# －COLUMBUS SOUTH BRIDGGES－ <br> $=\mathbb{N O}[\mathbb{S}=$ <br> －QUANTITIES＝ 

 erim revisions．
This structure is located within the Critical Zone of
the Columbus Loup River LB Levee．Special requirements for
construction the Columbus Loup River Le Levee．Special require．
construction are included in the Special Provisions． The contractor may substitute any one of the alternate
deesigns shown on the plans for the original design．All
 or didu
design．
design method $\begin{gathered}\text { The cote bridge deck is designed by the empirical }\end{gathered}$
The girders and substructure are designed for a 3
asphalt overlay of 35 psf．
The superstructure is designed for the allowance of
stay－In－place forms（5 psf）between girders．
The prestressed girders have been designed assuming
100\％continuity at the interior supports for IIve load．
Prestressed concrete girders must be at least 9 days
old before they can be set on the bridge substructure．
 or diaphragms and placing construction materilal on the
girder is not allowed untll the girders have reached des Strength and are at least 30 days old．The shim shots may
be taken before or after the turnocows and diaohragms be taken before or after the turndowns and diaphragms are
pooured．All IIdree lines and spans，between expansion joints．
shall be set before the shi shall be set before the shims are，calculatete．Shim shots are
valld for 60 days．If the deck is not placed within 60 days． valid for 60 days．If the deck is not placed within 60
shim shots must be retaken，shims may be adjusted，and
costs shall be subsidiary to the Pay It Item．＂CLASLS costs shall be subsidiary to the Pay It tem，＂CLAS
$47 B D-4000$ CONCRETE FOR BRIDQEE＂．

## The contractor must provide any temporary intermediate diaphragms and／or bracing necessary

 lateral and tors iolazal staility for the the gircesssary durconstruction of the concrete slab．The temporary constructiton of the concrete slab．The temporary
intermed late oliapragmslbacing shall be removed concrete slat alaphraammitbracalng shall be removed after the
cost of furnishing installing ond It demosign strength．The

 All other cast－In－place concrete shall be Class＂478＂
concrete with a 28 －day strength of 3000 psl．

Concrete and reinforcing stel for Light＂Pole
Foundations is included in the quantities for＂SLAB＂．
All reinforcing steel shall be epoxy coated and
conform to the requir rements of ASTM A615／A615M，Grade 60
steel．
The minimum clearance，measured from the face of the，
concrete to the surface of any relinforcing bar，shall be $3^{n \prime}$ ， concrete to the surface of any
except where otherw 1 se noted．

Chamfer all exposed edges of concrete．
All structural steel for Exponsion Joonts shall conform
Tre rods shall conform to ASTM A709／A709M Grade 36
All turnhuckkes shall conform to ASTM A688／A668M，Class $C$
AsTM Stuctural steel for all olpe plles shall conform to
A52，Grade 3 witha m minimum yileld strength of
45,000 psil．

All other structural steel shall conform to the The Pay ITten，＂STRUCTURAL STEEL FOR
SUBSTRUCTMUE＂，shall nlulude the etre rods at the
abutments and nose angles at the plers After fabrication，expansion Joints，nose angles，tle
rods，turnbuckes，and all other hardware shall be be lods，turnouckles，and all other hardware sha
galvanized according to ASTM Al23／Al23M． All dimensions shown are in hhrizontal plane only．No
allowances have been made for vertical curve or or roadway
cross slope All plastic pipe，galvanized wire screen and miscellaneous drailnage Items at the abutments shall be
considered usbidiry to the Pay Item，＂SUBSURFACE
DRAINAGE MATIING＂．

Girder shims that will be provided to the contractor
account for the dead load deflection due to welght of the account for the e dead load deflection due to welght of the
slab，rall，and $3^{14}$ asphalt overlay only．The contractor is and
esponsible for making the necessary，ad dustmentrst for the
particular forming system used to achieve the slab grades particular forming system used to
and elevations shown on the p plans．
Cotton duck bearing pads，furnished and installed， shall be measured for payments by the each Payment shall
bef or the ary Iters．＂EFPANSIN BEARING，PTFE TYPE＂
and＂FIXED BEARING，＂
The Pay Item，＂STEEL SHEET PILING＂，Includes only
the steel sheet pilling cast into the abutments． Unless noted as
shown are mandatory
Any excavation required for BROKEN CONCRETE RIPRAA bexoravation rew ceurred for cross sectlon shal be
subsldiary to the Pay Item＂BROKEN CONRETE RIPRAP

