	CODE NUMBER	PAY ITEM		TOTAL QUANTITY	ROADWAY	ROADWAY	BRIDGE	BRIDGE	RETAINING WALL	RETAINING WALL	RETAINING WALL	RETAINING WALL	RETAINING WALL	RETAINING WALL	NOISE ABATEMENT WALL	LIGHTING/ ITS
					90% FED		90% FED	90% FED	90% FED	90% FED	90% FED	90% FED	90% FED	90% FED	90% FED	90% FED
					10% STATE	100% STATE	10% STATE	10% STATE	10% STATE	10% STATE	10% STATE	10% STATE	10% STATE	10% STATE	10% STATE	10% STATE
					0004	0004	0010	0010	0044	0044	0044	0044	0044	0044	0044	0021
					URBAN	URBAN	016-1701	016-1702	016-1727	016-1825	016-1826	016-Z016	016-Z048	016-W989	NONE	URBAN
	50300300	PROTECTIVE COAT	SQ YD	7,411			3,828	3,346		97			140			
	50301350	CONCRETE SUPERSTRUCTURE (APPROACH SLAB)	CU YD	361.9			220.5	141.4								
	50500105	FURNISHING AND ERECTING STRUCTURAL STEEL	L SUM	1.0			0.5	0.5								
	50500505	STUD SHEAR CONNECTORS	EACH	43,227			19,760	22,791	170		81	425				
	50800105	REINFORCEMENT BARS	POUND	1,981,040			532,520	549,800	459,810		438,910					
	50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	1,084,390			535,090	449,680	24,850	15,100	25,330	34,340				
	50800515	BAR SPLICERS	EACH	316			164	152								
	50800530	MECHANICAL SPLICERS	EACH	1,128				144	504		480					
	51500100	NAME PLATES	EACH	7			1	1	1	1	1	1	1			
	51602000	PERMANENT CASING	FOOT	5,930			2,303	2,186	1 180		180	1,081				
*	51603000	DRILLED SHAFT IN SOIL	CU YD	8,869.5			2,178.7	1 2,826.5	1,979.3		1,885.0					
*	51604000	DRILLED SHAFT IN ROCK	CU YD	160.8			93	67.8 1								
	52000110	PREFORMED JOINT STRIP SEAL	FOOT	312			156	156								
	X0327757	FOUNDATION CONSTRUCTION AT EXISTING OBSTRUCTIONS	EACH	5				5 1								
	52100010	ELASTOMERIC BEARING ASSEMBLY, TYPE I	EACH	92			52	40						1	REV 5/18/2020 SEP	

* DENOTES SPECIALTY ITEM ** DENOTES NON-PARTICIPATING ITEM % 0042

REV-SEP

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PLOT DATE = 3/10/2020	DATE - 3-13-2020	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

SCALE: NONE | SHEET 6 OF 26 SHEETS | STA. | TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-015R&B-R	COOK	825	11

CONTRACT NO. 60X94

ILLINOIS FED. AID PROJECT

Bench Mark: Set "X" on east barrier wall of I-90 at ℄ of Adams Street. Elev. 581.17.

Existing Structure: SN 016-0589. Constructed in 1955 under F.A.I. Route 173, Section 0101.2-3B. The outbound ramp from Adams to northbound I-90/94 was constructed in 1957. The bridge underwent repairs in 1999 under Section 0101-2-3B-R. Four span bridge measures 282'-4" from back to back of abutments. Out-to-out width of 73'-11". The spans are supported by 36" wide flange beams. Substructure is reinforced concrete closed abutments and multi-column piers founded on timber piles with concrete footing bracing. The Existing Adams Entrance Ramp is offset 90° from the centerline of Adams Street. Three span bridge that measures 169'-10" from back of north abutment to the centerline of the north fascia beam on Adams Street. Out-to-out width is 22'-6". The spans are supported by 24" wide flange beams. Substructure is reinforced concrete closed north abutment and single hammerhead piers founded on caissons. A concrete cantilever retaining wall extends north of the north abutment for 167'-7". The existing bridge is to be removed and replaced.

The bridge will be closed to traffic and detoured during construction.

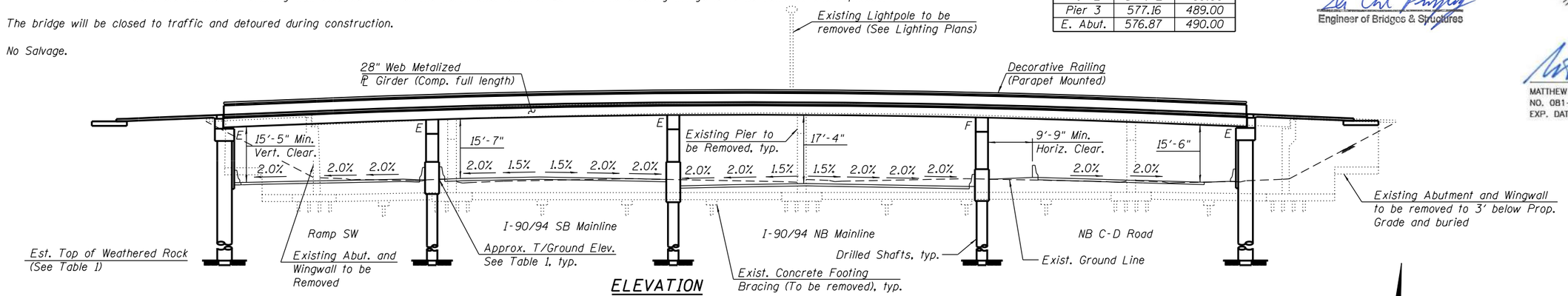
No Salvage.

TABLE 1

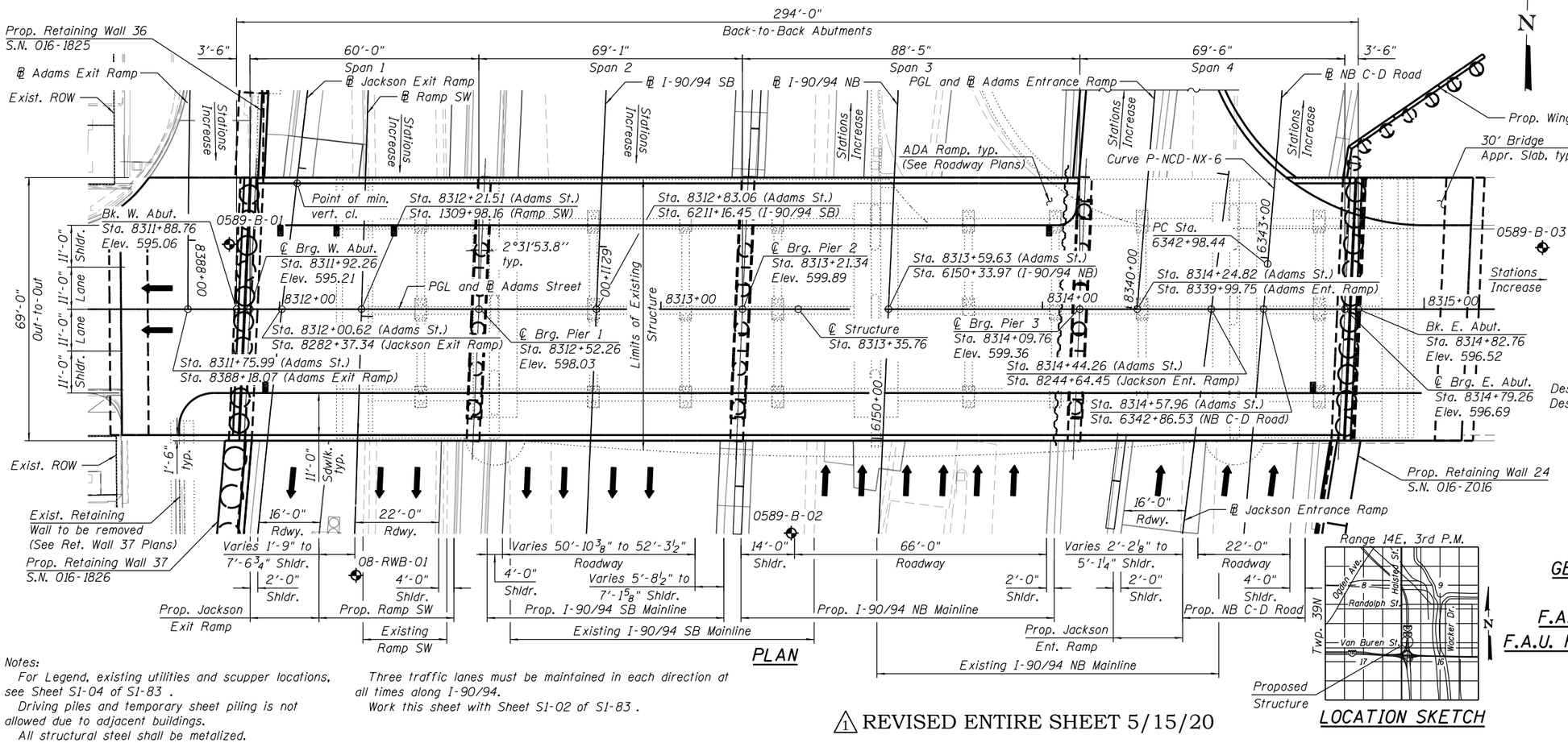
Location	Approx. T/Ground Elev.	Approx. T/Weather. Rock Elev.
W. Abut.	576.15	489.00
Pier 1	575.93	489.00
Pier 2	577.42	489.00
Pier 3	577.16	489.00
E. Abut.	576.87	490.00

APPROVED
For Structural Adequacy Only
Engineer of Bridges & Structures

MATTHEW D. SANTEFORD 081-007244 LICENSED STRUCTURAL ENGINEER OF STATE OF ILLINOIS
05-12-2020
MATTHEW D. SANTEFORD, P.E., S.E.
NO. 081-007244
EXP. DATE 11/30/2020



ELEVATION



PLAN

LOCATION SKETCH

LOADING HL-93

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

DESIGN SPECIFICATIONS

2017 AASHTO LRFD Bridge Design Specifications 8th Edition

DESIGN STRESSES

FIELD UNITS

f'c = 3,500 psi
f'c = 4,000 psi (Superstructure Concrete)
fy = 60,000 psi (Reinforcement)
fy = 50,000 psi (M270 Grade 50)

PRECAST UNITS

f'c = 4,500 psi

SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.085g
Design Spectral Acceleration at 0.2 sec. (S_{DS}) = 0.144g
Soil Site Class = D

Notes:
For Legend, existing utilities and scupper locations, see Sheet S1-04 of S1-83 .
Driving piles and temporary sheet piling is not allowed due to adjacent buildings.
All structural steel shall be metalized.

Three traffic lanes must be maintained in each direction at all times along I-90/94.
Work this sheet with Sheet S1-02 of S1-83 .

1 REVISED ENTIRE SHEET 5/15/20

GENERAL PLAN AND ELEVATION 1
ADAMS STREET OVER
F.A.I. 90/94 (KENNEDY EXPRESSWAY)
F.A.U. RTE. 1421 - SECTION 2014-015R&B-R
COOK COUNTY
STATION 8313+35.76
STRUCTURE NO. 016-1701

TranSystems

USER NAME = wjcolletti	DESIGNED WJC	REVISED
	CHECKED MDS/TLR	REVISED
PLOT SCALE = NTS	DRAWN WJC	REVISED
PLOT DATE = 5/12/2020	CHECKED MDS/TLR	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET NO. S1-01 OF S1-83 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1421	2014-015R&B-R	COOK	825	303
		CONTRACT NO. 60X94		
	ILLINOIS FED. AID PROJECT			

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GENERAL NOTES:

1. Fasteners shall be ASTM A325 Type 1, hot dip galvanized bolts. Bolts $^{7}/_{8}$ in. ϕ, holes $^{15}/_{16}$ in. ϕ, unless otherwise noted.
2. Calculated weight of Structural Steel = 873,400 pounds (AASHTO M270 Grade 50).
3. All structural steel shall be metalized (see Special Provision).
4. Expansion joint plates and attached bars shall be shop painted with the inorganic zinc rich primer.
5. No field welding is permitted except as specified in the contract documents.
6. Reinforcement bars designated (E) shall be epoxy coated.
7. Plan dimension and details relative to existing plans are subject to nominal construction variations. The Contractor shall field verify existing dimensions and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in scope of work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.
8. Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of $^{1}/_{8}$ inch (0.01 ft.). Adjustment shall be made either by grinding the surface or by shimming the bearings.
9. Concrete Sealer shall be applied to the designated areas of the Piers, Abutments, Wingwall and Retaining Walls.
10. The existing structural steel coating contains lead. The Contractor shall take appropriate precautions to deal with the presence of lead on this project.
11. For Conduit Attached to Structure quantities and details, see Electrical Plans.
12. The contractor shall exercise extreme caution during construction to make certain that construction activities, live load surcharge and other loads applied to the structures will not have detrimental effects on the adjacent building foundations. Any damage during construction shall be repaired by the contractor at his expense and no charge to the department. Driving piles and temporary sheet piling is not allowed.
13. Slipforming of parapets is not allowed.
14. For drilled shaft locations where permanent casing is required as shown on the plans, the casing will be paid for under the Permanent Casing pay item. If contractor elects to use permanent casing for ease of construction in locations where permanent casing is not required on the plans, the casing will not be paid for separately and is included in the Drilled Shaft in Soil pay item.
15. Limited groundwater elevation data is available in the boring logs. In addition, groundwater may also be present in deeper granular layers. The groundwater may rise in the shafts to an elevation above the top of granular layers. The Contractor shall consider this information when choosing construction methods. The Contractor will not be compensated for issues related to the groundwater elevation.
16. The Contractor shall take all necessary precautions not to contaminate groundwater during the drilled shaft construction operation. Contractor is responsible for the proper containment and disposal of the contaminated groundwater and spoils resulting from Contractor's means and methods. No additional cost will be paid for this effort.
17. The Contractor shall field verify location of existing utilities prior to construction. The Contractor shall take precautions not to damage existing utilities. Any such damage shall be repaired by the Contractor at no additional cost.
18. Structural steel erection shall be accomplished by a steel erection contractor or subcontractor certified as an Advanced Certified Steel Erector (ACSE) by the American Institute of Steel Construction (AISC). See special provision for Erection of Complex Steel Structures.
19. The Drilled Shaft quantities and reinforcement detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft locations and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.
20. Based on the squeeze potential of the clay soils, the use of temporary casing will be required to Elevation 540.00 in order to properly construct the drilled shafts. Casing may be pulled or left in place, as determined by the Contractor at no cost to the Department.
21. The Contractor shall coordinate the construction of the proposed structure with the construction of the proposed Retaining Wall 24, Retaining Wall 36, Retaining Wall 37, Retaining Wall 8 and the proposed Jackson Blvd. Bridge. See MOT plan sheets and special provisions, including the Available Work Areas and Sequencing Requirements special provision, for additional construction and coordination requirements.
22. The Contractor shall provide vibration and displacement monitoring at the locations specified in the Special Provision for Construction Vibration Monitoring and Monitoring Adjacent Structures, to ensure that removal/construction activities in the vicinity of the structures do not have detrimental effects on building foundations. No additional compensation shall be provided to the Contractor for alternative means and methods, or additional precautionary measures, required during removal/construction activities to satisfy these requirements. See Contract Special Provisions for details.
23. The quality of bedrock at entrance Ramp Pier R1 and North Abutment shall be checked by the Contractor during construction to verify the design bedrock conditions. An RQD of 75% or more should be verified.
24. MSE Wall supplier shall design the MSE Wall assuming granular reinforced mass with an effective internal friction angle of 34 degrees and unit weight of 120 lbs./cu. ft. For embankment behind granular reinforced mass, an embankment unit weight of 120 lbs./cu. ft and an effective friction angle of 30 degrees shall be used in the wall system design.
25. All Lightweight Cellular Concrete Fill for the abutments and wingwall shall be Class I. All Lightweight Cellular Concrete Fill for the MSE retaining wall shall be Class III. See Special Provisions.
26. Bridge Deck Grooving shall be applied to the Adams Bridge deck and the west and east approach slabs. Bridge Deck Grooving (Longitudinal) shall be applied to the Adams Ramp deck, north approach slab, and entrance ramp concrete and anchorage slabs.
27. If the Contractor elects to use cantilever forming brackets on the exterior beams or girders, the brackets shall be placed at the same locations as required for the hardwood blocks in Article 503.06(b) of the Standard Specifications. If additional cantilever forming brackets are required, hardwood blocking shall be wedged between the exterior and first interior beam at each of these additional bracket locations.
28. The Contractor shall provide a method to assure the soldier piles achieve at least the plan tip elevations. The soldier pile locations and elevations shall meet the tolerances provided in the Special Provisions. Any additional measures required to satisfy the construction tolerances will not be paid for separately but shall be included in Drilling and Setting Soldier Piles (In Soil).
29. Soldier piles shall be cleaned and given one shop coat of Inorganic Zinc Rich Primer. Cost included with Furnishing Soldier Piles (W Section).

STATION 8313+35.76
BUILT 20-- BY
STATE OF ILLINOIS
F.A.U. RT. 1421 SEC. 2014-015R&B-R
LOADING HL-93
STR. NO. 016-1701

NAME PLATE

See Std. 515001

TOTAL BILL OF MATERIAL

Item	Unit	Super	Sub	Total Quantity
Removal Of Existing Structures No. 1	Each	1		1
Protective Shield	Sq. Yd.	2,661		2,661
Structure Excavation	Cu. Yd.		1,956	1,956
Concrete Structures	Cu. Yd.		684.4	684.4
Rubbed Finish	Sq. Ft.		5,008	5,008
Concrete Superstructure	Cu. Yd.	1,143.4		1,143.4
Bridge Deck Grooving	Sq. Yd.	1,885		1,885
Form Liner Textured Surface	Sq. Ft.		1,914	1,914
Protective Coat	Sq. Yd.	3,828		3,828
Concrete Superstructure (Approach Slab)	Cu. Yd.	220.5		220.5
Furnishing And Erecting Structural Steel	L. Sum	0.5		0.5
Stud Shear Connectors	Each	19,521	239	19,760
Reinforcement Bars	Pound		532,520	532,520
Reinforcement Bars, Epoxy Coated	Pound	356,310	178,780	535,090
Bar Splicers	Each		164	164
Name Plates	Each		1	1
Permanent Casing	Foot		2,303	2,303
Drilled Shaft in Soil	Cu. Yd.		2,178.7	2,178.7
Drilled Shaft in Rock	Cu. Yd.		93.0	93.0
Preformed Joint Strip Seal	Foot	156		156
Elastomeric Bearing Assembly, Type I	Each	52		52
Anchor Bolts, 5/8"	Each	100		100
Anchor Bolts, 3/4"	Each	64		64
Anchor Bolts, 1 1/4"	Each	4		4
Temporary Soil Retention System	Sq. Ft.		326	326
Furnishing Soldier Piles (W Section)	Foot		395	395
Drilling And Setting Soldier Piles (In Soil)	Cu. Ft.		3,063	3,063
Concrete Sealer	Sq. Ft.		15,493	15,493
Geocomposite Wall Drain	Sq. Yd.		195	195
Crosshole Sonic Logging Access Ducts	Foot		2,129	2,129
Crosshole Sonic Logging Testing	Each		5	5
Class SI Concrete (Miscellaneous)	Cu. Yd.		46.1	46.1
Lightweight Cellular Concrete Fill	Cu. Yd.		1,913	1,913
Decorative Railing (Parapet Mounted)	Foot	507		507
Slope Inclinometer	Each		2	2
Detectable Warnings (Special)	Sq. Ft.	89		89
Bridge Deck Grooving (Longitudinal)	Sq. Yd.	742		742
High Load Multi-Rotational Bearings, Fixed - 250K	Each	11		11
High Load Multi-Rotational Bearings, Fixed - 350K	Each	4		4
High Load Multi-Rotational Bearings, Fixed - 500K	Each	1		1
Drainage Scuppers, DS-11	Each	1		1
Drainage Scuppers, DS-12	Each	6		6
Drainage System	L. Sum	0.5		0.5
Mechanically Stabilized Earth Retaining Wall, Special	Sq. Ft.		2,012	2,012
Pipe Underdrains For Structures 4"	Foot		213	213

INDEX OF SHEETS

1 REVISED ENTIRE SHEET 5/15/20

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL DATA 1
STRUCTURE NO. 016-1701
SHEET NO. S1-03 OF S1-83 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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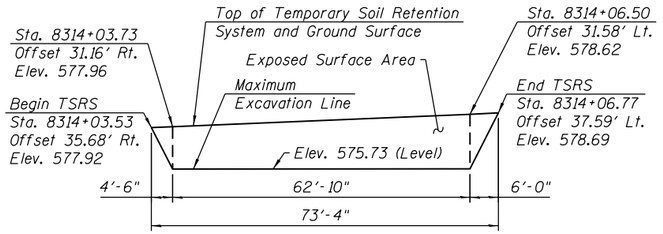
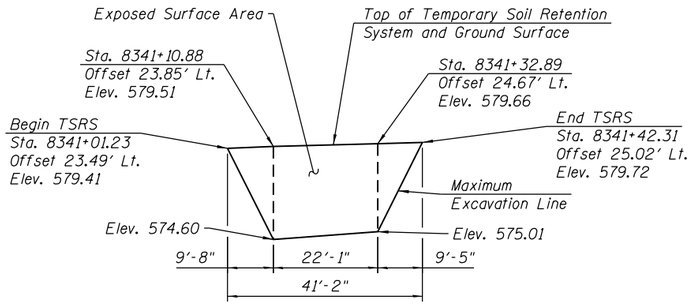
	ILLINOIS FED. AID PROJECT			



TEMPORARY SOIL RETENTION SYSTEM 1 - ELEVATION

(Looking West, Measured along F.F. of TSRS, Stations and offsets from ℄ Adams St.)



TEMPORARY SOIL RETENTION SYSTEM 2 - ELEVATION

(Looking West, Measured along F.F. of TSRS, Stations and offsets from ℄ Adams St. Entrance Ramp)

Notes:

See Utility Plan on Sheets S1-04 and S1-05 of S1-83 for existing utilities.

Driving piles and temporary sheet piling is not allowed.

The maximum allowable excavation is 1:2(V:H).

In addition to vibration and displacement monitoring, the Contractor shall monitor movements with Slope Inclinometers. All inclinometers shall be installed prior to drilling. See special provision for Slope Inclinometer.

Impact driving of piles and sheet piles is not allowed.

A cantilevered sheet piling design does not appear feasible and additional members or other retention systems may be necessary. The Contractor shall submit a soil retention system design including plan details and calculations for review and acceptance by the Engineer. See Special Provision for Temporary Soil Retention System.

BILL OF MATERIAL

Item	Unit	Quantity
Temporary Soil Retention System	Sq. Ft.	326

FOUNDATION LAYOUT

LEGEND:

- Electric — E
- Gas — G
- Prop. Storm Sewer
- Exist. Storm Sewer
- ITS Fiber Optic
- Underground Cable
- Water — W
- Light Pole
- Soil Boring

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FOUNDATION LAYOUT
STRUCTURE NO. 016-1701
SHEET NO. S1-06 OF S1-83 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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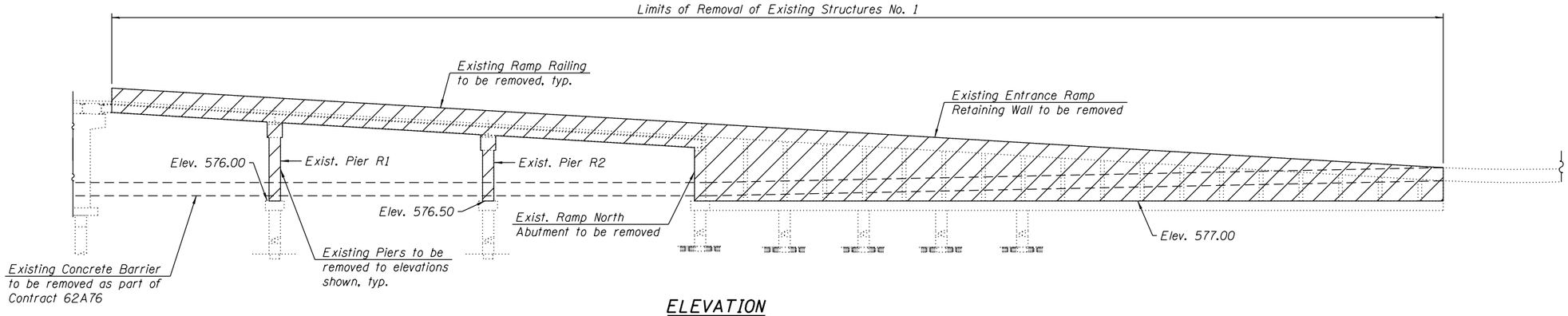
		CONTRACT NO. 60X94		
	ILLINOIS FED. AID PROJECT			



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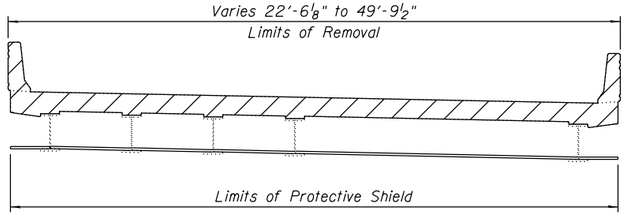
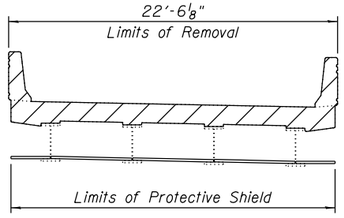


SECTION A-A
(Looking North)



SECTION B-B
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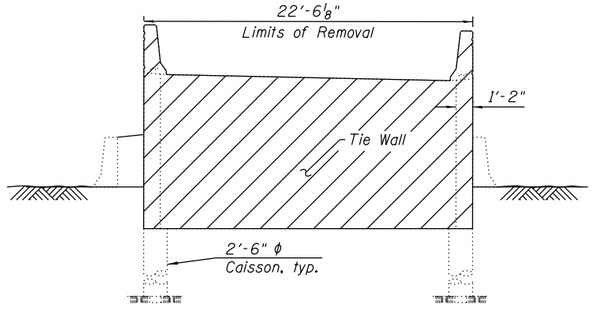

SECTION C-C
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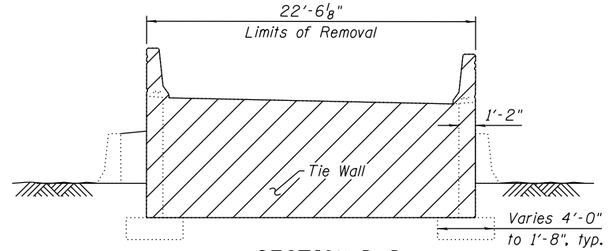
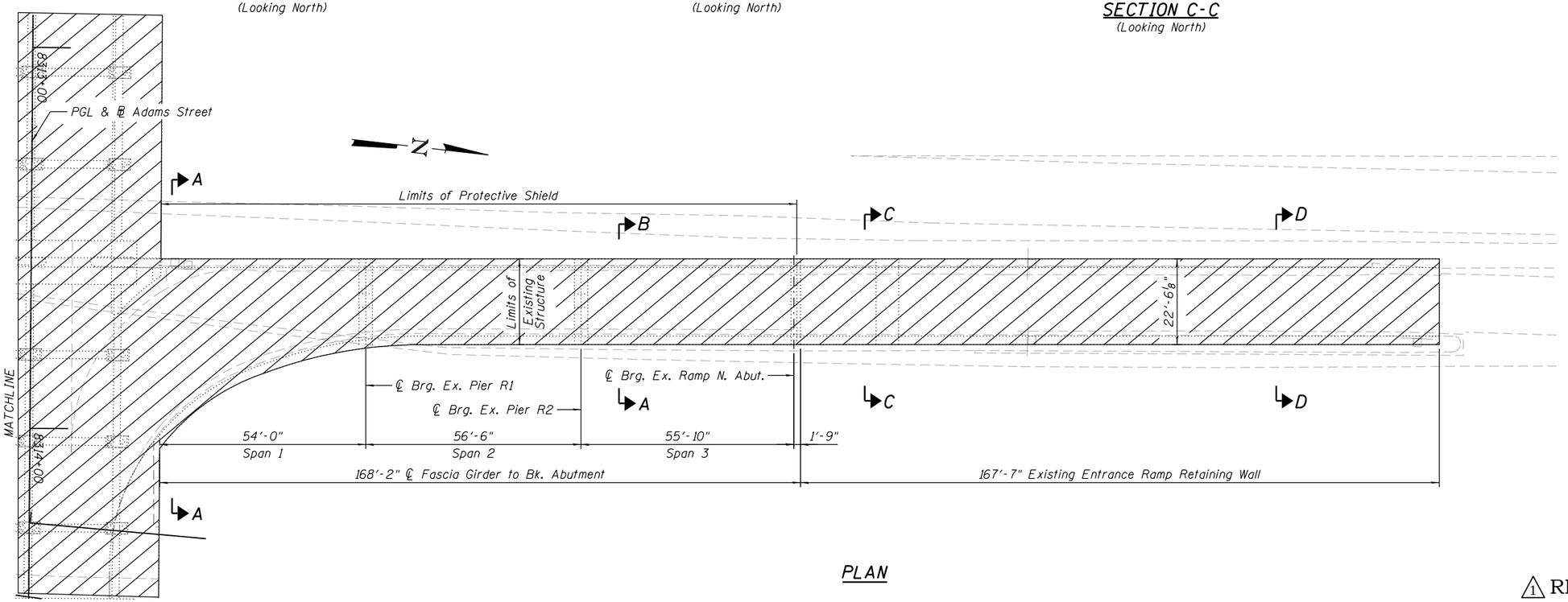


SECTION D-D
(Looking North)



PLAN

LEGEND

Removal of Existing Structures No. 1

Notes:
See Sheet S1-07 of S1-83 for notes.

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	CHECKED MDS	REVISED	
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PLOT DATE = 5/5/2020	CHECKED WJC	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXISTING STRUCTURE REMOVAL DETAILS 2
STRUCTURE NO. 016-1701
SHEET NO. S1-08 OF S1-83 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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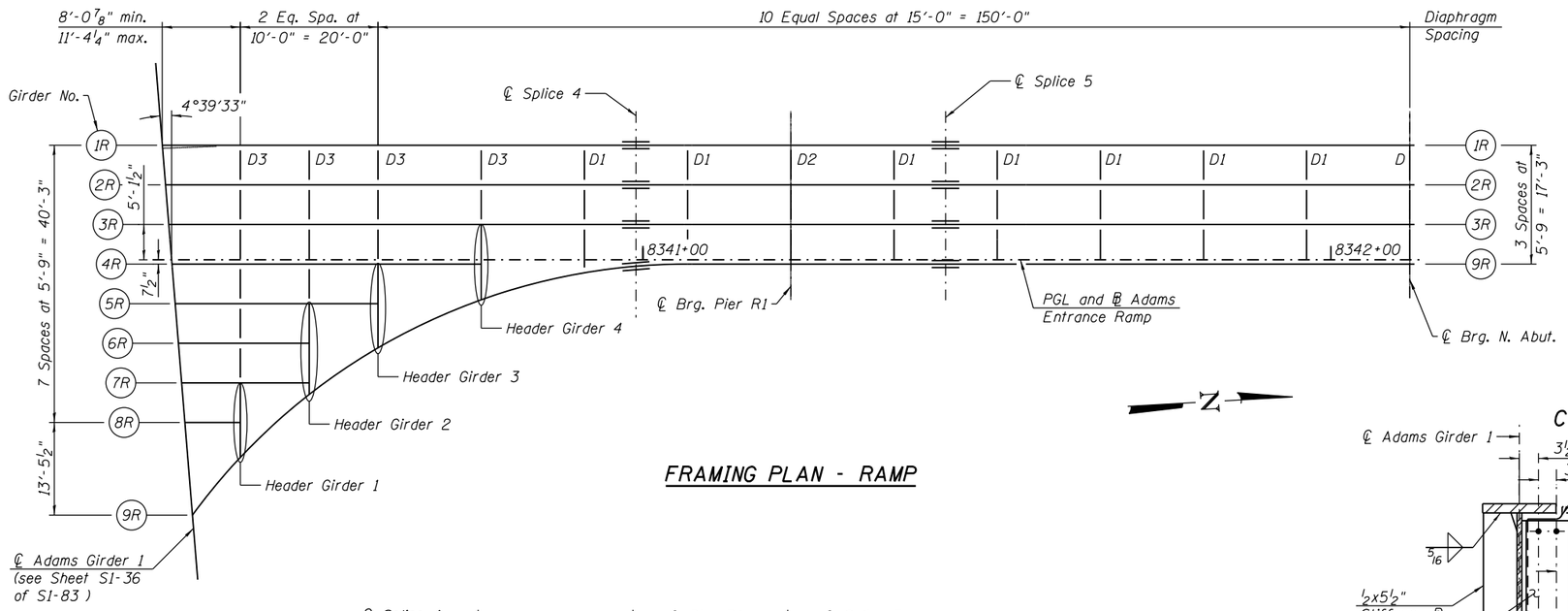
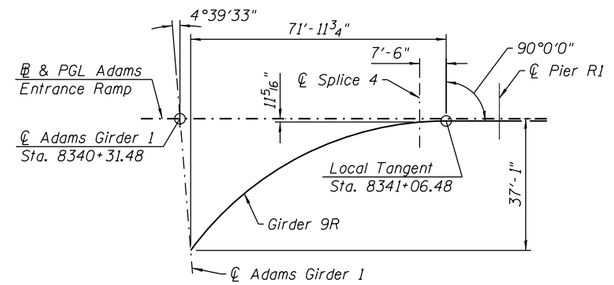
		CONTRACT NO. 60X94		
	ILLINOIS FED. AID PROJECT			

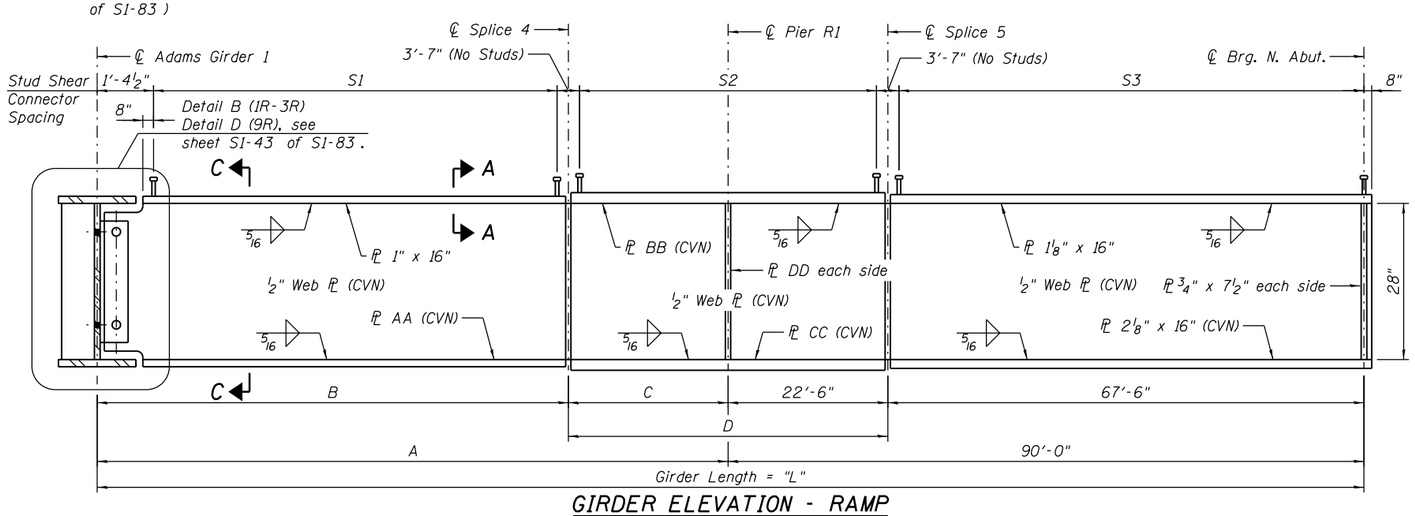


FRAMING PLAN - RAMP



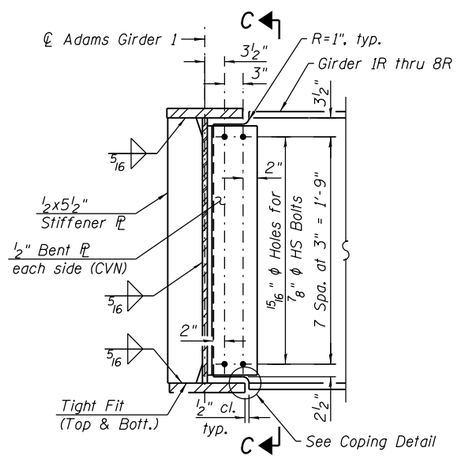
CURVED GIRDER LAYOUT

(X Measured along Local Tangent)

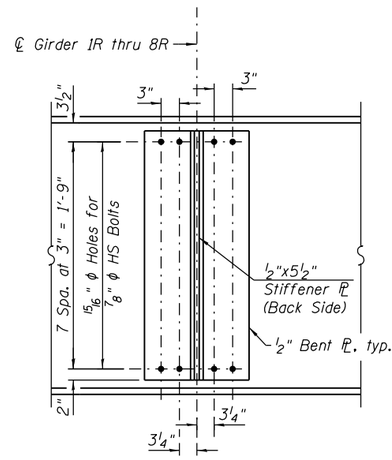


GIRDER ELEVATION - RAMP

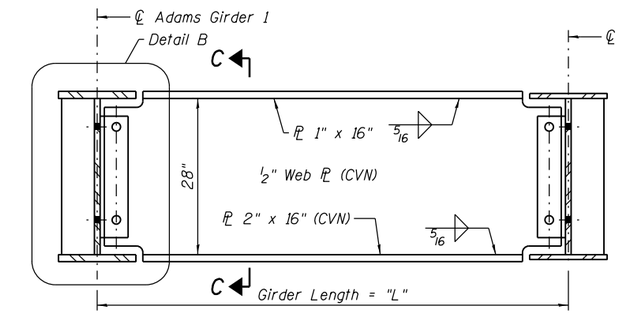
(Girders 1R-3R & 9R)



DETAIL B



SECTION C-C



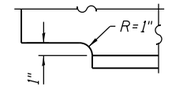
GIRDER ELEVATION - RAMP

(Girders 4R-8R)

GIRDER DIMENSIONS - RAMP

(Girders 4R-8R)
(All dimensions in feet)

Girder	L
4R	44.9491
5R	29.4805
6R	19.0118
7R	18.5432
8R	8.0746



COPING DETAIL

PLATE GIRDER DIMENSIONS - RAMP

(Girders 1R-3R & 9R)

Girder	AA	BB	CC	DD
1R	2"x16"	1 3/4"x16"	2 1/2"x16"	3/4"x7 1/2"
2R	2"x16"	1 3/4"x16"	2 1/2"x16"	3/4"x7 1/2"
3R	2"x16"	1 3/4"x16"	2 1/2"x16"	3/4"x7 1/2"
9R	2 1/8"x18"	1 3/4"x18"	2 1/2"x18"	3/4"x8 1/2"

GIRDER DIMENSIONS - RAMP

(Girders 1R-3R & 9R)
(All dimensions in feet)

Girder	Radius	L	A	B	C	D	S1	S2	S3
1R	-	181.3549	91.3549	68.8549	22.5000	45.0000	132 Spa. at 6" (-) = 65'-8 1/4"	125 Spa. at 4" (-) = 41'-5"	131 Spa. at 6" (-) = 65'-0 1/2"
2R	-	180.8863	90.8863	68.3863	22.5000	45.0000	98 Spa. at 8" (-) = 65'-2 5/8"	125 Spa. at 4" (-) = 41'-5"	157 Spa. at 5" (-) = 65'-0 1/2"
3R	-	180.4177	90.4177	67.9177	22.5000	45.0000	130 Spa. at 6" (-) = 64'-9"	100 Spa. at 5" (-) = 41'-5"	98 Spa. at 8" (-) = 65'-0 1/2"
9R	89.284	188.7171	98.7171	76.2083	22.5088	45.0088	218 Spa. at 4" (-) = 72'-7 1/4"	125 Spa. at 4" (-) = 41'-5 1/8"	196 Spa. at 4" (-) = 65'-0 1/2"

Notes:
Work this sheet with Sheet S1-36 of S1-83 .
For diaphragm details, see Sheet S1-41 of S1-83.
For Section A-A, see Sheet S1-36 of S1-83 .

