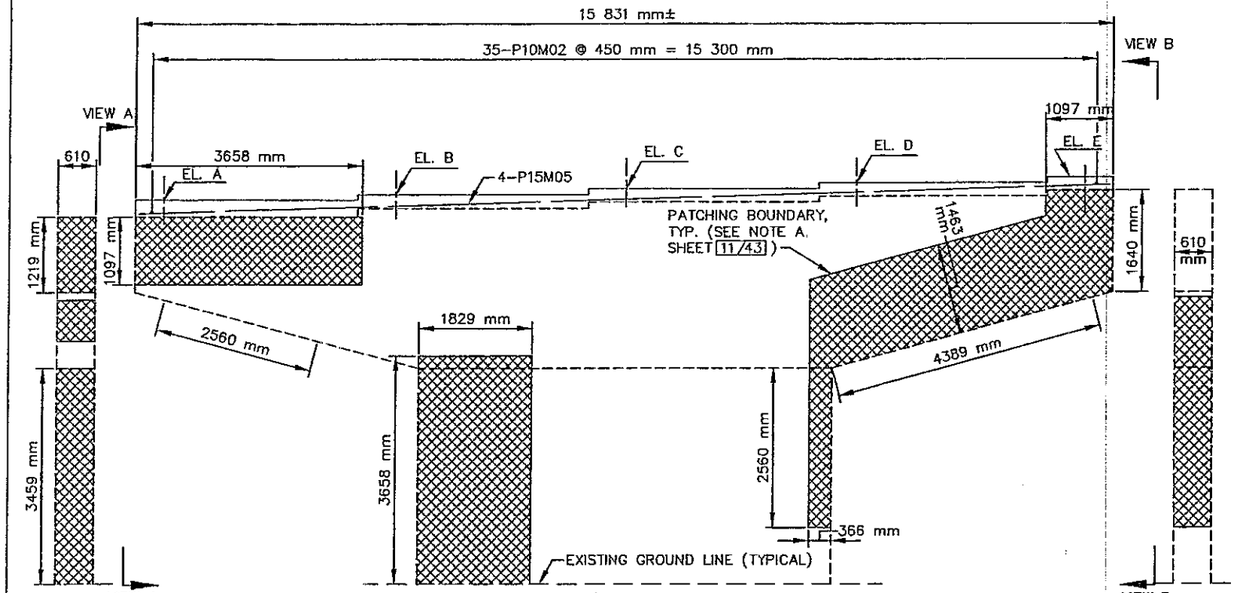
Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B-No. 162

DESIGN AGENCY
JOHN E. FOSTER AND ASSOCIATES, INC.
5005 PAYNE AVENUE
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
B.M.G.	D.M.T.	R.A.B.	9-96
CHECKED	REVISED	STRUCTURE FILE NUMBER	
H.S.S.		1833405	

EXISTING PIER No. 1 - ELEVATIONS
BRIDGE No. 152
WEST 150th STREET OVER CONRAIL, GCRTA AND CHATFIELD AVE.

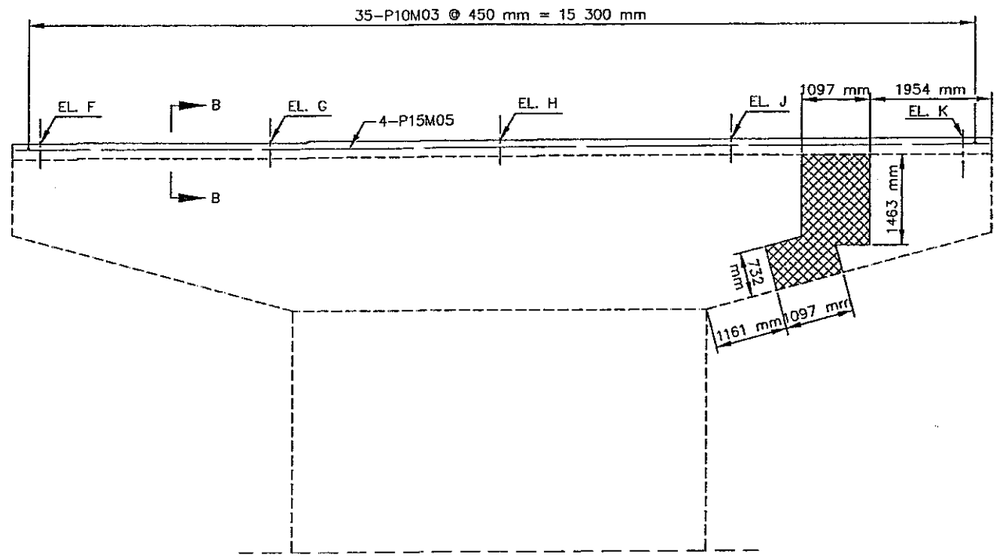
CUY-WEST 150th STREET



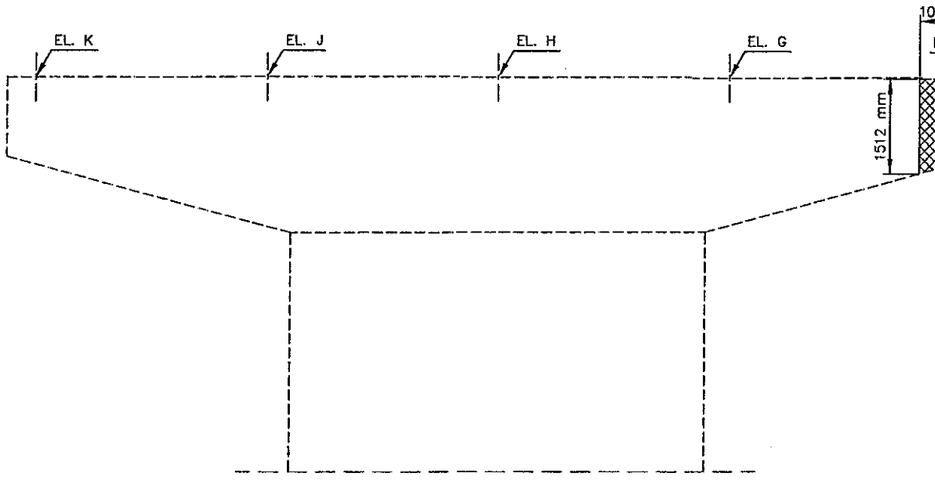
VIEW A - A

NORTH ELEVATION
LOOKING SOUTH

VIEW B - B



NORTH ELEVATION
LOOKING SOUTH



SOUTH ELEVATION
LOOKING NORTH

SOUTH ELEVATION
LOOKING NORTH

NOTE:

FOR SECTION B–B AND TOP OF MASONARY ELEVATIONS SEE SHEET 29/43.

FOR ADDITIONAL NOTES SEE SHEET 11/43.

EXISTING PIER No. 2 - ELEVATIONS

Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B-No. 162

JOHN E. FOSTER AND ASSOCIATES, INC.
2969 PAYNE AVENUE
CLEVELAND, OHIO 44114

DESIGN AGENCY

DESIGNED B.M.G. | DRAWN D.M.T. | REVIEWED R.A.B. | DATE 9-96

CHECKED H.S.S. | REVISED

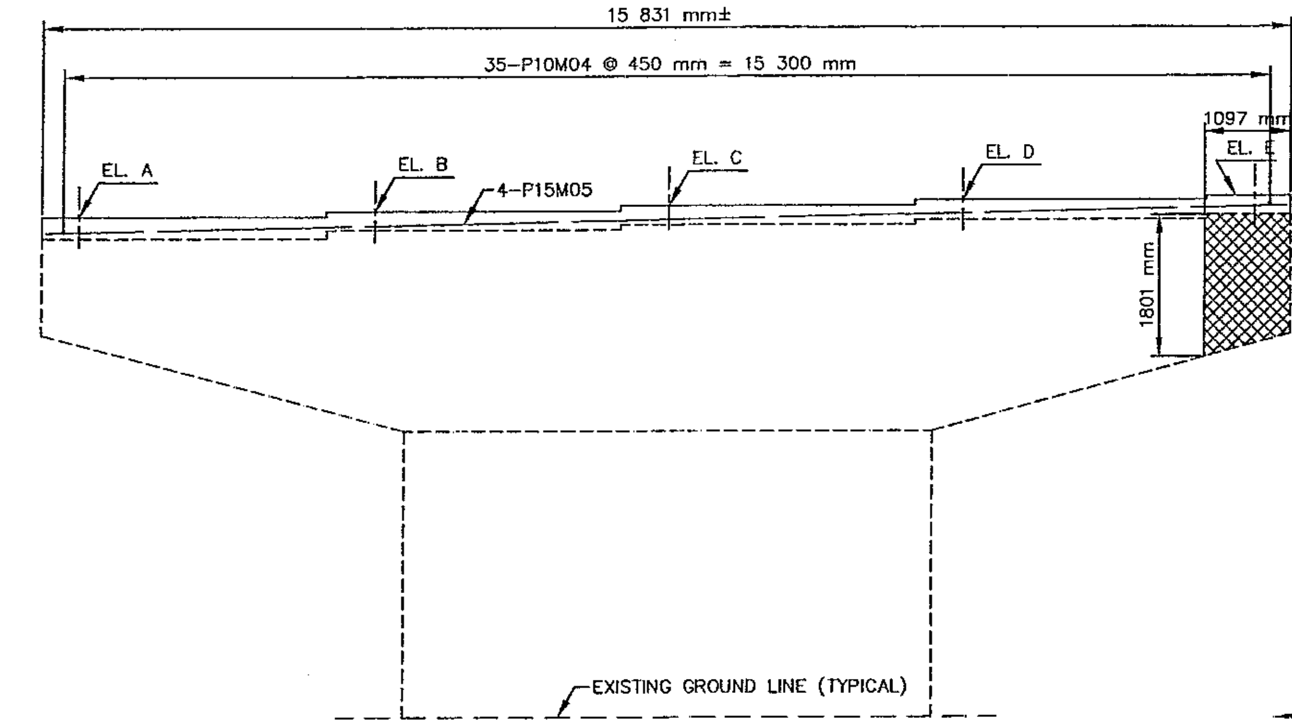
STRUCTURE FILE NUMBER 1833405

EXISTING PIER No. 2 - ELEVATIONS
BRIDGE No. 152
WEST 150th STREET OVER CONRAIL, GCRTA AND CHATFIELD AVE.

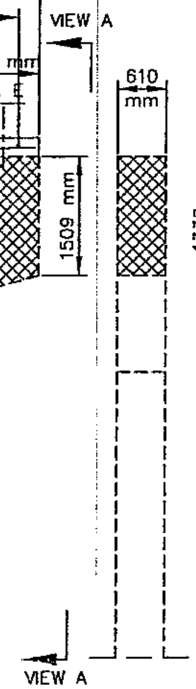
CUY-WEST 150th STREET

21/43

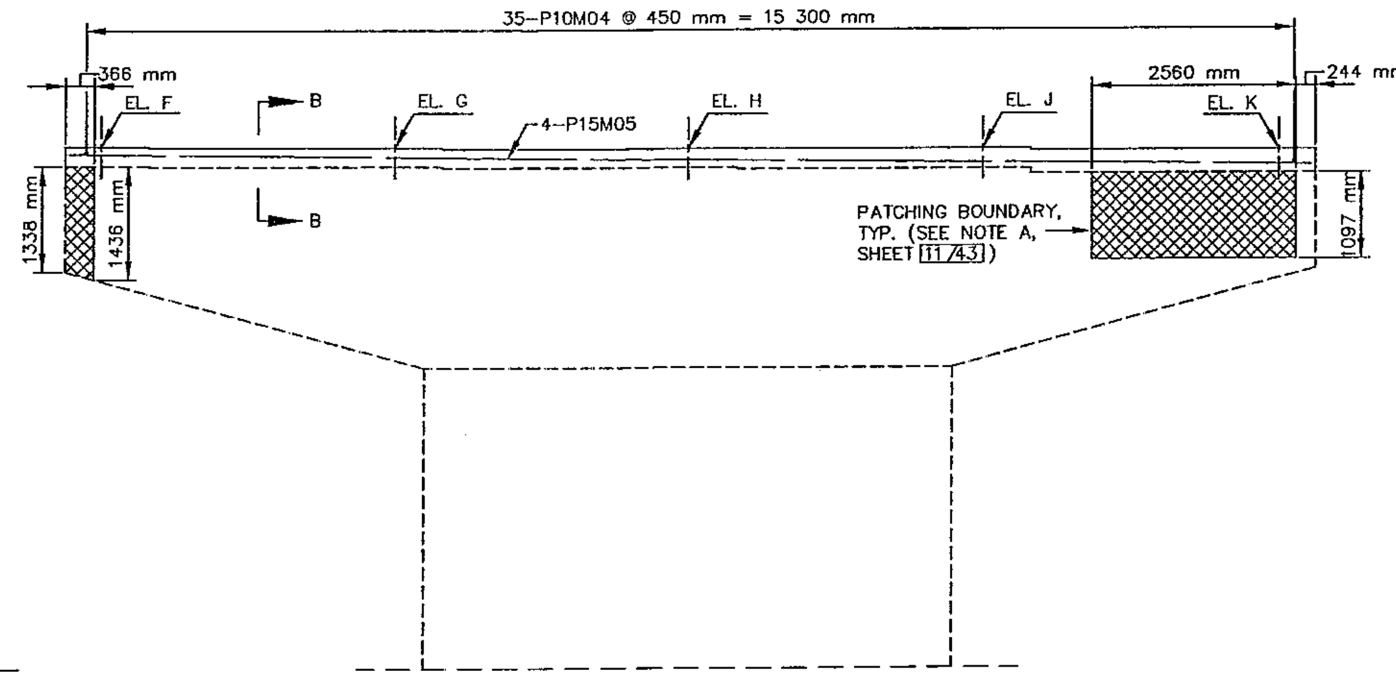
51/73



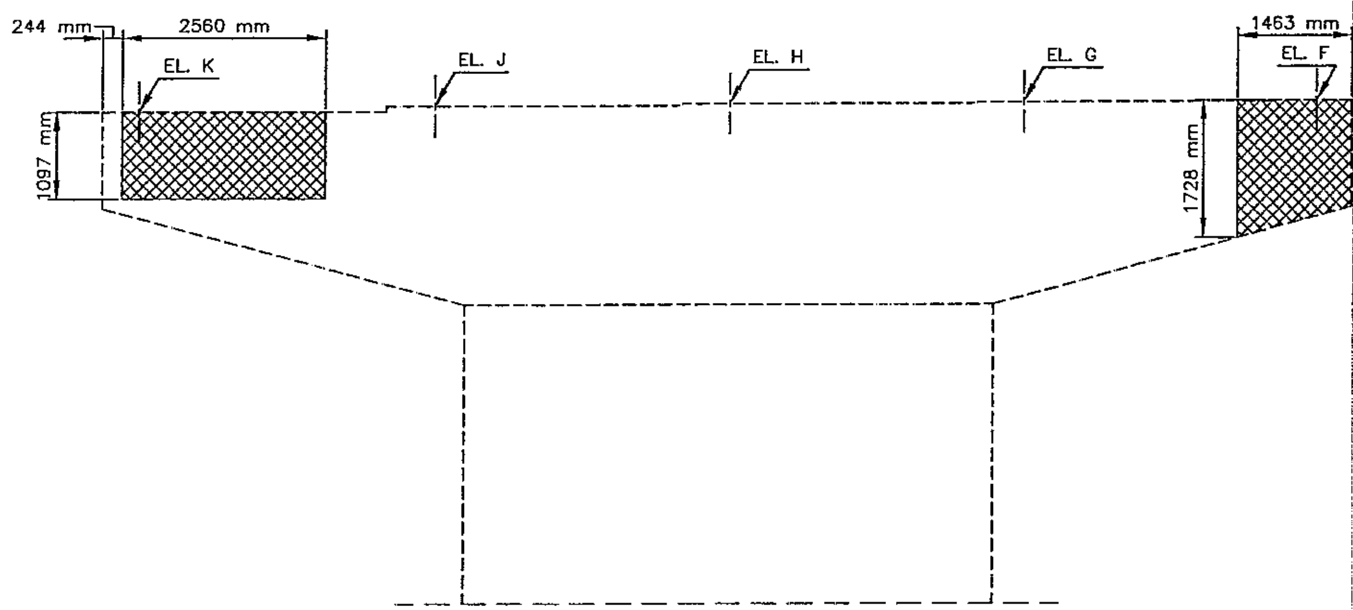
NORTH ELEVATION
LOOKING SOUTH



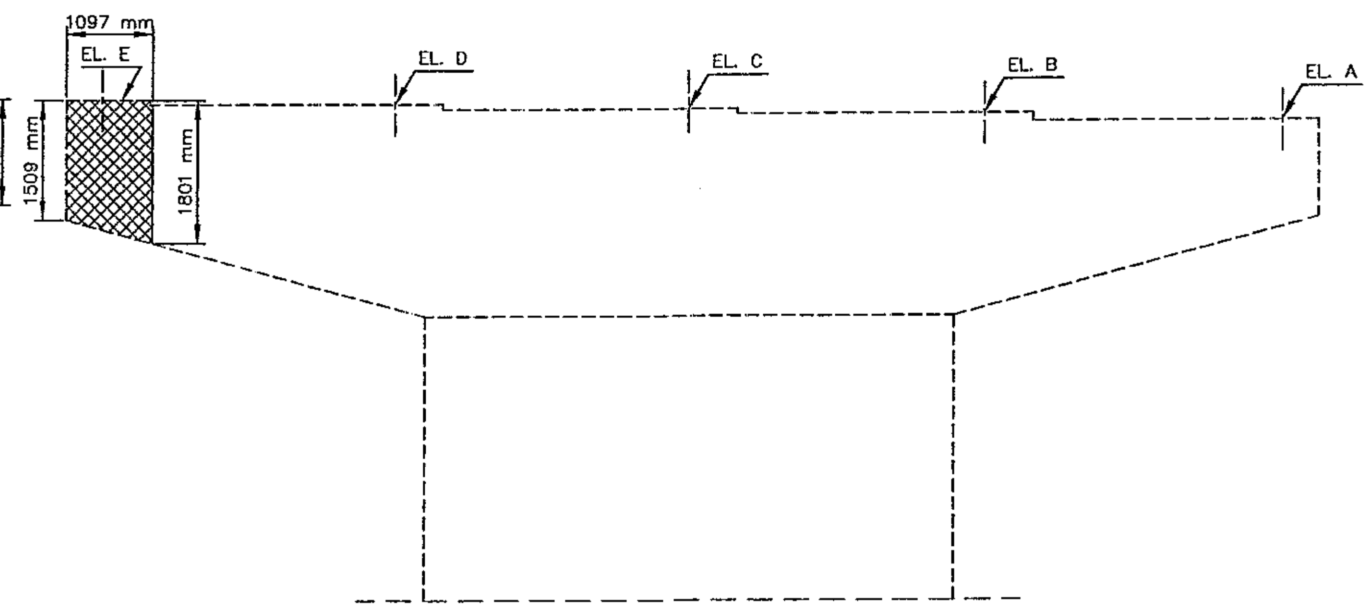
VIEW A - A



NORTH ELEVATION
LOOKING SOUTH



SOUTH ELEVATION
LOOKING NORTH



SOUTH ELEVATION
LOOKING NORTH

NOTE:

FOR SECTION B–B AND TOP OF MASONARY ELEVATIONS SEE SHEET 29/43.

FOR ADDITIONAL NOTES SEE SHEET 11/43.

