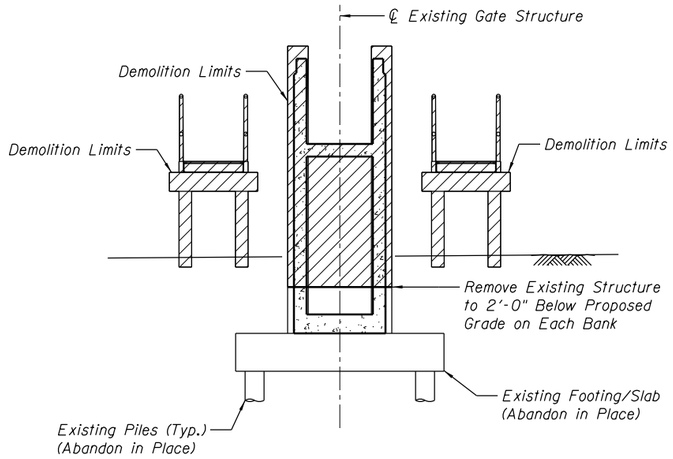
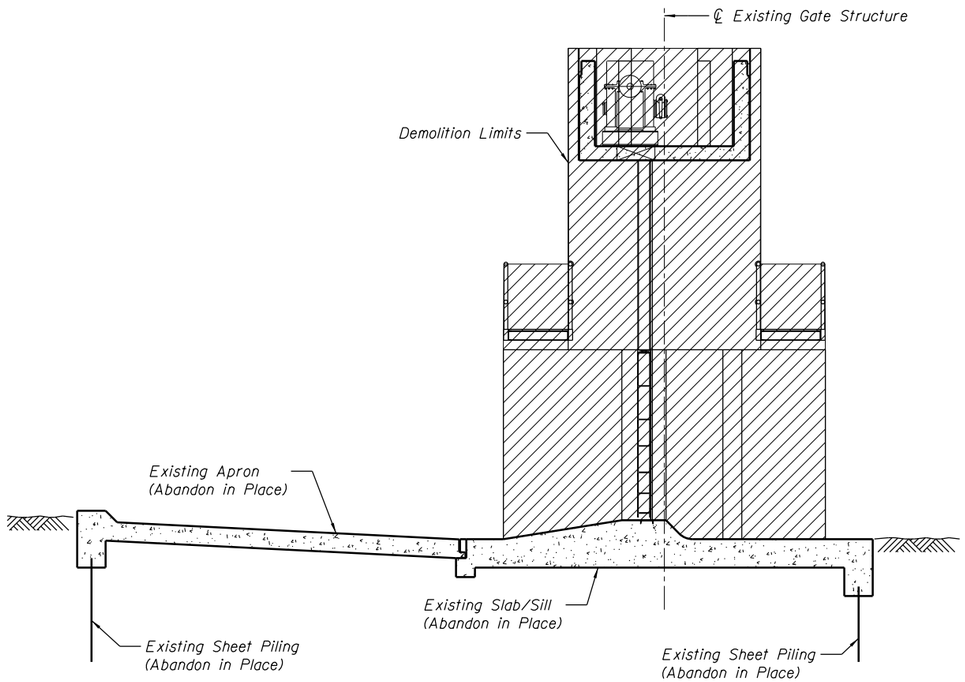
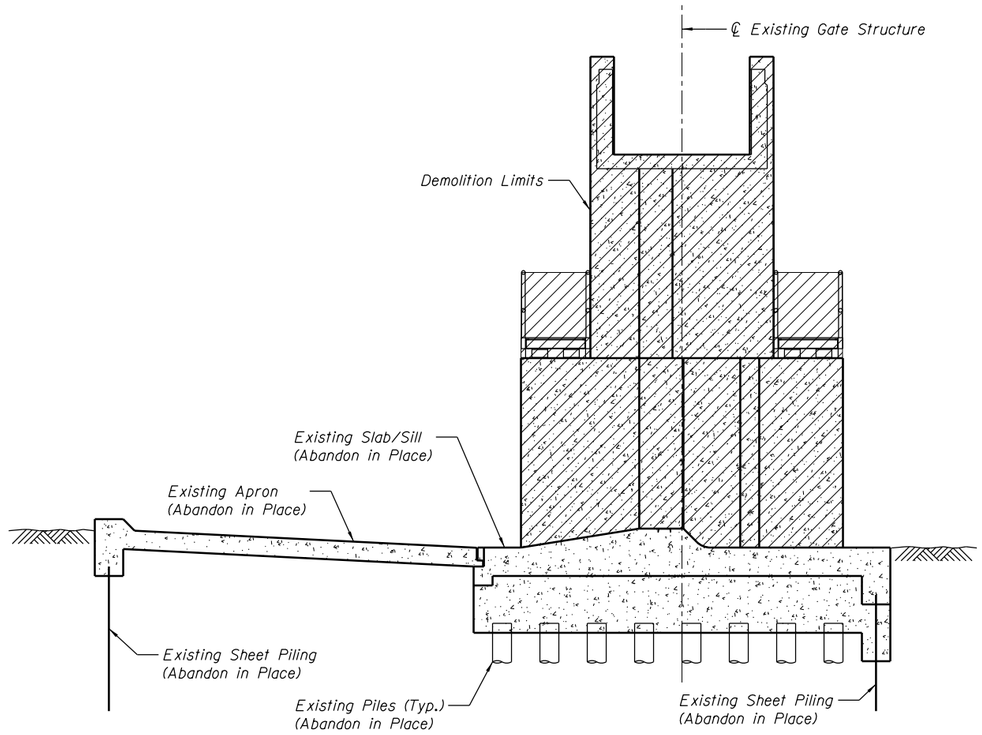


1/98 SECTION THRU WALKWAY

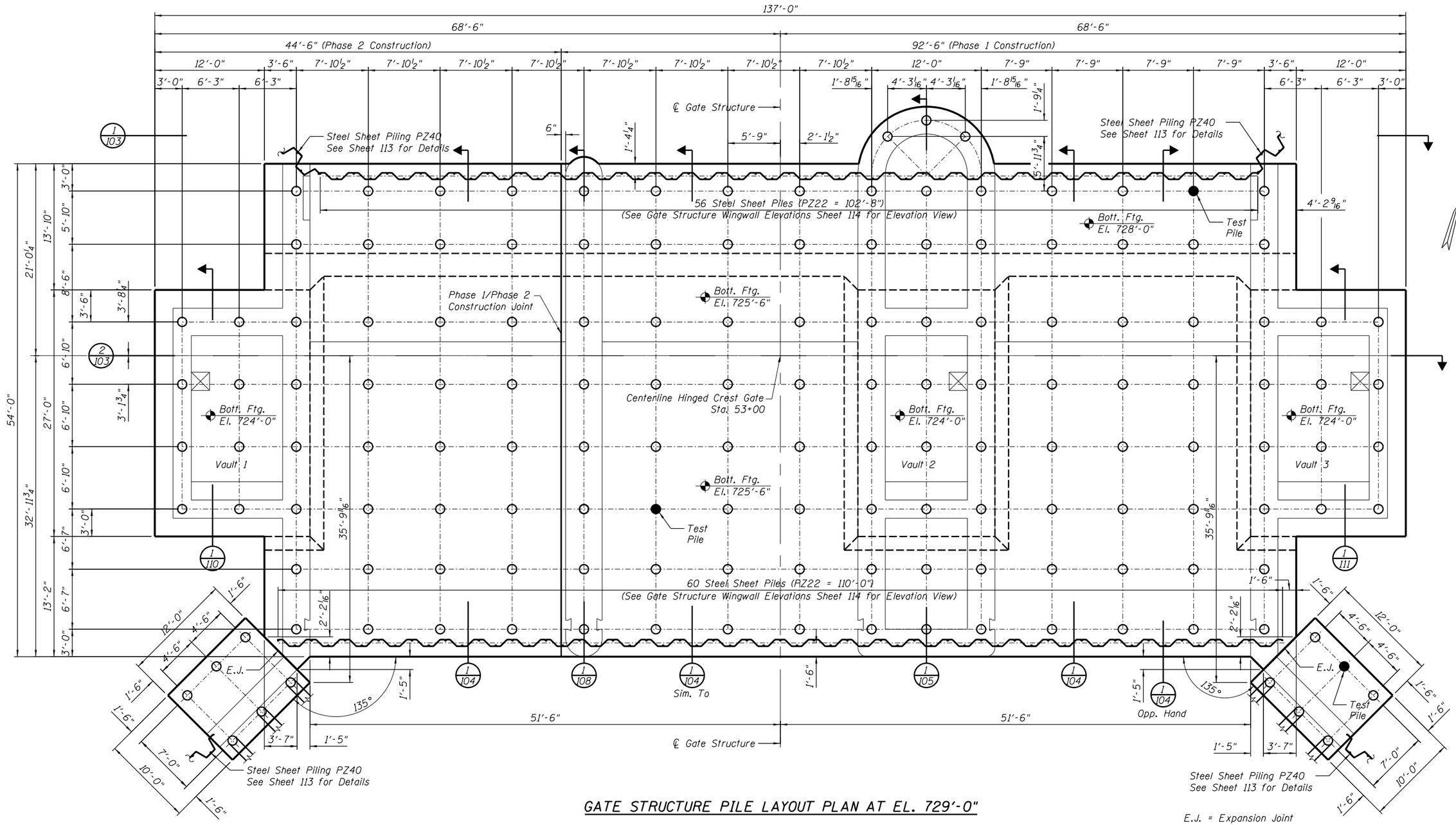


2/98 SECTION THRU GATE



3/98 SECTION THRU PIER

FILE NAME = S-5102-GATE.dgn	USER NAME =	DESIGNED - EJM	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	EXISTING GATE STRUCTURE DEMOLITION DETAILS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS	ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY / TOTAL SHEETS / SHEET NO.
HANSON		CHECKED - RGC	REVISED -				McHENRY / 238 / 98
	PLOT SCALE =	DRAWN - EJM	REVISED -				PROJECT FR-435
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -				



GATE STRUCTURE PILE LAYOUT PLAN AT EL. 729'-0"

E.J. = Expansion Joint

PILE DATA	Downstream Wingwalls	Upstream Foundation	Downstream Foundation
Type:	PP12x0.250"	PP12x0.250"	PP12x0.250"
Nominal Required Bearing:	257 kip	192 kip	192 kip
Allowable Bearing:	86 kip	67 kip	67 kip
Est. Length:	44'-0"	35'-0"	33'-0"
Highest Permissible Tip Elev.:	694.0'	694.0'	694.0'
No. Production Piles:	11	105	32
No. Test Piles:	1	1	1

All Bearing Piles Require Metal Shell Pile Shoes.

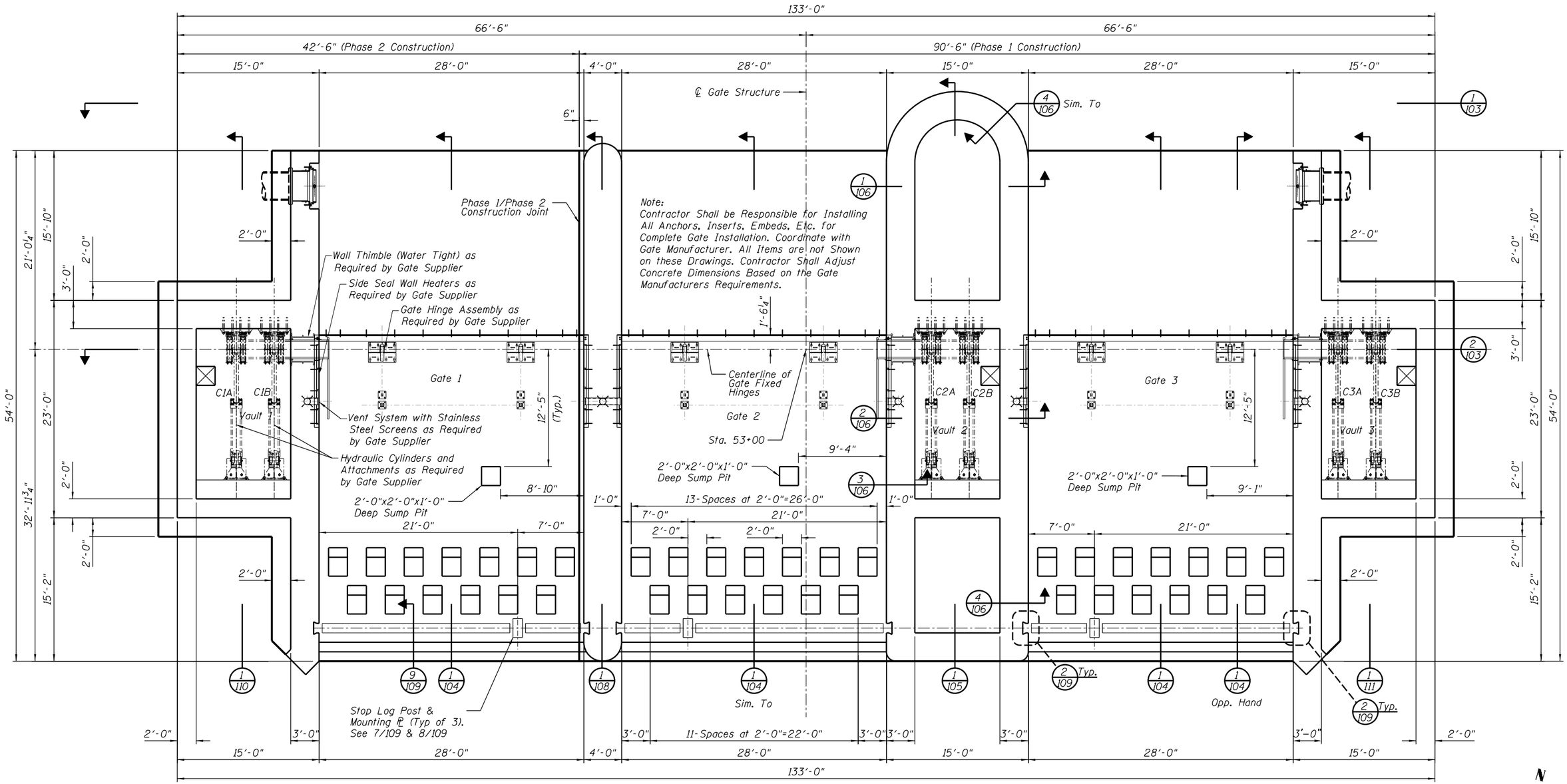
FILE NAME = S-2181-GATE.dgn	USER NAME =	DESIGNED - MAE	REVISED -
HANSON		CHECKED - RGC	REVISED -
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - RGC	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF NATURAL RESOURCES

GATE STRUCTURE PILE LAYOUT PLAN AT ELEVATION 729'-0"
STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS

ILLINOIS DEPARTMENT OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	99
PROJECT FR-435		



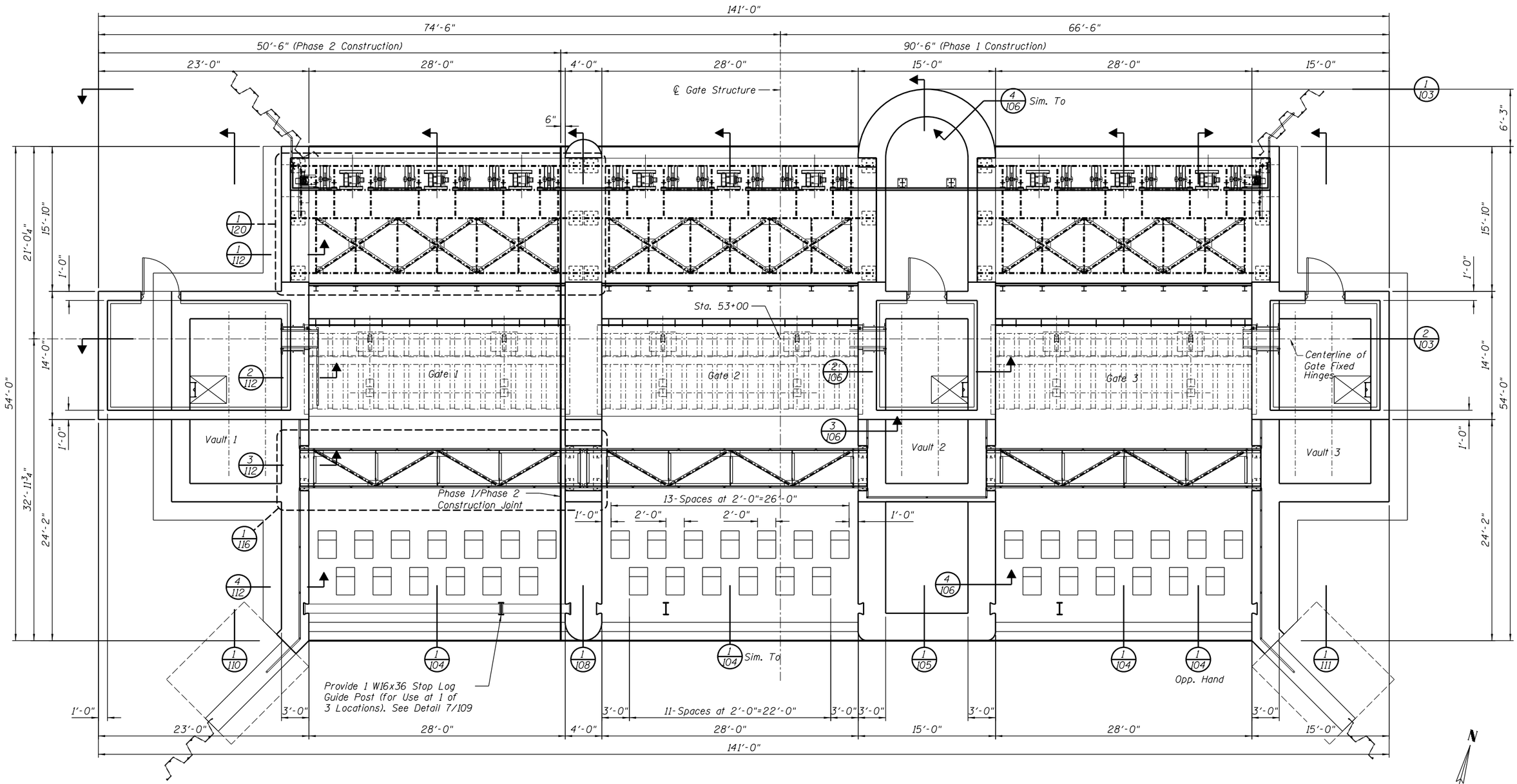
GATE STRUCTURE PLAN AT EL. 731'-6"

FILE NAME = S-2102-GATE.dgn	USER NAME =	DESIGNED - MAE	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GATE STRUCTURE PLAN AT ELEVATION 731'-6" STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
		CHECKED - JGT	REVISED -		
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -		

ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	100

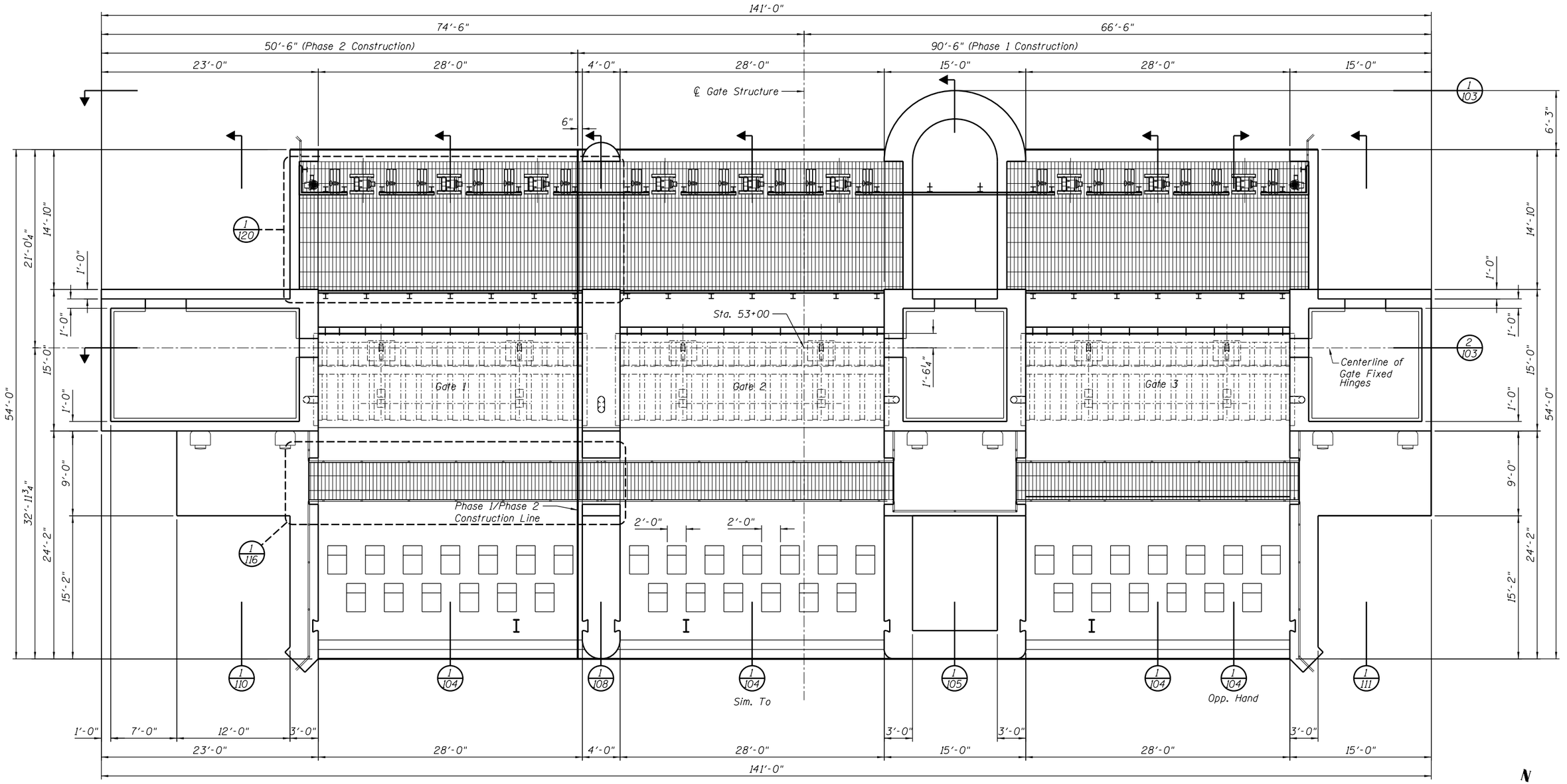
PROJECT FR-435

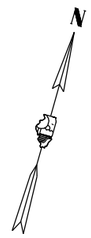


GATE STRUCTURE PLAN AT EL. 745'-6"

FILE NAME = S-2103-GATE.dgn	USER NAME =	DESIGNED - MAE	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GATE STRUCTURE PLAN AT ELEVATION 745'-6" STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HANSON		CHECKED - JGT	REVISED -		
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -		

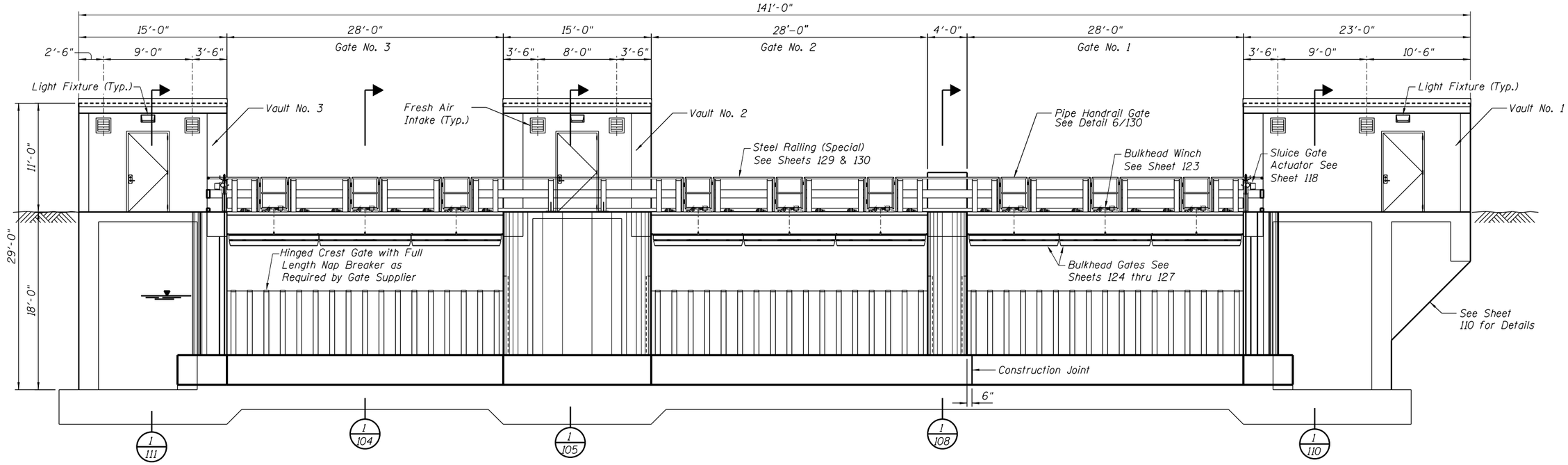
ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	101
	PROJECT FR-435		



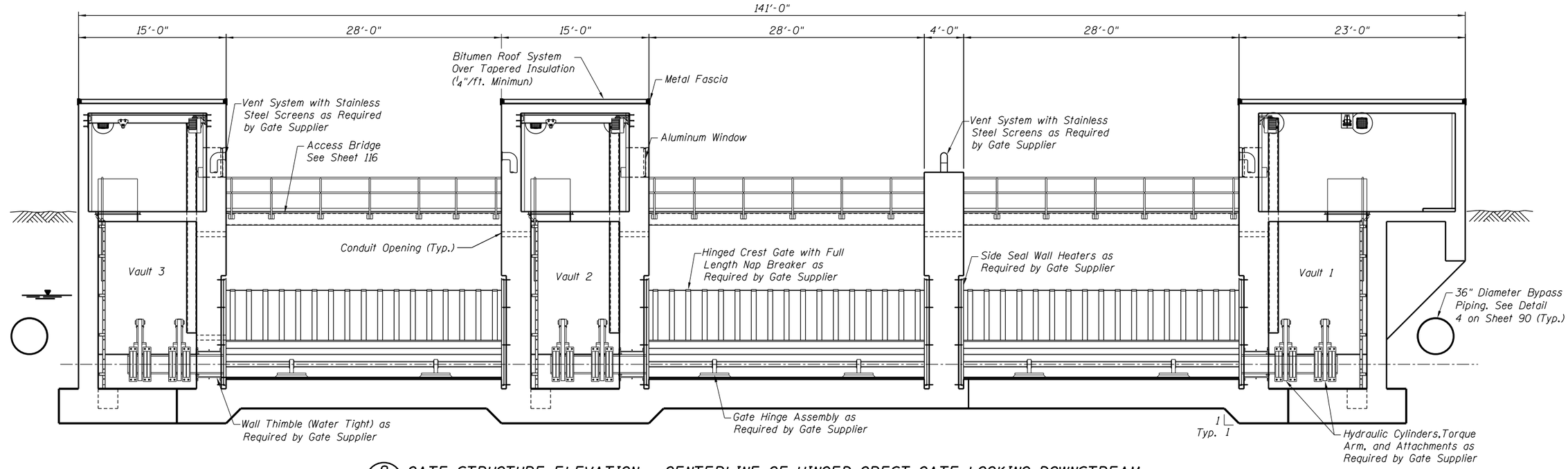


GATE STRUCTURE PLAN AT EL. 756'-6"

FILE NAME = S-2184-GATE.dgn	USER NAME =	DESIGNED - MAE	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GATE STRUCTURE PLAN AT ELEVATION 756'-6" STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS	ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY / TOTAL SHEETS / SHEET NO.
HANSON		CHECKED - JGY	REVISED -				McHENRY / 238 / 102
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -				PROJECT FR-435
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -				

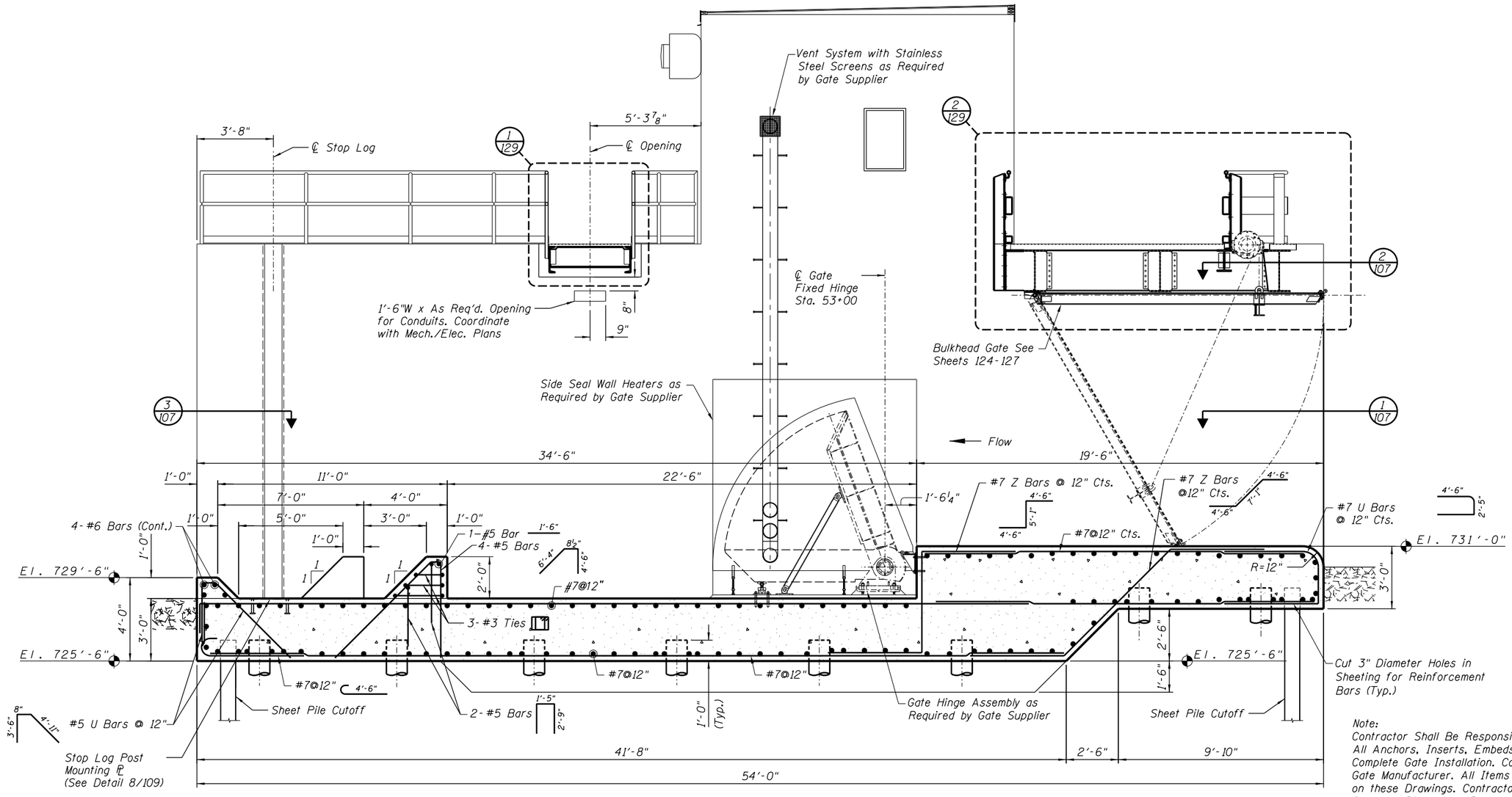


1/103 GATE STRUCTURE ELEVATION - UPSTREAM LOOKING DOWNSTREAM



2/103 GATE STRUCTURE ELEVATION - CENTERLINE OF HINGED CREST GATE LOOKING DOWNSTREAM

FILE NAME = S-3101-GATE.dgn	USER NAME =	DESIGNED - MAE	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GATE STRUCTURE ELEVATIONS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS	ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY / TOTAL SHEETS / SHEET NO.
HANSON		CHECKED - JGT	REVISED -				McHENRY / 238 / 103
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -				PROJECT FR-435
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -				

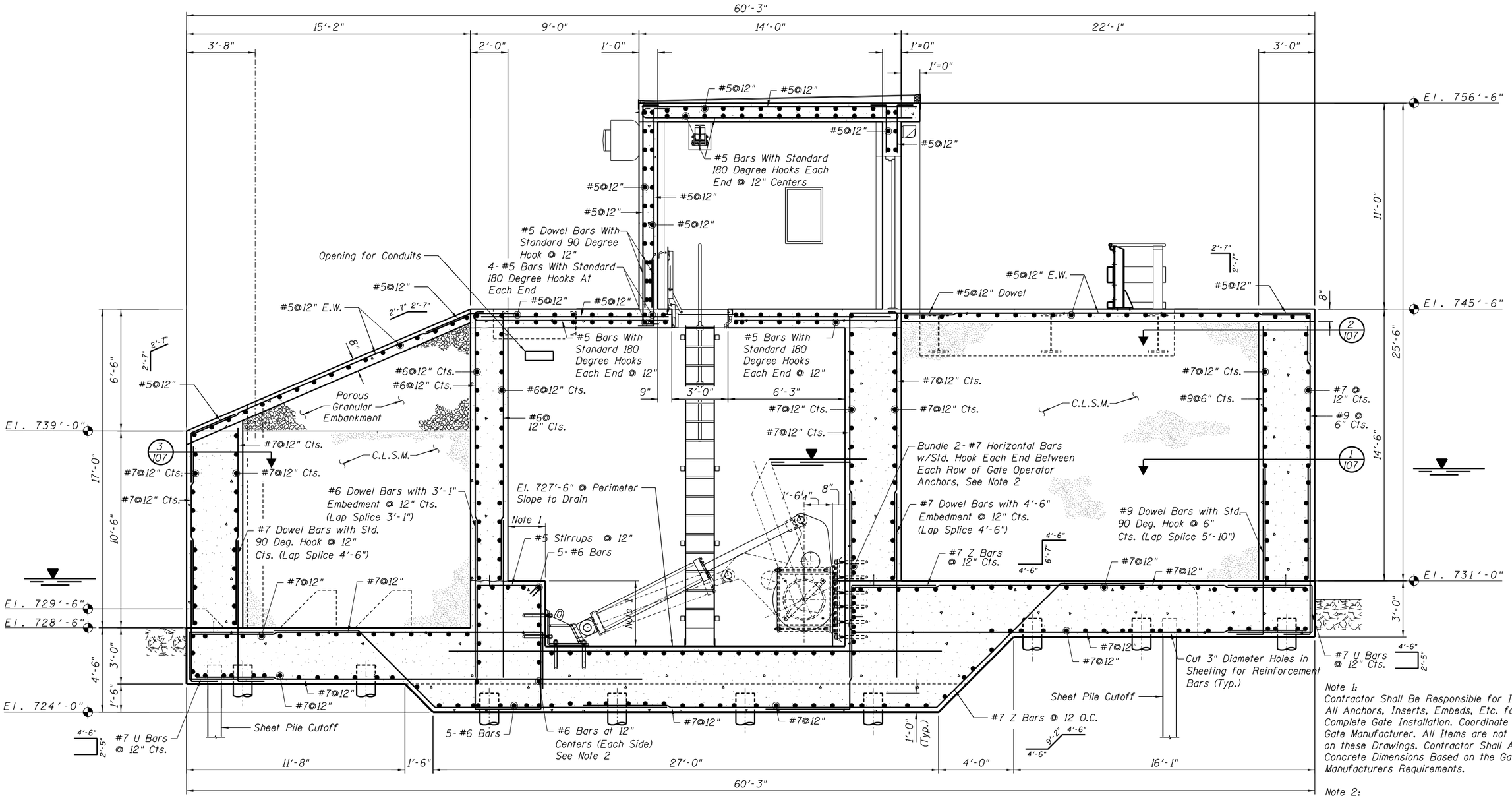


Note:
Contractor Shall Be Responsible for Installing All Anchors, Inserts, Embeds, Etc. for Complete Gate Installation. Coordinate with Gate Manufacturer. All Items are not Shown on these Drawings. Contractor Shall Adjust Concrete Dimensions Based on the Gate Manufacturers Requirements.

1/104 TYPICAL SECTION AT HINGED CREST GATE

FILE NAME = S-3100-GATE.dgn	USER NAME =	DESIGNED - MAE	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	TYPICAL SECTION AT HINGED CREST GATE STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HANSON		CHECKED - JGT	REVISED -		
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -		

ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	104
PROJECT FR-435			



1/105 SECTION AT VAULT 2

Note 1:
Contractor Shall Be Responsible for Installing All Anchors, Inserts, Embeds, Etc. for Complete Gate Installation. Coordinate with Gate Manufacturer. All Items are not Shown on these Drawings. Contractor Shall Adjust Concrete Dimensions Based on the Gate Manufacturers Requirements.

Note 2:
Contractor Shall Verify with Gate Manufacturer Location of all Post Installed Anchors, Inserts, Embeds, Etc. and Adjust Reinforcemet Spacing to Provide Installation Cleacance (Do not Cut Reinforcement). Reinforcement Shown is Maximum Spacing and Additional Bars Shall Be Provided at Adjusted Locations.

FILE NAME = S-3102-GATE.dgn	USER NAME =	DESIGNED - MAE	REVISED -
HANSON		CHECKED - JGT	REVISED -
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -

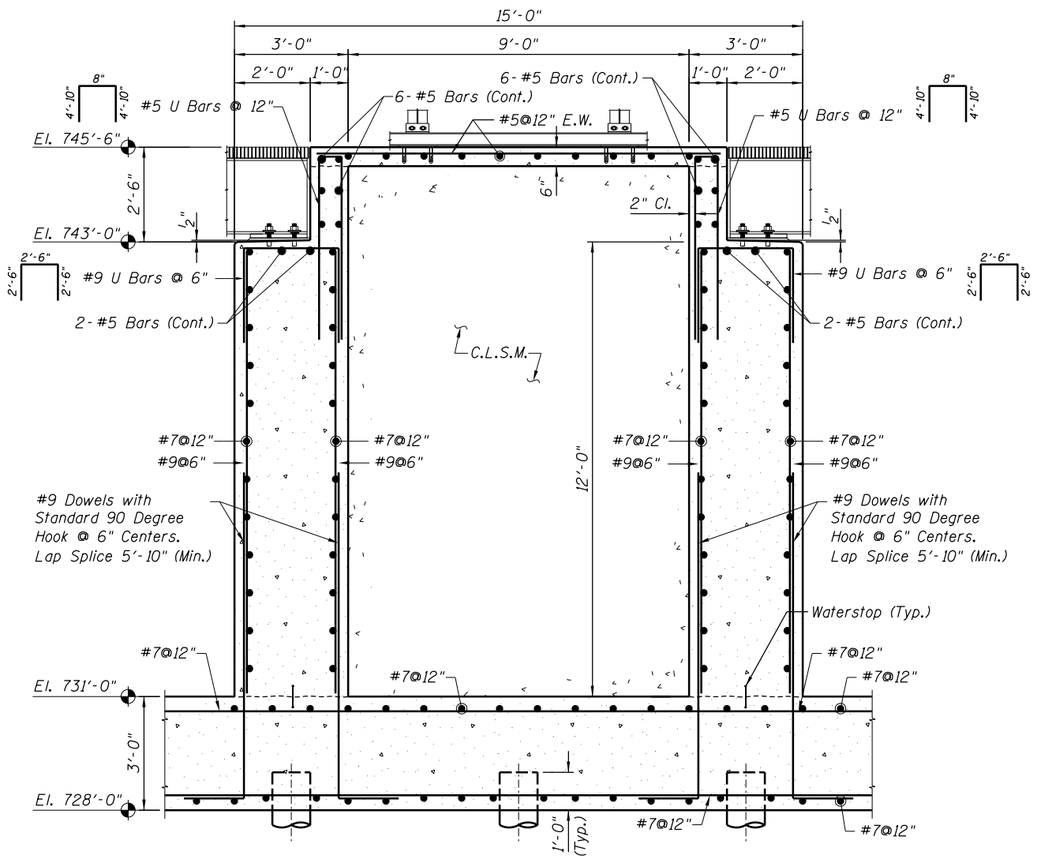
STATE OF ILLINOIS
DEPARTMENT OF NATURAL RESOURCES

SECTION AT VAULT 2
STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS

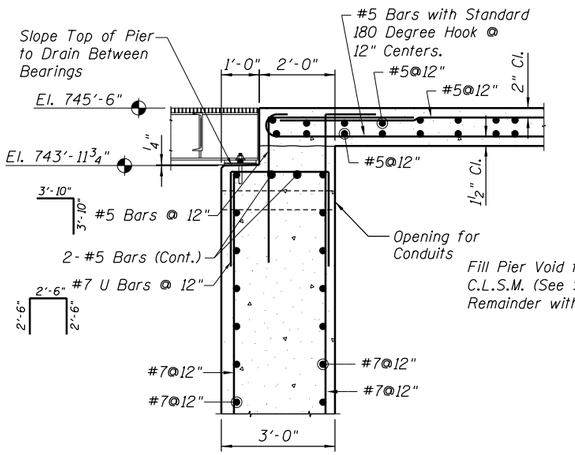
ILLINOIS DEPARTMENT OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	105

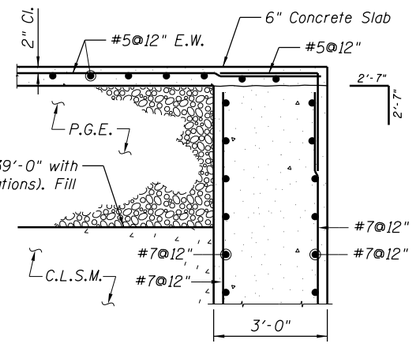
PROJECT FR-435



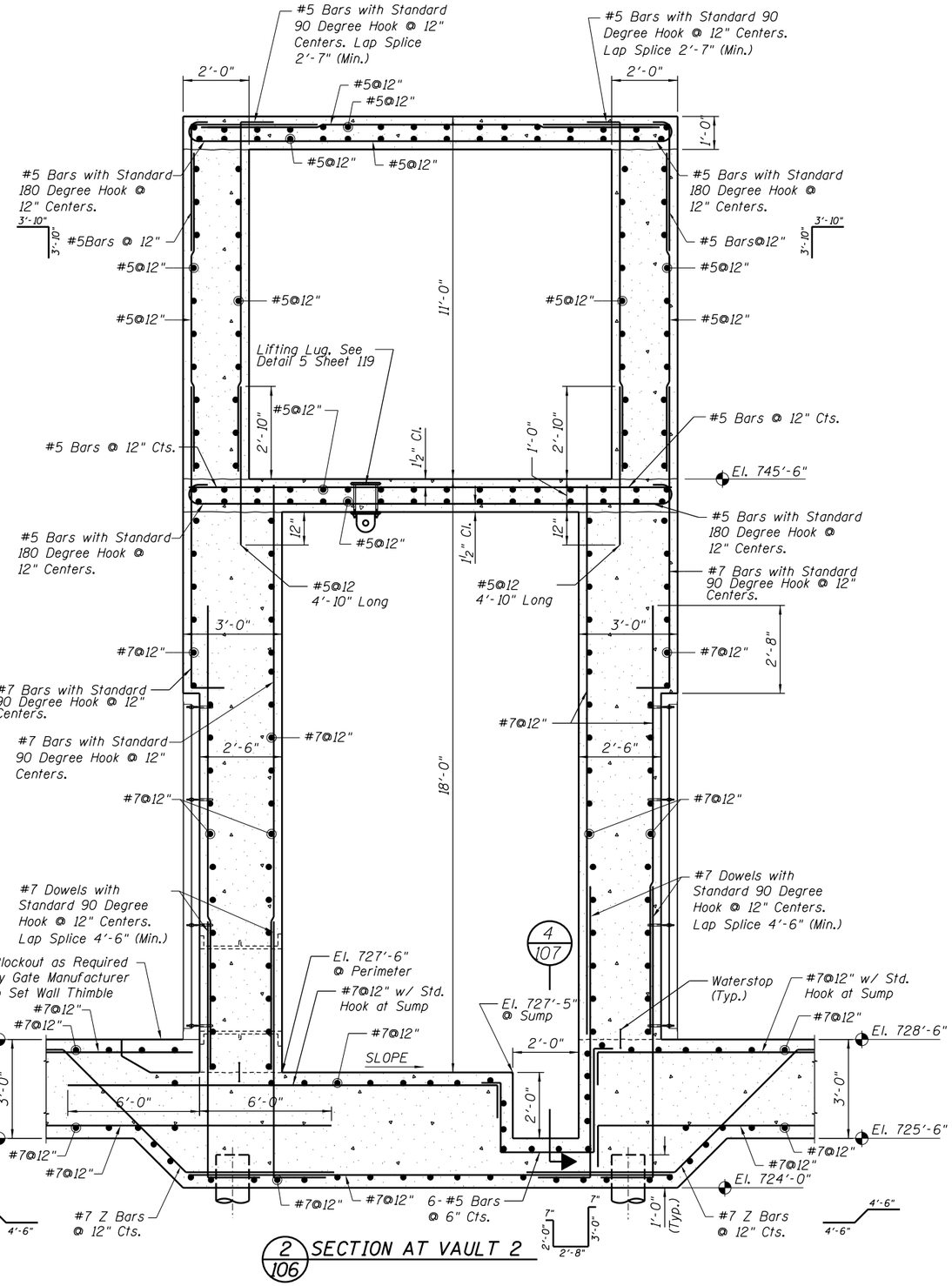
1/106 SECTION AT VAULTED PIER



3/106 SECTION AT VAULTED PIER



4/106 SECTION AT VAULTED PIER



2/106 SECTION AT VAULT 2

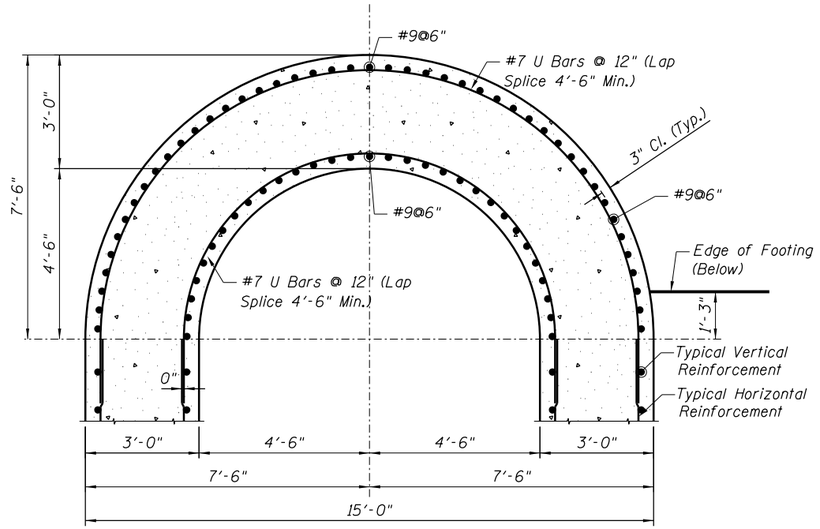
FILE NAME = S-3102A-GATE.dgn	USER NAME =	DESIGNED - MAE	REVISED -
HANSON		CHECKED - JGT	REVISED -
© Copyright Hanson Professional Services Inc. 2013	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF NATURAL RESOURCES

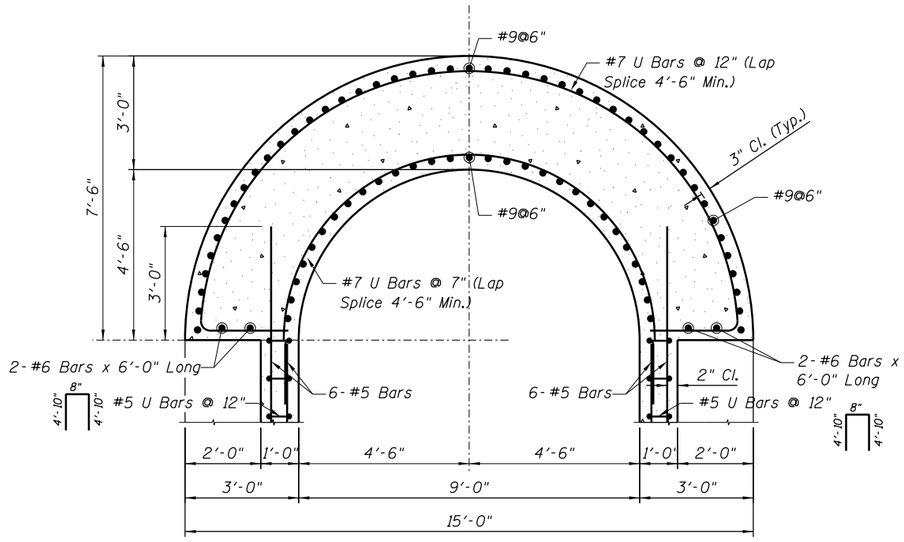
VAULT 2 SECTIONS & DETAILS
STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS

ILLINOIS DEPARTMENT OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES

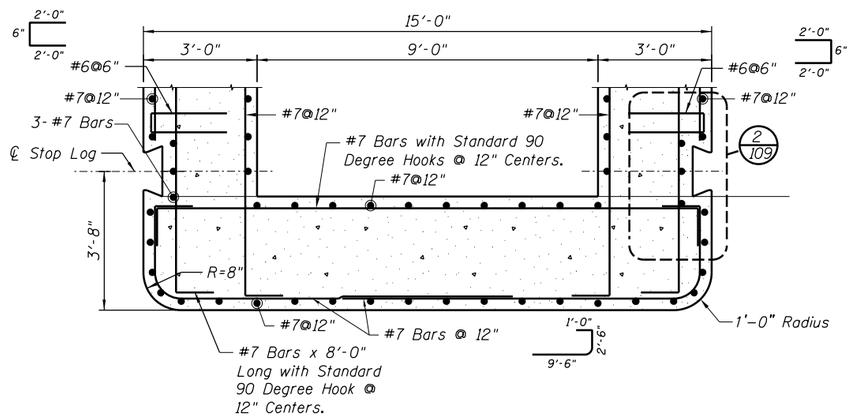
COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	106
PROJECT FR-435		