⚠1 REVISED ENTIRE SHEET 5/15/20

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	CHECKED WJC	REVISED	
PLOT SCALE = NTS	DRAWN JTF	REVISED	
PLOT DATE = 5/5/2020	CHECKED WJC	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FRAMING PLAN – RAMP
STRUCTURE NO. 016-1701
SHEET NO. S1-37 OF S1-83 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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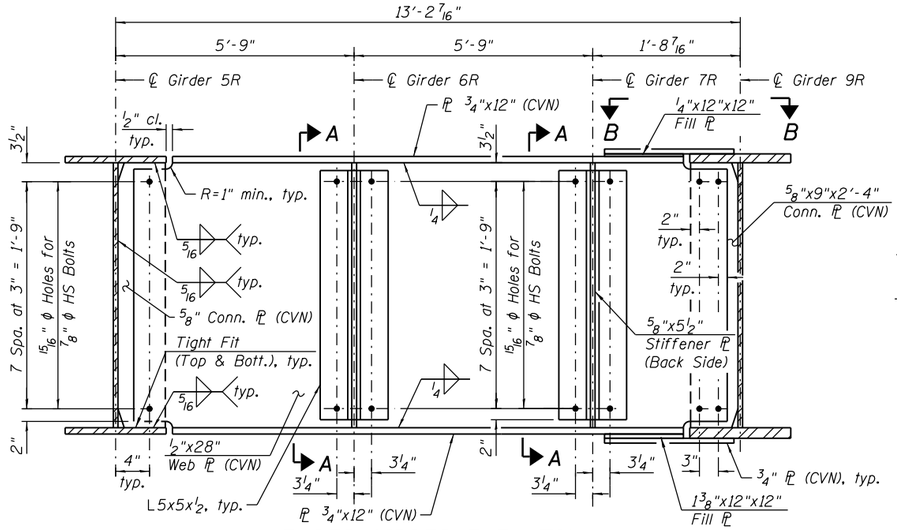
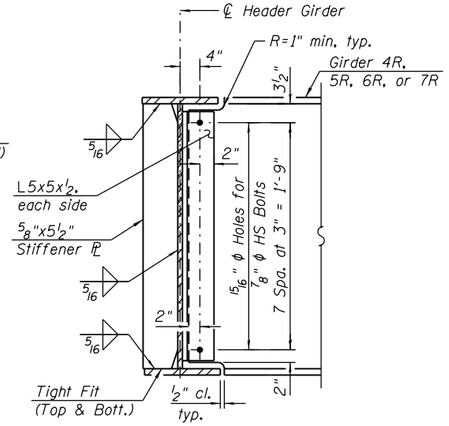
		CONTRACT NO. 60X94		
	ILLINOIS FED. AID PROJECT			

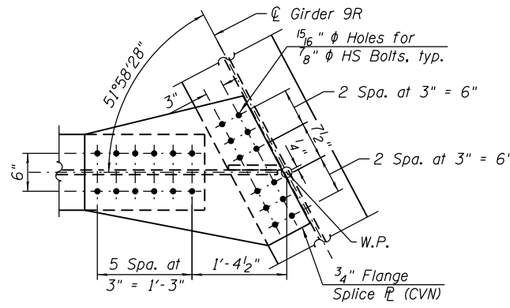


HEADER GIRDER ELEVATION

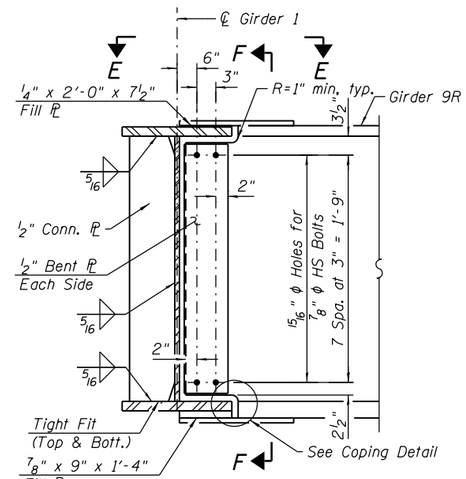
(Header Girder 2)
(Looking upstation)



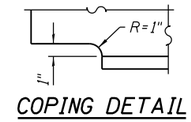
SECTION A-A



SECTION B-B



DETAIL D



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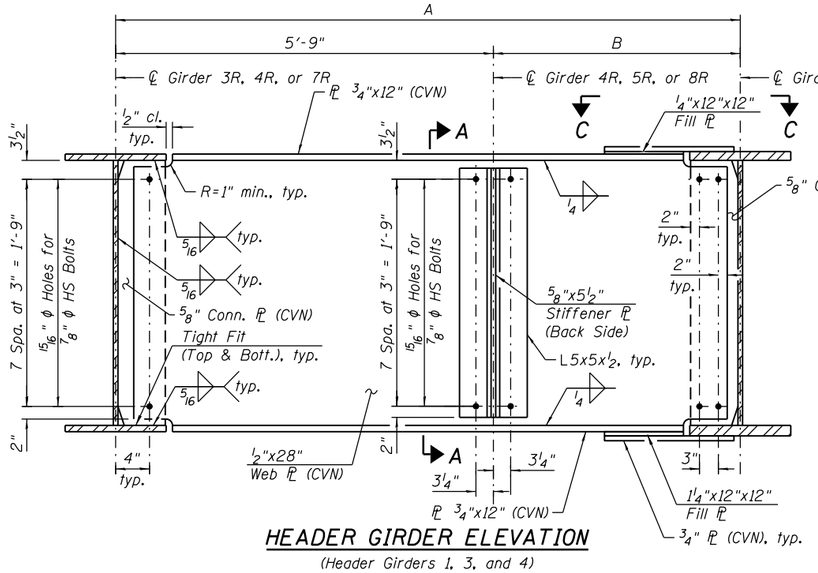
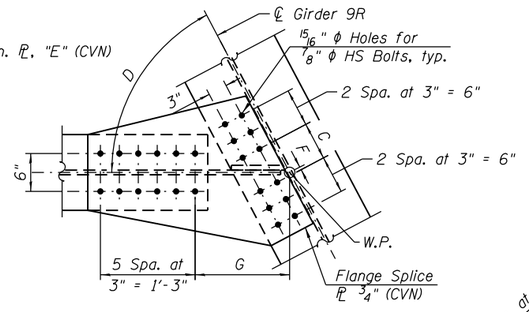
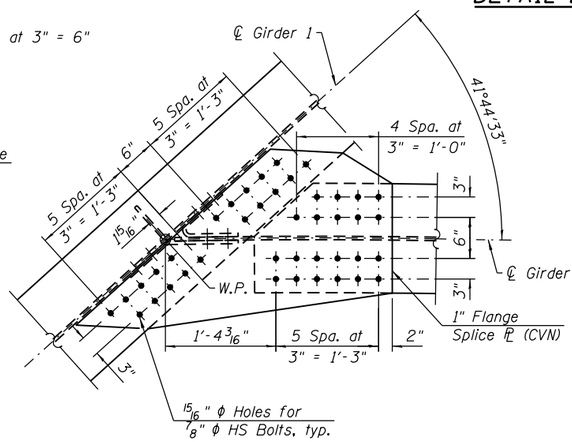


HEADER GIRDER ELEVATION

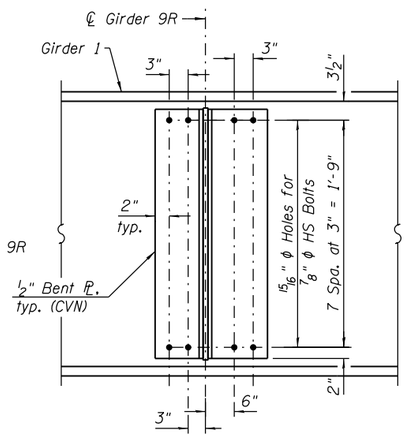
(Header Girders 1, 3, and 4)
(Looking upstation)



SECTION C-C



SECTION E-E



SECTION F-F

HEADER GIRDER TABLE

Header Girder	Longitudinal Girders			Girder Spacing		Angle, D	C	Connection Plate, E	F	G	Top & Bott. Flange Splice Plate
	Left	Center	Right	A	B						
1	7R	8R	9R	10'-9 7/8"	5'-0 7/8"	43°16'47"	9"	5/8" X 10 1/2" X 2'-4"	0"	1'-7 9/16"	3/4" X 1'-6" X 2'-9"
3	4R	5R	9R	12'-2"	6'-5"	59°44'03"	6 1/2"	5/8" X 8 1/2" X 2'-4"	5/8"	1'-2 7/16"	3/4" X 1'-5" X 2'-3"
4	3R	4R	9R	10'-11 1/4"	5'-2 1/4"	70°21'58"	5 1/2"	5/8" X 8" X 2'-4"	1"	1'-0 5/16"	3/4" X 1'-4" X 2'-0"

Notes:
All structural steel shall be AASHTO M 270 Grade 50.
CVN denotes Charpy V-Notch impact energy requirements, Zone 2.

1 REVISED ENTIRE SHEET 5/15/20

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	CHECKED WJC	REVISED	
PLOT SCALE = NTS	DRAWN JTF	REVISED	
PLOT DATE = 5/5/2020	CHECKED WJC	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL DETAILS 6
STRUCTURE NO. 016-1701
SHEET NO. S1-43 OF S1-83 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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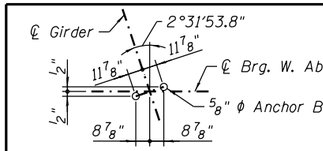
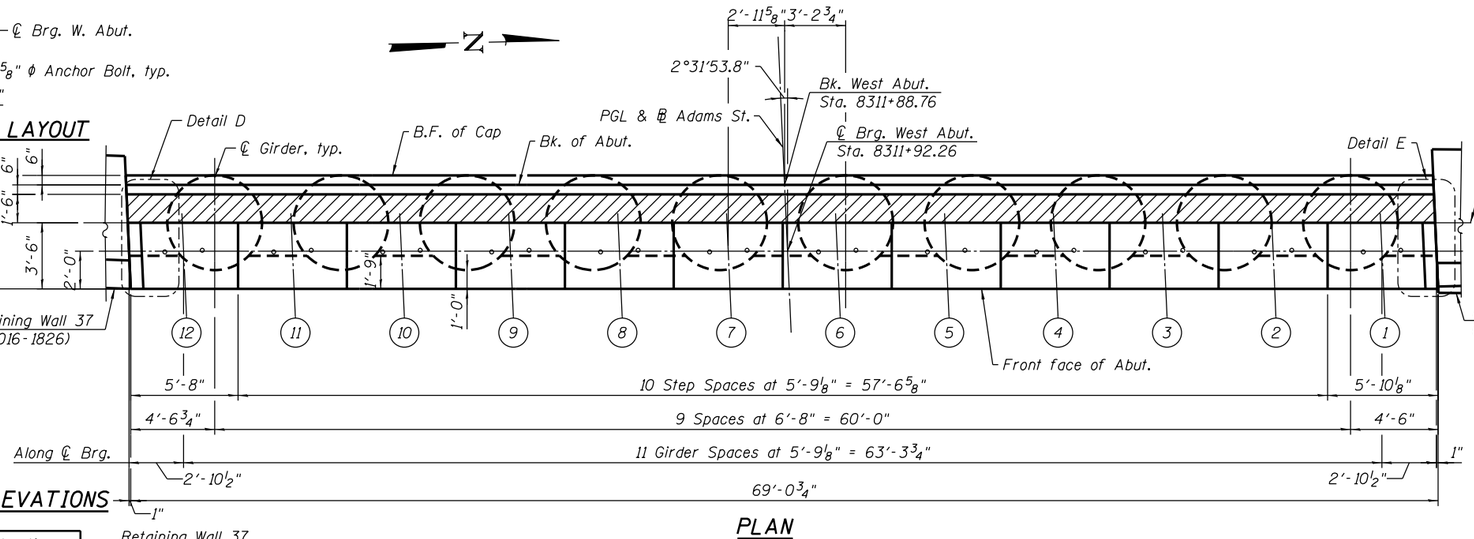
		CONTRACT NO. 60X94		
	ILLINOIS FED. AID PROJECT			

ANCHOR BOLT LAYOUT

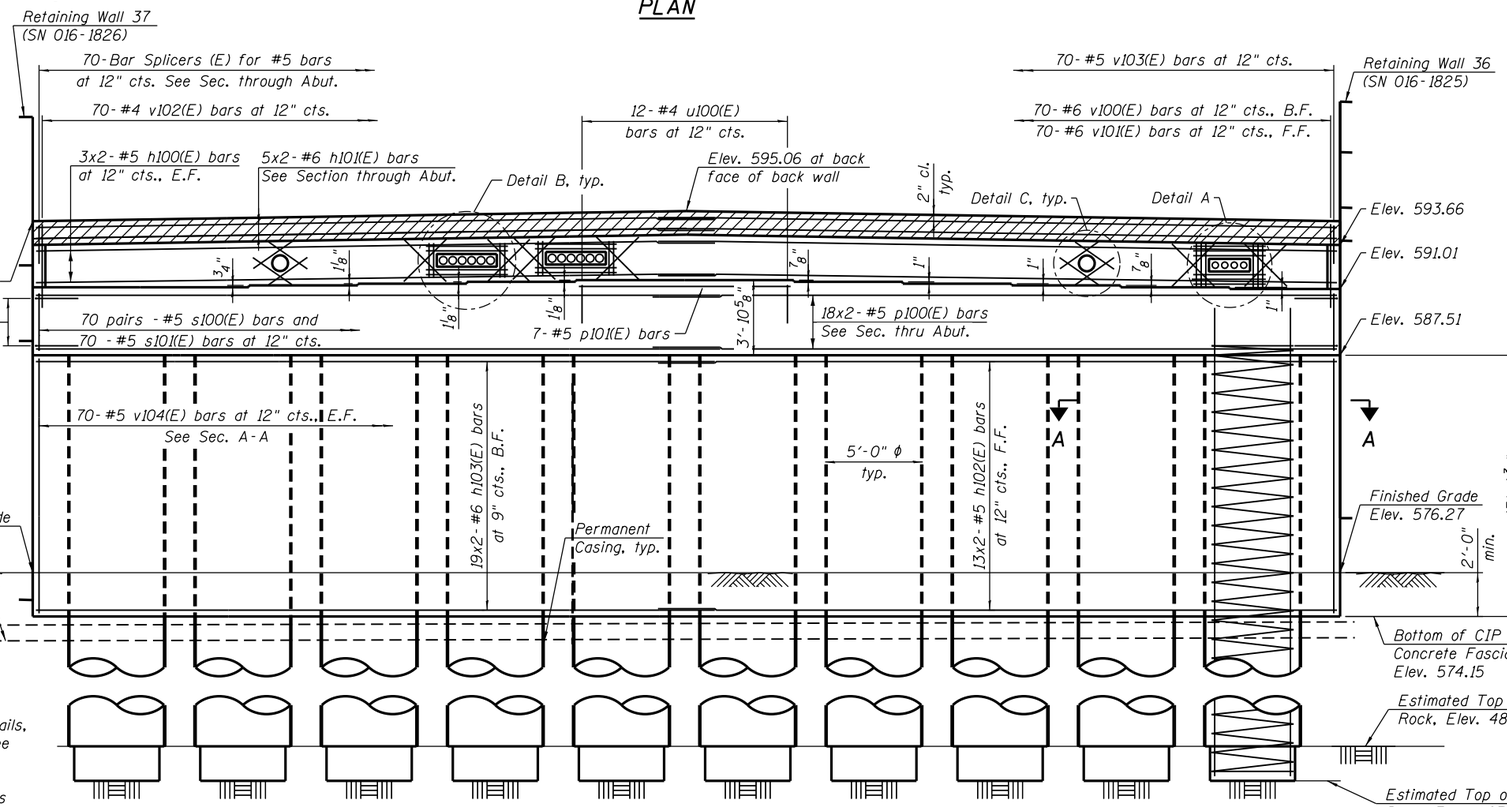


TOP OF SEAT ELEVATIONS

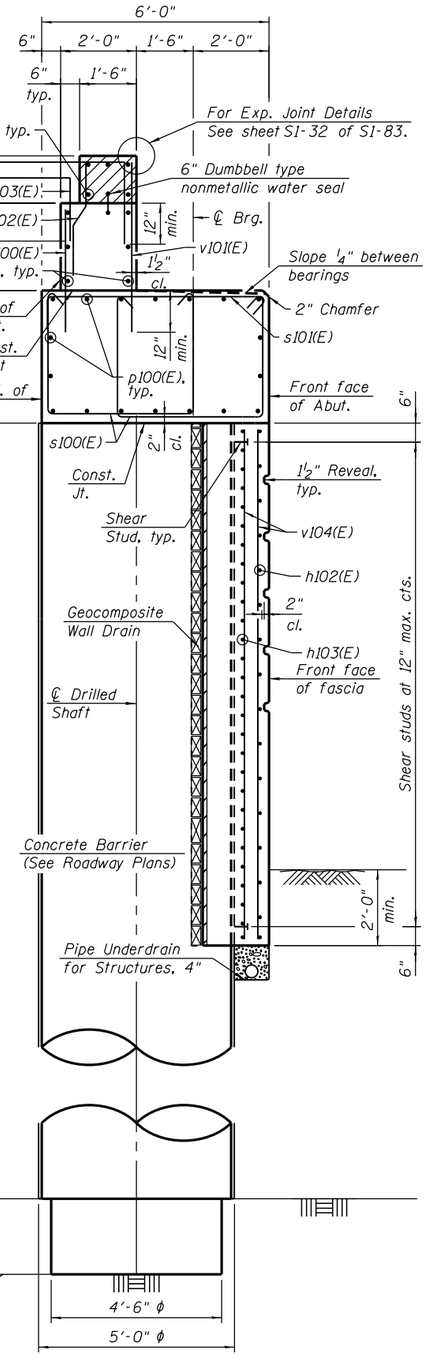
Girder No.	Seat Elevation
1	591.01
2	591.09
3	591.16
4	591.24
5	591.32
6	591.39
7	591.39
8	591.29
9	591.19
10	591.09
11	591.02
12	591.02



PLAN



ELEVATION
(Looking West)



SECTION THROUGH ABUTMENT

Notes:

For Section A-A, Drilled Shaft Details, Bill of Materials, Details A thru E, see Sheet S1-47 of S1-83.

Pour steps Monolithically with cap.

Space Reinforcement in cap to miss anchor bolts.

For Bearing Details, See Sheet S1-44 of S1-83.

Permanent casing shall be installed by twisting and/or pushing the casing in conjunction with drilled excavation inside of the permanent casing. The bottom of the permanent casing shall maintain minimum 2 ft. embedment into underlying soil below the bottom of shaft excavation elevation. Neither the Wet Method of construction nor the use of Temporary Casing will be permitted. See Special Provisions for Foundation Drilling Procedures.

Notes cont.:

Hatched area to be poured after superstructure falsework has been removed. Quantity of concrete included in Concrete Superstructure.

Concrete sealer shall be applied to all exposed faces of the abutment cap and fascia.

Concrete fascia panels shall be paid as Class SI Concrete (Miscellaneous).

Conduit provided by others. Contractor to coordinate with utility owner for location and size of utility blockouts. Cost of utility blockouts included in Concrete Structures. See Utility Plans.

1 REVISED ENTIRE SHEET 5/15/20

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	CHECKED MDS	REVISED	
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PLOT DATE = 5/12/2020	CHECKED MDS	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

WEST ABUTMENT PLAN AND ELEVATION
STRUCTURE NO. 016-1701
SHEET NO. S1-46 OF S1-83 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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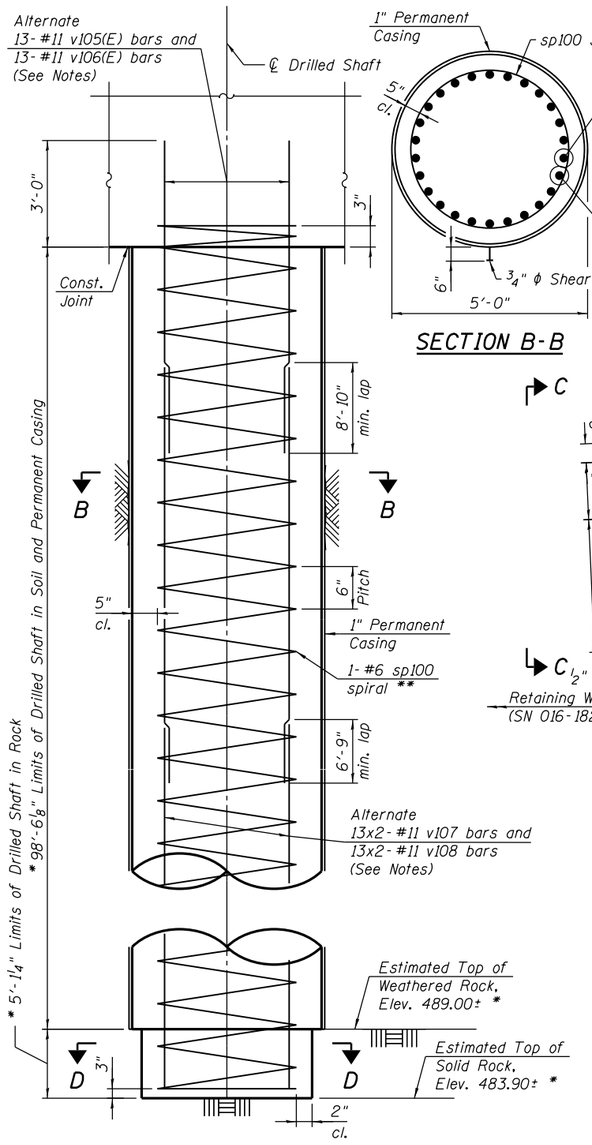
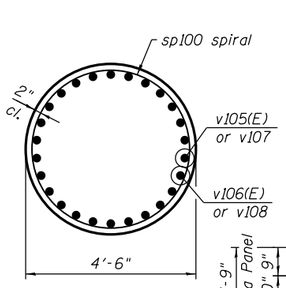
		CONTRACT NO. 60X94		
	ILLINOIS	FED. AID PROJECT		

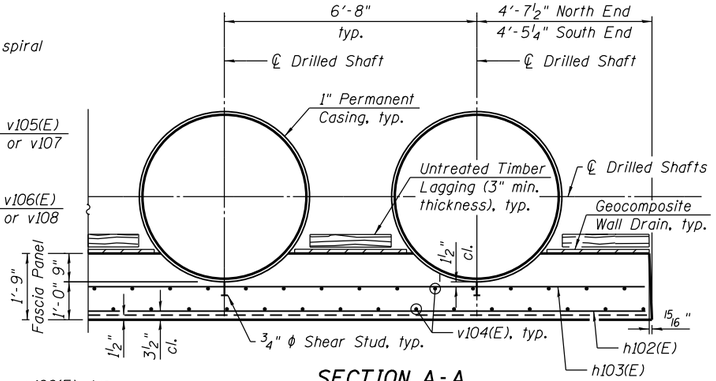


DRILLED SHAFT ELEVATION

SECTION B-B

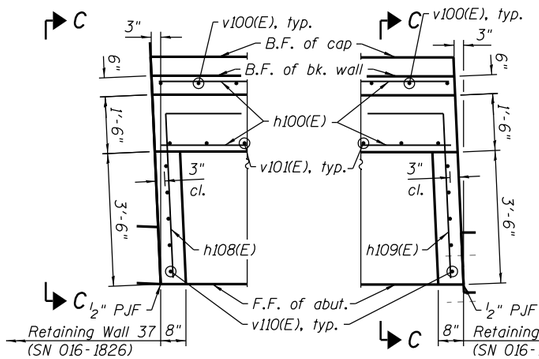


SECTION D-D



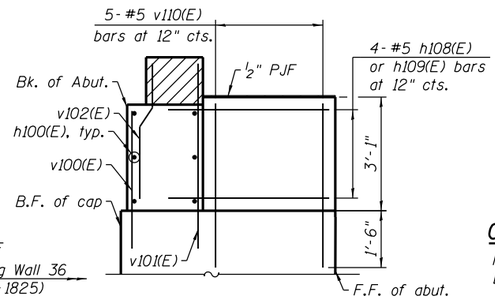
SECTION A-A

(Shaft reinforcement not shown for clarity)



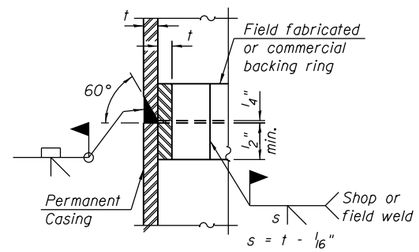
DETAIL D

DETAIL E



SECTION C-C

(Cap reinforcement not shown for clarity)



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.

Notes:

¾"x6" granular or solid flux filled headed studs conforming to Article 1006.32 of the Standard Specifications automatically end welded to casing. Cost of shear studs included in Class SI Concrete (Miscellaneous).

Bars noted thus, 3x2-#5 indicates 3 lines of bars with 2 lengths of bar per line.

When splicing spiral reinforcement is necessary, the spirals shall be provided with 1½" extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4, or shall both terminate in 135° standard hook.

Drilled Shaft quantity from top of existing ground elevation to bottom of abutment cap elevation shall be included with Drilled Shaft in Soil.

Lap v105(E) bars with v107 bars or v106(E) bars with v108 bars.

Install lagging and Geocomposite Wall Drain from top down as excavation proceeds. Minimize over-excavation and backfill voids with dry loose sand. Cost included with Class SI Concrete (Miscellaneous).

The Contractor is responsible for the design and performance of the lagging system, the deflection of the lagging shall be limited to 1" maximum using no less than a 3 in. nominal rough-sawn thickness and timber with a minimum allowable bending stress of 1000 psi, until the concrete facing is installed. The Contractor shall submit design calculations and details prepared by an Illinois Licensed Structural Engineer for the attachment of the lagging to the shaft for approval by the Engineer. Alternative equivalent systems may be submitted for approval by the Engineer. Cost included with Class SI Concrete (Miscellaneous).

Cost of PJF and drain pipe sleeve included in Concrete Structures.

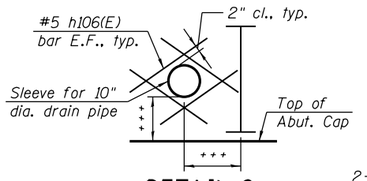
WEST ABUTMENT BILL OF MATERIAL

	Bar	No.	Size	Length	Shape
	h100(E)	12	#5	36'-2"	
	h101(E)	10	#6	36'-5"	
*	h102(E)	26	#5	36'-2"	
*	h103(E)	38	#6	36'-6"	
	h104(E)	12	#5	3'-10"	
	h105(E)	24	#5	4'-6"	
	h106(E)	16	#5	2'-6"	
	h107(E)	24	#5	3'-2"	
	h108(E)	4	#5	6'-9"	
	h109(E)	4	#5	6'-9"	
	p100(E)	36	#5	36'-2"	
	p101(E)	7	#5	11'-2"	
	s100(E)	140	#5	10'-11"	
	s101(E)	70	#5	6'-9"	
**	sp100	10	#6	104'-0"	
	u100(E)	12	#4	7'-8"	
	u101(E)	8	#5	10'-6"	
	v100(E)	70	#6	3'-8"	
	v101(E)	70	#6	4'-11"	
	v102(E)	70	#4	2'-11"	
	v103(E)	70	#5	3'-6"	
*	v104(E)	140	#5	13'-0"	
	v105(E)	130	#11	22'-5"	
	v106(E)	130	#11	24'-5"	
	v107	260	#11	50'-1"	
	v108	260	#11	48'-7"	
	v109(E)	28	#5	2'-4"	
	v110(E)	10	#5	4'-5"	

Structure Excavation	Cu. Yd.	1,066
Concrete Structures	Cu. Yd.	69.5
Concrete Superstructure	Cu. Yd.	4.7
* Stud Shear Connectors	Each	140
Reinforcement Bars	Pound	177,820
Reinforcement Bars, Epoxy Coated	Pound	38,760
Permanent Casing	Foot	990
Drilled Shaft in Soil	Cu. Yd.	716.4
Drilled Shaft in Rock	Cu. Yd.	30.1
Concrete Sealer	Sq. Ft.	1,486
Class SI Concrete (Miscellaneous)	Cu. Yd.	46.1
Lightweight Cellular Concrete Fill	Cu. Yd.	134
Slope Inclinometer	Each	1
Pipe Underdrains for Structures, 4"	Foot	69

* Shown for information only. Cost included with Class SI Concrete (Miscellaneous)

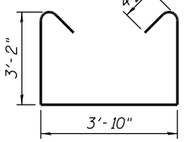
** Length is height of spiral.



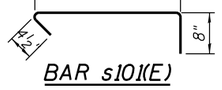
DETAIL C

+++ Coordinate sleeve for 10" dia. drain pipe location with Bridge Drainage System.

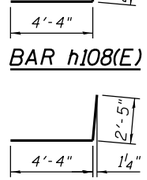
BAR sp100



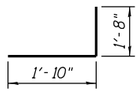
BAR s100(E)



BAR s101(E)

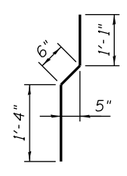


BAR h108(E)

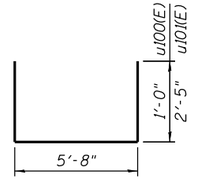


BAR v103(E)

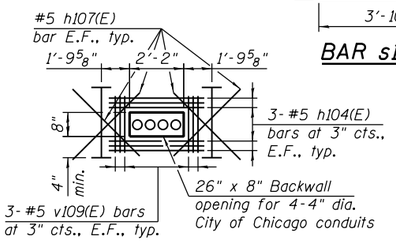
BAR h109(E)



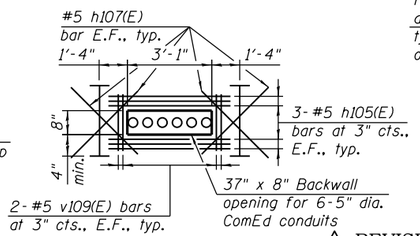
BAR v102(E)



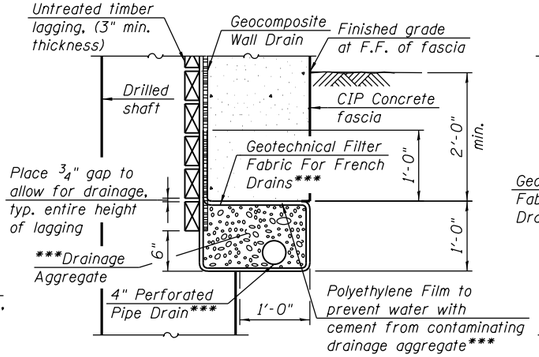
BARS u100(E) and u101(E)



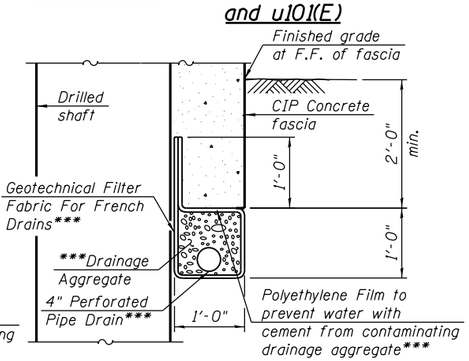
DETAIL A



DETAIL B



PIPE UNDERDRAIN DETAIL BETWEEN DRILLED SHAFTS



PIPE UNDERDRAIN DETAIL THRU DRILLED SHAFT

*** Included in the cost of Pipe Underdrains for Structures, 4"

* The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.

** Provide 1½ extra turns top and bottom of each drilled shaft. Extend spiral 2" into the abutment cap. Provide 4-#4 spacers or equivalent.