EXISTING PIER No. 3 - ELEVATIONS

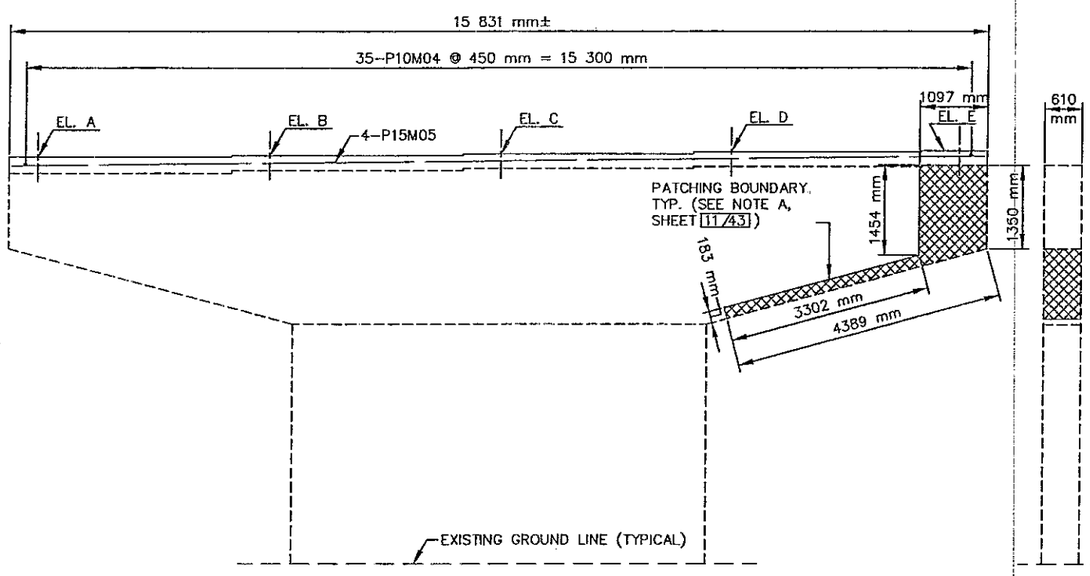
Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B–No. 162

DESIGN AGENCY: JOHN E. FOSTER AND ASSOCIATES, INC., CLEVELAND, OHIO 44114

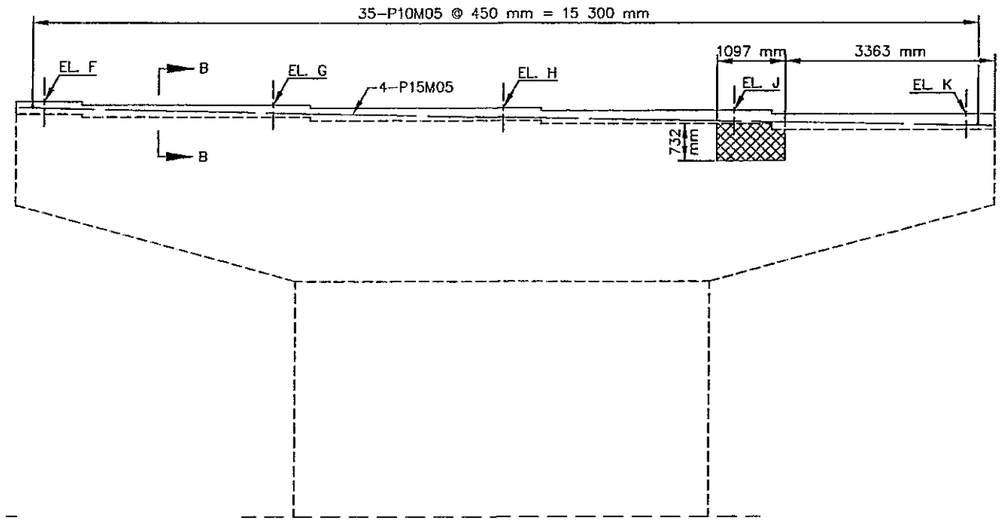
DESIGNED B.M.G. | DRAWN D.M.T. | REVIEWED R.A.B. | DATE 9-96
CHECKED H.S.S. | REVISED | STRUCTURE FILE NUMBER 1833405

EXISTING PIER No. 3 - ELEVATIONS
BRIDGE No. 152
WEST 150th STREET OVER CONRAIL, GCRTA AND CHATFIELD AVE.

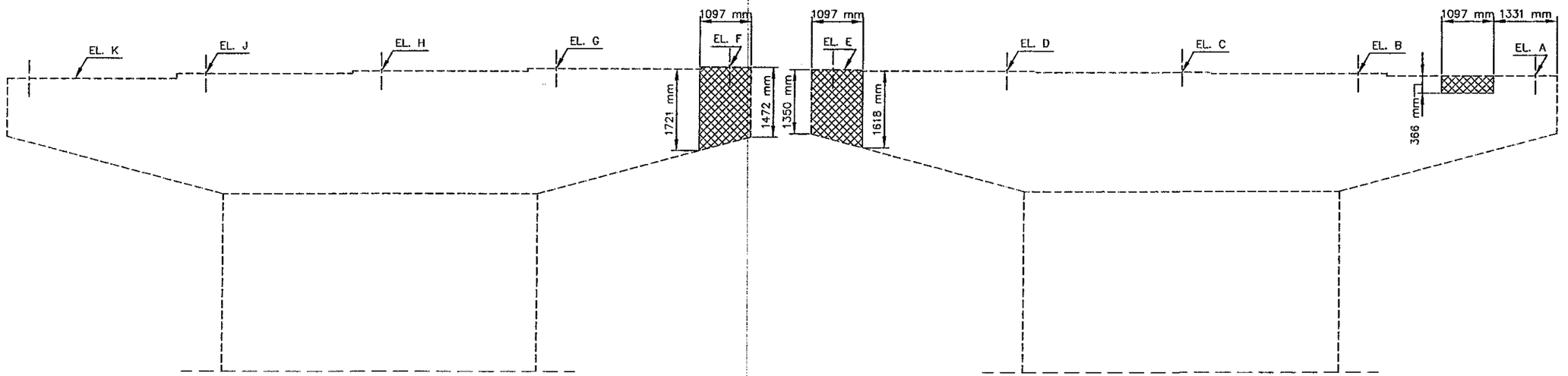
CUY-WEST 150th STREET



NORTH ELEVATION
LOOKING SOUTH



NORTH ELEVATION
LOOKING SOUTH



SOUTH ELEVATION
LOOKING NORTH

SOUTH ELEVATION
LOOKING NORTH

NOTE:
FOR SECTION B–B AND TOP OF MASONARY ELEVATIONS SEE SHEET 29/43

FOR ADDITIONAL NOTES SEE SHEET 11/43

EXISTING PIER No. 4 - ELEVATIONS

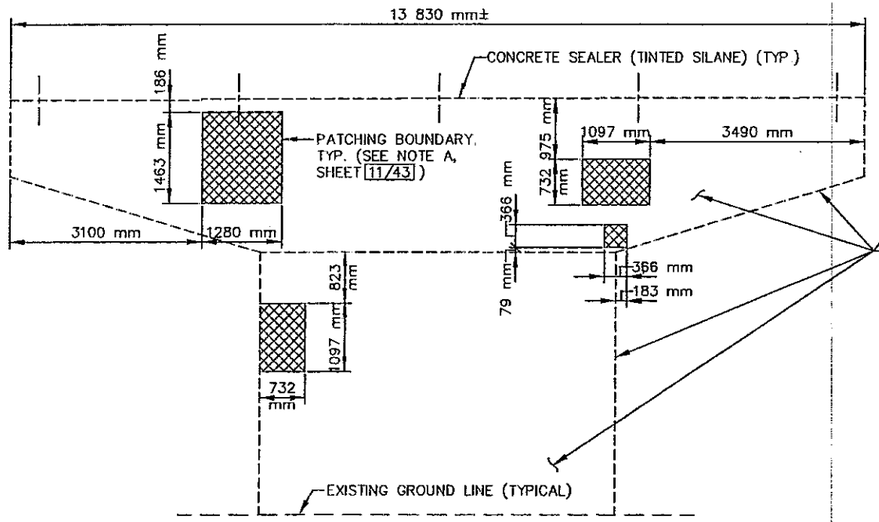
Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B–No. 162

DESIGN AGENCY
JOHN E. FOSTER AND ASSOCIATES, INC.
8899 FAYNE AVENUE
CLEVELAND, OHIO 44114

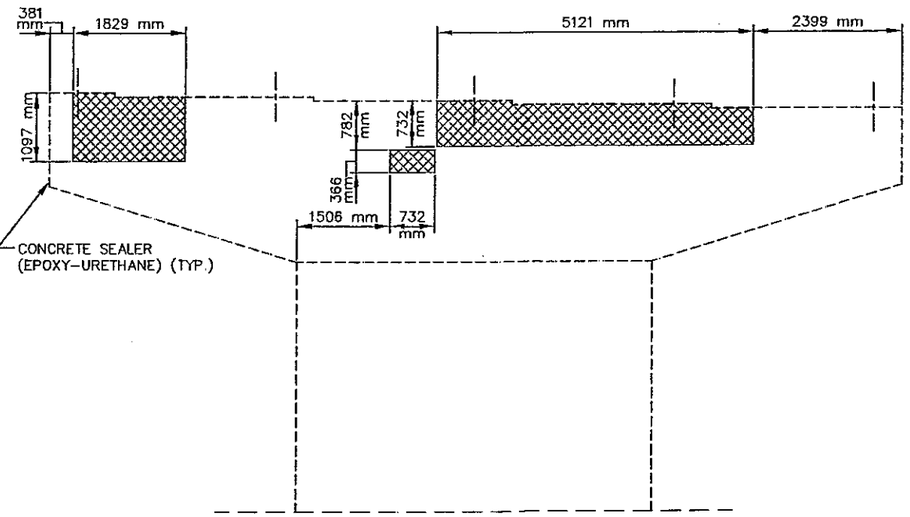
DESIGNED B.M.G. | DRAWN D.M.T. | REVIEWED R.A.B. | DATE 9–96
CHECKED H.S.S. | REVISED | STRUCTURE FILE NUMBER 1833405

EXISTING PIER No. 4 - ELEVATIONS
BRIDGE No. 152
WEST 150th STREET OVER CONRAIL, GCRTA AND CHATFIELD AVE.

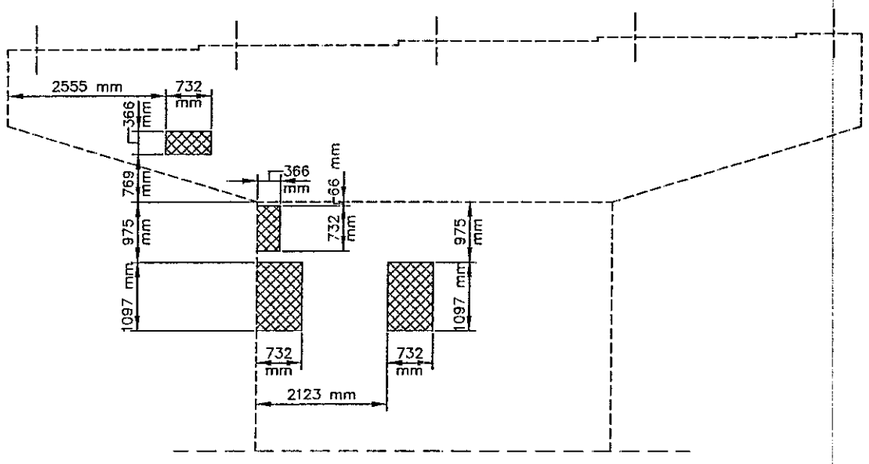
CUY–WEST 150th STREET



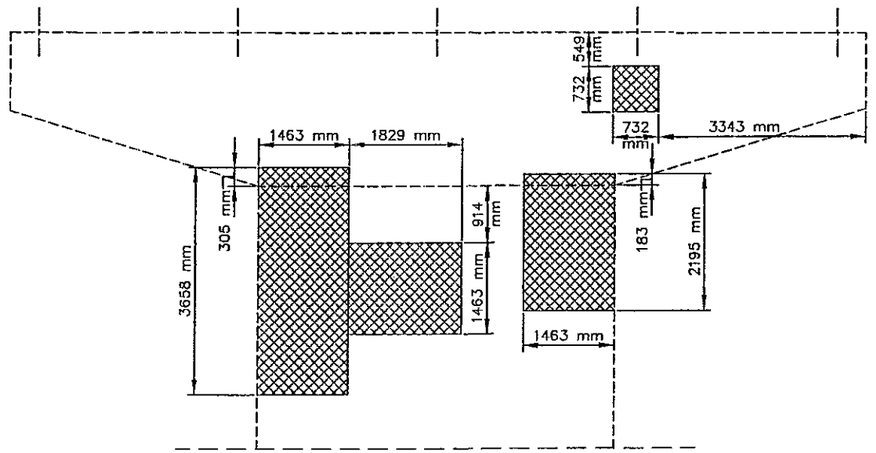
NORTH ELEVATION
LOOKING SOUTH



NORTH ELEVATION
LOOKING SOUTH



SOUTH ELEVATION
LOOKING NORTH



SOUTH ELEVATION
LOOKING NORTH

NOTE:
FOR ADDITIONAL NOTES SEE SHEET 11/43.

EXISTING PIER No. 5 - ELEVATIONS

Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B-No. 162

DESIGN AGENCY
JOHN E. FOSTER AND ASSOCIATES, INC.
2999 PAYNE AVENUE
CLEVELAND, OHIO 44114

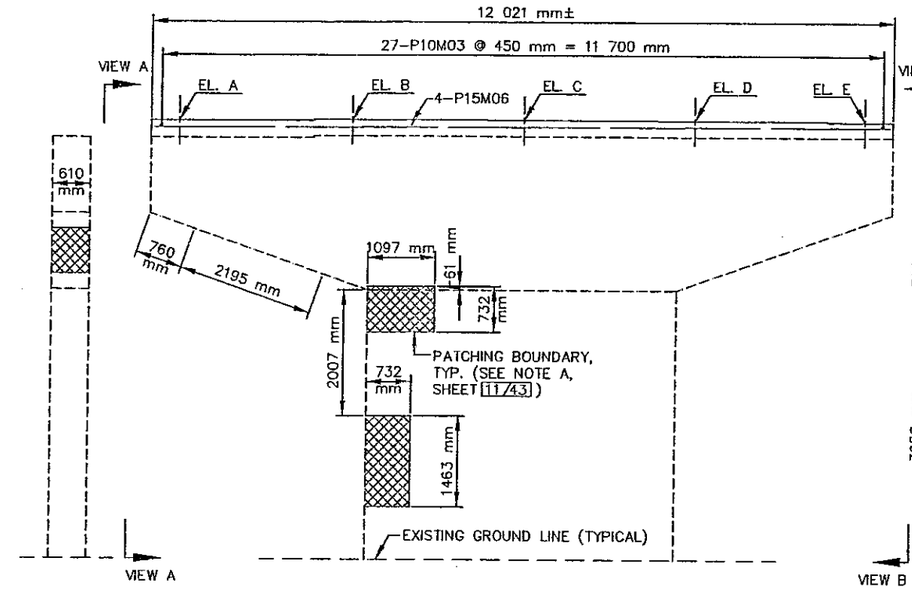
DESIGNED	DRAWN	REVISED	DATE
B.M.G.	D.M.T.	R.A.B.	9-96
CHECKED	REVISED	STRUCTURE FILE NUMBER	
H.S.S.		1833405	

EXISTING PIER No. 5 - ELEVATIONS
BRIDGE No. 152
WEST 150th STREET OVER CONRAIL, GCRTA AND CHATFIELD AVE.

CUY-WEST 150th STREET

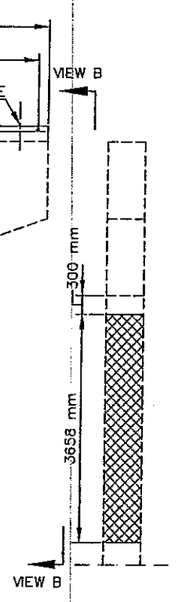
24/43

54/73

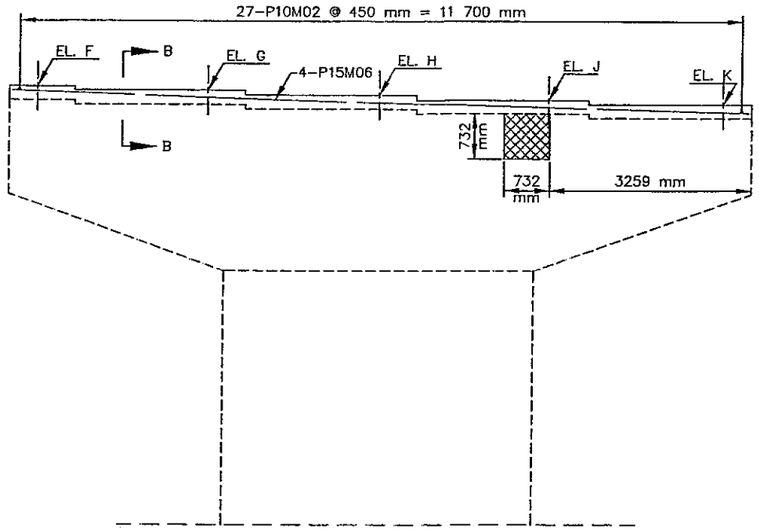


VIEW A – A

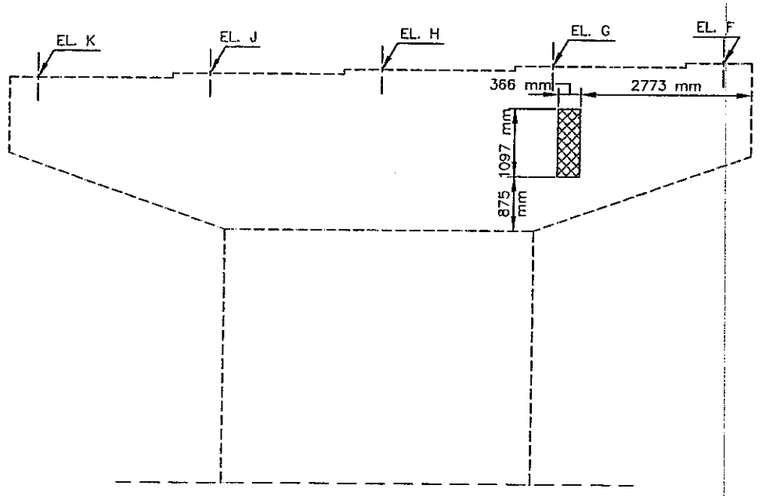
NORTH ELEVATION
LOOKING SOUTH



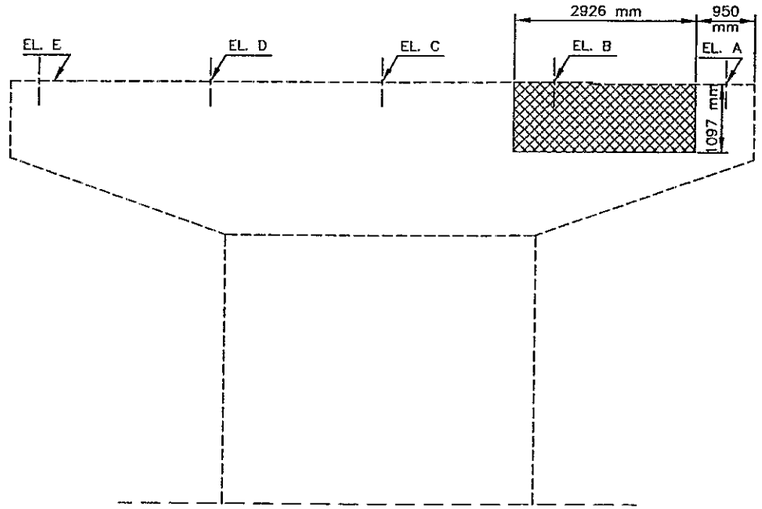
VIEW B – B



NORTH ELEVATION
LOOKING SOUTH



SOUTH ELEVATION
LOOKING NORTH



SOUTH ELEVATION
LOOKING NORTH

NOTE:

FOR SECTION B–B AND TOP OF MASONARY ELEVATIONS SEE SHEET 29/43 .

FOR ADDITIONAL NOTES SEE SHEET 11/43

EXISTING PIER No. 6 – ELEVATIONS

DESIGN AGENCY
JOHN E. FOSTER AND ASSOCIATES, INC.
5999 PAYNE AVENUE
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
B.M.G.	D.M.T.	R.A.B.	9-96
CHECKED	REVISED	STRUCTURE FILE NUMBER	
H.S.S.		1833405	

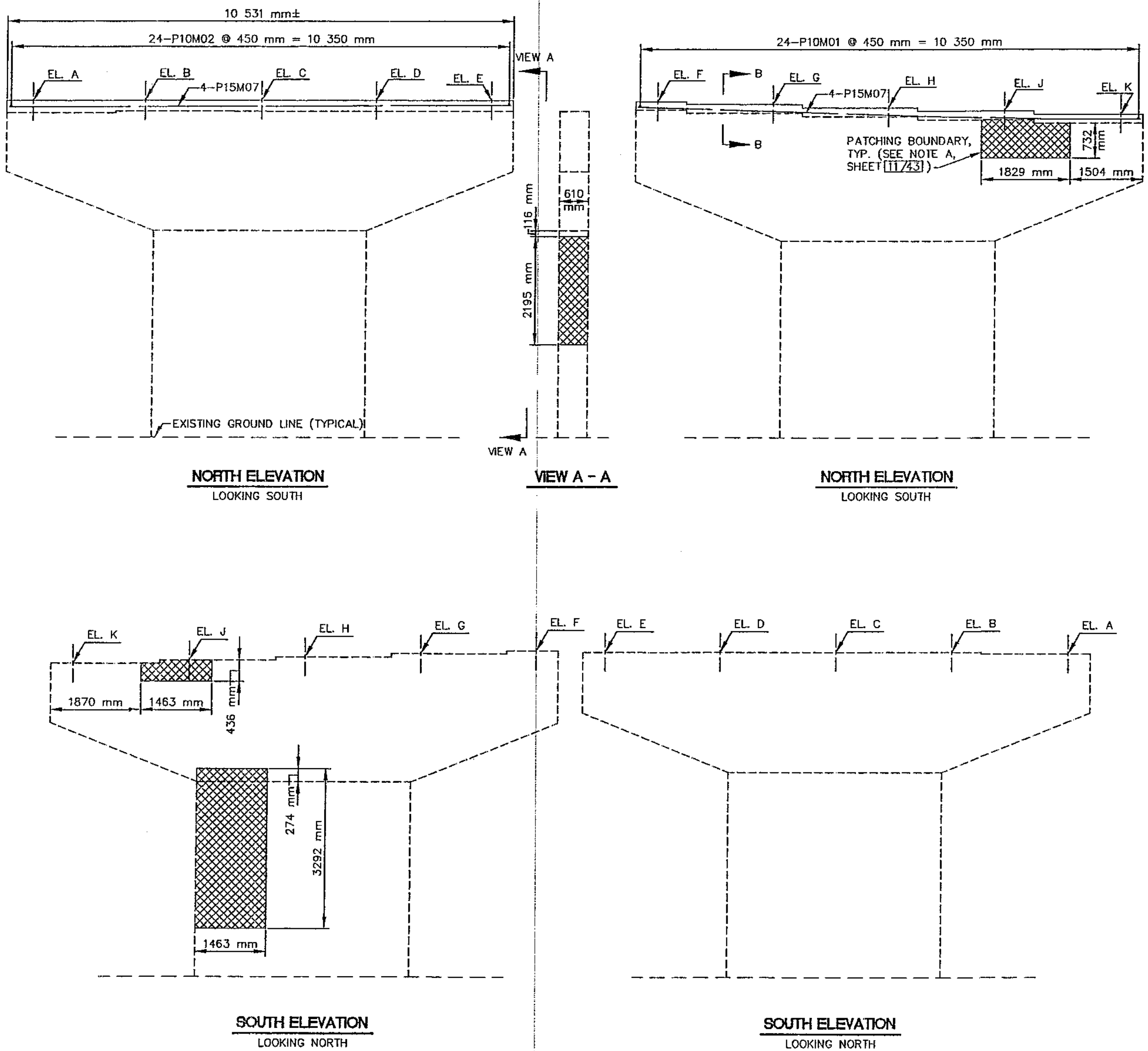
EXISTING PIER No. 6 – ELEVATIONS
BRIDGE No. 152
WEST 150th STREET OVER CONRAIL, GCRTA AND CHATFIELD AVE.