The location of all aerial and underground utlility
facilltes may not be Indicated in these plans．The facilitres may not be indicated in these planss．The
Contractor shall be responsible for coordinating with


No excavation will be permitted in the area of underground facilltes untll all such facillties have been
ocated and Il excavation must the accomp sheat wisction of all partiles．The any possibility of damage to the utilities facility．
Detalls，quantities，or information for all Group 9
Cost of furnishing and installing the Rall Expansion
Joints shall be considered subsidiary to the contract bld Joints shall be consildered subsidiary yo to te contract bld
orice for $F$ INGER EXPANION IOINT＂．Quantity for

abutment no．I Excavation
GROUP 6
abutment no． 1 excavation
pier no． 1 Excavation $\qquad$ pier no． 2 excavation pier no． 3 Excavation pier no． 4 Excavation
Pier no． 5 excavation
pier no． 6 Excavation Pier no． 6 Excavation
pier no． 7 Excavation Pier no． 7 Excavation
pier no． 8 Excavation Pier no． 8 EXCAVATION
AButment no． 2 EXCAVATION

 CLASS 47BD－4000 CONCRETE FOR BRIDGE CLASS 47e
SLAU
HAUN $\qquad$ CONCRETE RAILS
PIER FOOTINGS $\qquad$ PRECAST PRESTRESSED CONCRETE
SUPERSTRUCTURE AT STATION $409+22.09$
GIRDERS
 437，535 LB

$$
\begin{aligned}
& \text { STEEL DIAPHRAGM } \\
& \text { STRUCTURAL STEEL FOR SUBSTRUCTURE - } \\
& \text { STEEL SHEET PILING }
\end{aligned}
$$

$12.75^{\prime \prime}$ OUTSIDE DIA．
TEST PIL
EXST PILE fixed bearing
SUBSURAFACE DRAILAGE MATTING
broken concrete riprap RIPRAP FILTER FABRIC


| CONCRETE Rails | 16.7 |
| :---: | :---: |
| epoxy coated reinforcing steel |  |
| SLABS | 31.820 LB |
| concrete rails | 7.610 LB |

39，430 LB
${ }^{\text {SLABS }}$ CONCRETE RAILS

$31,820 \mathrm{LB}$
$7,610 \mathrm{LB}$ finger Expansion join
$\qquad$ ${ }^{83.0} \mathrm{LF}$ ACCESS BRIDGE AT STATION 409＋22．09
bridge shoring（abut．no
$11 / 2^{\prime \prime}$ dia．CONDUIT IN BRIDGE $\qquad$
28 EA
$24,445 \mathrm{LB}$ 4．465 SF

| $14 E A$ |
| :--- |
| 70 |

$70 E A$
$20 E A$
20 EA
440 CY
440 SY
90
20
240 TON
354 SY
186.3 Cr
$39,430 \quad$ LB

MULIT IAN RAILING（ChAIN LINK TYPE）
LEvEE MONITORING
GROUP 9
PREFormed waterproofing MEmbrane Type
general notes，quantities，
 general plan \＆elevation $\qquad$ －${ }_{3}$ GENERAL PLAN \＆ELEVAT
REMOVALS \＆SHORING 1 $\left[\begin{array}{l}2 \\ 3 \\ 4 \\ 4\end{array}\right.$

$$
\begin{aligned}
& \text { Removals \& SHoring } \\
& \text { cooroinate layout \& }
\end{aligned}
$$

$\qquad$
$\qquad$

$$
\begin{aligned}
& \text { COORDINATE LAYOUT \& DATA } \\
& \text { COORDINATE LAYOUT \& DATA }
\end{aligned}
$$ GEOLOGICAL PROFILE \＆PILE LAYOUT geological profile \＆pile layout PILE NOTES \＆DATA ABUTMENT I PLAN \＆ELEVATION ABUTMENT 2 PLAN \＆ELEVATION ABUTMENT，ANCHOR BLOCK，\＆GRADE BEAM DETAILS ABUTMENT WING DETALLS \＆BILL OF BAR ABUTMENT RIPRAP AND GA

PIER PLAN \＆ELLVATION $\qquad$
LS I
$\qquad$ PIER REINFORCING DETAILS 2
PIER REINFORCING details 3 －
$\qquad$ GIRDER LAYOUT GIRDER LAYOUT 2 NUIBOO GIRDER DET $\qquad$ girder detalls
bearing details

$$
\begin{aligned}
& \text { BEARING DETALLS } \\
& \text { TYPICAL SECTION \& SLA }
\end{aligned}
$$