1 REVISED ENTIRE SHEET 5/15/20

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Tran Systems

USER NAME = wjcolletti	DESIGNED	TLR	REVISED	
	CHECKED	MDS	REVISED	
PLOT SCALE = NTS	DRAWN	JTF	REVISED	
PLOT DATE = 5/12/2020	CHECKED	WJC	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

WEST ABUTMENT DETAILS
STRUCTURE NO. 016-1701
SHEET NO. S1-47 OF S1-83 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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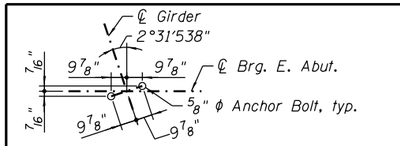
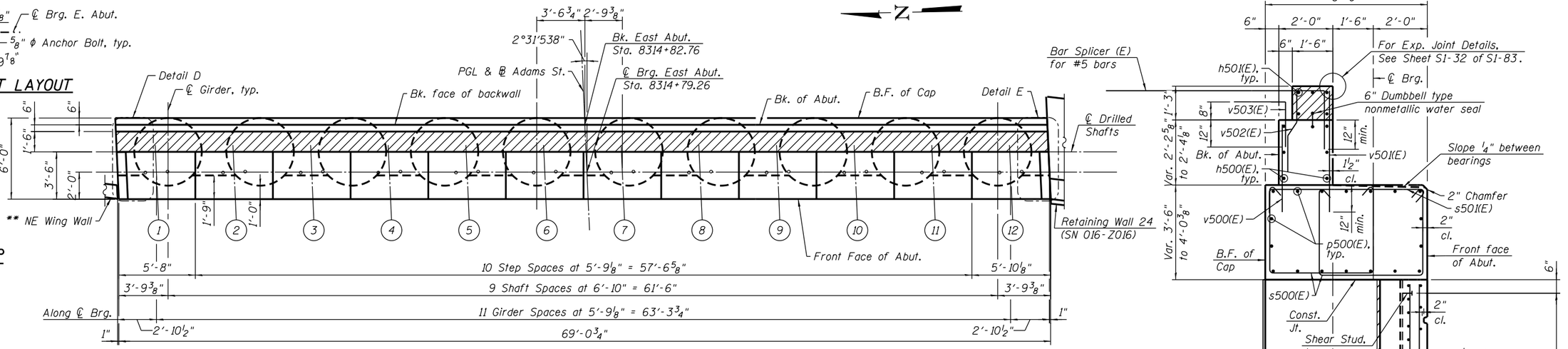
		CONTRACT NO. 60X94		
	ILLINOIS FED. AID PROJECT			



ANCHOR BOLT LAYOUT

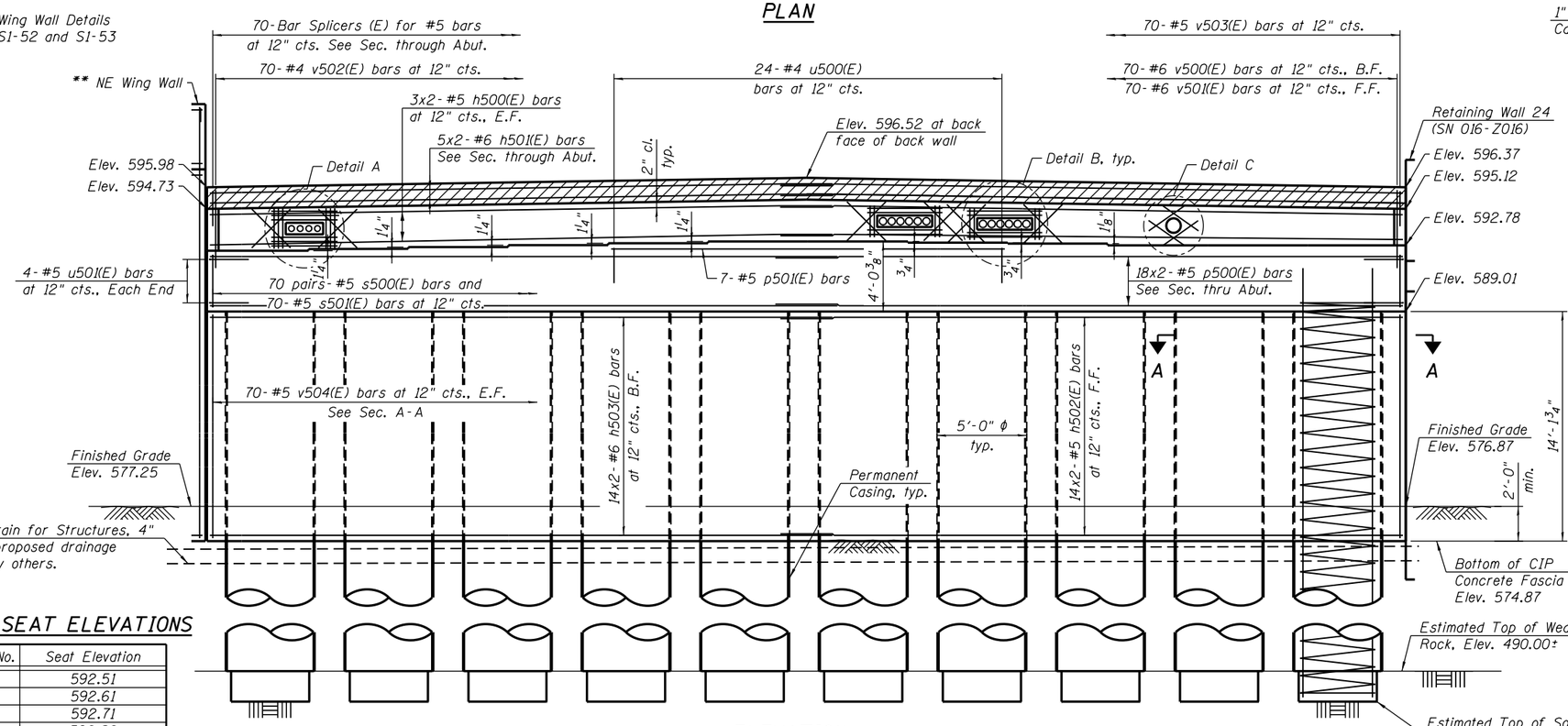
MIN. BAR LAP

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



PLAN

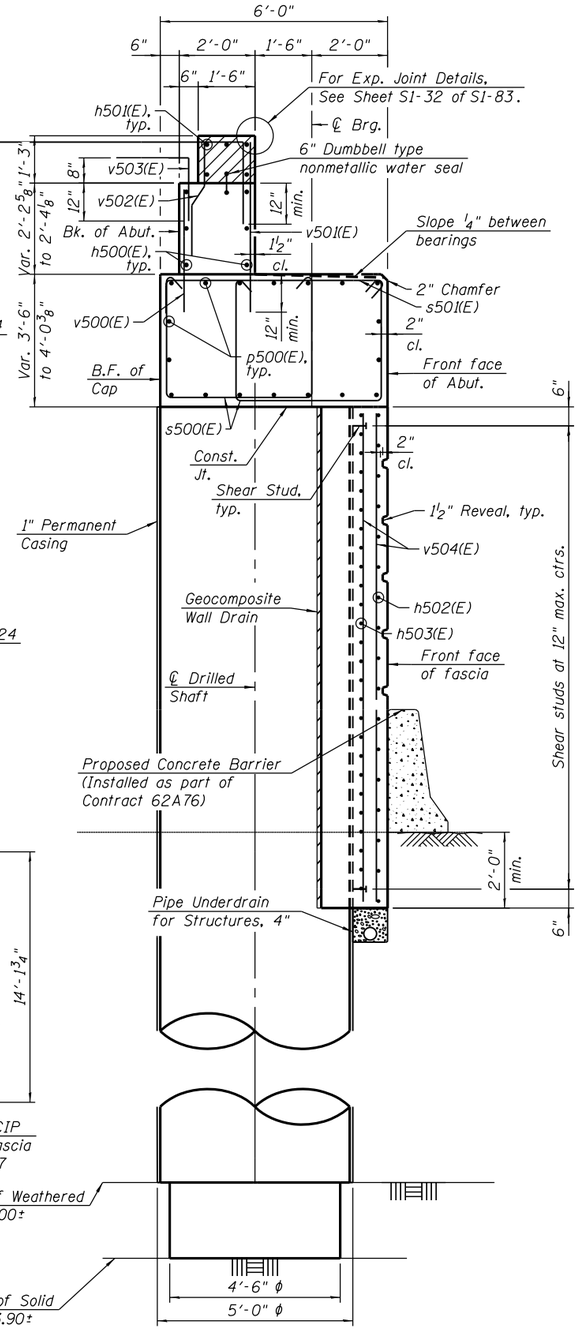
** For NE Wing Wall Details see Sheets S1-52 and S1-53 of S1-83 .



ELEVATION
(Looking East)

TOP OF SEAT ELEVATIONS

Girder No.	Seat Elevation
1	592.51
2	592.61
3	592.71
4	592.82
5	592.92
6	593.02
7	593.02
8	592.95
9	592.88
10	592.78
11	592.78
12	592.78



SECTION THROUGH ABUTMENT

Notes:

For Section A-A, Drilled Shaft Details, Bill of Materials, Details A thru E, see Sheet S1-50 of S1-83.

Pour steps Monolithically with cap.

Space Reinforcement in cap to miss anchor bolts.

For Bearing Details, See Sheet S1-44 of S1-83.

Hatched area to be poured after superstructure falsework has been removed. Quantity of concrete included in Concrete Superstructure.

Notes cont.:

Concrete sealer shall be applied to all exposed faces of the abutment cap and fascia.

Permanent casing shall be installed by twisting and/or pushing the casing in conjunction with drilled excavation inside of the permanent casing. The bottom of the permanent casing shall maintain minimum 2 ft. embedment into underlying soil below the bottom of shaft excavation elevation. Neither the Wet Method of construction nor the use of Temporary Casing will be permitted. See Special Provisions for Foundation Drilling Procedures.

⚠1 REVISED ENTIRE SHEET 5/15/20

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0161701-60X94-S049-Abutment_East P&E.dgn

TranSystems

USER NAME = wjcolletti	DESIGNED TLR	REVISED	
	CHECKED MDS	REVISED	
PLOT SCALE = NTS	DRAWN JTF	REVISED	
PLOT DATE = 5/12/2020	CHECKED WJC	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EAST ABUTMENT PLAN AND ELEVATION
STRUCTURE NO. 016-1701
SHEET NO. S1-49 OF S1-83 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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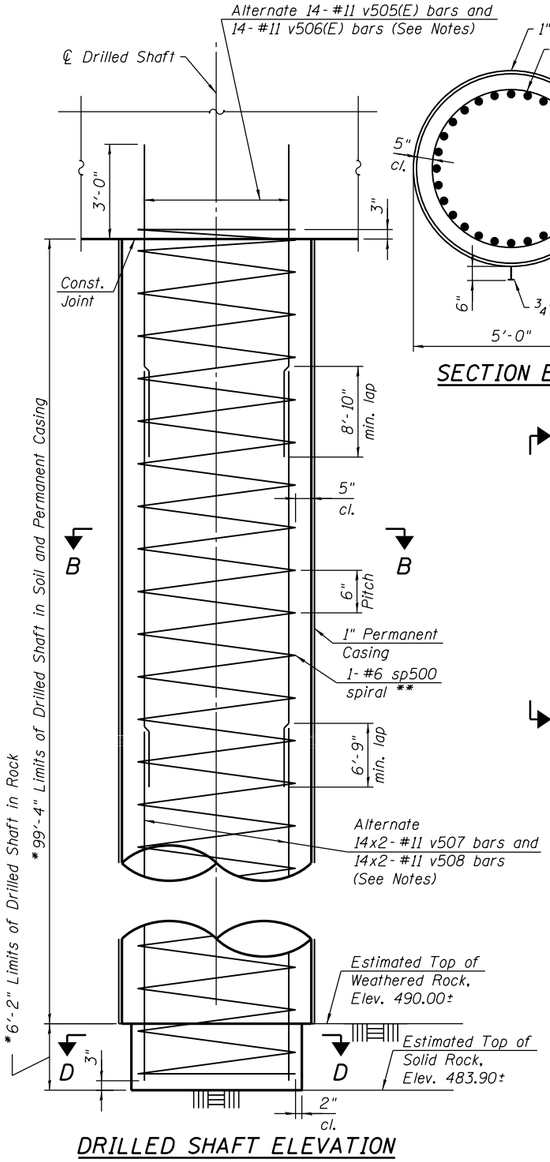
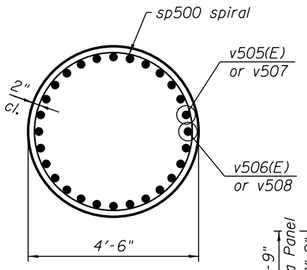
		CONTRACT NO. 60X94		
	ILLINOIS FED. AID PROJECT			

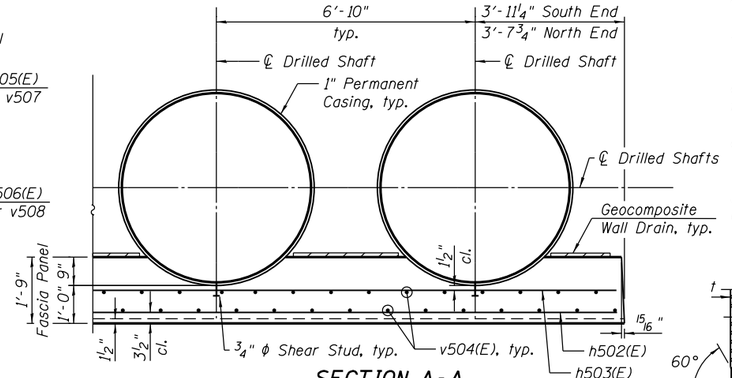


DRILLED SHAFT ELEVATION

SECTION B-B

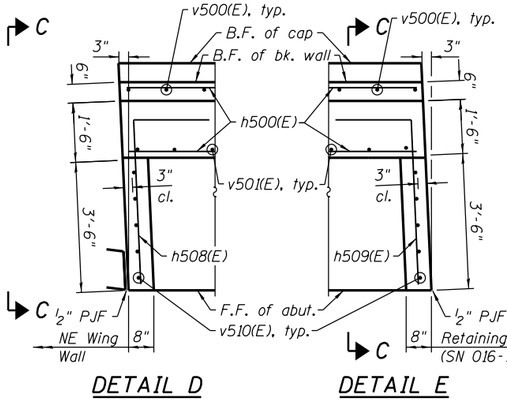


SECTION D-D



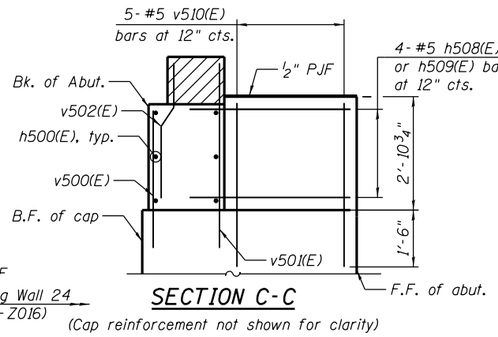
SECTION A-A

(Shaft reinforcement not shown for clarity)



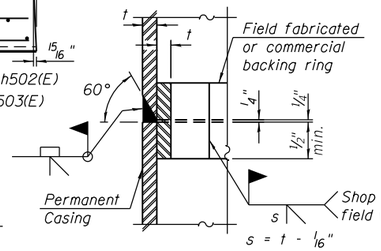
DETAIL D

DETAIL E



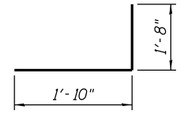
SECTION C-C

(Cap reinforcement not shown for clarity)

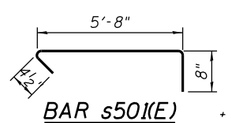


COMPLETE PENETRATION WELD SPLICE

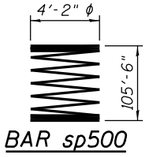
Field fabricated backing ring may be made from pile shell by removing segment to allow reducing circumference and vertically rejoin with partial joint penetration weld.



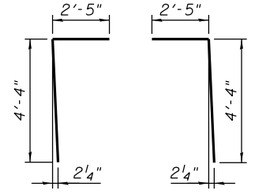
BAR v503(E)



BAR s501(E)

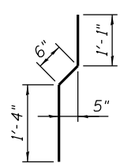


BAR sp500



BAR h508(E)

BAR h509(E)



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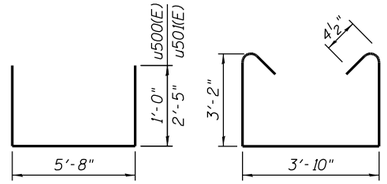
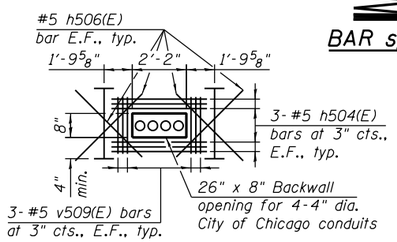
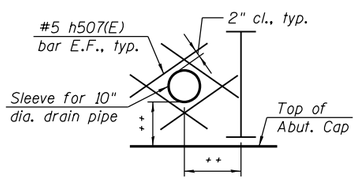


BARS u500(E) and u501(E)

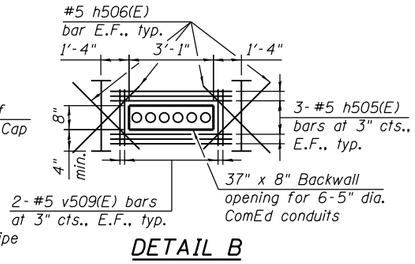
BAR s500(E)



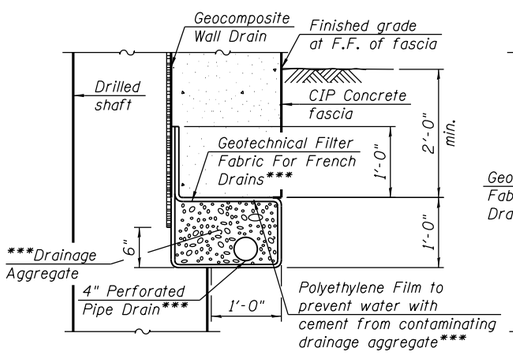
DETAIL A



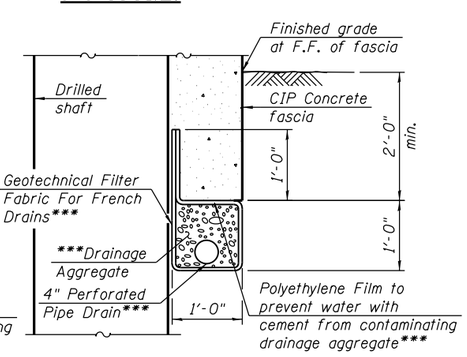
DETAIL C



DETAIL B



PIPE UNDERDRAIN DETAIL BETWEEN DRILLED SHAFTS



PIPE UNDERDRAIN DETAIL THRU DRILLED SHAFT

*** Included in the cost of Pipe Underdrains for Structures, 4"

* The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.

** Provide 1½ extra turns top and bottom of each drilled shaft. Extend spiral 2" into the abutment cap. Provide 4-#4 spacers or equivalent.

++ Coordinate sleeve for 10" dia. drain pipe location with Bridge Drainage System.

Notes:

¾"x6" granular or solid flux filled headed studs conforming to Article 1006.32 of the Standard Specifications automatically end welded to casing.

Bars noted thus, 3x2-#5 indicates 3 lines of bars with 2 lengths of bar per line.

When splicing spiral reinforcement is necessary, the spirals shall be provided with 1½" extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4, or shall both terminate in 135° standard hook.

Drilled Shaft quantity from top of existing ground elevation to bottom of abutment cap elevation shall be included with Drilled Shaft in Soil.

Lap v505(E) bars with v507 bars or v506(E) bars with v508 bars.

Conduit provided by others. Contractor to coordinate with utility owner for location and size of utility blockouts. Cost of utility blockouts included in Concrete Structures. See Utility Plans.

Cost of PJF and drain pipe sleeve included in Concrete Structures.

EAST ABUTMENT BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h500(E)	12	#5	36'-2"	
h501(E)	10	#6	36'-5"	
h502(E)	28	#5	36'-2"	
h503(E)	28	#6	36'-6"	
h504(E)	12	#5	3'-10"	
h505(E)	12	#5	4'-4"	
h506(E)	16	#5	3'-2"	
h507(E)	8	#5	2'-6"	
h508(E)	4	#5	6'-9"	
h509(E)	4	#5	6'-9"	
p500(E)	36	#5	36'-2"	
p501(E)	7	#5	22'-8"	
s500(E)	140	#5	10'-11"	
s501(E)	70	#5	6'-9"	
sp500	10	#6	105'-6"	
u500(E)	24	#4	7'-8"	
u501(E)	8	#5	10'-6"	
v500(E)	70	#6	3'-4"	
v501(E)	70	#6	4'-7"	
v502(E)	70	#4	2'-11"	
v503(E)	70	#5	3'-6"	
v504(E)	140	#5	13'-9"	
v505(E)	140	#11	23'-5"	
v506(E)	140	#11	26'-5"	
v507	280	#11	50'-4"	
v508	280	#11	48'-10"	
v509(E)	20	#5	2'-4"	
v510(E)	10	#5	4'-3"	
Structure Excavation		Cu. Yd.	35	
Concrete Structures		Cu. Yd.	119.2	
Concrete Superstructure		Cu. Yd.	4.8	
Stud Shear Connectors		Each	150	
Reinforcement Bars		Pound	189,640	
Reinforcement Bars, Epoxy Coated		Pound	48,130	
Permanent Casing		Foot	1,000	
Drilled Shaft in Soil		Cu. Yd.	720.1	
Drilled Shaft in Rock		Cu. Yd.	36.0	
Concrete Sealer		Sq. Ft.	1,539	
Geocomposite Wall Drain		Sq. Yd.	109	
Lightweight Cellular Concrete Fill		Cu. Yd.	522	
Slope Inclinometer		Each	1	
Pipe Underdrains for Structures, 4"		Foot	69	

+ Length is height of spiral.

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TranSystems

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	CHECKED WJC	REVISED	
PLOT SCALE = NTS	DRAWN JTF	REVISED	
PLOT DATE = 5/12/2020	CHECKED WJC	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EAST ABUTMENT DETAILS
STRUCTURE NO. 016-1701
SHEET NO. S1-50 OF S1-83 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1421	2014-015R&B-R	COOK	825	352
		CONTRACT NO. 60X94		
	ILLINOIS FED. AID PROJECT			

BORING LOG 0589-B-01

Wang Engineering
wangeng@wangeng.com
1145 North Main Street
Lombard, IL 60148
Telephone: 630-953-9928
Fax: 630-953-9938

WEI Job No.: 1100-04-01

Client: **AECOM**
Project: **Jane Byrne Interchange**
Location: **Section 16, T39N, R14E of 3rd PM**

Datum: NAVD 88
Elevation: 594.82 ft
North: 1899347.34 ft
East: 1171345.80 ft
Station: 8311+86.85
Offset: 16.7442 LT

SOIL AND ROCK DESCRIPTION

Elevation (ft)	Soil and Rock Description
594.3	6-inch thick ASPHALT --PAVEMENT--
593.3	12-inch thick CONCRETE --PAVEMENT--
	Medium dense, brown and black GRAVELLY SAND; dry to moist --FILL--
585.0	Very stiff to hard (4.0P), brown and gray SILTY CLAY LOAM, trace gravel
581.8	Very soft to medium stiff, gray CLAY to SILTY CLAY, trace gravel
	--In-Situ Vane Shear, 19.0 feet-- --$S_{u\ undis}$ = 958.3 psf-- --$S_{u\ remold}$ = 543.9 psf-- --Sensitivity = 1.76--
	--In-Situ Vane Shear, 36.5 feet-- --$S_{u\ undis}$ = 802.9 psf-- --$S_{u\ remold}$ = 284.9 psf-- --Sensitivity = 2.82--
	--In-Situ Vane Shear, 46.5 feet-- --$S_{u\ undis}$ = 1087.8 psf-- --$S_{u\ remold}$ = 647.5 psf-- --Sensitivity = 1.68--

Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
1	5 5 6	NP	8
2	1 8 5	NP	11
3	4 6 6	NP	11
4	3 3 3	NP	13
5	1 2 3	2.54 B	21
6	1 2 2	0.41 B	23
1	PUSH	0.50 P	22
1			
2	PUSH	0.25 P	22
3	PUSH	0.25 P	24
2			
4	PUSH	< 0.25 P	24
3			

GENERAL NOTES

Begin Drilling **06-22-2014** Complete Drilling **06-22-2014**
Drilling Contractor **Wang Testing Services** Drill Rig
Driller **N&R** Logger **A. Happel** Checked by **C. Marin**
Drilling Method **2.25" HSA to 15', mud rotary thereafter, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling **groundwater not observed**
At Completion of Drilling **mud in the borehole**
Time After Drilling **NA**
Depth to Water **NA**
The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 11000401.GPJ WANGENG.GDT 2/21/20

BORING LOG 0589-B-01

Wang Engineering
wangeng@wangeng.com
1145 North Main Street
Lombard, IL 60148
Telephone: 630-953-9928
Fax: 630-953-9938

WEI Job No.: 1100-04-01

Client: **AECOM**
Project: **Jane Byrne Interchange**
Location: **Section 16, T39N, R14E of 3rd PM**

Datum: NAVD 88
Elevation: 594.82 ft
North: 1899347.34 ft
East: 1171345.80 ft
Station: 8311+86.85
Offset: 16.7442 LT

SOIL AND ROCK DESCRIPTION

Elevation (ft)	Soil and Rock Description
542.3	Very stiff to hard, gray SILTY CLAY to SILTY CLAY LOAM, trace gravel
	--L_L(%)=28, P_L(%)=15-- --%Gravel=4.8-- --%Sand=16.4-- --%Silt=55.6-- --%Clay=23.2-- --A-6 (8)--
	--L_L(%)=37, P_L(%)=21-- --%Gravel=0.5-- --%Sand=1.9-- --%Silt=63.3-- --%Clay=34.3-- --A-6 (17)--
518.1	Gray GRAVELLY SANDY LOAM; moist
515.8	Medium dense, gray LOAM; moist
513.1	Dense, gray, fine to medium SAND; moist
504.3	--DIFFICULT DRILLING at 90.5-- Possible Boulders/Cobbles --AUGER REFUSAL--
501.1	Boring terminated at 93.50 ft

Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
5	PUSH	0.25 P	27
7	4 6 10	2.13 B	17
8	5 8 9	2.95 B	16
9	8 9 12	3.94 B	15
10	12 17 18	6.89 B	13
11	4 5 6	1.72 B	28
12	12 10 10	NP	10
13	12 16 17	NP	14
14	13 17 20	NP	16
15	50/1	NP	
16	50/2	NP	

GENERAL NOTES

Begin Drilling **06-22-2014** Complete Drilling **06-22-2014**
Drilling Contractor **Wang Testing Services** Drill Rig
Driller **N&R** Logger **A. Happel** Checked by **C. Marin**
Drilling Method **2.25" HSA to 15', mud rotary thereafter, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling **groundwater not observed**
At Completion of Drilling **mud in the borehole**
Time After Drilling **NA**
Depth to Water **NA**
The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 11000401.GPJ WANGENG.GDT 2/21/20

Notes:
Boring Log 0589-B-01 station and offset are measured along ℄ Adams St.

△1 REVISED ENTIRE SHEET 5/15/20

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TranSystems

USER NAME = wjcolletti	DESIGNED TLR	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
	CHECKED WJC	REVISED	
PLOT SCALE = NTS	DRAWN JTF	REVISED	
PLOT DATE = 5/5/2020	CHECKED WJC	REVISED	

BORING LOGS 1
STRUCTURE NO. 016–1701
SHEET NO. S1-75 OF S1-83 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1421	2014-015R&B-R	COOK	825	377

CONTRACT NO. 60X94
ILLINOIS FED. AID PROJECT

Bench Mark: Cut "X" on southwest balcony of Jackson Blvd. Bridge. Elev. 597.26.

Existing Structure: SN 016-0588. Constructed in 1955 under F.A.I. Route 173, Section 0101.2-2B. Repairs were made to the bridge in 2002 under Section 0101-2-1B-R-1. Three span bridge that measures 199'-9" from back to back of abutments. Out-to-out width varies from 67'-11¾" to 72'-1". The spans are supported by 36" wide flange beams. Substructure is reinforced concrete closed abutments and multi-column piers founded on timber piles. The foundation of the west pier is founded on caissons. The Existing Jackson Entrance Ramp is offset 90° from the centerline of Jackson Boulevard. Three span bridge that measures 169'-10" from back of north abutment to the centerline of the north fascia beam on Jackson Boulevard. Out-to-out width is 22'-6". The spans are supported by 24" wide flange beams. Substructure is reinforced concrete closed north abutment and single hammerhead pier founded on caissons. A concrete cantilever retaining wall extends north of the north abutment for 215'-0". The existing bridge superstructure, piers, and ramp retaining wall were removed as part of Contract 62J31. The existing bridge abutments and wingwalls will be removed in this contract.

The bridge will be closed to traffic and detoured during construction.

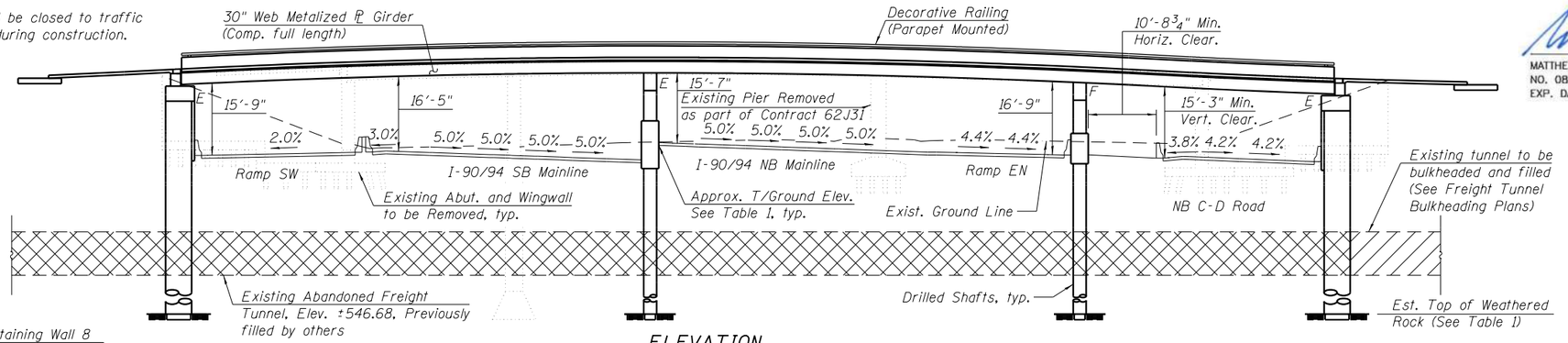
No Salvage.

MATTHEW D. SANTEFORD 081-007244 LICENSED STRUCTURAL ENGINEER OF STATE OF ILLINOIS

03-06-2020

MATTHEW D. SANTEFORD, P.E., S.E.
NO. 081-007244
EXP. DATE 11/30/2020

APPROVED
For Structural Adequacy Only
Engineer of Bridges & Structures



ELEVATION

TABLE 1

Location	Approx. T/Ground Elev.	Approx. T/Weather. Rock Elev.
W. Abut.	576.74	487.80
Pier 1	575.35	489.40
Pier 2	574.36	489.40
E. Abut.	573.14	489.00

SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.085g
Design Spectral Acceleration at 0.2 sec. (S_{DS}) = 0.144g
Soil Site Class = D

LOADING HL-93

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

DESIGN SPECIFICATIONS

2017 AASHTO LRFD Bridge Design Specifications 8th Edition

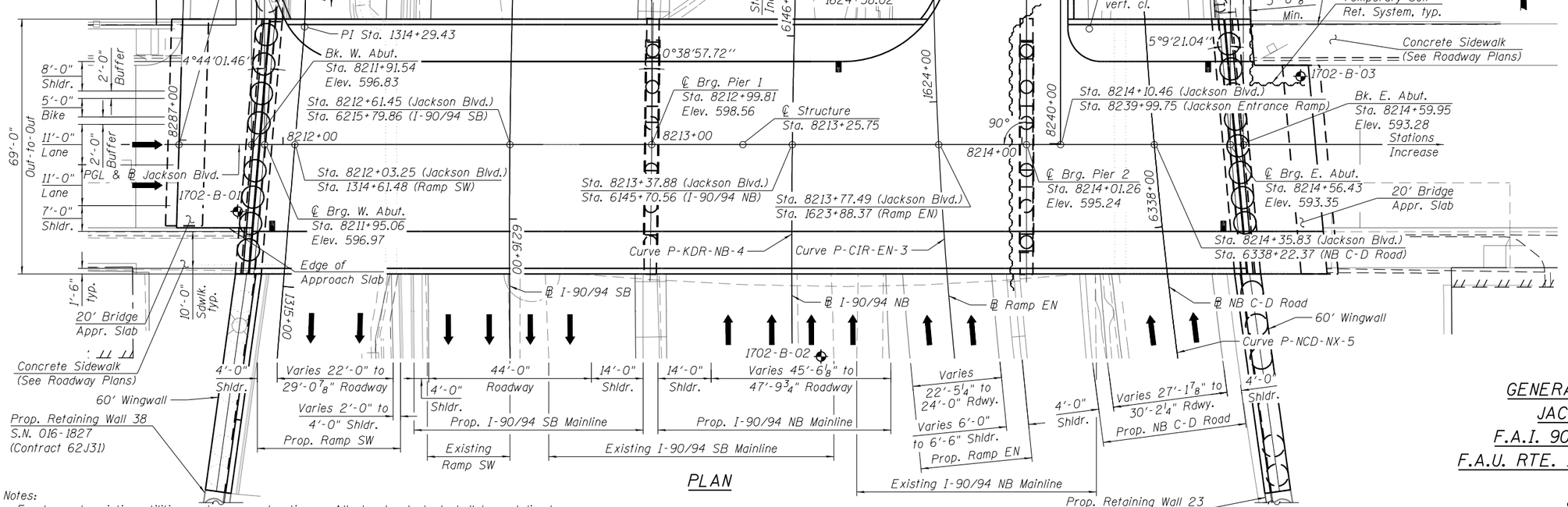
DESIGN STRESSES

FIELD UNITS

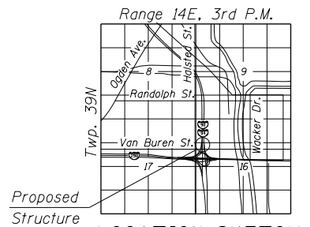
f'c = 3,500 psi
f'c = 4,000 psi (Superstructure Concrete)
fy = 60,000 psi (Reinforcement)
fy = 50,000 psi (M270 Grade 50)

PRECAST UNITS

f'c = 4,500 psi



PLAN



LOCATION SKETCH

GENERAL PLAN AND ELEVATION 1
JACKSON BOULEVARD OVER
F.A.I. 90/94 (KENNEDY EXPRESSWAY)
F.A.U. RTE. 1422 - SECTION 2014-015R&B-R
COOK COUNTY
STATION 8213+25.75
STRUCTURE NO. 016-1702

Notes:
For Legend, existing utilities and scupper locations, see Sheet S2-04 of S2-80.
Driving piles and temporary sheet piling is not allowed due to adjacent buildings.
All structural steel shall be metalized.
Three traffic lanes must be maintained in each direction at all times along I-90/94.
Work this sheet with Sheet S2-02 of S2-80.

1 REVISED ENTIRE SHEET 5/15/20

USER NAME = wjcollett	DESIGNED	WJC	REVISED	
	CHECKED	MDS/TLR	REVISED	
PLOT SCALE = NTS	DRAWN	WJC	REVISED	
PLOT DATE = 3/5/2020	CHECKED	MDS/TLR	REVISED	

TranSystems

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET NO. S2-01 OF S2-80 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1422	2014-015R&B-R	COOK	825	386
		CONTRACT NO. 60X94		
		ILLINOIS FED. AID PROJECT		

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0161702-60X94-S001-GPE1.dgn

GENERAL NOTES:

1. Fasteners shall be ASTM A325 Type 1, hot dip galvanized bolts. Bolts $^{7}/_{8}$ in. ϕ, holes $^{15}/_{16}$ in. ϕ, unless otherwise noted.
2. Calculated weight of Structural Steel = 979,270 pounds (AASHTO M270 Grade 50).
3. All structural steel shall be metalized (see Special Provision).
4. Expansion joint plates and attached bars shall be shop painted with the inorganic zinc rich primer.
5. No field welding is permitted except as specified in the contract documents.
6. Reinforcement bars designated (E) shall be epoxy coated.
7. Plan dimension and details relative to existing plans are subject to nominal construction variations. The Contractor shall field verify existing dimensions and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in scope of work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.
8. Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of $^{1}/_{8}$ inch (0.01 ft.). Adjustment shall be made either by grinding the surface or by shimming the bearings.
9. Concrete Sealer shall be applied to the designated areas of the Piers, Abutments, Wingwalls and Retaining Walls.
10. For Conduit Attached to Structure quantities and details, see Electrical Plans.
11. The contractor shall exercise extreme caution during construction to make certain that construction activities, live load surcharge and other loads applied to the structures will not have detrimental effects on the adjacent building foundations. Any damage during construction shall be repaired by the contractor at his expense and no charge to the department. Driving piles and temporary sheet piling is not allowed.
12. Slipforming of parapets is not allowed.
13. For drilled shaft locations where permanent casing is required as shown on the plans, the casing will be paid for under the Permanent Casing pay item. If contractor elects to use permanent casing for ease of construction in locations where permanent casing is not required on the plans, the casing will not be paid for separately and is included in the Drilled Shaft in Soil pay item.
14. Limited groundwater elevation data is available in the boring logs. In addition, groundwater may also be present in deeper granular layers. The groundwater may rise in the shafts to an elevation above the top of granular layers. The Contractor shall consider this information when choosing construction methods. The Contractor will not be compensated for issues related to the groundwater elevation.
15. The Contractor shall take all necessary precautions not to contaminate groundwater during the drilled shaft construction operation. Contractor is responsible for the proper containment and disposal of the contaminated groundwater and spoils resulting from Contractor's means and methods. No additional cost will be paid for this effort.
16. The Contractor shall field verify location of existing utilities prior to construction. The Contractor shall take precautions not to damage existing utilities. Any such damage shall be repaired by the Contractor at no additional cost. The Contractor shall locate ComEd ductbanks prior to preparation of MSE shop drawings.
17. Structural steel erection shall be accomplished by a steel erection contractor or subcontractor certified as an Advanced Certified Steel Erector (ACSE) by the American Institute of Steel Construction (AISC). See special provision for Erection of Complex Steel Structures.
18. The Drilled Shaft quantities and reinforcement detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft locations and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.
19. Based on the squeeze potential of the clay soils, the use of temporary casing will be required to Elevation 540.00 in order to properly construct the drilled shafts. Casing may be pulled or left in place, as determined by the Contractor at no cost to the Department.
20. The Contractor shall coordinate the construction of the proposed structure with the construction of the proposed Retaining Wall 24, Retaining Wall 37, Retaining Wall 8 and the proposed Adams St. Bridge. See MOT plan sheets and special provisions, including the Available Work Areas and Sequencing Requirements special provision, for additional construction and coordination requirements.
21. The Contractor shall provide vibration and displacement monitoring at the locations specified in the Special Provision for Construction Vibration Monitoring and Monitoring Adjacent Structures, to ensure that removal/construction activities in the vicinity of the structures do not have detrimental effects on building foundations. No additional compensation shall be provided to the Contractor for alternative means and methods, or additional precautionary measures, required during removal/construction activities to satisfy these requirements. See Contract Special Provisions for details.
22. MSE Wall supplier shall design the MSE Wall assuming granular reinforced mass with an effective internal friction angle of 34 degrees and unit weight of 120 lbs./cu. ft. For embankment behind granular reinforced mass, an embankment unit weight of 120 lbs./cu. ft and an effective friction angle of 30 degrees shall be used in the wall system design.
23. All Lightweight Cellular Concrete Fill for the abutments and wingwalls shall be Class I. All Lightweight Cellular Concrete Fill for the MSE retaining wall shall be Class III. See Special Provisions.
24. Bridge Deck Grooving shall be applied to the Jackson Bridge deck and the west and east approach slabs. Bridge Deck Grooving (Longitudinal) shall be applied to the Jackson Ramp deck, north approach slab, and entrance ramp concrete and anchorage slabs.
25. If the Contractor elects to use cantilever forming brackets on the exterior beams or girders, the brackets shall be placed at the same locations as required for the hardwood blocks in Article 503.06(b) of the Standard Specifications. If additional cantilever forming brackets are required, hardwood blocking shall be wedged between the exterior and first interior beam at each of these additional bracket locations.

