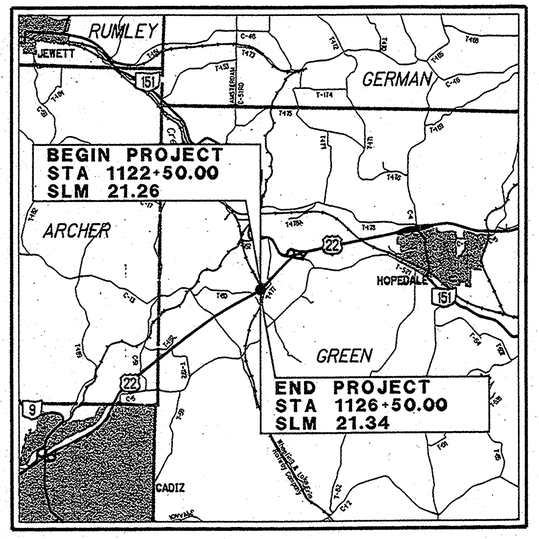



LOCATION MAP

LATITUDE: N 40° 19' 00" LONGITUDE: W 80° 56' 40"

SCALE IN MILES

0 1 2 3 4

N

# STATE OF OHIO
# DEPARTMENT OF TRANSPORTATION

# HAS-22-21.26

## GREEN TOWNSHIP
## HARRISON COUNTY

### PROJECT DESCRIPTION

IMPROVEMENT OF 400 FEET (0.08 MILES) OF U.S. 22 BY REPLACING THE SUPERSTRUCTURE OF EXISTING BRIDGE HAS-22-2126 OVER WHEELING AND LAKE ERIE RAILROAD, INCLUDING APPROACH PAVEMENT WORK, GUARDRAIL, AND APPROACH SLABS.

### EARTH DISTURBED AREA:

| | |
|---|---|
| PROJECT EARTH DISTURBED AREA: | 0.533 ACRES |
| ESTIMATED CONTRACTOR EARTH DISTRUBED AREA: | 0.271 ACRES |
| NOTICE OF INTENT EARTH DISTURBED AREA: | NOT REQUIRED |

### 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.

### 2013 SPECIFICATIONS

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

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

### INDEX OF SHEETS:


| | |
|---|---|
| TITLE SHEET | 1 |
| TYPICAL SECTIONS | 2,3 |
| GENERAL NOTES | 4 |
| MAINTENANCE OF TRAFFIC | 5-8 |
| GENERAL SUMMARY | 9,10 |
| ESTIMATED QUANTITIES | 11,12 |
| PLAN AND PROFILE | 13 |
| CROSS SECTIONS | 14-21 |
| SUPERELEVATION TABLE | 22 |
| MISCELLANEOUS DETAILS | 23 |
| STRUCTURES (20' SPAN AND OVER) | 24-52 |
| SOIL PROFILE | |


### DESIGN DESIGNATION

| | |
|---|---|
| CURRENT ADT (2015) | 6200 |
| DESIGN YEAR ADT (2035) | 8000 |
| DESIGN HOURLY VOLUME (2035) | 800 |
| DIRECTIONAL DISTRIBUTION | 53% |
| TRUCKS (24 HOUR B&C) | 21% |
| DESIGN SPEED | 55 MPH |
| LEGAL SPEED | 55 MPH |
| DESIGN FUNCTIONAL CLASSIFICATION: RURAL PRINCIPAL ARTERIAL | |
| NHS PROJECT | YES |

### 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**

ENGINEER'S SEAL:

STATE OF OHIO
RAYMOND PAUL TRIVOLI
E-63963
REGISTERED PROFESSIONAL ENGINEER

SIGNED: Raymond P. Trivoli
DATE: DEC. 3, 2013

PLAN PREPARED BY:
O.D.O.T. DISTRICT 11
PLANNING AND ENGINEERING
NEW PHILADELPHIA, OHIO

### STANDARD CONSTRUCTION DRAWINGS

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BP-3.1 | 4/20/12 | DM-1.1 | 1/18/13 | MT-96.11 | 7/19/13 | | | AS-1-81 | 1/18/13 | 800 | 1/17/2014 |
| BP-5.1 | 7/19/13 | DM-4.1 | 7/19/13 | MT-96.20 | 7/19/13 | | | GSD-1-96 | 7/19/02 | 832 | 10/18/2013 |
| | | DM-4.2 | 7/20/12 | MT-96.26 | 7/19/13 | | | PCB-91 | 1/18/13 | | |
| F-2.1 | 7/19/13 | DM-4.3 | 7/19/13 | | | | | SBR-1-99 | 7/19/02 | | |
| F-3.1 | 7/19/13 | DM-4.4 | 7/20/12 | MT-97.10 | 7/19/13 | | | SICD-1-96 | 7/19/02 | | |
| F-3.3 | 7/19/13 | | | MT-101.70 | 7/19/13 | | | | | | |
| F-3.4 | 7/19/13 | TC-41.20 | 10/18/13 | MT-105.10 | 7/19/13 | | | | | | |
| | | TC-42.20 | 10/18/13 | | | | | | | | |
| MGS-1.1 | 7/19/13 | TC-52.10 | 10/18/13 | | | | | | | | |
| MGS-2.1 | 7/19/13 | TC-52.20 | 1/18/13 | | | | | | | SPECIAL PROVISIONS | |
| MGS-3.1 | 7/19/13 | TC-61.30 | 4/20/12 | | | | | | | | |
| MGS-4.3 | 1/18/13 | TC-65.10 | 4/20/12 | | | | | | | | |
| | | TC-65.11 | 4/20/12 | | | | | | | | |
| RM-4.2 | 10/15/10 | TC-73.10 | 4/20/12 | | | | | | | | |

APPROVED Lloyd V. MacAdam, P.E., P.S.
DATE 12/04/13 DISTRICT DEPUTY DIRECTOR

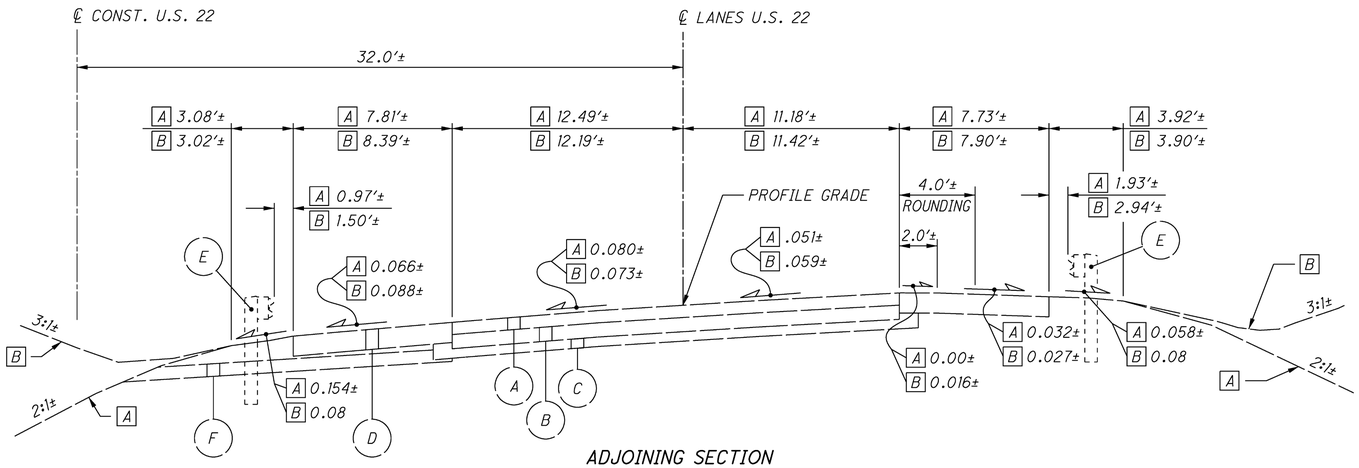
APPROVED Gerry Wray
DATE 12-20-13 DIRECTOR, DEPARTMENT OF TRANSPORTATION

FEDERAL PROJECT NO. E130 (091)
PID NO. 88904
CONSTRUCTION PROJECT NO.
RAILROAD INVOLVEMENT WHEELING & LAKE ERIE
HAS-22-21.26
1/52

HAS - US 22-21.260
140137 PID - 88904
Dist 11 3/13/2014

Contract Proposal Available @ www.contracts.dot.state.oh.us/home

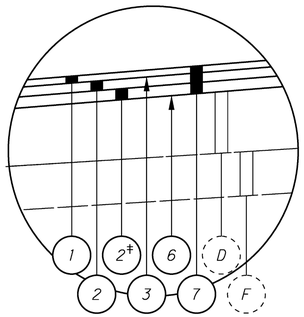
I:\PROJECTS\88904\Prod\Dgn\g1t00.dgn 03-DEC-2013 3:34PM rtrivoli



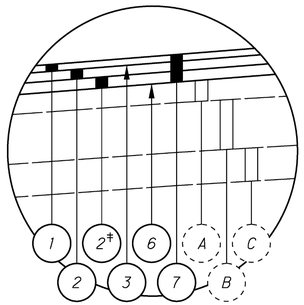

### ADJOINING SECTION

A — BEGIN PROJECT STA. 1122+50.00

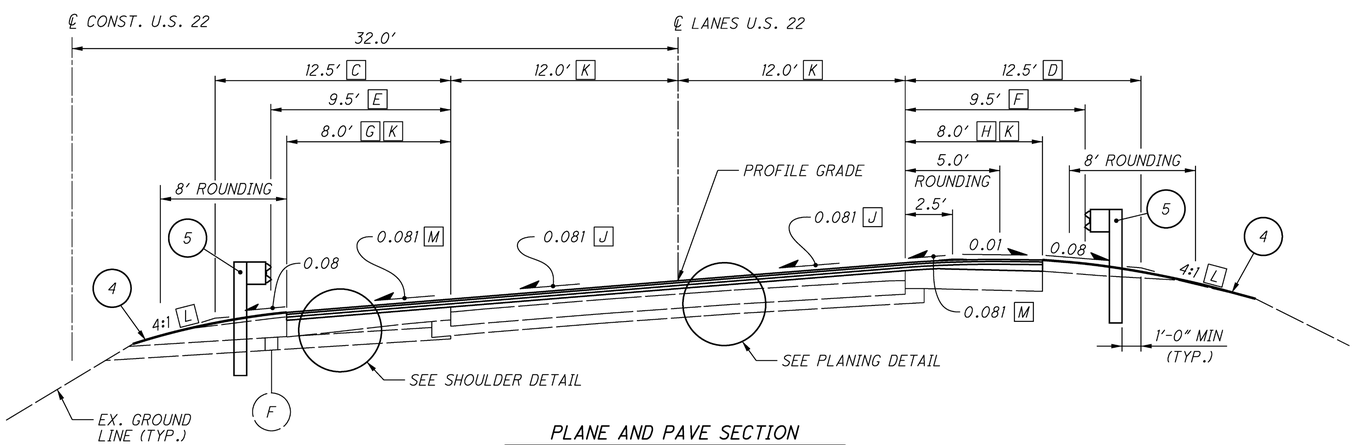
B — END PROJECT STA. 1126+50.00




### SHOULDER DETAIL




### PLANING DETAIL




### PLANE AND PAVE SECTION

STA. 1122+50.00 TO STA. 1123+08.51
STA. 1125+58.81 TO STA. 1126+50.00

### EXISTING LEGEND

A — 7¾"± EXISTING ASPHALT CONCRETE PAVEMENT

B — 9"± EXISTING REINFORCED CONCRETE

C — 6"± EXISTING SUBBASE

D — 12¾"± EXISTING ASPHALT BASE SHOULDER

E — EXISTING GUARDRAIL

F — EXISTING AGGREGATE UNDERDRAINS

### LEGEND

1 — ITEM 448 - 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22, AS PER PLAN

2 — ITEM 448 - 1¾" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22

2‡ — ITEM 448 - ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22 (VARIABLE DEPTH 0"-4⅛").

3 — ITEM 407 - TACK COAT FOR INTERMEDIATE COURSE (APPLIED @ 0.04 GAL./S.Y.)

4 — ITEM 659 - SEEDING AND MULCHING

5 — ITEM 606 - GUARDRAIL, TYPE MGS WITH LONG POSTS

6 — ITEM 407 - TACK COAT (APPLIED @ 0.075 GAL./S.Y.)

7 — ITEM 254 - PAVEMENT PLANING, ASPHALT CONCRETE (VARIABLE DEPTH)

8 — ITEM 526 - REINFORCED CONCRETE APPROACH SLABS (T=15"), AS PER PLAN

9 — ITEM 304 - 6" AGGREGATE BASE

10 — ITEM 204 - SUBGRADE COMPACTION

11 — ITEM 511 - CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK (PARAPET)

12 — ITEM 301 - 6" ASPHALT CONCRETE BASE, PG64-22

13 — ITEM 609 - CURB, TYPE 4-C

C — VARIES FROM 10.89'± AT STA. 1122+50.00 TO 12.5' AT STA 1122+75.00
VARIES FROM 12.5' AT STA. 1126+25.00 TO 11.41'± AT STA 1126+50.00

D — VARIES FROM 11.65'± AT STA. 1122+50.00 TO 12.5' AT STA 1122+75.00
VARIES FROM 12.5' AT STA. 1126+25.00 TO 11.80'± AT STA 1126+50.00

E — VARIES FROM 8.78'± AT STA. 1122+50.00 TO 9.5' AT STA 1122+75.00
VARIES FROM 9.5' AT STA. 1126+25.00 TO 9.89'± AT STA 1126+50.00

F — VARIES FROM 9.66'± AT STA. 1122+50.00 TO 9.5' AT STA 1122+75.00
VARIES FROM 9.5' AT STA. 1126+25.00 TO 10.84'± AT STA 1126+50.00

G — 8.67' FROM STA. 1123+00.00 TO STA. 1123+08.51

H — 7.25' FROM STA. 1123+00.00 TO STA. 1123+08.51

J — SEE SUPERELEVATION TABLE ON SHEET NO. 22.

K — FOR PAVEMENT AND SHOULDER TRANSITIONS TO MATCH EXISTING, SEE PLAN AND PROFILE SHEETS

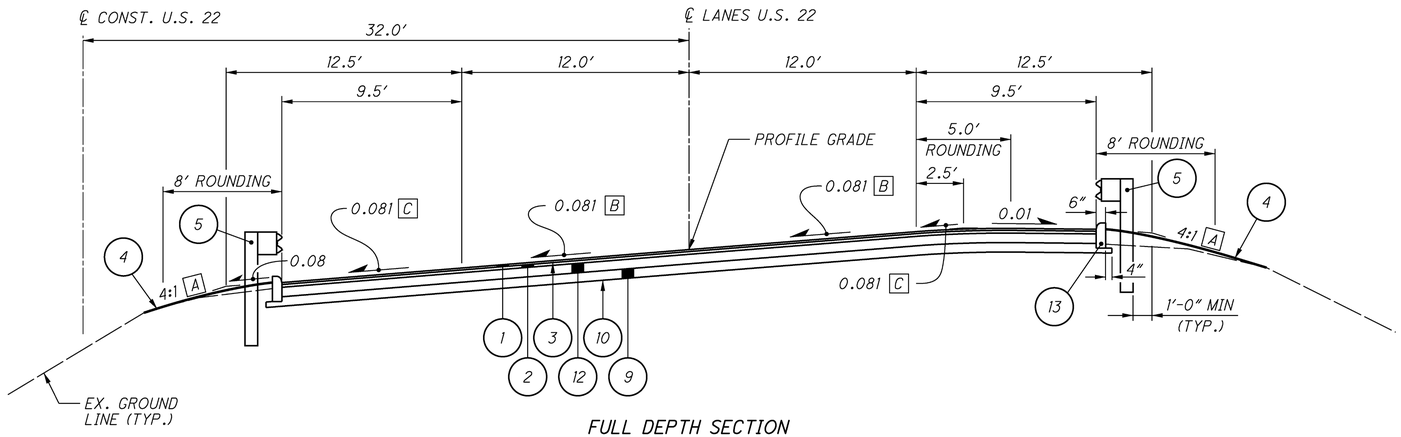
L — OR AS SHOWN ON CROSS SECTIONS

M — OR MATCH SUPERELEVATION

CALCULATED CCN CHECKED RPT

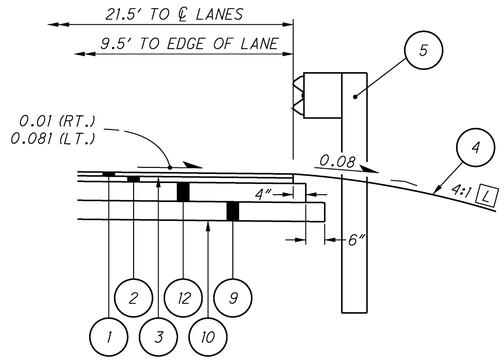
# TYPICAL SECTIONS

HAS-22-21.26



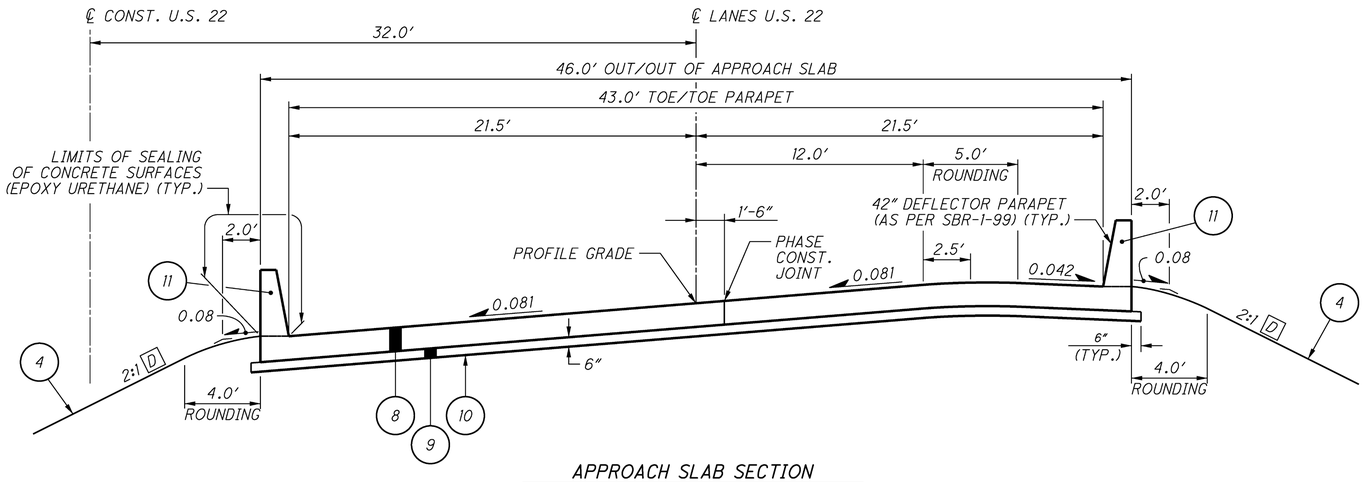

FULL DEPTH SECTION

STA. 1123+08.77 TO STA. 1123+34.42
STA. 1125+30.23 TO STA. 1125+58.56




ALTERNATE SHOULDER DETAIL

STA. 1123+08.77 TO STA. 1123+24.44 (LT.)
STA. 1125+37.92 TO STA. 1125+58.56 (RT.)




APPROACH SLAB SECTION

STA. 1123+34.42 TO STA. 1123+59.08
STA. 1125+05.58 TO STA. 1125+30.23

A OR AS SHOWN ON CROSS SECTIONS

B SEE SUPERELEVATION TABLE ON SHEET NO. 22.

C OR MATCH SUPERELEVATION

D VARIES FROM 2:1 AT STA. 1125+05.58 TO 4:1 AT STA. 1125+30.23

NOTES

1. TRANSITION FROM THE TYPICAL SECTION TO THE BRIDGE DECK TRANSVERSE SECTION OVER THE LENGTH OF THE APPROACH SLABS. THE APPROACH SLAB SECTION SHOWN DEPICTS THE CONFIGURATION NEAREST THE BRIDGE LIMITS.
2. FOR LEGEND SEE SHEET 2.

CALCULATED CCN CHECKED RPT

# TYPICAL SECTIONS

HAS-22-21.26

**UTILITIES**
THERE ARE NO KNOWN UNDERGROUND OR OVERHEAD UTILITIES WITHIN THE PROJECT CONSTRUCTION LIMITS.

**ROUNDING**
THE ROUNDING AT SLOPE BREAKPOINTS SHOWN ON THE TYPICAL SECTIONS APPLIES TO ALL CROSS-SECTIONS EVEN THOUGH OTHERWISE SHOWN.

**EXISTING PLANS**
THE FOLLOWING EXISTING PLANS ARE AVAILABLE FOR REFERENCE AT THE DISTRICT 11 OFFICE OF THE OHIO DEPARTMENT OF TRANSPORTATION, 2201 REISER AVE., S.E., NEW PHILADELPHIA, OHIO 44663:

ORIGINAL CONSTRUCTION:
HAS-22-18.97 / JEF-22-0.00 (1960)

RESURFACING AND DECK OVERLAY:
HAS-22-20.07 (1980)
HAS-22-15.03 (1990)

RESURFACING:
HAS-22-30.674, PID: 18184 (1999)
HAS-22-11.75, PID: 81739 (2011)

ADDITIONALLY THE EXISTING PLANS CAN BE FOUND ON THE DEPARTMENTS WEBSITE AT THE FOLLOWING ADDRESS:

http://www.dot.state.oh.us/Divisions/ContractAdmin/Contracts/Pages/designfiles.aspx

**SURVEYING PARAMETERS**
USE THE FOLLOWING VERTICAL POSITIONING AND HORIZONTAL POSITIONING PARAMETERS FOR ALL SURVEYING:

VERTICAL POSITIONING ASSUMED

HORIZONTAL POSITIONING

REFERENCE FRAME: NAD83 (CORS96)
ELLIPSOID: GRS 1980
MAP PROJECTION: LAMBERT CONIC
COORDINATE SYSTEM: OHIO STATE PLANE NORTH ZONE
COMBINED SCALE FACTOR: 0.9999746434

UNITS ARE IN U.S. SURVEY FEET.

**WORK LIMITS**
THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. PROVIDE THE INSTALLATION AND OPERATION OF ALL WORK ZONE TRAFFIC CONTROL AND WORK ZONE TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

**CLEARING AND GRUBBING**
ALTHOUGH THERE ARE NO TREES OR STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE LIMITS OF THE POJECT, A LUMP SUM QUANTITY IS INCLUDED IN THE GENERAL SUMMARY FOR ITEM 201, CLEARING AND GRUBBING. ALL PROVISIONS AS SET FORTH IN THE SPECIFICATIONS UNDER THIS ITEM ARE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING AND GRUBBING.

**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, BEAM SPLICE AS SHOWN IN AASHTO M 180-12, EXCEPT THE BEAM WASHERS ARE NOT TO BE USED. PAYMENT SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE RESPECTIVE GUARDRAIL ITEMS.

**ITEM 606 - ANCHOR ASSEMBLY, MGS TYPE E**
THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING ANY OF THE GUARDRAIL END TERMINALS FOR THE MGS GUARDRAIL AS LISTED ON ROADWAY ENGINEERING'S WEB PAGE UNDER ROADSIDE SAFETY DEVICES FOR APPROVED GUARDRAIL END TREATMENTS. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

THE FACE OF THE TYPE E IMPACT HEAD SHALL BE COVERED WITH A SHEET OF TYPE G REFLECTIVE SHEETING, PER CMS 730.19.

REFER TO THE MANUFACTURERS INSTRUCTIONS 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 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 27.75 INCHES 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 ABOVE THE GROUND LINE.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 606, ANCHOR ASSEMBLY, MGS 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 448 - ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22, AS PER PLAN**
FOLLOW SPECIFICATION 703.05 EXCEPT DO NOT USE COARSE AGGREGATE FROM A SOURCE DESIGNATED 'SR' OR 'SRH' ACCORDING TO THE OFFICE OF MATERIALS MANAGEMENT (OMM) IN ANY JOB MIX FORMULA (JMF) FOR THIS ITEM.

**PART-WIDTH CONSTRUCTION**
BECAUSE OF THE NECESSITY TO BUILD THIS PROJECT UNDER TRAFFIC AND TO CONSTRUCT THE FULL PAVEMENT WIDTH IN STAGES, EXERCISE CARE TO PREVENT THE CONSTRUCTION OF A BUTT JOINT IN THE BASE COURSES. LAP LONGITUDINAL JOINTS AS SHOWN ON STANDARD CONSTRUCTION DRAWING BP-3.1.

**FENCE LENGTHS**
THE LENGTHS OF FENCE SHOWN IN THE PLANS ARE HORIZONTAL DIMENSIONS. MEASUREMENTS OF THE FINAL QUANTITIES WILL BE IN ACCORDANCE WITH ITEM 607.

**SEEDING AND MULCHING**
SEEDING AND MULCHING SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL BETWEEN THE RIGHT-OF-WAY LINES, AND WITHIN THE CONSTRUCTION LIMITS FOR AREAS OUTSIDE THE RIGHT-OF-WAY LINES COVERED BY WORK AGREEMENT OR SLOPE EASEMENT. QUANTITY CALCULATIONS FOR SEEDING AND MULCHING ARE BASED ON THESE LIMITS.

**WETLAND AVOIDANCE**
WETLAND AREAS HAVE BEEN IDENTIFIED IN THE PROJECT VACINITY. THESE AREAS ARE SHOWN ON SHEETS 13 AND 24 OF THE PLANS. THESE WETLAND AREAS ARE NOT WITHIN THE PROJECT'S CONSTRUCTION LIMITS. HOWEVER, THE CONTRACTOR SHALL EXERCISE CAUTION TO ASSURE THAT NO IMPACTS OCCUR TO THESE WETLAND AREAS.

**HORIZONTAL CONTROL POINTS**

| STATION | OFFSET | NORTH | EAST | ELEV. | REMARKS |
|---|---|---|---|---|---|
| 1122+88.19 | ℄ | 240,664.579 | 2,402,310.699 | - - - | I. PIN SET |
| 1123+25.88 | 58.17' RT. | 240,637.478 | 2,402,374.771 | 1152.76 | BENCH MARK #1 |
| 1126+40.57 | 6.53' RT. | 240,875.170 | 2,402,593.489 | 1153.26 | BENCH MARK #2 |
| 1126+11.52 | ℄ | 240,860.667 | 2,402,567.444 | - - - | I. PIN SET |

CALCULATED CCN CHECKED RPT

# GENERAL NOTES

HAS-22-21.26

**ITEM 614, MAINTAINING TRAFFIC**

THE CONTRACTOR SHALL MAINTAIN TRAFFIC AT ALL TIMES AND IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 614 AND THE PHASE CONSTRUCTION DETAILS DESCRIBED ON SHEET 27. TRAFFIC SHALL BE MAINTAINED AT ALL TIMES BY USE OF THE EXISTING PAVEMENT AND PORTIONS OF THE EXISTING AND PROPOSED BRIDGE.

LENGTH AND DURATION OF LANE CLOSURES AND RESTRICTIONS SHALL BE AT THE APPROVAL OF THE ENGINEER. IT IS THE INTENT TO MINIMIZE THE IMPACT TO THE TRAVELING PUBLIC. LANE CLOSURES OR RESTRICTIONS OVER SEGMENTS OF THE PROJECT IN WHICH NO WORK IS ANTICIPATED WITHIN A REASONABLE TIME FRAME, AS DETERMINED BY THE ENGINEER, SHALL NOT BE PERMITTED. THE LEVEL OF UTILIZATION OF MAINTENANCE OF TRAFFIC DEVICES SHALL BE COMMENSURATE WITH THE WORK IN PROGRESS.

ALTERNATING ONE-WAY TRAFFIC SHALL BE MAINTAINED DURING PHASE 1 THROUGH PHASE 2 BY USE OF WORK ZONE TRAFFIC SIGNALS AS SHOWN ON SHEETS 6-8. TRAFFIC SHALL BE SEPARATED FROM THE WORK AREA BY MEANS OF ITEM 622, PORTABLE BARRIER, 32".

PRIOR TO THE BEGINNING OF ANY CONSTRUCTION THAT WILL REQUIRE THE CLOSURE OF EXISTING LANES TO TRAFFIC, ALL WORK ZONE SIGNALS, SIGNS, LIGHTS, PORTABLE CONCRETE BARRIER, AND WORK ZONE PAVEMENT MARKINGS SHALL BE FURNISHED AND INSTALLED AS SHOWN ON SHEETS 6-8. WORK ZONE PAVEMENT MARKINGS AND PORTABLE BARRIER INSTALLATION SHALL BE ACCOMPLISHED IN ONE DAY, WITH FLAGGERS BEING UTILIZED FOR THE PROTECTION OF TRAFFIC DURING THE INSTALLATION OF THESE ITEMS. WHEN THE ABOVE REQUIREMENTS HAVE BEEN SATISFIED, SIGNAL CONTROLLED ALTERNATING ONE-WAY TRAFFIC MAY BEGIN.

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH CMS 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

**ITEM 614, BARRIER REFLECTORS AND OBJECT MARKERS**

BARRIER REFLECTORS AND OBJECT MARKERS SHALL BE INSTALLED ON ALL PORTABLE BARRIER (PB) USED FOR TRAFFIC CONTROL. BARRIER REFLECTORS SHALL BE INSTALLED ON ALL GUARDRAIL AND EXISTING BRIDGE RAILING USED FOR TRAFFIC CONTROL. BARRIER REFLECTORS, OBJECT MARKERS AND THEIR INSTALLATION SHALL CONFORM TO CMS 626, EXCEPT THAT THE SPACING SHALL BE 50 FEET.

IN ADDITION TO QUANTITIES ON SHEET NO. 6, THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR USE DURING PHASE 1 AND IS TO BE APPLIED TO THE EXISTING LEFT SIDE GUARDRAIL AND BRIDGE RAILING.

ITEM 614, BARRIER REFLECTOR, TYPE A2 21 EACH

**NOTIFICATION OF WORK ZONE LANE RESTRICTIONS**

THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST EIGHTEEN (18) DAYS PRIOR TO IMPLEMENTING ANY WORK ZONE RESTRICTIONS THAT WILL REDUCE THE WIDTH OR VERTICAL CLEARANCE OF ANY LANE ON WHICH TRAFFIC WILL BE MAINTAINED DURING CONSTRUCTION.

**FLOODLIGHTING**

FLOODLIGHTING OF THE WORK SITE FOR OPERATIONS CONDUCTED DURING NIGHTTIME PERIODS SHALL BE ACCOMPLISHED SO THAT THE LIGHTS DO NOT CAUSE GLARE TO THE DRIVERS ON THE ROADWAY. TO ENSURE THE ADEQUACY OF THE FLOODLIGHT PLACEMENT, THE CONTRACTOR AND THE ENGINEER SHALL DRIVE THROUGH THE WORK SITE EACH NIGHT WHEN THE LIGHTING IS IN PLACE AND OPERATIVE PRIOR TO COMMENCING ANY WORK. IF GLARE IS DETECTED, THE LIGHT PLACEMENT AND SHIELDING SHALL BE ADJUSTED TO THE SATISFACTION OF THE ENGINEER BEFORE WORK PROCEEDS.

PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC.

**ITEM 614 - WORK ZONE IMPACT ATTENUATOR FOR 24" WIDE HAZARDS (BIDIRECTIONAL)**

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING A NON-GATING IMPACT ATTENUATOR. FURNISH AN IMPACT ATTENUATOR FROM THE OFFICE OF ROADWAY ENGINEERING APPROVED LIST FOR WORK ZONE IMPACT ATTENUATORS. THE APPROVED LIST IS AVAILABLE AT THE "ROADWAY STANDARDS: PROPRIETARY ROADSIDE SAFETY DEVICES" WEB PAGE ON THE OFFICE OF ROADWAY ENGINEERING WEBSITE.

INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

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.

WHEN GATING IMPACT ATTENUATORS ARE DESIRED, THE CONTRACTOR SHALL SUBMIT DOCUMENTATION TO THE ENGINEER FOR ACCEPTANCE.

THE COST FOR THE ADDITIONAL BARRIER REQUIRED FOR A GATING IMPACT ATTENUATOR SHALL BE INCLUDED IN THE COST OF THE GATING IMPACT ATTENUATOR.

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.

**OVERHEAD MOUNTED WORK ZONE SIGNALS**

SIGNALS SHALL BE OVERHEAD MOUNTED IN ACCORDANCE WITH THE DETAILS SHOWN ON SCD-96.20.

**DUST CONTROL**

THE CONTRACTOR SHALL FURNISH AND APPLY WATER FOR DUST CONTROL AS DIRECTED BY THE ENGINEER. THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED FOR DUST CONTROL PURPOSES:

ITEM 616, WATER 5 M. GAL.

**ITEM 614 - LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE DURING CONSTRUCITON OPERATIONS**

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, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHALL BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS:

FOR LANE CLOSURES: DURING INITIAL SET-UP PERIODS, TEAR DOWN PERIODS, SUBSTANTIAL SHIFTS OF A CLOSURE POINT OR WHEN NEW LANE CLOSURE ARRANGEMENTS ARE INITIATED FOR LONG-TERM LANE CLOSURES/SHIFTS (FOR THE FIRST AND LAST DAY OF MAJOR CHANGES IN TRAFFIC CONTROL SETUP). IN GENERAL, LEOs SHOULD BE POSITIONED AT THE POINT OF LANE RESTRICTION OR ROAD CLOSURE AND TO MANUALLY CONTROL TRAFFIC MOVEMENTS THROUGH INTERSECTIONS IN WORK ZONES.

LEOs SHOULD NOT FORGO THEIR TRAFFIC CONTROL RESPONSIBILITES 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 OFFICE (WITH PATROL CAR) FOR ASSISTANCE. THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE 30 HOURS

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.

**FULLY-ACTUATED OPERATION OF WORK ZONE TRAFFIC SIGNAL**

THE WORK ZONE SIGNAL CONTROL REQUIRED FOR THIS PROJECT AND SHOWN ON SHEETS 7-8 AND STANDARD CONSTRUCTION DRAWINGS MT-96.11, MT-96.20, AND MT-96.26 SHALL BE FULLY TRAFFIC-ACTUATED AND OPERATE IN A MANNER SIMILAR TO THAT DESCRIBED IN SECTION 733.02 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS.

THE INITIAL CONTROLLER TIMING SHALL BE AS FOLLOWS:

| | PHASE * | | | |
|---|---|---|---|---|
| | 1 (ALL RED) DUMMY PHASE | 2 MAINLINE (DIRECTION) ✣ | 3 (ALL RED) DUMMY PHASE | 4 MAINLINE (DIRECTION) ✣ |
| MIN. GREEN | Tc1 - 6± | 10 | Tc3 - 6± | 10 |
| EXTENSION | N/A | 4 | N/A | 4 |
| MAX. GREEN | Tc1 - 5± | 30 | Tc3 - 5± | 30 |
| YELLOW | 3 | 3.5 | 3 | 3.5 |
| ALL RED | 2 | 2 | 2 | 2 |
| RECALL | MAX. | MIN. | MAX. | MIN. |

*PHASES AS SHOWN ON SCD MT-96.20 FOR ACTUATED CONTROL. ADD MORE PHASES AS NEEDED TO ACCOMMODATE SIDE STREETS, DRIVEWAYS, ETC.

±PROVIDE TIMING FOR THE SIGNAL LOCATION UNDER CONSIDERATION.

Tc1 IS THE DESIRED INTERNAL CLEARANCE TIME FOR PHASE 1. Tc3 IS THE DESIRED INTERNAL CLEARANCE TIME FOR PHASE 3. USUALLY, Tc1 = Tc3.

✣INDICATE DIRECTION OF GREEN.

THE CONTRACTOR SHALL ALSO DESIGN, FURNISH, INSTALL AND MAINTAIN A TRAFFIC DETECTOR ON EACH TRAFFIC APPROACH WHICH WILL RELIABLY DETECT ALL LEGAL TRAFFIC APPROACHING (BUT NOT LEAVING) THE SIGNAL AS IT PASSES OR WAITS IN THE DESIGNATED DETECTOR ZONE SHOWN IN THE PLANS. DETECTOR DESIGNS WHICH DO NOT PROVIDE RELIABLE DETECTION, FREE FROM FALSE CALLS, SHALL BE IMMEDIATELY REPLACED BY THE CONTRACTOR.

CALCULATED CCN CHECKED RPT

# MAINTENANCE OF TRAFFIC NOTES

HAS-22-21.26



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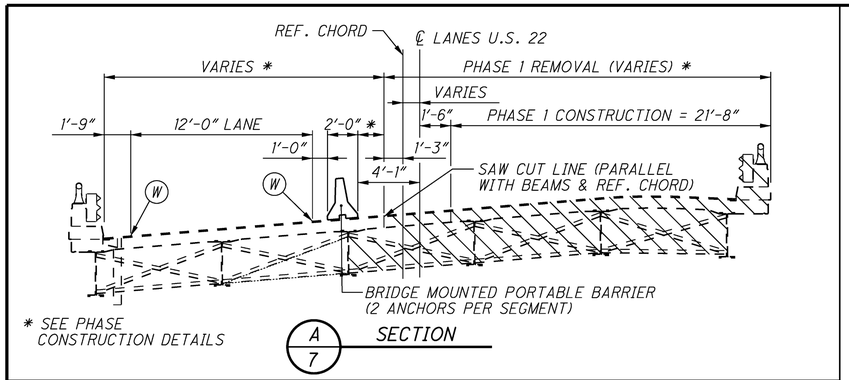
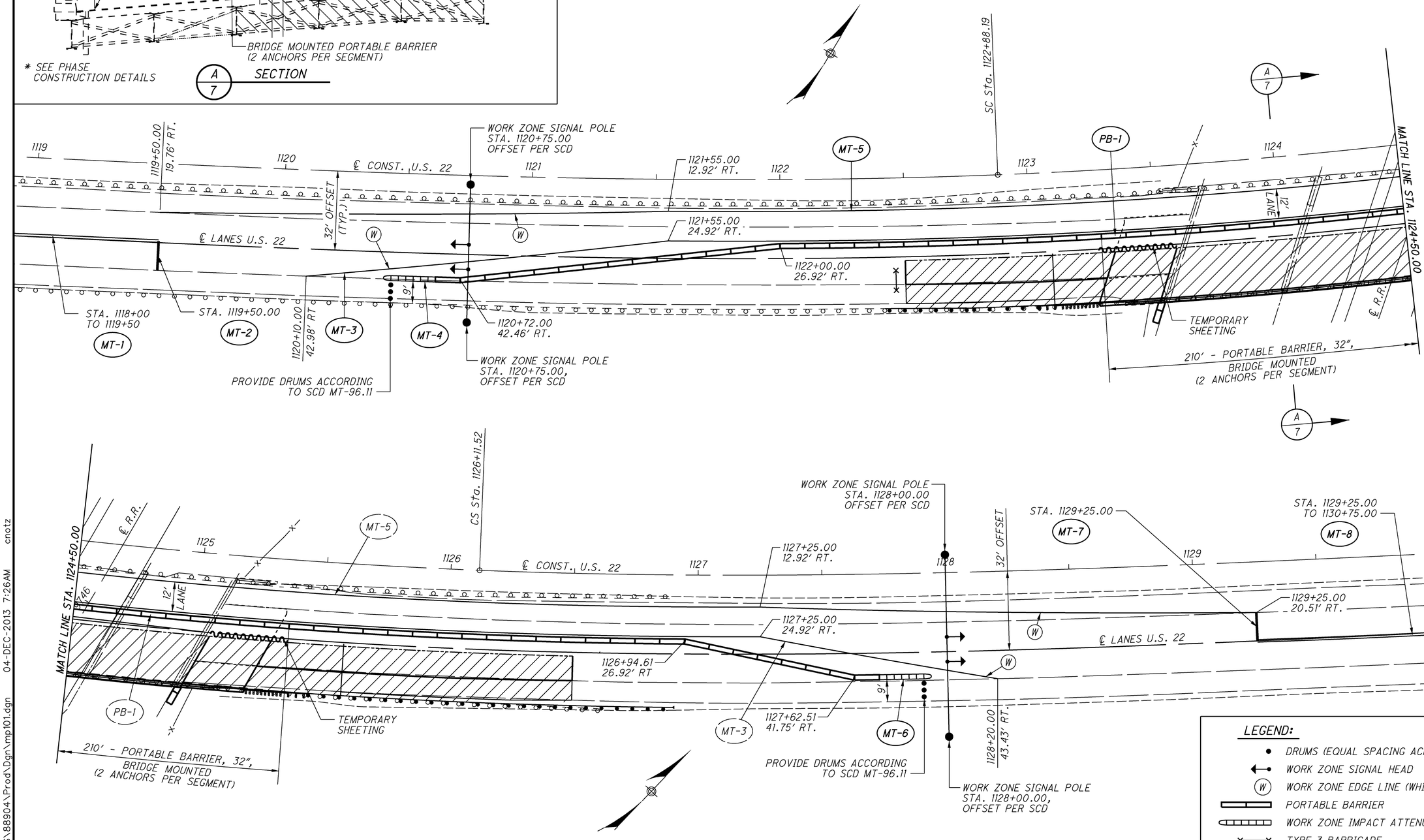
# MAINTENANCE OF TRAFFIC QUANTITIES

| | | 614 | | | | | 622 | |
|---|---|---|---|---|---|---|---|---|
| | | EACH | EACH | EACH | MILE | MILE | FEET | FEET |
| | SHEET NO. | WORK ZONE IMPACT ATTENUATOR (BIDIRECTIONAL) FOR 24" WIDE HAZARDS | BARRIER REFLECTOR, TYPE B2 | OBJECT MARKER, TWO WAY | WORK ZONE CENTER LINE, CLASS I, 642 PAINT | WORK ZONE EDGE LINE, CLASS I, 740.06, TYPE I | WORK ZONE STOP LINE, CLASS I, 740.06, TYPE I | PORTABLE BARRIER, 32" | PORTABLE BARRIER, 32", BRIDGE MOUNTED |
| | REFERENCE | | | | | | | |
| PHASE 1 | 7 | MT-1 | | | | 0.03 | | | |
| | 7 | MT-2 | | | | | 12 | | |
| | 7 | MT-3 | | | | 0.16 | | | |
| | 7 | MT-4 | 1 | | | | | | |
| | 7 | MT-5 | | | | 0.19 | | | |
| | 7 | MT-6 | 1 | | | | | | |
| | 7 | MT-7 | | | | | 12 | | |
| | 7 | MT-8 | | | 0.03 | | | | |
| | | | | | | | | | |
| | 7 | PB-1 | | 15 | 15 | | | 510 | 210 |
| | | | | | | | | | |
| PHASE 1 SUB-TOTAL | | 2 | 15 | 15 | 0.06 | 0.35 | 24 | 510 | 210 |
| PHASE 2 | 8 | MT-9 | | | | 0.19 | | | |
| | 8 | MT-10 | | | | 0.15 | | | |
| | 8 | MT-11 | 1 | | | | | | |
| | 8 | MT-12 | 1 | | | | | | |
| | | | | | | | | | |
| | 8 | PB-2 | | 15 | 15 | | | 480 | 210 |
| | | | | | | | | | |
| PHASE 2 SUB-TOTAL | | 2 | 15 | 15 | | 0.34 | | 480 | 210 |
| TOTAL CARRIED TO GENERAL SUMMARY | | 4 | 30 | 30 | 0.06 | 0.69 | 24 | 990 | 420 |




**NOTES:**

1. FOR DETAILS NOT SHOWN, SEE STANDARD CONSTRUCTION DRAWINGS MT-96.11, MT-96.20, MT-101.70, RM-4.2, AND PCB-91.
2. ALL OFFSETS ARE MEASURED FROM THE U.S. 22 CENTERLINE OF CONSTRUCTION.
3. FOR MAINTENANCE OF TRAFFIC QUANTITIES, SEE SHEET NO. 6.
4. FOR STRUCTURE PHASE CONSTRUCTION DETAILS, SEE SHEET NO. 27.




**LEGEND:**

- DRUMS (EQUAL SPACING ACROSS OPENING)
- WORK ZONE SIGNAL HEAD
- W — WORK ZONE EDGE LINE (WHITE)
- PORTABLE BARRIER
- WORK ZONE IMPACT ATTENUATOR
- TYPE 3 BARRICADE
- PHASE 1 CONSTRUCTION

HORIZONTAL SCALE IN FEET: 0, 10, 20, 40

CALCULATED CGN | CHECKED DJL

# MAINTENANCE OF TRAFFIC PLAN PHASE 1

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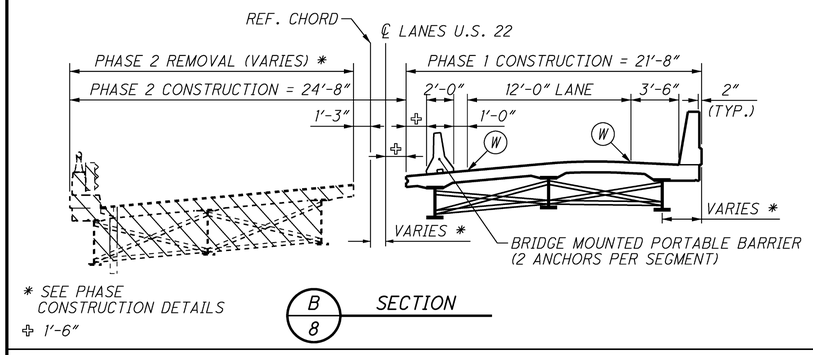
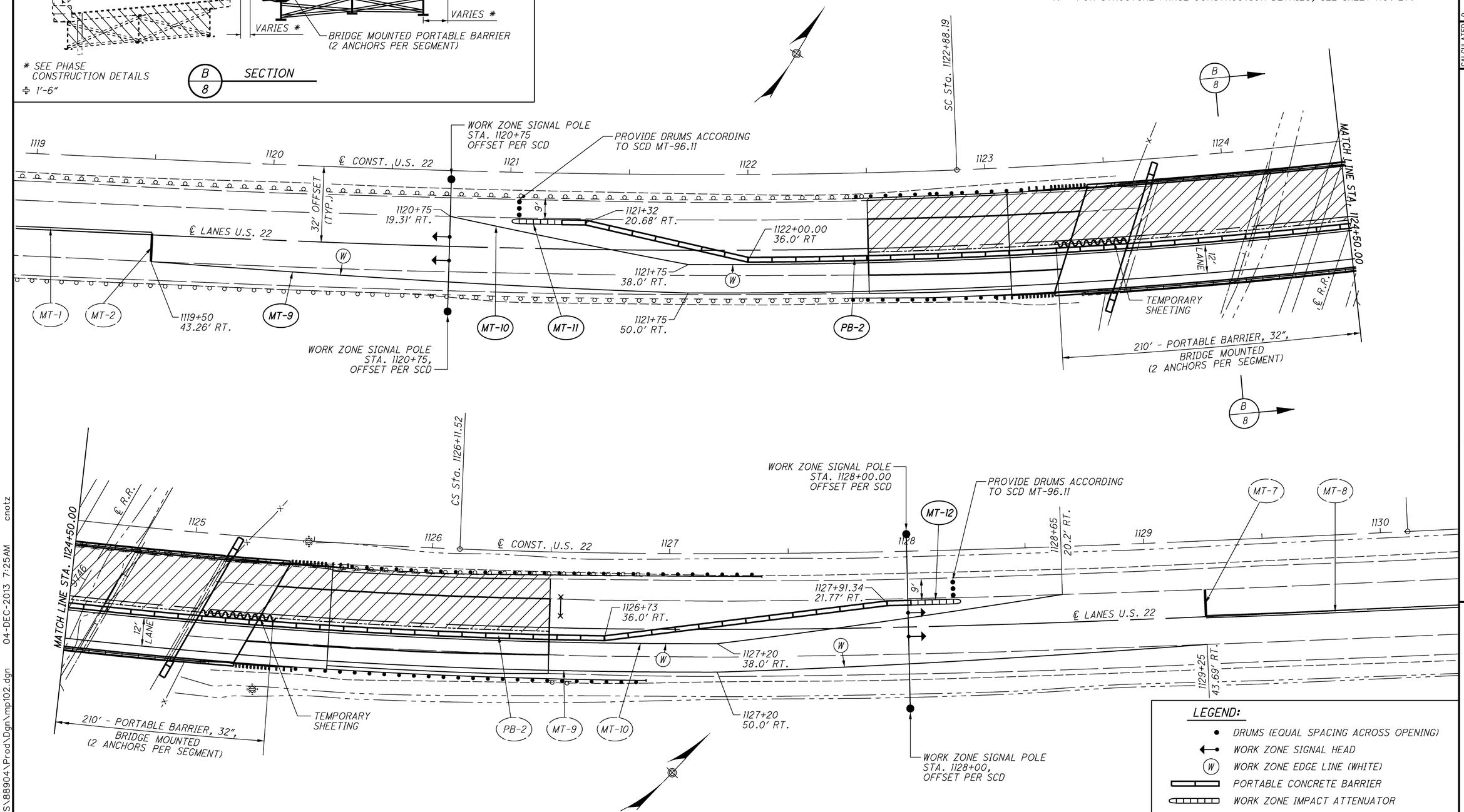



NOTES:

1. FOR DETAILS NOT SHOWN, SEE STANDARD CONSTRUCTION DRAWINGS MT-96.11, MT-96.20, MT-101.70, RM-4.2, AND PCB-91.
2. ALL OFFSETS ARE MEASURED FROM THE U.S. 22 CENTERLINE OF CONSTRUCTION.
3. FOR MAINTENANCE OF TRAFFIC QUANTITIES, SEE SHEET NO. 6.
4. FOR STRUCTURE PHASE CONSTRUCTION DETAILS, SEE SHEET NO. 27.