$\qquad$
 slab reinforcing plan $\qquad$ 27
28
29 sLab reinforcing plan 2 $\qquad$ sLab turndowns PIER DIAPHRAGMS light pole foundation CONCRETE RAIL ON BRIDGE SLAB DETALLS \＆BILL OF BARS $\qquad$ 31
32 Expansion joint details $\qquad$ 34
35
36 Expansion joint details 2

$$
\begin{aligned}
& \text { Rail on Approach } \operatorname{lla} 1 \\
& \text { Rall on }
\end{aligned}
$$

$\qquad$ 37
38
$\qquad$ 38
$-\quad 39$ pedestrian railing（Chain link type） approach slab detalls $\qquad$
$\qquad$

$$
\begin{aligned}
& \text { Shop plans required for record. Shop plans required for review. } \\
& \text { Stay-In-Place forms } \\
& \text { Prestressed Concrete Superstry }
\end{aligned}
$$Shoo plans required for record．Shop plans required for review．

Stay－In－Place forms

$$
-42
$$

$$
\begin{aligned}
& \text { Stay-In-PPace forms } \\
& \text { Temporary BrIdge Shoring } \\
& \text { Bradica Shorinc Sor }
\end{aligned}
$$

$\qquad$
 Substructure Steel（

Steel Sheet Pilling | Bearing Devices |
| :--- |
| Expanslon Jolins |

Expansion Joints（Finger Jolints \＆Rall
Pedestrian Ralling（Chain Link Type）

|  |  |  |
| :---: | :---: | :---: |
| Number | Year | Description |
| 278－A－2 | 1931 | Original Cons |
|  |  | Shop Pla |
| F－BRF－BHF－8l－3（103）－4 | 1984 | Other |
| （377．73） |  | Painting |
| 25 | 1984 | Shop Pla |
| 451 | 1999 | Exp |
| 92 | 2009 |  |












| PILE DATA |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| LOCATION | PLLE NUMBER | CUT-OFF ELEVATION | $\begin{gathered} \text { MINIMUM } \\ \text { PENETRATION } \\ \text { BELOW CUT-OFF } \\ \text { (feet) } \end{gathered}$ | TENTATIVE PIEORDER (feet) | PILE ORDER LENGTH (feet) | DESIGN PILE BEARING (kips/pile) | PILE TYPE |
| Grade Beam No. 1 | 1-3 | 1452.27 | ** |  | ** | 160 | Pipe 12.75"x0.375" |
| Grade Beam No. 1 | 4-6 | 1451.84 | ** |  | ** | 160 | Pipe 12.75" $0.3 .375^{\prime \prime}$ |
| Abutment No. 1 | 1-4 | 1444.81 | ** |  | ** | 130 | Pipe 12.75"x0.375" |
| Abutment No. 1 | 5-14 | 144.81 | ** |  | ** | 220 | Pipe 12.75"x0.377 ${ }^{\prime \prime}$ |
| Pler No. 1 | 1-39 | 1424.52 | ** |  | ** | 315 | Concrete Filled Pipe $16^{\prime \prime} \times 0.5{ }^{\prime \prime}$ |
| Pier No. 2 | 1-39 | 1424.58 | ** |  | ** | 315 | Concrete Filled Pipe $16^{\prime \prime} \times 0.5{ }^{\prime \prime}$ |
| Pler No. 3 | 1-39 | 1424.84 | ** |  | ** | 315 | Concrete Filled P/pe 16"x0.5" |
| Pier No. 4 | 1-39 | 1424.78 | ** |  | ** | 315 | Concrete Filled Pipe 16"x0.5" |
| Pler No. 5 | 1-39 | 1424.79 | ** |  | ** | 315 | Concrete Filled Pipe $16^{\prime \prime} \times 0.5{ }^{\prime \prime}$ |
| Pler No. 6 | 1-39 | 1424.87 | ** |  | ** | 315 | Concrete Filled Plpe 16"x0.5" |
| Pler No. 7 | 1-39 | 1424.64 | ** |  | ** | 315 | Concrete Filled Plpe 16"x0.5" |
| Pier No. 8 | 1-39 | 1424.60 | ** |  | ** | 315 | Concrete Filled Pipe 16"x0.5" |
| Abutment No. 2 | 1-4 | 1444.90 | ** |  | ** | 130 | Plpe 12.75"x0.377 ${ }^{\prime \prime}$ |
| Abutment No. 2 | 5-14 | 1444.90 | ** |  | ** | 220 | Plpe 12.75"x0.375" |
| Grade Beam No. 2 | 1-3 | 1451.92 | ** |  | ** | 160 | Ploe 12.75" $\times 0.375^{\prime \prime}$ |
| Grade Beam No. 2 | 4-6 | 1452.34 | ** |  | ** | 160 | Plpe 12.75"x0.377 ${ }^{\prime \prime}$ |