STATION 8213+25.75
BUILT 20-- BY
STATE OF ILLINOIS
F.A.U. RT. 1422 SEC. 2014-015R&B-R
LOADING HL-93
STR. NO. 016-1702

NAME PLATE
See Std. 515001

TOTAL BILL OF MATERIAL

Item	Unit	Super	Sub	Total Quantity
Concrete Removal	Cu. Yd.		676	676
Structure Excavation	Cu. Yd.		4,720	4,720
Concrete Structures	Cu. Yd.		640.2	640.2
Rubbed Finish	Sq. Ft.		3,526	3,526
Concrete Superstructure	Cu. Yd.	1,022.3		1,022.3
Bridge Deck Grooving	Sq. Yd.	1,669		1,669
Form Liner Textured Surface	Sq. Ft.		1,263	1,263
Protective Coat	Sq. Yd.	3,346		3,346
Concrete Superstructure (Approach Slab)	Cu. Yd.	141.4		141.4
Furnishing And Erecting Structural Steel	L. Sum	0.5		0.5
Stud Shear Connectors	Each	22,791		22,791
Reinforcement Bars	Pound		549,800	549,800
Reinforcement Bars, Epoxy Coated	Pound	288,480	161,200	449,680
Bar Splicers	Each		152	152
Mechanical Splicers	Each		144	144
Name Plates	Each		1	1
Permanent Casing	Foot		2,186	2,186
Drilled Shaft in Soil	Cu. Yd.		2,826.5	2,826.5
Drilled Shaft in Rock	Cu. Yd.		67.8	67.8
Preformed Joint Strip Seal	Foot	156		156
Elastomeric Bearing Assembly, Type I	Each	40		40
Anchor Bolts, 5/8"	Each	100		100
Anchor Bolts, 3/4"	Each	16		16
Anchor Bolts, 1"	Each	28		28
Temporary Soil Retention System	Sq. Ft.		1,284	1,284
Concrete Sealer	Sq. Ft.		14,655	14,655
Geocomposite Wall Drain	Sq. Yd.		10	10
Crosshole Sonic Logging Access Ducts	Foot		1,847	1,847
Crosshole Sonic Logging Testing	Each		5	5
Class SI Concrete (Miscellaneous)	Cu. Yd.		211.7	211.7
Lightweight Cellular Concrete Fill	Cu. Yd.		1,447	1,447
Decorative Railing (Parapet Mounted)	Foot	470		470
Steel Railing Removal	Foot		137	137
Slope Inclinometer	Each		1	1
Foundation Construction At Existing Obstructions	Each		5	5
Detectable Warnings (Special)	Sq. Ft.		92	92
Bridge Deck Grooving (Longitudinal)	Sq. Yd.	605		605
High Load Multi-Rotational Bearings, Fixed - 200K	Each	11		11
High Load Multi-Rotational Bearings, Fixed - 300K	Each	4		4
High Load Multi-Rotational Bearings, Fixed - 500K	Each	1		1
Bonded Preformed Joint Sealer, 2 Inch	Foot		55	55
Drainage Scuppers, DS-11	Each	1		1
Drainage Scuppers, DS-12	Each	5		5
Drainage System	L. Sum	0.5		0.5
Mechanically Stabilized Earth Retaining Wall, Special	Sq. Ft.		1,755	1,755
Pipe Underdrains For Structures 4"	Foot		284	284
Removal Of Ornamental Cladding	Foot		137	137

INDEX OF SHEETS

⚠1 REVISED ENTIRE SHEET 5/15/20

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	CHECKED MDS	REVISED	
PLOT SCALE = NTS	DRAWN JTF	REVISED	
PLOT DATE = 5/13/2020	CHECKED WJC	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL DATA 1
STRUCTURE NO. 016-1702
SHEET NO. S2-03 OF S2-80 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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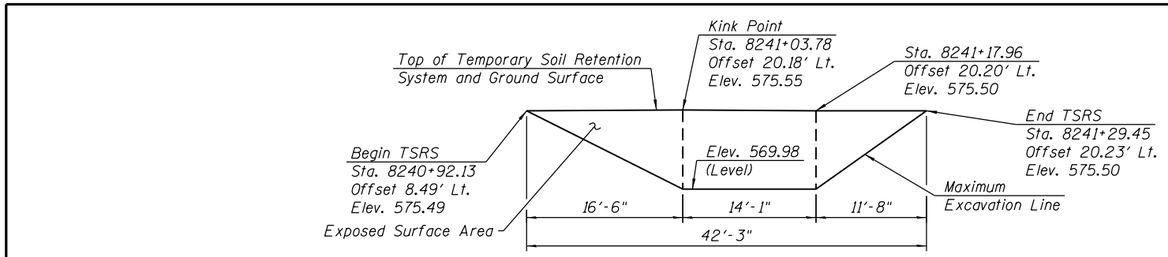
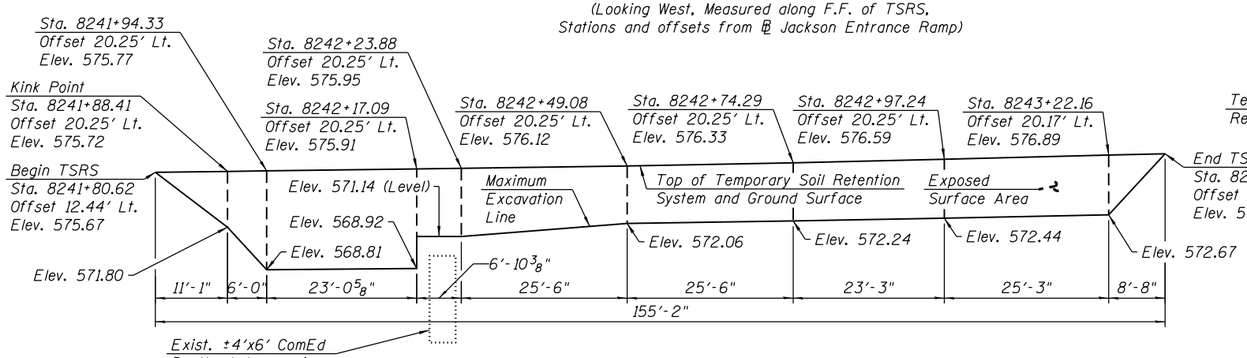
		CONTRACT NO. 60X94		
	ILLINOIS FED. AID PROJECT			



TEMPORARY SOIL RETENTION SYSTEM 3 - ELEVATION

(Looking West, Measured along F.F. of TSRS, Stations and offsets from ℄ Jackson Entrance Ramp)



TEMPORARY SOIL RETENTION SYSTEM 4 - ELEVATION

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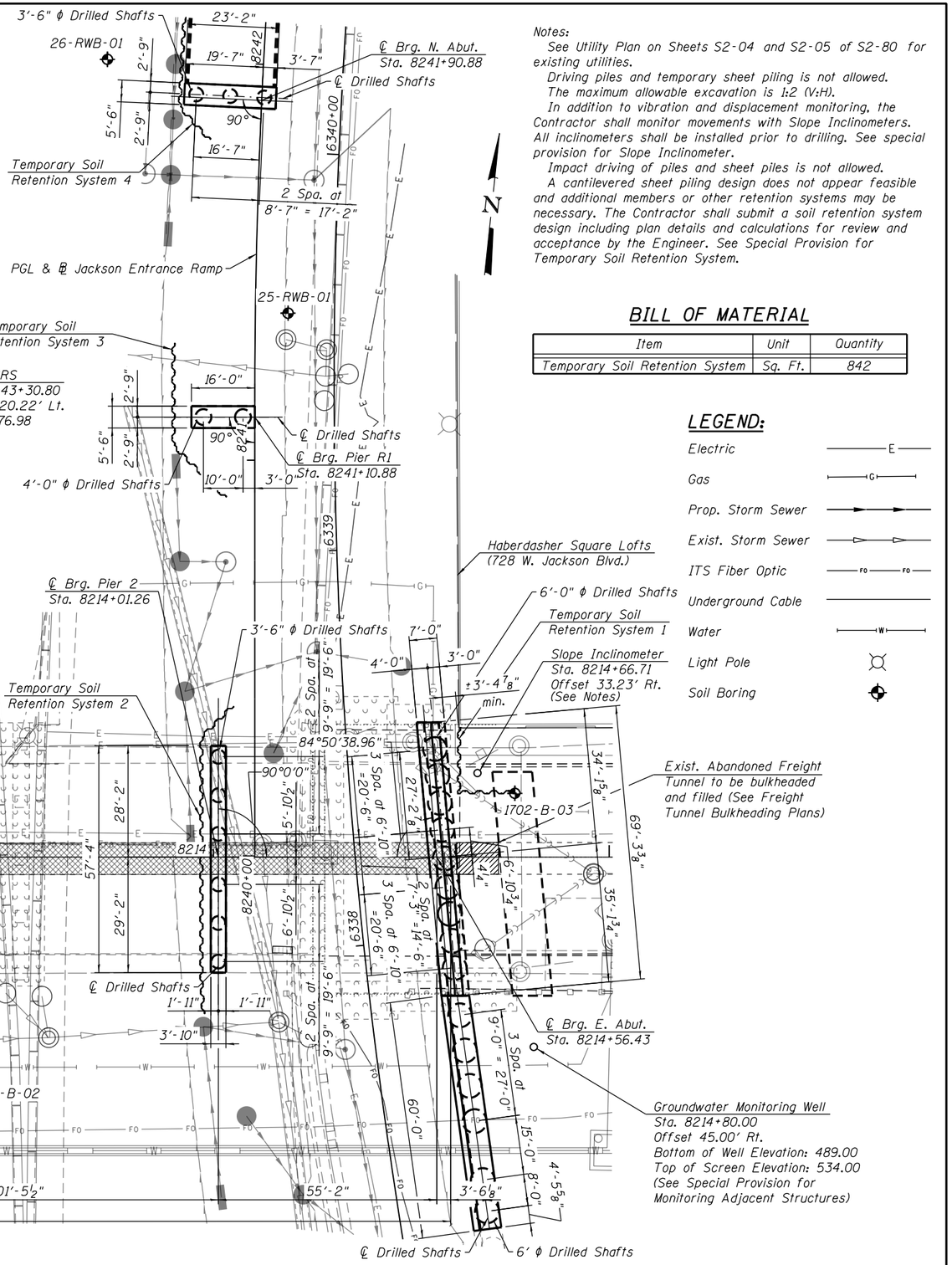

N

Notes:

See Utility Plan on Sheets S2-04 and S2-05 of S2-80 for existing utilities.

Driving piles and temporary sheet piling is not allowed.

The maximum allowable excavation is 1:2 (V:H).

In addition to vibration and displacement monitoring, the Contractor shall monitor movements with Slope Inclinometers. All inclinometers shall be installed prior to drilling. See special provision for Slope Inclinometer.

Impact driving of piles and sheet piles is not allowed.

A cantilevered sheet piling design does not appear feasible and additional members or other retention systems may be necessary. The Contractor shall submit a soil retention system design including plan details and calculations for review and acceptance by the Engineer. See Special Provision for Temporary Soil Retention System.

BILL OF MATERIAL

Item	Unit	Quantity
Temporary Soil Retention System	Sq. Ft.	842

LEGEND:

- Electric — E
- Gas — G
- Prop. Storm Sewer
- Exist. Storm Sewer
- ITS Fiber Optic — FO
- Underground Cable
- Water — W
- Light Pole
- Soil Boring

⚠1 REVISED ENTIRE SHEET 5/15/20

FOUNDATION LAYOUT

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0161702-60X94-S006-FoundLayout.dgn

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	CHECKED	WJC	REVISED
PLOT SCALE = NTS	DRAWN	JTF	REVISED
PLOT DATE = 5/5/2020	CHECKED	WJC	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

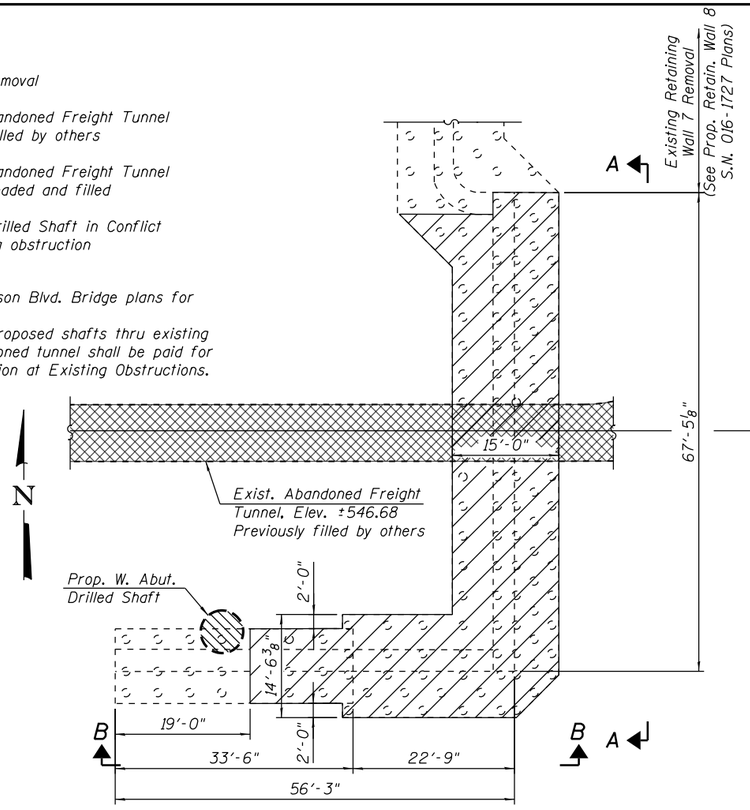
FOUNDATION LAYOUT
STRUCTURE NO. 016-1702
SHEET NO. S2-06 OF S2-80 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1422	2014-015R&B-R	COOK	825	391
		CONTRACT NO. 60X94		
	ILLINOIS FED. AID PROJECT			

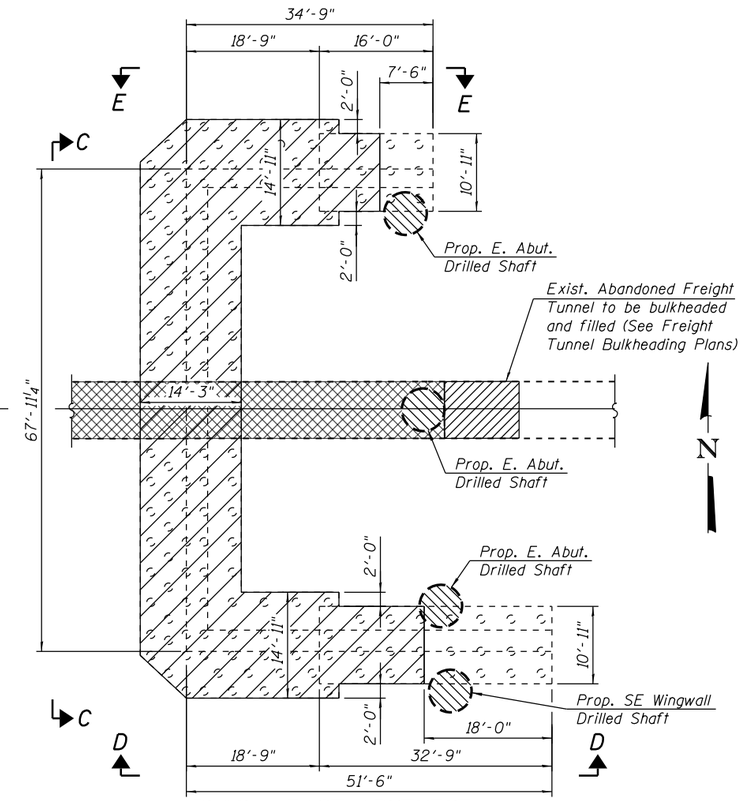
LEGEND

- Concrete Removal
- Existing Abandoned Freight Tunnel previously filled by others
- Existing Abandoned Freight Tunnel to be bulkheaded and filled
- Proposed Drilled Shaft in Conflict with existing obstruction

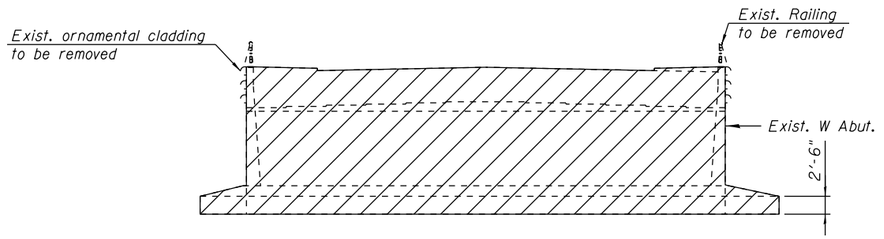
Notes:
See the existing Jackson Blvd. Bridge plans for additional information.
The cost of drilling proposed shafts thru existing footings, piles or abandoned tunnel shall be paid for as Foundation Construction at Existing Obstructions.



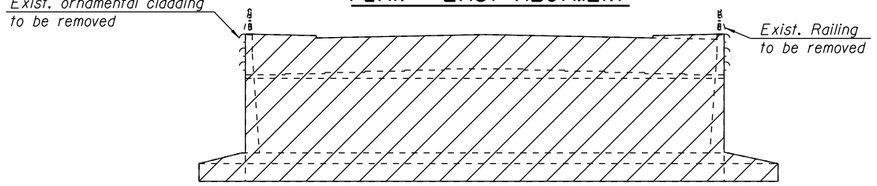
PLAN - WEST ABUTMENT



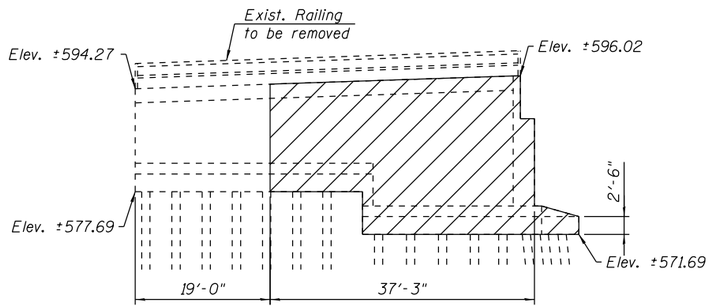
PLAN - EAST ABUTMENT



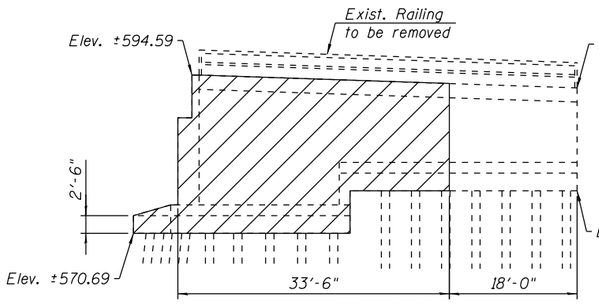
VIEW A-A



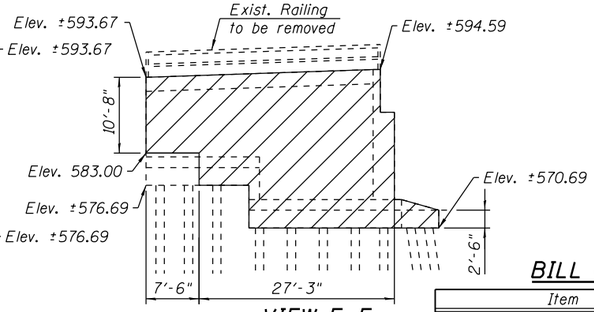
VIEW C-C



VIEW B-B



VIEW D-D



VIEW E-E

BILL OF MATERIAL

Item	Unit	Total
Concrete Removal	Cu. Yd.	676
Steel Railing Removal	Foot	137
Removal of Ornamental Cladding	Foot	137
Foundation Construction at Existing Obstructions	Each	5

1 REVISED ENTIRE SHEET 5/15/20

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	CHECKED MDS	REVISED	
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PLOT DATE = 5/5/2020	CHECKED WJC	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXISTING STRUCTURE REMOVAL DETAILS
STRUCTURE NO. 016-1702
SHEET NO. S2-07 OF S2-80 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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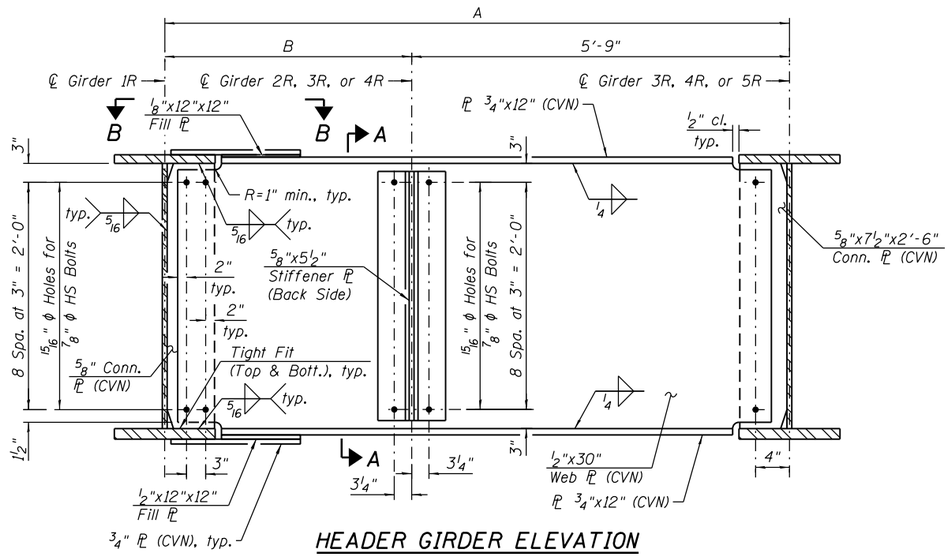
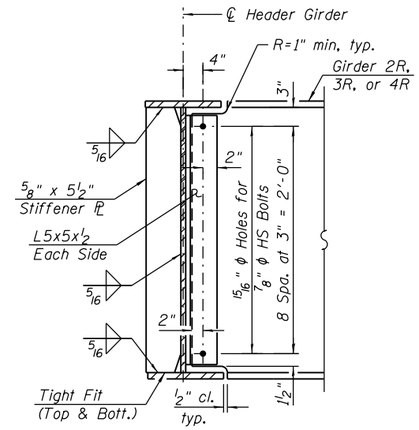
		CONTRACT NO. 60X94		
ILLINOIS	FED. AID PROJECT			

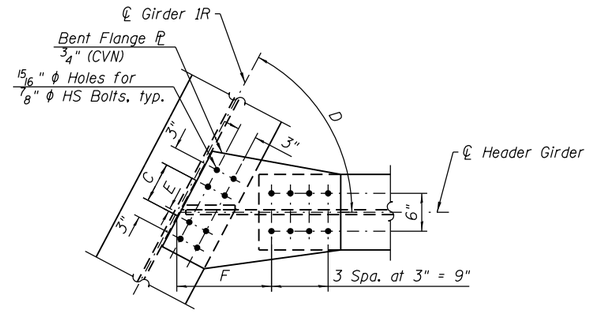


HEADER GIRDER ELEVATION

(Looking upstation)



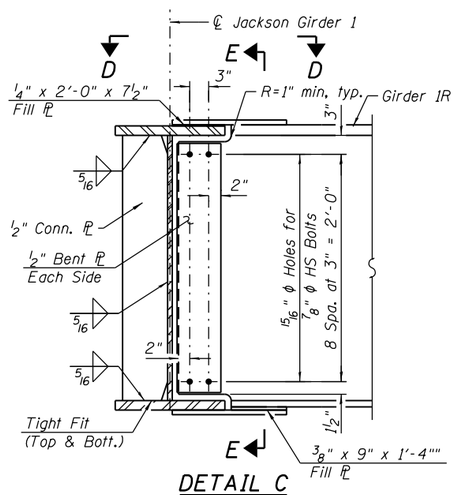
SECTION A-A



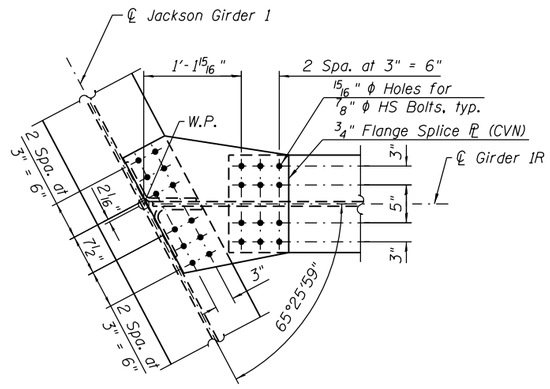
SECTION B-B

HEADER GIRDER TABLE

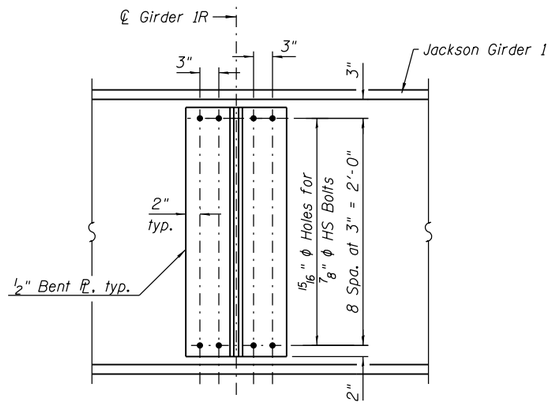
Header Girder	Longitudinal Girders Left	Center	Right	Girder Spacing A	B	Angle, D	C	E	F	Connection Plate	Top & Bott. Flange Splice Plate
1	1R	2R	3R	8'-0 1/2"	2'-3 1/2"	68°64'01"	6"	1"	1'-1"	5/8" X 8" X 2'-6"	3/4" x 1'-5" x 2'-1"
2	1R	3R	4R	8'-6 7/8"	2'-9 7/8"	73°07'53"	5 1/2"	1 15/16"	1'-0 3/16"	5/8" X 7 1/2" X 2'-6"	3/4" x 1'-4" x 2'-0"
3	1R	4R	5R	7'-8 1/2"	1'-11 1/2"	81°58'09"	5"	1 9/16"	10 15/16"	5/8" X 7 1/2" X 2'-6"	3/4" x 1'-3" x 1'-10"



DETAIL C



SECTION D-D



SECTION E-E

⚠1 REVISED ENTIRE SHEET 5/15/20

Notes:
All structural steel shall be AASHTO M 270 Grade 50.
CVN denotes Charpy V-Notch impact energy requirements, Zone 2.

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	CHECKED WJC	REVISED	
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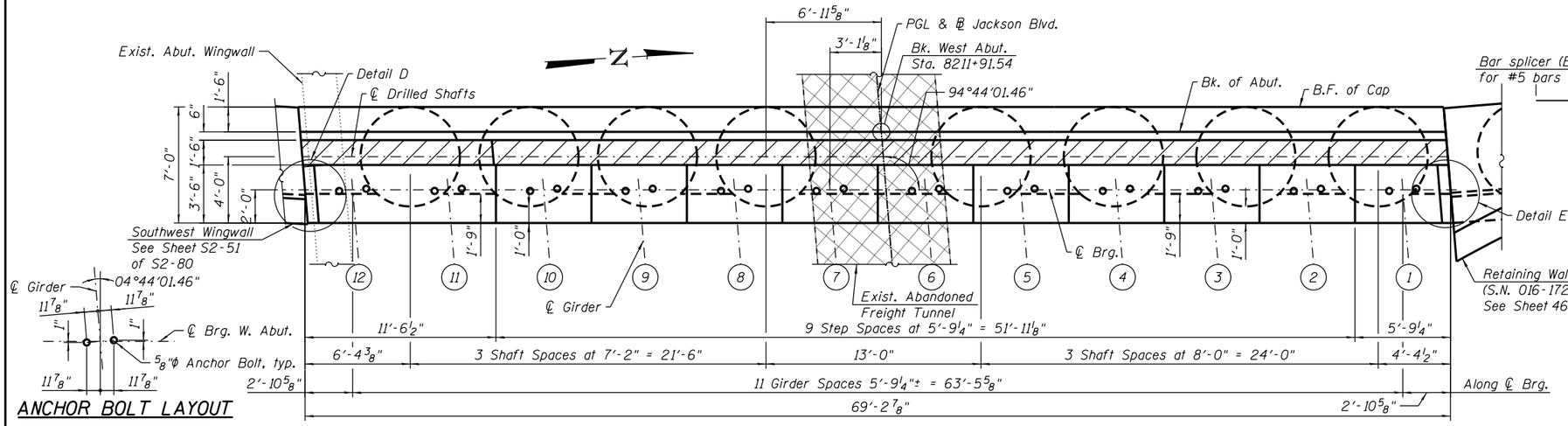
PLOT DATE = 5/5/2020	CHECKED WJC	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL DETAILS 6
STRUCTURE NO. 016-1702
SHEET NO. S2-42 OF S2-80 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1422	2014-015R&B-R	COOK	825	427
		CONTRACT NO. 60X94		
	ILLINOIS FED. AID PROJECT			

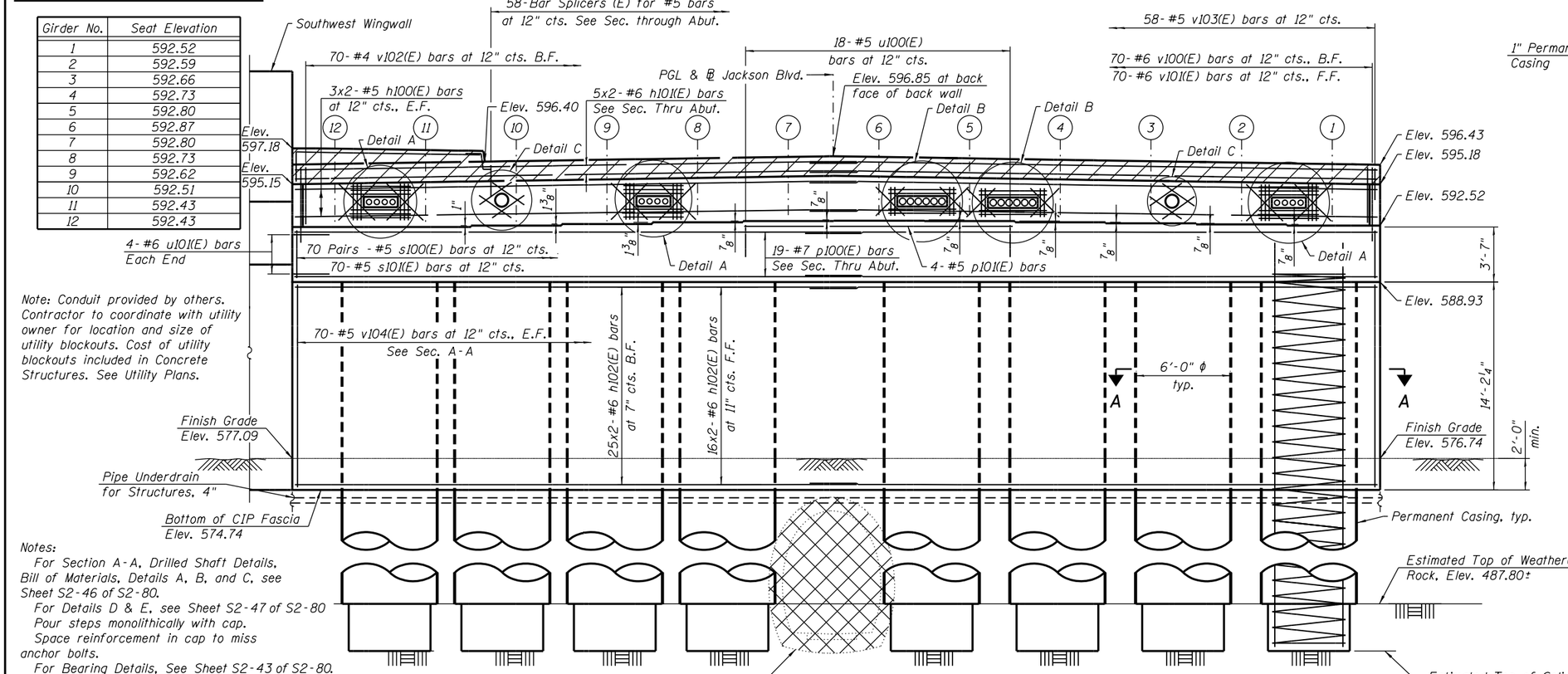


ANCHOR BOLT LAYOUT

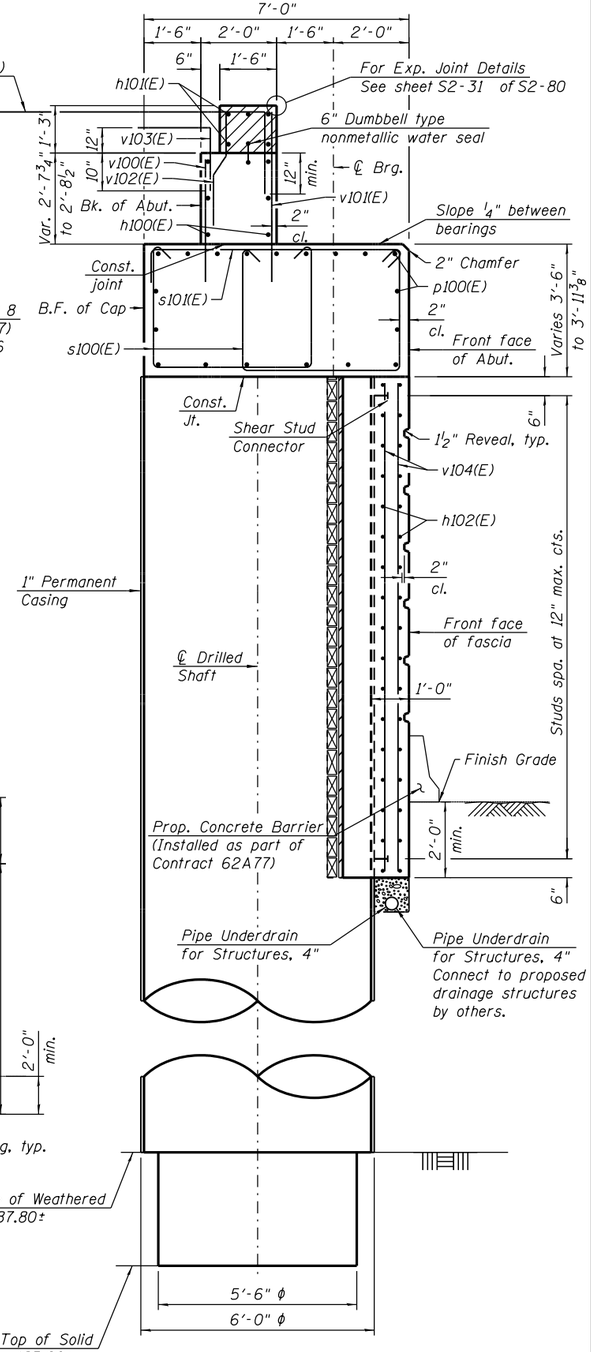
PLAN

TOP OF SEAT ELEVATIONS

Girder No.	Seat Elevation
1	592.52
2	592.59
3	592.66
4	592.73
5	592.80
6	592.87
7	592.80
8	592.73
9	592.62
10	592.51
11	592.43
12	592.43



ELEVATION
(Looking West)



SECTION THROUGH ABUTMENT

Note: Conduit provided by others. Contractor to coordinate with utility owner for location and size of utility blockouts. Cost of utility blockouts included in Concrete Structures. See Utility Plans.

Notes:

For Section A-A, Drilled Shaft Details, Bill of Materials, Details A, B, and C, see Sheet S2-46 of S2-80.

For Details D & E, see Sheet S2-47 of S2-80

Pour steps monolithically with cap.

Space reinforcement in cap to miss anchor bolts.

For Bearing Details, See Sheet S2-43 of S2-80.

Permanent casing shall be installed by twisting and/or pushing the casing in conjunction with drilled excavation inside of the permanent casing. The bottom of the permanent casing shall maintain minimum 2 ft. embedment into underlying soil below the bottom of shaft excavation elevation. Neither the Wet Method of construction nor the use of Temporary Casing will be permitted. See Special Provisions for Foundation Drilling Procedures.

Notes cont.:

Hatched area to be poured after superstructure falsework has been removed. Quantity of concrete included in Concrete Superstructure.

Concrete sealer shall be applied to all exposed faces of the abutment cap, backwall and fascia.

