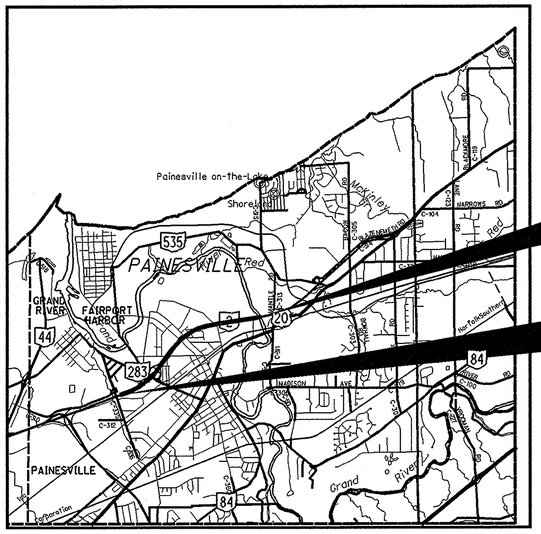
STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

LAK-2-14.38

CITY OF PAINESVILLE
LAKE COUNTY



LOCATION MAP

LATITUDE: 41° 44′ 11″ LONGITUDE: 81° 15′08″

SCALE IN MILES

0 1 2 3 4

N

PORTION TO BE IMPROVED

INTERSTATE & DIVIDED HIGHWAY

UNDIVIDED STATE & FEDERAL ROUTES

OTHER ROADS

DESIGN DESIGNATION

	A	B
CURRENT ADT (2011)	42,360	31,470
DESIGN YEAR ADT (2031)	48,210	35,890
K	0.11	0.11
D	0.5	0.5
T24	0.06	0.05
TD	0.03	0.03

A: Newell Street to Richmond Street (SR 283)
B: Richmond Street (SR 283) to SR535

DESIGN EXCEPTIONS

None Required

UNDERGROUND UTILITIES

CONTACT BOTH SERVICES
CALL TWO WORKING DAYS
BEFORE YOU DIG

CALL
1-800-362-2764
(TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

OIL & GAS PRODUCERS PROTECTIVE SERVICE CALL: **1-800-925-0988**

PLAN PREPARED BY:
ODOT District 12
5500 Transportation Blvd
Garfield Heights, OH 44126
(216) 584-2102

ENGINEERS SEAL:

STATE OF OHIO
Steven C. Jirschele
E-70678
REGISTERED
PROFESSIONAL ENGINEER

SIGNED: Steven C. Jirschele
DATE: 10-26-10

ENGINEERS SEAL:

STATE OF OHIO
Brian M. Blayney
E-62177
REGISTERED
PROFESSIONAL ENGINEER

SIGNED: Brian M. Blayney
DATE: 10-26-2010

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NPDES REQUIREMENTS

PROJECT EARTH DISTURBED AREA: NA (MAINTENANCE PROJECT)
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: NA (MAINTENANCE PROJECT)
NOTICE OF INTENT EARTH DISTURBED AREA: NA (MAINTENANCE PROJECT)

PROJECT DESCRIPTION

IMPROVEMENT OF 2.18 MILES OF SR-2 BY REPAIR AND RESURFACING, INCLUDING MINOR BRIDGE REPAIRS

LIMITED ACCESS

THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 OF THE OHIO REVISED CODE.

2010 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 EXCEPT AS NOTED ON SHEET 15, AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

UNDER AUTHORITY OF SECTION 4511.21, DIVISION (H) OF THE OHIO REVISED CODE, THE REVISED PRIMA FACIE SPEED LIMITS AS INDICATED HEREIN ARE DETERMINED TO BE REASONABLE AND SAFE, AND ARE HEREBY ESTABLISHED FOR THE DURATION OF THIS PROJECT. THE PRIMA FACIE SPEED LIMIT OR LIMITS HEREBY ESTABLISHED SHALL BECOME EFFECTIVE WHEN APPROPRIATE SIGNS GIVING NOTICE THEREOF ARE ERECTED.

APPROVED Brad A. Zumbiel
DATE 10/27/10 DISTRICT DEPUTY DIRECTOR

APPROVED Gene M. Matthews Jr.
DATE 12-1-10 DIRECTOR, DEPARTMENT OF TRANSPORTATION

STANDARD CONSTRUCTION DRAWINGS

BP-2.1	7/18/08	RM-4.5	10/16/09	MT-101.70	1/16/09		
BP-2.2	7/18/08			MT-101.90	1/16/09		
BP-2.3	7/16/04	AS-1-81	7/19/02	MT-102.10	7/17/09		
BP-2.5	7/18/08	PCB-91	7/19/02	MT-105.10	1/16/09		
BP-5.1	7/28/00	SICD-1-96	7/19/02				
BP-8.1	7/18/08			TC-65.10	1/21/05		
BP-9.1	4/15/05	MT-35.10	4/20/01	TC-65.11	1/21/05		
		MT-95.30	7/17/09	TC-71.10	1/15/10		
CB-2.1	7/15/05	MT-95.40	7/17/09	TC-72.20	10/16/09		
		MT-95.50	4/17/09	TC-82.10	7/16/10		
GR-1.1	7/16/04	MT-98.10	7/17/09				
GR-2.1	1/16/04	MT-98.11	7/17/09				
GR-3.1	10/16/09	MT-98.20	7/17/09				
GR-3.2	10/16/09	MT-98.22	7/17/09				
GR-4.2	1/19/07	MT-98.28	7/17/09				
		MT-101.60	4/17/09				

SUPPLEMENTAL SPECIFICATIONS

800	11/8/10
832	5/5/09
843	4/18/03
848	4/16/10

SPECIAL PROVISIONS

FEDERAL PROJECT NO. E011(067)
PID NO. 87924
CONSTRUCTION PROJECT NO.
RAILROAD INVOLVEMENT
LAK-2-14.38
1 / 208

LAK - SR-2-14.38
110103 PID - 87924
Dist 12 2/24/2011

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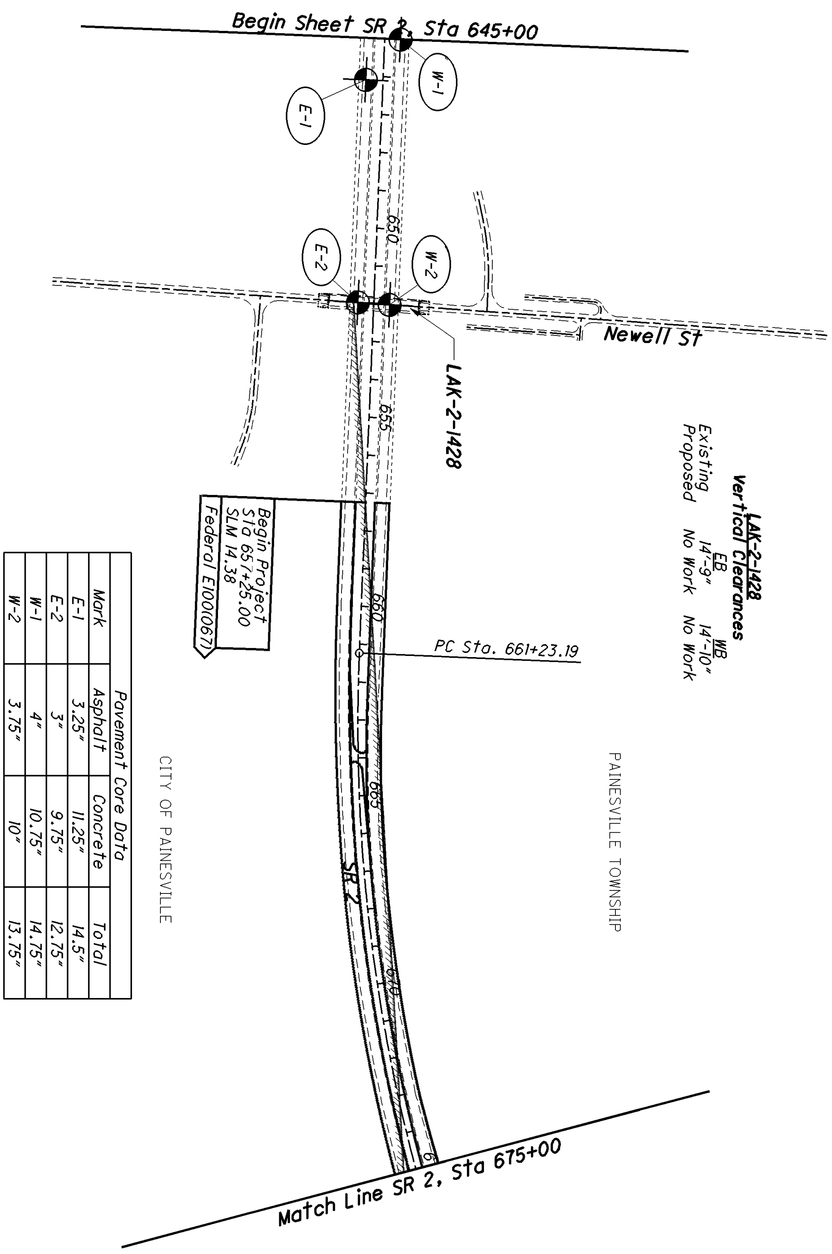


Pavement Core Data		
Mark	Asphalt	Concrete	Total
E-1	3.25"	11.25"	14.5"
E-2	3"	9.75"	12.75"
W-1	4"	10.75"	14.75"
W-2	3.75"	10"	13.75"

LAK-2-14.38

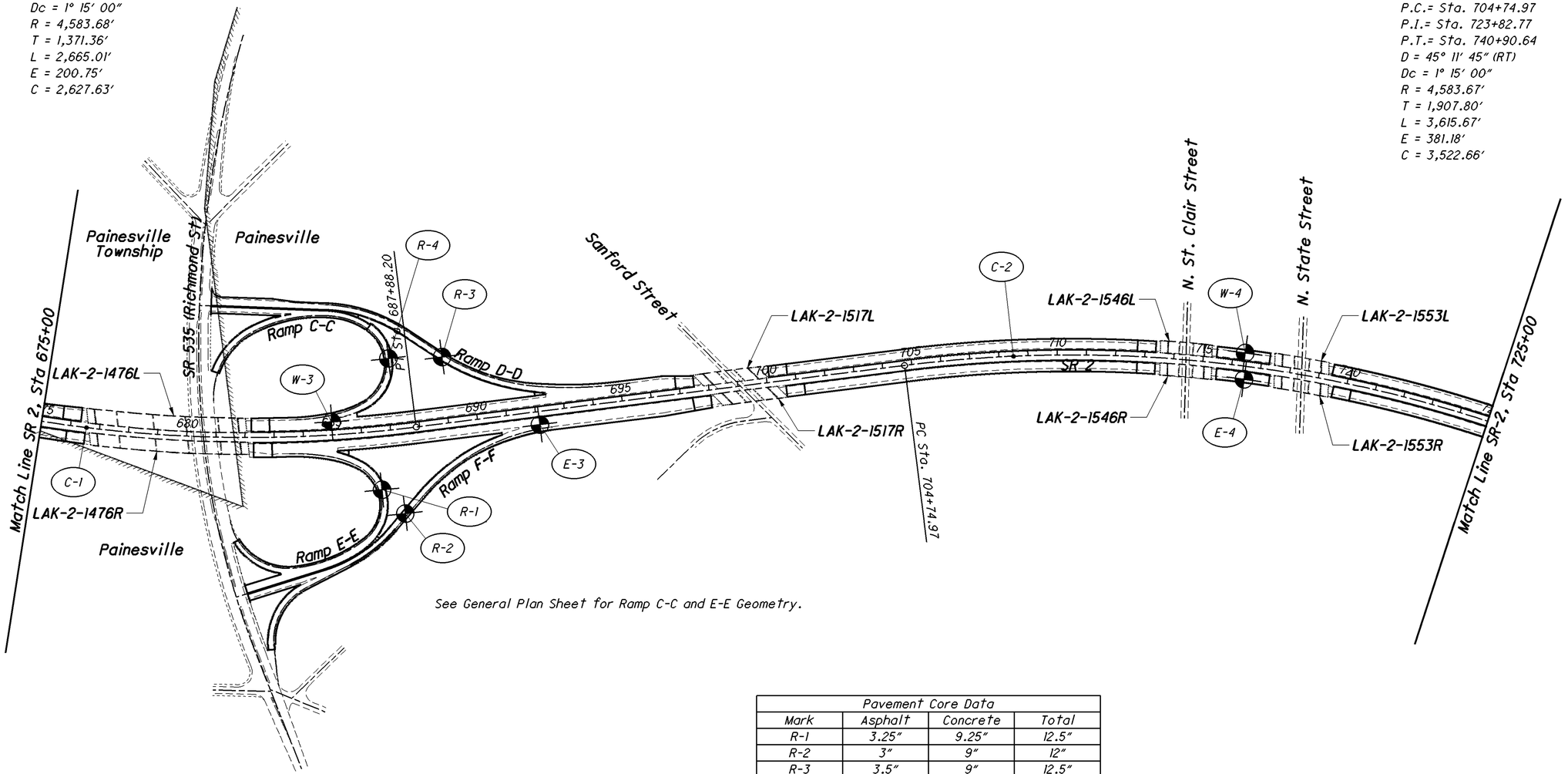
Schematic Plan Sheet
SR-2, Sta 645+00 to Sta 675+00

CALCULATED EJK
CHECKED BMB

0 100 200 400
HORIZONTAL SCALE IN FEET

SR 2 Curve C-1
P.C.= Sta. 661+23.19
P.I.= Sta. 674+94.55
P.T.= Sta. 687+88.20
D = 33° 18′ 45″ (LT)
Dc = 1° 15′ 00″
R = 4,583.68′
T = 1,371.36′
L = 2,665.01′
E = 200.75′
C = 2,627.63′

SR 2 Curve C-2
P.C.= Sta. 704+74.97
P.I.= Sta. 723+82.77
P.T.= Sta. 740+90.64
D = 45° 11′ 45″ (RT)
Dc = 1° 15′ 00″
R = 4,583.67′
T = 1,907.80′
L = 3,615.67′
E = 381.18′
C = 3,522.66′



See General Plan Sheet for Ramp C-C and E-E Geometry.

Pavement Core Data			
Mark	Asphalt	Concrete	Total
R-1	3.25″	9.25″	12.5″
R-2	3″	9″	12″
R-3	3.5″	9″	12.5″
R-4	3″	9″	12″
E-3	3.5″	11″	14.5″
E-4	3″	10″	13″
W-3	3.5″	10.25″	13.75″
W-4	4.25″	10″	14.25″

HORIZONTAL SCALE IN FEET
0 100 200 400

CALCULATED EJK
CHECKED BMB

Schematic Plan Sheet
SR-2, Sta 675+00 to Sta 725+00

LAK-2-14.38

3
208

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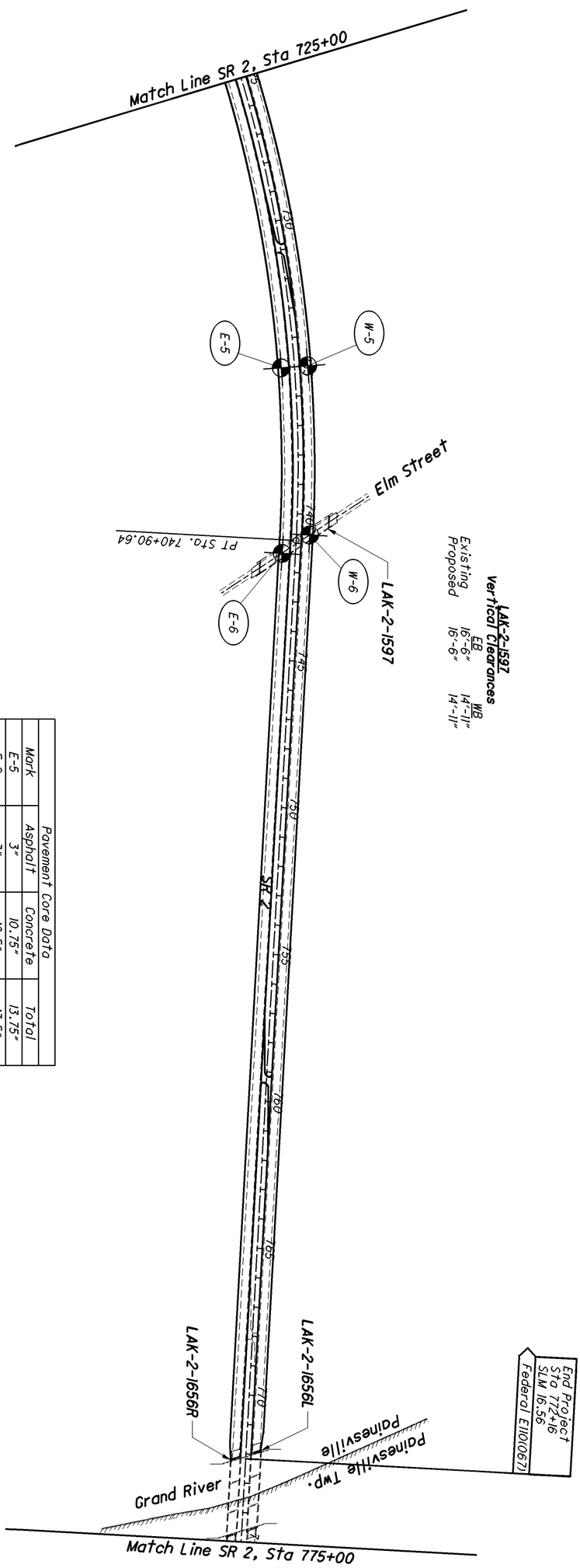
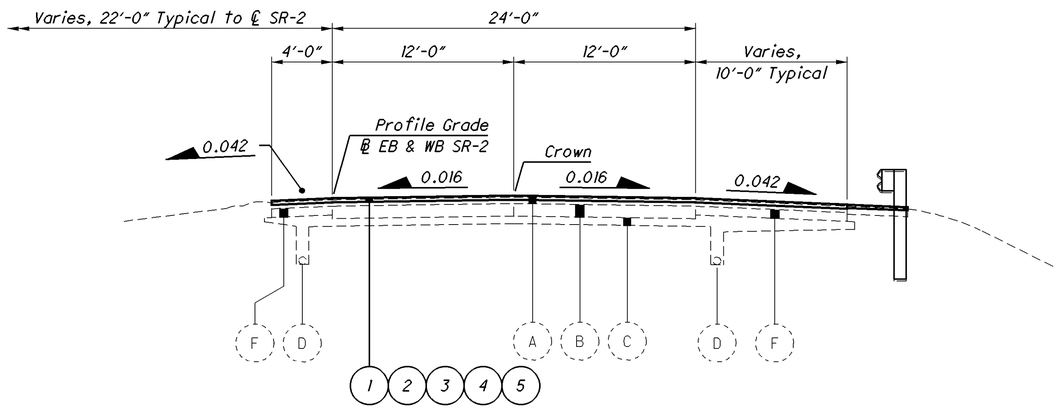


LAK-2-1597
Vertical Clearances

	EB	WB
Existing	16'-6"	14'-11"
Proposed	16'-6"	14'-11"

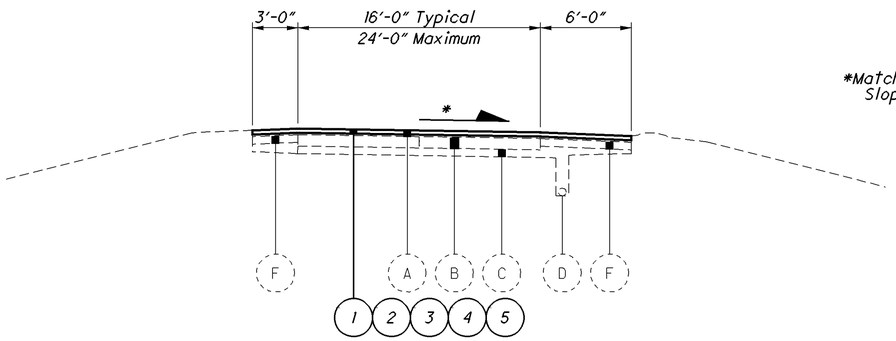
Pavement Core Data

Mark	Asphalt	Concrete	Total
E-5	3"	10.75"	13.75"
E-6	3"	10.5"	13.5"
W-5	3"	10.25"	13.25"
W-6	3.5"	11"	14.5"



SR-2 Typical Section (EB Normal Crown Shown)

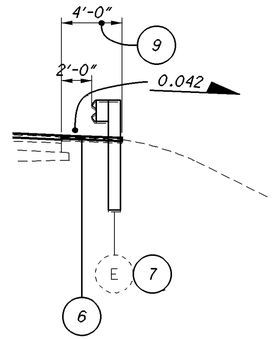
Sta 657+25.00 to Sta 772+16



SR-2 Ramp Typical Section

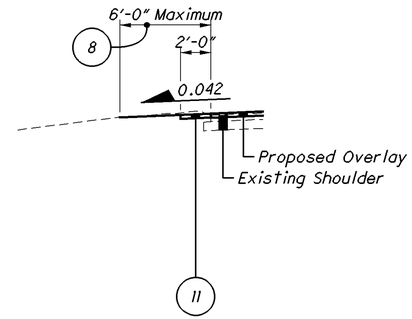
SR 283 (Richmond Street)

*Match Existing Cross-Slopes and Superelevation Rates



Guardrail Detail

Remove and Replace Asphalt Under Guardrail; Make Up Difference in Grade Using Borrow



Item 209 Linear Grading, Method A

Grading at Uncurbed Shoulders without Barrier

Legend--Existing

- A — Asphalt Overlay (Thicknesses Vary)
- B — 10" Reinforced Concrete Base
- C — Aggregate Base or Subbase
- D — Underdrain
- E — Guardrail, Type 5, 5A or Barrier Style
- F — Bituminous Aggregate Base

Legend--Proposed

- 1 — Item 254 - Pavement Planing, Asphalt Concrete, 2"
- 2 — Item 407 Tack Coat
- 3 — Item 442 - 2" Asphalt Concrete Intermediate Course, 19mm, Type A (446)
- 4 — Item 407 Tack Coat for Intermediate Course
- 5 — Item 442 - 1 ½" Asphalt Concrete Surface Course, 12.5mm, Type A, (446) As Per Plan
- 6 — Item 448 Asphalt Concrete Intermediate Course Type 1, Under Guardrail, PG64-22, (t= 3")
- 7 — Item 606 Guardrail, Type 5
- 8 — Item 209 Linear Grading, Method A
- 9 — Item 209 Linear Grading, Method B or C
- 10 — Item 203 Borrow (Estimated t= 2" Average)
- 11 — Item 617 - 3" Compacted Aggregate

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CALCULATED BMB CHECKED LDH

Project Description

This project consists of the minor rehabilitation of 2.18 miles of State Route 2 by planing and resurfacing the roadway from SLM 14.38 to 16.56 in the City of Painesville. Incidental work items include pavement repairs, pavement markings, raised pavement markers, and minor bridge repairs.

Existing 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 refer to the previous construction plans.

These plans may be reviewed at the following location:

Ohio Department of Transportation
District 12 Office
5500 Transportation Boulevard
Garfield Heights, Ohio 44125

Contingency Quantities

The Contractor shall not order materials or perform work for items designated by plan note to be used "as directed by the Engineer" unless authorized by the Engineer. The actual work locations and quantities used for such items shall be incorporated into the final change order governing completion of this project.

Interim Completion Dates

July 1, 2011 constitutes an interim completion date for the following items:

1. Phase 1 bridge work,
2. the resurfacing of Lane 1 (inside lane) up to and including the intermediate course,
3. the placement of propose guardrail along SR 2 median,
4. the implementation of Phase 2 traffic control.

September 1, 2011 constitutes an interim completion date for Phase 2 bridge work and the return of traffic to its unshifted position except as required to complete work on 1476L as provided for in maintenance of traffic Phase 2C of the plans.

September 15, 2011 constitutes an interim completion date for the placement of the proposed surface course at all of SR 2 eastbound (including ramps to and from SR 2 EB) and at SR 2 westbound between Sta 698+00 and the Grand River.

October 1, 2011 constitutes an interim completion date for placement of all proposed guardrail, final pavement markings and RPM's at all of SR 2 eastbound (including ramps to and from SR 2 EB) and at SR 2 westbound between Sta 698+00 and the Grand River.

October 15, 2011 constitutes an interim completion date for all bridge work and the return of traffic to its unshifted position everywhere within the project limits.

The Department will assess road user costs in accordance with 108.07 of the Construction and Material Specifications for each day after these dates that these interim requirements are not met.

Cooperation Between Contractors

The Contractor shall cooperate and coordinate his/her operations with the contractors on other projects that may be in force during the life of the contract. No waiver of any provisions of 105.07 of the Construction and Material Specifications is intended.

Right of Way

Perform all work within the existing right of way or easements.

Alignment and Profile

The proposed pavement resurfacing shall follow the alignment and profile of the existing pavement. The proposed asphalt concrete overlay shall be as shown on the typical sections.

Equipment and Material Storage

In order to provide for the safety of the traveling public the Contractor's attention is directed to 614.03. In addition the following provisions shall apply:

- Any removed items shall not be stored on the right of way for more than thirty (30) days.
- The storage of equipment, materials, and vehicles within the highway right of way will be permitted. The number of areas and exact locations shall be approved by the Engineer.
- All disturbed areas shall be returned to their original condition at no expense to the state.

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 623 Construction Layout Stakes, As Per Plan

Prior to the planing of pavement beneath all overhead structures, a licensed surveyor shall measure the vertical clearances and document the measurements on an approved Ohio Department of Transportation form available from the District Bridge Office. The measurements shall be taken at the locations indicated on the approved ODOT form and submitted to the Project Engineer. After new paving has been completed, a registered surveyor again shall take vertical clearance measurements at locations indicated on the approved ODOT form. These final measurements shall be recorded on the form and submitted to the Project Engineer and the District Bridge Engineer. The record shall bear the stamp or seal of the licensed surveyor who has taken the measurements and will verify that vertical clearances have been preserved.

See plan note "Pavement Markings" for additional requirements.

Utility Contacts for Public Utilities within SR 2 Limited Access

Listed below are public utilities located within the project construction limits potentially impacted by resurfacing and guardrail operations. Coordinate proposed work with these utilities:

City of Painesville, Power (All Street Lighting at Richmond Street including Twp)
Attn: Thomas Green
PO Box 601
Painesville, OH 44077
Phone: (440) 352-9301
Fax: (440) 357-1966

City of Painesville Service Department (Signal Loops at Richmond Street Ramps)
Attn: Kevin Lynch, Service Director
Phone: (440) 392-9676

Item 407 Tack Coat
Item 407 Tack Coat for Intermediate Course

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 0.10 gallons per square yard of tack coat and 0.05 gallons per square yard of tack coat for intermediate course.

Item 442 Asphalt Concrete Surface Course, 12.5mm, Type A (446), As Per Plan

Use a minimum of 50% crushed air cooled slag or Ontario trap rock for coarse aggregate. The remainder of the coarse aggregate may be crushed carbonate stone, crushed air cooled slag or Ontario trap rock.

When air cooled slag is used for a fraction of the coarse aggregate, use an N_{des} of 50, an N_{max} of 75, and provide a total asphalt binder content greater than or equal to 6.5%. These requirements do not apply if air cooled slag makes up 100% of the coarse aggregate.

In addition, construct joints subject to the requirement of the plan notes for "Sealing Joints in Asphalt Concrete Surface Courses" and "Longitudinal Joints (Flexible Pavement)."

Sealing Joints in Asphalt Surface Courses

In addition to the gutter sealing requirements specified on SCD BP-3.1 and in 401.15, after completion of the surface course but prior to placement of permanent pavement markings, seal the following locations with a certified PG binder:

- All transverse cold joints.
- All castings including but not limited to monuments, manholes, water valves, catch basins
- Butt joints and feather joints, including those at bridge approaches
- The foreword joint for driveway asphalt and trailing joint when butting to existing asphalt drive.

Seal at a width of 2 inches.

Longitudinal Joints (Flexible Pavement)

Locate longitudinal joints in the surface course subject to the following requirements:

- Place the mainline pavement surface course with a single cold longitudinal joint located at the crown of 2-lane sections. No other cold joints are permitted in the surface course of mainline pavement.
- Place the ramp surface course with a single cold longitudinal joint located near the middle of the ramp's total width.
- At speed change lanes at ramp merge and diverge areas: Place surface course on speed change areas within the same work day as adjacent mainline pavement.

Item 202 Curb Removed, As Per Plan

Remove integral curb from existing concrete base pavement where required. In addition to the requirements of 202.05, use a diamond saw blade to make a full depth cut of existing pavement as described in 255.03. Locate the saw cut at the face of curb. The saw cut is incidental to this item.

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Full Depth Pavement Repairs, General

Make Class MS repairs after pavement planing at locations as directed by the Engineer.

Make Class MS repairs in all lanes. Perform repairs in the section west of Richmond Street during weekend lane closures only.

Item 255 Full Depth Removal and Rigid Replacement, Class MS, As Per Plan A	3450 Sq Yds
Item 255 Full Depth Removal and Rigid Replacement, Class MS, As Per Plan B	3700 Sq Yds
Item 255 Full Depth Repair, Misc.: Additional Material Only, Class MS	400 Cu Yds
Item 255 Full Depth Pavement Sawing	19,300 Feet
Item 203 Excavation	20 Cu Yds
Item 304 6" Aggregate Base	20 Cu Yds

Item 255 Full Depth Pavement Removal and Rigid Replacement, Class MS, As Per Plan A
Item 255 Full Depth Pavement Removal and Rigid Replacement, Class MS, As Per Plan B
Item 255 Full Depth Pavement Removal and Rigid Replacement, Class MS, Misc.: Additional Material Only

Make MS concrete repairs after planing the existing overlay.

This item shall consist of replacing existing pavement in accordance with Item 255 and the notes below and details shown in the plans. Place additional concrete so that the repairs are flush with adjacent pavement.

Do not pave over MS concrete repairs until 24 hours after their placement.

To account for the variation in the thickness of the remaining asphalt overlay (after planing), the Department will pay for the additional material required above a standard 10" repair under the volumetric pay item for Item 255 Full Depth Pavement Removal and Rigid Replacement, Class MS, Misc.: Additional Material Only.

Existing concrete pavement thickness may vary from that shown on the typical sections by plus or minus one inch. No adjustment in payment for this item shall be made providing that the average pavement thickness is within one half inch of the thickness shown on the typical sections. The Department will provide additional compensation for the material cost of concrete only when the average thickness exceeds the one half inch maximum tolerance above. If necessary, payment will be made under the volumetric pay item for Item 255 Full Depth Pavement Removal and Rigid Replacement, Class MS, Misc.: Additional Material Only. The volume of additional concrete paid for shall be based upon the amount of concrete above the one half inch tolerance limit.

If, after removal of the rigid pavement the Engineer determines that the subbase or subgrade has failed or is pumping, he shall direct the Contractor to excavate the unsuitable material and replace it with compacted aggregate. Quantities of Item 203 Excavation and Item 304 Aggregate Base have been provided to repair failed subbase or subgrade areas.

At areas of 10" concrete base pavement, pavement repair less than or equal to 10' in length shall be paid for under "Full Depth Pavement Removal and Rigid Replacement, Class MS, As Per Plan A". Pavement repairs greater than 10' in length shall be paid for under "Full Depth Pavement Removal and Rigid Replacement, Class MS, As Per Plan B".

Item 251 Partial Depth Pavement Repair, As Per Plan A
Item 251 Partial Depth Pavement Repair, As Per Plan B

Use this item to repair unsound, cold-patch, or pop-out areas of longitudinal and transverse joints as directed by the Engineer. Perform repairs after the milling operation and prior to resurfacing. Make standard repairs at a depth of 3" and at a width of 12". Center the repair over the existing joint.

Longitudinal repairs are considered "As Per Plan A." Transverse repairs are considered "As Per Plan B."

When the Engineer determines that repairs must be made at an additional depth (for example, to reach into the top of base concrete) in order to reach sound base pavement, the additional removal and placement of material will be paid for under the volumetric pay item for Item 251 Partial Depth Pavement Repair, Misc.: Additional Material Only.

The following quantity has been carried to the general summary to be used to complete this item of work:

Item 251 Partial Depth Pavement Repair, As Per Plan A	3720 Sq Yds
Item 251 Partial Depth Pavement Repair, As Per Plan B	1142 Sq Yds
Item 251 Partial Depth Pavement Repair, Misc: Additional Material Only	270 Cu Yds

Item 451 Reinforced Concrete Pavement, As Per Plan

If necessary to expedite the work in order to meet Interim Completion Requirements, use Class MS concrete, high early strength cement, additional cement, approved chemical admixtures, or a combination of these materials at no additional cost to the Department.

Item 604 Catch Basin Adjusted to Grade, As Per Plan
Item 604 Manhole Adjusted to Grade, As Per Plan

Do not use adjustment devices.

Item Special Miscellaneous Metal

Existing castings may prove to be unsuitable for reuse, as determined by the Engineer. It shall be the Contractor's responsibility to provide the castings of the required type, size and strength (heavy duty) for the particular structure in question. All materials must meet Item 604 of the Specifications and shall have the prior approval of the Engineer.

The Contractor is cautioned to use extreme care in the removal, storage and replacement of all existing castings. Castings damaged by the negligence of the Contractor, as determined by the Engineer, shall be replaced with the proper new castings at the expense of the Contractor. The Contractor shall not order materials until authorized by the Engineer and if none are needed the item is to be non-performed.

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

Item Special Miscellaneous Metal	5000 Lbs

Item 209 Linear Grading, Method A

Upon completion of adjacent surface course, use Item 209 Linear Grading, Method A at all shoulders without barrier. Prepare and compact a subgrade to place Item 617 at a width of 2' and a thickness of 3". Restore positive drainage to the ditch. Establish a cross-slope of 0.042 (half inch per foot). Grade to a maximum width of 6' from the edge of shoulder to provide positive drainage away from the travel lanes. Remove and dispose of all material required to place Item 617 and restore the required cross-slope.

The following items are provided to improve existing graded shoulders after completion of the overlay.

Item 209 Linear Grading, Method A	259 Stations
Item 617 Compacted Aggregate	479 Cu Yds
Item 617 Water	5 MGal

Paving Under Guardrail
Item 209 Linear Grading, Method B
Item 209 Linear Grading, Method C
Item 203 Borrow

Item 203 Linear Grading, Method B: Use this item to prepare a subgrade to replace asphalt under guardrail where guardrail presently exists. Place Item 203 Borrow to make up the difference in grade between the bottom of existing asphalt under guardrail and plan line of the bottom of proposed asphalt under guardrail. This difference in grade is estimated at 2".

Item 203 Linear Grading, Method C: Use this item to prepare a subgrade to place asphalt under guardrail where currently guardrail does not exist.

Remove and dispose of existing material including asphalt under guardrail. Reshape and compact subgrade to ensure positive drainage. Establish a cross-slope of 0.042 (half inch per foot). Grade to a maximum width of 6' to provide positive drainage away from the travel lanes. Remove and dispose of all material above the required cross-slope.

Connection Between Existing and Proposed Guardrail

When it is necessary to splice proposed guardrail to existing guardrail, only the existing guardrail shall be cut, drilled, or punched. The connection shall be made using a "W-Beam rail splice" as shown in AASHTO M 180. Payment shall be included in the contract price for the respective guardrail items.

Item 606, Guardrail, Misc.: Shim Plates

In addition to the requirements of plan details for constructing bridge terminal assemblies Type BR-1, furnish and install a set of 4 shim plates to allow the bearing plates to bear evenly on the back of concrete barrier transitions constructed without a uniform vertical face for the full height of the guardrail connection. Each plate will be paid for separately.

Furnish plates meeting the same material specifications as the BR-1 bearing plates, each having the dimension of 1" thick by 3" wide by 18" tall. Install a pair of shim plates together to make up the 2" required to fir out the bearing plate. Locate the shims in the two spaces between the innermost both holes on the top and bottom bearing plates for the guardrail connection.

Cut the top of the shim plates at all locations where they protrude above the top horizontal surface of the concrete transition so that no snag point protrudes above this surface.

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General Notes

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Item 606 - Anchor Assembly, Type E

This item shall consist of furnishing and installing either of the following guardrail end terminals, or an approved equal as listed on roadway engineering's web page at www.dot.state.oh.us/drrc/ under roadside safety devices for approved guardrail end treatments:

1. The ET-2000 (1997) manufactured by Trinity Industry, 1170 N. State Street, Girard, Ohio 44420 (Telephone: 330-545-4373).

The length of the ET-2000 (1997) system is considered to be 50'-0" [15.24 m], inclusive of two 25'-0" [7.62 m] long rail elements. Installation shall be at the locations specified in the plans, in accordance with the manufacturer's specifications as detailed on the following pre-approved shop drawings:

Dwg. #	Drawing Name	Dwg./Rev. Date	ODOT Approval Date
SS142	ET2000 Plus 50'-0" Plan, Elevation & Section 25'-0" Rail, Sleeve W/PL Posts 1-4	4/12/00	7/31/00
SS141	ET2000 Plus Plan, Elevation & Section 25'-0" Rail, HBA Posts 1-4	2/29/00	7/31/00
SS158	ET2000 Plus 50'-0" with 12'-6" Panels & HBA Posts 1-4 Plan, Elevation & Section	5/22/00	7/31/00
SS330	ET2000 Plus 50'-0" with 4 Foundation Tubes and 4 CRT Posts	3/28/06	3/29/06
SS373	ET2000 Plus 50'-0" with 7 SYT Posts and 1 HBA Post	6/20/09	1/20/09

2. The SKT-350 manufactured by Road Systems, Inc., 2516 Mallory Lane, Stow, Ohio, 44224, (Telephone: 330-346-0721).

The length of the SKT-350 system is considered to be 50'-0" [15.24 m], inclusive of four 12'-6" [3.81 m] long rail elements. Installation shall be at the locations specified in the plans, in accordance with the manufacturer's specifications as detailed on the following pre-approved shop drawings:

Dwg. #	Drawing Name	Dwg./Rev. Date	ODOT Approval Date
SKT-4M	Sequential Kinking Terminal (SKT-350) Assembly with 4 Foundation Tubes	12/11/97	3/6/98
SKT Hinged CRT	Sequential Kinking Terminal (SKT-350) 4 Posts are Steel Hinged and 5 Posts are CRT	4/30/06	5/23/06
SKT-SP	Sequential Kinking Terminal (SKT-350) A 7 Post Option Using Standard Steel Post	3/30/09	3/4/09

The face of the Type E Impact Head shall be covered with a sheet of Type G Reflective Sheeting, per CMS 730.19, approximately 18" x 18" [450 mm x 450 mm.], or 12" [30 mm] x 18" [450 mm] if applied to a rectangular ET-2000 "plus" extruder head.

Refer to the manufacturer's instruction regarding the installation of, and the grading around, the foundation tubes and ground strut. The top of any foundation tube should be less than 4-inches [100 mm] above the ground. The placement of the foundation tubes should be an appropriate depth below the level line in order to maintain the finished guardrail height of 27-3/4-inches [706 mm] from the edge of the shoulder.

On-site grading is required if the top of the foundation tubes or top of the ground strut does project more than 4-inches [100 mm] above the ground line.

Payment for the above work shall be made at the unit price bid for Item 606, Anchor Assembly, Type E, each, and shall include all labor, tools, Equipment and materials necessary to construct a complete and functional anchor assembly system, including all related transitions, reflective sheeting, hardware, grading, embankment and excavation not separately specified, as required by the manufacturer.

Item 606 - Impact Attenuator, Type 1 (Unidirectional or Bidirectional)

This item shall consist of furnishing and installing any one of the following impact attenuators, or an approved equal as listed on roadway engineering's web page at www.dot.state.oh.us/drrc/ under roadside safety devices for approved impact attenuators:

1. The C-A-T manufactured by Trinity Industry, 1170 N. State Street, Girard, Ohio 44420 (Telephone: 330-545-4373).

The length of the C-A-T system is considered to be 31'-3" [9525 mm] long. Installation shall be at the locations specified in the plans, in accordance with the manufacturer's specifications as detailed on the following pre-approved shop drawings:

Dwg. #	Drawing Name	Dwg./Rev. Date	ODOT Approval Date
SS245M	Crash-Cushion Attenuating Terminal Plan, Elevation & Sections for use as a Longitudinal Median Barrier Terminal or Crash Cushion Attenuator	4/10/97 Rev. 4	3/6/98
SS224M	C-A-T Transition to Median Barrier Guardrail Plan, Elevation & Sections	4/26/96	3/6/98
SS226M	C-A-T Transition to Vertical Wall or Pier Plan, Elevation & Sections	4/26/96	3/6/98

2. The Brakemaster manufactured by Energy Absorption Systems, Inc., One East Wacker Drive, Chicago, IL 60601 (Telephone: 312-467-6750).

The length of the Brakemaster system is considered to be 32'-8" [9957 mm] long. Installation shall be at the locations specified in the plans, in accordance with the manufacturer's specifications as detailed on the following pre-approved shop drawings:

Dwg. #	Drawing Name	Dwg./Rev. Date	ODOT Approval Date
92-00-01	Brakemaster General Assembly (Unidirectional System)	3/6/97 Rev. K	3/6/98
92-00-81	Brakemaster (Unidirectional) with Foundation Tubes	2/29/00	3/6/98
92-00-02	Brakemaster General Assembly (Bidirectional System)	4/12/00	3/6/98
92-00-82	Brakemaster (Bidirectional) with Foundation Tubes	5/22/00	3/6/98
92-02024	Anchor Assembly, Foundation Tube, 6 ½ Ft., BRS	12/11/97	3/6/98

3. The FLEAT-MT manufactured by Road Systems, Inc. (RSI), 3616 Old Howard County Airport Road, Big Springs, TX, 79720 (Telephone 915-263-2435) and available from RSI's list of approved distributors.

The length of the FLEAT-MT system is considered to be 37'-6" [11430 mm] long. Installation shall be at the locations specified in the plans, in accordance with the manufacturer's specification as detailed on the following pre-approved shop drawings and the manufacturer's installation manual.

Dwg. #	Drawing Name	Dwg./Rev. Date	ODOT Approval Date
MEDFLT-W-US	Flared Energy Absorbing Terminal - FLEAT-MT Assembly for Wood Breakaway Post System	4/10/02 Rev. 5	1/6/03
MEDFLT-S-US	Flared Energy Absorbing Terminal - FLEAT-MT Assembly for Steel Breakaway Post System	4/10/02 Rev. 6	1/6/03

The face of the Type 1 Impact Head shall be covered with a sheet of Type G Reflective Sheeting, per CMS 730.19, approximately 36" x 12" [915 mm W x 305 mm H] (one 9" x 18" [225 mm W x 450 mm H for each FLEAT-MT Impact Head). Payment for the above work shall be made at the unit price bid for Item 606, Impact Attenuator, Type 1 [(unidirectional or bidirectional)], each, and shall include all labor, tools, equipment and materials necessary to construct a complete and functional impact attenuator system, including all related transitions, hardware, reflective sheeting and grading, not separately specified, as required by the manufacturer.

Item 202 Removal, Misc.: Item (by Type) for Storage

The Engineer will identify existing guardrail posts, panels, and blockouts in the best condition to be salvaged by the Lake County Engineer. Neatly stack and secure panels in manageable units. In addition, salvage all Type E anchor assemblies designated for removal within the project limits.

Deliver salvaged guardrail panels and assemblies to the following location:

Lake County Engineer
550 Blackbrook Road Rd, Painevsille, OH 44077

Make arrangements for the delivery of salvaged panels with Bruce Landeg, Chief Deputy Engineer, phone 440-350-2770. Provide a minimum of 7 days notice prior to delivering salvaged guardrail panels.

Type E Anchor Assemby: Salvage the following components: extruder, all panels, all posts, offset or straight strut between Posts #1 and #2, cable with hardware, and pipe soil sleeve for Post #1.

Dispose of all other components (posts, remaining blockouts, hardware, remaining assemblies, etc.) in accordance with the standard provisions for ordinary removals.

The Department will pay for removal of items designated for storage under Item 202 Guardrail Removed. The Department will pay for storage and delivery of salvaged materials under these items.

Basis of Payment. Payment is full compensation for all additional work (work beyond that required for standard removals) required to handle, store, organize, coordinate, and deliver items designated for storage.

Item 659 Seeding and Mulching, As Per Plan

In addition to the requirements of seeding and mulching, place lime and a single application of commercial fertilizer at the standard rates required by 659.03 and 659.04 respectively. Additionally, make two applications of water at seeded areas per the requirements of 659.17. These items will not be itemized or paid for separately.

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Item 632 Detector Loop, As Per Plan

If damaged by planing operations, replace existing detector loops at the following intersections:

Mark	Approach	No.
DL-1	SR 2 EB Exit to Richmond Street (6'x30' powerhead stop bar loop)	
DL-2	SR 2 WB Exit to Richmond Street (6'x30' powerhead stop bar loop)	

Locate the powerhead at the stop bar. Splice the tail of the proposed loop with existing lead-in at the existing pullbox.

For loops at Richmond Street, contact the City of Painesville Service Department (Kevin Lynch 440-392-9676) 7 days prior to planing through intersection to adjust signal operation as needed. Locate the replacement loops with the concurrence of the Lake County Engineer. Install detector loops in the surface course within 7 days of its placement.

Pavement Markings

Prior to any planing and paving operations, the Contractor is responsible for conducting a field survey of the existing pavement markings. It is the intent of this plan to replace the pavement markings in the same location as the existing pavement markings. Any staking or marking required to establish control points to ensure that the new markings are accurately placed is the responsibility of the contractor. The engineer shall verify all permanent marking locations prior to the actual installation. The cost of this item shall be included in Item 623 Construction Layout Stakes, As Per Plan.

Entrance and exit markings shall be located and installed as per standard construction drawing TC-72.20. Plan details showing gore locations are approximate. The contractor shall be responsible to perform any measurements as needed to determine the location of the markings.

Auxiliary markings shall be located and installed as per standard construction drawing TC-71.10.

Item 621 RPM

Install RPM's for lane lines at a spacing of 80' center-to-center.

Item 620 Delineator

Replace delineators at mainline SR 2 and exit and entrance ramps. The removal and disposal quantity is 75% of the replacement quantity based on the fact that many existing delineators are damaged or missing.

Item 646 Lane Line, As Per Plan

The width of the lane lines shall be six inches (6"). Apply materials at the rates for 6" lines as required in 646.05. All other pavement markings shall be placed per C.M.S. 641.08.

Item 618 Rumble Strips (Asphalt Concrete)

Once the surface course is complete, place rumble strips along mainline edges of pavement per the requirements of Standard Drawing BP-9.1. Do not place rumble strips along ramps.

The following estimated quantity is carried to the general summary to complete this item of work:

Item 618 Rumble Strips (Asphalt Concrete) 8 Miles

ITEM 614, WORK ZONE IMPACT ATTENUATOR FOR 24" WIDE HAZARDS (UNIDIRECTIONAL OR BIDIRECTIONAL)

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING ONE OF THE FOLLOWING IMPACT ATTENUATORS:

1. THE QUADGUARD CZ, (24 INCHES WIDE SIX-BAY) WORK ZONE IMPACT ATTENUATOR MANUFACTURED BY ENERGY ABSORPTION SYSTEMS, INC., 35 EAST WACKER DRIVE, CHICAGO, IL 60601 (TELEPHONE: 312-467-6750).

THE LENGTH OF THE SIX-BAY QUADGUARD CZ IS 20'-9". INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE- APPROVED SHOP DRAWINGS:

DRAWING NUMBER: QSCZCVR-T4
DRAWING NAME: QUADGUARD CZ SYSTEM FOR CONSTRUCTION ZONES
REVISION DATE: 5/13/99 REV. J
ODOT APPROVAL DATE: 8/27/99

DRAWING NUMBER: 35-40-10
DRAWING NAME: QUADGUARD SYSTEM CONCRETE PAD, CZ, QG
REVISION DATE: 11/19/97 REV. D
ODOT APPROVAL DATE: 8/27/99

DRAWING NUMBER: 35-40-16
DRAWING NAME: QUADGUARD SYSTEM BACKUP ASSEMBLY, CZ, QG
REVISION DATE: 7/30/99 REV. F
ODOT APPROVAL DATE: 8/27/99

DRAWING NUMBER: 35405IZ
DRAWING NAME: QUADGUARD CZ SYSTEM NOSE ASSEMBLY, CZ, QG, 24, 30, 36
REVISION DATE: 5/17/99
ODOT APPROVAL DATE: 8/27/99

DRAWING NUMBER: 35-40-18
DRAWING NAME: TRANSITION ASSEMBLY, 4 OFFSET, QG
REVISION DATE: 6/25/99 REV. F
ODOT APPROVAL DATE: 8/27/99

DRAWING NUMBER: 35400260
DRAWING NAME: QUADGUARD SYSTEM PCMB ANCHOR ASSEMBLY
REVISION DATE: 11/19/97 REV. C
ODOT APPROVAL DATE: 8/27/99

2. THE TRACC (TRINITY ATTENUATING CRASH CUSHION) MANUFACTURED BY TRINITY INDUSTRY, 1170 N. STATE STREET, GIRARD, OHIO 44420 (TELEPHONE: 330-545-4373).

THE TRACC IS 21'-0" LONG AND 2'-7" WIDE. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS:

DRAWING NUMBER: SS450
DRAWING NAME: CRASH-CUSHION ATTENUATING TERMINAL PLAN, ELEVATION & SECTIONS
REVISION DATE: 3/12/99 REV. 1
ODOT APPROVAL DATE: 8/27/99

DRAWING NUMBER: SS455
DRAWING NAME: TRACC TRANSITION TO W-BEAM MEDIAN BARRIER PLAN, ELEVATION & SECTIONS
REVISION DATE: 2/18/99
ODOT APPROVAL DATE: 8/27/99

DRAWING NUMBER: SS461
DRAWING NAME: TRACC TRANSITION TO CONCRETE SAFETY SHAPE BARRIER PLAN, ELEVATION & SECTIONS
REVISION DATE: 6/30/99 REV. 1
ODOT APPROVAL DATE: 8/27/99

DRAWING NUMBER: SS462
DRAWING NAME: TRACC TRANSITION TO CONCRETE BARRIER SINGLE SLOPE PLAN, ELEVATION & SECTIONS
REVISION DATE: 6/30/99
ODOT APPROVAL DATE: 8/27/99

3. THE BARRIER SYSTEMS, INC. TAU-II IMPACT ATTENUATOR, DISTRIBUTED BY ROAD SYSTEMS INC., SALES SUPPORT, 2183 ELM TRACE, AUSTINTOWN, OH 44515, (TELEPHONE 330-799-9291)

THE TAU-II FOR THIS NOTE IS A PARALLEL 8-BAY UNIT (24' LONG AND 35" WIDE). INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIEDIN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS:

DRAWING NUMBER: A040416
DRAWING NAME: UNIVERSAL TAU-II PARTS LIST
REVISION DATE: 4/22/04
ODOT APPROVAL DATE: 10/16/04

DRAWING NUMBER: A040420
DRAWING NAME: UNIVERSAL TAU-II FOUNDATION, FLUSH MOUNT BACKSTOP
REVISION DATE: 4/28/04
ODOT APPROVAL DATE: 10/16/04

DRAWING NUMBER: A040105
DRAWING NAME: UNIVERSAL TAU-II FOUNDATION, PCB BACKSTOP (REFERENCED ON A04020)
REVISION DATE: 1/07/04
ODOT APPROVAL DATE: 10/16/04

DRAWING NUMBER: BO40239
DRAWING NAME: APPLICATION, FLUSH MOUNT BACKSTOP (TYPICAL FOR PARALLEL 60 MPH UNIT)
REVISION DATE: 4/21/04
ODOT APPROVAL DATE: 10/16/04

THE CONTRACTOR SHALL REPAIR OR REPLACE A DAMAGED UNIT WITHIN 24 HOURS OF A DAMAGING IMPACT.

WHEN BIDIRECTIONAL DESIGNS ARE SPECIFIED, THE CONTRACTOR SHALL SUPPLY APPROPRIATE TRANSITIONS. PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT AND MAINTAIN A COMPLETE AND FUNCTIONAL IMPACT ATTENUATOR SYSTEM, INCLUDING ALL RELATED BACKUPS, TRANSITIONS, LEVELING PADS, HARDWARE AND GRADING, NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

CALCULATED BMB CHECKED LDH

General Notes

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Item 614 Maintaining Traffic

Schedule of Through Lanes to Be Maintained

Maintain lanes on SR 2 mainline and ramps as shown in the "Schedule" using existing pavement, shoulders, and pavement for maintaining traffic. Provide a minimum lane width of 11' unless shown otherwise in the plans.

SR-2 Eastbound		
Section	Permitted Lane Reductions	
	One Lane Closed	Two Lanes Closed
SR 44 to SR 283	Weekday 9 AM to 2 PM 7 PM to 7 AM Weekend 7 PM Fri to 7 AM Mon	Weekday N/A Weekend N/A
SR 283 to US 20	Weekday 9 AM to 2 PM 7 PM to 7 AM Weekend 7 PM Fri to 7 AM Mon	Weekday N/A Weekend N/A

SR 2 Westbound		
Section	Permitted Lane Reductions	
	One Lane Closed	Two Lanes Closed
US 20 to SR 283	Weekday 9 AM to 2 PM 6 PM to 6 AM Weekend 6 PM Fri to 6 AM Mon	Weekday N/A Weekend N/A
SR 283 to SR 44	Weekday 9 AM to 2 PM 6 PM to 6 AM Weekend 6 PM Fri to 6 AM Mon	Weekday N/A Weekend N/A

SR 2 Ramps		
Ramps	Permitted Ramp Closures, Lane Reductions	
	Overnight Closures with Detour	Partial Width Closure for Repair and Paving (Maintain a minimum 1 11' lane.)
US 20 EB Exit	Not Permitted; No Detour Route Readily Nearby	Weekday 8 PM to 6 AM Weekend 8 PM to 8 AM
SR 283, SR 535	Weekday 8 PM to 6 AM Weekend 9 PM Fri to 9 AM Sat 8 PM Sat to 11 AM Sun 8 PM Sun to 6 AM Mon	Weekday 7 PM to 6 AM Weekend 8 PM Fri to 9 AM Sat 8 PM Sat to 11 AM Sun 8 PM Sun to 6 AM Mon
Ramp F-F	Close ramp during long-term work zones for Phase 1 and Phase 2 at SR 2 EB. Ramp must be re-opened at the end of Phase 2 or September 1, whichever occurs first.	

Required Long-Term Lane Closures for Phasing of Bridge Work

Implement long-term lanes shifts to inside and outside shoulders to perform bridge work as shown in the plans. "Bridge work" is defined as including items related to structures, approach slabs, pressure relief joints, and pavement removed and replaced immediately adjacent to pressure relief joints.

Complete all proposed items of work located outside of the long-term lane closure areas subject to allowable closure times set forth in the Schedule of Through Lanes To Be Maintained and subject to Interim Completion Dates set forth in the plans.

Notification Requirements

Since functional traffic control is a major concern on this project, it is essential that the motoring public be adequately informed of lane closures and traffic constrictions. Submit a written schedule to the Engineer, responsible law enforcement agencies, and the ODOT Public Information Office (216-584-2007) indicating the locations and dates of the lane closures at least 3 days prior to the implementation of closures or restrictions. Additionally, provide notice to the following individuals:

- Dave Paponetti, ODOT Lake Co. Manager, 216-584-2053
- Bruce Landeg, Lake County Engineer, 440-350-2770
- Jennifer Bell, Painesville Clerk of Council, 440-392-5803
- Kevin Lynch, Painesville Service Director, 440-392-9676
- Gary Smith, Painesville Police Chief, 440-392-5826
- Mark Mlachak, Painesville Fire Chief, 440-392-5849

Maintaining Traffic–General Provisions

1. Traffic shall be maintained in accordance with the "Schedule of Through Lanes to be Maintained." The Contractor shall set up and operate his equipment in such a manner as to minimize encroachment upon the traveled width of pavement.

2. Nighttime work shall be permitted in accordance with these plans and notes. The Contractor shall provide flood lighting of the work area in order to assure the safest conditions during nighttime work. A lighting plan for nighttime operations shall be presented to and approved by the Engineer.

3. The Contractor shall furnish, erect and maintain all new warning and information signs necessary for maintaining traffic. The Contractor shall determine what signs are needed and advise the Engineer two (2) weeks in advance of his detailed plans. See the OMUTCD and standard drawings for the minimum signage required.

4. Traffic control devices shall be set up prior to the start of construction, and shall be properly maintained during the time special conditions exist. They shall remain in place only as long as they are needed and shall be immediately removed thereafter. Where operations are performed in stages, there shall be in place only those devices that apply to the condition present during stage in progress. All signs with messages which do not apply during a certain period shall be covered or set aside out of the view of traffic.

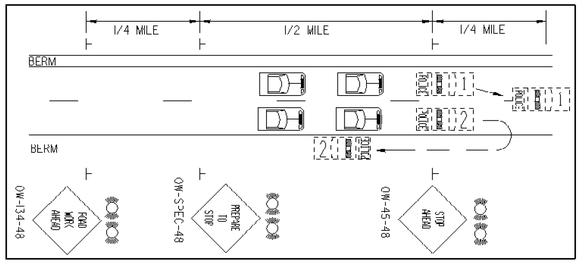
5. Placement of final roadway pavement markings and raised pavement markers shall be accomplished in accordance with the "Schedule of Through Lanes to be Maintained." The Contractor shall provide 2 trailing vehicles as per MT-99.20M following the pavement marking equipment. The trailing vehicles shall travel 500' apart with the remote vehicle traveling on the shoulder (left or right as applicable) where usable shoulder is available. The first trail vehicle in a traffic lane shall be equipped with a truck mounted attenuator meeting NCHRP 350 requirements. Each trailing vehicle shall have a yellow flashing beacon plus 48" construction warning signs mounted on the back facing traffic with standard type messages advising motorists of the work ahead, advisory warning speed, and which lane is closed.

6. During non-working periods, open excavations shall be delineated with warning flashers and/or other approved devices as deemed appropriate by the Engineer.

7. Existing signs located within the road work areas which are necessary for interim or permanent traffic control shall be removed and re-erected in locations as approved by the Engineer.

8. No stoppage of traffic shall occur without law enforcement personnel at each location to direct traffic.

9. Any time traffic must be completely stopped on a freeway or interstate, it shall be as follows. The complete traffic stoppage of all lanes of any directional roadway shall be no more than 10 minutes in any one consecutive 30 minute period. A minimum of two (2) law enforcement officers (LEO's) with patrol vehicles shall be used to pace motorists to a stop. One LEO with patrol car should be provided for each lane of traffic to be closed. Payment for LEO's shall be incidental to Item 614 Maintaining Traffic, unless itemized separately elsewhere in the plans. After traffic has been slowed, one (1) patrol vehicle shall travel along the roadway shoulder 500' behind the back up of stopped vehicles. Where stoppage occurs in the vicinity of freeway entrances, the Contractor shall place flaggers on the ramps to stop traffic. Patrol vehicles shall have flashing beacons. To provide adequate visibility to approaching motorists, the Contractor shall erect and maintain "Road Work Ahead", "Prepare to Stop", and "Stop Ahead" signs with two flashing 12" traffic signal heads in accordance with 632.05. Flares may be substituted for flashing lights and sign illumination. These signs shall be illuminated during night operations and shall be 48" by 48" signs. Stopping traffic shall be done when the greatest numbers of lanes are permitted to be closed according to the Schedule of Through Lanes To Be Maintained. A portable changeable message sign shall be placed 1.5 miles to 2 miles in advance of the closure. Patrol vehicles and signs shall be located in accordance with the sketch below.



10. Whenever a total closure is implemented, the Contractor shall provide a portable changeable message sign, type from ODOT's pre-approved list. It shall be placed 1.5 miles to 2 miles in advance of the closure or as directed by the Engineer.

11. Complete stoppages of highway traffic shall be used when removing or placing overhead box trusses.

12. For any operation not specifically mentioned in these plans, the traffic shall be maintained in accordance with the OMUTCD.

13. All labor, materials, equipment and any incidentals required to complete the work as described above shall be included in the lump sum bid for Item 614 Maintaining Traffic.

Item 615 Pavement for Maintaining Traffic, Class A, As Per Plan

Remove and dispose of existing asphalt shoulder incidental to this item.

Use flexible pavement type. Omit courses for Item 304 and Item 448 Type 2. Removal of top 2" in a subsequent phase is itemized and paid for separately under Item 254.

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Contractor Access from Work Zones

Operations requiring more than 10 trucks per hour to enter or exit the work zone are not permitted to occur on weekdays between 6 AM to 9 AM or 3 PM and 6 PM.

Suspension of Work

If the Contractor fails to comply with the provisions for traffic control as set forth in these plans or with provisions of the OMUTCD, the Engineer shall suspend work until the Contractor complies with the necessary requirements.

Overnight Ramp Closures

The Contractor may close one ramp at a time for proposed work at interchanges with local roads. Restrict closures to the hours shown in the "Schedule of thru Lanes to Be Maintained." Provide notice to ramp traffic at least 72 hours in advance through the use of either a ground mounted flat sheet sign or a portable changeable message sign. Provide an LEO with patrol car for each ramp closure to remain present for the duration of the closure.

Close ramps using a portable changeable message sign (PCMS) routing traffic to the next logical entrance or exit. Provide a second PCMS at that location to confirm the detour and to provide the information necessary to return motorists to their original direction of travel.

Do not close more than one ramp at a time within the project limits. Ramps closed using long-term closures with detours identified in the plans are exempt from this requirement.

Although the plans contain bid items for LEO's and PCMS, their use for the overnight closure of ramps is considered incidental to Item 614 Maintaining Traffic in order to limit the frequency of closures to the minimum needed to perform the work.

Maintenance of Traffic Control Zones

The Contractor shall be responsible to maintain the signs, drums and temporary pavement markings at the locations detailed in the plans or specified in the standard drawings. When the Contractor is notified of deficiencies he shall correct the deficiencies as soon as possible, preferably within 12 hours and no later than 24 hours. If any noted deficiencies are not corrected within 24 hours the Engineer shall deduct one day pay for Item 614 Maintaining Traffic, not as a penalty but as road user costs. The Contractor shall be subject to these road user costs for each and every day that these provisions are not met. All costs for maintaining the work zones as described above shall be included under Item 614 Maintaining Traffic.

Shoulder Closures

Do not close shoulders except during the times permitted in the "Schedule" for a one-lane closure.

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.

Signage

Advance warning sign groups as per standard drawings MT-95.30, MT-98.12, MT-98.13, MT-98.14, MT-98.15, MT-98.16, MT-98.17, and MT-98.18 shall be installed. Payment for these signs shall be under Item 614 Maintaining Traffic.

Contractor's Equipment–Operation and Storage

Vehicles and equipment must always move with, and not across or against the flow of traffic. Vehicles and other equipment must not park or stop except within designated work areas; and must not enter and leave work areas in a manner which will be hazardous to, or interfere with the normal traffic flow. Personal vehicles are not be permitted to park within the right-of-way except in specific areas designated by the Engineer.

Do not store or park equipment, vehicles and materials within 35' of the traveled way unless located 6' feet behind barrier and protected with at least a 150' length of approaching barrier.

All work vehicles and equipment entering the work zone more than once a day must be equipped with at least one flashing, rotating, or oscillating amber light that is visible in all directions of traffic for at least one quarter of a mile, day or night.

Item 614 Maintaining Traffic (Planing Requirements)

Where planed pavement areas are required to carry traffic, do not exceed 21 calendar days between the removal of the existing asphalt overlay and placement the first lift of the intermediate course. This requirement is imposed to limit the potential degradation of the remaining pavement to a minimum. In the event that the time between planing and paving exceeds 21 calendar days, road user costs as per 108.07 of the construction and material specifications manual shall be assessed. This requirement applies to both mainline and ramps alike.

Item 614 Law Enforcement Officer with Patrol Car for Assistance

Use of law enforcement officers (LEOS) by Contractors other than the uses specified below will not be permitted at project cost. LEOS should not be used where the OMUTCD intends that flaggers be used.

In addition to the requirements of CMS 614 and the OMUTCD, provide a uniformed LEO with an official patrol car (car with top-mounted emergency flashing lights and complete markings of the appropriate law enforcement agency) for the following traffic control tasks:

1. During the advance preparation and closure sequence when a complete blockage of traffic is required.
2. For the first night of mainline overlay removal in each direction.
3. For full-depth repairs at mainline pavement when repairing the lane immediately adjacent to traffic during night time hours.

LEOS should not forgo their traffic control responsibilities to apprehend motorists for routine traffic violations. However, if a motorist's actions are considered to be reckless, then pursuit of the motorist is appropriate.

The LEOS work at the direction of the Contractor. The Contractor is responsible for securing the services of the LEOS with the appropriate agencies and communicating the intentions of the plans with respect to duties of the LEOS. The Engineer shall have final control over the LEOS' duties and placement, and will resolve any issues that may arise between the two parties.

The LEO shall report in to the Contractor prior to the start of the shift, in order to receive instructions regarding specific work assignments during his/her shift. The LEO is expected to stay at the project site for the entire duration of his/her shift. The LEO shall report to the Contractor at the end of his/her shift. Once the LEO has completed the duties described above and still has time remaining on his/her shift, the LEO may be asked to patrol through the work zone (with flashing lights off) or be placed at a location to deter motorists from speeding. Should it be necessary to leave the project site, the LEO shall notify the Engineer. The Contractor shall provide the LEO with a two-way communication device which shall be returned to the Contractor at the end of his/her shift.

LEOS (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 for Assistance.

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

Any additional costs (administrative or otherwise) incurred by the Contractor to obtain the services of an LEO are included with the bid unit price for Item 614, Law Enforcement Officer with Patrol Car for Assistance.

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Maintaining Traffic and Sequence of Operations

Conduct all asphalt concrete operations in a manner assuring minimum danger and inconvenience to the highway users. Perform all work at the times provided in the "Schedule of Through Lanes to be Maintained." Schedule removal and paving operations such that traffic is not permitted to travel across a vertical drop greater than 1½".

A. Longitudinal Joints for Removals and All Asphalt Courses Greater Than 1½"

- For removal of existing overlays, plane a wedge transition into the existing asphalt at a rate of 6:1 where the pavement must be re-opened to traffic to meet MOT requirements. The planing and subsequent removal of wedge transitions is incidental to the item for planing adjacent pavement at a uniform thickness. A wedge is required at pavement and shoulders alike. No vertical drop-offs are permitted.

B. Transverse Joints

- For removal of existing overlays, plane a transition into the existing overlay at the rate indicated in the plan details for asphalt transitions. The planing of the required transition is incidental to the item for planing adjacent pavement at a uniform thickness.
- Prior to paving with intermediate courses, remove planed transitions (in existing asphalt) to a vertical butt joint at the paving limits. This removal is itemized and paid for separately under Item 254 Pavement Planing, Asphalt Concrete (for Transitions). Prior to re-opening the joint to traffic, wedge the remaining lip (for the surface course) with Item 614 Asphalt for Maintaining Traffic. Ramp joints at a rate of 1" in 10'.

Whenever traffic is subject to partial width removals or overlays prior to full width completion, provide W8-11-48 signs (dual sign installation). Place signs as directed by the Engineer, incidental to Item 614 Maintaining Traffic.

Worksite Traffic Supervisor

Subject to approval of the Engineer, the Contractor shall employ and identify (someone other than the superintendent) a certified Worksite Traffic Supervisor (WTS) before starting work in the field. The WTS may be certified from one of the following organizations:

1. American Traffic Safety Service Association (ATSSA), Phone: 1-800-272-8772, certified Traffic Control Supervisor (TCS).
2. National Highway Institute, Design and Operation of Work Zone Traffic Control, Phone: 1-703-235-0528.
3. The Ohio Contractors Association, Traffic Control Supervisor (OCA/TCS) Work Zone Class, only if taken after may 5, 2004, Phone: 1-614-599-7915.
4. Ohio Laborers Training, Traffic Control Supervisors Class, Phone: 1-740-599-7915.

A copy of each WTSS certification and 24-hour contact information shall be provided to the engineer at the preconstruction conference. If the designated WTS will not be available full time (24/7) the contractor may designate an alternate WTS to be available when the primary is off duty. Each WTS shall have a current WTS certification (with an expiration date no more than 5 years from the date of issue) from any of the approved organizations.

The WTS position has the responsibility of monitoring traffic control deficiencies for the entire work zone. The duties of the WTS are as follows:

1. Be available on a 24-hour per day basis, and be able to be on site for all emergency traffic control needs within one hour of notification by police or project staff and be prepared to effect corrective measures immediately on existing work zone traffic control devices.

2. Attend preconstruction meeting and all project meetings where traffic control management is discussed.

3. Be available for meetings or discussions with the Engineer upon request or within 36 hours.

4. Be aware of, and coordinate if necessary, all traffic control operations, including those of subcontractors and suppliers.

5. Coordinate project activities with all Law Enforcement Officers (LEOS). A WTS shall also be the main contact person with the LEOS while they are on the project.

6. Coordinate meetings with ODOT personnel, LEOS and other applicable entities before each plan phase switch to discuss work zone traffic control.

7. Ensure compliance with the contract documents for signs, barricades, temporary concrete barrier, pavement markings, portable message signs, and other traffic control devices on a daily basis; and facilitate any corrective action necessary.

8. Notify the Contractor of the need for cleaning and maintenance of all traffic control devices, including the covering and removal of inapplicable signs.

9. Inspect, evaluate, propose necessary modifications to, and document the effectiveness of, the traffic control devices and/or traffic operations on a daily basis (7 days a week). In addition, a weekly night inspection of the work zone setup for daytime work operations; and one daytime inspection per week for nighttime projects. This shall include (but not be limited to) documentation on the following project events:
   a) Initial traffic control setup (day and night review).
   b) Daily traffic control setup and removal.
   c) When construction staging causes a change in the traffic control setup.
   d) Crash occurrences within the construction area.
   e) Removal of traffic control devices at the end of a phase or project.
   f) All other emergency traffic control needs.

10. Complete the Department approved long term inspection form (CA-D-8) after each inspection as required in # 9 and submit it to the engineer the following work day. These reports shall include a checklist of all traffic control maintenance items to be reviewed. A copy of the form will be provided at the pre-construction meeting. Any deficiencies observed shall be noted, along with recommended corrective actions and the dates by which such corrections were, or will be, completed. A copy of this document can be found in the department of transportation construction inspection forms manual dated 10/15/06 or current revision.

11. Verify that all flagging operations are being conducted per The Ohio Manual of Uniform Traffic Control Devices.

12. Have copies of the ODOT Temporary Traffic Control Manual and applicable standards and specifications included in the contract documents available at all times on the project.

The Department will not pay the unit price bid for the WTS for any day on which the contractor fails to perform the duties set forth above. Should the Contractor's failure to perform any of the duties described above result in a maintenance of traffic safety issue, the department will deduct the prorated daily amount for Item 614 Mainting Traffic from the Contractor's next scheduled estimate.

If three or more failures to perform the duties set forth above occur, the WTS shall be immediately removed from the work in accordance with C&MS 108.05.

Item 614 Portable Changeable Message Sign, As Per Plan

Furnish, install, maintain and remove, when no longer needed, a changeable message sign, on site, for the duration of the project. The sign shall be of a type shown on a list of approved PCMS units maintained by the Director (Office of Materials Management). This list is available on the ODOT website at http://www.dot.state.oh.us/testlab/applists/misc/pcms.htm. Furnish only units with a legibility distance in excess of 1250'.

Furnish a PCMS that is trailer-mounted and equipped with a functional dimming mechanism, to dim the sign during darkness, and a tamper and vandal proof enclosure. Each sign shall be provided with appropriate training and operation instructions to enable on-site personnel to operate and troubleshoot the unit. The sign shall also be capable of being powered by an electrical service drop from a local utility company. PCMS trailers should be delineated on a permanent basis by affixing retroreflective material, in a continuous line on the face of the trailer as seen by oncoming road users.

Placement, operation, maintenance and all activation of the signs by the Contractor shall be as directed by the Engineer. The PCMS shall be located in a highly visible position yet protected from traffic. The Contractor shall, at the direction of the Engineer, relocate the PCMS to improve visibility or accommodate changed conditions. When not in use, the PCMS shall be turned off. Additionally, when not in use for extended periods of time, the PCMS shall be turned, facing away from all traffic, and shall display one or more high-intensity yellow reflective sheeting surfaces of 9-inch by 15-inch minimum size facing traffic.

The Engineer shall be provided access to each sign unit and shall be provided with appropriate training and operation instructions to enable ODOT personnel to operate and troubleshoot the unit, and to revise sign messages, if necessary.

All messages to be displayed on the sign will be provided by the Engineer. A list of all required pre-programmed messages will be given to the Contractor at the project preconstruction conference. The sign shall have the capability to store up to 99 messages. Message memory or pre-programmed displays shall not be lost as a result of power failures to the on-board computer. The sign legend shall be capable of being changed in the field. Three-line presentation formats with up to six message phases shall be supported. PCMS format shall permit the complete message for each phase to be read at least once.

The PCMS shall contain an accurate clock and programming logic which will allow the sign to be activated, deactivated or messages changed automatically at different times of the day for different days of the week.

The PCMS unit shall be maintained in good working order by the Contractor in accordance with the provisions of CMS 614.07. The Contractor shall, prior to activating the unit, make arrangements, with an authorized service agent for the PCMS, to assure prompt service in the event of failure. Any failure shall not result in the sign being out of service for more than 12 hours, including weekends. Failure to comply may result in an order to stop work and open all traffic lanes and/or in the Department taking appropriate action to safely control traffic. The entire cost to control traffic, accrued by the Department due to the Contractor's noncompliance, will be deducted from moneys due, or to become due the Contractor on his contract.

The Contractor shall be responsible for 24-hour-per-day operation and maintenance of these signs on the project for the duration of the phases when the plan requires their use.

At the direction of the Engineer, the PCMS may be removed for periods or times when not in use. No payment will be made for these times (ex. winter months).

Payment for the above described item shall be at the contract unit price. Payment shall include all labor, materials, equipment, fuels, lubricating oils, software, hardware and incidentals to perform the above described work.

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Item 614 Asphalt Concrete for Maintaining Traffic, As Per Plan A

Use this item to provide temporary asphalt ramps for transverse joints butting into existing pavement, after placing intermediate course but before placing surface course. Place temporary ramps at the rate of 1" per 10'. Remove temporary asphalt ramps as part of this item.

Item 614 Asphalt Concrete for Maintaining Traffic, As Per Plan B

Use this item as directed by the Engineer to patch existing planed surfaces which deteriorate under traffic. The Contractor has the option whether to remove this material, incidental to this item, provided it does not interfere with the placement of subsequent courses of pavement.

Item 614 Work Zone Lane Line, Class I, As Per Plan

Apply temporary lane line markings at a width of 6".

Permanent Pavement Markings

After placing the surface course, the Contractor may place permanent pavement markings at locations shown in the typical sections and the traffic control sheets instead of placing work zone pavement markings, which shall be non-performed at these locations.

Application for Use of Weighted Channelizer (Grabber Cone)

The weighted channelizer may be used on this project as described below:

The weighted channelizer shall be predominantly orange in color and shall be made of a lightweight, flexible, and deformable material. They shall be at least 42 inches in height with a weighted base. They may have a "handle" or lifting device which extends above the 42" minimum height.

The markings on the weighted channelizer shall be horizontal, circumferential, alternating orange and white retroreflective stripes 6 inches wide. Each weighted channelizer shall have a minimum of two orange and two white stripes. Any non-retroreflective spaces between the horizontal orange and white stripes shall not exceed 2 inches wide. The weighted channelizer shall have a 4 inch minimum width, regardless of orientation.

Use of weighted channelizers on ODOT-maintained highways shall be as follows:

- For short-term work zones on SR 2 mainline and ramps.

Use of weighted channelizers on freeways and multilane highways shall be limited to short-term operation, generally twelve hours or less, for either day or night. Upon completion of work within the above noted time period, the weighted channelizers shall be removed. The weighted channelizers may again be placed on the highway when the work is to resume on the following day or night. Any lane closure using channelization devices, expected to remain for more than twelve hours, shall require the use of drums or barriers.

When used at night weighted channelizers shall only be placed in the "tangent area". The "tangent area" is defined as the area after the transition taper where the work takes place. Drums shall be used in the transition tapers for night operations. Maximum spacing of the weighted channelizers shall be 40 feet.

Steps should be taken to ensure that the weighted channelizers will not be blown over or displaced by wind or moving traffic. Ballasts should not present a hazard if the weighted channelizers are inadvertently struck, nor should they affect the visibility of the weighted channelizers. All ballasts used should be in accordance with the manufacturer's specifications.

Project Progress Meetings

Progress Meetings will be held every four (4) weeks at the project office, or other location designated by the Construction Engineer and attended by ODOT and Contractor decision-making personnel.

The purpose of these meetings will be to discuss critical operations and potential problems. The Contractor will confirm the number and duration of work shifts, number of work crews, and specific portions of the work to be performed during the following weeks.

The meetings can only be waived by the Construction Engineer.

Road User Costs–Short Term Lane Closures

Short term lane closures are those which are permitted by the "Schedule of Through Lanes to Be Maintained" table. These times shall not be revised without prior approval from the District 12 Work Zone Traffic Control Engineer. Short term road user costs shall also be assessed when a ramp closure is violated. If short term lane closures are in place outside the specified times, road user costs in the amount of $50.00 per minute shall be assessed to the Contractor for each minute the lane remains closed.

Short term lane closures shall only be implemented when work is being continuously performed. The closure shall be removed as soon as possible after work has stopped.

Holiday Closures

No work shall be performed and all existing lanes shall be open to traffic during the following designated holidays or events: Easter, Memorial Day, Fourth of July, and Labor Day.

The period of time that the lanes are to be open depends on the day of the week on which the holiday or event falls. The following schedule shall be used to determine this period:

Day	Times All Lanes Must Be Open
Sunday	12 noon Friday Through 6 AM Monday
Monday	12 noon Friday Through 6 AM Tuesday
Tuesday	12 noon Monday Through 6 AM Wednesday
Wednesday	12 noon Tuesday Through 6 AM Thursday
Thursday	12 noon Wednesday Through 6 AM Friday
Friday	12 noon Thursday Through 12 midnight Sunday
Saturday	12 noon Friday Through 12 midnight Sunday

No extensions of time shall be granted for delays in material deliveries, unless such delays are industry-wide, or for labor strikes, unless such strikes are area-wide.

Should the Contractor fail to meet any of these requirements, the Contractor shall be assessed road user costs in accordance with CMS 108.07.

Item 614 Maintaining Traffic (Alternate Methods)

If the Contractor so elects, he may submit detailed traffic control plans including written descriptions of the alternate methods for the maintenance of traffic, provided the intent of the provisions herein is followed without subsequent additional inconvenience to the traveling public. No alternate plan shall be placed into effect until prior approval has been granted in writing, by the Director.

Public Safety

The following provisions "A", "B", "C" and "D" apply when the lane adjacent to the guardrail is open to traffic. Limit the period of time that a hazard is left unprotected by the removal of guardrail to an absolute minimum. If, after one day, the entire run of guardrail construction is not complete, meet the following requirements:

A. In areas where existing guardrail has been removed or the guardrail is in a partial stage of completion, provide and maintain Type II barricades with Type C (steady burning) warning lights within the limits of the unprotected area. Place the barricades at 50' intervals offset at least 2' from the edge of the traveled roadway and in close proximity to the construction. Fasten the approach end of a partially completed run of guardrail to a steel drum at ground level.

B. If the existing guardrail is for the protection of fixed hazard (such as a sign support or bridge parapet), erect portable concrete barrier in the direction of traffic no closer than 2' from the edge line of the adjacent lane. The requirements of paragraph "A" apply to the remaining guardrail within the run. Flare temporary barrier at a 17:1 (minimum) taper rate to the outer edge of the paved shoulder. **Provide a work zone impact attenuator.** The use of tapered ends or extension of PCB outside the clear zone or behind adjacent guardrail is not permitted.

C. The requirements stated in "A" apply for a period not to exceed one week. Where the rebuilding or construction of any run of guardrail cannot be accomplished within one week, provide and maintain temporary concrete barrier as detailed in "B". In addition, provide a Type II barricade with Type B (high intensity flasher) warning light in front of the first section of temporary barrier to warn approaching traffic.

D. Temporary concrete barrier is not required to separate opposing traffic when the median barrier is removed provided that both median lanes remain closed until the new median barrier is in place. For hazards within this zone, the requirements of provisions "A", "B", and "C" still apply.

The term "guardrail" is understood to cover all types of existing or proposed barrier, including standard guardrail, barrier design guardrail, bridge parapet, and concrete barrier.

The cost of complying with these safety procedures shall be included in the lump sum bid price for Item 614 Maintaining Traffic.

Covering of Ground-Mounted Signs--General

When required by other items or incidentally to Item 614 Maintaining Traffic, cover existing ground-mounted signs with plywood or OSB blanks (1/2" minimum thickness) covering 80% of the sign area and all of the sign legend. The use of low quality materials such as duct tape and black plastic is not permitted.

Night Vest

All of the Contractor's and sub-contractor's personnel working during the hours of darkness shall wear a 100% silver reflective safety vest or ANSI Class 2 vest. The safety vest shall be provided by the Contractor. The vest may have several lime or orange stripes on it.

Item 614 Maintaining Traffic (Replacement Drums)

Drums 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 drums shall be new.

Payment for the new drums shall be included in the lump sum contract price for Item 614 Maintaining Traffic, and shall include the cost of removing and disposing of the damaged drum, and providing and maintaining the replacement drum in accordance with the contract requirements for the original drum.

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General Notes

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Item 614 Work Zone Increased Penalties Sign (R11-H5a)

R11-H5a-48 signs shall be furnished, erected, and maintained in good condition and/or replaced as necessary and subsequently removed by the Contractor. Signs shall be mounted at the appropriate offsets and elevations as prescribed by the Ohio Manual of Uniform Traffic Control Devices. They shall be maintained on supports meeting current safety criteria.

Uncover or place Work Increased Penalties signs once the pavement surface is under construction for overlay removal, pavement repair, and placement of intermediate and surface courses. Uncover or place Increased Penalties signs no more than four hours before the actual start of work. Do not cover signs when lanes are re-opened to traffic subject to the provisions of the "Schedule of Through Lanes To Be Maintained." Cover or remove signs between October 15 and April 1 each year. Remove signs once all work requiring lane closures is complete.

The signs shall be dual mounted. The first sign shall be placed between the ROAD WORK AHEAD (W20-1) sign and the next sign in the sequence. Signs shall be erected on each entrance ramp and every 2 miles (3 kilometers) through the construction work limits.

The Contractor may use signs and supports in used, but good condition provided the signs meet current ODOT specifications. Sign faces shall be reflectorized with Type G sheeting complying with the requirements of CMS 730.19.

Work Zone Increased Penalties signs and supports will be measured as the number of sign installations, including the sign and necessary supports. If a sign and support combination is removed and re-erected at another location as directed by the Engineer, it shall be considered another unit.

Payment for accepted quantities, complete, in place will be made at the contract unit price. Payment shall be full compensation for all materials, labor, incidentals and equipment for furnishing, erecting, maintaining, covering during suspension of work, and removal of the sign and support.

Item 614 Work Zone Speed Limit Sign

Furnish, install, maintain, cover during suspension of work, and subsequently remove Work Zone Speed Limit (R2-1) (50 MPH Speed Limit) signs and supports within the work limits in accordance with the following requirements:

Place Work Zone Speed Limit signs immediately prior to begin pavement repairs operations. Cover or remove signs immediately once the mainline overlay has been completed.

Do not leave Work Zone Speed Limit signs in place for any other item of work other than to place the surface course. Under no circumstances are signs to remain in place over the winter.

Consider opposing directions of interstate separately when placing or uncovering signs. Do not uncover or place Work Zone Speed Limit signs in areas where the repairs have not begun or where the surface course is complete.

Dual-mount Work Zone Speed Limit Signs on both sides of a directional roadway of divided highways. The first Work Zone Speed Limit sign shall be placed 500 feet (150 meters) in advance of the lane reduction or shift taper or at a point wherever construction begins, whichever comes first. On undivided highways the sign shall be mounted on the right side, 250 feet (75 meters) in advance of the taper. The sign shall be repeated, on the side nearest traffic, every 1 mile (1.6 kilometers) for 55 mph zones and every one-half mile (0.8 kilometers) for 50 mph and 45 mph zones. These signs shall also be erected immediately after each open entrance ramp within the zone.

Reduced Speed Ahead signs shall be erected in advance of the speed reduction, approximately 1300 feet (390 meters) on multi-lane highways and 500 feet (150 meters) on 2-lane highways.

Erect signs to indicate the resumption of the statutory speed limit at the end of any reduced Speed Zone. Use R2-1 (Speed Limit) signs on undivided roadways. Use R2-1 (Speed Limit) and R2-H2a signs on divided roadways. When used the R2-1 and R2-H2a mount signs side-by-side on separate supports. The Contractor may use signs and supports in used, but good, condition provided the signs meet current ODOT specifications. Sign faces shall be reflectorized with Type G sheeting complying with the requirements of CMS 730.19. Work Zone Speed Limit signs shall be mounted on two Item 630 Ground Mounted Supports, No. 3 posts. Work Zone Speed Limit signs and supports will be measured as the number of sign installations, including the signs and necessary supports. If a sign and support combination is removed and re-erected at another location within the project due to changes in the Speed Zone directed by the Engineer, it shall be considered another unit.

Locate speed zone signing at the following locations

SR 2 Eastbound:

Sta 627+00, Reduced Speed Ahead, 2 Signs
Sta 652+00, Speed Limit 50 MPH, 2 Signs
Sta 675+00, Speed Limit 50 MPH, 2 Signs
Sta 701+00, Speed Limit 50 MPH, 2 Signs
Sta 725+00, Speed Limit 50 MPH, 2 Signs
Sta 750+00, Speed Limit 50 MPH, 2 Signs
Sta 776+00, Speed Limit 60 MPH, 2 Signs

SR 2 Westbound:

Sta 800+00, Reduced Speed Ahead, 2 Signs
Sta 776+00, Speed Limit 50 MPH, 2 Signs
Sta 750+00, Speed Limit 50 MPH, 2 Signs
Sta 725+00, Speed Limit 50 MPH, 2 Signs
Sta 701+00, Speed Limit 50 MPH, 2 Signs
Sta 675+00, Speed Limit 50 MPH, 2 Signs
Sta 657+25, Speed Limit 60 MPH, 2 Signs

Payment for accepted quantities, complete in place, will be made at the contract unit price. Payment shall be full compensation for all materials, labor, incidentals and equipment for furnishing, erecting, maintaining, covering during suspension of work, and removing the signs and supports.

Item 614 Maintaining Traffic, Misc.: Modify Signal Operation

Concurrent with the Ramp F-F detour, adjust signal operation at the intersection of Richmond Street (SR 283) and SR 2 EB exit/entrance as follows:

1. Prior to closing the EB entrance ramp, contact City of Painesville Service Department (Kevin Lynch 440-392-9676) to schedule a meeting. A city representative must be present whenever the contractor works on a city-maintained traffic signal.
2. Bag SB left turn arrow heads in accordance with 632.25 using coverings made specifically for signal heads.
3. Modify timings in the signal controller to skip the SB left turn phase for the duration of the closure of the entrance ramp.
4. Uncover signal head and restore existing signal phasing once the entrance ramp is re-opened to traffic.

Subsummary of Quantities for Maintenance of Traffic

The following quantities are carried to the general summary to complete these items of work.

Item 614 Asphalt Concrete for Maintaining Traffic, As Per Plan A	25 Cu Yds
Item 614 Asphalt Concrete for Maintaining Traffic, As Per Plan B	25 Cu Yds
Item 614 Law Enforcement Officer with Patrol Car for Assistance	80 Hours
Item 614 Work Zone Increased Penalties Sign	10 Each
Item 614 Work Zone Speed Limit Sign	28 Each
Item 614 Portable Changeable Message Sign, As Per Plan	360 Days
Item 614 Worksite Traffic Supervisor	12 Months
Item 614 Maintaining Traffic, Misc.: Modify Signal Operation	Lump Sum
Item 614 Detour Signing	Lump Sum
Item 614 Roads for Maintaining Traffic	Lump Sum

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General Notes

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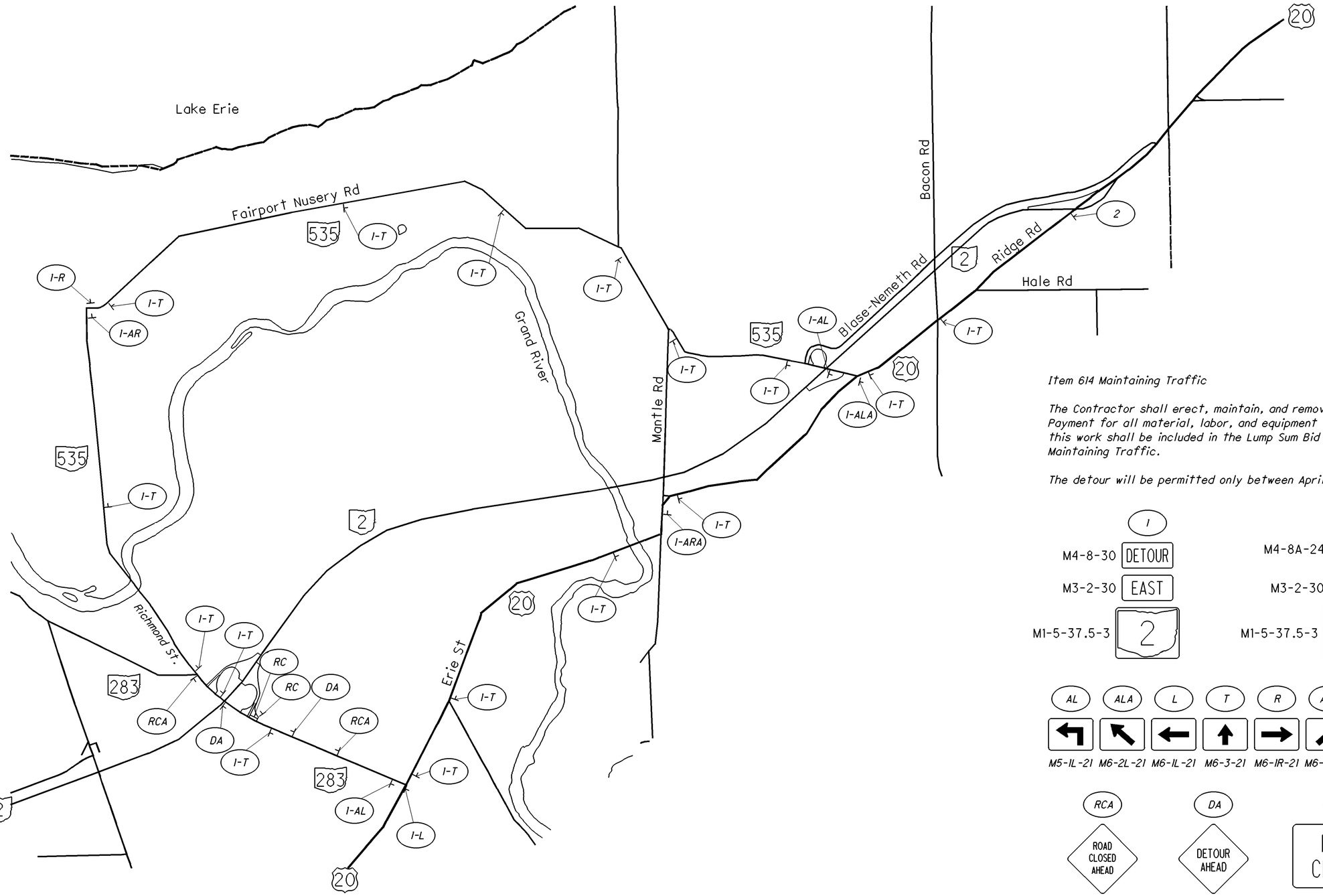

Item 614 Maintaining Traffic

The Contractor shall erect, maintain, and remove the detour. Payment for all material, labor, and equipment to perform this work shall be included in the Lump Sum Bid for Item 614 Maintaining Traffic.

The detour will be permitted only between April 1 through September 1.

1

M4-8-30 DETOUR

M3-2-30 EAST

M1-5-37.5-3 2

2

M4-8A-24 END DETOUR

M3-2-30 EAST

M1-5-37.5-3 2

AL ALA L T R ARA AR

M5-1L-21 M6-2L-21 M6-1L-21 M6-3-21 M6-1R-21 M6-2R-21 M5-1R-21

RCA

ROAD CLOSED AHEAD

W20-3-36

DA

DETOUR AHEAD

W20-2-36

RC

ROAD CLOSED

R11-2-48

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HORIZONTAL SCALE IN FEET
0 500 1000 2000

DETOUR PLAN
RAMP F-F (SR 283 TO SR 2 EB)

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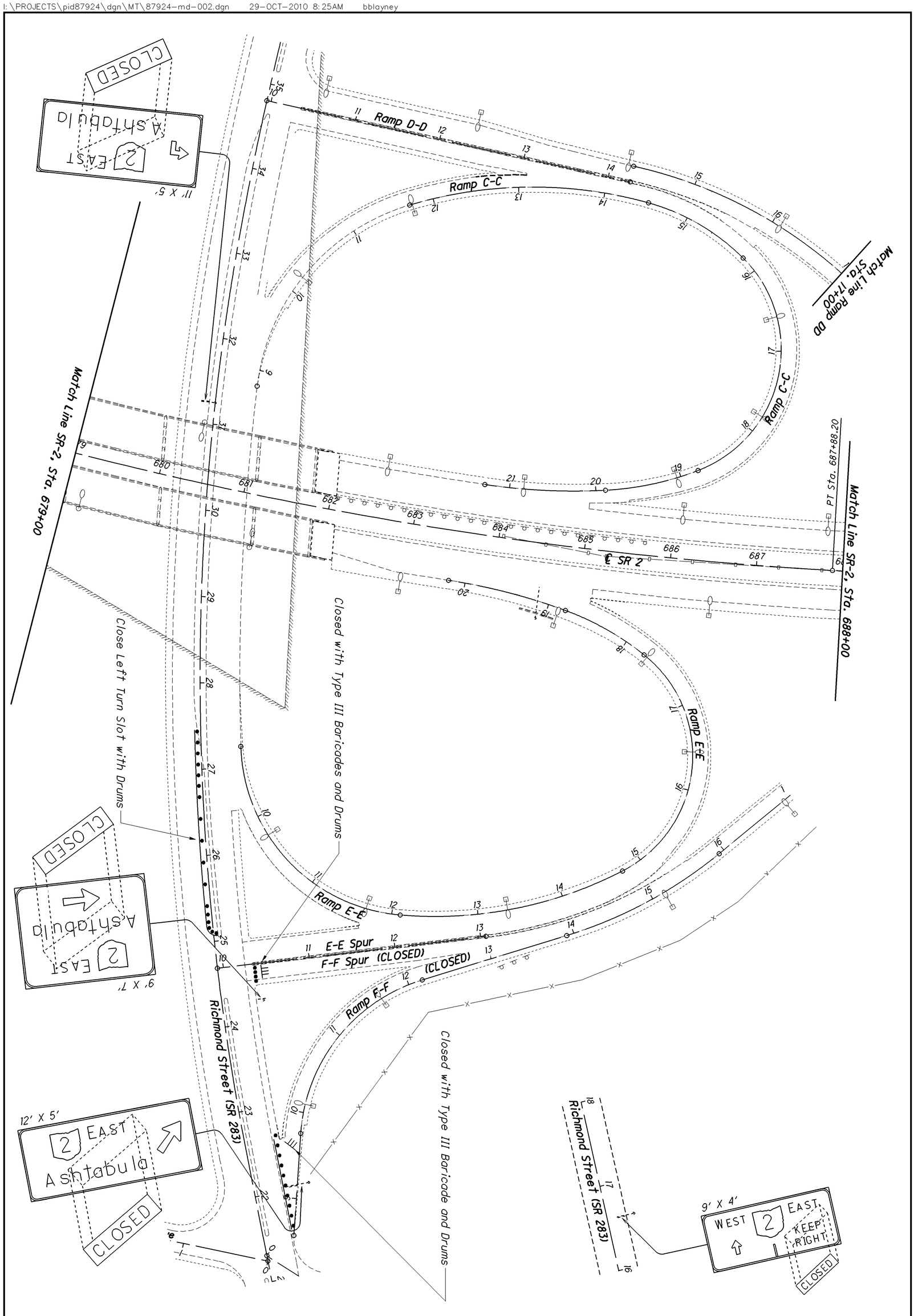
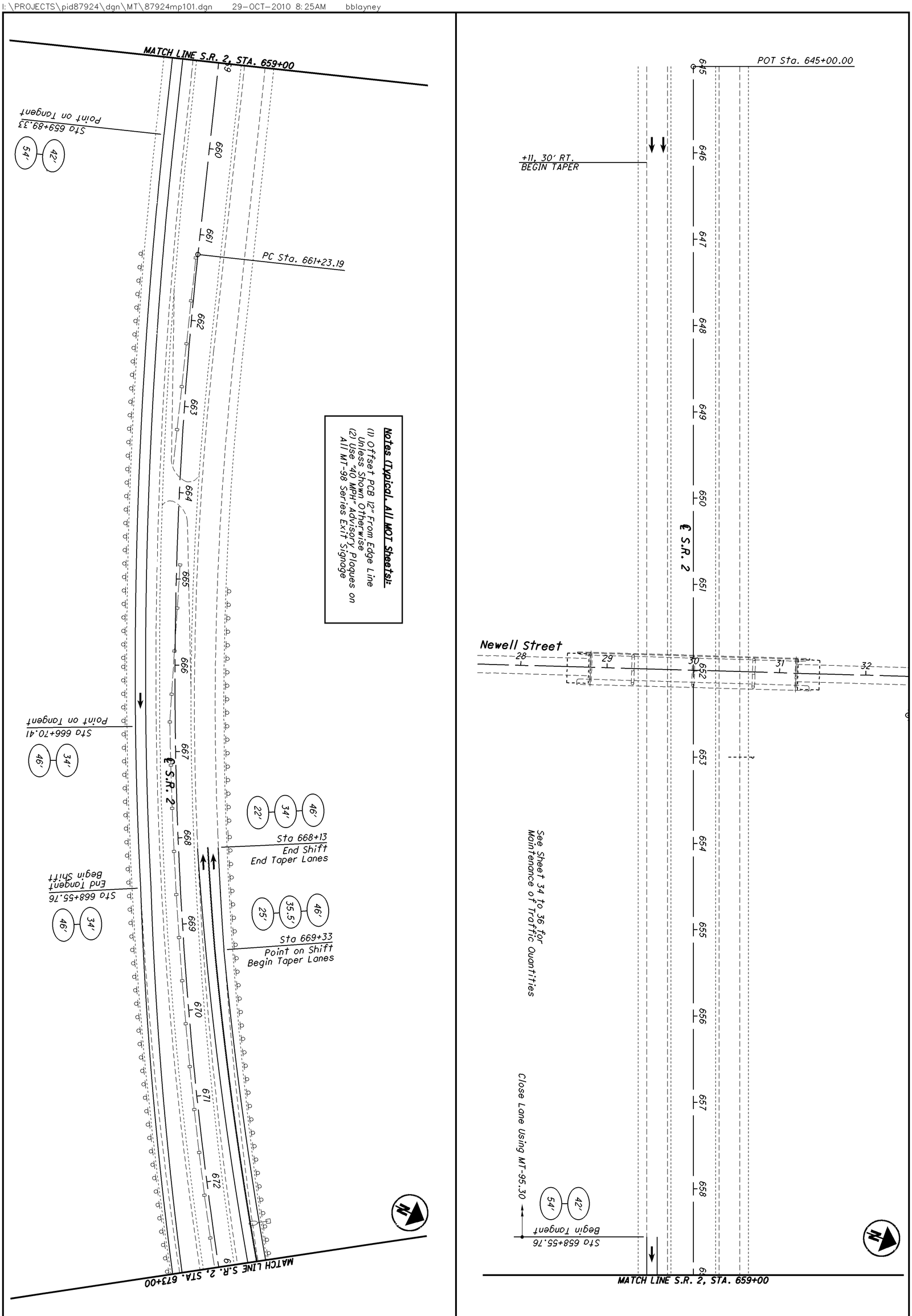


16 / 208	**LAK-2-14.38**	**Maintenance of Traffic** **Ramp F-F Closure Details**	CALCULATED EJK CHECKED BMB	0 50 25 100 HORIZONTAL SCALE IN FEET



17 / 208	LAK-2-14.38	MAINTENANCE OF TRAFFIC - PHASE 1 S.R. 2 STA. 645+00 TO STA. 673+00	CALCULATED / CHECKED	0 50 25 100 HORIZONTAL SCALE IN FEET

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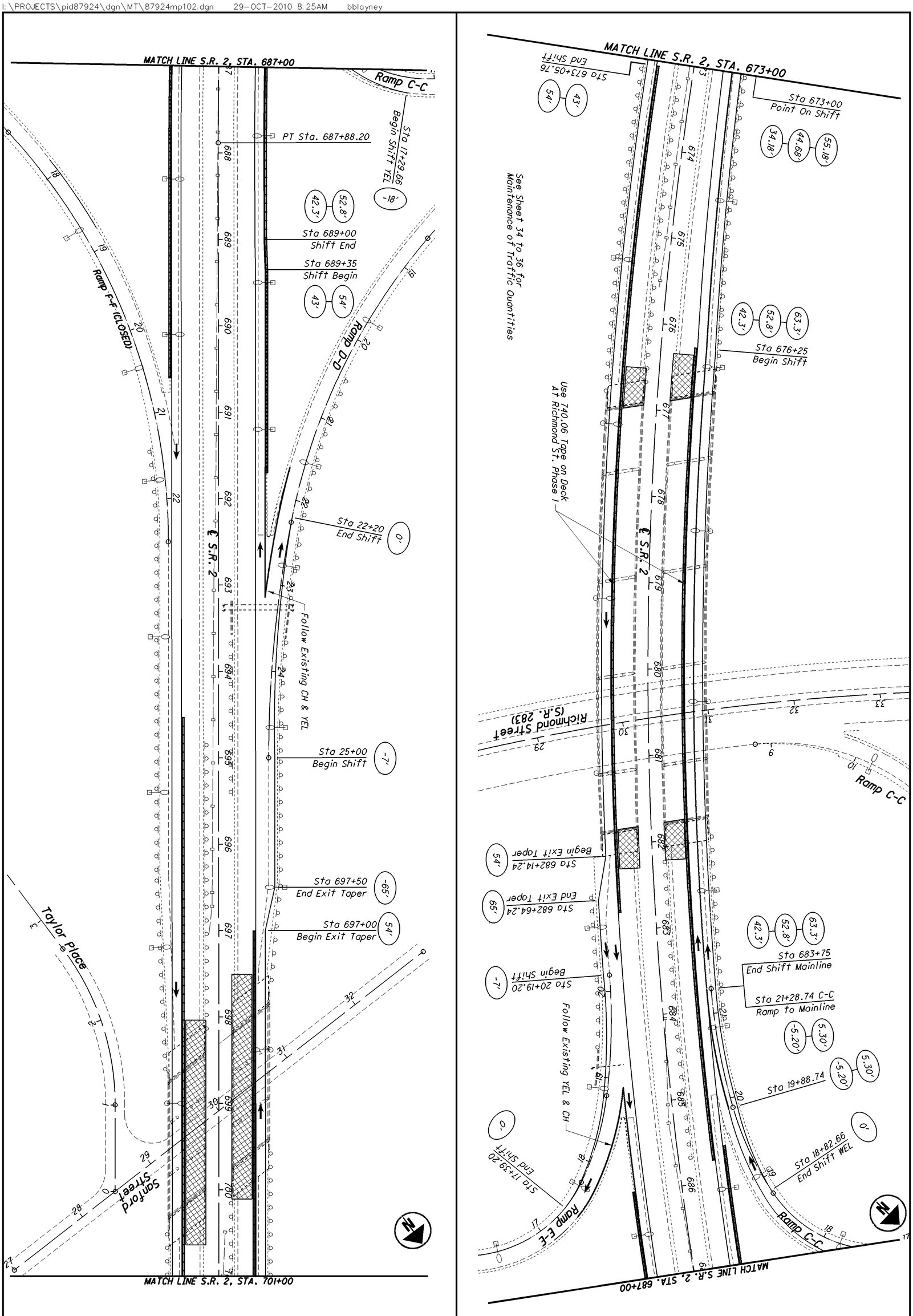

18 / 208	LAK-2-14.38	MAINTENANCE OF TRAFFIC - PHASE 1 S.R. 2 STA. 673+00 TO STA. 701+00	CALCULATED / CHECKED 0 50 25 100 HORIZONTAL SCALE IN FEET

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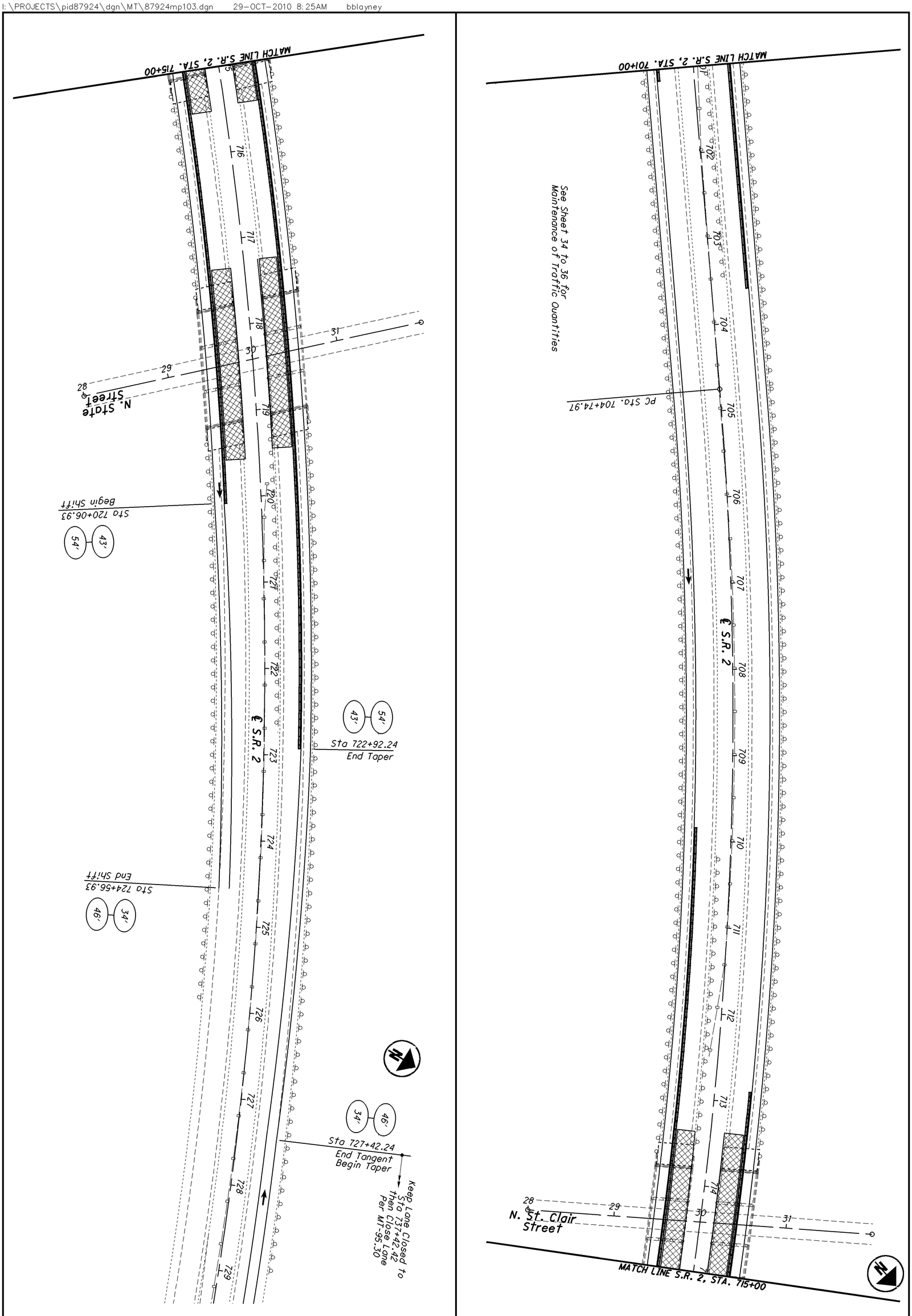
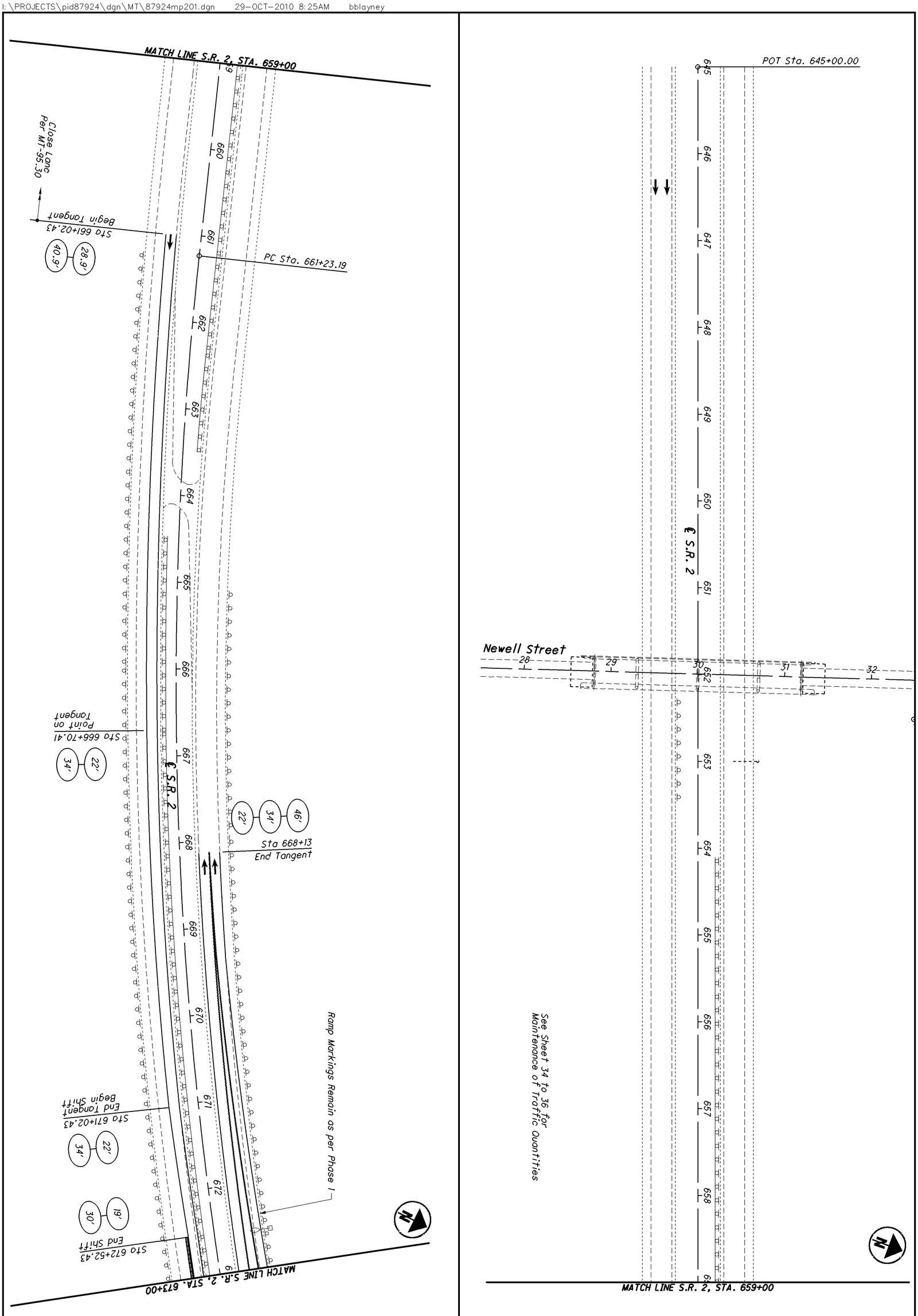
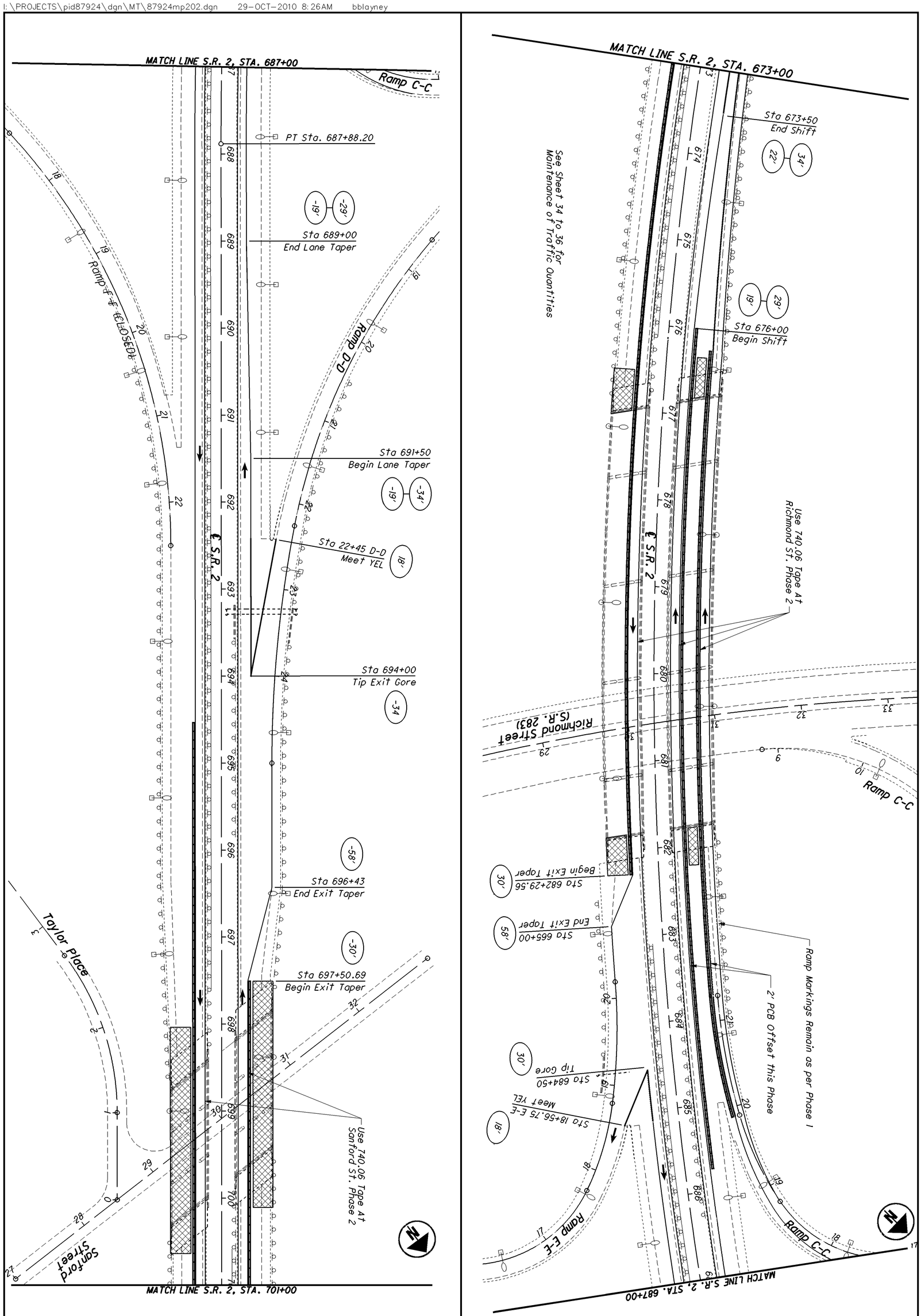


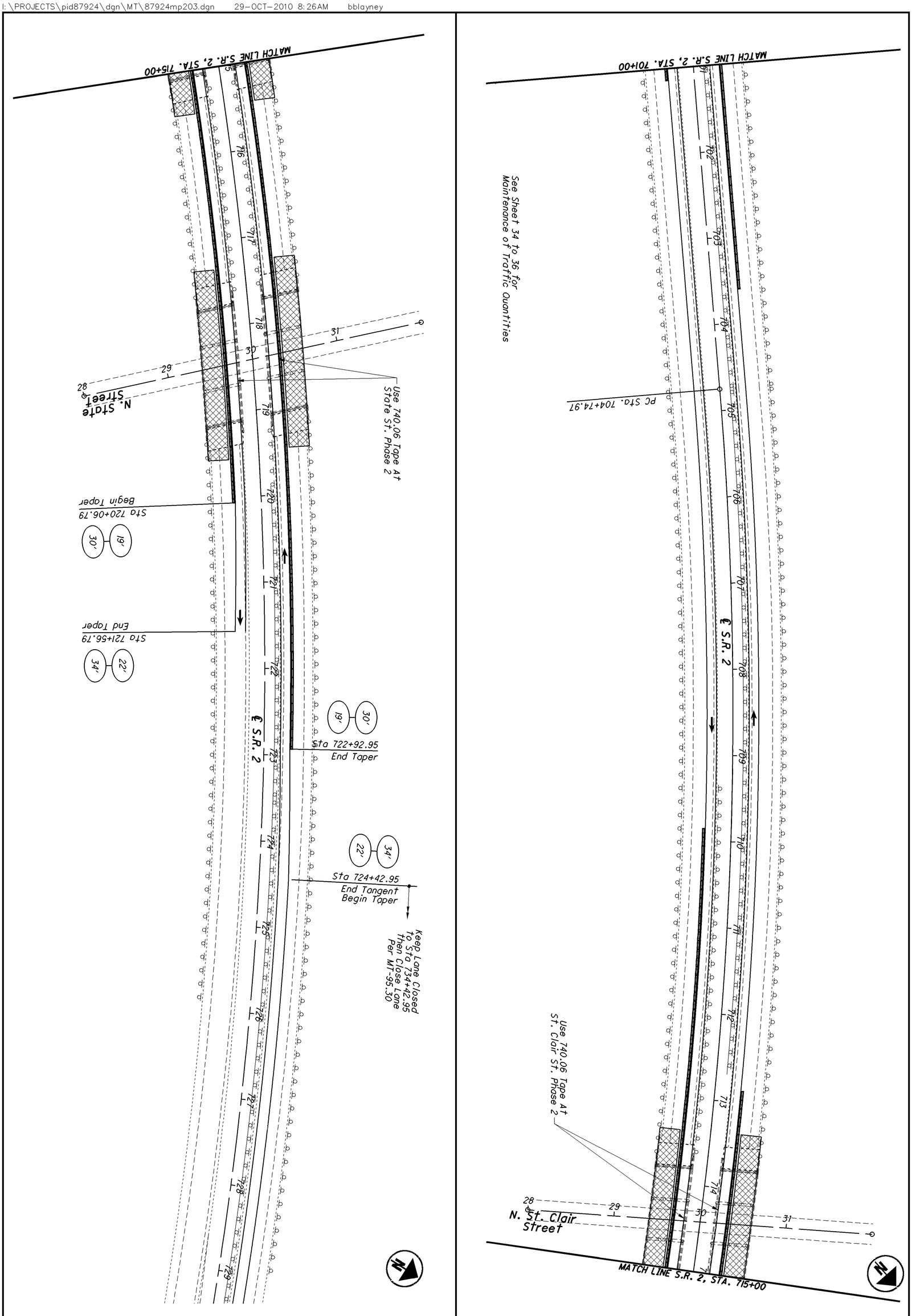
19 / 208	LAK-2-14.38	MAINTENANCE OF TRAFFIC - PHASE 1 S.R. 2 STA. 701+00 TO STA. 729+00	CALCULATED CHECKED	0 50 25 100 HORIZONTAL SCALE IN FEET



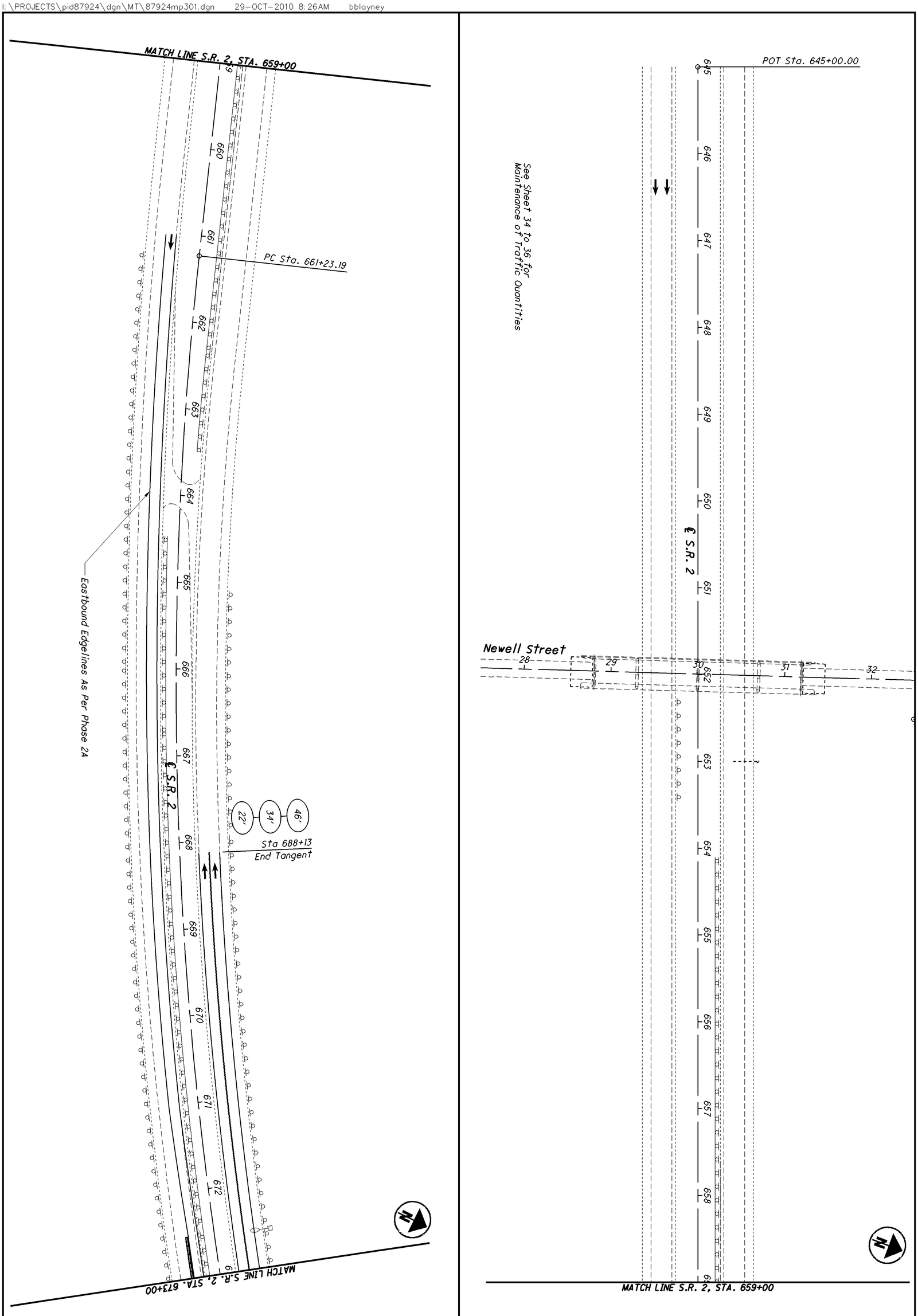
20 208	LAK-2-14.38	MAINTENANCE OF TRAFFIC - PHASE 2 (2A WB) S.R. 2 STA. 645+00 TO STA. 673+00	CALCULATED CHECKED 0 50 25 100 HORIZONTAL SCALE IN FEET



21 / 208	LAK-2-14.38	MAINTENANCE OF TRAFFIC - PHASE 2 (2A WB) S.R. 2 STA. 673+00 TO STA. 701+00	CALCULATED / CHECKED	0 50 25 100 HORIZONTAL SCALE IN FEET



22 / 208	LAK-2-14.38	MAINTENANCE OF TRAFFIC - PHASE 2 S.R. 2 STA. 701+00 TO STA. 729+00	CALCULATED / CHECKED	0 50 25 100 HORIZONTAL SCALE IN FEET



23 / 208	LAK-2-14.38	MAINTENANCE OF TRAFFIC - PHASE 2B S.R. 2 WB STA. 645+00 TO STA. 673+00	CALCULATED CHECKED 0 50 25 100 HORIZONTAL SCALE IN FEET

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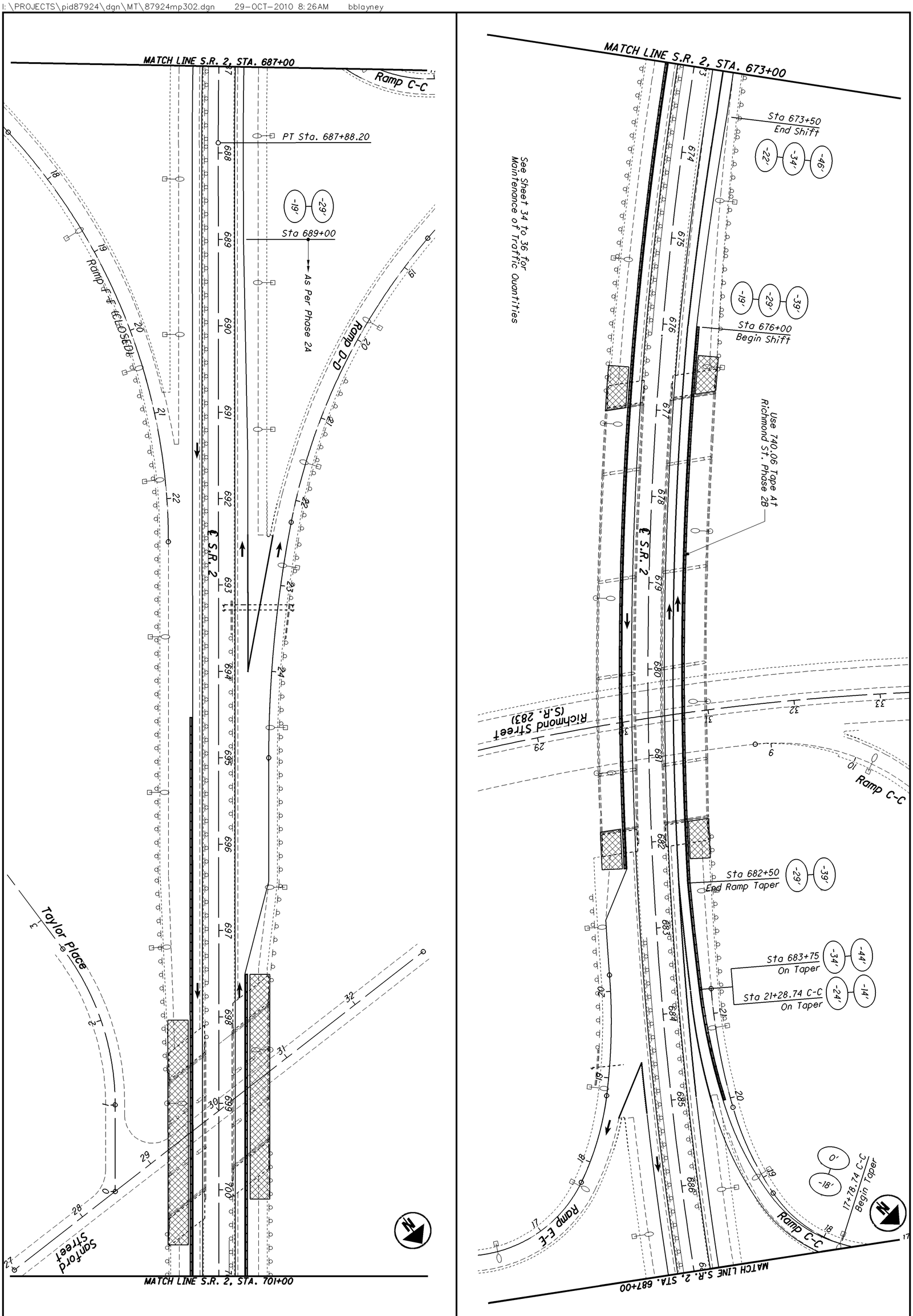

24 / 208	LAK-2-14.38	MAINTENANCE OF TRAFFIC - PHASE 2B S.R. 2 WB STA. 673+00 TO STA. 701+00	CALCULATED / CHECKED	0 50 25 100 HORIZONTAL SCALE IN FEET

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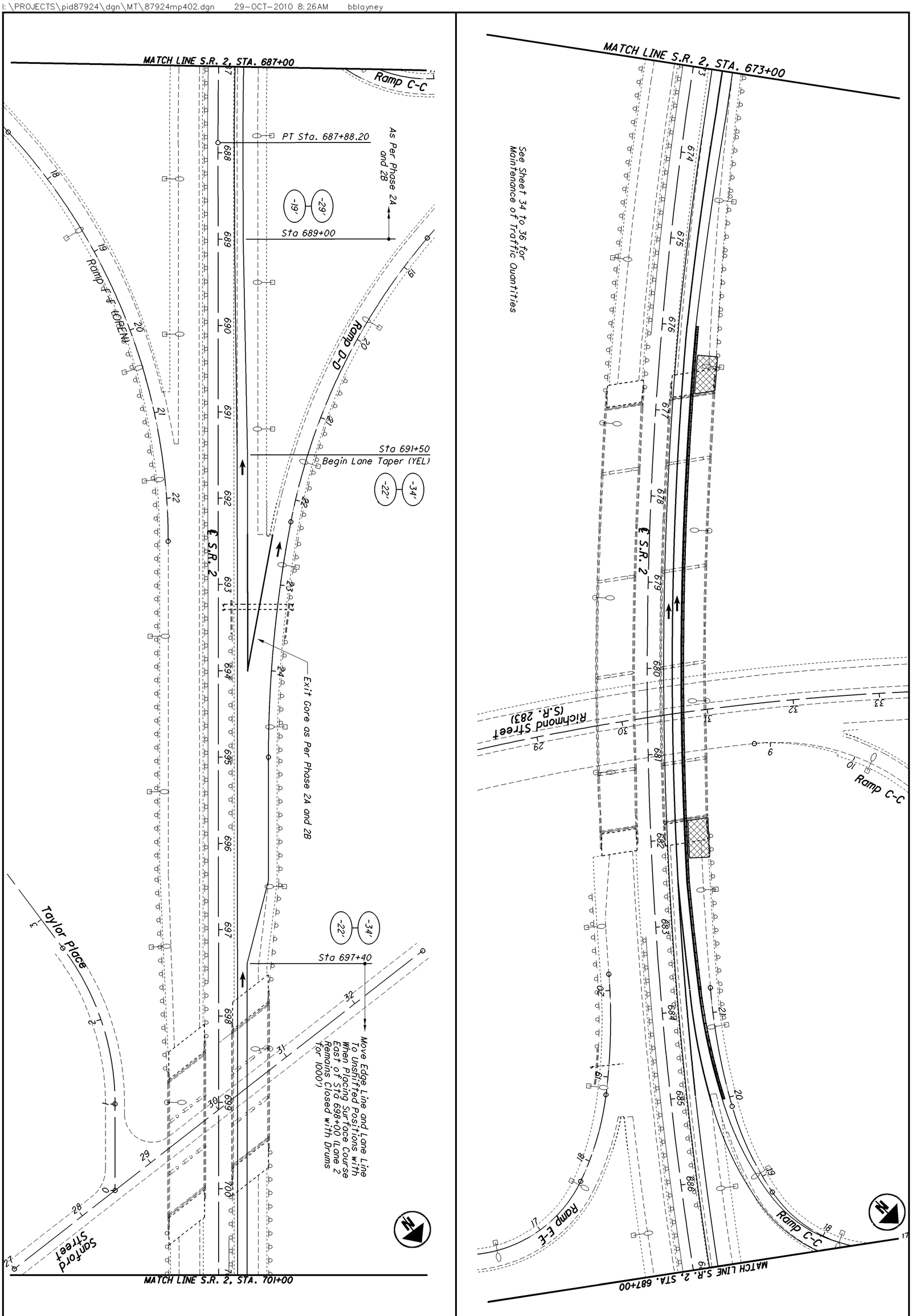

25 / 208	LAK-2-14.38	MAINTENANCE OF TRAFFIC - PHASE 2C S.R. 2 WB STA. 673+00 TO STA. 701+00	CALCULATED CHECKED 0 50 25 100 HORIZONTAL SCALE IN FEET

Item Special Maintain Existing Lighting

Existing roadways which are to remain open to traffic during construction of this project and which are lighted shall have the lighting maintained as described herein.

Before any work is started in the immediate vicinity of the existing lighting circuits, representatives of ODOT, the Maintaining Agency and the Contractor shall make a visual inspection of the existing roadway lighting circuits to be maintained. During this inspection, a written record of the condition of existing lighting shall be made by ODOT'S representative. This written report shall note individual luminaires which are not in working order, individual poles which are not standing, and individual circuits which are not in working order. The completed report shall be signed by the representatives of ODOT, the Maintaining Agency and the Contractor.

If, as a result of this inspection, it is determined that the condition of the existing system is below that required for the safety of the traveling public, then the Maintaining Agency shall make the repairs necessary to return the system to an acceptable condition. Following these repairs, the system shall again be inspected and a report shall be made and signed as outlined herein.

When the existing system is in an acceptable condition, it shall be turned over to the Contractor who shall then be required to maintain the existing lighting to the condition outlined in this report with the exception of knockdowns due to traffic accidents.

Replacement of knocked downed units shall be done only when the Engineer has determined that the replacement of the knocked down unit is necessary and shall be paid separately on a unit basis.

When the sequence of construction activities requires, the Contractor shall be responsible for providing temporary circuitry to maintain service to all existing lighting units.

Maintain service to existing lighting units by providing temporary circuitry. All materials necessary to provide temporary circuitry shall be furnished and installed by the Contractor. When no longer needed, the temporary circuitry shall be removed and disposed of by the Contractor.

The Maintaining Agency will pay for electrical energy consumed by existing power services.

The lump sum price bid for Item Special "Maintain Existing Lighting" shall include payment for all labor, equipment, materials and incidentals necessary to maintain the existing lighting as specified herein.

The unit price bid for Item Special "Replacement of Existing Lighting Unit" shall be full payment for the replacement of an existing lighting unit which has been knocked down after the aforementioned inspection and shall include all labor, equipment, materials and incidentals necessary to provide a replacement for such unit.

Item Special Maintain Existing Lighting	Lump Sum
Item Special Replacement of Existing Lighting Unit	1 Each

Proposed Lighting Items

Restore conduit and circuitry to existing lighting circuits impacted by proposed bridge work by replacing conduit to existing bridge service pullbox and replacing conductors between the bridge service pullbox and the nearest light pole. Use the following items of work:

Item 625 Connection, Fused Pull-Apart	6 Each
Item 625 Connection, Unfused Pull-Apart	6 Each
Item 625 Connection, Unfused Permanent	12 Each
Item 625 No. 4 5000V Distribution Cable	1480 Feet
Item 625 Conduit, 2", 725.04	100 Feet
Item 625 Trench, 24"	100 Feet
Item 625 Pullbox, 24", 725.08	6 Each

Item 625 Lighting, Misc.: Troubleshoot Damaged Circuit
Lighting Circuit Repair Items

When directed by the Engineer, troubleshoot designated circuits to find where damage has occurred. If repairs are made, re-test the circuit to verify the damage has been corrected. All testing and re-testing of circuits is incidental to this item.

When directed by the Engineer, make repairs to circuits using the following contingency quantities:

Item 625 Connection, Fused Pull-Apart	4 Each
Item 625 Connection, Unfused Pull-Apart	4 Each
Item 625 Connection, Unfused Permanent	8 Each
Item 625 1 ½" Duct Cable, No. 4 AWG, with Two 5000V Cables	1100 Feet
Item 625 Conduit, 2", 725.04	100 Feet
Item 625 Conduit, Jacked or Drilled, 3"	35 Feet
Item 625 Trench, 24"	1000 Feet
Item 625 Pullbox, 24", 725.08	4 Each
Item 625 Lighting, Misc.: Troubleshoot Damaged Circuit	5 Each

CALCULATED BMB CHECKED LDH

Lighting Notes

LAK-2-14.38

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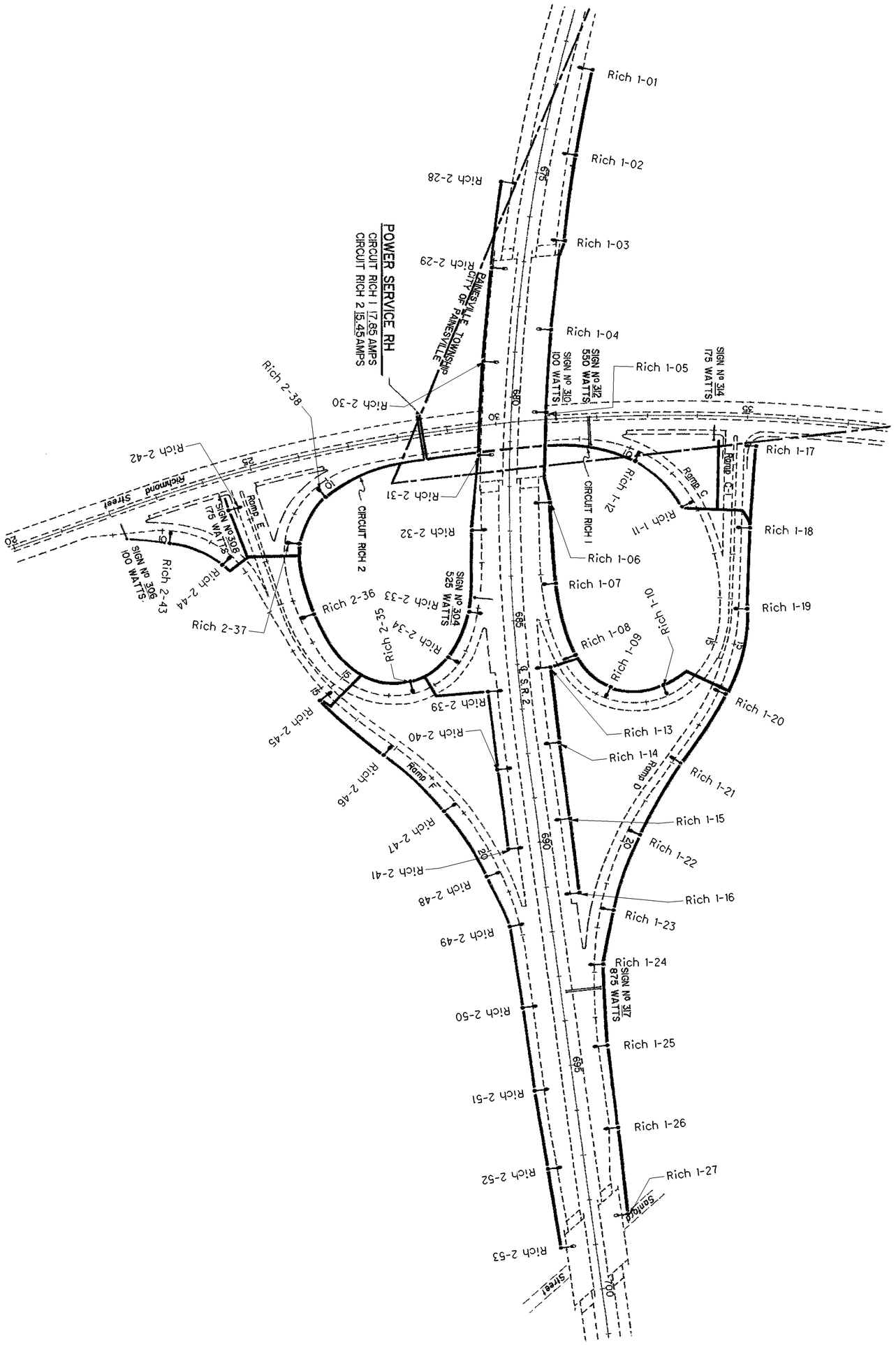

27 / 208	**Lak-2-14.38**	**Schematic Plan and Circuit Map** **S.R. 2 -Sta 672+00 to Sta 701+00**	CALCULATED SWC CHECKED	0 HORIZONTAL SCALE IN FEET

REF. NO.	SHEET NO.	STATION TO STATION		LENGTH	BEGIN WIDTH	ENDING WIDTH	AVERAGE WIDTH	AREA	254 Pavement Planing Asphalt Concrete, 2"	407 Tack Coat	442 2" Asphalt Concrete Intermediate Course, 19mm, Type A (446)	407 Tack Coat for Intermediate Course	442 1.5" Asphalt Concrete Surface Course, 12.5mm, Type A (446), As Per Plan			202 Wearing Course Removed	254 Pavement Planing, Asphalt Concrete (for Transitions)		
				Feet	Feet	Feet	Feet	Sq Yd	Sq Yd	Gallon	Cu Yd	Gallon	Cu Yd			Sq Yd	Sq Yd		
		SR-2 Eastbound																	
		657+25.00	676+52.63	1927.63	38.00	38.00	38.00	8,139	8,139	814	452	407	339				635		
		Suspend Bridge LAK-2-1476																	
		682+29.56	683+50.00	120.44	50.00	50.00	50.00	669	669	67	37	33	28				351		
		683+50.00	685+12.98	162.98	50.00	64.60	57.30	1,038	1,038	104	58	52	43						
		685+12.98	690+76.91	563.93	38.00	38.00	38.00	2,381	2,381	238	132	119	99						
		690+76.91	692+50.00	173.09	63.20	50.00	56.60	1,089	1,089	109	60	54	45						
		692+50.00	696+37.13	387.13	50.00	50.00	50.00	2,151	2,151	215	119	108	90						
		696+37.13	698+03.57	166.44	50.00	38.00	44.00	814	814	81	45	41	34				300		
		Suspend Bridge LAK-2-1512																	
		700+63.72	713+37.88	1274.16	38.00	38.00	38.00	5,380	5,380	538	299	269	224				526		
		Suspend Bridge LAK-2-1541																	
		715+50.40	717+34.09	183.69	38.00	38.00	38.00	776	776	78	43	39	32						
		Suspend Bridge LAK-2-1548																	
		719+56.45	771+67.70	5211.25	38.00	38.00	38.00	22,003	22,003	2,200	1,222	1,100	917				262		
		771+67.70	772+16.00	48.30	38.00	34.00	36.00	193	193	19	11	10	8				462		
		SR-2 Westbound																	
		771+91.42	771+24.17	67.25	34.00	38.00	36.00	269	269	27	15	13	11				481		
		771+24.17	719+45.07	5179.10	38.00	38.00	38.00	21,867	21,867	2,187	1,215	1,093	911			523	583		WCR under Elm
		Suspend Bridge LAK-2-1548																	
		717+26.38	715+44.85	181.53	38.00	38.00	38.00	766	766	77	43	38	32						
		Suspend Bridge LAK-2-1541																	
		713+36.42	700+10.84	1325.58	38.00	38.00	38.00	5,597	5,597	560	311	280	233				530		
		Suspend Bridge LAK-2-1512																	
		697+50.69	697+43.60	7.09	38.00	38.00	38.00	30	30	3	2	1	1				284		
		697+43.60	696+43.60	100.00	38.00	50.00	44.00	489	489	49	27	24	20						
		696+43.60	695+00.00	143.60	50.00	50.00	50.00	798	798	80	44	40	33						
		695+00.00	692+44.30	255.70	50.00	64.64	57.32	1,629	1,629	163	90	81	68						
		692+44.30	685+89.80	654.50	38.00	38.00	38.00	2,763	2,763	276	154	138	115						
		685+89.80	683+75.00	214.80	64.37	48.00	56.19	1,341	1,341	134	74	67	56						
		683+75.00	682+21.89	153.11	48.00	48.00	48.00	817	817	82	45	41	34				330		
		Suspend Bridge LAK-2-1476																	
		676+33.28	673+00.00	333.28	46.02	38.00	42.01	1555.68	1555.68	155.57	86.43	77.78	64.82				324		
		673+00.00	657+25.00	1575.00	38.00	38.00	38.00	6,650	6,650	665	369	333	277				369		
		TOTALS CARRIED TO SHEET 29:							89,203	8,920	4,956	4,460	3,717			523	5,435		

CALCULATED EJK
CHECKED BMB

Pavement Subsummary

LAK-2-14.38

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Pavement Subsummary

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CHECKED BMB

REF. NO.	SHEET NO.	STATION TO STATION		LENGTH	BEGIN WIDTH	ENDING WIDTH	AVERAGE WIDTH	AREA	254 Pavement Planing Asphalt Concrete, 2"	407 Tack Coat	442 2" Asphalt Concrete Intermediate Course, 19mm, Type A (446)	407 Tack Coat for Intermediate Course	442 1.5" Asphalt Concrete Surface Course, 12.5mm, Type A (446), As Per Plan			202 Wearing Course Removed	254 Pavement Planing, Asphalt Concrete (for Transitions)		
				Feet	Feet	Feet	Feet	Sq Yd	Sq Yd	Gallon	Cu Yd	Gallon	Cu Yd			Sq Yd	Sq Yd		
		Ramp C-C and Spur																	
		9+80.09	10+80.23	100.14	27.00	25.00	26.00	289	289	29	16	14	12				156		
		10+80.23	12+75.41	195.18	25.00	25.00	25.00	542	542	54	30	27	23						
		12+75.41	14+26.01	150.60	25.00	23.00	24.00	402	402	40	22	20	17						
		14+26.01	15+80.28	154.27	23.00	23.00	23.00	394	394	39	22	20	16						CADD Area
		15+80.28	18+76.74	296.46	27.00	27.00	27.00	889	889	89	49	44	37						
		18+76.74	19+20.37	43.63	27.00	24.77	25.89	125	125	13	7	6	5						
		10+35.05	12+72.26	237.21	23.00	23.00	23.00	606	606	61	34	30	25						
		12+72.26	13+90.69	118.43	23.00	0.00	11.50	151	151	15	8	8	6						
																			CADD Area
		Ramp D-D																	
		10+35.16	10+69.45	34.29	85.57	54.00	69.79	266	266	27	15	13	11				326		
		10+69.45	12+45.00	175.55	54.00	54.00	54.00	1,053	1,053	105	59	53	44						
		12+45.00	13+25.00	80.00	54.00	36.36	45.18	402	402	40	22	20	17						
		13+25.00	14+26.01	101.01	36.36	23.00	29.68	333	333	33	19	17	14						
		14+26.01	16+00.00	173.99	23.00	25.00	24.00	464	464	46	26	23	19						
		16+00.00	20+45.00	445.00	25.00	25.00	25.00	1,236	1,236	124	69	62	52						
		20+45.00	22+45.00	200.00	25.00	31.00	28.00	622	622	62	35	31	26						
		22+45.00	22+47.00	2.00	31.00	31.00	31.00	7	7	1	0	0	0						
		Ramp E-E and E-E Spur																	
		9+84.12	11+67.84	183.72	20.00	24.00	22.00	449	449	45	25	22	19				278		
		11+67.84	13+06.37	138.53	24.00	30.00	27.00	416	416	42	23	21	17						
		13+06.37	16+56.75	350.38	30.00	27.00	28.50	1,110	1,110	111	62	55	46						
		16+56.75	18+56.75	200.00	27.00	31.00	29.00	644	644	64	36	32	27						
		18+56.75	18+58.61	1.86	31.00	32.70	31.85	7	7	1	0	0	0						
		10+33.34	10+38.34	5.00	32.50	28.00	30.25	17	17	2	1	1	1						
		10+38.34	11+62.71	124.37	28.00	28.00	28.00	387	387	39	21	19	16						
		11+62.71	13+06.37	143.66	28.00	0.00	14.00	223	223	22	12	11	9						
		Ramp F-F and Spur																	
		9+67.05	12+08.62	241.57	25.00	25.00	25.00	671	671	67	37	34	28				279		
		12+08.62	12+98.78	90.16	25.00	31.50	28.25	283	283	28	16	14	12						
		12+98.78	14+51.48	152.70	31.50	23.00	27.25	462	462	46	26	23	19						
		14+51.78	15+57.71	105.93	23.00	23.00	23.00	271	271	27	15	14	11						
		15+57.71	20+79.09	521.38	25.00	25.00	25.00	1,448	1,448	145	80	72	60						
		10+93.19	10+99.25	6.06	30.00	23.00	26.50	18	18	2	1	1	1						
		10+99.25	12+08.62	109.37	23.00	23.00	23.00	280	280	28	16	14	12						
		12+08.62	13+06.37	97.75	23.00	0.00	11.50	125	125	12	7	6	5						
		SR 2 Median Crossovers																	
XO-1	41	664+00.00						392	392	39	22	20	16						
XO-2	47	731+00.00						366	366	37	20	18	15						
XO-3	50	759+27.00						356	356	36	20	18	15						
			Subtotals, This Sheet:						15,707	1,571	873	785	654			0	1,039		
			Subtotals, Sheet 28:						89,203	8,920	4,956	4,460	3,717			523	5,435		
TOTALS CARRIED TO GENERAL SUMMARY:									104,909	10,491	5,828	5,245	4,371			523	6,474		

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REF. NO.	SHEET NO.	STATION TO STATION	LENGTH	WIDTH	AREA	607		202	203	203	304	451	605	301	659	659	Spec	601	603	605
						Fence Removed and Rebuilt		Pavement Removed	Excavation	Embankment	6" Aggregate Base	12" Reinforced Concrete Pavement, As Per Plan	Precast Reinforced Concrete Pipe Outlet	Asphalt Concrete Base, PG64-22	Seeding and Mulching, As Per Plan	Topsoil	Pressure Relief Joint, Type A	Crushed Aggregate Slope Protection	6" Shallow Pipe Underdrain, 707.32 Type CP or 707.41	6" Conduit, Type F
			Feet	Feet	Sq Yd	Feet		Sq Yd	Cu Yd	Cu Yd	Cu Yd	Sq Yd	Feet	Cu Yd	Sq Yd	Cu Yd	Feet	Sq Yd	Feet	Feet
XO-3	50	Sta 759+27			551				214		92			122						
XO-4	50	Sta 768+00			551				214	214					551	61				
		LAK-2-1496 R Rear				10		49	29		15	93	1				39.0		39	10
		LAK-2-1496 R Forward				10		54	33		17	104	1				40.0		40	10
		LAK-2-1496 L Rear				10		80	30		20	118	1				49.5		50	10
		LAK-2-1496 L Forward				10		71	28		18	107	1				48.5		49	10
		LAK-2-1496 Approach Slabs			424				71		71									
		LAK-2-1517 R Rear				10		72	41		24	145	1				51.5		52	10
		LAK-2-1517 R Forward				10		45	31		18	109	1				48.5		49	10
		LAK-2-1517 L Rear				10		52	31		18	109	1				48.5		49	10
		LAK-2-1517 L Forward				10		45	41		21	129	1				48.5		49	10
		LAK-2-1517 Approach Slabs			390				65		65									
		LAK-2-1546 R Rear				10		44	25		13	80	1				38.0		38	10
		LAK-2-1546 R Forward				10		44	25		13	81	1				38.0		38	10
		LAK-2-1546 L Rear				10		44	23		13	76	1				38.0		38	10
		LAK-2-1546 L Forward				10		44	25		14	83	1				38.0		38	10
		LAK-2-1546 Approach Slabs			390				65		65									
		LAK-2-1553 R Rear				10		46	26		14	86	1				38.5		39	10
		LAK-2-1553 R Forward				10		46	25		14	84	1				38.5		39	10
		LAK-2-1553 L Rear				10		46	25		14	82	1				38.5		39	10
		LAK-2-1553 L Forward				10		46	27		15	88	1				38.5		39	10
		LAK-2-1553 Approach Slabs			390				65		65									
		Item 518 Pipe Outlets, All 8 Structures																22		
TOTALS CARRIED TO GENERAL SUMMARY						160		828	1,159	214	619	1,574	16	122	551	61	680	22	680	160

CALCULATED BMB
CHECKED SWC

Subsummary, Miscellaneous

LAK-2-14.38

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REF. NO.	SHEET NO.	STATION TO STATION	LENGTH	WIDTH	AREA	202 Concrete Median Removed	202 Curb Removed, As Per Plan	202 Inlet Removed	203 Excavation	203 Embankment	304 6" Aggregate Base				609 Curb, Type 6	609 8" Concrete Median	604 Catch Basin Adjusted to Grade	604 Manhole Adjusted to Grade	604 Catch Basin No. 3	
			Feet	Feet	Sq Yd	Sq Yd	Feet	Each	Cu Yd	Cu Yd	Cu Yd				Feet	Sq Yd	Each	Each	Each	
D-1																		1		
D-2																		1		
D-3																	1			
D-4																	1			
D-5																	1			
D-6								1											1	
D-7								1											1	
C-1		Sta 685+12.98			40	40	213		22	15	7				213	40				
C-2		Sta 28+68.54			129	129	1043		28	6	22				1043	129				
C-3		Sta 692+44.30			29	29	207		19	14	5				207	29				
C-4		Sta 34+80.29			135	135	1114		34	11	23				1114	135				
TOTALS CARRIED TO GENERAL SUMMARY						333	2,577	2	102	46	56				2,577	333	3	2	2	

CALCULATED BMB
CHECKED SWC

Subsummary, Miscellaneous

LAK-2-14.38

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Barrier Subsummary

CALCULATED BMB
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MARK	SHEET NO.	STATION TO STATION		DIRECTION	SIDE	202	209		448	606									626
						Guardrail Removed	Linear Grading, Method B	Linear Grading, Method C	Asphalt Concrete Intermediate Course, Type 1, Under Guardrail, PG64-22	Guardrail, Type 5	Guardrail, Type 5 MR		Anchor Assembly, Type E	Anchor Assembly, Type T	Bridge Terminal Assembly, Type BR-1	Bridge Terminal Assembly, Type 1	Bridge Terminal Assembly, Type 2	Impact Attenuator, Type 1 (Bidirectional)			Barrier Reflector, Type A
						Feet	Station	Station	Cu Yd	Feet	Feet		Each	Each	Each	Each	Each	Each			Each
		SR 2 Eastbound																			
G-1		652+27.00	653+52.00	EB	In	12.5	0.18	0.95	4.4	112.5				1							
G-2		661+25.00	676+85.00	EB	Out	1106.25	11.11	4.20	56.9	1531.25			1				1				
G-3		664+48.00	676+75.00	EB	In	356.25	3.61	9.20	47.6	68.75	1162.5						1		1		
G-4		682+56.00	684+34.00	EB	Out	143.75	1.49	0.00	5.7	131.25			1		1						
G-5		11+62.50	698+64.00	EB	Out	1556.25	15.61	0.82	61.1	1643.75			1				1				
G-6		683+10.00	698+29.00	EB	In	356.25	3.61	11.58	56.4	68.75	1400						1		1		
G-7		700+47.00	713+68.00	EB	Out	1310	13.15	0.00	48.9	1310							1	1			
G-8		709+34.00	713+67.00	EB	In	356.25	3.61	0.20	14.3	381.25			1				1				
G-9		715+19.00	717+62.00	EB	In	242	2.47	0.00	9.3	242							1	1			
G-10		715+22.00	717+67.00	EB	Out	242	2.47	0.00	9.3	242							1	1			
G-11		719+33.00	725+91.00	EB	Out	650	6.55	0.00	24.4	637.5				1				1			
G-12		731+56.00	741+59.50	EB	In	412.5	4.18	5.70	36.8	100	837.5			1					1		
G-13		738+92.00	741+94.00	EB	Out	250	2.55	6.08	32.1	237.5			1	1							
G-14		759+78.00	772+09.00	EB	In	231.25	2.36	9.95	45.8	68.75	1112.5				1				1		
G-15		767+92.00	772+23.00	EB	Out	431.25	4.36	0.00	16.3	362.5			1		1						
		SR 2 Westbound																			
G-20		769+22.00	771+85.00	WB	Out	262.5	2.68	0.00	10.1	250				1				1			
G-21		740+48.00	758+72.00	WB	In	350	3.55	14.58	67.3	100	1662.5			1					1		
G-22		740+90.00	743+34.00	WB	Out	237.5	2.43	0.00	9.2	193.75			1				1				
G-23		719+20.00	730+49.00	WB	In	356.25	3.61	7.70	42.1	68.75	1012.5						1		1		
G-24		719+13.00	729+00.00	WB	Out	993.75	9.99	0.00	37.2	956.25			1				1				
G-25		715+16.00	717+58.00	WB	In	242	2.47	0.00	9.3	242							1	1			
G-26		715+13.00	717+52.00	WB	Out	242	2.47	0.00	9.3	242							1	1			
G-27		699+53.00	713+63.00	WB	Out	1421	14.26	0.00	53.0	1421							1	1			
G-28		699+89.00	712+69.00	WB	In	356.25	3.61	9.20	47.6	68.75	1162.5						1		1		
G-29		693+52.00	697+71.00	WB	Out	409	4.14	0.00	15.5	409					1			1			
G-30		693+57.00	695+88.00	WB	In	193.75	1.99	0.00	7.5	181.25			1		1						
G-31		19+39.00	23+20.00	WB	Out	375	3.80	0.00	14.3	362.5				1				1			
G-32		681+98.00	686+31.00	WB	In	368.75	3.74	0.08	14.3	381.25			1				1				
G-33		681+92.00	684+14.00	WB	Out	218.75	2.24	0.00	8.5	168.75			1				1				
G-34		665+08.00	676+56.00	WB	Out	1125	11.30	0.00	42.0	1112.5				1				1			
G-35		654+10.00	663+49.00	WB	In	62.5	0.68	8.70	34.9	887.5									1		
		All Locations																			225
TOTALS CARRIED TO GENERAL SUMMARY						14,871	150	89	892	14,183	8,350		11	8	5	17	11	8			225

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LAK-2-14.38

MARK	SHEET NO.	STATION TO STATION		DIRECTION	SIDE	202		609	622			626		606		202	202	202	202	202	
						Removal, Misc.: Cable Rail		Curb, Type 4-C	Concrete Barrier, Type D	Concrete Barrier End Section, Type D, Reinforced	Concrete Barrier End Anchor, Reinforced Type D	Barrier Reflector, Type B		Guardrail, Misc.: Shim Plates		Removal, Misc.: Type 5 Panels Removed for Storage	Removal, Misc.: Steel Posts Removed for Storage	Removal, Misc.: Blockouts Removed for Storage	Removal, Misc.: Type E Anchor Assembly Removed for Storage	Removal, Misc.: Cable Rail Posts Removed for Storage	
						Feet		Feet	Feet	Each	Each			Each		Feet	Each	Each	Each	Each	
G-22		740+35.00	740+91.00	WB	Out			20	27	1	1										
		All Locations (Including Bridge Parapets)										50									
		Project-Wide												20		4500	200	200	14	600	
G-50		653+17.00	663+68.00			1051															
G-51		664+82.00	675+58.00			1076															
G-52		684+04.00	692+34.00			830															
G-53		692+55.00	697+04.00			449															
G-54		700+48.00	712+50.00			1202															
G-55		719+85.00	730+48.00			1063															
G-56		731+36.00	740+48.00			912															
G-57		741+51.00	746+47.00			496															
G-58		745+53.00	768+47.00			2294															
G-2								20													
G-3								20													
G-4								20													
G-5								20													
G-6								20													
G-7								20													
G-8								20													
G-9								20													
G-10								20													
G-27								20													
G-28								20													
G-32								20													
G-33								20													
G-23								20													
G-24								20													
G-25								20													
G-26								20													
TOTALS CARRIED TO GENERAL SUMMARY						9,373		360	27	1	1	50		20		4,500	200	200	14	600	

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Barrier Subsummary

LAK-2-14.38

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STATION		LENGTH	BEGIN WIDTH	ENDING WIDTH	AVERAGE WIDTH	AREA	LOCATION		615 Pavement for Maintaining Traffic, Class A, As Per Plan	
FROM	TO	Feet	Feet	Feet	Feet	Sq Yd			Cu Yds	
SR-2 Eastbound										
671+02	676+68	566	4.00	4.00	4.00	251	Inside		56	
Suspend Bridge LAK-2-1476										
682+11	698+14	1,603	4.00	4.00	4.00	712	Inside		158	
Suspend Bridge LAK-2-1512										
700+38	713+54	1,316	4.00	4.00	4.00	585	Inside		130	
Suspend Bridge LAK-2-1541										
715+32	717+50	218	4.00	4.00	4.00	97	Inside		22	
Suspend Bridge LAK-2-1548										
719+39	721+57	218	4.00	4.00	4.00	97	Inside		22	
668+56	676+73	817	10.00	10.00	10.00	908	Outside		202	
Suspend Bridge LAK-2-1476										
682+13	682+87	74	19.20	10.00	14.60	120	Outside		27	
682+87	683+50	63	10.00	10.00	10.00	70	Outside		16	
20+19	18+57	162	10.00	10.00	10.00	180	Outside		40	
18+57	17+39	118	10.00	7.64	8.82	115	Outside		26	
685+15	691+09	594	10.00	10.00	10.00	660	Outside		147	
691+09	691+37	28	10.00	5.00	7.50	23	Outside		5	
692+50	698+37	587	10.00	10.00	10.00	652	Outside		145	
Suspend Bridge LAK-2-1512										
700+56	713+55	1,299	10.00	10.00	10.00	1,443	Outside		321	
Suspend Bridge LAK-2-1541										
715+34	717+53	219	10.00	10.00	10.00	243	Outside		54	
Suspend Bridge LAK-2-1548										
719+43	724+57	514	10.00	10.00	10.00	571	Outside		127	
SUBTOTAL, THIS SIDE:									1,495	

STATION		LENGTH	BEGIN WIDTH	ENDING WIDTH	AVERAGE WIDTH	AREA	LOCATION		615 Pavement for Maintaining Traffic, Class A, As Per Plan	
FROM	TO	Feet	Feet	Feet	Feet	Sq Yd			Cu Yds	
SR-2 Westbound										
724+43	719+32	511	4.00	4.00	4.00	227	Inside		50	
Suspend Bridge LAK-2-1548										
717+45	715+29	216	4.00	4.00	4.00	96	Inside		21	
Suspend Bridge LAK-2-1541										
713+52	700+03	1349	4.00	4.00	4.00	600	Inside		133	
Suspend Bridge LAK-2-1512										
697+80	682+06	1574	4.00	4.00	4.00	700	Inside		155	
Suspend Bridge LAK-2-1476										
676+58	674+50	208	4.00	4.00	4.00	92.34	Inside		21	
727+42	719+28	814	10.00	10.00	10.00	904	Outside		201	
Suspend Bridge LAK-2-1548										
717+42	715+27	215	10.00	10.00	10.00	239	Outside		53	
Suspend Bridge LAK-2-1541										
713+51	699+85	1367	10.00	10.00	10.00	1,519	Outside		337	
Suspend Bridge LAK-2-1512										
697+61	695+00	261	10.00	10.00	10.00	290	Outside		64	
25+00	22+45	255	10.00	10.00	10.00	283	Outside		63	
22+45	22+20	25	10.00	9.49	9.75	27	Outside		6	
692+42	685+27	716	10.00	10.00	10.00	795	Outside		177	
685+27	684+99	27	10.00	7.00	8.50	26	Outside		6	
18+83	21+29	246	8.00	8.00	8.00	219	Right		49	
18+50	19+50	100	3.00	8.00	5.50	61	Left		14	
19+50	19+81	31	8.00	0.00	4.00	13.78	Left		3	
683+75	682+02	173	8.00	8.00	8.00	154	Outside		34	
Suspend Bridge LAK-2-1476										
676+50	673+00	350	6.00	10.00	8.00	311.11	Outside		69	
673+00	669+33	367	10.00	10.00	10.00	408	Outside		91	
SUBTOTAL, THIS SIDE:									1,548	
SUBTOTAL, LEFT SIDE:									1,495	
TOTALS CARRIED TO GENERAL SUMMARY:									3,043	

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Shoulder Replacement Subsummary

LAK-2-14.38

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REF. NO.	SHEET NO.	STATION TO STATION		LENGTH	614												622	622		614	614
					Work Zone Impact Attenuator (Unidirectional)	Work Zone Edge Line, White	Work Zone Edge Line, Yellow	Work Zone Channelizing Line	Work Zone Lane Line	Work Zone Stop Bar	Work Zone Lane Arrow		Work Zone Edge Line, 740.06, Type 1, White	Work Zone Edge Line, 740.06, Type 1, Yellow	Work Zone Channelizing Line, 740.06, Type 1		Portable Concrete Barrier, 32"	Portable Concrete Barrier, 32", Bridge Mounted		Barrier Reflector, Type B	Object Marker, One-Way
				Feet	Each	Mile	Mile	Feet	Mile	Feet	Each		Feet	Feet	Feet		Feet	Feet		Each	Each
		SR-2 Eastbound - Phase 1																			
		651+35.76	658+55.76	720			720		720												
		658+55.76	684+79.92	2,624		2,134	2,134						490	490							
		684+79.92	686+79.92	200			200	400													
		686+79.92	724+56.93	3,777		3,777	3,777														
		673+05.00	682+79.00	974	1												820	120		20	20
		686+00.00	690+60.00	460	1												420			9	9
		694+53.00	701+13.00	660	1												500	120		13	13
		709+85.00	720+07.00	1,022	1												750	240		21	21
		Mainline Short-Term Work Areas (2 Applications)																			
		657+25.00	658+55.76	131			262		262												
		724+56.93	772+00.00	4,743			9,486		9,486												
		Ramp E-E (2 Applications)		900		1,800	1,800			60	12										
		SR-2 Westbound - Phase 1																			
		737+42.24	693+14.00	4,428		4,428	4,428														
		693+14.00	691+14.00	200			200	400													
		691+14.00	685+75.00	539		539	539														
		685+75.00	683+75.00	200			200	200													
		17+29.66	19+88.74	259		259	259														
		19+88.74	21+28.74	140		140		140													
		683+75.00	668+13.00	1,562		1,072	1,072	1,072					490	490	490						
		722+92.00	712+87.00	1,005	1												730	240		20	20
		703+61.00	697+00.00	661	1												510	120		14	14
		691+70.00	685+60.00	610	1												570			12	12
		685+75.00	676+25.00	950	1												790	120		19	19
		Mainline Short-Term Work Areas (2 Applications)																			
		772+00.00	737+42.24	3,458			6,916		6,916												
		SR-2 Eastbound - Phase 2																			
		661+02.43	684+53.73	2,351		1,771	1,771						580	580							
		684+53.73	682+53.73	200			200	400													
		682+53.73	721+56.79	3,903		3,213	3,213						690	690							
		672+52.00	682+30.00	978	1												820	120		20	20
		694+54.00	701+14.00	660	1												500	120		13	13
		709+85.00	720+07.00	1,022	1												750	240		21	21
		Mainline Short-Term Work Areas (2 Applications)																			
		657+25.00	661+02.43	377		755			755												
		720+07.00	772+00.00	5,193		10,386			10,386												
SUBTOTALS					11	30,275	37,177	2,612	28,524	60	12		2,250	2,250	490		7,160	1,440		183	183
TOTALS CARRIED TO SHEET 36					11	12.77		2,612	5.40	60	12		0.85		490		7,160	1,440		183	183

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Maintenance of Traffic Subsummary

LAK-2-14.38

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REF. NO.	SHEET NO.	STATION TO STATION		LENGTH	614												622	622		614	614
					Work Zone Impact Attenuator (Unidirectional)	Work Zone Edge Line, White	Work Zone Edge Line, Yellow	Work Zone Channelizing Line	Work Zone Lane Line	Work Zone Stop Bar	Work Zone Lane Arrow		Work Zone Edge Line, 740.06, Type 1, White	Work Zone Edge Line, 740.06, Type 1, Yellow	Work Zone Channelizing Line, 740.06, Type 1		Portable Concrete Barrier, 32"	Portable Concrete Barrier, 32", Bridge Mounted		Barrier Reflector, Type B	Object Marker, One Way
				Feet	Each	Mile	Mile	Feet	Mile	Feet	Each		Feet	Feet	Feet		Feet	Feet		Each	Each
		SR-2 Westbound - Phase 2 and 2A																			
		734+42.95	*694+00.00*	*4,043*		*3,353*	*3,353*						*690*	*690*							
		694+00.00	*692+00.00*	*200*			*200*	*400*													
		692+00.00	*673+50.00*	*1,850*		*1,270*	*1,270*						*580*	*580*							
		673+50.00	*668+13.00*	*537*		*1,074*	*1,074*														
		722+92.00	*712+87.00*	*1,005*	*1*												*730*	*240*		*20*	*20*
		703+61.00	*697+50.00*	*611*	*1*												*460*	*120*		*13*	*13*
		19+89.00	*676+00.00*	*916*	*1*												*760*	*120*		*19*	*19*
		685+75.00	*676+25.00*	*950*	*1*												*790*	*120*		*19*	*19*
		Mainline Short-Term Work Areas (2 Applications)																			
		772+00.00	*734+42.95*	*3,757*			*7,514*		*7,514*												
		SR-2 Westbound - Phase 2B																			
		17+78.74	*20+00.00*	*221*		*221*	*221*														
		20+00.00	*21+28.74*	*129*		*129*		*129*													
		683+75.00	*668+13.00*	*1,562*		*402*		*402*					*1,160*		*1,160*						
		20+00.00	*21+28.74*	*129*	*1*												*90*			*3*	*3*
		683+75.00	*676+00.00*	*775*													*660*	*120*		*17*	*17*
		SR-2 Westbound - Phase 2C																			
		707+40.00	*697+40.00*	*1,000*		*1,000*	*1,000*														
		697+40.00	*689+00.00*	*840*			*840*														
		Post-Phase 2C, Mill and Intermediate (x2)																			
		697+40.00	*693+92.50*	*348*		*695*	*695*		*695*												
		693+92.50	*692+42.28*	*150*			*300*	*601*	*300*												
		692+42.28	*685+26.74*	*716*		*1,431*	*1,431*		*1,431*												
		685+26.74	*683+76.48*	*150*			*301*	*601*	*301*												
		683+76.48	*680+12.28*	*364*		*728*	*728*		*728*												
		680+12.28	*657+25.00*	*2,287*		*4,575*	*4,575*		*4,575*												
		Ramp C-C		*1,200*		*2,400*	*2,400*														
		Ramp D-D		*1,150*		*2,300*	*2,300*	*300*		*82*	*12*										
		Temporary Markings for Surface Course																			
		Mainline				*31,772*	*31,221*	*551*	*32,542*												
		Ramps				*4,839*	*5,723*	*595*		*64*	*12*										
SUBTOTALS					*5*	*56,189*	*65,146*	*3,579*	*48,086*	*146*	*24*		*2,430*	*1,270*	*1,160*		*3,490*	*720*		*90*	*90*
TOTALS FROM THIS SHEET					*5*	*22.98*		*3,579*	*9.11*	*146*	*24*		*0.70*		*1,160*		*3,490*	*720*		*90*	*90*
TOTALS FROM SHEET 35					*11*	*12.77*		*2,612*	*5.40*	*60*	*12*		*0.85*		*490*		*7,160*	*1,440*		*183*	*183*
TOTALS CARRIED TO GENERAL SUMMARY					*16*	*35.76*		*6,191*	*14.51*	*206*	*36*		*1.55*		*1,650*		*10,650*	*2,160*		*273*	*273*

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Maintenance of Traffic Subsummary

LAK-2-14.38

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SHEET NUMBER												PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
7	9	14	26	29	30	31	32	33	34	36	65	I	II						
																		ROADWAY	
				523								523		202	23500	523	SQ YD	WEARING COURSE REMOVED	
						333						333		202	30600	333	SQ YD	CONCRETE MEDIAN REMOVED	
						2577						2577		202	32001	2577	FT	CURB REMOVED, AS PER PLAN	6
							14,871					14,871		202	38000	14,871	FT	GUARDRAIL REMOVED	
						2						2		202	58200	2	EACH	INLET REMOVED	
								600				600		202	98100	600	EACH	REMOVAL MISC.: CABLE RAIL POST REMOVED FOR STORAGE	
								200				200		202	98100	200	EACH	REMOVAL MISC.: STEEL POST REMOVED FOR STORAGE	
								200				200		202	98100	200	EACH	REMOVAL MISC.: BLOCKOUTS REMOVED FOR STORAGE	
								14				14		202	98100	14	EACH	REMOVAL MISC.: TYPE E ANCHOR ASSEMBLY REMOVED FOR STORAGE	
								4500				4500		202	98200	4500	FT	REMOVAL MISC.: TYPE 5 PANELS REMOVED FOR STORAGE	
								9373				9373		202	98200	9373	FT	REMOVAL MISC.: CABLE RAIL	
20					1159	102						1281		203	10000	1281	CU YD	EXCAVATION	
					214	46						260		203	20000	260	CU YD	EMBANKMENT	
259												259		209	60200	259	STATION	LINEAR GRADING, METHOD A	
							150					150		209	60200	150	STATION	LINEAR GRADING, METHOD B	
							89					89		209	60200	89	STATION	LINEAR GRADING, METHOD C	
							8350					8350		606	12000	8350	FT	GUARDRAIL, TYPE 5MR	
							14,183					14,183		606	13000	14,183	FT	GUARDRAIL, TYPE 5	
							11					11		606	26100	11	EACH	ANCHOR ASSEMBLY, TYPE E	
							8					8		606	26500	8	EACH	ANCHOR ASSEMBLY, TYPE T	
							17					17		606	35000	17	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE 1	
							11					11		606	35100	11	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE 2	
							5					5		606	35170	5	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE BR-1	
							8					8		606	60012	8	EACH	IMPACT ATTENUATOR, TYPE 1 (BIDIRECTIONAL)	
								20				20		606	98100	20	EACH	GUARDRAIL, MISC.: SHIM PLATES	
					160							160		607	35000	160	FT	FENCE REMOVED AND REBUILT	
								27				27		622	24000	27	FT	CONCRETE BARRIER, TYPE D	
								1				1		622	25010	1	EACH	CONCRETE BARRIER END SECTION, TYPE D, REINFORCED	
								1				1		622	25052	1	EACH	CONCRETE BARRIER, END ANCHORAGE, REINFORCED, TYPE D	
																		EROSION CONTROL	
					22							22		601	20000	22	SQ YD	CRUSHED AGGREGATE SLOPE PROTECTION	
					61							61		659	00300	61	CU YD	TOPSOIL	
					551							551		659	10001	551	SQ YD	SEEDING AND MULCHING, AS PER PLAN	8
5000												5000		SPECIAL	60450000	5000	POUND	MISCELLANEOUS METAL	
												10,000		832	30000	10,000	EACH	EROSION CONTROL	
																		DRAINAGE	
					160							160		603	01500	160	FT	6" CONDUIT, TYPE F	
						2						2		604	00400	2	EACH	CATCH BASIN, NO. 3	
						3						3		604	09000	3	EACH	CATCH BASIN ADJUSTED TO GRADE	
						2						2		604	34500	2	EACH	MANHOLE ADJUSTED TO GRADE	
					16							16		604	36600	16	EACH	PRECAST REINFORCED CONCRETE OUTLET	
					680							680		605	11100	680	FT	6" SHALLOW PIPE UNDERDRAINS, 707.32 TYPE CP OR 707.41	
																		PAVEMENT	
					828							828		202	23000	828	SQ YD	PAVEMENT REMOVED	
3720												3720		251	01001	3720	SQ YD	PARTIAL DEPTH PAVEMENT REPAIR, AS PER PLAN A	7
1142												1142		251	01001	1142	SQ YD	PARTIAL DEPTH PAVEMENT REPAIR, AS PER PLAN B	7
270												270		251	98000	270	CU YD	PARTIAL DEPTH REPAIR, MISC.: ADDITIONAL MATERIAL ONLY	
				104,909								104,909		254	01000	104,909	SQ YD	PAVEMENT PLANING, ASPHALT CONCRETE, 2"	