LEGEND:

- DRUMS (EQUAL SPACING ACROSS OPENING)
- WORK ZONE SIGNAL HEAD
- (W) WORK ZONE EDGE LINE (WHITE)
- PORTABLE CONCRETE BARRIER
- WORK ZONE IMPACT ATTENUATOR
- TYPE 3 BARRICADE
- PHASE 2 CONSTRUCTION

HORIZONTAL SCALE IN FEET: 0, 10, 20, 40

CALCULATED CCN
CHECKED DJL

# MAINTENANCE OF TRAFFIC PLAN PHASE 2

HAS-22-21.26

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| SHEET NUMBER | | | | | | | | | | | | 01/NHS/BR | ITEM | ITEM EXT. | GRAND TOTAL | UNIT | DESCRIPTION | SEE SHEET NO. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 11 | 12 | | | | | | | | | OFFICE CALCS | | | | | | | |
| | | | | | | | | | | | | | | | | | ROADWAY | |
| LUMP | | | | | | | | | | | | LUMP | 201 | 11000 | LUMP | | CLEARING AND GRUBBING | |
| | 514 | | | | | | | | | | | 514 | 202 | 38000 | 514 | FT | GUARDRAIL REMOVED | |
| | 97 | | | | | | | | | | | 97 | 202 | 75000 | 97 | FT | FENCE REMOVED | |
| | | 201 | | | | | | | | | | 201 | 203 | 10000 | 201 | CU YD | EXCAVATION | |
| | | 121 | | | | | | | | | | 121 | 203 | 20000 | 121 | CU YD | EMBANKMENT | |
| | | | | | | | | | | | 552 | 552 | 204 | 10000 | 552 | SQ YD | SUBGRADE COMPACTION | |
| | 362.5 | | | | | | | | | | | 362.5 | 606 | 15100 | 362.5 | FT | GUARDRAIL, TYPE MGS WITH LONG POSTS | |
| | 2 | | | | | | | | | | | 2 | 606 | 26150 | 2 | EACH | ANCHOR ASSEMBLY, MGS TYPE E | |
| | 4 | | | | | | | | | | | 4 | 606 | 35002 | 4 | EACH | MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1 | |
| | 66 | | | | | | | | | | | 66 | 607 | 15000 | 66 | FT | FENCE, TYPE 47 | |
| | 66 | | | | | | | | | | | 66 | 607 | 70000 | 66 | FT | FENCELINE SEEDING AND MULCHING | |
| | | | | | | | | | | | | | | | | | EROSION CONTROL | |
| | 51 | | | | | | | | | | | 51 | 601 | 21060 | 51 | SQ YD | TIED CONCRETE BLOCK MAT, TYPE 2 | |
| | | 2 | | | | | | | | | | 2 | 659 | 00100 | 2 | EACH | SOIL ANALYSIS TEST | |
| | | 155 | | | | | | | | | | 155 | 659 | 00300 | 155 | CU YD | TOPSOIL | |
| | | 1396 | | | | | | | | | | 1396 | 659 | 10000 | 1396 | SQ YD | SEEDING AND MULCHING | |
| | | 70 | | | | | | | | | | 70 | 659 | 14000 | 70 | SQ YD | REPAIR SEEDING AND MULCHING | |
| | | 70 | | | | | | | | | | 70 | 659 | 15000 | 70 | SQ YD | INTER-SEEDING | |
| | | 0.2 | | | | | | | | | | 0.2 | 659 | 20000 | 0.2 | TON | COMMERCIAL FERTILIZER | |
| | | 0.29 | | | | | | | | | | 0.29 | 659 | 31000 | 0.29 | ACRE | LIME | |
| | | 7.73 | | | | | | | | | | 7.73 | 659 | 35000 | 7.73 | M GAL | WATER | |
| | | | | | | | | | | | | 1000 | 832 | 30000 | 1000 | EACH | EROSION CONTROL | |
| | | | | | | | | | | | | | | | | | PAVEMENT | |
| | | 565 | | | | | | | | | | 565 | 254 | 01000 | 565 | SQ YD | PAVEMENT PLANING, ASPHALT CONCRETE | |
| | | | | | | | | | | | 44 | 44 | 301 | 46000 | 44 | CU YD | ASPHALT CONCRETE BASE, PG64-22 | |
| | | | | | | | | | | | 89 | 89 | 304 | 20000 | 89 | CU YD | AGGREGATE BASE | |
| | | | | | | | | | | | 51 | 51 | 407 | 10000 | 51 | GAL | TACK COAT | |
| | | | | | | | | | | | 37 | 37 | 407 | 14000 | 37 | GAL | TACK COAT FOR INTERMEDIATE COURSE | |
| | | 5 | | | | | | | | | 45 | 50 | 448 | 46050 | 50 | CU YD | ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22 | |
| | | | | | | | | | | | 32 | 32 | 448 | 47021 | 32 | CU YD | ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22, AS PER PLAN | 4 |
| | 72 | | | | | | | | | | | 72 | 609 | 24510 | 72 | FT | CURB, TYPE 4-C | |
| | | | | | | | | | | | | | | | | | TRAFFIC CONTROL | |
| | | 9 | | | | | | | | | | 9 | 621 | 00100 | 9 | EACH | RPM | |
| | | 12 | | | | | | | | | | 12 | 621 | 54000 | 12 | EACH | RAISED PAVEMENT MARKER REMOVED | |
| | 14 | | | | | | | | | | | 14 | 626 | 00100 | 14 | EACH | BARRIER REFLECTOR | |
| | 27.4 | | | | | | | | | | | 27.4 | 630 | 03100 | 27.4 | FT | GROUND MOUNTED SUPPORT, NO. 3 POST | |
| | 2 | | | | | | | | | | | 2 | 630 | 85100 | 2 | EACH | REMOVAL OF GROUND MOUNTED SIGN AND REERECTION | |
| | 2 | | | | | | | | | | | 2 | 630 | 86002 | 2 | EACH | REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL | |
| | | 0.16 | | | | | | | | | | 0.16 | 642 | 00100 | 0.16 | MILE | EDGE LINE, 4", TYPE 1 | |
| | | 0.08 | | | | | | | | | | 0.08 | 642 | 00300 | 0.08 | MILE | CENTER LINE, TYPE 1 | |

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GENERAL SUMMARY

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| SHEET NUMBER | | | | | | | | | | | | 01/NHS/BR | ITEM | ITEM EXT. | GRAND TOTAL | UNIT | DESCRIPTION | SEE SHEET NO. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5 | 6 | | | | | 49 | 50 | 51 | 52 | OFFICE CALCS | | | | | | | |
| | | | | | | | | | | | | | | | | | STRUCTURES (20' AND OVER) | |
| | | | | | | | | | | | LUMP | LUMP | 202 | 11203 | LUMP | | PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN | 25 |
| | | | | | | | | | | | 133 | 133 | 202 | 22900 | 133 | SQ YD | APPROACH SLAB REMOVED | |
| | | | | | | | | | | | LUMP | LUMP | 503 | 11101 | LUMP | | COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN | 25 |
| | | | | | | | | | | | LUMP | LUMP | 503 | 21300 | LUMP | | UNCLASSIFIED EXCAVATION | |
| | | | | | | | | | | | 41 | 41 | 503 | 31120 | 41 | CU YD | SHALE EXCAVATION | |
| | | | | | | | | | | | LUMP | LUMP | 505 | 11100 | LUMP | | PILE DRIVING EQUIPMENT MOBILIZATION | |
| | | | | | | | | | | | 210 | 210 | 507 | 00200 | 210 | FT | STEEL PILES HP12X53, FURNISHED | |
| | | | | | | | | | | | 180 | 180 | 507 | 00250 | 180 | FT | STEEL PILES HP12X53, DRIVEN | |
| | | | | | | | 9230 | 1603 | 8024 | 52454 | | 71311 | 509 | 10000 | 71311 | POUND | EPOXY COATED REINFORCING STEEL | |
| | | | | | | | | | | | 203 | 203 | 510 | 10000 | 203 | EACH | DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT | |
| | | | | | | | | | | | 240 | 240 | 511 | 34447 | 240 | CU YD | CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK, AS PER PLAN | 25 |
| | | | | | | | | | | | 47 | 47 | 511 | 34450 | 47 | CU YD | CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK (PARAPET) | |
| | | | | | | | | | | | 55 | 55 | 511 | 45712 | 55 | CU YD | CLASS QC1 CONCRETE WITH QC/QA, ABUTMENT | |
| | | | | | | | | | | | 21 | 21 | 511 | 46512 | 21 | CU YD | CLASS QC1 CONCRETE WITH QC/QA, FOOTING | |
| | | | | | | | | | | | 904 | 904 | 512 | 10100 | 904 | SQ YD | SEALING OF CONCRETE SURFACES (EPOXY-URETHANE) | |
| | | | | | | | | | | | 24 | 24 | 512 | 33000 | 24 | SQ YD | TYPE 2 WATERPROOFING | |
| | | | | | | | | | | | 137244 | 137244 | 513 | 10240 | 137244 | POUND | STRUCTURAL STEEL MEMBERS, LEVEL 2 | |
| | | | | | | | | | | | 3276 | 3276 | 513 | 20000 | 3276 | EACH | WELDED STUD SHEAR CONNECTORS | |
| | | | | | | | | | | | 16 | 16 | 516 | 13600 | 16 | SQ FT | 1" PREFORMED EXPANSION JOINT FILLER | |
| | | | | | | | | | | | 38 | 38 | 516 | 13900 | 38 | SQ FT | 2" PREFORMED EXPANSION JOINT FILLER | |
| | | | | | | | | | | | 129 | 129 | 516 | 14020 | 129 | FT | SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL | |
| | | | | | | | | | | | 12 | 12 | 516 | 44201 | 12 | EACH | ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), | 36 |
| | | | | | | | | | | | | | | | | | AS PER PLAN (10" x 14" x 3.3" PAD WITH 11" X 15" X 1 1/2" LOAD PLATE AND HP PEDESTALS) | |
| | | | | | | | | | | | 12 | 12 | 516 | 44201 | 12 | EACH | ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), | 38 |
| | | | | | | | | | | | | | | | | | AS PER PLAN (10" x 18" x 3.3" PAD WITH 11" X 19" X 2" LOAD PLATE, 11" X 14" X 2" CAP PLATE, | |
| | | | | | | | | | | | | | | | | | AND HP PEDESTALS) | |
| | | | | | | | | | | | LUMP | LUMP | 518 | 21230 | LUMP | | POROUS BACKFILL WITH FILTER FABRIC | |
| | | | | | | | | | | | 125 | 125 | 518 | 40000 | 125 | FT | 6" PERFORATED CORRUGATED PLASTIC PIPE | |
| | | | | | | | | | | | 34 | 34 | 518 | 40010 | 34 | FT | 6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS | |
| | | | | | | | | | | | LUMP | LUMP | 518 | 63300 | LUMP | | STRUCTURE DRAINAGE, MISC.: PLUG EXISTING 4"+/- WEEP HOLES | 25 |
| | | | | | | | | | | | 256 | 256 | 526 | 25001 | 256 | SQ YD | REINFORCED CONCRETE APPROACH SLABS (T=15"), AS PER PLAN | 48 |
| | | | | | | | | | | | 4 | 4 | 601 | 20000 | 4 | SQ YD | CRUSHED AGGREGATE SLOPE PROTECTION | |
| | | | | | | | | | | | 274 | 274 | 601 | 28000 | 274 | CU YD | DUMPED ROCK FILL, TYPE D | |
| | | | | | | | | | | | | | | | | | MAINTENANCE OF TRAFFIC | |
| | 30 | | | | | | | | | | | 30 | 614 | 11110 | 30 | HOUR | LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE | |
| | | 4 | | | | | | | | | | 4 | 614 | 12348 | 4 | EACH | WORK ZONE IMPACT ATTENUATOR (BIDIRECTIONAL), FOR 24" WIDE HAZARDS | |
| | 21 | | | | | | | | | | | 21 | 614 | 13202 | 21 | EACH | BARRIER REFLECTOR, TYPE A2 | |
| | | 30 | | | | | | | | | | 30 | 614 | 13302 | 30 | EACH | BARRIER REFLECTOR, TYPE B2 | |
| | | 30 | | | | | | | | | | 30 | 614 | 13360 | 30 | EACH | OBJECT MARKER, TWO WAY | |
| | | 0.06 | | | | | | | | | | 0.06 | 614 | 21100 | 0.06 | MILE | WORK ZONE CENTER LINE, CLASS I, 642 PAINT | |
| | | 0.69 | | | | | | | | | | 0.69 | 614 | 22200 | 0.69 | MILE | WORK ZONE EDGE LINE, CLASS I, 740.06, TYPE 1 | |
| | | 24 | | | | | | | | | | 24 | 614 | 26400 | 24 | FT | WORK ZONE STOP LINE, CLASS I, 740.06, TYPE 1 | |
| | 5 | | | | | | | | | | | 5 | 616 | 10000 | 5 | M GAL | WATER | |
| | | 990 | | | | | | | | | | 990 | 622 | 41000 | 990 | FT | PORTABLE BARRIER, 32" | |
| | | 420 | | | | | | | | | | 420 | 622 | 41020 | 420 | FT | PORTABLE BARRIER, 32", BRIDGE MOUNTED | |
| | LUMP | | | | | | | | | | | LUMP | 614 | 11000 | LUMP | | MAINTAINING TRAFFIC | |
| | | | | | | | | | | | | 4 | 619 | 16010 | 4 | MONTH | FIELD OFFICE, TYPE B | |
| | | | | | | | | | | | | LUMP | 623 | 10000 | LUMP | | CONSTRUCTION LAYOUT STAKES AND SURVEYING | |
| | | | | | | | | | | | | LUMP | 624 | 10000 | LUMP | | MOBILIZATION | |

CALCULATED CCN
CHECKED DJL

GENERAL SUMMARY

HAS-22-21.26

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| REFERENCE | PLAN SHEET | STATION FROM | STATION TO | ITEM SIDE | ITEM LENGTH | ITEM WIDTH | 202 GUARDRAIL REMOVED | 202 FENCE REMOVED | 601 TIED CONCRETE BLOCK MAT, TYPE 2 | 606 GUARDRAIL, TYPE MGS WITH LONG POSTS | 606 ANCHOR ASSEMBLY, MGS TYPE E | 606 MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1 | 607 FENCE, TYPE 47 | 607 FENCELINE SEEDING AND MULCHING | 609 CURB, TYPE 4-C | 626 BARRIER REFLECTOR A2 | 626 BARRIER REFLECTOR B2 | 630 GROUND MOUNTED SUPPORT, NO. 3 POST | 630 REMOVAL OF GROUND MOUNTED SIGN AND REERECTION | 630 REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | FT. | FT. | FEET | FEET | SQ. YD. | FEET | EACH | EACH | FEET | FEET | FEET | EACH | | FEET | EACH | EACH |
| R-1 | 13 | 1122+43.6 +/- | 1123+50.8 +/- | LT. | | | 107.9 +/- | | | | | | | | | | | | | |
| R-2 | 13 | 1122+41.5 +/- | 1123+36.0 +/- | RT. | | | 96.5 +/- | | | | | | | | | | | | | |
| R-3 | 13 | 1125+31.3 +/- | 1126+88.5 +/- | LT. | | | 157.9 +/- | | | | | | | | | | | | | |
| R-4 | 13 | 1125+12.7 +/- | 1126+60.7 +/- | RT. | | | 151.4 +/- | | | | | | | | | | | | | |
| F-1 | 13 | 1123+60.76 +/- | 1123+74.94 +/- | LT. | | | | 32.4 +/- | | | | | 22.16 | 22.16 | | | | | | |
| F-2 | 13 | 1123+39.96 +/- | 1123+46.94 +/- | RT. | | | | 25.3 +/- | | | | | 19.17 | 19.17 | | | | | | |
| F-3 | 13 | 1125+17.05 +/- | 1125+32.67 +/- | LT. | | | | 24.3 +/- | | | | | 17.12 | 17.12 | | | | | | |
| F-4 | 13 | 1124+92.34 +/- | 1124+99.79 +/- | RT. | | | | 15.0 +/- | | | | | 7.14 | 7.14 | | | | | | |
| GR-1 | 13 | 1122+43.55 | 1123+45.00 | LT. | | | | | | 75.00 | | 1 | | | | | | | | |
| GR-2 | 13 | 1122+41.52 | 1123+28.94 | RT. | | | | | | 62.50 | | 1 | | | | | | | | |
| GR-3 | 13 | 1125+38.00 | 1127+39.09 | LT. | | | | | | 125.00 | 1 | 1 | | | | | | | | |
| GR-4 | 13 | 1125+17.74 | 1126+90.78 | RT. | | | | | | 100.00 | 1 | 1 | | | | | | | | |
| C-1 | 13 | 1123+24.44 | 1123+42.51 | LT. | 18.10 | | | | | | | | | | 18.10 | | | | | |
| C-2 | 13 | 1123+08.77 | 1123+26.49 | RT. | 18.10 | | | | | | | | | | 18.10 | | | | | |
| C-3 | 13 | 1125+40.49 | 1125+58.56 | LT. | 18.10 | | | | | | | | | | 18.10 | | | | | |
| C-4 | 13 | 1125+20.19 | 1125+37.92 | RT. | 18.10 | | | | | | | | | | 18.10 | | | | | |
| D-1 | 13 | 1123+24.44 | | LT. | 51.00 | 9.00 | | | 51 | | | | | | | | | | | |
| S-1 | 13 | 1125+63.53 | | LT. | | | | | | | | | | | | | | 13.9 | 1 | 1 |
| S-2 | 13 | 1125+59.16 | | RT. | | | | | | | | | | | | | | 13.5 | 1 | 1 |
| | | 1122+43.55 | 1127+39.09 | LT. | | | | | | | | | | | | 5 | 2 | | | |
| | | 1122+41.52 | 1126+90.78 | RT. | | | | | | | | | | | | 5 | 2 | | | |
| TOTALS | | CARRIED TO GENERAL SUMMARY | | | | | 514 | 97 | 51 | 362.5 | 2 | 4 | 66 | 66 | 72 | 14 | | 27.4 | 2 | 2 |

ALL QUANTITIES CARRIED TO GENERAL SUMMARY

CALCULATED CCN CHECKED RPT

# ESTIMATED QUANTITIES

HAS-22-21.26

## PAVEMENT PLANING AND WEDGE TREATMENT TABLE

| 254 | | | | | | | | | | | | 448 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PAVEMENT PLANING, ASPHALT CONCRETE | PAVEMENT PLANING END WIDTH | LEFT SHOULDER OFFSET | ELEVATION AT LEFT EDGE OF LEFT SHOULDER | | STATION | OFFSET & SIDE FROM CL WHERE PLANING AND PAVEMENT WEDGE = 0 | | | ELEVATION AT RIGHT EDGE OF RIGHT SHOULDER | | RIGHT SHOULDER OFFSET | ASPHALT WEDGE END AREA | ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22 (VARIABLE DEPTH, 0" MIN.) |
| SQ. YD. | FT. | FT. | EXISTING | PROPOSED | | OFFSET (FT.) | SIDE | EXISTING ELEVATION | EXISTING | PROPOSED | FT. | SQ. FT. | CU. YD. |
| | | | | | | | | | | | | | |
| -- | 39.21 | 20.30 +/- | 1150.43 +/- | 1150.43 | 1122+50.00 | -- | -- | -- | 1152.33 +/- | 1152.33 | 18.91 +/- | 0 | -- |
| 102.10 | 34.30 | 20.67 | 1150.58 +/- | 1150.54 | 1122+75.00 | 13.63 | RT. | 1152.78 +/- | 1152.61 +/- | 1153.00 | 19.25 | 0.47 | 0.22 |
| 93.19 | 32.80 | 20.67 | 1150.72 +/- | 1150.78 | 1123+00.00 | 12.13 | RT. | 1153.05 +/- | 1152.89 +/- | 1153.42 | 19.25 | 1.39 | 0.86 |
| 32.03 | 32.95 | 20.67 | 1150.74 +/- | 1150.87 | 1123+08.77 | 12.28 | RT. | 1153.19 +/- | 1152.99 +/- | 1153.55 | 19.25 | 1.58 | 0.48 |
| | | | | | | | | | | | | | |
| -- | 29.96 | 20.00 | 1153.38 +/- | 1153.32 | 1125+58.56 | 9.96 | RT. | 1155.50 +/- | 1155.54 +/- | 1156.06 | 20.00 | 2.12 | -- |
| 56.18 | 31.55 | 20.00 | 1153.61 +/- | 1153.47 | 1125+75.00 | 11.55 | RT. | 1155.78 +/- | 1155.7 +/- | 1156.21 | 20.00 | 1.88 | 1.22 |
| 88.75 | 32.35 | 20.00 | 1153.84 +/- | 1153.71 | 1126+00.00 | 12.35 | RT. | 1155.99 +/- | 1155.9 +/- | 1156.35 | 20.00 | 1.04 | 1.35 |
| 91.22 | 33.33 | 20.00 | 1154.05 +/- | 1153.95 | 1126+25.00 | 13.33 | RT. | 1156.20 +/- | 1156.09 +/- | 1156.45 | 20.00 | 0.31 | 0.63 |
| 101.72 | 39.91 +/- | 20.58 +/- | 1154.18 +/- | 1154.18 | 1126+50.00 | -- | -- | -- | 1156.38 +/- | 1156.38 | 19.33 +/- | 0 | 0.14 |
| | | | | | | | | | | | | | |
| 565 | TOTALS (CARRIED TO GENERAL SUMMARY) | | | | | | | | | | | | 5 |

**ALL OFFSETS ARE MEASURED WITH RESPECT TO ℄ LANES

## EARTHWORK SUMMARY TABLE

| FROM SHEET NO. | 203 | | 659 |
|---|---|---|---|
| | EXCAVATION | EMBANKMENT | SEEDING & MULCHING |
| | CU. YD. | CU. YD. | SQ. YD. |
| 14 | 0 | 1 | 126 |
| 15 | 0 | 4 | 130 |
| 16 | 88 | 65 | 240 |
| 17 | 53 | 16 | 116 |
| 18 | 60 | 15 | 177 |
| 19 | 0 | 8 | 209 |
| 20 | 0 | 9 | 297 |
| 21 | 0 | 3 | 81 |
| 23 | 0 | 0 | 20 |
| TOTAL | 201 | 121 | 1396 |

**ITEM 621 - RPM**
STA. 1122+50.00 TO STA. 1123+34.42
85.58 FT. ÷ 40 FT. SPACING = 2.14 + 1 = 3.14 (USE 4 EACH)
STA. 1125+30.23 TO STA. 1126+50.00
121.41 FT. ÷ 40 FT. SPACING = 3.04 + 1 = 4.04 (USE 5 EACH)
**TOTAL = 9 EACH**

**ITEM 621 - RAISED PAVEMENT MARKER REMOVED**
STA. 1122+50.00 TO STA. 1126+50.00
405.5 FT. ÷ 40 FT. SPACING = 10.14 + 1 = 11.14 EACH **(USE 12 EACH)**

**ITEM 642 - EDGE LINE, 4", TYPE 1**
STA. 1122+50.00 TO STA. 1126+50.00 (RT. & LT.)
405.5 FT. ÷ 5280 = 0.08 * 2 SIDES = 0.16 MILES **(USE 0.16 MILES)**

**ITEM 642 - CENTER LINE, TYPE 1**
STA. 1122+50.00 TO STA. 1126+50.00
405.5 FT. ÷ 5280 = 0.08 MILES **(USE 0.08 MILES)**

**ITEM 659 - SOIL ANALYSIS TEST**
155 C.Y. x 1 TEST/10000 C.Y. = 0.016 EACH (MINIMUM OF 2 TESTS) **(USE 2 EACH)**

**ITEM 659 - TOPSOIL**
1396 S.Y. x 111 C.Y./1000 S.Y. = 154.96 C.Y. **(USE 155 C.Y.)**

**ITEM 659 - REPAIR SEEDING AND MULCHING**
1396 S.Y. x 0.05 = 69.8 S.Y. **(USE 70 S.Y.)**

**ITEM 659 - INTER-SEEDING**
1396 S.Y. x 0.05 = 69.8 S.Y. **(USE 70 S.Y.)**

**ITEM 659 - LIME**
1396 S.Y. x (9 S.F./S.Y.)/(43,560 S.F./ACRE) = 0.29 ACRES **(USE 0.29 ACRES)**

**ITEM 659 - WATER**
1396 S.Y. x 9 x 300 GAL/1000 S.F. x 2 APP./1000 S.F. = 7.54 M. GAL.
(FOR INTER-SEEDING)
70 S.Y. x 9 x 300 GAL/1000 S.F. x 2 APP./1000 S.F. = 0.19 M. GAL.
**TOTAL = 7.73 M. GAL.**

**ITEM 659 - COMMERCIAL FERTILIZER**
1396 S.Y. x 9 X 30 LBS/1000 S,F, / 2000 LB./TON = 0.19 TON
(FOR INTER-SEEDING)
70 S.Y. x 9 X 30 LBS/1000 S,F, / 2000 LB./TON = 0.006 TON
**TOTAL = 0.20 TON**

ALL QUANTITIES CARRIED TO GENERAL SUMMARY

CALCULATED CCN CHECKED RPT

# ESTIMATED QUANTITIES

HAS-22-21.26

P.I. Sta. 1124+53.30
Δ = 18° 05′ 00″ (LT)
Dc = 2° 30′ 00″
R = 2,291.83′
Ls = 400.00′
θs = 5° 00′ 00″
LT = 266.77′
ST = 133.43′
x = 399.70′

y = 11.63′
k = 199.95′
p = 2.91′
Δc = 8° 05′ 00″ (LT)
Lc = 323.33′
E = 31.78′

C = 323.06′
$e_{max}$ = 0.081
T.S. = 1118+88.19
S.T. = 1130+11.52

## CENTERLINE REFERENCES U.S. 22

| ℄ CONST. U.S. 22 — I.PIN SET | ℄ CONST. U.S. 22 — I.PIN SET |
|---|---|
| 17.87′ SURVEY NAIL; 12.97′ SURVEY NAIL; 14.76′ SURVEY NAIL | 19.52′ SURVEY NAIL; 14.03′ SURVEY NAIL; 29.81′ CMON |
| S.C. STA. 1122+88.19 | C.S. STA. 1126+11.52 |

**BENCH MARK #1**
STA. 1123+25.88 ℄ U.S. 22
58.17′ RT.
ELEV. 1152.76
CONCRETE MONUMENT WITH ODOT CAP

**BENCH MARK #2**
STA. 1126+40.57 ℄ U.S. 22
6.53′ RT.
ELEV. 1153.26
CONCRETE MONUMENT WITH ODOT CAP

E130 (091)
BEGIN PROJECT STA. 1122+50.00 SLM = 21.26
BEGIN WORK STA. 1122+25.00
E130 (091)
END PROJECT STA. 1126+50.00 SLM = 21.34
END WORK STA. 1127+50.00

SC Sta. 1122+88.19
CS Sta. 1126+11.52
MATCH EX. RAIL STA. 1122+43.55±
MATCH EX. RAIL STA. 1122+41.52±
℄ LANES U.S. 22
℄ CONST. U.S. 22
℄ R.R.
PT. OF MIN. VERT. CLR.
REF. CHORD
B-001
B-002
BM#1
BM#2
STA. 1123+00, END PAV'T AND SHOULDER TRANSITION
BEGIN TRANSITION TO TYP. SECTION
STA. 1126+00, END PAV'T AND SHOULDER TRANSITION
BEGIN TRANSITION TO TYP. SECTION
STA. 1125+63.53 REMOVE & REERECT ON NEW POST
STA. 1125+59.16 REMOVE & REERECT ON NEW POST
EX. CATCH BASIN, TYPE 2-2A (TO REMAIN)
EX. 18"± CONC. CONDUIT (TO REMAIN)
EX. 21"± CONC. CONDUIT (TO REMAIN)
EX. 18"± CMP CONDUIT (TO REMAIN)
EX. CATCH BASIN, TYPE 2-2A (TO REMAIN)
TYPE E ANCHOR ASSEMBLY
CONST. LIMITS (TYP.)
D-1, F-1, C-1, R-1, GR-1, R-2, GR-2, C-2, F-2, F-3, C-3, R-3, GR-3, C-4, F-4, R-4, GR-4, S-1, S-2
Ex A, Ex SL, Ex RR, Ex SW, Ex ℄
9746, 9745
7.81′±, 12.49′±, 111.18′±, 7.73′±, 8.67′, 12.0′, 7.25′, 8.39′±, 12.19′±, 11.42′±, 7.90′±

ITEM 601 - DUMPED ROCK FILL, TYPE D
ITEM 601 - TIED CONCRETE BLOCK MAT, TYPE 2
WETLAND AREA (DO NOT DISTURB)

BRIDGE LIMITS = 146.50′
STA. 1123+34.42
STA. 1123+59.08
STA. 1125+05.58
STA. 1125+30.23
PR. PROFILE GRADE
EX. PROFILE GRADE
+1.32± %
+0.96 %
+0.96 %
+0.92%
MATCH EXISTING STA. 1122+50.00 GRADE BREAK = -0.36% (NO VERTICAL CURVE)
MATCH EXISTING STA. 1126+50.00 GRADE BREAK = -0.04% (NO VERTICAL CURVE)
ITEM 601 - DUMPED ROCK FILL, TYPE D (1′-6″ DEEP)
ACTUAL MIN. VERT. CLR. = 23.02′ (MIN. REQ'D = 23.00′)
1.5:1
5′± (TYP.)
6′
℄ TRACKS
℄ R.R.
EX. 18"± CONC. CONDUIT (TO REMAIN)

1122+00 1123+00 1124+00 1125+00 1126+00 1127+00
1165 1160 1155 1150 1145 1140 1135 1130 1125

1151.31 1151.97 1152.48 1152.76 1153.13 1153.58 1154.06 1154.87 1155.50 1155.81 1156.27
1151.97 1152.21 1152.45 1152.69 1152.93 1153.17 1153.41 1153.65 1153.89 1154.13 1154.37 1154.61 1154.85 1155.09 1155.33 1155.57 1155.81

HORIZONTAL SCALE IN FEET
0 10 20 40
CALCULATED CCN
CHECKED RPT

# PLAN AND PROFILE
# STA. 1121+50.00 TO STA. 1127+50.00

HAS-22-21.26

13
52

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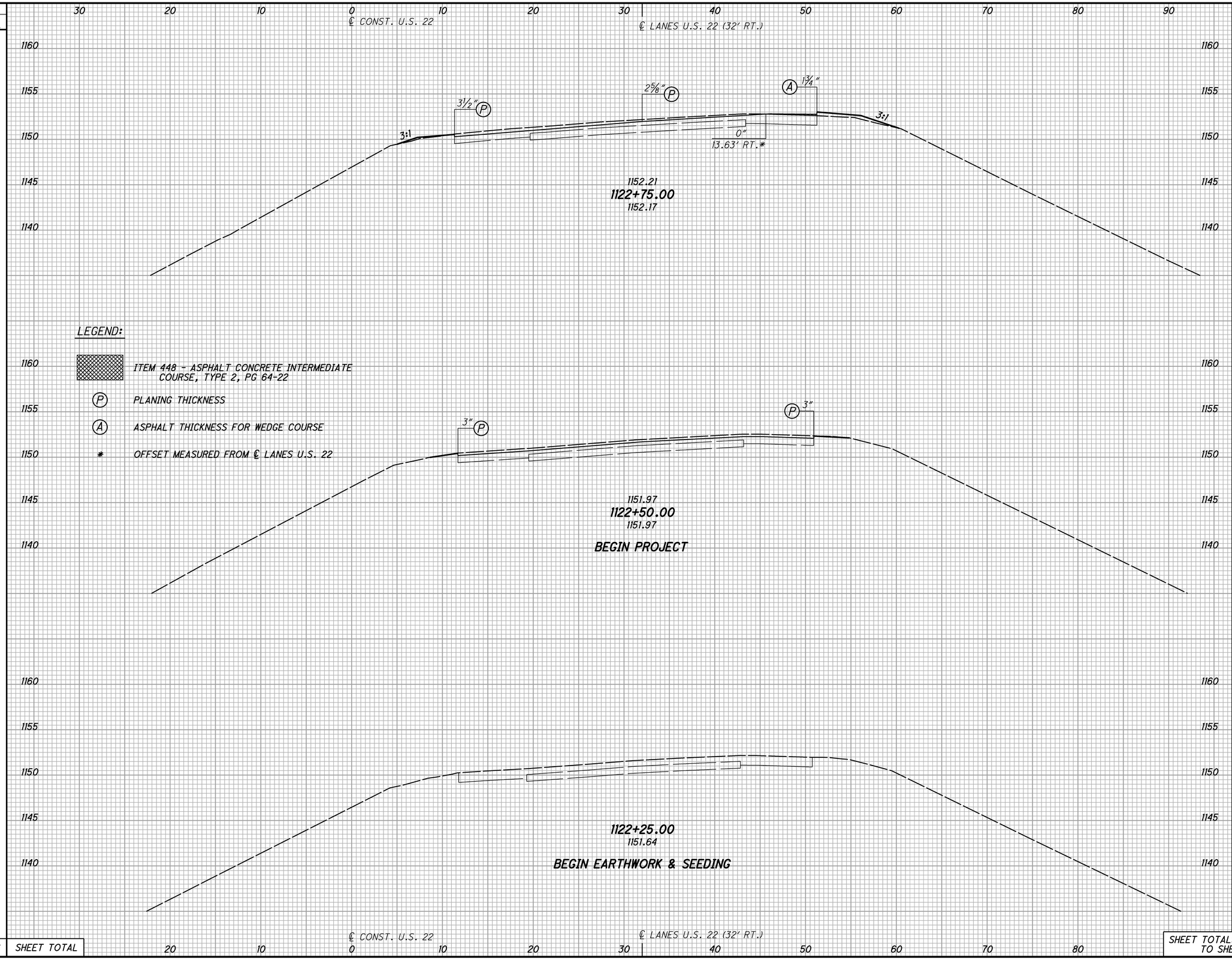
| SEEDING END WIDTH | SEEDING SQ. YDS. |
|---|---|
| 36 | 88 |
| 27 | 38 |
| 0 | |
| | 126 |

SHEET TOTAL




| END AREA CUT | END AREA FILL | VOLUME CUT | VOLUME FILL |
|---|---|---|---|
| 0 | 3 | 0 | 1 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | | |

SHEET TOTALS CARRIED TO SHEET NO. 12 | 0 | 1

CALCULATED CCN | CHECKED RPT

# CROSS SECTIONS
## STA. 1122+25.00 TO STA. 1122+75.00

HAS-22-21.26

14
52

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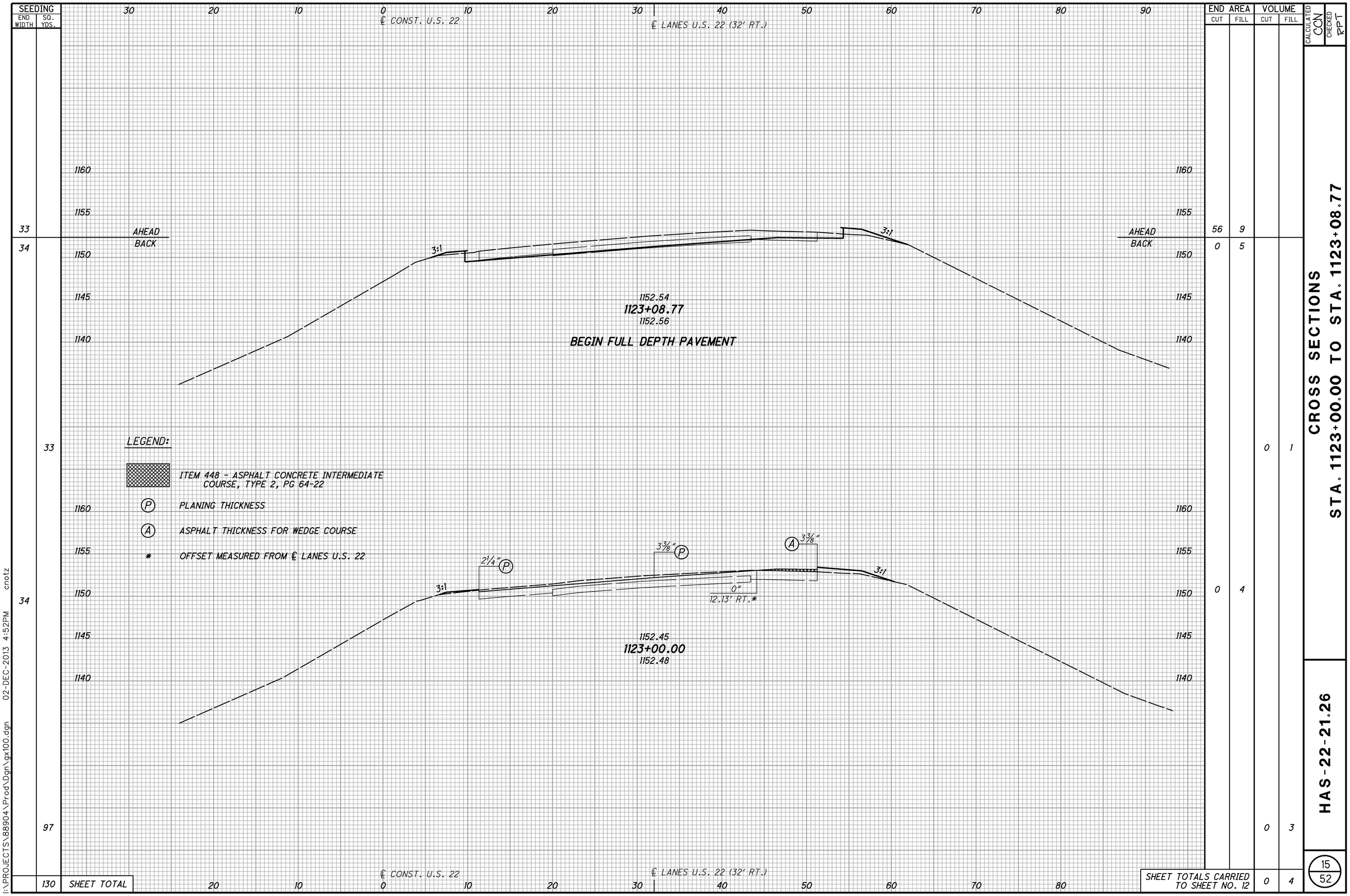
| SEEDING END WIDTH | SEEDING SQ. YDS. | STATION | END AREA CUT | END AREA FILL | VOLUME CUT | VOLUME FILL |
|---|---|---|---|---|---|---|
| | | 33 | 56 | 9 | | |
| | | 34 | 0 | 5 | | |
| | | 33 | | | 0 | 1 |
| | | 34 | | | 0 | 4 |
| | | 97 | | | 0 | 3 |
| | 130 | SHEET TOTAL | | | 0 | 4 |




SHEET TOTALS CARRIED TO SHEET NO. 12

CALCULATED CCN
CHECKED RPT

CROSS SECTIONS
STA. 1123+00.00 TO STA. 1123+08.77

HAS-22-21.26

15
52

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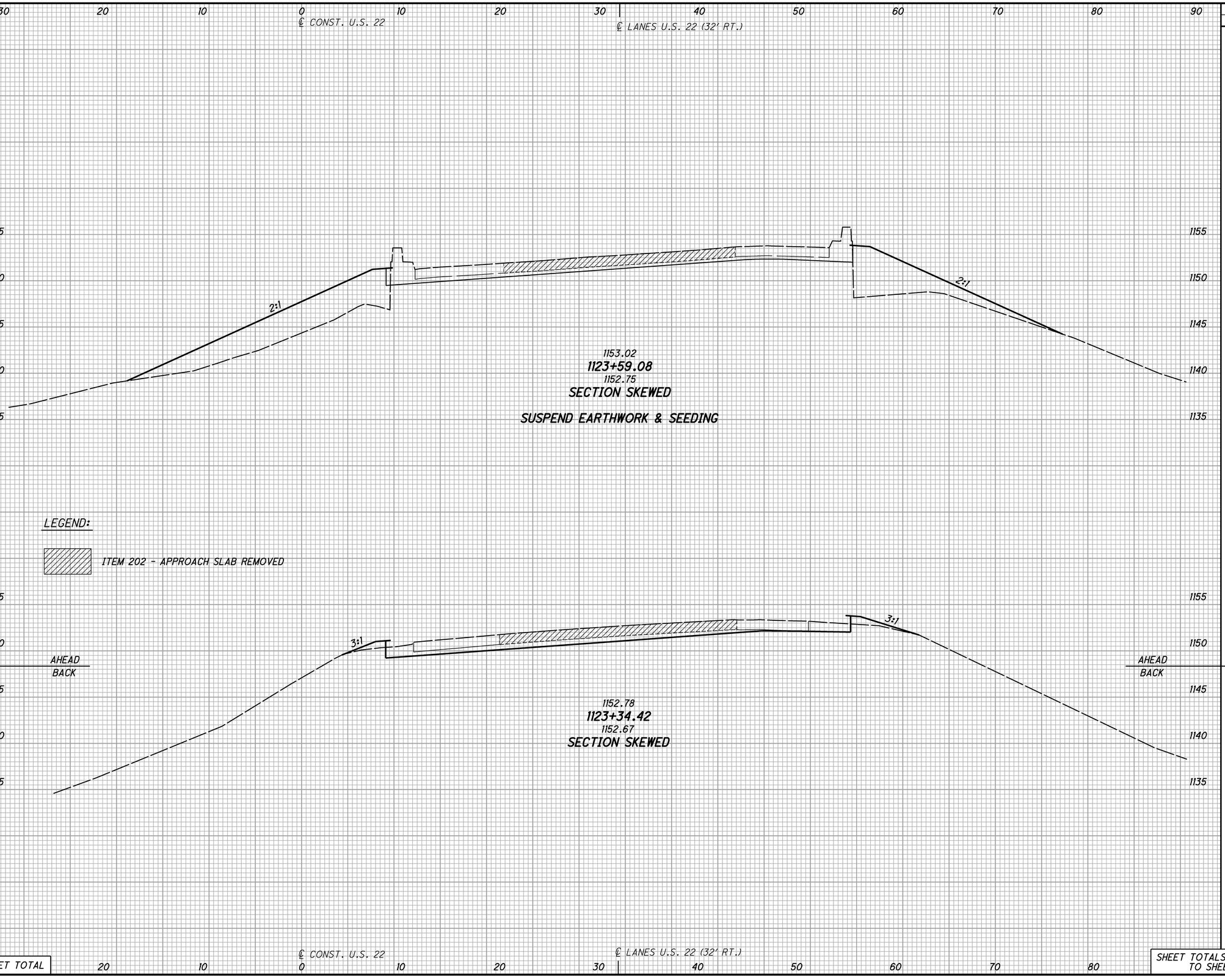
| SEEDING END WIDTH | SEEDING SQ. YDS. | END AREA CUT | END AREA FILL | VOLUME CUT | VOLUME FILL |
|---|---|---|---|---|---|
| 73 | | 36 | 113 | | |
| | 145 | | | 36 | 53 |
| 33 | | 42 | 4 | | |
| 34 | | 53 | 15 | | |
| | 95 | | | 52 | 12 |
| | 240 SHEET TOTAL | SHEET TOTALS CARRIED TO SHEET NO. 12 | | 88 | 65 |

CALCULATED CCN
CHECKED RPT




CROSS SECTIONS
STA. 1123+34.42 TO STA. 1123+59.08

HAS-22-21.26

16
52

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| SEEDING END WIDTH | SEEDING SQ. YDS. | END AREA CUT | END AREA FILL | VOLUME CUT | VOLUME FILL |
|---|---|---|---|---|---|
| 39 | | 57 | 14 | | |
| 37 | | 70 | 3 | | |
| | 116 | | | 53 | 16 |
| 48 | | 47 | 32 | | |
| 116 | SHEET TOTAL | SHEET TOTALS CARRIED TO SHEET NO. 12 | | 53 | 16 |

30 20 10 0 10 20 30 40 50 60 70 80 90

℄ CONST. U.S. 22 ℄ LANES U.S. 22 (32' RT.)

1160 1155 1150 1145

℄ EL. 1151.2±
2.4'± LT.

AHEAD
BACK

4:1

4:1

℄ EL. 1153.5±
63.4'± RT.

1154.66
**1125+30.23**
1154.52
**SECTION SKEWED**

LEGEND:

ITEM 202 - APPROACH SLAB REMOVED

1160 1155 1150 1145 1140

℄ EL. 1149.9±
0.5'± RT.

2:1

2:1

2:1

℄ EL. 1150.5±
65.8'± RT.

EX. 21"± CONC. CONDUIT
(TO REMAIN)

1154.43
**1125+05.58**
1154.16
**SECTION SKEWED**

**RESUME EARTHWORK & SEEDING**

℄ CONST. U.S. 22 ℄ LANES U.S. 22 (32' RT.)