1 REVISED ENTIRE SHEET 5/15/20

USER NAME = wjcolletti	DESIGNED JRM	REVISED	
	CHECKED TLR	REVISED	
PLOT SCALE = NTS	DRAWN JTF	REVISED	
PLOT DATE = 5/12/2020	CHECKED TLR	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

WEST ABUTMENT PLAN AND ELEVATION
STRUCTURE NO. 016-1702
SHEET NO. S2-45 OF S2-80 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1422	2014-015R&B-R	COOK	825	430
		CONTRACT NO. 60X94		
	ILLINOIS FED. AID PROJECT			

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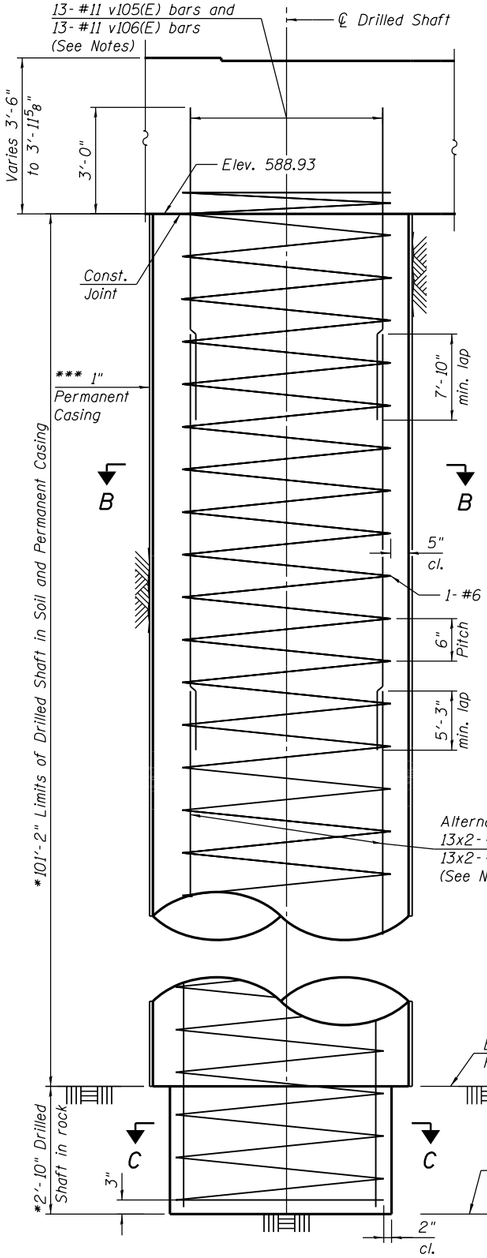
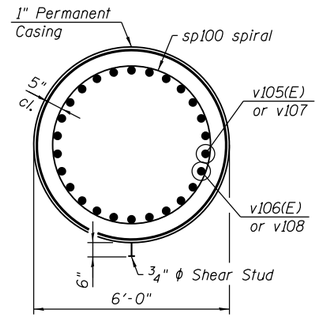
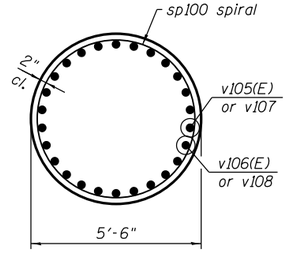


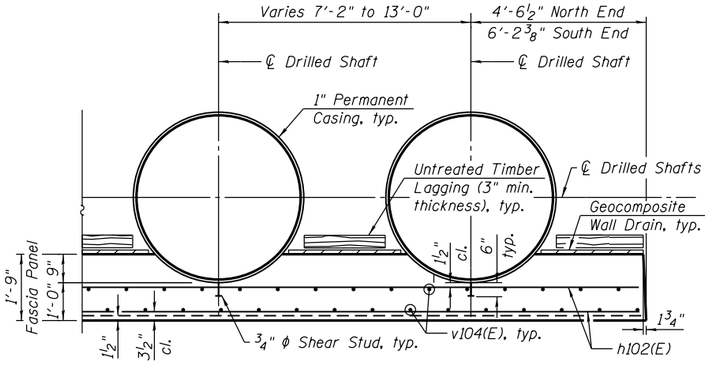
DRILLED SHAFT ELEVATION



SECTION B-B



SECTION C-C



SECTION A-A

(Shaft reinforcement not shown for clarity)

Notes:

¾"x6" granular or solid flux filled headed studs conforming to Article 1006.32 of the Standard Specifications automatically end welded to casing.

Bars noted thus, 3x2-#5 indicates 3 lines of bars with 2 lengths of bar per line.

When splicing of spiral reinforcement is necessary, the spirals shall be provided with 1½" extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4, or shall both terminate in 135° standard hook.

Lap v105(E) bars with v107 bars or v106(E) bars with v108 bars.

The Contractor is responsible for the design and performance of the lagging using no less than a 3 in. nominal rough-sawn thickness and timber with a minimum allowable bending stress of 1000 psi. See Sheet S2-49 of S2-80 for additional information.

Cost of PJF and drain pipe sleeve included in Concrete Structures.

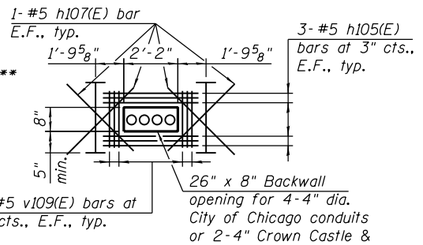
Concrete fascia panels shall be paid as Class SI Concrete (Miscellaneous).

WEST ABUTMENT BILL OF MATERIAL

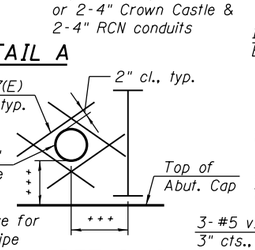
Bar	No.	Size	Length	Shape
b116(E)	13	#5	1'-3"	
c101(E)	3	#5	2'-4"	
c102(E)	3	#5	12'-8"	
h100(E)	12	#5	36'-3"	
h101(E)	10	#6	36'-11"	
h102(E)	82	#6	36'-8"	
h103(E)	4	#5	6'-1"	
h104(E)	4	#5	6'-1"	
h105(E)	36	#5	3'-10"	
h106(E)	24	#5	4'-9"	
h107(E)	56	#5	3'-2"	
p100(E)	19	#7	37'-0"	
p101(E)	4	#5	17'-0"	
s100(E)	140	#5	11'-4"	
s101(E)	70	#5	7'-9"	
sp100	8	#6	104'-0"	
u100(E)	18	#5	5'-2"	
u101(E)	8	#6	14'-4"	
v100(E)	70	#6	3'-7"	
v101(E)	70	#6	4'-10"	
v102(E)	70	#4	2'-11"	
v103(E)	58	#5	3'-9"	
v104(E)	140	#5	13'-10"	
v105(E)	104	#11	25'-0"	
v106(E)	104	#11	28'-0"	
v107	208	#11	47'-6"	
v108	208	#11	46'-0"	
v109(E)	60	#5	2'-8"	
v110(E)	10	#5	4'-0"	
Structure Excavation		Cu. Yd.	2,092	
Concrete Structures		Cu. Yd.	80.4	
Concrete Superstructure		Cu. Yd.	5.3	
Reinforcement Bars		Pound	144,500	
Reinforcement Bars, Epoxy Coated		Pound	36,310	
Permanent Casing		Foot	810	
Drilled Shaft in Soil		Cu. Yd.	847.3	
Drilled Shaft in Rock		Cu. Yd.	19.8	
Concrete Sealer		Sq. Ft.	1,567	
Class SI Concrete (Miscellaneous)		Cu. Yd.	55.2	
Lightweight Cellular Concrete Fill		Cu. Yd.	137	
Pipe Underdrains for Structures, 4"		Foot	70	

+ Length is height of spiral.

++ Shown for information only. Cost included with Class SI Concrete (Miscellaneous).

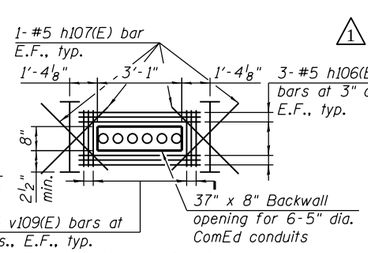


DETAIL A

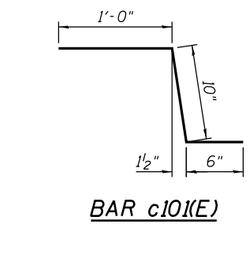


+++ Coordinate sleeve for 10" dia. drain pipe location with bridge Drainage System.

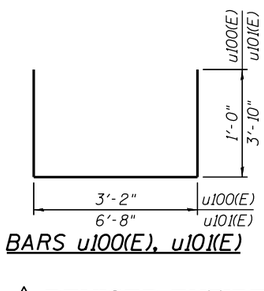
DETAIL C



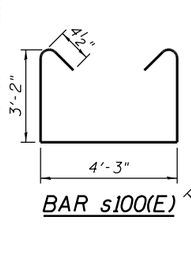
DETAIL B



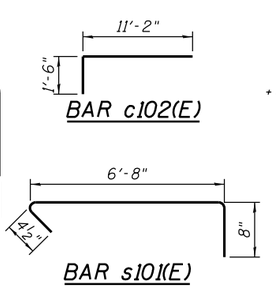
BAR c101(E)



BARS u100(E), u101(E)

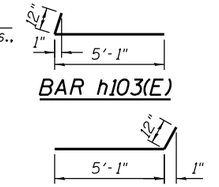


BAR s100(E)



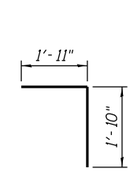
BAR c102(E)

BAR s101(E)

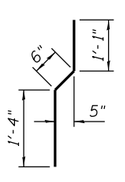


BAR h103(E)

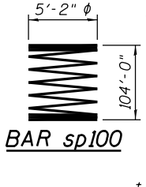
BAR h104(E)



BAR v103(E)



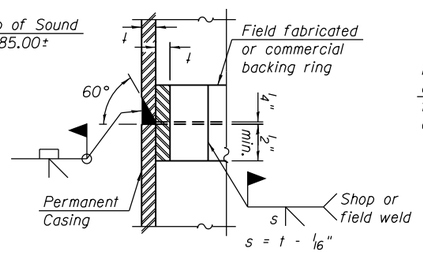
BAR v102(E)



BAR sp100

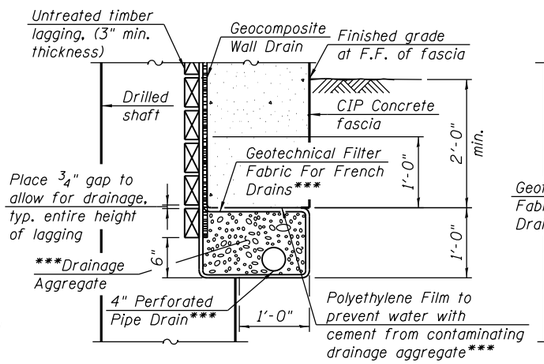
MIN. BAR LAP

#5 bar = 3'-7"
#6 bar = 4'-4"
#7 bar = 5'-0"

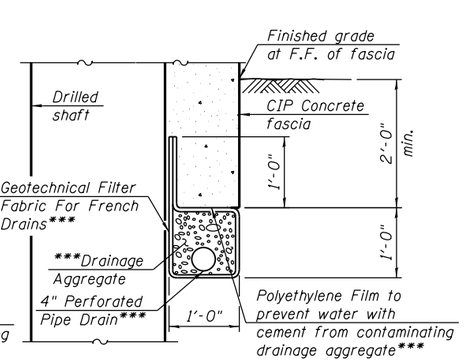


COMPLETE PENETRATION WELD SPLICE

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.



PIPE UNDERDRAIN DETAIL BETWEEN DRILLED SHAFTS



PIPE UNDERDRAIN DETAIL THRU DRILLED SHAFT

*** Included in the cost of Pipe Underdrains for Structures, 4"

* The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.

** Provide 1½ extra turns top and bottom of each drilled shaft. Extend spiral 2" into the abutment cap. Provide 4-#4 spacers or equivalent.

1 REVISED ENTIRE SHEET 5/15/20

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	CHECKED TLR	REVISED
PLOT SCALE = NTS	DRAWN JTF	REVISED
PLOT DATE = 5/12/2020	CHECKED TLR	REVISED

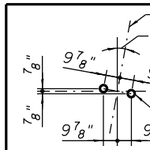
TranSystems

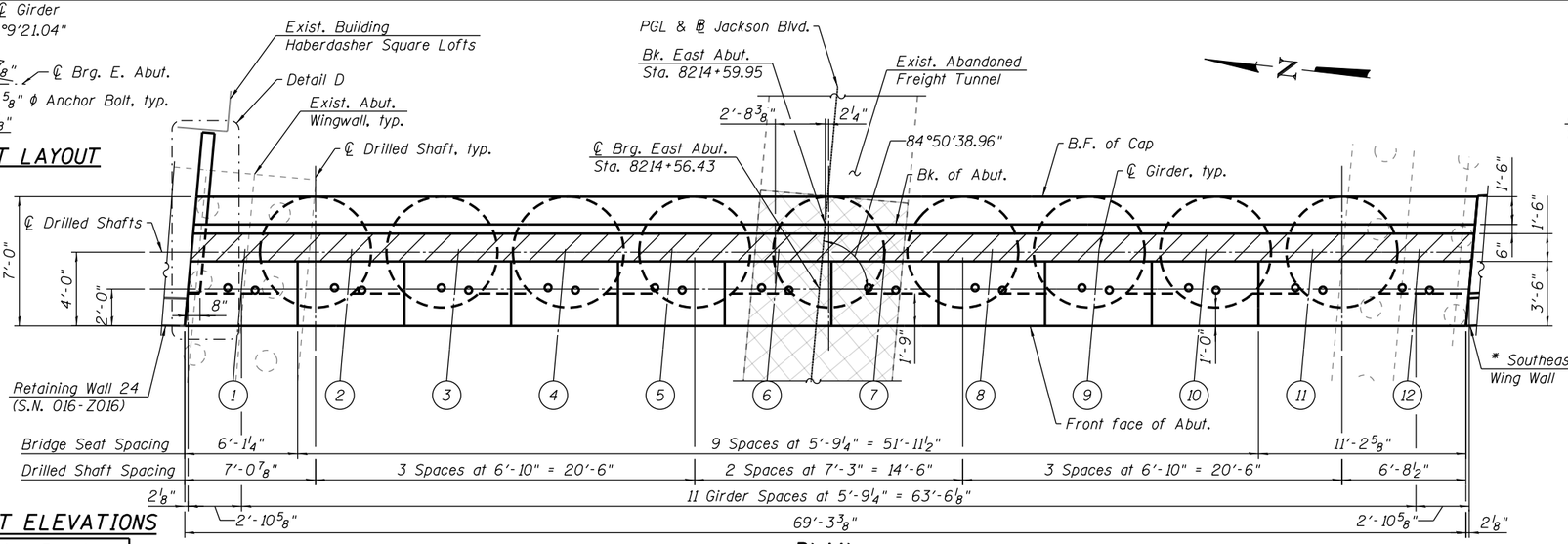
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

WEST ABUTMENT DETAILS
STRUCTURE NO. 016-1702
SHEET NO. S2-46 OF S2-80 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1422	2014-015R&B-R	COOK	825	431
		CONTRACT NO. 60X94		
	ILLINOIS FED. AID PROJECT			

ANCHOR BOLT LAYOUT

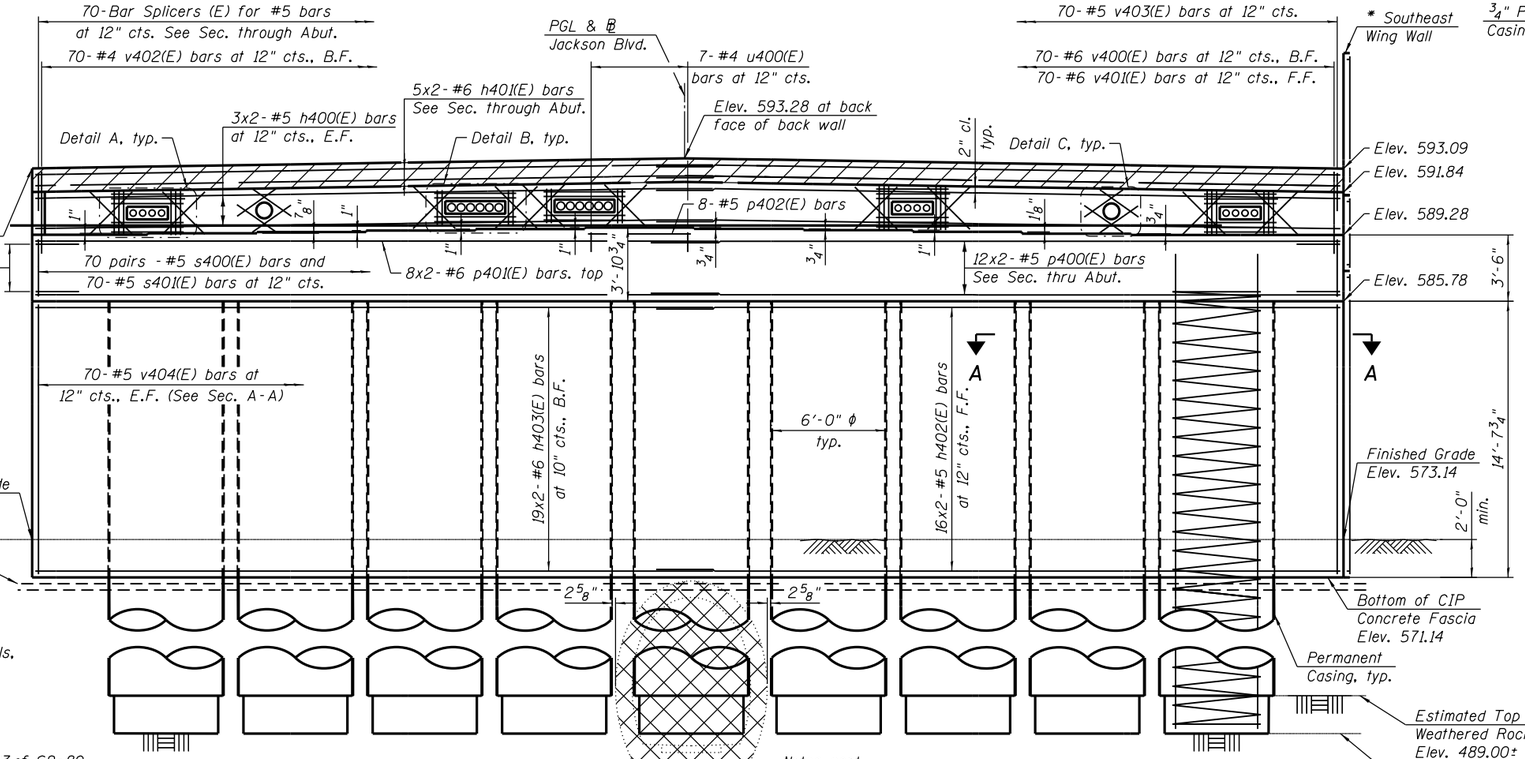




TOP OF SEAT ELEVATIONS

Girder No.	Seat Elevation
1	589.29
2	589.37
3	589.44
4	589.52
5	589.60
6	589.68
7	589.61
8	589.54
9	589.45
10	589.35
11	589.28
12	589.28

PLAN

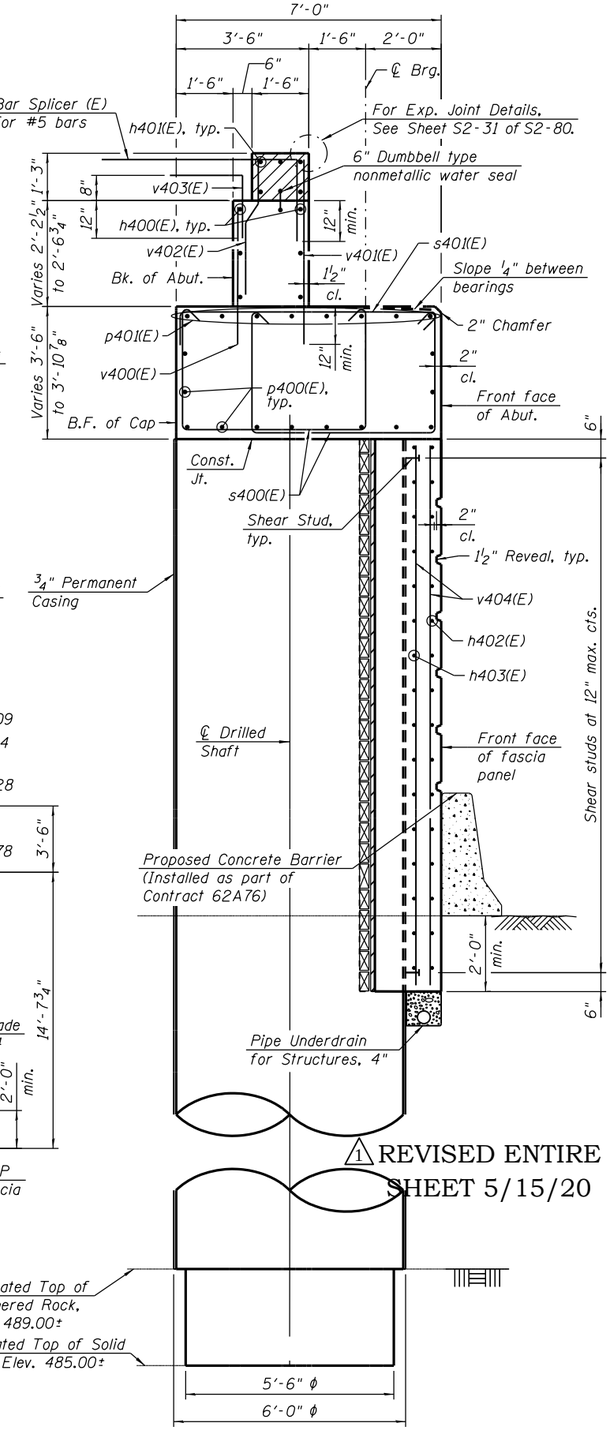


Notes:
For Section A-A, Drilled Shaft Details, Bill of Materials, Details A thru E, see Sheet S2-49 of S2-80.
Pour steps monolithically with cap.
Space reinforcement in cap to miss anchor bolts.
For Bearing Details, See Sheet S2-43 of S2-80.
Hatched area to be poured after superstructure falsework has been removed. Quantity of concrete included in Concrete Superstructure.
Permanent casing shall be installed by twisting and/or pushing the casing in conjunction with drilled excavation inside of the permanent casing. The bottom of the permanent casing shall maintain minimum 2 ft. embedment into underlying soil below the bottom of shaft excavation elevation. Neither the Wet Method of construction nor the use of Temporary Casing will be permitted. See Special Provisions for Foundation Drilling Procedures.

ELEVATION
(Looking East)

Exist. Abandoned Freight Tunnel,
Bottom of Tunnel Elev. 546.68
(to be bulkheaded and filled,
see Freight Tunnel Bulkheading
Plans)

Notes cont.:
Concrete sealer shall be applied to all exposed faces of the abutment cap and fascia.
Concrete fascia panels shall be paid as Class SI Concrete (Miscellaneous).
Conduit provided by others. Contractor to coordinate with utility owner for location and size of utility blockouts. Cost of utility blockouts included in Concrete Structures. See Utility Plans.
The bulkheading and filling of the Existing Abandoned Freight Tunnel shall be completed prior to the drilling of the shafts that are not in conflict with the tunnel.



1 REVISED ENTIRE SHEET 5/15/20

SECTION THROUGH ABUTMENT

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Tran Systems

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PLOT DATE = 5/12/2020	CHECKED MDS	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EAST ABUTMENT PLAN AND ELEVATION
STRUCTURE NO. 016-1702
SHEET NO. S2-48 OF S2-80 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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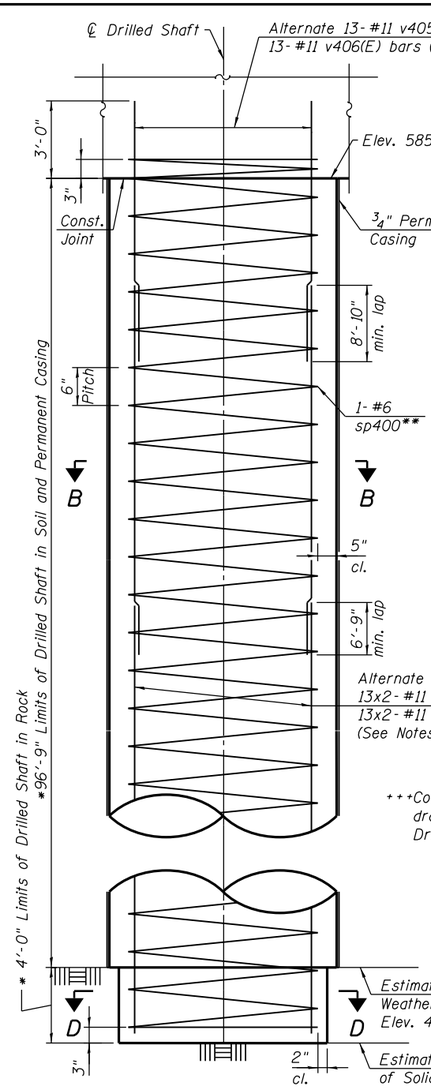
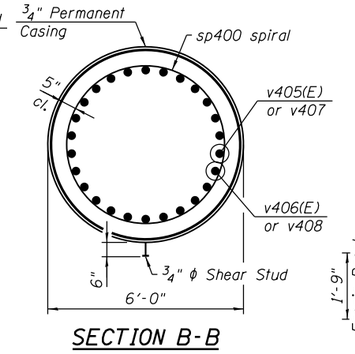
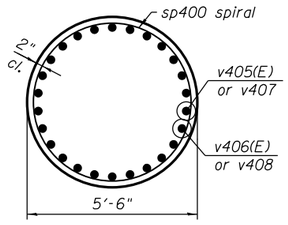
		CONTRACT NO. 60X94		
	ILLINOIS FED. AID PROJECT			



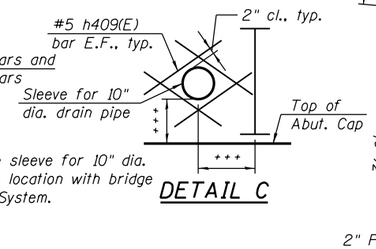
DRILLED SHAFT ELEVATION



SECTION B-B

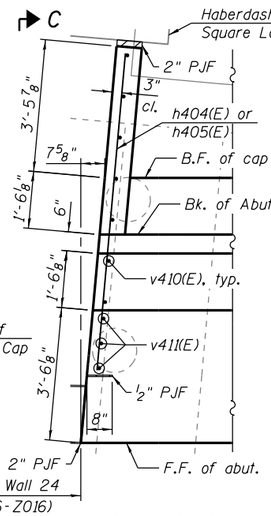


SECTION D-D

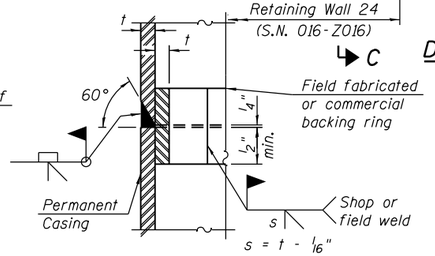


+++Coordinate sleeve for 10" dia. drain pipe location with bridge Drainage System.

DETAIL C

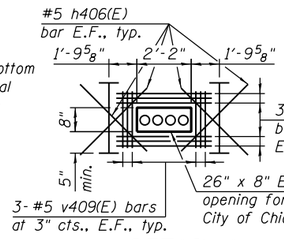


DETAIL D

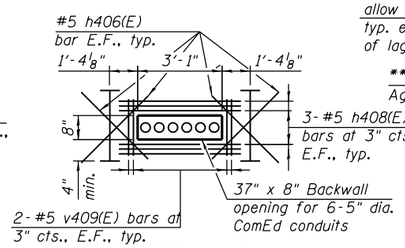


COMPLETE PENETRATION WELD SPLICE

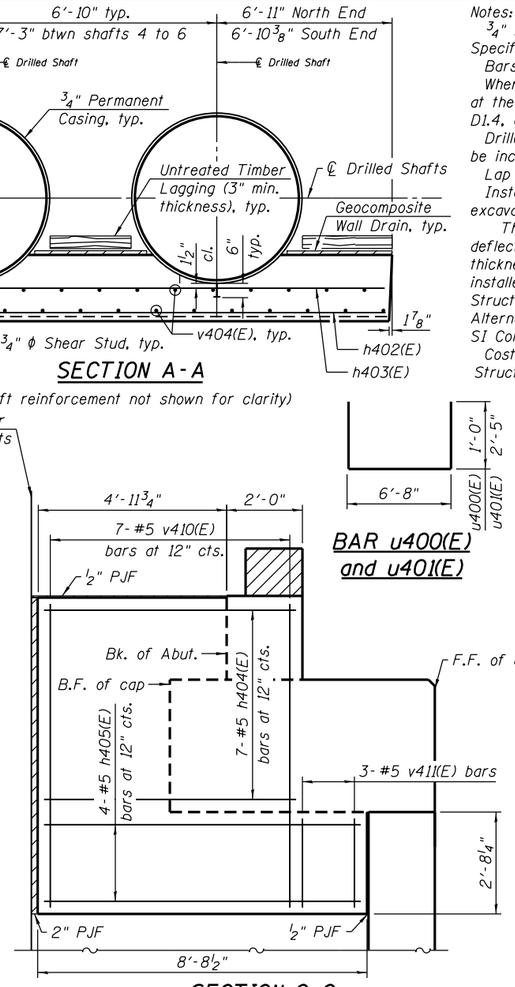
Field fabricated backing ring may be made from pile shell by removing segment to allow reducing circumference and vertically rejoin with partial joint penetration weld.



DETAIL A



DETAIL B



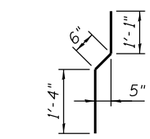
SECTION C-C

(Cap, backwall, and fascia panel reinforcement not shown for clarity)

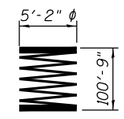
SECTION A-A

(Shaft reinforcement not shown for clarity)

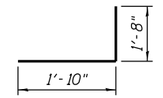
BAR u400(E) and u401(E)



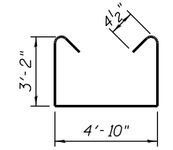
BAR v402(E)



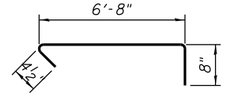
BAR sp400



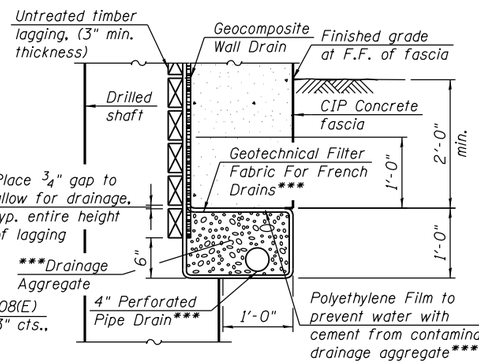
BAR v403(E)



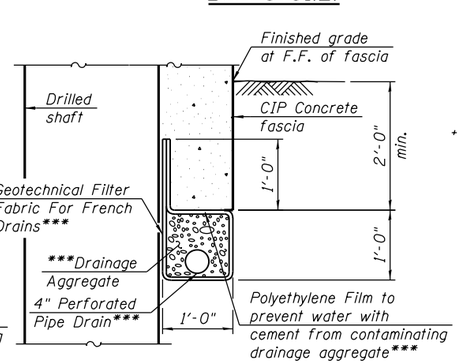
BAR s400(E)



BAR s401(E)



PIPE UNDERDRAIN DETAIL BETWEEN DRILLED SHAFTS



PIPE UNDERDRAIN DETAIL THRU DRILLED SHAFT

*** Included in the cost of Pipe Underdrains for Structures, 4"

* The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.

** Provide 1½ extra turns top and bottom of each drilled shaft. Extend spiral 2" into the abutment cap. Provide 4-#4 spacers or equivalent.

⚠ REVISED ENTIRE SHEET 5/15/20

Notes:

¾" x 6" granular or solid flux filled headed studs conforming to Article 1006.32 of the Standard Specifications automatically end welded to casing.

Bars noted thus, 3x2-#5 indicates 3 lines of bars with 2 lengths of bar per line.

When splicing of spiral reinforcement is necessary, the spirals shall be provided with 1½" extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4, or shall both terminate in 135° standard hook.

Drilled Shaft quantity from top of existing ground elevation to bottom of abutment cap elevation shall be included with Drilled Shaft in Soil.

Lap v405(E) bars with v407 bars or v406(E) bars with v408 bars.

Install lagging and Geocomposite Wall Drain from top down as excavation proceeds. Minimize over excavation and backfill voids with dry loose sand. Cost included with Class SI Concrete (Miscellaneous).

The Contractor is responsible for the design and performance of the lagging system, the deflection of the lagging shall be limited to 1" maximum using no less than a 3 in. nominal rough-sawn thickness and timber with a minimum allowable bending stress of 1000 psi, until the concrete facing is installed. The Contractor shall submit design calculations and details prepared by an Illinois Licensed Structural Engineer for the attachment of the lagging to the shaft for approval by the Engineer. Alternative equivalent systems may be submitted for approval by the Engineer. Cost included with Class SI Concrete (Miscellaneous).

Cost of PJF and drain pipe sleeve included in Concrete Structures.

EAST ABUTMENT BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h400(E)	12	#5	36'-3"	
h401(E)	10	#6	36'-7"	
+ h402(E)	32	#5	36'-3"	
+ h403(E)	38	#6	36'-8"	
h404(E)	7	#5	6'-7"	
h405(E)	4	#5	8'-4"	
h406(E)	40	#5	3'-2"	
h407(E)	36	#5	3'-10"	
h408(E)	24	#5	4'-4"	
h409(E)	16	#5	2'-6"	
p400(E)	24	#5	36'-3"	
p401(E)	16	#6	36'-8"	
p402(E)	8	#5	5'-5"	
s400(E)	140	#5	11'-11"	
s401(E)	70	#5	7'-9"	
++ sp400	9	#6	100'-9"	
u400(E)	7	#4	8'-8"	
u401(E)	8	#5	11'-6"	
v400(E)	70	#6	3'-4"	
v401(E)	70	#6	4'-7"	
v402(E)	70	#4	2'-11"	
v403(E)	70	#5	3'-6"	
+ v404(E)	140	#5	14'-3"	
v405(E)	117	#11	23'-5"	
v406(E)	117	#11	26'-5"	
v407	234	#11	48'-0"	
v408	234	#11	46'-6"	
v409(E)	52	#5	2'-4"	
v410(E)	7	#5	8'-0"	
v411(E)	3	#5	2'-4"	
Structure Excavation		Cu. Yd.	1,988	
Concrete Structures		Cu. Yd.	80.7	
Concrete Superstructure		Cu. Yd.	4.9	
+ Stud Shear Connectors		Each	135	
Reinforcement Bars		Pound	162,380	
Reinforcement Bars, Epoxy Coated		Pound	38,180	
Permanent Casing		Foot	872	
Drilled Shaft in Soil		Cu. Yd.	912.2	
Drilled Shaft in Rock		Cu. Yd.	31.7	
Concrete Sealer		Sq. Ft.	1,645	
Class SI Concrete (Miscellaneous)		Cu. Yd.	55.8	
Lightweight Cellular Concrete Fill		Cu. Yd.	133	
Slope Inclinometer		Each	1	
Pipe Underdrains for Structures, 4"		Foot	70	

\+ Shown for information only. Cost included with Class SI Concrete (Miscellaneous)

++ Length is height of spiral.

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0161702 60X94-S049-Abutment_EastDetails1.dgn

Tran Systems

USER NAME = wjcollett1	DESIGNED	TLR	REVISED
	CHECKED	WJC	REVISED
PLOT SCALE = NTS	DRAWN	JTF	REVISED
PLOT DATE = 5/12/2020	CHECKED	WJC	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EAST ABUTMENT DETAILS
STRUCTURE NO. 016-1702
SHEET NO. S2-49 OF S2-80 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1422	2014-015R&B-R	COOK	825	434
		CONTRACT NO. 60X94		
	ILLINOIS FED. AID PROJECT			

Bench Mark: Cut "X" on southwest overlook of Jackson Blvd. Bridge. Elev. 597.26.

Existing Structure: Existing Retaining Wall 7 (SN 016-W807). Constructed in 2009 under F.A.P. Route 90/94, Section 202.6-2P. Cast-in-place concrete retaining wall on metal shell piles and spread footing that measures 284'-10 3/8" from Jackson Boulevard NW Wingwall north to Adams Street. Maximum height from top of wall to bottom of footing measures 22'-8 1/2". The existing retaining wall is to be removed and replaced. Existing Jackson N.W. Wingwall was constructed in 1955 under F.A. Route No. 173, Section 101.2-2B. Cast-in-place concrete retaining wall on timber piles and spread footing that measures approximately 40'-0" from Existing Wall 7 to Jackson Boulevard West Abutment. Maximum height from top of wall to bottom of footing measures 24'-0". The existing wingwall is to be removed.

Traffic on Jackson Exit Ramp will be detoured during construction.

No Salvage.

Notes:
Wall offsets are measured from the ℄ of Jackson Exit Ramp to the front face of cast-in-place fascia panels.
C denotes Construction Joint
E denotes Expansion Joint
F.F. denotes Front Face.
B.F. denotes Back Face.