Participation Codes:
I-Pavement (Federal/State)
II-Bridge (Federal/State)

CALCULATED SWC
CHECKED BMB

General Summary

LAK-2-14.38

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SHEET NUMBER												PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
7	9	14	26	29	30	31	32	33	34	36	65	I	II						
																		PAVEMENT (CONTINUED)	
				6474								6474		254	01000	6474	SQ YD	PAVEMENT PLANING, ASPHALT CONCRETE (FOR TRANSITIONS)	
3450												3450		255	10151	3450	SQ YD	FULL DEPTH PAVEMENT REMOVAL AND RIGID REPLACEMENT, CLASS MS, AS PER PLAN A	7
3700												3700		255	10151	3700	SQ YD	FULL DEPTH PAVEMENT REMOVAL AND RIGID REPLACEMENT, CLASS MS, AS PER PLAN B	7
19,300												19,300		255	20000	19,300	FT	FULL DEPTH PAVEMENT SAWING	
400												400		255	98000	400	CU YD	FULL DEPTH REPAIR, MISC.: ADDITIONAL MATERIAL ONLY	
					122							122		301	46000	122	CU YD	ASPHALT CONCRETE BASE, PG64-22	
20					619	56						695		304	20000	695	CU YD	6" AGGREGATE BASE	
				10,491								10,491		407	10000	10,491	GALLON	TACK COAT	
				5245								5245		407	14000	5245	GALLON	TACK COAT FOR INTERMEDIATE COURSE	
				4371								4371		442	10001	4371	CU YD	ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (446), AS PER PLAN	6
				5828								5828		442	10100	5828	CU YD	ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446)	
							892					892		448	46060	892	CU YD	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I, PG64-22 (UNDER GUARDRAIL)	
					1574							1574		451	16001	1574	SQ YD	12" REINFORCED CONCRETE PAVEMENT, AS PER PLAN	7
					680							680		SPECIAL	45130000	680	FT	PRESSURE RELIEF JOINT, TYPE A	
								360				360		609	24510	360	FT	CURB, TYPE 4-C	
						2577						2577		609	26000	2577	FT	CURB, TYPE 6	
						333						333		609	72000	333	SQ YD	CONCRETE MEDIAN, 8"	
479												479		617	10100	479	CU YD	COMPACTED AGGREGATE	
5												5		617	25000	5	M GAL	WATER	
	8											8		618	40100	8	MILE	RUMBLE STRIPS, (ASPHALT CONCRETE)	
																		LIGHTING	
			10									10		625	00450	10	EACH	CONNECTION, FUSED PULL APART	
			10									10		625	00460	10	EACH	CONNECTION, UNFUSED PULL APART	
			20									20		625	00480	20	EACH	CONNECTION, UNFUSED PERMANENT	
			1480									1480		625	23200	1480	FT	NO. 4 AWG 5000 VOLT DISTRIBUTION CABLE	
			1100									1100		625	24100	1100	FT	1-1/2" DUCT CABLE WITH TWO NO. 4 AWG 5000 VOLT CABLES	
			200									200		625	25400	200	FT	CONDUIT, 2", 725.04	
			35									35		625	25900	35	FT	CONDUIT, JACKED OR DRILLED, 3"	
			1100									1100		625	29002	1100	FT	TRENCH, 24" DEEP	
			10									10		625	30706	10	EACH	PULL BOX, 725.08, 24"	
			LUMP									LUMP		SPECIAL	62540000	LUMP		MAINTAIN EXISTING LIGHTING	
			1									1		SPECIAL	62540010	1	EACH	REPLACEMENT OF EXISTING LIGHTING UNIT	
			5									5		625	98000	5	EACH	LIGHTING, MISC.: TROUBLESHOOT DAMAGED CIRCUIT	
																		TRAFFIC CONTROL	
											90	90		620	00500	90	EACH	DELINEATOR, POST MOUNTED, YELLOW	
											90	90		620	00500	90	EACH	DELINEATOR, POST MOUNTED, WHITE	
											180	180		620	31200	180	EACH	REMOVAL OF DELINEATOR	
											422	422		621	00100	422	EACH	RPM	
											422	422		621	54000	422	EACH	RAISED PAVEMENT MARKER REMOVED	
							225					225		626	00100	225	EACH	BARRIER REFLECTOR, TYPE A	
								50				50		626	00100	50	EACH	BARRIER REFLECTOR, TYPE B	
											4	4		632	26501	4	EACH	DETECTOR LOOP, AS PER PLAN	9
											10.67	10.67		646	10000	10.67	MILE	EDGE LINE	
											4.53	4.53		646	10101	4.53	MILE	LANE LINE, AS PER PLAN	9
											1146	1146		646	10300	1146	FT	CHANNELIZING LINE	
											64	64		646	10400	64	FT	STOP LINE	
											12	12		646	20300	12	EACH	LANE ARROW	

Participation Codes:
I-Pavement (Federal/State)
II-Bridge (Federal/State)

CALCULATED SWC
CHECKED BMB

General Summary

LAK-2-14.38

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SHEET NUMBER												PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
7	9	14	26	29	30	31	32	33	34	36	65	I	II						
																		MAINTENANCE OF TRAFFIC	
		80										80		614	11110	80	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	
		12										12		614	11500	12	MONTH	WORKSITE TRAFFIC SUPERVISOR	
										16			16	614	12336	16	EACH	WORK ZONE IMPACT ATTENUATOR (UNIDIRECTIONAL)	
		LUMP											LUMP	614	12420	LUMP		DETOUR SIGNING	
		28										28		614	12470	28	EACH	WORK ZONE SPEED LIMIT SIGN	
		10										10		614	12484	10	EACH	WORK ZONE INCREASED PENALTIES SIGN	
		25										25		614	13001	25	CU YD	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC, AS PER PLAN A	13
		25										25		614	13001	25	CU YD	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC, AS PER PLAN B	13
										273			273	614	13300	273	EACH	BARRIER REFLECTOR, TYPE B	
										273			273	614	13350	273	EACH	OBJECT MARKER, ONE WAY	
		LUMP										LUMP		614	18002	LUMP		MAINTAINING TRAFFIC, MISC.: MODIFY SIGNAL OPERATION	
		360										360		614	18401	360	DAY	PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN	12
										14.51		14.51		614	20001	14.51	MILE	WORK ZONE LANE LINE, CLASS I, AS PER PLAN	13
										35.76		35.76		614	22000	35.76	MILE	WORK ZONE EDGE LINE, CLASS I	
										1.55			1.55	614	22200	1.55	MILE	WORK ZONE EDGE LINE, CLASS I, 740.06, TYPE I	
										6191		6191		614	23000	6191	FT	WORK ZONE CHANNELIZING LINE, CLASS I	
										1650			1650	614	23400	1650	FT	WORK ZONE CHANNELIZING LINE, CLASS I, 740.06, TYPE I	
										206		206		614	26000	206	FT	WORK ZONE STOP LINE, CLASS I	
										36		36		614	30000	36	EACH	WORK ZONE ARROW, CLASS I	
		LUMP											LUMP	615	10000	LUMP		ROADS FOR MAINTAINING TRAFFIC	
									3043				3043	615	20001	3043	SQ YD	PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A, AS PER PLAN	11
										10,650			10,650	622	40020	10,650	FT	PORTABLE CONCRETE BARRIER, 32"	
										2160			2160	622	40040	2160	FT	PORTABLE CONCRETE BARRIER, 32", BRIDGE MOUNTED	
																		FOR LAK-2-1476L STRUCTURE PLAN ESTIMATED QUANTITIES, SEE SHEET 75	
																		FOR LAK-2-1476R STRUCTURE PLAN ESTIMATED QUANTITIES, SEE SHEET 91	
																		FOR LAK-2-1517L STRUCTURE PLAN ESTIMATED QUANTITIES, SEE SHEET 106	
																		FOR LAK-2-1517R STRUCTURE PLAN ESTIMATED QUANTITIES, SEE SHEET 123	
																		FOR LAK-2-1546L STRUCTURE PLAN ESTIMATED QUANTITIES, SEE SHEET 146	
																		FOR LAK-2-1546R STRUCTURE PLAN ESTIMATED QUANTITIES, SEE SHEET 158	
																		FOR LAK-2-1553L STRUCTURE PLAN ESTIMATED QUANTITIES, SEE SHEET 176	
																		FOR LAK-2-1553R STRUCTURE PLAN ESTIMATED QUANTITIES, SEE SHEET 194	
												LUMP	LUMP	SPECIAL	10810000	LUMP		CPM PROGRESS SCHEDULE	
												LUMP	LUMP	614	11000	LUMP		MAINTAINING TRAFFIC	
												7	7	619	16020	14	MONTH	FIELD OFFICE, TYPE C	
												LUMP	LUMP	623	10001	LUMP		CONSTRUCTION LAYOUT STAKES, AS PER PLAN	
												LUMP	LUMP	624	10000	LUMP		MOBILIZATION	

Participation Codes:
I-Pavement (Federal/State)
II-Bridge (Federal/State)

CALCULATED SWC
CHECKED BMB

General Summary

LAK-2-14.38

39
208

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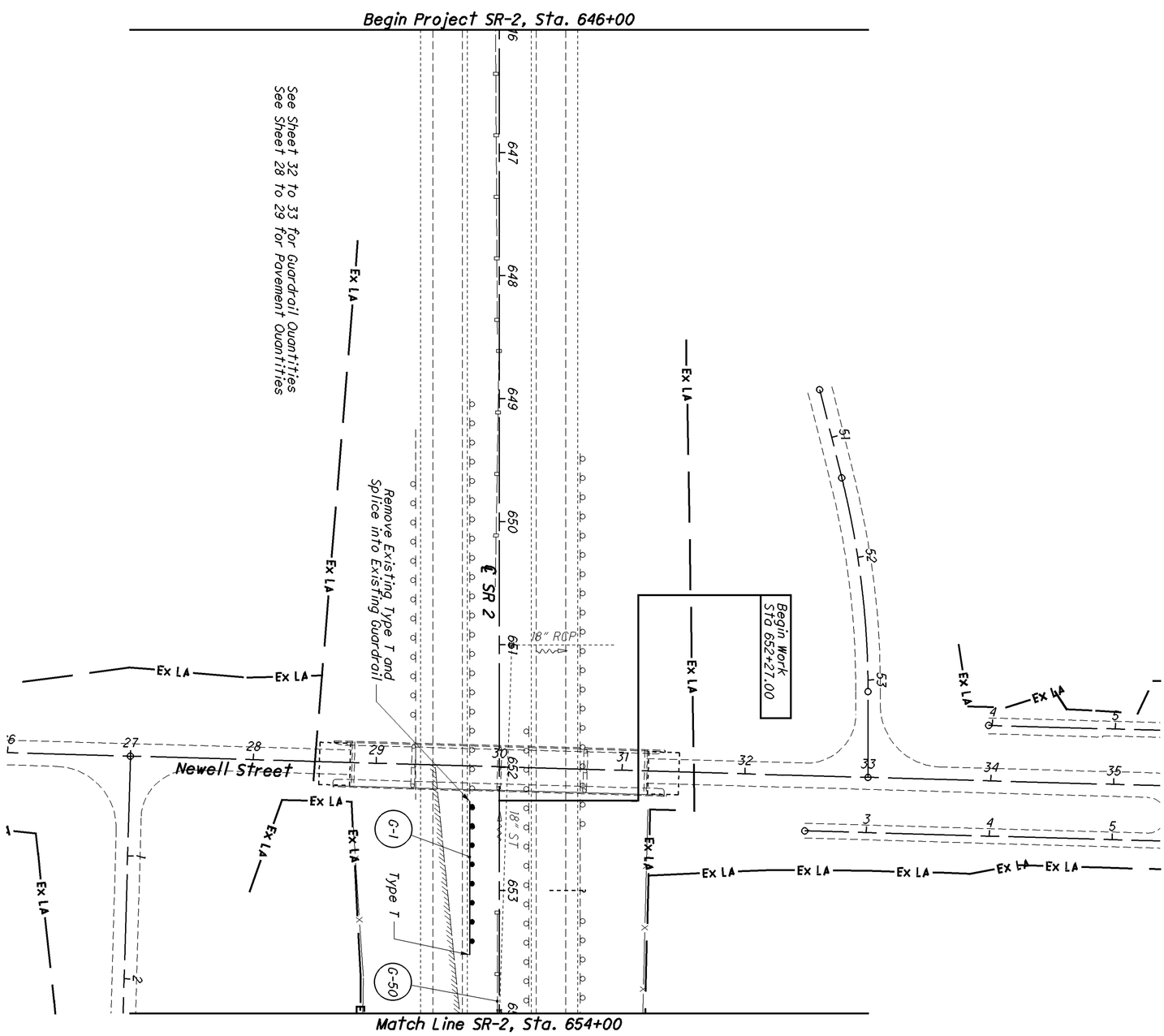

LAK-2-14.38

General Plan Sheet
SR-2, Sta 646+00 to Sta 654+00

CALCULATED EJK
CHECKED BMB

0 50
25 100
HORIZONTAL SCALE IN FEET

Begin Project
Sta 657+25.00
SLM 14.38
E011 (067)

PC Sta. 661+23.19

Match Line SR-2, Sta. 654+00

Match Line SR-2, Sta. 667+00

Ex LA

Remove Existing Type E and
Splice Into Existing Guardrail

654 655 656 657 658 659 660 661 662 663 664 665 666

Painesville Twp
Painesville

℄ SR 2

G-35 Imp Att Type 1 XO-1 Type T G-34

G-51 Type E G-2 Imp Att Type 1 G-3

See Sheet 32 to 33 for Guardrail Quantities
See Sheet 28 to 29 for Pavement Quantities

N

0 25 50 100
HORIZONTAL
SCALE IN FEET

CALCULATED EJK
CHECKED BMB

General Plan Sheet
SR-2, Sta 654+00 to Sta 667+00

LAK-2-14.38

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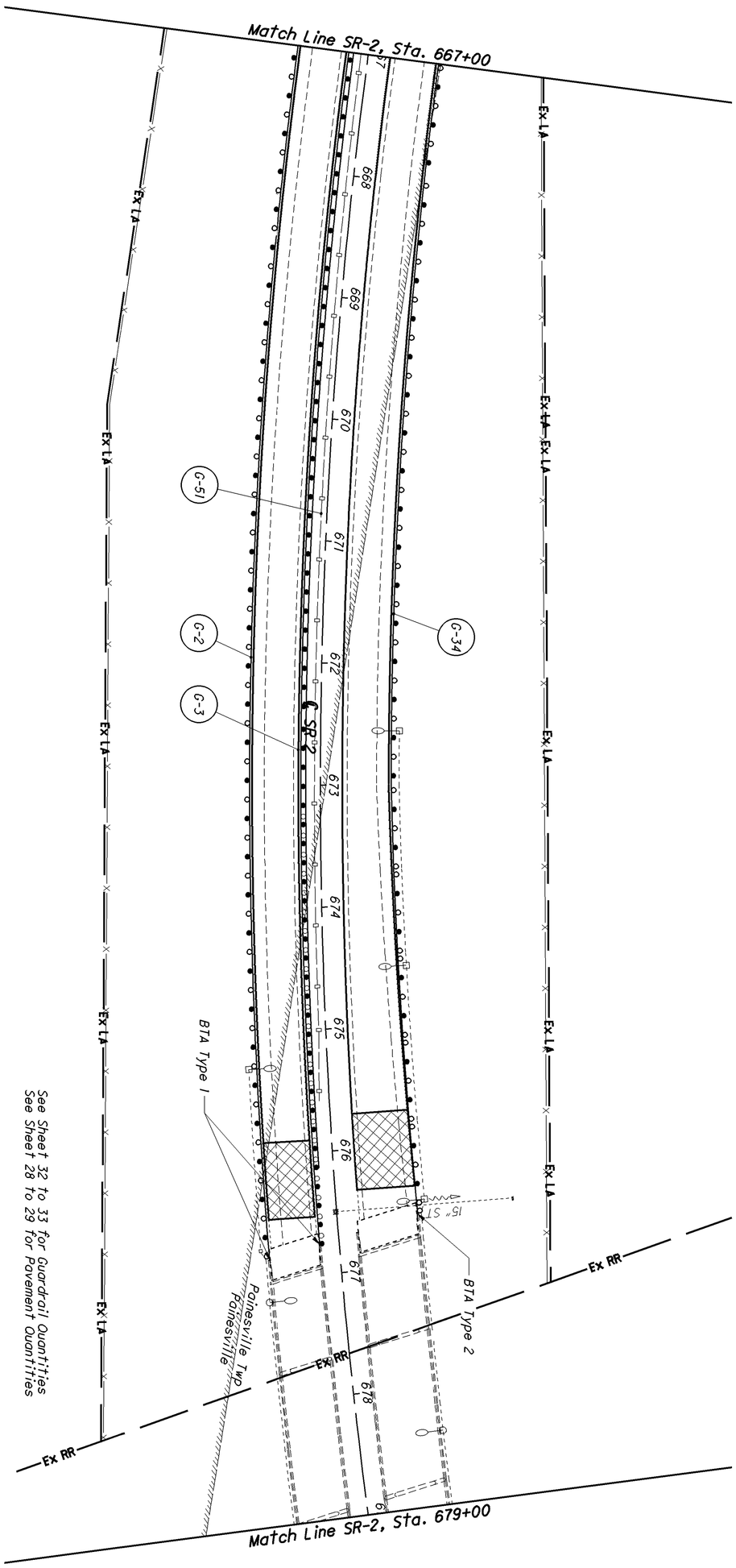

LAK-2-14.38

General Plan Sheet
SR-2, Sta 667+00 to Sta 679+00

CALCULATED EJK
CHECKED BMB

0 25 50 100
HORIZONTAL SCALE IN FEET

Match Line Ramp DD
Sta. 17+00

Match Line SR-2, Sta. 688+00

Pt Sta. 687+88.20

Match Line Ramp FF
Sta. 17+00

Ramp C-C

Ramp D-D

Ramp E-E

Ramp F-F

E-E Spur

F-F Spur

C SR 2

C-4

CC-4

CC-5

Type E

G-6

C-2

EE-3

C-1

EE-4

Taper Nose 2" to 6" in 10'

G-32

CC-6

Type E

G-52

G-5

DR-7

DR-6

CB-2.1 (CB No. 3)
Ramp D-D, Sta 13+70
NG=631.22'
15" Out=626.85'

SR 2, Sta 683+75.00, 58.00' Lt
℄ Ramp C-C, Sta 21+28.74

BTA Type BR-1

EE-5

G-33

G-4

SR 2, Sta 683+50.00, 58.00' Rt
℄ Ramp E-E, Sta 20+19.19

Imp Att Type 1

BTA Type 1

Type E

DR-1

DR-3

DR-2

DR-4

DR-5

Painesville
Painesville Twp

Richmond Street (SR 283)

Match Line SR-2, Sta. 679+00

Ex LA

Ramp C-C Curve CC-4
P.C.= Sta. 15+80.29
P.I.= Sta. 18+11.27
P.T.= Sta. 18+78.74
D = 114° 00' 00" (RT)
Dc = 38° 11' 50"
R = 150.00'
T = 230.98'
L = 298.45'
E = 125.41'
C = 251.60'

Ramp C-C Curve CC-5
P.C.= Sta. 18+78.74
P.I.= Sta. 19+34.20
P.T.= Sta. 19+88.74
D = 18° 00' 26" (RT)
Dc = 16° 22' 13"
R = 350.00'
T = 55.46'
L = 110.00'
E = 4.37'
C = 109.55'

Ramp C-C Curve CC-6
P.C.= Sta. 19+88.74
P.I.= Sta. 20+58.98
P.T.= Sta. 21+28.74
D = 11° 27' 33" (RT)
Dc = 8° 11' 06"
R = 700.00'
T = 70.23'
L = 140.00'
E = 3.51'
C = 139.77'

Ramp E-E Curve EE-3
P.C.= Sta. 14+75.74
P.I.= Sta. 17+06.72
P.T.= Sta. 17+74.20
D = 114° 00' 00" (LT)
Dc = 38° 11' 50"
R = 150.00'
T = 230.98'
L = 298.45'
E = 125.41'
C = 251.60'

Ramp E-E Curve EE-4
P.C.= Sta. 17+74.20
P.I.= Sta. 18+27.16
P.T.= Sta. 18+79.19
D = 18° 30' 39" (LT)
Dc = 17° 37' 46"
R = 325.00'
T = 52.96'
L = 105.00'
E = 4.29'
C = 104.54'

Ramp E-E Curve EE-5
P.C.= Sta. 18+79.19
P.I.= Sta. 19+49.43
P.T.= Sta. 20+19.20
D = 11° 27' 33" (LT)
Dc = 8° 11' 06"
R = 700.00'
T = 70.23'
L = 140.00'
E = 3.51'
C = 139.77'

DR-7 CB-2.1 (CB No. 3)
Ramp E-E, Sta 12+65
NG=636.22'
15" Out=630.33'

See Sheet 32 to 33 for Guardrail Quantities
See Sheet 28 to 29 for Pavement Quantities
See Sheet 31 for Curb and Drainage Quantities

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED EJK
CHECKED BMB

General Plan Sheet
SR-2, Sta 679+00 to Sta 688+00

LAK-2-14.38

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See Sheet 32 to 33 for Guardrail Quantities
See Sheet 28 to 29 for Pavement Quantities
See Sheet 31 for Curb Quantities

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED EJK
CHECKED BMB

General Plan Sheet
SR-2, Sta 688+00 to Sta 697+00

LAK-2-14.38

44
208

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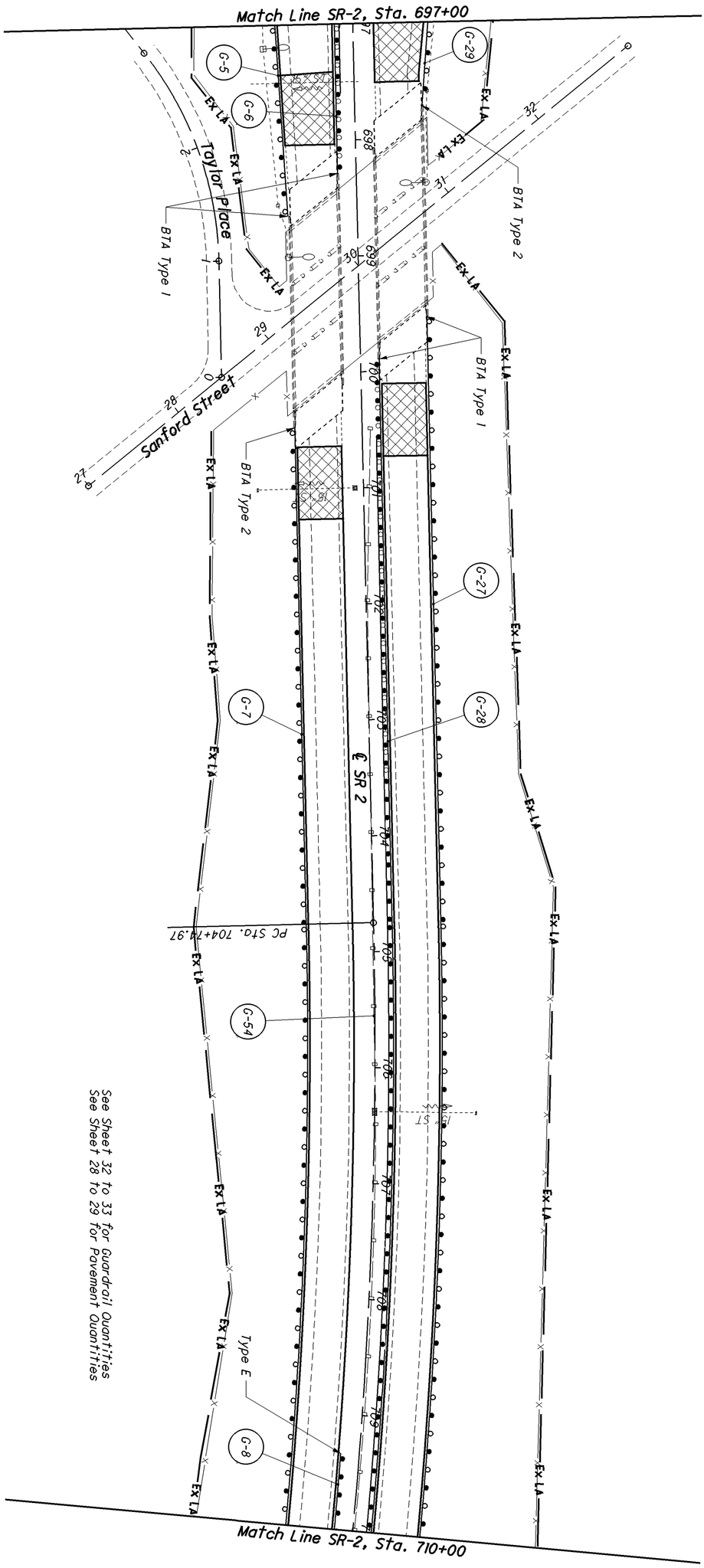

LAK-2-14.38

General Plan Sheet
SR-2, Sta 697+00 to Sta 710+00

CALCULATED EJK
CHECKED BMB

0 25 50 100
HORIZONTAL SCALE IN FEET

See Sheet 32 to 33 for Guardrail Quantities
See Sheet 28 to 29 for Pavement Quantities

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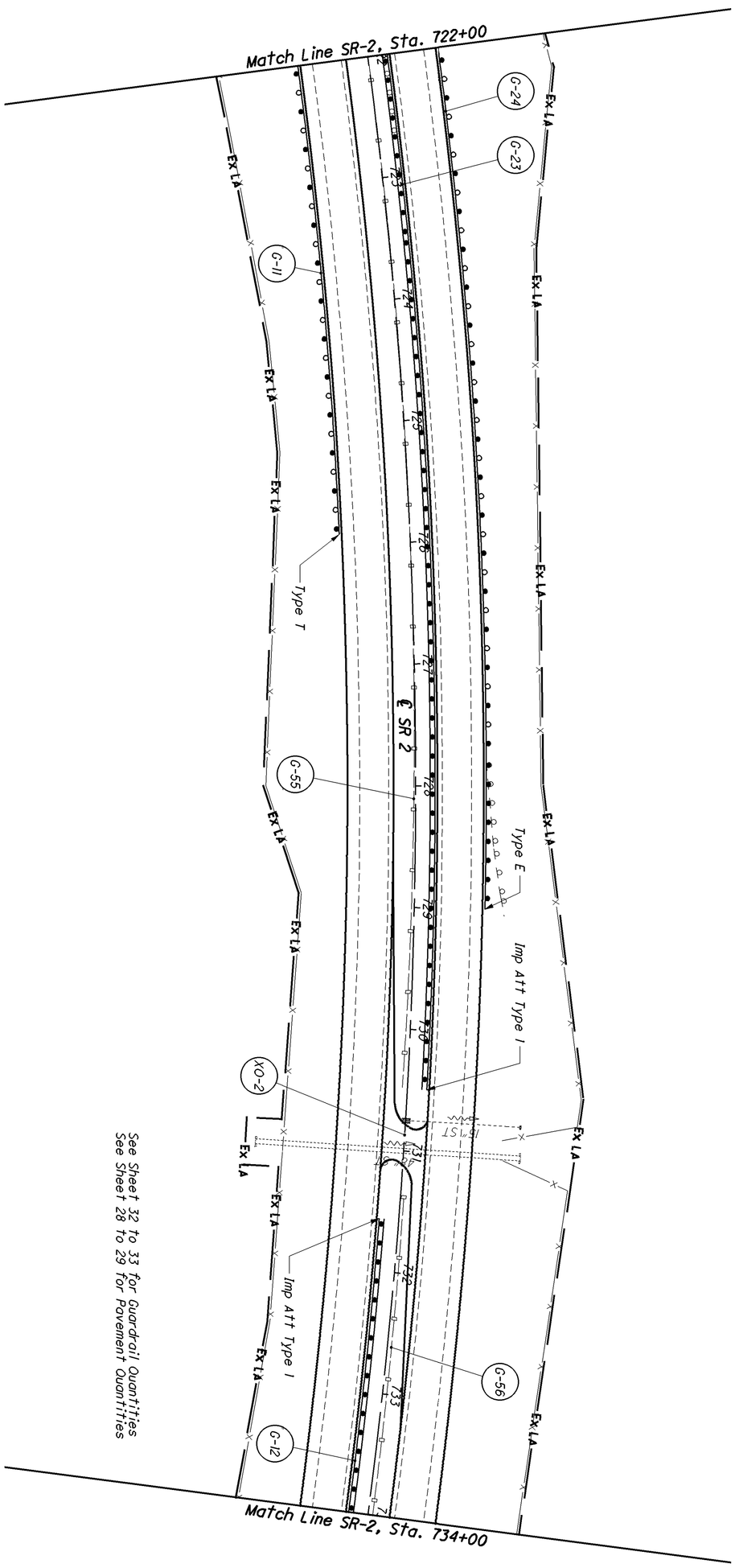
HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED EJK
CHECKED BMB

General Plan Sheet
SR-2, Sta 710+00 to Sta 722+00

LAK-2-14.38

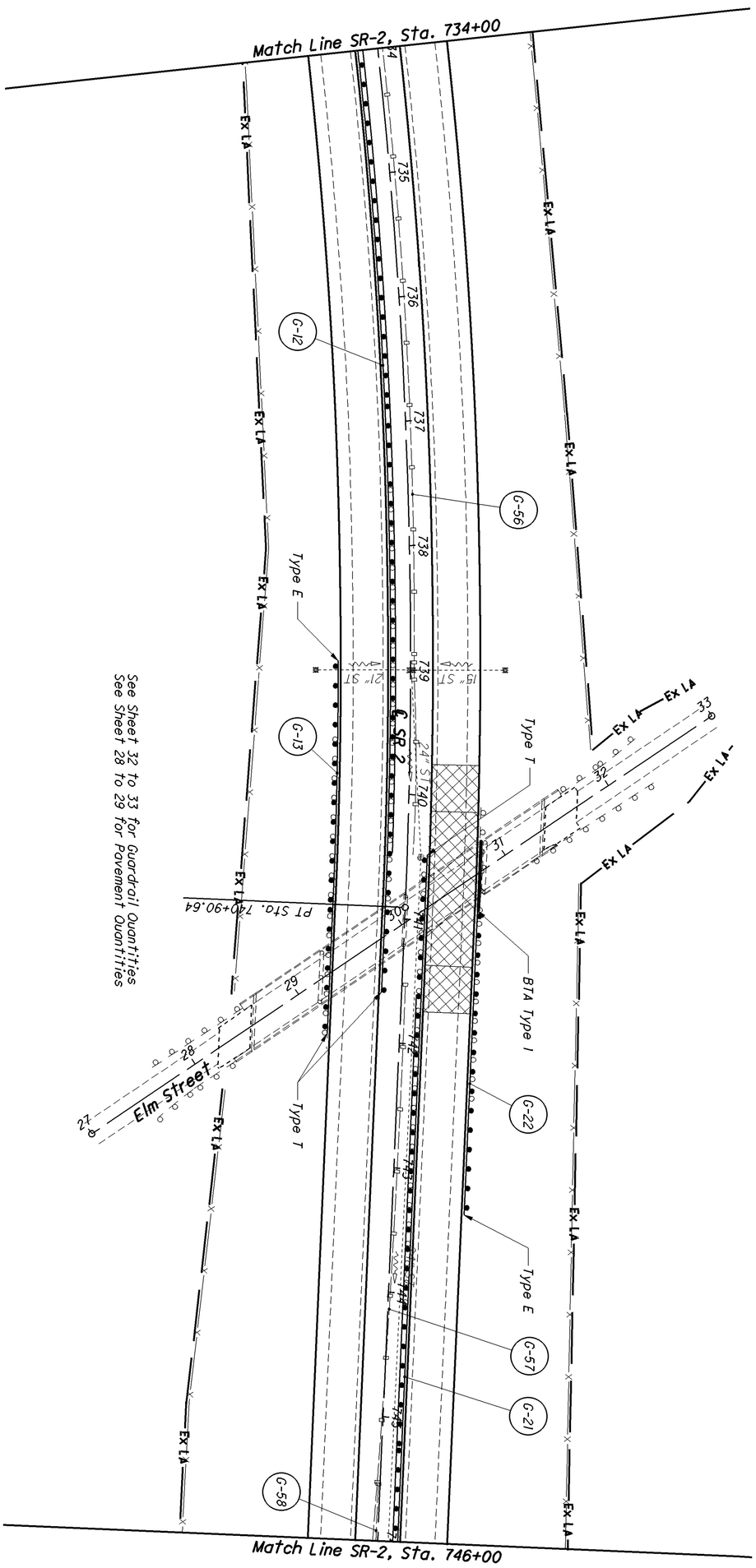


LAK-2-14.38

General Plan Sheet
SR-2, Sta 722+00 to Sta 734+00

CALCULATED EJK
CHECKED BMB

0 25 50 100
HORIZONTAL SCALE IN FEET

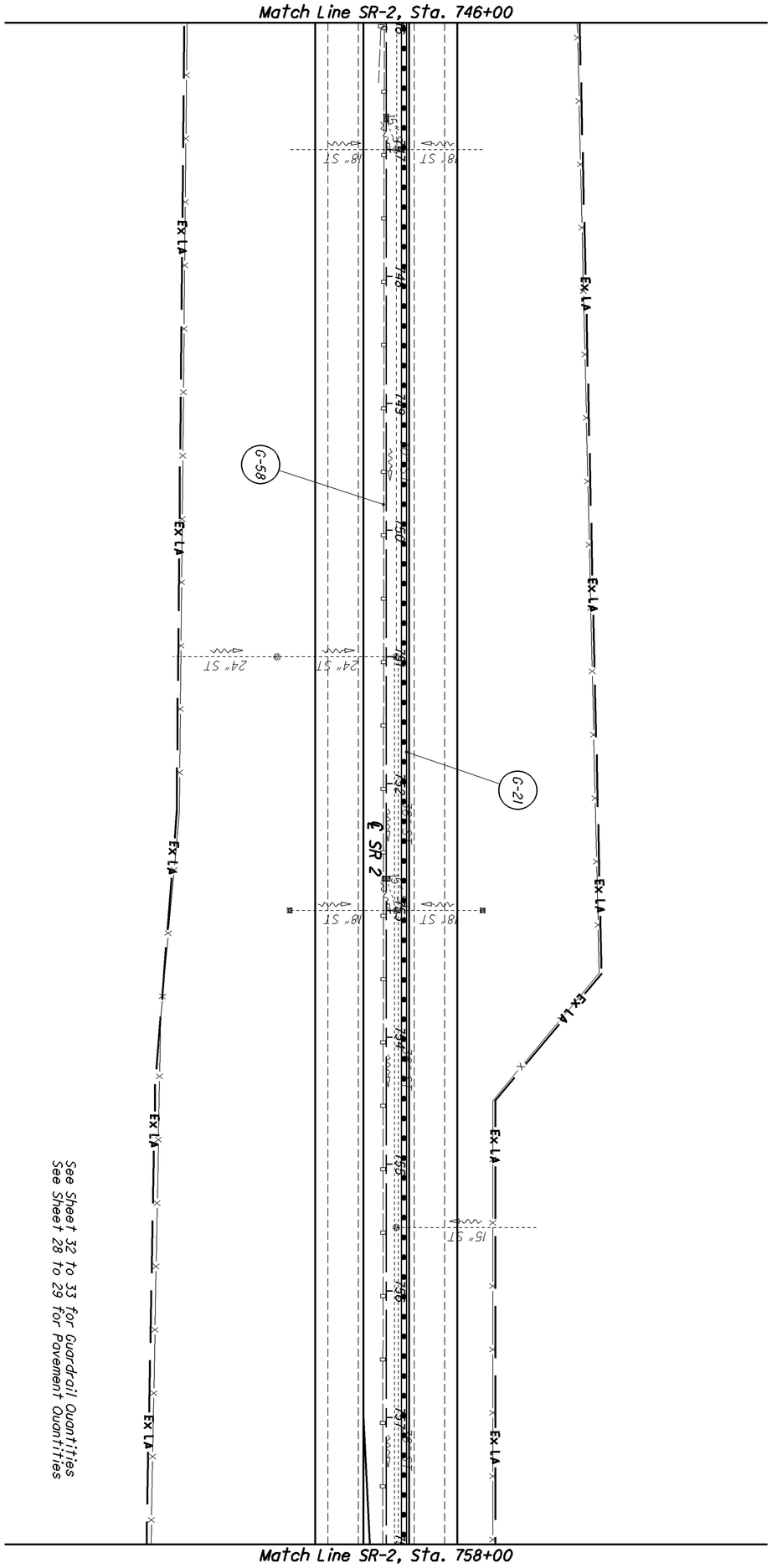


LAK-2-14.38

General Plan Sheet
SR-2, Sta 734+00 to Sta 746+00

CALCULATED EJK
CHECKED BMB

0 25 50 100
HORIZONTAL SCALE IN FEET



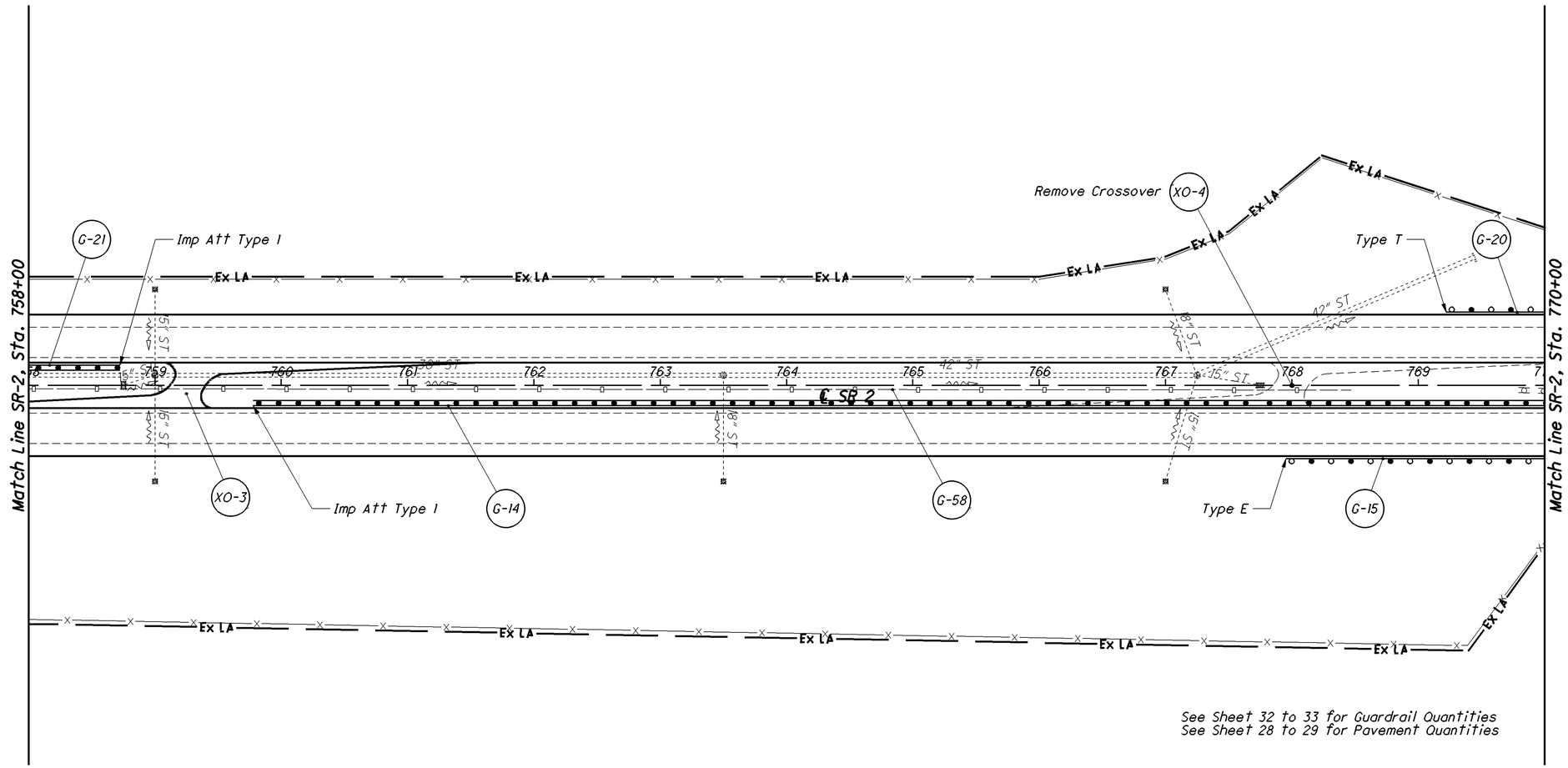
LAK-2-14.38

General Plan Sheet
SR-2, Sta 746+00 to Sta 758+00

CALCULATED EJK
CHECKED BMB

0 50
25 100
HORIZONTAL SCALE IN FEET

N



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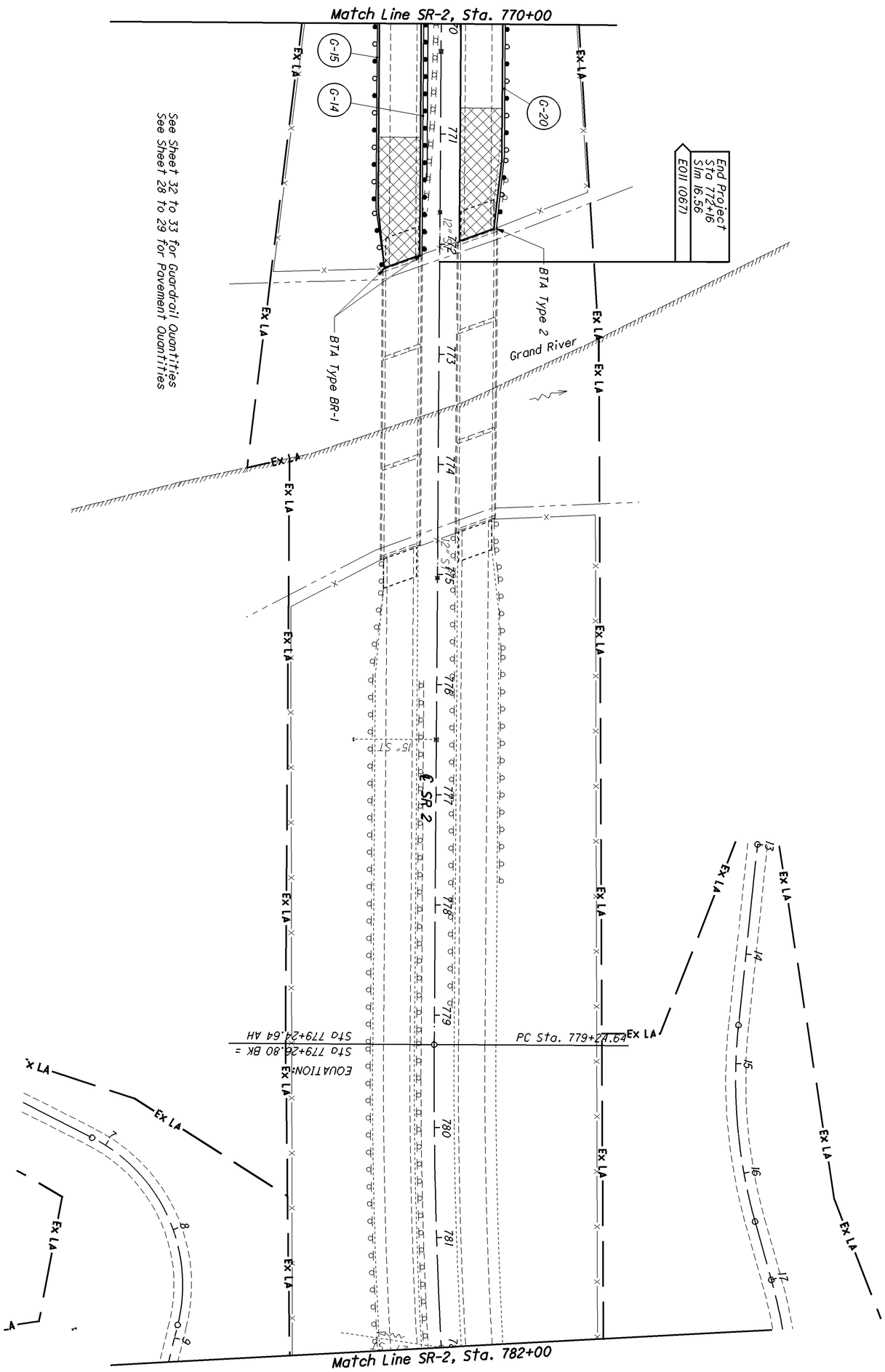
HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED EJK
CHECKED BMB

General Plan Sheet
SR-2, Sta 758+00 to Sta 770+00

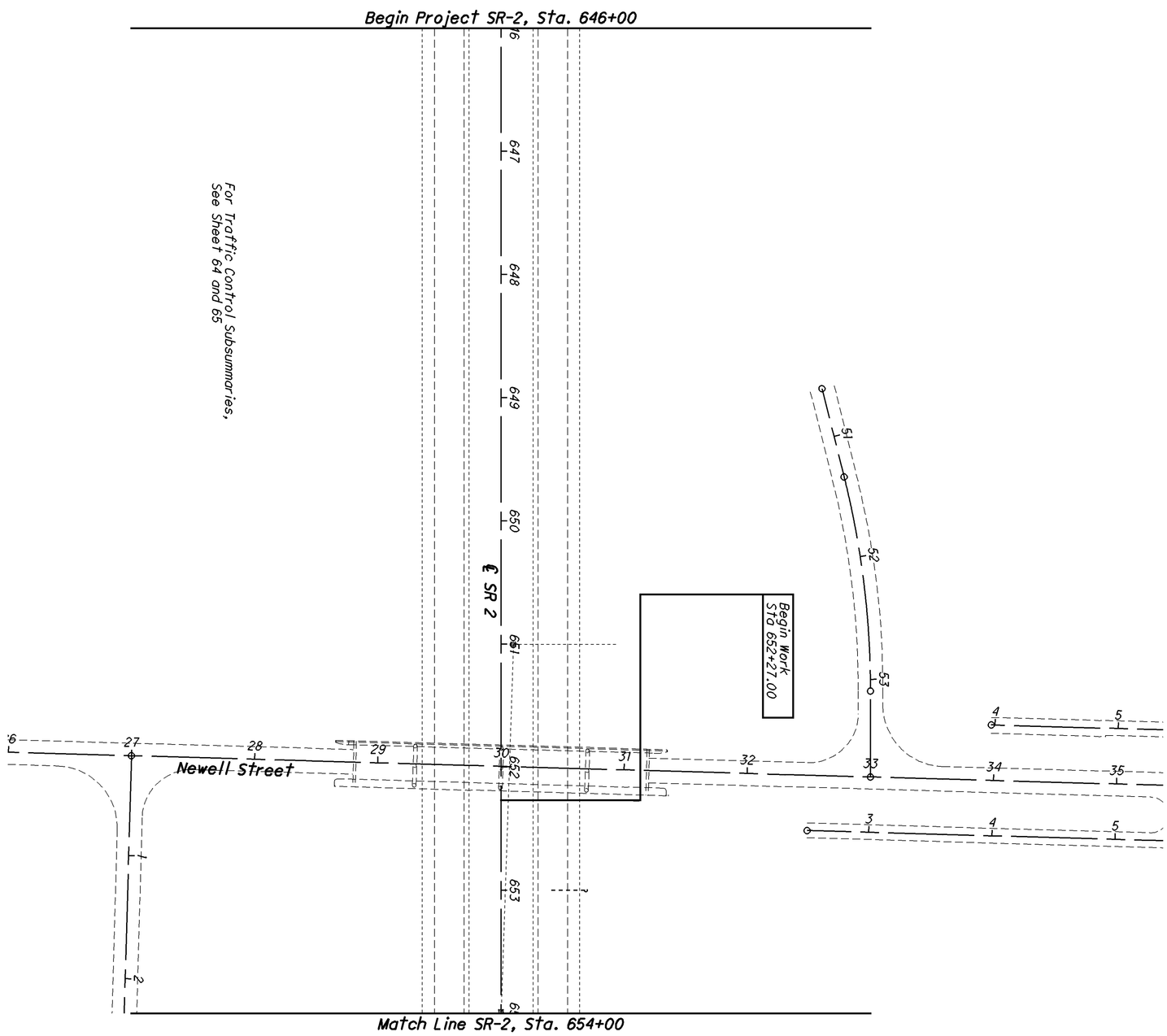
LAK-2-14.38



51 / 208	**LAK-2-14.38**	**General Plan Sheet** **SR-2, Sta 770+00 to Sta 782+00**	CALCULATED EJK CHECKED BMB	0 50 25 100 HORIZONTAL SCALE IN FEET

LEGEND

- (A) EDGE LINE (WHITE)
- (B) EDGE LINE (YELLOW)
- (C) LANE LINE
- (D) CHANNELIZING LINE
- (F) LANE ARROW
- (G) TRANSVERSE
- (H) STOP LINE

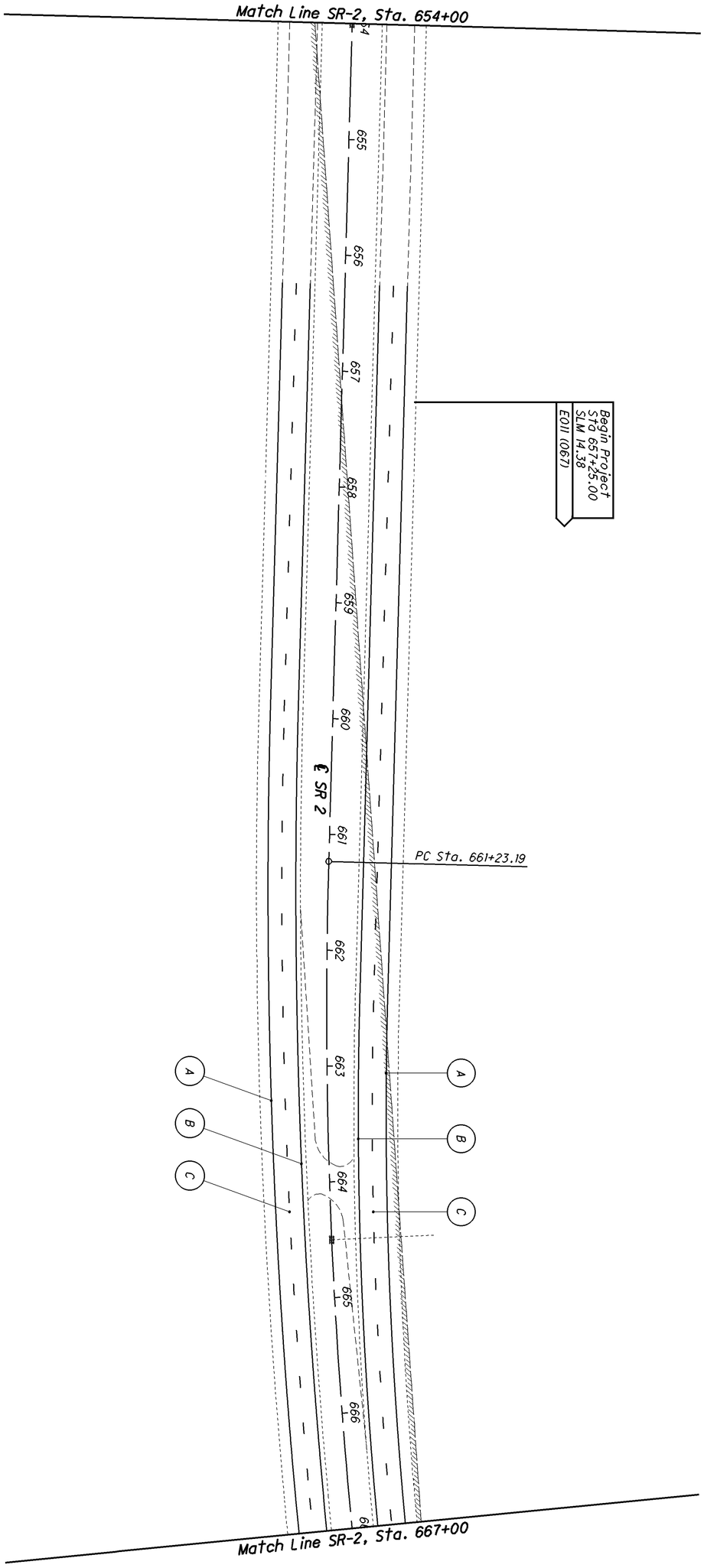


LAK-2-14.38

Traffic Control Plan Sheet
SR-2, Sta 646+00 to Sta 654+00

CALCULATED EJK
CHECKED BMB

0 50
25 100
HORIZONTAL SCALE IN FEET



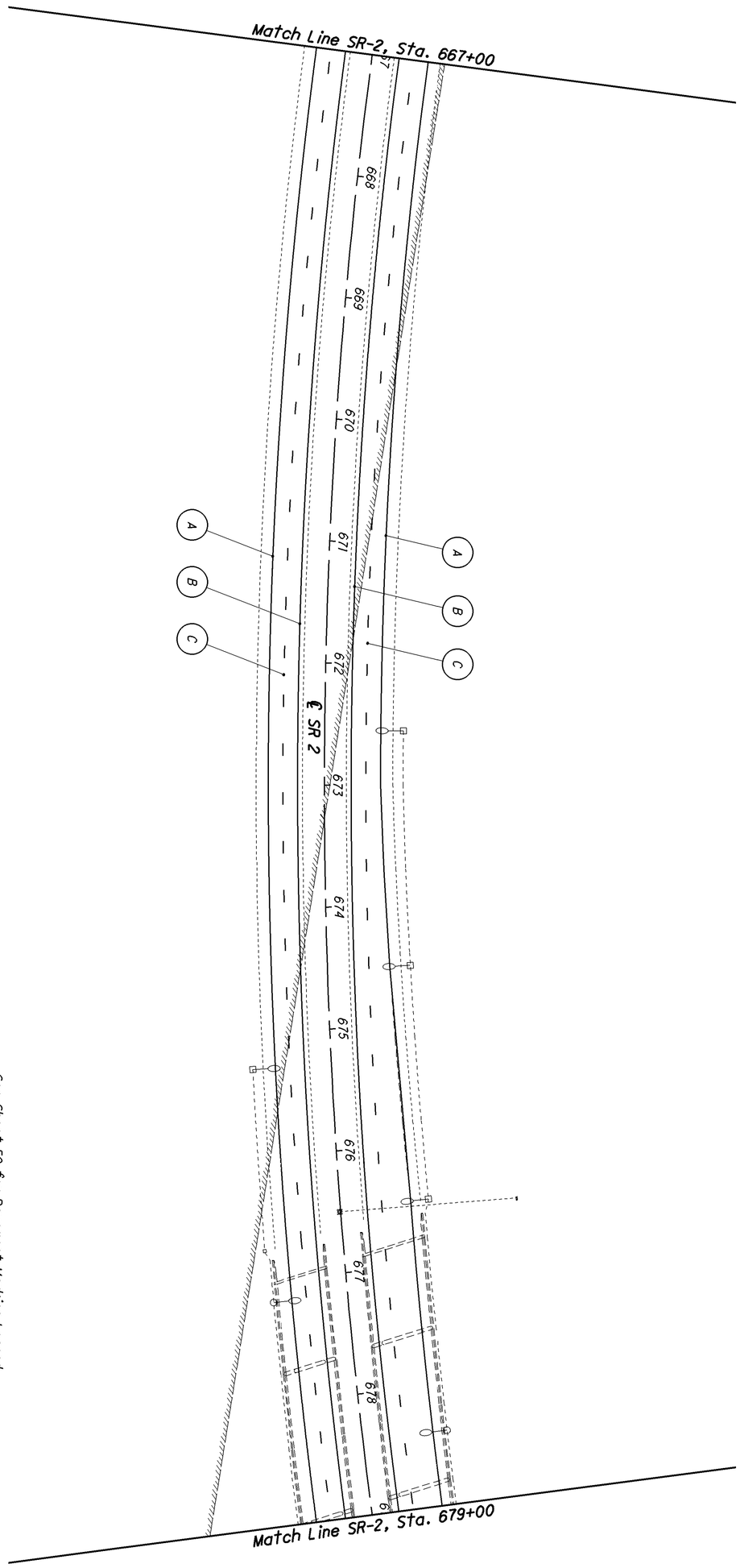
See Sheet 52 for Pavement Marking Legend.
See Sheets 64 to 65 for Traffic Control Quantities.

LAK-2-14.38

Traffic Control Plan Sheet
SR-2, Sta 654+00 to Sta 667+00

CALCULATED EJK
CHECKED BMB

0 50
25 100
HORIZONTAL SCALE IN FEET



See Sheet 52 for Pavement Marking Legend.
See Sheets 64 to 65 for Traffic Control Quantities.

LAK-2-14.38

Traffic Control Plan Sheet
SR-2, Sta 667+00 to Sta 679+00

CALCULATED EJK
CHECKED BMB

0 50
25 100
HORIZONTAL SCALE IN FEET

Match Line Ramp DD
Sta. 17+00

Match Line SR-2, Sta. 688+00

PT Sta. 687+88.20

Match Line Ramp FF
Sta. 17+00

Ramp C-C

Ramp D-D

Ramp E-E

Ramp F-F

E-E Spur

F-F Spur

℄ SR 2

Richmond Street (SR 283)

Match Line SR-2, Sta. 679+00

See Sheet 52 for Pavement Marking Legend.
See Sheets 64 to 65 for Traffic Control Quantities.

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED EJK
CHECKED BMB

Traffic Control Plan Sheet
SR-2, Sta 679+00 to Sta 688+00

LAK-2-14.38

55
208

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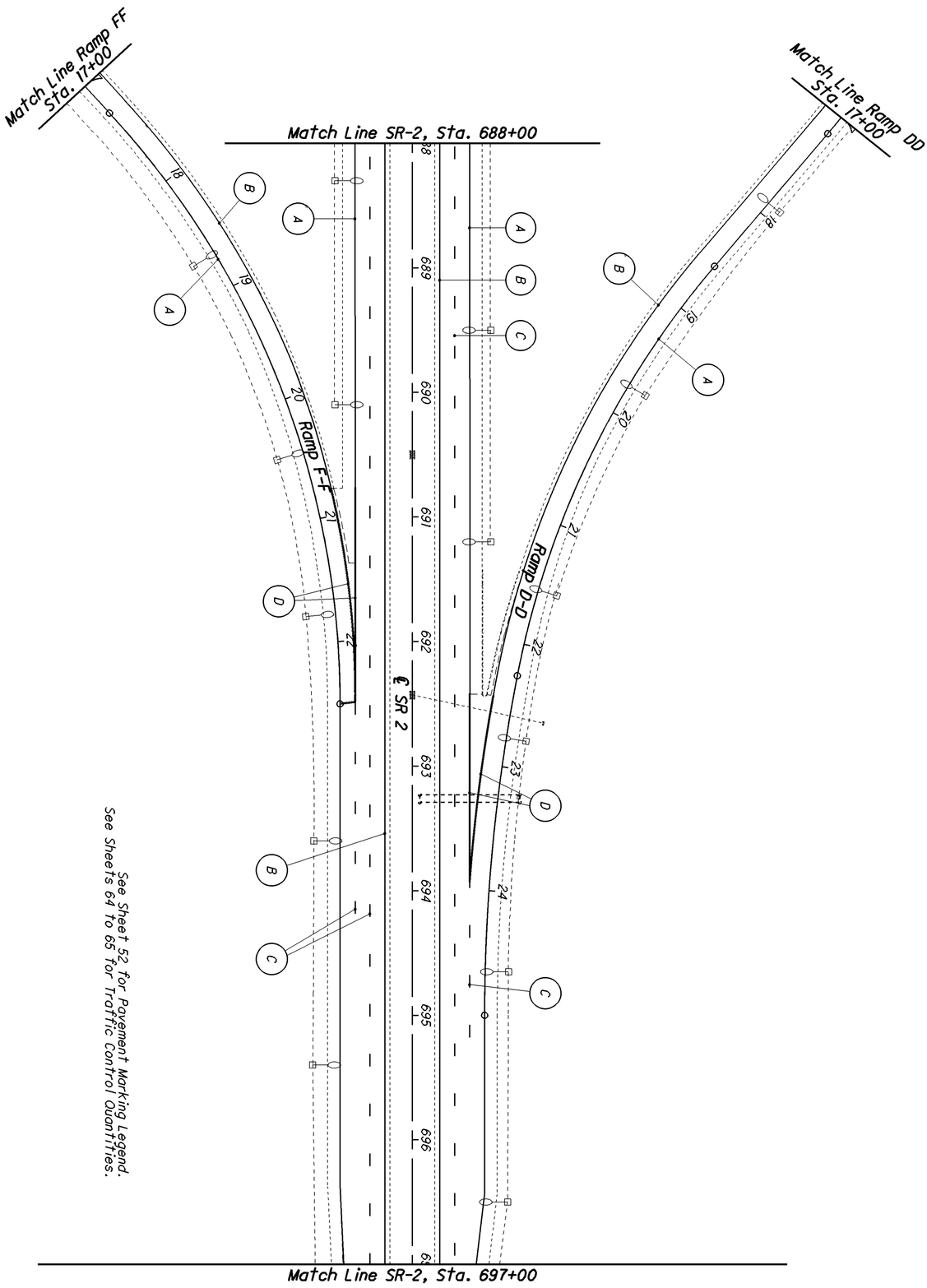
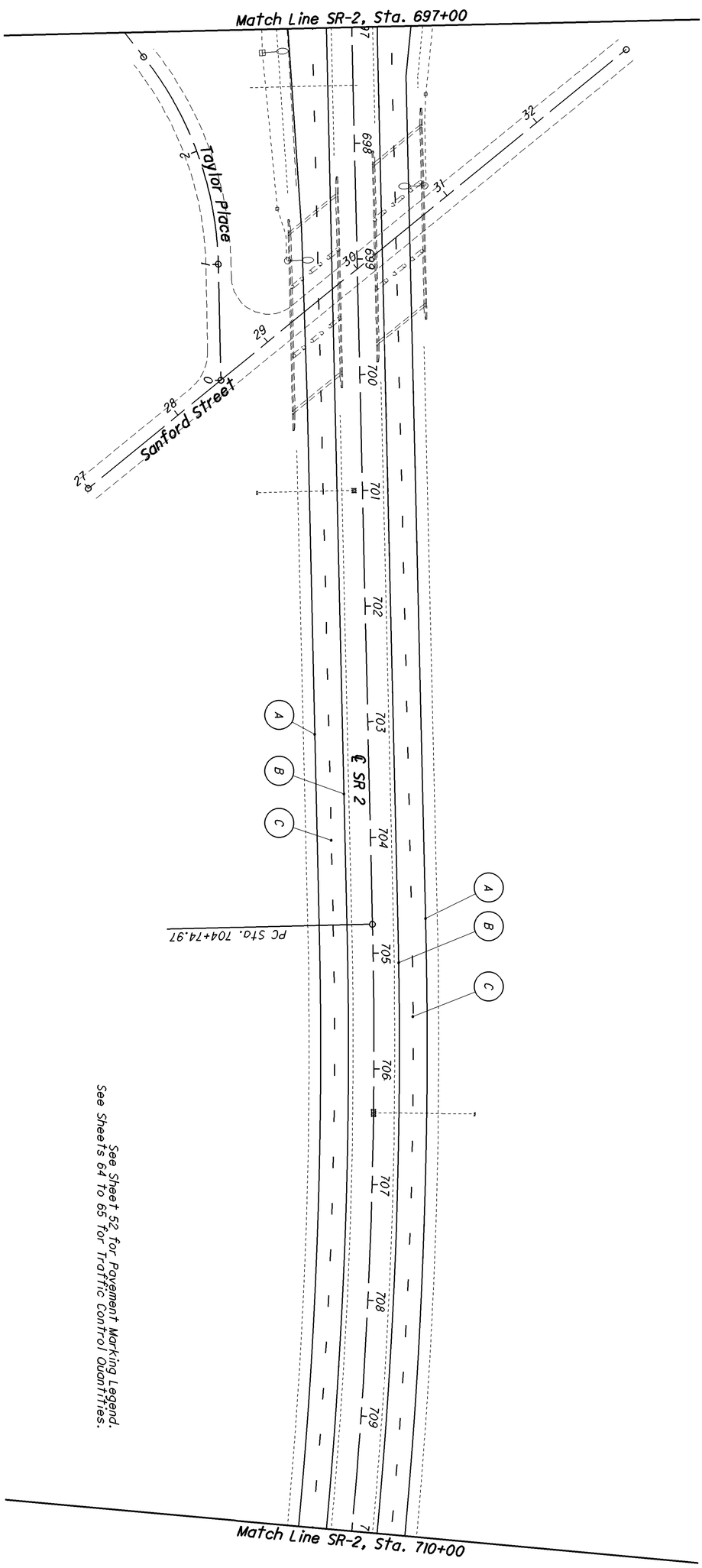


LAK-2-14.38

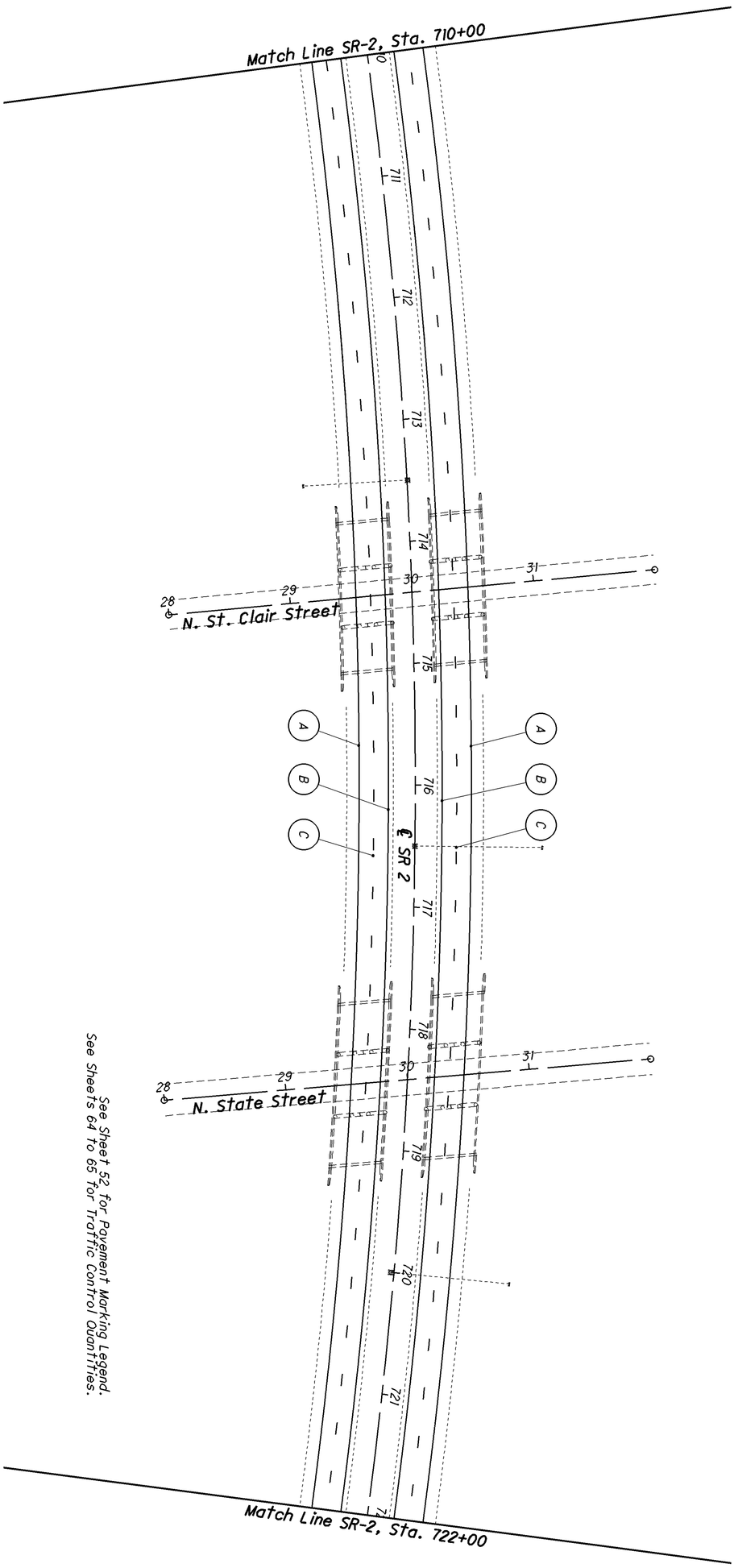
Traffic Control Plan Sheet
SR-2, Sta 688+00 to Sta 697+00

CALCULATED EJK
CHECKED BMB

0 25 50 100
HORIZONTAL SCALE IN FEET



57 / 208	LAK-2-14.38	Traffic Control Plan Sheet SR-2, Sta 697+00 to Sta 710+00	CALCULATED EJK CHECKED BMB	0 50 25 100 HORIZONTAL SCALE IN FEET

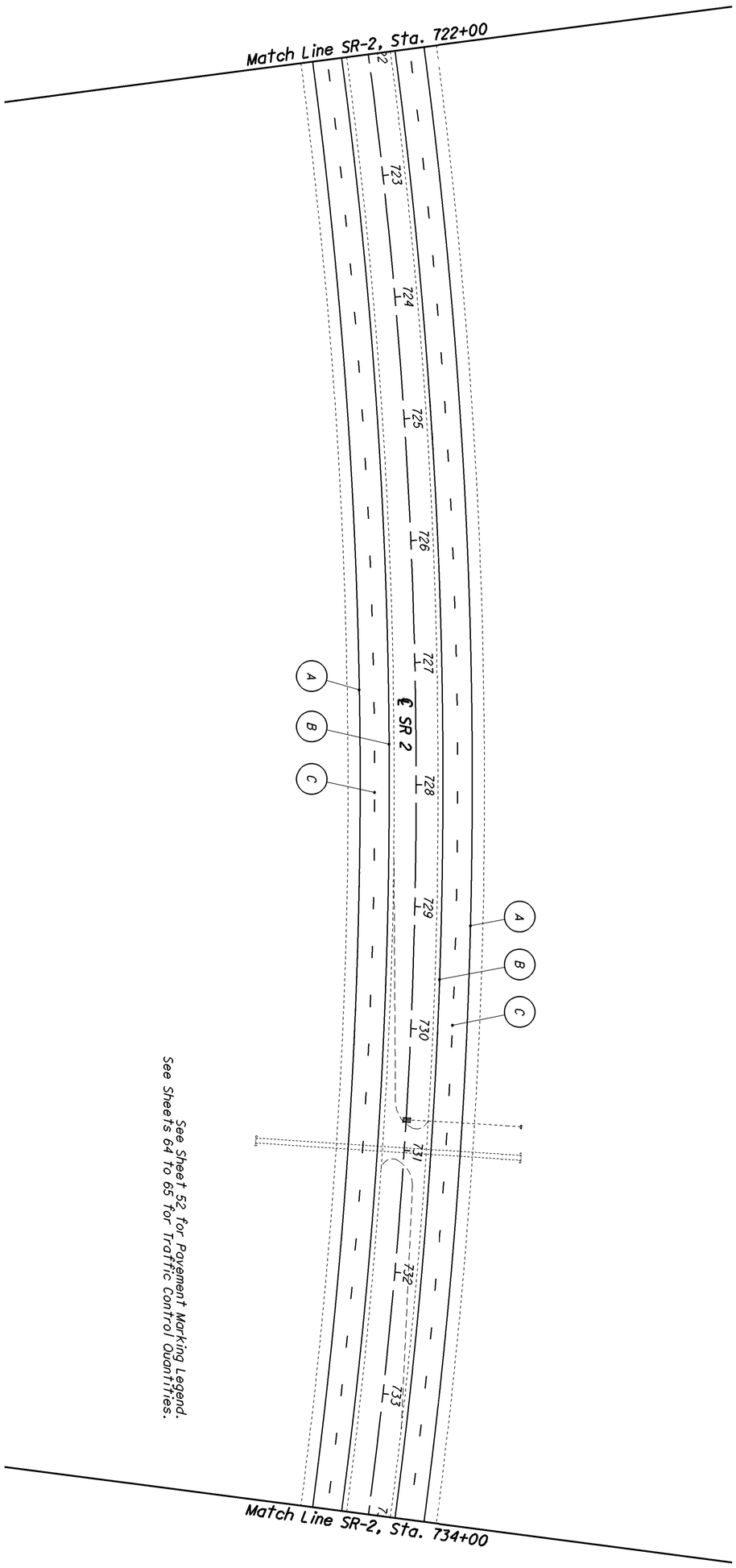


LAK-2-14.38

Traffic Control Plan Sheet
SR-2, Sta 710+00 to Sta 722+00

CALCULATED EJK
CHECKED BMB

0 25 50 100
HORIZONTAL SCALE IN FEET

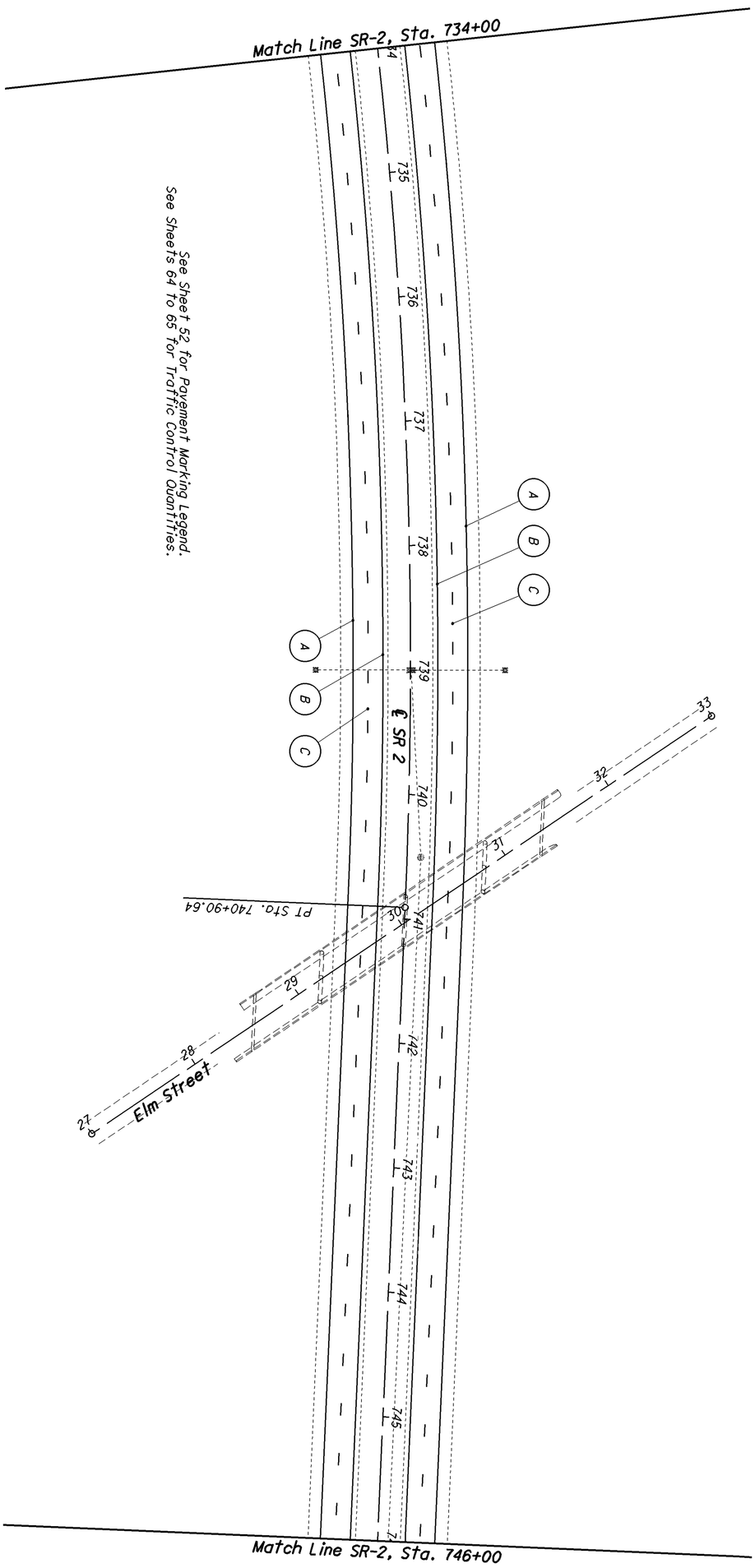


LAK-2-14.38

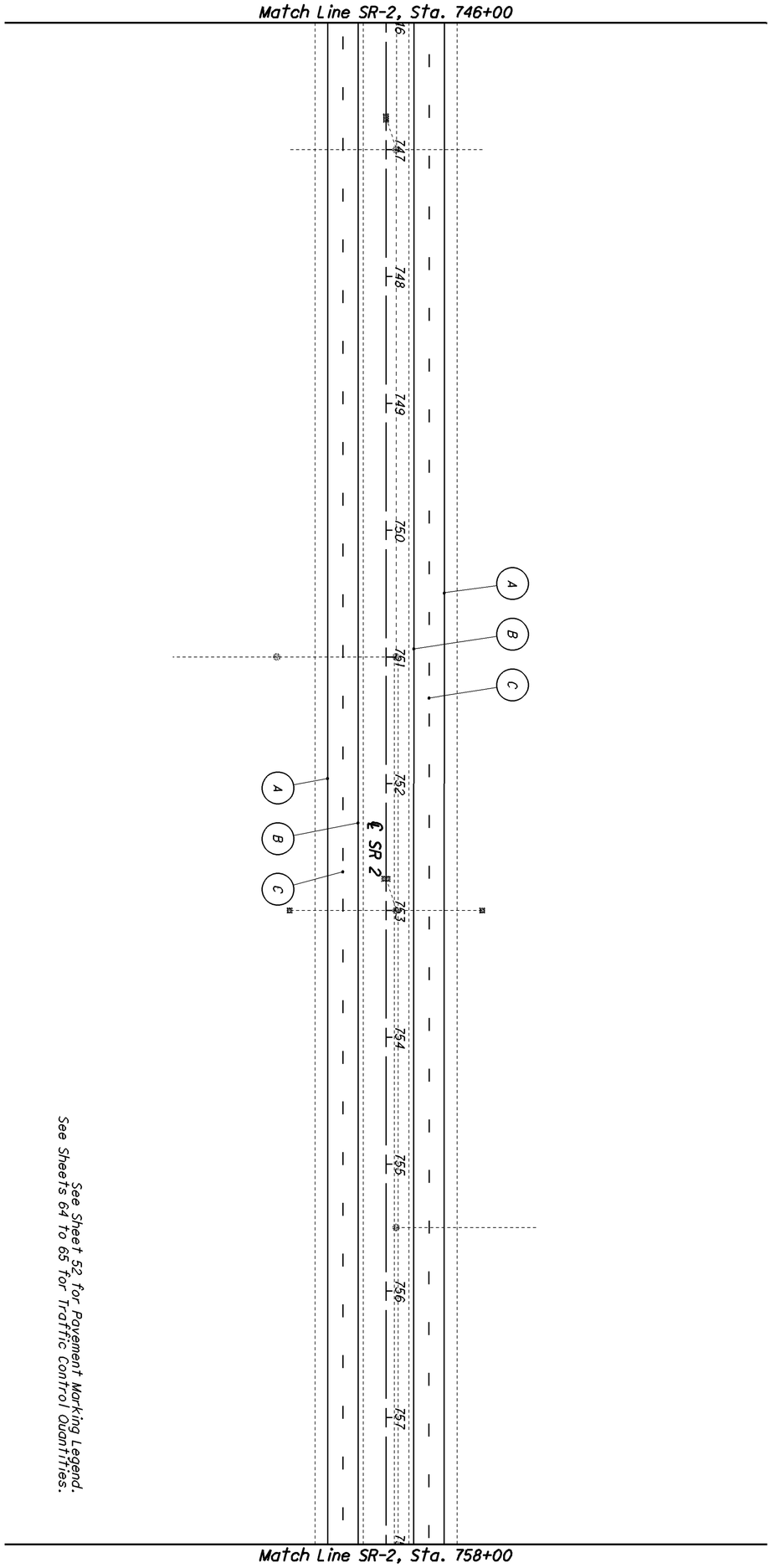
Traffic Control Plan Sheet
SR-2, Sta 722+00 to Sta 734+00

CALCULATED EJK
CHECKED BMB

0 50
25 100
HORIZONTAL SCALE IN FEET



60 / 208	LAK-2-14.38	Traffic Control Plan Sheet SR-2, Sta 734+00 to Sta 746+00	CALCULATED EJK CHECKED BMB	0 50 25 100 HORIZONTAL SCALE IN FEET



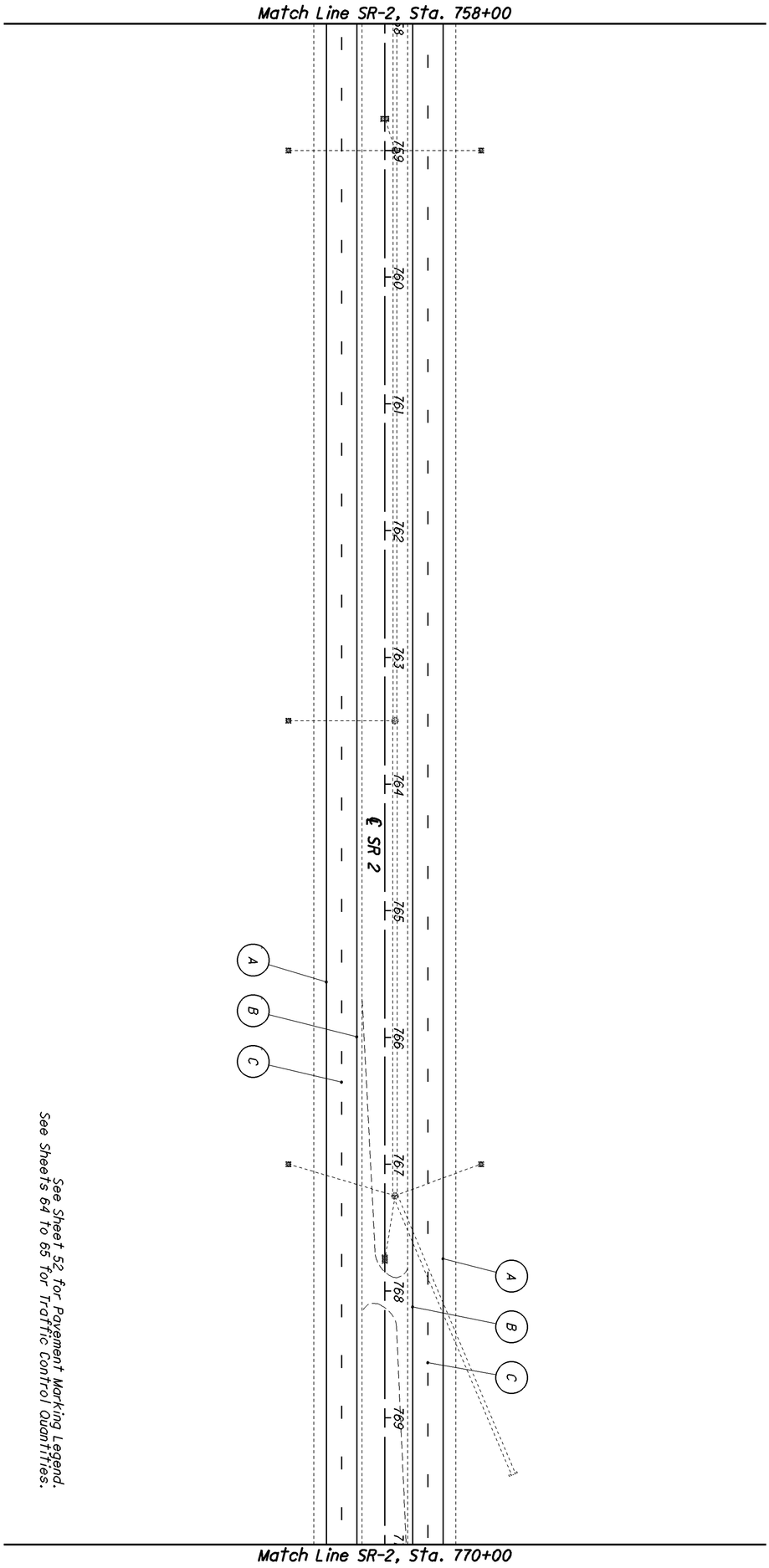
LAK-2-14.38

Traffic Control Plan Sheet
SR-2, Sta 746+00 to Sta 758+00

CALCULATED EJK
CHECKED BMB

0 50
25 100
HORIZONTAL SCALE IN FEET

N



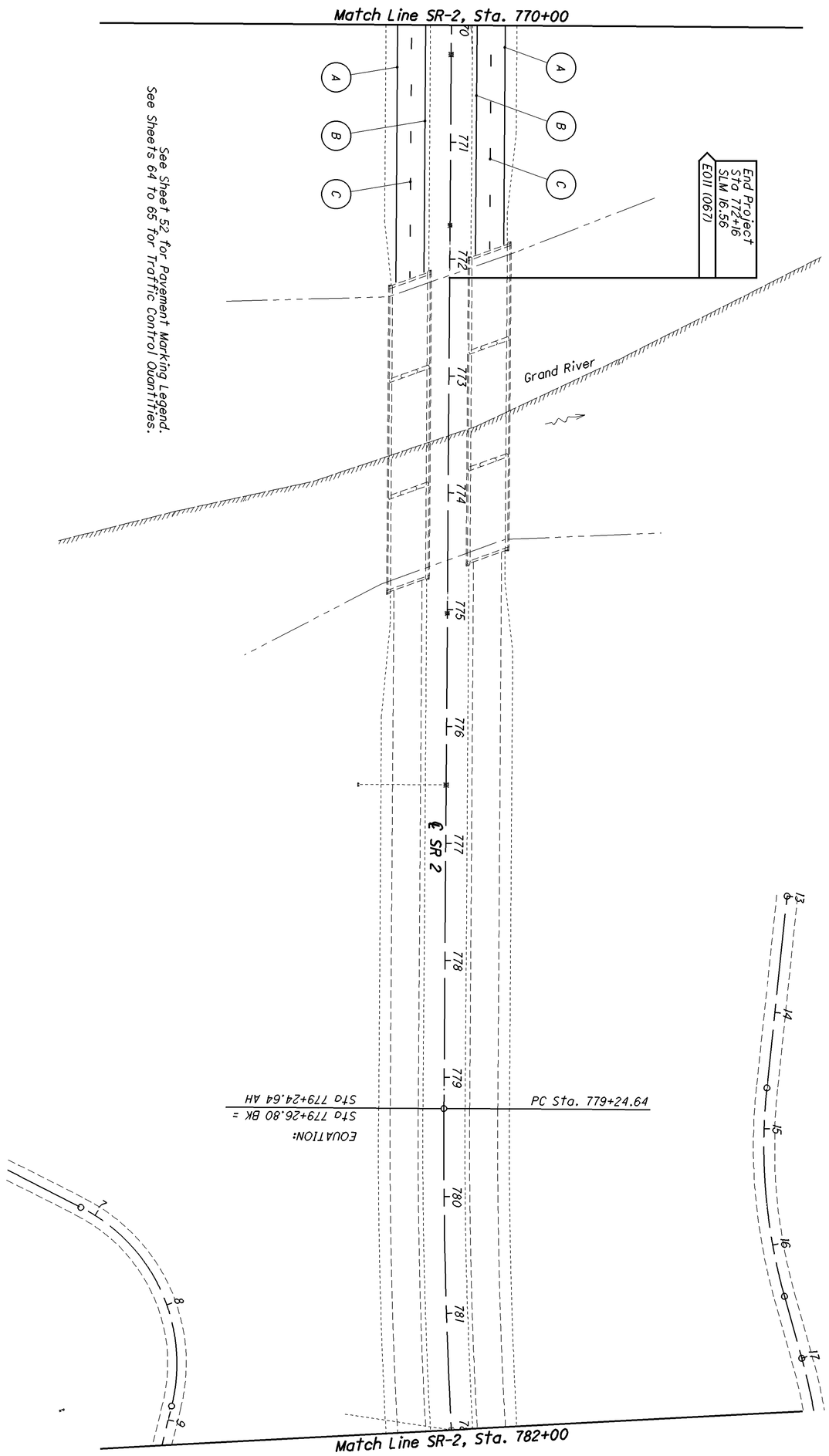
LAK-2-14.38

Traffic Control Plan Sheet
SR-2, Sta 758+00 to Sta 770+00

CALCULATED EJK
CHECKED BMB

0 50
25 100
HORIZONTAL SCALE IN FEET

N



63 / 208	LAK-2-14.38	Traffic Control Plan Sheet SR-2, Sta 770+00 to Sta 782+00	CALCULATED EJK CHECKED BMB	0 50 25 100 HORIZONTAL SCALE IN FEET

REF. NO.	SHEET NO.	STATION TO STATION		LENGTH	646									621				620			632
					Edge Line, Yellow	Edge Line, White	Lane Line, As Per Plan	Channelizing Line		Lane Arrow	Stop Line			RPM (White)	RPM (White / Red)	RPM (Yellow / Red)	Raised Pavement Marker Removed	Delineator, Post-Mounted (Yellow)	Delineator, Post-Mounted (White)	Removal of Delineator	Detector Loop, As Per Plan
				Feet	Mile	Mile	Mile	Feet		Each	Feet			Each	Each	Each	Each	Each	Each	Each	Each
		SR-2 Westbound																			
		656+25.00	680+12.28	2,387	2,387	2,387	2,387							31							
		680+12.28	683+76.48	364	364	364	728							10							
		683+76.48	685+26.74	150	150		150	150						3	5						
		685+26.74	692+42.28	716	716	716	716							10							
		692+42.28	693+92.50	150	150		150	150						3							
		693+92.50	695+17.50	125	125	125	250							4	5						
		695+17.50	771+92.56	7,675	7,675	7,675	7,675							97							
		656+25.00	771+92.56	11,568														31	31		
		SR-2 Eastbound																			
		656+25.00	683+48.72	2,724	2,724	2,724	2,724							35							
		683+48.72	684+35.35	87	87	87	174							3							
		684+35.35	685+14.96	80	80		80	80						2	3						
		685+14.96	690+76.88	562	562	562	562							8							
		690+76.88	692+48.06	171	171		171	171						3	5						
		692+48.06	694+41.89	194	194	194	388							6							
		694+41.89	772+17.31	7,775	7,775	7,775	7,775							98							
		656+25.00	772+17.31	11,592														31	31		
		Project Wide															422			180	
		SUBTOTALS			23,160	22,609	23,930	551	0					313	18	0	422	62	62	180	
		TOTALS CARRIED TO SHEET 65			8.67		4.53	551	0					331			422	62	62	180	

CALCULATED SJT
CHECKED BMB

Pavement Marking Subsummary

LAK-2-14.38

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REF. NO.	SHEET NO.	STATION TO STATION		LENGTH	646									621				620			632
					Edge Line, Yellow	Edge Line, White	Lane Line, As Per Plan	Channelizing Line		Lane Arrow	Stop Line			RPM (White)	RPM (White / Red)	RPM (Yellow / Red)	Raised Pavement Marker Removed	Delineator, Post-Mounted (Yellow)	Delineator, Post-Mounted (White)	Removal of Delineator	Detector Loop, As Per Plan
				Feet	Mile	Mile	Mile	Feet		Each	Feet			Each	Each	Each	Each	Each	Each	Each	Each
		Ramp C-C																			
		9+80.18	19+81.07	1,001	1,001	1,001										14					
		19+81.07	21+27.29	146		146		146							5						
		9+80.18	21+27.29	1,147														7	7		
		Ramp D-D and C-C Spur																			
		10+35.22	12+44.79	210	420	420		210		6	41					6					
		12+44.79	13+07.08	62	124	124										3					
		13+07.08	22+44.95	938	938	938										13					
		22+44.95	23+93.60	149		149		149							5						
		10+35.22	23+93.60	1,358														8	8		
		Ramp E-E																			
		9+84.12	11+66.10	182	182	182										3					
		11+66.10	11+91.46	25		25		25							2						
		11+91.46	18+56.75	665	665	665										9					
		18+56.75	19+34.94	78		78		78							3						
		9+84.12	19+34.94	951														6	6		
		Ramp F-F																			
		9+67.05	20+79.06	1,112	1,112	1,112										15					
		20+79.06	22+48.10	169		169		169							5						
		9+67.05	22+48.10	1,281														7	7		
		E-E Spur and F-F Spur																			
		10+33.32	11+60.77	127	254	254		127		6	23					4					
		11+60.77	11+88.34	28	56	28		28							2	2					
		11+88.34	12+74.97	87	87	87										2					
DL-1	51	Ramp EE Spur																			2
DL-2	51	Ramp DD																			2
SUBTOTALS					4,839	5,378		932		12	64				21	70		28	28		4
TOTALS FROM THIS SHEET					1.94			932		12	64			91				28	28		4
TOTALS FROM SHEET 64					8.67		4.53	551						331			422	62	62	180	
TOTALS CARRIED TO GENERAL SUMMARY					10.60		4.53	1,483		12	64			422			422	90	90	180	4

CALCULATED SJT
CHECKED BMB

Pavement Marking Subsummary

LAK-2-14.38

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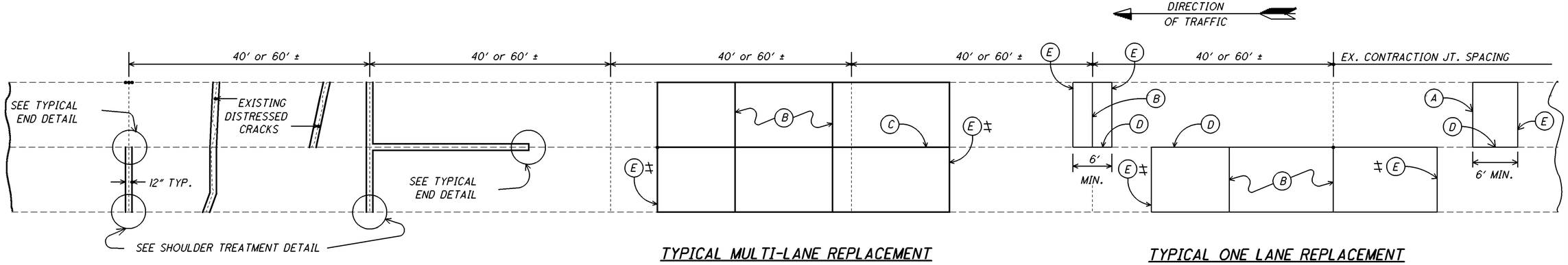
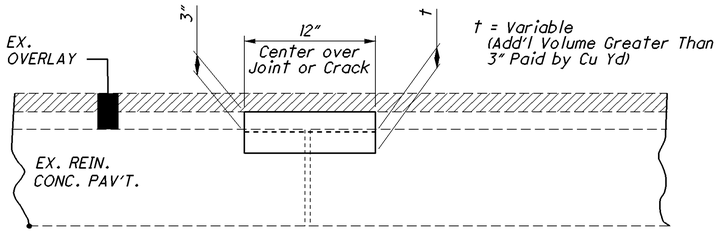


TYPICAL MULTI-LANE REPLACEMENT

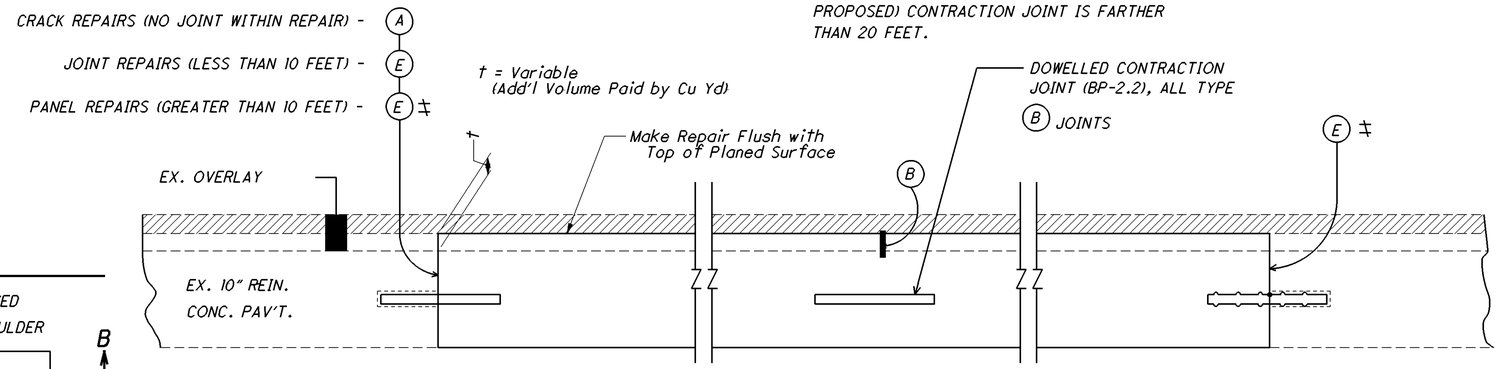
TYPICAL ONE LANE REPLACEMENT

‡ USE (A) JOINT IF EITHER ADJACENT (EXISTING OR PROPOSED) CONTRACTION JOINT IS FARTHER THAN 20 FEET.

PARTIAL DEPTH JOINT OR CRACK REPAIR

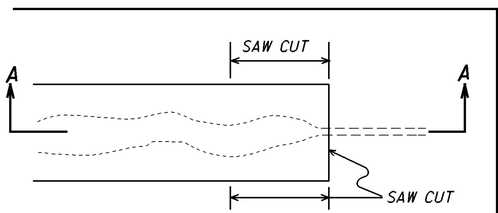


ITEM 251 - PARTIAL DEPTH PAV'T REPAIR

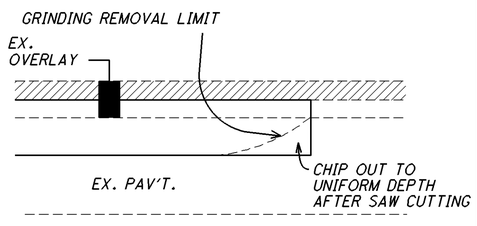


ITEM 255 - FULL DEPTH RIGID PAVEMENT REMOVAL AND RIGID REPLACEMENT

SEE GENERAL NOTES FOR ADDITIONAL INFORMATION.



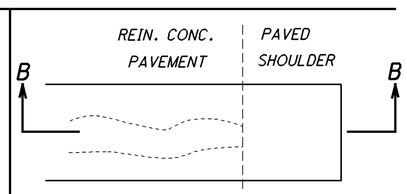
DISTRESSED JOINT-PLAN VIEW



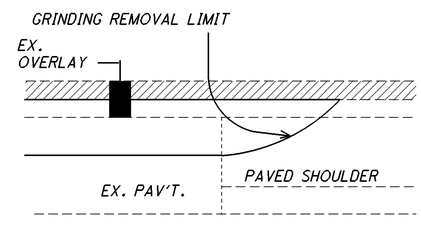
SECTION A-A

TYPICAL END DETAIL

NO SEPARATE PAYMENT WILL BE MADE FOR THESE SAW CUTS



DISTRESSED JOINT-PLAN VIEW



SECTION B-B

SHOULDER TREATMENT DETAIL

MEASURED QUANTITY SHALL NOT INCLUDE THE PAVED SHOULDER AREA

SEE GENERAL NOTES FOR ADDITIONAL INFORMATION.

LEGEND

(A) TYPE Y DOWELLED REPAIR JOINTS, AS PER BP-2.5

(B) SAWED CONTRACTION JOINT AS PER BP-2.2, WITH DOWELS, MAX. SPACING 20′ C/C FOR ONE LANE REPLACEMENTS ALIGN JOINT WITH EXISTING CRACKS IN THE ADJACENT LANE WHENEVER POSSIBLE. (EX. CRACKS OCCUR APPROX. 15′ C/C)

(C) LONGITUDINAL BUTT JOINT AS PER BP-2.1 (USING HOOK BOLTS)

(D) TYPE D JOINT AS PER BP-2.1 FOR PATCHES 10′ OR GREATER IN LENGTH

(E) TYPE T TIED REPAIR JOINT, AS PER BP-2.5

PAVEMENT PLANING, ASPHALT CONCRETE, 2″

CALCULATED BMB
CHECKED LDH

Item 251 Partial Depth and Item 255 Rigid Repair Details

LAK-2-14.38

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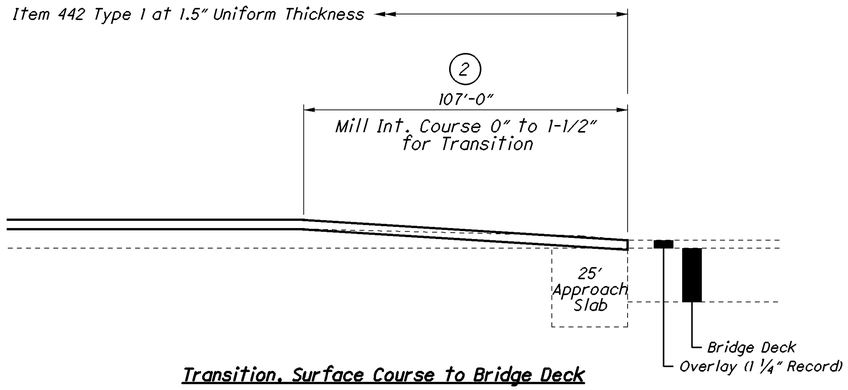
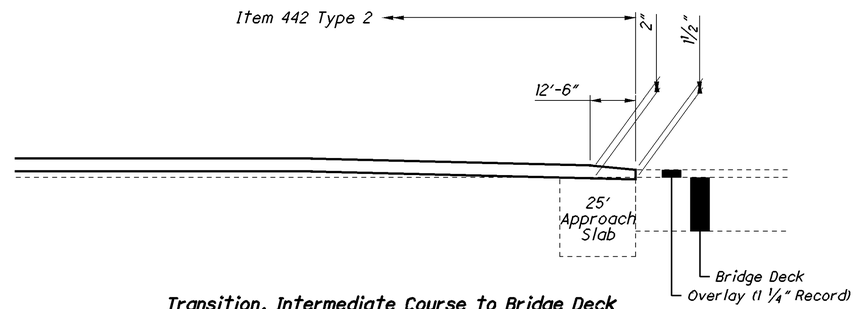
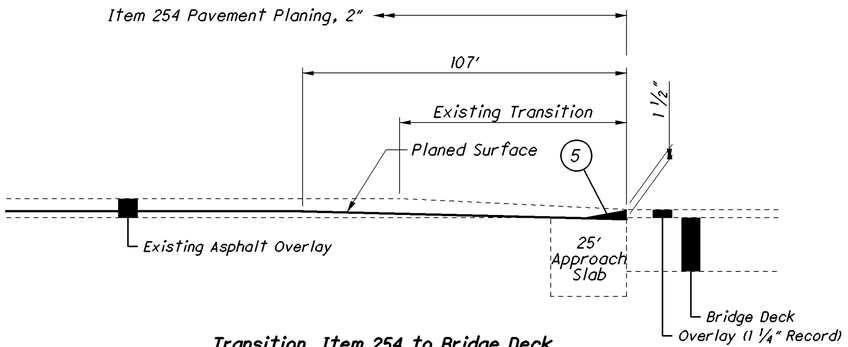


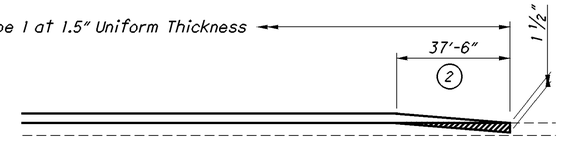
Transition, Surface Course to Bridge Deck



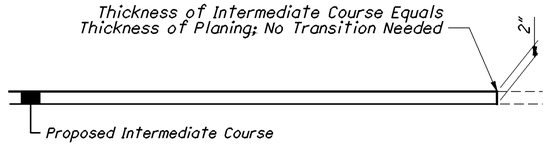
Transition, Intermediate Course to Bridge Deck
(Prior to Placement of Surface Course)



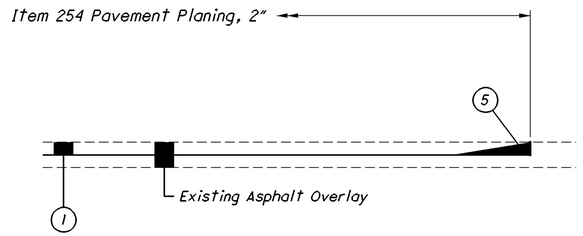
Transition, Item 254 to Bridge Deck
(Prior to Placement of Intermediate Course)



Transition Details for Meeting Existing Pavements



Transition Details for Meeting Existing Pavements
(Prior to Placement of Surface Course)



Transition Details for Meeting Existing Pavements
(Prior to Placement of Intermediate Course)

Legend--Proposed

1. Item 254 - Pavement Planing, Asphalt Concrete, 2"
2. Item 254 - Pavement Planing, Asphalt Concrete (For Transitions)
3. Not Used
4. Not Used
5. Item 614 - Asphalt Concrete for Maintaining Traffic, As Per Plan A

All permanent transitions designed a rate of 300:1 (25' per 1").

CALCULATED BMB CHECKED LDH

Overlay Details

LAK-2-14.38

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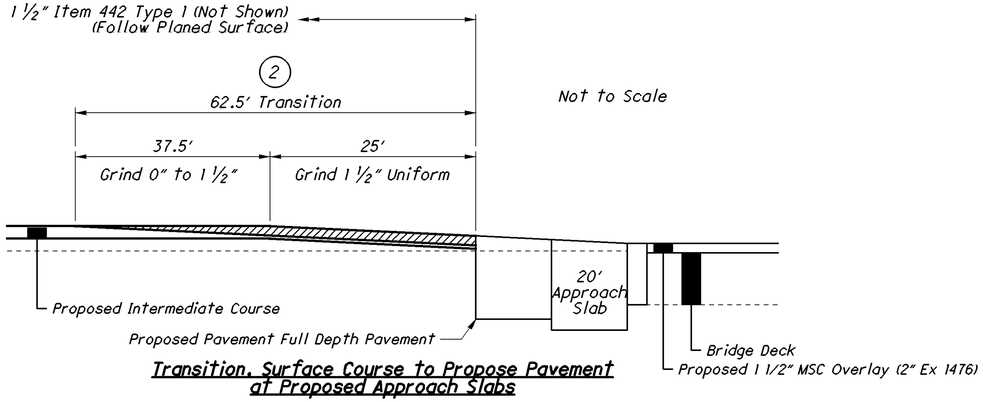
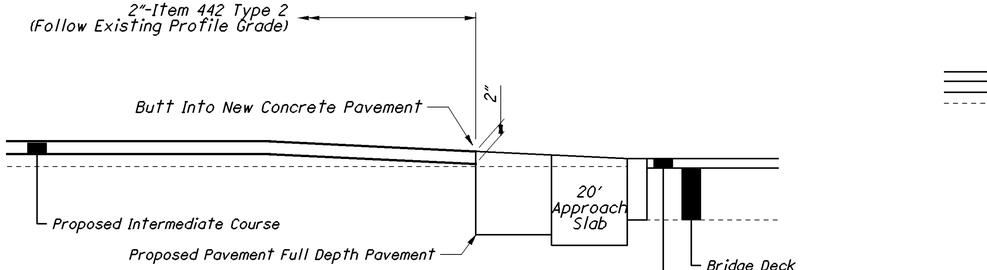
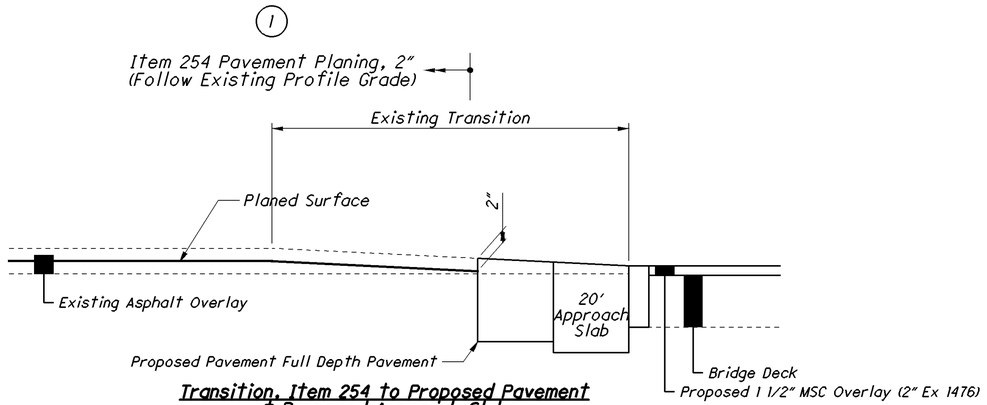


Transition, Surface Course to Propose Pavement at Proposed Approach Slabs



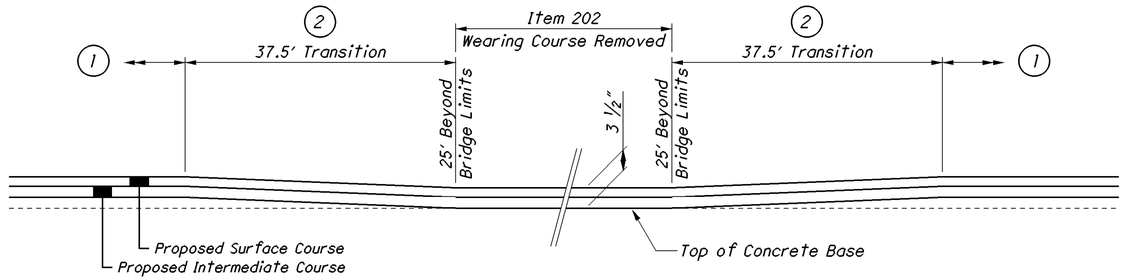
Transition, Intermediate Course to Proposed Pavement at Proposed Approach Slabs

(Prior to Placement of Surface Course)



Transition, Item 254 to Proposed Pavement at Proposed Approach Slabs

(Prior to Placement of Intermediate Course)



Overlay Thickness Transition SR-2 Under Overhead Structures

LAK-2-1597 WB (Elm Street)

Legend--Proposed

1. Item 254 - Pavement Planing, Asphalt Concrete, 2"
2. Item 254 - Pavement Planing, Asphalt Concrete (For Transitions)
3. Not Used
4. Not Used
5. Item 614 - Asphalt Concrete for Maintaining Traffic, As Per Plan A

All permanent transitions designed a rate of 300:1 (25' per 1").

CALCULATED BMB CHECKED LDH

Overlay Details

LAK-2-14.38

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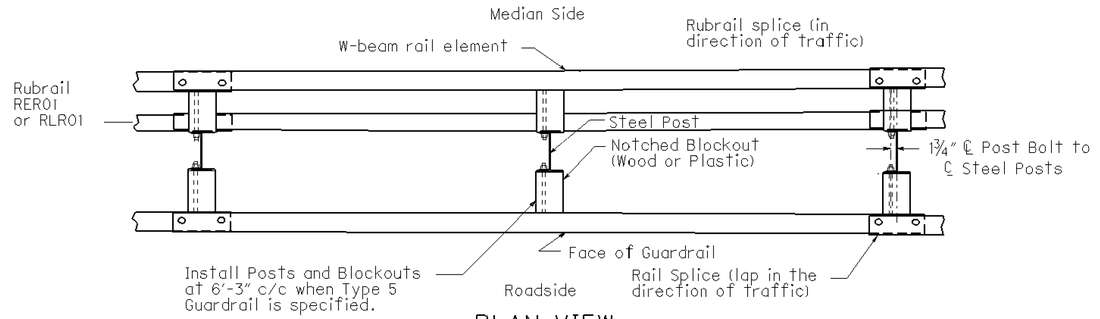
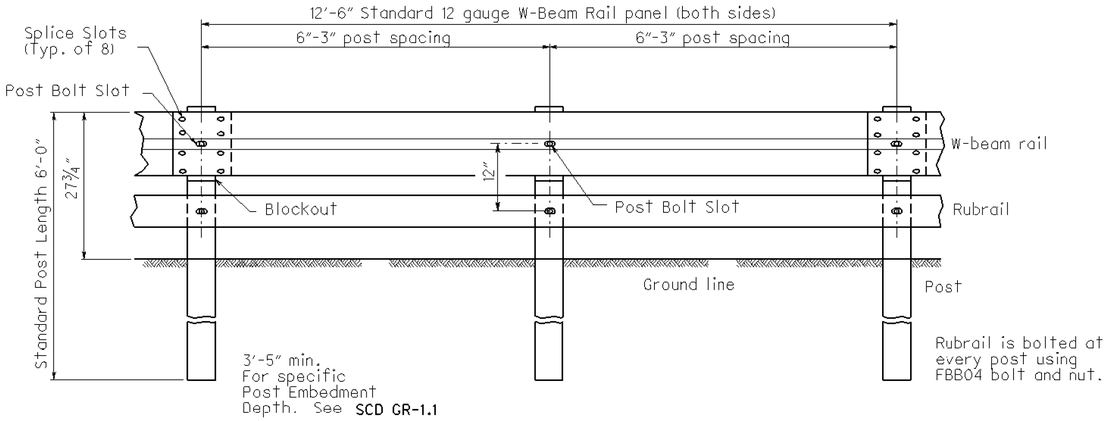
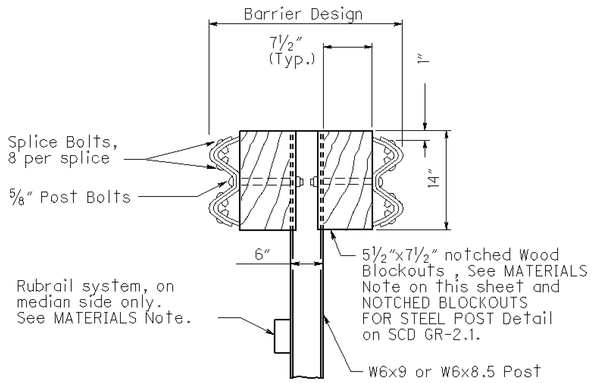


PLAN VIEW

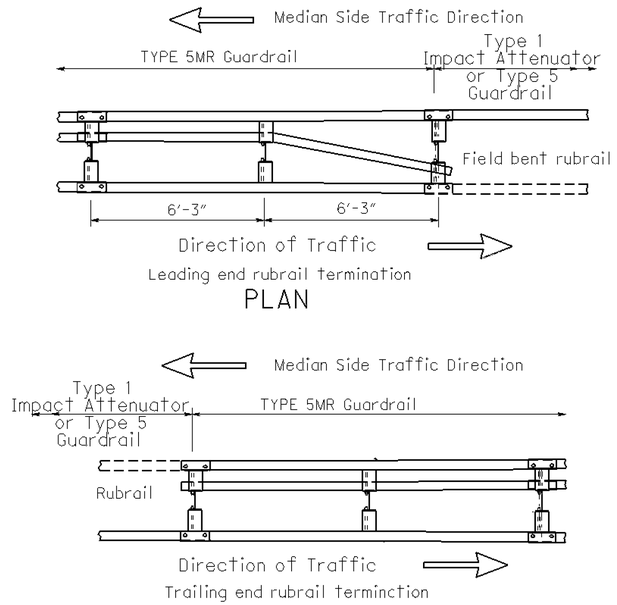


MEDIAN SIDE ELEVATION

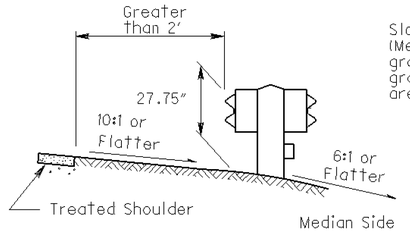


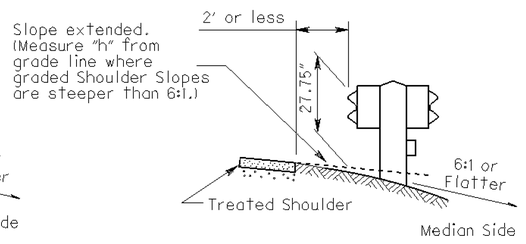
STEEL POST

See MATERIALS Note



INTRODUCTION/TERMINATION OF RUBRAIL AT ENDS OF TYPE 5MR RUNS





NOTES

GENERAL:
This sheet details a median barrier guardrail system with a single rubrail, ODOT Type 5MR, to be installed in locations shown on the project plans.

DESCRIPTION:
The barrier system detailed on this sheet depicts a barrier guardrail system consisting of a double sided w-beam guardrail run mounted on a single steel post with blockouts supporting the rail elements. A channel rub rail is to be attached to the steel posts on the ditch side of the barrier run as shown. It is different than ODOT Type 5 barrier guardrail in that the system has a rub rail on the median side, and steel posts are required. It is similiar to AASHTO-AGC-ARTBA standard hardware system SGM06a, except that it uses only one rubrail.

MATERIALS:
Posts are to be standard length steel W6x9 (W6x8.5) rolled or welded guardrail posts. Wood or alternate guardrail posts are not permitted. Blockouts are to be notched for steel posts and may be ODOT's generic wood or approved alternates as shown on ODOT Office of Materials Management's approved list for blockouts. Wood blockouts requiring toe nailing, or steel blockouts are not allowed.

The rub rail elements, assembly components, and its fastening is to be done in accordance with AASHTO-AGC-ARTBA's Hardware Guide part numbers RER01 (bent plate rub rail), or RLR01 (channel-section rub rail), and mounted to one side of each post by a post bolt. If RLR01 is used by the contractor, a splice plate is reqired as per the Hardware Guide. This rub rail and any components of the rub rail subsystem are to be hot dipped galvanized as per ASTM A123 Type 2. All posts, blockouts, materials are to be as per Standard Construction Drawing GR-2.1, and GR-1.1 and CMS 606. All other components are to be as specified on GR-1.1, GR-2.2, or CMS 606.

MOUNTING HEIGHT:
The Type 5MR is to be mounted at 27.75 inches to the top of the w-beam rail, when measured from the closest paved shoulder as shown on the MEASURING GUARDRAIL HEIGHT Detail on this sheet.

TERMINATION:
The configuration shown here is not to be used in any end terminals, bridge terminal assemblies, or impact attenuators. Those systems are to be installed as per other standard drawings or manufacturer's instructions. Introduce the rubrail to approaching traffic by field bending the last 6'3" of rubrail to behind the first post. On the trailing end, do not bend the rubrail behind the last post as shown. In both cases, attach the rubrail to the first (or last) post.

PAYMENT:
Item 606 Guardrail Type 5MR is paid in Lineal Feet for the length specified in the plans and shall include all material components (rail, rubrail, post, blockout and fasteners), including the rub rail assembly, and all other haedware, material and labor required to construct the guardrail system as shown.

CALCULATED | CHECKED

Sheet: Guardrail Type 5 MR (5-5-2010)

Plan Insert Sheet

LAK-2-14.38

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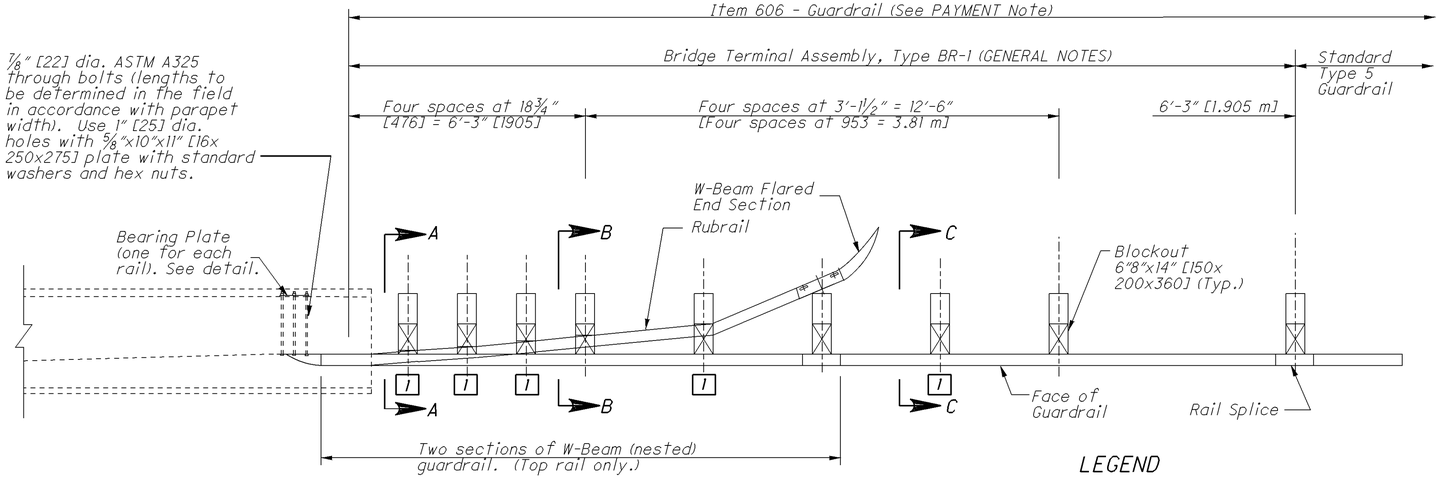
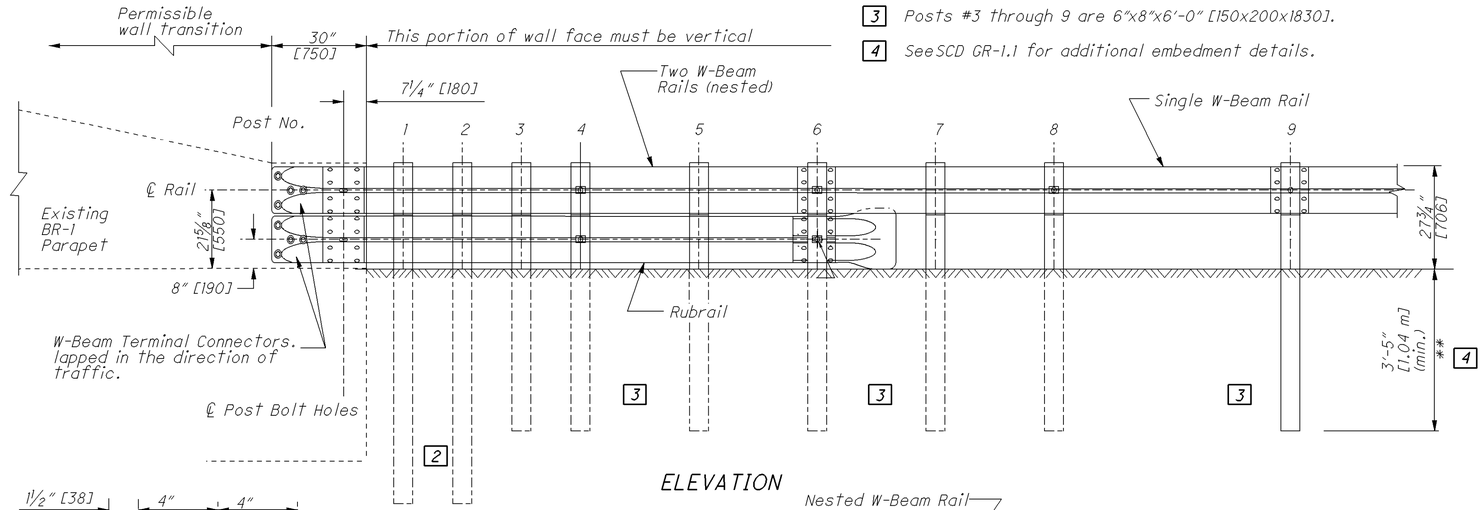


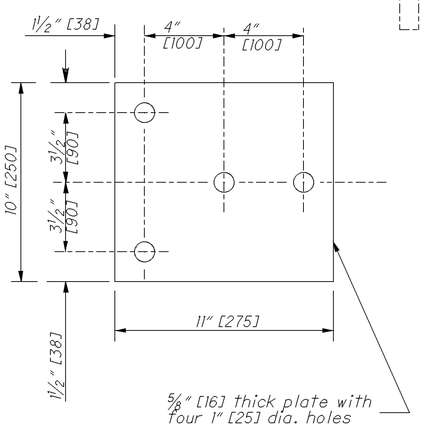
PLAN

LEGEND

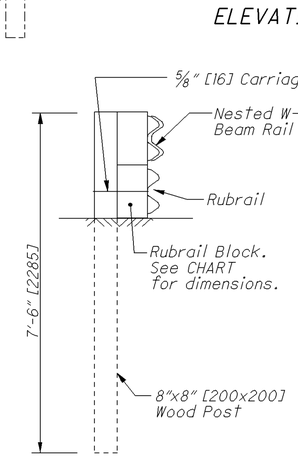
1. Guardrail not attached to Posts. Blockout fastened to Post with Standard Post Bolt.
2. Posts #1 and 2 are 8"x8"x7'-6" [150x200x2300].
3. Posts #3 through 9 are 6"x8"x6'-0" [150x200x1830].
4. See SCD GR-1.1 for additional embedment details.



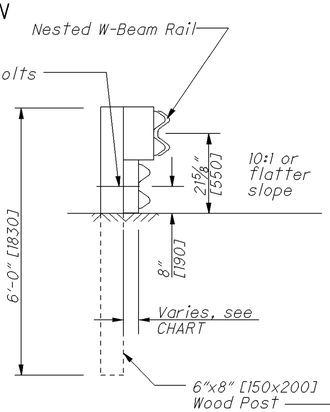
ELEVATION



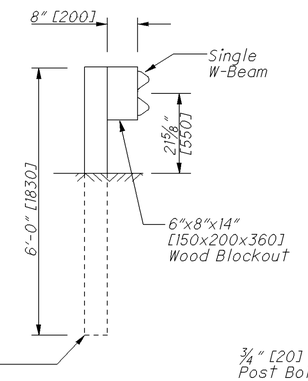
BEARING PLATE
2 required



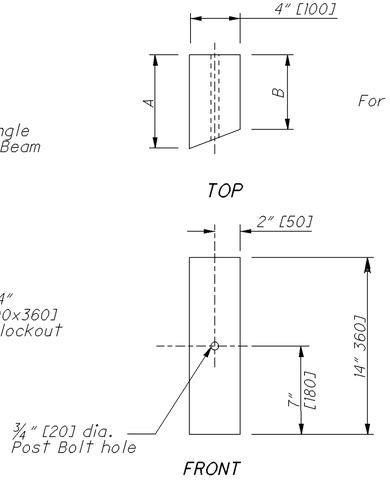
SECTION A-A



SECTION B-B



SECTION C-C



WOOD BLOCK FOR RUBRAIL

For A and B dimensions see CHART.

RUBRAIL BLOCK CHART		
POST	A	B
1	6½" [164]	6¼" [158]
2	5⅛" [131]	4⅞" [125]
3	3⅞" [99]	3⅝" [93]
4	2⅝" [67]	2⅜" [61]
5	No Block	No Block

NOTES

GENERAL: This design is intended to be used to upgrade bridge terminal assemblies utilizing 27" [786] BR-1 Bridge parapets in effect from 1979 to 1989. This assembly design is approved to NCHRP Report 350, Test Level 3.

This guardrail transition is only appropriate for connection to a vertical concrete end; it should not be connected directly to a concrete safety shape or single slope shape. If attached to a vertical concrete wall (other than a parapet), the wall must be adequately reinforced to resist the lateral and longitudinal forces transmitted through the terminal connectors. If the height of the vertical connection is 32" [813], use Bridge Terminal Assembly, Type 1 (SCD GR-3.1).

This design utilizes a lower rail (rubrail), and it cannot be used if there is a curb present.

RUBRAIL: The rubrail is a 12'-6" [3.81 m] standard 12 ga. W-Beam rail element. The last 3' [1 m] of the rubrail may be shop bent to facilitate field installation. Field drill rubrail hole at Post 6.

POST ATTACHMENTS: Posts No. 1, 2, 3, 4 and 6 require an additional 1" [25] dia. hole to attach the lower block and/or rubrail.

Do not bolt nested W-Beam or Rubrail to Posts and Blockouts on Posts No. 1, 2, 3, 5 and 7. Bolt blockouts directly to posts at those locations.

Center drill wood block for rubrails to sit squarely on Posts 1 through 4. Secure blocks to Posts No. 1, 2, & 3 with ⅝" [16] carriage bolts. See WOOD BLOCK FOR RUBRAIL Detail.

Use Wood posts only. Steel or plastic blockouts are not permitted. Use of rectangular plate washers is optional.

GUARDRAIL CONNECTION: At least one 12'-6" [3.8] m section of Standard W-Beam Guardrail must be present before attaching any End Anchors. See SCD GR-2.1 for standard guardrail details.

PAYMENT: Item 606 - Bridge Terminal Assembly, Type BR-1, Each, includes the cost of the extra components, in excess of normal guardrail, for additional and different sizes of posts and block-outs, nested rail and rubrail, Bearing Plates, End Section and Connectors, and other hardware.

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

All metric dimensions (in brackets [ ]) are in millimeters unless otherwise noted.

CALCULATED | CHECKED

Plan Insert Sheet: Bridge Terminal Assembly Type BR-1 (10-20-2006)

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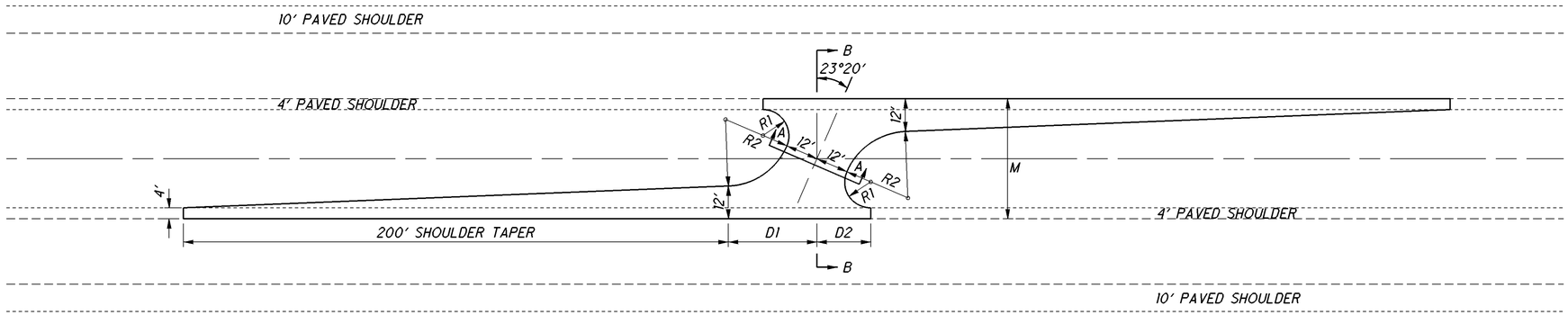
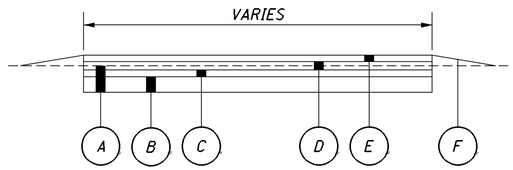
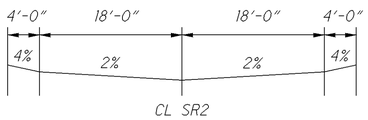


TYPICAL CROSSOVER



TYPICAL SECTION A-A

STA. 759+26



TYPICAL SECTION B-B

STA. 759+26

LEGEND

- (A) Item 203 Excavation
- (B) Item 304 6" Aggregate Base
- (C) Item 301 8" Bituminous Aggregate Base, PG64-22
- (D) Item 448 Asphalt Concrete Intermediate Course, Type 2, PG64-22
- (E) Item 448 Asphalt Concrete Surface Course, Type 1, PG70-22M
- (F) Item 617 Compacted Aggregate

CROSSOVER DIMENSIONS						
LOCATION	MEDIAN WIDTH, M	R1	R2	D1	D2	AREA
	FT	FT	FT	FT	FT	SQ YD
759+26	44.00	9.49	24.43	32.47	19.73	551

CALCULATED JML
CHECKED BMB

Crossover Detail

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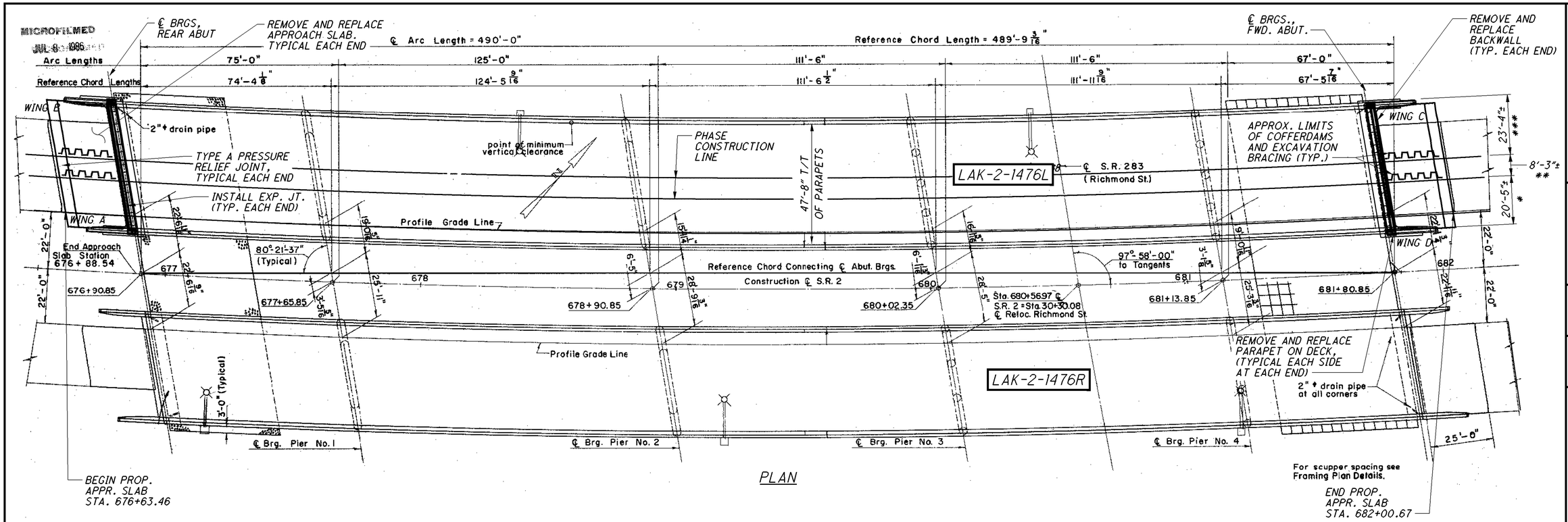
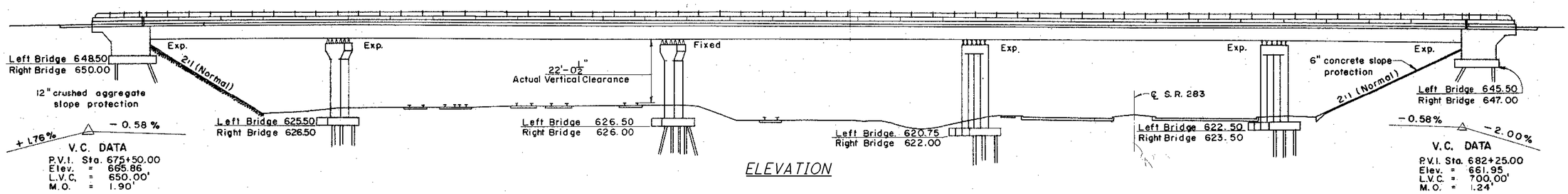


PLAN



ELEVATION

LEGEND

* PHASE 1 CONSTRUCTION
** PHASE 2A CONSTRUCTION
*** PHASE 2B CONSTRUCTION

EXISTING STRUCTURE	PROPOSED STRUCTURE
TYPE: 5-SPAN CONTINUOUS WELDED PLATE GIRDER WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURES	PROPOSED WORK: REPLACE ABUTMENT BACKWALLS, REPLACE EXPANSION JOINTS WITH STRIP SEAL EXPANSION JOINTS, REPLACE APPROACH SLABS AND PROVIDE PRESSURE RELIEF JOINTS.
SPANS: 75'-0", 125'-0", 111'-6", 111'-6", 67'-0"	TYPE: 5-SPAN CONTINUOUS WELDED PLATE GIRDER WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURES
ROADWAY: 47'-8"± T/T PARAPET	SPANS: 75'-0", 125'-0", 111'-6", 111'-6", 67'-0"
LOADING: HS-20-44	ROADWAY: 47'-8"± T/T PARAPET
SKEW: 7° 58' 00" R.F.	LOADING: HS-20-44
APPROACH SLABS: 25'-0"± LONG	SKEW: 7° 58' 00" R.F.
EXISTING WEARING SURFACE: SUPERPLASTICIZED DENSE CONCRETE	APPROACH SLABS: STD. AS-1-81 20'-0" LONG (MODIFIED)
ALIGNMENT: 1° 15' CURVE	EXISTING WEARING SURFACE: SUPERPLASTICIZED DENSE CONCRETE
CROWN: 0.04 FT/FT	ALIGNMENT: 1° 15' CURVE
STRUCTURAL FILE NUMBER: 4301382	CROWN: 0.04 FT/FT
DATE BUILT: 1963	

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED CNK | DRAWN CNK | CHECKED JTC | REVIEWED SCJ | DATE 9/10 | REVISED | STRUCTURE FILE NUMBER 4301382

SITE PLAN
BRIDGE NO. LAK-2-1476L
S.R. 2 OVER S.R. 283

LAK-2-14.38
PID No. 87924

1 / 16

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GENERAL NOTES

REFER TO THE FOLLOWING STANDARD BRIDGE DRAWINGS:

AS-1-81	REVISED	07-19-02
GSD-1-96	REVISED	07-19-02
EXJ-4-87	REVISED	07-19-02
PCB-91	REVISED	07-19-02

REFER TO THE FOLLOWING STANDARD ROADWAY DRAWINGS:

BP-2.3	REVISED	07-16-04

AND TO THE FOLLOWING SUPPLEMENTAL SPECIFICATIONS:

848	DATED	04-16-10

DESIGN SPECIFICATIONS: THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO), 2002, AND THE 2004 ODOT BRIDGE DESIGN MANUAL.

DESIGN LOADING: HS-20 AND THE ALTERNATE MILITARY LOADING.

DESIGN DATA:

CONCRETE CLASS HP - COMPRESSIVE STRENGTH 4.5 KSI (DECK, ABUTMENTS COUNTERWEIGHTS, PARAPETS, AND APPROACH SLABS)
REINFORCING STEEL - MINIMUM YIELD STRENGTH 60 KSI
STRUCTURAL STEEL - ASTM A709 GRADE 50W - YIELD STRENGTH 50 KSI

MONOLITHIC WEARING SURFACE: IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1" THICK.

EXISTING STRUCTURE VERIFICATION: DETAILS AND DIMENSIONS SHOWN ON 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 513.04.

BASE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS THAT HAVE BEEN VERIFIED IN THE FIELD.

MAINTENANCE OF TRAFFIC

PROPOSED WORK:
IN GENERAL, THE PROPOSED WORK FOR THE S.R. 2 BRIDGE OVER RICHMOND ROAD SHALL CONSIST OF THE REMOVAL AND REPLACEMENT OF THE ABUTMENT BACKWALLS, THE REMOVAL OF THE EXISTING EXPANSION JOINTS AND REPLACEMENT WITH STRIP SEAL EXPANSION JOINTS, AND REMOVAL AND REPLACEMENT OF APPROACH SLABS. REMOVAL AND CONSTRUCTION OPERATIONS ARE TO BE PERFORMED WHILE MAINTAINING TWO LANES OF WESTBOUND TRAFFIC ON S.R. 2 PER THE M.O.T. PLANS. THE MAJOR ITEMS OF WORK REQUIRING PHASED CONSTRUCTION ARE DESCRIBED BELOW. SOME PROJECT WORK ITEMS, SUCH AS SEALING OF CONCRETE SURFACES, MAY BE PERFORMED AT THE CONTRACTOR'S DISCRETION DURING THE CONTRACT SCHEDULE PERIOD; HOWEVER, THE PERFORMANCE OF ALL WORK MUST BE COORDINATED TO SATISFY MAINTENANCE OF TRAFFIC AND SAFETY REQUIREMENTS. SEE M.O.T. PLANS FOR ADDITIONAL MAINTENANCE OF TRAFFIC REQUIREMENTS.

PHASE 1 CONSTRUCTION:
1. INSTALL PORTABLE CONCRETE BARRIER ON THE EXISTING RICHMOND ROAD BRIDGE AND APPROACHES. ROUTE TRAFFIC ACROSS THE BRIDGE ACCORDING TO THE MAINTENANCE OF TRAFFIC PLANS.
2. CONSTRUCT TEMPORARY EXCAVATION SUPPORTS ALONG THE PHASE REMOVAL LINE AT THE REAR AND FORWARD ABUTMENTS AS SHOWN IN THE PLANS.
3. ON THE SOUTHERNMOST PORTION OF THE EXISTING BRIDGE, REMOVE THE EXISTING PORTION OF DECK/COUNTERWEIGHT AND PARAPET AT THE ABUTMENTS, APPROACH SLABS, EXPANSION JOINTS, END CROSSFRAMES, AND ABUTMENT BACKWALLS IN ACCORDANCE WITH 202.03 AND PLAN REQUIREMENTS.
4. CLEAN AND PAINT ENDS OF THE THREE SOUTHERNMOST EXISTING BEAMS.
5. CONSTRUCT SOUTHERNMOST REINFORCED CONCRETE ABUTMENT BACKWALL, END CROSSFRAMES, REINFORCED CONCRETE COUNTERWEIGHT, DECK, PARAPET, AND APPROACH SLAB AT THE REAR AND FORWARD ABUTMENTS.

PHASE 2 CONSTRUCTION:
1. INSTALL PORTABLE CONCRETE BARRIER ON COMPLETED PHASE 1 PORTION OF THE BRIDGE AS SHOWN ON BRIDGE AND MAINTENANCE OF TRAFFIC PLANS. ROUTE TRAFFIC ONTO COMPLETED PHASE 1 PORTION OF THE BRIDGE.
2. REMOVE THE REMAINING PORTIONS OF THE EXISTING DECK/COUNTERWEIGHT AND PARAPET AT ABUTMENTS, APPROACH SLABS, EXPANSION JOINTS, END CROSSFRAMES, AND ABUTMENT BACKWALLS IN ACCORDANCE WITH 202.03 AND PLAN REQUIREMENTS.
3. CLEAN AND PAINT ENDS OF THE FOUR NORTHERNMOST EXISTING BEAMS.
4. CONSTRUCT NORTHERNMOST REINFORCED CONCRETE ABUTMENT BACKWALL, END CROSSFRAMES, REINFORCED CONCRETE COUNTERWEIGHT, DECK, PARAPET, AND APPROACH SLAB AT THE REAR AND FORWARD ABUTMENTS.
5. REMOVE PORTABLE CONCRETE BARRIER AND ROUTE TRAFFIC ONTO COMPLETED BRIDGE ACCORDING TO MAINTENANCE OF TRAFFIC PLANS.

ITEM 202, PORTIONS OF STRUCTURE REMOVED AS PER PLAN:

DESCRIPTION: THIS WORK CONSISTS OF THE REMOVAL OF THE CONCRETE DECK, PARAPETS, EXPANSION JOINTS, AND OTHER APPURTENANCES FROM SUPPORTING SYSTEMS AS SHOWN IN THE PLANS. THIS WORK SHALL ALSO INCLUDE THE REMOVAL OF THE ABUTMENT BACKWALLS IN ACCORDANCE WITH THE DETAILS SHOWN IN THE PLANS.

ITEM 202, PORTIONS OF STRUCTURE REMOVED AS PER PLAN, CONTINUED:

ADDITIONAL CONCRETE REMOVAL MAY BE REQUIRED IF UNSOUND OR DETERIORATED CONCRETE IS ENCOUNTERED BEYOND THE PLAN CUT LINES. THE CONTRACTOR SHALL REMOVE ANY UNSOUND OR DETERIORATED CONCRETE BEYOND THE PLAN CUT LINE AS DIRECTED BY THE ENGINEER. PERFORM WORK CAREFULLY DURING DECK REMOVALS TO PROTECT PORTIONS OF THE EXISTING STEEL SUPPORTING SYSTEM THAT ARE TO BE SALVAGED AND INCORPORATED INTO THE PROPOSED STRUCTURE. THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE RAM TYPE OF EQUIPMENT IS PROHIBITED. SUBMIT CONSTRUCTION PLANS ACCORDING TO CMS 501.05.

PROTECTION OF TRAFFIC: PRIOR TO DEMOLITION OF ANY PORTIONS OF THE EXISTING SUPERSTRUCTURE, THE CONTRACTOR SHALL SUBMIT PLANS FOR THE PROTECTION OF TRAFFIC (VEHICULAR, 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 ENSURE 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, DRAW THE OUTLINE OF THE PRIMARY STEEL MEMBERS IN CONTACT WITH THE BOTTOM OF THE DECK ON THE SURFACE OF THE DECK. DRILL SMALL DIAMETER PILOT HOLES 2 INCHES OUTSIDE THESE LINES TO CONFIRM THE LOCATION OF FLANGE EDGES. DECK CUTS OVER OR WITHIN 2" OF FLANGE EDGES SHALL NOT EXTEND LOWER THAN THE BOTTOM LAYER OF DECK SLAB REINFORCING STEEL. CUTS MADE OUTSIDE 2 INCHES OF FLANGE EDGES MAY EXTEND THE FULL DEPTH OF THE DECK. PERFORM WORK CAREFULLY DURING CUTTING OF THE DECK SLAB TO AVOID DAMAGING STEEL MEMBERS THAT ARE TO BE INCORPORATED INTO THE PROPOSED STRUCTURE. REPLACE OR REPAIR STEEL MEMBERS DAMAGED BY THE DECK SLAB CUTTING OPERATIONS AT NO COST TO THE PROJECT. AT LEAST 7 DAYS BEFORE PERFORMING REPAIR WORK, SUBMIT A PROPOSED REPAIR PLAN, DEVELOPED BY AN OHIO REGISTERED PROFESSIONAL ENGINEER TO THE DIRECTOR. OBTAIN THE DIRECTOR'S APPROVAL BEFORE PERFORMING REPAIR.

REMOVAL METHODS: THE CONTRACTOR MAY REMOVE CONCRETE BY CUTTING AND BY MEANS OF HAND OPERATED PNEUMATIC HAMMERS EMPLOYING POINTED OR BLUNTED CHISEL TYPE TOOLS. FOR REMOVALS OVER STRUCTURAL MEMBERS, THE CONTRACTOR MAY USE A HAMMER HEAVIER THAN 35 POUNDS BUT NOT TO EXCEED 90 POUNDS UNLESS APPROVED BY THE ENGINEER. REMOVAL METHODS OVER STRUCTURAL MEMBERS SHALL ENSURE ADEQUATE DEPTH CONTROL AND PREVENT NICKING OR GOUGING THE PRIMARY STRUCTURAL MEMBERS.

SUBSTRUCTURE CONCRETE REMOVAL: REMOVE CONCRETE 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 35 POUNDS FOR REMOVAL WITHIN 18 INCHES OF PORTIONS TO BE PRESERVED. OUTSIDE THE 18 INCH LIMIT, THE CONTRACTOR MAY USE HAMMERS NOT EXCEEDING 90 POUNDS UPON THE APPROVAL OF THE ENGINEER. DO NOT PLACE PNEUMATIC HAMMERS IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE.

CUT LINE CONSTRUCTION JOINT PREPARATION: SAW CUT BOUNDARIES OF PROPOSED CONCRETE REMOVALS 1 INCH DEEP. REMOVE CONCRETE TO A ROUGH SURFACE. LEAVE THE EXISTING REINFORCING STEEL, IF REQUIRED IN THE PLANS, IN PLACE. INSTALL DOWEL BARS IF SPECIFIED. PRIOR TO CONCRETE PLACEMENT ABRASIVELY CLEAN JOINT SURFACES AND EXISTING EXPOSED REINFORCEMENT TO REMOVE LOOSE AND DISINTEGRATED CONCRETE AND LOOSE RUST. THOROUGHLY CLEAN THE JOINT SURFACE AND EXPOSED REINFORCEMENT OF ALL DIRT, DUST, RUST, OR OTHER FOREIGN MATERIAL BY THE USE OF WATER, AIR UNDER PRESSURE, OR OTHER METHODS THAT PRODUCE SATISFACTORY RESULTS. EXISTING REINFORCING STEEL DOES NOT HAVE TO HAVE A BRIGHT STEEL FINISH, BUT REMOVE ALL PACK AND LOOSE RUST. THOROUGHLY DRENCH EXISTING CONCRETE SURFACES WITH CLEAN WATER AND ALLOW TO DRY TO A DAMP CONDITION BEFORE PLACING CONCRETE.

MEASUREMENT AND PAYOUT: THE DEPARTMENT WILL MEASURE THE QUANTITY OF REMOVAL ON A LUMP SUM BASIS. THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES OF REMOVALS AT THE CONTRACT PRICE FOR ITEM 202, PORTIONS OF STRUCTURE REMOVED, AS PER PLAN.

ITEM 202, APPROACH SLAB REMOVED, AS PER PLAN:

THIS WORK CONSISTS OF REMOVING THE EXISTING APPROACH SLABS INCLUDING ANY EXISTING OVERLAY THAT IS PRESENT ON TOP OF THE EXISTING APPROACH SLAB.

ITEM 509 - REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN:

CONTIGENCY QUANTITIES ARE INCLUDED TO PROVIDE ADDITIONAL CONNECTING REINFORCING STEEL IF DOWELING IS REQUIRED OR IF EXISTING REINFORCING STEEL TO BE REUSED IS MISSING OR FOUND TO BE UNUSABLE.

REPLACE ALL EXISTING REINFORCING BARS DEEMED BY THE ENGINEER TO BE UNUSABLE BECAUSE OF CORROSION. THE DEPARTMENT WILL MEASURE THE REPLACEMENT REINFORCING STEEL BY THE NUMBER OF POUNDS ACCEPTED IN PLACE.

REPLACE ALL EXISTING REINFORCING STEEL BARS WHICH ARE TO BE INCORPORATED INTO THE NEW WORK AND ARE DEEMED BY THE ENGINEER TO BE MADE UNUSABLE BY CONCRETE REMOVAL OPERATIONS WITH NEW EPOXY COATED REINFORCING STEEL OF THE SAME SIZE AT NO COST TO THE DEPARTMENT.

ITEM 511, CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN:
ITEM 511, CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN:
ITEM 511, CLASS HP CONCRETE, SUBSTRUCTURE, AS PER PLAN:
ITEM 511, CLASS HP CONCRETE, TEST SLAB:

GENERAL REQUIREMENTS:
THE PROVISIONS OF ITEM 511 SHALL APPLY EXCEPT AS NOTED BELOW.

MIX OPTIONS:
ALL BRIDGE DECK, PARAPETS, AND APPROACH SLAB CONCRETE SHALL BE THIS MIX, AS MODIFIED BY TABLE A. ALL SUBSTRUCTURE CONCRETE SHALL BE THIS MIX, AS MODIFIED BY TABLE B.

THE FOLLOWING PROPORTIONS WILL BE USED AS A STARTING MIX DESIGN:

TABLE A
QUANTITIES PER CUBIC YARD
AGGREGATES (SSD)

HP4, AS PER PLAN (GGBF SLAG + MICROSILICA)								
AGGRE. TYPE	FINE AGGRE. (LB)	#8 COARSE AGGRE. (LB)*	#57 COARSE AGGRE. (LB)*	CEMENT CONTENT (LB)*	GGBF SLAG (LB)*	MICRO-SILICA (LB)*	W/C RATIO +/-0.01	AIR CONTENT +/-2%
GRAVEL	1245	360	1315	400	170	30	0.43	7
LIMESTONE	1245	360	1335	400	170	30	0.43	7
SLAB	1245	315	1155	400	170	30	0.43	7

TABLE B
QUANTITIES PER CUBIC YARD
AGGREGATES (SSD)

HP2, AS PER PLAN (GGBF SLAG W/O MICROSILICA)								
AGGRE. TYPE	FINE AGGRE. (LB)	#8 COARSE AGGRE. (LB)*	#57 COARSE AGGRE. (LB)*	CEMENT CONTENT (LB)*	GGBF SLAG (LB)*	MICRO-SILICA (LB)*	W/C RATIO +/-0.01	AIR CONTENT +/-2%
GRAVEL	1245	360	1315	430	170	0	0.43	7
LIMESTONE	1245	360	1335	430	170	0	0.43	7
SLAB	1245	315	1155	430	170	0	0.43	7

* ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED PER ASTM C127.

HIGH EARLY STRENGTH CEMENT MAY BE USED TO EXPEDITE CONSTRUCTION, SEE 511.07

THE WEIGHTS SPECIFIED IN THE CONCRETE TABLES WERE CALCULATED FOR MATERIALS OF THE FOLLOWING BULK SPECIFIC GRAVITIES (SSD): NATURAL SAND AND GRAVEL 2.62, LIMESTONE SAND 2.68, LIMESTONE 2.65, SLAG 2.30, FLY ASH 2.65, GGBF SLAG 2.90, MICROSILICA SOLIDS 2.20, AND PORTLAND CEMENT 3.15. FOR AGGREGATES OF SPECIFIC GRAVITIES DIFFERING MORE THAN PLUS OR MINUS 0.02 FROM THESE, THE WEIGHTS IN THE TABLE WILL BE CORRECTED.

PARAPET CONSTRUCTION (FORMED AND POURED): FORMS SHALL NOT BE REMOVED UNTIL AT LEAST 2 HOURS AFTER THE FINAL SET. DETERMINATION OF THE FINAL SET SHALL BE AS PER ASTM C266 (GILLMORE NEEDLE). TESTING SHALL BE PERFORMED BY THE CONTRACTOR AT NO COST TO THE STATE.

THE MINIMUM CONCRETE SLUMP DURING PLACEMENT OF FORMED CONCRETE PARAPETS SHALL BE 6 INCHES, WITH A MAXIMUM SLUMP OF 8 INCHES.

PARAPET CONSTRUCTION (SLIP FORMED): SLIP FORMING IS PROHIBITED.

BASIS OF PAYMENT: PAYMENT FOR THE ABOVE COMPLETED AND ACCEPTED QUANTITIES WILL BE MADE AT THE CONTRACT BID PRICE FOR:

ITEM	UNITS	DESCRIPTION
511E50001	CUBIC YARD	CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN
511E50101	CUBIC YARD	CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN
511E50201	CUBIC YARD	CLASS HP CONCRETE, SUBSTRUCTURE, AS PER PLAN
511E52000	LUMP	CLASS HP CONCRETE, TEST SLAB

ITEM 512, SEALING OF CONCRETE SURFACES (EPOXY URETHANE): THE FINISH COAT COLOR FOR ALL CONCRETE SURFACES TO RECEIVE SEALER SHALL MATCH THE EXISTING SEALER COLOR SUBJECT TO THE APPROVAL OF THE ENGINEER.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED CNK | DRAWN CNK | REVIEWED SCJ | DATE 9/10
CHECKED JTC | REVISED | STRUCTURE FILE NUMBER 4301382

GENERAL NOTES (1 OF 2)
BRIDGE NO. LAK-2-1476L
S.R. 2 OVER S.R. 283

LAK-2-14.38
PID No. 87924

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GENERAL NOTES

ITEM 513, STRUCTURAL STEEL MEMBERS, LEVEL UF , AS PER PLAN:
ALL REQUIREMENTS OF 513 APPLY TO SHOP FABRICATED MEMBERS. PERFORM WORK FOR FIELD-FABRICATED MEMBERS ACCORDING TO ITEM 513, EXCEPT AS MODIFIED HEREIN. THE DEPARTMENT WILL NOT REQUIRE THE CONTRACTOR PERFORMING FIELD FABRICATION TO BE PRE-QUALIFIED AS SPECIFIED IN SUPPLEMENT 1078. SUBMIT A WRITTEN LETTER OF MATERIAL ACCEPTANCE, 501.06, TO THE ENGINEER. PROVIDE SHOP DRAWINGS ACCORDING TO 513.04 OR SUPPLY THE ENGINEER WITH AS-BUILT DRAWINGS MEETING 513.04 AFTER COMPLETION OF FIELD FABRICATION. THE ENGINEER WILL REVIEW THE SUBMITTED DRAWINGS FOR CONCURRENCE WITH THE FINAL AS-BUILT CONDITION. IF NECESSARY, THE ENGINEER MAY CONTACT THE OFFICE OF STRUCTURAL ENGINEERING FOR TECHNICAL ASSISTANCE. IF THE ENGINEER IS SATISFIED WITH THE AS-BUILT DRAWINGS AND THE DELIVERED MATERIALS, SUPPLY A COPY OF THE DRAWINGS, STAMPED AND DATED, ALONG WITH MICROFILM, TO THE STRUCTURAL, WELDING AND METALS SECTION OF THE OFFICE OF MATERIAL MANAGEMENT FOR RECORD PURPOSES.

THE FOLLOWING MEMBERS ARE INCLUDED IN THIS ITEM: L4x4x5/16 AND 5/16" PL AS SHOWN IN "GIRDER 1 WEB REPAIR AT FORWARD ABUTMENT", SHEET 11/16.

ITEM 514, FIELD PAINTING STRUCTURAL STEEL, FINISH COAT: THE FINISH COAT COLOR FOR ALL STRUCTURAL STEEL MEMBERS TO RECEIVE PAINT SHALL MATCH THE EXISTING PAINT COLOR SUBJECT TO THE APPROVAL OF THE ENGINEER.

ITEM 516, STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL,
AS PER PLAN: IN ADDITION TO THE REQUIREMENTS OF STANDARD DRAWING EXJ-4-87, PROVIDE A COMPLETE PENETRATION WELDED BUTT JOINT AT THE PHASE CONSTRUCTION JOINTS. WHERE THE BUTT WELD IS TO BE IN CONTACT WITH THE SEALING GLAND, THE BUTT WELD SHALL BE GROUND FLUSH AND MODIFY ANCHORAGE OF L7x4x1/2 AS SHOWN ON PLANS.

ITEM 526, REINFORCED CONCRETE APPROACH SLAB (T=13"), AS PER PLAN
DESCRIPTION: THIS ITEM SHALL CONSIST OF CONSTRUCTING REINFORCED CONCRETE APPROACH SLABS IN ACCORDANCE WITH THE DETAILS SHOWN IN ODOT STANDARD DRAWING AS-1-81.

MATERIALS: CONCRETE FOR THIS ITEM SHALL BE ITEM 511 - CLASS HP CONCRETE. USE THE SAME MIX FOR ITEM 526 AS IS USED FOR THE BRIDGE DECK AND PARAPETS. SEE GENERAL NOTE ITEM 511 FOR THE CONCRETE MIX REQUIREMENTS.

METHOD OF MEASUREMENT: THE AREA MEASURED WILL BE THE NUMBER OF SQUARE YARDS COMPLETE IN PLACE.

BASIS OF PAYMENT: ACCEPTED QUANTITIES WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER SQUARE YARD COMPLETE IN PLACE. THIS PRICE SHALL INCLUDE FULL COMPENSATION FOR CONCRETE, REINFORCING STEEL, JOINT FILL, JOINT SEALERS, JOINT SEALS AND WATERPROOFING. PAYMENT WILL BE MADE UNDER ITEM 526 - REINFORCED CONCRETE APPROACH SLAB (T=13"), AS PER PLAN.

ITEM 607, FENCE REMOVED AND REBUILT:
A PORTION OF THE EXISTING FENCE BETWEEN BRIDGE NO. LAK-2-1476R AND LAK-2-1476L AT THE REAR AND FORWARD ABUTMENTS MAY NEED TO BE REMOVED AND REBUILT IN ORDER TO RECONSTRUCT THE EXISTING MASKWALLS. FOR ESTIMATING PURPOSES 20 FEET OF FENCE REMOVED AND REBUILT WILL BE REQUIRED.

ITEM 202, PORTIONS OF STRUCTURES REMOVED, AS PER PLAN:
THIS ITEM SHALL ALSO INCLUDE THE REMOVAL OF ELEMENTS INDICATED IN THE PLANS AND GENERAL NOTES AND THAT ARE NOT SEPARATELY LISTED FOR PAYMENT. ITEMS TO BE REMOVED INCLUDE ALL EXISTING MATERIALS BEING REPLACED BY NEW CONSTRUCTION AND MISCELLANEOUS ITEMS THAT ARE NOT SHOWN TO BE INCORPORATED INTO THE FINAL CONSTRUCTION AND ARE DIRECTED TO BE REMOVED BY THE ENGINEER.

ALTERNATE METHOD FOR BACKWALL REMOVAL: AT NO ADDITIONAL COST TO THE STATE, THE CONTRACTOR MAY SAWCUT EXISTING BACKWALLS AT THE REMOVAL LIMITS SHOWN IN THE PLANS AND DOWEL REAR #6 BARS AT THE EXISTING BAR SPACING. PROVIDE 12" MINIMUM EMBEDMENT ON DOWEL BARS. PROVIDE #6 BARS LONG ENOUGH TO PROVIDE A MINIMUM LAP OF 2'-11" ON PROPOSED BARS.

ALTERNATE METHOD FOR REMOVAL OF DECK AT END OF BRIDGE: AT NO ADDITIONAL COST TO THE STATE, THE CONTRACTOR MAY REMOVE DECK CONCRETE USING HYDRODEMOLITION, SUBJECT TO ALL PERTINENT REQUIREMENTS OF SS 848.

ITEM 503, COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN:
IN ADDITION TO THE REQUIREMENTS OF CMS 503, LEAVE IN PLACE SHEETING ALONG THE STAGED CONSTRUCTION LINE AT THE POSITION SHOWN IN THE PLANS. CUT-OFF SHEETING 3" BELOW THE BOTTOM OF THE APPROACH SLAB OR AS DIRECTED BY THE ENGINEER.

ITEM 516 - REFURBISHING BEARING DEVICES, AS PER PLAN:
THIS ITEM SHALL INCLUDE ALL WORK NECESSARY TO PROPERLY ALIGN BRIDGE BEARINGS AS WELL AS THEIR CLEANING AND PAINTING. INCLUDED SHALL BE THE DISASSEMBLY OF THE BEARINGS, HAND TOOL CLEANING (GRINDING IF NECESSARY), PAINTING ACCORDING TO ITEM 514, REPLACEMENT OF ANY DAMAGED SHEET LEAD WITH PREFORMED BEARING PADS (711.21), INSTALLATION OF ANY NECESSARY STEEL SHIMS OF THE SAME SIZE AS THE BEARINGS TO PROVIDE A SNUG FIT, REALIGNMENT OF THE UPPER BEARING PLATE BY REMOVING EXISTING WELDS AND REWELDING SO THAT THE BEARINGS ARE VERTICALLY ALIGNED AT 60 DEGREES F, LUBRICATING SLIDING SURFACES, AND REASSEMBLY OF THE BEARINGS. ASSURE ALL BEARINGS ARE SHIMMED ADEQUATELY AND THAT NO BEAMS AND/OR BEARING DEVICES ARE "FLOATING". AT NO ADDITIONAL COST TO THE STATE, THE CONTRACTOR MAY INSTALL NEW BEARINGS OF THE SAME TYPE AS THE EXISTING IN PLACE OF REFURBISHING THE BEARINGS. ALL WORK SHALL BE TO THE SATISFACTION OF THE ENGINEER.

REMOVE BEARINGS FROM SITE TO PERFORM CLEANING AND PAINTING.

PAYMENT FOR ALL OF THE ABOVE DESCRIBED LABOR AND MATERIALS WILL BE MADE AT THE CONTRACT PRICE BID FOR ITEM 516 - REFURBISH BEARING DEVICES, AS PER PLAN.

ITEM 516, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN:
THIS WORK CONSISTS OF RAISING OR RE-POSITIONING EXISTING STRUCTURES TO ALLOW BEARING REFURBISHING.

SUBMIT CONSTRUCTION PLANS IN ACCORDANCE WITH CMS 501.05.

IF, DURING THE JACKING OPERATIONS, CRACKING OF THE CONCRETE SUPERSTRUCTURE, SEPARATION OF THE CONCRETE DECK FROM THE STEEL STRINGERS, OR OTHER DAMAGE TO THE STRUCTURE IS VISUALLY OBSERVED, IMMEDIATELY CEASE THE JACKING OPERATION AND INSTALL SUPPORTS TO THE SATISFACTION OF THE ENGINEER. ANALYZE THE DAMAGE AND SUBMIT A METHOD OF CORRECTION TO THE ENGINEER FOR APPROVAL. EPOXY INJECT ALL BEAMS THAT SEPARATE FROM THE DECK FOR THE DISTANCE OF THE SEPARATION IN ACCORDANCE WITH CMS 512.07. THE DEPARTMENT WILL NOT PAY FOR THE COST OF THIS EPOXY INJECTION OR OTHER REQUIRED REPAIRS. THE BRIDGE BEARINGS SHALL BE FULLY SEATED AT ALL CONTACT AREAS. IF FULL SEATING IS NOT ATTAINED, SUBMIT A REPAIR PLAN TO THE ENGINEER. THE DEPARTMENT WILL NOT PAY FOR THE REPAIR COSTS TO ENSURE FULL SEATING ON BEARINGS.

THE DEPARTMENT WILL MEASURE THIS WORK ON A LUMP SUM BASIS.

THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN.

ITEM 518, POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN:
THIS WORK SHALL INCLUDE THE REMOVAL OF EXISTING POROUS BACKFILL AND ALL ADJACENT SOIL TO INSTALL NEW POROUS BACKFILL AS DETAILED IN THE PLANS.

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DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
CNK	CNK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301382	

GENERAL NOTES (2 OF 2)
BRIDGE NO. LAK-2-1476L
S.R. 2 OVER S.R. 283

LAK-2-14.38
PID No. 87924

ABBREVIATIONS

THE FOLLOWING ABBREVIATIONS HAVE BEEN USED THROUGHOUT THESE PLANS:

& = AND
@ = AT
° = DEGREES
' = FEET OR MINUTES
" = INCHES OR SECONDS
± = PLUS OR MINUS

AASHTO = AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
ABUT. = ABUTMENT
ADT = AVERAGE DAILY TRAFFIC
ADTT = AVERAGE DAILY TRUCK TRAFFIC
APPR. = APPROACH
APPROX. = APPROXIMATE
ASTM = AMERICAN SOCIETY OF TESTING AND MATERIALS

BM = BENCHMARK
BOT. = BOTTOM
BOT./FTG. = BOTTOM OF FOOTING
BRGS. = BEARINGS

℄ = CENTERLINE
C/C = CENTER TO CENTER
CFS = CUBIC FEET PER SECOND
CJ = CONSTRUCTION JOINT
CLR. = CLEAR
CMS = CONSTRUCTION AND MATERIAL SPECIFICATIONS
CONSTR./CONST. = CONSTRUCTION
CON'T = CONTINUED
COL. = COLUMN
C.P.P. = CORRUGATED PLASTIC PIPE
C.R./CR = COUNTY ROAD
CU = CUBIC
CVN = CHARPY V-NOTCH

DEFL. = DEFLECTION
DIA. = DIAMETER
DIM. = DIMENSION
DL = DEAD LOAD
DWG. = DRAWING

E =EAST
EA. = EACH
EF = EACH FACE
EL./ELEV. = ELEVATION
EMBED. = EMBEDMENT
EQ. = EQUAL
EX./EXIST. = EXISTING
EXP. = EXPANSION
EXT. = EXTENSION

F = FAHRENHEIT
FF = FAR FACE
F/F = FACE TO FACE
FS = FIELD SPLICE
FT. = FEET
FT/FT. = FOOT/FOOT
FT/S = FEET PER SECOND
FTG. = FOOTING
FWD. = FORWARD
FWS = FUTURE WEARING SURFACE

GEN. = GENERAL

HR = HOUR
HW = HIGH WATER

IN. = INCHES
INT. = INTERMEDIATE

LF = LEFT FORWARD
LONG. = LONGITUDINAL
LT. = LEFT

MAX. = MAXIMUM
MIN. = MINIMUM
MISC. = MISCELLANEOUS

N = NORTH
NF = NEAR FACE
#/NO. = NUMBER

OHWM = ORDINARY HIGH WATER MARK
OUT/OUT = OUT TO OUT

PEJF = PREFORMED EXPANSION JOINT FILLER
℄/PL = PLATE
PSF = POUND PER SQUARE FOOT
PSI = POUND PER SQUARE INCH
PT. = POINT
PVI = POINT OF VERTICAL INTERSECTION

Q = FLOW

R = RADIUS
REF. = REFERENCE
REINF. = REINFORCED
REQ'D. = REQUIRED
RF = RIGHT FORWARD
RT. = RIGHT

SHLDR. = SHOULDER
SPA. = SPACING
SQ = SQUARE
STA. = STATION
STD. = STANDARD
STR. = STRAIGHT
SUPER = SUPERSTRUCTURE

T = THICKNESS
TELE = TELEPHONE
TRANS. = TRANSVERSE
TWP. = TOWNSHIP
TYP. = TYPICAL

V = VELOCITY
V.C. = VERTICAL CURVE
VERT. = VERTICAL

W = WEST
W/ = WITH
W/O = WITHOUT
W.P. = WORKING POINT
WT. = WEIGHT

YD = YARD

ESTIMATED QUANTITIES

LAK-2-1476L — CALCULATED BY: JTC — CHECK BY: DGS — DATED: 9/10 — DATED: 10/10

ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	TOTAL**	AS PER PLAN SHEET REF.
202	11201	LUMP		PORTIONS OF STRUCTURE REMOVED, AS PER PLAN	LUMP	2
202	22901	200	SQ YD	APPROACH SLAB REMOVED, AS PER PLAN	200	2
503	11101	LUMP		COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN	LUMP	3
509	10000	7973	POUND	EPOXY COATED REINFORCING STEEL	8252	
509	20001	80	POUND	REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN	80	2
510	10000	130	EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT	130	
511	50001	14	CU YD	CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN	14	2
511	50101	2	CU YD	CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN	2	2
511	50201	39	CU YD	CLASS HP CONCRETE, SUBSTRUCTURE, AS PER PLAN	39	2
511	52000	LUMP		CLASS HP CONCRETE, TEST SLAB	LUMP	2
512	10100	113	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	113	
512	10300	42	SQ YD	SEALING CONCRETE BRIDGE DECK WITH HMWM RESIN	42	
513	10201	91	POUND	STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN	91	3
513	21500	4070	POUND	REPLACEMENT OF DETERIORATED END CROSSFRAMES	4070	
514	00050	1357	SQ FT	SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL	1357	
514	00056	1357	SQ FT	FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT	1357	
514	00060	1862	SQ FT	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT	1862	
514	00066	1862	SQ FT	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT	1862	
516	11211	102	FT	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL, AS PER PLAN	102	3
516	45305	14	EACH	REFURBISH BEARING DEVICE, AS PER PLAN	14	3
516	47001	LUMP		JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN	LUMP	3
518	21231	LUMP		POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN	LUMP	3
526	15001	214	SQ YD	REINFORCED CONCRETE APPROACH SLAB (T=13"), AS PER PLAN	214	3
625	25400	7	FT	CONDUIT, 2", 725.04	7	8, 15

**All Totals Participation Code II-Bridge

Participation Codes:
I-Pavement (Federal/State)
II-Bridge (Federal/State)

DESIGN AGENCY
CH2MHILL
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CLEVELAND, OHIO

DESIGNED CNK | DRAWN CNK | REVIEWED SCJ | DATE 9/10 | CHECKED JTC | REVISED | STRUCTURE FILE NUMBER 4301382

ESTIMATED QUANTITIES
BRIDGE NO. LAK-2-1476L
S.R. 2 OVER S.R. 283

LAK-2-14.38
PID No. 87924

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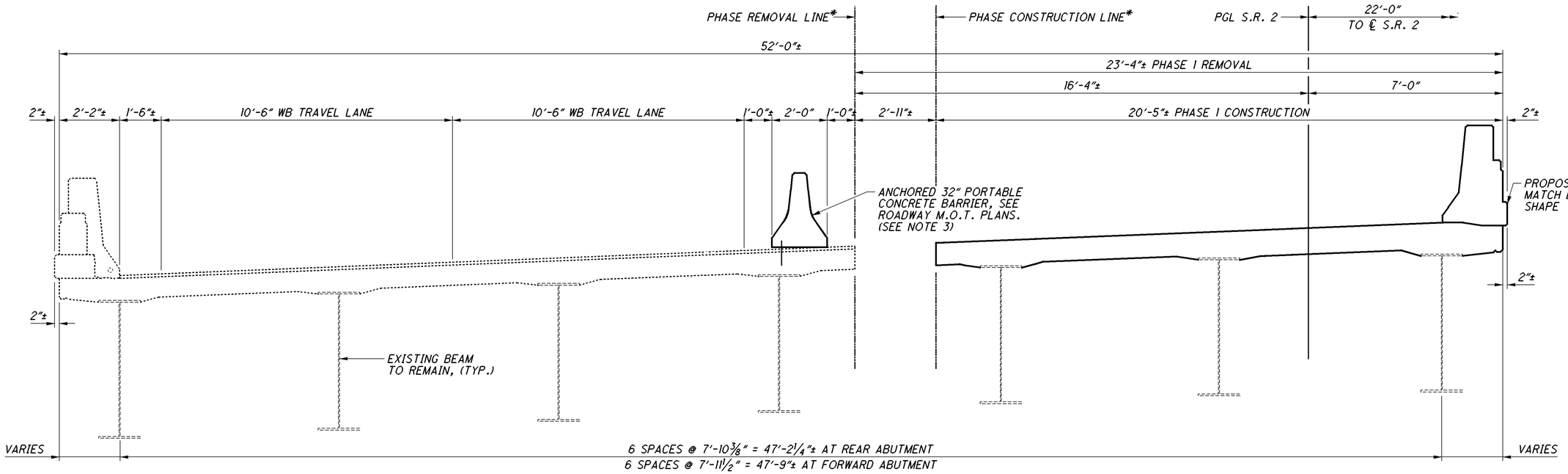


PHASE I REMOVAL AND CONSTRUCTION

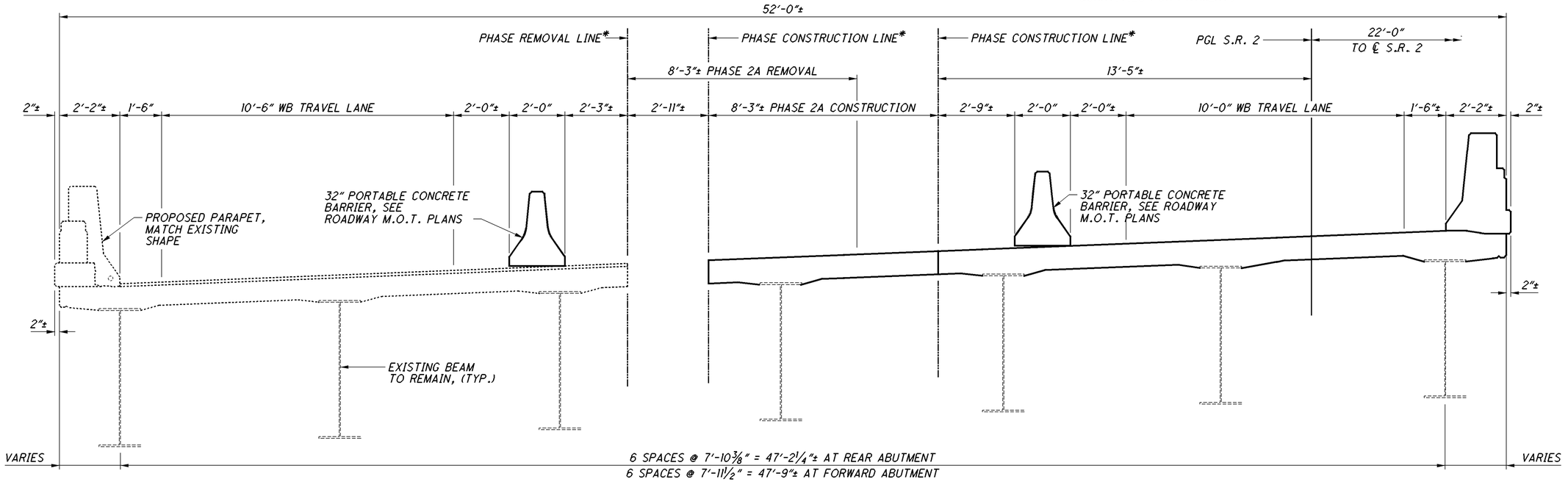
LOOKING AHEAD STATION

NOTES:

1. TRANSVERSE DIMENSIONS SHOWN FOR PROPOSED CONSTRUCTION ARE APPROXIMATE. IT MAY BE NECESSARY TO VARY THESE DIMENSIONS TO MEET THE PROPOSED APPROACH SLAB AND THE EXISTING DECK.
2. END CROSSFRAMES NOT SHOWN. SEE SHEETS 9 AND 11.

