

T:\51006-0565-Struct.dgn\Retaining Wall 3\0161339-60L72-015-SE.dgn

LOCHNER
H. W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

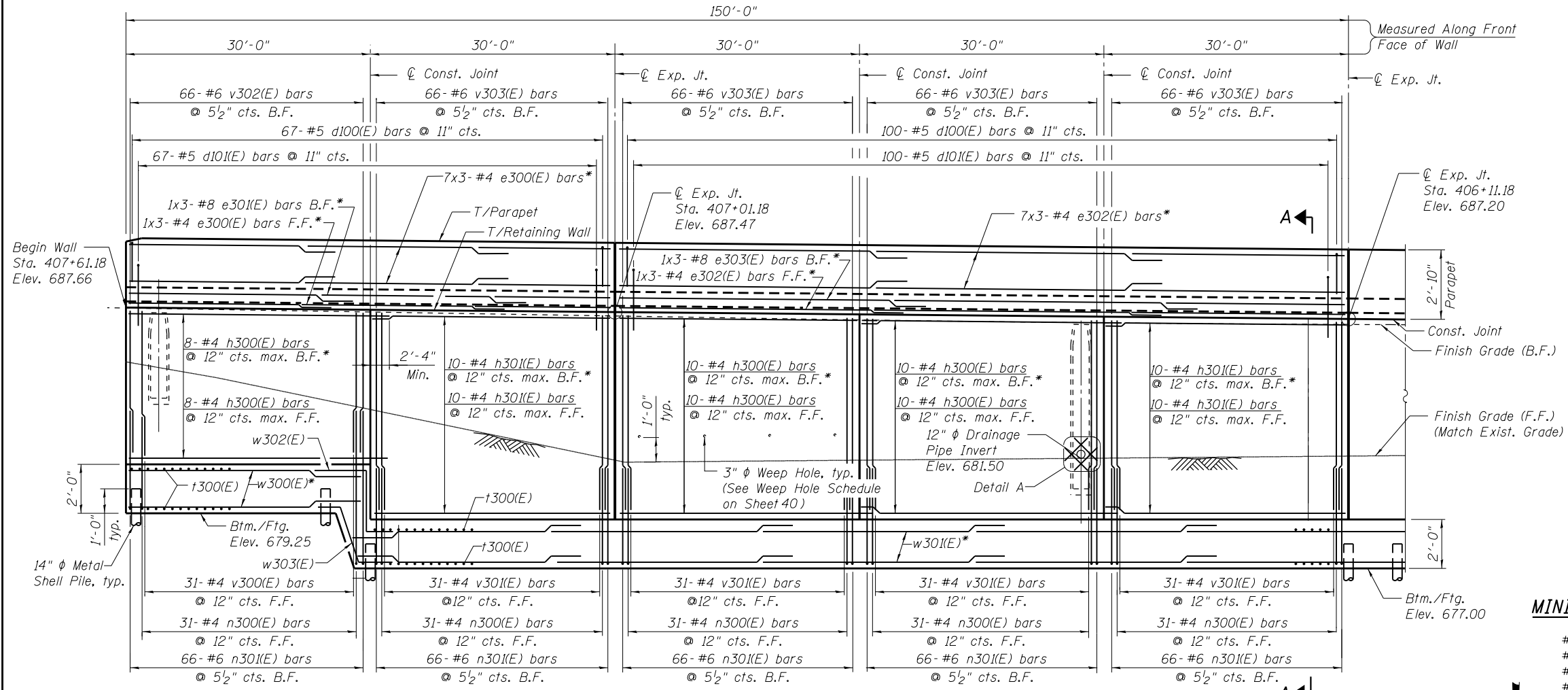
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**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**TYPICAL SECTIONS 2
STRUCTURE NO. 016-1339**

SHEET NO. 15 OF 84 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	601
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



ELEVATION - RETAINING WALL 3
(Looking at F.F. of Wall)

PILE DATA

Type: Metal Shell - 14 in. dia. x 0.25 in. wall
 Nominal required bearing: See table
 Factored resistance available: See table
 Est. Length: See table
 No. Production Piles: See table
 No. Test Piles: See table
 (See Pile Data Table on Sheet 39).

* Spaced as shown in cross sections.
 See sheet 35 thru 37 of 84 for details.

MINIMUM BAR LAP

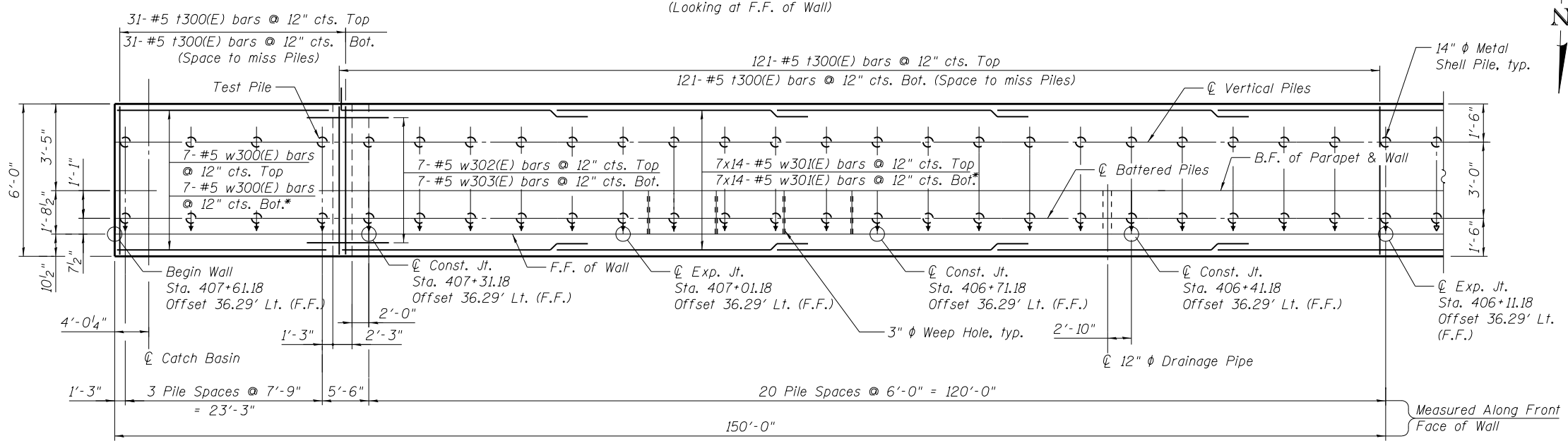
- #4 bar = 2'-1"
- #4 bar (Top) = 2'-4"
- #4*** bar = 2'-0"
- #5** bar = 3'-8"
- #6 bar = 3'-10"
- #8*** bar = 5'-2"
- ** At Footing
- *** At Parapet

LEGEND

- Indicates Battered Piles in direction of arrow
- Indicates Vertical Piles

NOTES

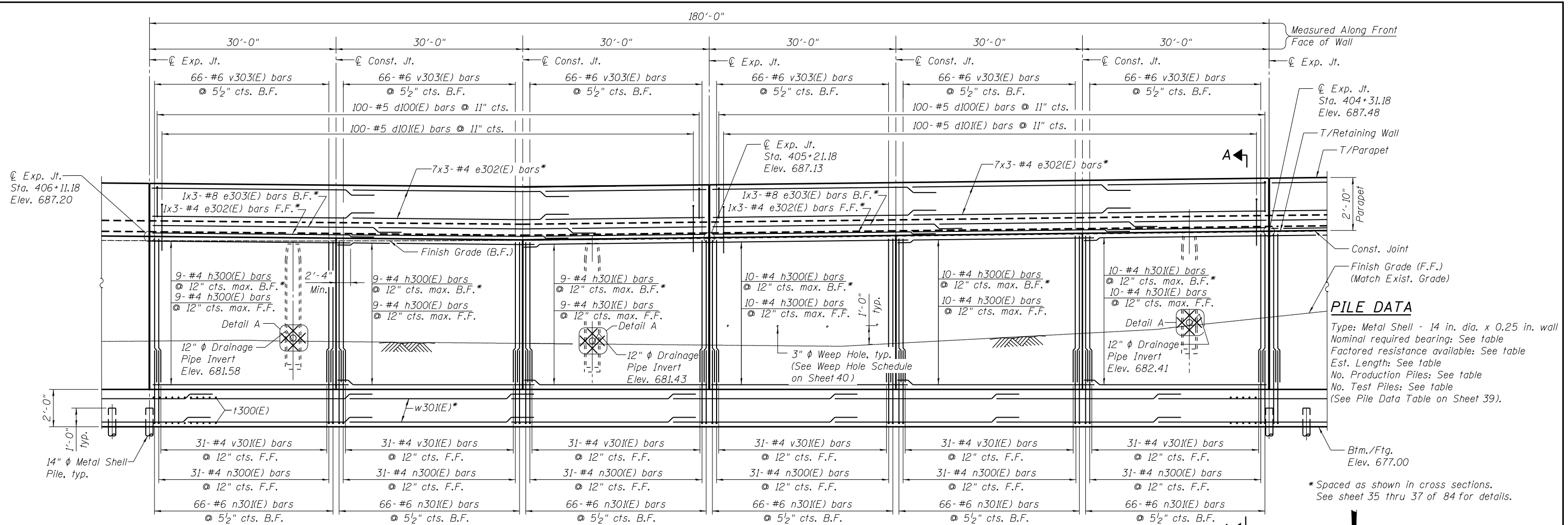
1. For Bar List, Reinforcement Field Cutting Diagrams, and Bar Bend Details see Sheet 39 of 84.
2. Reinforcement bars designated (E) shall be epoxy coated.
3. Bars indicated thus 20x3-#5 etc. indicates 20 line of bars with 3 lengths per line.
4. Space reinforcement in bottom of footing to miss piles.
5. E.F. denotes Each Face
 F.F. denotes Front Face
 B.F. denotes Back Face
 ↓ Denotes battered pile 4:1:2.
6. For Pile Details, see Sheet 41 of 84.
7. Contractor shall verify location of utilities prior to driving piles.
 For Construction Joint Detail and Expansion Joint Detail see Sheet 13 of 84.
8. For Weep Hole Detail, Wall Section at drainage scuppers and Parapet Joint Details see Sheet 13 of 84.
9. All stations/offsets are taken from C USG/159th Street.
10. For Pile Data Table, see Sheet 39 of 84.
11. For Section A-A see Sheet 35 of 84.
12. For Detail A see Sheet 33 of 84.
13. For Architectural Rustication Finish Details see Sheet 42 of 84.



FOOTING PLAN - RETAINING WALL 3

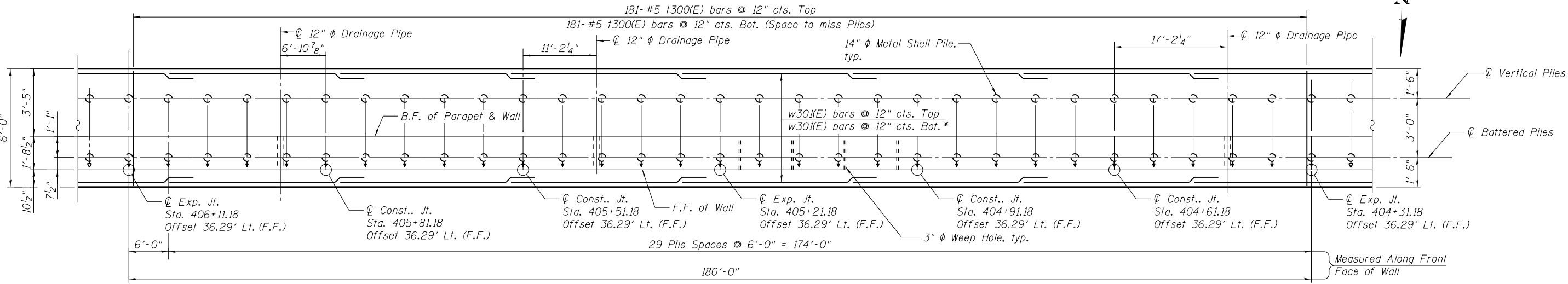
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LOCHNER H.W. LOCHNER, INC. 225 WEST WASHINGTON STREET 12 TH FLOOR CHICAGO, ILLINOIS 60606	USER NAME =	DESIGNED - RAB	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	DETAIL PLAN & ELEVATION 1 STRUCTURE NO. 016-1339	F.A.P. R.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	FILE NAME = 0161339-60L72-016-PE.dgn	CHECKED - CMM	REVISED			351	2010-081-R	COOK	1045	602
PLOT SCALE =	DRAWN - EF	REVISED		SHEET NO. 16 OF 84 SHEETS						
PLOT DATE	CHECKED - CMM	REVISED		CONTRACT NO. 60L72						



ELEVATION - RETAINING WALL 3

(Looking at F.F. of Wall)



FOOTING PLAN - RETAINING WALL 3

MINIMUM BAR LAP

- #4 bar = 2'-1"
- #4 bar (Top) = 2'-4"
- #4*** bar = 2'-0"
- #5** bar = 3'-8"
- #6 bar = 3'-10"
- #8*** bar = 5'-2"
- ** At Footing
- *** At Parapet

LEGEND

- ⊙ Indicates Battered Piles in direction of arrow
- ⊙ Indicates Vertical Piles

NOTES

1. For Bar List, Reinforcement Field Cutting Diagrams, and Bar Bend Details see Sheet 39 of 84.
2. Reinforcement bars designated (E) shall be epoxy coated.
3. Bars indicated thus 20x3-#5 etc. indicates 20 line of bars with 3 lengths per line.
4. Space reinforcement in bottom of footing to miss piles.
5. E.F. denotes Each Face
F.F. denotes Front Face
B.F. denotes Back Face
↓ Denotes battered pile 4:12.
6. For Pile Details, see Sheet 41 of 84.
7. Contractor shall verify location of utilities prior to driving piles.

8. For Construction Joint Detail and Expansion Joint Detail see Sheet 13 of 84.
9. For Weep Hole Detail, Wall Section at drainage scuppers and Parapet Joint Details see Sheet 13 of 84.
10. All stations/offsets are taken from C US6/159th Street.
11. For Pile Data Table, see Sheet 39 of 84.
12. For Section A-A see Sheet 35 of 84.
13. For Detail A see Sheet 33 of 84.
14. For Architectural Rustication Finish Details see Sheet 42 of 84.

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LOCHNER
H.W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

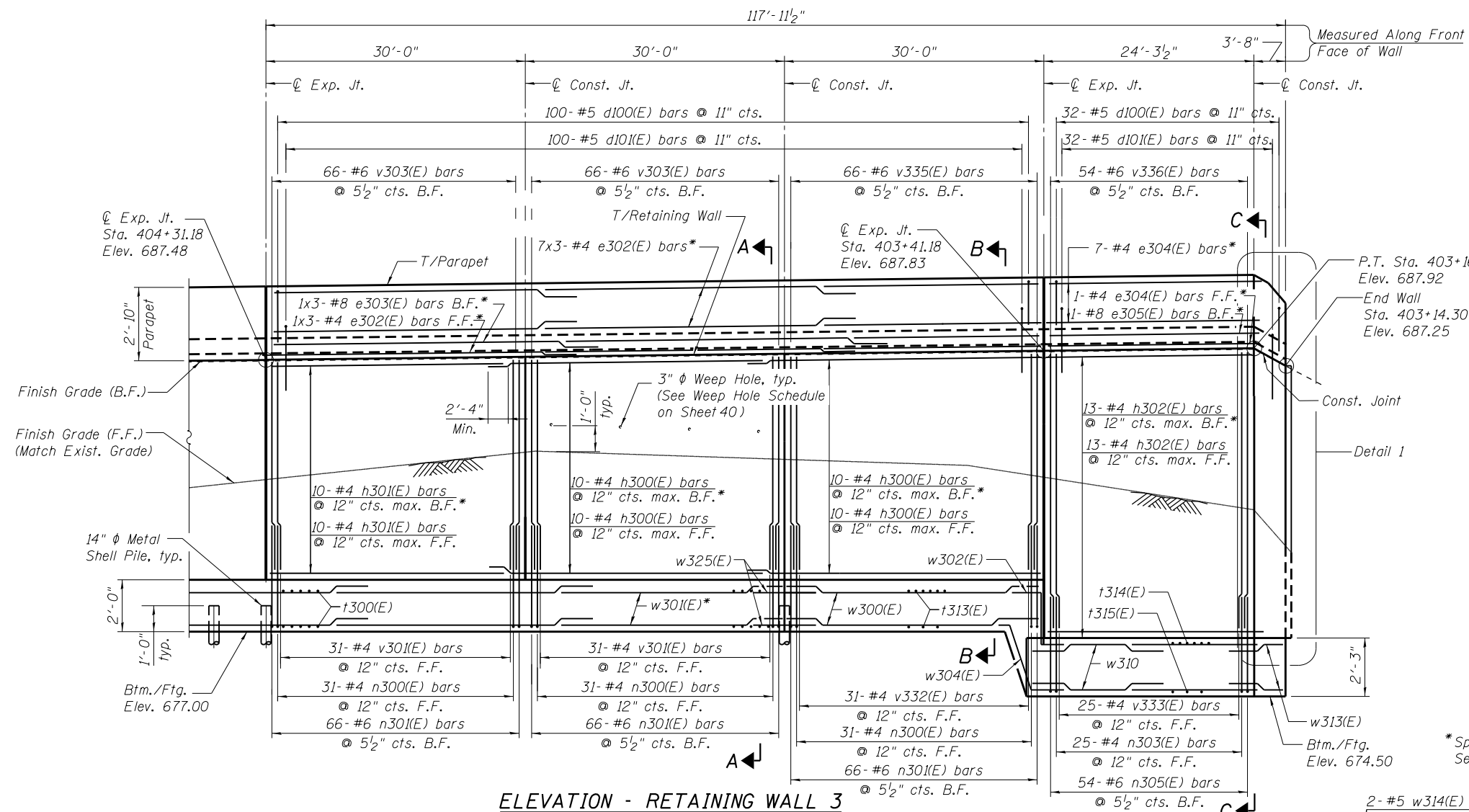
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PLOT SCALE =	DRAWN - EF	REVISED
PLOT DATE	CHECKED - CMM	REVISED

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**DETAIL PLAN & ELEVATION 2
STRUCTURE NO. 016-1339**

SHEET NO. 17 OF 84 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	603
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



PILE DATA

Type: Metal Shell - 14 in. dia. x 0.25 in. wall
Nominal required bearing: See table
Factored resistance available: See table
Est. Length: See table
No. Production Piles: See table
No. Test Piles: See table
(See Pile Data Table on Sheet 39).

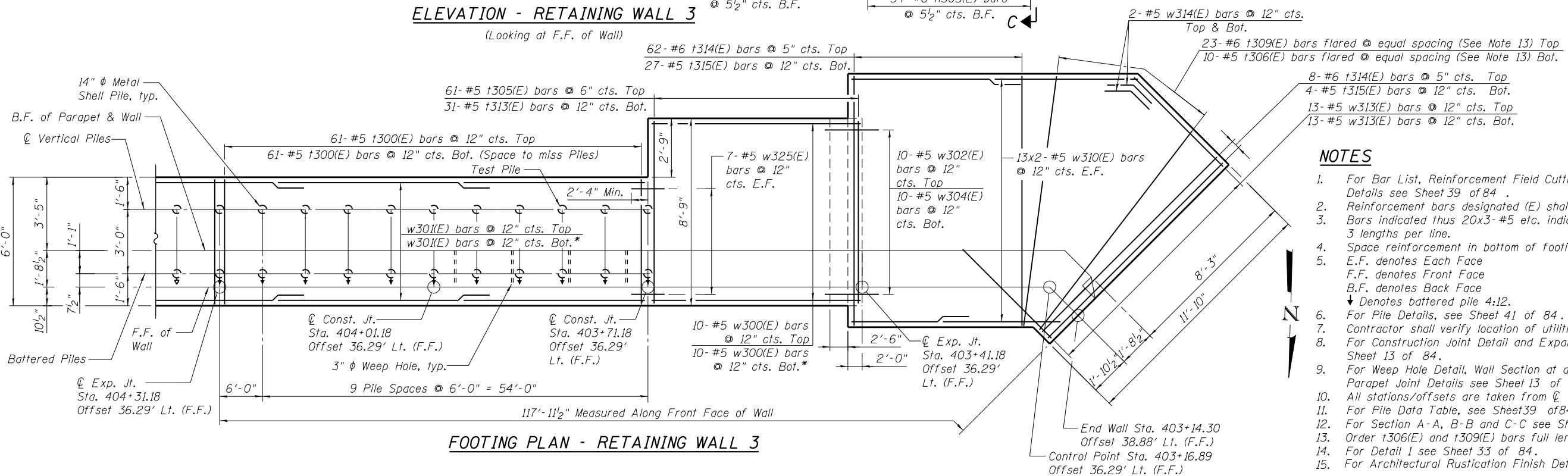
MINIMUM BAR LAP

#4 bar = 2'-1"
#4 bar (Top) = 2'-4"
#4*** bar = 2'-0"
#5** bar = 3'-8"
#6 bar = 3'-10"
#8*** bar = 5'-2"
** At Footing
*** At Parapet

LEGEND

⊙ Indicates Battered Piles in direction of arrow
⊙ Indicates Vertical Piles

* Spaced as shown in cross sections. See sheet 35 thru 37 of 84 for details.



NOTES

- For Bar List, Reinforcement Field Cutting Diagrams, and Bar Bend Details see Sheet 39 of 84.
- Reinforcement bars designated (E) shall be epoxy coated.
- Bars indicated thus 20x3-#5 etc. indicates 20 line of bars with 3 lengths per line.
- Space reinforcement in bottom of footing to miss piles.
- E.F. denotes Each Face
F.F. denotes Front Face
B.F. denotes Back Face
⊙ Denotes battered pile 4:12.
- For Pile Details, see Sheet 41 of 84.
- Contractor shall verify location of utilities prior to driving piles.
- For Construction Joint Detail and Expansion Joint Detail see Sheet 13 of 84.
- For Weep Hole Detail, Wall Section at drainage scuppers and Parapet Joint Details see Sheet 13 of 84.
- All stations/offsets are taken from CL US6/159th Street.
- For Pile Data Table, see Sheet 39 of 84.
- For Section A-A, B-B and C-C see Sheet 35 of 84.
- Order t306(E) and t309(E) bars full length and cut to fit in field.
- For Detail 1 see Sheet 33 of 84.
- For Architectural Rustication Finish Details see Sheet 42 of 84.

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LOCHNER
H.W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

USER NAME =
FILE NAME = 01061339-60L72-018-PE.dgn
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CHECKED - CMM
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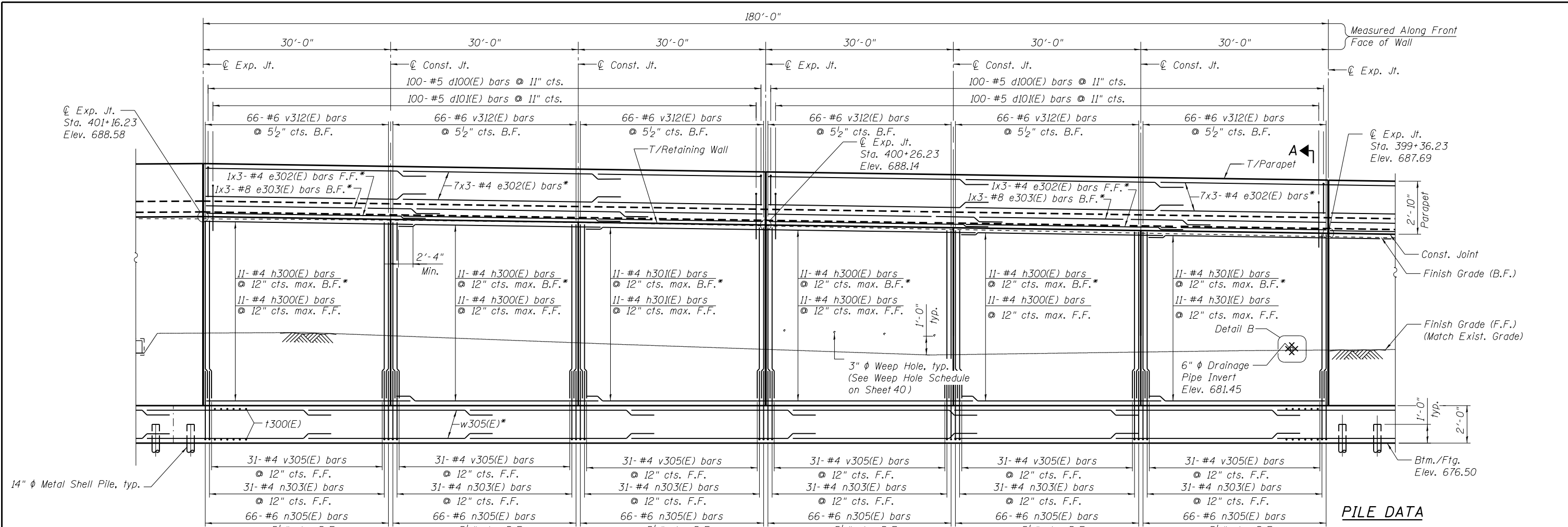
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DETAIL PLAN & ELEVATION 3
STRUCTURE NO. 016-1339

SHEET NO. 18 OF 84 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	604
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



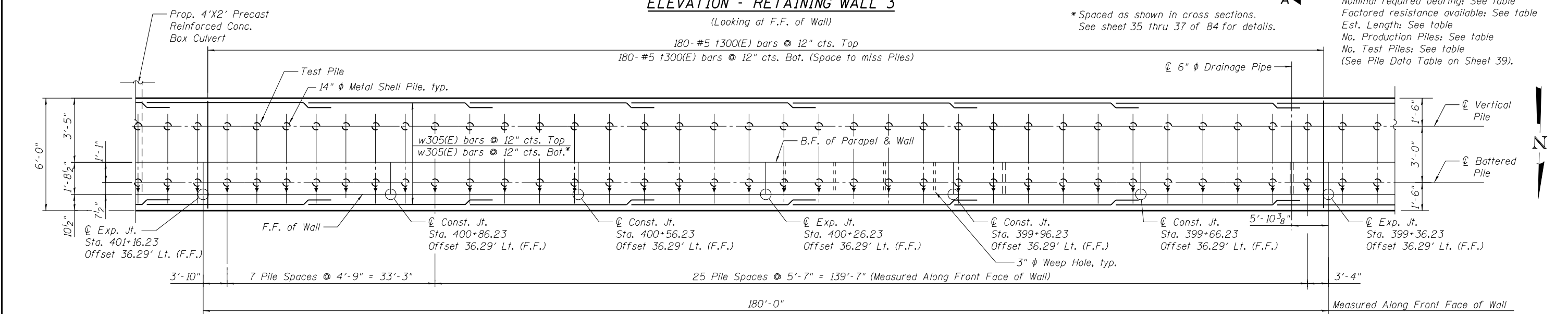
ELEVATION - RETAINING WALL 3

(Looking at F.F. of Wall)

* Spaced as shown in cross sections. See sheet 35 thru 37 of 84 for details.

PILE DATA

Type: Metal Shell - 14 in. dia. x 0.25 in. wall
 Nominal required bearing: See table
 Factored resistance available: See table
 Est. Length: See table
 No. Production Piles: See table
 No. Test Piles: See table
 (See Pile Data Table on Sheet 39).



FOOTING PLAN - RETAINING WALL 3

MINIMUM BAR LAP

- #4 bar = 2'-1"
- #4 bar (Top) = 2'-4"
- #4*** bar = 2'-0"
- #5** bar = 3'-8"
- #6 bar = 3'-10"
- #8*** bar = 5'-2"
- ** At Footing
- *** At Parapet

LEGEND

- ⤴ Indicates Battered Piles in direction of arrow
- ⊙ Indicates Vertical Piles

NOTES

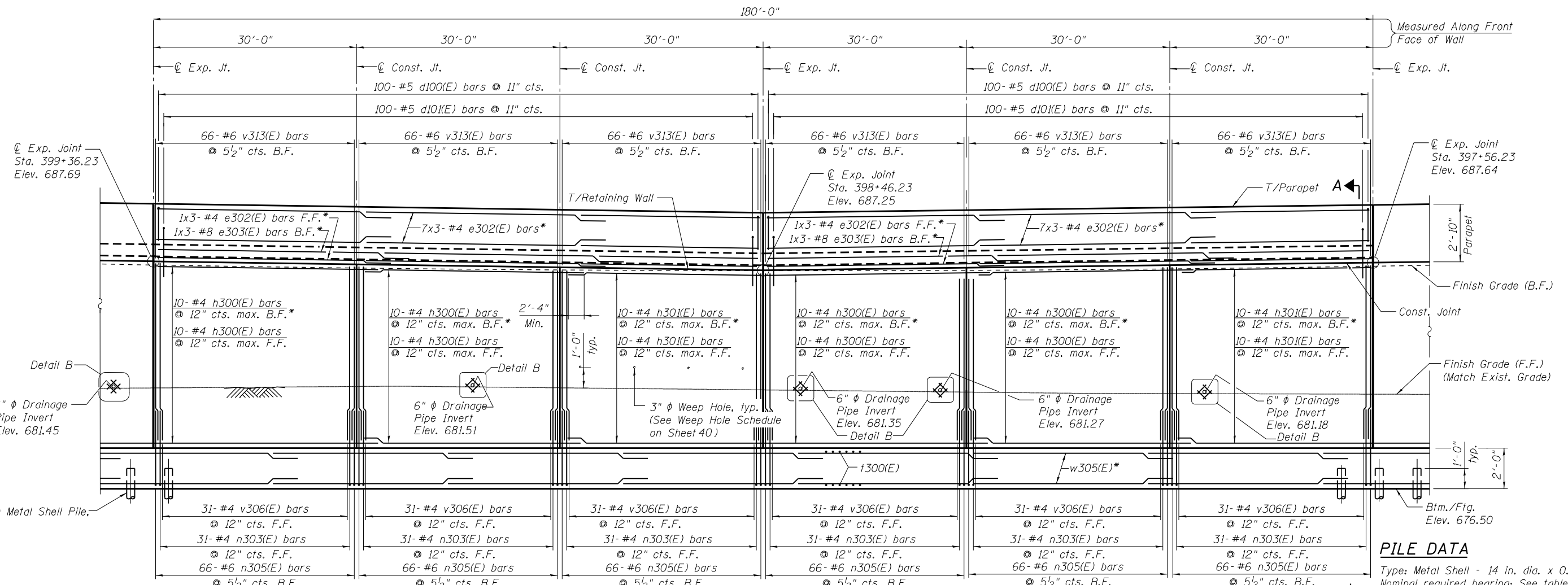
1. For Bar List, Reinforcement Field Cutting Diagrams, and Bar Bend Details see Sheet 39 of 84.
2. Reinforcement bars designated (E) shall be epoxy coated.
3. Bars indicated thus 20x3-#5 etc. indicates 20 line of bars with 3 lengths per line.
4. Space reinforcement in bottom of footing to miss piles.
5. E.F. denotes Each Face
F.F. denotes Front Face
B.F. denotes Back Face
↓ Denotes battered pile 4:12.
6. For Pile Details, see Sheet 41 of 84.
7. Contractor shall verify location of utilities prior to driving piles.

8. For Construction Joint Detail and Expansion Joint Detail see Sheet 13 of 84.
9. For Weep Hole Detail, Wall Section at drainage scuppers and Parapet Joint Details see Sheet 13 of 84.
10. All stations/offsets are taken from C US6/159th Street.
11. For Pile Data Table, see Sheet 39 of 84.
12. For Section A-A see Sheet 35 of 84.
13. For Detail B see Sheet 33 of 84.
14. For Architectural Rustication Finish Details see Sheet 42 of 84.

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LOCHNER H.W. LOCHNER, INC. 225 WEST WASHINGTON STREET 12 TH FLOOR CHICAGO, ILLINOIS 60606	USER NAME =	DESIGNED - RAB	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	DETAIL PLAN & ELEVATION 5 STRUCTURE NO. 016-1339	F.A.P. R.T.E. =	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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PLOT DATE	CHECKED - CMM	REVISED		SHEET NO. 20 OF 84 SHEETS						

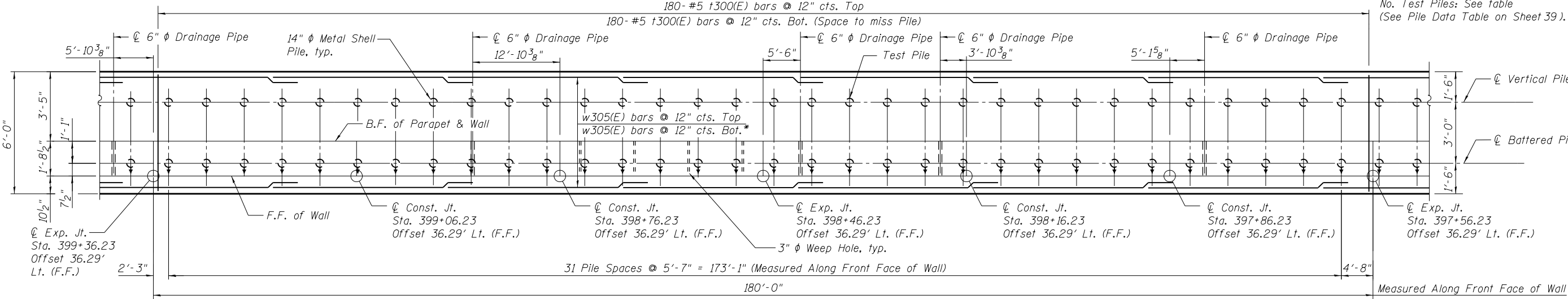
ILLINOIS FED. AID PROJECT



ELEVATION - RETAINING WALL 3
(Looking at F.F. of Wall)

PILE DATA
Type: Metal Shell - 14 in. dia. x 0.25 in. wall
Nominal required bearing: See table
Factored resistance available: See table
Est. Length: See table
No. Production Piles: See table
No. Test Piles: See table
(See Pile Data Table on Sheet 39).

* Spaced as shown in cross sections.
See sheet 35 thru 37 of 84 for details.



FOOTING PLAN - RETAINING WALL 3

MINIMUM BAR LAP

- #4 bar = 2'-1"
- #4 bar (Top) = 2'-4"
- #4*** bar = 2'-0"
- #5** bar = 3'-8"
- #6 bar = 3'-10"
- #8*** bar = 5'-2"
- ** At Footing
- *** At Parapet

LEGEND

- ⊙ Indicates Battered Piles in direction of arrow
- ⊙ Indicates Vertical Piles

NOTES

1. For Bar List, Reinforcement Field Cutting Diagrams, and Bar Bend Details see Sheet 39 of 84.
2. Reinforcement bars designated (E) shall be epoxy coated.
3. Bars indicated thus 20x3-#5 etc. indicates 20 line of bars with 3 lengths per line.
4. Space reinforcement in bottom of footing to miss piles.

5. E.F. denotes Each Face
F.F. denotes Front Face
B.F. denotes Back Face
↓ Denotes battered pile 4:12.
6. For Pile Details, see Sheet 41 of 84.
7. Contractor shall verify location of utilities prior to driving piles.

8. For Construction Joint Detail and Expansion Joint Detail see Sheet 13 of 84.
9. For Weep Hole Detail, Wall Section at drainage scuppers and Parapet Joint Details see Sheet 13 of 84.
10. All stations/offsets are taken from ⊙ US6/159th Street.
11. For Pile Data Table, see Sheet 39 of 84.
12. For Section A-A see Sheet 35 of 84.
13. For Detail B see Sheet 33 of 84.
14. For Architectural Rustication Finish Details see Sheet 42 of 84.

LOCHNER
H.W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

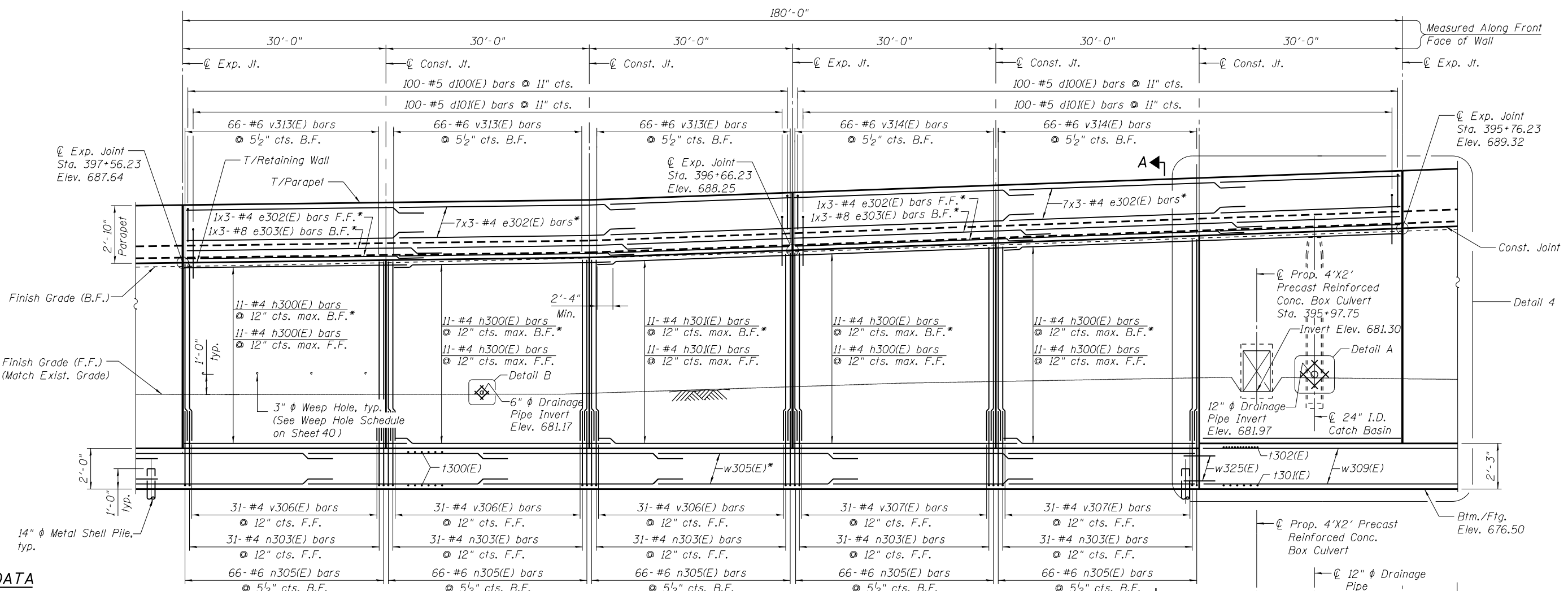
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PLOT DATE	CHECKED - CMM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DETAIL PLAN & ELEVATION 6
STRUCTURE NO. 016-1339

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	607
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				

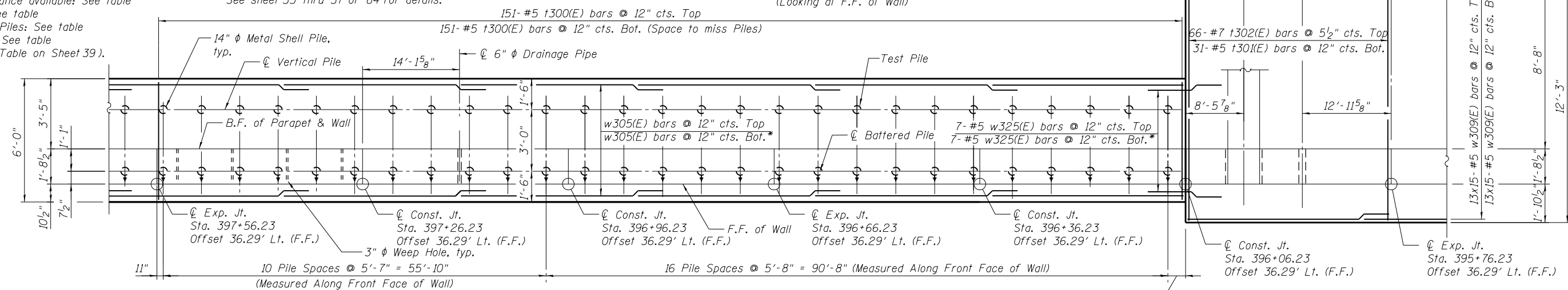
SHEET NO. 21 OF 84 SHEETS



PILE DATA

Type: Metal Shell - 14 in. dia. x 0.25 in. wall
 Nominal required bearing: See table
 Factored resistance available: See table
 Est. Length: See table
 No. Production Piles: See table
 No. Test Piles: See table
 (See Pile Data Table on Sheet 39).

* Spaced as shown in cross sections.
 See sheet 35 thru 37 of 84 for details.



MINIMUM BAR LAP

- #4 bar = 2'-1"
- #4 bar (Top) = 2'-4"
- #4*** bar = 2'-0"
- #5** bar = 3'-8"
- #6 bar = 3'-10"
- #8*** bar = 5'-2"
- ** At Footing
- *** At Parapet

LEGEND

- ⊙ Indicates Battered Piles in direction of arrow
- ⊙ Indicates Vertical Piles

NOTES

1. For Bar List, Reinforcement Field Cutting Diagrams, and Bar Be. Details see Sheet 39 of 84.
2. Reinforcement bars designated (E) shall be epoxy coated.
3. Bars indicated thus 20x3-#5 etc. indicates 20 line of bars with 3 lengths per line.
4. Space reinforcement in bottom of footing to miss piles.
5. E.F. denotes Each Face
F.F. denotes Front Face
B.F. denotes Back Face
↓ Denotes battered pile 4:12.
6. For Pile Details, see Sheet 41 of 84.
7. Contractor shall verify location of utilities prior to driving piles.

8. For Construction Joint Detail and Expansion Joint Detail see Sheet 13 of 84.
9. For Weep Hole Detail, Wall Section at drainage scuppers and Parapet Joint Details see Sheet 13 of 84.
10. All stations/offsets are taken from C US6/159th Street.
11. For Pile Data Table, see Sheet 39 of 84.
12. For Section A-A see Sheet 35 of 84.
13. For Detail A and C see Sheet 33 of 84.
14. For Detail 4 see Sheet 34 of 84.
15. For Architectural Rustication Finish Details see Sheet 42 of 84.

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LOCHNER
 H.W. LOCHNER, INC.
 225 WEST WASHINGTON STREET
 12 TH FLOOR
 CHICAGO, ILLINOIS 60606

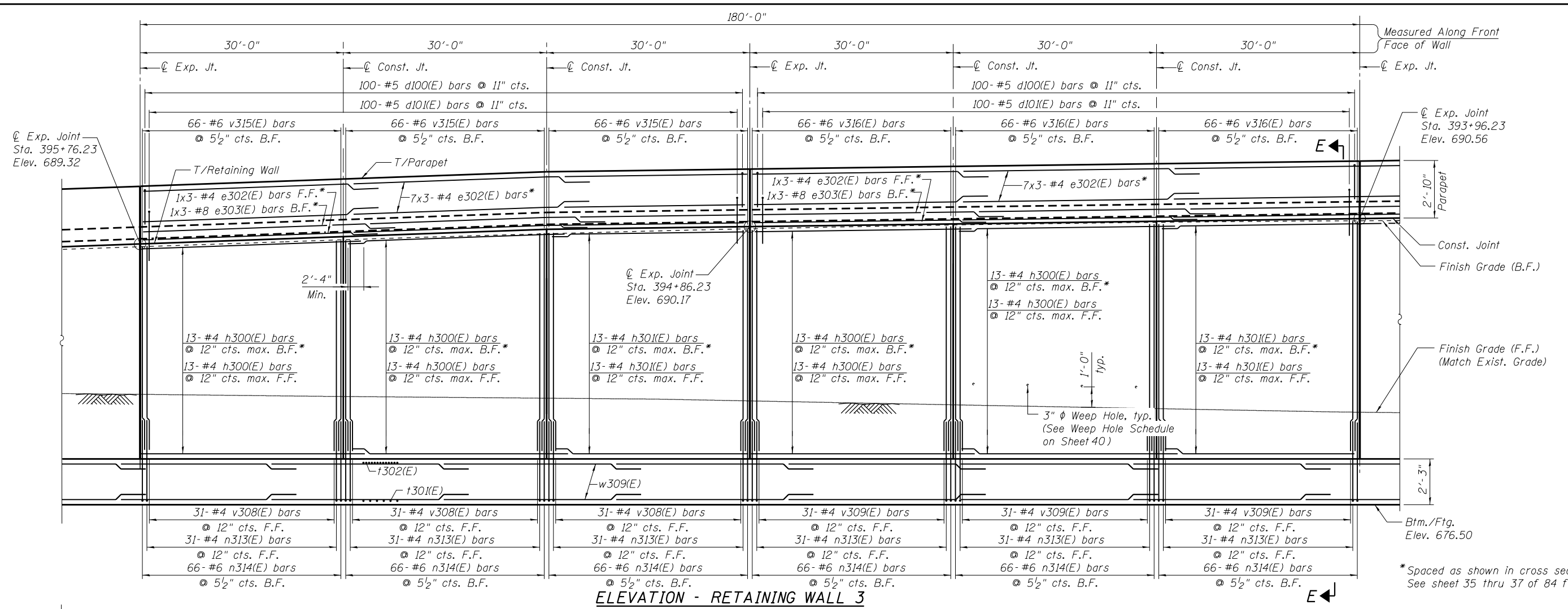
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PLOT DATE	CHECKED - CMM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

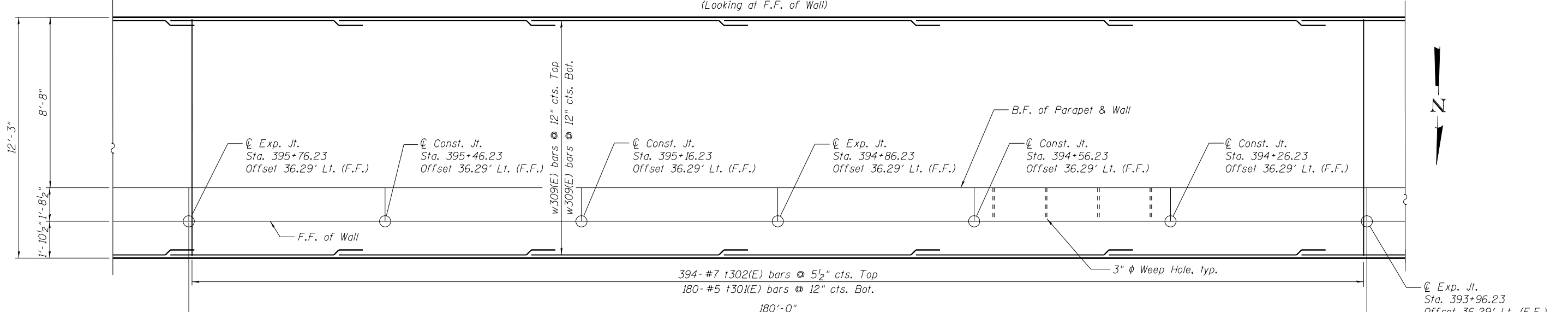
DETAIL PLAN & ELEVATION 7
STRUCTURE NO. 016-1339

SHEET NO. 22 OF 84 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	608
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



* Spaced as shown in cross sections. See sheet 35 thru 37 of 84 for details.



MINIMUM BAR LAP

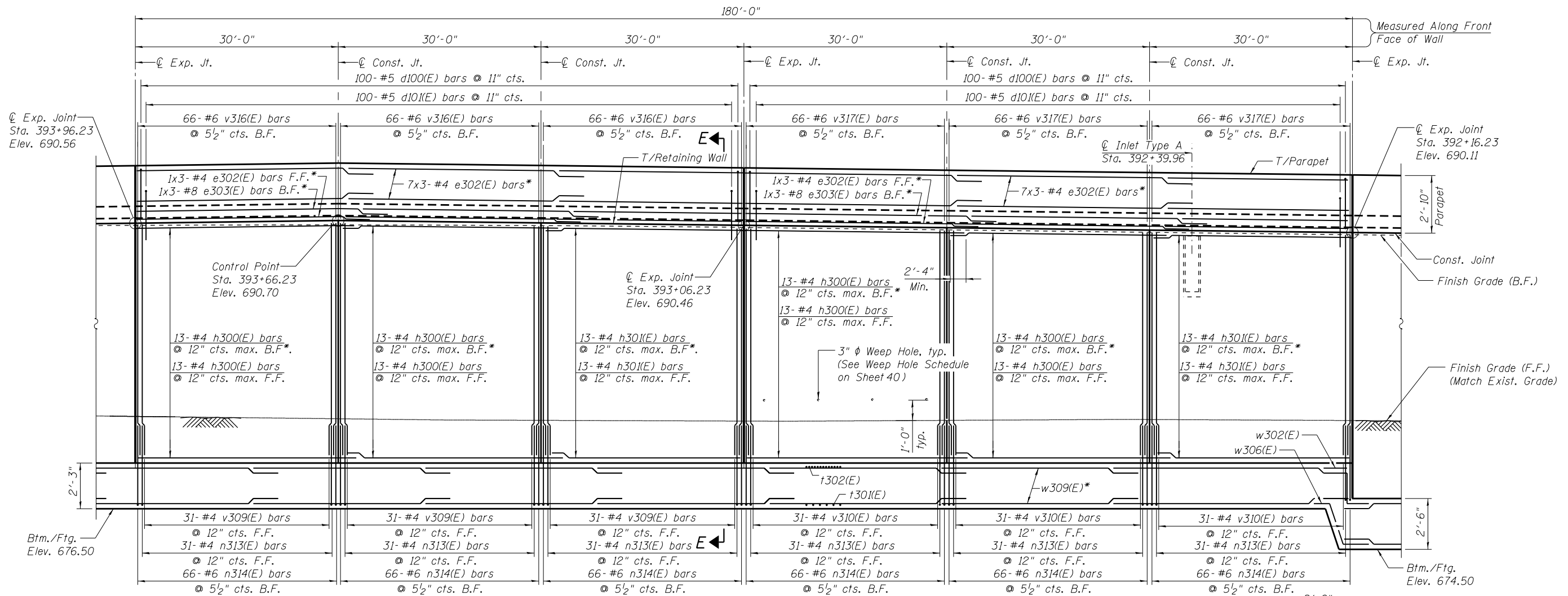
- #4 bar = 2'-1"
- #4 bar (Top) = 2'-4"
- #4*** bar = 2'-0"
- #5** bar = 3'-8"
- #6 bar = 3'-10"
- #8*** bar = 5'-2"
- ** At Footing
- *** At Parapet

NOTES

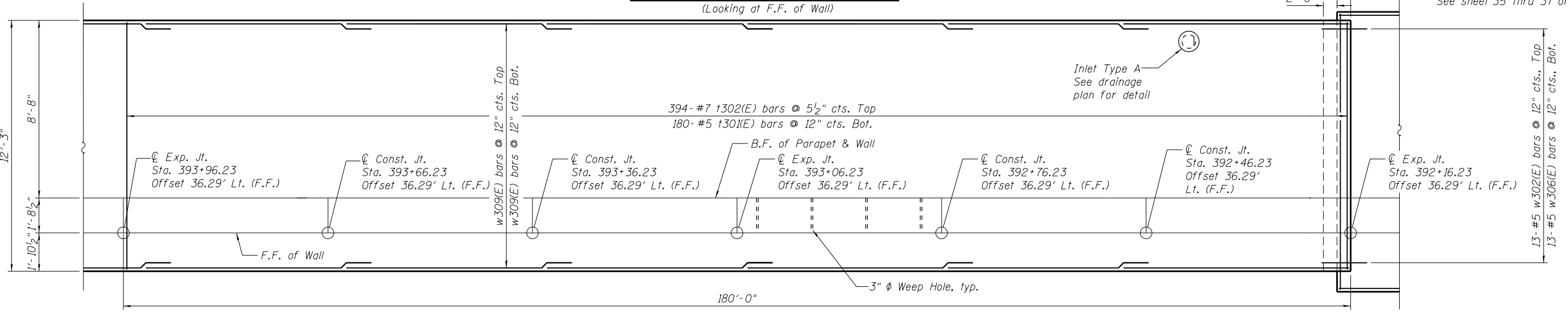
1. For Bar List, Reinforcement Field Cutting Diagrams, and Bar Bend Details see Sheet 39 of 84.
2. Reinforcement bars designated (E) shall be epoxy coated.
3. Bars indicated thus 20x3-#5 etc. indicates 20 line of bars with 3 lengths per line.
4. E.F. denotes Each Face
F.F. denotes Front Face
B.F. denotes Back Face
↓ Denotes battered pile 4:12.
5. For Construction Joint Detail and Expansion Joint Detail see Sheet 13 of 84.
6. For Weep Hole Detail, Wall Section at drainage scuppers and Parapet Joint Details see Sheet 13 of 84.
7. All stations/offsets are taken from \odot US6/159th Street.
8. For Section E-E see Sheet 36 of 84.
9. For Architectural Rustication Finish Details see Sheet 42 of 84.

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LOCHNER H.W. LOCHNER, INC. 225 WEST WASHINGTON STREET 12 TH FLOOR CHICAGO, ILLINOIS 60606	USER NAME = FILE NAME = 0161339-60L72-023-PE.dgn PLOT SCALE = PLOT DATE =	DESIGNED - RAB CHECKED - CMM DRAWN - EF CHECKED - CMM	REVISED REVISED REVISED REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	DETAIL PLAN & ELEVATION 8 STRUCTURE NO. 016-1339 SHEET NO. 23 OF 84 SHEETS	F.A.P. RTE. = 351 SECTION = 2010-081-R COUNTY = COOK TOTAL SHEETS = 1045 SHEET NO. = 609	ILLINOIS FED. AID PROJECT
	CONTRACT NO. 60L72						



* Spaced as shown in cross sections. See sheet 35 thru 37 of 84 for details.



MINIMUM BAR LAP

- #4 bar = 2'-1"
 - #4 bar (Top) = 2'-4"
 - #4*** bar = 2'-0"
 - #5** bar = 3'-8"
 - #6 bar = 3'-10"
 - #8*** bar = 5'-2"
- ** At Footing
*** At Parapet

NOTES

1. For Bar List, Reinforcement Field Cutting Diagrams, and Bar Bend Details see Sheet 39 of 84.
2. Reinforcement bars designated (E) shall be epoxy coated.
3. Bars indicated thus 20x3-#5 etc. indicates 20 line of bars with 3 lengths per line.
4. E.F. denotes Each Face
F.F. denotes Front Face
B.F. denotes Back Face
↓ Denotes battered pile 4:12.
5. For Construction Joint Detail and Expansion Joint Detail see Sheet 13 of 84.
6. For Weep Hole Detail, Wall Section at drainage scuppers and Parapet Joint Details see Sheet 13 of 84.
7. All stations/offsets are taken from C US6/159th Street.
8. For Section E-E see Sheet 36 of 84.
9. For Architectural Rustication Finish Details see Sheet 42 of 84.

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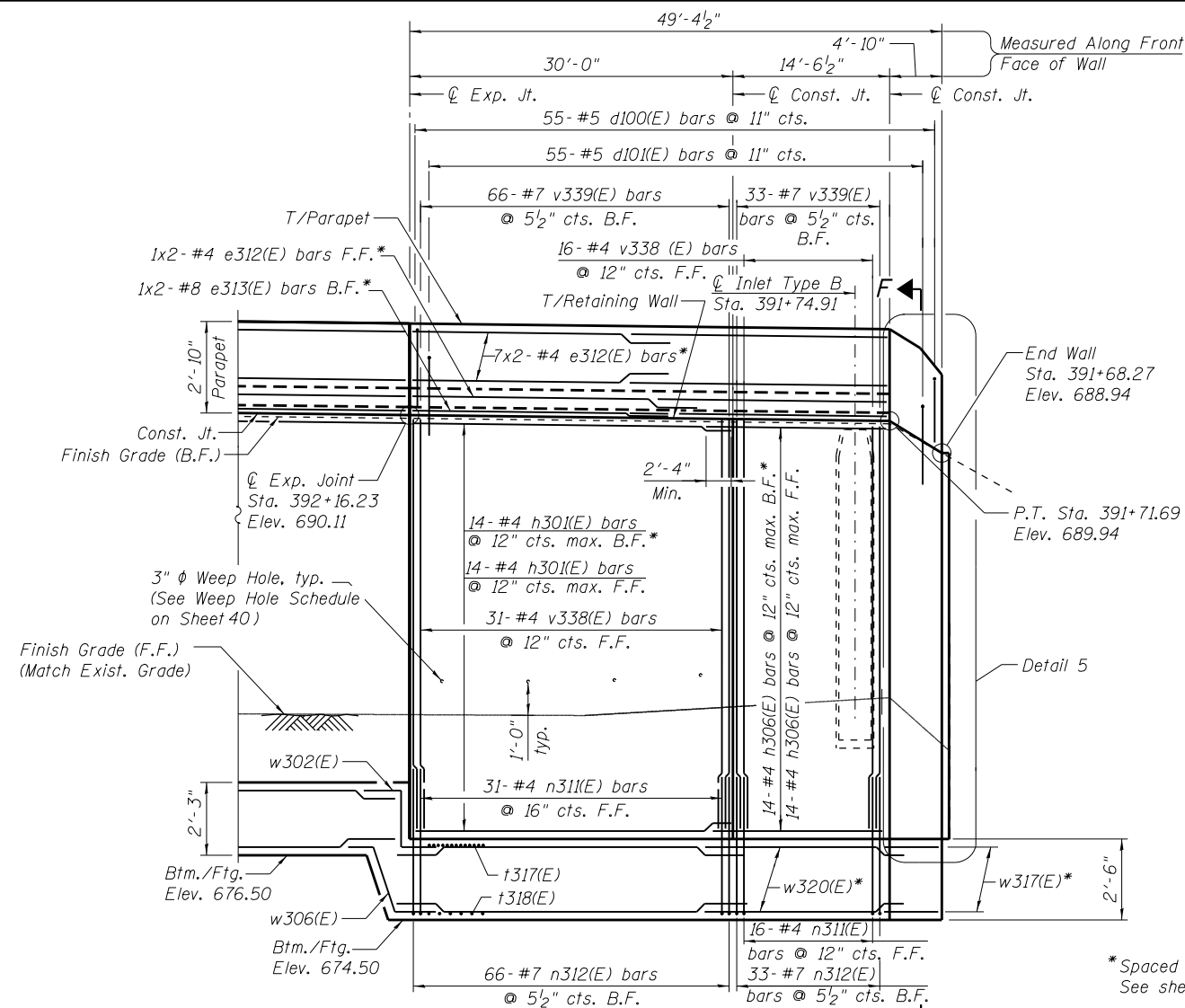
LOCHNER
H.W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

USER NAME =	DESIGNED - RAB	REVISED
FILE NAME = 0161339-60L72-024-PE.dgn	CHECKED - CMM	REVISED
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PLOT DATE	CHECKED - CMM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

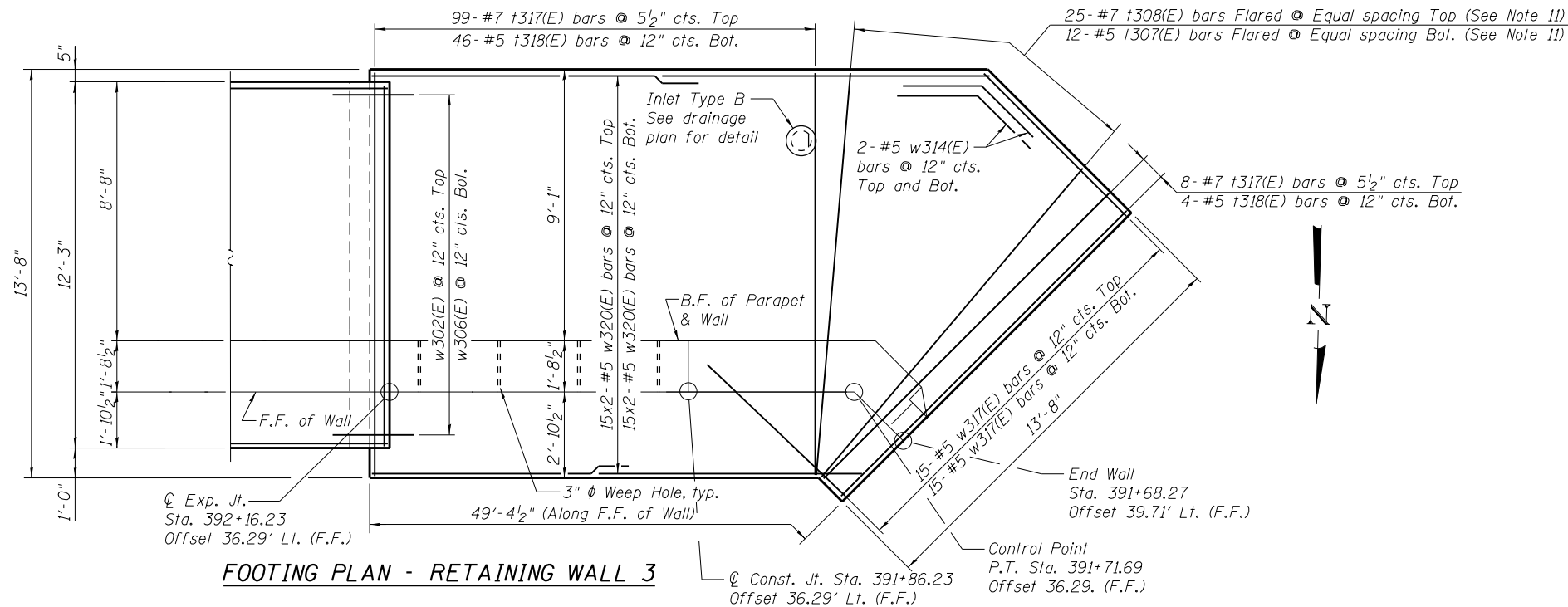
DETAIL PLAN & ELEVATION 9
STRUCTURE NO. 016-1339
SHEET NO. 24 OF 84 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	610
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



ELEVATION - RETAINING WALL 3
(Looking at F.F. of Wall)

* Spaced as shown in cross sections.
See sheet 35 thru 37 of 84 for details.



FOOTING PLAN - RETAINING WALL 3

MINIMUM BAR LAP

- #4 bar = 2'-1"
- #4 bar (Top) = 2'-4"
- #4*** bar = 2'-0"
- #5** bar = 3'-8"
- #7 bar = 5'-2"
- #8*** bar = 5'-2"
- ** At Footing
- *** At Parapet

NOTES

1. For Bar List, reinforcement field cutting diagrams, and bar bend details see Sheet 39 of 84.
2. Reinforcement bars designated (E) shall be epoxy coated.
3. Bars indicated thus 20x3-#5 etc. indicates 20 line of bars with 3 lengths per line.
4. E.F. denotes Each Face
F.F. denotes Front Face
B.F. denotes Back Face
↓ Denotes battered pile 4:12.
5. For Construction Joint Detail and Expansion Joint Detail see Sheet 13 of 84.
6. For Weep Hole Detail, Wall Section at drainage scuppers and Parapet Joint Details see Sheet 13 of 84.
7. All stations/offsets are taken from C of US6/159th Street.
8. For Section F-F see Sheet 36 of 84.
9. For Detail A and Detail 5 see Sheet 33 of 84.
10. Order t307(E) and t308(E) bars full length and cut to fit in field.
11. For Architectural Rustication Finish Details see Sheet 42 of 84.

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LOCHNER
H.W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

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PLOT SCALE =
PLOT DATE =

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DRAWN - EF
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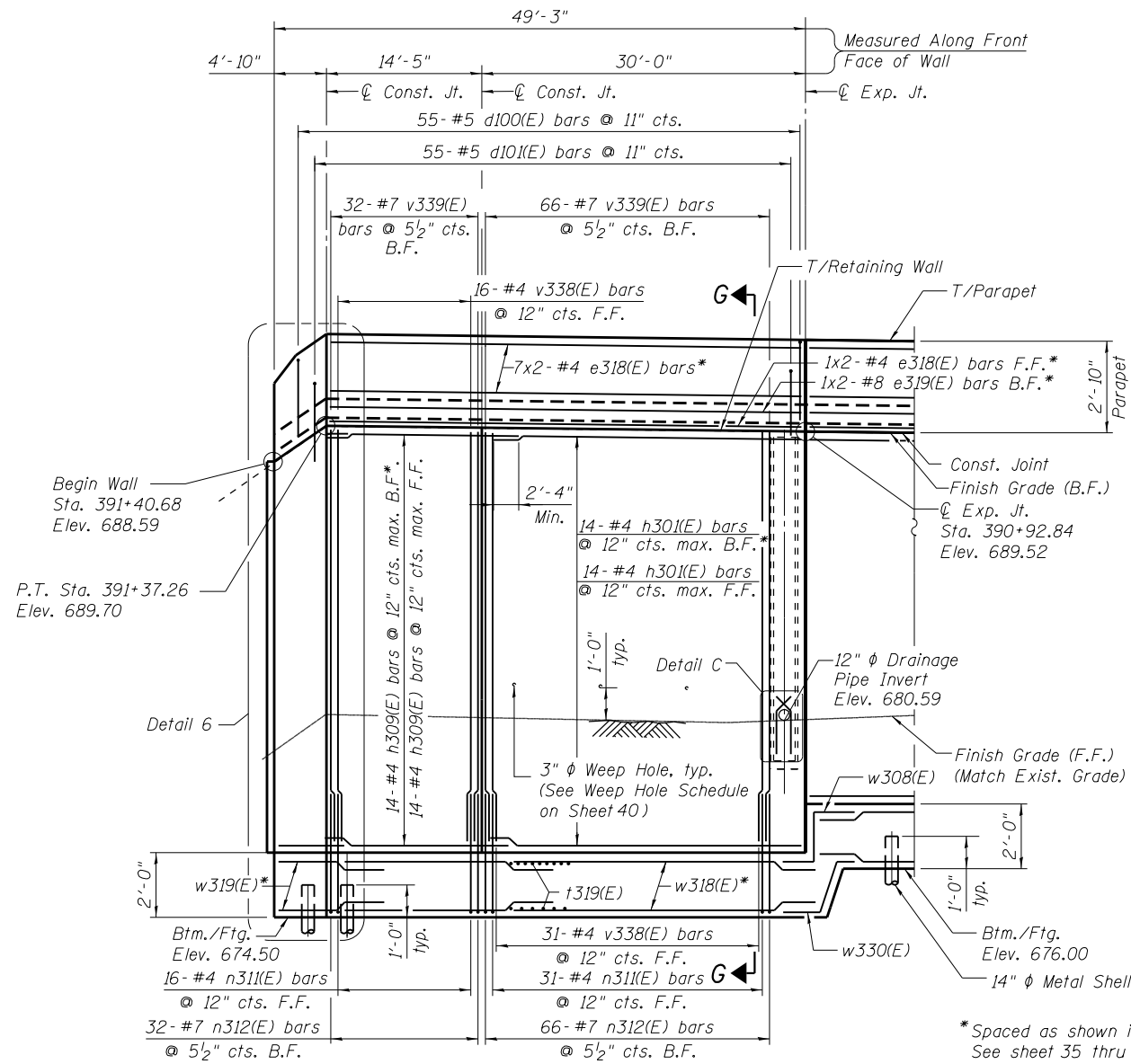
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DETAIL PLAN & ELEVATION 10
STRUCTURE NO. 016-1339

SHEET NO. 25 OF 84 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	611
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



* Spaced as shown in cross sections. See sheet 35 thru 37 of 84 for details.

PILE DATA

Type: Metal Shell - 14 in. dia. x 0.25 in. wall
 Nominal required bearing: See table
 Factored resistance available: See table
 Est. Length: See table
 No. Production Piles: See table
 No. Test Piles: See table
 (See Pile Data Table on Sheet 39).

LEGEND

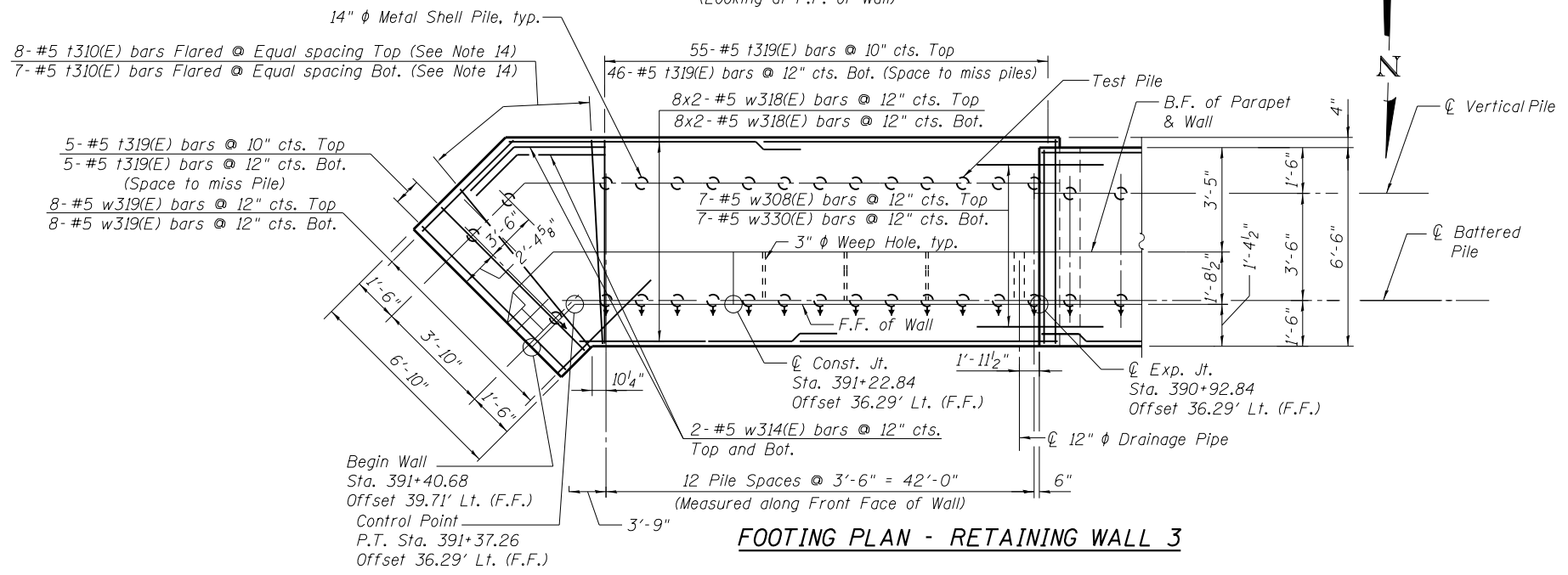
- ⊙ Indicates Battered Piles in direction of arrow
- ⊙ Indicates Vertical Piles

MINIMUM BAR LAP

- #4 bar = 2'-1"
- #4 bar (Top) = 2'-4"
- #4*** bar = 2'-0"
- #5*** bar = 3'-8"
- #7 bar = 5'-2"
- #8*** bar = 5'-2"
- ** At Footing
- *** At Parapet

NOTES

1. For Bar List, Reinforcement Field Cutting Diagrams, and Bar Bend Details see Sheet 39 of 84.
2. Reinforcement bars designated (E) shall be epoxy coated.
3. Bars indicated thus 20x3-#5 etc. indicates 20 line of bars with 3 lengths per line.
4. Space reinforcement in bottom of footing to miss piles.
5. E.F. denotes Each Face
F.F. denotes Front Face
B.F. denotes Back Face
↓ Denotes battered pile 4:12.
6. For Pile Details, see Sheet 41 of 84.
7. Contractor shall verify location of utilities prior to driving piles.
8. For Construction Joint Detail and Expansion Joint Detail see Sheet 13 of 84.
9. For Weep Hole Detail, Wall Section at drainage scuppers and Parapet Joint Details see Sheet 13 of 84.
10. All stations/offsets are taken from CL US6/159th Street.
11. For Pile Data Table, see Sheet 39 of 84.
12. For Section G-G see Sheet 37 of 84.
13. For Detail C and Detail 6 see Sheet 33 of 84.
14. Order t310(E) bars full length and cut to fit in field.
15. For Architectural Rustication Finish Details see Sheet 42 of 84.



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LOCHNER
 H.W. LOCHNER, INC.
 225 WEST WASHINGTON STREET
 12 TH FLOOR
 CHICAGO, ILLINOIS 60606

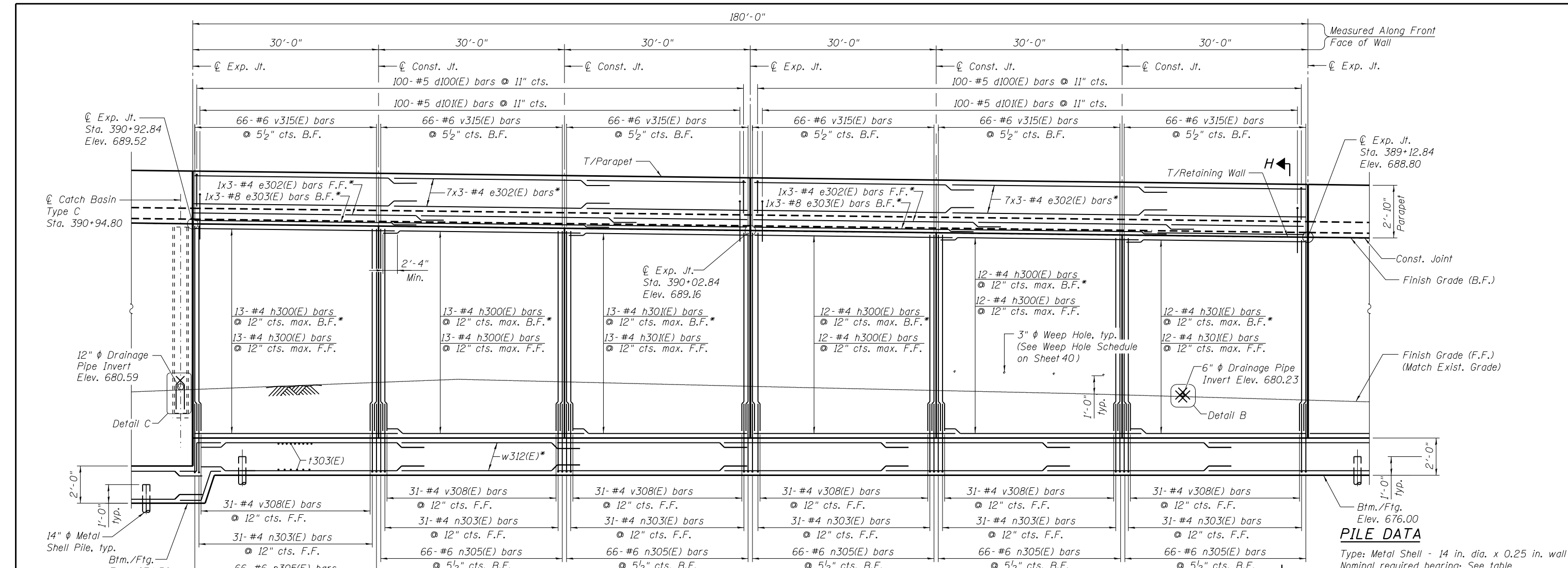
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STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

DETAIL PLAN & ELEVATION 11
 STRUCTURE NO. 016-1339

SHEET NO. 26 OF 84 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	612
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



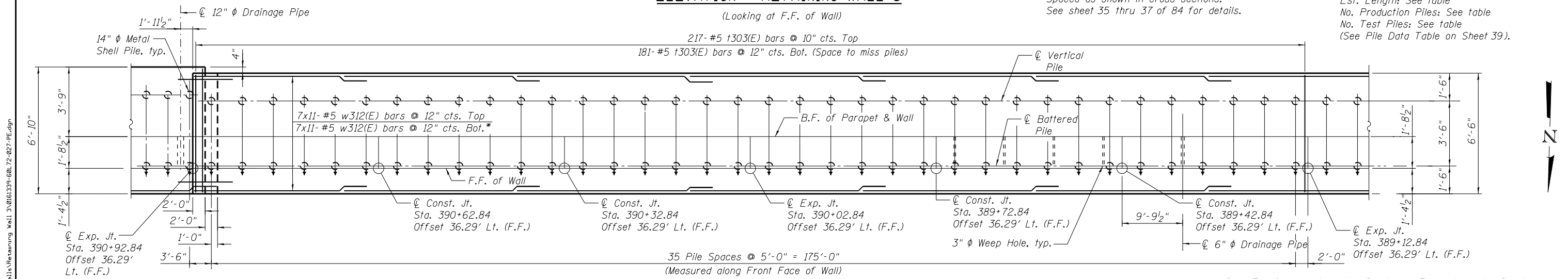
ELEVATION - RETAINING WALL 3

(Looking at F.F. of Wall)

* Spaced as shown in cross sections. See sheet 35 thru 37 of 84 for details.