CUY-WEST 150th STREET

25/43

Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B–No. 162

55/73



NOTE:

FOR SECTION B-B AND TOP OF MASONARY ELEVATIONS SEE SHEET 29/43.

FOR ADDITIONAL NOTES SEE SHEET 11/43.

EXISTING PIER No. 7 - ELEVATIONS

JOHN E. FOSTER AND ASSOCIATES, INC.
3060 PAYNE AVENUE
CLEVELAND, OHIO 44114

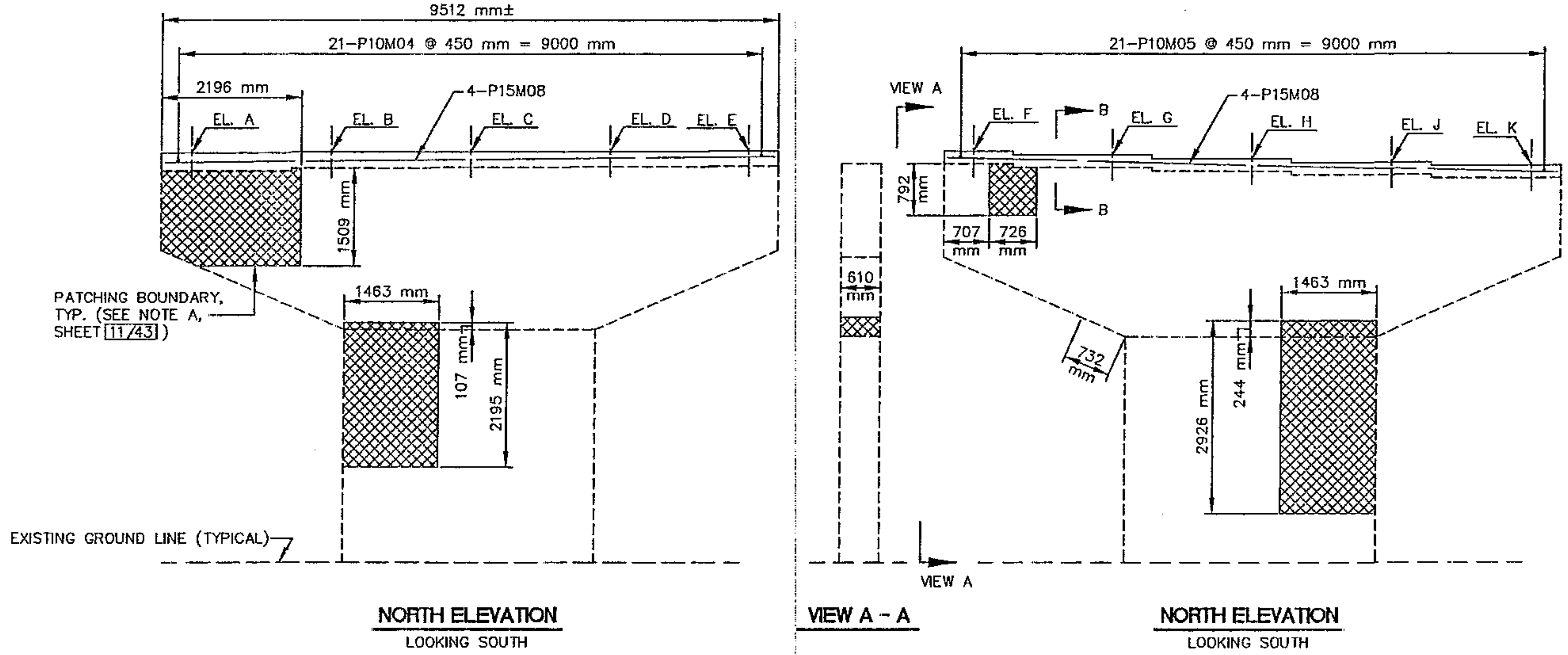
DESIGNED	DRAWN	REVIEWED	DATE
B.M.G.	D.M.T.	R.A.B.	9-98
CHECKED H.S.S.	REVISED	STRUCTURE FILE NUMBER 1833405	

EXISTING PIER No. 7 - ELEVATIONS
BRIDGE No. 152
WEST 150th STREET OVER CONRAIL, GCRTA AND CHATFIELD AVE.

CUY-WEST 150th STREET

26/43

Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B-No. 162



NOTE:

FOR SECTION B-B AND TOP OF MASONARY ELEVATIONS SEE SHEET 29/43

FOR ADDITIONAL NOTES SEE SHEET 11/43

EXISTING PIER No. 8 - ELEVATIONS

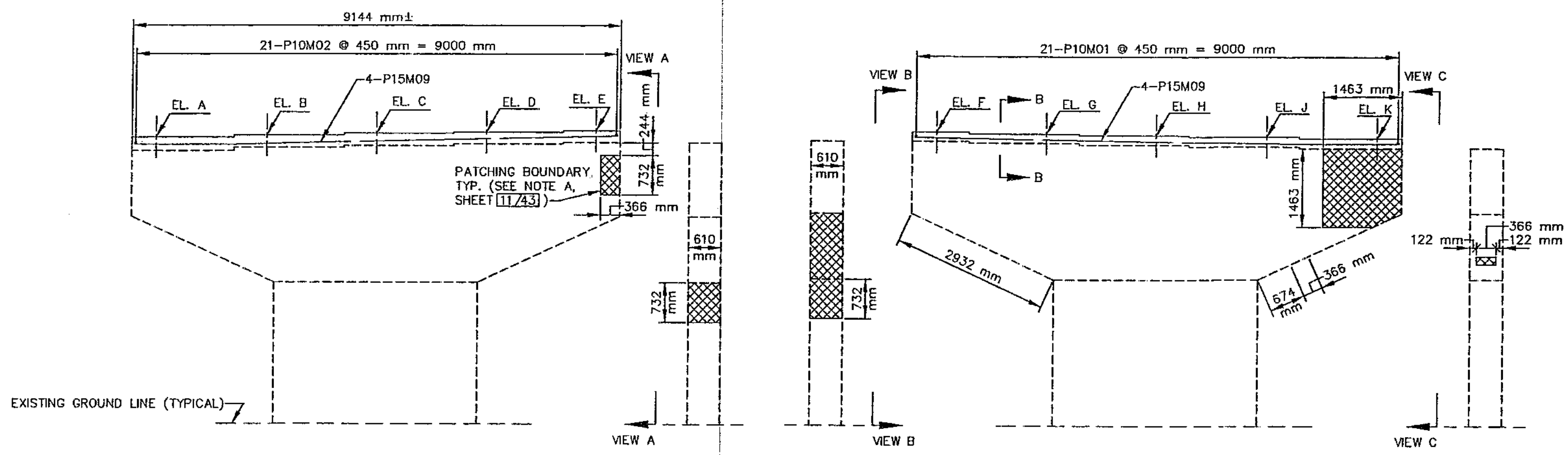
DESIGN AGENCY: JOHN E. FOSTER AND ASSOCIATES, INC. CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
B.M.G.	D.M.T.	R.A.B.	9-96
CHECKED	REVISED	STRUCTURE FILE NUMBER	
H.S.S.		1833405	

EXISTING PIER No. 8 - ELEVATIONS
BRIDGE No. 152
WEST 150th STREET OVER CONRAIL, GCRTA AND CHATFIELD AVE.

CUY-WEST 150th STREET

Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B-No 162



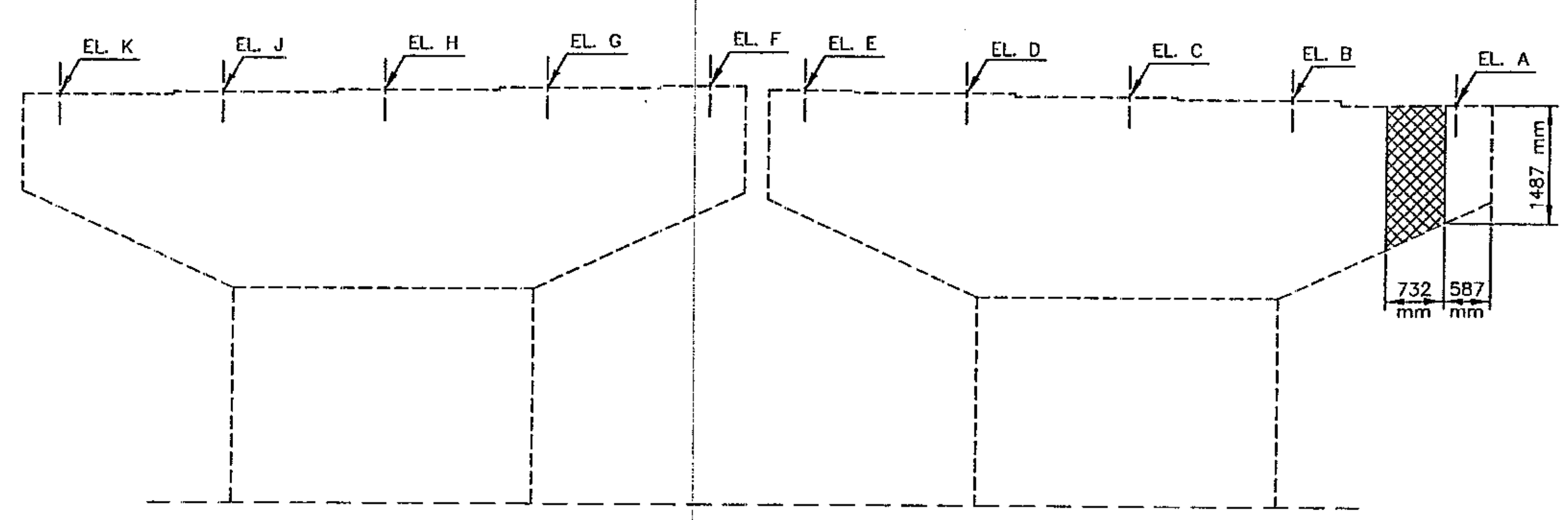
NORTH ELEVATION
LOOKING SOUTH

VIEW A - A

VIEW B - B

NORTH ELEVATION
LOOKING SOUTH

VIEW C - C



NORTH ELEVATION
LOOKING SOUTH

NOTE:

FOR SECTION B-B AND TOP OF MASONARY ELEVATIONS SEE SHEET 29/43

FOR ADDITIONAL NOTES SEE SHEET 11/43

EXISTING PIER No. 9 - ELEVATIONS

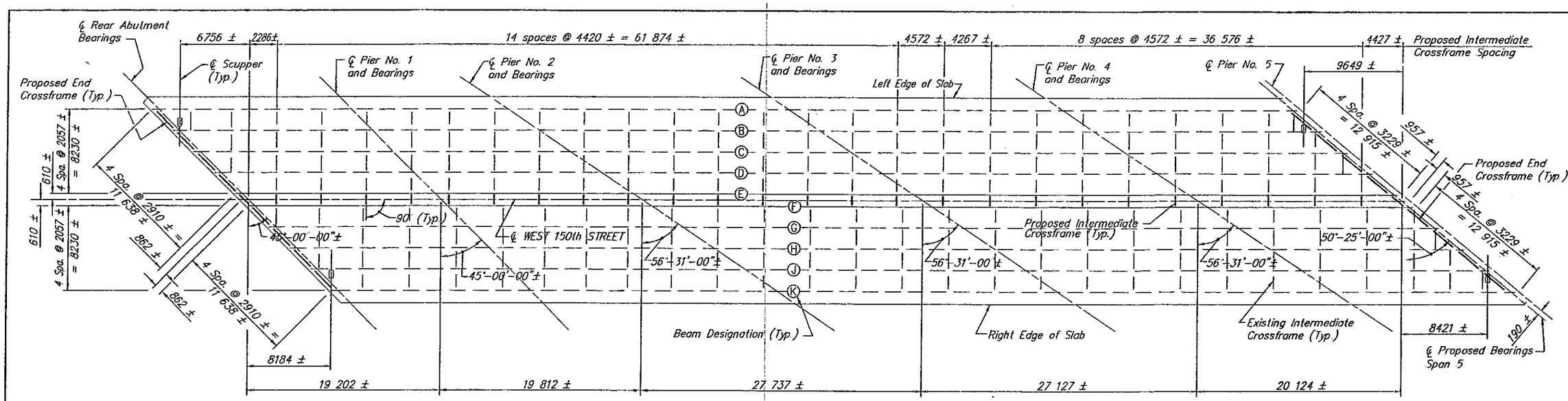
JOHN E. FOSTER AND ASSOCIATES, INC.

DESIGNED B.M.G. | DRAWN D.M.T. | REVIEWED R.A.B. | DATE 9-96 | CHECKED H.S.S. | STRUCTURE FILE NUMBER 1833405

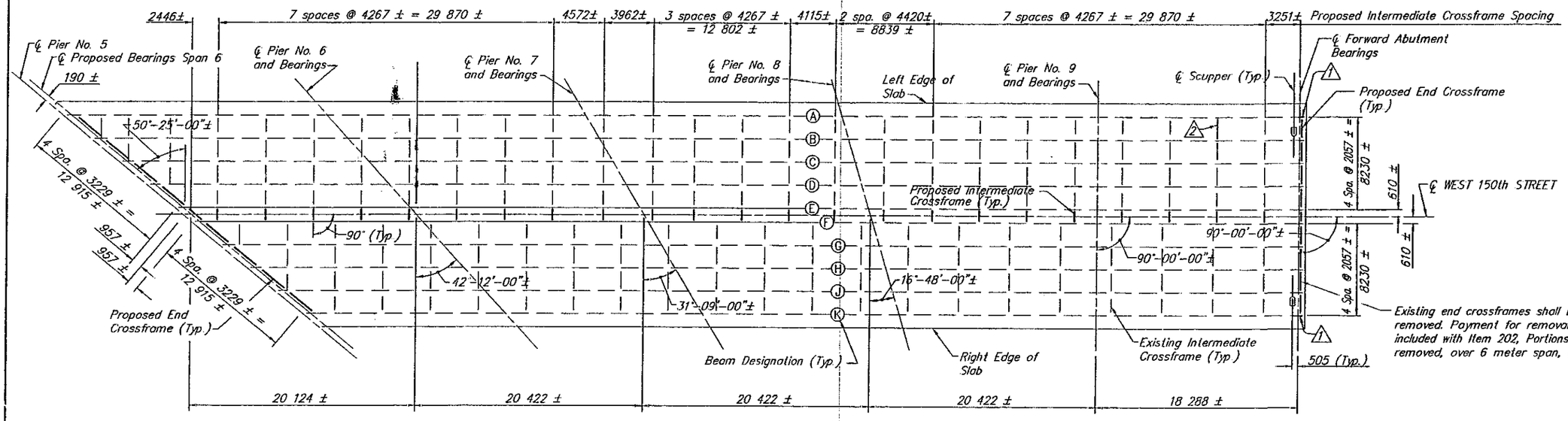
EXISTING PIER No. 9 - ELEVATIONS
BRIDGE No. 152
WEST 150th STREET OVER CONRAIL, GCRTA AND CHATFIELD AVE.

CUY-WEST 150th STREET

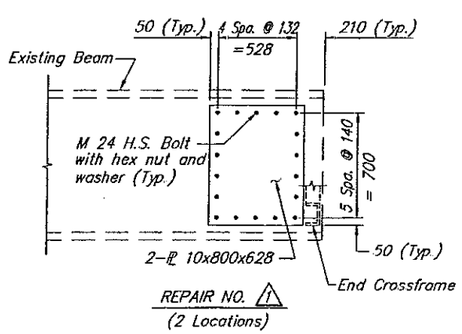
Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B-No. 162



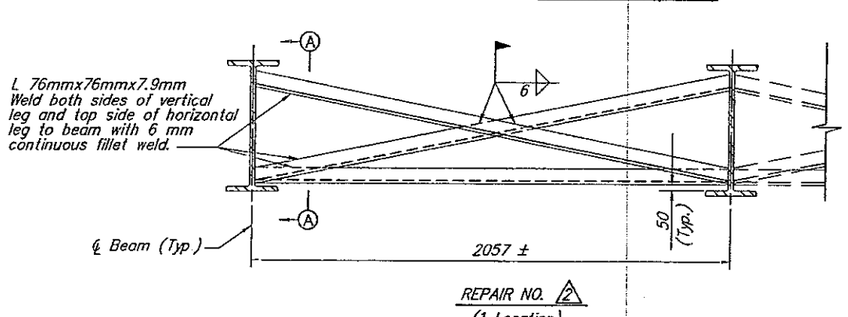
FRAMING PLAN (UNIT 1)



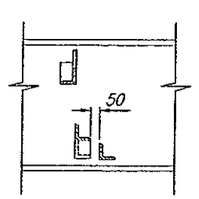
FRAMING PLAN (UNIT 2)



REPAIR NO. 1 (2 Locations)



REPAIR NO. 2 (1 Location)



SECTION A–A

Note: Existing crossframe shall be carefully removed. Payment for removal shall be included with Item 202, Portions of structure removed, over 6 meter span, As per plan.

Notes:

All dimension are in millimeters, unless otherwise noted.

For details of proposed end crossframes at abutments, see Ohio Standard Drawings EXJ-4-87M sheet 1 of 5 and sheet 40|43.

For details of modular expansion joint at pier 5 see sheets 36|43 and 37|43.

For proposed end crossframes, at pier 5 and proposed intermediate crossframe details see sheet 40|43.

For scupper details see sheet 41|43.