NOTES, CONTINUED:

3. ANCHORAGE SHALL BE PROVIDED FOR THE BARRIERS ON THE APPROACH SLAB AND ADJACENT TO THE DECK REMOVAL AT THE ABUTMENTS FOR PHASE I. TWO ANCHORS PER TEMPORARY BARRIER SEGMENT ARE REQUIRED ON THE TRAFFIC SIDE OF THE BARRIER. THE ANCHOR BOLT PATTERN SHALL BE SYMMETRICAL ABOUT THE CENTER OF EACH SEGMENT. ANCHORS SHALL BE PARTIAL DEPTH BOLTS EMBEDDED A MINIMUM OF 6½" INTO THE EXISTING BRIDGE DECK WITH A NON-SHRINK, NON-METALLIC GROUT CONFORMING TO 705.20. SEE STD. DWG. PCB-91 FOR ADDITIONAL DETAILS. PORTABLE CONCRETE BARRIERS ARE INCLUDED WITH ROADWAY M.O.T. QUANTITIES FOR PAYMENT.



PHASE 2A REMOVAL AND CONSTRUCTION

LOOKING AHEAD STATION

LEGEND:

* FOR WORK AT ABUTMENTS

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
CNK	CNK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301382	

PHASED CONSTRUCTION DETAILS (1 OF 2)
BRIDGE NO. LAK-2-1476L
S.R. 2 OVER S.R. 283

LAK-2-14.38
PID No. 87924

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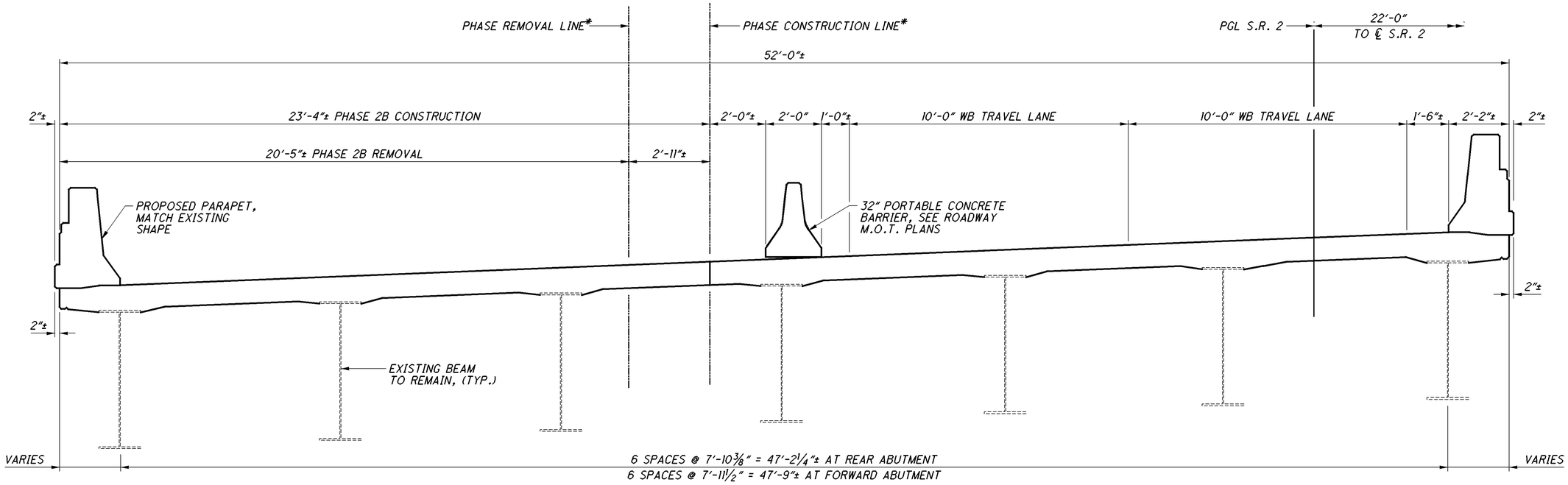

PHASE 2B REMOVAL AND CONSTRUCTION

LOOKING AHEAD STATION

LEGEND:

* FOR WORK AT ABUTMENTS

NOTES:

1. TRANSVERSE DIMENSIONS SHOWN FOR PROPOSED CONSTRUCTION ARE APPROXIMATE. IT MAY BE NECESSARY TO VARY THESE DIMENSIONS TO MEET THE PROPOSED APPROACH SLAB AND THE EXISTING DECK.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
CNK	CNK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301382	

PHASED CONSTRUCTION DETAILS (2 OF 2)

BRIDGE NO. LAK-2-1476L
S.R. 2 OVER S.R. 283

LAK-2-14.38
PID No. 87924

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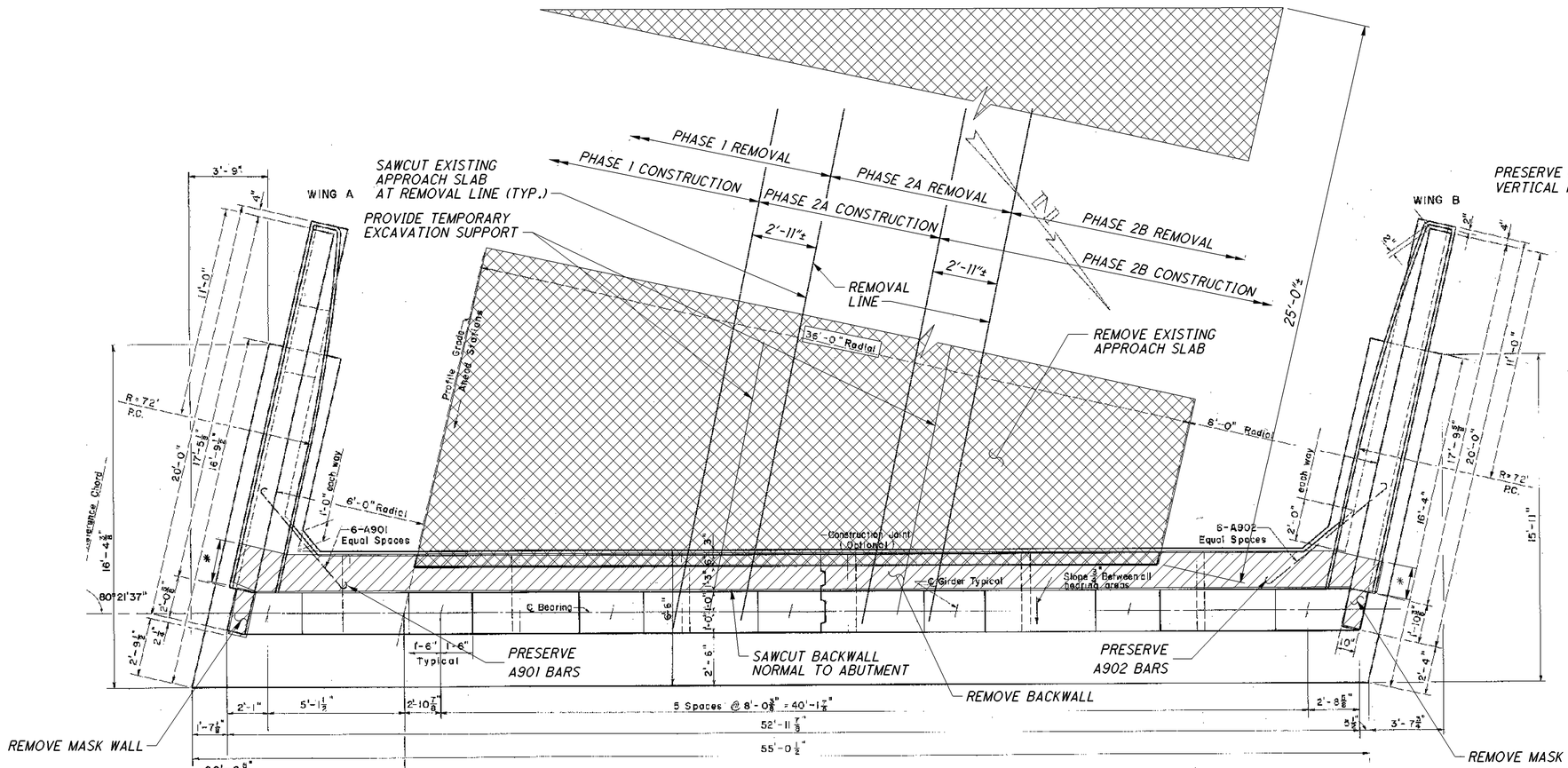
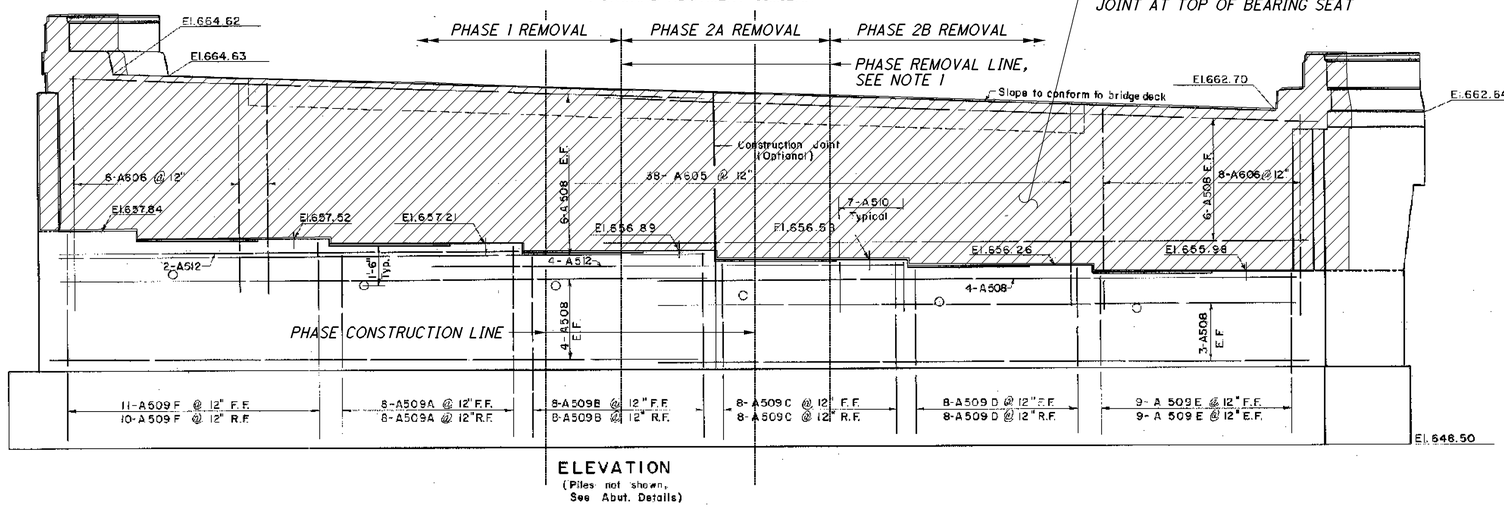


TYPICAL SECTION

PLAN

REAR ABUTMENT SHOWN, FORWARD ABUTMENT SIMILAR



ELEVATION

(Piles not shown, See Abut. Details)

NOTE:

1. FOR LOCATION OF ABUTMENT BACKWALL REMOVAL LINE, SEE SHEET 10.
2. FOR LOCATION AND DIMENSIONS OF FORWARD ABUTMENT APPROACH SLAB REMOVAL, SEE SHEET 8.
3. ELEVATIONS SHOWN AT TOP OF BACKWALL DO NOT INCLUDE THE 1"± INCREASE DUE TO THE EXISTING SDC OVERALY.

LEGEND

* SEE SUPERSTRUCTURE DETAILS (SHEET 13) FOR LIMITS OF REMOVAL.

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

ITEM 202 - APPROACH SLAB REMOVED, AS PER PLAN

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
CNK	CNK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301382	

REAR ABUTMENT BACKWALL & WINGWALL REMOVAL

BRIDGE NO. LAK-2-1476L
S.R. 2 OVER S.R. 283

LAK-2-14.38
PID No. 87924

7 / 16

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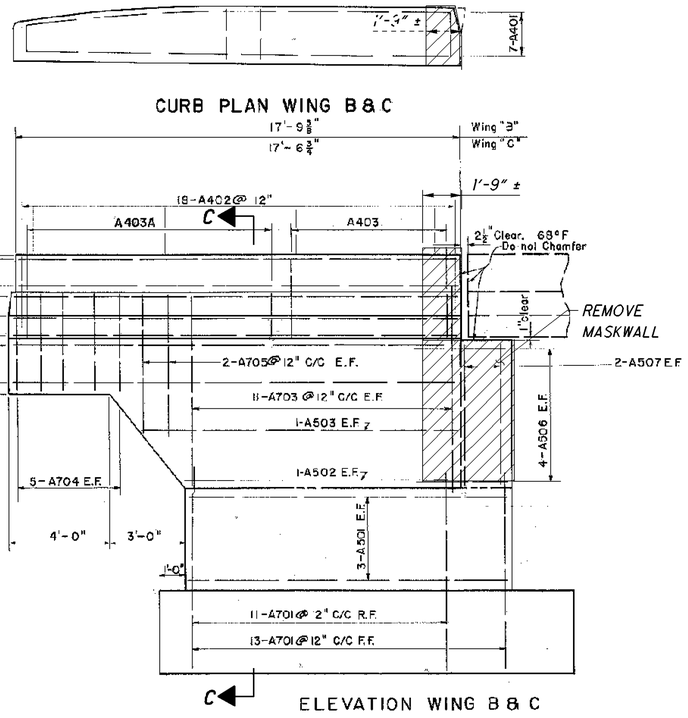
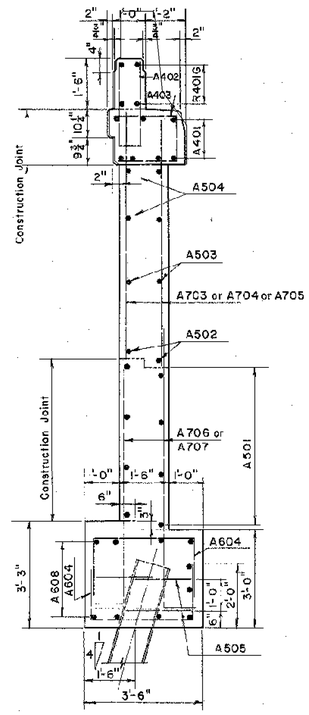
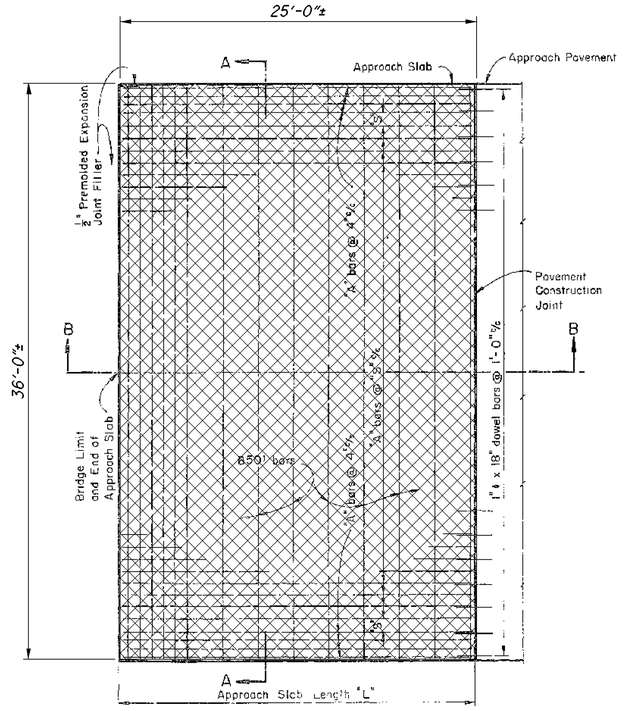
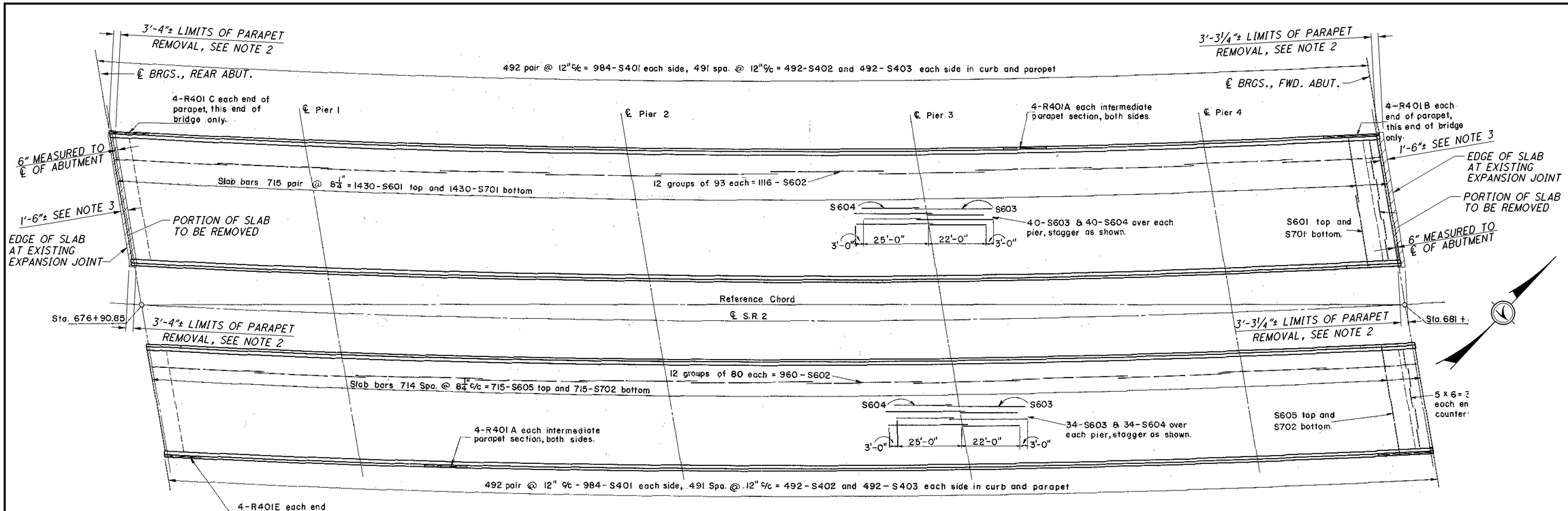


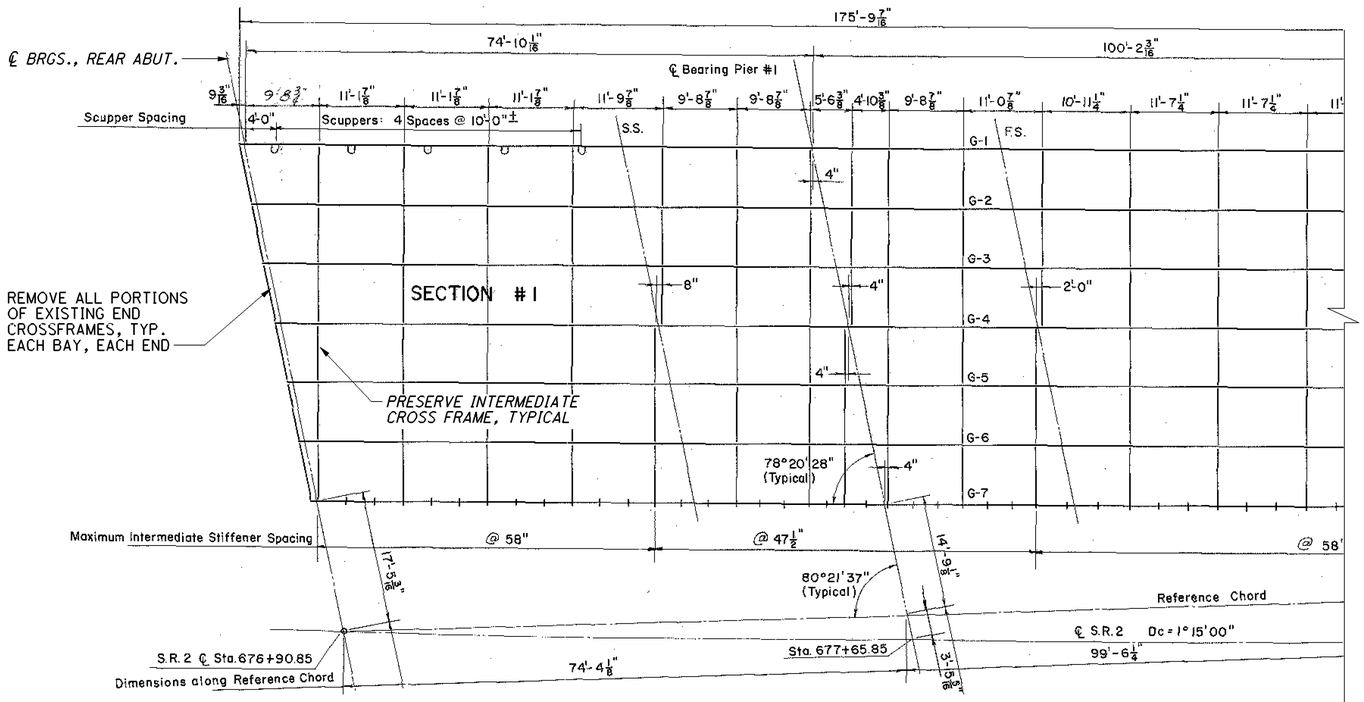


SECTION C-C


25'-0"±
A
Approach Slab
Approach Pavement
1" Premolded Expansion Joint Filler
B
B
36'-0"±
Bridge Limit and End of Approach Slab
#7 bars @ 4"±
#6 bars @ 4"±
#5 bars @ 4"±
#5 bars @ 12"±
#5 bars @ 12"±
#5 bars @ 12

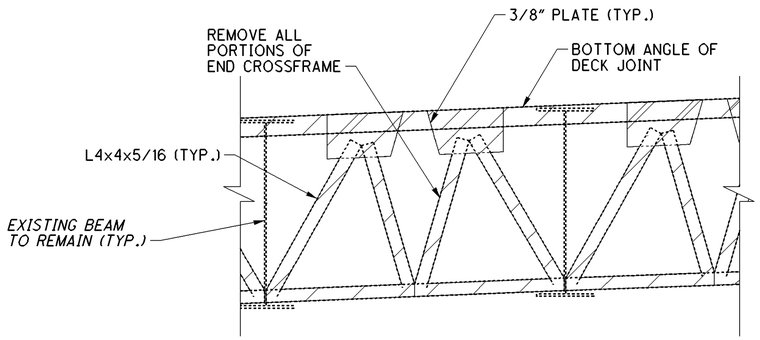


SLAB REINFORCEMENT



PARTIAL STEEL FRAMING PLAN

(OTHER END SIMILAR BUT OPPOSITE)



END CROSSFRAME REMOVAL DETAIL

TYPICAL EXISTING END CROSSFRAME

NOTES:

1. *REMOVAL LINE IS LOCATED PARALLEL TO C/L ABUTMENT PLACE 1" DEEP SAWCUT ALONG REMOVAL LINE PRIOR TO DEMOLITION. PRESERVE ALL DECK REINFORCING STEEL THAT REMAINS EMBEDDED IN THE DECK.*
2. *REMOVAL LINE UNDER PARAPET IS LOCATED PARALLEL TO EDGE OF SLAB. SAWCUT ALONG REMOVAL LINE PRIOR TO DEMOLITION, PRESERVE ALL LONGITUDINAL PARAPET REINFORCEMENT AND ALL CONDUIT IN PARAPET.*
3. *REMOVAL LINE ON DECK IS LOCATED 6" FROM THE ℄ OF THE GIRDER BEARINGS TOWARDS THE CENTER OF THE SPAN, AND PARALLEL TO THE ABUTMENT BACKWALL. REMOVE ALL PORTIONS OF DECK BETWEEN THE REMOVAL LINE AND THE END OF DECK. PRESERVE ALL REINFORCEMENT RUNNING CONTINUOUS INTO STRUCTURE TO REMAIN.*

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED CNK | DRAWN CNK | REVIEWED SCJ | DATE 9/10
CHECKED JTC | REVISED | STRUCTURE FILE NUMBER 4301382

REMOVAL DETAILS FOR SUPERSTRUCTURE
BRIDGE NO. LAK-2-1476L
S.R. 2 OVER S.R. 283

LAK-2-14.38
PID No. 87924

9 / 16

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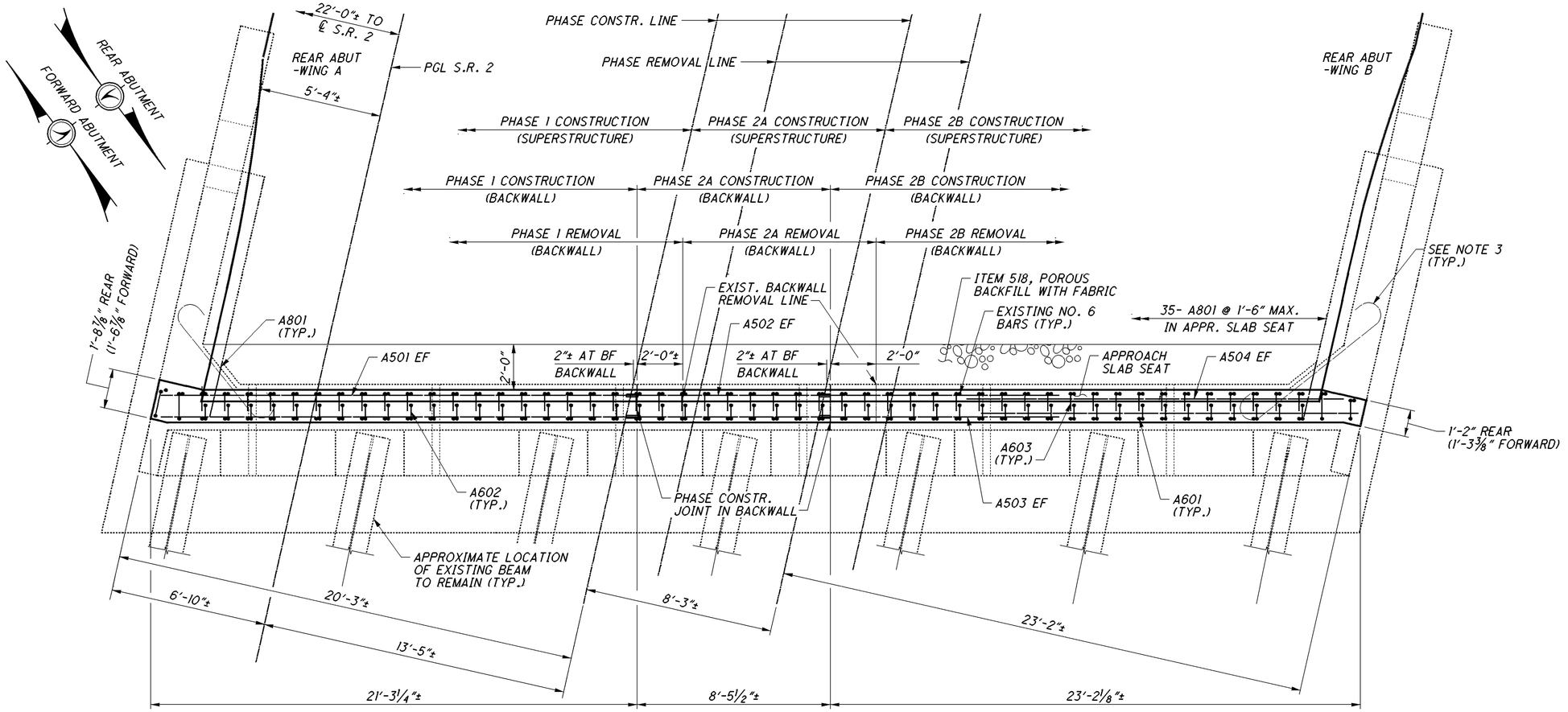
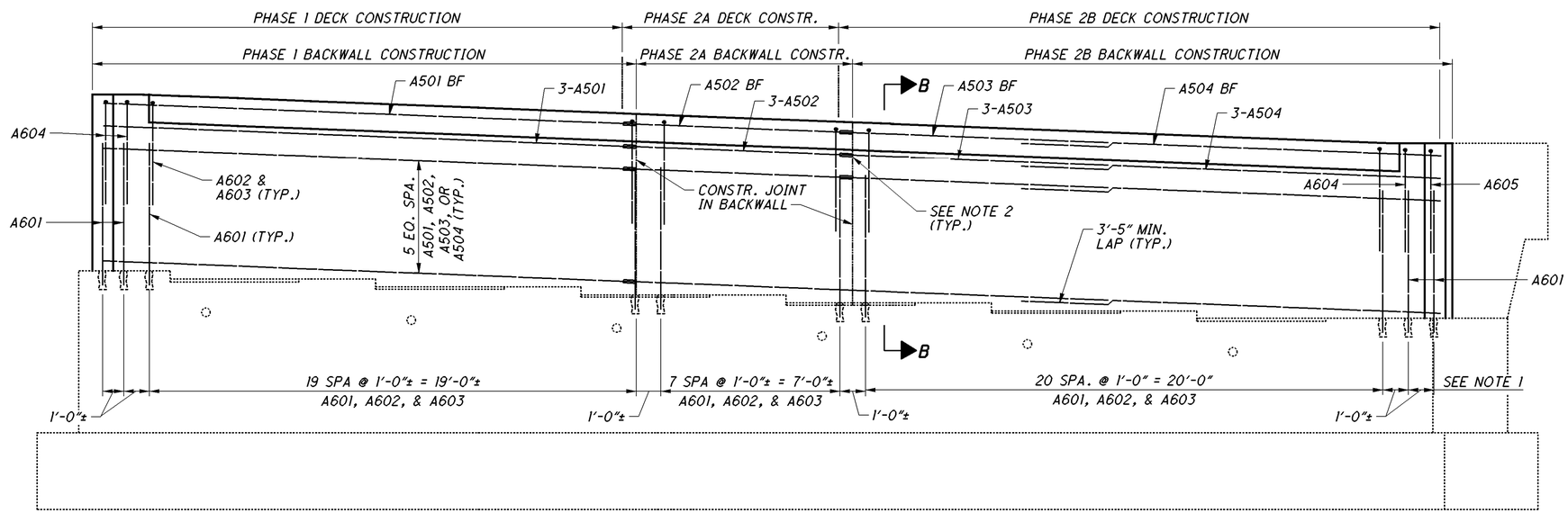


PLAN

REAR ABUTMENT SHOWN, FORWARD ABUTMENT SIMILAR



EXISTING PARAPET AND PROPOSED MASKWALLS NOT SHOWN FOR CLARITY

ELEVATION

REAR ABUTMENT SHOWN, FORWARD ABUTMENT SIMILAR. EXISTING PARAPET NOT SHOWN FOR CLARITY.

NOTES:

1. SPACING SHOWN IS APPROXIMATE AND MAY DIFFER FROM LOCATIONS IN FIELD. MATCH SPACING OF EXISTING BACKWALL REINFORCEMENT TO BE PRESERVED.
2. A MECHANICAL CONNECTOR SHALL BE USED AT THE PHASE CONSTRUCTION JOINT. THE MECHANICAL CONNECTOR SHALL MEET THE REQUIREMENTS OF 509.07. REINFORCING BAR LENGTHS ARE DETAILED TO THE FACE OF THE JOINT.
3. PRESERVE EXISTING BARS RUNNING CONTINUOUS INTO WINGWALL (TYP.)
4. FOR SECTION B-B, SEE SHEET 11.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
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CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301382	

REAR ABUTMENT PLAN, ELEVATION & SECTION

BRIDGE NO. LAK-2-1476L
S.R. 2 OVER S.R. 283

LAK-2-14.38
PID No. 87924

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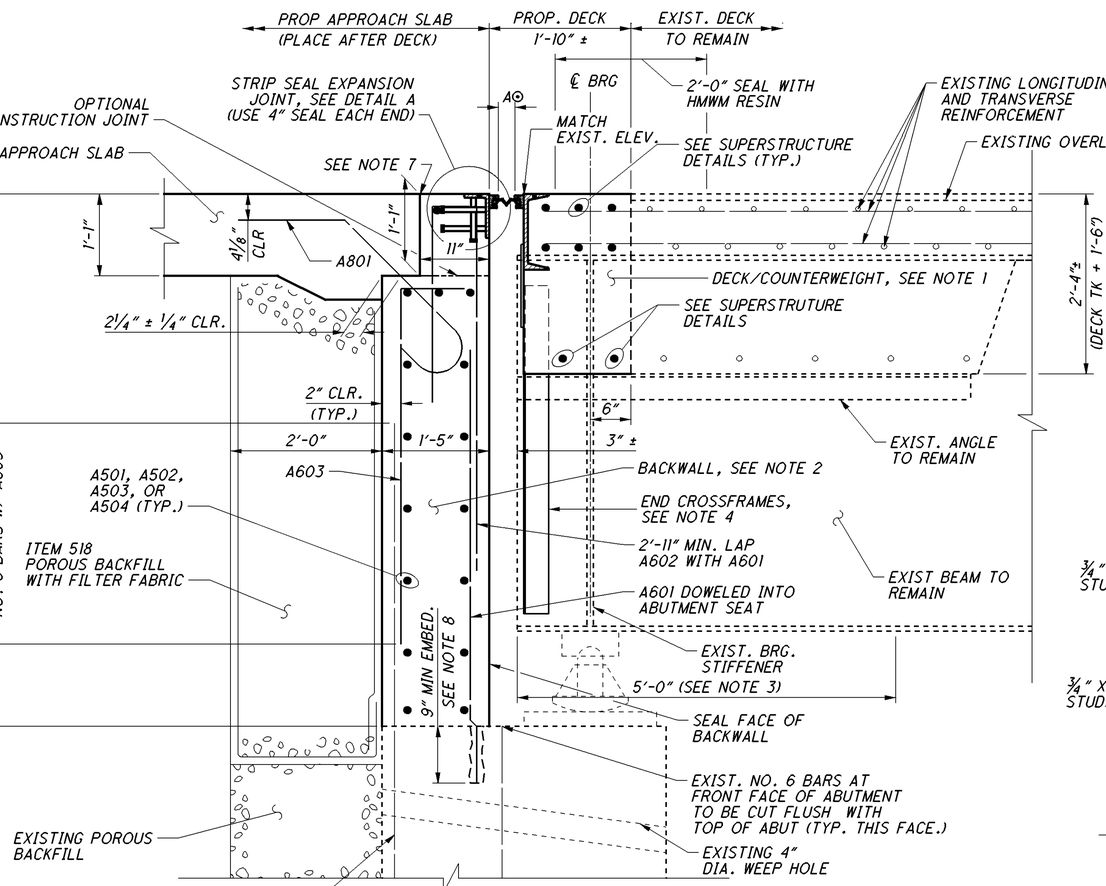
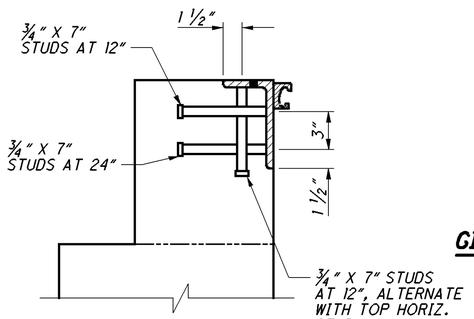


LONGITUDINAL SECTION B-B AT ABUTMENTS

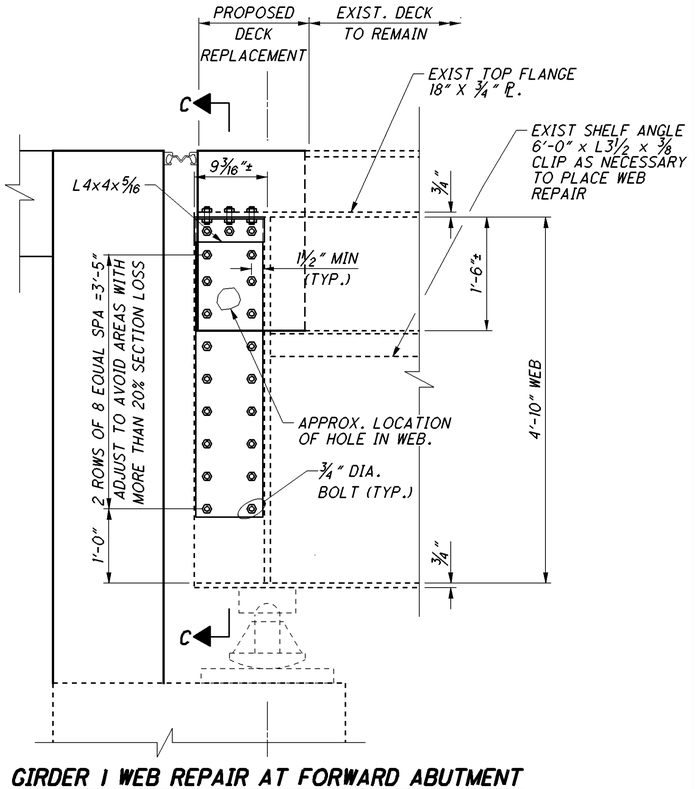
(DIMENSIONS SHOWN NORMAL TO ABUTMENTS)

DIMENSION "A" ⊙

AMBIENT TEMPERATURE (°F)	DIMENSION "A" (IN) REAR ABUTMENT	FORWARD ABUTMENT
30°	2½	2⅝
40°	2⅝	2¾
50°	2¾	2⅞
60°	2	1⅞
70°	1⅞	1¹⁵⁄₁₆
80°	1¹⁵⁄₁₆	SEE NOTE 6
90°	1¹³⁄₁₆	
STRIP SEAL GLAND SIZE	4"	4"

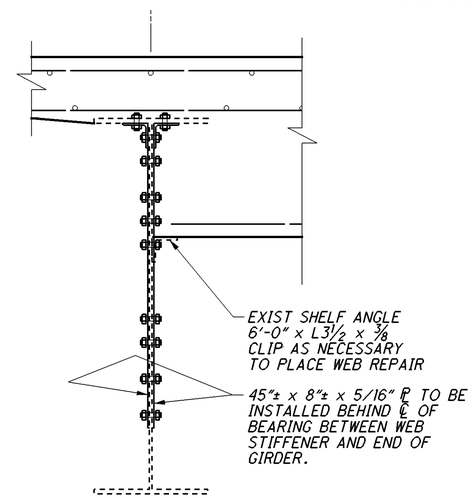


DETAIL A



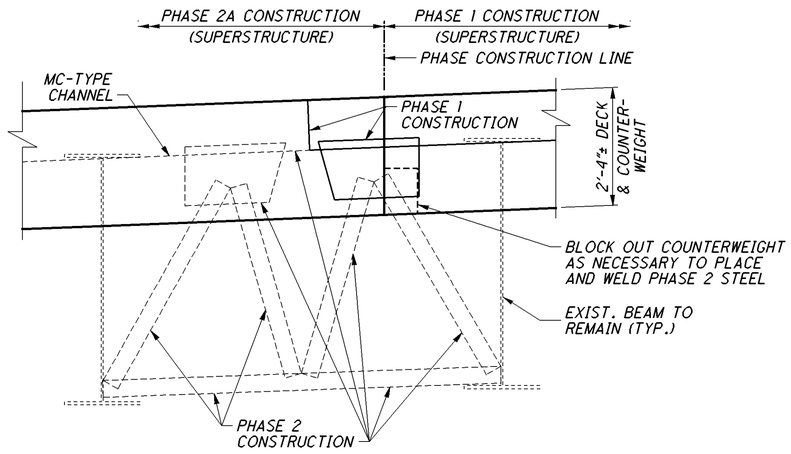
GIRDER 1 WEB REPAIR AT FORWARD ABUTMENT

(NORMAL TO GIRDER)
(PAID FOR AS ITEM 513, STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN)



SECTION C-C

(PARALLEL TO GIRDER 1, AT FORWARD ABUTMENT)
(PAID FOR AS ITEM 513, STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN)



END CROSSFRAME DETAIL

(AT PHASE CONSTRUCTION LINE, SIMILAR BETWEEN PHASE 2A AND 2B)
(FOR STEEL MEMBER SIZING AND IDENTIFICATION, SEE STD. DWG. GSD-1-96)

NOTES:

1. ITEM 511 - CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN.
2. ITEM 511 - CLASS HP CONCRETE, SUBSTRUCTURE, AS PER PLAN.
3. CLEAN AND PAINT ALL STRUCTURAL STEEL INCLUDING BEARINGS AND STIFFENERS FOR A DISTANCE OF 5'-0" FROM END OF BEAM. PAINT IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 514. CLEAN AND PAINT ALL EXISTING BEARINGS, STIFFENERS, SCUPPERS AND INTERMEDIATE DIAPHRAGMS WITHIN THESE LIMITS.
4. REFERENCE SHALL BE MADE TO GSD-1-96 FOR END CROSSFRAME DETAILS. CROSSFRAMES SHALL BE OF THE TYPE FOR GIRDERS SPACED BETWEEN 8'-0" AND 12'-0". FOR DETAILS RELATING TO THE PHASE CONSTRUCTION OF THE CROSSFRAME, SEE DETAIL THIS SHEET. PAINT PROPOSED END CROSSFRAMES IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 514.
5. SEE STD. DWG. EXJ-4-87 FOR LOCATION OF DIMENSION "A" AND OTHER STRIP SEAL EXPANSION JOINT DETAILS AND NOTES.
6. MINIMUM JOINT OPENING (DIMENSION "A") AT THE TIME OF SEAL GLAND INSTALLATION SHALL NOT BE LESS THAN 1½". IF THE JOINT OPENING IS LESS, INSTALLATION SHALL BE POSTPONED UNTIL THE TEMPERATURE DROPS A SUFFICIENT AMOUNT TO ALLOW THE MINIMUM 1½" OPENING.
7. JOINT SEALER (705.11) AND TYPE A WATERPROOFING, AS PER AS-1-81 (APPROACH SLAB QUANTITY).
8. DRILL AND PLACE GROUT FOR DOWEL HOLES AS SPECIFIED IN CMS SECTION 510.00. PAYMENT FOR WORK CONSISTING OF DRILLING AND PLACING GROUT INTO HOLES SHALL BE INCLUDED IN THE UNIT BID PRICE (EACH) FOR ITEM 510, DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT. FURNISHING AND PLACING REINFORCING STEEL SHALL BE INCLUDED WITH ITEM 509.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
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CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301382	

ABUTMENT DETAILS
BRIDGE NO. LAK-2-1476L
S.R. 2 OVER S.R. 283

LAK-2-14.38
PID No. 87924

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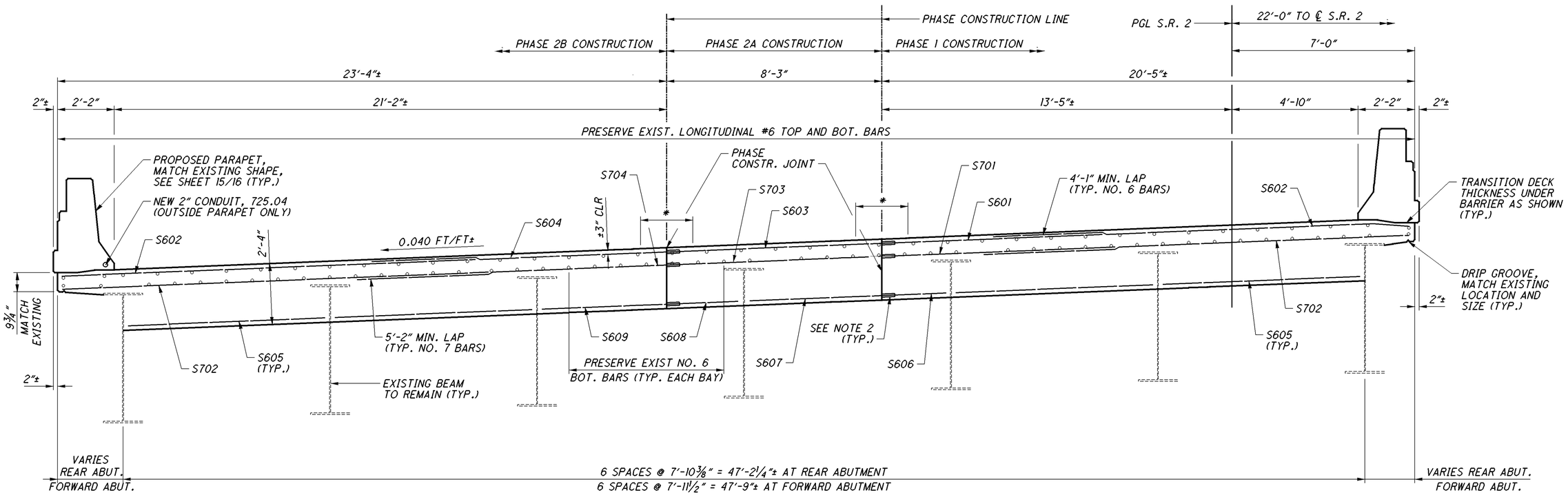

* 2'-0" SEAL WITH HMWM RESIN

TRANSVERSE SECTION AT ABUTMENTS (RADIAL)

LOOKING AHEAD STATION

NOTES:

1. TRANSVERSE DIMENSIONS SHOWN ARE APPROXIMATE. IT MAY BE NECESSARY TO VARY THESE DIMENSIONS TO MEET THE PROPOSED APPROACH SLAB AND THE EXISTING DECK.
2. A MECHANICAL CONNECTOR SHALL BE USED AT THE PHASE CONSTRUCTION JOINT. THE MECHANICAL CONNECTOR SHALL MEET THE REQUIREMENTS OF 509.07. REINFORCING BAR LENGTHS ARE DETAILED TO THE FACE OF THE JOINT.

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CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

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TRANSVERSE SECTION
BRIDGE NO. LAK-2-1476L
S.R. 2 OVER S.R. 283

LAK-2-14.38
PID No. 87924

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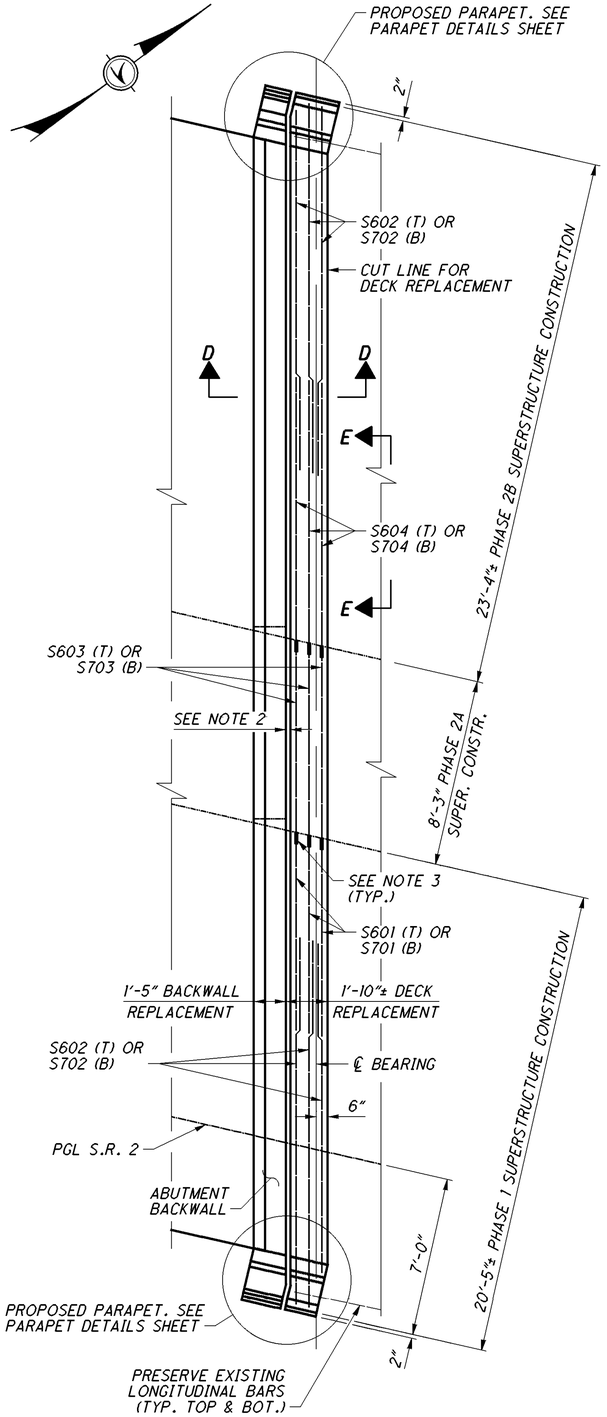
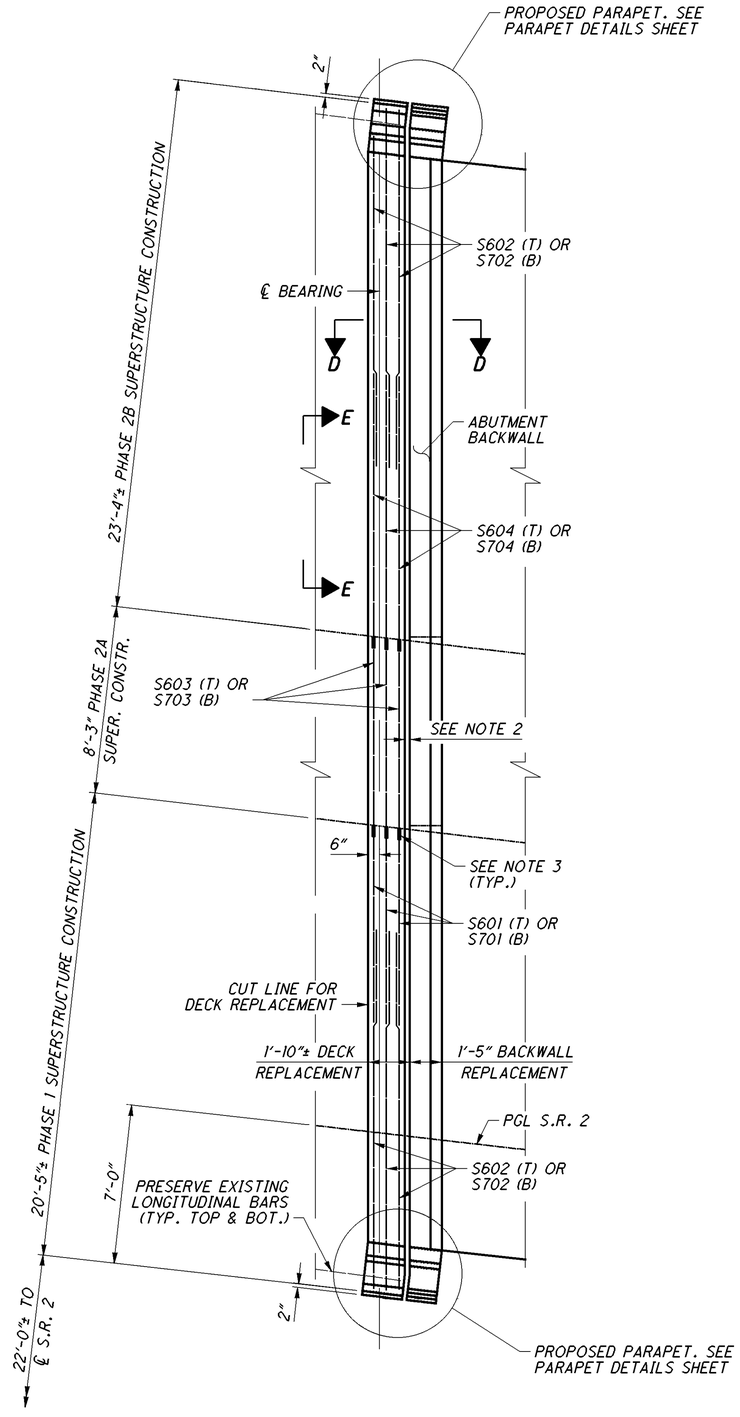
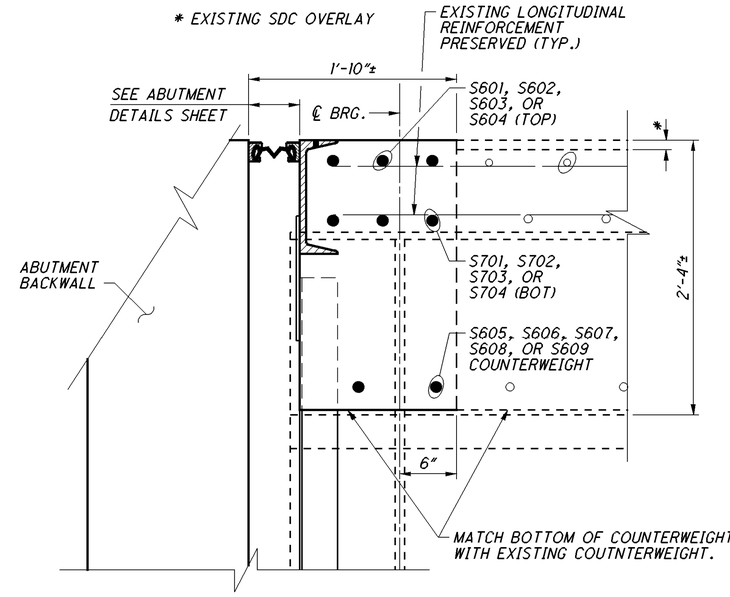


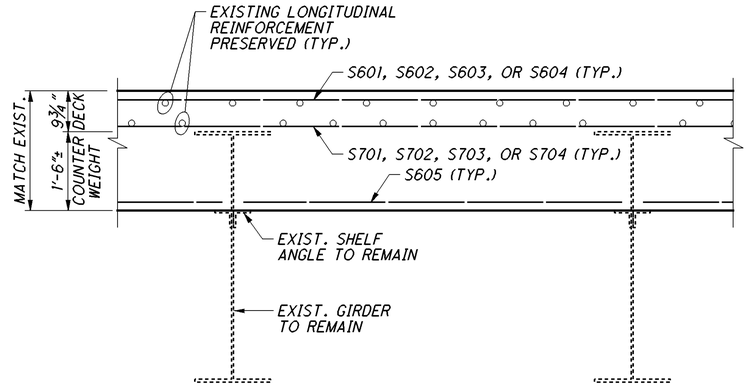
PARTIAL DECK PLAN
REAR ABUTMENT



PARTIAL DECK PLAN
FORWARD ABUTMENT



SECTION D-D
PERPENDICULAR THRU ABUTMENT



PARTIAL DECK SECTION E-E
NORMAL TO ABUTMENT,
TYPICAL OF INTERNAL GIRDERS

NOTES:

1. TRANSVERSE DIMENSIONS SHOWN ARE APPROXIMATE. IT MAY BE NECESSARY TO VARY THESE DIMENSIONS TO MEET THE PROPOSED APPROACH SLAB AND THE EXISTING DECK.
2. STRIP SEAL EXPANSION JOINT. FOR DETAILS AND DIMENSIONS, SEE ABUTMENT DETAILS SHEET.
3. A MECHANICAL CONNECTOR SHALL BE USED AT THE PHASE CONSTRUCTION JOINT. THE MECHANICAL CONNECTOR SHALL MEET THE REQUIREMENTS OF 509.07. REINFORCING BAR LENGTHS ARE DETAILED TO THE FACE OF THE JOINT.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

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JTC		4301382	

SUPERSTRUCTURE DETAILS

BRIDGE NO. LAK-2-1476L
S.R. 2 OVER S.R. 283

LAK-2-14.38
PID No. 87924

13 / 16

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208

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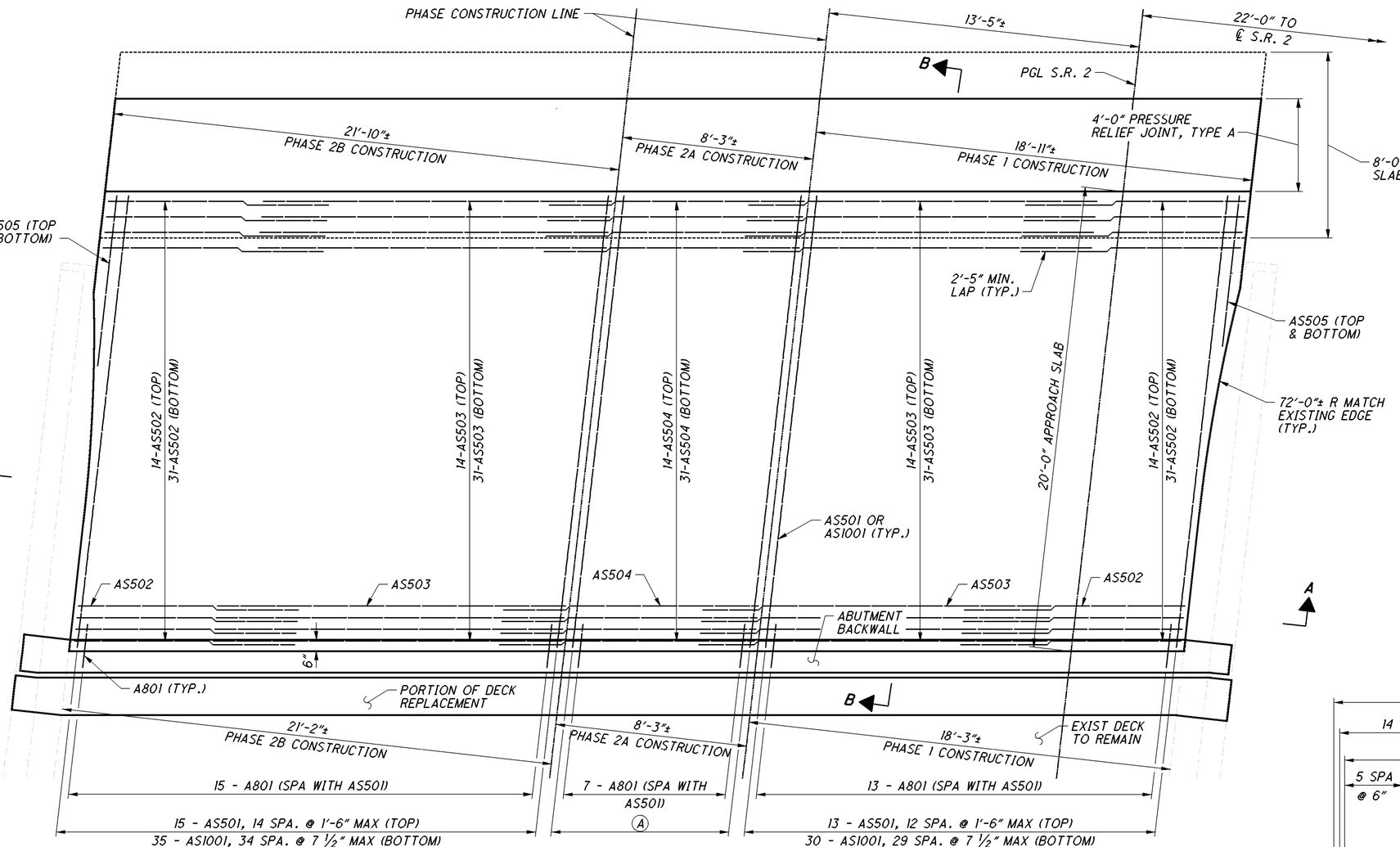
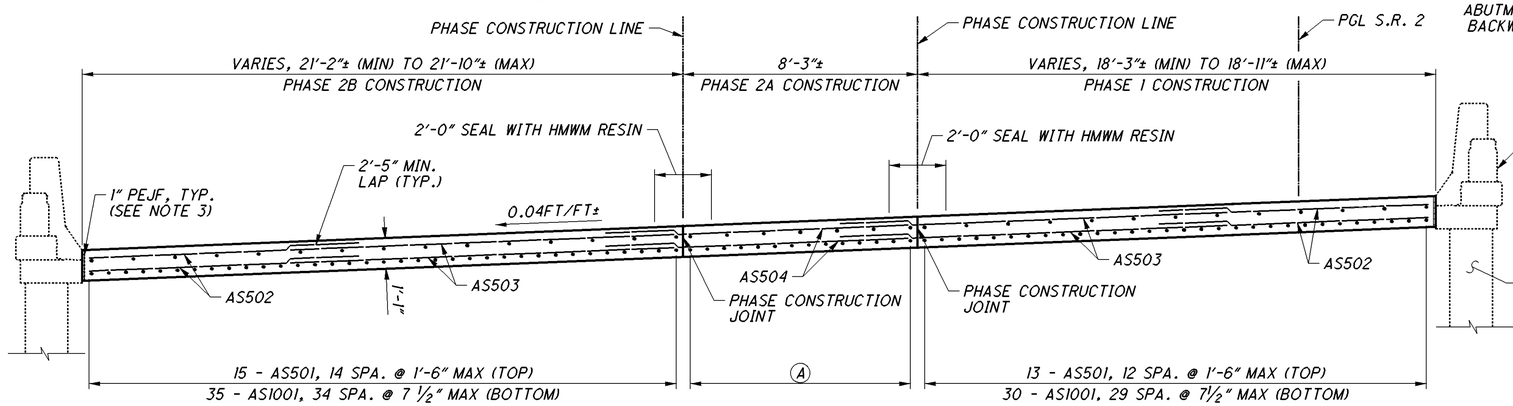


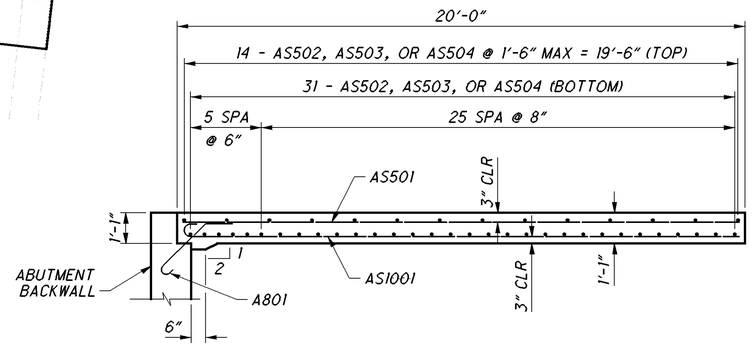
PLAN

FORWARD APPROACH SHOWN,
REAR APPROACH SIMILAR



SECTION A-A

(LOOKING AHEAD STATION)



SECTION B-B

NOTES:

1. SEE STANDARD DRAWING AS-1-81 FOR ADDITIONAL DETAILS.
2. AS502, AS503, AS504 BARS SHALL BE PLACED PARALLEL TO THE ABUTMENT AND AS501, AS1001 BARS SHALL BE PLACED PLACED PARALLEL TO PGL S.R. 2.
3. THE FOLLOWING SHALL BE INCLUDED IN THE UNIT BID PRICE PER SQUARE YARD FOR ITEM 526, REINFORCED CONCRETE APPROACH SLABS (T=13"), AS PER PLAN:
   - CONCRETE FOR APPROACH SLAB
   - ALL ASSOCIATED REINFORCING STEEL
   - ALL PREFORMED EXPANSION JOINT FILLERS AND JOINT SEALERS
   - WATERPROOFING
4. PRESSURE RELIEF JOINT, TYPE A AND SLEEPER SLAB SHALL BE INCLUDED IN THE UNIT BID PRICE PER FOOT FOR ITEM SPECIAL, PRESSURE RELIEF JOINT, TYPE A. FOR PRESSURE RELIEF JOINT DETAILS, SEE STANDARD DRAWING BP-2.3.

Ⓐ - 7 - AS501, 6 SPA. @ 1'-6" MAX (TOP)
14 - AS1001, 13 SPA. @ 7 ½" MAX (BOTTOM)

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
DGS	DGS	SCJ	10/10
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APPROACH SLAB PLAN AND DETAILS
BRIDGE NO. LAK-2-1476L
S.R. 2 OVER S.R. 283

LAK-2-14.38
PID No. 87924

14 / 16

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208

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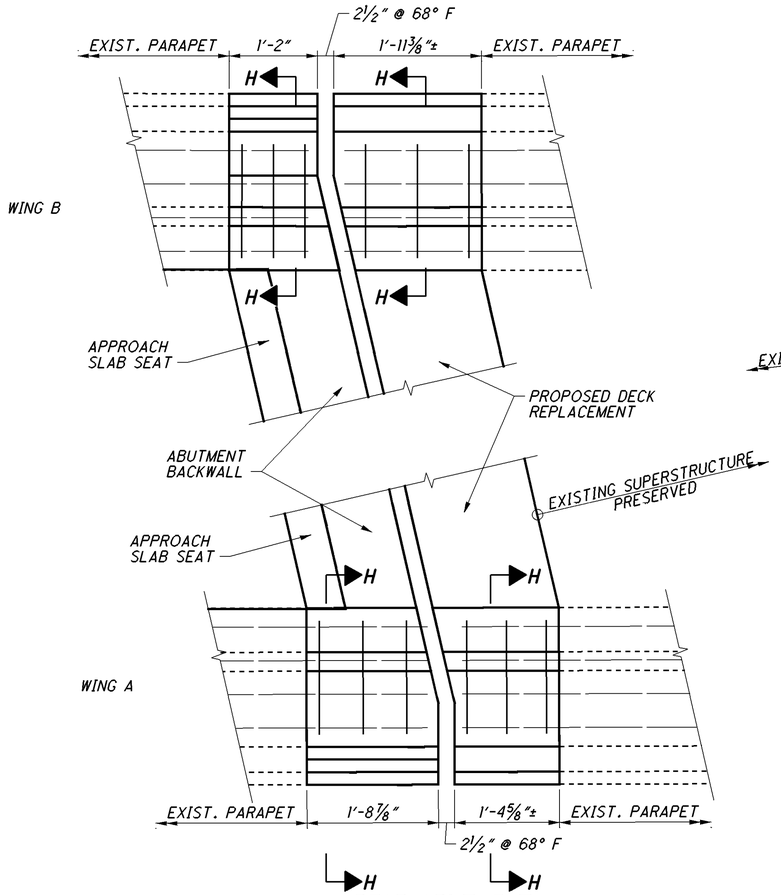
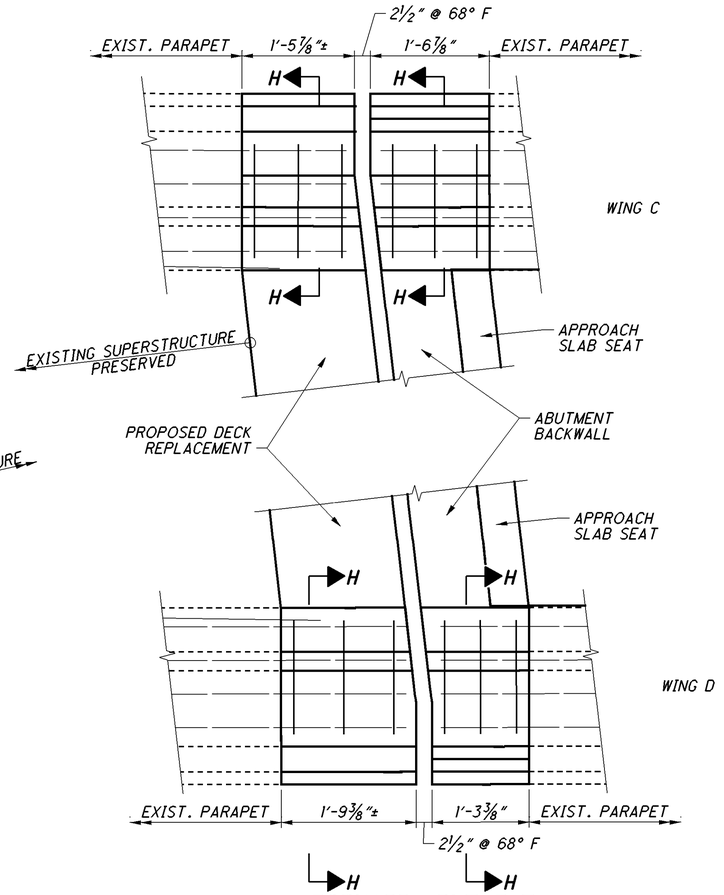


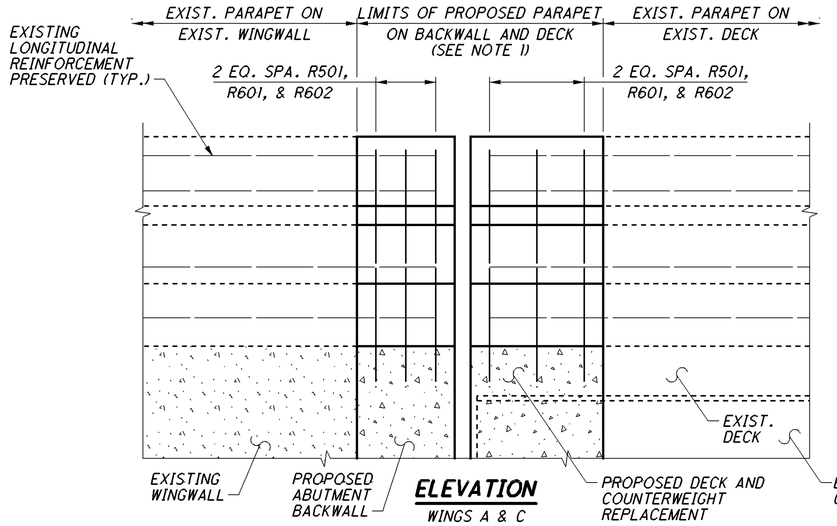
REAR ABUTMENT

MATCH EXISTING PARAPET SHAPE
FIELD VERIFY ALL DIMENSIONS



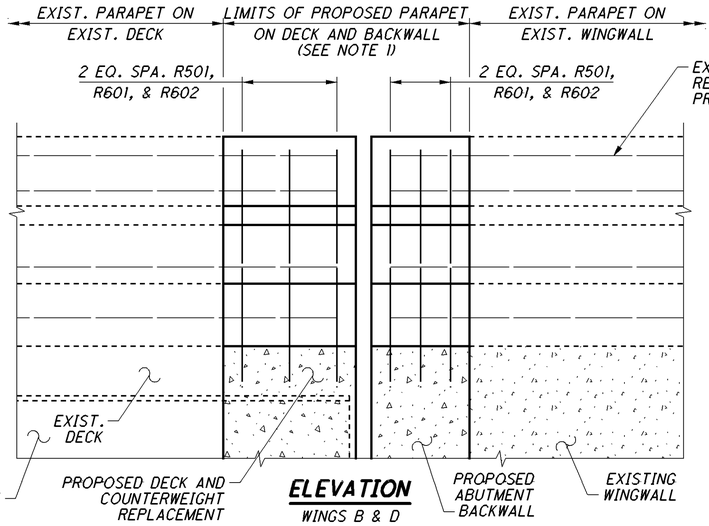
FORWARD ABUTMENT

MATCH EXISTING PARAPET SHAPE
FIELD VERIFY ALL DIMENSIONS



ELEVATION

WINGS A & C

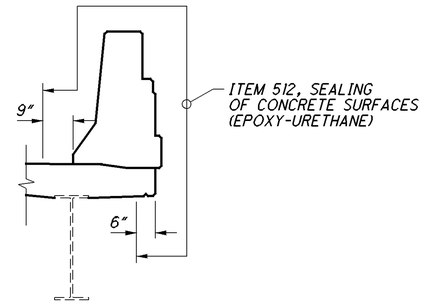


ELEVATION

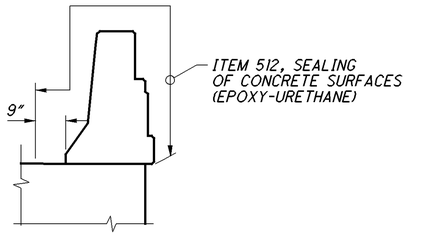
WINGS B & D

NOTES:

1. CONCRETE FOR PARAPET ON PROPOSED BRIDGE DECK IS INCLUDED WITH ITEM 511, CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN FOR PAYMENT. CONCRETE FOR PARAPET ON PROPOSED BACKWALL IS INCLUDED WITH ITEM 511, CLASS HP CONCRETE, SUBSTRUCTURE, AS PER PLAN FOR PAYMENT. PARAPET REINFORCING INCLUDED WITH ITEM 509, EPOXY COATED REINFORCING STEEL.
2. FOR PARAPET REINFORCING LIST, SEE SHEET 16/16.
3. PRESERVE ALL EXISTING LONGITUDINAL REINFORCMENT IN PARAPET ON EXISTING BRIDGE DECK AND ON EXISTING BACKWALL.
4. NEW 2" CONDUIT IN OUTSIDE PARAPET ONLY.

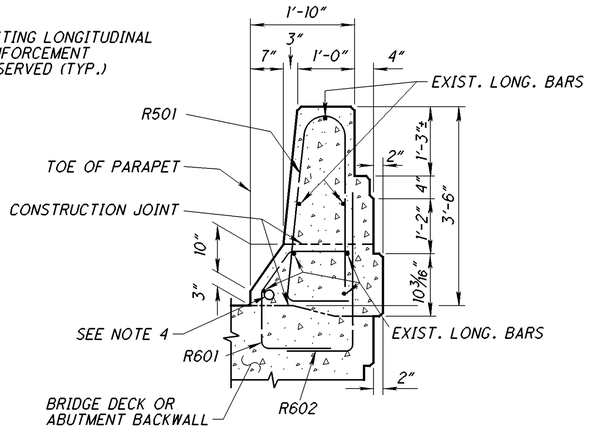


PARAPET ON DECK



PARAPET ON BACKWALL

CONCRETE SEALING DETAILS



SECTION H-H

MATCH EXISTING PARAPET SHAPE
FIELD BEND BARS IF NECESSARY

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
CNK	CNK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301382	

PARAPET DETAILS
BRIDGE NO. LAK-2-1476L
S.R. 2 OVER S.R. 283

LAK-2-14.38
PID No. 87924

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SUBSTRUCTURE - ABUTMENT BACKWALL

MARK	QUANTITY			LENGTH	WEIGHT	TYPE	DIMENSIONS						
	REAR ABUT.	FWD. ABUT.	TOTAL				A	B	C	D	E	R	INC.
A501	16	16	32	20'-10"	696	35	20'-10"						
A502	16	16	32	8'-5½"	283	37	8'-5½"						
A503	16	16	32	10'-0"	334	36	10'-0"						
A504	16	16	32	16'-6"	551	STR							
A601	53	53	106	6'-0"	956	STR							
A602	49	49	98	8'-5"	1239	2	3'-2"	7"	5'-0"				
A603	49	49	98	5'-10"	859	1	1'-0"	5'-0"					
A604	3	3	6	10'-9"	97	2	5'-0"	1'-1"	5'-0"				
A605	1	1	2	10'-6"	32	2	5'-0"	10"	5'-0"				
A801	35	35	70	4'-9"	888	18	2'-5"	1'-0"	1'-0"				
R501	6	6	12	7'-6"	94	23	1'-0"	3'-3"	3'-0"			3¾"	
R601	6	6	12	3'-4"	61	14	1'-2½"	8"	8½"	6"	11"		
R602	6	6	12	3'-4"	61	1	11"	2'-7"					
				SUB-TOTAL	6151								

SUPERSTRUCTURE - DECK

MARK	QUANTITY			LENGTH	WEIGHT	TYPE	DIMENSIONS						
	REAR ABUT.	FWD. ABUT.	TOTAL				A	B	C	D	E	R	INC.
S601	3	3	6	8'-8"	79	35	8'-8"						
S602	6	6	12	16'-3"	293	STR							
S603	3	3	6	8'-5½"	77	37	8'-5½"						
S604	3	3	6	11"-7"	105	36	11'-7"						
S605	8	8	16	7'-6"	181	STR							
S606	2	2	4	2'-4"	15	35	2'-4"						
S607	2	2	4	5'-2"	32	36	5'-2"						
S608	2	2	4	2'-11"	18	35	2'-11"						
S609	2	2	4	4'-7"	28	36	4'-7"						
S701	3	3	6	9'-2"	113	35	9'-2"						
S702	6	6	12	16'-9"	411	STR							
S703	3	3	6	8'-5	104	37	8'-5½"						
S704	3	3	6	12'-2"	150	36	12'-2"						
				SUB-TOTAL	1606								

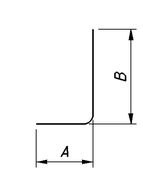
SUPERSTRUCTURE - PARAPET

MARK	QUANTITY			LENGTH	WEIGHT	TYPE	DIMENSIONS						
	REAR ABUT.	FWD. ABUT.	TOTAL				A	B	C	D	E	R	INC.
R501	6	6	12	7'-6"	94	23	1'-0"	3'-3"	3'-0"			3¾"	
R601	6	6	12	3'-4"	61	14	1'-2½"	8"	8½"	6"	11"		
R602	6	6	12	3'-4"	61	1	11"	2'-7"					
				SUB-TOTAL	216								

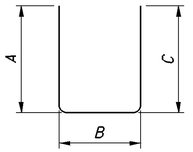
APPROACH SLAB*

MARK	QUANTITY			LENGTH	WEIGHT	TYPE	DIMENSIONS						
	REAR ABUT.	FWD. ABUT.	TOTAL				A	B	C	D	E	R	INC.
AS501	35	35	70	19'-6"	1424	STR							
AS502	90	90	180	9'-6"	1784	STR							
AS503	90	90	180	15'-0"	2817	STR							
AS504	45	45	90	11'-0"	1033	STR							
AS505	4	4	8	6'-6"	55	STR							
AS1001	79	79	158	20'-11"	14221	16	19'-6"						
				SUB-TOTAL	21334								

* BARS SHOWN FOR INFORMATIONAL PURPOSES ONLY. BARS ARE INCLUDED WITH APPROACH SLAB ITEM FOR PAYMENT.



TYPE-1



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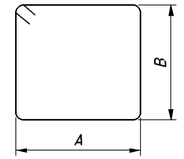

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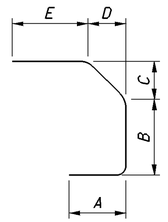

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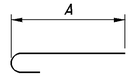

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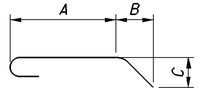

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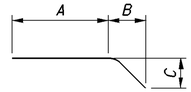

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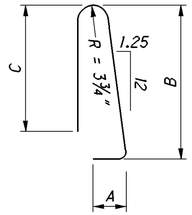

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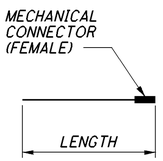

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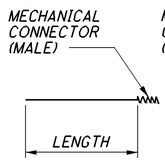

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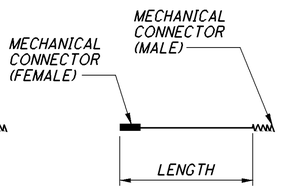

TYPE-37

NOTES:

1. THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT WHERE THREE DIGITS ARE USED AND THE FIRST TWO WHERE FOUR DIGITS ARE USED, INDICATES THE BAR SIZE NUMBER.
2. ALL DIMENSIONS ARE MEASURED OUT-TO-OUT OF BAR UNLESS NOTED OTHERWISE.
3. FOR STANDARD HOOK DIMENSIONS, SEE SECTION 509.05 OF THE SPECIFICATIONS.
4. ALL REINFORCING STEEL TO BE EPOXY COATED.
5. PAYMENT FOR REINFORCING STEEL SHALL BE INCLUDED IN THE CONTRACT BID PRICE FOR ITEM 509, EPOXY COATED REINFORCING STEEL.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED CNK | DRAWN CNK | CHECKED JTC | REVIEWED SCJ | DATE 9/10

STRUCTURE FILE NUMBER 4301382

REVISED

REINFORCEMENT LIST

BRIDGE NO. LAK-2-1476L
S.R. 2 OVER S.R. 283

LAK-2-14.38
PID No. 87924

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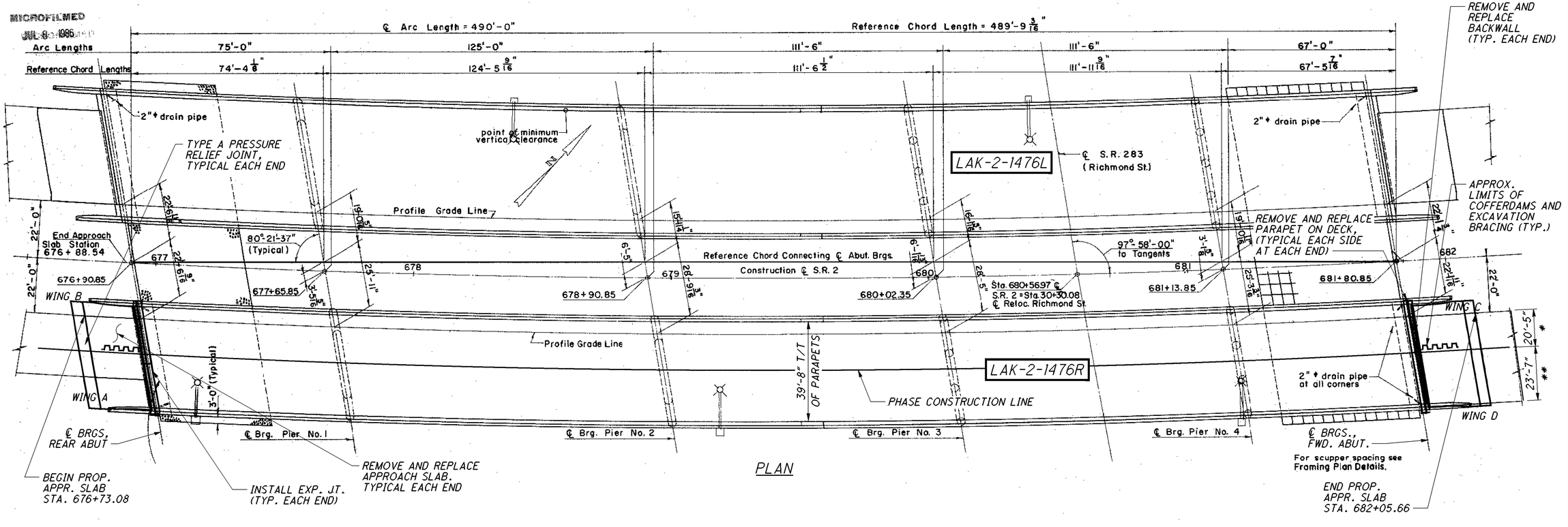
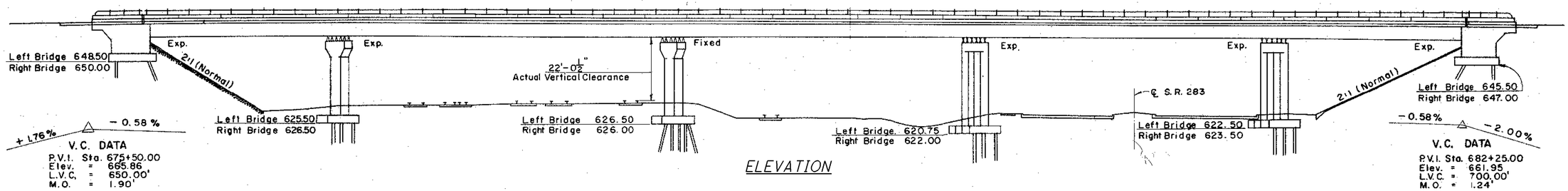


PLAN



ELEVATION

LEGEND

* PHASE 1 CONSTRUCTION
** PHASE 2 CONSTRUCTION

EXISTING STRUCTURE	PROPOSED STRUCTURE
TYPE: 5-SPAN CONTINUOUS WELDED PLATE GIRDER WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURES	PROPOSED WORK: REPLACE ABUTMENT BACKWALLS, REPLACE EXPANSION JOINTS WITH STRIP SEAL EXPANSION JOINTS, REPLACE APPROACH SLABS AND PROVIDE PRESSURE RELIEF JOINTS.
SPANS: 75'-0", 125'-0", 111'-6", 111'-6", 67'-0"	TYPE: 5-SPAN CONTINUOUS WELDED PLATE GIRDER WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURES
ROADWAY: 39'-8"± T/T PARAPET	SPANS: 75'-0", 125'-0", 111'-6", 111'-6", 67'-0"
LOADING: HS-20-44	ROADWAY: 39'-8"± T/T PARAPET
SKEW: 7° 58' 00" R.F.	LOADING: HS-20-44
APPROACH SLABS: 25'-0"± LONG	SKEW: 7° 58' 00" R.F.
EXISTING WEARING SURFACE: SUPERPLASTICIZED DENSE CONCRETE	APPROACH SLABS: STD. AS-1-81 20'-0" LONG (MODIFIED)
ALIGNMENT: 1° 15' CURVE	EXISTING WEARING SURFACE: SUPERPLASTICIZED DENSE CONCRETE
CROWN: 0.04 FT/FT	ALIGNMENT: 1° 15' CURVE
STRUCTURAL FILE NUMBER: 4301412	CROWN: 0.04 FT/FT
DATE BUILT: 1963	

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
CNK	CNK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301412	

SITE PLAN
BRIDGE NO. LAK-2-1476R
S.R. 2 OVER S.R. 283

LAK-2-14.38
PID No. 87924

1 / 15

88
208

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GENERAL NOTES

REFER TO THE FOLLOWING STANDARD BRIDGE DRAWINGS:

AS-1-81	REVISED	07-19-02
CSD-1-96	REVISED	07-19-02
EXJ-4-87	REVISED	07-19-02
PCB-91	REVISED	07-19-02

REFER TO THE FOLLOWING STANDARD ROADWAY DRAWINGS:

BP-2.3	REVISED	07-16-04

AND TO THE FOLLOWING SUPPLEMENTAL SPECIFICATIONS:

848	DATED	04-16-10

DESIGN SPECIFICATIONS: THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO), 2002, AND THE 2004 ODOT BRIDGE DESIGN MANUAL.

DESIGN LOADING: HS-20 AND THE ALTERNATE MILITARY LOADING.

DESIGN DATA:

CONCRETE CLASS HP - COMPRESSIVE STRENGTH 4.5 KSI (DECK, ABUTMENTS COUNTERWEIGHTS, PARAPETS, AND APPROACH SLABS)
REINFORCING STEEL - MINIMUM YIELD STRENGTH 60 KSI
STRUCTURAL STEEL - ASTM A709 GRADE 50W - YIELD STRENGTH 50 KSI

MONOLITHIC WEARING SURFACE: IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1" THICK.

EXISTING STRUCTURE VERIFICATION: DETAILS AND DIMENSIONS SHOWN ON 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 513.04.

BASE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS THAT HAVE BEEN VERIFIED IN THE FIELD.

MAINTENANCE OF TRAFFIC

PROPOSED WORK:

IN GENERAL, THE PROPOSED WORK FOR THE S.R. 2 BRIDGE OVER RICHMOND ROAD SHALL CONSIST OF THE REMOVAL AND REPLACEMENT OF THE ABUTMENT BACKWALLS, THE REMOVAL OF THE EXISTING EXPANSION JOINTS AND REPLACEMENT WITH STRIP SEAL EXPANSION JOINTS, AND REMOVAL AND REPLACEMENT OF APPROACH SLABS. REMOVAL AND CONSTRUCTION OPERATIONS ARE TO BE PERFORMED WHILE MAINTAINING TWO LANES OF WESTBOUND TRAFFIC ON S.R. 2 FOR THE PHASE 1 CONSTRUCTION, AND ONE LANE OF WESTBOUND TRAFFIC ON S.R. 2 FOR THE PHASE 2 CONSTRUCTION. THE MAJOR ITEMS OF WORK REQUIRING PHASED CONSTRUCTION ARE DESCRIBED BELOW. SOME PROJECT WORK ITEMS, SUCH AS SEALING OF CONCRETE SURFACES, MAY BE PERFORMED AT THE CONTRACTOR'S DISCRETION DURING THE CONTRACT SCHEDULE PERIOD; HOWEVER, THE PERFORMANCE OF ALL WORK MUST BE COORDINATED TO SATISFY MAINTENANCE OF TRAFFIC AND SAFETY REQUIREMENTS. SEE M.O.T. PLANS FOR ADDITIONAL MAINTENANCE OF TRAFFIC REQUIREMENTS.

PHASE 1 CONSTRUCTION:

1. INSTALL PORTABLE CONCRETE BARRIER ON THE EXISTING RICHMOND ROAD BRIDGE AND APPROACHES. ROUTE TRAFFIC ACROSS THE BRIDGE ACCORDING TO THE MAINTENANCE OF TRAFFIC PLANS.
2. CONSTRUCT TEMPORARY EXCAVATION SUPPORTS ALONG THE PHASE REMOVAL LINE AT THE REAR AND FORWARD ABUTMENTS AS SHOWN IN THE PLANS.
3. ON THE NORTHERNMOST PORTION OF THE EXISTING BRIDGE, REMOVE THE EXISTING PORTION OF DECK/COUNTERWEIGHT AND PARAPET AT THE ABUTMENTS, APPROACH SLABS, EXPANSION JOINTS, END CROSSFRAMES, AND ABUTMENT BACKWALLS IN ACCORDANCE WITH 202.03 AND PLAN REQUIREMENTS.
4. CLEAN AND PAINT ENDS OF THE THREE NORTHERNMOST EXISTING BEAMS. PERFORM GIRDER WEB REPAIR ON THE NORTHERNMOST GIRDER AT THE FORWARD ABUTMENT AS SHOWN IN THE PLANS.
5. CONSTRUCT NORTHERNMOST REINFORCED CONCRETE ABUTMENT BACKWALL, END CROSSFRAMES, REINFORCED CONCRETE COUNTERWEIGHT, DECK, PARAPET, AND APPROACH SLAB AT THE REAR AND FORWARD ABUTMENTS.

PHASE 2 CONSTRUCTION:

1. INSTALL PORTABLE CONCRETE BARRIER ON COMPLETED PHASE 1 PORTION OF THE BRIDGE AS SHOWN ON BRIDGE AND MAINTENANCE OF TRAFFIC PLANS. ROUTE TRAFFIC ONTO COMPLETED PHASE 1 PORTION OF THE BRIDGE.
2. REMOVE THE REMAINING PORTIONS OF THE EXISTING DECK/COUNTERWEIGHT AND PARAPET AT ABUTMENTS, APPROACH SLABS, EXPANSION JOINTS, END CROSSFRAMES, AND ABUTMENT BACKWALLS IN ACCORDANCE WITH 202.03 AND PLAN REQUIREMENTS.
3. CLEAN AND PAINT ENDS OF THE THREE SOUTHERNMOST EXISTING BEAMS.
4. CONSTRUCT SOUTHERNMOST REINFORCED CONCRETE ABUTMENT BACKWALL, END CROSSFRAMES, REINFORCED CONCRETE COUNTERWEIGHT, DECK, PARAPET, AND APPROACH SLAB AT THE REAR AND FORWARD ABUTMENTS.
5. REMOVE PORTABLE CONCRETE BARRIER AND ROUTE TRAFFIC ONTO COMPLETED BRIDGE ACCORDING TO MAINTENANCE OF TRAFFIC PLANS.

ITEM 202, PORTIONS OF STRUCTURE REMOVED AS PER PLAN:

DESCRIPTION: THIS WORK CONSISTS OF THE REMOVAL OF THE CONCRETE DECK, PARAPETS, EXPANSION JOINTS, AND OTHER APPURTENANCES FROM SUPPORTING SYSTEMS AS SHOWN IN THE PLANS. THIS WORK SHALL ALSO INCLUDE THE REMOVAL OF THE ABUTMENT BACKWALLS IN ACCORDANCE WITH THE DETAILS SHOWN IN THE PLANS. ADDITIONAL CONCRETE REMOVAL MAY BE REQUIRED IF UNSOUND OR DETERIORATED CONCRETE IS ENCOUNTERED BEYOND THE PLAN CUT LINES. THE CONTRACTOR SHALL REMOVE ANY UNSOUND OR DETERIORATED CONCRETE BEYOND THE PLAN CUT LINE AS DIRECTED BY THE ENGINEER. PERFORM WORK CAREFULLY DURING DECK REMOVALS TO PROTECT PORTIONS OF THE EXISTING STEEL SUPPORTING SYSTEM THAT ARE TO BE SALVAGED AND INCORPORATED INTO THE PROPOSED STRUCTURE. THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE RAM TYPE OF EQUIPMENT IS PROHIBITED. SUBMIT CONSTRUCTION PLANS ACCORDING TO CMS 501.05.

PROTECTION OF TRAFFIC: PRIOR TO DEMOLITION OF ANY PORTIONS OF THE EXISTING SUPERSTRUCTURE, THE CONTRACTOR SHALL SUBMIT PLANS FOR THE PROTECTION OF TRAFFIC (VEHICULAR, 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 ENSURE 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, DRAW THE OUTLINE OF THE PRIMARY STEEL MEMBERS IN CONTACT WITH THE BOTTOM OF THE DECK ON THE SURFACE OF THE DECK. DRILL SMALL DIAMETER PILOT HOLES 2 INCHES OUTSIDE THESE LINES TO CONFIRM THE LOCATION OF FLANGE EDGES. DECK CUTS OVER OR WITHIN 2" OF FLANGE EDGES SHALL NOT EXTEND LOWER THAN THE BOTTOM LAYER OF DECK SLAB REINFORCING STEEL. CUTS MADE OUTSIDE 2 INCHES OF FLANGE EDGES MAY EXTEND THE FULL DEPTH OF THE DECK. PERFORM WORK CAREFULLY DURING CUTTING OF THE DECK SLAB TO AVOID DAMAGING STEEL MEMBERS THAT ARE TO BE INCORPORATED INTO THE PROPOSED STRUCTURE. REPLACE OR REPAIR STEEL MEMBERS DAMAGED BY THE DECK SLAB CUTTING OPERATIONS AT NO COST TO THE PROJECT. AT LEAST 7 DAYS BEFORE PERFORMING REPAIR WORK, SUBMIT A PROPOSED REPAIR PLAN, DEVELOPED BY AN OHIO REGISTERED PROFESSIONAL ENGINEER TO THE DIRECTOR. OBTAIN THE DIRECTOR'S APPROVAL BEFORE PERFORMING REPAIR.

REMOVAL METHODS: THE CONTRACTOR MAY REMOVE CONCRETE BY CUTTING AND BY MEANS OF HAND OPERATED PNEUMATIC HAMMERS EMPLOYING POINTED OR BLUNTED CHISEL TYPE TOOLS. FOR REMOVALS OVER STRUCTURAL MEMBERS, THE CONTRACTOR MAY USE A HAMMER HEAVIER THAN 35 POUNDS BUT NOT TO EXCEED 90 POUNDS UNLESS APPROVED BY THE ENGINEER. REMOVAL METHODS OVER STRUCTURAL MEMBERS SHALL ENSURE ADEQUATE DEPTH CONTROL AND PREVENT NICKING OR GOUGING THE PRIMARY STRUCTURAL MEMBERS.

SUBSTRUCTURE CONCRETE REMOVAL: REMOVE CONCRETE 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 35 POUNDS FOR REMOVAL WITHIN 18 INCHES OF PORTIONS TO BE PRESERVED. OUTSIDE THE 18 INCH LIMIT, THE CONTRACTOR MAY USE HAMMERS NOT EXCEEDING 90 POUNDS UPON THE APPROVAL OF THE ENGINEER. DO NOT PLACE PNEUMATIC HAMMERS IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE.

CUT LINE CONSTRUCTION JOINT PREPARATION: SAW CUT BOUNDARIES OF PROPOSED CONCRETE REMOVALS 1 INCH DEEP. REMOVE CONCRETE TO A ROUGH SURFACE. LEAVE THE EXISTING REINFORCING STEEL, IF REQUIRED IN THE PLANS, IN PLACE. INSTALL DOWEL BARS IF SPECIFIED. PRIOR TO CONCRETE PLACEMENT ABRASIVELY CLEAN JOINT SURFACES AND EXISTING EXPOSED REINFORCEMENT TO REMOVE LOOSE AND DISINTEGRATED CONCRETE AND LOOSE RUST. THOROUGHLY CLEAN THE JOINT SURFACE AND EXPOSED REINFORCEMENT OF ALL DIRT, DUST, RUST, OR OTHER FOREIGN MATERIAL BY THE USE OF WATER, AIR UNDER PRESSURE, OR OTHER METHODS THAT PRODUCE SATISFACTORY RESULTS. EXISTING REINFORCING STEEL DOES NOT HAVE TO HAVE A BRIGHT STEEL FINISH, BUT REMOVE ALL PACK AND LOOSE RUST. THOROUGHLY DRENCH EXISTING CONCRETE SURFACES WITH CLEAN WATER AND ALLOW TO DRY TO A DAMP CONDITION BEFORE PLACING CONCRETE.

MEASUREMENT AND PAYOUT: THE DEPARTMENT WILL MEASURE THE QUANTITY OF REMOVAL ON A LUMP SUM BASIS. THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES OF REMOVALS AT THE CONTRACT PRICE FOR ITEM 202, PORTIONS OF STRUCTURE REMOVED, AS PER PLAN.

ITEM 202, APPROACH SLAB REMOVED, AS PER PLAN:

THIS WORK CONSISTS OF REMOVING THE EXISTING APPROACH SLABS INCLUDING ANY EXISTING OVERLAY THAT IS PRESENT ON TOP OF THE EXISTING APPROACH SLAB.

ITEM 509 - REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN:

CONTIGENCY QUANTITIES ARE INCLUDED TO PROVIDE ADDITIONAL CONNECTING REINFORCING STEEL IF DOWELING IS REQUIRED OR IF EXISTING REINFORCING STEEL TO BE REUSED IS MISSING OR FOUND TO BE UNUSABLE.

REPLACE ALL EXISTING REINFORCING BARS DEEMED BY THE ENGINEER TO BE UNUSABLE BECAUSE OF CORROSION. THE DEPARTMENT WILL MEASURE THE REPLACEMENT REINFORCING STEEL BY THE NUMBER OF POUNDS ACCEPTED IN PLACE.

REPLACE ALL EXISTING REINFORCING STEEL BARS WHICH ARE TO BE INCORPORATED INTO THE NEW WORK AND ARE DEEMED BY THE ENGINEER TO BE MADE UNUSABLE BY CONCRETE REMOVAL OPERATIONS WITH NEW EPOXY COATED REINFORCING STEEL OF THE SAME SIZE AT NO COST TO THE DEPARTMENT.

ITEM 511, CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN:
ITEM 511, CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN:
ITEM 511, CLASS HP CONCRETE, SUBSTRUCTURE, AS PER PLAN:
ITEM 511, CLASS HP CONCRETE, TEST SLAB:

GENERAL REQUIREMENTS:
THE PROVISIONS OF ITEM 511 SHALL APPLY EXCEPT AS NOTED BELOW.

MIX OPTIONS:
ALL BRIDGE DECK, PARAPETS, AND APPROACH SLAB CONCRETE SHALL BE THIS MIX, AS MODIFIED BY TABLE A. ALL SUBSTRUCTURE CONCRETE SHALL BE THIS MIX, AS MODIFIED BY TABLE B.

THE FOLLOWING PROPORTIONS WILL BE USED AS A STARTING MIX DESIGN:

TABLE A
QUANTITIES PER CUBIC YARD
AGGREGATES (SSD)

HP4, AS PER PLAN (GGBF SLAG + MICROSILICA)								
AGGRE. TYPE	FINE AGGRE. (LB)	#8 COARSE AGGRE. (LB)*	#57 COARSE AGGRE. (LB)*	CEMENT CONTENT (LB)*	GGBF SLAG (LB)*	MICRO-SILICA (LB)*	W/C RATIO +/-0.01	AIR CONTENT +/-2%
GRAVEL	1245	360	1315	400	170	30	0.43	7
LIMESTONE	1245	360	1335	400	170	30	0.43	7
SLAB	1245	315	1155	400	170	30	0.43	7

TABLE B
QUANTITIES PER CUBIC YARD
AGGREGATES (SSD)

HP2, AS PER PLAN (GGBF SLAG W/O MICROSILICA)								
AGGRE. TYPE	FINE AGGRE. (LB)	#8 COARSE AGGRE. (LB)*	#57 COARSE AGGRE. (LB)*	CEMENT CONTENT (LB)*	GGBF SLAG (LB)*	MICRO-SILICA (LB)*	W/C RATIO +/-0.01	AIR CONTENT +/-2%
GRAVEL	1245	360	1315	430	170	0	0.43	7
LIMESTONE	1245	360	1335	430	170	0	0.43	7
SLAB	1245	315	1155	430	170	0	0.43	7

* ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED PER ASTM C127.

HIGH EARLY STRENGTH CEMENT MAY BE USED TO EXPEDITE CONSTRUCTION, SEE 511.07.

THE WEIGHTS SPECIFIED IN THE CONCRETE TABLES WERE CALCULATED FOR MATERIALS OF THE FOLLOWING BULK SPECIFIC GRAVITIES (SSD): NATURAL SAND AND GRAVEL 2.62, LIMESTONE SAND 2.68, LIMESTONE 2.65, SLAG 2.30, FLY ASH 2.65, GGBF SLAG 2.90, MICROSILICA SOLIDS 2.20, AND PORTLAND CEMENT 3.15. FOR AGGREGATES OF SPECIFIC GRAVITIES DIFFERING MORE THAN PLUS OR MINUS 0.02 FROM THESE, THE WEIGHTS IN THE TABLE WILL BE CORRECTED.

PARAPET CONSTRUCTION (FORMED AND POURED): FORMS SHALL NOT BE REMOVED UNTIL AT LEAST 2 HOURS AFTER THE FINAL SET. DETERMINATION OF THE FINAL SET SHALL BE AS PER ASTM C266 (GILLMORE NEEDLE). TESTING SHALL BE PERFORMED BY THE CONTRACTOR AT NO COST TO THE STATE.

THE MINIMUM CONCRETE SLUMP DURING PLACEMENT OF FORMED CONCRETE PARAPETS SHALL BE 6 INCHES, WITH A MAXIMUM SLUMP OF 8 INCHES.

PARAPET CONSTRUCTION (SLIP FORMED): SLIP FORMING IS PROHIBITED.

BASIS OF PAYMENT: PAYMENT FOR THE ABOVE COMPLETED AND ACCEPTED QUANTITIES WILL BE MADE AT THE CONTRACT BID PRICE FOR:

ITEM	UNITS	DESCRIPTION
511E50001	CUBIC YARD	CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN
511E50101	CUBIC YARD	CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN
511E50201	CUBIC YARD	CLASS HP CONCRETE, SUBSTRUCTURE, AS PER PLAN
511E52000	LUMP	CLASS HP CONCRETE, TEST SLAB

ITEM 512, SEALING OF CONCRETE SURFACES (EPOXY URETHANE): THE FINISH COAT COLOR FOR ALL CONCRETE SURFACES TO RECEIVE SEALER SHALL MATCH THE EXISTING SEALER COLOR SUBJECT TO THE APPROVAL OF THE ENGINEER.

DESIGN AGENCY
CH2MHILL
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SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED CNK | DRAWN CNK | REVIEWED SCJ | DATE 9/10 | CHECKED JTC | REVISED | STRUCTURE FILE NUMBER 4301412

GENERAL NOTES (1 OF 2)
BRIDGE NO. LAK-2-1476R
S.R. 2 OVER S.R. 283

LAK-2-14.38
PID No. 87924

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GENERAL NOTES, CONTINUED:

ITEM 513, STRUCTURAL STEEL MEMBERS, LEVEL UF , AS PER PLAN:
ALL REQUIREMENTS OF 513 APPLY TO SHOP FABRICATED MEMBERS. PERFORM WORK FOR FIELD-FABRICATED MEMBERS ACCORDING TO ITEM 513, EXCEPT AS MODIFIED HEREIN. THE DEPARTMENT WILL NOT REQUIRE THE CONTRACTOR PERFORMING FIELD FABRICATION TO BE PRE-QUALIFIED AS SPECIFIED IN SUPPLEMENT 1078. SUBMIT A WRITTEN LETTER OF MATERIAL ACCEPTANCE, 501.06, TO THE ENGINEER. PROVIDE SHOP DRAWINGS ACCORDING TO 513.04 OR SUPPLY THE ENGINEER WITH AS-BUILT DRAWINGS MEETING 513.04 AFTER COMPLETION OF FIELD FABRICATION. THE ENGINEER WILL REVIEW THE SUBMITTED DRAWINGS FOR CONCURRENCE WITH THE FINAL AS-BUILT CONDITION. IF NECESSARY, THE ENGINEER MAY CONTACT THE OFFICE OF STRUCTURAL ENGINEERING FOR TECHNICAL ASSISTANCE. IF THE ENGINEER IS SATISFIED WITH THE AS-BUILT DRAWINGS AND THE DELIVERED MATERIALS, SUPPLY A COPY OF THE DRAWINGS, STAMPED AND DATED, ALONG WITH MICROFILM, TO THE STRUCTURAL, WELDING AND METALS SECTION OF THE OFFICE OF MATERIAL MANAGEMENT FOR RECORD PURPOSES.

THE FOLLOWING MEMBERS ARE INCLUDED IN THIS ITEM: L4x4x5/16 AND 5/16" PL AS SHOWN IN "GIRDER & WEB REPAIR AT FORWARD ABUTMENT", SHEET 10/15.

ITEM 514, FIELD PAINTING STRUCTURAL STEEL, FINISH COAT: THE FINISH COAT COLOR FOR ALL STRUCTURAL STEEL MEMBERS TO RECEIVE PAINT SHALL MATCH THE EXISTING PAINT COLOR SUBJECT TO THE APPROVAL OF THE ENGINEER.

ITEM 516, STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL, AS PER PLAN: IN ADDITION TO THE REQUIREMENTS OF STANDARD DRAWING EXJ-4-87, PROVIDE A COMPLETE PENETRATION WELDED BUTT JOINT AT THE PHASE CONSTRUCTION JOINTS. WHERE THE BUTT WELD IS TO BE IN CONTACT WITH THE SEALING GLAND, THE BUTT WELD SHALL BE GROUND FLUSH, AND MODIFY ANCHORAGE OF L7x4x1/2 AS SHOWN ON PLANS.

ITEM 526, REINFORCED CONCRETE APPROACH SLAB (T=13"), AS PER PLAN
DESCRIPTION: THIS ITEM SHALL CONSIST OF CONSTRUCTING REINFORCED CONCRETE APPROACH SLABS IN ACCORDANCE WITH THE DETAILS SHOWN IN ODOT STANDARD DRAWING AS-1-81.

MATERIALS: CONCRETE FOR THIS ITEM SHALL BE ITEM 511 - CLASS HP CONCRETE. USE THE SAME MIX FOR ITEM 526 AS IS USED FOR THE BRIDGE DECK AND PARAPETS. SEE GENERAL NOTE ITEM 511 FOR THE CONCRETE MIX REQUIREMENTS.

METHOD OF MEASUREMENT: THE AREA MEASURED WILL BE THE NUMBER OF SQUARE YARDS COMPLETE IN PLACE.

BASIS OF PAYMENT: ACCEPTED QUANTITIES WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER SQUARE YARD COMPLETE IN PLACE. THIS PRICE SHALL INCLUDE FULL COMPENSATION FOR CONCRETE, REINFORCING STEEL, JOINT FILL, JOINT SEALERS, JOINT SEALS AND WATERPROOFING. PAYMENT WILL BE MADE UNDER ITEM 526 - REINFORCED CONCRETE APPROACH SLAB (T=13"), AS PER PLAN.

ITEM 607, FENCE REMOVED AND REBUILT:
A PORTION OF THE EXISTING FENCE BETWEEN BRIDGE NO. LAK-2-1476R AND LAK-2-1476L AT THE REAR AND FORWARD ABUTMENTS MAY NEED TO BE REMOVED AND REBUILT IN ORDER TO RECONSTRUCT THE EXISTING MASKWALLS. FOR ESTIMATING PURPOSES 20 FEET OF FENCE REMOVED AND REBUILT WILL BE REQUIRED.

ITEM 202, PORTIONS OF STRUCTURES REMOVED, AS PER PLAN:
THIS ITEM SHALL ALSO INCLUDE THE REMOVAL OF ELEMENTS INDICATED IN THE PLANS AND GENERAL NOTES AND THAT ARE NOT SEPARATELY LISTED FOR PAYMENT. ITEMS TO BE REMOVED INCLUDE ALL EXISTING MATERIALS BEING REPLACED BY NEW CONSTRUCTION AND MISCELLANEOUS ITEMS THAT ARE NOT SHOWN TO BE INCORPORATED INTO THE FINAL CONSTRUCTION AND ARE DIRECTED TO BE REMOVED BY THE ENGINEER.

ALTERNATE METHOD FOR BACKWALL REMOVAL: AT NO ADDITIONAL COST TO THE STATE, THE CONTRACTOR MAY SAWCUT EXISTING BACKWALLS AT THE REMOVAL LIMITS SHOWN IN THE PLANS AND DOWEL REAR #6 BARS AT THE EXISTING BAR SPACING. PROVIDE 12" MINIMUM EMBEDMENT ON DOWEL BARS. PROVIDE #6 BARS LONG ENOUGH TO PROVIDE A MINIMUM LAP OF 2'-11" ON PROPOSED BARS.

ALTERNATE METHOD FOR REMOVAL OF DECK AT END OF BRIDGE: AT NO ADDITIONAL COST TO THE STATE, THE CONTRACTOR MAY REMOVE DECK CONCRETE USING HYDRODEMOLITION, SUBJECT TO ALL PERTINENT REQUIREMENTS OF SS 848.

ITEM 503, COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN:
IN ADDITION TO THE REQUIREMENTS OF CMS 503, LEAVE IN PLACE SHEETING ALONG THE STAGED CONSTRUCTION LINE AT THE POSITION SHOWN IN THE PLANS. CUT-OFF SHEETING 3" BELOW THE BOTTOM OF THE APPROACH SLAB OR AS DIRECTED BY THE ENGINEER.

ITEM 516 - REFURBISHING BEARING DEVICES, AS PER PLAN:
THIS ITEM SHALL INCLUDE ALL WORK NECESSARY TO PROPERLY ALIGN BRIDGE BEARINGS AS WELL AS THEIR CLEANING AND PAINTING. INCLUDED SHALL BE THE DISASSEMBLY OF THE BEARINGS, HAND TOOL CLEANING (GRINDING IF NECESSARY), PAINTING ACCORDING TO ITEM 514, REPLACEMENT OF ANY DAMAGED SHEET LEAD WITH PREFORMED BEARING PADS (711.21), INSTALLATION OF ANY NECESSARY STEEL SHIMS OF THE SAME SIZE AS THE BEARINGS TO PROVIDE A SNUG FIT, REALIGNMENT OF THE UPPER BEARING PLATE BY REMOVING EXISTING WELDS AND REWELDING SO THAT THE BEARINGS ARE VERTICALLY ALIGNED AT 60 DEGREES F, LUBRICATING SLIDING SURFACES, AND REASSEMBLY OF THE BEARINGS. ASSURE ALL BEARINGS ARE SHIMMED ADEQUATELY AND THAT NO BEAMS AND/OR BEARING DEVICES ARE "FLOATING". AT NO ADDITIONAL COST TO THE STATE, THE CONTRACTOR MAY INSTALL NEW BEARINGS OF THE SAME TYPE AS THE EXISTING IN PLACE OF REFURBISHING THE BEARINGS. ALL WORK SHALL BE TO THE SATISFACTION OF THE ENGINEER.

REMOVE BEARINGS FROM SITE TO PERFORM CLEANING AND PAINTING.

PAYMENT FOR ALL OF THE ABOVE DESCRIBED LABOR AND MATERIALS WILL BE MADE AT THE CONTRACT PRICE BID FOR ITEM 516 - REFURBISH BEARING DEVICES, AS PER PLAN.

ITEM 516, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN:
THIS WORK CONSISTS OF RAISING OR RE-POSITIONING EXISTING STRUCTURES TO ALLOW BEARING REFURBISHING.

SUBMIT CONSTRUCTION PLANS IN ACCORDANCE WITH CMS 501.05.

IF, DURING THE JACKING OPERATIONS, CRACKING OF THE CONCRETE SUPERSTRUCTURE, SEPARATION OF THE CONCRETE DECK FROM THE STEEL STRINGERS, OR OTHER DAMAGE TO THE STRUCTURE IS VISUALLY OBSERVED, IMMEDIATELY CEASE THE JACKING OPERATION AND INSTALL SUPPORTS TO THE SATISFACTION OF THE ENGINEER. ANALYZE THE DAMAGE AND SUBMIT A METHOD OF CORRECTION TO THE ENGINEER FOR APPROVAL. EPOXY INJECT ALL BEAMS THAT SEPARATE FROM THE DECK FOR THE DISTANCE OF THE SEPARATION IN ACCORDANCE WITH CMS 512.07. THE DEPARTMENT WILL NOT PAY FOR THE COST OF THIS EPOXY INJECTION OR OTHER REQUIRED REPAIRS. THE BRIDGE BEARINGS SHALL BE FULLY SEATED AT ALL CONTACT AREAS. IF FULL SEATING IS NOT ATTAINED, SUBMIT A REPAIR PLAN TO THE ENGINEER. THE DEPARTMENT WILL NOT PAY FOR THE REPAIR COSTS TO ENSURE FULL SEATING ON BEARINGS.

THE DEPARTMENT WILL MEASURE THIS WORK ON A LUMP SUM BASIS.

THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN.

ITEM 518, POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN:
THIS WORK SHALL INCLUDE THE REMOVAL OF EXISTING POROUS BACKFILL AND ALL ADJACENT SOIL TO INSTALL NEW POROUS BACKFILL AS DETAILED IN THE PLANS.

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DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
CNK	CNK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301412	

GENERAL NOTES (2 OF 2)
BRIDGE NO. LAK-2-1476R
S.R. 2 OVER S.R. 283

LAK-2-14.38
PID No. 87924

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ABBREVIATIONS

THE FOLLOWING ABBREVIATIONS HAVE BEEN USED THROUGHOUT THESE PLANS:

& = AND
@ = AT
° = DEGREES
′ = FEET OR MINUTES
″ = INCHES OR SECONDS
± = PLUS OR MINUS

AASHTO = AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
ABUT. = ABUTMENT
ADT = AVERAGE DAILY TRAFFIC
ADTT = AVERAGE DAILY TRUCK TRAFFIC
APPR. = APPROACH
APPROX. = APPROXIMATE
ASTM = AMERICAN SOCIETY OF TESTING AND MATERIALS

BM = BENCHMARK
BOT. = BOTTOM
BOT./FTG. = BOTTOM OF FOOTING
BRGS. = BEARINGS

℄ = CENTERLINE
C/C = CENTER TO CENTER
CFS = CUBIC FEET PER SECOND
CJ = CONSTRUCTION JOINT
CLR. = CLEAR
CMS = CONSTRUCTION AND MATERIAL SPECIFICATIONS
CONSTR./CONST. = CONSTRUCTION
CON'T = CONTINUED
COL. = COLUMN
C.P.P. = CORRUGATED PLASTIC PIPE
C.R./CR = COUNTY ROAD
CU = CUBIC
CVN = CHARPY V-NOTCH

DEFL. = DEFLECTION
DIA. = DIAMETER
DIM. = DIMENSION
DL = DEAD LOAD
DWG. = DRAWING

E =EAST
EA. = EACH
EF = EACH FACE
EL./ELEV. = ELEVATION
EMBED. = EMBEDMENT
EQ. = EQUAL
EX./EXIST. = EXISTING
EXP. = EXPANSION
EXT. = EXTENSION

F = FAHRENHEIT
FF = FAR FACE
F/F = FACE TO FACE
FS = FIELD SPLICE
FT. = FEET
FT/FT. = FOOT/FOOT
FT/S = FEET PER SECOND
FTG. = FOOTING
FWD. = FORWARD
FWS = FUTURE WEARING SURFACE

GEN. = GENERAL

HR = HOUR
HW = HIGH WATER

IN. = INCHES
INT. = INTERMEDIATE

LF = LEFT FORWARD
LONG. = LONGITUDINAL
LT. = LEFT

MAX. = MAXIMUM
MIN. = MINIMUM
MISC. = MISCELLANEOUS

N = NORTH
NF = NEAR FACE
#/NO. = NUMBER

OHWM = ORDINARY HIGH WATER MARK
OUT/OUT = OUT TO OUT

PEJF = PREFORMED EXPANSION JOINT FILLER
℄/PL = PLATE
PSF = POUND PER SQUARE FOOT
PSI = POUND PER SQUARE INCH
PT. = POINT
PVI = POINT OF VERTICAL INTERSECTION

Q = FLOW

R = RADIUS
REF. = REFERENCE
REINF. = REINFORCED
REQ'D. = REQUIRED
RF = RIGHT FORWARD
RT. = RIGHT

SHLDR. = SHOULDER
SPA. = SPACING
SQ = SQUARE
STA. = STATION
STD. = STANDARD
STR. = STRAIGHT
SUPER = SUPERSTRUCTURE

T = THICKNESS
TELE = TELEPHONE
TRANS. = TRANSVERSE
TWP. = TOWNSHIP
TYP. = TYPICAL

V = VELOCITY
V.C. = VERTICAL CURVE
VERT. = VERTICAL

W = WEST
W/ = WITH
W/O = WITHOUT
W.P. = WORKING POINT
WT. = WEIGHT

YD = YARD

ESTIMATED QUANTITIES

LAK-2-1476R — CALCULATED BY: JTC — CHECK BY: DGS — DATED: 9/10 — DATED: 10/10

ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	TOTAL**	AS PER PLAN SHEET REF.
202	11201	LUMP		PORTIONS OF STRUCTURE REMOVED, AS PER PLAN	LUMP	2
202	22901	165	SQ YD	APPROACH SLAB REMOVED, AS PER PLAN	165	2
503	11101	LUMP		COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN	LUMP	3
509	10000	6806	POUND	EPOXY COATED REINFORCING STEEL	6806	
509	20001	70	POUND	REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN	70	2
510	10000	114	EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT	114	
511	50001	12	CU YD	CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN	12	2
511	50101	2	CU YD	CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN	2	2
511	50201	33	CU YD	CLASS HP CONCRETE, SUBSTRUCTURE, AS PER PLAN	33	2
511	52000	LUMP		CLASS HP CONCRETE, TEST SLAB	LUMP	2
512	10100	100	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	100	
512	10300	28	SQ YD	SEALING CONCRETE BRIDGE DECKS WITH HMWM RESIN	28	
513	10201	91	POUND	STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN	91	3
513	21500	3390	POUND	REPLACEMENT OF DETERIORATED END CROSSFRAMES	3390	
514	00050	1174	SQ FT	SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL	1174	
514	00056	1174	SQ FT	FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT	1174	
514	00060	1595	SQ FT	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT	1595	
514	00066	1595	SQ FT	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT	1595	
516	11211	86	FT	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL, AS PER PLAN	86	3
516	45305	12	EACH	REBURBSIH BEARING DEVICE, AS PER PLAN	12	3
516	47001	LUMP		JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN	LUMP	3
518	21231	LUMP		POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN	LUMP	3
526	15001	180	SQ YD	REINFORCED CONCRETE APPROACH SLAB (T=13"), AS PER PLAN	180	3
625	25400	7	FT	CONDUIT, 2", 725.04	7	

**All Totals Participation Code II-Bridge

Participation Codes:
I-Pavement (Federal/State)
II-Bridge (Federal/State)

DESIGN AGENCY
CH2MHILL
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SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED CNK | DRAWN CNK | CHECKED JTC | REVIEWED SCJ | DATE 9/10 | REVISED | STRUCTURE FILE NUMBER 4301412

ESTIMATED QUANTITIES
BRIDGE NO. LAK-2-1476R
S.R. 2 OVER S.R. 283

LAK-2-14.38
PID No. 87924

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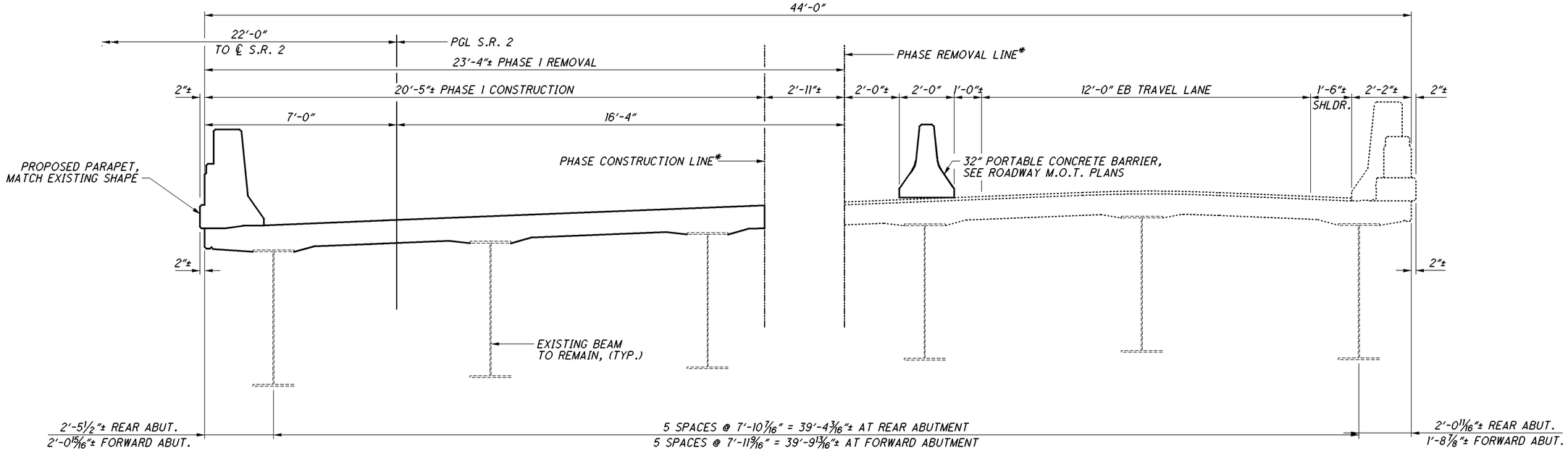


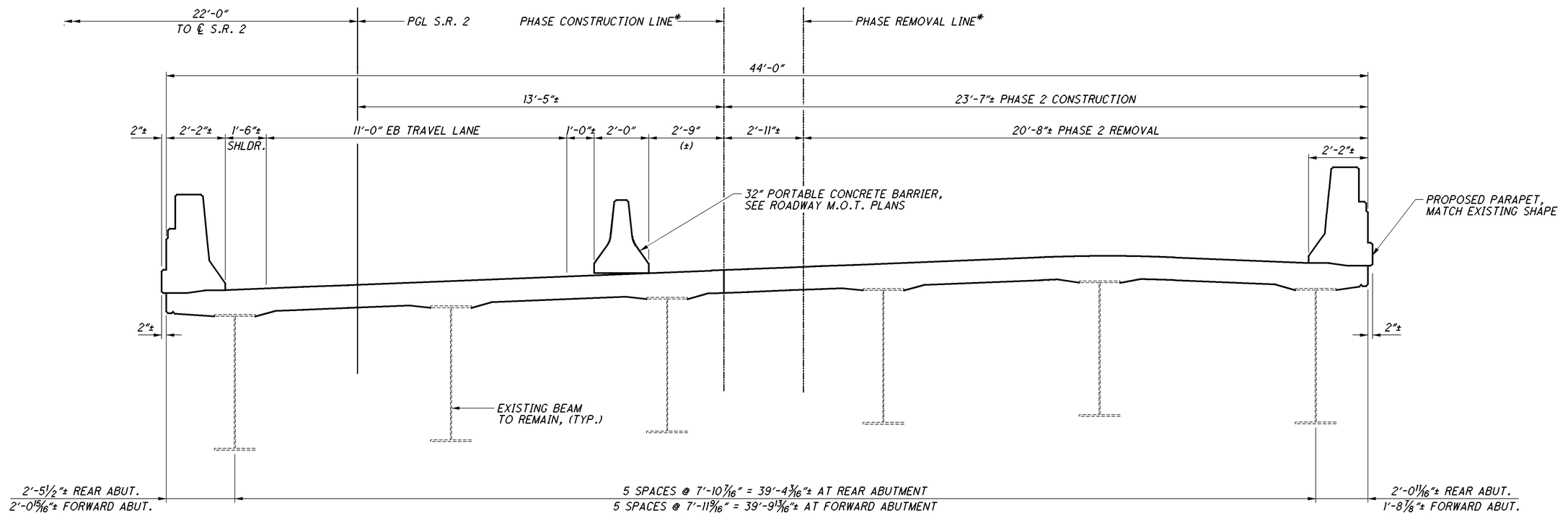
PHASE 1 REMOVAL AND CONSTRUCTION

LOOKING AHEAD STATION

NOTE:

1. TRANSVERSE DIMENSIONS SHOWN FOR PROPOSED CONSTRUCTION ARE APPROXIMATE. IT MAY BE NECESSARY TO VARY THESE DIMENSIONS TO MEET THE PROPOSED APPROACH SLAB AND THE EXISTING DECK.

2. END CROSSFRAMES NOT SHOWN. SEE SHEETS 8 AND 10.



PHASE 2 REMOVAL AND CONSTRUCTION

LOOKING AHEAD STATION

LEGEND:

* FOR WORK AT ABUTMENTS

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
CNK	CNK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301412	

PHASED CONSTRUCTION DETAILS

BRIDGE NO. LAK-2-1476R
S.R. 2 OVER S.R. 283

LAK-2-14.38
PID No. 87924

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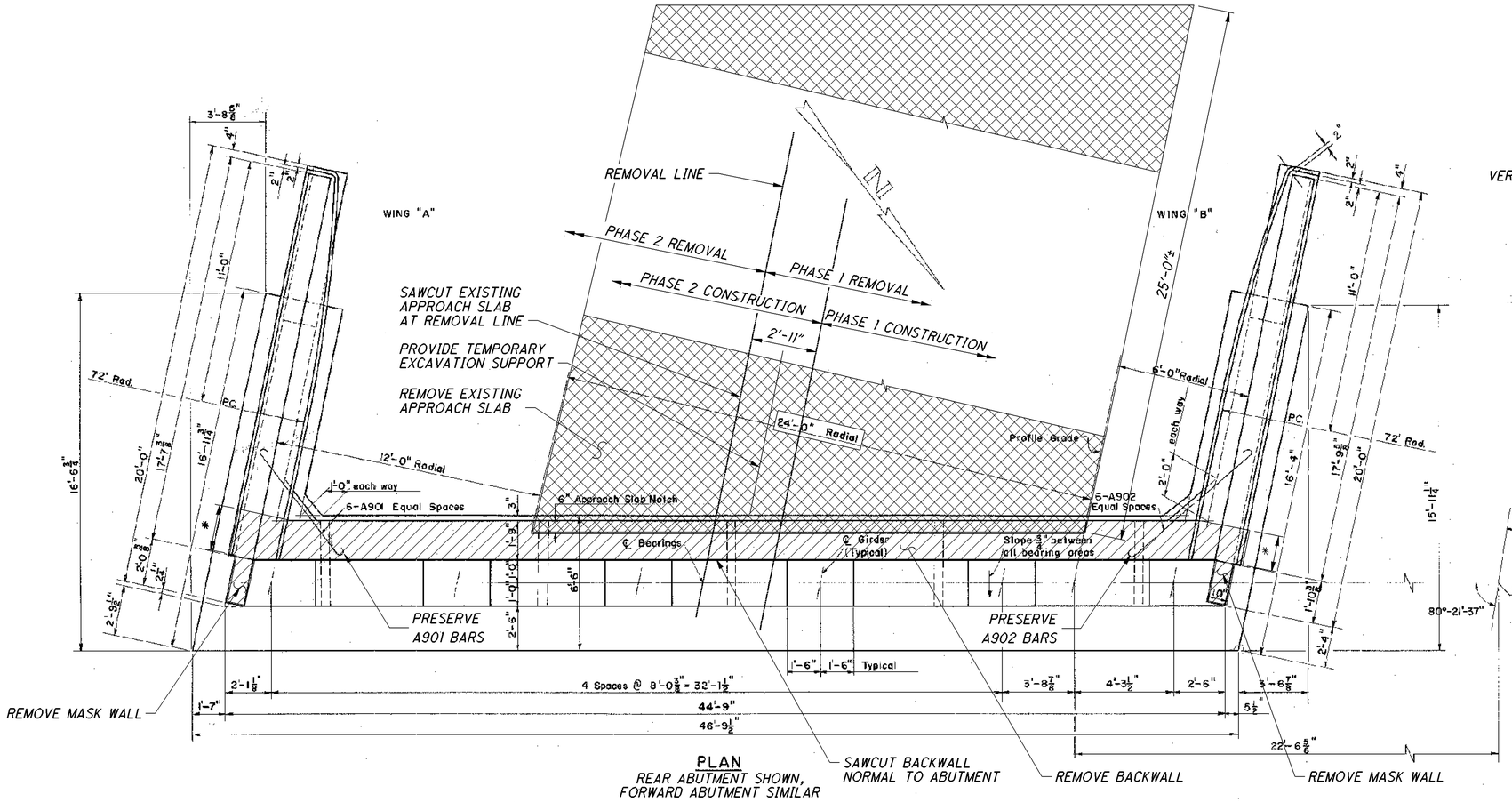
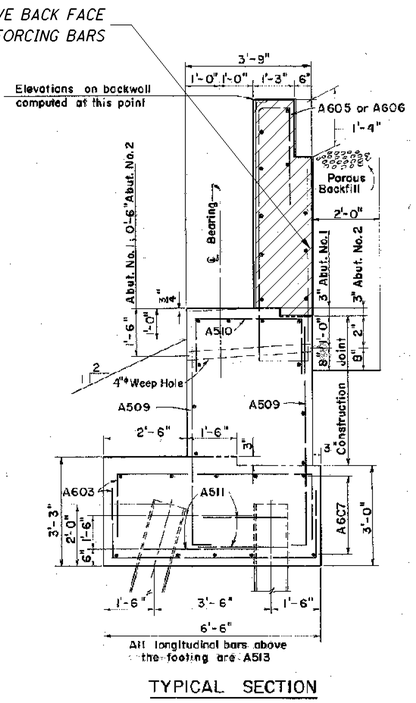
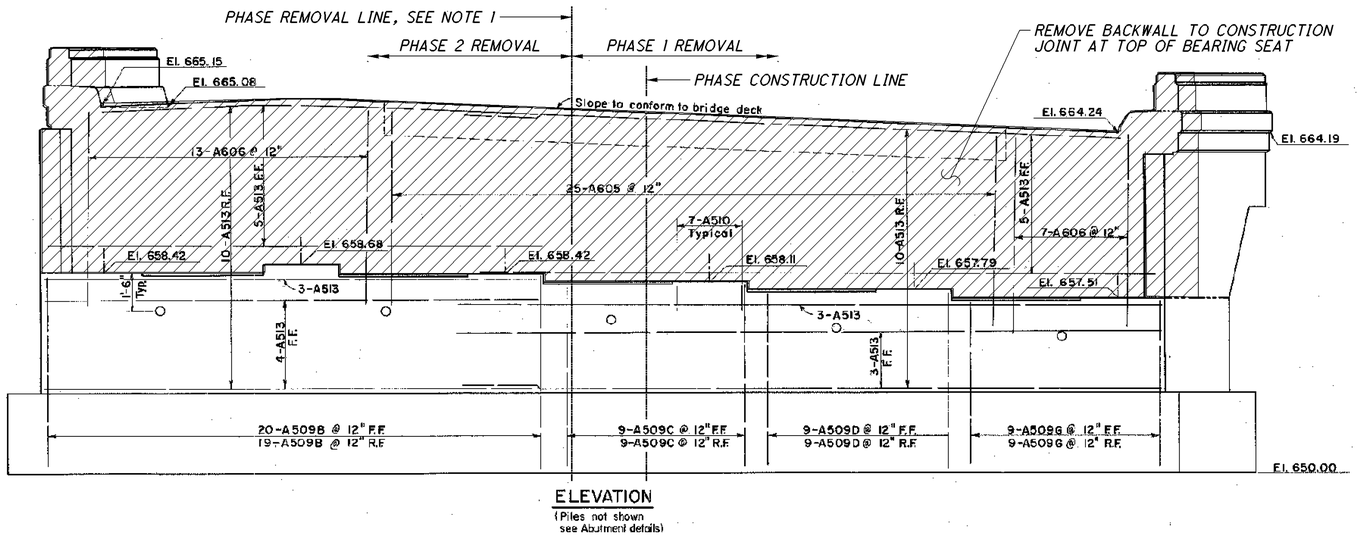


PLAN

REAR ABUTMENT SHOWN, FORWARD ABUTMENT SIMILAR



TYPICAL SECTION



ELEVATION

(Piles not shown see Abutment details)

NOTE:

1. *FOR LOCATION OF ABUTMENT BACKWALL REMOVAL LINE, SEE SHEET 9.*
2. *FOR LOCATION AND DIMENSIONS OF FORWARD ABUTMENT APPROACH SLAB REMOVAL, SEE SHEET 7.*
3. *ELEVATIONS SHOWN AT TOP OF BACKWALL DO NOT INCLUDE THE 1"± INCREASE DUE TO THE EXISTING SDC OVERALY.*

LEGEND

* *SEE SUPERSTRUCTURE DETAILS (SHEET 12) FOR LIMITS OF REMOVAL.*

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

ITEM 202 - APPROACH SLAB REMOVED, AS PER PLAN

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
CNK	CNK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301412	

REAR ABUTMENT BACKWALL & WINGWALL REMOVAL
BRIDGE NO. LAK-2-1476R
S.R. 2 OVER S.R. 283

LAK-2-14.38
PID No. 87924

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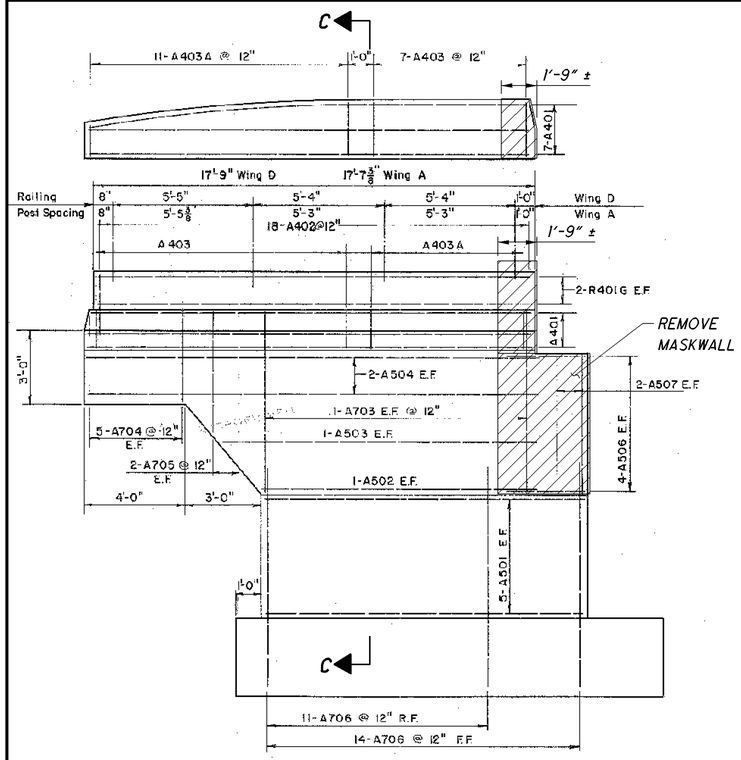
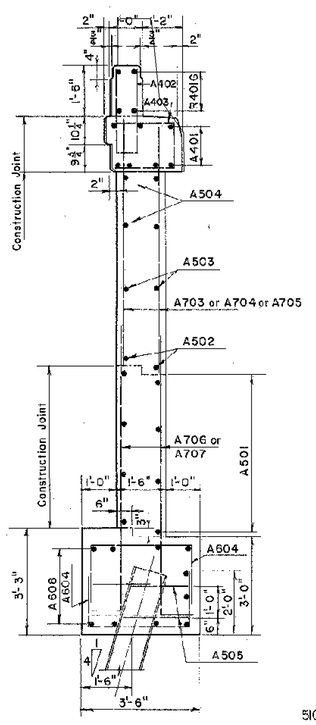
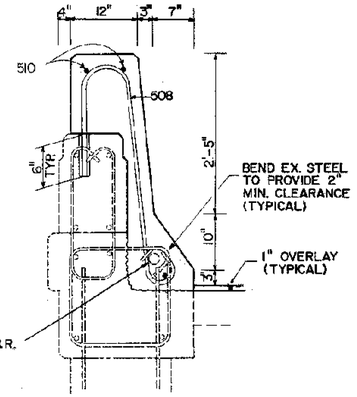


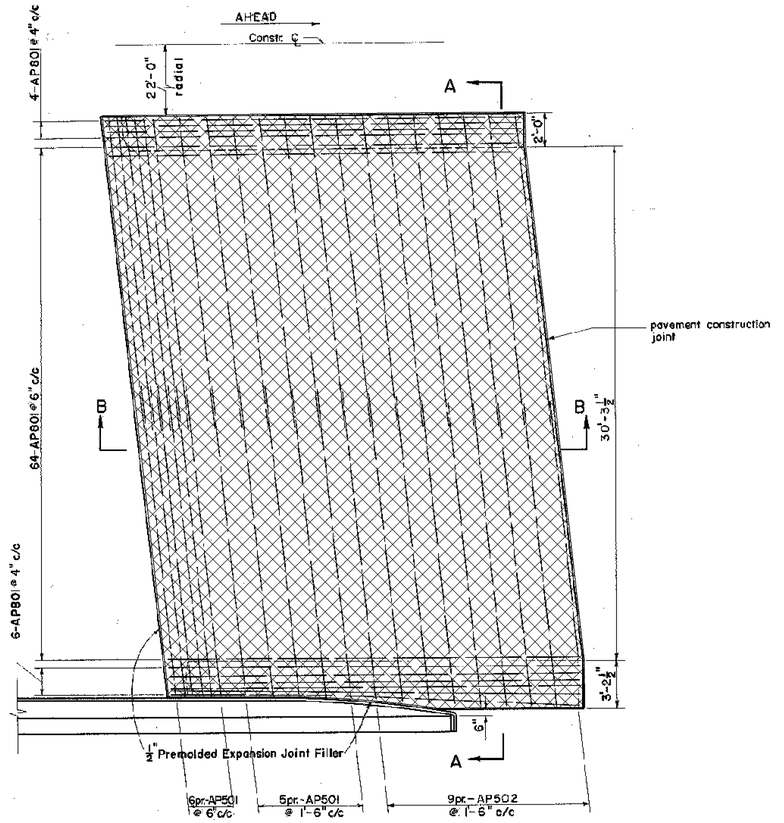
ELEVATION WING A AND D



SECTION C-C

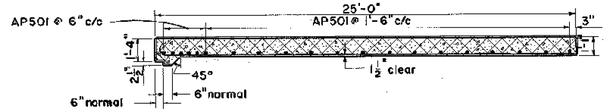


WINGWALL PARAPET

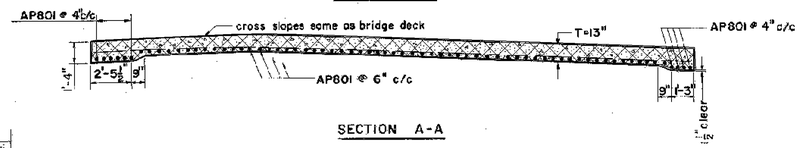


APPROACH SLAB

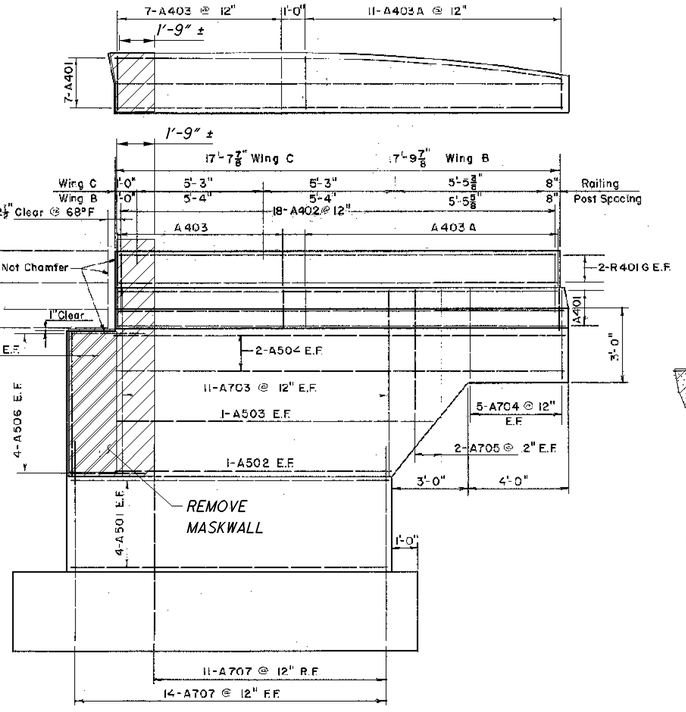
(South Bridge East Approach Slab, for other Approach Slabs see Standard drawing AS-1-54.)



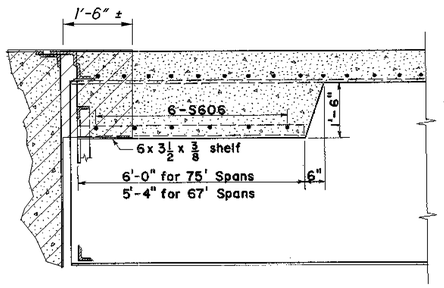
SECTION B-B

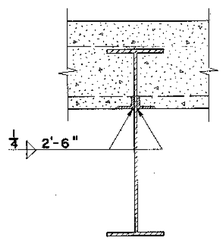


SECTION A-A



ELEVATION WING B AND C





COUNTERWEIGHT DETAILS

(Both end spans, Left and Right Bridge)

ITEM 202 APPROACH SLAB REMOVED, AS PER PLAN.

ITEM 202 PORTIONS OF STRUCTURE REMOVED, AS PER PLAN.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
CNK	CNK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301412	

WINGWALL & APPROACH SLAB REMOVAL

BRIDGE NO. LAK-2-1476R
S.R. 2 OVER S.R. 283

LAK-2-14.38
PID No. 87924

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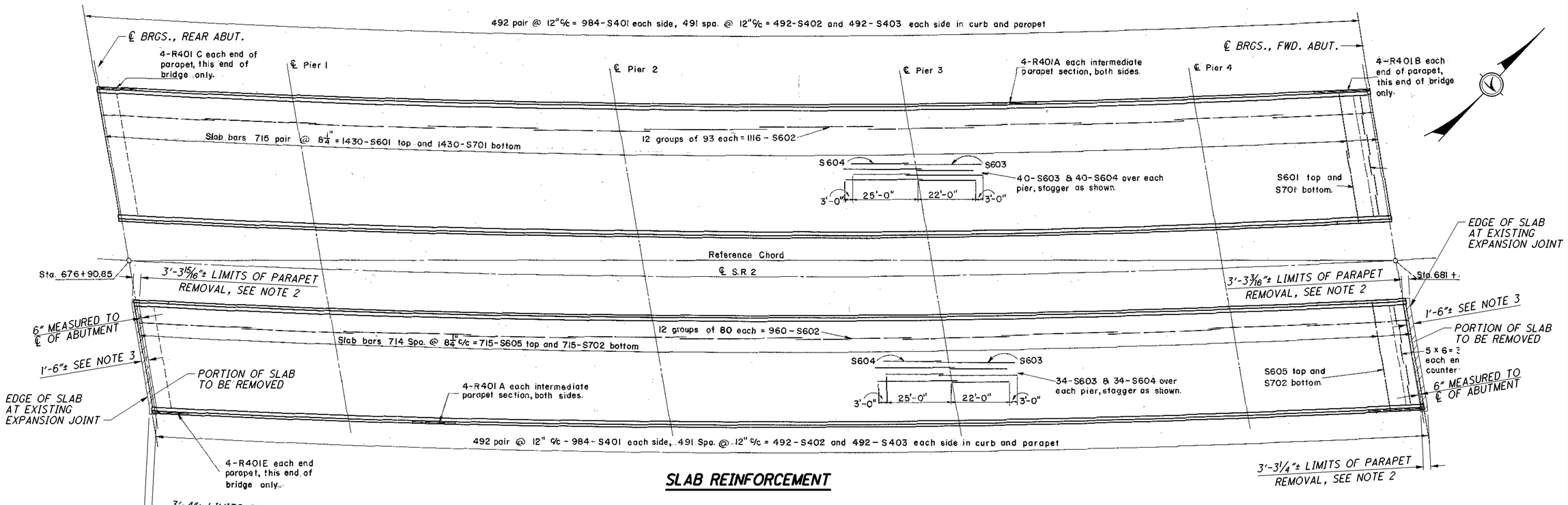
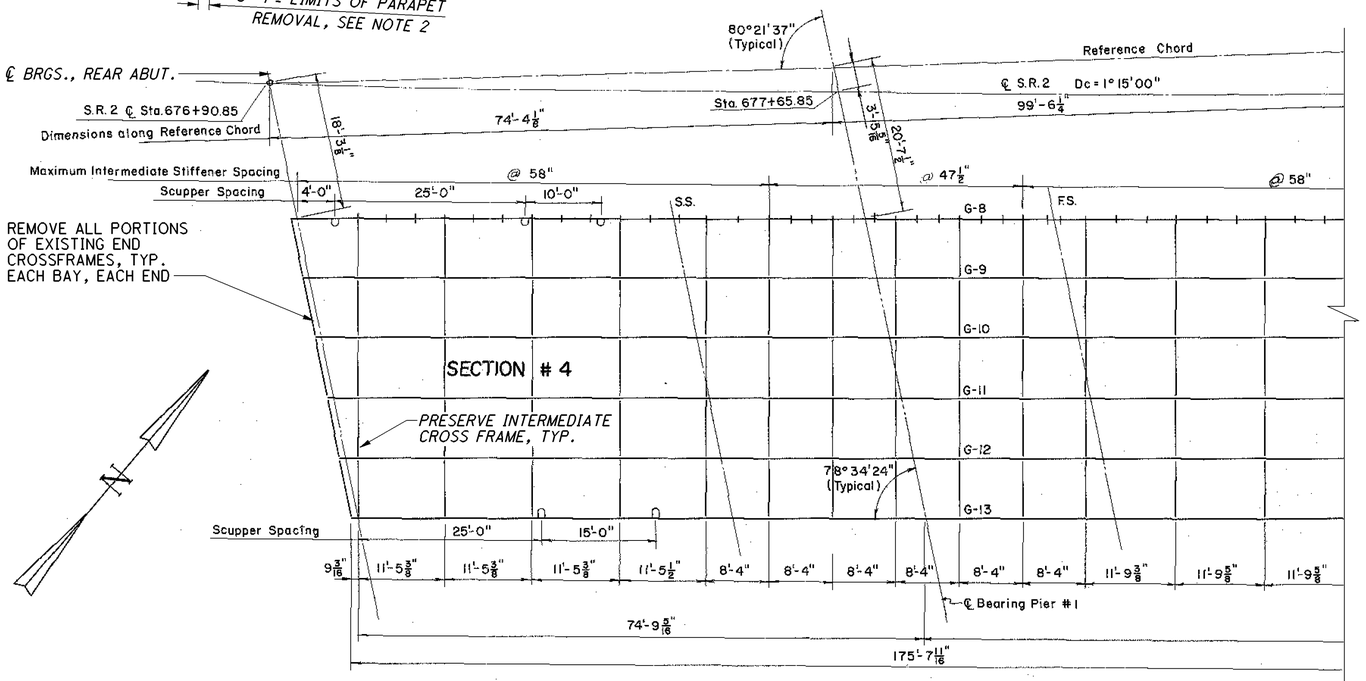
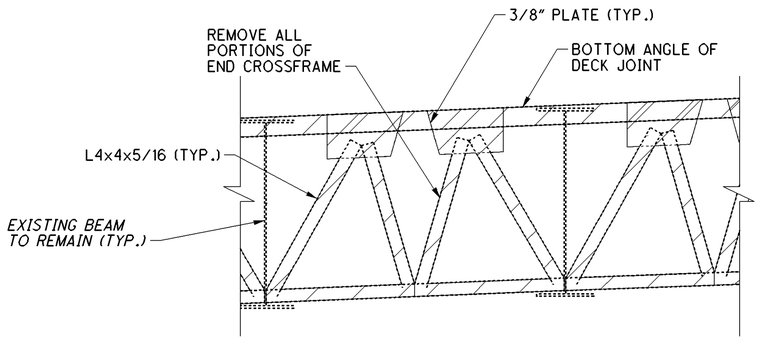


SLAB REINFORCEMENT



PARTIAL STEEL FRAMING PLAN

(OTHER END SIMILAR BUT OPPOSITE)



END CROSSFRAME REMOVAL DETAIL

TYPICAL EXISTING END CROSSFRAME

NOTES:

1. REMOVAL LINE IS LOCATED PARALLEL TO C/L ABUTMENT PLACE 1" DEEP SAWCUT ALONG REMOVAL LINE PRIOR TO DEMOLITION. PRESERVE ALL DECK REINFORCING STEEL THAT REMAINS EMBEDDED IN THE DECK.
2. REMOVAL LINE UNDER PARAPET IS LOCATED PARALLEL TO EDGE OF SLAB. SAWCUT ALONG REMOVAL LINE PRIOR TO DEMOLITION, PRESERVE ALL LONGITUDINAL PARAPET REINFORCEMENT AND ALL CONDUIT IN PARAPET.
3. REMOVAL LINE ON DECK IS LOCATED 6" FROM THE ℄ OF THE GIRDER BEARINGS TOWARDS THE CENTER OF THE SPAN, AND PARALLEL TO THE ABUTMENT BACKWALL. REMOVE ALL PORTIONS OF DECK BETWEEN THE REMOVAL LINE AND THE END OF DECK. PRESERVE ALL REINFORCEMENT RUNNING CONTINUOUS INTO STRUCTURE TO REMAIN.

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
CNK	CNK	SCJ	9/10
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REMOVAL DETAILS FOR SUPERSTRUCTURE
BRIDGE NO. LAK-2-1476R
S.R. 2 OVER S.R. 283

LAK-2-14.38
PID No. 87924

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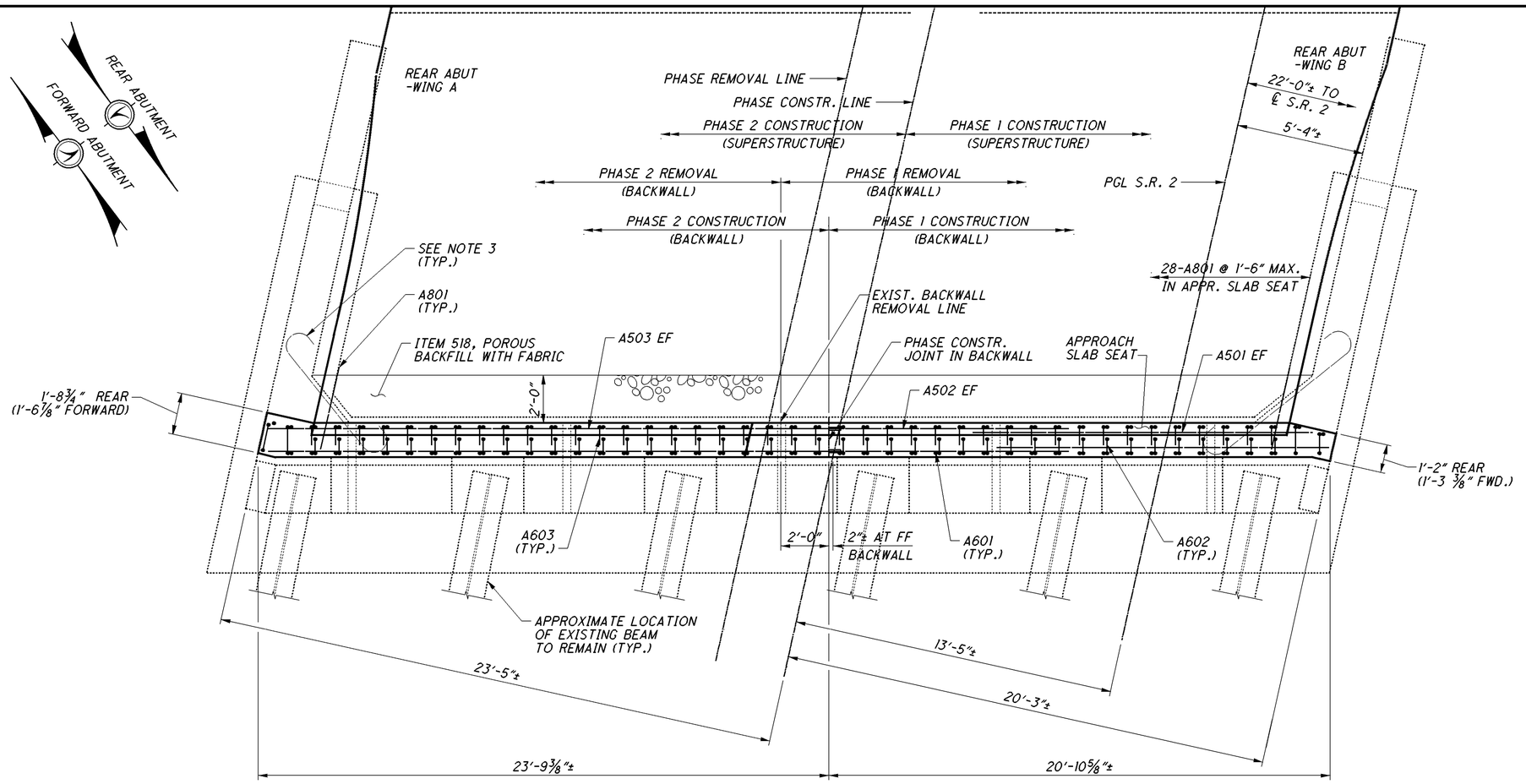
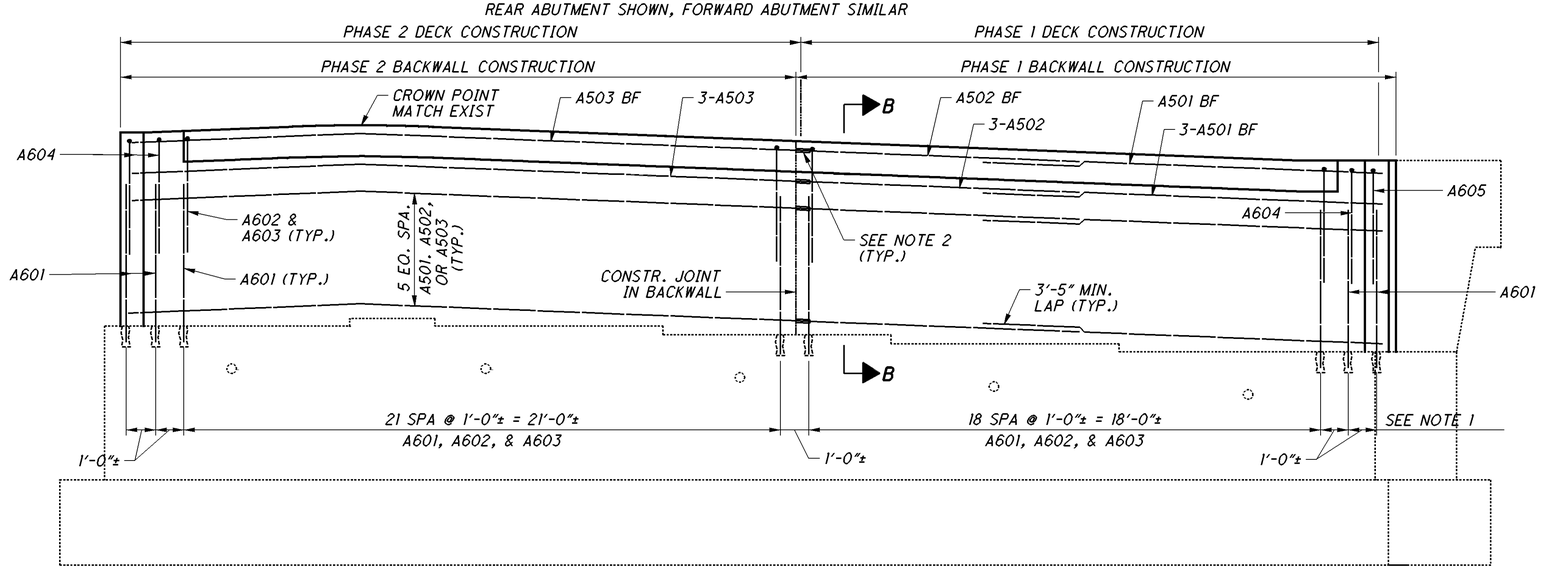


PLAN

REAR ABUTMENT SHOWN, FORWARD ABUTMENT SIMILAR



ELEVATION

REAR ABUTMENT SHOWN, FORWARD ABUTMENT SIMILAR. EXISTING PARAPET NOT SHOWN FOR CLARITY.