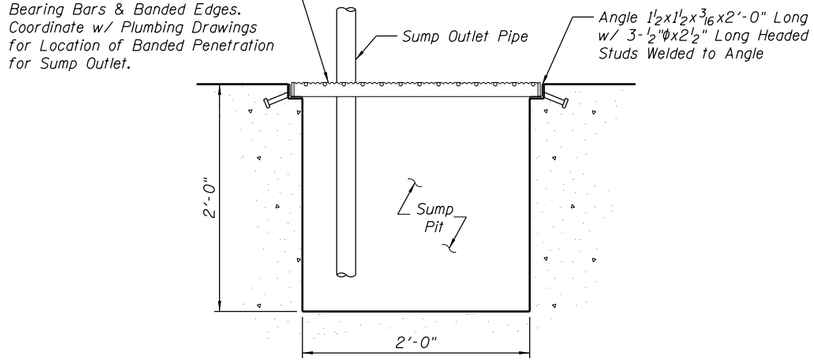
1/107 DETAIL AT END OF PIER



2/107 DETAIL AT END OF PIER



3/107 DETAIL AT END OF PIER



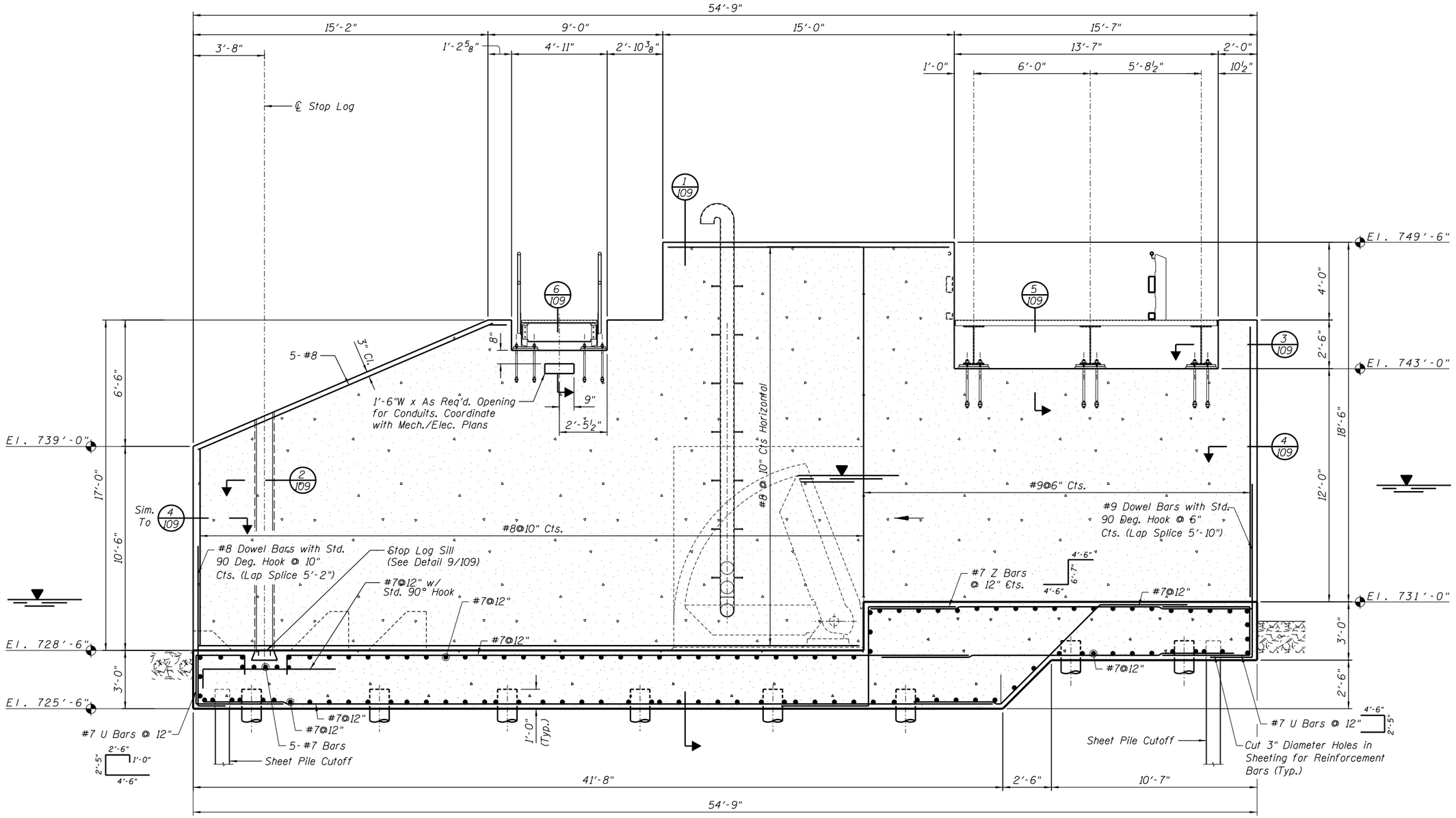
4/107 SECTION AT SUMP PIT

FILE NAME = S-3102B-GATE.dgn	USER NAME =	DESIGNED - MAE	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	VAULT 2 SECTIONS & DETAILS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HANSON		CHECKED - JGT	REVISED -		
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -		

ILLINOIS DEPARTMENT OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	107

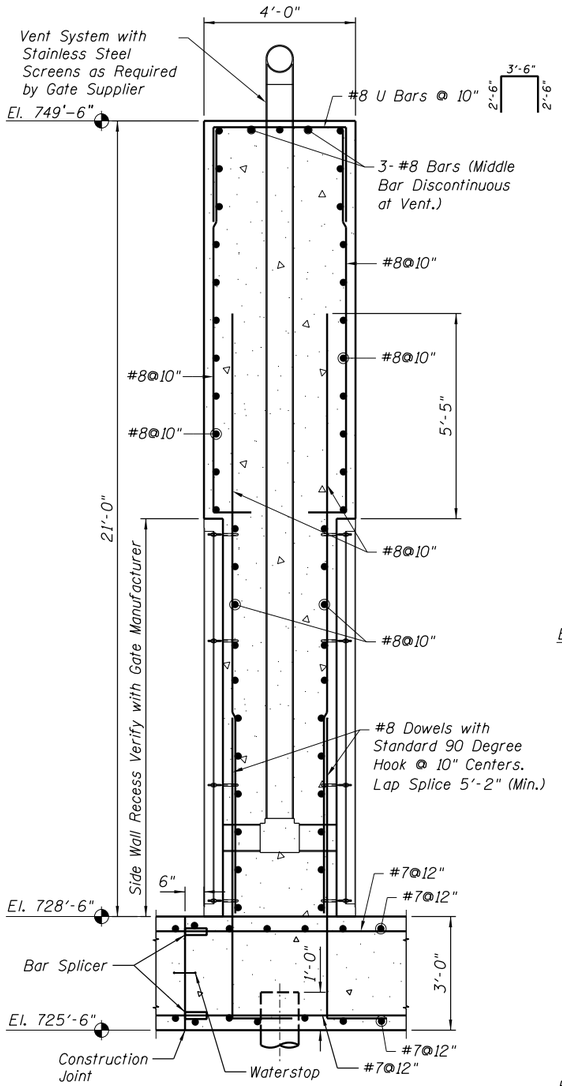
PROJECT FR-435



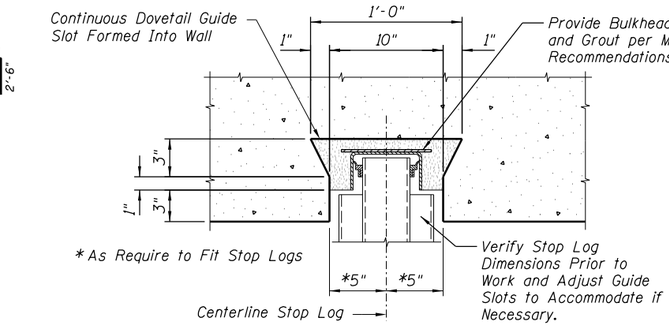
1/108 SECTION AT PIER SOLID

FILE NAME = S-3103-GATE.dgn	USER NAME =	DESIGNED - MAE	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	SECTION AT PIER SOLID STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HANSON		CHECKED - JGT	REVISED -		
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -		

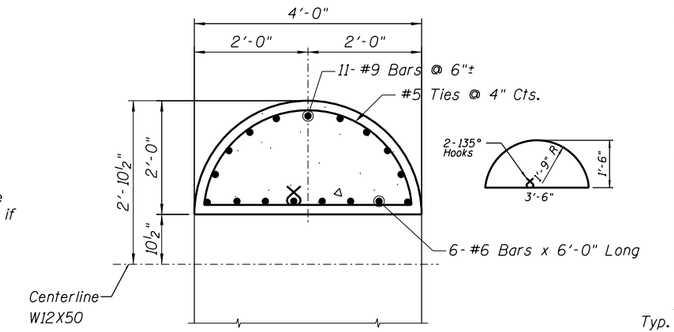
ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	108
PROJECT FR-435			



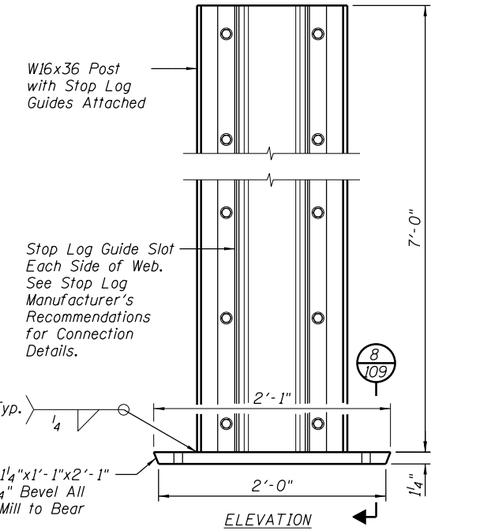
1 / 109 SECTION AT PIER



2 / 109 TYPICAL STOP LOG BLOCKOUT

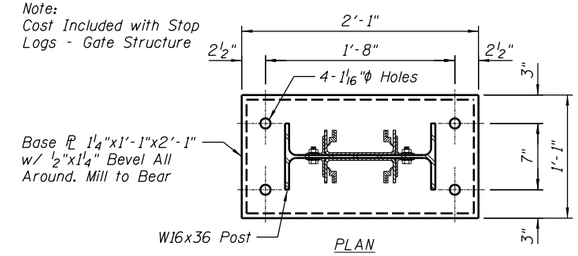


3 / 109 DETAIL AT END OF PIER



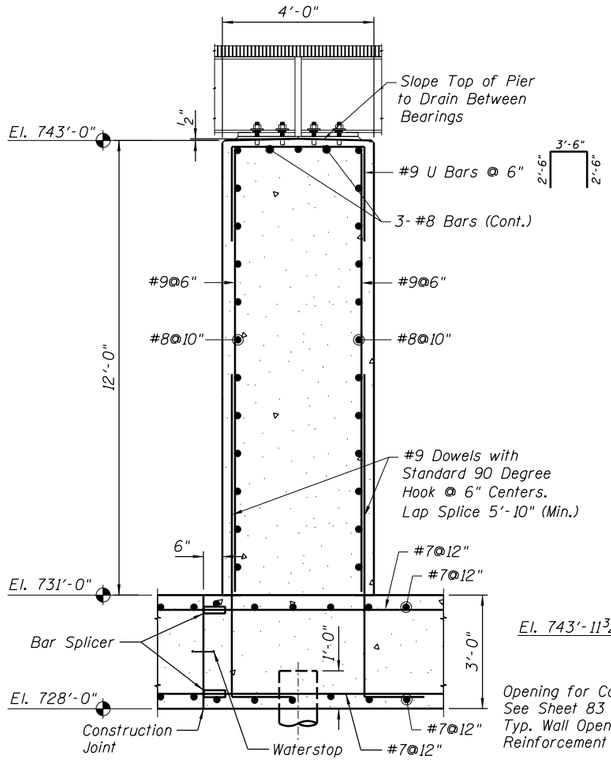
ELEVATION

Note:
Cost Included with Stop Logs - Gate Structure

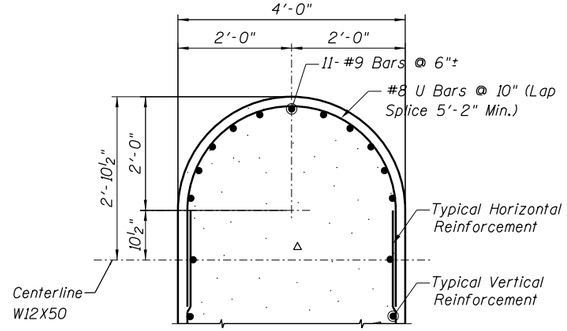


PLAN

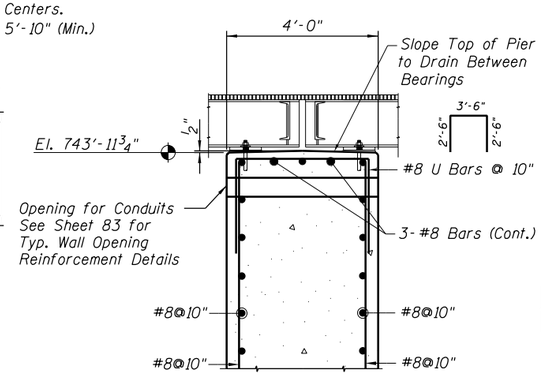
7 / 109 STOP LOG POST DETAIL



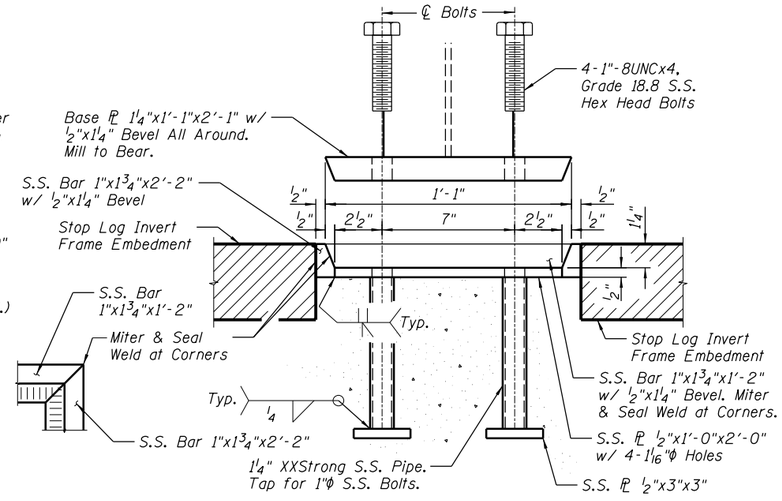
5 / 109 SECTION AT PIER



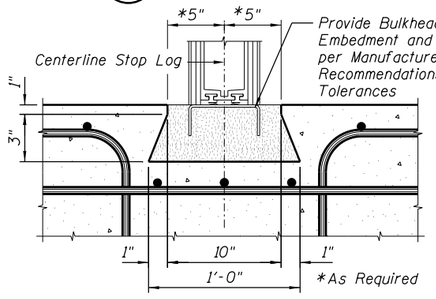
4 / 109 DETAIL AT END OF PIER



6 / 109 SECTION AT PIER



8 / 109 STOP LOG POST EMBEDDED PLATE SECTION



9 / 109 SECTION AT STOP LOG SILL

FILE NAME = S-3103A-GATE.dgn	USER NAME =	DESIGNED - MAE	REVISED -
HANSON		CHECKED - JGT	REVISED -
© Copyright Hanson Professional Services Inc. 2013	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -

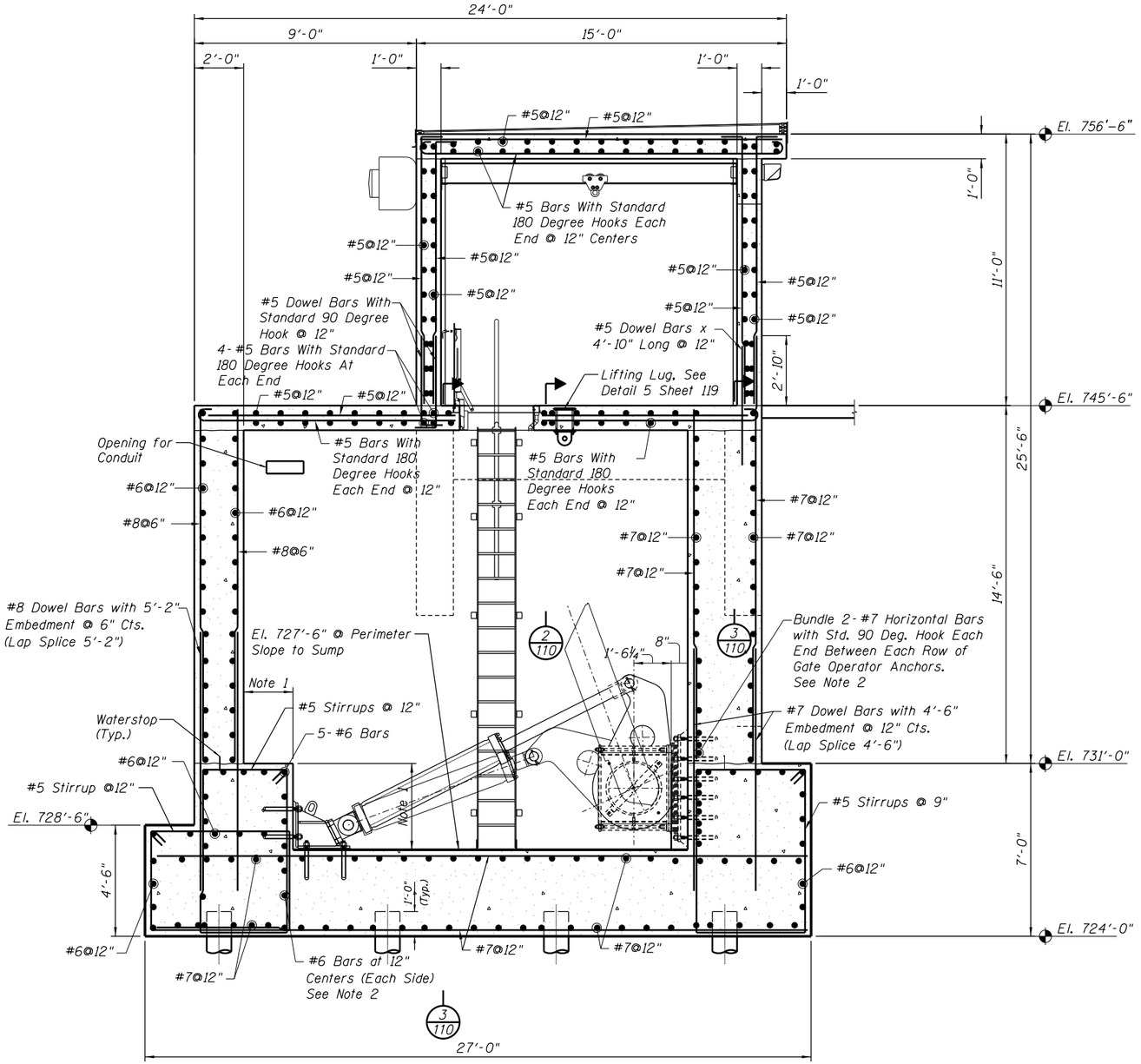
STATE OF ILLINOIS
DEPARTMENT OF NATURAL RESOURCES

PIER SOLID SECTIONS & DETAILS
STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS

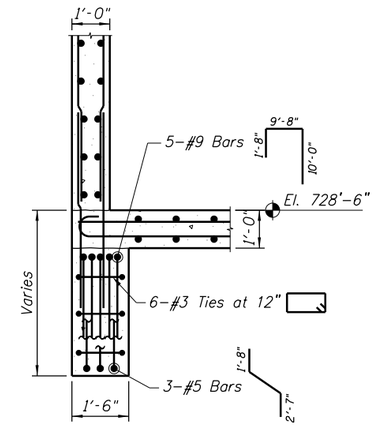
ILLINOIS DEPARTMENT OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	109

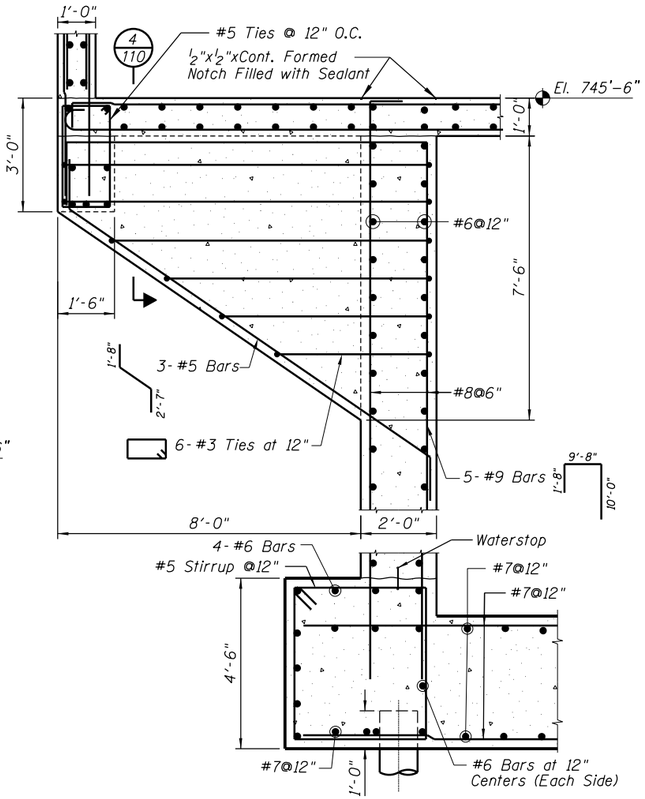
PROJECT FR-435



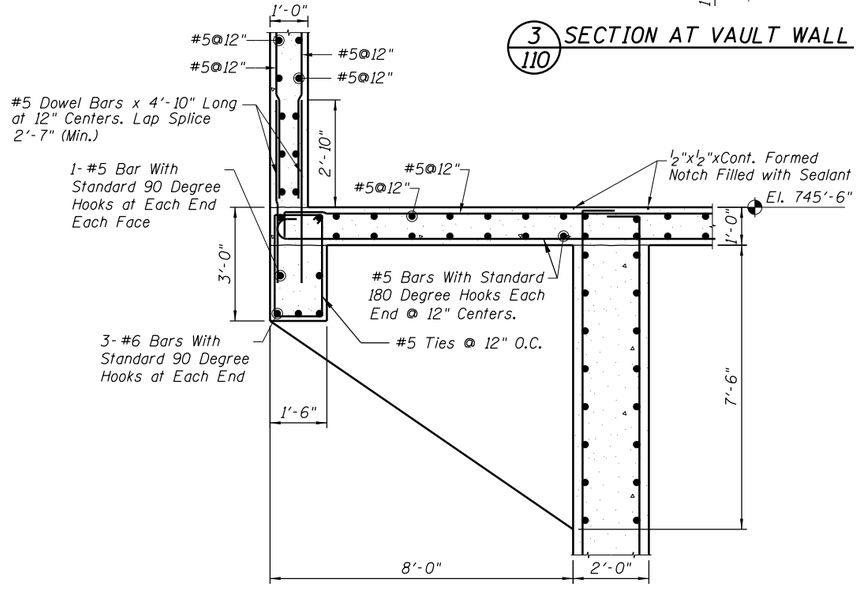
1/110 SECTION AT VAULT 1



4/110 SECTION AT VAULT WALL



3/110 SECTION AT VAULT WALL



2/110 SECTION AT VAULT WALL

Note 1:
Contractor Shall Be Responsible For Installing All Anchors, Inserts, Embeds, Etc. For Complete Gate Installation. Coordinate With Gate Manufacturer. All Items Are Not Shown On These Drawings. Contractor Shall Adjust Concrete Dimensions Based On The Gate Manufacturers Requirements.

Note 2:
Contractor Shall Verify With Gate Manufacturer Location Of All Post Installed Anchors, Inserts, Embeds, Etc. And Adjust Reinforcemet Spacing To Provide Installation Cleacance (Do Not Cut Reinforcement). Reinforcement Shown Is Maximum Spacing And Additional Bars Shall Be Provided at Adjusted Locations.

FILE NAME = S-3106-GATE.dgn	USER NAME =	DESIGNED - MAE	REVISED -
HANSON		CHECKED - JGT	REVISED -
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -

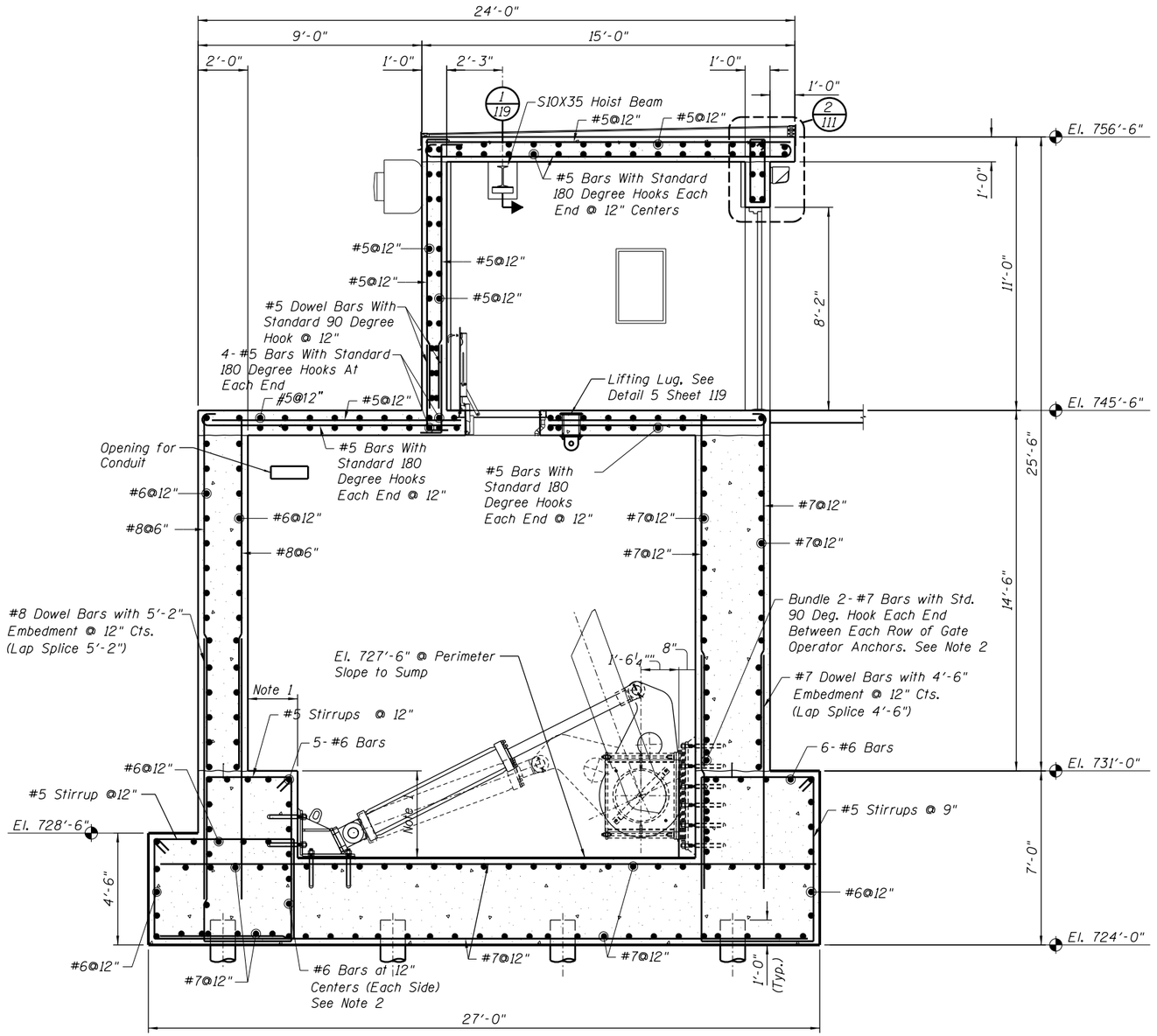
STATE OF ILLINOIS
DEPARTMENT OF NATURAL RESOURCES

SECTION AT VAULT 1
STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS

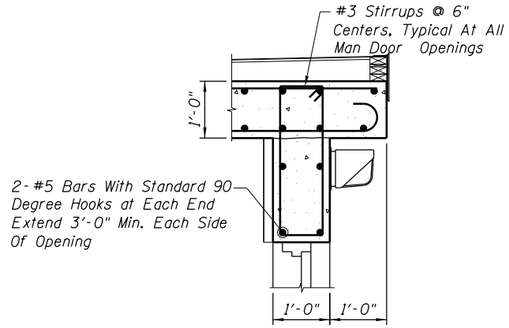
ILLINOIS DEPARTMENT OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	110

PROJECT FR-435



1/111 SECTION AT VAULT 3



2/111 SECTION AT DOOR HEAD

Note 1:
Contractor Shall Be Responsible For Installing All Anchors, Inserts, Embeds, Etc. For Complete Gate Installation. Coordinate With Gate Manufacturer. All Items Are Not Shown On These Drawings. Contractor Shall Adjust Concrete Dimensions Based On The Gate Manufacturers Requirements.

Note 2:
Contractor Shall Verify With Gate Manufacturer Location Of All Post Installed Anchors, Inserts, Embeds, Etc. And Adjust Reinforcemet Spacing To Provide Installation Cleacance (Do Not Cut Reinforcement). Reinforcement Shown Is Maximum Spacing And Additional Bars Shall Be Provided at Adjusted Locations.

FILE NAME = S-3106B-GATE.dgn	USER NAME =	DESIGNED - MAE	REVISED -
HANSON		CHECKED - JGT	REVISED -
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -

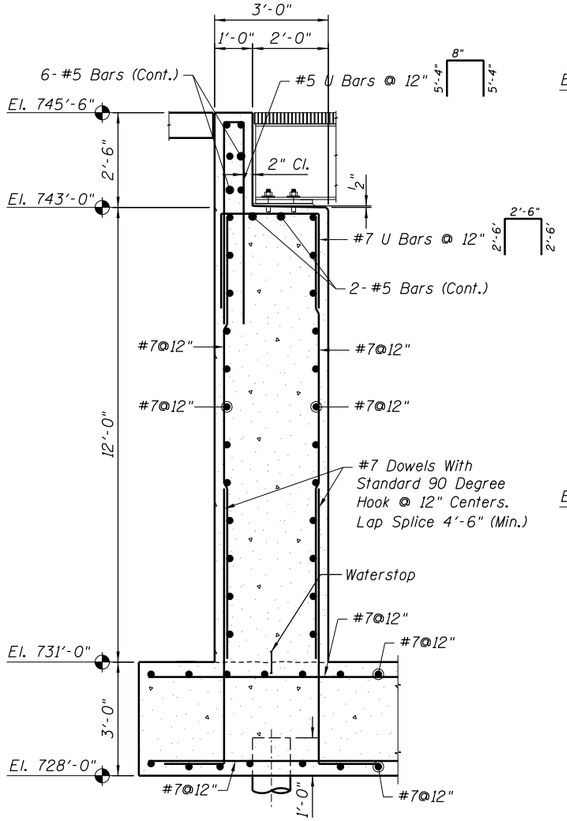
STATE OF ILLINOIS
DEPARTMENT OF NATURAL RESOURCES

SECTION AT VAULT 3
STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS

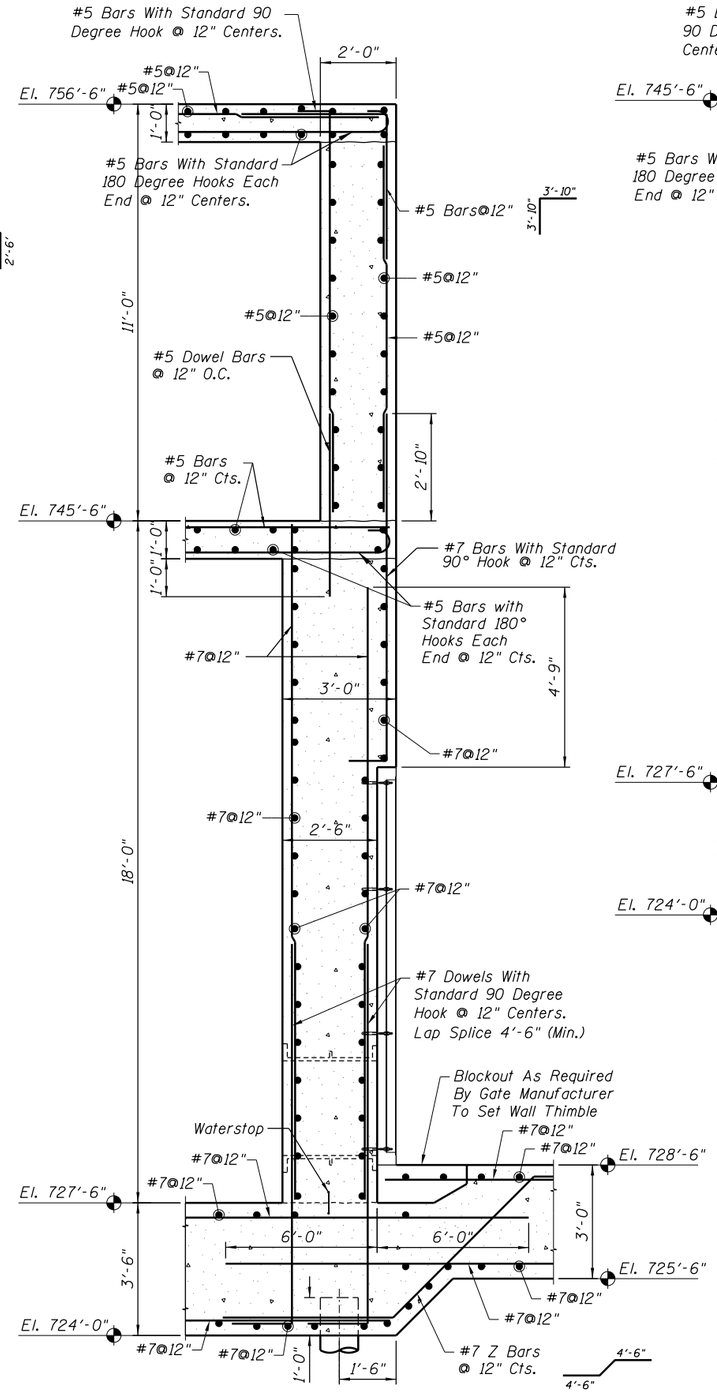
ILLINOIS DEPARTMENT OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	111

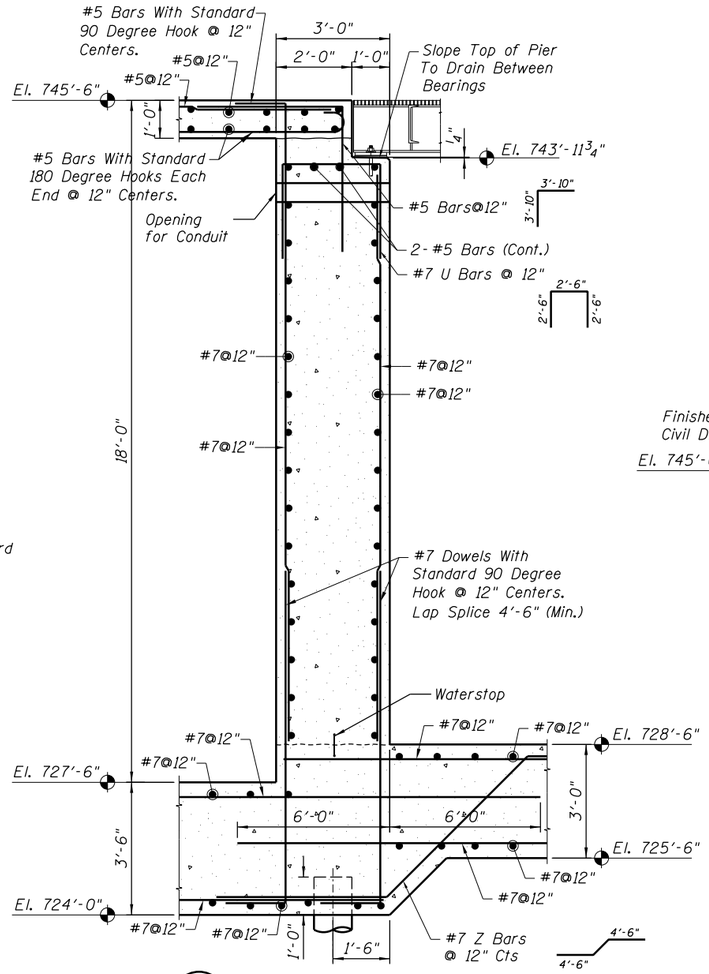
PROJECT FR-435



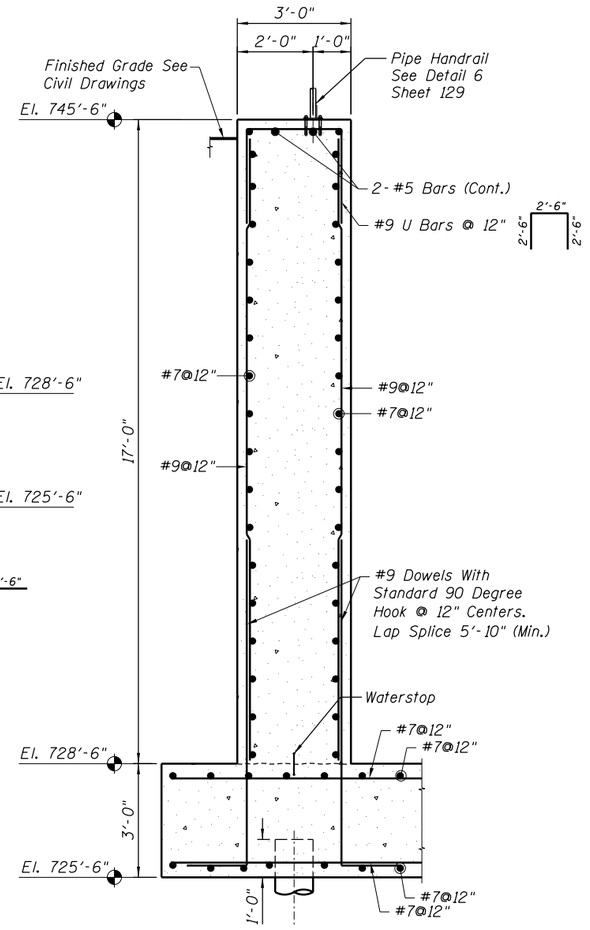
1/112 SECTION AT ABUTMENT



2/112 SECTION AT VAULT WALL



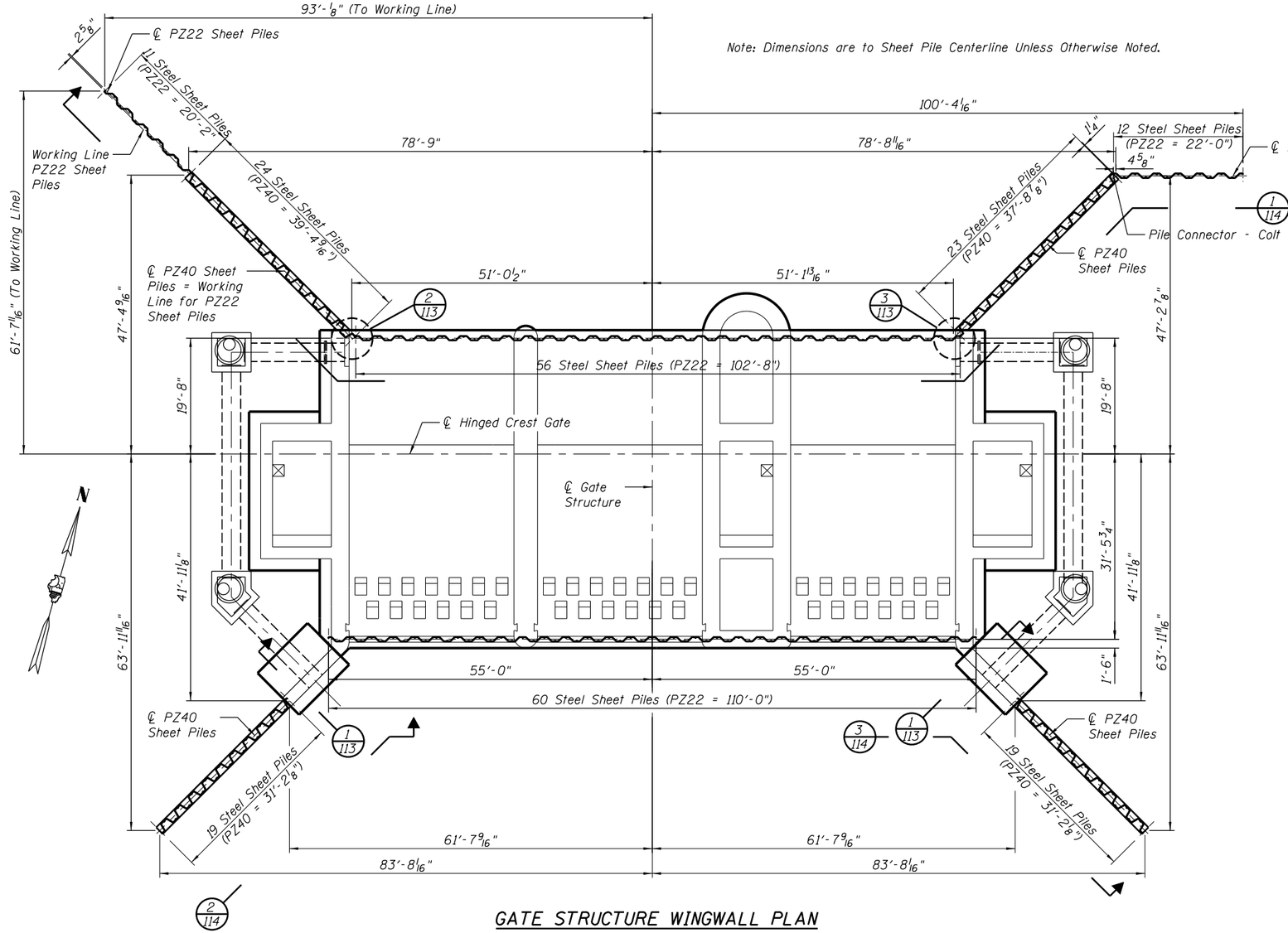
3/112 SECTION AT VAULT WALL



4/112 SECTION AT VAULT WALL

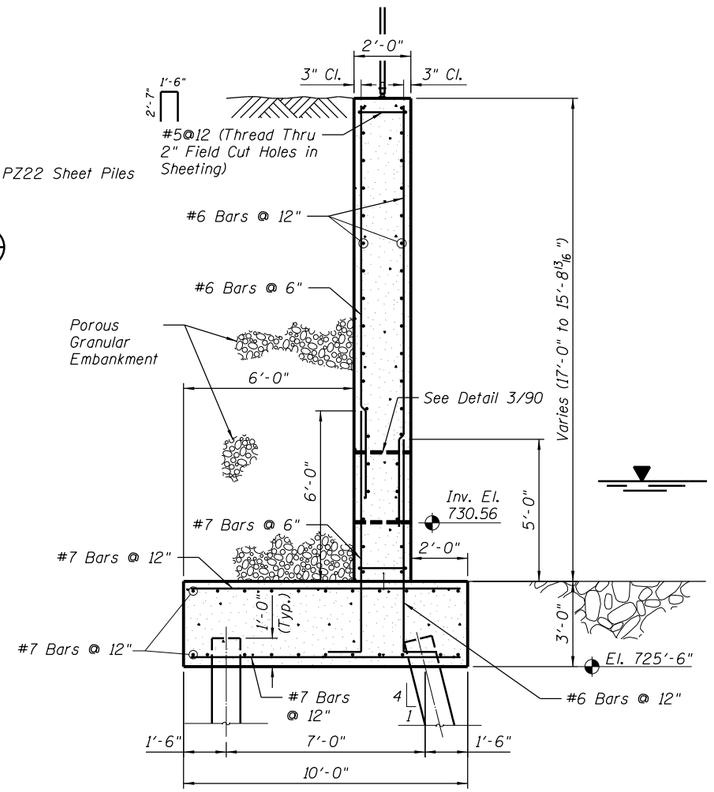
FILE NAME = S-3106A-GATE.dgn	USER NAME =	DESIGNED - MAE	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	VAULTS 1 & 3 SECTIONS & DETAILS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HANSON		CHECKED - JGT	REVISED -		
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -		

ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	112
	PROJECT FR-435		



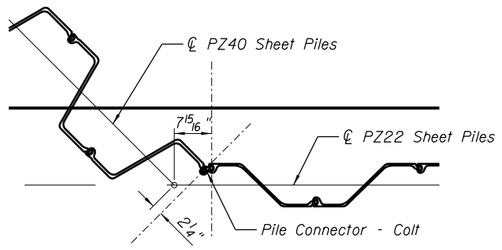
GATE STRUCTURE WINGWALL PLAN

Note: Dimensions are to Sheet Pile Centerline Unless Otherwise Noted.

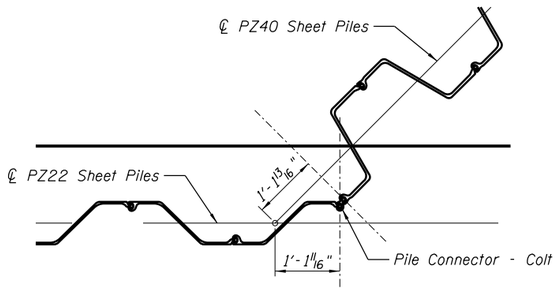


1/113 WINGWALL SECTION

Note:
See Sheet 83 for Typical Expansion Joint & Wall Opening Reinforcement Details.