APPROVED
For Structural Adequacy Only
Engineer of Bridges & Structures

MATTHEW D. SANTEFORD 081-007244 LICENSED STRUCTURAL ENGINEER OF STATE OF ILLINOIS
03-06-2020
MATTHEW D. SANTEFORD, P.E., S.E.
NO. 081-007244
EXP. DATE 11/30/2020

CURVE DATA

(Jackson Exit Ramp)
Prop. Curve P-JAC-SX-1
P.I. Sta. = 8283+78.27
Δ = 5° 01' 56" (LT)
D = 1° 41' 07"
R = 3,400.00'
T = 149.40'
L = 298.61'
E = 3.28'
e = 2.00%
T.R. = NA
S.E. Run = NA
P.C. Sta. = 8282+87.28
P.T. Sta. = 8285+27.48

DESIGN SPECIFICATIONS

2017 AASHTO LRFD Bridge Design Specifications 8th Edition

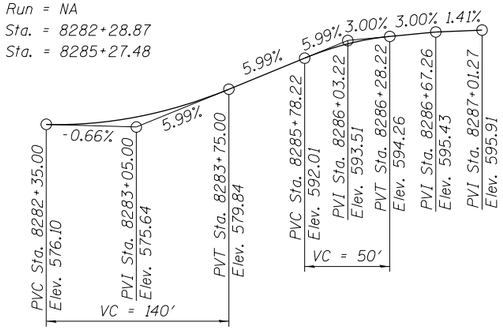
DESIGN STRESSES

FIELD UNITS

f'c = 7,000 psi (Drilled Shafts)
f'c = 4,000 psi (Superstructure Concrete)
f'c = 3,500 psi (All other concrete)
fy = 60,000 psi (Reinforcement)

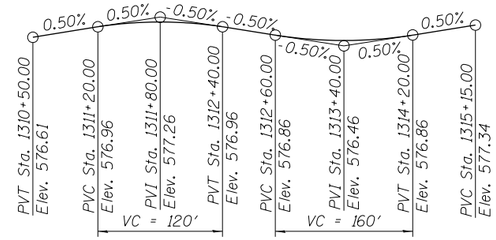
SOLDIER PILES

fy = 50,000 psi (AASHTO M270 Gr. 50)



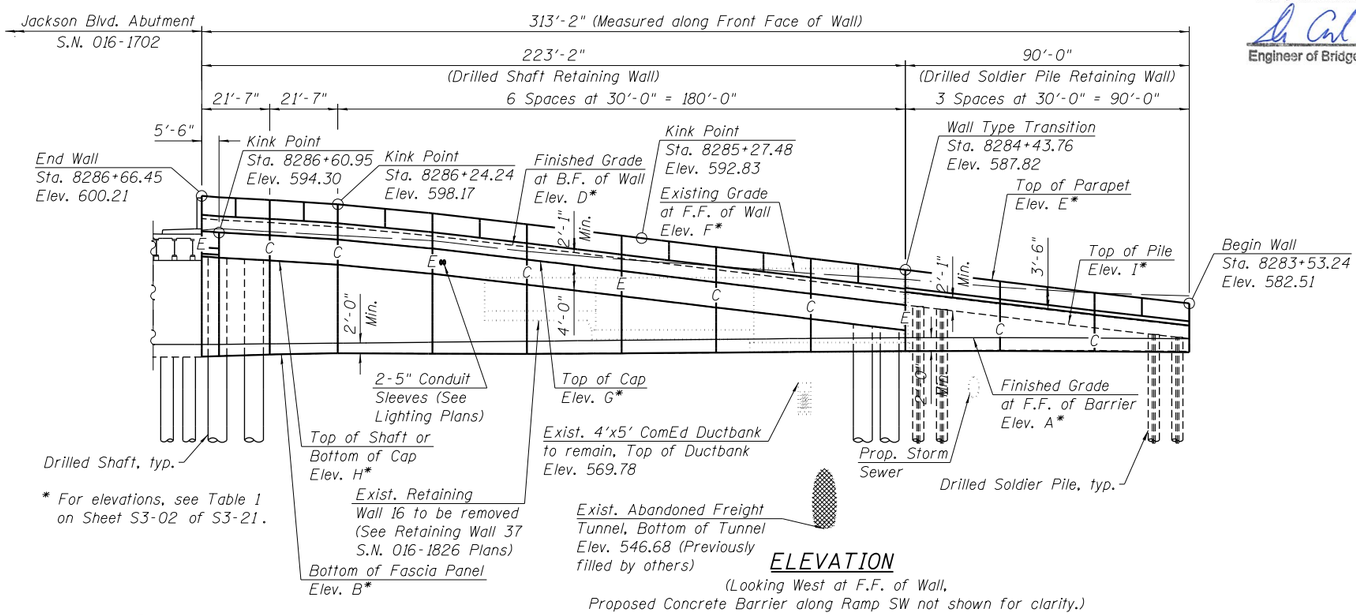
PROFILE GRADE

(℄ Jackson Exit Ramp)



PROFILE GRADE

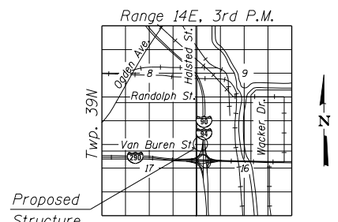
(℄ Ramp SW)



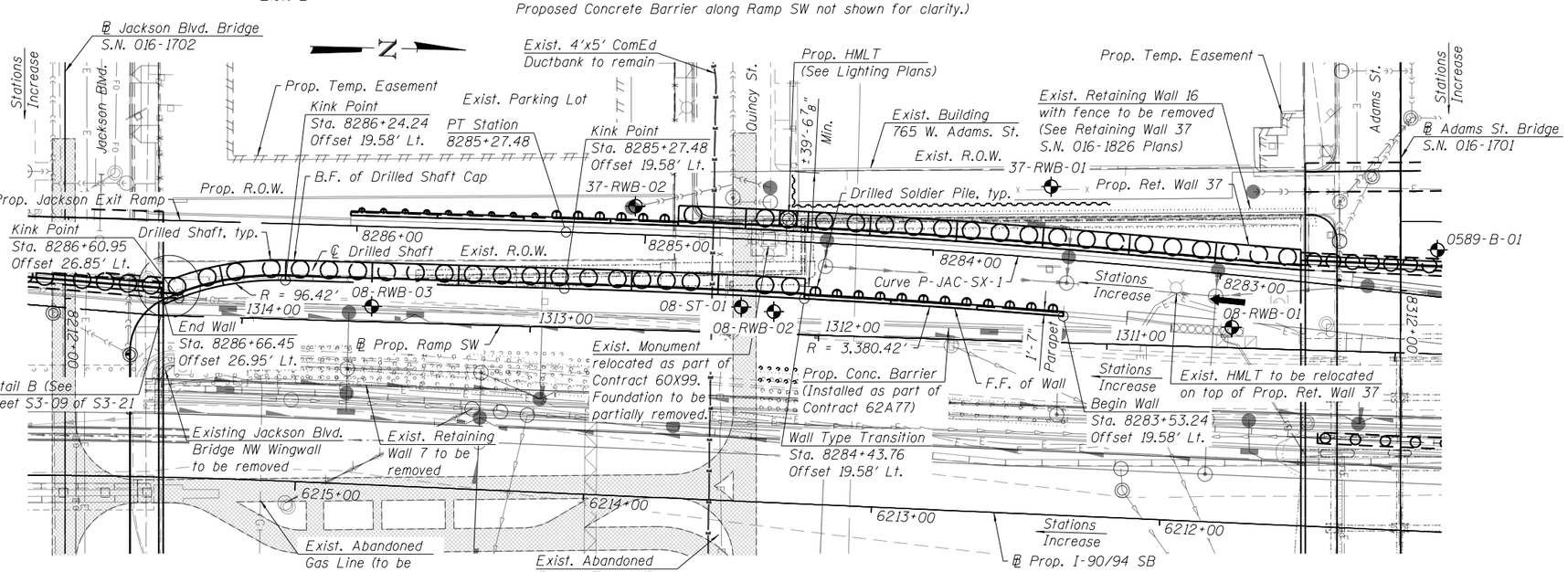
* For elevations, see Table 1 on Sheet S3-02 of S3-21.

ELEVATION

(Looking West at F.F. of Wall.
Proposed Concrete Barrier along Ramp SW not shown for clarity.)



LOCATION SKETCH



PLAN

LEGEND:

Ex. Chain Link Fence	— X — X —	Soil Boring	
Combined Sewer		Existing Catch Basin	
Electric	— E —	Proposed Catch Basin	
Ex. Storm Sewer		Existing Manhole	
Prop. Storm Sewer		Proposed Manhole	
Ex. ITS Cable		Proposed Inlet	
Ex. Gas Line	— G —		
Ex. Fiber Optic	— FO —		

1 REVISED ENTIRE SHEET 5/15/20

GENERAL PLAN AND ELEVATION
RETAINING WALL 8 ALONG JACKSON EXIT RAMP
F.A.I. RTE. 90/94 (KENNEDY EXPRESSWAY)
SECTION 2014-015R&B-R
COOK COUNTY
STATION 8283+53.24 TO STATION 8286+66.45
STRUCTURE NO. 016-1727

TranSystems

USER NAME = wjcollett	DESIGNED - KRS	REVISED -
	CHECKED - DJG	REVISED -
PLOT SCALE = NTS	DRAWN - LFP	REVISED -
PLOT DATE = 3/5/2020	CHECKED - DJG	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET NO. S3-01 OF S3-21 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-015R&B-R	COOK	825	466
		CONTRACT NO. 60X94		
	ILLINOIS FED. AID PROJECT			

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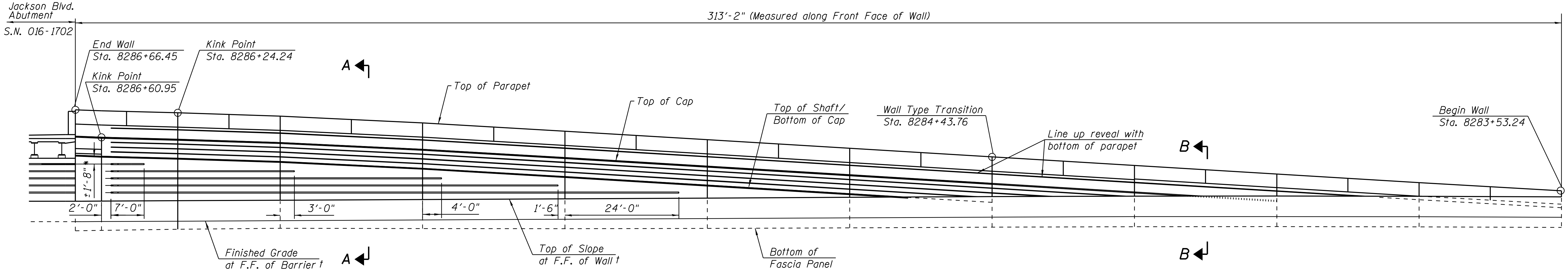
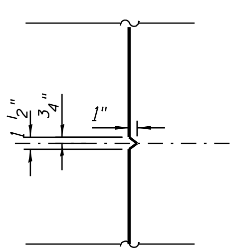


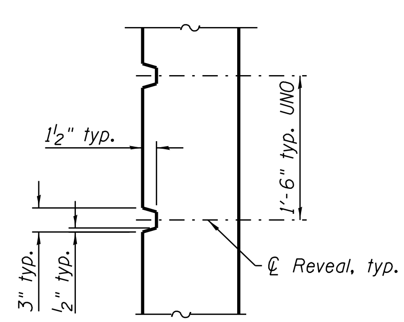
ELEVATION

(Looking West at F.F. of Wall)

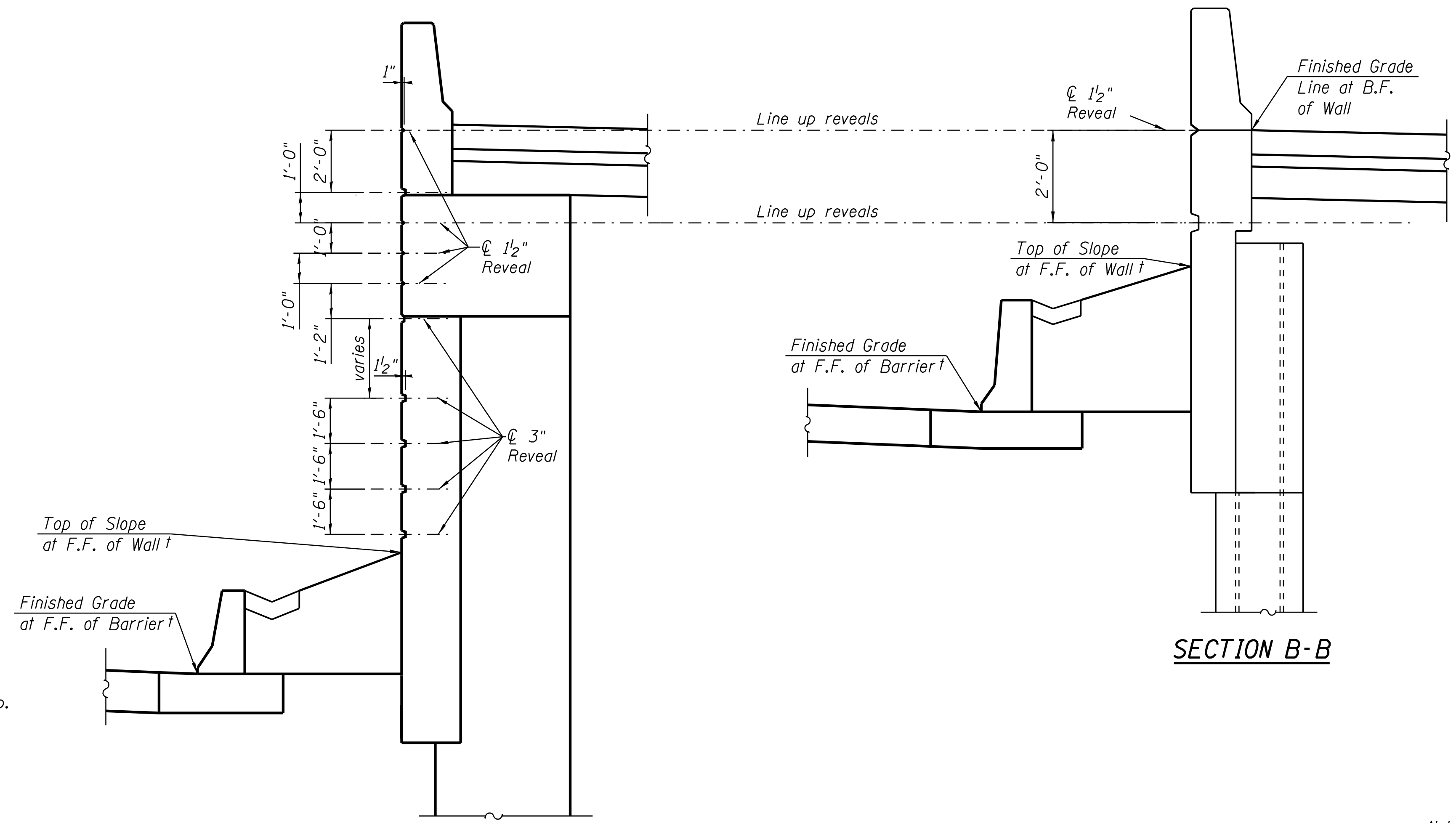
*Align Reveals on retaining wall with reveals on the Jackson Blvd Abutment Wall, as much as possible.
Allow for max of ±1" tolerance



1 1/2 REVEAL DETAIL



3" REVEAL DETAIL



SECTION A-A

† Installed as part of Contract 62A77.

SECTION B-B

Notes:
Coordinate / verify all dimensions with structural drawings.
Reveals will not be paid separately and shall be included in the cost of pay item Class SI Concrete (Miscellaneous), Concrete Structures, and Concrete Structures (Retaining Wall).

⚠1 REVISED ENTIRE SHEET 5/15/20

TranSystems	USER NAME = wjcolletti	DESIGNED - KRS	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	ARCHITECTURAL DETAILS RETAINING WALL 8 (STRUCTURE NO. 016–1727)
		CHECKED - DJG	REVISED -		
	PLOT SCALE = NTS	DRAWN - LFP	REVISED -		
	PLOT DATE = 5/5/2020	CHECKED - DJG	REVISED -		SHEET NO. S3-13 OF S3-21 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-015R&B-R	COOK	825	478
		CONTRACT NO. 60X94		
	ILLINOIS FED. AID PROJECT			

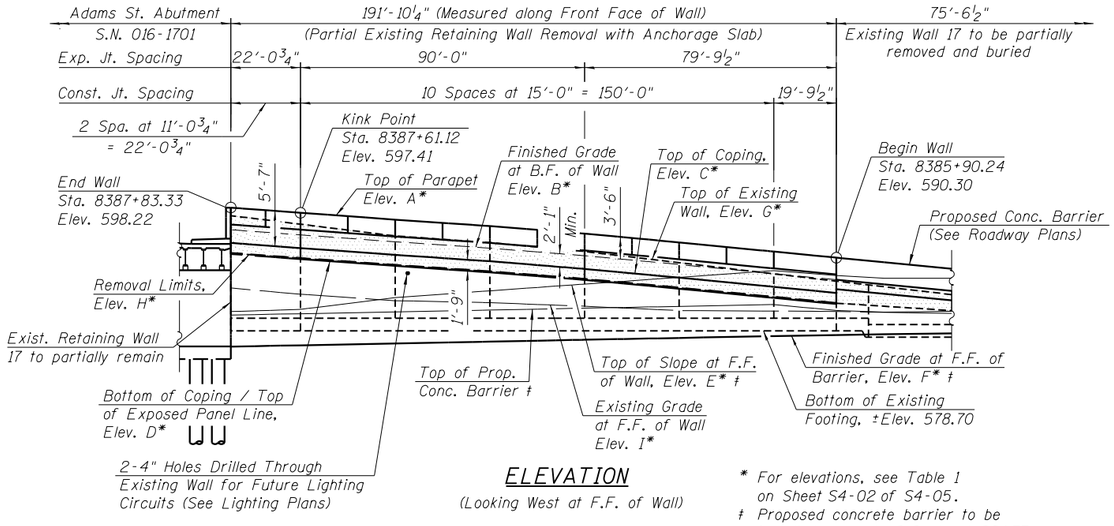
Bench Mark: Set "X" on east barrier wall of I-90 at ℄ of Adams Street. Elev. 581.17.

Existing Structure: Existing Retaining Wall 17 (S.N. 016-W808). Constructed in 2010 under F.A.I. 90/94 Section 0202.6-2P. Cast-in-place concrete retaining wall on concrete filled metal shell piles and spread footing that measures 267'-4 3/4" from Adams Street NW Wingwall north to Monroe Street. Maximum height from top of wall to bottom of footing measures 18'-3 1/8". The top part of the south portion of the existing retaining wall and railing is to be removed and replaced with a concrete parapet and anchorage slab. The north 75'-6 1/2" portion is to be partially removed below proposed grade and buried.

Traffic on Adams Exit Ramp will be detoured during construction.

No Salvage.

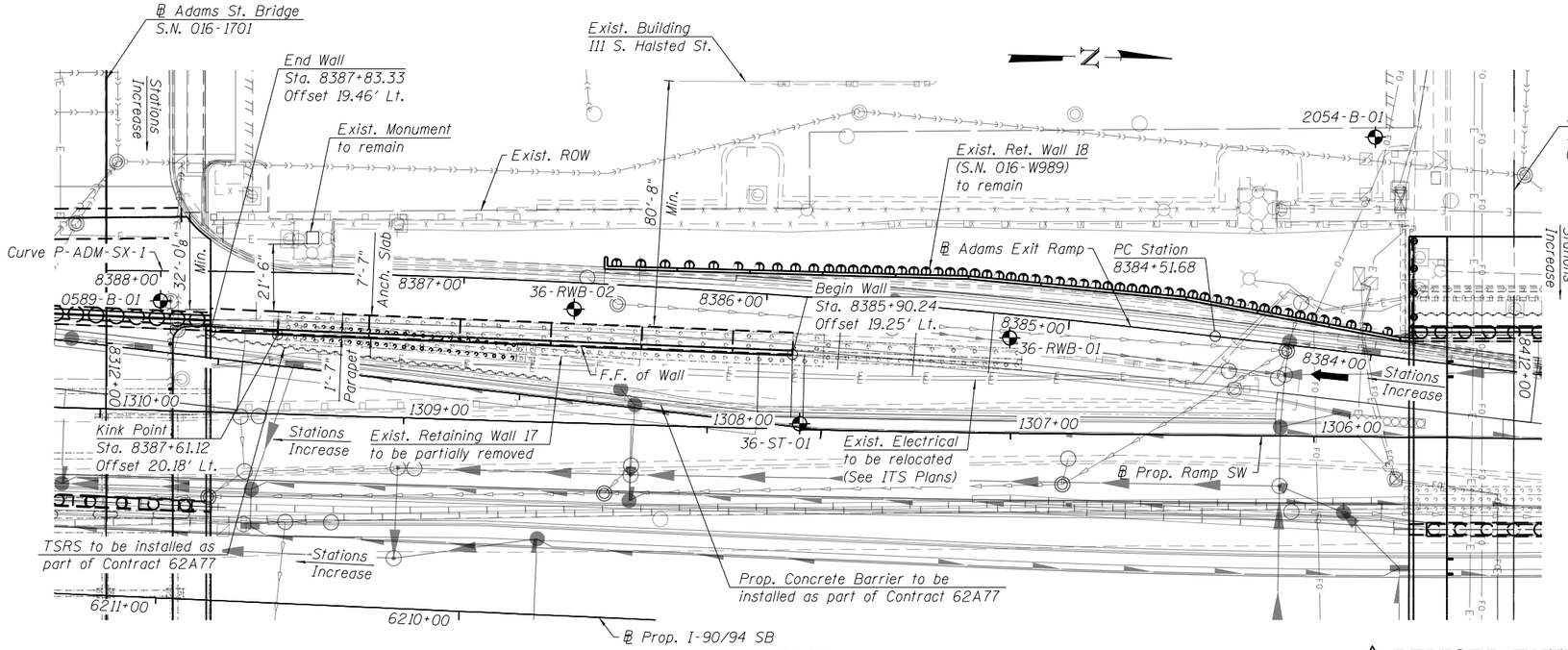
Notes:
Wall offsets are measured from the ℄ of Adams Exit Ramp to the front face of the existing wall.
F.F. denotes Front Face.
B.F. denotes Back Face.



ELEVATION

(Looking West at F.F. of Wall)

* For elevations, see Table 1 on Sheet S4-02 of S4-05.
‡ Proposed concrete barrier to be installed as part of Contract 62A77



PLAN

MATTHEW D. SANTEFORD
081-007244
LICENSED STRUCTURAL ENGINEER OF
STATE OF ILLINOIS

03-06-2020

MATTHEW D. SANTEFORD, P.E., S.E.
NO. 081-007244
EXP. DATE 11/30/2020

APPROVED
For Structural Adequacy Only
Engineer of Bridges & Structures

CURVE DATA

(Adams Exit Ramp)
Prop. Curve P-ADM-SX-1
P.I. Sta. = 8386+35.08
Δ = 6° 41' 46" (LT)
D = 1° 49' 39"
R = 3,135.00'
T = 183.40'
L = 366.39'
E = 5.36'
e = 2.00%
T.R. = 49'
S.E. Run = 97'
P.C. Sta. = 8384+51.68
P.T. Sta. = 8388+18.07

DESIGN SPECIFICATIONS

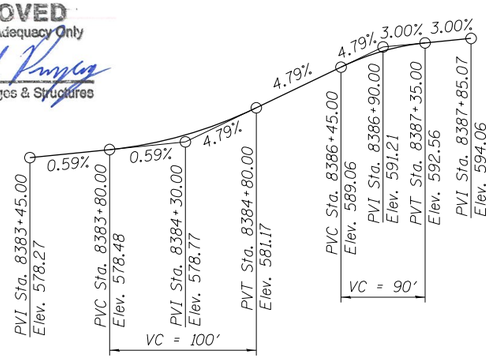
2002 AASHTO Standard Specifications for Highway Bridges, 17th Edition (Portion of Existing Wall to Remain)

2017 AASHTO LRFD Bridge Design Specifications 8th Edition

DESIGN STRESSES

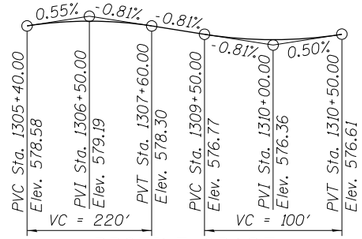
FIELD UNITS
f'c = 4,000 psi
fy = 60,000 psi (Reinforcement)

EXISTING UNITS
f'c = 1,200 psi
fy = 20,000 psi (Reinforcement)



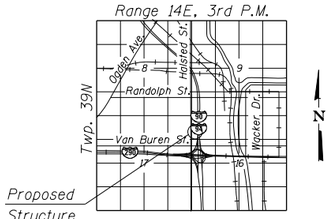
PROFILE GRADE

(℄ Adams Exit Ramp)



PROFILE GRADE

(℄ Ramp SW)



LOCATION SKETCH

LEGEND:

Ex. Chain Link Fence	— X — X —	Soil Boring	⌖
Combined Sewer	→→→→→→→→→→	Existing Catch Basin	○
Electric	——E——	Proposed Catch Basin	●
Ex. Storm Sewer	——▷——▷——	Existing Manhole	◎
Prop. Storm Sewer	——▶——▶——	Proposed Manhole	⊙
Ex. Fiber Optic	——FO——	Proposed Inlet	▬
Ex. ITS Cable	— — — — —	Concrete Removal	▨

GENERAL PLAN AND ELEVATION
RETAINING WALL 36 ALONG ADAMS EXIT RAMP
F.A.I. RTE. 90/94 (KENNEDY EXPRESSWAY)
SECTION 2014-015R&B-R
COOK COUNTY
STATION 8385+90.24 TO STATION 8387+83.33
STRUCTURE NO. 016-1825

⚠1 REVISED ENTIRE SHEET 5/15/20

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TranSystems

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	CHECKED - WJC	REVISED -	
PLOT SCALE = NTS	DRAWN - ZJW	REVISED -	
PLOT DATE = 3/5/2020	CHECKED - WJC	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET NO. S4-01 OF S4-05 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-015R&B-R	COOK	825	487
		CONTRACT NO.		60X94
		ILLINOIS FED. AID PROJECT		

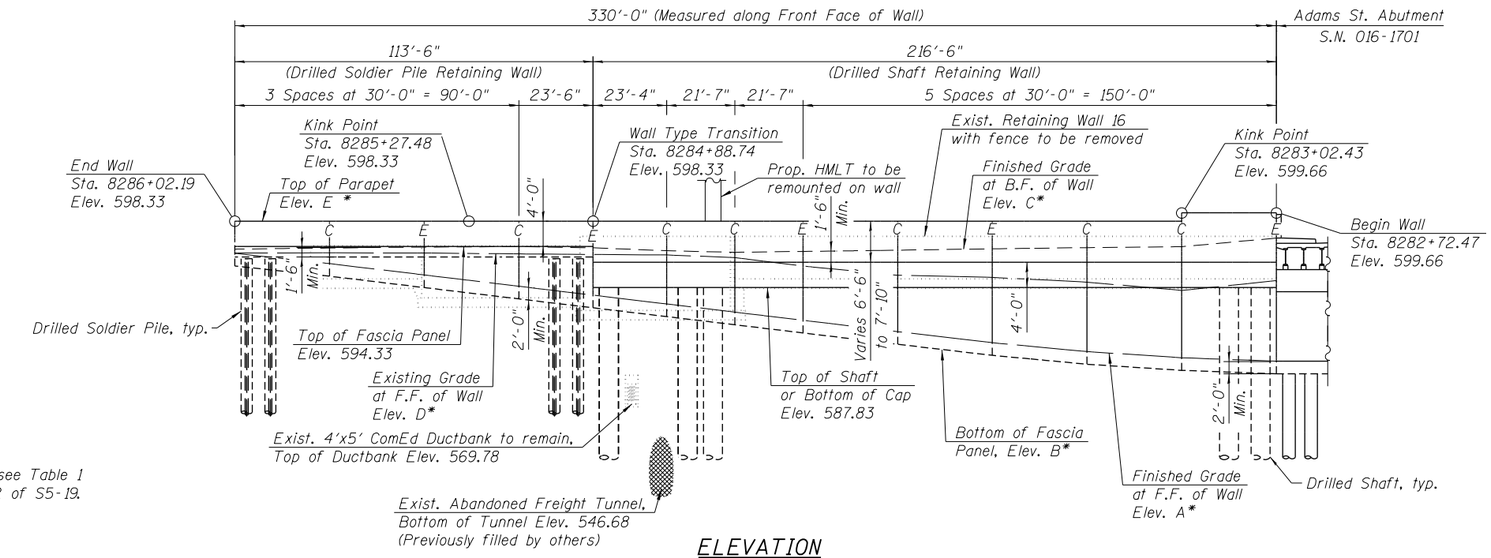
Bench Mark: Set "X" on east barrier wall of I-90 at ℄ of Adams Street. Elev. 581.17.

Existing Structure: Existing Retaining Wall 16. Constructed in 1957 under F.A.I. Route 2. Section 0101.6-2P. Cast-in-place concrete retaining wall on spread footing that measures 330'-0" from Adams Street south to Jackson Boulevard. Maximum height from top of wall to bottom of footing measures 13'-3". The existing retaining wall is to be removed and replaced.

Traffic on Jackson Exit Ramp will be detoured during construction.

No Salvage.

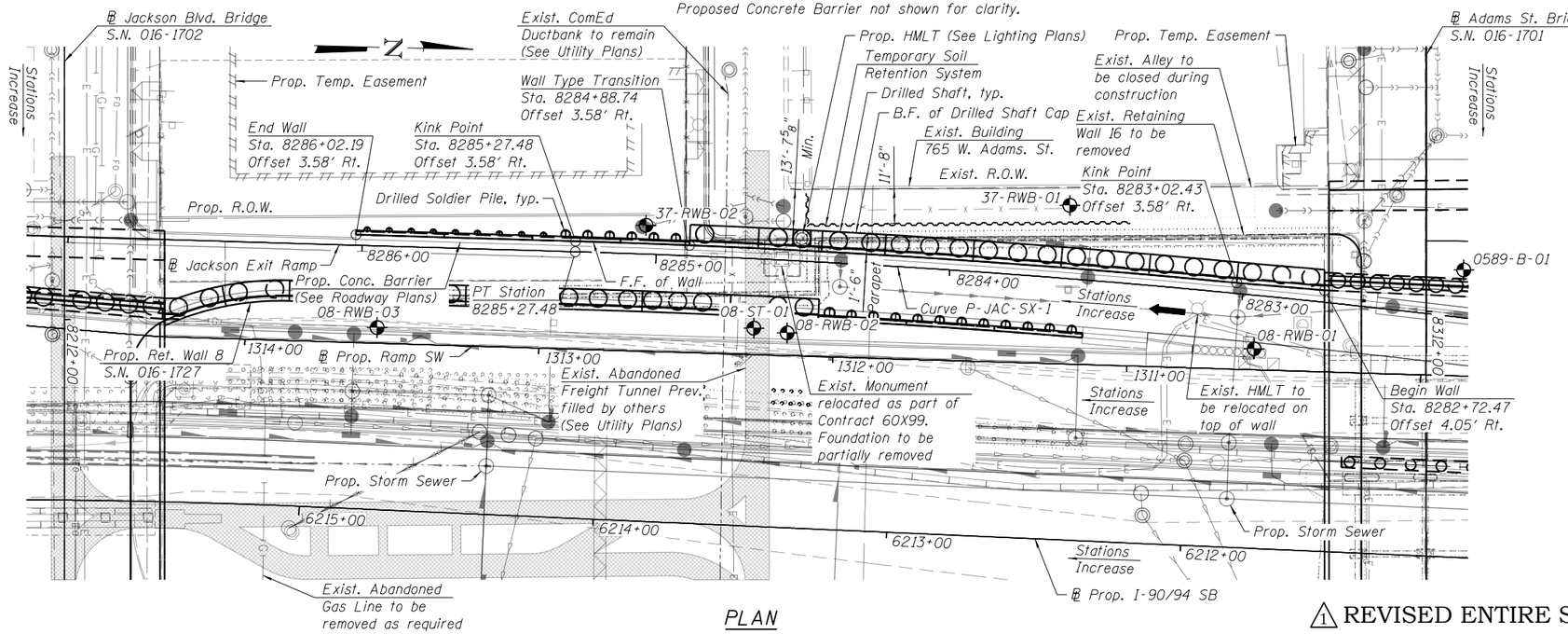
Notes:
Wall offsets are measured from the ℄ of Jackson Exit Ramp to the front face of cast-in-place fascia panels.
C denotes Construction Joint.
E denotes Expansion Joint.
F.F. denotes Front Face.
B.F. denotes Back Face.



* For elevations, see Table 1 on Sheet S5-02 of S5-19.

ELEVATION

(Looking West at F.F. of Wall)
Proposed Concrete Barrier not shown for clarity.



PLAN

CURVE DATA

(Jackson Exit Ramp)
Prop. Curve P-JAC-SX-1
P.I. Sta. = 8283+78.27
Δ = 5° 01' 56" (Lt.)
D = 1° 41' 07"
R = 3,400.00'
T = 149.40'
L = 298.61'
E = 3.28'
e = 2.00%
T.R. = NA
S.E. Run = NA
P.C. Sta. = 8282+28.87
P.T. Sta. = 8285+27.48

DESIGN SPECIFICATIONS

2017 AASHTO LRFD Bridge Design Specifications 8th Edition

DESIGN STRESSES

FIELD UNITS

f'c = 7,000 psi (Drilled Shafts)
f'c = 3,500 psi (All other concrete)
fy = 60,000 psi (Reinforcement)

SOLDIER PILES

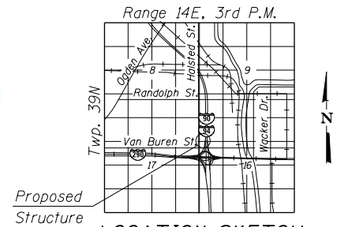
fy = 50,000 psi (AASHTO M270 Gr. 50)

MATTHEW D. SANTEFORD
081-007244
LICENSED STRUCTURAL ENGINEER
OF
STATE OF ILLINOIS

03-06-2020

MATTHEW D. SANTEFORD, P.E., S.E.
NO. 081-007244
EXP. DATE 11/30/2020

APPROVED
For Structural Adequacy Only
Engineer of Bridges & Structures



LOCATION SKETCH

LEGEND:

Ex. Chain Link Fence	— X — X —	Soil Boring	
Combined Sewer		Existing Catch Basin	
Electric	— E —	Proposed Catch Basin	
Ex. Storm Sewer		Existing Manhole	
Prop. Storm Sewer		Proposed Manhole	
Ex. ITS Cable		Proposed Inlet	
Ex. Gas Line	— G —		
Ex. Fiber Optic	— FO —		

GENERAL PLAN AND ELEVATION
RETAINING WALL 37 ALONG JACKSON EXIT RAMP
F.A.I. RTE. 90/94 (KENNEDY EXPRESSWAY)
SECTION 2014-015R&B-R
COOK COUNTY
STATION 8282+72.47 TO STATION 8286+02.19
STRUCTURE NO. 016-1826

1 REVISED ENTIRE SHEET 5/15/20

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TranSystems

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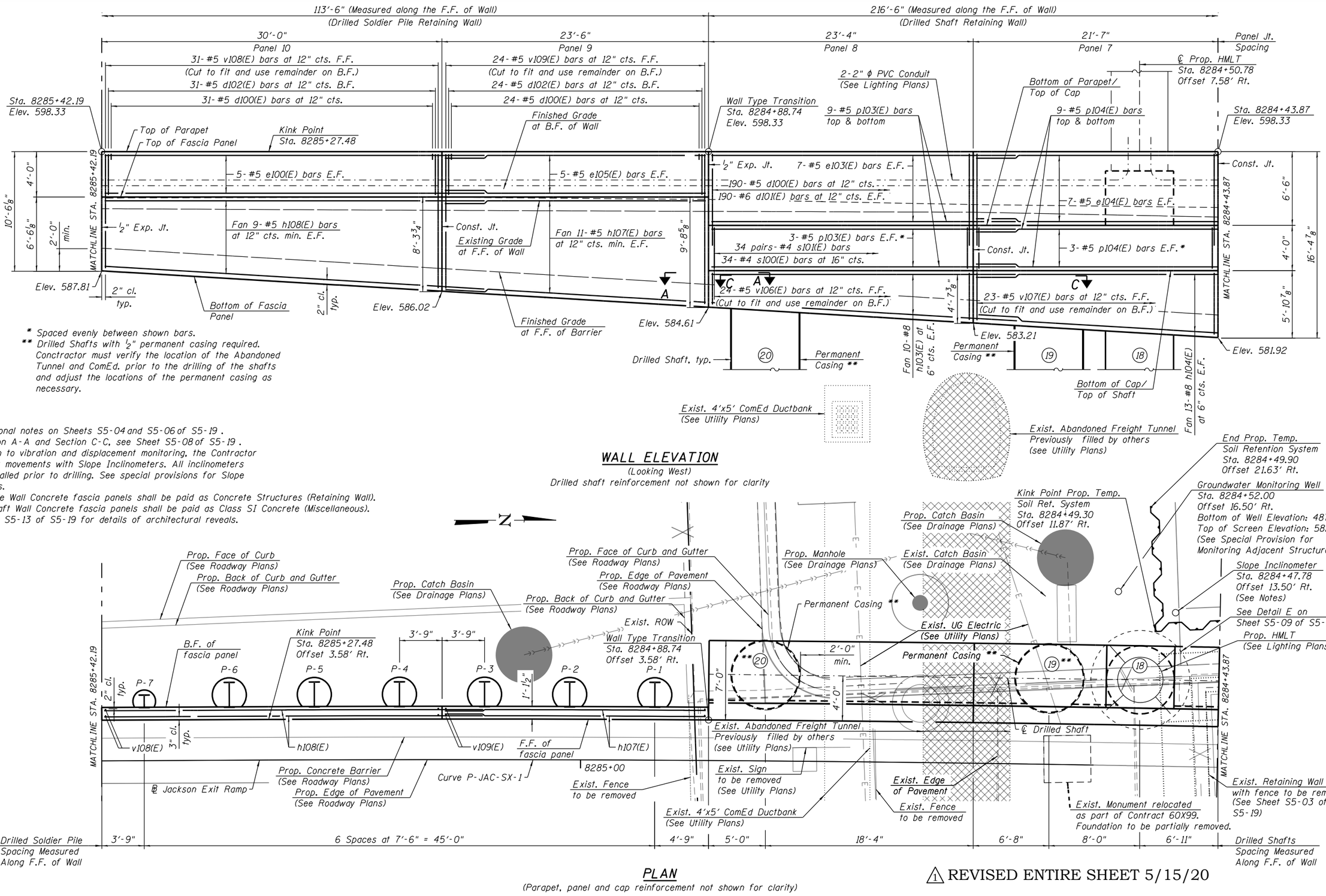
	CHECKED - DJG	REVISED -
PLOT SCALE = NTS	DRAWN - AJD	REVISED -
PLOT DATE = 3/5/2020	CHECKED - KRS	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET NO. S5-01 OF S5-19 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-015R&B-R	COOK	825	492
		CONTRACT NO. 60X94		
	ILLINOIS FED. AID PROJECT			



* Spaced evenly between shown bars.
** Drilled Shafts with 1/2" permanent casing required. Conctractor must verify the location of the Abandoned Tunnel and ComEd. prior to the drilling of the shafts and adjust the locations of the permanent casing as necessary.