NOTES:

1. SPACING SHOWN IS APPROXIMATE AND MAY DIFFER FROM LOCATIONS IN FIELD. MATCH SPACING OF EXISTING BACKWALL REINFORCEMENT TO BE PRESERVED.
2. A MECHANICAL CONNECTOR SHALL BE USED AT THE PHASE CONSTRUCTION JOINT. THE MECHANICAL CONNECTOR SHALL MEET THE REQUIREMENTS OF 509.07. REINFORCING BAR LENGTHS ARE DETAILED TO THE FACE OF THE JOINT.
3. PRESERVE EXISTING BARS RUNNING CONTINUOUS INTO WINGWALL (TYP.)
4. FOR SECTION B-B, SEE SHEET 10.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

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JTC		4301412	

REAR ABUTMENT PLAN, ELEVATION & SECTION

BRIDGE NO. LAK-2-1476R
S.R. 2 OVER S.R. 283

LAK-2-14.38
PID No. 87924

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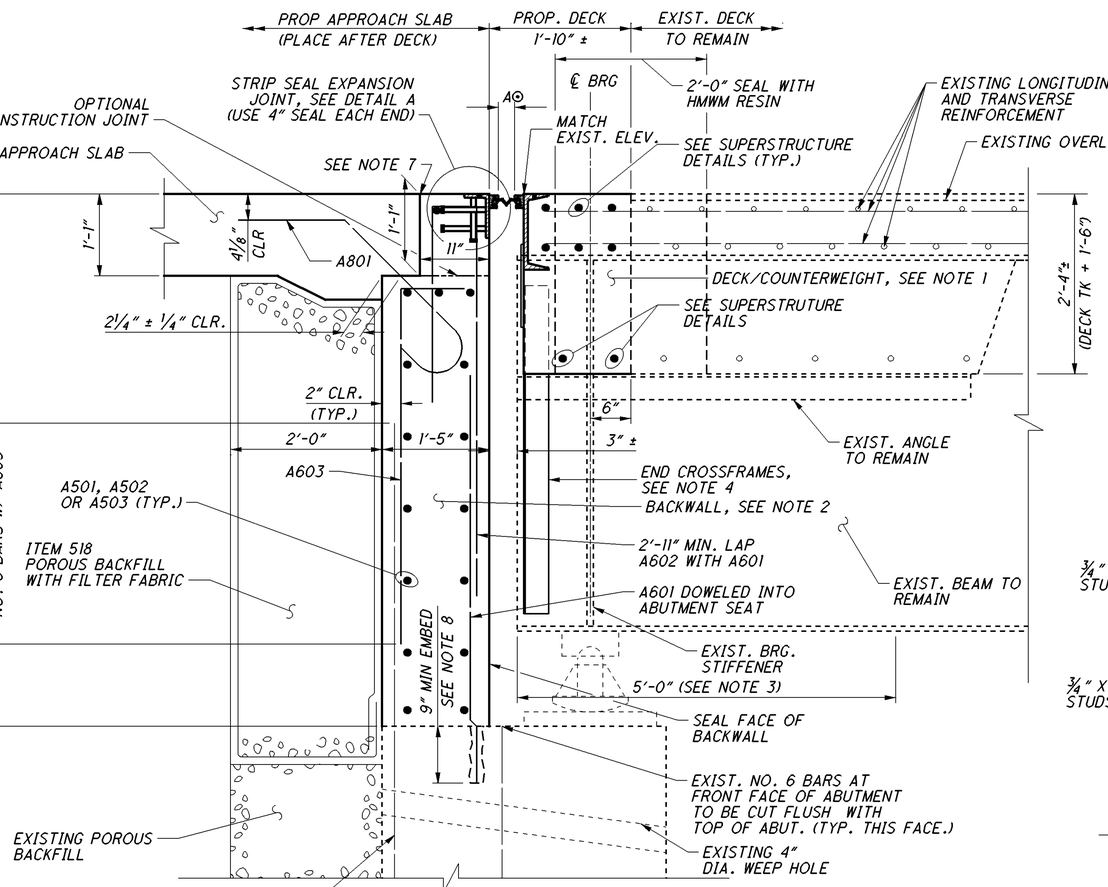
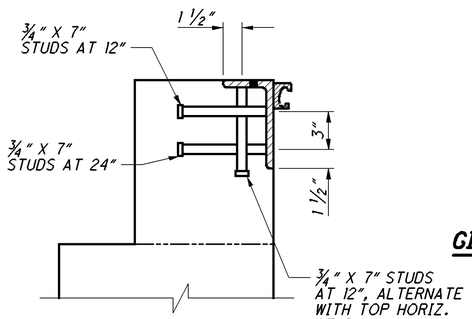


LONGITUDINAL SECTION B-B AT ABUTMENTS

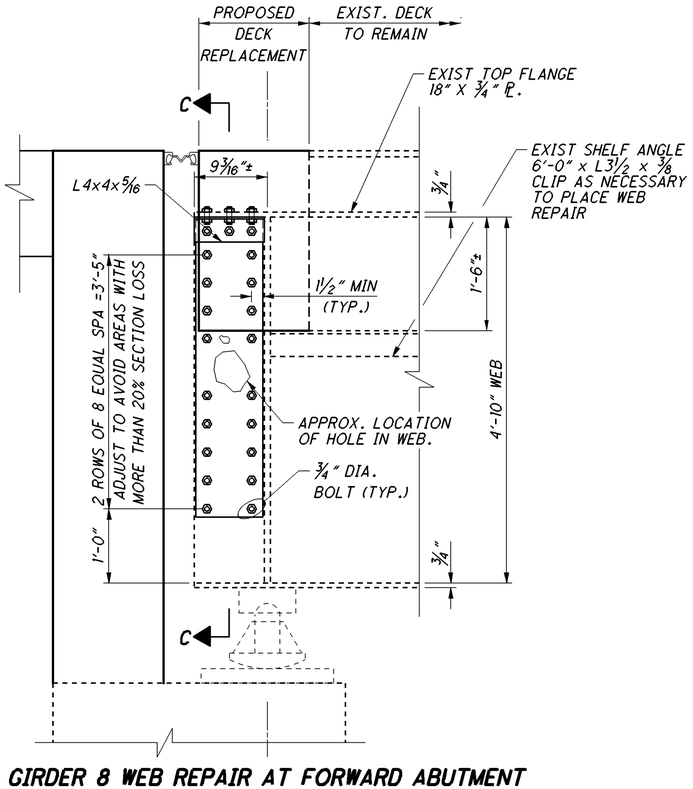
(DIMENSIONS SHOWN NORMAL TO ABUTMENTS)

DIMENSION "A"⊙

AMBIENT TEMPERATURE (°F)	DIMENSION "A" (IN) REAR ABUTMENT	FORWARD ABUTMENT
30°	2½	2⅝
40°	2⅝	2⅜
50°	2⅜	2⅛
60°	2	1⅞
70°	1⅞	1¹¹⁄₁₆
80°	1¹¹⁄₁₆	SEE
90°	1⅜	NOTE 6
STRIP SEAL GLAND SIZE	4"	4"

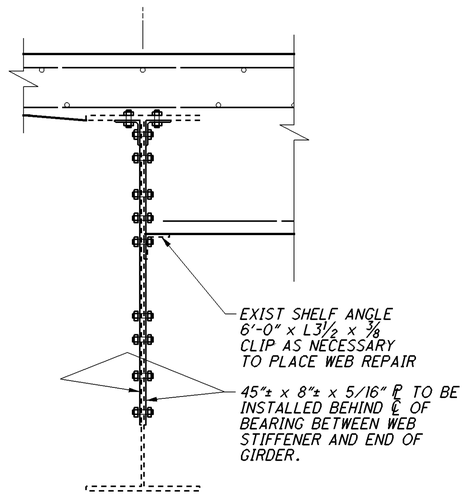


DETAIL A



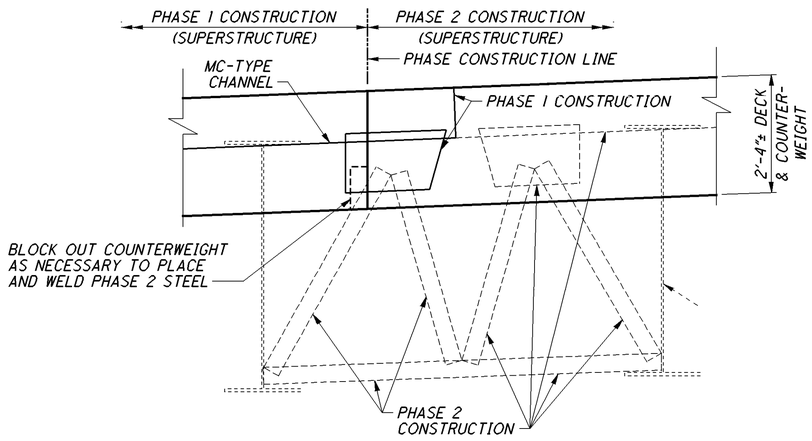
GIRDER 8 WEB REPAIR AT FORWARD ABUTMENT

(NORMAL TO GIRDER)
(PAID FOR AS ITEM 513, STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN)



SECTION C-C

(PARALLEL TO GIRDER 8, AT FORWARD ABUTMENT)
(PAID FOR AS ITEM 513, STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN)



END CROSSFRAME DETAIL

(AT PHASE CONSTRUCTION LINE)
(FOR STEEL MEMBER SIZING AND IDENTIFICATION, SEE STD. DWG. GSD-1-96)

NOTES:

1. ITEM 511 - CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN.
2. ITEM 511 - CLASS HP CONCRETE, SUBSTRUCTURE, AS PER PLAN.
3. CLEAN AND PAINT ALL STRUCTURAL STEEL INCLUDING BEARINGS AND STIFFENERS FOR A DISTANCE OF 5'-0" FROM END OF BEAM. PAINT IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 514. CLEAN AND PAINT ANY EXISTING BEARINGS, STIFFENERS, SCUPPERS AND INTERMEDIATE DIAPHRAGMS WITHIN THESE LIMITS.
4. REFERENCE SHALL BE MADE TO GSD-1-96 FOR END CROSSFRAME DETAILS. CROSSFRAMES SHALL BE OF THE TYPE FOR GIRDERS SPACED BETWEEN 8'-0" AND 12'-0". FOR DETAILS RELATING TO THE PHASE CONSTRUCTION OF THE CROSSFRAME, SEE DETAIL THIS SHEET. PAINT PROPOSED END CROSSFRAMES IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 514.
5. SEE STD. DWG. EXJ-4-87 FOR LOCATION OF DIMENSION "A" AND OTHER STRIP SEAL EXPANSION JOINT DETAILS AND NOTES.
6. MINIMUM JOINT OPENING (DIMENSION "A") AT THE TIME OF SEAL GLAND INSTALLATION SHALL NOT BE LESS THAN 1½". IF THE JOINT OPENING IS LESS, INSTALLATION SHALL BE POSTPONED UNTIL THE TEMPERATURE DROPS A SUFFICIENT AMOUNT TO ALLOW THE MINIMUM 1½" OPENING.
7. JOINT SEALER (705.11) AND TYPE A WATERPROOFING, AS PER AS-1-81 (APPROACH SLAB QUANTITY).
8. DRILL AND PLACE GROUT FOR DOWEL HOLES AS SPECIFIED IN CMS SECTION 510.00. PAYMENT FOR WORK CONSISTING OF DRILLING AND PLACING GROUT INTO HOLES SHALL BE INCLUDED IN THE UNIT BID PRICE (EACH) FOR ITEM 510, DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT. FURNISHING AND PLACING REINFORCING STEEL SHALL BE INCLUDED WITH ITEM 509.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED CNK
DRAWN CNK
REVIEWED SCJ
DATE 9/10
CHECKED JTC
REVISED
STRUCTURE FILE NUMBER 4301412

ABUTMENT DETAILS
BRIDGE NO. LAK-2-1476R
S.R. 2 OVER S.R. 283

LAK-2-14.38
PID No. 87924

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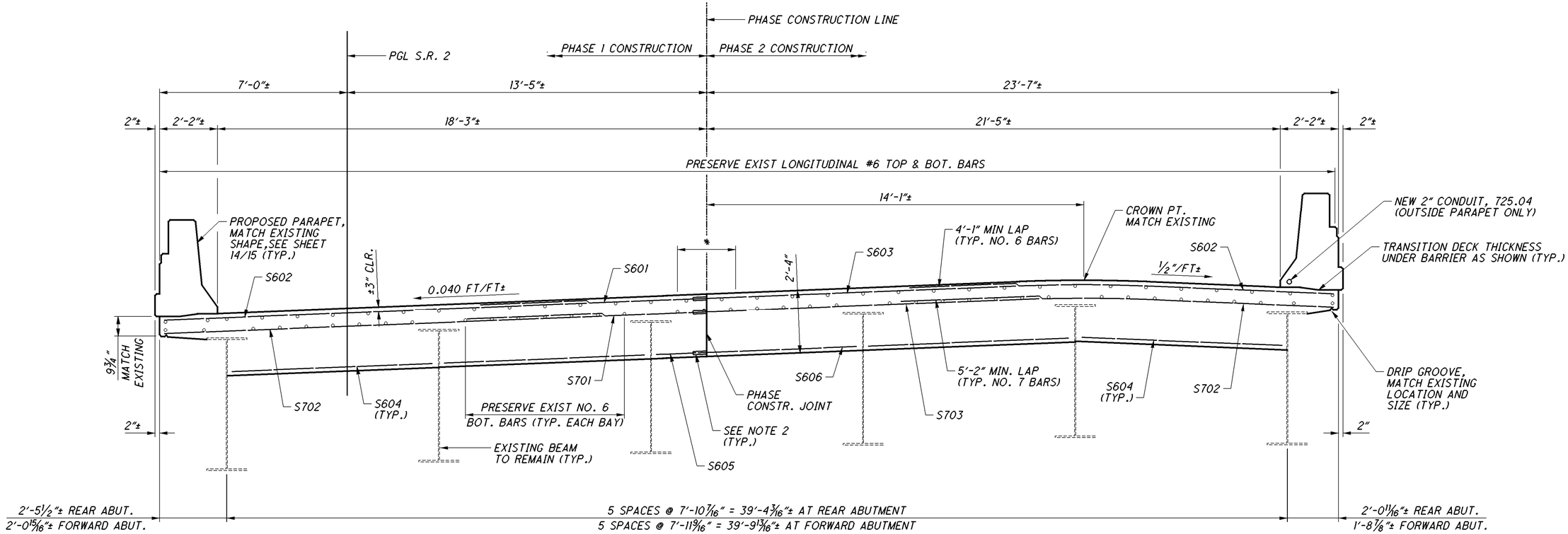

* 2'-0" SEAL WITH HMWM RESIN

TRANSVERSE SECTION AT ABUTMENTS (RADIAL)

LOOKING AHEAD STATION

NOTES:

1. TRANSVERSE DIMENSIONS SHOWN ARE APPROXIMATE. IT MAY BE NECESSARY TO VARY THESE DIMENSIONS TO MEET THE PROPOSED APPROACH SLAB AND THE EXISTING DECK.
2. A MECHANICAL CONNECTOR SHALL BE USED AT THE PHASE CONSTRUCTION JOINT. THE MECHANICAL CONNECTOR SHALL MEET THE REQUIREMENTS OF 509.07. REINFORCING BAR LENGTHS ARE DETAILED TO THE FACE OF THE JOINT.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

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TRANSVERSE SECTION
BRIDGE NO. LAK-2-1476R
S.R. 2 OVER S.R. 283

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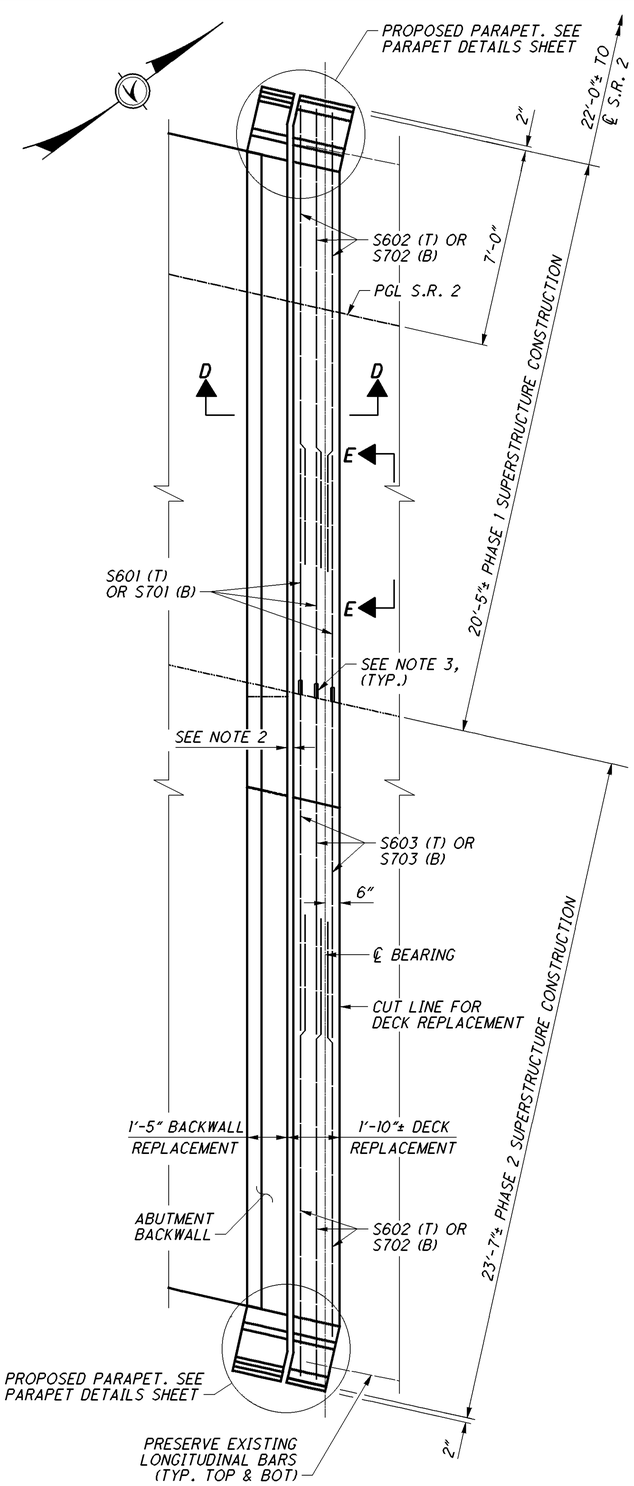
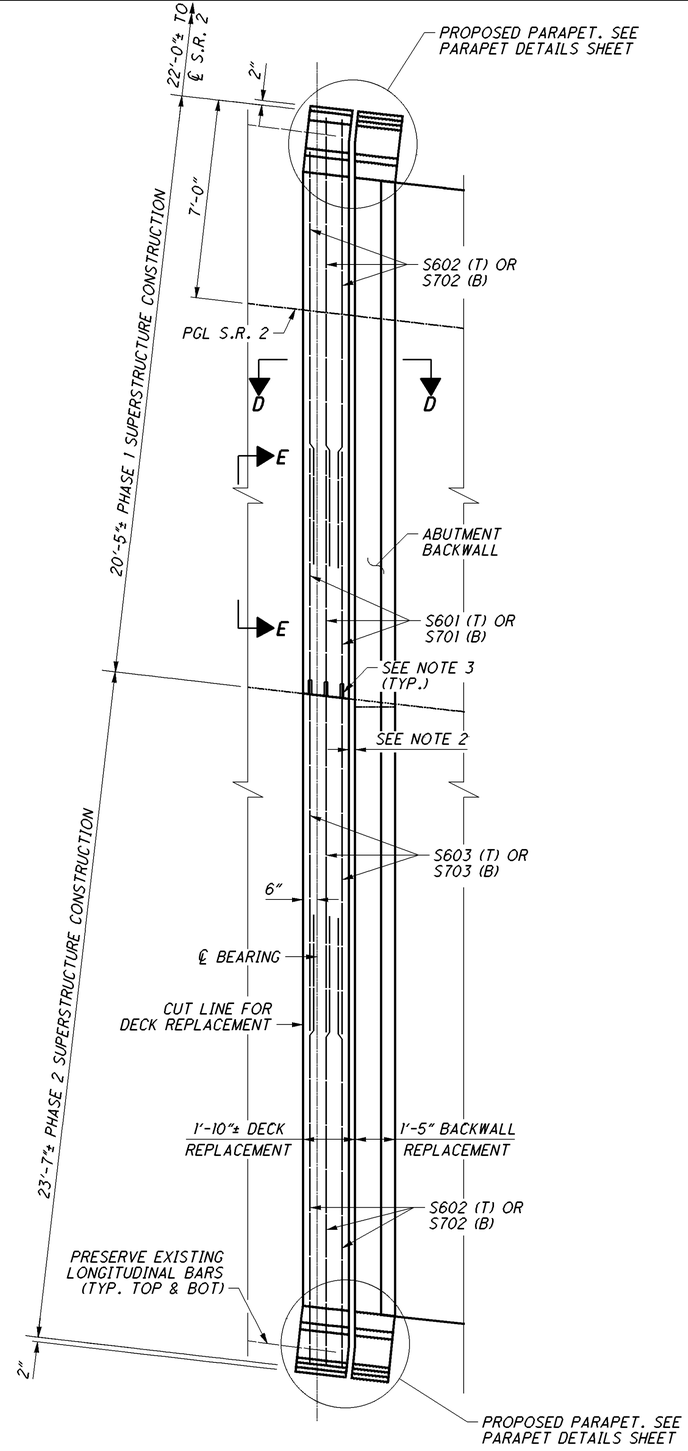
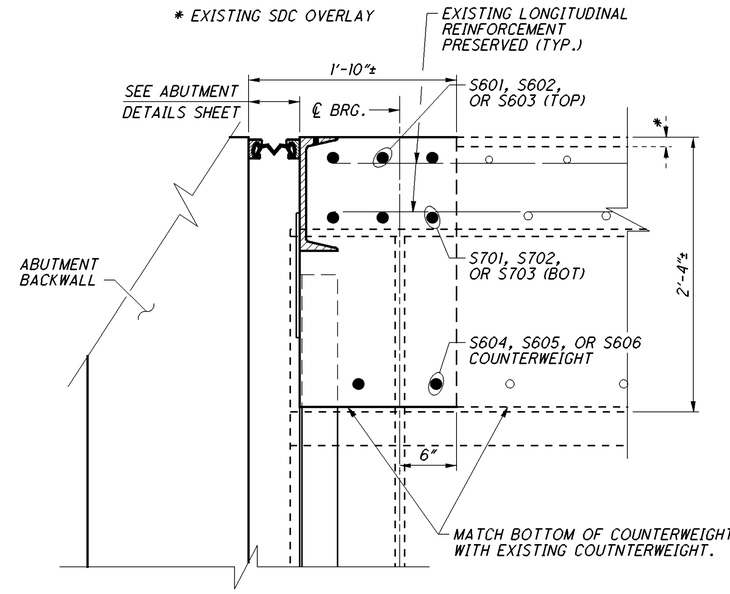


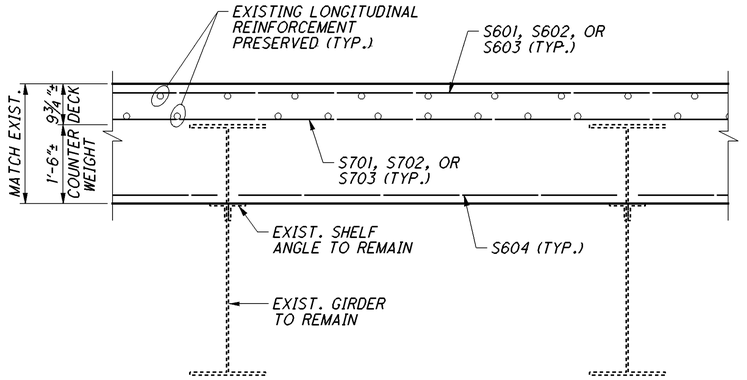
PARTIAL DECK PLAN
REAR ABUTMENT



PARTIAL DECK PLAN
FORWARD ABUTMENT



SECTION D-D
PERPENDICULAR THRU ABUTMENT



PARTIAL DECK SECTION E-E
NORMAL TO ABUTMENT,
TYPICAL OF INTERNAL GIRDERS

NOTES:

1. TRANSVERSE DIMENSIONS SHOWN ARE APPROXIMATE. IT MAY BE NECESSARY TO VARY THESE DIMENSIONS TO MEET THE PROPOSED APPROACH SLAB AND THE EXISTING DECK.
2. STRIP SEAL EXPANSION JOINT. FOR DETAILS AND DIMENSIONS, SEE ABUTMENT DETAILS SHEET.
3. A MECHANICAL CONNECTOR SHALL BE USED AT THE PHASE CONSTRUCTION JOINT. THE MECHANICAL CONNECTOR SHALL MEET THE REQUIREMENTS OF 509.07. REINFORCING BAR LENGTHS ARE DETAILED TO THE FACE OF THE JOINT.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

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SUPERSTRUCTURE DETAILS
BRIDGE NO. LAK-2-1476R
S.R. 2 OVER S.R. 283

LAK-2-14.38
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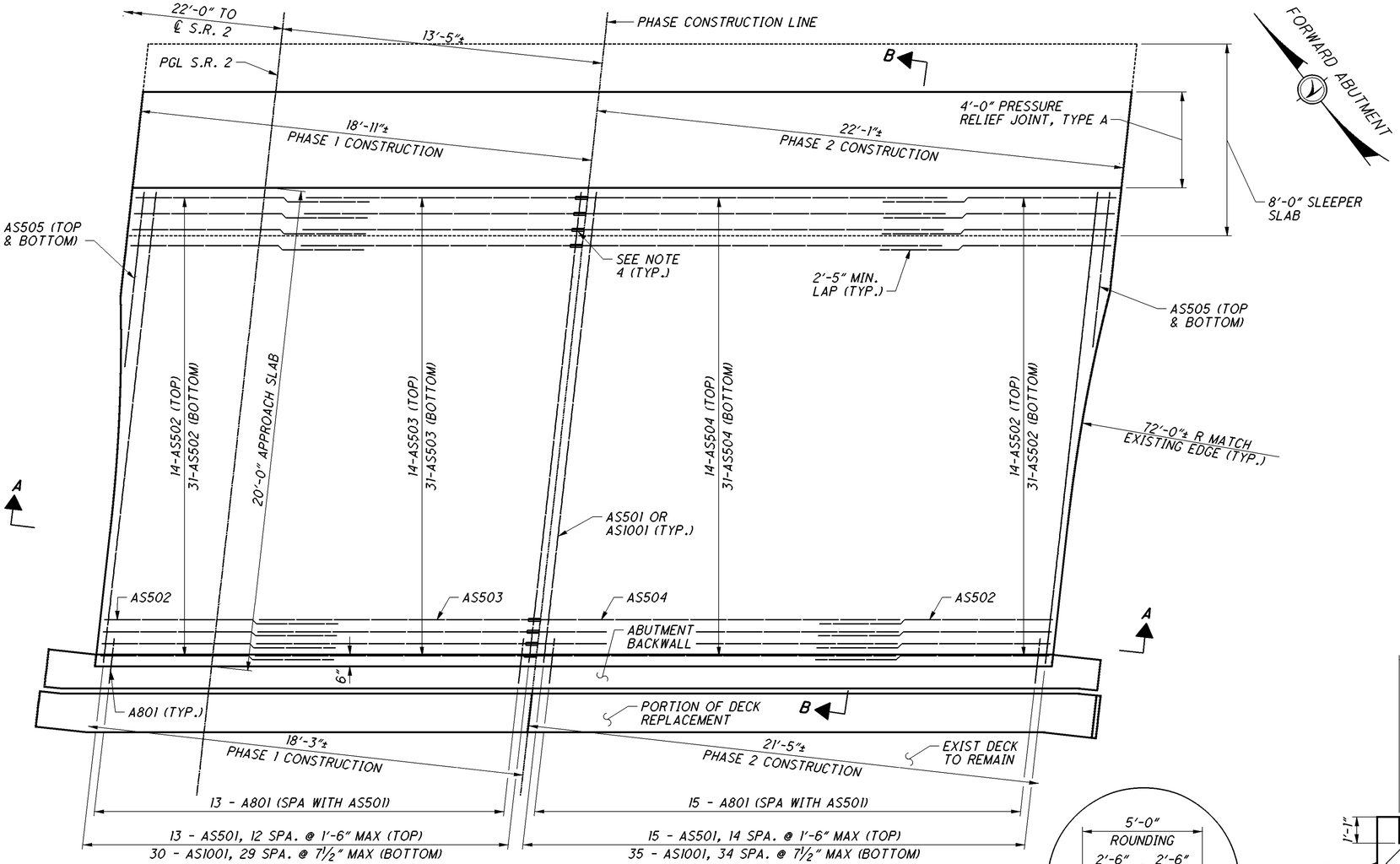
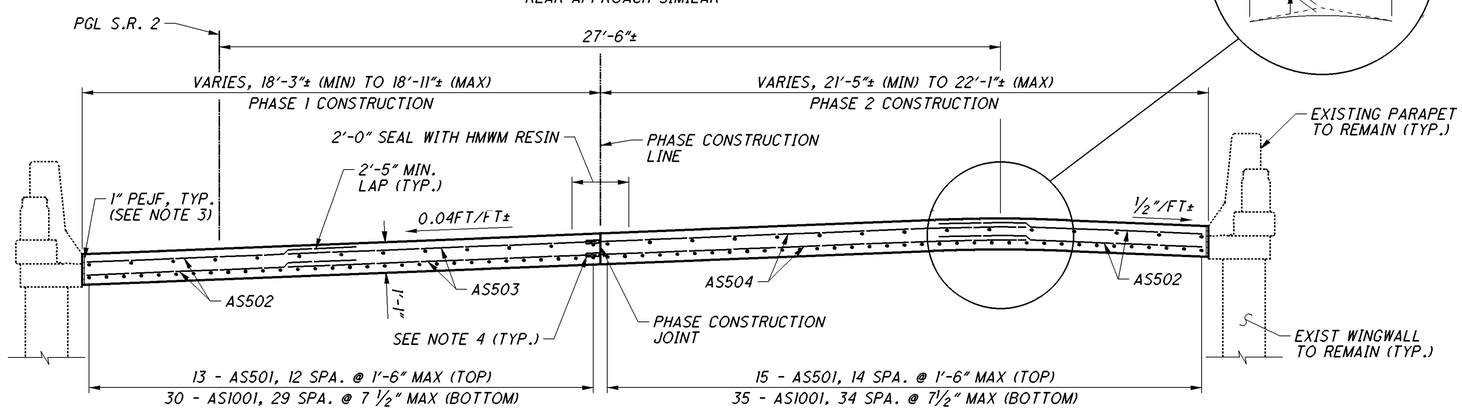


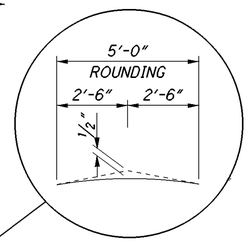
PLAN

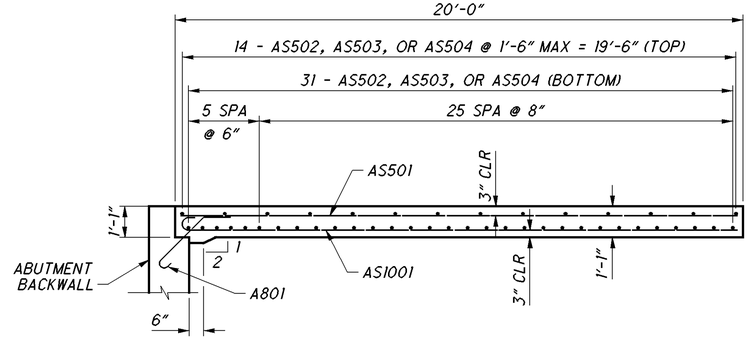
FORWARD APPROACH SHOWN,
REAR APPROACH SIMILAR



SECTION A-A

(LOOKING AHEAD STATION)





SECTION B-B

NOTES:

1. SEE STANDARD DRAWING AS-1-81 FOR ADDITIONAL DETAILS.
2. AS502, AS503, AS504 BARS SHALL BE PLACED PARALLEL TO THE ABUTMENT AND AS501, AS1001 BARS SHALL BE PLACED PLACED PARALLEL TO PGL S.R. 2.
3. THE FOLLOWING SHALL BE INCLUDED IN THE UNIT BID PRICE PER SQUARE YARD FOR ITEM 526, REINFORCED CONCRETE APPROACH SLABS (T=13"), AS PER PLAN:
   - CONCRETE FOR APPROACH SLAB
   - ALL ASSOCIATED REINFORCING STEEL
   - ALL PREFORMED EXPANSION JOINT FILLERS AND JOINT SEALERS
   - WATERPROOFING
4. A MECHANICAL CONNECTOR SHALL BE USED AT THE PHASE CONSTRUCTION JOINT. THE MECHANICAL CONNECTOR SHALL MEET THE REQUIREMENTS OF 509.07. REINFORCING BAR LENGTHS ARE DETAILED TO THE FACE OF JOINT.
5. PRESSURE RELIEF JOINT, TYPE A AND SLEEPER SLAB SHALL BE INCLUDED IN THE UNIT BID PRICE PER FOOT FOR ITEM SPECIAL, PRESSURE RELIEF JOINT, TYPE A. FOR PRESSURE RELIEF JOINT DETAILS, SEE STANDARD DRAWING BP-2.3.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
DGS	DGS	SCJ	10/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301412	

APPROACH SLAB PLAN AND DETAILS

BRIDGE NO. LAK-2-1476R
S.R. 2 OVER S.R. 283

LAK-2-14.38
PID No. 87924

13 / 15

100
208

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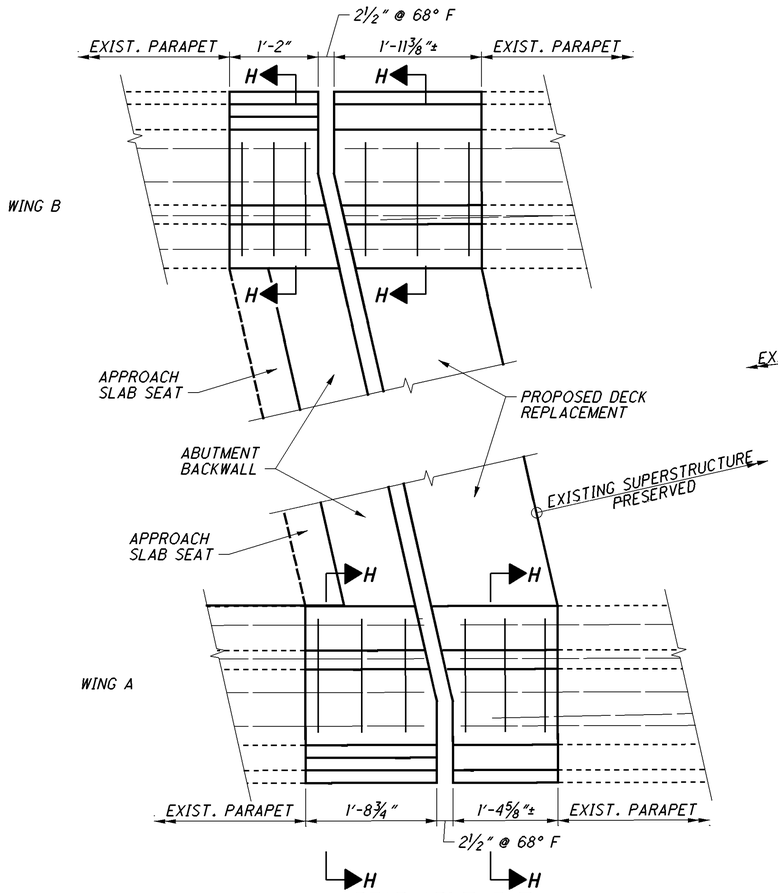
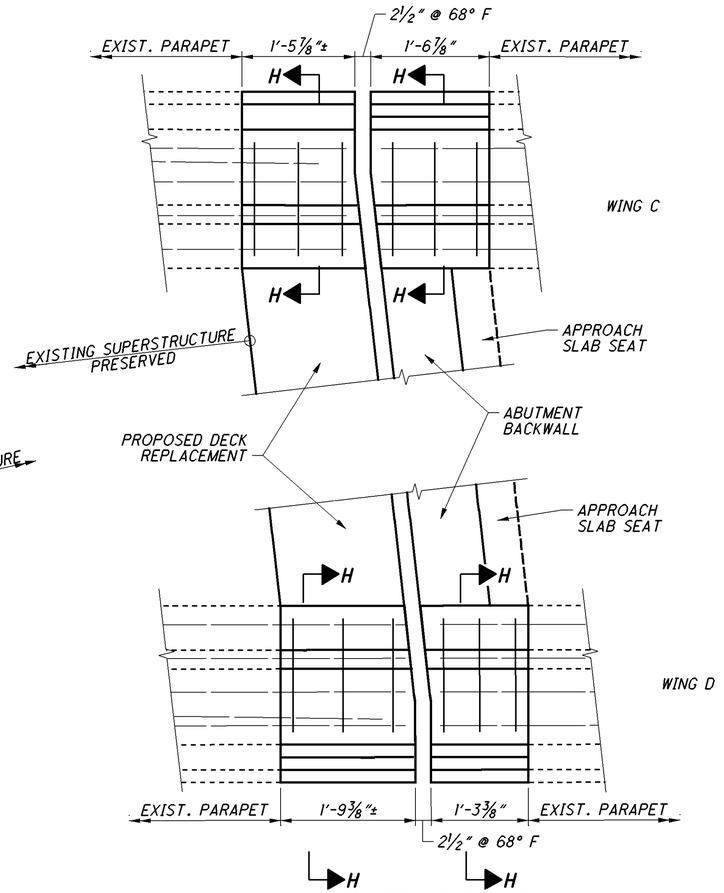


REAR ABUTMENT

MATCH EXISTING PARAPET SHAPE
FIELD VERIFY ALL DIMENSIONS

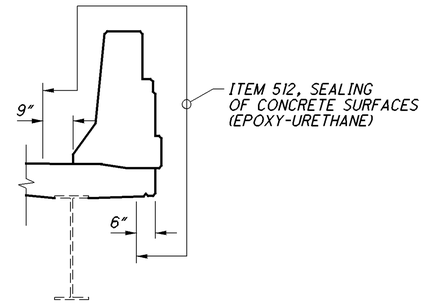


FORWARD ABUTMENT

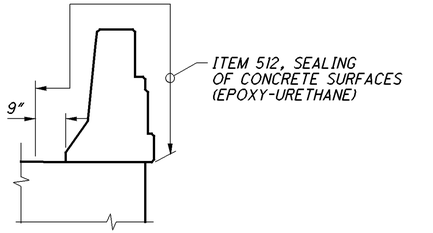
MATCH EXISTING PARAPET SHAPE
FIELD VERIFY ALL DIMENSIONS

NOTES:

1. CONCRETE FOR PARAPET ON PROPOSED BRIDGE DECK IS INCLUDED WITH ITEM 511, CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN FOR PAYMENT. CONCRETE FOR PARAPET ON PROPOSED BACKWALL IS INCLUDED WITH ITEM 511, CLASS HP CONCRETE, SUBSTRUCTURE, AS PER PLAN FOR PAYMENT. PARAPET REINFORCING INCLUDED WITH ITEM 509, EPOXY COATED REINFORCING STEEL.
2. FOR PARAPET REINFORCING LIST, SEE SHEET 14/14.
3. PRESERVE ALL EXISTING LONGITUDINAL REINFORCMENT IN PARAPET ON EXISTING BRIDGE DECK AND ON EXISTING BACKWALL.
4. NEW 2" CONDUIT IN OUTSIDE PARAPET ONLY.

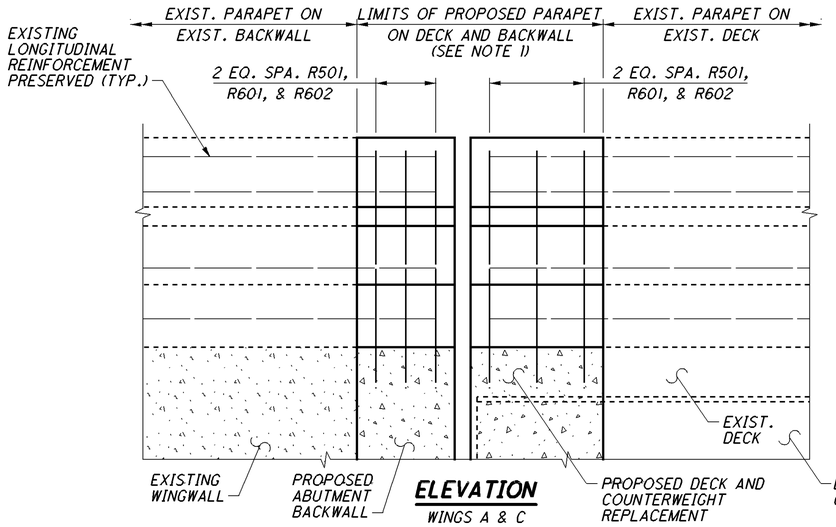


PARAPET ON DECK



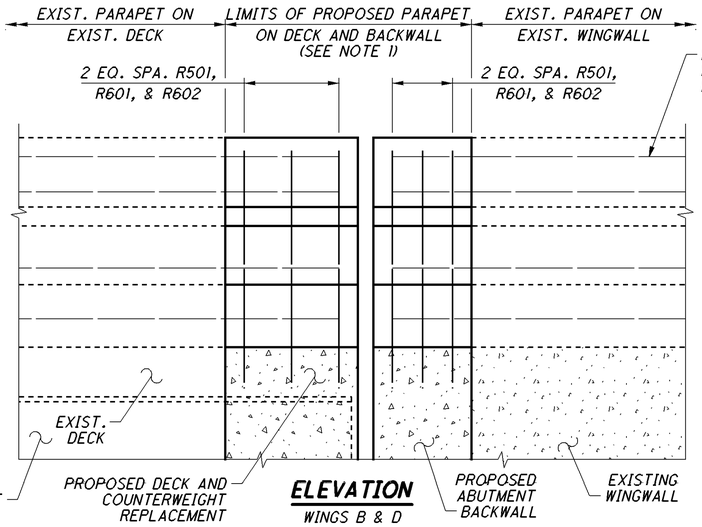
PARAPET ON BACKWALL

CONCRETE SEALING DETAILS



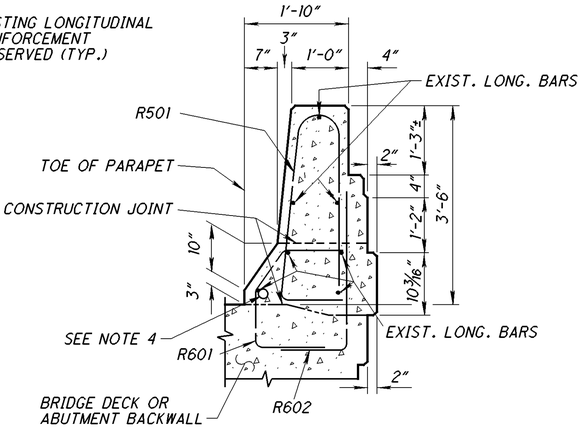
ELEVATION

WINGS A & C



ELEVATION

WINGS B & D



SECTION H-H

MATCH EXISTING PARAPET SHAPE
FIELD BEND BARS IF NECESSARY

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
CNK	CNK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301412	

PARAPET DETAILS
BRIDGE NO. LAK-2-1476R
S.R. 2 OVER S.R. 283

LAK-2-14.38
PID No. 87924

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SUBSTRUCTURE - ABUTMENT BACKWALL

MARK	QUANTITY REAR ABUT.	QUANTITY FWD. ABUT.	QUANTITY TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
A501	16	16	32	14'-2"	473	STR							
A502	16	16	32	10'-0"	334	35	10'-0"						
A503	16	16	32	23'-3"	776	36	23'-3"						
A601	45	45	90	6'-0"	812	STR							
A602	41	41	82	8'-5"	1036	2	3'-2"	7"	5'-0"				
A603	41	41	82	5'-10"	719	1	1'-0"	5'-0"					
A604	3	3	6	10'-9"	97	2	5'-0"	1'-1"	5'-0"				
A605	1	1	2	10'-6"	32	2	5'-0"	10"	5'-0"				
A801	28	28	56	4'-9"	711	18	2'-5"	1'-0"	1'-0"				
R501	6	6	12	7'-6"	94	23	1'-0"	3'-3"	3'-0"			3¾"	
R601	6	6	12	3'-4"	61	14	1'-2½"	8"	8½"	6"	11"		
R602	6	6	12	3'-4"	61	1	11"	2'-7"					
				SUB-TOTAL	5206								

SUPERSTRUCTURE - DECK

MARK	QUANTITY REAR ABUT.	QUANTITY FWD. ABUT.	QUANTITY TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
S601	3	3	6	8'-8"	79	35	8'-8"						
S602	6	6	12	16'-3"	293	STR							
S603	3	3	6	11'-10"	107	36	11'-10"						
S604	8	8	16	7'-6"	181	STR							
S605	2	2	4	2'-4"	15	35	2'-4"						
S606	2	2	4	5'-2"	32	36	5'-2"						
S701	3	3	6	9'-2"	113	35	9'-2"						
S702	6	6	12	16'-9"	411	STR							
S703	3	3	6	12'-5"	153	36	12'-5"						
				SUB-TOTAL	1384								

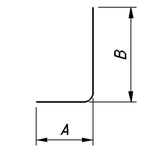
SUPERSTRUCTURE - PARAPET

MARK	QUANTITY REAR ABUT.	QUANTITY FWD. ABUT.	QUANTITY TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
R501	6	6	12	7'-6"	94	23	1'-0"	3'-3"	3'-0"			3¾"	
R601	6	6	12	3'-4"	61	14	1'-2½"	8"	8½"	6"	11"		
R602	6	6	12	3'-4"	61	1	11"	2'-7"					
				SUB-TOTAL	216								

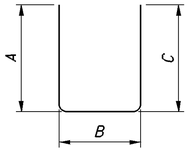
APPROACH SLAB*

MARK	QUANTITY REAR ABUT.	QUANTITY FWD. ABUT.	QUANTITY TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
AS501	28	28	56	19'-6"	1139	STR							
AS502	90	90	180	9'-6"	1784	STR							
AS503	45	45	90	12'-6"	1174	35							
AS504	45	45	90	15'-6"	1455	36							
AS505	4	4	8	6'-6"	55	STR							
AS1001	65	65	130	20'-11"	11701	16	19'-6"						
				SUB-TOTAL	17308								

* BARS SHOWN FOR INFORMATIONAL PURPOSES ONLY. BARS ARE INCLUDED WITH APPROACH SLAB ITEM FOR PAYMENT.



TYPE-1



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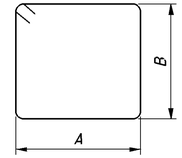

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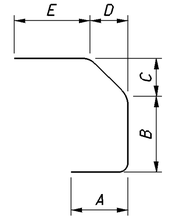

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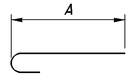

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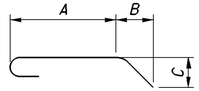

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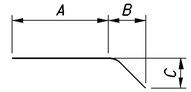
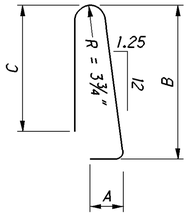


TYPE-19



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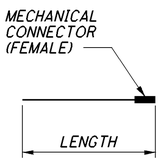

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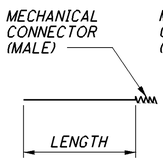

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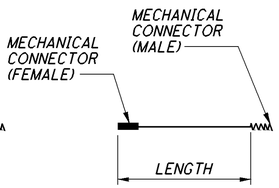

TYPE-37

NOTES:

1. THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT WHERE THREE DIGITS ARE USED AND THE FIRST TWO WHERE FOUR DIGITS ARE USED, INDICATES THE BAR SIZE NUMBER.
2. ALL DIMENSIONS ARE MEASURED OUT-TO-OUT OF BAR UNLESS NOTED OTHERWISE.
3. FOR STANDARD HOOK DIMENSIONS, SEE SECTION 509.05 OF THE SPECIFICATIONS.
4. ALL REINFORCING STEEL TO BE EPOXY COATED.
5. PAYMENT FOR REINFORCING STEEL SHALL BE INCLUDED IN THE CONTRACT BID PRICE FOR ITEM 509, EPOXY COATED REINFORCING STEEL.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED CNK | DRAWN CNK | CHECKED JTC | REVIEWED SCJ | DATE 9/10 | REVISED | STRUCTURE FILE NUMBER 4301412

REINFORCING STEEL
BRIDGE NO. LAK-2-1476R
S.R. 2 OVER S.R. 283

LAK-2-14.38
PID No. 87924

15 / 15

102 / 208

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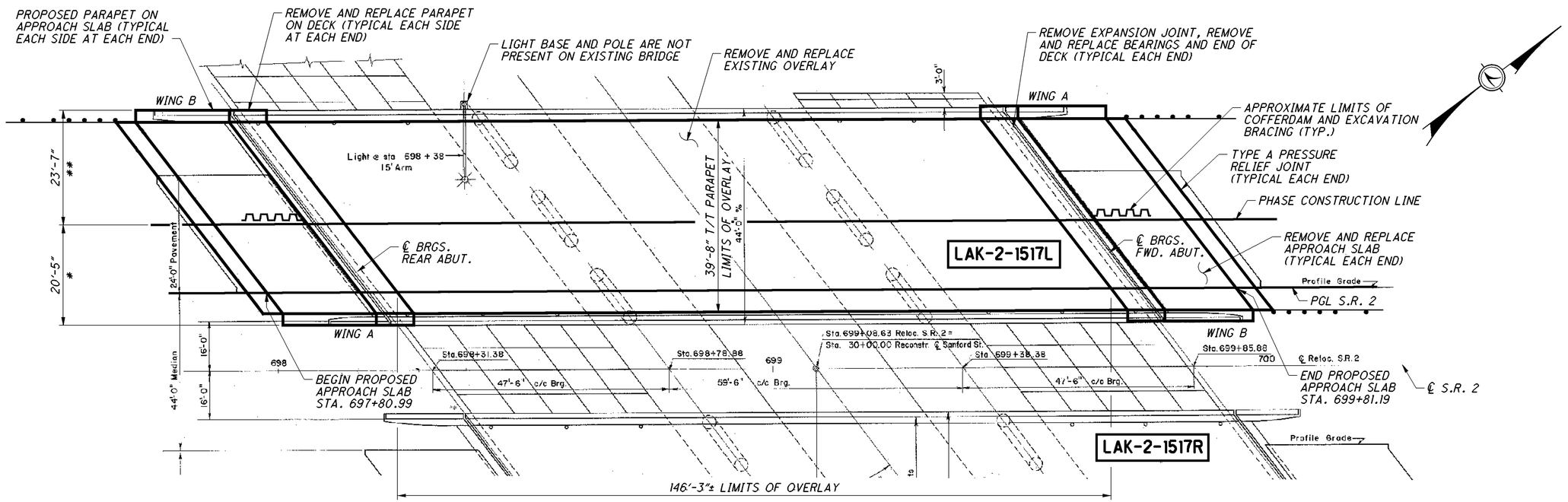
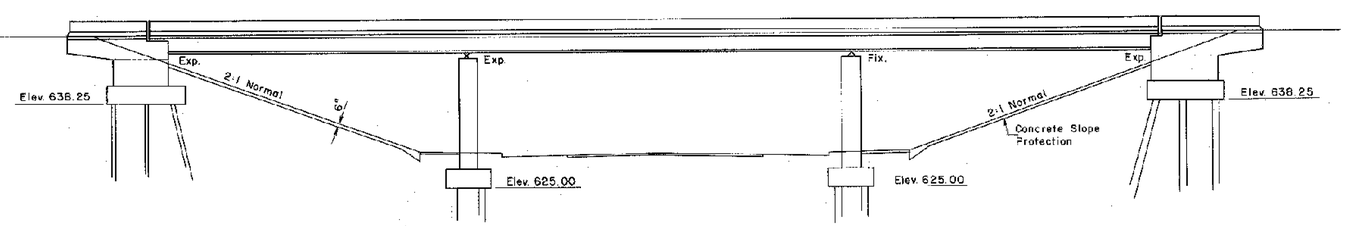


PLAN



ELEVATION

P.V.I. Sta 699+25
Elev. 650.53
L.V.C.= 725'
M.O.= 1.251'

+0.58% —○— -0.80%

LEGEND:

* = PHASE 1 CONSTRUCTION
** = PHASE 2 CONSTRUCTION

EXISTING STRUCTURE

TYPE: 3-SPAN CONTINUOUS NON-COMPOSITE ROLLED STEEL BEAMS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURES
SPANS: 47'-6", 59'-6", 47'-6"
ROADWAY: 39'-8"± T/T PARAPET
LOADING: HS-20-44
SKEW: 37° 52' 22" R.F.
APPROACH SLABS: 25'-0"± LONG
EXISTING WEARING SURFACE: LATEX MODIFIED CONCRETE
ALIGNMENT: TANGENT
CROWN: 0.0156 FT/FT
STRUCTURAL FILE NUMBER: 4301447
DATE BUILT: 1963

PROPOSED STRUCTURE

PROPOSED WORK: REPLACE SLAB ENDS WITH MODIFIED SEMI-INTERGRAL ABUTMENT, APPROACH SLAB, AND OVERLAY
TYPE: 3-SPAN CONTINUOUS NON-COMPOSITE ROLLED STEEL BEAMS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURES
SPANS: 47'-6", 59'-6", 47'-6"
ROADWAY: 39'-8"± T/T PARAPET
LOADING: HS-20-44
SKEW: 37° 52' 22" R.F.
APPROACH SLABS: STD. AS-1-81 20'-0" LONG (MODIFIED)
PROPOSED WEARING SURFACE: MICRO SILICA MODIFIED CONCRETE
ALIGNMENT: TANGENT
CROWN: 0.0156 FT/FT

NOTE:

PLANS OF EXISTING STRUCTURES ARE AVAILABLE FOR EXAMINATION AT THE OHIO DEPARTMENT OF TRANSPORTATION, DISTRICT 12 OFFICE, 5500 TRANSPORTATION BLVD. GARFIELD HEIGHTS, OHIO 44125.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301447	

SITE PLAN
BRIDGE NO. LAK-2-1517L
S.R. 2 OVER SANFORD STREET

LAK-2-14.38
PID No. 87924

1 / 17

103
208

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GENERAL NOTES

REFER TO THE FOLLOWING STANDARD BRIDGE DRAWINGS:

AS-1-81	REVISED	07-19-02
SICD-1-96	REVISED	07-19-02
PCB-91	REVISED	07-19-02

AND TO THE FOLLOWING SUPPLEMENTAL SPECIFICATIONS:

843	DATED	04-18-03
848	DATED	04-16-10

DESIGN SPECIFICATIONS: THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO), 2002, AND THE 2004 ODOT BRIDGE DESIGN MANUAL.

DESIGN LOADING: HS-20 AND THE ALTERNATE MILITARY LOADING.

DESIGN DATA:

CONCRETE CLASS HP - COMPRESSIVE STRENGTH 4.5 KSI (DECK, ABUTMENTS DIAPHRAGMS, PARAPETS, AND APPROACH SLABS)
REINFORCING STEEL - MINIMUM YIELD STRENGTH 60 KSI
STRUCTURAL STEEL - ASTM A709 GRADE 50W - YIELD STRENGTH 50 KSI

DECK PROTECTION METHOD: EPOXY COATED REINFORCING STEEL, 2½" CONCRETE COVER, MODIFIED MICRO SILICA CONCRETE OVERLAY.

MONOLITHIC WEARING SURFACE: IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1" THICK.

EXISTING STRUCTURE VERIFICATION: DETAILS AND DIMENSIONS SHOWN ON 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 513.04.

BASE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS THAT HAVE BEEN VERIFIED IN THE FIELD.

MAINTENANCE OF TRAFFIC

PROPOSED WORK:
IN GENERAL, THE PROPOSED WORK FOR THE S.R. 2 BRIDGE OVER SANFORD STREET SHALL CONSIST OF THE REMOVAL AND REPLACEMENT OF THE EXISTING LATEX MODIFIED CONCRETE OVERLAY AND REMOVAL OF THE EXISTING EXPANSION JOINTS AND ABUTMENT BACKWALLS AND REPLACE WITH SEMI-INTEGRAL ABUTMENT DIAPHRAGMS. REMOVAL AND CONSTRUCTION OPERATIONS ARE TO BE PERFORMED WHILE MAINTAINING ONE LANE OF WESTBOUND TRAFFIC ON S.R. 2. THE MAJOR ITEMS OF WORK REQUIRING PHASED CONSTRUCTION ARE DESCRIBED BELOW. SOME PROJECT WORK ITEMS, SUCH AS SEALING OF CONCRETE SURFACES, MAY BE PERFORMED AT THE CONTRACTOR'S DISCRETION DURING THE CONTRACT SCHEDULE PERIOD; HOWEVER, THE PERFORMANCE OF ALL WORK MUST BE COORDINATED TO SATISFY MAINTENANCE OF TRAFFIC AND SAFETY REQUIREMENTS.SEE M.O.T. PLANS FOR ADDITIONAL MAINTENANCE OF TRAFFIC REQUIREMENTS.

PHASE 1 CONSTRUCTION:
1. INSTALL PORTABLE CONCRETE BARRIER ON THE EXISTING SANFORD STREET BRIDGE AND APPROACHES. ROUTE TRAFFIC ACROSS THE BRIDGE ACCORDING TO THE MAINTENANCE OF TRAFFIC PLANS.
2. CONSTRUCT TEMPORARY EXCAVATION SUPPORTS ALONG THE PHASE REMOVAL LINE AT THE REAR AND FORWARD ABUTMENTS AS SHOWN IN THE PLANS.
3. ON THE SOUTHERNMOST PORTION OF THE EXISTING BRIDGE, REMOVE THE EXISTING OVERLAY, PORTION OF DECK/PARAPET AT THE ABUTMENTS, APPROACH SLABS, EXPANSION JOINTS, END CROSSFRAMES, AND ABUTMENT BACKWALLS IN ACCORDANCE WITH 202.03 AND PLAN REQUIREMENTS.
4. CLEAN AND PAINT ENDS OF THE THREE SOUTHERNMOST EXISTING BEAMS. DRILL 2" DIAMETER HOLES THROUGH EXISTING BEAM WEBS FOR LONGITUDINAL ABUTMENT DIAPHRAGM REINFORCING.
5. CONSTRUCT SOUTHERNMOST REINFORCED CONCRETE SEMI-INTEGRAL ABUTMENT DIAPHRAGM, WINGWALL, DECK, PARAPET, AND APPROACH SLAB AT THE REAR AND FORWARD ABUTMENTS.

PHASE 2 CONSTRUCTION:
1. INSTALL PORTABLE CONCRETE BARRIER ON COMPLETED PHASE 1 PORTION OF THE BRIDGE AS SHOWN ON BRIDGE AND MAINTENANCE OF TRAFFIC PLANS. ROUTE TRAFFIC ONTO COMPLETED PHASE 1 PORTION OF THE BRIDGE.
2. REMOVE THE REMAINING PORTIONS OF THE EXISTING OVERLAY, DECK/PARAPET AT ABUTMENTS, APPROACH SLABS, EXPANSION JOINTS, END CROSSFRAMES, AND ABUTMENT BACKWALLS IN ACCORDANCE WITH 202.03 AND PLAN REQUIREMENTS.
3. CLEAN AND PAINT ENDS OF THE THREE NORTHERNMOST EXISTING BEAMS. DRILL 2" DIAMETER HOLES THROUGH EXISTING BEAM WEBS FOR LONGITUDINAL ABUTMENT DIAPHRAGM REINFORCING.
4. CONSTRUCT NORTHERNMOST REINFORCED CONCRETE SEMI-INTEGRAL ABUTMENT DIAPHRAGM, WINGWALL, DECK, PARAPET, AND APPROACH SLAB AT THE REAR AND FORWARD ABUTMENTS.
5. REMOVE PORTABLE CONCRETE BARRIER AND ROUTE TRAFFIC ONTO COMPLETED BRIDGE ACCORDING TO MAINTENANCE OF TRAFFIC PLANS.

ITEM 202, PORTIONS OF STRUCTURE REMOVED AS PER PLAN:

DESCRIPTION: THIS WORK CONSISTS OF THE REMOVAL OF THE CONCRETE DECK, PARAPETS, EXPANSION JOINTS, BEARINGS, AND OTHER APPURTENANCES FROM SUPPORTING SYSTEMS AS SHOWN IN THE PLANS. THIS WORK SHALL ALSO INCLUDE THE REMOVAL OF THE ABUTMENT BACKWALLS IN ACCORDANCE WITH THE DETAILS SHOWN IN THE PLANS. ADDITIONAL CONCRETE REMOVAL MAY BE REQUIRED IF UNSOUND OR DETERIORATED CONCRETE IS ENCOUNTERED BEYOND THE PLAN CUT LINES. THE CONTRACTOR SHALL REMOVE ANY UNSOUND OR DETERIORATED CONCRETE BEYOND THE PLAN CUT LINE AS DIRECTED BY THE ENGINEER. PERFORM WORK CAREFULLY DURING DECK REMOVALS TO PROTECT PORTIONS OF THE EXISTING STEEL SUPPORTING SYSTEM THAT ARE TO BE SALVAGED AND INCORPORATED INTO THE PROPOSED STRUCTURE. THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE RAM TYPE OF EQUIPMENT IS PROHIBITED. SUBMIT CONSTRUCTION PLANS ACCORDING TO CMS 501.05.

PROTECTION OF TRAFFIC: PRIOR TO DEMOLITION OF ANY PORTIONS OF THE EXISTING SUPERSTRUCTURE, THE CONTRACTOR SHALL SUBMIT PLANS FOR THE PROTECTION OF TRAFFIC (VEHICULAR, 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 ENSURE 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, DRAW THE OUTLINE OF THE PRIMARY STEEL MEMBERS IN CONTACT WITH THE BOTTOM OF THE DECK ON THE SURFACE OF THE DECK. DRILL SMALL DIAMETER PILOT HOLES 2 INCHES OUTSIDE THESE LINES TO CONFIRM THE LOCATION OF FLANGE EDGES. DECK CUTS OVER OR WITHIN 2" OF FLANGE EDGES SHALL NOT EXTEND LOWER THAN THE BOTTOM LAYER OF DECK SLAB REINFORCING STEEL. CUTS MADE OUTSIDE 2 INCHES OF FLANGE EDGES MAY EXTEND THE FULL DEPTH OF THE DECK. PERFORM WORK CAREFULLY DURING CUTTING OF THE DECK SLAB TO AVOID DAMAGING STEEL MEMBERS THAT ARE TO BE INCORPORATED INTO THE PROPOSED STRUCTURE. REPLACE OR REPAIR STEEL MEMBERS DAMAGED BY THE DECK SLAB CUTTING OPERATIONS AT NO COST TO THE PROJECT. AT LEAST 7 DAYS BEFORE PERFORMING REPAIR WORK, SUBMIT A PROPOSED REPAIR PLAN, DEVELOPED BY AN OHIO REGISTERED PROFESSIONAL ENGINEER TO THE DIRECTOR. OBTAIN THE DIRECTOR'S APPROVAL BEFORE PERFORMING REPAIR.

REMOVAL METHODS: THE CONTRACTOR MAY REMOVE CONCRETE BY CUTTING AND BY MEANS OF HAND OPERATED PNEUMATIC HAMMERS EMPLOYING POINTED OR BLUNTED CHISEL TYPE TOOLS. FOR REMOVALS OVER STRUCTURAL MEMBERS, THE CONTRACTOR MAY USE A HAMMER HEAVIER THAN 35 POUNDS BUT NOT TO EXCEED 90 POUNDS UNLESS APPROVED BY THE ENGINEER. REMOVAL METHODS OVER STRUCTURAL MEMBERS SHALL ENSURE ADEQUATE DEPTH CONTROL AND PREVENT NICKING OR GOUGING THE PRIMARY STRUCTURAL MEMBERS.

SUBSTRUCTURE CONCRETE REMOVAL: REMOVE CONCRETE 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 35 POUNDS FOR REMOVAL WITHIN 18 INCHES OF PORTIONS TO BE PRESERVED. OUTSIDE THE 18 INCH LIMIT, THE CONTRACTOR MAY USE HAMMERS NOT EXCEEDING 90 POUNDS UPON THE APPROVAL OF THE ENGINEER. DO NOT PLACE PNEUMATIC HAMMERS IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE.

CUT LINE CONSTRUCTION JOINT PREPARATION: SAW CUT BOUNDARIES OF PROPOSED CONCRETE REMOVALS 1 INCH DEEP. REMOVE CONCRETE TO A ROUGH SURFACE. LEAVE THE EXISTING REINFORCING STEEL, IF REQUIRED IN THE PLANS, IN PLACE. INSTALL DOWEL BARS IF SPECIFIED. PRIOR TO CONCRETE PLACEMENT ABRASIVELY CLEAN JOINT SURFACES AND EXISTING EXPOSED REINFORCEMENT TO REMOVE LOOSE AND DISINTEGRATED CONCRETE AND LOOSE RUST. THOROUGHLY CLEAN THE JOINT SURFACE AND EXPOSED REINFORCEMENT OF ALL DIRT, DUST, RUST, OR OTHER FOREIGN MATERIAL BY THE USE OF WATER, AIR UNDER PRESSURE, OR OTHER METHODS THAT PRODUCE SATISFACTORY RESULTS. EXISTING REINFORCING STEEL DOES NOT HAVE TO HAVE A BRIGHT STEEL FINISH, BUT REMOVE ALL PACK AND LOOSE RUST. THOROUGHLY DRENCH EXISTING CONCRETE SURFACES WITH CLEAN WATER AND ALLOW TO DRY TO A DAMP CONDITION BEFORE PLACING CONCRETE.

MEASUREMENT AND PAYOUT: THE DEPARTMENT WILL MEASURE THE QUANTITY OF REMOVAL ON A LUMP SUM BASIS. THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES OF REMOVALS AT THE CONTRACT PRICE FOR ITEM 202, PORTIONS OF STRUCTURE REMOVED, AS PER PLAN.

ITEM 202, APPROACH SLAB REMOVED, AS PER PLAN: THIS WORK CONSISTS OF REMOVING THE EXISTING APPROACH SLABS INCLUDING ANY EXISTING OVERLAY THAT IS PRESENT ON TOP OF THE EXISTING APPROACH SLAB.

ITEM 509, EPOXY COATED REINFORCING STEEL, AS PER PLAN:
IN ADDITION TO CONFORMING TO 509 REQUIREMENTS, THE LABOR REQUIRED TO FIELD DRILL THE 2" DIAMETER HOLES IN THE EXISTING STEEL BEAMS AT THE ABUTMENT DIAPHRAGMS SHALL BE INCLUDED WITH ITEM 509, EPOXY COATED REINFORCING STEEL, AS PER PLAN FOR PAYMENT. THE COST OF FURNISHING THE MECHANICAL CONNECTORS AND EXTENSIONS SHALL BE INCLUDED WITH ITEM 509-EPOXY COATED REINFORCING STEEL, AS PER PLAN FOR PAYMENT.

ITEM 509 - REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN: CONTIGENCY QUANTITIES ARE INCLUDED TO PROVIDE ADDITIONAL CONNECTING REINFORCING STEEL IF REQUIRED OR IF EXISTING REINFORCING STEEL TO BE REUSED IS MISSING OR FOUND TO BE UNUSABLE.

REPLACE ALL EXISTING REINFORCING BARS DEEMED BY THE ENGINEER TO BE UNUSABLE BECAUSE OF CORROSION. THE DEPARTMENT WILL MEASURE THE REPLACEMENT REINFORCING STEEL BY THE NUMBER OF POUNDS ACCEPTED IN PLACE.

REPLACE ALL EXISTING REINFORCING STEEL BARS WHICH ARE TO BE INCORPORATED INTO THE NEW WORK AND ARE DEEMED BY THE ENGINEER TO BE MADE UNUSABLE BY CONCRETE REMOVAL OPERATIONS WITH NEW EPOXY COATED REINFORCING STEEL OF THE SAME SIZE AT NO COST TO THE DEPARTMENT.

ITEM 511, CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN:
ITEM 511, CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN:
ITEM 511, CLASS HP CONCRETE, SUPERSTRUCTURE, AS PER PLAN:
ITEM 511, CLASS HP CONCRETE, TEST SLAB:

GENERAL REQUIREMENTS:
THE PROVISIONS OF ITEM 511 SHALL APPLY EXCEPT AS NOTED BELOW.

MIX OPTIONS:
ALL BRIDGE DECK, ABUTMENT, PARAPETS, DIAPHRAGMS, AND APPROACH SLAB CONCRETE SHALL BE THIS MIX (AS PER PLAN).

THE FOLLOWING PROPORTIONS WILL BE USED AS A STARTING MIX DESIGN:

CONCRETE TABLE
QUANTITIES PER CUBIC YARD
AGGREGATES (SSD)

HP4, AS PER PLAN (GGBF SLAG + MICROSILICA)								
AGGRE. TYPE	FINE AGGRE. (LB)	#8 COARSE AGGRE. (LB)*	#57 COARSE AGGRE. (LB)*	CEMENT CONTENT (LB)*	GGBF SLAG (LB)*	MICRO-SILICA (LB)*	W/C RATIO +/-0.01	AIR CONTENT +/-2%
GRAVEL	1245	360	1315	400	170	30	0.43	7
LIMESTONE	1245	360	1335	400	170	30	0.43	7
SLAB	1245	315	1155	400	170	30	0.43	7

* ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED PER ASTM C127.

HIGH EARLY STRENGTH CEMENT MAY BE USED TO EXPEDITE CONSTRUCTION, SEE 511.07.

THE WEIGHTS SPECIFIED IN THE CONCRETE TABLE WERE CALCULATED FOR MATERIALS OF THE FOLLOWING BULK SPECIFIC GRAVITIES (SSD): NATURAL SAND AND GRAVEL 2.62, LIMESTONE SAND 2.68, LIMESTONE 2.65, SLAG 2.30, FLY ASH 2.65, GGBF SLAG 2.90, MICRO-SILICA SOLIDS 2.20, AND PORTLAND CEMENT 3.15. FOR AGGREGATES OF SPECIFIC GRAVITIES DIFFERING MORE THAN PLUS OR MINUS 0.02 FROM THESE, THE WEIGHTS IN THE TABLE WILL BE CORRECTED.

PARAPET CONSTRUCTION (FORMED AND POURED): FORMS SHALL NOT BE REMOVED UNTIL AT LEAST 2 HOURS AFTER THE FINAL SET. DETERMINATION OF THE FINAL SET SHALL BE AS PER ASTM C266 (GILLMORE NEEDLE). TESTING SHALL BE PERFORMED BY THE CONTRACTOR AT NO COST TO THE STATE.

THE MINIMUM CONCRETE SLUMP DURING PLACEMENT OF FORMED CONCRETE PARAPETS SHALL BE 6 INCHES, WITH A MAXIMUM SLUMP OF 8 INCHES.

PARAPET CONSTRUCTION (SLIP FORMED): SLIP FORMING IS PROHIBITED.

BASIS OF PAYMENT: PAYMENT FOR THE ABOVE COMPLETED AND ACCEPTED QUANTITIES WILL BE MADE AT THE CONTRACT BID PRICE FOR:

ITEM	UNITS	DESCRIPTION
511E50001	CUBIC YARD	CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN
511E50101	CUBIC YARD	CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN
511E52000	LUMP	CLASS HP CONCRETE, TEST SLAB

ITEM 512, SEALING OF CONCRETE SURFACES (EPOXY-URETHANE): THE FINISH COAT COLOR FOR ALL CONCRETE SURFACES TO RECEIVE SEALER SHALL MATCH THE EXISTING SEALER COLOR SUBJECT TO THE APPROVAL OF THE ENGINEER.

ITEM 514, FIELD PAINTING STRUCTURAL STEEL, FINISH COAT: THE FINISH COAT COLOR FOR ALL STRUCTURAL STEEL MEMBERS TO RECEIVE PAINT SHALL MATCH THE EXISTING PAINT COLOR SUBJECT TO THE APPROVAL OF THE ENGINEER.

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DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301447	

GENERAL NOTES (1 OF 2)
BRIDGE NO. LAK-2-1517L
S.R. 2 OVER SANFORD STREET

LAK-2-14.38
PID No. 87924

GENERAL NOTES

ITEM 516, SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN: INSTALL A 3 FOOT WIDE NEOPRENE SHEET AT LOCATIONS SHOWN IN THE PLANS. SECURE THE NEOPRENE SHEETING TO THE CONCRETE WITH 1 1/4" X #10 GAGE (LENGTH X SHANK DIAMETER) GALVANIZED BUTTON HEAD SPIKES THROUGH A 1" OUTSIDE DIAMETER, #10 GAGE GALVANIZED WASHER. MAXIMUM FASTENER SPACING IS 9". USE OF OTHER SIMILAR GALVANIZED DEVICES, WHICH WILL NOT DAMAGE EITHER THE NEOPRENE OR THE CONCRETE, WILL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

CENTER THE NEOPRENE STRIPS ON ALL JOINTS. FOR HORIZONTAL JOINTS, SECURE THE HORIZONTAL NEOPRENE STRIP BY USING A SINGLE LINE OF FASTENERS, STARTING AT 6", (±), FROM THE TOP OF THE NEOPRENE STRIP. FOR THE VERTICAL JOINTS SECURE THE VERTICAL NEOPRENE STRIP BY USING A SINGLE VERTICAL LINE OF FASTENERS, STARTING AT 6", (±), FROM THE VERTICAL EDGE OF THE NEOPRENE STRIP NEAREST TO THE CENTERLINE OF THE ROADWAY. FOR VERTICAL JOINTS, INSTALL 2 ADDITIONAL FASTENERS AT 6", CENTER TO CENTER, ACROSS THE TOP OF THE NEOPRENE STRIP ON THE SAME SIDE OF THE VERTICAL JOINT AS THE SINGLE VERTICAL ROW OF FASTENERS IS LOCATED.

THE VERTICAL NEOPRENE STRIPS SHALL COMPLETELY OVERLAP THE HORIZONTAL STRIPS. LAP LENGTHS OF THE HORIZONTAL STRIPS THAT ARE NOT VULCANIZED OR ADHESIVE BONDED, SHALL BE AT LEAST 1'-0" IN LENGTH, OR 6" IN LENGTH IF THE LAP IS VULCANIZED OR ADHESIVE BONDED. NO LAPS ARE ACCEPTABLE IN VERTICALLY INSTALLED NEOPRENE STRIPS.

PRIOR TO PLACEMENT OF THE NEOPRENE SHEETING, A 3" BAND OF COLD TAR PITCH MATERIAL OR MATERIAL MEETING SPEC 702.14 RUBBER COMPOUND SHALL BE APPLIED TO DIRECTLY TO THE STRUCTURAL CONCRETE ALONG THE PERIMETER/OUTLINE OF THE NEOPRENE SHEET IN ORDER TO SECURE A SEAL TIGHT CONDITION. THE NEOPRENE SHEET SHALL THEN BE MECHANICALLY FASTENED TO THE STILL TACKY TAR/RUBBER CEMENT COMPOUND MATERIAL.

THE NEOPRENE SHEETING SHALL BE 3/32" THICK GENERAL PURPOSE, HEAVY DUTY NEOPRENE SHEET WITH NYLON FABRIC REINFORCEMENT. THE SHEETING SHALL BE "FAIRPRENE NUMBER NN-0003", BY E.I. DUPONT DE NEMOURS AND COMPANY, INC., "WINGPRENE" BY GOODYEAR TIRE AND RUBBER COMPANY, OR AN APPROVED ALTERNATE. THE NEOPRENE SHEETING SHALL CONFORM TO THE FOLLOWING:

DESCRIPTION OF TEST	ASTM METHOD	REQUIREMENT
THICKNESS, INCHES	D 751	0.094 (±) 0.01
BREAKING STRENGTH, GRAB, LBS, MINIMUM (LONG. X TRANS.)	D 751	700 x 700
ADHESIVE STRIP, 1" WIDE X 2" LONG, LBS MINIMUM	D 751	9
BURST STRENGTH, PSI MINIMUM	D 751	1400
HEAT AGING, 70 HRS., 212°F, 180° BEND W/O CRACKING	D 2136	NO CRACKING OF COATING
LOW TEMP. BRITTLENESS, 1 HR., -40°F, BEND AROUND 1/4" MANDREL	D 2136	NO CRACKING OF COATING

METHOD OF MEASUREMENT: THE DEPARTMENT WILL MEASURE THE TOTAL LENGTH OF JOINT TO BE SEALED BY THE NUMBER OF FEET.

BASIS OF PAYMENT: THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516, SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN.

ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN: FOR BEARING REQUIREMENTS SEE SHEETS 9 & 10.

ITEM 516, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN:
THIS WORK CONSISTS OF RAISING OR RE-POSITIONING EXISTING STRUCTURES TO THE DIMENSIONS AND REQUIREMENTS DEFINED IN THE PROJECT PLANS.

SUBMIT CONSTRUCTION PLANS IN ACCORDANCE WITH CMS 501.05.

IF, DURING THE JACKING OPERATIONS, CRACKING OF THE CONCRETE SUPERSTRUCTURE, SEPARATION OF THE CONCRETE DECK FROM THE STEEL STRINGERS, OR OTHER DAMAGE TO THE STRUCTURE IS VISUALLY OBSERVED, IMMEDIATELY CEASE THE JACKING OPERATION AND INSTALL SUPPORTS TO THE SATISFACTION OF THE ENGINEER. ANALYZE THE DAMAGE AND SUBMIT A METHOD OF CORRECTION TO THE ENGINEER FOR APPROVAL. EPOXY INJECT ALL BEAMS THAT SEPARATE FROM THE DECK FOR THE DISTANCE OF THE SEPARATION IN ACCORDANCE WITH CMS 512.07. THE DEPARTMENT WILL NOT PAY FOR THE COST OF THIS EPOXY INJECTION OR OTHER REQUIRED REPAIRS. THE BRIDGE BEARINGS SHALL BE FULLY SEATED AT ALL CONTACT AREAS. IF FULL SEATING IS NOT ATTAINED, SUBMIT A REPAIR PLAN TO THE ENGINEER. THE DEPARTMENT WILL NOT PAY FOR THE REPAIR COSTS TO ENSURE FULL SEATING ON BEARINGS.

THE DEPARTMENT WILL MEASURE THIS WORK ON A LUMP SUM BASIS.

THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN.

ITEM 526, REINFORCED CONCRETE APPROACH SLAB (T=13"), AS PER PLAN

DESCRIPTION: THIS ITEM SHALL CONSIST OF CONSTRUCTING REINFORCED CONCRETE APPROACH SLABS WITH PARAPETS IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS AND ODOT STANDARD DRAWING AS-1-81.

MATERIALS: CONCRETE FOR THIS ITEM, INCLUDING APPROACH SLABS AND PARAPETS SHALL BE ITEM 511 - CLASS HP CONCRETE. USE THE SAME MIX FOR ITEM 526 AS IS USED FOR THE BRIDGE DECK AND PARAPETS. SEE GENERAL NOTE ITEM 511 FOR THE CONCRETE MIX REQUIREMENTS.

METHOD OF MEASUREMENT: THE AREA MEASURED WILL BE THE NUMBER OF SQUARE YARDS COMPLETE IN PLACE.

BASIS OF PAYMENT: ACCEPTED QUANTITIES WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER SQUARE YARD COMPLETE IN PLACE. THIS PRICE SHALL INCLUDE FULL COMPENSATION FOR CONCRETE, PARAPETS, REINFORCING STEEL, JOINT FILL, JOINT SEALERS, JOINT SEALS, WATERPROOFING, AND SEALING OF APPROACH SLAB PARAPETS. PAYMENT WILL BE MADE UNDER ITEM 526 - REINFORCED CONCRETE APPROACH SLAB (T=13"), AS PER PLAN.

APPROACH SLAB PARAPET CONSTRUCTION SHALL BE PER GENERAL NOTE ITEM 511 - CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN.

ITEM 607, FENCE REMOVED AND REBUILT:

A PORTION OF THE EXISTING FENCE BETWEEN BRIDGE NO. LAK-2-1517R AND LAK-2-1517L AT THE REAR AND FORWARD ABUTMENTS MAY NEED TO BE REMOVED AND REBUILT IN ORDER TO RECONSTRUCT THE EXISTING WINGWALLS. FOR ESTIMATING PURPOSES 20 FEET OF FENCE REMOVED AND REBUILT WILL BE REQUIRED.

ITEM 848, MICRO SILICA MODIFIED CONCRETE OVERLAY USING HYDRODEMOLITION, AS PER PLAN (1½" THICK):

ITEM 848, MICRO SILICA MODIFIED CONCRETE OVERLAY, (VARIABLE THICKNESS), MATERIAL ONLY, AS PER PLAN:

THESE ITEMS SHALL BE PERFORMED PER SUPPLEMENTAL SPECIFICATION 848 "BRIDGE DECK REPAIR AND OVERLAY WITH CONCRETE USING HYDRODEMOLITION" WITH THE FOLLOWING REVISIONS:

CONSTRUCTION JOINTS WILL NOT BE PERMITTED IN THE WHEEL LINE.

(SEE 848.12) THE COMPONENTS OF THE MICROSILICA MODIFIED CONCRETE SHALL BE PROPORTIONED AS FOLLOWS:

CONCRETE TABLE
QUANTITIES PER CUBIC YARD
AGGREGATES (SSD)

MICROSILICA MODIFIED CONCRETE OVERLAY								
AGGRE. TYPE	FINE AGGRE. (LB)	#8 COARSE AGGRE. (LB)*	AGGRE. TOTAL (LB)	CEMENT CONTENT (LB)	MICRO-SILICA (LB)	W/C RATIO +/-0.01	AIR CONTENT +/-2%	FIBER (1¼") POLY-PROPYLENE (LB)**
GRAVEL	141	1430	284	600	50	0.40	8	1
LIMESTONE	141	1450	286	600	50	0.40	8	1
SLAG	141	1350	265	600	50	0.40	8	1

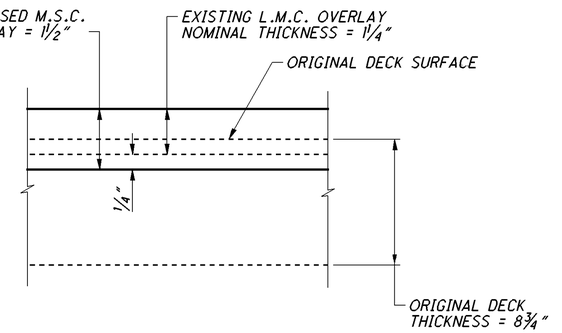
* ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED PER ASTM C127.

** FIBER MESH SHALL BE 100% VIRGIN POLYPROPYLENE IN A FIBRILLATED-NETWORK FORM AND SHALL BE 1¼" IN LENGTH.

THE WEIGHTS SPECIFIED IN THE CONCRETE TABLE WERE CALCULATED FOR MATERIALS OF THE FOLLOWING BULK SPECIFIC GRAVITIES (SSD): NATURAL SAND AND GRAVEL 2.62, LIMESTONE SAND 2.68, LIMESTONE 2.65, SLAG 2.30, MICRO-SILICA SOLIDS 2.20, AND PORTLAND CEMENT 3.15. FOR AGGREGATES OF SPECIFIC GRAVITIES DIFFERING MORE THAN PLUS OR MINUS 0.02 FROM THESE, THE WEIGHTS IN THE TABLE WILL BE CORRECTED. (FIBER MESH WEIGHTS NOT INCLUDED IN MIX DESIGN)

ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED BY ASTM C127.

ALL OTHER REQUIREMENTS OF THE SUPPLEMENTAL SPECIFICATION SHALL REMAIN IN EFFECT.



DECK OVERLAY DETAIL

ITEM 202, PORTIONS OF STRUCTURES REMOVED, AS PER PLAN:

THIS ITEM SHALL ALSO INCLUDE THE REMOVAL OF ELEMENTS INDICATED IN THE PLANS AND GENERAL NOTES AND THAT ARE NOT SEPARATELY LISTED FOR PAYMENT. ITEMS TO BE REMOVED INCLUDE ALL EXISTING MATERIALS BEING REPLACED BY NEW CONSTRUCTION AND MISCELLANEOUS ITEMS THAT ARE NOT SHOWN TO BE INCORPORATED INTO THE FINAL CONSTRUCTION AND ARE DIRECTED TO BE REMOVED BY THE ENGINEER.

ALTERNATE METHOD FOR BACKWALL REMOVAL: AT NO ADDITIONAL COST TO THE STATE, THE CONTRACTOR MAY SAWCUT EXISTING BACKWALLS AT THE REMOVAL LIMITS SHOWN IN THE PLANS AND DOWEL REAR #6 BARS AT THE EXISTING BAR SPACING. PROVIDE 12" MINIMUM EMBEDMENT ON DOWEL BARS. PROVIDE #6 BARS LONG ENOUGH TO PROVIDE A MINIMUM LAP OF 2'-11" ON PROPOSED BARS.

ALTERNATE METHOD FOR REMOVAL OF DECK AT END OF BRIDGE: AT NO ADDITIONAL COST TO THE STATE, THE CONTRACTOR MAY REMOVE DECK CONCRETE USING HYDRODEMOLITION, SUBJECT TO ALL PERTINENT REQUIREMENTS OF SS 848.

ITEM 503, COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN:

IN ADDITION TO THE REQUIREMENTS OF CMS 503, LEAVE IN PLACE SHEETING ALONG THE STAGED CONSTRUCTION LINE AT THE POSITION SHOWN IN THE PLANS. CUT-OFF SHEETING 3" BELOW THE BOTTOM OF THE APPROACH SLAB OR AS DIRECTED BY THE ENGINEER.

ITEM 518, POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN:

THIS WORK SHALL INCLUDE THE REMOVAL OF EXISTING POROUS BACKFILL AND ALL ADJACENT SOIL TO INSTALL NEW POROUS BACKFILL AS DETAILED IN THE PLANS.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301447	

GENERAL NOTES (2 OF 2)
BRIDGE NO. LAK-2-1517L
S.R. 2 OVER SANFORD STREET

LAK-2-14.38
PID No. 87924

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ABBREVIATIONS

THE FOLLOWING ABBREVIATIONS HAVE BEEN USED THROUGHOUT THESE PLANS:

& = AND
@ = AT
° = DEGREES
' = FEET OR MINUTES
" = INCHES OR SECONDS
± = PLUS OR MINUS

AASHTO = AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
ABUT. = ABUTMENT
ADT = AVERAGE DAILY TRAFFIC
ADTT = AVERAGE DAILY TRUCK TRAFFIC
APPR. = APPROACH
APPROX. = APPROXIMATE
ASTM = AMERICAN SOCIETY OF TESTING AND MATERIALS

BM = BENCHMARK
BOT. = BOTTOM
BOT./FTG. = BOTTOM OF FOOTING
BRGS. = BEARINGS

℄ = CENTERLINE
C/C = CENTER TO CENTER
CFS = CUBIC FEET PER SECOND
CJ = CONSTRUCTION JOINT
CLR. = CLEAR
CMS = CONSTRUCTION AND MATERIAL SPECIFICATIONS
CONSTR./CONST. = CONSTRUCTION
CON'T = CONTINUED
COL. = COLUMN
C.P.P. = CORRUGATED PLASTIC PIPE
C.R./CR = COUNTY ROAD
CU = CUBIC
CVN = CHARPY V-NOTCH

DEFL. = DEFLECTION
DIA. = DIAMETER
DIM. = DIMENSION
DL = DEAD LOAD
DWG. = DRAWING

E =EAST
EA. = EACH
EF = EACH FACE
EL./ELEV. = ELEVATION
EMBED. = EMBEDMENT
EQ. = EQUAL
EX./EXIST. = EXISTING
EXP. = EXPANSION
EXT. = EXTENSION

F = FAHRENHEIT
FF = FAR FACE
F/F = FACE TO FACE
FS = FIELD SPLICE
FT. = FEET
FT/FT. = FOOT/FOOT
FT/S = FEET PER SECOND
FTG. = FOOTING
FWD. = FORWARD
FWS = FUTURE WEARING SURFACE

GEN. = GENERAL

HR = HOUR
HW = HIGH WATER

IN. = INCHES
INT. = INTERMEDIATE

LF = LEFT FORWARD
LONG. = LONGITUDINAL
LT. = LEFT

MAX. = MAXIMUM
MIN. = MINIMUM
MISC. = MISCELLANEOUS

N = NORTH
NF = NEAR FACE
#/NO. = NUMBER

OHWM = ORDINARY HIGH WATER MARK
OUT/OUT = OUT TO OUT

PEJF = PREFORMED EXPANSION JOINT FILLER
℄/PL = PLATE
PSF = POUND PER SQUARE FOOT
PSI = POUND PER SQUARE INCH
PT. = POINT
PVI = POINT OF VERTICAL INTERSECTION

Q = FLOW

R = RADIUS
REF. = REFERENCE
REINF. = REINFORCED
REQ'D. = REQUIRED
RF = RIGHT FORWARD
RT. = RIGHT

SHLDR. = SHOULDER
SPA. = SPACING
SQ = SQUARE
STA. = STATION
STD. = STANDARD
STR. = STRAIGHT
SUPER = SUPERSTRUCTURE

T = THICKNESS
TELE = TELEPHONE
TRANS. = TRANSVERSE
TWP. = TOWNSHIP
TYP. = TYPICAL

V = VELOCITY
V.C. = VERTICAL CURVE
VERT. = VERTICAL

W = WEST
W/ = WITH
W/O = WITHOUT
W.P. = WORKING POINT
WT. = WEIGHT

YD = YARD

ESTIMATED QUANTITIES

LAK-2-1517L

CALCULATED BY: JTC
CHECK BY: SCJ
DATED: 9/10
DATED:

ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	TOTAL**	AS PER PLAN SHEET REF.
202	11201	LUMP		PORTIONS OF STRUCTURE REMOVED, AS PER PLAN	LUMP	2
202	22901	134	SQ YD	APPROACH SLAB REMOVED, AS PER PLAN	134	3
503	11101	LUMP		COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN	LUMP	3
509	10001	9779	POUND	EPOXY COATED REINFORCING STEEL, AS PER PLAN	9779	2
509	20001	230	POUND	REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN	230	2
511	50001	26	CU YD	CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN	26	2
511	50101	6	CU YD	CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN	6	2
511	51001	36	CU YD	CLASS HP CONCRETE, SUPERSTRUCTURE, AS PER PLAN	36	2
512	10100	67	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	67	2
512	10300	35	SQ YD	SEALING CONCRETE BRIDGE DECKS WITH HMWM RESIN	35	
514	00050	607	SQ FT	SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL	607	
514	00056	607	SQ FT	FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT	607	
514	00060	607	SQ FT	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT	607	
514	00066	607	SQ FT	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT	607	2
516	14000	16	SQ FT	PREFORMED EXPANSION JOINT FILLER, MISC. 3½"	16	
516	14021	103	FT	SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN	103	3
516	44001	12	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN	12	3
				(8½" x ¾" x 1'-0" PAD WITH 11½" x ½" x 1'-1" STEEL LOAD PLATE)		
516	47001	LUMP		JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN	LUMP	
518	21231	LUMP		POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN	LUMP	3
518	40000	101	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	101	
518	40010	35	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	35	
526	15001	195	SQ YD	REINFORCED CONCRETE APPROACH SLAB (T=13"), AS PER PLAN	195	3
625	25400	54	FT	CONDUIT, 2", 725.04	54	7, 16
848	10001	645	SQ YD	MICRO SILICA MODIFIED CONCRETE OVERLAY USING HYDRODEMOLITION, AS PER PLAN (1½" THICK)	645	3
848	20000	645	SQ YD	SURFACE PREPARATION USING HYDRODEMOMLITION	645	
848	30001	27	CU YD	MICRO SILICA MODIFIED CONCRETE OVERLAY (VARIABLE THICKNESS), MATERIAL ONLY, AS PER PLAN	27	3
848	50000	40	SQ YD	HAND CHIPPING	40	
848	50320	645	SQ YD	EXISTING CONCRETE OVERLAY REMOVED (1½" THICK)	645	

**All Totals Participation Code II-Bridge

Participation Codes:
I-Pavement (Federal/State)
II-Bridge (Federal/State)

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED BKS | CHECKED JTC
DRAWN TEK | REVISED
REVIEWED SCJ | DATE 9/10
STRUCTURE FILE NUMBER 4301447

ESTIMATED QUANTITIES
BRIDGE NO. LAK-2-1517L
S.R. 2 OVER SANFORD STREET

LAK-2-14.38
PID No. 87924

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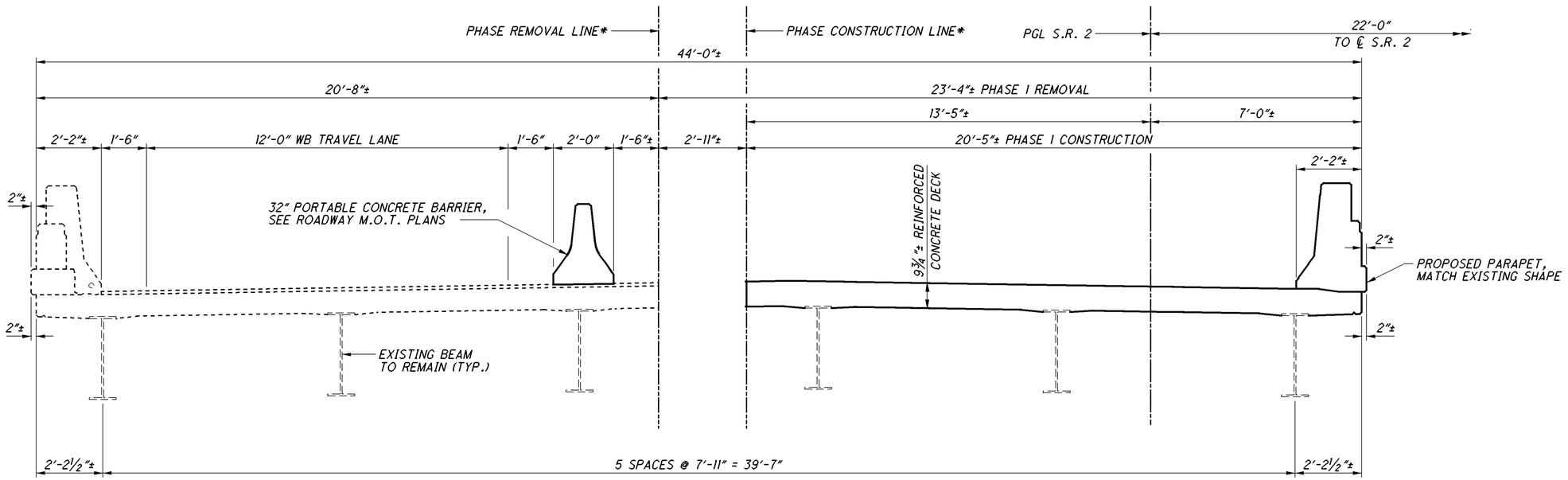


PHASE 1 REMOVAL AND CONSTRUCTION

AT ABUTMENTS

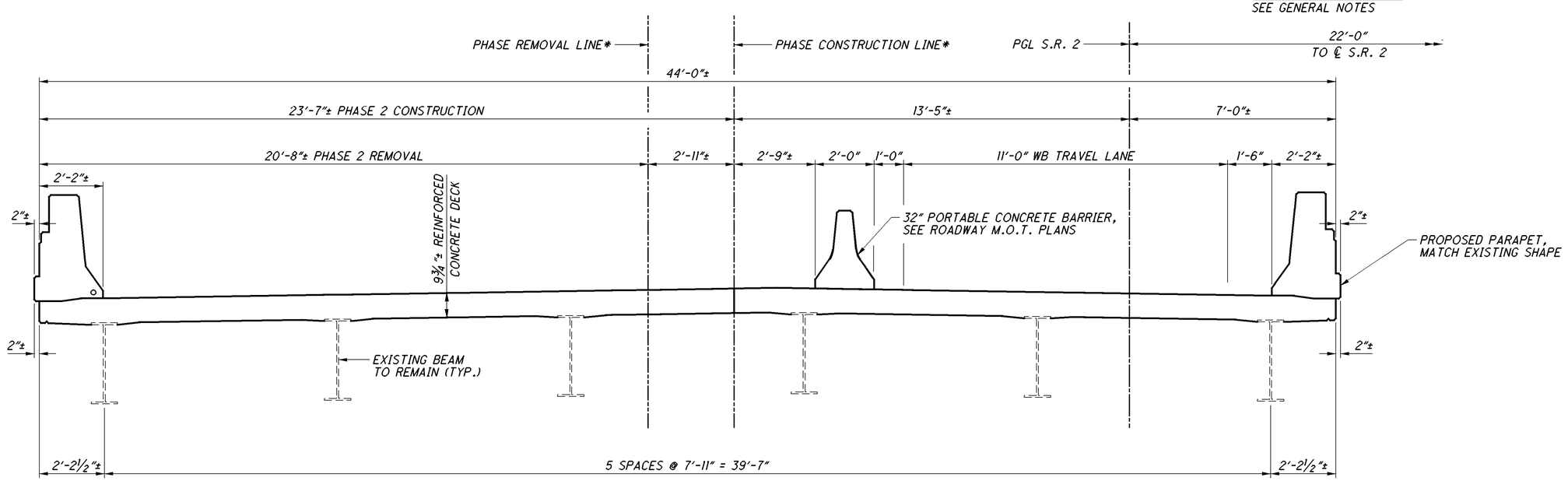
NOTES:

TRANSVERSE DIMENSIONS SHOWN FOR PROPOSED CONSTRUCTION ARE APPROXIMATE. IT MAY BE NECESSARY TO VARY THESE DIMENSIONS TO MEET THE PROPOSED APPROACH SLAB AND THE EXISTING DECK.

* FOR WORK AT ABUTMENT.

PROPOSED WORK:

SEE GENERAL NOTES



PHASE 2 REMOVAL AND CONSTRUCTION

AT ABUTMENTS

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301447	

PHASED CONSTRUCTION DETAILS

BRIDGE NO. LAK-2-1517L
S.R. 2 OVER SANFORD STREET

LAK-2-14.38
PID No7924

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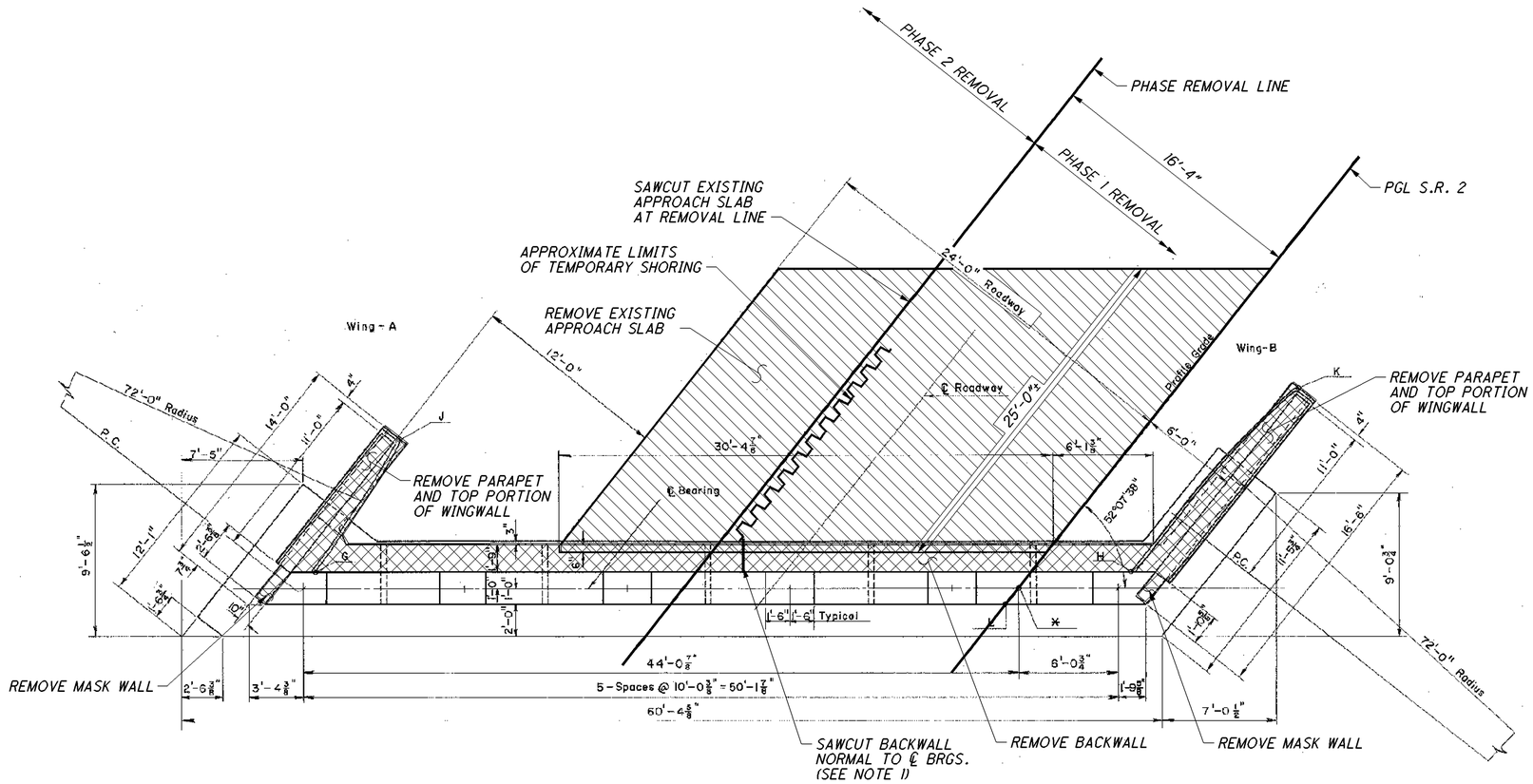
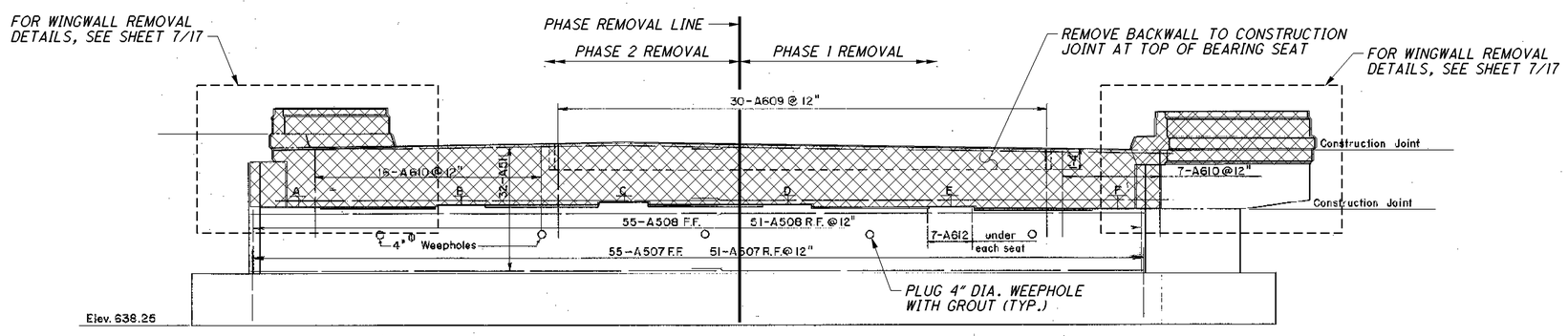


PLAN - FORWARD ABUTMENT

REAR ABUTMENT SIMILAR



ELEVATION - FORWARD ABUTMENT

REAR ABUTMENT SIMILAR

NOTES:

1. FOR LOCATION OF ABUTMENT BACKWALL REMOVAL LINE, SEE SHEET 11/17.

ITEM 202 - APPROACH SLAB REMOVED, AS PER PLAN

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301447	

REMOVAL DETAILS (1 OF 3)
BRIDGE NO. LAK-2-1517L
S.R. 2 OVER SANFORD STREET

LAK-2-14.38
PID No. 87924

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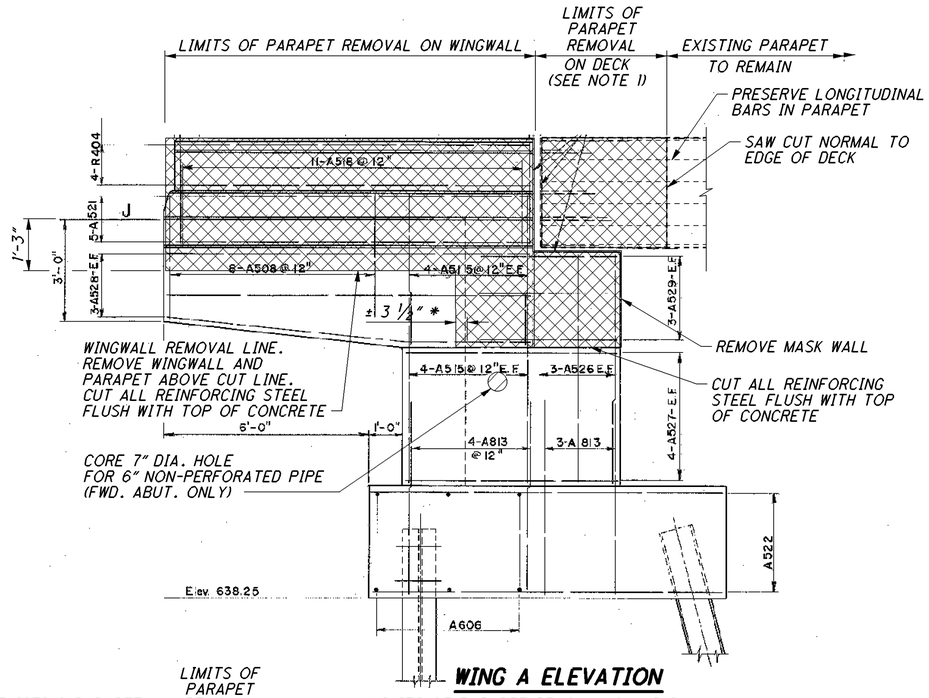
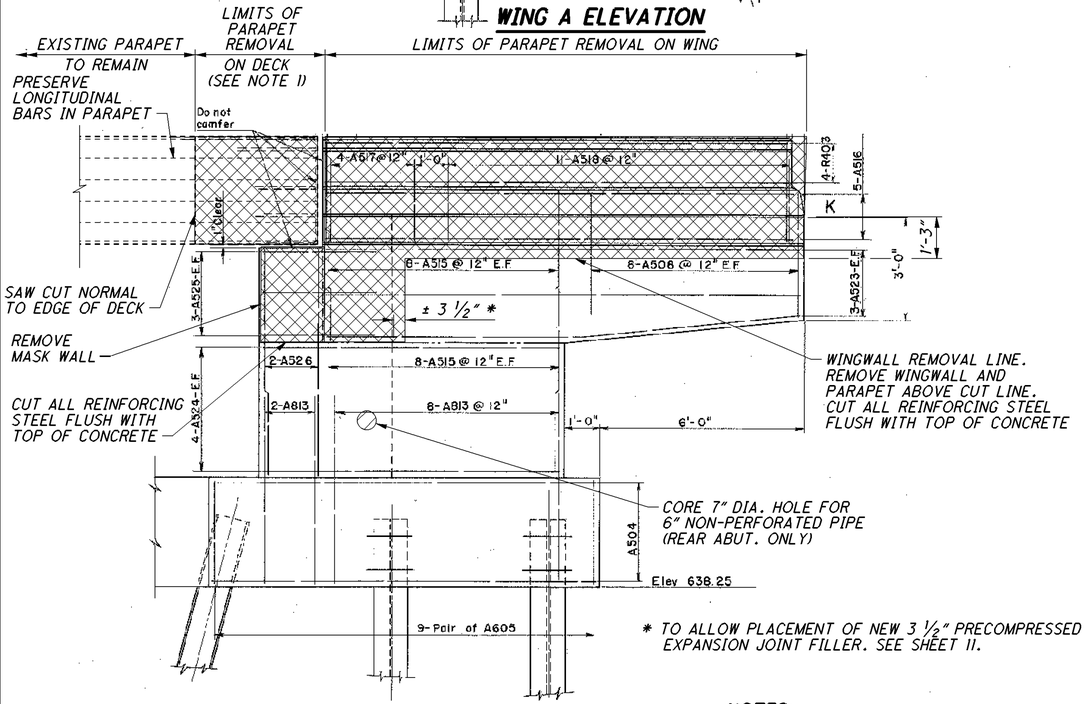
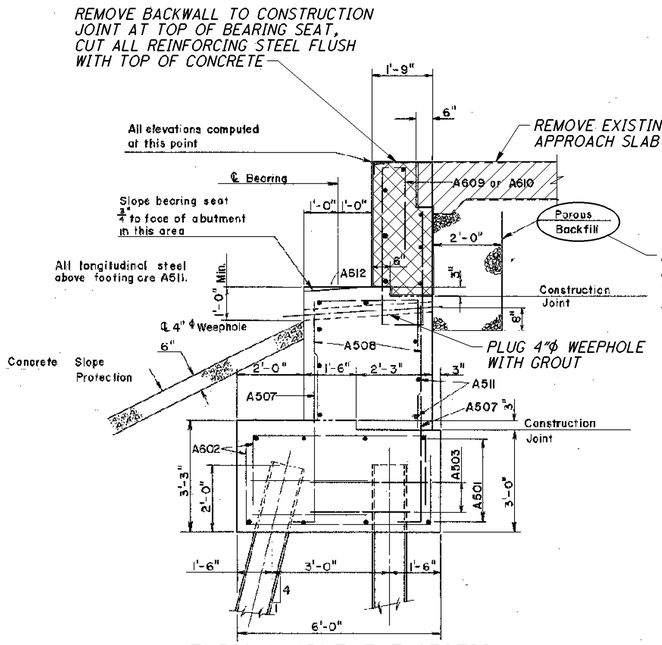


WING A ELEVATION

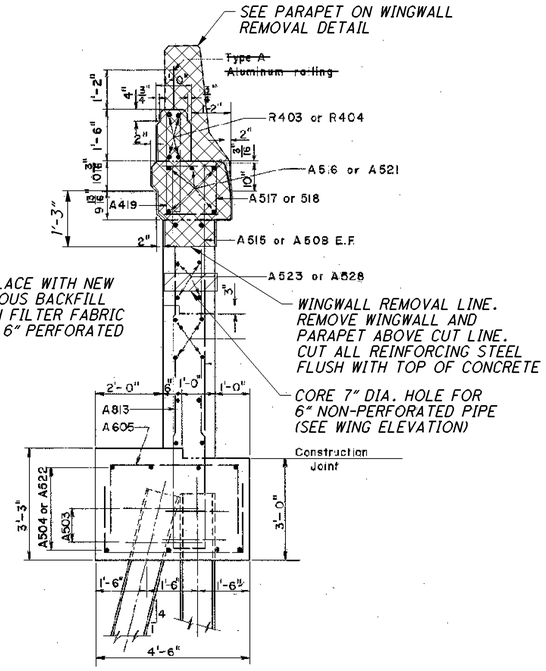


WING B ELEVATION

* TO ALLOW PLACEMENT OF NEW 3 1/2" PRECOMPRESSED EXPANSION JOINT FILLER. SEE SHEET 11.



TYPICAL ABUTMENT SECTION



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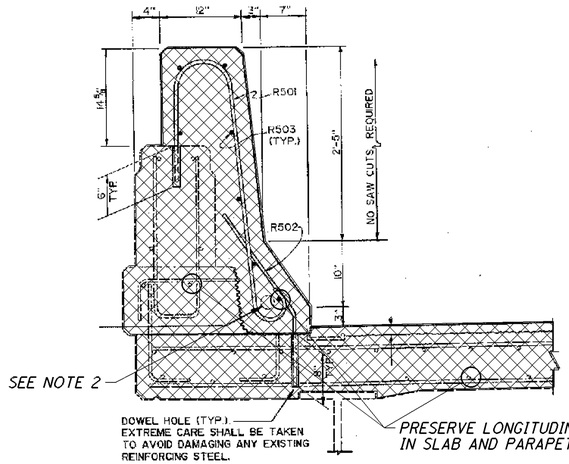
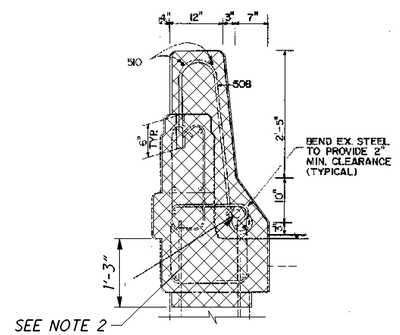


PARAPET ON DECK REMOVAL DETAIL



PARAPET ON WINGWALL REMOVAL DETAIL

ITEM 202 - APPROACH SLAB REMOVED, AS PER PLAN

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

NOTES:

1. SEE SHEET 8/17 FOR LENGTH OF PARAPET REMOVAL ON DECK.
2. APPROXIMATE LOCATION OF EXISTING 2" CONDUIT IS SHOWN. REMOVE AND REPLACE.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED BKS | DRAWN TEK | REVIEWED SCJ | DATE 9/10
CHECKED JTC | REVISED | STRUCTURE FILE NUMBER 4301447

REMOVAL DETAILS (2 OF 3)
BRIDGE NO. LAK-2-1517L
S.R. 2 OVER SANFORD STREET

LAK-2-14.38
PID No. 87924

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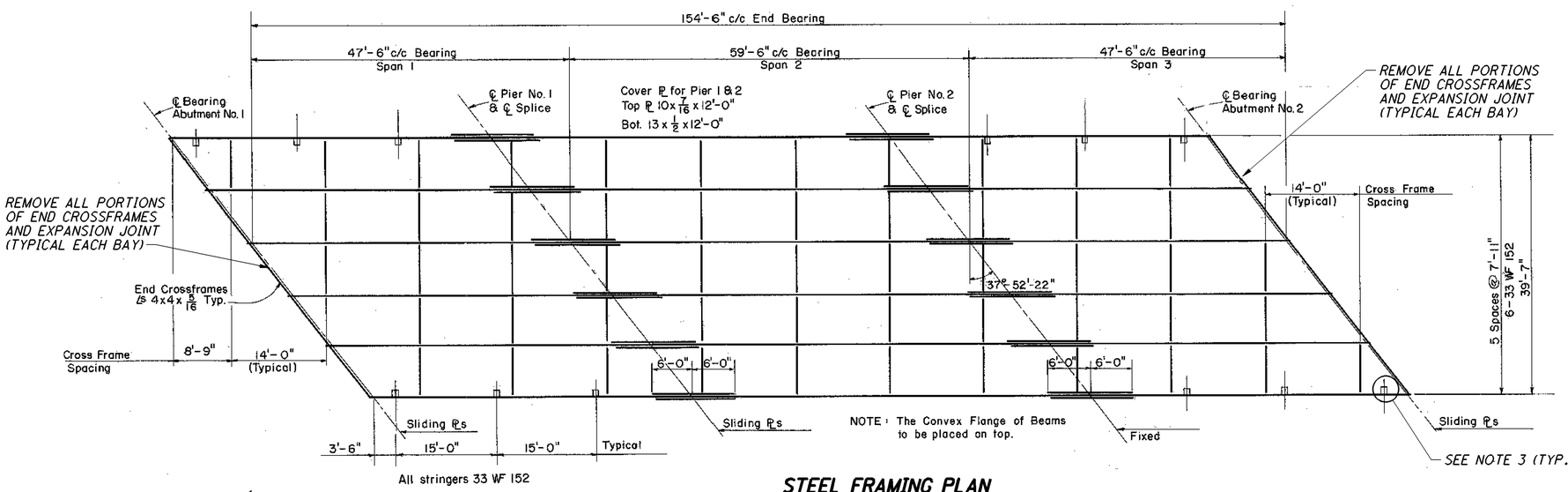
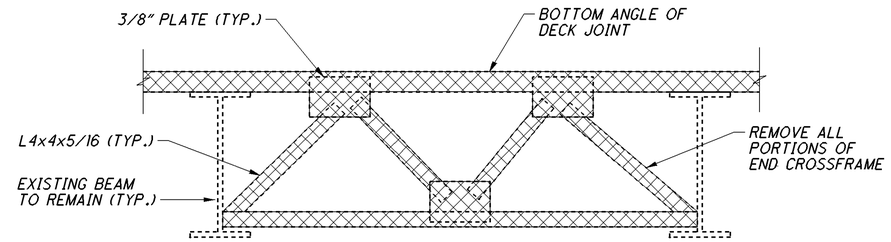
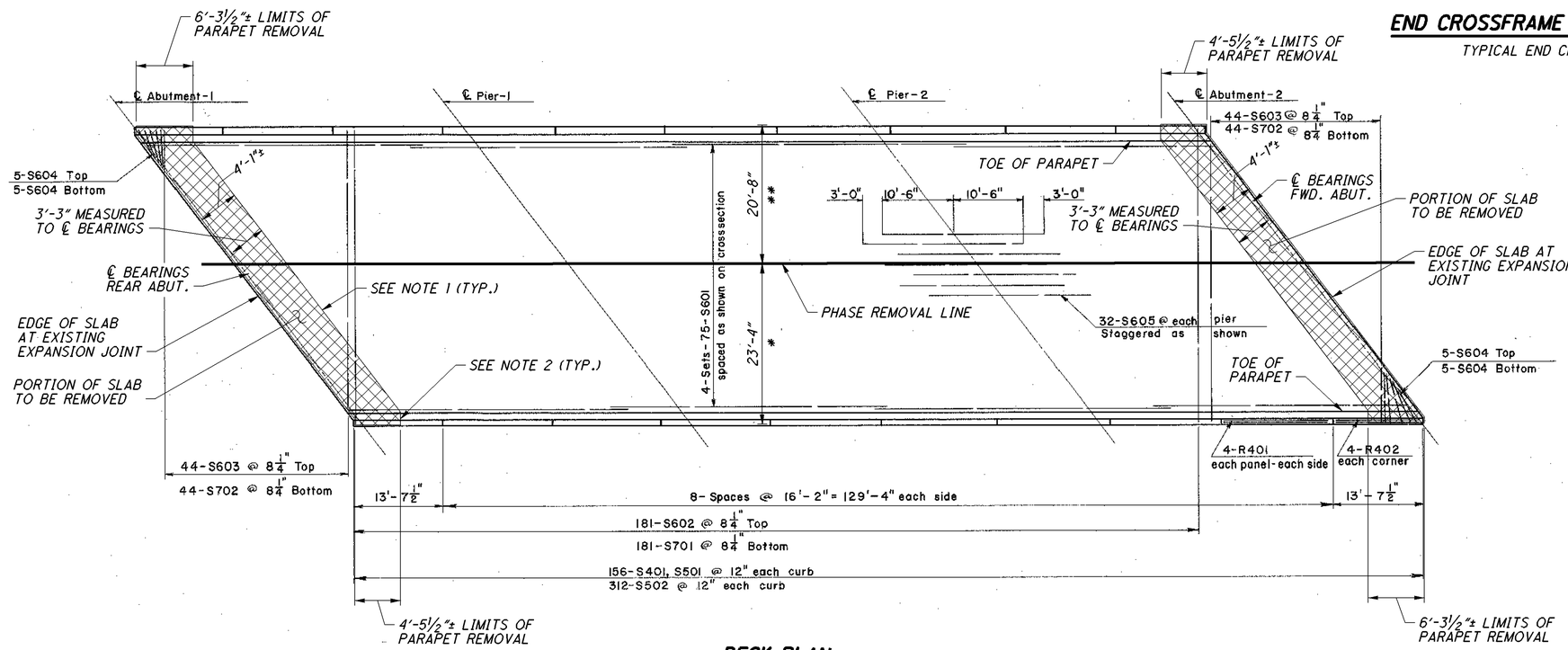


STEEL FRAMING PLAN



END CROSSFRAME REMOVAL DETAIL

TYPICAL END CROSSFRAME



DECK PLAN

LEGEND:

* = PHASE 1 REMOVAL
** = PHASE 2 REMOVAL

NOTES:

1. REMOVAL LINE IS LOCATED PARALLEL TO ℄ BEARINGS. PRESERVE ALL DECK REINFORCING STEEL THAT REMAINS EMBEDDED IN THE DECK.
2. REMOVAL LINE AT TOE OF PARAPET IS LOCATED NORMAL TO EDGE OF SLAB. PRESERVE ALL LONGITUDINAL PARAPET REINFORCEMENT.
3. EXISTING SCUPPER IS LOCATED WITHIN DECK REMOVAL LIMITS. CARE SHALL BE TAKEN TO PRESERVE EXISTING SCUPPER

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301447	

REMOVAL DETAILS (3 OF 3)
BRIDGE NO. LAK-2-1517L
S.R. 2 OVER SANFORD STREET

LAK-2-14.38
PID No. 87924

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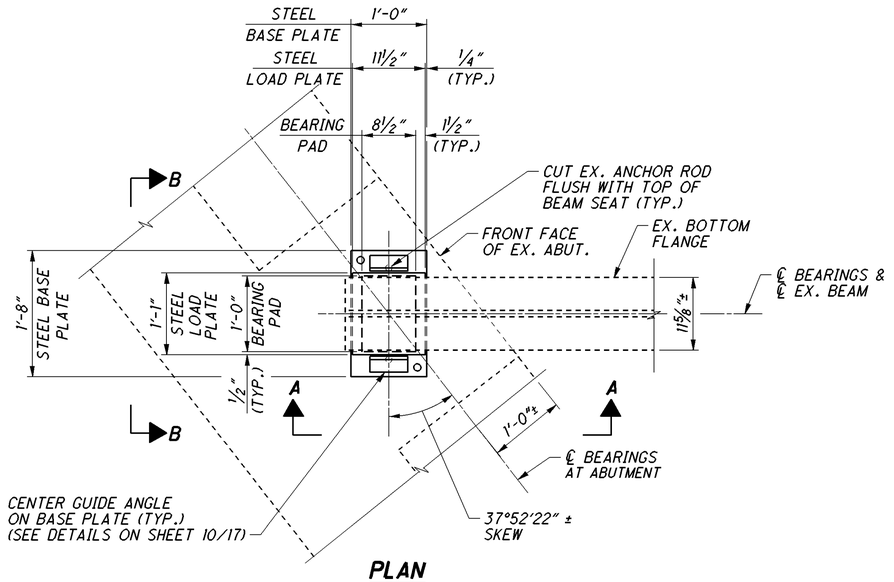
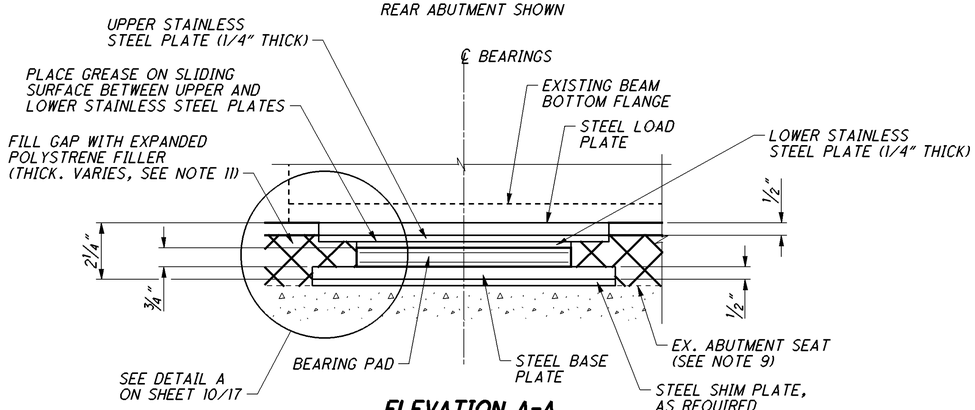


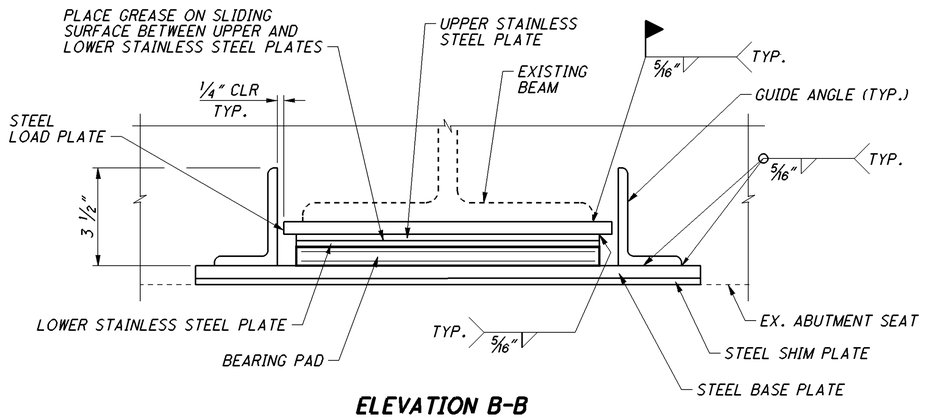
PLAN

REAR ABUTMENT SHOWN



ELEVATION A-A

GUIDE ANGLES NOT SHOWN FOR CLARITY



ELEVATION B-B

LAMINATED ELASTOMERIC EXPANSION BEARING DETAILS

REAR ABUTMENT SHOWN, FORWARD ABUTMENT SIMILAR BUT OPPOSITE HAND

NOTES:

1. STEEL LOAD PLATE, BASE PLATE, SHIM PLATES, GUIDE ANGLES AND SQUARE PLATE WASHERS SHALL MEET THE GRADE 50W REQUIREMENTS OF STRUCTURAL STEEL ASTM A709.
2. STAINLESS STEEL PLATES SHALL BE ASTM 240, TYPE 304 WITH A 2B FINISH PER ASTM A480.
3. THE STEEL BASE PLATE AND LOWER STAINLESS STEEL PLATE SHALL BE BONDED BY VULCANIZATION TO THE ELASTOMER DURING THE MOLDING PROCESS.
4. THE SHIM PLATES, BASE PLATE, LOAD PLATE, AND GUIDE ANGLES SHALL BE GALVANIZED AND PAINTED. PAINT COLOR SHALL MATCH EXISTING BEAM COLOR, SUBJECT TO APPROVAL OF THE ENGINEER. PAINT IS TO BE INCLUDED WITH ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) AS PER PLAN FOR PAYMENT.
5. WELDING: CONTROL WELDING SO THAT THE PLATE TEMPERATURE AT THE ELASTOMER BONDED SURFACE DOES NOT EXCEED 300°F AS DETERMINED BY THE USE OF PYROMETRIC STICKS OR OTHER TEMPERATURE MONITORING DEVICES.
6. THE MINIMUM NUMBER OF SHIM PLATES TO BE PROVIDED IS TWO ⅛" ADJUSTING SHIMS AND TWO ¼" ADJUSTING SHIMS FOR EACH BEARING. FOUR ADDITIONAL ½" ADJUSTING SHIMS SHALL ALSO BE PROVIDED FOR THIS BRIDGE. ADJUSTING SHIMS ARE TO BE PLACED ON THE CONCRETE BEARING SURFACE DIRECTLY BELOW THE ½" STEEL BASE PLATE. THE ADJUSTING SHIMS ARE TO BE USED AT LOCATIONS WHERE THE DISTANCE BETWEEN THE BOTTOM OF THE BOTTOM FLANGE OF THE BEAM AND THE CONCRETE BEARING SURFACE IS GREATER THAN THE 2¼" BEARING THICKNESS. ADDITIONAL SHIM PLATES SHALL BE PROVIDED IF REQUIRED BY FIELD MEASUREMENTS.
7. LUBRICATE THE INTERFACE BETWEEN THE UPPER AND LOWER STAINLESS STEEL PLATES WITH A LAYER OF GREASE A MINIMUM OF ⅛" THICK. THE GREASE SHALL MEET THE REQUIREMENTS OF NLGI GRADE 2 GC-LB.
8. BASIS OF PAYMENT: THE UNIT BID PRICE SHALL INCLUDE ALL MATERIALS, LABOR, AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL LAMINATED ELASTOMERIC BEARINGS, STEEL PLATES, ANGLES, AND ANCHOR BOLTS AS DETAILED. PAYMENT WILL BE MADE AT THE CONTRACT PRICE FOR ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN.

   REAR & FORWARD ABUTMENTS (ALL BEAMS):

   BEARING PAD: 8½" x ¾" x 1'-0"
   LOAD PLATE: 11½" x ½" x 1'-1"
   BASE PLATE: 1'-0" x ½" x 1'-8"
   UPPER STAINLESS STEEL PLATE: 11½" x ¼" x 1'-0"
   LOWER STAINLESS STEEL PLATE: 8½" x ¼" x 1'-0"
   SHIM PLATES: SEE NOTE 6
   GUIDE ANGLES: L 3 ½" x 2 ½" x ⅜" x 6" LONG
   PLATE WASHERS: 4" x ½" x 4"

9. PRIOR TO INSTALLING THE STEEL BASE PLATE, CLEAN THE TOP SURFACE OF THE ABUTMENT SEAT. IF CONCRETE SPALLING IS PRESENT UNDER BASE PLATE, PATCH CONCRETE PRIOR TO PLACEMENT OF THE BASE PLATE. PATCH CONCRETE ACCORDING TO SUPPLEMENTAL SPECIFICATION 843. CLEANING AND PATCHING CONCRETE TO BE INCLUDED WITH ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) AS PER PLAN FOR PAYMENT.
10. THE EXISTING BEAMS CAN BE JACKED A MAXIMUM OF ¼" TO REMOVE AND REPLACE BEARINGS.
11. EXPANDED POLYSTRENE FILLER IS INCLUDED WITH ITEM 511, HP CONCRETE, SUPERSTRUCTURE, AS PER PLAN FOR PAYMENT.
12. REFER TO RETIRED ODOT STD. DWG. CSB-2-56, REVISED 2-2-59, FOR DETAILS OF EXISTING BEARINGS TO BE REPLACED.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301447	

BEARING DETAILS (1 OF 2)

BRIDGE NO. LAK-2-1517L
S.R. 2 OVER SANFORD STREET

LAK-2-14.38
PID No. 87924

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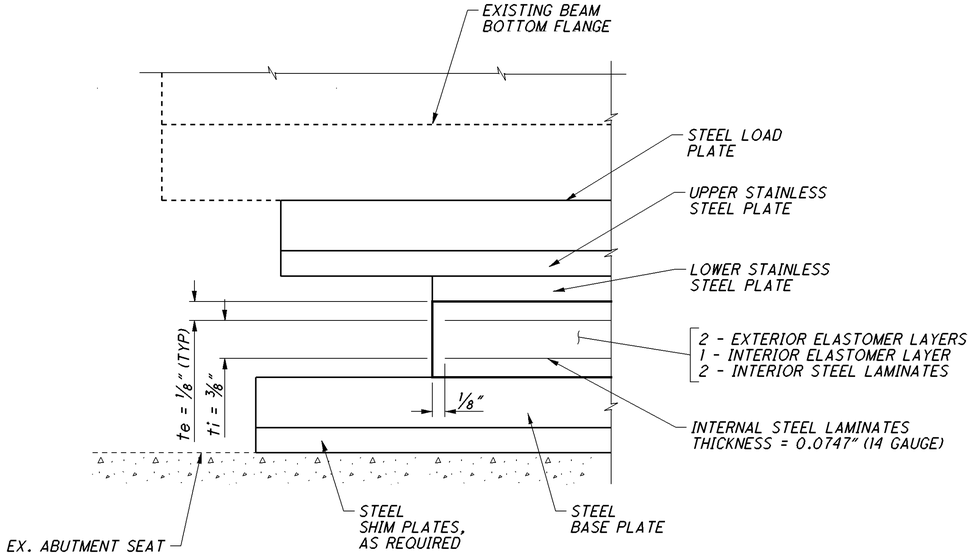
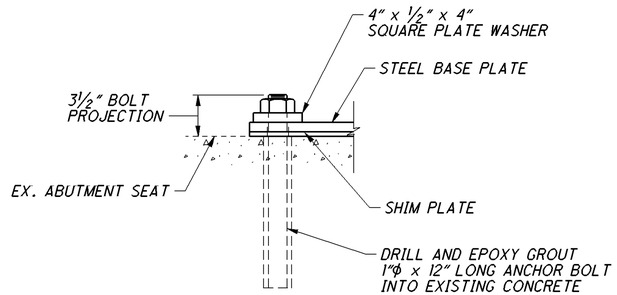
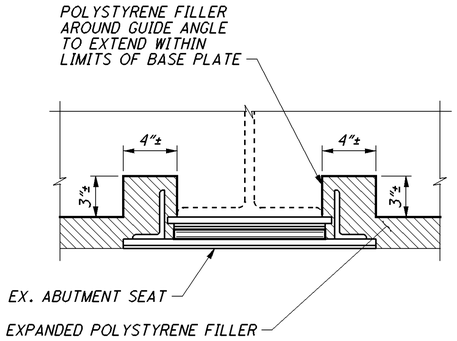


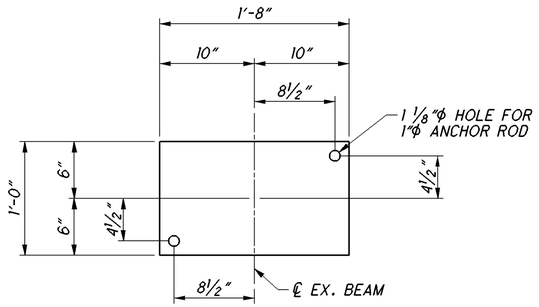
DETAIL A



ANCHOR BOLT DETAIL



GUIDE ANGLE BLOCKOUT DETAIL



PLAN OF BASE PLATE

SHIM PLATE SIMILAR

NOTES:

1. FIELD DRILL ANCHOR BOLT HOLES, INSTALL ANCHOR BOLTS AND PLACE EPOXY GROUT AFTER THE PLACEMENT OF THE BEARING ASSEMBLY. POSITION AND TIGHTEN THE BASE PLATE. INSTALL A BLOCK OF POLYSTRENE FILLER MATERIAL OVER THE TOP OF THE GUIDE ANGLES AND ANCHOR BOLTS BEFORE THE CONCRETE PLACEMENT FOR ABUTMENT DIAPHRAGM.
2. ANCHOR BOLTS AND NUTS SHALL BE ASTM A325. NUTS AND SQUARE PLATE WASHERS SHALL BE GALVANIZED ACCORDING TO 711.02. THE THREAD LENGTH REQUIREMENTS OF ASTM A325 MAY BE WAIVED. THE GROUT SHALL BE NON-SHRINK, EPOXY GROUT MEETING THE REQUIREMETNS OF 705.20.

LEGEND:

te = THICKNESS OF EXTERNAL ELASTOMER LAYER

ti = THICKNESS OF INTERNAL ELASTOMER LAYER

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301447	

BEARING DETAILS (2 OF 2)
BRIDGE NO. LAK-2-1517L
S.R. 2 OVER SANFORD STREET

LAK-2-14.38
PID No. 87924

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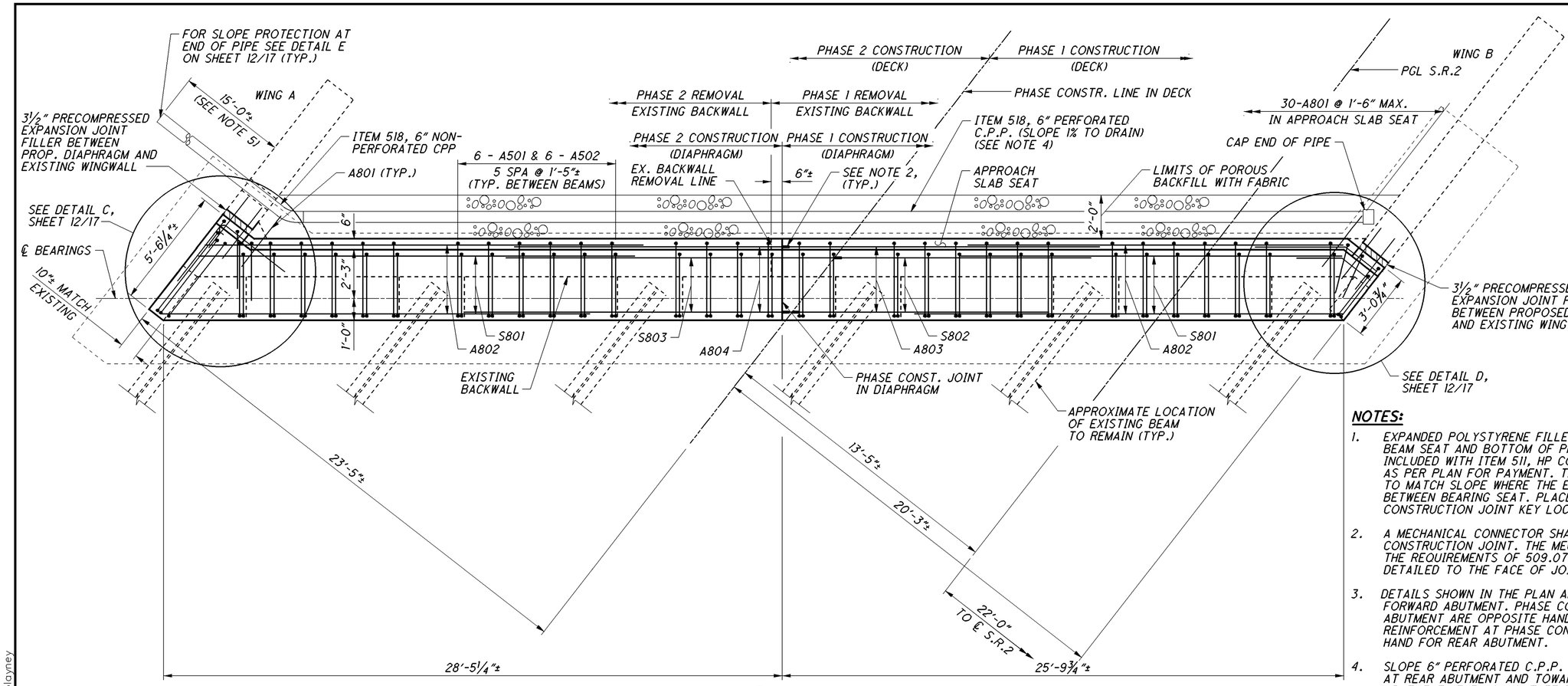
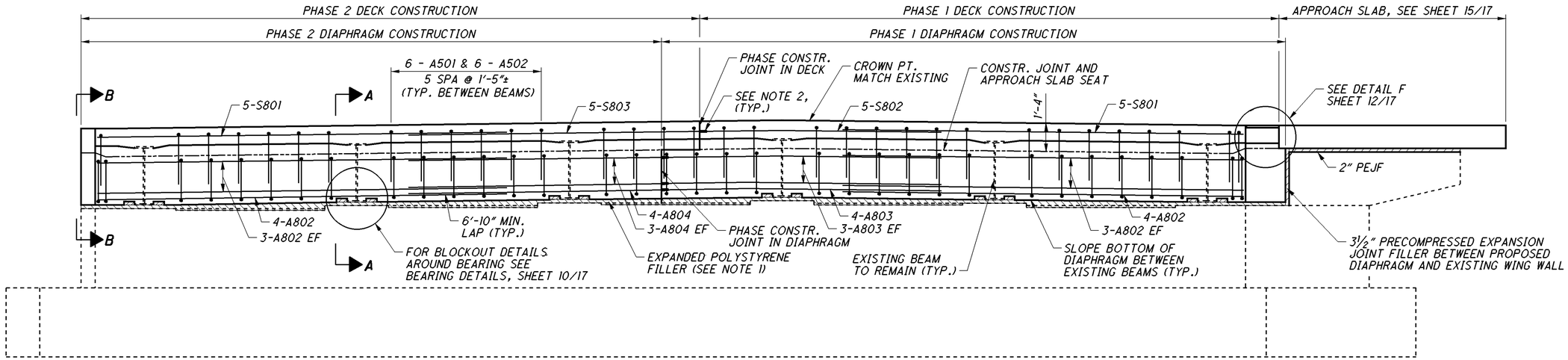


PLAN

FORWARD ABUTMENT SHOWN, REAR ABUTMENT SIMILAR (SEE NOTE 3)



ELEVATION

FORWARD ABUTMENT SHOWN, REAR ABUTMENT SIMILAR (SEE NOTE 3)
SEE SHEET 12 FOR SECTIONS A-A AND B-B

NOTES:

1. EXPANDED POLYSTYRENE FILLER BETWEEN TOP OF EXISTING BEAM SEAT AND BOTTOM OF PROPOSED DIAPHRAGM AND INCLUDED WITH ITEM 511, HP CONCRETE, SUPERSTRUCTURE AS PER PLAN FOR PAYMENT. TAPER POLYSTYRENE FILLER TO MATCH SLOPE WHERE THE EXISTING BEAM SEAT IS SLOPED BETWEEN BEARING SEAT. PLACE 3" POLYSTYRENE FILLER IN CONSTRUCTION JOINT KEY LOCATED AT THE REMOVED BACKWALL.
2. A MECHANICAL CONNECTOR SHALL BE USED AT THE PHASE CONSTRUCTION JOINT. THE MECHANICAL CONNECTOR SHALL MEET THE REQUIREMENTS OF 509.07. REINFORCING BAR LENGTHS ARE DETAILED TO THE FACE OF JOINT.
3. DETAILS SHOWN IN THE PLAN AND ELEVATION ARE FOR THE FORWARD ABUTMENT. PHASE CONSTRUCTION LINES FOR REAR ABUTMENT ARE OPPOSITE HAND. PHASE 1 AND PHASE 2 REINFORCEMENT AT PHASE CONSTRUCTION JOINT ARE OPPOSITE HAND FOR REAR ABUTMENT.
4. SLOPE 6" PERFORATED C.P.P. TO OUTLET TOWARDS WING B AT REAR ABUTMENT AND TOWARDS WING A AT FORWARD ABUTMENT. THE NON-OUTLET END OF THE 6" PERFORATED C.P.P. SHALL BE CAPPED.
5. FOR ESTIMATING PURPOSES, IT IS ASSUMED THAT THE PIPE WILL OUTLET 15'-0" BEYOND THE OUTSIDE FACE OF WINGWALL.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301447	

ABUTMENT PLAN AND ELEVATION
BRIDGE NO. LAK-2-1517L
S.R. 2 OVER SANFORD STREET

LAK-2-14.38
PID No. 87924

11 / 17

113
208

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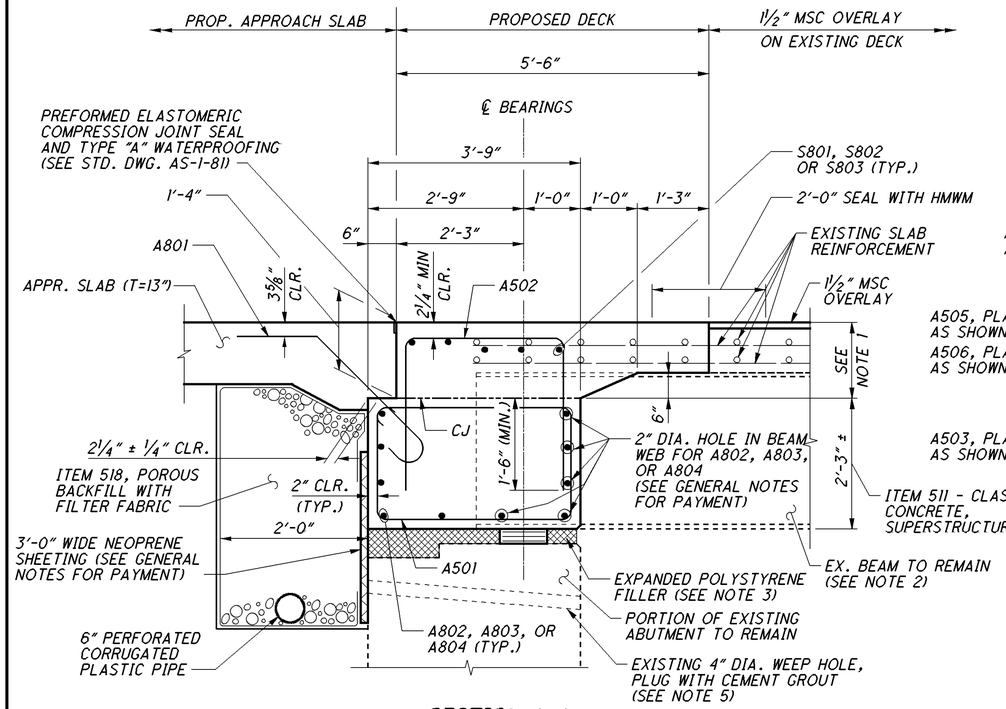
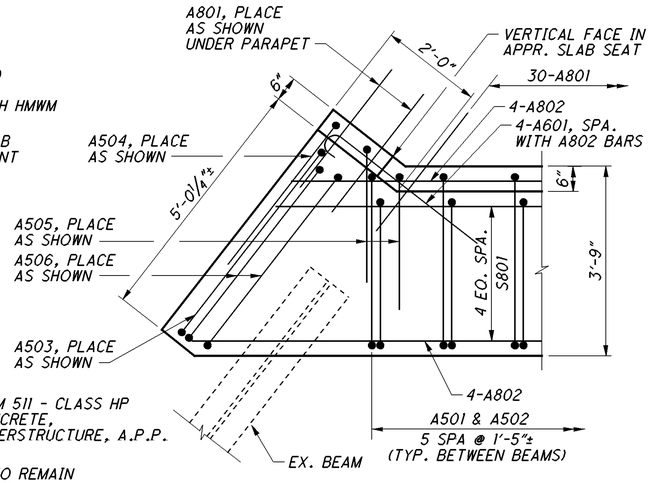


SECTION A-A

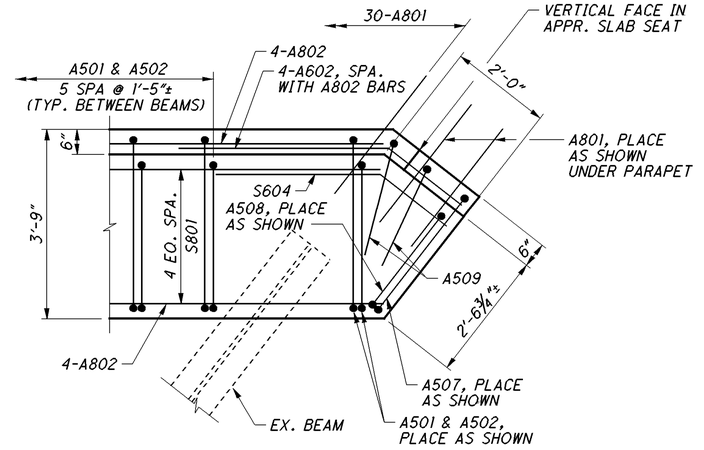
DIMENSIONS SHOWN NORMAL TO ABUTMENT



DETAIL C

DIAPHRAGM END DETAIL

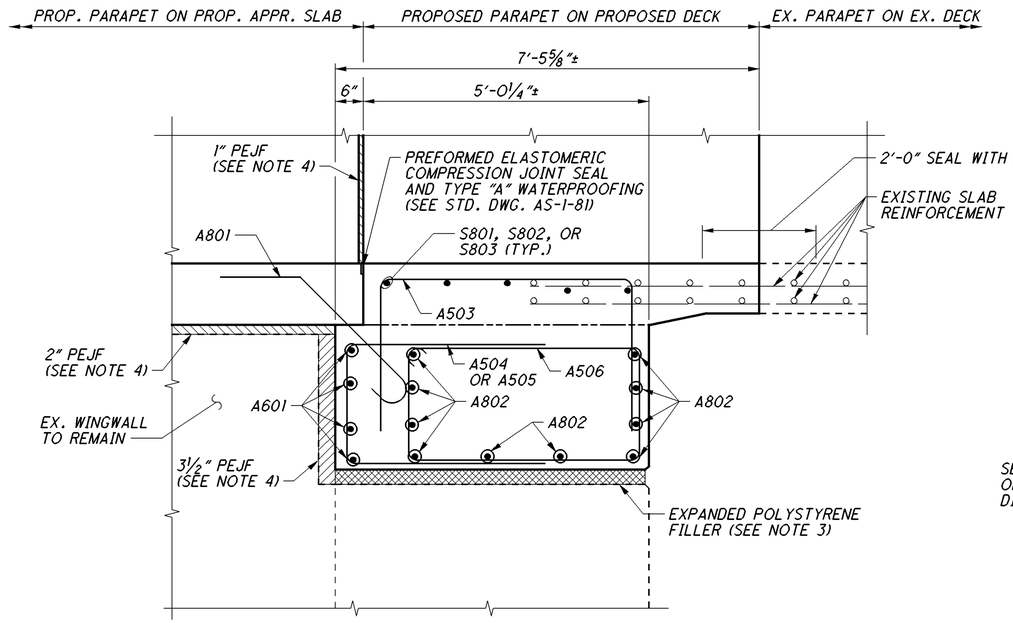
FORWARD ABUTMENT SHOWN, REAR ABUTMENT SIMILAR



DETAIL D

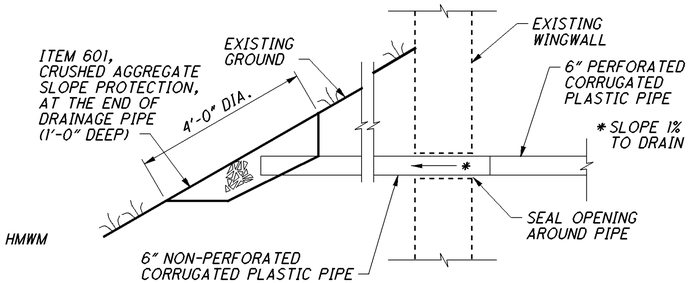
DIAPHRAGM END DETAIL

FORWARD ABUTMENT SHOWN, REAR ABUTMENT SIMILAR



SECTION B-B

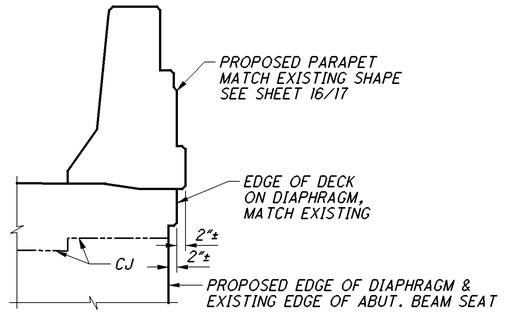
DIMENSIONS SHOWN ALONG EDGE OF DECK



DETAIL E

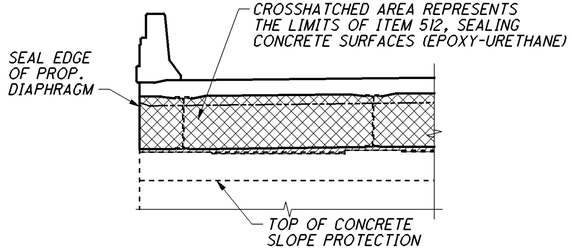
SLOPE PROTECTION DETAIL

TYPICAL EACH DRAIN OUTLET LOCATION



DETAIL F

DIAPHRAGM EDGE DETAIL



ABUTMENT SEALING LIMITS

TYPICAL, EACH ABUTMENT DIAPHRAGM

NOTES:

1. CONCRETE FOR DECK SHALL BE ITEM 511 - CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN.
2. CLEAN AND PAINT ENDS OF EXISTING BEAM FOR A DISTANCE OF 5'-0". PAINT EXISTING BEAMS IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 514. CLEAN AND PAINT ANY EXISTING SCUPPERS AND INTERMEDIATE DIAPHRAGMS WITHIN THESE LIMITS.
3. PLACE EXPANDED POLYSTYRENE FILLER BETWEEN TOP OF EXISTING BEAM SEAT AND BOTTOM OF PROPOSED DIAPHRAGM. TAPER POLYSTYRENE FILLER TO MATCH SLOPE WHERE THE EXISTING BEAM SEAT IS SLOPED BETWEEN BEARING SEAT. PLACE 3" POLYSTYRENE FILLER IN CONSTRUCTION JOINT KEY LOCATED AT THE REMOVED BACKWALL.
4. PREFORMED EXPANSION JOINT FILLERS ARE INCLUDED WITH ITEM 526, REINFORCED CONCRETE APPROACH SLABS (T=13"), AS PER PLAN FOR PAYMENT.
5. CEMENT GROUT SHALL CONSIST OF ONE PART HYDRAULIC CEMENT CONFORMING TO ITEM 701 AND THREE PARTS SAND CONFORMING TO 703.03, BY VOLUME, AND WATER. PAYMENT FOR CEMENT GROUT SHALL BE INCLUDED WITH ITEM 202, PORTIONS OF STRUCTURE REMOVED, AS PER PLAN.
6. SEE SHEET 11 FOR LOCATIONS OF SECTIONS A-A AND B-B.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301447	

ABUTMENT DETAILS
BRIDGE NO. LAK-2-1517L
S.R. 2 OVER SANFORD STREET

LAK-2-14.38
PID No. 87924

12 / 17

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208

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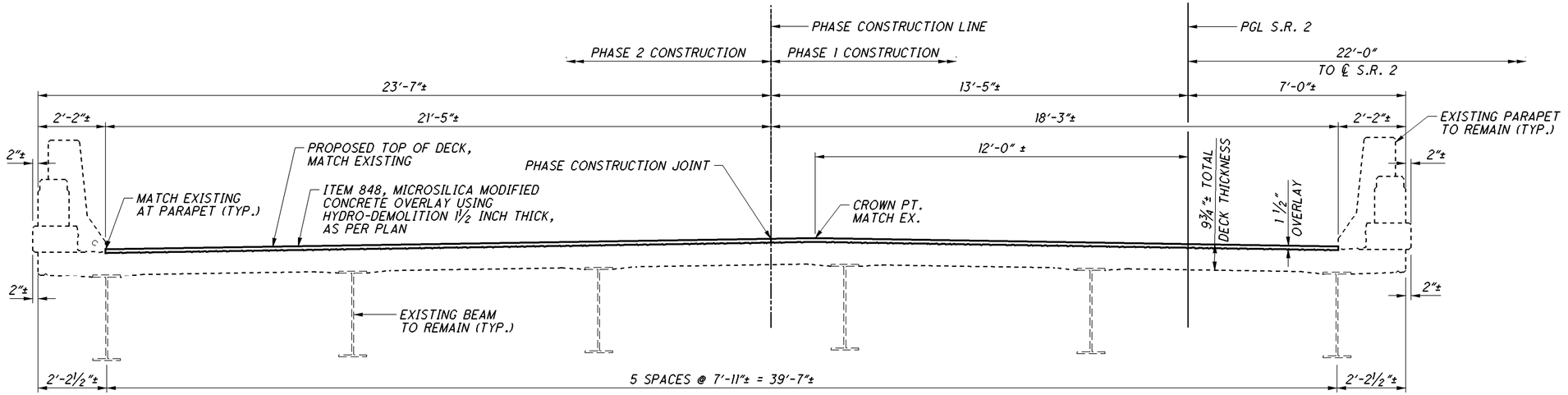
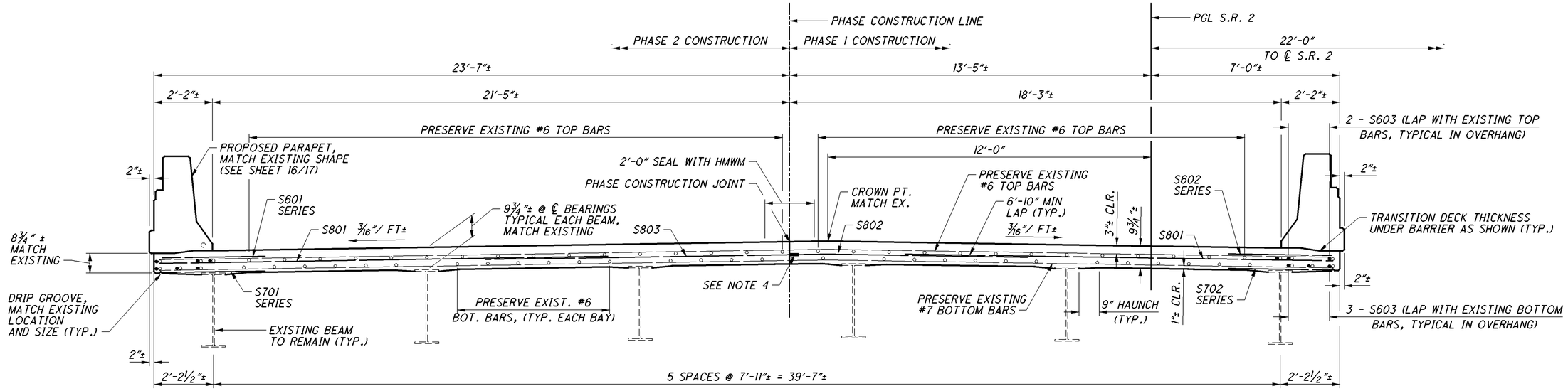


TRANSVERSE SECTION IN SPAN



TRANSVERSE SECTION AT ABUTMENTS

NOTES:

1. TRANSVERSE DIMENSIONS SHOWN ARE APPROXIMATE. IT MAY BE NECESSARY TO VARY THESE DIMENSIONS TO MEET THE PROPOSED APPROACH SLAB AND THE EXISTING DECK.
2. THE ESTIMATED QUANTITY OF DECK SLAB CONCRETE IS BASED ON THE CONSTANT DECK SLAB THICKNESS, AS SHOWN, PLUS THE QUANTITY OF CONCRETE THAT FORMS EACH BEAM HAUNCH. THE ESTIMATE ASSUMES A CONSTANT HAUNCH THICKNESS OF 1 1/16" INCHES AND A CONSTANT HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM FLANGE OF 9 INCHES. DEVIATE FROM THIS HAUNCH THICKNESS AS NECESSARY TO PLACE THE DECK SURFACE AT THE FINISHED GRADE. THE ALLOWABLE TOLERANCE FOR THE HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM FLANGE IS ±3 INCHES.
3. THE HAUNCH THICKNESS WAS MEASURED AT THE CENTERLINE OF THE BEAM, FROM THE SURFACE OF THE DECK TO THE BOTTOM OF THE TOP FLANGE MINUS THE DECK SLAB THICKNESS. THE AREA OF ALL EMBEDDED STEEL PLATES HAS BEEN DEDUCTED FROM THE HAUNCH QUANTITY IN ACCORDANCE WITH 511.24.
4. A MECHANICAL CONNECTOR SHALL BE USED AT THE PHASE CONSTRUCTION JOINT. THE MECHANICAL CONNECTOR SHALL MEET THE REQUIREMENTS OF 509.07. REINFORCING BAR LENGTHS ARE DETAILED TO THE FACE OF JOINT.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

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CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301447	

TRANSVERSE SECTION
BRIDGE NO. LAK-2-1517L
S.R. 2 OVER SANFORD STREET

LAK-2-14.38
PID No. 87924

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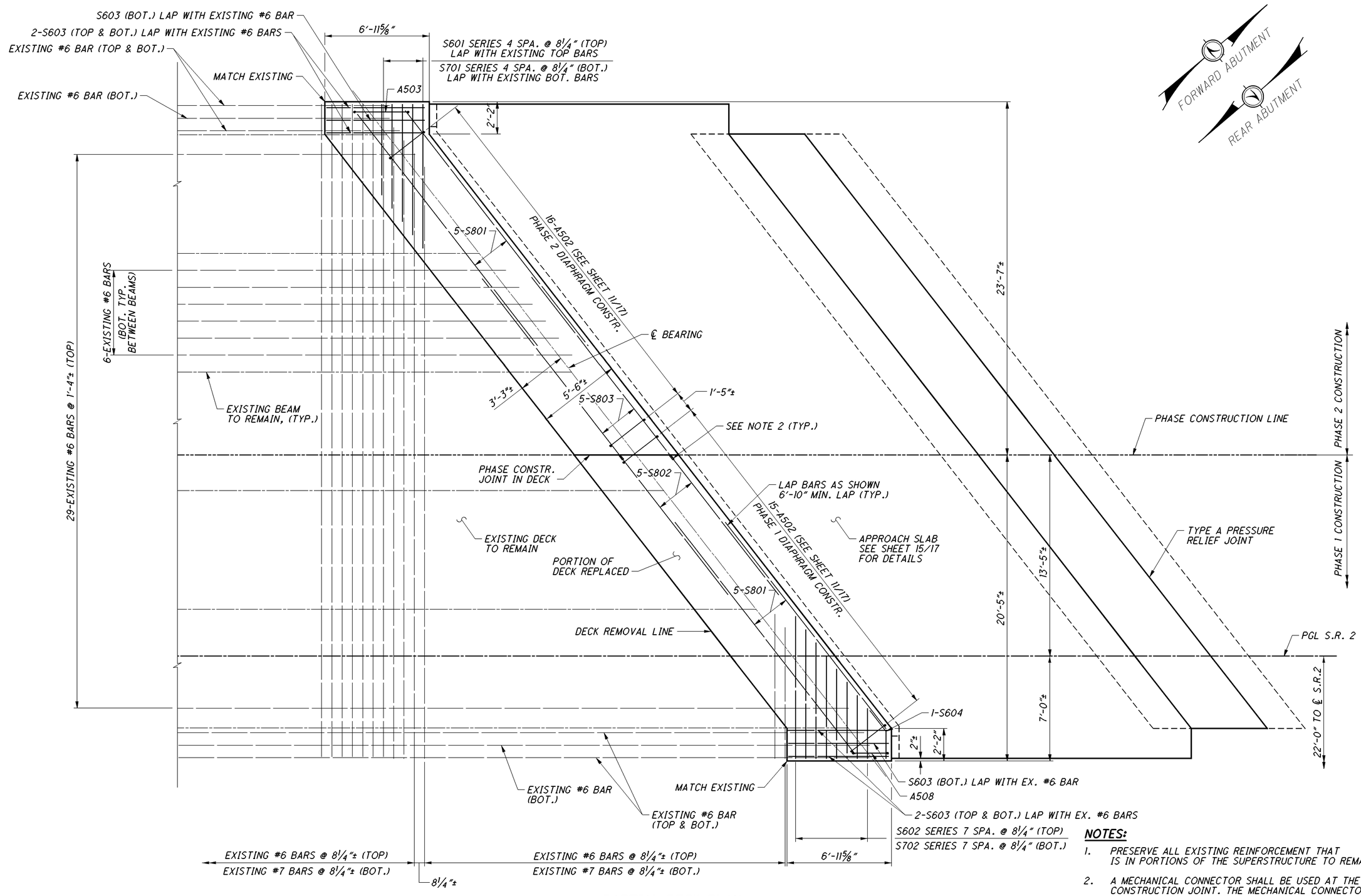

PARTIAL DECK PLAN

SHOWN AT FORWARD ABUTMENT, REAR ABUTMENT SIMILAR
PARAPET NOT SHOWN FOR CLARITY
FOR SECTION THRU ABUTMENT DIAPHRAGM, SEE SHEET 12/17

NOTES:

1. PRESERVE ALL EXISTING REINFORCEMENT THAT IS IN PORTIONS OF THE SUPERSTRUCTURE TO REMAIN.
2. A MECHANICAL CONNECTOR SHALL BE USED AT THE PHASE CONSTRUCTION JOINT. THE MECHANICAL CONNECTOR SHALL MEET THE REQUIREMENTS OF 509.07. REINFORCING BAR LENGTHS ARE DETAILED TO THE FACE OF JOINT.
3. FOR PRESSURE RELIEF JOINT DETAILS, SEE STANDARD DRAWING BP-2.3.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
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CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301447	

PARTIAL DECK PLAN
BRIDGE NO. LAK-2-1517L
S.R. 2 OVER SANFORD STREET

LAK-2-14.38
PID No. 87924

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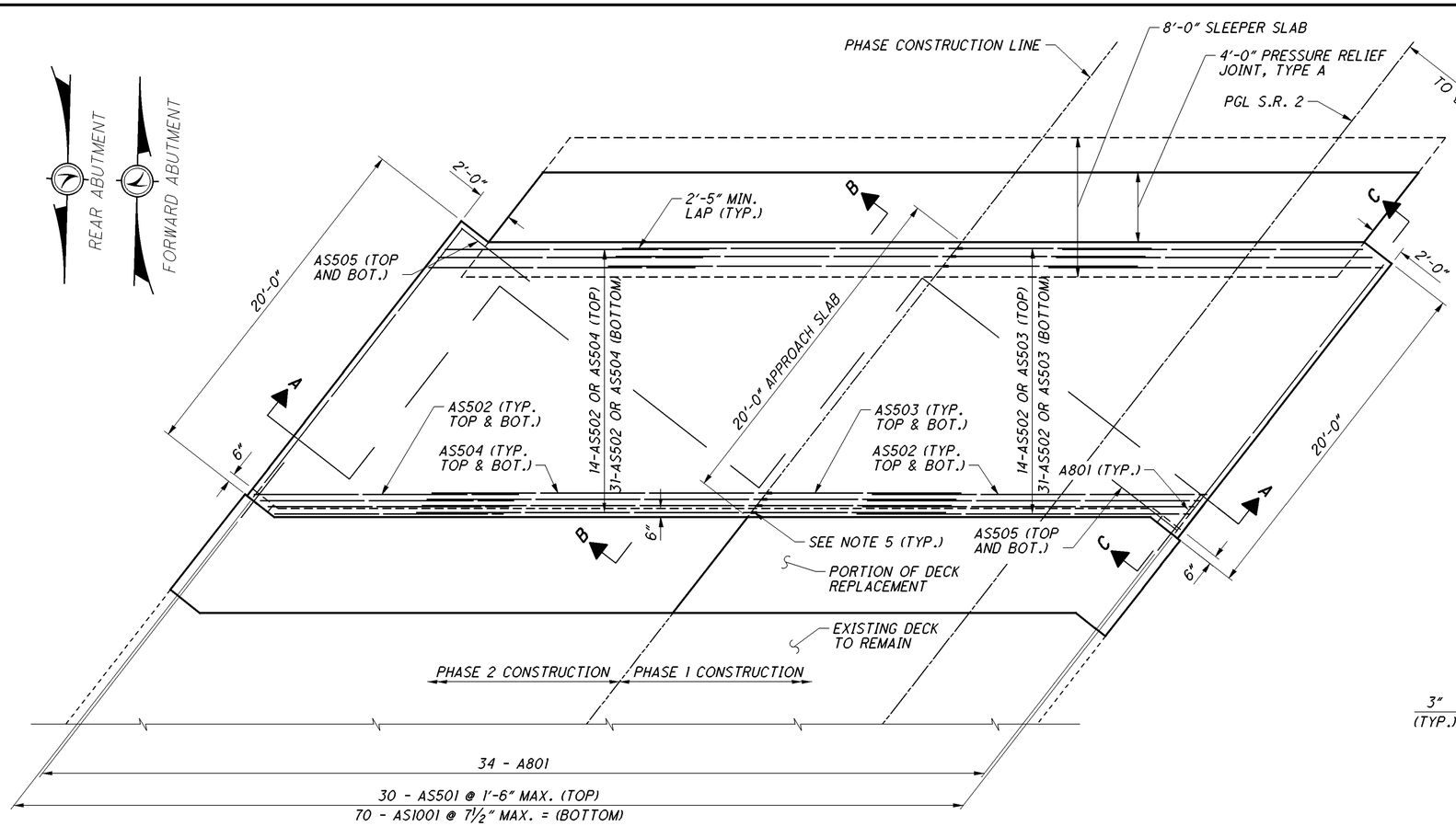
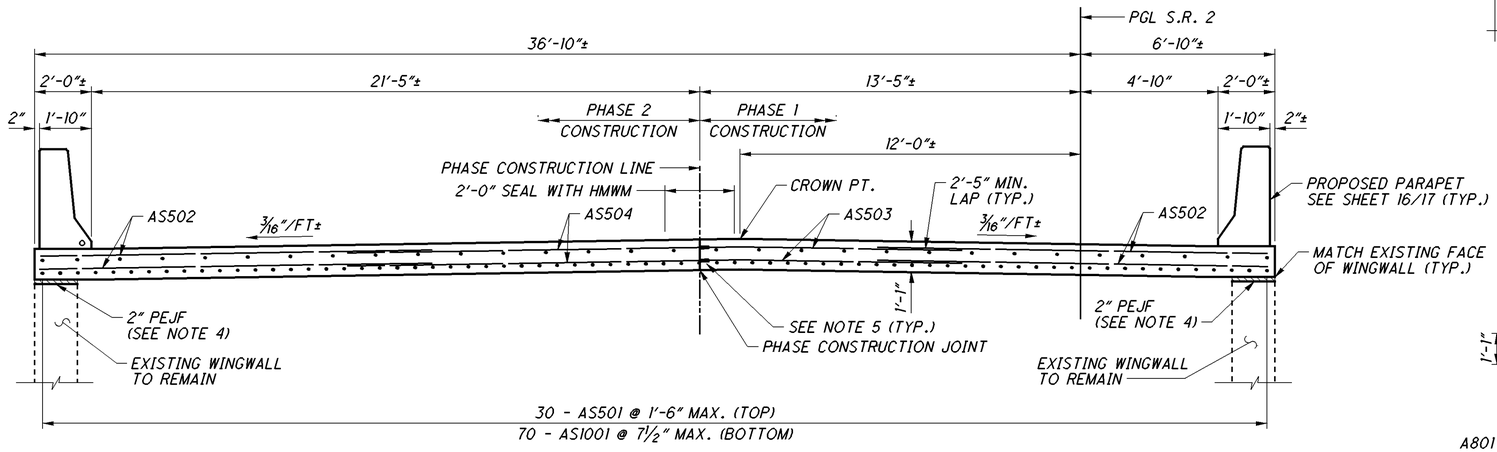


PLAN

(FORWARD APPROACH SHOWN, REAR APPROACH SIMILAR)
EXISTING AND PROPOSED PARAPET NOT SHOWN FOR CLARITY

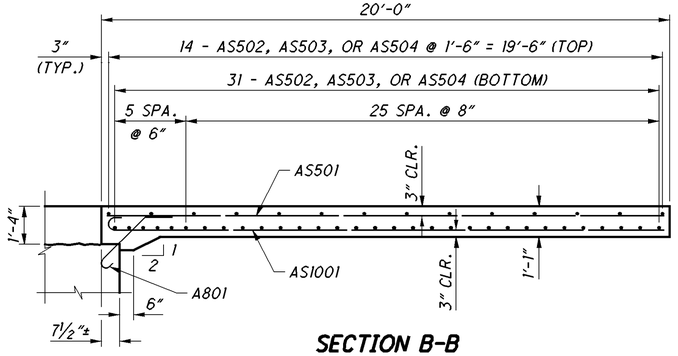


SECTION A-A

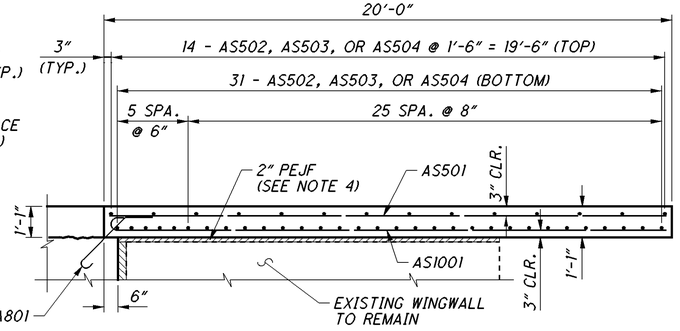
(LOOKING AHEAD STATION)

NOTES:

1. SEE STANDARD DRAWING AS-1-81 FOR ADDITIONAL DETAILS.
2. AS502, AS503, AS504 BARS SHALL BE PLACED PARALLEL TO THE ABUTMENT AND AS501, AS1001 BARS SHALL BE PLACED PLACED PARALLEL TO PGL S.R. 2.
3. FOR DETAILS OF PARAPET ON APPROACH SLAB, SEE SHEET 16/17.
4. THE FOLLOWING SHALL BE INCLUDED IN THE UNIT BID PRICE PER SQUARE YARD FOR ITEM 526, REINFORCED CONCRETE APPROACH SLABS (T=13"), AS PER PLAN:
   - CONCRETE FOR APPROACH SLAB
   - ALL ASSOCIATED REINFORCING STEEL
   - ALL PREFORMED EXPANSION JOINT FILLERS AND JOINT SEALERS
   - WATERPROOFING
   - CONCRETE SEALING OF PARAPET ON APPROACH SLAB
5. A MECHANICAL CONNECTOR SHALL BE USED AT THE PHASE CONSTRUCTION JOINT. THE MECHANICAL CONNECTOR SHALL MEET THE REQUIREMENTS OF 509.07. REINFORCING BAR LENGTHS ARE DETAILED TO THE FACE OF JOINT.
6. PRESSURE RELIEF JOINT, TYPE A AND SLEEPER SLAB SHALL BE INCLUDED IN THE UNIT BID PRICE PER FOOT FOR ITEM SPECIAL, PRESSURE RELIEF JOINT, TYPE A. FOR PRESSURE RELIEF JOINT DETAILS, SEE STANDARD DRAWING BP-2.3.



SECTION B-B



SECTION C-C

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
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JTC		4301447	

APPROACH SLAB PLAN AND DETAILS
BRIDGE NO. LAK-2-1517L
S.R. 2 OVER SANFORD STREET

LAK-2-14.38
PID No. 87924

15 / 17

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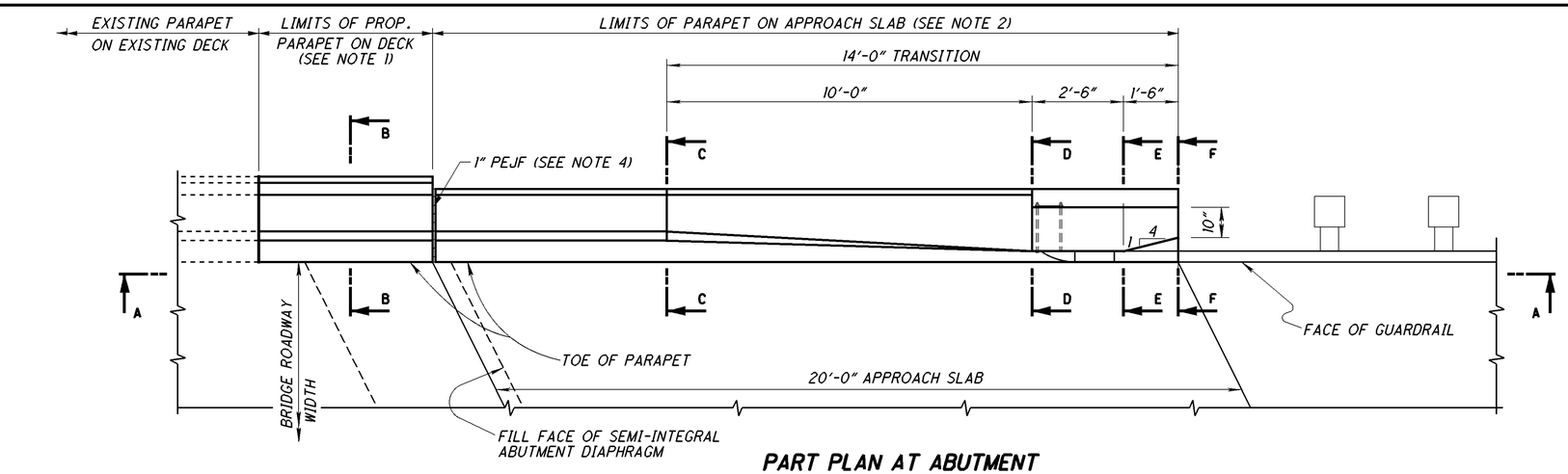
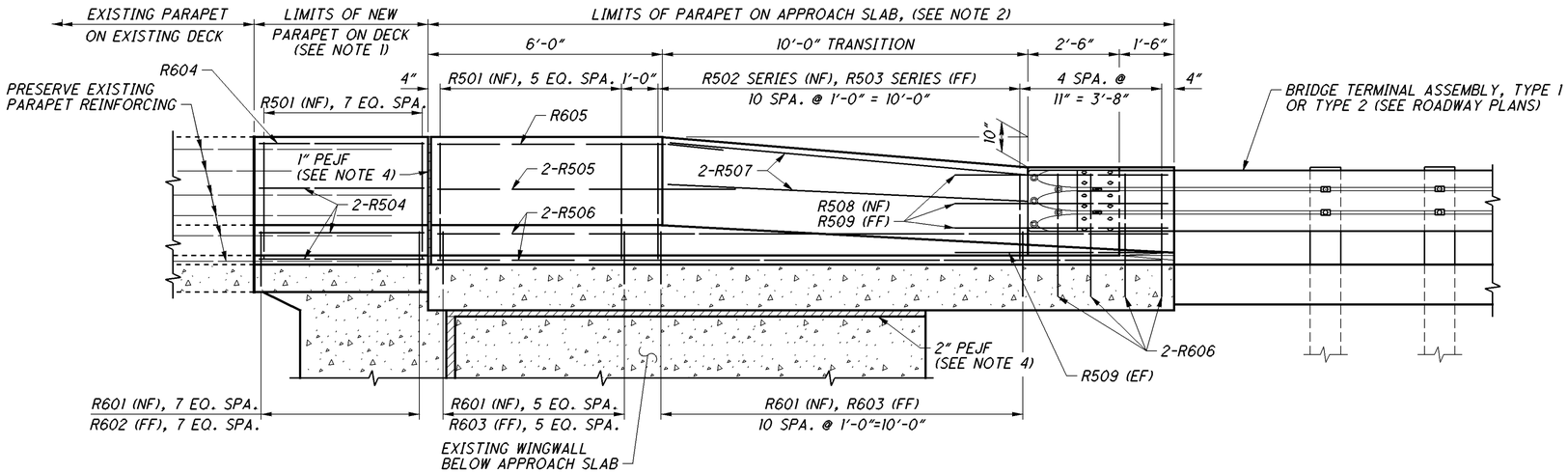
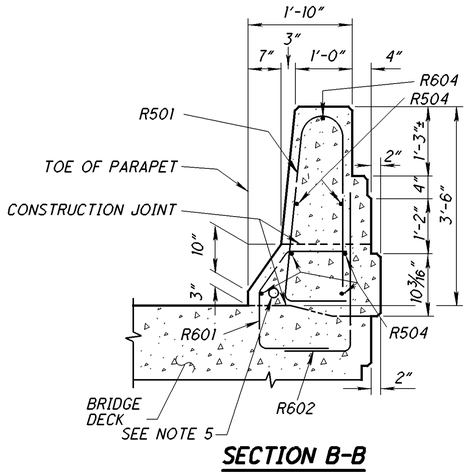


PART PLAN AT ABUTMENT

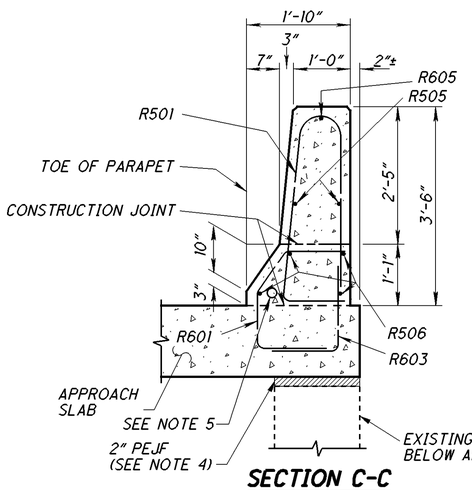


SECTION A-A

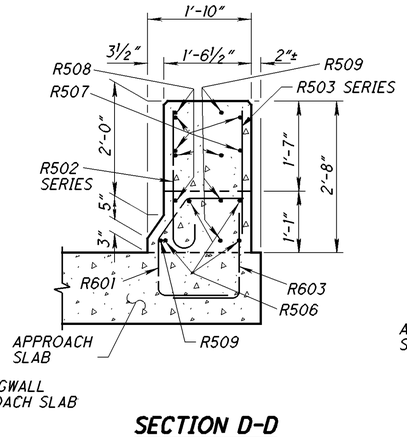


SECTION B-B

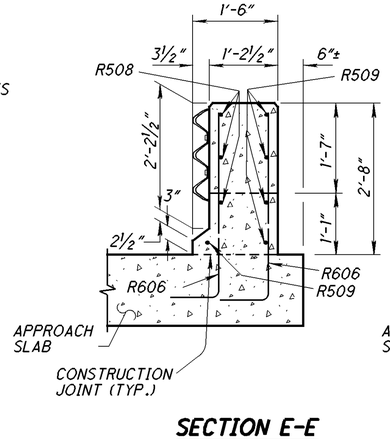
MATCH EXISTING PARAPET SHAPE
FIELD BEND BARS IF NECESSARY



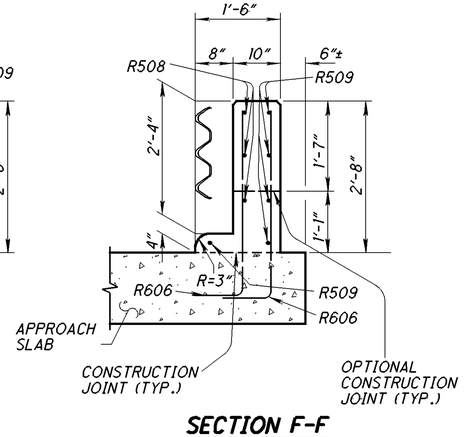
SECTION C-C



SECTION D-D



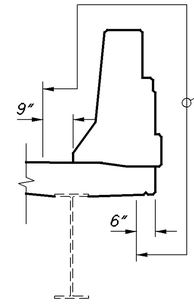
SECTION E-E



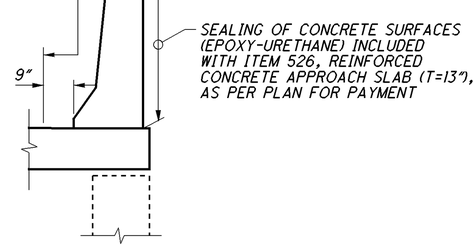
SECTION F-F

NOTES:

1. PARAPET CONCRETE INCLUDED WITH ITEM 511, CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN FOR PAYMENT. PARAPET REINFORCING INCLUDED WITH ITEM 509, EPOXY COATED REINFORCING STEEL, AS PER PLAN.
2. PARAPET CONCRETE AND REINFORCING INCLUDED WITH ITEM 526, REINFORCED CONCRETE APPROACH SLABS (T=13"), AS PER PLAN FOR PAYMENT.
3. FOR PARAPET REINFORCING LIST, SEE SHEET 17/17.
4. PREFORMED EXPANSION JOINT FILLERS INCLUDED WITH ITEM 526, REINFORCED CONCRETE APPROACH SLABS (T=13") AS PER PLAN FOR PAYMENT.
5. NEW CONDUIT IN OUTSIDE PARAPET ONLY.



PARAPET ON DECK



PARAPET ON APPROACH SLAB

CONCRETE SEALING DETAILS

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301447	

PARAPET DETAILS
BRIDGE NO. LAK-2-1517L
S.R. 2 OVER SANFORD STREET

LAK-2-14.38
PID No. 87924

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SUPERSTRUCTURE - ABUTMENT DIAPHRAGM

MARK	QUANTITY REAR ABUT.	QUANTITY FWD. ABUT.	QUANTITY TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
A501	31	31	62	11'-3"	728	3	3'-5"	1'-11"					
A502	31	31	62	8'-0"	518	2	2'-8"	2'-11"	2'-8"				
A503	1	1	2	9'-9"	21	2	2'-8"	4'-8"	2'-8"				
A504	1	1	2	9'-8"	21	2	4'-0"	1'-11"	4'-0"				
A505	2	2	4	7'-8"	32	2	3'-0"	1'-11"	3'-0"				
A506	2	2	4	13'-1"	56	3	4'-4"	1'-11"					
A507	1	1	2	9'-9"	21	3	2'-8"	1'-11"					
A508	1	1	2	7'-3"	16	2	2'-8"	2'-2"	2'-8"				
A509	2	2	4	6'-8"	28	2	2'-6"	1'-11"	2'-6"				
A601	4	4	8	5'-10"	70	16	5'-2"						
A602	4	4	8	5'-4"	64	19	3'-6"	1'-5½"	1'-1½"				
A801	34	34	68	5'-4"	969	18	3'-0"	1'-0"	1'-0"				
A802	20	20	40	20'-10"	2225	STR							
A803	10	10	20	12'-8"	677	35							
A804	10	10	20	15'-1"	806	36							
				SUB-TOTAL	6252								

SUPERSTRUCTURE - DECK

MARK	QUANTITY REAR ABUT.	QUANTITY FWD. ABUT.	QUANTITY TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
S601	1 SERIES OF 5	1 SERIES OF 5	2 SERIES OF 5	6'-6" TO 10'-0"	124	29	5	6'-6'	10'-0"				10½"
S602	1 SERIES OF 8	1 SERIES OF 8	2 SERIES OF 8	3'-10" TO 10'-0"	167	29	8	3'-10"	10'-0"				10½"
S603	10	10	20	6'-7"	198	STR							
S604	1	1	2	5'-4"	16	19	3'-6"	1'-5½"	1'-1½"				
S701	1 SERIES OF 5	1 SERIES OF 5	2 SERIES OF 5	6'-6" TO 10'-0"	169	29	5	6'-6"	10'-0"				10½"
S702	1 SERIES OF 8	1 SERIES OF 8	2 SERIES OF 8	3'-10" TO 10'-0"	227	29	8	3'-10"	10'-0"				10½"
S801	10	10	20	21'-1"	1126	STR							
S802	5	5	10	11'-6"	308	35							
S803	5	5	10	15'-6"	414	36							
				SUB-TOTAL	2749								

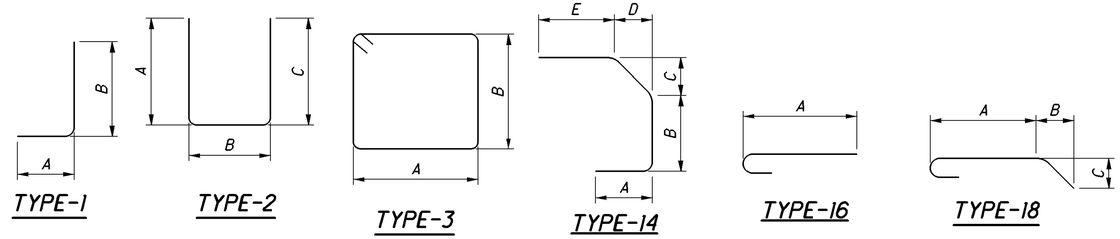
SUPERSTRUCTURE - PARAPET

MARK	QUANTITY REAR ABUT.	QUANTITY FWD. ABUT.	QUANTITY TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
R501	16	16	32	7'-6"	251	23	1'-0"	3'-3"	3'-0"			3¾"	
R504	12	12	24	6'-7"	165	STR							
R601	16	16	32	3'-4"	161	14	1'-2½"	8"	8½"	6"	11"		
R602	16	16	32	3'-4"	161	1	11"	2'-7"					
R604	2	2	4	6'-7"	40	STR							
				SUB-TOTAL	778								

APPROACH SLAB*

MARK	QUANTITY REAR ABUT.	QUANTITY FWD. ABUT.	QUANTITY TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
AS501	30	30	60	19'-6"	1221	STR							
AS502	90	90	180	20'-0"	3755	STR							
AS503	45	45	90	7'-11"	744	35							
AS504	45	45	90	11'-11"	1119	36							
AS505	4	4	8	5'-0"	42	STR							
AS1001	70	70	140	20'-11"	12601	16	19'-6"						
R501	12	12	24	7'-6"	188	23	1'-0"	3'-3"	3'-0"			3¾"	
R502	2 SERIES OF 11	2 SERIES OF 11	4 SERIES OF 11	3'-0" TO 3'-10"	157	30	11	2'-5"	3'-3"				1"
R503	2 SERIES OF 11	2 SERIES OF 11	4 SERIES OF 11	2'-5" TO 3'-3"	130	29	11	2'-5"	3'-3"				1"
R505	4	4	8	7'-10"	66	STR							
R506	8	8	16	15'-8"	262	STR							
R507	8	8	16	10'-0"	167	STR							
R508	6	6	12	5'-8"	71	25	1'-10"	2'-5"	1'-4¼"	1½"	5"		
R509	10	10	20	5'-8"	119	STR							
R601	34	34	68	3'-4"	340	14	1'-2½"	8"	8½"	6"	11"		
R603	34	34	68	2'-4"	239	1	11"	1'-7"					
R605	2	2	4	8'-3"	50	STR							
R606	16	16	32	4'-0"	193	1	11"	3'-3"					
				SUB-TOTAL	21464								

* BARS SHOWN FOR INFORMATIONAL PURPOSES ONLY. BARS ARE INCLUDED WITH APPROACH SLAB ITEM FOR PAYMENT.