The Following abbreviations are used:
(Typ.) = Typical Spa. = Spacing

Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B-No. 162

DESIGN AGENCY
EUTHENICS INC. CONSULTING ENGINEERS

DESIGNED	DRAWN	REVIEWED	DATE
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CHECKED	REVISED	STRUCTURE FILE NUMBER	
KRD		1833405	

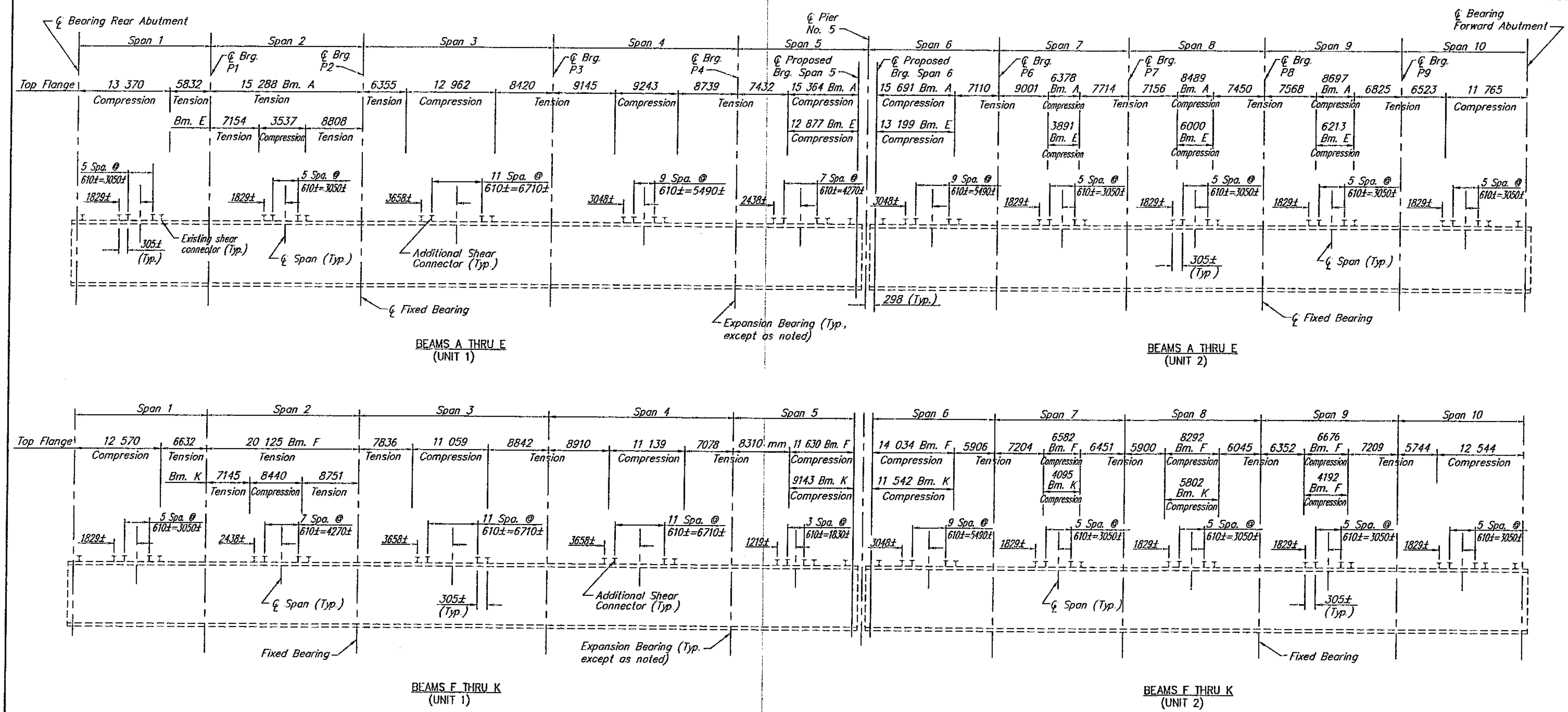
FRAMING PLAN
BRIDGE NO. 152
West 150th Street over Conrail, GCRTA and Chatfield Ave.

CUY-WEST 150th STREET

30 / 43

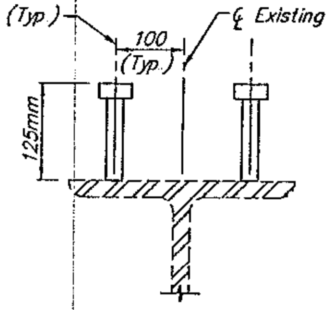
60 / 73

[\v035\J18\BRIDGE\J18FP01.DWG] P.K. 2/2/98 PLOT @ 1000.200



TYPICAL BEAM ELEVATION

BEAM	LENGTH OF ℄ TO ℄ OF BEARINGS ± (mm)									
	SPAN 1	SPAN 2	SPAN 3	SPAN 4	SPAN 5	SPAN 6	SPAN 7	SPAN 8	SPAN 9	SPAN 10
A	19 202	15 288	27 737	27 127	22 796	22 801	23 093	23 095	23 090	18 288
B	19 202	16 342	27 737	27 127	22 174	22 177	22 471	22 474	22 469	18 288
C	19 202	17 394	27 737	27 127	21 553	21 555	21 850	21 850	21 849	18 288
D	19 202	18 447	27 737	27 127	20 931	20 932	21 228	21 228	21 226	18 288
E	19 202	19 499	27 737	27 127	20 309	20 309	20 606	20 606	20 606	18 288
F	19 202	20 125	27 737	27 127	19 940	19 940	20 237	20 237	20 237	18 288
G	19 202	21 177	27 737	27 127	19 318	19 316	19 615	19 615	19 617	18 288
H	19 202	22 230	27 737	27 127	18 696	18 694	18 993	18 993	18 994	18 288
J	19 202	23 282	27 737	27 127	18 075	18 070	18 372	18 371	18 374	18 288
K	19 202	24 336	27 737	27 127	17 453	17 448	17 750	17 747	17 753	18 288



SHEAR CONNECTOR DETAIL

Note:
Existing shear connectors to remain. Additional shear connectors shall be placed between existing shear connectors as shown.

Notes:

Dimensions are given in millimeters

Welded attachment of supports for concrete deck finishing machine may be made to areas of the fascia stringer flanges designated "Compression". Attachments shall not be made to areas designated "Tension". Fillet welds to compression flanges shall not be closer than 25 mm from edge of flange, be not more than 50 mm long, and be not smaller than the minimum size required by AASHTO.

For details of strip seal expansion joints at the abutments see sheet 35/43.
For details of modular expansion joint at Pier 5 see sheet 36/43 and 37/43.

For bearing details see sheet 38/43.

The following abbreviations are used:
(Typ.) = Typical   Bm. = Beam
Brg. = Bearing

Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B-No. 162

BEAM ELEVATIONS AND DETAILS
BRIDGE NO. 152
West 150th Street over Conrail, GCRTA and Chatfield Ave.

CUY-WEST 150th STREET

DESIGN AGENCY: EUTHENICS INC. CONSULTING ENGINEERS

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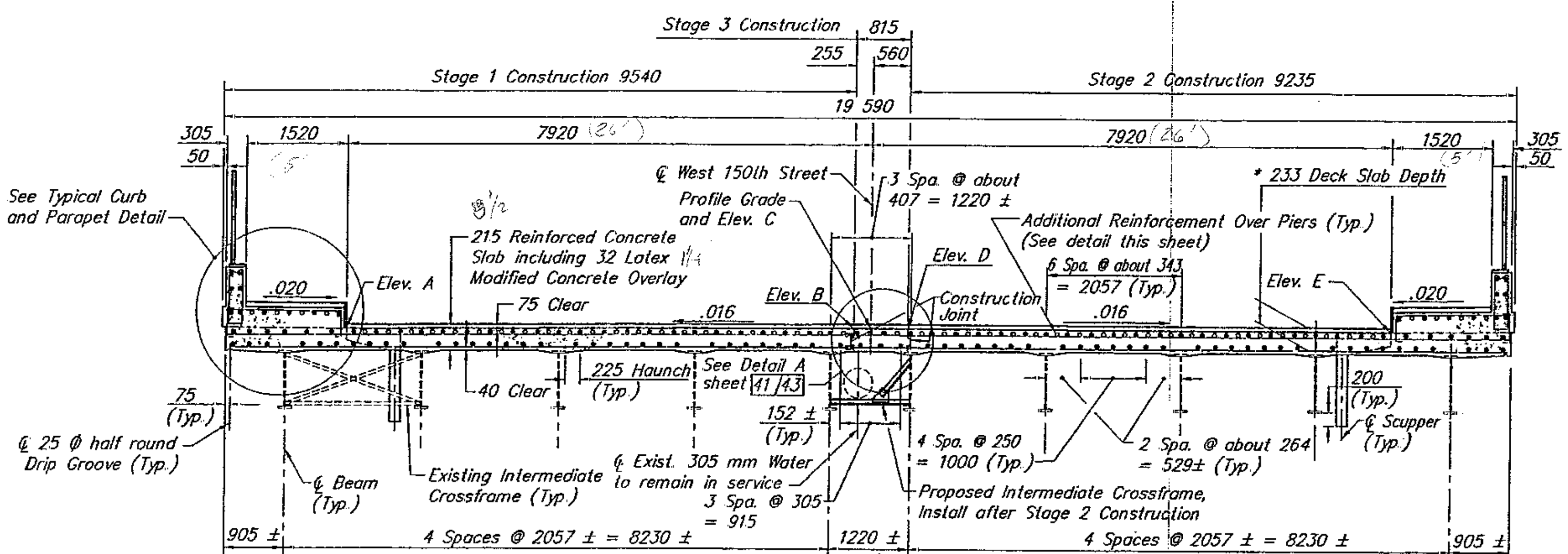
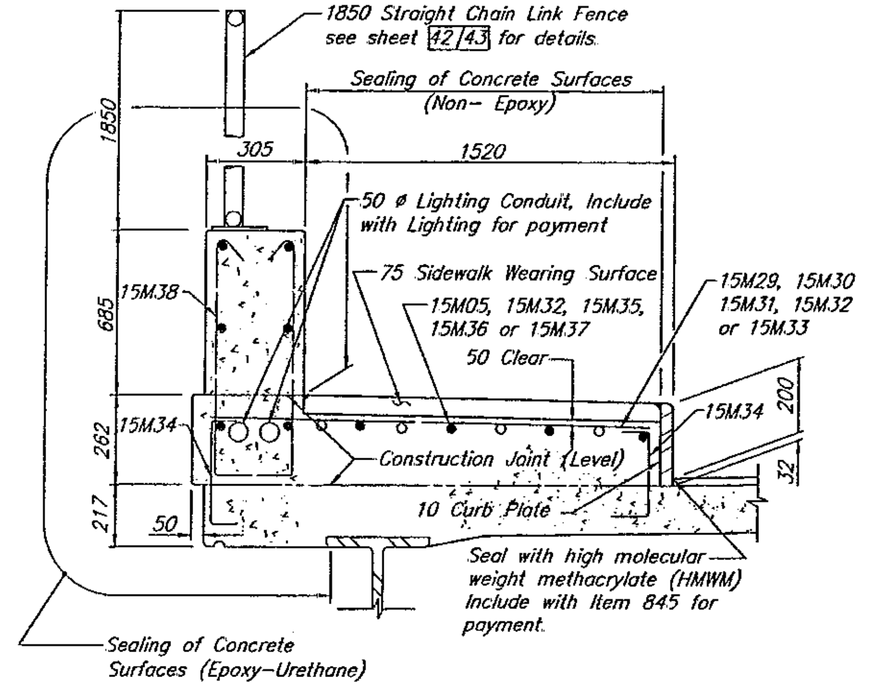


TRANSVERSE SECTION

Note: For slab reinforcing see sheet 33/43.



TYPICAL PARAPET DETAIL

* DECK SLAB DEPTH. The distance shown from top of the portland cement concrete deck slab to top of steel beam is the theoretical design dimension including the design haunch thickness of 50 mm. The quantity of deck concrete to be paid for shall be based on this dimension, minus the design haunch thickness, even though deviation from it may be necessary because the top flange of the beam may not have the exact camber or conformation required to place it parallel to the finished grade. At beams A and K this dimension is measured from the extended top of portland cement concrete deck slab.

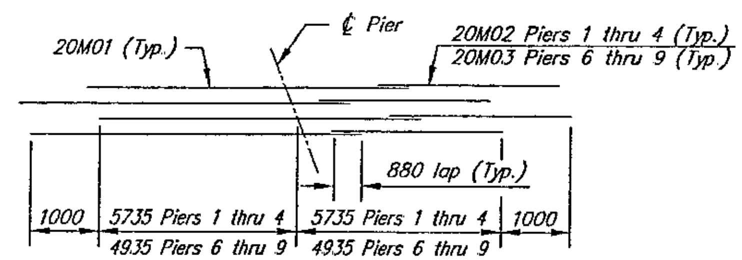
DECK SCREED ELEVATIONS

	℄ Bearing Rear Abutment	℄ Bearing Pier 1	Field Splice #1	Field Splice #2	℄ Bearing Pier 2	℄ Bearing Pier 3	Field Splice #3	Field Splice #4	℄ Bearing Pier 4	℄ Bearing Pier 5 Span 5	℄ Bearing Pier 5 Span 5	℄ Bearing Pier 6	Field Splice #5	Field Splice #6	℄ Bearing Pier 7	℄ Bearing Pier 8	Field Splice #7	Field Splice #8	℄ Bearing Pier 9	℄ Bearing Forward Abutment
Elev.																				
A	245.835	246.464	246.567	246.777	246.871	247.351	247.412	247.518	247.528	247.453	247.450	247.171	247.085	246.807	246.685	245.994	245.823	245.311	245.098	244.232
B	246.226	246.797	246.892	247.158	247.231	247.585	247.621	247.654	247.637	247.487	247.482	247.167	247.069	246.816	246.684	246.035	245.860	245.432	245.221	244.355
C	246.239	246.808	–	–	247.242	247.591	–	–	247.640	247.488	247.483	247.167	–	–	246.684	246.036	–	–	245.225	244.359
D	246.248	246.813	246.932	247.156	247.249	247.588	247.623	247.649	247.628	247.471	247.466	247.148	247.060	246.781	246.665	246.021	245.867	245.401	245.216	244.350
E	246.364	246.873	246.982	247.236	247.303	247.522	247.535	247.490	247.443	247.233	247.226	246.889	246.790	246.543	246.420	245.823	245.664	245.282	245.098	244.232
Beam																				
A	245.786	246.422	246.527	246.728	246.825	247.320	247.383	247.498	247.511	247.447	247.444	247.170	247.086	246.807	246.684	245.989	245.819	245.296	245.083	244.218
B	245.894	246.515	246.617	246.837	246.928	247.389	247.447	247.542	247.547	247.460	247.457	247.171	247.084	246.811	246.685	246.000	245.829	245.329	245.116	244.250
C	246.001	246.605	246.705	246.942	247.028	247.455	247.506	247.581	247.580	247.471	247.468	247.171	247.081	246.813	246.685	246.011	245.839	245.361	245.149	244.283
D	246.105	246.694	246.792	247.044	247.124	247.517	247.561	247.617	247.608	247.480	247.476	247.170	247.076	246.815	246.685	246.022	245.849	245.394	245.182	244.316
E	246.208	246.782	246.878	247.141	247.216	247.575	247.613	247.649	247.633	247.486	247.482	247.168	247.070	246.816	246.684	246.033	245.858	245.426	245.215	244.349
F	246.249	246.813	246.932	247.156	247.249	247.588	247.623	247.648	247.627	247.469	247.465	247.146	247.058	246.781	246.664	246.020	245.866	245.400	245.215	244.349
G	246.284	246.832	246.948	247.183	247.269	247.574	247.603	247.609	247.580	247.406	247.401	247.075	246.984	246.715	246.596	245.965	245.809	245.367	245.182	244.316
H	246.316	246.850	246.963	247.207	247.286	247.557	247.580	247.566	247.529	247.340	247.334	247.003	246.909	246.648	246.527	245.909	245.752	245.333	245.149	244.283
J	246.348	246.865	246.976	247.226	247.298	247.535	247.552	247.518	247.474	247.272	247.265	246.930	246.833	246.581	246.458	245.854	245.696	245.300	245.116	244.250
K	246.377	246.879	246.987	247.243	247.307	247.510	247.520	247.467	247.416	247.201	247.194	246.855	246.755	246.513	246.389	245.798	245.639	245.267	245.083	244.218

DECK SCREED ELEVATIONS

	Station 9+910	Station 9+920	Station 9+930	Station 9+940	Station 9+950	Station 9+960	Station 9+970	Station 9+980	Station 9+990	Station 10+000	Station 10+010	Station 10+020	Station 10+030	Station 10+040	Station 10+050	Station 10+060	Station 10+070	Station 10+080	Station 10+090	Station 10+100	Station 10+110	Station 10+120
Elev.																						
A	245.943	246.282	246.561	246.818	247.056	247.233	247.353	247.457	247.514	247.534	247.526	247.454	247.371	247.218	247.041	246.824	246.569	246.278	245.936	245.570	245.148	244.703
B	246.057	246.402	246.692	246.943	247.158	247.348	247.489	247.574	247.638	247.658	247.632	247.578	247.480	247.352	247.160	246.947	246.687	246.398	246.057	245.689	245.270	244.826
C	246.062	246.406	246.698	246.946	247.162	247.351	247.495	247.579	247.642	247.664	247.636	247.585	247.481	247.355	247.164	246.951	246.691	246.402	246.062	245.693	245.274	244.831
D	246.053	246.396	246.690	246.937	247.153	247.341	247.488	247.571	247.634	247.658	247.627	247.578	247.470	247.346	247.155	246.943	246.683	246.394	246.053	245.683	245.265	244.822
E	245.935	246.269	246.575	246.823	247.043	247.220	247.356	247.466	247.514	247.535	247.525	247.453	247.356	247.216	247.046	246.821	246.566	246.273	245.937	245.563	245.147	244.706
Beam																						
A	245.930	246.266	246.546	246.805	247.043	247.216	247.337	247.443	247.497	247.520	247.512	247.439	247.356	247.202	247.027	246.809	246.555	246.263	245.921	245.555	245.133	244.688
B	245.958	246.302	246.580	246.835	247.070	247.255	247.372	247.475	247.535	247.549	247.543	247.472	247.389	247.238	247.058	246.843	246.586	246.297	245.954	245.588	245.166	244.722
C		246.338	246.616	246.868	247.095	247.283	247.409	247.506	247.571	247.583	247.571	247.507	247.418	247.274	247.089	246.877	246.618	246.329	245.986	245.619	245.199	244.755
D		246.367	246.652	246.903	247.121	247.313	247.446	247.537	247.602	247.618	247.598	247.539	247.445	247.310	247.121	246.910	246.650	246.358	246.019	245.652	245.231	244.788
E		246.397	246.687	246.937	247.153	247.342	247.484	247.568	247.632	247.652	247.627	247.572	247.474	247.346	247.154	246.942	246.682	246.392	246.052	245.684	245.264	244.821
F		246.396	246.689	246.936	247.152	247.340	247.487	247.570	247.633	247.657	247.627	247.578	247.469	247.345	247.155	246.942	246.682	246.393	246.052	245.682	245.264	244.821
G		246.359	246.660	246.904	247.121	247.301	247.457	247.543	247.596	247.628	247.597	247.541	247.436	247.312	247.124	246.908	246.649	246.360	246.020	245.649	245.231	244.790
H		246.321	246.628	246.872	247.092	247.265	247.419	247.516	247.561	247.595	247.570	247.503	247.411	247.275	247.094	246.873	246.617	246.326	245.987	245.615	245.198	244.757
J			246.594	246.840	247.060	247.236	247.379	247.484	247.531	247.556	247.541	247.469	247.375	247.239	247.063	246.840	246.584	246.292	245.954	245.582	245.166	244.725
K			246.560	246.808	247.029	247.206	247.340	247.451	247.500	247.519	247.511	247.439	247.340	247.200	247.031	246.806	246.552	246.258	245.922	245.548	245.132	244.692

Note: The top of portland cement concrete deck elevations above are those which are required before concrete is placed. Proper allowances have been made for the dead load deflections caused by the weight of the concrete and overlay.



ADDITIONAL REINFORCING OVER PIERS

Notes:

A haunch width of 225 mm shall be used for computing quantity of concrete. However, the haunch width may vary between 150 mm and 300 mm.

All dimensions in millimeters except for stations and elevations, which are given in meters, unless otherwise noted.

All reinforcing bar marks shall be prefixed by S.

For sidewalk and parapet reinforcing see sheet 34/43.

For reinforcing schedule see sheet 43/43.

For curb plate, sidewalk and scupper details see sheet 41/43.

For Longitudinal construction joint details see Detail A on sheet 41/43.

For proposed intermediate crossframe details see sheet 40/43.

For location of lighting conduit in parapet see Roadway Plans.