PILE DATA

Type: Metal Shell - 14 in. dia. x 0.25 in. wall
 Nominal required bearing: See table
 Factored resistance available: See table
 Est. Length: See table
 No. Production Piles: See table
 No. Test Piles: See table
 (See Pile Data Table on Sheet 39).



FOOTING PLAN - RETAINING WALL 3

MINIMUM BAR LAP

- #4 bar = 2'-1"
- #4 bar (Top) = 2'-4"
- #4*** bar = 2'-0"
- #5** bar = 3'-8"
- #6 bar = 3'-10"
- #8*** bar = 5'-2"
- ** At Footing
- *** At Parapet

LEGEND

- ⊖ Indicates Battered Piles in direction of arrow
- ⊙ Indicates Vertical Piles

NOTES

1. For Bar List, Reinforcement Field Cutting Diagrams, and Bar Bend Details see Sheet 39 of 84.
2. Reinforcement bars designated (E) shall be epoxy coated.
3. Bars indicated thus 20x3-#5 etc. indicates 20 line of bars with 3 lengths per line.
4. Space reinforcement in bottom of footing to miss piles.
5. E.F. denotes Each Face
F.F. denotes Front Face
B.F. denotes Back Face
↓ Denotes battered pile 4:12.
6. For Pile Details, see Sheet 41 of 84.
7. Contractor shall verify location of utilities prior to driving piles.

8. For Construction Joint Detail and Expansion Joint Detail see Sheet 13 of 84.
9. For Weep Hole Detail, Wall Section at drainage scuppers and Parapet Joint Details see Sheet 13 of 84.
10. All stations/offsets are taken from C US6/159th Street.
11. For Pile Data Table, see Sheet 39 of 84.
12. For Section H-H see Sheet 37 of 84.
13. For Detail B and Detail C see Sheet 33 of 84.
14. For Architectural Rustication Finish Details see Sheet 42 of 84.

LOCHNER
 H.W. LOCHNER, INC.
 225 WEST WASHINGTON STREET
 12 TH FLOOR
 CHICAGO, ILLINOIS 60606

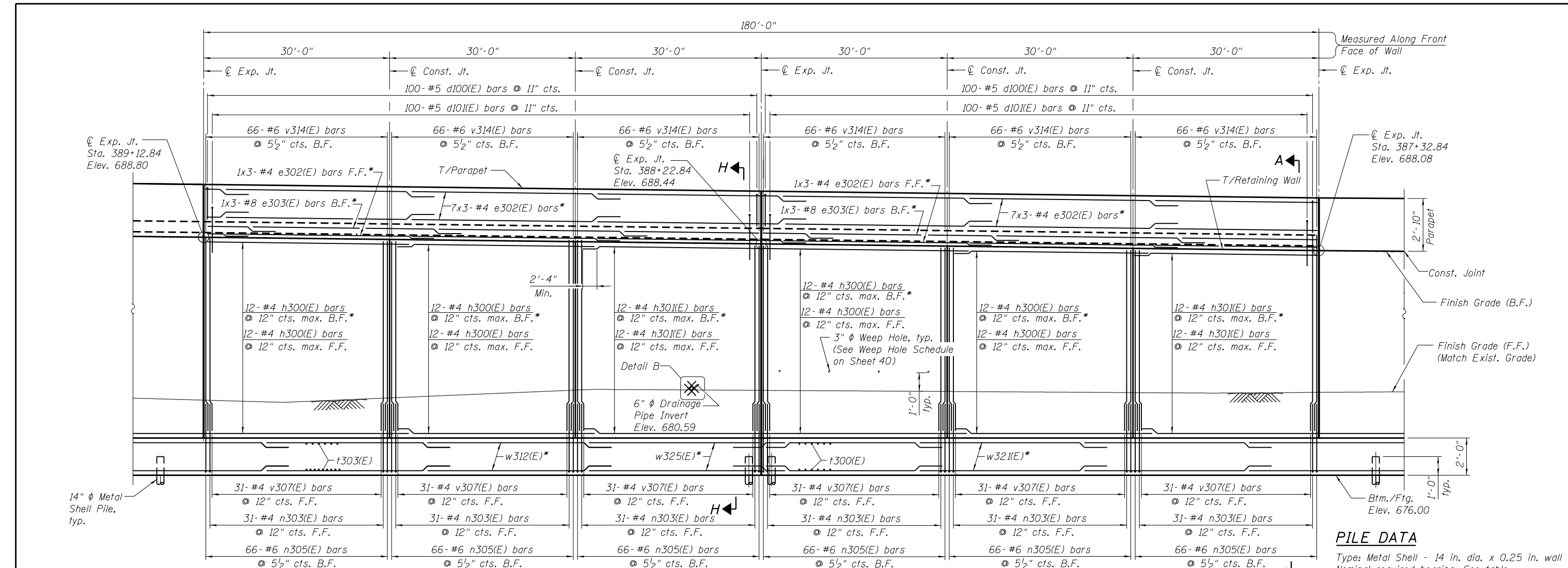
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PLOT DATE	CHECKED - CMM	REVISED

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**DETAIL PLAN & ELEVATION 12
 STRUCTURE NO. 016-1339**

SHEET NO. 27 OF 84 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	613
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



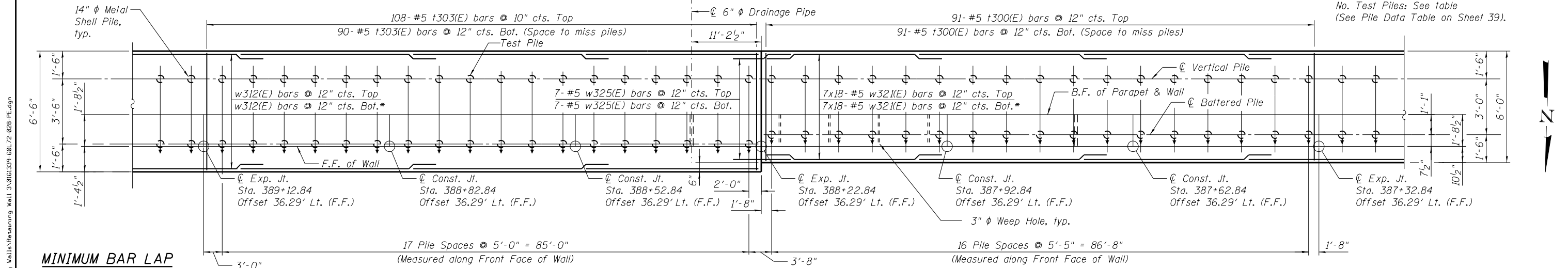
ELEVATION - RETAINING WALL 3

(Looking at F.F. of Wall)

* Spaced as shown in cross sections. See sheet 35 thru 37 of 84 for details.

PILE DATA

Type: Metal Shell - 14 in. dia. x 0.25 in. wall
 Nominal required bearing: See table
 Factored resistance available: See table
 Est. Length: See table
 No. Production Piles: See table
 No. Test Piles: See table
 (See Pile Data Table on Sheet 39).



FOOTING PLAN - RETAINING WALL 3

MINIMUM BAR LAP

- #4 bar = 2'-1"
- #4 bar (Top) = 2'-4"
- #4*** bar = 2'-0"
- #5** bar = 3'-8"
- #6 bar = 3'-10"
- #8*** bar = 5'-2"
- ** At Footing
- *** At Parapet

LEGEND

- Indicates Battered Piles in direction of arrow
- Indicates Vertical Piles

NOTES

1. For Bar List, Reinforcement Field Cutting Diagrams, and Bar Bend Details see Sheet 39 of 84.
2. Reinforcement bars designated (E) shall be epoxy coated.
3. Bars indicated thus 20x3-#5 etc. indicates 20 line of bars with 3 lengths per line.
4. Space reinforcement in bottom of footing to miss piles.
5. E.F. denotes Each Face
F.F. denotes Front Face
B.F. denotes Back Face
↓ Denotes battered pile 4:12.
6. For Pile Details, see Sheet 41 of 84.
7. Contractor shall verify location of utilities prior to driving piles.

8. For Construction Joint Detail and Expansion Joint Detail see Sheet 13 of 84.
9. For Weep Hole Detail, Wall Section at drainage scuppers and Parapet Joint Details see Sheet 13 of 84.
10. All stations/offsets are taken from C US6/159th Street.
11. For Pile Data Table, see Sheet 39 of 84.
12. For Section A-A and Section H-H see Sheet 35 and 37 of 84.
13. For Detail B see Sheet 33 of 84.
14. For Architectural Rustication Finish Details see Sheet 42 of 84.

LOCHNER
 H.W. LOCHNER, INC.
 225 WEST WASHINGTON STREET
 12 TH FLOOR
 CHICAGO, ILLINOIS 60606

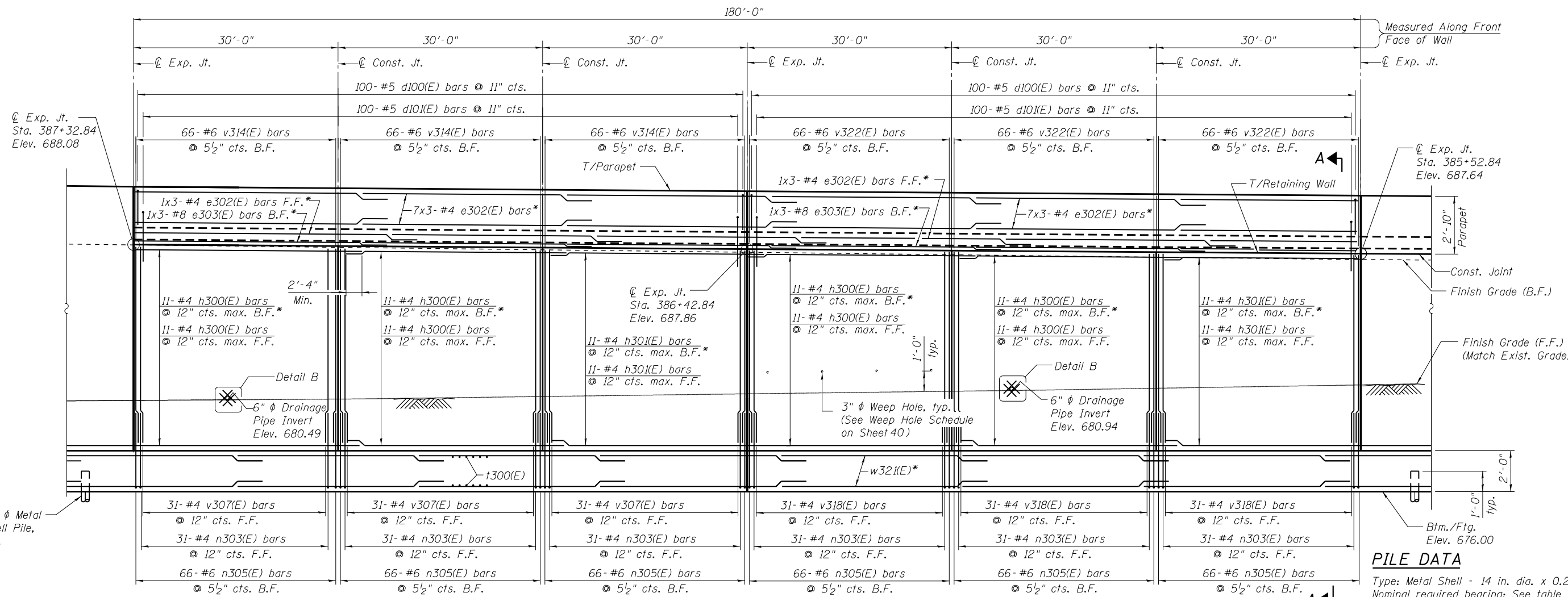
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DETAIL PLAN & ELEVATION 13
STRUCTURE NO. 016-1339

SHEET NO. 28 OF 84 SHEETS

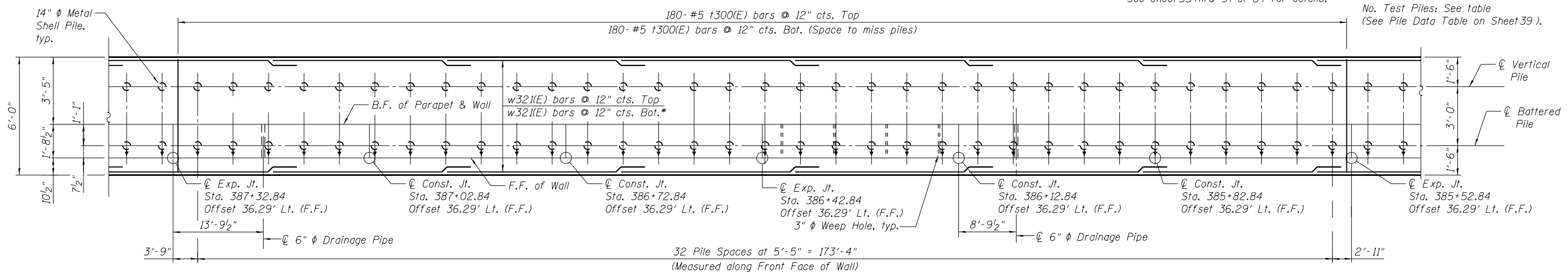
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	614
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



ELEVATION - RETAINING WALL 3
(Looking at F.F. of Wall)

PILE DATA
Type: Metal Shell - 14 in. dia. x 0.25 in. wall
Nominal required bearing: See table
Factored resistance available: See table
Est. Length: See table
No. Production Piles: See table
No. Test Piles: See table
(See Pile Data Table on Sheet 39).

* Spaced as shown in cross sections.
See sheet 35 thru 37 of 84 for details.



FOOTING PLAN - RETAINING WALL 3

MINIMUM BAR LAP

- #4 bar = 2'-1"
- #4 bar (Top) = 2'-4"
- #4*** bar = 2'-0"
- #5** bar = 3'-8"
- #6 bar = 3'-10"
- #8*** bar = 5'-2"
- ** At Footing
- *** At Parapet

LEGEND

- Indicates Battered Piles in direction of arrow
- Indicates Vertical Piles

NOTES

1. For Bar List, Reinforcement Field Cutting Diagrams, and Bar Bend Details see Sheet 39 of 84.
2. Reinforcement bars designated (E) shall be epoxy coated.
3. Bars indicated thus 20x3-#5 etc. indicates 20 line of bars with 3 lengths per line.
4. Space reinforcement in bottom of footing to miss piles.
5. E.F. denotes Each Face
F.F. denotes Front Face
B.F. denotes Back Face
↓ Denotes battered pile 4:12.
6. For Pile Details, see Sheet 41 of 84.
7. Contractor shall verify location of utilities prior to driving piles.

8. For Construction Joint Detail and Expansion Joint Detail see Sheet 13 of 84.
9. For Weep Hole Detail, Wall Section at drainage scuppers and Parapet Joint Details see Sheet 13 of 84.
10. All stations/offsets are taken from CL US6/159th Street.
11. For Pile Data Table, see Sheet 39 of 84.
12. For Section A-A see Sheet 35 of 84.
13. For Detail B and Detail C see Sheet 33 of 84.
14. For Architectural Rustication Finish Details see Sheet 42 of 84.

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LOCHNER
H.W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

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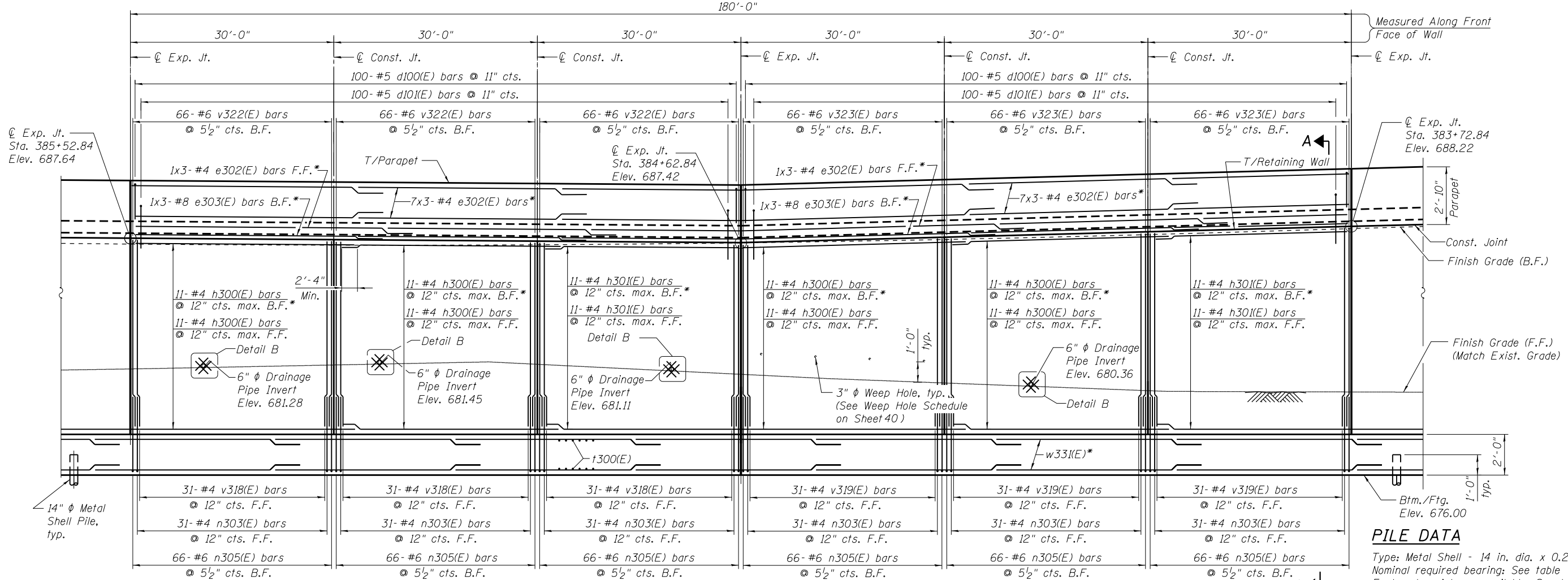
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DETAIL PLAN & ELEVATION 14
STRUCTURE NO. 016-1339

SHEET NO. 29 OF 84 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	615
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				

180'-0"



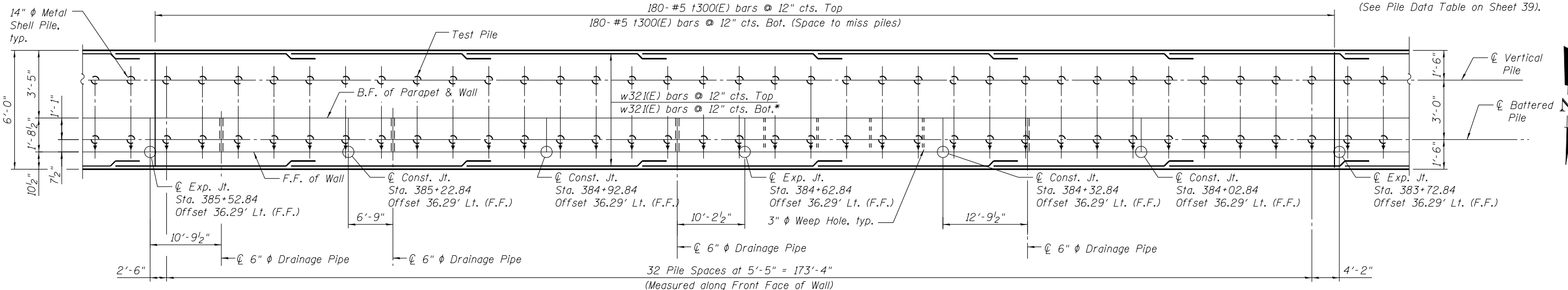
ELEVATION - RETAINING WALL 3

(Looking at F.F. of Wall)

* Spaced as shown in cross sections. See sheet 35 thru 37 of 84 for details.

PILE DATA

Type: Metal Shell - 14 in. dia. x 0.25 in. wall
 Nominal required bearing: See table
 Factored resistance available: See table
 Est. Length: See table
 No. Production Piles: See table
 No. Test Piles: See table
 (See Pile Data Table on Sheet 39).



FOOTING PLAN - RETAINING WALL 3

MINIMUM BAR LAP

- #4 bar = 2'-1"
- #4 bar (Top) = 2'-4"
- #4*** bar = 2'-0"
- #5** bar = 3'-8"
- #6 bar = 3'-10"
- #8*** bar = 5'-2"
- ** At Footing
- *** At Parapet

LEGEND

- ⊙ Indicates Battered Piles in direction of arrow
- ⊙ Indicates Vertical Piles

NOTES

1. For Bar List, Reinforcement Field Cutting Diagrams, and Bar Bend Details see Sheet 39 of 84.
2. Reinforcement bars designated (E) shall be epoxy coated.
3. Bars indicated thus 20x3-#5 etc. indicates 20 line of bars with 3 lengths per line.
4. Space reinforcement in bottom of footing to miss piles.
5. E.F. denotes Each Face
F.F. denotes Front Face
B.F. denotes Back Face
↓ Denotes battered pile 4:12.
6. For Pile Details, see Sheet 41 of 84.
7. Contractor shall verify location of utilities prior to driving piles.
8. For Construction Joint Detail and Expansion Joint Detail see Sheet 13 of 84.
9. For Weep Hole Detail, Wall Section at drainage scuppers and Parapet Joint Details see Sheet 13 of 84.
10. All stations/offsets are taken from C US6/159th Street.
11. For Pile Data Table, see Sheet 39 of 84.
12. For Section A-A see Sheet 35 of 84.
13. For Detail B see Sheet 33 of 84.
14. For Architectural Rustication Finish Details see Sheet 42 of 84.

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LOCHNER
 H.W. LOCHNER, INC.
 225 WEST WASHINGTON STREET
 12 TH FLOOR
 CHICAGO, ILLINOIS 60606

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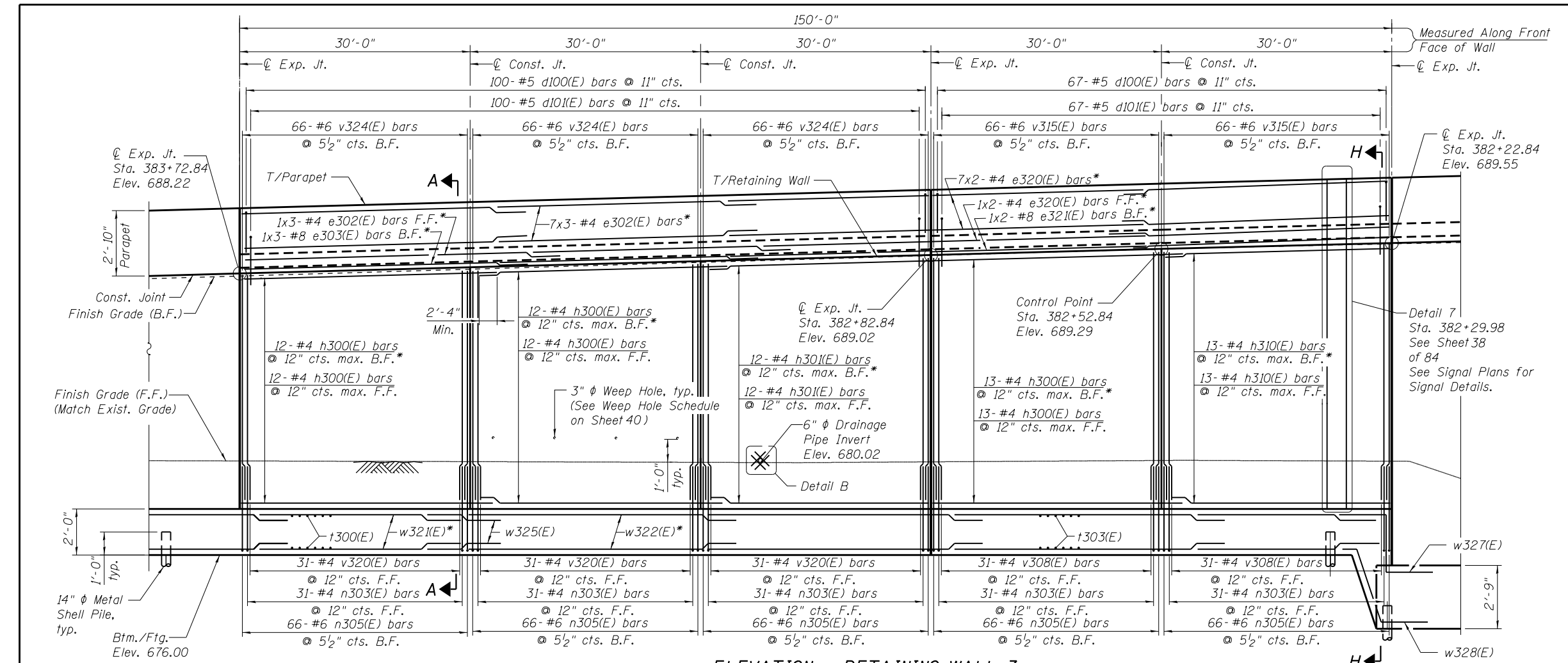
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STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

DETAIL PLAN & ELEVATION 15
 STRUCTURE NO. 016-1339

SHEET NO. 30 OF 84 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	616
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



ELEVATION - RETAINING WALL 3
(Looking at F.F. of Wall)

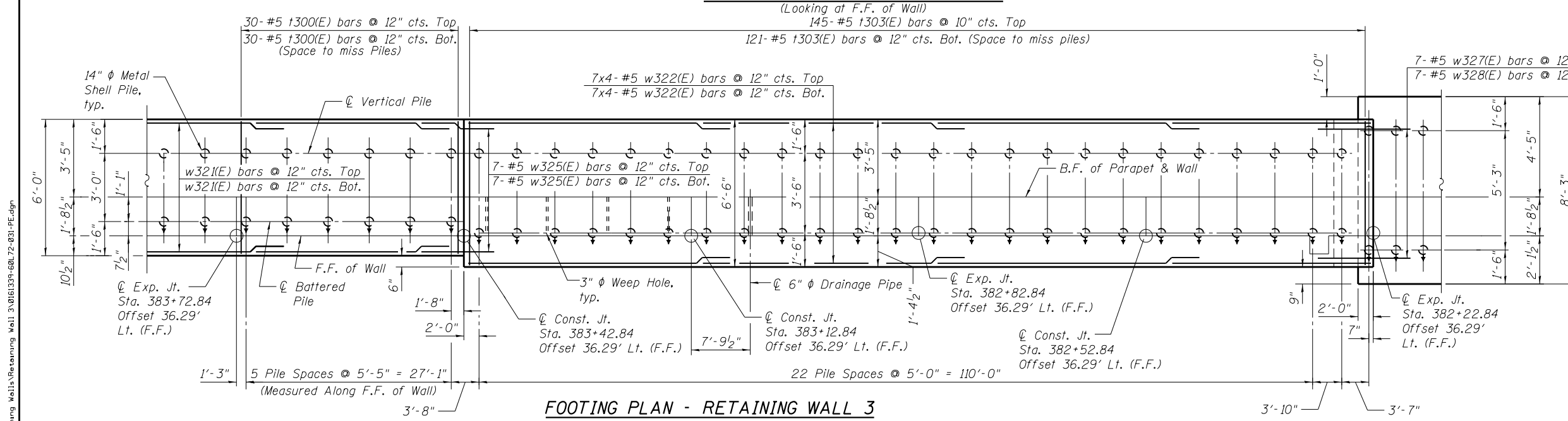
MINIMUM BAR LAP

- #4 bar = 2'-1"
- #4 bar (Top) = 2'-4"
- #4*** bar = 2'-0"
- #5** bar = 3'-8"
- #6 bar = 3'-10"
- #8*** bar = 5'-2"
- ** At Footing
- *** At Parapet

PILE DATA

Type: Metal Shell - 14 in. dia. x 0.25 in. wall
 Nominal required bearing: See table
 Factored resistance available: See table
 Est. Length: See table
 No. Production Piles: See table
 No. Test Piles: See table
 (See Pile Data Table on Sheet 39).

* Spaced as shown in cross sections.
 See sheet 35 thru 37 of 84 for details.



FOOTING PLAN - RETAINING WALL 3

NOTES

1. For Bar List, Reinforcement Field Cutting Diagrams, and Bar Benc Details see Sheet 39 of 84.
2. Reinforcement bars designated (E) shall be epoxy coated.
3. Bars indicated thus 20x3-#5 etc. indicates 20 line of bars with 3 lengths per line.
4. Space reinforcement in bottom of footing to miss piles.
5. E.F. denotes Each Face
F.F. denotes Front Face
B.F. denotes Back Face
↓ Denotes battered pile 4:12.
6. For Pile Details, see Sheet 41 of 84.
7. Contractor shall verify location of utilities prior to driving piles.
8. For Construction Joint Detail and Expansion Joint Detail see Sheet 13 of 84.
9. For Weep Hole Detail, Wall Section at drainage scuppers and Parapet Joint Details see Sheet 13 of 84.
10. All stations/offsets are taken from C US6/159th Street.
11. For Pile Data Table, see Sheet 39 of 84.
12. For Section A-A and H-H see Sheet 35 and 37 of 84.
13. For Detail B see Sheet 33 of 84.
14. For Architectural Rustication Finish Details see Sheet 42 of 84.

LOCHNER
 H.W. LOCHNER, INC.
 225 WEST WASHINGTON STREET
 12 TH FLOOR
 CHICAGO, ILLINOIS 60606

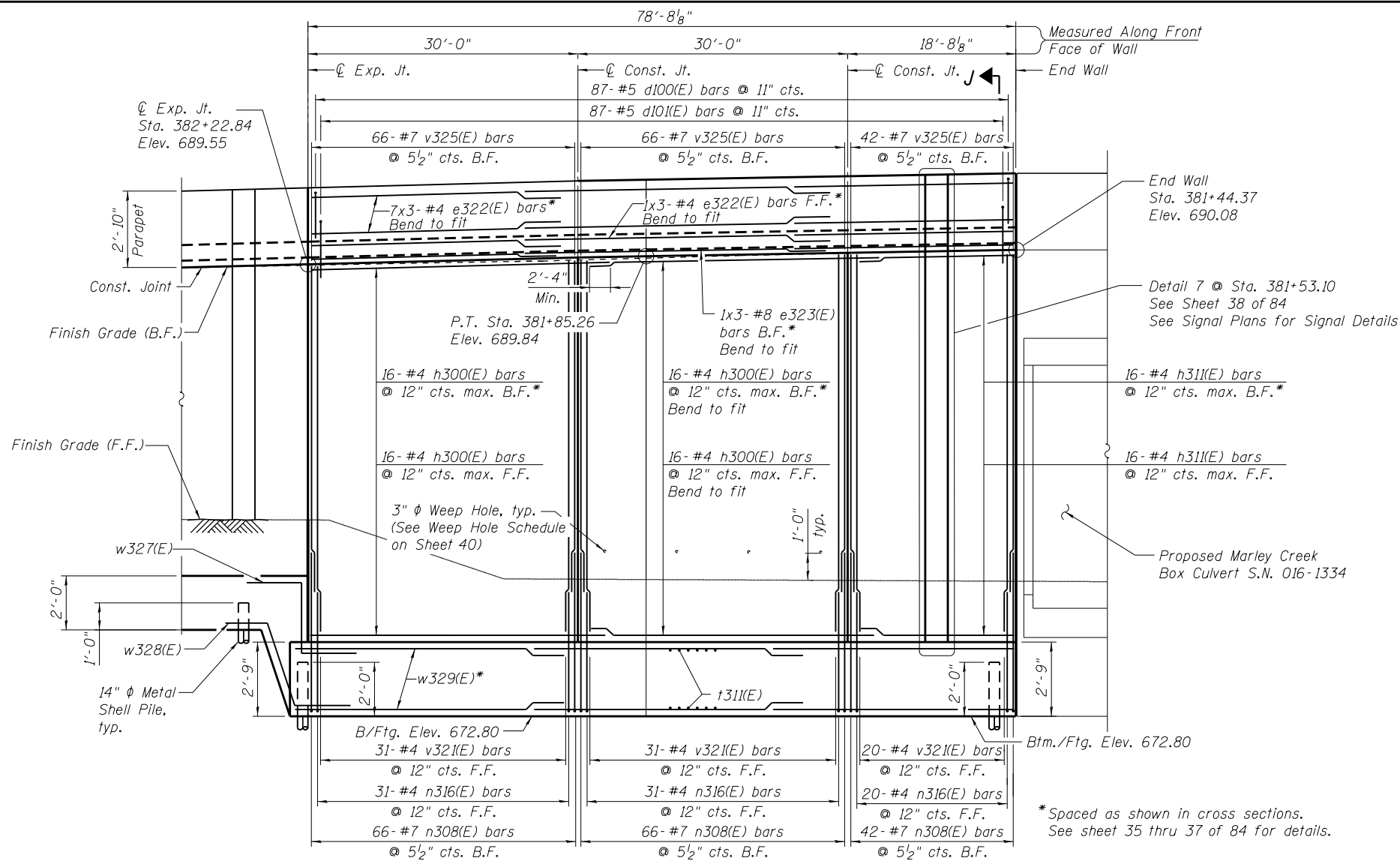
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

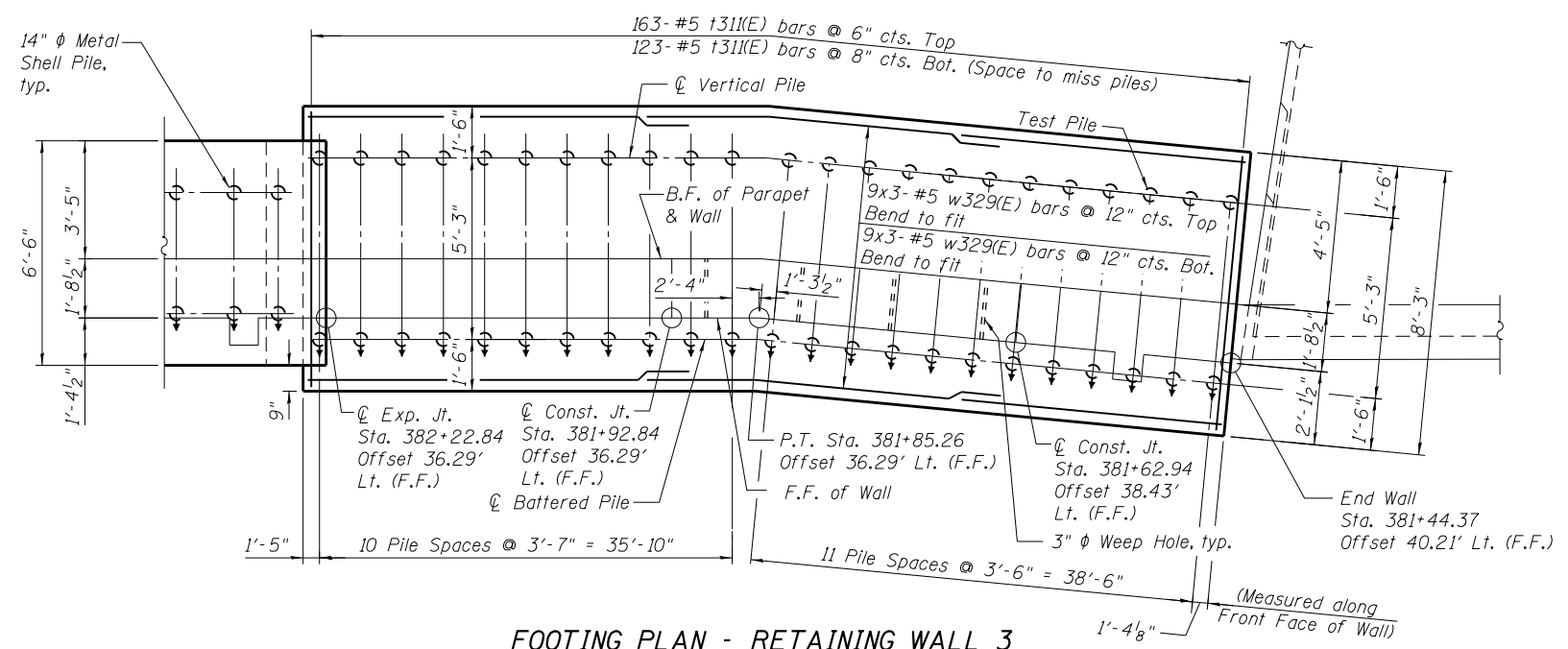
DETAIL PLAN & ELEVATION 16
STRUCTURE NO. 016-1339
 SHEET NO. 31 OF 84 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	617
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				

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ELEVATION - RETAINING WALL 3
(Looking at F.F. of Wall)



FOOTING PLAN - RETAINING WALL 3

MINIMUM BAR LAP

- #4 bar = 2'-1"
- #4 bar (Top) = 2'-4"
- #4*** bar = 2'-0"
- #5** bar = 3'-8"
- #7 bar = 5'-2"
- #8*** bar = 5'-2"
- ** At Footing
- *** At Parapet

LEGEND

- Indicates Battered Piles in direction of arrow
- Indicates Vertical Piles

PILE DATA

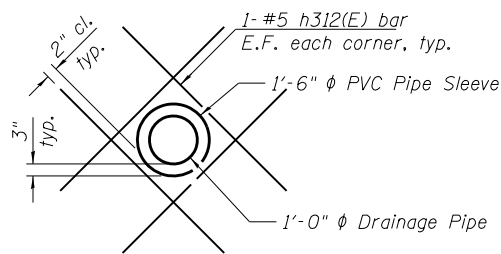
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 Nominal required bearing: See table
 Factored resistance available: See table
 Est. Length: See table
 No. Production Piles: See table
 No. Test Piles: See table
 (See Pile Data Table on Sheet 39).

NOTES

1. For Bar List, Reinforcement Field Cutting Diagrams, and Bar Bend Details see Sheet 39 of 84.
2. Reinforcement bars designated (E) shall be epoxy coated.
3. Bars indicated thus 20x3-#5 etc. indicates 20 line of bars with 3 lengths per line.
4. Space reinforcement in bottom of footing to miss piles.
5. E.F. denotes Each Face
F.F. denotes Front Face
B.F. denotes Back Face
↓ Denotes battered pile 4:12.
6. For Pile Details, see Sheet 41 of 84.
7. Contractor shall verify location of utilities prior to driving piles.
8. For Construction Joint Detail and Expansion Joint Detail see Sheet 13 of 84.
9. For Weep Hole Detail, Wall Section at drainage scuppers and Parapet Joint Details see Sheet 13 of 84.
10. All stations/offsets are taken from C US6/159th Street.
11. For Pile Data Table, see Sheet 39 of 84.
12. For Section J-J see Sheet 37 of 84.
13. For Architectural Rustication Finish Details see Sheet 42 of 84.

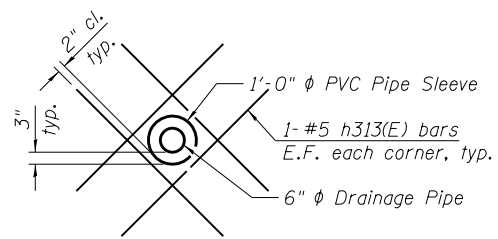
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LOCHNER H.W. LOCHNER, INC. 225 WEST WASHINGTON STREET 12 TH FLOOR CHICAGO, ILLINOIS 60606	USER NAME =	DESIGNED - RAB	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	DETAIL PLAN & ELEVATION 17 STRUCTURE NO. 016-1339	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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	PLOT DATE =	CHECKED - CMM	REVISED			ILLINOIS FED. AID PROJECT				
						SHEET NO. 32 OF 84 SHEETS				



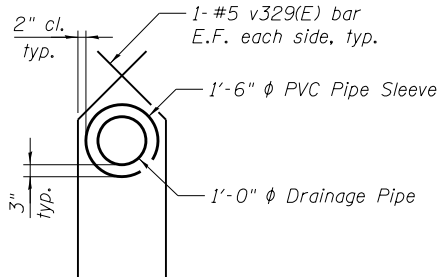
DETAIL A

Cut vertical bars to avoid 1'-6" ϕ PVC Pipe Sleeve
See Typical Wall Section At Catch Basin
on Sheet 13 of 84 for additional details.
(5 sets total required)



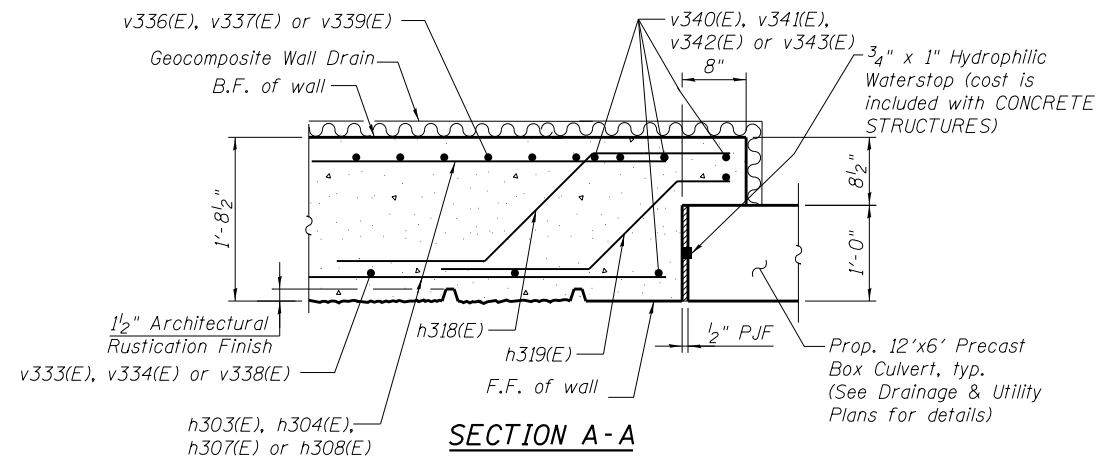
DETAIL B

Cut vertical bars to avoid 1'-0" ϕ PVC Pipe Sleeve
See Typical Wall Section At Drainage Scupper
on Sheet 13 of 84 for additional details.
(15 sets total required)

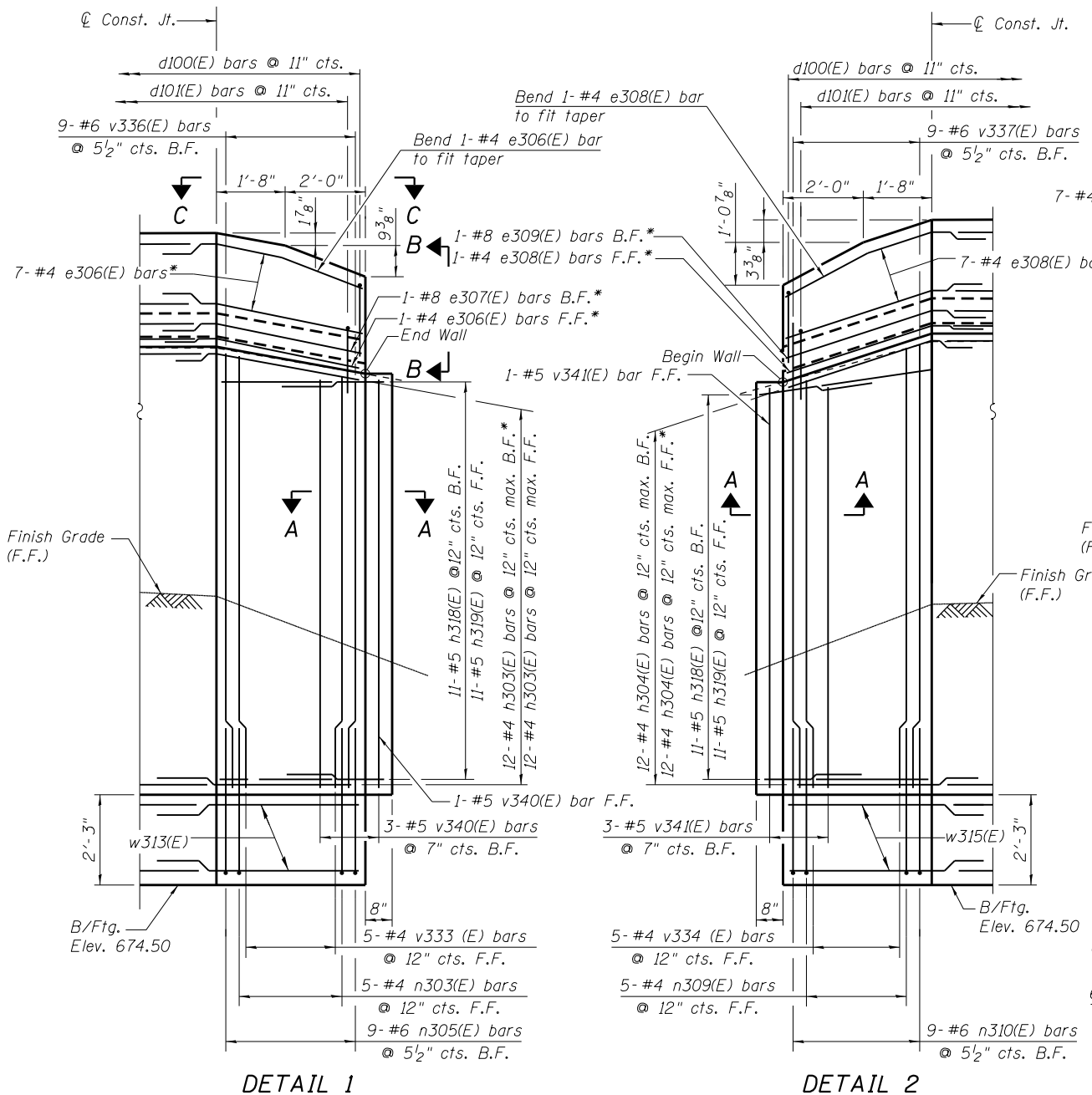


DETAIL C

Cut vertical bars to avoid 1'-6" ϕ PVC Pipe Sleeve
See Typical Wall Section At Catch Basin
on Sheet 13 of 84 for additional details.
(1 set total required)

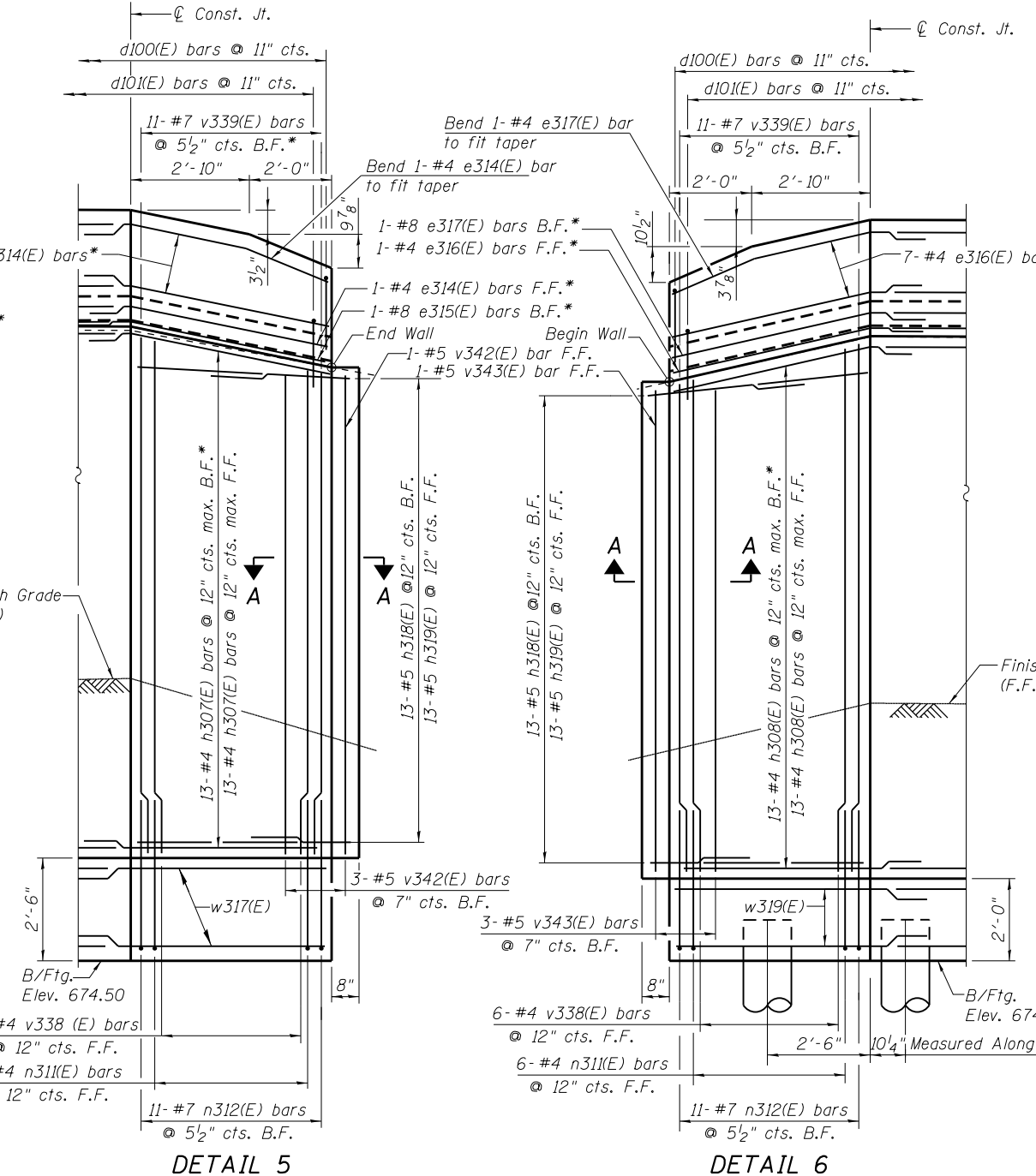


SECTION A-A



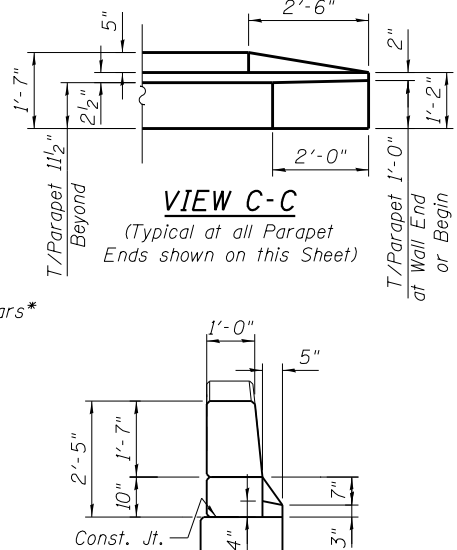
DETAIL 1

DETAIL 2



DETAIL 5

DETAIL 6



VIEW C-C

VIEW B-B

* Spaced as shown in cross sections.
See sheet 35 thru 37 of 84 for details.

- NOTES:**
- For Bar List, reinforcement field cutting diagrams, and bar bend details see Sheet 39 of 84.
 - Reinforcement bars designated (E) shall be epoxy coated.
 - E.F. denotes Each Face
F.F. denotes Front Face
B.F. denotes Back Face

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LOCHNER
H.W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

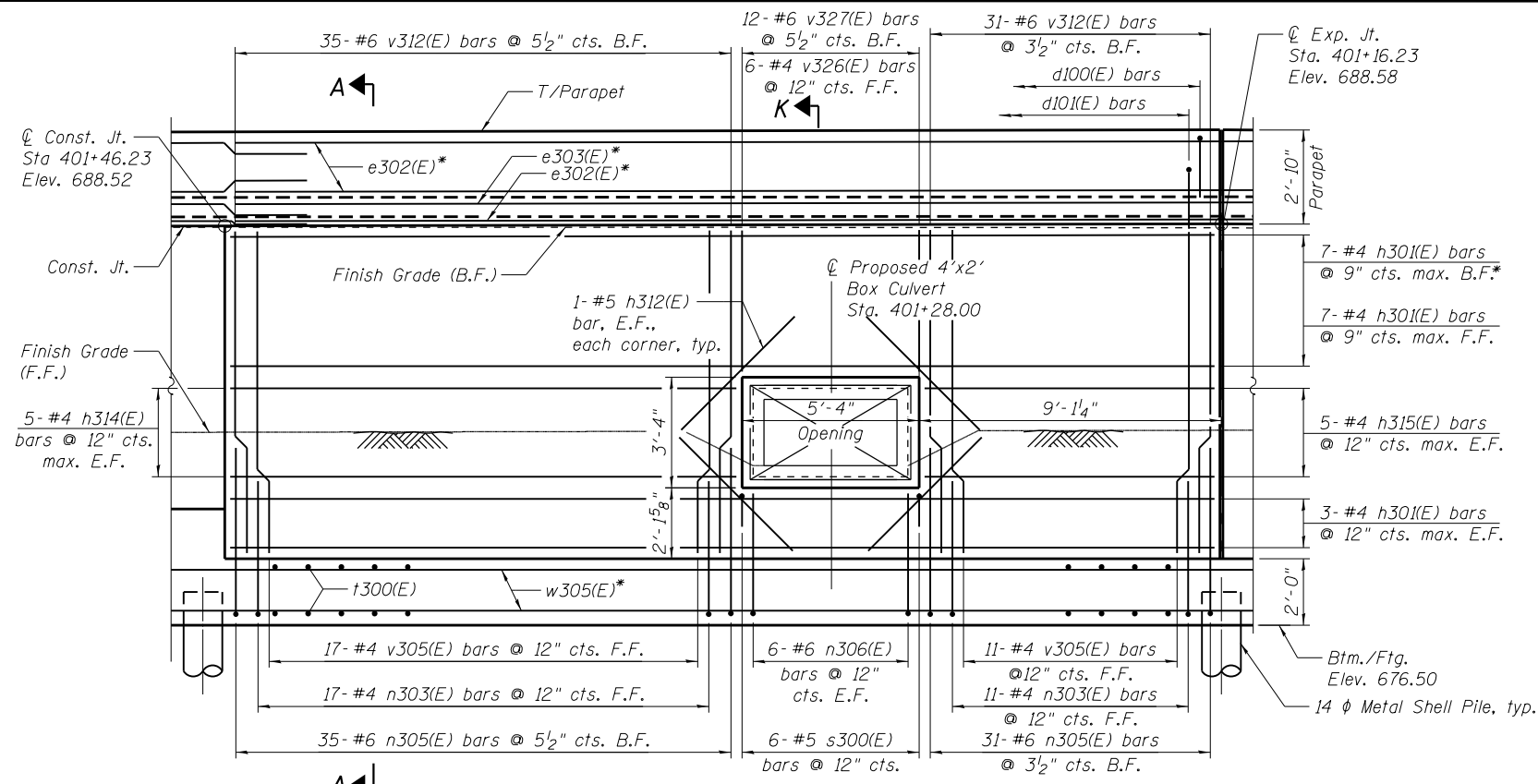
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FILE NAME = 0161339-60L72-033-DE.dgn	CHECKED - CMM	REVISED
PLOT SCALE =	DRAWN - EF	REVISED
PLOT DATE	CHECKED - CMM	REVISED

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**SECTIONS & DETAILS 1
STRUCTURE NO. 016-1339**

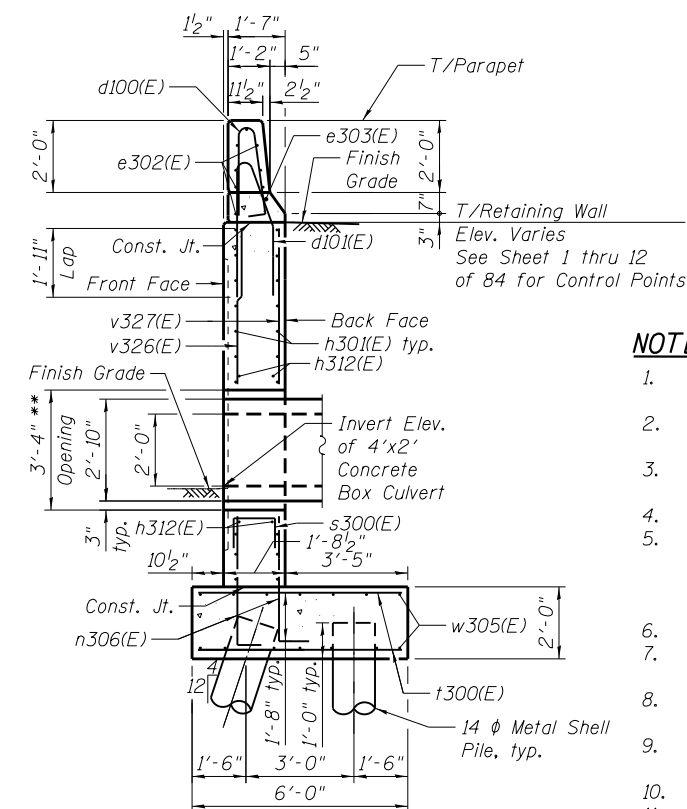
SHEET NO. 33 OF 84 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	619
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



DETAIL 3

*Spaced as shown in cross sections. See this sheet for details.

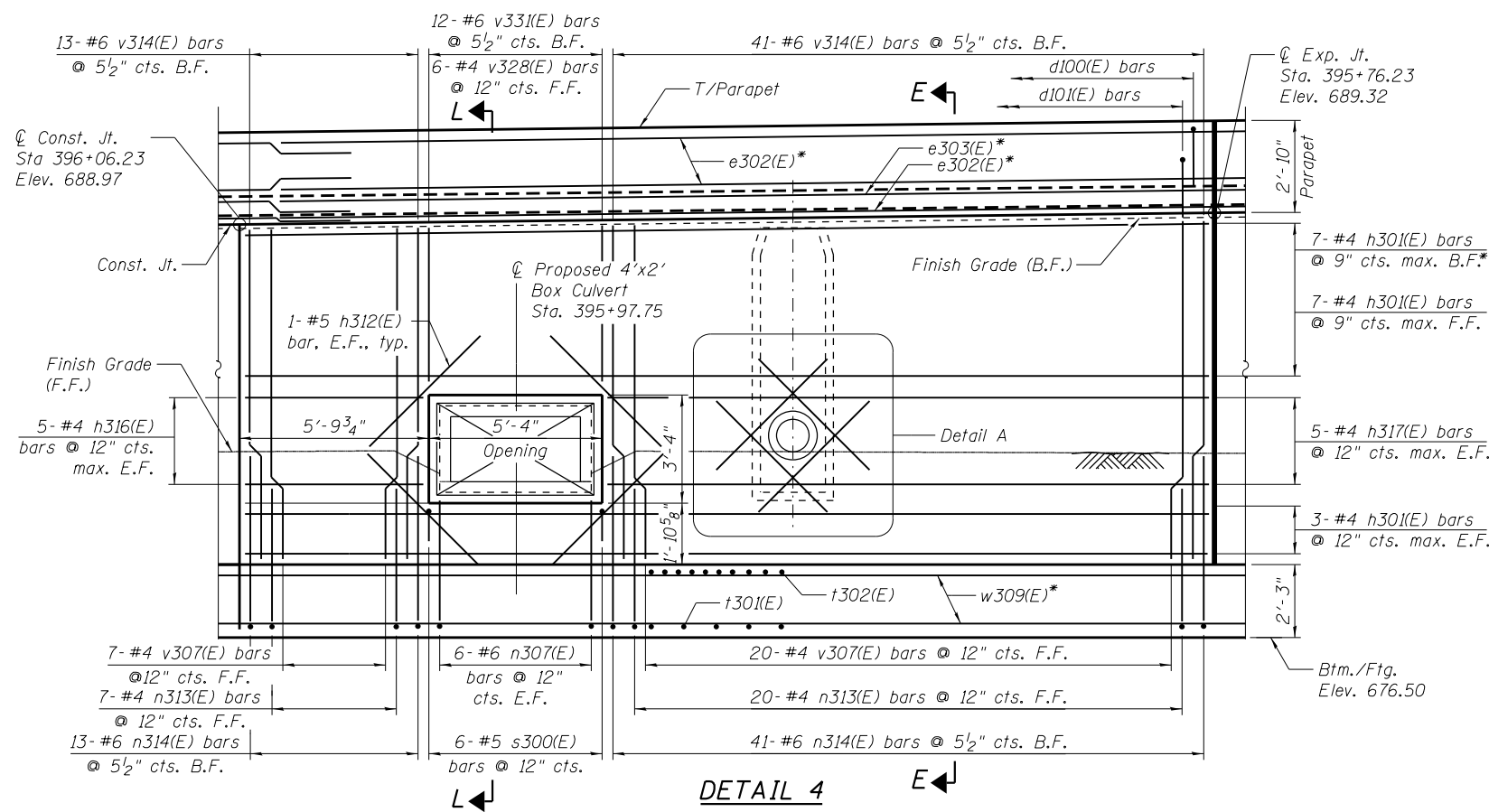


SECTION K-K

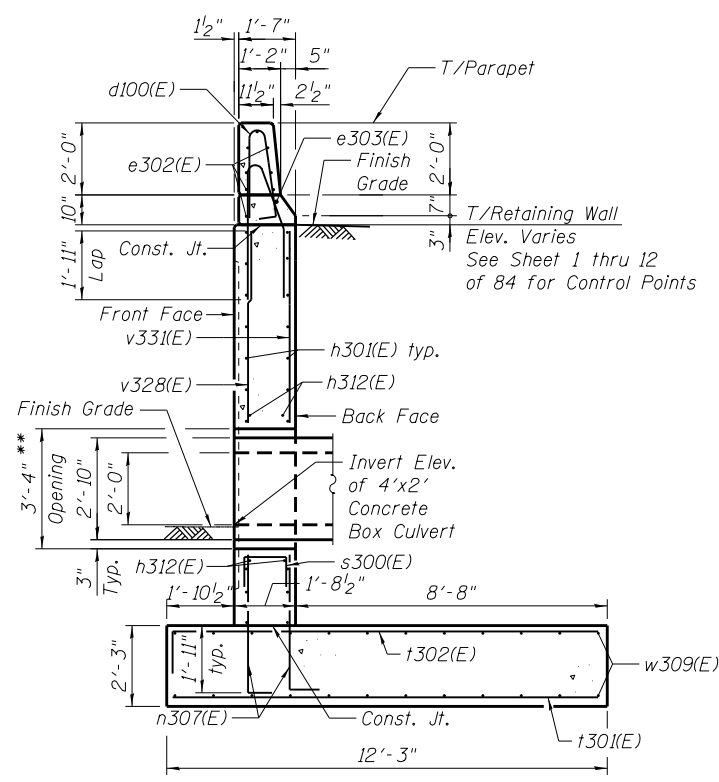
**After 4'x2' precast reinforced concrete box culvert has been installed and the adjacent Dry Land Bridge constructed, concrete shall be placed between the wall opening and the exterior edges of the culvert.

NOTES

- For Bar List, reinforcement field cutting diagrams, and bar bend details see Sheet 39 of 84.
- Reinforcement bars designated (E) shall be epoxy coated.
- Bars indicated thus 20x3-#5 etc. indicates 20 line of bars with 3 lengths per line.
- Space reinforcement in bottom of footing to miss piles.
- E.F. denotes Each Face
F.F. denotes Front Face
B.F. denotes Back Face
↓ Denotes battered pile 4:12.
For Pile Details, see Sheet 41 of 84.
- Contractor shall verify location of utilities prior to driving piles.
- For Construction Joint Detail and Expansion Joint Detail see Sheet 13 of 84.
- For Weep Hole Detail, Wall Section at drainage scuppers and Parapet Joint Details see Sheet 13 of 84.
- All stations/offsets are taken from $\text{CL US6/159th Street}$.
- For Detail A see Sheet 33 of 84.
- For location of DETAIL 3 see Sheet 19;
For location of DETAIL 4 see Sheet 22.



DETAIL 4



SECTION L-L

**After 4'x2' precast reinforced concrete box culvert has been installed and the adjacent Dry Land Bridge constructed, concrete shall be placed between the wall opening and the exterior edges of the culvert.

MINIMUM BAR LAP

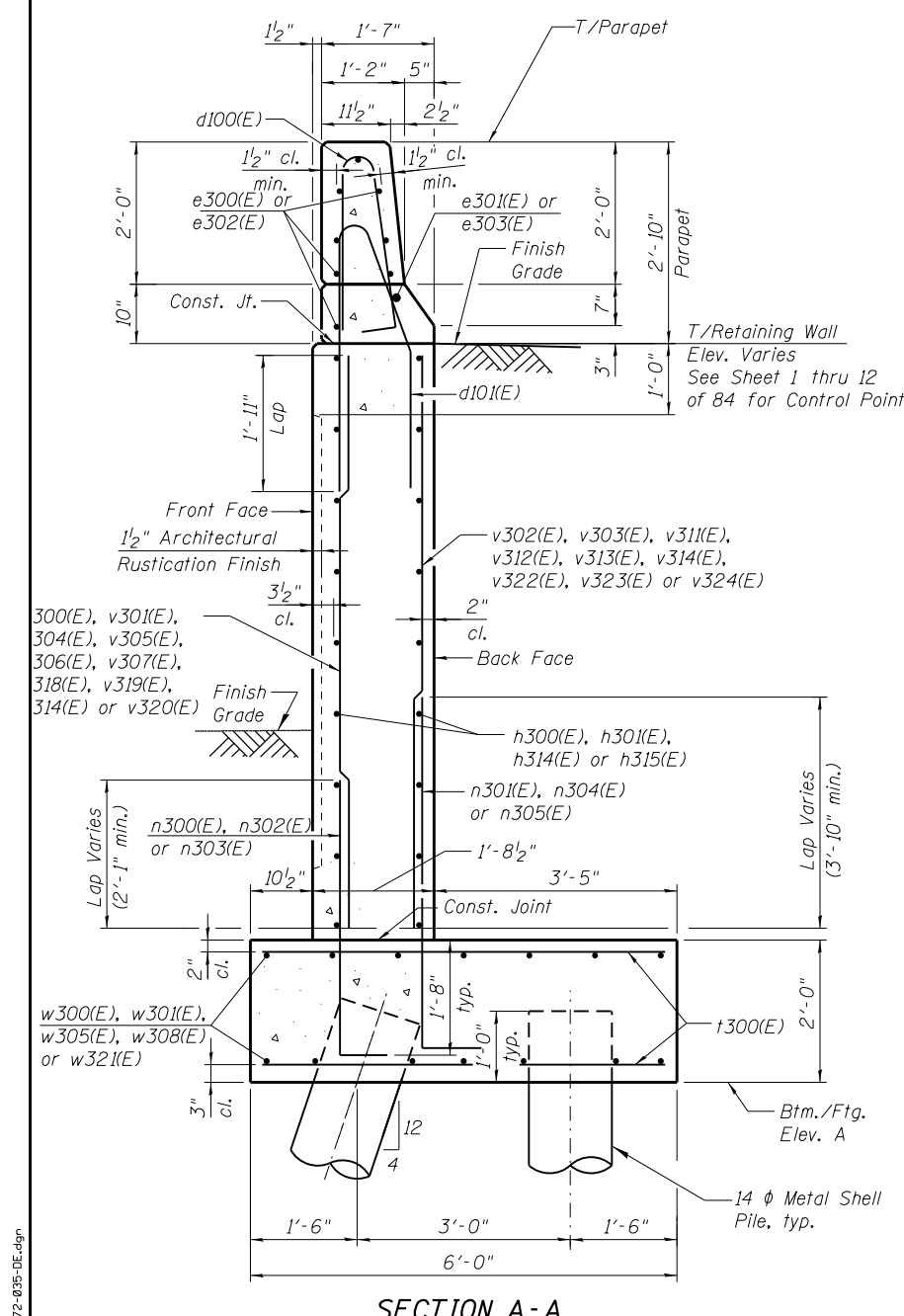
- #4 bar = 2'-1"
- #4 bar (Top) = 2'-4"
- #4*** bar = 2'-0"
- #5** bar = 3'-8"
- #6 bar = 3'-10"
- #8*** bar = 5'-2"

** At Footing
*** At Parapet

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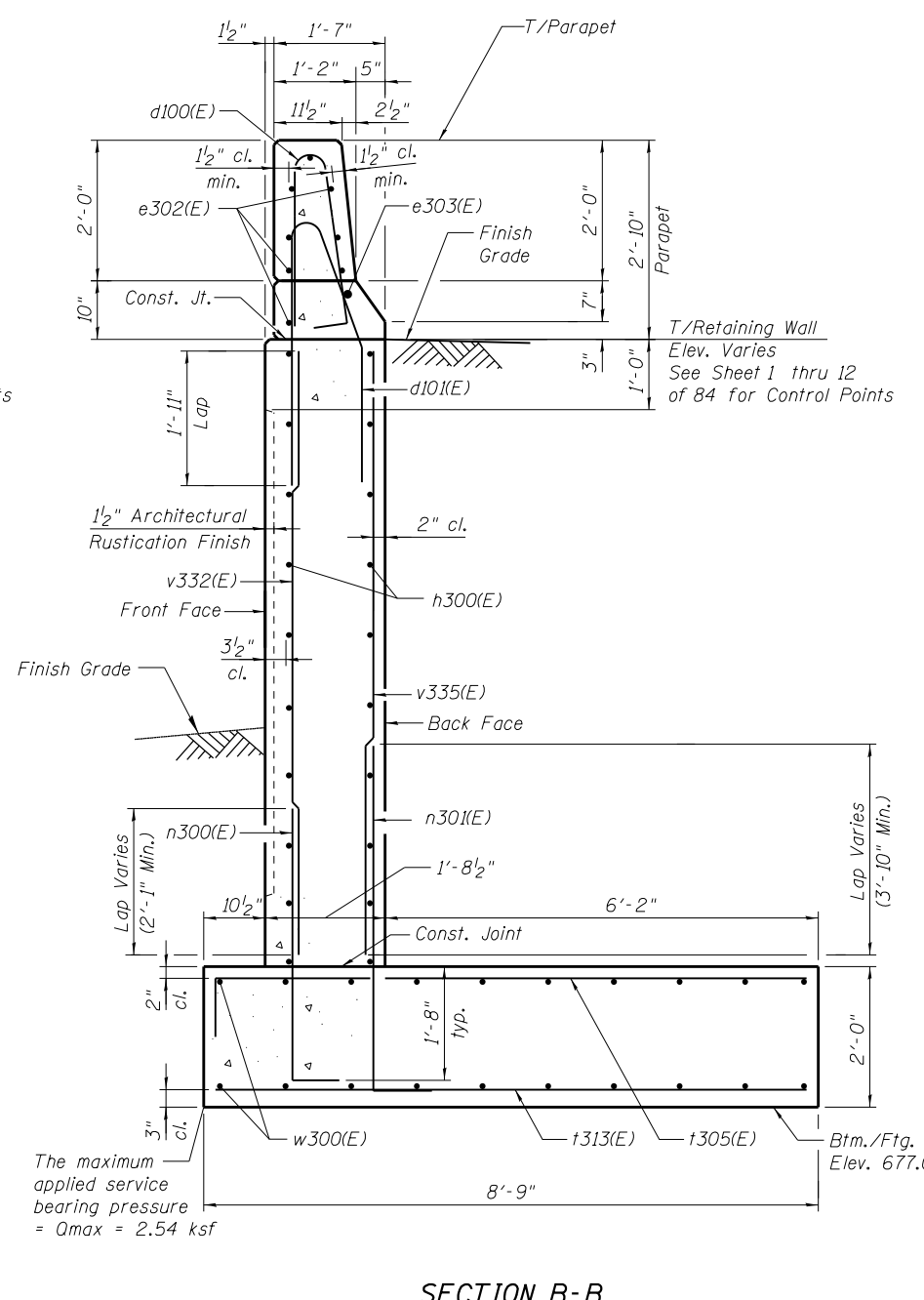
LOCHNER H. W. LOCHNER, INC. 225 WEST WASHINGTON STREET 12 TH FLOOR CHICAGO, ILLINOIS 60606	USER NAME = FILE NAME = 0161339-60L72-034-DE.dgn PLOT SCALE = PLOT DATE =	DESIGNED - RAB CHECKED - CMM DRAWN - EF CHECKED - CMM	REVISED REVISED REVISED REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SECTIONS AND DETAILS 2 STRUCTURE NO. 016-1339 SHEET NO. 34 OF 84 SHEETS	F.A.P. RT.E. = 351 SECTION = 2010-081-R COUNTY = COOK TOTAL SHEETS = 1045 SHEET NO. = 620 CONTRACT NO. 60L72	ILLINOIS FED. AID PROJECT

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SECTION A-A

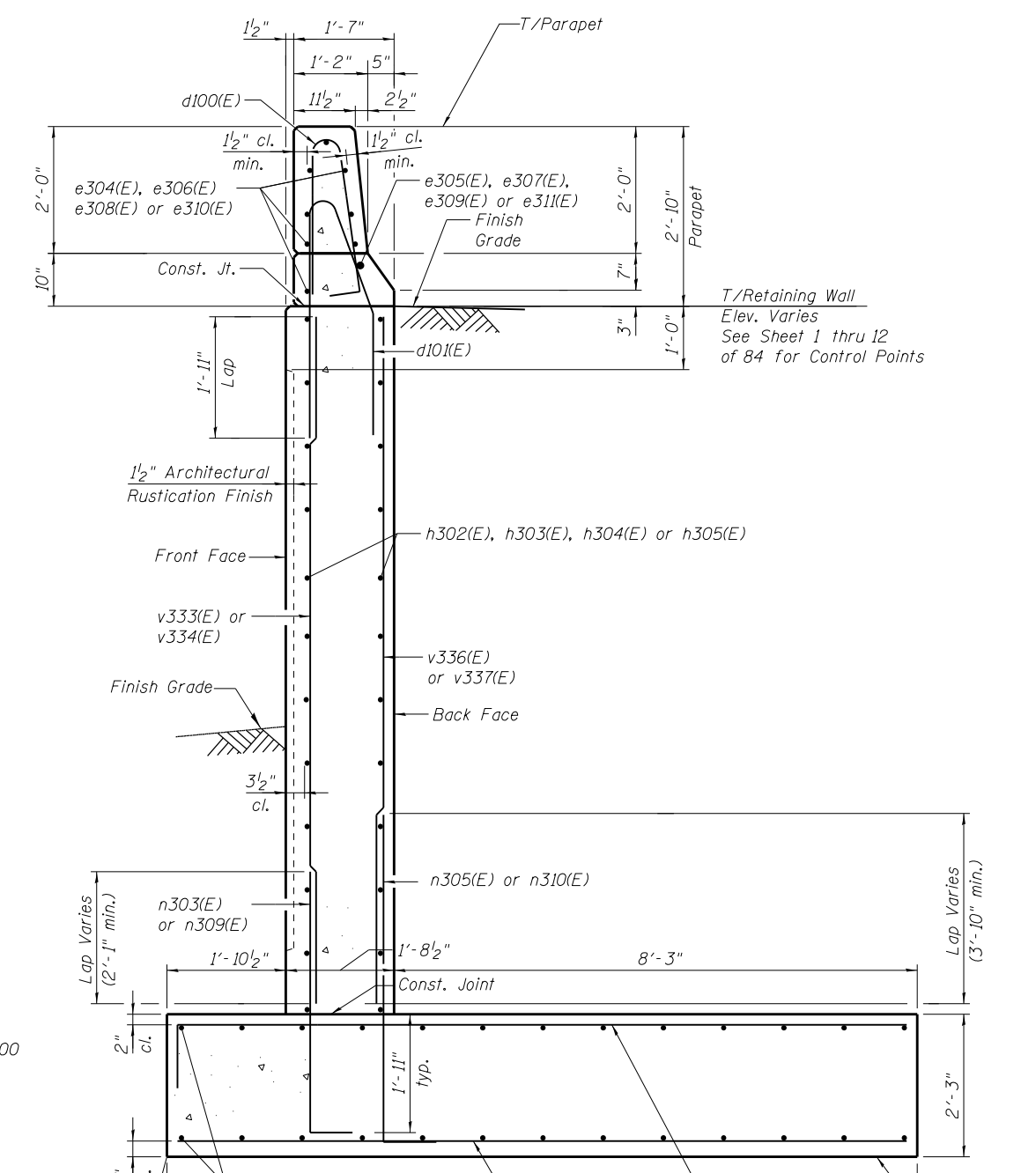
STATION	ELEVATION A
407+61.18 to 407+31.18	679.25
407+31.18 to 403+71.18	677.00
402+06.23 to 396+06.23	676.50
388+22.84 to 383+42.84	676.00