NOTES:

1. THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT WHERE THREE DIGITS ARE USED AND THE FIRST TWO WHERE FOUR DIGIT ARE USED, INDICATES THE BAR SIZE NUMBER.
2. ALL DIMENSIONS ARE MEASURED OUT-TO-OUT OF BAR UNLESS NOTED OTHERWISE.
3. FOR STANDARD HOOK DIMENSIONS, SEE SECTION 509.05 OF THE SPECIFICATIONS.
4. ALL REINFORCING STEEL TO BE EPOXY COATED.
5. PAYMENT FOR REINFORCING STEEL SHALL BE INCLUDED IN THE CONTRACT BID PRICE FOR ITEM 509, EPOXY COATED REINFORCING STEEL, AS PER PLAN.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED BKS | DRAWN TEK | CHECKED JTC | REVIEWED SCJ | DATE 9/10 | REVISED | STRUCTURE FILE NUMBER 4301447

REINFORCING STEEL LIST

BRIDGE NO. LAK-2-1517L
S.R. 2 OVER SANFORD STREET

LAK-2-14.38
PID No. 87924

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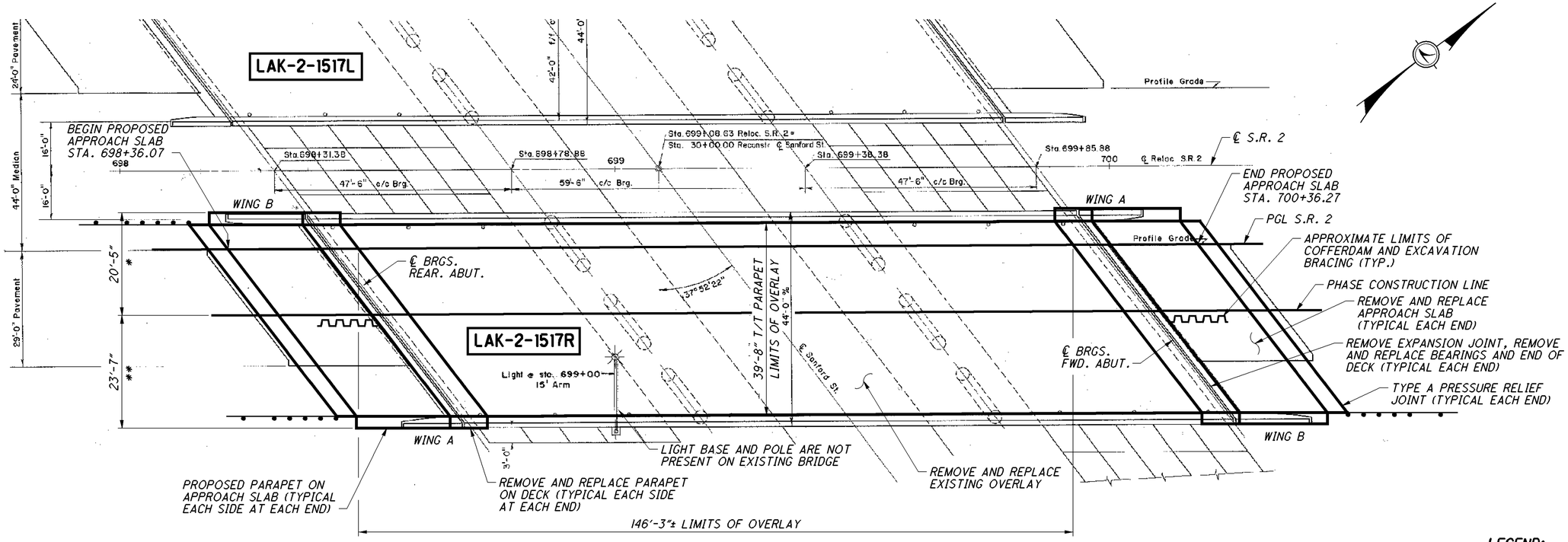
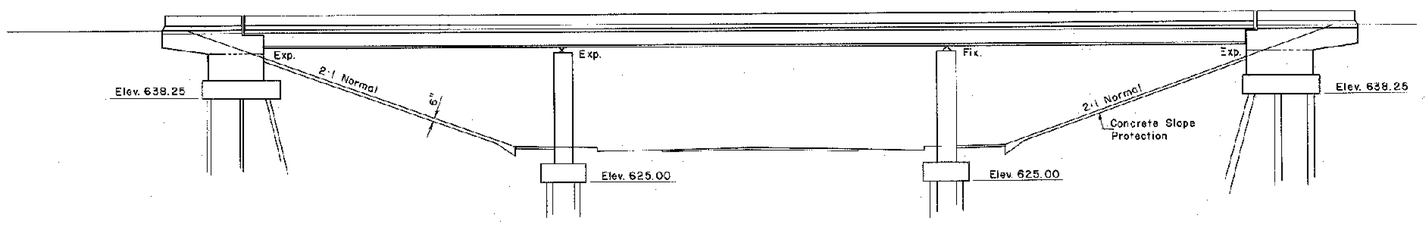


PLAN

LEGEND:

* = PHASE 1 CONSTRUCTION
** = PHASE 2 CONSTRUCTION



ELEVATION

P.V.I. Sta 699+25
Elev. 650.53
L.V.C.= 725'
M.O.= 1.251'

+0.58% −0.80%

NOTE:

PLANS OF EXISTING STRUCTURES ARE AVAILABLE FOR EXAMINATION AT THE OHIO DEPARTMENT OF TRANSPORTATION, DISTRICT 12 OFFICE, 5500 TRANSPORTATION BLVD. GARFIELD HEIGHTS, OHIO 44125.

EXISTING STRUCTURE

TYPE: 3-SPAN CONTINUOUS NON-COMPOSITE ROLLED STEEL BEAMS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURES
SPANS: 47'-6", 59'-6", 47'-6"
ROADWAY: 39'-8"± T/T PARAPET
LOADING: HS-20-44
SKEW: 37° 52' 22" R.F.
APPROACH SLABS: 25'-0"± LONG
EXISTING WEARING SURFACE: LATEX MODIFIED CONCRETE
ALIGNMENT: TANGENT
CROWN: 0.0156 FT/FT
STRUCTURAL FILE NUMBER: 4301471
DATE BUILT: 1963

PROPOSED STRUCTURE

PROPOSED WORK: REPLACE SLAB ENDS WITH MODIFIED SEMI-INTERGRAL ABUTMENT, APPROACH SLAB, AND OVERLAY
TYPE: 3-SPAN CONTINUOUS NON-COMPOSITE ROLLED STEEL BEAMS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURES
SPANS: 47'-6", 59'-6", 47'-6"
ROADWAY: 39'-8"± T/T PARAPET
LOADING: HS-20-44
SKEW: 37° 52' 22" R.F.
APPROACH SLABS: STD. AS-1-81 20'-0" LONG (MODIFIED)
PROPOSED WEARING SURFACE: MICRO SILICA MODIFIED CONCRETE
ALIGNMENT: TANGENT
CROWN: 0.0156 FT/FT

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301471	

SITE PLAN
BRIDGE NO. LAK-2-1517R
S.R. 2 OVER SANFORD STREET

LAK-2-14.38
PID No. 87924

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GENERAL NOTES

REFER TO THE FOLLOWING STANDARD BRIDGE DRAWINGS:

AS-1-81	REVISED	07-19-02
SICD-1-96	REVISED	07-19-02
PCB-91	REVISED	07-19-02

AND TO THE FOLLOWING SUPPLEMENTAL SPECIFICATIONS:

843	DATED	04-18-03
848	DATED	04-16-10

DESIGN SPECIFICATIONS: THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO), 2002, AND THE 2004 ODOT BRIDGE DESIGN MANUAL.

DESIGN LOADING: HS-20 AND THE ALTERNATE MILITARY LOADING.

DESIGN DATA:

CONCRETE CLASS HP - COMPRESSIVE STRENGTH 4.5 KSI (DECK, ABUTMENTS DIAPHRAGMS, PARAPETS, AND APPROACH SLABS)
REINFORCING STEEL - MINIMUM YIELD STRENGTH 60 KSI
STRUCTURAL STEEL - ASTM A709 GRADE 50W - YIELD STRENGTH 50 KSI

DECK PROTECTION METHOD: EPOXY COATED REINFORCING STEEL, 2½" CONCRETE COVER, MODIFIED MICRO SILICA CONCRETE OVERLAY.

MONOLITHIC WEARING SURFACE: IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1" THICK.

EXISTING STRUCTURE VERIFICATION: DETAILS AND DIMENSIONS SHOWN ON 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 513.04.

BASE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS THAT HAVE BEEN VERIFIED IN THE FIELD.

MAINTENANCE OF TRAFFIC

PROPOSED WORK:
IN GENERAL, THE PROPOSED WORK FOR THE S.R. 2 BRIDGE OVER SANFORD STREET SHALL CONSIST OF THE REMOVAL AND REPLACEMENT OF THE EXISTING LATEX MODIFIED CONCRETE OVERLAY AND REMOVAL OF THE EXISTING EXPANSION JOINTS AND ABUTMENT BACKWALLS AND REPLACE WITH SEMI-INTEGRAL ABUTMENT DIAPHRAGMS. REMOVAL AND CONSTRUCTION OPERATIONS ARE TO BE PERFORMED WHILE MAINTAINING ONE LANE OF EASTBOUND TRAFFIC ON S.R. 2. THE MAJOR ITEMS OF WORK REQUIRING PHASED CONSTRUCTION ARE DESCRIBED BELOW. SOME PROJECT WORK ITEMS, SUCH AS SEALING OF CONCRETE SURFACES, MAY BE PERFORMED AT THE CONTRACTOR'S DISCRETION DURING THE CONTRACT SCHEDULE PERIOD; HOWEVER, THE PERFORMANCE OF ALL WORK MUST BE COORDINATED TO SATISFY MAINTENANCE OF TRAFFIC AND SAFETY REQUIREMENTS.SEE M.O.T. PLANS FOR ADDITIONAL MAINTENANCE OF TRAFFIC REQUIREMENTS.

PHASE 1 CONSTRUCTION:
1. INSTALL PORTABLE CONCRETE BARRIER ON THE EXISTING SANFORD STREET BRIDGE AND APPROACHES. ROUTE TRAFFIC ACROSS THE BRIDGE ACCORDING TO THE MAINTENANCE OF TRAFFIC PLANS.
2. CONSTRUCT TEMPORARY EXCAVATION SUPPORTS ALONG THE PHASE REMOVAL LINE AT THE REAR AND FORWARD ABUTMENTS AS SHOWN IN THE PLANS.
3. ON THE NORTHERNMOST PORTION OF THE EXISTING BRIDGE, REMOVE THE EXISTING OVERLAY, PORTION OF DECK/PARAPET AT THE ABUTMENTS, APPROACH SLABS, EXPANSION JOINTS, END CROSSFRAMES, AND ABUTMENT BACKWALLS IN ACCORDANCE WITH 202.03 AND PLAN REQUIREMENTS.
4. CLEAN AND PAINT ENDS OF THE THREE NORTHERNMOST EXISTING BEAMS. DRILL 2" DIAMETER HOLES THROUGH EXISTING BEAM WEBS FOR LONGITUDINAL ABUTMENT DIAPHRAGM REINFORCING.
5. CONSTRUCT NORTHERNMOST REINFORCED CONCRETE SEMI-INTEGRAL ABUTMENT DIAPHRAGM, WINGWALL, DECK, PARAPET, AND APPROACH SLAB AT THE REAR AND FORWARD ABUTMENTS.

PHASE 2 CONSTRUCTION:
1. INSTALL PORTABLE CONCRETE BARRIER ON COMPLETED PHASE 1 PORTION OF THE BRIDGE AS SHOWN ON BRIDGE AND MAINTENANCE OF TRAFFIC PLANS. ROUTE TRAFFIC ONTO COMPLETED PHASE 1 PORTION OF THE BRIDGE.
2. REMOVE THE REMAINING PORTIONS OF THE EXISTING OVERLAY, DECK/PARAPET AT ABUTMENTS, APPROACH SLABS, EXPANSION JOINTS, END CROSSFRAMES, AND ABUTMENT BACKWALLS IN ACCORDANCE WITH 202.03 AND PLAN REQUIREMENTS.
3. CLEAN AND PAINT ENDS OF THE THREE SOUTHERNMOST EXISTING BEAMS. DRILL 2" DIAMETER HOLES THROUGH EXISTING BEAM WEBS FOR LONGITUDINAL ABUTMENT DIAPHRAGM REINFORCING.
4. CONSTRUCT SOUTHERNMOST REINFORCED CONCRETE SEMI-INTEGRAL ABUTMENT DIAPHRAGM, WINGWALL, DECK, PARAPET, AND APPROACH SLAB AT THE REAR AND FORWARD ABUTMENTS.
5. REMOVE PORTABLE CONCRETE BARRIER AND ROUTE TRAFFIC ONTO COMPLETED BRIDGE ACCORDING TO MAINTENANCE OF TRAFFIC PLANS.

ITEM 202, PORTIONS OF STRUCTURE REMOVED AS PER PLAN:

DESCRIPTION: THIS WORK CONSISTS OF THE REMOVAL OF THE CONCRETE DECK, PARAPETS, EXPANSION JOINTS, BEARINGS, AND OTHER APPURTENANCES FROM SUPPORTING SYSTEMS AS SHOWN IN THE PLANS. THIS WORK SHALL ALSO INCLUDE THE REMOVAL OF THE ABUTMENT BACKWALLS IN ACCORDANCE WITH THE DETAILS SHOWN IN THE PLANS. ADDITIONAL CONCRETE REMOVAL MAY BE REQUIRED IF UNSOUND OR DETERIORATED CONCRETE IS ENCOUNTERED BEYOND THE PLAN CUT LINES. THE CONTRACTOR SHALL REMOVE ANY UNSOUND OR DETERIORATED CONCRETE BEYOND THE PLAN CUT LINE AS DIRECTED BY THE ENGINEER. PERFORM WORK

ITEM 202, PORTIONS OF STRUCTURE REMOVED AS PER PLAN, (CONTINUED):

CAREFULLY DURING DECK REMOVALS TO PROTECT PORTIONS OF THE EXISTING STEEL SUPPORTING SYSTEM THAT ARE TO BE SALVAGED AND INCORPORATED INTO THE PROPOSED STRUCTURE. THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE RAM TYPE OF EQUIPMENT IS PROHIBITED. SUBMIT CONSTRUCTION PLANS ACCORDING TO CMS 501.05.

PROTECTION OF TRAFFIC: PRIOR TO DEMOLITION OF ANY PORTIONS OF THE EXISTING SUPERSTRUCTURE, THE CONTRACTOR SHALL SUBMIT PLANS FOR THE PROTECTION OF TRAFFIC (VEHICULAR, 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 ENSURE 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, DRAW THE OUTLINE OF THE PRIMARY STEEL MEMBERS IN CONTACT WITH THE BOTTOM OF THE DECK ON THE SURFACE OF THE DECK. DRILL SMALL DIAMETER PILOT HOLES 2 INCHES OUTSIDE THESE LINES TO CONFIRM THE LOCATION OF FLANGE EDGES. DECK CUTS OVER OR WITHIN 2" OF FLANGE EDGES SHALL NOT EXTEND LOWER THAN THE BOTTOM LAYER OF DECK SLAB REINFORCING STEEL. CUTS MADE OUTSIDE 2 INCHES OF FLANGE EDGES MAY EXTEND THE FULL DEPTH OF THE DECK. PERFORM WORK CAREFULLY DURING CUTTING OF THE DECK SLAB TO AVOID DAMAGING STEEL MEMBERS THAT ARE TO BE INCORPORATED INTO THE PROPOSED STRUCTURE. REPLACE OR REPAIR STEEL MEMBERS DAMAGED BY THE DECK SLAB CUTTING OPERATIONS AT NO COST TO THE PROJECT. AT LEAST 7 DAYS BEFORE PERFORMING REPAIR WORK, SUBMIT A PROPOSED REPAIR PLAN, DEVELOPED BY AN OHIO REGISTERED PROFESSIONAL ENGINEER TO THE DIRECTOR. OBTAIN THE DIRECTOR'S APPROVAL BEFORE PERFORMING REPAIR.

REMOVAL METHODS: THE CONTRACTOR MAY REMOVE CONCRETE BY CUTTING AND BY MEANS OF HAND OPERATED PNEUMATIC HAMMERS EMPLOYING POINTED OR BLUNTED CHISEL TYPE TOOLS. FOR REMOVALS OVER STRUCTURAL MEMBERS, THE CONTRACTOR MAY USE A HAMMER HEAVIER THAN 35 POUNDS BUT NOT TO EXCEED 90 POUNDS UNLESS APPROVED BY THE ENGINEER. REMOVAL METHODS OVER STRUCTURAL MEMBERS SHALL ENSURE ADEQUATE DEPTH CONTROL AND PREVENT NICKING OR GOUGING THE PRIMARY STRUCTURAL MEMBERS.

SUBSTRUCTURE CONCRETE REMOVAL: REMOVE CONCRETE 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 35 POUNDS FOR REMOVAL WITHIN 18 INCHES OF PORTIONS TO BE PRESERVED. OUTSIDE THE 18 INCH LIMIT, THE CONTRACTOR MAY USE HAMMERS NOT EXCEEDING 90 POUNDS UPON THE APPROVAL OF THE ENGINEER. DO NOT PLACE PNEUMATIC HAMMERS IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE.

CUT LINE CONSTRUCTION JOINT PREPARATION: SAW CUT BOUNDARIES OF PROPOSED CONCRETE REMOVALS 1 INCH DEEP. REMOVE CONCRETE TO A ROUGH SURFACE. LEAVE THE EXISTING REINFORCING STEEL, IF REQUIRED IN THE PLANS, IN PLACE. INSTALL DOWEL BARS IF SPECIFIED. PRIOR TO CONCRETE PLACEMENT ABRASIVELY CLEAN JOINT SURFACES AND EXISTING EXPOSED REINFORCEMENT TO REMOVE LOOSE AND DISINTEGRATED CONCRETE AND LOOSE RUST. THOROUGHLY CLEAN THE JOINT SURFACE AND EXPOSED REINFORCEMENT OF ALL DIRT, DUST, RUST, OR OTHER FOREIGN MATERIAL BY THE USE OF WATER, AIR UNDER PRESSURE, OR OTHER METHODS THAT PRODUCE SATISFACTORY RESULTS. EXISTING REINFORCING STEEL DOES NOT HAVE TO HAVE A BRIGHT STEEL FINISH, BUT REMOVE ALL PACK AND LOOSE RUST. THOROUGHLY DRENCH EXISTING CONCRETE SURFACES WITH CLEAN WATER AND ALLOW TO DRY TO A DAMP CONDITION BEFORE PLACING CONCRETE.

MEASUREMENT AND PAYOUT: THE DEPARTMENT WILL MEASURE THE QUANTITY OF REMOVAL ON A LUMP SUM BASIS. THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES OF REMOVALS AT THE CONTRACT PRICE FOR ITEM 202, PORTIONS OF STRUCTURE REMOVED, AS PER PLAN.

ITEM 202, APPROACH SLAB REMOVED, AS PER PLAN: THIS WORK CONSISTS OF REMOVING THE EXISTING APPROACH SLABS INCLUDING ANY EXISTING OVERLAY THAT IS PRESENT ON TOP OF THE EXISTING APPROACH SLAB.

ITEM 509, EPOXY COATED REINFORCING STEEL, AS PER PLAN:
IN ADDITION TO CONFORMING TO 509 REQUIREMENTS, THE LABOR REQUIRED TO FIELD DRILL THE 2" DIAMETER HOLES IN THE EXISTING STEEL BEAMS AT THE ABUTMENT DIAPHRAGMS SHALL BE INCLUDED WITH ITEM 509, EPOXY COATED REINFORCING STEEL, AS PER PLAN FOR PAYMENT. THE COST OF FURNISHING THE MECHANICAL CONNECTORS AND EXTENSIONS SHALL BE INCLUDED WITH ITEM 509-EPOXY COATED REINFORCING STEEL, AS PER PLAN FOR PAYMENT.

ITEM 509 - REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN: CONTIGENCY QUANTITIES ARE INCLUDED TO PROVIDE ADDITIONAL CONNECTING REINFORCING STEEL IF REQUIRED OR IF EXISTING REINFORCING STEEL TO BE REUSED IS MISSING OR FOUND TO BE UNUSABLE.

REPLACE ALL EXISTING REINFORCING BARS DEEMED BY THE ENGINEER TO BE UNUSABLE BECAUSE OF CORROSION. THE DEPARTMENT WILL MEASURE THE REPLACEMENT REINFORCING STEEL BY THE NUMBER OF POUNDS ACCEPTED IN PLACE.

REPLACE ALL EXISTING REINFORCING STEEL BARS WHICH ARE TO BE INCORPORATED INTO THE NEW WORK AND ARE DEEMED BY THE ENGINEER TO BE MADE UNUSABLE BY CONCRETE REMOVAL OPERATIONS WITH NEW EPOXY COATED REINFORCING STEEL OF THE SAME SIZE AT NO COST TO THE DEPARTMENT.

ITEM 511, CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN:
ITEM 511, CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN:
ITEM 511, CLASS HP CONCRETE, SUPERSTRUCTURE, AS PER PLAN:
ITEM 511, CLASS HP CONCRETE, TEST SLAB:

GENERAL REQUIREMENTS:
THE PROVISIONS OF ITEM 511 SHALL APPLY EXCEPT AS NOTED BELOW.

MIX OPTIONS:
ALL BRIDGE DECK, ABUTMENT, PARAPETS, DIAPHRAGMS, AND APPROACH SLAB CONCRETE SHALL BE THIS MIX (AS PER PLAN).

THE FOLLOWING PROPORTIONS WILL BE USED AS A STARTING MIX DESIGN:

CONCRETE TABLE
QUANTITIES PER CUBIC YARD
AGGREGATES (SSD)

HP4, AS PER PLAN (GGBF SLAG + MICROSILICA)								
AGGRE. TYPE	FINE AGGRE. (LB)	#8 COARSE AGGRE. (LB)*	#57 COARSE AGGRE. (LB)*	CEMENT CONTENT (LB)*	GGBF SLAG (LB)*	MICRO-SILICA (LB)*	W/C RATIO +/-0.01	AIR CONTENT +/-2%
GRAVEL	1245	360	1315	400	170	30	0.43	7
LIMESTONE	1245	360	1335	400	170	30	0.43	7
SLAB	1245	315	1155	400	170	30	0.43	7

* ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED PER ASTM C127.

HIGH EARLY STRENGTH CEMENT MAY BE USED TO EXPEDITE CONSTRUCTION, SEE 511.07.

THE WEIGHTS SPECIFIED IN THE CONCRETE TABLE WERE CALCULATED FOR MATERIALS OF THE FOLLOWING BULK SPECIFIC GRAVITIES (SSD): NATURAL SAND AND GRAVEL 2.62, LIMESTONE SAND 2.68, LIMESTONE 2.65, SLAG 2.30, FLY ASH 2.65, GGBF SLAG 2.90, MICRO-SILICA SOLIDS 2.20, AND PORTLAND CEMENT 3.15. FOR AGGREGATES OF SPECIFIC GRAVITIES DIFFERING MORE THAN PLUS OR MINUS 0.02 FROM THESE, THE WEIGHTS IN THE TABLE WILL BE CORRECTED.

PARAPET CONSTRUCTION (FORMED AND POURED): FORMS SHALL NOT BE REMOVED UNTIL AT LEAST 2 HOURS AFTER THE FINAL SET. DETERMINATION OF THE FINAL SET SHALL BE AS PER ASTM C266 (GILLMORE NEEDLE). TESTING SHALL BE PERFORMED BY THE CONTRACTOR AT NO COST TO THE STATE.

THE MINIMUM CONCRETE SLUMP DURING PLACEMENT OF FORMED CONCRETE PARAPETS SHALL BE 6 INCHES, WITH A MAXIMUM SLUMP OF 8 INCHES.

PARAPET CONSTRUCTION (SLIP FORMED): SLIP FORMING IS PROHIBITED.

BASIS OF PAYMENT: PAYMENT FOR THE ABOVE COMPLETED AND ACCEPTED QUANTITIES WILL BE MADE AT THE CONTRACT BID PRICE FOR:

ITEM	UNITS	DESCRIPTION
511E50001	CUBIC YARD	CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN
511E50101	CUBIC YARD	CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN
511E52000	LUMP	CLASS HP CONCRETE, TEST SLAB

ITEM 512, SEALING OF CONCRETE SURFACES (EPOXY-URETHANE): THE FINISH COAT COLOR FOR ALL CONCRETE SURFACES TO RECEIVE SEALER SHALL MATCH THE EXISTING SEALER COLOR SUBJECT TO THE APPROVAL OF THE ENGINEER.

ITEM 514, FIELD PAINTING STRUCTURAL STEEL, FINISH COAT: THE FINISH COAT COLOR FOR ALL STRUCTURAL STEEL MEMBERS TO RECEIVE PAINT SHALL MATCH THE EXISTING PAINT COLOR SUBJECT TO THE APPROVAL OF THE ENGINEER.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED BKS | DRAWN TEK | CHECKED JTC | REVIEWED SCJ | DATE 9/10 | REVISED | STRUCTURE FILE NUMBER 4301471

GENERAL NOTES (1 OF 2)
BRIDGE NO. LAK-2-1517R
S.R. 2 OVER SANFORD STREET

LAK-2-14.38
PID No. 87924

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GENERAL NOTES

ITEM 516, SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN: INSTALL A 3 FOOT WIDE NEOPRENE SHEET AT LOCATIONS SHOWN IN THE PLANS. SECURE THE NEOPRENE SHEETING TO THE CONCRETE WITH 1 1/4" X #10 GAGE (LENGTH X SHANK DIAMETER) GALVANIZED BUTTON HEAD SPIKES THROUGH A 1" OUTSIDE DIAMETER, #10 GAGE GALVANIZED WASHER. MAXIMUM FASTENER SPACING IS 9". USE OF OTHER SIMILAR GALVANIZED DEVICES, WHICH WILL NOT DAMAGE EITHER THE NEOPRENE OR THE CONCRETE, WILL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

CENTER THE NEOPRENE STRIPS ON ALL JOINTS. FOR HORIZONTAL JOINTS, SECURE THE HORIZONTAL NEOPRENE STRIP BY USING A SINGLE LINE OF FASTENERS, STARTING AT 6", (±), FROM THE TOP OF THE NEOPRENE STRIP. FOR THE VERTICAL JOINTS SECURE THE VERTICAL NEOPRENE STRIP BY USING A SINGLE VERTICAL LINE OF FASTENERS, STARTING AT 6", (±), FROM THE VERTICAL EDGE OF THE NEOPRENE STRIP NEAREST TO THE CENTERLINE OF THE ROADWAY. FOR VERTICAL JOINTS, INSTALL 2 ADDITIONAL FASTENERS AT 6", CENTER TO CENTER, ACROSS THE TOP OF THE NEOPRENE STRIP ON THE SAME SIDE OF THE VERTICAL JOINT AS THE SINGLE VERTICAL ROW OF FASTENERS IS LOCATED.

THE VERTICAL NEOPRENE STRIPS SHALL COMPLETELY OVERLAP THE HORIZONTAL STRIPS. LAP LENGTHS OF THE HORIZONTAL STRIPS THAT ARE NOT VULCANIZED OR ADHESIVE BONDED, SHALL BE AT LEAST 1'-0" IN LENGTH, OR 6" IN LENGTH IF THE LAP IS VULCANIZED OR ADHESIVE BONDED. NO LAPS ARE ACCEPTABLE IN VERTICALLY INSTALLED NEOPRENE STRIPS.

PRIOR TO PLACEMENT OF THE NEOPRENE SHEETING, A 3" BAND OF COLD TAR PITCH MATERIAL OR MATERIAL MEETING SPEC 702.14 RUBBER COMPOUND SHALL BE APPLIED TO DIRECTLY TO THE STRUCTURAL CONCRETE ALONG THE PERIMETER/OUTLINE OF THE NEOPRENE SHEET IN ORDER TO SECURE A SEAL TIGHT CONDITION. THE NEOPRENE SHEET SHALL THEN BE MECHANICALLY FASTENED TO THE STILL TACKY TAR/RUBBER CEMENT COMPOUND MATERIAL.

THE NEOPRENE SHEETING SHALL BE 3/32" THICK GENERAL PURPOSE, HEAVY DUTY NEOPRENE SHEET WITH NYLON FABRIC REINFORCEMENT. THE SHEETING SHALL BE "FAIRPRENE NUMBER NN-0003", BY E.I. DUPONT DE NEMOURS AND COMPANY, INC., "WINGPRENE" BY GOODYEAR TIRE AND RUBBER COMPANY, OR AN APPROVED ALTERNATE. THE NEOPRENE SHEETING SHALL CONFORM TO THE FOLLOWING:

DESCRIPTION OF TEST	ASTM METHOD	REQUIREMENT
THICKNESS, INCHES	D 751	0.094 (±) 0.01
BREAKING STRENGTH, GRAB, LBS, MINIMUM (LONG. X TRANS.)	D 751	700 x 700
ADHESIVE STRIP, 1" WIDE X 2" LONG, LBS MINIMUM	D 751	9
BURST STRENGTH, PSI MINIMUM	D 751	1400
HEAT AGING, 70 HRS., 212°F, 180° BEND W/O CRACKING	D 2136	NO CRACKING OF COATING
LOW TEMP. BRITTLENESS, 1 HR., -40°F, BEND AROUND 1/4" MANDREL	D 2136	NO CRACKING OF COATING

METHOD OF MEASUREMENT: THE DEPARTMENT WILL MEASURE THE TOTAL LENGTH OF JOINT TO BE SEALED BY THE NUMBER OF FEET.

BASIS OF PAYMENT: THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516, SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN.

ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN: FOR BEARING REQUIREMENTS SEE SHEETS 9 & 10.

ITEM 516, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN:
THIS WORK CONSISTS OF RAISING OR RE-POSITIONING EXISTING STRUCTURES TO THE DIMENSIONS AND REQUIREMENTS DEFINED IN THE PROJECT PLANS.

SUBMIT CONSTRUCTION PLANS IN ACCORDANCE WITH CMS 501.05.

IF, DURING THE JACKING OPERATIONS, CRACKING OF THE CONCRETE SUPERSTRUCTURE, SEPARATION OF THE CONCRETE DECK FROM THE STEEL STRINGERS, OR OTHER DAMAGE TO THE STRUCTURE IS VISUALLY OBSERVED, IMMEDIATELY CEASE THE JACKING OPERATION AND INSTALL SUPPORTS TO THE SATISFACTION OF THE ENGINEER. ANALYZE THE DAMAGE AND SUBMIT A METHOD OF CORRECTION TO THE ENGINEER FOR APPROVAL. EPOXY INJECT ALL BEAMS THAT SEPARATE FROM THE DECK FOR THE DISTANCE OF THE SEPARATION IN ACCORDANCE WITH CMS 512.07. THE DEPARTMENT WILL NOT PAY FOR THE COST OF THIS EPOXY INJECTION OR OTHER REQUIRED REPAIRS. THE BRIDGE BEARINGS SHALL BE FULLY SEATED AT ALL CONTACT AREAS. IF FULL SEATING IS NOT ATTAINED, SUBMIT A REPAIR PLAN TO THE ENGINEER. THE DEPARTMENT WILL NOT PAY FOR THE REPAIR COSTS TO ENSURE FULL SEATING ON BEARINGS.

THE DEPARTMENT WILL MEASURE THIS WORK ON A LUMP SUM BASIS.

THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN.

ITEM 526, REINFORCED CONCRETE APPROACH SLAB (T=13"), AS PER PLAN

DESCRIPTION: THIS ITEM SHALL CONSIST OF CONSTRUCTING REINFORCED CONCRETE APPROACH SLABS WITH PARAPETS IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS AND ODOT STANDARD DRAWING AS-1-81.

MATERIALS: CONCRETE FOR THIS ITEM, INCLUDING APPROACH SLABS AND PARAPETS SHALL BE ITEM 511 - CLASS HP CONCRETE. USE THE SAME MIX FOR ITEM 526 AS IS USED FOR THE BRIDGE DECK AND PARAPETS. SEE GENERAL NOTE ITEM 511 FOR THE CONCRETE MIX REQUIREMENTS.

METHOD OF MEASUREMENT: THE AREA MEASURED WILL BE THE NUMBER OF SQUARE YARDS COMPLETE IN PLACE.

BASIS OF PAYMENT: ACCEPTED QUANTITIES WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER SQUARE YARD COMPLETE IN PLACE. THIS PRICE SHALL INCLUDE FULL COMPENSATION FOR CONCRETE, PARAPETS, REINFORCING STEEL, JOINT FILL, JOINT SEALERS, JOINT SEALS, WATERPROOFING, AND SEALING OF APPROACH SLAB PARAPETS. PAYMENT WILL BE MADE UNDER ITEM 526 - REINFORCED CONCRETE APPROACH SLAB (T=13"), AS PER PLAN.

APPROACH SLAB PARAPET CONSTRUCTION SHALL BE PER GENERAL NOTE ITEM 511 - CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN.

ITEM 607, FENCE REMOVED AND REBUILT:

A PORTION OF THE EXISTING FENCE BETWEEN BRIDGE NO. LAK-2-1517R AND LAK-2-1517L AT THE REAR AND FORWARD ABUTMENTS MAY NEED TO BE REMOVED AND REBUILT IN ORDER TO RECONSTRUCT THE EXISTING WINGWALLS. FOR ESTIMATING PURPOSES 20 FEET OF FENCE REMOVED AND REBUILT WILL BE REQUIRED.

ITEM 848, MICRO SILICA MODIFIED CONCRETE OVERLAY USING HYDRODEMOLITION, AS PER PLAN (1½" THICK):

ITEM 848, MICRO SILICA MODIFIED CONCRETE OVERLAY, (VARIABLE THICKNESS), MATERIAL ONLY, AS PER PLAN:

THESE ITEMS SHALL BE PERFORMED PER SUPPLEMENTAL SPECIFICATION 848 "BRIDGE DECK REPAIR AND OVERLAY WITH CONCRETE USING HYDRODEMOLITION" WITH THE FOLLOWING REVISIONS:

CONSTRUCTION JOINTS WILL NOT BE PERMITTED IN THE WHEEL LINE.

(SEE 848.12) THE COMPONENTS OF THE MICROSILICA MODIFIED CONCRETE SHALL BE PROPORTIONED AS FOLLOWS:

CONCRETE TABLE
QUANTITIES PER CUBIC YARD
AGGREGATES (SSD)

MICROSILICA MODIFIED CONCRETE OVERLAY								
AGGRE. TYPE	FINE AGGRE. (LB)	#8 COARSE AGGRE. (LB)*	AGGRE. TOTAL (LB)	CEMENT CONTENT (LB)	MICRO-SILICA (LB)	W/C RATIO +/-0.01	AIR CONTENT +/-2%	FIBER (1¼") POLY-PROPYLENE (LB)**
GRAVEL	141	1430	284	600	50	0.40	8	1
LIMESTONE	141	1450	286	600	50	0.40	8	1
SLAG	141	1350	265	600	50	0.40	8	1

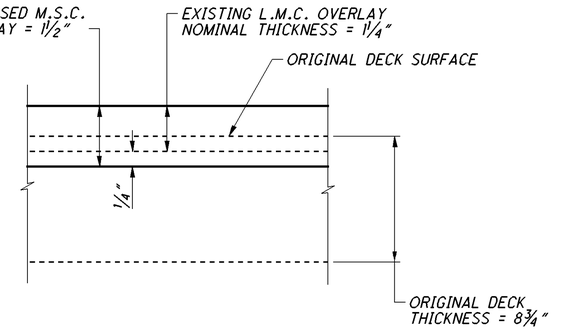
* ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED PER ASTM C127.

** FIBER MESH SHALL BE 100% VIRGIN POLYPROPYLENE IN A FIBRILLATED-NETWORK FORM AND SHALL BE 1¼" IN LENGTH.

THE WEIGHTS SPECIFIED IN THE CONCRETE TABLE WERE CALCULATED FOR MATERIALS OF THE FOLLOWING BULK SPECIFIC GRAVITIES (SSD): NATURAL SAND AND GRAVEL 2.62, LIMESTONE SAND 2.68, LIMESTONE 2.65, SLAG 2.30, MICRO-SILICA SOLIDS 2.20, AND PORTLAND CEMENT 3.15. FOR AGGREGATES OF SPECIFIC GRAVITIES DIFFERING MORE THAN PLUS OR MINUS 0.02 FROM THESE, THE WEIGHTS IN THE TABLE WILL BE CORRECTED. (FIBER MESH WEIGHTS NOT INCLUDED IN MIX DESIGN)

ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED BY ASTM C127.

ALL OTHER REQUIREMENTS OF THE SUPPLEMENTAL SPECIFICATION SHALL REMAIN IN EFFECT.



DECK OVERLAY DETAIL

ITEM 202, PORTIONS OF STRUCTURES REMOVED, AS PER PLAN:

THIS ITEM SHALL ALSO INCLUDE THE REMOVAL OF ELEMENTS INDICATED IN THE PLANS AND GENERAL NOTES AND THAT ARE NOT SEPARATELY LISTED FOR PAYMENT. ITEMS TO BE REMOVED INCLUDE ALL EXISTING MATERIALS BEING REPLACED BY NEW CONSTRUCTION AND MISCELLANEOUS ITEMS THAT ARE NOT SHOWN TO BE INCORPORATED INTO THE FINAL CONSTRUCTION AND ARE DIRECTED TO BE REMOVED BY THE ENGINEER.

ALTERNATE METHOD FOR BACKWALL REMOVAL: AT NO ADDITIONAL COST TO THE STATE, THE CONTRACTOR MAY SAWCUT EXISTING BACKWALLS AT THE REMOVAL LIMITS SHOWN IN THE PLANS AND DOWEL REAR #6 BARS AT THE EXISTING BAR SPACING. PROVIDE 12" MINIMUM EMBEDMENT ON DOWEL BARS. PROVIDE #6 BARS LONG ENOUGH TO PROVIDE A MINIMUM LAP OF 2'-11" ON PROPOSED BARS.

ALTERNATE METHOD FOR REMOVAL OF DECK AT END OF BRIDGE: AT NO ADDITIONAL COST TO THE STATE, THE CONTRACTOR MAY REMOVE DECK CONCRETE USING HYDRODEMOLITION, SUBJECT TO ALL PERTINENT REQUIREMENTS OF SS 848.

ITEM 503, COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN:
IN ADDITION TO THE REQUIREMENTS OF CMS 503, LEAVE IN PLACE SHEETING ALONG THE STAGED CONSTRUCTION LINE AT THE POSITION SHOWN IN THE PLANS. CUT-OFF SHEETING 3" BELOW THE BOTTOM OF THE APPROACH SLAB OR AS DIRECTED BY THE ENGINEER.

ITEM 518, POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN:
THIS WORK SHALL INCLUDE THE REMOVAL OF EXISTING POROUS BACKFILL AND ALL ADJACENT SOIL TO INSTALL NEW POROUS BACKFILL AS DETAILED IN THE PLANS.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED BKS | DRAWN TEK | REVIEWED SCJ | DATE 9/10
CHECKED JTC | REVISED | STRUCTURE FILE NUMBER 4301471

GENERAL NOTES (2 OF 2)
BRIDGE NO. LAK-2-1517R
S.R. 2 OVER SANFORD STREET

LAK-2-14.38
PID No. 87924

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ABBREVIATIONS

THE FOLLOWING ABBREVIATIONS HAVE BEEN USED THROUGHOUT THESE PLANS:

& = AND
@ = AT
° = DEGREES
' = FEET OR MINUTES
" = INCHES OR SECONDS
± = PLUS OR MINUS

AASHTO = AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
ABUT. = ABUTMENT
ADT = AVERAGE DAILY TRAFFIC
ADTT = AVERAGE DAILY TRUCK TRAFFIC
APPR. = APPROACH
APPROX. = APPROXIMATE
ASTM = AMERICAN SOCIETY OF TESTING AND MATERIALS

BM = BENCHMARK
BOT. = BOTTOM
BOT./FTG. = BOTTOM OF FOOTING
BRGS. = BEARINGS

℄ = CENTERLINE
C/C = CENTER TO CENTER
CFS = CUBIC FEET PER SECOND
CJ = CONSTRUCTION JOINT
CLR. = CLEAR
CMS = CONSTRUCTION AND MATERIAL SPECIFICATIONS
CONSTR./CONST. = CONSTRUCTION
CON'T = CONTINUED
COL. = COLUMN
C.P.P. = CORRUGATED PLASTIC PIPE
C.R./CR = COUNTY ROAD
CU = CUBIC
CVN = CHARPY V-NOTCH

DEFL. = DEFLECTION
DIA. = DIAMETER
DIM. = DIMENSION
DL = DEAD LOAD
DWG. = DRAWING

E =EAST
EA. = EACH
EF = EACH FACE
EL./ELEV. = ELEVATION
EMBED. = EMBEDMENT
EQ. = EQUAL
EX./EXIST. = EXISTING
EXP. = EXPANSION
EXT. = EXTENSION

F = FAHRENHEIT
FF = FAR FACE
F/F = FACE TO FACE
FS = FIELD SPLICE
FT. = FEET
FT/FT. = FOOT/FOOT
FT/S = FEET PER SECOND
FTG. = FOOTING
FWD. = FORWARD
FWS = FUTURE WEARING SURFACE

GEN. = GENERAL

HR = HOUR
HW = HIGH WATER

IN. = INCHES
INT. = INTERMEDIATE

LF = LEFT FORWARD
LONG. = LONGITUDINAL
LT. = LEFT

MAX. = MAXIMUM
MIN. = MINIMUM
MISC. = MISCELLANEOUS

N = NORTH
NF = NEAR FACE
#/NO. = NUMBER

OHWM = ORDINARY HIGH WATER MARK
OUT/OUT = OUT TO OUT

PEJF = PREFORMED EXPANSION JOINT FILLER
℄/PL = PLATE
PSF = POUND PER SQUARE FOOT
PSI = POUND PER SQUARE INCH
PT. = POINT
PVI = POINT OF VERTICAL INTERSECTION

Q = FLOW

R = RADIUS
REF. = REFERENCE
REINF. = REINFORCED
REQ'D. = REQUIRED
RF = RIGHT FORWARD
RT. = RIGHT

SHLDR. = SHOULDER
SPA. = SPACING
SQ = SQUARE
STA. = STATION
STD. = STANDARD
STR. = STRAIGHT
SUPER = SUPERSTRUCTURE

T = THICKNESS
TELE = TELEPHONE
TRANS. = TRANSVERSE
TWP. = TOWNSHIP
TYP. = TYPICAL

V = VELOCITY
V.C. = VERTICAL CURVE
VERT. = VERTICAL

W = WEST
W/ = WITH
W/O = WITHOUT
W.P. = WORKING POINT
WT. = WEIGHT

YD = YARD

ESTIMATED QUANTITIES

LAK-2-1517R

CALCULATED BY: JTC
CHECK BY: SCJ
DATED: 9/10
DATED:

ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	TOTAL**	AS PER PLAN SHEET REF.
202	11201	LUMP		PORTIONS OF STRUCTURE REMOVED, AS PER PLAN	LUMP	2
202	22901	134	SQ YD	APPROACH SLAB REMOVED, AS PER PLAN	134	3
503	11101	LUMP		COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN	LUMP	3
509	10001	9779	POUND	EPOXY COATED REINFORCING STEEL, AS PER PLAN	9779	2
509	20001	230	POUND	REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN	230	2
511	50001	26	CU YD	CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN	26	2
511	50101	6	CU YD	CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN	6	2
511	51001	36	CU YD	CLASS HP CONCRETE, SUPERSTRUCTURE, AS PER PLAN	36	2
511						
512	10100	67	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	67	2
512	10300	35	SQ YD	SEALING CONCRETE BRIDGE DECKS WITH HMWM RESIN	35	
514	00050	607	SQ FT	SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL	607	
514	00056	607	SQ FT	FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT	607	
514	00060	607	SQ FT	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT	607	
514	00066	607	SQ FT	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT	607	2
516	14000	16	SQ FT	PREFORMED EXPANSION JOINT FILLER, MISC. 3½"	16	
516	14021	103	FT	SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN	103	3
516	44001	12	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN	12	3
				(8½" x ¾" x 1'-0" PAD WITH 11½" x ½" x 1'-1" STEEL LOAD PLATE)		
516	47001	LUMP		JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN	LUMP	
518	21231	LUMP		POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN	LUMP	3
518	40000	101	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	101	
518	40010	35	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	35	
526	15001	195	SQ YD	REINFORCED CONCRETE APPROACH SLAB (T=13"), AS PER PLAN	195	3
625	25400	54	FT	CONDUIT, 2", 725.04	54	7, 16
848	10001	645	SQ YD	MICRO SILICA MODIFIED CONCRETE OVERLAY USING HYDRODEMOLITION, AS PER PLAN (1½" THICK)	645	3
848	20000	645	SQ YD	SURFACE PREPARATION USING HYDRODEMOMLITION	645	
848	30001	27	CU YD	MICRO SILICA MODIFIED CONCRETE OVERLAY (VARIABLE THICKNESS), MATERIAL ONLY, AS PER PLAN	27	3
848	50000	40	SQ YD	HAND CHIPPING	40	
848	50320	645	SQ YD	EXISTING CONCRETE OVERLAY REMOVED (1½" THICK)	645	

**All Totals Participation Code II-Bridge

Participation Codes:
I-Pavement (Federal/State)
II-Bridge (Federal/State)

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED BKS | CHECKED JTC
DRAWN TEK | REVISED
REVIEWED SCJ | DATE 9/10
STRUCTURE FILE NUMBER 4301471

ESTIMATED QUANTITIES
BRIDGE NO. LAK-2-1517R
S.R. 2 OVER SANFORD STREET

LAK-2-14.38
PID No. 87924

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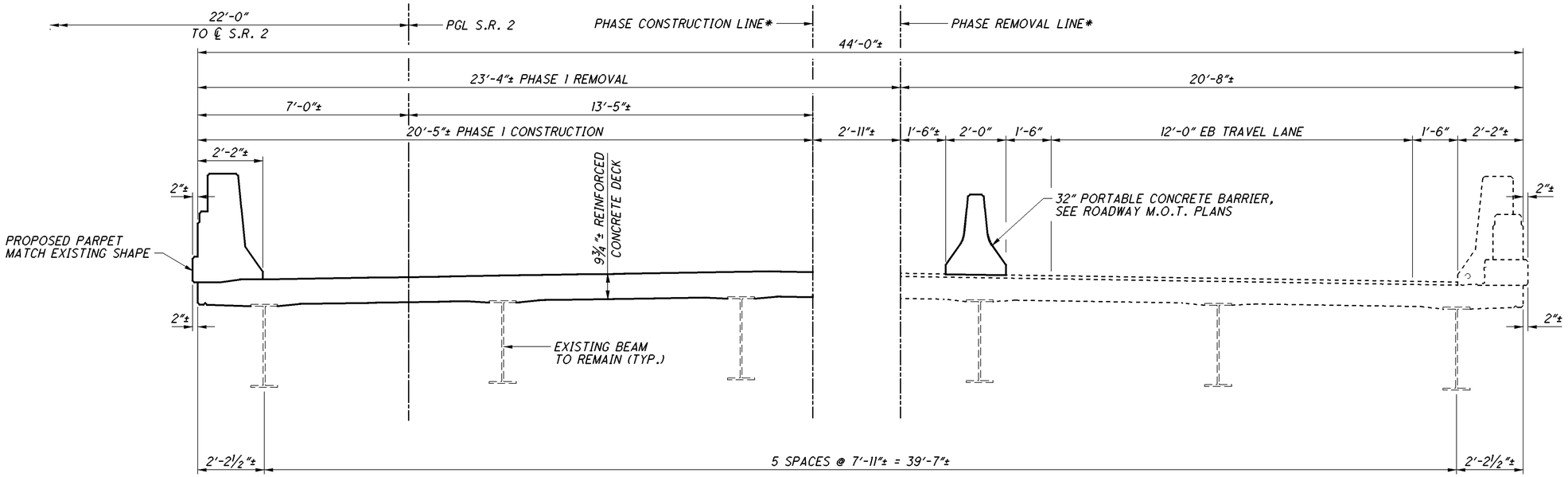


PHASE 1 REMOVAL AND CONSTRUCTION

AT ABUTMENTS

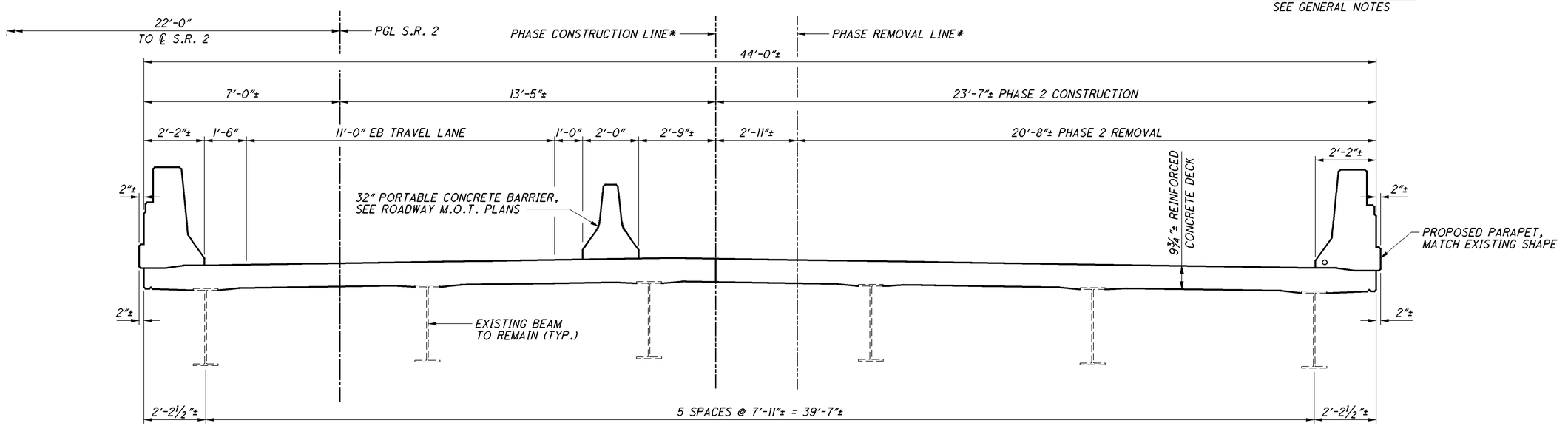
NOTES:

TRANSVERSE DIMENSIONS SHOWN FOR PROPOSED CONSTRUCTION ARE APPROXIMATE. IT MAY BE NECESSARY TO VARY THESE DIMENSIONS TO MEET THE PROPOSED APPROACH SLAB AND THE EXISTING DECK.

* FOR WORK AT ABUTMENT.

PROPOSED WORK:

SEE GENERAL NOTES



PHASE 2 REMOVAL AND CONSTRUCTION

AT ABUTMENTS

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301471	

PHASED CONSTRUCTION DETAILS

BRIDGE NO. LAK-2-1517R
S.R. 2 OVER SANFORD STREET

LAK-2-14.38
PID No. 87924

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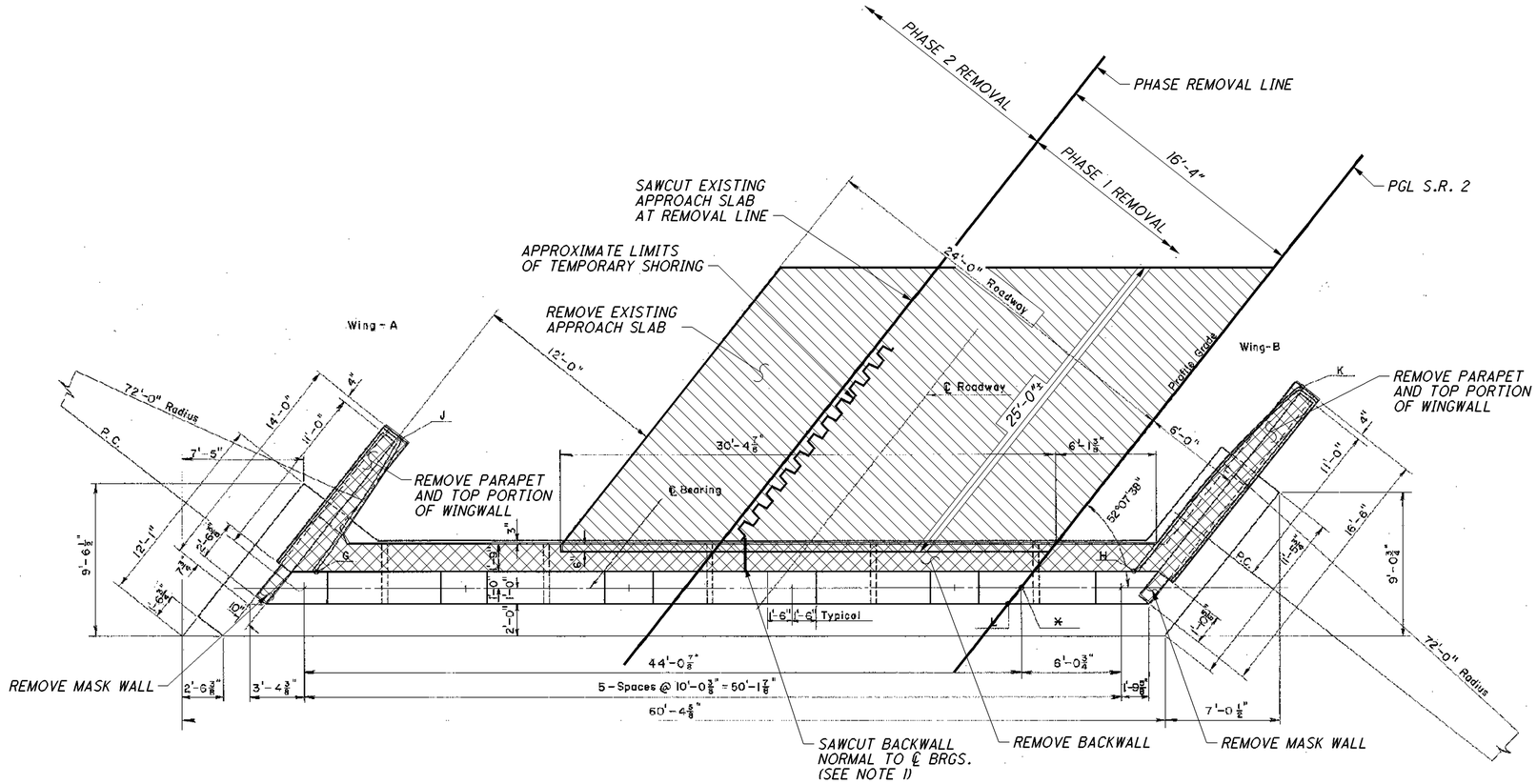
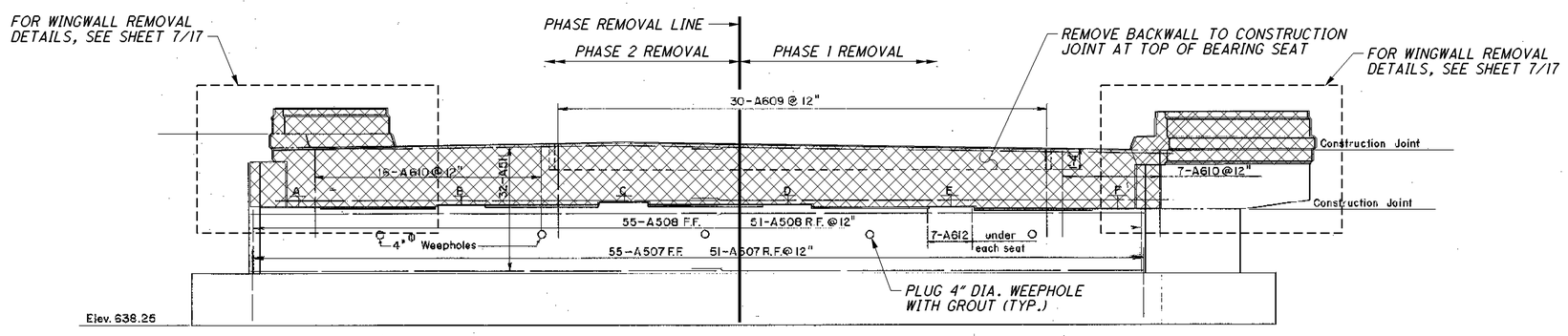


PLAN - REAR ABUTMENT

FORWARD ABUTMENT SIMILAR



ELEVATION - REAR ABUTMENT

FORWARD ABUTMENT SIMILAR

NOTES:

1. FOR LOCATION OF ABUTMENT BACKWALL REMOVAL LINE, SEE SHEET 11/17.

ITEM 202 - APPROACH SLAB REMOVED, AS PER PLAN

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301471	

REMOVAL DETAILS (1 OF 3)
BRIDGE NO. LAK-2-1517R
S.R. 2 OVER SANFORD STREET

LAK-2-14.38
PID No. 87924

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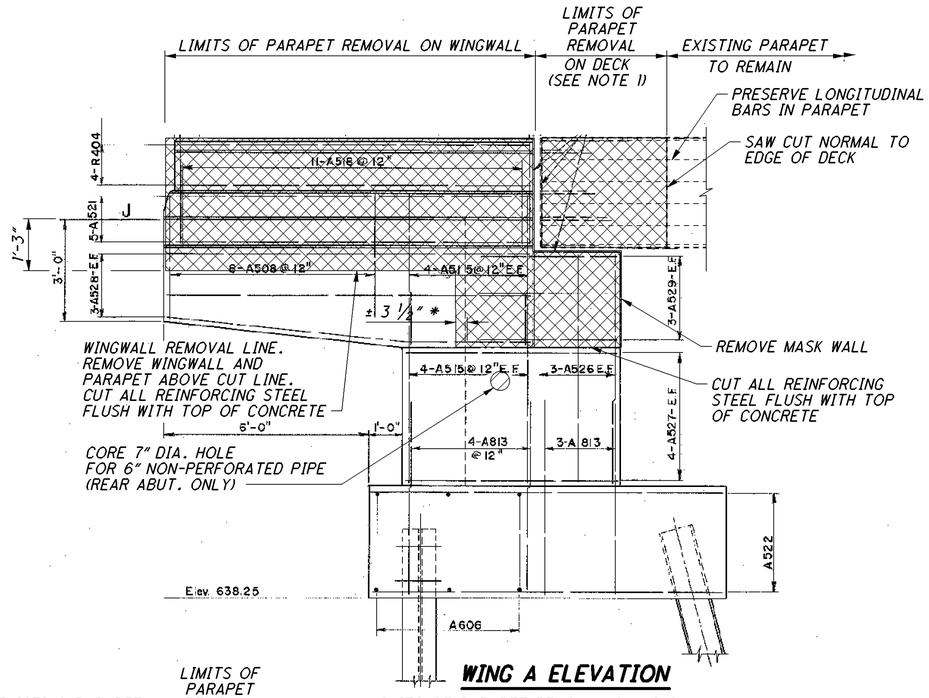
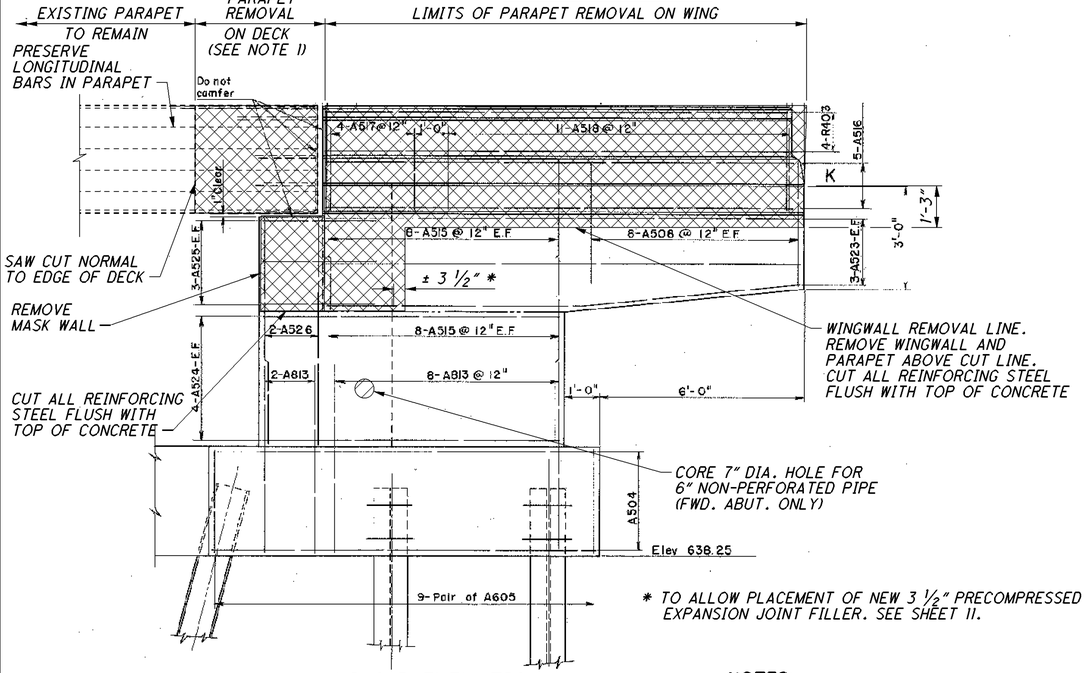
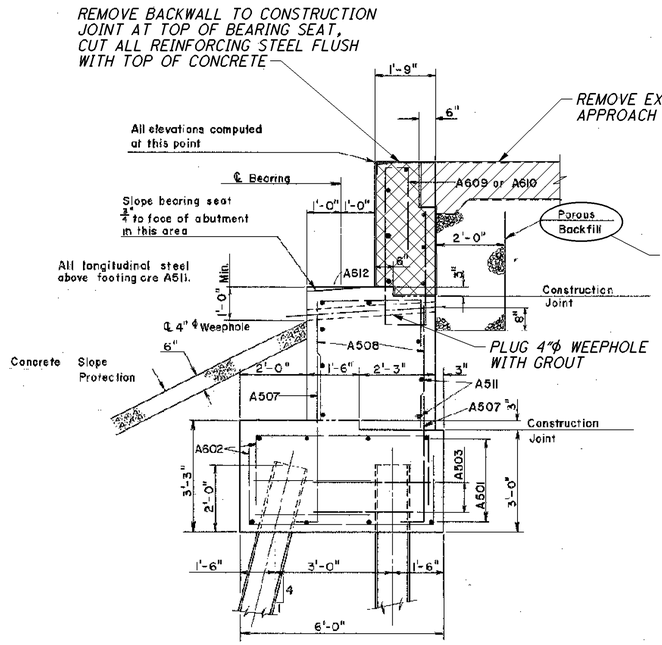


WING A ELEVATION

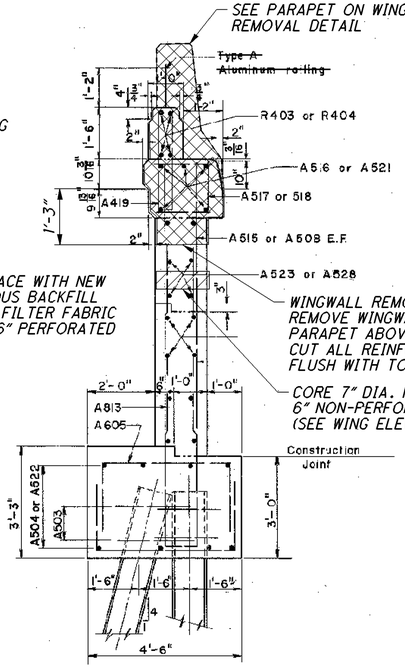


* TO ALLOW PLACEMENT OF NEW 3 1/2" PRECOMPRESSED EXPANSION JOINT FILLER. SEE SHEET 11.

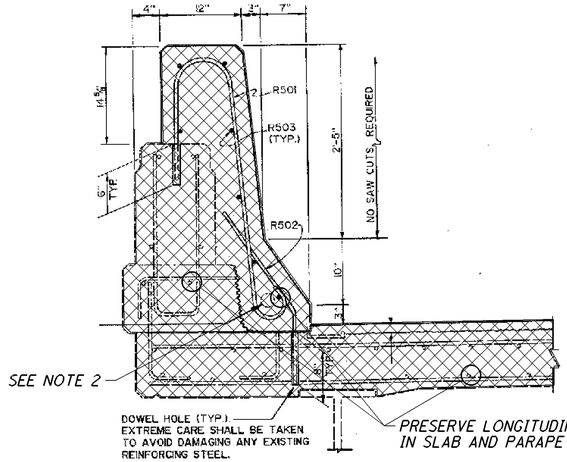
WING B ELEVATION



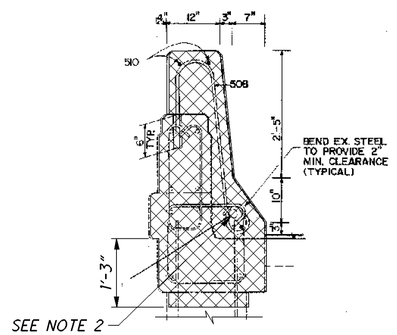
TYPICAL ABUTMENT SECTION



TYPICAL WING SECTION



PARAPET ON DECK REMOVAL DETAIL



PARAPET ON WINGWALL REMOVAL DETAIL

ITEM 202 - APPROACH SLAB REMOVED, AS PER PLAN

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

NOTES:

1. SEE SHEET 8/17 FOR LENGTH OF PARAPET REMOVAL ON DECK.
2. APPROXIMATE LOCATION OF EXISTING 2" CONDUIT IS SHOWN. REMOVE AND REPLACE.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301471	

REMOVAL DETAILS (2 OF 3)
BRIDGE NO. LAK-2-1517R
S.R. 2 OVER SANFORD STREET

LAK-2-14.38
PID No. 87924

7 / 17

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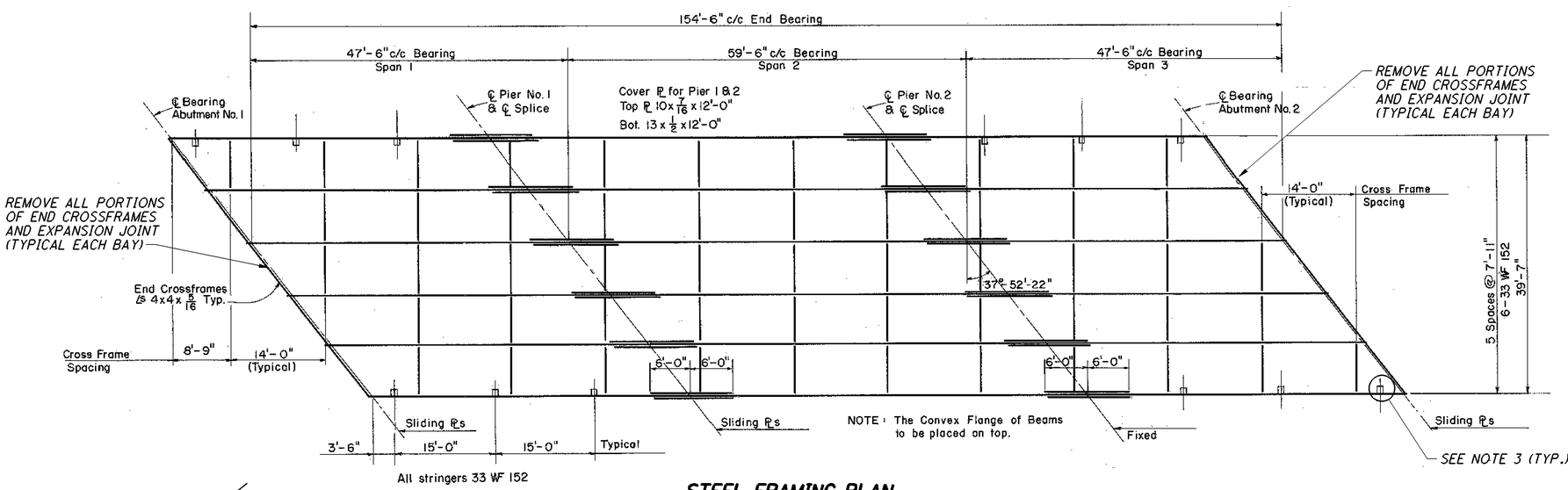
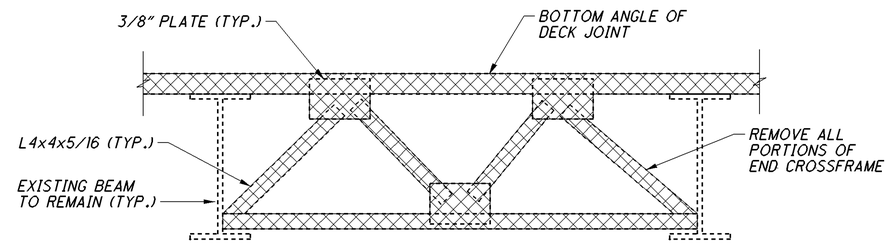
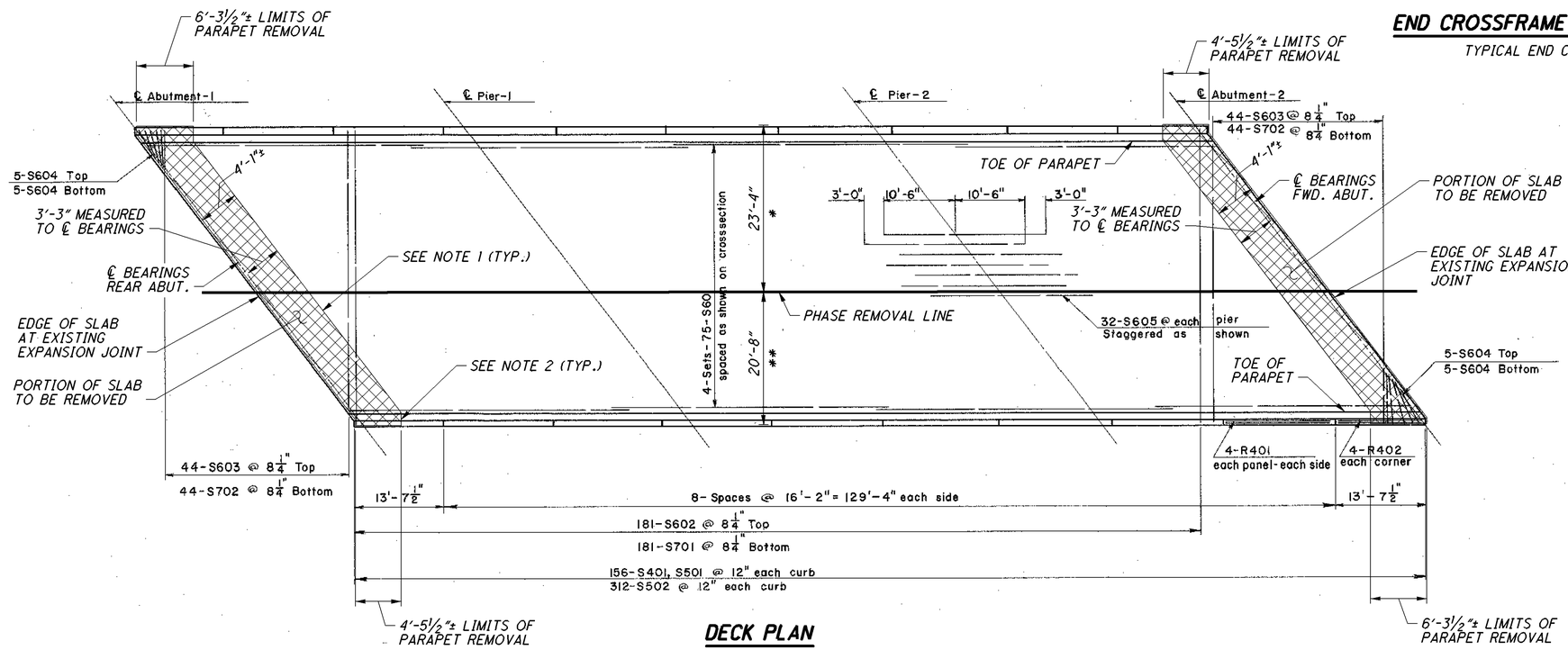


STEEL FRAMING PLAN



END CROSSFRAME REMOVAL DETAIL

TYPICAL END CROSSFRAME



DECK PLAN

LEGEND:

* = PHASE 1 REMOVAL
** = PHASE 2 REMOVAL

NOTES:

1. REMOVAL LINE IS LOCATED PARALLEL TO ℄ BEARINGS. PRESERVE ALL DECK REINFORCING STEEL THAT REMAINS EMBEDDED IN THE DECK.
2. REMOVAL LINE AT TOE OF PARAPET IS LOCATED NORMAL TO EDGE OF SLAB. PRESERVE ALL LONGITUDINAL PARAPET REINFORCEMENT.
3. EXISTING SCUPPER IS LOCATED WITHIN DECK REMOVAL LIMITS. CARE SHALL BE TAKEN TO PRESERVE EXISTING SCUPPER

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301471	

REMOVAL DETAILS (3 OF 3)
BRIDGE NO. LAK-2-1517R
S.R. 2 OVER SANFORD STREET

LAK-2-14.38
PID No. 87924

8 / 17

127 / 208

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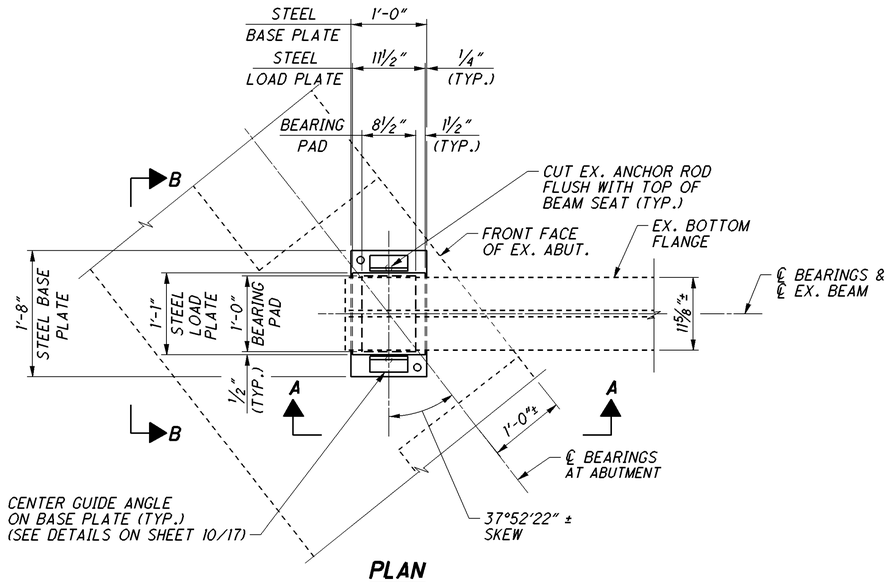
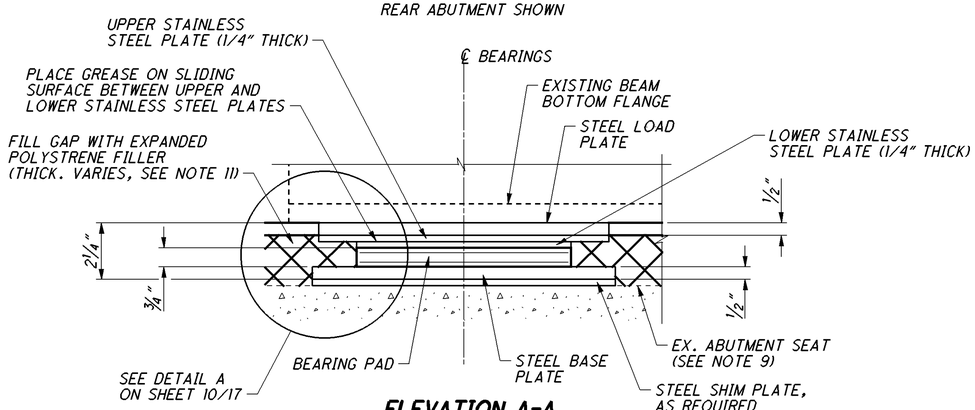


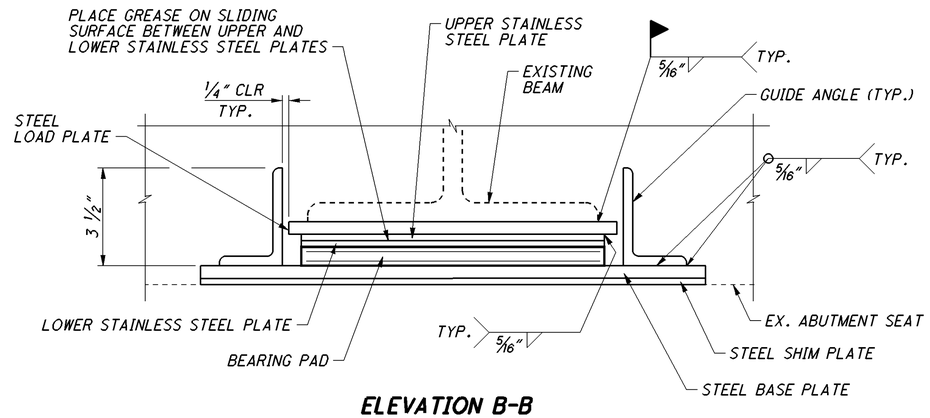
PLAN

REAR ABUTMENT SHOWN



ELEVATION A-A

GUIDE ANGLES NOT SHOWN FOR CLARITY



ELEVATION B-B

LAMINATED ELASTOMERIC EXPANSION BEARING DETAILS

REAR ABUTMENT SHOWN, FORWARD ABUTMENT SIMILAR BUT OPPOSITE HAND

NOTES:

1. STEEL LOAD PLATE, BASE PLATE, SHIM PLATES, GUIDE ANGLES AND SQUARE PLATE WASHERS SHALL MEET THE GRADE 50W REQUIREMENTS OF STRUCTURAL STEEL ASTM A709.
2. STAINLESS STEEL PLATES SHALL BE ASTM 240, TYPE 304 WITH A 2B FINISH PER ASTM A480.
3. THE STEEL BASE PLATE AND LOWER STAINLESS STEEL PLATE SHALL BE BONDED BY VULCANIZATION TO THE ELASTOMER DURING THE MOLDING PROCESS.
4. THE SHIM PLATES, BASE PLATE, LOAD PLATE, AND GUIDE ANGLES SHALL BE GALVANIZED AND PAINTED. PAINT COLOR SHALL MATCH EXISTING BEAM COLOR, SUBJECT TO APPROVAL OF THE ENGINEER. PAINT IS TO BE INCLUDED WITH ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) AS PER PLAN FOR PAYMENT.
5. WELDING: CONTROL WELDING SO THAT THE PLATE TEMPERATURE AT THE ELASTOMER BONDED SURFACE DOES NOT EXCEED 300°F AS DETERMINED BY THE USE OF PYROMETRIC STICKS OR OTHER TEMPERATURE MONITORING DEVICES.
6. THE MINIMUM NUMBER OF SHIM PLATES TO BE PROVIDED IS TWO ⅛" ADJUSTING SHIMS AND TWO ¼" ADJUSTING SHIMS FOR EACH BEARING. FOUR ADDITIONAL ½" ADJUSTING SHIMS SHALL ALSO BE PROVIDED FOR THIS BRIDGE. ADJUSTING SHIMS ARE TO BE PLACED ON THE CONCRETE BEARING SURFACE DIRECTLY BELOW THE ½" STEEL BASE PLATE. THE ADJUSTING SHIMS ARE TO BE USED AT LOCATIONS WHERE THE DISTANCE BETWEEN THE BOTTOM OF THE BOTTOM FLANGE OF THE BEAM AND THE CONCRETE BEARING SURFACE IS GREATER THAN THE 2¼" BEARING THICKNESS. ADDITIONAL SHIM PLATES SHALL BE PROVIDED IF REQUIRED BY FIELD MEASUREMENTS.
7. LUBRICATE THE INTERFACE BETWEEN THE UPPER AND LOWER STAINLESS STEEL PLATES WITH A LAYER OF GREASE A MINIMUM OF ⅛" THICK. THE GREASE SHALL MEET THE REQUIREMENTS OF NLGI GRADE 2 GC-LB.
8. BASIS OF PAYMENT: THE UNIT BID PRICE SHALL INCLUDE ALL MATERIALS, LABOR, AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL LAMINATED ELASTOMERIC BEARINGS, STEEL PLATES, ANGLES, AND ANCHOR BOLTS AS DETAILED. PAYMENT WILL BE MADE AT THE CONTRACT PRICE FOR ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN.

   REAR & FORWARD ABUTMENTS (ALL BEAMS):

   BEARING PAD: 8½" x ¾" x 1'-0"
   LOAD PLATE: 11½" x ½" x 1'-1"
   BASE PLATE: 1'-0" x ½" x 1'-8"
   UPPER STAINLESS STEEL PLATE: 11½" x ¼" x 1'-0"
   LOWER STAINLESS STEEL PLATE: 8½" x ¼" x 1'-0"
   SHIM PLATES: SEE NOTE 6
   GUIDE ANGLES: L 3 ½" x 2 ½" x ⅜" x 6" LONG
   PLATE WASHERS: 4" x ½" x 4"

9. PRIOR TO INSTALLING THE STEEL BASE PLATE, CLEAN THE TOP SURFACE OF THE ABUTMENT SEAT. IF CONCRETE SPALLING IS PRESENT UNDER BASE PLATE, PATCH CONCRETE PRIOR TO PLACEMENT OF THE BASE PLATE. PATCH CONCRETE ACCORDING TO SUPPLEMENTAL SPECIFICATION 843. CLEANING AND PATCHING CONCRETE TO BE INCLUDED WITH ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) AS PER PLAN FOR PAYMENT.
10. THE EXISTING BEAMS CAN BE JACKED A MAXIMUM OF ¼" TO REMOVE AND REPLACE BEARINGS.
11. EXPANDED POLYSTRENE FILLER IS INCLUDED WITH ITEM 511, HP CONCRETE, SUPERSTRUCTURE, AS PER PLAN FOR PAYMENT.
12. REFER TO RETIRED ODOT STD. DWG. CSB-2-56, REVISED 2-2-59, FOR DETAILS OF EXISTING BEARINGS TO BE REPLACED.

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JTC		4301471	

BEARING DETAILS (1 OF 2)

BRIDGE NO. LAK-2-1517R
S.R. 2 OVER SANFORD STREET

LAK-2-14.38
PID No. 87924

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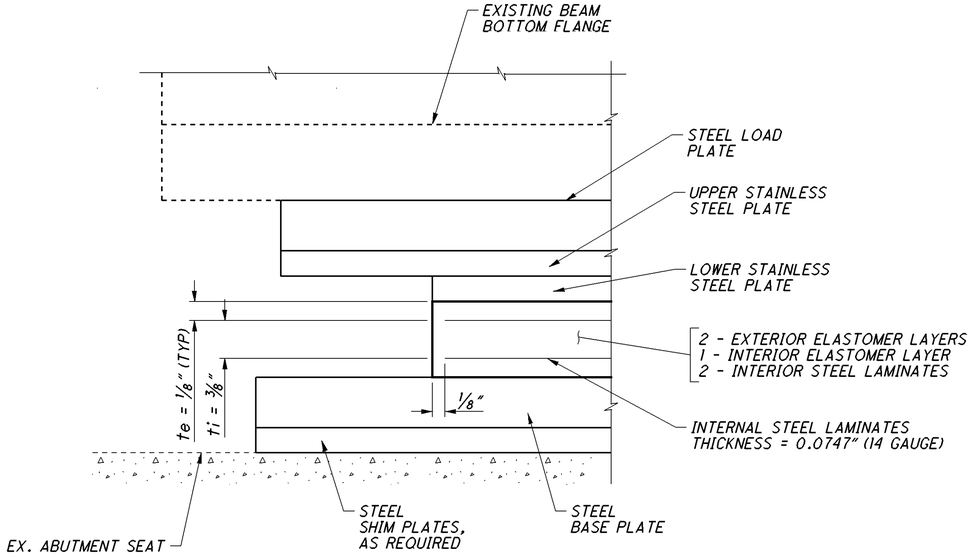
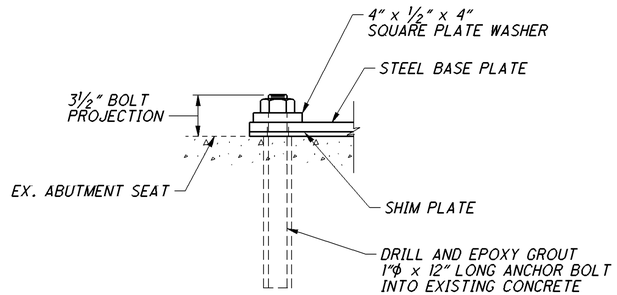
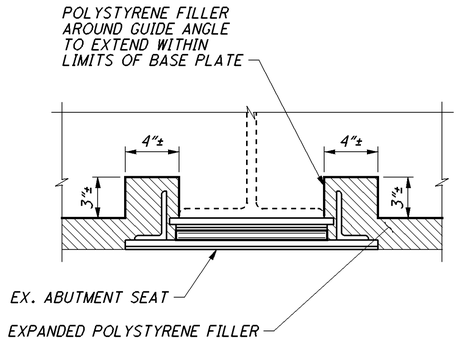


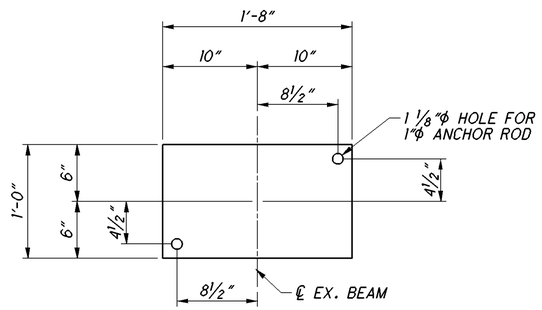
DETAIL A



ANCHOR BOLT DETAIL



GUIDE ANGLE BLOCKOUT DETAIL



PLAN OF BASE PLATE

SHIM PLATE SIMILAR

NOTES:

1. FIELD DRILL ANCHOR BOLT HOLES, INSTALL ANCHOR BOLTS AND PLACE EPOXY GROUT AFTER THE PLACEMENT OF THE BEARING ASSEMBLY. POSITION AND TIGHTEN THE BASE PLATE. INSTALL A BLOCK OF POLYSTRENE FILLER MATERIAL OVER THE TOP OF THE GUIDE ANGLES AND ANCHOR BOLTS BEFORE THE CONCRETE PLACEMENT FOR ABUTMENT DIAPHRAGM.

2. ANCHOR BOLTS AND NUTS SHALL BE ASTM A325. NUTS AND SQUARE PLATE WASHERS SHALL BE GALVANIZED ACCORDING TO 711.02. THE THREAD LENGTH REQUIREMENTS OF ASTM A325 MAY BE WAIVED. THE GROUT SHALL BE NON-SHRINK, EPOXY GROUT MEETING THE REQUIREMETNS OF 705.20.

LEGEND:

te = THICKNESS OF EXTERNAL ELASTOMER LAYER

ti = THICKNESS OF INTERNAL ELASTOMER LAYER

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CLEVELAND, OHIO

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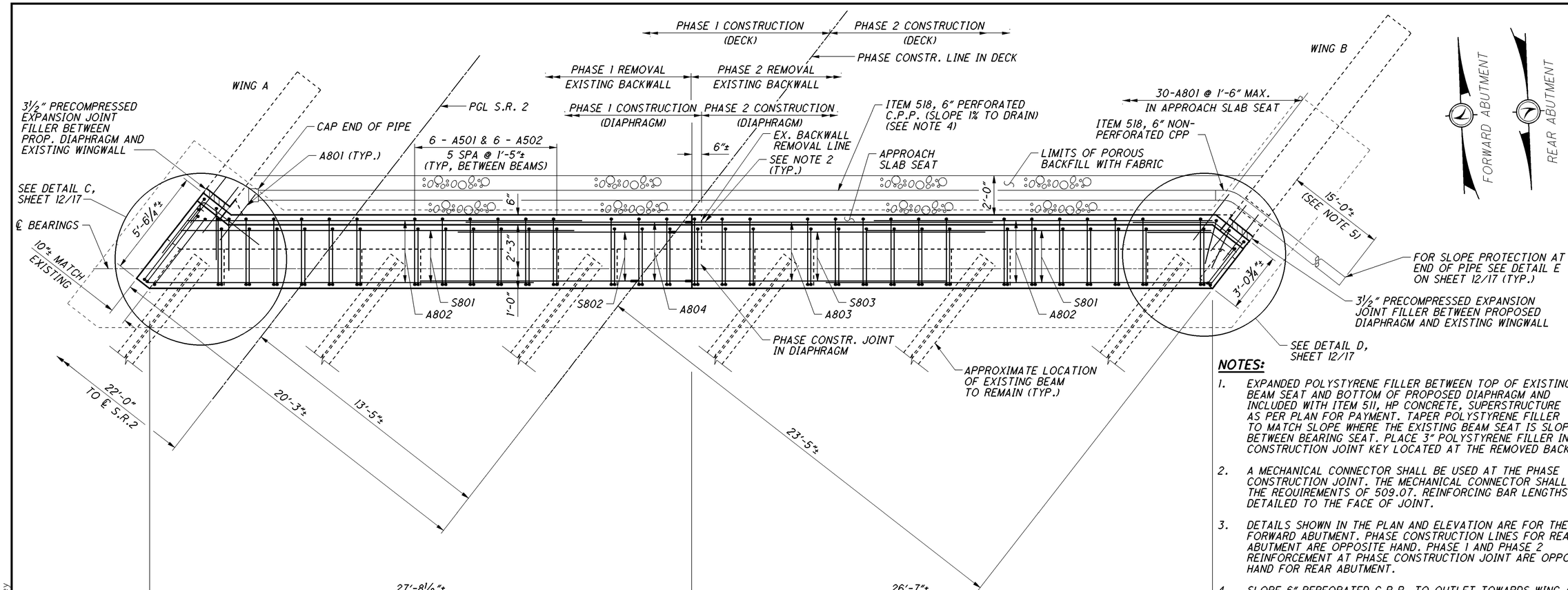
JTC		4301471	

BEARING DETAILS (2 OF 2)
BRIDGE NO. LAK-2-1517R
S.R. 2 OVER SANFORD STREET

LAK-2-14.38
PID No. 87924

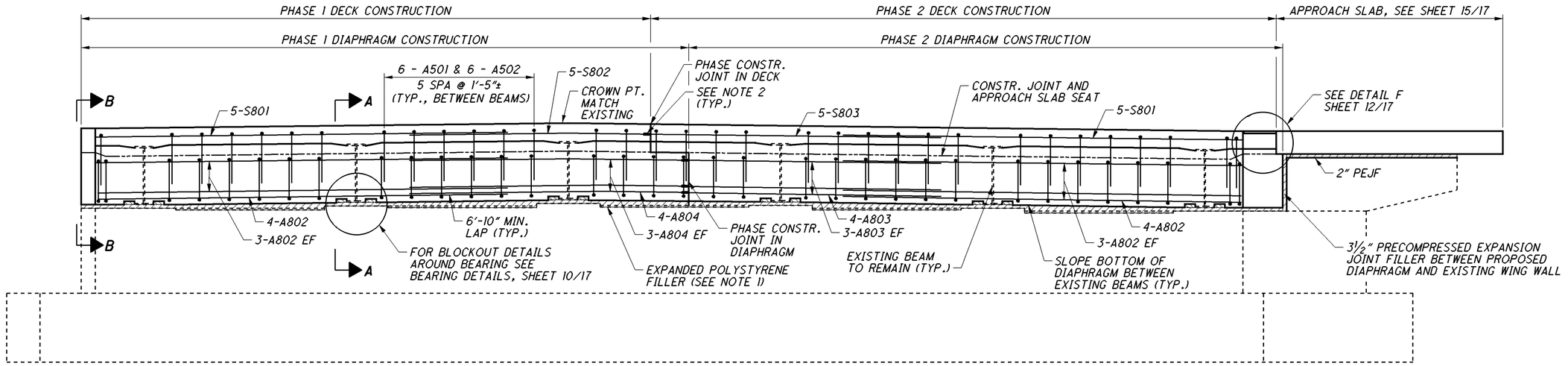


PLAN

FORWARD ABUTMENT SHOWN, REAR ABUTMENT SIMILAR (SEE NOTE 3)

NOTES:

1. EXPANDED POLYSTYRENE FILLER BETWEEN TOP OF EXISTING BEAM SEAT AND BOTTOM OF PROPOSED DIAPHRAGM AND INCLUDED WITH ITEM 511, HP CONCRETE, SUPERSTRUCTURE AS PER PLAN FOR PAYMENT. TAPER POLYSTYRENE FILLER TO MATCH SLOPE WHERE THE EXISTING BEAM SEAT IS SLOPED BETWEEN BEARING SEAT. PLACE 3" POLYSTYRENE FILLER IN CONSTRUCTION JOINT KEY LOCATED AT THE REMOVED BACKWALL.
2. A MECHANICAL CONNECTOR SHALL BE USED AT THE PHASE CONSTRUCTION JOINT. THE MECHANICAL CONNECTOR SHALL MEET THE REQUIREMENTS OF 509.07. REINFORCING BAR LENGTHS ARE DETAILED TO THE FACE OF JOINT.
3. DETAILS SHOWN IN THE PLAN AND ELEVATION ARE FOR THE FORWARD ABUTMENT. PHASE CONSTRUCTION LINES FOR REAR ABUTMENT ARE OPPOSITE HAND. PHASE 1 AND PHASE 2 REINFORCEMENT AT PHASE CONSTRUCTION JOINT ARE OPPOSITE HAND FOR REAR ABUTMENT.
4. SLOPE 6" PERFORATED C.P.P. TO OUTLET TOWARDS WING A AT REAR ABUTMENT AND TOWARDS WING B AT FORWARD ABUTMENT. THE NON-OUTLET END OF THE 6" PERFORATED C.P.P. SHALL BE CAPPED.
5. FOR ESTIMATING PURPOSES, IT IS ASSUMED THAT THE PIPE WILL OUTLET 15'-0" BEYOND THE OUTSIDE FACE OF WINGWALL.



ELEVATION

FORWARD ABUTMENT SHOWN, REAR ABUTMENT SIMILAR (SEE NOTE 3)
SEE SHEET 12 FOR SECTIONS A-A AND B-B

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

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CHECKED	REVISED		STRUCTURE FILE NUMBER
JTC			4301471

ABUTMENT PLAN AND ELEVATION
BRIDGE NO. LAK-2-1517R
S.R. 2 OVER SANFORD STREET

LAK-2-14.38
PID No. 87924

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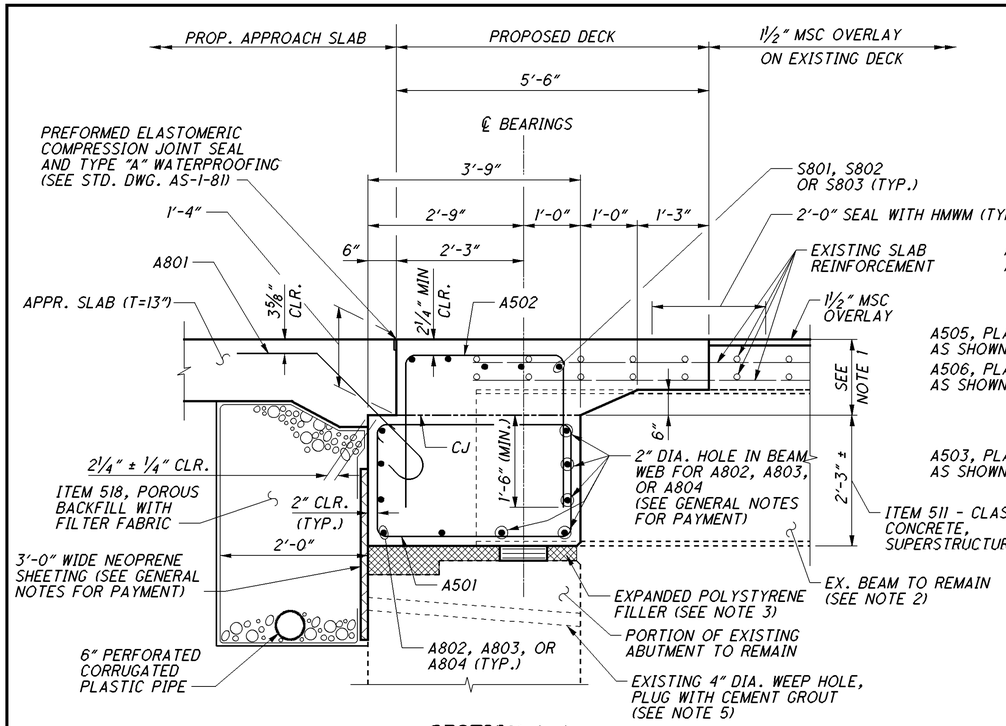
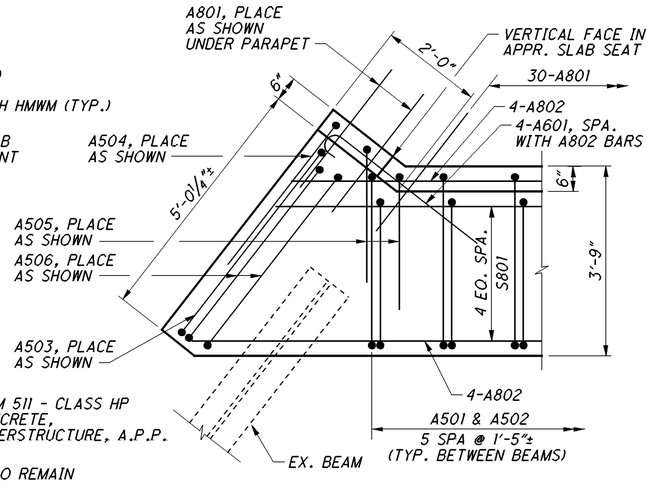


SECTION A-A

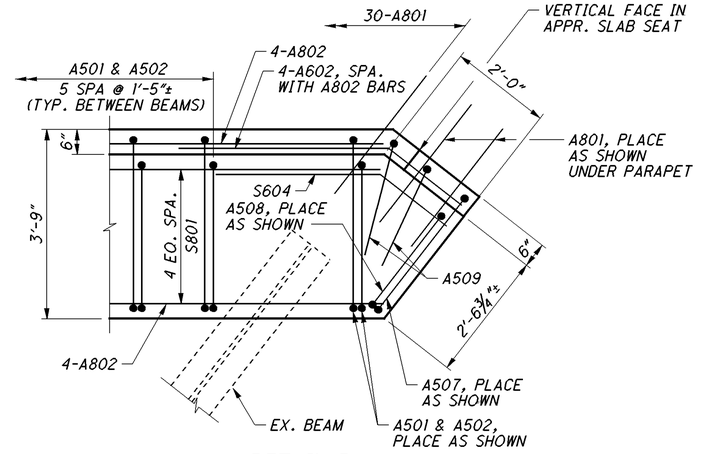
DIMENSIONS SHOWN NORMAL TO ABUTMENT



DETAIL C

DIAPHRAGM END DETAIL

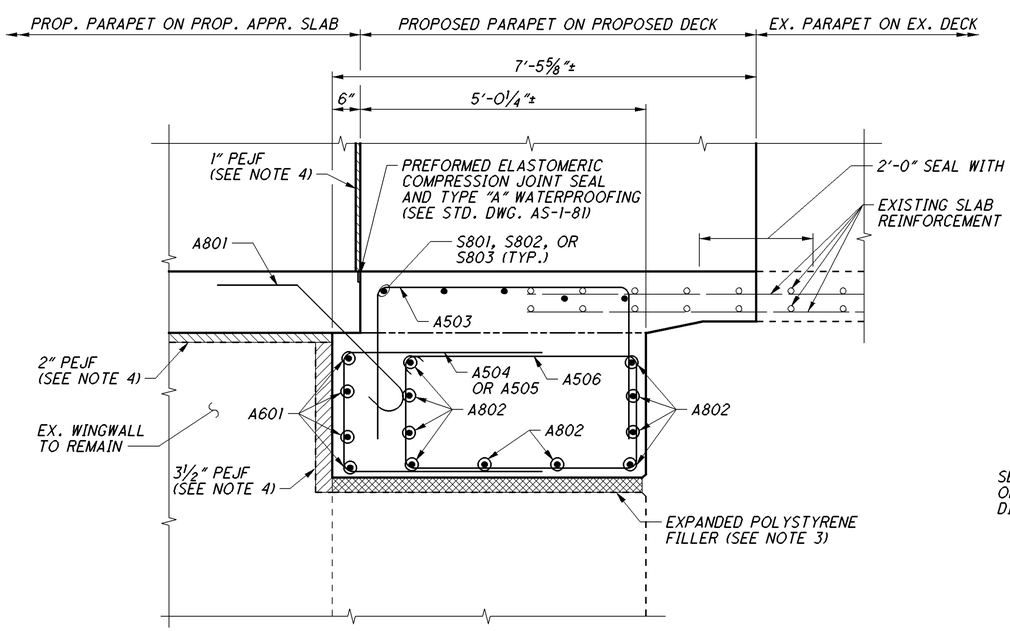
FORWARD ABUTMENT SHOWN, REAR ABUTMENT SIMILAR



DETAIL D

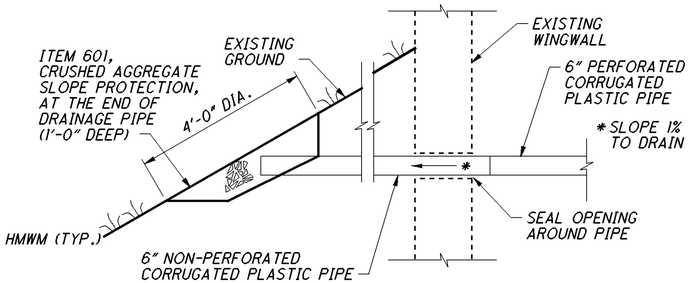
DIAPHRAGM END DETAIL

FORWARD ABUTMENT SHOWN, REAR ABUTMENT SIMILAR



SECTION B-B

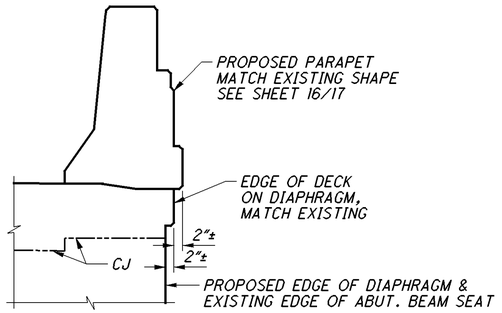
DIMENSIONS SHOWN ALONG EDGE OF DECK



DETAIL E

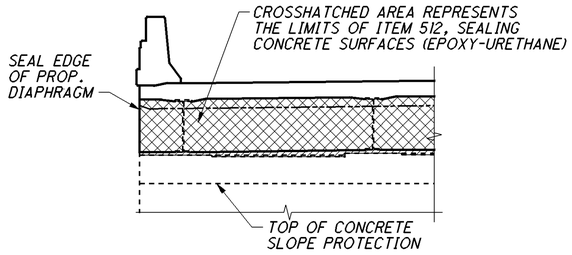
SLOPE PROTECTION DETAIL

TYPICAL EACH DRAIN OUTLET LOCATION



DETAIL F

DIAPHRAGM EDGE DETAIL



ABUTMENT SEALING LIMITS

TYPICAL, EACH ABUTMENT DIAPHRAGM

NOTES:

1. CONCRETE FOR DECK SHALL BE ITEM 511 - CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN.
2. CLEAN AND PAINT ENDS OF EXISTING BEAM FOR A DISTANCE OF 5'-0". PAINT EXISTING BEAMS IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 514. CLEAN AND PAINT ANY EXISTING SCUPPERS AND INTERMEDIATE DIAPHRAGMS WITHIN THESE LIMITS.
3. PLACE EXPANDED POLYSTYRENE FILLER BETWEEN TOP OF EXISTING BEAM SEAT AND BOTTOM OF PROPOSED DIAPHRAGM. TAPER POLYSTYRENE FILLER TO MATCH SLOPE WHERE THE EXISTING BEAM SEAT IS SLOPED BETWEEN BEARING SEAT. PLACE 3" POLYSTYRENE FILLER IN CONSTRUCTION JOINT KEY LOCATED AT THE REMOVED BACKWALL.
4. PREFORMED EXPANSION JOINT FILLERS ARE INCLUDED WITH ITEM 526, REINFORCED CONCRETE APPROACH SLABS (T=13"), AS PER PLAN FOR PAYMENT.
5. CEMENT GROUT SHALL CONSIST OF ONE PART HYDRAULIC CEMENT CONFORMING TO ITEM 701 AND THREE PARTS SAND CONFORMING TO 703.03, BY VOLUME, AND WATER. PAYMENT FOR CEMENT GROUT SHALL BE INCLUDED WITH ITEM 202, PORTIONS OF STRUCTURE REMOVED, AS PER PLAN.
6. SEE SHEET 11 FOR LOCATIONS OF SECTIONS A-A AND B-B.

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CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
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ABUTMENT DETAILS
BRIDGE NO. LAK-2-1517R
S.R. 2 OVER SANFORD STREET

LAK-2-14.38
PID No. 87924

12 / 17

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208

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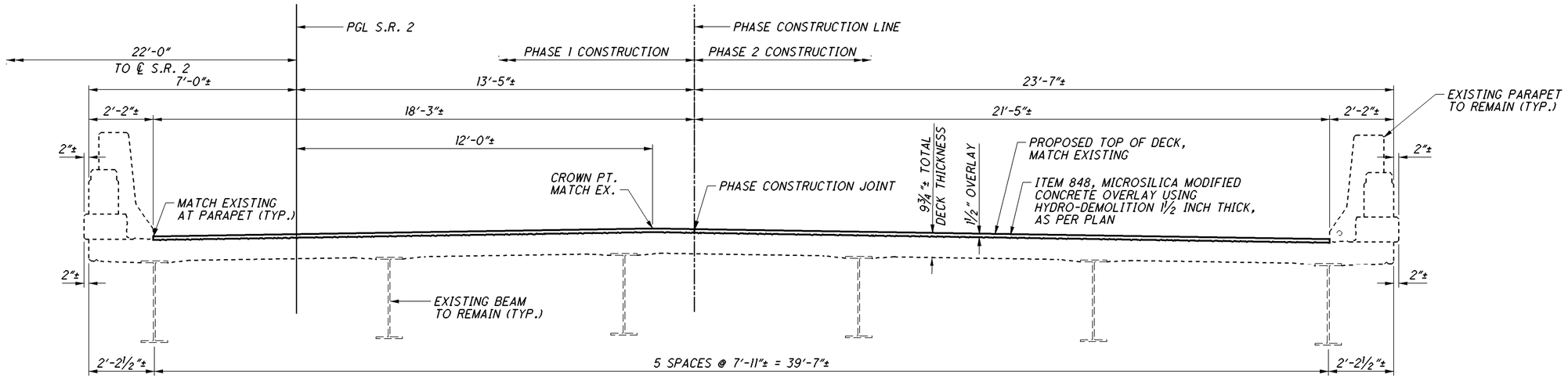
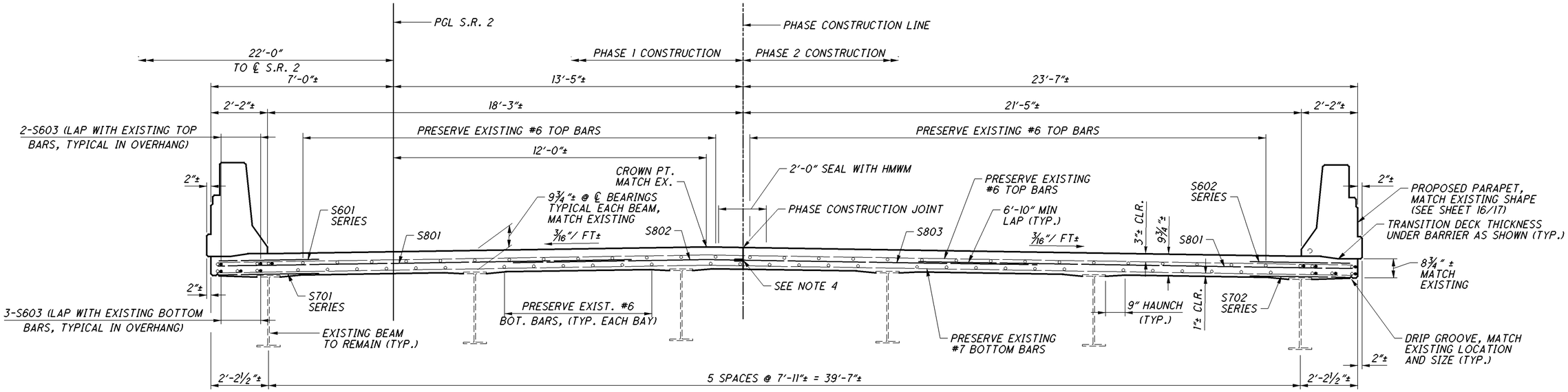


TRANSVERSE SECTION IN SPAN



TRANSVERSE SECTION AT ABUTMENTS

NOTES:

1. TRANSVERSE DIMENSIONS SHOWN ARE APPROXIMATE. IT MAY BE NECESSARY TO VARY THESE DIMENSIONS TO MEET THE PROPOSED APPROACH SLAB AND THE EXISTING DECK.
2. THE ESTIMATED QUANTITY OF DECK SLAB CONCRETE IS BASED ON THE CONSTANT DECK SLAB THICKNESS, AS SHOWN, PLUS THE QUANTITY OF CONCRETE THAT FORMS EACH BEAM HAUNCH. THE ESTIMATE ASSUMES A CONSTANT HAUNCH THICKNESS OF 1 1/16" INCHES AND A CONSTANT HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM FLANGE OF 9 INCHES. DEVIATE FROM THIS HAUNCH THICKNESS AS NECESSARY TO PLACE THE DECK SURFACE AT THE FINISHED GRADE. THE ALLOWABLE TOLERANCE FOR THE HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM FLANGE IS ±3 INCHES.
3. THE HAUNCH THICKNESS WAS MEASURED AT THE CENTERLINE OF THE BEAM, FROM THE SURFACE OF THE DECK TO THE BOTTOM OF THE TOP FLANGE MINUS THE DECK SLAB THICKNESS. THE AREA OF ALL EMBEDDED STEEL PLATES HAS BEEN DEDUCTED FROM THE HAUNCH QUANTITY IN ACCORDANCE WITH 511.24.
4. A MECHANICAL CONNECTOR SHALL BE USED AT THE PHASE CONSTRUCTION JOINT. THE MECHANICAL CONNECTOR SHALL MEET THE REQUIREMENTS OF 509.07. REINFORCING BAR LENGTHS ARE DETAILED TO THE FACE OF JOINT.

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TRANSVERSE SECTION
BRIDGE NO. LAK-2-1517R
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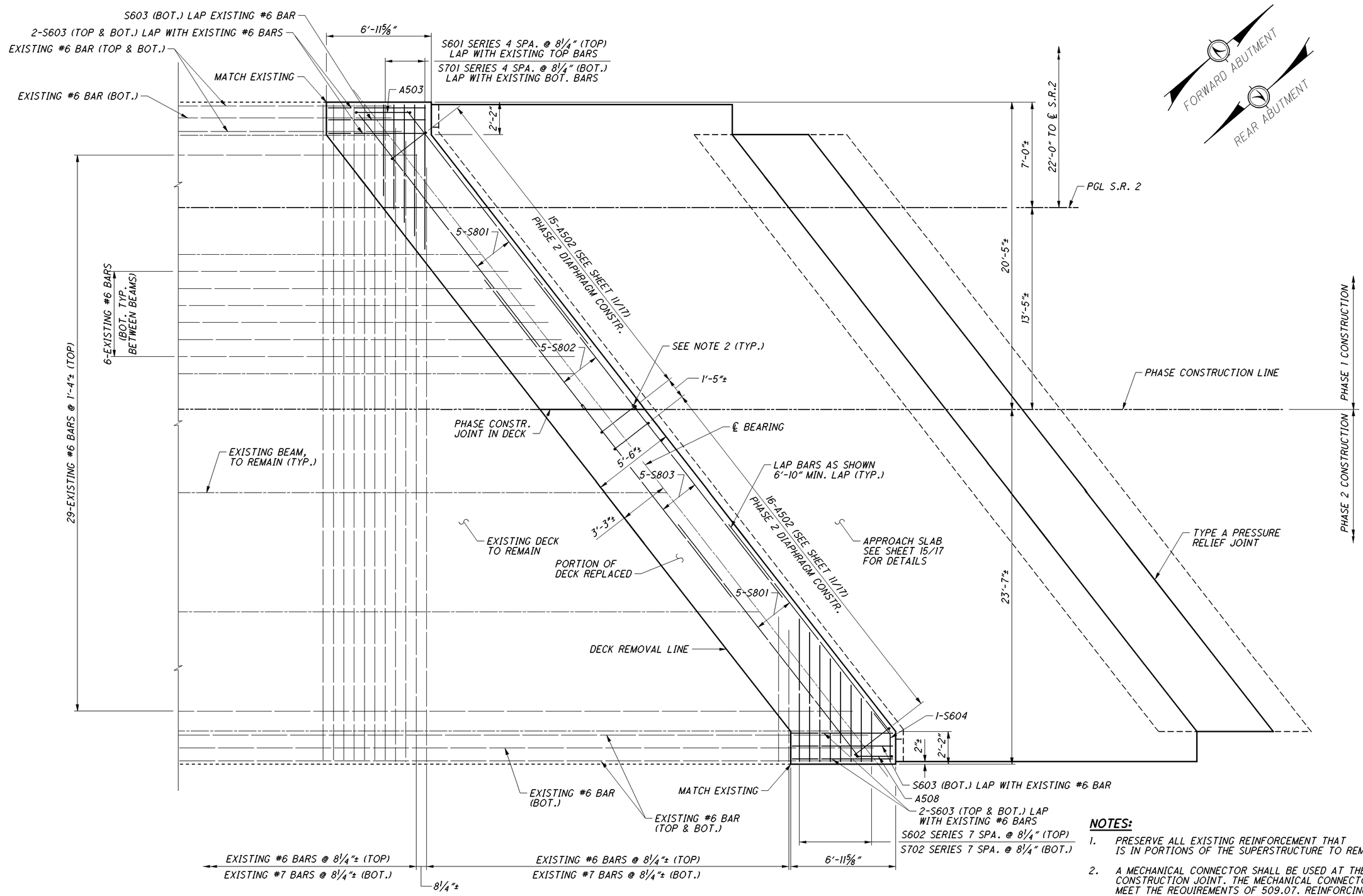

PARTIAL DECK PLAN

SHOWN AT FORWARD ABUTMENT, REAR ABUTMENT SIMILAR
PARAPET NOT SHOWN FOR CLARITY
FOR SECTION THRU ABUTMENT DIAPHRAGM, SEE SHEET 12/17

NOTES:

1. PRESERVE ALL EXISTING REINFORCEMENT THAT IS IN PORTIONS OF THE SUPERSTRUCTURE TO REMAIN.
2. A MECHANICAL CONNECTOR SHALL BE USED AT THE PHASE CONSTRUCTION JOINT. THE MECHANICAL CONNECTOR SHALL MEET THE REQUIREMENTS OF 509.07. REINFORCING BAR LENGTHS ARE DETAILED TO THE FACE OF JOINT.
3. FOR PRESSURE RELIEF JOINT DETAILS, SEE STANDARD DRAWING BP-2.3.

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PARTIAL DECK PLAN
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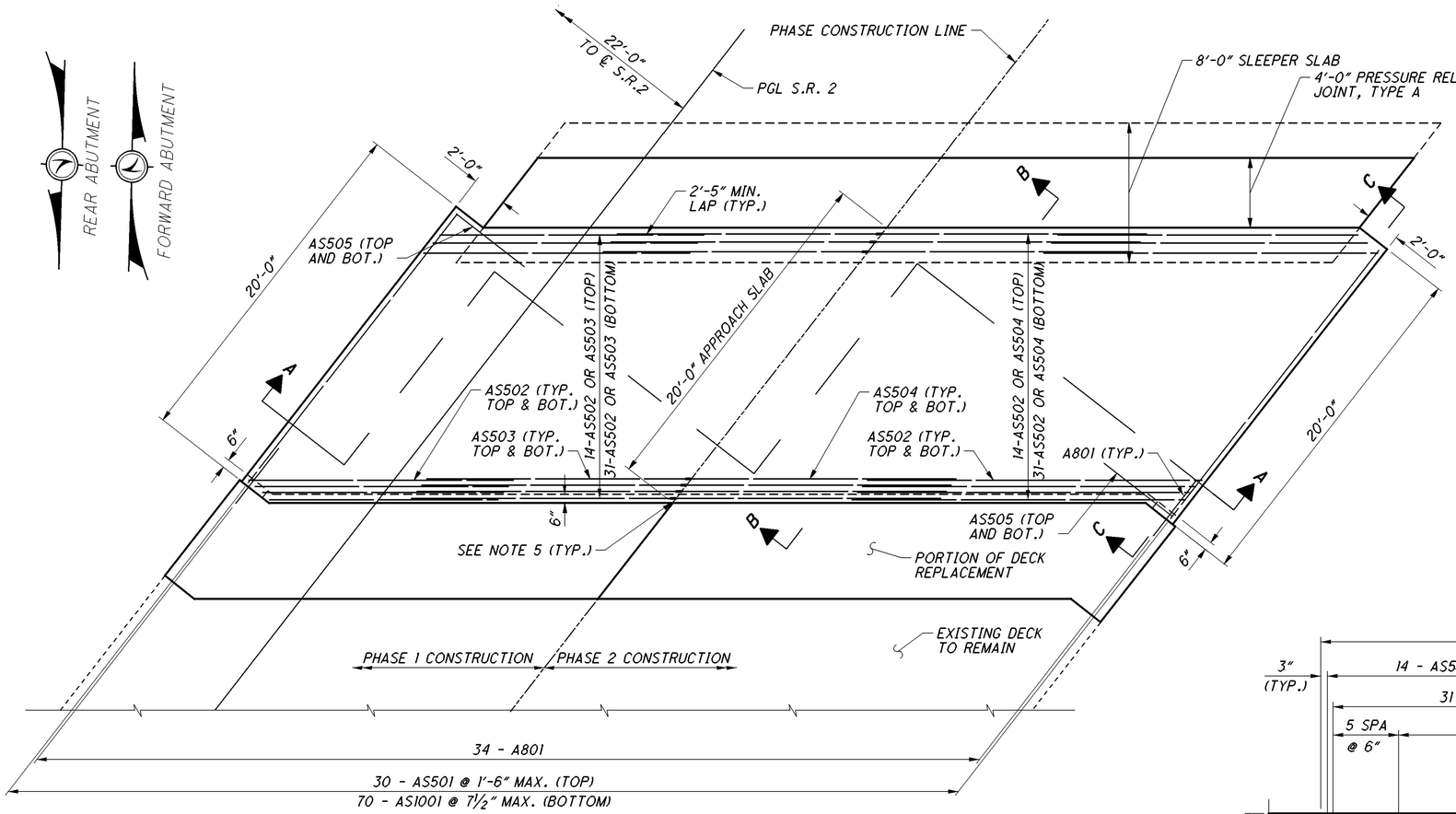
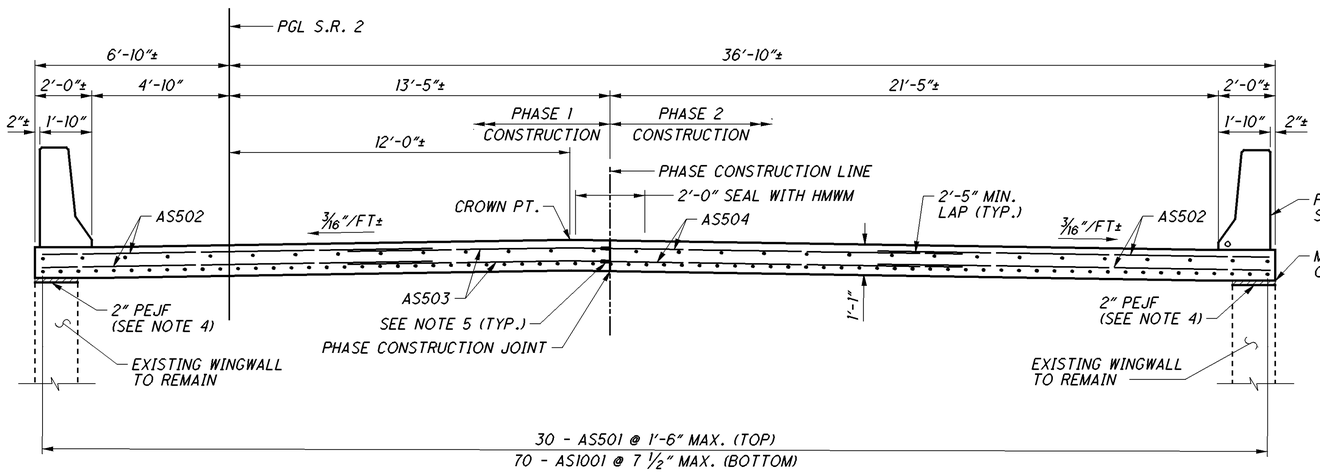


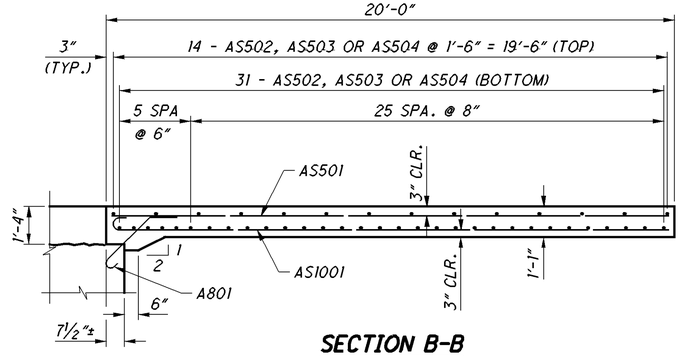
PLAN

(FORWARD APPROACH SHOWN, REAR APPROACH SIMILAR)
EXISTING AND PROPOSED PARAPET NOT SHOWN FOR CLARITY

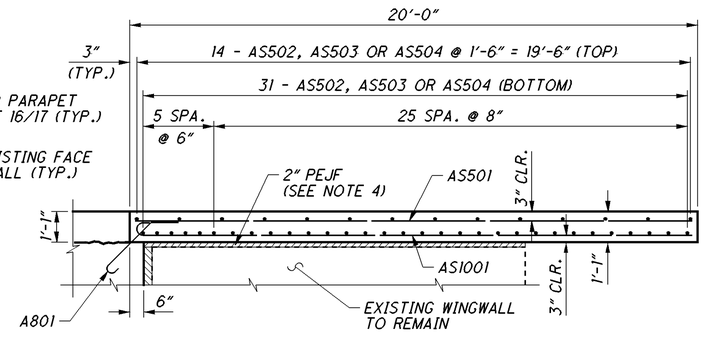


SECTION A-A

(LOOKING AHEAD STATION)



SECTION B-B



SECTION C-C

NOTES:

1. SEE STANDARD DRAWING AS-1-81 FOR ADDITIONAL DETAILS.
2. AS502, AS503, AS504 BARS SHALL BE PLACED PARALLEL TO THE ABUTMENT AND AS501, AS1001 BARS SHALL BE PLACED PLACED PARALLEL TO PGL S.R. 2.
3. FOR DETAILS OF PARAPET ON APPROACH SLAB, SEE SHEET 16/17.
4. THE FOLLOWING SHALL BE INCLUDED IN THE UNIT BID PRICE PER SQUARE YARD FOR ITEM 526, REINFORCED CONCRETE APPROACH SLABS (T=13"), AS PER PLAN:
   - CONCRETE FOR APPROACH SLAB
   - ALL ASSOCIATED REINFORCING STEEL
   - ALL PREFORMED EXPANSION JOINT FILLERS AND JOINT SEALERS
   - WATERPROOFING
   - CONCRETE SEALING OF PARAPET ON APPROACH SLAB
5. A MECHANICAL CONNECTOR SHALL BE USED AT THE PHASE CONSTRUCTION JOINT. THE MECHANICAL CONNECTOR SHALL MEET THE REQUIREMENTS OF 509.07. REINFORCING BAR LENGTHS ARE DETAILED TO THE FACE OF JOINT.
6. PRESSURE RELIEF JOINT, TYPE A AND SLEEPER SLAB SHALL BE INCLUDED IN THE UNIT BID PRICE PER FOOT FOR ITEM SPECIAL, PRESSURE RELIEF JOINT, TYPE A. FOR PRESSURE RELIEF JOINT DETAILS, SEE STANDARD DRAWING BP-2.3.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301471	

APPROACH SLAB PLAN AND DETAILS

BRIDGE NO. LAK-2-1517R
S.R. 2 OVER SANFORD STREET

LAK-2-14.38
PID No. 87924

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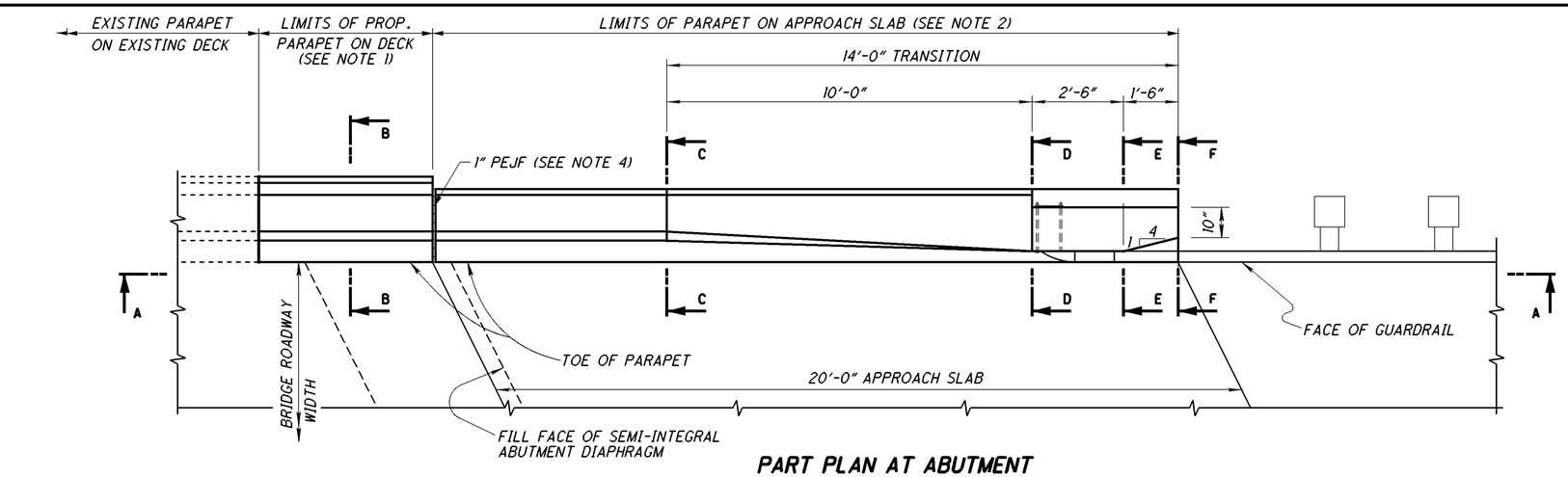
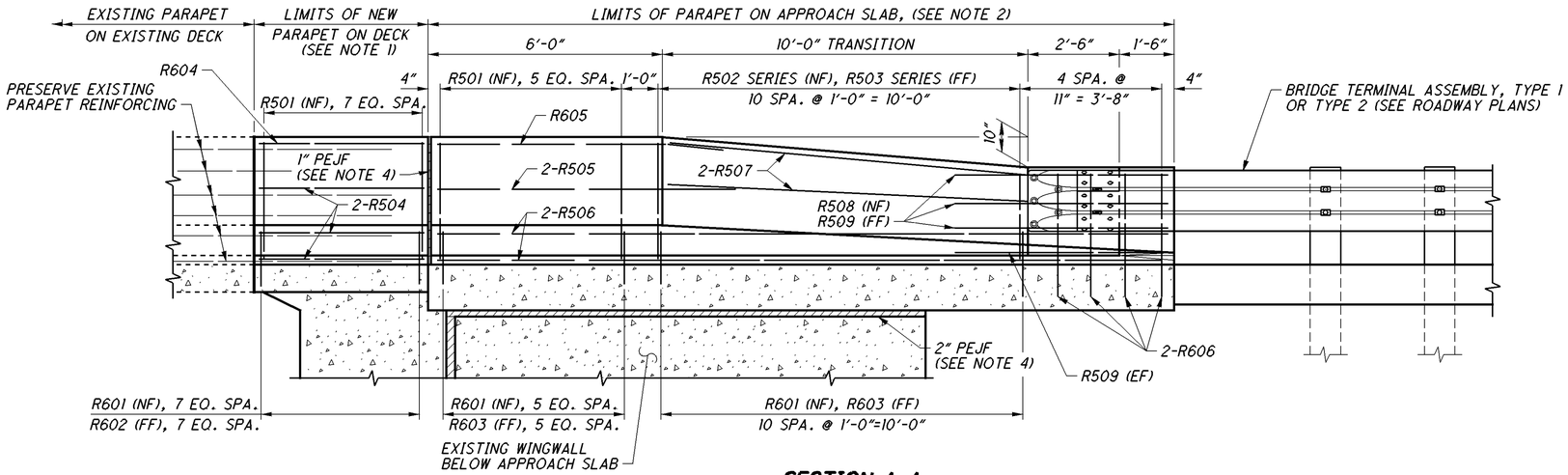
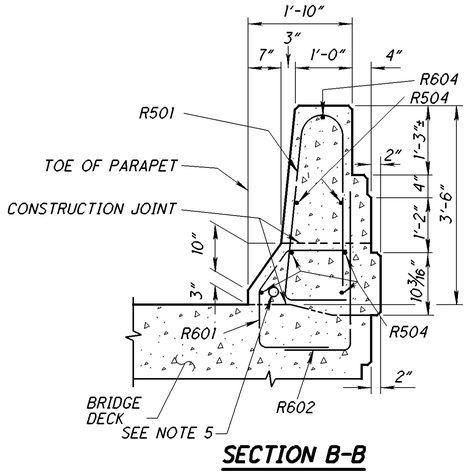


PART PLAN AT ABUTMENT

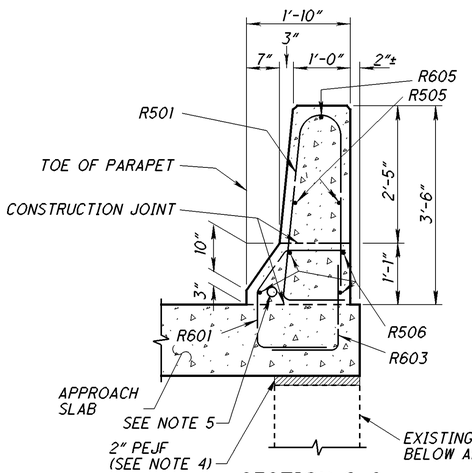


SECTION A-A

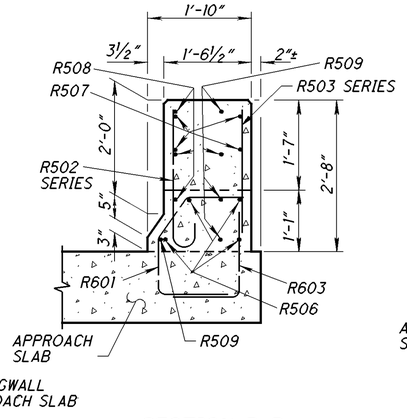


SECTION B-B

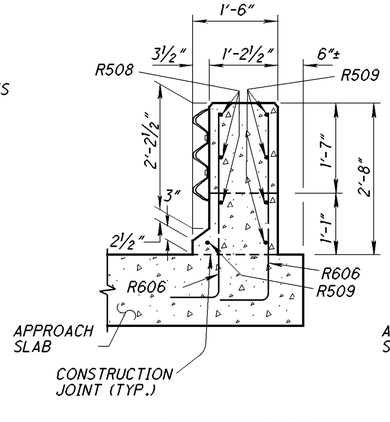
MATCH EXISTING PARAPET SHAPE
FIELD BEND BARS IF NECESSARY



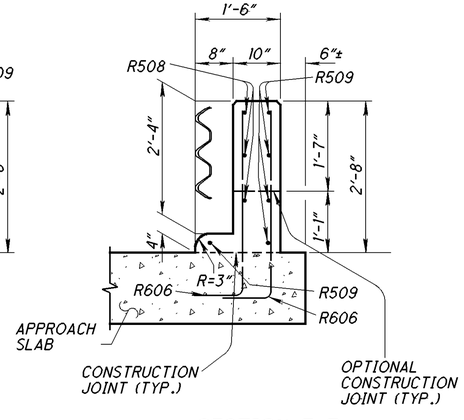
SECTION C-C



SECTION D-D



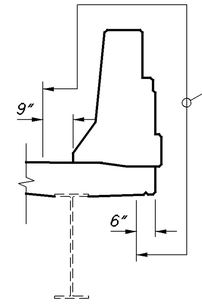
SECTION E-E



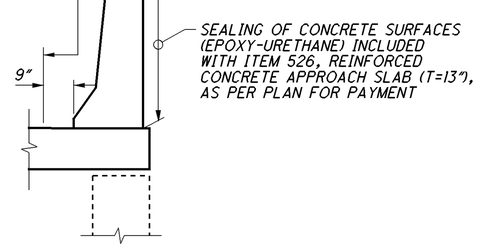
SECTION F-F

NOTES:

1. PARAPET CONCRETE INCLUDED WITH ITEM 511, CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN FOR PAYMENT. PARAPET REINFORCING INCLUDED WITH ITEM 509, EPOXY COATED REINFORCING STEEL, AS PER PLAN.
2. PARAPET CONCRETE AND REINFORCING INCLUDED WITH ITEM 526, REINFORCED CONCRETE APPROACH SLABS (T=13"), AS PER PLAN FOR PAYMENT.
3. FOR PARAPET REINFORCING LIST, SEE SHEET 17/17.
4. PREFORMED EXPANSION JOINT FILLERS INCLUDED WITH ITEM 526, REINFORCED CONCRETE APPROACH SLABS (T=13") AS PER PLAN FOR PAYMENT.
5. NEW CONDUIT IN OUTSIDE PARAPET ONLY.



PARAPET ON DECK



PARAPET ON APPROACH SLAB

CONCRETE SEALING DETAILS

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301471	

PARAPET DETAILS
BRIDGE NO. LAK-2-1517R
S.R. 2 OVER SANFORD STREET

LAK-2-14.38
PID No. 87924

16 / 17

135
208

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SUPERSTRUCTURE - ABUTMENT DIAPHRAGM

MARK	QUANTITY REAR ABUT.	QUANTITY FWD. ABUT.	QUANTITY TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
A501	31	31	62	11'-3"	728	3	3'-5"	1'-11"					
A502	31	31	62	8'-0"	518	2	2'-8"	2'-11"	2'-8"				
A503	1	1	2	9'-9"	21	2	2'-8"	4'-8"	2'-8"				
A504	1	1	2	9'-8"	21	2	4'-0"	1'-11"	4'-0"				
A505	2	2	4	7'-8"	32	2	3'-0"	1'-11"	3'-0"				
A506	2	2	4	13'-1"	56	3	4'-4"	1'-11"					
A507	1	1	2	9'-9"	21	3	2'-8"	1'-11"					
A508	1	1	2	7'-3"	16	2	2'-8"	2'-2"	2'-8"				
A509	2	2	4	6'-8"	28	2	2'-6"	1'-11"	2'-6"				
A601	4	4	8	5'-10"	70	16	5'-2"						
A602	4	4	8	5'-4"	64	19	3'-6"	1'-5½"	1'-1½"				
A801	34	34	68	5'-4"	969	18	3'-0"	1'-0"	1'-0"				
A802	20	20	40	20'-10"	2225	STR							
A803	10	10	20	12'-8"	677	36							
A804	10	10	20	15'-1"	806	35							
				SUB-TOTAL	6252								

SUPERSTRUCTURE - DECK

MARK	QUANTITY REAR ABUT.	QUANTITY FWD. ABUT.	QUANTITY TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
S601	1 SERIES OF 5	1 SERIES OF 5	2 SERIES OF 5	6'-6" TO 10'-0"	124	29	5	6'-6'	10'-0"				10½"
S602	1 SERIES OF 8	1 SERIES OF 8	2 SERIES OF 8	3'-10" TO 10'-0"	167	29	8	3'-10"	10'-0"				10½"
S603	10	10	20	6'-7"	198	STR							
S604	1	1	2	5'-4"	16	19	3'-6"	1'-5½"	1'-1½"				
S701	1 SERIES OF 5	1 SERIES OF 5	2 SERIES OF 5	6'-6" TO 10'-0"	169	29	5	6'-6"	10'-0"				10½"
S702	1 SERIES OF 8	1 SERIES OF 8	2 SERIES OF 8	3'-10" TO 10'-0"	227	29	8	3'-10"	10'-0"				10½"
S801	10	10	20	21'-1"	1126	STR							
S802	5	5	10	11'-6"	308	35							
S803	5	5	10	15'-6"	414	36							
				SUB-TOTAL	2749								

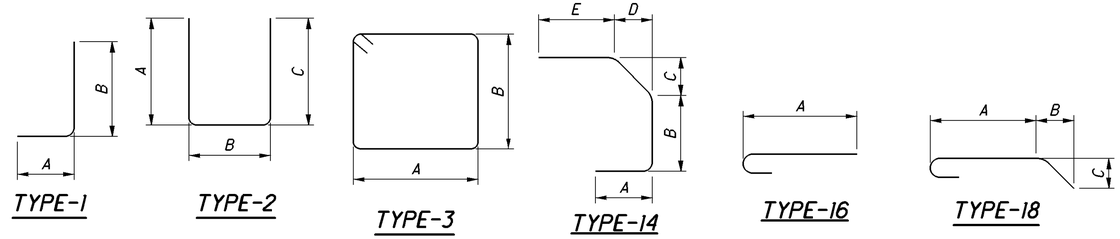
SUPERSTRUCTURE - PARAPET

MARK	QUANTITY REAR ABUT.	QUANTITY FWD. ABUT.	QUANTITY TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
R501	16	16	32	7'-6"	251	23	1'-0"	3'-3"	3'-0"			3¾"	
R504	12	12	24	6'-7"	165	STR							
R601	16	16	32	3'-4"	161	14	1'-2½"	8"	8½"	6"	11"		
R602	16	16	32	3'-4"	161	1	11"	2'-7"					
R604	2	2	4	6'-7"	40	STR							
				SUB-TOTAL	778								

APPROACH SLAB*

MARK	QUANTITY REAR ABUT.	QUANTITY FWD. ABUT.	QUANTITY TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
AS501	30	30	60	19'-6"	1221	STR							
AS502	90	90	180	20'-0"	3755	STR							
AS503	45	45	90	7'-11"	744	35							
AS504	45	45	90	11'-11"	1119	36							
AS505	4	4	8	5'-0"	42	STR							
AS1001	70	70	140	20'-11"	12601	16	19'-6"						
R501	12	12	24	7'-6"	188	23	1'-0"	3'-3"	3'-0"			3¾"	
R502	2 SERIES OF 11	2 SERIES OF 11	4 SERIES OF 11	3'-0" TO 3'-10"	157	30	11	2'-5"	3'-3"				1"
R503	2 SERIES OF 11	2 SERIES OF 11	4 SERIES OF 11	2'-5" TO 3'-3"	130	29	11	2'-5"	3'-3"				1"
R505	4	4	8	7'-10"	66	STR							
R506	8	8	16	15'-8"	262	STR							
R507	8	8	16	10'-0"	167	STR							
R508	6	6	12	5'-8"	71	25	1'-10"	2'-5"	1'-4¼"	1½"	5"		
R509	10	10	20	5'-8"	119	STR							
R601	34	34	68	3'-4"	340	14	1'-2½"	8"	8½"	6"	11"		
R603	34	34	68	2'-4"	239	1	11"	1'-7"					
R605	2	2	4	8'-3"	50	STR							
R606	16	16	32	4'-0"	193	1	11"	3'-3"					
				SUB-TOTAL	21464								

* BARS SHOWN FOR INFORMATIONAL PURPOSES ONLY. BARS ARE INCLUDED WITH APPROACH SLAB ITEM FOR PAYMENT.



NOTES:

1. THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT WHERE THREE DIGITS ARE USED AND THE FIRST TWO WHERE FOUR DIGIT ARE USED, INDICATES THE BAR SIZE NUMBER.
2. ALL DIMENSIONS ARE MEASURED OUT-TO-OUT OF BAR UNLESS NOTED OTHERWISE.
3. FOR STANDARD HOOK DIMENSIONS, SEE SECTION 509.05 OF THE SPECIFICATIONS.
4. ALL REINFORCING STEEL TO BE EPOXY COATED.
5. PAYMENT FOR REINFORCING STEEL SHALL BE INCLUDED IN THE CONTRACT BID PRICE FOR ITEM 509, EPOXY COATED REINFORCING STEEL, AS PER PLAN.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED BKS | DRAWN TEK | REVIEWED SCJ | DATE 9/10 | CHECKED JTC | REVISED | STRUCTURE FILE NUMBER 4301471

REINFORCING STEEL LIST

BRIDGE NO. LAK-2-1517R
S.R. 2 OVER SANFORD STREET

LAK-2-14.38
PID No. 87924

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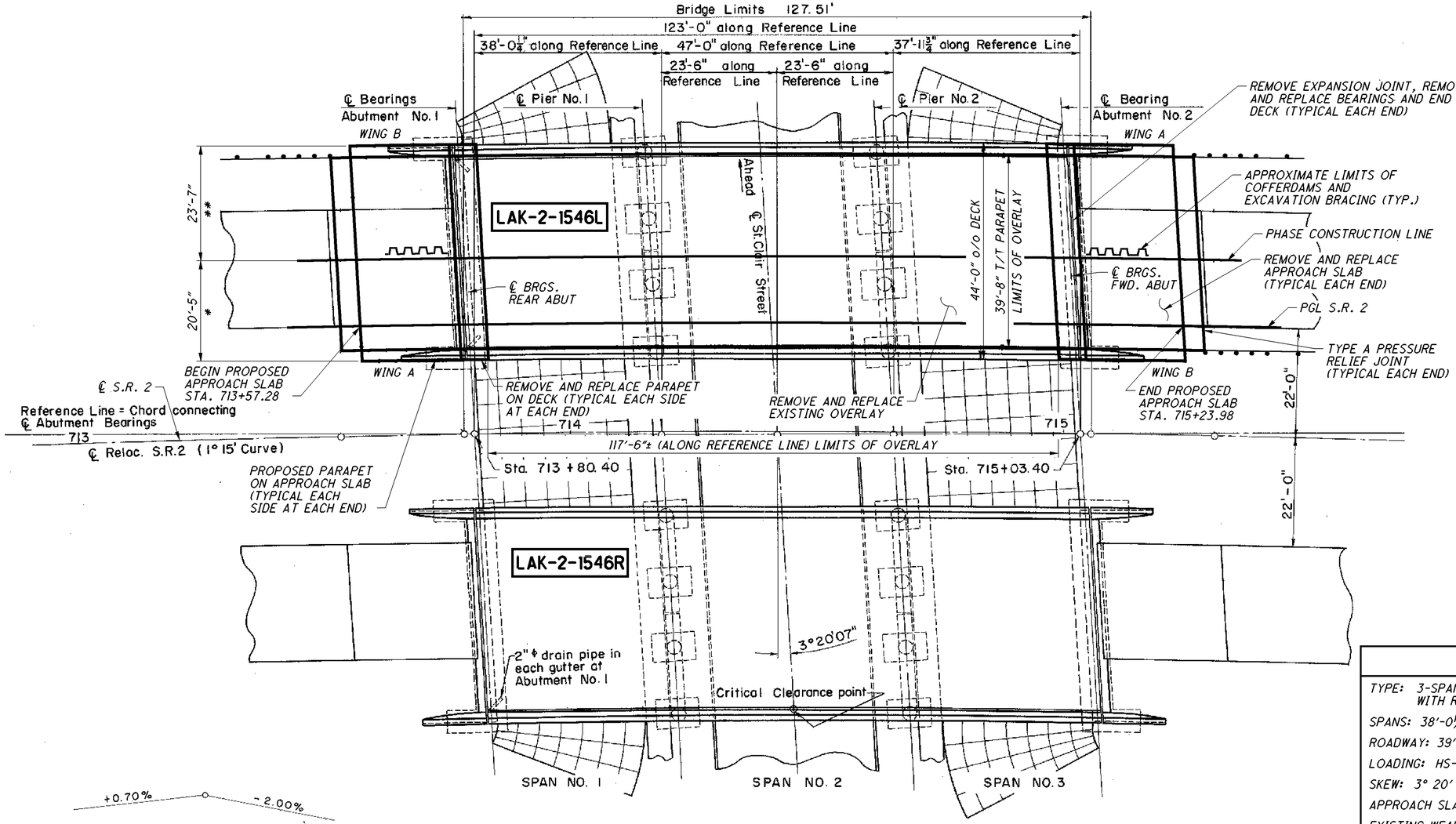
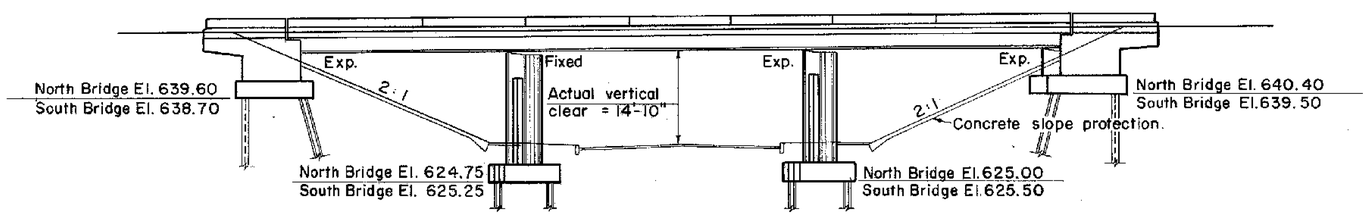


PLAN

V.P.I. Sta. 718+50
Elevation 653.51
L.V.C. 800'
M.O. 2.70'

VERTICAL CURVE DATA



ELEVATION

LEGEND:

* = PHASE 1 CONSTRUCTION
** = PHASE 2 CONSTRUCTION
NORTH BRIDGE = LAK-2-1546L
SOUTH BRIDGE = LAK-2-1546R

EXISTING STRUCTURE

TYPE: 3-SPAN CONTINUOUS NON-COMPOSITE ROLLED STEEL BEAMS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURES
SPANS: 38'-0¼", 47'-0", 37'-11¾"
ROADWAY: 39'-8"± T/T PARAPET
LOADING: HS-20-44
SKEW: 3° 20' 07" R.F.
APPROACH SLABS: 25'-0"± LONG
EXISTING WEARING SURFACE: LATEX MODIFIED CONCRETE
ALIGNMENT: 1° 15' CURVE
CROWN: SUPERELEVATED
STRUCTURAL FILE NUMBER: 4301501
DATE BUILT: 1963

PROPOSED STRUCTURE

PROPOSED WORK: REPLACE SLAB ENDS WITH MODIFIED SEMI-INTERGRAL ABUTMENT, APPROACH SLAB, AND OVERLAY
TYPE: 3-SPAN CONTINUOUS NON-COMPOSITE ROLLED STEEL BEAMS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURES
SPANS: 38'-0¼", 47'-0", 37'-11¾"
ROADWAY: 39'-8"± T/T PARAPET
LOADING: HS-20-44
SKEW: 3° 20' 07" R.F.
APPROACH SLABS: STD. AS-1-81 20'-0" LONG (MODIFIED)
PROPOSED WEARING SURFACE: MICRO SILICA MODIFIED CONCRETE
ALIGNMENT: 1° 15' CURVE
CROWN: SUPERELEVATED

NOTE:

PLANS OF EXISTING STRUCTURES ARE AVAILABLE FOR EXAMINATION AT THE OHIO DEPARTMENT OF TRANSPORTATION, DISTRICT 12 OFFICE, 5500 TRANSPORTATION BLVD. GARFIELD HEIGHTS, OHIO 44125.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED BKS | DRAWN TEK | REVIEWED SCJ | DATE 9/10
CHECKED JTC | REVISED | STRUCTURE FILE NUMBER 4301501

SITE PLAN
BRIDGE NO. LAK-2-1546L
S.R. 2 OVER ST. CLAIR STREET

LAK-2-14.38
PID No. 87924

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GENERAL NOTES

REFER TO THE FOLLOWING STANDARD BRIDGE DRAWINGS:

AS-1-81	REVISED	07-19-02
SICD-1-96	REVISED	07-19-02
PCB-91	REVISED	07-19-02

AND TO THE FOLLOWING SUPPLEMENTAL SPECIFICATIONS:

843	DATED	04-18-03
848	DATED	04-16-10

DESIGN SPECIFICATIONS: THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO), 2002, AND THE 2004 ODOT BRIDGE DESIGN MANUAL.

DESIGN LOADING: HS-20 AND THE ALTERNATE MILITARY LOADING.

DESIGN DATA:

CONCRETE CLASS HP - COMPRESSIVE STRENGTH 4.5 KSI (DECK, ABUTMENTS DIAPHRAGMS, PARAPETS, AND APPROACH SLABS)
REINFORCING STEEL - MINIMUM YIELD STRENGTH 60 KSI
STRUCTURAL STEEL - ASTM A709 GRADE 50W - YIELD STRENGTH 50 KSI

DECK PROTECTION METHOD: EPOXY COATED REINFORCING STEEL, 2½" CONCRETE COVER, MODIFIED MICRO SILICA CONCRETE OVERLAY.

MONOLITHIC WEARING SURFACE: IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1" THICK.

EXISTING STRUCTURE VERIFICATION: DETAILS AND DIMENSIONS SHOWN ON 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 513.04.

BASE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS THAT HAVE BEEN VERIFIED IN THE FIELD.

MAINTENANCE OF TRAFFIC

PROPOSED WORK:
IN GENERAL, THE PROPOSED WORK FOR THE S.R. 2 BRIDGE OVER ST. CLAIR STREET SHALL CONSIST OF THE REMOVAL AND REPLACEMENT OF THE EXISTING LATEX MODIFIED CONCRETE OVERLAY AND REMOVAL OF THE EXISTING EXPANSION JOINTS AND ABUTMENT BACKWALLS AND REPLACE WITH SEMI-INTEGRAL ABUTMENT DIAPHRAGMS. REMOVAL AND CONSTRUCTION OPERATIONS ARE TO BE PERFORMED WHILE MAINTAINING ONE LANE OF WESTBOUND TRAFFIC ON S.R. 2. THE MAJOR ITEMS OF WORK REQUIRING PHASED CONSTRUCTION ARE DESCRIBED BELOW. SOME PROJECT WORK ITEMS, SUCH AS SEALING OF CONCRETE SURFACES, MAY BE PERFORMED AT THE CONTRACTOR'S DISCRETION DURING THE CONTRACT SCHEDULE PERIOD; HOWEVER, THE PERFORMANCE OF ALL WORK MUST BE COORDINATED TO SATISFY MAINTENANCE OF TRAFFIC AND SAFETY REQUIREMENTS.SEE M.O.T. PLANS FOR ADDITIONAL MAINTENANCE OF TRAFFIC REQUIREMENTS.

PHASE 1 CONSTRUCTION:
1. INSTALL PORTABLE CONCRETE BARRIER ON THE EXISTING ST. CLAIR STREET BRIDGE AND APPROACHES. ROUTE TRAFFIC ACROSS THE BRIDGE ACCORDING TO THE MAINTENANCE OF TRAFFIC PLANS.
2. CONSTRUCT TEMPORARY EXCAVATION SUPPORTS ALONG THE PHASE REMOVAL LINE AT THE REAR AND FORWARD ABUTMENTS AS SHOWN IN THE PLANS.
3. ON THE SOUTHERNMOST PORTION OF THE EXISTING BRIDGE, REMOVE THE EXISTING OVERLAY, PORTION OF DECK/PARAPET AT THE ABUTMENTS, APPROACH SLABS, EXPANSION JOINTS, END CROSSFRAMES, AND ABUTMENT BACKWALLS IN ACCORDANCE WITH 202.03 AND PLAN REQUIREMENTS.
4. CLEAN AND PAINT ENDS OF THE THREE SOUTHERNMOST EXISTING BEAMS. DRILL 2" DIAMETER HOLES THROUGH EXISTING BEAM WEBS FOR LONGITUDINAL ABUTMENT DIAPHRAGM REINFORCING.
5. CONSTRUCT SOUTHERNMOST REINFORCED CONCRETE SEMI-INTEGRAL ABUTMENT DIAPHRAGM, WINGWALL, DECK, PARAPET, AND APPROACH SLAB AT THE REAR AND FORWARD ABUTMENTS.

PHASE 2 CONSTRUCTION:
1. INSTALL PORTABLE CONCRETE BARRIER ON COMPLETED PHASE 1 PORTION OF THE BRIDGE AS SHOWN ON BRIDGE AND MAINTENANCE OF TRAFFIC PLANS. ROUTE TRAFFIC ONTO COMPLETED PHASE 1 PORTION OF THE BRIDGE.
2. REMOVE THE REMAINING PORTIONS OF THE EXISTING OVERLAY, DECK/PARAPET AT ABUTMENTS, APPROACH SLABS, EXPANSION JOINTS, END CROSSFRAMES, AND ABUTMENT BACKWALLS IN ACCORDANCE WITH 202.03 AND PLAN REQUIREMENTS.
3. CLEAN AND PAINT ENDS OF THE THREE NORTHERNMOST EXISTING BEAMS. DRILL 2" DIAMETER HOLES THROUGH EXISTING BEAM WEBS FOR LONGITUDINAL ABUTMENT DIAPHRAGM REINFORCING.
4. CONSTRUCT NORTHERNMOST REINFORCED CONCRETE SEMI-INTEGRAL ABUTMENT DIAPHRAGM, WINGWALL, DECK, PARAPET, AND APPROACH SLAB AT THE REAR AND FORWARD ABUTMENTS.
5. REMOVE PORTABLE CONCRETE BARRIER AND ROUTE TRAFFIC ONTO COMPLETED BRIDGE ACCORDING TO MAINTENANCE OF TRAFFIC PLANS.

ITEM 202, PORTIONS OF STRUCTURE REMOVED AS PER PLAN:

DESCRIPTION: THIS WORK CONSISTS OF THE REMOVAL OF THE CONCRETE DECK, PARAPETS, EXPANSION JOINTS, BEARINGS, AND OTHER APPURTENANCES FROM SUPPORTING SYSTEMS AS SHOWN IN THE PLANS. THIS WORK SHALL ALSO INCLUDE THE REMOVAL OF THE ABUTMENT BACKWALLS IN ACCORDANCE WITH THE DETAILS SHOWN IN THE PLANS. ADDITIONAL CONCRETE REMOVAL MAY BE REQUIRED IF UNSOUND OR DETERIORATED CONCRETE IS ENCOUNTERED BEYOND THE PLAN CUT LINES. THE CONTRACTOR SHALL REMOVE ANY UNSOUND OR DETERIORATED CONCRETE BEYOND THE PLAN CUT LINE AS DIRECTED BY THE ENGINEER. PERFORM WORK CAREFULLY DURING DECK REMOVALS TO PROTECT PORTIONS OF THE EXISTING STEEL SUPPORTING SYSTEM THAT ARE TO BE SALVAGED AND INCORPORATED INTO THE PROPOSED STRUCTURE. THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE RAM TYPE OF EQUIPMENT IS PROHIBITED. SUBMIT CONSTRUCTION PLANS ACCORDING TO CMS 501.05.

PROTECTION OF TRAFFIC: PRIOR TO DEMOLITION OF ANY PORTIONS OF THE EXISTING SUPERSTRUCTURE, THE CONTRACTOR SHALL SUBMIT PLANS FOR THE PROTECTION OF TRAFFIC (VEHICULAR, 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 ENSURE 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, DRAW THE OUTLINE OF THE PRIMARY STEEL MEMBERS IN CONTACT WITH THE BOTTOM OF THE DECK ON THE SURFACE OF THE DECK. DRILL SMALL DIAMETER PILOT HOLES 2 INCHES OUTSIDE THESE LINES TO CONFIRM THE LOCATION OF FLANGE EDGES. DECK CUTS OVER OR WITHIN 2" OF FLANGE EDGES SHALL NOT EXTEND LOWER THAN THE BOTTOM LAYER OF DECK SLAB REINFORCING STEEL. CUTS MADE OUTSIDE 2 INCHES OF FLANGE EDGES MAY EXTEND THE FULL DEPTH OF THE DECK. PERFORM WORK CAREFULLY DURING CUTTING OF THE DECK SLAB TO AVOID DAMAGING STEEL MEMBERS THAT ARE TO BE INCORPORATED INTO THE PROPOSED STRUCTURE. REPLACE OR REPAIR STEEL MEMBERS DAMAGED BY THE DECK SLAB CUTTING OPERATIONS AT NO COST TO THE PROJECT. AT LEAST 7 DAYS BEFORE PERFORMING REPAIR WORK, SUBMIT A PROPOSED REPAIR PLAN, DEVELOPED BY AN OHIO REGISTERED PROFESSIONAL ENGINEER TO THE DIRECTOR. OBTAIN THE DIRECTOR'S APPROVAL BEFORE PERFORMING REPAIR.

REMOVAL METHODS: THE CONTRACTOR MAY REMOVE CONCRETE BY CUTTING AND BY MEANS OF HAND OPERATED PNEUMATIC HAMMERS EMPLOYING POINTED OR BLUNTED CHISEL TYPE TOOLS. FOR REMOVALS OVER STRUCTURAL MEMBERS, THE CONTRACTOR MAY USE A HAMMER HEAVIER THAN 35 POUNDS BUT NOT TO EXCEED 90 POUNDS UNLESS APPROVED BY THE ENGINEER. REMOVAL METHODS OVER STRUCTURAL MEMBERS SHALL ENSURE ADEQUATE DEPTH CONTROL AND PREVENT NICKING OR GOUGING THE PRIMARY STRUCTURAL MEMBERS.

SUBSTRUCTURE CONCRETE REMOVAL: REMOVE CONCRETE 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 35 POUNDS FOR REMOVAL WITHIN 18 INCHES OF PORTIONS TO BE PRESERVED. OUTSIDE THE 18 INCH LIMIT, THE CONTRACTOR MAY USE HAMMERS NOT EXCEEDING 90 POUNDS UPON THE APPROVAL OF THE ENGINEER. DO NOT PLACE PNEUMATIC HAMMERS IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE.

CUT LINE CONSTRUCTION JOINT PREPARATION: SAW CUT BOUNDARIES OF PROPOSED CONCRETE REMOVALS 1 INCH DEEP. REMOVE CONCRETE TO A ROUGH SURFACE. LEAVE THE EXISTING REINFORCING STEEL, IF REQUIRED IN THE PLANS, IN PLACE. INSTALL DOWEL BARS IF SPECIFIED. PRIOR TO CONCRETE PLACEMENT ABRASIVELY CLEAN JOINT SURFACES AND EXISTING EXPOSED REINFORCEMENT TO REMOVE LOOSE AND DISINTEGRATED CONCRETE AND LOOSE RUST. THOROUGHLY CLEAN THE JOINT SURFACE AND EXPOSED REINFORCEMENT OF ALL DIRT, DUST, RUST, OR OTHER FOREIGN MATERIAL BY THE USE OF WATER, AIR UNDER PRESSURE, OR OTHER METHODS THAT PRODUCE SATISFACTORY RESULTS. EXISTING REINFORCING STEEL DOES NOT HAVE TO HAVE A BRIGHT STEEL FINISH, BUT REMOVE ALL PACK AND LOOSE RUST. THOROUGHLY DRENCH EXISTING CONCRETE SURFACES WITH CLEAN WATER AND ALLOW TO DRY TO A DAMP CONDITION BEFORE PLACING CONCRETE.

MEASUREMENT AND PAYOUT: THE DEPARTMENT WILL MEASURE THE QUANTITY OF REMOVAL ON A LUMP SUM BASIS. THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES OF REMOVALS AT THE CONTRACT PRICE FOR ITEM 202, PORTIONS OF STRUCTURE REMOVED, AS PER PLAN.

ITEM 202, APPROACH SLAB REMOVED, AS PER PLAN: THIS WORK CONSISTS OF REMOVING THE EXISTING APPROACH SLABS INCLUDING ANY EXISTING OVERLAY THAT IS PRESENT ON TOP OF THE EXISTING APPROACH SLAB.

ITEM 509, EPOXY COATED REINFORCING STEEL, AS PER PLAN:
IN ADDITION TO CONFORMING TO 509 REQUIREMENTS, THE LABOR REQUIRED TO FIELD DRILL THE 2" DIAMETER HOLES IN THE EXISTING STEEL BEAMS AT THE ABUTMENT DIAPHRAGMS SHALL BE INCLUDED WITH ITEM 509, EPOXY COATED REINFORCING STEEL, AS PER PLAN FOR PAYMENT. THE COST OF FURNISHING THE MECHANICAL CONNECTORS AND EXTENSIONS SHALL BE INCLUDED WITH ITEM 509-EPOXY COATED REINFORCING STEEL, AS PER PLAN FOR PAYMENT.

ITEM 509 - REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN: CONTIGENCY QUANTITIES ARE INCLUDED TO PROVIDE ADDITIONAL CONNECTING REINFORCING STEEL IF REQUIRED OR IF EXISTING REINFORCING STEEL TO BE REUSED IS MISSING OR FOUND TO BE UNUSABLE.

REPLACE ALL EXISTING REINFORCING BARS DEEMED BY THE ENGINEER TO BE UNUSABLE BECAUSE OF CORROSION. THE DEPARTMENT WILL MEASURE THE REPLACEMENT REINFORCING STEEL BY THE NUMBER OF POUNDS ACCEPTED IN PLACE.

REPLACE ALL EXISTING REINFORCING STEEL BARS WHICH ARE TO BE INCORPORATED INTO THE NEW WORK AND ARE DEEMED BY THE ENGINEER TO BE MADE UNUSABLE BY CONCRETE REMOVAL OPERATIONS WITH NEW EPOXY COATED REINFORCING STEEL OF THE SAME SIZE AT NO COST TO THE DEPARTMENT.

ITEM 511, CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN:
ITEM 511, CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN:
ITEM 511, CLASS HP CONCRETE, SUPERSTRUCTURE, AS PER PLAN:
ITEM 511, CLASS HP CONCRETE, TEST SLAB:

GENERAL REQUIREMENTS:
THE PROVISIONS OF ITEM 511 SHALL APPLY EXCEPT AS NOTED BELOW.

MIX OPTIONS:
ALL BRIDGE DECK, ABUTMENT, PARAPETS, DIAPHRAGMS, AND APPROACH SLAB CONCRETE SHALL BE THIS MIX (AS PER PLAN).

THE FOLLOWING PROPORTIONS WILL BE USED AS A STARTING MIX DESIGN:

CONCRETE TABLE
QUANTITIES PER CUBIC YARD
AGGREGATES (SSD)

HP4, AS PER PLAN (GGBF SLAG + MICROSILICA)								
AGGRE. TYPE	FINE AGGRE. (LB)	#8 COARSE AGGRE. (LB)*	#57 COARSE AGGRE. (LB)*	CEMENT CONTENT (LB)*	GGBF SLAG (LB)*	MICRO-SILICA (LB)*	W/C RATIO +/-0.01	AIR CONTENT +/-2%
GRAVEL	1245	360	1315	400	170	30	0.43	7
LIMESTONE	1245	360	1335	400	170	30	0.43	7
SLAB	1245	315	1155	400	170	30	0.43	7

* ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED PER ASTM C127.

HIGH EARLY STRENGTH CEMENT MAY BE USED TO EXPEDITE CONSTRUCTION, SEE 511.07.

THE WEIGHTS SPECIFIED IN THE CONCRETE TABLE WERE CALCULATED FOR MATERIALS OF THE FOLLOWING BULK SPECIFIC GRAVITIES (SSD): NATURAL SAND AND GRAVEL 2.62, LIMESTONE SAND 2.68, LIMESTONE 2.65, SLAG 2.30, FLY ASH 2.65, GGBF SLAG 2.90, MICRO-SILICA SOLIDS 2.20, AND PORTLAND CEMENT 3.15. FOR AGGREGATES OF SPECIFIC GRAVITIES DIFFERING MORE THAN PLUS OR MINUS 0.02 FROM THESE, THE WEIGHTS IN THE TABLE WILL BE CORRECTED.

PARAPET CONSTRUCTION (FORMED AND POURED): FORMS SHALL NOT BE REMOVED UNTIL AT LEAST 2 HOURS AFTER THE FINAL SET. DETERMINATION OF THE FINAL SET SHALL BE AS PER ASTM C266 (GILLMORE NEEDLE). TESTING SHALL BE PERFORMED BY THE CONTRACTOR AT NO COST TO THE STATE.

THE MINIMUM CONCRETE SLUMP DURING PLACEMENT OF FORMED CONCRETE PARAPETS SHALL BE 6 INCHES, WITH A MAXIMUM SLUMP OF 8 INCHES.

PARAPET CONSTRUCTION (SLIP FORMED): SLIP FORMING IS PROHIBITED.

BASIS OF PAYMENT: PAYMENT FOR THE ABOVE COMPLETED AND ACCEPTED QUANTITIES WILL BE MADE AT THE CONTRACT BID PRICE FOR:

ITEM	UNITS	DESCRIPTION
511E50001	CUBIC YARD	CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN
511E50101	CUBIC YARD	CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN
511E52000	LUMP	CLASS HP CONCRETE, TEST SLAB

ITEM 512, SEALING OF CONCRETE SURFACES (EPOXY-URETHANE): THE FINISH COAT COLOR FOR ALL CONCRETE SURFACES TO RECEIVE SEALER SHALL MATCH THE EXISTING SEALER COLOR SUBJECT TO THE APPROVAL OF THE ENGINEER.

ITEM 514, FIELD PAINTING STRUCTURAL STEEL, FINISH COAT: THE FINISH COAT COLOR FOR ALL STRUCTURAL STEEL MEMBERS TO RECEIVE PAINT SHALL MATCH THE EXISTING PAINT COLOR SUBJECT TO THE APPROVAL OF THE ENGINEER.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED BKS | DRAWN TEK | REVIEWED SCJ | DATE 9/10
CHECKED JTC | REVISED | STRUCTURE FILE NUMBER 4301501

GENERAL NOTES (1 OF 2)
BRIDGE NO. LAK-2-1546L
S.R. 2 OVER ST. CLAIR STREET

LAK-2-14.38
PID No. 87924

2 / 18

138
208

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GENERAL NOTES

ITEM 516, SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN: INSTALL A 3 FOOT WIDE NEOPRENE SHEET AT LOCATIONS SHOWN IN THE PLANS. SECURE THE NEOPRENE SHEETING TO THE CONCRETE WITH 1 1/4" X #10 GAGE (LENGTH X SHANK DIAMETER) GALVANIZED BUTTON HEAD SPIKES THROUGH A 1" OUTSIDE DIAMETER, #10 GAGE GALVANIZED WASHER. MAXIMUM FASTENER SPACING IS 9". USE OF OTHER SIMILAR GALVANIZED DEVICES, WHICH WILL NOT DAMAGE EITHER THE NEOPRENE OR THE CONCRETE, WILL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

CENTER THE NEOPRENE STRIPS ON ALL JOINTS. FOR HORIZONTAL JOINTS, SECURE THE HORIZONTAL NEOPRENE STRIP BY USING A SINGLE LINE OF FASTENERS, STARTING AT 6", (±), FROM THE TOP OF THE NEOPRENE STRIP. FOR THE VERTICAL JOINTS SECURE THE VERTICAL NEOPRENE STRIP BY USING A SINGLE VERTICAL LINE OF FASTENERS, STARTING AT 6", (±), FROM THE VERTICAL EDGE OF THE NEOPRENE STRIP NEAREST TO THE CENTERLINE OF THE ROADWAY. FOR VERTICAL JOINTS, INSTALL 2 ADDITIONAL FASTENERS AT 6", CENTER TO CENTER, ACROSS THE TOP OF THE NEOPRENE STRIP ON THE SAME SIDE OF THE VERTICAL JOINT AS THE SINGLE VERTICAL ROW OF FASTENERS IS LOCATED.

THE VERTICAL NEOPRENE STRIPS SHALL COMPLETELY OVERLAP THE HORIZONTAL STRIPS. LAP LENGTHS OF THE HORIZONTAL STRIPS THAT ARE NOT VULCANIZED OR ADHESIVE BONDED, SHALL BE AT LEAST 1'-0" IN LENGTH, OR 6" IN LENGTH IF THE LAP IS VULCANIZED OR ADHESIVE BONDED. NO LAPS ARE ACCEPTABLE IN VERTICALLY INSTALLED NEOPRENE STRIPS.

PRIOR TO PLACEMENT OF THE NEOPRENE SHEETING, A 3" BAND OF COLD TAR PITCH MATERIAL OR MATERIAL MEETING SPEC 702.14 RUBBER COMPOUND SHALL BE APPLIED TO DIRECTLY TO THE STRUCTURAL CONCRETE ALONG THE PERIMETER/OUTLINE OF THE NEOPRENE SHEET IN ORDER TO SECURE A SEAL TIGHT CONDITION. THE NEOPRENE SHEET SHALL THEN BE MECHANICALLY FASTENED TO THE STILL TACKY TAR/RUBBER CEMENT COMPOUND MATERIAL.

THE NEOPRENE SHEETING SHALL BE 3/32" THICK GENERAL PURPOSE, HEAVY DUTY NEOPRENE SHEET WITH NYLON FABRIC REINFORCEMENT. THE SHEETING SHALL BE "FAIRPRENE NUMBER NN-0003", BY E.I. DUPONT DE NEMOURS AND COMPANY, INC., "WINGPRENE" BY GOODYEAR TIRE AND RUBBER COMPANY, OR AN APPROVED ALTERNATE. THE NEOPRENE SHEETING SHALL CONFORM TO THE FOLLOWING:

DESCRIPTION OF TEST	ASTM METHOD	REQUIREMENT
THICKNESS, INCHES	D 751	0.094 (±) 0.01
BREAKING STRENGTH, GRAB, LBS, MINIMUM (LONG. X TRANS.)	D 751	700 x 700
ADHESIVE STRIP, 1" WIDE X 2" LONG, LBS MINIMUM	D 751	9
BURST STRENGTH, PSI MINIMUM	D 751	1400
HEAT AGING, 70 HRS., 212°F, 180° BEND W/O CRACKING	D 2136	NO CRACKING OF COATING
LOW TEMP. BRITTLENESS, 1 HR., -40°F, BEND AROUND 1/4" MANDREL	D 2136	NO CRACKING OF COATING

METHOD OF MEASUREMENT: THE DEPARTMENT WILL MEASURE THE TOTAL LENGTH OF JOINT TO BE SEALED BY THE NUMBER OF FEET.

BASIS OF PAYMENT: THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516, SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN.

ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN: FOR BEARING REQUIREMENTS SEE SHEETS 9 & 10.

ITEM 516, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN:
THIS WORK CONSISTS OF RAISING OR RE-POSITIONING EXISTING STRUCTURES TO THE DIMENSIONS AND REQUIREMENTS DEFINED IN THE PROJECT PLANS.

SUBMIT CONSTRUCTION PLANS IN ACCORDANCE WITH CMS 501.05.

IF, DURING THE JACKING OPERATIONS, CRACKING OF THE CONCRETE SUPERSTRUCTURE, SEPARATION OF THE CONCRETE DECK FROM THE STEEL STRINGERS, OR OTHER DAMAGE TO THE STRUCTURE IS VISUALLY OBSERVED, IMMEDIATELY CEASE THE JACKING OPERATION AND INSTALL SUPPORTS TO THE SATISFACTION OF THE ENGINEER. ANALYZE THE DAMAGE AND SUBMIT A METHOD OF CORRECTION TO THE ENGINEER FOR APPROVAL. EPOXY INJECT ALL BEAMS THAT SEPARATE FROM THE DECK FOR THE DISTANCE OF THE SEPARATION IN ACCORDANCE WITH CMS 512.07. THE DEPARTMENT WILL NOT PAY FOR THE COST OF THIS EPOXY INJECTION OR OTHER REQUIRED REPAIRS. THE BRIDGE BEARINGS SHALL BE FULLY SEATED AT ALL CONTACT AREAS. IF FULL SEATING IS NOT ATTAINED, SUBMIT A REPAIR PLAN TO THE ENGINEER. THE DEPARTMENT WILL NOT PAY FOR THE REPAIR COSTS TO ENSURE FULL SEATING ON BEARINGS.

THE DEPARTMENT WILL MEASURE THIS WORK ON A LUMP SUM BASIS.

THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN.

ITEM 526, REINFORCED CONCRETE APPROACH SLAB (T=13"), AS PER PLAN

DESCRIPTION: THIS ITEM SHALL CONSIST OF CONSTRUCTING REINFORCED CONCRETE APPROACH SLABS WITH PARAPETS IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS AND ODOT STANDARD DRAWING AS-1-81.

MATERIALS: CONCRETE FOR THIS ITEM, INCLUDING APPROACH SLABS AND PARAPETS SHALL BE ITEM 511 - CLASS HP CONCRETE. USE THE SAME MIX FOR ITEM 526 AS IS USED FOR THE BRIDGE DECK AND PARAPETS. SEE GENERAL NOTE ITEM 511 FOR THE CONCRETE MIX REQUIREMENTS.

METHOD OF MEASUREMENT: THE AREA MEASURED WILL BE THE NUMBER OF SQUARE YARDS COMPLETE IN PLACE.

BASIS OF PAYMENT: ACCEPTED QUANTITIES WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER SQUARE YARD COMPLETE IN PLACE. THIS PRICE SHALL INCLUDE FULL COMPENSATION FOR CONCRETE, PARAPETS, REINFORCING STEEL, JOINT FILL, JOINT SEALERS, JOINT SEALS, WATERPROOFING, AND SEALING OF APPROACH SLAB PARAPETS. PAYMENT WILL BE MADE UNDER ITEM 526 - REINFORCED CONCRETE APPROACH SLAB (T=13"), AS PER PLAN.

APPROACH SLAB PARAPET CONSTRUCTION SHALL BE PER GENERAL NOTE ITEM 511 - CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN.

ITEM 607, FENCE REMOVED AND REBUILT:

A PORTION OF THE EXISTING FENCE BETWEEN BRIDGE NO. LAK-2-1546R AND LAK-2-1546L AT THE REAR AND FORWARD ABUTMENTS MAY NEED TO BE REMOVED AND REBUILT IN ORDER TO RECONSTRUCT THE EXISTING WINGWALLS. FOR ESTIMATING PURPOSES 20 FEET OF FENCE REMOVED AND REBUILT WILL BE REQUIRED.

ITEM 848, MICRO SILICA MODIFIED CONCRETE OVERLAY USING HYDRODEMOLITION, AS PER PLAN (1 1/2" THICK):

ITEM 848, MICRO SILICA MODIFIED CONCRETE OVERLAY, (VARIABLE THICKNESS), MATERIAL ONLY, AS PER PLAN:

THESE ITEMS SHALL BE PERFORMED PER SUPPLEMENTAL SPECIFICATION 848 "BRIDGE DECK REPAIR AND OVERLAY WITH CONCRETE USING HYDRODEMOLITION" WITH THE FOLLOWING REVISIONS:

CONSTRUCTION JOINTS WILL NOT BE PERMITTED IN THE WHEEL LINE.

(SEE 848.12) THE COMPONENTS OF THE MICROSILICA MODIFIED CONCRETE SHALL BE PROPORTIONED AS FOLLOWS:

CONCRETE TABLE
QUANTITIES PER CUBIC YARD
AGGREGATES (SSD)

MICROSILICA MODIFIED CONCRETE OVERLAY								
AGGRE. TYPE	FINE AGGRE. (LB)	#8 COARSE AGGRE. (LB)*	AGGRE. TOTAL (LB)	CEMENT CONTENT (LB)	MICRO-SILICA (LB)	W/C RATIO +/-0.01	AIR CONTENT +/-2%	FIBER (1/4") POLY-PROPYLENE (LB)**
GRAVEL	141	1430	284	600	50	0.40	8	1
LIMESTONE	141	1450	286	600	50	0.40	8	1
SLAG	141	1350	265	600	50	0.40	8	1

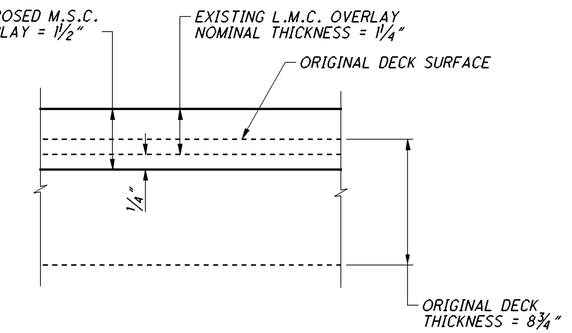
* ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED PER ASTM C127.

** FIBER MESH SHALL BE 100% VIRGIN POLYPROPYLENE IN A FIBRILLATED-NETWORK FORM AND SHALL BE 1/4" IN LENGTH.

THE WEIGHTS SPECIFIED IN THE CONCRETE TABLE WERE CALCULATED FOR MATERIALS OF THE FOLLOWING BULK SPECIFIC GRAVITIES (SSD): NATURAL SAND AND GRAVEL 2.62, LIMESTONE SAND 2.68, LIMESTONE 2.65, SLAG 2.30, MICRO-SILICA SOLIDS 2.20, AND PORTLAND CEMENT 3.15. FOR AGGREGATES OF SPECIFIC GRAVITIES DIFFERING MORE THAN PLUS OR MINUS 0.02 FROM THESE, THE WEIGHTS IN THE TABLE WILL BE CORRECTED. (FIBER MESH WEIGHTS NOT INCLUDED IN MIX DESIGN)

ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED BY ASTM C127.