The following abbreviations are used:
Elev. = Elevation Typ. = Typical

Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B–No. 162

DESIGN AGENCY: EUTHENICS INC. CONSULTING ENGINEERS

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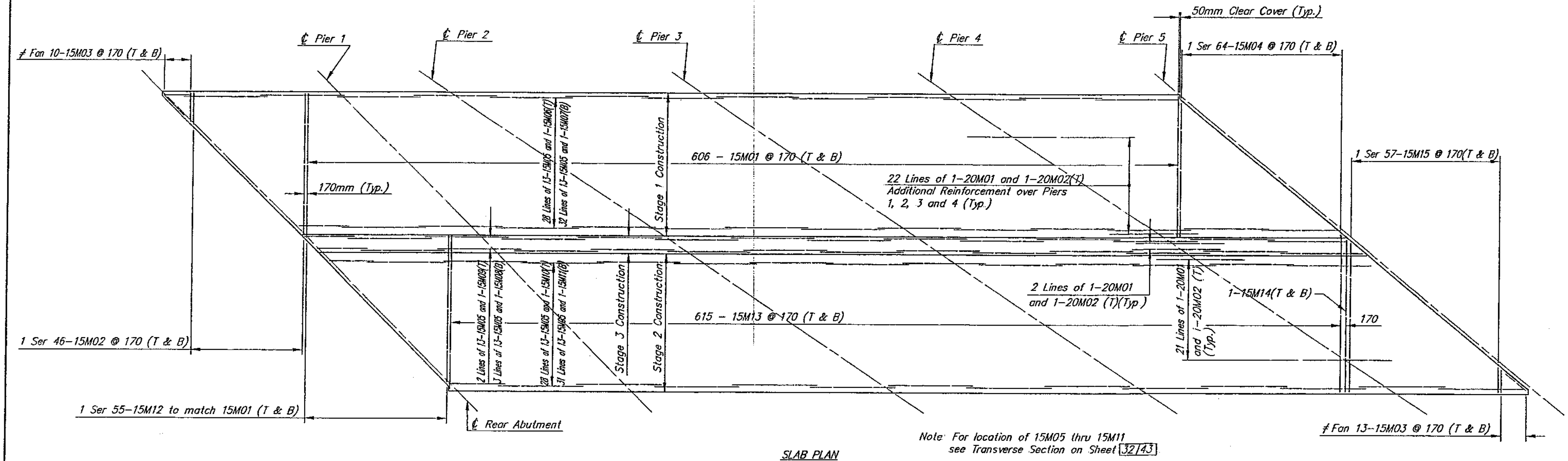
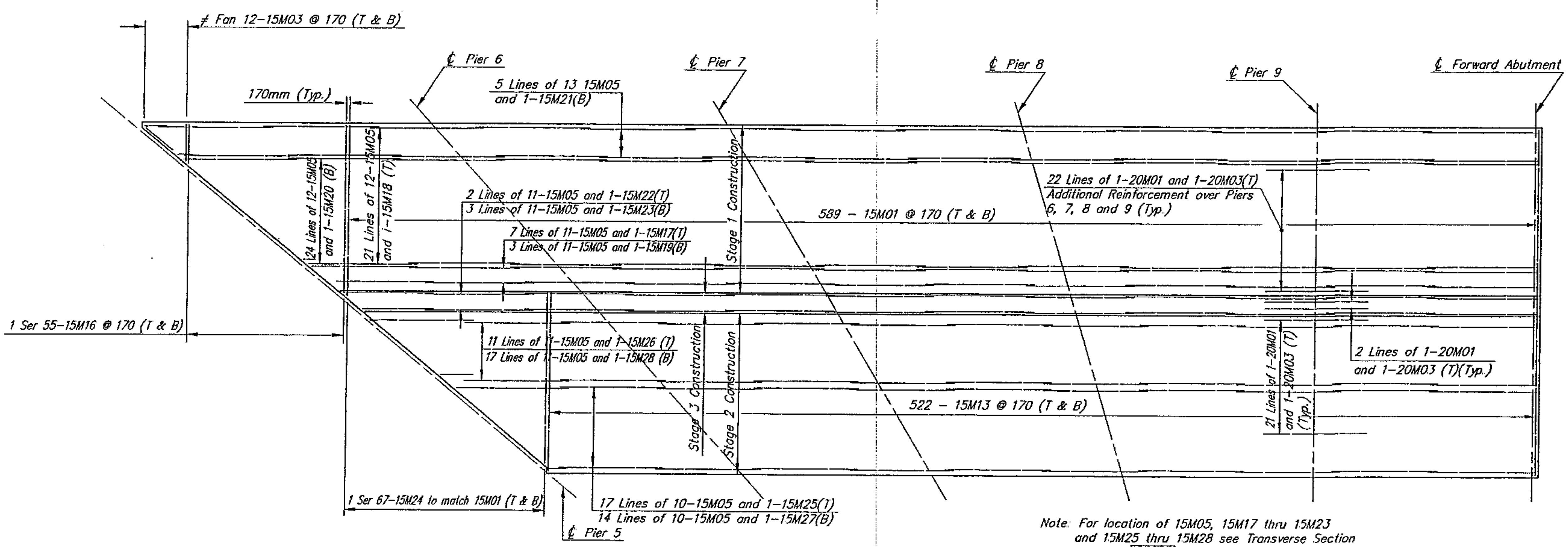
TRANSVERSE SECTION AND DETAILS
BRIDGE NO. 152
West 150th Street over Conrail, GCRTA and Chatfield Ave.

CUY-WEST 150th STREET



SLAB PLAN
(Unit 1)

≠ Measured along Edge of Slab.



SLAB PLAN
(Unit 2)

MINIMUM LAP LENGTH	
No. 15M Bottom Bar =	760 mm
No. 15M Top Bar =	576 mm

Notes:

All dimensions are in millimeters, unless noted otherwise.

All Reinforcing bar marks shall be Prefixed by S.

Reinforcing bars at scuppers shall be field cut as required.

For placement of Additional Reinforcing over Piers and Longitudinal Reinforcing, see sheet 32/43.

The following abbreviations are used:
T = Top   Typ. = Typical
B = Bottom

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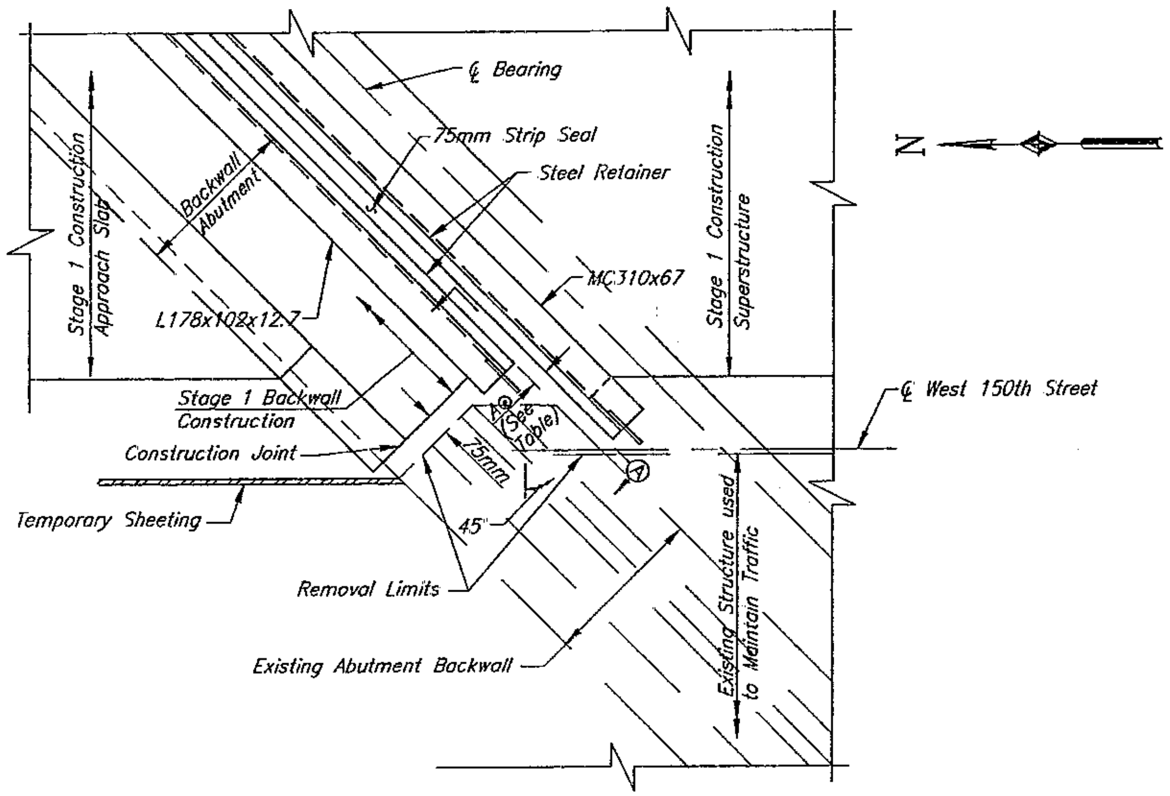
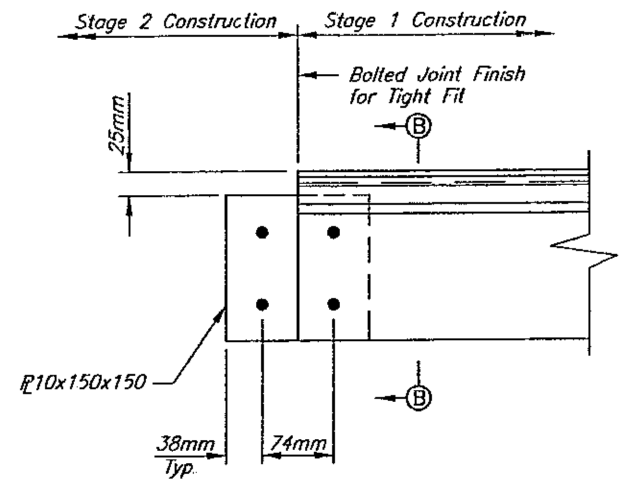
SLAB PLAN
BRIDGE NO. 152
West 150th Street over Conrail, GCRTA and Chatfield Ave.

CUY-WEST 150th STREET

Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B-No. 162

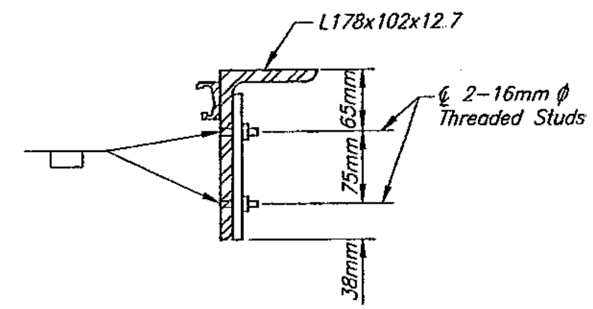


PART PLAN AT REAR ABUTMENT



SECTION A–A

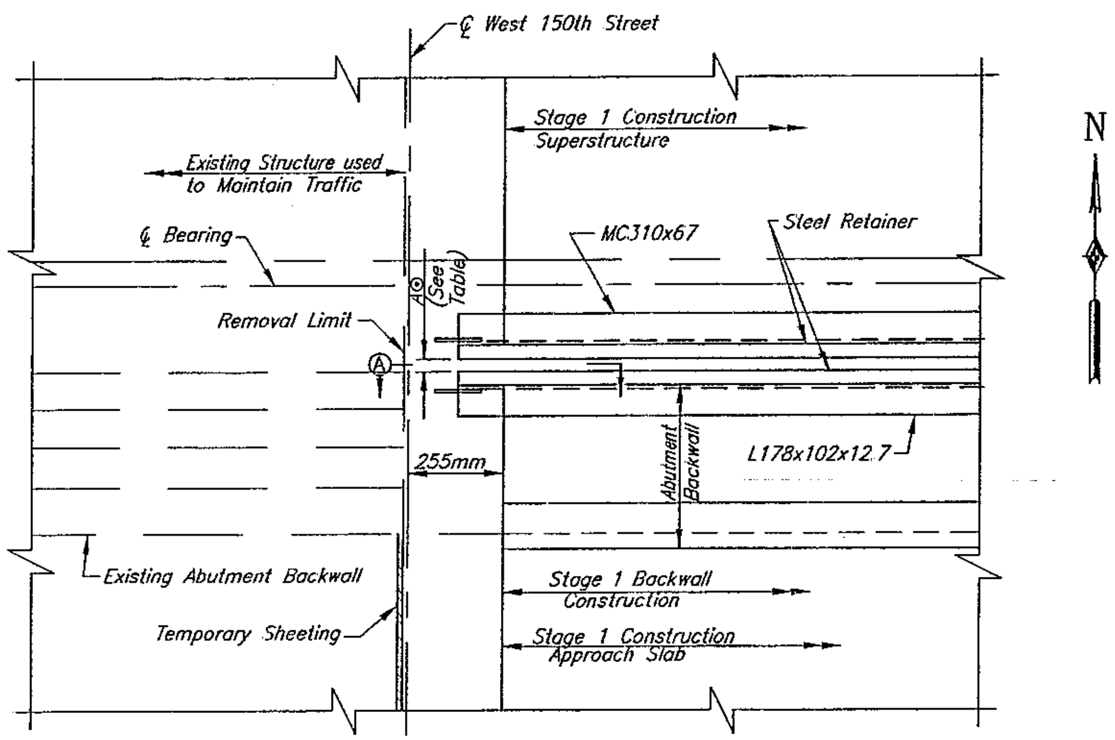
(Rear abutment shown, Forward abutment opposite hand)



SECTION B–B

END DAM FIELD SPLICE DETAIL

NOTE: Splice detail for MC310x67 similar.



PART PLAN AT FORWARD ABUTMENT

DIMENSION A⊙ FOR STRIP SEAL GLAND (mm)		
°C	75mm GLAND REAR ABUTMENT	75mm GLAND FORWARD ABUTMENT
35	34	30
30	36	33
25	37	36
20	39	38
15	41	40
10	43	43
5	45	45
0	47	47

Notes:

INSTALLATION OF SEAL :
During installation of the support/armor for the superstructure side of the expansion joint seal, the sealing of beams on bearings shall be carefully observed to assure that positive bearing is maintained. Proper vertical fit of the support/armor on the beams shall be achieved by positioning of the bevel fill plates rather than by clamping force.

For additional notes and details see Ohio Standard Drawing EXJ–4–87M sheets 2,3, 4 and 5 of 5.

Strip seals shall be furnished in one continuous piece for each joint.

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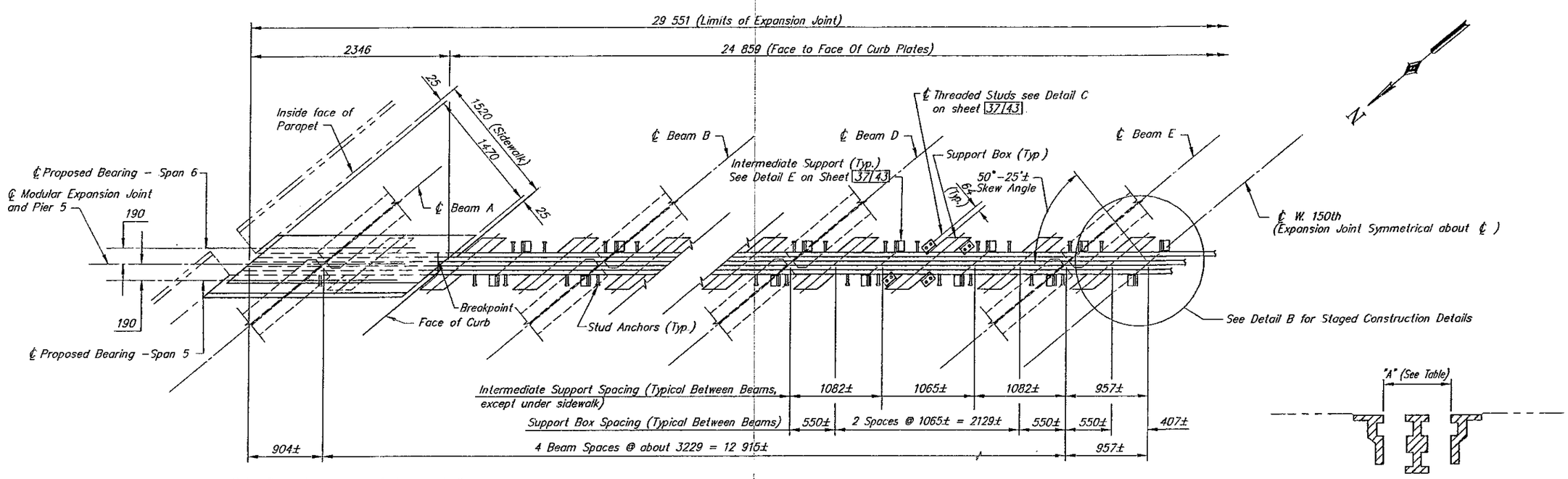
KRD		1833405	

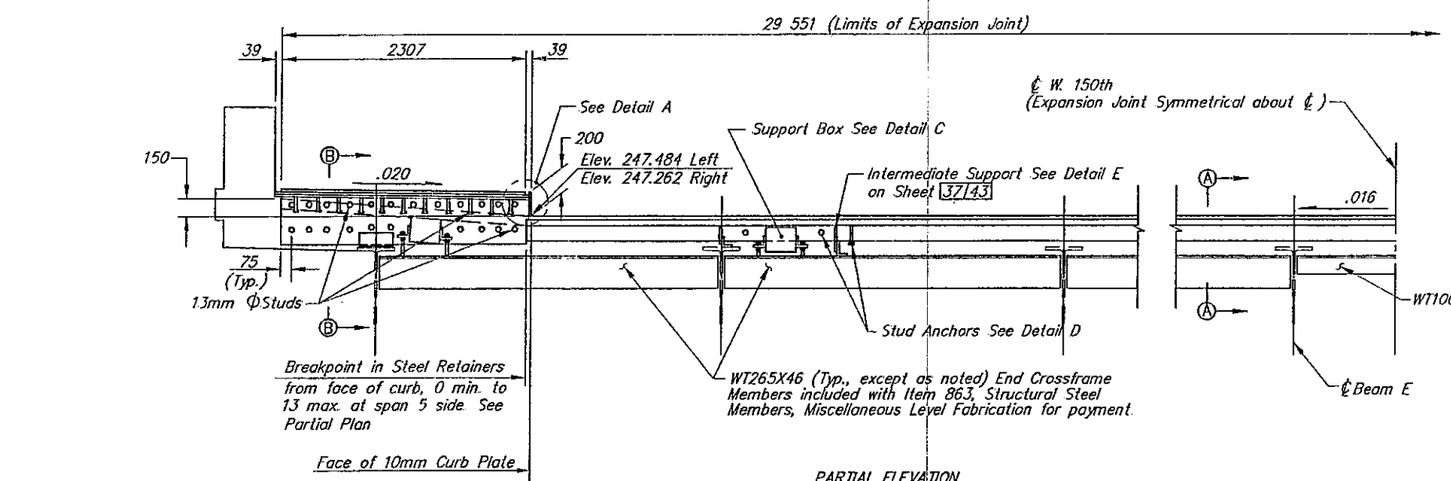
ABUTMENT EXPANSION JOINT DETAILS
BRIDGE NO. 152
West 150th Street over Conrail, GCRTA and Chatfield Ave.

CUY–WEST 150th STREET



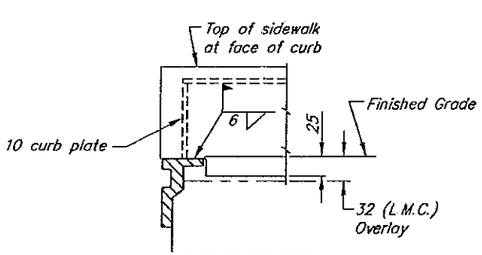
Note: Dimensions measured along centerline of expansion joint.

PARTIAL PLAN

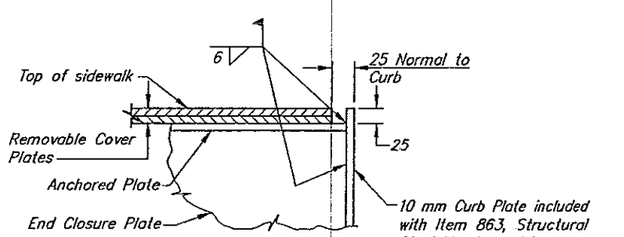


Note: Dimensions measured along centerline of expansion joint.

PARTIAL ELEVATION



CURB PLATE DETAIL



DETAIL A
(Span 6 side)

SETTING SECTION A–A
JOINT AT PIER 5

DIMENSION "A" FOR MODULAR EXPANSION JOINT AT PIER 5	
℃	mm
35	118
30	126
25	134
20	142
15	150
10	158
5	166
0	174

Notes:

All dimension are in millimeters, unless otherwise noted.

The manufacturer shall verify the maximum support box spacing shown of 1100 mm is adequate for fatigue. Fatigue testing of the actual welded connections shall have been performed for greater than 2,000,000 truck load cycles. The spacing of the support boxes must be reduced to a maximum of 1000mm if fatigue test have not been performed. For additional modular expansion joint notes see General Notes sheets 2/43 and 3/43.

For details of parapet cover plate see sheet 42/43.

The Modular Expansion Joint at Pier 5 shall have a movement rating of 160mm.

Stud anchors shall be placed between the intermediate supports and support boxes, see Detail D on sheet 37/43.

Elevations shown are projected top of wearing surface at centerline expansion joint.

For Section B–B, Details B, C, D and E, See Sheet 37/43.

For end crossframe details See Sheet 40/43.

Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B–No. 162

DESIGN AGENCY: EUTHENICS INC. CONSULTING ENGINEERS

DESIGNED	DRAWN	REVIEWED	DATE
BMG	BMG	RAB	9–96
CHECKED	REVISED	STRUCTURE FILE NUMBER	
KRD		1833405	

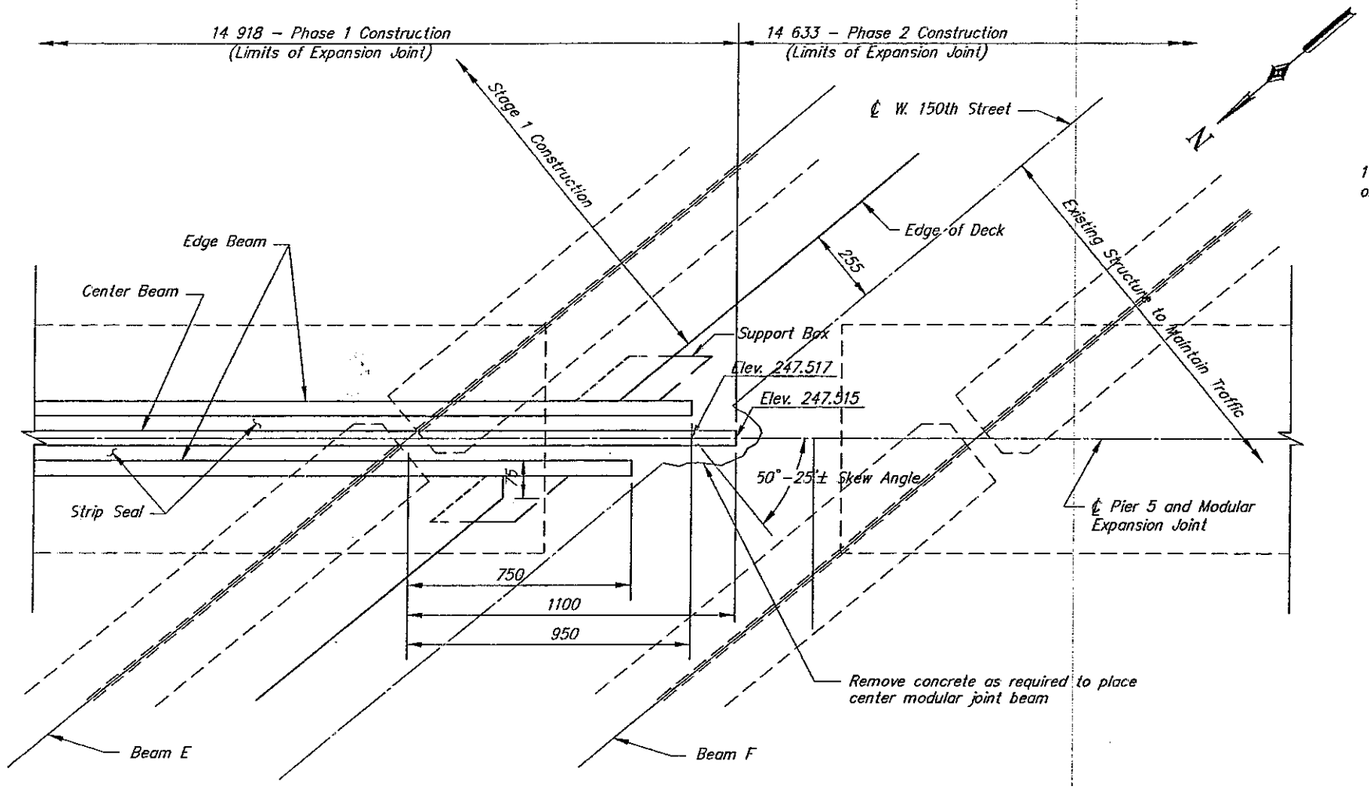
PIER 5 MODULAR EXPANSION JOINT DETAILS

BRIDGE NO. 152
West 150th Street over Conrail, GCRTA and Chatfield Ave.

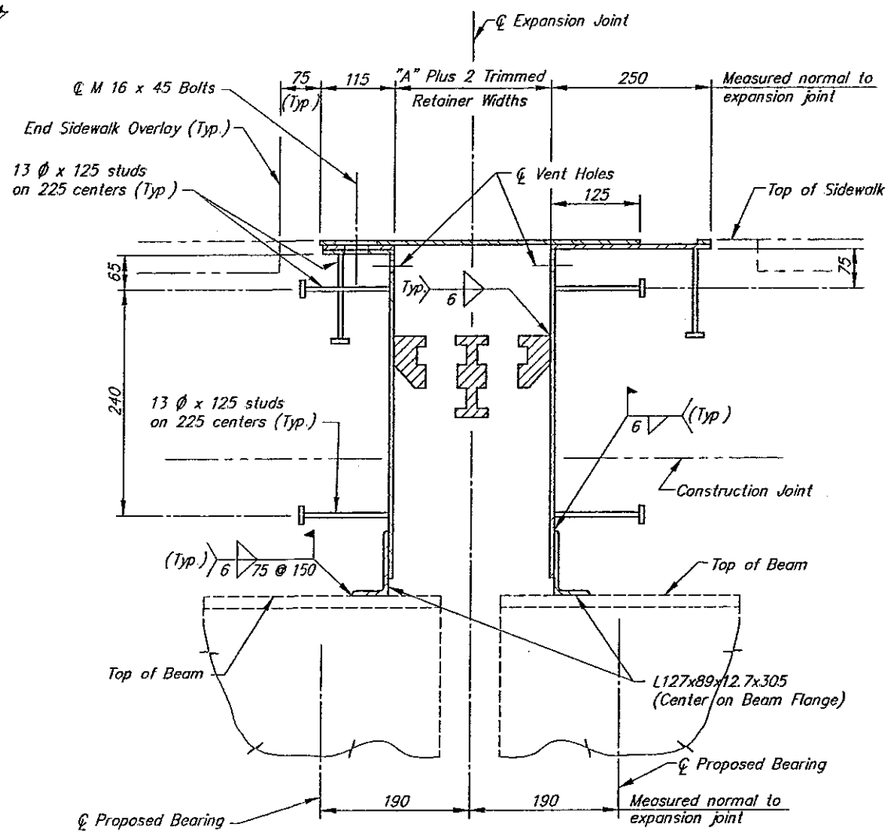
CUY-WEST 150th STREET

36 / 43

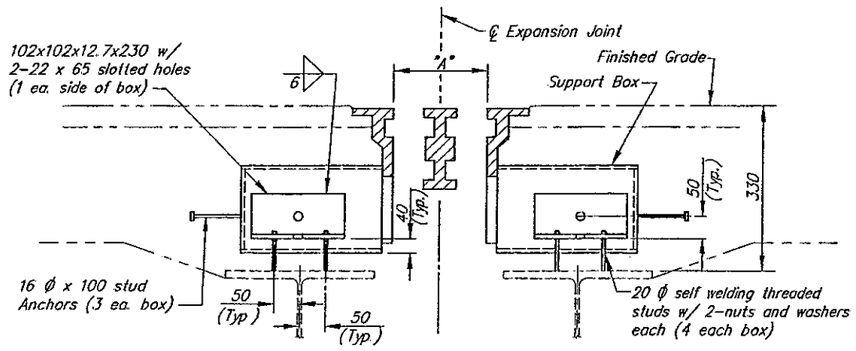
66 / 73



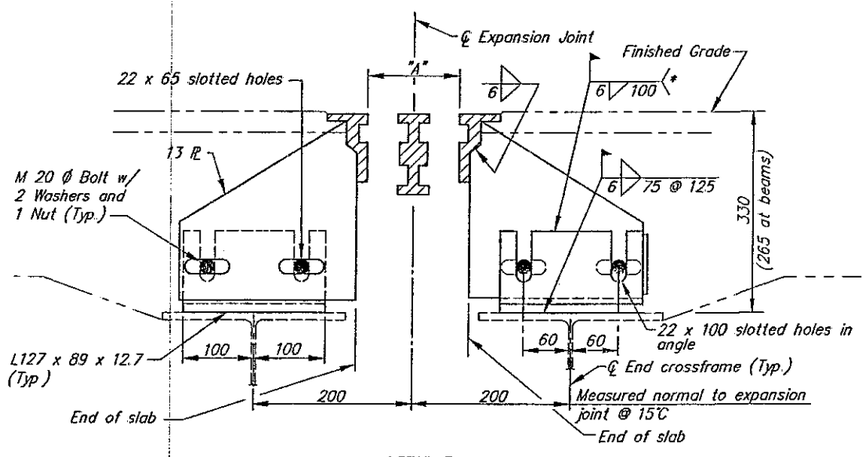
DETAIL B



SECTION B–B

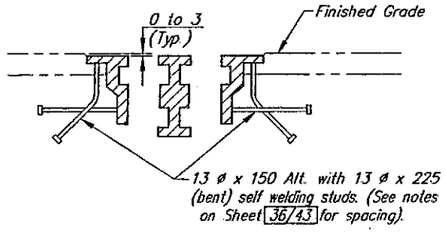


DETAIL C



DETAIL E

Intermediate Supports at end crossframe shown, attachment at ℄ beams similar, except as noted.
Plates, angles and welds are similar each side of ℄ of Joint.
* Denotes: This weld not to be made until final vertical and horizontal adjustments are made.



DETAIL D

Notes:

All dimensions are in millimeters, unless otherwise noted.

Sidewalk cover plates are to be similar to the details shown in the Ohio Department of Transportation Standard Drawings EXJ–4–87M, Sheets 3 & 4 of 5 and as shown here. Sidewalk joint armor and cover plates shall be included with Item 516, Modular Expansion Joint, As Per Plan for payment.

For locations of section B–B, Details B, C, D and E and additional notes see sheet 36/43.

For dimension "A" see table on sheet 36/43.

DESIGN AGENCY
EUTHENICS INC
CONSULTING ENGINEERS

DATE 9–96
REVIEWED RAB
DRAWN BMG
DESIGNED BMG
CHECKED KRD
REVISED
STRUCTURE FILE NUMBER 1833405

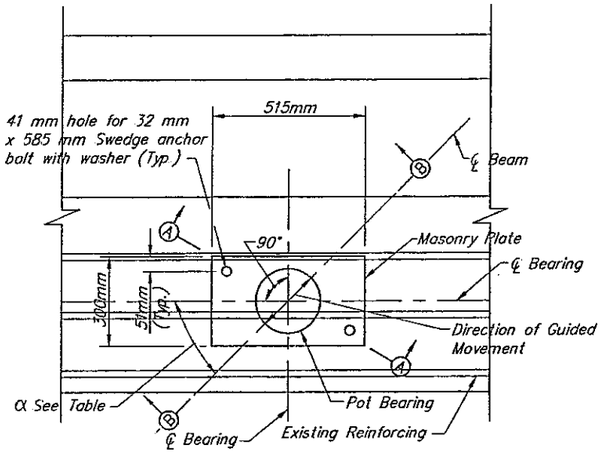
PIER 5 MODULAR EXPANSION JOINT DETAILS
BRIDGE NO. 152
West 150th Street over Conrail, CCRTA and Chatfield Ave.

CUY-WEST 150th STREET

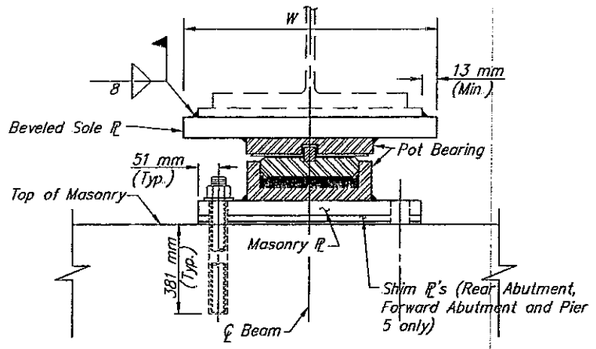
37 / 43

Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B–No. 162

67 / 73



TYPICAL POT BEARING DETAIL
(Rear Abutment shown, Forward Abutment similar)



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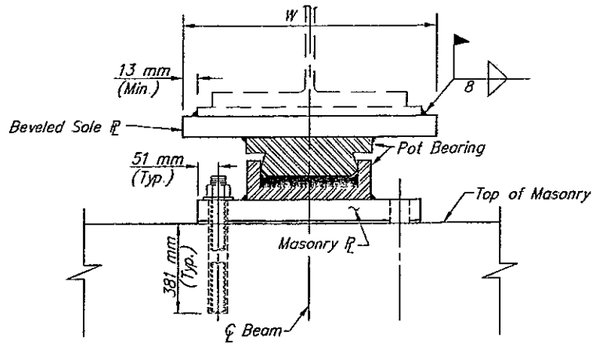
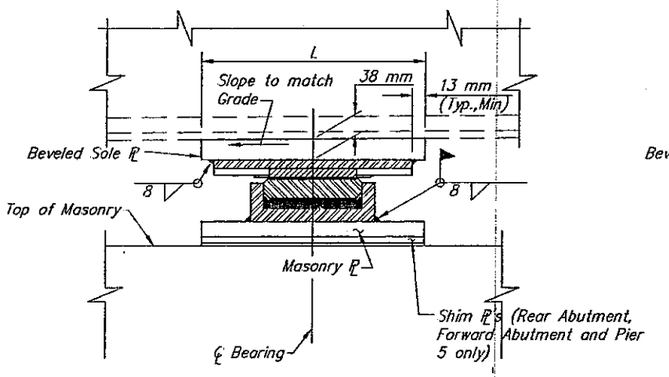


FIXED BEARING

SECTION A–A

"H" BEARING HEIGHT (mm)				
Beams	℄ Bearing Rear Abutment	℄ Bearing Pier 5 SPAN 5	℄ Bearing Pier 5 SPAN 6	℄ Bearing Forward Abutment
A thru E	279±	268±	270±	237±
F thru K	254±	240±	244±	237±



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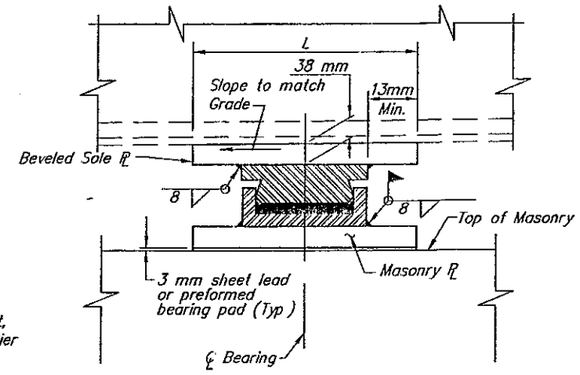
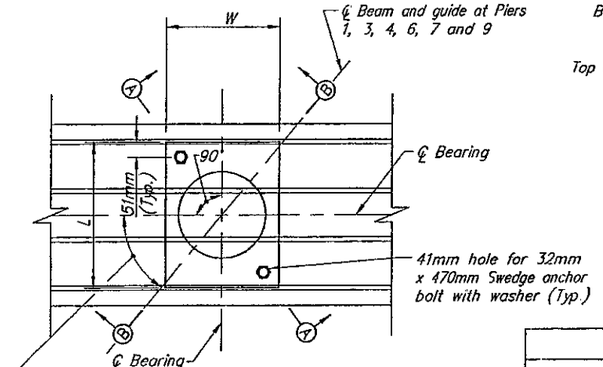
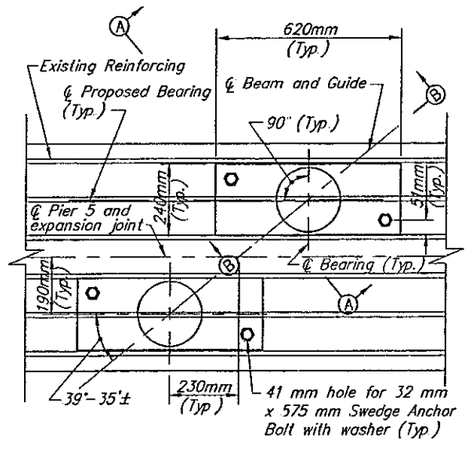


FIXED BEARING

SECTION B–B



TYPICAL POT BEARING DETAIL
(Piers 1 thru 4, 6 thru 9)



TYPICAL POT BEARING DETAIL
(Pier 5)

BEARING REQUIREMENTS

LOCATION	TYPE	VERTICAL DEAD LOAD (kN)	VERTICAL LIVE LOAD (kN)	VERTICAL LOAD TOTAL (kN)	MASONRY PLATE (mm) (L x W x T)	SOLE PLATE (mm) (L x W x T)	MAX. DESIGN ROTATION (RADIANS)	ONE WAY DESIGN MOVEMENT (mm)	5°C TEMP. MOVEMENT (mm)	BEARING HEIGHT (SEE NOTE A) (mm)	MIN. LATERAL CAPACITY (kN)	α (DEGREES)
REAR ABUTMENT	GUIDED EXPANSION	175	207	382	300 x 515 x 51	355 x 330 x 38	.002	25	3	"H" SEE TABLE	38	45°–00'±
PIER 1	GUIDED EXPANSION	516	265	781	380 x 490 x 51	390 x 370 x 38	.003	14	1	181	104	45°–00'±
PIER 2	FIXED	579	289	868	380 x 535 x 51	320 x 370 x 38	.004	0	0	171	116	33°–29'±
PIER 3	GUIDED EXPANSION	658	299	957	380 x 535 x 51	420 x 370 x 38	.003	16	2	187	132	33°–29'±
PIER 4	GUIDED EXPANSION	610	287	897	380 x 535 x 51	450 x 370 x 38	.003	32	3	187	122	33°–29'±
PIER 5 SPAN – 5	GUIDED EXPANSION	197	203	400	240 x 620 x 51	385 x 335 x 38	.003	45	5	"H" SEE TABLE	40	39°–35'±
PIER 5 SPAN – 6	GUIDED EXPANSION	202	203	405	240 x 620 x 51	385 x 335 x 38	.003	40	4	"H" SEE TABLE	40	39°–35'±
PIER 6	GUIDED EXPANSION	580	277	857	380 x 490 x 51	410 x 370 x 38	.003	27	3	181	116	47°–48'±
PIER 7	GUIDED EXPANSION	479	266	745	380 x 490 x 51	390 x 370 x 38	.002	13	1	181	96	58°–51'±
PIER 8	FIXED	512	269	781	380 x 515 x 51	320 x 370 x 38	003	0	0	171	103	73°–12'±
PIER 9	GUIDED EXPANSION	496	258	754	380 x 575 x 51	390 x 370 x 38	.002	13	1	181	100	90°–00'±
FORWARD ABUTMENT	GUIDED EXPANSION	150	198	348	300 x 515 x 51	355 x 330 x 38	.002	24	2	"H" SEE TABLE	35	90°–00'±

NOTE A:
THE BEARING HEIGHT SPECIFIED IS THE DISTANCE FROM THE TOP OF MASONRY TO THE BOTTOM OF COVER PLATE OR THE BOTTOM FLANGE OF THE BEAM (INCLUDES 3mm LEAD SHEET).

Notes:
Anchor bolt locations are based on existing plans and may be adjusted to avoid drilling anchor bolt holes through existing reinforcing steel. Install anchor bolts per item 510.

The bearing devices, masonry plates, sole plates, anchor bolts, nuts, washers and bearing pads shall be included for payment in the contract price bid for item 516, Steel Pot Bearings.

For additional Pot Bearing requirements see proposal note.

The following abbreviations are used:

Typ. = Typical Min = Minimum

Cuyahoga County Engineer
Cleveland, Ohio
Report No. 722.3 and B–No. 162

DESIGN AGENCY
EUTHENICS INC. CONSULTING ENGINEERS

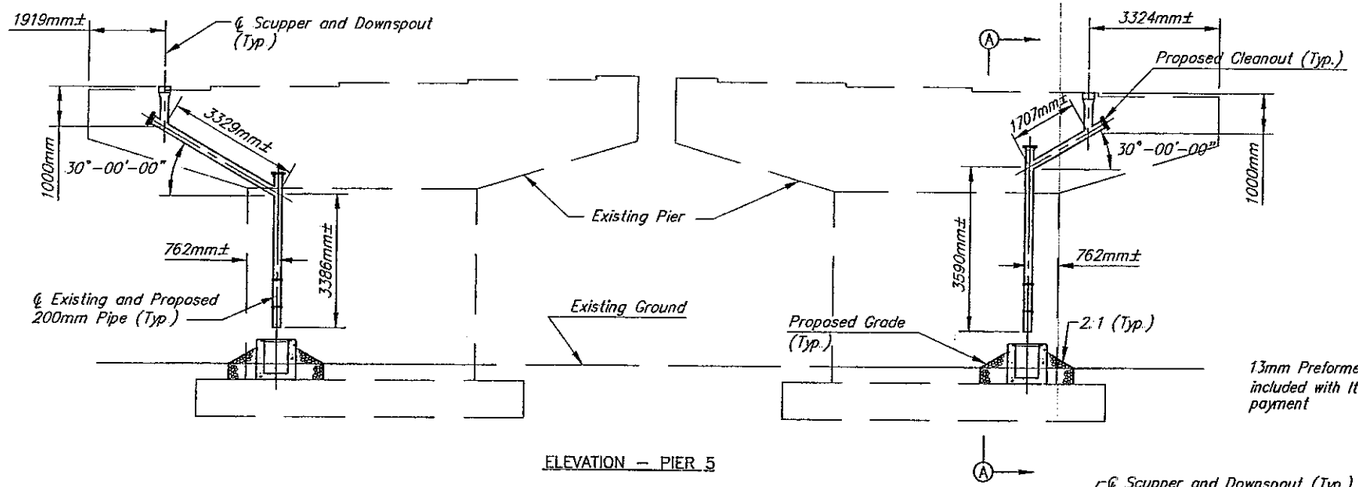
DATE 9–96
REVIEWED RAB
STRUCTURE FILE NUMBER 1833405
DRAWN BMG
REVISED
DESIGNED BMG
CHECKED KRD

POT BEARINGS
BRIDGE NO. 152
West 150th Street over Conrail, GCRTA and Chatfield Ave.