SECTION B-B

STA. 403+71.18 to STA. 403+41.18

The maximum applied service bearing pressure = $Q_{max} = 2.54$ ksf



SECTION C-C

STA. 403+41.18 to 403+14.30 and STA. 402+86.70 to 402+66.23

The maximum applied service bearing pressure = $Q_{max} = 2.63$ ksf

LOCHNER
H.W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

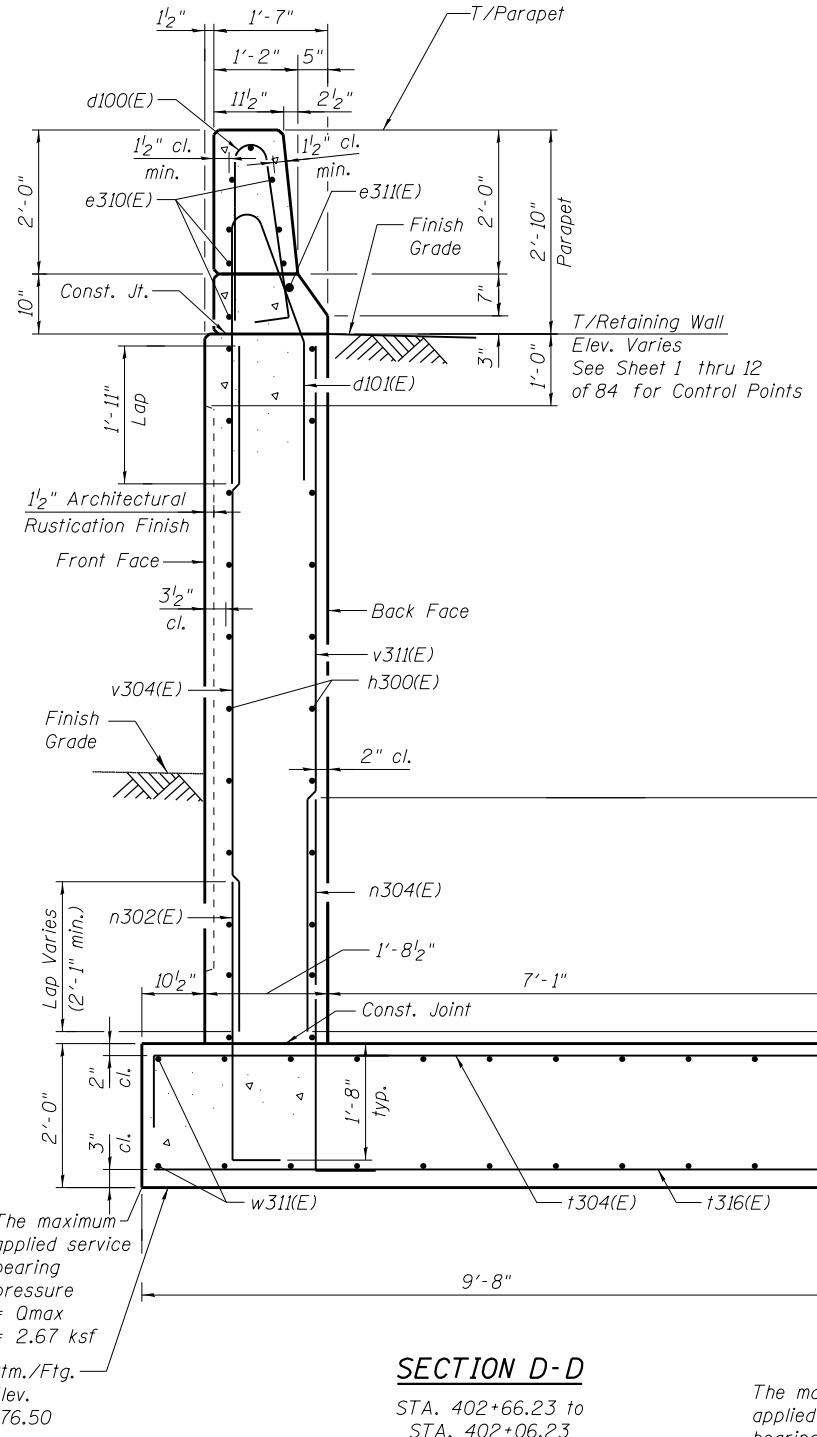
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PLOT SCALE =	DRAWN - EF	REVISED
PLOT DATE =	CHECKED - CMM	REVISED

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

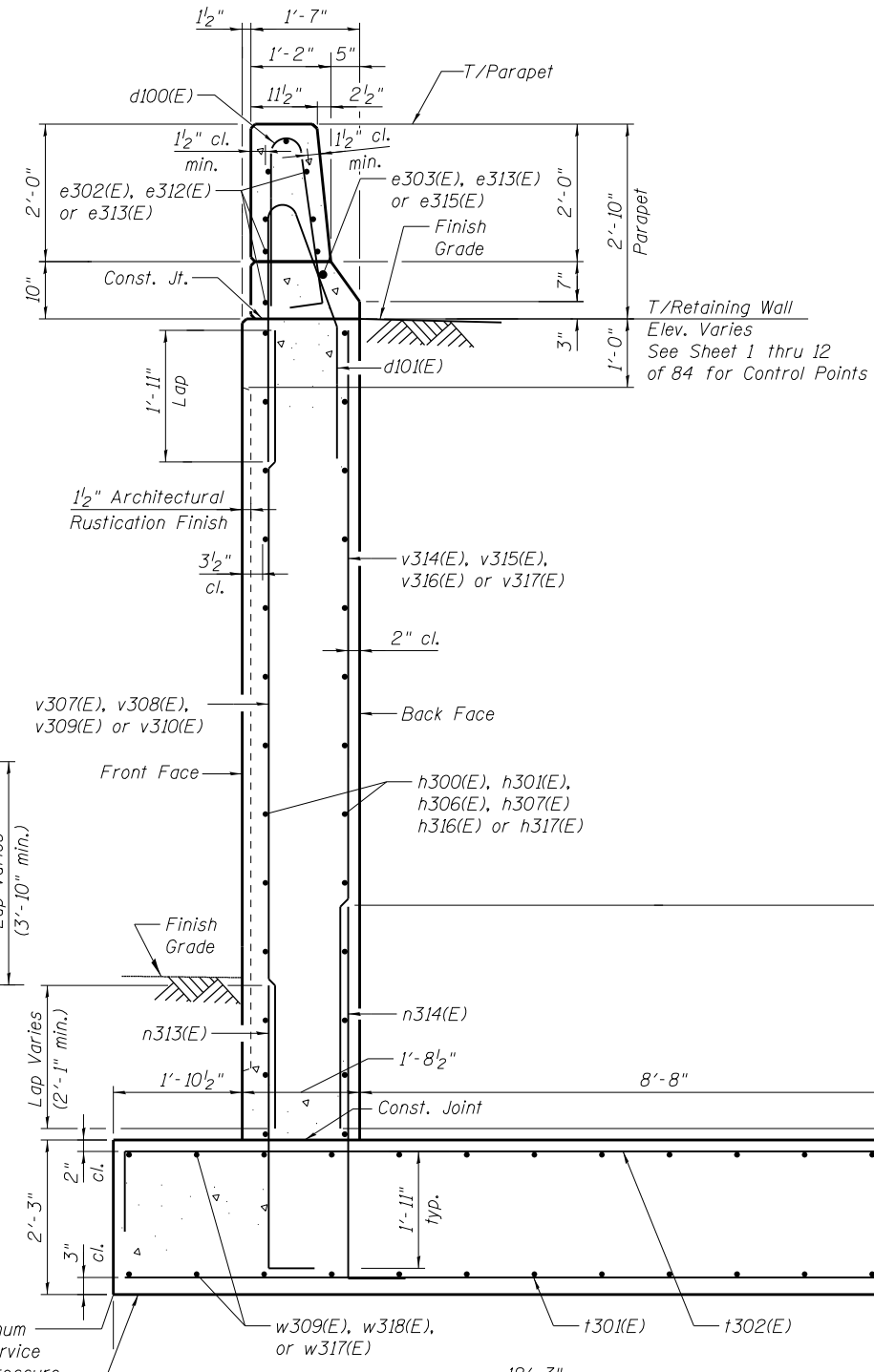
**SECTIONS & DETAILS 3
STRUCTURE NO. 016-1339**

SHEET NO. 35 OF 84 SHEETS

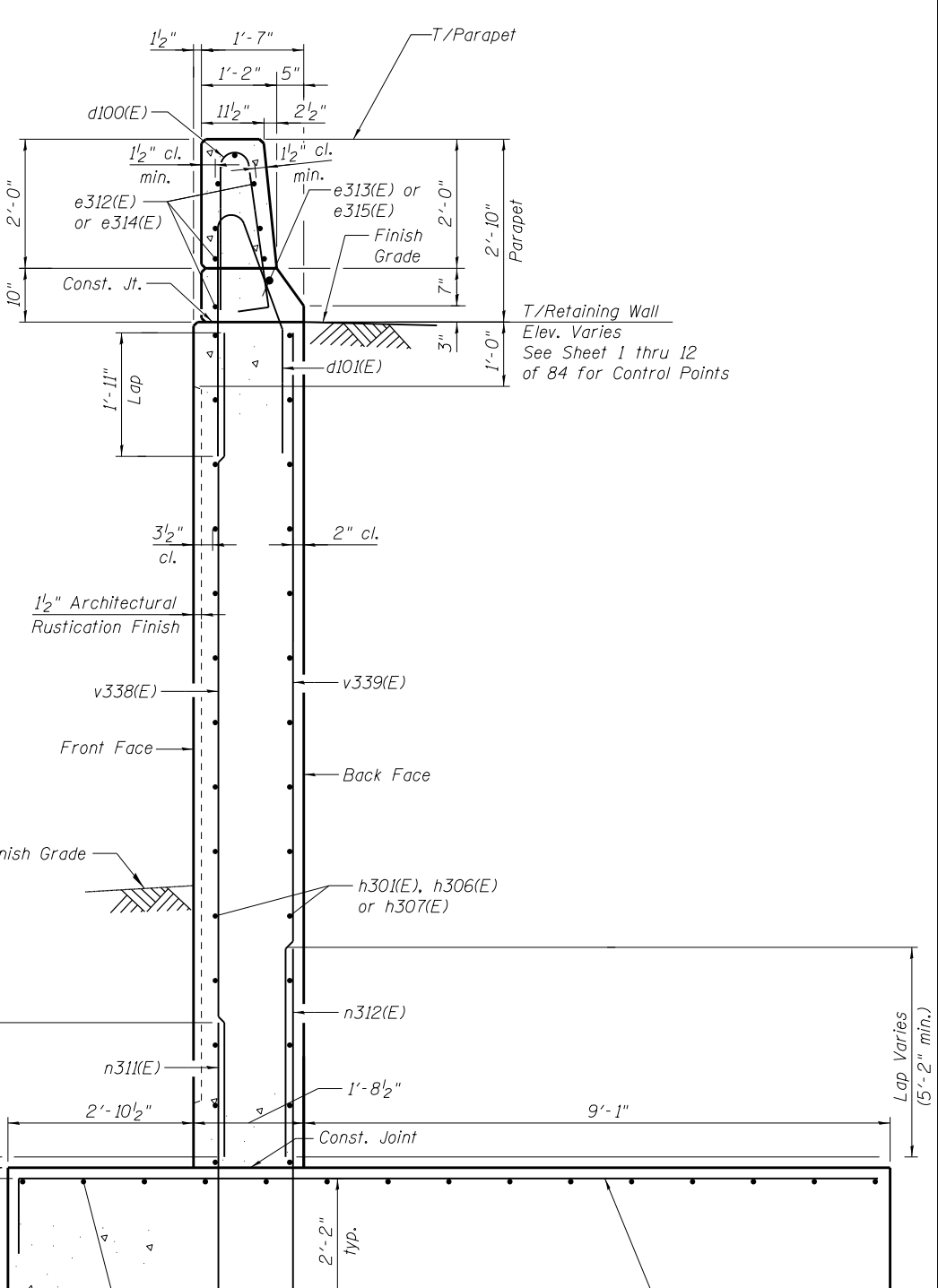
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	621
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



SECTION D-D
 STA. 402+66.23 to
 STA. 402+06.23



SECTION E-E
 STA. 396+06.23 to
 STA. 392+16.23



SECTION F-F
 STA. 392+16.23 to
 STA. 391+68.27

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LOCHNER
 H.W. LOCHNER, INC.
 225 WEST WASHINGTON STREET
 12TH FLOOR
 CHICAGO, ILLINOIS 60606

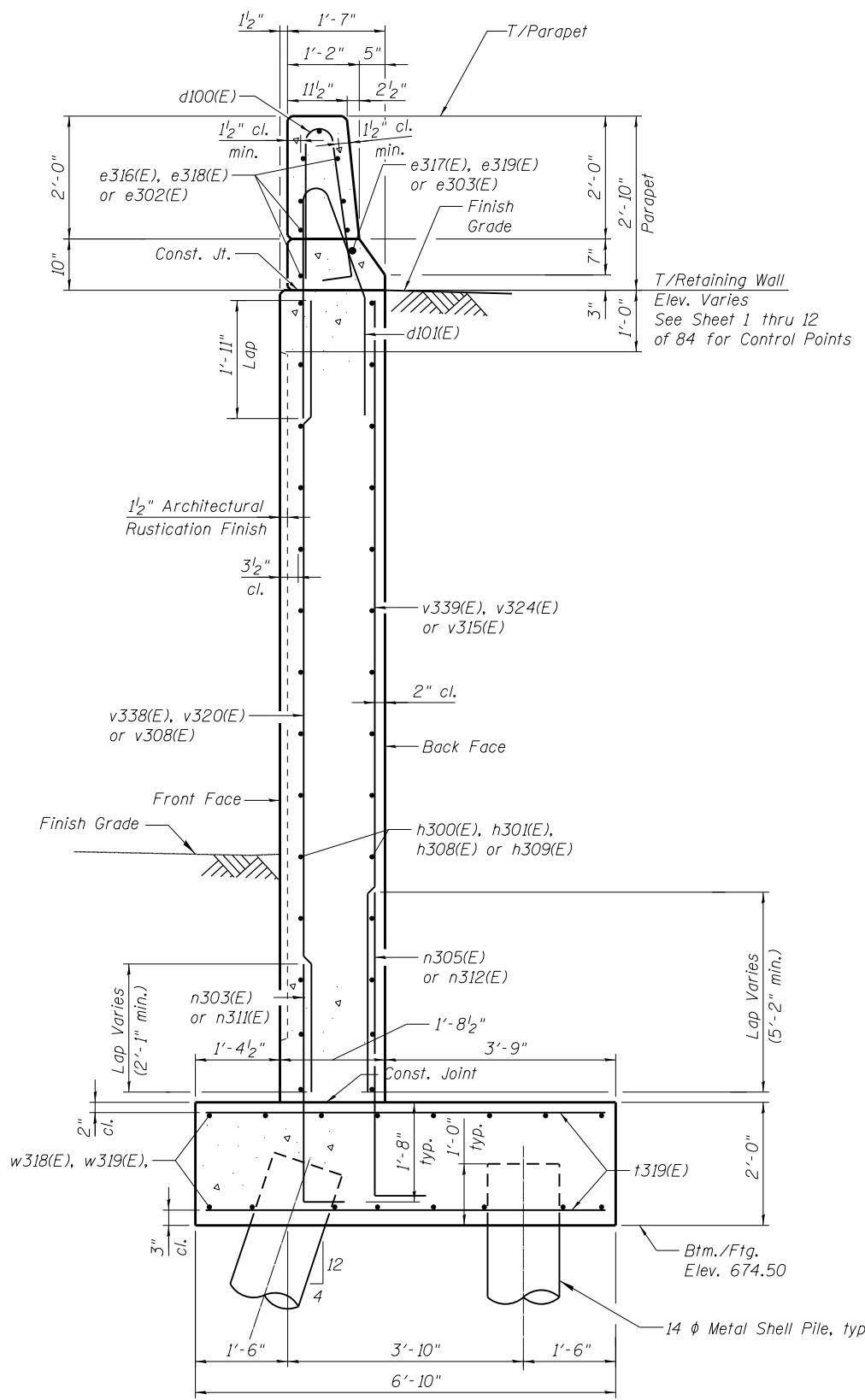
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PLOT SCALE =	DRAWN - EF	REVISED
PLOT DATE =	CHECKED - CMM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SECTIONS & DETAILS 4
STRUCTURE NO. 016-1339

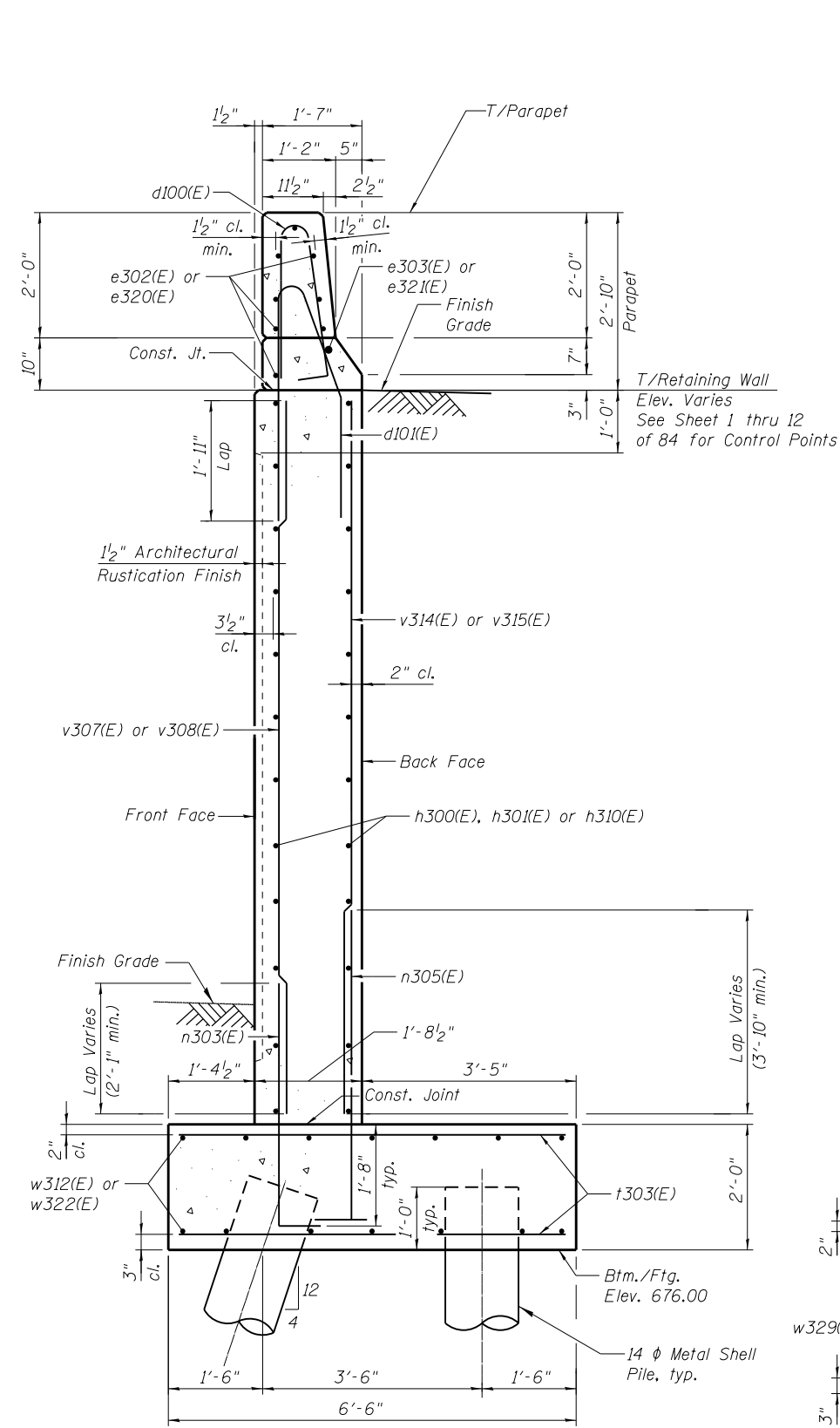
SHEET NO. 36 OF 84 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	622
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



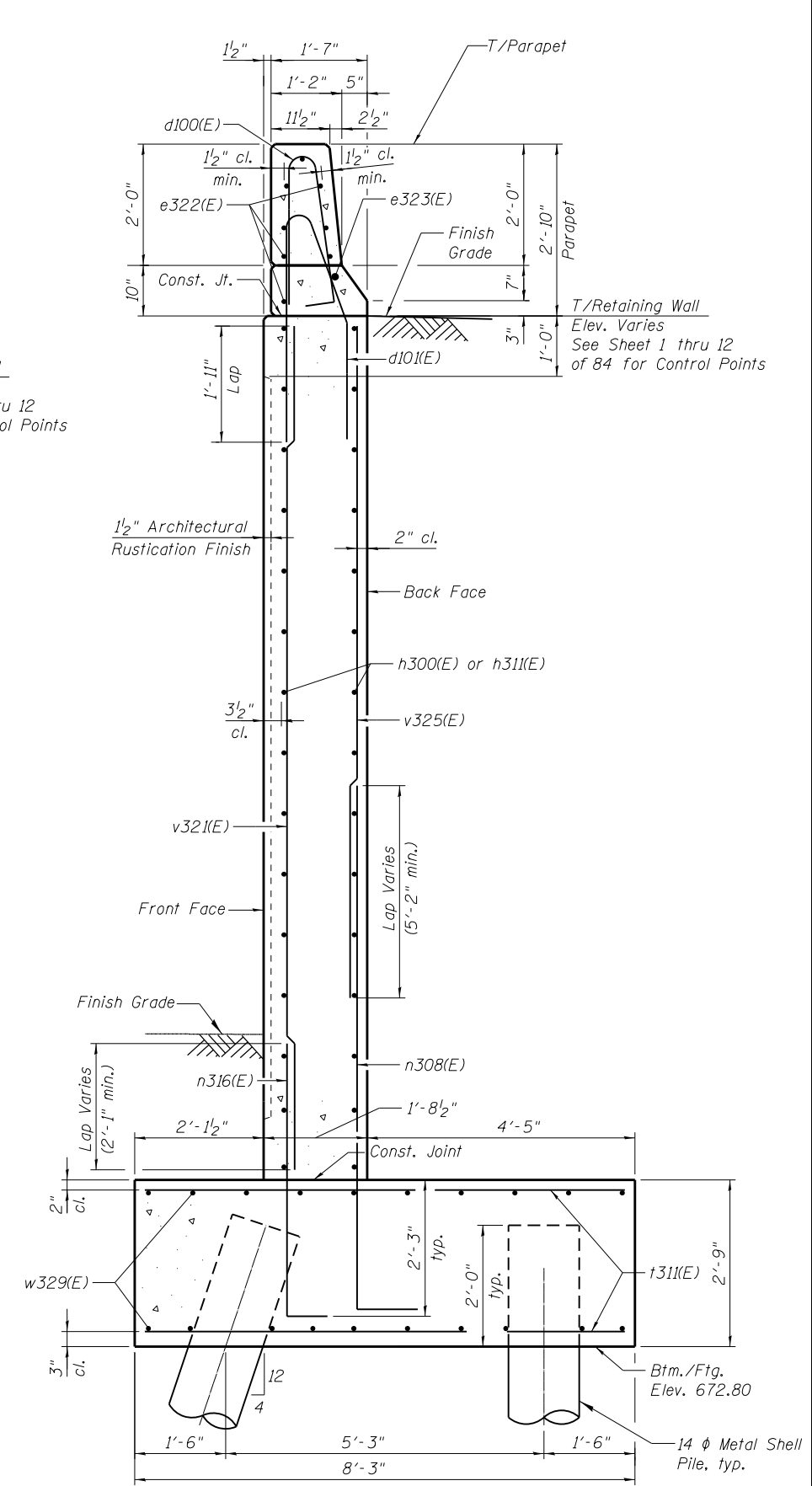
SECTION G-G

STA. 391+40.68 to 390+92.84



SECTION H-H

STA. 390+92.84 to 388+22.84 and STA. 383+42.84 to 382+22.84



SECTION J-J

STA. 382+22.84 to 381+44.37

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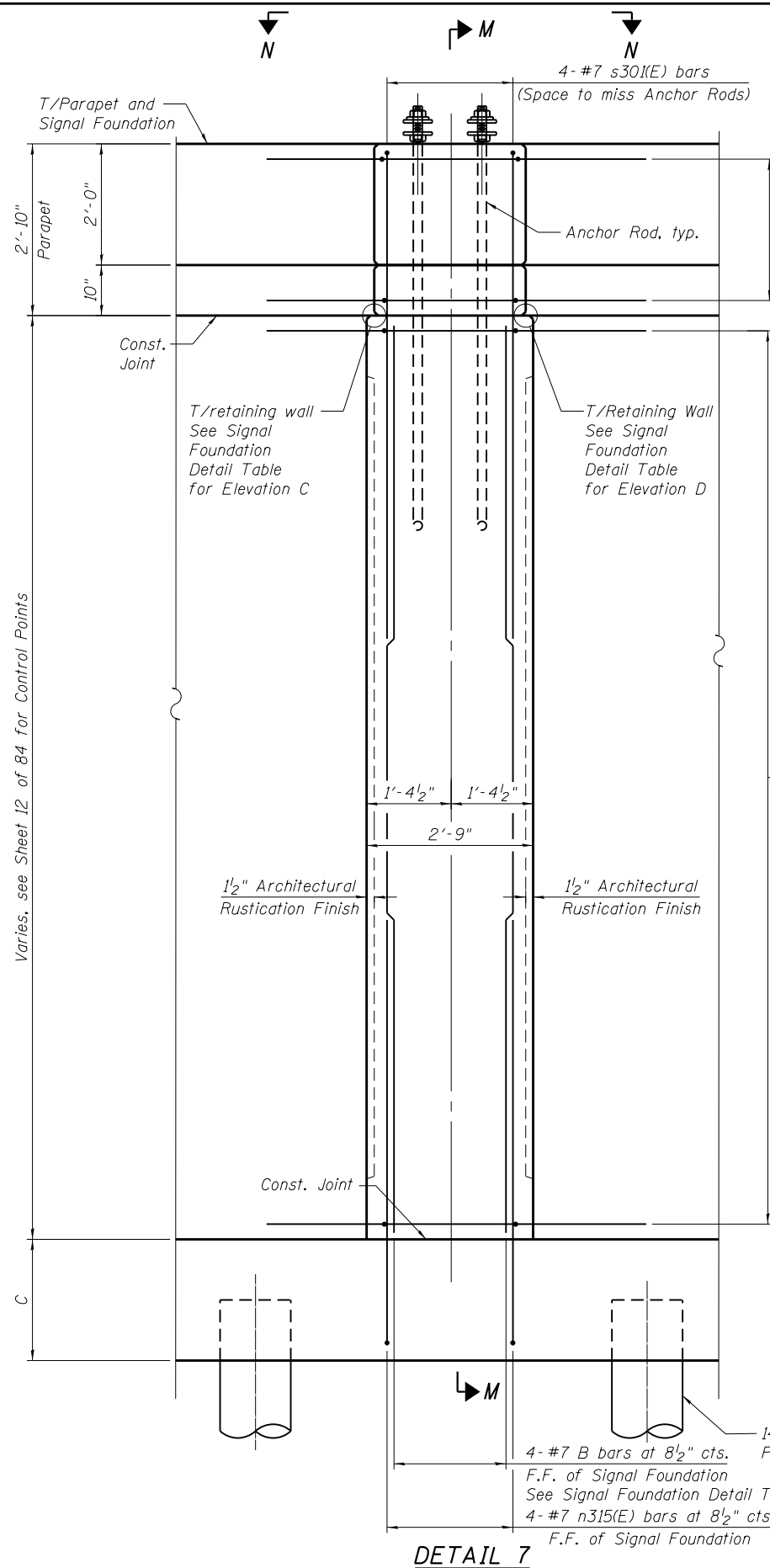
LOCHNER H. W. LOCHNER, INC. 225 WEST WASHINGTON STREET 12 TH FLOOR CHICAGO, ILLINOIS 60606	USER NAME =	DESIGNED - RAB	REVISED
	FILE NAME = 0161339-60L72-037-DE.dgn	CHECKED - CMM	REVISED
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	PLOT DATE =	CHECKED - CMM	REVISED

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

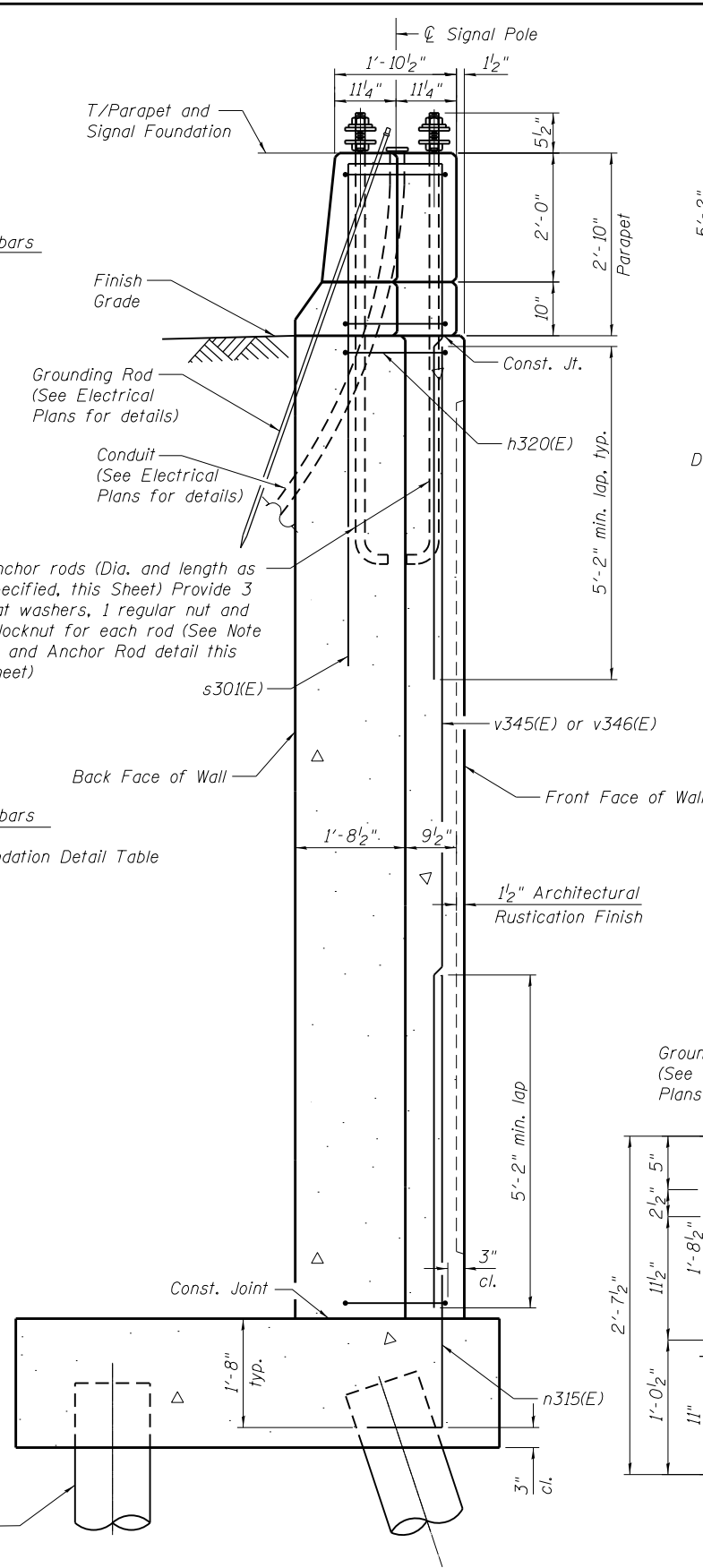
**SECTIONS & DETAILS 5
STRUCTURE NO. 016-1339**

SHEET NO. 37 OF 84 SHEETS

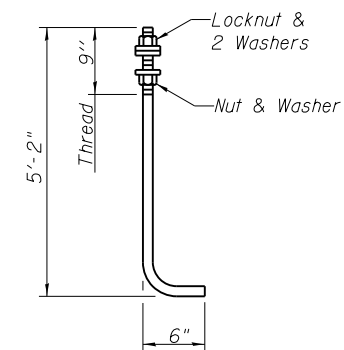
F.A.P. RT.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	623
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



DETAIL 7



SECTION M-M



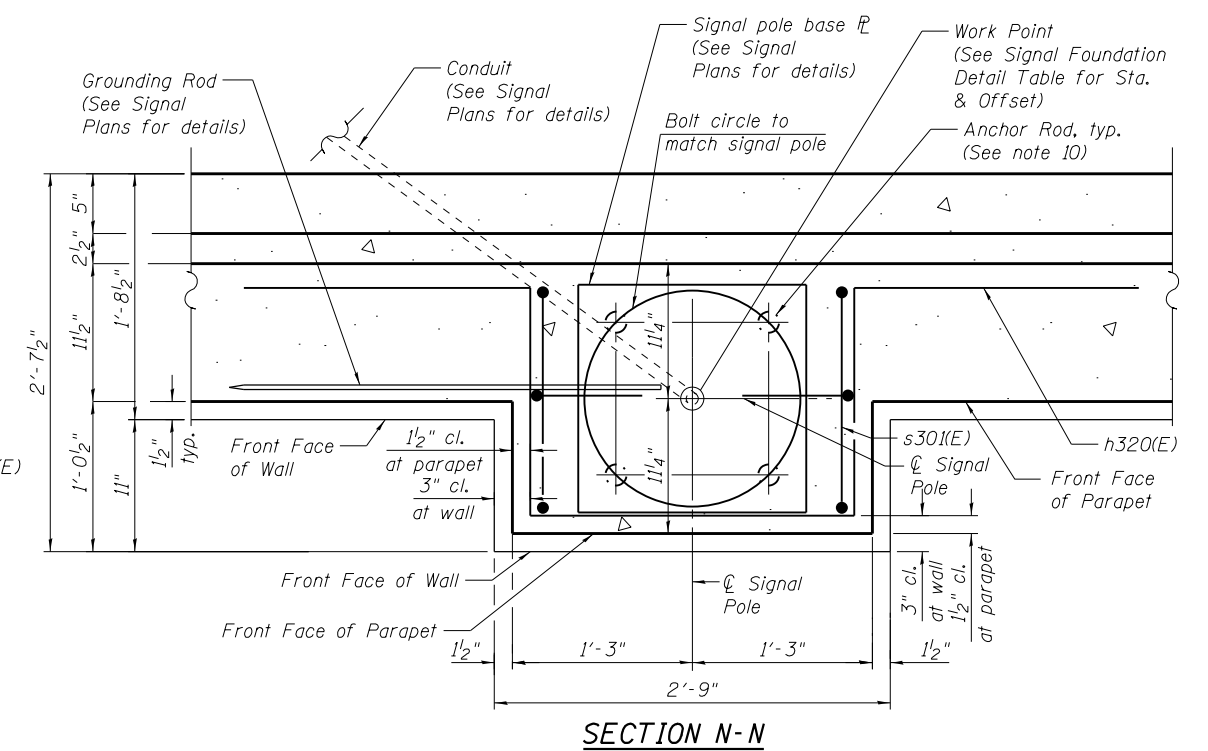
ANCHOR ROD
Diameter as specified in table below.
(ASTM F 1554 Grade 105)

- NOTES:**
1. For Bar List, reinforcement field cutting diagrams, and bar bend details see Sheet 39 of 84 .
 2. Reinforcement bars designated (E) shall be epoxy coated.
 3. Space reinforcement in bottom of footing to miss piles.
 4. E.F. denotes Each Face
F.F. denotes Front Face
B.F. denotes Back Face
 5. For Construction Joint Detail and Expansion Joint Detail see Sheet 13 of 84 .
 6. All stations/offsets are taken from @ US6/159th Street.
 7. See Sheet 31 and 32 of 84 for additional details of surrounding wall.
 8. See Sheet 37 of 84 for cross section of surrounding wall and additional Parapet Details.
 9. See Highway Standards 873001-02, 877001-05 and 878001-09 for additional traffic signal and foundation details.
 10. Anchor rod circle diameter to be per signal pole manufacturer's design. Cost of furnishing and installation of Anchor Rods is included with CONCRETE SUPERSTRUCTURE. Work this sheet with Signal Plans.

SIGNAL FOUNDATION DETAIL TABLE

Sta.	Offset	A	B	C	Anchor Rod Diameter	T/Retaining Wall Elevation C	T/Retaining Wall Elevation D
382+29.98	36.15' Lt.	13	v345(E)	2'-0"	1"	689.47	689.49
381+53.10	39.22' Lt.	16	v346(E)	2'-9"	1 1/2"	690.02	690.03

Station and offset are given for Work Point of Signal Pole Foundation. (See Section N-N this sheet.)



SECTION N-N

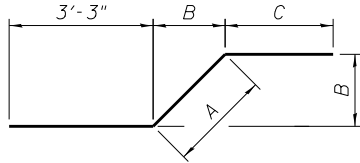
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PILE DATA TABLE

Pile Location (Station Limits)	Nominal Required Bearing (kips)	Factored Resistance Available (kips)	Est. Pile Length (ft) ¹	Est. Pile Length (ft) ²	No. Production Piles	No. Test Piles
407+61.18 to 407+31.18	231	86	31	33	7	1
407+31.18 to 406+58.00	190	83	40	42	26	0
406+58.00 to 405+69.00	201	83	36	38	30	0
405+69.00 to 404+88.00	201	84	50	53	26	0
404+88.00 to 403+71.18	155	85	21	23	39	1
402+06.23 to 401+61.00	157	87	23	25	17	1
401+61.00 to 400+82.00	163	90	21	23	33	1
400+82.00 to 399+77.00	187	103	26	28	38	0
399+77.00 to 398+75.00	178	98	31	33	36	0
398+75.00 to 397+89.00	189	104	39	41	29	1
397+89.00 to 396+96.23	187	103	36	38	34	0
396+96.23 to 396+06.23	185	102	34	36	31	1
391+40.77 to 390+92.84	155	85	28	30	28	1
390+92.84 to 390+07.00	187	100	21	23	34	0
390+07.00 to 389+12.84	191	105	29	31	38	0
389+12.84 to 388+22.84	207	114	34	36	35	1
388+22.84 to 386+88.00	230	127	24	26	50	0
386+88.00 to 385+60.00	209	100	27	29	48	0
385+60.00 to 384+79.00	210	100	33	35	29	1
384+79.00 to 383+78.00	199	109	34	36	36	0
383+78.00 to 383+42.84	189	104	34	36	14	0
383+42.84 to 382+47.00	189	104	34	36	38	0
382+47.00 to 382+22.84	180	99	39	41	10	0
382+22.84 to 381+44.37	180	99	35	37	45	1

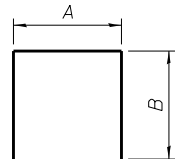
¹ For vertical pile locations, see Sheet 16 thru 32 of 84.

² For battered pile locations, see Sheet 16 thru 32 of 84.



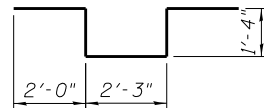
BARS h318(E), h319(E)

Bar	A	B	C
h318(E)	1'-9"	1'-3"	1'-4"
h319(E)	1'-5"	1'-0"	8"

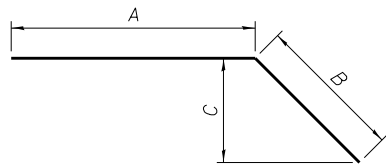


BAR s300(E), s301(E)

Bar	A	B
s300(E)	1'-3"	10"
s301(E)	1'-5"	8'-0"



BAR h320(E)



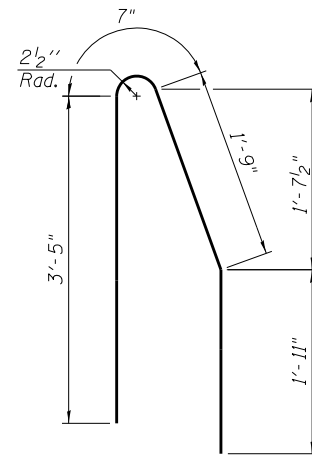
BARS e306(E), e307(E), e308(E), e309(E), e314(E), e315(E), e316(E), e317(E), e322(E), e323(E), h303(E), h304(E), h307(E), h308(E), w314(E), v329(E)

Bar	A	B	C
e306(E)	3'-0"	3'-6"	2'-5 ⁵ / ₈ "
e307(E)	6'-2"	3'-6"	2'-5 ⁵ / ₈ "
e308(E)	3'-0"	3'-6"	2'-5 ⁵ / ₈ "
e309(E)	6'-2"	3'-6"	2'-5 ⁵ / ₈ "
e314(E)	3'-0"	4'-8"	3'-3 ⁵ / ₈ "
e315(E)	6'-2"	4'-8"	3'-3 ⁵ / ₈ "
e316(E)	3'-0"	4'-8"	3'-3 ⁵ / ₈ "
e317(E)	6'-2"	4'-8"	3'-3 ⁵ / ₈ "
e322(E)	12'-0"	12'-0"	1'-1 ³ / ₄ "
e323(E)	15'-2"	15'-2"	1'-5 ¹ / ₄ "
h303(E)	3'-4"	3'-6"	2'-5 ⁵ / ₈ "
h304(E)	3'-4"	3'-6"	2'-5 ⁵ / ₈ "
h307(E)	3'-4"	4'-8"	3'-3 ⁵ / ₈ "
h308(E)	3'-4"	4'-8"	3'-3 ⁵ / ₈ "
w314(E)	3'-8"	3'-8"	2'-7 ¹ / ₈ "
v329(E)	3'-5"	1'-11"	1'-4 ¹ / ₄ "

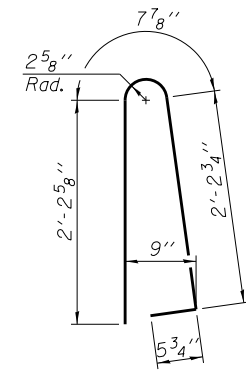
BARS n300(E), n301(E), n302(E), n303(E), n304(E), n305(E), n306(E), n307(E), n308(E), n309(E), n310(E), n311(E), n312(E), n313(E), n314(E), n315(E), n316(E), t302(E), t304(E), t305(E), t308(E), t309(E), t314(E), t317(E)

Bar	A	B
n300(E)	8"	4'-7"
n301(E)	12"	6'-4"
n302(E)	8"	4'-2"
n303(E)	8"	4'-11"
n304(E)	12"	5'-11"
n305(E)	12"	6'-8"
n306(E)	12"	4'-3"
n307(E)	12"	4'-3"
n308(E)	14"	10'-8"
n309(E)	8"	5'-4"
n310(E)	12"	7'-1"
n311(E)	8"	5'-7"

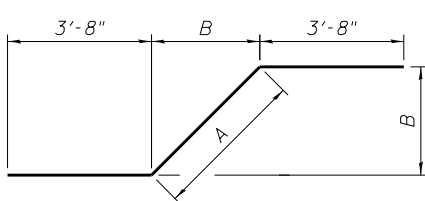
Bar	A	B
n312(E)	14"	7'-9"
n313(E)	8"	6'-9"
n314(E)	12"	5'-7"
n315(E)	14"	8'-0"
n316(E)	8"	5'-8"
t302(E)	14"	11'-11"
t304(E)	12"	9'-4"
t305(E)	10"	8'-5"
t308(E)	14"	14'-5"
t309(E)	12"	11'-6"
t314(E)	12"	12'-6"
t317(E)	14"	13'-4"



BAR d101(E)



BAR d100(E)



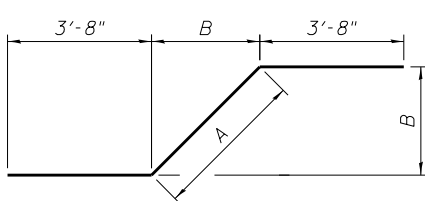
BARS w302(E), w307(E), w308(E), w327(E)

Bar	A
w302(E)	2'-3"
w307(E)	1'-9"
w308(E)	1'-6"
w327(E)	2'-5"

Bar	A	B
w303(E)	3'-2"	2'-3"
w304(E)	3'-7"	2'-6"
w306(E)	2'-10"	2'-0"
w328(E)	4'-6"	3'-2"
w330(E)	2'-1"	1'-6"

BARS w303(E), w304(E), w306(E), w328(E), w330(E)

Bar	No.	Size	Length	Shape
d100(E)	2865	#5	5'-7"	
d101(E)	2865	#5	7'-8"	
e300(E)	24	#4	21'-3"	
e301(E)	3	#8	23'-5"	
e302(E)	576	#4	31'-3"	
e303(E)	72	#8	33'-4"	
e304(E)	8	#4	24'-0"	
e305(E)	1	#8	24'-0"	
e306(E)	8	#4	6'-6"	
e307(E)	1	#8	9'-8"	
e308(E)	8	#4	6'-6"	
e309(E)	1	#8	9'-8"	
e310(E)	24	#4	27'-3"	
e311(E)	3	#8	29'-5"	
e312(E)	16	#4	23'-3"	
e313(E)	2	#8	24'-10"	
e314(E)	8	#4	7'-8"	
e315(E)	1	#8	10'-10"	
e316(E)	8	#4	7'-8"	
e317(E)	1	#8	10'-10"	
e318(E)	16	#4	23'-2"	
e319(E)	2	#8	24'-9"	
e320(E)	16	#4	30'-10"	
e321(E)	2	#8	32'-5"	
e322(E)	24	#4	27'-6"	
e323(E)	3	#8	29'-7"	



BARS w303(E), w304(E), w306(E), w328(E), w330(E)

BILL OF MATERIAL (CONT'D)

Bar	No.	Size	Length	Shape
h300(E)	1234	#4	32'-4"	
h301(E)	614	#4	29'-8"	
h302(E)	26	#4	24'-2"	
h303(E)	24	#4	6'-10"	
h304(E)	24	#4	6'-10"	
h305(E)	26	#4	17'-9"	
h306(E)	28	#4	16'-11"	
h307(E)	26	#4	8'-0"	
h308(E)	26	#4	8'-0"	
h309(E)	28	#4	17'-3"	
h310(E)	26	#4	29'-8"	
h311(E)	32	#4	18'-5"	
h312(E)	56	#5	4'-10"	
h313(E)	120	#5	4'-10"	
h314(E)	10	#4	15'-3"	
h315(E)	10	#4	8'-9"	
h316(E)	10	#4	5'-6"	
h317(E)	10	#4	18'-6"	
h318(E)	48	#5	6'-4"	
h319(E)	48	#5	5'-4"	
h320(E)	37	#5	8'-11"	
n300(E)	434	#4	5'-3"	L
n301(E)	924	#6	7'-4"	L
n302(E)	124	#4	4'-10"	L
n303(E)	1484	#4	5'-7"	L
n304(E)	264	#6	6'-11"	L
n305(E)	3165	#6	7'-8"	L
n306(E)	12	#6	5'-3"	L
n307(E)	12	#6	5'-3"	L
n308(E)	174	#7	11'-10"	L
n309(E)	24	#4	6'-0"	L
n310(E)	49	#6	8'-1"	L
n311(E)	106	#4	6'-3"	L
n312(E)	219	#7	8'-11"	L
n313(E)	399	#4	7'-5"	L
n314(E)	846	#6	6'-7"	L
n315(E)	8	#7	9'-2"	L
n316(E)	82	#4	6'-4"	L
s300(E)	12	#5	2'-11"	
s301(E)	8	#7	17'-5"	
t300(E)	2952	#5	5'-8"	
t301(E)	391	#5	11'-11"	
t302(E)	854	#7	13'-1"	L
t303(E)	862	#5	6'-2"	
t304(E)	121	#6	10'-4"	L
t305(E)	61	#5	9'-3"	L
t306(E)	20	#5	12'-5"	
t307(E)	12	#5	14'-5"	
t308(E)	25	#7	15'-7"	L
t309(E)	46	#6	13'-5"	L
t310(E)	15	#5	7'-0"	
t311(E)	286	#5	7'-11"	
t313(E)	31	#5	8'-5"	
t314(E)	122	#6	12'-6"	L
t315(E)	54	#5	11'-6"	
t316(E)	61	#5	9'-4"	
t317(E)	107	#7	14'-6"	L
t318(E)	50	#5	13'-4"	
t319(E)	111	#5	6'-6"	
v300(E)	31	#4	5'-7"	
v301(E)	372	#4	7'-10"	
v302(E)	66	#6	5'-7"	
v303(E)	792	#6	7'-10"	
v304(E)	124	#4	9'-7"	
v305(E)	214	#4	8'-11"	
v306(E)	279	#4	8'-7"	
v307(E)	368	#4	9'-7"	
v308(E)	341	#4	10'-6"	
v309(E)	186	#4	11'-4"	

BILL OF MATERIAL (CONT'D)

Bar	No.	Size	Length	Shape
v310(E)	93	#4	11'-1"	
v311(E)	264	#6	9'-7"	
v312(E)	462	#6	8'-11"	
v313(E)	594	#6	8'-7"	
v314(E)	780	#6	9'-7"	
v315(E)	726	#6	10'-6"	
v316(E)	396	#6	11'-4"	
v317(E)	198	#6	11'-1"	
v318(E)	186	#4	8'-8"	
v319(E)	93	#4	9'-0"	
v320(E)	93	#4	9'-10"	
v321(E)	82	#4	13'-8"	
v322(E)	396	#6	8'-8"	
v323(E)	198	#6	9'-0"	
v324(E)	198	#6	9'-10"	
v325(E)	174	#7	11'-10"	
v326(E)	6	#4	4'-3"	
v327(E)	12	#6	4'-3"	
v328(E)	6	#4	4'-9"	
v329(E)	4	#5	5'-4"	
v331(E)	12	#6	4'-9"	
v332(E)	31	#4	8'-0"	
v333(E)	30	#4	10'-4"	
v334(E)	24	#4	10'-2"	
v335(E)	66	#6	8'-0"	
v336(E)	63	#6	10'-4"	
v337(E)	49	#6	10'-2"	
v338(E)	106	#4	11'-10"	
v339(E)	219	#7	11'-9"	
v340(E)	4	#5	10'-2"	
v341(E)	4	#5	9'-11"	
v342(E)	4	#5	11'-7"	
v343(E)	4	#5	11'-9"	
v345(E)	4	#7	11'-3"	
v346(E)	4	#7	14'-3"	
w300(E)	34	#5	29'-8"	
w301(E)	196	#5	29'-3"	
w302(E)	30	#5	9'-7"	
w303(E)	7	#5	10'-6"	
w304(E)	10	#5	10'-11"	
w305(E)	322	#5	29'-7"	
w306(E)	24	#5	10'-2"	
w307(E)	11	#5	9'-1"	
w308(E)	7	#5	8'-10"	
w309(E)	390	#5	29'-5"	
w310(E)	52	#5	16'-11"	
w311(E)	44	#5	31'-10"	
w312(E)	154	#5	27'-11"	
w313(E)	26	#5	7'-5"	
w314(E)	16	#5	7'-4"	
w315(E)	26	#5	9'-5"	
w316(E)	52	#5	13'-8"	
w317(E				

WEEP HOLE SCHEDULE

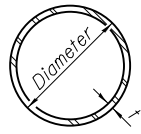
Weep Hole I.D.	Station	Invert Elevation
1	381+50.26	678.90
2	381+59.97	678.90
3	381+65.94	678.90
4	381+73.90	678.90
5	381+81.87	678.90
6	381+89.83	678.90
7	381+95.84	678.90
8	382+03.84	679.18
9	382+11.84	680.09
10	382+19.84	680.99
11	382+25.84	681.08
12	382+33.84	681.09
13	382+41.84	681.10
14	382+49.84	681.11
15	382+55.84	681.10
16	382+63.84	681.08
17	382+71.84	681.07
18	382+79.84	681.05
19	382+85.84	681.04
20	382+93.84	681.02
21	383+01.84	681.01
22	383+09.84	681.02
23	383+15.84	681.03
24	383+23.84	681.03
25	383+31.84	681.04
26	383+39.84	681.05
27	383+45.84	681.06
28	383+53.84	681.06
29	383+61.84	681.07
30	383+69.84	681.08
31	383+75.84	681.09
32	383+83.84	681.09
33	383+91.84	681.10
34	383+99.84	681.11
35	384+05.84	681.18
36	384+13.84	681.28
37	384+21.84	681.39
38	384+29.84	681.49
39	384+35.84	681.56
40	384+43.84	681.66
41	384+51.84	681.77
42	384+59.84	681.90
43	384+66.84	682.02
44	384+74.84	682.15
45	384+81.84	682.26
46	384+89.84	682.39
47	384+95.84	682.49
48	385+03.84	682.53
49	385+11.84	682.48
50	385+19.84	682.43
51	385+27.84	682.38
52	385+35.84	682.32
53	385+43.84	682.27
54	385+49.84	682.23
55	385+55.84	682.20
56	385+63.84	682.16
57	385+71.84	682.11
58	385+79.84	682.07
59	385+85.84	682.04
60	385+93.84	681.99
61	386+01.84	681.95
62	386+09.84	681.92
63	386+15.84	681.89
64	386+23.84	681.86
65	386+31.84	681.83
66	386+39.84	681.79
67	386+45.84	681.77
68	386+53.84	681.73

Weep Hole I.D.	Station	Invert Elevation
69	386+61.84	681.70
70	386+69.84	681.66
71	386+75.84	681.64
72	386+83.84	681.60
73	386+91.84	681.57
74	386+99.84	681.53
75	387+05.84	681.52
76	387+13.84	681.50
77	387+21.84	681.48
78	387+29.84	681.46
79	387+35.84	681.45
80	387+43.84	681.43
81	387+51.84	681.42
82	387+59.84	681.44
83	387+65.84	681.45
84	387+73.84	681.47
85	387+81.84	681.48
86	387+89.84	681.50
87	387+95.84	681.51
88	388+03.84	681.53
89	388+11.84	681.54
90	388+19.84	681.56
91	388+27.84	681.58
92	388+35.84	681.59
93	388+41.84	681.60
94	388+49.84	681.62
95	388+55.84	681.54
96	388+63.84	681.43
97	388+71.84	681.31
98	388+79.84	681.20
99	388+85.84	681.12
100	388+93.84	681.01
101	389+01.84	680.94
102	389+09.84	681.01
103	389+15.84	681.07
104	389+22.84	681.14
105	389+30.84	681.22
106	389+38.84	681.29
107	389+45.84	681.35
108	389+53.84	681.42
109	389+61.84	681.48
110	389+69.84	681.54
111	389+75.84	681.59
112	389+83.84	681.65
113	389+91.84	681.72
114	389+99.84	681.78
115	390+05.84	681.82
116	390+13.84	681.89
117	390+21.84	681.95
118	390+29.84	682.01
119	390+35.84	682.05
120	390+43.84	682.11
121	390+51.84	682.14
122	390+59.84	682.03
123	390+65.84	681.96
124	390+73.84	681.85
125	390+81.84	681.75
126	390+89.84	681.65
127	390+97.84	681.55
128	391+03.84	681.55
129	391+11.84	681.60
130	391+19.84	681.65
131	391+27.84	681.69
132	391+34.84	681.75
133	391+43.75	682.06
134	391+51.75	682.01
135	391+59.23	681.93
136	391+67.23	681.85

Weep Hole I.D.	Station	Invert Elevation
137	392+05.23	681.83
138	392+13.23	681.84
139	392+19.23	681.85
140	392+27.23	681.86
141	392+35.23	681.88
142	392+43.23	681.89
143	392+49.23	681.90
144	392+57.23	681.89
145	392+65.23	681.87
146	392+73.23	681.86
147	392+79.23	681.85
148	392+87.23	681.83
149	392+95.23	681.82
150	393+03.23	681.81
151	393+09.23	681.82
152	393+17.23	681.83
153	393+25.23	681.84
154	393+33.23	681.85
155	393+39.23	681.86
156	393+47.23	681.87
157	393+55.23	681.89
158	393+63.23	681.92
159	393+69.23	681.94
160	393+77.23	681.97
161	393+85.23	682.00
162	393+93.23	682.03
163	393+99.23	682.06
164	394+07.23	682.10
165	394+15.23	682.15
166	394+23.23	682.20
167	394+29.23	682.24
168	394+37.23	682.29
169	394+45.23	682.34
170	394+53.23	682.39
171	394+59.23	682.43
172	394+67.23	682.48
173	394+75.23	682.53
174	394+83.23	682.58
175	394+89.23	682.62
176	394+97.23	682.67
177	395+05.23	682.70
178	395+13.23	682.73
179	395+19.23	682.74
180	395+27.23	682.77
181	395+35.23	682.79
182	395+43.23	682.81
183	395+49.23	682.83
184	395+57.23	682.86
185	395+65.23	682.89
186	395+73.23	682.91
187	395+80.23	682.94
188	395+86.23	682.97
189	395+93.23	682.99
190	396+02.23	683.00
191	396+09.23	682.95
192	396+17.23	682.91
193	396+25.23	682.86
194	396+33.23	682.81
195	396+39.23	682.77
196	396+47.23	682.73
197	396+55.23	682.65
198	396+63.23	682.57
199	396+69.23	682.50
200	396+77.23	682.42
201	396+85.23	682.33
202	396+93.23	682.24
203	396+99.23	682.18
204	397+07.23	682.17

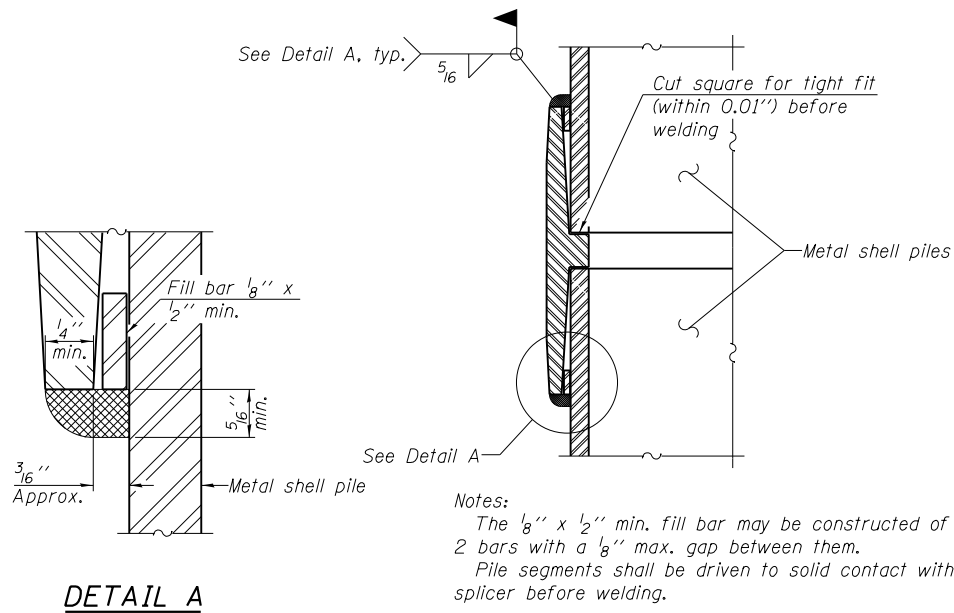
Weep Hole I.D.	Station	Invert Elevation
205	397+15.23	682.16
206	397+23.23	682.16
207	397+29.23	682.16
208	397+37.23	682.16
209	397+45.23	682.15
210	397+53.23	682.15
211	397+59.23	682.16
212	397+67.23	682.17
213	397+75.23	682.18
214	397+83.23	682.18
215	397+90.23	682.19
216	397+98.23	682.20
217	398+06.23	682.22
218	398+14.23	682.25
219	398+22.23	682.28
220	398+28.23	682.30
221	398+35.23	682.33
222	398+43.23	682.36
223	398+49.23	682.38
224	398+57.23	682.40
225	398+65.23	682.43
226	398+73.23	682.46
227	398+79.23	682.48
228	398+87.23	682.51
229	398+95.23	682.53
230	399+03.23	682.54
231	399+09.23	682.53
232	399+17.23	682.51
233	399+25.23	682.49
234	399+33.23	682.47
235	399+39.23	682.46
236	399+47.23	682.44
237	399+55.23	682.41
238	399+63.23	682.37
239	399+69.23	682.34
240	399+77.23	682.30
241	399+85.23	682.27
242	399+93.23	682.23
243	399+99.23	682.20
244	400+07.23	682.28
245	400+15.23	682.37
246	400+23.23	682.46
247	400+29.23	682.53
248	400+37.23	682.62
249	400+45.23	682.72
250	400+53.23	682.81
251	400+59.23	682.89
252	400+67.23	682.99
253	400+75.23	683.09
254	400+83.23	683.19
255	400+89.23	683.26
256	400+97.23	683.37
257	401+05.23	683.39
258	401+13.23	683.37
259	401+23.23	683.35
260	401+31.23	683.33
261	401+39.23	683.31
262	401+47.23	683.30
263	401+55.23	683.27
264	401+63.23	683.24
265	401+71.23	683.21
266	401+77.23	683.19
267	401+85.23	683.16
268	401+93.23	683.13
269	402+01.23	683.13
270	402+07.23	683.16
271	402+15.23	683.21
272	402+23.23	683.25

Weep Hole I.D.	Station	Invert Elevation
273	402+31.23	683.30
274	402+37.23	683.33
275	402+45.23	683.37
276	402+53.23	683.25
277	402+61.23	683.05
278	402+67.23	682.89
279	402+75.23	682.68
280	402+82.81	681.97
281	403+20.21	682.98
282	403+26.21	683.29
283	403+34.21	683.70
284	403+38.18	683.80
285	403+44.18	684.11
286	403+52.18	684.43
287	403+60.18	684.52
288	403+68.18	684.61
289	403+74.18	684.68
290	403+82.18	684.76
291	403+90.18	684.85
292	403+98.18	684.94
293	404+04.18	684.81
294	404+12.18	684.53
295	404+20.18	684.25
296	404+28.18	683.97
297	404+34.18	683.76
298	404+41.18	683.48
299	404+49.18	683.20
300	404+57.18	683.05
301	404+64.18	682.95
302	404+72.18	682.81
303	404+80.18	682.66
304	404+88.18	682.52
305	404+94.18	682.41
306	405+02.18	682.32
307	405+10.18	682.34
308	405+18.18	682.36
309	405+26.18	682.39
310	405+34.18	682.41
311	405+42.18	682.44
312	405+48.18	682.45
313	405+54.18	682.47
314	405+62.18	682.50
315	405+70.18	682.52
316	405+78.18	682.55
317</		



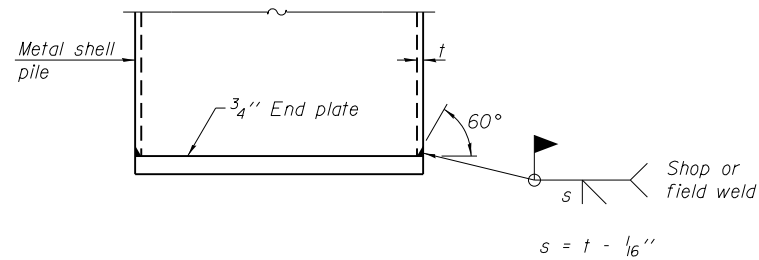
METAL SHELL PILE TABLE

Designation and outside diameter	Wall thickness t	Weight per foot (Lbs./ft.)	Inside volume (yd. ³ /ft.)
PP12	0.179"	22.60	0.0274
PP12	0.250"	31.37	0.0267
PP14	0.250"	36.71	0.0368
PP14	0.312"	45.61	0.0361

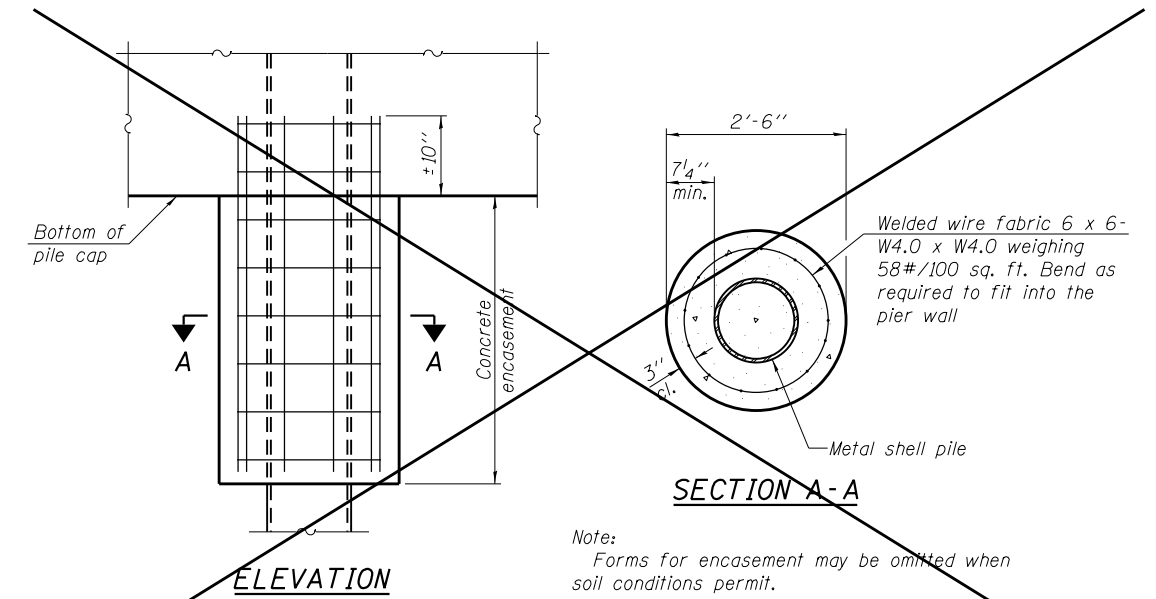


WELDED COMMERCIAL SPLICE

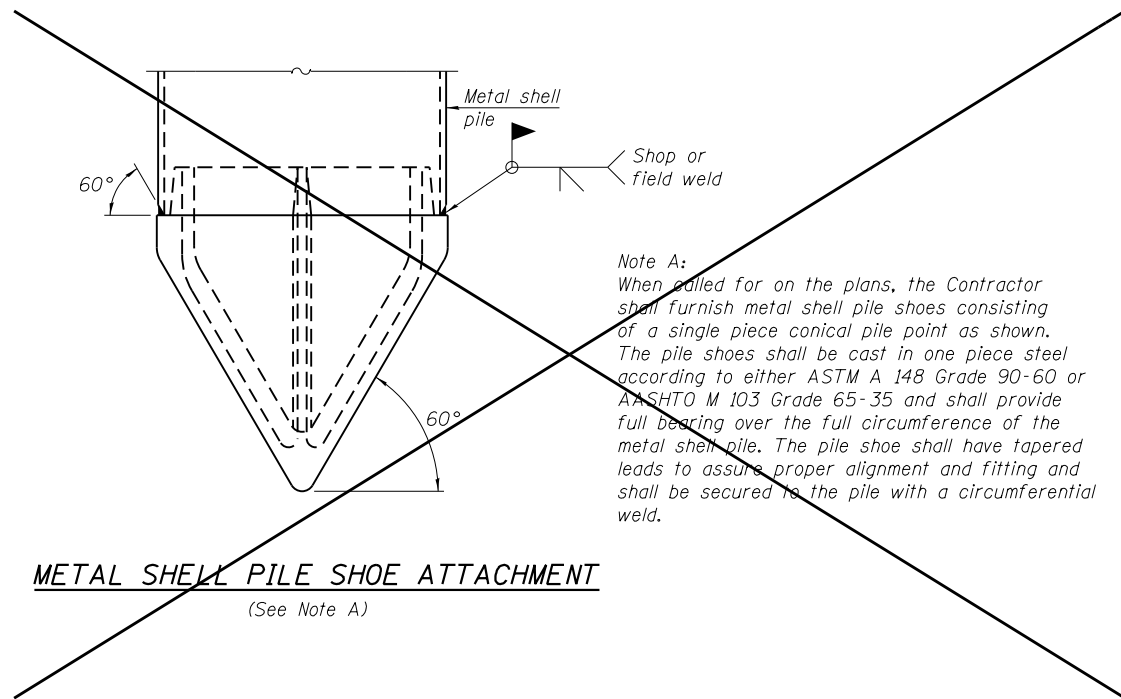
Notes:
 The 1/8" x 1/2" min. fill bar may be constructed of 2 bars with a 1/8" max. gap between them.
 Pile segments shall be driven to solid contact with splicer before welding.



END PLATE ATTACHMENT

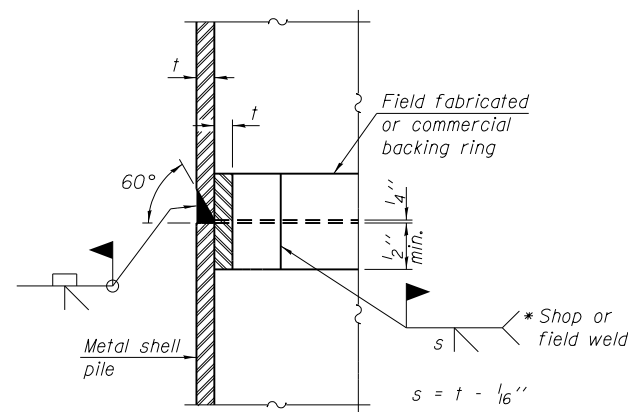


CONCRETE ENCASEMENT AT PIERS



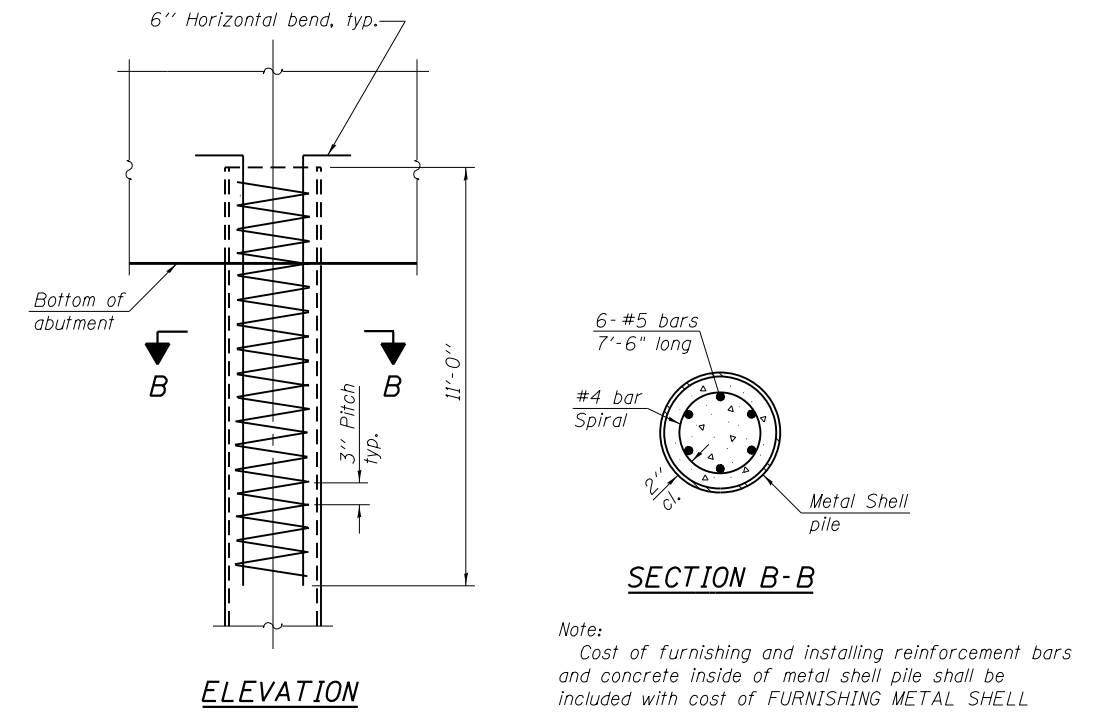
METAL SHELL PILE SHOE ATTACHMENT

(See Note A)



COMPLETE PENETRATION WELD SPLICE

* Field fabricated backing ring may be made from pile shell by removing segment to allow reducing circumference and vertically rejoin with partial joint penetration weld.



METAL SHELL REINFORCEMENT

Note:
 The metal shell piles shall be according to ASTM A 252 Grade 3.