WALL ELEVATION

(Looking West)
Drilled shaft reinforcement not shown for clarity

PLAN

(Parapet, panel and cap reinforcement not shown for clarity)

Notes:

See additional notes on Sheets S5-04 and S5-06 of S5-19 .
For Section A-A and Section C-C, see Sheet S5-08 of S5-19 .
In addition to vibration and displacement monitoring, the Contractor shall monitor movements with Slope Inclinometers. All inclinometers shall be installed prior to drilling. See special provisions for Slope Inclinometers.
Soldier Pile Wall Concrete fascia panels shall be paid as Concrete Structures (Retaining Wall). Drilled Shaft Wall Concrete fascia panels shall be paid as Class SI Concrete (Miscellaneous). See Sheet S5-13 of S5-19 for details of architectural reveals.

1 REVISED ENTIRE SHEET 5/15/20

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	CHECKED - DJG	REVISED -	
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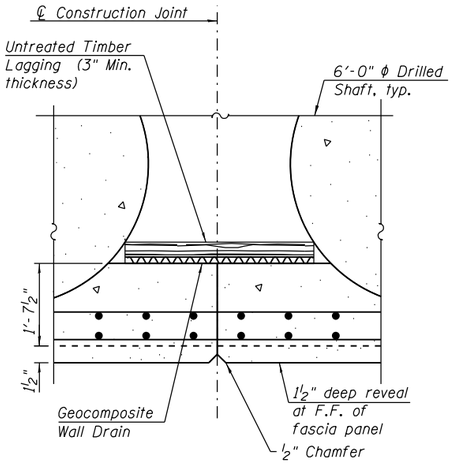
PLOT DATE = 4/30/2020	CHECKED - KRS	REVISED -	

TranSystems

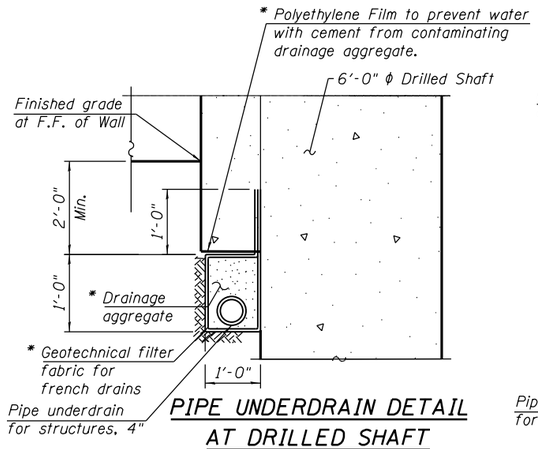
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLAN AND ELEVATION 2
RETAINING WALL 37 (STRUCTURE NO. 016-1826)
SHEET NO. S5-05 OF S5-19 SHEETS

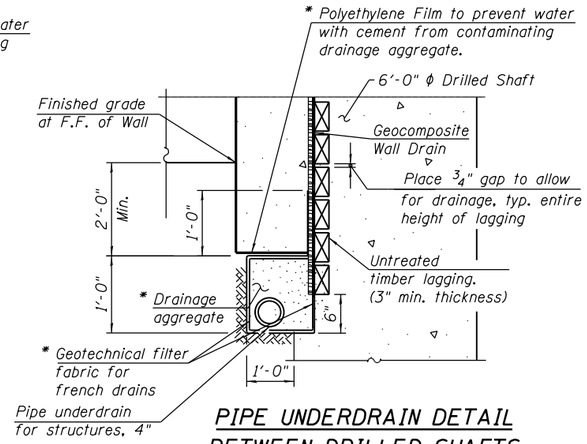
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-015R&B-R	COOK	825	496
		CONTRACT NO. 60X94		
	ILLINOIS FED. AID PROJECT			



CONSTRUCTION JOINT DETAILS

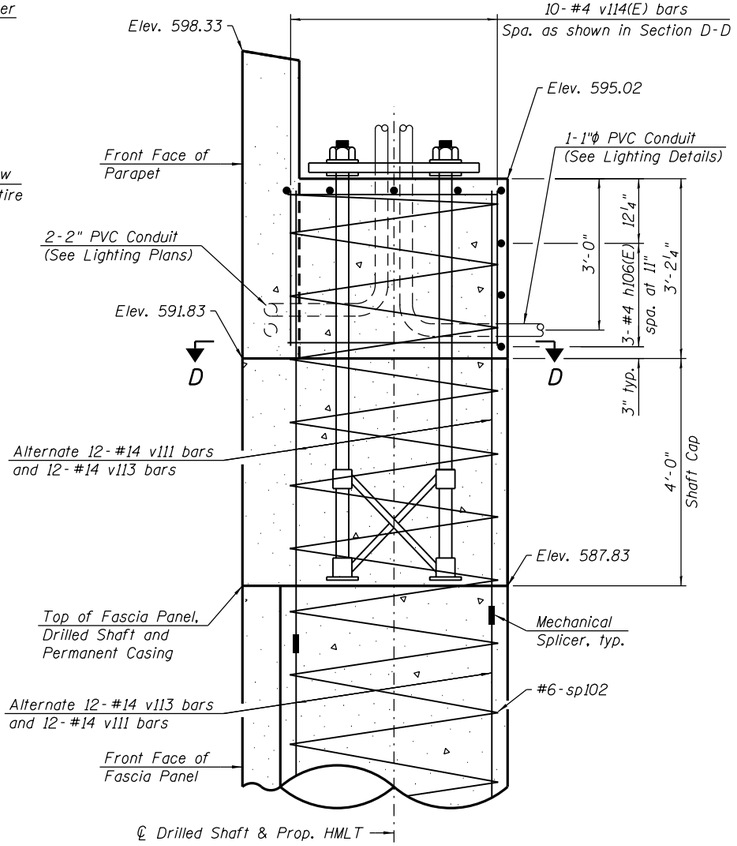


PIPE UNDERDRAIN DETAIL AT DRILLED SHAFT



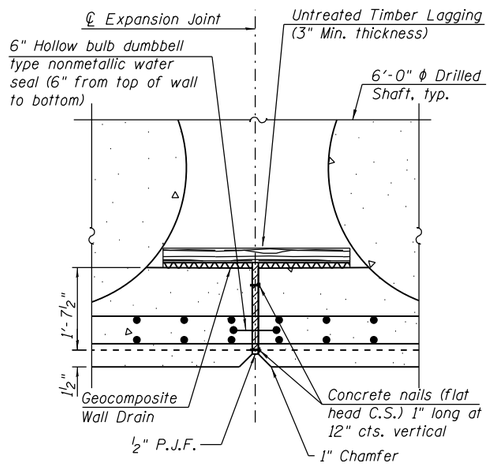
PIPE UNDERDRAIN DETAIL BETWEEN DRILLED SHAFTS

* Cost included with Pipe Underdrains for Structures, 4".

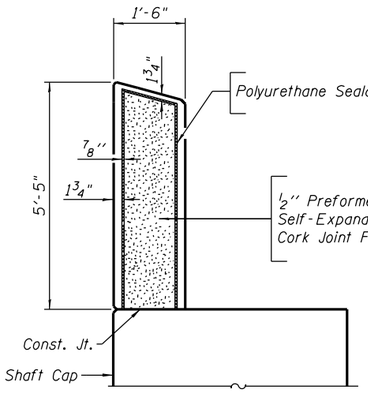


HMLT PEDESTAL ELEVATION

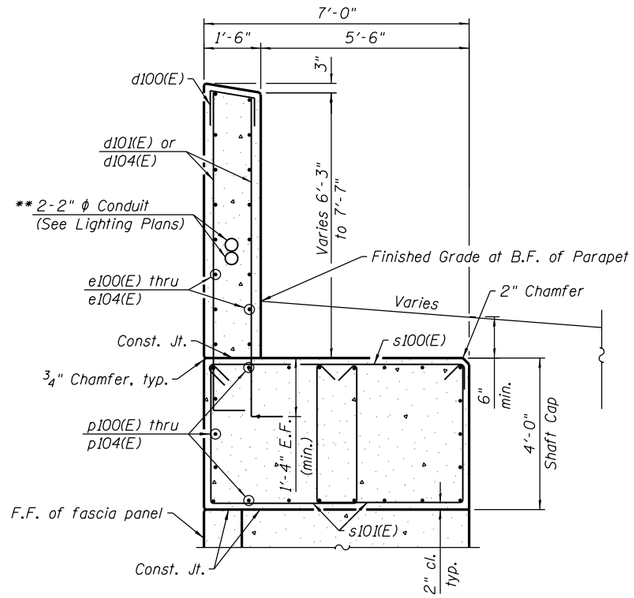
(Drilled Shaft 18 only)
(Parapet Reinforcement not shown for clarity)



EXPANSION JOINT DETAILS



TRANSVERSE EXPANSION JOINT SECTION

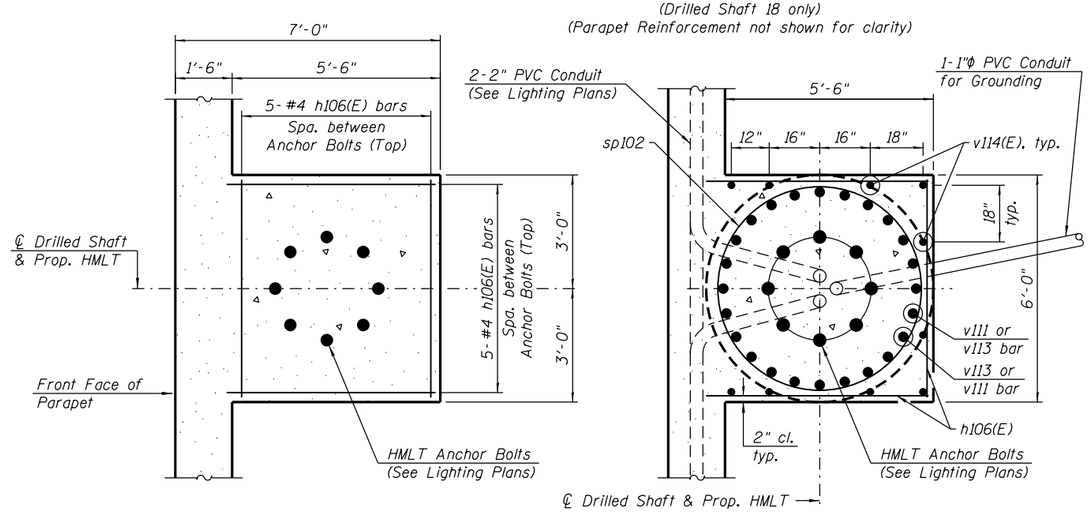


TYPICAL SECTION OF PARAPET AND CAP

(Shaft and fascia panel reinforcement not shown for clarity)

** Maintain 1½" minimum clearance from reinforcement.

Notes:
F.F. = Front Face.
B.F. = Back Face.
E.F. = Each Face.
Work this sheet with Sheets S5-05 thru S5-07 of S5-19 .
The Polyurethane Sealant shall be according to Article 1050.04 of Std. Spec. and the color shall be gray.
HMLT Pedestal Concrete included in the cost of Concrete Superstructure.
For Anchor Rod Cage Details, see IDOT Standard BE-506.
Cost of Anchor Rod Cage and Grounding Conduit included in the cost of Concrete Superstructure.



DETAIL E

SECTION D-D

(Parapet Reinforcement not shown for clarity)

⚠1 REVISED ENTIRE SHEET 5/15/20

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0161826-60X94-S009-WallDetails_2.dgn

TranSystems

USER NAME = wjcolletti	DESIGNED - KRS	REVISED -
	CHECKED - DJG	REVISED -
PLOT SCALE = NTS	DRAWN - AJD	REVISED -
PLOT DATE = 4/30/2020	CHECKED - KRS	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DRILLED SHAFT WALL SECTIONS AND DETAILS 2
RETAINING WALL 37 (STRUCTURE NO. 016-1826)
SHEET NO. S5-09 OF S5-19 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-015R&B-R	COOK	825	500
		CONTRACT NO. 60X94		
		ILLINOIS FED. AID PROJECT		

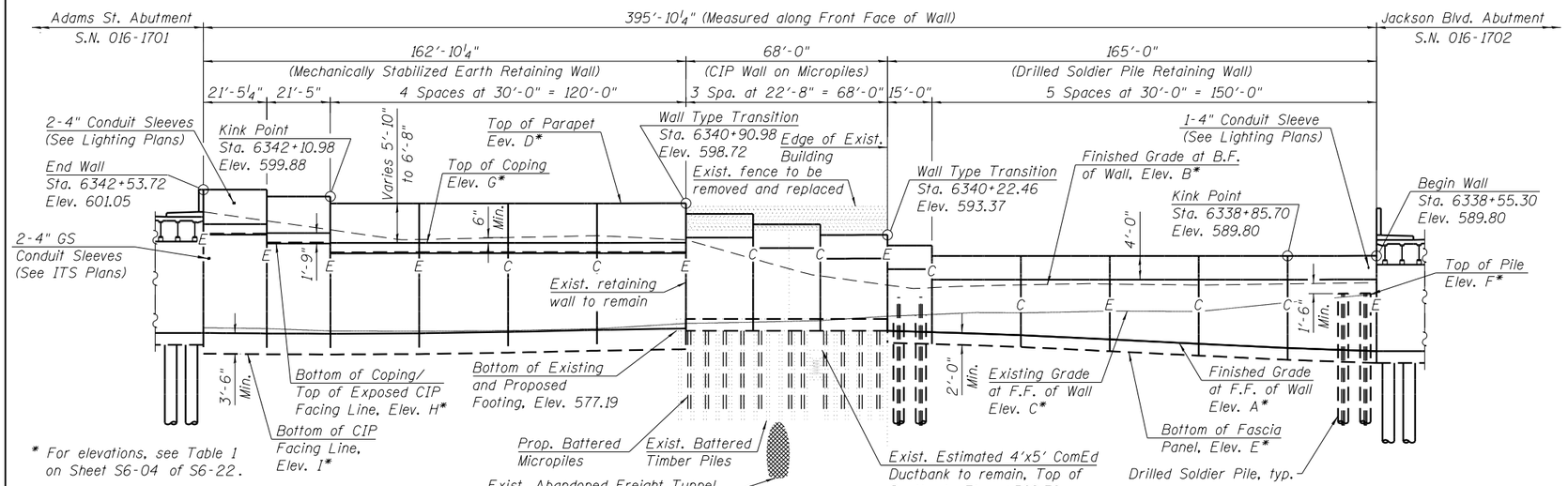
Bench Mark: Set "X" on east barrier wall of I-90 at ℄ of Adams Street. Elev. 581.17.

Existing Structure: Existing Retaining Wall at Quincy Street. Constructed in 1957 under F.A.I. Route 2, Section 0101.6-2P. Cast-in-place concrete retaining wall on battered timber piles that measures approximately 98'-0" at the end of Quincy Street north of Existing Building at 728 W. Jackson Boulevard. Maximum height from top of wall to bottom of footing measures 17'-0". The existing retaining wall is to remain.

Traffic on I-90/94 will be maintained with stage construction.

No Salvage.

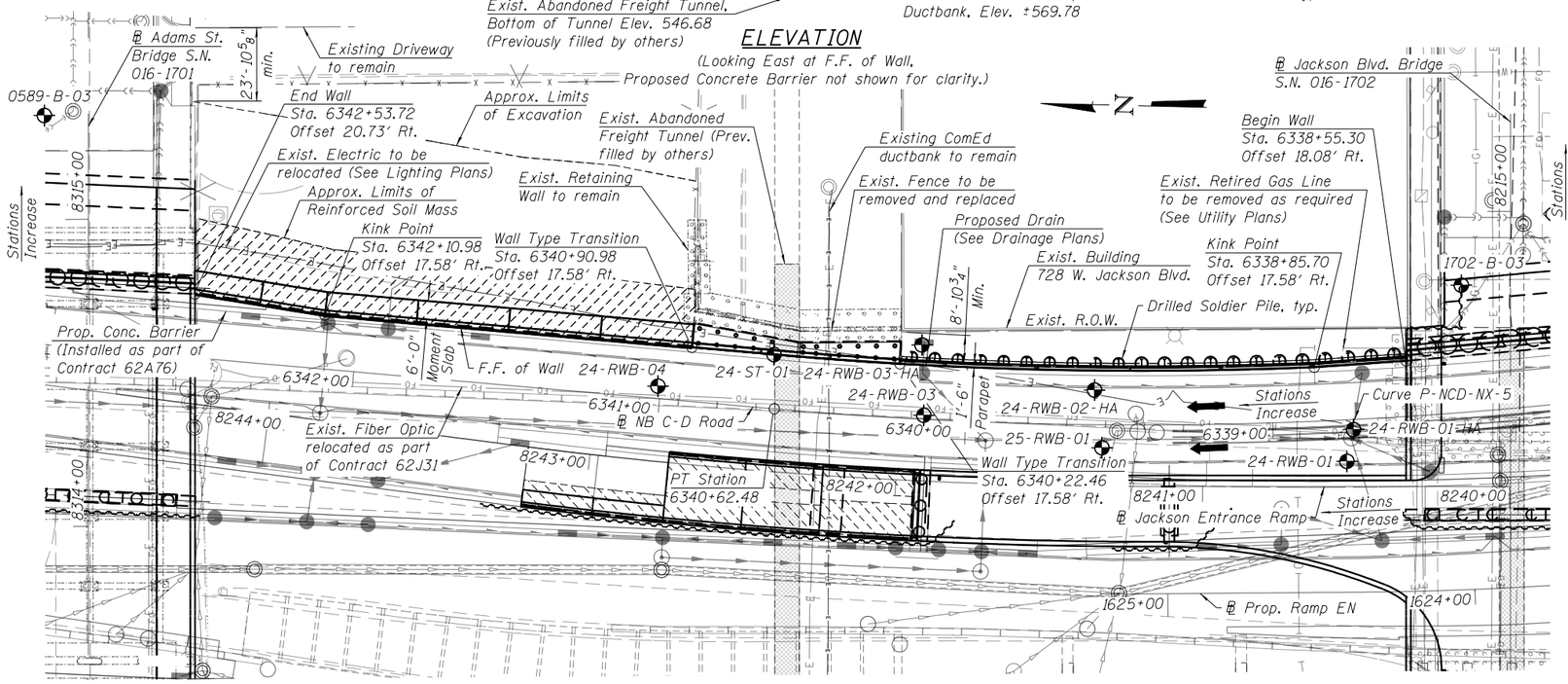
Notes:
Wall offsets are measured from the ℄ of NB C-D Road to the front face of cast-in-place fascia panels.
C denotes Construction Joint
E denotes Expansion Joint
F.F. denotes Front Face.
B.F. denotes Back Face.



* For elevations, see Table 1 on Sheet S6-04 of S6-22.

ELEVATION

(Looking East at F.F. of Wall, Proposed Concrete Barrier not shown for clarity.)



PLAN

CURVE DATA

(NB C-D Road)
Prop. Curve P-NCD-NX-5
P.I. Sta. = 6336+57.47
Δ = 35° 13' 41" (RT)
D = 4° 12' 24"
R = 1,362.00'
T = 432.42'
L = 837.42'
E = 67.00'
e = 4.20%
T.R. = 42'
S.E. Run = 87'
P.C. Sta. = 6332+25.05
P.T. Sta. = 6340+62.48

DESIGN SPECIFICATIONS

2017 AASHTO LRFD Bridge Design Specifications 8th Edition

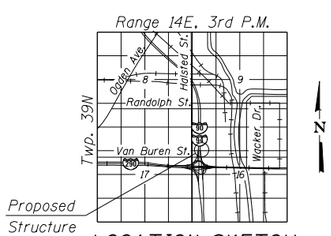
DESIGN STRESSES

FIELD UNITS

f'c = 5,000 psi (Micropile Grout)
f'c = 4,000 psi (Superstructure Concrete)
f'c = 3,500 psi (All other concrete)
fy = 60,000 psi (Reinforcement)
fy = 60,000 psi (Micropile Casing)
fu = 150,000 psi (Micropile Threadbar)

SOLDIER PILES

fy = 50,000 psi (AASHTO M270 Gr. 50)



LOCATION SKETCH

MATTHEW D. SANTEFORD 081-007244 LICENSED STRUCTURAL ENGINEER OF STATE OF ILLINOIS
03-06-2020
MATTHEW D. SANTEFORD, P.E., S.E.
NO. 081-007244
EXP. DATE 11/30/2020

APPROVED
For Structural Adequacy Only
Engineer of Bridges & Structures

LEGEND:

Ex. Chain Link Fence	— X — X —	Ex. Gas Line	—G—
Combined Sewer		Ex. Fiber Optic	—FO—
Electric	—E—	Soil Boring	
Ex. Storm Sewer		Existing Catch Basin	
Prop. Storm Sewer		Proposed Catch Basin	
Ex. ITS Cable		Existing Manhole	
Limits of Soil Reinf.		Proposed Inlet	

GENERAL PLAN AND ELEVATION
RETAINING WALL 24 ALONG NB C-D ROAD
F.A.I. RTE. 90/94 (KENNEDY EXPRESSWAY)
SECTION 2014-015R&B-R
COOK COUNTY
STATION 6338+55.30 TO STATION 6342+53.72
STRUCTURE NO. 016-Z016

⚠1 REVISED ENTIRE SHEET 5/15/20

TranSystems

USER NAME = wjcolletti	DESIGNED - KRS	REVISED -
	CHECKED - DJG	REVISED -
PLOT SCALE = NTS	DRAWN - LFP	REVISED -
PLOT DATE = 3/5/2020	CHECKED - KRS	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET NO. S6-01 OF S6-22 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-015R&B-R	COOK	825	511
		CONTRACT NO.		60X94
	ILLINOIS FED. AID PROJECT			

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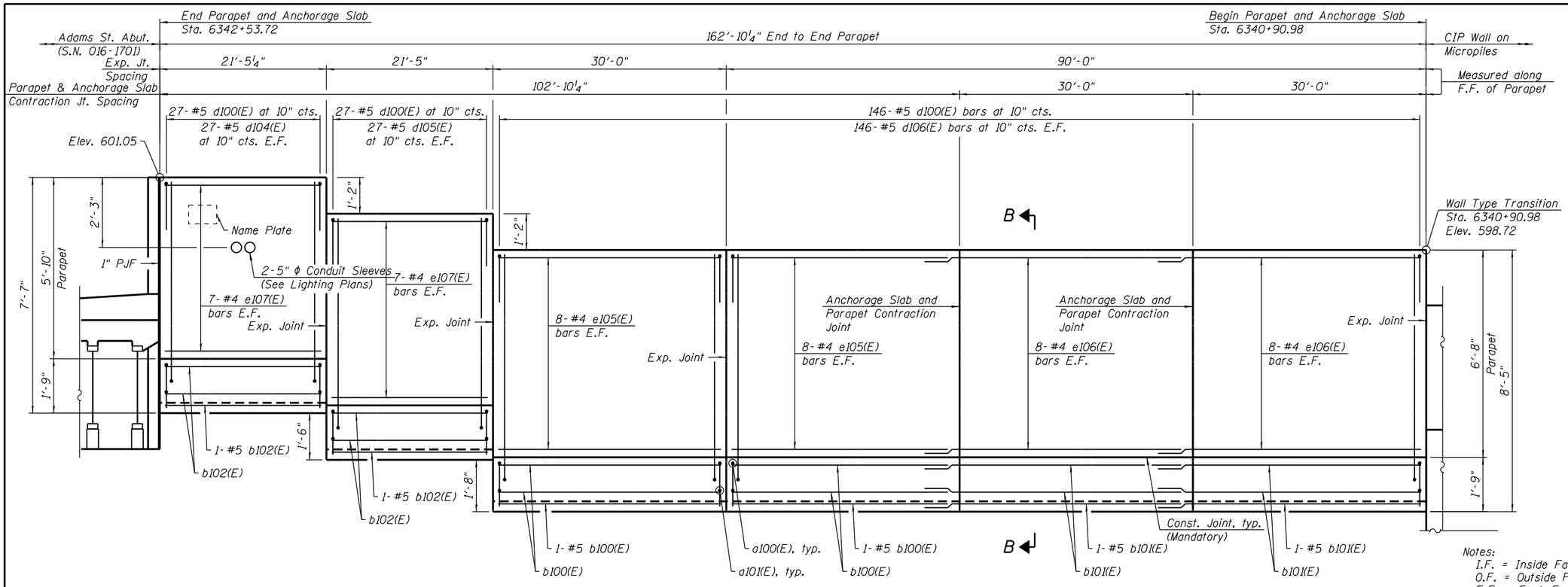
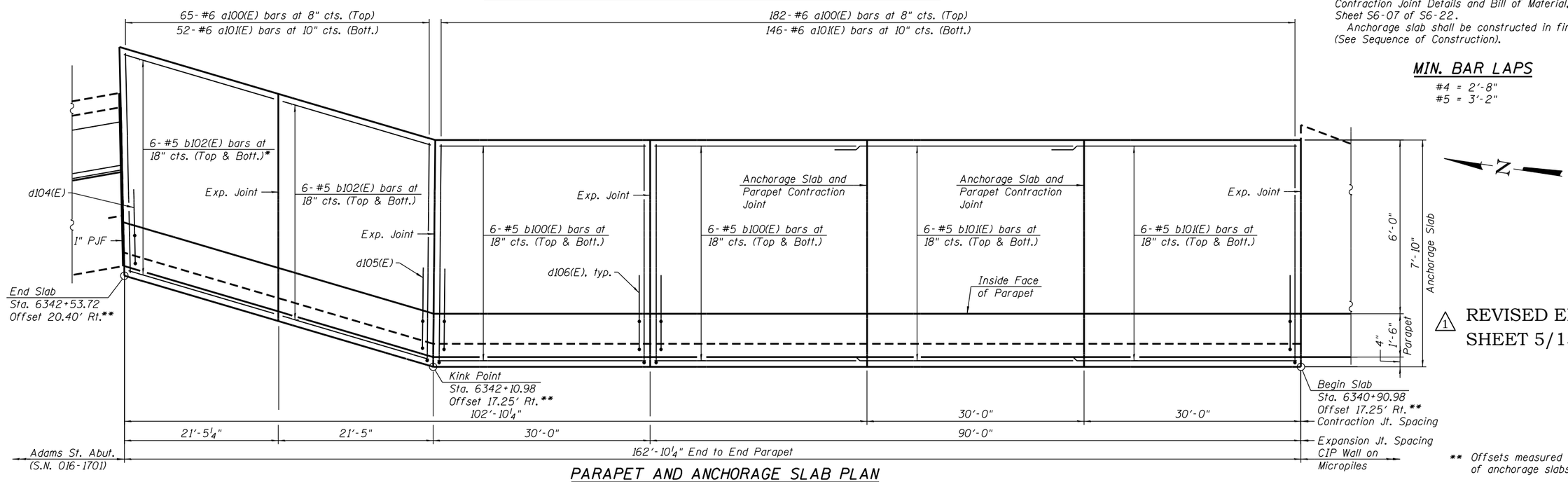


OUTSIDE ELEVATION OF PARAPET AND ANCHORAGE SLAB

Notes:
I.F. = Inside Face
O.F. = Outside Face
E.F. = Each Face
For Section B-B, Bar Diagram, Expansion and Contraction Joint Details and Bill of Material, see Sheet S6-07 of S6-22.
Anchorage slab shall be constructed in final stage (See Sequence of Construction).

MIN. BAR LAPS

#4 = 2'-8"
#5 = 3'-2"



PARAPET AND ANCHORAGE SLAB PLAN

** Offsets measured to front face of anchorage slabs.

1 REVISED ENTIRE SHEET 5/15/20

USER NAME = wjcolletti	DESIGNED - KRS	REVISED -	
	CHECKED - DJG	REVISED -	
PLOT SCALE = NTS	DRAWN - LFP	REVISED -	
PLOT DATE = 5/5/2020	CHECKED - KRS/WJC	REVISED -	

TranSystems

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PARAPET AND ANCHORAGE SLAB PLAN AND ELEVATION
RETAINING WALL 24 (STRUCTURE NO. 016-Z016)
SHEET NO. S6-06 OF S6-22 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-015R&B-R	COOK	825	516
		CONTRACT NO. 60X94		
	ILLINOIS	FED. AID PROJECT		

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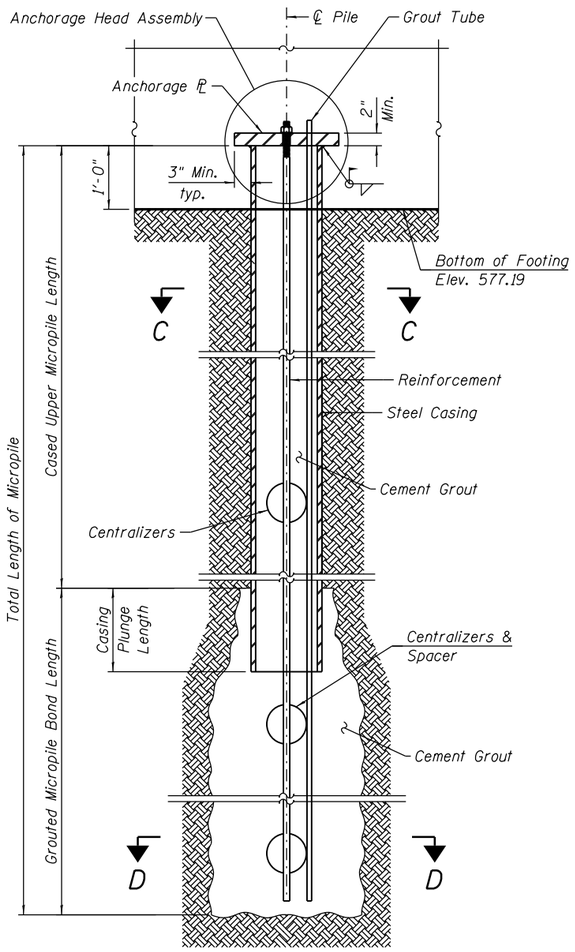
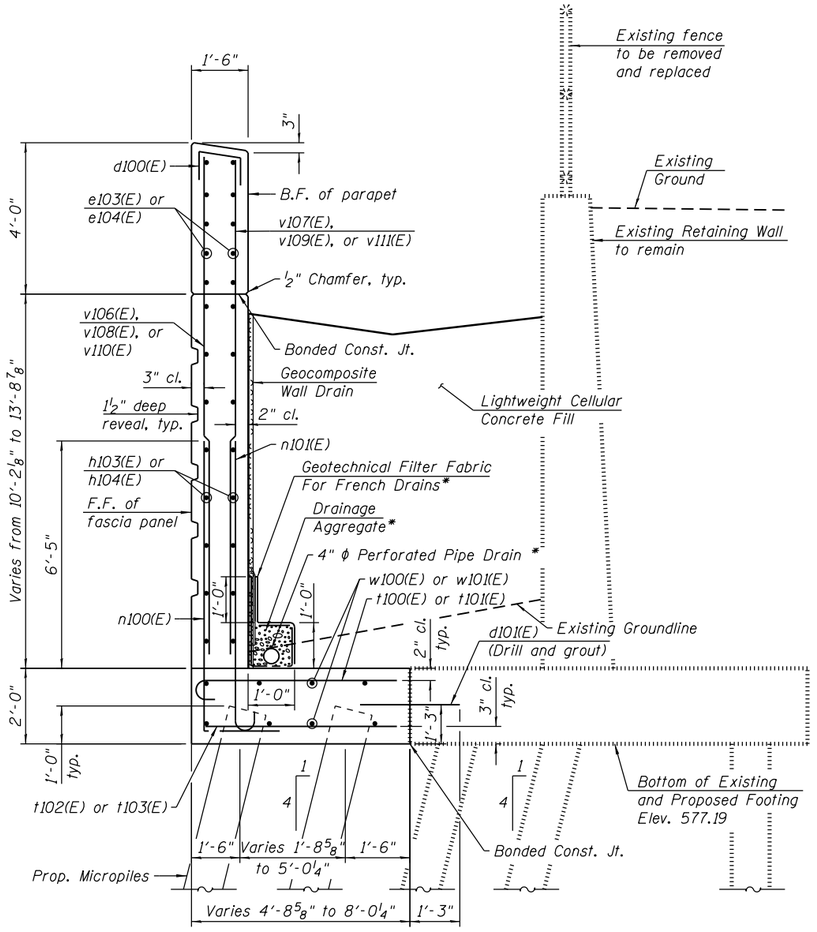
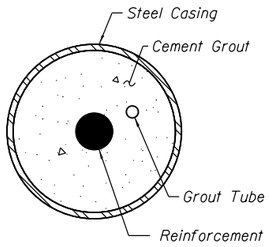


MICROPILE

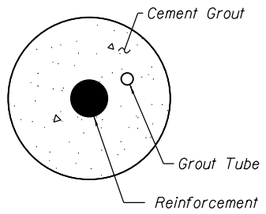


TYPICAL CAST-IN-PLACE WALL CROSS SECTION

* Cost included with Pipe Underdrains for Structures 4".



SECTION C-C

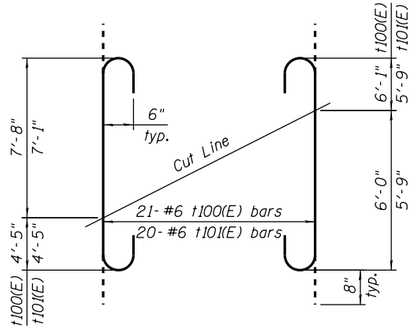


SECTION D-D

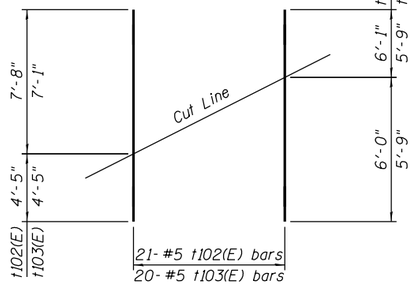
MICROPILE DATA

Type and Size: Micropile, Contractor Designed
Nominal Required Bearing: Maximum Tip Elev.
Maximum Factored Compression Load: 40 kips
Maximum Service Compression Load: 31 kips
Maximum Factored Lateral Load: 10 kips
Maximum Service Lateral Load: 14 kips
Number Required: 22

Notes:
The Factored and Service Loads shall be used for testing requirements according to the Special Provision Micropiles. For test pile and proof test requirements, see special provision.
All micropile loads are given at Bottom of Footing level.
The maximum compression load in the micropile is parallel to the centerline of the micropile.
The maximum lateral load in the micropile is perpendicular to the centerline of the micropile.
Micropile types refer to FHWA NHI-05-039: Micropile Design and Construction Reference Manual.
Micropile shown is schematic only. Design details to be provided by the Contractor in accordance with the Special Provisions.

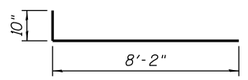


BARS t100(E) & t101(E)
Order Bars Full Length

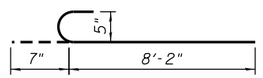


BARS t102(E) & t103(E)
Order Bars Full Length

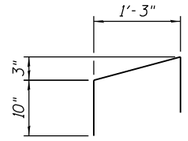
FIELD CUTTING DIAGRAMS



BAR n100(E)



BAR n101(E)



BAR d100(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
d100(E)	72	#5	3'-0"	
d101(E)	69	#6	2'-6"	
e103(E)	18	#5	22'-4"	
e104(E)	12	#5	25'-10"	
h103(E)	30	#5	22'-4"	
h104(E)	48	#5	25'-10"	
n100(E)	72	#5	9'-0"	
n101(E)	72	#5	8'-9"	
v106(E)	24	#5	17'-4"	
v107(E)	24	#5	17'-1"	
v108(E)	24	#5	15'-7"	
v109(E)	24	#5	15'-4"	
v110(E)	24	#5	13'-10"	
v111(E)	24	#5	13'-7"	
t100(E)	21	#6	13'-5"	
t101(E)	20	#6	12'-9"	
t102(E)	21	#6	12'-1"	
t103(E)	20	#6	11'-6"	
w100(E)	18	#5	34'-9"	
w101(E)	16	#5	36'-2"	

Structure Excavation	Cu. Yd.	119
Concrete Superstructure	Cu. Yd.	14.7
Reinforcement Bars, Epoxy Coated	Pound	6,540
Concrete Structures (Retaining Wall)	Cu. Yd.	77.1
Concrete Sealer	Sq. Ft.	1,765
Geocomposite Wall Drain	Sq. Yd.	70
Micro-Piles	Each	22
Micropile Load Test	Each	1
Micropile Proof Load Test	Each	1
Lightweight Cellular Concrete Fill	Cu. Yd.	224
Pipe Underdrain for Structures 4"	Foot	68

Minimum Bar Laps	
Bar	Lap
#5	3'-2"

Notes:
Epoxy grout d101(E) bars according to Article 584 of the Standard Specifications. Drill to miss existing reinforcement. All work shall be included in the unit Bid Price for Reinforcement Bars, Epoxy Coated.
Concrete Parapet shall be paid for as Concrete Superstructure.
Fascia Panels and Footing shall be paid for as Concrete Structures (Retaining Wall).