ALL OTHER REQUIREMENTS OF THE SUPPLEMENTAL SPECIFICATION SHALL REMAIN IN EFFECT.



DECK OVERLAY DETAIL

ITEM 202, PORTIONS OF STRUCTURES REMOVED, AS PER PLAN:

THIS ITEM SHALL ALSO INCLUDE THE REMOVAL OF ELEMENTS INDICATED IN THE PLANS AND GENERAL NOTES AND THAT ARE NOT SEPARATELY LISTED FOR PAYMENT. ITEMS TO BE REMOVED INCLUDE ALL EXISTING MATERIALS BEING REPLACED BY NEW CONSTRUCTION AND MISCELLANEOUS ITEMS THAT ARE NOT SHOWN TO BE INCORPORATED INTO THE FINAL CONSTRUCTION AND ARE DIRECTED TO BE REMOVED BY THE ENGINEER.

ALTERNATE METHOD FOR BACKWALL REMOVAL: AT NO ADDITIONAL COST TO THE STATE, THE CONTRACTOR MAY SAWCUT EXISTING BACKWALLS AT THE REMOVAL LIMITS SHOWN IN THE PLANS AND DOWEL REAR #6 BARS AT THE EXISTING BAR SPACING. PROVIDE 12" MINIMUM EMBEDMENT ON DOWEL BARS. PROVIDE #6 BARS LONG ENOUGH TO PROVIDE A MINIMUM LAP OF 2'-11" ON PROPOSED BARS.

ALTERNATE METHOD FOR REMOVAL OF DECK AT END OF BRIDGE: AT NO ADDITIONAL COST TO THE STATE, THE CONTRACTOR MAY REMOVE DECK CONCRETE USING HYDRODEMOLITION, SUBJECT TO ALL PERTINENT REQUIREMENTS OF SS 848.

ITEM 503, COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN:

IN ADDITION TO THE REQUIREMENTS OF CMS 503, LEAVE IN PLACE SHEETING ALONG THE STAGED CONSTRUCTION LINE AT THE POSITION SHOWN IN THE PLANS. CUT-OFF SHEETING 3" BELOW THE BOTTOM OF THE APPROACH SLAB OR AS DIRECTED BY THE ENGINEER.

ITEM 518, POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN:

THIS WORK SHALL INCLUDE THE REMOVAL OF EXISTING POROUS BACKFILL AND ALL ADJACENT SOIL TO INSTALL NEW POROUS BACKFILL AS DETAILED IN THE PLANS.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301501	

GENERAL NOTES (2 OF 2)
BRIDGE NO. LAK-2-1546L
S.R. 2 OVER ST. CLAIR STREET

LAK-2-14.38
PID No. 87924

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ABBREVIATIONS

THE FOLLOWING ABBREVIATIONS HAVE BEEN USED THROUGHOUT THESE PLANS:

& = AND
@ = AT
° = DEGREES
′ = FEET OR MINUTES
″ = INCHES OR SECONDS
± = PLUS OR MINUS

AASHTO = AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
ABUT. = ABUTMENT
ADT = AVERAGE DAILY TRAFFIC
ADTT = AVERAGE DAILY TRUCK TRAFFIC
APPR. = APPROACH
APPROX. = APPROXIMATE
ASTM = AMERICAN SOCIETY OF TESTING AND MATERIALS

BM = BENCHMARK
BOT. = BOTTOM
BOT./FTG. = BOTTOM OF FOOTING
BRGS. = BEARINGS

℄ = CENTERLINE
C/C = CENTER TO CENTER
CFS = CUBIC FEET PER SECOND
CJ = CONSTRUCTION JOINT
CLR. = CLEAR
CMS = CONSTRUCTION AND MATERIAL SPECIFICATIONS
CONSTR./CONST. = CONSTRUCTION
CON'T = CONTINUED
COL. = COLUMN
C.P.P. = CORRUGATED PLASTIC PIPE
C.R./CR = COUNTY ROAD
CU = CUBIC
CVN = CHARPY V-NOTCH

DEFL. = DEFLECTION
DIA. = DIAMETER
DIM. = DIMENSION
DL = DEAD LOAD
DWG. = DRAWING

E =EAST
EA. = EACH
EF = EACH FACE
EL./ELEV. = ELEVATION
EMBED. = EMBEDMENT
EQ. = EQUAL
EX./EXIST. = EXISTING
EXP. = EXPANSION
EXT. = EXTENSION

F = FAHRENHEIT
FF = FAR FACE
F/F = FACE TO FACE
FS = FIELD SPLICE
FT. = FEET
FT/FT. = FOOT/FOOT
FT/S = FEET PER SECOND
FTG. = FOOTING
FWD. = FORWARD
FWS = FUTURE WEARING SURFACE

GEN. = GENERAL

HR = HOUR
HW = HIGH WATER

IN. = INCHES
INT. = INTERMEDIATE

LF = LEFT FORWARD
LONG. = LONGITUDINAL
LT. = LEFT

MAX. = MAXIMUM
MIN. = MINIMUM
MISC. = MISCELLANEOUS

N = NORTH
NF = NEAR FACE
#/NO. = NUMBER

OHWM = ORDINARY HIGH WATER MARK
OUT/OUT = OUT TO OUT

PEJF = PREFORMED EXPANSION JOINT FILLER
℄/PL = PLATE
PSF = POUND PER SQUARE FOOT
PSI = POUND PER SQUARE INCH
PT. = POINT
PVI = POINT OF VERTICAL INTERSECTION

Q = FLOW

R = RADIUS
REF. = REFERENCE
REINF. = REINFORCED
REQ'D. = REQUIRED
RF = RIGHT FORWARD
RT. = RIGHT

SHLDR. = SHOULDER
SPA. = SPACING
SQ = SQUARE
STA. = STATION
STD. = STANDARD
STR. = STRAIGHT
SUPER = SUPERSTRUCTURE

T = THICKNESS
TELE = TELEPHONE
TRANS. = TRANSVERSE
TWP. = TOWNSHIP
TYP. = TYPICAL

V = VELOCITY
V.C. = VERTICAL CURVE
VERT. = VERTICAL

W = WEST
W/ = WITH
W/O = WITHOUT
W.P. = WORKING POINT
WT. = WEIGHT

YD = YARD

ESTIMATED QUANTITIES

LAK-2-1546L

CALCULATED BY: JTC
CHECK BY: SCJ
DATED: 9/10
DATED:

ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	TOTAL**	AS PER PLAN SHEET REF.
202	11201	LUMP		PORTIONS OF STRUCTURE REMOVED, AS PER PLAN	LUMP	2
202	22901	134	SQ YD	APPROACH SLAB REMOVED, AS PER PLAN	134	3
503	11101	LUMP		COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN	LUMP	3
509	10001	8734	POUND	EPOXY COATED REINFORCING STEEL, AS PER PLAN	8734	2
509	20001	230	POUND	REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN	230	2
511	50001	20	CU YD	CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN	20	2
511	50101	4	CU YD	CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN	4	2
511	51001	25	CU YD	CLASS HP CONCRETE, SUPERSTRUCTURE, AS PER PLAN	25	2
512	10100	48	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	48	2
512	10300	29	SQ YD	SEALING CONCRETE BRIDGE DECKS WITH HMWM RESIN	29	
514	00050	453	SQ FT	SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL	453	
514	00056	453	SQ FT	FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT	453	
514	00060	453	SQ FT	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT	453	
514	00066	453	SQ FT	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT	453	2
516	14000	14	SQ FT	PREFORMED EXPANSION JOINT FILLER, MISC. 3½″	14	
516	14021	82	FT	SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN	82	3
516	44001	12	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN	12	3
				(8½″ x ¾″ x 1′-0″ PAD WITH 11½″ x ½″ x 1′-1″ STEEL LOAD PLATE)		
516	47001	LUMP		JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN	LUMP	
518	21231	LUMP		POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN	LUMP	3
518	40000	80	FT	6″ PERFORATED CORRUGATED PLASTIC PIPE	80	
518	40010	35	FT	6″ NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	35	
526	15001	195	SQ YD	REINFORCED CONCRETE APPROACH SLAB (T=13″), AS PER PLAN	195	3
848	10001	518	SQ YD	MICRO SILICA MODIFIED CONCRETE OVERLAY USING HYDRODEMOLITION, AS PER PLAN (1½″ THICK)	518	3
848	20000	518	SQ YD	SURFACE PREPARATION USING HYDRODEMOMLITION	518	
848	30001	22	CU YD	MICRO SILICA MODIFIED CONCRETE OVERLAY (VARIABLE THICKNESS), MATERIAL ONLY, AS PER PLAN	22	3
848	50000	30	SQ YD	HAND CHIPPING	30	
848	50320	518	SQ YD	EXISTING CONCRETE OVERLAY REMOVED (1½″ THICK)	518	

**All Totals Participation Code II-Bridge

Participation Codes:
I-Pavement (Federal/State)
II-Bridge (Federal/State)

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED BKS | CHECKED JTC
DRAWN TEK | REVISED
REVIEWED SCJ | DATE 9/10
STRUCTURE FILE NUMBER 4301501

ESTIMATED QUANTITIES
BRIDGE NO. LAK-2-1546L
S.R. 2 OVER ST. CLAIR STREET

LAK-2-14.38
PID No. 87924

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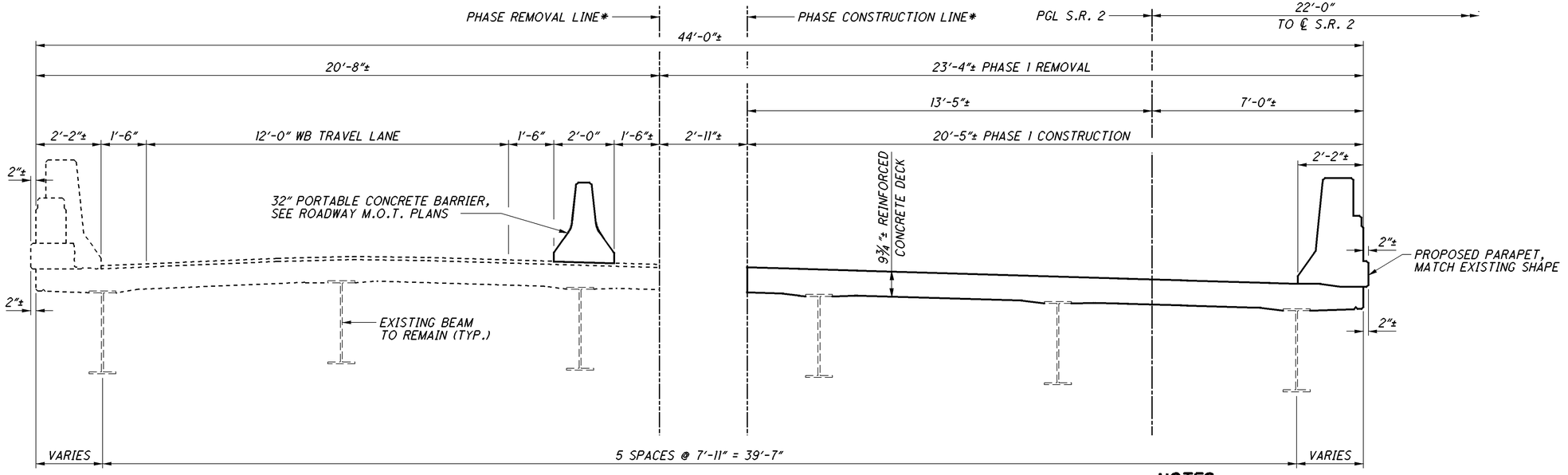


PHASE 1 REMOVAL AND CONSTRUCTION

AT ABUTMENTS

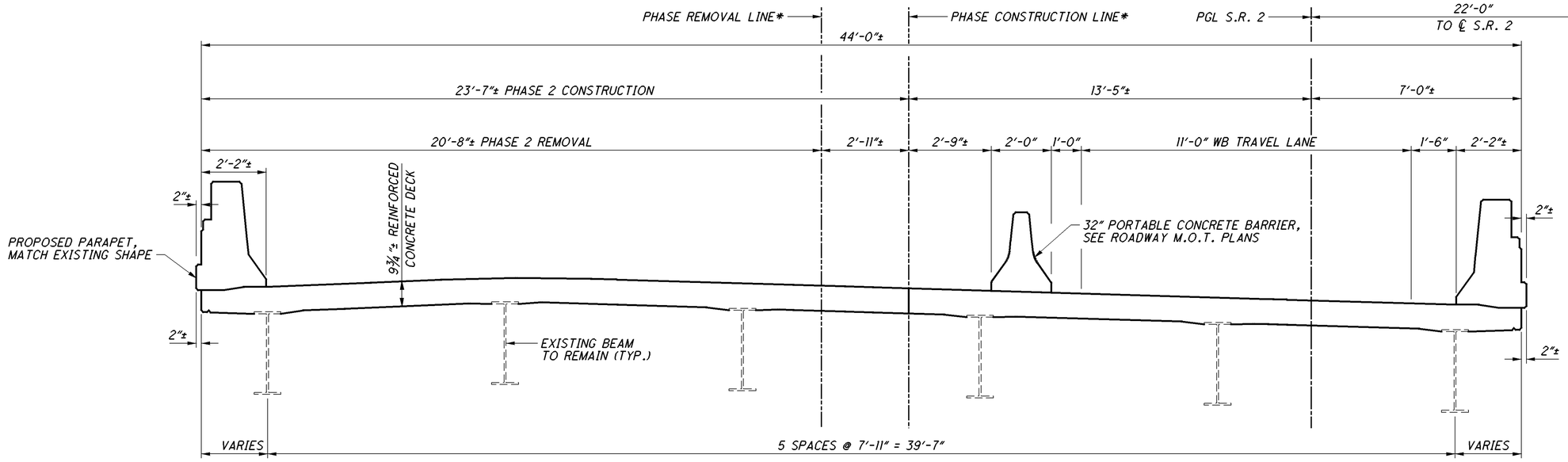
NOTES:

TRANSVERSE DIMENSIONS SHOWN FOR PROPOSED CONSTRUCTION ARE APPROXIMATE. IT MAY BE NECESSARY TO VARY THESE DIMENSIONS TO MEET THE PROPOSED APPROACH SLAB AND THE EXISTING DECK.

* FOR WORK AT ABUTMENT.

PROPOSED WORK:

SEE GENERAL NOTES



PHASE 2 REMOVAL AND CONSTRUCTION

AT ABUTMENTS

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301501	

PHASED CONSTRUCTION DETAILS

BRIDGE NO. LAK-2-1546L
S.R. 2 OVER ST. CLAIR STREET

LAK-2-14.38
PID No. 87924

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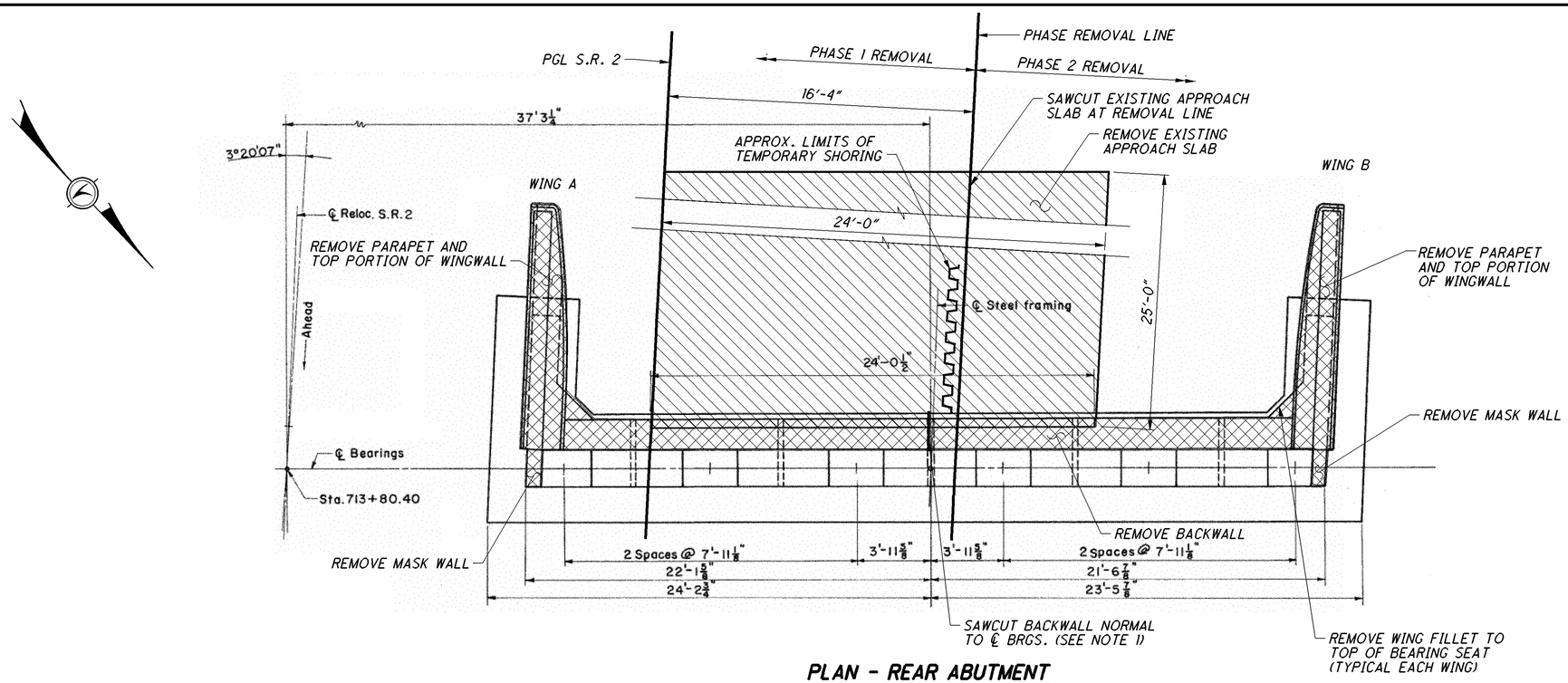
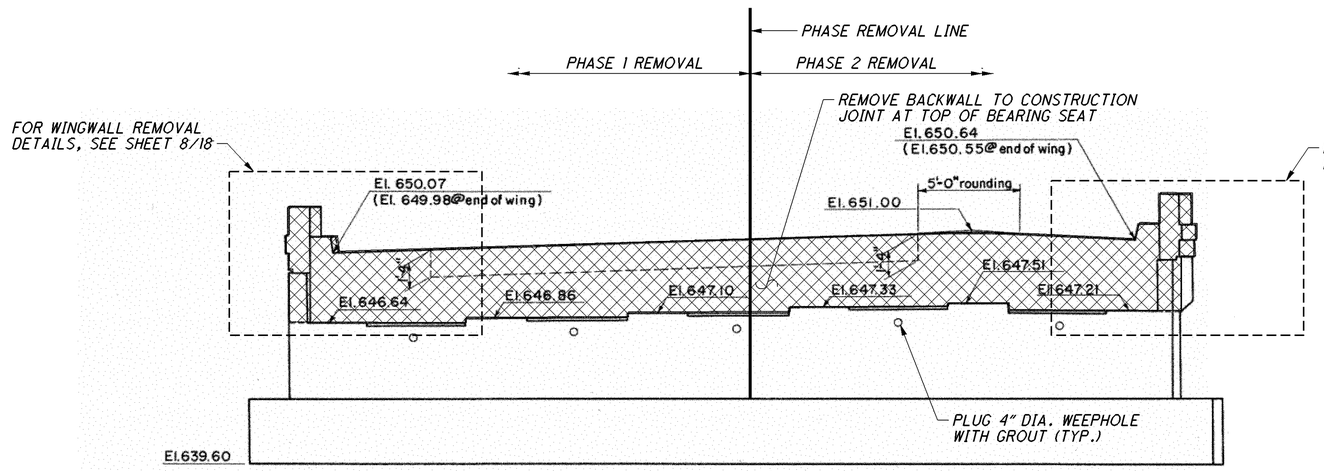


PLAN - REAR ABUTMENT



ELEVATION - REAR ABUTMENT

NOTES:

1. FOR LOCATION OF ABUTMENT BACKWALL REMOVAL LINE, SEE SHEET 12/18.
2. ELEVATIONS SHOWN AT TOP OF BACKWALL DO NOT INCLUDE THE 1"± INCREASE DUE TO THE EXISTING LMC OVERLAY.

ITEM 202 - APPROACH SLAB REMOVED, AS PER PLAN

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301501	

REMOVAL DETAILS (1 OF 4)
BRIDGE NO. LAK-2-1546L
S.R. 2 OVER ST. CLAIR STREET

LAK-2-14.38
PID No. 87924

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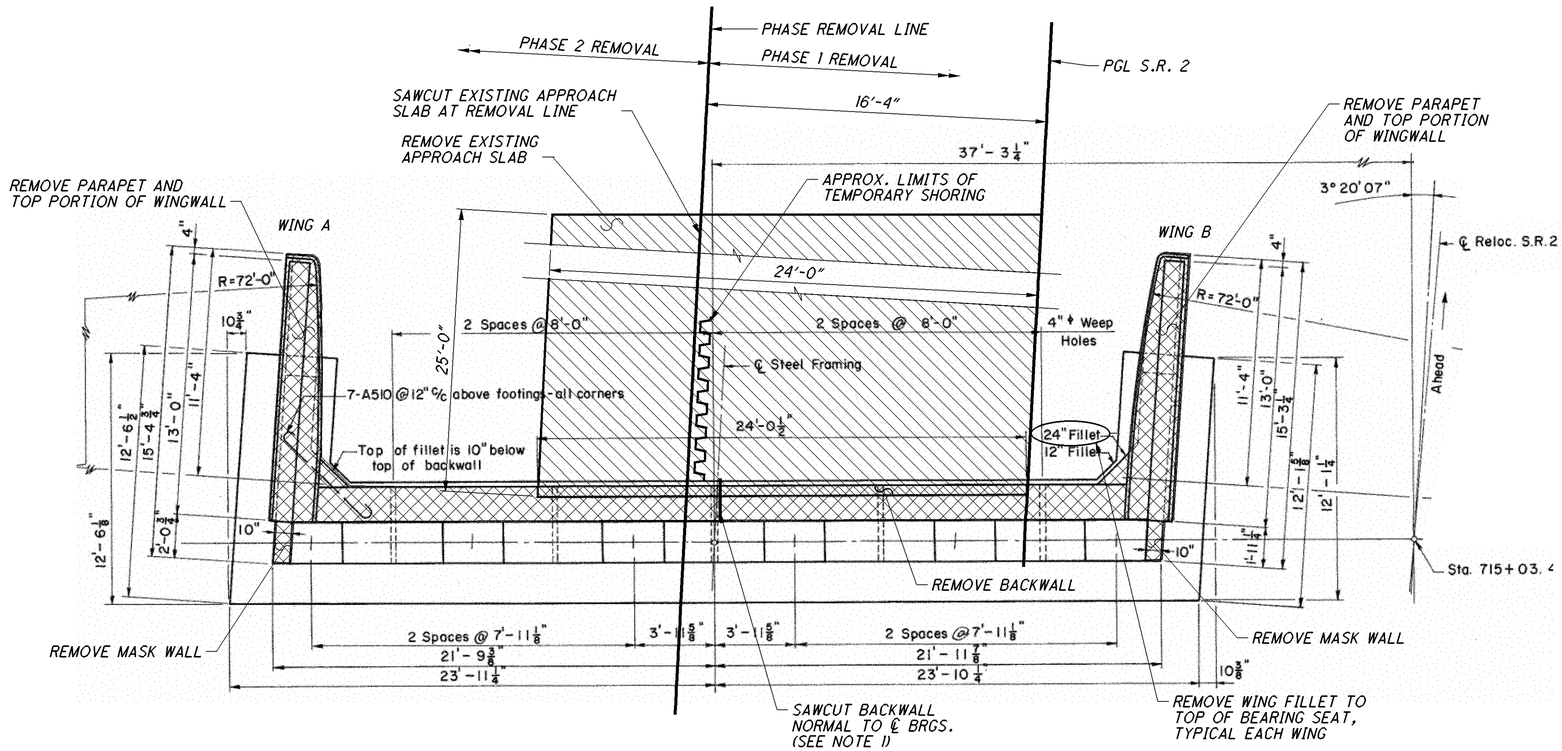
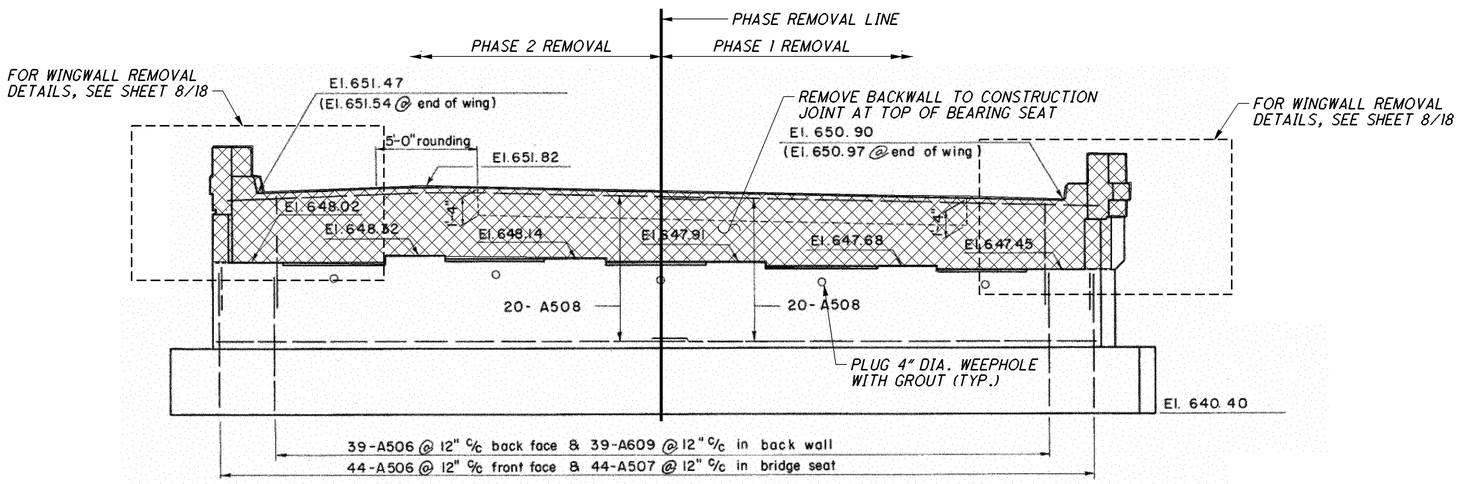


PLAN - FORWARD ABUTMENT



ELEVATION - FORWARD ABUTMENT

NOTES:

1. FOR LOCATION OF ABUTMENT BACKWALL REMOVAL LINE, SEE SHEET 12/18.
2. ELEVATIONS SHOWN AT TOP OF BACKWALL DO NOT INCLUDE THE 1"± INCREASE DUE TO THE EXISTING LMC OVERLAY.

ITEM 202 - APPROACH SLAB REMOVED, AS PER PLAN

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301501	

REMOVAL DETAILS (2 OF 4)
BRIDGE NO. LAK-2-1546L
S.R. 2 OVER ST. CLAIR STREET

LAK-2-14.38
PID No. 87924

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208

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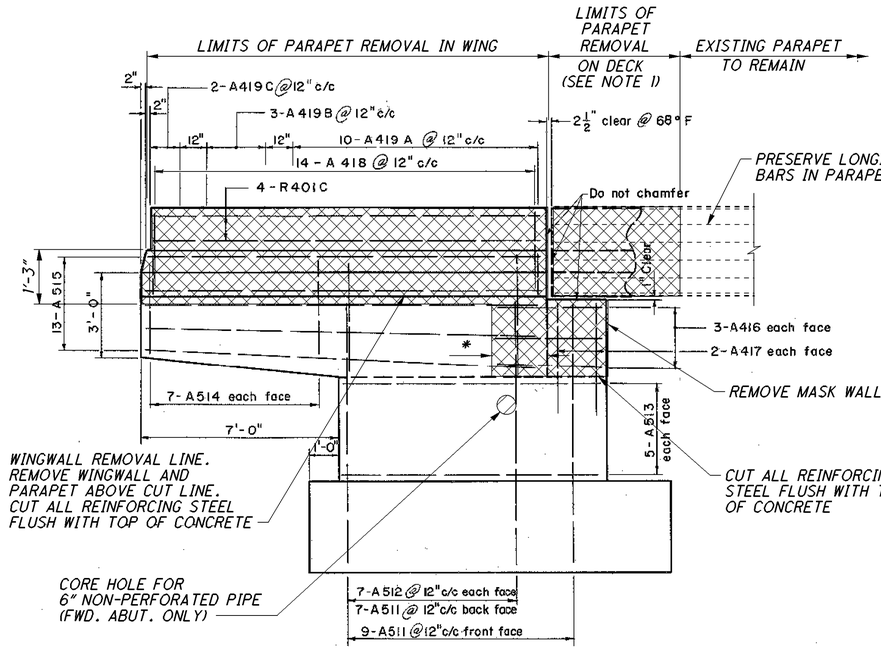
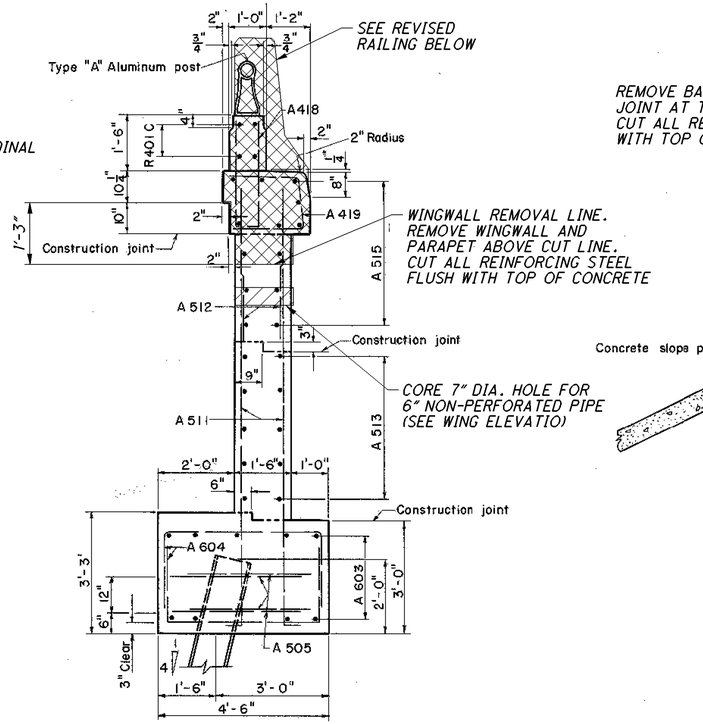
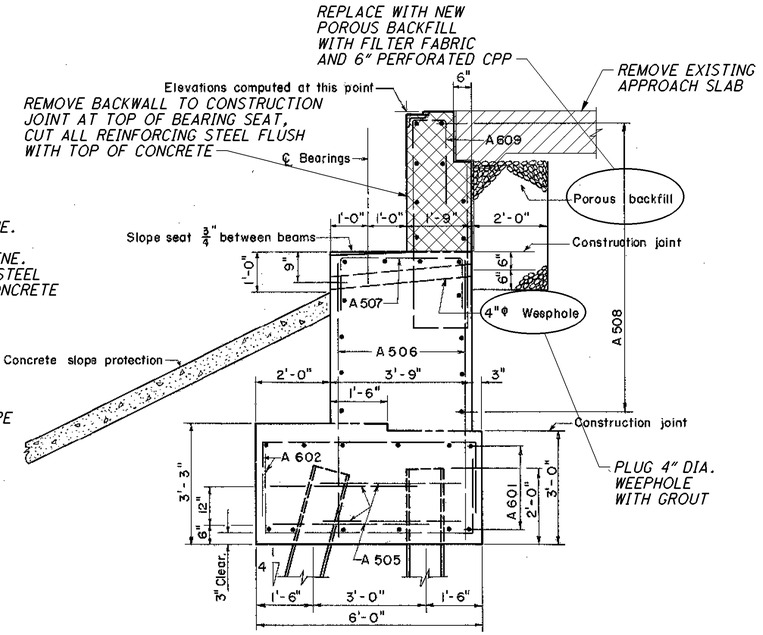


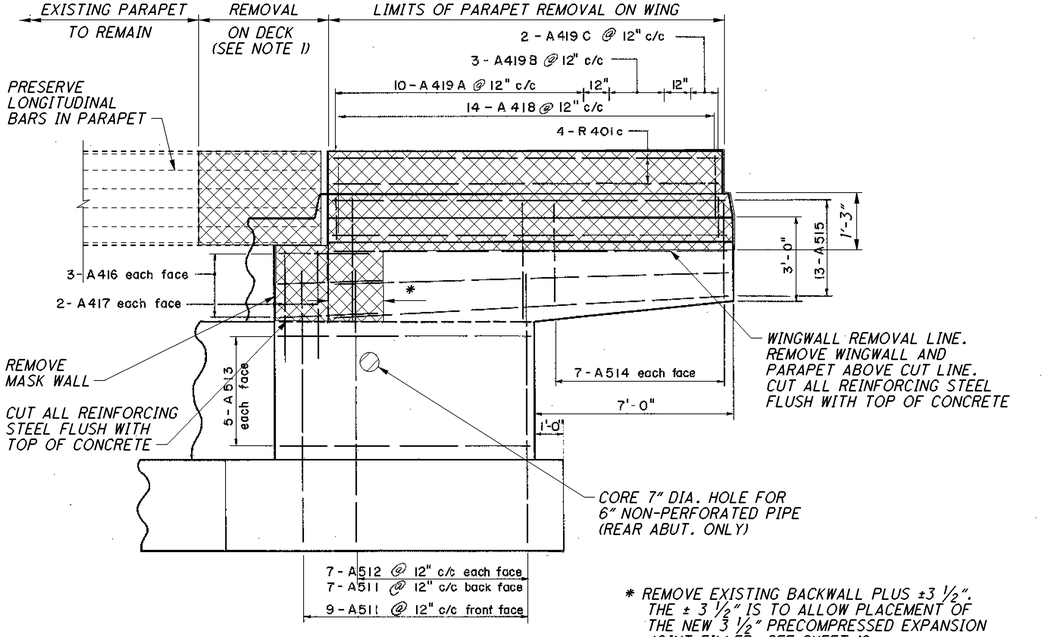
WING A ELEVATION



TYPICAL WING SECTION



TYPICAL ABUTMENT SECTION

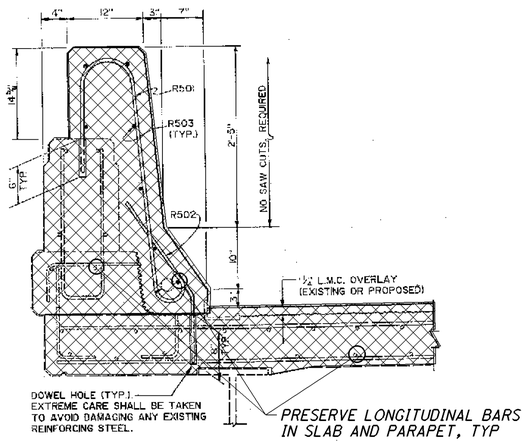


WING B ELEVATION

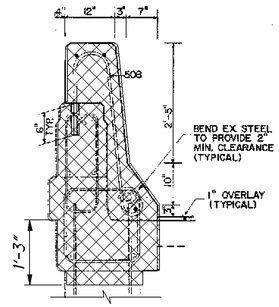
* REMOVE EXISTING BACKWALL PLUS ±3 ½". THE ± 3 ½" IS TO ALLOW PLACEMENT OF THE NEW 3 ½" PRECOMPRESSED EXPANSION JOINT FILLER. SEE SHEET 12.

NOTE:

1. SEE SHEET 9/18 FOR LENGTH OF PARAPET REMOVAL ON DECK.



PARAPET ON DECK REMOVAL DETAIL



PARAPET ON WINGWALL REMOVAL DETAIL

ITEM 202 - APPROACH SLAB REMOVED, AS PER PLAN

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
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CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301501	

REMOVAL DETAILS (3 OF 4)
BRIDGE NO. LAK-2-1546L
S.R. 2 OVER ST. CLAIR STREET

LAK-2-14.38
PID No. 87924

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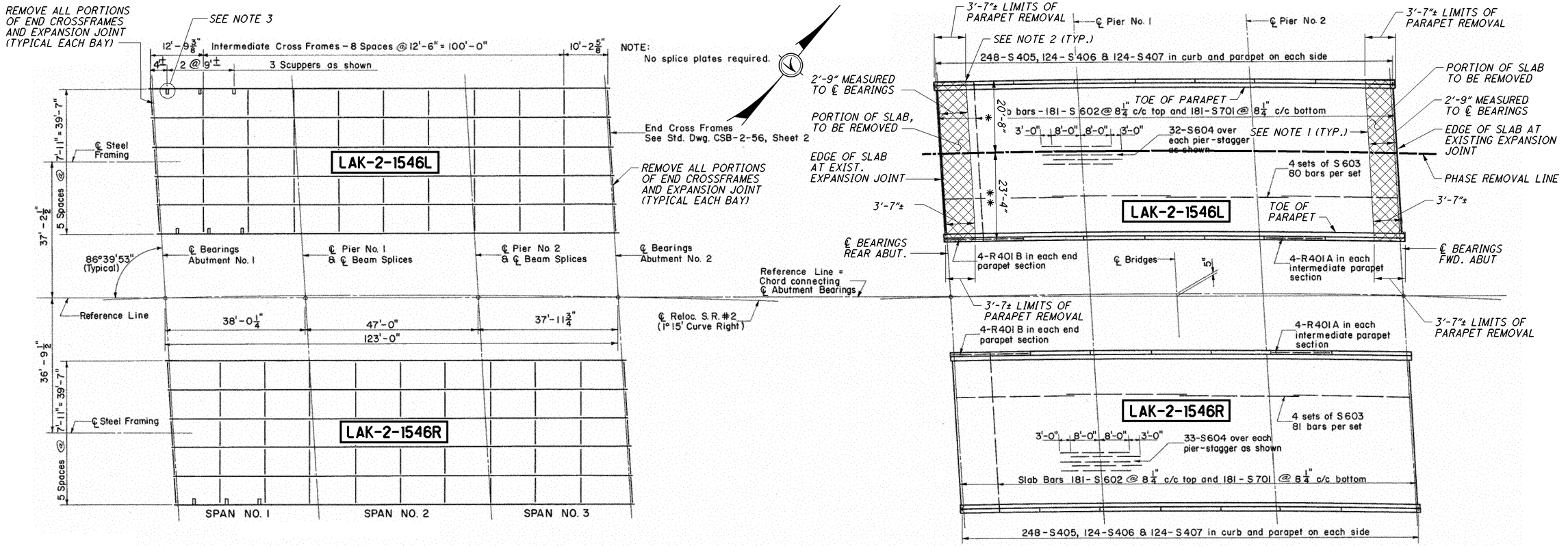
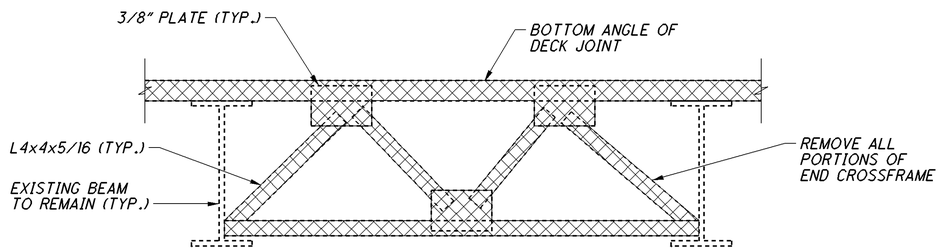


STEEL FRAMING PLAN

DECK PLAN



END CROSSFRAME REMOVAL DETAIL

TYPICAL END CROSSFRAME

LEGEND:

* = PHASE 1 REMOVAL
** = PHASE 2 REMOVAL

NOTES:

1. REMOVAL LINE IS LOCATED PARALLEL TO ℄ BEARINGS. PRESERVE ALL DECK REINFORCING STEEL THAT REMAINS EMBEDDED IN THE DECK.
2. REMOVAL LINE AT TOE OF PARAPET IS LOCATED PARALLEL TO ℄ BEARINGS. PRESERVE ALL LONGITUDINAL PARAPET REINFORCEMENT.
3. EXISTING SCUPPER IS LOCATED NEAR THE DECK REMOVAL LIMITS. CARE SHALL BE TAKEN TO PRESERVE EXISTING SCUPPER.

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301501	

REMOVAL DETAILS (4 OF 4)
BRIDGE NO. LAK-2-1546L
S.R. 2 OVER ST. CLAIR STREET

LAK-2-14.38
PID No. 87924

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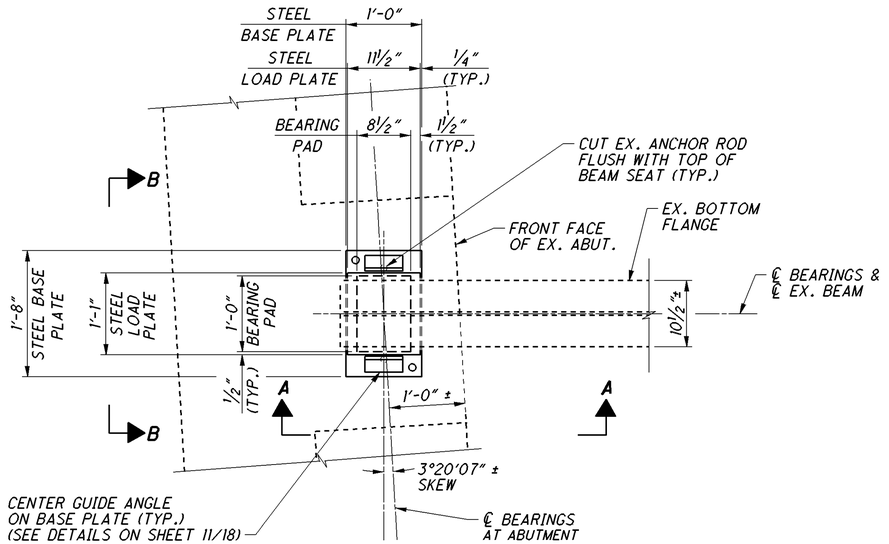
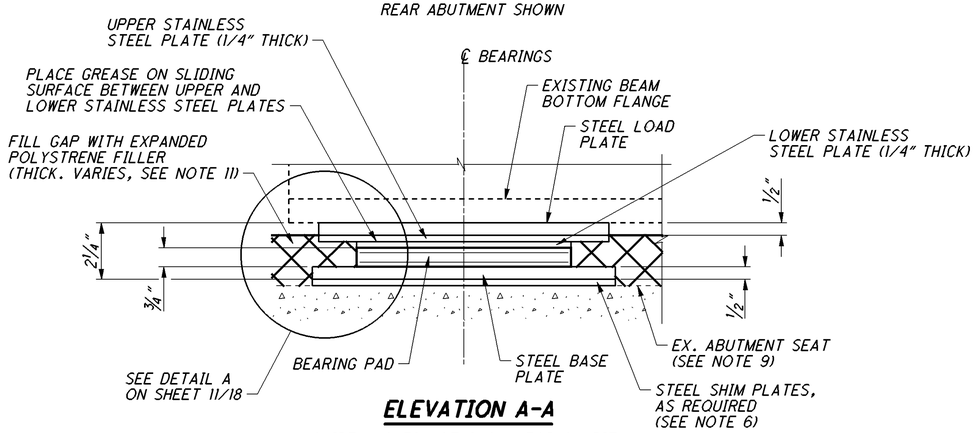


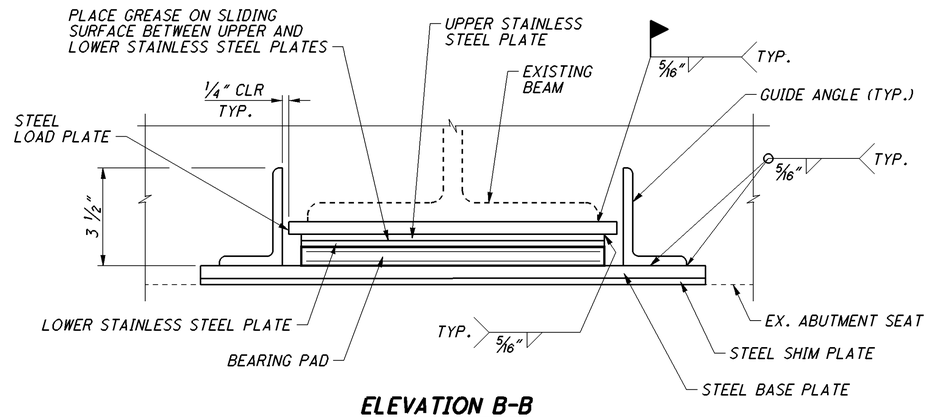
PLAN

REAR ABUTMENT SHOWN



ELEVATION A-A

GUIDE ANGLES NOT SHOWN FOR CLARITY



ELEVATION B-B

LAMINATED ELASTOMERIC EXPANSION BEARING DETAILS

REAR ABUTMENT SHOWN, FORWARD ABUTMENT SIMILAR BUT OPPOSITE HAND

NOTES:

1. STEEL LOAD PLATE, BASE PLATE, SHIM PLATES, GUIDE ANGLES AND SQUARE PLATE WASHERS SHALL MEET THE GRADE 50W REQUIREMENTS OF STRUCTURAL STEEL ASTM A709.
2. STAINLESS STEEL PLATES SHALL BE ASTM 240, TYPE 304 WITH A 2B FINISH PER ASTM A480.
3. THE STEEL BASE PLATE AND LOWER STAINLESS STEEL PLATE SHALL BE BONDED BY VULCANIZATION TO THE ELASTOMER DURING THE MOLDING PROCESS.
4. THE SHIM PLATES, BASE PLATE, LOAD PLATE, AND GUIDE ANGLES SHALL BE GALVANIZED AND PAINTED. PAINT COLOR SHALL MATCH EXISTING BEAM COLOR, SUBJECT TO APPROVAL OF THE ENGINEER. PAINT IS TO BE INCLUDED WITH ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) AS PER PLAN FOR PAYMENT.
5. WELDING: CONTROL WELDING SO THAT THE PLATE TEMPERATURE AT THE ELASTOMER BONDED SURFACE DOES NOT EXCEED 300°F AS DETERMINED BY THE USE OF PYROMETRIC STICKS OR OTHER TEMPERATURE MONITORING DEVICES.
6. THE MINIMUM NUMBER OF SHIM PLATES TO BE PROVIDED IS TWO ⅛" ADJUSTING SHIMS AND TWO ¼" ADJUSTING SHIMS FOR EACH BEARING. FOUR ADDITIONAL ½" ADJUSTING SHIMS SHALL ALSO BE PROVIDED FOR THIS BRIDGE. ADJUSTING SHIMS ARE TO BE PLACED ON THE CONCRETE BEARING SURFACE DIRECTLY BELOW THE ½" STEEL BASE PLATE. THE ADJUSTING SHIMS ARE TO BE USED AT LOCATIONS WHERE THE DISTANCE BETWEEN THE BOTTOM OF THE BOTTOM FLANGE OF THE BEAM AND THE CONCRETE BEARING SURFACE IS GREATER THAN THE 2¼" BEARING THICKNESS. ADDITIONAL SHIM PLATES SHALL BE PROVIDED IF REQUIRED BY FIELD MEASUREMENTS.
7. LUBRICATE THE INTERFACE BETWEEN THE UPPER AND LOWER STAINLESS STEEL PLATES WITH A LAYER OF GREASE A MINIMUM OF ⅛" THICK. THE GREASE SHALL MEET THE REQUIREMENTS OF NLGI GRADE 2 GC-LB.
8. BASIS OF PAYMENT: THE UNIT BID PRICE SHALL INCLUDE ALL MATERIALS, LABOR, AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL LAMINATED ELASTOMERIC BEARINGS, STEEL PLATES, ANGLES, AND ANCHOR BOLTS AS DETAILED. PAYMENT WILL BE MADE AT THE CONTRACT PRICE FOR ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN.

   REAR & FORWARD ABUTMENTS (ALL BEAMS):

   BEARING PAD: 8½" x ¾" x 1'-0"
   LOAD PLATE: 11½" x ½" x 1'-1"
   BASE PLATE: 1'-0" x ½" x 1'-8"
   UPPER STAINLESS STEEL PLATE: 11½" x ¼" x 1'-0"
   LOWER STAINLESS STEEL PLATE: 8½" x ¼" x 1'-0"
   SHIM PLATES: SEE NOTE 6
   GUIDE ANGLES: L 3 ½" x 2 ½" x ⅜" x 6" LONG
   PLATE WASHERS: 4" x ½" x 4"

9. PRIOR TO INSTALLING THE STEEL BASE PLATE, CLEAN THE TOP SURFACE OF THE ABUTMENT SEAT. IF CONCRETE SPALLING IS PRESENT UNDER BASE PLATE, PATCH CONCRETE PRIOR TO PLACEMENT OF THE BASE PLATE. PATCH CONCRETE ACCORDING TO SUPPLEMENTAL SPECIFICATION 843. CLEANING AND PATCHING CONCRETE TO BE INCLUDED WITH ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) AS PER PLAN FOR PAYMENT.
10. THE EXISTING BEAMS CAN BE JACKED A MAXIMUM OF ¼" TO REMOVE AND REPLACE BEARINGS.
11. EXPANDED POLYSTRENE FILLER IS INCLUDED WITH ITEM 511, HP CONCRETE, SUPERSTRUCTURE, AS PER PLAN FOR PAYMENT.
12. REFER TO RETIRED ODOT STD. DWG. CSB-2-56, REVISED 2-2-59, FOR DETAILS OF EXISTING BEARINGS TO BE REPLACED.

DESIGN AGENCY
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1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

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CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301501	

BEARING DETAILS (1 OF 2)
BRIDGE NO. LAK-2-1546L
S.R. 2 OVER ST. CLAIR STREET

LAK-2-14.38
PID No. 87924

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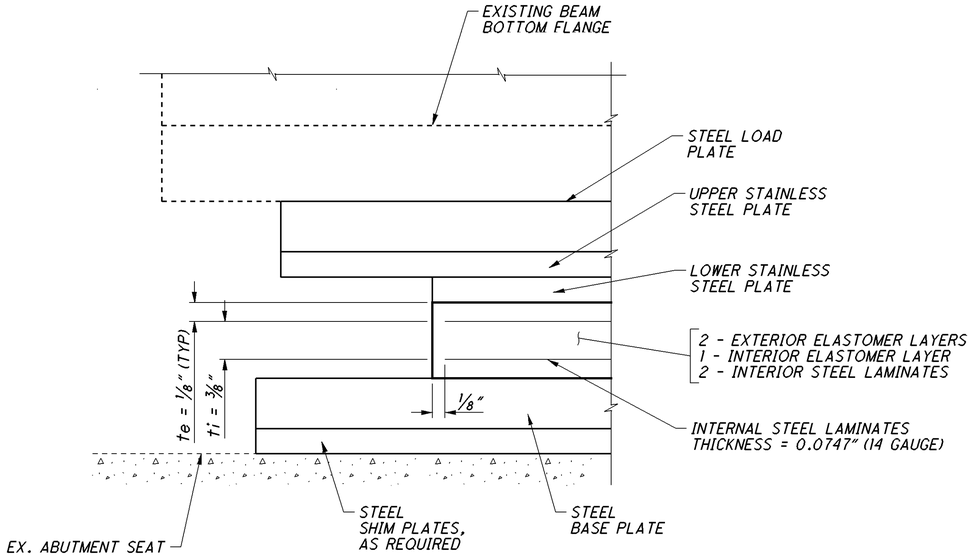
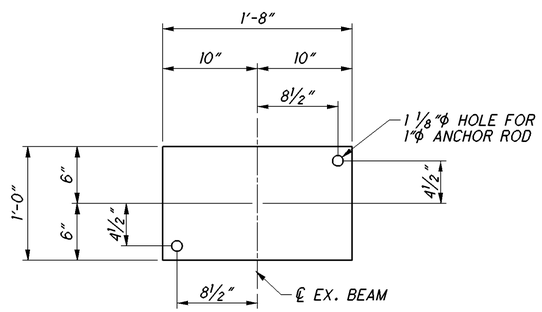
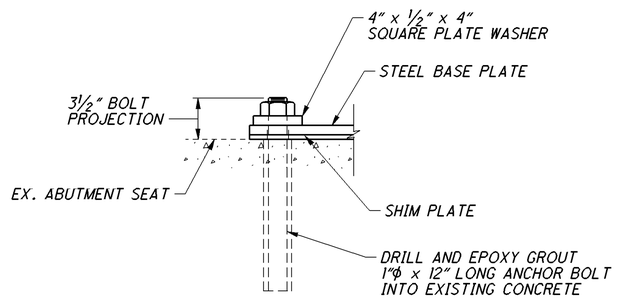


DETAIL A

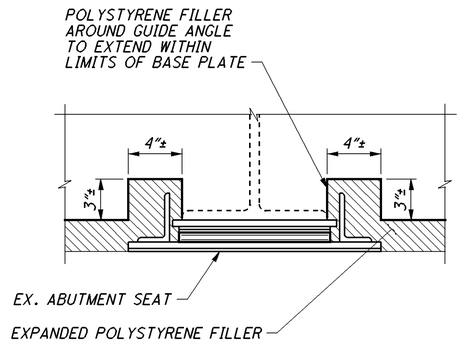


PLAN OF BASE PLATE

SHIM PLATE SIMILAR



ANCHOR BOLT DETAIL



GUIDE ANGLE BLOCKOUT DETAIL

NOTES:

1. FIELD DRILL ANCHOR BOLT HOLES, INSTALL ANCHOR BOLTS AND PLACE EPOXY GROUT AFTER THE PLACEMENT OF THE BEARING ASSEMBLY. POSITION AND TIGHTEN THE BASE PLATE. INSTALL A BLOCK OF POLYSTRENE FILLER MATERIAL OVER THE TOP OF THE GUIDE ANGLES AND ANCHOR BOLTS BEFORE THE CONCRETE PLACEMENT FOR ABUTMENT DIAPHRAGM.
2. ANCHOR BOLTS AND NUTS SHALL BE ASTM A325. NUTS AND SQUARE PLATE WASHERS SHALL BE GALVANIZED ACCORDING TO 711.02. THE THREAD LENGTH REQUIREMENTS OF ASTM A325 MAY BE WAIVED. THE GROUT SHALL BE NON-SHRINK, EPOXY GROUT MEETING THE REQUIREMETNS OF 705.20.

LEGEND:

te = THICKNESS OF EXTERNAL ELASTOMER LAYER

ti = THICKNESS OF INTERNAL ELASTOMER LAYER

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BEARING DETAILS (2 OF 2)
BRIDGE NO. LAK-2-1546L
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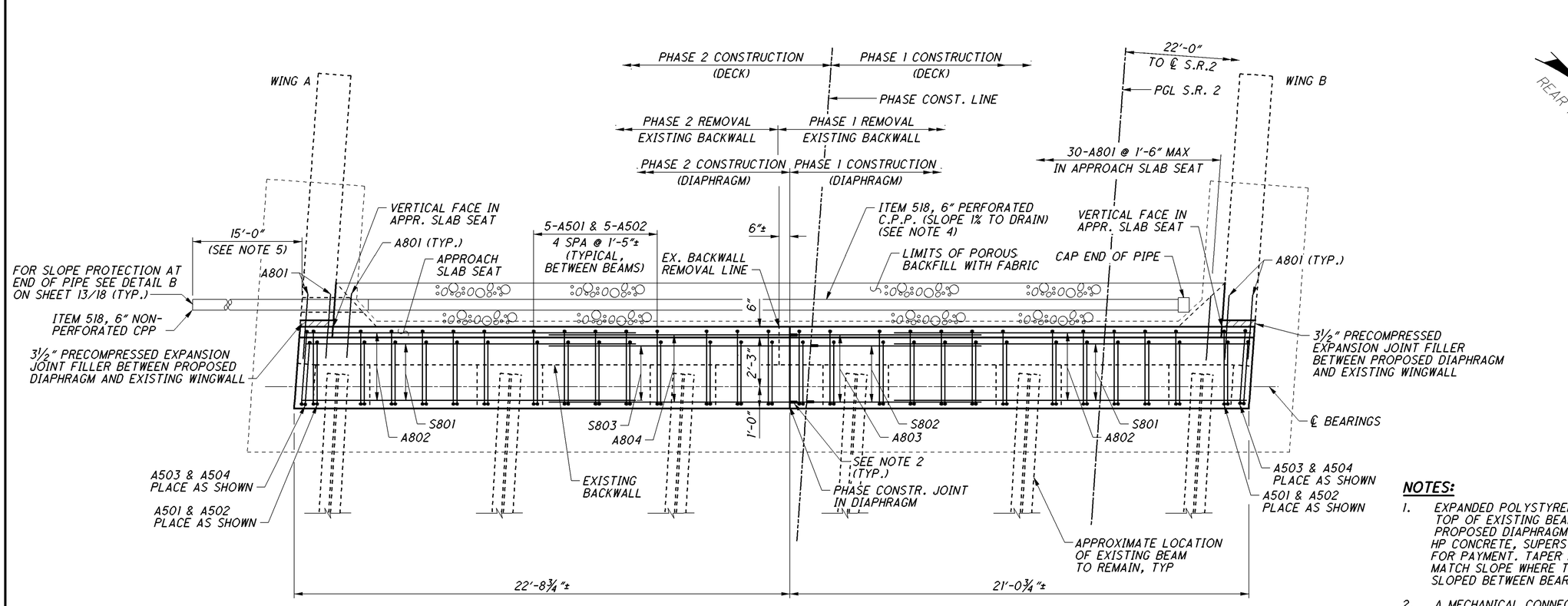
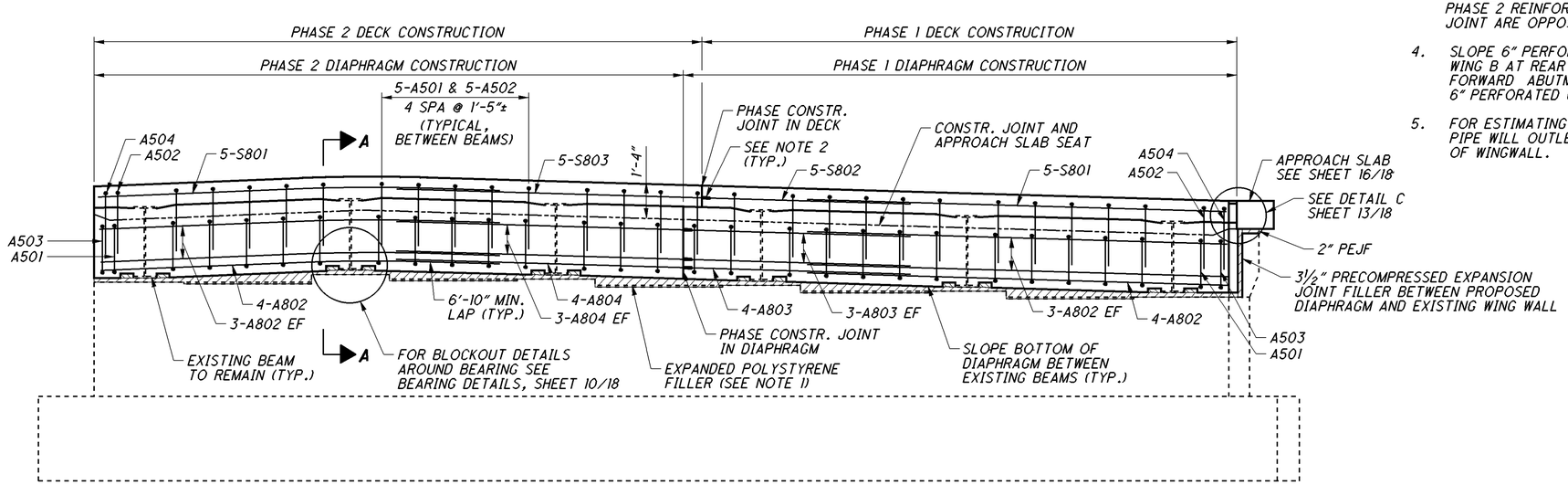


PLAN

FORWARD ABUTMENT SHOWN, REAR ABUTMENT SIMILAR (SEE NOTE 3)



ELEVATION

FORWARD ABUTMENT SHOWN, REAR ABUTMENT SIMILAR (SEE NOTE 3)
SEE SHEET 13 FOR SECTION A-A

NOTES:

1. EXPANDED POLYSTYRENE FILLER BETWEEN TOP OF EXISTING BEAM SEAT AND BOTTOM OF PROPOSED DIAPHRAGM AND INCLUDED WITH ITEM 511, HP CONCRETE, SUPERSTRUCTURE AS PER PLAN FOR PAYMENT. TAPER POLYSTYRENE FILLER TO MATCH SLOPE WHERE THE EXISTING BEAM SEAT IS SLOPED BETWEEN BEARING SEAT.
2. A MECHANICAL CONNECTOR SHALL BE USED AT THE PHASE CONSTRUCTION JOINT. THE MECHANICAL CONNECTOR SHALL MEET THE REQUIREMENTS OF 509.07. REINFORCING BAR LENGTHS ARE DETAILED TO THE FACE OF JOINT.
3. DETAILS SHOWN IN THE PLAN AND ELEVATION ARE FOR THE FORWARD ABUTMENT. PHASE CONSTRUCTION LINES FOR REAR ABUTMENT ARE OPPOSITE HAND. PHASE 1 AND PHASE 2 REINFORCEMENT AT PHASE CONSTRUCTION JOINT ARE OPPOSITE HAND FOR REAR ABUTMENT.
4. SLOPE 6" PERFORATED C.P.P. TO OUTLET TOWARDS WING B AT REAR ABUTMENT AND TOWARDS WING A AT FORWARD ABUTMENT. THE NON-OUTLET END OF THE 6" PERFORATED C.P.P. SHALL BE CAPPED.
5. FOR ESTIMATING PURPOSES, IT IS ASSUMED THAT THE PIPE WILL OUTLET 15'-0" BEYOND THE OUTSIDE FACE OF WINGWALL.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301501	

ABUTMENT PLAN AND ELEVATION
BRIDGE NO. LAK-2-1546L
S.R. 2 OVER ST. CLAIR STREET

LAK-2-14.38
PID No. 87924

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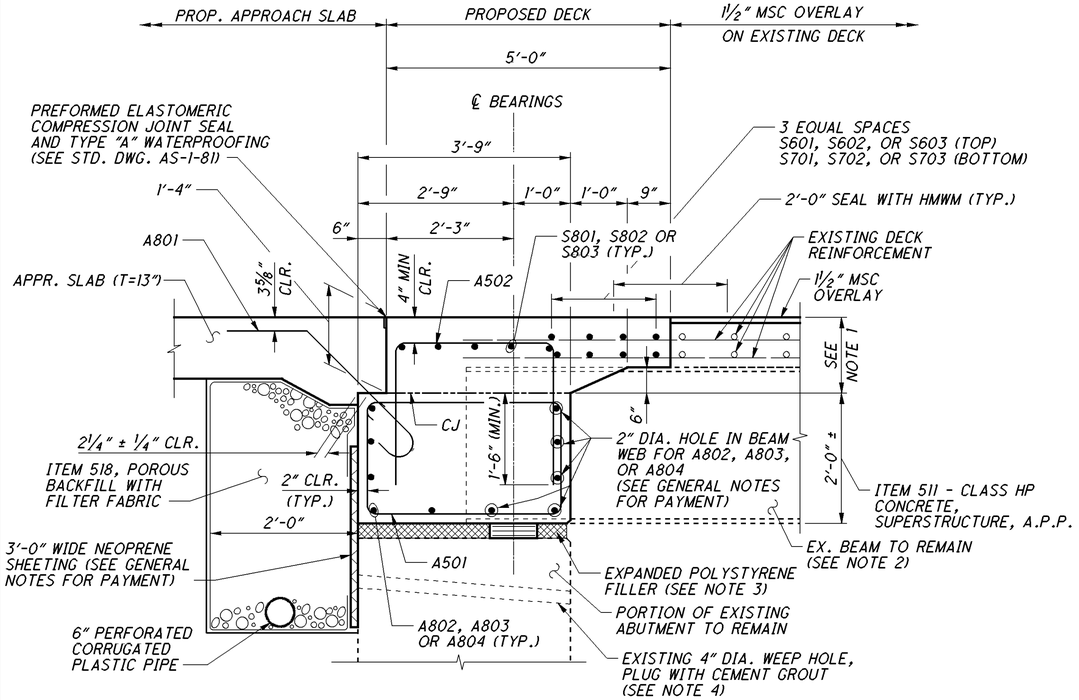
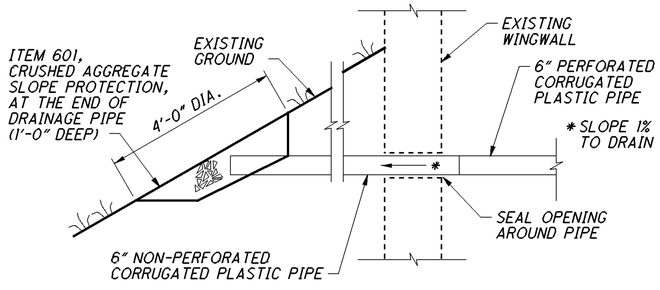


SECTION A-A

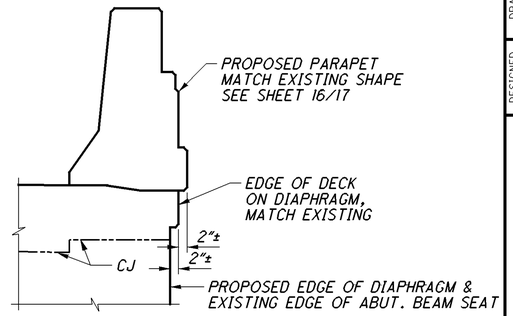
DIMENSIONS SHOWN NORMAL TO ABUTMENTS



DETAIL E

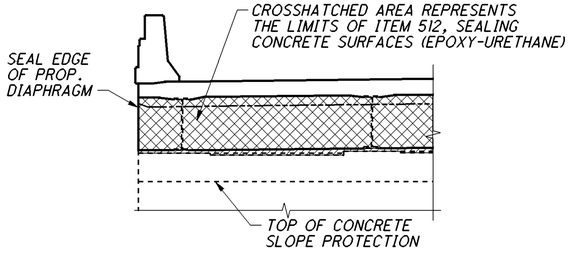
SLOPE PROTECTION DETAIL

TYPICAL EACH DRAIN OUTLET LOCATION



DETAIL C

DIAPHRAGM EDGE DETAIL



ABUTMENT SEALING LIMITS

TYPICAL, EACH ABUTMENT DIAPHRAGM

NOTES:

1. CONCRETE FOR DECK SHALL BE ITEM 511 - CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN.
2. CLEAN AND PAINT ENDS OF EXISTING BEAM FOR A DISTANCE OF 5'-0". PAINT EXISTING BEAMS IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 514. CLEAN AND PAINT ANY EXISTING SCUPPERS AND INTERMEDIATE DIAPHRAGMS WITHIN THESE LIMITS.
3. PLACE EXPANDED POLYSTYRENE FILLER BETWEEN TOP OF EXISTING BEAM SEAT AND BOTTOM OF PROPOSED DIAPHRAGM. TAPER POLYSTYRENE FILLER TO MATCH SLOPE WHERE THE EXISTING BEAM SEAT IS SLOPED BETWEEN BEARING SEAT.
4. CEMENT GROUT SHALL CONSIST OF ONE PART HYDRAULIC CEMENT CONFORMING TO ITEM 701 AND THREE PARTS SAND CONFORMING TO 703.03, BY VOLUME, AND WATER. PAYMENT FOR CEMENT GROUT SHALL BE INCLUDED WITH ITEM 202, PORTIONS OF STRUCTURE REMOVED, AS PER PLAN.
5. SEE SHEET 12 FOR LOCATION OF SECTION A-A.

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ABUTMENT DETAILS
BRIDGE NO. LAK-2-1546L
S.R. 2 OVER ST. CLAIR STREET

LAK-2-14.38
PID No. 87924

13 / 18

149 / 208

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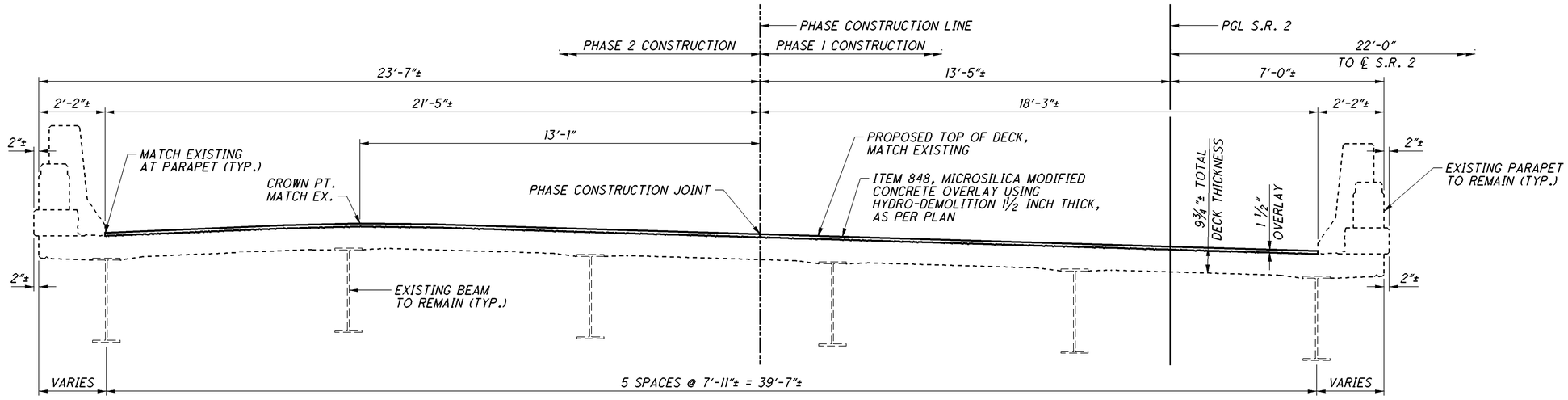
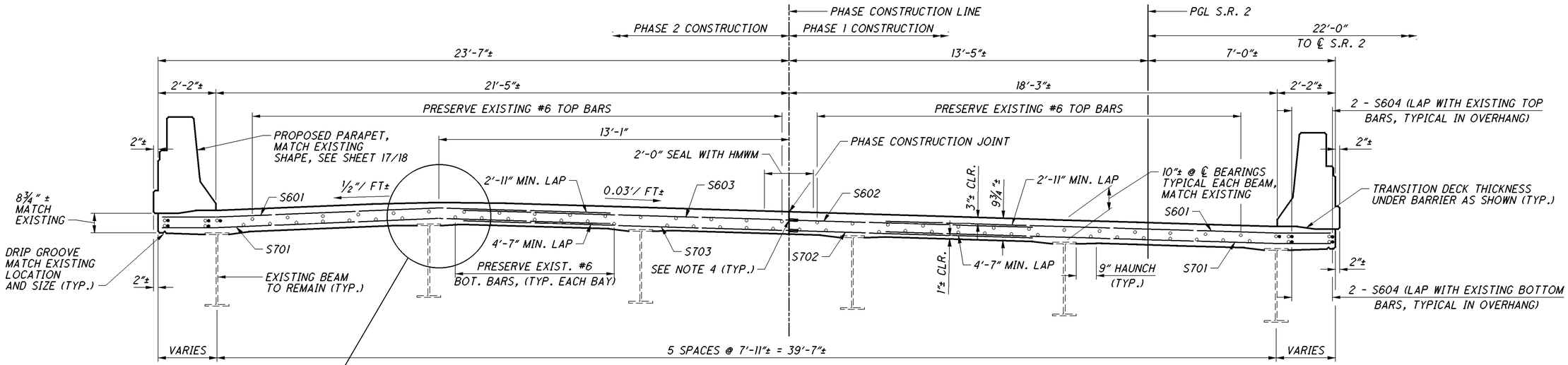


TRANSVERSE SECTION IN SPAN



TRANSVERSE SECTION AT ABUTMENTS

NOTES:

1. TRANSVERSE DIMENSIONS SHOWN ARE APPROXIMATE. IT MAY BE NECESSARY TO VARY THESE DIMENSIONS TO MEET THE PROPOSED APPROACH SLAB AND THE EXISTING DECK.
2. THE ESTIMATED QUANTITY OF DECK SLAB CONCRETE IS BASED ON THE CONSTANT DECK SLAB THICKNESS, AS SHOWN, PLUS THE QUANTITY OF CONCRETE THAT FORMS EACH BEAM HAUNCH. THE ESTIMATE ASSUMES A CONSTANT HAUNCH THICKNESS OF 1 3/16" INCHES AND A CONSTANT HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM FLANGE OF 9 INCHES. DEVIATE FROM THIS HAUNCH THICKNESS AS NECESSARY TO PLACE THE DECK SURFACE AT THE FINISHED GRADE. THE ALLOWABLE TOLERANCE FOR THE HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM FLANGE IS ±3 INCHES.
3. THE HAUNCH THICKNESS WAS MEASURED AT THE CENTERLINE OF THE BEAM, FROM THE SURFACE OF THE DECK TO THE BOTTOM OF THE TOP FLANGE MINUS THE DECK SLAB THICKNESS. THE AREA OF ALL EMBEDDED STEEL PLATES HAS BEEN DEDUCTED FROM THE HAUNCH QUANTITY IN ACCORDANCE WITH 511.24.
4. A MECHANICAL CONNECTOR SHALL BE USED AT THE PHASE CONSTRUCTION JOINT. THE MECHANICAL CONNECTOR SHALL MEET THE REQUIREMENTS OF 509.07. REINFORCING BAR LENGTHS ARE DETAILED TO THE FACE OF JOINT.

DESIGN AGENCY
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TRANSVERSE SECTION
BRIDGE NO. LAK-2-1546L
S.R. 2 OVER ST. CLAIR STREET

LAK-2-14.38
PID No. 87924

14 / 18

150
208

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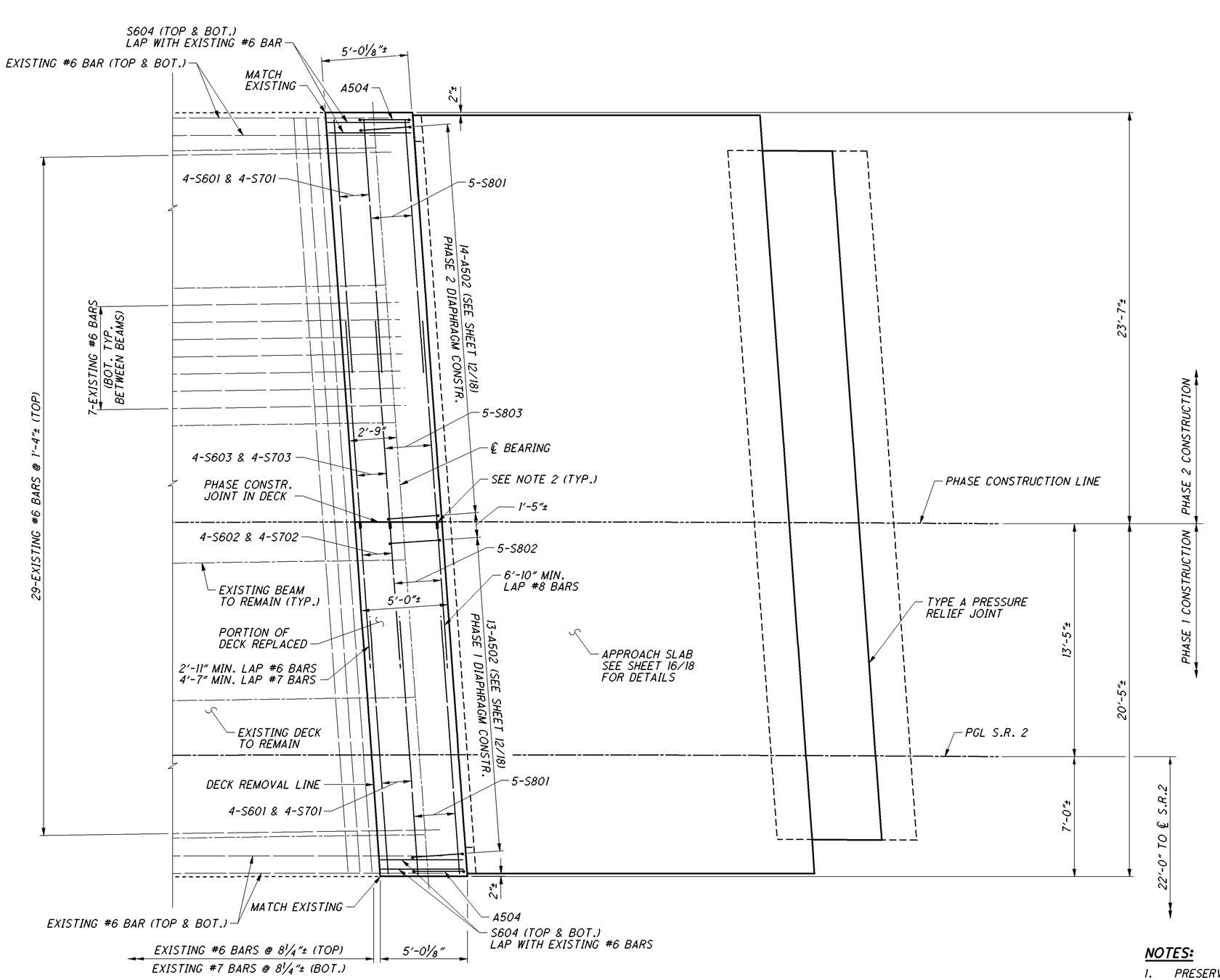

PARTIAL DECK PLAN

SHOWN AT FORWARD ABUTMENT, REAR ABUTMENT SIMILAR
PARAPET NOT SHOWN FOR CLARITY
FOR SECTION THRU ABUTMENT DIAPHRAGM, SEE SHEET 13/18

NOTES:

1. PRESERVE ALL EXISTING REINFORCEMENT THAT IS IN PORTIONS OF THE SUPERSTRUCTURE TO REMAIN.
2. A MECHANICAL CONNECTOR SHALL BE USED AT THE PHASE CONSTRUCTION JOINT. THE MECHANICAL CONNECTOR SHALL MEET THE REQUIREMENTS OF 509.07. REINFORCING BAR LENGTHS ARE DETAILED TO THE FACE OF JOINT.
3. FOR PRESSURE RELIEF JOINT DETAILS, SEE STANDARD DRAWING BP-2.3.

DESIGN AGENCY
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1100 SUPERIOR AVENUE, EAST
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PARTIAL DECK PLAN
BRIDGE NO. LAK-2-1546L
S.R. 2 OVER ST. CLAIR STREET

LAK-2-14.38
PID No. 87924

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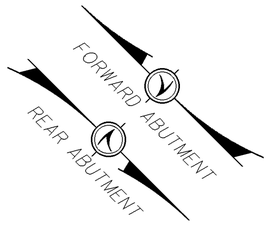
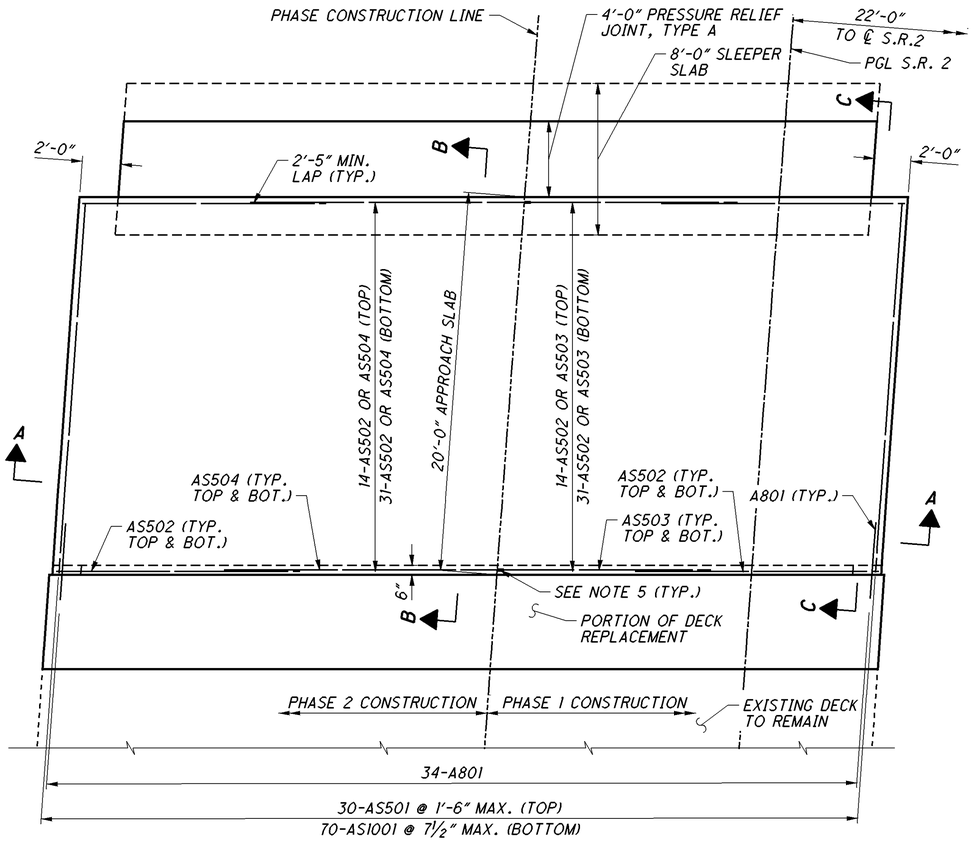
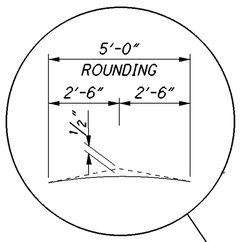
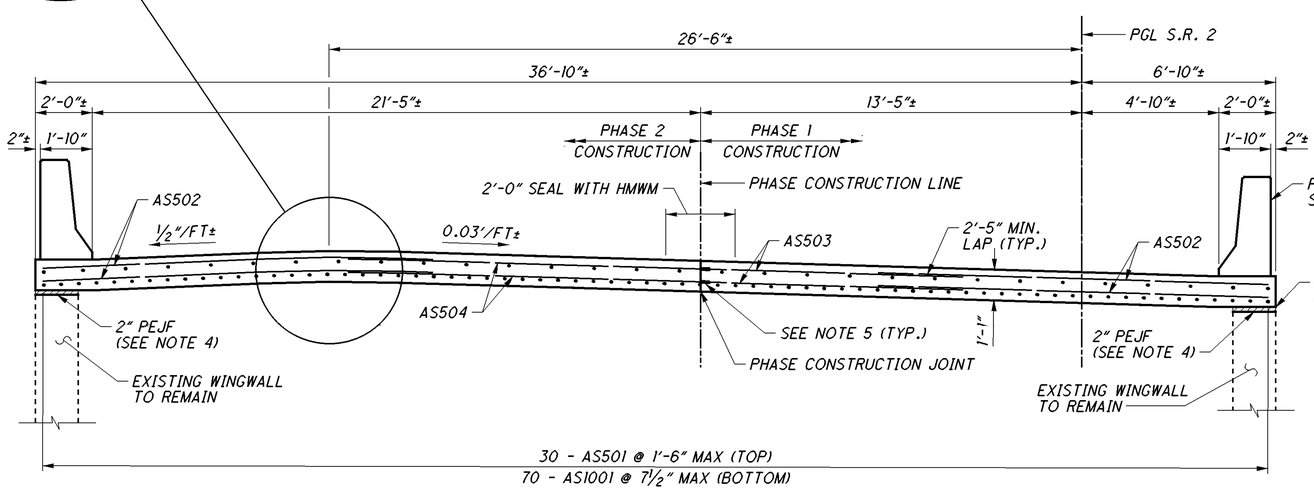




PLAN

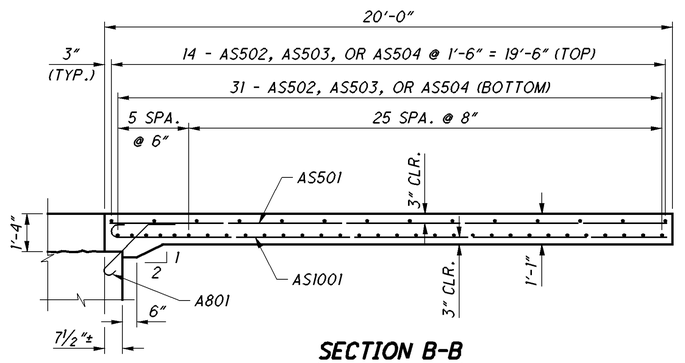
(FORWARD APPROACH SHOWN, REAR APPROACH SIMILAR)
EXISTING AND PROPOSED PARAPET NOT SHOWN FOR CLARITY



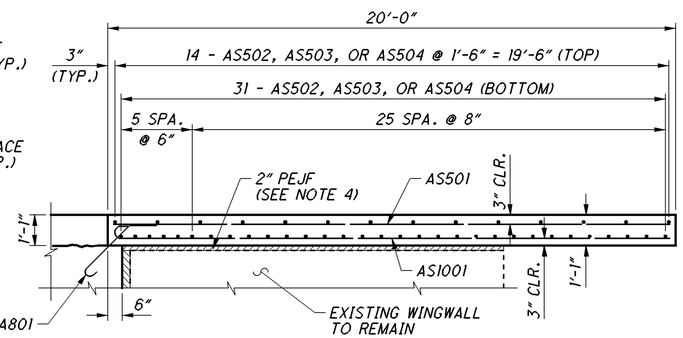


SECTION A-A

(LOOKING AHEAD STATION)



SECTION B-B



SECTION C-C

NOTES:

1. SEE STANDARD DRAWING AS-1-81 FOR ADDITIONAL DETAILS.
2. AS502, AS503, AS504 BARS SHALL BE PLACED PARALLEL TO THE ABUTMENT AND AS501, AS1001 BARS SHALL BE PLACED PLACED PARALLEL TO PGL S.R. 2.
3. FOR DETAILS OF PARAPET ON APPROACH SLAB, SEE SHEET 17/18.
4. THE FOLLOWING SHALL BE INCLUDED IN THE UNIT BID PRICE PER SQUARE YARD FOR ITEM 526, REINFORCED CONCRETE APPROACH SLABS (T=13"), AS PER PLAN:
   - CONCRETE FOR APPROACH SLAB
   - ALL ASSOCIATED REINFORCING STEEL
   - ALL PREFORMED EXPANSION JOINT FILLERS AND JOINT SEALERS
   - WATERPROOFING
   - CONCRETE SEALING OF PARAPET ON APPROACH SLAB
5. A MECHANICAL CONNECTOR SHALL BE USED AT THE PHASE CONSTRUCTION JOINT. THE MECHANICAL CONNECTOR SHALL MEET THE REQUIREMENTS OF 509.07. REINFORCING BAR LENGTHS ARE DETAILED TO THE FACE OF JOINT.
6. PRESSURE RELIEF JOINT, TYPE A AND SLEEPER SLAB SHALL BE INCLUDED IN THE UNIT BID PRICE PER FOOT FOR ITEM SPECIAL, PRESSURE RELIEF JOINT, TYPE A. FOR PRESSURE RELIEF JOINT DETAILS, SEE STANDARD DRAWING BP-2.3.

DESIGN AGENCY
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JTC		4301501	

APPROACH SLAB PLAN AND DETAILS
BRIDGE NO. LAK-2-1546L
S.R. 2 OVER ST. CLAIR STREET

LAK-2-14.38
PID No. 87924

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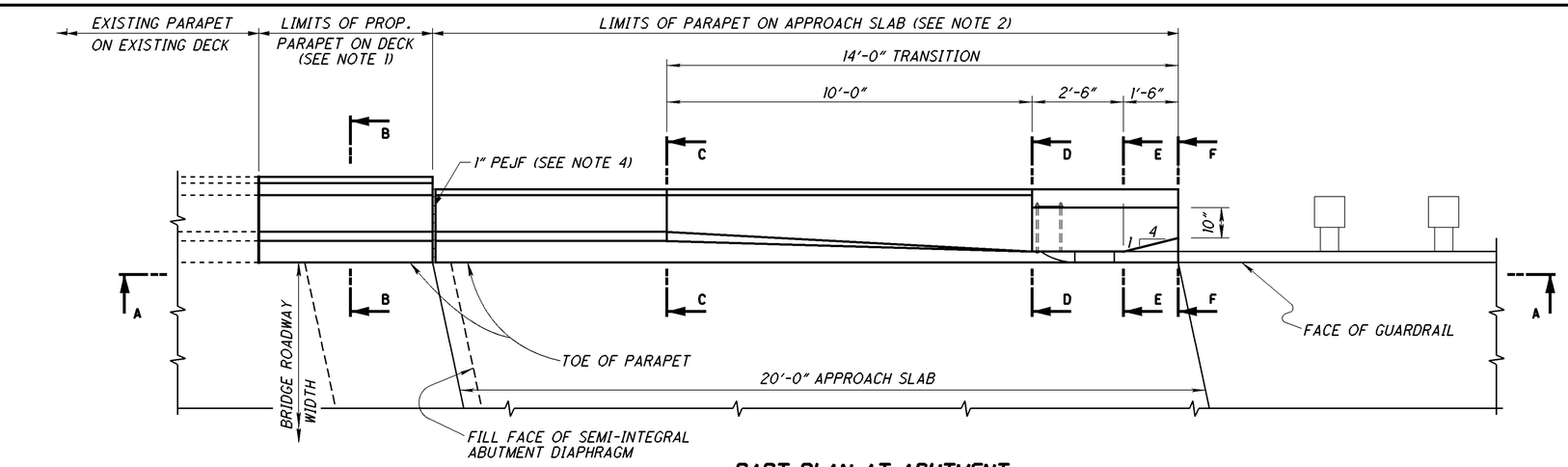
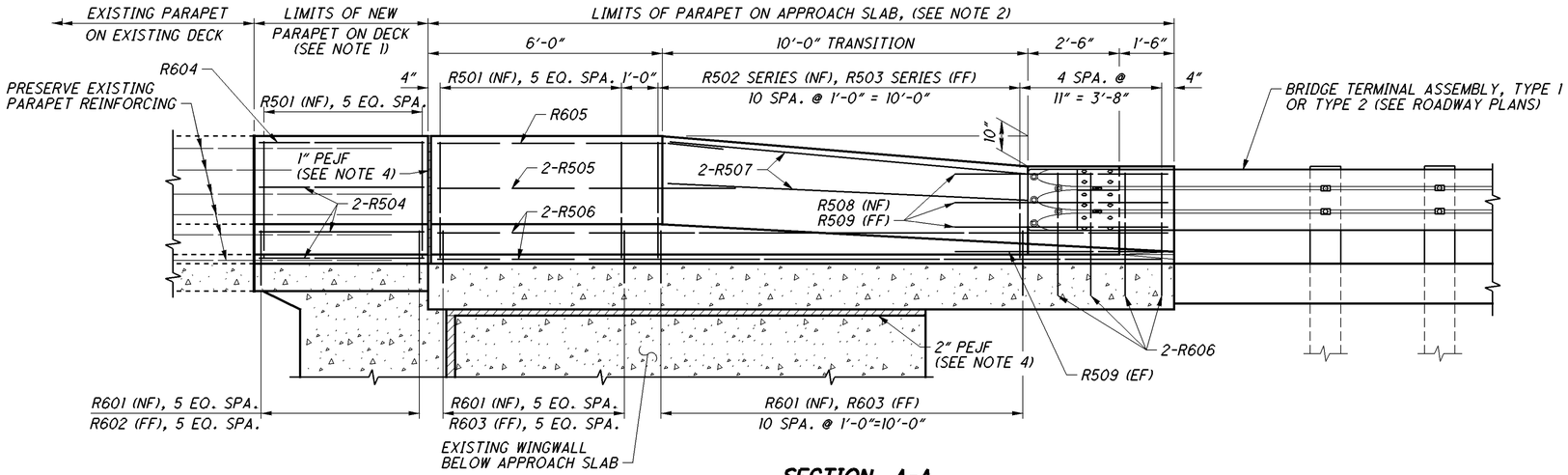


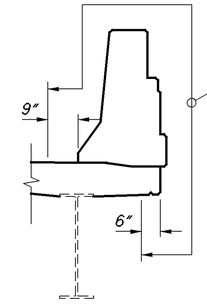
PART PLAN AT ABUTMENT



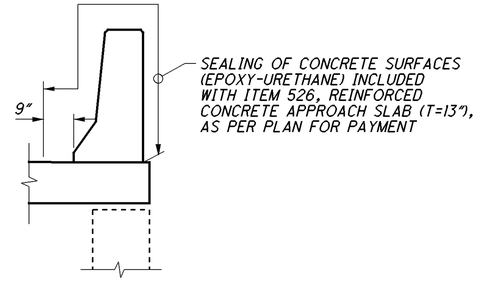
SECTION A-A

NOTES:

1. PARAPET CONCRETE INCLUDED WITH ITEM 511, CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN FOR PAYMENT. PARAPET REINFORCING INCLUDED WITH ITEM 509, EPOXY COATED REINFORCING STEEL, AS PER PLAN.
2. PARAPET CONCRETE AND REINFORCING INCLUDED WITH ITEM 526, REINFORCED CONCRETE APPROACH SLABS (T=13"), AS PER PLAN FOR PAYMENT.
3. FOR PARAPET REINFORCING LIST, SEE SHEET 18/18.
4. PREFORMED EXPANSION JOINT FILLERS INCLUDED WITH ITEM 526, REINFORCED CONCRETE APPROACH SLABS (T=13") AS PER PLAN FOR PAYMENT.

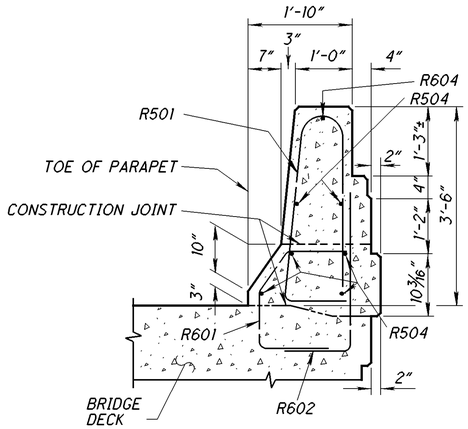


PARAPET ON DECK



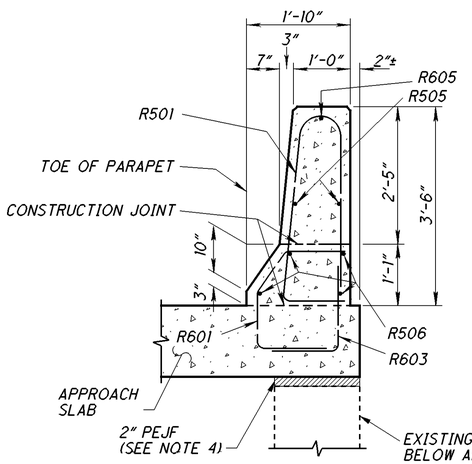
PARAPET ON APPROACH SLAB

CONCRETE SEALING DETAILS

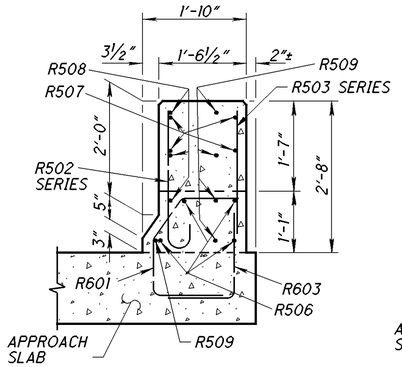


SECTION B-B

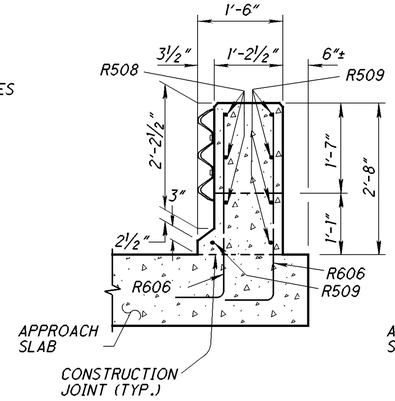
MATCH EXISTING PARAPET SHAPE FIELD BEND BARS IF NECESSARY



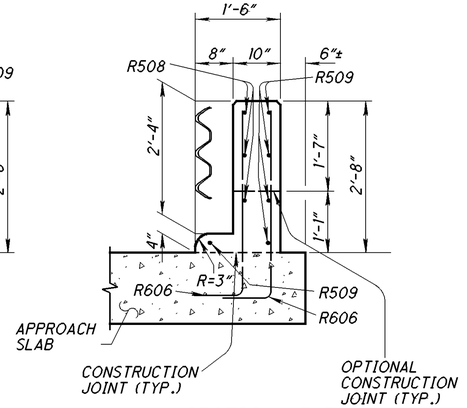
SECTION C-C



SECTION D-D



SECTION E-E



SECTION F-F

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
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JTC		4301501	

PARAPET DETAILS
BRIDGE NO. LAK-2-1546L
S.R. 2 OVER ST. CLAIR STREET

LAK-2-14.38
PID No. 87924

17 / 18

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208

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SUPERSTRUCTURE - ABUTMENT DIAPHRAGM

MARK	QUANTITY			LENGTH	WEIGHT	TYPE	DIMENSIONS						
	REAR ABUT.	FWD. ABUT.	TOTAL				A	B	C	D	E	R	INC.
A501	27	27	54	10'-9"	606	3	3'-5"	1'-8"					
A502	27	27	54	7'-8"	432	2	2'-6"	2'-11"	2'-6"				
A503	2	2	4	10'-9"	45	3	3'-5"	1'-8"					
A504	2	2	4	7'-8"	32	2	2'-6"	2'-11"	2'-6"				
A801	34	34	68	4'-9"	863	18	2'-5"	1'-0"	1'-0"				
A802	20	20	40	17'-3"	1843	STR							
A803	10	10	20	10'-5"	557	35							
A804	10	10	20	12'-4"	659	36							
				SUB-TOTAL	5037								

SUPERSTRUCTURE - DECK

MARK	QUANTITY			LENGTH	WEIGHT	TYPE	DIMENSIONS						
	REAR ABUT.	FWD. ABUT.	TOTAL				A	B	C	D	E	R	INC.
S601	8	8	16	15'-5"	371	STR							
S602	4	4	8	7'-10"	95	35							
S603	4	4	8	11'-0"	133	36							
S604	8	8	16	4'-8"	113	STR							
S701	8	8	16	16'-3"	532	STR							
S702	4	4	8	8'-8"	142	35							
S703	4	4	8	11'-10"	194	36							
S801	10	10	20	17'-5"	930	STR							
S802	5	5	10	9'-10"	263	35							
S803	5	5	10	13'-0"	348	36							
				SUB-TOTAL	3121								

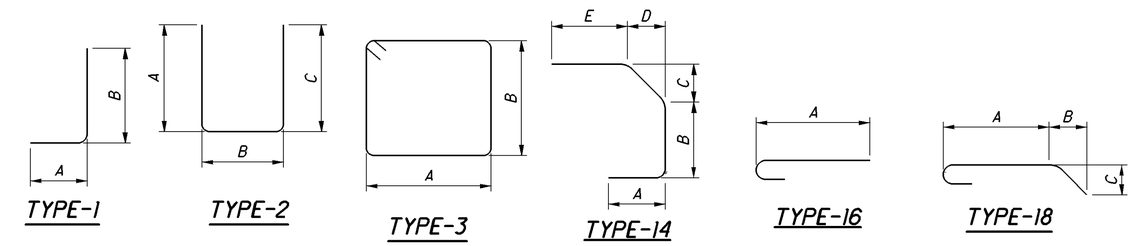
SUPERSTRUCTURE - PARAPET

MARK	QUANTITY			LENGTH	WEIGHT	TYPE	DIMENSIONS						
	REAR ABUT.	FWD. ABUT.	TOTAL				A	B	C	D	E	R	INC.
R501	12	12	24	7'-6"	188	23	1'-0"	3'-3"	3'-0"			3¾"	
R504	12	12	24	4'-8"	117	STR							
R601	12	12	24	3'-4"	121	14	1'-2½"	8"	8½"	6"	11"		
R602	12	12	24	3'-4"	121	1	11"	2'-7"					
R604	2	2	4	4'-8"	29	STR							
				SUB-TOTAL	576								

APPROACH SLAB*

MARK	QUANTITY			LENGTH	WEIGHT	TYPE	DIMENSIONS						
	REAR ABUT.	FWD. ABUT.	TOTAL				A	B	C	D	E	R	INC.
AS501	30	30	60	19'-6"	1221	STR							
AS502	90	90	180	10'-0"	1875	STR							
AS503	45	45	90	12'-7"	1182	35							
AS504	45	45	90	15'-9"	1479	36							
AS1001	70	70	140	20'-11"	12601	16	19'-6"						
R501	12	12	24	7'-6"	188	23	1'-0"	3'-3"	3'-0"			3¾"	
R502	2 SERIES OF 11	2 SERIES OF 11	4 SERIES OF 11	3'-0" TO 3'-10"	157	30	11	2'-5"	3'-3"				1"
R503	2 SERIES OF 11	2 SERIES OF 11	4 SERIES OF 11	2'-5" TO 3'-3"	130	29	11	2'-5"	3'-3"				1"
R505	4	4	8	7'-10"	66	STR							
R506	8	8	16	15'-8"	262	STR							
R507	8	8	16	10'-0"	167	STR							
R508	6	6	12	5'-8"	71	25	1'-10"	2'-5"	1'-4¼"	1½"	5"		
R509	10	10	20	5'-8"	119	STR							
R601	34	34	68	3'-4"	340	14	1'-2½"	8"	8½"	6"	11"		
R603	34	34	68	2'-4"	239	1	11"	1'-7"					
R605	2	2	4	8'-3"	50	STR							
R606	16	16	32	4'-0"	193	1	11"	3'-3"					
				SUB-TOTAL	20340								

* BARS SHOWN FOR INFORMATIONAL PURPOSES ONLY. BARS ARE INCLUDED WITH APPROACH SLAB ITEM FOR PAYMENT.



NOTES:

1. THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT WHERE THREE DIGITS ARE USED AND THE FIRST TWO WHERE FOUR DIGIT ARE USED, INDICATES THE BAR SIZE NUMBER.
2. ALL DIMENSIONS ARE MEASURED OUT-TO-OUT OF BAR UNLESS NOTED OTHERWISE.
3. FOR STANDARD HOOK DIMENSIONS, SEE SECTION 509.05 OF THE SPECIFICATIONS.
4. ALL REINFORCING STEEL TO BE EPOXY COATED.
5. PAYMENT FOR REINFORCING STEEL SHALL BE INCLUDED IN THE CONTRACT BID PRICE FOR ITEM 509, EPOXY COATED REINFORCING STEEL, AS PER PLAN.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED BKS | DRAWN TEK | CHECKED JTC | REVIEWED SCJ | DATE 9/10 | REVISED | STRUCTURE FILE NUMBER 4301501

REINFORCING STEEL LIST

BRIDGE NO. LAK-2-1546L
S.R. 2 OVER ST. CLAIR STREET

LAK-2-14.38
PID No. 87924

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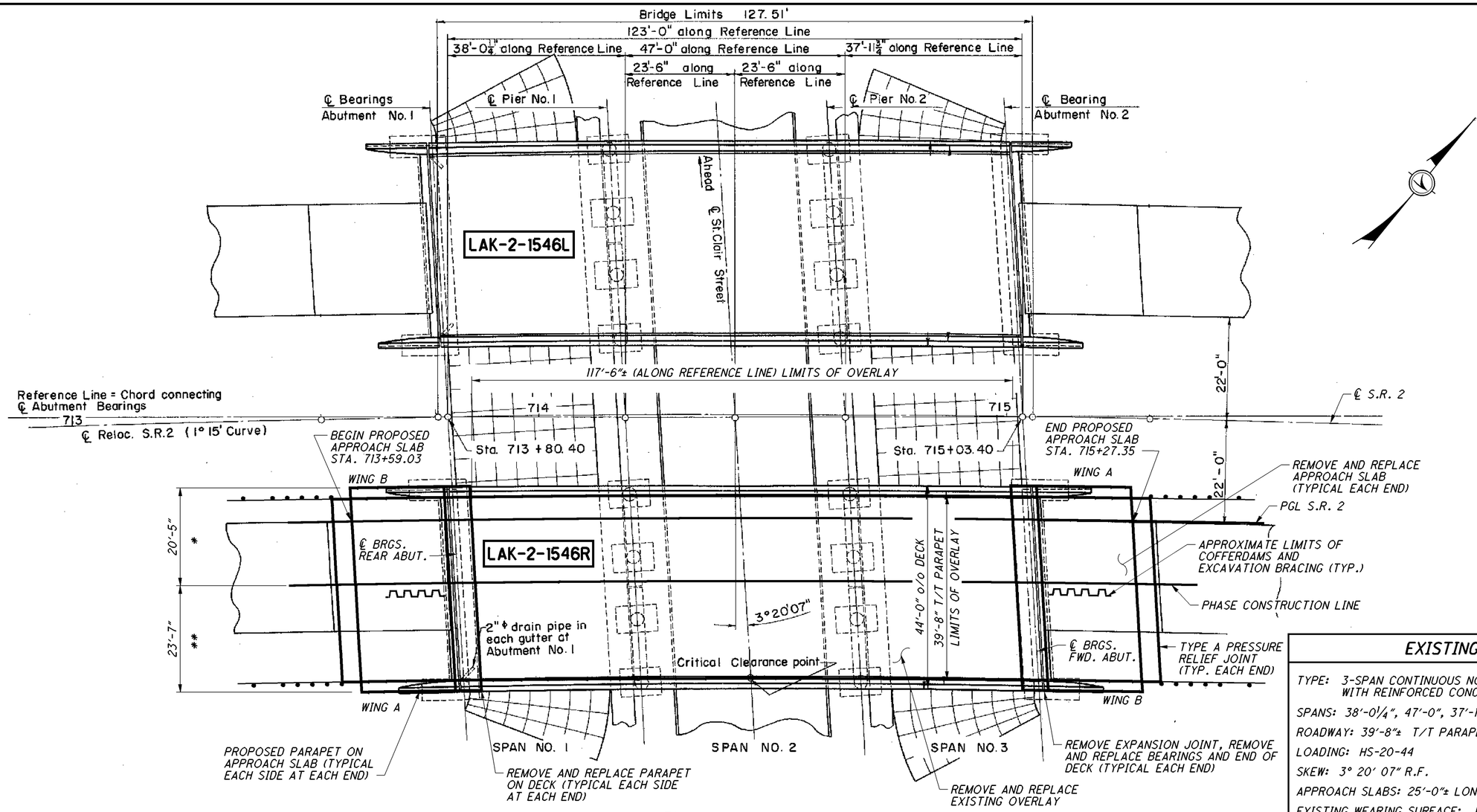
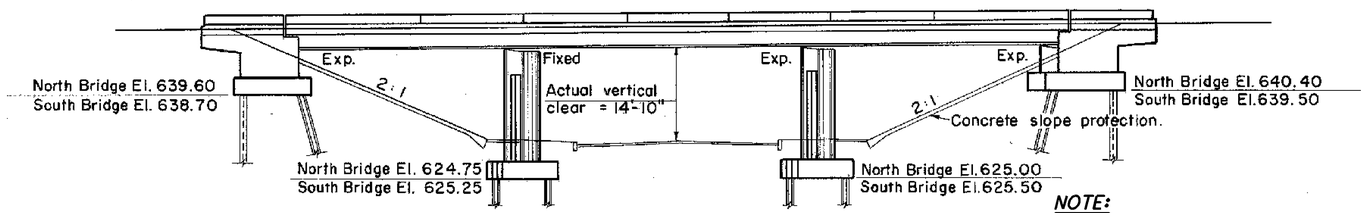


PLAN

+0.70% −2.00%

V.P.I. Sta. 718+50
Elevation 653.51
L.V.C. 800'
M.O. 2.70'

VERTICAL CURVE DATA



ELEVATION

NOTE:

PLANS OF EXISTING STRUCTURES ARE AVAILABLE FOR EXAMINATION AT THE OHIO DEPARTMENT OF TRANSPORTATION, DISTRICT 12 OFFICE, 5500 TRANSPORTATION BLVD. GARFIELD HEIGHTS, OHIO 44125.

LEGEND:

* = PHASE 1 CONSTRUCTION
** = PHASE 2 CONSTRUCTION

NORTH BRIDGE = LAK-2-1546L
SOUTH BRIDGE = LAK-2-1546R

EXISTING STRUCTURE

TYPE: 3-SPAN CONTINUOUS NON-COMPOSITE ROLLED STEEL BEAMS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURES
SPANS: 38'-0¼", 47'-0", 37'-11¾"
ROADWAY: 39'-8"± T/T PARAPET
LOADING: HS-20-44
SKEW: 3° 20' 07" R.F.
APPROACH SLABS: 25'-0"± LONG
EXISTING WEARING SURFACE: LATEX MODIFIED CONCRETE
ALIGNMENT: 1° 15' CURVE
CROWN: SUPERELEVATED
STRUCTURAL FILE NUMBER: 4301536
DATE BUILT: 1963

PROPOSED STRUCTURE

PROPOSED WORK: REPLACE SLAB ENDS WITH MODIFIED SEMI-INTERGRAL ABUTMENT, APPROACH SLAB, AND OVERLAY
TYPE: 3-SPAN CONTINUOUS NON-COMPOSITE ROLLED STEEL BEAMS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURES
SPANS: 38'-0¼", 47'-0", 37'-11¾"
ROADWAY: 39'-8"± T/T PARAPET
LOADING: HS-20-44
SKEW: 3° 20' 07" R.F.
APPROACH SLABS: STD. AS-1-81 20'-0" LONG (MODIFIED)
PROPOSED WEARING SURFACE: MICRO SILICA MODIFIED CONCRETE
ALIGNMENT: 1° 15' CURVE
CROWN: SUPERELEVATED

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301536	

SITE PLAN
BRIDGE NO. LAK-2-1546R
S.R. 2 OVER ST. CLAIR STREET

LAK-2-14.38
PID No. 87924

1 / 18

155 / 208

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GENERAL NOTES

REFER TO THE FOLLOWING STANDARD BRIDGE DRAWINGS:

AS-1-81	REVISED	07-19-02
SICD-1-96	REVISED	07-19-02
PCB-91	REVISED	07-19-02

AND TO THE FOLLOWING SUPPLEMENTAL SPECIFICATIONS:

843	DATED	04-18-03
848	DATED	04-16-10

DESIGN SPECIFICATIONS: THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO), 2002, AND THE 2004 ODOT BRIDGE DESIGN MANUAL.

DESIGN LOADING: HS-20 AND THE ALTERNATE MILITARY LOADING.

DESIGN DATA:

CONCRETE CLASS HP - COMPRESSIVE STRENGTH 4.5 KSI (DECK, ABUTMENTS DIAPHRAGMS, PARAPETS, AND APPROACH SLABS)
REINFORCING STEEL - MINIMUM YIELD STRENGTH 60 KSI
STRUCTURAL STEEL - ASTM A709 GRADE 50W - YIELD STRENGTH 50 KSI

DECK PROTECTION METHOD: EPOXY COATED REINFORCING STEEL, 2½" CONCRETE COVER, MODIFIED MICRO SILICA CONCRETE OVERLAY.

MONOLITHIC WEARING SURFACE: IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1" THICK.

EXISTING STRUCTURE VERIFICATION: DETAILS AND DIMENSIONS SHOWN ON 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 513.04.

BASE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS THAT HAVE BEEN VERIFIED IN THE FIELD.

MAINTENANCE OF TRAFFIC

PROPOSED WORK:
IN GENERAL, THE PROPOSED WORK FOR THE S.R. 2 BRIDGE OVER ST. CLAIR STREET SHALL CONSIST OF THE REMOVAL AND REPLACEMENT OF THE EXISTING LATEX MODIFIED CONCRETE OVERLAY AND REMOVAL OF THE EXISTING EXPANSION JOINTS AND ABUTMENT BACKWALLS AND REPLACE WITH SEMI-INTEGRAL ABUTMENT DIAPHRAGMS. REMOVAL AND CONSTRUCTION OPERATIONS ARE TO BE PERFORMED WHILE MAINTAINING ONE LANE OF EASTBOUND TRAFFIC ON S.R. 2. THE MAJOR ITEMS OF WORK REQUIRING PHASED CONSTRUCTION ARE DESCRIBED BELOW. SOME PROJECT WORK ITEMS, SUCH AS SEALING OF CONCRETE SURFACES, MAY BE PERFORMED AT THE CONTRACTOR'S DISCRETION DURING THE CONTRACT SCHEDULE PERIOD; HOWEVER, THE PERFORMANCE OF ALL WORK MUST BE COORDINATED TO SATISFY MAINTENANCE OF TRAFFIC AND SAFETY REQUIREMENTS.SEE M.O.T. PLANS FOR ADDITIONAL MAINTENANCE OF TRAFFIC REQUIREMENTS.

PHASE 1 CONSTRUCTION:
1. INSTALL PORTABLE CONCRETE BARRIER ON THE EXISTING ST. CLAIR STREET BRIDGE AND APPROACHES. ROUTE TRAFFIC ACROSS THE BRIDGE ACCORDING TO THE MAINTENANCE OF TRAFFIC PLANS.
2. CONSTRUCT TEMPORARY EXCAVATION SUPPORTS ALONG THE PHASE REMOVAL LINE AT THE REAR AND FORWARD ABUTMENTS AS SHOWN IN THE PLANS.
3. ON THE NORTHERNMOST PORTION OF THE EXISTING BRIDGE, REMOVE THE EXISTING OVERLAY, PORTION OF DECK/PARAPET AT THE ABUTMENTS, APPROACH SLABS, EXPANSION JOINTS, END CROSSFRAMES, AND ABUTMENT BACKWALLS IN ACCORDANCE WITH 202.03 AND PLAN REQUIREMENTS.
4. CLEAN AND PAINT ENDS OF THE THREE NORTHERNMOST EXISTING BEAMS. DRILL 2" DIAMETER HOLES THROUGH EXISTING BEAM WEBS FOR LONGITUDINAL ABUTMENT DIAPHRAGM REINFORCING.
5. CONSTRUCT NORTHERNMOST REINFORCED CONCRETE SEMI-INTEGRAL ABUTMENT DIAPHRAGM, WINGWALL, DECK, PARAPET, AND APPROACH SLAB AT THE REAR AND FORWARD ABUTMENTS.

PHASE 2 CONSTRUCTION:
1. INSTALL PORTABLE CONCRETE BARRIER ON COMPLETED PHASE 1 PORTION OF THE BRIDGE AS SHOWN ON BRIDGE AND MAINTENANCE OF TRAFFIC PLANS. ROUTE TRAFFIC ONTO COMPLETED PHASE 1 PORTION OF THE BRIDGE.
2. REMOVE THE REMAINING PORTIONS OF THE EXISTING OVERLAY, DECK/PARAPET AT ABUTMENTS, APPROACH SLABS, EXPANSION JOINTS, END CROSSFRAMES, AND ABUTMENT BACKWALLS IN ACCORDANCE WITH 202.03 AND PLAN REQUIREMENTS.
3. CLEAN AND PAINT ENDS OF THE THREE SOUTHERNMOST EXISTING BEAMS. DRILL 2" DIAMETER HOLES THROUGH EXISTING BEAM WEBS FOR LONGITUDINAL ABUTMENT DIAPHRAGM REINFORCING.
4. CONSTRUCT SOUTHERNMOST REINFORCED CONCRETE SEMI-INTEGRAL ABUTMENT DIAPHRAGM, WINGWALL, DECK, PARAPET, AND APPROACH SLAB AT THE REAR AND FORWARD ABUTMENTS.
5. REMOVE PORTABLE CONCRETE BARRIER AND ROUTE TRAFFIC ONTO COMPLETED BRIDGE ACCORDING TO MAINTENANCE OF TRAFFIC PLANS.

ITEM 202, PORTIONS OF STRUCTURE REMOVED AS PER PLAN:

DESCRIPTION: THIS WORK CONSISTS OF THE REMOVAL OF THE CONCRETE DECK, PARAPETS, EXPANSION JOINTS, BEARINGS, AND OTHER APPURTENANCES FROM SUPPORTING SYSTEMS AS SHOWN IN THE PLANS. THIS WORK SHALL ALSO INCLUDE THE REMOVAL OF THE ABUTMENT BACKWALLS IN ACCORDANCE WITH THE DETAILS SHOWN IN THE PLANS. ADDITIONAL CONCRETE REMOVAL MAY BE REQUIRED IF UNSOUND OR DETERIORATED CONCRETE IS ENCOUNTERED BEYOND THE PLAN CUT LINES. THE CONTRACTOR SHALL REMOVE ANY UNSOUND OR DETERIORATED CONCRETE BEYOND THE PLAN CUT LINE AS DIRECTED BY THE ENGINEER. PERFORM WORK

ITEM 202, PORTIONS OF STRUCTURE REMOVED AS PER PLAN, (CONTINUED):

CAREFULLY DURING DECK REMOVALS TO PROTECT PORTIONS OF THE EXISTING STEEL SUPPORTING SYSTEM THAT ARE TO BE SALVAGED AND INCORPORATED INTO THE PROPOSED STRUCTURE. THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE RAM TYPE OF EQUIPMENT IS PROHIBITED. SUBMIT CONSTRUCTION PLANS ACCORDING TO CMS 501.05.

PROTECTION OF TRAFFIC: PRIOR TO DEMOLITION OF ANY PORTIONS OF THE EXISTING SUPERSTRUCTURE, THE CONTRACTOR SHALL SUBMIT PLANS FOR THE PROTECTION OF TRAFFIC (VEHICULAR, 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 ENSURE 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, DRAW THE OUTLINE OF THE PRIMARY STEEL MEMBERS IN CONTACT WITH THE BOTTOM OF THE DECK ON THE SURFACE OF THE DECK. DRILL SMALL DIAMETER PILOT HOLES 2 INCHES OUTSIDE THESE LINES TO CONFIRM THE LOCATION OF FLANGE EDGES. DECK CUTS OVER OR WITHIN 2" OF FLANGE EDGES SHALL NOT EXTEND LOWER THAN THE BOTTOM LAYER OF DECK SLAB REINFORCING STEEL. CUTS MADE OUTSIDE 2 INCHES OF FLANGE EDGES MAY EXTEND THE FULL DEPTH OF THE DECK. PERFORM WORK CAREFULLY DURING CUTTING OF THE DECK SLAB TO AVOID DAMAGING STEEL MEMBERS THAT ARE TO BE INCORPORATED INTO THE PROPOSED STRUCTURE. REPLACE OR REPAIR STEEL MEMBERS DAMAGED BY THE DECK SLAB CUTTING OPERATIONS AT NO COST TO THE PROJECT. AT LEAST 7 DAYS BEFORE PERFORMING REPAIR WORK, SUBMIT A PROPOSED REPAIR PLAN, DEVELOPED BY AN OHIO REGISTERED PROFESSIONAL ENGINEER TO THE DIRECTOR. OBTAIN THE DIRECTOR'S APPROVAL BEFORE PERFORMING REPAIR.

REMOVAL METHODS: THE CONTRACTOR MAY REMOVE CONCRETE BY CUTTING AND BY MEANS OF HAND OPERATED PNEUMATIC HAMMERS EMPLOYING POINTED OR BLUNTED CHISEL TYPE TOOLS. FOR REMOVALS OVER STRUCTURAL MEMBERS, THE CONTRACTOR MAY USE A HAMMER HEAVIER THAN 35 POUNDS BUT NOT TO EXCEED 90 POUNDS UNLESS APPROVED BY THE ENGINEER. REMOVAL METHODS OVER STRUCTURAL MEMBERS SHALL ENSURE ADEQUATE DEPTH CONTROL AND PREVENT NICKING OR GOUGING THE PRIMARY STRUCTURAL MEMBERS.

SUBSTRUCTURE CONCRETE REMOVAL: REMOVE CONCRETE 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 35 POUNDS FOR REMOVAL WITHIN 18 INCHES OF PORTIONS TO BE PRESERVED. OUTSIDE THE 18 INCH LIMIT, THE CONTRACTOR MAY USE HAMMERS NOT EXCEEDING 90 POUNDS UPON THE APPROVAL OF THE ENGINEER. DO NOT PLACE PNEUMATIC HAMMERS IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE.

CUT LINE CONSTRUCTION JOINT PREPARATION: SAW CUT BOUNDARIES OF PROPOSED CONCRETE REMOVALS 1 INCH DEEP. REMOVE CONCRETE TO A ROUGH SURFACE. LEAVE THE EXISTING REINFORCING STEEL, IF REQUIRED IN THE PLANS, IN PLACE. INSTALL DOWEL BARS IF SPECIFIED. PRIOR TO CONCRETE PLACEMENT ABRASIVELY CLEAN JOINT SURFACES AND EXISTING EXPOSED REINFORCEMENT TO REMOVE LOOSE AND DISINTEGRATED CONCRETE AND LOOSE RUST. THOROUGHLY CLEAN THE JOINT SURFACE AND EXPOSED REINFORCEMENT OF ALL DIRT, DUST, RUST, OR OTHER FOREIGN MATERIAL BY THE USE OF WATER, AIR UNDER PRESSURE, OR OTHER METHODS THAT PRODUCE SATISFACTORY RESULTS. EXISTING REINFORCING STEEL DOES NOT HAVE TO HAVE A BRIGHT STEEL FINISH, BUT REMOVE ALL PACK AND LOOSE RUST. THOROUGHLY DRENCH EXISTING CONCRETE SURFACES WITH CLEAN WATER AND ALLOW TO DRY TO A DAMP CONDITION BEFORE PLACING CONCRETE.

MEASUREMENT AND PAYOUT: THE DEPARTMENT WILL MEASURE THE QUANTITY OF REMOVAL ON A LUMP SUM BASIS. THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES OF REMOVALS AT THE CONTRACT PRICE FOR ITEM 202, PORTIONS OF STRUCTURE REMOVED, AS PER PLAN.

ITEM 202, APPROACH SLAB REMOVED, AS PER PLAN: THIS WORK CONSISTS OF REMOVING THE EXISTING APPROACH SLABS INCLUDING ANY EXISTING OVERLAY THAT IS PRESENT ON TOP OF THE EXISTING APPROACH SLAB.

ITEM 509, EPOXY COATED REINFORCING STEEL, AS PER PLAN:
IN ADDITION TO CONFORMING TO 509 REQUIREMENTS, THE LABOR REQUIRED TO FIELD DRILL THE 2" DIAMETER HOLES IN THE EXISTING STEEL BEAMS AT THE ABUTMENT DIAPHRAGMS SHALL BE INCLUDED WITH ITEM 509, EPOXY COATED REINFORCING STEEL, AS PER PLAN FOR PAYMENT. THE COST OF FURNISHING THE MECHANICAL CONNECTORS AND EXTENSIONS SHALL BE INCLUDED WITH ITEM 509-EPOXY COATED REINFORCING STEEL, AS PER PLAN FOR PAYMENT.

ITEM 509 - REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN: CONTIGENCY QUANTITIES ARE INCLUDED TO PROVIDE ADDITIONAL CONNECTING REINFORCING STEEL IF REQUIRED OR IF EXISTING REINFORCING STEEL TO BE REUSED IS MISSING OR FOUND TO BE UNUSABLE.

REPLACE ALL EXISTING REINFORCING BARS DEEMED BY THE ENGINEER TO BE UNUSABLE BECAUSE OF CORROSION. THE DEPARTMENT WILL MEASURE THE REPLACEMENT REINFORCING STEEL BY THE NUMBER OF POUNDS ACCEPTED IN PLACE.

REPLACE ALL EXISTING REINFORCING STEEL BARS WHICH ARE TO BE INCORPORATED INTO THE NEW WORK AND ARE DEEMED BY THE ENGINEER TO BE MADE UNUSABLE BY CONCRETE REMOVAL OPERATIONS WITH NEW EPOXY COATED REINFORCING STEEL OF THE SAME SIZE AT NO COST TO THE DEPARTMENT.

ITEM 511, CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN:
ITEM 511, CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN:
ITEM 511, CLASS HP CONCRETE, SUPERSTRUCTURE, AS PER PLAN:
ITEM 511, CLASS HP CONCRETE, TEST SLAB:

GENERAL REQUIREMENTS:
THE PROVISIONS OF ITEM 511 SHALL APPLY EXCEPT AS NOTED BELOW.

MIX OPTIONS:
ALL BRIDGE DECK, ABUTMENT, PARAPETS, DIAPHRAGMS, AND APPROACH SLAB CONCRETE SHALL BE THIS MIX (AS PER PLAN).

THE FOLLOWING PROPORTIONS WILL BE USED AS A STARTING MIX DESIGN:

CONCRETE TABLE
QUANTITIES PER CUBIC YARD
AGGREGATES (SSD)

HP4, AS PER PLAN (GGBF SLAG + MICROSILICA)								
AGGRE. TYPE	FINE AGGRE. (LB)	#8 COARSE AGGRE. (LB)*	#57 COARSE AGGRE. (LB)*	CEMENT CONTENT (LB)*	GGBF SLAG (LB)*	MICRO-SILICA (LB)*	W/C RATIO +/-0.01	AIR CONTENT +/-2%
GRAVEL	1245	360	1315	400	170	30	0.43	7
LIMESTONE	1245	360	1335	400	170	30	0.43	7
SLAB	1245	315	1155	400	170	30	0.43	7

* ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED PER ASTM C127.

HIGH EARLY STRENGTH CEMENT MAY BE USED TO EXPEDITE CONSTRUCTION, SEE 511.07.

THE WEIGHTS SPECIFIED IN THE CONCRETE TABLE WERE CALCULATED FOR MATERIALS OF THE FOLLOWING BULK SPECIFIC GRAVITIES (SSD): NATURAL SAND AND GRAVEL 2.62, LIMESTONE SAND 2.68, LIMESTONE 2.65, SLAG 2.30, FLY ASH 2.65, GGBF SLAG 2.90, MICRO-SILICA SOLIDS 2.20, AND PORTLAND CEMENT 3.15. FOR AGGREGATES OF SPECIFIC GRAVITIES DIFFERING MORE THAN PLUS OR MINUS 0.02 FROM THESE, THE WEIGHTS IN THE TABLE WILL BE CORRECTED.

PARAPET CONSTRUCTION (FORMED AND POURED): FORMS SHALL NOT BE REMOVED UNTIL AT LEAST 2 HOURS AFTER THE FINAL SET. DETERMINATION OF THE FINAL SET SHALL BE AS PER ASTM C266 (GILLMORE NEEDLE). TESTING SHALL BE PERFORMED BY THE CONTRACTOR AT NO COST TO THE STATE.

THE MINIMUM CONCRETE SLUMP DURING PLACEMENT OF FORMED CONCRETE PARAPETS SHALL BE 6 INCHES, WITH A MAXIMUM SLUMP OF 8 INCHES.

PARAPET CONSTRUCTION (SLIP FORMED): SLIP FORMING IS PROHIBITED.

BASIS OF PAYMENT: PAYMENT FOR THE ABOVE COMPLETED AND ACCEPTED QUANTITIES WILL BE MADE AT THE CONTRACT BID PRICE FOR:

ITEM	UNITS	DESCRIPTION
511E50001	CUBIC YARD	CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN
511E50101	CUBIC YARD	CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN
511E52000	LUMP	CLASS HP CONCRETE, TEST SLAB

ITEM 512, SEALING OF CONCRETE SURFACES (EPOXY-URETHANE): THE FINISH COAT COLOR FOR ALL CONCRETE SURFACES TO RECEIVE SEALER SHALL MATCH THE EXISTING SEALER COLOR SUBJECT TO THE APPROVAL OF THE ENGINEER.

ITEM 514, FIELD PAINTING STRUCTURAL STEEL, FINISH COAT: THE FINISH COAT COLOR FOR ALL STRUCTURAL STEEL MEMBERS TO RECEIVE PAINT SHALL MATCH THE EXISTING PAINT COLOR SUBJECT TO THE APPROVAL OF THE ENGINEER.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301536	

GENERAL NOTES (1 OF 2)
BRIDGE NO. LAK-2-1546R
S.R. 2 OVER ST. CLAIR STREET

LAK-2-14.38
PID No. 87924

2 / 18

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GENERAL NOTES

ITEM 516, SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN: INSTALL A 3 FOOT WIDE NEOPRENE SHEET AT LOCATIONS SHOWN IN THE PLANS. SECURE THE NEOPRENE SHEETING TO THE CONCRETE WITH 1 1/4" X #10 GAGE (LENGTH X SHANK DIAMETER) GALVANIZED BUTTON HEAD SPIKES THROUGH A 1" OUTSIDE DIAMETER, #10 GAGE GALVANIZED WASHER. MAXIMUM FASTENER SPACING IS 9". USE OF OTHER SIMILAR GALVANIZED DEVICES, WHICH WILL NOT DAMAGE EITHER THE NEOPRENE OR THE CONCRETE, WILL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

CENTER THE NEOPRENE STRIPS ON ALL JOINTS. FOR HORIZONTAL JOINTS, SECURE THE HORIZONTAL NEOPRENE STRIP BY USING A SINGLE LINE OF FASTENERS, STARTING AT 6", (±), FROM THE TOP OF THE NEOPRENE STRIP. FOR THE VERTICAL JOINTS SECURE THE VERTICAL NEOPRENE STRIP BY USING A SINGLE VERTICAL LINE OF FASTENERS, STARTING AT 6", (±), FROM THE VERTICAL EDGE OF THE NEOPRENE STRIP NEAREST TO THE CENTERLINE OF THE ROADWAY. FOR VERTICAL JOINTS, INSTALL 2 ADDITIONAL FASTENERS AT 6", CENTER TO CENTER, ACROSS THE TOP OF THE NEOPRENE STRIP ON THE SAME SIDE OF THE VERTICAL JOINT AS THE SINGLE VERTICAL ROW OF FASTENERS IS LOCATED.

THE VERTICAL NEOPRENE STRIPS SHALL COMPLETELY OVERLAP THE HORIZONTAL STRIPS. LAP LENGTHS OF THE HORIZONTAL STRIPS THAT ARE NOT VULCANIZED OR ADHESIVE BONDED, SHALL BE AT LEAST 1'-0" IN LENGTH, OR 6" IN LENGTH IF THE LAP IS VULCANIZED OR ADHESIVE BONDED. NO LAPS ARE ACCEPTABLE IN VERTICALLY INSTALLED NEOPRENE STRIPS.

PRIOR TO PLACEMENT OF THE NEOPRENE SHEETING, A 3" BAND OF COLD TAR PITCH MATERIAL OR MATERIAL MEETING SPEC 702.14 RUBBER COMPOUND SHALL BE APPLIED TO DIRECTLY TO THE STRUCTURAL CONCRETE ALONG THE PERIMETER/OUTLINE OF THE NEOPRENE SHEET IN ORDER TO SECURE A SEAL TIGHT CONDITION. THE NEOPRENE SHEET SHALL THEN BE MECHANICALLY FASTENED TO THE STILL TACKY TAR/RUBBER CEMENT COMPOUND MATERIAL.

THE NEOPRENE SHEETING SHALL BE 3/32" THICK GENERAL PURPOSE, HEAVY DUTY NEOPRENE SHEET WITH NYLON FABRIC REINFORCEMENT. THE SHEETING SHALL BE "FAIRPRENE NUMBER NN-0003", BY E.I. DUPONT DE NEMOURS AND COMPANY, INC., "WINGPRENE" BY GOODYEAR TIRE AND RUBBER COMPANY, OR AN APPROVED ALTERNATE. THE NEOPRENE SHEETING SHALL CONFORM TO THE FOLLOWING:

DESCRIPTION OF TEST	ASTM METHOD	REQUIREMENT
THICKNESS, INCHES	D 751	0.094 (±) 0.01
BREAKING STRENGTH, GRAB, LBS, MINIMUM (LONG. X TRANS.)	D 751	700 x 700
ADHESIVE STRIP, 1" WIDE X 2" LONG, LBS MINIMUM	D 751	9
BURST STRENGTH, PSI MINIMUM	D 751	1400
HEAT AGING, 70 HRS., 212°F, 180° BEND W/O CRACKING	D 2136	NO CRACKING OF COATING
LOW TEMP. BRITTLENESS, 1 HR., -40°F, BEND AROUND 1/4" MANDREL	D 2136	NO CRACKING OF COATING

METHOD OF MEASUREMENT: THE DEPARTMENT WILL MEASURE THE TOTAL LENGTH OF JOINT TO BE SEALED BY THE NUMBER OF FEET.

BASIS OF PAYMENT: THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516, SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN.

ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN: FOR BEARING REQUIREMENTS SEE SHEETS 9 & 10.

ITEM 516, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN:
THIS WORK CONSISTS OF RAISING OR RE-POSITIONING EXISTING STRUCTURES TO THE DIMENSIONS AND REQUIREMENTS DEFINED IN THE PROJECT PLANS.

SUBMIT CONSTRUCTION PLANS IN ACCORDANCE WITH CMS 501.05.

IF, DURING THE JACKING OPERATIONS, CRACKING OF THE CONCRETE SUPERSTRUCTURE, SEPARATION OF THE CONCRETE DECK FROM THE STEEL STRINGERS, OR OTHER DAMAGE TO THE STRUCTURE IS VISUALLY OBSERVED, IMMEDIATELY CEASE THE JACKING OPERATION AND INSTALL SUPPORTS TO THE SATISFACTION OF THE ENGINEER. ANALYZE THE DAMAGE AND SUBMIT A METHOD OF CORRECTION TO THE ENGINEER FOR APPROVAL. EPOXY INJECT ALL BEAMS THAT SEPARATE FROM THE DECK FOR THE DISTANCE OF THE SEPARATION IN ACCORDANCE WITH CMS 512.07. THE DEPARTMENT WILL NOT PAY FOR THE COST OF THIS EPOXY INJECTION OR OTHER REQUIRED REPAIRS. THE BRIDGE BEARINGS SHALL BE FULLY SEATED AT ALL CONTACT AREAS. IF FULL SEATING IS NOT ATTAINED, SUBMIT A REPAIR PLAN TO THE ENGINEER. THE DEPARTMENT WILL NOT PAY FOR THE REPAIR COSTS TO ENSURE FULL SEATING ON BEARINGS.

THE DEPARTMENT WILL MEASURE THIS WORK ON A LUMP SUM BASIS.

THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN.

ITEM 526, REINFORCED CONCRETE APPROACH SLAB (T=13"), AS PER PLAN

DESCRIPTION: THIS ITEM SHALL CONSIST OF CONSTRUCTING REINFORCED CONCRETE APPROACH SLABS WITH PARAPETS IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS AND ODOT STANDARD DRAWING AS-1-81.

MATERIALS: CONCRETE FOR THIS ITEM, INCLUDING APPROACH SLABS AND PARAPETS SHALL BE ITEM 511 - CLASS HP CONCRETE. USE THE SAME MIX FOR ITEM 526 AS IS USED FOR THE BRIDGE DECK AND PARAPETS. SEE GENERAL NOTE ITEM 511 FOR THE CONCRETE MIX REQUIREMENTS.

METHOD OF MEASUREMENT: THE AREA MEASURED WILL BE THE NUMBER OF SQUARE YARDS COMPLETE IN PLACE.

BASIS OF PAYMENT: ACCEPTED QUANTITIES WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER SQUARE YARD COMPLETE IN PLACE. THIS PRICE SHALL INCLUDE FULL COMPENSATION FOR CONCRETE, PARAPETS, REINFORCING STEEL, JOINT FILL, JOINT SEALERS, JOINT SEALS, WATERPROOFING, AND SEALING OF APPROACH SLAB PARAPETS. PAYMENT WILL BE MADE UNDER ITEM 526 - REINFORCED CONCRETE APPROACH SLAB (T=13"), AS PER PLAN.

APPROACH SLAB PARAPET CONSTRUCTION SHALL BE PER GENERAL NOTE ITEM 511 - CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN.

ITEM 607, FENCE REMOVED AND REBUILT:

A PORTION OF THE EXISTING FENCE BETWEEN BRIDGE NO. LAK-2-1546R AND LAK-2-1546L AT THE REAR AND FORWARD ABUTMENTS MAY NEED TO BE REMOVED AND REBUILT IN ORDER TO RECONSTRUCT THE EXISTING WINGWALLS. FOR ESTIMATING PURPOSES 20 FEET OF FENCE REMOVED AND REBUILT WILL BE REQUIRED.

ITEM 848, MICRO SILICA MODIFIED CONCRETE OVERLAY USING HYDRODEMOLITION, AS PER PLAN (1½" THICK):

ITEM 848, MICRO SILICA MODIFIED CONCRETE OVERLAY, (VARIABLE THICKNESS), MATERIAL ONLY, AS PER PLAN:

THESE ITEMS SHALL BE PERFORMED PER SUPPLEMENTAL SPECIFICATION 848 "BRIDGE DECK REPAIR AND OVERLAY WITH CONCRETE USING HYDRODEMOLITION" WITH THE FOLLOWING REVISIONS:

CONSTRUCTION JOINTS WILL NOT BE PERMITTED IN THE WHEEL LINE.

(SEE 848.12) THE COMPONENTS OF THE MICROSILICA MODIFIED CONCRETE SHALL BE PROPORTIONED AS FOLLOWS:

CONCRETE TABLE
QUANTITIES PER CUBIC YARD
AGGREGATES (SSD)

MICROSILICA MODIFIED CONCRETE OVERLAY								
AGGRE. TYPE	FINE AGGRE. (LB)	#8 COARSE AGGRE. (LB)*	AGGRE. TOTAL (LB)	CEMENT CONTENT (LB)	MICRO-SILICA (LB)	W/C RATIO +/-0.01	AIR CONTENT +/-2%	FIBER (1¼") POLY-PROPYLENE (LB)**
GRAVEL	141	1430	284	600	50	0.40	8	1
LIMESTONE	141	1450	286	600	50	0.40	8	1
SLAG	141	1350	265	600	50	0.40	8	1

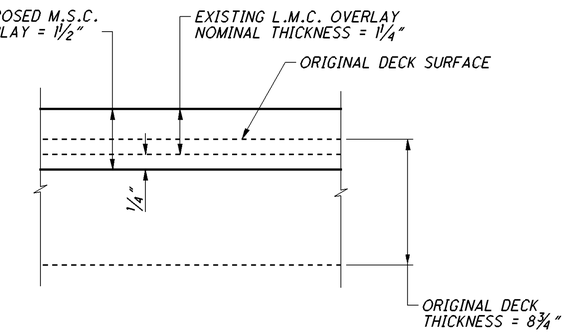
* ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED PER ASTM C127.

** FIBER MESH SHALL BE 100% VIRGIN POLYPROPYLENE IN A FIBRILLATED-NETWORK FORM AND SHALL BE 1¼" IN LENGTH.

THE WEIGHTS SPECIFIED IN THE CONCRETE TABLE WERE CALCULATED FOR MATERIALS OF THE FOLLOWING BULK SPECIFIC GRAVITIES (SSD): NATURAL SAND AND GRAVEL 2.62, LIMESTONE SAND 2.68, LIMESTONE 2.65, SLAG 2.30, MICRO-SILICA SOLIDS 2.20, AND PORTLAND CEMENT 3.15. FOR AGGREGATES OF SPECIFIC GRAVITIES DIFFERING MORE THAN PLUS OR MINUS 0.02 FROM THESE, THE WEIGHTS IN THE TABLE WILL BE CORRECTED. (FIBER MESH WEIGHTS NOT INCLUDED IN MIX DESIGN)

ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED BY ASTM C127.

ALL OTHER REQUIREMENTS OF THE SUPPLEMENTAL SPECIFICATION SHALL REMAIN IN EFFECT.



DECK OVERLAY DETAIL

ITEM 202, PORTIONS OF STRUCTURES REMOVED, AS PER PLAN:

THIS ITEM SHALL ALSO INCLUDE THE REMOVAL OF ELEMENTS INDICATED IN THE PLANS AND GENERAL NOTES AND THAT ARE NOT SEPARATELY LISTED FOR PAYMENT. ITEMS TO BE REMOVED INCLUDE ALL EXISTING MATERIALS BEING REPLACED BY NEW CONSTRUCTION AND MISCELLANEOUS ITEMS THAT ARE NOT SHOWN TO BE INCORPORATED INTO THE FINAL CONSTRUCTION AND ARE DIRECTED TO BE REMOVED BY THE ENGINEER.

ALTERNATE METHOD FOR BACKWALL REMOVAL: AT NO ADDITIONAL COST TO THE STATE, THE CONTRACTOR MAY SAWCUT EXISTING BACKWALLS AT THE REMOVAL LIMITS SHOWN IN THE PLANS AND DOWEL REAR #6 BARS AT THE EXISTING BAR SPACING. PROVIDE 12" MINIMUM EMBEDMENT ON DOWEL BARS. PROVIDE #6 BARS LONG ENOUGH TO PROVIDE A MINIMUM LAP OF 2'-11" ON PROPOSED BARS.

ALTERNATE METHOD FOR REMOVAL OF DECK AT END OF BRIDGE: AT NO ADDITIONAL COST TO THE STATE, THE CONTRACTOR MAY REMOVE DECK CONCRETE USING HYDRODEMOLITION, SUBJECT TO ALL PERTINENT REQUIREMENTS OF SS 848.

ITEM 503, COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN:

IN ADDITION TO THE REQUIREMENTS OF CMS 503, LEAVE IN PLACE SHEETING ALONG THE STAGED CONSTRUCTION LINE AT THE POSITION SHOWN IN THE PLANS. CUT-OFF SHEETING 3" BELOW THE BOTTOM OF THE APPROACH SLAB OR AS DIRECTED BY THE ENGINEER.

ITEM 518, POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN:

THIS WORK SHALL INCLUDE THE REMOVAL OF EXISTING POROUS BACKFILL AND ALL ADJACENT SOIL TO INSTALL NEW POROUS BACKFILL AS DETAILED IN THE PLANS.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED BKS | DRAWN TEK | REVIEWED SCJ | DATE 9/10
CHECKED JTC | REVISED | STRUCTURE FILE NUMBER 4301536

GENERAL NOTES (2 OF 2)
BRIDGE NO. LAK-2-1546R
S.R. 2 OVER ST. CLAIR STREET

LAK-2-14.38
PID No. 87924

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157
208

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ABBREVIATIONS

THE FOLLOWING ABBREVIATIONS HAVE BEEN USED THROUGHOUT THESE PLANS:

& = AND
@ = AT
° = DEGREES
′ = FEET OR MINUTES
″ = INCHES OR SECONDS
± = PLUS OR MINUS

AASHTO = AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
ABUT. = ABUTMENT
ADT = AVERAGE DAILY TRAFFIC
ADTT = AVERAGE DAILY TRUCK TRAFFIC
APPR. = APPROACH
APPROX. = APPROXIMATE
ASTM = AMERICAN SOCIETY OF TESTING AND MATERIALS

BM = BENCHMARK
BOT. = BOTTOM
BOT./FTG. = BOTTOM OF FOOTING
BRGS. = BEARINGS

℄ = CENTERLINE
C/C = CENTER TO CENTER
CFS = CUBIC FEET PER SECOND
CJ = CONSTRUCTION JOINT
CLR. = CLEAR
CMS = CONSTRUCTION AND MATERIAL SPECIFICATIONS
CONSTR./CONST. = CONSTRUCTION
CON'T = CONTINUED
COL. = COLUMN
C.P.P. = CORRUGATED PLASTIC PIPE
C.R./CR = COUNTY ROAD
CU = CUBIC
CVN = CHARPY V-NOTCH

DEFL. = DEFLECTION
DIA. = DIAMETER
DIM. = DIMENSION
DL = DEAD LOAD
DWG. = DRAWING

E =EAST
EA. = EACH
EF = EACH FACE
EL./ELEV. = ELEVATION
EMBED. = EMBEDMENT
EQ. = EQUAL
EX./EXIST. = EXISTING
EXP. = EXPANSION
EXT. = EXTENSION

F = FAHRENHEIT
FF = FAR FACE
F/F = FACE TO FACE
FS = FIELD SPLICE
FT. = FEET
FT/FT. = FOOT/FOOT
FT/S = FEET PER SECOND
FTG. = FOOTING
FWD. = FORWARD
FWS = FUTURE WEARING SURFACE

GEN. = GENERAL

HR = HOUR
HW = HIGH WATER

IN. = INCHES
INT. = INTERMEDIATE

LF = LEFT FORWARD
LONG. = LONGITUDINAL
LT. = LEFT

MAX. = MAXIMUM
MIN. = MINIMUM
MISC. = MISCELLANEOUS

N = NORTH
NF = NEAR FACE
#/NO. = NUMBER

OHWM = ORDINARY HIGH WATER MARK
OUT/OUT = OUT TO OUT

PEJF = PREFORMED EXPANSION JOINT FILLER
℄/PL = PLATE
PSF = POUND PER SQUARE FOOT
PSI = POUND PER SQUARE INCH
PT. = POINT
PVI = POINT OF VERTICAL INTERSECTION

Q = FLOW

R = RADIUS
REF. = REFERENCE
REINF. = REINFORCED
REQ'D. = REQUIRED
RF = RIGHT FORWARD
RT. = RIGHT

SHLDR. = SHOULDER
SPA. = SPACING
SQ = SQUARE
STA. = STATION
STD. = STANDARD
STR. = STRAIGHT
SUPER = SUPERSTRUCTURE

T = THICKNESS
TELE = TELEPHONE
TRANS. = TRANSVERSE
TWP. = TOWNSHIP
TYP. = TYPICAL

V = VELOCITY
V.C. = VERTICAL CURVE
VERT. = VERTICAL

W = WEST
W/ = WITH
W/O = WITHOUT
W.P. = WORKING POINT
WT. = WEIGHT

YD = YARD

ESTIMATED QUANTITIES

LAK-2-1546R
CALCULATED BY: JTC
CHECK BY: SCJ
DATED: 9/10
DATED:

ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	TOTAL**	AS PER PLAN SHEET REF.
202	11201	LUMP		PORTIONS OF STRUCTURE REMOVED, AS PER PLAN	LUMP	2
202	22901	134	SQ YD	APPROACH SLAB REMOVED, AS PER PLAN	134	3
503	11101	LUMP		COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN	LUMP	3
509	10001	8734	POUND	EPOXY COATED REINFORCING STEEL, AS PER PLAN	8734	2
509	20001	230	POUND	REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN	230	2
511	50001	20	CU YD	CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN	20	2
511	50101	4	CU YD	CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN	4	2
511	51001	25	CU YD	CLASS HP CONCRETE, SUPERSTRUCTURE, AS PER PLAN	25	2
512	10100	48	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	48	2
512	10300	29	SQ YD	SEALING CONCRETE BRIDGE DECKS WITH HMWM RESIN	29	
514	00050	453	SQ FT	SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL	453	
514	00056	453	SQ FT	FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT	453	
514	00060	453	SQ FT	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT	453	
514	00066	453	SQ FT	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT	453	2
516	14000	14	SQ FT	PREFORMED EXPANSION JOINT FILLER, MISC. 3½″	14	
516	14021	82	FT	SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN	82	3
516	44001	12	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN	12	3
				(8½″ x ¾″ x 1′-0″ PAD WITH 11½″ x ½″ x 1′-1″ STEEL LOAD PLATE)		
516	47001	LUMP		JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN	LUMP	
518	21231	LUMP		POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN	LUMP	3
518	40000	80	FT	6″ PERFORATED CORRUGATED PLASTIC PIPE	80	
518	40010	35	FT	6″ NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	35	
526	15001	195	SQ YD	REINFORCED CONCRETE APPROACH SLAB (T=13″), AS PER PLAN	195	3
848	10001	518	SQ YD	MICRO SILICA MODIFIED CONCRETE OVERLAY USING HYDRODEMOLITION, AS PER PLAN (1½″ THICK)	518	3
848	20000	518	SQ YD	SURFACE PREPARATION USING HYDRODEMOMLITION	518	
848	30001	22	CU YD	MICRO SILICA MODIFIED CONCRETE OVERLAY (VARIABLE THICKNESS), MATERIAL ONLY, AS PER PLAN	22	3
848	50000	30	SQ YD	HAND CHIPPING	30	
848	50320	518	SQ YD	EXISTING CONCRETE OVERLAY REMOVED (1½″ THICK)	518	

**All Totals Participation Code II-Bridge

Participation Codes:
I-Pavement (Federal/State)
II-Bridge (Federal/State)

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED BKS | DRAWN TEK | CHECKED JTC | REVIEWED SCJ | DATE 9/10 | REVISED | STRUCTURE TILE NUMBER 43011536

ESTIMATED QUANTITIES
BRIDGE NO. LAK-2-1546R
S.R. 2 OVER ST. CLAIR STREET

LAK-2-14.38
PID No. 87924

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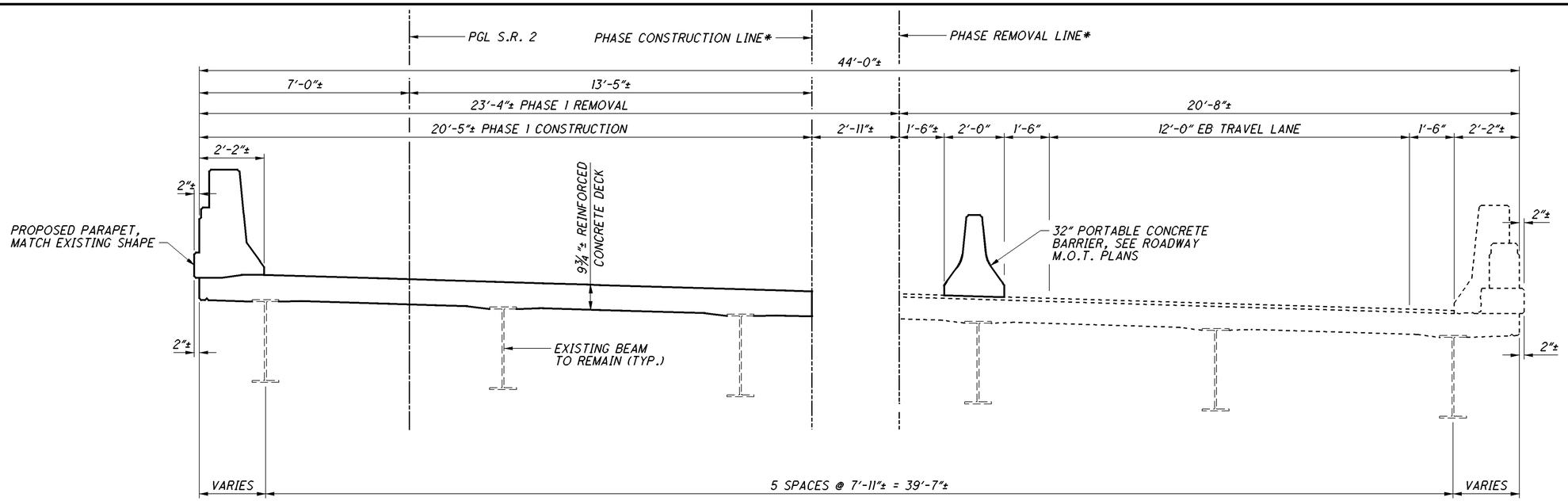


PHASE 1 REMOVAL AND CONSTRUCTION

AT ABUTMENTS

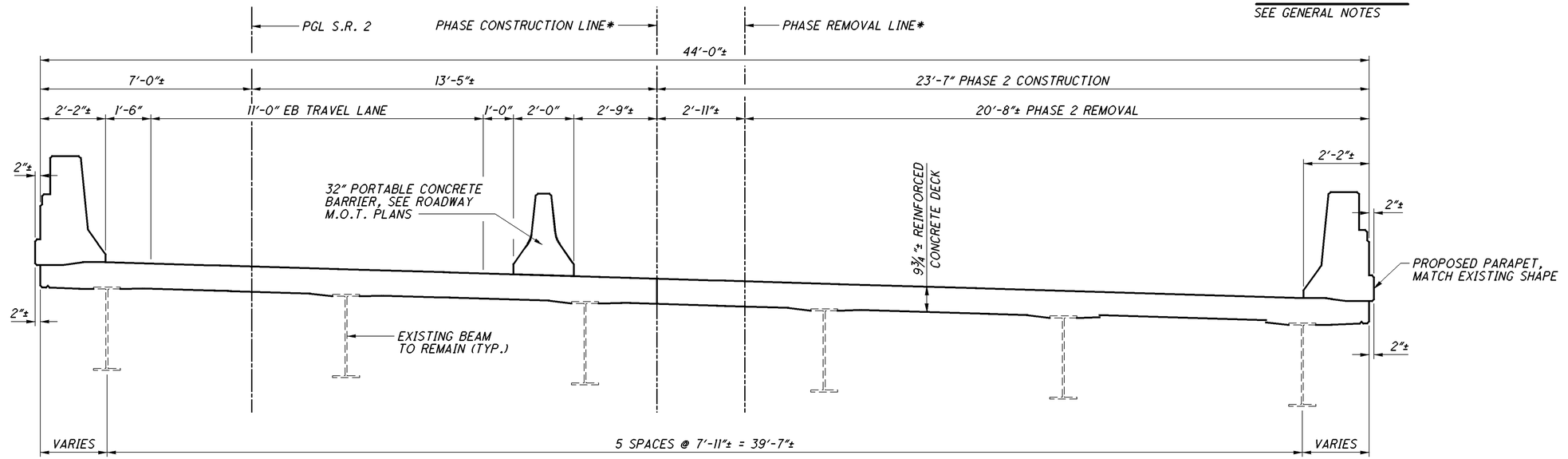
NOTES:

TRANSVERSE DIMENSIONS SHOWN FOR PROPOSED CONSTRUCTION ARE APPROXIMATE. IT MAY BE NECESSARY TO VARY THESE DIMENSIONS TO MEET THE PROPOSED APPROACH SLAB AND THE EXISTING DECK.

* FOR WORK AT ABUTMENT.

PROPOSED WORK:

SEE GENERAL NOTES



PHASE 2 REMOVAL AND CONSTRUCTION

AT ABUTMENTS

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301536	

PHASED CONSTRUCTION DETAILS

BRIDGE NO. LAK-2-1546R
S.R. 2 OVER ST. CLAIR STREET

LAK-2-14.38
PID No. 87924

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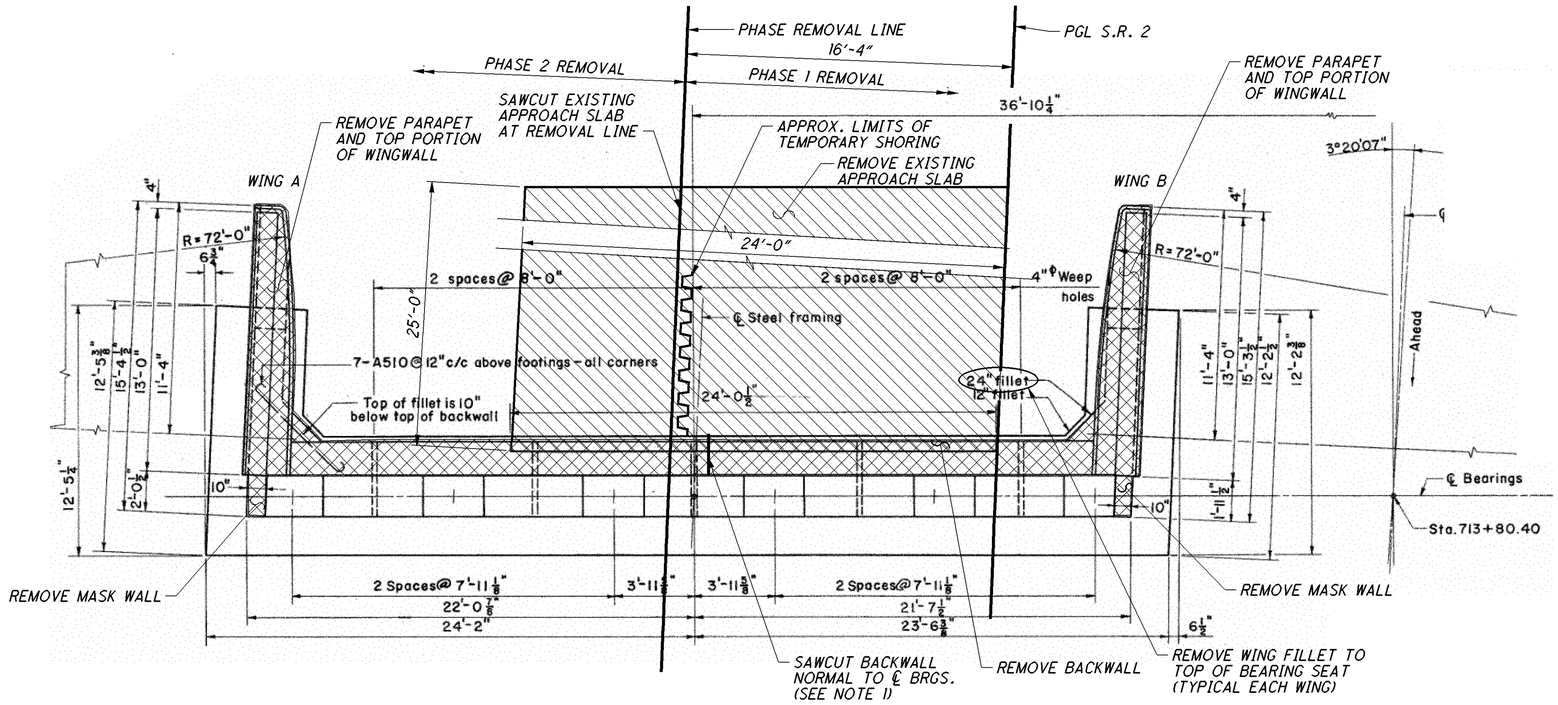
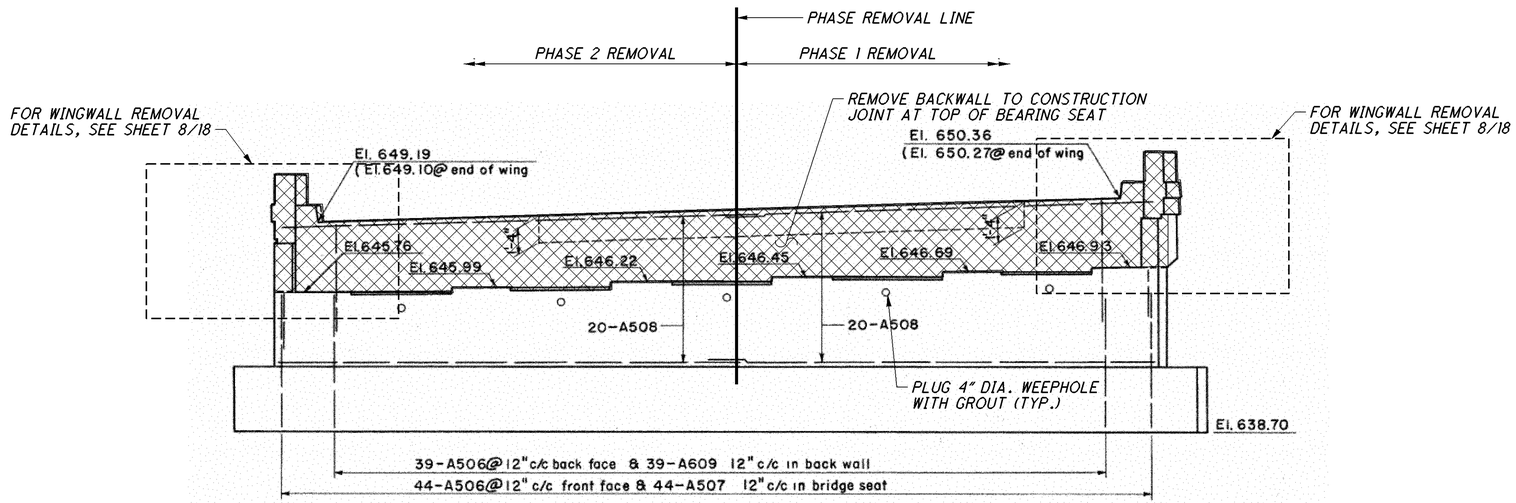


PLAN - REAR ABUTMENT



ELEVATION - REAR ABUTMENT

NOTES:

1. FOR LOCATION OF ABUTMENT BACKWALL REMOVAL LINE, SEE SHEET 12/18.
2. ELEVATIONS SHOWN AT TOP OF BACKWALL DO NOT INCLUDE THE 1"± INCREASE DUE TO THE EXISTING LMC OVERLAY.

ITEM 202 - APPROACH SLAB REMOVED, AS PER PLAN

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301536	

REMOVAL DETAILS (1 OF 4)
BRIDGE NO. LAK-2-1546R
S.R. 2 OVER ST. CLAIR STREET

LAK-2-14.38
PID No. 87924

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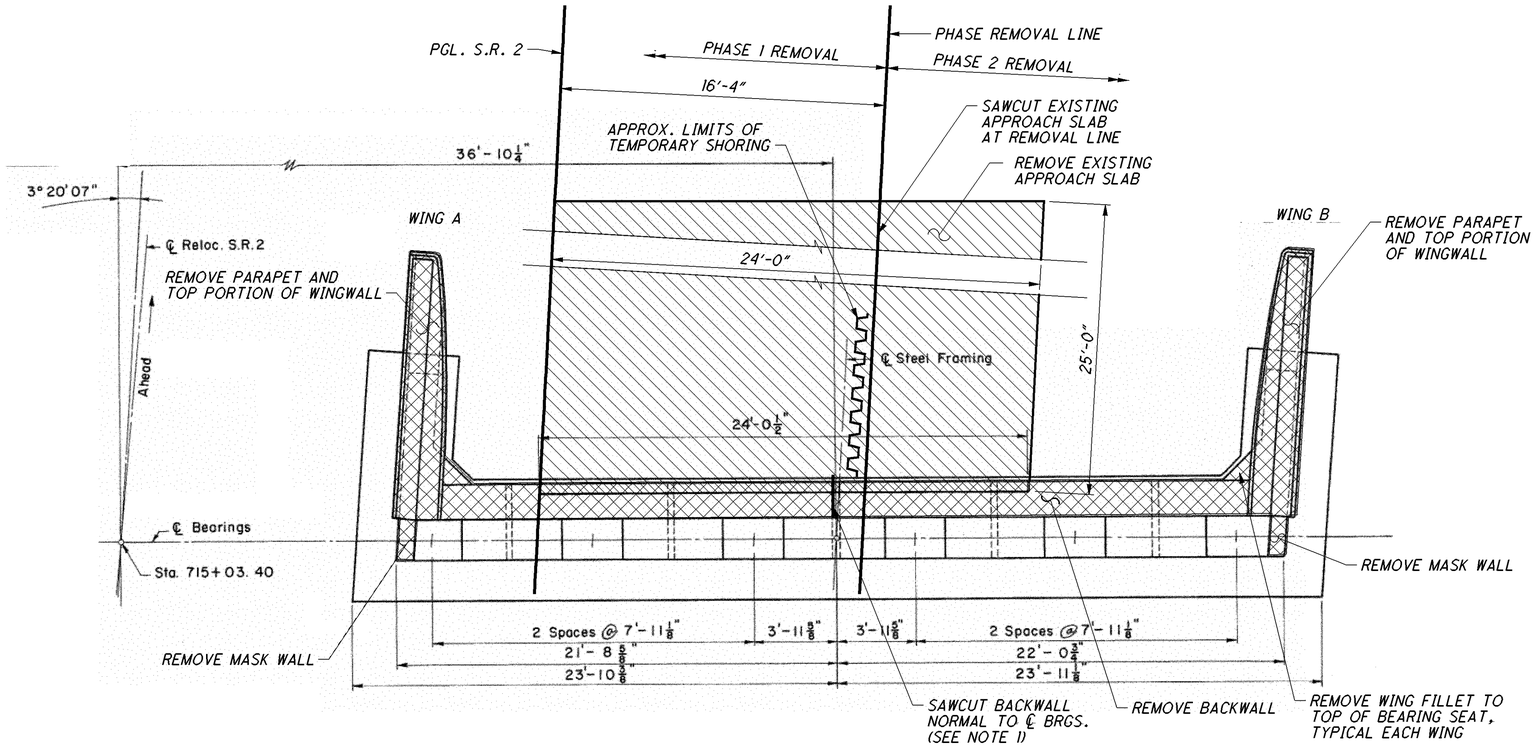
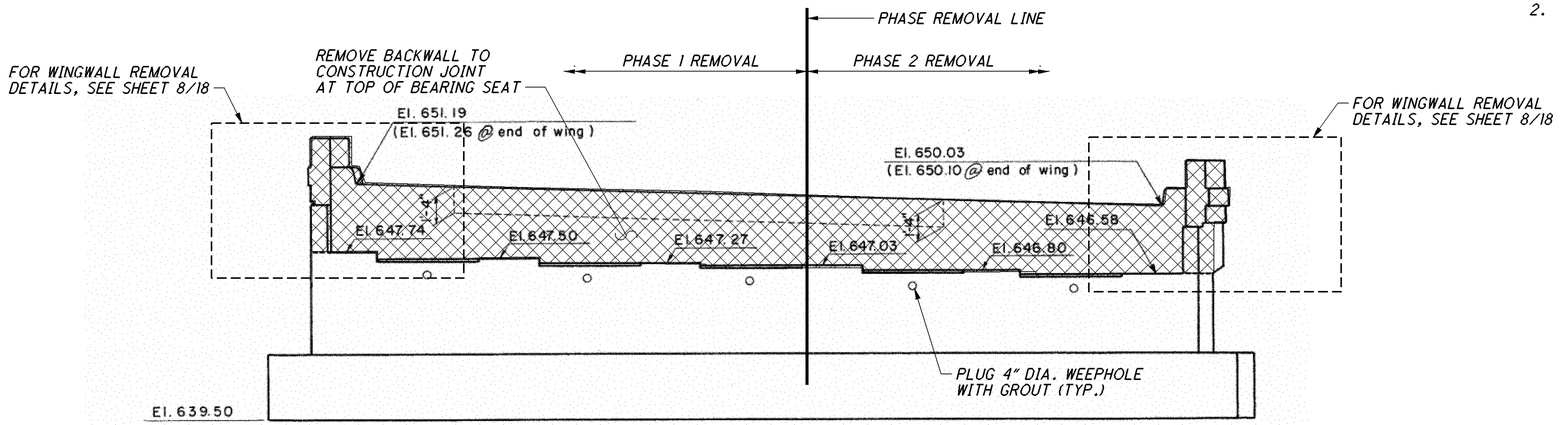


PLAN - FORWARD ABUTMENT



ELEVATION - FORWARD ABUTMENT

NOTES:

1. FOR LOCATION OF ABUTMENT BACKWALL REMOVAL LINE, SEE SHEET 12/18.
2. ELEVATIONS SHOWN AT TOP OF BACKWALL DO NOT INCLUDE THE 1"± INCREASE DUE TO THE EXISTING LMC OVERLAY.

ITEM 202 - APPROACH SLAB REMOVED, AS PER PLAN

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301536	

REMOVAL DETAILS (2 OF 4)
BRIDGE NO. LAK-2-1546R
S.R. 2 OVER ST. CLAIR STREET

LAK-2-14.38
PID No. 87924

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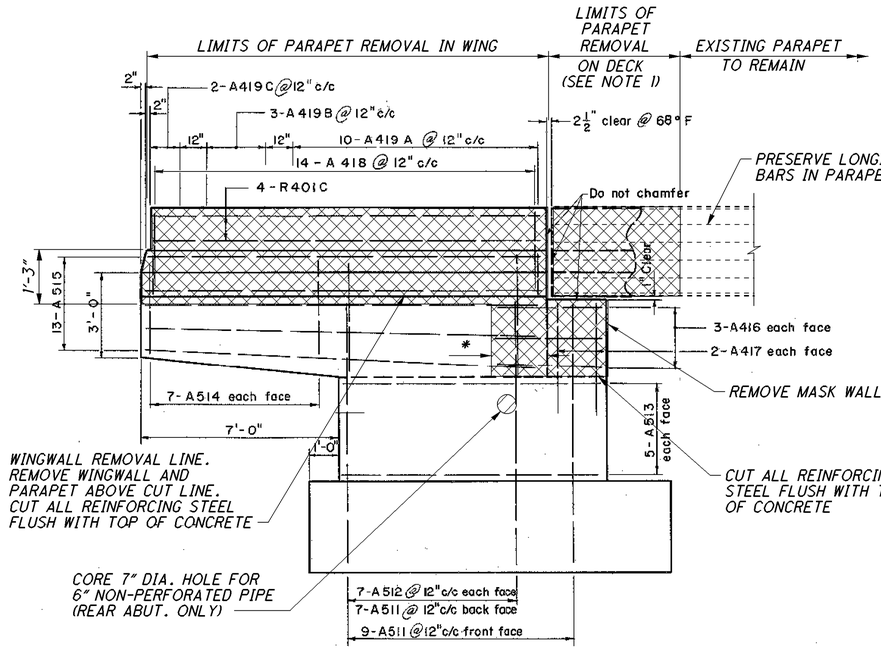
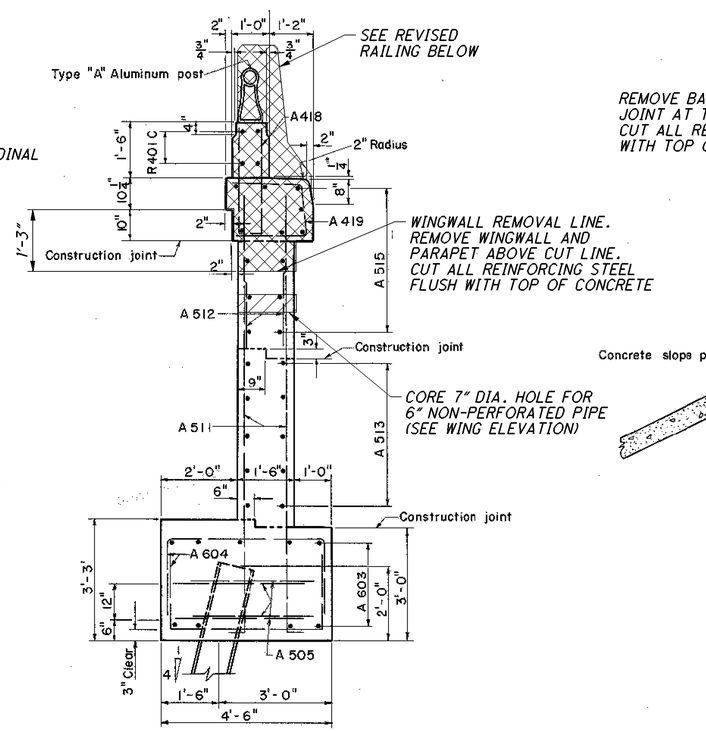
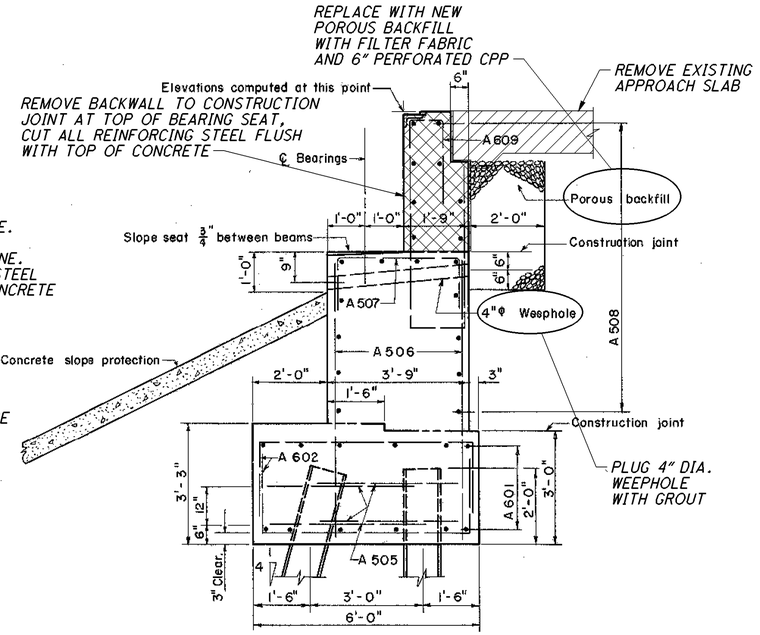


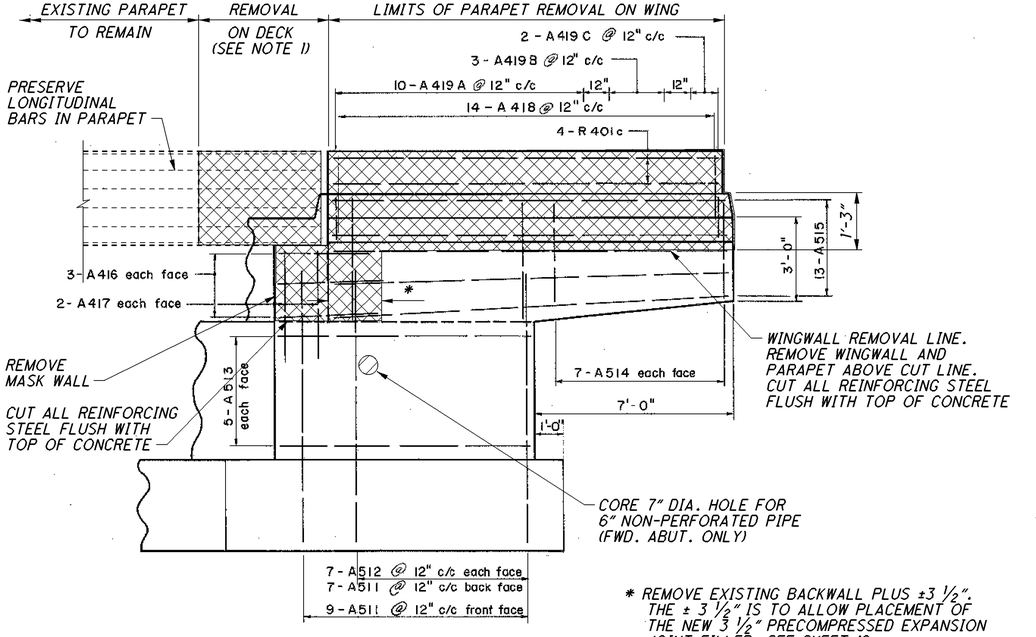
WING A ELEVATION



TYPICAL WING SECTION



TYPICAL ABUTMENT SECTION

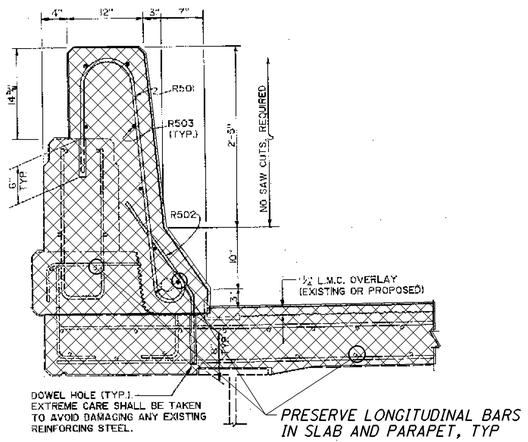


WING B ELEVATION

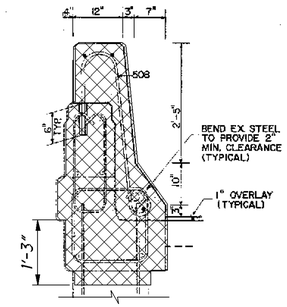
* REMOVE EXISTING BACKWALL PLUS ±3 ½". THE ± 3 ½" IS TO ALLOW PLACEMENT OF THE NEW 3 ½" PRECOMPRESSED EXPANSION JOINT FILLER. SEE SHEET 12.