T:\5106-US56-Struct.dgn\Retaining Wall\3\0161339-60L72-041-PD.dgn

LOCHNER
 H.W. LOCHNER, INC.
 225 WEST WASHINGTON STREET
 12 TH FLOOR
 CHICAGO, ILLINOIS 60606

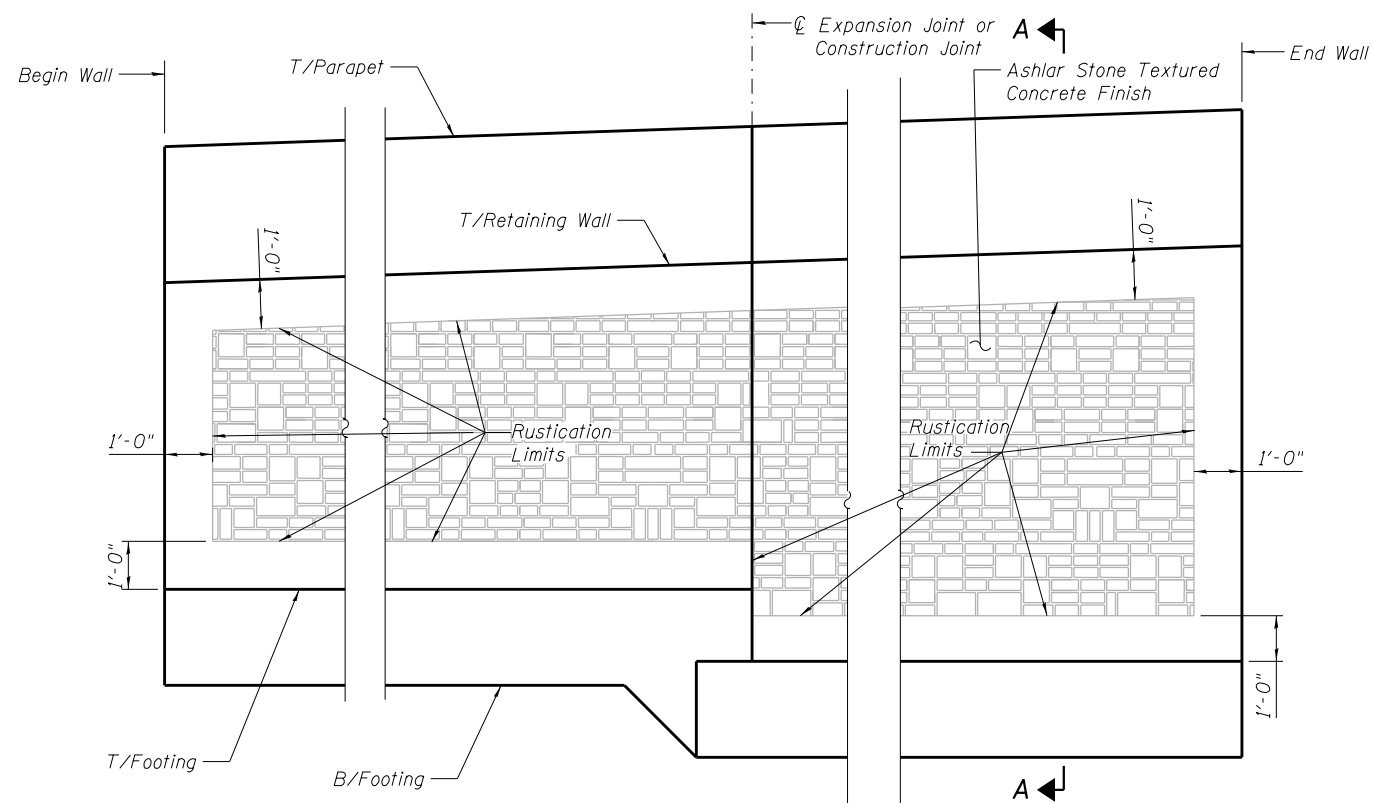
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PLOT DATE =	CHECKED - RH	REVISED

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

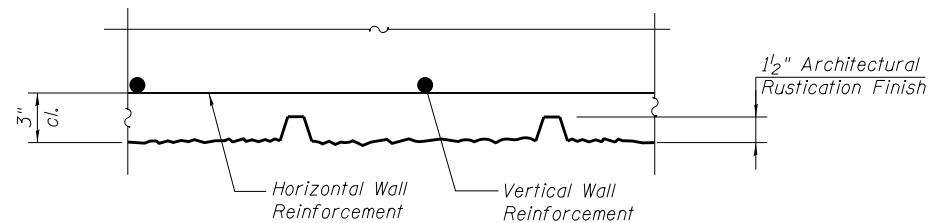
**METAL SHELL PILES
 STRUCTURE NO. 016-1339**

SHEET NO. 41 OF 84 SHEETS

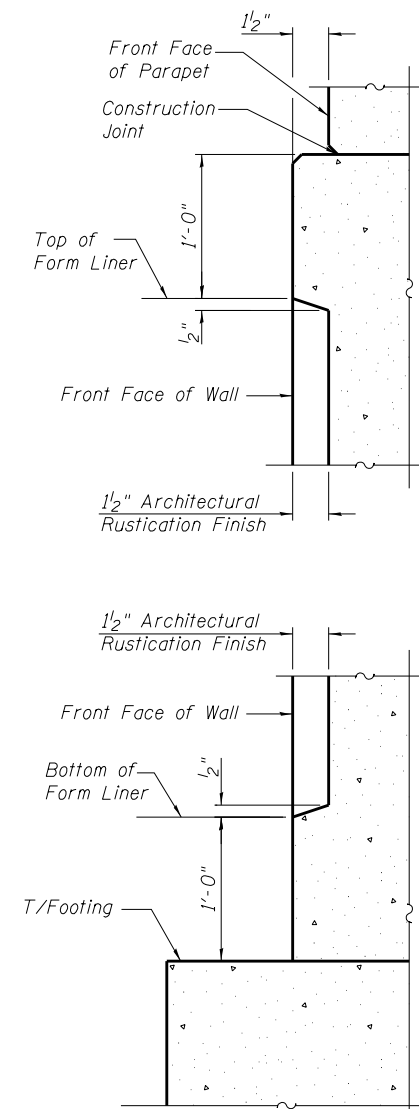
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	627
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



**ARCHITECTURAL RUSTICATION
FINISH LIMITS**



PLAN - FORM LINER



SECTION A-A

T:\51006-USE5\Struct\Drawings\Retaining Wall 3\0161339-60L72-042-AF.dgn

LOCHNER
H.W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

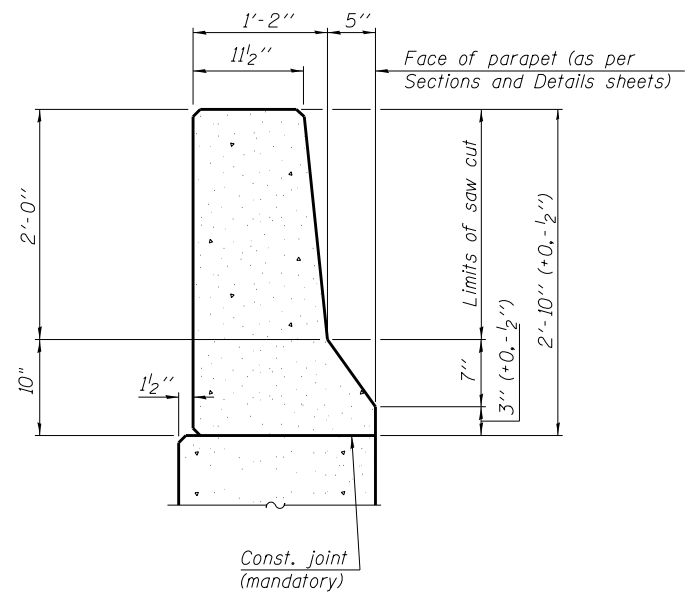
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PLOT SCALE =	DRAWN - EF	REVISED
PLOT DATE =	CHECKED - RAB	REVISED

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

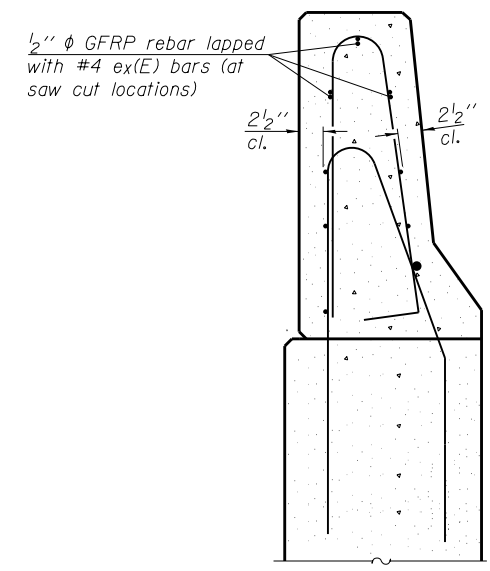
**ARCHITECTURAL FINISH DETAILS
STRUCTURE NO. 016-1339**

SHEET NO. 42 OF 84 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	628
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				

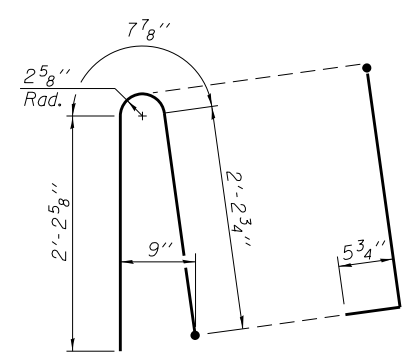


34" F SHAPE PARAPET SECTION
(Showing dimensions)

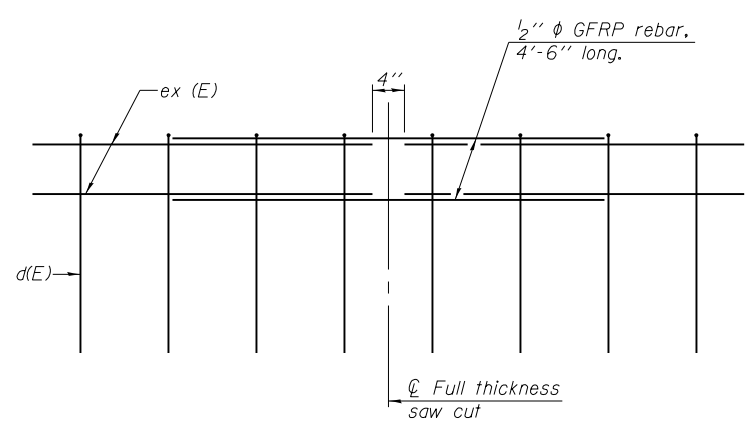


SECTION
(34" parapet shown - 42" parapet similar)
(Showing reinforcement clearances for slip forming and additional reinforcement bars)

GENERAL NOTES
All dimensions shall remain the same as shown on Sections and Details Sheets.



ALTERNATE BAR d100(E)
(For 34" parapet when conduit is present)



GFRP REBAR STIFFENING DETAIL
(Place as shown in parapet section at each parapet joint location.)

T:\51006-USA\Struct\Drawings\Retaining Wall 3\0161339-60L72-043-SF.dgn

LOCHNER
H. W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

USER NAME =	DESIGNED - RAB	REVISED
FILE NAME = 0161339-60L72-043-SF.dgn	CHECKED - RH	REVISED
PLOT SCALE =	DRAWN - RAB	REVISED
PLOT DATE =	CHECKED - RH	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CONCRETE PARAPET SLIPFORMING OPTION
STRUCTURE NO. 016-1339

SHEET NO. 43 OF 84 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	629
CONTRACT NO. 60L72				
<small>ILLINOIS FED. AID PROJECT</small>				



SOIL BORING LOG

GSJ Job No. 10195 Page 1 of 1 Date 4/24/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM COUNTY Cook DRILLING METHOD HAND AUGER HAMMER TYPE

Table with columns for Depth (ft), Blows (6"), SPT (tsf), and Soil Description. Includes data for TOPSOIL, CLAY LOAM, PEAT, and ORGANIC SILTY CLAY.

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) BBS, from 137 (Rev. 8-99)



SOIL BORING LOG

GSJ Job No. 10195 Page 1 of 1 Date 4/24/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM COUNTY Cook DRILLING METHOD HAND AUGER HAMMER TYPE

Table with columns for Depth (ft), Blows (6"), SPT (tsf), and Soil Description. Includes data for TOPSOIL and CLAY LOAM.

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) BBS, from 137 (Rev. 8-99)



SOIL BORING LOG

GSJ Job No. 10195 Page 1 of 1 Date 4/24/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM COUNTY Cook DRILLING METHOD HAND AUGER HAMMER TYPE

Table with columns for Depth (ft), Blows (6"), SPT (tsf), and Soil Description. Includes data for TOPSOIL, CLAY LOAM, and SILTY CLAY.

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) BBS, from 137 (Rev. 8-99)

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LOCHNER H. W. LOCHNER, INC. 225 WEST WASHINGTON STREET 12 TH FLOOR CHICAGO, ILLINOIS 60606

Table with columns for USER NAME, DESIGNED, CHECKED, DRAWN, REVISED, and PLOT DATE.

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

SOIL BORINGS 4 STRUCTURE NO. 016-1339 SHEET NO. 47 OF 84 SHEETS

Table with columns for F.A.P. RTE., SECTION, COUNTY, TOTAL SHEETS, SHEET NO., and CONTRACT NO.



GSI Job No. 10195

SOIL BORING LOG

Page 1 of 1

Date 4/24/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HAND AUGER HAMMER TYPE

STRUCT. NO.	DEPTHS	BLOW COUNTS	UCS	MOISTURE	Surface Water Elev.	Stream Bed Elev.	Groundwater Elev.:	First Encounter	Upon Completion	After	Hrs.
Station	(ft)	(/6")	(tsf)	(%)	n/a	n/a	n/a	ft	n/a	ft	
BORING NO. HA-38 Station 389+53 Offset 33.70ft Left Ground Surface Elev. 682.90	680.90		2.3 P	21							
	678.90			13							
CLAY LOAM-dark brown & gray-stiff (Fill) PEAT-dark brown & black	677.90	-5	1.0 P	24							
	672.90	-10		321							
End Of Boring @ -10.0'. Boring backfilled with cuttings.	672.90	-10		485							

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)



GSI Job No. 10195

SOIL BORING LOG

Page 1 of 1

Date 4/24/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HAND AUGER HAMMER TYPE

STRUCT. NO.	DEPTHS	BLOW COUNTS	UCS	MOISTURE	Surface Water Elev.	Stream Bed Elev.	Groundwater Elev.:	First Encounter	Upon Completion	After	Hrs.
Station	(ft)	(/6")	(tsf)	(%)	n/a	n/a	n/a	ft	n/a	ft	
BORING NO. HA-39 Station 390+61 Offset 32.80ft Left Ground Surface Elev. 684.60	681.60			15							
	679.60			18							
SILTY SAND & GRAVEL-dark brown	677.10	-5		21							
	677.10			22							
SILTY LOAM-gray	674.60	-10		20							

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)



GSI Job No. 10195

SOIL BORING LOG

Page 1 of 1

Date 4/24/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HAND AUGER HAMMER TYPE

STRUCT. NO.	DEPTHS	BLOW COUNTS	UCS	MOISTURE	Surface Water Elev.	Stream Bed Elev.	Groundwater Elev.:	First Encounter	Upon Completion	After	Hrs.
Station	(ft)	(/6")	(tsf)	(%)	n/a	n/a	n/a	ft	n/a	ft	
BORING NO. HA-40 Station 391+37 Offset 31.90ft Left Ground Surface Elev. 684.90	681.90			16							
	679.90	-5		24							
CLAY-brown & gray-very stiff	679.90	-5		19							
	675.90			21							
SANDY CLAY LOAM-brown	675.90			15							
	674.90	-10									
CLAYEY SAND & GRAVEL-gray	674.90	-10									

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)

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LOCHNER
H. W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

USER NAME =
FILE NAME = 0161339-60L72-048-SB.dgn
PLOT SCALE =
PLOT DATE =

DESIGNED -
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CHECKED -
REVISED
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REVISED
REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORINGS 5
STRUCTURE NO. 016-1339

SHEET NO. 48 OF 84 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	634
CONTRACT NO. 60L72				

ILLINOIS FED. AID PROJECT



SOIL BORING LOG

GSJ Job No. 10195
Page 1 of 1
Date 4/24/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR
SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM
COUNTY Cook DRILLING METHOD HAND AUGER HAMMER TYPE

STRUCT. NO. Station	D E P T H	B L O W S	U C S Qu	M O I S T %	Surface Water Elev.		Stream Bed Elev.	
					n/a	ft	n/a	ft
BORING NO. HA-41 Station 392+11 Offset 34.10ft Left Ground Surface Elev. 684.70 ft					Groundwater Elev.:		First Encounter Dry ft	
							Upon Completion n/a ft	
					After Hrs. _____		ft	
TOPSOIL-black				32				
682.20								
CLAY-brown & gray-very stiff to hard			2.8 P	20				
			4.5 P	19				
677.70								
CLAY-gray-very stiff to hard			4.5 P	20				
			3.5 P	20				
674.70 -10								
End Of Boring @ -10.0'. Boring backfilled with cuttings.								

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)



SOIL BORING LOG

GSJ Job No. 10195
Page 1 of 1
Date 4/23/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR
SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM
COUNTY Cook DRILLING METHOD HAND AUGER HAMMER TYPE

STRUCT. NO. Station	D E P T H	B L O W S	U C S Qu	M O I S T %	Surface Water Elev.		Stream Bed Elev.	
					n/a	ft	n/a	ft
BORING NO. HA-42 Station 392+86 Offset 32.60ft Left Ground Surface Elev. 684.90 ft					Groundwater Elev.:		First Encounter 675.4 ft ▼	
							Upon Completion n/a ft	
					After Hrs. _____		ft	
TOPSOIL-black				20				
683.40								
CLAY-brown & gray-hard			4.5 P	19				
			4.5 P	19				
680.40								
CLAY-gray-hard			4.0 P	20				
			4.5 P	20				
675.90								
SILTY LOAM-brown & gray								
674.90 -10								
End Of Boring @ -10.0'. Boring backfilled with cuttings.								

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)



SOIL BORING LOG

GSJ Job No. 10195
Page 1 of 1
Date 4/23/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR
SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM
COUNTY Cook DRILLING METHOD HAND AUGER HAMMER TYPE

STRUCT. NO. Station	D E P T H	B L O W S	U C S Qu	M O I S T %	Surface Water Elev.		Stream Bed Elev.	
					n/a	ft	n/a	ft
BORING NO. HA-43 Station 393+62 Offset 29.70ft Left Ground Surface Elev. 685.30 ft					Groundwater Elev.:		First Encounter Dry ft	
							Upon Completion n/a ft	
					After Hrs. _____		ft	
TOPSOIL-black				22				
683.30								
CLAY-brown & gray-stiff to hard			1.8 P	19				
			4.5 P	20				
678.80								
CLAY-gray-very stiff to hard			3.5 P	21				
				10				
675.80								
SILTY SAND with GRAVEL-brown & gray								
675.30 -10								
End Of Boring @ -10.0'. Boring backfilled with cuttings.								

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)

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USER NAME =	DESIGNED -	REVISÉ
FILE NAME = 0161339-60L72-049-SB.dgn	CHECKED -	REVISÉ
PLOT SCALE =	DRAWN -	REVISÉ
PLOT DATE =	CHECKED -	REVISÉ

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**SOIL BORINGS 6
STRUCTURE NO. 016-1339**

SHEET NO. 49 OF 84 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	635
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



SOIL BORING LOG

GSJ Job No. 10195 Page 1 of 1 Date 4/23/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR SECTION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM COUNTY Cook DRILLING METHOD HAND AUGER HAMMER TYPE

Table with columns for Depth (ft), Blows (6"), UCS (tsf), Moisture (%), and Soil Description. Includes groundwater elevation data and soil layers like TOPSOIL-black, SILTY CLAY-brown-stiff, etc.

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) BBS, from 137 (Rev. 8-99)



SOIL BORING LOG

GSJ Job No. 10195 Page 1 of 1 Date 4/23/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR SECTION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM COUNTY Cook DRILLING METHOD HAND AUGER HAMMER TYPE

Table with columns for Depth (ft), Blows (6"), UCS (tsf), Moisture (%), and Soil Description. Includes groundwater elevation data and soil layers like SAND, GRAVEL & ASPHALT-black, SILTY SAND & GRAVEL-brown, etc.

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) BBS, from 137 (Rev. 8-99)



SOIL BORING LOG

GSJ Job No. 10195 Page 1 of 1 Date 4/23/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR SECTION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM COUNTY Cook DRILLING METHOD HAND AUGER HAMMER TYPE

Table with columns for Depth (ft), Blows (6"), UCS (tsf), Moisture (%), and Soil Description. Includes groundwater elevation data and soil layers like SAND, GRAVEL & ASPHALT-black, SANDY LOAM with GRAVEL-brown, etc.

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) BBS, from 137 (Rev. 8-99)

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LOCHNER H. W. LOCHNER, INC. 225 WEST WASHINGTON STREET 12 TH FLOOR CHICAGO, ILLINOIS 60606

Table with columns for USER NAME, FILE NAME, PLOT SCALE, PLOT DATE, DESIGNED, CHECKED, DRAWN, CHECKED, REVISED, REVISED, REVISED, REVISED.

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

SOIL BORINGS 7 STRUCTURE NO. 016-1339 SHEET NO. 50 OF 84 SHEETS

Table with columns for F.A.P. RTE., SECTION, COUNTY, TOTAL SHEETS, SHEET NO., CONTRACT NO., ILLINOIS FED. AID PROJECT.



SOIL BORING LOG

GSI Job No. 10195

Page 1 of 1

Date 4/27/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HAND AUGER HAMMER TYPE

STRUCT. NO. _____
 Station _____
 BORING NO. HA-47
 Station 396+41
 Offset 32.00ft Left
 Ground Surface Elev. 682.40 ft

Surface Water Elev. n/a ft
 Stream Bed Elev. n/a ft
 Groundwater Elev.:
 First Encounter 675.9 ft ▼
 Upon Completion n/a ft
 After _____ Hrs. _____ ft

DEPTH (ft)	SOIL DESCRIPTION	BLU (ft)	UCS (tsf)	MOIST (%)
14	SAND, GRAVEL & ASPHALT-black			
680.40				
16	SILTY CLAY LOAM-brown & gray			
25				
676.90	CLAY-gray-very stiff			
25		2.5		
673.90	CLAY LOAM-gray-very stiff			
14		2.0		
672.40				
-10	End Of Boring @ -10.0'. Boring backfilled with cuttings.			
-18				
-20				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
 BBS, from 137 (Rev. 8-99)



SOIL BORING LOG

GSI Job No. 10195

Page 1 of 1

Date 4/18/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HAND AUGER HAMMER TYPE

STRUCT. NO. _____
 Station _____
 BORING NO. HA-48
 Station 396+99
 Offset 33.70ft Left
 Ground Surface Elev. 681.80 ft

Surface Water Elev. n/a ft
 Stream Bed Elev. n/a ft
 Groundwater Elev.:
 First Encounter Dry ft
 Upon Completion n/a ft
 After _____ Hrs. _____ ft

DEPTH (ft)	SOIL DESCRIPTION	BLU (ft)	UCS (tsf)	MOIST (%)
22	TOPSOIL-black (Fill)			
2.0				
681.30	SILTY CLAY-dark brown-stiff (Fill)			
32		1.5		
676.80	PEAT-dark brown & black			
366		0.3		
340				
673.80	ORGANIC SANDY LOAM-dark gray			
41				
671.80	End Of Boring @ -10.0'. Boring backfilled with cuttings.			
-10				
-18				
-20				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
 BBS, from 137 (Rev. 8-99)



SOIL BORING LOG

GSI Job No. 10195

Page 1 of 1

Date 4/18/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HAND AUGER HAMMER TYPE

STRUCT. NO. _____
 Station _____
 BORING NO. HA-49
 Station 397+49
 Offset 31.80ft Left
 Ground Surface Elev. 684.60 ft

Surface Water Elev. n/a ft
 Stream Bed Elev. n/a ft
 Groundwater Elev.:
 First Encounter Dry ft
 Upon Completion n/a ft
 After _____ Hrs. _____ ft

DEPTH (ft)	SOIL DESCRIPTION	BLU (ft)	UCS (tsf)	MOIST (%)
5	CRUSHED ASPHALT & STONE			
682.60				
26	SILTY CLAY-brown & gray-stiff (Apparently Fill)			
1.5				
679.60	SILTY CLAY-dark brown & gray-medium stiff to stiff			
26		1.0		
29				
674.60	End Of Boring @ -10.0'. Boring backfilled with cuttings.			
-10				
-15				
-20				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
 BBS, from 137 (Rev. 8-99)

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LOCHNER
 H. W. LOCHNER, INC.
 225 WEST WASHINGTON STREET
 12 TH FLOOR
 CHICAGO, ILLINOIS 60606

USER NAME =	DESIGNED -	REVISED
FILE NAME = 0161339-60L72-051-SB.dgn	CHECKED -	REVISED
PLOT SCALE =	DRAWN -	REVISED
PLOT DATE =	CHECKED -	REVISED

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

SOIL BORINGS 8
 STRUCTURE NO. 016-1339
 SHEET NO. 51 OF 84 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	637
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



SOIL BORING LOG

GSI Job No. 10195
Page 1 of 1
Date 4/18/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR
SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM
COUNTY Cook DRILLING METHOD HAND AUGER HAMMER TYPE

STRUCT. NO. Station	D E P T H	B L O W S	U C S Qu	M O I S T	Surface Water Elev.		Stream Bed Elev.	
					n/a	ft	n/a	ft
BORING NO. HA-50 Station 398+23 Offset 32.90ft Left Ground Surface Elev. 682.50	(ft)	(/ft)	(tsf)	(%)	Groundwater Elev.:	First Encounter	Upon Completion	After
					Dry	ft	n/a	ft
CRUSHED ASPHALT & STONE				7				
680.00			1.0	29				
SILTY CLAY-brown & gray-stiff (Fill)			P					
678.00				162				
PEAT-black								
								400
								508
672.50	-10							
End Of Boring @ -10.0'. Boring backfilled with cuttings.								
								-15
								-20

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)



SOIL BORING LOG

GSI Job No. 10195
Page 1 of 1
Date 4/18/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR
SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM
COUNTY Cook DRILLING METHOD HAND AUGER HAMMER TYPE

STRUCT. NO. Station	D E P T H	B L O W S	U C S Qu	M O I S T	Surface Water Elev.		Stream Bed Elev.	
					n/a	ft	n/a	ft
BORING NO. HA-51 Station 399+22 Offset 33.60ft Left Ground Surface Elev. 682.60	(ft)	(/ft)	(tsf)	(%)	Groundwater Elev.:	First Encounter	Upon Completion	After
					Dry	ft	n/a	ft
SILTY SAND & GRAVEL-dark brown & gray				12				
			1.0	27				
679.10			P					
CLAY LOAM-brown-stiff (Fill)								
678.10				21				
SILTY CLAY-dark brown & gray-medium stiff			0.8					
			P					
								29
								26
672.60	-10							
End Of Boring @ -10.0'. Boring backfilled with cuttings.								
								-15
								-20

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)



SOIL BORING LOG

GSI Job No. 10195
Page 1 of 1
Date 4/18/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR
SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM
COUNTY Cook DRILLING METHOD HAND AUGER HAMMER TYPE

STRUCT. NO. Station	D E P T H	B L O W S	U C S Qu	M O I S T	Surface Water Elev.		Stream Bed Elev.	
					n/a	ft	n/a	ft
BORING NO. HA-52 Station 400+31 Offset 32.30ft Left Ground Surface Elev. 684.00	(ft)	(/ft)	(tsf)	(%)	Groundwater Elev.:	First Encounter	Upon Completion	After
					Dry	ft	n/a	ft
TOPSOIL-black				18				
			0.5	31				
681.00			P					
SILTY CLAY-dark brown & gray-medium stiff (Fill)								
680.00								
PEAT-dark gray & black								
								300
677.50				97				
ORGANIC SILTY CLAY-dark gray								
								52
674.00	-10							
End Of Boring @ -10.0'. Boring backfilled with cuttings.								
								-15
								-20

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)

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LOCHNER
H. W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

USER NAME =	DESIGNED -	REVISED
FILE NAME = 0161339-60L72-052-SB.dgn	CHECKED -	REVISED
PLOT SCALE =	DRAWN -	REVISED
PLOT DATE =	CHECKED -	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORINGS 9
STRUCTURE NO. 016-1339
SHEET NO. 52 OF 84 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	638
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



GSI Job No. 10195

SOIL BORING LOG

Page 1 of 1

Date 4/18/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HAND AUGER HAMMER TYPE

STRUCT. NO.	D E P T H	B L O W S	U C S Q _u	M O I S T	Surface Water Elev. n/a ft	Stream Bed Elev. n/a ft
BORING NO. HA-53 Station 401+46 Offset 30.60ft Left Ground Surface Elev. 685.00 ft	(ft)	(/6")	(tsf)	(%)	Groundwater Elev.: First Encounter Dry ft Upon Completion n/a ft After Hrs. ft	
TOPSOIL-black	684.50		2.5 P	18		
SILTY CLAY-dark brown-very stiff (Fill)						
	682.00		2.0 P	21		
SILTY CLAY-brown & gray-stiff to very stiff						
	-5		1.5 P	25		
SILTY LOAM-gray	678.50			21		
	677.00					
SILTY CLAY LOAM-gray				14		
	675.00					
End Of Boring @ -10.0'. Boring backfilled with cuttings.	-10					
	-15					
	-20					

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)



GSI Job No. 10195

SOIL BORING LOG

Page 1 of 1

Date 4/18/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HAND AUGER HAMMER TYPE

STRUCT. NO.	D E P T H	B L O W S	U C S Q _u	M O I S T	Surface Water Elev. n/a ft	Stream Bed Elev. n/a ft
BORING NO. HA-54 Station 401+89 Offset 34.40ft Left Ground Surface Elev. 685.50 ft	(ft)	(/6")	(tsf)	(%)	Groundwater Elev.: First Encounter Dry ft Upon Completion n/a ft After Hrs. ft	
TOPSOIL-black				20		
	683.50					
SAND-brown				14		
	680.50		2.3 P	15		
CLAY-gray-very stiff						
	-5		2.0 P	14		
			3.3 P	14		
	675.50					
End Of Boring @ -10.0'. Boring backfilled with cuttings.	-10					
	-15					
	-20					

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)



GSI Job No. 10195

SOIL BORING LOG

Page 1 of 1

Date 4/18/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HAND AUGER HAMMER TYPE

STRUCT. NO.	D E P T H	B L O W S	U C S Q _u	M O I S T	Surface Water Elev. n/a ft	Stream Bed Elev. n/a ft
BORING NO. HA-55 Station 402+63 Offset 35.70ft Left Ground Surface Elev. 686.30 ft	(ft)	(/6")	(tsf)	(%)	Groundwater Elev.: First Encounter Dry ft Upon Completion n/a ft After Hrs. ft	
TOPSOIL-black				77		
	683.80					
SAND-brown				12		
	682.80					
CLAY-brown & gray-hard						
	-5		4.5 P	18		
			4.5 P	20		
	676.80					
SILTY SAND-gray	676.30			15		
End Of Boring @ -10.0'. Boring backfilled with cuttings.	-10					
	-15					
	-20					

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)

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LOCHNER
H. W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

USER NAME =
FILE NAME = 0161339-60L72-053-SB.dgn
PLOT SCALE =
PLOT DATE =

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORINGS 10
STRUCTURE NO. 016-1339
SHEET NO. 53 OF 84 SHEETS

F.A.P. RTE. 351 SECTION 2010-081-R COUNTY COOK TOTAL SHEETS 1045 SHEET NO. 639 CONTRACT NO. 60L72 ILLINOIS FED. AID PROJECT



GSI Job No. 10195

SOIL BORING LOG

Page 1 of 1

Date 4/18/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HAND AUGER HAMMER TYPE

STRUCT. NO. _____ Station _____

BORING NO. HA-56 Station 403+75 Offset 30.00ft Left Ground Surface Elev. 683.30 ft

Surface Water Elev. n/a ft Stream Bed Elev. n/a ft

Groundwater Elev.: First Encounter Dry ft Upon Completion n/a ft After Hrs. _____

DEPTH (ft)	SOIL DESCRIPTION	BLU (ft)	CS (ft)	MOISTURE (%)
682.80	TOPSOIL-black			
	CLAY-brown & gray-very stiff	3.0	P	18
		3.5	P	20
678.30	CLAY-gray-stiff to very stiff	3.0	P	22
		3.0	P	20
		1.8	P	22
673.30	End Of Boring @ -10.0'. Boring backfilled with cuttings.			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) BBS, from 137 (Rev. 8-99)



GSI Job No. 10195

SOIL BORING LOG

Page 1 of 1

Date 4/18/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HAND AUGER HAMMER TYPE

STRUCT. NO. _____ Station _____

BORING NO. HA-57 Station 404+53 Offset 35.30ft Left Ground Surface Elev. 683.80 ft

Surface Water Elev. n/a ft Stream Bed Elev. n/a ft

Groundwater Elev.: First Encounter Dry ft Upon Completion n/a ft After Hrs. _____

DEPTH (ft)	SOIL DESCRIPTION	BLU (ft)	CS (ft)	MOISTURE (%)
683.30	TOPSOIL-black			
	CLAY LOAM-brown & gray-medium stiff to very stiff (Fill)	3.0		22
		0.5		32
		2.0		22
		2.5		22
674.80	PEAT-black	1.3		29
673.80	End Of Boring @ -10.0'. Boring backfilled with cuttings.			112

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) BBS, from 137 (Rev. 8-99)



GSI Job No. 10195

SOIL BORING LOG

Page 1 of 1

Date 4/17/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HAND AUGER HAMMER TYPE

STRUCT. NO. _____ Station _____

BORING NO. HA-58 Station 405+21 Offset 39.90ft Left Ground Surface Elev. 680.40 ft

Surface Water Elev. n/a ft Stream Bed Elev. n/a ft

Groundwater Elev.: First Encounter 675.4 ft Upon Completion n/a ft After Hrs. _____

DEPTH (ft)	SOIL DESCRIPTION	BLU (ft)	CS (ft)	MOISTURE (%)
	TOPSOIL-black			
678.90	CLAY LOAM-dark brown & gray-medium stiff to very stiff (Fill)	0.8	P	36
		1.3	P	27
		2.5	P	24
671.40	ORGANIC SILTY CLAY-black			33
670.40	End Of Boring @ -10.0'. Boring backfilled with cuttings.			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) BBS, from 137 (Rev. 8-99)

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LOCHNER
 H. W. LOCHNER, INC.
 225 WEST WASHINGTON STREET
 12 TH FLOOR
 CHICAGO, ILLINOIS 60606

USER NAME =	DESIGNED -	REVISED
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PLOT DATE =	CHECKED -	REVISED

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

SOIL BORINGS 11
 STRUCTURE NO. 016-1339

SHEET NO. 54 OF 84 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	640
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



SOIL BORING LOG

GSJ Job No. 10195
Page 1 of 1
Date 4/17/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR
SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM
COUNTY Cook DRILLING METHOD HAND AUGER HAMMER TYPE

Table with columns: D (ft), B (in), L (in), O (in), W (in), S (in), H (in), U (in), C (in), S (in), M (in), O (in), I (in), S (in), T (in). Rows include soil types like TOPSOIL-black, SILTY CLAY-brown & gray-medium stiff, and ORGANIC SILTY CLAY-black (Fill).

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)



SOIL BORING LOG

GSJ Job No. 10195
Page 1 of 1
Date 4/17/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR
SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM
COUNTY Cook DRILLING METHOD HAND AUGER HAMMER TYPE

Table with columns: D (ft), B (in), L (in), O (in), W (in), S (in), H (in), U (in), C (in), S (in), M (in), O (in), I (in), S (in), T (in). Rows include soil types like TOPSOIL-black, CLAY LOAM-brown & gray-stiff (Fill), and ORGANIC SILTY CLAY-black.

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)



SOIL BORING LOG

GSJ Job No. 10195
Page 1 of 1
Date 4/17/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR
SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM
COUNTY Cook DRILLING METHOD HAND AUGER HAMMER TYPE

Table with columns: D (ft), B (in), L (in), O (in), W (in), S (in), H (in), U (in), C (in), S (in), M (in), O (in), I (in), S (in), T (in). Rows include soil types like TOPSOIL-black, CRUSHED STONE & GRAVEL, and ORGANIC SILTY LOAM-dark brown & black.

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)

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LOCHNER
H.W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

Table with columns: USER NAME, FILE NAME, PLOT SCALE, PLOT DATE, DESIGNED, CHECKED, DRAWN, CHECKED, REVISED, REVISED, REVISED, REVISED.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORINGS 12
STRUCTURE NO. 016-1339
SHEET NO. 55 OF 84 SHEETS

Table with columns: F.A.P. RTE., SECTION, COUNTY, TOTAL SHEETS, SHEET NO., CONTRACT NO. 60L72, ILLINOIS FED. AID PROJECT.



GSI Job No. 10195

SOIL BORING LOG

Page 1 of 2

Date 2/29/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR
 SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM
 COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station	D E P T H S	B L O W S	U C S Qu	M O I S T	Surface Water Elev.	D E P T H S	B L O W S	U C S Qu	M O I S T
					n/a ft				
BORING NO. RW-08 Station 391+35 Offset 24.10ft Left Ground Surface Elev. 687.40 ft									
ASPHALT					686.70				
CLAY-brown & gray-very stiff (Fill)									
		3					4		
		5	2.8	24			7	2.9	19
		4	P				12	B	
SAND & GRAVEL-brown & gray-loose to medium dense (Apparent Fill)					684.40				
		3		14			5		14
		4					5		
		5					7		
		3					6		
		5		16			6		16
		6					6		
SILTY LOAM-gray-very loose to loose					679.40				
		2					5		
		3		22			4		18
		4					6		
		2					3		
		3		21			3		
		2					2		
		2		22			2		10
		2					7		
		2					7		
		2		22			2		
		2					2		
		2					2		
		2		22			2		
CLAY-gray-very stiff					669.40				
		4					11		14
		6	3.1	20			9	2.0	
		9	B				9	P	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T205)
 BBS, from 137 (Rev. 8-99)



GSI Job No. 10195

SOIL BORING LOG

Page 2 of 2

Date 2/29/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR
 SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM
 COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station	D E P T H S	B L O W S	U C S Qu	M O I S T	Surface Water Elev.	D E P T H S	B L O W S	U C S Qu	M O I S T
					n/a ft				
BORING NO. RW-08 Station 391+35 Offset 24.10ft Left Ground Surface Elev. 687.40 ft									
CLAY LOAM-gray-very stiff (continued)									
					645.40				
SILT-gray-medium dense									
		8					8		18
		8					10		
		10					10		
SILTY CLAY LOAM-gray-hard					640.40				
		8					8		
		13	4.2	18			13	4.2	18
		18	B				18	B	
End Of Boring @ -50.0'. Boring backfilled with cuttings.					637.40		50		

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T205)
 BBS, from 137 (Rev. 8-99)

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 H.W. LOCHNER, INC.
 225 WEST WASHINGTON STREET
 12 TH FLOOR
 CHICAGO, ILLINOIS 60606

USER NAME =	DESIGNED -	REVISED
FILE NAME = 0161339-60L72-056-SB.dgn	CHECKED -	REVISED
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PLOT DATE =	CHECKED -	REVISED

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

SOIL BORINGS 13
 STRUCTURE NO. 016-1339

SHEET NO. 56 OF 84 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	642
CONTRACT NO. 60L72				

ILLINOIS FED. AID PROJECT



GSI Job No. 10195

SOIL BORING LOG

Page 1 of 2

Date 2/28/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av LOGGED BY RR

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO.	Station	D E P T H	B L O W S	U C S Qu	M O I S T	Surface Water Elev. n/a ft	Stream Bed Elev. n/a ft	D E P T H	B L O W S	U C S Qu	M O I S T
	BORING NO. RW-09					Groundwater Elev.:					
	Station 392+10					First Encounter Dry to 10' ft					
	Offset 19.10ft Left					Upon Completion n/a ft					
	Ground Surface Elev. 687.90 ft	(ft)	(/6")	(tsf)	(%)	After Hrs. ft	(ft)	(/6")	(tsf)	(%)	
	ASPHALT 687.20					SAND & GRAVEL-gray-dense 667.40					
	CLAY LOAM with STONE-dark brown & gray-very stiff (Fill)	5					7				
		5	3.5	24			9				13
		6	P				30				
	CLAY-brown & gray-stiff to very stiff 684.90					CLAYEY SAND & GRAVEL-gray-medium dense 664.90					
		2					10				
		4	3.3	21			9				6
		5	B				9				
		3					11				
		4	2.8	20			10				11
		6	B				9				
	becoming gray @ -8.0'					CLAY-gray-very stiff 659.90					
		3					7				
		4	2.1	21			7	2.2			20
		6	B				9	B			
		4					11				
		5	1.0	22		SAND-gray-medium dense 655.90					
		5	P				9				
		2					11				23
		3	1.6	23			12				
		4	B				12				
		2									
		3	1.5	22		SANDY CLAY LOAM-gray-medium dense 650.90					
		3	B				13				
	SANDY LOAM-gray-medium dense 669.90						15	4.5			11
		6					10	P			
		8					10				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T208) BBS, from 137 (Rev. 8-99)



GSI Job No. 10195

SOIL BORING LOG

Page 2 of 2

Date 2/28/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av LOGGED BY RR

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO.	Station	D E P T H	B L O W S	U C S Qu	M O I S T	Surface Water Elev. n/a ft	Stream Bed Elev. n/a ft	D E P T H	B L O W S	U C S Qu	M O I S T
	BORING NO. RW-09					Groundwater Elev.:					
	Station 392+10					First Encounter Dry to 10' ft					
	Offset 19.10ft Left					Upon Completion n/a ft					
	Ground Surface Elev. 687.90 ft	(ft)	(/6")	(tsf)	(%)	After Hrs. ft	(ft)	(/6")	(tsf)	(%)	
	SANDY CLAY LOAM-gray-medium dense (continued) 645.90										
	SILTY LOAM-gray-medium dense to dense										
		9					7				18
		7					8				
		6					12				19
		12					18				
	End Of Boring @ -50.0'. Boring backfilled with cuttings. 637.90										

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T208) BBS, from 137 (Rev. 8-99)

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H.W. LOCHNER, INC.
225 WEST WASHINGTON STREET
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CHICAGO, ILLINOIS 60606

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PLOT DATE =	CHECKED -	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORINGS 14
STRUCTURE NO. 016-1339

SHEET NO. 57 OF 84 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	643
CONTRACT NO. 60L72				

ILLINOIS FED. AID PROJECT



GSI Job No. 10195

SOIL BORING LOG

Page 1 of 2

Date 2/28/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY JZ
 SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM
 COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station	DEPTH H S	B L O W S	U C S Qu	M O D E S T	Surface Water Elev.	DEPTH H S	B L O W S	U C S Qu	M O D E S T
					n/a ft				
					687.90				
					687.00				
					682.40				
					677.40				
					674.90				
					669.90				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
 BBS, from 137 (Rev. 8-99)



GSI Job No. 10195

SOIL BORING LOG

Page 2 of 2

Date 2/28/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY JZ
 SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM
 COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station	DEPTH H S	B L O W S	U C S Qu	M O D E S T	Surface Water Elev.	DEPTH H S	B L O W S	U C S Qu	M O D E S T
					n/a ft				
					687.90				
					687.00				
					682.40				
					677.40				
					674.90				
					669.90				
					637.90				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
 BBS, from 137 (Rev. 8-99)

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LOCHNER
 H.W. LOCHNER, INC.
 225 WEST WASHINGTON STREET
 12 TH FLOOR
 CHICAGO, ILLINOIS 60606

USER NAME =	DESIGNED -	REVISED
FILE NAME = 0161339-60L72-058-SB.dgn	CHECKED -	REVISED
PLOT SCALE =	DRAWN -	REVISED
PLOT DATE =	CHECKED -	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORINGS 15
STRUCTURE NO. 016-1339
 SHEET NO. 58 OF 84 SHEETS

F.A.P. RTE. 351	SECTION 2010-081-R	COUNTY COOK	TOTAL SHEETS 1045	SHEET NO. 644
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



GSI Job No. 10195

SOIL BORING LOG

Page 1 of 2

Date 2/28/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY JZ

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station	D E P T H S	B L O W S	U C S Qu	M O I S T	Surface Water Elev. n/a ft		D E P T H S	B L O W S	U C S Qu	M O I S T
					Stream Bed Elev. n/a ft	Groundwater Elev. n/a ft				
BORING NO. RW-11 Station 394+36 Offset 18.70ft Left Ground Surface Elev. 687.60 ft										
ASPHALT					686.90					
CLAY LOAM-dark brown, gray & black-stiff to very stiff (Fill)	4							4		
	7	3.7	22					7		19
	10	B						8		
	3							7		
	2	1.5	29					10		9
	2	P						12		
	-5							-25		
SAND with GRAVEL-brown-very loose	2				682.10			15		
	2		13					18		5
	2							25		
becoming gray @ -8.0'	2							14		
	3		18					16		8
	3							26		
	-10							-30		
CLAY to CLAY LOAM-gray-stiff to very stiff	4				677.10			15		
	6	1.5	13					15		7
	7	P						15		
	4							15		
	5	2.0	20					15		7
	6	B						18		
	-15							-35		
	4							7		
	5	1.0	18					8		17
	6	B						8		
	3							8		
	4	1.2	21					8		17
	6	B						8		
	-20							-40		

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)



GSI Job No. 10195

SOIL BORING LOG

Page 2 of 2

Date 2/28/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY JZ

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station	D E P T H S	B L O W S	U C S Qu	M O I S T	Surface Water Elev. n/a ft		D E P T H S	B L O W S	U C S Qu	M O I S T
					Stream Bed Elev. n/a ft	Groundwater Elev. n/a ft				
BORING NO. RW-11 Station 394+36 Offset 18.70ft Left Ground Surface Elev. 687.60 ft										
SANDY CLAY LOAM-gray-medium dense to dense (continued)					645.60					
SAND-gray-medium dense	6							6		18
	6							6		
	-45							-45		
	7							7		
	7		22					7		22
	8							8		
	-50							-50		
End Of Boring @ -50.0'. Boring backfilled with cuttings.					637.60					

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)

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LOCHNER
H. W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

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PLOT DATE =	CHECKED -	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORINGS 16
STRUCTURE NO. 016-1339

SHEET NO. 59 OF 84 SHEETS

F.A.P. RTE. 351	SECTION 2010-081-R	COUNTY COOK	TOTAL SHEETS 1045	SHEET NO. 645
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



GSI Job No. 10195

SOIL BORING LOG

Page 1 of 2

Date 2/28/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station _____
 BORING NO. RW-12 Station 395+08 Offset 21.90ft Left Ground Surface Elev. 687.50 ft
 Surface Water Elev. n/a ft Stream Bed Elev. n/a ft
 Groundwater Elev.: First Encounter Dry to 10' ft Upon Completion n/a ft After Hrs. _____

DEPTH (ft)	BULGE (in)	SHEAR (tsf)	QUICKNESS (%)	DEPTH (ft)	BULGE (in)	SHEAR (tsf)	QUICKNESS (%)				
688.80											
CLAY LOAM-brown-hard (Fill)											
4				4							
4	4.5	16		8			19				
7	P			11							
684.50				664.50							
SAND-brown-very loose (Fill)											
3				7							
1			44	9			15				
3				12							
682.00				662.00							
CLAY-gray-stiff to very stiff											
1				5							
1	1.9	21		3	1.1	16					
3	B			4	B						
3				2							
4	2.4	21		6	0.6	16					
5	B			8	B						
2				30							
3											
2				655.50							
2	1.2	23		SAND-gray-medium dense							
2	B			7							
2	1.7	23		8			22				
5	B			35							
2											
4	1.0	22		650.50							
4	B			SILT-gray-medium dense							
5				6							
4				7			25				
5				10							
20				40							
669.50				SANDY LOAM-gray-loose to medium dense							

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
 BBS, from 137 (Rev. 8-99)



GSI Job No. 10195

SOIL BORING LOG

Page 2 of 2

Date 2/28/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station _____
 BORING NO. RW-12 Station 395+08 Offset 21.90ft Left Ground Surface Elev. 687.50 ft
 Surface Water Elev. n/a ft Stream Bed Elev. n/a ft
 Groundwater Elev.: First Encounter Dry to 10' ft Upon Completion n/a ft After Hrs. _____

DEPTH (ft)	BULGE (in)	SHEAR (tsf)	QUICKNESS (%)	DEPTH (ft)	BULGE (in)	SHEAR (tsf)	QUICKNESS (%)				
645.50											
SILT-gray-medium dense (continued)											
11				11			25				
11				11							
645.50				637.50							
SAND-gray-medium dense											
11				8							
11				10			20				
11				11							
637.50				End Of Boring @ -50.0'. Boring backfilled with cuttings.							

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
 BBS, from 137 (Rev. 8-99)

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LOCHNER
 H.W. LOCHNER, INC.
 225 WEST WASHINGTON STREET
 12 TH FLOOR
 CHICAGO, ILLINOIS 60606

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PLOT SCALE =	DRAWN -	REVISED
PLOT DATE =	CHECKED -	REVISED

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**SOIL BORINGS 17
 STRUCTURE NO. 016-1339**

SHEET NO. 60 OF 84 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	646
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



GSI Job No. 10195

SOIL BORING LOG

Page 1 of 2

Date 2/28/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO.	BORING NO.	Station	Offset	Ground Surface Elev.	DEPTH (ft)	BLOW (blows/ft)	UCS (tsf)	FAILURE MODE	Surface Water Elev.	Stream Bed Elev.	Groundwater Elev.	DEPTH (ft)	BLOW (blows/ft)	UCS (tsf)	FAILURE MODE
				687.10					n/a	n/a					
				686.40											
				681.60											
				679.10											
				676.60											

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T208)
BBS, from 137 (Rev. 8-99)



GSI Job No. 10195

SOIL BORING LOG

Page 2 of 2

Date 2/28/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO.	BORING NO.	Station	Offset	Ground Surface Elev.	DEPTH (ft)	BLOW (blows/ft)	UCS (tsf)	FAILURE MODE	Surface Water Elev.	Stream Bed Elev.	Groundwater Elev.	DEPTH (ft)	BLOW (blows/ft)	UCS (tsf)	FAILURE MODE
				687.10					n/a	n/a					
				645.10											
				637.10											

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T208)
BBS, from 137 (Rev. 8-99)

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LOCHNER
H.W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORINGS 18
STRUCTURE NO. 016-1339

SHEET NO. 61 OF 84 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	647
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



GSI Job No. 10195

SOIL BORING LOG

Page 1 of 2

Date 2/23/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station BORING NO. RW-15 Station 401+90 Offset 19.80ft Left Ground Surface Elev. 686.80 ft

Surface Water Elev. n/a ft Stream Bed Elev. n/a ft

Groundwater Elev.: First Encounter 675.8 ft Upon Completion n/a ft After Hrs.

DEPTH (ft)	SOIL TYPE	UCS (tsf)	Failure Mode	DEPTH (ft)	SOIL TYPE	UCS (tsf)	Failure Mode	
686.10	ASPHALT			666.30	SAND & GRAVEL-gray-medium dense			
5	CLAY-dark brown, gray & black-stiff to very stiff (Fill)	2.5	24	7	SAND & GRAVEL-gray-medium dense	5	14	
6				6				
8								
				663.80	SILTY LOAM-gray-medium dense			
3	ORGANIC SILTY CLAY LOAM-black-very loose	1.5	22	6	SAND & GRAVEL-gray-medium dense	7	19	
4				7				
6				7				
				661.30	SAND & GRAVEL-gray-medium dense			
2	SAND with GRAVEL-gray	<0.25	58	6	SAND & GRAVEL-gray-medium dense	6	20	
1				7				
1				6				
				678.80	SAND & GRAVEL-gray-medium dense			
	CLAY LOAM-dark gray-very stiff		12	6	SAND & GRAVEL-gray-medium dense	5	17	
				4				
				30				
				676.30	SAND & GRAVEL-gray-medium dense			
6	SILTY CLAY LOAM-gray-loose	3.5	14	6	SAND & GRAVEL-gray-medium dense	10	21	
11				10				
11				11				
				673.80	SAND & GRAVEL-gray-medium dense			
2	SILTY LOAM-gray-loose	1.3	15	7	SAND & GRAVEL-gray-medium dense	7	17	
3				10				
4				11				
				671.30	SAND & GRAVEL-gray-medium dense			
5	SILTY SAND & GRAVEL-gray-medium dense		17	6	SAND & GRAVEL-gray-medium dense	10	22	
5				10				
7				9				
				668.80	SAND & GRAVEL-gray-medium dense			
6	SAND & GRAVEL-gray-medium dense		16	6	SAND & GRAVEL-gray-medium dense	10	22	
6				10				
7				9				
				666.80	SAND & GRAVEL-gray-medium dense			
20	SAND & GRAVEL-gray-medium dense		16	6	SAND & GRAVEL-gray-medium dense	10	22	
				10				
				9				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)



GSI Job No. 10195

SOIL BORING LOG

Page 2 of 2

Date 2/23/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station BORING NO. RW-15 Station 401+90 Offset 19.80ft Left Ground Surface Elev. 686.80 ft

Surface Water Elev. n/a ft Stream Bed Elev. n/a ft

Groundwater Elev.: First Encounter 675.8 ft Upon Completion n/a ft After Hrs.

DEPTH (ft)	SOIL TYPE	UCS (tsf)	Failure Mode	DEPTH (ft)	SOIL TYPE	UCS (tsf)	Failure Mode	
686.80	SAND-gray-loose to medium dense (continued)			666.30	SAND & GRAVEL-gray-medium dense			
	SAND-gray-loose to medium dense (continued)			7	SAND & GRAVEL-gray-medium dense	5	14	
				6				
				663.80	SILTY LOAM-gray-medium dense			
	SAND-gray-loose to medium dense (continued)			6	SAND & GRAVEL-gray-medium dense	7	19	
				7				
				7				
				661.30	SAND & GRAVEL-gray-medium dense			
	SAND-gray-loose to medium dense (continued)			6	SAND & GRAVEL-gray-medium dense	6	20	
				7				
				6				
				678.80	SAND & GRAVEL-gray-medium dense			
	SAND-gray-loose to medium dense (continued)			6	SAND & GRAVEL-gray-medium dense	5	17	
				4				
				30				
				676.30	SAND & GRAVEL-gray-medium dense			
	SAND-gray-loose to medium dense (continued)			6	SAND & GRAVEL-gray-medium dense	10	21	
				10				
				11				
				673.80	SAND & GRAVEL-gray-medium dense			
	SAND-gray-loose to medium dense (continued)			7	SAND & GRAVEL-gray-medium dense	7	17	
				10				
				11				
				671.30	SAND & GRAVEL-gray-medium dense			
	SAND-gray-loose to medium dense (continued)			5	SAND & GRAVEL-gray-medium dense	10	22	
				5				
				7				
				668.80	SAND & GRAVEL-gray-medium dense			
	SAND-gray-loose to medium dense (continued)			6	SAND & GRAVEL-gray-medium dense	10	22	
				6				
				7				
				666.80	SAND & GRAVEL-gray-medium dense			
	SAND-gray-loose to medium dense (continued)			6	SAND & GRAVEL-gray-medium dense	10	22	
				10				
				9				
				666.80	SAND & GRAVEL-gray-medium dense			
	SAND-gray-loose to medium dense (continued)			6	SAND & GRAVEL-gray-medium dense	10	22	
				10				
				9				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)

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H.W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORINGS 20
STRUCTURE NO. 016-1339
SHEET NO. 63 OF 84 SHEETS

F.A.P. RTE. 351	SECTION 2010-081-R	COUNTY COOK	TOTAL SHEETS 1045	SHEET NO. 649
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



GSI Job No. 10195

SOIL BORING LOG

Page 1 of 2

Date 2/22/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av LOGGED BY NW
 SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM
 COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station	BORING NO. Station Offset Ground Surface Elev.	D (ft)	B (/6")	U (tsf)	M (%)	SOIL DESCRIPTION				D (ft)	B (/6")	U (tsf)	M (%)
						Surface Water Elev.	Stream Bed Elev.	Groundwater Elev.	First Encounter				
	RW-17 403+05 20.90ft Left 686.90					ASPHALT	686.20						
			4			SILTY CLAY-dark brown & gray-stiff to very stiff (Fill)					3		17
			7	3.1	22						5		
			8	B							5		
			2			CLAY LOAM-gray-stiff to very stiff	663.90				2		
			3	1.5	25						3	1.1	17
			3	P							5	B	
			-5			SAND-brown-very loose	681.40				-25		
			2								5	1.2	15
			2		21						5	B	
			2			CLAY-gray-stiff to very stiff	678.90				3		
			3	2.7	20						6	2.0	14
			6	B							7	B	
			-10								-30		
			2								6		
			3	1.3	21	SAND-brown & gray-medium dense	654.90				10		17
			4	B							-35	12	
			2								6		
			3	1.0	20						10		17
			5	B							-35	12	
			-15								-45		
			2								6		
			2	1.0	17	SANDY LOAM-gray-very dense	649.90				8		
			2	P							50/4		16
			3	1.1	13						8		
			4	B		CLAY LOAM-gray-stiff	668.90				-20		

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T205)
 BBS, from 137 (Rev. 8-99)



GSI Job No. 10195

SOIL BORING LOG

Page 2 of 2

Date 2/22/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av LOGGED BY NW
 SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM
 COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station	BORING NO. Station Offset Ground Surface Elev.	D (ft)	B (/6")	U (tsf)	M (%)	SOIL DESCRIPTION				D (ft)	B (/6")	U (tsf)	M (%)
						Surface Water Elev.	Stream Bed Elev.	Groundwater Elev.	First Encounter				
	RW-17 403+05 20.90ft Left 686.90					SANDY LOAM-gray-very dense (continued)							
						GRAVEL-gray-medium dense	644.90						
			14								14		
			12		7						7		
			-45								-45		
			5			SILTY CLAY-gray-medium stiff	639.90				5		
			5								5	1.2	15
			5	B							5	B	
			4								4		
			6	0.5	14						6		
			9	P							9		
			-50			End Of Boring @ -50.0'. Boring backfilled with cuttings.	636.90				-50		

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T205)
 BBS, from 137 (Rev. 8-99)

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LOCHNER
 H.W. LOCHNER, INC.
 225 WEST WASHINGTON STREET
 12 TH FLOOR
 CHICAGO, ILLINOIS 60606

USER NAME =	DESIGNED -	REVISED
FILE NAME = 0161339-60L72-065-SB.dgn	CHECKED -	REVISED
PLOT SCALE =	DRAWN -	REVISED
PLOT DATE =	CHECKED -	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORINGS 22
STRUCTURE NO. 016-1339
 SHEET NO. 65 OF 84 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	651
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



GSI Job No. 10195

SOIL BORING LOG

Page 1 of 2

Date 3/5/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av LOGGED BY JZ
 SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM
 COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station	DEPTH H S	BULGE B	UCS Qu	FAILURE MODE T	Surface Water Elev. n/a ft	Stream Bed Elev. n/a ft	Groundwater Elev.: First Encounter Dry to 10' ft Upon Completion n/a ft After Hrs.	DEPTH H S	BULGE B	UCS Qu	FAILURE MODE T	
												(ft)
2.5" ASPHALT, 8.0" CONCRETE					685.40							
CLAY to CLAY LOAM-dark brown, gray & black-soft to very stiff (Fill)												
	3							2				
	5	3.5	18					2	1.5	28		
	2	P						3	P			
	2							1				
	2		1.2	25				2	0.5	24		
	1	B						2	P			
	3							3				
	4	1.8	23					4	0.9	24		
	4	B						5	B			
	3							2				
	4	1.8	26					3	2.5	22		
	5	P						3	P			
	2											
	3	0.5	25									
	3	B										
	1							1				
	1	0.5	27					2	0.3	42		
	1	P						2	B			
	1											
	1	0.8	25									
	1	P										
	2											
	2	0.6	27					3				
	3	B						4	1.5	25		
								6	P			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
 BBS, from 137 (Rev. 8-99)



GSI Job No. 10195

SOIL BORING LOG

Page 2 of 2

Date 3/5/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av LOGGED BY JZ
 SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM
 COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station	DEPTH H S	BULGE B	UCS Qu	FAILURE MODE T	Surface Water Elev. n/a ft	Stream Bed Elev. n/a ft	Groundwater Elev.: First Encounter Dry to 10' ft Upon Completion n/a ft After Hrs.	DEPTH H S	BULGE B	UCS Qu	FAILURE MODE T
SILTY CLAY-gray-stiff (continued)											
	4										
	4		17								
	5										
	8										
	8		17								
	8										
	10		22								
	12										
	8										
	10		22								
	12										
	7										
	7		13								
	7										
	9										

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
 BBS, from 137 (Rev. 8-99)

T:\51006-056\Struct.dgn\Retaining Wall 3\0161339-60L72-067-SB.dgn

LOCHNER
 H.W. LOCHNER, INC.
 225 WEST WASHINGTON STREET
 12 TH FLOOR
 CHICAGO, ILLINOIS 60606

USER NAME =	DESIGNED -	REVISED
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PLOT SCALE =	DRAWN -	REVISED
PLOT DATE =	CHECKED -	REVISED

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**SOIL BORINGS 24
 STRUCTURE NO. 016-1339**

SHEET NO. 67 OF 84 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	653
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



GSI Job No. 10195

SOIL BORING LOG

Page 1 of 2

Date 3/5/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY JZ

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station BORING NO. SB-15 Station 384+41 Offset 23.90ft Left Ground Surface Elev. 686.40 ft

DEPTH (ft)	BLOW (/6")	UCS (tsf)	FAILURE (%)	DESCRIPTION	DEPTH (ft)	BLOW (/6")	UCS (tsf)	FAILURE (%)	DESCRIPTION
0				2.0" ASPHALT, 10.0" CONCRETE	0				
3				CLAY LOAM-brown, gray & black-soft to very soft (Fill) (continued)	2				
3	2.5	22			2	0.4	27		
4	P				3	B			
2				SILTY CLAY to SILTY CLAY LOAM-brown & gray-soft	2				
3	1.5	28			3	2.5	23		
3	P				3	P			
2				CLAY-gray-stiff to very stiff	3				
3	3.0	18			3	0.4	24		
3	P				3	B			
2				CLAY-gray-stiff to very stiff	1				
3	1.0	27			2	0.3	25		
4	P				2	P			
1				CLAY-gray-stiff to very stiff	5				
1	1.8	24			7	2.0	21		
1	P				11	B			
2				CLAY-gray-stiff to very stiff	4				
2	1.0	27			5	1.2	21		
3	P				7	B			
1				CLAY-gray-stiff to very stiff	4				
2	0.3	32			5	1.2	21		
3	B				7	B			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)



GSI Job No. 10195

SOIL BORING LOG

Page 2 of 2

Date 3/5/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY JZ

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station BORING NO. SB-15 Station 384+41 Offset 23.90ft Left Ground Surface Elev. 686.40 ft

DEPTH (ft)	BLOW (/6")	UCS (tsf)	FAILURE (%)	DESCRIPTION	DEPTH (ft)	BLOW (/6")	UCS (tsf)	FAILURE (%)	DESCRIPTION
0				CLAY-gray-stiff to very stiff (continued)	0				
4				SILTY SAND & GRAVEL-gray-medium dense (continued)	4				
5					5	10			
5	22				13	10			
					15	10			
4				CLAY-gray-stiff	7				
5					7	1.0	24		
5	15				11	P			
7				CLAY-gray-stiff	8				
10					7	1.1	25		
13					8	B			
8				CLAY-gray-stiff	8				
9					8	19			
12									

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)

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LOCHNER
H.W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

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PLOT DATE =	CHECKED -	REVISED

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**SOIL BORINGS 25
STRUCTURE NO. 016-1339**

SHEET NO. 68 OF 84 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	654
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



GSI Job No. 10195

SOIL BORING LOG

Page 1 of 2

Date 3/5/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station	D E P T H S	B L O W S	U C S Qu	M O I S T	Surface Water Elev. n/a ft Stream Bed Elev. n/a ft	D E P T H S	B L O W S	U C S Qu	M O I S T
3.0" ASPHALT, 9.0" CONCRETE					665.70				
CLAY to CLAY LOAM-dark brown & gray-stiff to very stiff (Fill)	4				663.70	CLAY-gray-stiff	1		
	3	2.3	22	2			0.4	28	
	5	P		1			B		
ORGANIC CLAY-dark gray (Fill)	2				678.70	CLAY-gray-stiff	2		
	3	1.5	24	3			1.1	25	
	5	P		4			B		
CLAY to CLAY LOAM-brown & gray-stiff (Fill)	2				676.20	CLAY-gray-stiff	1		
	2	1.1	30	4			1.3	19	
	4	B		4			B		
CLAY to CLAY LOAM-brown & gray-stiff (Fill)	2				654.70	SILT-gray-medium dense	4		
	3	1.0	23	5			1.3	17	
	5	P		5			B		
CLAY-gray-stiff	2				649.70	CLAY-gray-stiff	6		
	2	1.0	25	9				17	
	2	P		10					
CLAY-gray-stiff	2				649.70	CLAY-gray-stiff	5		
	3	1.2	19	5			1.4	26	
	4	B		7			B		
CLAY-gray-stiff	2				649.70	CLAY-gray-stiff	5		
	2	1.0	24	5			1.4	26	
	2	P		7			B		

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)



GSI Job No. 10195

SOIL BORING LOG

Page 2 of 2

Date 3/5/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station	D E P T H S	B L O W S	U C S Qu	M O I S T	Surface Water Elev. n/a ft Stream Bed Elev. n/a ft	D E P T H S	B L O W S	U C S Qu	M O I S T
CLAY-gray-stiff (continued)									
SAND & GRAVEL-gray-medium dense to dense (continued)	8				644.70	SAND & GRAVEL-gray-medium dense to dense (continued)	17		
	7			11				11	
	8	15		18					
SAND & GRAVEL-gray-medium dense to dense (continued)	8				619.70	SAND & GRAVEL-gray-medium dense to dense (continued)	17		
	7			11				11	
	8	15		18					
SAND & GRAVEL-gray-medium dense to dense (continued)	11				619.70	SAND & GRAVEL-gray-medium dense to dense (continued)	16		
	10			21				9	
	12	15		20					
SAND & GRAVEL-gray-medium dense to dense (continued)	14				634.70	SAND & GRAVEL-gray-medium dense to dense (continued)	17		
	16			18				15	
	20	9		21					
SAND & GRAVEL-gray-medium dense to dense (continued)	14				611.70	SAND & GRAVEL-gray-medium dense to dense (continued)	17		
	16			18				15	
	20	9		21					
SAND & GRAVEL-gray-medium dense to dense (continued)	23				611.70	SAND & GRAVEL-gray-medium dense to dense (continued)	17		
	19			18				15	
	12	11		21					

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)

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GSI Job No. 10195

SOIL BORING LOG

Date 3/5/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av LOGGED BY RR

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

Table with columns: DEPTH, BULGE, UCS, LOSS QUANT, and soil descriptions. Includes data for TOPSOIL-black (Fill), CLAYEY GRAVEL & STONE-black-loose (Fill), CLAY LOAM-brown & gray-stiff (Fill), SAND & GRAVEL-brown & gray, CLAY-gray-soft to very stiff.

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) BBS, from 137 (Rev. 8-99)



GSI Job No. 10195

SOIL BORING LOG

Date 3/5/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av LOGGED BY RR

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

Table with columns: DEPTH, BULGE, UCS, LOSS QUANT, and soil descriptions. Includes data for CLAYEY SAND & GRAVEL-gray-loose to dense, CLAY-gray-very stiff, SILTY FINE SAND-gray-medium dense, CLAYEY SAND & GRAVEL-gray-medium dense to dense, SAND-gray-medium dense.

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) BBS, from 137 (Rev. 8-99)

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LOCHNER logo and address: H.W. LOCHNER, INC. 225 WEST WASHINGTON STREET 12 TH FLOOR CHICAGO, ILLINOIS 60606

Table with columns: USER NAME, FILE NAME, PLOT SCALE, PLOT DATE, DESIGNED, CHECKED, DRAWN, CHECKED, REVISED, REVISED, REVISED, REVISED

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

SOIL BORINGS 27 STRUCTURE NO. 016-1339

SHEET NO. 70 OF 84 SHEETS

Table with columns: F.A.P. RTE., SECTION, COUNTY, TOTAL SHEETS, SHEET NO., CONTRACT NO. 60L72, ILLINOIS FED. AID PROJECT



GSI Job No. 10195

SOIL BORING LOG

Page 1 of 2

Date 3/1/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station BORING NO. SB-21 Station 387+73 Offset 22.80ft Left Ground Surface Elev. 686.30 ft

DEPTH (ft)	B (ft)	L (ft)	U (tsf)	M (%)	SOIL DESCRIPTION	DEPTH (ft)	B (ft)	L (ft)	U (tsf)	M (%)
0					ASPHALT	0				
7					CLAY to CLAY LOAM-dark brown, gray & black-stiff to very stiff (Fill)	3	6	1.8	23	
2						4	4	1.8	23	
4						4	4	1.2	18	
2						3	4	1.7	22	
1						4	6	1.7	22	
2						6	8	1.5	15	
1						8	9			
2						15				
1						17				
2						19				
1						20				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)



GSI Job No. 10195

SOIL BORING LOG

Page 2 of 2

Date 3/1/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station BORING NO. SB-21 Station 387+73 Offset 22.80ft Left Ground Surface Elev. 686.30 ft

DEPTH (ft)	B (ft)	L (ft)	U (tsf)	M (%)	SOIL DESCRIPTION	DEPTH (ft)	B (ft)	L (ft)	U (tsf)	M (%)
0					SILTY SAND & GRAVEL-gray-medium dense to dense (continued)	0				
12						10	4	1.6	16	
10						10	6	1.6	16	
11						11	10	1.1	11	
10						12	12			
11						11	11			
10						12	11			
12						12	12			
15						13	14			
13						17	14			
17						17	17			
8						8	8			
9						9	7			
8						8	8			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)

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LOCHNER
H.W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

USER NAME =	DESIGNED -	REVISED
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PLOT DATE =	CHECKED -	REVISED

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**SOIL BORINGS 28
STRUCTURE NO. 016-1339**

SHEET NO. 71 OF 84 SHEETS

F.A.P. RTE. 351	SECTION 2010-081-R	COUNTY COOK	TOTAL SHEETS 1045	SHEET NO. 657
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



GSI Job No. 10195

SOIL BORING LOG

Page 1 of 2

Date 3/1/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY JZ
 SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM
 COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station	D E P T H	B L O W S	U C S Qu	M O I S T	Surface Water Elev. n/a ft	Stream Bed Elev. n/a ft	Groundwater Elev.: First Encounter 678.3 ft Upon Completion n/a ft After Hrs. ft	D E P T H	B L O W S	U C S Qu	M O I S T	
												(ft)
ASPHALT					685.55							
CLAY to CLAY LOAM-brown, gray & black-soft to very stiff (Fill)		3					SILTY LOAM-gray-loose		2			
		4	2.0	23					3			20
		5	P						3			
		2							2			
		3	1.5	25					3			24
		4	P						4			
		2							2			
		3	0.9	28					3			23
		4	B						5			
		2					CLAY-gray-very stiff		3			
		2	0.4	25					5	2.1		21
		2	B						6	B		
		1	0.4	31								
		2	B									
PEAT-black-very loose		1			673.30				3			
		1		278					4			24
		1							4			
		1							4			
SILTY CLAY-dark brown-medium stiff (Wet)		1			670.80							
		1	0.5	32								
		2	P									
SILTY SAND & GRAVEL-gray-loose		4			668.30				4			
		4		14					4			16
		4							4			
		4							5			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
 BBS, from 137 (Rev. 8-99)



GSI Job No. 10195

SOIL BORING LOG

Page 2 of 2

Date 3/1/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY JZ
 SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM
 COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station	D E P T H	B L O W S	U C S Qu	M O I S T	Surface Water Elev. n/a ft	Stream Bed Elev. n/a ft	Groundwater Elev.: First Encounter 678.3 ft Upon Completion n/a ft After Hrs. ft	D E P T H	B L O W S	U C S Qu	M O I S T	
												(ft)
SILTY SAND & GRAVEL-gray-loose (continued)												
					644.30							
SAND & GRAVEL-gray-medium dense												
		6										13
		7										28
		9		10								19
		9										32
					639.30							
SILTY SAND & GRAVEL-gray-medium dense												
		11										15
		13		11								27
		15										41
					634.30							
CLAY LOAM-gray-very stiff												
		13										15
		15	3.0	11								14
		16	P									8
		16										14
					611.30							
SILTY LOAM to SILT-gray-dense to very dense					629.30							
		11										
		23		18								
		31										

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
 BBS, from 137 (Rev. 8-99)

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LOCHNER
 H.W. LOCHNER, INC.
 225 WEST WASHINGTON STREET
 12 TH FLOOR
 CHICAGO, ILLINOIS 60606

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PLOT SCALE =	DRAWN -	REVISED
PLOT DATE =	CHECKED -	REVISED

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

SOIL BORINGS 29
 STRUCTURE NO. 016-1339

SHEET NO. 72 OF 84 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	658
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



GSI Job No. 10195

SOIL BORING LOG

Page 1 of 2

Date 2/29/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av LOGGED BY JZ

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station

BORING NO. SB-25 Station 389+51 Offset 20.30ft Left Ground Surface Elev. 686.50 ft

DEPTH (ft)	BULGE (ft)	SHEAR (tsf)	FAILURE MODE	SOIL DESCRIPTION	DEPTH (ft)	BULGE (ft)	SHEAR (tsf)	FAILURE MODE
686.50				ASPHALT	666.00			
	3			CLAY LOAM-brown, gray & black-stiff to very stiff (Fill)		4		
	4	2.5	20			5		20
	5	P				4		
	3			SILTY CLAY LOAM-gray-loose		2		
	4	2.3	23			2	0.8	25
	4	P				3	P	
	2			SILTY LOAM-gray-medium dense		4	0.4	24
	2	1.5	27			5	B	
	2	P						
				SILTY LOAM-gray-medium dense		4		20
		2.0	27			9		
		P						
				CLAY-gray-stiff		6		
		1.0	31			8	1.8	21
		P				11	B	
				CLAYEY SAND & GRAVEL-gray-medium dense		7		
						7		23
						7		
				SILTY LOAM-gray-medium dense		7		
						7		23
						7		

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer). The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T205) BBS, from 137 (Rev. 8-99)



GSI Job No. 10195

SOIL BORING LOG

Page 2 of 2

Date 2/29/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av LOGGED BY JZ

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station

BORING NO. SB-25 Station 389+51 Offset 20.30ft Left Ground Surface Elev. 686.50 ft

DEPTH (ft)	BULGE (ft)	SHEAR (tsf)	FAILURE MODE	SOIL DESCRIPTION	DEPTH (ft)	BULGE (ft)	SHEAR (tsf)	FAILURE MODE
644.50				SAND-gray-medium dense	624.50			
	5			SILTY CLAY LOAM-gray-very stiff		7		
	7	2	20			12	4.5	19
	5	P				18	B	
				SILTY SAND & GRAVEL-gray-medium dense		8		
						13	3.1	19
						17	B	
				SAND-gray-very dense		23		
						50/3		18
				SAND-gray-very dense				
				SAND-gray-very dense				
				SAND-gray-very dense				
				SAND-gray-very dense				
				SAND-gray-very dense				
				SAND-gray-very dense				
				SAND-gray-very dense				
				SAND-gray-very dense				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer). The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T205) BBS, from 137 (Rev. 8-99)

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LOCHNER
 H.W. LOCHNER, INC.
 225 WEST WASHINGTON STREET
 12 TH FLOOR
 CHICAGO, ILLINOIS 60606

USER NAME =	DESIGNED -	REVISED
FILE NAME = 0161339-60L72-073-SB.dgn	CHECKED -	REVISED
PLOT SCALE =	DRAWN -	REVISED
PLOT DATE =	CHECKED -	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORINGS 30
STRUCTURE NO. 016-1339

SHEET NO. 73 OF 84 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	659
				CONTRACT NO. 60L72

ILLINOIS FED. AID PROJECT



GSI Job No. 10195

SOIL BORING LOG

Page 1 of 2

Date 2/29/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY JZ

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station BORING NO. SB-26 Station 390+63 Offset 18.00ft Left Ground Surface Elev. 687.00 ft

DEPTH (ft)	BULGE (ft)	UCS (tsf)	MOISTURE (%)	DESCRIPTION	DEPTH (ft)	BULGE (ft)	UCS (tsf)	MOISTURE (%)
686.25				ASPHALT				
4				CLAY LOAM-brown & gray-very stiff (Fill)	6			
5	3.5	19			10			8
5	P				12			
3					7			
2	2.0	23			3			17
2	P				3			
2					25			
681.00				SILTY SAND & GRAVEL-brown-loose	661.50			
2					4			
3		19			4			20
3					4			
679.00				SILTY LOAM-gray-loose to very loose	659.00			
1					3			
2		22			3			18
3					4			
1					30			
2								
2		26						
2					655.00			
674.00				SILTY CLAY LOAM-gray-loose				
2					10			
3	2.5	25			13			7
3	P				15			
15					35			
671.50				SILTY SAND & GRAVEL-gray-loose to medium dense				
4								
5		13						
5								
6					9			
6					11			17
6		11			11			
7					13			
20					40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)



GSI Job No. 10195

SOIL BORING LOG

Page 2 of 2

Date 2/29/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY JZ

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station BORING NO. SB-26 Station 390+63 Offset 18.00ft Left Ground Surface Elev. 687.00 ft

DEPTH (ft)	BULGE (ft)	UCS (tsf)	MOISTURE (%)	DESCRIPTION	DEPTH (ft)	BULGE (ft)	UCS (tsf)	MOISTURE (%)
687.00				SAND & GRAVEL-gray-medium dense (continued)				
645.00				CLAY-gray-very stiff				
5					31			
8	2.7	20			33			10
10	B				41			
10					65			
640.00				SILTY CLAY LOAM-gray-hard				
7					25			
10	4.1	18			32			12
13	B				34			
10					70			
635.00				SILT-gray-dense				
10					7			
21		24			8			12
24					9			
24					612.00			
630.00				SANDY SILT-gray-medium dense to very dense				
25								
31		11						
42								
60					50			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)

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LOCHNER
H.W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

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PLOT DATE =	CHECKED -	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORINGS 31
STRUCTURE NO. 016-1339

SHEET NO. 74 OF 84 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	660
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



GSI Job No. 10195

SOIL BORING LOG

Page 1 of 2

Date 2/27/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av LOGGED BY NW

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station BORING NO. SB-27 Station 397+51 Offset 20.00ft Left Ground Surface Elev. 686.50 ft

Table with columns for Depth (ft), Blows (B), Curves (C), SPT (S), and Soil Description. Includes soil types like ASPHALT, CLAY to CLAY LOAM, CLAYEY SAND & GRAVEL, SILTY CLAY, and CLAY-gray-stiff.

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) BBS, from 137 (Rev. 8-99)



GSI Job No. 10195

SOIL BORING LOG

Page 2 of 2

Date 2/27/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av LOGGED BY NW

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station BORING NO. SB-27 Station 397+51 Offset 20.00ft Left Ground Surface Elev. 686.50 ft

Table with columns for Depth (ft), Blows (B), Curves (C), SPT (S), and Soil Description. Includes soil types like CLAY-gray-stiff, CLAY LOAM-gray-hard, SAND & GRAVEL-gray-dense, and SILT-gray-medium dense.

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) BBS, from 137 (Rev. 8-99)

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LOCHNER
H. W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

Table with columns for USER NAME, FILE NAME, PLOT SCALE, PLOT DATE, DESIGNED, CHECKED, DRAWN, CHECKED, REVISED, REVISED, REVISED, REVISED.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORINGS 32
STRUCTURE NO. 016-1339

SHEET NO. 75 OF 84 SHEETS

Table with columns for F.A.P. RTE., SECTION, COUNTY, TOTAL SHEETS, SHEET NO., CONTRACT NO. 60L72, ILLINOIS FED. AID PROJECT.