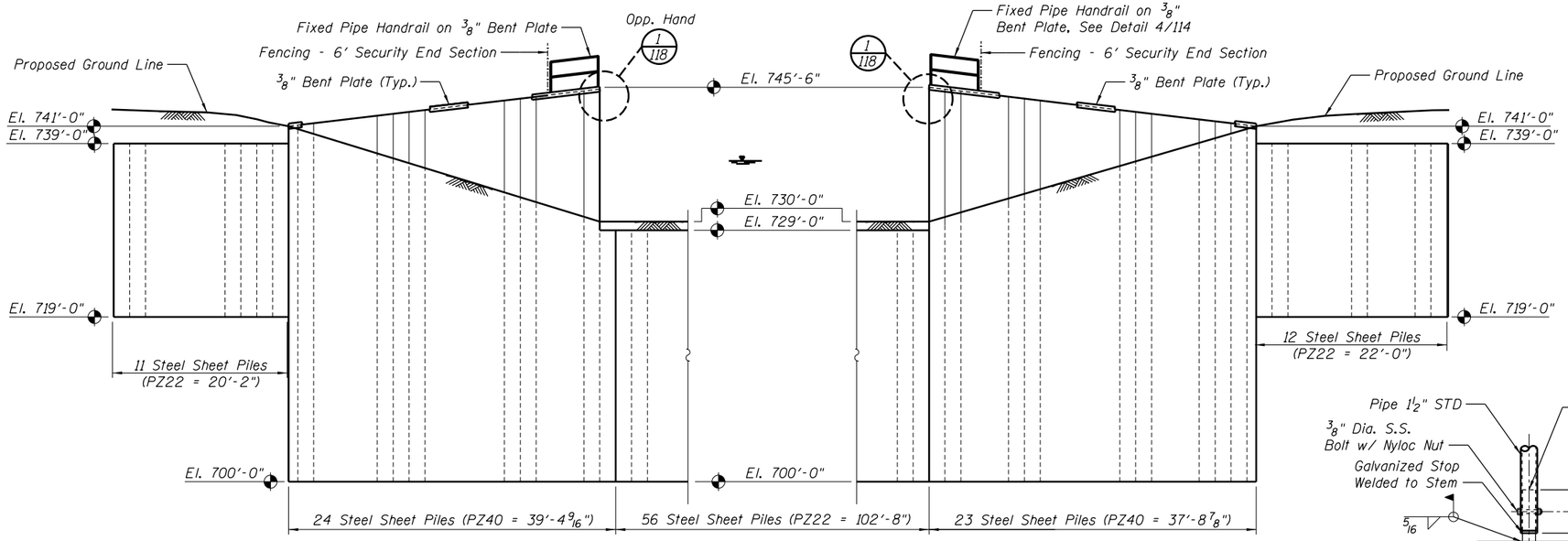
2/113 CONNECTION DETAIL



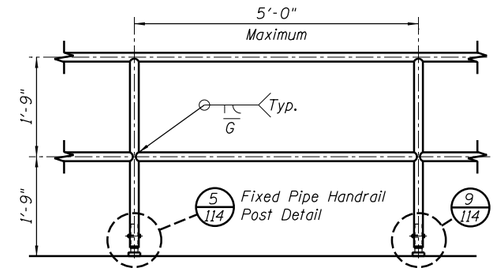
3/113 CONNECTION DETAIL

FILE NAME = S-3104-GATE.dgn	USER NAME =	DESIGNED - EJM	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GATE STRUCTURE WINGWALL PLAN, SECTIONS, & DETAILS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HANSON		CHECKED - RGC	REVISED -		
	PLOT SCALE =	DRAWN - EJM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - RGC	REVISED -		

ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	113
PROJECT FR-435			

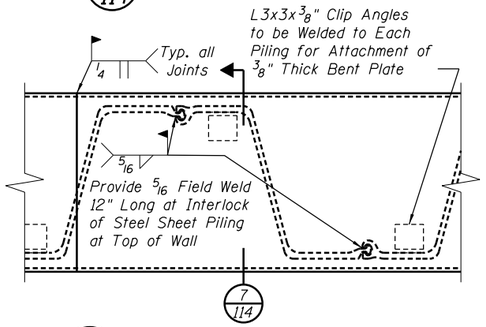


1/114 UPSTREAM WINGWALL ELEVATION

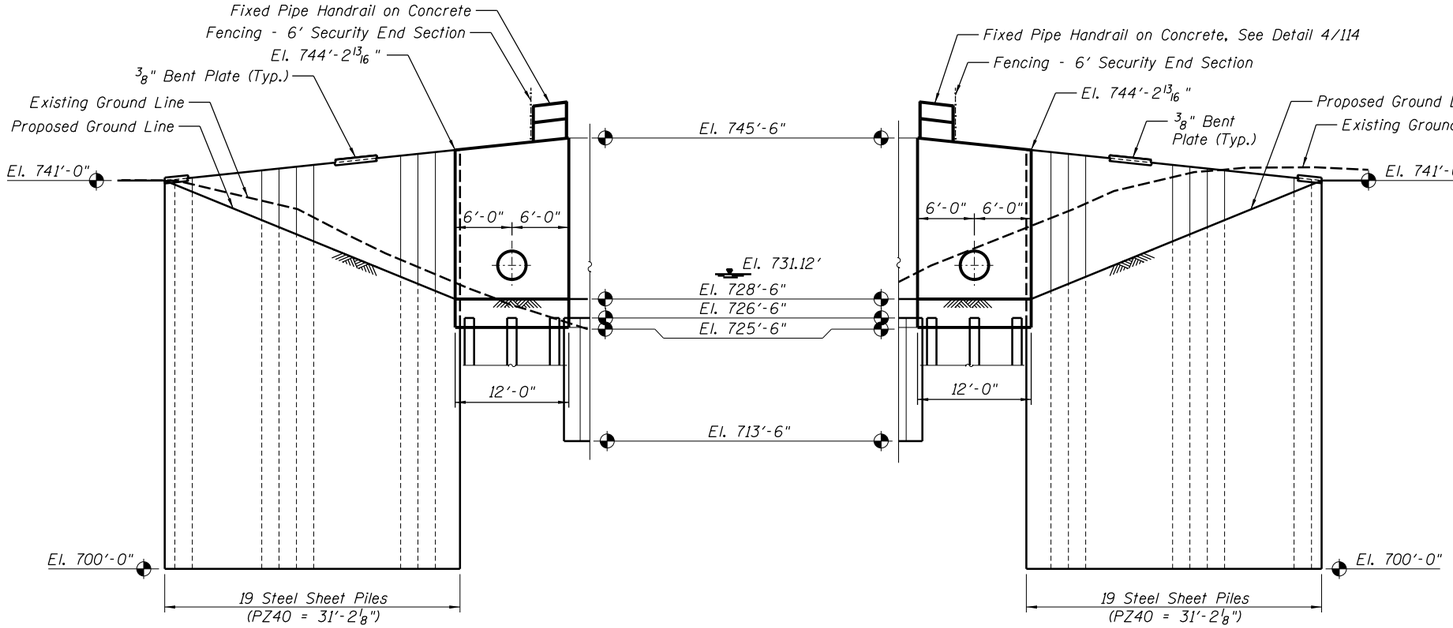


4/114 PIPE HANDRAIL

5/114 FIXED PIPE HANDRAIL POST DETAIL

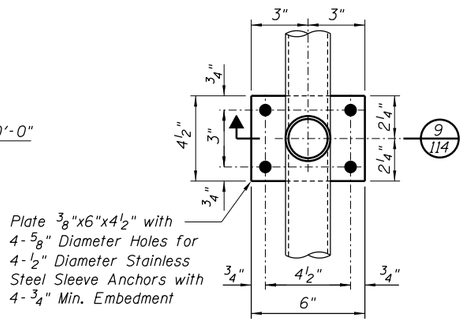


6/114 PLAN AT TOP OF WINGWALL

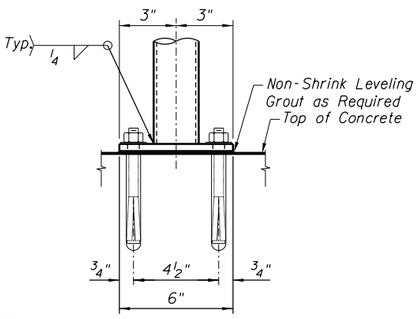


2/114 DOWNSTREAM WEST WINGWALL ELEVATION

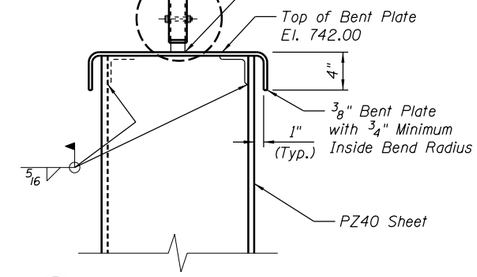
3/114 DOWNSTREAM EAST WINGWALL ELEVATION



8/114 RAILING ATTACHMENT DETAIL



9/114 RAILING ATTACHMENT DETAIL



7/114 SECTION AT TOP OF WALL

FILE NAME = S-31044-GATE.dgn	USER NAME =	DESIGNED - EJM	REVISED -
HANSON		CHECKED - RGC	REVISED -
	PLOT SCALE =	DRAWN - EJM	REVISED -
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - RGC	REVISED -

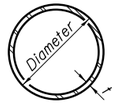
STATE OF ILLINOIS
DEPARTMENT OF NATURAL RESOURCES

GATE STRUCTURE WINGWALL ELEVATIONS, SECTIONS, & DETAILS
STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS

ILLINOIS DEPARTMENT OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES

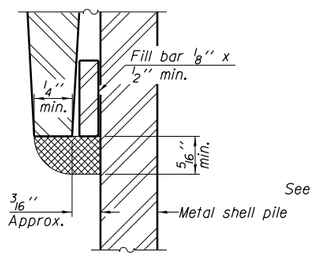
COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	114

PROJECT FR-435

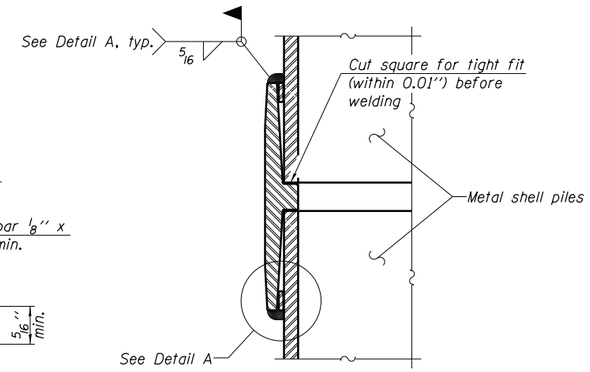


METAL SHELL PILE TABLE

Designation and outside diameter	Wall thickness t	Weight per foot (Lbs./ft.)	Inside volume ($yd.^3$/ft.)
PP12	0.179''	22.60	0.0274
PP12	0.250''	31.37	0.0267
PP14	0.250''	36.71	0.0368
PP14	0.312''	45.61	0.0361

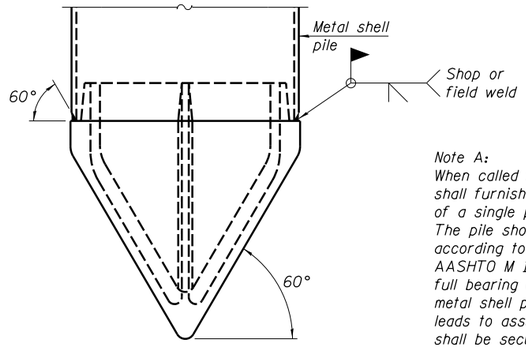


DETAIL A



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

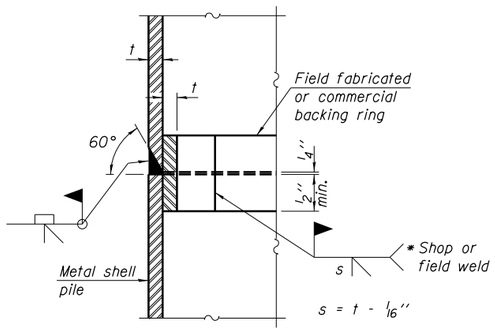
WELDED COMMERCIAL SPLICE



Note A:
When called for on the plans, the Contractor shall furnish metal shell pile shoes consisting of a single piece conical pile point as shown. The pile shoes shall be cast in one piece steel according to either ASTM A 148 Grade 90-60 or AASHTO M 103 Grade 65-35 and shall provide full bearing over the full circumference of the metal shell pile. The pile shoe shall have tapered leads to assure proper alignment and fitting and shall be secured to the pile with a circumferential weld.

METAL SHELL PILE SHOE ATTACHMENT

(See Note A)

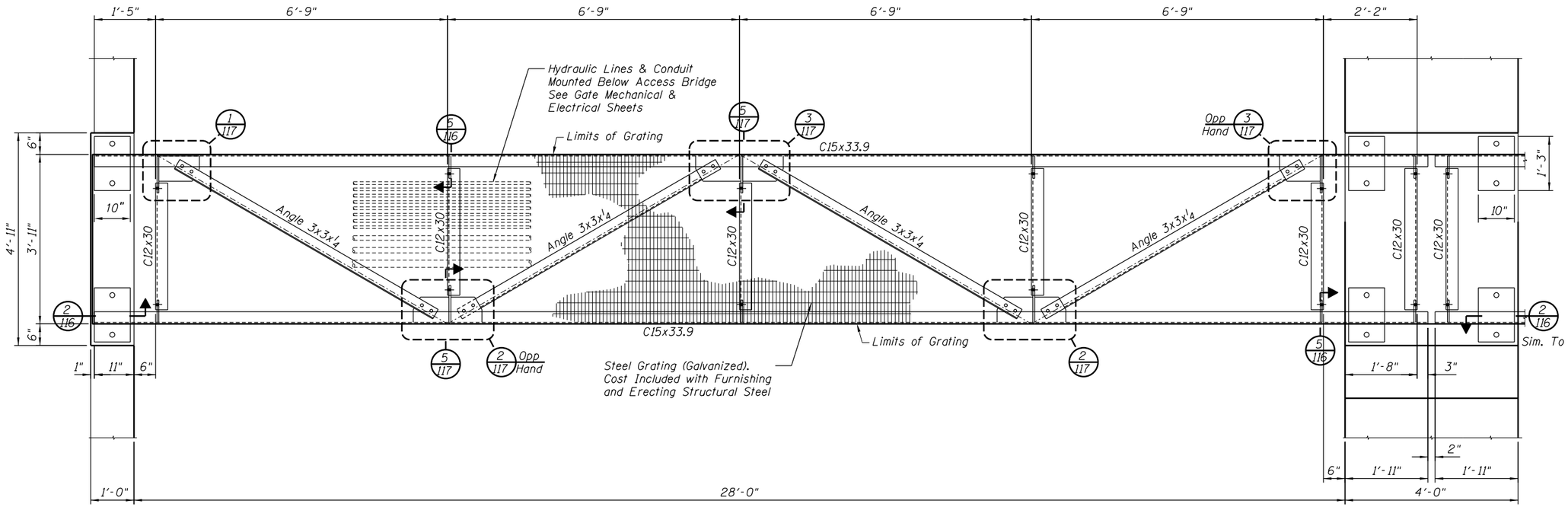


COMPLETE PENETRATION WELD SPLICE

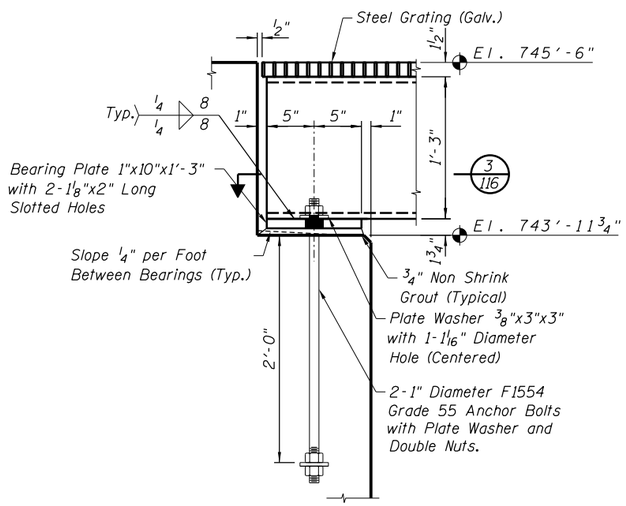
* Field fabricated backing ring may be made from pile shell by removing segment to allow reducing circumference and vertically rejoin with partial joint penetration weld.

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

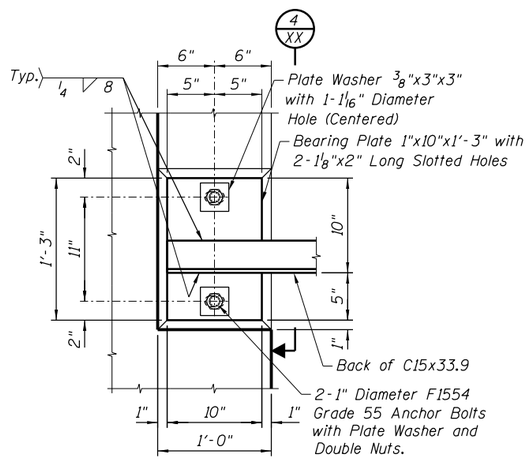
FILE NAME = S-5116-GATE.dgn	USER NAME =	DESIGNED - EJM	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	METAL SHELL PILE DETAILS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS	ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY / TOTAL SHEETS / SHEET NO.
HANSON		CHECKED - RGC	REVISED -				McHENRY / 238 / 115
	PLOT SCALE =	DRAWN - EJM	REVISED -				PROJECT FR-435
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - RGC	REVISED -				



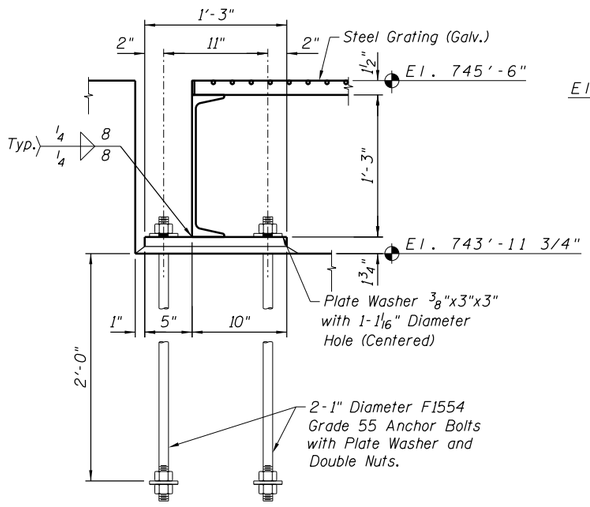
1/116 PARTIAL PLAN AT ACCESS BRIDGE
TYPICAL OF 3 AT EL. 745'-6"



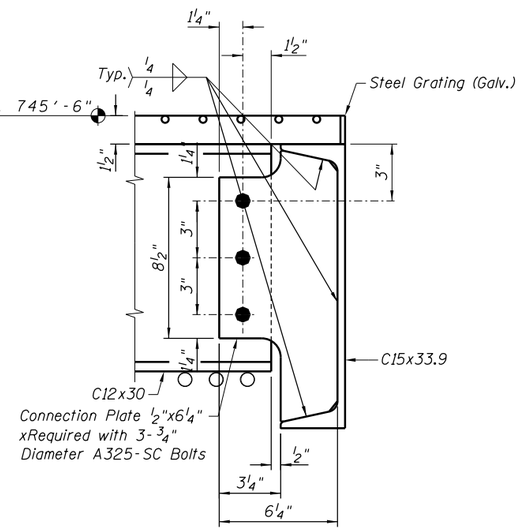
2/116 SECTION AT TYPICAL BEAM BEARING



3/116 SECTION AT TYPICAL BEAM BEARING



4/116 SECTION AT TYPICAL BEAM BEARING

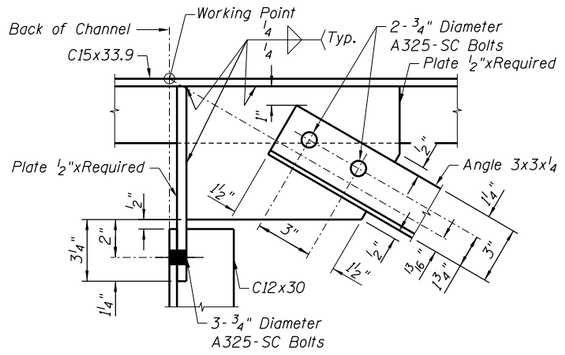


5/116 TYPICAL CHANNEL DETAIL

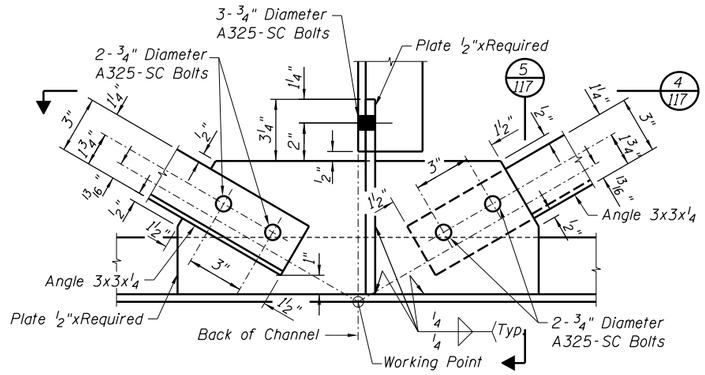
FILE NAME = S-4100-GATE.dgn	USER NAME =	DESIGNED - MWH	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GATE STRUCTURE ACCESS BRIDGE PLANS, SECTIONS, & DETAILS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS	ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES
HANSON		CHECKED - JJT	REVISED -			
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -			
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -			

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	116

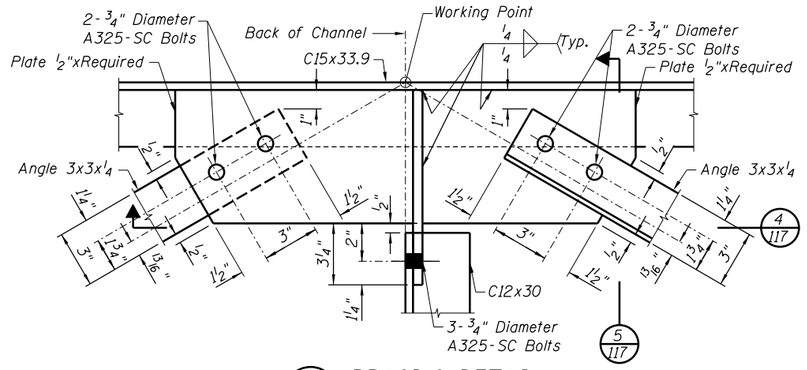
PROJECT FR-435



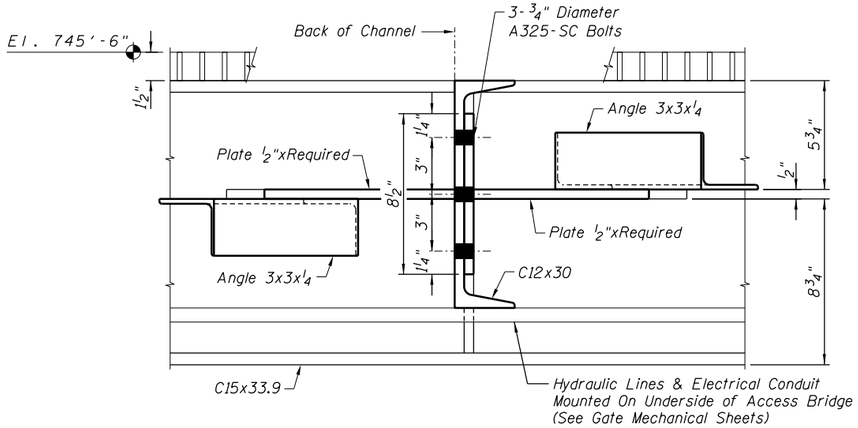
1/117 BRACING DETAIL



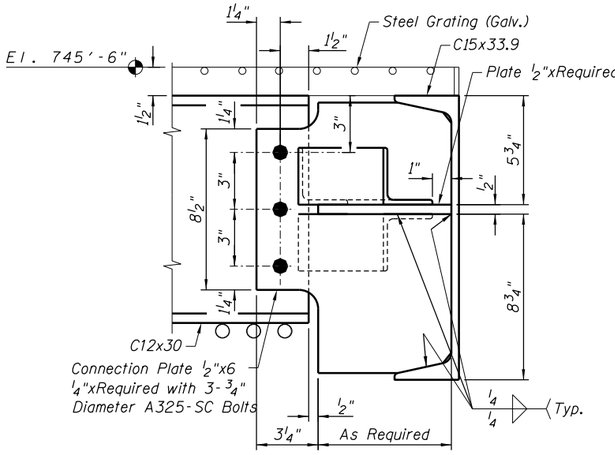
2/117 BRACING DETAIL



3/117 BRACING DETAIL



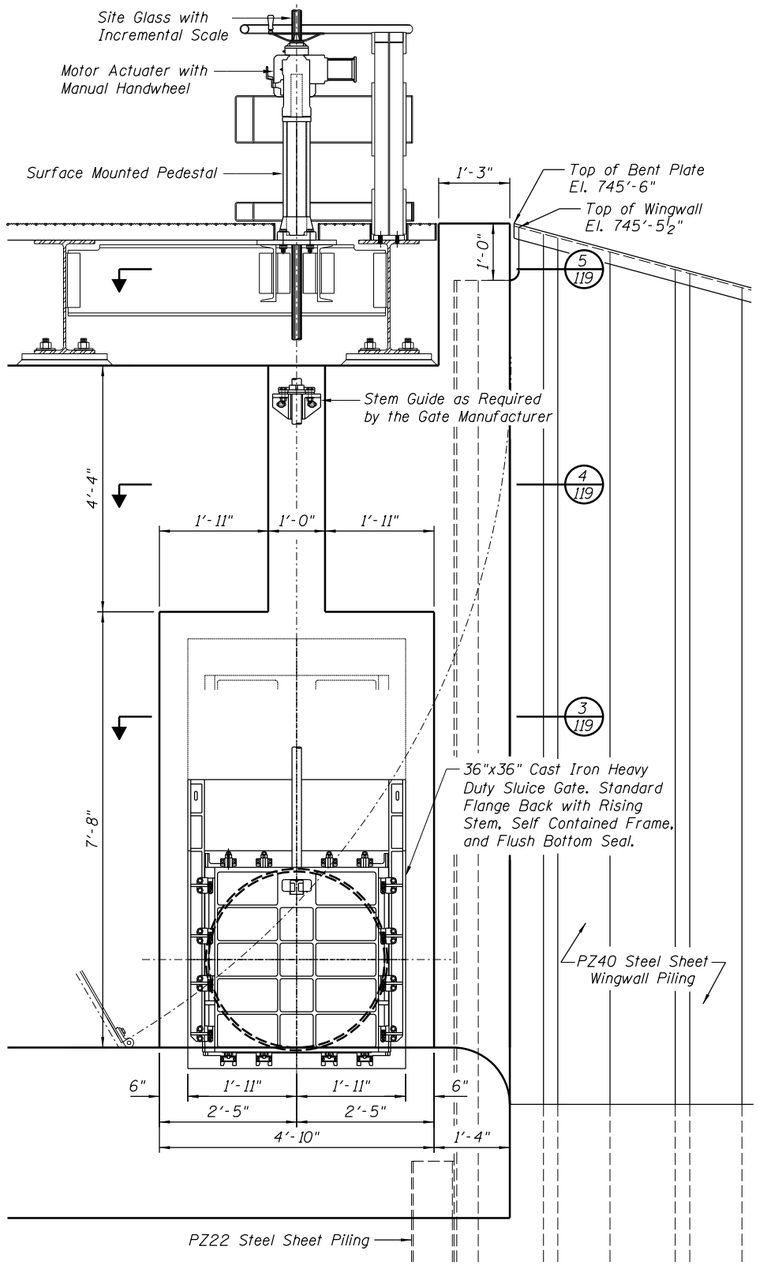
4/117 BRACING DETAIL



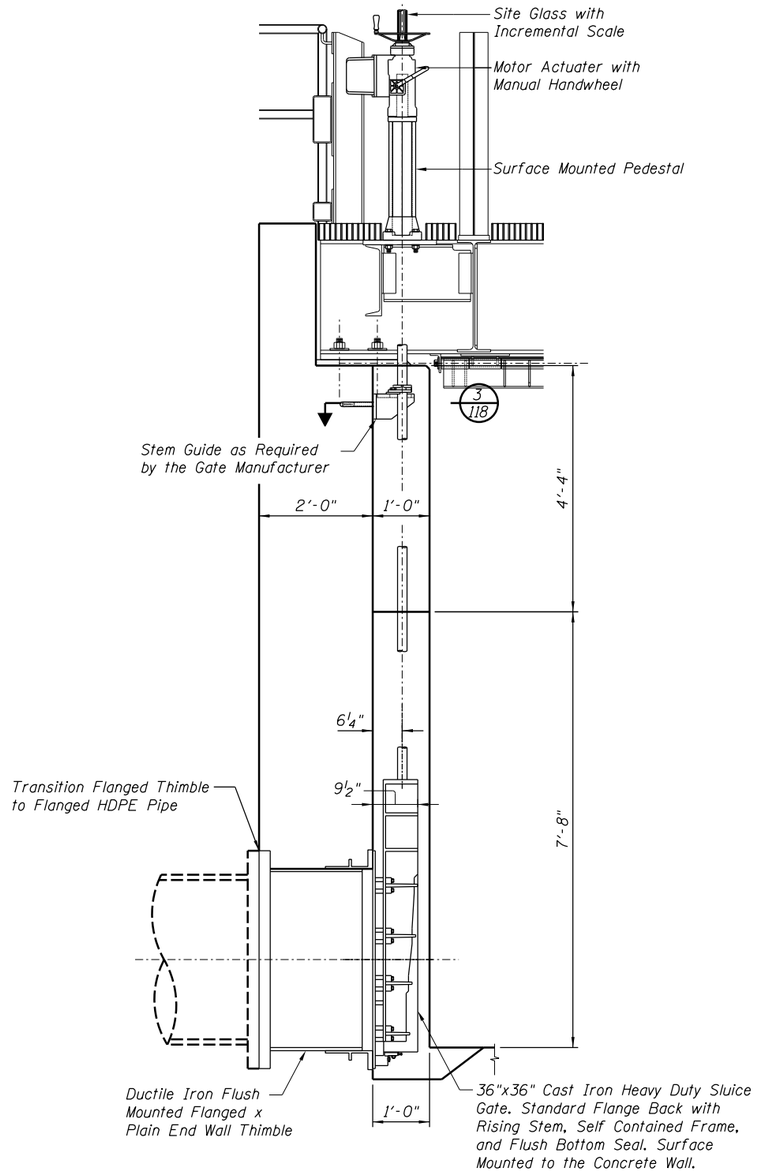
5/117 BRACING DETAIL

FILE NAME = S-5115-GATE.dgn	USER NAME =	DESIGNED - MWH	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GATE STRUCTURE ACCESS BRIDGE DETAILS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HANSON		CHECKED - JJT	REVISED -		
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -		

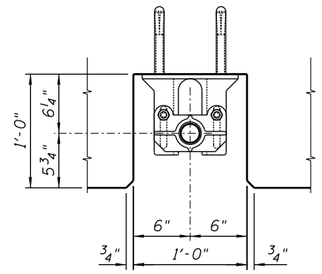
ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	117
	PROJECT FR-435		



1/118 SLUICE GATE ELEVATION - UPSTREAM



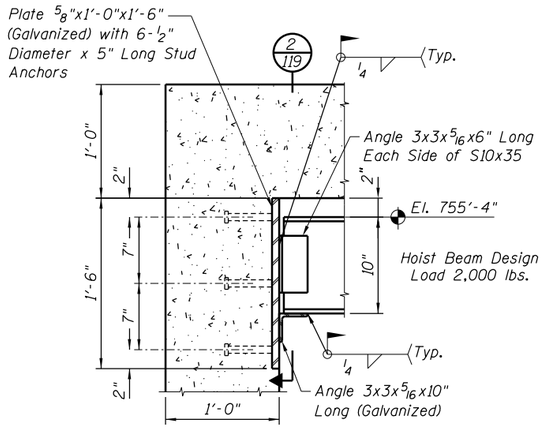
2/118 SLUICE GATE SECTION - UPSTREAM



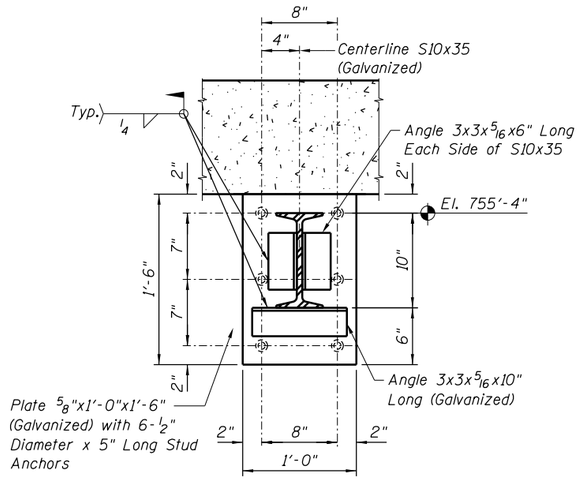
3/118 SLUICE GATE AT STEM GUIDE

FILE NAME = S-5103-GATE.dgn	USER NAME =	DESIGNED - MWH	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GATE STRUCTURE PARTIAL PLANS & DETAILS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HANSON		CHECKED - LJB	REVISED -		
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - LJB	REVISED -		

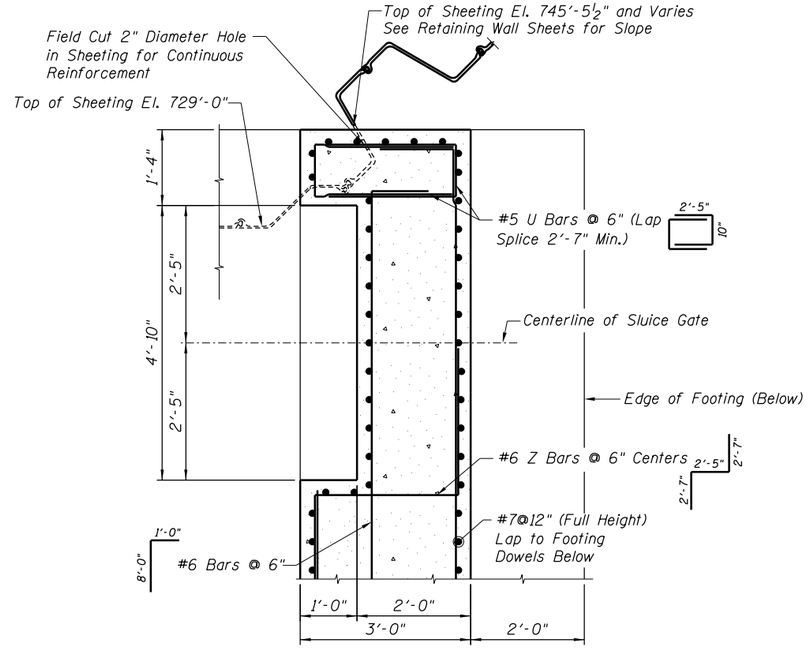
ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	118
	PROJECT FR-435		



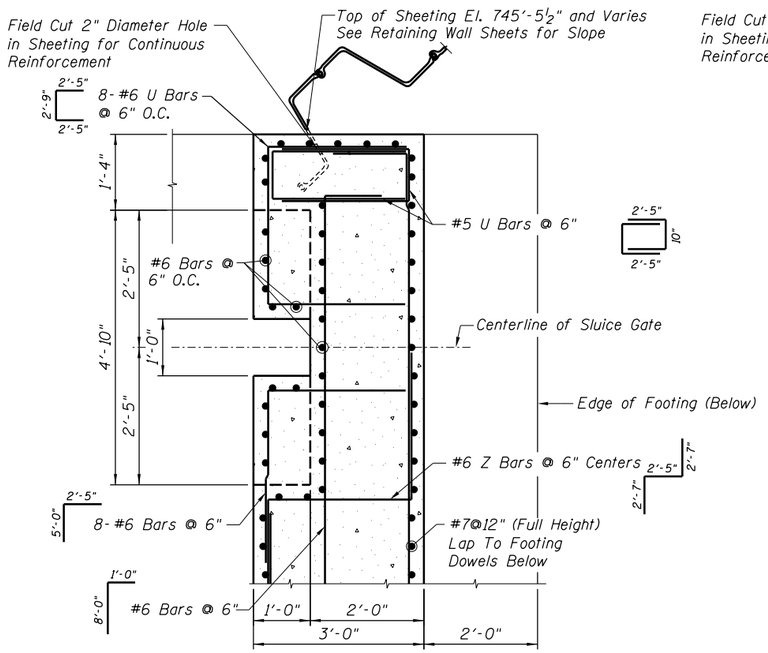
1/119 SECTION AT HOIST BEAM BEARING
AT VAULTS 1, 2, & 3



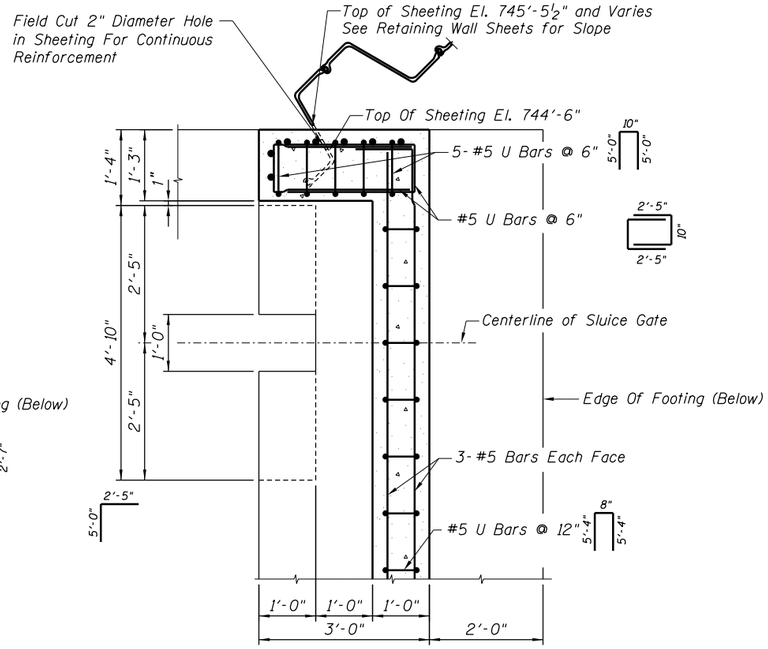
2/119 SECTION AT HOIST BEAM BEARING
AT VAULTS 1, 2, & 3



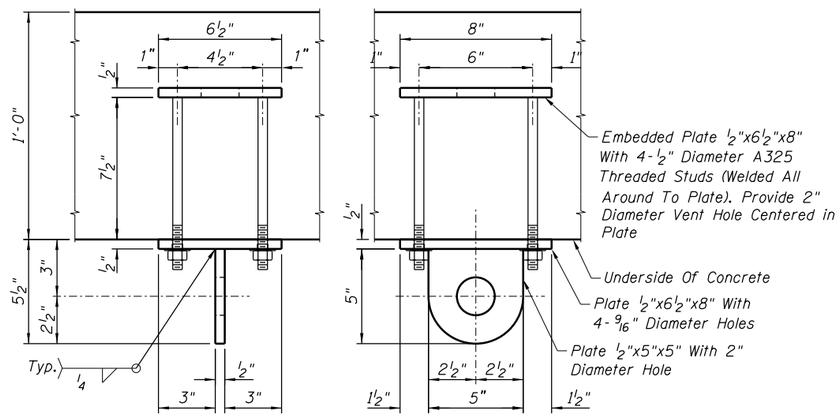
3/119 DETAIL AT UPSTREAM ABUTMENT



4/119 DETAIL AT UPSTREAM ABUTMENT



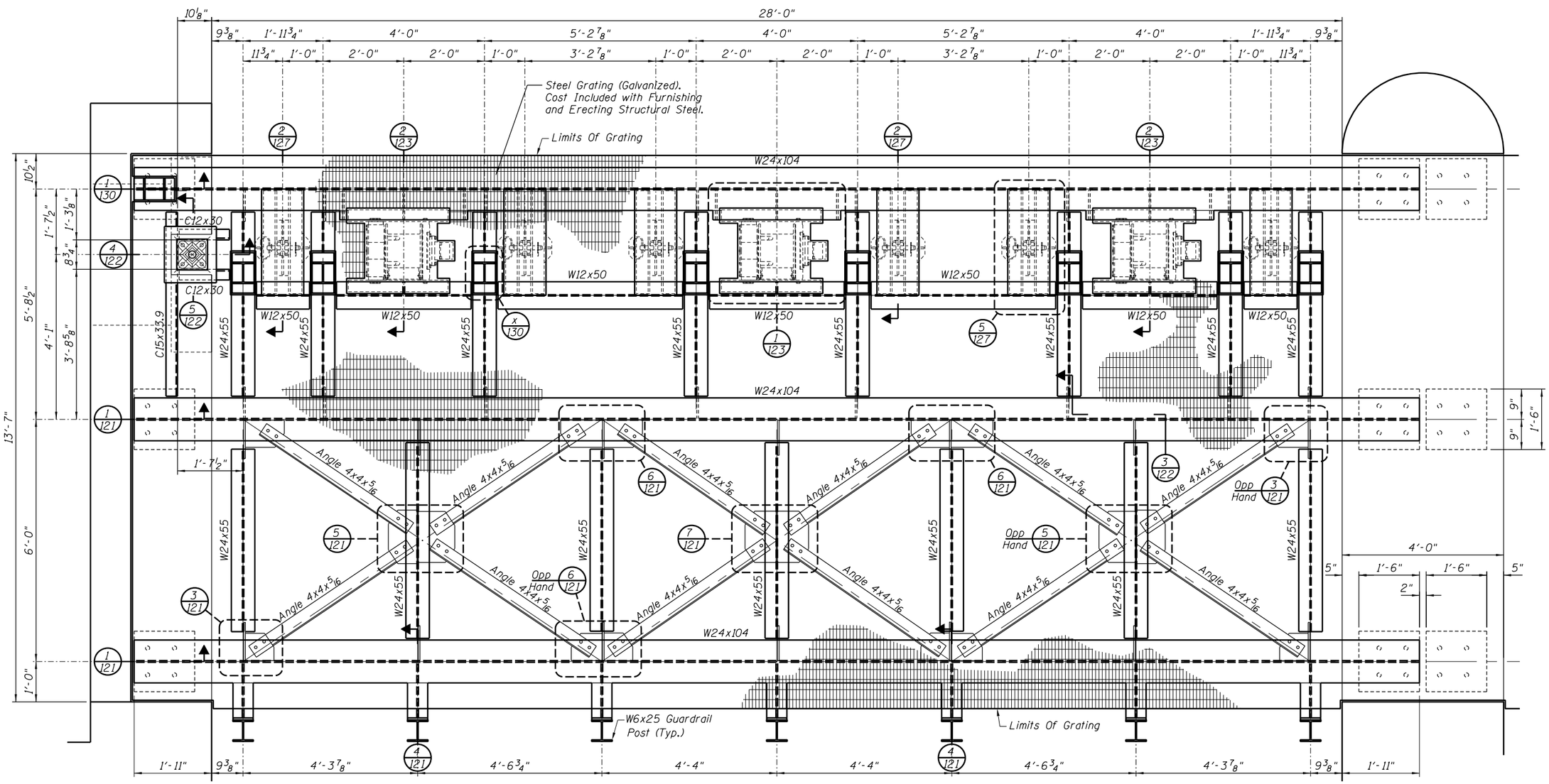
5/119 DETAIL AT UPSTREAM ABUTMENT



5/119 SECTION AT EMBEDDED VAULT LIFTING LUG

FILE NAME = S-5104-GATE.dgn	USER NAME =	DESIGNED - MWH	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GATE STRUCTURE PARTIAL PLANS & DETAILS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HANSON		CHECKED - JJT	REVISED -		
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -		

ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	119
	PROJECT FR-435		



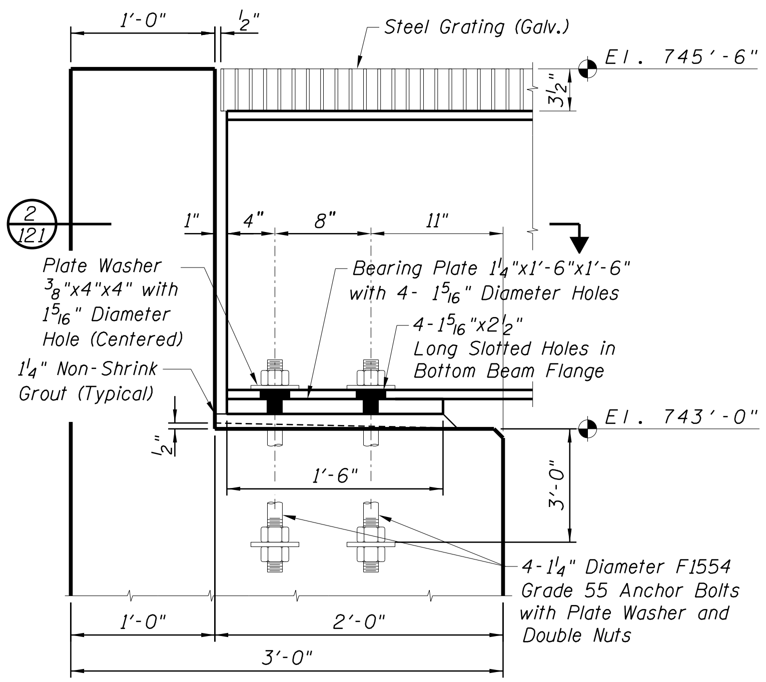
1/120 PARTIAL PLAN AT MACHINE BRIDGE
TYPICAL OF 3 AT EL. 745'-6"

FILE NAME = S-1105-GATE.dgn	USER NAME =	DESIGNED - MWH	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GATE STRUCTURE MACHINE BRIDGE PLAN STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HANSON		CHECKED - JJT	REVISED -		
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -		
© Copyright Hanson Professional Services Inc. 2013	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -		

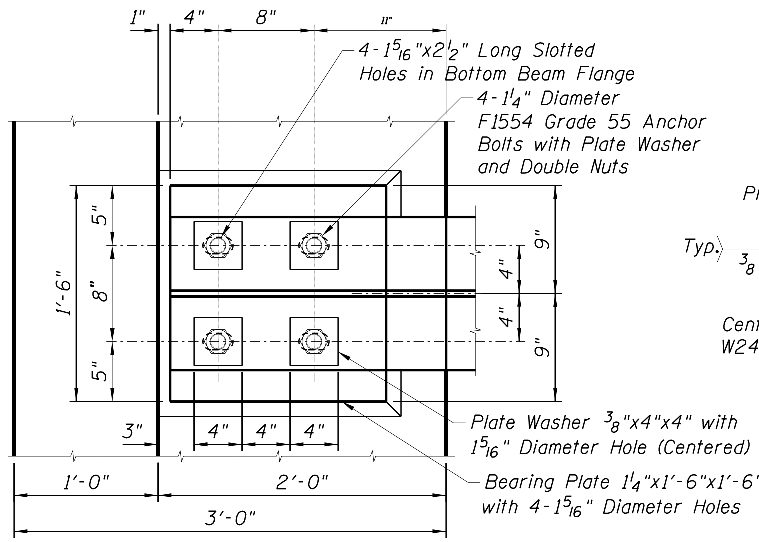
ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	120

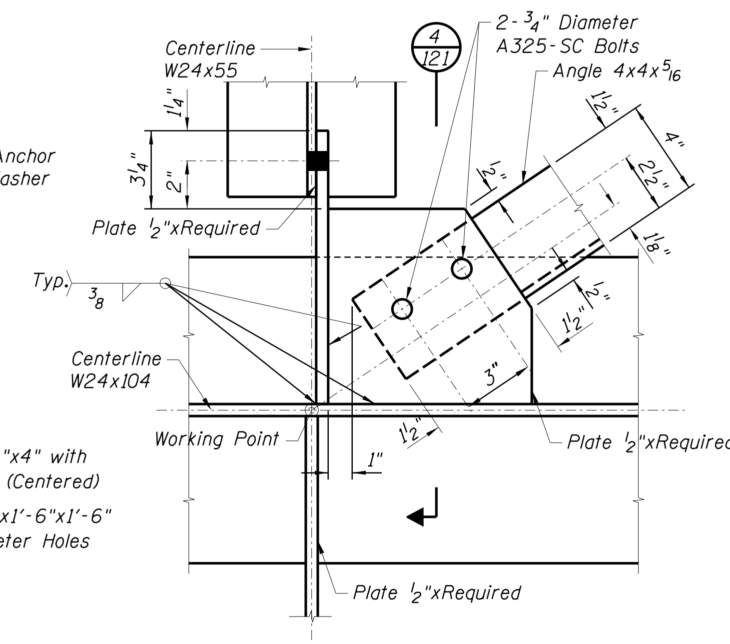
PROJECT FR-435



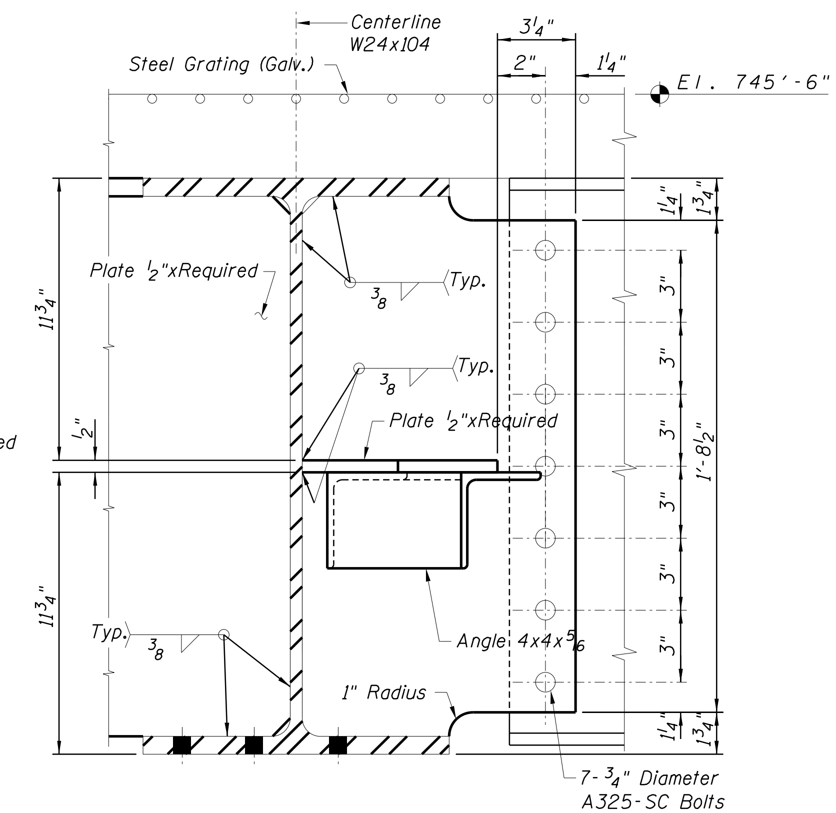
1/121 SECTION AT TYPICAL BEAM BEARING



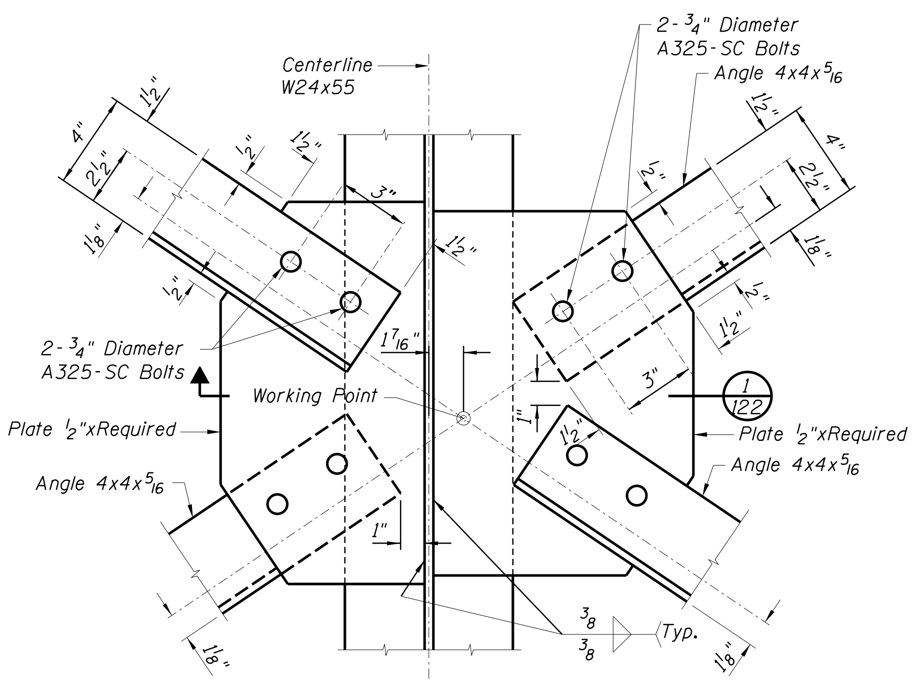
2/121 SECTION AT TYPICAL BEAM BEARING



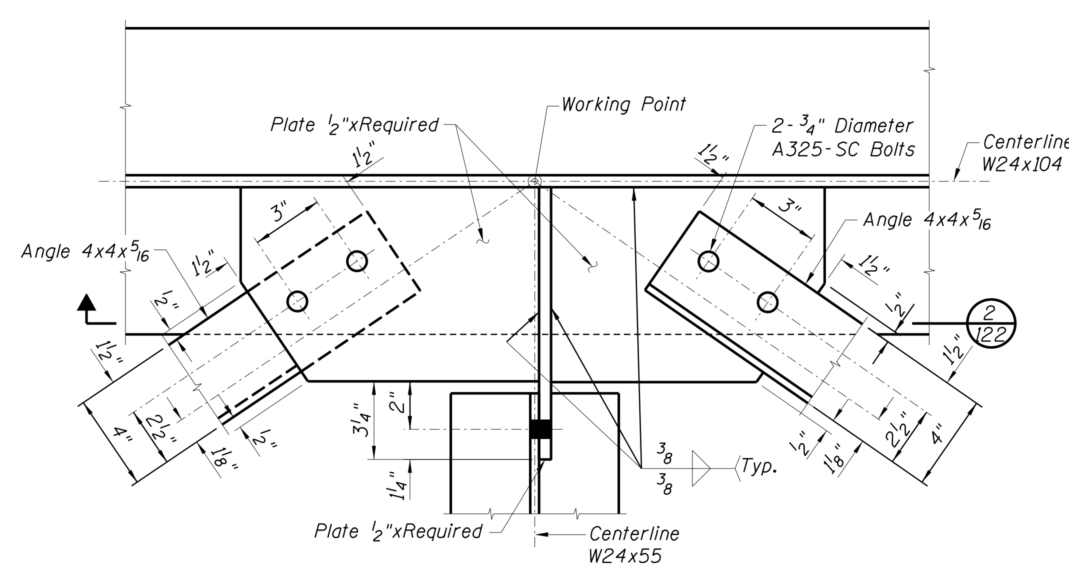
3/121 BRACING DETAIL



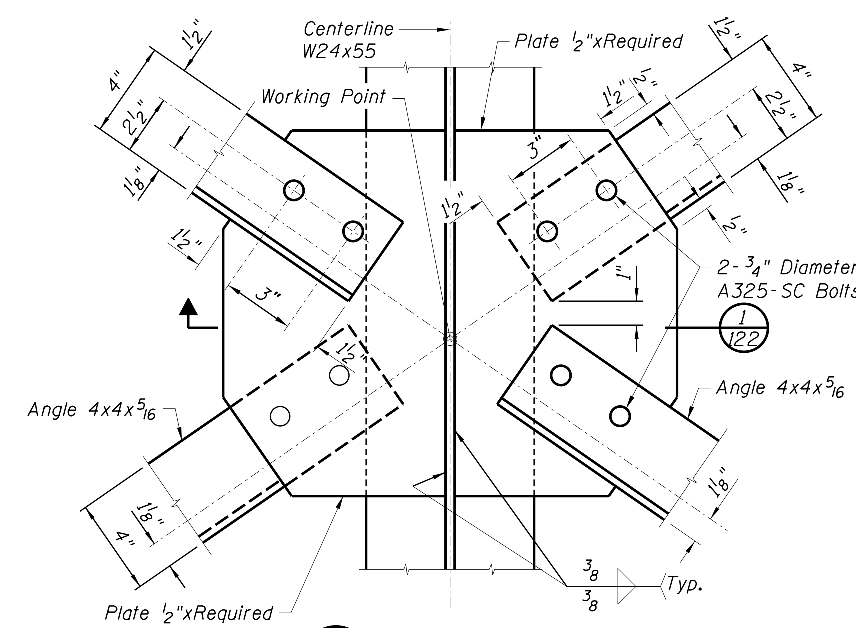
4/121 BRACING DETAIL



5/121 BRACING DETAIL



6/121 BRACING DETAIL



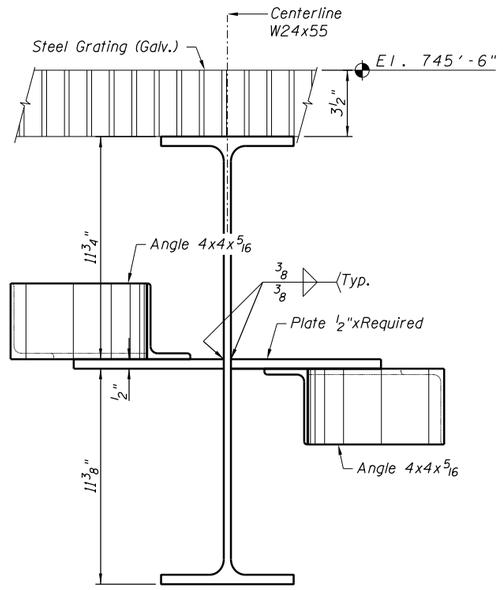
7/121 BRACING DETAIL

FILE NAME = S-5105-GATE.dgn	USER NAME =	DESIGNED - MWH	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GATE STRUCTURE MACHINE BRIDGE DETAILS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HANSON		CHECKED - JJT	REVISED -		
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -		