** Plle engths shown are tentative lengths. Final plle order length and penetratlon below
cut-off elevation shall be determined based on the results of test plie installations.
$\overbrace{\text { (at Abutment) }}^{\text {Q Sheet Pile }}$
Wrap Filter Fabrlc ${ }^{1}{ }^{1}-6^{\prime \prime}$
each way around corners
of exposed Sheet of exposed $S$
Note:
— \& Sheet Plle (at Wing
to the pay Item "STEEL SHEET PILINN"
SHEET PILE CORNER DETAIL (TYP.)

Not to Scale
Sheet Pile Corner Detal shown for $90^{\text {c corner. The Contractor shall }}$
develop similar detall for obtuse corner based on final sheet plle section develop simliar detall for obtuse cornere based on fla
Submit detall for approval with sheet pile shop plan.
As a minimum, all steel sheet pillng shall conform to ASTM A572 (Grade 50)
steel and shall meet the following requirements: Section Length

Maximum Section $\qquad$ | 34.00 ft |
| :---: |
|  |
| 16 h. |

Maximum Section Depth

Minimum Section Thickness _____ Elastic Section Moculus | 16 in |
| :--- |
| 0.3125 n |
| $\mathbf{2 n}$ | The pay quantlty will be based on the sheet pile wall dimenslons shown.

The constructe w wall length will be within $\pm 2^{2}-0$ " 1 of the sheet pile wall
dimensions shown. dimenslons shown.


$\frac{\text { PIPE PILE DETAIL }}{\text { Not to Scale }}$

NOTES:
All plle spacing is given at the bottom of concreta.
Piers are designed for scour to elevation 1413.0 ft. for 100 -Year Flood
Plers are checked for scour to elevatiton 1406.0 ft. for 500 -Year Flood
Pile order lengths (with the exception of those shown for the test piles) are tertative. The final order
lengths shall be based on the results obtained from the test pile driving The drivin of the test will be monitorea with a Plie Driving Analyzer. Final order lengths will be provided by the Engineer the Contractor within three (3) Woing days after the test pll
Test piles will be driven, as shown in the TEST PILE DATA table
The use of the Pile Driving Analyzer will reaure the Contractor to Pille Driving Analyzer.
 Is started. The holes or anchors for the accelerometers and stril transducers will heve been
prearilled by Department personnel while the plle Is stllli on the ground. The Contractor may be required to stop the hammer for wave speed determination after the first few blows.
The Contractor shall drive the plle untll the tranducers are near the surface of the ground, or as
directed by the Engineer, at which time the Contractor shall stop the hammer for the removal of the accelerometers and straln itransducers. The Contractor shall continue driving the pile to cut-off or
as directed by the Engineer as directed by the Enginee
The time delay in driving each pile being monitored by the PIle Driving Analyzer will normally range
from 30 to 60 minutes. The Contractor shall provide access to the pile driving area for the Engineer's equipmen wencle (IIght truck). The work performed by the Contractor, In conjunction with the use of the Pill Driving Analyzer, as described herent, shall not
subsidiary to tems for which direct payment is made.
*Concrete Filled Pipe Piles at plers shall conform to the requirements of Section 703 for "Steel Plllng" and "Cast-In-Place Concrete Plles". Concrete flll shall be placed with a tremle and shall
be Class "t778" with a 28 -day strength of 3,000 psl. Concrete fill shall be considered subsidiary to
the the Pay Item "PIPE PILING"















(B) $-1 \cdot:$
 410
 411

See "Detall A"
$\frac{\text { GIRDER LAYOUT }- \text { SPANS 6-7 }}{\text { Scale: } 1 l^{\prime \prime}=15^{\prime}-0^{\prime \prime}}$


- BuRNS




## INTERMEDIATE STEEL DIAPHRAGM NOTES:

* In 1 eu of $21 / 2^{" 1}$ outside diameter washers, contractor may substitute a $3 / 6^{\prime \prime}$ (Min
- 

All diaohraam materlals Including bolts, nuts, and washers shall be galvanized.
Fabricated structural steel shall be ASTM A709 Grade 36 except as noted
For location of intermedlate steel dlaphragms, see sheets $23 \& 24$ of 42


SECTION A-A
$\frac{\text { C.N. } 31983}{\substack{\text { sTruCTURER NOMBER }}}$


PART SECTION SHOWING INTERMEDIATE STEEL DIAPHRAGMS

Not to Scale



