NOTE:

1. SEE SHEET 9/18 FOR LENGTH OF PARAPET REMOVAL ON DECK.



PARAPET ON DECK REMOVAL DETAIL



PARAPET ON WINGWALL REMOVAL DETAIL

ITEM 202 - APPROACH SLAB REMOVED, AS PER PLAN

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301536	

REMOVAL DETAILS (3 OF 4)
BRIDGE NO. LAK-2-1546R
S.R. 2 OVER ST. CLAIR STREET

LAK-2-14.38
PID No. 87924

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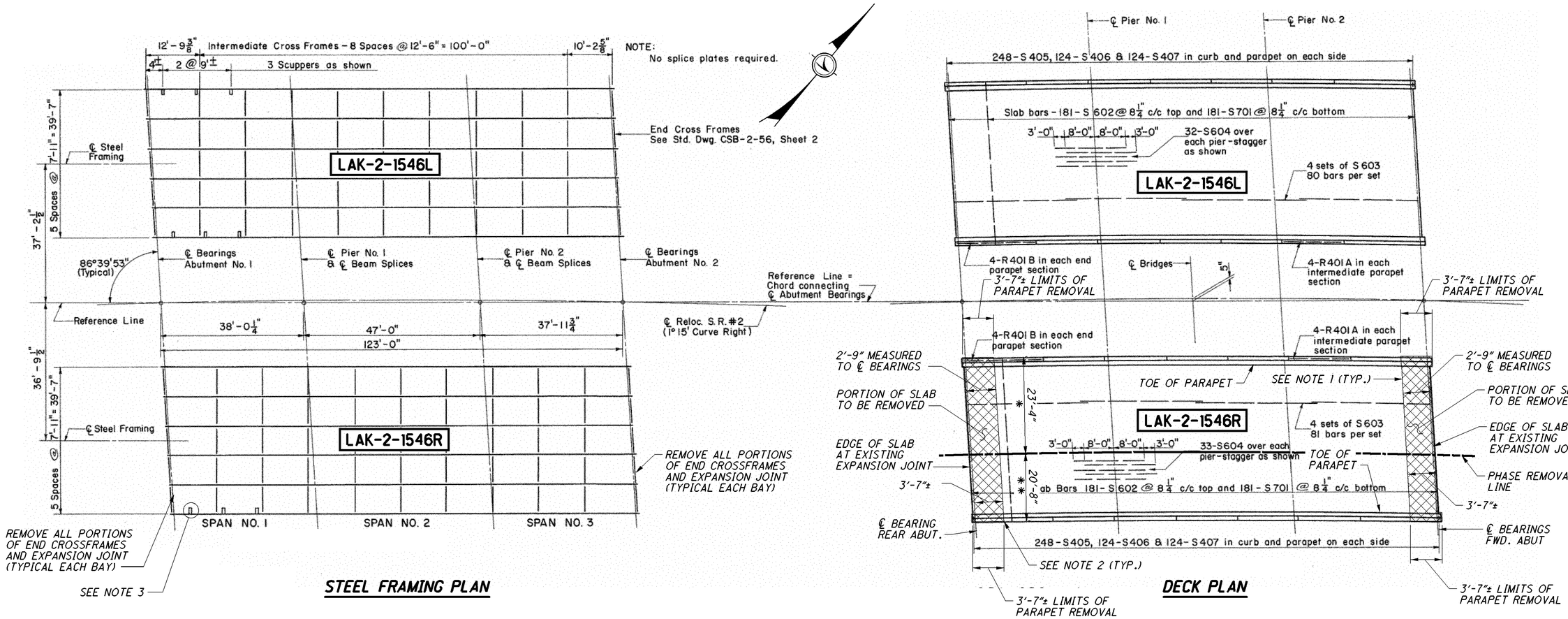
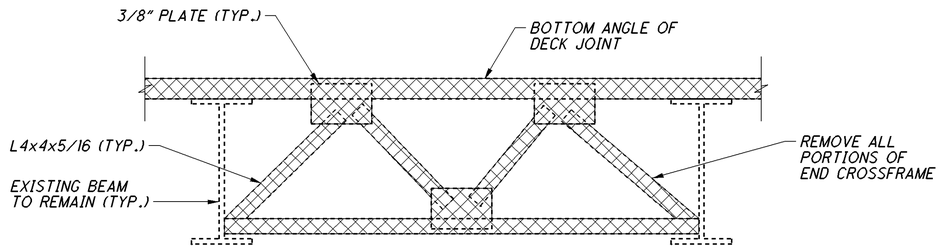


STEEL FRAMING PLAN

DECK PLAN



END CROSSFRAME REMOVAL DETAIL

TYPICAL END CROSSFRAME

LEGEND:

* = PHASE 1 REMOVAL
** = PHASE 2 REMOVAL

NOTES:

1. REMOVAL LINE IS LOCATED PARALLEL TO ℄ BEARINGS. PRESERVE ALL DECK REINFORCING STEEL THAT REMAINS EMBEDDED IN THE DECK.
2. REMOVAL LINE AT TOE OF PARAPET IS LOCATED PARALLEL TO ℄ BEARINGS. PRESERVE ALL LONGITUDINAL PARAPET REINFORCEMENT.
3. EXISTING SCUPPER IS LOCATED NEAR THE DECK REMOVAL LIMITS. CARE SHALL BE TAKEN TO PRESERVE EXISTING SCUPPER.

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301536	

REMOVAL DETAILS (4 OF 4)
BRIDGE NO. LAK-2-1546R
S.R. 2 OVER ST. CLAIR STREET

LAK-2-14.38
PID No. 87924

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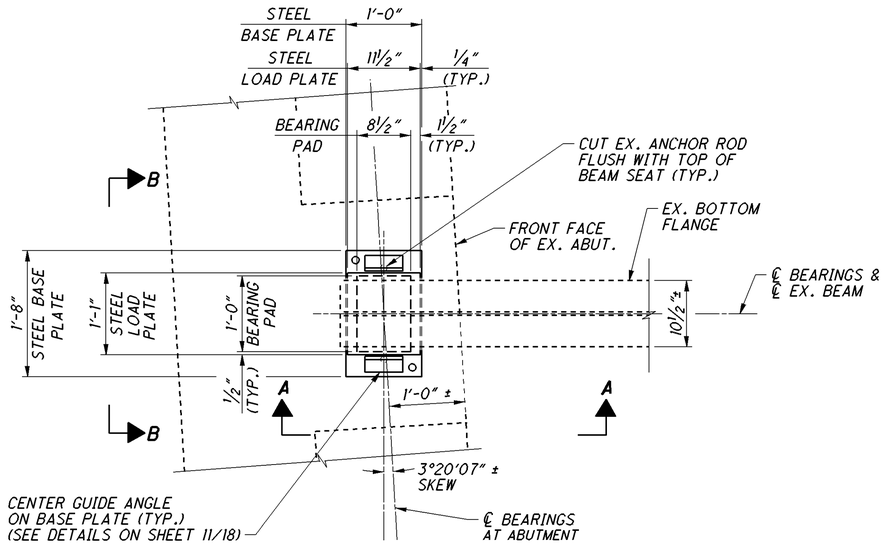
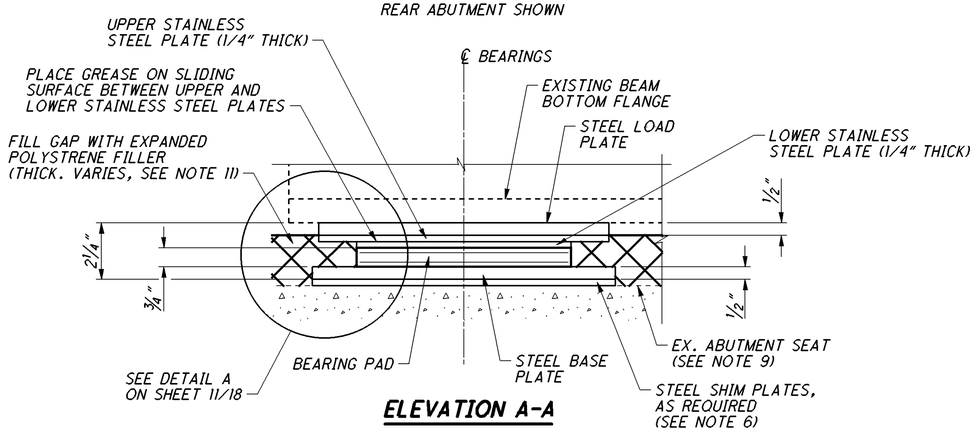


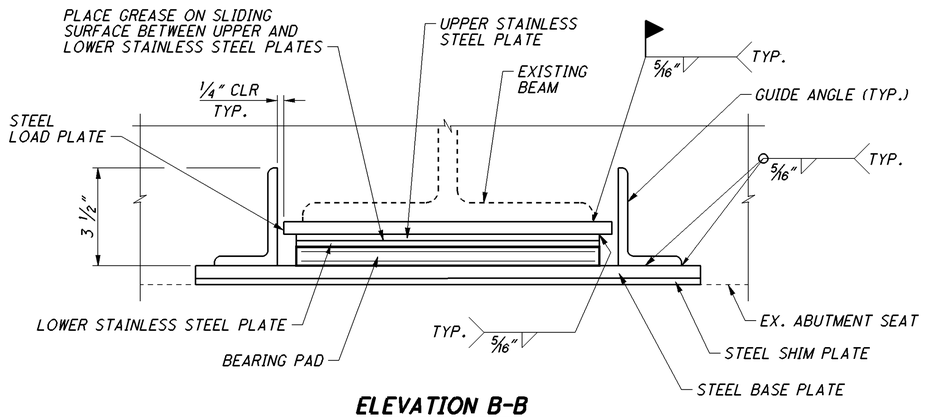
PLAN

REAR ABUTMENT SHOWN



ELEVATION A-A

GUIDE ANGLES NOT SHOWN FOR CLARITY



ELEVATION B-B

LAMINATED ELASTOMERIC EXPANSION BEARING DETAILS

REAR ABUTMENT SHOWN, FORWARD ABUTMENT SIMILAR BUT OPPOSITE HAND

NOTES:

1. STEEL LOAD PLATE, BASE PLATE, SHIM PLATES, GUIDE ANGLES AND SQUARE PLATE WASHERS SHALL MEET THE GRADE 50W REQUIREMENTS OF STRUCTURAL STEEL ASTM A709.
2. STAINLESS STEEL PLATES SHALL BE ASTM 240, TYPE 304 WITH A 2B FINISH PER ASTM A480.
3. THE STEEL BASE PLATE AND LOWER STAINLESS STEEL PLATE SHALL BE BONDED BY VULCANIZATION TO THE ELASTOMER DURING THE MOLDING PROCESS.
4. THE SHIM PLATES, BASE PLATE, LOAD PLATE, AND GUIDE ANGLES SHALL BE GALVANIZED AND PAINTED. PAINT COLOR SHALL MATCH EXISTING BEAM COLOR, SUBJECT TO APPROVAL OF THE ENGINEER. PAINT IS TO BE INCLUDED WITH ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) AS PER PLAN FOR PAYMENT.
5. WELDING: CONTROL WELDING SO THAT THE PLATE TEMPERATURE AT THE ELASTOMER BONDED SURFACE DOES NOT EXCEED 300°F AS DETERMINED BY THE USE OF PYROMETRIC STICKS OR OTHER TEMPERATURE MONITORING DEVICES.
6. THE MINIMUM NUMBER OF SHIM PLATES TO BE PROVIDED IS TWO ⅛" ADJUSTING SHIMS AND TWO ¼" ADJUSTING SHIMS FOR EACH BEARING. FOUR ADDITIONAL ½" ADJUSTING SHIMS SHALL ALSO BE PROVIDED FOR THIS BRIDGE. ADJUSTING SHIMS ARE TO BE PLACED ON THE CONCRETE BEARING SURFACE DIRECTLY BELOW THE ½" STEEL BASE PLATE. THE ADJUSTING SHIMS ARE TO BE USED AT LOCATIONS WHERE THE DISTANCE BETWEEN THE BOTTOM OF THE BOTTOM FLANGE OF THE BEAM AND THE CONCRETE BEARING SURFACE IS GREATER THAN THE 2¼" BEARING THICKNESS. ADDITIONAL SHIM PLATES SHALL BE PROVIDED IF REQUIRED BY FIELD MEASUREMENTS.
7. LUBRICATE THE INTERFACE BETWEEN THE UPPER AND LOWER STAINLESS STEEL PLATES WITH A LAYER OF GREASE A MINIMUM OF ⅛" THICK. THE GREASE SHALL MEET THE REQUIREMENTS OF NLGI GRADE 2 GC-LB.
8. BASIS OF PAYMENT: THE UNIT BID PRICE SHALL INCLUDE ALL MATERIALS, LABOR, AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL LAMINATED ELASTOMERIC BEARINGS, STEEL PLATES, ANGLES, AND ANCHOR BOLTS AS DETAILED. PAYMENT WILL BE MADE AT THE CONTRACT PRICE FOR ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN.

   REAR & FORWARD ABUTMENTS (ALL BEAMS):

   BEARING PAD: 8½" x ¾" x 1'-0"
   LOAD PLATE: 11½" x ½" x 1'-1"
   BASE PLATE: 1'-0" x ½" x 1'-8"
   UPPER STAINLESS STEEL PLATE: 11½" x ¼" x 1'-0"
   LOWER STAINLESS STEEL PLATE: 8½" x ¼" x 1'-0"
   SHIM PLATES: SEE NOTE 6
   GUIDE ANGLES: L 3 ½" x 2 ½" x ⅜" x 6" LONG
   PLATE WASHERS: 4" x ½" x 4"

9. PRIOR TO INSTALLING THE STEEL BASE PLATE, CLEAN THE TOP SURFACE OF THE ABUTMENT SEAT. IF CONCRETE SPALLING IS PRESENT UNDER BASE PLATE, PATCH CONCRETE PRIOR TO PLACEMENT OF THE BASE PLATE. PATCH CONCRETE ACCORDING TO SUPPLEMENTAL SPECIFICATION 843. CLEANING AND PATCHING CONCRETE TO BE INCLUDED WITH ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) AS PER PLAN FOR PAYMENT.
10. THE EXISTING BEAMS CAN BE JACKED A MAXIMUM OF ¼" TO REMOVE AND REPLACE BEARINGS.
11. EXPANDED POLYSTRENE FILLER IS INCLUDED WITH ITEM 511, HP CONCRETE, SUPERSTRUCTURE, AS PER PLAN FOR PAYMENT.
12. REFER TO RETIRED ODOT STD. DWG. CSB-2-56, REVISED 2-2-59, FOR DETAILS OF EXISTING BEARINGS TO BE REPLACED.

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BEARING DETAILS (1 OF 2)

BRIDGE NO. LAK-2-1546R
S.R. 2 OVER ST. CLAIR STREET

LAK-2-14.38
PID No. 87924

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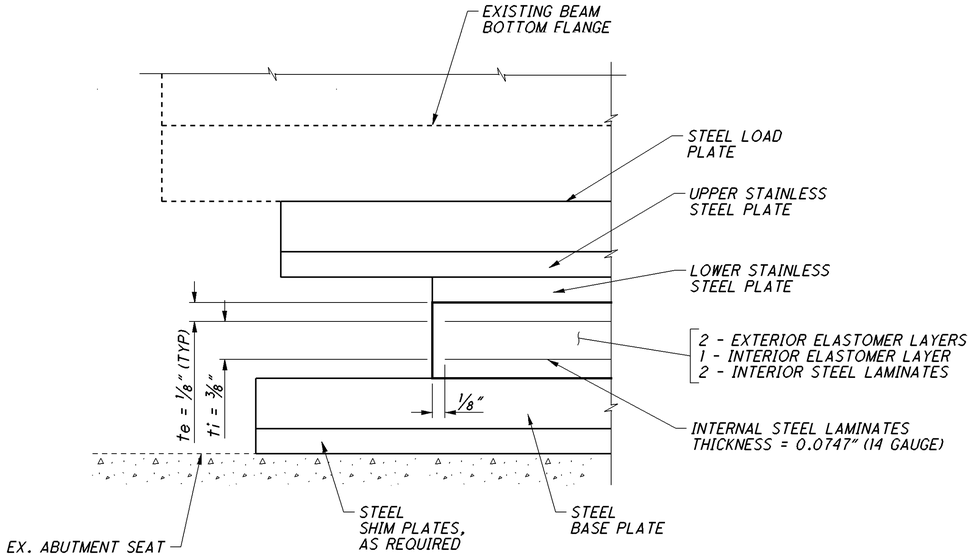
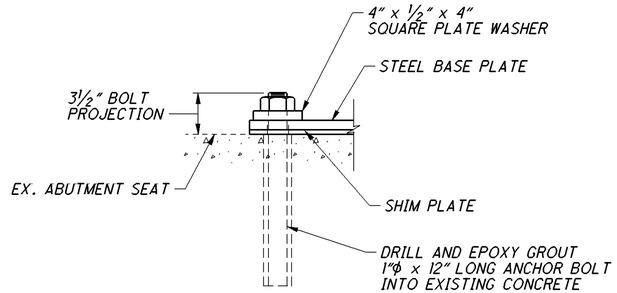
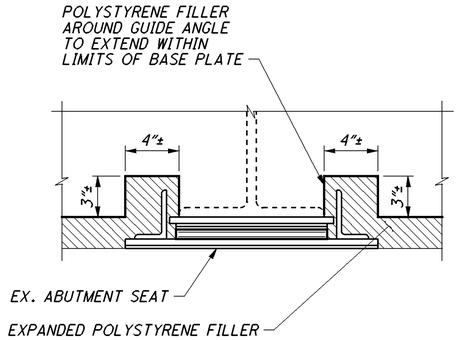


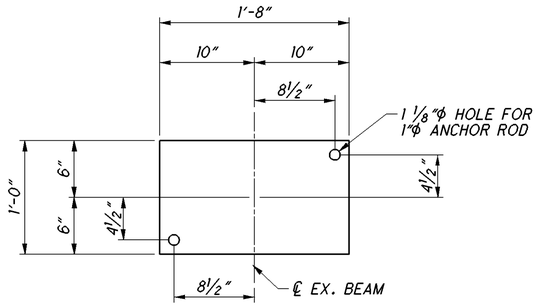
DETAIL A



ANCHOR BOLT DETAIL



GUIDE ANGLE BLOCKOUT DETAIL



PLAN OF BASE PLATE

SHIM PLATE SIMILAR

NOTES:

1. FIELD DRILL ANCHOR BOLT HOLES, INSTALL ANCHOR BOLTS AND PLACE EPOXY GROUT AFTER THE PLACEMENT OF THE BEARING ASSEMBLY. POSITION AND TIGHTEN THE BASE PLATE. INSTALL A BLOCK OF POLYSTRENE FILLER MATERIAL OVER THE TOP OF THE GUIDE ANGLES AND ANCHOR BOLTS BEFORE THE CONCRETE PLACEMENT FOR ABUTMENT DIAPHRAGM.
2. ANCHOR BOLTS AND NUTS SHALL BE ASTM A325. NUTS AND SQUARE PLATE WASHERS SHALL BE GALVANIZED ACCORDING TO 711.02. THE THREAD LENGTH REQUIREMENTS OF ASTM A325 MAY BE WAIVED. THE GROUT SHALL BE NON-SHRINK, EPOXY GROUT MEETING THE REQUIREMETNS OF 705.20.

LEGEND:

te = THICKNESS OF EXTERNAL ELASTOMER LAYER

ti = THICKNESS OF INTERNAL ELASTOMER LAYER

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BEARING DETAILS (2 OF 2)
BRIDGE NO. LAK-2-1546R
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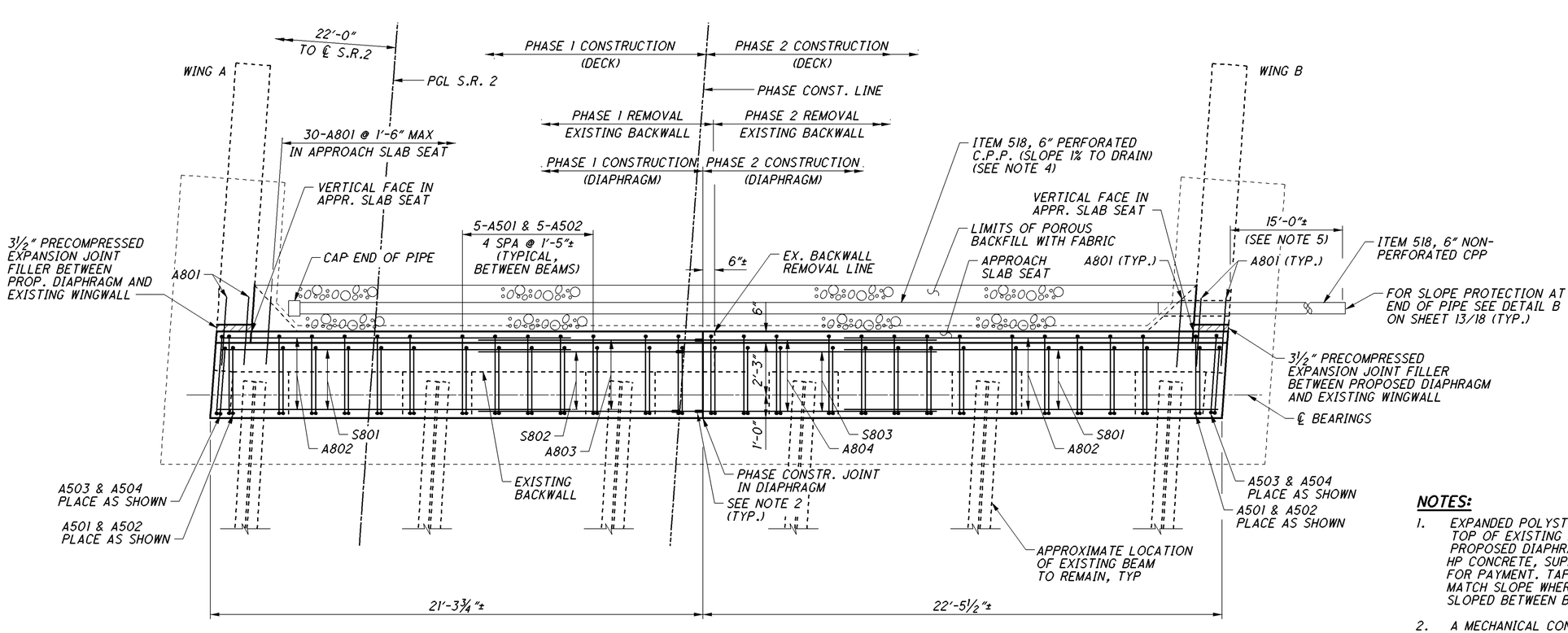
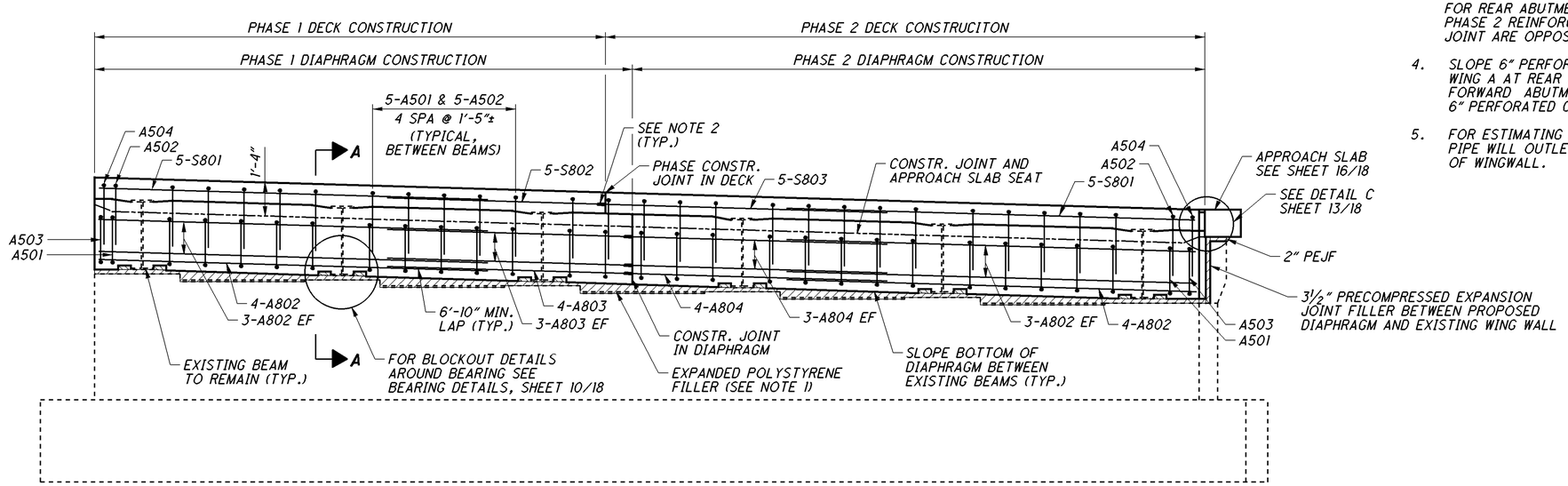
PID No. 87924



PLAN

FORWARD ABUTMENT SHOWN, REAR ABUTMENT SIMILAR (SEE NOTE 3)



ELEVATION

FORWARD ABUTMENT SHOWN, REAR ABUTMENT SIMILAR (SEE NOTE 3)
SEE SHEET 13 FOR SECTION A-A

NOTES:

1. EXPANDED POLYSTYRENE FILLER BETWEEN TOP OF EXISTING BEAM SEAT AND BOTTOM OF PROPOSED DIAPHRAGM AND INCLUDED WITH ITEM 511, HP CONCRETE, SUPERSTRUCTURE AS PER PLAN FOR PAYMENT. TAPER POLYSTYRENE FILLER TO MATCH SLOPE WHERE THE EXISTING BEAM SEAT IS SLOPED BETWEEN BEARING SEAT.
2. A MECHANICAL CONNECTOR SHALL BE USED AT THE PHASE CONSTRUCTION JOINT. THE MECHANICAL CONNECTOR SHALL MEET THE REQUIREMENTS OF 509.07. REINFORCING BAR LENGTHS ARE DETAILED TO THE FACE OF JOINT.
3. DETAILS SHOWN IN THE PLAN AND ELEVATION ARE FOR THE FORWARD ABUTMENT. PHASE CONSTRUCTION LINES FOR REAR ABUTMENT ARE OPPOSITE HAND. PHASE 1 AND PHASE 2 REINFORCEMENT AT PHASE CONSTRUCTION JOINT ARE OPPOSITE HAND FOR REAR ABUTMENT.
4. SLOPE 6" PERFORATED C.P.P. TO OUTLET TOWARDS WING A AT REAR ABUTMENT AND TOWARDS WING B AT FORWARD ABUTMENT. THE NON-OUTLET END OF THE 6" PERFORATED C.P.P. SHALL BE CAPPED.
5. FOR ESTIMATING PURPOSES, IT IS ASSUMED THAT THE PIPE WILL OUTLET 15'-0" BEYOND THE OUTSIDE FACE OF WINGWALL.

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ABUTMENT PLAN AND ELEVATION
BRIDGE NO. LAK-2-1546R
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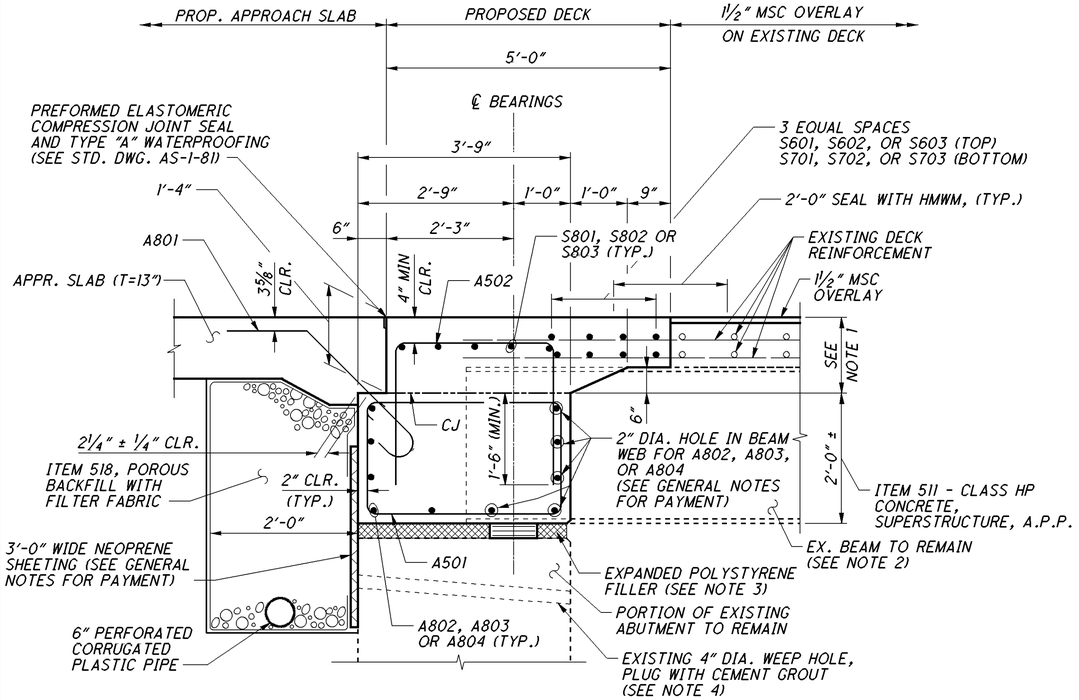
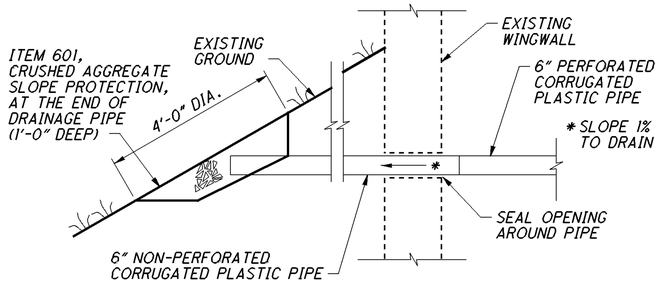


SECTION A-A

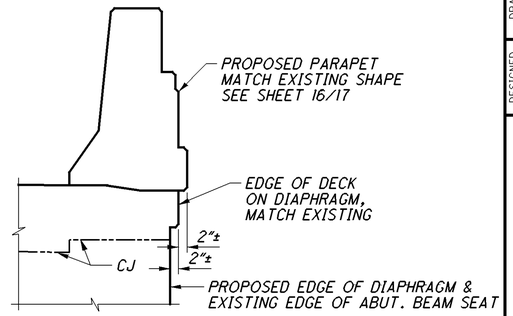
DIMENSIONS SHOWN NORMAL TO ABUTMENTS



DETAIL E

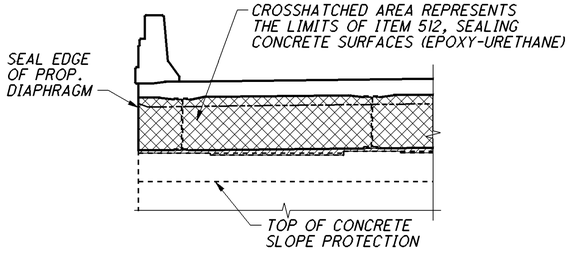
SLOPE PROTECTION DETAIL

TYPICAL EACH DRAIN OUTLET LOCATION



DETAIL C

DIAPHRAGM EDGE DETAIL



ABUTMENT SEALING LIMITS

TYPICAL, EACH ABUTMENT DIAPHRAGM

NOTES:

1. CONCRETE FOR DECK SHALL BE ITEM 511 - CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN.
2. CLEAN AND PAINT ENDS OF EXISTING BEAM FOR A DISTANCE OF 5'-0". PAINT EXISTING BEAMS IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 514. CLEAN AND PAINT ANY EXISTING SCUPPERS AND INTERMEDIATE DIAPHRAGMS WITHIN THESE LIMITS.
3. PLACE EXPANDED POLYSTYRENE FILLER BETWEEN TOP OF EXISTING BEAM SEAT AND BOTTOM OF PROPOSED DIAPHRAGM. TAPER POLYSTYRENE FILLER TO MATCH SLOPE WHERE THE EXISTING BEAM SEAT IS SLOPED BETWEEN BEARING SEAT. PLACE 3" POLYSTYRENE FILLER IN CONSTRUCTION JOINT KEY LOCATED AT THE REMOVED BACKWALL.
4. CEMENT GROUT SHALL CONSIST OF ONE PART HYDRAULIC CEMENT CONFORMING TO ITEM 701 AND THREE PARTS SAND CONFORMING TO 703.03, BY VOLUME, AND WATER. PAYMENT FOR CEMENT GROUT SHALL BE INCLUDED WITH ITEM 202, PORTIONS OF STRUCTURE REMOVED, AS PER PLAN.
5. SEE SHEET 12 FOR LOCATION OF SECTION A-A.

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ABUTMENT DETAILS
BRIDGE NO. LAK-2-1546R
S.R. 2 OVER ST. CLAIR STREET

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PID No. 87924

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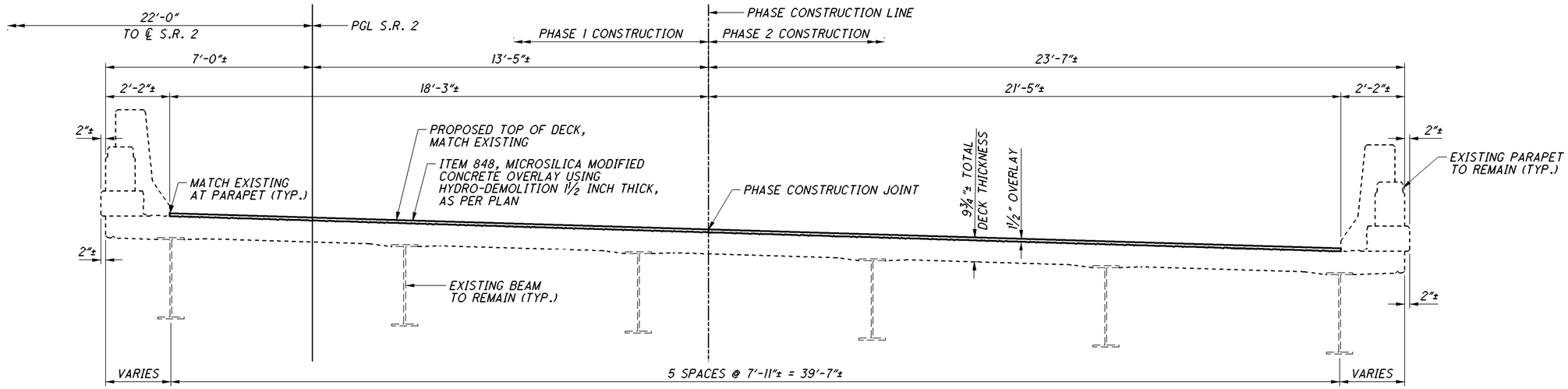
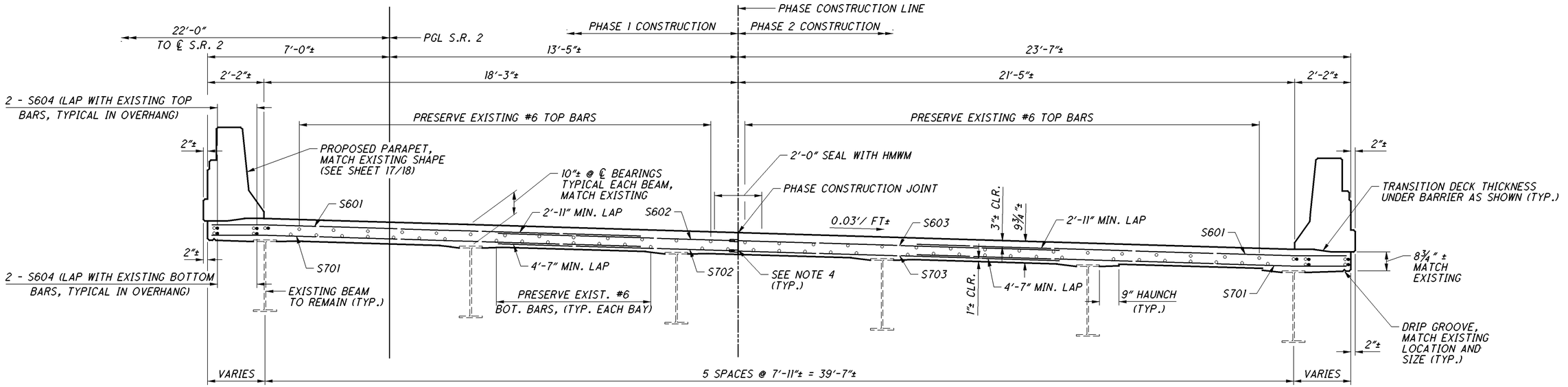


TRANSVERSE SECTION IN SPAN



TRANSVERSE SECTION AT ABUTMENTS

NOTES:

1. TRANSVERSE DIMENSIONS SHOWN ARE APPROXIMATE. IT MAY BE NECESSARY TO VARY THESE DIMENSIONS TO MEET THE PROPOSED APPROACH SLAB AND THE EXISTING DECK.
2. THE ESTIMATED QUANTITY OF DECK SLAB CONCRETE IS BASED ON THE CONSTANT DECK SLAB THICKNESS, AS SHOWN, PLUS THE QUANTITY OF CONCRETE THAT FORMS EACH BEAM HAUNCH. THE ESTIMATE ASSUMES A CONSTANT HAUNCH THICKNESS OF 1 3/16" INCHES AND A CONSTANT HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM FLANGE OF 9 INCHES. DEVIATE FROM THIS HAUNCH THICKNESS AS NECESSARY TO PLACE THE DECK SURFACE AT THE FINISHED GRADE. THE ALLOWABLE TOLERANCE FOR THE HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM FLANGE IS ±3 INCHES.
3. THE HAUNCH THICKNESS WAS MEASURED AT THE CENTERLINE OF THE BEAM, FROM THE SURFACE OF THE DECK TO THE BOTTOM OF THE TOP FLANGE MINUS THE DECK SLAB THICKNESS. THE AREA OF ALL EMBEDDED STEEL PLATES HAS BEEN DEDUCTED FROM THE HAUNCH QUANTITY IN ACCORDANCE WITH 511.24.
4. A MECHANICAL CONNECTOR SHALL BE USED AT THE PHASE CONSTRUCTION JOINT. THE MECHANICAL CONNECTOR SHALL MEET THE REQUIREMENTS OF 509.07. REINFORCING BAR LENGTHS ARE DETAILED TO THE FACE OF JOINT.

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TRANSVERSE SECTION
BRIDGE NO. LAK-2-1546R
S.R. 2 OVER ST. CLAIR STREET

LAK-2-14.38
PID No. 87924

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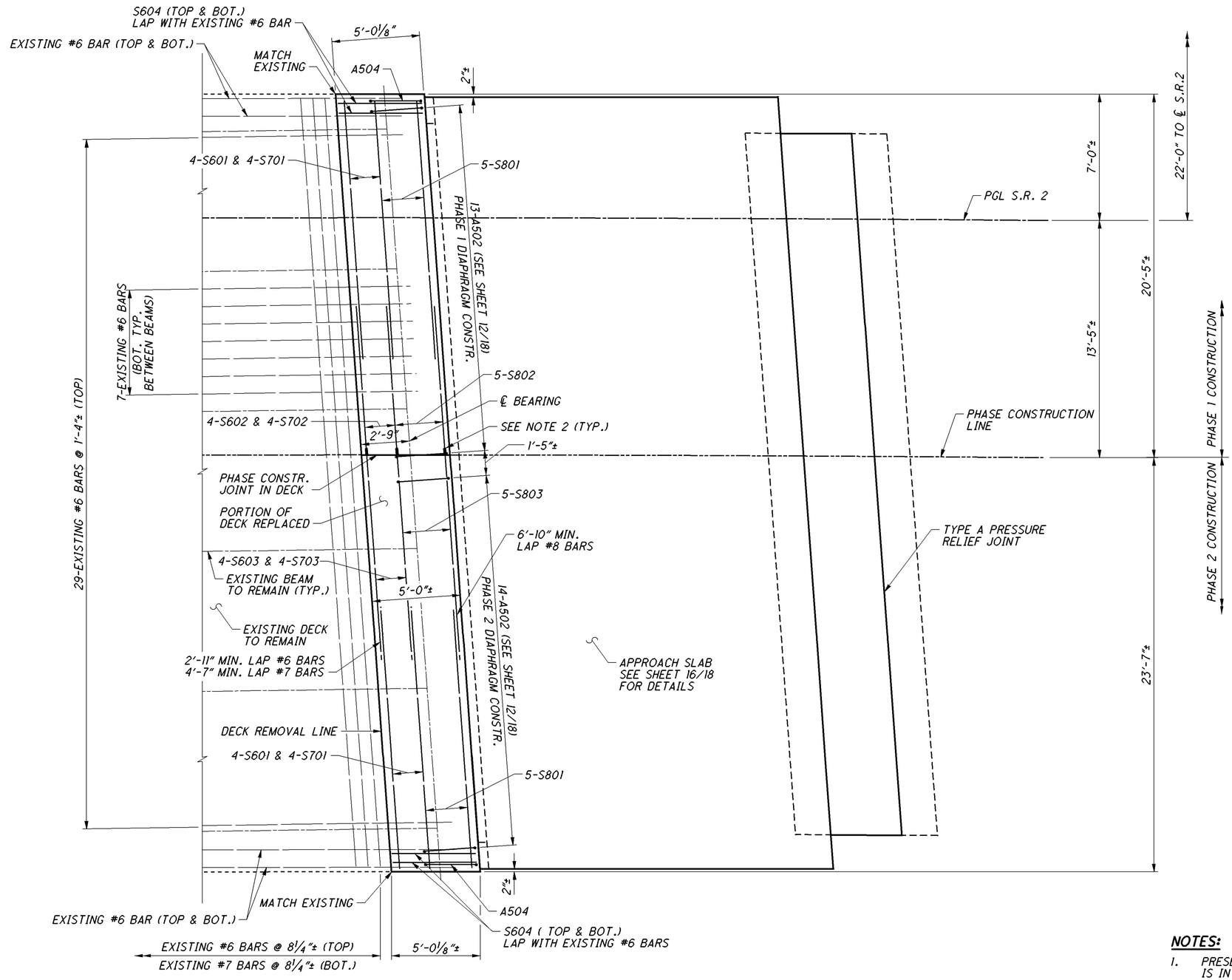

PARTIAL DECK PLAN

SHOWN AT FORWARD ABUTMENT, REAR ABUTMENT SIMILAR
PARAPET NOT SHOWN FOR CLARITY
FOR SECTION THRU ABUTMENT DIAPHRAGM, SEE SHEET 13/18

NOTES:

1. PRESERVE ALL EXISTING REINFORCEMENT THAT IS IN PORTIONS OF THE SUPERSTRUCTURE TO REMAIN.
2. A MECHANICAL CONNECTOR SHALL BE USED AT THE PHASE CONSTRUCTION JOINT. THE MECHANICAL CONNECTOR SHALL MEET THE REQUIREMENTS OF 509.07. REINFORCING BAR LENGTHS ARE DETAILED TO THE FACE OF JOINT.
3. FOR PRESSURE RELIEF JOINT DETAILS, SRR STANDARD DRAWING BP-2.3.

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PARTIAL DECK PLAN
BRIDGE NO. LAK-2-1546R
S.R. 2 OVER ST. CLAIR STREET

LAK-2-14.38
PID No. 87924

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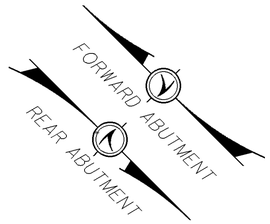
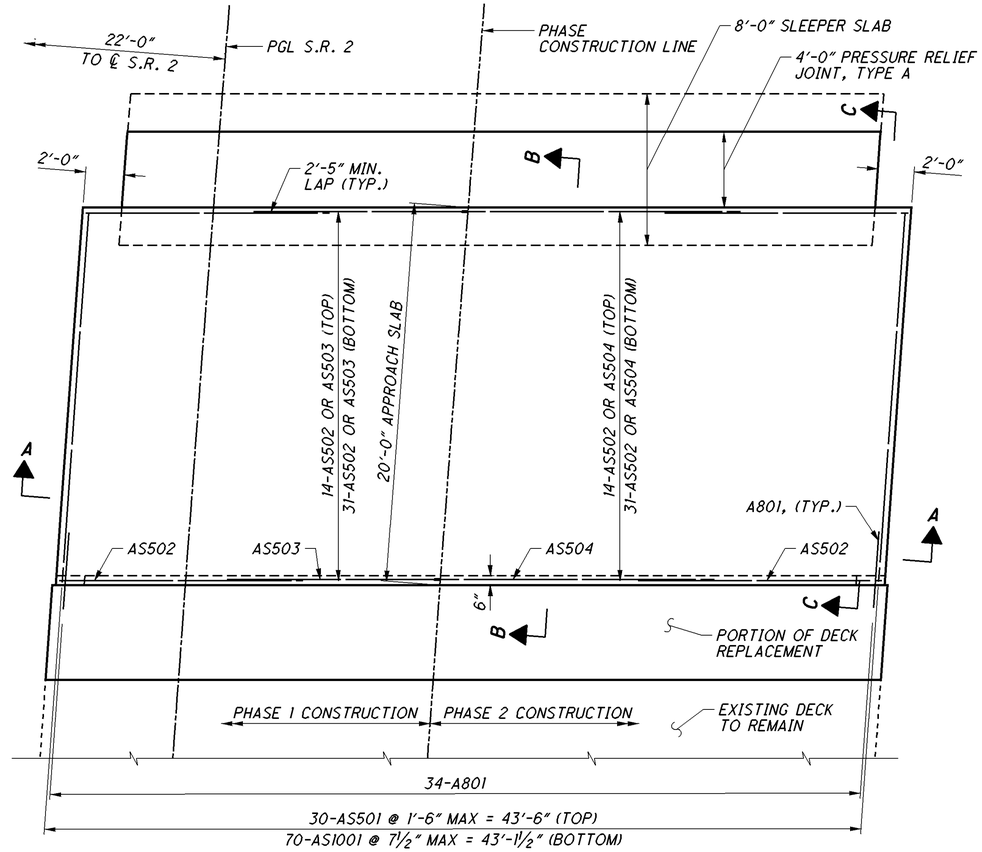
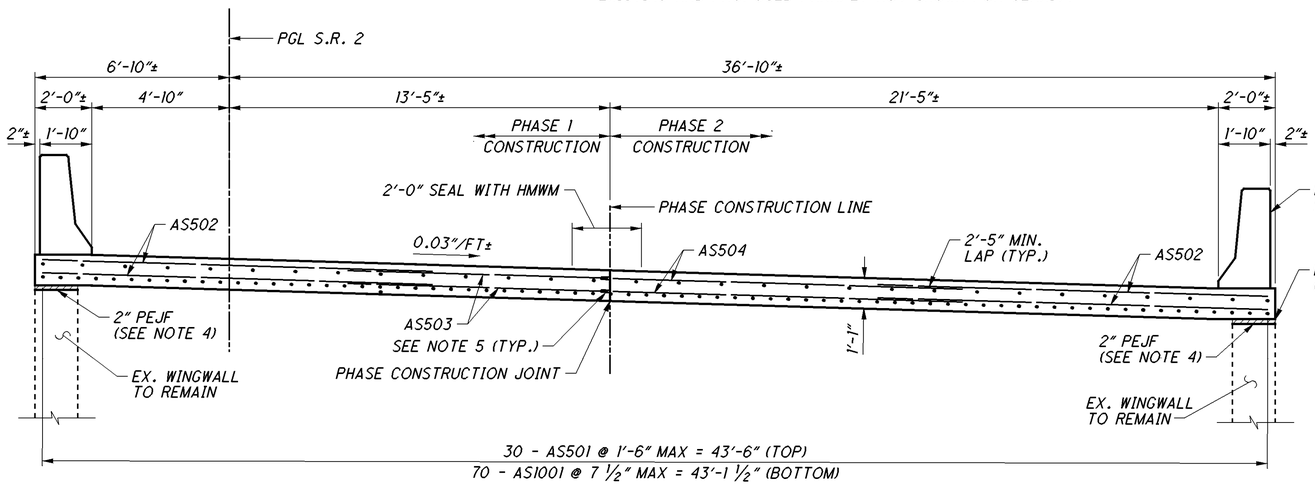




PLAN

(FORWARD APPROACH SHOWN, REAR APPROACH SIMILAR)
EXISTING AND PROPOSED PARAPET NOT SHOWN FOR CLARITY

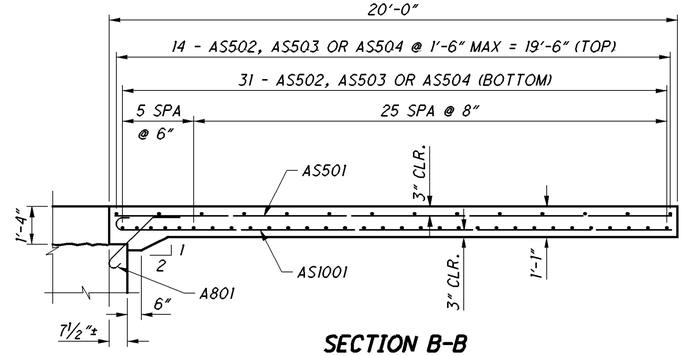


SECTION A-A

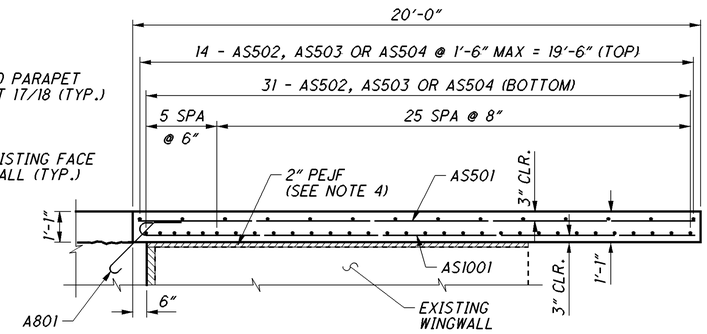
(LOOKING AHEAD STATION)

NOTES:

1. SEE STANDARD DRAWING AS-1-81 FOR ADDITIONAL DETAILS.
2. AS502, AS503, AS504 BARS SHALL BE PLACED PARALLEL TO THE ABUTMENT AND AS501, AS1001 BARS SHALL BE PLACED PLACED PARALLEL TO PGL S.R. 2.
3. FOR DETAILS OF PARAPET ON APPROACH SLAB, SEE SHEET 17/18.
4. THE FOLLOWING SHALL BE INCLUDED IN THE UNIT BID PRICE PER SQUARE YARD FOR ITEM 526, REINFORCED CONCRETE APPROACH SLABS (T=13"), AS PER PLAN:
   - CONCRETE FOR APPROACH SLAB
   - ALL ASSOCIATED REINFORCING STEEL
   - ALL PREFORMED EXPANSION JOINT FILLERS AND JOINT SEALERS
   - WATERPROOFING
   - CONCRETE SEALING OF PARAPET ON APPROACH SLAB
5. A MECHANICAL CONNECTOR SHALL BE USED AT THE PHASE CONSTRUCTION JOINT. THE MECHANICAL CONNECTOR SHALL MEET THE REQUIREMENTS OF 509.07. REINFORCING BAR LENGTHS ARE DETAILED TO THE FACE OF JOINT.
6. PRESSURE RELIEF JOINT, TYPE A AND SLEEPER SLAB SHALL BE INCLUDED IN THE UNIT BID PRICE PER FOOT FOR ITEM SPECIAL, PRESSURE RELIEF JOINT, TYPE A. FOR PRESSURE RELIEF JOINT DETAILS, SEE STANDARD DRAWING BP-2.3.



SECTION B-B



SECTION C-C

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
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APPROACH SLAB PLAN AND DETAILS
BRIDGE NO. LAK-2-1546R
S.R. 2 OVER ST. CLAIR STREET

LAK-2-14.38
PID No. 87924

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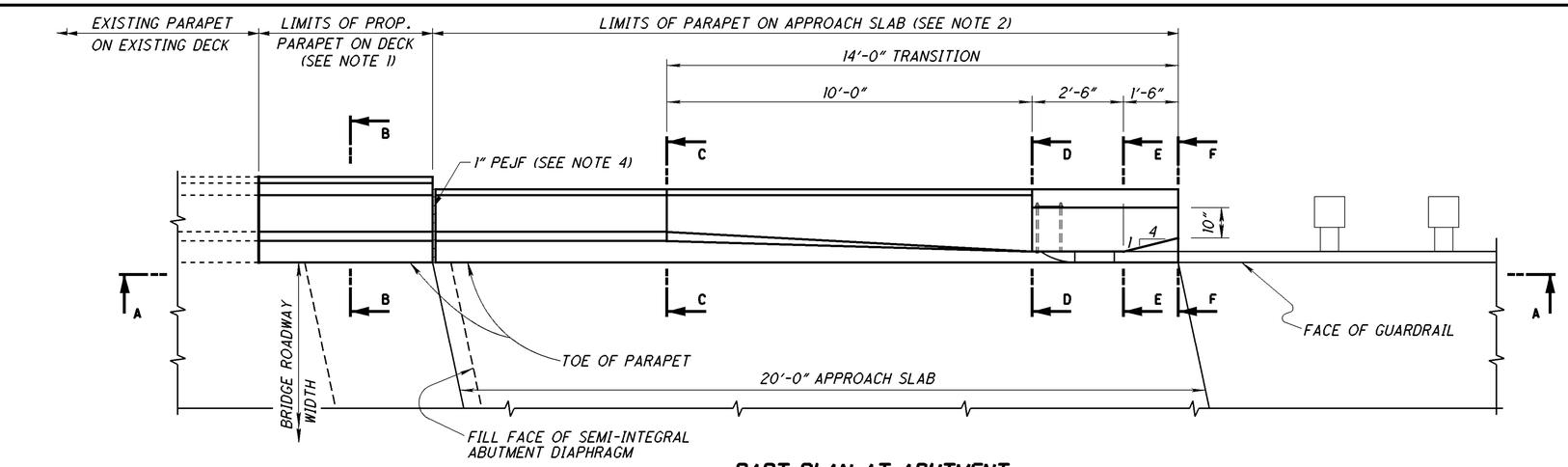
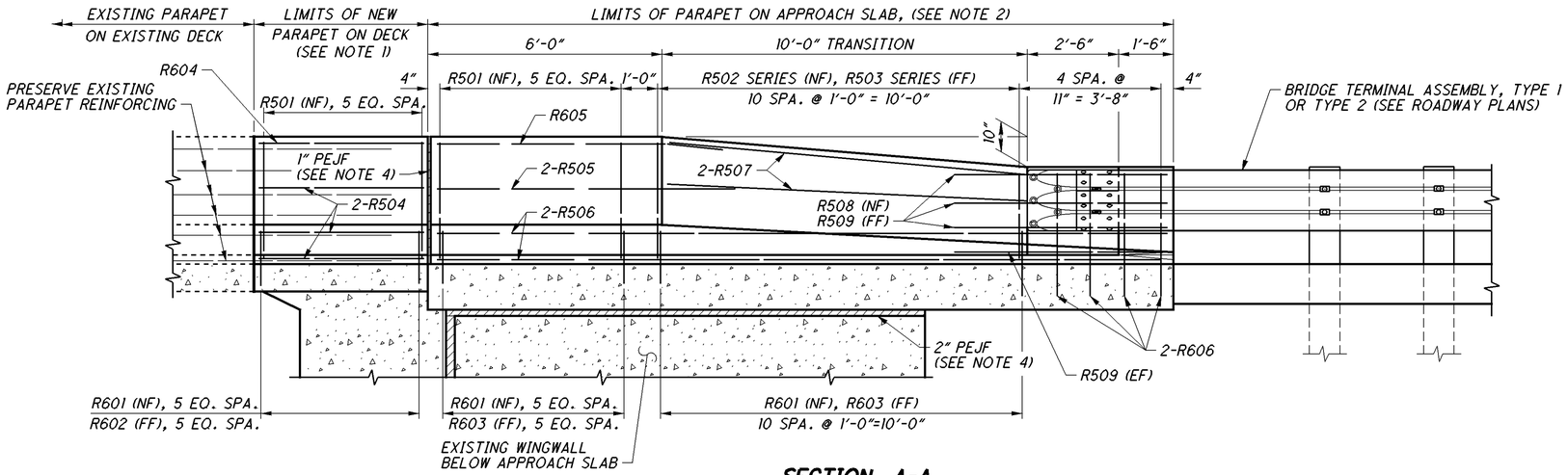


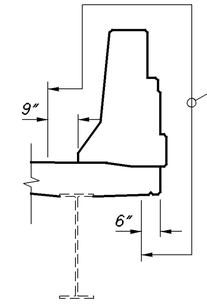
PART PLAN AT ABUTMENT



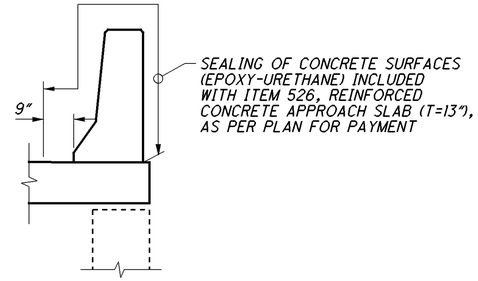
SECTION A-A

NOTES:

1. PARAPET CONCRETE INCLUDED WITH ITEM 511, CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN FOR PAYMENT. PARAPET REINFORCING INCLUDED WITH ITEM 509, EPOXY COATED REINFORCING STEEL, AS PER PLAN.
2. PARAPET CONCRETE AND REINFORCING INCLUDED WITH ITEM 526, REINFORCED CONCRETE APPROACH SLABS (T=13"), AS PER PLAN FOR PAYMENT.
3. FOR PARAPET REINFORCING LIST, SEE SHEET 18/18.
4. PREFORMED EXPANSION JOINT FILLERS INCLUDED WITH ITEM 526, REINFORCED CONCRETE APPROACH SLABS (T=13") AS PER PLAN FOR PAYMENT.

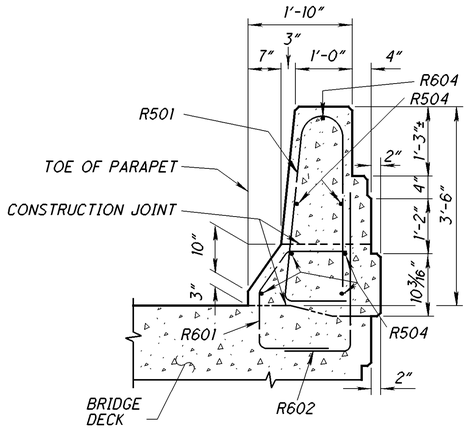


PARAPET ON DECK



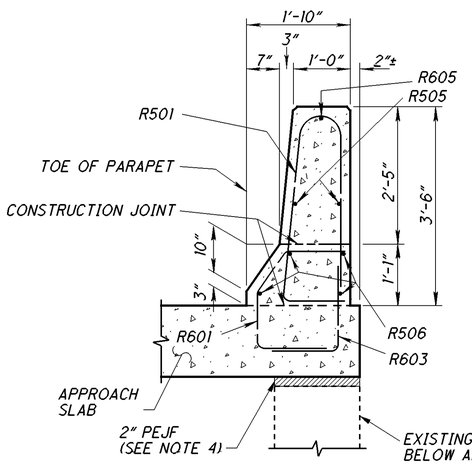
PARAPET ON APPROACH SLAB

CONCRETE SEALING DETAILS

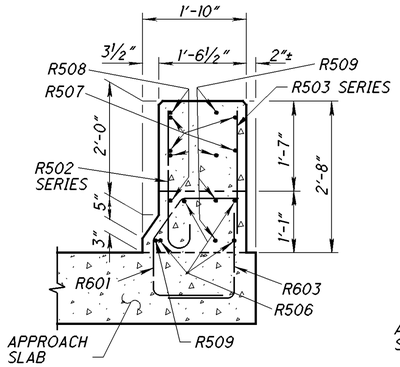


SECTION B-B

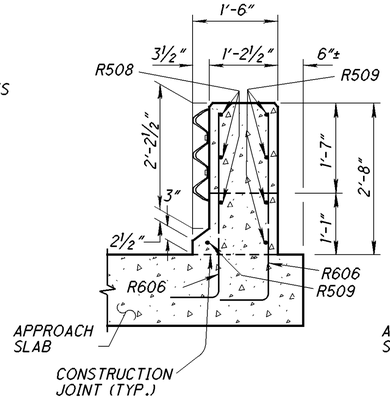
MATCH EXISTING PARAPET SHAPE FIELD BEND BARS IF NECESSARY



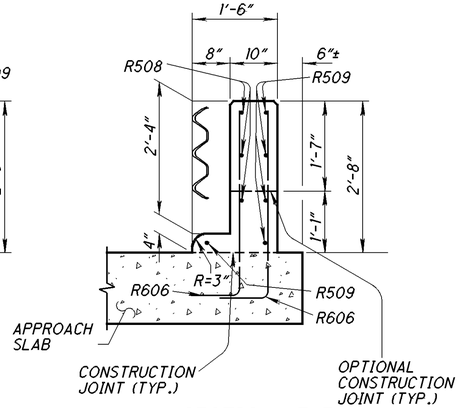
SECTION C-C



SECTION D-D



SECTION E-E



SECTION F-F

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301536	

PARAPET DETAILS
BRIDGE NO. LAK-2-1546R
S.R. 2 OVER ST. CLAIR STREET

LAK-2-14.38
PID No. 87924

17 / 18

171 / 208

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SUPERSTRUCTURE - ABUTMENT DIAPHRAGM

MARK	QUANTITY REAR ABUT.	QUANTITY FWD. ABUT.	QUANTITY TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
A501	27	27	54	10'-9"	606	3	3'-5"	1'-8"					
A502	27	27	54	7'-8"	432	2	2'-6"	2'-11"	2'-6"				
A503	2	2	4	10'-9"	45	3	3'-5"	1'-8"					
A504	2	2	4	7'-8"	32	2	2'-6"	2'-11"	2'-6"				
A801	34	34	68	4'-9"	863	18	2'-5"	1'-0"	1'-0"				
A802	20	20	40	17'-3"	1843	STR							
A803	10	10	20	10'-5"	557	35							
A804	10	10	20	12'-4"	659	36							
				SUB-TOTAL	5037								

SUPERSTRUCTURE - DECK

MARK	QUANTITY REAR ABUT.	QUANTITY FWD. ABUT.	QUANTITY TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
S601	8	8	16	15'-5"	371	STR							
S602	4	4	8	7'-10"	95	35							
S603	4	4	8	11'-0"	133	36							
S604	8	8	16	4'-8"	113	STR							
S701	8	8	16	16'-3"	532	STR							
S702	4	4	8	8'-8"	142	35							
S703	4	4	8	11'-10"	194	36							
S801	10	10	20	17'-5"	930	STR							
S802	5	5	10	9'-10"	263	35							
S803	5	5	10	13'-0"	348	36							
				SUB-TOTAL	3121								

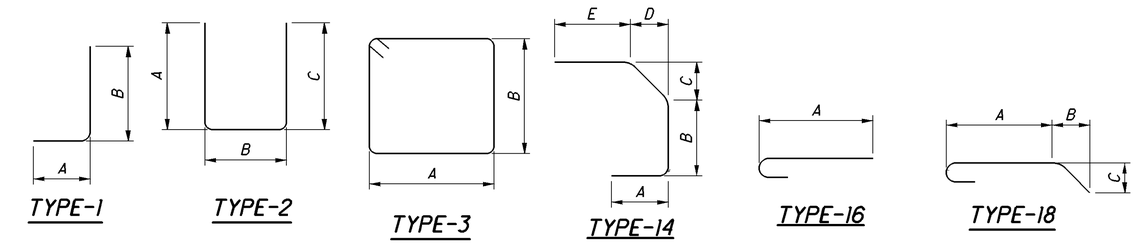
SUPERSTRUCTURE - PARAPET

MARK	QUANTITY REAR ABUT.	QUANTITY FWD. ABUT.	QUANTITY TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
R501	12	12	24	7'-6"	188	23	1'-0"	3'-3"	3'-0"			3¾"	
R504	12	12	24	4'-8"	117	STR							
R601	12	12	24	3'-4"	121	14	1'-2½"	8"	8½"	6"	11"		
R602	12	12	24	3'-4"	121	1	11"	2'-7"					
R604	2	2	4	4'-8"	29	STR							
				SUB-TOTAL	576								

APPROACH SLAB*

MARK	QUANTITY REAR ABUT.	QUANTITY FWD. ABUT.	QUANTITY TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
AS501	30	30	60	19'-6"	1221	STR							
AS502	90	90	180	10'-0"	1875	STR							
AS503	45	45	90	12'-7"	1182	35							
AS504	45	45	90	15'-9"	1479	36							
AS1001	70	70	140	20'-11"	12601	16	19'-6"						
R501	12	12	24	7'-6"	188	23	1'-0"	3'-3"	3'-0"			3¾"	
R502	2 SERIES OF 11	2 SERIES OF 11	4 SERIES OF 11	3'-0" TO 3'-10"	157	30	11	2'-5"	3'-3"				1"
R503	2 SERIES OF 11	2 SERIES OF 11	4 SERIES OF 11	2'-5" TO 3'-3"	130	29	11	2'-5"	3'-3"				1"
R505	4	4	8	7'-10"	66	STR							
R506	8	8	16	15'-8"	262	STR							
R507	8	8	16	10'-0"	167	STR							
R508	6	6	12	5'-8"	71	25	1'-10"	2'-5"	1'-4¼"	1½"	5"		
R509	10	10	20	5'-8"	119	STR							
R601	34	34	68	3'-4"	340	14	1'-2½"	8"	8½"	6"	11"		
R603	34	34	68	2'-4"	239	1	11"	1'-7"					
R605	2	2	4	8'-3"	50	STR							
R606	16	16	32	4'-0"	193	1	11"	3'-3"					
				SUB-TOTAL	20340								

* BARS SHOWN FOR INFORMATIONAL PURPOSES ONLY. BARS ARE INCLUDED WITH APPROACH SLAB ITEM FOR PAYMENT.



NOTES:

1. THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT WHERE THREE DIGITS ARE USED AND THE FIRST TWO WHERE FOUR DIGIT ARE USED, INDICATES THE BAR SIZE NUMBER.
2. ALL DIMENSIONS ARE MEASURED OUT-TO-OUT OF BAR UNLESS NOTED OTHERWISE.
3. FOR STANDARD HOOK DIMENSIONS, SEE SECTION 509.05 OF THE SPECIFICATIONS.
4. ALL REINFORCING STEEL TO BE EPOXY COATED.
5. PAYMENT FOR REINFORCING STEEL SHALL BE INCLUDED IN THE CONTRACT BID PRICE FOR ITEM 509, EPOXY COATED REINFORCING STEEL, AS PER PLAN.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED BKS | DRAWN TEK | CHECKED JTC | REVIEWED SCJ | DATE 9/10 | REVISED | STRUCTURE FILE NUMBER 4301536

REINFORCING STEEL LIST

BRIDGE NO. LAK-2-1546R
S.R. 2 OVER ST. CLAIR STREET

LAK-2-14.38
PID No. 87924

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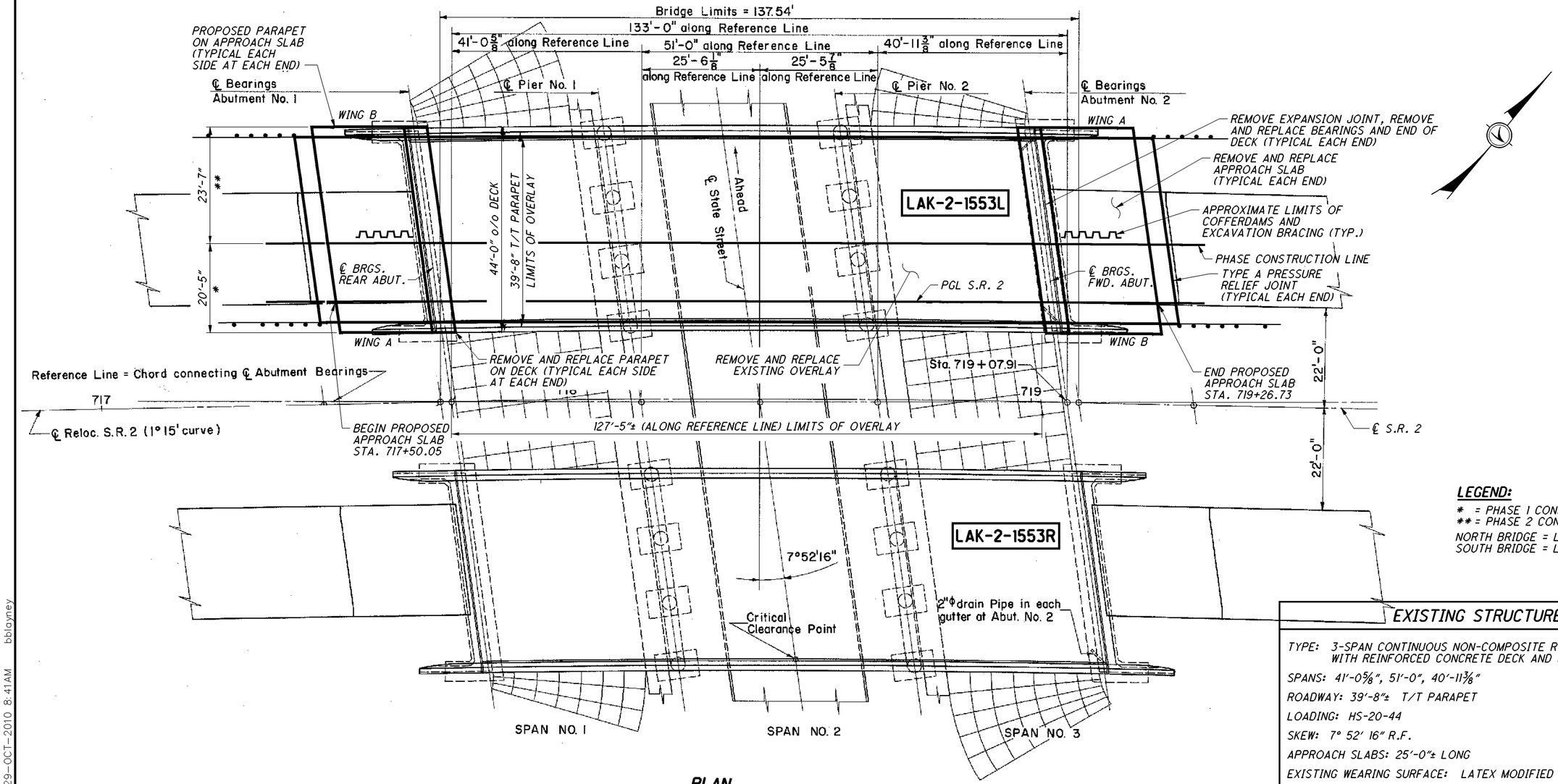
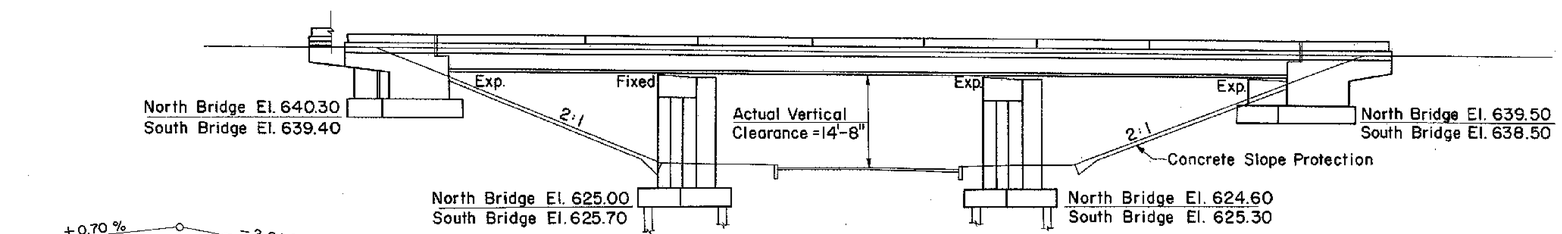
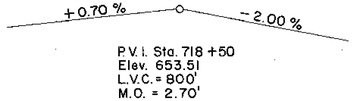


PLAN



ELEVATION



VERTICAL CURVE DATA

LEGEND:

* = PHASE 1 CONSTRUCTION
** = PHASE 2 CONSTRUCTION
NORTH BRIDGE = LAK-2-1553L
SOUTH BRIDGE = LAK-2-1553R

NOTE:

PLANS OF EXISTING STRUCTURES ARE AVAILABLE FOR EXAMINATION AT THE OHIO DEPARTMENT OF TRANSPORTATION, DISTRICT 12 OFFICE, 5500 TRANSPORTATION BLVD. GARFIELD HEIGHTS, OHIO 44125.

EXISTING STRUCTURE

TYPE: 3-SPAN CONTINUOUS NON-COMPOSITE ROLLED STEEL BEAMS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURES
SPANS: 41'-0 5/8", 51'-0", 40'-11 3/8"
ROADWAY: 39'-8"± T/T PARAPET
LOADING: HS-20-44
SKEW: 7° 52' 16" R.F.
APPROACH SLABS: 25'-0"± LONG
EXISTING WEARING SURFACE: LATEX MODIFIED CONCRETE
ALIGNMENT: 1° 15' CURVE
CROWN: SUPERELEVATED
STRUCTURAL FILE NUMBER: 4301560
DATE BUILT: 1963

PROPOSED STRUCTURE

PROPOSED WORK: REPLACE SLAB ENDS WITH MODIFIED SEMI-INTERGRAL ABUTMENT, APPROACH SLAB, AND OVERLAY
TYPE: 3-SPAN CONTINUOUS NON-COMPOSITE ROLLED STEEL BEAMS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURES
SPANS: 41'-0 5/8", 51'-0", 40'-11 3/8"
ROADWAY: 39'-8"± T/T PARAPET
LOADING: HS-20-44
SKEW: 7° 52' 16" R.F.
APPROACH SLABS: STD. AS-1-81 20'-0" LONG (MODIFIED)
PROPOSED WEARING SURFACE: MICRO SILICA MODIFIED CONCRETE
ALIGNMENT: 1° 15' CURVE
CROWN: SUPERELEVATED

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED BKS | DRAWN TEK | CHECKED JTC | REVIEWED SCJ | DATE 9/10 | REVISED | STRUCTURE FILE NUMBER 4301560

SITE PLAN
BRIDGE NO. LAK-2-1553L
S.R. 2 OVER STATE STREET

LAK-2-14.38
PID No. 87924

1 / 18

173
208

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GENERAL NOTES

REFER TO THE FOLLOWING STANDARD BRIDGE DRAWINGS:

AS-1-81	REVISED	07-19-02
SICD-1-96	REVISED	07-19-02
PCB-91	REVISED	07-19-02

AND TO THE FOLLOWING SUPPLEMENTAL SPECIFICATIONS:

843	DATED	04-18-03
848	DATED	04-16-10

DESIGN SPECIFICATIONS: THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO), 2002, AND THE 2004 ODOT BRIDGE DESIGN MANUAL.

DESIGN LOADING: HS-20 AND THE ALTERNATE MILITARY LOADING.

DESIGN DATA:
CONCRETE CLASS HP - COMPRESSIVE STRENGTH 4.5 KSI (DECK, ABUTMENTS DIAPHRAGMS, PARAPETS, AND APPROACH SLABS)
REINFORCING STEEL - MINIMUM YIELD STRENGTH 60 KSI
STRUCTURAL STEEL - ASTM A709 GRADE 50W - YIELD STRENGTH 50 KSI

DECK PROTECTION METHOD: EPOXY COATED REINFORCING STEEL, 2½" CONCRETE COVER, MODIFIED MICRO SILICA CONCRETE OVERLAY.

MONOLITHIC WEARING SURFACE: IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1" THICK.

EXISTING STRUCTURE VERIFICATION: DETAILS AND DIMENSIONS SHOWN ON 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 513.04.

BASE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS THAT HAVE BEEN VERIFIED IN THE FIELD.

MAINTENANCE OF TRAFFIC

PROPOSED WORK:
IN GENERAL, THE PROPOSED WORK FOR THE S.R. 2 BRIDGE OVER STATE STREET SHALL CONSIST OF THE REMOVAL AND REPLACEMENT OF THE EXISTING LATEX MODIFIED CONCRETE OVERLAY AND REMOVAL OF THE EXISTING EXPANSION JOINTS AND ABUTMENT BACKWALLS AND REPLACE WITH SEMI-INTEGRAL ABUTMENT DIAPHRAGMS. REMOVAL AND CONSTRUCTION OPERATIONS ARE TO BE PERFORMED WHILE MAINTAINING ONE LANE OF WESTBOUND TRAFFIC ON S.R. 2. THE MAJOR ITEMS OF WORK REQUIRING PHASED CONSTRUCTION ARE DESCRIBED BELOW. SOME PROJECT WORK ITEMS, SUCH AS SEALING OF CONCRETE SURFACES, MAY BE PERFORMED AT THE CONTRACTOR'S DISCRETION DURING THE CONTRACT SCHEDULE PERIOD; HOWEVER, THE PERFORMANCE OF ALL WORK MUST BE COORDINATED TO SATISFY MAINTENANCE OF TRAFFIC AND SAFETY REQUIREMENTS.SEE M.O.T. PLANS FOR ADDITIONAL MAINTENANCE OF TRAFFIC REQUIREMENTS.

PHASE 1 CONSTRUCTION:
1. INSTALL PORTABLE CONCRETE BARRIER ON THE EXISTING STATE STREET BRIDGE AND APPROACHES. ROUTE TRAFFIC ACROSS THE BRIDGE ACCORDING TO THE MAINTENANCE OF TRAFFIC PLANS.
2. CONSTRUCT TEMPORARY EXCAVATION SUPPORTS ALONG THE PHASE REMOVAL LINE AT THE REAR AND FORWARD ABUTMENTS AS SHOWN IN THE PLANS.
3. ON THE SOUTHERNMOST PORTION OF THE EXISTING BRIDGE, REMOVE THE EXISTING OVERLAY, PORTION OF DECK/PARAPET AT THE ABUTMENTS, APPROACH SLABS, EXPANSION JOINTS, END CROSSFRAMES, AND ABUTMENT BACKWALLS IN ACCORDANCE WITH 202.03 AND PLAN REQUIREMENTS.
4. CLEAN AND PAINT ENDS OF THE THREE SOUTHERNMOST EXISTING BEAMS. DRILL 2" DIAMETER HOLES THROUGH EXISTING BEAM WEBS FOR LONGITUDINAL ABUTMENT DIAPHRAGM REINFORCING.
5. CONSTRUCT SOUTHERNMOST REINFORCED CONCRETE SEMI-INTEGRAL ABUTMENT DIAPHRAGM, WINGWALL, DECK, PARAPET, AND APPROACH SLAB AT THE REAR AND FORWARD ABUTMENTS.

PHASE 2 CONSTRUCTION:
1. INSTALL PORTABLE CONCRETE BARRIER ON COMPLETED PHASE 1 PORTION OF THE BRIDGE AS SHOWN ON BRIDGE AND MAINTENANCE OF TRAFFIC PLANS. ROUTE TRAFFIC ONTO COMPLETED PHASE 1 PORTION OF THE BRIDGE.
2. REMOVE THE REMAINING PORTIONS OF THE EXISTING OVERLAY, DECK/PARAPET AT ABUTMENTS, APPROACH SLABS, EXPANSION JOINTS, END CROSSFRAMES, AND ABUTMENT BACKWALLS IN ACCORDANCE WITH 202.03 AND PLAN REQUIREMENTS.
3. CLEAN AND PAINT ENDS OF THE THREE NORTHERNMOST EXISTING BEAMS. DRILL 2" DIAMETER HOLES THROUGH EXISTING BEAM WEBS FOR LONGITUDINAL ABUTMENT DIAPHRAGM REINFORCING.
4. CONSTRUCT NORTHERNMOST REINFORCED CONCRETE SEMI-INTEGRAL ABUTMENT DIAPHRAGM, WINGWALL, DECK, PARAPET, AND APPROACH SLAB AT THE REAR AND FORWARD ABUTMENTS.
5. REMOVE PORTABLE CONCRETE BARRIER AND ROUTE TRAFFIC ONTO COMPLETED BRIDGE ACCORDING TO MAINTENANCE OF TRAFFIC PLANS.

ITEM 202, PORTIONS OF STRUCTURE REMOVED AS PER PLAN:

DESCRIPTION: THIS WORK CONSISTS OF THE REMOVAL OF THE CONCRETE DECK, PARAPETS, EXPANSION JOINTS, BEARINGS, AND OTHER APPURTENANCES FROM SUPPORTING SYSTEMS AS SHOWN IN THE PLANS. THIS WORK SHALL ALSO INCLUDE THE REMOVAL OF THE ABUTMENT BACKWALLS IN ACCORDANCE WITH THE DETAILS SHOWN IN THE PLANS. ADDITIONAL CONCRETE REMOVAL MAY BE REQUIRED IF UNSOUND OR DETERIORATED CONCRETE IS ENCOUNTERED BEYOND THE PLAN CUT LINES. THE CONTRACTOR SHALL REMOVE ANY UNSOUND OR DETERIORATED CONCRETE BEYOND THE PLAN CUT LINE AS DIRECTED BY THE ENGINEER. PERFORM WORK

ITEM 202, PORTIONS OF STRUCTURE REMOVED AS PER PLAN, (CONTINUED):
CAREFULLY DURING DECK REMOVALS TO PROTECT PORTIONS OF THE EXISTING STEEL SUPPORTING SYSTEM THAT ARE TO BE SALVAGED AND INCORPORATED INTO THE PROPOSED STRUCTURE. THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE RAM TYPE OF EQUIPMENT IS PROHIBITED. SUBMIT CONSTRUCTION PLANS ACCORDING TO CMS 501.05.

PROTECTION OF TRAFFIC: PRIOR TO DEMOLITION OF ANY PORTIONS OF THE EXISTING SUPERSTRUCTURE, THE CONTRACTOR SHALL SUBMIT PLANS FOR THE PROTECTION OF TRAFFIC (VEHICULAR, 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 ENSURE 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, DRAW THE OUTLINE OF THE PRIMARY STEEL MEMBERS IN CONTACT WITH THE BOTTOM OF THE DECK ON THE SURFACE OF THE DECK. DRILL SMALL DIAMETER PILOT HOLES 2 INCHES OUTSIDE THESE LINES TO CONFIRM THE LOCATION OF FLANGE EDGES. DECK CUTS OVER OR WITHIN 2" OF FLANGE EDGES SHALL NOT EXTEND LOWER THAN THE BOTTOM LAYER OF DECK SLAB REINFORCING STEEL. CUTS MADE OUTSIDE 2 INCHES OF FLANGE EDGES MAY EXTEND THE FULL DEPTH OF THE DECK. PERFORM WORK CAREFULLY DURING CUTTING OF THE DECK SLAB TO AVOID DAMAGING STEEL MEMBERS THAT ARE TO BE INCORPORATED INTO THE PROPOSED STRUCTURE. REPLACE OR REPAIR STEEL MEMBERS DAMAGED BY THE DECK SLAB CUTTING OPERATIONS AT NO COST TO THE PROJECT. AT LEAST 7 DAYS BEFORE PERFORMING REPAIR WORK, SUBMIT A PROPOSED REPAIR PLAN, DEVELOPED BY AN OHIO REGISTERED PROFESSIONAL ENGINEER TO THE DIRECTOR. OBTAIN THE DIRECTOR'S APPROVAL BEFORE PERFORMING REPAIR.

REMOVAL METHODS: THE CONTRACTOR MAY REMOVE CONCRETE BY CUTTING AND BY MEANS OF HAND OPERATED PNEUMATIC HAMMERS EMPLOYING POINTED OR BLUNTED CHISEL TYPE TOOLS. FOR REMOVALS OVER STRUCTURAL MEMBERS, THE CONTRACTOR MAY USE A HAMMER HEAVIER THAN 35 POUNDS BUT NOT TO EXCEED 90 POUNDS UNLESS APPROVED BY THE ENGINEER. REMOVAL METHODS OVER STRUCTURAL MEMBERS SHALL ENSURE ADEQUATE DEPTH CONTROL AND PREVENT NICKING OR GOUGING THE PRIMARY STRUCTURAL MEMBERS.

SUBSTRUCTURE CONCRETE REMOVAL: REMOVE CONCRETE 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 35 POUNDS FOR REMOVAL WITHIN 18 INCHES OF PORTIONS TO BE PRESERVED. OUTSIDE THE 18 INCH LIMIT, THE CONTRACTOR MAY USE HAMMERS NOT EXCEEDING 90 POUNDS UPON THE APPROVAL OF THE ENGINEER. DO NOT PLACE PNEUMATIC HAMMERS IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE.

CUT LINE CONSTRUCTION JOINT PREPARATION: SAW CUT BOUNDARIES OF PROPOSED CONCRETE REMOVALS 1 INCH DEEP. REMOVE CONCRETE TO A ROUGH SURFACE. LEAVE THE EXISTING REINFORCING STEEL, IF REQUIRED IN THE PLANS, IN PLACE. INSTALL DOWEL BARS IF SPECIFIED. PRIOR TO CONCRETE PLACEMENT ABRASIVELY CLEAN JOINT SURFACES AND EXISTING EXPOSED REINFORCEMENT TO REMOVE LOOSE AND DISINTEGRATED CONCRETE AND LOOSE RUST. THOROUGHLY CLEAN THE JOINT SURFACE AND EXPOSED REINFORCEMENT OF ALL DIRT, DUST, RUST, OR OTHER FOREIGN MATERIAL BY THE USE OF WATER, AIR UNDER PRESSURE, OR OTHER METHODS THAT PRODUCE SATISFACTORY RESULTS. EXISTING REINFORCING STEEL DOES NOT HAVE TO HAVE A BRIGHT STEEL FINISH, BUT REMOVE ALL PACK AND LOOSE RUST. THOROUGHLY DRENCH EXISTING CONCRETE SURFACES WITH CLEAN WATER AND ALLOW TO DRY TO A DAMP CONDITION BEFORE PLACING CONCRETE.

MEASUREMENT AND PAYOUT: THE DEPARTMENT WILL MEASURE THE QUANTITY OF REMOVAL ON A LUMP SUM BASIS. THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES OF REMOVALS AT THE CONTRACT PRICE FOR ITEM 202, PORTIONS OF STRUCTURE REMOVED, AS PER PLAN.

ITEM 202, APPROACH SLAB REMOVED, AS PER PLAN: THIS WORK CONSISTS OF REMOVING THE EXISTING APPROACH SLABS INCLUDING ANY EXISTING OVERLAY THAT IS PRESENT ON TOP OF THE EXISTING APPROACH SLAB.

ITEM 509, EPOXY COATED REINFORCING STEEL, AS PER PLAN:
IN ADDITION TO CONFORMING TO 509 REQUIREMENTS, THE LABOR REQUIRED TO FIELD DRILL THE 2" DIAMETER HOLES IN THE EXISTING STEEL BEAMS AT THE ABUTMENT DIAPHRAGMS SHALL BE INCLUDED WITH ITEM 509, EPOXY COATED REINFORCING STEEL, AS PER PLAN FOR PAYMENT. THE COST OF FURNISHING THE MECHANICAL CONNECTORS AND EXTENSIONS SHALL BE INCLUDED WITH ITEM 509-EPOXY COATED REINFORCING STEEL, AS PER PLAN FOR PAYMENT.

ITEM 509 - REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN: CONTIGENCY QUANTITIES ARE INCLUDED TO PROVIDE ADDITIONAL CONNECTING REINFORCING STEEL IF REQUIRED OR IF EXISTING REINFORCING STEEL TO BE REUSED IS MISSING OR FOUND TO BE UNUSABLE.

REPLACE ALL EXISTING REINFORCING BARS DEEMED BY THE ENGINEER TO BE UNUSABLE BECAUSE OF CORROSION. THE DEPARTMENT WILL MEASURE THE REPLACEMENT REINFORCING STEEL BY THE NUMBER OF POUNDS ACCEPTED IN PLACE.

REPLACE ALL EXISTING REINFORCING STEEL BARS WHICH ARE TO BE INCORPORATED INTO THE NEW WORK AND ARE DEEMED BY THE ENGINEER TO BE MADE UNUSABLE BY CONCRETE REMOVAL OPERATIONS WITH NEW EPOXY COATED REINFORCING STEEL OF THE SAME SIZE AT NO COST TO THE DEPARTMENT.

ITEM 511, CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN:
ITEM 511, CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN:
ITEM 511, CLASS HP CONCRETE, SUPERSTRUCTURE, AS PER PLAN:
ITEM 511, CLASS HP CONCRETE, TEST SLAB:
GENERAL REQUIREMENTS:
THE PROVISIONS OF ITEM 511 SHALL APPLY EXCEPT AS NOTED BELOW.

MIX OPTIONS:
ALL BRIDGE DECK, ABUTMENT, PARAPETS, DIAPHRAGMS, AND APPROACH SLAB CONCRETE SHALL BE THIS MIX (AS PER PLAN).

THE FOLLOWING PROPORTIONS WILL BE USED AS A STARTING MIX DESIGN:

CONCRETE TABLE
QUANTITIES PER CUBIC YARD
AGGREGATES (SSD)

HP4, AS PER PLAN (GGBF SLAG + MICROSILICA)								
AGGRE. TYPE	FINE AGGRE. (LB)	#8 COARSE AGGRE. (LB)*	#57 COARSE AGGRE. (LB)*	CEMENT CONTENT (LB)*	GGBF SLAG (LB)*	MICRO-SILICA (LB)*	W/C RATIO +/-0.01	AIR CONTENT +/-2%
GRAVEL	1245	360	1315	400	170	30	0.43	7
LIMESTONE	1245	360	1335	400	170	30	0.43	7
SLAB	1245	315	1155	400	170	30	0.43	7

* ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED PER ASTM C127.

HIGH EARLY STRENGTH CEMENT MAY BE USED TO EXPEDITE CONSTRUCTION, SEE 511.07.

THE WEIGHTS SPECIFIED IN THE CONCRETE TABLE WERE CALCULATED FOR MATERIALS OF THE FOLLOWING BULK SPECIFIC GRAVITIES (SSD): NATURAL SAND AND GRAVEL 2.62, LIMESTONE SAND 2.68, LIMESTONE 2.65, SLAG 2.30, FLY ASH 2.65, GGBF SLAG 2.90, MICRO-SILICA SOLIDS 2.20, AND PORTLAND CEMENT 3.15. FOR AGGREGATES OF SPECIFIC GRAVITIES DIFFERING MORE THAN PLUS OR MINUS 0.02 FROM THESE, THE WEIGHTS IN THE TABLE WILL BE CORRECTED.

PARAPET CONSTRUCTION (FORMED AND POURED): FORMS SHALL NOT BE REMOVED UNTIL AT LEAST 2 HOURS AFTER THE FINAL SET. DETERMINATION OF THE FINAL SET SHALL BE AS PER ASTM C266 (GILLMORE NEEDLE). TESTING SHALL BE PERFORMED BY THE CONTRACTOR AT NO COST TO THE STATE.

THE MINIMUM CONCRETE SLUMP DURING PLACEMENT OF FORMED CONCRETE PARAPETS SHALL BE 6 INCHES, WITH A MAXIMUM SLUMP OF 8 INCHES.

PARAPET CONSTRUCTION (SLIP FORMED): SLIP FORMING IS PROHIBITED.

BASIS OF PAYMENT: PAYMENT FOR THE ABOVE COMPLETED AND ACCEPTED QUANTITIES WILL BE MADE AT THE CONTRACT BID PRICE FOR:

ITEM	UNITS	DESCRIPTION
511E50001	CUBIC YARD	CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN
511E50101	CUBIC YARD	CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN
511E52000	LUMP	CLASS HP CONCRETE, TEST SLAB

ITEM 512, SEALING OF CONCRETE SURFACES (EPOXY-URETHANE): THE FINISH COAT COLOR FOR ALL CONCRETE SURFACES TO RECEIVE SEALER SHALL MATCH THE EXISTING SEALER COLOR SUBJECT TO THE APPROVAL OF THE ENGINEER.

ITEM 514, FIELD PAINTING STRUCTURAL STEEL, FINISH COAT: THE FINISH COAT COLOR FOR ALL STRUCTURAL STEEL MEMBERS TO RECEIVE PAINT SHALL MATCH THE EXISTING PAINT COLOR SUBJECT TO THE APPROVAL OF THE ENGINEER.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED BKS | DRAWN TEK | CHECKED JTC | REVIEWED SCJ | DATE 9/10 | REVISED | STRUCTURE FILE NUMBER 4301560

GENERAL NOTES (1 OF 2)
BRIDGE NO. LAK-2-1553L
S.R. 2 OVER STATE STREET

LAK-2-14.38
PID No. 87924

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GENERAL NOTES

ITEM 516, SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN: INSTALL A 3 FOOT WIDE NEOPRENE SHEET AT LOCATIONS SHOWN IN THE PLANS. SECURE THE NEOPRENE SHEETING TO THE CONCRETE WITH 1 1/4" X #10 GAGE (LENGTH X SHANK DIAMETER) GALVANIZED BUTTON HEAD SPIKES THROUGH A 1" OUTSIDE DIAMETER, #10 GAGE GALVANIZED WASHER. MAXIMUM FASTENER SPACING IS 9". USE OF OTHER SIMILAR GALVANIZED DEVICES, WHICH WILL NOT DAMAGE EITHER THE NEOPRENE OR THE CONCRETE, WILL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

CENTER THE NEOPRENE STRIPS ON ALL JOINTS. FOR HORIZONTAL JOINTS, SECURE THE HORIZONTAL NEOPRENE STRIP BY USING A SINGLE LINE OF FASTENERS, STARTING AT 6", (±), FROM THE TOP OF THE NEOPRENE STRIP. FOR THE VERTICAL JOINTS SECURE THE VERTICAL NEOPRENE STRIP BY USING A SINGLE VERTICAL LINE OF FASTENERS, STARTING AT 6", (±), FROM THE VERTICAL EDGE OF THE NEOPRENE STRIP NEAREST TO THE CENTERLINE OF THE ROADWAY. FOR VERTICAL JOINTS, INSTALL 2 ADDITIONAL FASTENERS AT 6", CENTER TO CENTER, ACROSS THE TOP OF THE NEOPRENE STRIP ON THE SAME SIDE OF THE VERTICAL JOINT AS THE SINGLE VERTICAL ROW OF FASTENERS IS LOCATED.

THE VERTICAL NEOPRENE STRIPS SHALL COMPLETELY OVERLAP THE HORIZONTAL STRIPS. LAP LENGTHS OF THE HORIZONTAL STRIPS THAT ARE NOT VULCANIZED OR ADHESIVE BONDED, SHALL BE AT LEAST 1'-0" IN LENGTH, OR 6" IN LENGTH IF THE LAP IS VULCANIZED OR ADHESIVE BONDED. NO LAPS ARE ACCEPTABLE IN VERTICALLY INSTALLED NEOPRENE STRIPS.

PRIOR TO PLACEMENT OF THE NEOPRENE SHEETING, A 3" BAND OF COLD TAR PITCH MATERIAL OR MATERIAL MEETING SPEC 702.14 RUBBER COMPOUND SHALL BE APPLIED TO DIRECTLY TO THE STRUCTURAL CONCRETE ALONG THE PERIMETER/OUTLINE OF THE NEOPRENE SHEET IN ORDER TO SECURE A SEAL TIGHT CONDITION. THE NEOPRENE SHEET SHALL THEN BE MECHANICALLY FASTENED TO THE STILL TACKY TAR/RUBBER CEMENT COMPOUND MATERIAL.

THE NEOPRENE SHEETING SHALL BE 3/32" THICK GENERAL PURPOSE, HEAVY DUTY NEOPRENE SHEET WITH NYLON FABRIC REINFORCEMENT. THE SHEETING SHALL BE "FAIRPRENE NUMBER NN-0003", BY E.I. DUPONT DE NEMOURS AND COMPANY, INC., "WINGPRENE" BY GOODYEAR TIRE AND RUBBER COMPANY, OR AN APPROVED ALTERNATE. THE NEOPRENE SHEETING SHALL CONFORM TO THE FOLLOWING:

DESCRIPTION OF TEST	ASTM METHOD	REQUIREMENT
THICKNESS, INCHES	D 751	0.094 (±) 0.01
BREAKING STRENGTH, GRAB, LBS, MINIMUM (LONG. X TRANS.)	D 751	700 x 700
ADHESIVE STRIP, 1" WIDE X 2" LONG, LBS MINIMUM	D 751	9
BURST STRENGTH, PSI MINIMUM	D 751	1400
HEAT AGING, 70 HRS., 212°F, 180° BEND W/O CRACKING	D 2136	NO CRACKING OF COATING
LOW TEMP. BRITTLENESS, 1 HR., -40°F, BEND AROUND 1/4" MANDREL	D 2136	NO CRACKING OF COATING

METHOD OF MEASUREMENT: THE DEPARTMENT WILL MEASURE THE TOTAL LENGTH OF JOINT TO BE SEALED BY THE NUMBER OF FEET.

BASIS OF PAYMENT: THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516, SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN.

ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN: FOR BEARING REQUIREMENTS SEE SHEETS 9 & 10.

ITEM 516, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN:
THIS WORK CONSISTS OF RAISING OR RE-POSITIONING EXISTING STRUCTURES TO THE DIMENSIONS AND REQUIREMENTS DEFINED IN THE PROJECT PLANS.

SUBMIT CONSTRUCTION PLANS IN ACCORDANCE WITH CMS 501.05.

IF, DURING THE JACKING OPERATIONS, CRACKING OF THE CONCRETE SUPERSTRUCTURE, SEPARATION OF THE CONCRETE DECK FROM THE STEEL STRINGERS, OR OTHER DAMAGE TO THE STRUCTURE IS VISUALLY OBSERVED, IMMEDIATELY CEASE THE JACKING OPERATION AND INSTALL SUPPORTS TO THE SATISFACTION OF THE ENGINEER. ANALYZE THE DAMAGE AND SUBMIT A METHOD OF CORRECTION TO THE ENGINEER FOR APPROVAL. EPOXY INJECT ALL BEAMS THAT SEPARATE FROM THE DECK FOR THE DISTANCE OF THE SEPARATION IN ACCORDANCE WITH CMS 512.07. THE DEPARTMENT WILL NOT PAY FOR THE COST OF THIS EPOXY INJECTION OR OTHER REQUIRED REPAIRS. THE BRIDGE BEARINGS SHALL BE FULLY SEATED AT ALL CONTACT AREAS. IF FULL SEATING IS NOT ATTAINED, SUBMIT A REPAIR PLAN TO THE ENGINEER. THE DEPARTMENT WILL NOT PAY FOR THE REPAIR COSTS TO ENSURE FULL SEATING ON BEARINGS.

THE DEPARTMENT WILL MEASURE THIS WORK ON A LUMP SUM BASIS.

THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN.

ITEM 526, REINFORCED CONCRETE APPROACH SLAB (T=13"), AS PER PLAN

DESCRIPTION: THIS ITEM SHALL CONSIST OF CONSTRUCTING REINFORCED CONCRETE APPROACH SLABS WITH PARAPETS IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS AND ODOT STANDARD DRAWING AS-1-81.

MATERIALS: CONCRETE FOR THIS ITEM, INCLUDING APPROACH SLABS AND PARAPETS SHALL BE ITEM 511 - CLASS HP CONCRETE. USE THE SAME MIX FOR ITEM 526 AS IS USED FOR THE BRIDGE DECK AND PARAPETS. SEE GENERAL NOTE ITEM 511 FOR THE CONCRETE MIX REQUIREMENTS.

METHOD OF MEASUREMENT: THE AREA MEASURED WILL BE THE NUMBER OF SQUARE YARDS COMPLETE IN PLACE.

BASIS OF PAYMENT: ACCEPTED QUANTITIES WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER SQUARE YARD COMPLETE IN PLACE. THIS PRICE SHALL INCLUDE FULL COMPENSATION FOR CONCRETE, PARAPETS, REINFORCING STEEL, JOINT FILL, JOINT SEALERS, JOINT SEALS, WATERPROOFING, AND SEALING OF APPROACH SLAB PARAPETS. PAYMENT WILL BE MADE UNDER ITEM 526 - REINFORCED CONCRETE APPROACH SLAB (T=13"), AS PER PLAN.

APPROACH SLAB PARAPET CONSTRUCTION SHALL BE PER GENERAL NOTE ITEM 511 - CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN.

ITEM 607, FENCE REMOVED AND REBUILT:

A PORTION OF THE EXISTING FENCE BETWEEN BRIDGE NO. LAK-2-1553R AND LAK-2-1553L AT THE REAR AND FORWARD ABUTMENTS MAY NEED TO BE REMOVED AND REBUILT IN ORDER TO RECONSTRUCT THE EXISTING WINGWALLS. FOR ESTIMATING PURPOSES 20 FEET OF FENCE REMOVED AND REBUILT WILL BE REQUIRED.

ITEM 848, MICRO SILICA MODIFIED CONCRETE OVERLAY USING HYDRODEMOLITION, AS PER PLAN (1½" THICK):

ITEM 848, MICRO SILICA MODIFIED CONCRETE OVERLAY, (VARIABLE THICKNESS), MATERIAL ONLY, AS PER PLAN:

THESE ITEMS SHALL BE PERFORMED PER SUPPLEMENTAL SPECIFICATION 848 "BRIDGE DECK REPAIR AND OVERLAY WITH CONCRETE USING HYDRODEMOLITION" WITH THE FOLLOWING REVISIONS:

CONSTRUCTION JOINTS WILL NOT BE PERMITTED IN THE WHEEL LINE.

(SEE 848.12) THE COMPONENTS OF THE MICROSILICA MODIFIED CONCRETE SHALL BE PROPORTIONED AS FOLLOWS:

CONCRETE TABLE
QUANTITIES PER CUBIC YARD
AGGREGATES (SSD)

MICROSILICA MODIFIED CONCRETE OVERLAY								
AGGRE. TYPE	FINE AGGRE. (LB)	#8 COARSE AGGRE. (LB)*	AGGRE. TOTAL (LB)	CEMENT CONTENT (LB)	MICRO-SILICA (LB)	W/C RATIO +/-0.01	AIR CONTENT +/-2%	FIBER (1¼") POLY-PROPYLENE (LB)**
GRAVEL	141	1430	284	600	50	0.40	8	1
LIMESTONE	141	1450	286	600	50	0.40	8	1
SLAG	141	1350	265	600	50	0.40	8	1

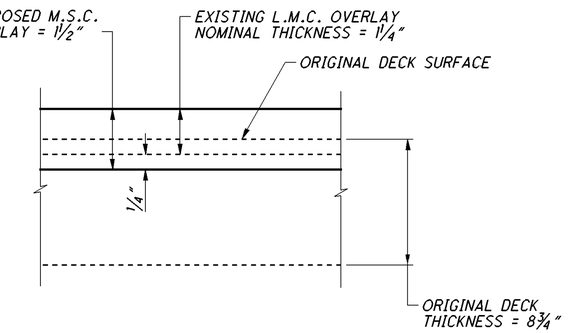
* ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED PER ASTM C127.

** FIBER MESH SHALL BE 100% VIRGIN POLYPROPYLENE IN A FIBRILLATED-NETWORK FORM AND SHALL BE 1¼" IN LENGTH.

THE WEIGHTS SPECIFIED IN THE CONCRETE TABLE WERE CALCULATED FOR MATERIALS OF THE FOLLOWING BULK SPECIFIC GRAVITIES (SSD): NATURAL SAND AND GRAVEL 2.62, LIMESTONE SAND 2.68, LIMESTONE 2.65, SLAG 2.30, MICRO-SILICA SOLIDS 2.20, AND PORTLAND CEMENT 3.15. FOR AGGREGATES OF SPECIFIC GRAVITIES DIFFERING MORE THAN PLUS OR MINUS 0.02 FROM THESE, THE WEIGHTS IN THE TABLE WILL BE CORRECTED. (FIBER MESH WEIGHTS NOT INCLUDED IN MIX DESIGN)

ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED BY ASTM C127.

ALL OTHER REQUIREMENTS OF THE SUPPLEMENTAL SPECIFICATION SHALL REMAIN IN EFFECT.



DECK OVERLAY DETAIL

ITEM 202, PORTIONS OF STRUCTURES REMOVED, AS PER PLAN:

THIS ITEM SHALL ALSO INCLUDE THE REMOVAL OF ELEMENTS INDICATED IN THE PLANS AND GENERAL NOTES AND THAT ARE NOT SEPARATELY LISTED FOR PAYMENT. ITEMS TO BE REMOVED INCLUDE ALL EXISTING MATERIALS BEING REPLACED BY NEW CONSTRUCTION AND MISCELLANEOUS ITEMS THAT ARE NOT SHOWN TO BE INCORPORATED INTO THE FINAL CONSTRUCTION AND ARE DIRECTED TO BE REMOVED BY THE ENGINEER.

ALTERNATE METHOD FOR BACKWALL REMOVAL: AT NO ADDITIONAL COST TO THE STATE, THE CONTRACTOR MAY SAWCUT EXISTING BACKWALLS AT THE REMOVAL LIMITS SHOWN IN THE PLANS AND DOWEL REAR #6 BARS AT THE EXISTING BAR SPACING. PROVIDE 12" MINIMUM EMBEDMENT ON DOWEL BARS. PROVIDE #6 BARS LONG ENOUGH TO PROVIDE A MINIMUM LAP OF 2'-11" ON PROPOSED BARS.

ALTERNATE METHOD FOR REMOVAL OF DECK AT END OF BRIDGE: AT NO ADDITIONAL COST TO THE STATE, THE CONTRACTOR MAY REMOVE DECK CONCRETE USING HYDRODEMOLITION, SUBJECT TO ALL PERTINENT REQUIREMENTS OF SS 848.

ITEM 503, COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN:

IN ADDITION TO THE REQUIREMENTS OF CMS 503, LEAVE IN PLACE SHEETING ALONG THE STAGED CONSTRUCTION LINE AT THE POSITION SHOWN IN THE PLANS. CUT-OFF SHEETING 3" BELOW THE BOTTOM OF THE APPROACH SLAB OR AS DIRECTED BY THE ENGINEER.

ITEM 518, POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN:

THIS WORK SHALL INCLUDE THE REMOVAL OF EXISTING POROUS BACKFILL AND ALL ADJACENT SOIL TO INSTALL NEW POROUS BACKFILL AS DETAILED IN THE PLANS.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301560	

GENERAL NOTES (2 OF 2)
BRIDGE NO. LAK-2-1553L
S.R. 2 OVER STATE STREET

LAK-2-14.38
PID No. 87924

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ABBREVIATIONS

THE FOLLOWING ABBREVIATIONS HAVE BEEN USED THROUGHOUT THESE PLANS:

& = AND
@ = AT
° = DEGREES
' = FEET OR MINUTES
" = INCHES OR SECONDS
± = PLUS OR MINUS

AASHTO = AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
ABUT. = ABUTMENT
ADT = AVERAGE DAILY TRAFFIC
ADTT = AVERAGE DAILY TRUCK TRAFFIC
APPR. = APPROACH
APPROX. = APPROXIMATE
ASTM = AMERICAN SOCIETY OF TESTING AND MATERIALS

BM = BENCHMARK
BOT. = BOTTOM
BOT./FTG. = BOTTOM OF FOOTING
BRGS. = BEARINGS

℄ = CENTERLINE
C/C = CENTER TO CENTER
CFS = CUBIC FEET PER SECOND
CJ = CONSTRUCTION JOINT
CLR. = CLEAR
CMS = CONSTRUCTION AND MATERIAL SPECIFICATIONS
CONSTR./CONST. = CONSTRUCTION
CON'T = CONTINUED
COL. = COLUMN
C.P.P. = CORRUGATED PLASTIC PIPE
C.R./CR = COUNTY ROAD
CU = CUBIC
CVN = CHARPY V-NOTCH

DEFL. = DEFLECTION
DIA. = DIAMETER
DIM. = DIMENSION
DL = DEAD LOAD
DWG. = DRAWING

E =EAST
EA. = EACH
EF = EACH FACE
EL./ELEV. = ELEVATION
EMBED. = EMBEDMENT
EQ. = EQUAL
EX./EXIST. = EXISTING
EXP. = EXPANSION
EXT. = EXTENSION

F = FAHRENHEIT
FF = FAR FACE
F/F = FACE TO FACE
FS = FIELD SPLICE
FT. = FEET
FT/FT. = FOOT/FOOT
FT/S = FEET PER SECOND
FTG. = FOOTING
FWD. = FORWARD
FWS = FUTURE WEARING SURFACE

GEN. = GENERAL

HR = HOUR
HW = HIGH WATER

IN. = INCHES
INT. = INTERMEDIATE

LF = LEFT FORWARD
LONG. = LONGITUDINAL
LT. = LEFT

MAX. = MAXIMUM
MIN. = MINIMUM
MISC. = MISCELLANEOUS

N = NORTH
NF = NEAR FACE
#/NO. = NUMBER

OHWM = ORDINARY HIGH WATER MARK
OUT/OUT = OUT TO OUT

PEJF = PREFORMED EXPANSION JOINT FILLER
℄/PL = PLATE
PSF = POUND PER SQUARE FOOT
PSI = POUND PER SQUARE INCH
PT. = POINT
PVI = POINT OF VERTICAL INTERSECTION

Q = FLOW

R = RADIUS
REF. = REFERENCE
REINF. = REINFORCED
REQ'D. = REQUIRED
RF = RIGHT FORWARD
RT. = RIGHT

SHLDR. = SHOULDER
SPA. = SPACING
SQ = SQUARE
STA. = STATION
STD. = STANDARD
STR. = STRAIGHT
SUPER = SUPERSTRUCTURE

T = THICKNESS
TELE = TELEPHONE
TRANS. = TRANSVERSE
TWP. = TOWNSHIP
TYP. = TYPICAL

V = VELOCITY
V.C. = VERTICAL CURVE
VERT. = VERTICAL

W = WEST
W/ = WITH
W/O = WITHOUT
W.P. = WORKING POINT
WT. = WEIGHT

YD = YARD

ESTIMATED QUANTITIES

LAK-2-1553L

CALCULATED BY: JTC
CHECK BY: SCJ
DATED: 9/10
DATED:

ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	TOTAL **	AS PER PLAN SHEET REF.
202	11201	LUMP		PORTIONS OF STRUCTURE REMOVED, AS PER PLAN	LUMP	2
202	22901	134	SQ YD	APPROACH SLAB REMOVED, AS PER PLAN	134	3
503	11101	LUMP		COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN	LUMP	3
509	10001	8806	POUND	EPOXY COATED REINFORCING STEEL, AS PER PLAN	8806	2
509	20001	230	POUND	REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN	230	2
511	50001	20	CU YD	CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN	20	2
511	50101	4	CU YD	CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN	4	2
511	51001	28	CU YD	CLASS HP CONCRETE, SUPERSTRUCTURE, AS PER PLAN	28	2
512	10100	51	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	51	2
512	10300	29	SQ YD	SEALING CONCRETE BRIDGE DECKS WITH HMWM RESIN	29	
514	00050	499	SQ FT	SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL	499	
514	00056	499	SQ FT	FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT	499	
514	00060	499	SQ FT	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT	499	
514	00066	499	SQ FT	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT	499	2
516	14000	16	SQ FT	PREFORMED EXPANSION JOINT FILLER, MISC. 3½"	16	
516	14021	83	FT	SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN	83	3
516	44001	12	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN	12	3
				(8½" x ¾" x 1'-0" PAD WITH 11½" x ½" x 1'-1" STEEL LOAD PLATE)		
516	47001	LUMP		JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN	LUMP	
518	21231	LUMP		POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN	LUMP	3
518	40000	81	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	81	
518	40010	35	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	35	
526	15001	195	SQ YD	REINFORCED CONCRETE APPROACH SLAB (T=13"), AS PER PLAN	195	3
848	10001	562	SQ YD	MICRO SILICA MODIFIED CONCRETE OVERLAY USING HYDRODEMOLITION, AS PER PLAN (1½" THICK)	562	3
848	20000	562	SQ YD	SURFACE PREPARATION USING HYDRODEMOMLITION	562	
848	30001	24	CU YD	MICRO SILICA MODIFIED CONCRETE OVERLAY (VARIABLE THICKNESS), MATERIAL ONLY, AS PER PLAN	24	3
848	50000	30	SQ YD	HAND CHIPPING	30	
848	50320	562	SQ YD	EXISTING CONCRETE OVERLAY REMOVED (1½" THICK)	562	

**All Totals Participation Code II-Bridge

Participation Codes:
I-Pavement (Federal/State)
II-Bridge (Federal/State)

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED BKS | DRAWN TEK | CHECKED JTC | REVIEWED SCJ | DATE 9/10 | REVISED | STRUCTURE FILE NUMBER 4301560

ESTIMATED QUANTITIES
BRIDGE NO. LAK-2-1553L
S.R. 2 OVER STATE STREET

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PID No. 87924

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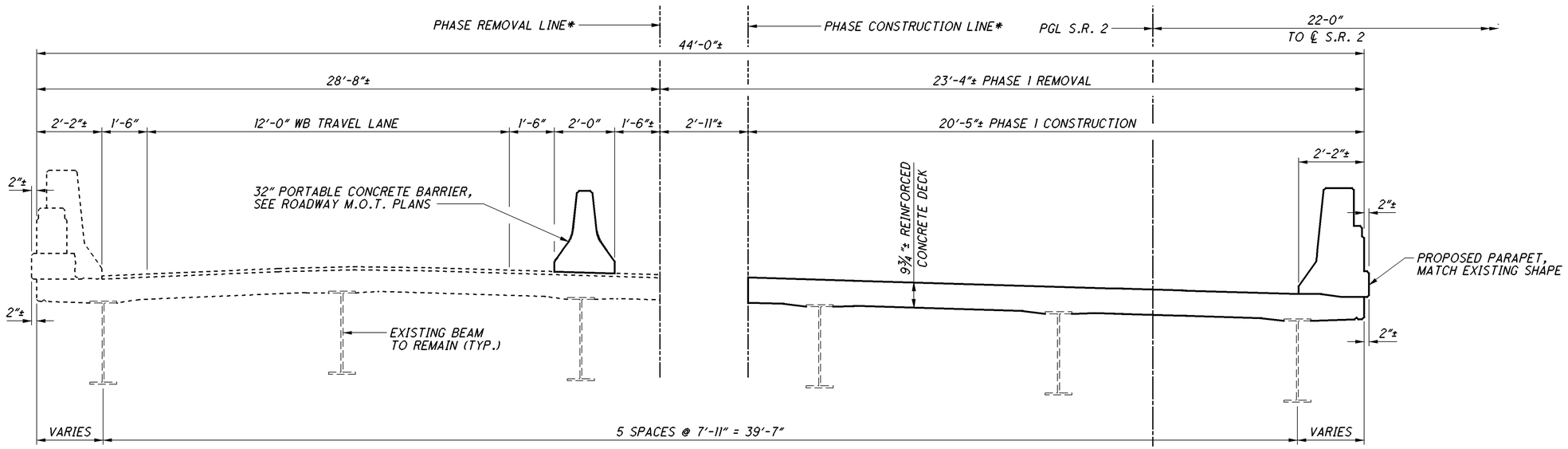


PHASE I REMOVAL AND CONSTRUCTION

AT ABUTMENT

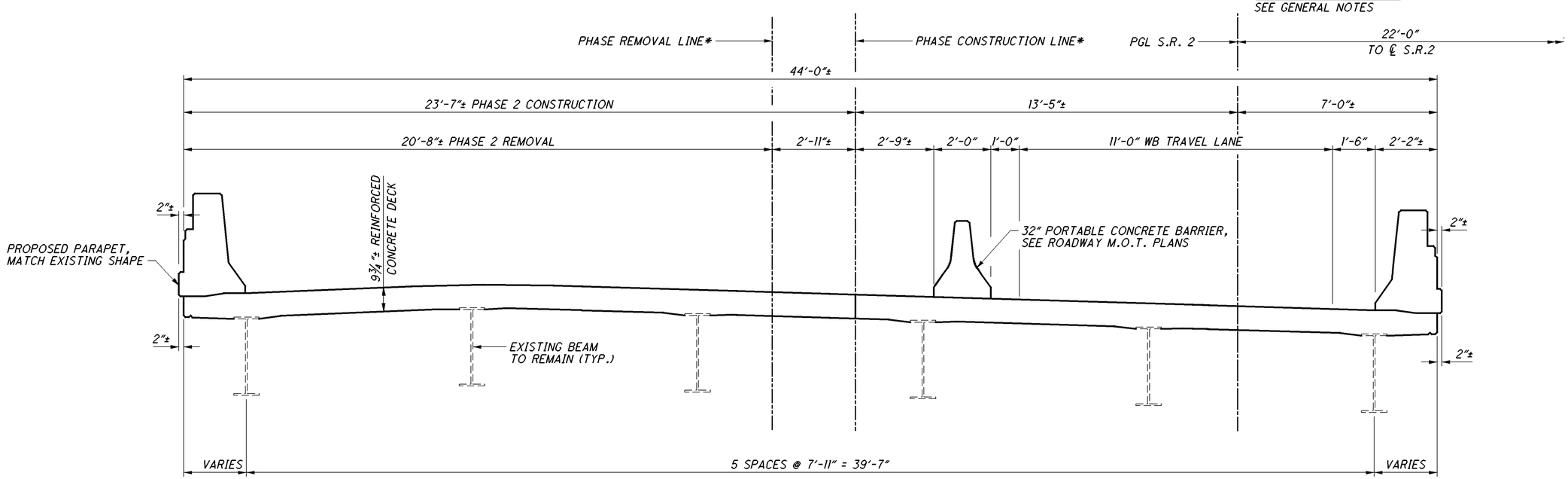
NOTES:

TRANSVERSE DIMENSIONS SHOWN FOR PROPOSED CONSTRUCTION ARE APPROXIMATE. IT MAY BE NECESSARY TO VARY THESE DIMENSIONS TO MEET THE PROPOSED APPROACH SLAB AND THE EXISTING DECK.

* FOR WORK AT ABUTMENT.

PROPOSED WORK:

SEE GENERAL NOTES



PHASE 2 REMOVAL AND CONSTRUCTION

AT ABUTMENT

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301560	

PHASED CONSTRUCTION DETAILS

BRIDGE NO. LAK-2-1553L
S.R. 2 OVER STATE STREET

LAK-2-14.38
PID No. 87924

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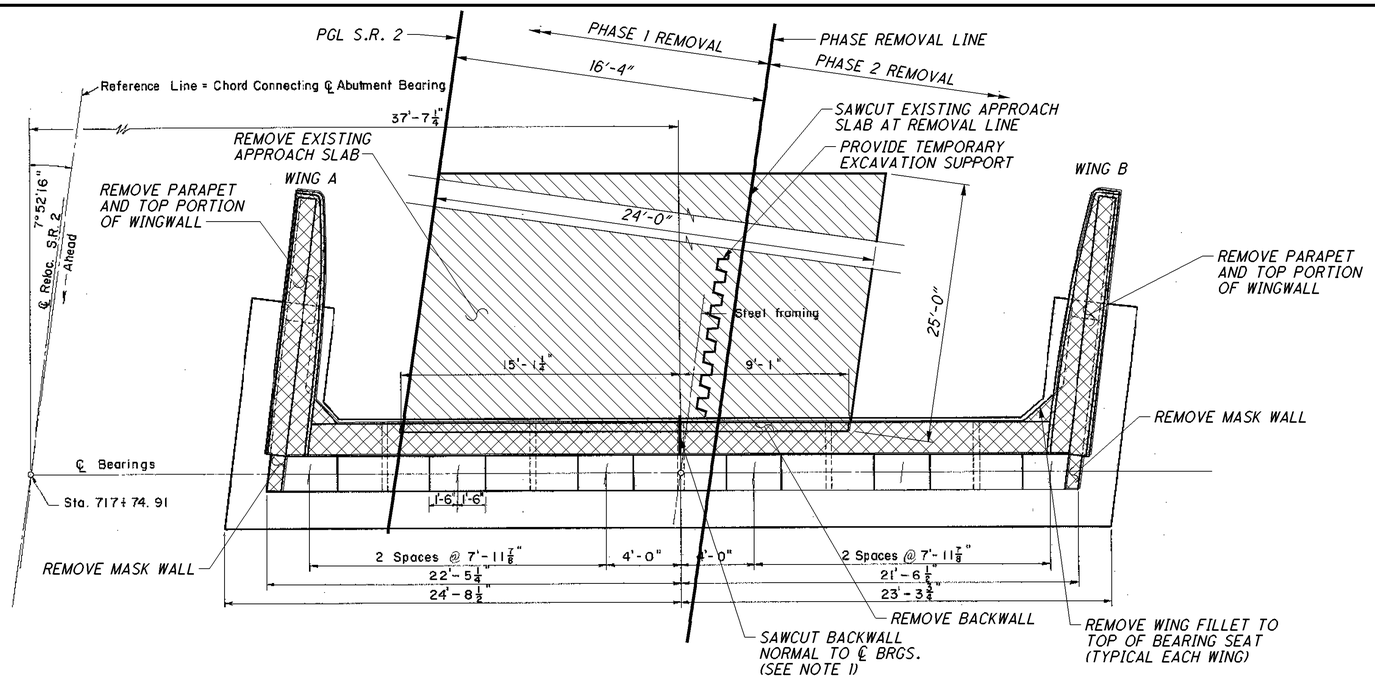
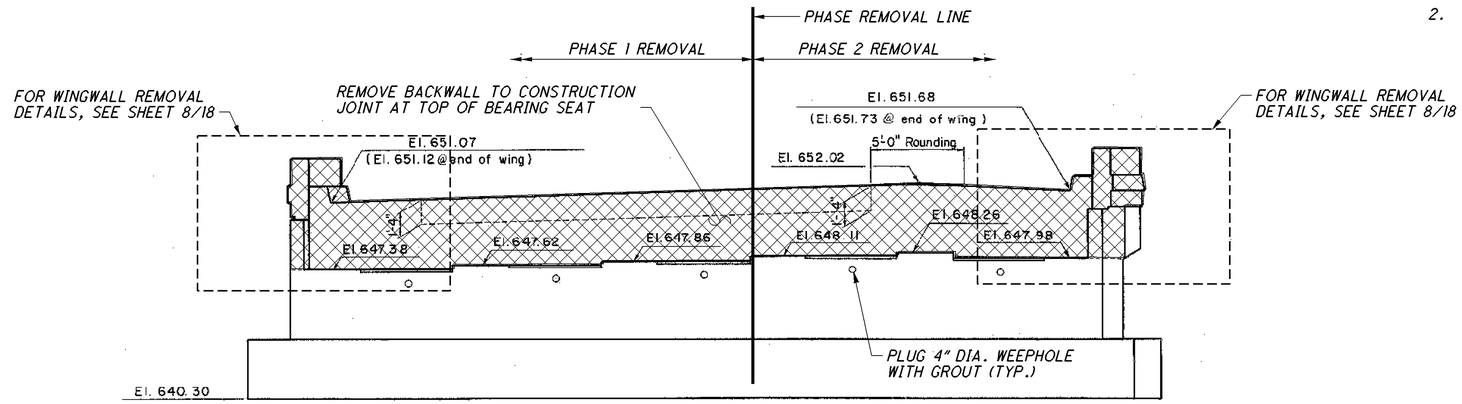


PLAN - REAR ABUTMENT



ELEVATION - REAR ABUTMENT

NOTES:

1. FOR LOCATION OF ABUTMENT BACKWALL REMOVAL LINE, SEE SHEET 12/18.
2. ELEVATIONS SHOWN AT TOP OF BACKWALL DO NOT INCLUDE THE 1"± INCREASE DUE TO THE EXISTING LMC OVERLAY.

ITEM 202 - APRROACH SLAB REMOVED, AS PER PLAN

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301560	

REMOVAL DETAILS (1 OF 4)
BRIDGE NO. LAK-2-1553L
S.R. 2 OVER STATE STREET

LAK-2-14.38
PID No. 87924

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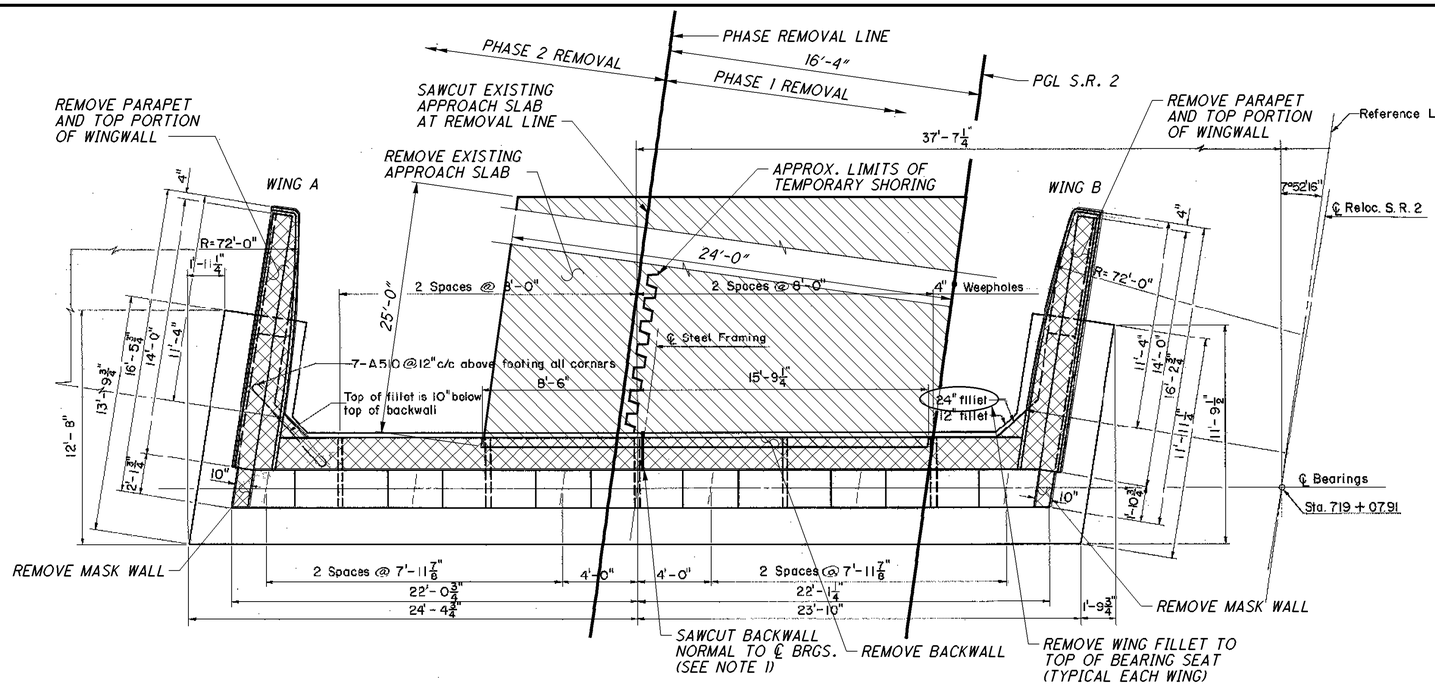
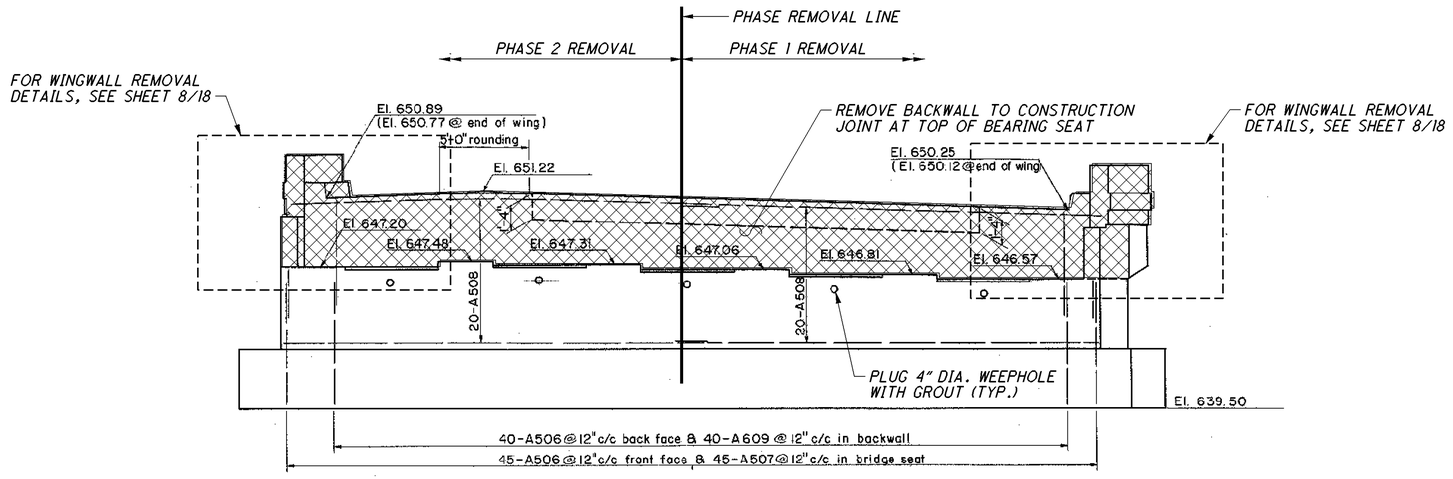


PLAN - REAR ABUTMENT



ELEVATION - REAR ABUTMENT

NOTES:

1. FOR LOCATION OF ABUTMENT BACKWALL REMOVAL LINE, SEE SHEET 12/18.
2. ELEVATIONS SHOWN AT TOP OF BACKWALL DO NOT INCLUDE THE 1"± INCREASE DUE TO THE EXISTING LMC OVERLAY.

ITEM 202 - APRROACH SLAB REMOVED, AS PER PLAN

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301560	

REMOVAL DETAILS (2 OF 4)
BRIDGE NO. LAK-2-1553L
S.R. 2 OVER STATE STREET

LAK-2-14.38
PID No. 87924

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208

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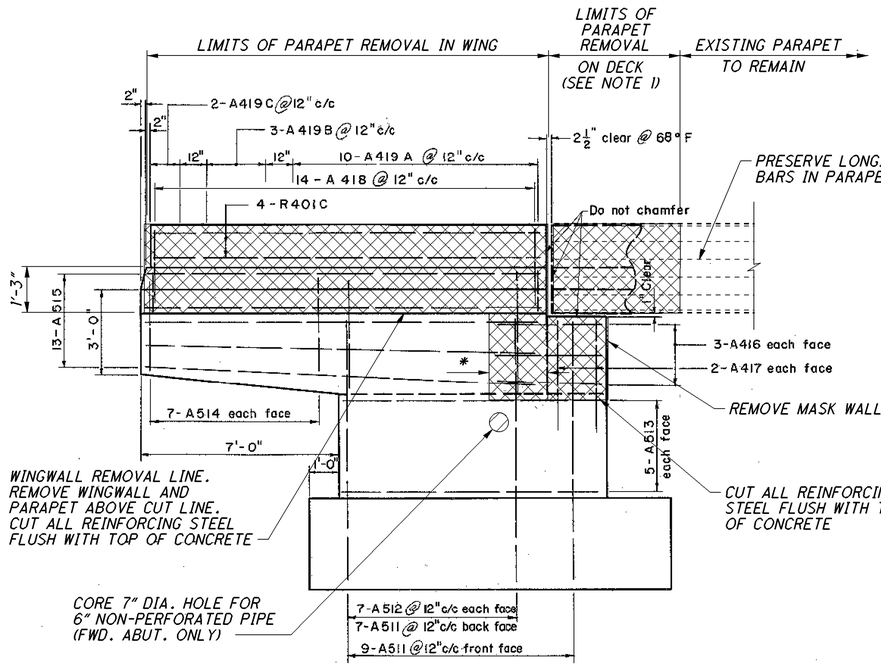
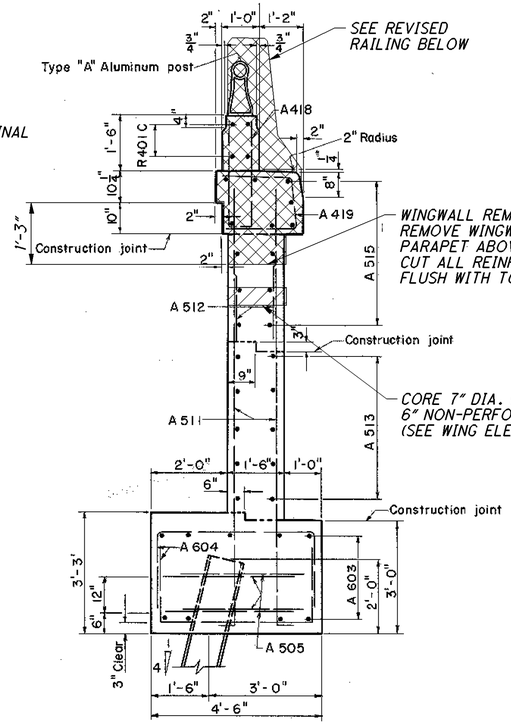


WING A ELEVATION



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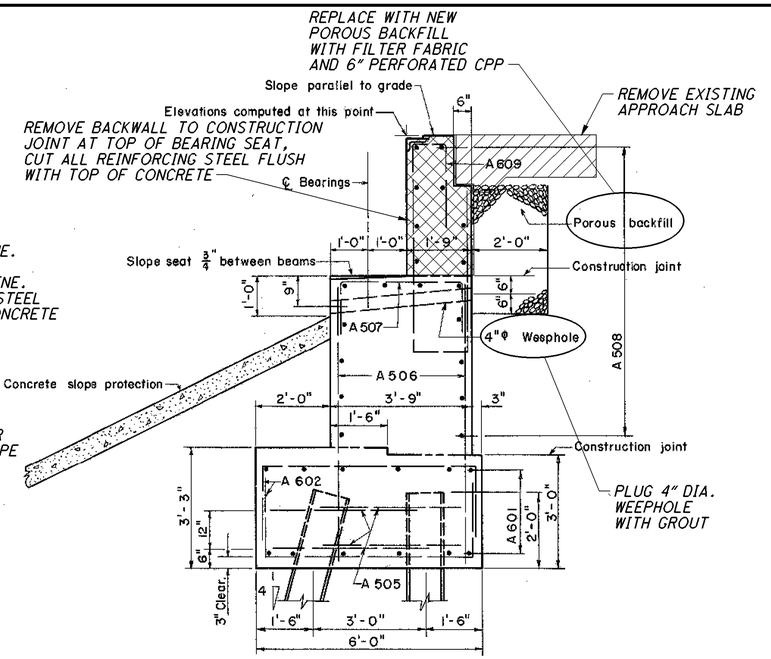
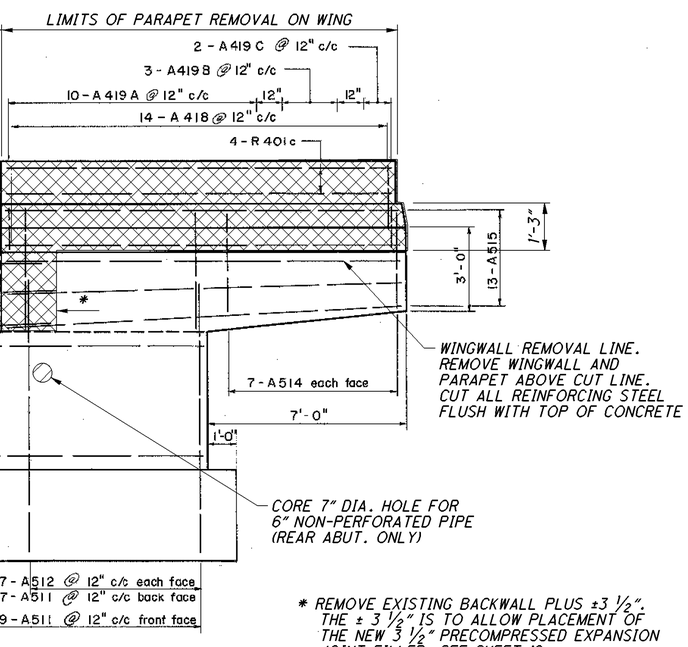


TYPICAL ABUTMENT SECTION

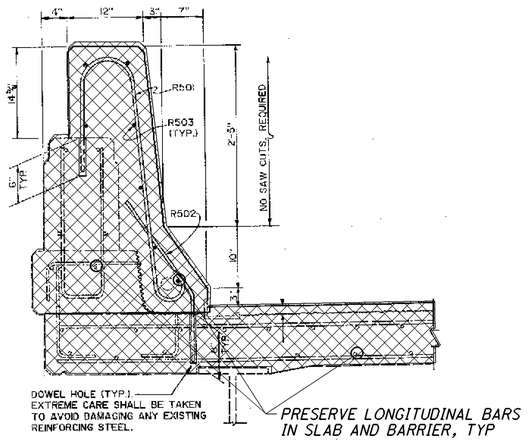


WING B ELEVATION

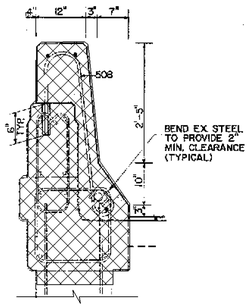
* REMOVE EXISTING BACKWALL PLUS ±3 ½". THE ± 3 ½" IS TO ALLOW PLACEMENT OF THE NEW 3 ½" PRECOMPRESSED EXPANSION JOINT FILLER. SEE SHEET 12.

NOTE:

1. SEE SHEET 9/18 FOR LENGTH OF PARAPET REMOVAL ON DECK.



PARAPET ON DECK REMOVAL DETAIL



PARAPET ON WINGWALL REMOVAL DETAIL

ITEM 202 - APPROACH SLAB REMOVED, AS PER PLAN

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301560	

REMOVAL DETAILS (3 OF 4)
BRIDGE NO. LAK-2-1553L
S.R. 2 OVER STATE STREET

LAK-2-14.38
PID No. 87924

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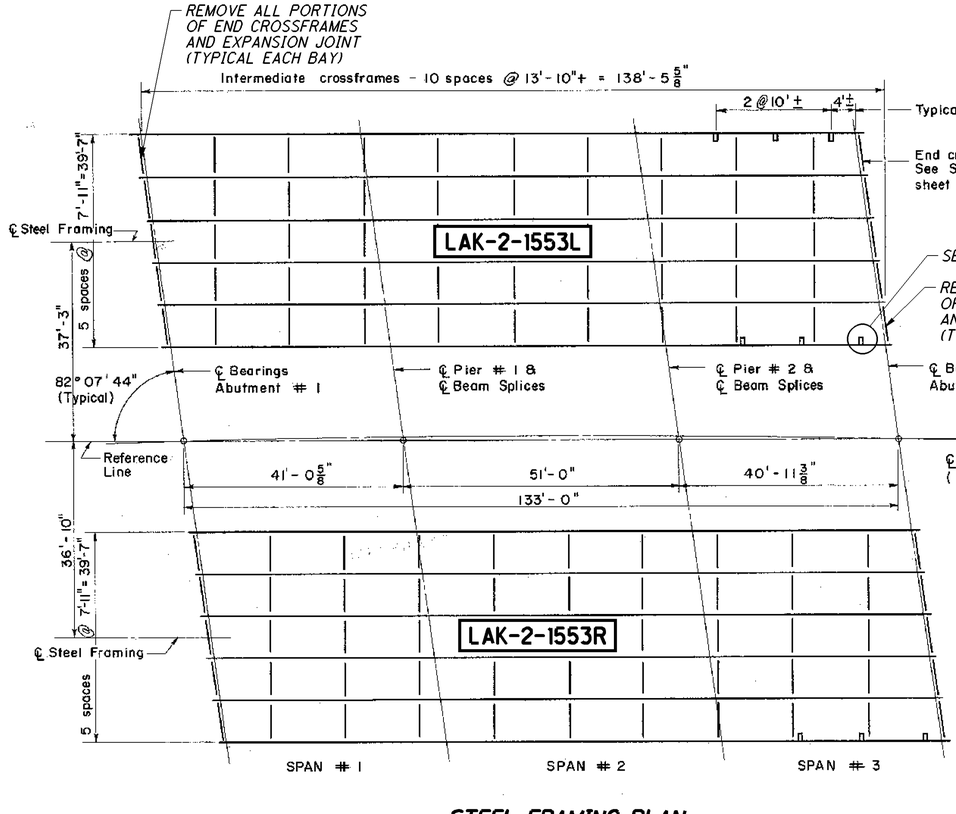
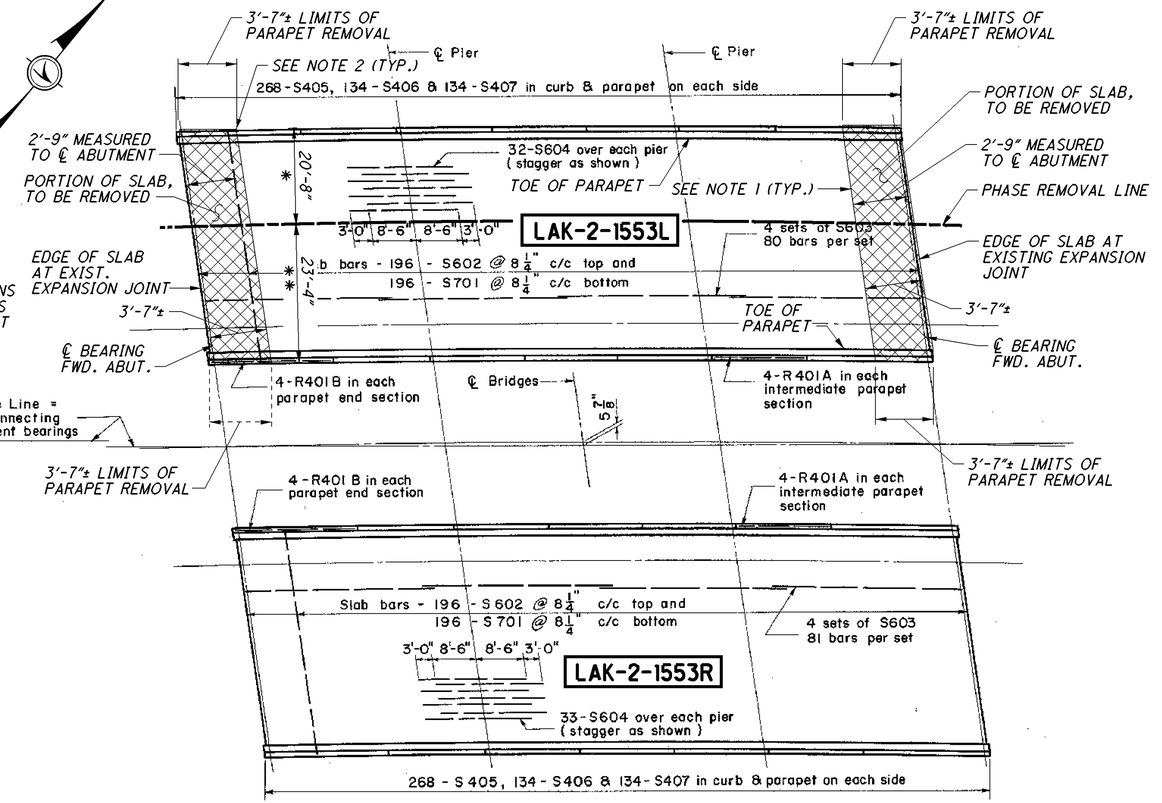
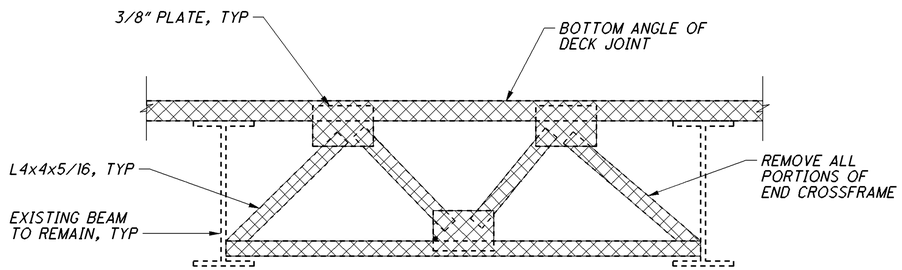


STEEL FRAMING PLAN



DECK PLAN



END CROSSFRAME REMOVAL DETAIL

TYPICAL END CROSSFRAME

LEGEND:

* = PHASE 1 REMOVAL
** = PHASE 2 REMOVAL

NOTES:

1. REMOVAL LINE IS LOCATED PARALLEL TO ℄ BEARINGS. PRESERVE ALL DECK REINFORCING STEEL THAT REMAINS EMBEDDED IN THE DECK.
2. REMOVAL LINE AT TOE OF PARAPET IS LOCATED PARALLEL TO ℄ BEARINGS. PRESERVE ALL LONGITUDINAL PARAPET REINFORCEMENT.
3. EXISTING SCUPPER IS LOCATED NEAR THE DECK REMOVAL LIMITS. CARE SHALL BE TAKEN TO PRESERVE EXISTING SCUPPER.

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
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CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301560	

REMOVAL DETAILS (4 OF 4)
BRIDGE NO. LAK-2-1553L
S.R. 2 OVER STATE STREET

LAK-2-14.38
PID No. 87924

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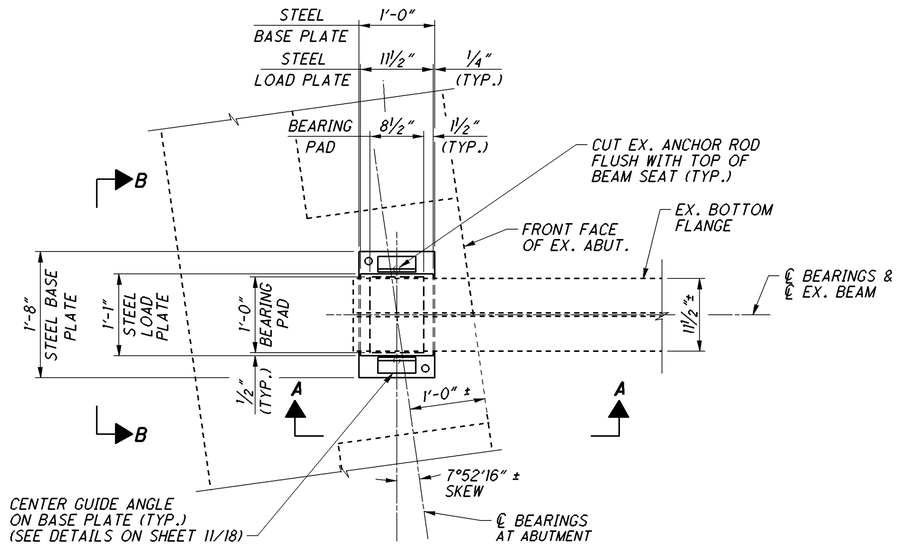
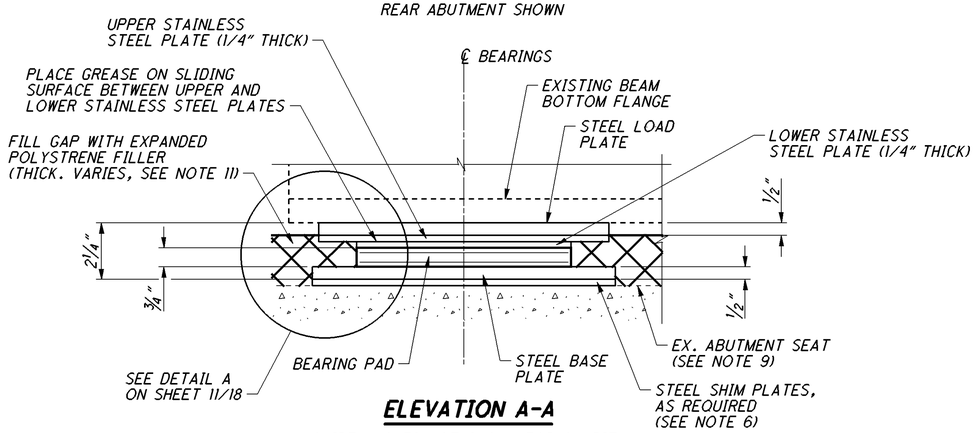


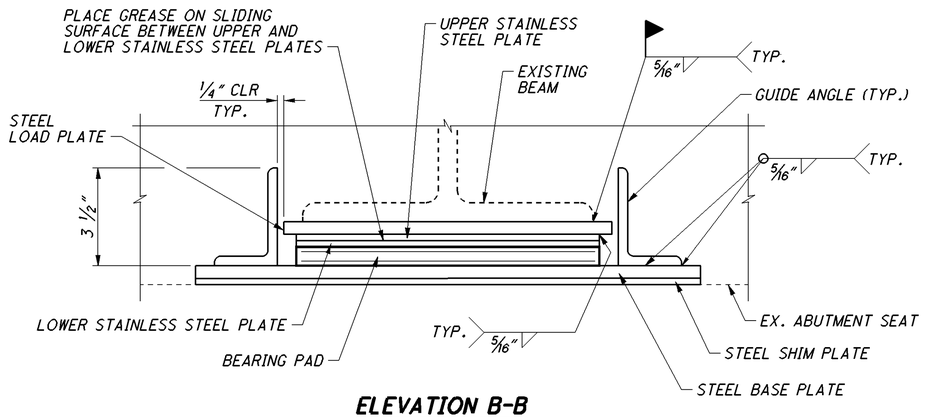
PLAN

REAR ABUTMENT SHOWN



ELEVATION A-A

GUIDE ANGLES NOT SHOWN FOR CLARITY



ELEVATION B-B

LAMINATED ELASTOMERIC EXPANSION BEARING DETAILS

REAR ABUTMENT SHOWN, FORWARD ABUTMENT SIMILAR BUT OPPOSITE HAND

NOTES:

1. STEEL LOAD PLATE, BASE PLATE, SHIM PLATES, GUIDE ANGLES AND SQUARE PLATE WASHERS SHALL MEET THE GRADE 50W REQUIREMENTS OF STRUCTURAL STEEL ASTM A709.
2. STAINLESS STEEL PLATES SHALL BE ASTM 240, TYPE 304 WITH A 2B FINISH PER ASTM A480.
3. THE STEEL BASE PLATE AND LOWER STAINLESS STEEL PLATE SHALL BE BONDED BY VULCANIZATION TO THE ELASTOMER DURING THE MOLDING PROCESS.
4. THE SHIM PLATES, BASE PLATE, LOAD PLATE, AND GUIDE ANGLES SHALL BE GALVANIZED AND PAINTED. PAINT COLOR SHALL MATCH EXISTING BEAM COLOR, SUBJECT TO APPROVAL OF THE ENGINEER. PAINT IS TO BE INCLUDED WITH ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) AS PER PLAN FOR PAYMENT.
5. WELDING: CONTROL WELDING SO THAT THE PLATE TEMPERATURE AT THE ELASTOMER BONDED SURFACE DOES NOT EXCEED 300°F AS DETERMINED BY THE USE OF PYROMETRIC STICKS OR OTHER TEMPERATURE MONITORING DEVICES.
6. THE MINIMUM NUMBER OF SHIM PLATES TO BE PROVIDED IS TWO ⅛" ADJUSTING SHIMS AND TWO ¼" ADJUSTING SHIMS FOR EACH BEARING. FOUR ADDITIONAL ½" ADJUSTING SHIMS SHALL ALSO BE PROVIDED FOR THIS BRIDGE. ADJUSTING SHIMS ARE TO BE PLACED ON THE CONCRETE BEARING SURFACE DIRECTLY BELOW THE ½" STEEL BASE PLATE. THE ADJUSTING SHIMS ARE TO BE USED AT LOCATIONS WHERE THE DISTANCE BETWEEN THE BOTTOM OF THE BOTTOM FLANGE OF THE BEAM AND THE CONCRETE BEARING SURFACE IS GREATER THAN THE 2¼" BEARING THICKNESS. ADDITIONAL SHIM PLATES SHALL BE PROVIDED IF REQUIRED BY FIELD MEASUREMENTS.
7. LUBRICATE THE INTERFACE BETWEEN THE UPPER AND LOWER STAINLESS STEEL PLATES WITH A LAYER OF GREASE A MINIMUM OF ⅛" THICK. THE GREASE SHALL MEET THE REQUIREMENTS OF NLGI GRADE 2 GC-LB.
8. BASIS OF PAYMENT: THE UNIT BID PRICE SHALL INCLUDE ALL MATERIALS, LABOR, AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL LAMINATED ELASTOMERIC BEARINGS, STEEL PLATES, ANGLES, AND ANCHOR BOLTS AS DETAILED. PAYMENT WILL BE MADE AT THE CONTRACT PRICE FOR ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN.

   REAR & FORWARD ABUTMENTS (ALL BEAMS):

   BEARING PAD: 8½" x ¾" x 1'-0"
   LOAD PLATE: 11½" x ½" x 1'-1"
   BASE PLATE: 1'-0" x ½" x 1'-8"
   UPPER STAINLESS STEEL PLATE: 11½" x ¼" x 1'-0"
   LOWER STAINLESS STEEL PLATE: 8½" x ¼" x 1'-0"
   SHIM PLATES: SEE NOTE 6
   GUIDE ANGLES: L 3 ½" x 2 ½" x ⅜" x 6" LONG
   PLATE WASHERS: 4" x ½" x 4"

9. PRIOR TO INSTALLING THE STEEL BASE PLATE, CLEAN THE TOP SURFACE OF THE ABUTMENT SEAT. IF CONCRETE SPALLING IS PRESENT UNDER BASE PLATE, PATCH CONCRETE PRIOR TO PLACEMENT OF THE BASE PLATE. PATCH CONCRETE ACCORDING TO SUPPLEMENTAL SPECIFICATION 843. CLEANING AND PATCHING CONCRETE TO BE INCLUDED WITH ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) AS PER PLAN FOR PAYMENT.
10. THE EXISTING BEAMS CAN BE JACKED A MAXIMUM OF ¼" TO REMOVE AND REPLACE BEARINGS.
11. EXPANDED POLYSTRENE FILLER IS INCLUDED WITH ITEM 511, HP CONCRETE, SUPERSTRUCTURE, AS PER PLAN FOR PAYMENT.
12. REFER TO RETIRED ODOT STD. DWG. CSB-2-56, REVISED 2-2-59, FOR DETAILS OF EXISTING BEARINGS TO BE REPLACED.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

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BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301560	

BEARING DETAILS (1 OF 2)
BRIDGE NO. LAK-2-1553L
S.R. 2 OVER STATE STREET

LAK-2-14.38
PID No. 87924

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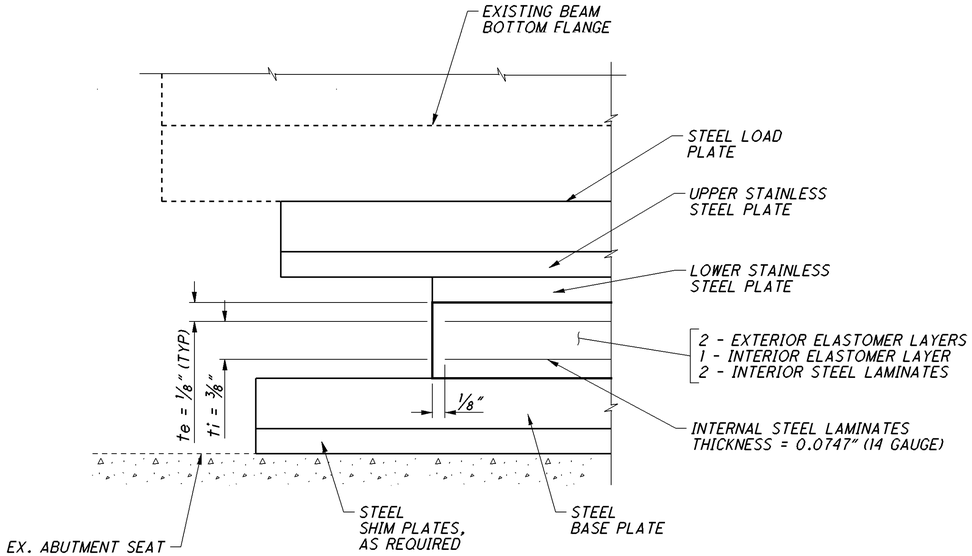
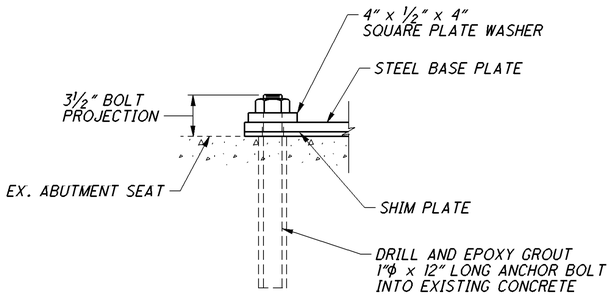
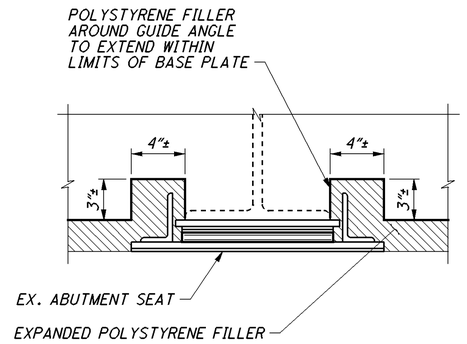


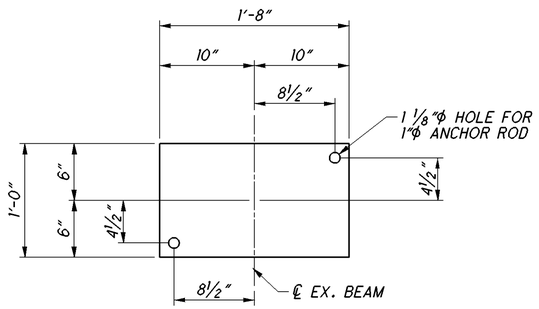
DETAIL A



ANCHOR BOLT DETAIL



GUIDE ANGLE BLOCKOUT DETAIL



PLAN OF BASE PLATE

SHIM PLATE SIMILAR

NOTES:

1. FIELD DRILL ANCHOR BOLT HOLES, INSTALL ANCHOR BOLTS AND PLACE EPOXY GROUT AFTER THE PLACEMENT OF THE BEARING ASSEMBLY. POSITION AND TIGHTEN THE BASE PLATE. INSTALL A BLOCK OF POLYSTRENE FILLER MATERIAL OVER THE TOP OF THE GUIDE ANGLES AND ANCHOR BOLTS BEFORE THE CONCRETE PLACEMENT FOR ABUTMENT DIAPHRAGM.
2. ANCHOR BOLTS AND NUTS SHALL BE ASTM A325. NUTS AND SQUARE PLATE WASHERS SHALL BE GALVANIZED ACCORDING TO 711.02. THE THREAD LENGTH REQUIREMENTS OF ASTM A325 MAY BE WAIVED. THE GROUT SHALL BE NON-SHRINK, EPOXY GROUT MEETING THE REQUIREMETNS OF 705.20.