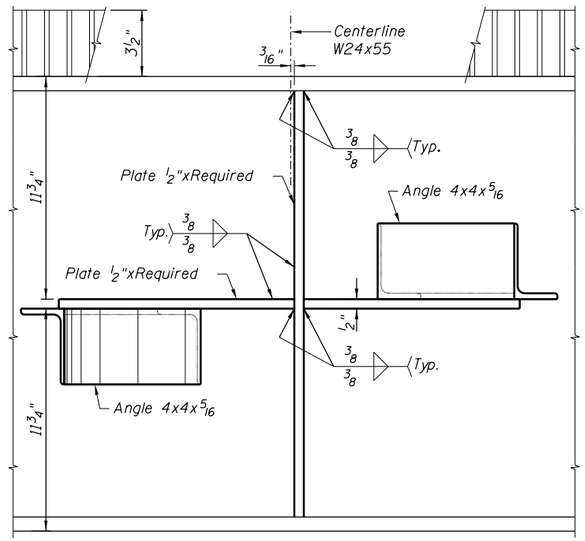
ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	121

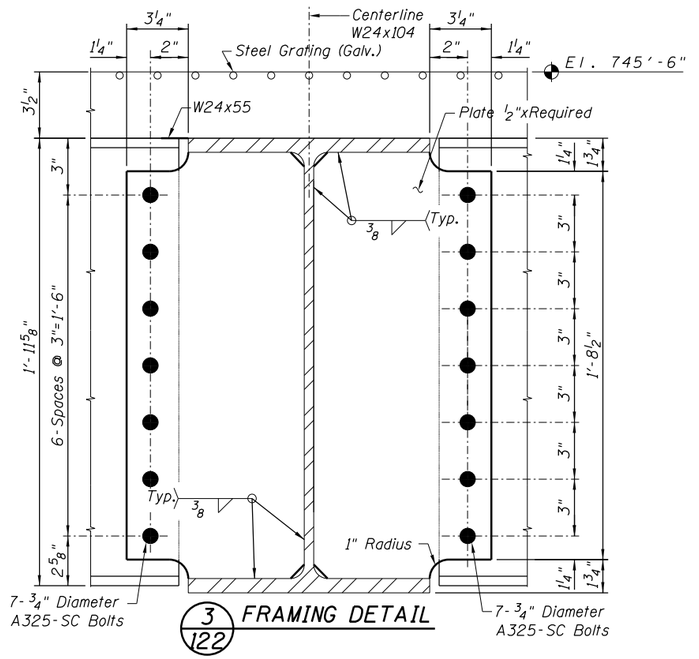
PROJECT FR-435



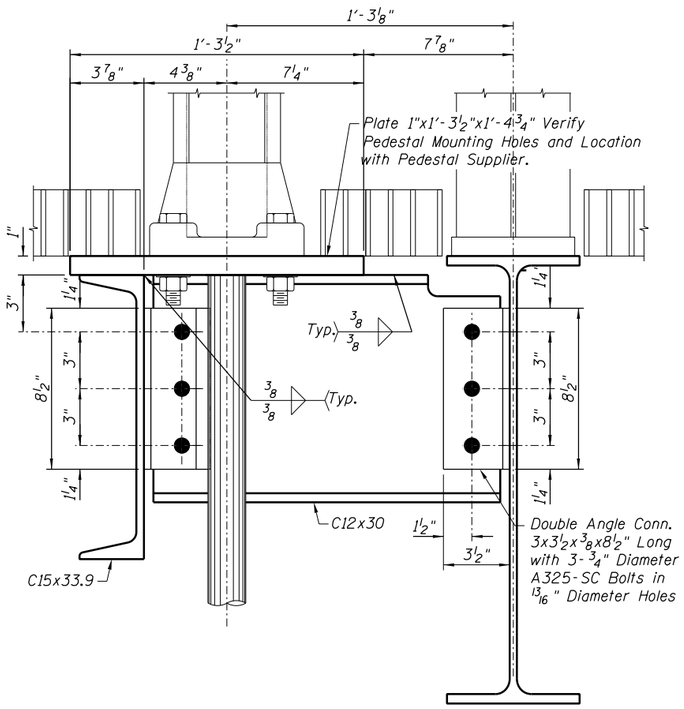
1/122 BRACING DETAIL



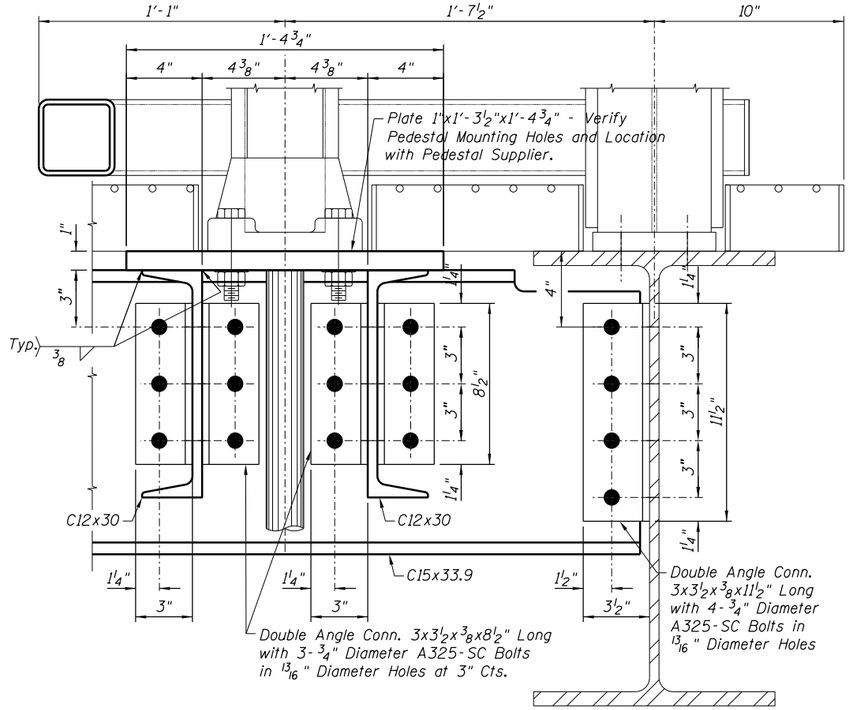
2/122 BRACING DETAIL



3/122 FRAMING DETAIL



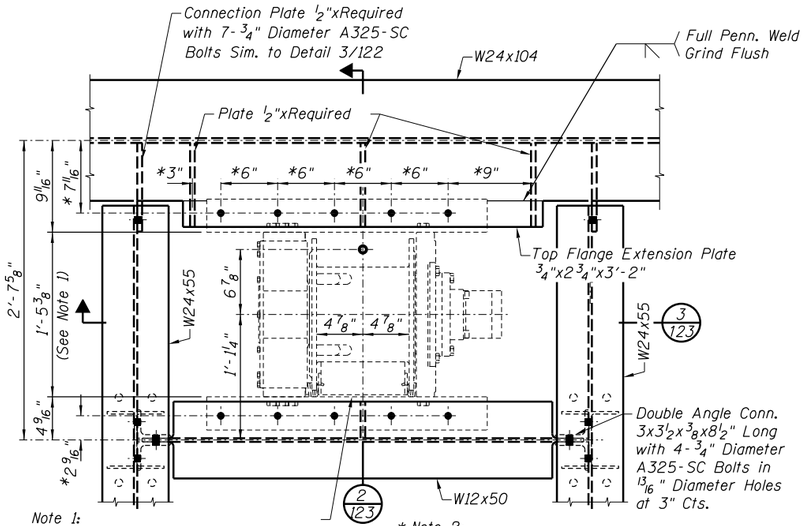
4/122 FRAMING DETAIL AT SLUICE GATE



5/122 FRAMING DETAIL AT SLUICE GATE

FILE NAME = S-5105A-GATE.dgn	USER NAME =	DESIGNED - MWH	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GATE STRUCTURE MACHINE BRIDGE DETAILS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HANSON		CHECKED - JJT	REVISED -		
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -		

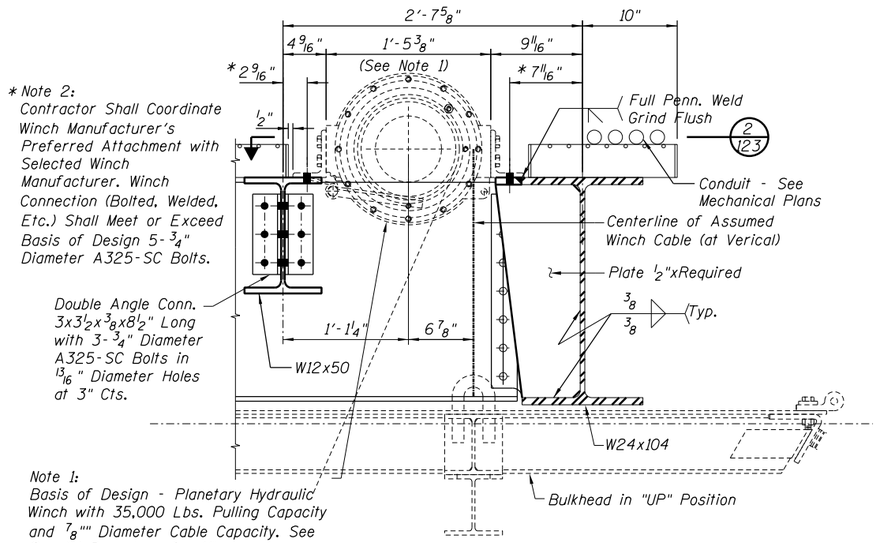
ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	122
	PROJECT FR-435		



Note 1:
Basis of Design - Planetary Hydraulic Winch with 35,000 Lbs. Pulling Capacity and 7/8" Diameter Cable Capacity. See Special Provisions for Minimum Requirements.

* Note 2:
Contractor Shall Coordinate Winch Manufacturer's Preferred Attachment with Selected Winch Manufacturer. Winch Connection (Bolted, Welded, Etc.) Shall Meet or Exceed Basis of Design 5-3/4" Diameter A325-SC Bolts.

1/123 PARTIAL PLAN AT WINCH FRAMING

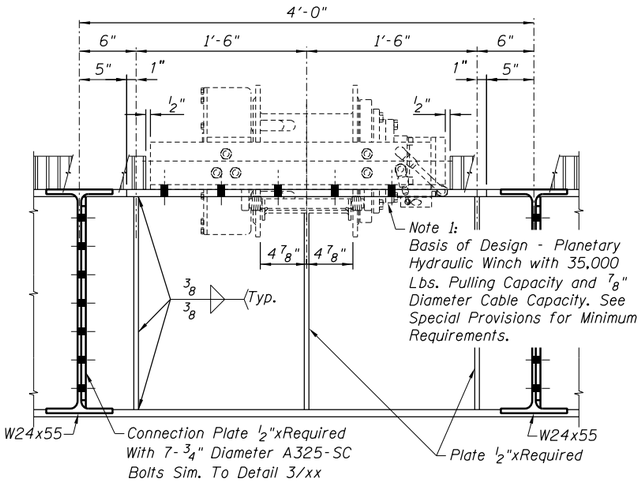


* Note 2:
Contractor Shall Coordinate Winch Manufacturer's Preferred Attachment with Selected Winch Manufacturer. Winch Connection (Bolted, Welded, Etc.) Shall Meet or Exceed Basis of Design 5-3/4" Diameter A325-SC Bolts.

Double Angle Conn. 3x3 1/2x3/8x8 1/2" Long with 3-3/4" Diameter A325-SC Bolts in 13/16" Diameter Holes at 3" Cts.

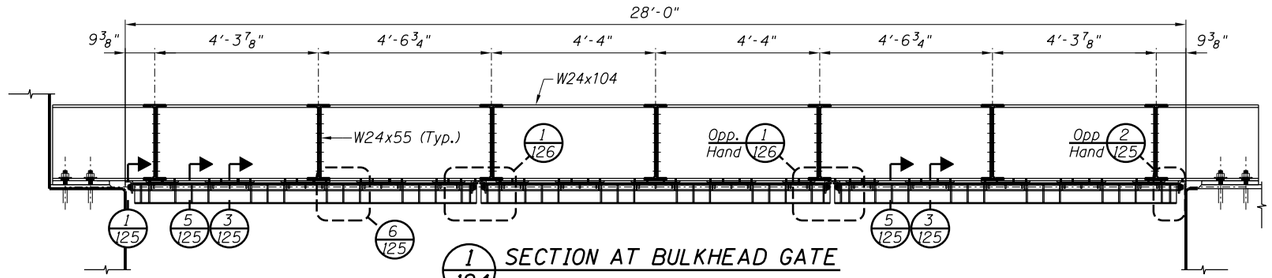
Note 1:
Basis of Design - Planetary Hydraulic Winch with 35,000 Lbs. Pulling Capacity and 7/8"" Diameter Cable Capacity. See Special Provisions for Minimum Requirements.

2/123 SECTION AT WINCH FRAMING

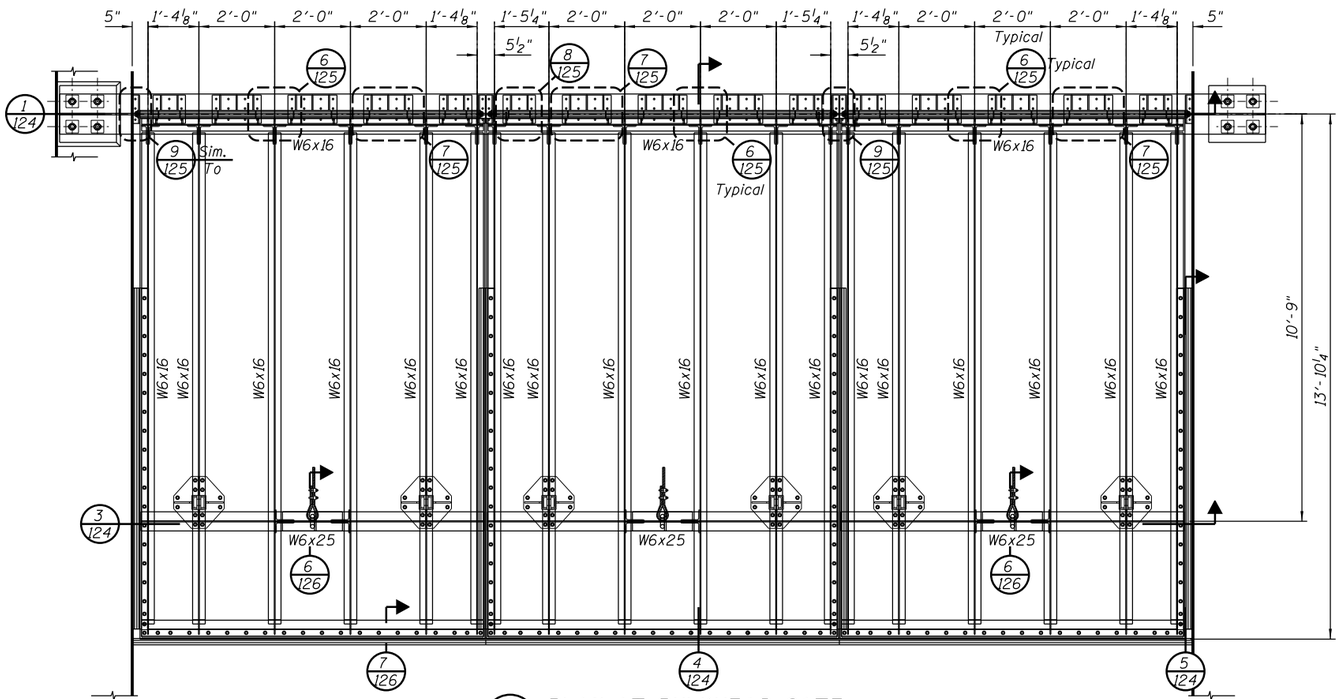


3/123 SECTION AT WINCH FRAMING

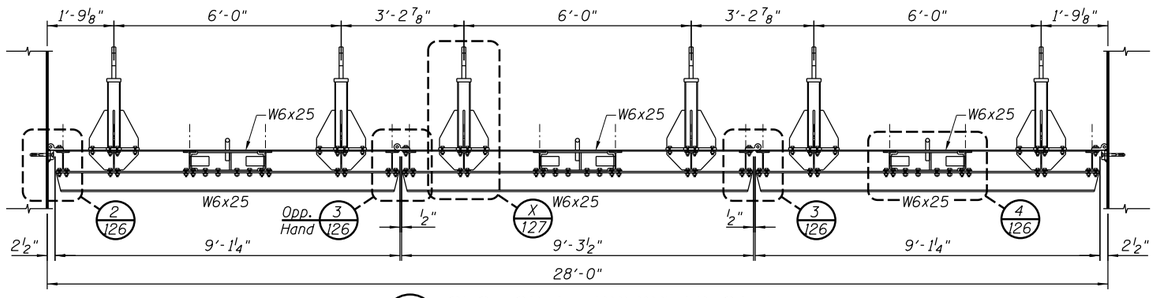
FILE NAME = S-5105B-GATE.dgn	USER NAME =	DESIGNED - MWH	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GATE STRUCTURE MACHINE BRIDGE DETAILS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS	ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY / TOTAL SHEETS / SHEET NO.
HANSON		CHECKED - JJT	REVISED -				McHENRY / 238 / 123
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -				PROJECT FR-435
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -				



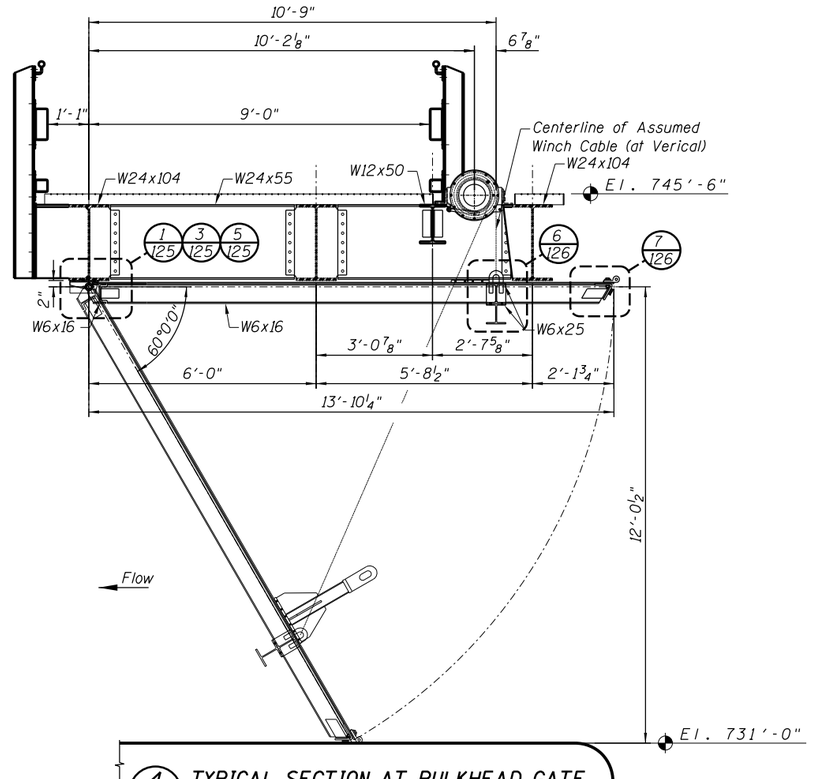
1/124 SECTION AT BULKHEAD GATE



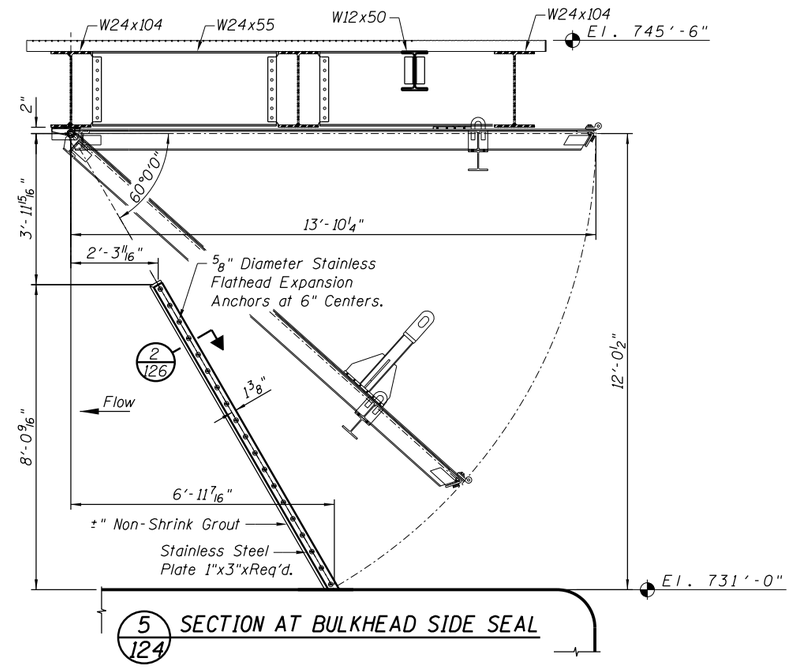
2/124 PLAN AT BULKHEAD GATE



3/124 SECTION AT BULKHEAD GATE



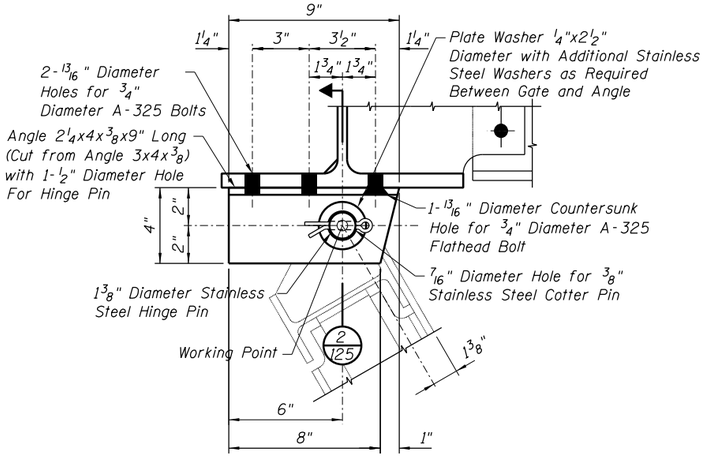
4/124 TYPICAL SECTION AT BULKHEAD GATE



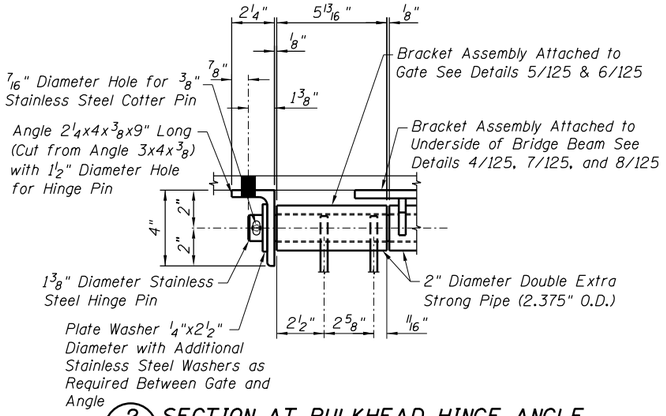
5/124 SECTION AT BULKHEAD SIDE SEAL

FILE NAME = S-5106-GATE.dgn HANSON © Copyright Hanson Professional Services Inc. 2013	USER NAME =	DESIGNED - MEH	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GATE BULKHEAD PLAN & SECTIONS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
		CHECKED - JJT	REVISED -		
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -		

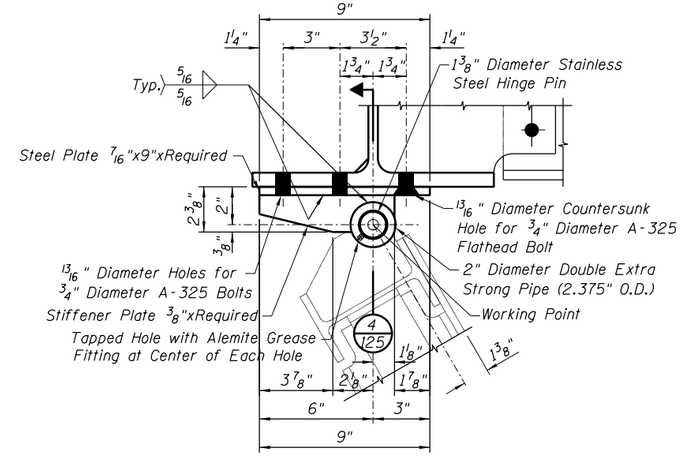
ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	124
	PROJECT FR-435		



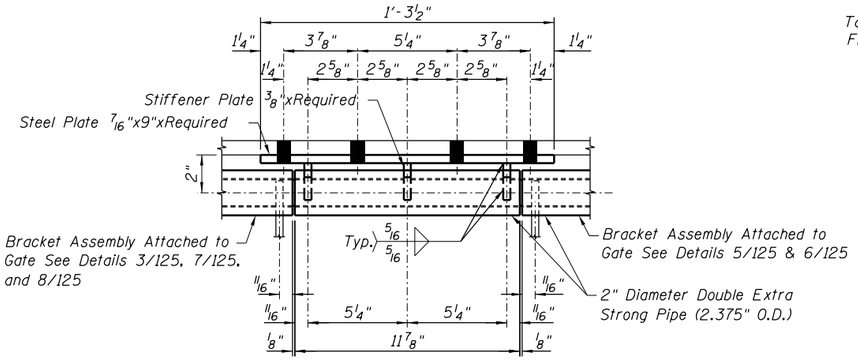
1/125 SECTION AT BULKHEAD HINGE ANGLE



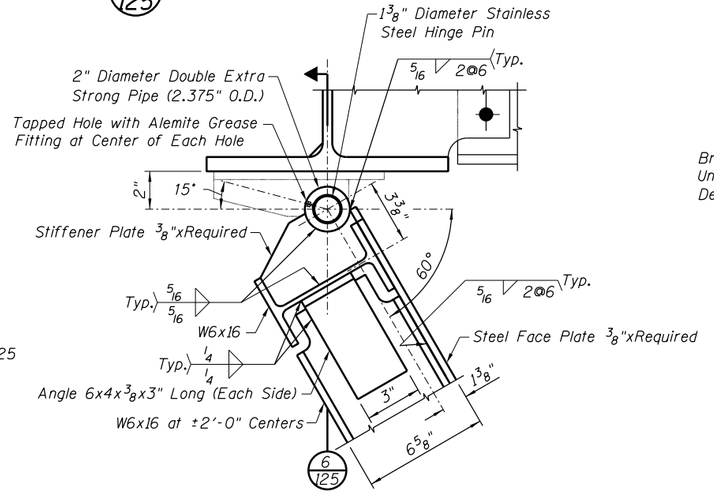
2/125 SECTION AT BULKHEAD HINGE ANGLE



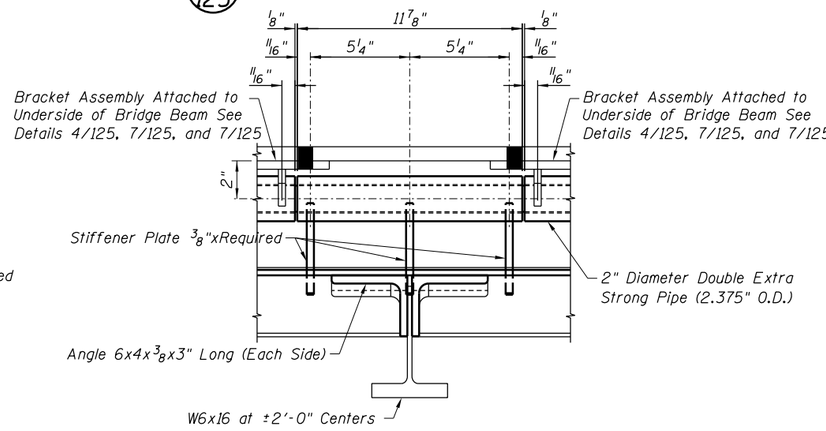
3/125 SECTION AT BULKHEAD HINGE BEAM BRACKET



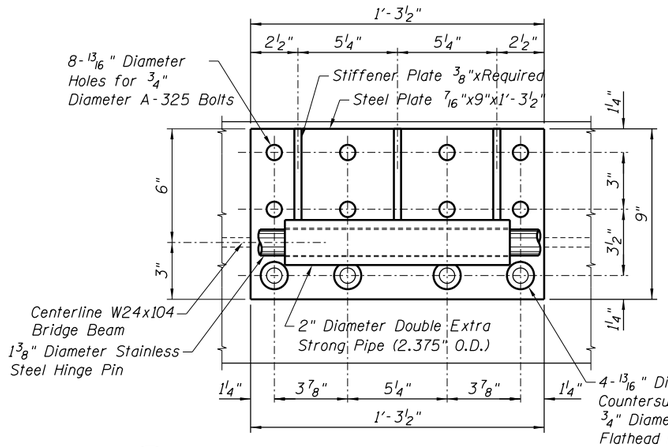
4/125 SECTION AT BULKHEAD HINGE BEAM BRACKET



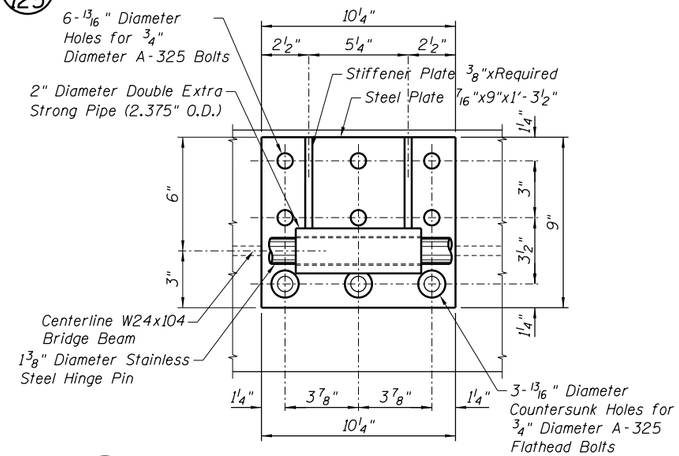
5/125 SECTION AT BULKHEAD HINGE GATE BRACKET



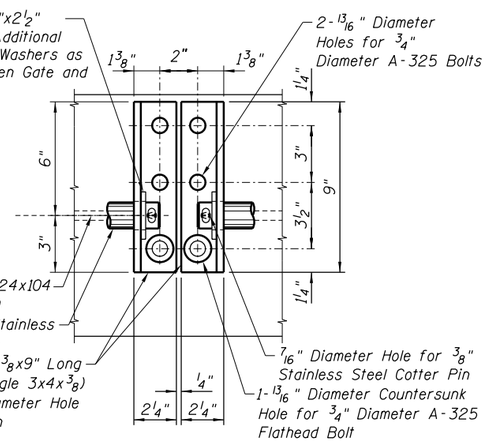
6/125 SECTION AT BULKHEAD HINGE GATE BRACKET



7/125 SECTION AT BULKHEAD HINGE BEAM BRACKET



8/125 SECTION AT BULKHEAD HINGE BEAM BRACKET



9/125 SECTION AT BULKHEAD HINGE BEAM BRACKET

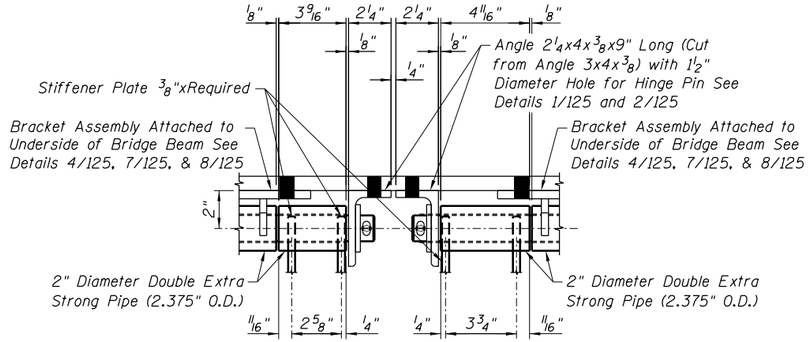
FILE NAME = S-5107-GATE.dgn	USER NAME =	DESIGNED - MWH	REVISED -
HANSON		CHECKED - JJT	REVISED -
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF NATURAL RESOURCES

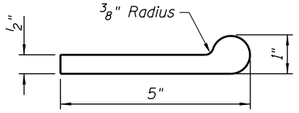
GATE BULKHEAD SECTIONS & DETAILS
STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS

ILLINOIS DEPARTMENT OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES

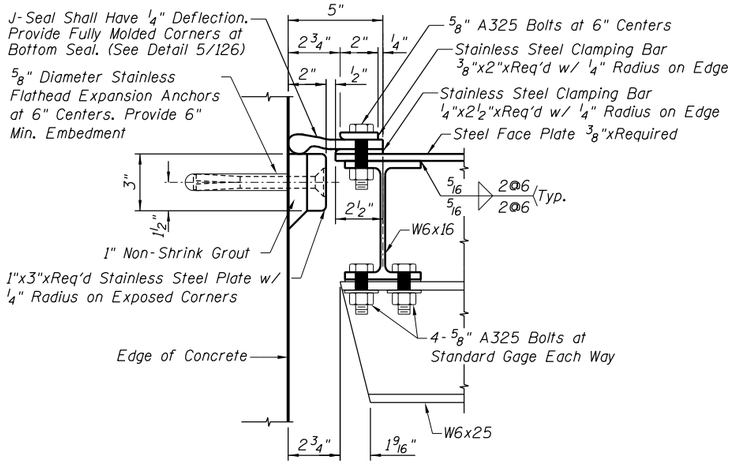
COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	125
PROJECT FR-435		



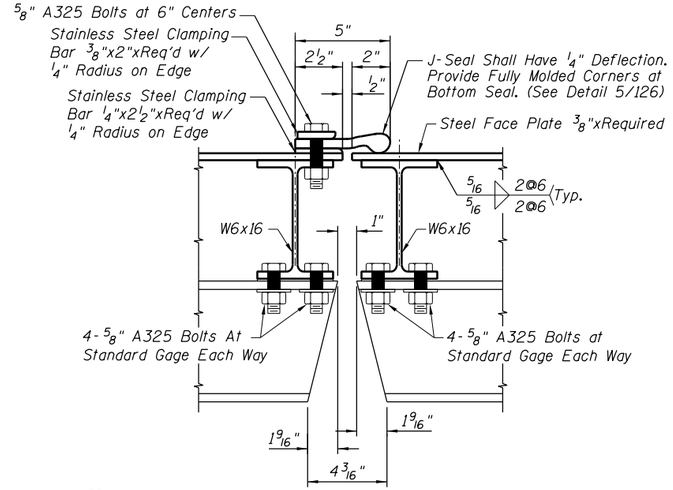
1/126 SECTION AT BULKHEAD HINGE GATE BRACKET



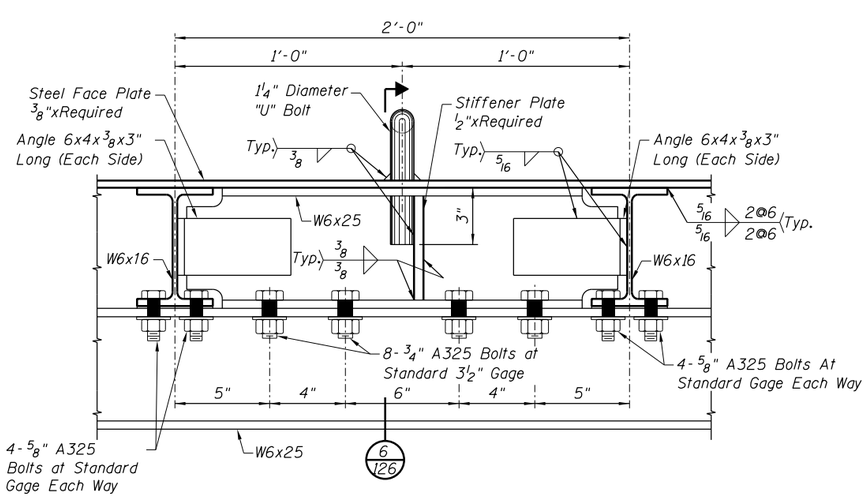
5/126 TYPICAL RUBBER "J" SEAL



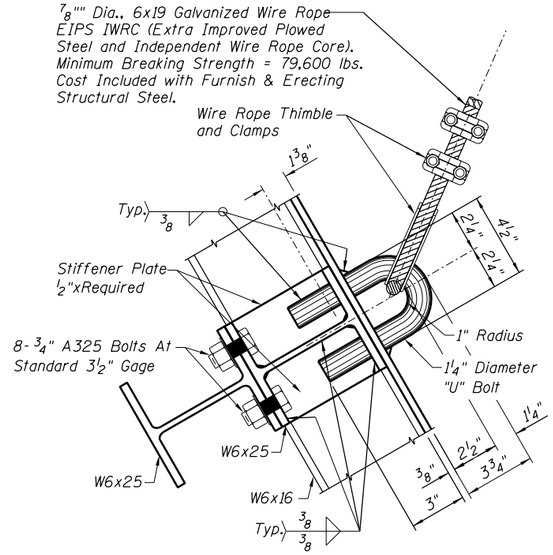
2/126 SECTION AT BULKHEAD SIDE GATE SEAL



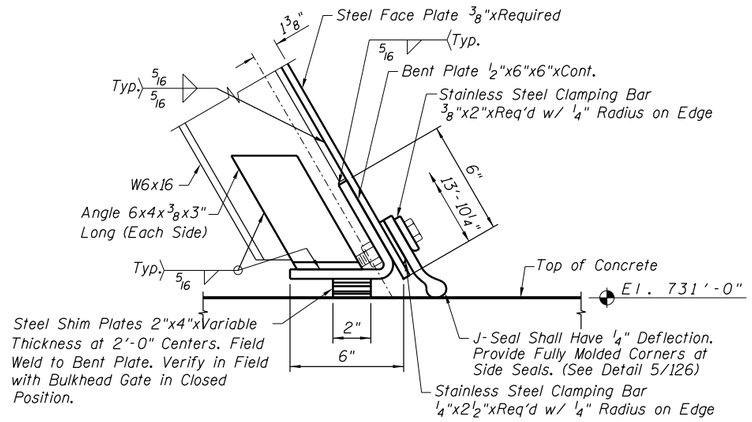
3/126 SECTION AT BULKHEAD CENTER GATE SEAL



4/126 TYPICAL SECTION AT BULKHEAD GATE LIFTING POINT



6/126 TYPICAL SECTION AT BULKHEAD GATE LIFTING POINT



7/126 SECTION AT BULKHEAD GATE BOTTOM SEAL

FILE NAME = S-5108-GATE.dgn	USER NAME =	DESIGNED - MWH	REVISED -
HANSON		CHECKED - JJT	REVISED -
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -

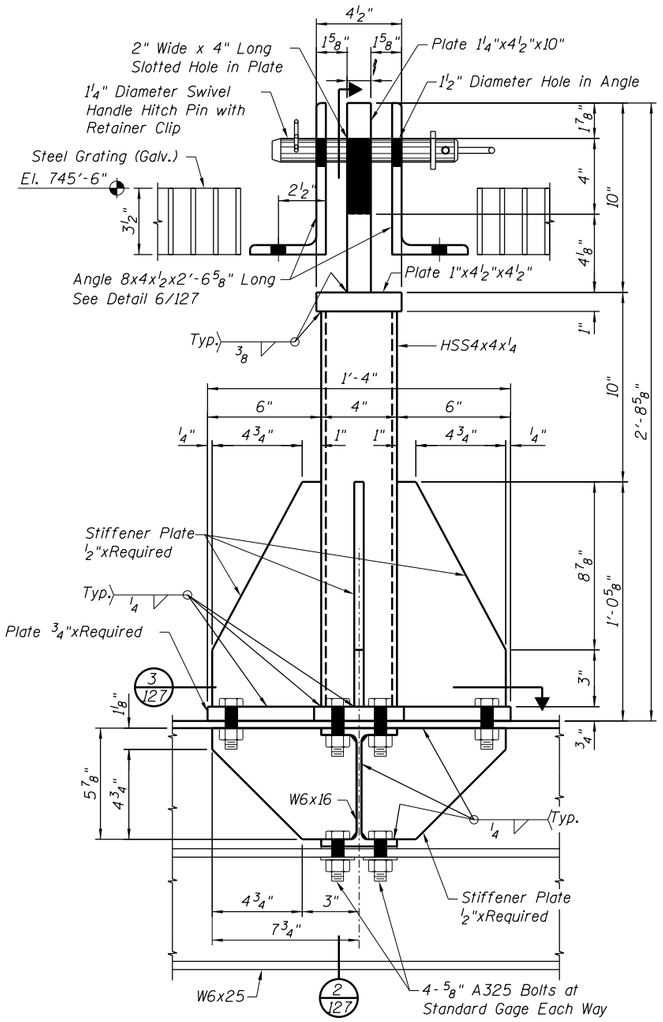
STATE OF ILLINOIS
DEPARTMENT OF NATURAL RESOURCES

GATE BULKHEAD SECTIONS & DETAILS
STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS

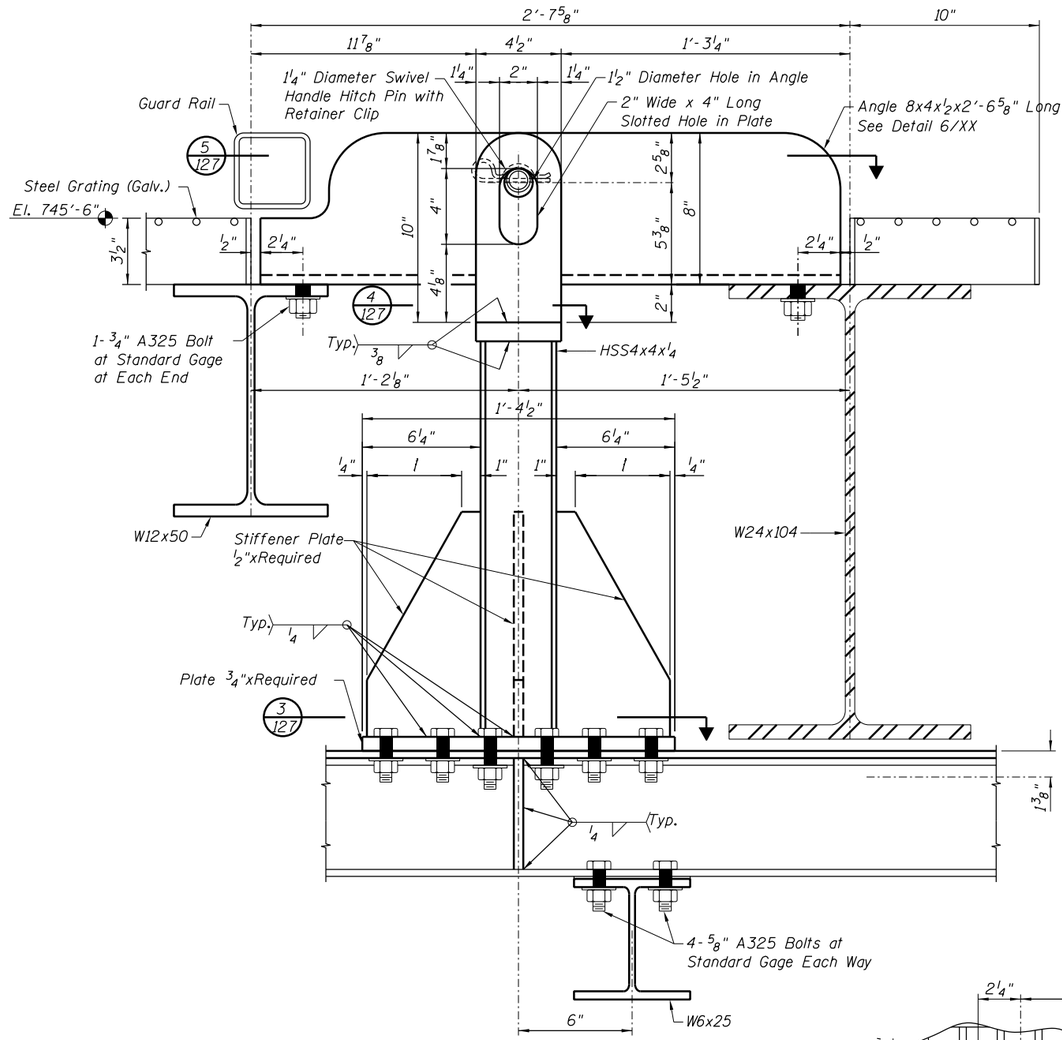
ILLINOIS DEPARTMENT OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	126