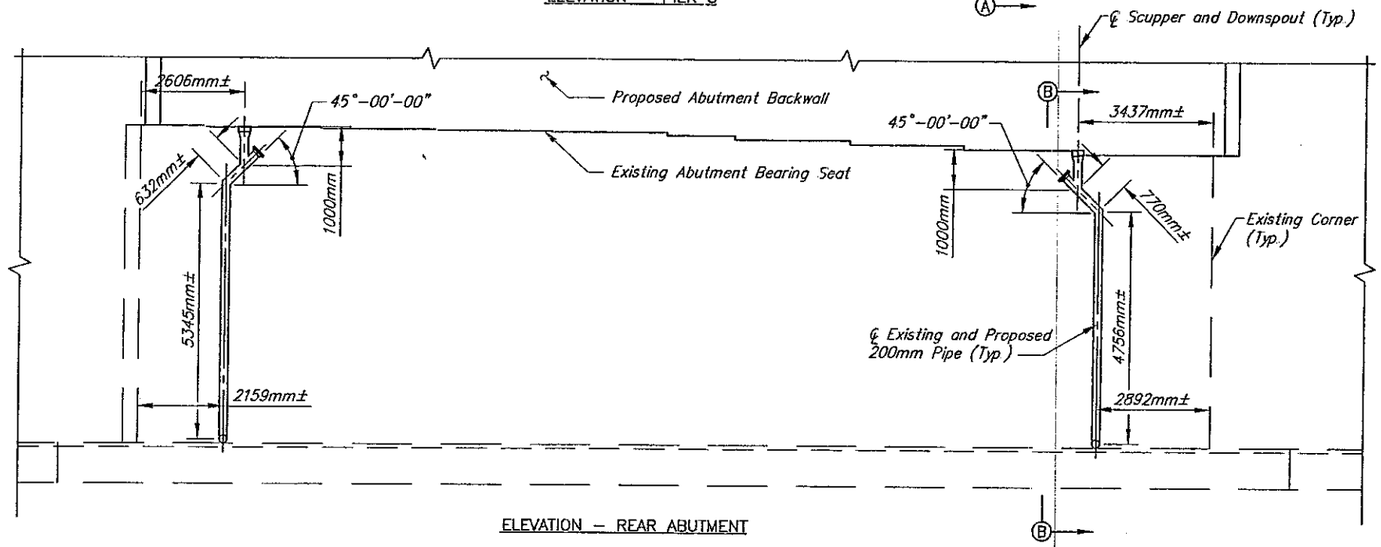
CUY-WEST 150th STREET

38 / 43

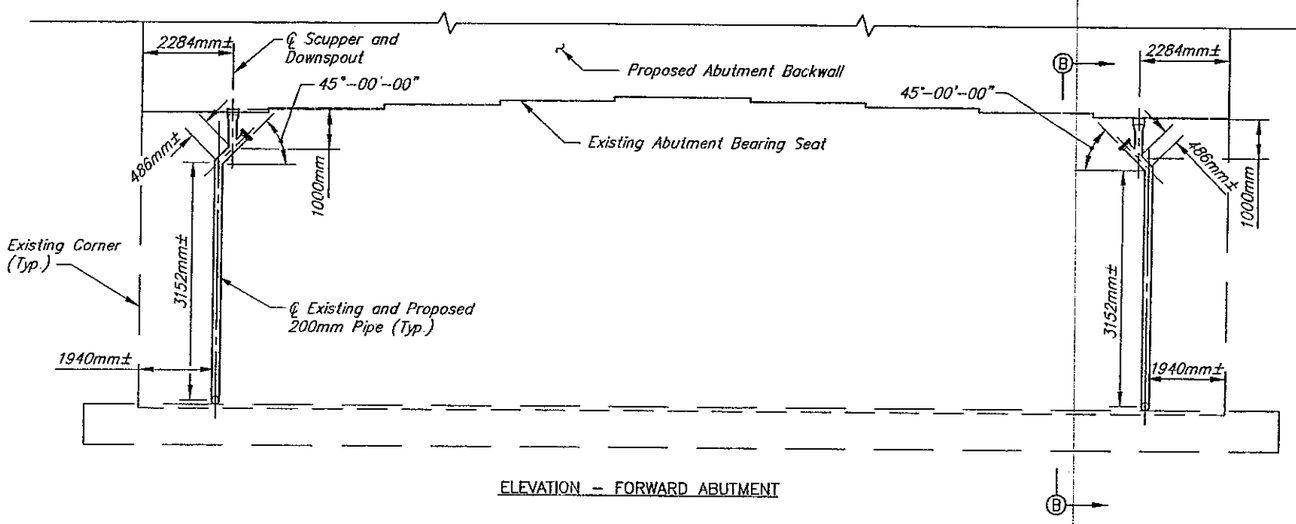
68 / 73



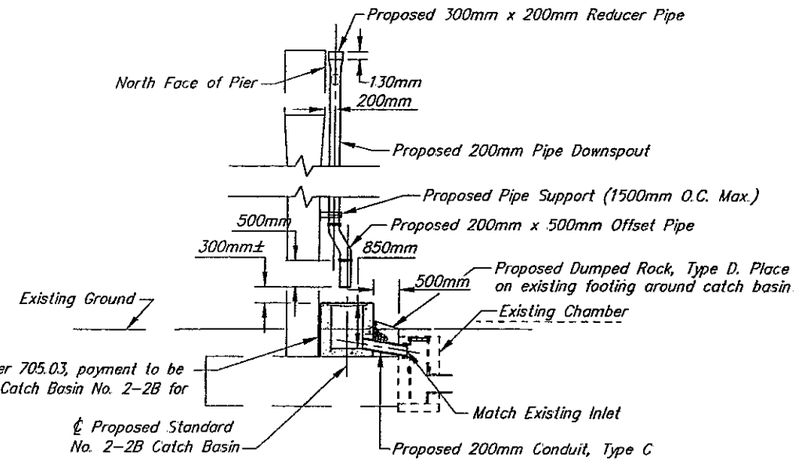
ELEVATION – PIER 5



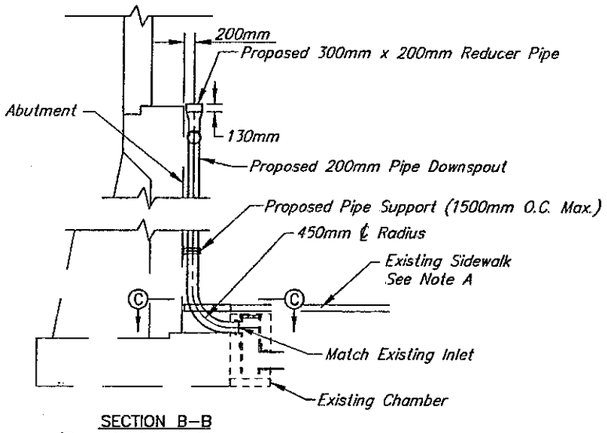
ELEVATION – REAR ABUTMENT



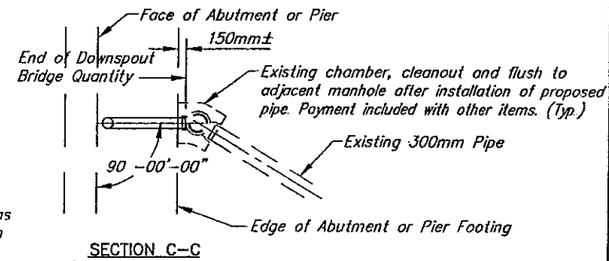
ELEVATION – FORWARD ABUTMENT



SECTION A–A



SECTION B–B
(Rear Abutment Shown,
Forward Abutment Similiar)



SECTION C–C
(Abutments Shown,
Pier 5 Similiar)

Note:
The existing sidewalk shall be removed, as required, to existing joints for installation of the downspout. The sidewalk shall be replaced in accordance with ODOT CMS Item 608. Payment for removal and replacement shall be included with Item 518, 200 mm Pipe Downspout, including specials.

Notes:

Remove existing 200mm Pipe Downspout from end of Scupper to the existing chamber. Payment included in the unit price bid for Item 202–Portions of Structure removed, over 6 meter span, as per plan.

For clean out and pipe support details see sheet 41/43

The 200mm pipes shall be galvanized steel pipe, 707.08.

Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B–No. 162

DESIGN AGENCY
EUTHEMICS INC.
CONSULTING ENGINEERS

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DRAWN BMG
DESIGNED BMG
CHECKED KRD
REVISED
STRUCTURE FILE NUMBER 1833405

DRAINAGE DETAILS
BRIDGE NO. 152
West 150th Street over Conrail, GCRTA and Chatfield Ave.

CUY-WEST 150th STREET

39 / 43

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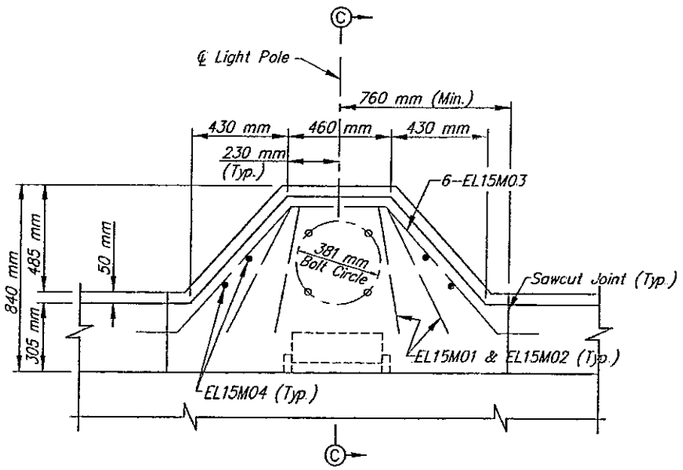
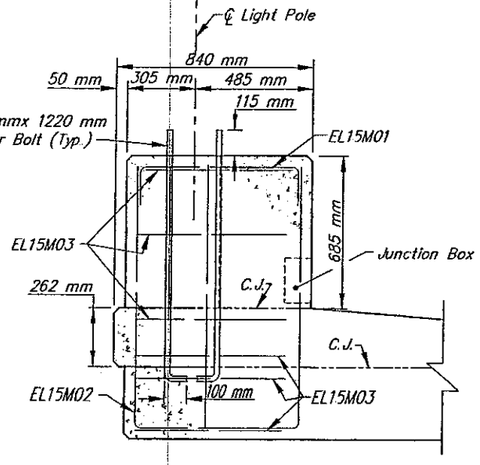
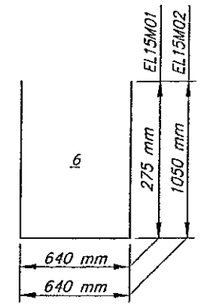
\JOBS\318\BRIDGE\318BRD01.DWG] PLK 1/8/98 PLOT @ 1000:75M

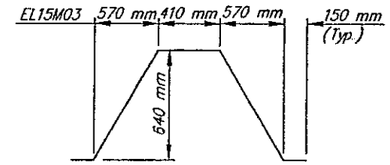


LIGHT POLE PILASTER PLAN



SECTION C–C

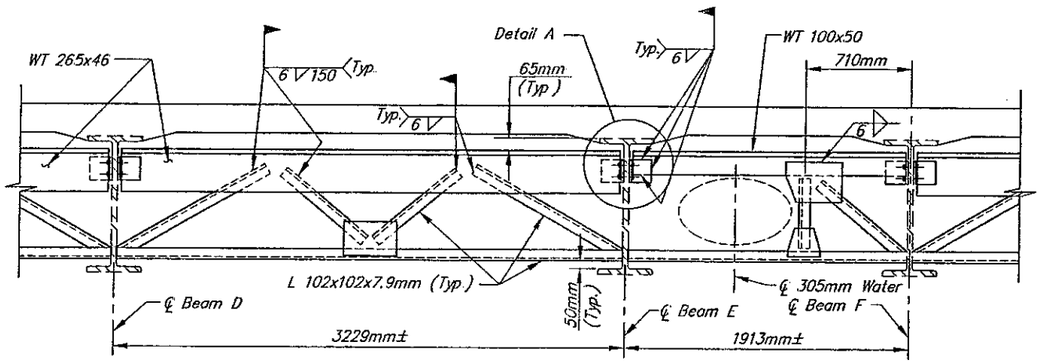




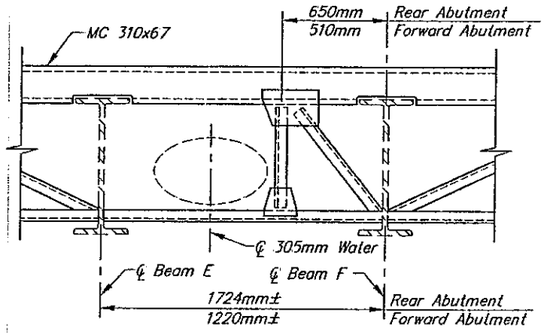
BENDING DIAGRAMS

REINFORCEMENT SCHEDULE
LIGHT POLE SUPPORT

MARK	NO.	LENGTH	TYPE	SER. INCR.	WEIGHT (kg)
EL 1501	4	1110 mm	6		7
EL 1502	4	2660 mm	6		17
EL 1503	6	2384 mm	16		22
EL 1504	4	1050 mm	Str.		7
FOR ONE LIGHT POLE SUPPORT TOTAL WEIGHT EPOXY COATED				=	53

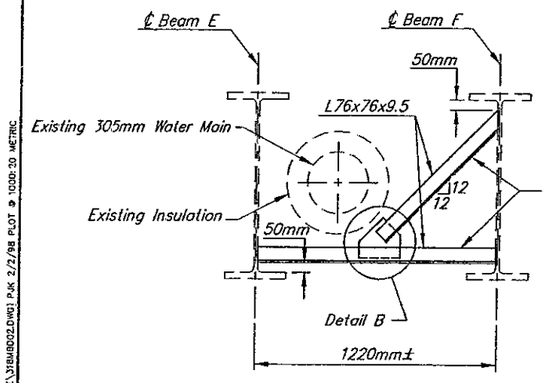


PIER 5

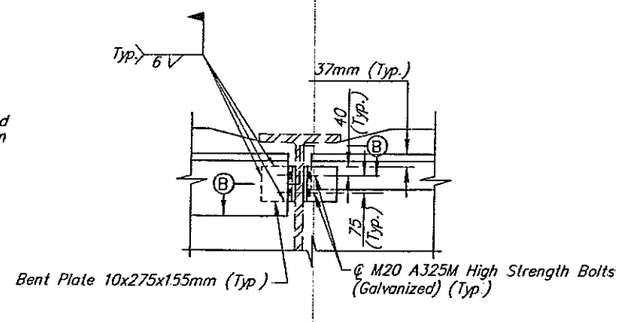


ABUTMENTS

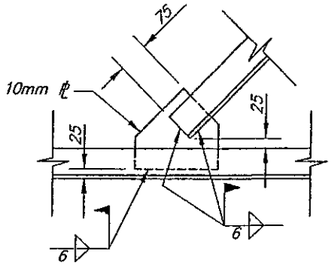
PROPOSED END CROSSFRAMES



PROPOSED INTERMEDIATE CROSSFRAME



DETAIL A



DETAIL B

SECTION B–B

Notes:

For additional End Crossfrome details and notes see Ohio Standard Construction Drawing EXJ–4–87M.

End crossframes shall be included with Item 86.3, Structural Steel Members, Miscellaneous Level Fabrication for payment.

The following abbreviations are used.
(Typ.) = Typical ℄ = Plate

Cuyahoga County Engineer
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REVIEWED RAB
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STRUCTURE FILE NUMBER 1833405

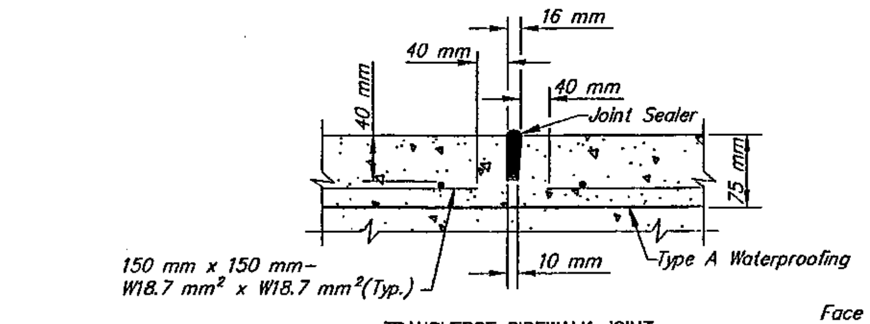
MISCELLANEOUS DETAILS
BRIDGE NO. 152
West 150th Street over Conrail, GCRTA and Chatfield Ave.