GSI Job No. 10195

SOIL BORING LOG

Page 1 of 2

Date 2/27/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL. Rte. 7 from Will Cook Rd. to Ravinia Av LOGGED BY RR

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station BORING NO. SB-29 Station 398+28 Offset 21.50ft Left Ground Surface Elev. 686.30 ft

DEPTH (ft)	SOIL TYPE	UCS (tsf)	Failure Mode	DEPTH (ft)	SOIL TYPE	UCS (tsf)	Failure Mode
0	ASPHALT			0	CLAY-gray-soft to stiff		
4	CLAY to CLAY LOAM-brown, gray & black-medium stiff to stiff (Fill)			4		0.4	B
4		1.4	B	5			
4				3			
2				5		1.1	B
2		1.0	B	4			
3				4		1.5	B
2				5			
2		1.3	P	3			
4				4		1.2	B
1				5			
1		0.9	B	3			
2				4		1.1	B
2		0.5	P	5			
2				3			
1				9		1.1	B
2		0.5	P	13			
2				3			
1				5			
2		0.8	B	4			
1				4			
2		0.8	P	5			
5				5			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T208)
BBS, from 137 (Rev. 8-99)



GSI Job No. 10195

SOIL BORING LOG

Page 2 of 2

Date 2/27/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL. Rte. 7 from Will Cook Rd. to Ravinia Av LOGGED BY RR

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station BORING NO. SB-29 Station 398+28 Offset 21.50ft Left Ground Surface Elev. 686.30 ft

DEPTH (ft)	SOIL TYPE	UCS (tsf)	Failure Mode	DEPTH (ft)	SOIL TYPE	UCS (tsf)	Failure Mode
0	SILTY LOAM to LOAM-gray-loose (continued)			0	SAND & GRAVEL-gray-medium dense (continued)		
644.30	CLAY-gray-stiff			9			
8				9			
12		1.1	B	9			
7				9			14
45				65			
639.30	CLAY LOAM-gray-hard			619.30	SAND-gray-medium dense		
8				9			
6		4.5	P	10			
11				11			19
50				70			
634.30	SAND & GRAVEL-gray-medium dense			8			
7				7			
13				7			20
55				75			
611.30	End Of Boring @ -75.0' Boring backfilled with cuttings.			9			
7							
8							
9							

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T208)
BBS, from 137 (Rev. 8-99)

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LOCHNER
H.W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

USER NAME =	DESIGNED -	REVISED
FILE NAME = 0161339-60L72-076-SB.dgn	CHECKED -	REVISED
PLOT SCALE =	DRAWN -	REVISED
PLOT DATE =	CHECKED -	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORINGS 33
STRUCTURE NO. 016-1339

SHEET NO. 76 OF 84 SHEETS

F.A.P. RTE. 351	SECTION 2010-081-R	COUNTY COOK	TOTAL SHEETS 1045	SHEET NO. 662
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				

SOIL BORING LOG Page 1 of 2

Date 2/27/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av LOGGED BY JZ
 SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM
 COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO.	BORING NO.	Station	Offset	Ground Surface Elev.	(ft)	SOIL TESTS			D	B	U	M	Surface Water Elev.	Stream Bed Elev.	Groundwater Elev.:	First Encounter	Upon Completion	After	Hrs.	(ft)	(/6")	(tsf)	B	U	M
						(ft)	(/6")	(tsf)																	
	SB-33	400+32	20.00ft Left	688.60									n/a	n/a		Dry to 10'	n/a								

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T205)
 BBS, from 137 (Rev. 8-99)

SOIL BORING LOG Page 2 of 2

Date 2/27/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av LOGGED BY JZ
 SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM
 COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO.	BORING NO.	Station	Offset	Ground Surface Elev.	(ft)	SOIL TESTS			D	B	U	M	Surface Water Elev.	Stream Bed Elev.	Groundwater Elev.:	First Encounter	Upon Completion	After	Hrs.	(ft)	(/6")	(tsf)	B	U	M
						(ft)	(/6")	(tsf)																	
	SB-33	400+32	20.00ft Left	688.60									n/a	n/a		Dry to 10'	n/a								

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T205)
 BBS, from 137 (Rev. 8-99)

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GSI Job No. 10195

SOIL BORING LOG

Page 1 of 2

Date 2/23/12

ROUTE IL Route 7/J.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY NW
 SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM
 COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station	DEPTH H S	B L O W S	U C S Qu	M O I S T	Surface Water Elev.	DEPTH H S	B L O W S	U C S Qu	M O I S T
					n/a ft				
ASPHALT					686.80				
CLAY to CLAY LOAM-dark brown, gray & black-medium stiff to very stiff (Fill)	4				666.30	5			
	6	2.4	21			7			21
	8	B				8			
	3					6			
	3	1.3	22			5			22
CLAY-brown & gray-stiff	2					4			
	1	0.5	19			5			19
SILTY CLAY LOAM-dark brown & gray-very loose (Wet)	2					6			
	3	1.6	20			7			20
SILTY LOAM-gray-loose to medium dense	2					4			
	2		29		654.80	6			
SAND with GRAVEL-gray-medium dense	1					4			
	3		13			5			14
	4					6			
SAND & GRAVEL-gray-medium dense	4					4			
	6		9			6			17

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
 BBS, from 137 (Rev. 8-99)



GSI Job No. 10195

SOIL BORING LOG

Page 2 of 2

Date 2/23/12

ROUTE IL Route 7/J.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY NW
 SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM
 COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station	DEPTH H S	B L O W S	U C S Qu	M O I S T	Surface Water Elev.	DEPTH H S	B L O W S	U C S Qu	M O I S T
					n/a ft				
SAND with GRAVEL-gray-medium dense (continued)									
GRAVEL-gray-medium dense	6					10			
	8		21			13			19
	9					10			
SAND-gray-medium dense	18					10			
	16		8			12			20
SAND & GRAVEL-gray-medium dense	6					6			
	9		20			8			10
End Of Boring @ -75' 0". Boring backfilled with cuttings.	6					6			
	8		18			8			18

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
 BBS, from 137 (Rev. 8-99)

T:\51006-056\Struct.dgn\Retaining Wall 3\0161339-60L72-079-SB.dgn

LOCHNER
 H.W. LOCHNER, INC.
 225 WEST WASHINGTON STREET
 12 TH FLOOR
 CHICAGO, ILLINOIS 60606

USER NAME =	DESIGNED -	REVISED
FILE NAME = 0161339-60L72-079-SB.dgn	CHECKED -	REVISED
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STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

SOIL BORINGS 36
 STRUCTURE NO. 016-1339

SHEET NO. 79 OF 84 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	665
CONTRACT NO. 60L72				

ILLINOIS FED. AID PROJECT

SOIL BORING LOG

Page 1 of 2

Date 2/20/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO.		DEPTH H S Qu T	BLOW S Qu T	UCS Qu T	Failure Mode (B) (S) (P)	M O I S T	Surface Water Elev. n/a ft		DEPTH H S Qu T	BLOW S Qu T	UCS Qu T	Failure Mode (B) (S) (P)	M O I S T
Station	Ground Surface Elev. 686.80 ft						(ft)	(/ft)					
8.0" ASPHALT, 4.0" GRAVEL													666.30
CLAY-dark brown & gray-medium stiff to very stiff (Fill)													
	4												
	5	3.0	22							0	0.2	40	
	4	B								0	B		
	4									1			
	4	2.4	23							1	0.3	43	
	6	B								1	B		
	4												
	4	3.0	22							4	0.6	25	
	4	P								4	B		
	3									4			
	2	0.9	23							6	0.5	24	
	3	B								9	P		
	2												
	2	1.0	25										
	2	B											
	1									4			
	1	0.5	26							6	2.8	20	
	1	B								9	B		
	1												
	1	0.5	25										
	1	B											
	1									6			
	1	1.5	28							8	2.5	23	
	2	P								14	B		

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T203)
BBS, from 137 (Rev. 8-99)

SOIL BORING LOG

Page 2 of 2

Date 2/20/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO.		DEPTH H S Qu T	BLOW S Qu T	UCS Qu T	Failure Mode (B) (S) (P)	M O I S T	Surface Water Elev. n/a ft		DEPTH H S Qu T	BLOW S Qu T	UCS Qu T	Failure Mode (B) (S) (P)	M O I S T
Station	Ground Surface Elev. 686.80 ft						(ft)	(/ft)					
CLAY-gray-medium stiff to very stiff (continued)													
	4												
	5	1.1	23							13	2.3	13	
	8	B								20	P		
	4												
	5	0.5	33							4			
	9	P								7	2.7	17	
	5									10	B		
	6												
	4												
	5												
	5									11			
	5									12	1.3	28	
	5									12	B		
	5												
	4												
	4	1.2	15										
	4	B								6			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T203)
BBS, from 137 (Rev. 8-99)

T:\10195-US6\Struct.dgn\Retaining Wall 3\0161339-60L72-080-SB.dgn

USER NAME =	DESIGNED -	REVISED
FILE NAME = 0161339-60L72-080-SB.dgn	CHECKED -	REVISED
PLOT SCALE =	DRAWN -	REVISED
PLOT DATE =	CHECKED -	REVISED

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	666
				CONTRACT NO. 60L72
ILLINOIS FED. AID PROJECT				



GSI Job No. 10195

SOIL BORING LOG

Page 1 of 2

Date 2/20/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av LOGGED BY NW

SECTION _____ LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. _____
Station _____
BORING NO. SB-39
Station 406+98
Offset 22.50ft Left
Ground Surface Elev. 686.10 ft

	D	B	U	M		D	B	U	M
	E	L	C	O		E	L	C	O
	P	O	S	I		P	O	S	I
	T	W	Qu	S		T	W	Qu	S
	H	S	(tsf)	(%)		H	S	(tsf)	(%)
ASPHALT	3								
CLAY-dark brown & gray-soft to very stiff (Fill)	4	3.0	21			5	2.1	22	
	5	B				7	B		
	3					2			
	4	1.7	23			5	1.9	21	
	4	B				8	B		
	2					2			
	3	0.9	24			4	0.9	29	
	3	B				7	B		
	1					3			
	1	0.4	29			5	1.0	29	
	2	B				7	B		
	ST	0.5	31						
		P							
ORGANIC SILTY CLAY-dark gray to black-very loose	1					2			
	1	0.5	32			4	1.2	16	
	15	P				7	B		
	1								
	1	0.3	53						
	1	B							
CLAY-gray-medium stiff to very stiff	2					4			
	3	1.3	22			8	2.0	19	
	4	B				12	P		

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) BBS, from 137 (Rev. 8-99)



GSI Job No. 10195

SOIL BORING LOG

Page 2 of 2

Date 2/20/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av LOGGED BY NW

SECTION _____ LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. _____
Station _____
BORING NO. SB-39
Station 406+98
Offset 22.50ft Left
Ground Surface Elev. 686.10 ft

	D	B	U	M		D	B	U	M
	E	L	C	O		E	L	C	O
	P	O	S	I		P	O	S	I
	T	W	Qu	S		T	W	Qu	S
	H	S	(tsf)	(%)		H	S	(tsf)	(%)
CLAY-gray-medium stiff to very stiff (continued)									
CLAY LOAM-gray-stiff	5								
	7	1.5	17			6			
	7	B				9	1.3	26	
						12	B		
	5								
	6	1.1	12						
	15	B							
SAND with GRAVEL-gray-medium dense									
	8								
	13		11						
	10								
SANDY LOAM-gray-dense									
CLAY-gray-stiff to very stiff	5								
	8	2.5	14						
	10	B							

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) BBS, from 137 (Rev. 8-99)

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORINGS 39
STRUCTURE NO. 016-1339

SHEET NO. 82 OF 84 SHEETS

LOCHNER

H. W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

USER NAME =	DESIGNED -	REVISED
FILE NAME = 0161339-60L72-082-SB.dgn	CHECKED -	REVISED
PLOT SCALE =	DRAWN -	REVISED
PLOT DATE =	CHECKED -	REVISED

F.A.P. RTE. 351	SECTION 2010-081-R	COUNTY COOK	TOTAL SHEETS 1045	SHEET NO. 668
CONTRACT NO. 60L72				ILLINOIS FED. AID PROJECT



Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amhurst Court, Suite 204
Naperville, Illinois 60565
630.755.3944

GSI Job No. 10195

SOIL BORING LOG Page 1 of 2

Date 2/20/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY NW

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station	D E P T H	B L O W S	U C S Qu	M O I S T	Surface Water Elev.		D E P T H	B L O W S	U C S Qu	M O I S T	
					n/a	ft					n/a
BORING NO. SB-41 Station 407+69 Offset 24.90ft Left Ground Surface Elev. 686.90 ft	686.30				CLAY-gray-stiff to very stiff (continued)						
	4				3						
	5	4.0	24		5	2.2	29				
	7	P			7	B					
	3				3						
	4	1.9	23		4	1.5	29				
	4	B			4	B					
	681.40				-25						
	1				2						
	2	1.0	26		3	1.2	29				
2	P			3	B						
1				3							
3	1.5	32		5	1.8	15					
3	P			6	B						
676.40				-10							
1											
1		58									
1											
673.90											
1				10							
1	1.1	20		9	2.4	16					
3	B			8	B						
671.40				-15							
3											
5	1.9	20									
9	B										
649.90											
3											
5	2.1	21		4							
7	B			5							
-20				7							

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)



Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amhurst Court, Suite 204
Naperville, Illinois 60565
630.755.3944

GSI Job No. 10195

SOIL BORING LOG Page 2 of 2

Date 2/20/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY NW

SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. Station	D E P T H	B L O W S	U C S Qu	M O I S T	Surface Water Elev.		D E P T H	B L O W S	U C S Qu	M O I S T	
					n/a	ft					n/a
BORING NO. SB-41 Station 407+69 Offset 24.90ft Left Ground Surface Elev. 686.90 ft	644.90				SANDY CLAY LOAM-gray-medium dense (continued)						
					CLAY LOAM-gray-very stiff						
	6				4						
	8	3.9	14		6	1.2	16				
	10	B			9	B					
	639.90				-45						
	1										
	3	1.2	29		3	1.2	29				
	3	B			3	B					
	1				3						
3	1.5	32		5	1.8	15					
3	P			6	B						
676.40				-10							
1											
1		58									
1											
673.90											
1				10							
1	1.1	20		9	2.4	16					
3	B			8	B						
671.40				-15							
3											
5	1.9	20									
9	B										
649.90											
3											
5	2.1	21		4							
7	B			5							
-20				7							

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
BBS, from 137 (Rev. 8-99)

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H. W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

USER NAME =	DESIGNED -	REVISED
FILE NAME = 0161339-60L72-083-SB.dgn	CHECKED -	REVISED
PLOT SCALE =	DRAWN -	REVISED
PLOT DATE =	CHECKED -	REVISED

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**SOIL BORINGS 40
STRUCTURE NO. 016-1339**
SHEET NO. 83 OF 84 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	669
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



GSI Job No. 10195

SOIL BORING LOG

Page 1 of 2

Date 3/6/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY KD
 SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM
 COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO.	DEPTH	BULGE	UCS	M	Surface Water Elev.	DEPTH	BULGE	UCS	M
Station	(ft)	(%)	(tsf)	(%)	n/a ft	(ft)	(%)	(tsf)	(%)
16.0" CONCRETE, 8.0" CRUSHED STONE			4		666.00				
SILTY LOAM-gray-loose					684.50				22
CLAY LOAM-brown, gray & black-soft (Fill)					663.50				
SILTY SAND & GRAVEL-gray-loose to medium dense			29		681.00				
SILTY LOAM-dark gray-very loose				24	678.50				
CLAY-gray-stiff					658.50				
SILTY CLAY LOAM-gray-medium dense			23		654.50				
CLAYEY SAND with GRAVEL-gray-very loose to loose				13	671.00				
SILTY LOAM-gray-medium dense			19		649.50				
				15					

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
 BBS, from 137 (Rev. 8-99)



GSI Job No. 10195

SOIL BORING LOG

Page 2 of 2

Date 3/6/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY KD
 SECTION LOCATION SW1/4, SEC. 16, TWP. T36N, RNG. R12E, 3rd PM
 COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO.	DEPTH	BULGE	UCS	M	Surface Water Elev.	DEPTH	BULGE	UCS	M
Station	(ft)	(%)	(tsf)	(%)	n/a ft	(ft)	(%)	(tsf)	(%)
SILTY LOAM-gray-medium dense (continued)					644.50				
SILTY SAND & GRAVEL-gray-medium dense					639.50				
GRAVEL-gray-loose					636.50				
End Of Boring @ -50.0'. Boring backfilled with cuttings.									

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
 BBS, from 137 (Rev. 8-99)

T:\51006-056\Struct.dgn\Retaining Wall 3 0161339-60L72-084-SB.dgn

Bench Mark: BM #42 Set at sta. 303+78, 23' Lt., Elev. 694.85 square cut west end of north headwall, ±185' west of 115th ct. and 1.6 miles east of Bell rd.

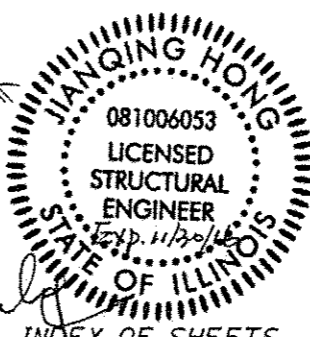
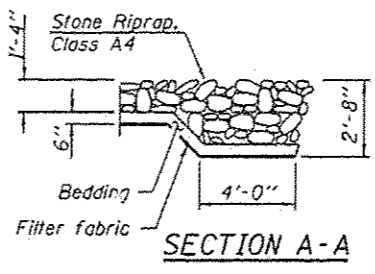
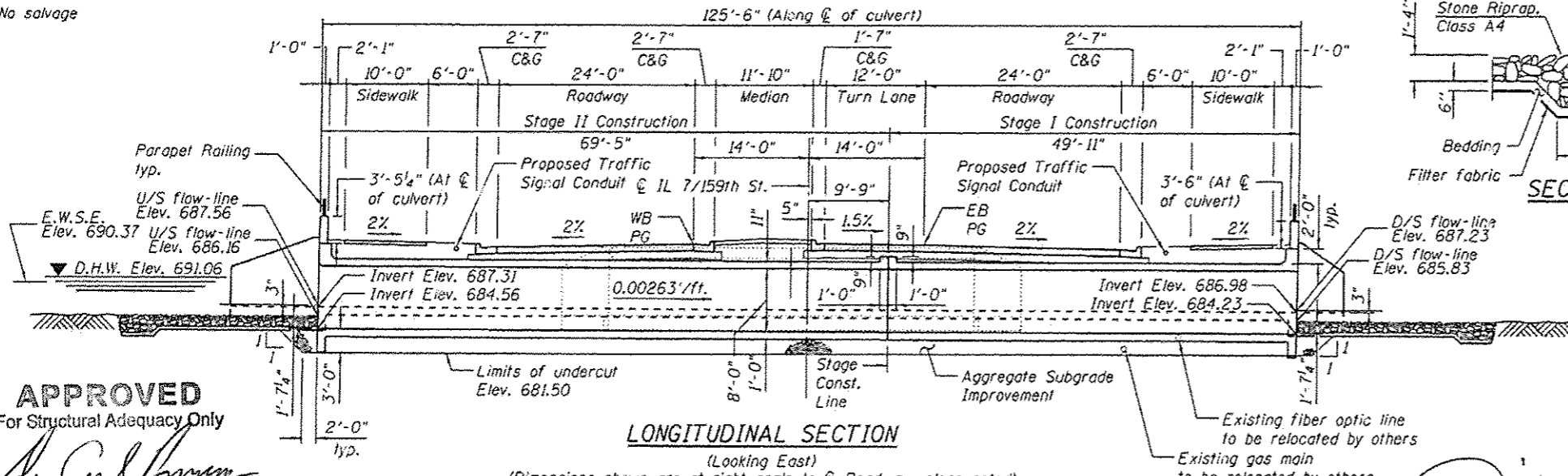
Existing Structure: S.N. 016-1210 built in 1930 consists of one simple span reinforced cast-in-place concrete deck slab measuring approximately 16'-0" back-to-back of abutments. The total structure width is 46'-0" out-to-out of deck. The concrete deck slab was rehabilitated in 2010. Structure to be removed and replaced. Traffic to be maintained utilizing stage construction.

No salvage

WATERWAY INFORMATION

Drainage Area = 1.6 sq. mi.		Existing Low Grade Elev. 694.55 Sta. 302+00		Proposed Low Grade Elev. 695.18 Sta. 302+75		Flood		Frequency		Opening Sq. Ft.		Head - Ft.		Headwater El.	
Flood	Freq. Yr.	0	C.F.S.	Exist.	Prop.	H.W.E.	Exist.	Prop.	Exist.	Prop.	Exist.	Prop.	Exist.	Prop.	Exist.
	2	41	30.4	54.5	688.79	0.03	0.13	688.82	688.91						
	10	61	46.1	83.3	689.90	0.04	0.00	689.94	689.90						
Design	50	90	62.3	118.1	691.06	0.04	0.00	691.10	691.05						
Base	100	97	70.7	136.1	691.66	0.04	0.00	691.70	691.66						
Overlapping	>500			84.5	164.0	0.05	0.02	692.70	692.67						

* Indicates extrapolated values



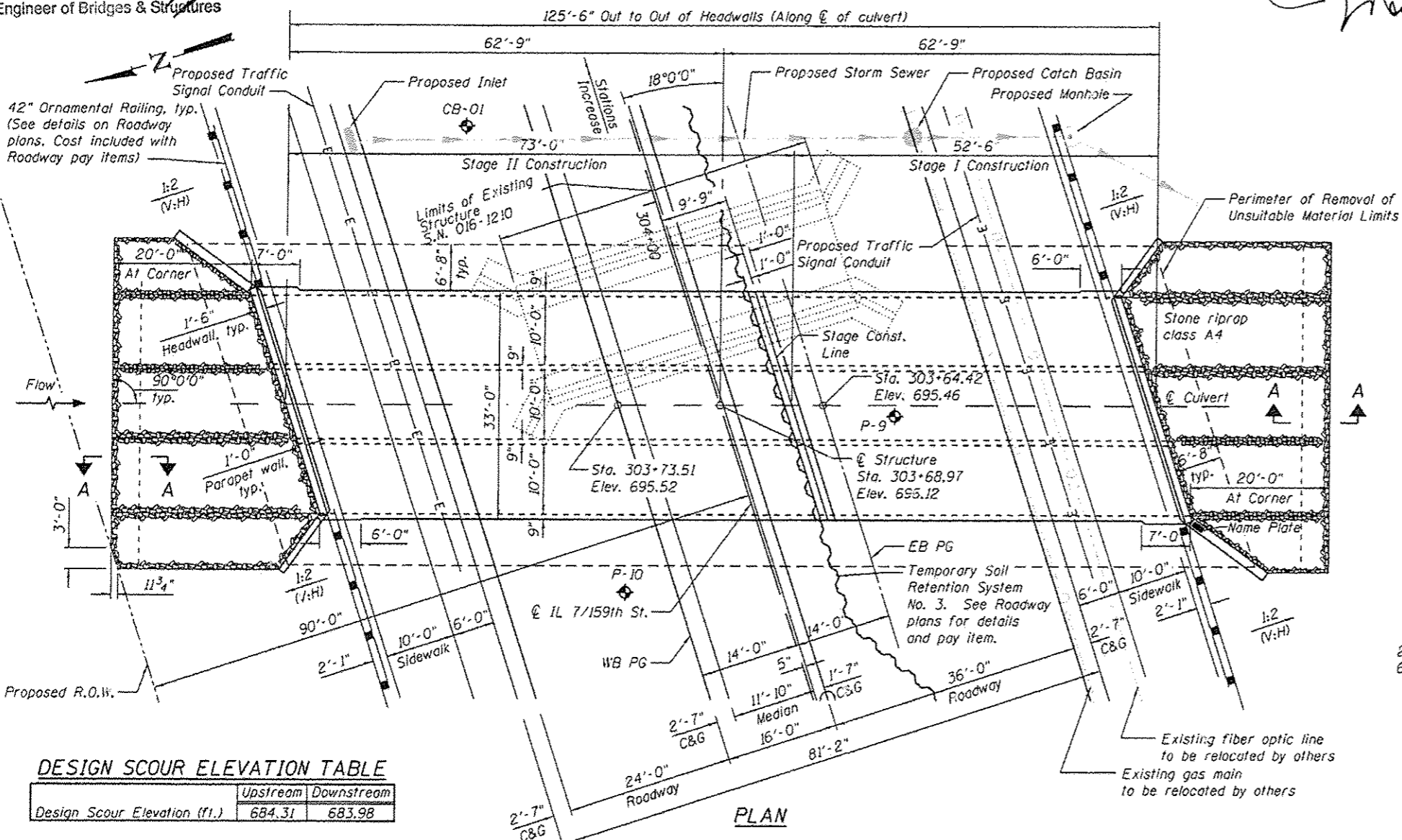
APPROVED
For Structural Adequacy Only
[Signature]
Engineer of Bridges & Structures

TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
Aggregate Subgrade Improvement	Cu. Yd.	791
Stone Riprap, Class A4	Sq. Yd.	263
Filter Fabric	Sq. Yd.	263
Removal and Disposal of Unsuitable Material for Structures	Cu. Yd.	791
Removal of Existing Structures No. 5	Each	1
Concrete Box Culverts	Cu. Yd.	456.5
Reinforcement Bars, Epoxy Coated	Pound	120,250
Protective Coat	Sq. Yd.	31
Bar Splicers	Each	218
Name Plates	Each	1
Parapet Railing	Foot	67

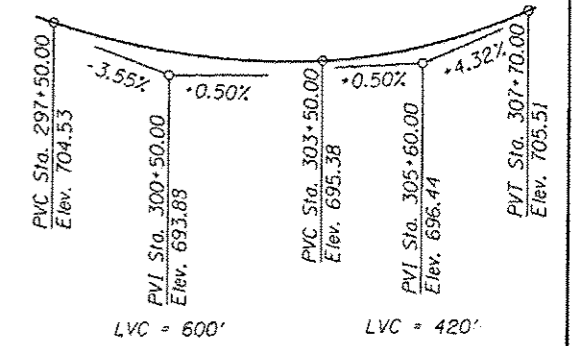
INDEX OF SHEETS

1. General Plan and Elevation
2. Stage Construction
3. Temporary Concrete Barrier for Stage Construction
4. Culvert Plan Bottom Slab Details 1
5. Culvert Plan Bottom Slab Details 2
6. Culvert Plan Top Slab Details 1
7. Culvert Plan Top Slab Details 2
8. Culvert Sections and Details 1
9. Culvert Sections and Details 2
10. Culvert Sections and Details 3
11. Parapet Railing
12. Mechanical Splicer Details
13. Soil Boring Logs 1
14. Soil Boring Logs 2



DESIGN SCOUR ELEVATION TABLE

	Upstream	Downstream
Design Scour Elevation (ft.)	684.31	683.98



STATION 303+68.97
BUILT 20__ BY
STATE OF ILLINOIS
F.A.P. RTE 351-SEC. 2010-081-R
LOADING HL-93
STRUCTURE NO. 016-1335

NAME PLATE
See Std. 515001

LOADING HL93
Allow 50#/#/sq. ft. for future wearing surface.

DESIGN SPECIFICATIONS

2012 AASHTO LRFD Bridge Design Specifications, 6th Edition, with 2013 Interims.

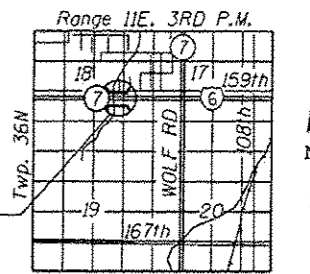
DESIGN STRESSES

FIELD UNITS
f'c = 3,500 psi
fy = 60,000 psi (Reinforcement)

LEGEND

◆ - Soil boring location

PROFILE GRADE
(along EB & WB)



LOCATION SKETCH

GENERAL PLAN & ELEVATION
IL 7/159TH STREET OVER SPRING CREEK

F.A.P. RTE 351 - SEC. 2010-081-R

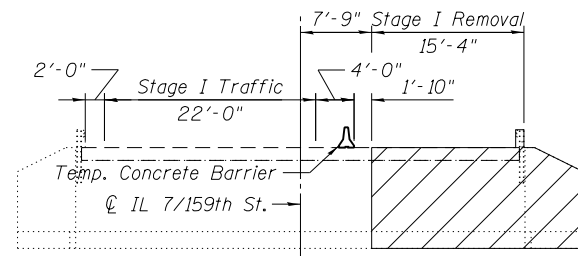
COOK COUNTY

STATION 303+68.97

STRUCTURE NO. 016-1335

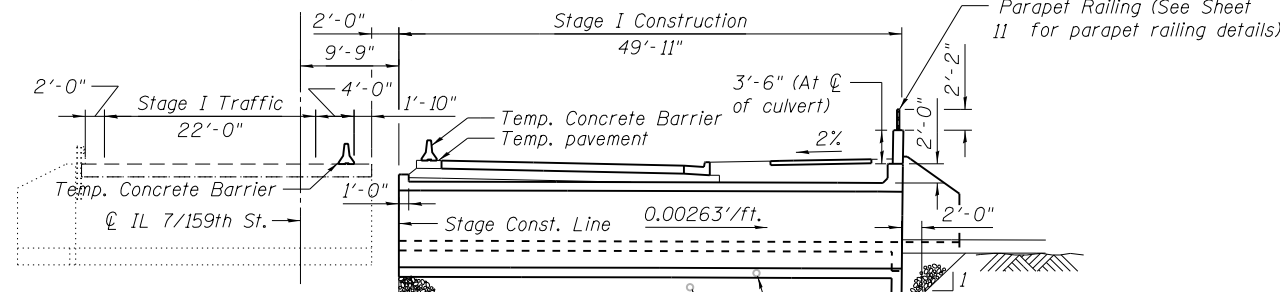
GENERAL NOTES:

1. Reinforcement bars designated (E) shall be epoxy coated.
2. Protective coat shall be applied to the top and exposed inside vertical faces of parapets.
3. Excavation behind existing abutment walls shall be performed to balance front and back soil pressure before removing the existing superstructure. The Contractor shall sawcut the upper portion of the existing abutment at the stage removal line before Stage I removal to ensure the remaining portion will not be prematurely damaged.
4. A distance of half the length of the wingwall but not less than six feet of the barrel shall be poured monolithically with the wingwalls.
5. Precast culvert will not be allowed.
6. All exposed concrete edges shall be chamfered $\frac{3}{4}$ " except as noted.
7. Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
8. The limits and quantities of removal of the existing soil and replacement with the Aggregate Subgrade Improvement materials shown are based on the boring data and may be modified by the District Geotechnical and Field Engineers for variable subsurface conditions encountered in the field.



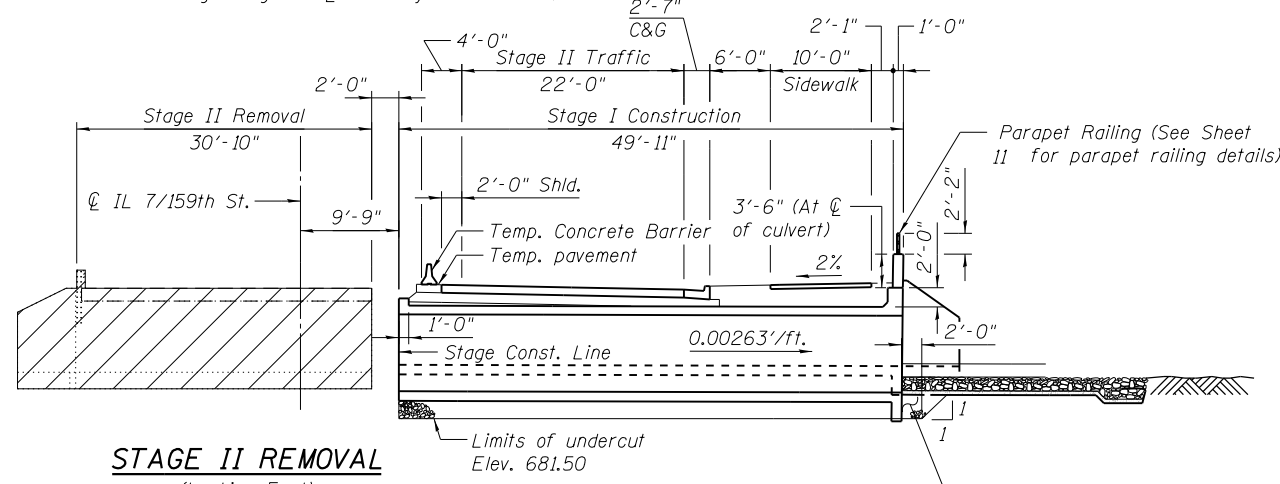
STAGE I REMOVAL

(Looking East)
(Dimensions shown are at right angle to CL Roadway unless noted)



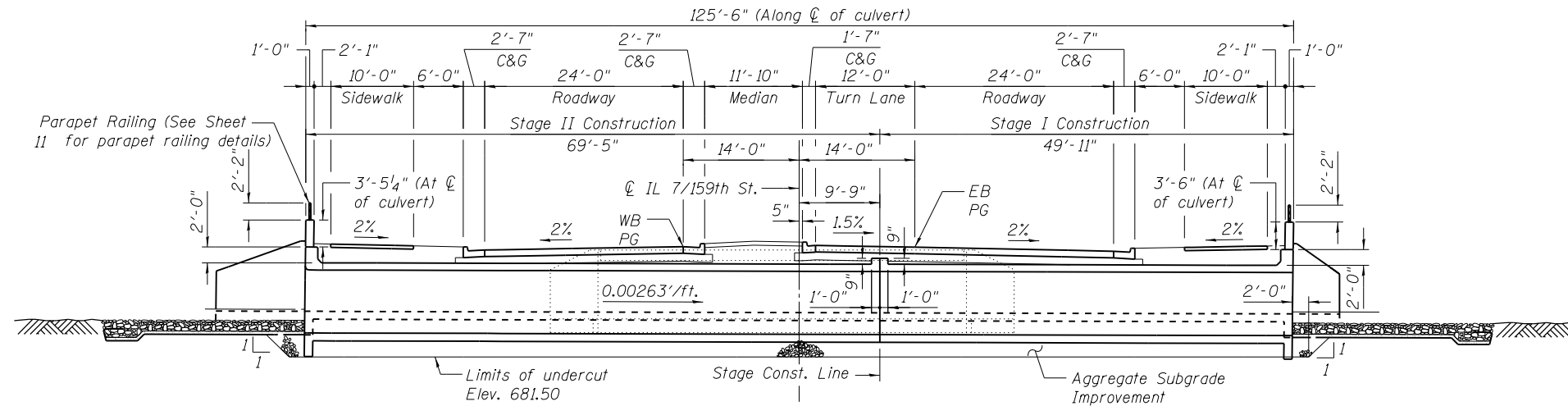
STAGE I CONSTRUCTION

(Looking East)
(Dimensions shown are at right angle to CL Roadway unless noted)



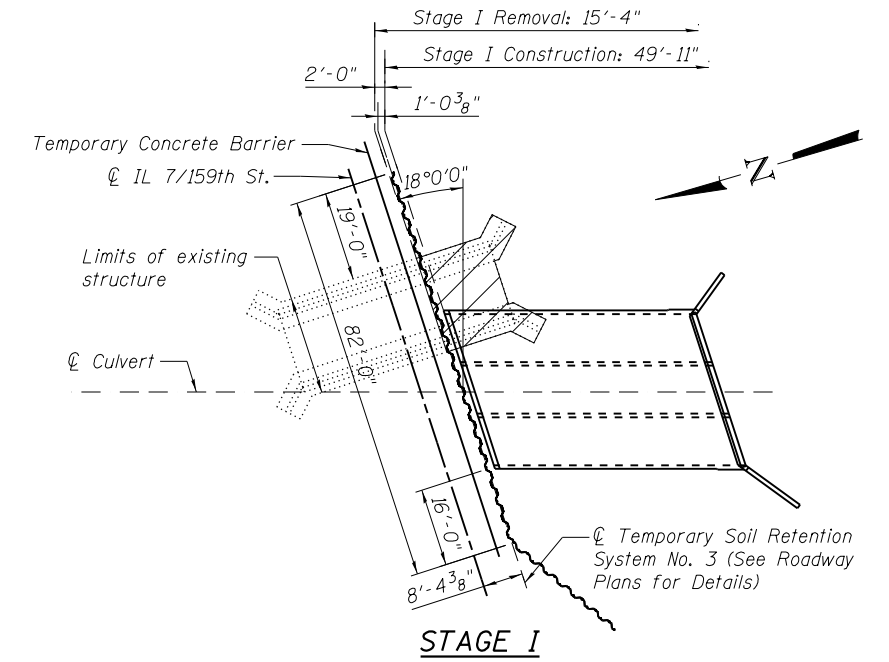
STAGE II REMOVAL

(Looking East)
(Dimensions shown are at right angle to CL Roadway unless noted)

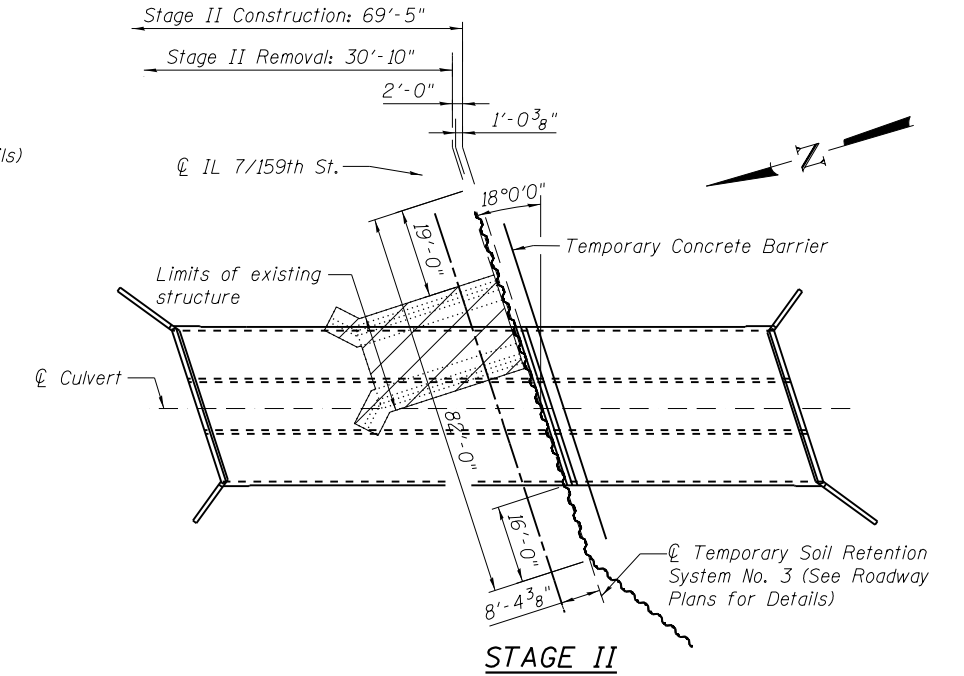


STAGE II CONSTRUCTION

(Looking East)
(Dimensions shown are at right angle to CL Roadway unless noted)



STAGE I



STAGE II

NOTES:

1. Hatched area indicates "Removal of existing structures."
2. For details of temporary concrete barrier, see Sheet 3.
3. For quantity of temporary concrete barrier, see roadway plans.
4. For SECTION THROUGH RIPRAP, see Sheet 9.
5. For limits of Aggregate Subgrade Improvement, see SECTION THROUGH BARREL on Sheet 9.
6. The Contractor shall connect the first sheet to the existing abutment wall to ensure stability of sheets driven to the top of the existing footing. This connection shall be reviewed and accepted by the Engineer and included in the cost for Temporary Sheet Piling.
7. A cantilevered sheet piling design does not appear feasible and additional members or other retention systems may be necessary. The Contractor shall submit a temporary soil retention system design including plan details and calculations for review and acceptance by the Engineer.

T:\51006-0565\Struct\Box\Culvert\Box\Culvert\Spring_Creek\0161335-60L72-002-MD.dgn

LOCHNER
H. W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

USER NAME =
FILE NAME = 0161335-60L72-002-MD.dgn
PLOT SCALE =
PLOT DATE =

DESIGNED - MAF
CHECKED - RH
DRAWN - MAF
CHECKED - JSD

REVISED
REVISED
REVISED
REVISED

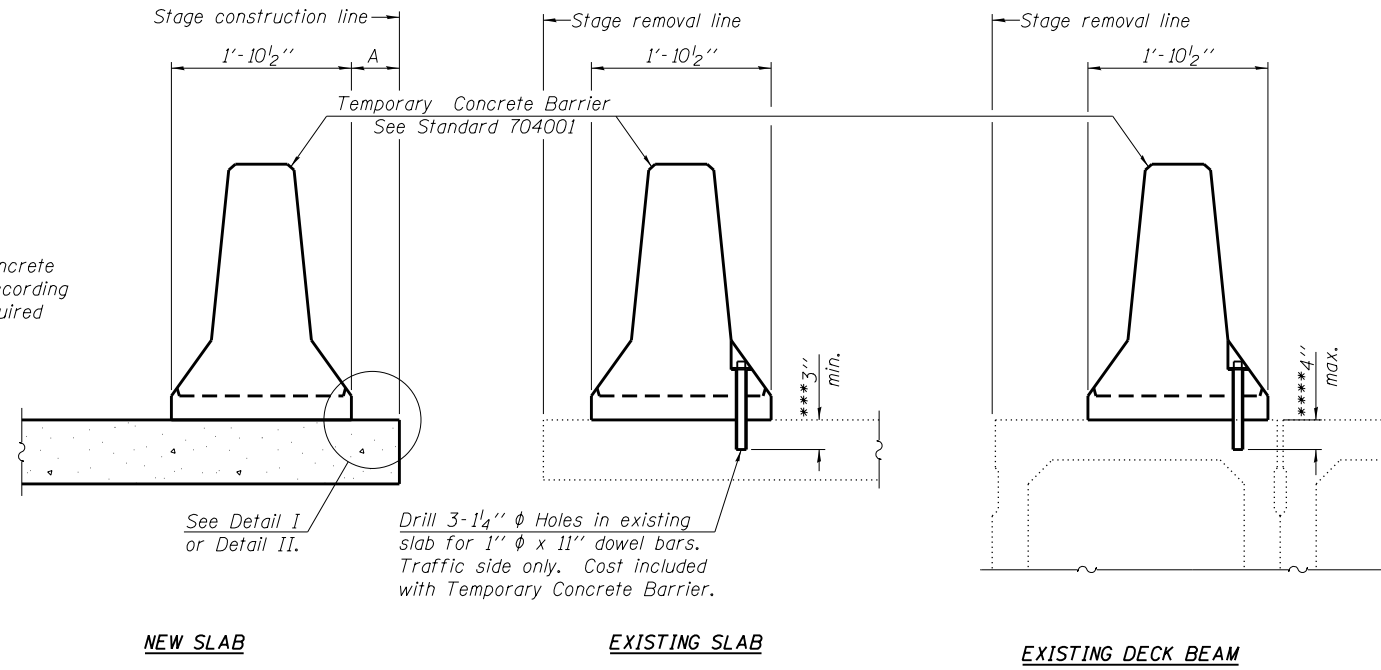
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**STAGE CONSTRUCTION
STRUCTURE NO. 016-1335**

SHEET NO. 2 OF 14 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	672
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				

When "A" is 3'-6" or less, the temporary concrete barrier shall be anchored to the new slab according to Detail I or Detail II. No anchorage is required when "A" is greater than 3'-6".



SECTIONS THRU SLAB OR DECK BEAM

NOTES

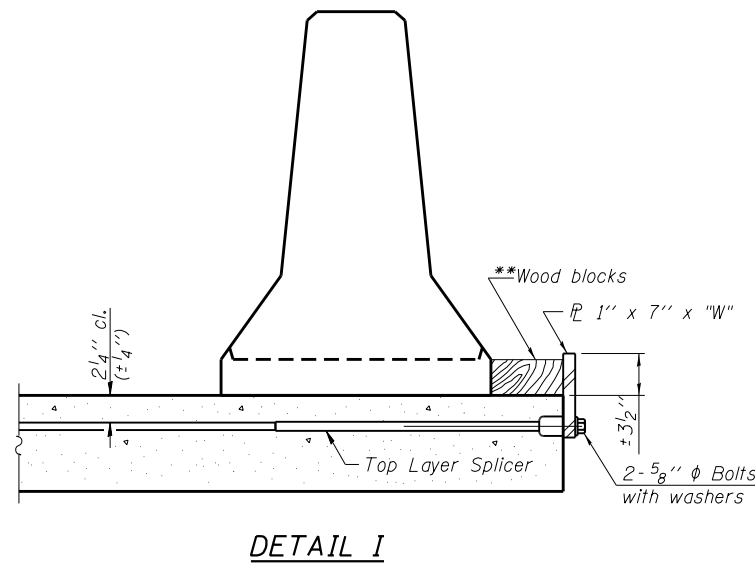
Detail I - With Bar Splicer or Couplers:
Connect one (1) 1" x 7" x "W" steel PL to the top layer of couplers with 2-5/8" φ bolts screwed to coupler at approximate C of each barrier panel.

Detail II - With Extended Reinforcement Bars:
Connect one (1) 1" x 7" x "W" steel PL to the concrete slab or concrete wearing surface with 2-5/8" φ Expansion Anchors or cast in place inserts spaced between the top layer of reinforcement at approximate C of each barrier panel.

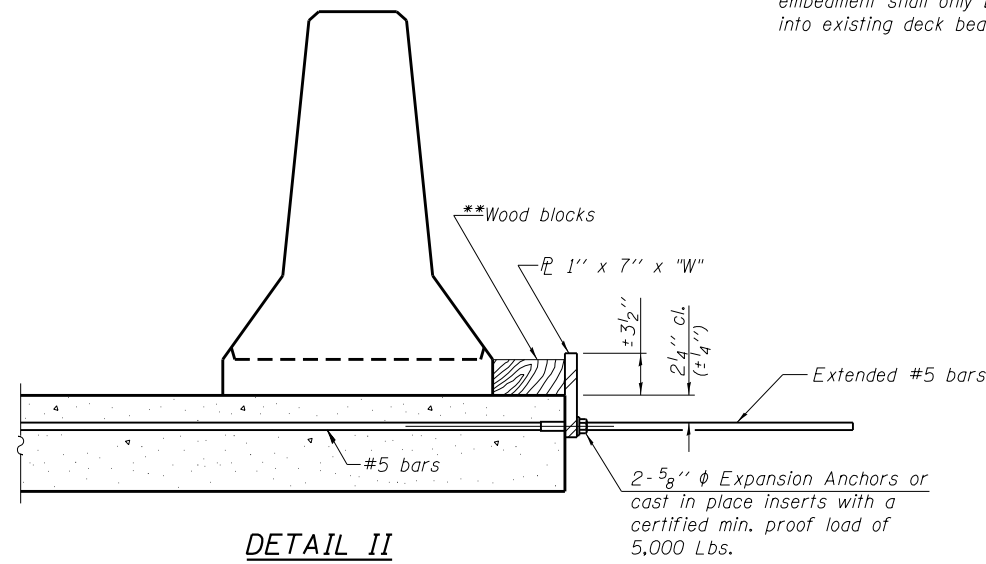
Cost of anchorage is included with Temporary Concrete Barrier. The 1" x 7" x "W" plate shall not be removed until stage II construction forms and all reinforcement bars are in place and the concrete is ready to be placed.

*** Dimension shown is minimum required embedment into concrete. If hot-mix asphalt wearing surface is present, minimum embedment shall be in addition to wearing surface depth.

**** If existing deck beam is to remain in place after stage construction, embedment shall only be into wearing surface and not into existing deck beam concrete.



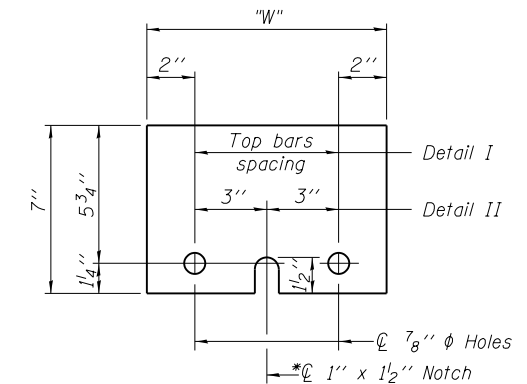
DETAIL I



DETAIL II

** Wood blocks may be omitted when required to provide minimum stage traffic lane width. When the wood blocks are omitted, the concrete barrier shall be in direct contact with the steel retainer plate.

"W" = Top bars spacing + 4"



STEEL RETAINER PL 1" x 7" x "W"

* Required only with Detail II

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R-27

7-1-10

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H. W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

USER NAME =
FILE NAME = 0161335-60L72-003-TC.dgn
PLOT SCALE =
PLOT DATE =

DESIGNED - MAF
CHECKED - RH
DRAWN - MAF
CHECKED - JSD

REVISED
REVISED
REVISED
REVISED

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

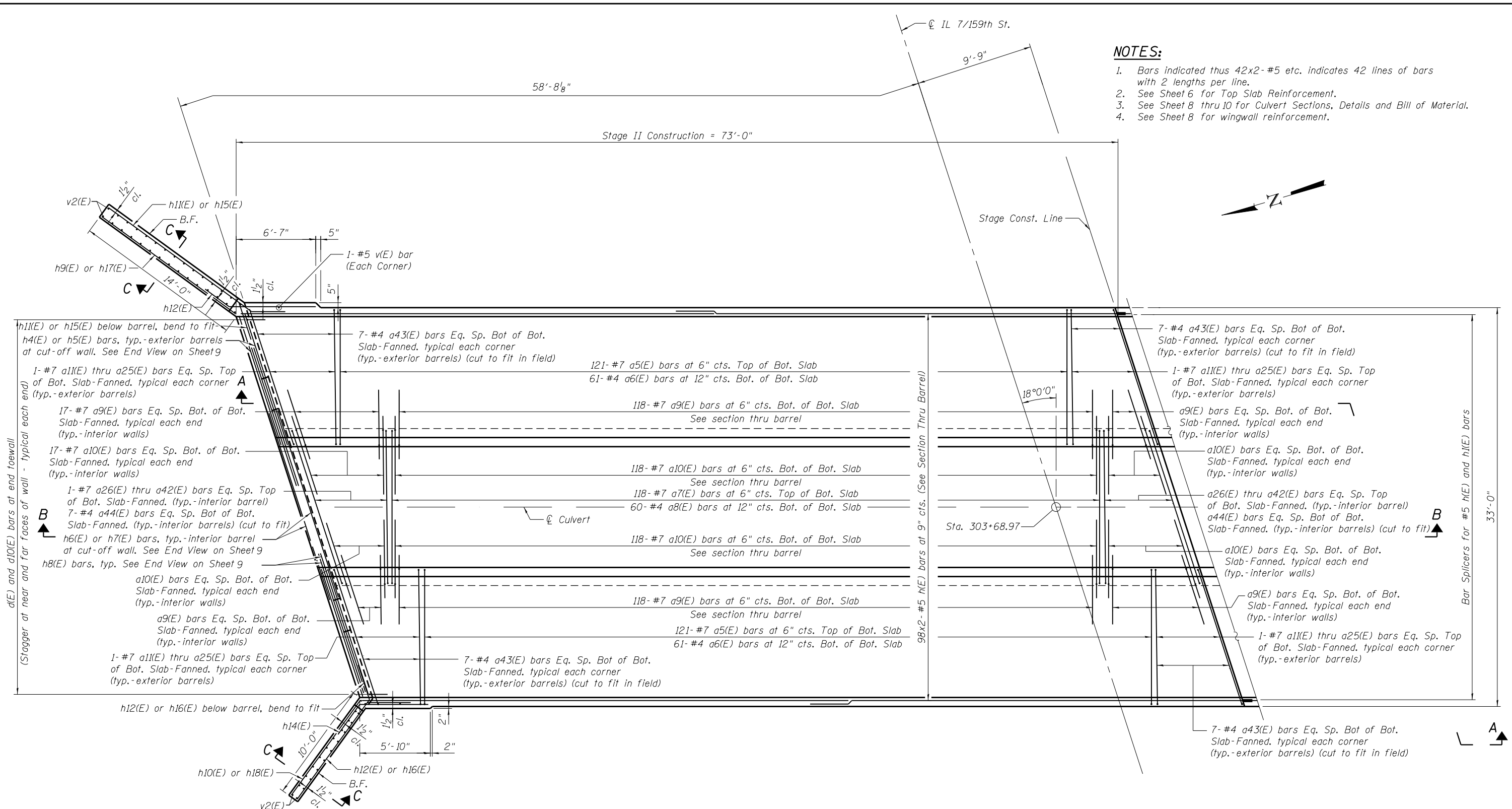
**TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION
STRUCTURE NO. 016-1335**

SHEET NO. 3 OF 14 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	673
CONTRACT NO. 60L72			ILLINOIS FED. AID PROJECT	

NOTES:

1. Bars indicated thus 42x2-#5 etc. indicates 42 lines of bars with 2 lengths per line.
2. See Sheet 6 for Top Slab Reinforcement.
3. See Sheet 8 thru 10 for Culvert Sections, Details and Bill of Material.
4. See Sheet 8 for wingwall reinforcement.



BOTTOM SLAB - REINFORCEMENT
(Stage II Construction)

LEGEND

B.F. - Denotes Back Face
Eq. Sp. - Denotes Equally Spaced

MINIMUM BAR LAP

(Slab)
#4 bar = 2'-7"
#5 bar = 3'-3"
#6 bar = 3'-10"
#7 bar = 5'-2"

T:\151006-056\Struct\Drawn\Box\Culvert\Spring_Creek\0161335-60L72-004-DP.dgn

LOCHNER
H.W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

USER NAME =	DESIGNED - MAF	REVISED
FILE NAME = 0161335-60L72-004-DP.dgn	CHECKED - RH	REVISED
PLOT SCALE =	DRAWN - MAF	REVISED
PLOT DATE =	CHECKED - JSD	REVISED

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**CULVERT PLAN BOTTOM SLAB DETAILS 1
STRUCTURE NO. 016-1335**

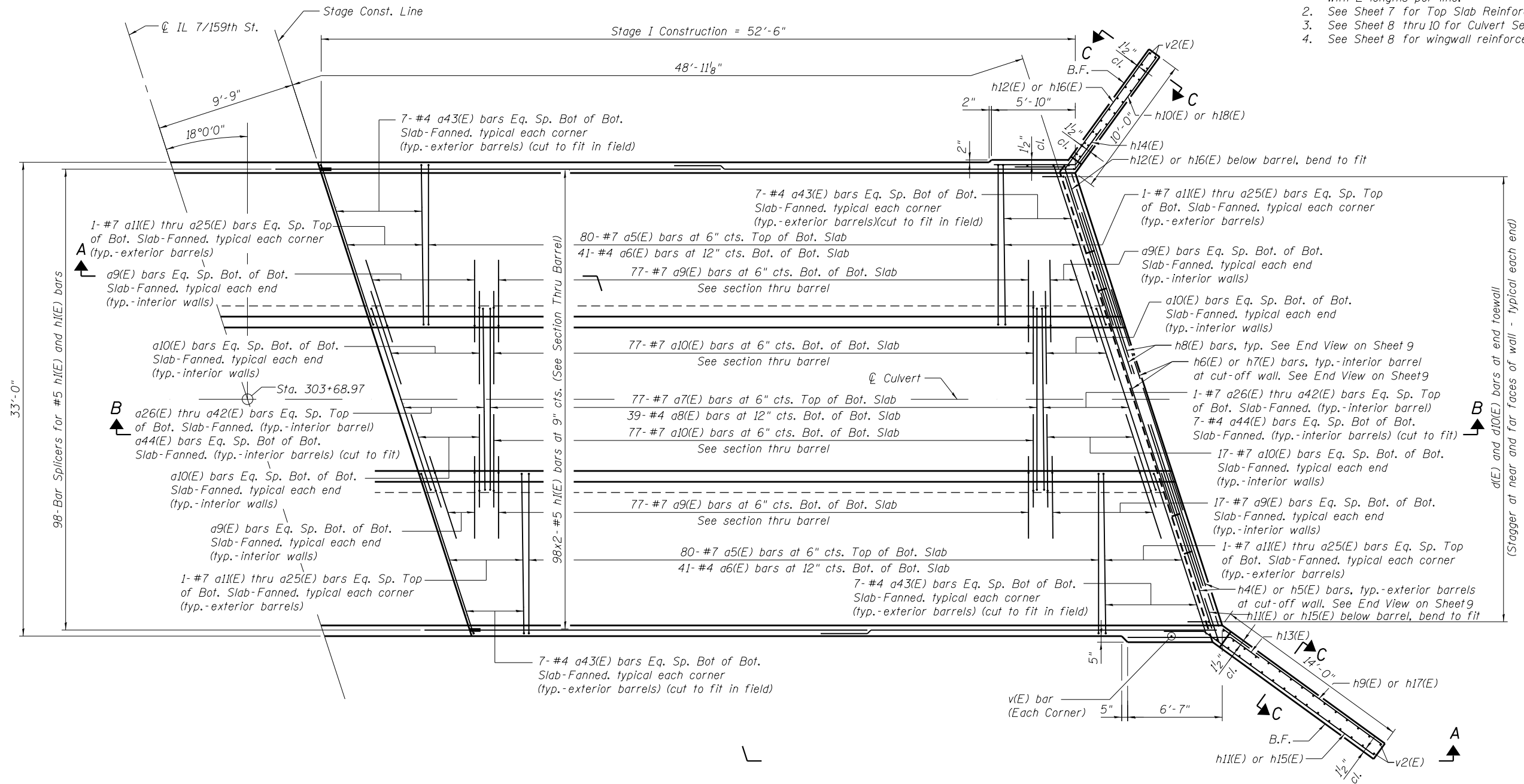
SHEET NO. 4 OF 14 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	674
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



NOTES:

1. Bars indicated thus 42x2-#5 etc. indicates 42 lines of bars with 2 lengths per line.
2. See Sheet 7 for Top Slab Reinforcement.
3. See Sheet 8 thru 10 for Culvert Sections, Details and Bill of Material.
4. See Sheet 8 for wingwall reinforcement.



BOTTOM SLAB - REINFORCEMENT
(Stage I Construction)

LEGEND

- B.F. - Denotes Back Face
- E.E. - Denotes Each End
- Eq. Sp. - Denotes Equally Spaced

MINIMUM BAR LAP
(Slab)

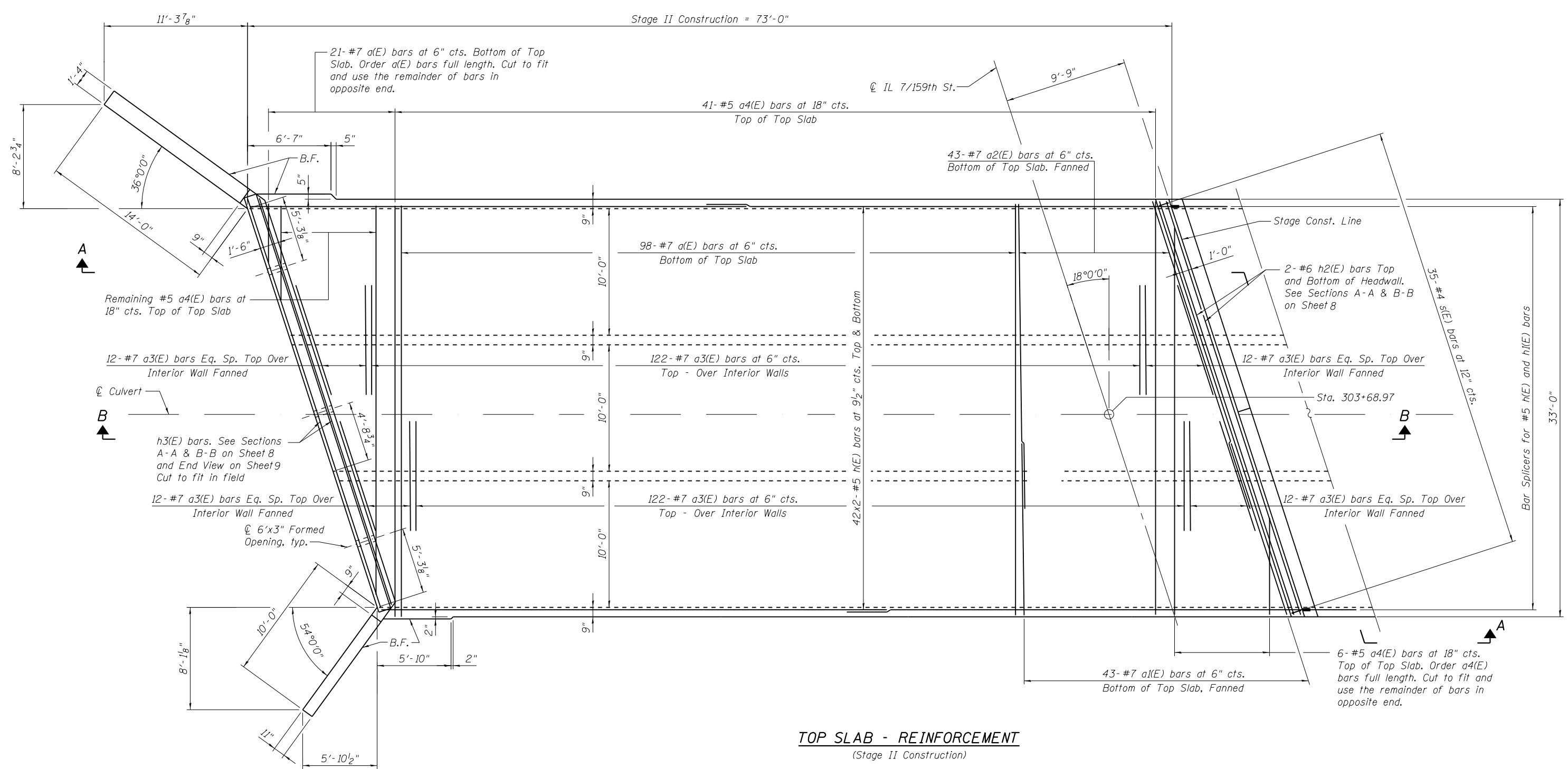
- #4 bar = 2'-7"
- #5 bar = 3'-3"
- #6 bar = 3'-10"
- #7 bar = 5'-2"

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LOCHNER H.W. LOCHNER, INC. 225 WEST WASHINGTON STREET 12 TH FLOOR CHICAGO, ILLINOIS 60606	USER NAME = FILE NAME = 0161335-60L72-005-DP.dgn PLOT SCALE = PLOT DATE =	DESIGNED - MAF CHECKED - RH DRAWN - MAF CHECKED - JSD	REVISED REVISED REVISED REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	CULVERT PLAN BOTTOM SLAB DETAILS 2 STRUCTURE NO. 016-1335 SHEET NO. 5 OF 14 SHEETS	F.A.P. RTE. = 351 SECTION = 2010-081-R COUNTY = COOK TOTAL SHEETS = 1045 SHEET NO. = 675	CONTRACT NO. 60L72 ILLINOIS FED. AID PROJECT
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NOTES:

1. Bars indicated thus 42x2-#5 etc. indicates 42 lines of bars with 2 lengths per line.
2. See Sheet 4 for Bottom Slab Reinforcement.
3. See Sheet 8 thru 10 for Culvert Sections, Details and Bill of Material.
4. See Sheet 8 for wingwall reinforcement.



TOP SLAB - REINFORCEMENT
(Stage II Construction)

LEGEND

- B.F. - Denotes Back Face
- Eq. Sp. - Denotes Equally Spaced

MINIMUM BAR LAP

- (Slab)
- #4 bar = 2'-7"
- #5 bar = 3'-3"
- #6 bar = 3'-10"
- #7 bar = 5'-2"

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LOCHNER
H.W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

USER NAME =	DESIGNED - MAF	REVISED
FILE NAME = 0161335-60L72-006-DP.dgn	CHECKED - RH	REVISED
PLOT SCALE =	DRAWN - MAF	REVISED
PLOT DATE =	CHECKED - JSD	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

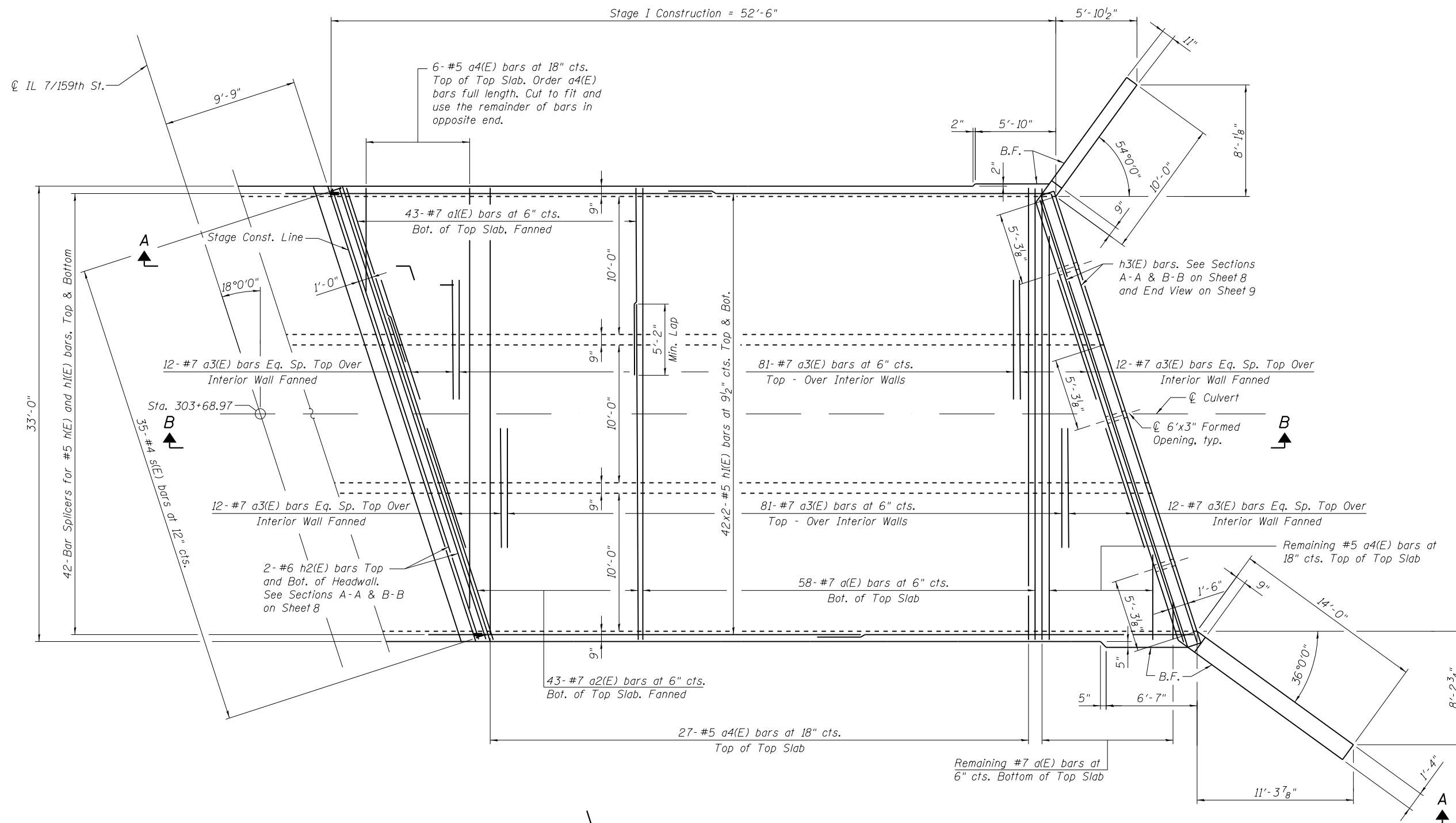
CULVERT PLAN TOP SLAB DETAILS 1
STRUCTURE NO. 016-1335

SHEET NO. 6 OF 14 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	676
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				

NOTES:

1. Bars indicated thus 42x2-#5 etc. indicates 42 lines of bars with 2 lengths per line.
2. See Sheet 5 for Bottom Slab Reinforcement.
3. See Sheet 8 thru 10 for Culvert Sections, Details and Bill of Material.
4. See Sheet 8 for wingwall reinforcement.