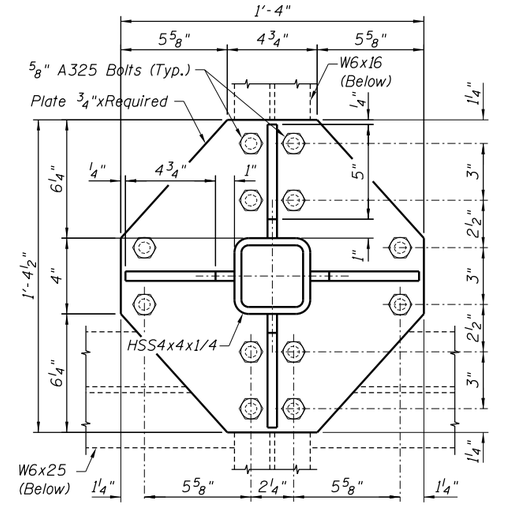
PROJECT FR-435



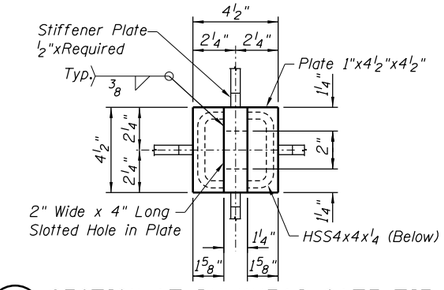
1/127 SECTION AT BULKHEAD GATE TIE-OFF



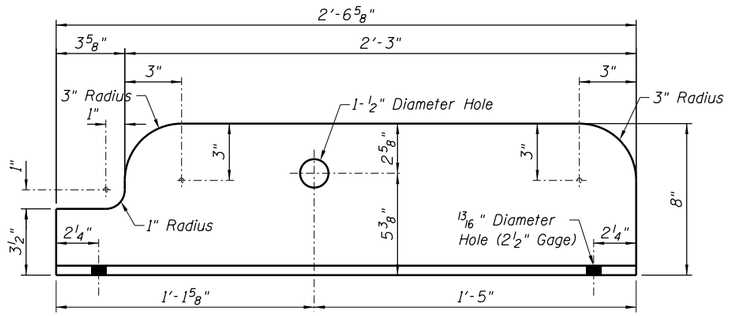
2/127 SECTION AT BULKHEAD GATE TIE-OFF



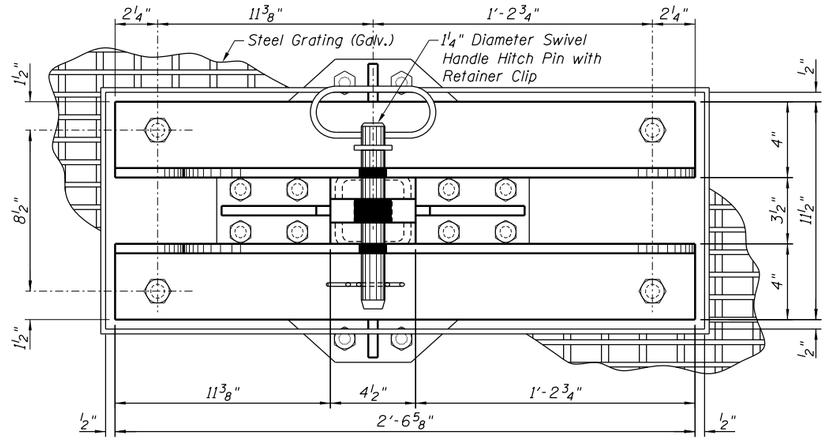
3/127 SECTION AT BULKHEAD GATE TIE-OFF



4/127 SECTION AT BULKHEAD GATE TIE-OFF



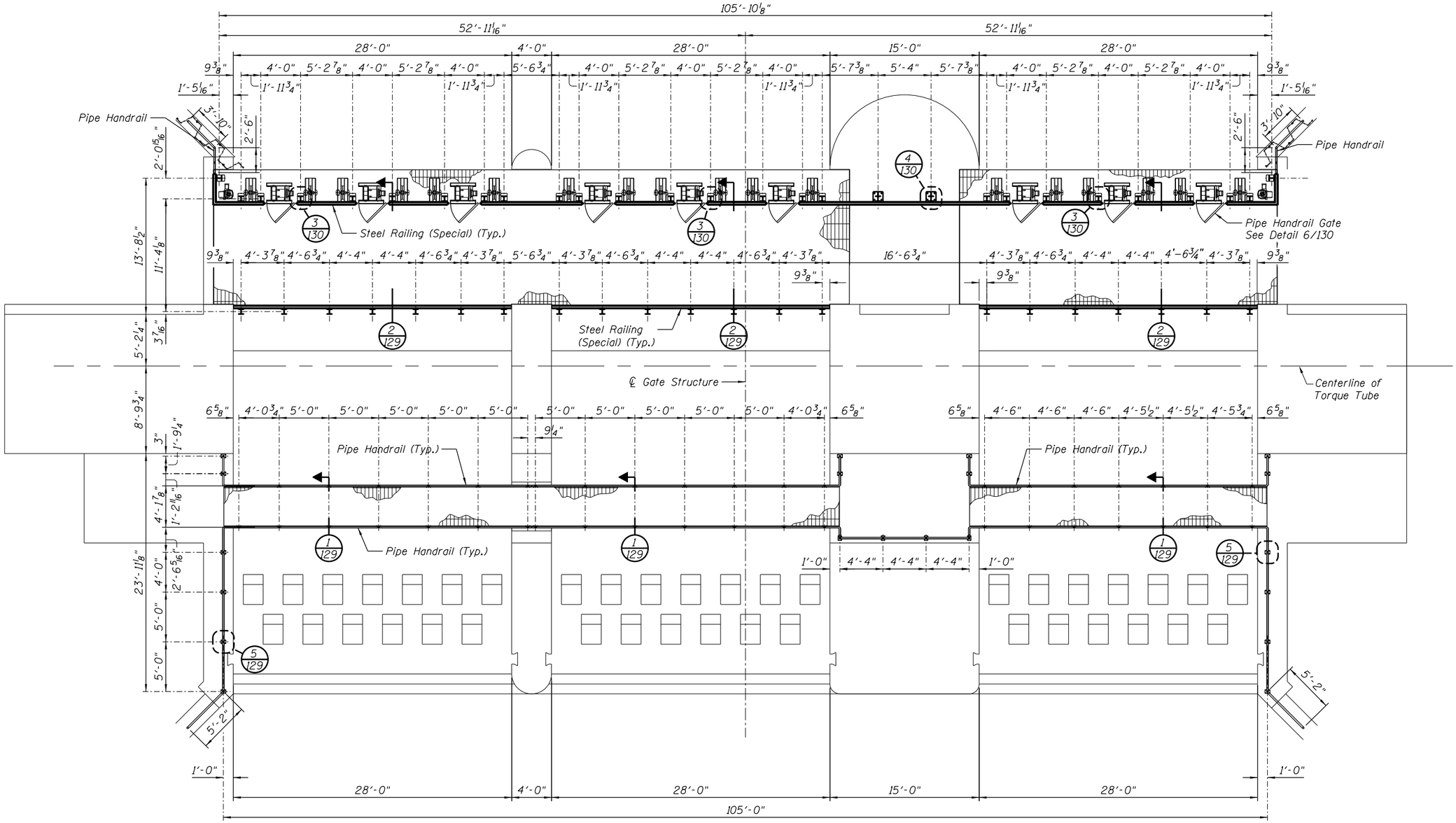
6/127 DETAIL AT BULKHEAD GATE TIE-OFF ANGLE



5/127 SECTION AT BULKHEAD GATE TIE-OFF

FILE NAME = S-5109-GATE.dgn	USER NAME =	DESIGNED - MWH	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GATE BULKHEAD SECTIONS & DETAILS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HANSON		CHECKED - JJT	REVISED -		
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -		

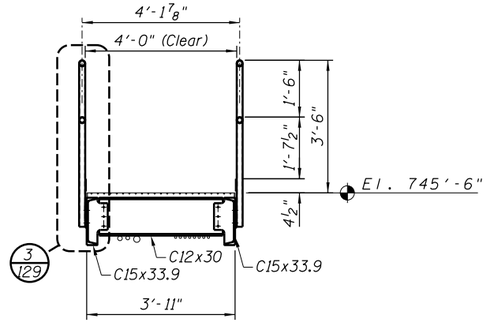
ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	127
PROJECT FR-435			



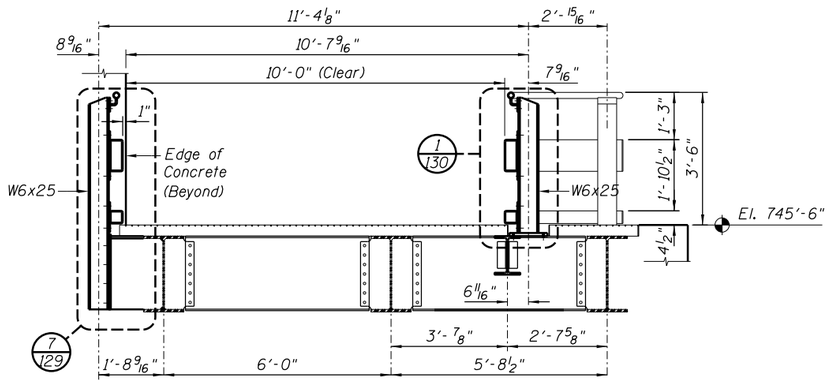
RAILING PLAN AT EL. 745'-6"

FILE NAME = S-5112-GATE.dgn	USER NAME =	DESIGNED - MWH	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GATE STRUCTURE RAILING PLAN STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HANSON		CHECKED - JJT	REVISED -		
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -		

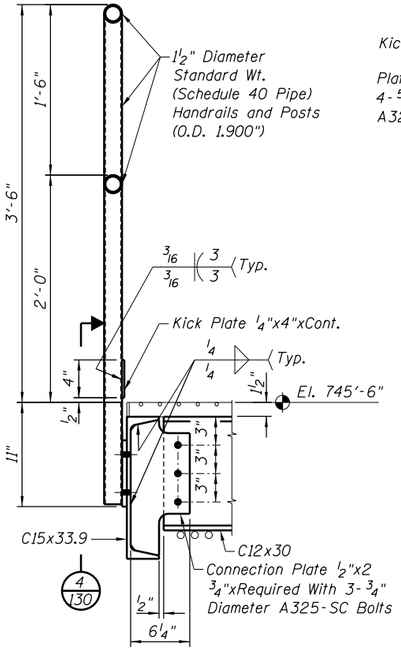
ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	128
	PROJECT FR-435		



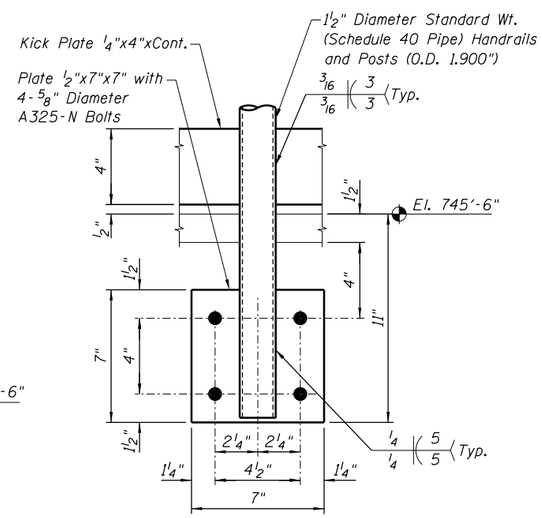
1/129 TYPICAL PIPE HANDRAIL SECTION AT PEDESTRIAN BRIDGE



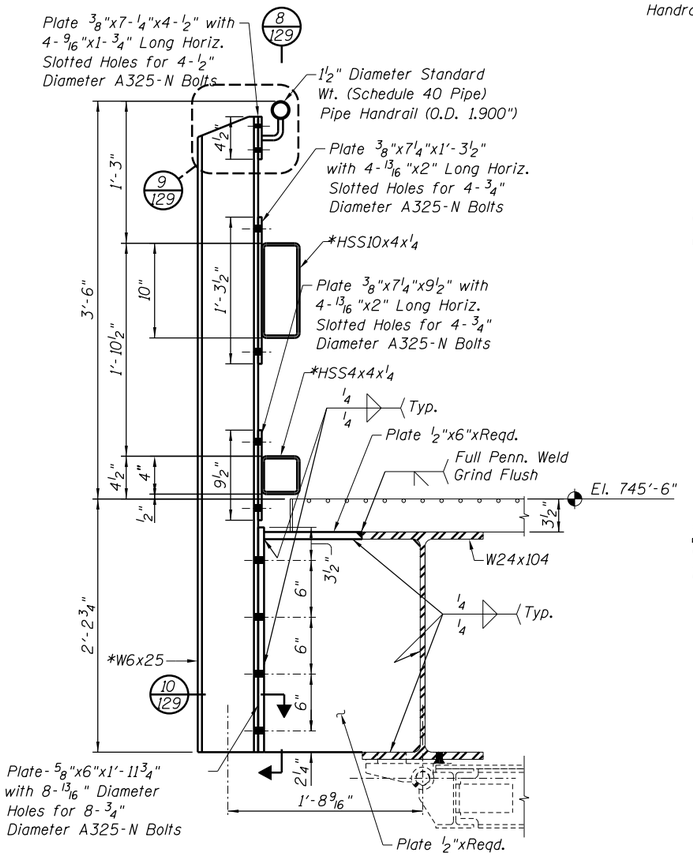
2/129 TYPICAL STEEL RAILING (SPECIAL) SECTION AT MACHINE BRIDGE



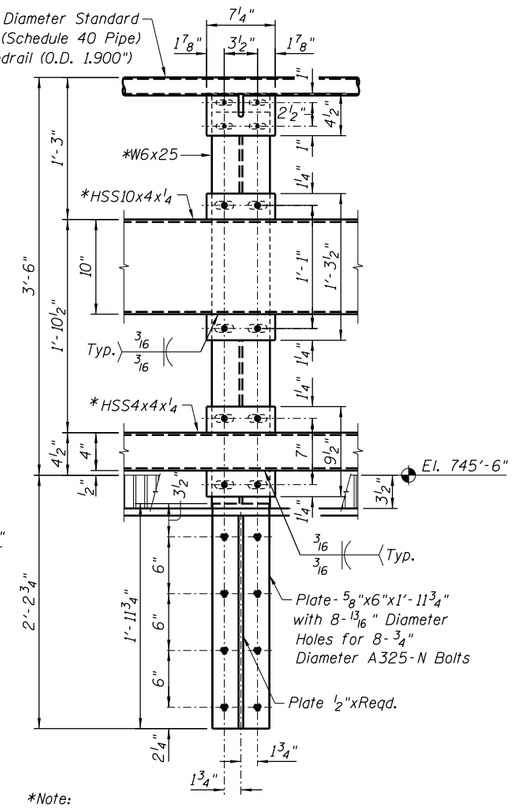
3/129 TYPICAL PEDESTRIAN PIPE HANDRAIL



4/129 PIPE HANDRAIL ATTACHMENT DETAIL

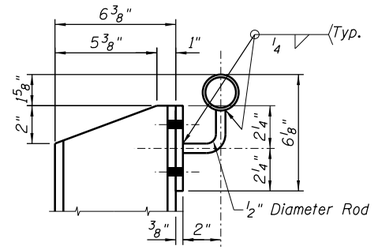


7/129 TYPICAL MACHINE BRIDGE STEEL RAILING (SPECIAL)

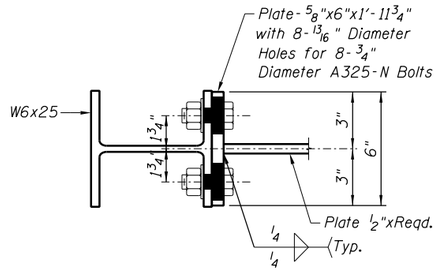


*Note:
1. All Steel Railing (Special) Elements, Hardware and Attachments Shall Be Galvanized. (See Specifcations).
2. At Each End of All HSS Steel Railing (Special) Beams Provide Closure Plate 1/4"xRequired with 3/16" All Around Seal Weld.
3. Provide Vent Holes of Adequate Size and Spacing in the Bottom of HSS Steel Railing (Special) Beams for the Galvanizing Process.

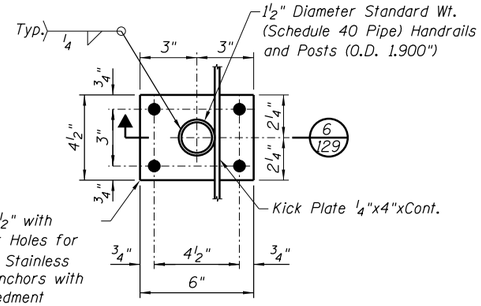
8/129 TYPICAL MACHINE BRIDGE STEEL RAILING (SPECIAL)



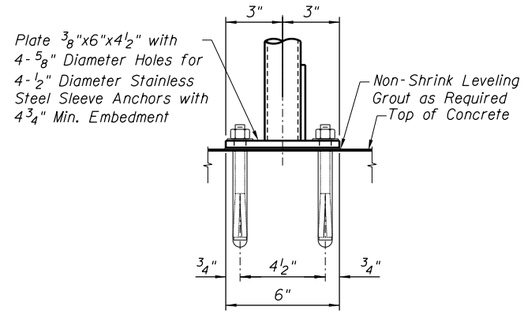
9/129 PIPE HANDRAIL DETAIL



10/129 STEEL RAILING (SPECIAL) POST DETAIL



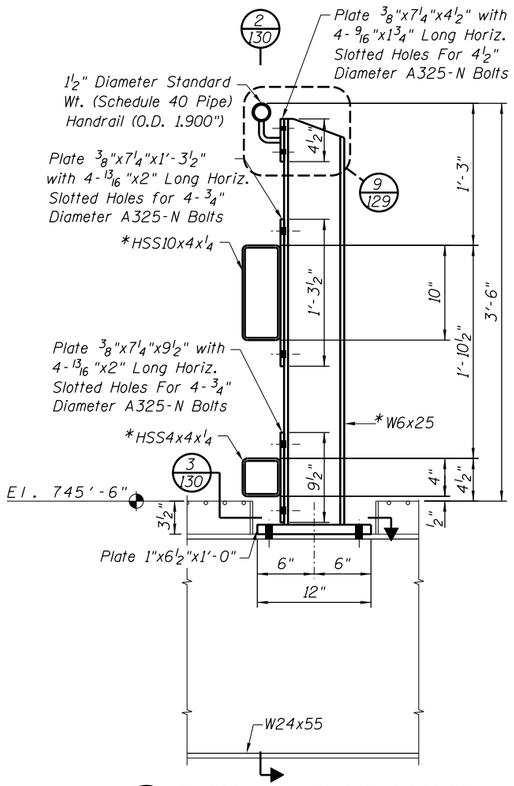
5/129 PIPE HANDRAIL ATTACHMENT DETAIL



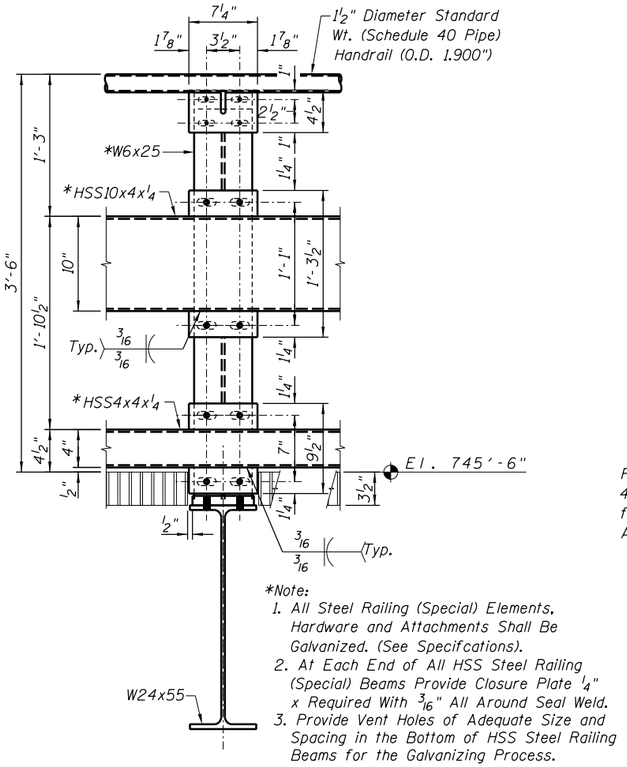
6/129 PIPE HANDRAIL ATTACHMENT DETAIL

FILE NAME = S-5113-GATE.dgn	USER NAME =	DESIGNED - MWH	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GATE STRUCTURE RAILING DETAILS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS	ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES
HANSON		CHECKED - JJT	REVISED -			
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -			
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -			

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	129
PROJECT FR-435		

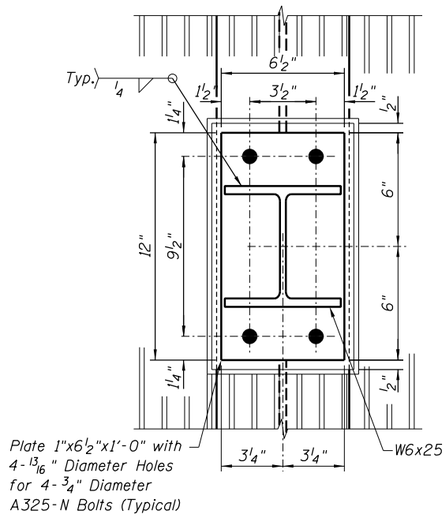


1 / 130 TYPICAL MACHINE BRIDGE STEEL RAILING (SPECIAL)

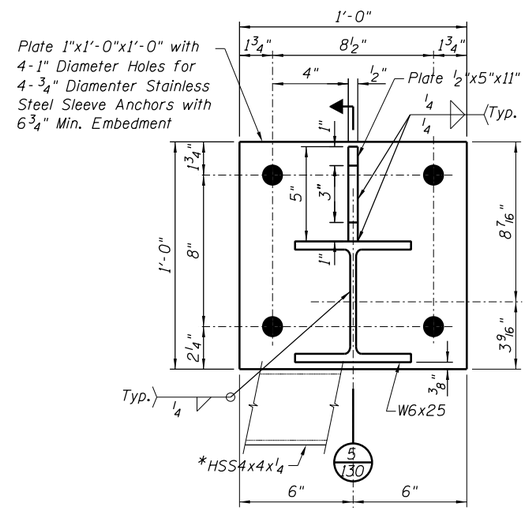


*Note:
1. All Steel Railing (Special) Elements, Hardware and Attachments Shall Be Galvanized. (See Specifcations).
2. At Each End of All HSS Steel Railing (Special) Beams Provide Closure Plate 1/4" x Required With 3/16" All Around Seal Weld.
3. Provide Vent Holes of Adequate Size and Spacing in the Bottom of HSS Steel Railing Beams for the Galvanizing Process.

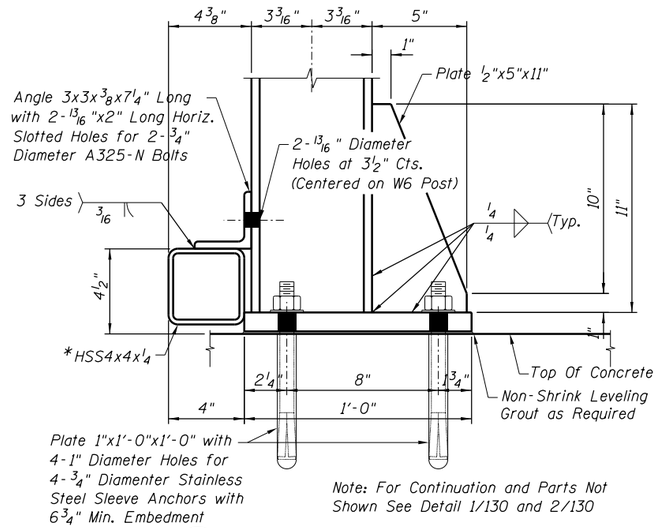
2 / 130 TYPICAL MACHINE BRIDGE STEEL RAILING (SPECIAL)



3 / 130 STEEL RAILING (SPECIAL) ATTACHMENT DETAIL

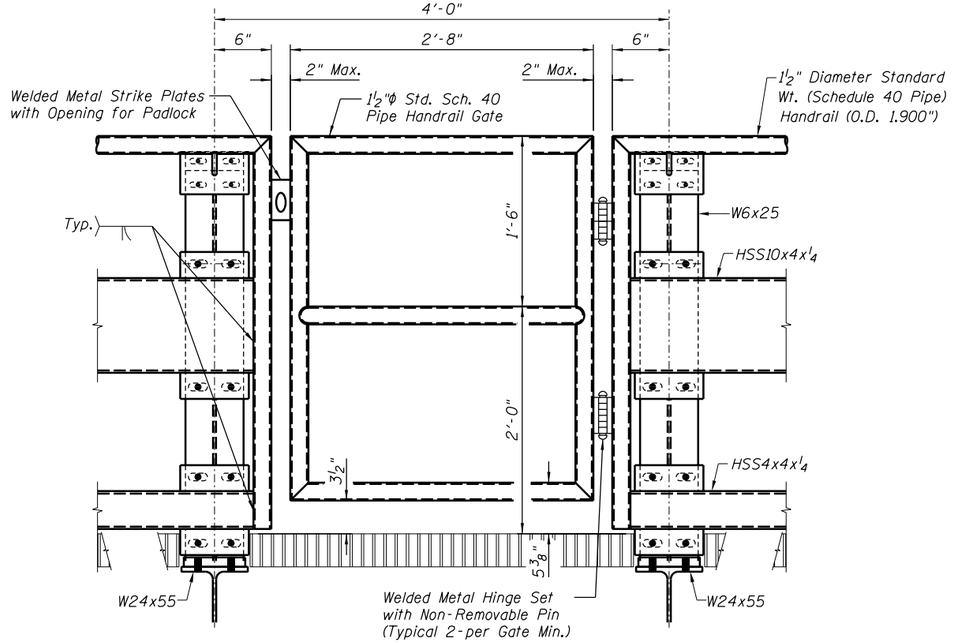


4 / 130 STEEL RAILING (SPECIAL) ATTACHMENT DETAIL



Note: For Continuation and Parts Not Shown See Detail 1/130 and 2/130

5 / 130 STEEL RAILING (SPECIAL) ATTACHMENT DETAIL



6 / 130 TYPICAL MACHINE BRIDGE PIPE HANDRAIL GATE

FILE NAME = S-5114-GATE.dgn	USER NAME =	DESIGNED - MWH	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GATE STRUCTURE RAILING DETAILS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HANSON		CHECKED - JJT	REVISED -		
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -		

ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	130

PROJECT FR-435

Illinois Department of Transportation — Division of Highways — HPS

SOIL BORING LOG

Page 1 of 2

Date 4/9/13

ROUTE Stratton Lock and Dam DESCRIPTION Gate Structure LOGGED BY kkc

SECTION IDNR LOCATION West Side, SEC. , TWP. , RNG.

COUNTY McHenry DRILLING METHOD Mud Rotary HAMMER TYPE AUTO

STRUCT. NO.
Station

BORING NO. B13-4
Station
Offset
Ground Surface Elev. 736.80 ft

Surface Water Elev. 724.50 ft
Stream Bed Elev. 724.50 ft

Groundwater Elev.:
First Encounter 735.5 ft
Upon Completion 735.5 ft
After Hrs. ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				Top of Barge El. 736.8
735.50				
				Upper Pool Water El. 735.5
-5				
724.56				
				Dark gray, saturated, very loose SILT with trace very fine sand, trace shell [SEDIMENTS].
				- Grab sample at stream bed was obtained using Bottom Sampling Dredge [for environmental testing]
-15				
719.30				
	0			Gray, low plastic, very soft SILT [ML-OL].
	0		37.8	PP < 0.25 tsf
	0			- [LL=24, PL=18, PI=6]
-20				

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				Gray, low plastic, very soft SILT [ML-OL]. *(continued)*
				PP < 0.25 tsf *(continued)*
715.05				
				Gray, non plastic, loose SILT [ML].
-25	2			
	2		17.4	
	6			- [LL=17, PL=NP, PI=NP]
709.55				
				Gray, fine, medium dense SAND with some silt, little shell pieces [SM].
	4			
	4			
-30	8			- [PASSING #200=19.2%]
705.05				
				Gray, medium to coarse, medium dense SAND with little fine gravel [SPG].
	5			
	6			
-35	12			- [PASSING #200=25.4%]
700.05				
				Gray, medium, medium dense SAND with some fine to coarse gravel [SPG].
	7			
	11			- Limestone pieces at tip of spoon.
-40	10			

The Unconfined Compressive Strength (UCS) Failure Mode is Indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, from 137 (Rev. 8-99)

Illinois Department of Transportation — Division of Highways — HPS

SOIL BORING LOG

Page 2 of 2

Date 4/9/13

ROUTE Stratton Lock and Dam DESCRIPTION Gate Structure LOGGED BY kkc

SECTION IDNR LOCATION West Side, SEC. , TWP. , RNG.

COUNTY McHenry DRILLING METHOD Mud Rotary HAMMER TYPE AUTO

STRUCT. NO.
Station

BORING NO. B13-4
Station
Offset
Ground Surface Elev. 736.80 ft

Surface Water Elev. 735.50 ft
Stream Bed Elev. 724.50 ft

Groundwater Elev.:
First Encounter 735.5 ft
Upon Completion 735.5 ft
After Hrs. ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				- Rough drilling from 38.5 to 41.2 ft.
696.30				
	11			- [PASSING #200=8.8%]
695.60	50/2"			Multicolored, fine to coarse, very dense GRAVEL with little tan dry crushed stone (limestone) [GW].
				Boring Terminated at 41.2 ft. [Barge moved out - Gates were opened to release the water]. End of Boring
-45				
-50				
-55				
-60				

The Unconfined Compressive Strength (UCS) Failure Mode is Indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, from 137 (Rev. 8-99)

Illinois Department of Transportation — Division of Highways — HPS

SOIL BORING LOG

Page 1 of 3

Date 4/19/13

ROUTE Stratton Lock and Dam DESCRIPTION Gate Structure LOGGED BY kkc

SECTION IDNR LOCATION East Side, SEC. , TWP. , RNG.

COUNTY McHenry DRILLING METHOD Mud Rotary HAMMER TYPE AUTO

STRUCT. NO.
Station

BORING NO. B13-5
Station
Offset
Ground Surface Elev. 738.90 ft

Surface Water Elev. 737.50 ft
Stream Bed Elev. 726.90 ft

Groundwater Elev.:
First Encounter 737.5 ft
Upon Completion 737.5 ft
After Hrs. ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				Top of Barge El. 738.9
737.50				
				Upper Pool Water El. 737.5
-5				
726.90				
726.40	0			Dark gray, SHELLS with little silt, trace very fine sand [SEDIMENTS].
	0		21.8	- Grab sample at stream bed was obtained using Bottom Sampling Dredge [for environmental testing]
	3			Gray, non to low plastic, very soft SILT [ML].
-15				PP < 0.25 tsf
722.90				- [LL=22, PL=18, PI=4]
				Gray, saturated, very fine to medium, medium dense SAND [SP].
-20	3			

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
	7			Gray, saturated, very fine to medium, medium dense SAND [SP]. *(continued)*
-25	5			- trace fine gravel, trace shell.
	5			
	10			- [PASSING #200=7.0%]
711.90				
				Gray, medium, medium dense SAND and coarse GRAVEL [SP-GP].
	9			- Rough drilling from 27 to 40 ft.
-30	7			
	7			- [PASSING #200=4.1%]
706.90				
				Multicolored, coarse, medium dense GRAVEL [GP].
	9			
-35	9			
	7			
	6			
698.90 -40	4			

The Unconfined Compressive Strength (UCS) Failure Mode is Indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, from 137 (Rev. 8-99)

Illinois Department of Transportation — Division of Highways — HPS

SOIL BORING LOG

Page 2 of 3

Date 4/19/13

ROUTE Stratton Lock and Dam DESCRIPTION Gate Structure LOGGED BY kkc

SECTION IDNR LOCATION East Side, SEC. , TWP. , RNG.

COUNTY McHenry DRILLING METHOD Mud Rotary HAMMER TYPE AUTO

STRUCT. NO.
Station

BORING NO. B13-5
Station
Offset
Ground Surface Elev. 738.90 ft

Surface Water Elev. 737.50 ft
Stream Bed Elev. 726.90 ft

Groundwater Elev.:
First Encounter 737.5 ft
Upon Completion 737.5 ft
After Hrs. ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
	6			Light brown, high plastic, very stiff CLAY [CH].
				PP = 2 tsf
693.90 -45				
				Gray, fine to coarse, medium dense SAND with little fine gravel [SWG].
				- Rough drilling from 47 to 72 ft.
	3			
-50	7			
	8			- [PASSING #200=5.0%]
683.90 -55				
				Gray, coarse, medium dense SAND and multicolored, fine GRAVEL [SP-GP].
	10			
-60	6			

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
	8			Gray, coarse, medium dense SAND and multicolored, fine GRAVEL [SP-GP]. *(continued)*
				- [PASSING #200=3.1%]
673.90 -65				
				Gray, fine to coarse, very dense SAND with some fine gravel [SWG].
	10			
-70	33			
	26			
663.90 -75				
				Gray, medium plastic, hard CLAY [CL] (TILL).
				PP > 4.5 tsf
	29			
-80	33			

The Unconfined Compressive Strength (UCS) Failure Mode is Indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, from 137 (Rev. 8-99)

Illinois Department of Transportation — Division of Highways — HPS

SOIL BORING LOG

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Date 4/19/13

ROUTE Stratton Lock and Dam DESCRIPTION Gate Structure LOGGED BY kkc

SECTION IDNR LOCATION East Side, SEC. , TWP. , RNG.

COUNTY McHenry DRILLING METHOD Mud Rotary HAMMER TYPE AUTO

STRUCT. NO.
Station

BORING NO. B13-5
Station
Offset
Ground Surface Elev. 738.90 ft

Surface Water Elev. 737.50 ft
Stream Bed Elev. 726.90 ft

Groundwater Elev.:
First Encounter 737.5 ft
Upon Completion 737.5 ft
After Hrs. ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
658.40	34			Boring Terminated at 80.5 ft. [Driller lost 50-ft long rod in the hole - Boring relocated and drilled (see B13-5A)]. End of Boring
-85				
-90				
-95				
-100				

The Unconfined Compressive Strength (UCS) Failure Mode is Indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, from 137 (Rev. 8-99)

Illinois Department of Transportation — Division of Highways — HPS

SOIL BORING LOG

Page 1 of 3

Date 4/23/13

ROUTE Stratton Lock and Dam DESCRIPTION Gate Structure LOGGED BY kkc

SECTION IDNR LOCATION East Side, SEC. , TWP. , RNG.

COUNTY McHenry DRILLING METHOD Mud Rotary HAMMER TYPE AUTO

STRUCT. NO.
Station

BORING NO. B13-5A
Station
Offset
Ground Surface Elev. 739.90 ft

Surface Water Elev. 738.50 ft
Stream Bed Elev. 726.90 ft

Groundwater Elev.:
First Encounter 738.5 ft
Upon Completion 738.5 ft
After Hrs. ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				Top of Barge El. 739.9
738.50				
				Upper Pool Water El. 738.5
-5				
726.90				
				- Drilled no sampling to 89 ft.
-10				
-15				
-20				

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				- Drilled no sampling to 89 ft. *(continued)*
-25				
-30				
-35				
-40				

The Unconfined Compressive Strength (UCS) Failure Mode is Indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, from 137 (Rev. 8-99)

Illinois Department of Transportation — Division of Highways — HPS

SOIL BORING LOG

Page 2 of 3

Date 4/23/13

ROUTE Stratton Lock and Dam DESCRIPTION Gate Structure LOGGED BY kkc

SECTION IDNR LOCATION East Side, SEC. , TWP. , RNG.

COUNTY McHenry DRILLING METHOD Mud Rotary HAMMER TYPE AUTO

STRUCT. NO.
Station

BORING NO. B13-5A
Station
Offset
Ground Surface Elev. 739.90 ft

Surface Water Elev. 738.50 ft
Stream Bed Elev. 726.90 ft

Groundwater Elev.:
First Encounter 738.5 ft
Upon Completion 738.5 ft
After Hrs. ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				- Drilled no sampling to 89 ft. *(continued)*
-45				
-50				
-55				
-60				

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				- Drilled no sampling to 89 ft. *(continued)*
-65				
-70				
-75				
659.90 -80				

The Unconfined Compressive Strength (UCS) Failure Mode is Indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, from 137 (Rev. 8-99)

Illinois Department of Transportation — Division of Highways — HPS

SOIL BORING LOG

Page 3 of 3

Date 4/23/13

ROUTE Stratton Lock and Dam DESCRIPTION Gate Structure LOGGED BY kkc

SECTION IDNR LOCATION East Side, SEC. , TWP. , RNG.

COUNTY McHenry DRILLING METHOD Mud Rotary HAMMER TYPE AUTO

STRUCT. NO.
Station

BORING NO. B13-5A
Station
Offset
Ground Surface Elev. 739.90 ft

Surface Water Elev. 738.50 ft
Stream Bed Elev. 726.90 ft

Groundwater Elev.:
First Encounter 738.5 ft
Upon Completion 738.5 ft
After Hrs. ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				Gray, medium plastic, hard CLAY [CL] (TILL).
				PP > 4.5 tsf
654.90 -85				
				Gray, very dense CLAY-SILT and some gravel [CLG] (TILL).
	50/5"			
-90				
-95				
	50/0"			
-100				

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				Gray, very dense CLAY-SILT and some gravel [CLG] (TILL). *(continued)*
	14			
-105	50/1"			
629.40				
				Boring Terminated at 110.5 ft. End of Boring
-110				
-115				
-120				

The Unconfined Compressive Strength (UCS) Failure Mode is Indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

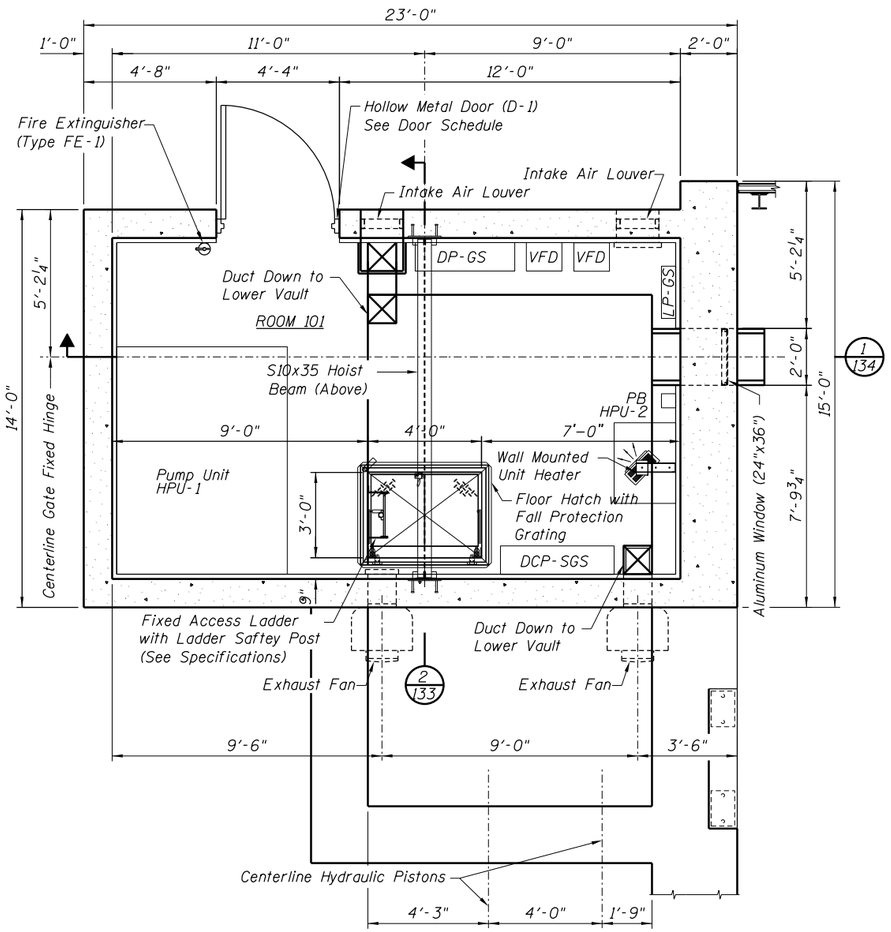
BBS, from 137 (Rev. 8-99)

FILE NAME = B-0001-GATE.dgn	USER NAME =	DESIGNED - EJM	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GATE STRUCTURE BORINGS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HANSON		CHECKED - RGC	REVISED -		
	PLOT SCALE =	DRAWN - EJM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - SLM	REVISED -		

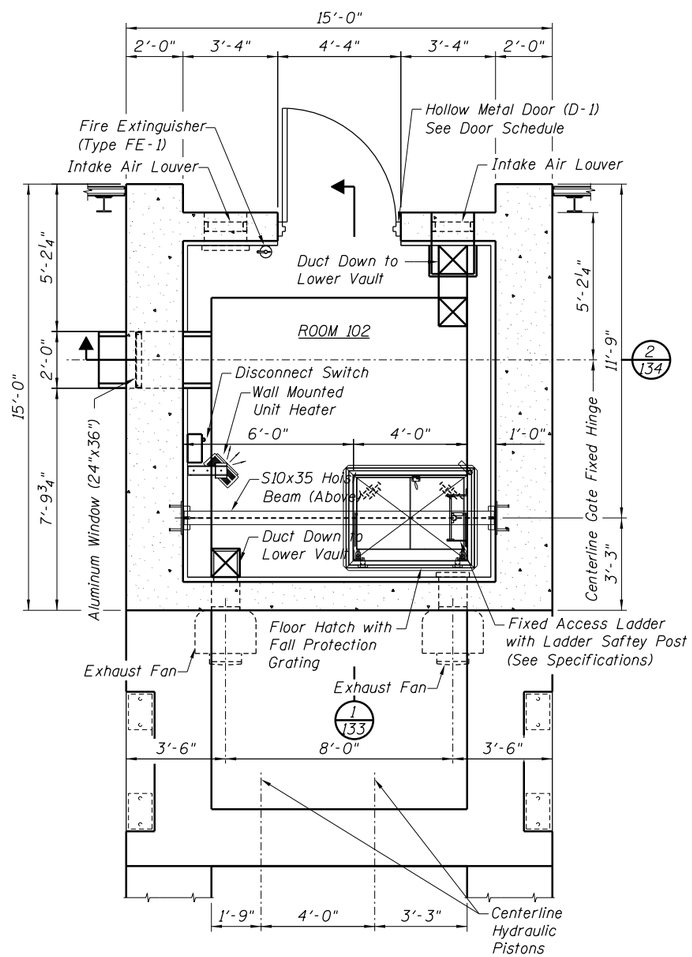
ILLINOIS DEPARTMENT OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	131

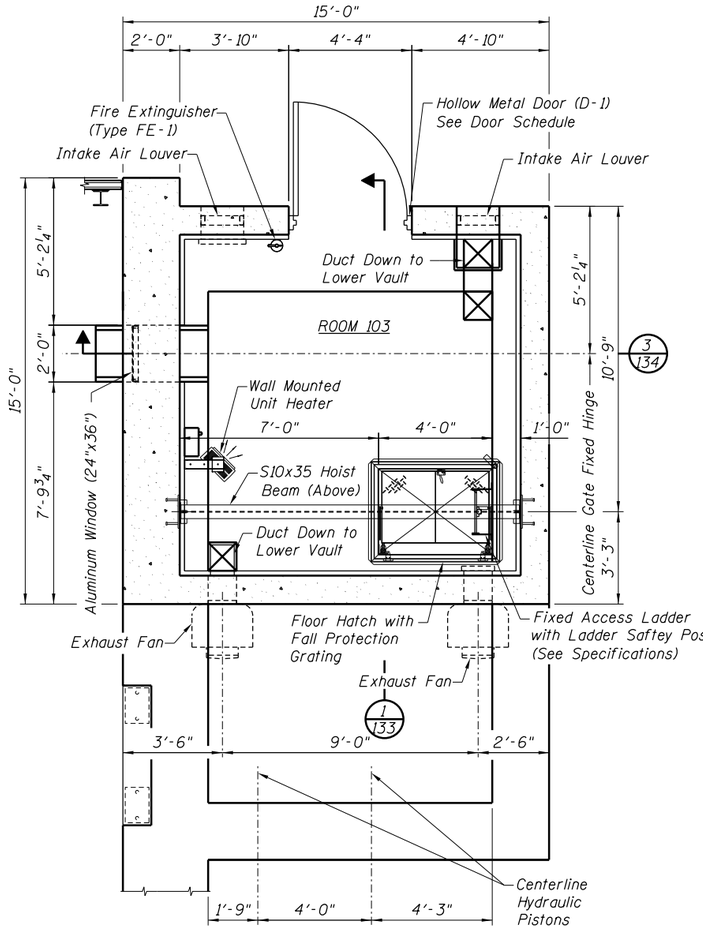
PROJECT FR-435



EQUIPMENT PLAN AT VAULT 1
(UPPER WEST VAULT) (EL. 745'-6")

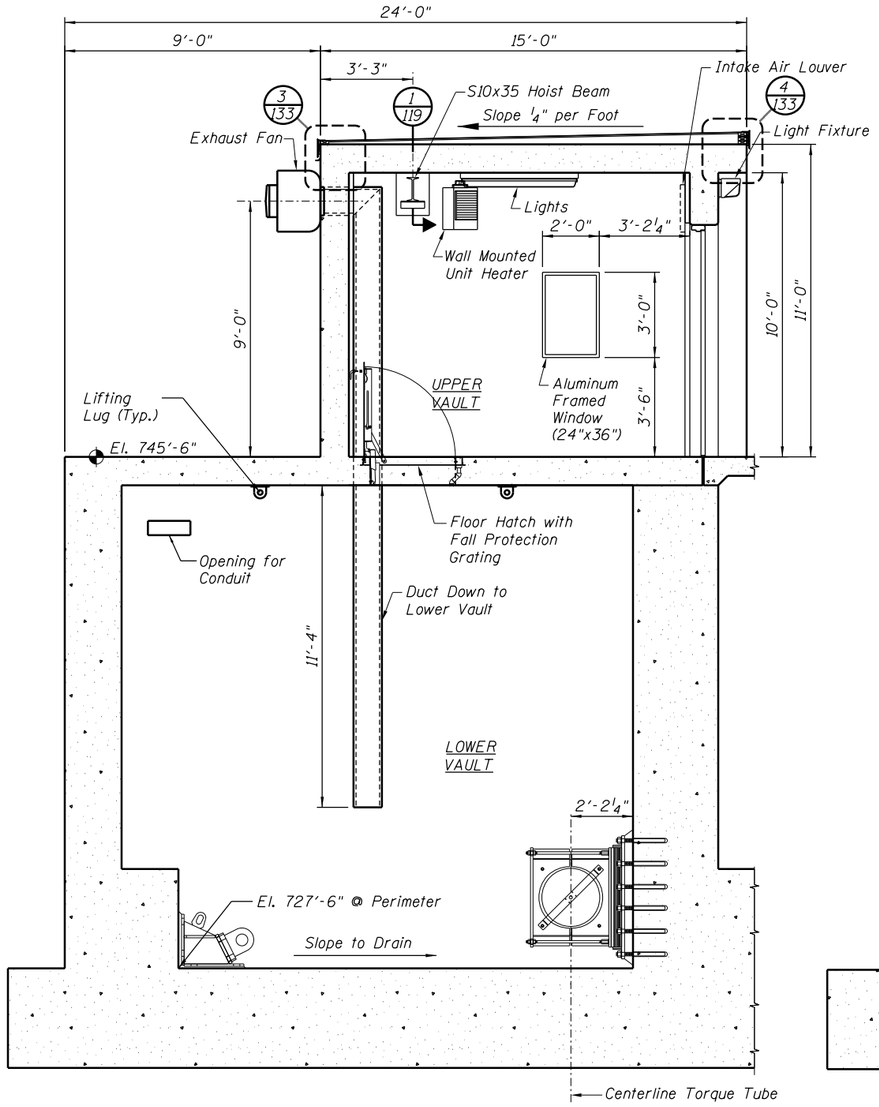


EQUIPMENT PLAN AT VAULT 2
(UPPER CENTER VAULT) (EL. 745'-6")

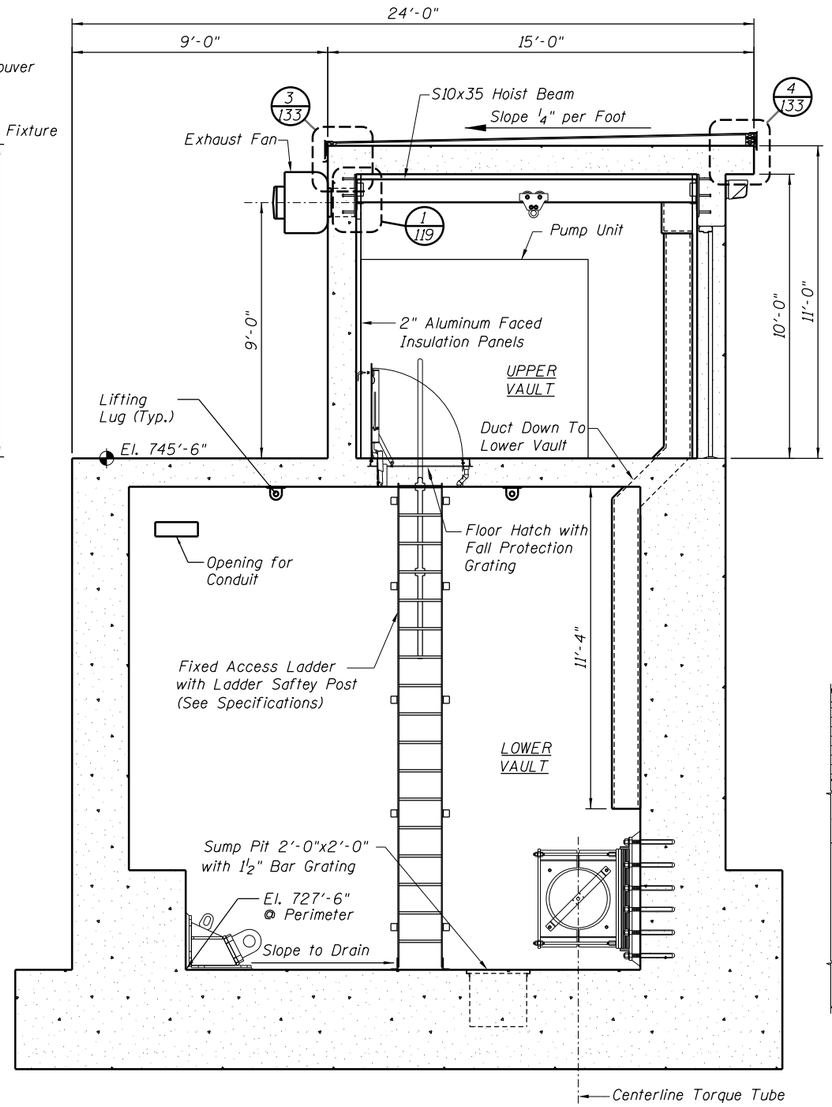


EQUIPMENT PLAN AT VAULT 3
(UPPER EAST VAULT) (EL. 745'-6")

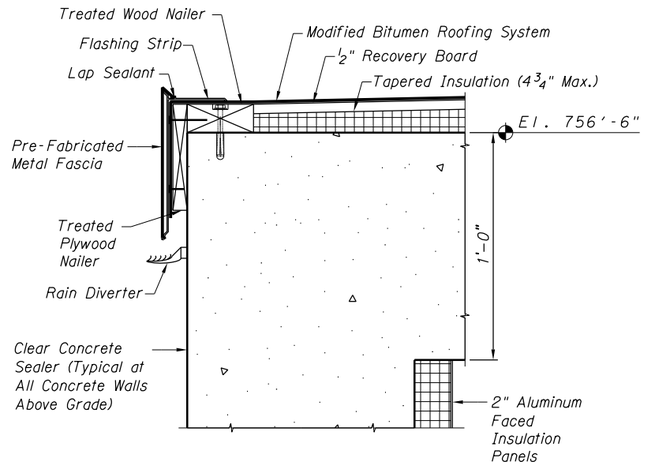
FILE NAME = A-0001-GATE.dgn	USER NAME =	DESIGNED - ZA	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GATE ARCHITECTURAL PLANS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS	ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY / TOTAL SHEETS / SHEET NO.
HANSON		CHECKED - NEM	REVISED -				McHENRY / 238 / 132
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -				PROJECT FR-435
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -				