LEGEND:

te = THICKNESS OF EXTERNAL ELASTOMER LAYER

ti = THICKNESS OF INTERNAL ELASTOMER LAYER

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DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
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CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301560	

BEARING DETAILS (2 OF 2)
BRIDGE NO. LAK-2-1553L
S.R. 2 OVER STATE STREET

LAK-2-14.38
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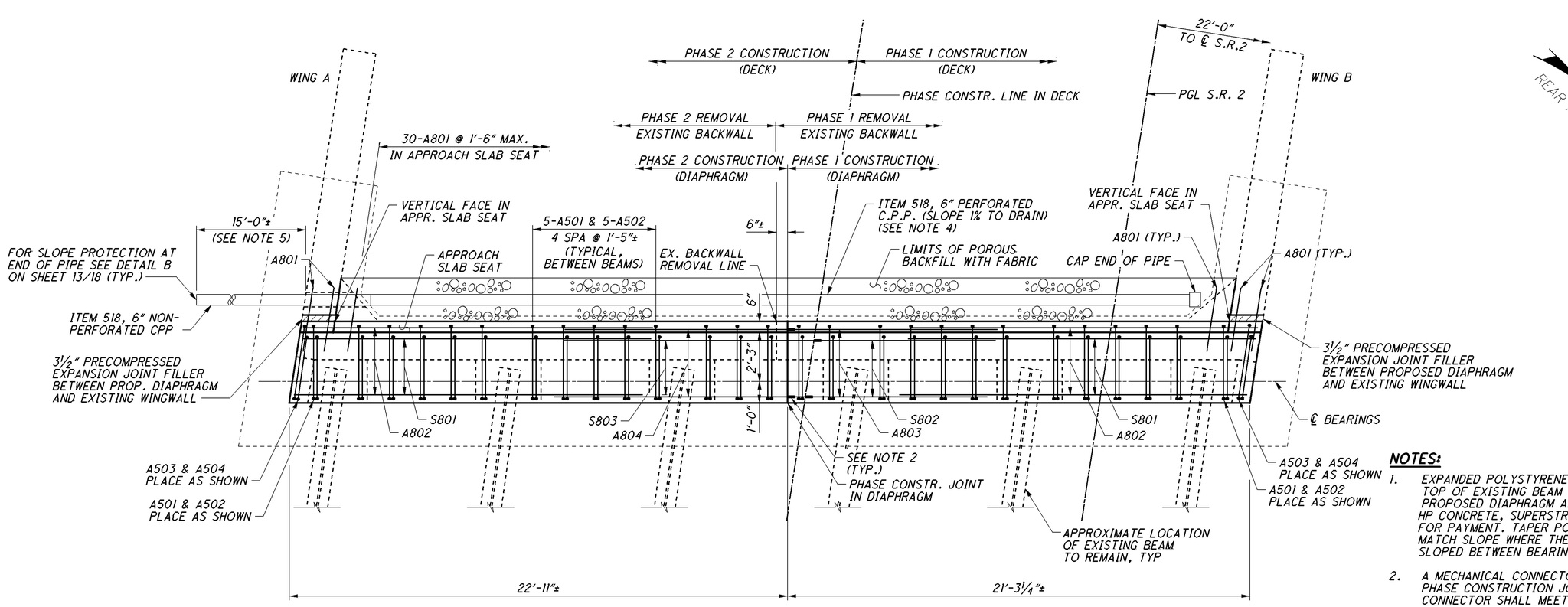
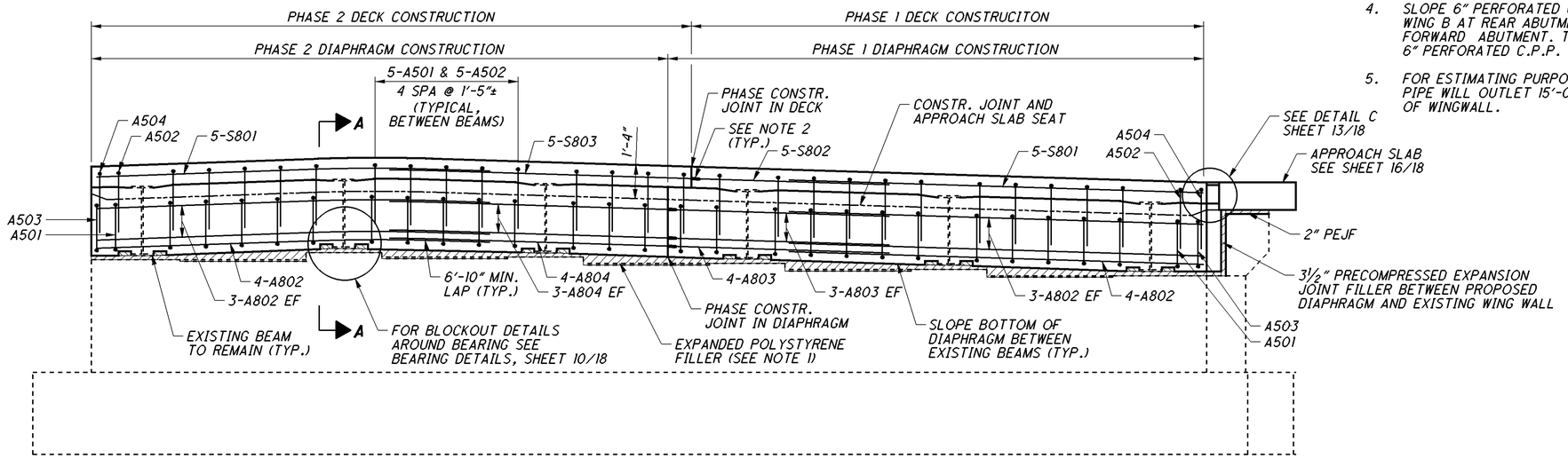


PLAN

FORWARD ABUTMENT SHOWN, REAR ABUTMENT SIMILAR (SEE NOTE 3)



ELEVATION

FORWARD ABUTMENT SHOWN, REAR ABUTMENT SIMILAR (SEE NOTE 3)
SEE SHEET 13 FOR SECTION A-A

NOTES:

1. EXPANDED POLYSTYRENE FILLER BETWEEN TOP OF EXISTING BEAM SEAT AND BOTTOM OF PROPOSED DIAPHRAGM AND INCLUDED WITH ITEM 511, HP CONCRETE, SUPERSTRUCTURE AS PER PLAN FOR PAYMENT. TAPER POLYSTYRENE FILLER TO MATCH SLOPE WHERE THE EXISTING BEAM SEAT IS SLOPED BETWEEN BEARING SEAT.
2. A MECHANICAL CONNECTOR SHALL BE USED AT THE PHASE CONSTRUCTION JOINT. THE MECHANICAL CONNECTOR SHALL MEET THE REQUIREMENTS OF 509.07. REINFORCING BAR LENGTHS ARE DETAILED TO THE FACE OF JOINT.
3. DETAILS SHOWN IN THE PLAN AND ELEVATION ARE FOR THE FORWARD ABUTMENT. PHASE CONSTRUCTION LINES FOR REAR ABUTMENT ARE OPPOSITE HAND. PHASE 1 AND PHASE 2 REINFORCEMENT AT PHASE CONSTRUCTION JOINT ARE OPPOSITE HAND FOR REAR ABUTMENT.
4. SLOPE 6" PERFORATED C.P.P. TO OUTLET TOWARDS WING B AT REAR ABUTMENT AND TOWARDS WING A AT FORWARD ABUTMENT. THE NON-OUTLET END OF THE 6" PERFORATED C.P.P. SHALL BE CAPPED.
5. FOR ESTIMATING PURPOSES, IT IS ASSUMED THAT THE PIPE WILL OUTLET 15'-0" BEYOND THE OUTSIDE FACE OF WINGWALL.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
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ABUTMENT PLAN AND ELEVATION

BRIDGE NO. LAK-2-1553L
S.R. 2 OVER STATE STREET

LAK-2-14.38
PID No. 87924

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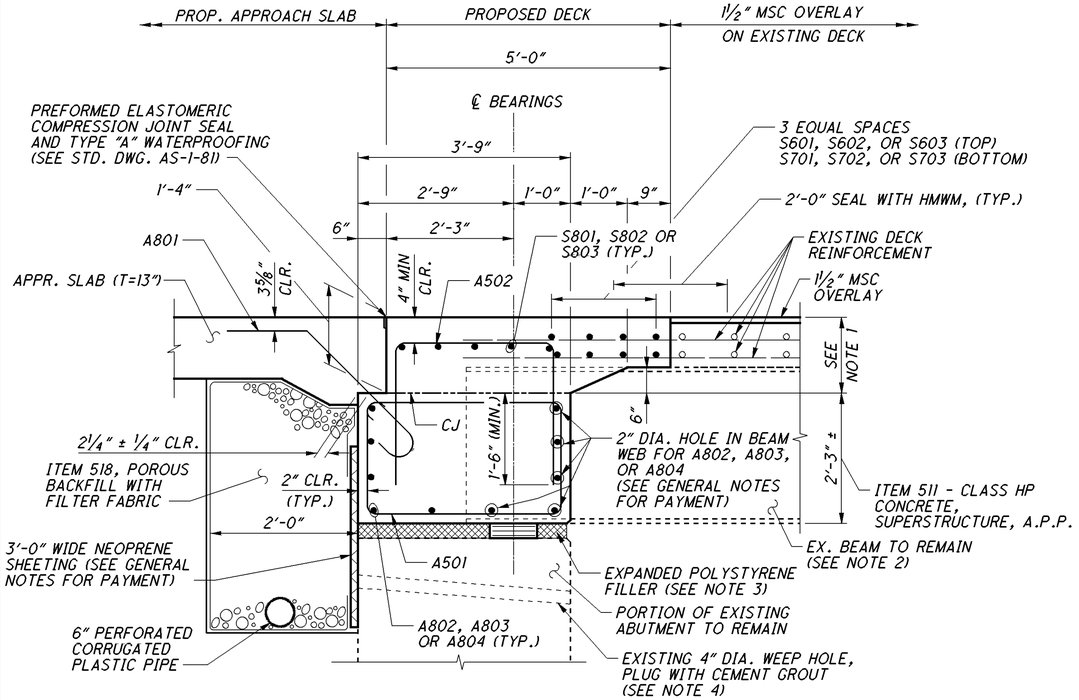
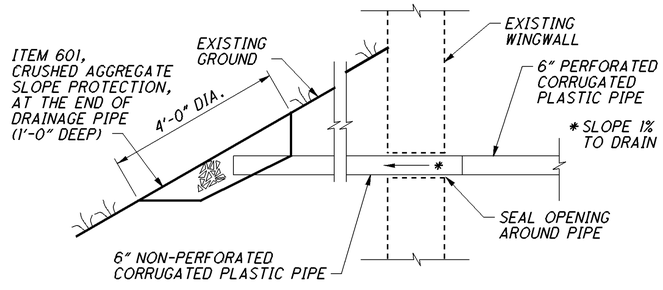


SECTION A-A

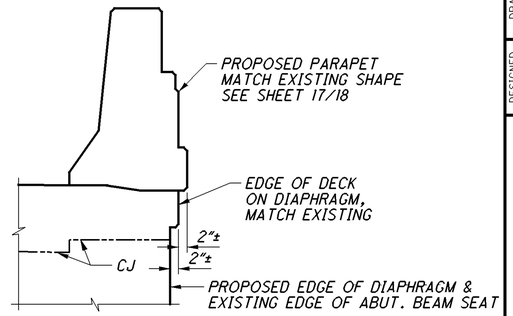
DIMENSIONS SHOWN NORMAL TO ABUTMENTS



DETAIL E

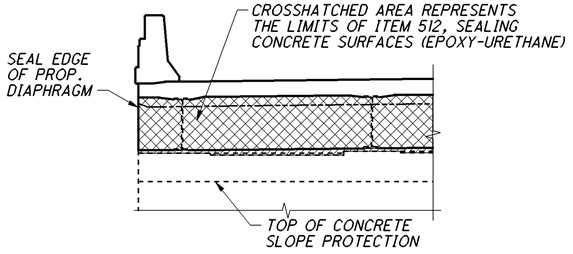
SLOPE PROTECTION DETAIL

TYPICAL EACH DRAIN OUTLET LOCATION



DETAIL C

DIAPHRAGM EDGE DETAIL



ABUTMENT SEALING LIMITS

TYPICAL, EACH ABUTMENT DIAPHRAGM

NOTES:

1. CONCRETE FOR DECK SHALL BE ITEM 511 - CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN.
2. CLEAN AND PAINT ENDS OF EXISTING BEAM FOR A DISTANCE OF 5'-0". PAINT EXISTING BEAMS IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 514. CLEAN AND PAINT ANY EXISTING SCUPPERS AND INTERMEDIATE DIAPHRAGMS WITHIN THESE LIMITS.
3. PLACE EXPANDED POLYSTYRENE FILLER BETWEEN TOP OF EXISTING BEAM SEAT AND BOTTOM OF PROPOSED DIAPHRAGM. TAPER POLYSTYRENE FILLER TO MATCH SLOPE WHERE THE EXISTING BEAM SEAT IS SLOPED BETWEEN BEARING SEAT.
4. CEMENT GROUT SHALL CONSIST OF ONE PART HYDRAULIC CEMENT CONFORMING TO ITEM 701 AND THREE PARTS SAND CONFORMING TO 703.03, BY VOLUME, AND WATER. PAYMENT FOR CEMENT GROUT SHALL BE INCLUDED WITH ITEM 202, PORTIONS OF STRUCTURE REMOVED, AS PER PLAN.
5. SEE SHEET 12 FOR LOCATION OF SECTION A-A.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

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CHECKED JTC | REVISED | STRUCTURE FILE NUMBER 4301560

ABUTMENT DETAILS
BRIDGE NO. LAK-2-1553L
S.R. 2 OVER STATE STREET

LAK-2-14.38
PID No. 87924

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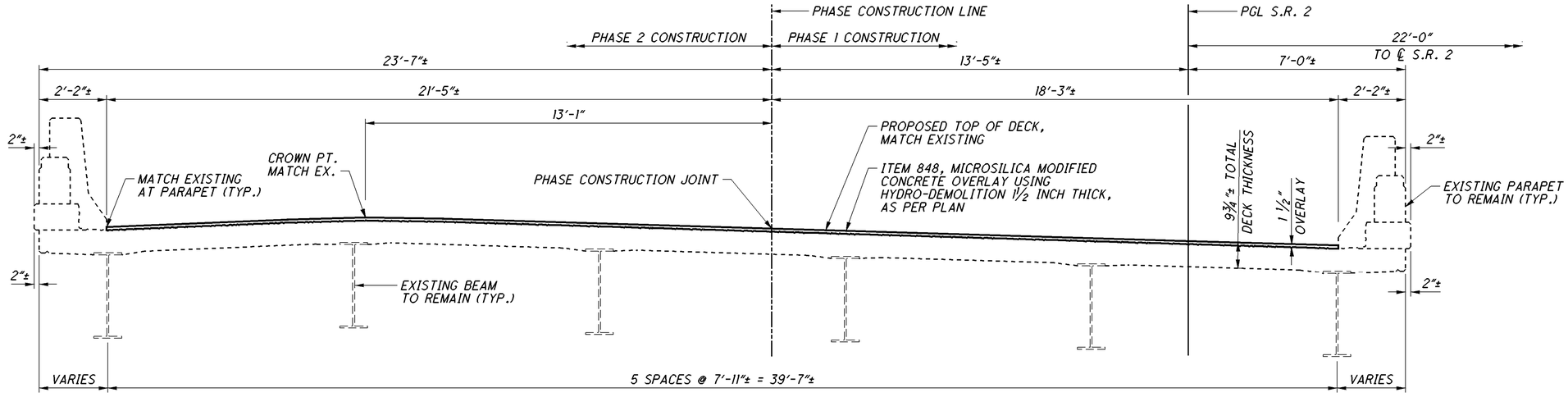
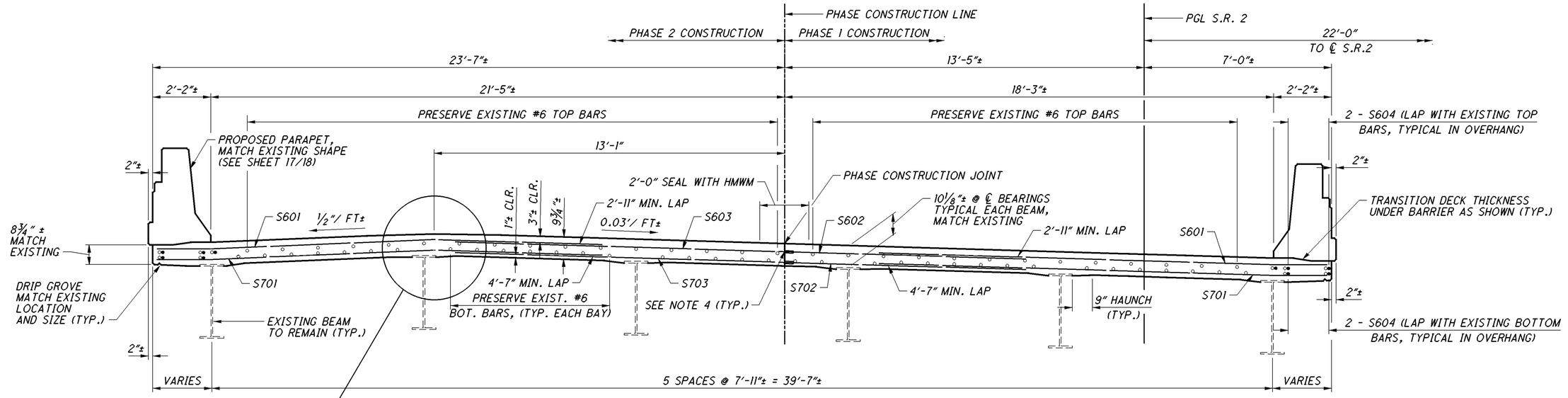


TRANSVERSE SECTION IN SPAN



TRANSVERSE SECTION AT ABUTMENTS

NOTES:

1. TRANSVERSE DIMENSIONS SHOWN ARE APPROXIMATE. IT MAY BE NECESSARY TO VARY THESE DIMENSIONS TO MEET THE PROPOSED APPROACH SLAB AND THE EXISTING DECK.
2. THE ESTIMATED QUANTITY OF DECK SLAB CONCRETE IS BASED ON THE CONSTANT DECK SLAB THICKNESS, AS SHOWN, PLUS THE QUANTITY OF CONCRETE THAT FORMS EACH BEAM HAUNCH. THE ESTIMATE ASSUMES A CONSTANT HAUNCH THICKNESS OF 1¼" INCHES AND A CONSTANT HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM FLANGE OF 9 INCHES. DEVIATE FROM THIS HAUNCH THICKNESS AS NECESSARY TO PLACE THE DECK SURFACE AT THE FINISHED GRADE. THE ALLOWABLE TOLERANCE FOR THE HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM FLANGE IS ±3 INCHES.
3. THE HAUNCH THICKNESS WAS MEASURED AT THE CENTERLINE OF THE BEAM, FROM THE SURFACE OF THE DECK TO THE BOTTOM OF THE TOP FLANGE MINUS THE DECK SLAB THICKNESS. THE AREA OF ALL EMBEDDED STEEL PLATES HAS BEEN DEDUCTED FROM THE HAUNCH QUANTITY IN ACCORDANCE WITH 511.24.
4. A MECHANICAL CONNECTOR SHALL BE USED AT THE PHASE CONSTRUCTION JOINT. THE MECHANICAL CONNECTOR SHALL MEET THE REQUIREMENTS OF 509.07. REINFORCING BAR LENGTHS ARE DETAILED TO THE FACE OF JOINT.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301560	

TRANSVERSE SECTION
BRIDGE NO. LAK-2-1553L
S.R. 2 OVER STATE STREET

LAK-2-14.38
PID No. 87924

14 / 18

186
208

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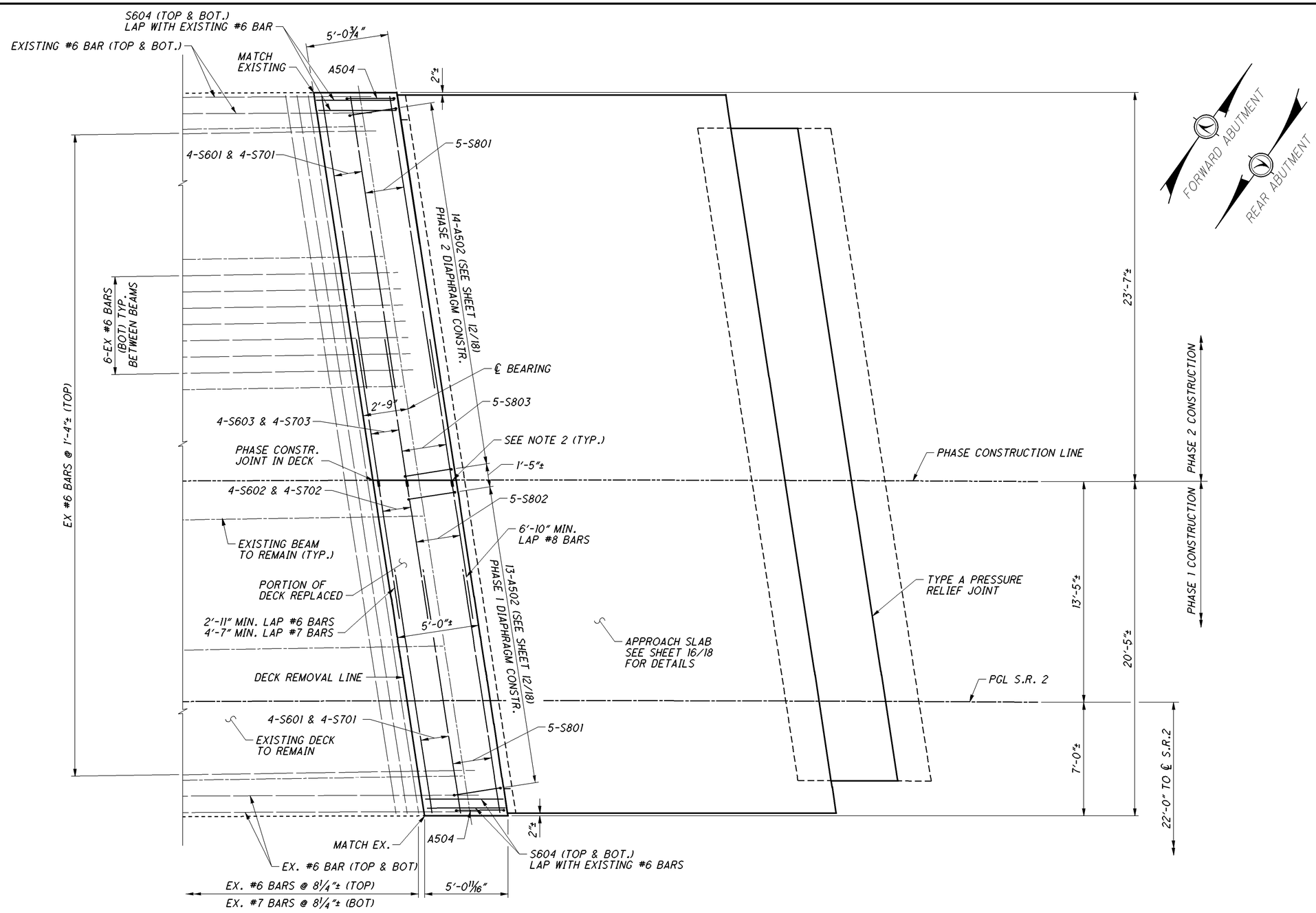

PARTIAL DECK PLAN

SHOWN AT FORWARD ABUTMENT, REAR ABUTMENT SIMILAR
PARAPET NOT SHOWN FOR CLARITY
FOR SECTION THRU ABUTMENT DIAPHRAGM, SEE SHEET 13/18

NOTES:

1. PRESERVE ALL EXISTING REINFORCEMENT THAT IS IN PORTIONS OF THE SUPERSTRUCTURE TO REMAIN.
2. A MECHANICAL CONNECTOR SHALL BE USED AT THE PHASE CONSTRUCTION JOINT. THE MECHANICAL CONNECTOR SHALL MEET THE REQUIREMENTS OF 509.07. REINFORCING BAR LENGTHS ARE DETAILED TO THE FACE OF JOINT.
3. FOR PRESSURE RELIEF JOINT DETAILS, SEE STANDARD DRAWING BP-2.3.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
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DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
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JTC		4301560	

PARTIAL DECK PLAN
BRIDGE NO. LAK-2-1553L
S.R. 2 OVER STATE STREET

LAK-2-14.38
PID No. 87924

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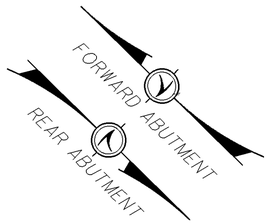
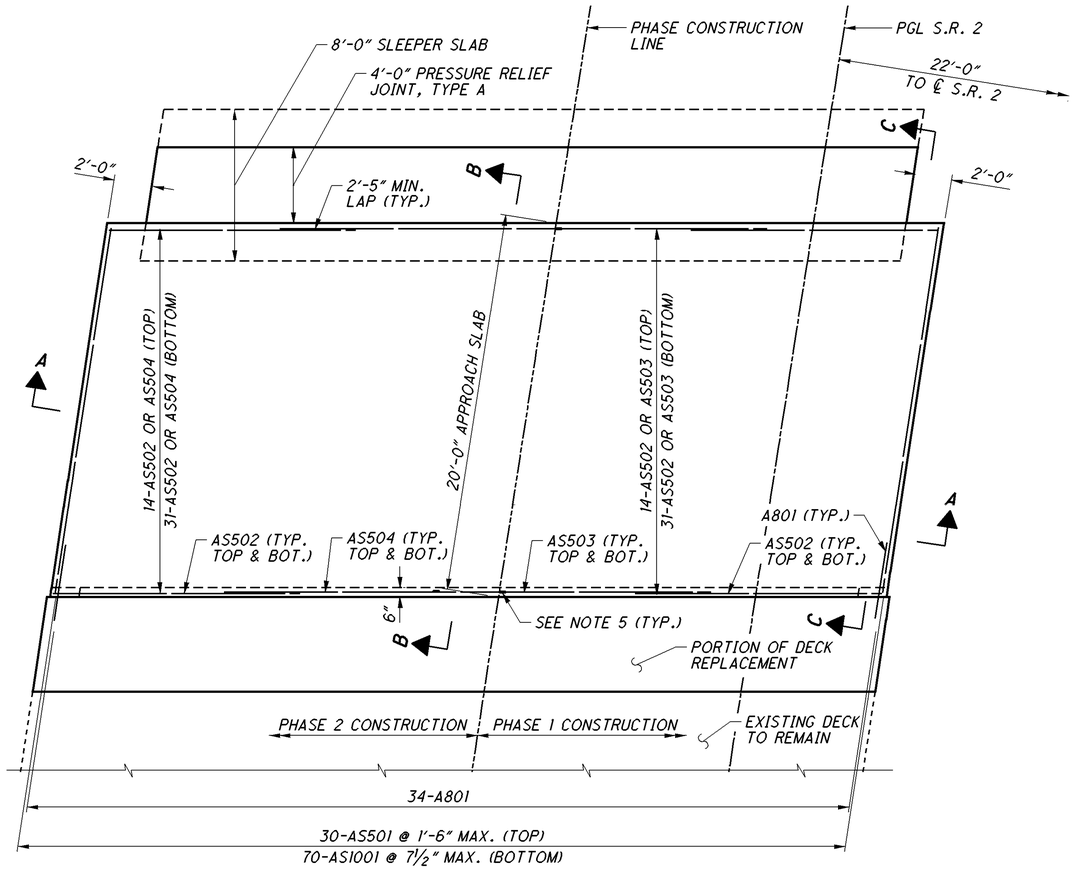
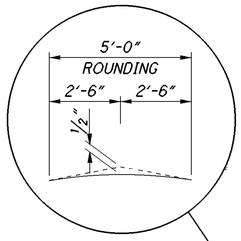
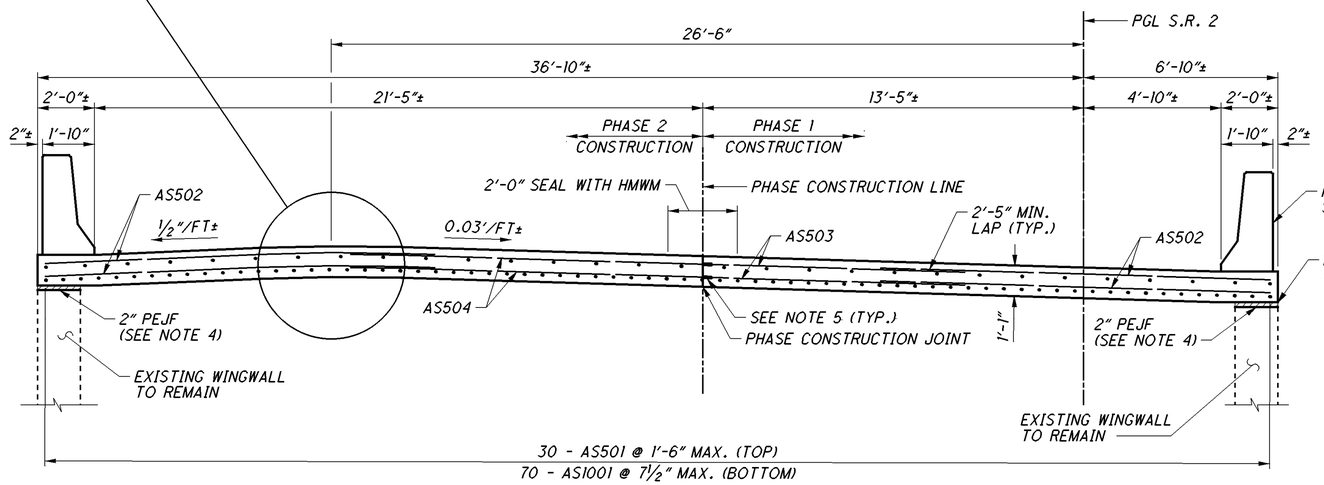




PLAN

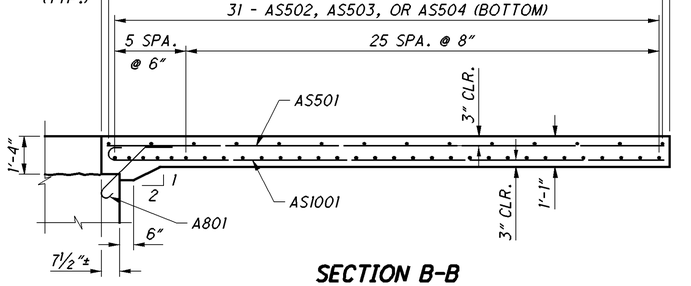
(FORWARD APPROACH SHOWN, REAR APPROACH SIMILAR)
EXISTING AND PROPOSED PARAPET NOT SHOWN FOR CLARITY



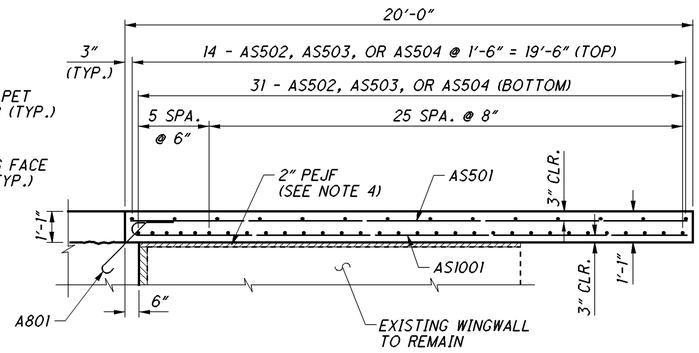


SECTION A-A

(LOOKING AHEAD STATION)



SECTION B-B



SECTION C-C

NOTES:

1. SEE STANDARD DRAWING AS-1-81 FOR ADDITIONAL DETAILS.
2. AS502, AS503, AS504 BARS SHALL BE PLACED PARALLEL TO THE ABUTMENT AND AS501, AS1001 BARS SHALL BE PLACED PLACED PARALLEL TO PGL S.R. 2.
3. FOR DETAILS OF PARAPET ON APPROACH SLAB, SEE SHEET 17/18.
4. THE FOLLOWING SHALL BE INCLUDED IN THE UNIT BID PRICE PER SQUARE YARD FOR ITEM 526, REINFORCED CONCRETE APPROACH SLABS (T=13"), AS PER PLAN:
   - CONCRETE FOR APPROACH SLAB
   - ALL ASSOCIATED REINFORCING STEEL
   - ALL PREFORMED EXPANSION JOINT FILLERS AND JOINT SEALERS
   - WATERPROOFING
   - CONCRETE SEALING OF PARAPET ON APPROACH SLAB
5. A MECHANICAL CONNECTOR SHALL BE USED AT THE PHASE CONSTRUCTION JOINT. THE MECHANICAL CONNECTOR SHALL MEET THE REQUIREMENTS OF 509.07. REINFORCING BAR LENGTHS ARE DETAILED TO THE FACE OF JOINT.
6. PRESSURE RELIEF JOINT, TYPE A AND SLEEPER SLAB SHALL BE INCLUDED IN THE UNIT BID PRICE PER FOOT FOR ITEM SPECIAL, PRESSURE RELIEF JOINT, TYPE A. FOR PRESSURE RELIEF JOINT DETAILS, SEE STANDARD DRAWING BP-2.3.

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CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301560	

APPROACH SLAB PLAN AND DETAILS
BRIDGE NO. LAK-2-1553L
S.R. 2 OVER STATE STREET

LAK-2-14.38
PID No. 87924

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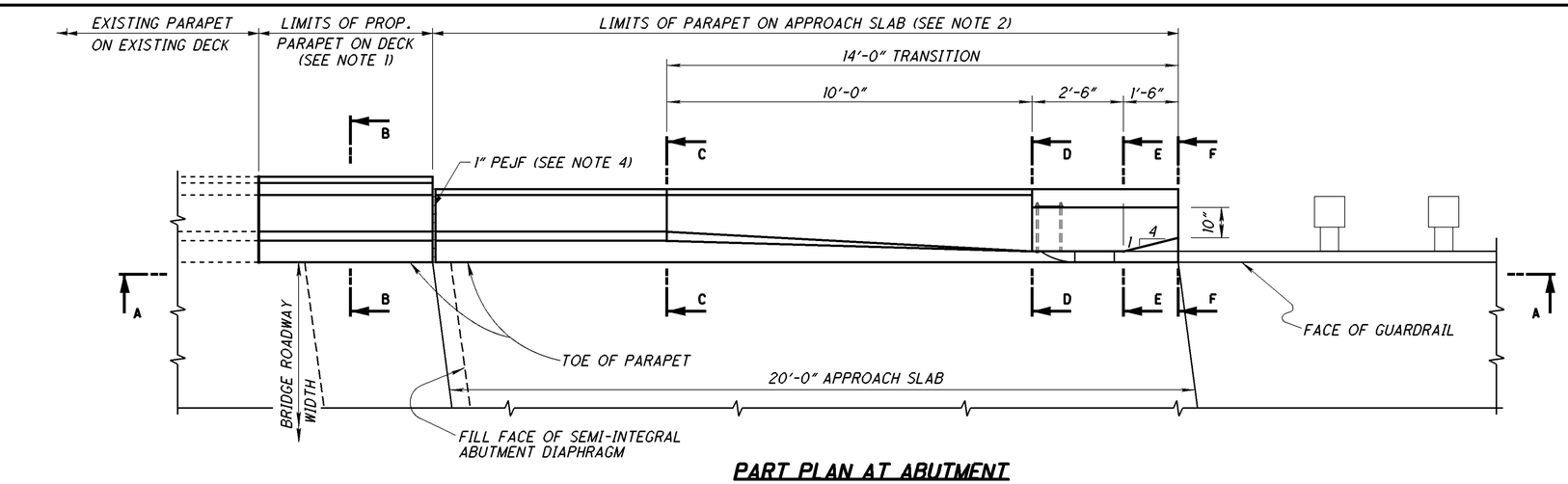
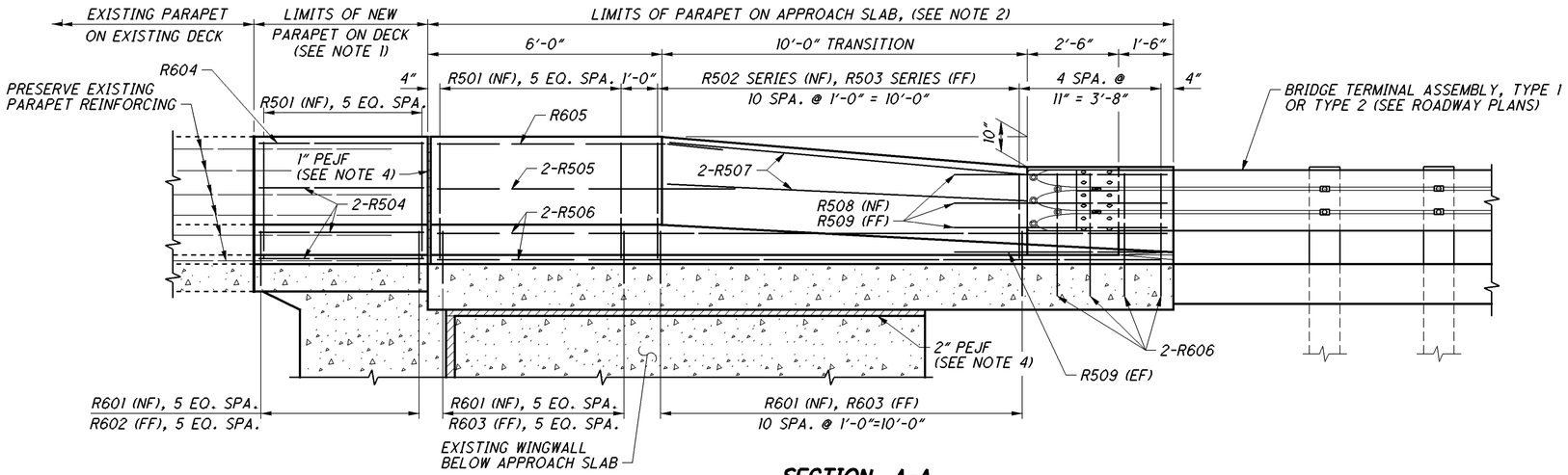


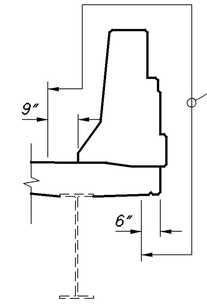
PART PLAN AT ABUTMENT



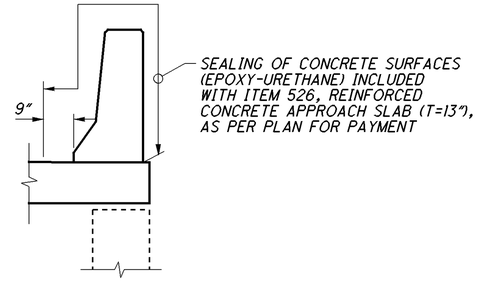
SECTION A-A

NOTES:

1. PARAPET CONCRETE INCLUDED WITH ITEM 511, CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN FOR PAYMENT. PARAPET REINFORCING INCLUDED WITH ITEM 509, EPOXY COATED REINFORCING STEEL, AS PER PLAN.
2. PARAPET CONCRETE AND REINFORCING INCLUDED WITH ITEM 526, REINFORCED CONCRETE APPROACH SLABS (T=13"), AS PER PLAN FOR PAYMENT.
3. FOR PARAPET REINFORCING LIST, SEE SHEET 18/18.
4. PREFORMED EXPANSION JOINT FILLERS INCLUDED WITH ITEM 526, REINFORCED CONCRETE APPROACH SLABS (T=13") AS PER PLAN FOR PAYMENT.

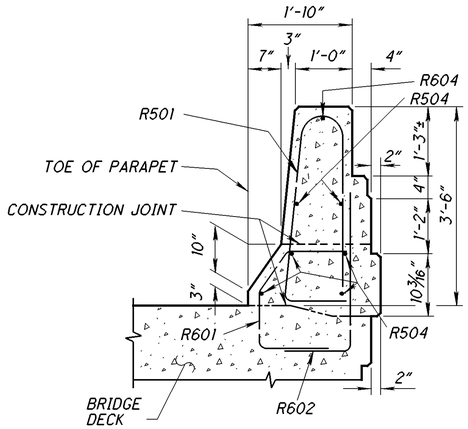


PARAPET ON DECK



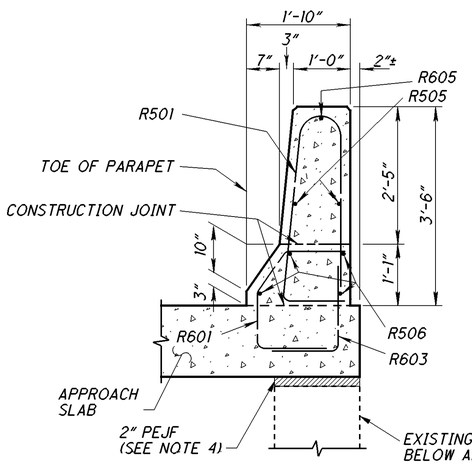
PARAPET ON APPROACH SLAB

CONCRETE SEALING DETAILS

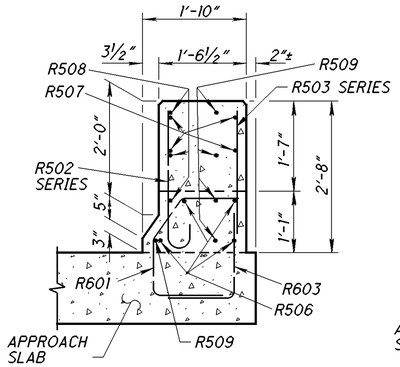


SECTION B-B

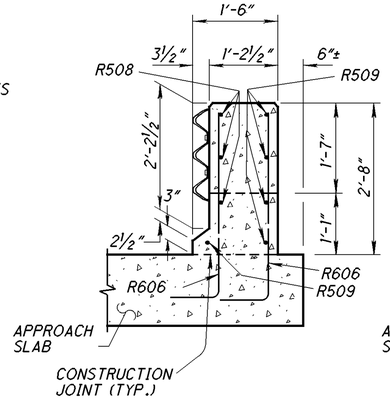
MATCH EXISTING PARAPET SHAPE
FIELD BEND BARS IF NECESSARY



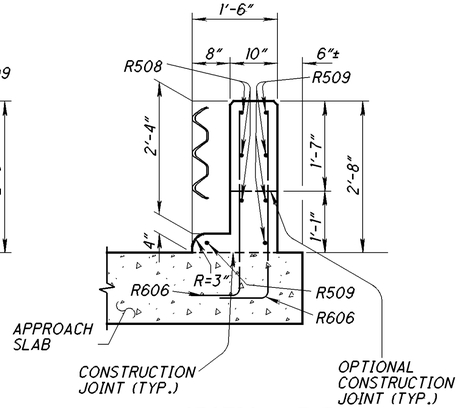
SECTION C-C



SECTION D-D



SECTION E-E



SECTION F-F

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301560	

PARAPET DETAILS
BRIDGE NO. LAK-2-1553L
S.R. 2 OVER STATE STREET

LAK-2-14.38
PID No. 87924

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SUPERSTRUCTURE - ABUTMENT DIAPHRAGM

MARK	QUANTITY REAR ABUT.	QUANTITY FWD. ABUT.	QUANTITY TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
A501	27	27	54	11'-3"	634	3	3'-5"	1'-11"					
A502	27	27	54	7'-8"	432	2	2'-6"	2'-11"	2'-6"				
A503	2	2	4	11'-3"	47	3	3'-5"	1'-11"					
A504	2	2	4	7'-8"	32	2	2'-6"	2'-11"	2'-6"				
A801	34	34	68	4'-9"	863	18	2'-5"	1'-0"	1'-0"				
A802	20	20	40	17'-5"	1861	STR							
A803	10	10	20	10'-6"	561	35							
A804	10	10	20	12'-5"	664	36							
				SUB-TOTAL	5094								

SUPERSTRUCTURE - DECK

MARK	QUANTITY REAR ABUT.	QUANTITY FWD. ABUT.	QUANTITY TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
S601	8	8	16	15'-6"	373	STR							
S602	4	4	8	7'-11"	96	35							
S603	4	4	8	11'-1"	134	36							
S604	8	8	16	4'-8"	113	STR							
S701	8	8	16	16'-4"	535	STR							
S702	4	4	8	8'-9"	144	35							
S703	4	4	8	11'-11"	195	36							
S801	10	10	20	17'-6"	935	STR							
S802	5	5	10	9'-10"	263	35							
S803	5	5	10	13'-0"	348	36							
				SUB-TOTAL	3136								

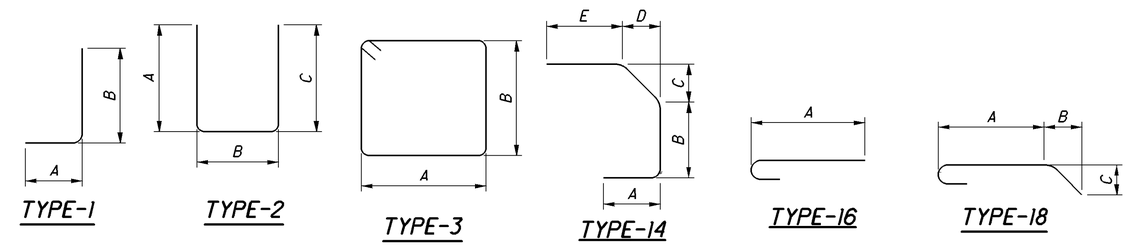
SUPERSTRUCTURE - PARAPET

MARK	QUANTITY REAR ABUT.	QUANTITY FWD. ABUT.	QUANTITY TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
R501	12	12	24	7'-6"	188	23	1'-0"	3'-3"	3'-0"			3¾"	
R504	12	12	24	4'-8"	117	STR							
R601	12	12	24	3'-4"	121	14	1'-2½"	8"	8½"	6"	11"		
R602	12	12	24	3'-4"	121	1	11"	2'-7"					
R604	2	2	4	4'-8"	29	STR							
				SUB-TOTAL	576								

APPROACH SLAB*

MARK	QUANTITY REAR ABUT.	QUANTITY FWD. ABUT.	QUANTITY TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
AS501	30	30	60	19'-6"	1221	STR							
AS502	90	90	180	10'-0"	1875	STR							
AS503	45	45	90	12'-9"	1197	35							
AS504	45	45	90	15'-11"	1495	36							
AS1001	70	70	140	20'-11"	12601	16	19'-6"						
R501	12	12	24	7'-6"	188	23	1'-0"	3'-3"	3'-0"			3¾"	
R502	2 SERIES OF 11	2 SERIES OF 11	4 SERIES OF 11	3'-0" TO 3'-10"	157	30	11	2'-5"	3'-3"				1"
R503	2 SERIES OF 11	2 SERIES OF 11	4 SERIES OF 11	2'-5" TO 3'-3"	130	29	11	2'-5"	3'-3"				1"
R505	4	4	8	7'-10"	66	STR							
R506	8	8	16	15'-8"	262	STR							
R507	8	8	16	10'-0"	167	STR							
R508	6	6	12	5'-8"	71	25	1'-10"	2'-5"	1'-4¼"	1½"	5"		
R509	10	10	20	5'-8"	119	STR							
R601	34	34	68	3'-4"	340	14	1'-2½"	8"	8½"	6"	11"		
R603	34	34	68	2'-4"	239	1	11"	1'-7"					
R605	2	2	4	8'-3"	50	STR							
R606	16	16	32	4'-0"	193	1	11"	3'-3"					
				SUB-TOTAL	20371								

* BARS SHOWN FOR INFORMATIONAL PURPOSES ONLY. BARS ARE INCLUDED WITH APPROACH SLAB ITEM FOR PAYMENT.



NOTES:

1. THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT WHERE THREE DIGITS ARE USED AND THE FIRST TWO WHERE FOUR DIGIT ARE USED, INDICATES THE BAR SIZE NUMBER.
2. ALL DIMENSIONS ARE MEASURED OUT-TO-OUT OF BAR UNLESS NOTED OTHERWISE.
3. FOR STANDARD HOOK DIMENSIONS, SEE SECTION 509.05 OF THE SPECIFICATIONS.
4. ALL REINFORCING STEEL TO BE EPOXY COATED.
5. PAYMENT FOR REINFORCING STEEL SHALL BE INCLUDED IN THE CONTRACT BID PRICE FOR ITEM 509, EPOXY COATED REINFORCING STEEL, AS PER PLAN.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED BKS | DRAWN TEK | REVIEWED SCJ | DATE 9/10 | CHECKED JTC | REVISED | STRUCTURE FILE NUMBER 4301560

REINFORCING STEEL LIST

BRIDGE NO. LAK-2-1553L
S.R. 2 OVER STATE STREET

LAK-2-14.38
PID No. 87924

18 / 18

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208

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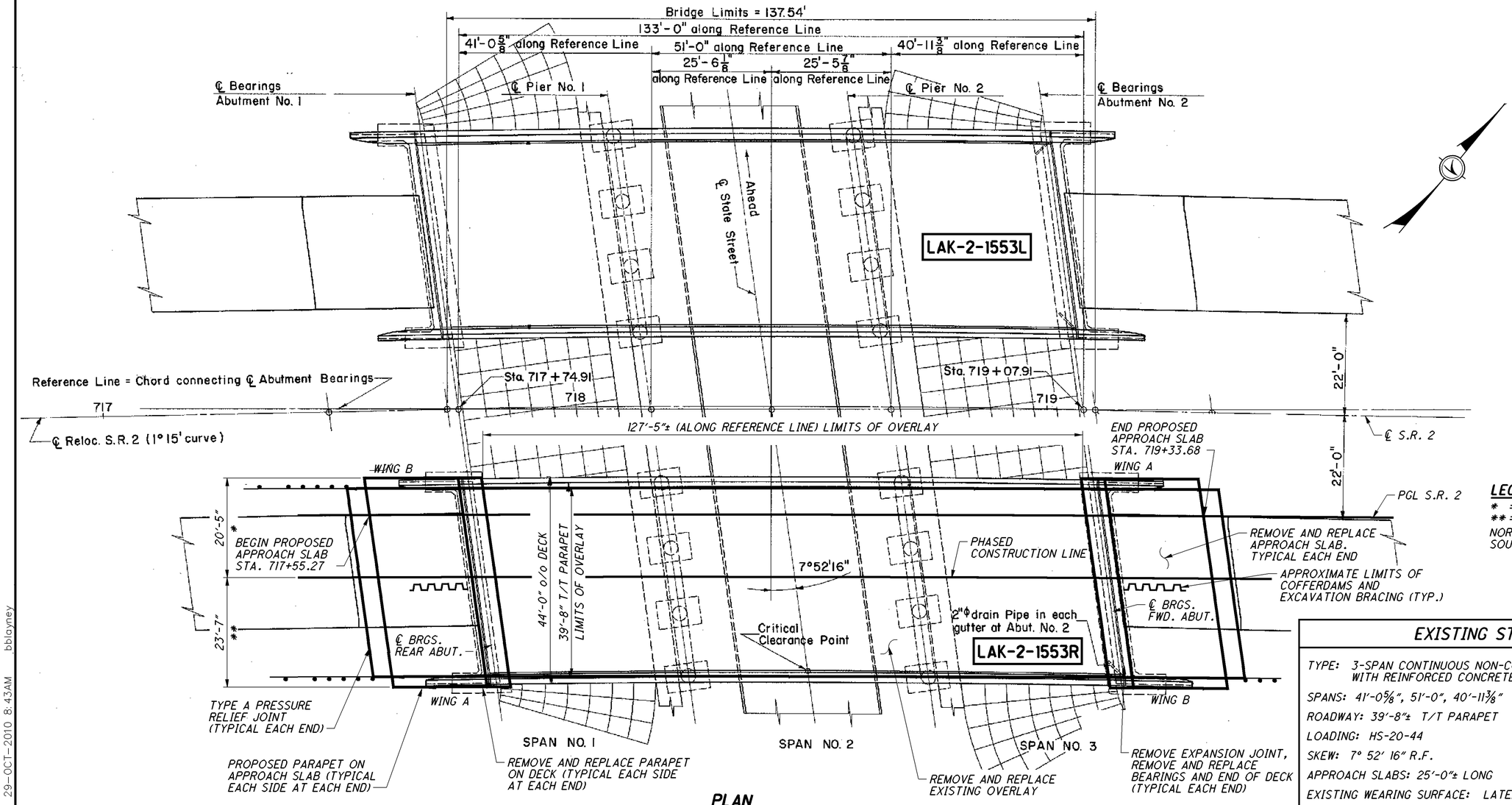
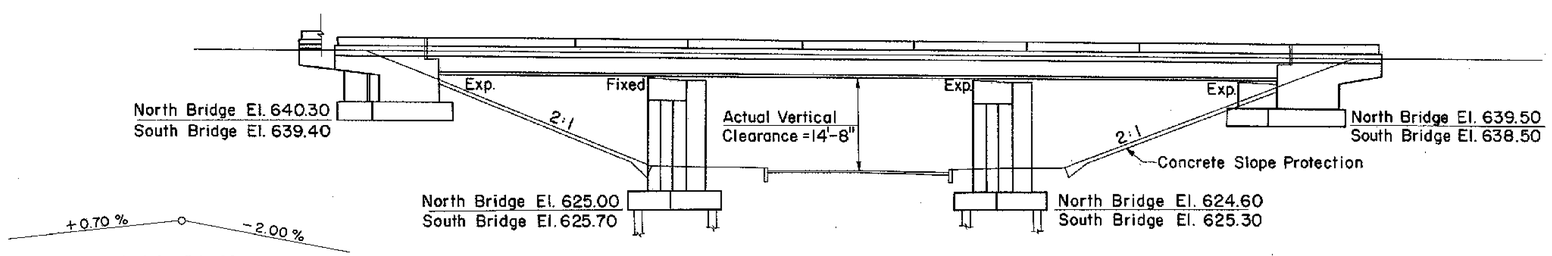
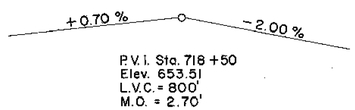


PLAN



ELEVATION



VERTICAL CURVE DATA

LEGEND:

* = PHASE 1 CONSTRUCTION
** = PHASE 2 CONSTRUCTION
NORTH BRIDGE = LAK-2-1553L
SOUTH BRIDGE = LAK-2-1553R

EXISTING STRUCTURE

TYPE: 3-SPAN CONTINUOUS NON-COMPOSITE ROLLED STEEL BEAMS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURES
SPANS: 41'-0 5/8", 51'-0", 40'-11 3/8"
ROADWAY: 39'-8"± T/T PARAPET
LOADING: HS-20-44
SKEW: 7° 52' 16" R.F.
APPROACH SLABS: 25'-0"± LONG
EXISTING WEARING SURFACE: LATEX MODIFIED CONCRETE
ALIGNMENT: 1° 15' CURVE
CROWN: SUPERELEVATED
STRUCTURAL FILE NUMBER: 4301595
DATE BUILT: 1963

PROPOSED STRUCTURE

PROPOSED WORK: REPLACE SLAB ENDS WITH MODIFIED SEMI-INTERGRAL ABUTMENT, APPROACH SLAB, AND OVERLAY
TYPE: 3-SPAN CONTINUOUS NON-COMPOSITE ROLLED STEEL BEAMS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURES
SPANS: 41'-0 5/8", 51'-0", 40'-11 3/8"
ROADWAY: 39'-8"± T/T PARAPET
LOADING: HS-20-44
SKEW: 7° 52' 16" R.F.
APPROACH SLABS: STD. AS-1-81 20'-0" LONG (MODIFIED)
PROPOSED WEARING SURFACE: MICRO SILICA MODIFIED CONCRETE
ALIGNMENT: 1° 15' CURVE
CROWN: SUPERELEVATED

NOTE:

PLANS OF EXISTING STRUCTURES ARE AVAILABLE FOR EXAMINATION AT THE OHIO DEPARTMENT OF TRANSPORTATION, DISTRICT 12 OFFICE, 5500 TRANSPORTATION BLVD. GARFIELD HEIGHTS, OHIO 44125.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301595	

SITE PLAN
BRIDGE NO. LAK-2-1553R
S.R. 2 OVER STATE STREET

LAK-2-14.38
PID No. 87924

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GENERAL NOTES

REFER TO THE FOLLOWING STANDARD BRIDGE DRAWINGS:

AS-1-81	REVISED	07-19-02
SICD-1-96	REVISED	07-19-02
PCB-91	REVISED	07-19-02

AND TO THE FOLLOWING SUPPLEMENTAL SPECIFICATIONS:

843	DATED	04-18-03
848	DATED	04-16-10

DESIGN SPECIFICATIONS: THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO), 2002, AND THE 2004 ODOT BRIDGE DESIGN MANUAL.

DESIGN LOADING: HS-20 AND THE ALTERNATE MILITARY LOADING.

DESIGN DATA:

CONCRETE CLASS HP - COMPRESSIVE STRENGTH 4.5 KSI (DECK, ABUTMENTS DIAPHRAGMS, PARAPETS, AND APPROACH SLABS)
REINFORCING STEEL - MINIMUM YIELD STRENGTH 60 KSI
STRUCTURAL STEEL - ASTM A709 GRADE 50W - YIELD STRENGTH 50 KSI

DECK PROTECTION METHOD: EPOXY COATED REINFORCING STEEL, 2½" CONCRETE COVER, MODIFIED MICRO SILICA CONCRETE OVERLAY.

MONOLITHIC WEARING SURFACE: IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1" THICK.

EXISTING STRUCTURE VERIFICATION: DETAILS AND DIMENSIONS SHOWN ON 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 513.04.

BASE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS THAT HAVE BEEN VERIFIED IN THE FIELD.

MAINTENANCE OF TRAFFIC

PROPOSED WORK:
IN GENERAL, THE PROPOSED WORK FOR THE S.R. 2 BRIDGE OVER STATE STREET SHALL CONSIST OF THE REMOVAL AND REPLACEMENT OF THE EXISTING LATEX MODIFIED CONCRETE OVERLAY AND REMOVAL OF THE EXISTING EXPANSION JOINTS AND ABUTMENT BACKWALLS AND REPLACE WITH SEMI-INTEGRAL ABUTMENT DIAPHRAGMS. REMOVAL AND CONSTRUCTION OPERATIONS ARE TO BE PERFORMED WHILE MAINTAINING ONE LANE OF EASTBOUND TRAFFIC ON S.R. 2. THE MAJOR ITEMS OF WORK REQUIRING PHASED CONSTRUCTION ARE DESCRIBED BELOW. SOME PROJECT WORK ITEMS, SUCH AS SEALING OF CONCRETE SURFACES, MAY BE PERFORMED AT THE CONTRACTOR'S DISCRETION DURING THE CONTRACT SCHEDULE PERIOD; HOWEVER, THE PERFORMANCE OF ALL WORK MUST BE COORDINATED TO SATISFY MAINTENANCE OF TRAFFIC AND SAFETY REQUIREMENTS.SEE M.O.T. PLANS FOR ADDITIONAL MAINTENANCE OF TRAFFIC REQUIREMENTS.

PHASE 1 CONSTRUCTION:
1. INSTALL PORTABLE CONCRETE BARRIER ON THE EXISTING STATE STREET BRIDGE AND APPROACHES. ROUTE TRAFFIC ACROSS THE BRIDGE ACCORDING TO THE MAINTENANCE OF TRAFFIC PLANS.
2. CONSTRUCT TEMPORARY EXCAVATION SUPPORTS ALONG THE PHASE REMOVAL LINE AT THE REAR AND FORWARD ABUTMENTS AS SHOWN IN THE PLANS.
3. ON THE NORTHERNMOST PORTION OF THE EXISTING BRIDGE, REMOVE THE EXISTING OVERLAY, PORTION OF DECK/PARAPET AT THE ABUTMENTS, APPROACH SLABS, EXPANSION JOINTS, END CROSSFRAMES, AND ABUTMENT BACKWALLS IN ACCORDANCE WITH 202.03 AND PLAN REQUIREMENTS.
4. CLEAN AND PAINT ENDS OF THE THREE NORTHERNMOST EXISTING BEAMS. DRILL 2" DIAMETER HOLES THROUGH EXISTING BEAM WEBS FOR LONGITUDINAL ABUTMENT DIAPHRAGM REINFORCING.
5. CONSTRUCT NORTHERNMOST REINFORCED CONCRETE SEMI-INTEGRAL ABUTMENT DIAPHRAGM, WINGWALL, DECK, PARAPET, AND APPROACH SLAB AT THE REAR AND FORWARD ABUTMENTS.

PHASE 2 CONSTRUCTION:
1. INSTALL PORTABLE CONCRETE BARRIER ON COMPLETED PHASE 1 PORTION OF THE BRIDGE AS SHOWN ON BRIDGE AND MAINTENANCE OF TRAFFIC PLANS. ROUTE TRAFFIC ONTO COMPLETED PHASE 1 PORTION OF THE BRIDGE.
2. REMOVE THE REMAINING PORTIONS OF THE EXISTING OVERLAY, DECK/PARAPET AT ABUTMENTS, APPROACH SLABS, EXPANSION JOINTS, END CROSSFRAMES, AND ABUTMENT BACKWALLS IN ACCORDANCE WITH 202.03 AND PLAN REQUIREMENTS.
3. CLEAN AND PAINT ENDS OF THE THREE SOUTHERNMOST EXISTING BEAMS. DRILL 2" DIAMETER HOLES THROUGH EXISTING BEAM WEBS FOR LONGITUDINAL ABUTMENT DIAPHRAGM REINFORCING.
4. CONSTRUCT SOUTHERNMOST REINFORCED CONCRETE SEMI-INTEGRAL ABUTMENT DIAPHRAGM, WINGWALL, DECK, PARAPET, AND APPROACH SLAB AT THE REAR AND FORWARD ABUTMENTS.
5. REMOVE PORTABLE CONCRETE BARRIER AND ROUTE TRAFFIC ONTO COMPLETED BRIDGE ACCORDING TO MAINTENANCE OF TRAFFIC PLANS.

ITEM 202, PORTIONS OF STRUCTURE REMOVED AS PER PLAN:

DESCRIPTION: THIS WORK CONSISTS OF THE REMOVAL OF THE CONCRETE DECK, PARAPETS, EXPANSION JOINTS, BEARINGS, AND OTHER APPURTENANCES FROM SUPPORTING SYSTEMS AS SHOWN IN THE PLANS. THIS WORK SHALL ALSO INCLUDE THE REMOVAL OF THE ABUTMENT BACKWALLS IN ACCORDANCE WITH THE DETAILS SHOWN IN THE PLANS. ADDITIONAL CONCRETE REMOVAL MAY BE REQUIRED IF UNSOUND OR DETERIORATED CONCRETE IS ENCOUNTERED BEYOND THE PLAN CUT LINES. THE CONTRACTOR SHALL REMOVE ANY UNSOUND OR DETERIORATED CONCRETE BEYOND THE PLAN CUT LINE AS DIRECTED BY THE ENGINEER. PERFORM WORK CAREFULLY DURING DECK REMOVALS TO PROTECT PORTIONS OF THE EXISTING STEEL SUPPORTING SYSTEM THAT ARE TO BE SALVAGED AND INCORPORATED INTO THE PROPOSED STRUCTURE. THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE RAM TYPE OF EQUIPMENT IS PROHIBITED. SUBMIT CONSTRUCTION PLANS ACCORDING TO CMS 501.05.

PROTECTION OF TRAFFIC: PRIOR TO DEMOLITION OF ANY PORTIONS OF THE EXISTING SUPERSTRUCTURE, THE CONTRACTOR SHALL SUBMIT PLANS FOR THE PROTECTION OF TRAFFIC (VEHICULAR, 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 ENSURE 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, DRAW THE OUTLINE OF THE PRIMARY STEEL MEMBERS IN CONTACT WITH THE BOTTOM OF THE DECK ON THE SURFACE OF THE DECK. DRILL SMALL DIAMETER PILOT HOLES 2 INCHES OUTSIDE THESE LINES TO CONFIRM THE LOCATION OF FLANGE EDGES. DECK CUTS OVER OR WITHIN 2" OF FLANGE EDGES SHALL NOT EXTEND LOWER THAN THE BOTTOM LAYER OF DECK SLAB REINFORCING STEEL. CUTS MADE OUTSIDE 2 INCHES OF FLANGE EDGES MAY EXTEND THE FULL DEPTH OF THE DECK. PERFORM WORK CAREFULLY DURING CUTTING OF THE DECK SLAB TO AVOID DAMAGING STEEL MEMBERS THAT ARE TO BE INCORPORATED INTO THE PROPOSED STRUCTURE. REPLACE OR REPAIR STEEL MEMBERS DAMAGED BY THE DECK SLAB CUTTING OPERATIONS AT NO COST TO THE PROJECT. AT LEAST 7 DAYS BEFORE PERFORMING REPAIR WORK, SUBMIT A PROPOSED REPAIR PLAN, DEVELOPED BY AN OHIO REGISTERED PROFESSIONAL ENGINEER TO THE DIRECTOR. OBTAIN THE DIRECTOR'S APPROVAL BEFORE PERFORMING REPAIR.

REMOVAL METHODS: THE CONTRACTOR MAY REMOVE CONCRETE BY CUTTING AND BY MEANS OF HAND OPERATED PNEUMATIC HAMMERS EMPLOYING POINTED OR BLUNTED CHISEL TYPE TOOLS. FOR REMOVALS OVER STRUCTURAL MEMBERS, THE CONTRACTOR MAY USE A HAMMER HEAVIER THAN 35 POUNDS BUT NOT TO EXCEED 90 POUNDS UNLESS APPROVED BY THE ENGINEER. REMOVAL METHODS OVER STRUCTURAL MEMBERS SHALL ENSURE ADEQUATE DEPTH CONTROL AND PREVENT NICKING OR GOUGING THE PRIMARY STRUCTURAL MEMBERS.

SUBSTRUCTURE CONCRETE REMOVAL: REMOVE CONCRETE 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 35 POUNDS FOR REMOVAL WITHIN 18 INCHES OF PORTIONS TO BE PRESERVED. OUTSIDE THE 18 INCH LIMIT, THE CONTRACTOR MAY USE HAMMERS NOT EXCEEDING 90 POUNDS UPON THE APPROVAL OF THE ENGINEER. DO NOT PLACE PNEUMATIC HAMMERS IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE.

CUT LINE CONSTRUCTION JOINT PREPARATION: SAW CUT BOUNDARIES OF PROPOSED CONCRETE REMOVALS 1 INCH DEEP. REMOVE CONCRETE TO A ROUGH SURFACE. LEAVE THE EXISTING REINFORCING STEEL, IF REQUIRED IN THE PLANS, IN PLACE. INSTALL DOWEL BARS IF SPECIFIED. PRIOR TO CONCRETE PLACEMENT ABRASIVELY CLEAN JOINT SURFACES AND EXISTING EXPOSED REINFORCEMENT TO REMOVE LOOSE AND DISINTEGRATED CONCRETE AND LOOSE RUST. THOROUGHLY CLEAN THE JOINT SURFACE AND EXPOSED REINFORCEMENT OF ALL DIRT, DUST, RUST, OR OTHER FOREIGN MATERIAL BY THE USE OF WATER, AIR UNDER PRESSURE, OR OTHER METHODS THAT PRODUCE SATISFACTORY RESULTS. EXISTING REINFORCING STEEL DOES NOT HAVE TO HAVE A BRIGHT STEEL FINISH, BUT REMOVE ALL PACK AND LOOSE RUST. THOROUGHLY DRENCH EXISTING CONCRETE SURFACES WITH CLEAN WATER AND ALLOW TO DRY TO A DAMP CONDITION BEFORE PLACING CONCRETE.

MEASUREMENT AND PAYOUT: THE DEPARTMENT WILL MEASURE THE QUANTITY OF REMOVAL ON A LUMP SUM BASIS. THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES OF REMOVALS AT THE CONTRACT PRICE FOR ITEM 202, PORTIONS OF STRUCTURE REMOVED, AS PER PLAN.

ITEM 202, APPROACH SLAB REMOVED, AS PER PLAN: THIS WORK CONSISTS OF REMOVING THE EXISTING APPROACH SLABS INCLUDING ANY EXISTING OVERLAY THAT IS PRESENT ON TOP OF THE EXISTING APPROACH SLAB.

ITEM 509, EPOXY COATED REINFORCING STEEL, AS PER PLAN:
IN ADDITION TO CONFORMING TO 509 REQUIREMENTS, THE LABOR REQUIRED TO FIELD DRILL THE 2" DIAMETER HOLES IN THE EXISTING STEEL BEAMS AT THE ABUTMENT DIAPHRAGMS SHALL BE INCLUDED WITH ITEM 509, EPOXY COATED REINFORCING STEEL, AS PER PLAN FOR PAYMENT. THE COST OF FURNISHING THE MECHANICAL CONNECTORS AND EXTENSIONS SHALL BE INCLUDED WITH ITEM 509-EPOXY COATED REINFORCING STEEL, AS PER PLAN FOR PAYMENT.

ITEM 509 - REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN: CONTIGENCY QUANTITIES ARE INCLUDED TO PROVIDE ADDITIONAL CONNECTING REINFORCING STEEL IF REQUIRED OR IF EXISTING REINFORCING STEEL TO BE REUSED IS MISSING OR FOUND TO BE UNUSABLE.

REPLACE ALL EXISTING REINFORCING BARS DEEMED BY THE ENGINEER TO BE UNUSABLE BECAUSE OF CORROSION. THE DEPARTMENT WILL MEASURE THE REPLACEMENT REINFORCING STEEL BY THE NUMBER OF POUNDS ACCEPTED IN PLACE.

REPLACE ALL EXISTING REINFORCING STEEL BARS WHICH ARE TO BE INCORPORATED INTO THE NEW WORK AND ARE DEEMED BY THE ENGINEER TO BE MADE UNUSABLE BY CONCRETE REMOVAL OPERATIONS WITH NEW EPOXY COATED REINFORCING STEEL OF THE SAME SIZE AT NO COST TO THE DEPARTMENT.

ITEM 511, CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN:
ITEM 511, CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN:
ITEM 511, CLASS HP CONCRETE, SUPERSTRUCTURE, AS PER PLAN:
ITEM 511, CLASS HP CONCRETE, TEST SLAB:

GENERAL REQUIREMENTS:
THE PROVISIONS OF ITEM 511 SHALL APPLY EXCEPT AS NOTED BELOW.

MIX OPTIONS:
ALL BRIDGE DECK, ABUTMENT, PARAPETS, DIAPHRAGMS, AND APPROACH SLAB CONCRETE SHALL BE THIS MIX (AS PER PLAN).

THE FOLLOWING PROPORTIONS WILL BE USED AS A STARTING MIX DESIGN:

CONCRETE TABLE
QUANTITIES PER CUBIC YARD
AGGREGATES (SSD)

HP4, AS PER PLAN (GGBF SLAG + MICROSILICA)								
AGGRE. TYPE	FINE AGGRE. (LB)	#8 COARSE AGGRE. (LB)*	#57 COARSE AGGRE. (LB)*	CEMENT CONTENT (LB)*	GGBF SLAG (LB)*	MICRO-SILICA (LB)*	W/C RATIO +/-0.01	AIR CONTENT +/-2%
GRAVEL	1245	360	1315	400	170	30	0.43	7
LIMESTONE	1245	360	1335	400	170	30	0.43	7
SLAB	1245	315	1155	400	170	30	0.43	7

* ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED PER ASTM C127.

HIGH EARLY STRENGTH CEMENT MAY BE USED TO EXPEDITE CONSTRUCTION, SEE 511.07.

THE WEIGHTS SPECIFIED IN THE CONCRETE TABLE WERE CALCULATED FOR MATERIALS OF THE FOLLOWING BULK SPECIFIC GRAVITIES (SSD): NATURAL SAND AND GRAVEL 2.62, LIMESTONE SAND 2.68, LIMESTONE 2.65, SLAG 2.30, FLY ASH 2.65, GGBF SLAG 2.90, MICRO-SILICA SOLIDS 2.20, AND PORTLAND CEMENT 3.15. FOR AGGREGATES OF SPECIFIC GRAVITIES DIFFERING MORE THAN PLUS OR MINUS 0.02 FROM THESE, THE WEIGHTS IN THE TABLE WILL BE CORRECTED.

PARAPET CONSTRUCTION (FORMED AND POURED): FORMS SHALL NOT BE REMOVED UNTIL AT LEAST 2 HOURS AFTER THE FINAL SET. DETERMINATION OF THE FINAL SET SHALL BE AS PER ASTM C266 (GILLMORE NEEDLE). TESTING SHALL BE PERFORMED BY THE CONTRACTOR AT NO COST TO THE STATE.

THE MINIMUM CONCRETE SLUMP DURING PLACEMENT OF FORMED CONCRETE PARAPETS SHALL BE 6 INCHES, WITH A MAXIMUM SLUMP OF 8 INCHES.

PARAPET CONSTRUCTION (SLIP FORMED): SLIP FORMING IS PROHIBITED.

BASIS OF PAYMENT: PAYMENT FOR THE ABOVE COMPLETED AND ACCEPTED QUANTITIES WILL BE MADE AT THE CONTRACT BID PRICE FOR:

ITEM	UNITS	DESCRIPTION
511E50001	CUBIC YARD	CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN
511E50101	CUBIC YARD	CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN
511E52000	LUMP	CLASS HP CONCRETE, TEST SLAB

ITEM 512, SEALING OF CONCRETE SURFACES (EPOXY-URETHANE): THE FINISH COAT COLOR FOR ALL CONCRETE SURFACES TO RECEIVE SEALER SHALL MATCH THE EXISTING SEALER COLOR SUBJECT TO THE APPROVAL OF THE ENGINEER.

ITEM 514, FIELD PAINTING STRUCTURAL STEEL, FINISH COAT: THE FINISH COAT COLOR FOR ALL STRUCTURAL STEEL MEMBERS TO RECEIVE PAINT SHALL MATCH THE EXISTING PAINT COLOR SUBJECT TO THE APPROVAL OF THE ENGINEER.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED BKS | DRAWN TEK | CHECKED JTC | REVIEWED SCJ | REVISED | DATE 9/10 | STRUCTURE FILE NUMBER 43001595

GENERAL NOTES (1 OF 2)
BRIDGE NO. LAK-2-1553R
S.R. 2 OVER STATE STREET

LAK-2-14.38
PID No. 87924

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GENERAL NOTES

ITEM 516, SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN: INSTALL A 3 FOOT WIDE NEOPRENE SHEET AT LOCATIONS SHOWN IN THE PLANS. SECURE THE NEOPRENE SHEETING TO THE CONCRETE WITH 1 1/4" X #10 GAGE (LENGTH X SHANK DIAMETER) GALVANIZED BUTTON HEAD SPIKES THROUGH A 1" OUTSIDE DIAMETER, #10 GAGE GALVANIZED WASHER. MAXIMUM FASTENER SPACING IS 9". USE OF OTHER SIMILAR GALVANIZED DEVICES, WHICH WILL NOT DAMAGE EITHER THE NEOPRENE OR THE CONCRETE, WILL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

CENTER THE NEOPRENE STRIPS ON ALL JOINTS. FOR HORIZONTAL JOINTS, SECURE THE HORIZONTAL NEOPRENE STRIP BY USING A SINGLE LINE OF FASTENERS, STARTING AT 6", (±), FROM THE TOP OF THE NEOPRENE STRIP. FOR THE VERTICAL JOINTS SECURE THE VERTICAL NEOPRENE STRIP BY USING A SINGLE VERTICAL LINE OF FASTENERS, STARTING AT 6", (±), FROM THE VERTICAL EDGE OF THE NEOPRENE STRIP NEAREST TO THE CENTERLINE OF THE ROADWAY. FOR VERTICAL JOINTS, INSTALL 2 ADDITIONAL FASTENERS AT 6", CENTER TO CENTER, ACROSS THE TOP OF THE NEOPRENE STRIP ON THE SAME SIDE OF THE VERTICAL JOINT AS THE SINGLE VERTICAL ROW OF FASTENERS IS LOCATED.

THE VERTICAL NEOPRENE STRIPS SHALL COMPLETELY OVERLAP THE HORIZONTAL STRIPS. LAP LENGTHS OF THE HORIZONTAL STRIPS THAT ARE NOT VULCANIZED OR ADHESIVE BONDED, SHALL BE AT LEAST 1'-0" IN LENGTH, OR 6" IN LENGTH IF THE LAP IS VULCANIZED OR ADHESIVE BONDED. NO LAPS ARE ACCEPTABLE IN VERTICALLY INSTALLED NEOPRENE STRIPS.

PRIOR TO PLACEMENT OF THE NEOPRENE SHEETING, A 3" BAND OF COLD TAR PITCH MATERIAL OR MATERIAL MEETING SPEC 702.14 RUBBER COMPOUND SHALL BE APPLIED TO DIRECTLY TO THE STRUCTURAL CONCRETE ALONG THE PERIMETER/OUTLINE OF THE NEOPRENE SHEET IN ORDER TO SECURE A SEAL TIGHT CONDITION. THE NEOPRENE SHEET SHALL THEN BE MECHANICALLY FASTENED TO THE STILL TACKY TAR/RUBBER CEMENT COMPOUND MATERIAL.

THE NEOPRENE SHEETING SHALL BE 3/32" THICK GENERAL PURPOSE, HEAVY DUTY NEOPRENE SHEET WITH NYLON FABRIC REINFORCEMENT. THE SHEETING SHALL BE "FAIRPRENE NUMBER NN-0003", BY E.I. DUPONT DE NEMOURS AND COMPANY, INC., "WINGPRENE" BY GOODYEAR TIRE AND RUBBER COMPANY, OR AN APPROVED ALTERNATE. THE NEOPRENE SHEETING SHALL CONFORM TO THE FOLLOWING:

DESCRIPTION OF TEST	ASTM METHOD	REQUIREMENT
THICKNESS, INCHES	D 751	0.094 (±) 0.01
BREAKING STRENGTH, GRAB, LBS, MINIMUM (LONG. X TRANS.)	D 751	700 x 700
ADHESIVE STRIP, 1" WIDE X 2" LONG, LBS MINIMUM	D 751	9
BURST STRENGTH, PSI MINIMUM	D 751	1400
HEAT AGING, 70 HRS., 212°F, 180° BEND W/O CRACKING	D 2136	NO CRACKING OF COATING
LOW TEMP. BRITTLENESS, 1 HR., -40°F, BEND AROUND 1/4" MANDREL	D 2136	NO CRACKING OF COATING

METHOD OF MEASUREMENT: THE DEPARTMENT WILL MEASURE THE TOTAL LENGTH OF JOINT TO BE SEALED BY THE NUMBER OF FEET.

BASIS OF PAYMENT: THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516, SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN.

ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN: FOR BEARING REQUIREMENTS SEE SHEETS 9 & 10.

ITEM 516, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN:
THIS WORK CONSISTS OF RAISING OR RE-POSITIONING EXISTING STRUCTURES TO THE DIMENSIONS AND REQUIREMENTS DEFINED IN THE PROJECT PLANS.

SUBMIT CONSTRUCTION PLANS IN ACCORDANCE WITH CMS 501.05.

IF, DURING THE JACKING OPERATIONS, CRACKING OF THE CONCRETE SUPERSTRUCTURE, SEPARATION OF THE CONCRETE DECK FROM THE STEEL STRINGERS, OR OTHER DAMAGE TO THE STRUCTURE IS VISUALLY OBSERVED, IMMEDIATELY CEASE THE JACKING OPERATION AND INSTALL SUPPORTS TO THE SATISFACTION OF THE ENGINEER. ANALYZE THE DAMAGE AND SUBMIT A METHOD OF CORRECTION TO THE ENGINEER FOR APPROVAL. EPOXY INJECT ALL BEAMS THAT SEPARATE FROM THE DECK FOR THE DISTANCE OF THE SEPARATION IN ACCORDANCE WITH CMS 512.07. THE DEPARTMENT WILL NOT PAY FOR THE COST OF THIS EPOXY INJECTION OR OTHER REQUIRED REPAIRS. THE BRIDGE BEARINGS SHALL BE FULLY SEATED AT ALL CONTACT AREAS. IF FULL SEATING IS NOT ATTAINED, SUBMIT A REPAIR PLAN TO THE ENGINEER. THE DEPARTMENT WILL NOT PAY FOR THE REPAIR COSTS TO ENSURE FULL SEATING ON BEARINGS.

THE DEPARTMENT WILL MEASURE THIS WORK ON A LUMP SUM BASIS.

THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN.

ITEM 526, REINFORCED CONCRETE APPROACH SLAB (T=13"), AS PER PLAN

DESCRIPTION: THIS ITEM SHALL CONSIST OF CONSTRUCTING REINFORCED CONCRETE APPROACH SLABS WITH PARAPETS IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS AND ODOT STANDARD DRAWING AS-1-81.

MATERIALS: CONCRETE FOR THIS ITEM, INCLUDING APPROACH SLABS AND PARAPETS SHALL BE ITEM 511 - CLASS HP CONCRETE. USE THE SAME MIX FOR ITEM 526 AS IS USED FOR THE BRIDGE DECK AND PARAPETS. SEE GENERAL NOTE ITEM 511 FOR THE CONCRETE MIX REQUIREMENTS.

METHOD OF MEASUREMENT: THE AREA MEASURED WILL BE THE NUMBER OF SQUARE YARDS COMPLETE IN PLACE.

BASIS OF PAYMENT: ACCEPTED QUANTITIES WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER SQUARE YARD COMPLETE IN PLACE. THIS PRICE SHALL INCLUDE FULL COMPENSATION FOR CONCRETE, PARAPETS, REINFORCING STEEL, JOINT FILL, JOINT SEALERS, JOINT SEALS, WATERPROOFING, AND SEALING OF APPROACH SLAB PARAPETS. PAYMENT WILL BE MADE UNDER ITEM 526 - REINFORCED CONCRETE APPROACH SLAB (T=13"), AS PER PLAN.

APPROACH SLAB PARAPET CONSTRUCTION SHALL BE PER GENERAL NOTE ITEM 511 - CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN.

ITEM 607, FENCE REMOVED AND REBUILT:

A PORTION OF THE EXISTING FENCE BETWEEN BRIDGE NO. LAK-2-1553R AND LAK-2-1553L AT THE REAR AND FORWARD ABUTMENTS MAY NEED TO BE REMOVED AND REBUILT IN ORDER TO RECONSTRUCT THE EXISTING WINGWALLS. FOR ESTIMATING PURPOSES 20 FEET OF FENCE REMOVED AND REBUILT WILL BE REQUIRED.

ITEM 848, MICRO SILICA MODIFIED CONCRETE OVERLAY USING HYDRODEMOLITION, AS PER PLAN (1½" THICK):

ITEM 848, MICRO SILICA MODIFIED CONCRETE OVERLAY, (VARIABLE THICKNESS), MATERIAL ONLY, AS PER PLAN:

THESE ITEMS SHALL BE PERFORMED PER SUPPLEMENTAL SPECIFICATION 848 "BRIDGE DECK REPAIR AND OVERLAY WITH CONCRETE USING HYDRODEMOLITION" WITH THE FOLLOWING REVISIONS:

CONSTRUCTION JOINTS WILL NOT BE PERMITTED IN THE WHEEL LINE.

(SEE 848.12) THE COMPONENTS OF THE MICROSILICA MODIFIED CONCRETE SHALL BE PROPORTIONED AS FOLLOWS:

CONCRETE TABLE
QUANTITIES PER CUBIC YARD
AGGREGATES (SSD)

MICROSILICA MODIFIED CONCRETE OVERLAY								
AGGRE. TYPE	FINE AGGRE. (LB)	#8 COARSE AGGRE. (LB)*	AGGRE. TOTAL (LB)	CEMENT CONTENT (LB)	MICRO-SILICA (LB)	W/C RATIO +/-0.01	AIR CONTENT +/-2%	FIBER (1¼") POLY-PROPYLENE (LB)**
GRAVEL	141	1430	284	600	50	0.40	8	1
LIMESTONE	141	1450	286	600	50	0.40	8	1
SLAG	141	1350	265	600	50	0.40	8	1

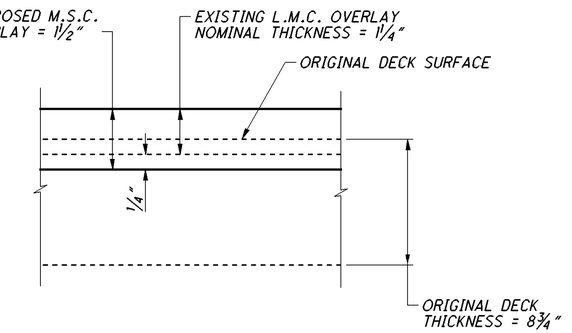
* ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED PER ASTM C127.

** FIBER MESH SHALL BE 100% VIRGIN POLYPROPYLENE IN A FIBRILLATED-NETWORK FORM AND SHALL BE 1¼" IN LENGTH.

THE WEIGHTS SPECIFIED IN THE CONCRETE TABLE WERE CALCULATED FOR MATERIALS OF THE FOLLOWING BULK SPECIFIC GRAVITIES (SSD): NATURAL SAND AND GRAVEL 2.62, LIMESTONE SAND 2.68, LIMESTONE 2.65, SLAG 2.30, MICRO-SILICA SOLIDS 2.20, AND PORTLAND CEMENT 3.15. FOR AGGREGATES OF SPECIFIC GRAVITIES DIFFERING MORE THAN PLUS OR MINUS 0.02 FROM THESE, THE WEIGHTS IN THE TABLE WILL BE CORRECTED. (FIBER MESH WEIGHTS NOT INCLUDED IN MIX DESIGN)

ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED BY ASTM C127.

ALL OTHER REQUIREMENTS OF THE SUPPLEMENTAL SPECIFICATION SHALL REMAIN IN EFFECT.



DECK OVERLAY DETAIL

ITEM 202, PORTIONS OF STRUCTURES REMOVED, AS PER PLAN:

THIS ITEM SHALL ALSO INCLUDE THE REMOVAL OF ELEMENTS INDICATED IN THE PLANS AND GENERAL NOTES AND THAT ARE NOT SEPARATELY LISTED FOR PAYMENT. ITEMS TO BE REMOVED INCLUDE ALL EXISTING MATERIALS BEING REPLACED BY NEW CONSTRUCTION AND MISCELLANEOUS ITEMS THAT ARE NOT SHOWN TO BE INCORPORATED INTO THE FINAL CONSTRUCTION AND ARE DIRECTED TO BE REMOVED BY THE ENGINEER.

ALTERNATE METHOD FOR BACKWALL REMOVAL: AT NO ADDITIONAL COST TO THE STATE, THE CONTRACTOR MAY SAWCUT EXISTING BACKWALLS AT THE REMOVAL LIMITS SHOWN IN THE PLANS AND DOWEL REAR #6 BARS AT THE EXISTING BAR SPACING. PROVIDE 12" MINIMUM EMBEDMENT ON DOWEL BARS. PROVIDE #6 BARS LONG ENOUGH TO PROVIDE A MINIMUM LAP OF 2'-11" ON PROPOSED BARS.

ALTERNATE METHOD FOR REMOVAL OF DECK AT END OF BRIDGE: AT NO ADDITIONAL COST TO THE STATE, THE CONTRACTOR MAY REMOVE DECK CONCRETE USING HYDRODEMOLITION, SUBJECT TO ALL PERTINENT REQUIREMENTS OF SS 848.

ITEM 503, COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN:

IN ADDITION TO THE REQUIREMENTS OF CMS 503, LEAVE IN PLACE SHEETING ALONG THE STAGED CONSTRUCTION LINE AT THE POSITION SHOWN IN THE PLANS. CUT-OFF SHEETING 3" BELOW THE BOTTOM OF THE APPROACH SLAB OR AS DIRECTED BY THE ENGINEER.

ITEM 518, POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN:

THIS WORK SHALL INCLUDE THE REMOVAL OF EXISTING POROUS BACKFILL AND ALL ADJACENT SOIL TO INSTALL NEW POROUS BACKFILL AS DETAILED IN THE PLANS.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301595	

GENERAL NOTES (2 OF 2)
BRIDGE NO. LAK-2-1553R
S.R. 2 OVER STATE STREET

LAK-2-14.38
PID No. 87924

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ABBREVIATIONS

THE FOLLOWING ABBREVIATIONS HAVE BEEN USED THROUGHOUT THESE PLANS:

& = AND
@ = AT
° = DEGREES
′ = FEET OR MINUTES
″ = INCHES OR SECONDS
± = PLUS OR MINUS

AASHTO = AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
ABUT. = ABUTMENT
ADT = AVERAGE DAILY TRAFFIC
ADTT = AVERAGE DAILY TRUCK TRAFFIC
APPR. = APPROACH
APPROX. = APPROXIMATE
ASTM = AMERICAN SOCIETY OF TESTING AND MATERIALS

BM = BENCHMARK
BOT. = BOTTOM
BOT./FTG. = BOTTOM OF FOOTING
BRGS. = BEARINGS

℄ = CENTERLINE
C/C = CENTER TO CENTER
CFS = CUBIC FEET PER SECOND
CJ = CONSTRUCTION JOINT
CLR. = CLEAR
CMS = CONSTRUCTION AND MATERIAL SPECIFICATIONS
CONSTR./CONST. = CONSTRUCTION
CON'T = CONTINUED
COL. = COLUMN
C.P.P. = CORRUGATED PLASTIC PIPE
C.R./CR = COUNTY ROAD
CU = CUBIC
CVN = CHARPY V-NOTCH

DEFL. = DEFLECTION
DIA. = DIAMETER
DIM. = DIMENSION
DL = DEAD LOAD
DWG. = DRAWING

E =EAST
EA. = EACH
EF = EACH FACE
EL./ELEV. = ELEVATION
EMBED. = EMBEDMENT
EQ. = EQUAL
EX./EXIST. = EXISTING
EXP. = EXPANSION
EXT. = EXTENSION

F = FAHRENHEIT
FF = FAR FACE
F/F = FACE TO FACE
FS = FIELD SPLICE
FT. = FEET
FT/FT. = FOOT/FOOT
FT/S = FEET PER SECOND
FTG. = FOOTING
FWD. = FORWARD
FWS = FUTURE WEARING SURFACE

GEN. = GENERAL

HR = HOUR
HW = HIGH WATER

IN. = INCHES
INT. = INTERMEDIATE

LF = LEFT FORWARD
LONG. = LONGITUDINAL
LT. = LEFT

MAX. = MAXIMUM
MIN. = MINIMUM
MISC. = MISCELLANEOUS

N = NORTH
NF = NEAR FACE
#/NO. = NUMBER

OHWM = ORDINARY HIGH WATER MARK
OUT/OUT = OUT TO OUT

PEJF = PREFORMED EXPANSION JOINT FILLER
℄/PL = PLATE
PSF = POUND PER SQUARE FOOT
PSI = POUND PER SQUARE INCH
PT. = POINT
PVI = POINT OF VERTICAL INTERSECTION

Q = FLOW

R = RADIUS
REF. = REFERENCE
REINF. = REINFORCED
REQ'D. = REQUIRED
RF = RIGHT FORWARD
RT. = RIGHT

SHLDR. = SHOULDER
SPA. = SPACING
SQ = SQUARE
STA. = STATION
STD. = STANDARD
STR. = STRAIGHT
SUPER = SUPERSTRUCTURE

T = THICKNESS
TELE = TELEPHONE
TRANS. = TRANSVERSE
TWP. = TOWNSHIP
TYP. = TYPICAL

V = VELOCITY
V.C. = VERTICAL CURVE
VERT. = VERTICAL

W = WEST
W/ = WITH
W/O = WITHOUT
W.P. = WORKING POINT
WT. = WEIGHT

YD = YARD

ESTIMATED QUANTITIES

LAK-2-1553R

CALCULATED BY: JTC
CHECK BY: SCJ
DATED: 9/10
DATED:

ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	TOTAL **	AS PER PLAN SHEET REF.
202	11201	LUMP		PORTIONS OF STRUCTURE REMOVED, AS PER PLAN	LUMP	2
202	22901	134	SQ YD	APPROACH SLAB REMOVED, AS PER PLAN	134	3
503	11101	LUMP		COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN	LUMP	3
509	10001	8806	POUND	EPOXY COATED REINFORCING STEEL, AS PER PLAN	8806	2
509	20001	230	POUND	REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN	230	2
511	50001	20	CU YD	CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN	20	2
511	50101	4	CU YD	CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN	4	2
511	51001	28	CU YD	CLASS HP CONCRETE, SUPERSTRUCTURE, AS PER PLAN	28	2
512	10100	51	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	51	2
512	10300	29	SQ YD	SEALING CONCRETE BRIDGE DECKS WITH HMWM RESIN	29	
514	00050	499	SQ FT	SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL	499	
514	00056	499	SQ FT	FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT	499	
514	00060	499	SQ FT	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT	499	
514	00066	499	SQ FT	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT	499	2
516	14000	16	SQ FT	PREFORMED EXPANSION JOINT FILLER, MISC. 3½"	16	
516	14021	83	FT	SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN	83	3
516	44001	12	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN	12	3
				(8½" x ¾" x 1'-0" PAD WITH 11½" x ½" x 1'-1" STEEL LOAD PLATE)		
516	47001	LUMP		JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN	LUMP	
518	21231	LUMP		POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN	LUMP	3
518	40000	81	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	81	
518	40010	35	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	35	
526	15001	195	SQ YD	REINFORCED CONCRETE APPROACH SLAB (T=13"), AS PER PLAN	195	3
848	10001	562	SQ YD	MICRO SILICA MODIFIED CONCRETE OVERLAY USING HYDRODEMOLITION, AS PER PLAN (1½" THICK)	562	3
848	20000	562	SQ YD	SURFACE PREPARATION USING HYDRODEMOMLITION	562	
848	30001	24	CU YD	MICRO SILICA MODIFIED CONCRETE OVERLAY (VARIABLE THICKNESS), MATERIAL ONLY, AS PER PLAN	24	3
848	50000	30	SQ YD	HAND CHIPPING	30	
848	50320	562	SQ YD	EXISTING CONCRETE OVERLAY REMOVED (1½" THICK)	562	

**All Totals Participation Code II-Bridge

Participation Codes:
I-Pavement (Federal/State)
II-Bridge (Federal/State)

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED BKS | DRAWN TEK | CHECKED JTC | REVIEWED SCJ | DATE 9/10 | REVISED | STRUCTURE FILE NUMBER 4301595

ESTIMATED QUANTITIES
BRIDGE NO. LAK-2-1553R
S.R. 2 OVER STATE STREET

LAK-2-14.38
PID No. 87924

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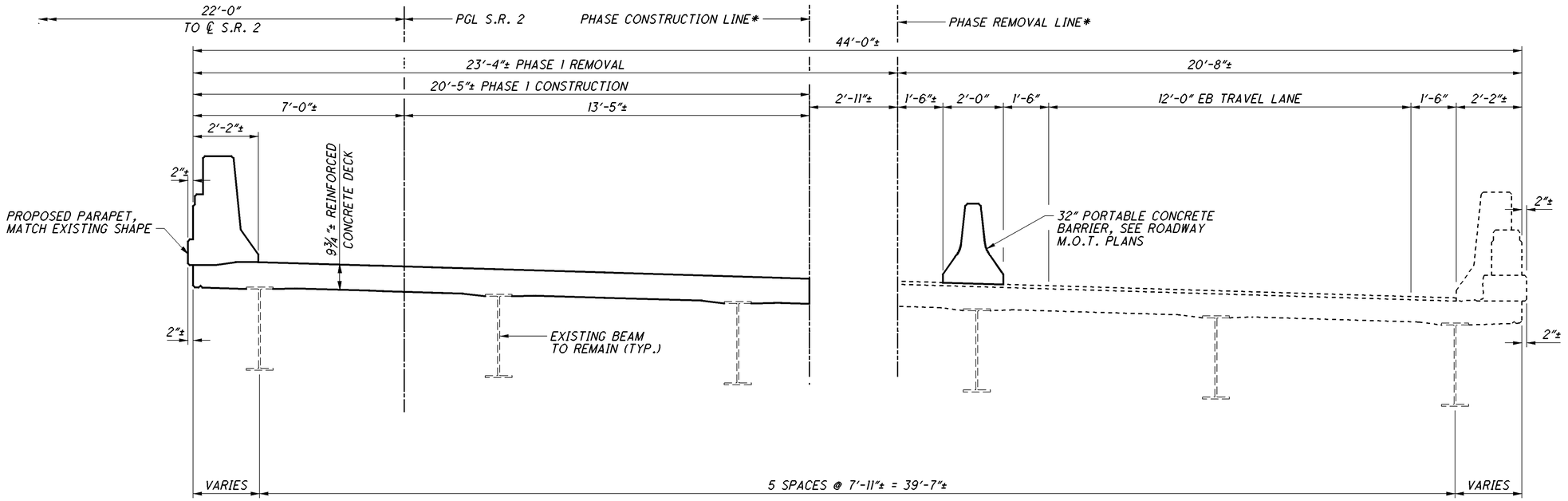


PHASE I REMOVAL AND CONSTRUCTION

AT ABUTMENTS

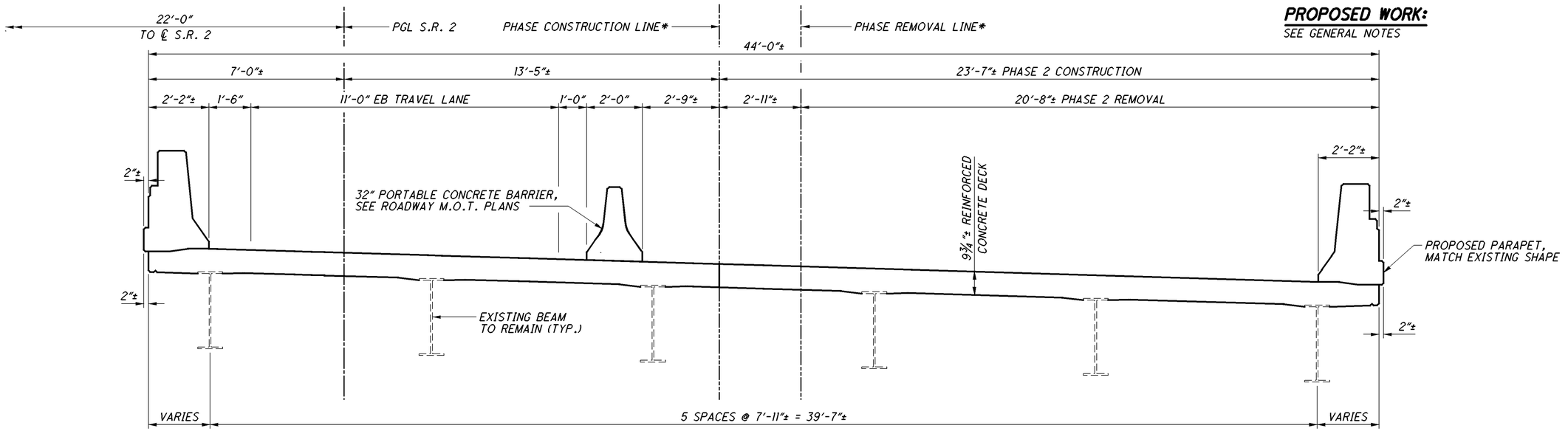
NOTES:

TRANSVERSE DIMENSIONS SHOWN FOR PROPOSED CONSTRUCTION ARE APPROXIMATE. IT MAY BE NECESSARY TO VARY THESE DIMENSIONS TO MEET THE PROPOSED APPROACH SLAB AND THE EXISTING DECK.

* FOR WORK AT ABUTMENT.

PROPOSED WORK:

SEE GENERAL NOTES



PHASE 2 REMOVAL AND CONSTRUCTION

AT ABUTMENTS

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301595	

PHASED CONSTRUCTION DETAILS

BRIDGE NO. LAK-2-1553R
S.R. 2 OVER STATE STREET

LAK-2-14.38
PID No. 87924

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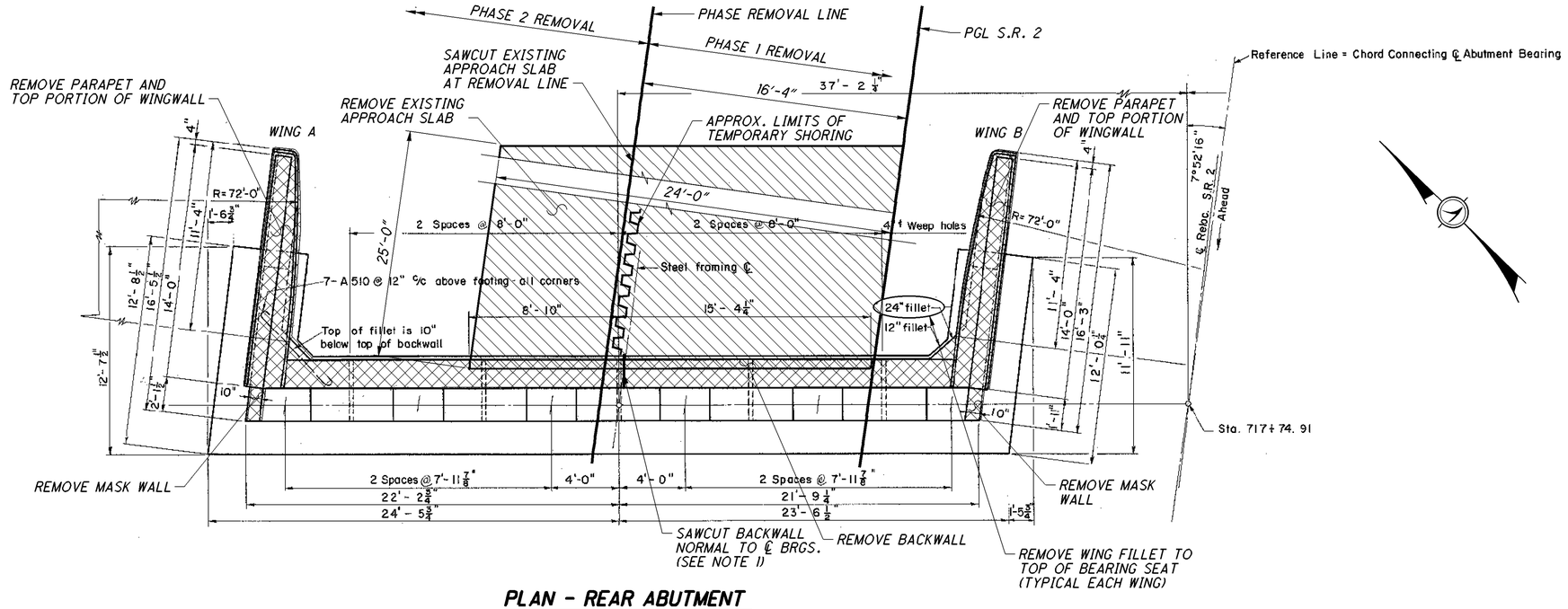
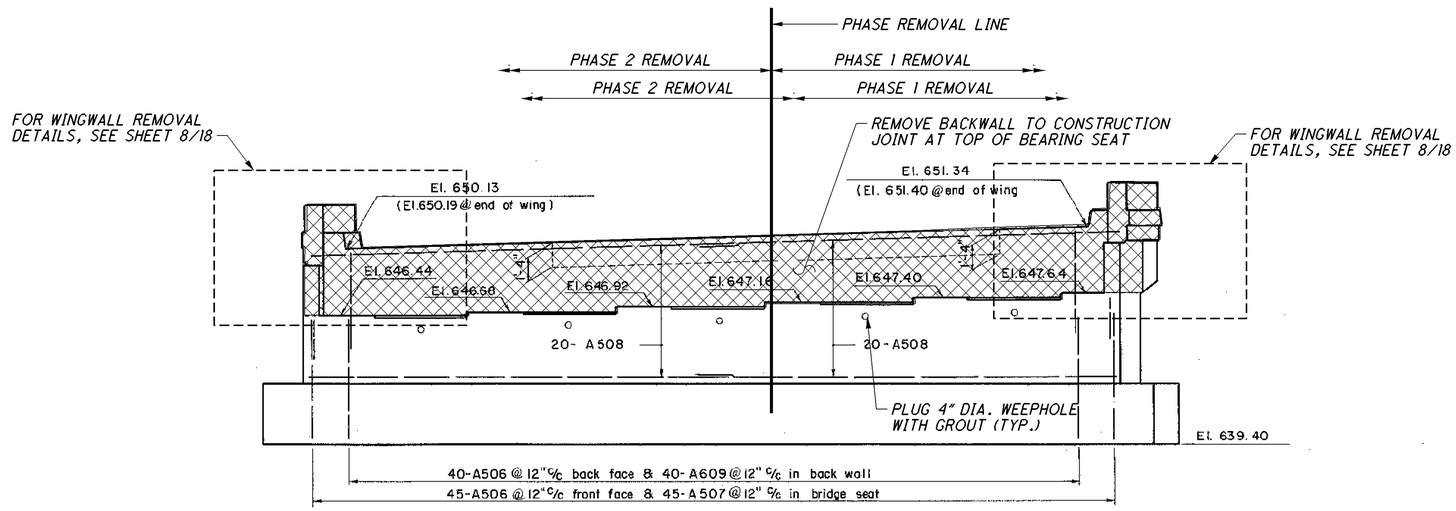


PLAN - REAR ABUTMENT



ELEVATION - REAR ABUTMENT

NOTES:

1. FOR LOCATION OF ABUTMENT BACKWALL REMOVAL LINE, SEE SHEET 12/18.
2. ELEVATIONS SHOWN AT TOP OF BACKWALL DO NOT INCLUDE THE 1"± INCREASE DUE TO THE EXISTING LMC OVERLAY.

ITEM 202 - APPROACH SLAB REMOVED, AS PER PLAN

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
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JTC		4301595	

REMOVAL DETAILS (1 OF 4)
BRIDGE NO. LAK-2-1553R
S.R. 2 OVER STATE STREET

LAK-2-14.38
PID No. 87924

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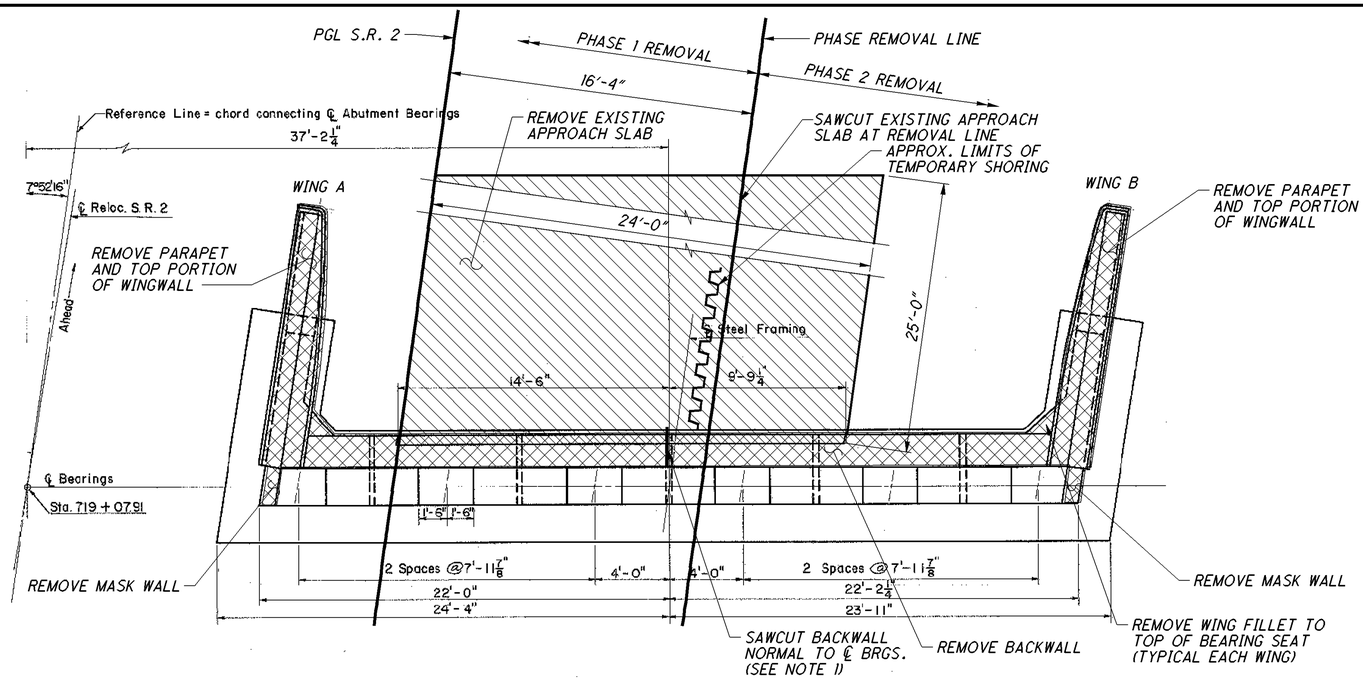
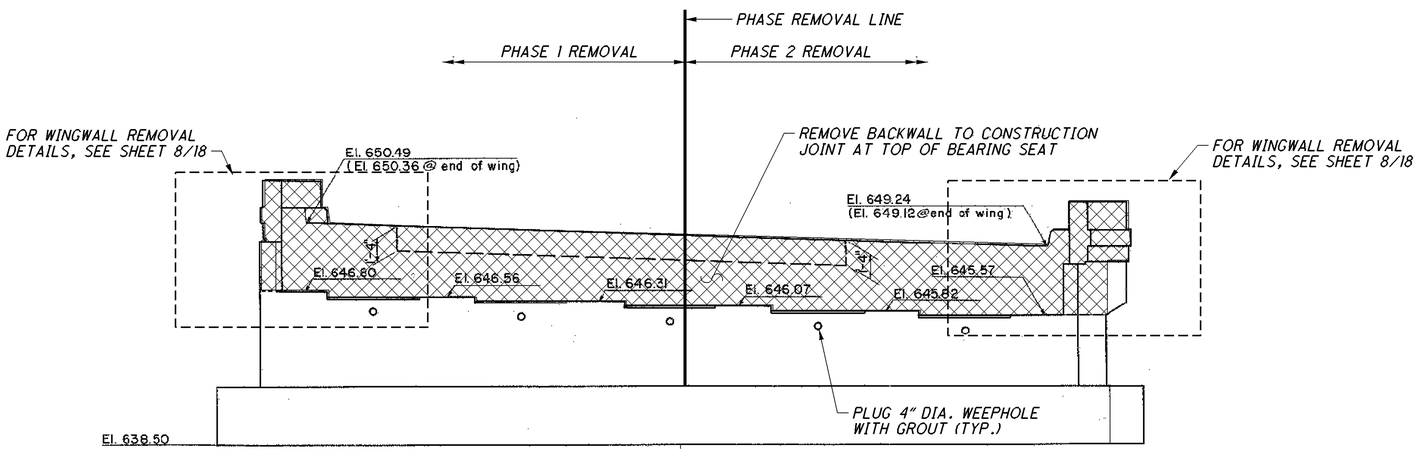


PLAN - FORWARD ABUTMENT



ELEVATION - FORWARD ABUTMENT

NOTES:

1. FOR LOCATION OF ABUTMENT BACKWALL REMOVAL LINE, SEE SHEET 12/18.
2. ELEVATIONS SHOWN AT TOP OF BACKWALL DO NOT INCLUDE THE 1"± INCREASE DUE TO THE EXISTING LMC OVERLAY.

ITEM 202 - APRROACH SLAB REMOVED, AS PER PLAN

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
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JTC		4301595	

REMOVAL DETAILS (2 OF 4)
BRIDGE NO. LAK-2-1553R
S.R. 2 OVER STATE STREET

LAK-2-14.38
PID No. 87924

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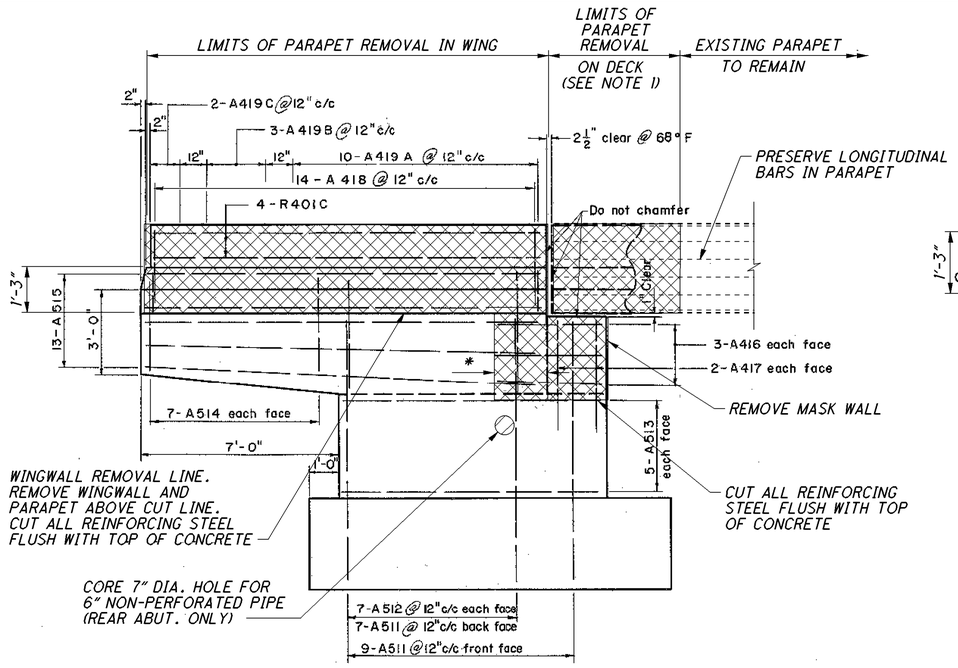
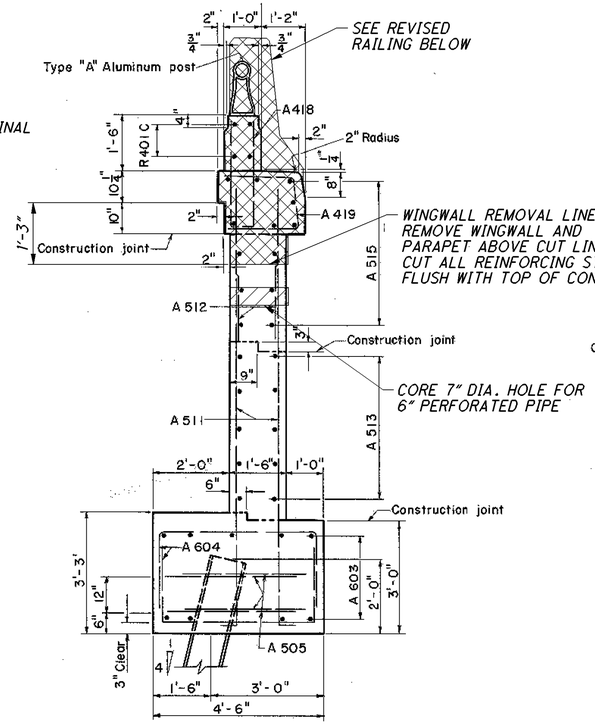


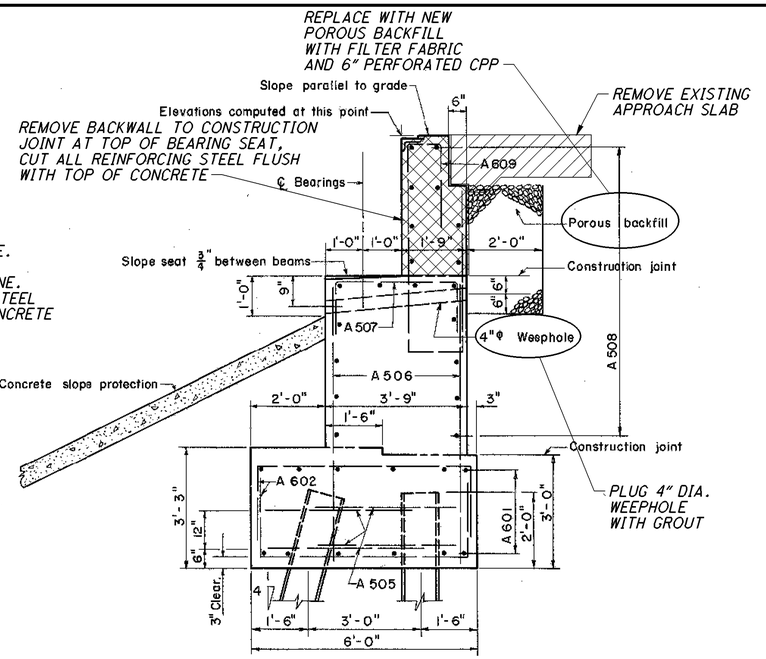
WING A ELEVATION

WING A ELEVATION



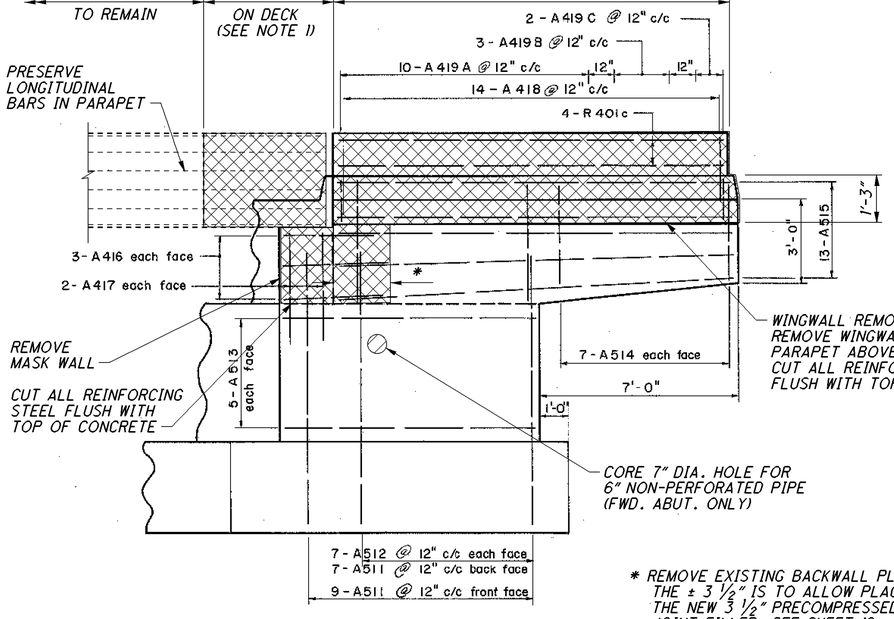
TYPICAL WING SECTION

TYPICAL WING SECTION



TYPICAL ABUTMENT SECTION

TYPICAL ABUTMENT SECTION



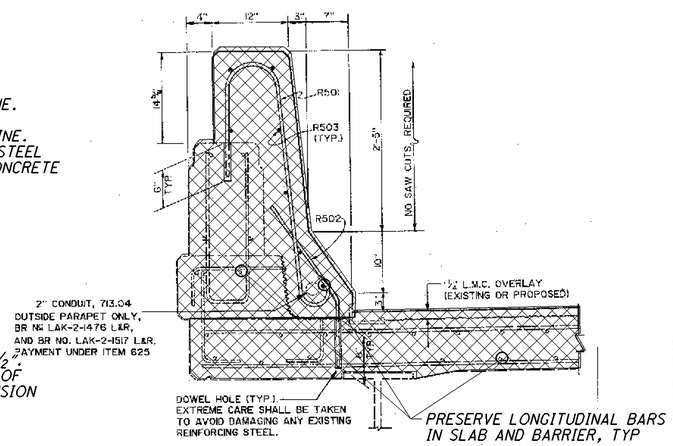
WING B ELEVATION

WING B ELEVATION

* REMOVE EXISTING BACKWALL PLUS ±3 ½", THE ± 3 ½" IS TO ALLOW PLACEMENT OF THE NEW 3 ½" PRECOMPRESSED EXPANSION JOINT FILLER. SEE SHEET 12.

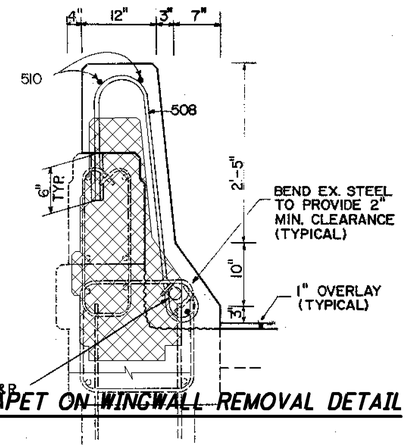
NOTE:

1. SEE SHEET 9/18 FOR LENGTH OF PARAPET REMOVAL ON DECK.



RAILING FACED, AS PER PLAN, TYPE B

PARAPET ON DECK REMOVAL DETAIL



PARAPET ON WINGWALL REMOVAL DETAIL

ITEM 202 - APPROACH SLAB REMOVED, AS PER PLAN

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

SECTION C-C

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC	—	4301595	

REMOVAL DETAILS (3 OF 4)
BRIDGE NO. LAK-2-1553R
S.R. 2 OVER STATE STREET

LAK-2-14.38
PID No. 87924

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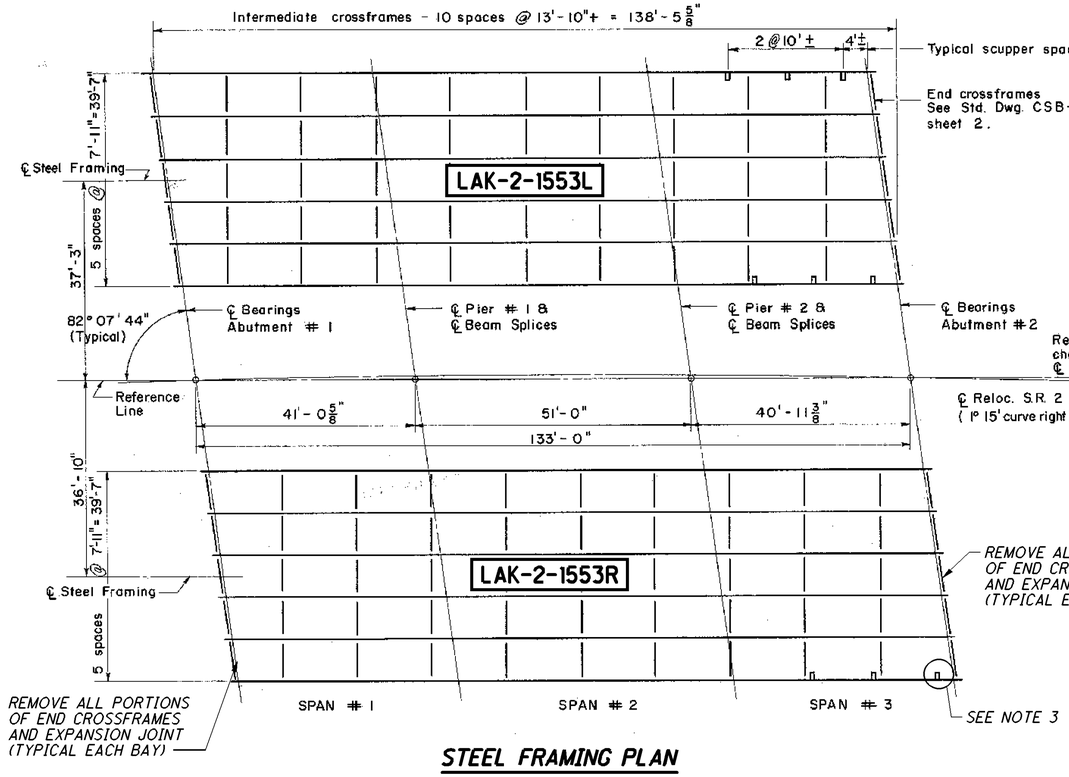
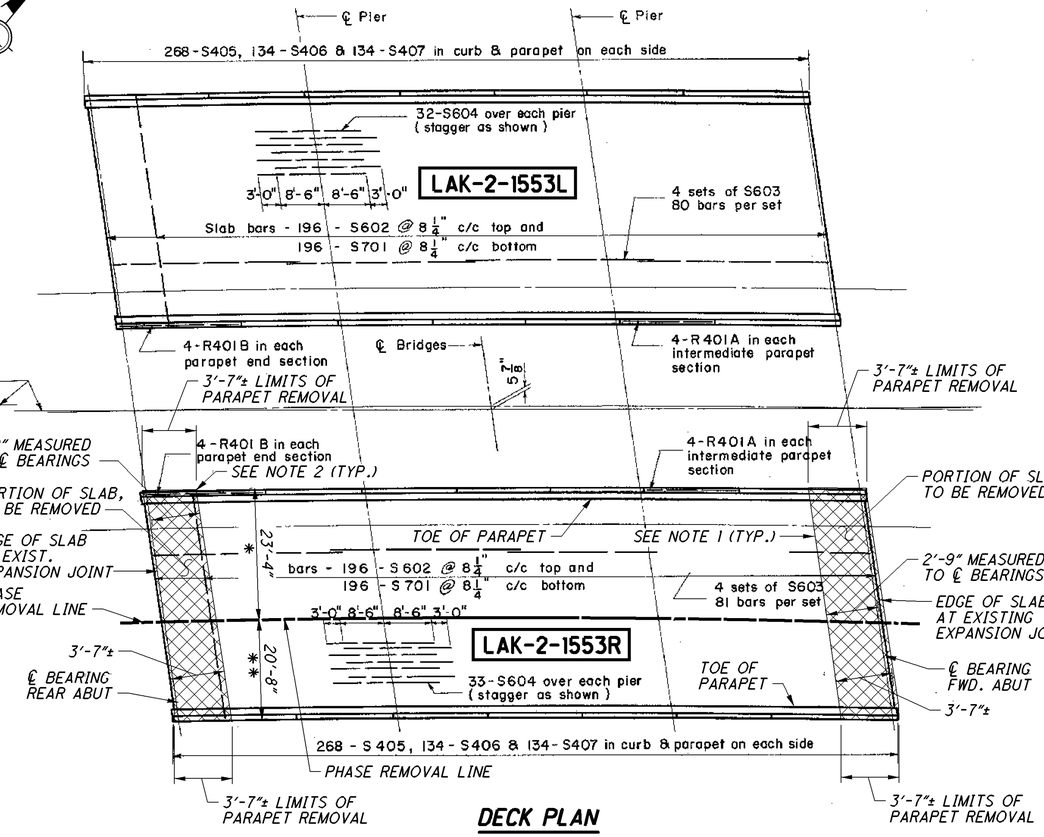
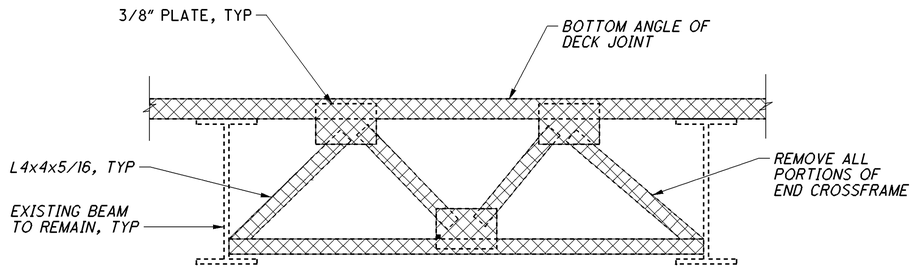


STEEL FRAMING PLAN



DECK PLAN



END CROSSFRAME REMOVAL DETAIL

TYPICAL END CROSSFRAME

LEGEND:

* = PHASE 1 REMOVAL
** = PHASE 2 REMOVAL

NOTES:

1. REMOVAL LINE IS LOCATED PARALLEL TO ℄ BEARINGS. PRESERVE ALL DECK REINFORCING STEEL THAT REMAINS EMBEDDED IN THE DECK.
2. REMOVAL LINE AT TOE OF PARAPET IS LOCATED PARALLEL TO ℄ BEARINGS. PRESERVE ALL LONGITUDINAL PARAPET REINFORCEMENT.
3. EXISTING SCUPPER IS LOCATED NEAR THE DECK REMOVAL LIMITS. CARE SHALL BE TAKEN TO PRESERVE EXISTING SCUPPER.

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420
CLEVELAND, OHIO 44114

DESIGNED BKS | DRAWN TEK | CHECKED JTC | REVIEWED SCJ | DATE 9/10 | STRUCTURE FILE NUMBER 4301595 | REVISED

REMOVAL DETAILS (4 OF 4)
BRIDGE NO. LAK-2-1553R
S.R. 2 OVER STATE STREET

LAK-2-14.38
PID No. 87924

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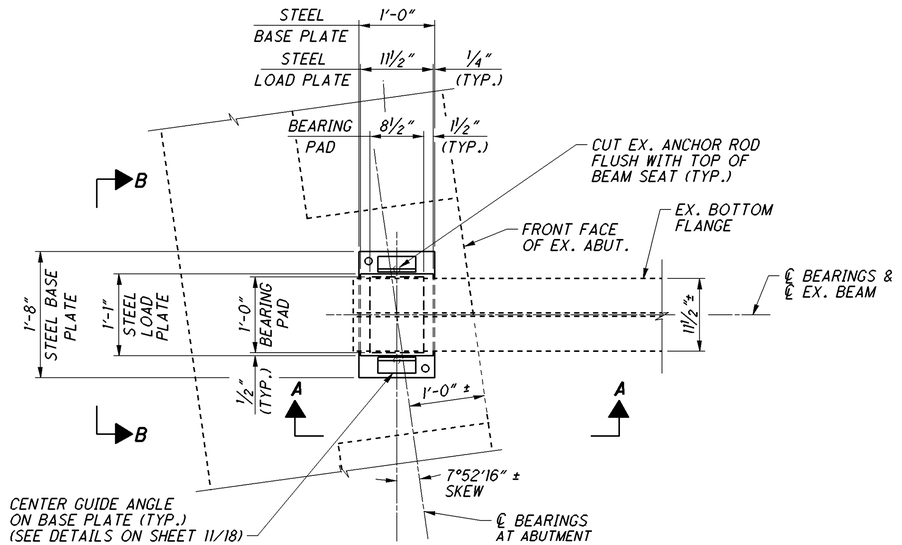
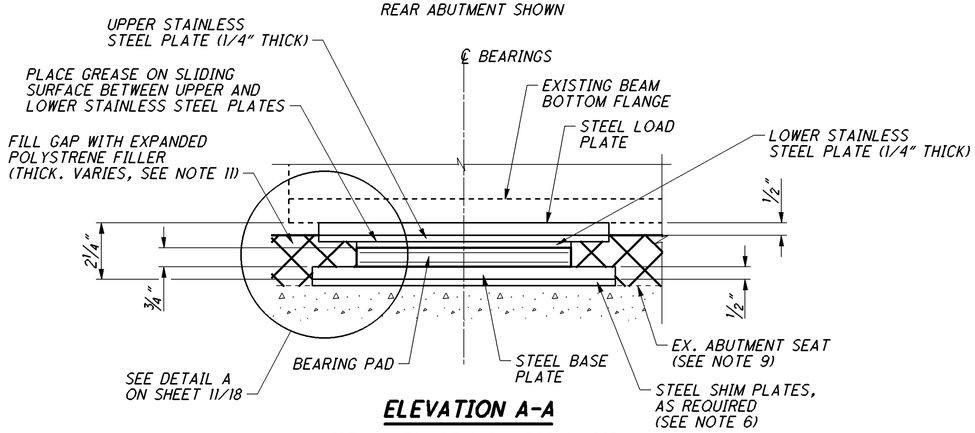


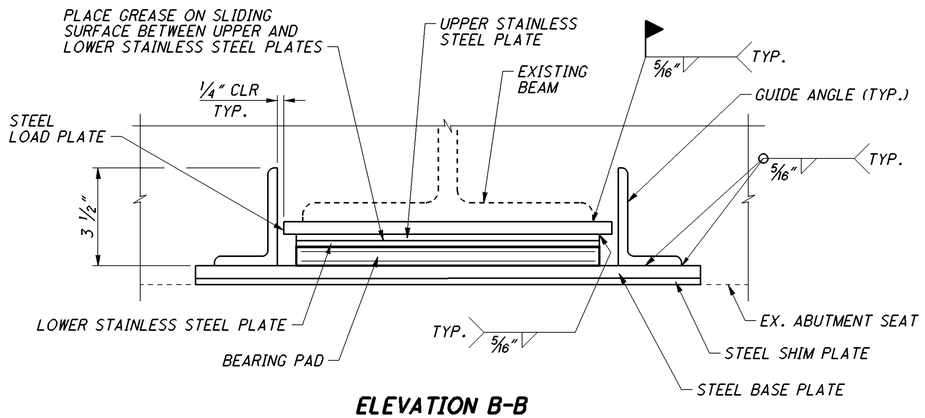
PLAN

REAR ABUTMENT SHOWN



ELEVATION A-A

GUIDE ANGLES NOT SHOWN FOR CLARITY



ELEVATION B-B

LAMINATED ELASTOMERIC EXPANSION BEARING DETAILS

REAR ABUTMENT SHOWN, FORWARD ABUTMENT SIMILAR BUT OPPOSITE HAND

NOTES:

1. STEEL LOAD PLATE, BASE PLATE, SHIM PLATES, GUIDE ANGLES AND SQUARE PLATE WASHERS SHALL MEET THE GRADE 50W REQUIREMENTS OF STRUCTURAL STEEL ASTM A709.
2. STAINLESS STEEL PLATES SHALL BE ASTM 240, TYPE 304 WITH A 2B FINISH PER ASTM A480.
3. THE STEEL BASE PLATE AND LOWER STAINLESS STEEL PLATE SHALL BE BONDED BY VULCANIZATION TO THE ELASTOMER DURING THE MOLDING PROCESS.
4. THE SHIM PLATES, BASE PLATE, LOAD PLATE, AND GUIDE ANGLES SHALL BE GALVANIZED AND PAINTED. PAINT COLOR SHALL MATCH EXISTING BEAM COLOR, SUBJECT TO APPROVAL OF THE ENGINEER. PAINT IS TO BE INCLUDED WITH ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) AS PER PLAN FOR PAYMENT.
5. WELDING: CONTROL WELDING SO THAT THE PLATE TEMPERATURE AT THE ELASTOMER BONDED SURFACE DOES NOT EXCEED 300°F AS DETERMINED BY THE USE OF PYROMETRIC STICKS OR OTHER TEMPERATURE MONITORING DEVICES.
6. THE MINIMUM NUMBER OF SHIM PLATES TO BE PROVIDED IS TWO ⅛" ADJUSTING SHIMS AND TWO ¼" ADJUSTING SHIMS FOR EACH BEARING. FOUR ADDITIONAL ½" ADJUSTING SHIMS SHALL ALSO BE PROVIDED FOR THIS BRIDGE. ADJUSTING SHIMS ARE TO BE PLACED ON THE CONCRETE BEARING SURFACE DIRECTLY BELOW THE ½" STEEL BASE PLATE. THE ADJUSTING SHIMS ARE TO BE USED AT LOCATIONS WHERE THE DISTANCE BETWEEN THE BOTTOM OF THE BOTTOM FLANGE OF THE BEAM AND THE CONCRETE BEARING SURFACE IS GREATER THAN THE 2¼" BEARING THICKNESS. ADDITIONAL SHIM PLATES SHALL BE PROVIDED IF REQUIRED BY FIELD MEASUREMENTS.
7. LUBRICATE THE INTERFACE BETWEEN THE UPPER AND LOWER STAINLESS STEEL PLATES WITH A LAYER OF GREASE A MINIMUM OF ⅛" THICK. THE GREASE SHALL MEET THE REQUIREMENTS OF NLGI GRADE 2 GC-LB.
8. BASIS OF PAYMENT: THE UNIT BID PRICE SHALL INCLUDE ALL MATERIALS, LABOR, AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL LAMINATED ELASTOMERIC BEARINGS, STEEL PLATES, ANGLES, AND ANCHOR BOLTS AS DETAILED. PAYMENT WILL BE MADE AT THE CONTRACT PRICE FOR ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN.

   REAR & FORWARD ABUTMENTS (ALL BEAMS):

   BEARING PAD: 8½" x ¾" x 1'-0"
   LOAD PLATE: 11½" x ½" x 1'-1"
   BASE PLATE: 1'-0" x ½" x 1'-8"
   UPPER STAINLESS STEEL PLATE: 11½" x ¼" x 1'-0"
   LOWER STAINLESS STEEL PLATE: 8½" x ¼" x 1'-0"
   SHIM PLATES: SEE NOTE 6
   GUIDE ANGLES: L 3 ½" x 2 ½" x ⅜" x 6" LONG
   PLATE WASHERS: 4" x ½" x 4"

9. PRIOR TO INSTALLING THE STEEL BASE PLATE, CLEAN THE TOP SURFACE OF THE ABUTMENT SEAT. IF CONCRETE SPALLING IS PRESENT UNDER BASE PLATE, PATCH CONCRETE PRIOR TO PLACEMENT OF THE BASE PLATE. PATCH CONCRETE ACCORDING TO SUPPLEMENTAL SPECIFICATION 843. CLEANING AND PATCHING CONCRETE TO BE INCLUDED WITH ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) AS PER PLAN FOR PAYMENT.
10. THE EXISTING BEAMS CAN BE JACKED A MAXIMUM OF ¼" TO REMOVE AND REPLACE BEARINGS.
11. EXPANDED POLYSTRENE FILLER IS INCLUDED WITH ITEM 511, HP CONCRETE, SUPERSTRUCTURE, AS PER PLAN FOR PAYMENT.
12. REFER TO RETIRED ODOT STD. DWG. CSB-2-56, REVISED 2-2-59, FOR DETAILS OF EXISTING BEARINGS TO BE REPLACED.

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1100 SUPERIOR AVENUE, EAST
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CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301595	

BEARING DETAILS (1 OF 2)
BRIDGE NO. LAK-2-1553R
S.R. 2 OVER STATE STREET

LAK-2-14.38
PID No. 87924

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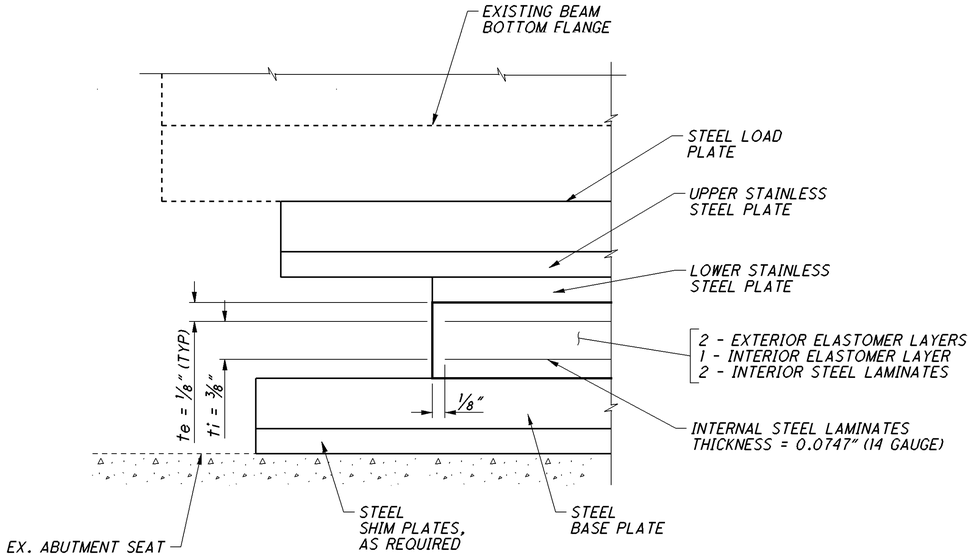
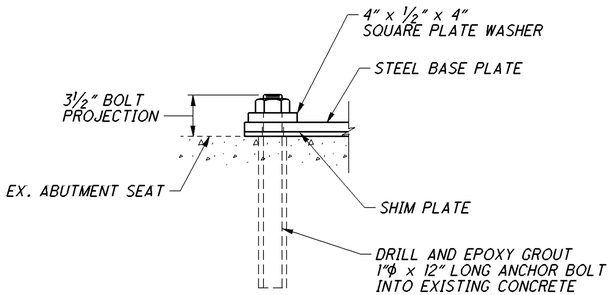
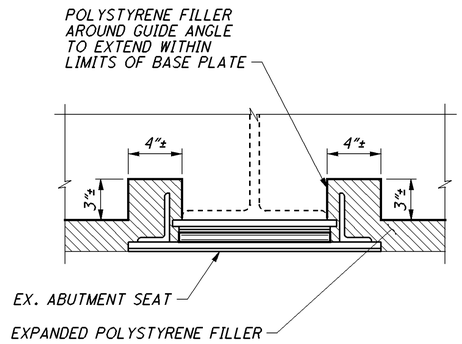


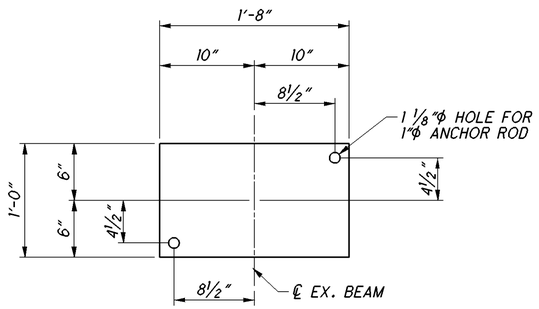
DETAIL A



ANCHOR BOLT DETAIL



GUIDE ANGLE BLOCKOUT DETAIL



PLAN OF BASE PLATE

SHIM PLATE SIMILAR

NOTES:

1. FIELD DRILL ANCHOR BOLT HOLES, INSTALL ANCHOR BOLTS AND PLACE EPOXY GROUT AFTER THE PLACEMENT OF THE BEARING ASSEMBLY. POSITION AND TIGHTEN THE BASE PLATE. INSTALL A BLOCK OF POLYSTRENE FILLER MATERIAL OVER THE TOP OF THE GUIDE ANGLES AND ANCHOR BOLTS BEFORE THE CONCRETE PLACEMENT FOR ABUTMENT DIAPHRAGM.
2. ANCHOR BOLTS AND NUTS SHALL BE ASTM A325. NUTS AND SQUARE PLATE WASHERS SHALL BE GALVANIZED ACCORDING TO 711.02. THE THREAD LENGTH REQUIREMENTS OF ASTM A325 MAY BE WAIVED. THE GROUT SHALL BE NON-SHRINK, EPOXY GROUT MEETING THE REQUIREMETNS OF 705.20.

LEGEND:

te = THICKNESS OF EXTERNAL ELASTOMER LAYER

ti = THICKNESS OF INTERNAL ELASTOMER LAYER

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BEARING DETAILS (2 OF 2)
BRIDGE NO. LAK-2-1553R
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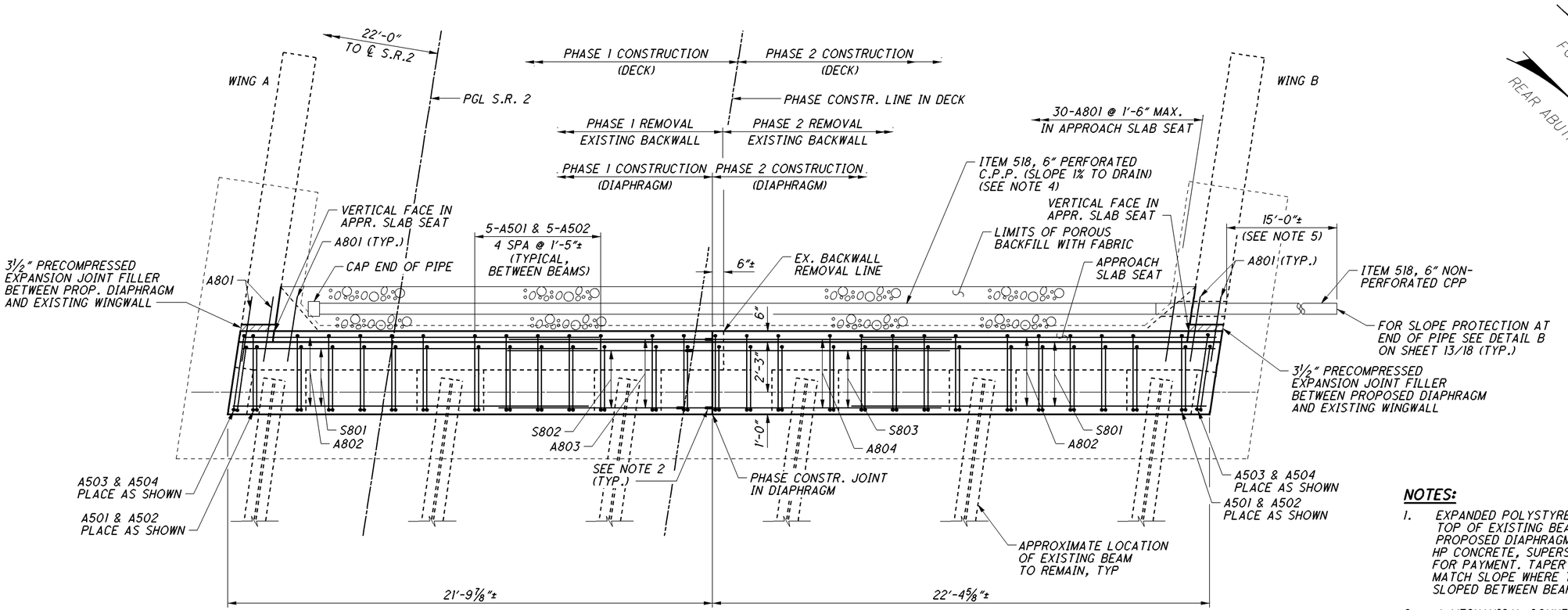
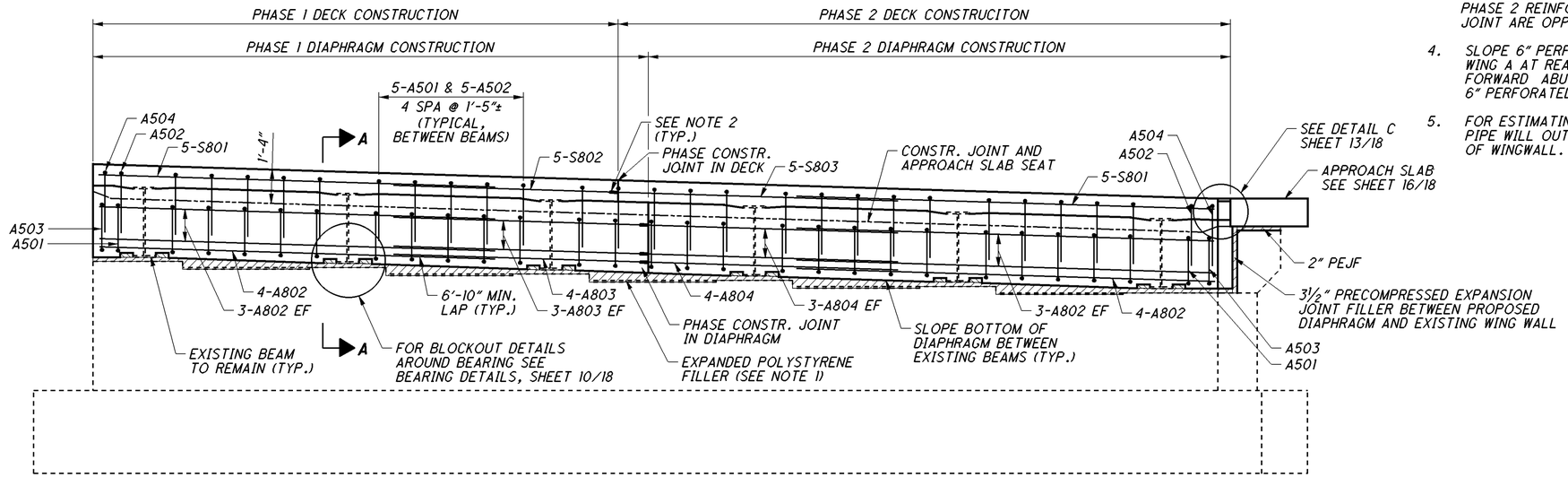


PLAN

FORWARD ABUTMENT SHOWN, REAR ABUTMENT SIMILAR (SEE NOTE 3)



ELEVATION

FORWARD ABUTMENT SHOWN, REAR ABUTMENT SIMILAR (SEE NOTE 3)
SEE SHEET 13 FOR SECTION A-A

NOTES:

1. EXPANDED POLYSTYRENE FILLER BETWEEN TOP OF EXISTING BEAM SEAT AND BOTTOM OF PROPOSED DIAPHRAGM AND INCLUDED WITH ITEM 511, HP CONCRETE, SUPERSTRUCTURE AS PER PLAN FOR PAYMENT. TAPER POLYSTYRENE FILLER TO MATCH SLOPE WHERE THE EXISTING BEAM SEAT IS SLOPED BETWEEN BEARING SEAT.
2. A MECHANICAL CONNECTOR SHALL BE USED AT THE PHASE CONSTRUCTION JOINT. THE MECHANICAL CONNECTOR SHALL MEET THE REQUIREMENTS OF 509.07. REINFORCING BAR LENGTHS ARE DETAILED TO THE FACE OF JOINT.
3. DETAILS SHOWN IN THE PLAN AND ELEVATION ARE FOR THE FORWARD ABUTMENT. PHASE CONSTRUCTION LINES FOR REAR ABUTMENT ARE OPPOSITE HAND. PHASE 1 AND PHASE 2 REINFORCEMENT AT PHASE CONSTRUCTION JOINT ARE OPPOSITE HAND FOR REAR ABUTMENT.
4. SLOPE 6" PERFORATED C.P.P. TO OUTLET TOWARDS WING A AT REAR ABUTMENT AND TOWARDS WING B AT FORWARD ABUTMENT. THE NON-OUTLET END OF THE 6" PERFORATED C.P.P. SHALL BE CAPPED.
5. FOR ESTIMATING PURPOSES, IT IS ASSUMED THAT THE PIPE WILL OUTLET 15'-0" BEYOND THE OUTSIDE FACE OF WINGWALL.

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ABUTMENT PLAN AND ELEVATION
BRIDGE NO. LAK-2-1553R
S.R. 2 OVER STATE STREET

LAK-2-14.38
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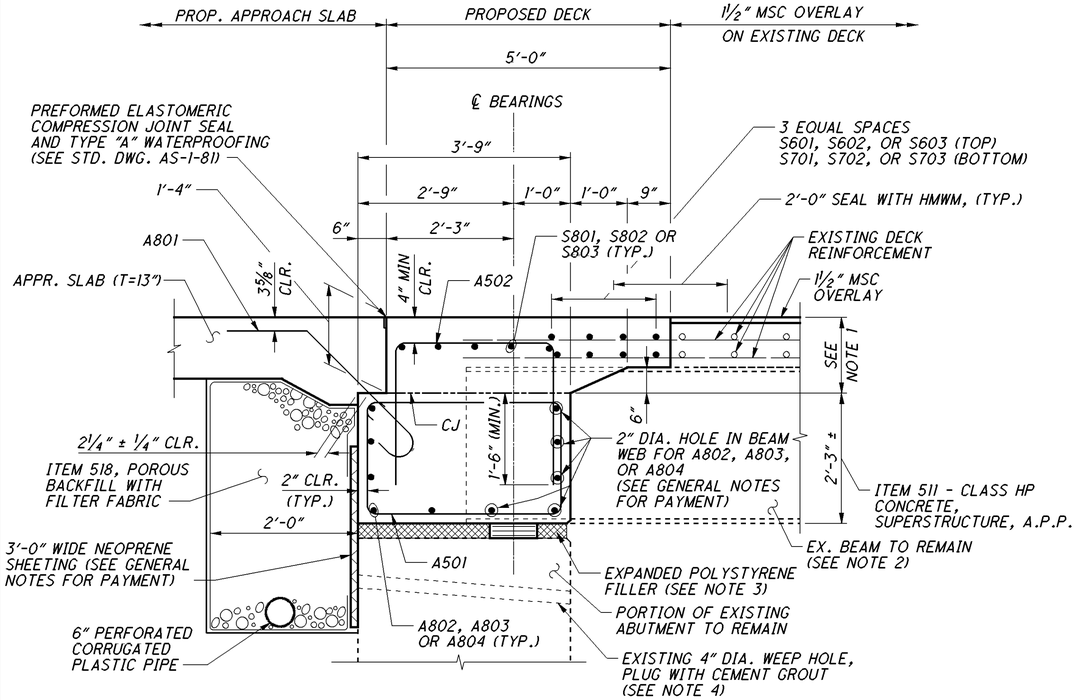
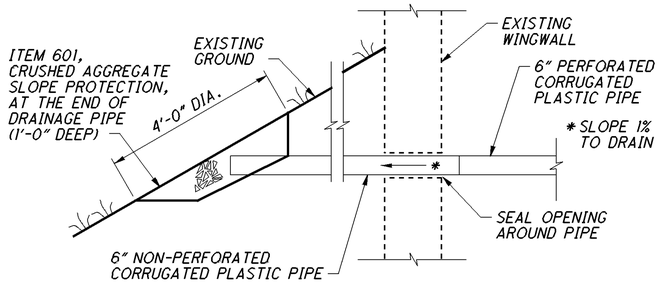


SECTION A-A

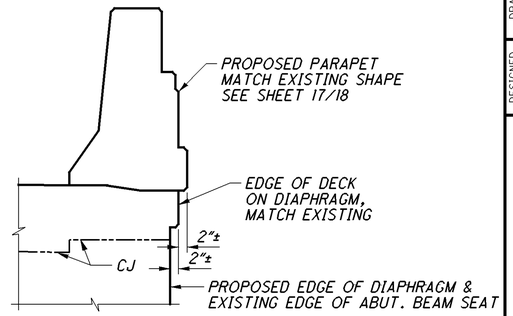
DIMENSIONS SHOWN NORMAL TO ABUTMENTS



DETAIL E

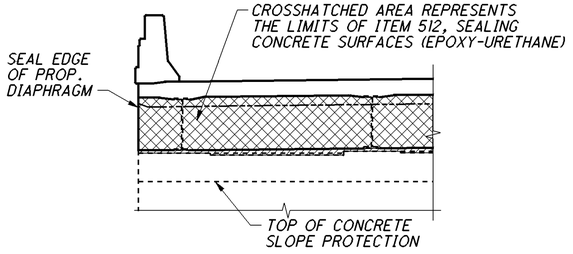
SLOPE PROTECTION DETAIL

TYPICAL EACH DRAIN OUTLET LOCATION



DETAIL C

DIAPHRAGM EDGE DETAIL



ABUTMENT SEALING LIMITS

TYPICAL, EACH ABUTMENT DIAPHRAGM

NOTES:

1. CONCRETE FOR DECK SHALL BE ITEM 511 - CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN.
2. CLEAN AND PAINT ENDS OF EXISTING BEAM FOR A DISTANCE OF 5'-0". PAINT EXISTING BEAMS IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 514. CLEAN AND PAINT ANY EXISTING SCUPPERS AND INTERMEDIATE DIAPHRAGMS WITHIN THESE LIMITS.
3. PLACE EXPANDED POLYSTYRENE FILLER BETWEEN TOP OF EXISTING BEAM SEAT AND BOTTOM OF PROPOSED DIAPHRAGM. TAPER POLYSTYRENE FILLER TO MATCH SLOPE WHERE THE EXISTING BEAM SEAT IS SLOPED BETWEEN BEARING SEAT.
4. CEMENT GROUT SHALL CONSIST OF ONE PART HYDRAULIC CEMENT CONFORMING TO ITEM 701 AND THREE PARTS SAND CONFORMING TO 703.03, BY VOLUME, AND WATER. PAYMENT FOR CEMENT GROUT SHALL BE INCLUDED WITH ITEM 202, PORTIONS OF STRUCTURE REMOVED, AS PER PLAN.
5. SEE SHEET 12 FOR LOCATION OF SECTION A-A.

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ABUTMENT DETAILS
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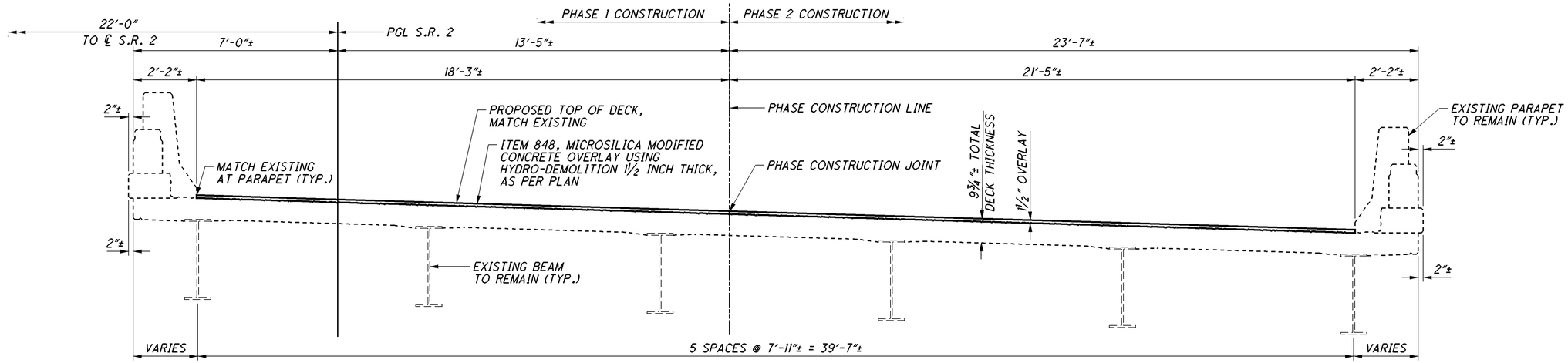
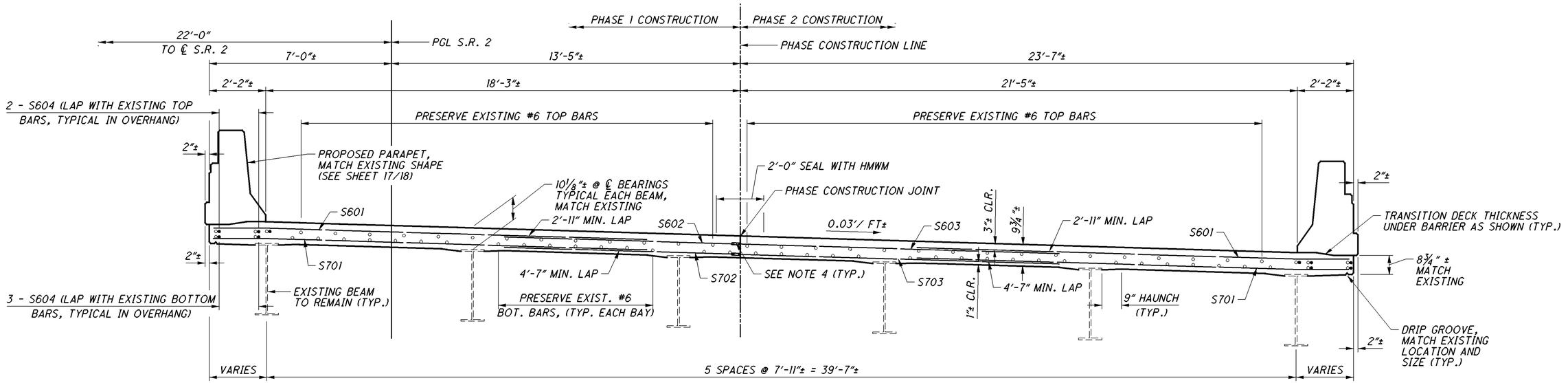


TRANSVERSE SECTION IN SPAN



TRANSVERSE SECTION AT ABUTMENTS

NOTES:

1. TRANSVERSE DIMENSIONS SHOWN ARE APPROXIMATE. IT MAY BE NECESSARY TO VARY THESE DIMENSIONS TO MEET THE PROPOSED APPROACH SLAB AND THE EXISTING DECK.
2. THE ESTIMATED QUANTITY OF DECK SLAB CONCRETE IS BASED ON THE CONSTANT DECK SLAB THICKNESS, AS SHOWN, PLUS THE QUANTITY OF CONCRETE THAT FORMS EACH BEAM HAUNCH. THE ESTIMATE ASSUMES A CONSTANT HAUNCH THICKNESS OF 1¼" INCHES AND A CONSTANT HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM FLANGE OF 9 INCHES. DEVIATE FROM THIS HAUNCH THICKNESS AS NECESSARY TO PLACE THE DECK SURFACE AT THE FINISHED GRADE. THE ALLOWABLE TOLERANCE FOR THE HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM FLANGE IS ±3 INCHES.
3. THE HAUNCH THICKNESS WAS MEASURED AT THE CENTERLINE OF THE BEAM, FROM THE SURFACE OF THE DECK TO THE BOTTOM OF THE TOP FLANGE MINUS THE DECK SLAB THICKNESS. THE AREA OF ALL EMBEDDED STEEL PLATES HAS BEEN DEDUCTED FROM THE HAUNCH QUANTITY IN ACCORDANCE WITH 511.24.
4. A MECHANICAL CONNECTOR SHALL BE USED AT THE PHASE CONSTRUCTION JOINT. THE MECHANICAL CONNECTOR SHALL MEET THE REQUIREMENTS OF 509.07. REINFORCING BAR LENGTHS ARE DETAILED TO THE FACE OF JOINT.

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TRANSVERSE SECTION
BRIDGE NO. LAK-2-1553R
S.R. 2 OVER STATE STREET

LAK-2-14.38
PID No. 87924

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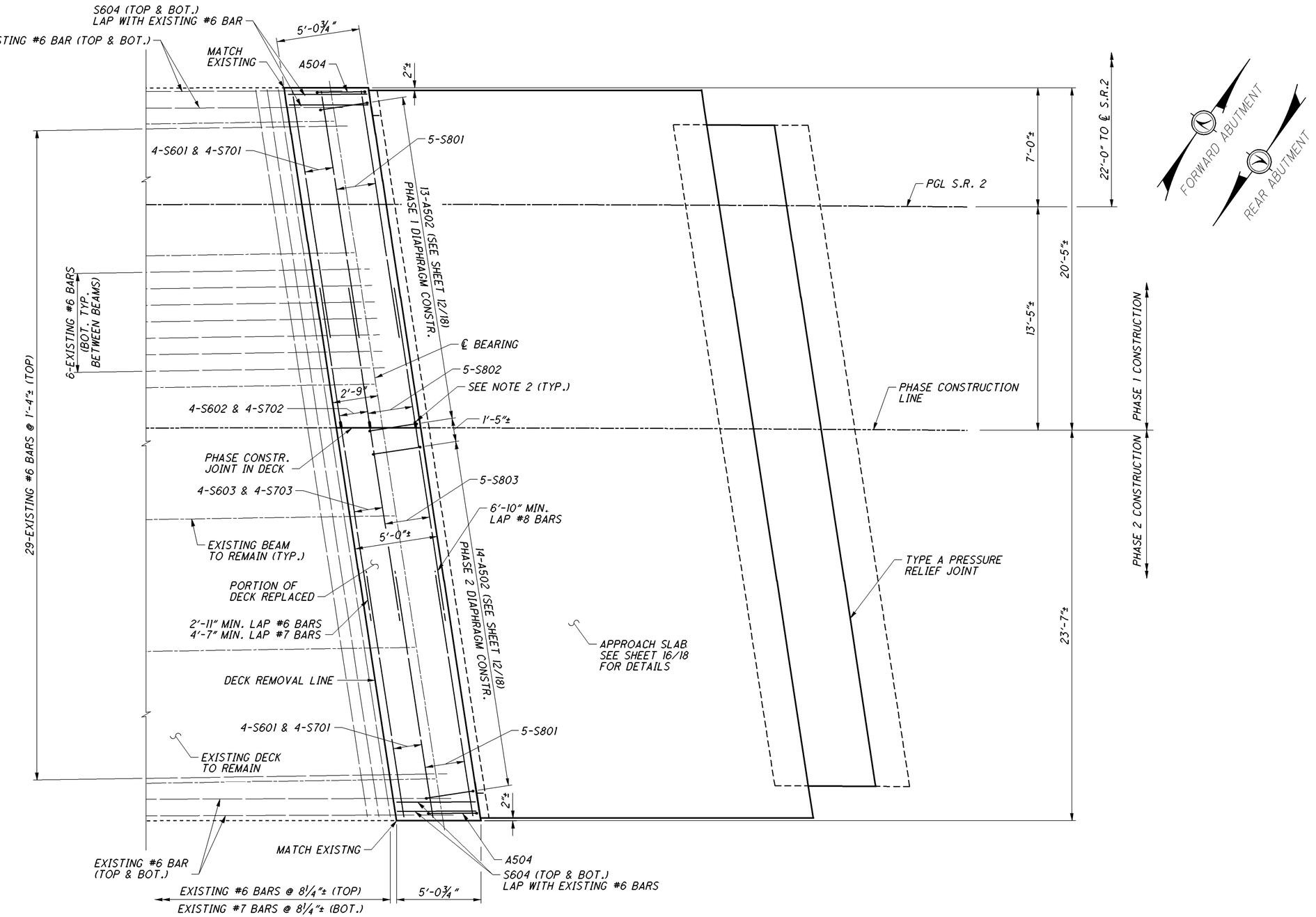

PARTIAL DECK PLAN

SHOWN AT FORWARD ABUTMENT, REAR ABUTMENT SIMILAR
PARAPET NOT SHOWN FOR CLARITY
FOR SECTION THRU ABUTMENT DIAPHRAGM, SEE SHEET 13/18

NOTES:

1. PRESERVE ALL EXISTING REINFORCEMENT THAT IS IN PORTIONS OF THE SUPERSTRUCTURE TO REMAIN.
2. A MECHANICAL CONNECTOR SHALL BE USED AT THE PHASE CONSTRUCTION JOINT. THE MECHANICAL CONNECTOR SHALL MEET THE REQUIREMENTS OF 509.07. REINFORCING BAR LENGTHS ARE DETAILED TO THE FACE OF JOINT.
3. FOR PRESSURE RELIEF JOINT DETAILS, SEE STANDARD DRAWING BP-2.3.

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PARTIAL DECK PLAN
BRIDGE NO. LAK-2-1553R
S.R. 2 OVER STATE STREET

LAK-2-14.38
PID No. 87924

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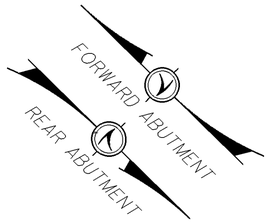
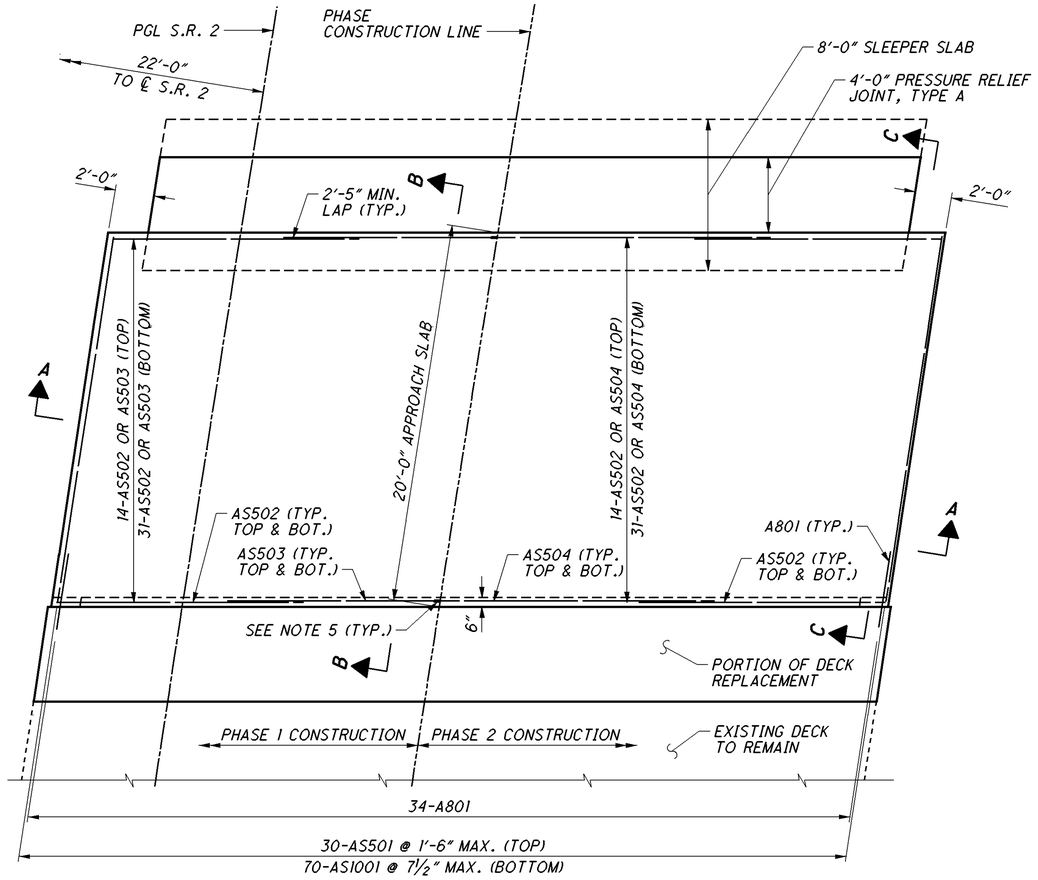
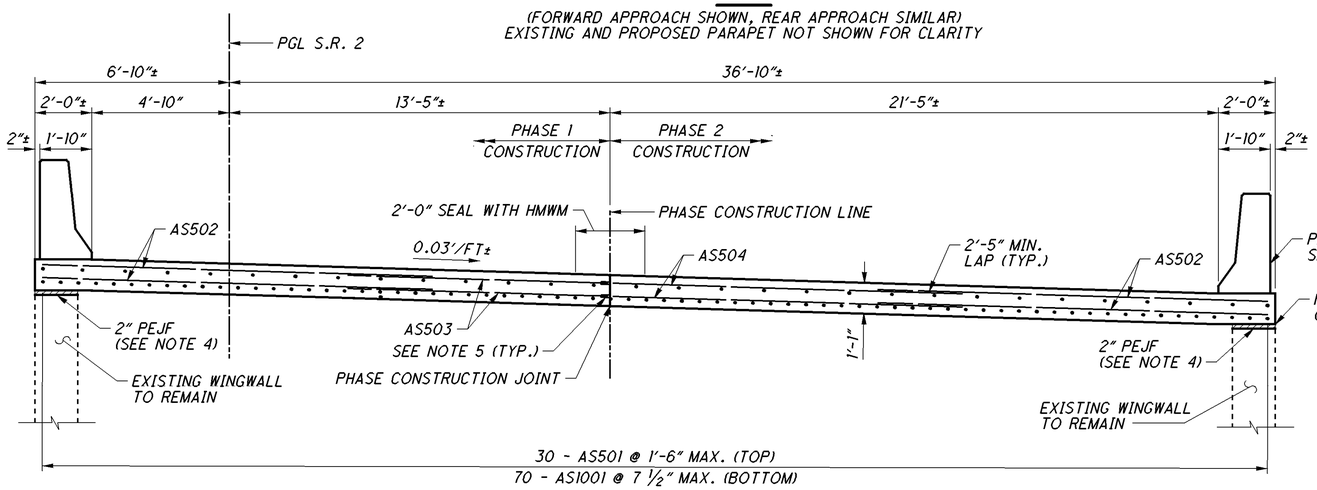




PLAN

(FORWARD APPROACH SHOWN, REAR APPROACH SIMILAR)
EXISTING AND PROPOSED PARAPET NOT SHOWN FOR CLARITY

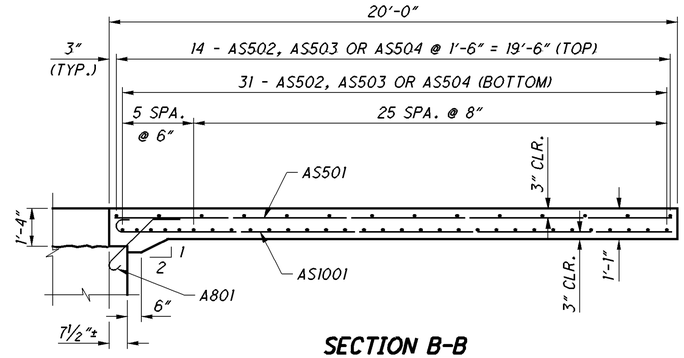


SECTION A-A

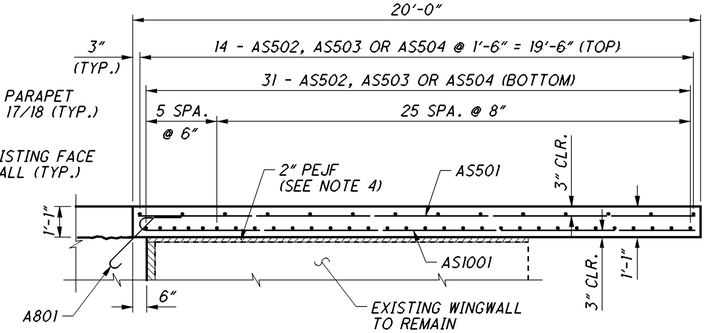
(LOOKING AHEAD STATION)

NOTES:

1. SEE STANDARD DRAWING AS-1-81 FOR ADDITIONAL DETAILS.
2. AS502, AS503, AS504 BARS SHALL BE PLACED PARALLEL TO THE ABUTMENT AND AS501, AS1001 BARS SHALL BE PLACED PLACED PARALLEL TO PGL S.R. 2.
3. FOR DETAILS OF PARAPET ON APPROACH SLAB, SEE SHEET 17/18.
4. THE FOLLOWING SHALL BE INCLUDED IN THE UNIT BID PRICE PER SQUARE YARD FOR ITEM 526, REINFORCED CONCRETE APPROACH SLABS (T=13"), AS PER PLAN:
   - CONCRETE FOR APPROACH SLAB
   - ALL ASSOCIATED REINFORCING STEEL
   - ALL PREFORMED EXPANSION JOINT FILLERS AND JOINT SEALERS
   - WATERPROOFING
   - CONCRETE SEALING OF PARAPET ON APPROACH SLAB
5. A MECHANICAL CONNECTOR SHALL BE USED AT THE PHASE CONSTRUCTION JOINT. THE MECHANICAL CONNECTOR SHALL MEET THE REQUIREMENTS OF 509.07. REINFORCING BAR LENGTHS ARE DETAILED TO THE FACE OF JOINT.
6. PRESSURE RELIEF JOINT, TYPE A AND SLEEPER SLAB SHALL BE INCLUDED IN THE UNIT BID PRICE PER FOOT FOR ITEM SPECIAL, PRESSURE RELIEF JOINT, TYPE A. FOR PRESSURE RELIEF JOINT DETAILS, SEE STANDARD DRAWING BP-2.3.



SECTION B-B



SECTION C-C

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
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APPROACH SLAB PLAN AND DETAILS
BRIDGE NO. LAK-2-1553R
S.R. 2 OVER STATE STREET

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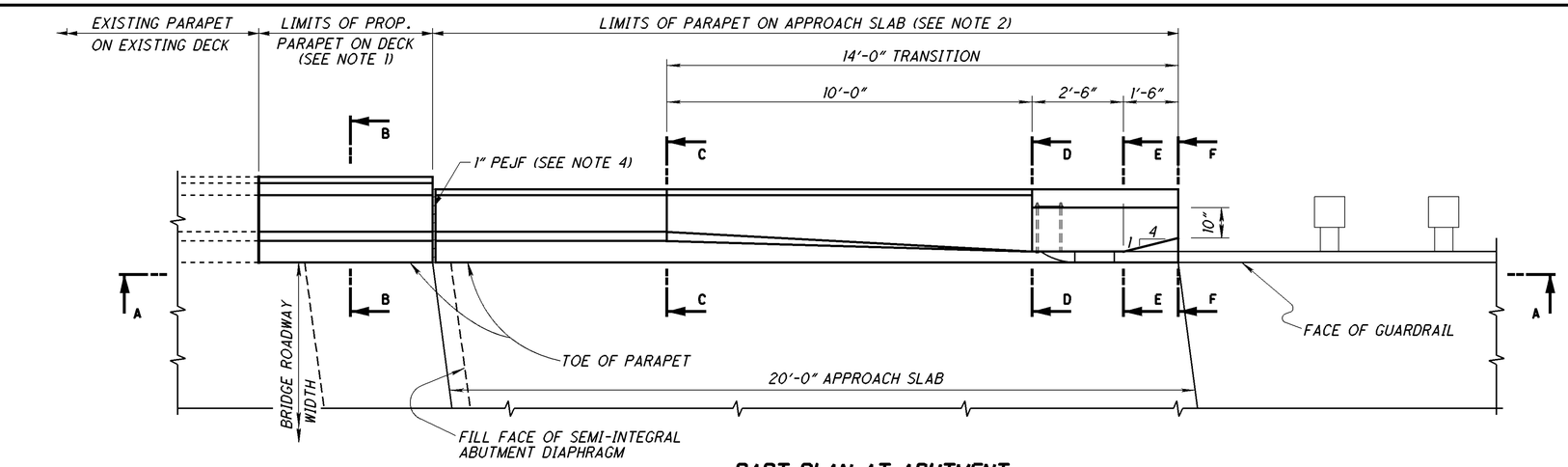
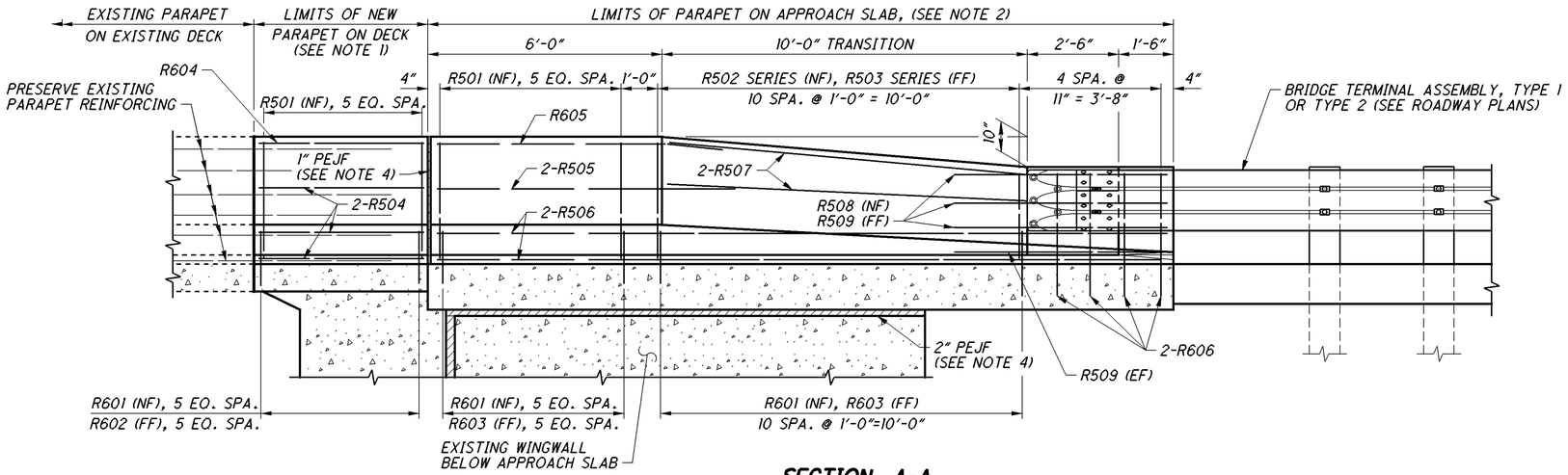


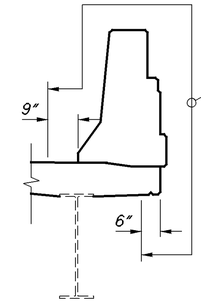
PART PLAN AT ABUTMENT



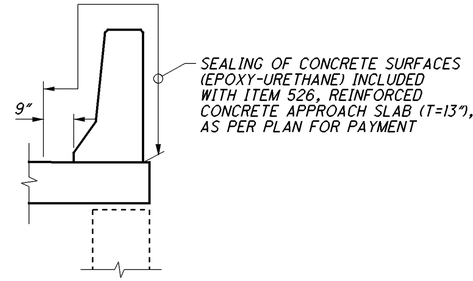
SECTION A-A

NOTES:

1. PARAPET CONCRETE INCLUDED WITH ITEM 511, CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN FOR PAYMENT. PARAPET REINFORCING INCLUDED WITH ITEM 509, EPOXY COATED REINFORCING STEEL, AS PER PLAN.
2. PARAPET CONCRETE AND REINFORCING INCLUDED WITH ITEM 526, REINFORCED CONCRETE APPROACH SLABS (T=13") AS PER PLAN FOR PAYMENT.
3. FOR PARAPET REINFORCING LIST, SEE SHEET 18/18.
4. PREFORMED EXPANSION JOINT FILLERS INCLUDED WITH ITEM 526, REINFORCED CONCRETE APPROACH SLABS (T=13") AS PER PLAN FOR PAYMENT.

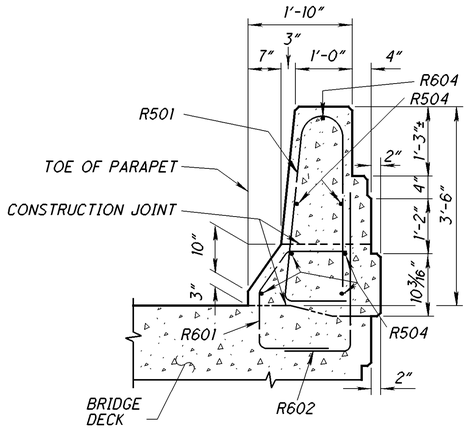


PARAPET ON DECK



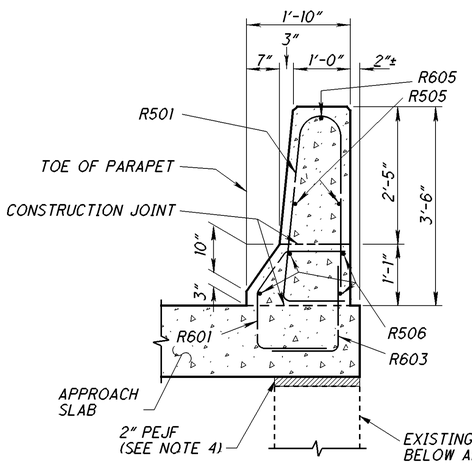
PARAPET ON APPROACH SLAB

CONCRETE SEALING DETAILS

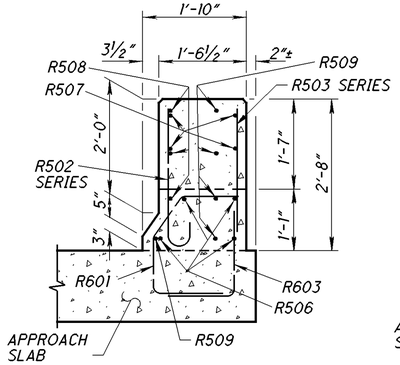


SECTION B-B

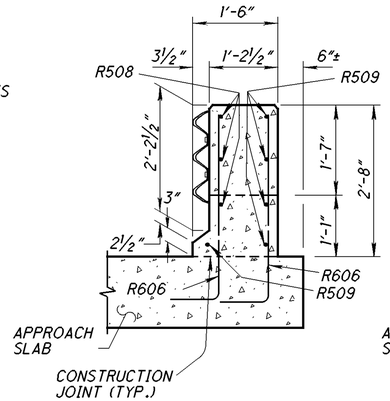
MATCH EXISTING PARAPET SHAPE FIELD BEND BARS IF NECESSARY



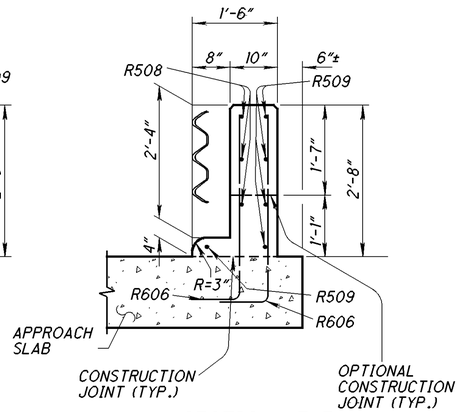
SECTION C-C



SECTION D-D



SECTION E-E



SECTION F-F

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
BKS	TEK	SCJ	9/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JTC		4301595	

PARAPET DETAILS
BRIDGE NO. LAK-2-1553R
S.R. 2 OVER STATE STREET

LAK-2-14.38
PID No. 87924

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SUPERSTRUCTURE - ABUTMENT DIAPHRAGM

MARK	QUANTITY REAR ABUT.	QUANTITY FWD. ABUT.	QUANTITY TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
A501	27	27	54	11'-3"	634	3	3'-5"	1'-11"					
A502	27	27	54	7'-8"	432	2	2'-6"	2'-11"	2'-6"				
A503	2	2	4	11'-3"	47	3	3'-5"	1'-11"					
A504	2	2	4	7'-8"	32	2	2'-6"	2'-11"	2'-6"				
A801	34	34	68	4'-9"	863	18	2'-5"	1'-0"	1'-0"				
A802	20	20	40	17'-5"	1861	STR							
A803	10	10	20	10'-6"	561	35							
A804	10	10	20	12'-5"	664	36							
				SUB-TOTAL	5094								

SUPERSTRUCTURE - DECK

MARK	QUANTITY REAR ABUT.	QUANTITY FWD. ABUT.	QUANTITY TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
S601	8	8	16	15'-6"	373	STR							
S602	4	4	8	7'-11"	96	35							
S603	4	4	8	11'-1"	134	36							
S604	8	8	16	4'-8"	113	STR							
S701	8	8	16	16'-4"	535	STR							
S702	4	4	8	8'-9"	144	35							
S703	4	4	8	11'-11"	195	36							
S801	10	10	20	17'-6"	935	STR							
S802	5	5	10	9'-10"	263	35							
S803	5	5	10	13'-0"	348	36							
				SUB-TOTAL	3136								

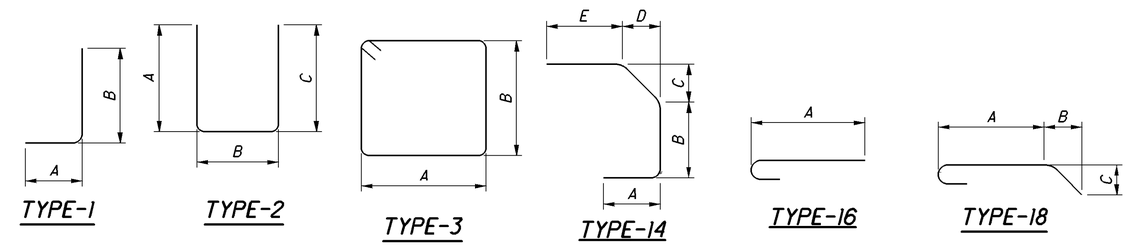
SUPERSTRUCTURE - PARAPET

MARK	QUANTITY REAR ABUT.	QUANTITY FWD. ABUT.	QUANTITY TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
R501	12	12	24	7'-6"	188	23	1'-0"	3'-3"	3'-0"			3¾"	
R504	12	12	24	4'-8"	117	STR							
R601	12	12	24	3'-4"	121	14	1'-2½"	8"	8½"	6"	11"		
R602	12	12	24	3'-4"	121	1	11"	2'-7"					
R604	2	2	4	4'-8"	29	STR							
				SUB-TOTAL	576								

APPROACH SLAB*

MARK	QUANTITY REAR ABUT.	QUANTITY FWD. ABUT.	QUANTITY TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
AS501	30	30	60	19'-6"	1221	STR							
AS502	90	90	180	10'-0"	1875	STR							
AS503	45	45	90	12'-9"	1197	35							
AS504	45	45	90	15'-11"	1495	36							
AS1001	70	70	140	20'-11"	12601	16	19'-6"						
R501	12	12	24	7'-6"	188	23	1'-0"	3'-3"	3'-0"			3¾"	
R502	2 SERIES OF 11	2 SERIES OF 11	4 SERIES OF 11	3'-0" TO 3'-10"	157	30	11	2'-5"	3'-3"				1"
R503	2 SERIES OF 11	2 SERIES OF 11	4 SERIES OF 11	2'-5" TO 3'-3"	130	29	11	2'-5"	3'-3"				1"
R505	4	4	8	7'-10"	66	STR							
R506	8	8	16	15'-8"	262	STR							
R507	8	8	16	10'-0"	167	STR							
R508	6	6	12	5'-8"	71	25	1'-10"	2'-5"	1'-4¼"	1½"	5"		
R509	10	10	20	5'-8"	119	STR							
R601	34	34	68	3'-4"	340	14	1'-2½"	8"	8½"	6"	11"		
R603	34	34	68	2'-4"	239	1	11"	1'-7"					
R605	2	2	4	8'-3"	50	STR							
R606	16	16	32	4'-0"	193	1	11"	3'-3"					
				SUB-TOTAL	20371								

* BARS SHOWN FOR INFORMATIONAL PURPOSES ONLY. BARS ARE INCLUDED WITH APPROACH SLAB ITEM FOR PAYMENT.



NOTES:

1. THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT WHERE THREE DIGITS ARE USED AND THE FIRST TWO WHERE FOUR DIGIT ARE USED, INDICATES THE BAR SIZE NUMBER.
2. ALL DIMENSIONS ARE MEASURED OUT-TO-OUT OF BAR UNLESS NOTED OTHERWISE.
3. FOR STANDARD HOOK DIMENSIONS, SEE SECTION 509.05 OF THE SPECIFICATIONS.
4. ALL REINFORCING STEEL TO BE EPOXY COATED.
5. PAYMENT FOR REINFORCING STEEL SHALL BE INCLUDED IN THE CONTRACT BID PRICE FOR ITEM 509, EPOXY COATED REINFORCING STEEL, AS PER PLAN.

DESIGN AGENCY
CH2MHILL
1100 SUPERIOR AVENUE, EAST
SUITE 1420 44114
CLEVELAND, OHIO

DESIGNED BKS | DRAWN TEK | REVIEWED SCJ | DATE 9/10 | CHECKED JTC | REVISED | STRUCTURE FILE NUMBER 4301595

REINFORCING STEEL LIST

BRIDGE NO. LAK-2-1553R
S.R. 2 OVER STATE STREET

LAK-2-14.38
PID No. 87924

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