30 20 10 0 10 20 30 40 50 60 70 80

CALCULATED CCN CHECKED RPT

# CROSS SECTIONS
## STA. 1125+05.58 TO STA. 1125+30.23

HAS-22-21.26

17
52

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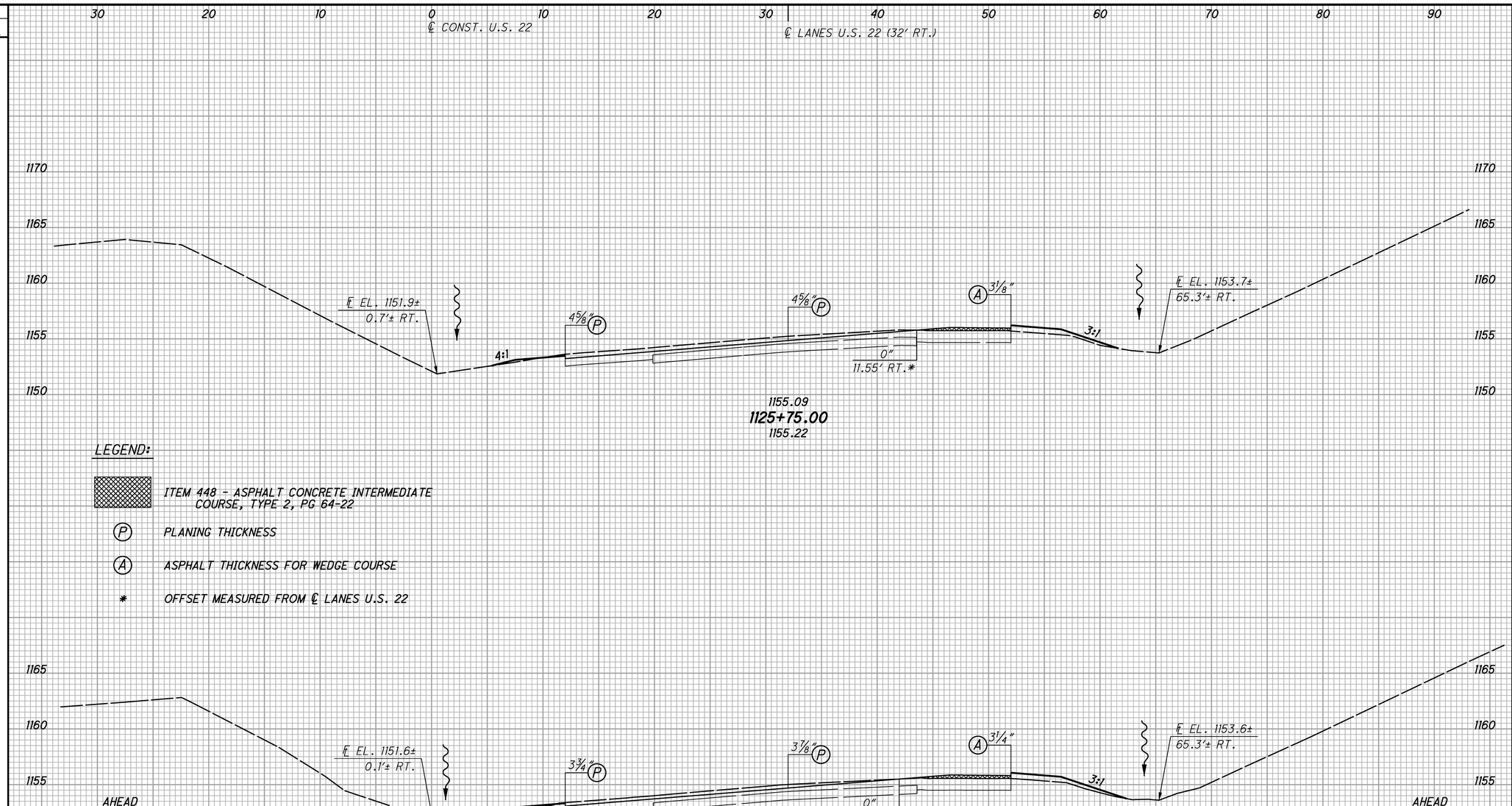
| SEEDING END WIDTH | SEEDING SQ. YDS. |
|---|---|
| 36 | 65 |
| 35 | |
| 32 | 112 |
| | 177 |

SHEET TOTAL




| END AREA CUT | END AREA FILL | VOLUME CUT | VOLUME FILL |
|---|---|---|---|
| 0 | 4 | | |
| | | 0 | 2 |
| 0 | 4 | | |
| 56 | 10 | | |
| | | 60 | 13 |
| SHEET TOTALS CARRIED TO SHEET NO. 12 | | 60 | 15 |

CALCULATED CCN
CHECKED RPT

CROSS SECTIONS
STA. 1125+58.56 TO STA. 1125+75.00

HAS-22-21.26

18
52

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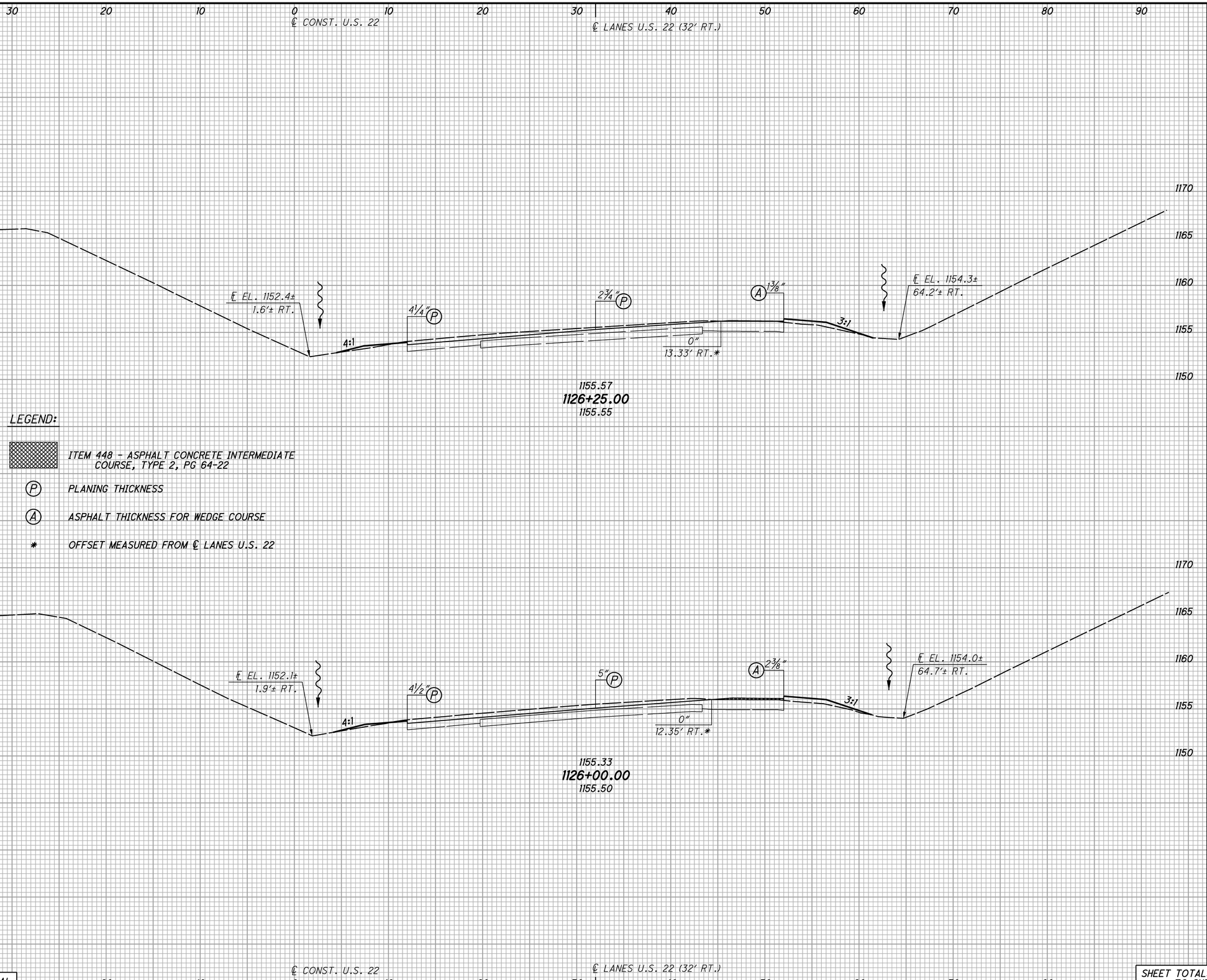
| SEEDING END WIDTH | SEEDING SQ. YDS. |
|---|---|
| 38 | 106 |
| 38 | 103 |
| | 209 |

SHEET TOTAL




| END AREA CUT | END AREA FILL | VOLUME CUT | VOLUME FILL |
|---|---|---|---|
| 0 | 4 | 0 | 4 |
| 0 | 4 | 0 | 4 |
| 0 | 8 | | |

SHEET TOTALS CARRIED TO SHEET NO. 12

CALCULATED CCN CHECKED RPT

CROSS SECTIONS
1126+00.00 TO STA. 1126+25.00
STA. 1126+00.00

HAS-22-21.26

19
52

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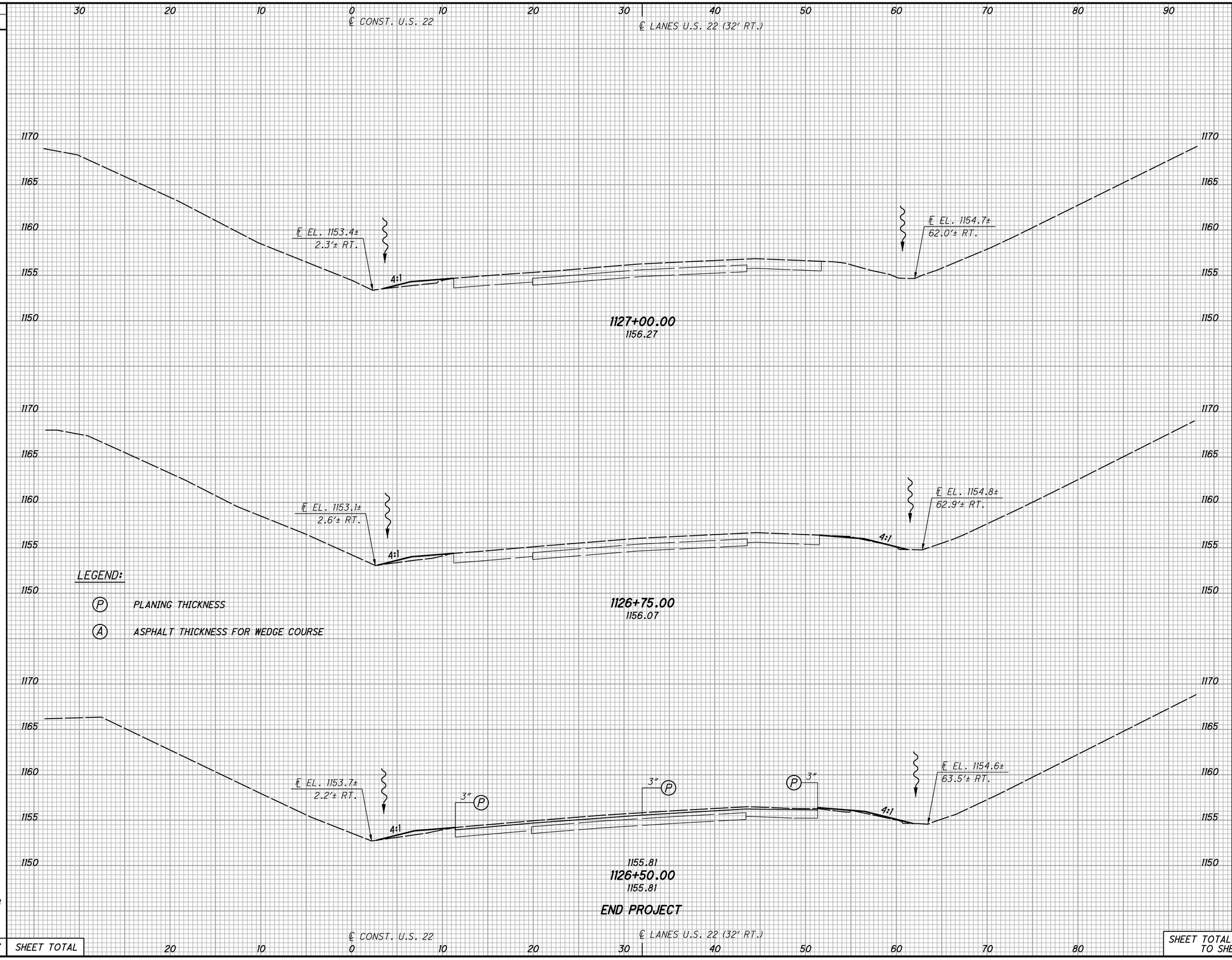
| SEEDING END WIDTH | SEEDING SQ. YDS. |
|---|---|
| 18 | 79 |
| 39 | 110 |
| 40 | 108 |
| | 297 |

SHEET TOTAL




| END AREA CUT | END AREA FILL | VOLUME CUT | VOLUME FILL |
|---|---|---|---|
| 0 | 2 | 0 | 2 |
| | | 0 | 3 |
| | | 0 | 4 |
| SHEET TOTALS CARRIED TO SHEET NO. 12 | | 0 | 9 |

CALCULATED CCN
CHECKED RPT

# CROSS SECTIONS
## STA. 1126+50.00 TO STA. 1127+00.00

HAS-22-21.26

20
52

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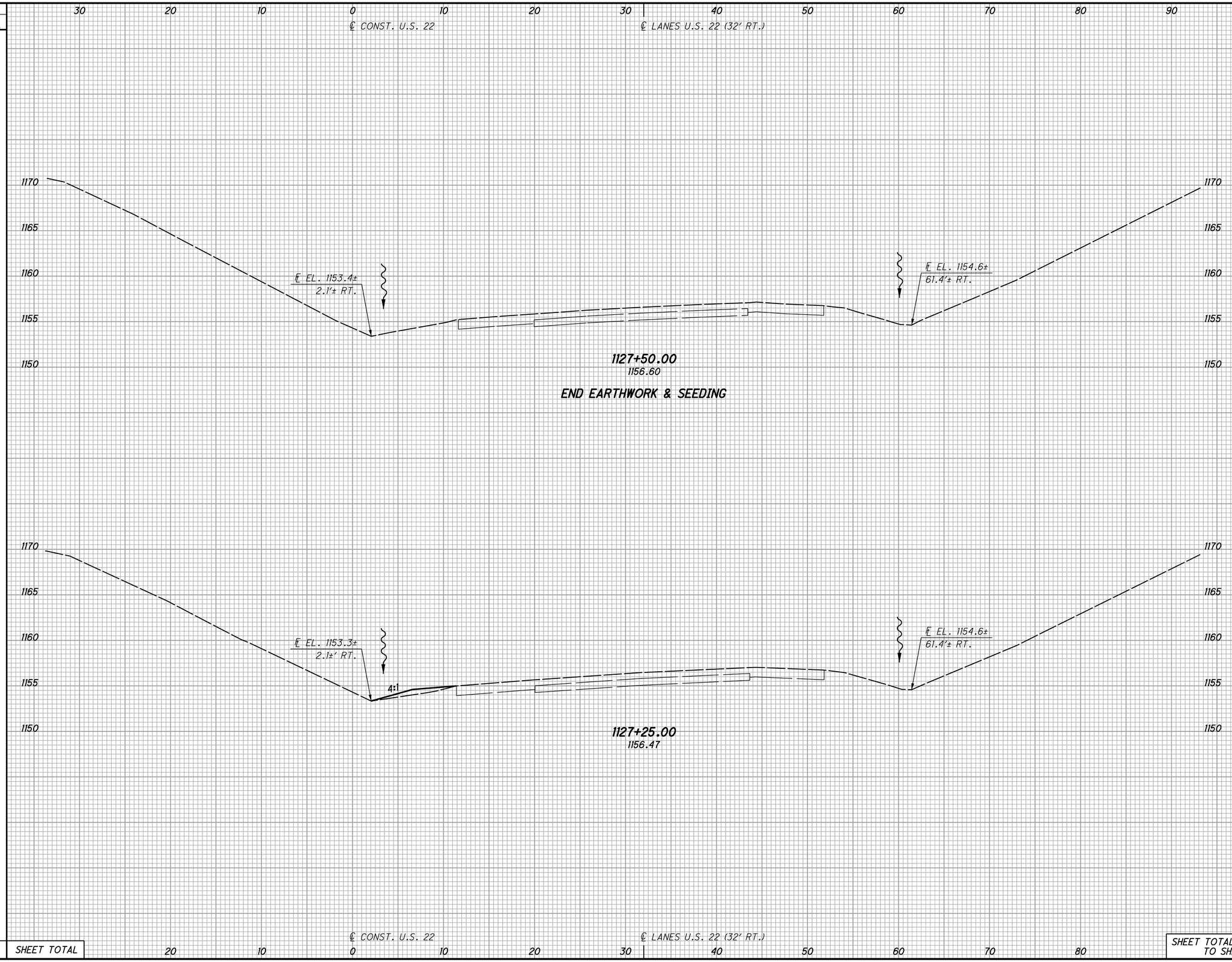
| SEEDING END WIDTH | SEEDING SQ. YDS. | END AREA CUT | END AREA FILL | VOLUME CUT | VOLUME FILL |
|---|---|---|---|---|---|
| 0 | 28 | 0 | 0 | 0 | 1 |
| 20 | 53 | 0 | 3 | 0 | 2 |
| | 81 | | | | |




SHEET TOTAL

SHEET TOTALS CARRIED TO SHEET NO. 12 | 0 | 3

CALCULATED CCN | CHECKED RPT

CROSS SECTIONS
STA. 1127+25.00 TO STA. 1127+50.00

HAS-22-21.26

21
52

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| SUPERELEVATION | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LEFT SIDE | | | | | PROFILE CONTROL | | RIGHT SIDE | | | | | |
| EDGE ELEVATION | TRANSITION RATE | ELEVATION CORRECTION | CROSS SLOPE | WIDTH | STATION | PROFILE GRADE | WIDTH | CROSS SLOPE | ELEVATION CORRECTION | TRANSITION RATE | EDGE ELEVATION | REMARKS |
| | | | | | | | | | | | | |
| 1150.97 | 2042 | -1.00 | -0.080 | 12.49 | 1122+50.00 | 1151.97 | 11.18 | 0.051 | 0.57 | | 1152.54 | MATCH EX. |
| 1151.22 | | -0.99 | -0.081 | 12.24 | 1122+75.00 | 1152.21 | 11.59 | 0.060 | 0.70 | | 1152.91 | FULL SUPER (LT) |
| 1151.36 | | -0.98 | -0.081 | 12.12 | 1122+88.19 | 1152.34 | 11.81 | 0.065 | 0.77 | 222 | 1153.11 | S.C. |
| 1151.48 | | -0.97 | -0.081 | 12 | 1123+00.00 | 1152.45 | 12 | 0.070 | 0.84 | | 1153.29 | |
| 1151.72 | | -0.97 | -0.081 | 12 | 1123+25.00 | 1152.69 | 12 | 0.079 | 0.95 | | 1153.64 | |
| 1151.77 | | -0.97 | -0.081 | 12 | 1123+30.00 | 1152.74 | 12 | 0.081 | 0.97 | | 1153.71 | FULL SUPER (RT) |
| | | | | | | | | | | | | |
| 1151.81 | | -0.97 | -0.081 | 12 | 1123+34.42 | 1152.78 | 12 | 0.081 | 0.97 | | 1153.75 | |
| 1151.96 | | -0.97 | -0.081 | 12 | 1123+50.00 | 1152.93 | 12 | 0.081 | 0.97 | | 1153.90 | APPROACH SLAB |
| 1152.05 | | -0.97 | -0.081 | 12 | 1123+59.08 | 1153.02 | 12 | 0.081 | 0.97 | | 1153.99 | |
| | | | | | | | | | | | | BRIDGE LIMITS |
| 1153.46 | | -0.97 | -0.081 | 12 | 1125+05.58 | 1154.43 | 12 | 0.081 | 0.97 | | 1155.40 | |
| 1153.64 | | -0.97 | -0.081 | 12 | 1125+25.00 | 1154.61 | 12 | 0.081 | 0.97 | | 1155.58 | APPROACH SLAB |
| 1153.69 | | -0.97 | -0.081 | 12 | 1125+30.23 | 1154.66 | 12 | 0.081 | 0.97 | | 1155.63 | |
| 1153.88 | | -0.97 | -0.081 | 12 | 1125+50.00 | 1154.85 | 12 | 0.081 | 0.97 | | 1155.82 | |
| | | | | | | | | | | | | |
| 1154.12 | | -0.97 | -0.081 | 12 | 1125+75.00 | 1155.09 | 12 | 0.081 | 0.97 | | 1156.06 | TRANSITION TO MATCH EX. (RT) |
| 1154.36 | | -0.97 | -0.081 | 12 | 1126+00.00 | 1155.33 | 12 | 0.074 | 0.89 | | 1156.22 | |
| 1154.47 | | -0.98 | -0.081 | 12.04 | 1126+11.52 | 1155.45 | 11.87 | 0.070 | 0.83 | 299 | 1156.28 | C.S. |
| 1154.59 | 256 | -0.98 | -0.081 | 12.10 | 1126+25.00 | 1155.57 | 11.71 | 0.066 | 0.77 | | 1156.34 | TRANSITION TO MATCH EX. (LT) |
| 1154.92 | | -0.89 | -0.073 | 12.19 | 1126+50.00 | 1155.81 | 11.42 | 0.059 | 0.67 | | 1156.48 | MATCH EX. |
| | | | | | | | | | | | | |

CALCULATED CGN CHECKED DJL

# SUPERELEVATION TABLE

HAS-22-21.26

22
52

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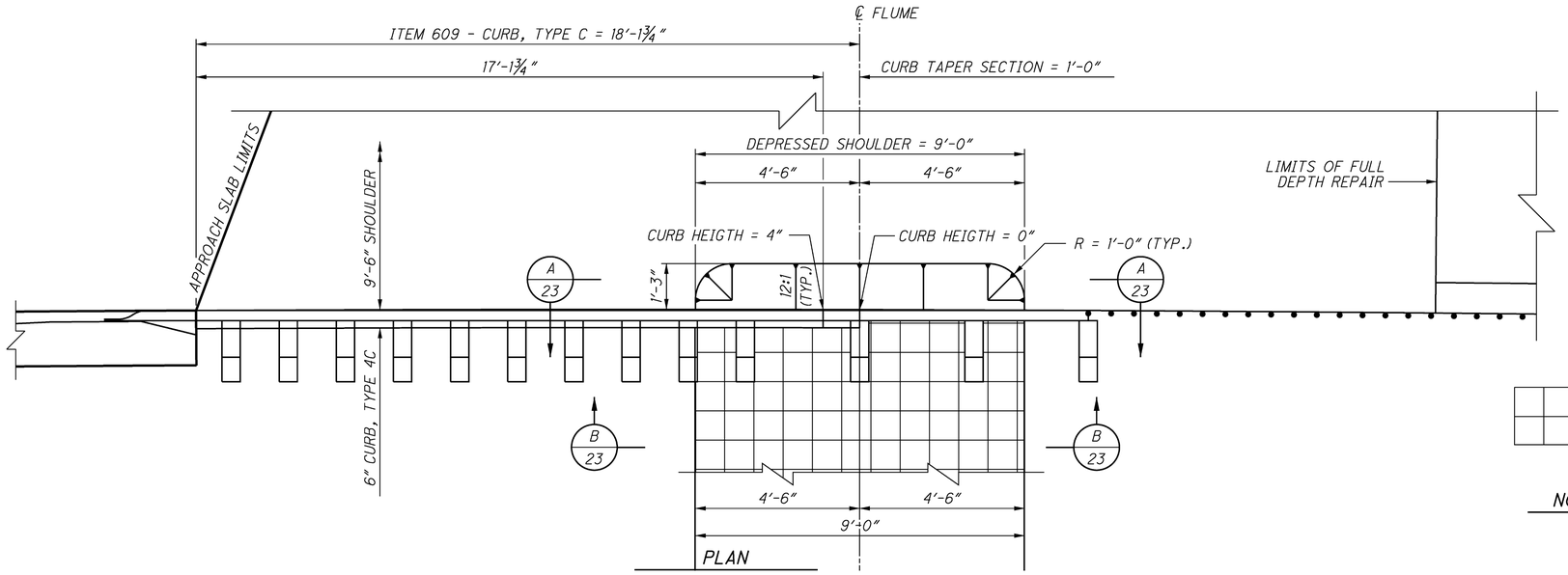
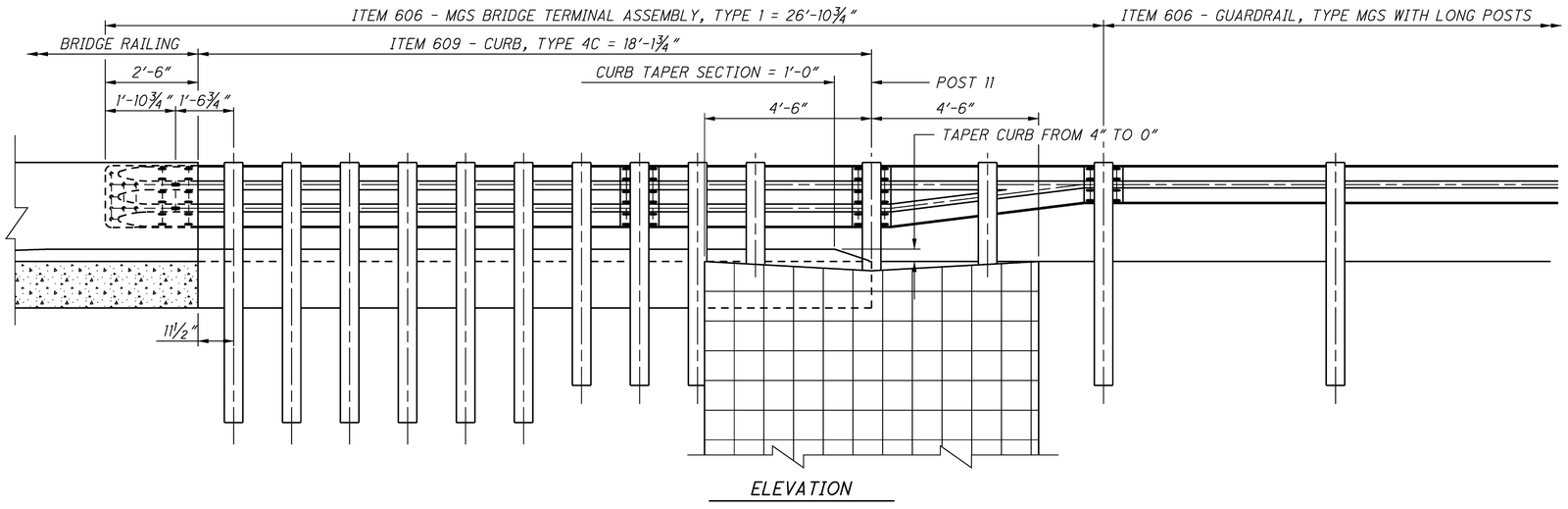


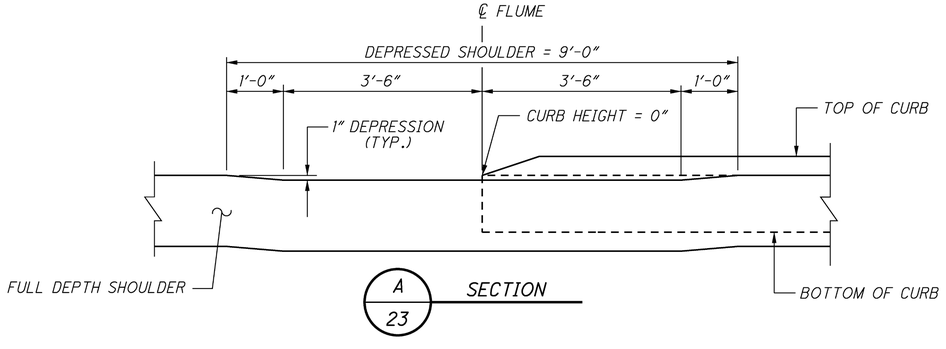

ITEM 601 - TIED CONCRETE BLOCK MAT, TYPE 2

## NOTES

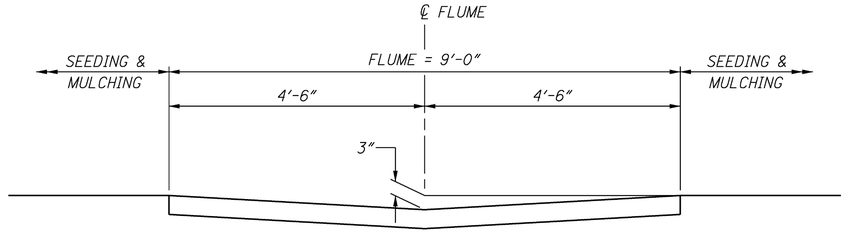
1. FOR DETAILS NOT SHOWN, SEE SCD MGS 3.1 & DM-4.1.
2. 20 SQ. YD. OF ITEM 659 - SEEDING & MULCHING HAS BEEN CARRIED TO THE EARTHWORK SUMMARY TABLE TO ACCOUNT FOR CONSTRUCTION OF THE TIED CONCRETE MAT.




ELEVATION




A 23 SECTION




B 23 SECTION

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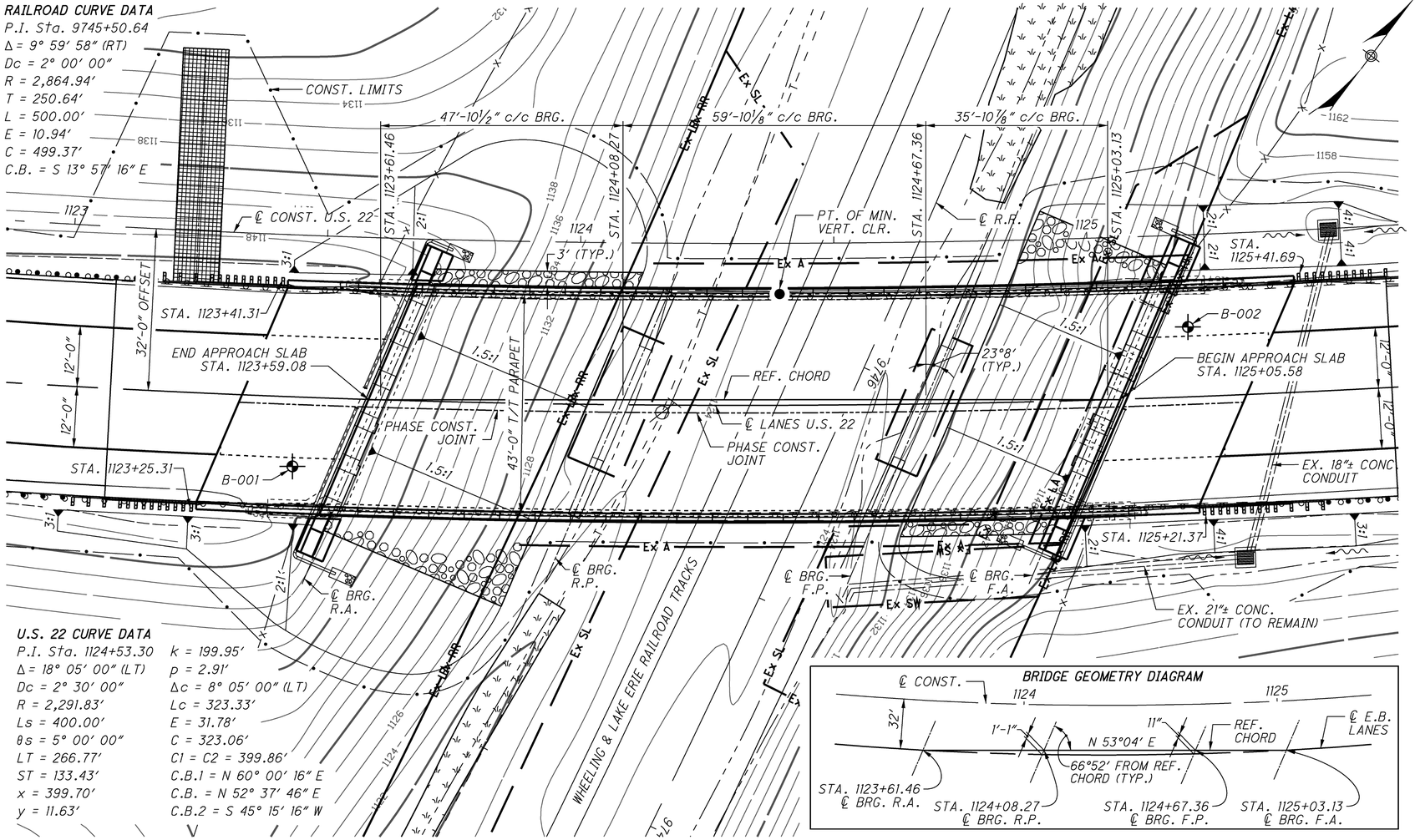
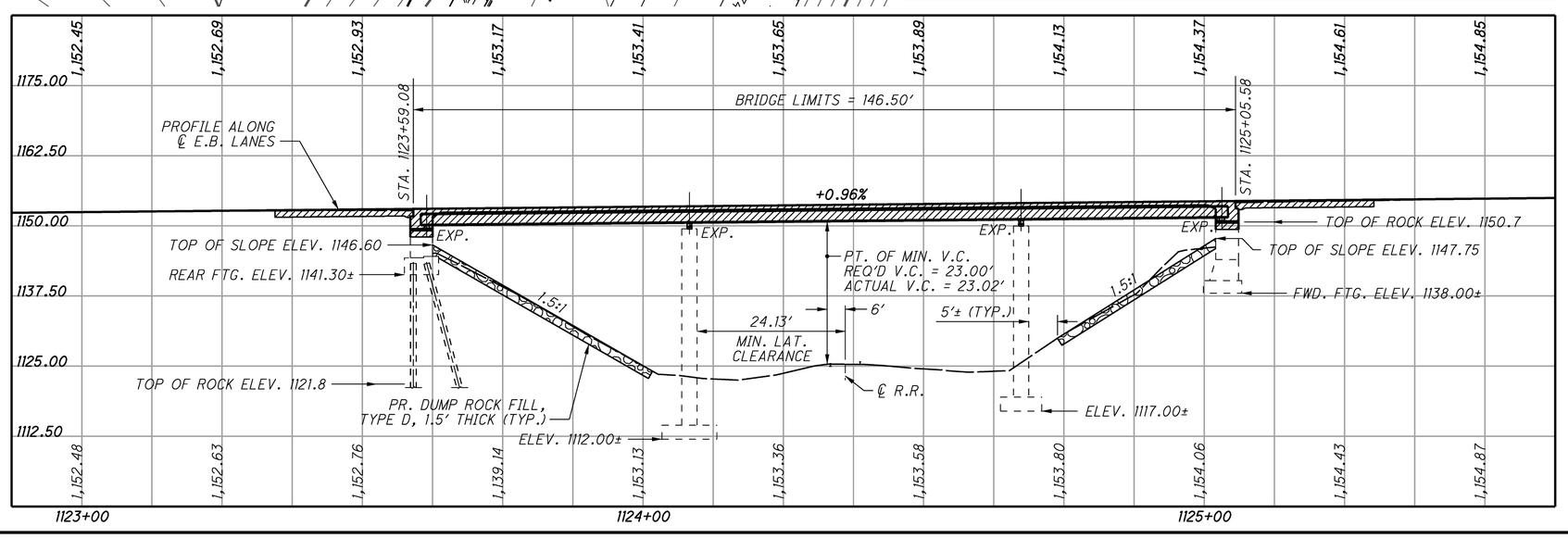
EROSION CONTROL

HAS-22-21.26

23 / 52




## BENCHMARK DATA

| | | |
|---|---|---|
| BM #1 STA. 1123+25.88 | ELEV. 1152.76 | OFFSET 58.17′ RT |
| BM #2 STA. 1126+40.57 | ELEV. 1153.26 | OFFSET 6.53′ RT |

FOR ADDITIONAL BENCHMARK INFORMATION. SEE ROADWAY PLAN SHEET (13/52)

## NOTES

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

DESIGN TRAFFIC:
2015 ADT = 6200 2015 ADTT = 1302
2035 ADT = 8000 2035 ADTT = 1680
DIRECTIONAL DISTRIBUTION = 53%

## LEGEND

- ITEM 601 - DUMPED ROCK, TYPE D
- ITEM 601 - TIED CONCRETE BLOCK MAT, TYPE 2
- WETLAND AREA (TO BE AVOIDED)
- 23.00′ REQUIRED MINIMUM VERTICAL CLEARANCE
  23.02′ ACTUAL MINIMUM VERTICAL CLEARANCE
- SOIL BORING LOCATION

## EXISTING STRUCTURE

TYPE: CONTINUOUS STEEL BEAM WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE WITH ONE SUBSTRUCTURE UNIT ON PILING AND ONE ON SPREAD FOOTING.

SPANS: 47′-10½″±, 59′-10⅛″±, 35′-10⅞″± c/c BRGS. (ALONG REF. CHORD)
ROADWAY: 41′-8″± f/f SAFETY CURB
LOADING: HS-20
SKEW: 23°-08′ L.F.
APPROACH SLABS: AS-1-54 (25′-0″± LONG)
ALIGNMENT: 2°-30′ CURVE LEFT
SUPERELEVATION: 0.081 FT./FT.
STRUCTURAL FILE NUMBER: 3401200
DATE BUILT: 1962
EXISTING WEARING SURFACE: 1¼″± LATEX MODIFIED CONCRETE
CONDITION: REMOVE SUPERSTRUCTURE, REHABILITATE ABUTMENTS

## PROPOSED STRUCTURE

TYPE: NEW SEMI-INTEGRAL THREE-SPAN CONTINUOUS A709 GRADE 50W STEEL BEAMS WITH COMPOSITE REINFORCED CONCRETE DECK ON EXISTING REINFORCED CONCRETE SUBSTRUCTURE UNITS.

SPANS: 47′-10½″±, 59′-10⅛″±, 35′-10⅞″± c/c BRGS. (ALONG REF. CHORD)
ROADWAY: 43′-0″ T/T PARAPET
LOADING: HS-20 CASE II AND ALTERNATE MILITARY LOADING (FWS=60PSF)
SKEW: 23°-08′± L.F.
APPROACH SLABS: 25′-0″ LONG (AS-1-81)
ALIGNMENT: 2°-30′ CURVE LEFT
SUPERELEVATION: 0.081 FT./FT.
WEARING SURFACE: 1″ MONOLITHIC CONCRETE
COORDINATES: LATITUDE 40° 19′ 00″
LONGITUDE 80° 56′ 40″

DESIGN AGENCY
O.D.O.T. DISTRICT 11
PLANNING & ENGINEERING

| DRAWN | REVIEWED | DATE | STRUCTURE FILE NUMBER |
|---|---|---|---|
| CCN | | | 3401200 |
| DESIGNED | CHECKED | REVISED | |
| CCN | RPT | | |

HARRISON COUNTY
STA. 1123+59.08
STA. 1125+05.58

SITE PLAN
BRIDGE NO. HAS-22-2126
OVER WHEELING & LAKE ERIE RAILROAD

HAS-22-21.26
PID No. 88904

1 / 29

24 / 52

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**REFERENCES**

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

| | | |
|---|---|---|
| AS-1-81: | REVISED | 1/18/2013 |
| GSD-1-96: | REVISED | 7/19/2002 |
| PCB-91 | REVISED | 1/18/2013 |
| SBR-1-99 | REVISED | 7/19/2002 |
| SICD-1-96 | REVISED | 7/19/2002 |

**DESIGN SPECIFICATIONS**

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2002, INCLUDING THE INTERIM SPECIFICATIONS AND THE ODOT BRIDGE DESIGN MANUAL.

**DESIGN LOADING**

HS20, CASE II AND THE ALTERNATE MILITARY LOADING.
FUTURE WEARING SURFACE (FWS) OF 60 LBS/SQ. FT.

**DESIGN DATA**

CLASS QC2, CONCRETE - COMPRESSIVE STRENGTH 4500 PSI (SUPERSTRUCTURE).

CLASS QC1, CONCRETE - COMPRESSIVE STRENGTH 4000 PSI (SUBSTRUCTURE).

REINFORCING STEEL - ASTM A615 OR A996 GRADE 60, MINIMUM YIELD STRENGTH 60,000 PSI.

STRUCTURAL STEEL - ASTM A709 GRADE 50W, MINIMUM YIELD STRENGTH 50,000 PSI.

**DECK PROTECTION METHOD:**

EPOXY COATED REINFORCING STEEL, 2½" CONCRETE COVER.

**MONOLITHIC WEARING SURFACE:**

MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1 INCH 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 PRE-BID 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.

**PROPOSED WORK**

1. REMOVE EXISTING DECK, APPROACH SLABS, WING WALLS, BEAMS, BEARINGS, AND PORTIONS OF BREAST WALLS.
2. DRIVE PILING, AND BUILD FOOTINGS FOR WING WALL FOUNDATIONS.
3. CONSTRUCT NEW BREAST WALLS AND WING WALLS.
4. REPLACE POROUS BACKFILL AND PLACE R.C.P.
5. INSTALL NEW ELASTOMERIC BEARINGS AND ERECT NEW STEEL BEAMS.
6. CONSTRUCT ABUTMENT DIAPHRAGMS.
7. CONSTRUCT CONCRETE APPROACH SLABS, DECK, AND PARAPET.
8. SEAL CONCRETE SURFACES.

**ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20 FT SPAN, AS PER PLAN**

ALL APPLICABLE PROVISIONS OF ITEM 202 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS SHALL BE OBSERVED IN THE PERFORMANCE OF THIS ITEM EXCEPT AS MODIFIED HEREIN.

COMPLETELY REMOVE THE EXISTING SUPERSTRUCTURE AND REMOVE PORTIONS OF THE ABUTMENTS AS SHOWN IN THE REMOVAL DETAILS ON SHEETS 5/29 & 6/29 .

DETAILS:
THIS WORK SHALL INCLUDE THE COMPLETE REMOVAL OF THE EXISTING CONCRETE DECK INCLUDING PARAPETS, RAILINGS, DECK JOINTS, BEARINGS, STRUCTURAL STEEL (BEAMS, CROSS FRAMES, SCUPPERS, ETC.), AND OTHER APPURTANCES. IT SHALL ALSO INCLUDE THE REMOVAL OF THE ABUTMENT BACK WALLS, PORTIONS OF THE WING WALLS, PORTIONS OF THE ABUTMENT BREAST WALL, POROUS BACKFILL, AND OTHER APPURTANCES AS SHOWN IN THE REMOVAL PLANS. 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. CARE SHALL BE TAKEN DURING THE REMOVALS TO PROTECT PORTIONS OF SUCH SYSTEMS THAT ARE TO BE SALVAGED AND INCORPORATED INTO THE PROPOSED STRUCTURE.

IN THIS RESPECT THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE-RAM TYPE EQUIPMENT IS PROHIBITED. THE METHOD OF REMOVAL AND THE WEIGHT OF THE HAMMER SHALL BE APPROVED BY THE ENGINEER. PERFORM ALL WORK IN A MANNER THAT WILL NOT CUT, ELONGATE OR DAMAGE THE EXISTING REINFORCING STEEL TO BE PRESERVED IN THE NEW CONSTRUCTION. PNEUMATIC HAMMERS SHALL NOT BE PLACED IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE. THE CONTRACTOR SHALL SUBMIT REMOVAL PLANS IN ACCORDANCE WITH CMS 501.05.

PROTECTION OF TRAFFIC:
PRIOR TO ANY DEMOLITION OF THE EXISTING STRUCTURE, THE CONTRACTOR SHALL SUBMIT PLANS FOR THE PROTECTION OF TRAFFIC IN ACCORDANCE WITH CMS 501.05.

REMOVAL METHODS:
CONCRETE MAY BE REMOVED BY CUTTING AND BY MEANS OF HAND OPERATED PNEUMATIC HAMMER EMPLOYING POINTED OR BLUNTED CHISEL TYPE TOOLS.

**ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20 FT SPAN, AS PER PLAN (CONTINUED...)**

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 REINFORCING TO REMOVE LOOSE AND DISINTEGRATED CONCRETE AND LOOSE RUST. THOUROUGHLY 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 NEED TO HAVE A BRIGHT STEEL FINISH, BUT REMOVE ALL PACK AND LOOSE RUST. THOROUGHLY DRENCH EXISTING CONCRETE SUFACES WITH CLEAN WATER AND ALLOW TO DRY TO A DAMP CONDITION BEFORE PLACING CONCRETE.

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 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.

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

**INSPECTION OF BRIDGE FOR BATS**

PRIOR TO ANY DEMOLITION/REMOVAL OF THE EXISTING BRIDGE, THE CONTRACTOR SHALL CAREFULLY EXAMINE THE UNDERSIDE OF THE STRUCTURE FOR THE PRESENCE OF BATS. IF ANY BATS ARE FOUND, THE O.D.O.T. DISTRICT 11 ENVIRONMENTAL COORDINATOR SHOULD BE CONTACTED AT 330-339-6633 BEFORE COMMENCING WITH THE BRIDGE'S DEMOLITION.

**ASBESTOS NOTIFICATION**

AN ASBESTOS SURVEY OF THE BRIDGE STRUCTURE SCHEDULED FOR REHABILITATION WAS CONDUCTED BY A CERTIFIED ASBESTOS HAZARD EVALUATION SPECIALIST. THE SURVEY DETERMINED THAT NO ASBESTOS IS PRESENT ON THE BRIDGE STRUCTURE.

A COPY OF THE OHIO ENVIRONMENTAL PROTECTION AGENCY (OEPA) NOTIFICATION OF DEMOLITION AND RENOVATION FORMS, PARTIALLY COMPLETED AND SIGNED BY THE BRIDGE OWNER, WILL BE PROVIDED TO THE SUCCESSFUL BIDDER. THE CONTRACTOR SHALL COMPLETE THE FORM AND SUBMIT IT TO THE ADDRESS BELOW AT LEAST TEN (10) WORKING DAYS PRIOR TO THE START OF ANY DEMOLITION AND/OR RENOVATION.

MR. STEVE LOWRY
OHIO EPA, SEDO
2195 FRONT STREET
LOGAN, OHIO 43138

**ASBESTOS NOTIFICATION (CONTINUED)**

THE CONTRACTOR SHALL PROVIDE A COPY OF THE COMPLETED FORM TO THE ENGINEER. INFORMATION REQUIRED ON THE FORM WILL INCLUDE: 1) THE CONTRACTORS NAME AND ADDRESS, 2) THE SCHEDULED DATES FOR THE START AND COMPLETION OF THE BRIDGE REMOVAL AND 3) A DESCRIPTION OF THE PLANNED DEMOLITION WORK AND THE METHOD(S) TO BE USED. COPIES OF THE OEPA FORM AND BRIDGE INSPECTION REPORT ARE AVAILABLE FOR REVIEW AT THE ODOT DISTRICT 11 OFFICE, 2201 REISER AVENUE, NEW PHILADELPHIA, OHIO 44663.

BASIS FOR PAYMENT THE CONTRACTOR SHALL FURNISH ALL FEES, LABOR, AND MATERIAL NECESSARY TO COMPLETE AND SUBMIT THE OEPA NOTIFICATION FORM. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN ITEM 202 PORTIONS OF STRUCTURE REMOVED, AS PER PLAN.

**ITEM 503 - COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN**

THE DESIGN OF THE TEMPORARY EXCAVATION BRACING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER, AS PER THE REQUIREMENTS OF CMS 501.05. UPON COMPLETION OF THE PROJECT, THE TEMPORARY SHORING SHALL BE REMOVED AT LEAST 2 FEET BELOW THE FINISHED GRADE.

THE DEPARTMENT WILL PAY FOR THE TEMPORARY SUPPORT OF EXCAVATION AT THE CONTRACT LUMP SUM PRICE FOR ITEM 503, COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN.

**ITEM 511, CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK, AS PER PLAN**

THE BRIDGE DECK GROOVING SHALL BE PARALLEL TO THE CENTERLINE OF CONSTRUCTION OF U.S. 22. ALL OTHER PROVISIONS OF 499 AND 511 STILL APPLY.

**ITEM 518 - STRUCTURE DRAINAGE, MISC.: PLUG EXISTING 4"± WEEP HOLES**

PLUG THE WEEP HOLES IN THE EXISTING BREASTWALL WITH MATERIAL CONFORMING TO CMS 510.02.

PAYMENT SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

**DECK PLACEMENT DESIGN ASSUMPTIONS**

THE FOLLOWING ASSUMPTIONS OF THE CONSTRUCTION MEANS AND METHODS WERE MADE FOR THE ANALYSIS AND DESIGN OF THE SUPERSTRUCTURE. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF THE FALSEWORK SUPPORT SYSTEM WITHIN THESE PARAMETERS AND WILL ASSUME RESPONSIBILITY FOR SUPERSTRUCTURE ANALYSIS FOR DEVIATION FROM THESE DESIGN ASSUMPTIONS.

AN EIGHT WHEEL FINISHING MACHINE WITH A MAXIMUM WHEEL LOAD OF 1.188 KIPS FOR A TOTAL MACHINE LOAD OF 9.5 KIPS.