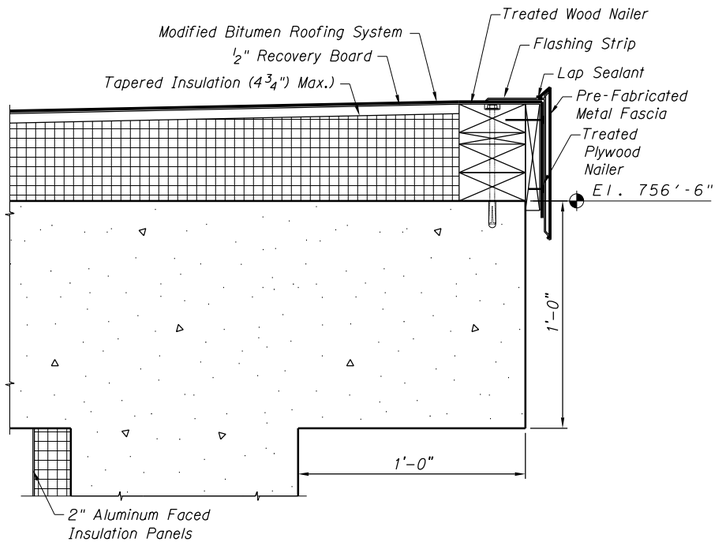
1/133 SECTION THRU VAULT 1



2/133 SECTION THRU VAULTS 2 & 3



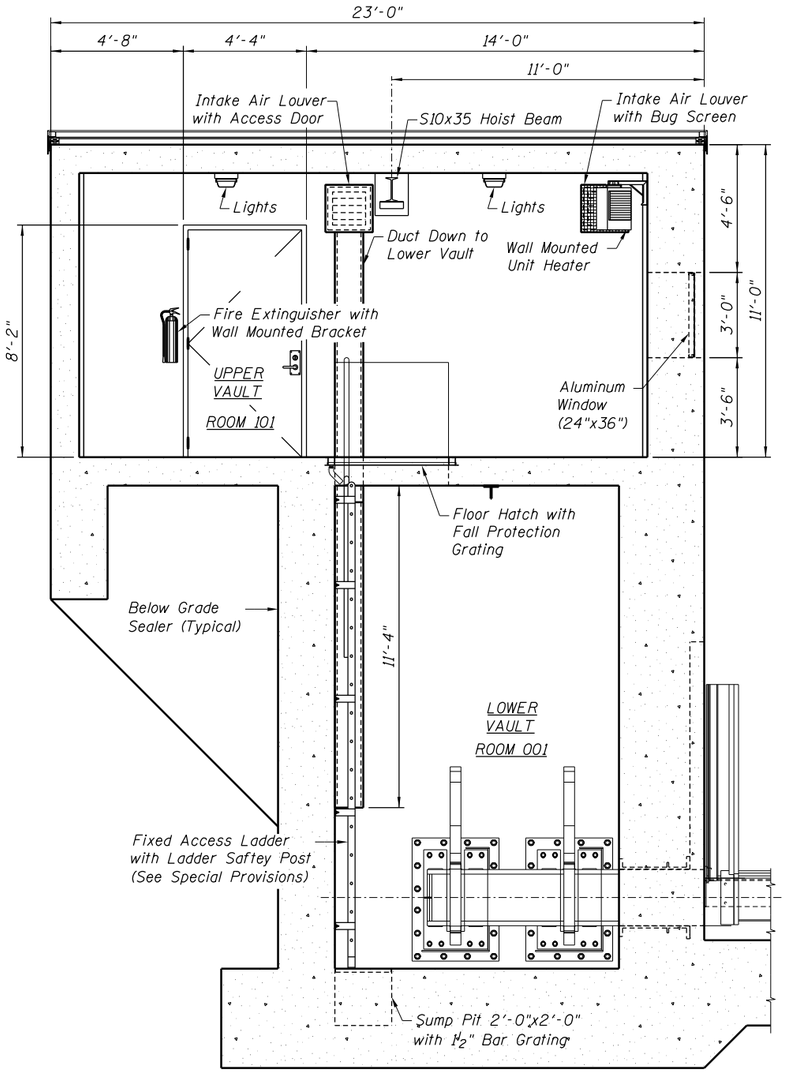
3/133 ROOF DETAIL AT LOW POINT



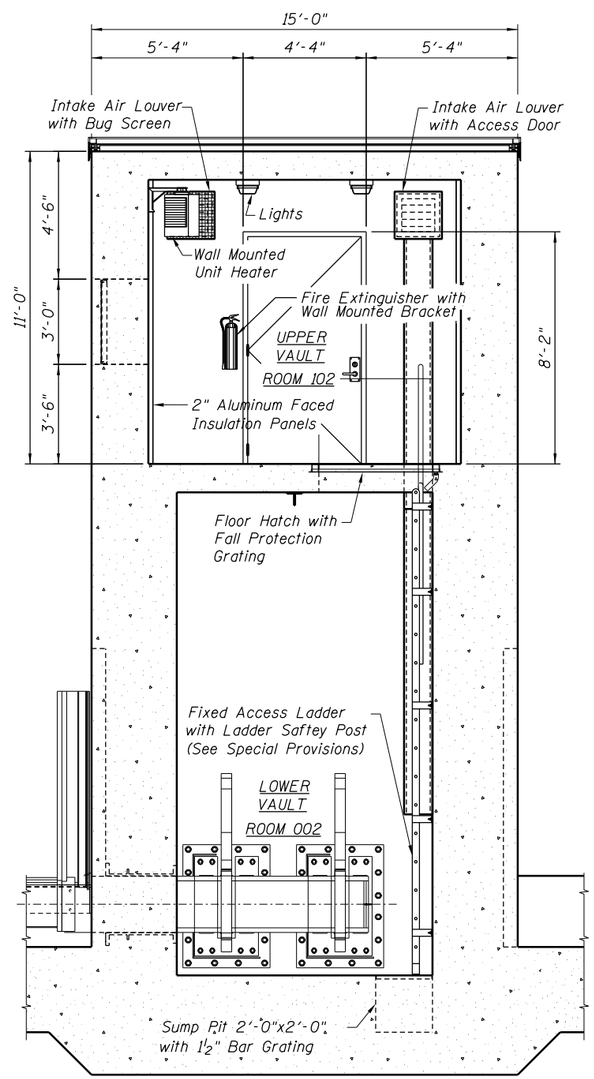
4/133 ROOF DETAIL AT HIGH POINT

FILE NAME = A-0002-GATE.dgn	USER NAME =	DESIGNED - ZA	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GATE ARCHITECTURAL SECTIONS & DETAILS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HANSON		CHECKED - NEM	REVISED -		
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -		

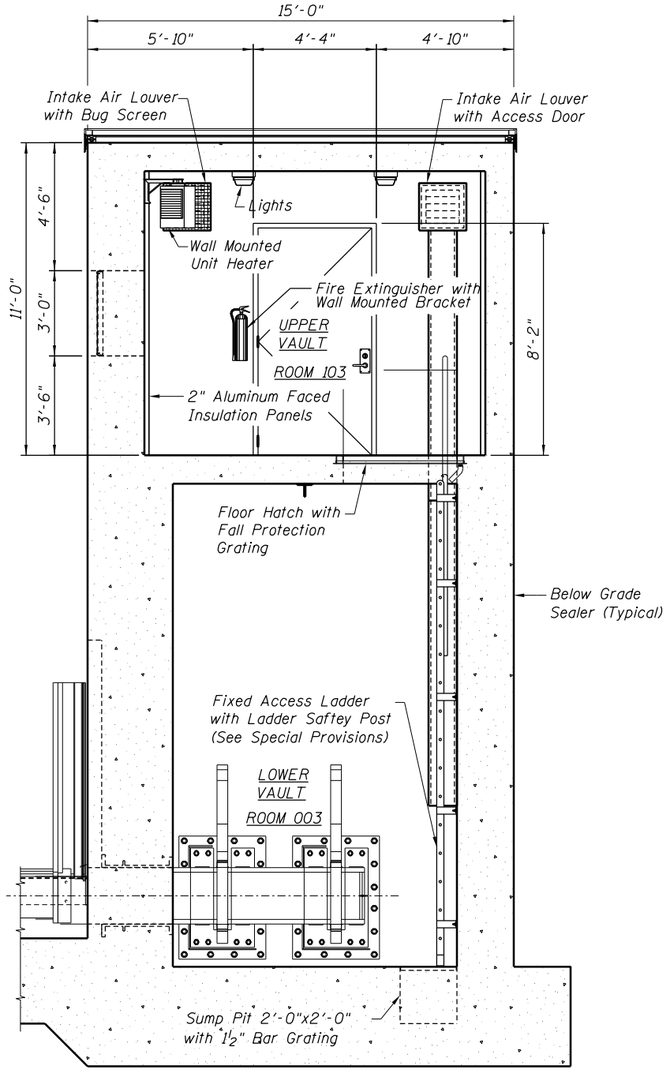
ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	133
PROJECT FR-435			



1/134 SECTION THRU VAULT 1



2/134 SECTION THRU VAULT 2



3/134 SECTION THRU VAULT 3

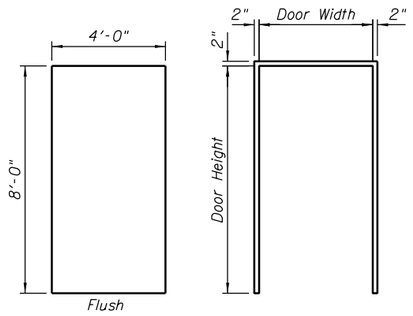
FILE NAME = A-3001-GATE.dgn	USER NAME =	DESIGNED - ZA	REVISED - Tag	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GATE ARCHITECTURAL SECTIONS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HANSON		CHECKED - NEM	REVISED - Tag		
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED - Tag		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED - Tag		

ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	134
	PROJECT FR-435		

DOOR AND FRAME SCHEDULE

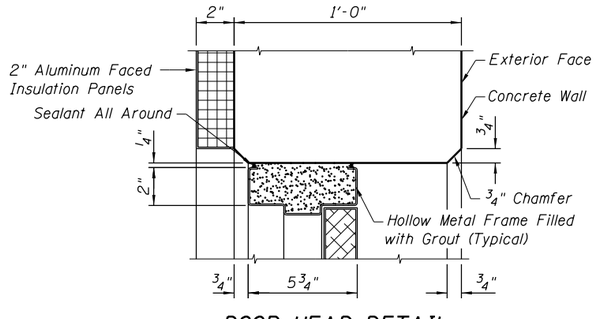
DOOR NO.	LOCATION	SIZE			DETAIL			DOOR				FRAME			LABEL	REMARKS
		WIDTH	HEIGHT	PANEL	HEAD	JAMB	SILL	TYPE	HARDWARE GROUP	MATERIAL	FINISH	TYPE	MATERIAL	FINISH		
D1	UPPER VAULT TO EXTERIOR	4'-0"	8'-0"	1 3/4"	2/XX	3/XX	4/XX	A	HW-1	H.M.	PNT.	A	H.M.	PNT.	--	SEE NOTE 1

Note:
1. Exterior Door and Frames Shall Be Hot Dipped Galvanized.

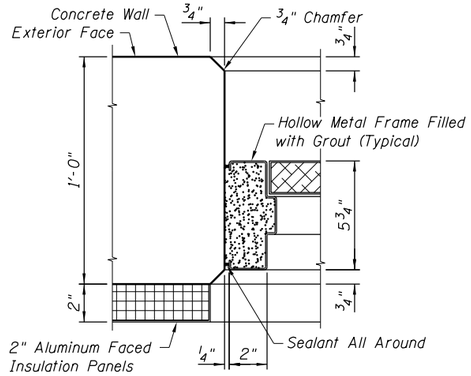


DOOR TYPE

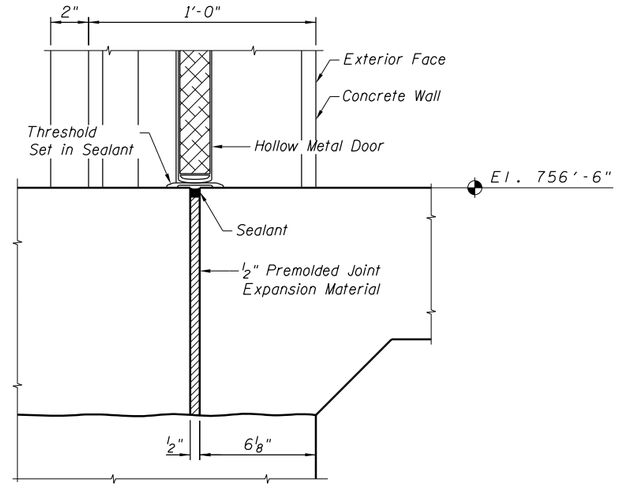
FRAME TYPE



DOOR HEAD DETAIL



DOOR JAMB DETAIL



DOOR SILL DETAIL

FILE NAME = A-5001-GATE.dgn	USER NAME =	DESIGNED - ZA	REVISED - Tag	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GATE ARCHITECTURAL DETAILS & SCHEDULE STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HANSON		CHECKED - NEM	REVISED - Tag		
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED - Tag		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED - Tag		

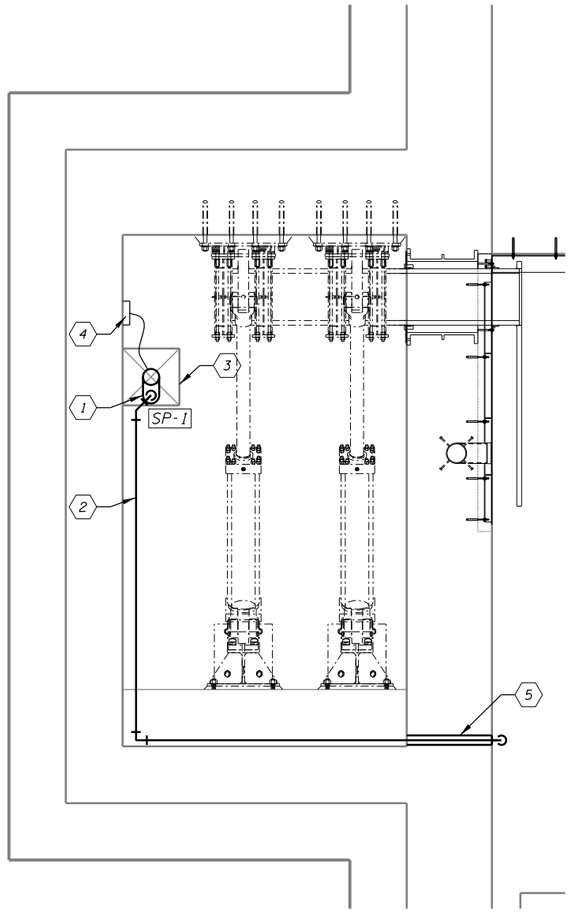
ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	135
	PROJECT FR-435		

KEYED NOTES

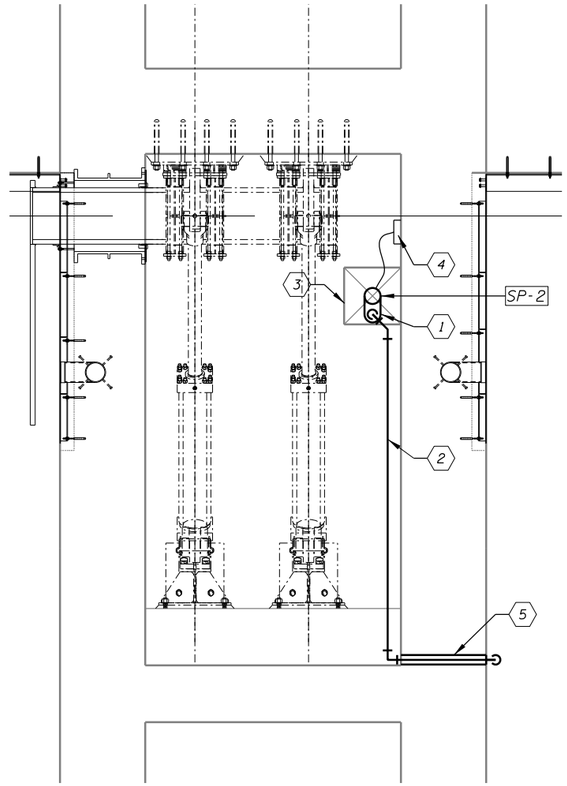
1. Install New Sump Pump with Float in Sump Pit and Connect to Oil Control System.
2. New 1" Schedule 40 PVC Sump Discharge Pipe. Turn Discharge Outlet Down with 45 Degree Elbow.
3. Sump Pit 24" X 24" X 24" with Cover - See 2/133. Coordinate Openings in Cover for Wiring and Discharge Piping.
4. New Control Panel for Oil Control System. Field Verify and Coordinate Final Location Prior to Installation. Control System Shall Have Built-In Audible and Visual Alarm When Pump Does not Run Due to Oil in Pit or High Liquid or High Amperage Condition.
5. Provide Sch. 40 PVC Sleeve Through Concrete Wall. Provide Linkage Type Seal Between Discharge Pipe and Sleeve Both Sides.

GENERAL NOTES

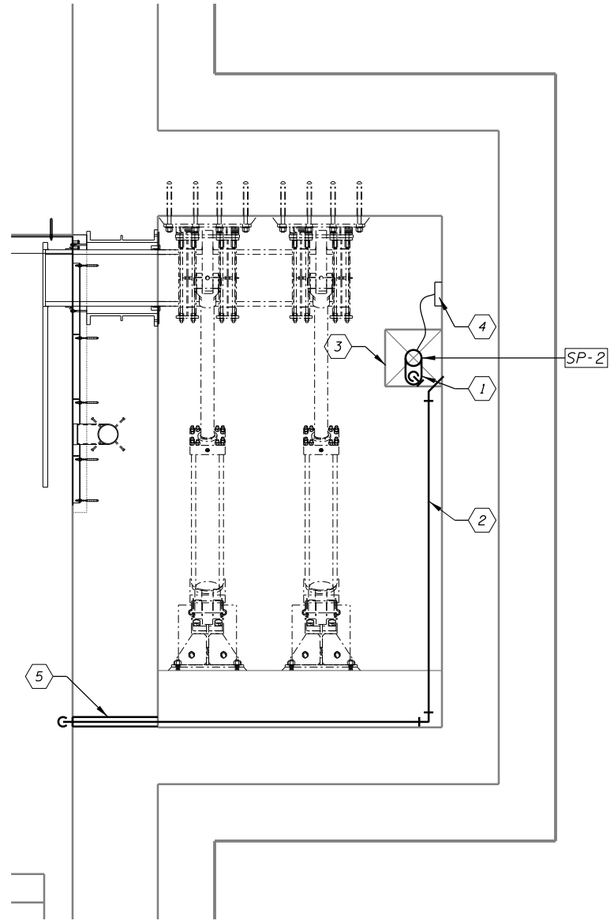
1. All Work This Sheet Shall Be Included Under Gate Structure - Plumbing Work Pay Items.



1/136 LOWER VAULT 1 PLAN
3/8"=1'-0"



2/136 LOWER VAULT 2 PLAN
3/8"=1'-0"

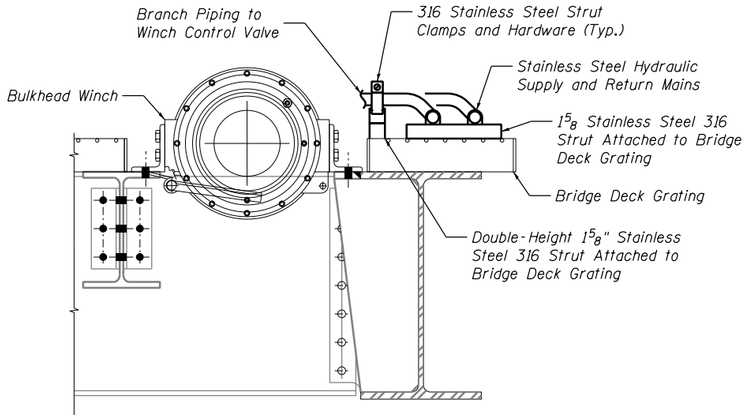


3/136 LOWER VAULT 3 PLAN
3/8"=1'-0"

0 2 4 6
SCALE IN FEET

FILE NAME = P-1602-GATE.dgn HDR	USER NAME =	DESIGNED - D. MIRABILE	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GATE VAULTS PLUMBING PLANS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
		CHECKED - R. ADRIAN	REVISED -		
	PLOT SCALE =	DRAWN - L. TRAVIS	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - L. COCHRAN	REVISED -		

ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	136
	PROJECT FR-435		



2/137 BULKHEAD WINCH PIPE SUPPORT
1 1/2" = 1'-0"

6 0 6 12
SCALE IN INCHES

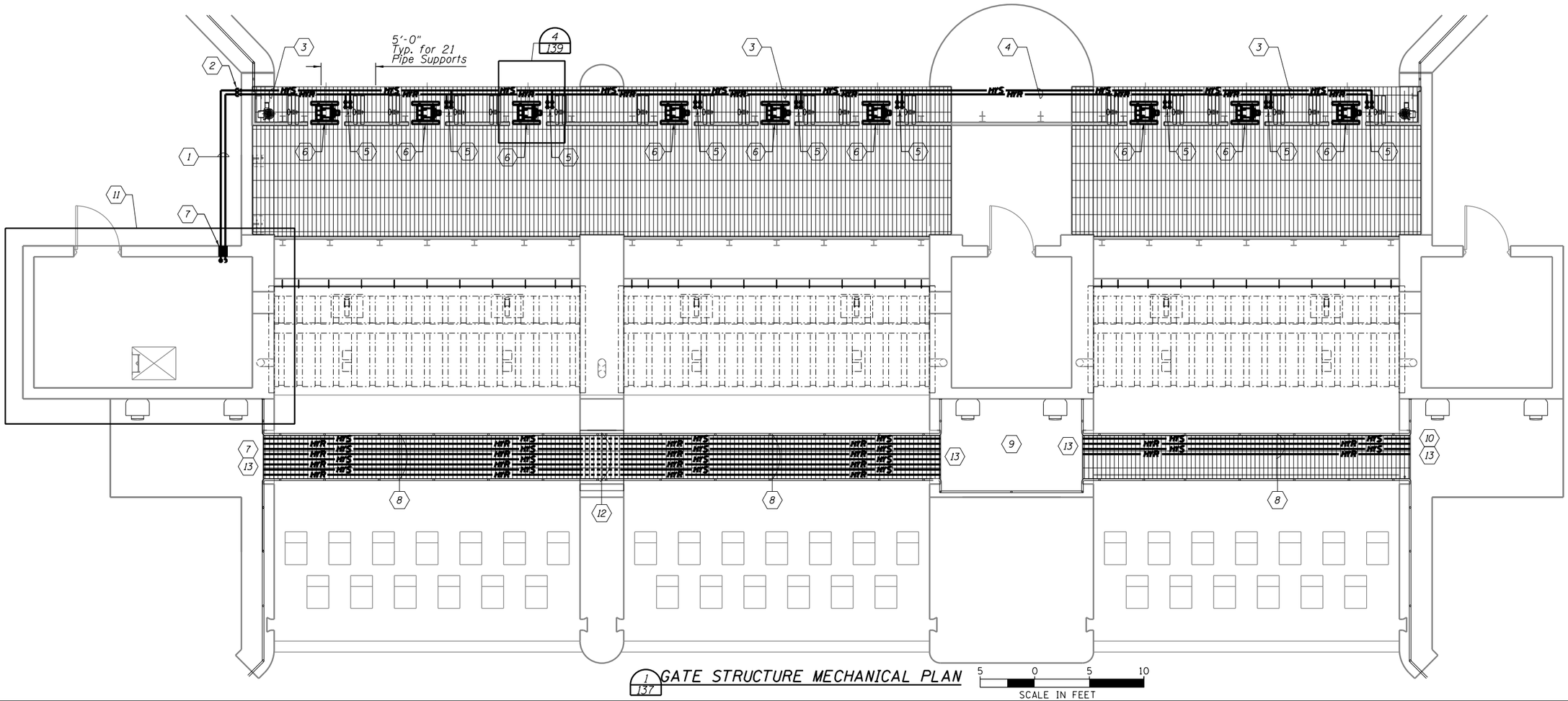
GENERAL NOTES

1. Fine Aggregate Type FA6 Bedding or Course Aggregate Type CA6 Bedding and Backfill Required for Hydraulic Piping Trench Shall be Included Under Gate Structure - Mechanical Work (HVAC) Pay Item.

KEYED NOTES

1. Provide New Stainless Steel Hydraulic Supply And Relief Piping. Buried At 24" Below Finish Grade. See Detail 4/15.
2. Run New Stainless Steel Hydraulic Supply and Relief Piping from Below Grade Up and Over the Top of the Concrete Gate Structure and Grate Material. Provide in Each Vertical Hydraulic Line a Flexible Rubber Hydraulic Hose 12" in Length to Act as an Expansion Connect Between Ground Movement and the New Gate Structure.
3. Route New Hydraulic Supply & Return Piping on Top of Bridge Grating. See Detail 2/137.
4. Provide 316 Stainless Steel Struts on Concrete Pier for Pipe Support.
5. To Winch Manual Control Valve. See Detail 4/139.
6. New Bulkhead Gate Winch Drive Unit.
7. Hydraulic Supply and Relief Piping into Lower Vault 1. See 1/138 for Continuation.
8. Hinged Crest Gate System Hydraulic Supply and Relief Piping Suspended by Trapeze Below Bridge. See Detail 2/15.
9. See 2/138 for Continuation.
10. See 3/138 for Continuation.
11. See 1/139 for Locations of Hydraulic Power Units.
12. Route Piping Through Block-Out in Concrete Pier. See Detail 3/15.
13. See 3/15 for Pipe Entry into Lower Vault.

N



1/137 GATE STRUCTURE MECHANICAL PLAN

5 0 5 10
SCALE IN FEET

FILE NAME = M-1602-GATE.dgn			
HDR			
USER NAME =	DESIGNED - F. MARAS	REVISED -	
	CHECKED - R. ADRIAN	REVISED -	
PLOT SCALE =	DRAWN - L. TRAVIS	REVISED -	
PLOT DATE = SEPTEMBER 18, 2013	CHECKED - L. COCHRAN	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF NATURAL RESOURCES

GATE STRUCTURE MECHANICAL PLAN
STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS

ILLINOIS DEPARTMENT OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES

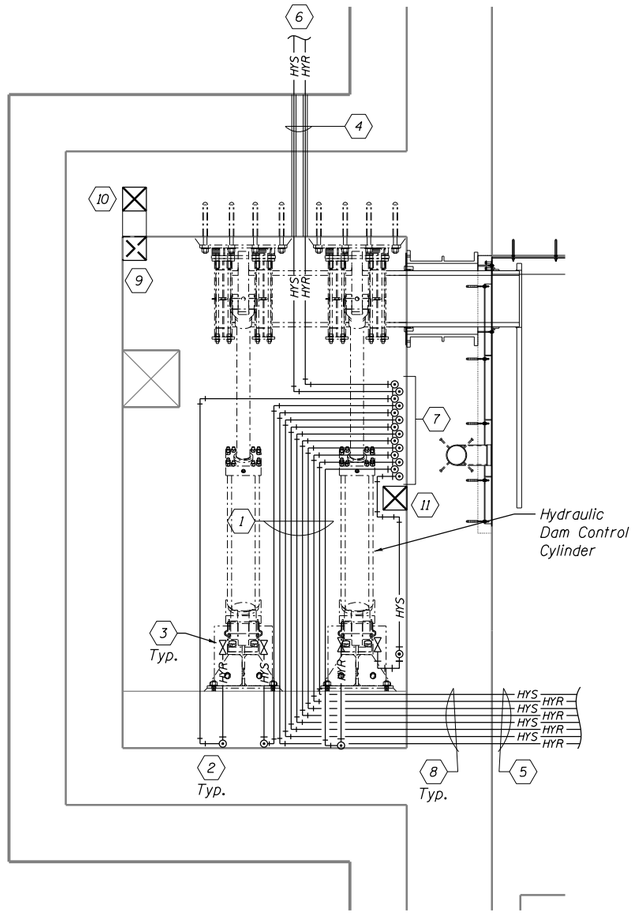
COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	137
PROJECT FR-435		

KEYED NOTES

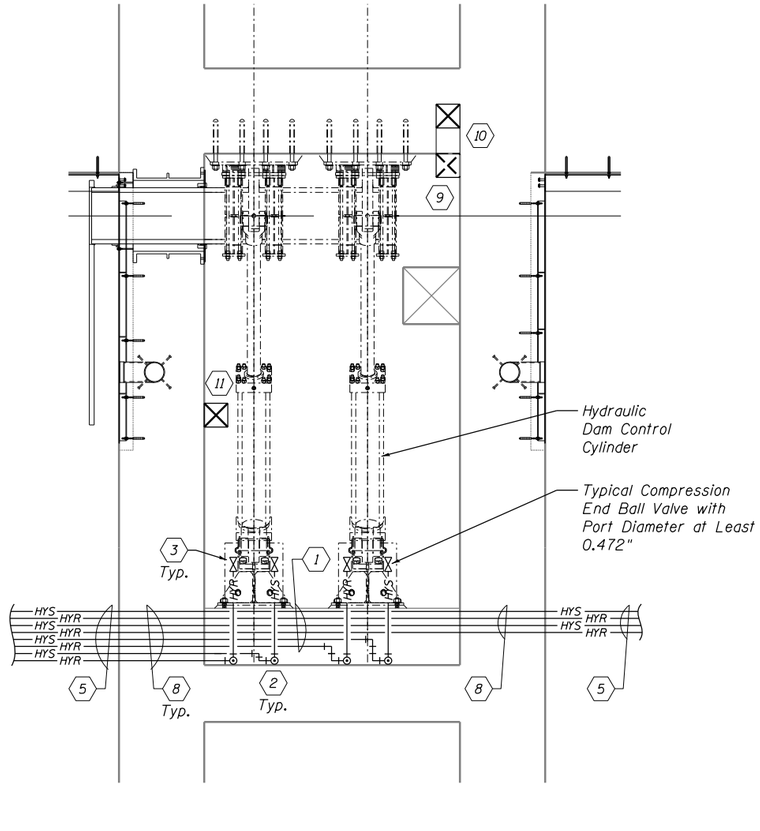
1. Provide Stainless Steel Struts on Ceiling of Lower Vault for Pipe Support.
2. Drop $^{3}/_{4}$" Hydraulic Supply and Return Piping Down Wall of Vault to the Base of Each Hydraulic Cylinder.
3. Provide Shut-Off Ball Valve and Quick-Connect Hose Fitting At Cylinder for Connection of Hydraulic Hose from Cylinder.
4. Provide Sch. 40 PVC Sleeves Through Vault Wall for Hydraulic Piping. Provide Link Seal Both Ends of Sleeve.
5. Support Hudraulic Piping from Underside of Downstream Bridge with Stainless Steel Trapeze. See Detail 2/15.
6. New $^{3}/_{4}$" Stainless Steel Hydraulic Supply & Return Piping to Bulkhead Gate Winches. Bury 24" Below Grate - See Detail 4/15. See Sheet 137 for Continuation.
7. Route Hydraulic Piping to Upper Vault 1 Above Through Block-out in Vault Floor. See 1/139 for Continuation.
8. Route Hydraulic Piping into lower Vaults Through Block-out in Vault Wall. See Detail 3/15.
9. 10"x 10" O/A Duct to Vault Above. Provide $^{1}/_{2}$" Aluminum Mesh on End of Duct. Duct Opening Shall Be 11'-4" Below Lower Vault Ceiling. See Sheet 133 for Elevation.
10. Offset to 10"x 10" O/A Duct to Vault Above.
11. 10"x 10" S/A Duct to Vault Above. Provide $^{1}/_{2}$" Aluminum Mesh on End of Duct. Duct Opening Shall Be 11'-4" Below Lower Vault Ceiling. See Sheet 133 for Elevation.

GENERAL NOTES

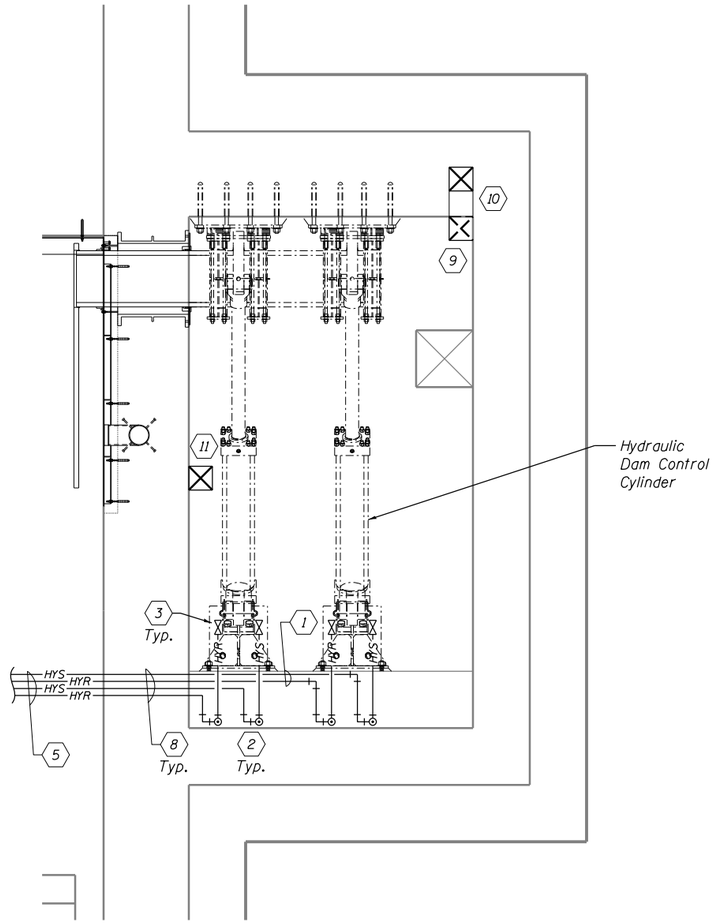
1. Fine Aggregate Type FA6 Bedding or Course Aggregate Type CA6 Bedding and Backfill Required for Underground Hydraulic Piping Shall be Included Under Gate Structure - Mechanical Work (HVAC) Pay Item.



1/138 LOWER VAULT 1 PLAN
$^{3}/_{8}$"=1'-0"



2/138 LOWER VAULT 2 PLAN
$^{3}/_{8}$"=1'-0"

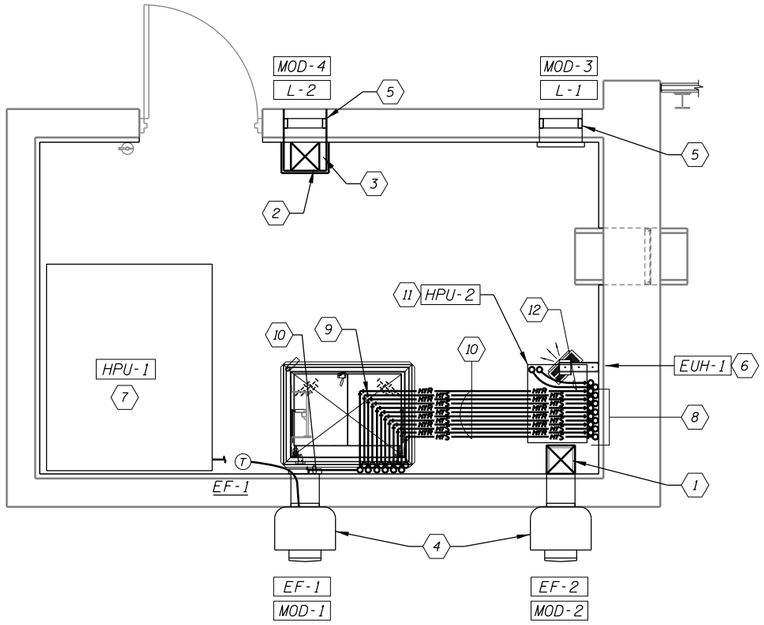


3/138 LOWER VAULT 3 PLAN
$^{3}/_{8}$"=1'-0"

0 2 4 6
SCALE IN FEET

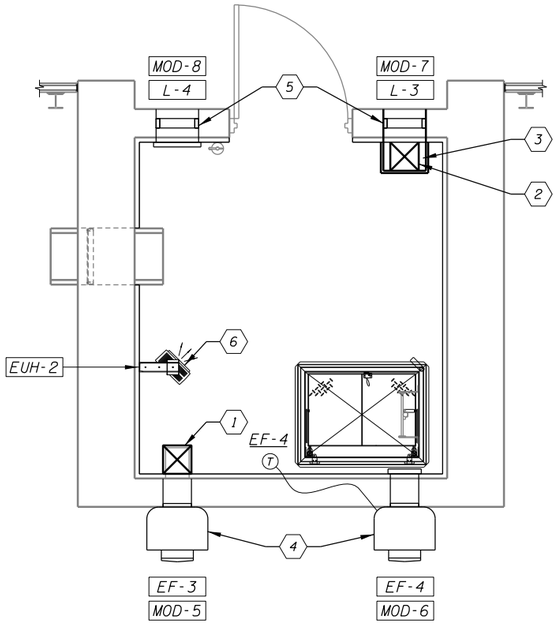
FILE NAME = M-1603A-GATE.dgn HDR	USER NAME =	DESIGNED - D. MIRABILE	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GATE LOWER VAULTS MECHANICAL PLANS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS	ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES
		CHECKED - L. TRAVIS	REVISED -			
	PLOT SCALE =	DRAWN - R. ADRIAN	REVISED -			
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - L. COCHRAN	REVISED -			

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	138
PROJECT FR-435		



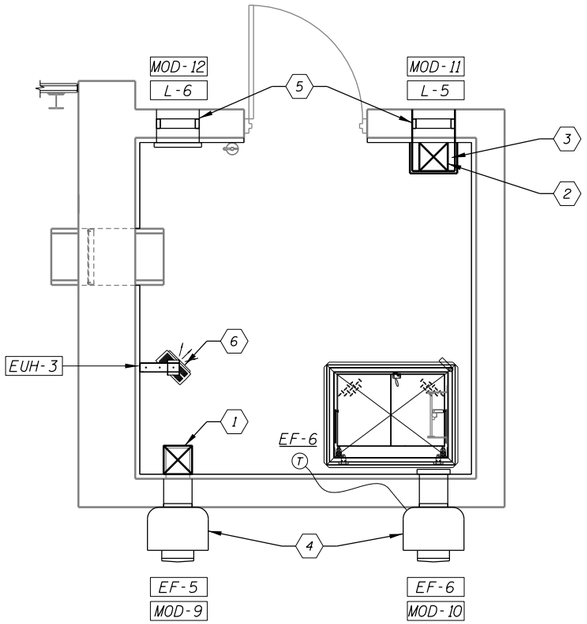
1/139 UPPER VAULT 1 MECHANICAL PLAN

3/8"=1'-0"



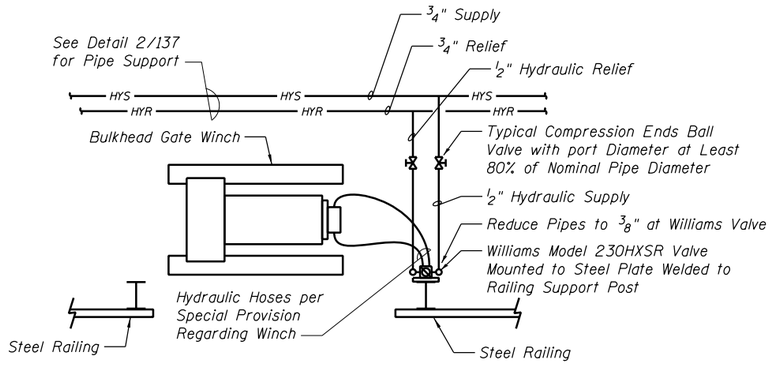
2/139 UPPER VAULT 2 MECHANICAL PLAN

3/8"=1'-0"



3/139 UPPER VAULT 3 MECHANICAL PLAN

3/8"=1'-0"



4/139 ENLARGED WINCH HYDRAULIC PIPING DETAIL

Not to Scale

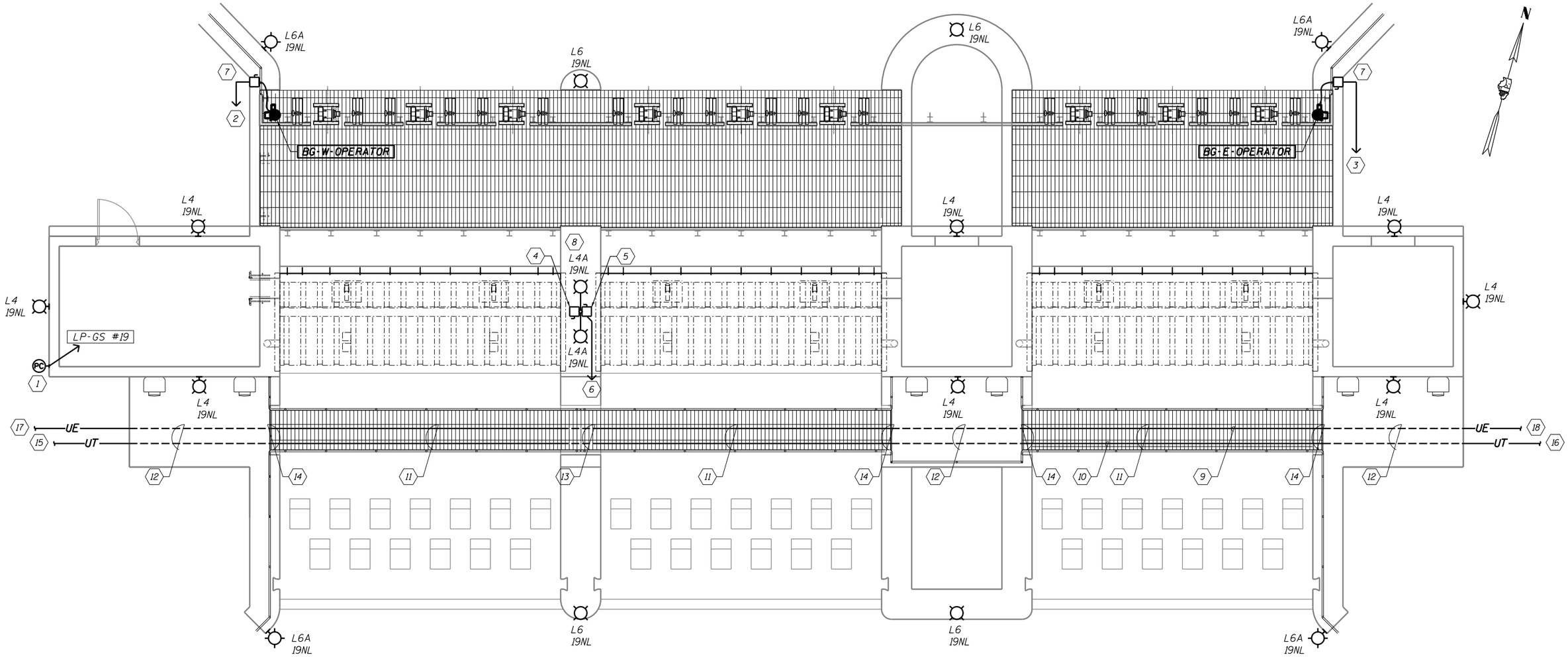
KEYED NOTES

1. 10"x10" E/A Duct from Lower Vault Below. Sleeve and Seal Around Floor Penetration. Install 1/2" Aluminum Mesh on End of Duct Opening. Duct Opening Shall Extend 11'-4" Below Lower Vault Ceiling. See Sheet 133 for Elevation.
2. 10"x10" O/A Duct to Lower Vault Below. Sleeve and Seal Around Floor Penetration. Offset 10"x10" Duct at Upper Vault Floor to Lower Vault As Necessary. Duct Opening Shall Extend 11'-4" Below Lower Vault Ceiling. See Sheet 133 for Elevation.
3. Extend O/A Intake Plenum Off of New Louver and Motor Operated Damper Assembly. Size to Match Louver Dimensions. Connect 10"x10" O/A Duct to Below Underneath Plenum Assembly. Install Access Door on Side of Plenum.
4. New Sidewall Exhaust Fan. Mount Center of Fan 9'-0" Above Finished Floor. See Sheet 133 for Elevation.
5. New O/A Intake Louver. See Sheet 133 for Mounting Height.
6. New Horizontal Electric Unit Heater. Mount a Minimum of 7'-0" Above Finished Floor.
7. Torque Tube Gate Hydraulic Power Unit, Supplied as Part of Torque Tube Gate Package.
8. Hydraulic Supply & Return Piping Through Blockout to Lower Vault 1. See Sheet 138 for Continuation.
9. Route Torque Tube Gate Hydraulic Piping Cross Ceiling as Shown. Extend Down Wall at Hatch to Avoid Trolley Beam. Continue on Wall to HPU-1.
10. Six (6) Sets of Hydraulic Piping to Torque Tube Gate Cylinders. Each Set Consists of One (1) 3/4" Supply and One (1) 3/4" Return.
11. New Bulkhead Winch Hydraulic Power Unit HPU-2.
12. 3/4" Flex Hose Connections to HPU-2.

0 2 4 6

SCALE IN FEET

FILE NAME = M-1603B-GATE.dgn	USER NAME =	DESIGNED - D. MIRABILE	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GATE UPPER VAULTS MECHANICAL PLANS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS	ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES
HDR		CHECKED - R. ADRIAN	REVISED -			COUNTY: McHENRY; TOTAL SHEETS: 238; SHEET NO.: 139
	PLOT SCALE =	DRAWN - L. TRAVIS	REVISED -			PROJECT FR-435
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - L. COCHRAN	REVISED -			



GATE STRUCTURE ELECTRICAL PLAN

KEYED NOTES

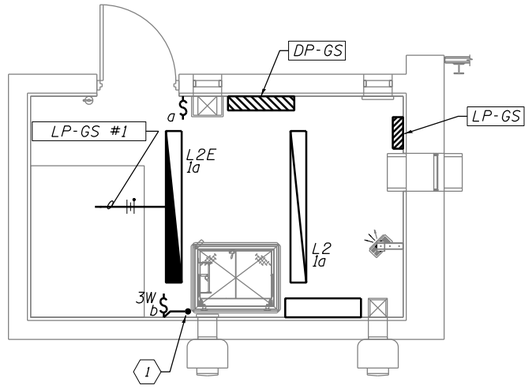
1. Provide Photocell on Exterior of Vault for Control of All Gate Exterior Fixtures.
2. 1" C. One (1) 12-3 +G Shielded VFD Power Cable to BG-W-VFD in Upper Vault 1.
3. 1 1/4" C. One (1) 10-3 +G Shielded VFD Power Cable to BF-E-VFD in Upper Vault 1.
4. 30A, 2P Non-Fusible Safety Switch in NEMA 4X SS Enclosure for Gate 1 East Seal Heater. Mount to Light Pole.
5. 30A, 2P Non-Fusible Safety Switch in NEMA 4X SS Enclosure for Gate 2 West Seal Heater. Mount to Light Pole.
6. 1"C. Wiring as Required by Gate Manufacturer for Seal Heaters to HPU-1 in Upper Vault 1.
7. 30A, 3P Non-Fusible Safety Switch With Auxiliary Contact in Nema 4X SS Enclosure. See Detail 5/21 for Mounting.
8. Provide 10 Foot Square Aluminum Pole for L4A Fixtures. Bolt Pole to Anchor Bolts Embedded in Concrete Pier: 5/8" Dia. X 18" Long "J" Style Anchor Bolts with 3" Tails. Coordinate Bolt Locations with Pole Base Template.
9. 2 1/2" RGS Conduit with 3 #4/0 & 1 #2G - PHG Gatehouse Feeder.
10. 2" RGS Conduit by Contractor, Telephone Cable by Telephone Co.
11. Route Conduits Below Bridge Structure. See Detail 2/15.
12. Route Conduits Through Lower Vault at Ceiling.
13. Route Conduits Through Blockout in Pier. See Detail 3/15.
14. See Detail 3/15 for Conduit Entry into Vaults From Bridge.
15. To HH #T3. See Sheet 70 for Cont.
16. To HH #T4. See Sheet 70 for Cont.
17. To HH #P7. See Sheet 70 for Cont.
18. To HH #P8. See Sheet 70 for Cont.

GENERAL NOTES

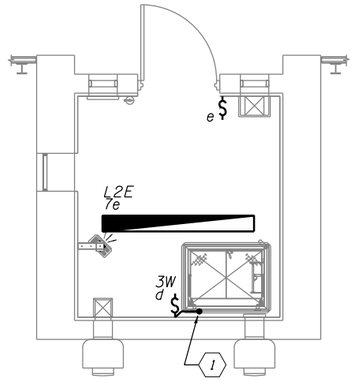
1. See Sheet 144 for Location of Panel LP-GS.
2. PHG Gate House Feeder and Telephone Conduit Work, Including Type FA6 Bedding and CLSM Trench Backfill Shall be Included Under Site Electrical Work Pay Item.
3. All Other Work Shown on This Sheet, Including Type FA6 Bedding and CLSM Trench Backfill for Bypass Gate Operator Conduits, Shall be Included Under Gate Structure - Electrical Work Pay Item.

5 0 5 10
SCALE IN FEET

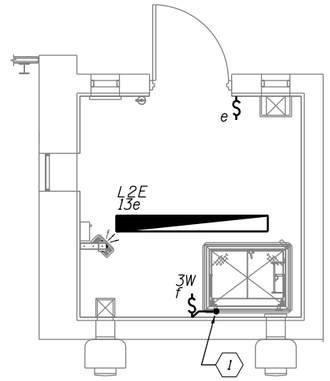
FILE NAME = E-1601-GATE.dgn	USER NAME =	DESIGNED - G. ROSCETTI	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GATE STRUCTURE ELECTRICAL PLAN STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS	ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY / TOTAL SHEETS / SHEET NO.
HDR		CHECKED - B. DAVIDSON	REVISED -				McHENRY / 238 / 140
	PLOT SCALE =	DRAWN - L. TRAVIS	REVISED -				PROJECT FR-435
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - G. ROSCETTI	REVISED -				



1 [41] UPPER VAULT 1 LIGHTING PLAN
1/4"=1'-0"



2 [41] UPPER VAULT 2 LIGHTING PLAN
1/4"=1'-0"



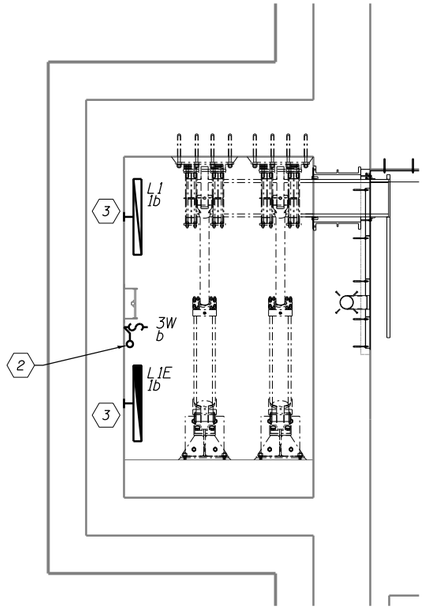
3 [41] UPPER VAULT 3 LIGHTING PLAN
1/4"=1'-0"

GENERAL NOTES

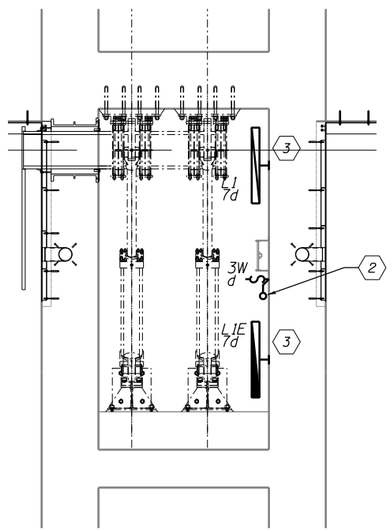
1. All Home Runs From Vaults 2 & 3 Shall be 3/4"C With #10 Conductors Minimum.
2. Home Runs Between Vaults Shall be Routed Under Downstream Dam Bridge. See Detail 2/15.