LEGEND

B.F. - Denotes Back Face
Eq. Sp. - Denotes Equally Spaced

TOP SLAB - REINFORCEMENT

(Stage I Construction)

MINIMUM BAR LAP

(Slab)

- #4 bar = 2'-7"
- #5 bar = 3'-3"
- #6 bar = 3'-10"
- #7 bar = 5'-2"

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LOCHNER
H.W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

USER NAME =	DESIGNED - MAF
FILE NAME = 0161335-60L72-007-DP.dgn	CHECKED - RH
PLOT SCALE =	DRAWN - MAF
PLOT DATE =	CHECKED - JSD

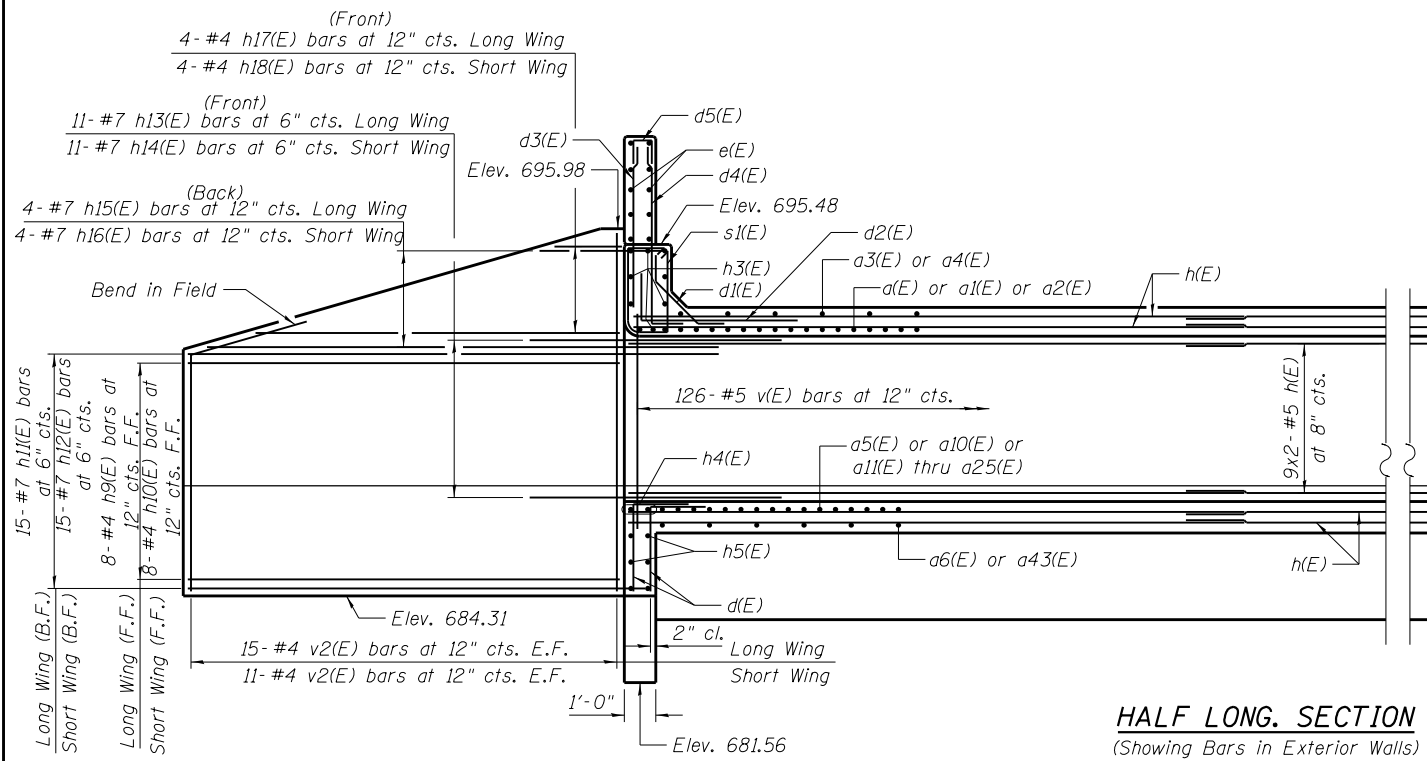
REVISOR	REVISION

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**CULVERT PLAN TOP SLAB DETAILS 2
STRUCTURE NO. 016-1335**

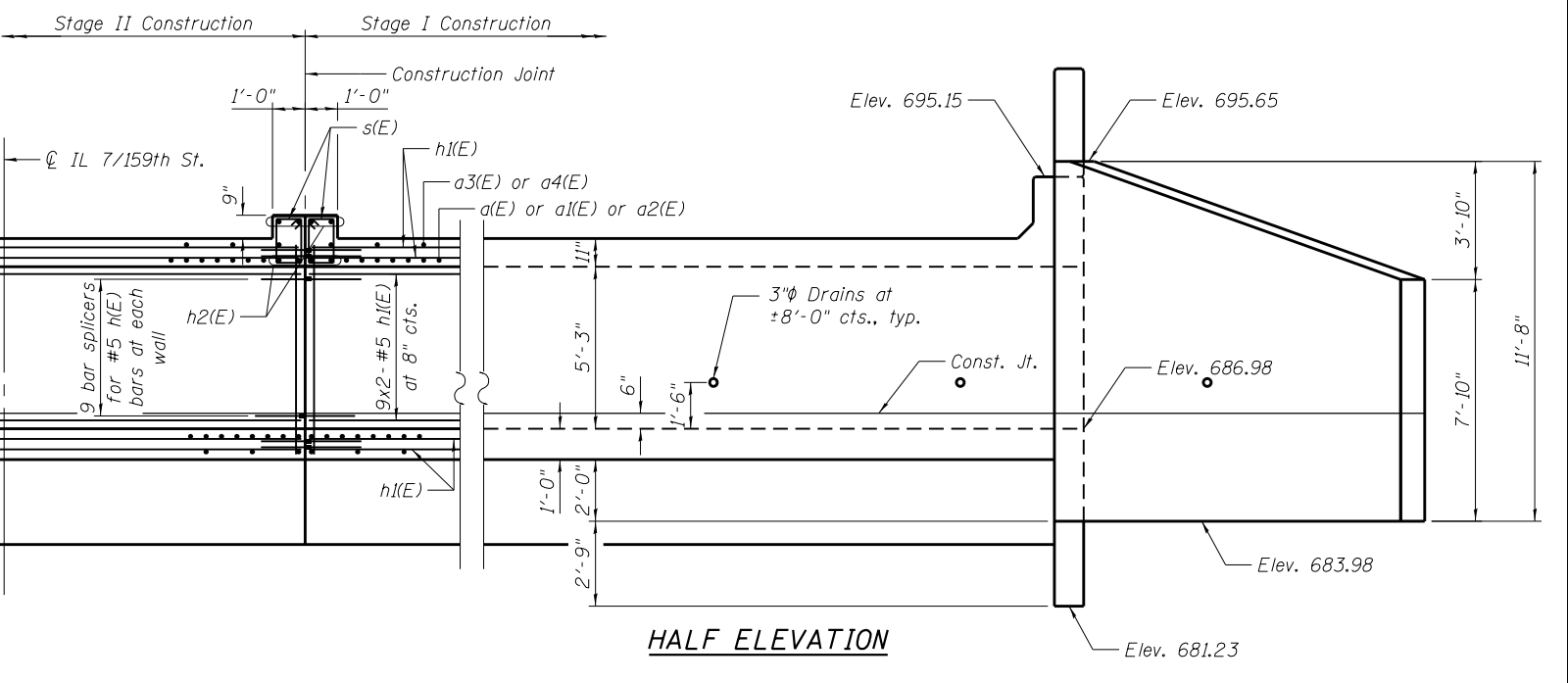
SHEET NO. 7 OF 14 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	677
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



WINGWALL REINFORCEMENT

HALF LONG SECTION
(Showing Bars in Exterior Walls)

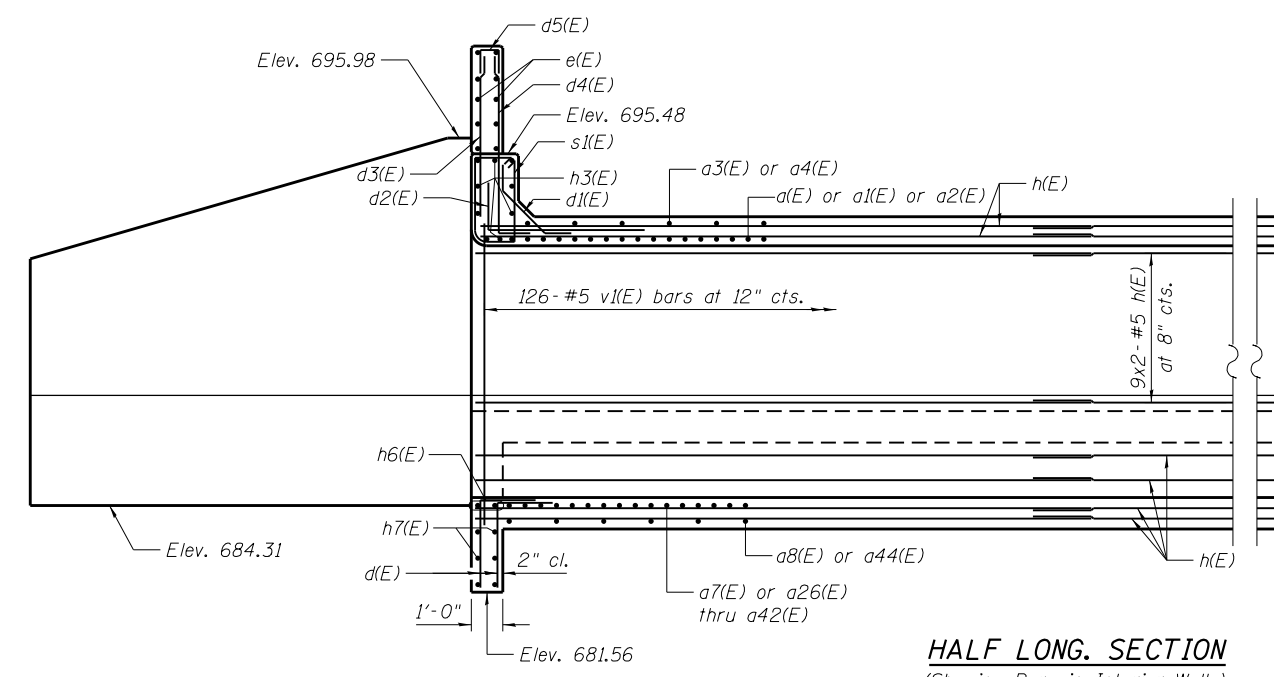


HALF ELEVATION

WINGWALL OUTLINE

MINIMUM BAR LAP
(Slab)

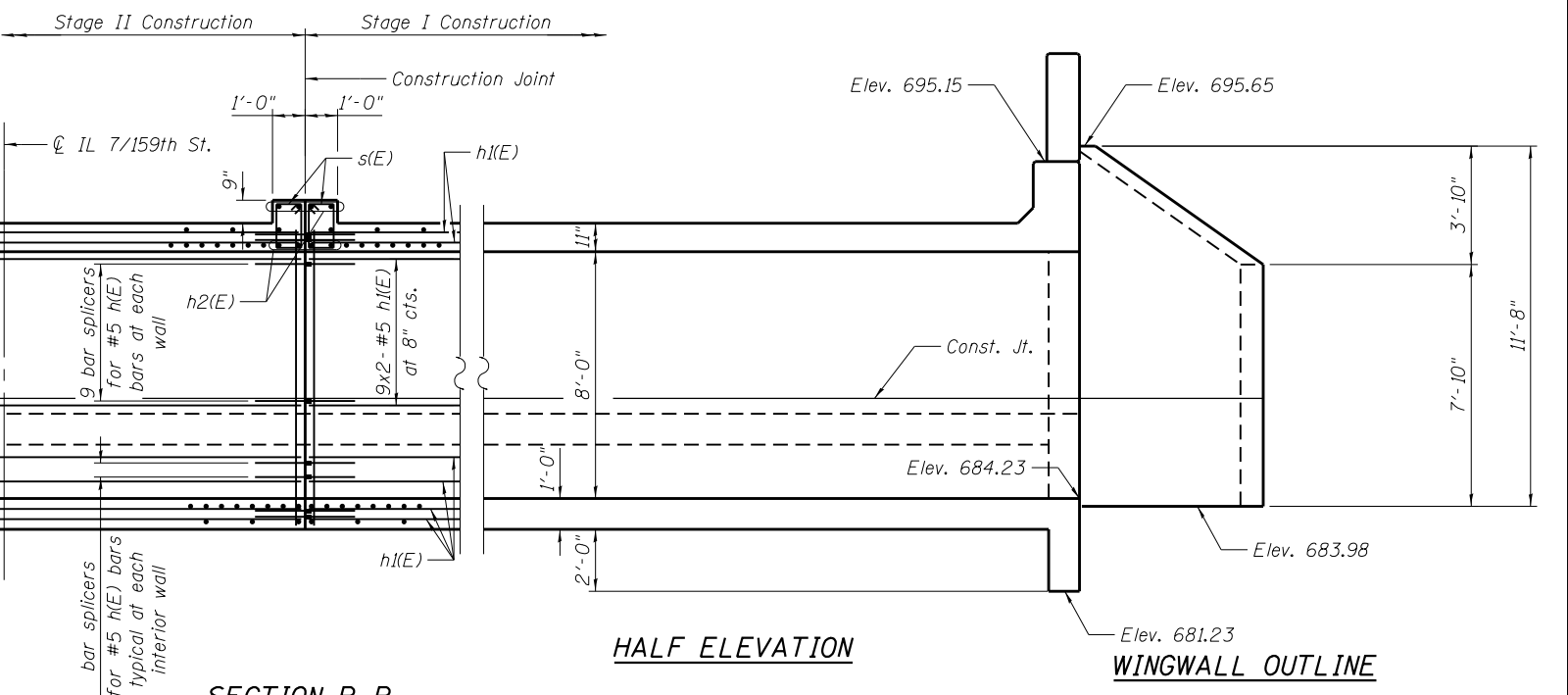
#4 bar	= 2'-7"
#5 bar	= 3'-3"
#6 bar	= 3'-10"
#7 bar	= 5'-2"



LEGEND

B.F. - Denotes Back Face
E.F. - Denotes Each Face
F.F. - Denotes Front Face

HALF LONG SECTION
(Showing Bars in Interior Walls)



HALF ELEVATION

WINGWALL OUTLINE

SECTION B-B
(Thru Interior Barrel)

T:\151006-056\Struct\Drawn\Box Culvert\Spring Creek\0161335-60L72-008-MD.dgn

LOCHNER
H.W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

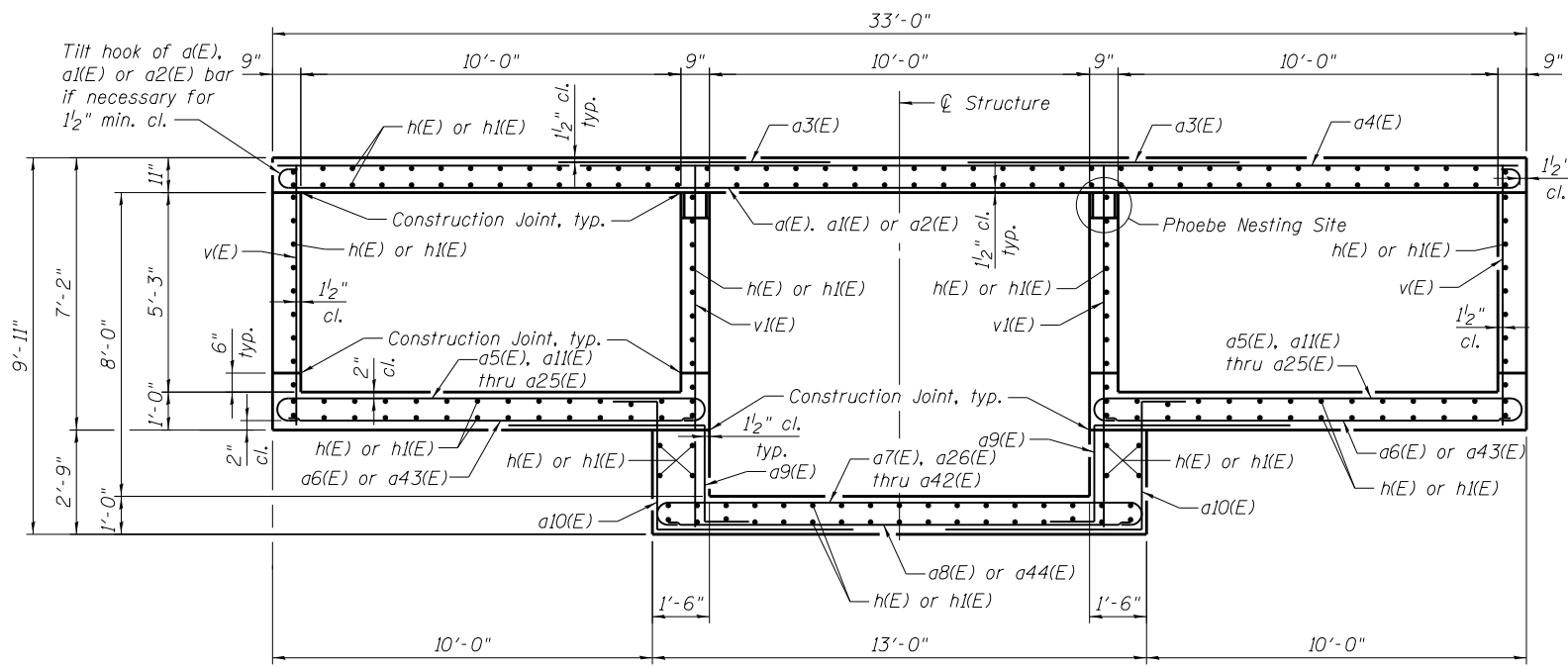
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PLOT SCALE =	DRAWN - MAF	REVISED
PLOT DATE =	CHECKED - JSD	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

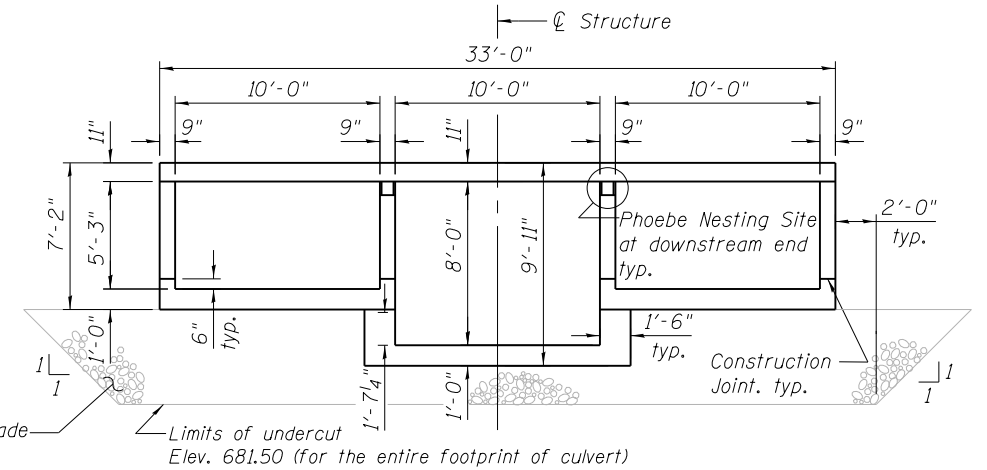
CULVERT SECTIONS AND DETAILS 1
STRUCTURE NO. 016-1335

SHEET NO. 8 OF 14 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	678
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



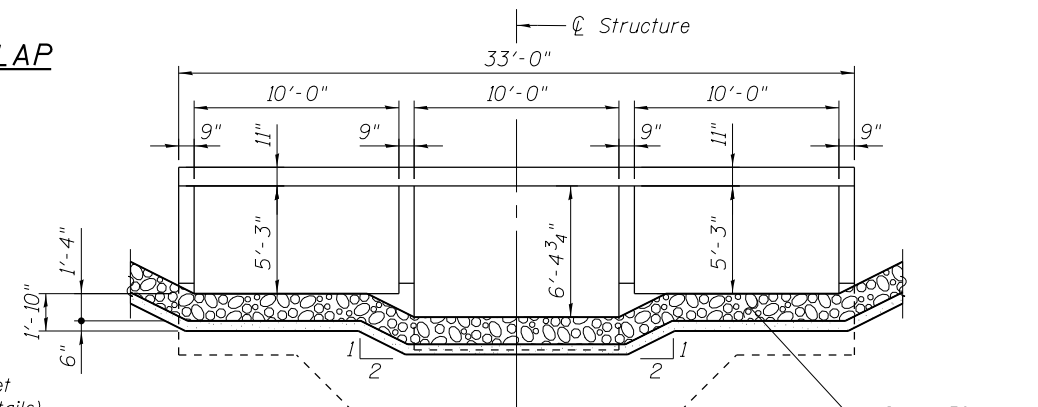
SECTION THRU BARREL
 (© Rt. L's to \varnothing structure)
 (Showing Reinforcement)



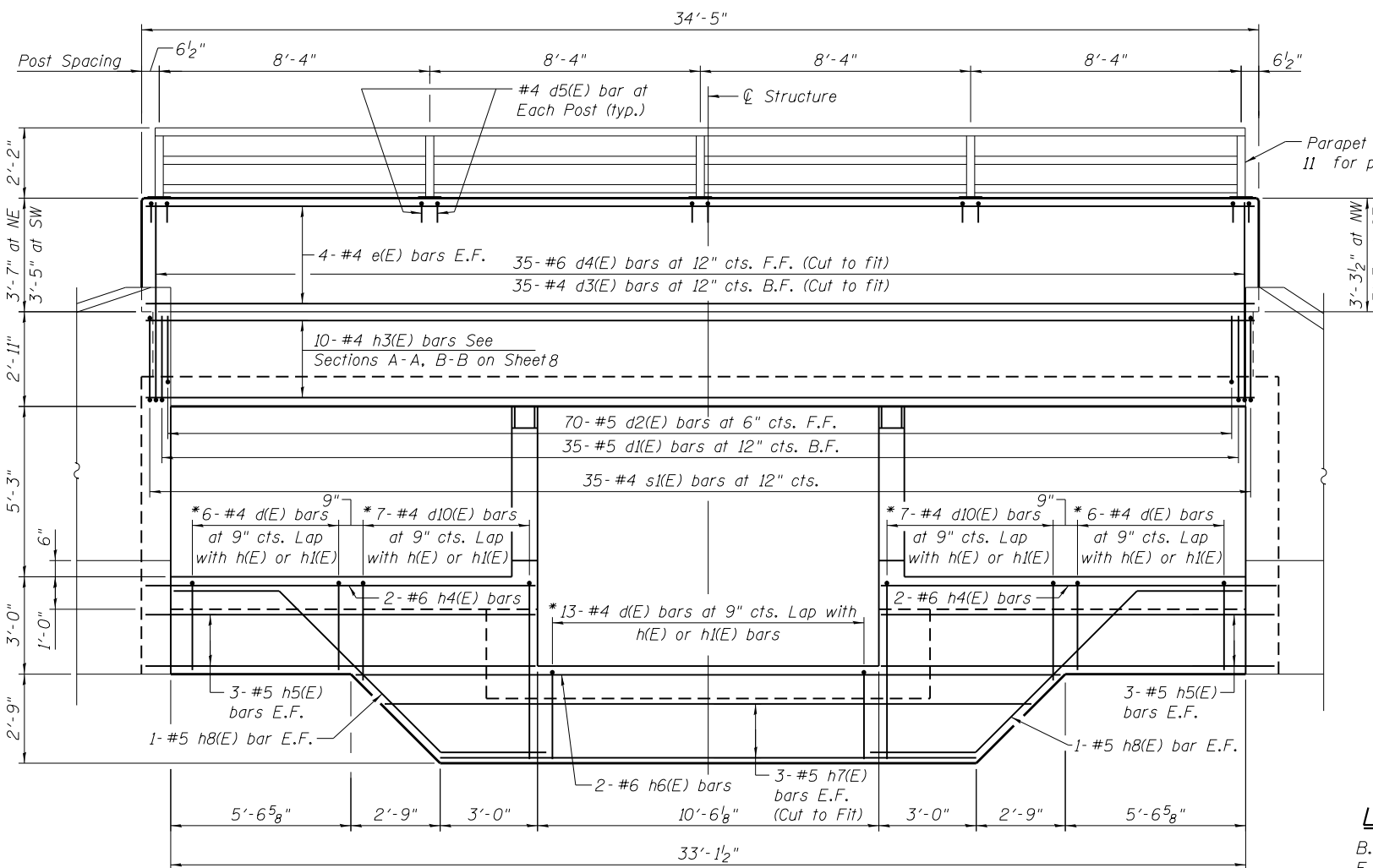
SECTION THRU BARREL
 (© Rt. L's to \varnothing structure)

MINIMUM BAR LAP
 (Slab)

- #4 bar = 2'-7"
- #5 bar = 3'-3"
- #6 bar = 3'-10"
- #7 bar = 5'-2"

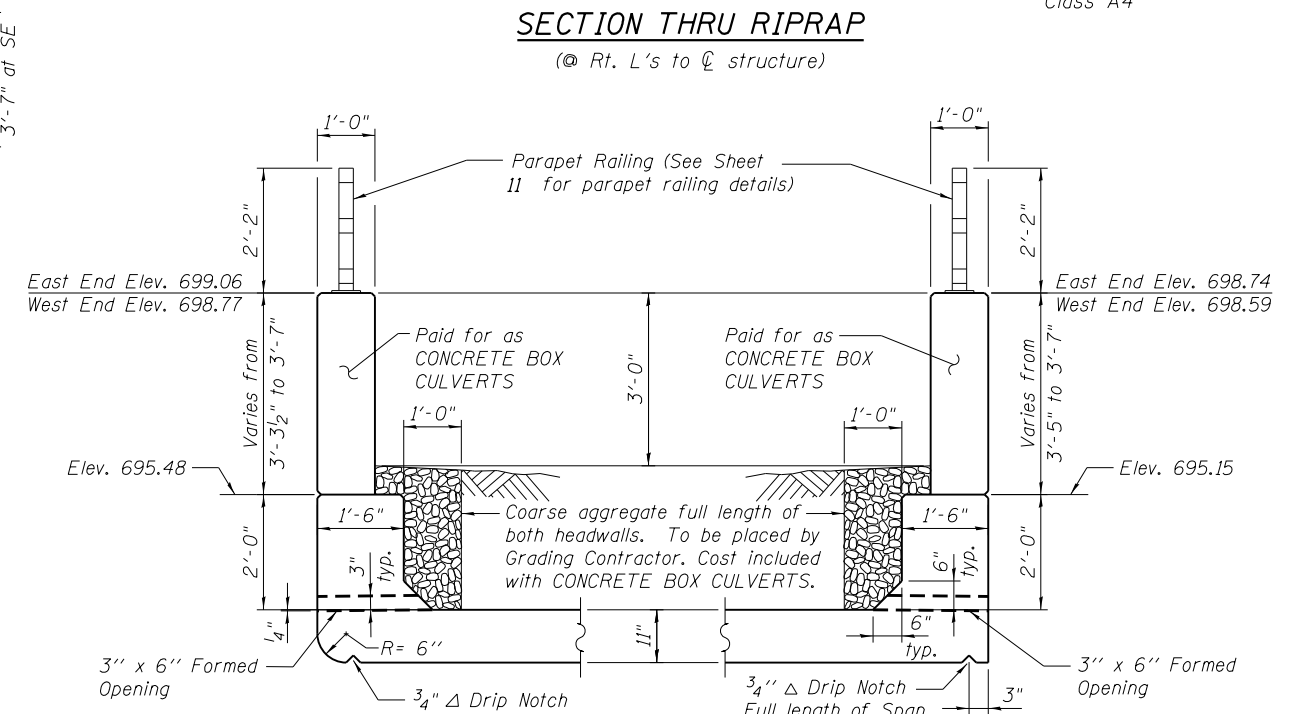


SECTION THRU RIPRAP
 (© Rt. L's to \varnothing structure)



END VIEW

* Stagger at near and far faces of wall, typical each end.
 (Typ. at Each End of Box Culvert) Order d10(E) bars full length, and cut to fit in field.



LEGEND

- B.F. - Denotes Back Face
- E.F. - Denotes Each Face
- F.F. - Denotes Front Face

AT UPSTREAM END

SECTION AT HEADWALL & DRAIN DETAIL

AT DOWNSTREAM END

T:\151006-1056\Struct\Box Culvert\Spring Creek\0161335-60L72-009-MD.dgn

LOCHNER
 H.W. LOCHNER, INC.
 225 WEST WASHINGTON STREET
 12 TH FLOOR
 CHICAGO, ILLINOIS 60606

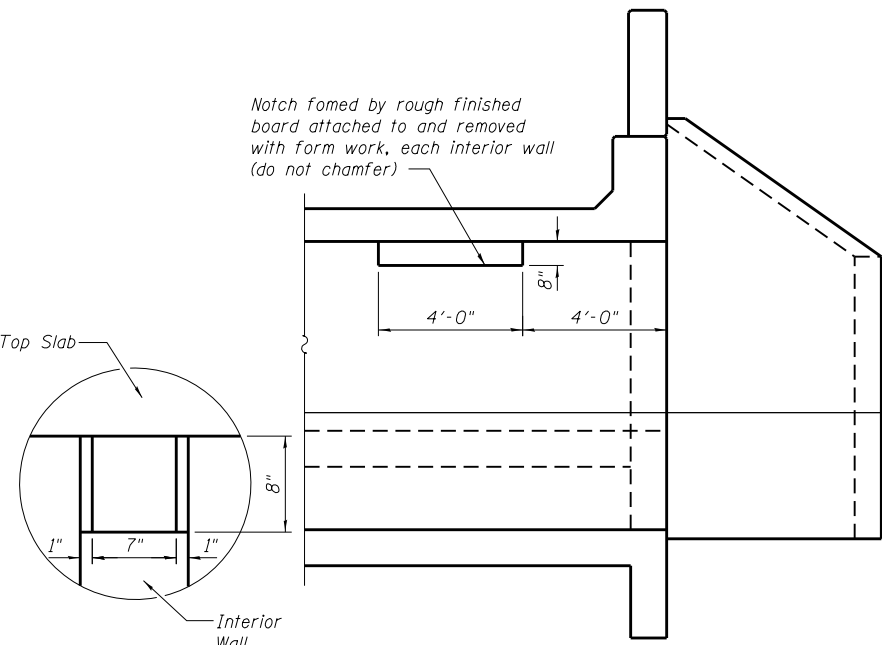
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FILE NAME = 0161335-60L72-009-MD.dgn	CHECKED - RH	REVISD
PLOT SCALE =	DRAWN - MAF	REVISD
PLOT DATE	CHECKED - JSD	REVISD

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

CULVERT SECTIONS AND DETAILS 2
 STRUCTURE NO. 016-1335

SHEET NO. 9 OF 14 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	679
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				

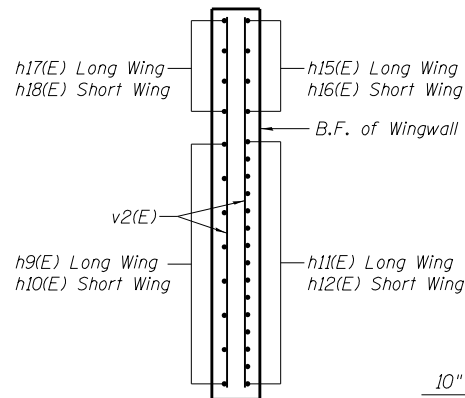


NOTCH DETAIL

LONGITUDINAL SECTION

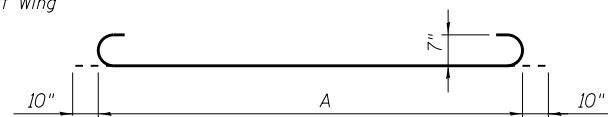
PHOEBE NESTING SITE

(Near downstream end)



SECTION C-C AT WING WALL

(See Sheet 4 & 5 for location)



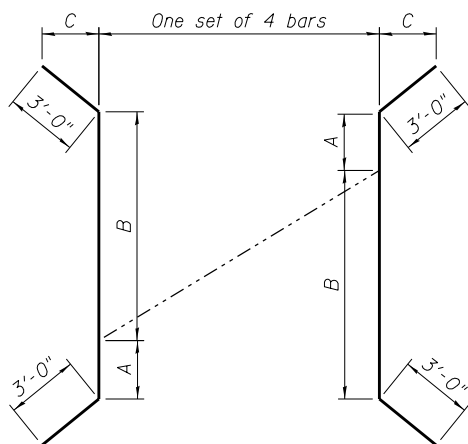
BARS a(E), a5(E), a7(E), a11(E) Thru a42(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a(E)	177	#7	34'-5"	C
a1(E)	86	#7	15'-1"	C
a2(E)	86	#7	26'-5"	C
a3(E)	502	#7	8'-8"	C
a4(E)	80	#5	32'-9"	C
a5(E)	402	#7	12'-11"	C
a6(E)	204	#4	11'-3"	C
a7(E)	195	#7	14'-5"	C
a8(E)	99	#4	12'-9"	C
a9(E)	526	#7	8'-9"	C
a10(E)	526	#7	10'-2"	C
a11(E)	8	#7	12'-11"	C
a12(E)	8	#7	12'-11 1/2"	C
a13(E)	8	#7	13'-0"	C
a14(E)	8	#7	13'-0 1/2"	C
a15(E)	8	#7	13'-1"	C
a16(E)	8	#7	13'-1 1/2"	C
a17(E)	8	#7	13'-2"	C
a18(E)	8	#7	13'-2 1/2"	C
a19(E)	8	#7	13'-3"	C
a20(E)	8	#7	13'-3 1/2"	C
a21(E)	8	#7	13'-4"	C
a22(E)	8	#7	13'-4 1/2"	C
a23(E)	8	#7	13'-5"	C
a24(E)	8	#7	13'-5 1/2"	C
a25(E)	8	#7	13'-6"	C
a26(E)	4	#7	14'-5"	C
a27(E)	4	#7	14'-5 1/2"	C
a28(E)	4	#7	14'-6"	C
a29(E)	4	#7	14'-6 1/2"	C
a30(E)	4	#7	14'-7"	C
a31(E)	4	#7	14'-7 1/2"	C
a32(E)	4	#7	14'-8"	C
a33(E)	4	#7	14'-8 1/2"	C
a34(E)	4	#7	14'-9"	C
a35(E)	4	#7	14'-9 1/2"	C
a36(E)	4	#7	14'-10"	C
a37(E)	4	#7	14'-10 1/2"	C
a38(E)	4	#7	14'-11"	C
a39(E)	4	#7	14'-11 1/2"	C
a40(E)	4	#7	15'-0"	C
a41(E)	4	#7	15'-0 1/2"	C
a42(E)	4	#7	15'-1"	C
a43(E)	56	#4	11'-10"	C
a44(E)	28	#4	13'-5"	C

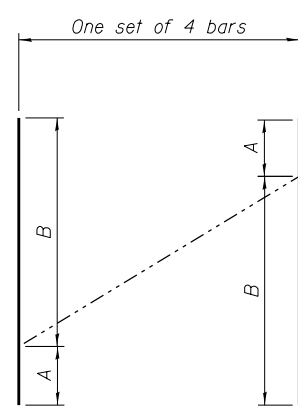
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
d(E)	50	#4	4'-6"	C
d1(E)	70	#5	4'-0"	C
d2(E)	140	#5	8'-7"	C
d3(E)	70	#4	5'-10"	C
d4(E)	70	#6	7'-2"	C
d5(E)	20	#4	2'-2"	C
d10(E)	28	#4	7'-3"	C
h(E)	436	#5	38'-0"	C
h1(E)	436	#5	27'-9"	C
h2(E)	8	#6	34'-5"	C
h3(E)	20	#4	34'-2"	C
h4(E)	8	#6	12'-3"	C
h5(E)	24	#5	12'-3"	C
h6(E)	4	#6	21'-8"	C
h7(E)	12	#5	20'-0"	C
h8(E)	8	#5	13'-6"	C
h9(E)	16	#4	13'-8"	C
h10(E)	16	#4	9'-8"	C
h11(E)	30	#7	18'-0"	C
h12(E)	30	#7	13'-0"	C
h13(E)	22	#7	8'-0"	C
h14(E)	22	#7	8'-0"	C
h15(E)	4	#7	22'-1"	C
h16(E)	4	#7	16'-9"	C
h17(E)	4	#4	16'-1"	C
h18(E)	4	#4	10'-1"	C
v(E)	256	#5	6'-11"	C
v1(E)	252	#5	9'-8"	C
v2(E)	104	#4	11'-3"	C
s(E)	70	#4	5'-1"	C
s1(E)	70	#4	8'-5"	C
e(E)	16	#4	34'-2"	C
Concrete Box Culverts			Cu. Yd.	456.5
Reinforcement Bars, Epoxy Coated			Pound	120,250



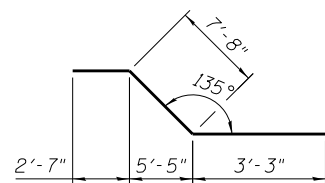
BARS h15(E) & h16(E)

Bar	A	B	C
h15(E)	3'-7"	12'-6"	1'-9"
h16(E)	2'-3"	8'-6"	2'-5"

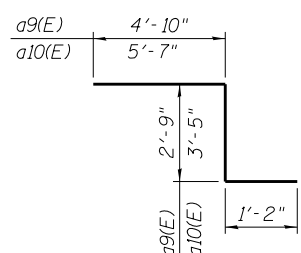


BARS h17(E) & h18(E)

Bar	A	B
h17(E)	3'-7"	12'-6"
h18(E)	1'-11"	8'-2"

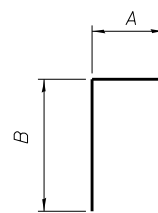


BAR h8(E)



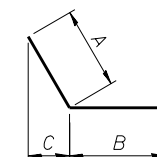
BARS a9(E) & a10(E)

Bar	A
a(E)	32'-9"
a5(E)	11'-3"
a7(E)	12'-9"
a11(E)	11'-3"
a12(E)	11'-3 1/2"
a13(E)	11'-4"
a14(E)	11'-4 1/2"
a15(E)	11'-5"
a16(E)	11'-5 1/2"
a17(E)	11'-6"
a18(E)	11'-6 1/2"
a19(E)	11'-7"
a20(E)	11'-7 1/2"
a21(E)	11'-8"
a22(E)	11'-8 1/2"
a23(E)	11'-9"
a24(E)	11'-9 1/2"
a25(E)	11'-10"
a26(E)	12'-9"
a27(E)	12'-9 1/2"
a28(E)	12'-10"
a29(E)	12'-10 1/2"
a30(E)	12'-11"
a31(E)	12'-11 1/2"
a32(E)	13'-0"
a33(E)	13'-0 1/2"
a34(E)	13'-1"
a35(E)	13'-1 1/2"
a36(E)	13'-2"
a37(E)	13'-2 1/2"
a38(E)	13'-3"
a39(E)	13'-3 1/2"
a40(E)	13'-4"
a41(E)	13'-4 1/2"
a42(E)	13'-5"



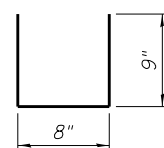
BARS d(E), d2(E), d4(E) & d10(E)

Bar	A	B
d(E)	1'-9"	2'-9"
d2(E)	2'-0"	6'-7"
d4(E)	1'-0"	6'-2"
d10(E)	1'-9"	5'-6"

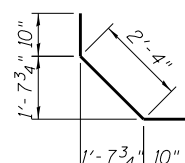


BARS h11(E), h12(E), h13(E) & h14(E)

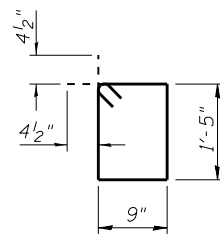
Bar	A	B	C
h11(E)	15'-0"	3'-0"	12'-2"
h12(E)	10'-0"	3'-0"	5'-10"
h13(E)	3'-0"	5'-0"	2'-5"
h14(E)	3'-0"	5'-0"	1'-9"



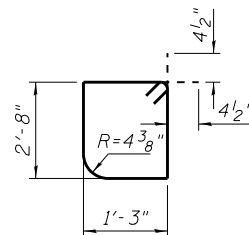
BAR d5(E)



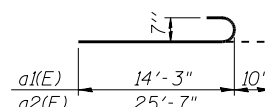
BAR d1(E)



BAR s(E)



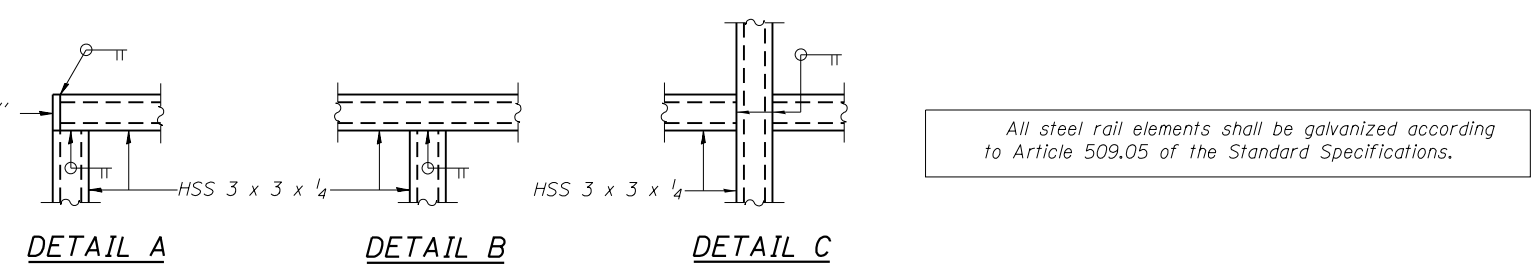
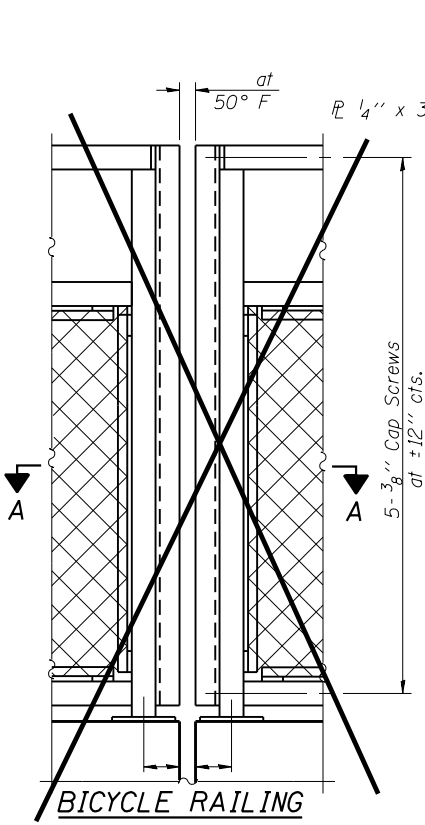
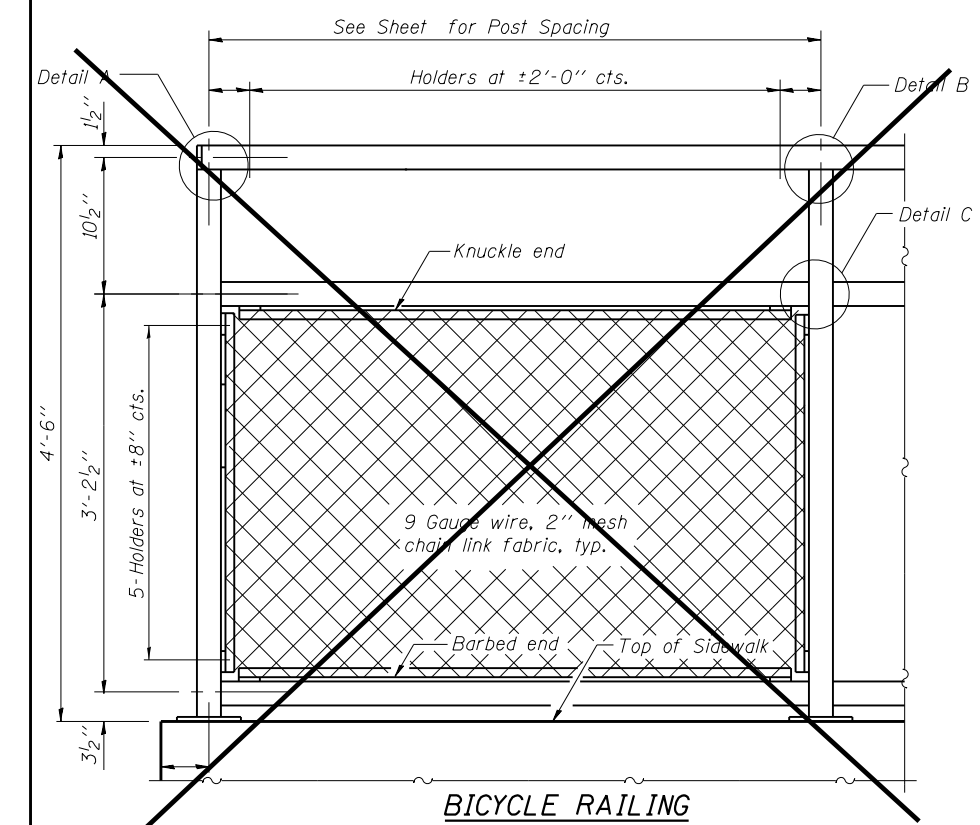
BAR s1(E)



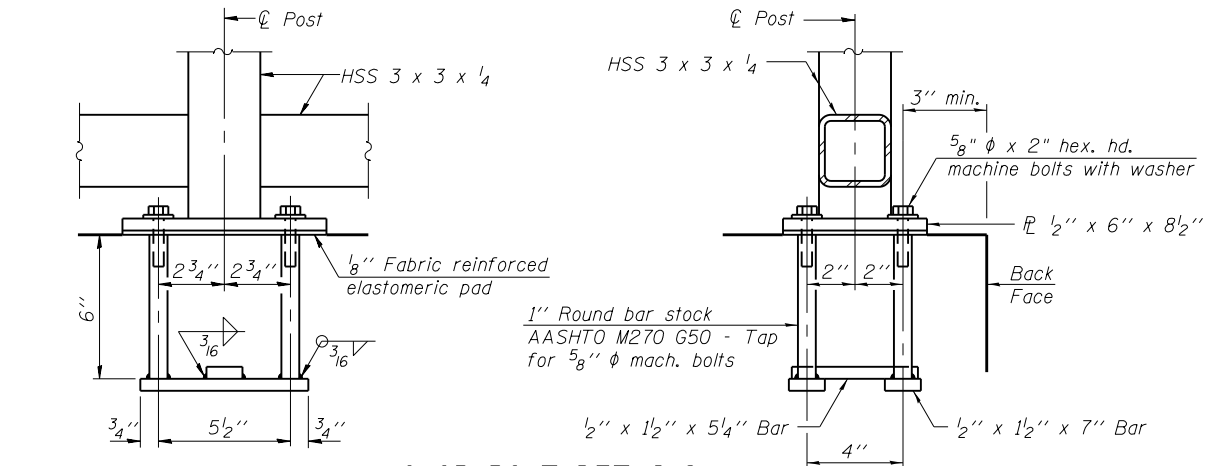
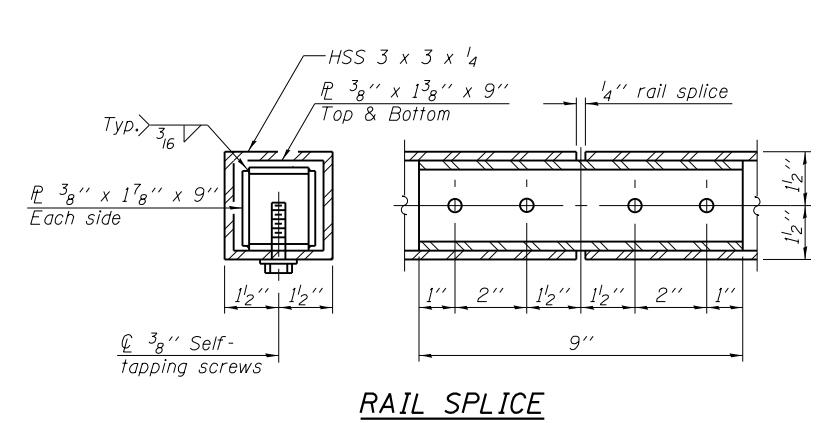
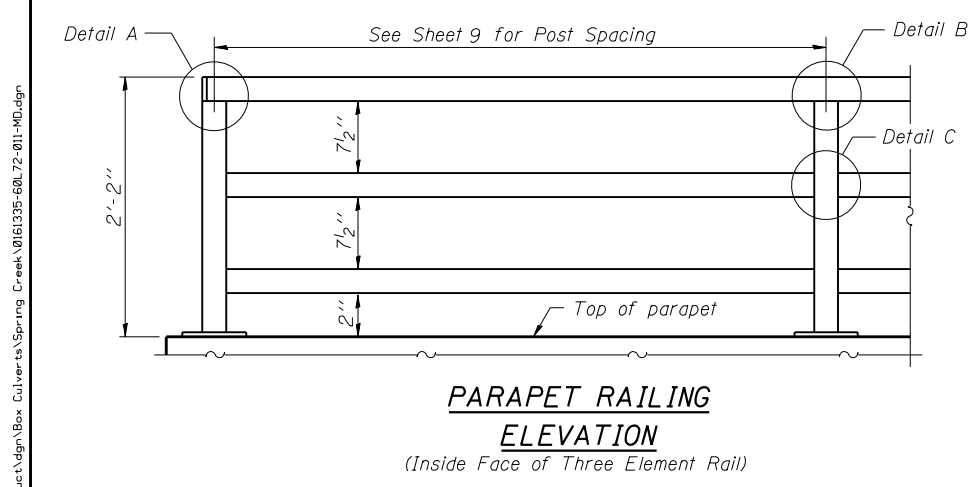
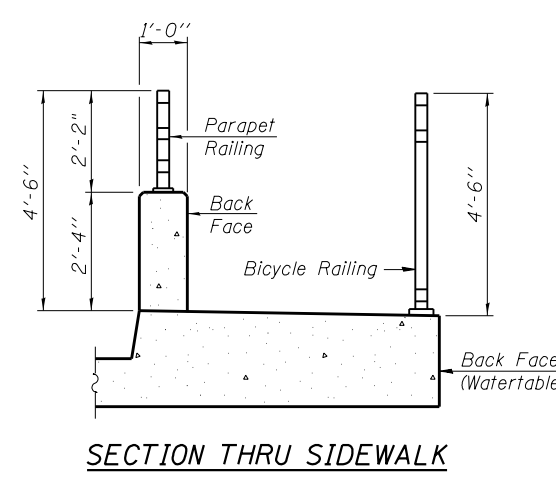
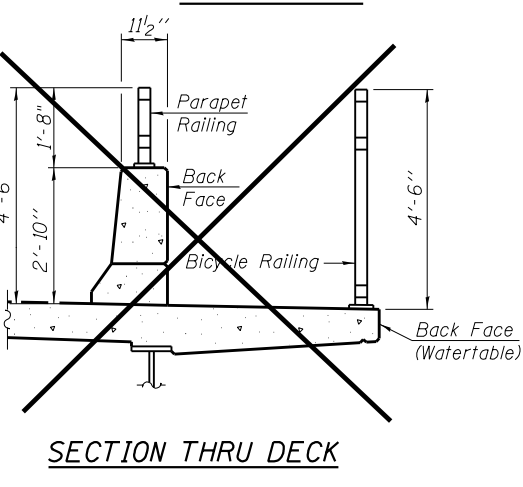
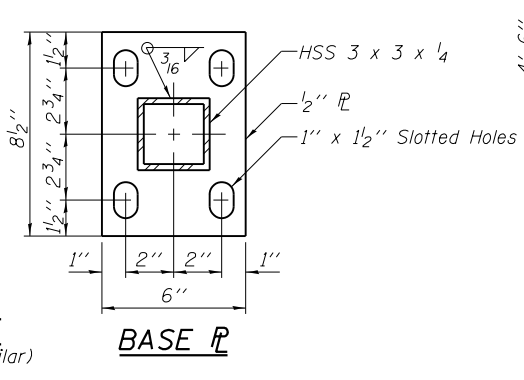
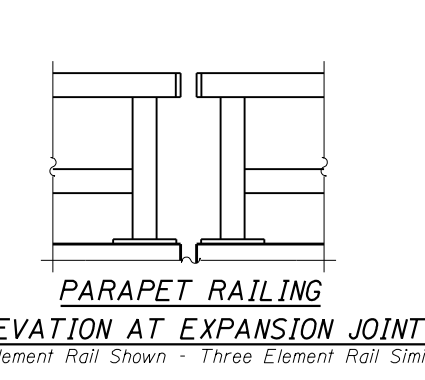
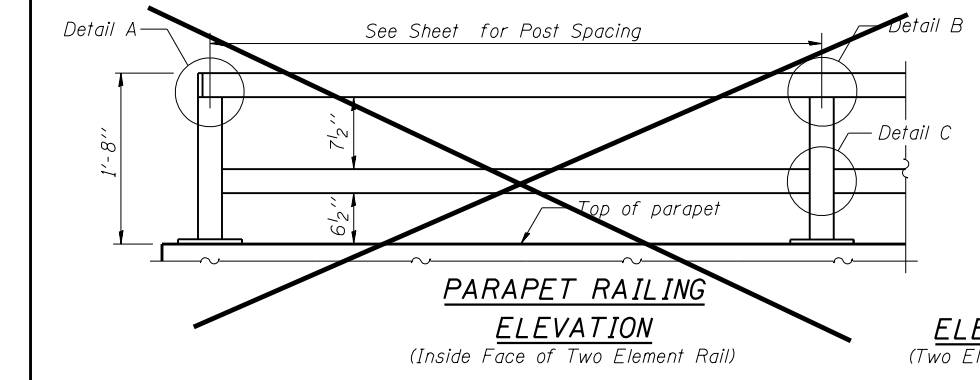
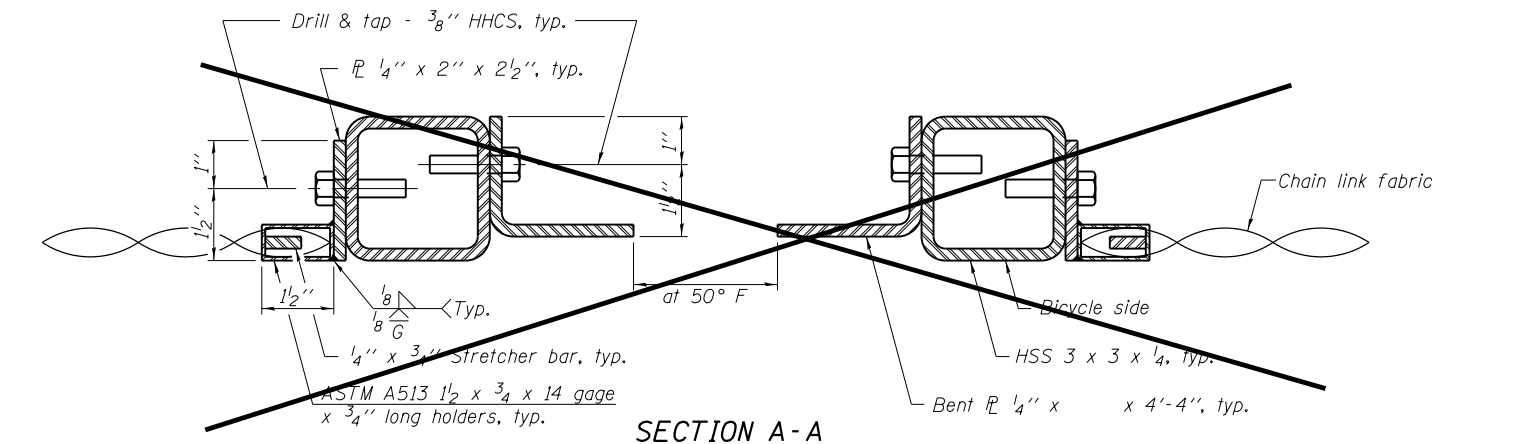
BARS a1(E) & a2(E)

T:\51006-1056\Struct\Box Culvert\3-Box Culvert\3-Box Culvert.dgn

T:\51006-USA\Struct\Bbox\Culvert\Spring_Creek\0161335-60L72-011-MD.dgn



All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.



In lieu of the cast-in-place anchor device shown, the Contractor has the option of drilling and setting 5/8" φ anchor rods according to Article 509.06 of the Standard Specifications. Embedment shall be according to the manufacturer's specifications.

BILL OF MATERIAL

Item	Unit	Quantity
Parapet Railing	Foot	67

R-29

1-27-12 (10'-0" Maximum Post Spacing)

LOCHNER
 H.W. LOCHNER, INC.
 225 WEST WASHINGTON STREET
 12 TH FLOOR
 CHICAGO, ILLINOIS 60606

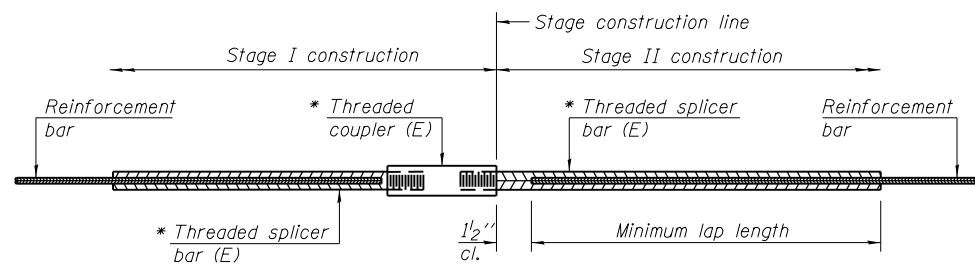
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FILE NAME = 0161335-60L72-011-MD.dgn	MAF	REVISOR
PLOT SCALE =	RH	REVISOR
PLOT DATE	MAF	REVISOR
	JSD	REVISOR

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PARAPET RAILING
STRUCTURE NO. 016-1335

SHEET NO. 11 OF 14 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	681
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



STANDARD BAR SPLICER ASSEMBLY

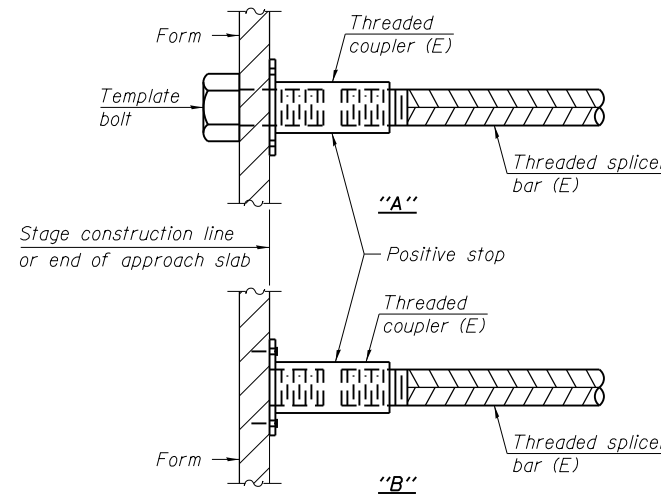
Minimum Lap Lengths						
Bar size to be spliced	Table 1	Table 2	Table 3	Table 4	Table 5	Table 6
3, 4	1'-5"	1'-11"	2'-1"	2'-4"	2'-7"	2'-11"
5	1'-9"	2'-5"	2'-7"	2'-11"	3'-3"	3'-8"
6	2'-1"	2'-11"	3'-1"	3'-6"	3'-10"	4'-5"
7	2'-9"	3'-10"	4'-2"	4'-8"	5'-2"	5'-10"
8	3'-8"	5'-1"	5'-5"	6'-2"	6'-9"	7'-8"
9	4'-7"	6'-5"	6'-10"	7'-9"	8'-7"	9'-8"

- Table 1: Black bar, 0.8 Class C
- Table 2: Black bar, Top bar lap, 0.8 Class C
- Table 3: Epoxy bar, 0.8 Class C
- Table 4: Epoxy bar, Top bar lap, 0.8 Class C
- Table 5: Epoxy bar, Class C
- Table 6: Epoxy bar, Top bar top, Class C

Threaded splicer bar length = min. lap length + 1 1/2" + thread length

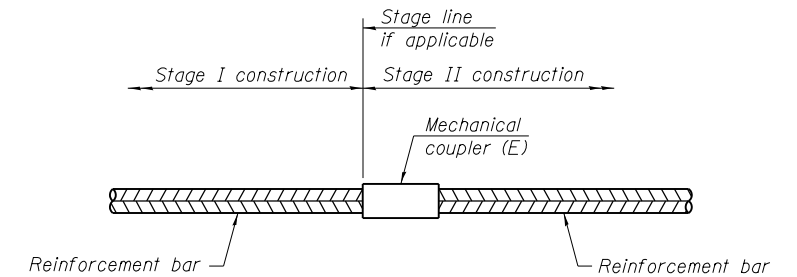
* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar size	No. assemblies required	Table for minimum lap length
Top Slab	5	84	5
Barrel Walls	5	36	5
Bottom Slab	5	98	5



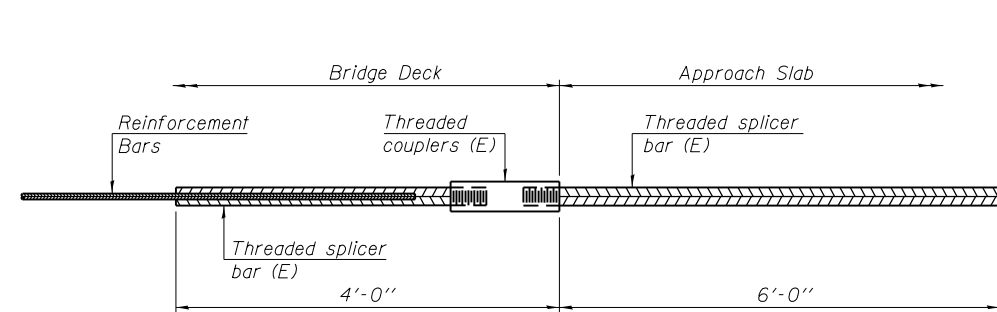
INSTALLATION AND SETTING METHODS

"A" : Set bar splicer assembly by means of a template bolt.
 "B" : Set bar splicer assembly by nailing to wood forms or cementing to steel forms.
 (E) : Indicates epoxy coating.



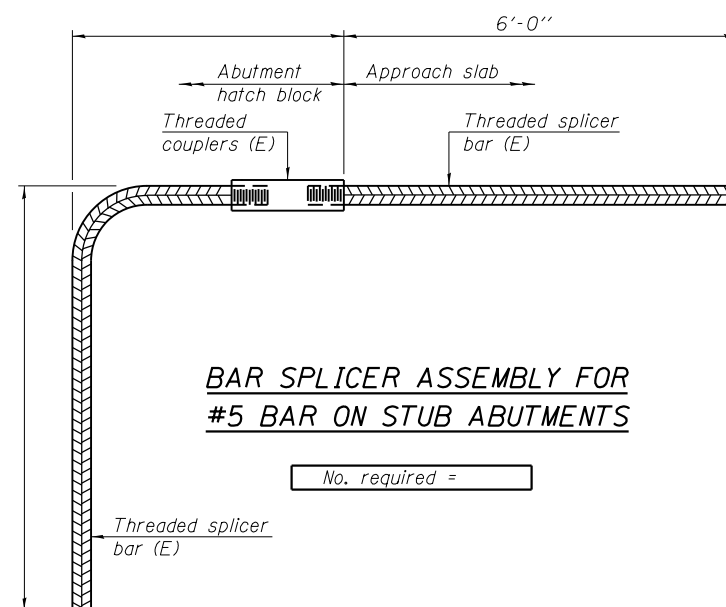
STANDARD MECHANICAL SPLICER

Location	Bar size	No. assemblies required



BAR SPLICER ASSEMBLY FOR #5 BAR ON INTEGRAL OR SEMI-INTEGRAL ABUTMENTS

No. required =



BAR SPLICER ASSEMBLY FOR #5 BAR ON STUB ABUTMENTS

No. required =

NOTES

Splicer bars shall be deformed with threaded ends and have a minimum 60 ksi yield strength.
 All reinforcement shall be lapped and tied to the splicer bars.
 Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars. See Section 508 of the Standard Specifications.
 See approved list of bar splicer assemblies and mechanical splicers for alternatives.

T:\51006-1056\Struct\Bbox\Culvert\Spring_Creek\0161335-60L72-012-B5.dgn

BSD-1 1-27-12

LOCHNER
 H.W. LOCHNER, INC.
 225 WEST WASHINGTON STREET
 12 TH FLOOR
 CHICAGO, ILLINOIS 60606

USER NAME =	DESIGNED - MAF	REVISED
FILE NAME = 0161335-60L72-012-B5.dgn	CHECKED - RH	REVISED
PLOT SCALE =	DRAWN - MAF	REVISED
PLOT DATE =	CHECKED - JSD	REVISED

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**MECHANICAL SPLICER DETAILS
 STRUCTURE NO. 016-1335**

SHEET NO. 12 OF 14 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	682
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



SOIL BORING LOG

GSI Job No. 10195

Page 1 of 1

Date 3/20/12

ROUTE IL Route 7/U.S. Route 6 (159th St.) DESCRIPTION IL Rte. 7 from Will Cook Rd. to Ravinia Av. LOGGED BY RR

SECTION _____ LOCATION SE1/4, SEC. 18, TWP. T25N, RNG. R12E, 3rd PM

COUNTY Cook DRILLING METHOD HSA/ROTARY HAMMER TYPE CME Automatic

STRUCT. NO. _____ DEPTH _____ SURFACE WATER Elev. _____ ft
 Station _____ D B U M D B U M
 P O C S P O C S
 T W S Qu T T W S Qu T
 H S H S Qu T

BORING NO. CB-01 BRG. NO. _____
 Station 304+19 Station _____
 Offset 22.60ft Right Offset _____
 Ground Surface Elev. 695.10 ft (ft) (ft) (ft) (ft) (ft) (ft) (ft) (ft)

DEPTH (ft)	B	U	M	SOIL DESCRIPTION	D	B	U	M
(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)
694.10			11	SANDY TOPSOIL-black				
CLAY LOAM-dark brown to black-stiff to very stiff (Fill)	2	2.5	26		4	1.9	21	
	6	P			6	B		
					2			
	3	1.5	13		3	1.6	16	
	3	P			4	B		
689.60				CLAY-brown & gray-stiff				
	4				5	1.4	18	
	4	B			8	B		
687.10				SILTY SAND-gray-loose				
	5				3			
	4	NP	22		4	1.6	15	
	4				7	B		
684.60				CLAY-gray-medium stiff to stiff				
	2	0.6	16		6			
	3	B			7	1.7	19	
	2				6	B		
	2	1.1	16		6			
	3	B			6			
	3				1.8	16		
	3							
	4	1.6	16					
	4	B						
	20							

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
 The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)
 BBS, from 137 (Rev. 8-99)

Z:\PROJECTS\2010\10195\H.W. LOCHNER - L7 WALL COOK RD. TO US 45 (PTB 197, 5/10/10) BORING LOGS\10195_LOG_GPI_5/7/12

W Wang Engineering, Inc.
 Consulting Geotechnical and Environmental Engineers

CLIENT: GANNETT FLEMING, INC.
PROJECT: 159th Street Soil Survey
LOCATION: ORLAND PARK, IL

BORING NO. P-9
JOB NO. 121-02-01

Surface Elevation: 211.6
Datum: USGS
Station: 0+825.0
Offset: 7.3

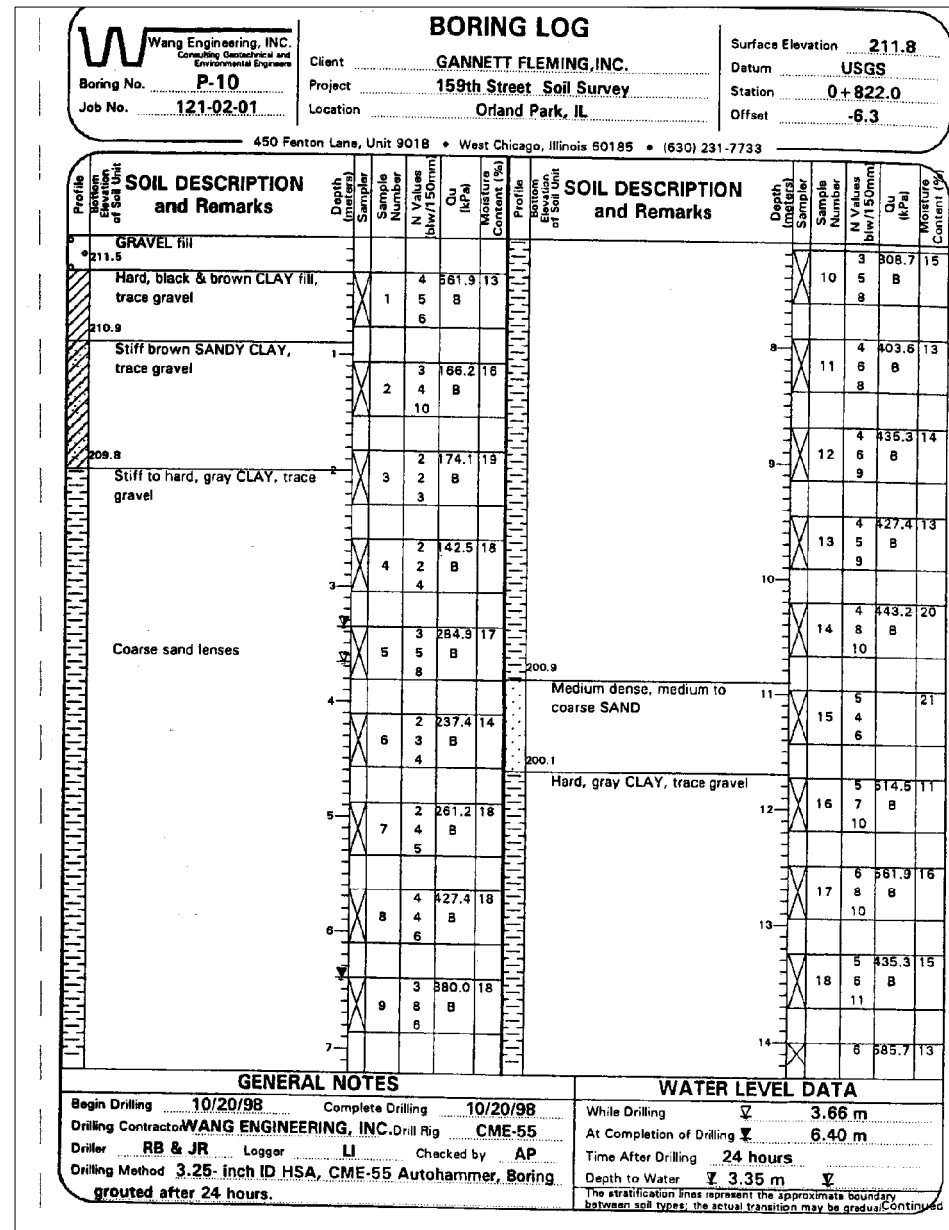
450 Fenton Lane, Unit 901B • West Chicago, Illinois 60185 • (630) 231-7733

Profile Bottom of Soil Unit	SOIL DESCRIPTION and Remarks					SOIL DESCRIPTION and Remarks				
	Depth (meters)	Sample Number	N Values blow/150mm	Qu (kPa)	Moisture Content (%)	Depth (meters)	Sample Number	N Values blow/150mm	Qu (kPa)	Moisture Content (%)
211.3										
		1	3	348.2	15		10	4	828.5	16
		2	2	B			4	7	B	
		3	3	B			3	4	355.2	15
	1		4	190.0	13		11	4	B	
		2	3	B			11	4	6	
		3	3	B			12	7	9	
		4	4	435.3	19		13	5	8	
208.7		4	3	B			13	5	8	
		5	3	B			14	4	6	
		5	3	B			14	4	6	
201.8										
201.3										
		6	2	387.8	16		15	5	6	
		8	3	B			15	6	10	
		8	4	B			16	5	8	
		8	4	B			16	5	8	
		3	3	379.3	18		17	8	11	
198.5		8	4	B			17	8	11	
		8	4	B			17	8	11	
		3	3	374.4	15		18	7	7	
197.9		9	4	B			18	8	17	
		9	4	B			18	8	17	
		9	4	B			18	8	17	
		9	4	B			18	8	17	
		9	4	B			18	8	17	
		9	4	B			18	8	17	
		9	4	B			18	8	17	
		9	4	B			18	8	17	

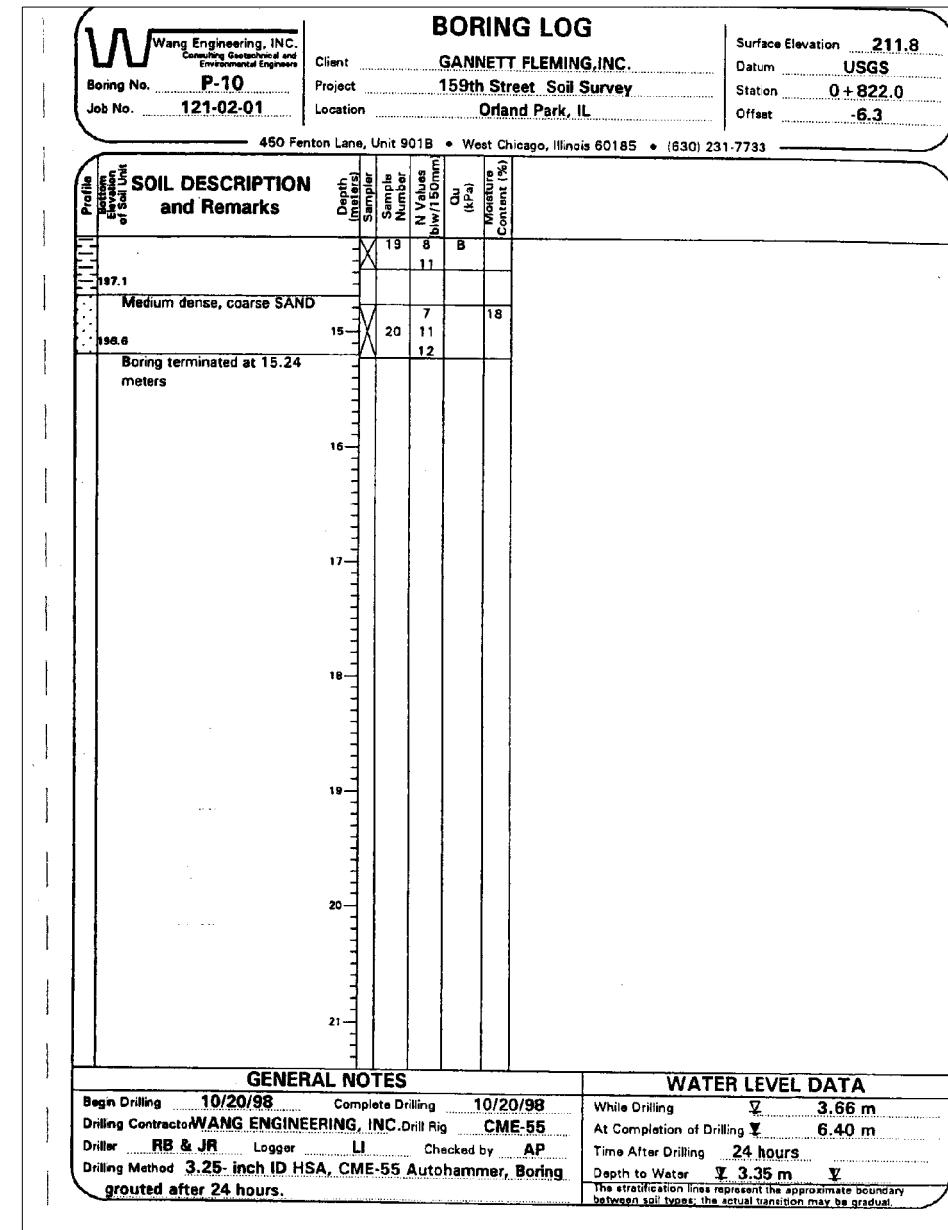
GENERAL NOTES		WATER LEVEL DATA	
Begin Drilling	11/5/98	Complete Drilling	11/5/98
Drilling Contractor	WANG ENGINEERING, INC. Drill Rig	CME-55	
Driller	RB & JR	Logger	LI
Drilling Method	3.25-inch ID HSA, CME-55 Autohammer, Boring grouted upon completion.	Time After Drilling	24 hours
		Depth to Water	6.40 m
		At Completion of Drilling	9.75 m
		While Drilling	13.11 m

Station per Proposed Datum = Station per Existing Datum x 3.28 + 27653
 Offset per Proposed Datum = Offset per Existing Datum x 3.28
 Elevation per Proposed Datum = Elevation per Existing Datum x 3.28

T:\151006-1056\Struct.dgn\Box Culvert.dwg Spring Creek 0/161335-60L72-013-SB01.dgn



Station per Proposed Datum = Station per Existing Datum x 3.28 + 27653
 Offset per Proposed Datum = Offset per Existing Datum x 3.28
 Elevation per Proposed Datum = Elevation per Existing Datum x 3.28



Station per Proposed Datum = Station per Existing Datum x 3.28 + 27653
 Offset per Proposed Datum = Offset per Existing Datum x 3.28
 Elevation per Proposed Datum = Elevation per Existing Datum x 3.28

T:\51006-USE\Struct\Boring\Box\Culvert\Spring_Creek\0161335-60L72-014-SB02.dgn

Bench Mark: BM #46 A notch cut in top of N.W. wing wall of US 6/159th St. bridge over Marley Creek. Elev. 686.47.

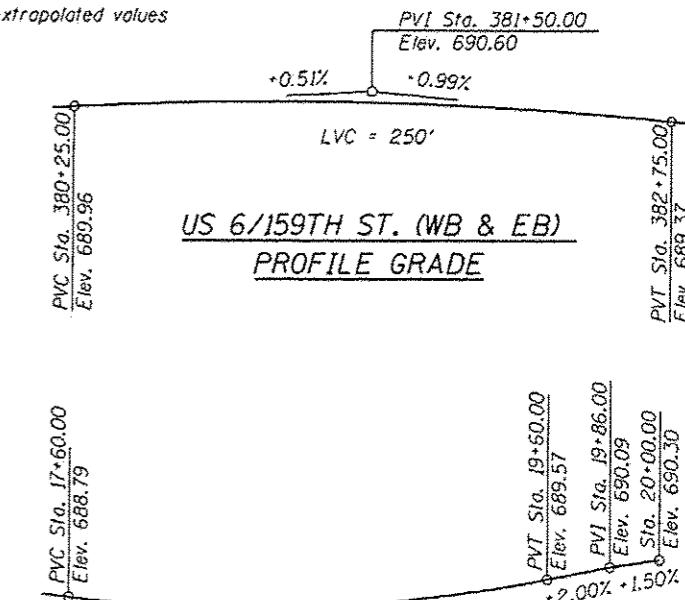
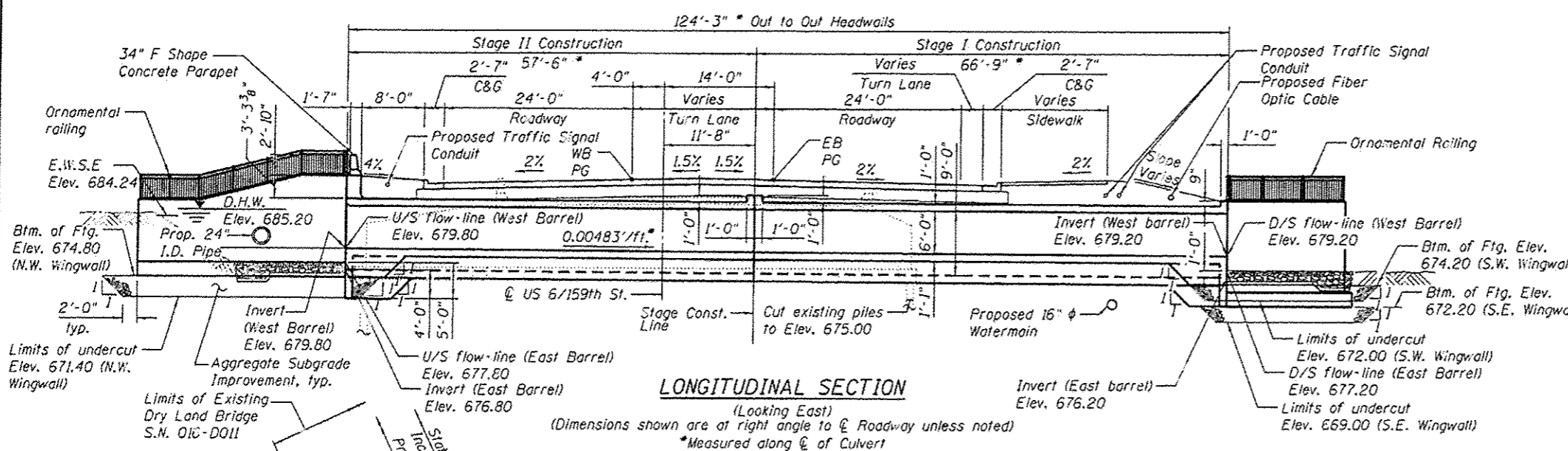
Existing Structure: S.N. 016-0381 built in 1930 consists of one simple span reinforced cast-in-place concrete deck slab measuring approximately 22'-7 1/2" back-to-back of abutments along @ US 6/159th St.. The total structure width varies from 45'-6" to 51'-0" out-to-out of deck. The structure underwent repair and widening in 1989. Structure to be removed and replaced. Traffic to be maintained using stage construction.

No salvage

WATERWAY INFORMATION

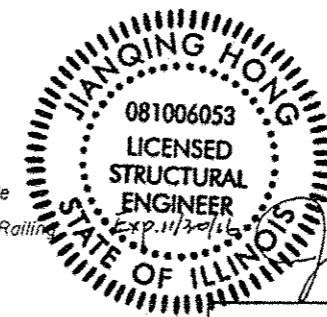
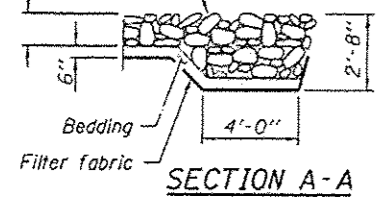
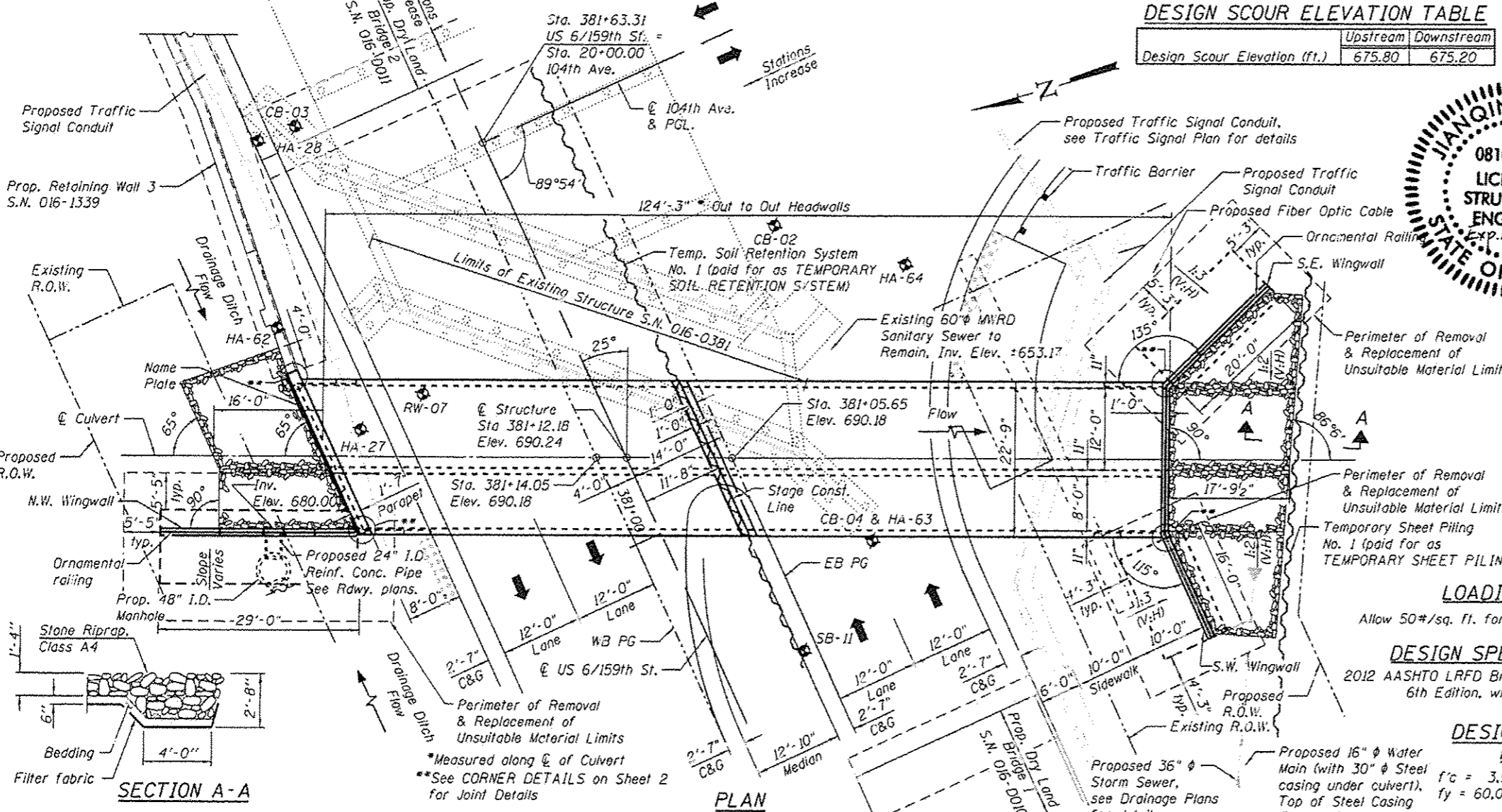
Drainage Area = 2.11 sq. mi.		Existing Low Grade Elev. 686.97 @ Sta. 383+00		Proposed Low Grade Elev. 687.59 @ Sta. 385+00		
Flood	Freq. Yr.	0 C.F.S.	Opening Sq. Ft.	Net. H.W.E.	Head - Ft. Exist. Prop.	Headwater El. Exist. Prop.
	2	7.2	9.9	14.5	679.0	679.0
	10	20	64.4	86.0	682.9	682.9
Design	50	32	95.6	132.0	685.2	685.2
Base	100	34	97.2	144.0	686.9	686.9
Overtopping	500	50	97.2	144.0	691.1	691.1

* Indicates extrapolated values



DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation (ft.)	Upstream	Downstream
	675.80	675.20



STATION 381+12.18
BUILT 2015 BY
STATE OF ILLINOIS
F.A.P. RTE 351-SEC. 2010-081-R
LOADING HL-93
STRUCTURE NO. 016-1334

NAME PLATE
See Std. 515001

LEGEND

◆ Soil boring location

LOADING HL93

Allow 50#/sq. ft. for future wearing surface.