A MINIMUM OUT-TO-OUT WHEEL SPACING AT EACH END OF THE MACHINE OF 103".

A MAXIMUM SPACING OF OVERHANG FALSEWORK OF 48".

A MINIMUM DISTANCE FROM THE CENTERLINE OF THE FASCIA GIRDER TO THE FACE OF THE SAFETY HANDRAIL OF 65".

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DESIGN AGENCY
O.D.O.T. DISTRICT 11
PLANNING & ENGINEERING

| DESIGNED | DRAWN | REVIEWED | DATE |
|---|---|---|---|
| CDN | CDN | | |
| CHECKED | REVISED | STRUCTURE FILE NUMBER | |
| RPT | | 3401200 | |

STRUCTURE NOTES
BRIDGE NO. HAS-22-2126
OVER WHEELING & LAKE ERIE RAILROAD

HAS-22-21.26
PID No. 88904

**PILES TO BEDROCK**

PILES TO BEDROCK: DRIVE PILES TO REFUSAL ON BEDROCK. THE DEPARTMENT WILL CONSIDER REFUSAL TO BE OBTAINED BY PENETRATING WEAK BEDROCK FOR SEVERAL INCHES TO A MINIMUM RESISTANCE OF 20 BLOWS PER INCH OR BY CONTACTING STRONG BEDROCK AND THE PILE RECEIVING AT LEAST 20 BLOWS. SELECT THE HAMMER SIZE TO ACHIEVE THE REQUIRED DEPTH TO BEDROCK AND REFUSAL. INSTEAD OF DRIVING TO REFUSAL, THE CONTRACTOR MAY PERFORM DYNAMIC LOAD TESTING ACCORDING TO CMS 523 TO ESTABLISH A DRIVING CRITERIA FOR EACH PILE TYPE AND CAPACITY. ESTABLISH THE DRIVING CRITERIA TO ACHIEVE AN ULTIMATE BEARING VALUE GIVEN BELOW FOR THE PILES. PAYMENT FOR DYNAMIC LOAD TESTING PERFORMED AT THE CONTRACTOR'S OPTION IS INCLUDED IN THE UNIT PRICE PAY ITEM FOR PILES DRIVEN.

THE ULTIMATE BEARING VALUE IS 190 TONS PER PILE FOR THE 6 ABUTMENT PILES.

ABUTMENT PILES:
6 - HP12X53 PILES 35 FEET LONG, ORDER LENGTH

**PILE SPLICES**

PILE SPLICES: IN LIEU OF USING THE FULL PENETRATION BUTT WELDS SPECIFIED IN CMS 507.09 TO SPLICE STEEL H-PILES, THE CONTRACTOR MAY USE A MANUFACTURED H-PILE SPLICER. FURNISH SPLICERS FROM THE FOLLOWING MANUFACTURER:

ASSOCIATED PILE AND FITTING CORPORATION
8 WOOD HOLLOW RD. PLAZA 1
PARSIPPANY, NJ 07054

INSTALL AND WELD THE SPLICER TO THE PILE SECTIONS IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN ASSEMBLY PROCEDURE SUPPLIED TO THE ENGINEER BEFORE THE WELDING IS PERFORMED.

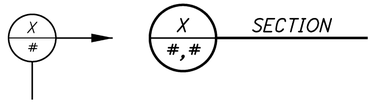
**FOUNDATION BEARING PRESSURE**

WINGWALL FOOTINGS, AS DESIGNED, PRODUCE A MAXIMUM BEARING PRESSURE OF 1.34 TONS PER SQUARE FOOT. THE ALLOWABLE BEARING PRESSURE IS 4 TONS PER SQUARE FOOT.

**ABBREVIATIONS:**

BRG. - BEARING
C.J. - CONSTRUCTION JOINT
CONST. - CONSTRUCTION
E.F. - EACH FACE
EL. OR ELEV. - ELEVATION
EX. - EXISTING
EXP. - EXPANSION
F.A. - FORWARD ABUTMENT
F.F. - FAR FACE
F.P. - FORWARD PIER
FTG. - FOOTING
FWD - FORWARD
JT. - JOINT
MAX. - MAXIMUM
MIN. - MINIMUM
N.F. - NEAR FACE
N.P.C.P.P. - NON-PERFORATED CORRUGATED PLASTIC PIPE
O.C.J. - OPTIONAL CONSTRUCTION JOINT
O.H.W.M - ORDINARY HIGH WATER MARK
P.C.P.P. - PERFORATED CORRUGATED PLASTIC PIPE
PR. - PROPOSED
R.A. - REAR ABUTMENT
R.C.P. - ROCK CHANNEL PROTECTION
REF. - REFERENCE
R.R. - RAILROAD
R.P. - REAR PIER
STA. - STATION
STD. DWG. OR SCD - STANDARD CONSTRUCTION DRAWING
TYP. - TYPICAL

THE SYMBOLS BELOW DESIGNATE THE NAMES AND LOCATIONS OF THE SECTION DETAILS THROUGHOUT THE STRUCTURE PLANS. THE TOP LETTER DESIGNATES THE SECTION NAME. THE BOTTOM NUMBER(S) SHOW WHICH STRUCTURE SHEET NUMBER IS BEING CROSS REFERENCED.




DESIGN AGENCY
O.D.O.T. DISTRICT 11
PLANNING & ENGINEERING

| DESIGNED | DRAWN | REVIEWED | DATE |
|---|---|---|---|
| CDN | CDN | | |
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STRUCTURE NOTES
BRIDGE NO. HAS-22-2126
OVER WHEELING & LAKE ERIE RAILROAD

HAS-22-21.26
PID No. 88904



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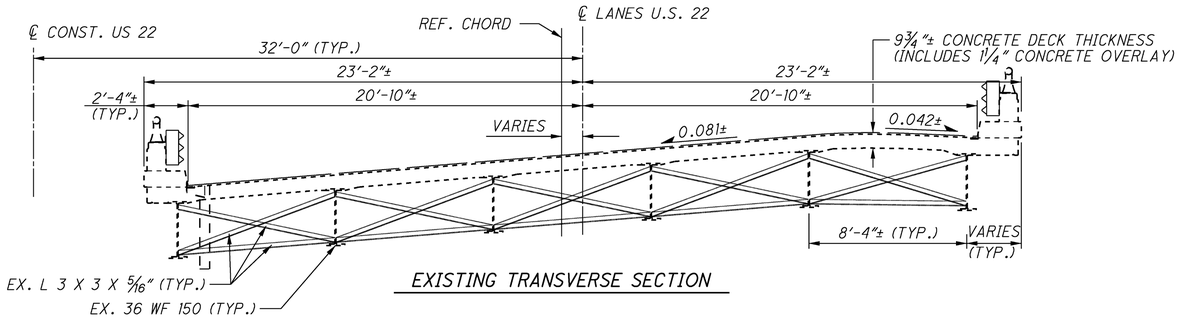
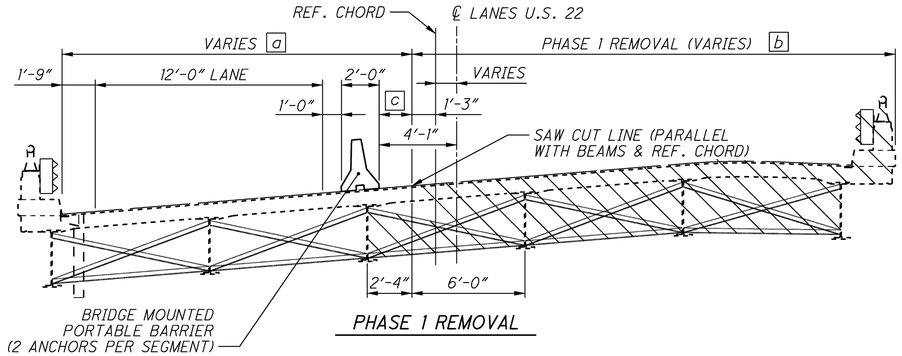



EXISTING TRANSVERSE SECTION

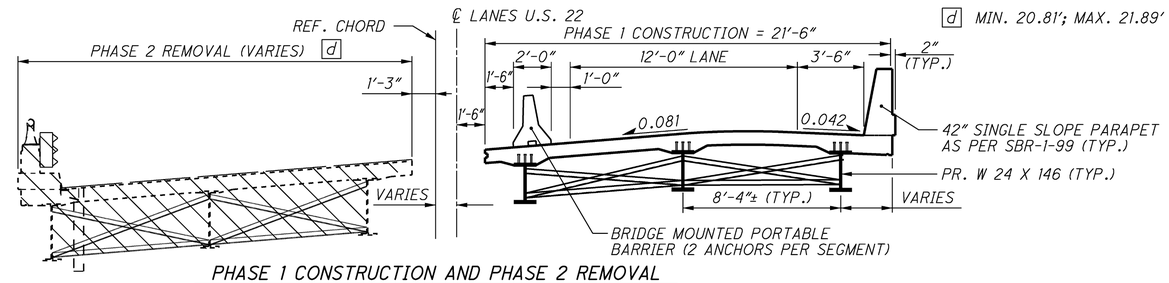



PHASE 1 REMOVAL

[a] MIN. 18.47'; MAX. 19.69'

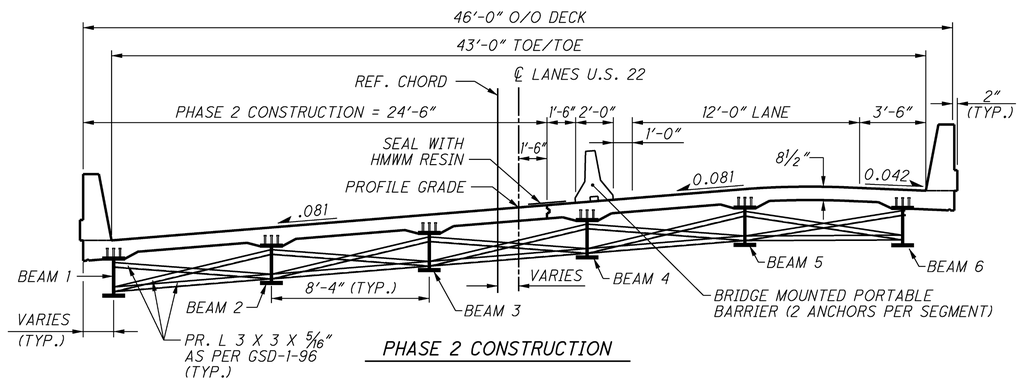
[b] MIN. 24.37'; MAX. 25.53'

[c] MIN. 1.72'; MAX. 2.87'




[d] MIN. 20.81'; MAX. 21.89'

PHASE 1 CONSTRUCTION AND PHASE 2 REMOVAL




PHASE 2 CONSTRUCTION

## PHASE 1 REMOVAL

1. INSTALL AND MAINTAIN CONSTRUCTION SIGNS AND SIGNALS AS SHOWN ON SHEET 7 OF 52 AND AS PER SCD MT-96.11.
2. ERECT BRIDGE MOUNTED PORTABLE BARRIER (2 ANCHORS PER SEGMENT) ON THE LEFT PORTION OF THE EXISTING STRUCTURE AS SHOWN AND AS PER SCD PCB-91. REMOVE CONFLICTING EXISTING PAVEMENT MARKINGS, AND INSTALL WORK ZONE PAVEMENT MARKINGS AS SHOWN ON SHEET 7 OF 52.
3. USE SIGNALS TO MAINTAIN ONE-LANE, TWO-WAY TRAFFIC ON THE LEFT PORTION OF U.S. 22 AS PER THE DETAILS SHOWN ON SHEET 7 OF 52.
4. SAW CUT THE EXISTING DECK AS SHOWN.
5. REMOVE THE RIGHT PORTION OF THE EXISTING DECK, PARAPET, BEAMS, AND CROSSFRAMES AS SHOWN. CUT AND REMOVE THE RIGHT PORTION OF THE REAR AND FORWARD ABUTMENTS AND APPROACH SLABS. DRIVE SHEET PILING WHEN NECESSARY.

## PHASE 1 CONSTRUCTION & PHASE 2 REMOVAL

6. CONSTRUCT THE PROPOSED BEAMS, CROSSFRAMES, DECK, PARAPET, ABUTMENTS, AND APPROACH SLABS FOR THE RIGHT PORTION OF THE BRIDGE. PLACE PAVEMENT UP THROUGH THE INTERMEDIATE COURSE ON THE RIGHT SIDE OF U.S. 22, AND CONSTRUCT THE RIGHT SIDE GUARDRAIL.
7. ERECT BRIDGE MOUNTED PORTABLE BARRIER (TWO ANCHORS PER SEGMENT) ON THE NEWLY CONSTRUCTED RIGHT PORTION OF THE DECK AS SHOWN AND AS PER SCD PCB-91. REMOVE CONFLICTING EXISTING PAVEMENT MARKINGS, AND INSTALL WORK ZONE PAVEMENT MARKINGS AS SHOWN ON SHEET 8 OF 52. PROVIDE ALL MAINTENANCE OF TRAFFIC DEVICES.
8. USE SIGNALS TO MAINTAIN ONE-LANE, TWO-WAY TRAFFIC ON THE RIGHT PORTION OF U.S. 22 AS PER THE DETAILS SHOWN ON SHEETS 7 AND 8 OF 52.
9. REMOVE THE REMAINING PORTION OF THE EXISTING STRUCTURE AS SHOWN. CUT AND REMOVE THE LEFT PORTION OF THE REAR AND FORWARD ABUTMENTS AND APPROACH SLABS. DRIVE SHEET PILING WHEN NECESSARY.

## PHASE 2 CONSTRUCTION

10. PLACE THE PROPOSED BEAMS FOR THE LEFT SIDE OF THE DECK AND PLACE CROSSFRAMES BETWEEN BEAMS 1 AND 2, AND 2 AND 3. CONSTRUCT THE LEFT PORTION OF THE PROPOSED DECK, PARAPET, ABUTMENTS, AND APPROACH SLABS. PLACE PAVEMENT UP THROUGH THE INTERMEDIATE COURSE ON THE LEFT SIDE OF U.S. 22, AND CONSTRUCT THE LEFT SIDE GUARDRAIL.
11. PLACE THE CROSSFRAMES BETWEEN BEAMS 3 AND 4.
12. IN ONE CONTINUOUS OPERATION, REMOVE THE ANCHORED PORTABLE CONCRETE BARRIER, TRAFFIC SIGNALS, AND CONFLICTING PAVEMENT MARKINGS.
13. SAW CUT GROOVES INTO DECK SURFACE, FILL ANCHOR HOLES WITH 705.20 GROUT AND SEAL THE DECK AT THE CONSTRUCTION JOINT WITH HMWM RESIN MAINTAINING TRAFFIC AS PER MT-97.10
14. AS SHOWN ON THE ROADWAY SHEETS, PLACE PAVEMENT SURFACE COURSE FOR THE ENTIRE PROJECT UNDER FLAGGERS AS PER SCD MT-97.10.
16. OPEN ROAD TO TWO-WAY TRAFFIC.

## LEGEND:

PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN

DESIGN AGENCY
O.D.O.T. DISTRICT 11
PLANNING & ENGINEERING

| DESIGNED | DRAWN | REVIEWED | DATE |
|---|---|---|---|
| CCN | CCN | | |

| CHECKED | REVISED | STRUCTURE FILE NUMBER |
|---|---|---|
| DJL | | 3401200 |

PHASE CONSTRUCTION DETAILS
BRIDGE NO. HAS-22-2126
OVER WHEELING & LAKE ERIE RAILROAD
126

HAS-22-21.26
PID No. 88904

4 / 29

27
52

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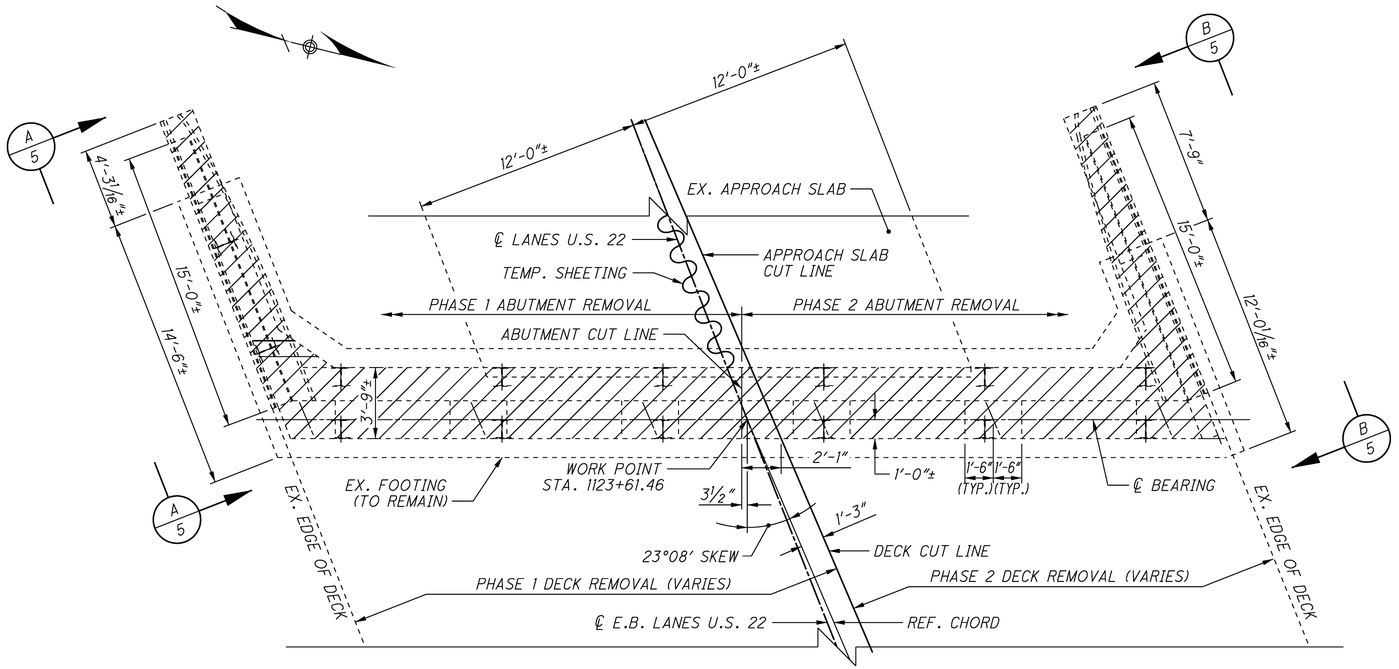
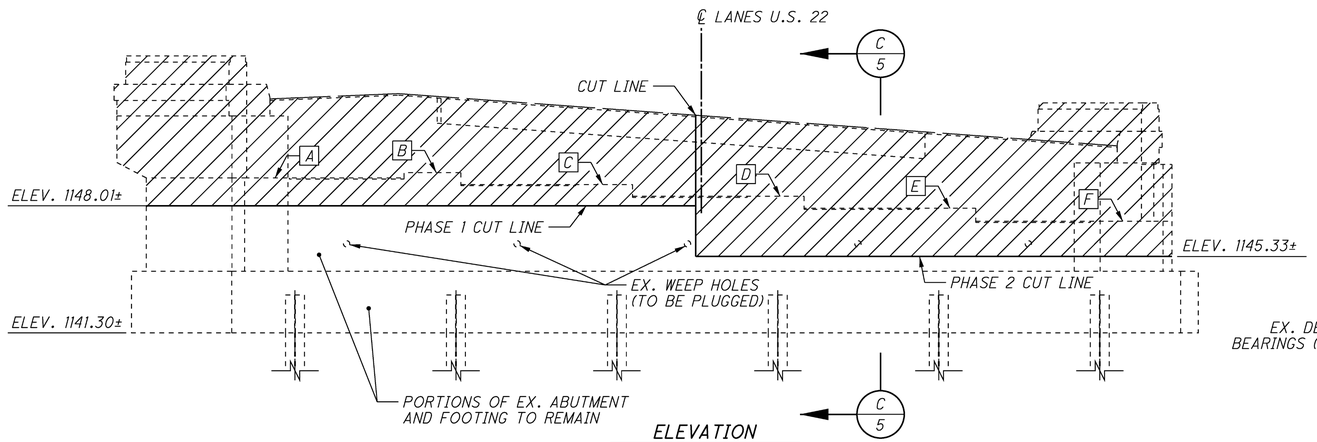
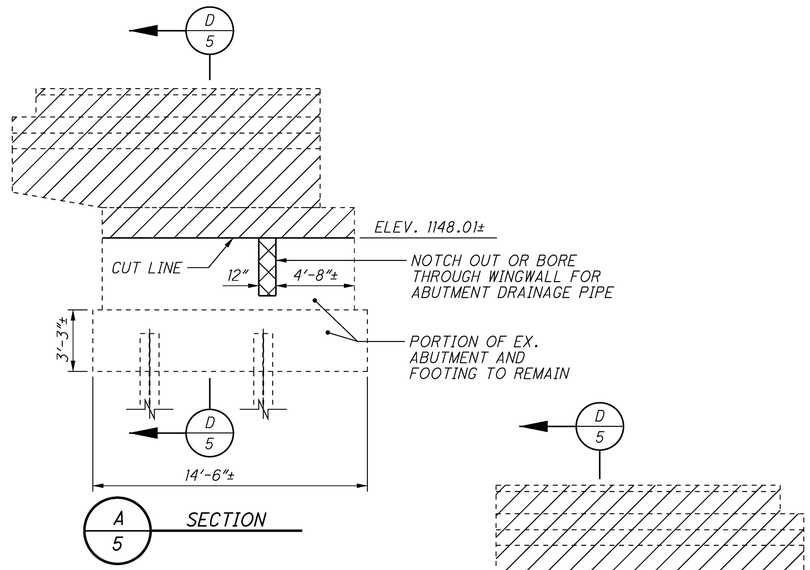
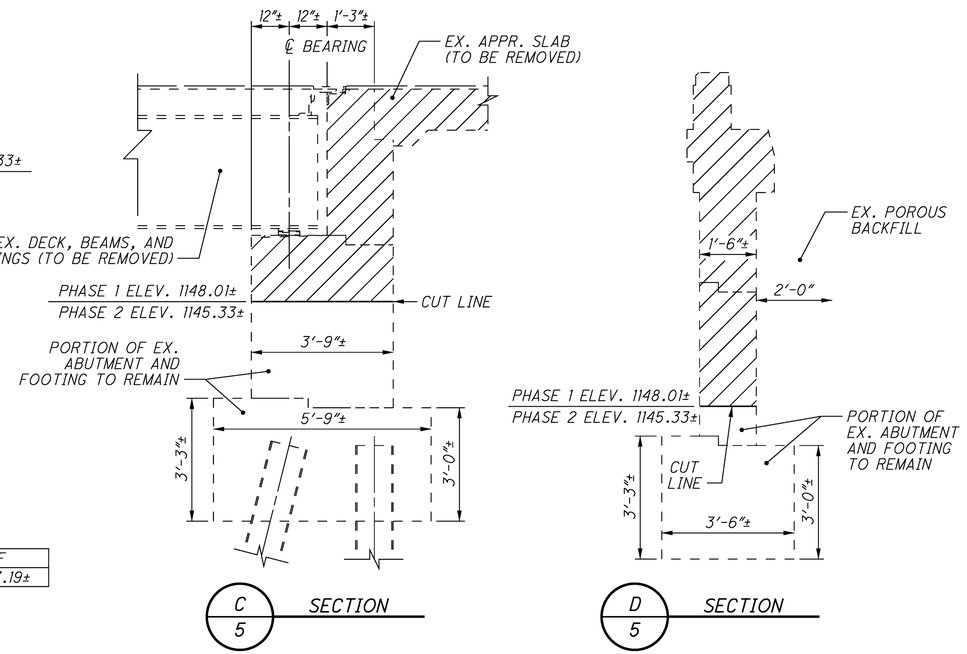



PLAN




ELEVATION




- PORTIONS OF STRUCTURE TO BE REMOVED

- PORTION OF WINGWALL REMOVED TO PLACE ABUTMENT DRAINAGE PIPE

ELEVATION TABLE

| | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| REAR ABUTMENT | 1149.48± | 1149.76± | 1149.13± | 1148.51± | 1147.88± | 1147.19± |

DESIGN AGENCY
O.D.O.T. DISTRICT 11
PLANNING & ENGINEERING

| DESIGNED | DRAWN | REVIEWED | DATE |
|---|---|---|---|
| CCN | CCN | | |

| CHECKED | REVISED | STRUCTURE FILE NUMBER |
|---|---|---|
| RPT | | 3401200 |

REAR ABUTMENT REMOVAL DETAILS
BRIDGE NO. HAS-22-2126
OVER WHEELING & LAKE ERIE RAILROAD

HAS-22-21.26
PID No. 88904

5 / 29

28 / 51

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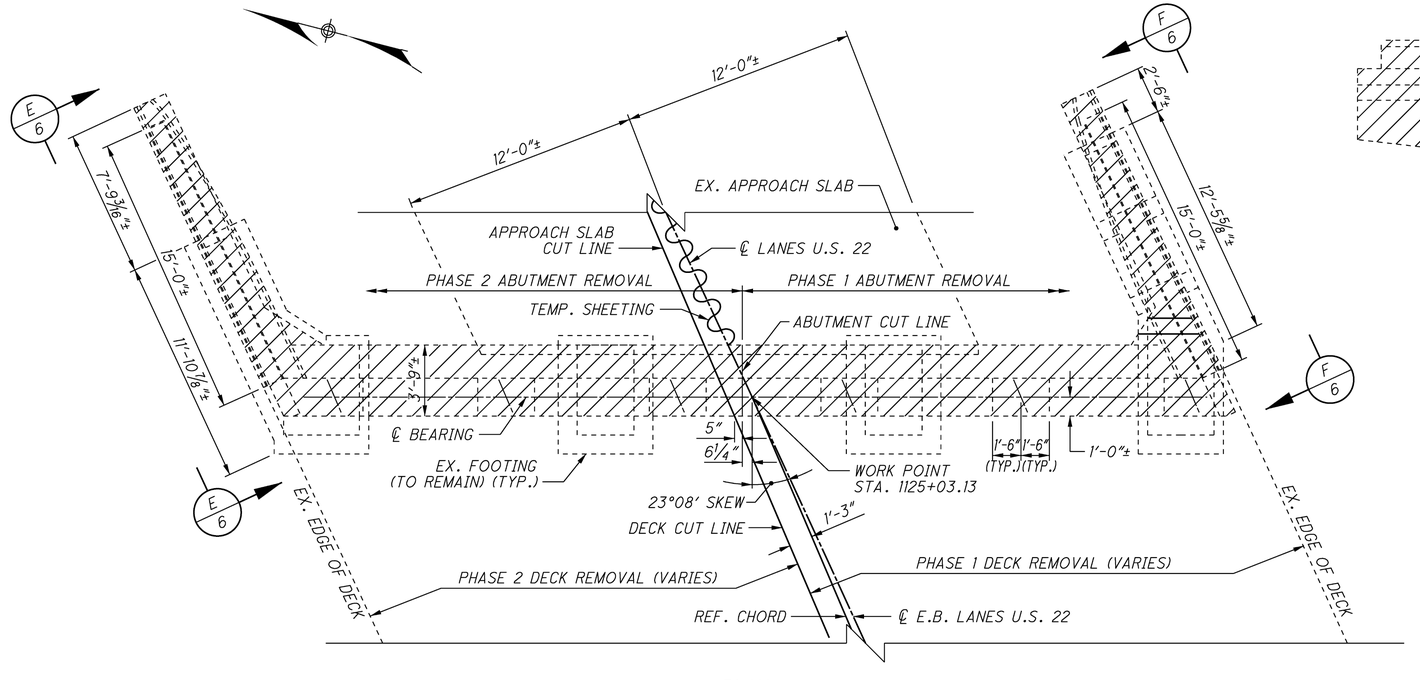
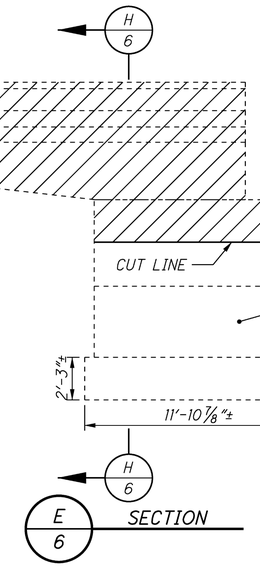
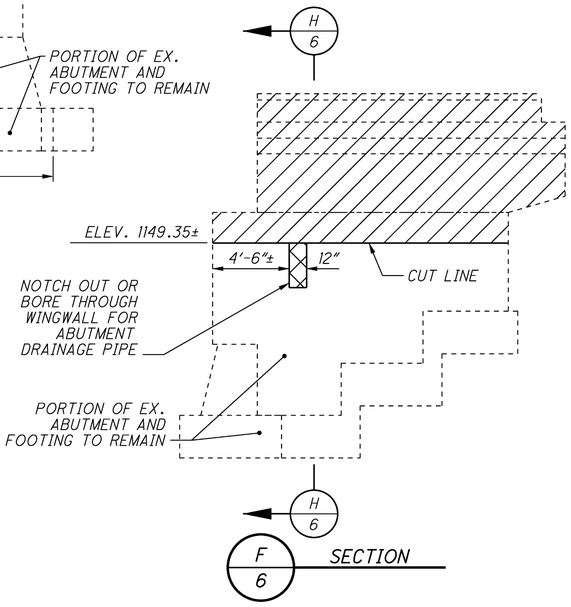



PLAN




SECTION

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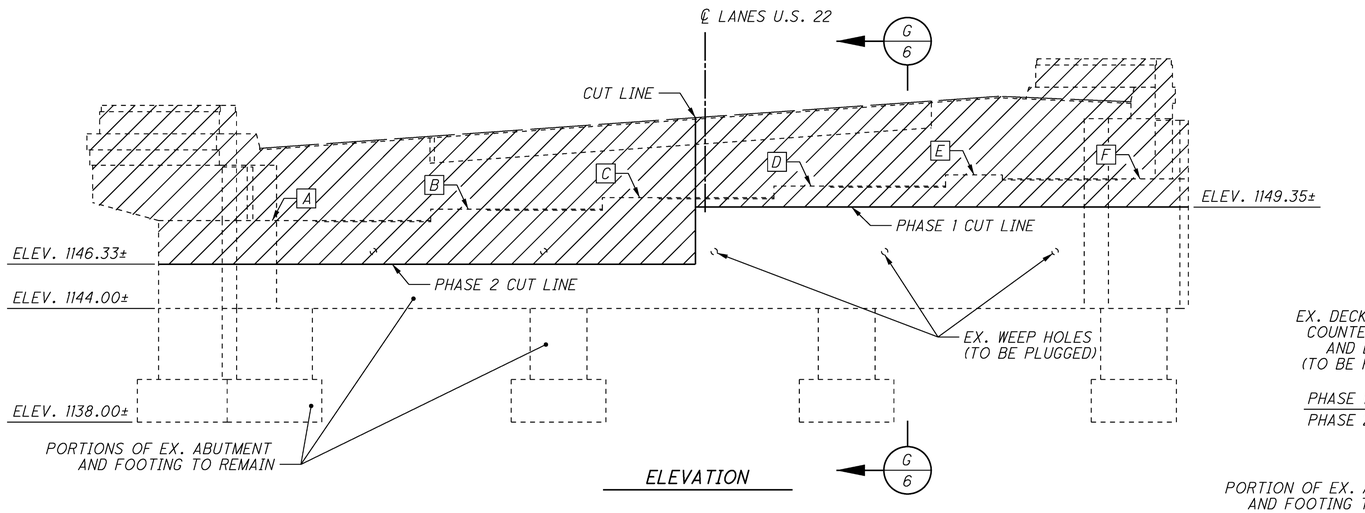
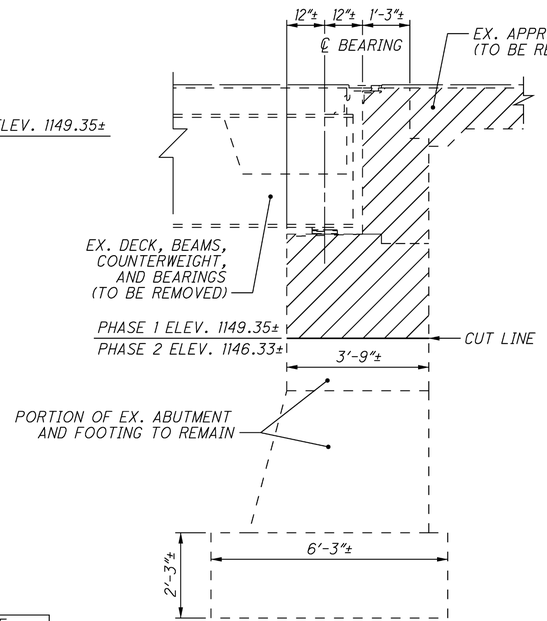
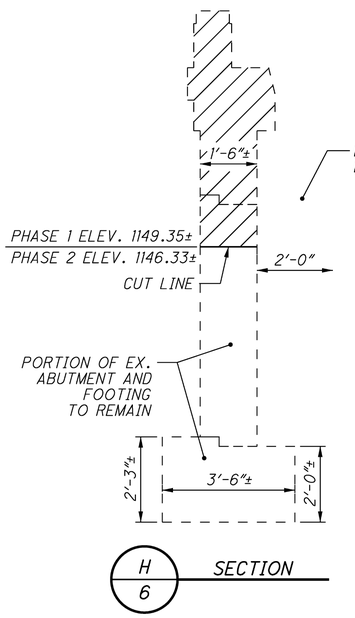



ELEVATION




SECTION




SECTION

- PORTIONS OF STRUCTURE TO BE REMOVED

- PORTION OF WINGWALL REMOVED TO PLACE ABUTMENT DRAINAGE PIPE

ELEVATION TABLE

| | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| FWD. ABUTMENT | 1148.64± | 1149.24± | 1149.85± | 1150.46± | 1151.05± | 1150.84± |

DESIGN AGENCY
O.D.O.T. DISTRICT 11
PLANNING & ENGINEERING

| DESIGNED | DRAWN | REVIEWED | DATE |
|---|---|---|---|
| CCN | CCN | | |

CHECKED RPT
REVISED
STRUCTURE FILE NUMBER 3401200

FORWARD ABUTMENT REMOVAL DETAILS
BRIDGE NO. HAS-22-2126
OVER WHEELING & LAKE ERIE RAILROAD

HAS-22-21.26
PID No. 88904

6 / 29

29 / 52

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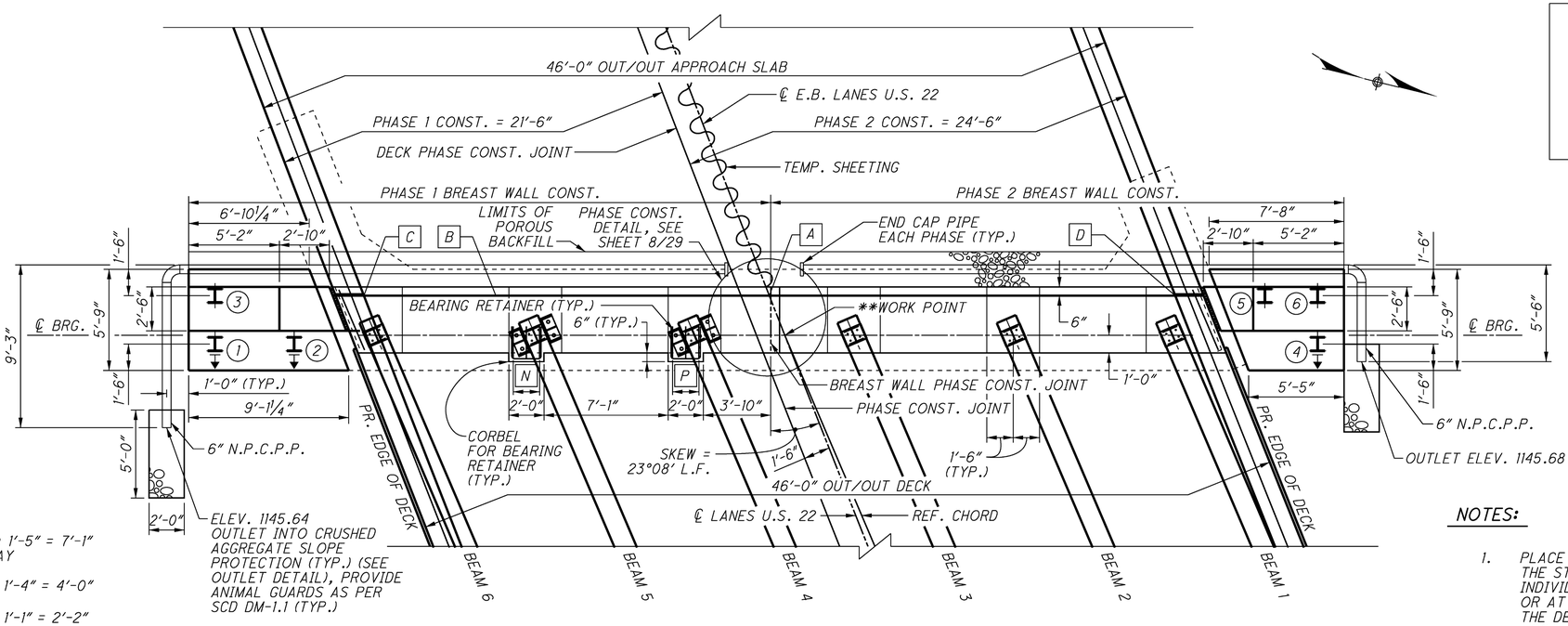
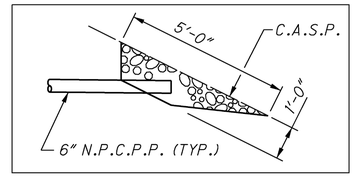
| MINIMUM DOWEL DEPTH |
|---|
| NO. 5 BAR = 1′-0″ |
| NO. 8 BAR = 1′-6″ |

| MINIMUM LAP LENGTH |
|---|
| NO. 5 BAR = 29″ |
| NO. 8 BAR = 59″ |

| | |
|---|---|
| ELEV. PT. A | 1153.02 |
| ELEV. PT. B | 1154.14 |
| ELEV. PT. C | 1153.81 |
| ELEV. PT. D | 1151.36 |




PLAN




OUTLET DETAIL

BEAM SEAT ELEVATIONS

| | |
|---|---|
| 1 | ELEV.= 1147.59 |
| 2 | ELEV.= 1148.24 |
| 3 | ELEV.= 1148.89 |
| 4 | ELEV.= 1149.54 |
| 5 | ELEV.= 1150.20 |
| 6 | ELEV.= 1149.97 |

E 12-A501, 6-A502 SPA. @ 1′-5″ = 7′-1″ TYP. EXCEPT CENTER BAY

F 8-A501, 4-A502 SPA. @ 1′-4″ = 4′-0″

G 6-A501, 3-A502 SPA. @ 1′-1″ = 2′-2″

H 1 SERIES OF 10-A503#, SPA. @ 1′-6″ = 13′-6″, E.F.

I 6-A504# SPA. @ 1′-5″ = 7′-6″, E.F.

J 1 SERIES OF 15-A507#, SPA. @ 1′-6″ = 21′-0″, E.F.

K 3-A521 & A523 @ 1′-6″ = 3′-0″

L 5-A526 @ 1′-6″ = 6′-0″ (LAP A523)

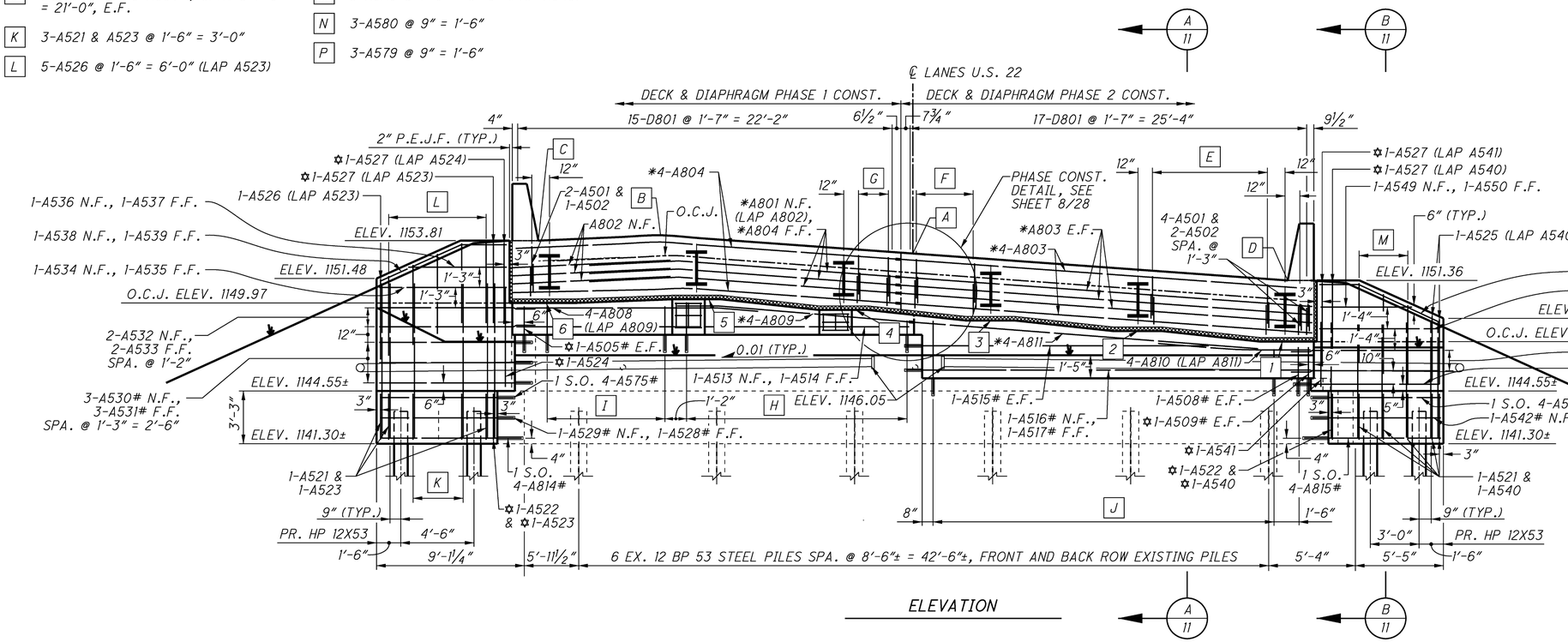
M 3-A526 @ 1′-6″ = 3′-0″ (LAP A540)

N 3-A580 @ 9″ = 1′-6″

P 3-A579 @ 9″ = 1′-6″

NOTES:

1. PLACE THE DIAPHRAGM CONCRETE ENCASING THE STRUCTURAL MEMBER ENDS OF AN INDIVIDUAL PHASE WITH THE DECK CONCRETE OR AT LEAST 48 HOURS BEFORE PLACEMENT OF THE DECK CONCRETE. IF PLACED SEPARATELY, LOCATE THE HORIZONTAL CONSTRUCTION JOINT BETWEEN THE DIAPHRAGM AND DECK CONCRETE AT THE APPROACH SLAB SEAT.
2. ALL A501, A502, AND D801 BARS ARE MEASURED ALONG ℄ BRG AND PLACED PARALLEL TO BEAMS.
3. ALL VERTICAL BREASTWALL BARS, WING WALL BARS, AND FOOTING BARS ARE TO BE PLACED NORMAL TO THE FRONT FACE OF THE ABUTMENT EXCEPT THOSE DENOTED WITH A "✡" WHICH ARE TO BE PLACED ALONG THE SKEW EACH IS ADJACENT TO.
4. FOR ELASTOMERIC BEARING, RETAINER, AND CORBEL DETAILS, SEE SHEETS 13/29 - 14/29.
5. FOR PLAN VIEW OF WINGWALL FOOTING REINFORCING, SEE SHEET 8/29.




ELEVATION

* BARS UTILIZE A MECHANICAL CONNECTOR

\# BARS UTILIZE DOWELS

** WORK POINT IS LOCATED @ INTERSECTION OF ℄ BRG., ℄ E.B. LANES, AND REF. CHORD - STA. 1123+61.46

(X) PILE NUMBER

PILE BATTER (4:1)

DESIGN AGENCY
O.D.O.T. DISTRICT 11
PLANNING & ENGINEERING

| DESIGNED | DRAWN | REVIEWED | DATE |
|---|---|---|---|
| CCN | CCN | | |
| CHECKED | REVISED | | |
| RPT | | | |

STRUCTURE FILE NUMBER
3401200

REAR ABUTMENT DETAILS
BRIDGE NO. HAS-22-2126
OVER WHEELING & LAKE ERIE RAILROAD

HAS-22-21.26
PID No. 88904

7 / 29

30 / 52

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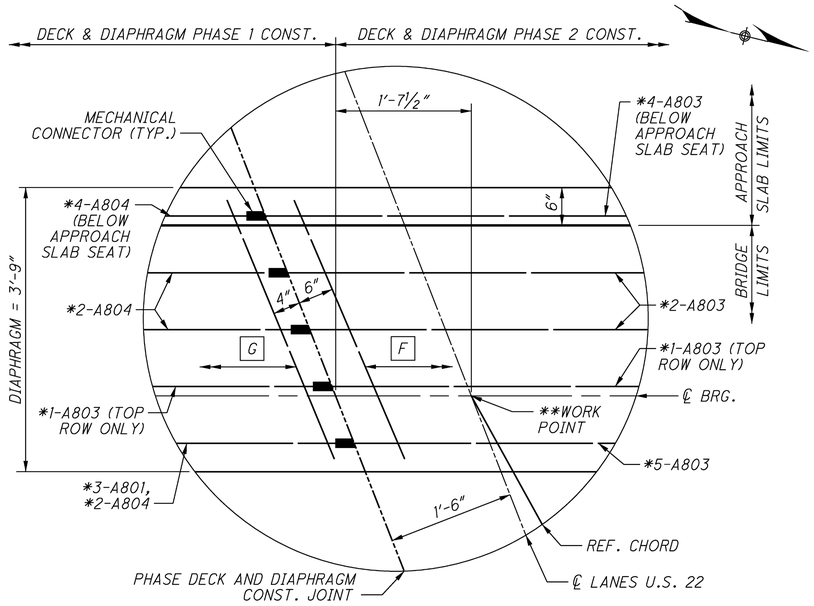
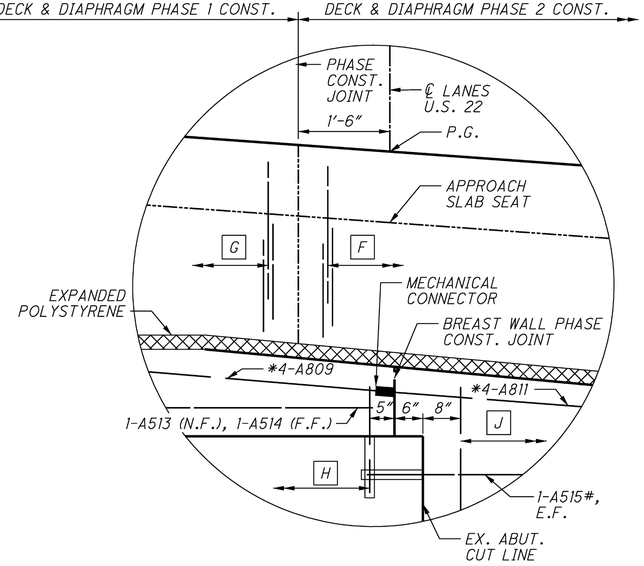



PHASE CONSTRUCTION DETAILS - PLAN VIEW

DIAPHRAGM SECTION




PHASE CONSTRUCTION DETAILS - ELEVATION VIEW

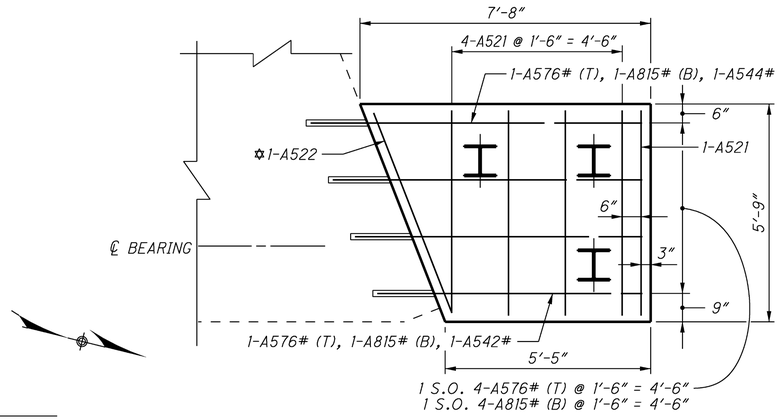
NOTES:

1. DIAPHRAGM CONSTRUCTION JOINT IS PARALLEL TO BEAMS. BREAST WALL CONSTRUCTION JOINT IS NORMAL TO BREAST WALL.
2. FOR REINFORCING REFERENCES, SEE SHEET 7/29.
3. APPLY TYPE 2 WATERPROOFING 3'-0" WIDE CENTERED ABOUT THE VERTICAL CONST. JOINT BETWEEN THE RIGHT WING AND PR. BREASTWALL, THE VERTICAL BREASTWALL CONST. JOINT BETWEEN PHASES, AND THE HORIZONTAL CONST. JOINT BETWEEN THE EX. AND PR. BREASTWALL ON PHASE 1 ONLY.