CUY-WEST 150th STREET

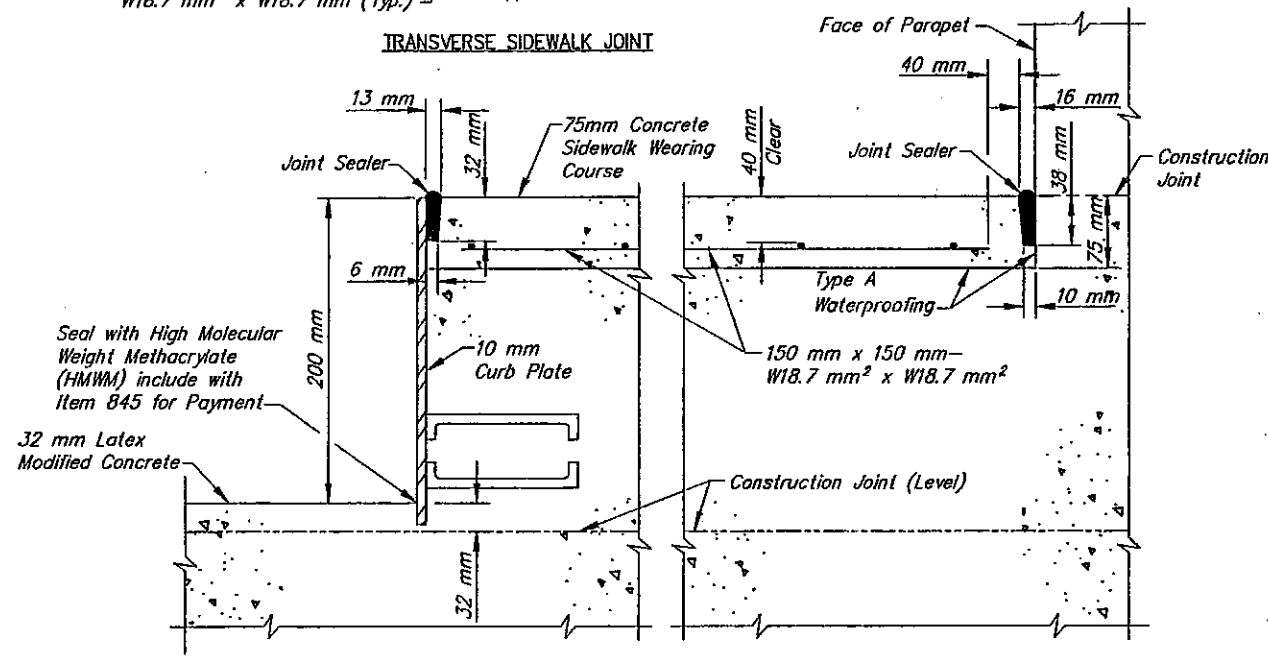
40 / 43

70 / 73

[\...093\318\BRIDGE\318MB002.DWG] PJK 2/2/98 PLOT @ 1000:30 METRIC

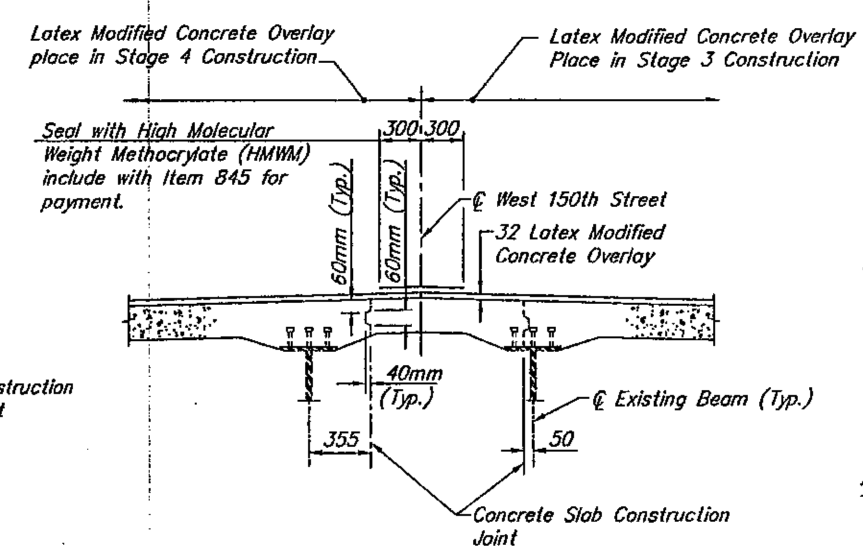


TRANSVERSE SIDEWALK JOINT

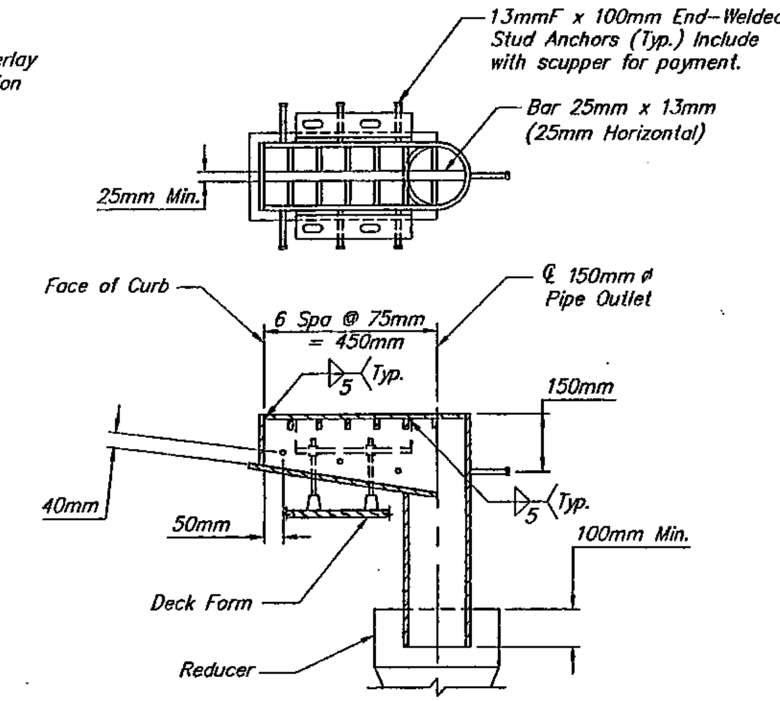


TYPICAL SECTION

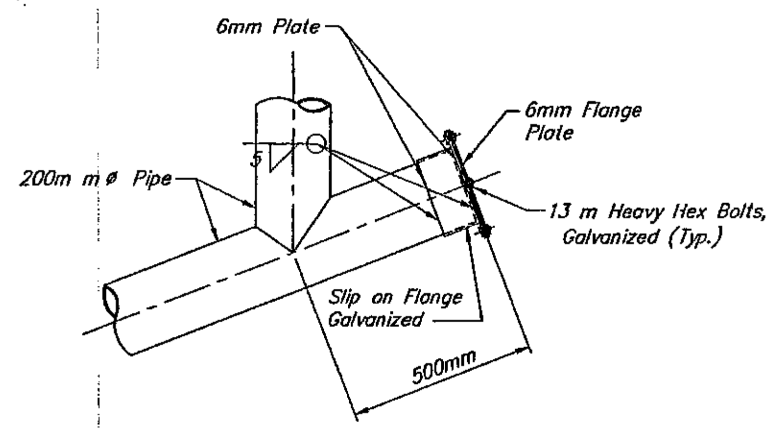
SIDEWALK DETAILS



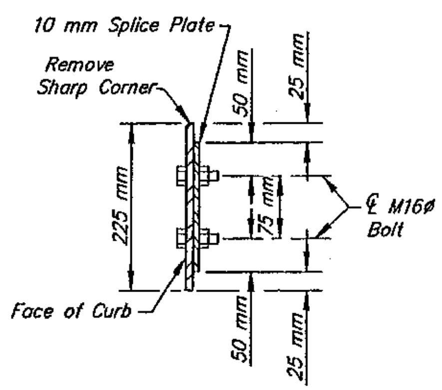
DETAIL A



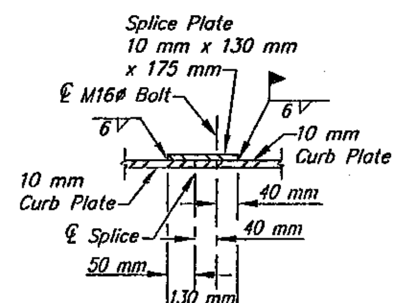
SCUPPER DETAILS



TYPICAL CLEAN OUT DETAIL

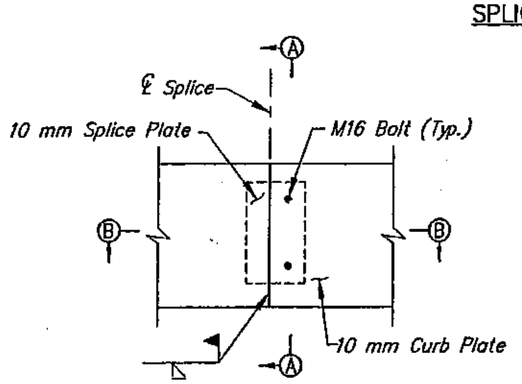


SECTION A–A

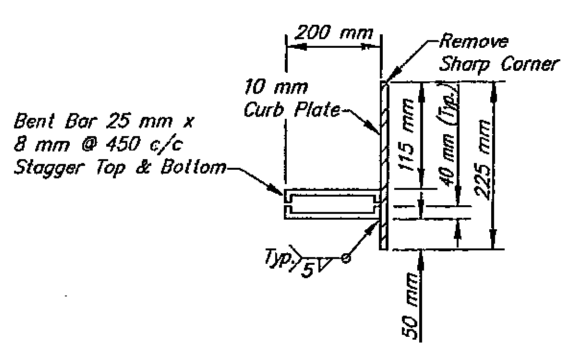


SECTION B–B

SPLICE DETAILS

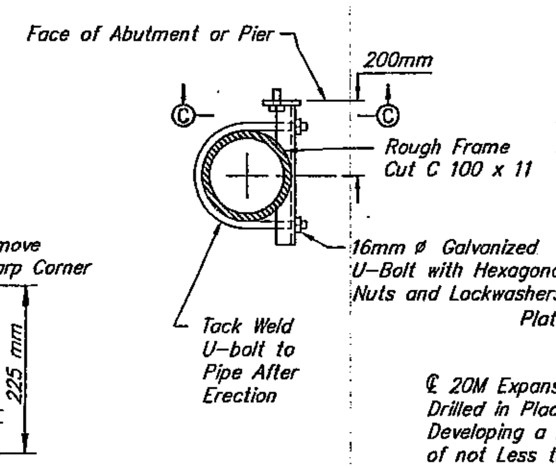


ELEVATION

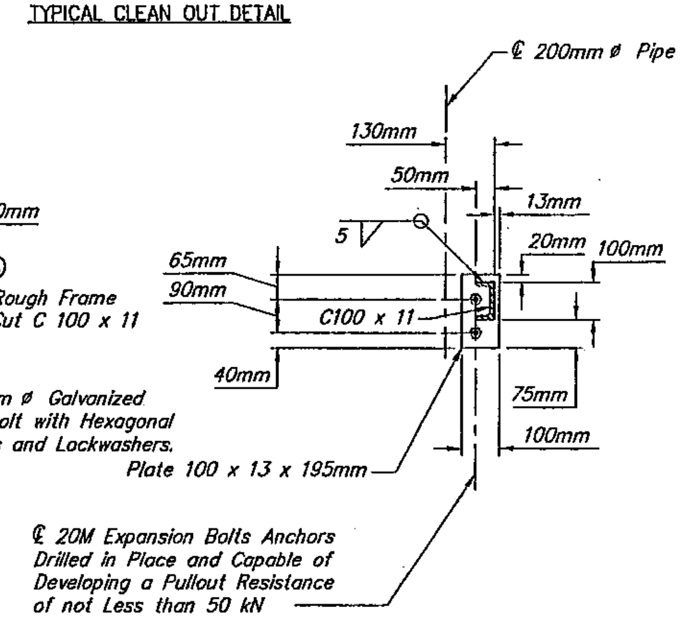


ANCHORAGE DETAIL

CURB PLATE DETAILS



PLAN



SECTION C–C

PIPE SUPPORT DETAILS

Notes:

Payment for the 75mm concrete sidewalk wearing course shall be made at the contract unit price bid Item 511, Class S Concrete Misc.: Sidewalk Wearing Course. This shall include Welded Wire Fabric, Joint Sealer and Type A Waterproofing.

Joint Sealer shall be hot applied bridge deck waterproofing material, which also meets the requirements of 705.04.

For estimating purposes curb plate splices have been figured at 6100 mm maximum spacing.

Remove M16 bolts in curb plate splices after field welds have been completed, plug weld holes flush with curb plate.

Payment for the curb plate shall be included with Item 863, Structural Steel Members, Miscellaneous Level Fabrication

Scuppers shall be in accordance with Standard Drawing SD–1–69, except as noted.

For scupper locations see Framing Plan on Sheet 30/43.

For location of Detail A see Sheet 32/43.

The following abbreviations are used:
(Typ.) = Typical   ℄ = Plate

Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B–No. 162

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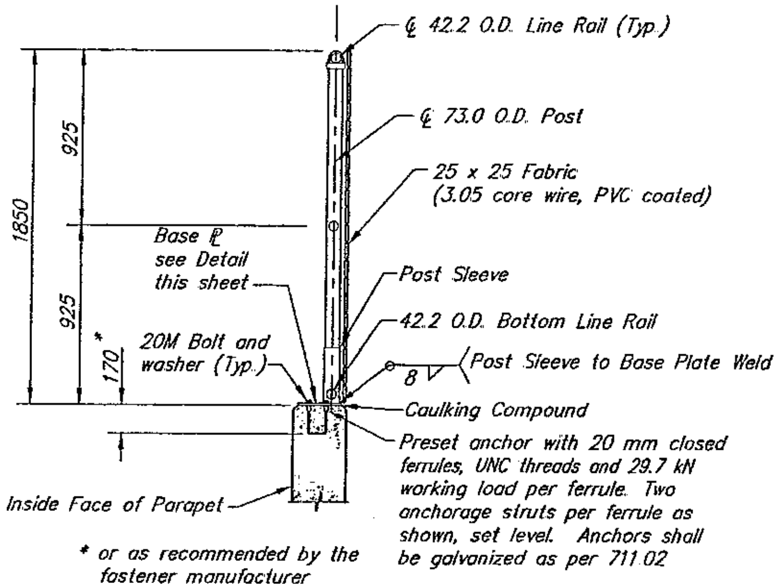
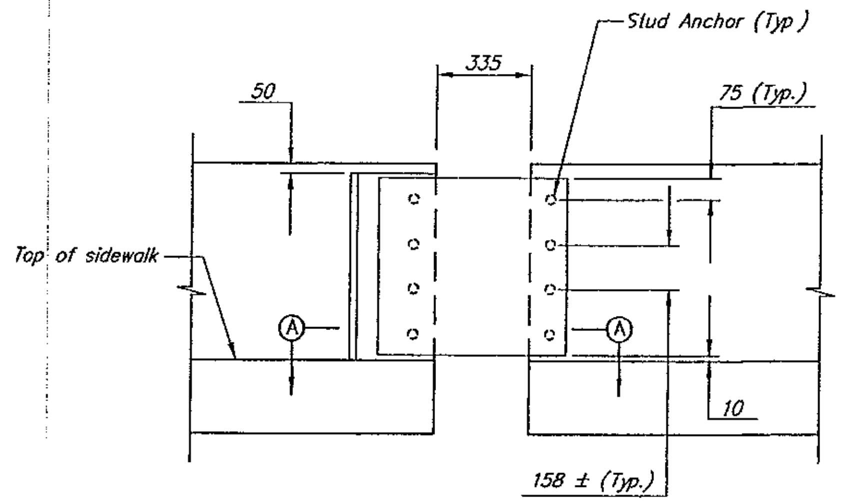
DESIGN AGENCY: EUTHENICS inc. CONSULTING ENGINEERS

MISCELLANEOUS DETAILS
BRIDGE NO. 152
West 150th Street over Conrail, GCRTA and Chatfield Ave.

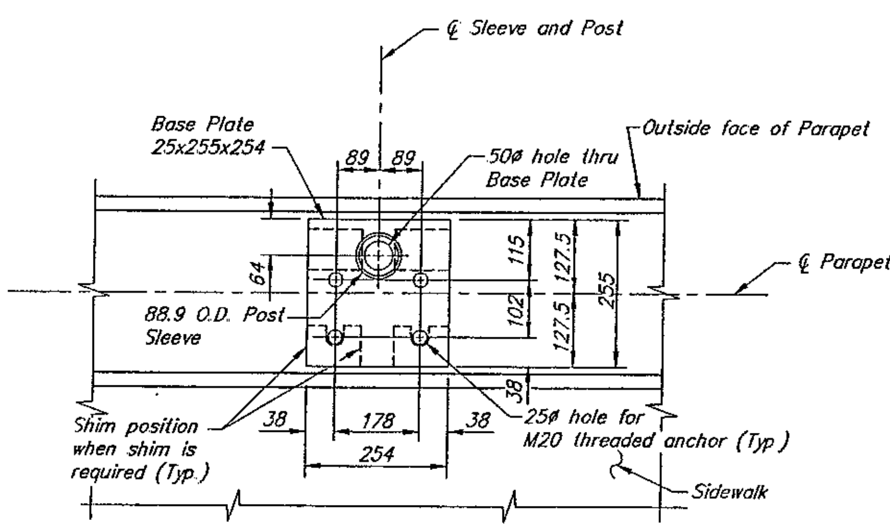
CUY-WEST 150th STREET



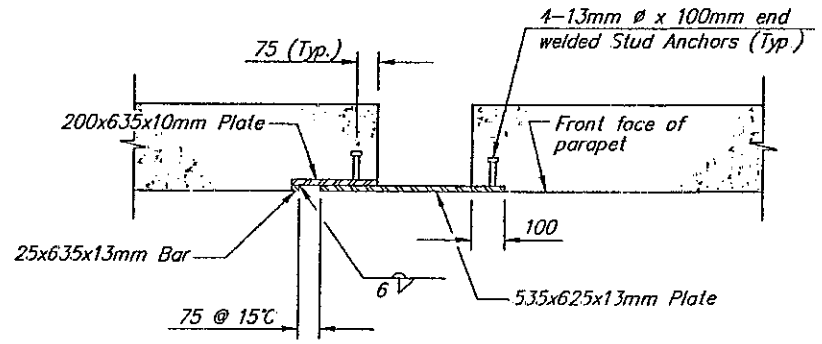
POST SECTION
(1850 mm Straight Fence)



PARAPET COVER PLATE ELEVATION AT PIER 5



BASE PLATE DETAIL
(BP-2)



SECTION A-A
Parapet plates, welds and stud anchors included with item 516, Modular Expansion Joint, as per plan for payment.

Notes:

Payment for the vandel protection fence on the superstructure shall be made at the unit price bid for item 517, Railing, Concrete parapet with chain link fence. This price shall include all parapet concrete, longitudinal reinforcing steel, preset anchors, all fence material, caulking and all labor, equipment and incidentials necessary to complete the parapet and fencing.

For additional fence details and notes see Ohio Standard Construction Drawing VPF-1-90M sheets 1,3,5 and 6 of 7.

The following abbreviations are used:
(Typ.) = Typical   ℘ = Plate

Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B-No. 162

DESIGN AGENCY: EUTHENICS INC. CONSULTING ENGINEERS

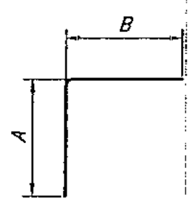
DESIGNED BMG | DRAWN BMG | REVIEWED RAB | DATE 9-96
CHECKED KRD | REVISED | STRUCTURE FILE NUMBER 1833405

MISCELLANEOUS DETAILS
BRIDGE NO. 152
West 150th Street over Conrail, GCRTA and Chatfield Ave.

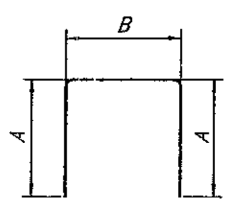
CUY-WEST 150th STREET

MARK	NO	LENGTH (mm)	TYPE	A	B	C	D	SER. INCR.	WEIGHT (kg)
ABUTMENTS									
A15M01	7	13 772	Str.						151
A15M02	1	13 661	Str.						24
A15M03	3	12 845	Str.						61
A15M04	5	13 124	Str.						103
A15M05	2	2072	Str.						7
A15M06	2	2010	Str.						6
A15M07	8	9933	Str.						125
A15M08	8	9424	Str.						118
A15M09	4	1732	Str.						11
A20M01	15	3008	2	1419	290				106
A20M02	7	2860	2	1345	290				47
A20M03	129	1970	2	900	290				598
A20M04	77	1932	2	806	440				350
A20M05	54	1814	2	747	440				231
D25M01	104	1559	3	900	431				636
							TOTAL-ABUTMENTS		2574
PIERS									
P10M01	101	941	1	414	552				75
P10M02	107	992	1	465	552				83
P10M03	62	1029	1	502	552				50
P10M04	126	1009	1	482	552				100
P10M05	56	966	1	439	552				42
P15M01	4	3881	Str.						24
P15M02	8	2808	Str.						35
P15M03	4	2656	Str.						17
P15M04	4	12 446	Str.						78
P15M05	24	15 723	Str.						592
P15M06	8	11 913	Str.						150
P15M07	8	10 414	Str.						131
P15M08	8	9398	Str.						118
P15M09	8	9042	Str.						114
						TOTAL-PIERS			1609

MARK	NO.	LENGTH (mm)	TYPE	A	B	C	D	SER. INCR.	WEIGHT (kg)
SUPERSTRUCTURE									
S15M01	2390	9440	4	9440					35 422
S15M02	2 Ser 46	1935 to 9585	Str.					170	832
S15M03	70	1765	Str.						194
S15M04	2 Ser 64	200 to 9020	4	200 to 9020				140	926
S15M05	3288	9150	Str.						47 234
S15M06	1 Ser 28	1000 to 2890	Str.					70	86
S15M07	1 Ser 32	3300 to 5160	Str.					60	213
S15M08	3	5300	Str.						25
S15M09	2	2950	Str.						9
S15M10	1 Ser 28	3060 to 4950	Str.					70	176
S15M11	1 Ser. 28	5400 to 7350	Str.					65	280
S15M12	1 Ser 55	305 to 9485	5	305 to 9485				170	423
S15M13	2274	9950	5	9950					35 523
S15M14	2	9950	Str.						31
S15M15	2 Ser 57	1970 to 9810	Str.					140	1054
S15M16	2 Ser. 55	1925 to 9485	Str.					140	985
S15M17	1 Ser. 7	6350 to 8840	Str.					415	83
S15M18	1 Ser 21	700 to 9000	Str.					415	160
S15M19	1 Ser 3	8185 to 9015	Str.					415	41
S15M20	1 Ser 24	950 to 9000	Str.					350	187
S15M21	1 Ser 5	900 to 2300	Str.					350	13
S15M22	2	5920	Str.						19
S15M23	3	7835	Str.						37
S15M24	1 Ser 67	300 to 9540	5	300 to 9540				140	518
S15M25	1 Ser 17	2800 to 9280	Str.					405	161
S15M26	1 Ser 11	770 to 4920	Str.					415	49
S15M27	1 Ser 14	4635 to 9120	Str.					345	151
S15M28	1 Ser 17	925 to 7005	Str.					380	106
S15M29	1058	1725	Str.						2865
S15M30	5	1450	Str.						11
S15M31	10	1075	Str.						17
S15M32	16	1525	Str.						38
S15M33	5	1000	Str.						8
S15M34	2158	740	2	260	300				2507
S15M35	1 Ser 6	6630 to 8505	Str.					375	71
S15M36	6	4950	Str.						47
S15M37	1 Ser 6	2810 to 4685	Str.					375	35
S15M38	1160	2185	6	850	205				3979
S20M01	424	9150	Str.						9136
S20M02	212	4200	Str.						2097
S20M03	212	2600	Str.						1298
10 LIGHT POLE SUPPORTS									530
							TOTAL SUPERSTRUCTURE		147 047



TYPE 1



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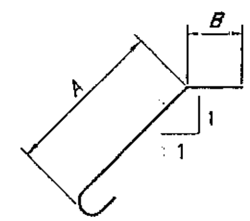
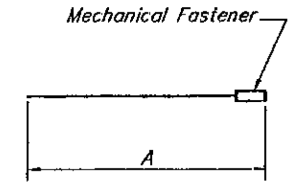


TYPE 3

BENDING DIAGRAMS



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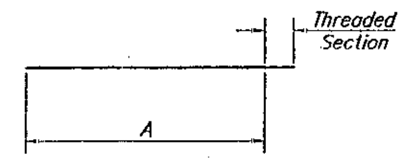
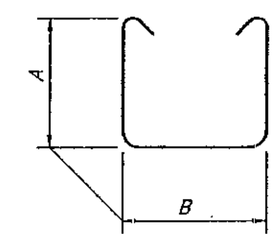


TYPE 5



TYPE 6

Notes:

All dimensions are in millimeters, unless otherwise noted.
All bars shall be epoxy coated bars.
All dimensions are out to out.
Reinforcing steel weights are given for information only.

DESIGN AGENCY: EUTHENICS INC. CONSULTING ENGINEERS

DESIGNED	DRAWN	REVIEWED	DATE
BMG	BMG	RAB	9/96
CHECKED	REVISED	STRUCTURE FILE NUMBER	
KRD		1833405	

REINFORCEMENT SCHEDULE
BRIDGE NO. 152
West 150th Street over Conrail, GCRTA and Chatfield Ave.

CUY-WEST 150th STREET

43/43

Cuyahoga County Engineer
Cleveland, Ohio
Report No. 7223 and B-No. 162

\JOBS\318\BRIDGE\318RS01.DWG1 PJK 2/2/98 PLOT @ 1000:1 METRIC