DESIGN SPECIFICATIONS

2012 AASHTO LRFD Bridge Design Specifications, 6th Edition, with 2013 Interims.

DESIGN STRESSES

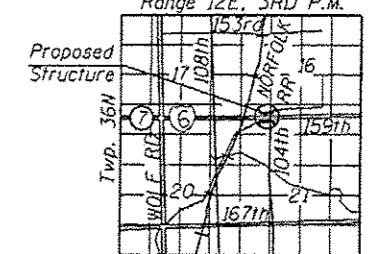
FIELD UNITS

$f'c = 3,500$ psi
 $f_y = 60,000$ psi (Reinforcement)

104TH AVE. PROFILE GRADE
(along @ roadway)

APPROVED
For Structural Adequacy Only

Carl Pappas
Engineer of Bridges & Structures
Range 12E, 3RD P.M.



GENERAL PLAN & ELEVATION
US 6/159TH STREET OVER MARLEY CREEK

F.A.P. RTE 351 - SEC. 2010-081-R

COOK COUNTY

STATION 381+12.18

STRUCTURE NO. 016-1334

LOCHNER
H. W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60608

USER NAME *	DESIGNED - RAB	REVISOR
FILE NAME *	CHECKED - RH	REVISIONS
PLOT SCALE *	DRAWN - RAB	REVISIONS
PLOT DATE *	CHECKED - RH	REVISIONS

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	685
				CONTRACT NO. 60L72
[ILLINOIS] FED. AID PROJECT				

GENERAL NOTES

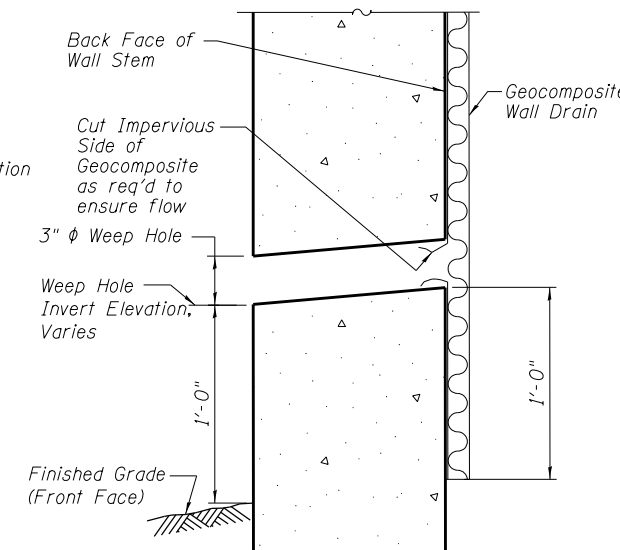
1. Reinforcement bars designated (E) shall be epoxy coated.
2. Protective coat shall be applied to the top and exposed inside vertical faces of parapets.
3. Excavation behind existing abutment walls shall be performed to balance front and back soil pressure before removing the existing superstructure. The Contractor shall sawcut the upper portion of the existing abutment at the stage removal line before Stage I removal to ensure the remaining portion will not be prematurely damaged.
4. Precast culvert will not be allowed.
5. All exposed concrete edges shall be chamfered 3/4" except as noted.
6. The limits and quantities of removal of the existing soil and replacement with the Aggregate Subgrade Improvement materials shown are based on the boring data and may be modified by the District Geotechnical and Field Engineers for variable subsurface conditions encountered in the field.
7. Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
8. For the construction of wingwalls supported by concrete spread footings, soil bearing resistance must be verified in the field by the Engineer during the foundation excavation to ensure the footings are founded on suitable soil with a minimum bearing resistance of 3,700 psf (per distribution of bearing pressure on the effective footing area) after the soil remedial treatments. Actual extents of any soil remedial treatments shall be determined at this time by the Engineer.
9. Slipforming is not allowed for the construction of concrete parapets on top of the box culvert.

INDEX OF SHEETS

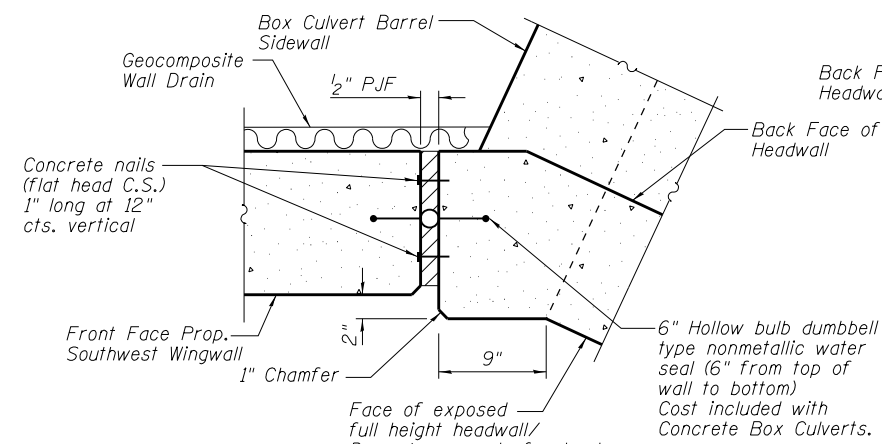
- 1 General Plan And Elevation
- 2 General Notes and Bill of Material
- 3 Temporary Soil Retention System Plan & Elevation
- 4 Stage Construction
- 5 Temporary Concrete Barrier
- 6 Culvert Plan Bottom Slab Details 1
- 7 Culvert Plan Bottom Slab Details 2
- 8 Culvert Plan Top Slab Details 1
- 9 Culvert Plan Top Slab Details 2
- 10 Culvert Sections and Details 1
- 11 Culvert Sections and Details 2
- 12 Culvert Sections and Details 3
- 13 Southwest Wingwall Plan & Elevation
- 14 Southeast Wingwall Plan & Elevation
- 15 Northwest Wingwall Plan & Elevation
- 16 Reinforcing Schedule
- 17 Bar Splicer Assembly
- 18 Soil Boring Logs 1
- 19 Soil Boring Logs 2
- 20 Soil Boring Logs 3
- 21 Soil Boring Logs 4

TOTAL BILL OF MATERIAL

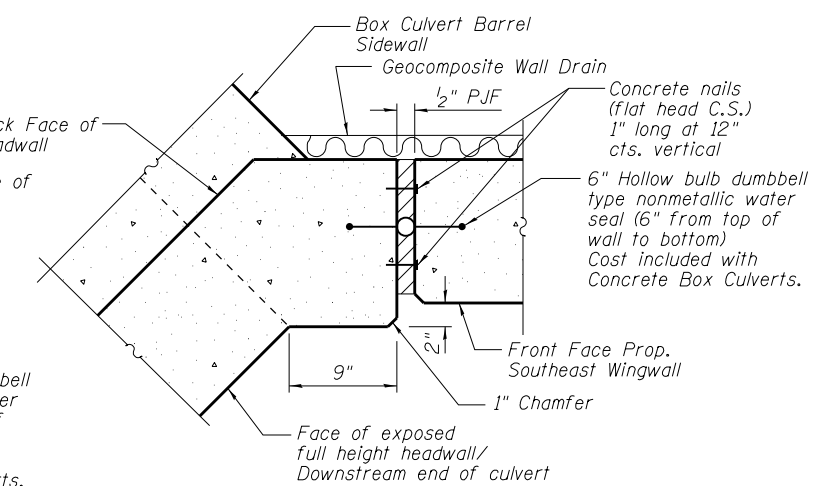
ITEM	UNIT	TOTAL
Aggregate Subgrade Improvement	Cu. Yd.	170
Porous Granular Backfill	Cu. Yd.	72
Stone Riprap, Class A4	Sq. Yd.	135
Filter Fabric	Sq. Yd.	142
Protective Coat	Sq. Yd.	15
Removal Of Existing Structures No. 6	Each	1
Removal And Disposal Of Unsuitable Material For Structures	Cu. Yd.	170
Reinforcement Bars, Epoxy Coated	Pound	89,170
Bar Splicers	Each	193
Concrete Superstructure	Cu. Yd.	3.2
Concrete Box Culverts	Cu. Yd.	424.0
Name Plates	Each	1
Ornamental Railing	Foot	92
Temporary Soil Retention System	Sq. Ft.	1,230
Temporary Sheet Piling	Sq. Ft.	1,946
Geocomposite Wall Drain	Sq. Yd.	33



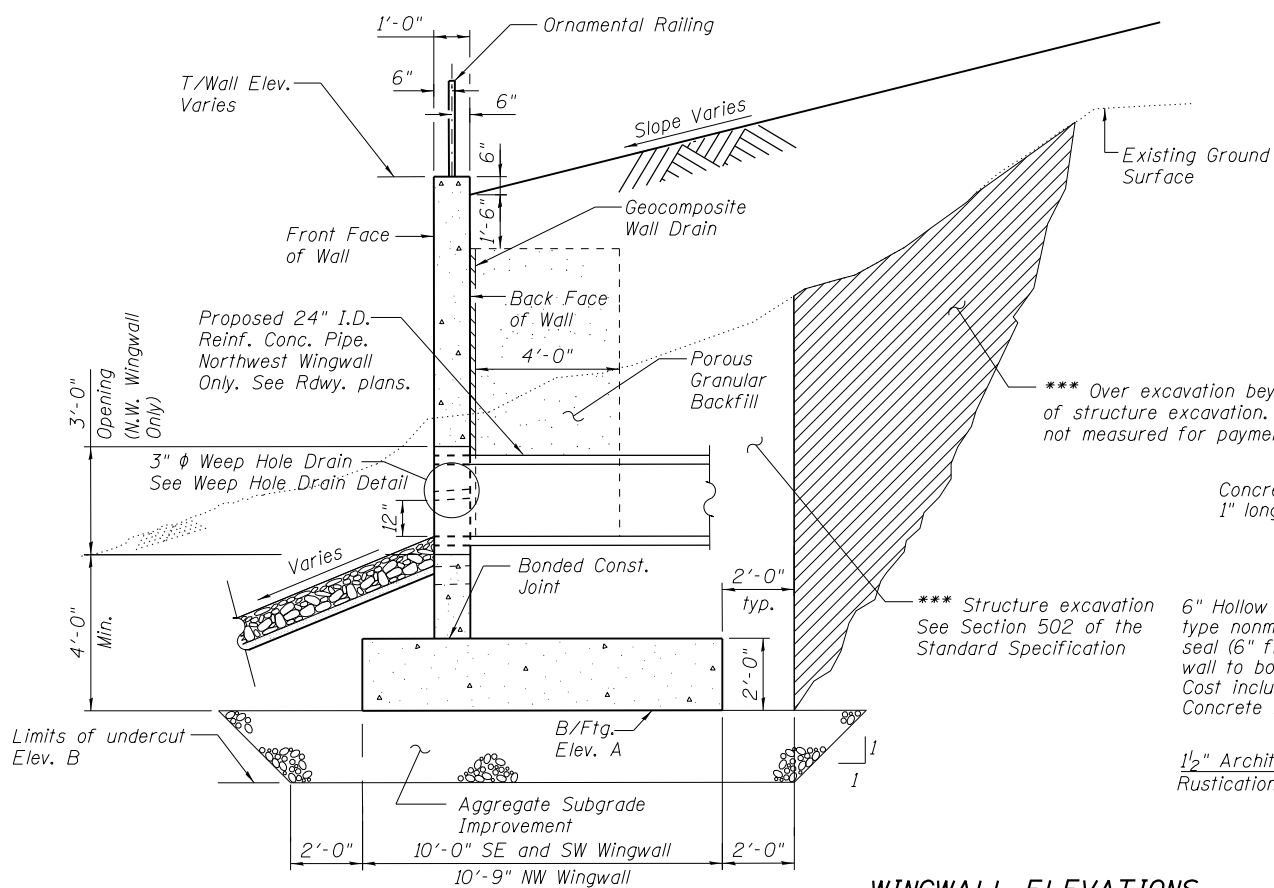
WEEP HOLE DRAIN DETAIL



SOUTHWEST CORNER DETAILS



SOUTHEAST CORNER DETAILS

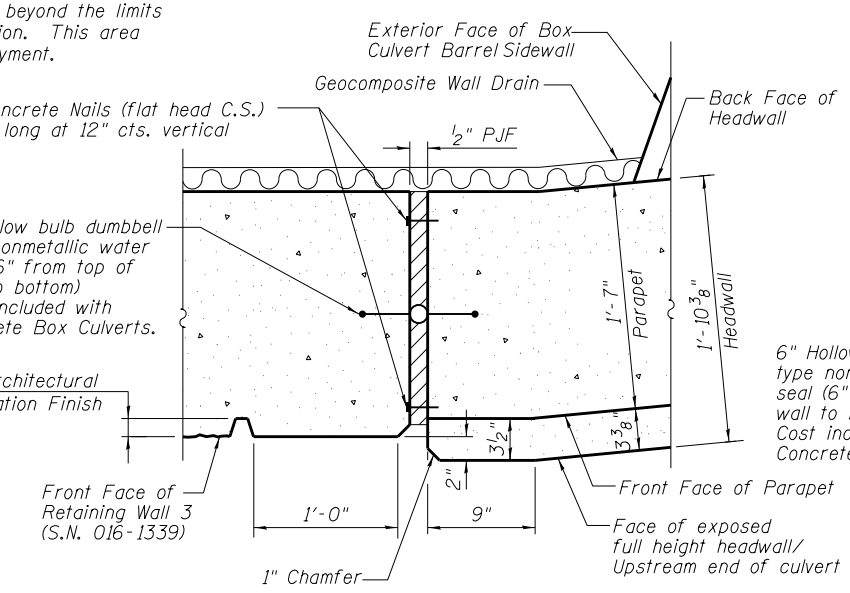


SECTION THRU WINGWALL

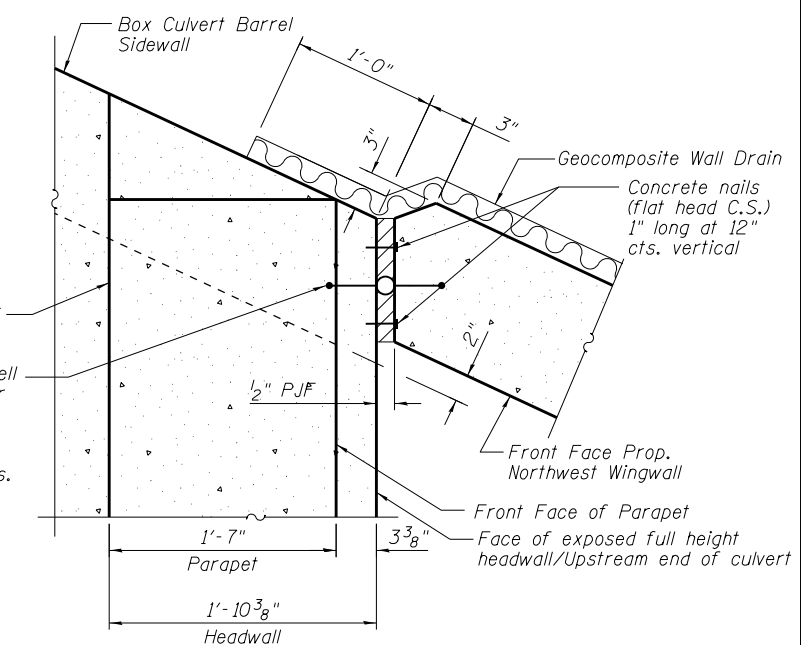
*** Backfill remainder of structure excavation with same material specified for roadway embankment

WINGWALL ELEVATIONS

Wingwall	Elev. A	Elev. B
Southwest	674.20	672.00
Southeast	672.20	669.00
Northwest	674.80	671.40

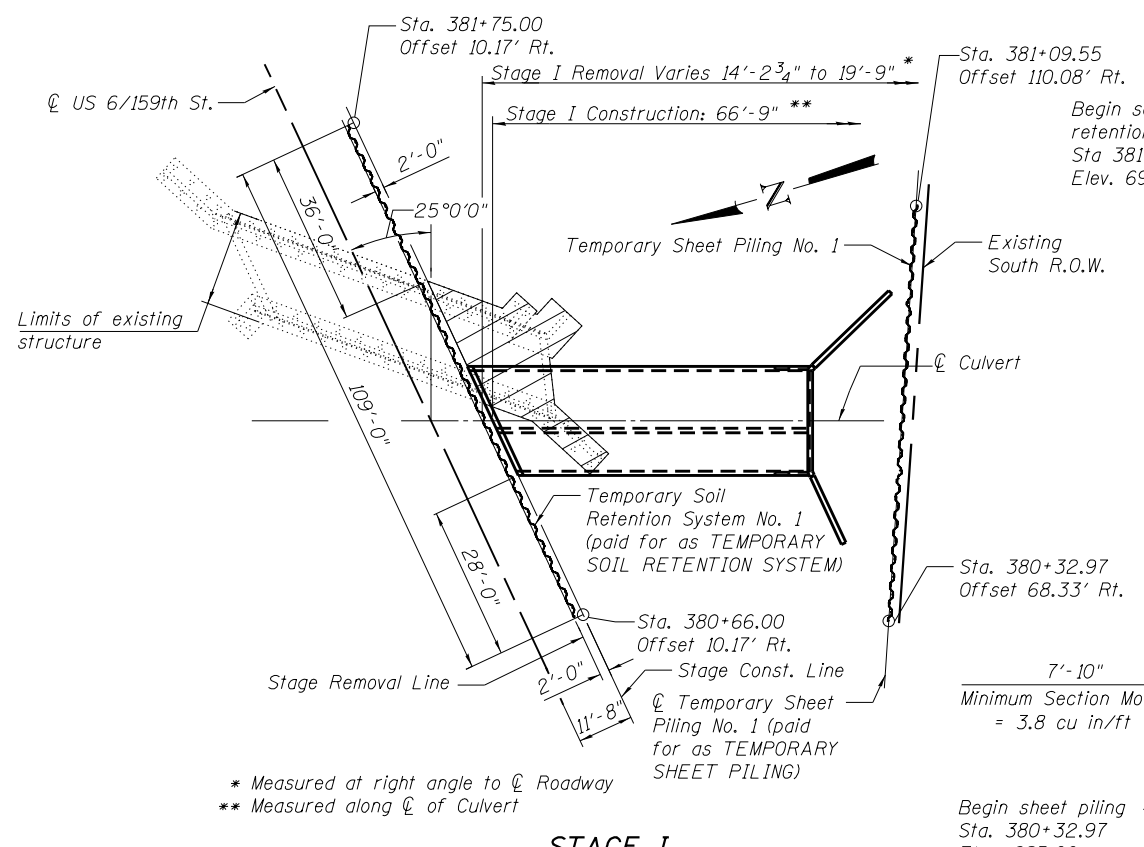


NORTHEAST CORNER DETAILS

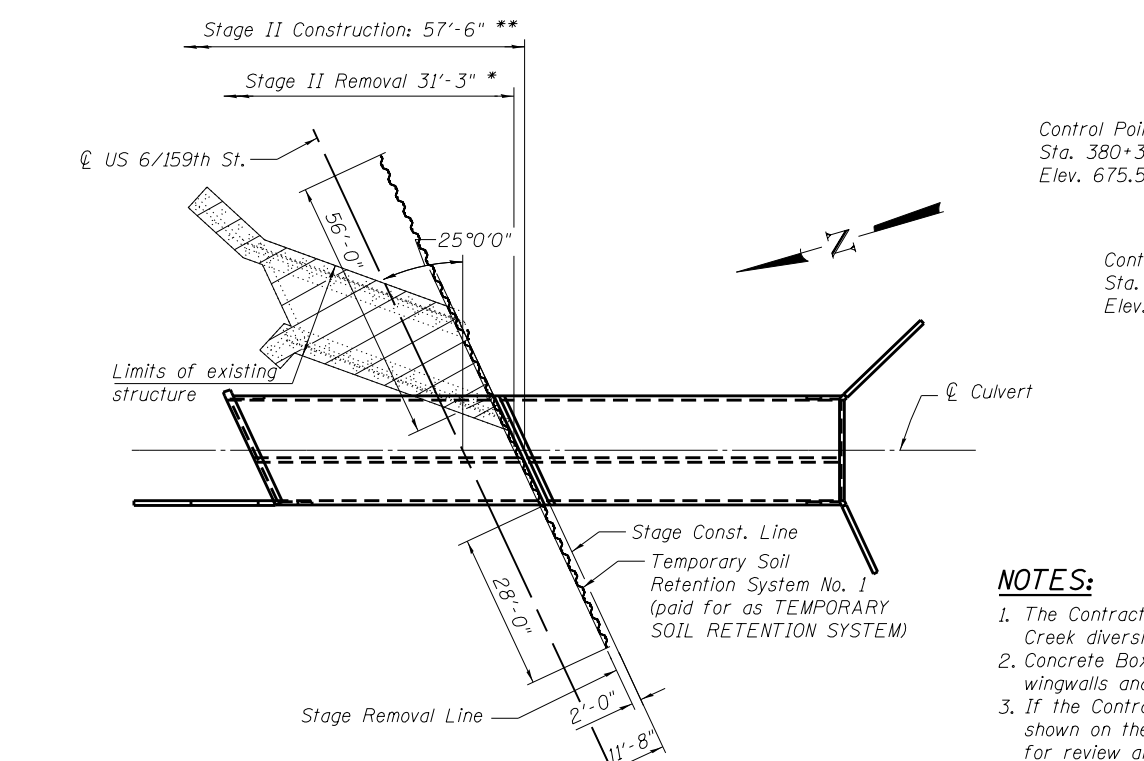


NORTHWEST CORNER DETAILS

T:\15106-0565\Struct\ dgn\Box Culvert\WingWall.dgn



STAGE I

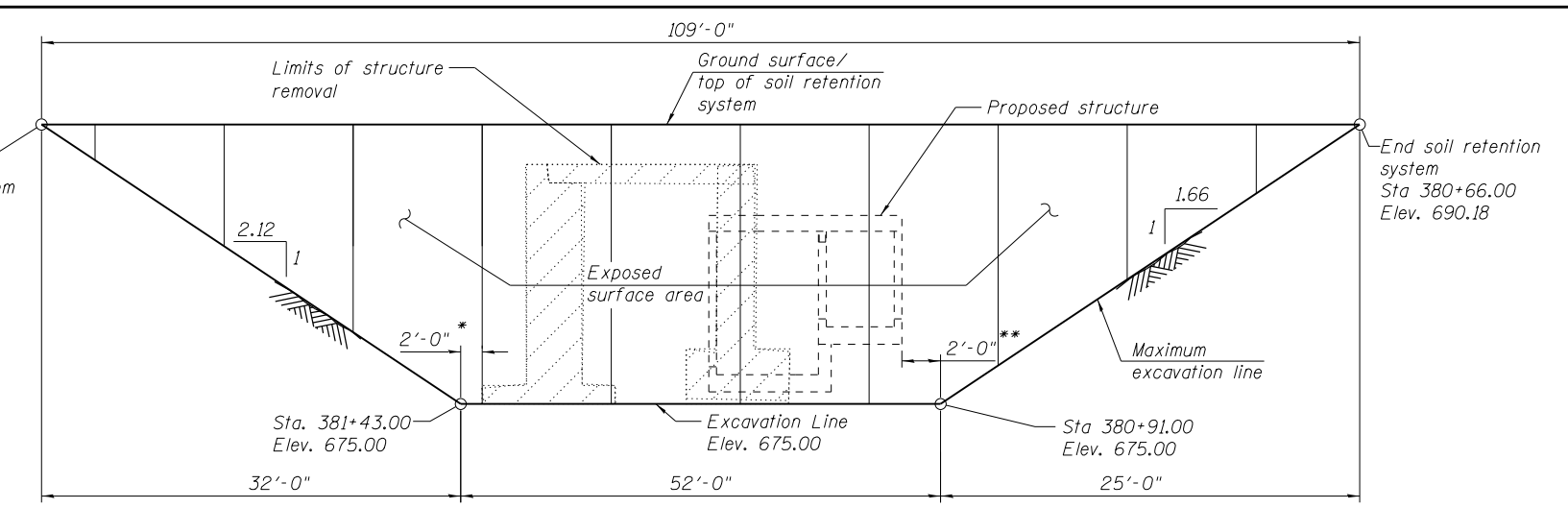


STAGE II

LEGEND
 Removal of Existing Structures

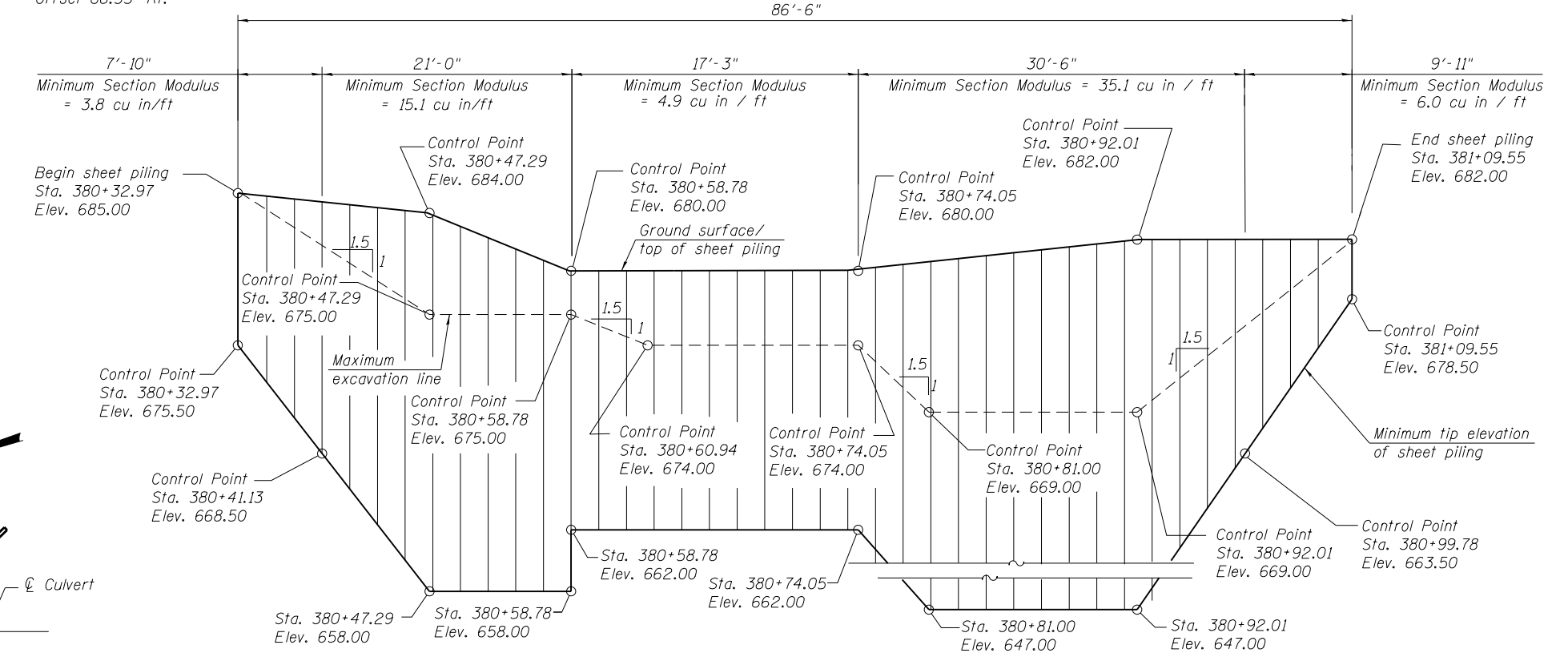
* Measured at right angle to \odot Roadway
 ** Measured along \odot of Culvert

* Measured at right angle to \odot Roadway
 ** Measured along \odot of Culvert



TEMPORARY SOIL RETENTION SYSTEM AT STAGE LINE
ELEVATION
 (Looking South)

* at right angles to \odot existing structure
 ** at right angles to \odot proposed culvert



TEMPORARY SHEET PILING AT SOUTH R.O.W.
ELEVATION
 (Looking North)

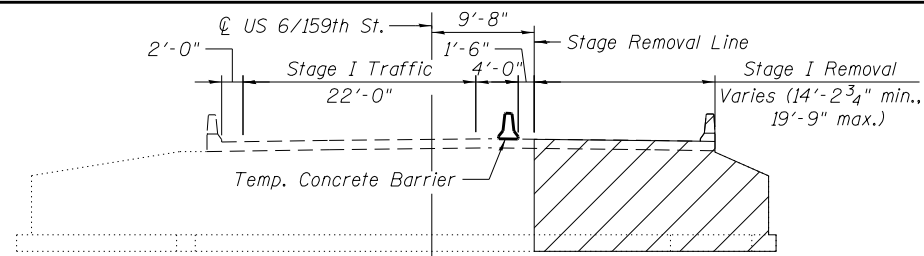
NOTES:

- The Contractor shall coordinate with drainage and utility plans for Marley Creek diversion when installing temporary soil retention system.
- Concrete Box Culvert must be constructed after the placement of the undercut for the wingwalls and prior to the construction of the wingwalls.
- If the Contractor chooses to alter the temporary cantilevered sheet piling design requirements shown on the plans, a design submittal including plan details and calculations will be required for review and acceptance by the Engineer.
- The Contractor shall connect the first sheet to the existing abutment wall to ensure stability of sheets driven to the top of the existing footing. This connection shall be reviewed and accepted by the Engineer and included in the cost for TEMPORARY SOIL RETENTION SYSTEM.
- A cantilevered sheet piling design does not appear feasible at the construction stage line and additional members or other retention systems may be necessary. The Contractor shall submit a temporary soil retention system design including plan details and calculations for review and acceptance by the Engineer.

BILL OF MATERIAL

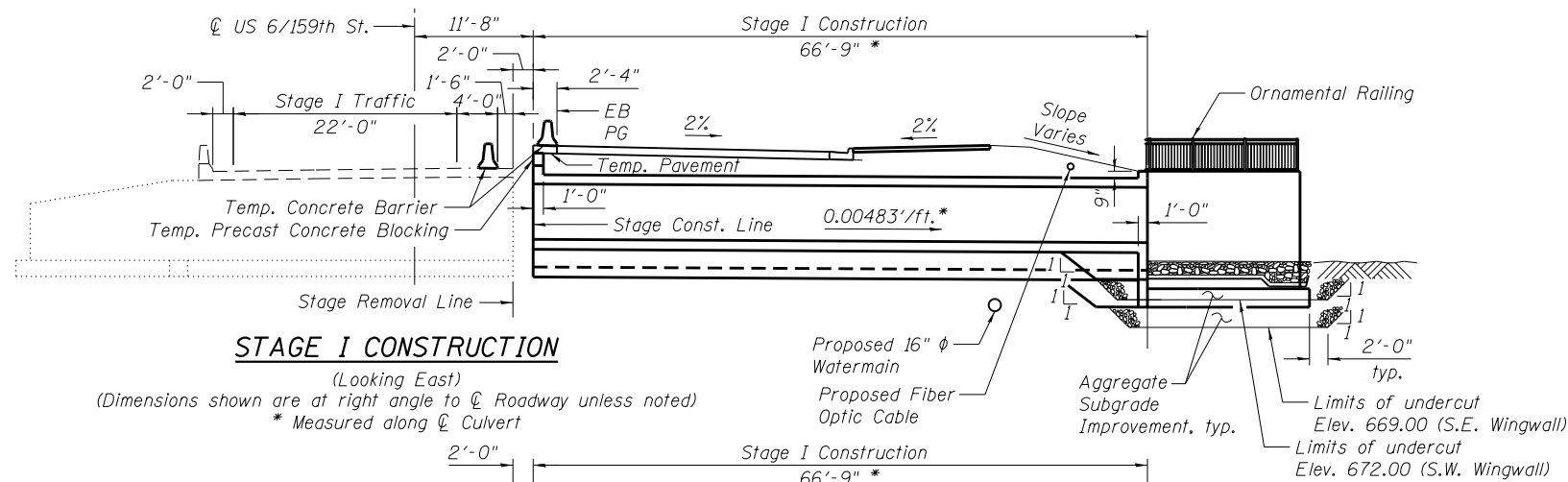
ITEM	UNIT	TOTAL
TEMPORARY SHEET PILING	SQ FT	1,946
TEMPORARY SOIL RETENTION SYSTEM	SQ FT	1,230

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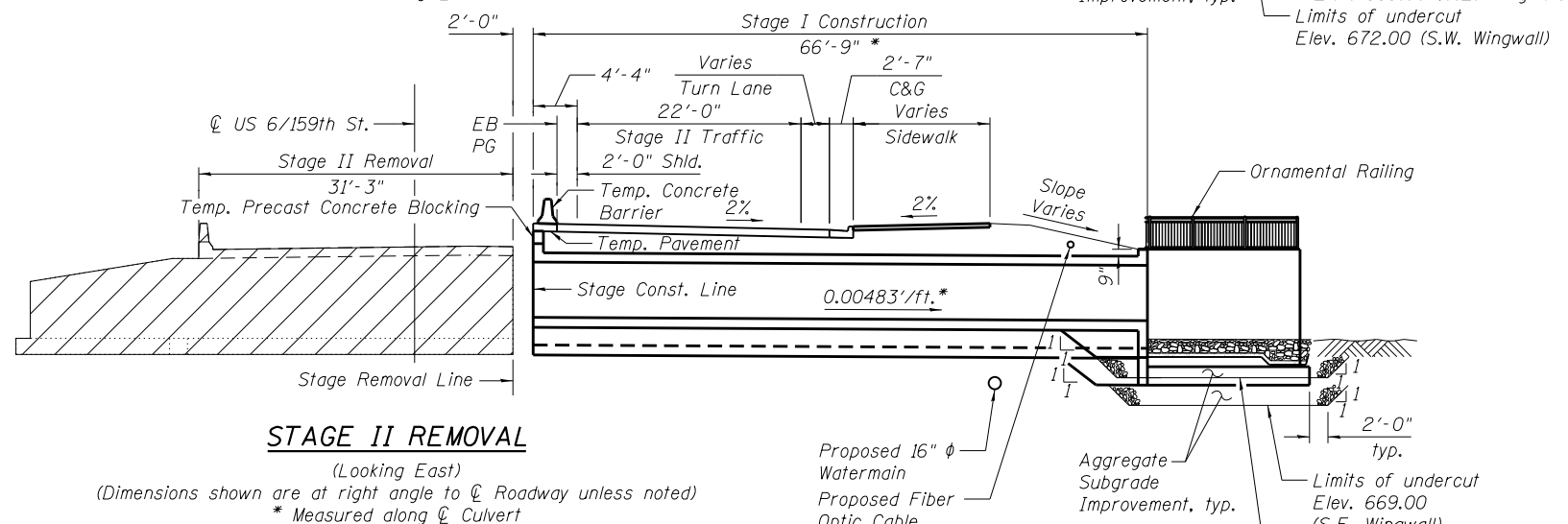
STAGE I REMOVAL

(Looking East)
 (Dimensions shown are at right angle to \odot Roadway unless noted)



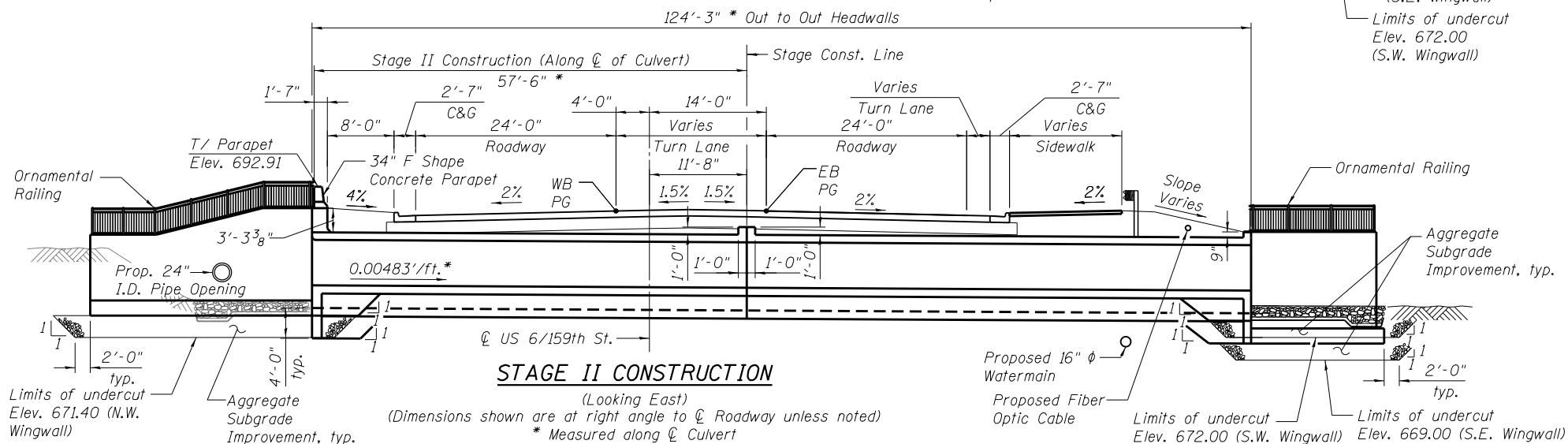
STAGE I CONSTRUCTION

(Looking East)
 (Dimensions shown are at right angle to \odot Roadway unless noted)
 * Measured along \odot Culvert



STAGE II REMOVAL

(Looking East)
 (Dimensions shown are at right angle to \odot Roadway unless noted)
 * Measured along \odot Culvert



STAGE II CONSTRUCTION

(Looking East)
 (Dimensions shown are at right angle to \odot Roadway unless noted)
 * Measured along \odot Culvert

NOTES:

1. For details of temporary concrete barrier, see Sheet 5.
2. For quantity of temporary concrete barrier, see roadway plans.
3. For SECTION THROUGH RIPRAP, see Sheet 11.
4. For limits of Aggregate Subgrade Improvement, see SECTION THROUGH WINGWALL on Sheet 2.

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LOCHNER
 H.W. LOCHNER, INC.
 225 WEST WASHINGTON STREET
 12 TH FLOOR
 CHICAGO, ILLINOIS 60606

USER NAME =
 FILE NAME = 0161334-60L72-084-MD.dgn
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DESIGNED - RAB
 CHECKED - RH
 DRAWN - EF
 CHECKED - RAB

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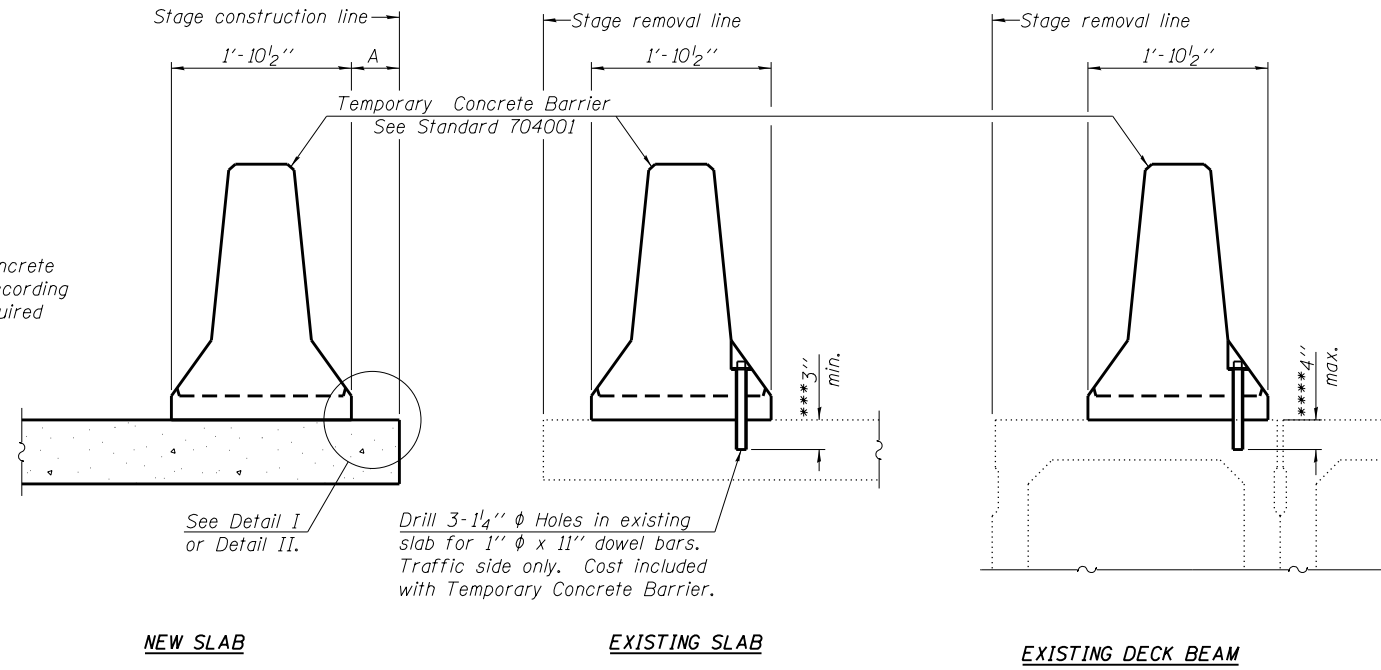
**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**STAGE CONSTRUCTION
 STRUCTURE NO. 016-1334**

SHEET NO. 4 OF 21 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	688
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				

When "A" is 3'-6" or less, the temporary concrete barrier shall be anchored to the new slab according to Detail I or Detail II. No anchorage is required when "A" is greater than 3'-6".



SECTIONS THRU SLAB OR DECK BEAM

NOTES

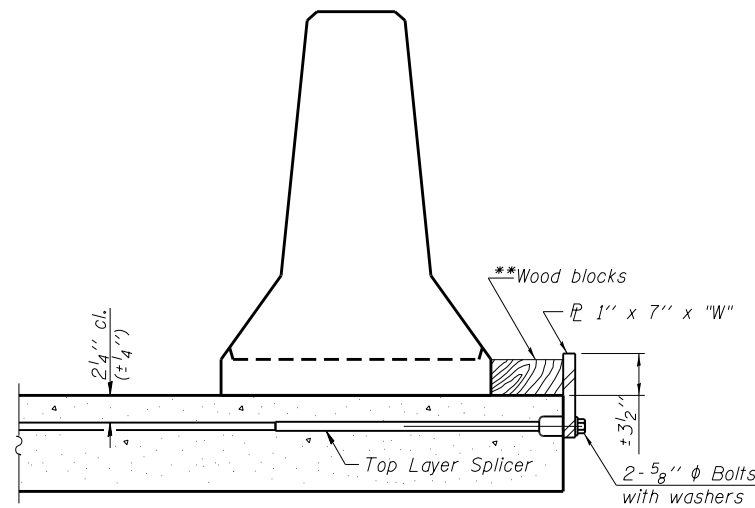
Detail I - With Bar Splicer or Couplers:
Connect one (1) 1" x 7" x "W" steel PL to the top layer of couplers with 2-5/8" φ bolts screwed to coupler at approximate C of each barrier panel.

Detail II - With Extended Reinforcement Bars:
Connect one (1) 1" x 7" x "W" steel PL to the concrete slab or concrete wearing surface with 2-5/8" φ Expansion Anchors or cast in place inserts spaced between the top layer of reinforcement at approximate C of each barrier panel.

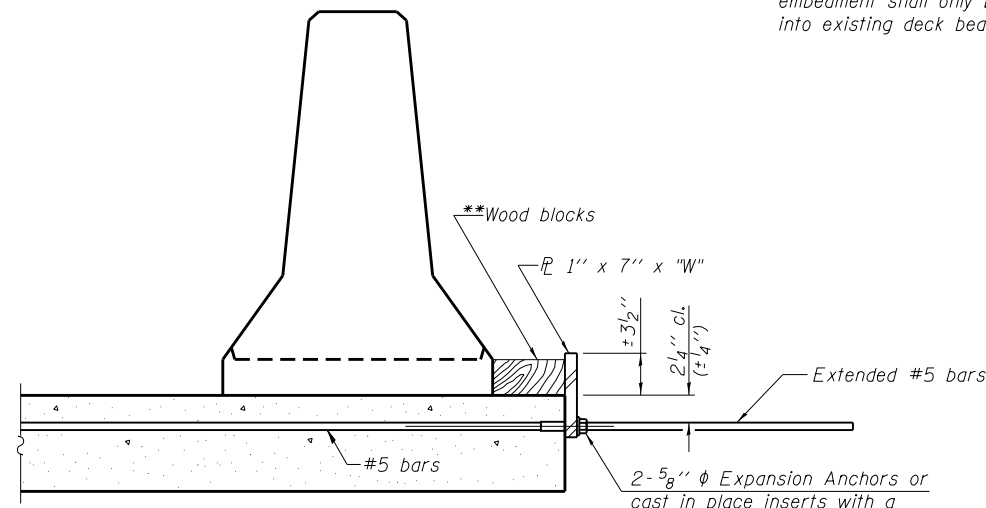
Cost of anchorage is included with Temporary Concrete Barrier. The 1" x 7" x "W" plate shall not be removed until stage II construction forms and all reinforcement bars are in place and the concrete is ready to be placed.

*** Dimension shown is minimum required embedment into concrete. If hot-mix asphalt wearing surface is present, minimum embedment shall be in addition to wearing surface depth.

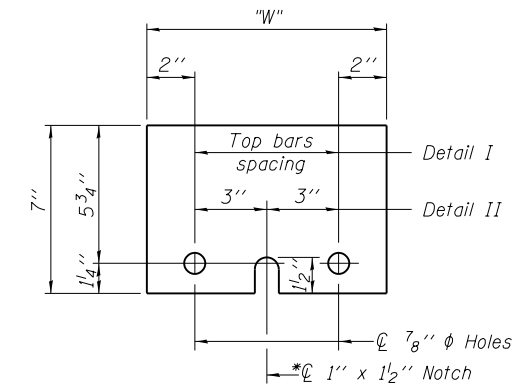
**** If existing deck beam is to remain in place after stage construction, embedment shall only be into wearing surface and not into existing deck beam concrete.



DETAIL I



DETAIL II



STEEL RETAINER PL 1" x 7" x "W"

* Required only with Detail II

** Wood blocks may be omitted when required to provide minimum stage traffic lane width. When the wood blocks are omitted, the concrete barrier shall be in direct contact with the steel retainer plate.

"W" = Top bars spacing + 4"

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R-27

7-1-10

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H. W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

USER NAME =
FILE NAME = 0161334-60L72-005-TC.dgn
PLOT SCALE =
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CHECKED -

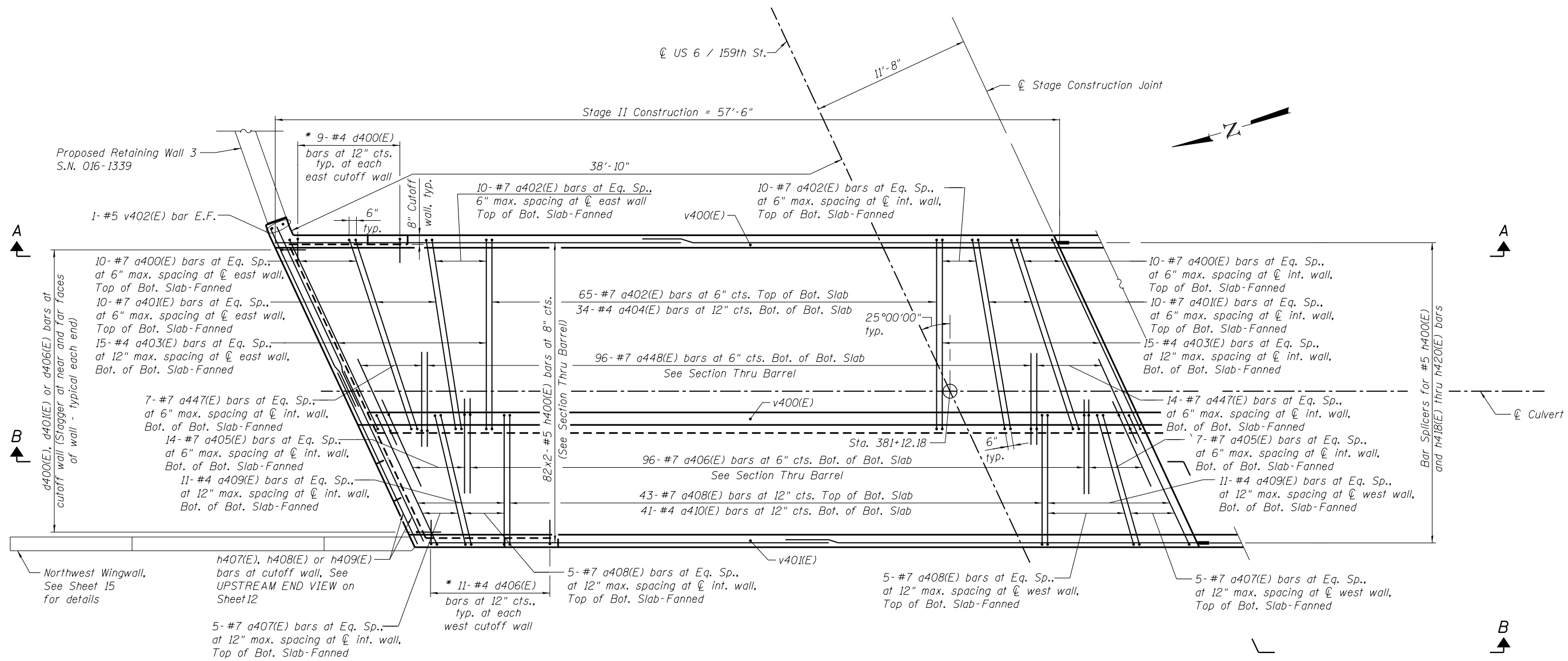
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REVISED
REVISED

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**TEMPORARY CONCRETE BARRIER
STRUCTURE NO. 016-1334**

SHEET NO. 5 OF 21 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	689
			CONTRACT NO. 60L72	
ILLINOIS FED. AID PROJECT				



BOTTOM SLAB - REINFORCEMENT
(Stage II Construction)

* Stagger at near and far faces of wall.

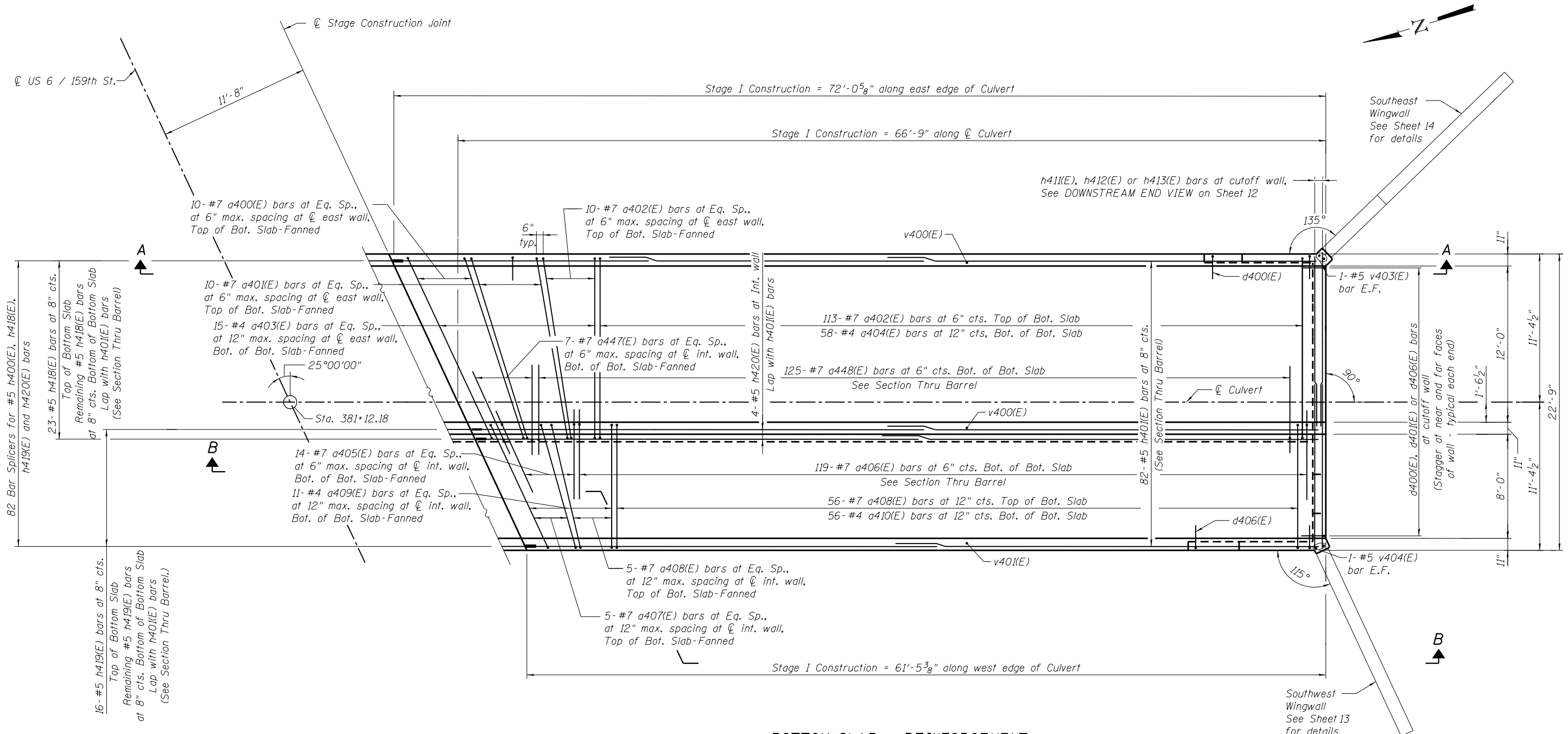
MINIMUM BAR LAP
(Slab)
#4 bar = 2'-7"
#5 bar = 3'-3"
#6 bar = 3'-10"
#7 bar = 5'-2"

LEGEND
B.F. - Denotes Back Face
Bot. - Denotes Bottom
Eq. Sp. - Denotes Equally Spaced
E.F. - Denotes Each Face

NOTES:
1. Bars indicated thus 33x2-#5 etc. indicates 33 lines of bars with 2 lengths per line.
2. See Sheet 8 for Top Slab Reinforcement.
3. See Sheet 10 thru 12 for Culvert Sections and Details.
4. See Sheets 13 thru 15 for wingwall details.
5. For bar list, reinforcement field cutting diagrams and bar bend details see Sheet 16.

T:\15106-1056\Struct\Box\Culvert\WingWall\Creek\0161334-60L72-006-DP.dgn

LOCHNER H.W. LOCHNER, INC. 225 WEST WASHINGTON STREET 12 TH FLOOR CHICAGO, ILLINOIS 60606	USER NAME = FILE NAME = 0161334-60L72-006-DP.dgn PLOT SCALE = PLOT DATE =	DESIGNED - RAB CHECKED - RH DRAWN - EF CHECKED - RAB	REVISED REVISED REVISED REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	CULVERT PLAN BOTTOM SLAB DETAILS 1 STRUCTURE NO. 016-1334 SHEET NO. 6 OF 21 SHEETS	F.A.P. RTE. = 351 SECTION = 2010-081-R COUNTY = COOK TOTAL SHEETS = 1045 SHEET NO. = 690 CONTRACT NO. 60L72	ILLINOIS FED. AID PROJECT
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BOTTOM SLAB - REINFORCEMENT
(Stage I Construction)

MINIMUM BAR LAP

- (Slab)
- #4 bar = 2'-7"
 - #5 bar = 3'-3"
 - #5 bar (Top) = 3'-8"
 - #6 bar = 3'-10"
 - #7 bar = 5'-2"

LEGEND

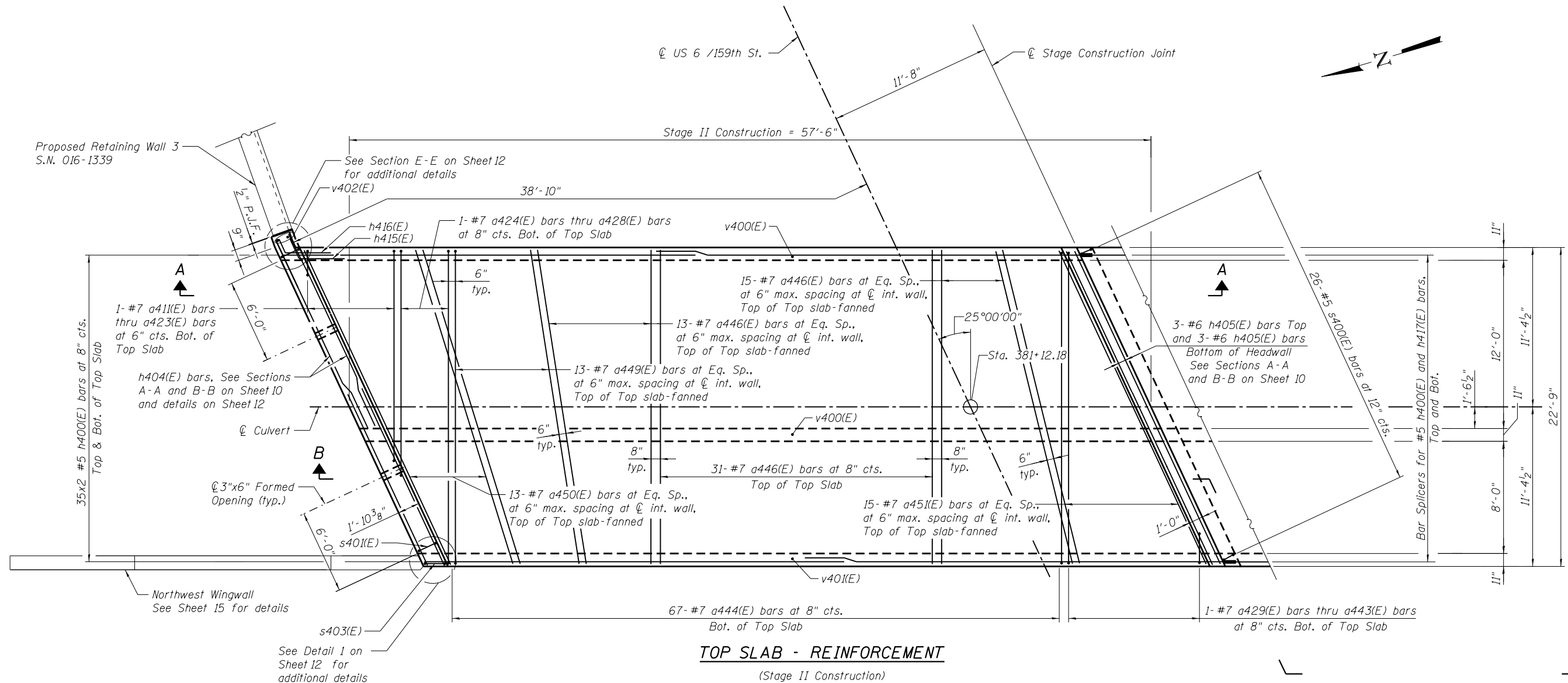
- B.F. - Denotes Back Face
- Bot. - Denotes Bottom
- Eq. Sp. - Denotes Equally Spaced
- E.F. - Denotes Each Face

NOTES:

1. Bars indicated thus 33x3-#5 etc. indicates 33 lines of bars with 3 lengths per line.
2. See Sheet 9 for Top Slab Reinforcement.
3. See Sheet 10 thru 12 for Culvert Sections and Details.
4. See Sheets 13 thru 15 for wingwall details.
5. For bar list, reinforcement field cutting diagrams and bar bend details see Sheet 16.

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LOCHNER H. W. LOCHNER, INC. 225 WEST WASHINGTON STREET 12 TH FLOOR CHICAGO, ILLINOIS 60606	USER NAME =	DESIGNED - RAB	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	CULVERT PLAN BOTTOM SLAB DETAILS 2 STRUCTURE NO. 016-1334	F.A.P. R.T.E. =	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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	PLOT DATE =	CHECKED - RAB	REVISED			ILLINOIS FED. AID PROJECT				



MINIMUM BAR LAP

- (Slab)
- #4 bar = 2'-7"
 - #5 bar = 3'-3"
 - #6 bar = 3'-10"
 - #6 bar (Top) = 4'-5"
 - #7 bar = 5'-2"

LEGEND

- B.F. - Denotes Back Face
- Bot. - Denotes Bottom
- Eq. Sp. - Denotes Equally Spaced
- E.F. - Denotes Each Face

NOTES:

1. Bars indicated thus 27x2-#5 etc. indicates 27 lines of bars with 2 lengths per line.
2. See Sheet 6 for Bottom Slab Reinforcement.
3. See Sheet 10 thru 12 for Culvert Sections and Details.
4. See Sheets 13 thru 15 for wingwall details.
5. For bar list, reinforcement field cutting diagrams and bar bend details see Sheet 16.

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LOCHNER
 H.W. LOCHNER, INC.
 225 WEST WASHINGTON STREET
 12 TH FLOOR
 CHICAGO, ILLINOIS 60606

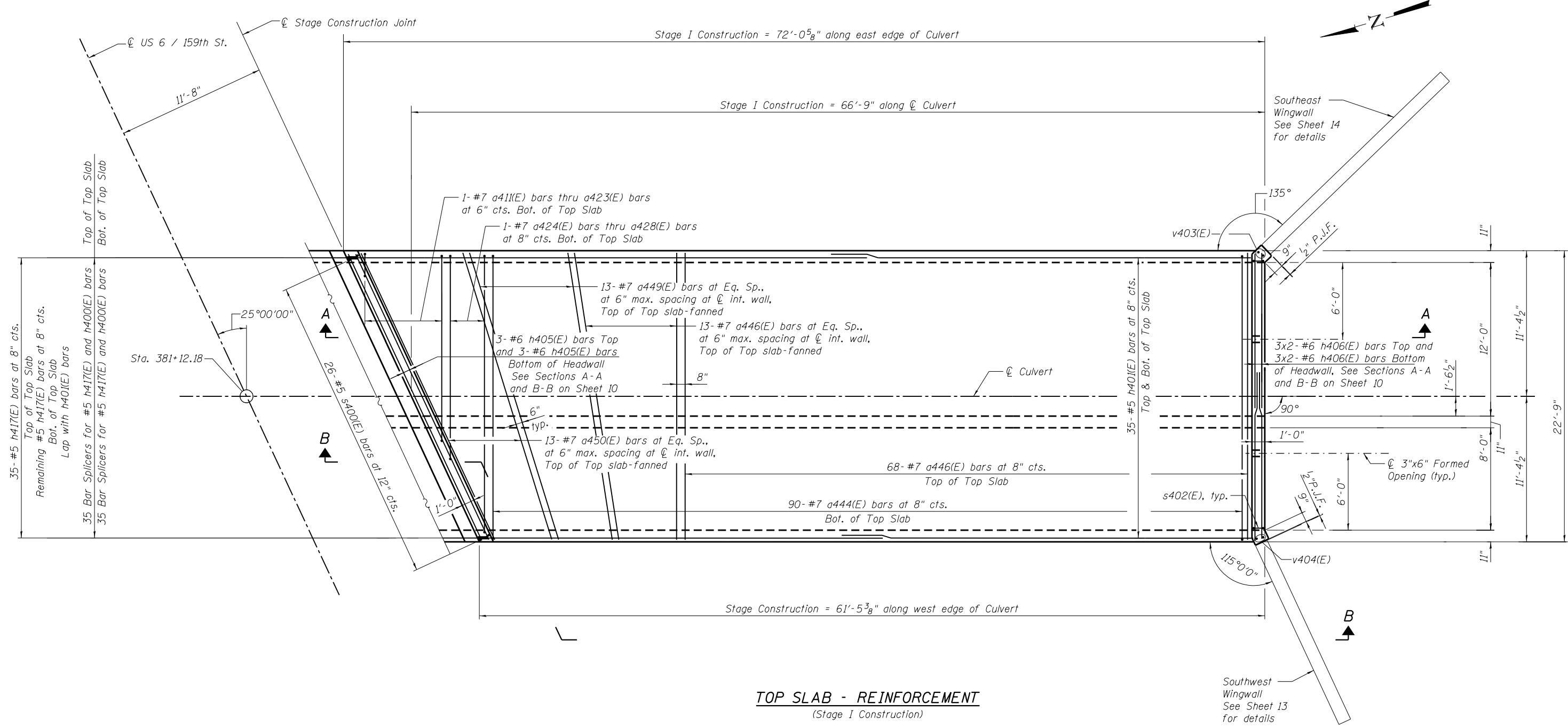
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PLOT DATE =	CHECKED - RAB	REVISED

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**CULVERT PLAN TOP SLAB DETAILS 1
 STRUCTURE NO. 016-1334**

SHEET NO. 8 OF 21 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	692
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



TOP SLAB - REINFORCEMENT
(Stage I Construction)

MINIMUM BAR LAP

(Slab)

- #4 bar = 2'-7"
- #5 bar = 3'-3"
- #6 bar = 3'-10"
- #6 bar (Top) = 4'-5"
- #7 bar = 5'-2"

LEGEND

- B.F. - Denotes Back Face
- Bot. - Denotes Bottom
- Eq. Sp. - Denotes Equally Spaced
- E.F. - Denotes Each Face

NOTES:

1. Bars indicated thus 27x3-#5 etc. indicates 27 lines of bars with 3 lengths per line.
2. See Sheet 7 for Bottom Slab Reinforcement.
3. See Sheet 10 thru 12 for Culvert Sections and Details.
4. See Sheets 13 thru 15 for wingwall details.
5. For bar list, reinforcement field cutting diagrams and bar bend details see Sheet 16.

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225 WEST WASHINGTON STREET
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CHICAGO, ILLINOIS 60606

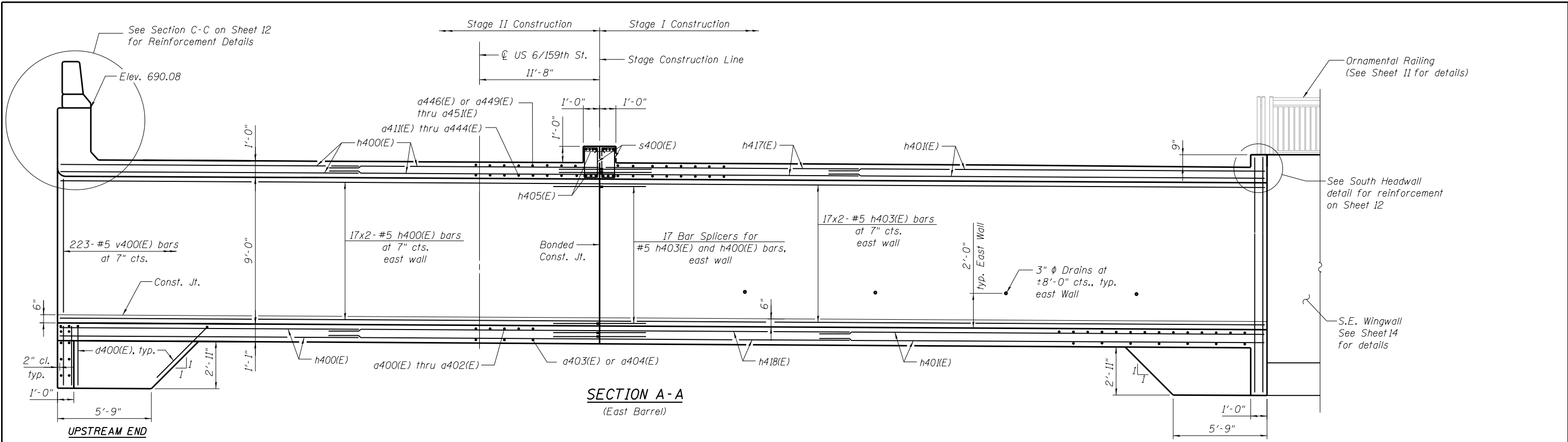
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**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

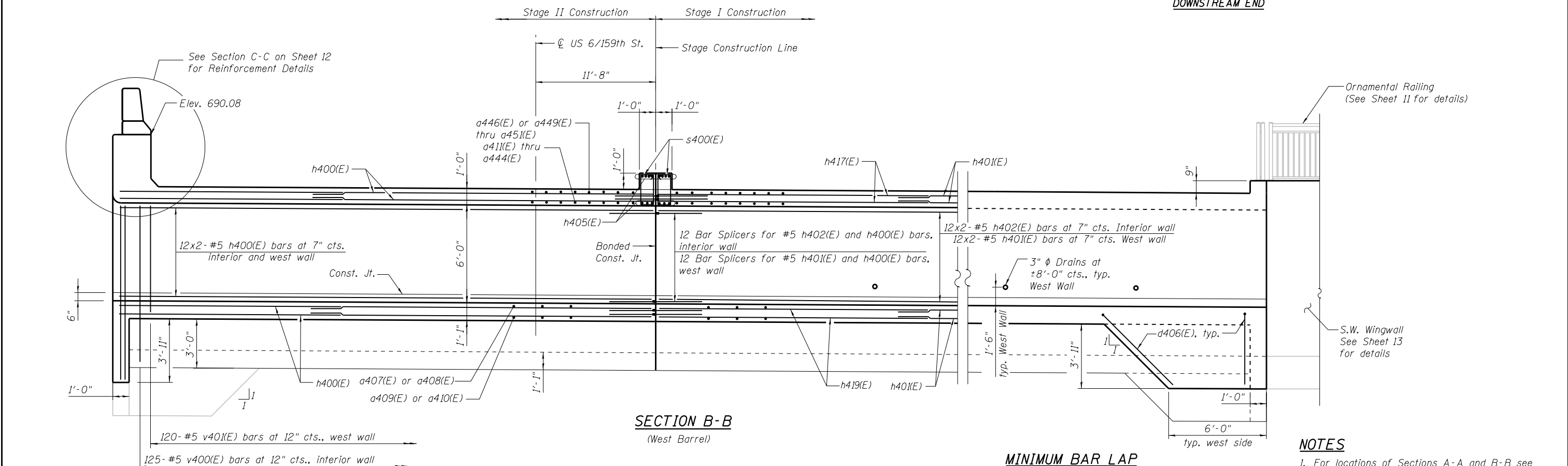
**CULVERT PLAN TOP SLAB DETAILS 2
STRUCTURE NO. 016-1334**

SHEET NO. 9 OF 21 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	693
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



SECTION A-A
(East Barrel)



SECTION B-B
(West Barrel)

LEGEND
 B.F. - Denotes Back Face
 Bof. - Denotes Bottom
 Eq. Sp. - Denotes Equally Spaced
 E.F. - Denotes Each Face

MINIMUM BAR LAP
 (Slab)
 #4 bar = 2'-7"
 #5 bar = 3'-3"
 #5 bar (Top) = 3'-8"
 #6 bar = 3'-10"
 #7 bar = 5'-2"

- NOTES**
1. For locations of Sections A-A and B-B see Sheets 6 thru 9.
 2. Bars indicated thus 20x3-#5 etc. indicates 20 lines of bars with 3 lengths per line.
 3. See Sheets 13 thru 15 for wingwall details.
 4. For bar list, reinforcement field cutting diagrams and bar bend details see Sheet 16.