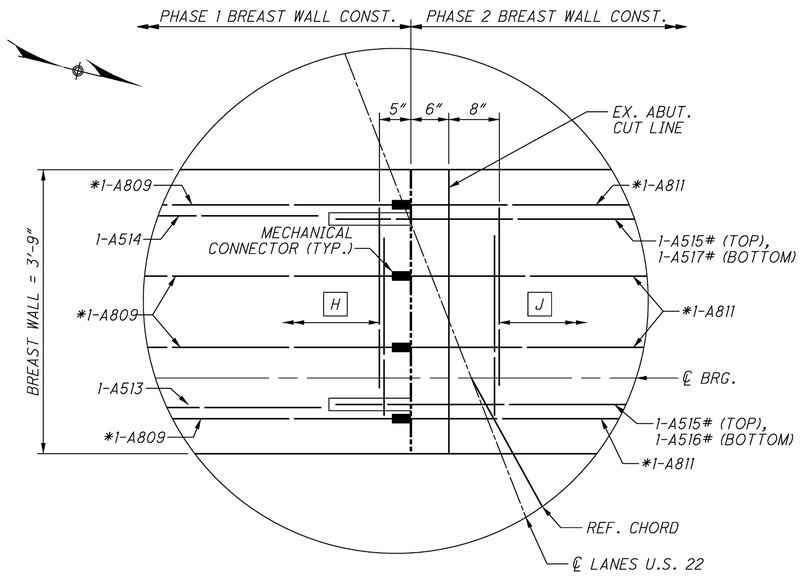
* BARS UTILIZE A MECHANICAL CONNECTOR

\# BARS UTILIZE DOWELS

** WORK POINT IS LOCATED @ INTERSECTION OF ℄ BRG., ℄ E.B. LANES, AND REF. CHORD. STA. 1123+61.46

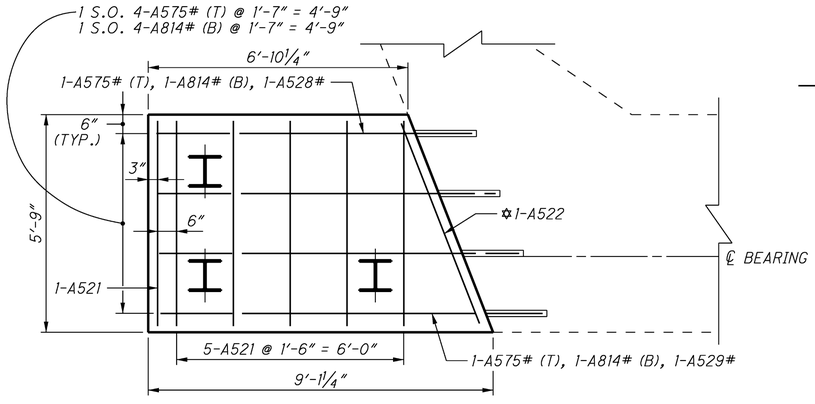



LEFT WINGWALL FOOTING - PLAN VIEW




PHASE CONSTRUCTION DETAILS - PLAN VIEW

BREAST WALL SECTION




RIGHT WINGWALL FOOTING - PLAN VIEW

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DESIGN AGENCY
O.D.O.T. DISTRICT 11
PLANNING & ENGINEERING

| DESIGNED | DRAWN | REVIEWED | DATE |
|---|---|---|---|
| CCN | CCN | | |

| CHECKED | REVISED | STRUCTURE FILE NUMBER |
|---|---|---|
| RPT | | 3401200 |

REAR ABUTMENT DETAILS
BRIDGE NO. HAS-22-2126
OVER WHEELING & LAKE ERIE RAILROAD

HAS-22-21.26
PID No. 88904

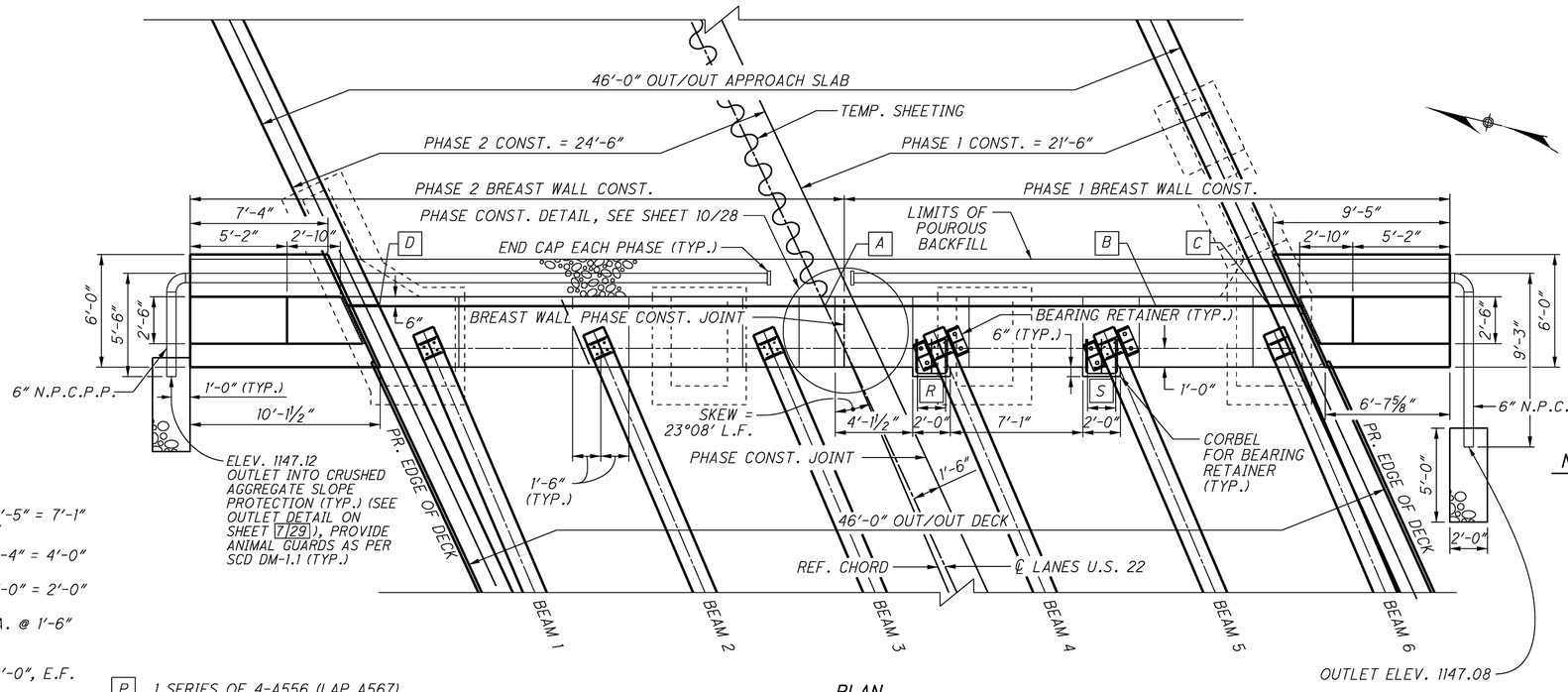
8 / 29

31
52

| MINIMUM DOWEL DEPTH |
|---|
| NO. 5 BAR = 1′-0″ |
| NO. 8 BAR = 1′-6″ |

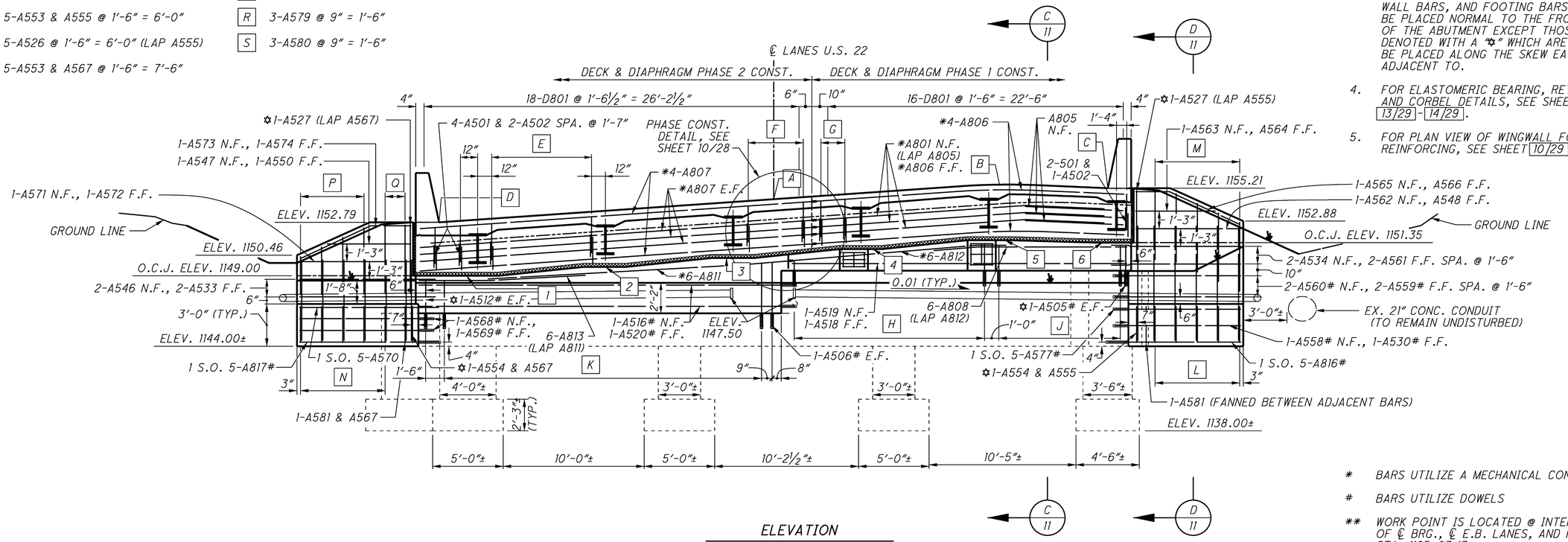
| MINIMUM LAP LENGTH |
|---|
| NO. 5 BAR = 29″ |
| NO. 8 BAR = 59″ |

| | |
|---|---|
| ELEV. PT. A | 1154.43 |
| ELEV. PT. B | 1155.54 |
| ELEV. PT. C | 1155.21 |
| ELEV. PT. D | 1152.79 |




PLAN

| | |
|---|---|
| E | 12-A501, 6-A502 SPA. @ 1′-5″ = 7′-1″ TYP. EXCEPT CENTER BAY |
| F | 8-A501, 4-A502 SPA. @ 1′-4″ = 4′-0″ |
| G | 6-A501, 3-A502 SPA. @ 1′-0″ = 2′-0″ |
| H | 1 SERIES OF 10-A510# SPA. @ 1′-6″ = 13′-6″, E.F. |
| J | 7-A504# SPA. @ 1′-6″ = 9′-0″, E.F. |
| K | 1 SERIES OF 16-A511# SPA. @ 1′-6″ = 22′-6″, E.F. |
| L | 5-A553 & A555 @ 1′-6″ = 6′-0″ |
| M | 5-A526 @ 1′-6″ = 6′-0″ (LAP A555) |
| N | 5-A553 & A567 @ 1′-6″ = 7′-6″ |
| P | 1 SERIES OF 4-A556 (LAP A567) |
| Q | 2-A526 @ 1′-6″ = 3′-0″ (LAP A567) |
| R | 3-A579 @ 9″ = 1′-6″ |
| S | 3-A580 @ 9″ = 1′-6″ |




ELEVATION

| BEAM SEAT ELEVATIONS | |
|---|---|
| 1 | ELEV.= 1149.00 |
| 2 | ELEV.= 1149.63 |
| 3 | ELEV.= 1150.26 |
| 4 | ELEV.= 1150.89 |
| 5 | ELEV.= 1151.52 |
| 6 | ELEV.= 1151.35 |

## NOTES:

1. PLACE THE DIAPHRAGM CONCRETE ENCASING THE STRUCTURAL MEMBER ENDS OF AN INDIVIDUAL PHASE WITH THE DECK CONCRETE OR AT LEAST 48 HOURS BEFORE PLACEMENT OF THE DECK CONCRETE. IF PLACED SEPARATELY, LOCATE THE HORIZONTAL CONSTRUCTION JOINT BETWEEN THE DIAPHRAGM AND DECK CONCRETE AT THE APPROACH SLAB SEAT.
2. ALL A501, A502, AND D801 BARS ARE MEASURED ALONG ℄ BRG AND PLACED PARALLEL TO BEAMS.
3. ALL VERTICAL BREAST WALL BARS, WING WALL BARS, AND FOOTING BARS ARE TO BE PLACED NORMAL TO THE FRONT FACE OF THE ABUTMENT EXCEPT THOSE DENOTED WITH A "✡" WHICH ARE TO BE PLACED ALONG THE SKEW EACH IS ADJACENT TO.
4. FOR ELASTOMERIC BEARING, RETAINER, AND CORBEL DETAILS, SEE SHEETS 13/29 - 14/29.
5. FOR PLAN VIEW OF WINGWALL FOOTING REINFORCING, SEE SHEET 10/29.

* BARS UTILIZE A MECHANICAL CONNECTOR

\# BARS UTILIZE DOWELS

** WORK POINT IS LOCATED @ INTERSECTION OF ℄ BRG., ℄ E.B. LANES, AND REF. CHORD. STA. 1125+03.13

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DESIGN AGENCY
O.D.O.T. DISTRICT 11
PLANNING & ENGINEERING

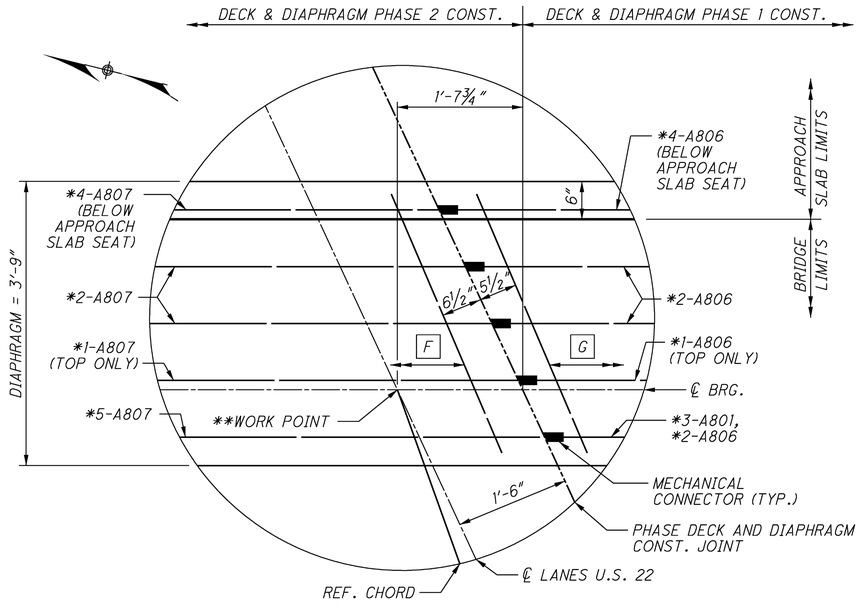
| DESIGNED | DRAWN | REVIEWED | DATE |
|---|---|---|---|
| CCN | CCN | | |
| CHECKED | REVISED | STRUCTURE FILE NUMBER | |
| RPT | | 3401200 | |

**FORWARD ABUTMENT DETAILS**
BRIDGE NO. HAS-22-2126
OVER WHEELING & LAKE ERIE RAILROAD

**HAS-22-21.26**
**PID No. 88904**

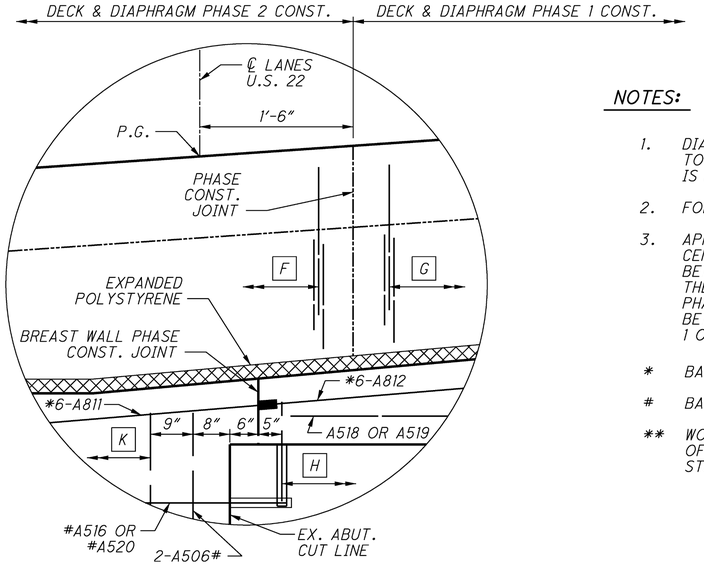
9 / 29

32
52




PHASE CONSTRUCTION DETAILS - PLAN VIEW

DIAPHRAGM SECTION




PHASE CONSTRUCTION DETAILS - ELEVATION VIEW

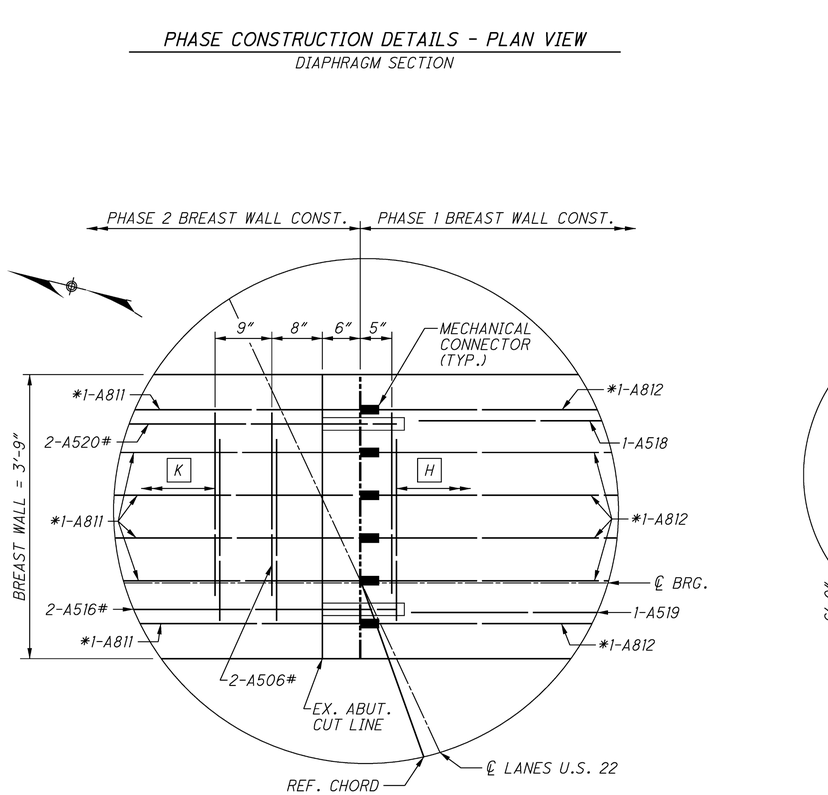
NOTES:

1. DIAPHRAGM CONSTRUCTION JOINT IS PARALLEL TO BEAMS. BREAST WALL CONSTRUCTION JOINT IS NORMAL TO BREAST WALL.
2. FOR REINFORCING REFERENCES, SEE SHEET 9/29.
3. APPLY TYPE 2 WATERPROOFING 3'-0" WIDE CENTERED ABOUT THE VERTICAL CONST. JOINT BETWEEN THE RIGHT WING AND PR. BREASTWALL, THE VERTICAL BREASTWALL CONST. JOINT BETWEEN PHASES, AND THE HORIZONTAL CONST. JOINT BETWEEN THE EX. AND PR. BREASTWALL ON PHASE 1 ONLY.

* BARS UTILIZE A MECHANICAL CONNECTOR

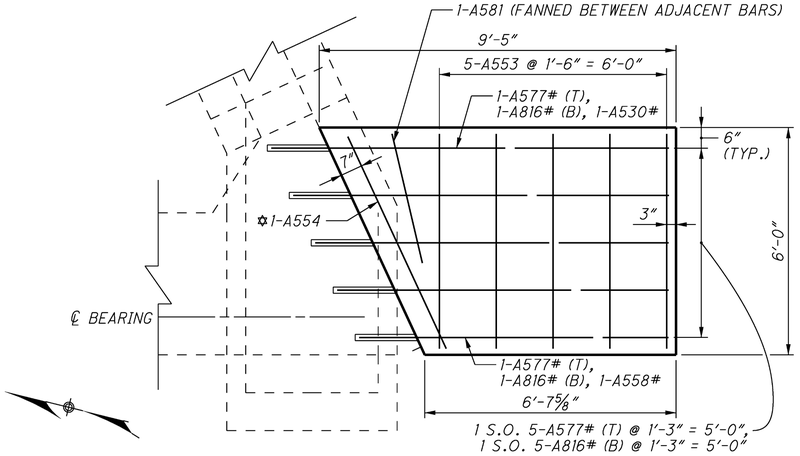
\# BARS UTILIZE DOWELS

** WORK POINT IS LOCATED @ INTERSECTION OF ℄ BRG., ℄ E.B. LANES, AND REF. CHORD. STA. 1125+03.13

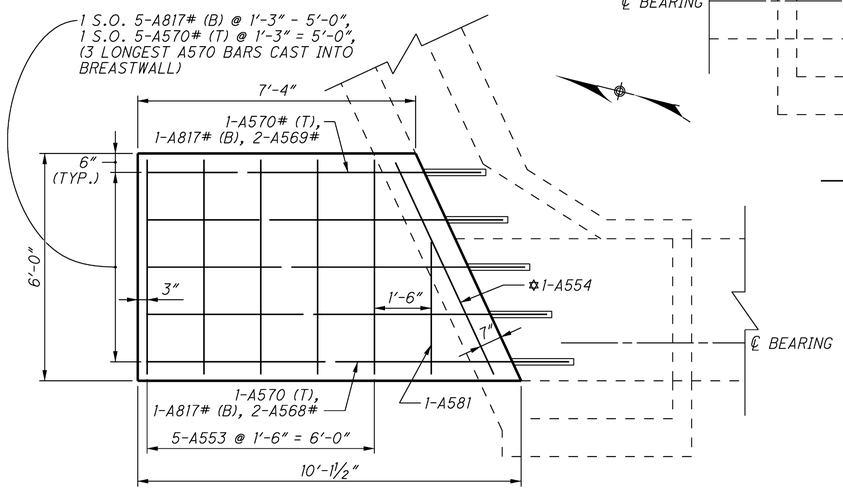



PHASE CONSTRUCTION DETAILS - PLAN VIEW

BREAST WALL SECTION




RIGHT WINGWALL FOOTING - PLAN VIEW




LEFT WINGWALL FOOTING - PLAN VIEW

DESIGN AGENCY
O.D.O.T. DISTRICT 11
PLANNING & ENGINEERING

| DESIGNED | DRAWN | REVIEWED | DATE |
|---|---|---|---|
| CCN | CCN | | |
| CHECKED | REVISED | | |
| RPT | | | |

STRUCTURE FILE NUMBER
3401200

FORWARD ABUTMENT DETAILS
BRIDGE NO. HAS-22-2126
OVER WHEELING & LAKE ERIE RAILROAD

HAS-22-21.26
PID No. 88904

10 / 29

33
52

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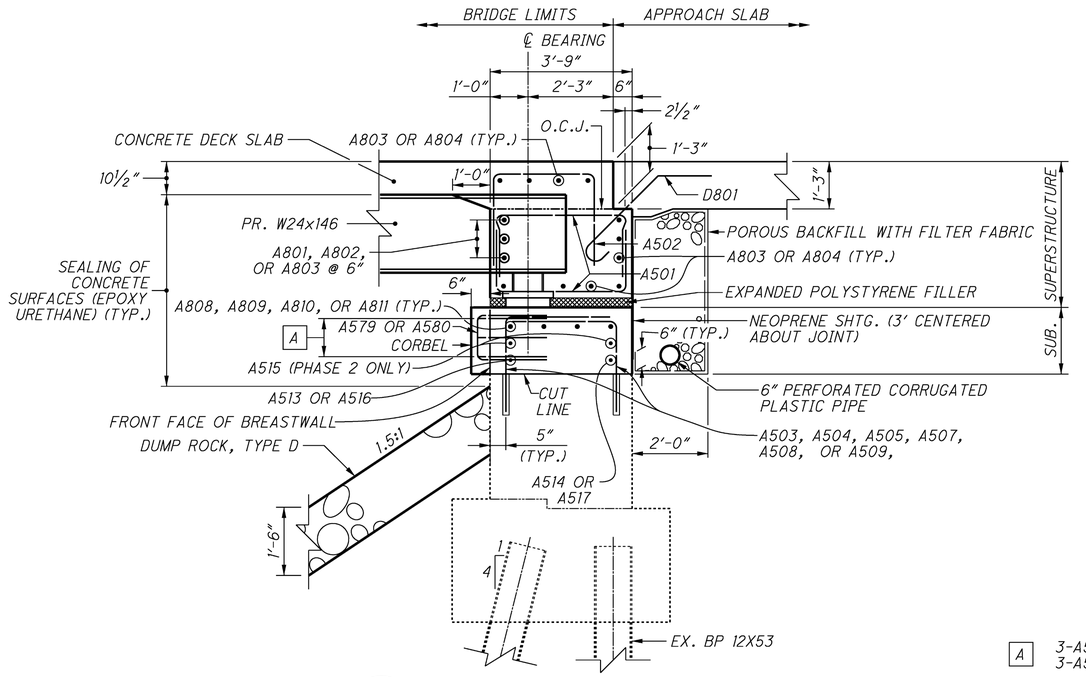
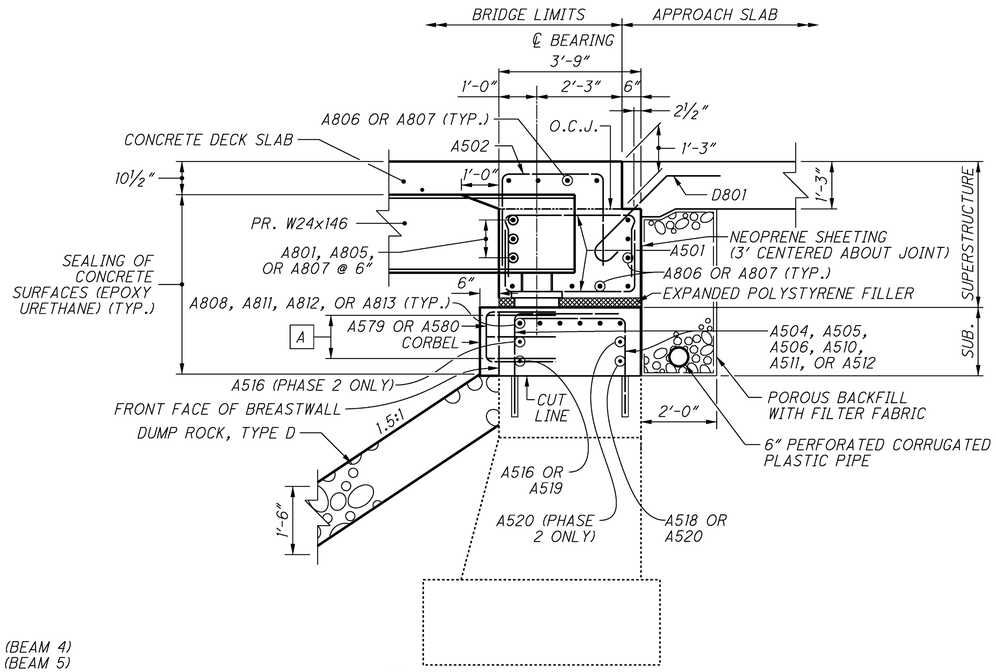
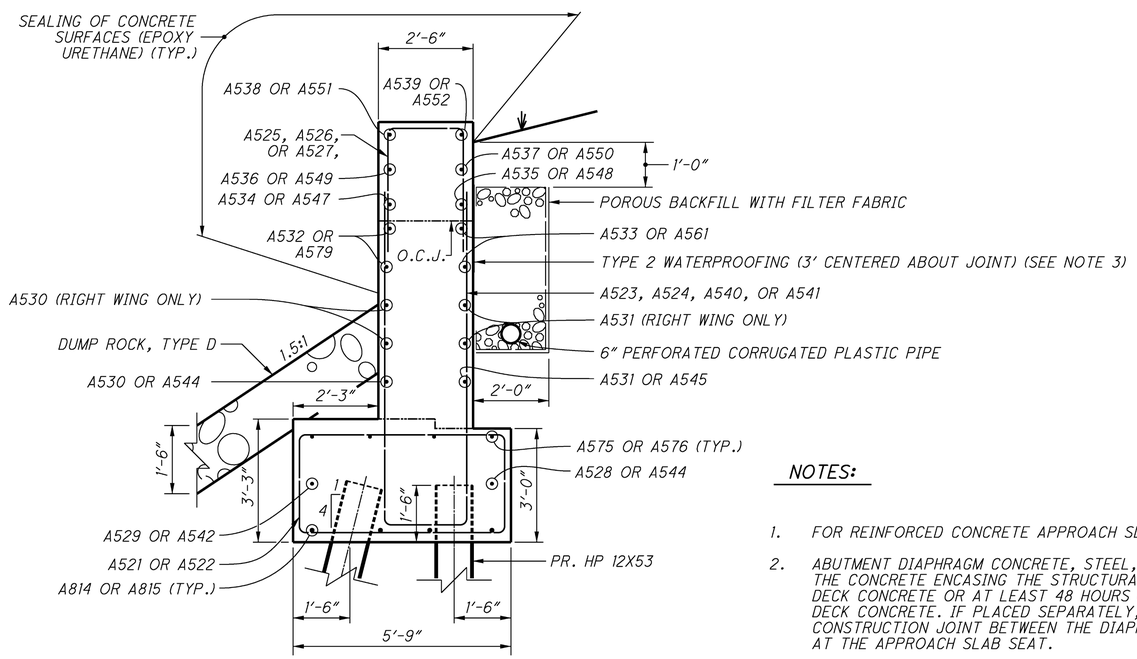



A 7 PR. REAR ABUTMENT SECTION

A 3-A578 @ 6″ = 1′-0″ (BEAM 4)
3-A578 @ 9″ = 1′-6″ (BEAM 5)



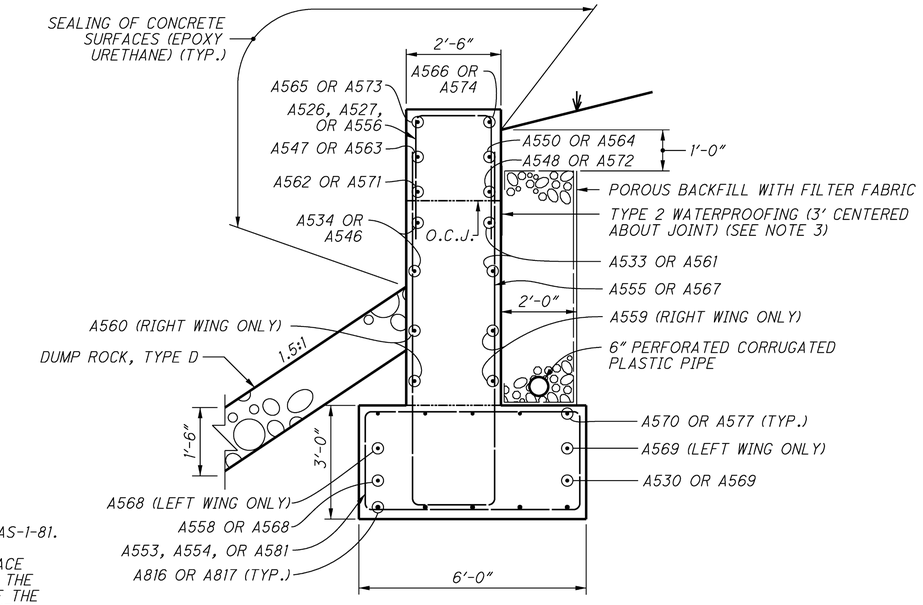

C 9 PR. FORWARD ABUTMENT SECTION




B 7 PR. REAR WING WALL SECTION

NOTES:

1. FOR REINFORCED CONCRETE APPROACH SLAB DETAILS SEE SCD AS-1-81.
2. ABUTMENT DIAPHRAGM CONCRETE, STEEL, SUPERSTRUCTURE: PLACE THE CONCRETE ENCASING THE STRUCTURAL STEELMEMBERS WITH THE DECK CONCRETE OR AT LEAST 48 HOURS BEFORE PLACEMENT OF THE DECK CONCRETE. IF PLACED SEPARATELY, LOCATE THE HORIZONTAL CONSTRUCTION JOINT BETWEEN THE DIAPHRAGM AND DECK CONCRETE AT THE APPROACH SLAB SEAT.
3. IF THE OPTIONAL CONSTRUCTION JOINT IS USED ON THE WING WALLS, APPLY TYPE 2 WATERPROOFING 3′-0″ WIDE CENTERED ABOUT THE HORIZONTAL CONSTRUCTION JOINT.
4. FOR ELASTOMERIC BEARING DETAILS, SEE SHEETS 13|29 - 14|29.
5. FOR REINFORCING STEEL LIST, SEE SHEET 26|29 - 29|29.




D 9 PR. FORWARD WING WALL SECTION

DESIGN AGENCY
O.D.O.T. DISTRICT 11
PLANNING & ENGINEERING

| DESIGNED | DRAWN | REVIEWED | DATE |
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| CCN | CCN | | |
| CHECKED | REVISED | STRUCTURE FILE NUMBER | |
| RPT | | 3401200 | |

ABUTMENT SECTION
BRIDGE NO. HAS-22-2126
OVER WHEELING & LAKE ERIE RAILROAD

HAS-22-21.26
PID No. 88904

11 / 29

34 / 52

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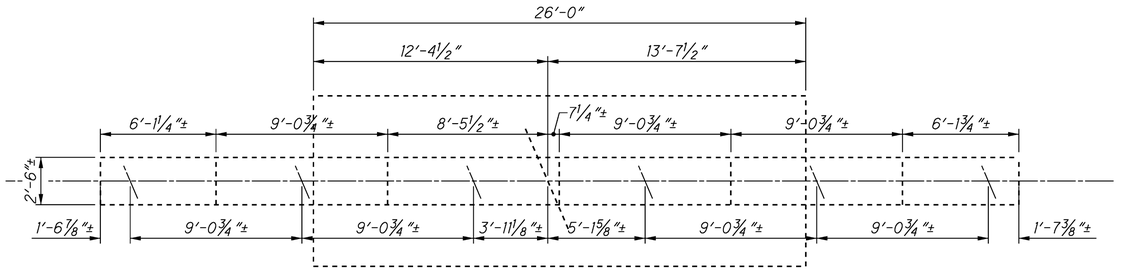


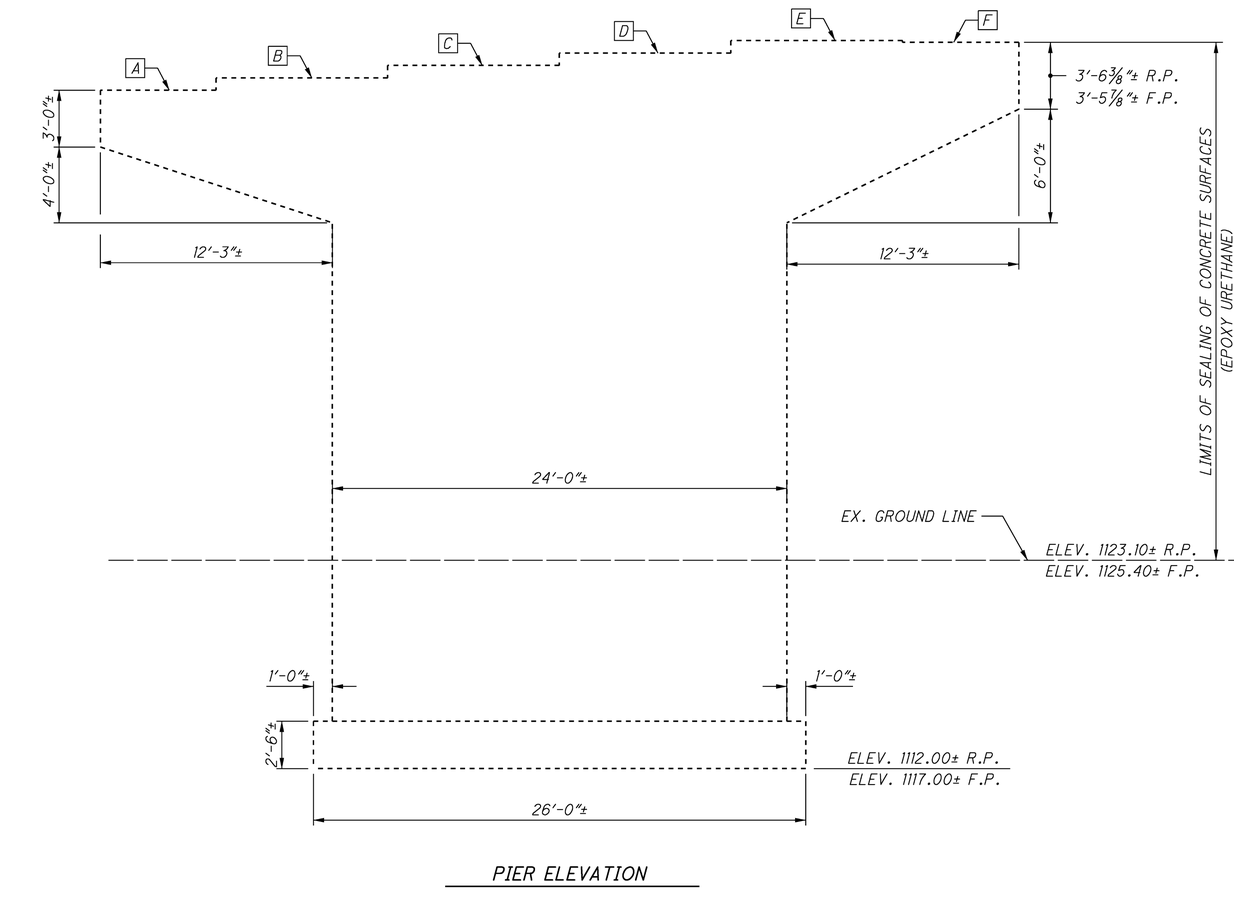

PIER PLAN

## NOTES

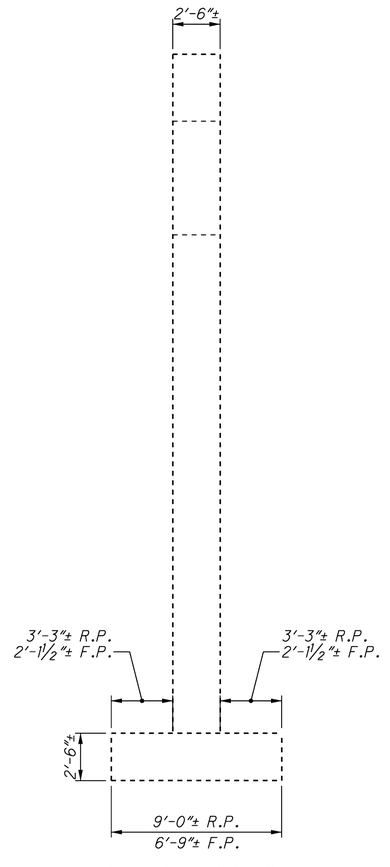
1. SEAL THE ENTIRE EXPOSED CONCRETE SURFACE OF THE PIERS, EXCEPT THE TOP OF THE CAP, AS DIRECTED BY THE REQUIREMENTS OF CMS 512.03.

## ELEVATION TABLE

| | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| REAR PIER | 1147.59± | 1148.23± | 1148.86± | 1149.47± | 1150.10± | 1150.00± |
| FORWARD PIER | 1148.09± | 1148.72± | 1149.34± | 1149.96± | 1150.56± | 1150.43± |




PIER ELEVATION




REAR PIER SECTION

DESIGN AGENCY
O.D.O.T. DISTRICT 11
PLANNING & ENGINEERING

REVIEWED DATE
STRUCTURE FILE NUMBER
3401200

DRAWN CCN
REVISED

DESIGNED CCN
CHECKED RPT

**PIER DETAILS**
BRIDGE NO. HAS-22-2126
OVER WHEELING & LAKE ERIE RAILROAD

**HAS-22-21.26**
**PID No. 88904**

12 / 29

35
52

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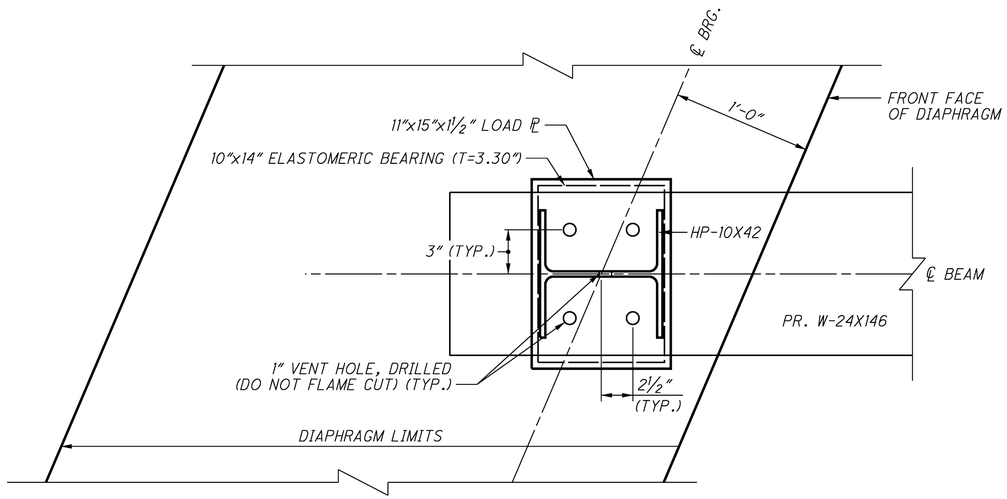
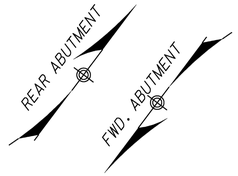


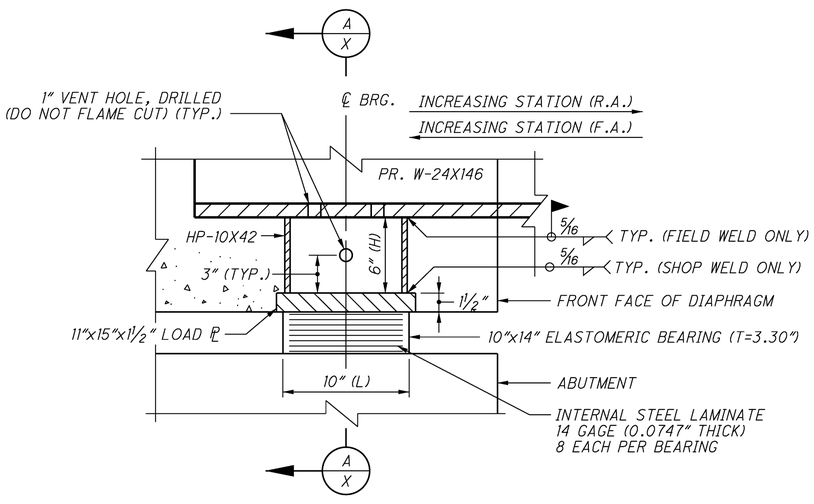

ABUTMENT BEARING PLAN VIEW

TYP. ALL BEAMS; REAR ABUTMENT SHOWN, FORWARD ABUTMENT OPPOSITE HAND



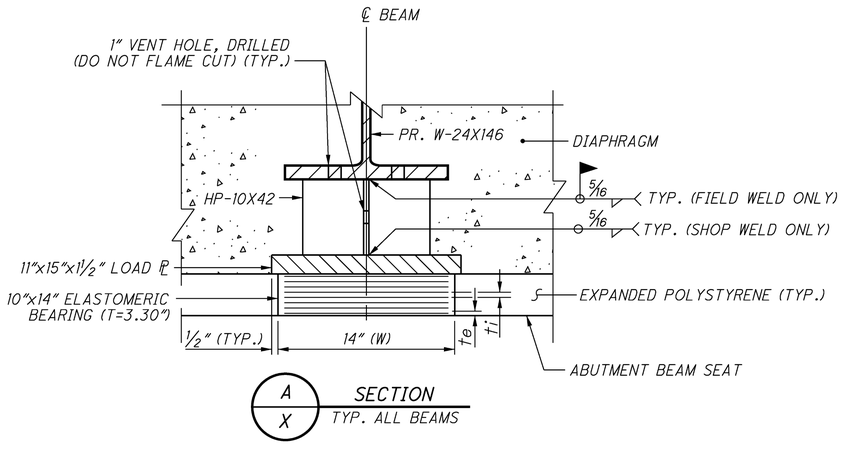

## NOTES:

1. ELASTOMERIC BEARINGS: THE ELASTOMER SHALL HAVE A HARDNESS OF 50 DUROMETER. THE BEARINGS WERE DESIGNED UNDER DIVISION I, SECTION 14.6.6 (METHOD A) OF THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.
2. ALL STEEL LOAD PLATES AND HP PEDESTALS SHALL BE THE SAME MATERIAL AS THE BEAMS. STEEL LOAD PLATES SHALL BE BONDED BY VULCANIZATION TO THE ELASTOMER DURING THE MOLDING PROCESS.
3. THE FABRICATOR SHALL PERMANENTLY MARK EACH BEARING. AT A MINIMUM, THE MARKINGS SHALL INCLUDE THE SUBSTRUCTURE LOCATION, BEAM NUMBER, AND ORIENTATION TO INCREASING STATIONS. THE MARKINGS SHALL BE VISIBLE AFTER INSTALLATION.
4. BASIS OF PAYMENT: THE UNIT BID PRICE SHALL INCLUDE ALL MATERIALS, LABOR, TESTING, LOAD PLATES, PEDESTALS, AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL LAMINATED ELASTOMERIC BEARINGS. PAYMENT WILL BE MADE AT THE CONTRACT PRICE FOR THE APPROPRIATE ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN.
5. FOR PIER BEARINGS, SEE SHEET 15/29 .