1 REVISED ENTIRE SHEET 5/15/20

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TranSystems

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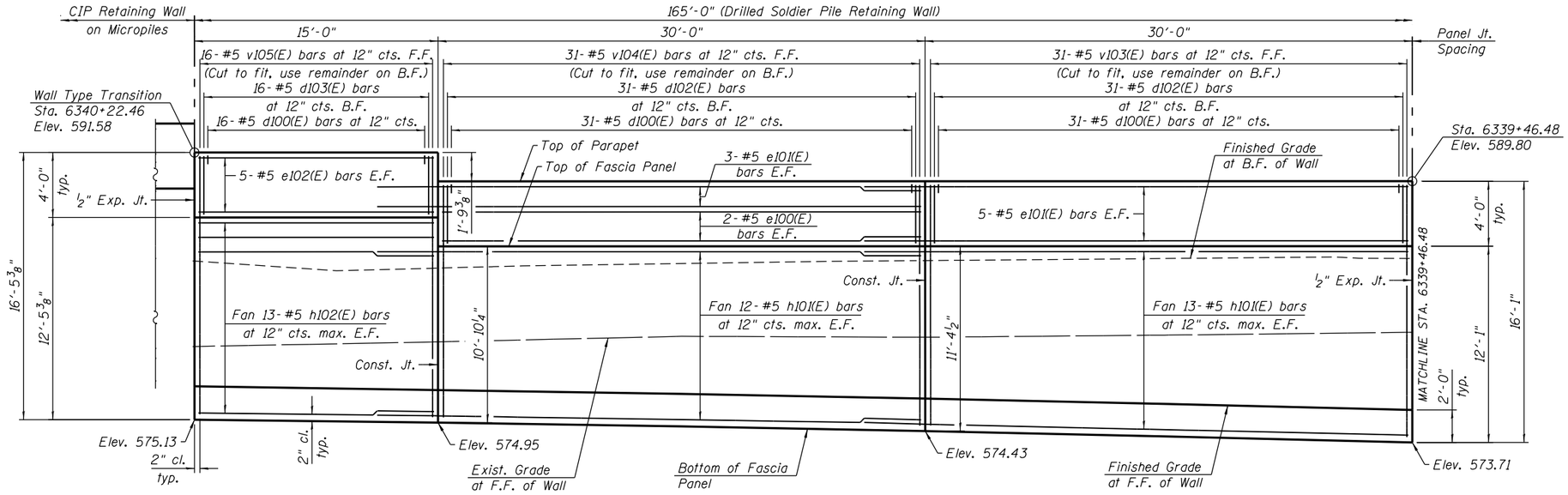
	CHECKED - DJG	REVISED -
PLOT SCALE = NTS	DRAWN - AJD	REVISED -
PLOT DATE = 5/5/2020	CHECKED - KRS	REVISED -

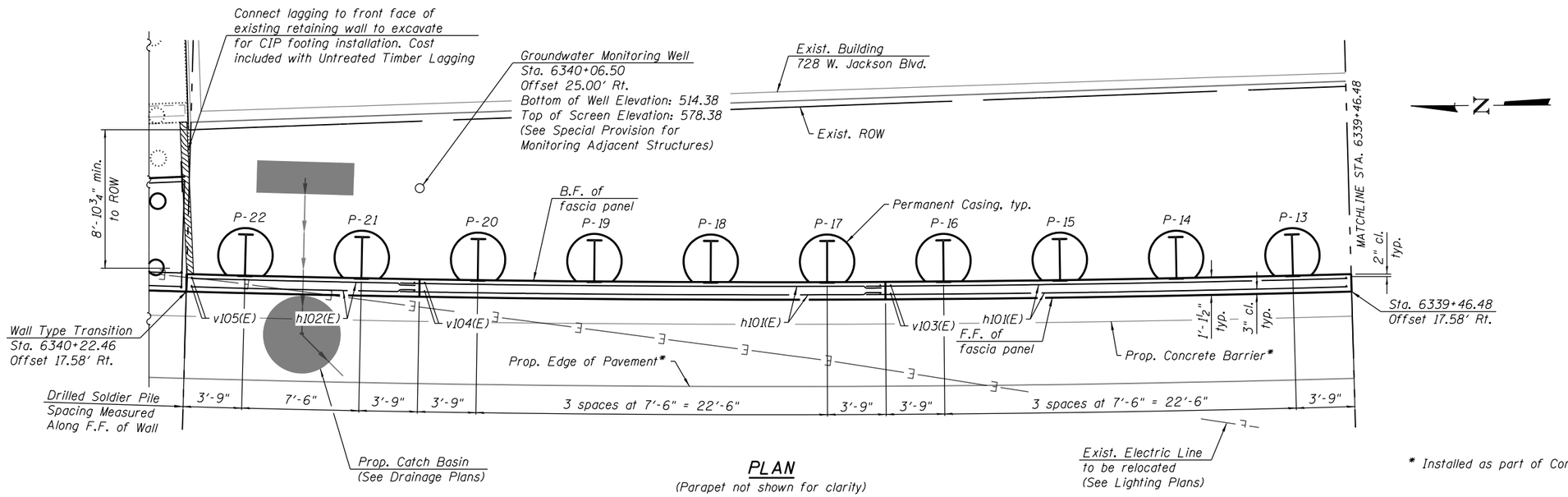
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CAST-IN-PLACE WALL DETAILS
RETAINING WALL 24 (STRUCTURE NO. 016-Z016)
SHEET NO. S6-09 OF S6-22 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-015R&B-R	COOK	825	519
		CONTRACT NO. 60X94		
	ILLINOIS FED. AID PROJECT			



WALL ELEVATION
(Looking East)



PLAN
(Parapet not shown for clarity)

* Installed as part of Contract 62A76.

Notes:
F.F. = Front Face.
B.F. = Back Face.
E.F. = Each Face.
For soldier pile wall cross sections and details, see Sheet S6-12 of S6-22.
For soldier pile layout, sections and details and Bill of Material, see Sheet S6-13 of S6-22.

Minimum Bar Laps	
Bar	Lap
#5	3'-2"

1 REVISED ENTIRE SHEET 5/15/20

TranSystems

USER NAME = wjcolletti	DESIGNED - KRS	REVISED -
	CHECKED - DJG	REVISED -
PLOT SCALE = NTS	DRAWN - AJD	REVISED -
PLOT DATE = 5/5/2020	CHECKED - KRS	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DRILLED SOLDIER PILE WALL PLAN AND ELEVATION 1
RETAINING WALL 24 (STRUCTURE NO. 016-Z016)
SHEET NO. S6-10 OF S6-22 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-015R&B-R	COOK	825	520
		CONTRACT NO. 60X94		
	ILLINOIS FED. AID PROJECT			

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0162016 60X94-S010-SoldierPile_Plan1.dgn

Bench Mark: BM 1400 - Chisel "X" on chain bolt of fire hydrant, south side of Monroe, first fire hydrant west of Des Plaines Street. Elevation 594.76'.

Existing Structure: Existing Cast-in-Place Cantilever Retaining Wall was originally built as F.A.I. Route No. 2, Section 0101.6-2P in 1957. The existing wall supporting the alley is aproximatelly 100'-1" long and has a total height of 6'-0".

Traffic Control: Traffic will be maintained along NB I-90/94 lanes during construction. Alley behind proposed wall will be closed for traffic.

DESIGN STRESSES

FIELD UNITS

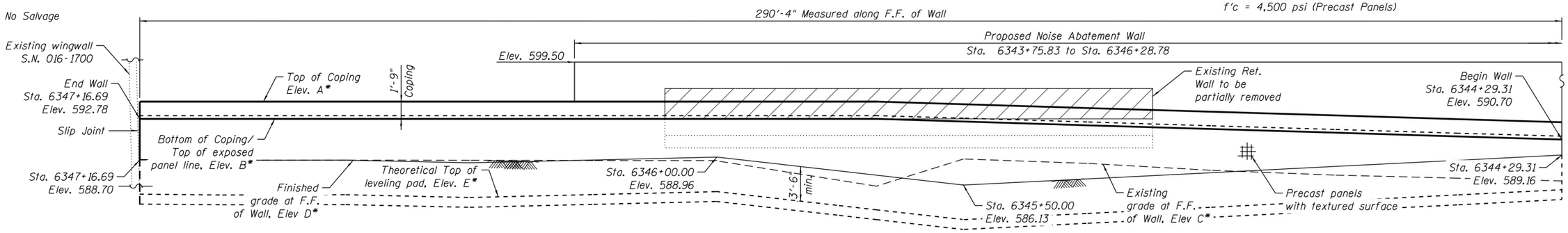
f'c = 3,500 psi
fy = 60,000 psi (Reinforcement)

PRECAST UNITS

f'c = 4,500 psi (Precast Panels)

DESIGN SPECIFICATIONS

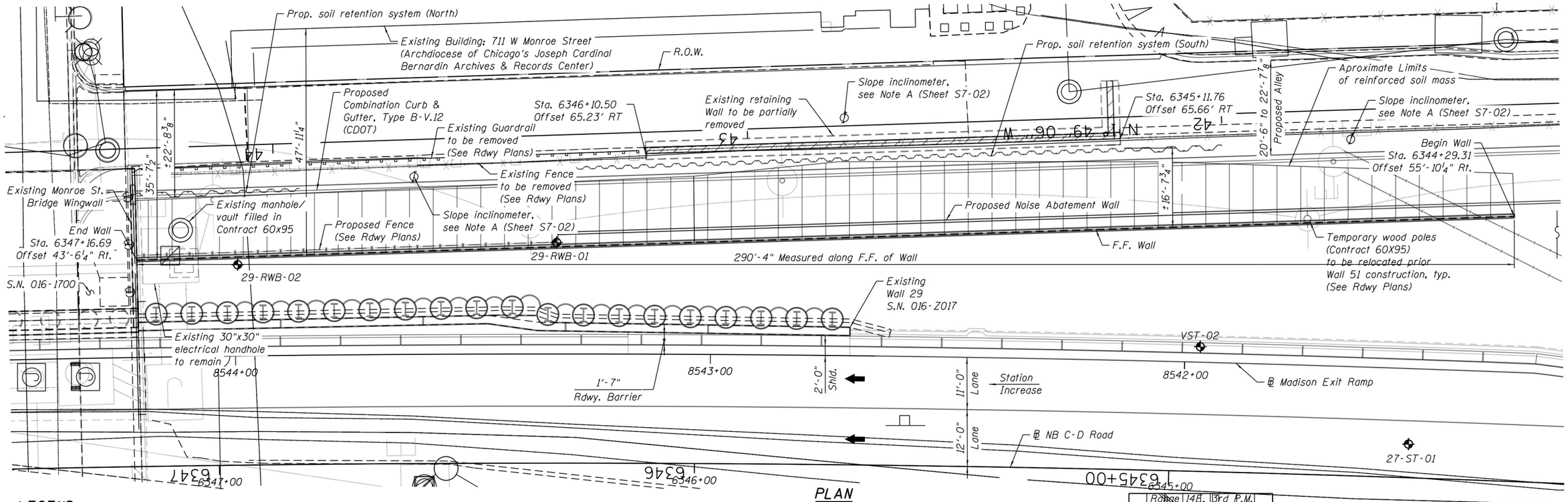
2017 AASHTO LRFD Bridge Design Specifications, 8th Edition



* See Elevations Table on Sheet S7-03

ELEVATION

(Looking East)



PLAN

LEGEND:

B.F. - Back Face of Wall
F.F. - Front Face of Wall
Limits of Removal of Existing Retaining Wall
Electric —E—
Existing Catch Basin
Proposed Catch Basin
Existing Fence — x — x —
Fiber Optic — FO —
Temporary Aerial Cable
Temporary Wood Pole
Existing Manhole
Soil Boring Location
Limits of reinforced Soil Mass

NOTES:

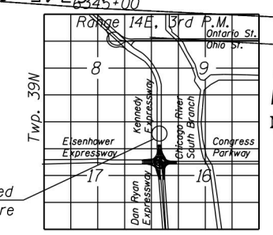
1. Stations and offsets are measured along ℄ NB C-D Road.

APPROVED
For Structural Adequacy Only
Engineer of Bridges & Structures

⚠1 REVISED ENTIRE SHEET 5/15/20

STATE OF ILLINOIS
AMISH T. BHATT
081-006249
LICENSED STRUCTURAL ENGINEER

Amish T. Bhatt
AMISH T. BHATT DATE 3/02/2020
LICENSE EXPIRES 11/30/2020



LOCATION SKETCH

GENERAL PLAN & ELEVATION
RETAINING WALL 51
F.A.I. RTE. 90/94
SECTION 2014-015 R&B-R
COOK COUNTY
STA. 6344+29.31 TO STA. 6347+16.69
STRUCTURE NO. 016-Z048

USER NAME = keserovicm	DESIGNED - MK	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - MK	REVISED	
PLOT DATE = 3/5/2020	CHECKED - ATB	REVISED	

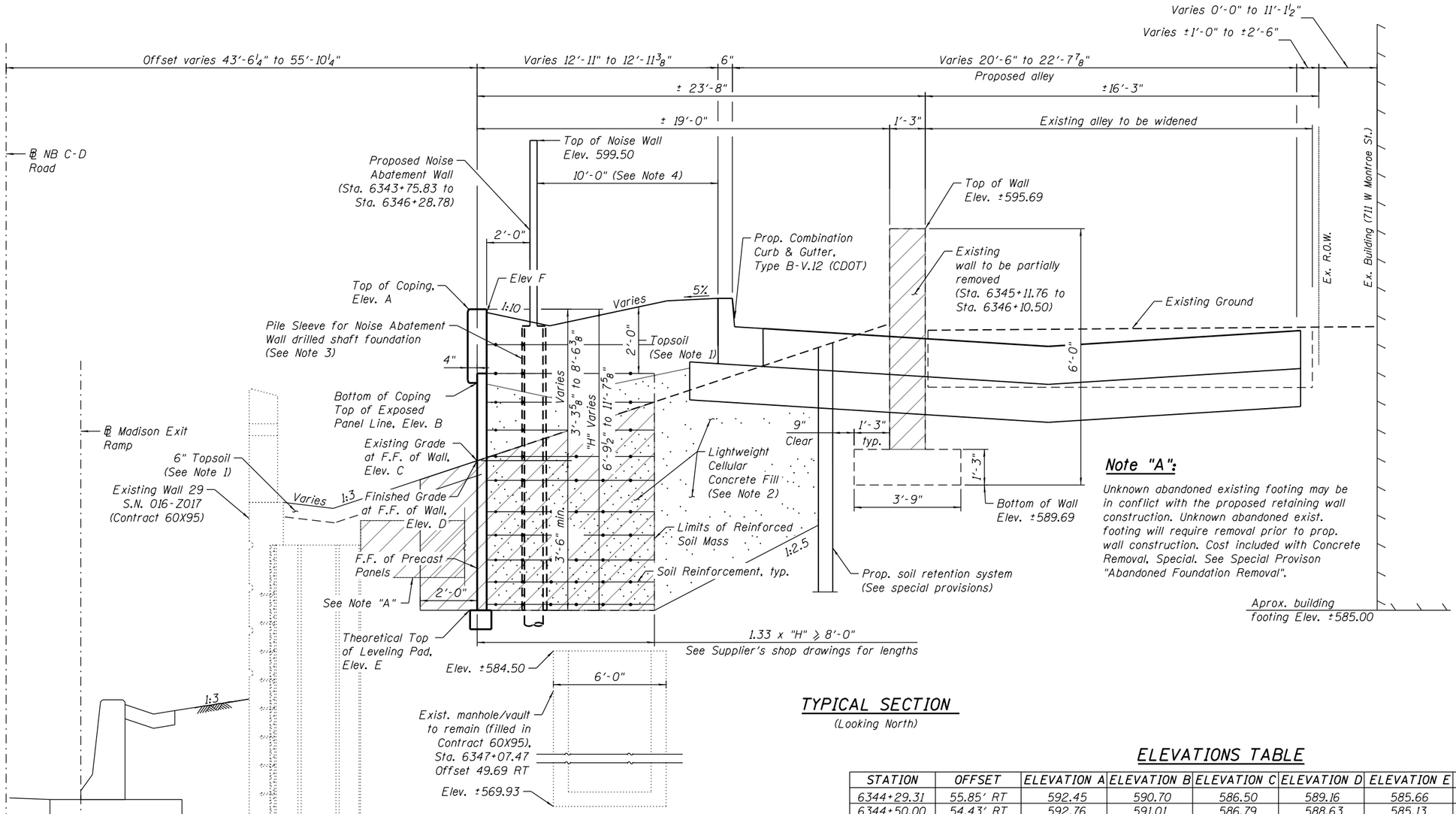
AECOM

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN AND ELEVATION
RETAINING WALL 51 (STRUCTURE NO. 016-Z048)
SHEET NO. S7-01 OF 9 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-015 R&B-R	COOK	825	533
		CONTRACT NO. 60X94		
ILLINOIS	FED. AID PROJECT			

016-Z048-SHT-ACM-001-GPE.dgn



Note "A":

Unknown abandoned existing footing may be in conflict with the proposed retaining wall construction. Unknown abandoned exist. footing will require removal prior to prop. wall construction. Cost included with Concrete Removal, Special. See Special Provison "Abandoned Foundation Removal".

TYPICAL SECTION

(Looking North)

LEGEND:

- Lightweight Cellular Concrete Fill
- Structure Removal Limit
- Structure Excavation Limits

B.F. - Back Face of Wall

F.F. - Front Face of Wall

⚠1 REVISED ENTIRE SHEET 5/15/20

NOTES:

1. For top soil quantity see Civil plans.
2. Lightweight Cellular Concrete fill shall be Class III (District I) Lightweight Cellular Concrete Fill. LCCF shall be used within reinforced soil mass and behind reinforced soil mass within excavated area.
3. Noise Abatement Wall (NAW) drilled shaft foundation diameter, depth, and spacing to be determined by the Contractor. The Contractor shall install pile sleeve around NAW drilled shaft foundation prior to LCCF placement for the prop. Wall 51. The pipe sleeve shall be provided within prop. Wall 51 reinforced soil mass limits. The annulus between sleeve and NAW drilled shaft foundation shall be filled with concrete. Cost of pipe sleeve and filling annulus with concrete shall be included with Mechanically Stabilized Earth Retaining Wall, Special.
4. Planting of trees or other large plants with deep root systems shall not be allowed in the area between MSE Wall and alley curb.

ELEVATIONS TABLE

STATION	OFFSET	ELEVATION A	ELEVATION B	ELEVATION C	ELEVATION D	ELEVATION E	ELEVATION F
6344+29.31	55.85' RT	592.45	590.70	586.50	589.16	585.66	592.28
6344+50.00	54.43' RT	592.76	591.01	586.79	588.63	585.13	592.60
6344+75.00	52.82' RT	593.14	591.39	587.10	588.00	584.50	592.98
6345+00.00	51.33' RT	593.51	591.76	587.59	587.37	583.87	593.35
6345+25.00	49.97' RT	593.89	592.14	588.38	586.75	583.25	593.61
6345+50.00	48.73' RT	594.27	592.52	588.72	586.13	582.63	593.87
6345+67.48	47.93' RT	594.53	592.78	586.94	587.12	583.62	594.03
6345+75.00	47.60' RT	594.53	592.78	586.60	587.55	584.05	594.07
6346+00.00	46.60' RT	594.53	592.78	588.57	588.96	585.46	594.12
6346+25.00	45.72' RT	594.53	592.78	588.58	588.66	585.16	594.24
6346+50.00	44.96' RT	594.53	592.78	588.59	588.37	584.87	594.36
6346+75.00	44.32' RT	594.53	592.78	588.60	588.64	585.14	594.37
6347+00.00	43.80' RT	594.53	592.78	590.66	588.62	585.12	594.37
6347+16.69	43.52' RT	594.53	592.78	588.62	588.70	585.20	594.36

NOTES (Contd.):

5. Wall 51 shall be designed to carry loads from the prop. Noise Abatement Wall. See Special Provision for Mechanically Stabilized Earth Retaining Wall, Special and Ground Mounted Concrete Noise Abatement Walls (Absorptive and Reflective) for design and construction requirements.

Elevation A: Top of Coping
Elevation B: Bottom of Coping / Top of Exposed Panel Line
Elevation C: Existing Grade at F.F. of Wall
Elevation D: Finished Grade at F.F. of Wall
Elevation E: Theoretical Top of Leveling Pad
Elevation F: Finished Grade at B.F. of Wall

016-Z048-SHT-ACM-003-TypSec.dgn

AECOM

USER NAME = BhattA	DESIGNED - MK	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - MK	REVISED	
PLOT DATE = 5/4/2020	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TYPICAL SECTION
STRUCTURE NO. 016-Z048
SHEET NO. S7-03 OF 10 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-015 R&B-R	COOK	825	535
		CONTRACT NO. 60X94		
ILLINOIS	FED. AID PROJECT			

GENERAL NOTES

1. Contractor shall follow requirements of Special Provision "Ground Mounted Concrete Noise Abatement Walls (Absorptive and Reflective)" for material, design, fabrication, construction and erection requirements of the proposed Noise Abatement Wall. The Noise Abatement Wall shall be a reflective system. The reflectiveness of the wall shall be measured using the noise reduction coefficient (NRC) which measures a material's sound absorption quality. The sound absorptive material shall have a NRC value 0.5 or less. /1

2. The Contractor shall field verify location of existing utilities prior to construction. The Contractor shall take precautions not to damage existing utilities. Any such damage shall be repaired by the Contractor at no additional cost.

3. The Contractor shall exercise extreme caution during construction to make certain that construction activities, live load surcharge and other loads applied to the structures will not have detrimental effects on the adjacent buildings and utilities. See Contract Special Provision for details.

4. Noise Abatement Wall (NAW) drilled shaft foundation construction shall follow the requirements of Special Provision "Foundation Drilling Procedures".

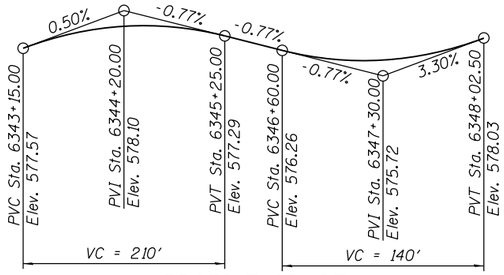
5. Noise Abatement Wall (NAW) drilled shaft foundation diameter, depth, and spacing to be determined by Contractor.

6. The Contractor shall install pile sleeve around NAW drilled shaft foundation prior to LCCF placement for the Prop. Wall 51, S.N. 016-Z048. The pipe sleeve shall be provided within Prop. Wall 51 reinforced soil mass limits. The annulus between sleeve and NAW drilled shaft foundation shall be filled with concrete. /1

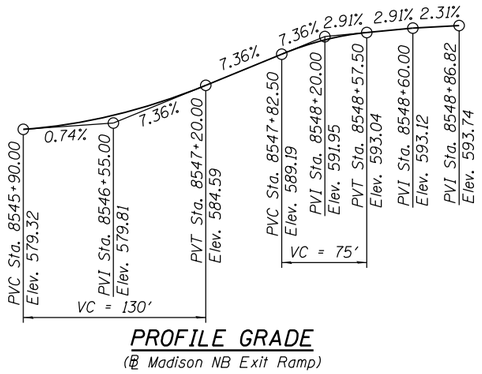
7. The Contractor shall take all necessary precautions not to contaminate groundwater during the Noise Abatement Wall drilled shaft foundation construction operation. Contractor is responsible for the proper containment and disposal of the contaminated groundwater and spoils resulting from Contractor's means and methods. No additional cost will be paid for this effort.

8. Contractor shall provide one 4" ϕ weep hole per Noise Abatement Wall precast panel. Weep hole shall be located at the center of precast panel along the finished grade elevation at the front face of Noise Abatement Wall. Cost shall be included with Noise Abatement Wall, Ground Mounted.

9. The Contractor shall coordinate construction of Prop. Noise Abatement Wall with Wall 51, S.N. 016-Z048 construction.



PROFILE GRADE
(℄ NB C-D Road)



PROFILE GRADE
(℄ Madison NB Exit Ramp)

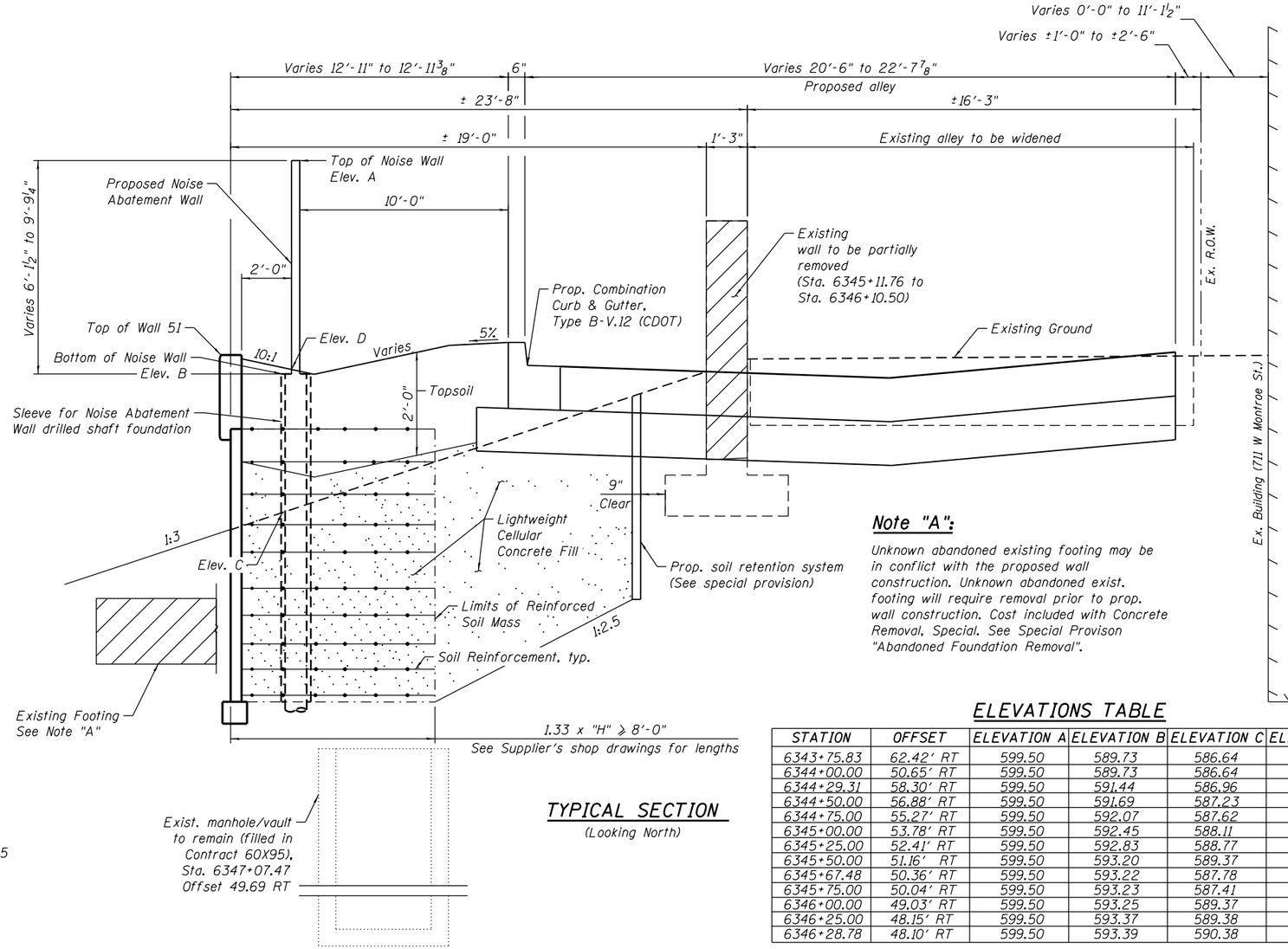
CURVE DATA

(NB C-D Road)
Curve: P-NCD-NX-6
PI Sta. = 6345+36.95
Δ = 5° 12' 37" (LT)
D = 1° 05' 35"
R = 5,242.00'
T = 238.51'
L = 476.70'
E = 5.42'
e = RC
T.R. = NA
S.E. Run = NA
P.C. Sta. = 6342+98.44
P.T. Sta. = 6347+75.14

TOTAL BILL OF MATERIAL

DESCRIPTION	UNIT	TOTAL
Noise Abatement Wall, Ground Mounted	SQ.FT.	1859
Stainless Steel Cable Plant Support System	L.SUM.	1

INDEX OF SHEETS:



TYPICAL SECTION
(Looking North)

Note "A":

Unknown abandoned existing footing may be in conflict with the proposed wall construction. Unknown abandoned exist. footing will require removal prior to prop. wall construction. Cost included with Concrete Removal, Special. See Special Provison "Abandoned Foundation Removal".

ELEVATIONS TABLE

STATION	OFFSET	ELEVATION A	ELEVATION B	ELEVATION C	ELEVATION D
6343+75.83	62.42' RT	599.50	589.73	586.64	590.40
6344+00.00	50.65' RT	599.50	589.73	586.64	590.40
6344+29.31	58.30' RT	599.50	591.44	586.96	592.11
6344+50.00	56.88' RT	599.50	591.69	587.23	592.36
6344+75.00	55.27' RT	599.50	592.07	587.62	592.74
6345+00.00	53.78' RT	599.50	592.45	588.11	593.12
6345+25.00	52.41' RT	599.50	592.83	588.77	593.50
6345+50.00	51.16' RT	599.50	593.20	589.37	593.87
6345+67.48	50.36' RT	599.50	593.22	587.78	593.89
6345+75.00	50.04' RT	599.50	593.23	587.41	593.90
6346+00.00	49.03' RT	599.50	593.25	589.37	593.92
6346+25.00	48.15' RT	599.50	593.37	589.38	594.04
6346+28.78	48.10' RT	599.50	593.39	590.38	594.06

Elevation A: Top of Noise Abatement Wall Panel
Elevation B: Bottom of Noise Abatement Wall Panel
Elevation C: Existing Grade at F.F. of Wall
Elevation D: Finished Grade at F.F. of Wall

LEGEND:

Structure Removal Limit

AECOM

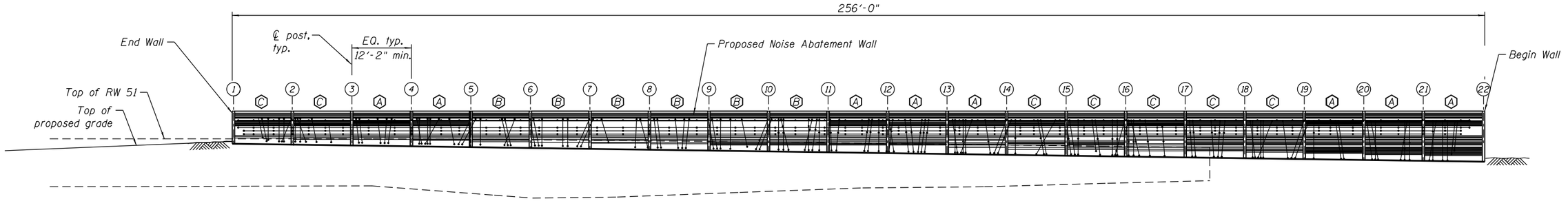
USER NAME = BhattA	DESIGNED - MK	REVISED /1 05/19/2020	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - MK	REVISED	
PLOT DATE = 5/20/2020	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TYPICAL SECTION, TOTAL BILL OF MATERIAL, INDEX OF SHEETS & GENERAL NOTES
NOISE ABATEMENT WALL
SHEET NO. S9-02 OF 8 SHEETS

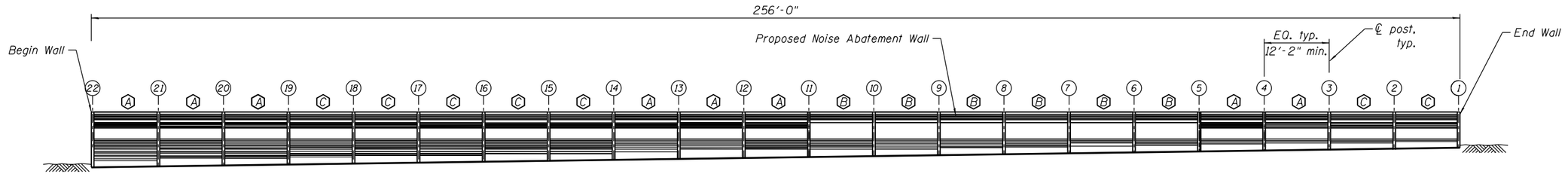
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-015 R&B-R	COOK	825	546
		CONTRACT NO. 60X94		
	ILLINOIS FED. AID PROJECT			

60X94-NOISE WALL-SHT-02-GenNote



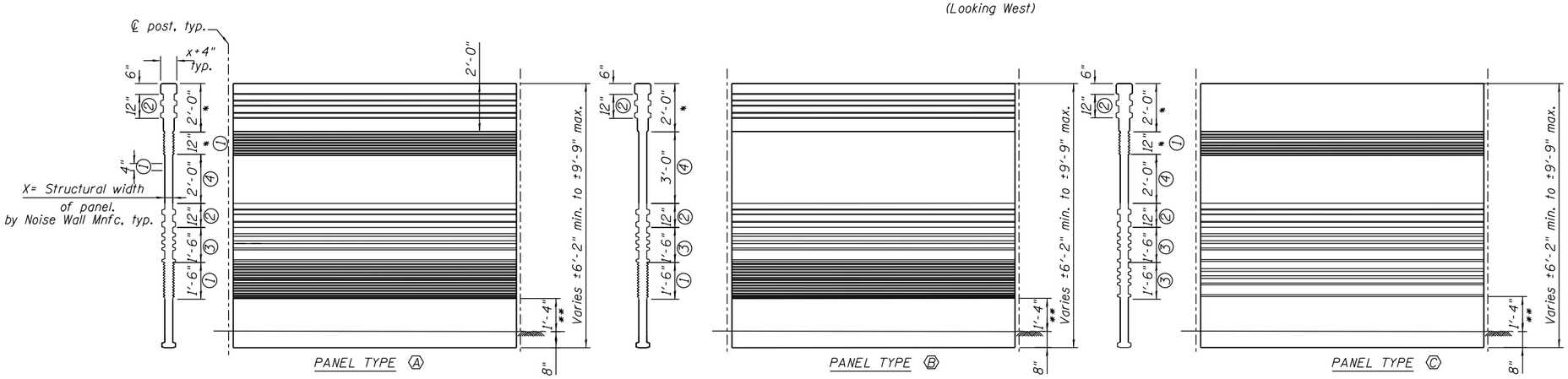
NOISE ABATEMENT WALL - ELEVATION

(Looking East)



NOISE ABATEMENT WALL - ELEVATION

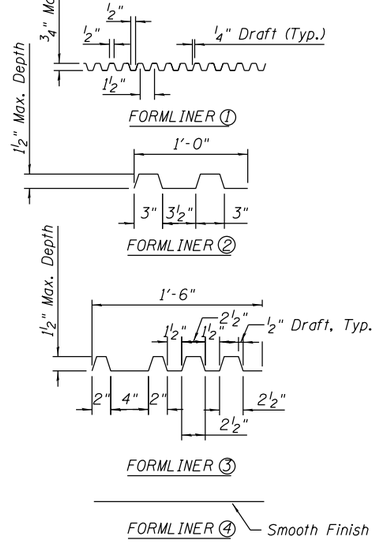
(Looking West)



PRECAST PANEL TYPE DETAILS

* Fixed dimension from top of panel. Formliner patterns below fixed dimension shall vary to accomodate different panel height.

** Formliner layout is shown for the max. panel height. Omit formliner 1'-4" above finished grade to allow for the SS spacer to be attached on flat surface.



FORMLINER DETAILS

LEGEND:

Ⓐ Ⓑ Ⓒ — Precast Panel Type Designation Based on Formliner Layout

①②③④ — Formliner Type Designation

NOTES:

1. Textured formliner for precast panels will not be paid separately and will be included in the cost of the pay item "Noise Abatement Wall, ground mounted".
2. For detailed dimensions, station and elevation of noise wall, see Sheets S9-01 and S9-02.

⚠1 REVISED ENTIRE SHEET 5/15/20

60X94-NOISE WALL-SHT-03-ARCH.dgn

AECOM

USER NAME = keserovicm	DESIGNED - MR	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - MR	REVISED	
PLOT DATE = 5/1/2020	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ARCHITECTURAL DETAILS I
NOISE ABATEMENT WALL
SHEET NO. S9-03 OF 9 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2014-015 R&B-R	COOK	825	547
		CONTRACT NO. 60X94		
	ILLINOIS FED. AID PROJECT			