KEYED NOTES

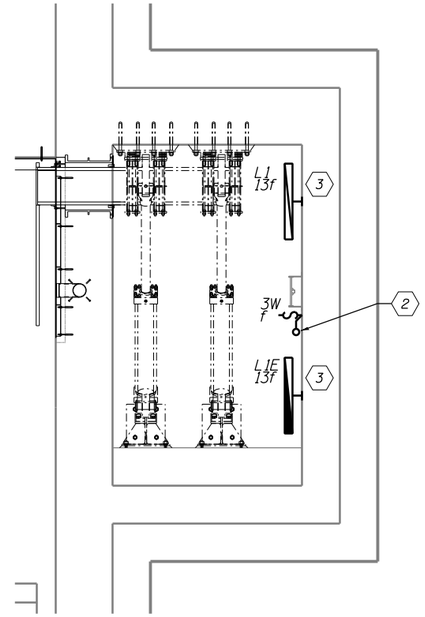
1. Down to 3-way Switch Below.
2. Up to 3-way Switch Above.
3. Mount Fixture on Wall 8' AFF to Center.



4 [41] LOWER VAULT 1 LIGHTING PLAN
1/4"=1'-0"



5 [41] LOWER VAULT 2 LIGHTING PLAN
1/4"=1'-0"



6 [41] LOWER VAULT 3 LIGHTING PLAN
1/4"=1'-0"

4 0 4 8
SCALE IN FEET

FILE NAME = E-1602A-GATE.dgn	USER NAME =	DESIGNED - G. ROSCETTI	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GATE VAULTS LIGHTING PLANS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HDR		CHECKED - B. DAVIDSON	REVISED -		
	PLOT SCALE =	DRAWN - L. TRAVIS	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - G. ROSCETTI	REVISED -		

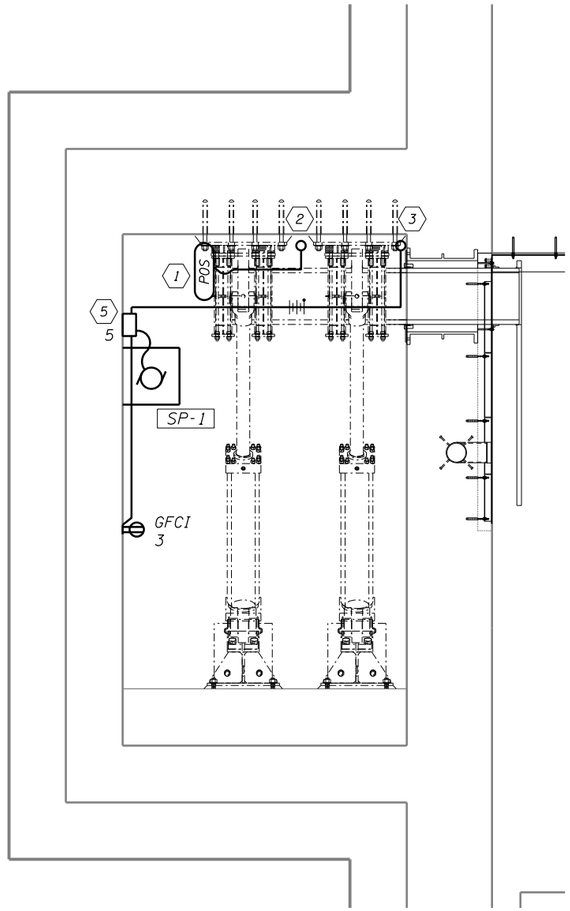
ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	141
	PROJECT FR-435		

KEYED NOTES

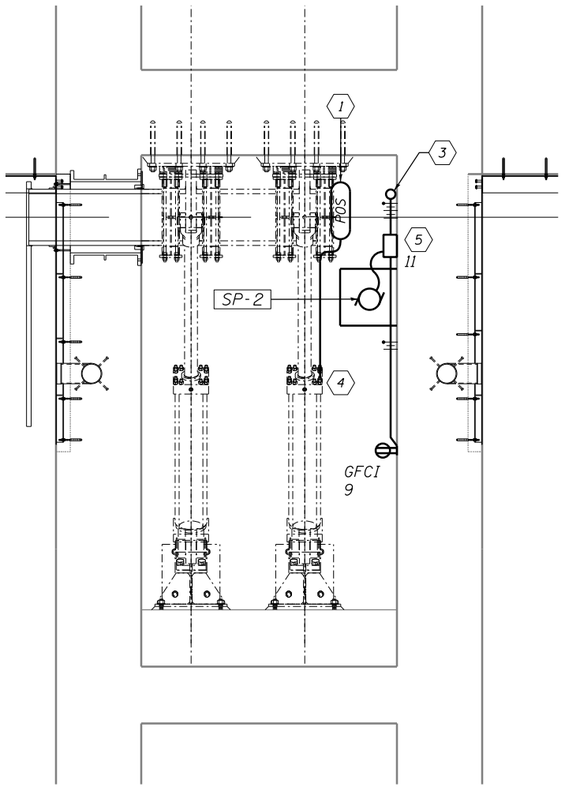
1. Dam Gate Position Transducer Furnished with Hinged Crest Gate System.
2. $\frac{3}{4}$"C. One (1) Shielded Twisted Pair Analog Signal Cable Up to HPU-1 in Vault Above.
3. Up to Duplex GFCI Receptacle in Vault Above.
4. $\frac{3}{4}$"C. One (1) Shielded Twisted Pair Cable to Controls Terminal/Junction Box in Upper Vault Above.
5. Oil Minder Control Panel Provided with Sump Pump Package.

GENERAL NOTES

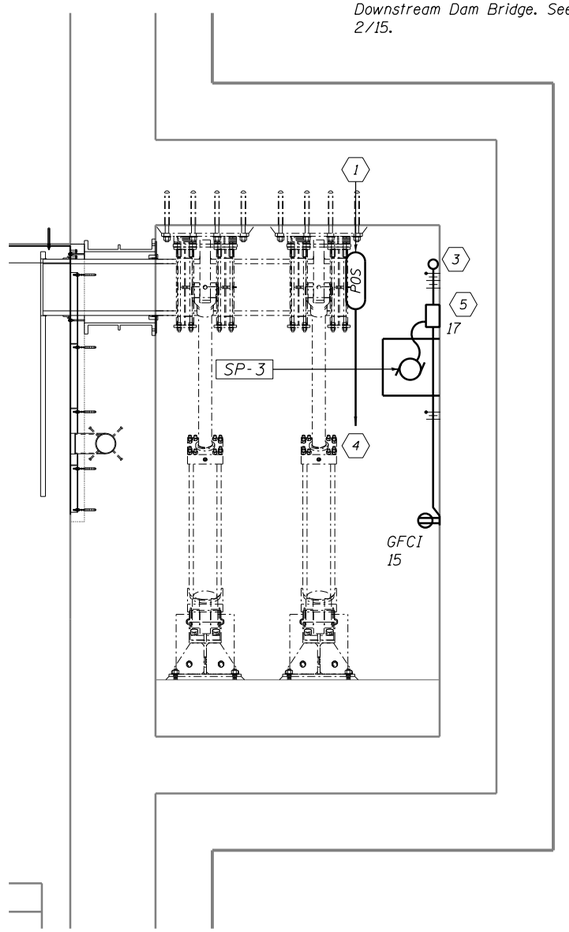
1. Home Runs from Vaults 2 & 3 Shall be $\frac{3}{4}$"C with #10 Conductor Minimum.
2. Route Home Runs Between Vaults Under Downstream Dam Bridge. See Detail 2/15.



1/142 LOWER VAULT 1 POWER PLAN
3/8"=1'-0"



2/142 LOWER VAULT 2 POWER PLAN
3/8"=1'-0"

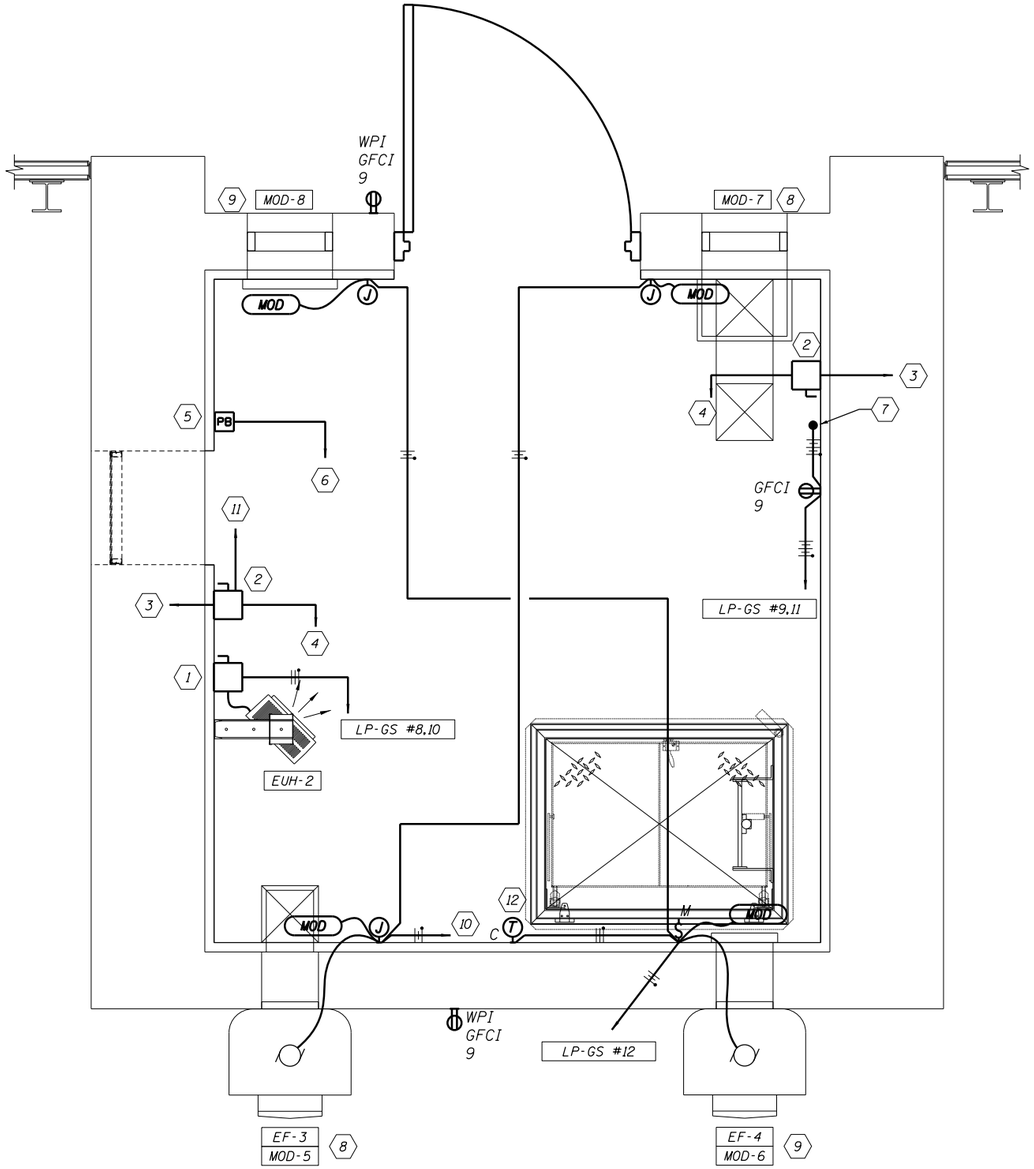


3/142 LOWER VAULT 3 POWER PLAN
3/8"=1'-0"

0 2 4 6
SCALE IN FEET

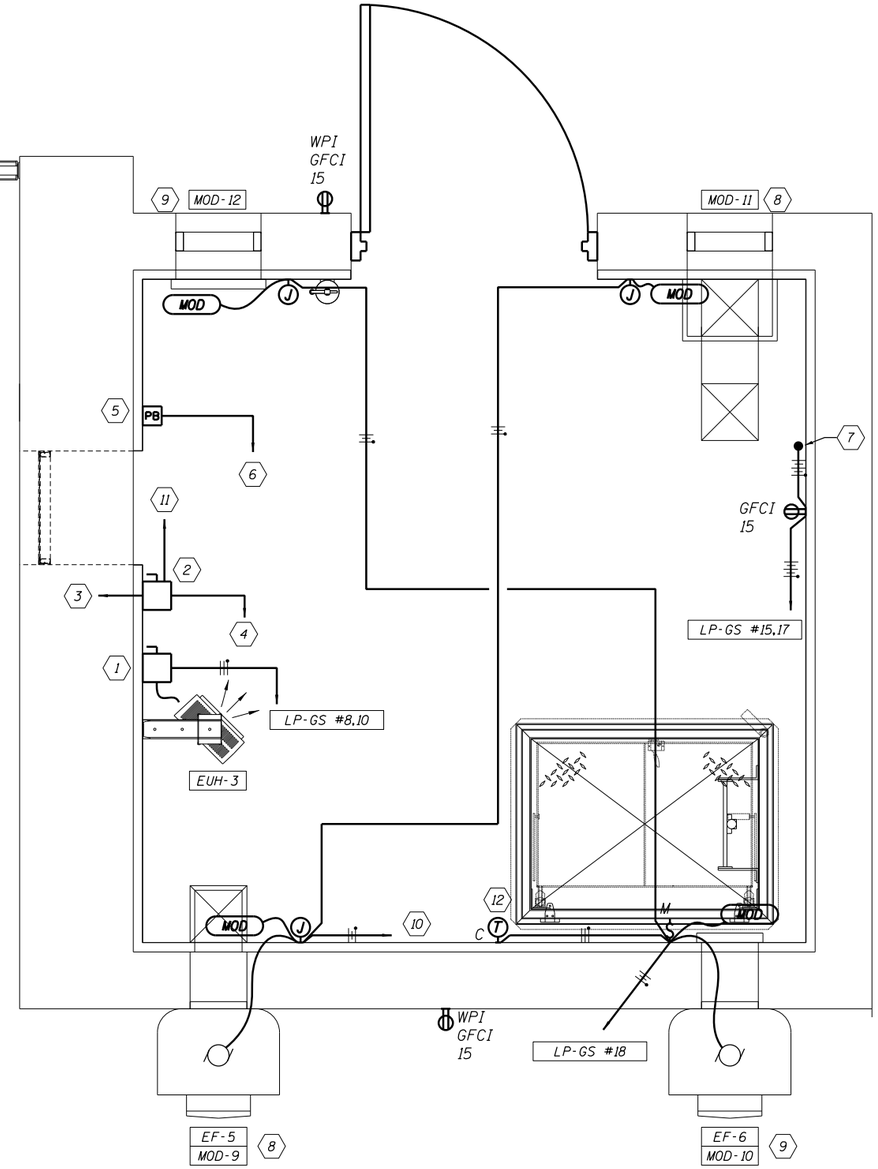
FILE NAME = E-1603-GATE.dgn	USER NAME =	DESIGNED - G. ROSCETTI	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GATE LOWER VAULTS POWER PLANS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HDR		CHECKED - B. DAVIDSON	REVISED -		
	PLOT SCALE =	DRAWN - L. TRAVIS	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - G. ROSCETTI	REVISED -		

ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	142
PROJECT FR-435			



1 / 143 UPPER VAULT 2 POWER PLAN

3/4"=1'-0"



2 / 143 UPPER VAULT 3 POWER PLAN

3/4"=1'-0"

N

GENERAL NOTES

1. All Home Runs this Sheet Shall Be 3/4" C with #10 Conductors Minimum
2. Home Runs Between Vaults Shall Be Routed Under Downstream Dam Bridge. See Detail 2/15.

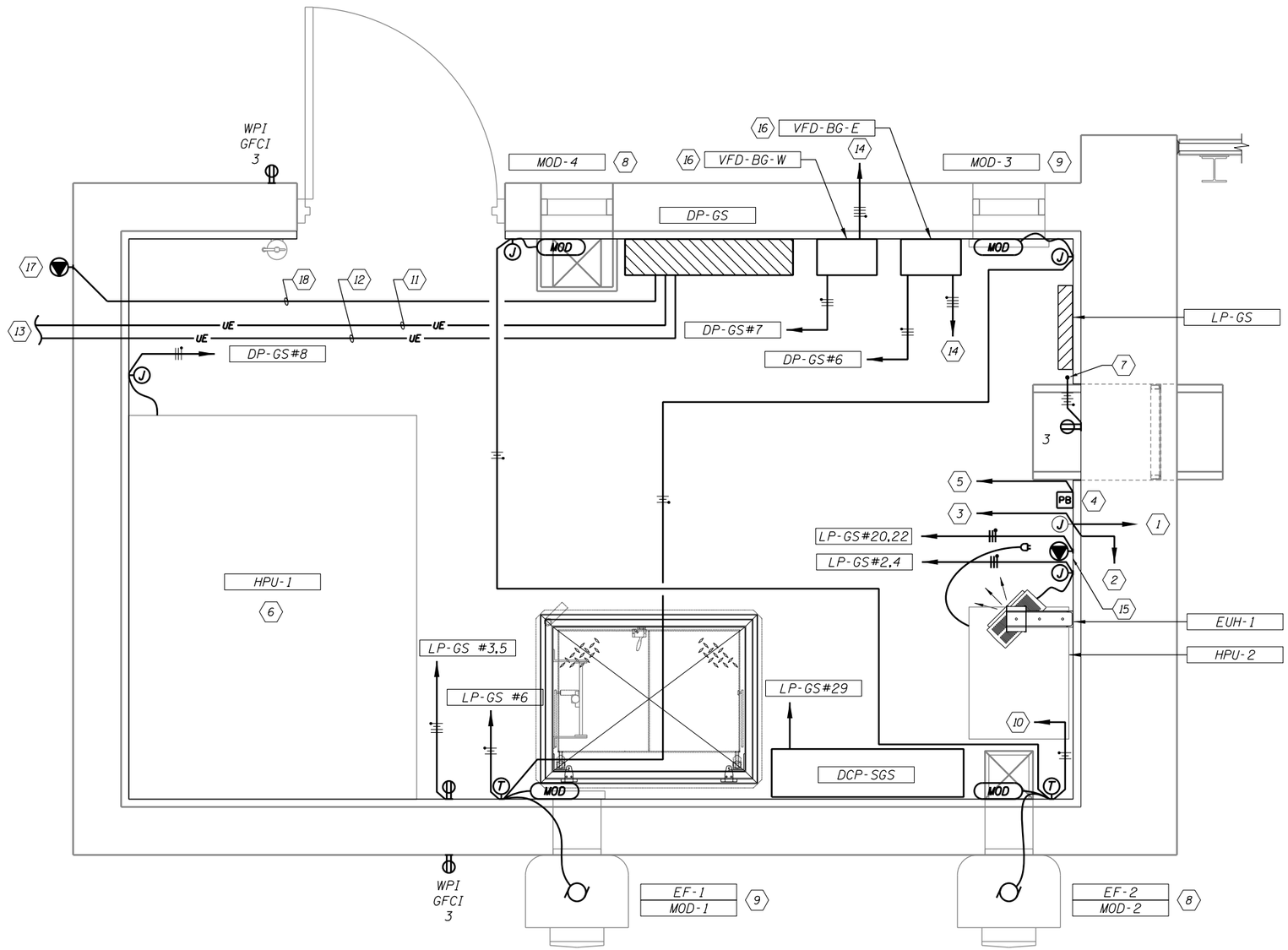
KEYED NOTES

1. 30A, 2P Non-Fusible Safety Switch
2. 30A, 2P Non-Fusible Safety Switch with Auxiliary Contact
3. Conduit & Wire to Seal Heaters as Required by Gate Manufacturer
4. 1"C with 2 #10 & 1 #10 G to Gate System Control Panel at HPU-1
5. 3 Pushbutton Control Station (Raise-Stop-Lower) for Gate Manual Control
6. 3/4"C, 8 #14 Controls to HPU-1 Through Controls Terminal/Junction Box in Vault. See Sheet 225 for Box Location.
7. Down to Receptacle and Sump Pump Control Panel in Lower Vault. See Sheet 142 for Continuation.
8. See Control Diagram CD1, Sheet 21A.
9. See Control Diagram CD2, Sheet 21A.
10. Connect Lower Vault Exhaust Fan to Switch Circuit Controlling Lower Vault Lights. Fan Shall Operate When Lower Vault Lights Are On.
11. 1/2"C, 2 #14 Controls to HPU-1 Through Controls Terminal/Junction Box in Vault. See Sheet 225 for Box Location.
12. Line Voltage Reverse Acting Thermostat for Exhaust Fan.

0 1 2 3

SCALE IN FEET

FILE NAME = E-1604-GATE.dgn	USER NAME =	DESIGNED - G. ROSCETTI	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GATE UPPER VAULTS 2 & 3 POWER PLANS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS	ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY / TOTAL SHEETS / SHEET NO.
HDR		CHECKED - B. DAVIDSON	REVISED -				McHENRY / 238 / 143
	PLOT SCALE =	DRAWN - L. TRAVIS	REVISED -				PROJECT FR-435
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - G. ROSCETTI	REVISED -				



UPPER VAULT 1 ELECTRICAL PLAN

$\frac{3}{4}$"=1'-0"

1 0 1 2
SCALE IN FEET

GENERAL NOTES

1. Home Runs Between Vaults Shall Be Routed Under Downstream Dam Bridge. See Detail 2/15.
2. See One Line Diagrams 2/76 and Sheet 145 for Conduit and Wire Sizes.
3. Supply Feeders for Panel DP-GS and Panel LP-LH, Including Type FA6 Bedding in Trench, Shall be Included Under Site Electrical System Pay Item.

KEYED NOTES

(1) Conduit & Wire to Seal Heater as Required by Gate Manufacturer.

(2) Conduit & Wire to Center Pier Seal Heaters as Required by Gate Manufacturer. See Sheet 140 for Continuation.

(3) 1"C with 6 #10 & 3 #10 G to HPU-1.

(4) 3 Push Button Control Station (Raise-Stop-Lower) for Gate Manual Control.

(5) $\frac{3}{4}$"C with 8 #14 Control Cable.

(6) Gate System Control Panel Provided with HPU-1.

(7) Down to Receptacle and Sump Pump in Lower Vault. See Sheet 142 for Continuation.

(8) See Control Diagram CD1, Sheet 21A.

(9) See Control Diagram CD2, Sheet 21A.

(10) Connect Exhaust Fan to Lower Vault Lighting Switch Circuit so Fan Operates When Lower Vault Lights are On.

(11) DP-GS Supply Feeder from MDP.

(12) To LP-BH in Boiler House.

(13) See New Work Site Plan in Site Volume for Continuation.

(14) To Bypass Sluice Gate Operator. See Gate Structure Electrical Plan This Volume for Continuation.

(15) NEMA 6-20R Receptacle

(16) See Control Diagram CD5, Sheet 21A.

(17) Existing Portable Generator Receptacle Relocated From Boilerhouse.

(18) DP-GS Standby Power Supply Feeder.

FILE NAME = E-1605-GATE.dgn HDR	USER NAME =	DESIGNED - G. ROSCETTI	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GATE UPPER VAULT 1 POWER PLAN STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
		CHECKED - B. DAVIDSON	REVISED -		
	PLOT SCALE =	DRAWN - L. TRAVIS	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - G. ROSCETTI	REVISED -		

ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	144
	PROJECT FR-435		

BRANCH CIRCUIT PANELBOARD SCHEDULE

NAME: LP-GS | MAINS (A): 225
VOLTAGE: 120 / 240 | MCB: | ENCLOSURE: NEMA 1
PHASE: 1 | MLO: X | MOUNTING: SURFACE
WIRE: 3 + GND | AIC (kA): 10 | SERVICE LABEL: NO

BRANCH BREAKERS

CONDUIT & WIRE LINE	G	C	DESCRIPTION	POLE	AMPS	CKT. #	CONNECTED LOAD (kVA) LEFT PHASE A	LEFT PHASE B	RIGHT PHASE A	RIGHT PHASE B	CKT. #	AMPS	POLE	DESCRIPTION	CONDUIT & WIRE LINE	G	C
#12	#12	3/4"	VAULT 1 LIGHTING	1	20	1	0.44			1.50	2	20	2	EUH-1	#12	#12	3/4"
#12	#12	3/4"	VAULT 1 RECEPTACLES	1	20	3		0.72	1.50		4						
#12	#12	3/4"	SP-1	1	20	5	0.40			0.30	6	20	1	EF-1 & EF-2	#12	#12	3/4"
#10	#10	3/4"	VAULT 2 LIGHTING	1	20	7		0.34	1.50		8	20	2	EUH-2	#10	#10	3/4"
#10	#10	3/4"	VAULT 2 RECEPTACLES	1	20	9	0.54			1.50	10						
#10	#10	3/4"	SP-2	1	20	11		0.40	0.30		12	20	1	EF-3 & EF-4	#10	#10	3/4"
#10	#10	3/4"	VAULT 3 LIGHTING	1	20	13	0.34			1.50	14	20	2	EUH-3	#10	#10	3/4"
#10	#10	3/4"	VAULT 3 RECEPTACLES	1	20	15		0.54	1.50		16						
#10	#10	3/4"	SP-3	1	20	17	0.40			0.30	18	20	1	EF-5 & EF-6	#10	#10	3/4"
#10	#10	3/4"	VAULTS EXTERIOR AND PIER LIGHTS	1	20	19		0.76	2.50		20	20	2	BULKHEAD WINCH GATES HPU-2	#12	#12	3/4"
						21				2.50	22						
						23					24						
						25					26						
						27					28						
#12	#12	3/4"	DCP-SGS	1	20	29	0.50				30						
							9.92	10.36	kVA PER PHASE								
							83	86	AMPS PER PHASE								

THIS PANEL SHALL BE INCLUDED UNDER GATE STRUCTURE - ELECTRICAL WORK PAY ITEM.

LOAD SUMMARY			
CONNECTED LOAD (kVA)	20.3	LINE-TO-LINE VOLTS	240
DEMAND FACTOR	0.60	CONNECTED AMPS	85
DESIGN LOAD (kVA)	12.2	DESIGN AMPS	51

EXISTING BRANCH CIRCUIT PANELBOARD SCHEDULE

NAME: LP-BH | MAINS (A): 225
VOLTAGE: 120 / 240 | MCB: | ENCLOSURE: NEMA 1
PHASE: 1 | MLO: X | MOUNTING: SURFACE
WIRE: 3 + GND | AIC (kA): 10 | SERVICE LABEL: NO

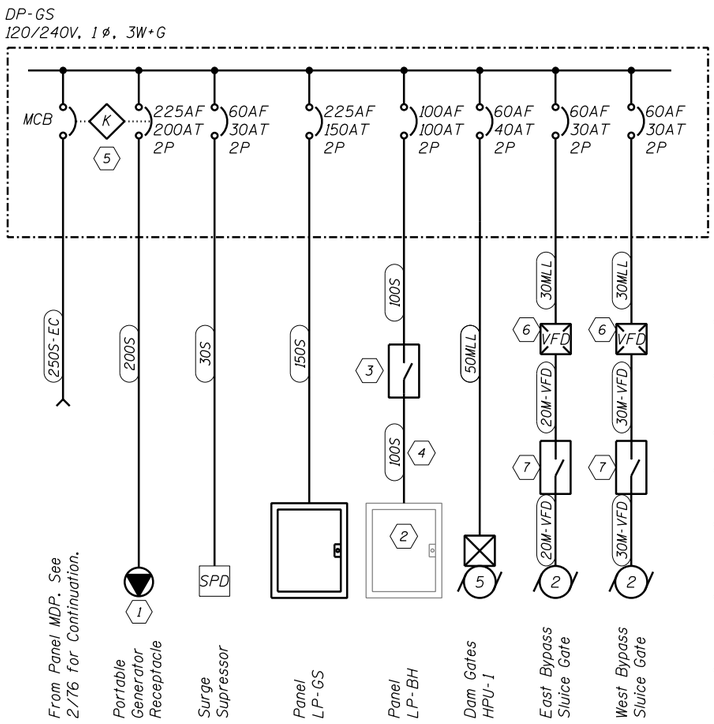
BRANCH BREAKERS

CONDUIT & WIRE LINE	G	C	DESCRIPTION	POLE	AMPS	CKT. #	CONNECTED LOAD (kVA) LEFT PHASE A	LEFT PHASE B	RIGHT PHASE A	RIGHT PHASE B	CKT. #	AMPS	POLE	DESCRIPTION	CONDUIT & WIRE LINE	G	C
(E)	(E)	(E)	SOUTH UNIT HEATER	2	30	1	2.50		2.50		2	30	2	NORTH UNIT HEATER	(E)	(E)	(E)
						3		2.50		2.50	4						
			GATE POWER (SEE NOTE 1)	***2***	***60***	5			0.25		6	20	1	BUILDING EXTERIOR LIGHTS	(E)	(E)	(E)
						7				0.50	8	***20***	***1***	***FLOOD LIGHTS (SEE NOTE 1)***			
(E)	(E)	(E)	BLDG LIGHTS AND RECEPTACLES	1	20	9	0.83				10	***20***	***1***	***WELL PUMP (SEE NOTE 1)***			
			GATE LIGHTS AND RECEPTACLES (SEE NOTE 1)	1	20	11					12	***20***	***1***	***BOILER CONTROLS (SEE NOTE 1)***			
			BOILER FEED PUMP (SEE NOTE 1)	***2***	***20***	13					14	***20***	***2***	***BOOSTER PUMP (SEE NOTE 1)***			
						15					16						
(E)	(E)	(E)	SURGE SUPRESSOR	2	30	17	0.01				18	60	2	SPARE			
						19		0.01			20						
			DAY TANK (SEE NOTE 1)	***1***	***20***	21					22	20	1	SPARE			
			SPARE	1	20	23					24	20	1	SPARE			
			SPACE			25					26			SPACE			
			SPACE			27					28			SPACE			
			SPACE			29					30			SPACE			
							6.09	5.51	kVA PER PHASE								
							51	46	AMPS PER PHASE								

WORK AT THIS EXISTING PANEL SHALL BE INCLUDED UNDER SITE ELECTRICAL SYSTEM PAY ITEM.

LOAD SUMMARY			
CONNECTED LOAD (kVA)	11.6	LINE-TO-LINE VOLTS	240
DEMAND FACTOR	0.60	CONNECTED AMPS	48
DESIGN LOAD (kVA)	7.0	DESIGN AMPS	29

NOTES:
1. EXISTING LOAD TO BE DISCONNECTED FROM EXISTING CIRCUIT BREAKER. EXISTING CIRCUIT BREAKER TO BE RELABELED "SPARE".



BASIS OF PAYMENT NOTES - ONE LINE DIAGRAM

1. The Following Work Shall be Included Under Site Electrical System Pay Item:
   A. Panel DP-GS Normal Supply Feeder.
   B. Panel LP-BH Supply Feeder.
   C. 100A Safety Switch in Boiler House.
2. All Other Work Shown on Gate Structure One Line DIagram Shall be Included Under Gate Structure - Electrica Work Pay Item.

KEYED NOTES

1. Existing Portable Generator Receptacle Relocated From Existing Boiler House
2. Existing Panelboard to Remain for Reuse
3. 100A Non-Fusible Safety Switch.
4. Provide New Conduit and Wire Between Safety Switch and Existing Panelboard.
5. Kirk-Key Interlock to Prevent Both Circuit Breakers from Being Closed Simultaneously.
6. 3HP VFD Oversized to Convert Single Phase Input to Three Phase Output. See Control Diagram CD5, Sheet 21A.
7. 30A, 3P, Non-Fusible Safety Switch in Nema 4X SS Enclosure. Provide Auxiliary Contact to Shut Down VFD if Safety Switch Open.

PROPOSED ONE LINE DIAGRAM - GATE STRUCTURE

DISTRIBUTION PANELBOARD SCHEDULE

NAME: DP-GS
VOLTAGE: 120 / 240 | ENCLOSURE: NEMA 4XSS | BUS RATING (A): 225
PHASE: 1 | MOUNTING: SURFACE | MAINS: MLO
WIRE: 3 + GND | SERVICE LABEL: NO | AIC (kA): 22

CKT. NO.	TAG	DESCRIPTION	BREAKER POLE	FRAME	TRIP	LOAD HP	kW	MCA	KVA	NOTES
1	MCB	MAIN CIRCUIT BREAKER	2	225	200					1
2	EMCB	PORTABLE GENERATOR MAIN CIRCUIT BREAKER	2	225	200					1
3	SPD-GS	SURGE SUPPRESSOR	2	60	30					
4	LP-GS	GATE STRUCTURE PANELBOARD	2	225	150				20.28	
5	LP-BH	BOILERHOUSE PANELBOARD	2	100	100				11.60	
6	BG-E-VFD	EAST BYPASS SLUICE GATE OPERATOR VFD	2	60	30	2			2.40	
7	BG-W-VFD	WEST BYPASS SLUICE GATE OPERATOR VFD	2	60	30	2			2.40	
8	HPU-1	DAM GATES HYDRAULIC POWER UNIT	2	60	40					

THIS PANEL SHALL BE INCLUDED UNDER GATE STRUCTURE - ELECTRICAL WORK PAY ITEM.

LOAD SUMMARY			
CONNECTED LOAD (kVA)	36.7	LINE-TO-LINE VOLTS	240
DEMAND FACTOR	0.75	CONNECTED AMPS	153
DESIGN LOAD (kVA)	27.5	DESIGN AMPS	115

NOTES:
1. PROVIDE KEYED INTERLOCK THAT PREVENTS BOTH NORMAL AND PORTABLE GENERATOR MAIN CIRCUIT BREAKERS FROM BEING CLOSED SIMULTANEOUSLY.

FEEDER SCHEDULE

MARK	MINIMUM AMPACITY	NO. OF SETS	CONDUCTORS AND CONDUIT / SET (AWG or kcmil) PHASE	NEUTRAL	GROUND	CONDUIT
20LN	20	1	1 # 12	1 # 12	1 # 12	3/4"
20LL	20	1	2 # 12	-	1 # 12	3/4"
20M-VFD	20	1	3 # 12	-	1 # 12	1"
20MLL	20	1	2 # 12	-	1 # 12	3/4"
30S	30	1	2 # 10	1 # 10	1 # 10	3/4"
30LL	30	1	2 # 10	-	1 # 10	3/4"
30M-VFD	30	1	3 # 10	-	1 # 10	1- 1/4"
50MLL	50	1	2 # 8	-	1 # 10	3/4"
100S	100	1	2 # 2	1 # 2	1 # 6	1-1/2"
125S	125	1	2 # 1	1 # 1	1 # 6	1-1/2"
125S-EC	125	1	2 # 4/0	1 # 4/0	1 # 2	3"
150S	150	1	2 # 1/0	1 # 1/0	1 # 6	1-1/2"
200S	200	1	2 # 3/0	1 # 3/0	1 # 6	2"
250S	250	1	2 # 250	1 # 250	1 # 2	3"
250S-EC	250	1	2 # 250	1 # 250	1 # 2	2-1/2"
300S-EC	300	1	2 # 350	1 # 350	1 # 2	2-1/2"
400S	400	1	2 # 500	1 # 500	1 # 2	3-1/2"
400SU	400	1	2 # 500	1 # 500	-	3-1/2"

FEEDER MARK SUFFIXES

- VFD Indicates Shielded VFD Power Cable
- EC Indicates Existing Conduit

1 0 1 2
SCALE IN FEET

FILE NAME = E-4606-GATE.dgn	USER NAME =	DESIGNED - G. ROSCETTI	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GATE ONE LINE DIAGRAM & SCHEDULES STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HDR		CHECKED - B. DAVIDSON	REVISED -		
	PLOT SCALE =	DRAWN - L. TRAVIS	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - G. ROSCETTI	REVISED -		

ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	145

PROJECT FR-435

NOT USED

FILE NAME = E-6607-GATE.dgn HDR	USER NAME =	DESIGNED - G. ROSCETTI	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	NOT USED STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
		CHECKED - B. DAVIDSON	REVISED -		
	PLOT SCALE =	DRAWN - L. TRAVIS	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - G. ROSCETTI	REVISED -		

ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	146
	PROJECT FR-435		

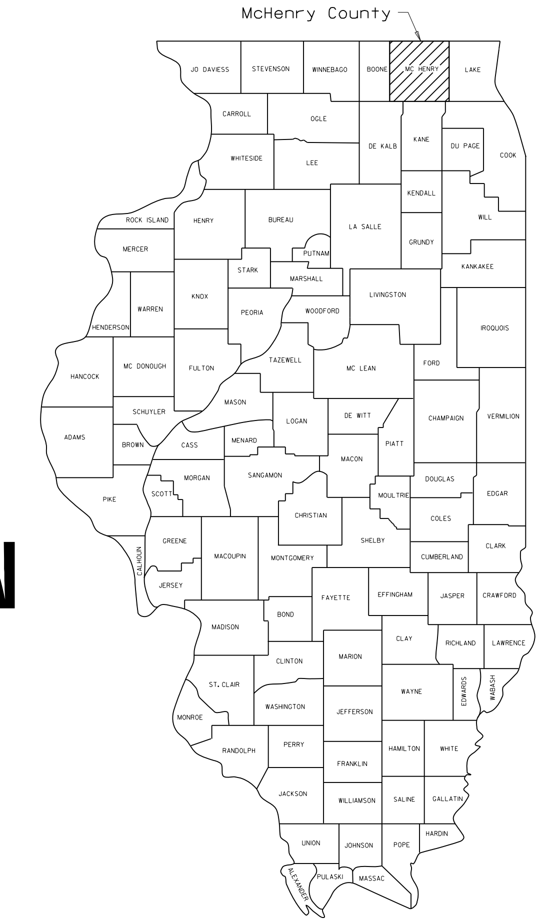
STATE OF ILLINOIS
DEPARTMENT OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES

WILLIAM G. STRATTON LOCK & DAM
PLANS FOR LOCK REHABILITATION & EXTENSION
VOLUME 3 OF 5

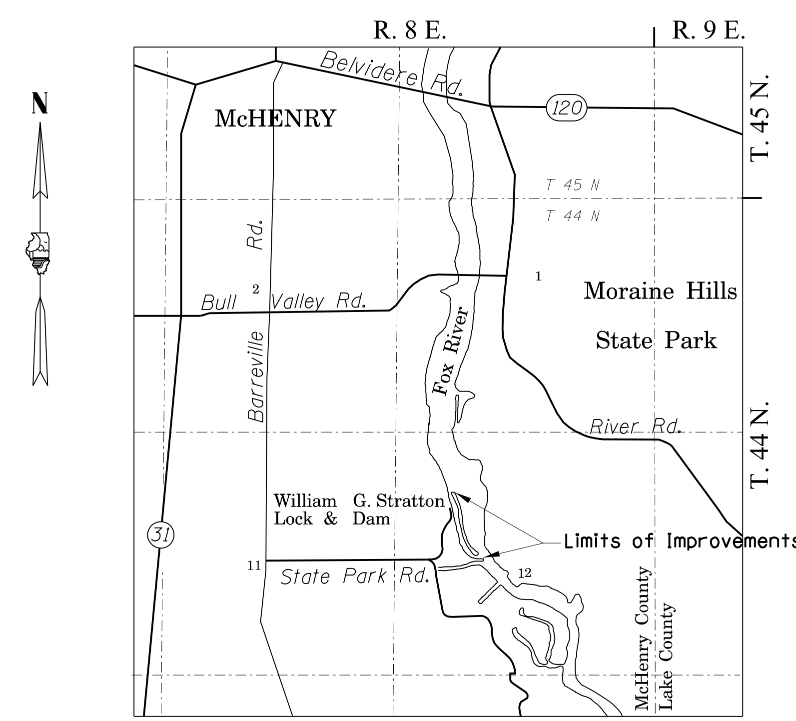
Mc HENRY COUNTY

FR–435

2014



REGIONAL MAP



LOCATION MAP

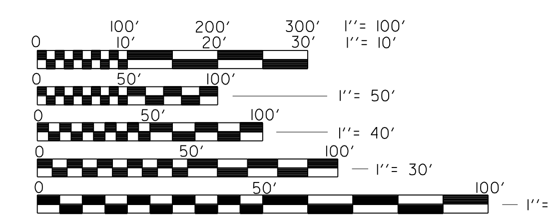
0 .25 .50 .75 1 MILE

SCALE

LEGEND

ITEM	EXISTING	PROPOSED
Manhole	(M)	
Catch Basin		
Sign		
Water Meter		
Water Surface Indicator		
GuyWire		
Deciduous Tree		
Bush or Shrub		
Evergreen Tree		
Vegetation Line		
Woods & Bush Line		
Baseline		
Centerline		
Channel		
Culvert Line		
Storm Sewer		
Sanitary Sewer		
Fence	x x x x x	x x x x x
Fiber Optic	FO	FO
Gas Pipe	G	G
Water Pipe	W	W
Riprap		

Note: Electrical Legend Items Can Be Found On Electrical Symbols Sheet.



FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

STANDARDS

280001 TEMPORARY EROSION CONTROL SYSTEMS
664001 CHAIN LINK FENCE

INDEX OF SHEETS

GENERAL PLANS

VOLUME 1 - SITE IMPROVEMENT PLANS

VOLUME 1 - SITE IMPROVEMENT PLANS (CONT.)

VOLUME 2 - GATE PLANS

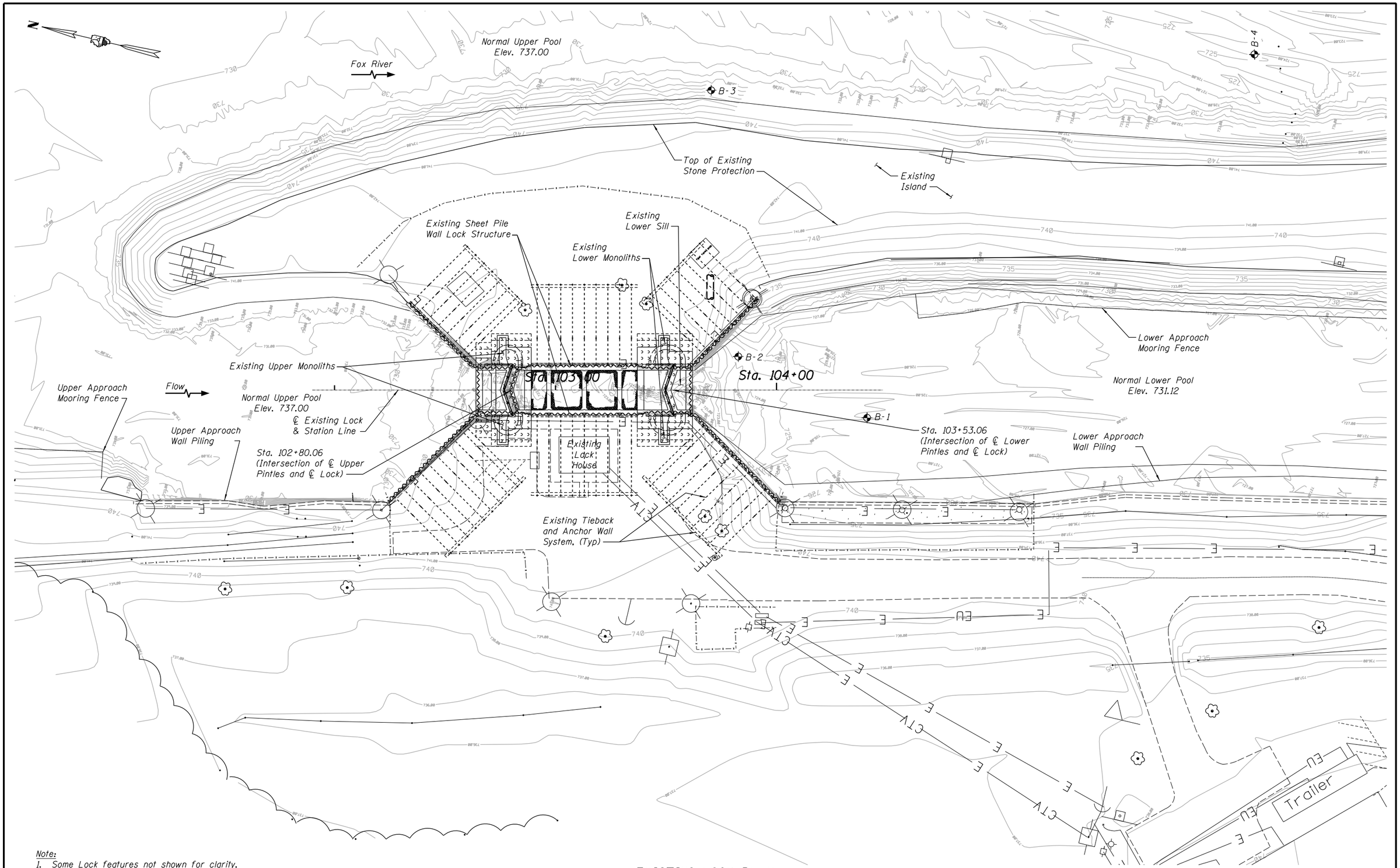
VOLUME 3 - LOCK PLANS

VOLUME 4 - ALGONQUIN GATE CONTROL PLANS

VOLUME 5 - REFERENCE DRAWINGS

FILE NAME = G-0002C-LOCK.dgn HANSON 	USER NAME =	DESIGNED - EJM	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	INDEX OF SHEETS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
		CHECKED - JJT	REVISED -		
	PLOT SCALE =	DRAWN - EJM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - SLM	REVISED -		

ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	148
	PROJECT FR-435		



Note:
1. Some Lock features not shown for clarity.

EXISTING LOCK PLAN

FILE NAME = S-4001BER-SITE.dgn	USER NAME =	DESIGNED - JMR	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	GENERAL SITE PLAN – LOCK STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
Bergmann associates architects // engineers // planners		CHECKED - WRM	REVISED -		
	PLOT SCALE =	DRAWN - DCM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - TSH	REVISED -		

ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	149
	PROJECT FR-435		

General:

G-1. The Contractor shall field verify all dimensions, coordinates and existing conditions prior to construction. Notify the Department of any discrepancy immediately.

G-2. Coordinate structural sheets with all other sheets for pipe sizes and locations. Including, but not limited to, Beam pockets, grating ledges, block outs, electrical requirements and anchor bolted attachments.

G-3. Structural system is designed to work as a completed system, any temporary shoring, or bracing needed during construction shall be the responsibility of the general contractor; contractor is responsible for adequacy of temporary shoring. Contractor is responsible for design, construction, and removal of any cofferdam.

G-4. See architectural, civil, mechanical, electrical and plumbing plans for additional sleeves, inserts, etc.

G-5. No pipes or sleeves for mechanical trades shall pass through structural members without approval of the structural engineer.

G-6. All sections, details and notes shown on the drawings are intended to be typical and shall apply to similar situations elsewhere unless otherwise shown.

Concrete:

C-1. *Material Properties (U.N.O.)*
Compressive Strength - F'c = 4,000 PSI
Concrete Reinforcement - Fy = 60 KSI (A706)

C-2. Protective concrete covering for reinforcement bars shall be as follows unless otherwise noted on the plans:
Footings:
Bottom and Sides = 3"
Top = 3"
Walls:
Exterior Exposure = 3"
Interior Exposure = 2"
Beams - Over Ties/Stirrups = $1\frac{1}{2}$"
Slabs - Exterior = 2"

C-3. All reinforcement bars shall be fabricated in accordance with the latest CRSI Manual of Standard Practice for detailing reinforced concrete structures and shall be clean and free grease and scaling rust.

C-4. Continuous top and bottom bars, when shown in section only, shall be lapped as follows: top bars near midspans, bottom bars directly over supports.

C-5. A $\frac{3}{4}$"x$\frac{3}{4}$" chamfer shall be provided at the edge of all finished walls, beams and columns (U.N.O.).

C-6. Two #5 bars each face shall be provided diagonally at all corners of wall and slab openings and at all reentrant corners of slabs. Bars shall be extended 24" minimum beyond corners of the openings.

C-7. Lap all bars as follows U.N.O. (Class B):
#3 = 1'-7" #4 = 2'-1" #5 = 2'-7"
#6 = 3'-1" #7 = 4'-6" #8 = 5'-2"
#9 = 5'-10" #10 = 6'-6" #11 = 7'-1"
For top bars, provide an additional 1.3 times the indicated lap length.

C-8. All interior slabs-on-grade to be exposed to view in the finished work shall recieve a smooth trowel finish unless otherwise noted. All exterior horizontal concrete surfaces (e.g. slabs, stairs, ramps) shall be roughened by brooming immediately after trowel finishing is completed.

C-9. Coupler and structural connectors, where specified, shall be according to Article 508.06 of the Standard Specifications.

C-10. The back side of all concrete walls exposed to earth shall receive waterproofing according to Article 503.18 of the Standard Specifications, to within one foot of finished grade.

C-11. For typical sections and details of concrete work see sheet 83. The information on this sheet shall be considered typical for lock improvement work, unless noted otherwise.

C-12. Grouting of anchor rods and/or reinforcement bars shall be according to Article 584 of the Standard Specifications. Minimum Embedment shall be Sufficient to Obtain 1.25 Times the Yield Strength of the Reinforcing Bar.

Structural Steel:

S-1. *Material Properties (U.N.O.)*

W-Shapes	-	Fy = 50 KSI (A992 or A572 Gr 50)
C-Shapes & Angles	-	Fy = 36 KSI (A36)
Plates & Bars	-	Fy = 36 KSI (A36)
Square Tubes	-	Fy = 46 KSI (A500 Gr B)
Round Tubes	-	Fy = 35 KSI (Type S)
Rods	-	Fy = 36 KSI (A36)
Anchor Bolts	-	Fy = 36 KSI (ASTM F1554 Gr 36)
Headed Studs	-	ASTM A108
Stainless Steel	-	ASTM A276 (Type 304 or 316)

S-2. All detailing, fabrication and erection of structural steel members shall be in accordance with Section 505 of the Standard Specifications.