ABUTMENT BEARING ELEVATION VIEW

TYP. ALL BEAMS; REAR ABUTMENT SHOWN, FORWARD ABUTMENT OPPOSITE HAND




LAMINATED ELASTOMERIC BEARINGS (ABUTMENTS)

| LOCATION | BEARING DIMENSIONS | | | | | | STEEL LOAD PLATE | HP-10x42 HEIGHT (H) | DEAD LOAD | LIVE LOAD WITHOUT IMPACT | MAX TOTAL LOAD |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | W | ti | te | T | N | LENGTH X WIDTH X THICKNESS | | | | |
| REAR ABUTMENT | 10" | 14" | 0.34" | 0.16" | 3.30" | 8 | 11"x15"x1-1/2" | 6" | 63 KIPS | 49 KIPS | 112 KIPS |
| FWD. ABUTMENT | 10" | 14" | 0.34" | 0.16" | 3.30" | 8 | 11"x15"x1-1/2" | 6" | 51 KIPS | 46 KIPS | 97 KIPS |

DESIGN AGENCY
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PLANNING & ENGINEERING

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| RPT | | | |

STRUCTURE FILE NUMBER 3401200

ELASTOMERIC BEARINGS (ABUTMENTS)
BRIDGE NO. HAS-22-2126
OVER WHEELING & LAKE ERIE RAILROAD

HAS-22-21.26
PID No. 88904

13/29

36/52

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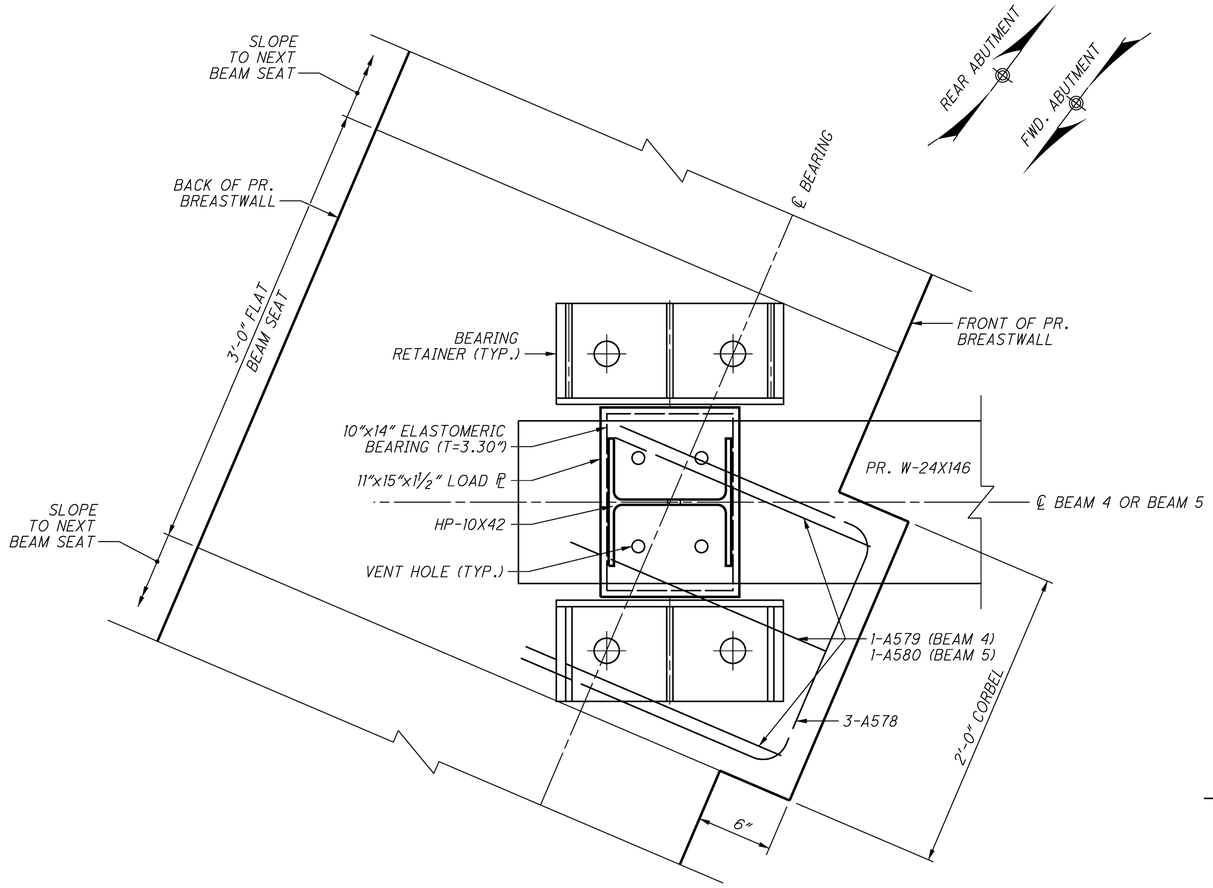


*ABUTMENT BEARING PLAN VIEW*

*RETAINERS TYP. FOR BEAMS 4 & 5*
*REAR ABUTMENT SHOWN,*
*FORWARD ABUTMENT OPPOSITE HAND*

*NOTES:*

1. *RETAINERS ARE TO BE INSTALLED ON BOTH SIDES OF BEAMS 4 & 5 ON BOTH THE REAR AND FORWARD ABUTMENTS.*
2. *THE COST FOR FURNISHING AND INSTALLING THE STEEL RETAINER ASSEMBLIES WILL BE INCLUDED FOR PAYMENT IN THE UNIT PRICE BID FOR THE ELASTOMERIC BEARINGS.*
3. *ACCURATELY PLACE REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT TO AVOID INTERFERENCE WITH THE DRILLING OF ANCHOR BAR HOLES.*
4. *FOR ELASTOMERIC BEARING DETAILS AND LOAD PLATE DIMENSIONS, SEE SHEET* 13/29 .
5. *FOR CORBEL LOCATIONS WITH RESPECT TO ABUTMENTS, SEE SHEETS* 7/29 *AND* 9/29 .
6. *FOR REINFORCING STEEL LIST, SEE SHEETS* 26/29 - 29/29 .
7. *SEE SCD SICD-1-96 FOR ADDITIONAL DETAILS.*

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| RPT | | 3401200 | |

**BEARING DETAILS (ABUTMENTS)**
BRIDGE NO. HAS-22-2126
OVER WHEELING & LAKE ERIE RAILROAD

**HAS-22-21.26**
**PID No. 88904**

14 / 29

37
52

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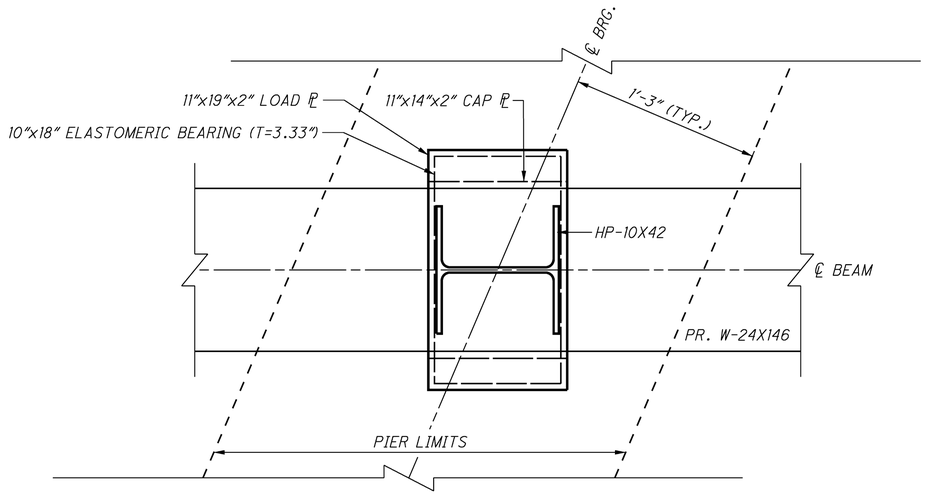
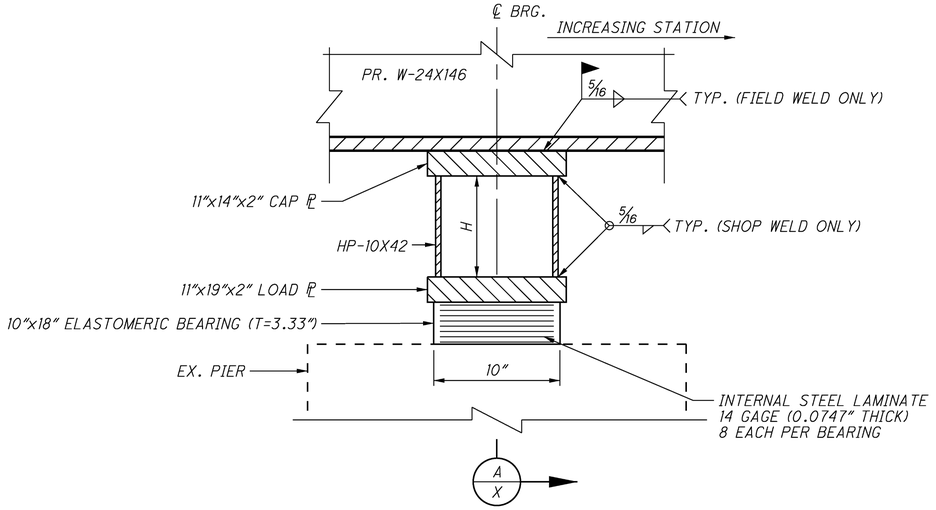


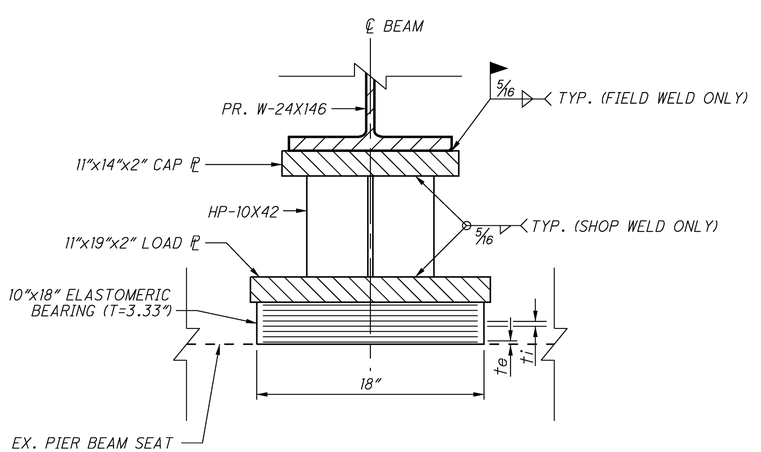

PIER BEARING PLAN VIEW

TYP. ALL BEAMS




PIER BEARING ELEVATION VIEW

TYP. ALL BEAMS




A/X SECTION

TYP. ALL BEAMS

## NOTES:

1. ELASTOMERIC BEARINGS: THE ELASTOMER SHALL HAVE A HARDNESS OF 50 DUROMETER. THE BEARINGS WERE DESIGNED UNDER DIVISION I, SECTION 14.6.6 (METHOD A) OF THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.
2. ALL STEEL LOAD PLATES, CAP PLATES, AND HP PEDESTALS SHALL BE THE SAME MATERIAL AS THE BEAMS. STEEL LOAD PLATES SHALL BE BONDED BY VULCANIZATION TO THE ELASTOMER DURING THE MOLDING PROCESS.
3. THE FABRICATOR SHALL PERMANENTLY MARK EACH BEARING. AT A MINIMUM, THE MARKINGS SHALL INDICATE THE SUBSTRUCTURE LOCATION, BEAM NUMBER, AND ORIENTATION TO INCREASING STATIONS. THE MARKINGS SHALL BE VISIBLE AFTER INSTALLATION.
4. BASIS OF PAYMENT: THE UNIT BID PRICE SHALL INCLUDE ALL MATERIALS, LABOR, TESTING, LOAD PLATES, CAP PLATES, PEDESTALS, AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL LAMINATED ELASTOMERIC BEARINGS. PAYMENT WILL BE MADE AT THE CONTRACT PRICE FOR THE APPROPRIATE ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN.
5. FOR ABUTMENT BEARINGS, SEE SHEET 13/29 .

| LOCATION | BEARING DIMENSIONS | | | | | | STEEL LOAD PLATE | STEEL CAP PLATE | HP-10x42 HEIGHT (H) | DEAD LOAD | LIVE LOAD WITHOUT IMPACT | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | W | ti | te | T | N | LENGTH X WIDTH X THICKNESS | LENGTH X WIDTH X THICKNESS | | | | |
| PIER 1 (REAR) | 10" | 18" | .33" | .21" | 3.33" | 8 | 11"x19"x2" | 11"X14"X2" | VARIES, SEE HP TABLE | 111 KIPS | 55 KIPS | 166 KIPS |
| PIER 2 (FWD.) | 10" | 18" | .33" | .21" | 3.33" | 8 | 11"x19"x2" | 11"X14"X2" | | 97 KIPS | 57 KIPS | 154 KIPS |

| HP HEIGHT (H) | | |
|---|---|---|
| | R.P. | F.P. |
| BEAM 1 | 8 1/16" | 9 5/16" |
| BEAM 2 | 8 3/8" | 9 3/8" |
| BEAM 3 | 8 5/16" | 9 9/16" |
| BEAM 4 | 8 3/4" | 9 3/4" |
| BEAM 5 | 8 15/16" | 10 3/16" |
| BEAM 6 | 9" | 10 5/8" |

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PLANNING & ENGINEERING

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| RPT | | 3401200 | |

ELASTOMERIC BEARINGS (PIERS)
BRIDGE NO. HAS-22-2126
OVER WHEELING & LAKE ERIE RAILROAD

HAS-22-21.26
PID No. 88904

15/29

38/52

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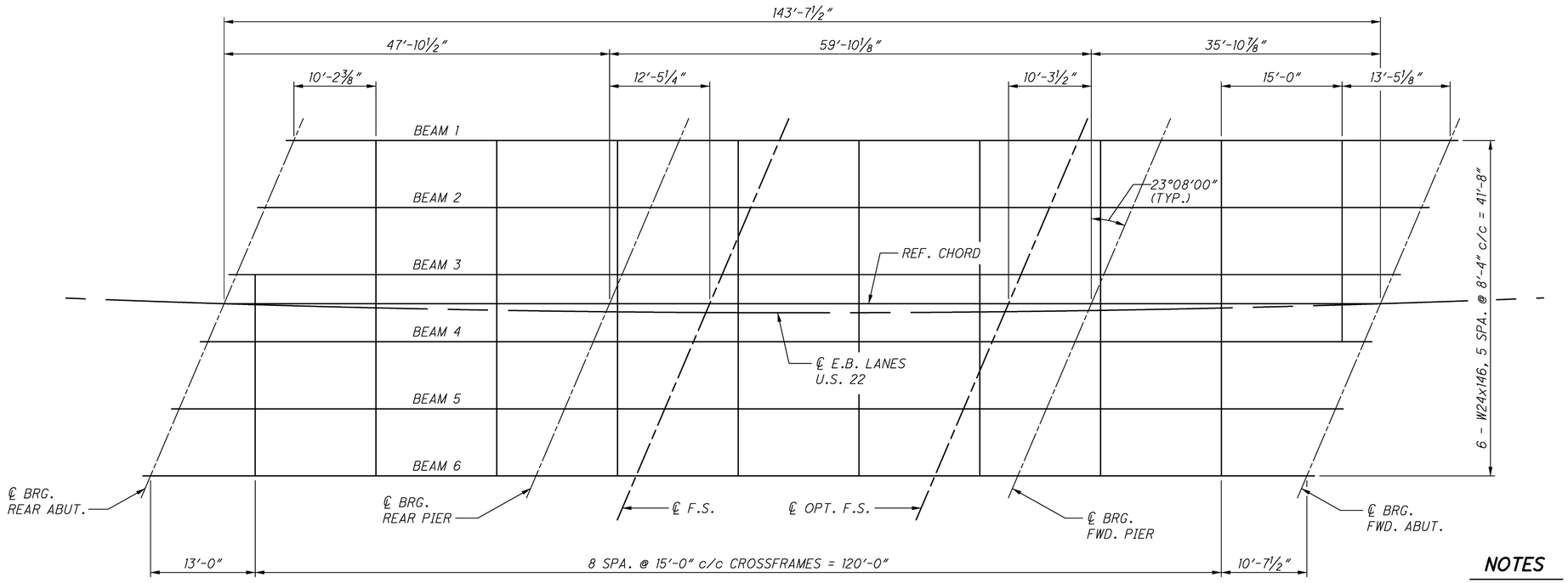
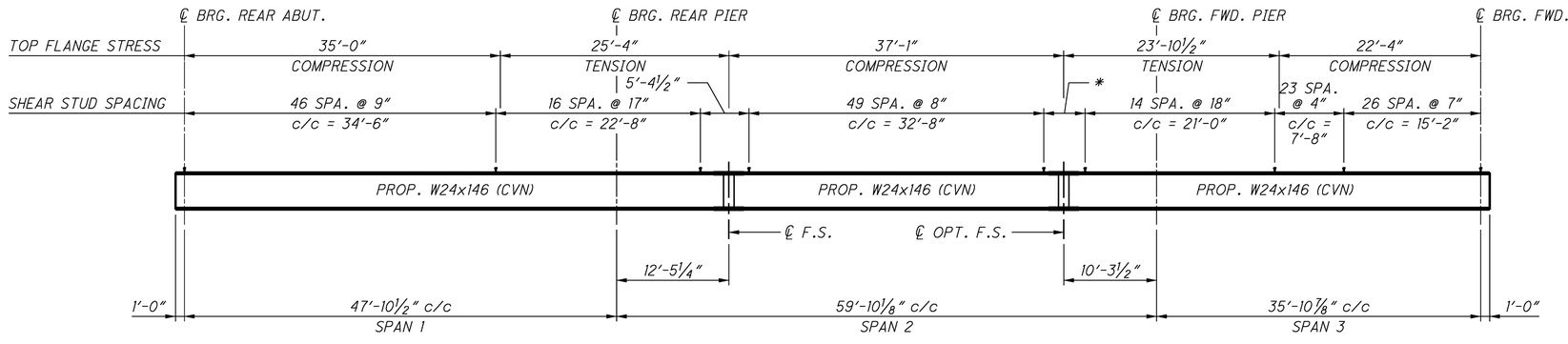



## FRAMING PLAN

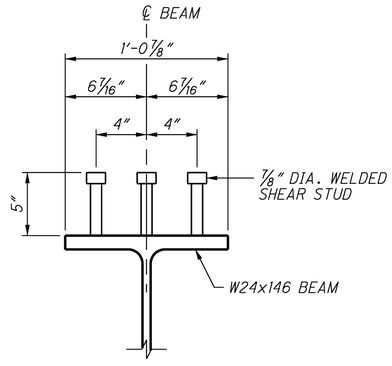



* = 4'-7" IF OPTIONAL FIELD SPLICE IS USED
= 6 EQUAL SPA. = 4'-7" IF OPTIONAL FIELD SPLICE IS NOT USED

## TYPICAL BEAM ELEVATION

## NOTES

1. WELD ATTACHMENT OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION". DO NOT WELD ATTACHMENTS TO AREAS DESIGNATED "TENSION." FILLET WELDS TO COMPRESSION FLANGES SHALL BE AT LEAST 1" FROM EDGE OF FLANGE, BE NO MORE THAN 2" LONG, AND BE AT LEAST ¼" FOR THICKNESSES UP TO ¾" OR 5/16" FOR GREATER THAN ¾" THICK.
2. FOR CROSS FRAME DETAILS, SEE SHEET 20/29 AND SCD GSD-1-96.
3. FOR VENT HOLE DETAILS, SEE SHEET 13/29.




## WELDED SHEAR STUD DETAIL

DESIGN AGENCY
O.D.O.T. DISTRICT 11
PLANNING & ENGINEERING

REVIEWED MJL DATE 06/18/13
STRUCTURE FILE NUMBER 3401200
DRAWN IMF
REVISED
DESIGNED IMF
CHECKED BPS

**FRAMING PLAN DETAILS**
BRIDGE NO. HAS-22-2126
OVER WHEELING & LAKE ERIE RAILROAD

**HAS-22-21.26**
**PID No. 88904**

16/29
39/52

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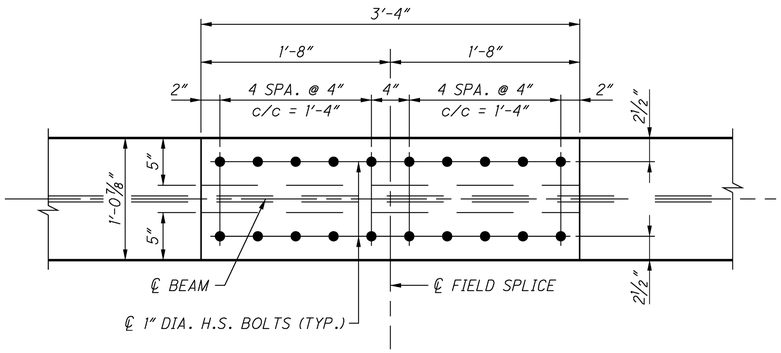
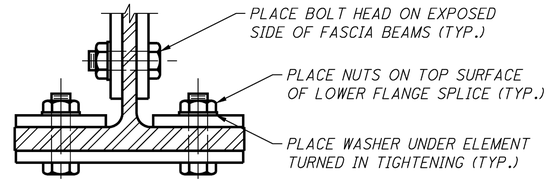
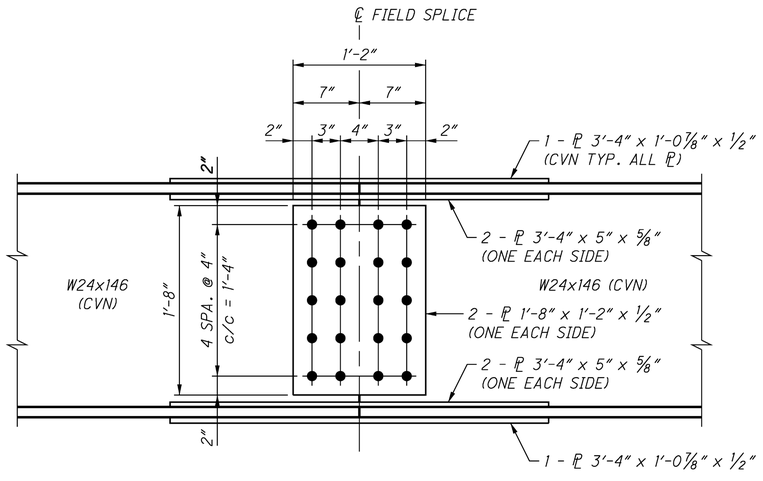



PLAN VIEW




PARTIAL SECTION

(NOT TO SCALE)




ELEVATION

BOLTED FIELD SPLICE DETAIL

## NOTES

1. ALL STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 50W, MINIMUM YIELD STRENGTH 50,000 PSI.
2. ALL STRUCTURAL STEEL FOR SPLICE PLATES SHALL HAVE CVN DESIGNATION AND MEET SPECIFIED MINIMUM (CVN) NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.
3. HIGH STRENGTH BOLTS FOR FIELD SPLICES SHALL BE 1" DIAMETER A325 TYPE III BOLTS. HOLES FOR HIGH STRENGTH BOLTS FOR FIELD SPLICES SHALL BE 1 1/16" DIAMETER STANDARD HOLE SIZE.
4. BEAM ENDS AT SPLICES SHALL BE CUT AND FIT AS PER PLAN. THE OPENING BETWEEN GIRDER ENDS AFTER ASSEMBLY SHALL NOT EXCEED ¼"
5. FOR LOCATION OF FIELD SPLICES, SEE FRAMING PLAN SHEET 16 OF 29.
6. ALL SPLICE MATERIALS, INCLUDING PLATES AND BOLT ASSEMBLIES, SHALL BE INCLUDED FOR PAYMENT UNDER ITEM 513 - STRUCTURAL STEEL MEMBERS, LEVEL 2.

DESIGN AGENCY
O.D.O.T. DISTRICT 11
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|---|---|---|---|
| IMF | IMF | MJL | 06/18/13 |
| CHECKED | REVISED | STRUCTURE FILE NUMBER | |
| BPS | | 3401200 | |

SPLICE DETAILS
BRIDGE NO. HAS-22-2126
OVER WHEELING & LAKE ERIE RAILROAD

HAS-22-21.26
PID No. 88904

17 / 29

40 / 52

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| BEAM 1 | SPAN 1 | | | | SPAN 2 | | | | | | SPAN 3 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R.A. | 0.25L | 0.5L | 0.75L | R.P. | F.S. 1 | 0.25L | 0.5L | 0.75L | O.F.S. | F.P. | 0.25L | 0.5L | 0.75L | F.A. |
| DIMENSION "X" | 0" | 1/4 " | 1/2 " | 3/4 " | 15/16 " | 15/16 " | 15/16 " | 7/8 " | 7/8 " | 13/16 " | 13/16 " | 5/8 " | 7/16 " | 3/16 " | 0" |
| DEFLECTION DUE TO STEEL | 0" | 1/16 " | 1/16 " | 0" | 0" | 1/16 " | 1/16 " | 1/16 " | 1/16 " | 1/16 " | 0" | 0" | 0" | 0" | 0" |
| DEFLECTION DUE TO REMAINING DEAD LOAD | 0" | 1/4 " | 1/4 " | 1/8 " | 0" | 1/4 " | 1/4 " | 1/2 " | 5/16 " | 3/16 " | 0" | 0" | 0" | 1/16 " | 0" |
| GEOMETRIC CAMBER | 0" | - 1/16 " | - 1/8 " | - 1/16 " | 0" | - 1/8 " | - 1/8 " | - 3/16 " | - 1/8 " | - 1/8 " | 0" | - 1/16 " | - 1/16 " | - 1/16 " | 0" |
| TOTAL SHOP CAMBER | 0" | 1/4 " | 3/16 " | 1/16 " | 0" | 3/16 " | 3/16 " | 3/8 " | 1/4 " | 1/8 " | 0" | - 1/16 " | - 1/16 " | 0" | 0" |

| BEAM 2 | SPAN 1 | | | | SPAN 2 | | | | | | SPAN 3 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R.A. | 0.25L | 0.5L | 0.75L | R.P. | F.S. 1 | 0.25L | 0.5L | 0.75L | O.F.S. | F.P. | 0.25L | 0.5L | 0.75L | F.A. |
| DIMENSION "X" | 0" | 1/4 " | 1/2 " | 3/4 " | 15/16 " | 15/16 " | 15/16 " | 7/8 " | 7/8 " | 13/16 " | 13/16 " | 5/8 " | 3/8 " | 3/16 " | 0" |
| DEFLECTION DUE TO STEEL | 0" | 1/16 " | 1/16 " | 0" | 0" | 1/16 " | 1/16 " | 1/16 " | 1/16 " | 1/16 " | 0" | 0" | 0" | 0" | 0" |
| DEFLECTION DUE TO REMAINING DEAD LOAD | 0" | 5/16 " | 5/16 " | 1/8 " | 0" | 1/4 " | 5/16 " | 9/16 " | 3/8 " | 1/4 " | 0" | 0" | 0" | 1/16 " | 0" |
| GEOMETRIC CAMBER | 0" | - 1/16 " | - 1/8 " | - 1/16 " | 0" | - 1/8 " | - 1/8 " | - 3/16 " | - 1/8 " | - 1/8 " | 0" | - 1/16 " | - 1/16 " | - 1/16 " | 0" |
| TOTAL SHOP CAMBER | 0" | 5/16 " | 1/4 " | 1/16 " | 0" | 3/16 " | 1/4 " | 7/16 " | 5/16 " | 3/16 " | 0" | - 1/16 " | - 1/16 " | 0" | 0" |

| BEAM 3 | SPAN 1 | | | | SPAN 2 | | | | | | SPAN 3 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R.A. | 0.25L | 0.5L | 0.75L | R.P. | F.S. 1 | 0.25L | 0.5L | 0.75L | O.F.S. | F.P. | 0.25L | 0.5L | 0.75L | F.A. |
| DIMENSION "X" | 0" | 1/4 " | 1/2 " | 3/4 " | 15/16 " | 15/16 " | 15/16 " | 7/8 " | 7/8 " | 13/16 " | 13/16 " | 5/8 " | 3/8 " | 3/16 " | 0" |
| DEFLECTION DUE TO STEEL | 0" | 1/16 " | 1/16 " | 0" | 0" | 1/16 " | 1/16 " | 1/16 " | 1/16 " | 1/16 " | 0" | 0" | 0" | 0" | 0" |
| DEFLECTION DUE TO REMAINING DEAD LOAD | 0" | 5/16 " | 5/16 " | 1/8 " | 0" | 1/4 " | 5/16 " | 9/16 " | 3/8 " | 1/4 " | 0" | 0" | 0" | 1/16 " | 0" |
| GEOMETRIC CAMBER | 0" | - 1/16 " | - 1/8 " | - 1/16 " | 0" | - 1/8 " | - 1/8 " | - 3/16 " | - 1/8 " | - 1/8 " | 0" | - 1/16 " | - 1/16 " | - 1/16 " | 0" |
| TOTAL SHOP CAMBER | 0" | 5/16 " | 1/4 " | 1/16 " | 0" | 3/16 " | 1/4 " | 7/16 " | 5/16 " | 3/16 " | 0" | - 1/16 " | - 1/16 " | 0" | 0" |

| BEAM 4 | SPAN 1 | | | | SPAN 2 | | | | | | SPAN 3 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R.A. | 0.25L | 0.5L | 0.75L | R.P. | F.S. 1 | 0.25L | 0.5L | 0.75L | O.F.S. | F.P. | 0.25L | 0.5L | 0.75L | F.A. |
| DIMENSION "X" | 0" | 1/4 " | 1/2 " | 11/16 " | 15/16 " | 15/16 " | 15/16 " | 7/8 " | 7/8 " | 13/16 " | 13/16 " | 5/8 " | 3/8 " | 3/16 " | 0" |
| DEFLECTION DUE TO STEEL | 0" | 1/16 " | 1/16 " | 0" | 0" | 1/16 " | 1/16 " | 1/16 " | 1/16 " | 1/16 " | 0" | 0" | 0" | 0" | 0" |
| DEFLECTION DUE TO REMAINING DEAD LOAD | 0" | 5/16 " | 5/16 " | 1/8 " | 0" | 1/4 " | 5/16 " | 9/16 " | 3/8 " | 1/4 " | 0" | 0" | 0" | 1/16 " | 0" |
| GEOMETRIC CAMBER | 0" | - 1/16 " | - 1/8 " | - 1/16 " | 0" | - 1/8 " | - 1/8 " | - 3/16 " | - 1/8 " | - 1/8 " | 0" | - 1/16 " | - 1/16 " | - 1/16 " | 0" |
| TOTAL SHOP CAMBER | 0" | 5/16 " | 1/4 " | 1/16 " | 0" | 3/16 " | 1/4 " | 7/16 " | 5/16 " | 3/16 " | 0" | - 1/16 " | - 1/16 " | 0" | 0" |

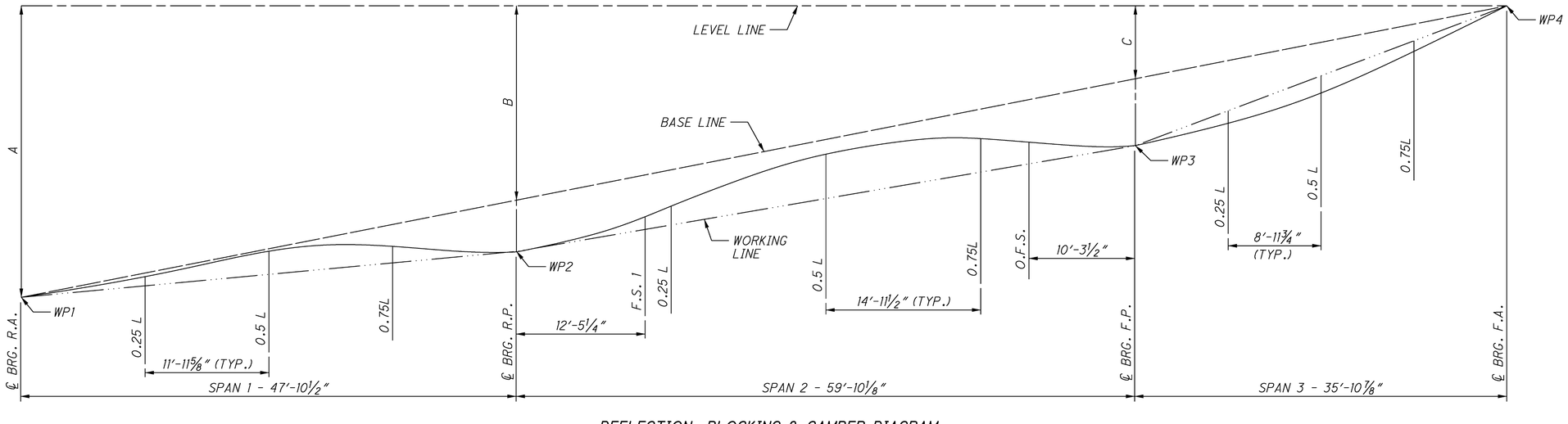
| BEAM 5 | SPAN 1 | | | | SPAN 2 | | | | | | SPAN 3 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R.A. | 0.25L | 0.5L | 0.75L | R.P. | F.S. 1 | 0.25L | 0.5L | 0.75L | O.F.S. | F.P. | 0.25L | 0.5L | 0.75L | F.A. |
| DIMENSION "X" | 0" | 1/4 " | 1/2 " | 11/16 " | 15/16 " | 15/16 " | 15/16 " | 7/8 " | 13/16 " | 13/16 " | 13/16 " | 5/8 " | 3/8 " | 3/16 " | 0" |
| DEFLECTION DUE TO STEEL | 0" | 1/16 " | 1/16 " | 0" | 0" | 1/16 " | 1/16 " | 1/16 " | 1/16 " | 1/16 " | 0" | 0" | 0" | 0" | 0" |
| DEFLECTION DUE TO REMAINING DEAD LOAD | 0" | 5/16 " | 5/16 " | 1/8 " | 0" | 1/4 " | 5/16 " | 9/16 " | 3/8 " | 1/4 " | 0" | 0" | 0" | 1/16 " | 0" |
| GEOMETRIC CAMBER | 0" | - 1/16 " | - 1/8 " | - 1/16 " | 0" | - 1/8 " | - 1/8 " | - 3/16 " | - 1/8 " | - 1/8 " | 0" | - 1/16 " | - 1/16 " | - 1/16 " | 0" |
| TOTAL SHOP CAMBER | 0" | 5/16 " | 1/4 " | 1/16 " | 0" | 3/16 " | 1/4 " | 7/16 " | 5/16 " | 3/16 " | 0" | - 1/16 " | - 1/16 " | 0" | 0" |

| BEAM 6 | SPAN 1 | | | | SPAN 2 | | | | | | SPAN 3 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R.A. | 0.25L | 0.5L | 0.75L | R.P. | F.S. 1 | 0.25L | 0.5L | 0.75L | O.F.S. | F.P. | 0.25L | 0.5L | 0.75L | F.A. |
| DIMENSION "X" | 0" | 1/8 " | 1/4 " | 5/16 " | 7/16 " | 7/16 " | 7/16 " | 3/8 " | 3/8 " | 3/8 " | 5/16 " | 1/4 " | 3/16 " | 1/16 " | 0" |
| DEFLECTION DUE TO STEEL | 0" | 1/16 " | 1/16 " | 0" | 0" | 1/16 " | 1/16 " | 1/16 " | 1/16 " | 1/16 " | 0" | 0" | 0" | 0" | 0" |
| DEFLECTION DUE TO REMAINING DEAD LOAD | 0" | 1/4 " | 1/4 " | 1/8 " | 0" | 1/4 " | 1/4 " | 1/2 " | 5/16 " | 3/16 " | 0" | 0" | 0" | 1/16 " | 0" |
| GEOMETRIC CAMBER | 0" | 1/16 " | 1/16 " | 1/16 " | 0" | 1/16 " | 1/16 " | 1/8 " | 1/16 " | 1/16 " | 0" | 0" | 0" | - 1/16 " | 0" |
| TOTAL SHOP CAMBER | 0" | 3/8 " | 3/8 " | 3/16 " | 0" | 3/8 " | 3/8 " | 11/16 " | 7/16 " | 5/16 " | 0" | 0" | 0" | 0" | 0" |

| BLOCKING TABLE | | | |
|---|---|---|---|
| DIMENSION | A | B | C |
| BEAM 1 | 17 " | 11 5/16 " | 4 1/4 " |
| BEAM 2 | 16 11/16 " | 11 1/8 " | 4 3/16 " |
| BEAM 3 | 16 7/16 " | 10 15/16 " | 4 1/8 " |
| BEAM 4 | 16 3/16 " | 10 3/4 " | 4 1/16 " |
| BEAM 5 | 15 7/8 " | 10 5/8 " | 4 " |
| BEAM 6 | 16 9/16 " | 11 1/16 " | 4 1/8 " |

## NOTES

1. WORKING POINTS (WP) ARE AT THE BOTTOM OF THE BOTTOM FLANGE, ℄ BEARING.
2. THE WORKING LINE IS A STRAIGHT LINE BETWEEN THE INDICATED WORKING POINTS.
3. THE BASE LINE IS A STRAIGHT LINE BETWEEN WP1 AND WP4.
4. DIMENSION "X" IS THE DIFFERENCE BETWEEN THE BASE LINE AND THE WORKING LINE.




DEFLECTION, BLOCKING & CAMBER DIAGRAM
(BEAM SHOWN IN CORRECT UNLOADED POSITION)

DESIGN AGENCY
O.D.O.T. DISTRICT 11
PLANNING & ENGINEERING

REVIEWED DATE
STRUCTURE FILE NUMBER
3401200

DRAWN CCN
REVISED

DESIGNED CCN
CHECKED RPT

**DEFLECTION AND CAMBER TABLE**
BRIDGE NO. HAS-22-2126
OVER WHEELING & LAKE ERIE RAILROAD

**HAS-22-21.26**
**PID No. 88904**

18 / 29

41 / 52

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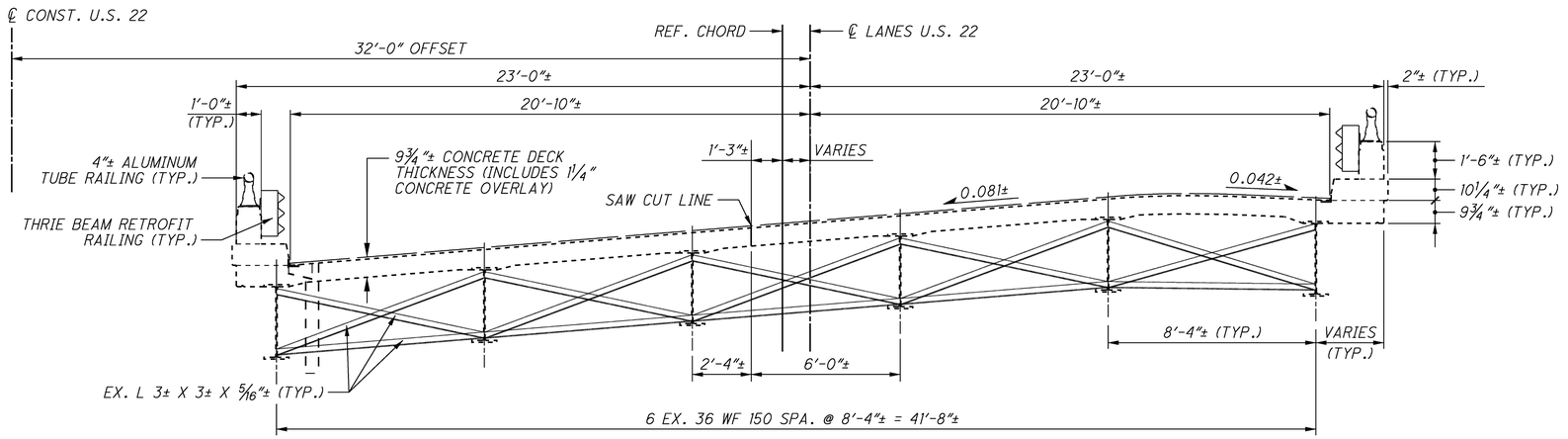


NOTES:

1. REMOVE ENTIRE SUPERSTRUCTURE.

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DESIGN AGENCY
O.D.O.T. DISTRICT 11
PLANNING & ENGINEERING

| DESIGNED | DRAWN | REVIEWED | DATE |
|---|---|---|---|
| CCN | CCN | | |
| CHECKED | REVISED | STRUCTURE FILE NUMBER | |
| RPT | | 3401200 | |

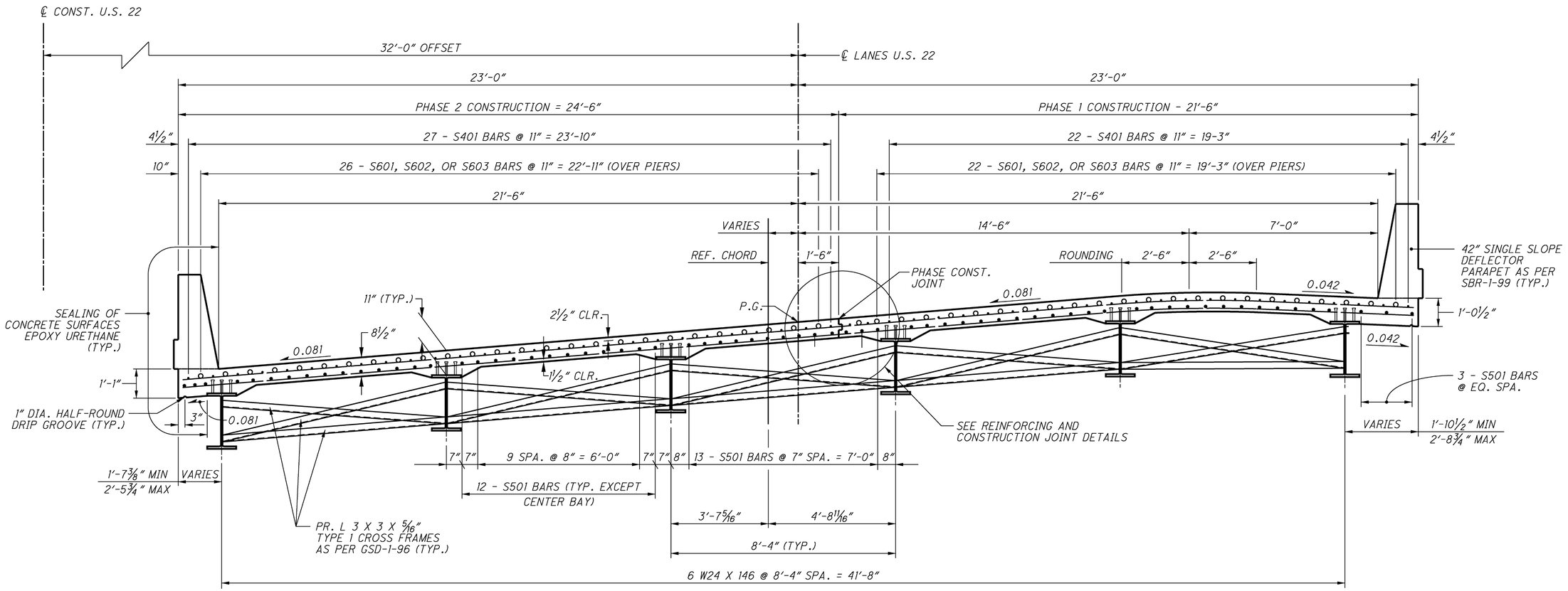
# EXISTING TRANSVERSE SECTION

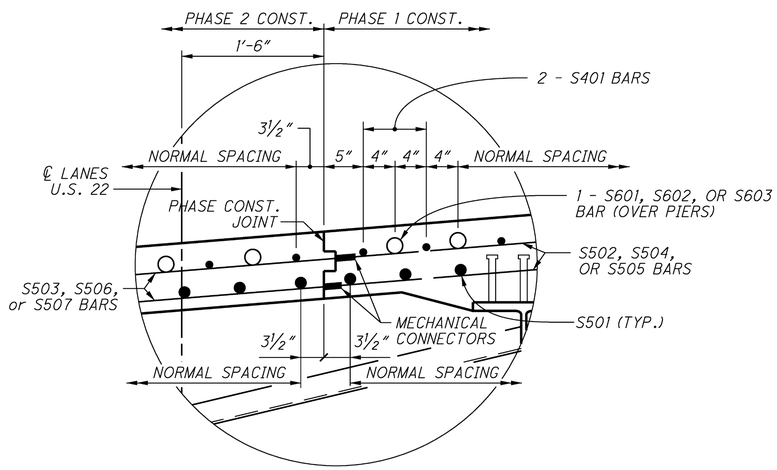
BRIDGE NO. HAS-22-2126
OVER WHEELING & LAKE ERIE RAILROAD

HAS-22-21.26
PID No. 88904

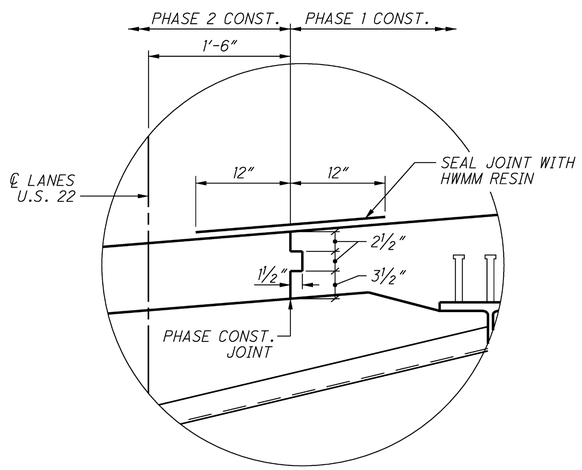
19/29

42/52




REINFORCING DETAIL




CONSTRUCTON JOINT DETAIL

## NOTES:

1. DECK SLAB CONRETE QUANTITY: THE ESTIMATED QUANTITY OF DECK SLAB CONCRETE IS BASED ON CONSTANT DECK SLAB THICKNESS, AS SHOWN, PLUS THE QUANTITY OF CONCRETE THAT FORMS EACH BEAM HAUNCH. THE ESTIMATE ASSUMES A CONSTANT HAUNCH THICKNESS OF 2½" AND A CONSTANT HAUNCH FLANGE WIDTH OF 9". 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".
2. TOP LONGITUDINAL BARS SHOULD BE PARALLEL TO THE EDGE OF THE DECK. BOTTOM BARS SHOULD BE PARALLEL TO BEAMS EXCEPT FOR THE BARS ADJACENT TO THE PHASE CONSTRUCTION JOINT, WHICH SHOULD BE PARALLEL TO THE JOINT, AND THE BARS CLOSEST TO THE EDGE OF DECK, WHICH SHOULD BE PARALLEL TO THE EDGE OF DECK.
3. FOR REINFORCING STEEL LIST, SEE SHEETS 26/29 - 29/29 .
4. FOR BRIDGE RAILING DETAILS, SEE SHEET 25/29 .
5. FOR DECK SLAB DETAILS, SEE SHEET 21/29 .
6. FOR FRAMING PLAN, SEE SHEET 16/29 .