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LOCHNER
 H.W. LOCHNER, INC.
 225 WEST WASHINGTON STREET
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 CHICAGO, ILLINOIS 60606

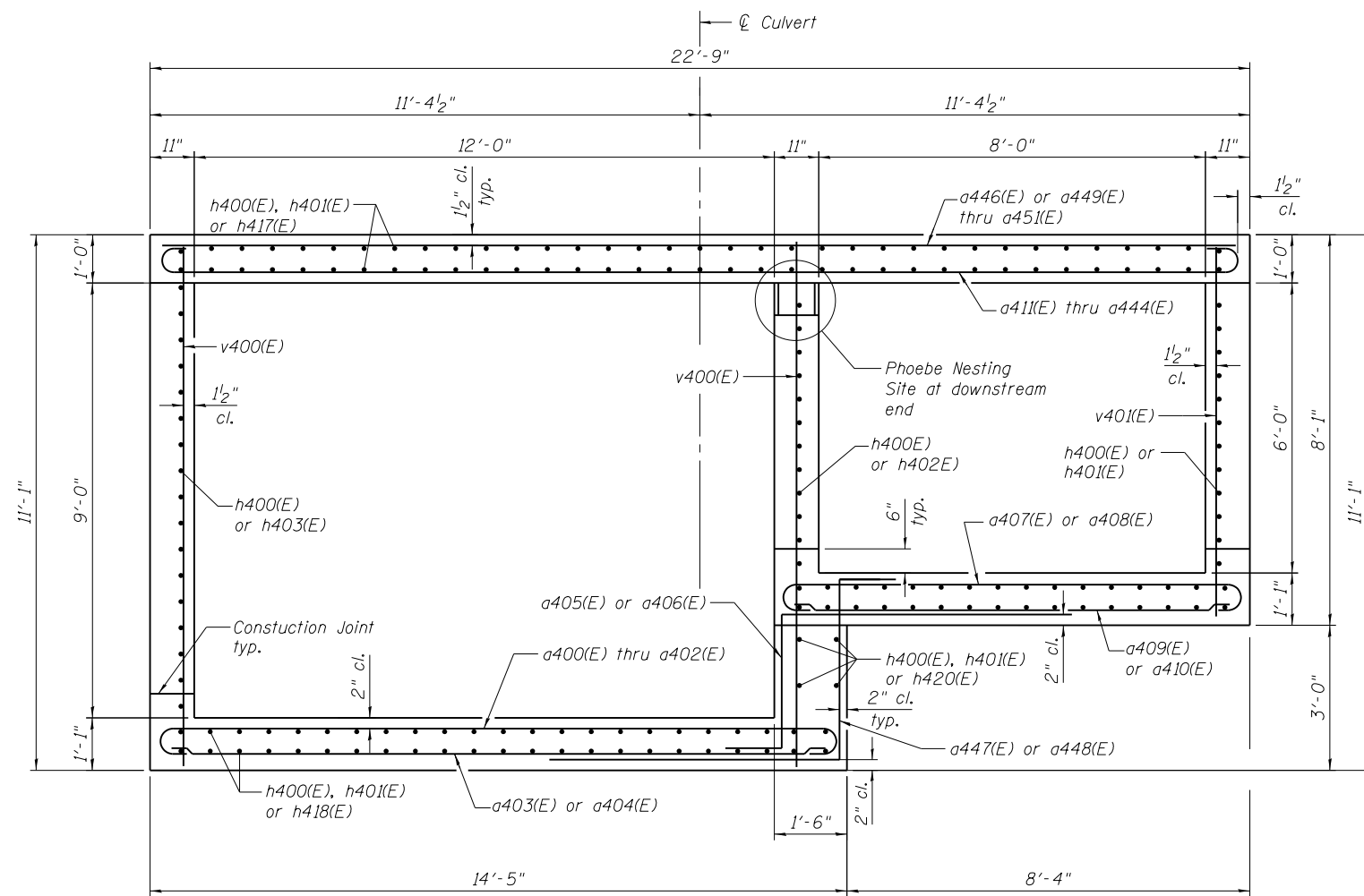
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PLOT DATE =	CHECKED - RAB	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CULVERT SECTIONS AND DETAILS 1
STRUCTURE NO. 016-1334

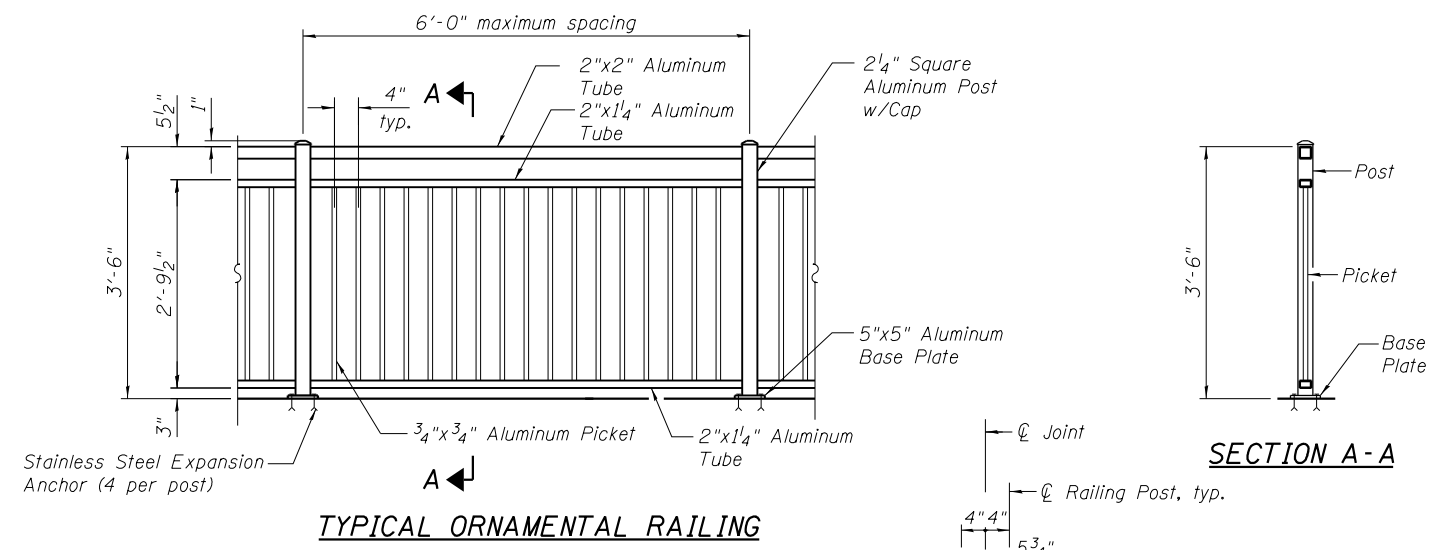
SHEET NO. 10 OF 21 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	694
CONTRACT NO. 60L72				
ILLINOIS FED. AID PROJECT				



SECTION THRU BARREL

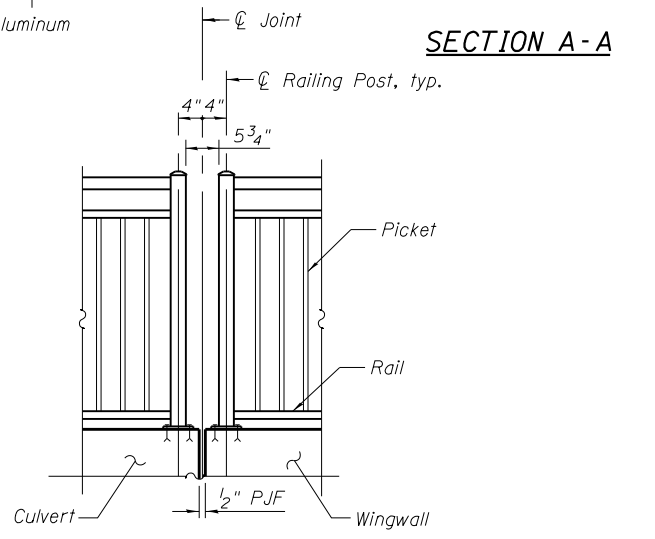
(@ Rt. L's to \varnothing Culvert)
(showing reinforcement)



TYPICAL ORNAMENTAL RAILING

NOTE:

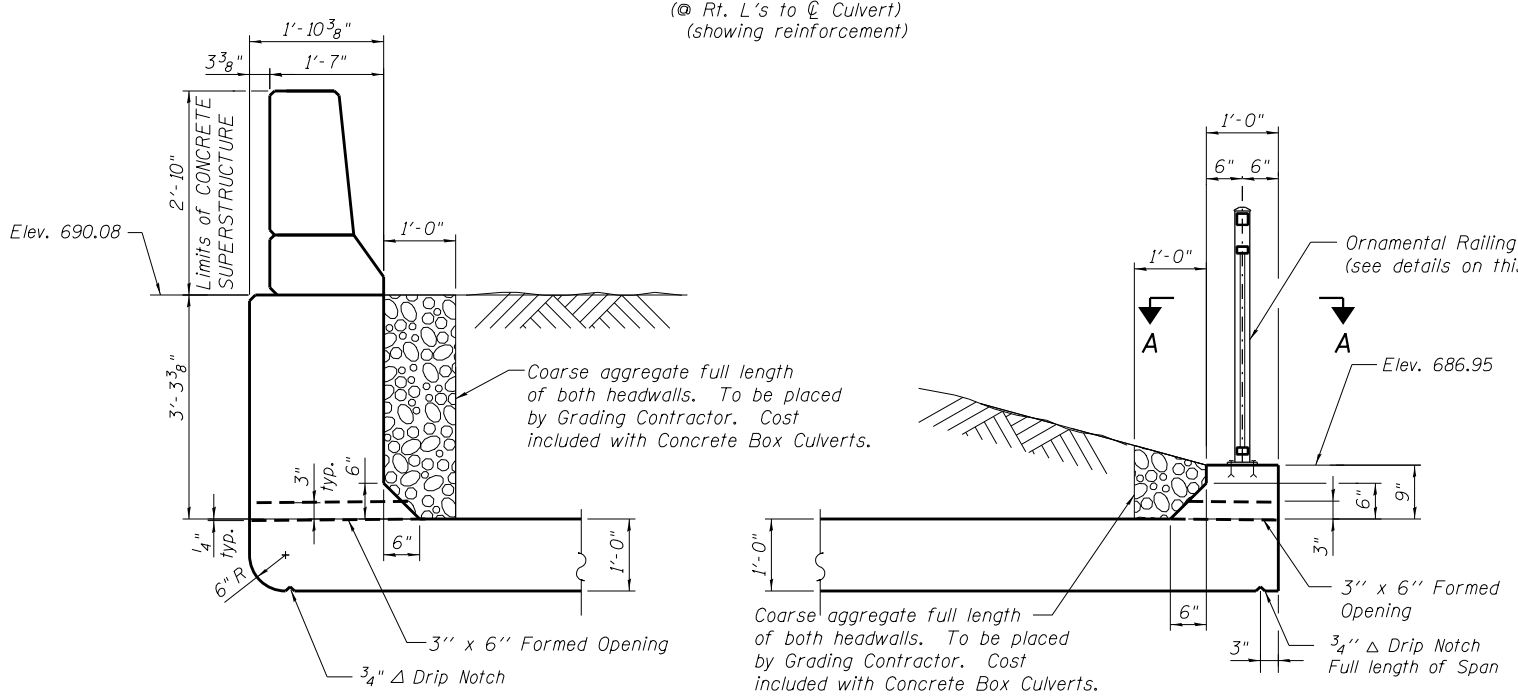
1. The calculations of ornamental railing shall be prepared by a Structural Engineer hired by the contractor in accordance with the design criteria as outlined in the project specifications and must be submitted to the Engineer for approval.



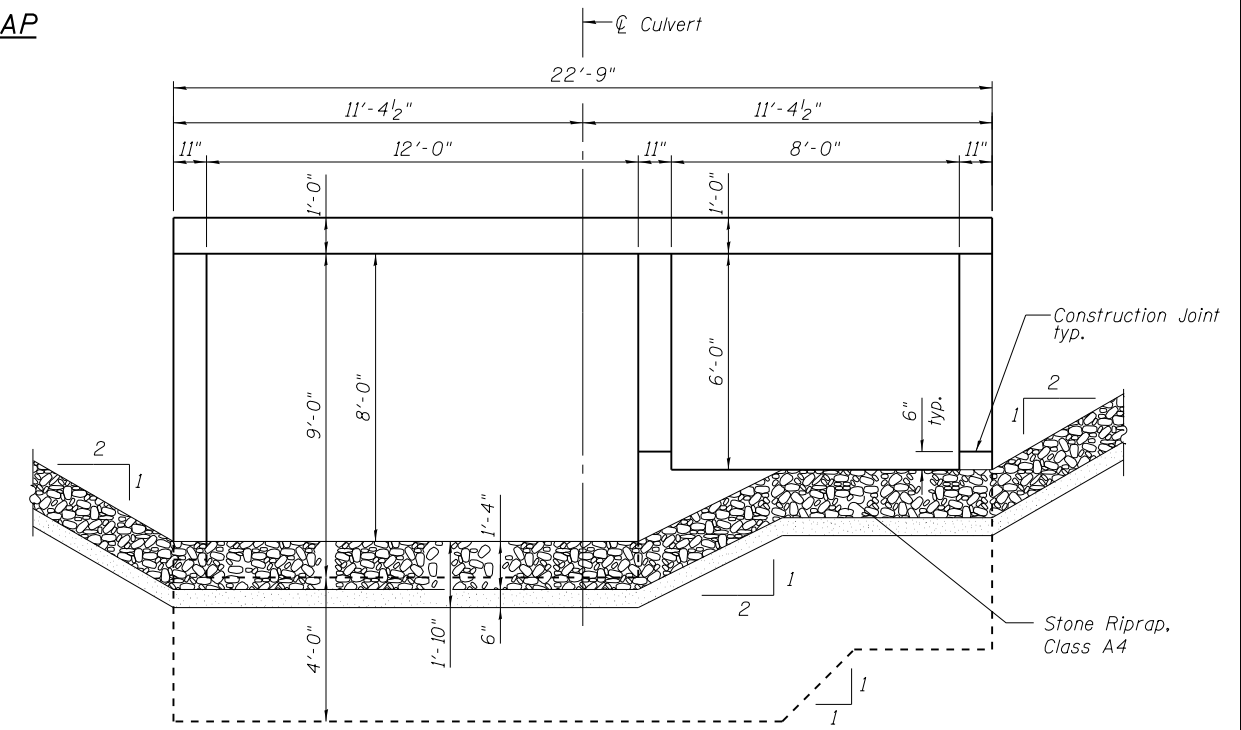
WINGWALL AND CULVERT EXPANSION JOINT DETAILS

MINIMUM BAR LAP

- (Slab)
- #4 bar = 2'-7"
 - #5 bar = 3'-3"
 - #6 bar = 3'-10"
 - #7 bar = 5'-2"



SECTION AT HEADWALL & DRAIN DETAIL



SECTION THRU RIPRAP

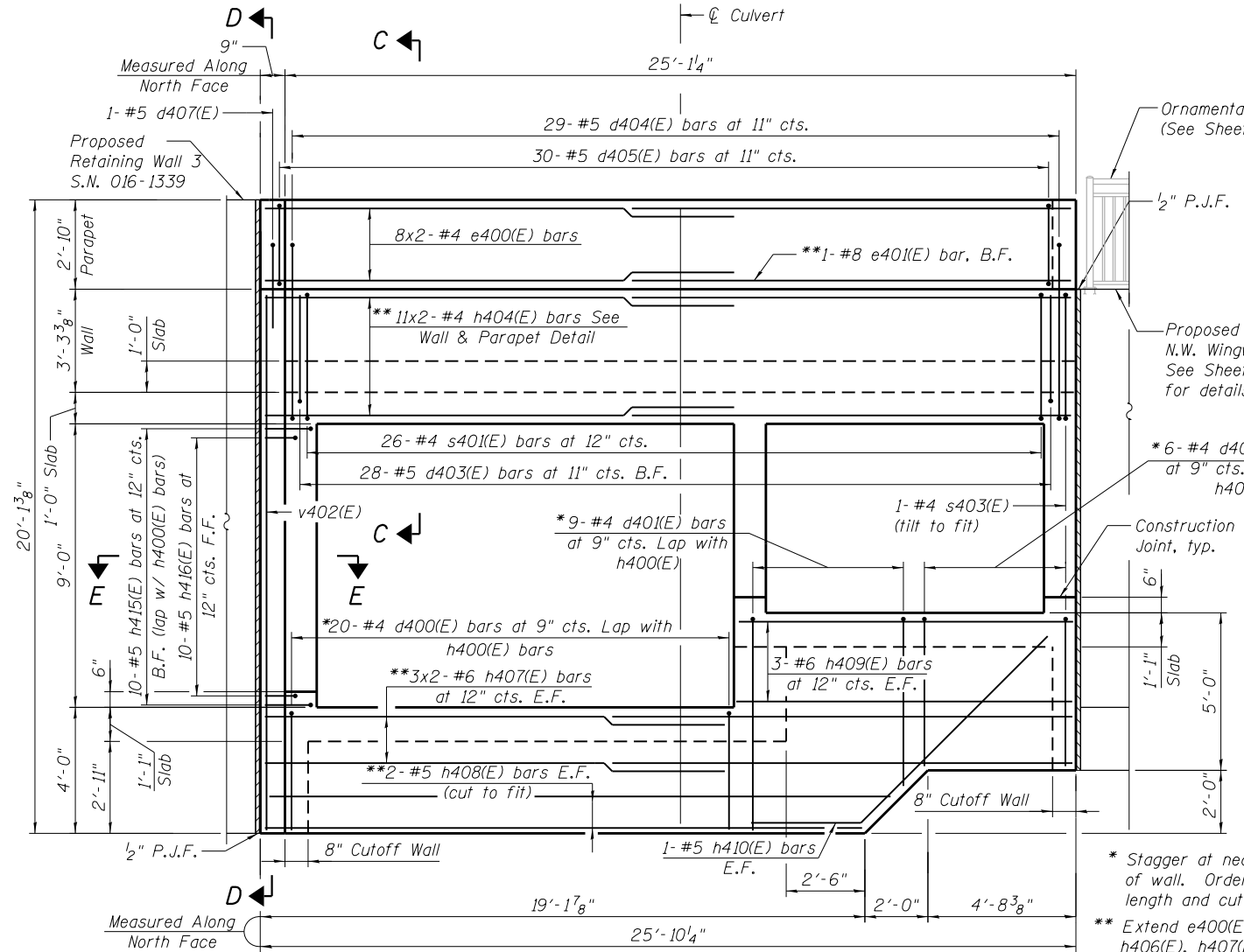
(@ Rt. L's to \varnothing Culvert)
(South End shown, North End similar)

LEGEND

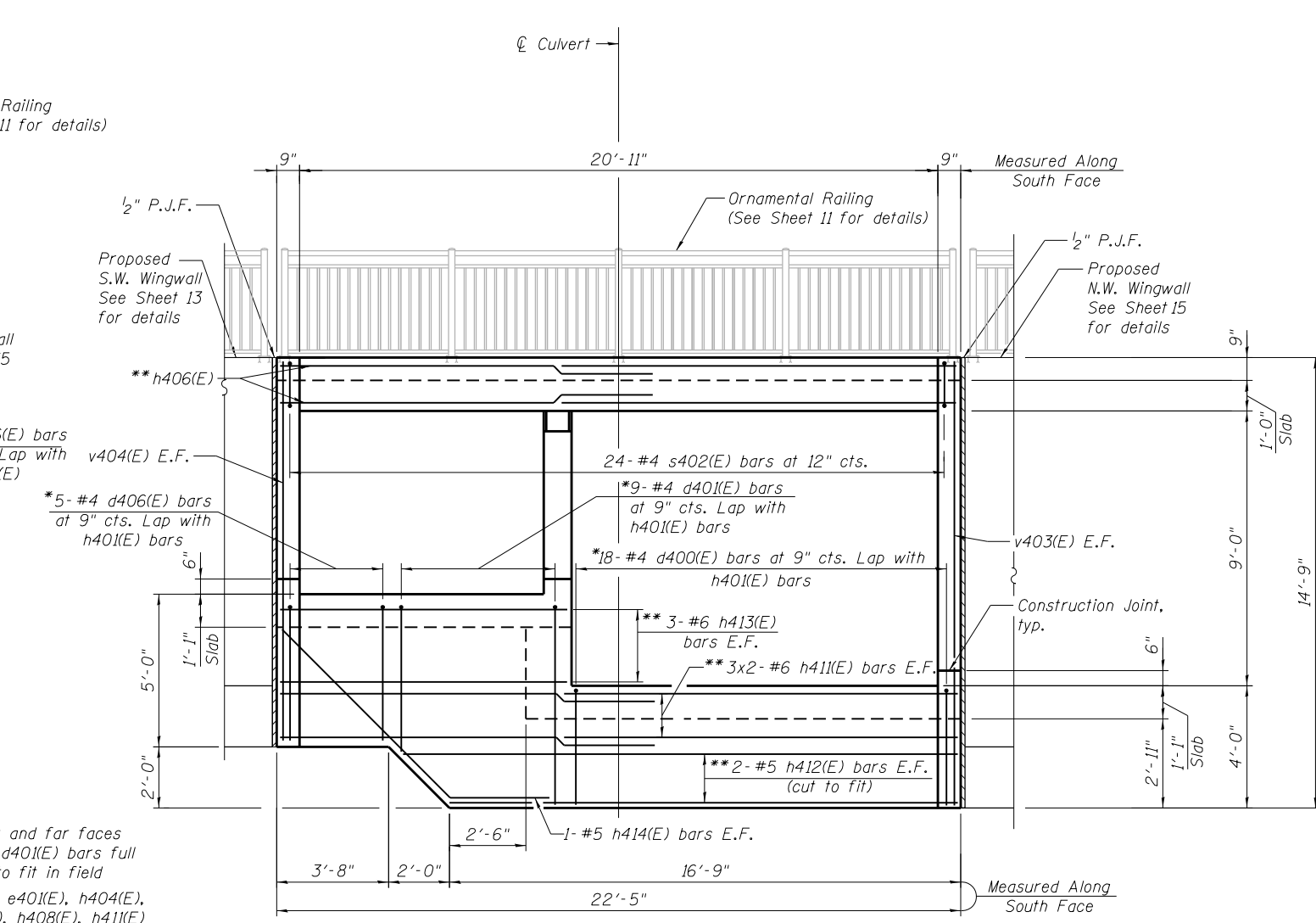
- B.F. - Denotes Back Face
- Bot. - Denotes Bottom
- Eq. Sp. - Denotes Equally Spaced
- E.F. - Denotes Each Face

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LOCHNER H. W. LOCHNER, INC. 225 WEST WASHINGTON STREET 12 TH FLOOR CHICAGO, ILLINOIS 60606	USER NAME =	DESIGNED - RAB	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	CULVERT SECTIONS AND DETAILS 2 STRUCTURE NO. 016-1334	F.A.P. RTE. =	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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	PLOT SCALE =	DRAWN - EF	REVISED			CONTRACT NO. 60L72				
	PLOT DATE =	CHECKED - RAB	REVISED			SHEET NO. 11 OF 21 SHEETS				



UPSTREAM END VIEW



DOWNSTREAM END VIEW

MINIMUM BAR LAP

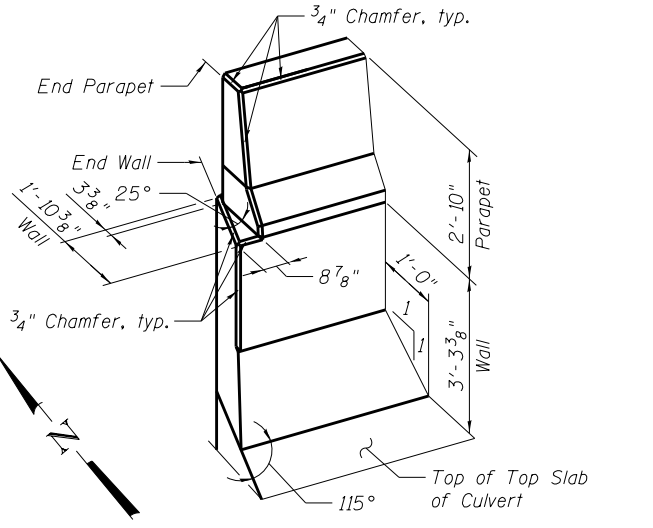
- #4 bar = 2'-7"
- #4 bar (Top) = 2'-11"
- #5 bar = 3'-3"
- #5 bar (Top) = 3'-8"
- #6 bar = 3'-10"
- #6 bar (Top) = 4'-5"
- #7 bar = 5'-2"

LEGEND

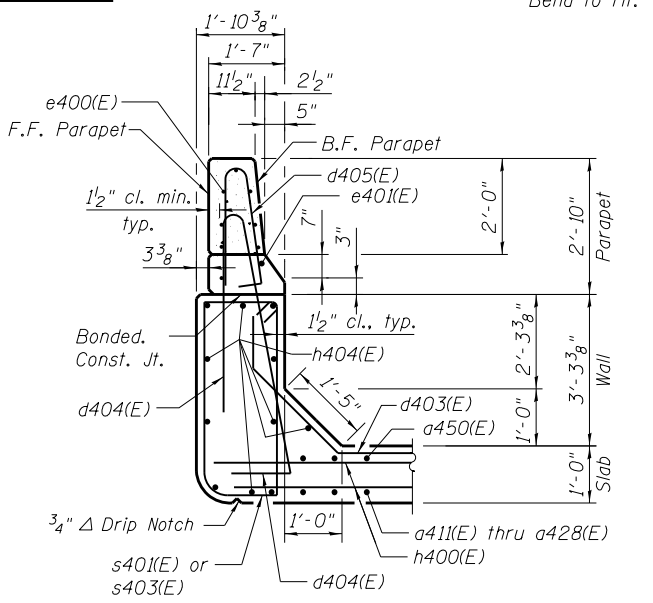
- B.F. - Denotes Back Face
- Bot. - Denotes Bottom
- Eq. Sp. - Denotes Equally Spaced
- E.F. - Denotes Each Face

NOTES:

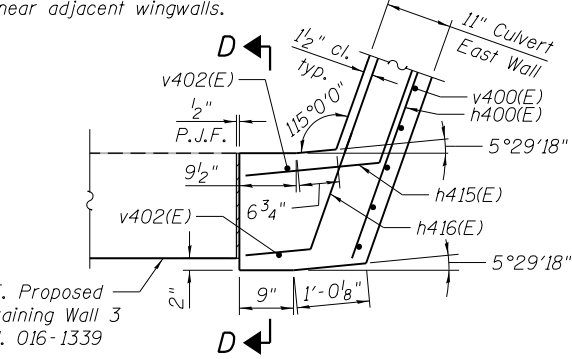
1. Bars indicated thus 27x2-#5 etc. indicates 27 lines of bars with 2 lengths per line.
2. See Sheets 13 thru 15 for wingwall reinforcement and details.
3. For bar list, reinforcement field cutting diagrams and bar bend details see Sheet 16.
4. For location of Detail 1 see Sheet 8.



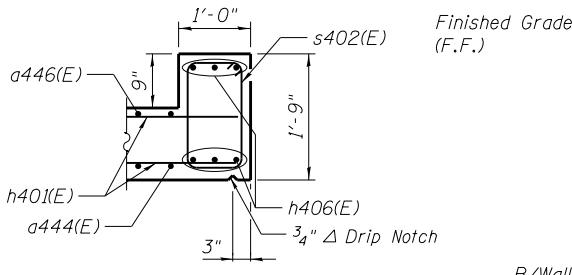
DETAIL 1-NORTHWEST END PARAPET AND HEADWALL TRIMETRIC VIEW
(Looking Northeast)



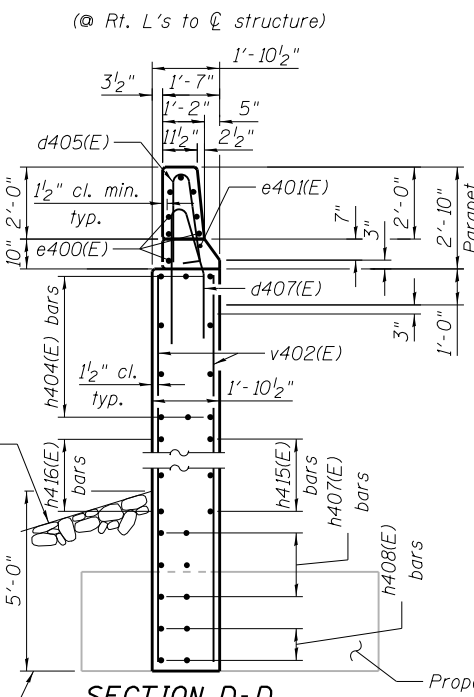
SECTION C-C



SECTION E-E



SOUTH HEADWALL DETAIL



SECTION D-D

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LOCHNER
H.W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

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PLOT DATE

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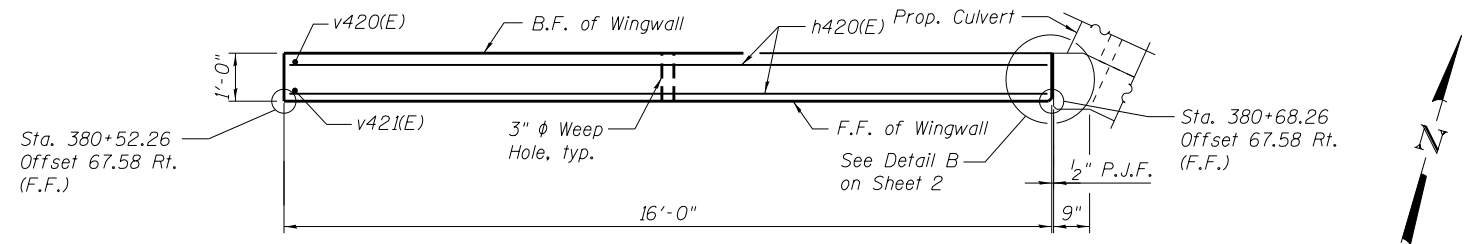
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

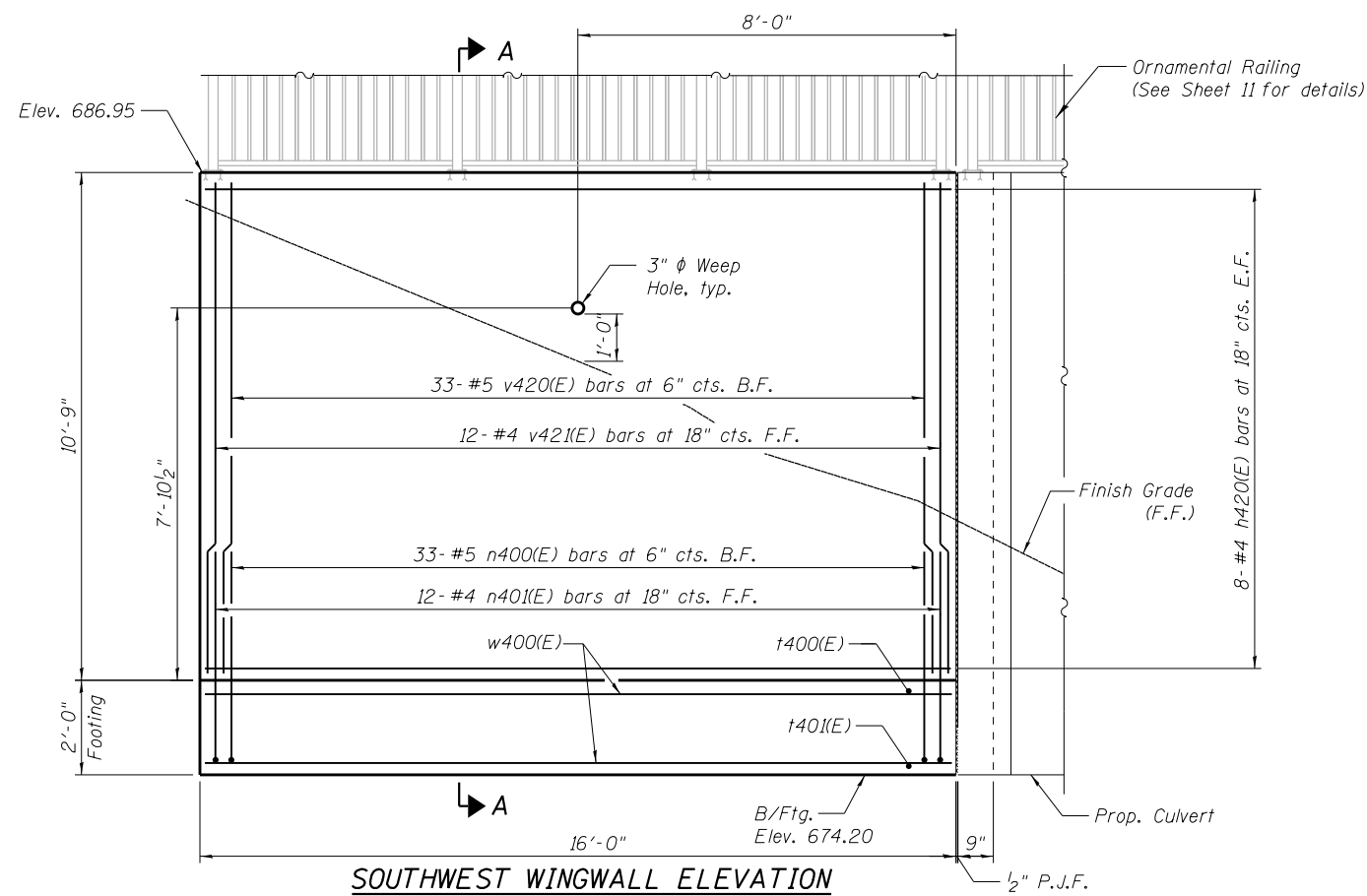
CULVERT SECTIONS AND DETAILS 3
STRUCTURE NO. 016-1334

SHEET NO. 12 OF 21 SHEETS

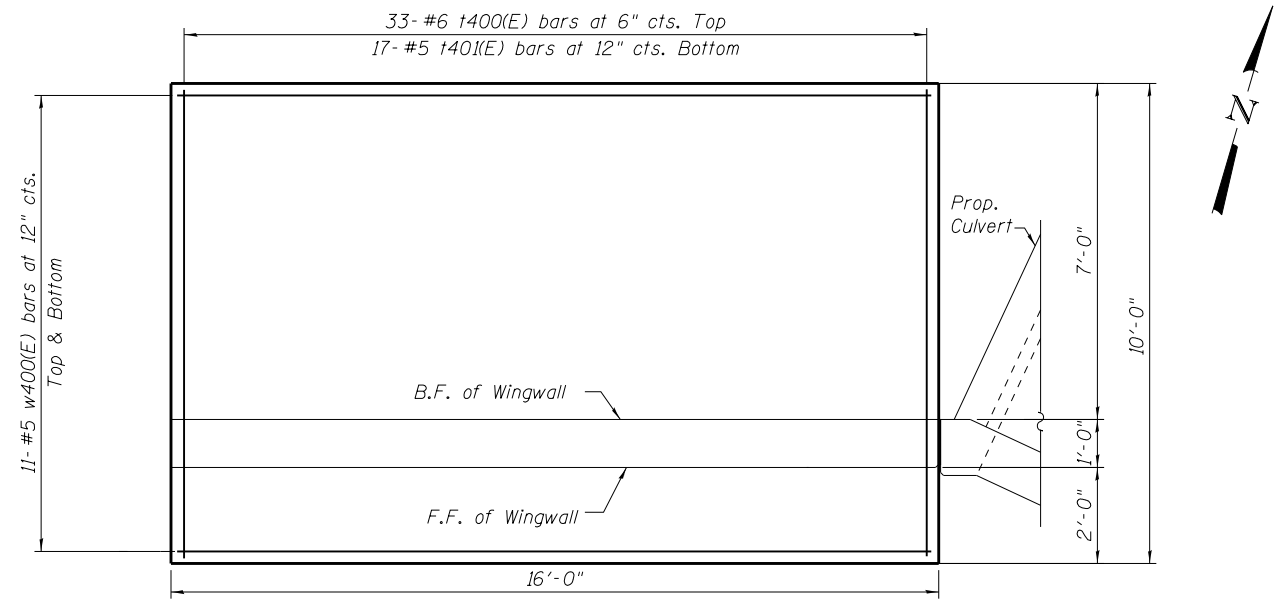
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	696
CONTRACT NO. 60L72				
<small>ILLINOIS FED. AID PROJECT</small>				



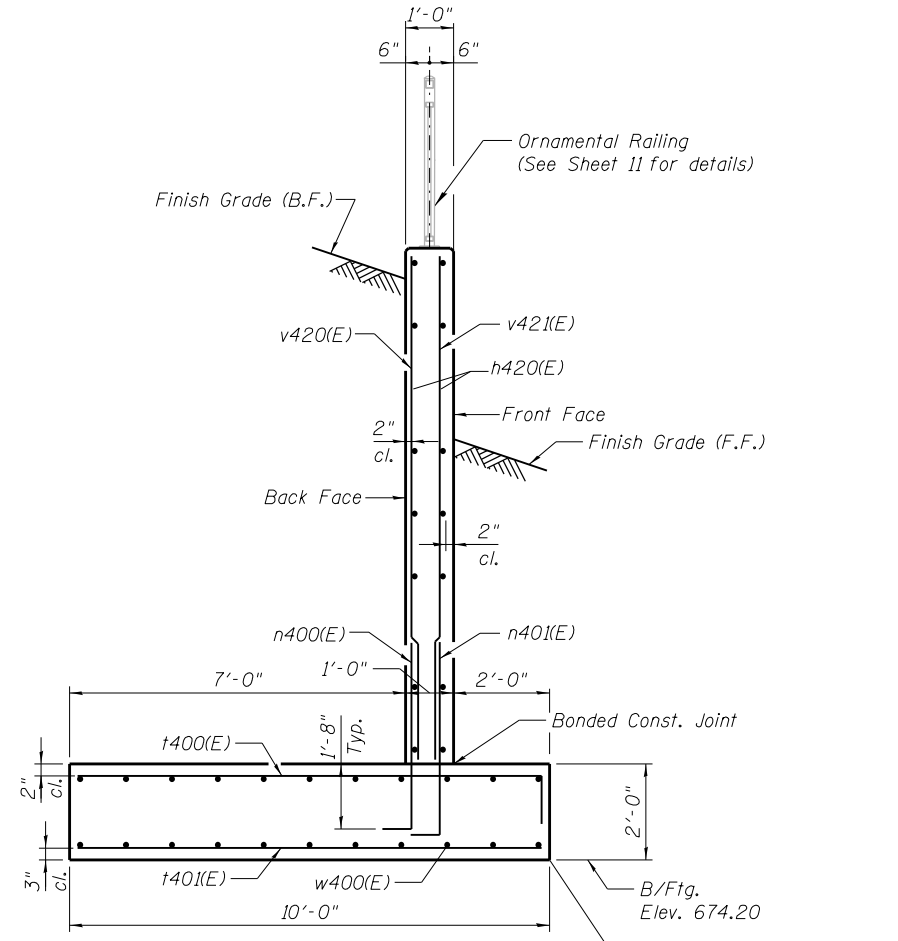
SOUTHWEST WINGWALL PLAN



SOUTHWEST WINGWALL ELEVATION
(Along front face of wingwall)



SOUTHWEST WINGWALL FOOTING PLAN



SECTION A-A

MINIMUM BAR LAP

- #4 bar = 2'-7"
- #5 bar = 3'-3"
- #6 bar = 3'-10"

LEGEND

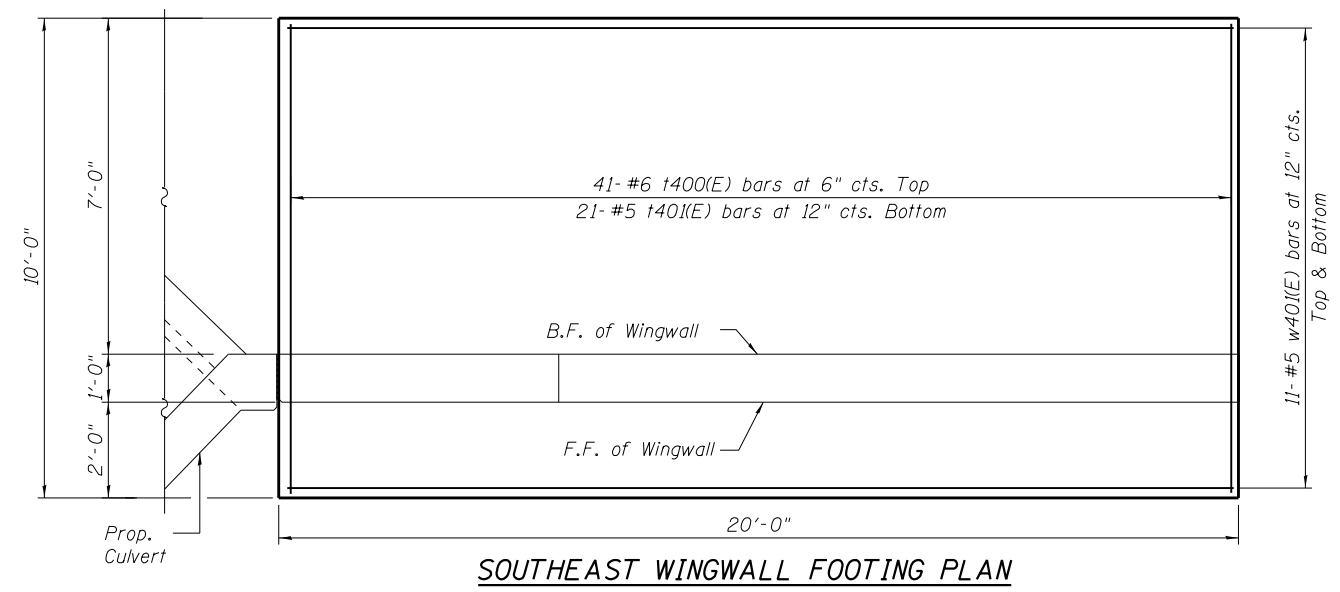
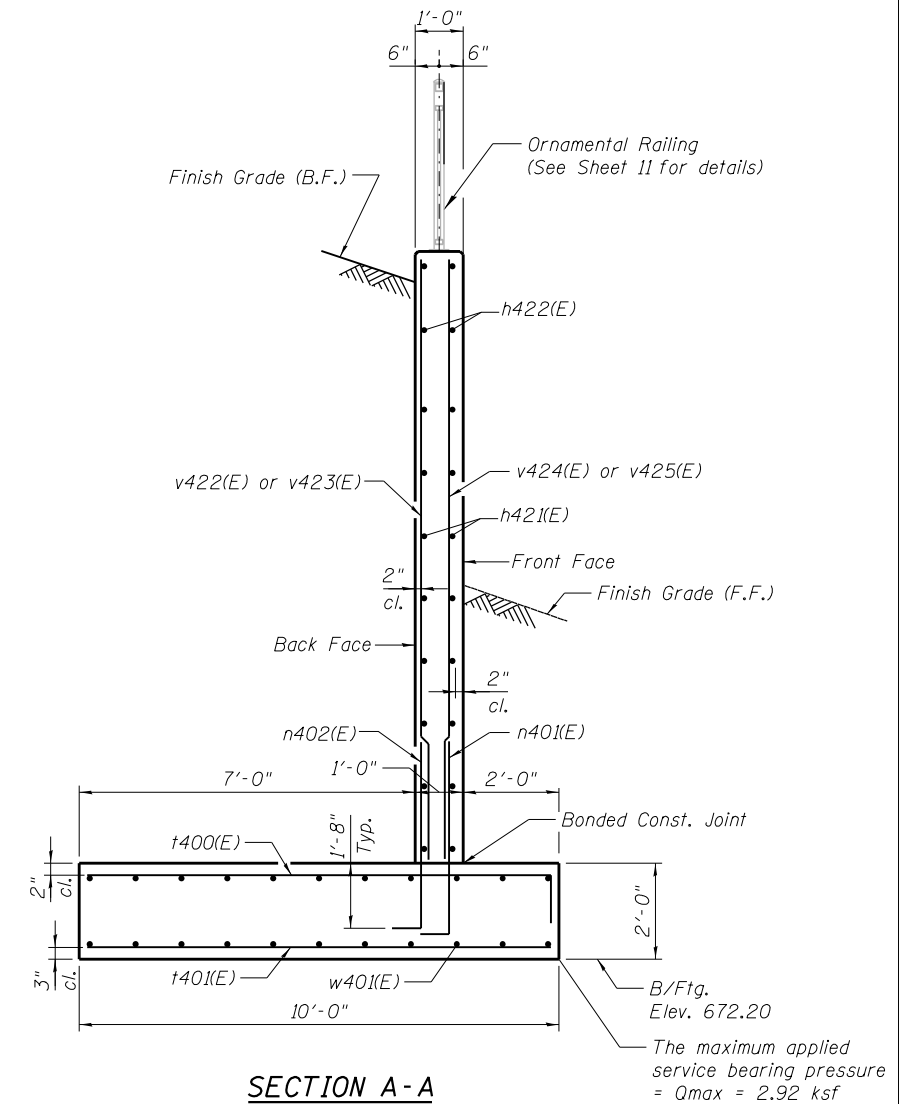
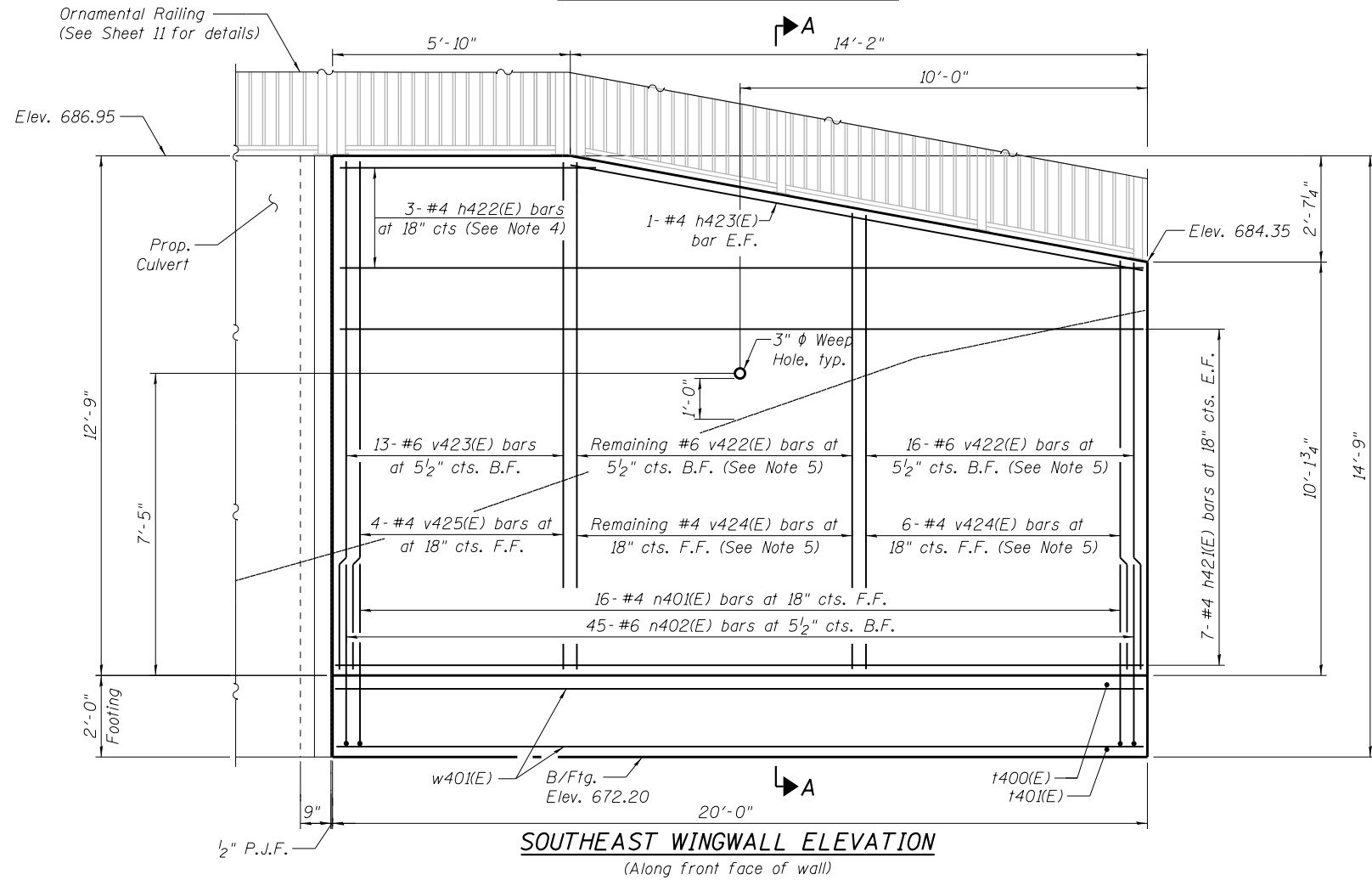
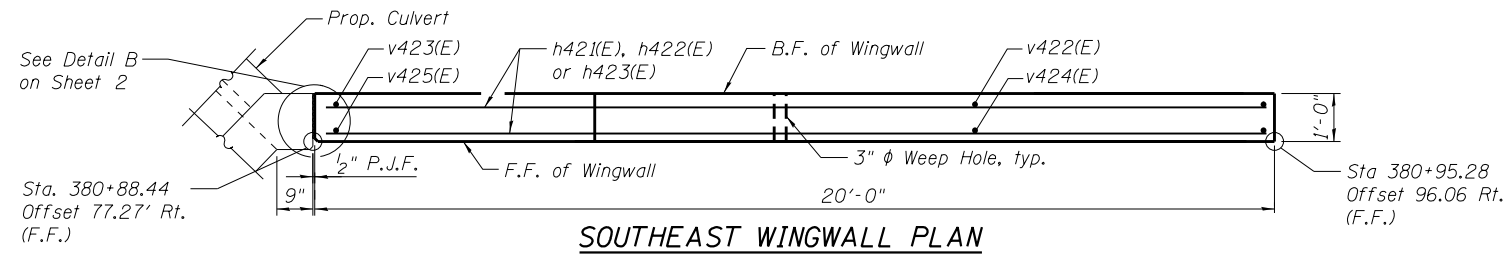
- B.F. - Back Face
- F.F. - Front Face
- E.F. - Each Face

NOTES

1. For Bar List and bar bend details see Sheet 16.
2. Reinforcement bars designated (E) shall be epoxy coated.
3. For weep hole detail and wall joint details see Sheet 2.

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LOCHNER H.W. LOCHNER, INC. 225 WEST WASHINGTON STREET 12 TH FLOOR CHICAGO, ILLINOIS 60606	USER NAME =	DESIGNED - RAB	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SOUTHWEST WINGWALL PLAN & ELEVATION STRUCTURE NO. 016-1334	F.A.P. RTE. = 351	SECTION = 2010-081-R	COUNTY = COOK	TOTAL SHEETS = 1045	SHEET NO. = 697
	FILE NAME = 0161334-60L72-013-WW.dgn	CHECKED - LJB	REVISED			SHEET NO. = 697	CONTRACT NO. 60L72			
	PLOT SCALE =	DRAWN - EF	REVISED			SHEET NO. 13 OF 21 SHEETS				
	PLOT DATE =	CHECKED - LJB	REVISED			ILLINOIS FED. AID PROJECT				



MINIMUM BAR LAP

- #4 bar = 2'-7"
- #5 bar = 3'-3"
- #6 bar = 3'-10"

LEGEND

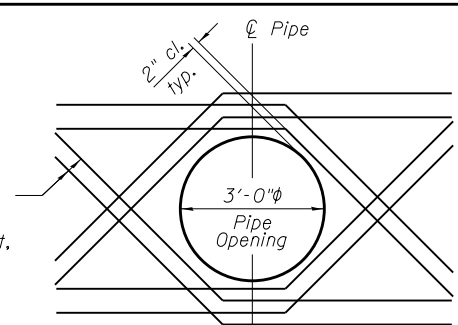
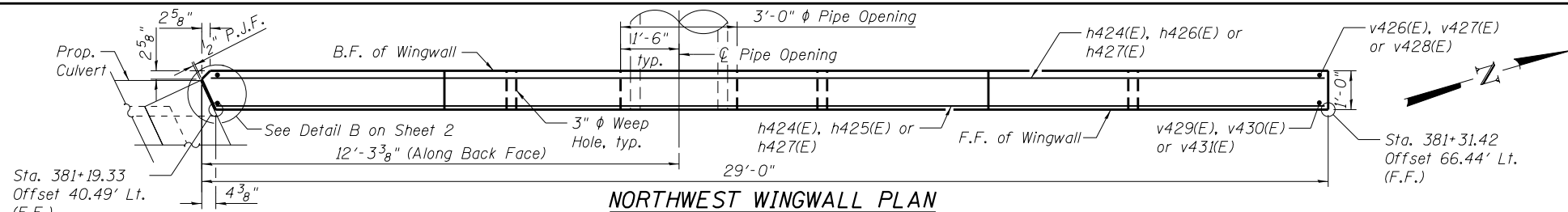
- B.F. - Back Face
- F.F. - Front Face
- E.F. - Each Face

NOTES

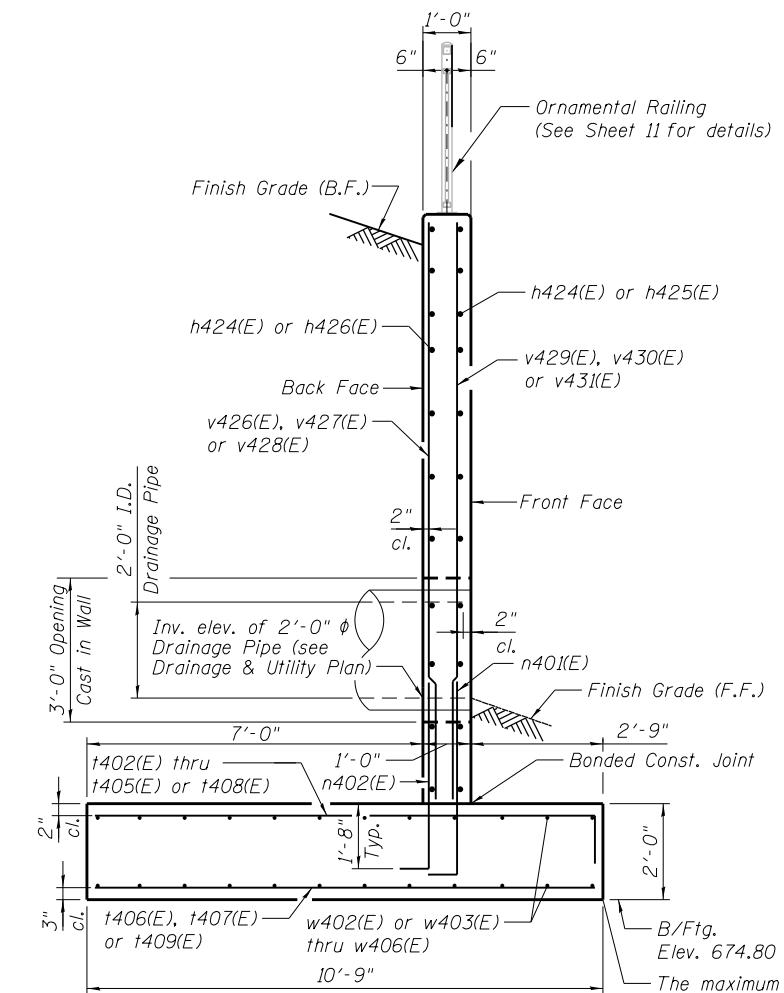
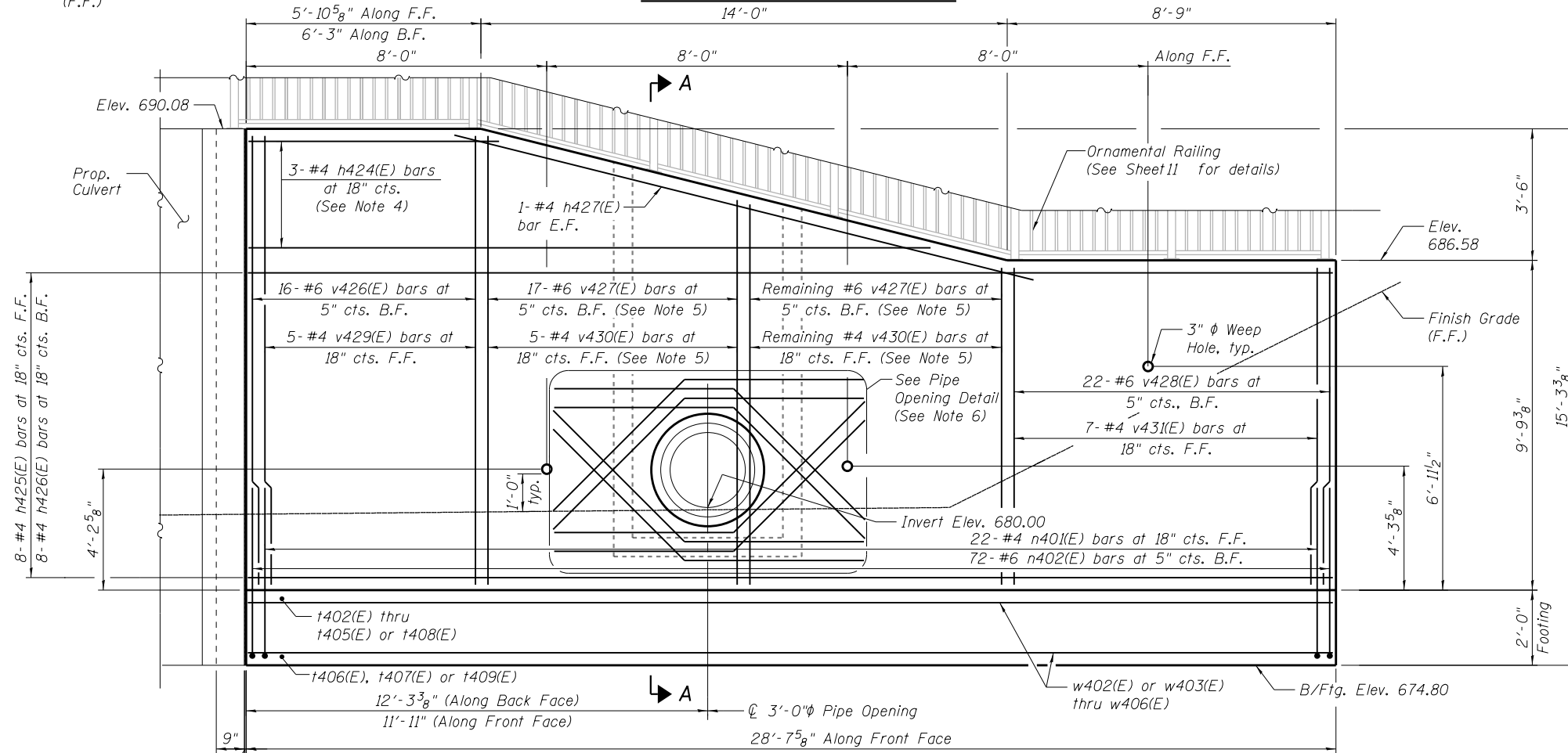
1. For Bar List, reinforcement field cutting diagrams, and bar bend details see Sheet 16.
2. Reinforcement bars designated (E) shall be epoxy coated.
3. For weep hole detail and wall joint details see Sheet 2.
4. Order h422(E) bars full length. Cut to fit and use remainder of bars in opposite face.
5. Order v422(E) and v424(E) bars full length. Cut to fit in shorter half of wall with sloped top and use remainder of bars in higher half.

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LOCHNER H.W. LOCHNER, INC. 225 WEST WASHINGTON STREET 12 TH FLOOR CHICAGO, ILLINOIS 60606	USER NAME =	DESIGNED - RAB	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SOUTHEAST WINGWALL PLAN & ELEVATION STRUCTURE NO. 016-D1334	F.A.P. RTE. =	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
	FILE NAME = 0161334-60L72-014-WW.dgn	CHECKED - LJB	REVISED			351	2010-081-R	COOK	1045	698	
	PLOT SCALE =	DRAWN - EF	REVISED	SHEET NO. 14 OF 21 SHEETS		CONTRACT NO. 60L72			ILLINOIS FED. AID PROJECT		
	PLOT DATE =	CHECKED - LJB	REVISED								



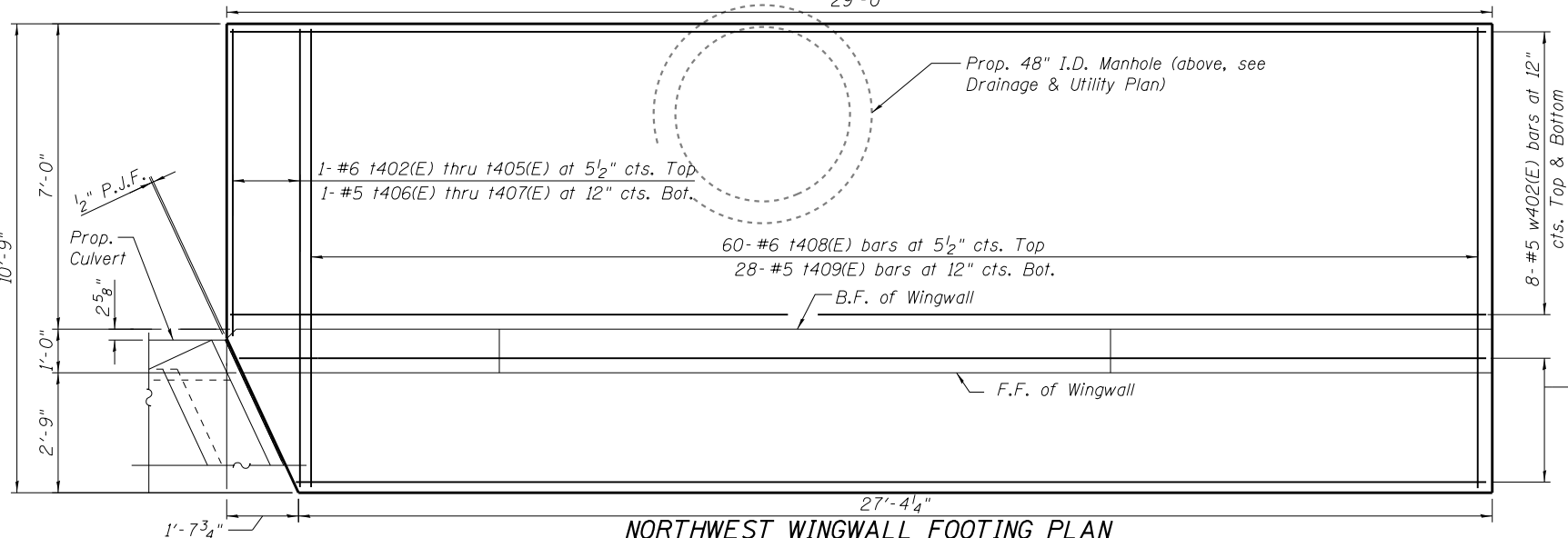
2-#6 h428(E) bars at 6" cts. E.F., tied to back face and front face reinforcement, typ.



LEGEND
 B.F. - Back Face
 F.F. - Front Face
 E.F. - Each Face
 I.D. - Inside Diameter

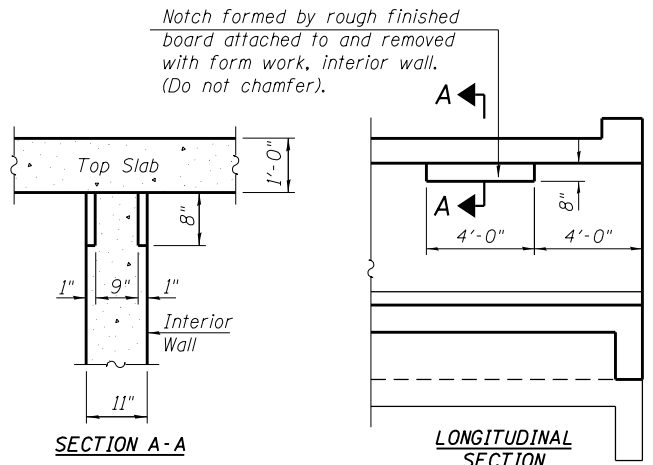
MINIMUM BAR LAP
 #4 bar = 2'-7"
 #5 bar = 3'-3"
 #6 bar = 3'-10"

- NOTES**
- For Bar List, reinforcement field cutting diagrams, and bar bend details see Sheet 16.
 - Reinforcement bars designated (E) shall be epoxy coated.
 - For weep hole detail, wall section at drainage pipe and wall joint details see Sheet 2.
 - Order h424(E) bars full length. Cut to fit and use remainder of bars in opposite face.
 - Order v427(E) and v430(E) bars full length. Cut to fit in shorter half of wall with sloped top and use remainder of bars in higher half.
 - Cut n401(E), n402(E), v427(E), v430(E), h425(E) and h426(E) bars to clear 3'-0" ϕ pipe opening.



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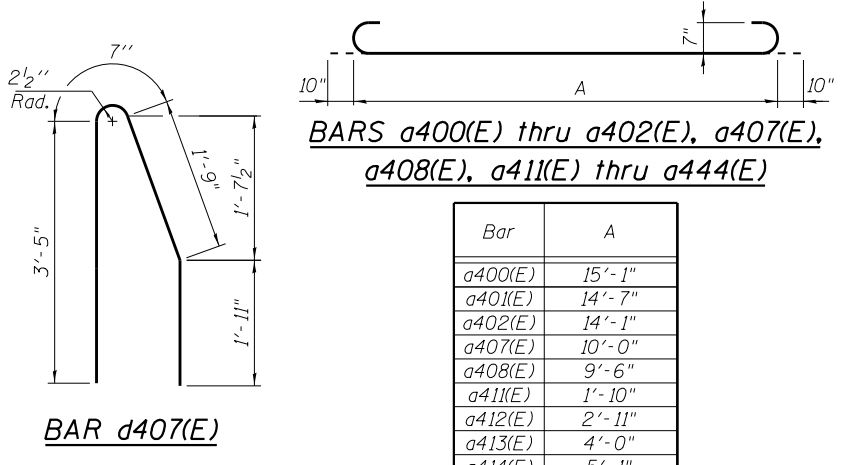
LOCHNER H.W. LOCHNER, INC. 225 WEST WASHINGTON STREET 12 TH FLOOR CHICAGO, ILLINOIS 60606	USER NAME =	DESIGNED - RAB	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	NORTHWEST WINGWALL PLAN AND ELEVATION STRUCTURE NO. 016-1334		F.A.P. RTE. = 351	SECTION = 2010-081-R	COUNTY = COOK	TOTAL SHEETS = 1045	SHEET NO. = 699	
	FILE NAME = 0161334-60L72-015-WW.dgn	CHECKED - LJB	REVISED		SHEET NO. 15 OF 21 SHEETS		CONTRACT NO. 60L72		ILLINOIS FED. AID PROJECT			
	PLOT SCALE =	DRAWN - EF	REVISED									
	PLOT DATE =	CHECKED - LJB	REVISED									



PHOEBE NESTING SITE
(Near downstream end)

BARS d400(E), d401(E), d406(E), n400(E), n401(E), n402(E), t400(E), t402(E), t403(E), t404(E), t405(E), t408(E)

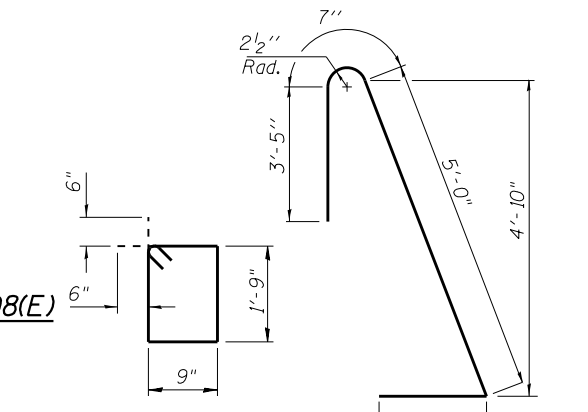
Bar	A	B
d400(E)	1'-9"	3'-7"
d401(E)	1'-9"	6'-7"
d406(E)	1'-9"	4'-7"
n400(E)	10"	5'-2"
n401(E)	8"	4'-6"
n402(E)	12"	5'-9"
t400(E)	12"	9'-8"
t402(E)	12"	7'-3"
t403(E)	12"	8'-3"
t404(E)	12"	9'-2"
t405(E)	12"	10'-2"
t408(E)	12"	10'-5"



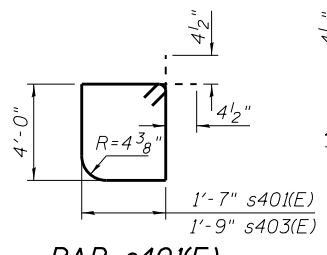
BAR d407(E)

BARS a400(E) thru a402(E), a407(E), a408(E), a411(E) thru a444(E)

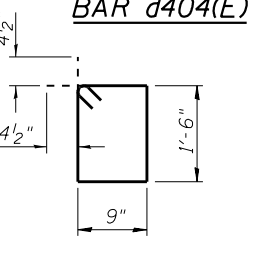
Bar	A
a400(E)	15'-1"
a401(E)	14'-7"
a402(E)	14'-1"
a407(E)	10'-0"
a408(E)	9'-6"
a411(E)	1'-10"
a412(E)	2'-11"
a413(E)	4'-0"
a414(E)	5'-1"
a415(E)	6'-2"
a416(E)	7'-3"
a417(E)	8'-4"
a418(E)	9'-5"
a419(E)	10'-6"
a420(E)	11'-7"
a421(E)	12'-8"
a422(E)	13'-9"
a423(E)	14'-10"
a424(E)	16'-2"
a425(E)	17'-7"
a426(E)	19'-0"
a427(E)	20'-5"
a428(E)	21'-11"
a429(E)	22'-3"
a430(E)	20'-10"
a431(E)	19'-5"
a432(E)	17'-11"
a433(E)	16'-6"
a434(E)	15'-1"
a435(E)	13'-8"
a436(E)	12'-3"
a437(E)	10'-10"
a438(E)	9'-5"
a439(E)	7'-11"
a440(E)	6'-6"
a441(E)	5'-1"
a442(E)	3'-8"
a443(E)	2'-3"
a444(E)	22'-5"



BAR s400(E)



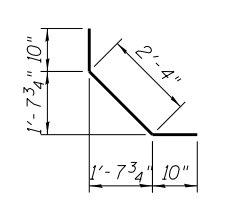
BAR s401(E) and s403(E)



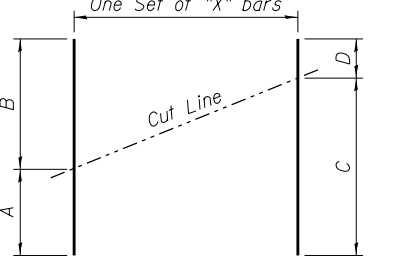
BAR d404(E)

BARS a405(E), a406(E), a447(E), a448(E)

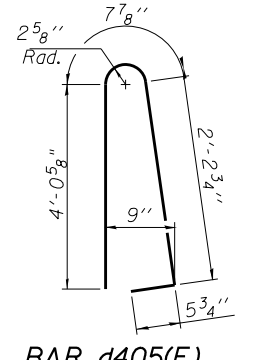
Bar	A	B	C
a405(E)	1'-2"	3'-0"	7'-0"
a406(E)	1'-2"	3'-0"	6'-9"
a447(E)	1'-2"	3'-9"	7'-0"
a448(E)	1'-2"	3'-9"	6'-9"



BAR d403(E)



FIELD CUTTING DIAGRAM



BAR d405(E)

Bar	A	B	C	D	"X"
h417(E)	32'-3"	42'-9"	42'-9"	32'-3"	35
h418(E)	36'-4"	42'-9"	42'-9"	36'-4"	23
h419(E)	32'-3"	36'-4"	36'-4"	32'-3"	16
h422(E)	5'-7"	19'-8"	19'-8"	5'-7"	3
h424(E)	5'-9"	18'-0"	17'-9"	6'-0"	3
v422(E)	11'-3"	11'-3"	12'-7"	9'-11"	16
v424(E)	11'-3"	11'-3"	12'-7"	9'-11"	6
v427(E)	11'-3"	11'-3"	13'-0"	9'-6"	17
v430(E)	11'-3"	11'-3"	13'-0"	9'-6"	5

BARS h410(E), h414(E), h415(E), h416(E) and h428(E)

Bar	A	B	C
h410(E)	6'-8"	9'-5"	3'-3"
h414(E)	5'-8"	8'-0"	3'-3"
h415(E)	1'-8"	1'-10"	4'-0"
h416(E)	9"	10"	4'-0"
h428(E)	3'-6 1/2"	5'-0"	4'-10"

CONCRETE BOX CULVERT BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a400(E)	30	#7	16'-9"	—
a401(E)	30	#7	16'-3"	—
a402(E)	208	#7	15'-9"	—
a403(E)	45	#4	14'-3"	—
a404(E)	92	#4	14'-1"	—
a405(E)	35	#7	11'-2"	—
a406(E)	215	#7	10'-11"	—
a407(E)	15	#7	11'-8"	—
a408(E)	114	#7	11'-2"	—
a409(E)	33	#4	9'-8"	—
a410(E)	97	#4	9'-6"	—
a411(E)	2	#7	3'-6"	—
a412(E)	2	#7	4'-7"	—
a413(E)	2	#7	5'-8"	—
a414(E)	2	#7	6'-9"	—
a415(E)	2	#7	7'-10"	—
a416(E)	2	#7	8'-11"	—
a417(E)	2	#7	10'-0"	—
a418(E)	2	#7	11'-1"	—
a419(E)	2	#7	12'-2"	—
a420(E)	2	#7	13'-3"	—
a421(E)	2	#7	14'-4"	—
a422(E)	2	#7	15'-5"	—
a423(E)	2	#7	16'-6"	—
a424(E)	2	#7	18'-10"	—
a425(E)	2	#7	19'-3"	—
a426(E)	2	#7	20'-8"	—
a427(E)	2	#7	22'-1"	—
a428(E)	2	#7	23'-7"	—
a429(E)	1	#7	23'-11"	—
a430(E)	1	#7	22'-6"	—
a431(E)	1	#7	21'-1"	—
a432(E)	1	#7	19'-7"	—
a433(E)	1	#7	18'-2"	—
a434(E)	1	#7	16'-9"	—
a435(E)	1	#7	15'-4"	—
a436(E)	1	#7	13'-11"	—
a437(E)	1	#7	12'-6"	—
a438(E)	1	#7	11'-1"	—
a439(E)	1	#7	9'-7"	—
a440(E)	1	#7	8'-2"	—
a441(E)	1	#7	6'-9"	—
a442(E)	1	#7	5'-4"	—
a443(E)	1	#7	3'-11"	—
a444(E)	157	#7	24'-1"	—
a446(E)	140	#7	22'-6"	—
a447(E)	28	#7	11'-11"	—
a448(E)	221	#7	11'-8"	—
a449(E)	26	#7	23'-3"	—
a450(E)	26	#7	24'-0"	—
a451(E)	15	#7	23'-8"	—
d400(E)	56	#4	5'-4"	—
d401(E)	18	#4	8'-4"	—
d403(E)	28	#5	4'-0"	—
d404(E)	29	#5	10'-2"	—
d405(E)	30	#5	7'-5"	—
d406(E)	33	#4	6'-4"	—
d407(E)	1	#5	7'-8"	—
e400(E)	16	#4	14'-5"	—
e401(E)	1	#8	25'-8"	—

CONCRETE BOX CULVERT BILL OF MATERIAL (CONT.)

Bar	No.	Size	Length	Shape
h400(E)	386	#5	30'-3"	—
h401(E)	176	#5	32'-8"	—
h402(E)	24	#5	34'-7"	—
h403(E)	34	#5	37'-10"	—
h404(E)	22	#4	14'-9"	—
h405(E)	12	#6	24'-9"	—
h406(E)	12	#6	13'-7"	—
h407(E)	12	#6	15'-4"	—
h408(E)	4	#5	20'-10"	—
h409(E)	6	#6	10'-6"	—
h410(E)	2	#5	12'-8"	—
h411(E)	12	#6	13'-4"	—
h412(E)	4	#5	18'-5"	—
h413(E)	6	#6	9'-4"	—
h414(E)	2	#5	11'-3"	—
h415(E)	10	#5	5'-10"	—
h416(E)	10	#5	4'-10"	—
h417(E)	35	#5	75'-0"	—
h418(E)	23	#5	79'-1"	—
h419(E)	16	#5	68'-7"	—
h420(E)	4	#5	36'-9"	—
s400(E)	52	#5	6'-0"	—
s401(E)	26	#4	11'-11"	—
s402(E)	24	#4	5'-3"	—
s403(E)	1	#4	12'-3"	—
v400(E)	348	#5	10'-9"	—
v401(E)	120	#5	7'-9"	—
v402(E)	2	#5	16'-11"	—
v403(E)	2	#5	14'-5"	—
v404(E)	2	#5	12'-5"	—
Concrete Box Culverts		Cu. Yd.	346.8	
Concrete Superstructure		Cu. Yd.	3.2	
Reinforcement Bars, Epoxy Coated		Pound	79,300	

SOUTHEAST WINGWALL BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h421(E)	14	#4	19'-8"	—
h422(E)	3	#4	25'-3"	—
h423(E)	2	#4	14'-2"	—
n401(E)	16	#4	5'-2"	—
n402(E)	45	#6	6'-9"	—
t400(E)	41	#6	10'-8"	—
t401(E)	21	#5	9'-8"	—
v422(E)	16	#6	22'-6"	—
v423(E)	13	#6	12'-7"	—
v424(E)	6	#4	22'-6"	—
v425(E)	4	#4	12'-7"	—
w401(E)	22	#5	19'-8"	—
Concrete Box Culverts		Cu. Yd.	23.7	
Reinforcement Bars, Epoxy Coated		Pound	3,000	
Geocomposite Wall Drain		Sq. Yd.	10	

NORTHWEST WINGWALL BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h424(E)	3	#4	23'-9"	—
h425(E)	8	#4	28'-3"	—
h426(E)	8	#4	28'-8"	—
h427(E)	2	#4	14'-5"	—
h428(E)	16	#6	9'-10"	—
n401(E)	22	#4	5'-2"	—
n402(E)	72	#6	6'-9"	—
t402(E)	1	#6	8'-3"	—
t403(E)	1	#6	9'-3"	—
t404(E)	1	#6	10'-2"	—
t405(E)	1	#6	11'-2"	—
t406(E)	1	#5	7'-4"	—
t407(E)	1	#5	9'-10"	—
t408(E)	60	#6	11'-5"	—
t409(E)	28	#5	10'-5"	—
v426(E)	16	#6	13'-1"	—
v427(E)	17	#6	22'-6"	—
v428(E)	22	#6	9'-7"	—
v429(E)	5	#4	13'-1"	—
v430(E)	5	#4	22'-6"	—
v431(E)	7	#4	9'-7"	—
w402(E)	17	#5	28'-8"	—
w403(E)	2	#5	27'-1"	—
w404(E)	2	#5	27'-7"	—
w405(E)	2	#5	28'-0"	—
w406(E)	2	#5	28'-6"	—
Concrete Box Culverts		Cu. Yd.	35.2	
Reinforcement Bars, Epoxy Coated		Pound	4,940	
Geocomposite Wall Drain		Sq. Yd.	18	

SOUTHWEST WINGWALL BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h420(E)	16	#4	15'-8"	—
n400(E)	33	#5	6'-0"	—
n401(E)	12	#4	5'-2"	—
t400(E)	33	#6	10'-8"	—
t401(E)	17	#5	9'-8"	—
v420(E)	33	#5	10'-7"	—
v421(E)	12	#4	10'-7"	—
w400(E)	22	#5	15'-8"	—
Concrete Box Culverts		Cu. Yd.	18.3	
Reinforcement Bars, Epoxy Coated		Pound	1,930	
Geocomposite Wall Drain		Sq. Yd.	5	

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LOCHNER
H. W. LOCHNER, INC.
225 WEST WASHINGTON STREET
12 TH FLOOR
CHICAGO, ILLINOIS 60606

USER NAME =
FILE NAME = 0161334-60L72-016-WW.dgn
PLOT SCALE =
PLOT DATE =

DESIGNED - RAB
CHECKED - RH
DRAWN - EF
CHECKED - RAB

REVISED
REVISED
REVISED
REVISED

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**REINFORCING SCHEDULE
STRUCTURE NO. 016-1334**
SHEET NO. 16 OF 21 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2010-081-R	COOK	1045	700

CONTRACT NO. 60L72
ILLINOIS FED. AID PROJECT