DESIGN AGENCY
O.D.O.T. DISTRICT 11
PLANNING & ENGINEERING

| DESIGNED | DRAWN | REVIEWED | DATE |
|---|---|---|---|
| CCN | CCN | RPT | |

| CHECKED | REVISED | STRUCTURE FILE NUMBER |
|---|---|---|
| RPT | | 3401200 |

SLAB PLAN AND TRANSVERSE SECTION
BRIDGE NO. HAS-22-2126
OVER WHEELING & LAKE ERIE RAILROAD

HAS-22-21.26
PID No. 88904

20/29

43/52

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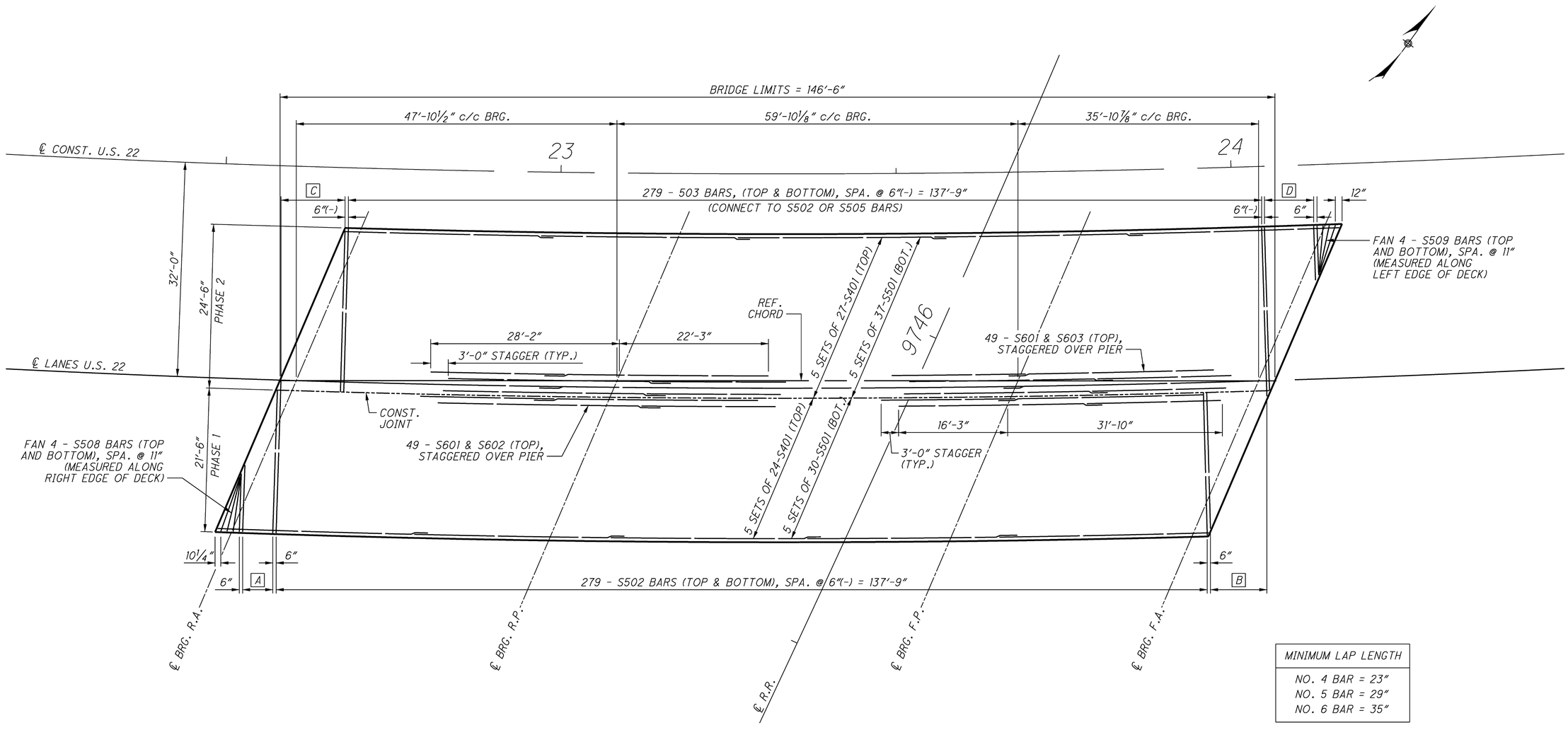


| MINIMUM LAP LENGTH |
|---|
| NO. 4 BAR = 23" |
| NO. 5 BAR = 29" |
| NO. 6 BAR = 35" |

A 1 SERIES OF 10 - S504 BARS (TOP AND BOTTOM), SPA. @ 6" = 4'-6" (MEASURED ALONG RIGHT EDGE OF DECK)

B 1 SERIES OF 19 - S505 BARS (TOP AND BOTTOM), SPA. @ 6"(-) = 8'-11"

C 1 SERIES OF 19 - S506 BARS (TOP AND BOTTOM), SPA. @ 6"(-) = 8'-11" (CONNECT TO S502 BARS)

D 1 SERIES OF 16 - S507 BARS (TOP AND BOTTOM), SPA. @ 6"(-) = 7'-4" (MEASURED ALONG LEFT EDGE OF DECK)

**NOTES:**

1. TOP LONGITUDINAL BARS SHOULD BE PARALLEL TO THE EDGE OF THE DECK. BOTTOM BARS SHOULD BE PARALLEL TO BEAMS EXCEPT FOR THE BARS ADJACENT TO THE PHASE CONSTRUCTION JOINT AND THE EDGE OF DECK, WHICH SHOULD BE PARALLEL TO THEIR RESPECTIVE EDGE OF CONCRETE.
2. UNLESS OTHERWISE NOTED, ALL TRANSVERSE BAR SPACING IS MEASURED ALONG THE CONSTRUCTION JOINT.
3. FOR REINFORCING STEEL LIST, SEE SHEETS 26/29 - 29/29 .
4. FOR BRIDGE RAILING DETAILS, SEE SHEET 25/29 .
5. FOR TRANSVERSE SECTION DETAILS, SEE SHEET 20/29 .
6. FOR FRAMING PLAN, SEE SHEET 16/29 .

DESIGN AGENCY
O.D.O.T. DISTRICT 11
PLANNING & ENGINEERING

| DESIGNED | DRAWN | REVIEWED | DATE |
|---|---|---|---|
| CCN | CCN | | |
| CHECKED | REVISED | | |
| RPT | | | |

STRUCTURE FILE NUMBER
3401200

**SLAB PLAN**
BRIDGE NO. HAS-22-21.26
OVER WHEELING & LAKE ERIE RAILROAD

**HAS-22-21.26**
**PID No. 88904**

21/29

44/52

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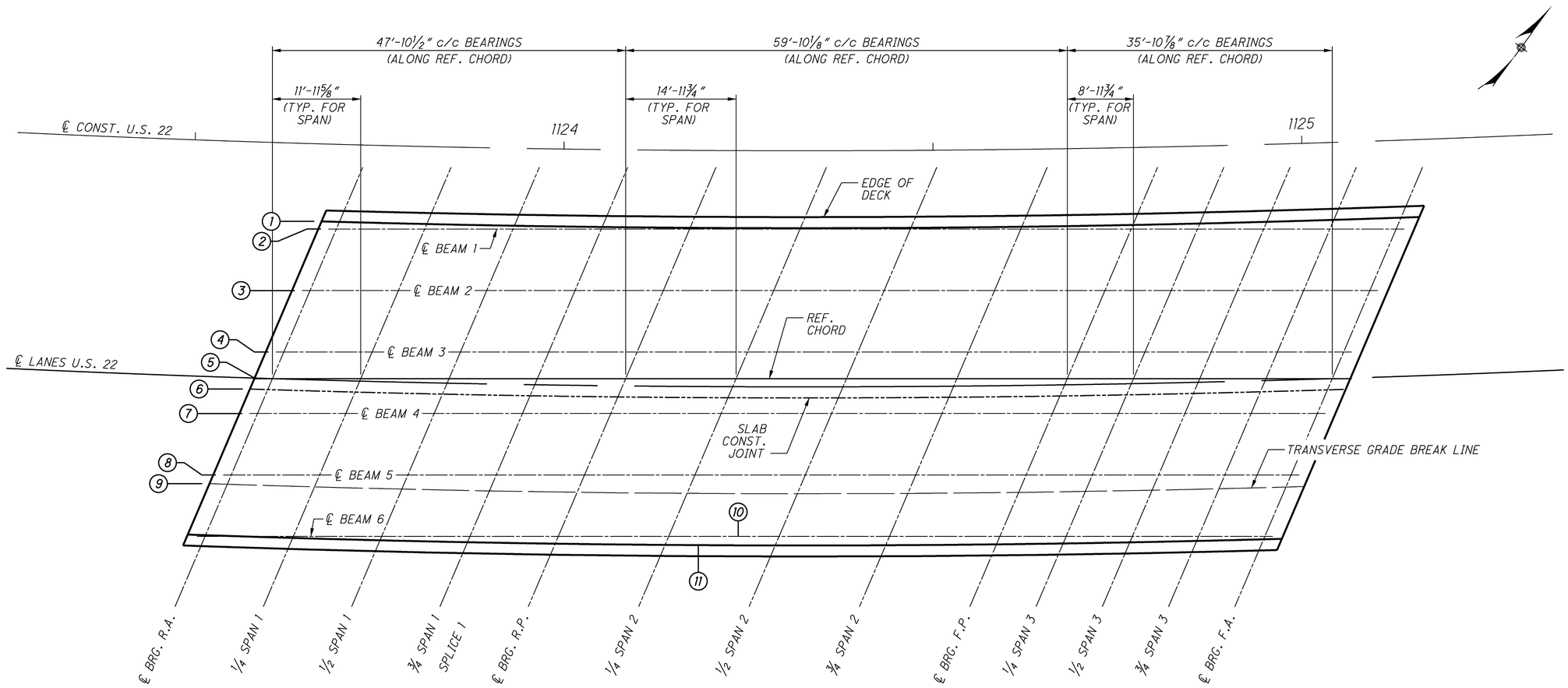
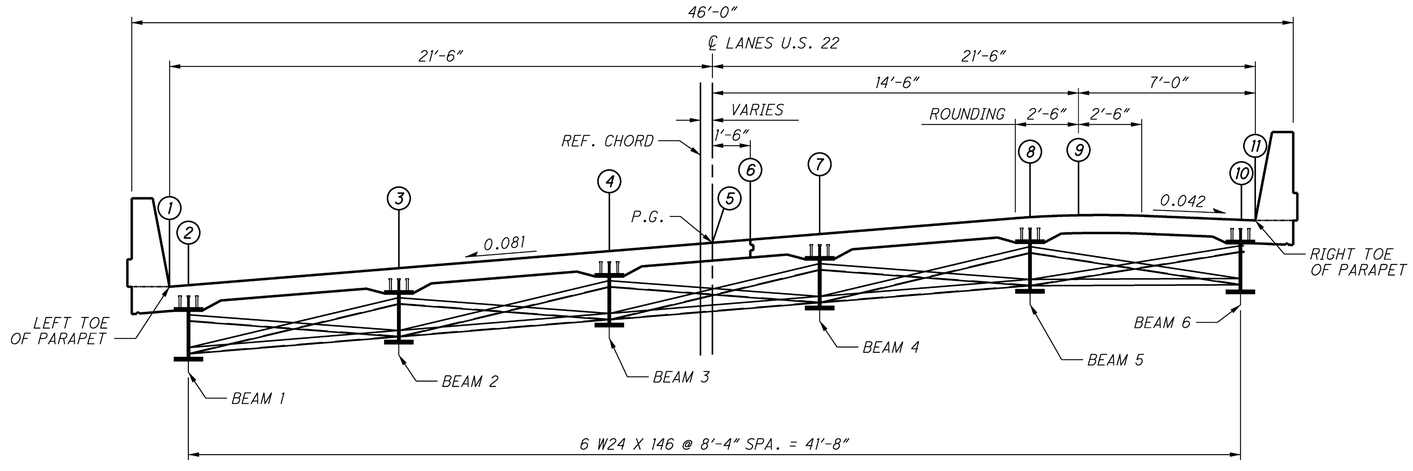



PLAN VIEW




TRANSVERSE SECTION

NOTES:

1. FOR FINAL DECK SURFACE ELEVATIONS, SEE SHEET 24/29. FOR SCREED AND TOP OF HAUNCH ELEVATIONS, SHEET 23/29.

DESIGN AGENCY
O.D.O.T. DISTRICT 11
PLANNING & ENGINEERING

| DESIGNED | DRAWN | REVIEWED | DATE |
|---|---|---|---|
| CCN | CCN | | |
| CHECKED | REVISED | STRUCTURE FILE NUMBER 3401200 | |

TABLE ELEVATIONS REFERENCE
BRIDGE NO. HAS-22-21.26
OVER WHEELING & LAKE ERIE RAILROAD

HAS-22-21.26
PID No. 88904

22/29

45
52

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## SCREED ELEVATIONS

| | SPAN 1 | | | | | | | | SPAN 2 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CL BRG. R.A. | | 1/4 SPAN | | 1/2 SPAN | | 3/4 SPAN | | CL BRG. R.P. | | F.S. No. 1 | | 1/4 SPAN | |
| | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION |
| LEFT CURB | 1123+69.84 | 1151.38 | 1123+81.63 | 1151.52 | 1123+93.45 | 1151.64 | 1124+05.29 | 1151.73 | 1124+17.16 | 1151.84 | 1124+29.52 | 1151.98 | 1124+32.03 | 1152.01 |
| PROFILE GRADE LINE | 1123+61.46 | 1153.04 | 1123+73.13 | 1153.19 | 1123+84.82 | 1153.30 | 1123+96.53 | 1153.39 | 1124+08.27 | 1153.49 | 1124+20.50 | 1153.63 | 1124+22.98 | 1153.67 |
| CONSTRUCTION JOINT | 1123+60.88 | 1153.16 | 1123+72.54 | 1153.30 | 1123+84.22 | 1153.41 | 1123+95.93 | 1153.51 | 1124+07.66 | 1153.61 | 1124+19.88 | 1153.75 | 1124+22.36 | 1153.78 |
| GRADE BREAK | 1123+55.90 | 1154.17 | 1123+67.49 | 1154.31 | 1123+79.09 | 1154.42 | 1123+90.73 | 1154.51 | 1124+02.38 | 1154.61 | 1124+14.52 | 1154.75 | 1124+16.98 | 1154.78 |
| RIGHT CURB | 1123+53.25 | 1153.85 | 1123+64.79 | 1153.98 | 1123+76.36 | 1154.10 | 1123+87.95 | 1154.19 | 1123+99.56 | 1154.29 | 1124+11.66 | 1154.43 | 1124+14.11 | 1154.46 |

## SCREED ELEVATIONS

| | SPAN 2 | | | | | | | | SPAN 3 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1/2 SPAN | | 3/4 SPAN | | OPTIONAL F.S. | | CL BRG. F.P. | | 1/4 SPAN | | 1/2 SPAN | | 3/4 SPAN | | CL BRG. F.A. | |
| | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION |
| LEFT CURB | 1124+46.94 | 1152.17 | 1124+61.90 | 1152.30 | 1124+66.58 | 1152.33 | 1124+76.90 | 1152.41 | 1124+85.92 | 1152.50 | 1124+94.95 | 1152.58 | 1125+04.01 | 1152.67 | 1125+13.08 | 1152.76 |
| PROFILE GRADE LINE | 1124+37.73 | 1153.84 | 1124+52.52 | 1153.96 | 1124+57.16 | 1153.98 | 1124+67.36 | 1154.06 | 1124+76.28 | 1154.15 | 1124+85.21 | 1154.23 | 1124+94.16 | 1154.32 | 1125+03.13 | 1154.40 |
| CONSTRUCTION JOINT | 1124+37.10 | 1153.95 | 1124+51.88 | 1154.07 | 1124+56.50 | 1154.10 | 1124+66.70 | 1154.18 | 1124+75.61 | 1154.26 | 1124+84.54 | 1154.35 | 1124+93.48 | 1154.43 | 1125+02.44 | 1154.52 |
| GRADE BREAK | 1124+31.62 | 1154.95 | 1124+46.31 | 1155.07 | 1124+50.90 | 1155.10 | 1124+61.03 | 1155.17 | 1124+69.88 | 1155.26 | 1124+78.75 | 1155.34 | 1124+87.64 | 1155.43 | 1124+96.54 | 1155.52 |
| RIGHT CURB | 1124+28.70 | 1154.62 | 1124+43.33 | 1154.74 | 1124+47.92 | 1154.77 | 1124+58.01 | 1154.85 | 1124+66.83 | 1154.94 | 1124+75.66 | 1155.02 | 1124+84.52 | 1155.11 | 1124+93.39 | 1155.19 |

## TOP OF HAUNCH ELEVATIONS

| | SPAN 1 | | | | | | | | SPAN 2 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CL BRG. R.A. | | 1/4 SPAN | | 1/2 SPAN | | 3/4 SPAN | | CL BRG. R.P. | | F.S. No. 1 | | 1/4 SPAN | |
| | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION |
| BEAM 1 | 1123+69.45 | 1150.75 | 1123+81.36 | 1150.86 | 1123+93.27 | 1150.96 | 1124+05.18 | 1151.04 | 1124+17.09 | 1151.14 | 1124+29.47 | 1151.28 | 1124+31.98 | 1151.31 |
| BEAM 2 | 1123+66.15 | 1151.40 | 1123+78.01 | 1151.52 | 1123+89.88 | 1151.61 | 1124+01.75 | 1151.69 | 1124+13.62 | 1151.78 | 1124+25.95 | 1151.92 | 1124+28.45 | 1151.95 |
| BEAM 3 | 1123+62.87 | 1152.05 | 1123+74.69 | 1152.17 | 1123+86.51 | 1152.26 | 1123+98.34 | 1152.34 | 1124+10.16 | 1152.43 | 1124+22.45 | 1152.57 | 1124+24.95 | 1152.60 |
| BEAM 4 | 1123+59.62 | 1152.70 | 1123+71.39 | 1152.82 | 1123+83.17 | 1152.91 | 1123+94.95 | 1152.98 | 1124+06.74 | 1153.07 | 1124+18.98 | 1153.20 | 1124+21.47 | 1153.24 |
| BEAM 5 | 1123+56.39 | 1153.36 | 1123+68.12 | 1153.47 | 1123+79.86 | 1153.56 | 1123+91.60 | 1153.63 | 1124+03.34 | 1153.72 | 1124+15.54 | 1153.85 | 1124+18.01 | 1153.88 |
| BEAM 6 | 1123+53.18 | 1153.13 | 1123+64.87 | 1153.28 | 1123+76.56 | 1153.41 | 1123+88.26 | 1153.52 | 1123+99.96 | 1153.63 | 1124+12.12 | 1153.77 | 1124+14.58 | 1153.80 |

## TOP OF HAUNCH ELEVATIONS

| | SPAN 2 | | | | | | | | SPAN 3 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1/2 SPAN | | 3/4 SPAN | | OPTIONAL F.S. | | CL BRG. F.P. | | 1/4 SPAN | | 1/2 SPAN | | 3/4 SPAN | | CL BRG. F.A. | |
| | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION |
| BEAM 1 | 1124+46.87 | 1151.48 | 1124+61.77 | 1151.61 | 1124+66.42 | 1151.65 | 1124+76.65 | 1151.74 | 1124+85.58 | 1151.84 | 1124+94.51 | 1151.95 | 1125+03.44 | 1152.05 | 1125+12.37 | 1152.16 |
| BEAM 2 | 1124+43.29 | 1152.12 | 1124+58.13 | 1152.26 | 1124+62.77 | 1152.29 | 1124+72.96 | 1152.38 | 1124+81.86 | 1152.48 | 1124+90.76 | 1152.58 | 1124+99.66 | 1152.68 | 1125+08.55 | 1152.79 |
| BEAM 3 | 1124+39.73 | 1152.77 | 1124+54.52 | 1152.89 | 1124+59.14 | 1152.93 | 1124+69.30 | 1153.01 | 1124+78.17 | 1153.11 | 1124+87.03 | 1153.21 | 1124+95.90 | 1153.31 | 1125+04.76 | 1153.42 |
| BEAM 4 | 1124+36.20 | 1153.39 | 1124+50.93 | 1153.52 | 1124+55.54 | 1153.56 | 1124+65.66 | 1153.65 | 1124+74.50 | 1153.74 | 1124+83.34 | 1153.84 | 1124+92.17 | 1153.95 | 1125+01.00 | 1154.05 |
| BEAM 5 | 1124+32.69 | 1154.05 | 1124+47.37 | 1154.17 | 1124+51.96 | 1154.20 | 1124+62.05 | 1154.28 | 1124+70.86 | 1154.38 | 1124+79.66 | 1154.48 | 1124+88.46 | 1154.58 | 1124+97.27 | 1154.68 |
| BEAM 6 | 1124+29.21 | 1153.97 | 1124+43.84 | 1154.09 | 1124+48.41 | 1154.12 | 1124+58.47 | 1154.19 | 1124+67.24 | 1154.27 | 1124+76.01 | 1154.35 | 1124+84.79 | 1154.42 | 1124+93.56 | 1154.51 |

NOTES:

1. SCREED ELEVATIONS SHOWN REPRESENT THE THEORETICAL DECK SURFACE LOCATION PRIOR TO DEFLECTIONS CAUSED BY DECK PLACEMENT AND OTHER ANTICIPATED DEAD LOADS.
2. TOP OF HAUNCH ELEVATIONS SHOWN REPRESENT THE THEORETICAL LOCATION OF THE TOP OF HAUNCH PRIOR TO DEFLECTIONS CAUSED BY DECK PLACEMENT AND OTHER ANTICIPATED DEAD LOADS.
3. SEE SHEET 22/29 FOR PLAN AND TRANSVERSE SECTION REFERENCES TO THE ELEVATIONS SHOWN IN THESE TABLES.

DESIGN AGENCY
O.D.O.T. DISTRICT 11
PLANNING & ENGINEERING

REVIEWED DATE
STRUCTURE FILE NUMBER 3401200

DRAWN CCN
REVISED

DESIGNED CCN
CHECKED DJL

SCREED AND TOP OF HAUNCH ELEVATIONS
BRIGE NO. HAS-22-2126
OVER WHEELING & LAKE ERIE RAILROAD

HAS-22-21.26
PID No. 88904

23/29

46/52

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## FINAL DECK SURFACE ELEVATIONS

| | SPAN 1 | | | | | | | | SPAN 2 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CL BRG. R.A. | | 1/4 SPAN | | 1/2 SPAN | | 3/4 SPAN | | CL BRG. R.P. | | F.S. No. 1 | | 1/4 SPAN | |
| | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION |
| LEFT CURB | 1123+69.84 | 1151.38 | 1123+81.63 | 1151.50 | 1123+93.45 | 1151.61 | 1124+05.29 | 1151.72 | 1124+17.16 | 1151.84 | 1124+29.52 | 1151.96 | 1124+32.03 | 1151.98 |
| BEAM 1 | 1123+69.45 | 1151.46 | 1123+81.36 | 1151.55 | 1123+93.27 | 1151.64 | 1124+05.18 | 1151.74 | 1124+17.09 | 1151.85 | 1124+29.47 | 1151.97 | 1124+31.98 | 1151.99 |
| BEAM 2 | 1123+66.15 | 1152.11 | 1123+78.01 | 1152.20 | 1123+89.88 | 1152.29 | 1124+01.75 | 1152.39 | 1124+13.62 | 1152.49 | 1124+25.95 | 1152.61 | 1124+28.45 | 1152.63 |
| BEAM 3 | 1123+62.87 | 1152.76 | 1123+74.69 | 1152.85 | 1123+86.51 | 1152.94 | 1123+98.34 | 1153.04 | 1124+10.16 | 1153.14 | 1124+22.45 | 1153.25 | 1124+24.95 | 1153.27 |
| CONSTRUCTION JOINT | 1123+60.88 | 1153.16 | 1123+72.54 | 1153.27 | 1123+84.22 | 1153.38 | 1123+95.93 | 1153.50 | 1124+07.66 | 1153.61 | 1124+19.88 | 1153.73 | 1124+22.36 | 1153.75 |
| BEAM 4 | 1123+59.62 | 1153.41 | 1123+71.39 | 1153.50 | 1123+83.17 | 1153.59 | 1123+94.95 | 1153.68 | 1124+06.74 | 1153.78 | 1124+18.98 | 1153.89 | 1124+21.47 | 1153.92 |
| BEAM 5 | 1123+56.39 | 1154.07 | 1123+68.12 | 1154.15 | 1123+79.86 | 1154.24 | 1123+91.60 | 1154.33 | 1124+03.34 | 1154.43 | 1124+15.54 | 1154.54 | 1124+18.01 | 1154.56 |
| GRADE BREAK | 1123+55.90 | 1154.17 | 1123+67.49 | 1154.28 | 1123+79.09 | 1154.39 | 1123+90.73 | 1154.50 | 1124+02.38 | 1154.61 | 1124+14.52 | 1154.73 | 1124+16.98 | 1154.75 |
| BEAM 6 | 1123+53.18 | 1153.84 | 1123+64.87 | 1153.97 | 1123+76.56 | 1154.09 | 1123+88.26 | 1154.22 | 1123+99.96 | 1154.34 | 1124+12.12 | 1154.46 | 1124+14.58 | 1154.48 |
| RIGHT CURB | 1123+53.25 | 1153.85 | 1123+64.79 | 1153.96 | 1123+76.36 | 1154.07 | 1123+87.95 | 1154.18 | 1123+99.56 | 1154.29 | 1124+11.66 | 1154.41 | 1124+14.11 | 1154.43 |

## FINAL DECK SURFACE ELEVATIONS

| | SPAN 2 | | | | | | | | SPAN 3 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1/2 SPAN | | 3/4 SPAN | | OPTIONAL F.S. | | CL BRG. F.P. | | 1/4 SPAN | | 1/2 SPAN | | 3/4 SPAN | | CL BRG. F.A. | |
| | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION | STATION | ELEVATION |
| LEFT CURB | 1124+46.94 | 1152.12 | 1124+61.90 | 1152.27 | 1124+66.58 | 1152.31 | 1124+76.90 | 1152.41 | 1124+85.92 | 1152.50 | 1124+94.95 | 1152.58 | 1125+04.01 | 1152.67 | 1125+13.08 | 1152.76 |
| BEAM 1 | 1124+46.87 | 1152.14 | 1124+61.77 | 1152.29 | 1124+66.42 | 1152.34 | 1124+76.65 | 1152.45 | 1124+85.58 | 1152.55 | 1124+94.51 | 1152.66 | 1125+03.44 | 1152.76 | 1125+12.37 | 1152.87 |
| BEAM 2 | 1124+43.29 | 1152.77 | 1124+58.13 | 1152.93 | 1124+62.77 | 1152.98 | 1124+72.96 | 1153.09 | 1124+81.86 | 1153.19 | 1124+90.76 | 1153.29 | 1124+99.66 | 1153.39 | 1125+08.55 | 1153.50 |
| BEAM 3 | 1124+39.73 | 1153.41 | 1124+54.52 | 1153.56 | 1124+59.14 | 1153.61 | 1124+69.30 | 1153.72 | 1124+78.17 | 1153.82 | 1124+87.03 | 1153.92 | 1124+95.90 | 1154.02 | 1125+04.76 | 1154.13 |
| CONSTRUCTION JOINT | 1124+37.10 | 1153.89 | 1124+51.88 | 1154.03 | 1124+56.50 | 1154.08 | 1124+66.70 | 1154.18 | 1124+75.61 | 1154.26 | 1124+84.54 | 1154.35 | 1124+93.48 | 1154.43 | 1125+02.44 | 1154.52 |
| BEAM 4 | 1124+36.20 | 1154.05 | 1124+50.93 | 1154.20 | 1124+55.54 | 1154.25 | 1124+65.66 | 1154.36 | 1124+74.50 | 1154.45 | 1124+83.34 | 1154.55 | 1124+92.17 | 1154.66 | 1125+01.00 | 1154.76 |
| BEAM 5 | 1124+32.69 | 1154.70 | 1124+47.37 | 1154.84 | 1124+51.96 | 1154.89 | 1124+62.05 | 1154.99 | 1124+70.86 | 1155.09 | 1124+79.66 | 1155.19 | 1124+88.46 | 1155.29 | 1124+97.27 | 1155.39 |
| GRADE BREAK | 1124+31.62 | 1154.89 | 1124+46.31 | 1155.03 | 1124+50.90 | 1155.08 | 1124+61.03 | 1155.17 | 1124+69.88 | 1155.26 | 1124+78.75 | 1155.34 | 1124+87.64 | 1155.43 | 1124+96.54 | 1155.52 |
| BEAM 6 | 1124+29.21 | 1154.63 | 1124+43.84 | 1154.77 | 1124+48.41 | 1154.81 | 1124+58.47 | 1154.90 | 1124+67.24 | 1154.98 | 1124+76.01 | 1155.06 | 1124+84.79 | 1155.13 | 1124+93.56 | 1155.22 |
| RIGHT CURB | 1124+28.70 | 1154.57 | 1124+43.33 | 1154.71 | 1124+47.92 | 1154.75 | 1124+58.01 | 1154.85 | 1124+66.83 | 1154.94 | 1124+75.66 | 1155.02 | 1124+84.52 | 1155.11 | 1124+93.39 | 1155.19 |

NOTES:

1. FINAL DECK SURFACE ELEVATIONS SHOWN REPRESENT THE DECK SURFACE LOCATION AFTER ALL ANTICIPATED DEAD LOAD DEFLECTIONS HAVE OCCURRED.
2. SEE SHEET 22/29 FOR PLAN AND TRANSVERSE SECTION REFERENCES TO THE ELEVATIONS SHOWN IN THIS TABLE.

DESIGN AGENCY
O.D.O.T. DISTRICT 11
PLANNING & ENGINEERING

REVIEWED DATE
STRUCTURE FILE NUMBER 3401200

DRAWN CCN
REVISED

DESIGNED CCN
CHECKED DJL

FINAL DECK SURFACE ELEVATIONS
BRIDGE NO. HAS-22-2126
OVER WHEELING & LAKE ERIE RAILROAD

HAS-22-21.26
PID No. 88904

24/29

47/52

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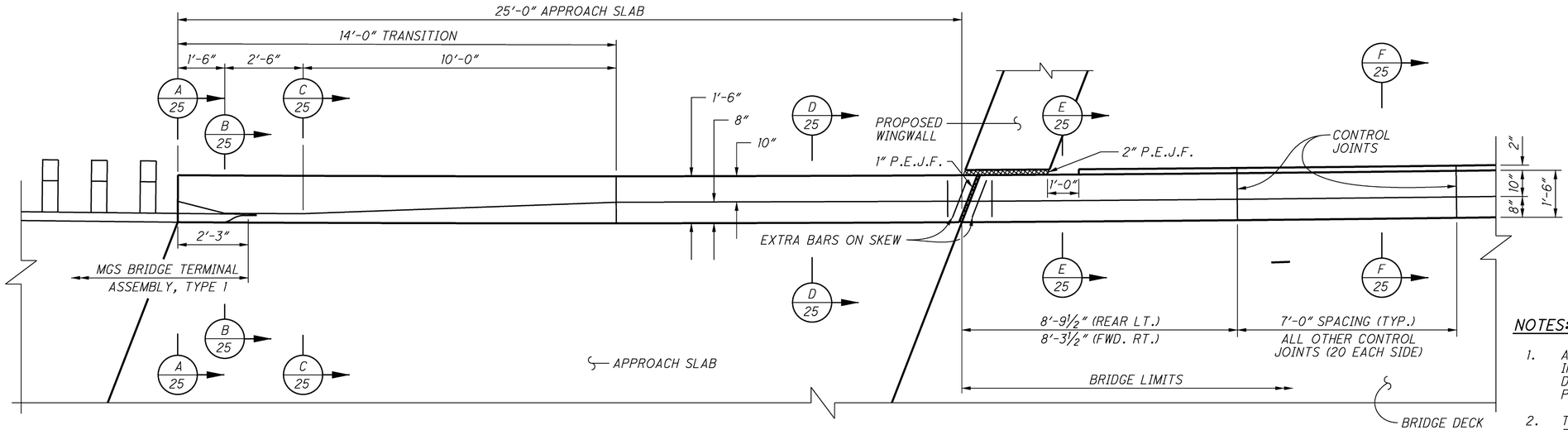
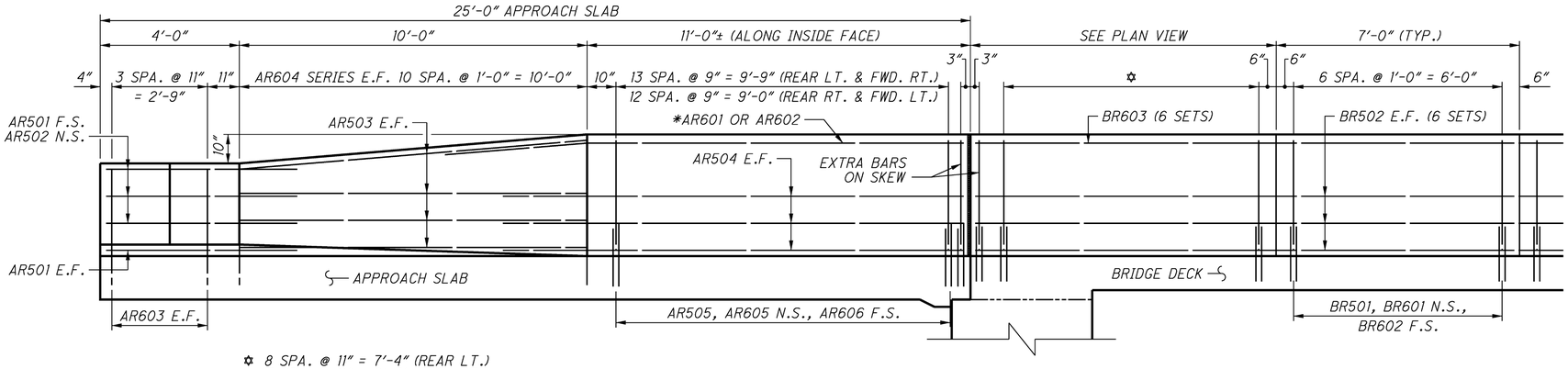



## DEFLECTOR PARAPET PLAN

LEFT REAR SHOWN, OTHERS SIMILAR

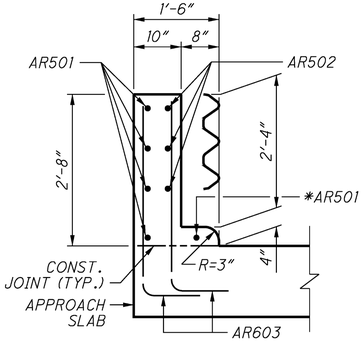



✡ 8 SPA. @ 11" = 7'-4" (REAR LT.)
7 SPA. @ 11" = 6'-5" (FWD. RT.)
BR501, BR601 N.S., BR602 F.S.

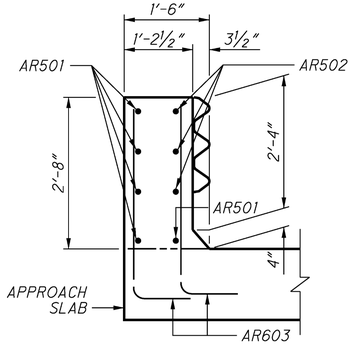
* AR601 ON REAR LT. & FWD. RT. APPROACH
AR602 ON REAR RT. & FWD. LT. APPROACH

## DEFLECTOR PARAPET ELEVATION

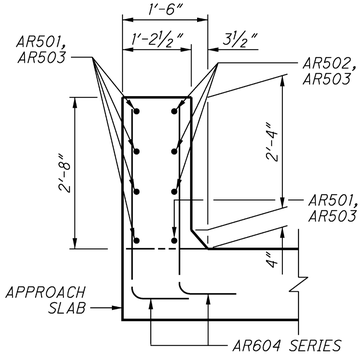
LEFT REAR SHOWN, OTHERS SIMILAR



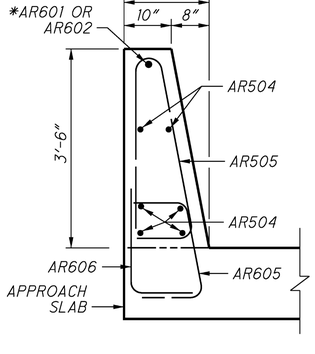

A 25 SECTION
* FIELD BEND IF NECESSARY



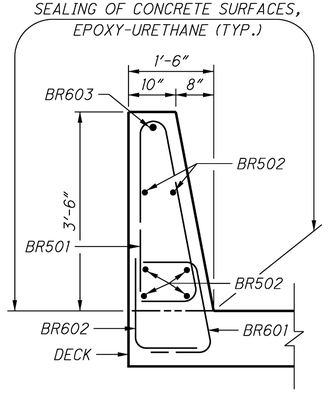

B 25 SECTION



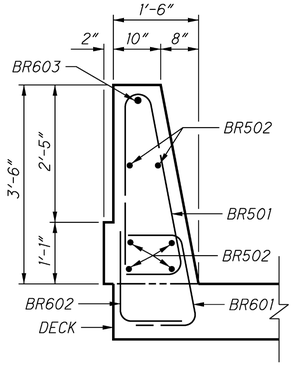

C 25 SECTION




D 25 SECTION




E 25 SECTION




F 25 SECTION

* SEE SCD SBR-1-99 FOR ADDITIONAL PARAPET DETAILS.

| MINIMUM LAP LENGTH |
|---|
| NO. 5 BAR = 29" |
| NO. 6 BAR = 49" |


## NOTES:

1. ALL PARAPETS AND REINFORCING STEEL IN PLAN AND ELEVATION VIEW ARE DIMENSIONED ALONG THE TOE OF THE PARAPET.
2. TO ACCOUNT FOR SKEW, EXTRA BARS HAVE BEEN ADDED ON EACH SIDE OF THE APPROACH PARAPET/BRIDGE PARAPET JOINT AND ARE TO BE PLACED ON SKEW. ON EACH CORNER OF THE BRIDGE, A SET OF AR505, AR604, AND AR605 BARS SHALL BE SET ON THE APPROACH SIDE OF THE JOINT AND A SET OF BR501, BR601, AND BR602 BARS SHALL BE SET ON THE BRIDGE SIDE OF THE JOINT.
3. CONCRETE AND REINFORCING FOR THE APPROACH SLAB MOUNTED PARAPETS AND TRANSITIONS SHALL BE INCLUDED FOR PAYMENT WITH ITEM 526, REINFORCED CONCRETE APPROACH SLABS (T=15"), AS PER PLAN. FOR APPROACH SLAB REINFORCING STEEL, SEE SCD AS-1-81.
4. FOR BRIDGE TERMINAL ASSEMBLY, SEE SHEET 23 OF 52 AND SCD MGS-3.1.
5. CONCRETE, CONTROL JOINTS, SAWCUT AND CAULKING MATERIAL FOR THE BRIDGE DECK MOUNTED PARAPETS SHALL BE INCLUDED FOR PAYMENT WITH ITEM 511, CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK (PARAPET).
6. SEE SCD SBR-1-99 FOR ADDITIONAL PARAPET DETAILS.

DESIGN AGENCY
O.D.O.T DISTRICT 11
PLANNING & ENGINEERING

| DESIGNED | DRAWN | REVIEWED | DATE |
|---|---|---|---|
| CCN | CCN | | |
| CHECKED | REVISED | | |
| CCW | | | |

STRUCTURE FILE NUMBER
3401200

**RAILING DETAILS**
BRIDGE NO. HAS-22-2126
OVER WHEELING & LAKE ERIE RAILROAD

**HAS-22-21.26**
**PID No. 88904**

25 / 29
48 / 52

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| MARK | NUMBER | | | | | LENGTH | WEIGHT | TYPE | DIMENSION | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | A | B | C | D | INC. |
| SUBSTRUCTURE - DIAPHRAGMS & BREAST WALLS | | | | | | | | | | | | | |
| | PHASE 1 | | PHASE 2 | | TOTAL | | | | | | | | |
| | REAR | FORWARD | REAR | FORWARD | | | | | | | | | |
| A501 | 32 | 32 | 36 | 36 | 136 | 6' - 9 1/2" | 963 | 2 | 1' - 8" | 3' - 8 1/2" | 1' - 8" | | |
| A502 | 16 | 16 | 18 | 18 | 68 | 7' - 8" | 544 | 2 | 2' - 7" | 2' - 9" | 2' - 7" | | |
| | 2 | | | | | 4' - 6" | | | 1' - 10 1/2" | | | | |
| A503 | SERIES OF | | | | 20 | TO | 106 | 1 | TO | 2' - 9" | | | 1 1/2" |
| | 10 | | | | | 5' - 7 1/2" | | | 3' - 0" | | | | |
| A504 | 12 | 14 | | | 57 | 5' - 4 1/2" | 320 | 1 | 2' - 9" | 2' - 9" | | | |
| A505 | 2 | 2 | | | 4 | 5' - 6" | 23 | 1 | 2' - 9" | 2' - 11 1/2" | | | |
| A506 | | | | 2 | 2 | 7' - 2 1/2" | 15 | 1 | 4' - 7" | 2' - 9" | | | |
| | | | 2 | | | 5' - 5" | | | 2' - 9 1/2" | | | | |
| A507 | | | SERIES OF | | 30 | TO | 197 | 1 | TO | 2' - 9" | | | 1 1/2" |
| | | | 15 | | | 7' - 2" | | | 4' - 6 1/2" | | | | |
| A508 | | | 2 | | 2 | 5' - 6 1/2" | 12 | 1 | 2' - 11" | 2' - 9" | | | |
| A509 | | | 2 | | 2 | 5' - 8 1/2" | 12 | 1 | 2' - 11" | 2' - 11" | | | |
| | | 2 | | | | 4' - 4 1/2" | | | 1' - 9" | | | | |
| A510 | | SERIES OF | | | 20 | TO | 103 | 1 | TO | 2' - 9" | | | 1 1/2" |
| | | 10 | | | | 5' - 6" | | | 2' - 10 1/2" | | | | |
| | | | | 2 | | 5' - 11 1/2" | | | 3' - 4" | | | | |
| A511 | | | | SERIES OF | 32 | TO | 220 | 1 | TO | 2' - 9" | | | 1" |
| | | | | 16 | | 7' - 2 1/2" | | | 4' - 7" | | | | |
| A512 | | | | 2 | 2 | 6' - 1 1/2" | 13 | 1 | 3' - 4" | 2' - 11" | | | |
| A513 | 1 | | | | 1 | 23' - 2" | 24 | STR. | | | | | |
| A514 | 1 | | | | 1 | 24' - 4" | 25 | STR. | | | | | |
| A515 | | | 2 | | 2 | 18' - 8" | 39 | STR. | | | | | |
| A516 | | | 1 | 2 | 3 | 25' - 9" | 81 | STR. | | | | | |
| A517 | | | 1 | | 1 | 24' - 10" | 26 | STR. | | | | | |
| A518 | | 1 | | | 1 | 25' - 2" | 26 | STR. | | | | | |
| A519 | | 1 | | | 1 | 23' - 9" | 25 | STR. | | | | | |
| A520 | | | | 2 | 2 | 27' - 1" | 56 | STR. | | | | | |
| A578 | 6 | 6 | | | 12 | 5' - 1" | 64 | 2 | 1' - 10" | 1' - 8" | 1' - 10" | | |
| A579 | 3 | 3 | | | 6 | 4' - 6" | 28 | 2 | 1' - 10" | 1' - 1" | 1' - 10" | | |
| A580 | 3 | 3 | | | 6 | 5' - 0" | 31 | 2 | 1' - 10" | 1' - 7" | 1' - 10" | | |
| A801* | 3 | 3 | | | 6 | 19' - 7" | 314 | 19 | 14' - 1" | 5' - 6" | 8" | | |
| A802 | 3 | | | | 3 | 8' - 8" | 69 | STR. | | | | | |
| A803* | | | 14 | | 14 | 26' - 2" | 978 | STR. | | | | | |
| A804* | 11 | | | | 11 | 22' - 11" | 673 | STR. | | | | | |
| A805 | | 3 | | | 3 | 9' - 4" | 75 | STR. | | | | | |
| A806* | | 11 | | | 11 | 23' - 5" | 688 | STR. | | | | | |
| A807* | | | | 14 | 14 | 26' - 10" | 1003 | STR. | | | | | |
| A808 | 4 | 6 | | | 10 | 15' - 6" | 414 | STR. | | | | | |
| A809* | 4 | | | | 4 | 15' - 0" | 160 | STR. | | | | | |
| A810 | | | 4 | | 4 | 9' - 4" | 100 | STR. | | | | | |
| A811* | | | 4 | 6 | 10 | 21' - 3" | 567 | STR. | | | | | |
| A812* | | 6 | | | 6 | 15' - 6" | 248 | STR. | | | | | |
| A813 | | | | 4 | 4 | 10' - 0" | 107 | STR. | | | | | |
| D801 | 15 | 16 | 17 | 18 | 66 | 5' - 0" | 881 | 18 | 2' - 10" | 1' - 0" | 1' - 0" | | |
| SUB-TOTAL FOR SUBSTRUCTURE - DIAPHRAGMS & BREAST WALLS | | | | | | | 9,230 | | | | | | |

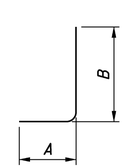
## REINFORCING STEEL NOTES:

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 DIGITS WHERE FOUR ARE USED, INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE S501 IS A NO. 5 BAR. BAR DIMENSIONS SHOWN ARE OUT TO OUT UNLESS OTHERWISE NOTED. R INDICATES INSIDE RADIUS, UNLESS OTHERWISE NOTED.
2. ALL REINFORCING STEEL SHALL BE EPOXY COATED.
3. "STR." IN THE TYPE COLUMN INDICATES STRAIGHT BARS.
4. REFER TO CMS SECTION 509.05 FOR STANDARD BEND DIMENSIONS.
5. * - REQUIRES MECHANICAL CONNECTORS.

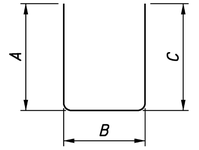
## MECHANICAL CONNECTORS:

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

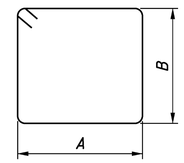
# 4 REINFORCING BAR L = 2'-3"
# 5 REINFORCING BAR L = 2'-11"
# 6 REINFORCING BAR L = 3'-5"
# 8 REINFORCING BAR L = 5'-9"



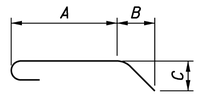
TYPE-1



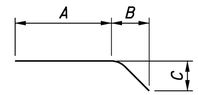
TYPE-2



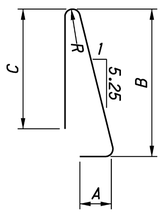
TYPE-3



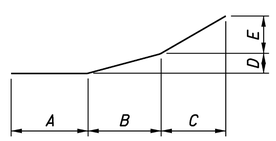
TYPE-18



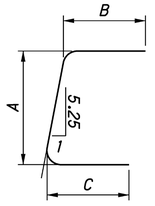
TYPE-19



TYPE-23



TYPE-25



TYPE-28

ITEM 509, EPOXY COATED REINFORCING STEEL
9,230 LB. (CARRIED TO GENERAL SUMMARY)

DESIGN AGENCY
O.D.O.T. DISTRICT 11
PLANNING & ENGINEERING

REVIEWED DATE
STRUCTURE FILE NUMBER 3401200

DRAWN CCN
REVISED

DESIGNED CCN
CHECKED RPT

REINFORCING STEEL LIST
BRIDGE NO. HAS-22-2126
OVER WHEELING & LAKE ERIE RAILROAD

HAS-22-21.26
PID No. 88904

26 / 29

49 / 52

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03-DEC-2013 7:41AM
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| MARK | NUMBER | | | | | LENGTH | WEIGHT | TYPE | DIMENSION | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | A | B | C | D | INC. |
| SUBSTRUCTURE - FOOTINGS & WING WALLS (1 of 2) | | | | | | | | | | | | | |
| | PHASE 1 | | PHASE 2 | | TOTAL | | | | | | | | |
| | REAR | FORWARD | REAR | FORWARD | | | | | | | | | |
| A521 | 6 | | 5 | | 11 | 16′ - 8″ | 191 | 3 | 2′ - 7″ | 5′ - 5″ | | | |
| A522 | 1 | | 1 | | 2 | 17′ - 2″ | 36 | 3 | 2′ - 7″ | 5′ - 8″ | | | |
| A523 | 7 | | | | 7 | 20′ - 11″ | 153 | 2 | 9′ - 6″ | 2′ - 2″ | 9′ - 6″ | | |
| A524 | 1 | | | | 1 | 14′ - 9″ | 15 | 2 | 6′ - 4″ | 2′ - 4″ | 6′ - 4″ | | |
| A525 | | | 2 | | 2 | 9′ - 11″ | 21 | | 4′ - 0″ | 2′ - 2″ | 4′ - 0″ | | |
| A526 | 6 | 5 | 3 | 2 | 16 | 11′ - 9″ | 196 | 2 | 4′ - 11″ | 2′ - 2″ | 4′ - 11″ | | |
| A527 | 2 | 1 | 2 | 1 | 6 | 11′ - 11″ | 75 | 2 | 4′ - 11″ | 2′ - 4″ | 4′ - 11″ | | |
| A528 | 1 | | | | 1 | 7′ - 10″ | 8 | STR. | | | | | |
| A529 | 1 | | | | 1 | 9′ - 9″ | 10 | STR. | | | | | |
| A530 | 3 | 1 | | | 4 | 10′ - 0″ | 42 | STR. | | | | | |
| A531 | 3 | | | | 3 | 9′ - 3″ | 29 | STR. | | | | | |
| A532 | 2 | | | | 2 | 10′ - 4″ | 22 | STR. | | | | | |
| A533 | 2 | | | 2 | 4 | 9′ - 7″ | 40 | STR. | | | | | |
| A534 | 1 | 2 | | | 3 | 8′ - 6″ | 27 | STR. | | | | | |
| A535 | 1 | | | | 1 | 7′ - 8″ | 8 | STR. | | | | | |
| A536 | 1 | | | | 1 | 6′ - 8″ | 7 | STR. | | | | | |
| A537 | 1 | | | | 1 | 5′ - 11″ | 6 | STR. | | | | | |
| A538 | 1 | | | | 1 | 8′ - 11″ | 9 | 19 | 3′ - 5″ | 5′ - 0″ | 2′ - 3″ | | |
| A539 | 1 | | | | 1 | 8′ - 2″ | 9 | 19 | 2′ - 8″ | 5′ - 0″ | 2′ - 3″ | | |
| A540 | | | 6 | | 6 | 16′ - 1″ | 101 | 2 | 7′ - 1″ | 2′ - 2″ | 7′ - 1″ | | |
| A541 | | | 1 | | 1 | 9′ - 11″ | 10 | 2 | 4′ - 0″ | 2′ - 2″ | 4′ - 0″ | | |
| A542 | | | 1 | | 1 | 6′ - 6″ | 7 | STR. | | | | | |
| A544 | | | 2 | | 2 | 8′ - 3″ | 17 | STR. | | | | | |
| A545 | | | 1 | | 1 | 9′ - 1″ | 9 | STR. | | | | | |
| A546 | | | | 2 | 2 | 10′ - 7″ | 22 | STR. | | | | | |
| A547 | | | 1 | 1 | 2 | 6′ - 9″ | 14 | STR. | | | | | |
| A548 | | 1 | 1 | | 2 | 7′ - 6″ | 16 | STR. | | | | | |
| A549 | | | 1 | | 1 | 5′ - 0″ | 5 | STR. | | | | | |
| A550 | | | 1 | 1 | 2 | 5′ - 9″ | 12 | STR. | | | | | |
| A551 | | | 1 | | 1 | 7′ - 2″ | 7 | 19 | 1′ - 8″ | 5′ - 0″ | 2′ - 4″ | | |
| A552 | | | 1 | | 1 | 8′ - 0″ | 8 | 19 | 2′ - 6″ | 5′ - 0″ | 2′ - 4″ | | |
| A553 | | 5 | | 5 | 10 | 16′ - 0″ | 167 | 3 | 2′ - 7″ | 5′ - 8″ | | | |
| A554 | | 1 | | 1 | 2 | 17′ - 0″ | 35 | 3 | 2′ - 7″ | 6′ - 2″ | | | |
| A555 | | 6 | | | 6 | 18′ - 3″ | 114 | 2 | 8′ - 2″ | 2′ - 2″ | 8′ - 2″ | | |
| | | | | 1 | | 7′ - 5″ | | | 2′ - 9″ | | 2′ - 9″ | | |
| A556 | | | | SERIES OF | 4 | TO | 39 | 2 | TO | 2′ - 2″ | TO | | 1′ - 4″ |
| | | | | 4 | | 11′ - 5″ | | | 4′ - 9″ | | 4′ - 9″ | | |
| A558 | | 1 | | | 1 | 7′ - 8″ | 8 | STR. | | | | | |
| A559 | | 2 | | | 2 | 9′ - 1″ | 19 | STR. | | | | | |
| A560 | | 2 | | | 2 | 8′ - 2″ | 17 | STR. | | | | | |
| A561 | | 2 | 2 | | 4 | 9′ - 4″ | 39 | STR. | | | | | |
| A562 | | 1 | | | 1 | 6′ - 7″ | 7 | STR. | | | | | |
| A563 | | 1 | | | 1 | 4′ - 9″ | 5 | STR. | | | | | |
| A564 | | 1 | | | 1 | 5′ - 8″ | 6 | STR. | | | | | |
| A565 | | 1 | | | 1 | 7′ - 0″ | 7 | 19 | 1′ - 6″ | 5′ - 0″ | 2′ - 4″ | | |
| A566 | | 1 | | | 1 | 7′ - 11″ | 8 | 19 | 2′ - 5″ | 5′ - 0″ | 2′ - 4″ | | |
| SUB-TOTAL FOR SUBSTRUCTURE - FOOTINGS & WING WALLS (1 of 2) | | | | | | | 1,603 | | | | | | |

NOTES

1. FOR BENDING DIAGRAMS AND ADDITIONAL NOTES, SEE SHEET 26/29.

ITEM 509, EPOXY COATED REINFORCING STEEL
1,603 LB. (CARRIED TO GENERAL SUMMARY)

DESIGN AGENCY
O.D.O.T. DISTRICT 11
PLANNING & ENGINEERING

REVIEWED DATE
STRUCTURE FILE NUMBER
3401200

DRAWN CCN
REVISED

DESIGNED CCN
CHECKED RPT

REINFORCING STEEL LIST
BRIDGE NO. HAS-22-2126
OVER WHEELING & LAKE ERIE RAILROAD

HAS-22-21.26
PID No. 88904

27/29

50/52

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| MARK | NUMBER | | | | | LENGTH | WEIGHT | TYPE | DIMENSION | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | A | B | C | D | INC. |
| SUBSTRUCTURE - FOOTINGS & WING WALLS (2 of 2) | | | | | | | | | | | | | |
| | PHASE 1 | | PHASE 2 | | TOTAL | | | | | | | | |
| | REAR | FORWARD | REAR | FORWARD | | | | | | | | | |
| A567 | | | | 7 | 7 | 13′ - 5″ | 98 | 2 | 5′ - 9″ | 2′ - 2″ | 5′ - 9″ | | |
| A568 | | | | 2 | 2 | 10′ - 8″ | 22 | STR. | | | | | |
| A569 | | | | 2 | 2 | 8′ - 5″ | 18 | STR. | | | | | |
| | | | | 1 | | 8′ - 10″ | | | | | | | |
| A570 | | | | SERIES OF | 5 | TO | 52 | STR. | | | | | |
| | | | | 5 | | 11′ - 2″ | | | | | | | |
| A571 | | | 2 | 1 | 3 | 8′ - 8″ | 27 | STR. | | | | | |
| A572 | | | | 1 | 1 | 7′ - 9″ | 8 | STR. | | | | | |
| A573 | | | | 1 | 1 | 9′ - 1″ | 9 | 19 | 3′ - 7″ | 5′ - 0″ | 2′ - 4″ | | |
| A574 | | | | 1 | 1 | 8′ - 2″ | 9 | 19 | 2′ - 8″ | 5′ - 0″ | 2′ - 4″ | | |
| | 1 | | | | | 7′ - 10″ | | | | | | | |
| A575 | SERIES OF | | | | 4 | TO | 36 | STR. | | | | | 7″ |
| | 4 | | | | | 9′ - 7″ | | | | | | | |
| | | | 1 | | | 6′ - 6″ | | | | | | | |
| A576 | | | SERIES OF | | 4 | TO | 31 | STR. | | | | | 7″ |
| | | | 4 | | | 8′ - 3″ | | | | | | | |
| | | 1 | | | | 7′ - 8″ | | | | | | | |
| A577 | | SERIES OF | | | 5 | TO | 46 | STR. | | | | | 7 |
| | | 5 | | | | 10′ - 0″ | | | | | | | |
| A581 | | 1 | | 1 | 2 | 9′ - 4″ | 19 | 2 | 3′ - 6″ | 2′ - 7″ | 3′ - 6″ | | |
| | 1 | | | | | 8′ - 4″ | | | | | | | |
| A814 | SERIES OF | | | | 4 | TO | 38 | STR. | | | | | 7″ |
| | 4 | | | | | 10′ - 1″ | | | | | | | |
| | | | 1 | | | 7′ - 0″ | | | | | | | |
| A815 | | | SERIES OF | | 4 | TO | 33 | STR. | | | | | 7″ |
| | | | 4 | | | 8′ - 9″ | | | | | | | |
| | | 1 | | | | 8′ - 2″ | | | | | | | |
| A816 | | SERIES OF | | | 5 | TO | 49 | STR. | | | | | 7″ |
| | | 5 | | | | 10′ - 6″ | | | | | | | |
| | | | | 1 | | 8′ - 10″ | | | | | | | |
| A817 | | | | SERIES OF | 5 | TO | 52 | STR. | | | | | 6″ |
| | | | | 5 | | 11′ - 2″ | | | | | | | |
| SUB-TOTAL FOR SUBSTRUCTURE - FOOTINGS & WING WALLS (2 of 2) | | | | | | | 547 | | | | | | |

| MARK | NUMBER | | | | | LENGTH | WEIGHT | TYPE | DIMENSION | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | A | B | C | D | RADIUS |
| BRIDGE RAILING | | | | | | | | | | | | | |
| | PHASE 1 | | PHASE 2 | | TOTAL | | | | | | | | |
| | LEFT | RIGHT | LEFT | RIGHT | | | | | | | | | |
| BR501 | | 151 | 150 | | 301 | 7′ - 4″ | 2302 | 23 | 1′ - 0″ | 3′ - 2″ | 3′ - 0″ | | 2 3/4″ |
| BR502 | | 36 | 36 | | 72 | 27′ - 0″ | 2028 | STR. | | | | | |
| BR601 | | 151 | 150 | | 301 | 3′ - 2″ | 1432 | 28 | 1′ - 8″ | 11″ | 1′ - 1″ | | |
| BR602 | | 151 | 150 | | 301 | 2′ - 8″ | 1206 | 1 | 1′ - 1″ | 1′ - 9″ | | | |
| BR603 | | 6 | 6 | | 12 | 28′ - 3″ | 509 | STR. | | | | | |
| SUB-TOTAL FOR BRIDGE RAILING | | | | | | | 7,477 | | | | | | |

## NOTES

1. FOR BENDING DIAGRAMS AND ADDITIONAL NOTES, SEE SHEET 26/29.

ITEM 509, EPOXY COATED REINFORCING STEEL
547 LB. + 7,477 LB. = **8,024 LB.** (CARRIED TO GENERAL SUMMARY)

DESIGN AGENCY
O.D.O.T. DISTRICT 11
PLANNING & ENGINEERING

| DESIGNED | DRAWN | REVIEWED | DATE |
|---|---|---|---|
| CCN | CCN | | |

| CHECKED | REVISED | STRUCTURE FILE NUMBER |
|---|---|---|
| RPT | | 3401200 |

**REINFORCING STEEL LIST**
BRIDGE NO. HAS-22-2126
OVER WHEELING & LAKE ERIE RAILROAD

**HAS-22-21.26**
**PID No. 88904**

28/29

51
52

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| MARK | NUMBER | | | LENGTH | WEIGHT | TYPE | DIMENSION | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | A | B | C | D | INC. |
| SUPERSTRUCTURE | | | | | | | | | | | |
| | PHASE 1 | PHASE 2 | TOTAL | | | | | | | | |
| S401 | 120 | 135 | 255 | 31′ - 3″ | 5323 | STR. | | | | | |
| S601 | 46 | 52 | 98 | 20′ - 0″ | 2944 | STR. | | | | | |
| S602 | 23 | 26 | 49 | 33′ - 4″ | 2453 | STR. | | | | | |
| S603 | 23 | 26 | 49 | 30′ - 6″ | 2245 | STR. | | | | | |
| S501 | 150 | 185 | 335 | 31′ - 7″ | 11035 | STR. | | | | | |
| S502 | 558 | | 558 | 21′ - 3 1/2″ | 12392 | STR. | | | | | |
| S503 | | 558 | 558 | 24′ - 3 1/2″ | 14138 | STR. | | | | | |
| | 2 | | | 10′ - 0″ | | | | | | | |
| S504 | SERIES OF | | 20 | TO | 326 | STR. | | | | | 1′ - 3″ |
| | 10 | | | 21′ - 3″ | | | | | | | |
| | 2 | | | 0′ - 10″ | | | | | | | |
| S505 | SERIES OF | | 38 | TO | 419 | STR. | | | | | 1′ - 1″ |
| | 19 | | | 20′ - 4″ | | | | | | | |
| | | 2 | | 1′ - 6″ | | | | | | | |
| S506 | | SERIES OF | 38 | TO | 505 | STR. | | | | | 1′ - 3″ |
| | | 19 | | 24′ - 0″ | | | | | | | |
| | | 2 | | 8′ - 1″ | | | | | | | |
| S507 | | SERIES OF | 32 | TO | 541 | STR. | | | | | 1′ - 1″ |
| | | 16 | | 24′ - 4″ | | | | | | | |
| S508 | 8 | | 8 | 8′ - 8″ | 72 | STR. | | | | | |
| S509 | | 8 | 8 | 7′ - 4″ | 61 | STR. | | | | | |
| SUB-TOTAL FOR SUPERSTRUCTURE | | | | | 52,454 | | | | | | |

| MARK | NUMBER | | | | | LENGTH | WEIGHT | TYPE | DIMENSION | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | A | B | C | D | E | RADIUS | INC. |
| APPROACH SLAB RAILING (FOR INFORMATION ONLY) | | | | | | | | | | | | | | | |
| | PHASE 1 | | PHASE 2 | | TOTAL | | | | | | | | | | |
| | REAR RIGHT | FWD. RIGHT | REAR LEFT | FWD. LEFT | | | | | | | | | | | |
| AR501 | 5 | 5 | 5 | 5 | 20 | 5′ - 6″ | 115 | STR. | | | | | | | |
| AR502 | 3 | 3 | 3 | 3 | 12 | 5′ - 7″ | 70 | 25 | 1′ - 8″ | 2′ - 5″ | 1′ - 5″ | 1 1/2″ | 5″ | | |
| AR503 | 8 | 8 | 8 | 8 | 32 | 10′ - 0″ | 334 | STR. | | | | | | | |
| AR504 | 6 | 6 | 6 | 6 | 24 | 13′ - 8″ | 342 | STR. | | | | | | | |
| AR505 | 14 | 15 | 15 | 14 | 58 | 7′ - 4″ | 444 | 23 | 1′ - 0″ | 3′ - 2″ | 3′ - 0″ | | | 2 3/4″ | |
| AR601 | | 1 | 1 | | 2 | 15′ - 3″ | 46 | 19 | 11′ - 2″ | 4′ - 1″ | 4″ | | | | |
| AR602 | 1 | | | 1 | 2 | 14′ - 4″ | 43 | 19 | 10′ - 3″ | 4′ - 1″ | 4″ | | | | |
| AR603 | 8 | 8 | 8 | 8 | 32 | 4′ - 2″ | 200 | 1 | 1′ - 0″ | 3′ - 4″ | | | | | |
| | 2 | 2 | 2 | 2 | | 4′ - 2″ | | | | 3′ - 4″ | | | | | |
| AR604 | S.O. | S.O. | S.O. | S.O. | 88 | TO | 606 | 1 | 1′ - 0″ | TO | | | | | 1″ |
| | 11 | 11 | 11 | 11 | | 5′ - 0″ | | | | 4′ - 2″ | | | | | |
| AR605 | 14 | 15 | 15 | 14 | 58 | 3′ - 2″ | 276 | 28 | 1′ - 8″ | 11″ | 1′ - 1″ | | | | |
| AR606 | 14 | 15 | 15 | 14 | 58 | 2′ - 9″ | 240 | 1 | 1′ - 1″ | 1′ - 10″ | | | | | |
| SUB-TOTAL FOR APPROACH SLAB RAILING (FOR INFORMATION ONLY) | | | | | | | 2,716 | | | | | | | | |

## NOTES

1. FOR BENDING DIAGRAMS AND ADDITIONAL NOTES, SEE SHEET 26/29.

ITEM 509, EPOXY COATED REINFORCING STEEL
**52,454 LB.** (CARRIED TO GENERAL SUMMARY)

DESIGN AGENCY
O.D.O.T. DISTRICT 11
PLANNING & ENGINEERING

| REVIEWED | DATE | STRUCTURE FILE NUMBER |
|---|---|---|
| | | 3401200 |

| DRAWN | REVISED |
|---|---|
| CDN | |

| DESIGNED | CHECKED |
|---|---|
| CDN | RPT |

**REINFORCING STEEL LIST**
BRIDGE NO. HAS-22-2126
OVER WHEELING & LAKE ERIE RAILROAD

**HAS-22-21.26**
**PID No. 88904**

29/29

52
52

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## PROJECT DESCRIPTION

THE PROJECT INVOLVES THE REHABILITATION OF A 3-SPAN BRIDGE THAT CARRIES US ROUTE 22 OVER WHEELING AND LAKE ERIE RAILROAD IN HARRISON COUNTY, OHIO. THE REHABILITATED STRUCTURE WILL BE A SEMI-INTEGRAL, 3-SPAN, CONTINUOUS COMPOSITE STEEL BEAM BRIDGE.

## HISTORIC RECORDS

HISTORIC BORING RECORDS FOR THE EXISTING STRUCTURE WERE REQUESTED FROM THE ODOT OFFICE OF GEOTECHNICAL ENGINEERING. HOWEVER, NO HISTORIC BORING INFORMATION WAS LOCATED WITHIN THE LIMITS OF THE PROJECT.

## GEOLOGY

ACCORDING TO THE OHIO DEPARTMENT OF NATURAL RESOURCES, PHYSIOGRAPHIC REGIONS OF OHIO, THE SITE LIES ON THE LITTLE SWITZERLAND PLATEAU, ALONG THE FLUSHING DIVIDE, IN THE UNGLACIATED PORTION OF EASTERN OHIO. ACCORDING TO BEDROCK GEOLOGIC MAP OF OHIO, BEDROCK BELOW THE SITE CONSISTS OF PENNSYLVANIAN AGE COAL, SANDSTONE, SHALE, AND LIMESTONE OF THE MONONGAHLEA OR CONEMAUGH FORMATIONS.

## RECONNAISSANCE

ON MAY 22, 2013, A RECONNAISSANCE VISIT WAS MADE. THE EXISTING PAVEMENT EXHIBITED SOME TRANSVERSE CRACKS IN AREAS BOTH EAST AND WEST OF THE BRIDGE. ALLIGATOR CRACKING WAS NOTED IN ISOLATED LOCATIONS EAST AND WEST OF THE BRIDGE. SOME SPALLING WAS NOTED ON THE BRIDGE DECK.

NO MAJOR SIGNS OF SLOPE INSTABILITY OR EROSION WERE NOTED IN THE EMBANKMENT WEST OF THE BRIDGE. SOME MINOR SLOUGHING WAS NOTED IN THE CUT SLOPE EAST OF THE BRIDGE AND SOUTH OF THE ROADWAY.

## SUBSURFACE EXPLORATION

TWO (2) TEST BORINGS WERE PERFORMED FOR THIS PROJECT.

THE BORINGS WERE PERFORMED WITH A TRUCK-MOUNTED DRILL RIG UTILIZING HOLLOW STEM AUGERS (HSA) ON JUNE 18 AND 19, 2013. STANDARD PENETRATION TESTS WERE CONDUCTED USING A 140-POUND HAMMER FALLING 30 INCHES TO DRIVE A 2-INCH O.D. SPLIT BARREL SAMPLER. THE ENERGY TRANSFER RATIO ASSOCIATED WITH THE AUTOMATIC SPT HAMMER WAS 80.1 PERCENT. THE HAMMER WAS CALIBRATED IN OCTOBER 2011. ROCK CORING WAS PERFORMED IN BOTH TEST BORINGS USING AN NQ SIZE CORE BARREL WITH A DIAMOND BIT.

## EXPLORATION FINDINGS

IN GENERAL, THE BORINGS EXHIBITED GRAVEL AND/OR STONE FRAGMENTS (A-1-a), SILT AND CLAY (A-6a), SILTY CLAY (A-6b) OR CLAY (A-7-6), DOWNWARDS TO THE DRILLED DEPTHS OF ALL ROADWAY BORINGS, AND TO DEPTHS RANGING FROM 58.5 TO 64.0 FEET IN CULVERT/BRIDGE BORINGS

BELOW THE SOIL OVERBURDEN, THE BORINGS EXHIBITED SEVERELY TO HIGHLY WEATHERED SHALE OR STRONG SANDSTONE. THE BEDROCK WAS SAMPLED USING ROCK CORING TECHNIQUES.

## SPECIFICATIONS

THIS GEOTECHNICAL EXPLORATION WAS PERFORMED IN ACCORDANCE WITH THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, OFFICE OF GEOTECHNICAL ENGINEERING, SPECIFICATIONS FOR GEOTECHNICAL EXPLORATIONS, DATED JANUARY 2013.

## AVAILABLE INFORMATION

ALL AVAILABLE INFORMATION AND BEDROCK INFORMATION THAT CAN BE CONVINIENTLY SHOWN ON THE SOIL PROFILE SHEETS HAS BEEN REPORTED. ADDITIONAL SUBSURFACE EXPLORATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE OFFICE OF GEOTECHNICAL ENGINEERING AT 1600 WEST BROAD STREET OR THE OFFICE OF STRUCTURAL ENGINEERING AT 1980 WEST BROAD STREET.

## LEGEND

| DESCRIPTION | ODOT CLASS | CLASSIFIED MECH./VISUAL | |
|---|---|---|---|
| *GRAVEL AND/OR STONE FRAGMENTS* | *A-1-a* | *0* | *1* |
| *SILT AND CLAY* | *A-6a* | *1* | *0* |
| *SILTY CLAY* | *A-6b* | *2* | *3* |
| *CLAY* | *A-7-6* | *3* | *3* |
| | *TOTAL* | *6* | *7* |
| *SANDSTONE* | *VISUAL* | | |
| *WEATHERED SHALE* | *VISUAL* | | |
| PAVEMENT OR BASE = X = APPROXIMATE THICKNESS | *VISUAL* | | |

EXPLORATION LOCATION - PLAN VIEW

DRIVE SAMPLE AND/OR ROCK CORE BORING PLOTTED TO VERTICAL SCALE ONLY. HORIZONTAL BAR INDICATES A CHANGE IN STRATIGRAPHY.

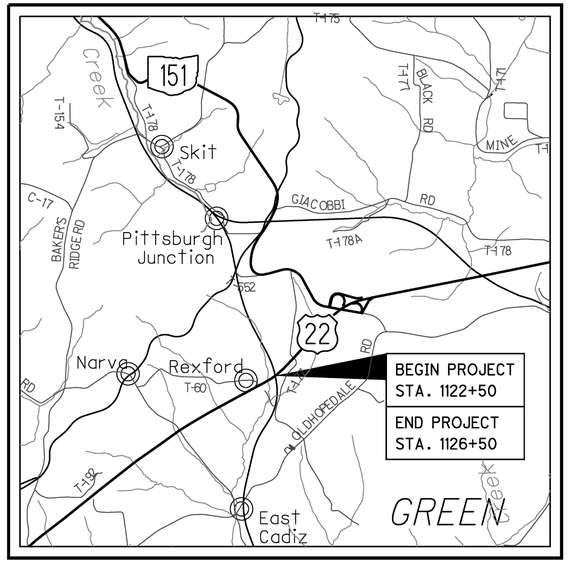
*WC* INDICATES WATER CONTENT IN PERCENT.

INDICATES FREE WATER ELEVATION.

$N_{60}$ INDICATES STANDARD PENETRATION RESISTANCE NORMALIZED TO 60% DRILL ROD ENERGY RATIO.

SS INDICATES A SPLIT-SPOON SAMPLE.

*TR* INDICATES THE TOP OF ROCK.




**LOCATION MAP**

**SCALE IN MILES**

0 0.5 1.0 1.5 2.0

N

## PARTICLE SIZE DEFINITIONS

| 12" | 3" | 2.0 mm | 0.42 mm | 0.074 mm | 0.005 mm |
|---|---|---|---|---|---|
| BOULDERS | COBBLES | GRAVEL | COARSE SAND | FINE SAND | SILT | CLAY |
| | | No. 10 SIEVE | No. 40 SIEVE | No. 200 SIEVE | | |

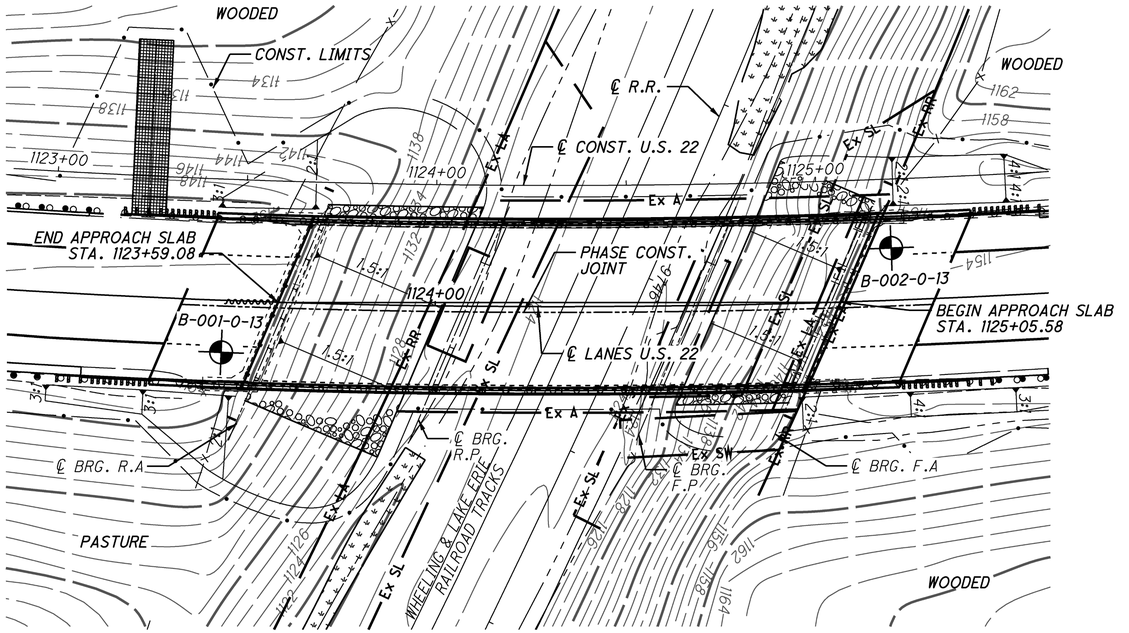
**RECON. -** JG 05/22/2013
**DRILLING -** CTL ENGINEERING INC 06/18-06/19/13
**DRAWN -** NKS 11/13/2013
**REVIEWED -** JG 11/14/2013

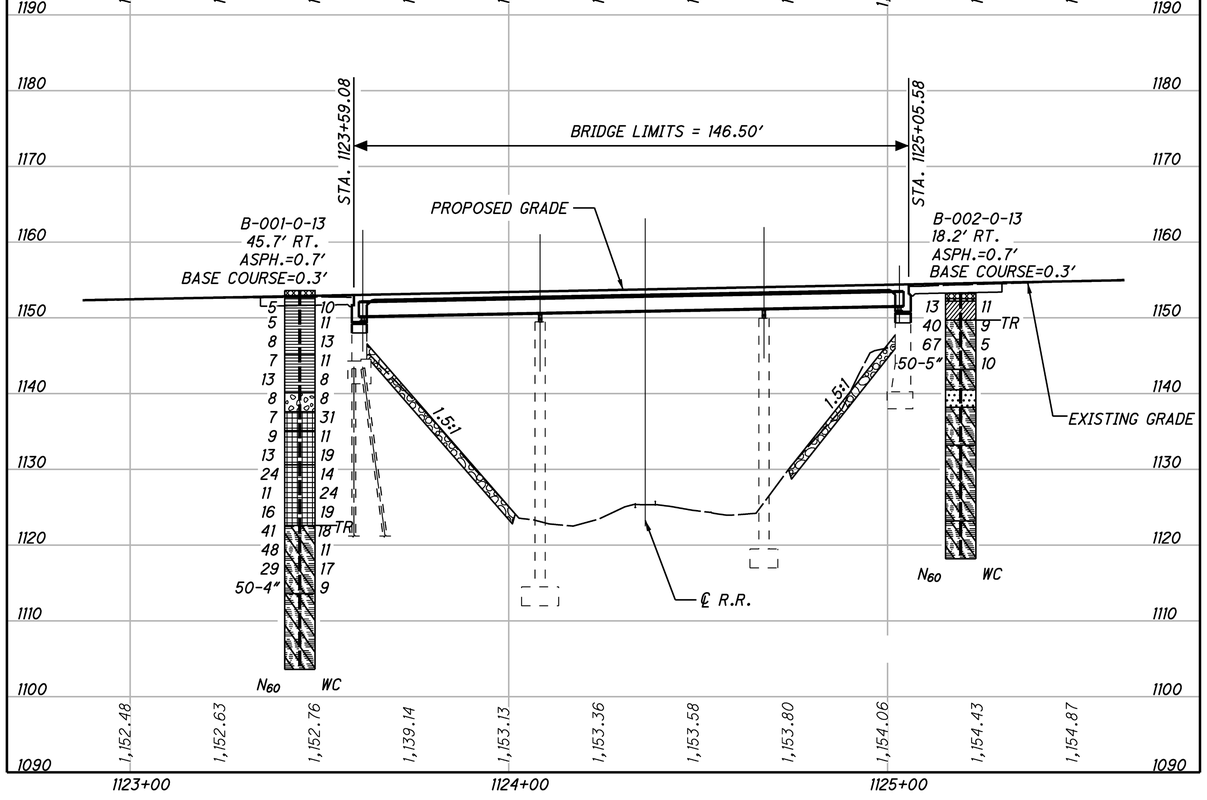
CTL ENGINEERING, INC.
2860 FISHER ROAD
COLUMBUS, OHIO 43204
PHONE:(614)276-8123 FAX:(614)276-6377

PID NO. 88904

**STRUCTURE FOUNDATION EXPLORATION**
BRIDGE NO.HAS-22-2126
OVER WHEELING & LAKE ERIE RAILROAD

**HAS-22-21.26**




I:\PROJECTS\88904\GeoTechPE\Dgn\022_2126GP001.dgn 03-DEC-2013 3:49PM cnotz

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN N.K.S.
CHECKED NZ

# STRUCTURE FOUNDATION EXPLORATION
## BRIDGE NO. HAS-22-2126
## OVER WHEELING & LAKE ERIE RAILROAD

HAS-22-21.26

2 / 6

| | | | | | |
|---|---|---|---|---|---|
| PROJECT: HAS-22-21.26 | DRILLING FIRM / OPERATOR: CTL / JP | DRILL RIG: 0305R333-11 | STATION / OFFSET: 1123+44.8, 45.7 | EXPLORATION ID B-001-0-13 |
| TYPE: ROADWAY | SAMPLING FIRM / LOGGER: CTL / JP | HAMMER: CME AUTOMATIC | ALIGNMENT: US ROUTE 22 | |
| PID: 88904 BR ID: | DRILLING METHOD: 3.25" HSA / NQ | CALIBRATION DATE: 10/4/11 | ELEVATION: 1153.6 (MSL) EOB: 50.0 ft. | PAGE 1 OF 1 |
| START: 6/19/13 END: 6/19/13 | SAMPLING METHOD: SPT / NQ | ENERGY RATIO (%): 80.1 | COORD: 240658.660 N, 2402383.642 E | |

| MATERIAL DESCRIPTION AND NOTES | ELEV. | DEPTHS | SPT/ RQD | $N_{60}$ | REC (%) | SAMPLE ID | HP (tsf) | GRADATION (%) GR | CS | FS | SI | CL | ATTERBERG LL | PL | PI | WC | ODOT CLASS (GI) | INST. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Asphalt (8") | 1152.9 | | | | | | | | | | | | | | | | | |
| Base course (3") | 1152.7 | | | | | | | | | | | | | | | | | |
| MEDIUM STIFF, BROWN, **SILTY CLAY**, SOME SAND, LITTLE GRAVEL, FILL, DAMP | | | 3 2 2 | 5 | 67 | SS-1 | - | 16 | 9 | 15 | 32 | 28 | 36 | 20 | 16 | 10 | A-6b (7) | |
| | | | 3 2 2 | 5 | 56 | SS-2 | - | - | - | - | - | - | - | - | - | 11 | A-6b (V) | |
| @6.0'; CONTAINS ROCK FRAGMENTS | | | 6 3 3 | 8 | 22 | SS-3 | - | - | - | - | - | - | - | - | - | 13 | A-6b (V) | |
| @8.5'; VERY STIFF, SOME GRAVEL | | | 4 3 2 | 7 | 67 | SS-4 | 2.50 | - | - | - | - | - | - | - | - | 11 | A-6b (V) | |
| | | | 4 6 4 | 13 | 56 | SS-5 | 3.50 | 26 | 17 | 12 | 23 | 22 | 36 | 20 | 16 | 8 | A-6b (4) | |
| | 1140.1 | | | | | | | | | | | | | | | | | |
| LOOSE, GRAY, **GRAVEL AND/OR STONE FRAGMENTS**, LITTLE CLAY, TRACE SAND, FILL, DAMP | | | 4 3 3 | 8 | 33 | SS-6 | - | - | - | - | - | - | - | - | - | 8 | A-1-a (V) | |
| | 1137.6 | | | | | | | | | | | | | | | | | |
| VERY STIFF, BROWN, **CLAY**, AND SILT, LITTLE SAND, LITTLE GRAVEL, FILL, MOIST | | | 1 2 3 | 7 | 78 | SS-7 | 3.00 | 11 | 8 | 10 | 36 | 35 | 43 | 23 | 20 | 31 | A-7-6 (12) | |
| @18.5'; STIFF, SOME GRAVEL WITH SHALE FRAGMENTS | | | 1 4 3 | 9 | 100 | SS-8 | - | - | - | - | - | - | - | - | - | 11 | A-7-6 (V) | |
| | | | 7 5 5 | 13 | 44 | SS-9 | 2.00 | - | - | - | - | - | - | - | - | 19 | A-7-6 (V) | |
| | 1130.6 | | | | | | | | | | | | | | | | | |
| HARD, BROWN, **CLAY**, AND SILT, LITTLE SAND, TRACE GRAVEL WITH ORGANICS, DAMP | | | 5 6 12 | 24 | 100 | SS-10 | 4.50 | 2 | 5 | 10 | 46 | 37 | 45 | 22 | 23 | 14 | A-7-6 (14) | |
| @26.0'; MOIST | | | 1 3 5 | 11 | 83 | SS-11 | 4.50 | - | - | - | - | - | - | - | - | 24 | A-7-6 (V) | |
| @28.5'; TRACE SAND, NO GRAVEL, DAMP | | | 2 5 7 | 16 | 67 | SS-12 | - | 0 | 1 | 4 | 55 | 40 | 44 | 25 | 19 | 19 | A-7-6 (12) | |
| | 1122.6 | TR | | | | | | | | | | | | | | | | |
| **SHALE**, BROWN, SEVERELY WEATHERED, VERY WEAK. | | | 7 10 21 | 41 | 100 | SS-13 | - | - | - | - | - | - | - | - | - | 18 | Rock (V) | |
| | | | 7 15 21 | 48 | 100 | SS-14 | - | - | - | - | - | - | - | - | - | 11 | Rock (V) | |
| | | | 7 10 12 | 29 | 100 | SS-15 | - | - | - | - | - | - | - | - | - | 17 | Rock (V) | |
| @38.5'; GRAY. | | | 21 50/4" | - | 100 | SS-16 | - | - | - | - | - | - | - | - | - | 9 | Rock (V) | |
| | 1113.6 | | | | | | | | | | | | | | | | | |
| **SHALE**, GRAY, SEVERELY TO HIGHLY WEATHERED, VERY WEAK. | | | 0 | | 40 | NQ-1 | | | | | | | | | | | CORE | |
| | | | 0 | | 40 | NQ-2 | | | | | | | | | | | CORE | |
| | 1103.6 | EOB | | | | | | | | | | | | | | | | |

NOTES: CAVED AT 26'; GROUNDWATER SURFACE ELEVATION ASSUMED TO BE EQUAL TO 1153.6

ABANDONMENT METHODS, MATERIALS, QUANTITIES: SOIL CUTTINGS

| | | | | | |
|---|---|---|---|---|---|
| PROJECT: HAS-22-21.26 | DRILLING FIRM / OPERATOR: CTL / JP | DRILL RIG: 0305R333-11 | STATION / OFFSET: 1125+19.3, 18.2 | EXPLORATION ID B-002-0-13 |
| TYPE: ROADWAY | SAMPLING FIRM / LOGGER: CTL / JP | HAMMER: CME AUTOMATIC | ALIGNMENT: US ROUTE 22 | |
| PID: 88904 BR ID: | DRILLING METHOD: 3.25" HSA / NQ | CALIBRATION DATE: 10/4/11 | ELEVATION: 1153.2 (MSL) EOB: 35.0 ft. | PAGE 1 OF 1 |
| START: 6/18/13 END: 6/18/13 | SAMPLING METHOD: SPT / NQ | ENERGY RATIO (%): 80.1 | COORD: 240786.949 N, 2402508.542 E | |

| MATERIAL DESCRIPTION AND NOTES | ELEV. | DEPTHS | SPT/ RQD | $N_{60}$ | REC (%) | SAMPLE ID | HP (tsf) | GRADATION (%) GR | CS | FS | SI | CL | ATTERBERG LL | PL | PI | WC | ODOT CLASS (GI) | INST. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Asphalt (8") | 1153.2 / 1152.5 | | | | | | | | | | | | | | | | | |
| Base course (4") | 1152.2 | | | | | | | | | | | | | | | | | |
| HARD, BROWN, **SILT AND CLAY**, SOME SAND, SOME GRAVEL, FILL, DAMP | 1149.7 | TR | 8 5 5 | 13 | 89 | SS-1 | 4.50 | 25 | 17 | 18 | 24 | 16 | 32 | 19 | 13 | 11 | A-6a (2) | |
| **SHALE**, GRAYISH BROWN, SEVERELY WEATHERED, VERY WEAK. | | | 6 10 20 | 40 | 56 | SS-2 | 4.50 | - | - | - | - | - | - | - | - | 9 | Rock (V) | |
| @6.0'; BROWN | | | 13 24 26 | 67 | 100 | SS-3 | 4.50 | - | - | - | - | - | - | - | - | 5 | Rock (V) | |
| | 1143.2 | | 15 39 50/5" | - | - | SS-4 | 4.50 | - | - | - | - | - | - | - | - | 10 | Rock (V) | |
| **SHALE**, GREENISH BROWN, SEVERELY TO HIGHLY WEATHERED, WEAK. | 1140.5 | | 37 | | 100 | NQ-1 | | | | | | | | | | | CORE | |
| **SANDSTONE**, BROWN, SLIGHTLY WEATHERED, STRONG. @13.5'; SDI= 86.0% @14.0'; COMPRESSIVE STRENGTH = 10,429 PSI | 1138.2 | | | | | | | | | | | | | | | | | |
| **SHALE**, GREENISH BROWN TO GRAY, SEVERELY TO HIGHLY WEATHERED, WEAK, 3" LIMESTONE BED AT 19.5'. | 1133.2 | | 0 | | 88 | NQ-2 | | | | | | | | | | | CORE | |
| **SHALE**, GRAY, SEVERELY TO HIGHLY WEATHERED, WEAK TO SLIGHTLY STRONG, PYRITIC, SLICKENSIDE. | | | 0 | | 52 | NQ-3 | | | | | | | | | | | CORE | |
| @25.0'; COMPRESSIVE STRENGTH = 1,743 PSI | | | 51 | | 97 | NQ-4 | | | | | | | | | | | CORE | |
| @29.5'; SDI=1.4% | 1123.2 | | | | | | | | | | | | | | | | | |
| **SHALE**, DARK GRAY TO PURPLE, SEVERELY TO HIGHLY WEATHERED, VERY WEAK, SLICKENSIDES. | 1118.2 | EOB | 20 | | 88 | NQ-5 | | | | | | | | | | | CORE | |

NOTES: GROUNDWATER SURFACE ELEVATION ASSUMED TO BE EQUAL TO 1153.2

ABANDONMENT METHODS, MATERIALS, QUANTITIES: NOT RECORDED

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT.GDT - 11/26/13 10:01 - J:\DEPT5\13 PROJECTS\13050097COL-ODOT DIST 11-HAS-22-21.26\REPORTS\LOGS\13050097COL.GPJ



# STRUCTURE FOUNDATION EXPLORATION
## BRIDGE NO. HAS-22-2126
## OVER WHEELING & LAKE ERIE RAILROAD

DRAWN BRU
CHECKED SM

| PROJECT NO: | 130500097 |
|---|---|
| DATE: | 7/8/2013 |

## COMPRESSIVE STRENGTH AND ELASTIC MODULI OF ROCK - ASTM D 7012

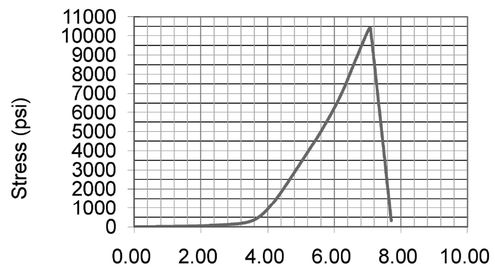
| | | | | | |
|---|---|---|---|---|---|
| BORING NUMBER | B-002-0-13 | TOP DEPTH(FT) | 14.0 | BOTTOM DEPTH(FT) | 14.4 |
| SAMPLE NUMBER | RC-1 | DISTRICT | 11 | PID | 88904 |
| COUNTY | Harrison | ROUTE | 22 | SECTION | 21.26 |
| STATION | | OFFSET | | OFFSET DIRECTION | |

| | |
|---|---|
| FORMATION | Conemaugh Group, (Upper Pennsylvanian) |
| DESCRIPTION | Sandstone, Gray, Slightly Weathered, Strong |
| MOISTURE CONDITION | As Received |

| MEASUREMENT | LENGTH(INCHES) | DIAMETER(INCHES) |
|---|---|---|
| 1 | 4.204 | 2.009 |
| 2 | 4.219 | 2.008 |
| 3 | 4.228 | 2.011 |
| AVERAGE | 4.217 | 2.009 |

| | |
|---|---|
| LENGTH/DIAMETER | 2.10 |
| CORRECTION FACTOR | 1 |
| AREA($IN^2$) | 3.17 |
| MASS (GRAMS) | 575.7 |
| UNIT WEIGHT($LBS/FT^3$) | 164 |

| |
|---|
| RATE OF LOADING (in/min) |
| 0.03 |
| COMPRESSIVE STRENGTH (PSI) |
| 10,429 |
| TIME OF TEST (MINUTES) |
| 2.28 |
| LOADING DIRECTION |
| PERP. TO BEDDING |
| TECHNICIAN |
| DBT |




BEFORE TESTING

AFTER TESTING

| PROJECT NO: | 130500097 |
|---|---|
| DATE: | 7/8/2013 |

## COMPRESSIVE STRENGTH AND ELASTIC MODULI OF ROCK - ASTM D 7012

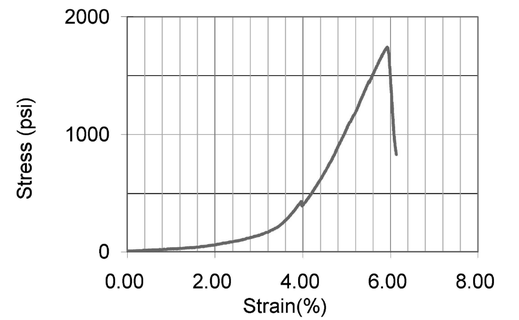
| | | | | | |
|---|---|---|---|---|---|
| BORING NUMBER | B-002-0-13 | TOP DEPTH(FT) | 25.0 | BOTTOM DEPTH(FT) | 25.4 |
| SAMPLE NUMBER | RC-4 | DISTRICT | 11 | PID | 88904 |
| COUNTY | Harrison | ROUTE | 22 | SECTION | 21.26 |
| STATION | | OFFSET | | OFFSET DIRECTION | |

| | |
|---|---|
| FORMATION | Conemaugh Group, (Upper Pennsylvanian) |
| DESCRIPTION | Shale, Browish Gray, Highly Weathered, Slightly Strong |
| MOISTURE CONDITION | As Received |

| MEASUREMENT | LENGTH(INCHES) | DIAMETER(INCHES) |
|---|---|---|
| 1 | 3.902 | 1.988 |
| 2 | 3.969 | 1.989 |
| 3 | 3.97 | 1.99 |
| AVERAGE | 3.947 | 1.989 |

| | |
|---|---|
| LENGTH/DIAMETER | 1.98 |
| CORRECTION FACTOR | 1 |
| AREA($IN^2$) | 3.11 |
| MASS (GRAMS) | 516 |
| UNIT WEIGHT($LBS/FT^3$) | 160.3 |

| |
|---|
| RATE OF LOADING (in/min) |
| 0.04 |
| COMPRESSIVE STRENGTH (PSI) |
| 1,743 |
| TIME OF TEST (MINUTES) |
| 2.28 |
| LOADING DIRECTION |
| PERP. TO BEDDING |
| TECHNICIAN |
| DBT |




BEFORE TESTING

AFTER TESTING

DRAWN BRU CHECKED SM

STRUCTURE FOUNDATION EXPLORATION
LABORATORY TEST DATA

HAS-22-21.26

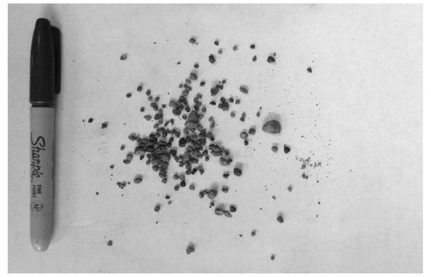
5 / 6

| Slake Durability of Shales and Similar Weak Rocks ASTM D 4644-08 | CTL ENGINEERING, INC. 2860 Fisher Road Columbus, Ohio 43204 |
|---|---|
| Sample ID: B-002-0-13 RC-1<br>Depth: 13.5'-14.0'<br>Sample Description: Shale, Brown, Slightly Weathered, Slightly Strong<br><br>Slake Durability Index (%): 86.0<br>(second cycle)<br>Moisture Content (%): 4.0 | Client: Ohio Department of Transportation District 11<br>Project: HAS-22-21.26<br>Location:<br>Project No. 13050097COL<br>Lab Code No.<br>Date Tested: 7/2/13<br>Reviewed by: JG |



Type II—Retained specimen consist of large and small fragments.

| Slake Durability of Shales and Similar Weak Rocks ASTM D 4644-08 | CTL ENGINEERING, INC. 2860 Fisher Road Columbus, Ohio 43204 |
|---|---|
| Sample ID: B-002-0-13 RC-4<br>Depth: 29.5-30.0'<br>Sample Description: Shale, Gray, Highly Weathered, Weak<br><br>Slake Durability Index (%): 1.4<br>(second cycle)<br>Moisture Content (%): 7.8 | Client: Ohio Department of Transportation District 11<br>Project: HAS-22-21.26<br>Location:<br>Project No. 13050097COL<br>Lab Code No.<br>Date Tested: 7/2/13<br>Reviewed by: JG |


Type III—Retained specimen is exclusively small fragments.

DRAWN BRU CHECKED SM

STRUCTURE FOUNDATION EXPLORATION
LABORATORY TEST DATA

HAS-22-21.26

6 / 6

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