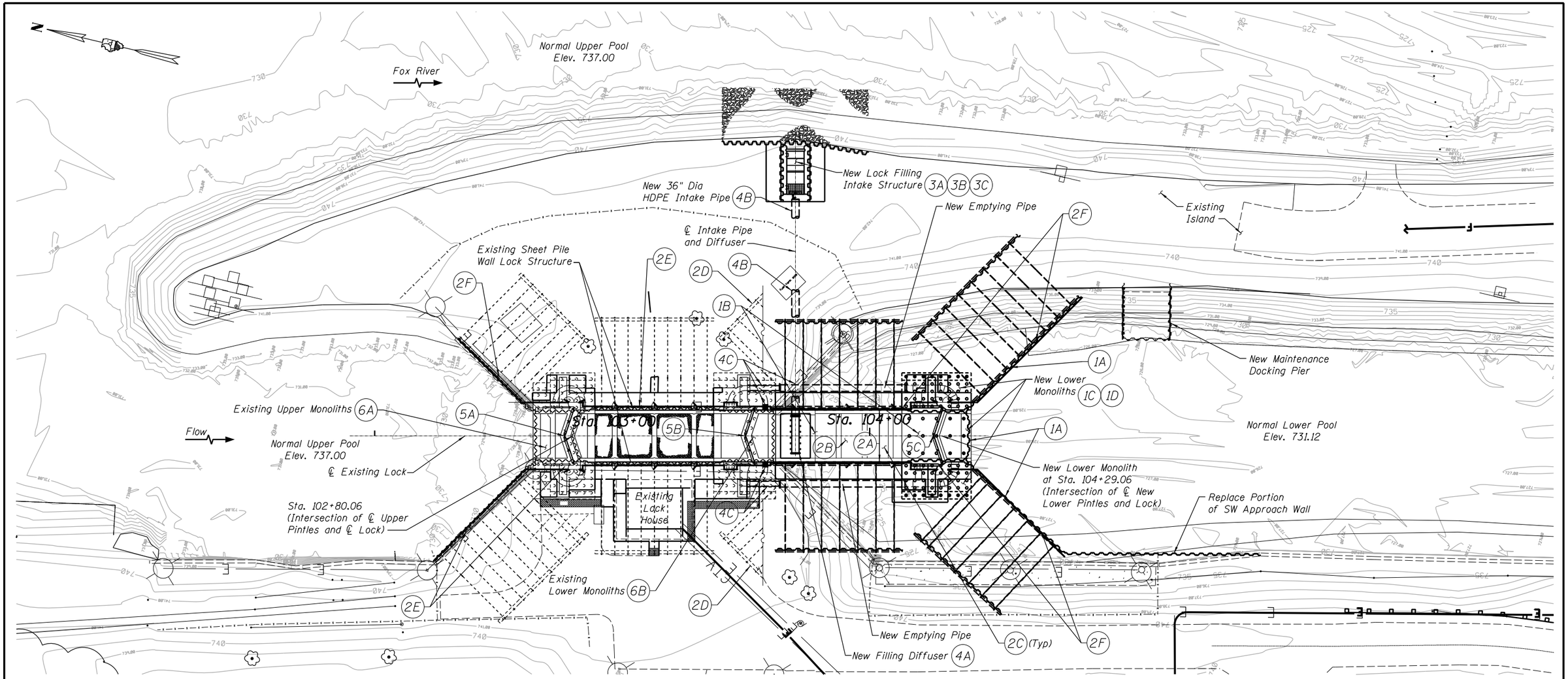
S-3. All welding shall be done in accordance with the latest "AWS" specifications by certified welders. All welds shall be made with E70XX electrodes unless noted otherwise.

S-4. Contractor shall field verify existing conditions and dimensions prior to structural steel fabrication. Report variances to the Engineer.

BILL OF MATERIALS - LOCK EXTENSION

PAY ITEM	UNIT	QUANTITY
Earth Excavation	Cu Yd	110
Removal and Disposal of Unsuitable Material	Cu Yd	2,015
Channel Excavation	Cu Yd	290
Porous Granular Embankment	Cu Yd	1,245
Topsoil Excavation and Placement	Cu Yd	151
Topsoil Furnish and Place, 4"	Sq Yd	25
Seeding, Class 1	Acre	0.5
Mulch, Method 2	Acre	0.5
Stone Riprap, Class A1	Ton	220
Stone Riprap, Class A4	Ton	615
Filter Fabric	Sq Yd	1,230
Aggregate Base Course, Type A	Ton	219
Aggregate Base Course, Type B	Ton	21
Portland Cement Concrete Sidewalk 6 inch	Sq Ft	274
Removal of Existing Structures No. 1	Each	1
Structure Excavation	Cu Yd	11
Cofferdam Excavation	Cu Yd	1,219
Concrete Structures	Cu Yd	673.3
Furnishing and Erecting Structural Steel	Pound	21,430
Stud Shear Connectors	Each	330
Treated Timber	F.B.M.	3,770
Reinforcement Bars	Pound	79,320
Pedestrian Railing	Foot	619
Pipe Handrail	Foot	44
Furnishing Treated Piles 20.1 to 38 feet	Foot	231
Furnishing Metal Shell Piles 12" x 0.250"	Foot	4,121
Driving Piles	Foot	4,352
Test Pile Metal Shells	Each	1
Pile Shoes	Each	95
Chain Link Fence, 4'	Foot	94
Chain Link Gates, 4' x 8' Double	Each	1
Permanent Steel Sheet Piling	Sq Ft	15,036
Containment and Disposal of Lead Paint Cleaning Residues No. 1	L Sum	1
Containment and Disposal of Lead Paint Cleaning Residues No. 2	L Sum	1
Structural Repair of Concrete (Depth Equal To Or Less Than 5 Inches)	Sq Ft	90
Structural Repair of Concrete (Depth Greater Than 5 Inches)	Sq Ft	225
Tie Rods	Each	29
Cleaning and Painting Existing Miter Gate Steel	L Sum	1
Cleaning and Painting Existing Steel Sheet Piling	L Sum	1
Cofferdam - Location 1	Each	1
Cofferdam - Location 2	Each	1
Cofferdam - Location 3	Each	1
Cofferdam Restoration - Location 1	Each	1

PAY ITEM	UNIT	QUANTITY
Cofferdam Restoration - Location 2	Each	1
Cofferdam Restoration - Location 3	Each	1
HDPE Pipe, SDR 17, 32"	Foot	100
HDPE Pipe, SDR 17, 36"	Foot	90
Lock Control System	L Sum	1
Lock Gate Machinery	L Sum	1
Lock Gate Rehabilitation - Gate Anchorage Linkage Assemblies	Each	4
Lock Gate Rehabilitation - General Lower Gate	L Sum	1
Lock Gate Rehabilitation - General Upper Gate	L Sum	1
Lock Gate Rehabilitation - Lower Gate Anchorage Assemblies	Each	4
Lock Gate Rehabilitation - Lower Gate Quoin Post	Foot	36
Lock Gate Rehabilitation - Lower Gate Railing Modifications	L Sum	1
Lock Gate Rehabilitation - Miter Sill Seal	Foot	40
Lock Gate Rehabilitation - Miter/Quoin/Bearing Retrofit	L Sum	1
Lock Gate Rehabilitation - Upper Gate Railing Modifications	L Sum	1
Lock Gate Unidentified Steel Repairs - $\frac{5}{16}$" Fillet Weld	Inch	1,000
Lock Gate Unidentified Steel Repairs - Complete Joint Penetration Weld	Inch	50
Lock Gate Unidentified Steel Repairs - Field Drill and Install H.S. Bolt	Each	20
Lock Gate Unidentified Steel Repairs - Plate or Rolled Shape Fabrications	Pound	400
Lock Gate Unidentified Steel Repairs - Remove Rivet, Install H.S. Bolt	Each	20
Lock Gate Unidentified Steel Repairs - Replace Pintle Lower Part	Each	2
Lock Grating and Covers	L Sum	1
Lock Mooring Cables	L Sum	1
Lock Plumbing Work	L Sum	1
Lock Steel Piping - Diffuser System	L Sum	1
Lock Steel Piping - Existing Lock Monoliths	L Sum	1
Lock Steel Piping - Intake Structure	L Sum	1
Lock Steel Piping - New Lock Monoliths	L Sum	1
Lower Quoin Post Bearings	Foot	36
Portable Davit Crane	L Sum	1
Railing Removal	Foot	310
Replace Lock Gate Gudgeon Assembly	Each	4
Replace Lower Lock Gate Pintle Assembly	Each	2
Replace Upper Lock Gate Pintle Assembly	Each	2
Riprap Removal	Sq Yd	565
Sluice Gate, Heavy, 24" x 24"	Each	4
Sluice Gate, Heavy, 30" x 30"	Each	2
Sluice Gate, Heavy, 36" x 36"	Each	1
Stop Logs - Intake Structure	L Sum	1
Stop Logs - Lock	L Sum	1
Temporary Boat Traffic Control and Channel Restoration	L Sum	1
Trash Rack - Intake Structure	L Sum	1



EXTENDED LOCK PLAN

Stratton Lock Structural Rehabilitation/Expansion Work Items:

1. Install New Downstream Monoliths and Sill
   - (A) Install New Downstream Sheet Pile Wingwalls and Cutoff Wall
     - i. Excavate and Backfill to Install Tiebacks and Anchor Walls
   - (B) Excavate within Proposed Chamber and Monolith Footprints
   - (C) Install New Foundation Piles
   - (D) Construct New CIP Concrete Gate and Sill Monoliths
     - i. New Pintles
     - ii. New Anchorages
     - iii. New Stop Logs

2. Lock Chamber Extension
   - (A) Install Sheet Piles from Existing Monolith to New Wingwalls
     - i. Excavate and Backfill to Install Tiebacks and Anchor Walls
   - (B) Construct New Chamber Floor Struts and New Filling Diffuser Trench
   - (C) Place Stone Fill Between Floor Struts
   - (D) Remove Existing Downstream Wingwalls and Tieback Systems to Extent Required to Perform Work
   - (E) Replace Guard Rail at Existing Lock Chamber and Upstream Wingwall
   - (F) Install New Guard Railing at Lock Chamber Extension and Wingwalls

3. New Lock Filling Intake Structure
   - (A) Install Sheet Pile Foundations
   - (B) Excavate and Prepare Base for Structural Concrete Placement
   - (C) Construct New CIP Concrete Walls and Slabs

4. Lock Filling/Emptying System
   - (A) Install New Lock Filling Diffuser
   - (B) Install Connection Piping from New Lock Filling Intake Structure to Lock Extension
   - (C) Modify Existing Lower Monolith Emptying Culvert to Discharge Through New Lower Monolith
     - i. Core Drill Connection to Downstream Culvert Pipe
     - ii. Fill Portion of Existing Culvert Outlet
     - iii. Install Connection Piping from Existing to New Monoliths

5. Existing Miter Gates
   - (A) Perform Gate Repairs on Upper Gates
   - (B) Perform Gate Repairs on Lower Gates
   - (C) Relocate Lower Gates to New Lower Monoliths
     - i. Install Gate Operating Machinery
     - ii. Install and Test Gates

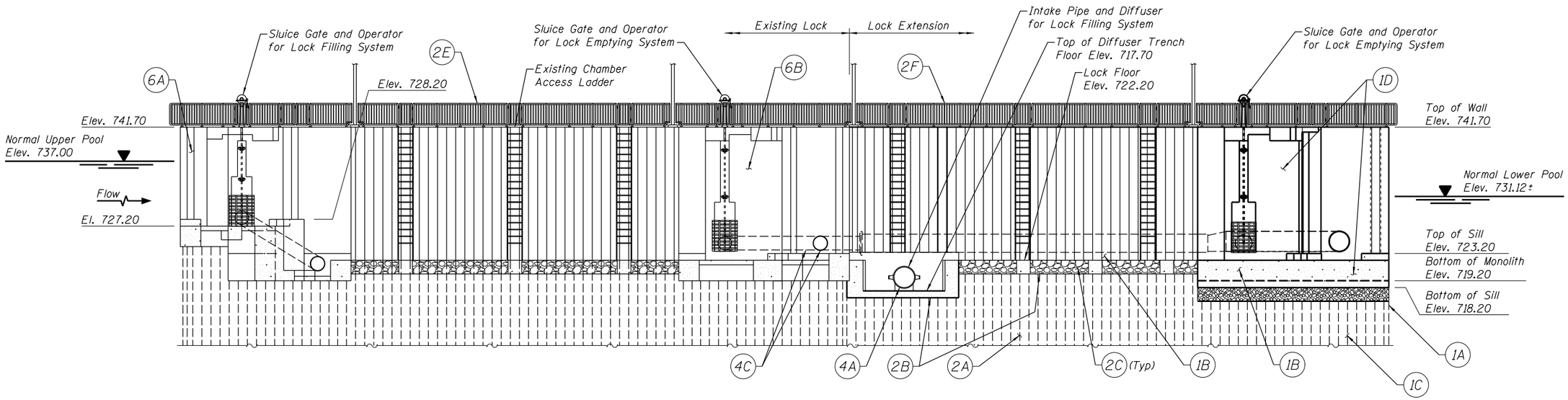
6. Existing Monoliths
   - (A) Perform Modifications to Upper Monoliths and Sill
     - i. Modify Existing Stop Log Guide Slot and Sill
     - ii. Provide New Aluminum Stop Logs
   - (B) Decommission Existing Lower Monoliths

Notes:

1. Work Item List is Provided for General Reference of Anticipated Tasks Only, and does not Depict the Required Sequence of Work. It Should not be Interpreted as a Construction Sequence nor as a Comprehensive Listing of the Work.
2. See Sheets 153 and 154 for Construction Staging and Sequencing.

FILE NAME = S-4002BER-SITE.dgn	USER NAME =	DESIGNED - JMR	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	EXTENDED LOCK PLAN AND PROPOSED WORK LIST STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
Bergmann associates architects // engineers // planners		CHECKED - WRM	REVISED -		
	PLOT SCALE =	DRAWN - DCM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - TSH	REVISED -		

ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	151
PROJECT FR-435			



EXTENDED LOCK ELEVATION

(River Side Chamber Walls and Monoliths Shown)

Note:
Some Lock Features Not Shown for Clarity.

Stratton Lock Structural Rehabilitation/Expansion Work Items:

1. Install New Downstream Monoliths and Sill
   - (A) Install New Downstream Sheet Pile Wingwalls and Cutoff Wall
     - i. Excavate and Backfill to Install Tiebacks and Anchor Walls
   - (B) Excavate within Proposed Chamber and Monolith Footprints
   - (C) Install New Foundation Piles
   - (D) Construct New CIP Concrete Gate and Sill Monoliths
     - i. New Pintles
     - ii. New Anchorages
     - iii. New Stop Logs

2. Lock Chamber Extension
   - (A) Install Sheet Piles from Existing Monolith to New Wingwalls
     - i. Excavate and Backfill to Install Tiebacks and Anchor Walls
   - (B) Construct New Chamber Floor Struts and New Filling Diffuser Trench
   - (C) Place Stone Fill Between Floor Struts
   - * (D) Remove Existing Downstream Wingwalls and Tieback Systems to Extent Required to Perform Work
   - (E) Replace Guard Rail at Existing Lock Chamber and Upstream Wingwall
   - (F) Install New Guard Railing at Lock Chamber Extension and Wingwalls

3. New Lock Filling Intake Structure
   - * (A) Install Sheet Pile Foundations
   - * (B) Excavate and Prepare Base for Structural Concrete Placement
   - * (C) Construct New CIP Concrete Walls and Slabs

4. Lock Filling/Emptying System
   - (A) Install New Lock Filling Diffuser
   - * (B) Install Connection Piping from New Lock Filling Intake Structure to Lock Extension
   - (C) Modify Existing Lower Monolith Emptying Culvert to Outlet Through New Lower Monolith
     - i. Core Drill Connection to Downstream Culvert Pipe
     - ii. Fill Portion of Existing Culvert Outlet
     - iii. Install Connection Piping from Existing to New Monolith

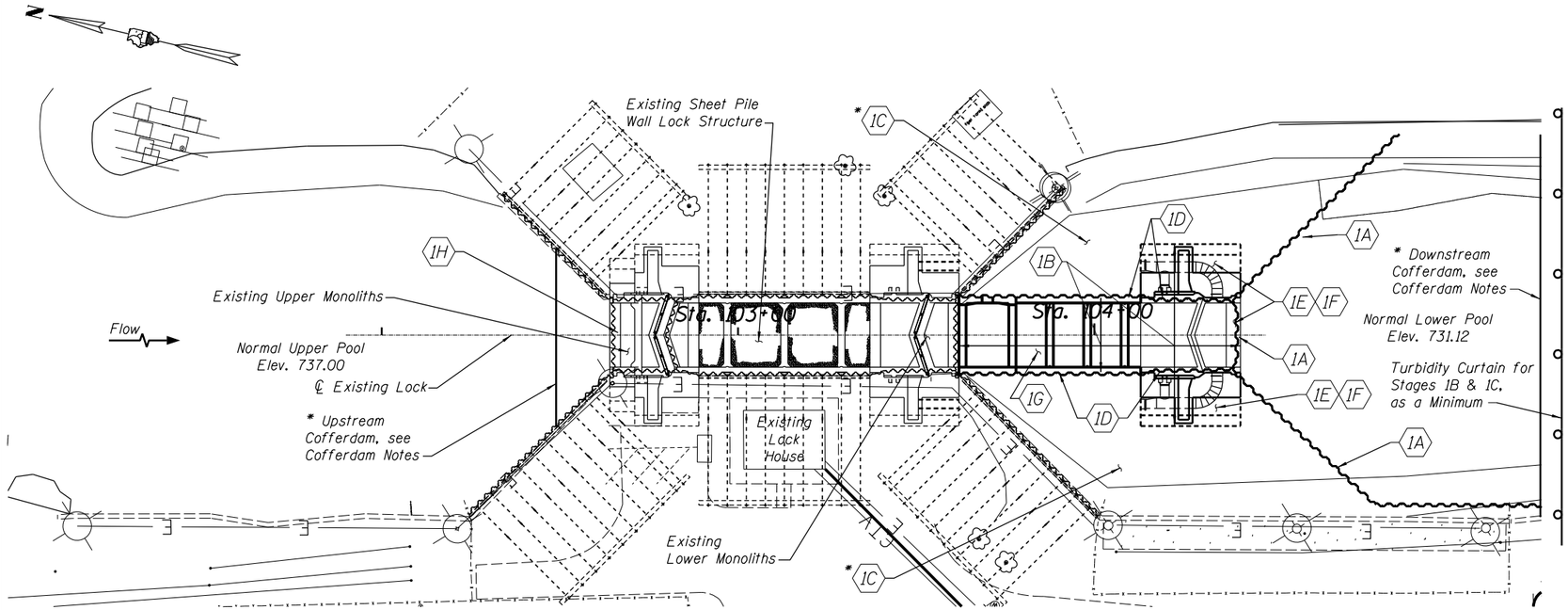
5. Existing Miter Gates
   - * (A) Perform Gate Repairs on Upper Gates
   - * (B) Perform Gate Repairs on Lower Gates
   - * (C) Relocate Lower Gates to New Lower Monoliths
     - i. Install Gate Opperating Machinery
     - ii. Install and Test Gates

6. Existing Monoliths
   - (A) Perform Modifications to Upper Monoliths and Sill
     - i. Modify Existing Stop Long Guide Slot and Sill
     - ii. Provide New Aluminum Stop Logs
   - (B) Decommission Existing Lower Monoliths

Notes:
1. See Sheet 151 for Proposed Work Notes.
2. Items marked with a * are not Shown. See Sheet 151.

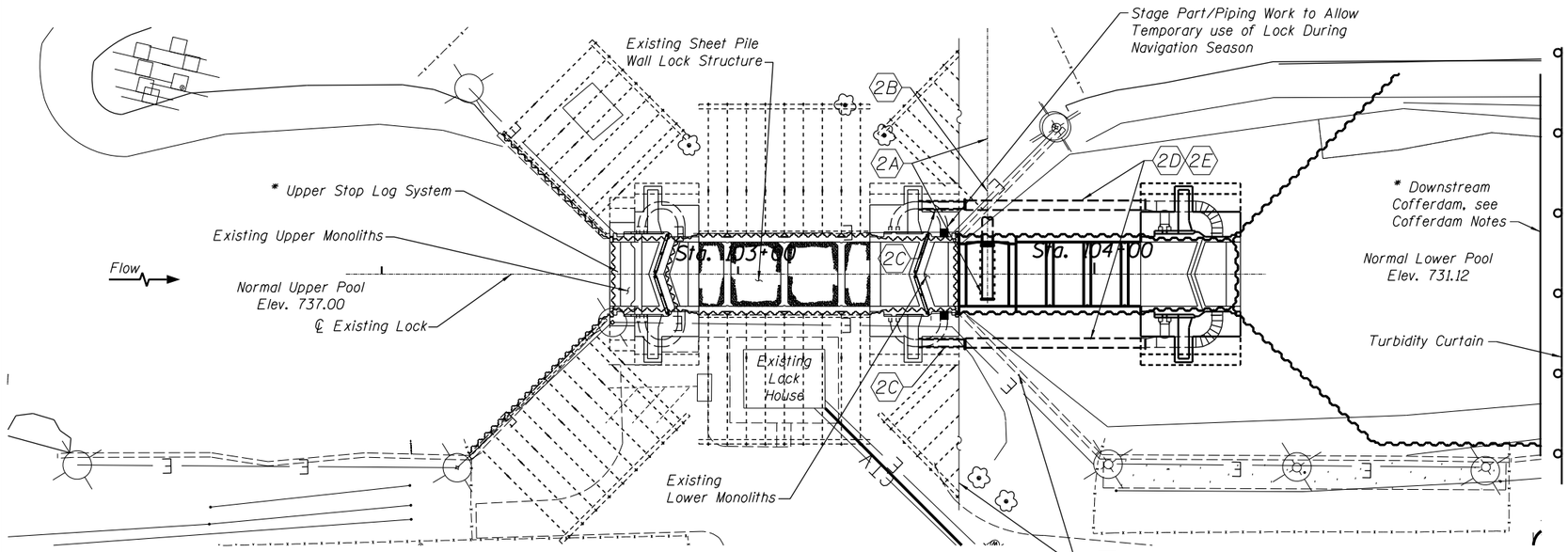
FILE NAME = S-20018ER-SITE.dgn Bergmann associates architects // engineers // planners	USER NAME =	DESIGNED - DTG	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	EXTENDED LOCK ELEVATION AND PROPOSED WORK LIST STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS	ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES
		CHECKED - WRM	REVISED -			
	PLOT SCALE =	DRAWN - JLM	REVISED -			
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - TSH	REVISED -			

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	152
PROJECT FR-435		



STAGE 1

Note:
* Tasks Must be Done Prior to Internal Dewatering of Lock Extension Work Area.



STAGE 2

Note:
All Tasks Performed within Dewatered Work Area.

Cofferdam Notes:

1. The Cofferdam Locations and Systems Shown are Conceptual only. Design, Construction, and Maintenance of all Cofferdam and Dewatering Systems shall be the Responsibility of the Contractor and Subject to the Approval of the Engineer. Cost of this Work Shall be Included in the Items, Cofferdam - Location 2 and Cofferdam - Location 3. See Special Provisions.
2. At the Contractor's Option the New Downstream Wingwalls may be Utilized as Part of the Cofferdam System. Design Shall be the Responsibility of the Contractor and Subject to the Approval of the Engineer. The Cost of Any Necessary Modifications to the Permanent Structure Shall be Included in the Applicable Cofferdam Items.

Construction Sequence Notes:

1. Construction Activities shall be Sequenced and Scheduled by the Contractor to Allow Full and Safe Operation of the Existing or Extended Lock by the Lock Operations Staff for Public Lockages During the Navigation Seasons. The Contractor shall be Responsible for any Operations and Maintaining Pools during the Non-Navigation (Construction) Season (November 1 thru April 30). Prepare and Submit Detailed Schedule Identifying Key Milestone to be Completed Prior to the Start of Each Navigation Season for Acceptance by the Engineer. Coordinate Schedule with Temporary Boat Traffic Control and Channel Restoration Plan.
2. Work within the Lock Channel, Including the Existing Lock, Lock Extension, Mooring Fence, Channel Dredging, and Maintenance Dock, Shall be Prohibited within the Navigation Season.
3. The Lock shall be Safely Accessible and Operable by Lock Staff During the Navigation Season (May 1 thru October 31). The Lock Operations Staff shall be Provided Access to the Locks to Prepare for the Navigation Season Two Weeks before the start of the Season. Access shall also be Provided for one week after the end of the Season for Winterizing Procedures.
4. The Staged Construction Sequence shown is only One Possible Scheme for Major Work Items. It shall be the Contractor's Responsibility to Develop the Construction Sequence in Order to Keep to the Project Schedule, Provide a Fully Operational Lock for the Full Duration of the Navigation Seasons and Maintain Stability of Existing or Proposed Structures During Work.
5. The Staging shown Assumes that the Tasks shown in Stages 1, 2, and 3 are Performed During Two Sequential Non-Navigation (Construction) Seasons. Stage 2 may be Performed During Either the First or Second Non-Navigation Season, at the Contractor's Discretion.
6. For Additional Construction and Dewatering Requirements, See Sheet 154.
7. First Non-Navigation Season Assumes Fall 2014 Start, However the Contractor May Elect to Start Portions of Work in the 2013-2014 Non-Navigation Season.

Stratton Lock Construction Sequence:

Stage 1 Work (1st Non-Navigation Season)

- 1A Install Wingwalls and Sill Cutoff Wall Sheet Piles
- 1B Excavate for Lower Monoliths and Lock Chamber
- * 1C Excavate Unsuitable Material and Backfill Along Existing Seawall
- 1D Install Chamber Extension Wall and Gate Monoliths Sheet Piles
- 1E Install Gate Monolith and Sill Foundation Piles
- 1F Construct New Lower Gate and Sill Monoliths
- 1G Construct Lock Floor & Strut System
- 1H Reconstruct Upper Stop Log Slots

Stage 2 Work (1st or 2nd Non-Navigation Season)

- 2A Excavate and Install Filling Piping and Diffuser System, Including Partial Demolition of Existing Wingwalls and Tie-Backs, as Required
- 2B Backfill up to Emptying Pipe
- 2C Core Drill Emptying Piping into Existing Monoliths
- 2D Install Emptying Pipes Between Existing and New Gate Monoliths
- 2E Place Partial Height Backfill over Emptying Pipes

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Bergmann associates architects // engineers // planners		CHECKED - WRM	REVISED -
	PLOT SCALE =	DRAWN - DCM	REVISED -
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - TSH	REVISED -

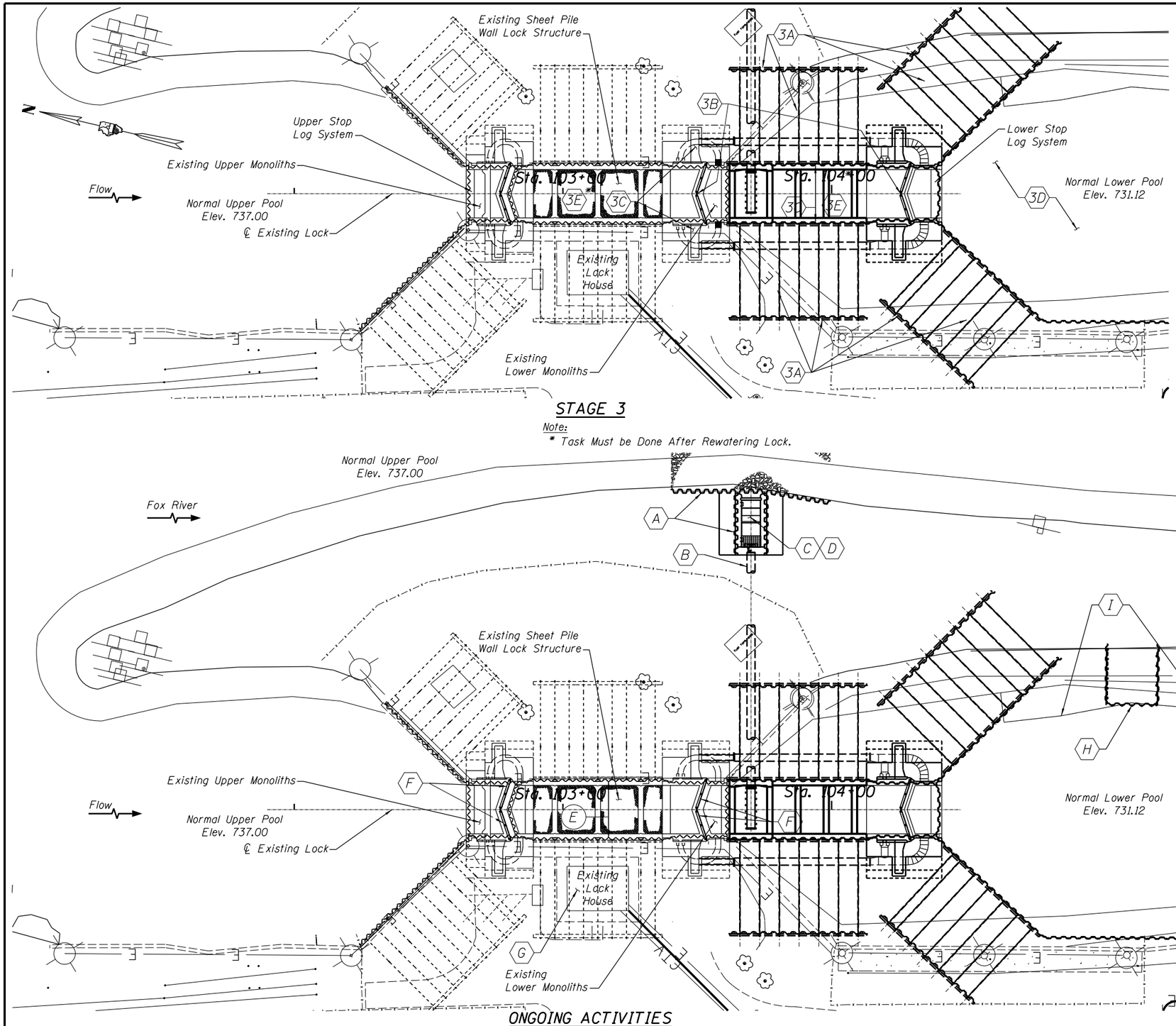
STATE OF ILLINOIS
DEPARTMENT OF NATURAL RESOURCES

CONCEPTUAL STAGES OF CONSTRUCTION SEQUENCE PLAN – 1
STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS

ILLINOIS DEPARTMENT OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	153

PROJECT FR-435



STAGE 3

Note:
* Task Must be Done After Rewatering Lock.

ONGOING ACTIVITIES

Notes:
1. On going Activities Work Items are not Anticipated to be Critical to the Schedule and shall be Sequenced by the Contractor in the Approved Staging and Sequencing Plan.
2. Work Items J and K Not Shown.

Stratton Lock Construction Sequence:

Stage 3 Work (2nd Non-Navigation Season)

- (3A) Install Tie-Back Systems and Backfill to Grade
- (3B) Relocate and Install Lower Miter Gate**
- (3C) Decommission Existing Lower Monolith and Install Fender Systems
- (3D) Complete Approach Dredging and Install Stone Scour Protection
- (3E) Commission Extended Lock

** Perform Gate Cleaning, Painting, and Repairs if not Previously Completed.

Ongoing Activities Work (See Note 2)

- (A) Install Lock Intake Structure Sheet Piles
- (B) Trench and Install Remainder of Supplemental Filling Pipe to Intake Structure Area
- (C) Construct Intake Structure and Backfill (Design & Staged Construction Required)
- (D) Commission Intake Structure
- (E) Rehabilitate Existing Lock Chamber, Monoliths and Appurtenances
- (F) Rehabilitate Existing Miter Gates; Removal, Cleaning, Repair and Painting. Dewatering Required.
- (G) Existing Lock House Improvements
- (H) Install Maintenance Dock System
- (I) Complete Mooring Fence Modifications
- (J) M&E Improvements and Configuration to Extended Lock (Not Shown)
- (K) Miscellaneous Work (Roads, Parking Lots, Railing, Sidewalks, Landscaping) (Not Shown)

Notes:
1. For Stages 1 and 2, Cofferdam Notes and General Construction Sequence Notes, See Sheet 153.
2. Ongoing Work Activities may be done during the Navigation season as long as such Activities Do Not impact Navigability and Operations of the Existing Lock.
3. Some Site and Lock Features Not Shown For Clarity.

FILE NAME = S-4004BER-SITE.dgn	USER NAME =	DESIGNED - TRM	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	CONCEPTUAL STAGES OF CONSTRUCTION SEQUENCE PLAN – 2 STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
Bergmann associates architects // engineers // planners		CHECKED - WRM	REVISED -		
	PLOT SCALE =	DRAWN - DCM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - TSH	REVISED -		

ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
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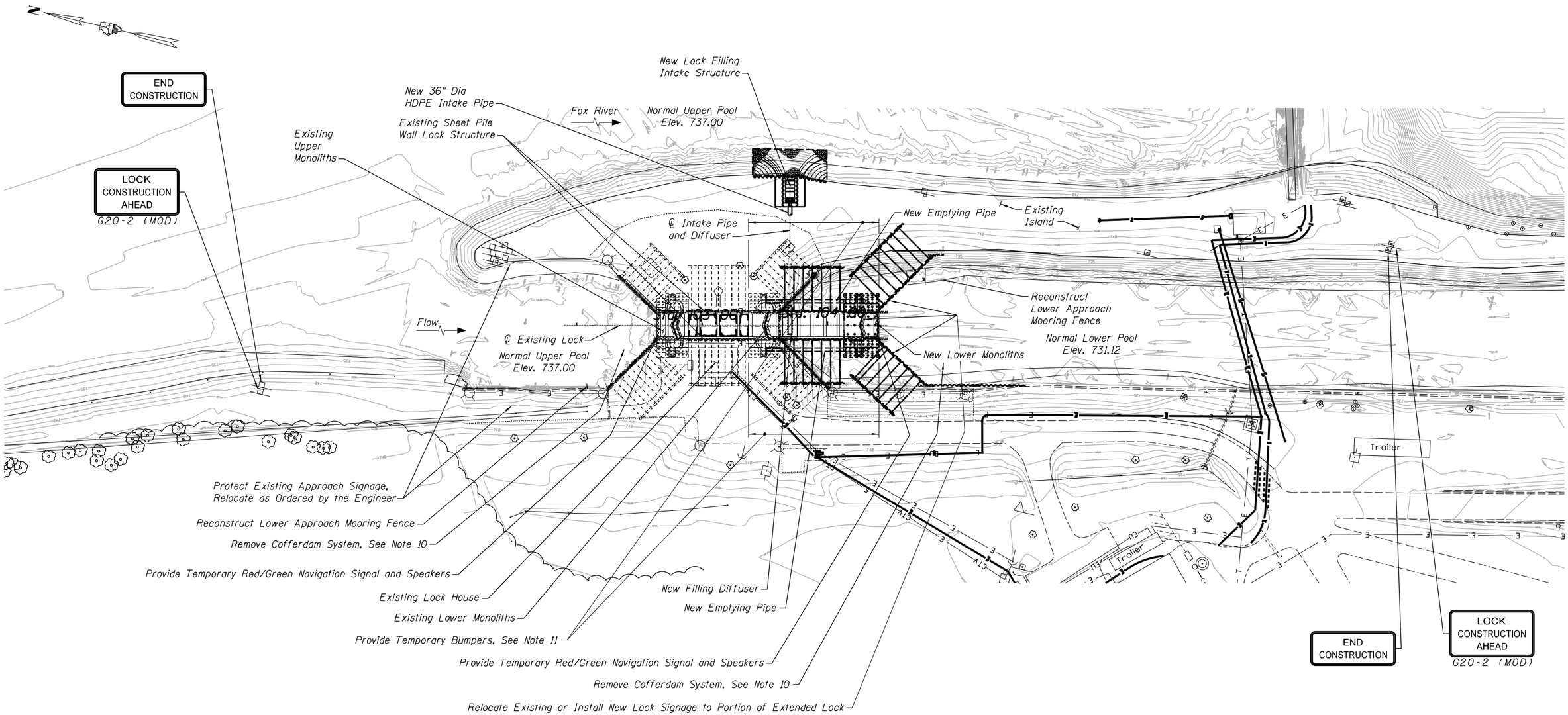
	PROJECT FR-435		



PLAN

Notes:

1. *The Temporary Boating Traffic Controls Shown are for Illustration Only. The Contractor Shall Provide Temporary Signage, Vessel Protection Measures and Lock Operation Systems (Temporary Navigation Lights, Speakers, Cameras, etc.) to Allow Safe Operation of the Lock During the Navigation Season. Design, Installation, and Maintenance of the Temporary Signage, Vessel Protection Measures, and Lock Operation Systems Shall be the Responsibility of the Contractor and Subject to Acceptance by the Engineer.*

2. *Deviation from the Plans or MUTCD Shall Occur Only with Written Permission from the Engineer.*

3. *Work Zone Traffic Control Shall be Complied with Throughout the Length and Duration of the Contract in Accordance with the Manual on Uniform Traffic Control Devices (MUTCD). Section 701 of the Standard Specifications, and the Contract Documents.*

4. *At All Times During Construction, the Contractor Must Provide Safe and Convenient Emergency Access. Local Fire, Police, and Ambulance Agencies Shall be Notified by the Contractor Prior to the Start of Work in Order to Coordinate and Maintain Sufficient Emergency Services.*

5. *Locations Shown are Approximate Only and May be Revised by the Engineer to Meet Field Conditions.*

6. *The Signage Shown is a Minimum Only. The Contractor Shall Provide Additional Signage, as May be Required, to improve Traffic and/or Field Conditions, as Accepted by the Engineer.*

7. *The Cost for Temporary Boat Traffic Control Work Shall Include, but is not Limited to, All Labor, Equipment, and Materials Required. Furnish & Install all Signs, Maintaining & Adjusting Signage, Providing Temporary Sound or Camera Systems, and Temporary Lock Restoration Measures. Include Cost in the Price Bid for the Temporary Boat Traffic Control and Channel Restoration Item.*

8. *The Engineer Shall Approve the Condition of All Temporary Traffic Control Devices Prior to Use. The Engineer Shall Also Review the Proposed Work Zone Traffic Control Plan for Precise Device Positioning Prior to Installation.*

9. *All Signs Shall Conform to the MUTCD. Orange Signs on Rigid Panels Shall be Fluorescent-orange ASTM Type IX (Class E) Retroreflective Sheeting. All Other Colors of Construction Sign Faces on Rigid Panels Shall be ASTM Type III (Class B) Reflective Sheeting.*

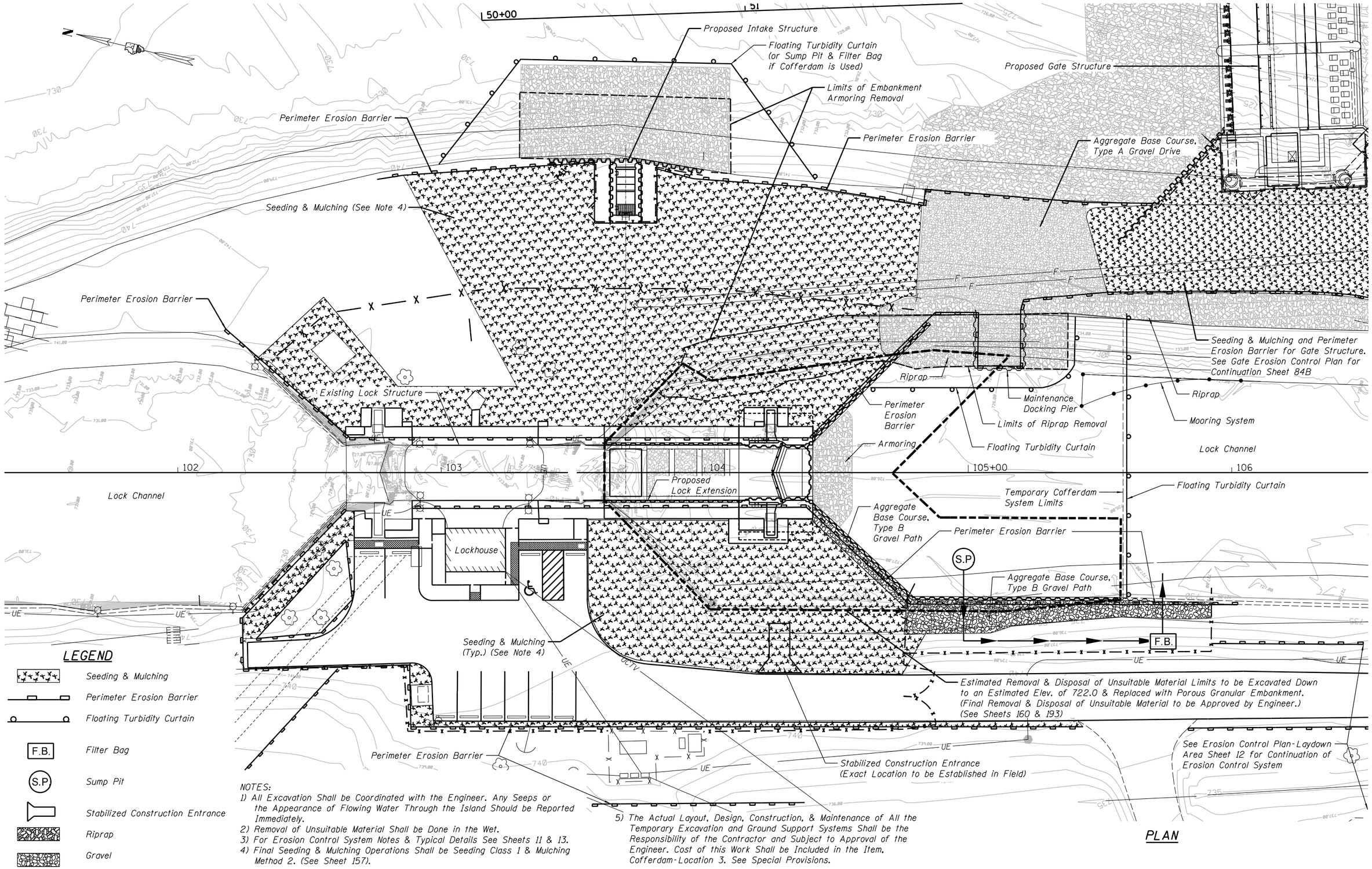
10. *No Contractor Equipment or Construction Materials, Except Temporary Protective Measures and Permanent Lock Features, as Approved by the Engineer, Shall be Permitted in the Lock Channel, Chamber, or Approaches During the Navigation Season.*

11. *Temporary Bumpers Shall be Provided for the Lower Monoliths and Lock Extension Walls Wherever Final Bumpers and Gates are not Installed During Any Navigation Season. Temporary Bumpers Shall Extend From El. 729.70 (Max.) to El. 736.20 (Min.). A Rigid Support System for Temporary Bumpers Shall be Designed, Installed and Maintained by the Contractor and Shall be Subject to Acceptance by the Engineer.*

12. *The Contractor Shall Complete Temporary Lock Signage and Restoration Measures a Minimum of 10 Calendar Days Prior to Opening of the Navigation Season for Operational Testing and Adjustments for Use of the Lock.*

13. *A Temporary Video Camera System may be Required for Viewing of the Downstream Approcah Area. See Sppecifications for Additional Requirements.*

FILE NAME = S-4005BER-SITE.dgn	USER NAME =	DESIGNED - JMR	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	TEMPORARY BOATING TRAFFIC CONTROL PLAN STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS	ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY / TOTAL SHEETS / SHEET NO.
Bergmann associates architects // engineers // planners		CHECKED - WRM	REVISED -				McHENRY / 238 / 155
	PLOT SCALE =	DRAWN - JLM	REVISED -				PROJECT FR-435
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - TSH	REVISED -				



PLAN

LEGEND

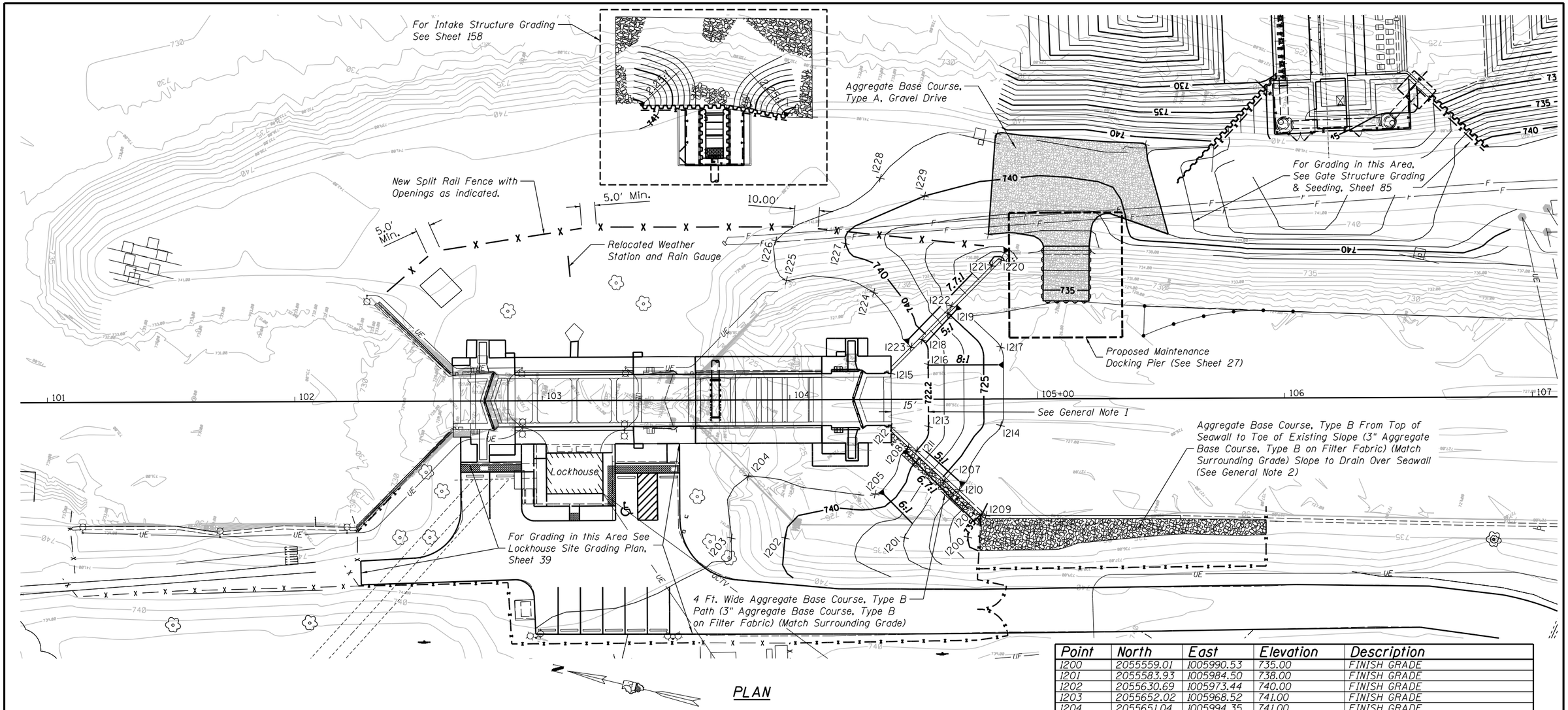
- Seeding & Mulching
- Perimeter Erosion Barrier
- Floating Turbidity Curtain
- F.B. — Filter Bag
- S.P — Sump Pit
- Stabilized Construction Entrance
- Riprap
- Gravel

NOTES:

1) All Excavation Shall be Coordinated with the Engineer. Any Seeps or the Appearance of Flowing Water Through the Island Should be Reported Immediately.
2) Removal of Unsuitable Material Shall be Done in the Wet.
3) For Erosion Control System Notes & Typical Details See Sheets 11 & 13.
4) Final Seeding & Mulching Operations Shall be Seeding Class 1 & Mulching Method 2. (See Sheet 157).
5) The Actual Layout, Design, Construction, & Maintenance of All the Temporary Excavation and Ground Support Systems Shall be the Responsibility of the Contractor and Subject to Approval of the Engineer. Cost of this Work Shall be Included in the Item, Cofferdam-Location 3. See Special Provisions.

FILE NAME = C-1001-LOCK.dgn	USER NAME =	DESIGNED - LJB	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	LOCK EXCAVATION & EROSION CONTROL PLAN STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HANSON		CHECKED - TMF	REVISED -		
	PLOT SCALE =	DRAWN - EJM/SKB	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - LJB	REVISED -		

ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	156
PROJECT FR-435			



PLAN

Point	North	East	Elevation	Description
1200	2055559.01	1005990.53	735.00	FINISH GRADE
1201	2055583.93	1005984.50	738.00	FINISH GRADE
1202	2055630.69	1005973.44	740.00	FINISH GRADE
1203	2055652.02	1005968.52	741.00	FINISH GRADE
1204	2055651.04	1005994.35	741.00	FINISH GRADE
1205	2055599.46	1005998.97	741.00	FINISH GRADE
1206	2055556.03	1006000.52	735.00	FINISH GRADE/TOP OF WINGWALL
1207	2055573.46	1006010.52	738.00	FINISH GRADE/TOP OF WINGWALL
1208	2055590.85	1006020.51	741.00	FINISH GRADE/TOP OF WINGWALL
1209	2055553.90	1006000.75	734.70	FINISH GRADE/TOP OF WINGWALL
1210	2055566.83	1006008.16	726.00	FINISH GRADE CHANNEL
1211	2055587.16	1006019.78	722.20	FINISH GRADE CHANNEL
1212	2055599.24	1006026.74	722.20	FINISH GRADE CHANNEL
1213	2055584.61	1006030.39	722.20	FINISH GRADE CHANNEL
1214	2055556.39	1006037.43	726.00	FINISH GRADE CHANNEL
1215	2055604.24	1006047.88	722.20	FINISH GRADE CHANNEL
1216	2055590.43	1006054.78	722.20	FINISH GRADE CHANNEL
1217	2055563.51	1006068.23	726.00	FINISH GRADE CHANNEL
1218	2055595.01	1006063.89	722.20	FINISH GRADE CHANNEL
1219	2055587.13	1006076.66	725.00	FINISH GRADE CHANNEL
1220	2055571.16	1006102.53	734.70	FINISH GRADE/WINGWALL
1221	2055574.50	1006099.50	735.00	FINISH GRADE/TOP OF WINGWALL
1222	2055586.63	1006079.84	738.00	FINISH GRADE/TOP OF WINGWALL
1223	2055598.81	1006060.13	741.00	FINISH GRADE/TOP OF WINGWALL
1224	2055618.45	1006078.11	741.00	FINISH GRADE
1225	2055653.92	1006074.88	741.00	FINISH GRADE
1226	2055661.75	1006089.45	741.00	FINISH GRADE
1227	2055634.14	1006094.73	740.00	FINISH GRADE
1228	2055626.31	1006123.67	741.00	FINISH GRADE
1229	2055607.27	1006120.74	740.00	FINISH GRADE

General Notes:

1. Elevation 722.20 Must Be Maintained at Least 15 ft. from the Concrete Lock Sill.
2. Finished Grade Shall be Flush With Top of Wingwall & Seawall.
3. Disturbed Areas Shall be Final Shaped per Section 212 With Top Soil Applied per Section 211 of the Standard Specifications. Top Soil Shall be Applied to a Depth of 4". All Disturbed Surfaces Shall be Mulched Using Method 2 and Mechanically seeded Per Section 250 of the Standard Specifications Using a Class 1 Lawn Mixture. Unless Otherwise Noted.

FILE NAME = C-1002-LOCK.dgn	USER NAME =	DESIGNED - LJB	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	LOCK GRADING & SEEDING STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HANSON		CHECKED - TMF	REVISED -		
	PLOT SCALE =	DRAWN - SKB/EJM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - LJB	REVISED -		

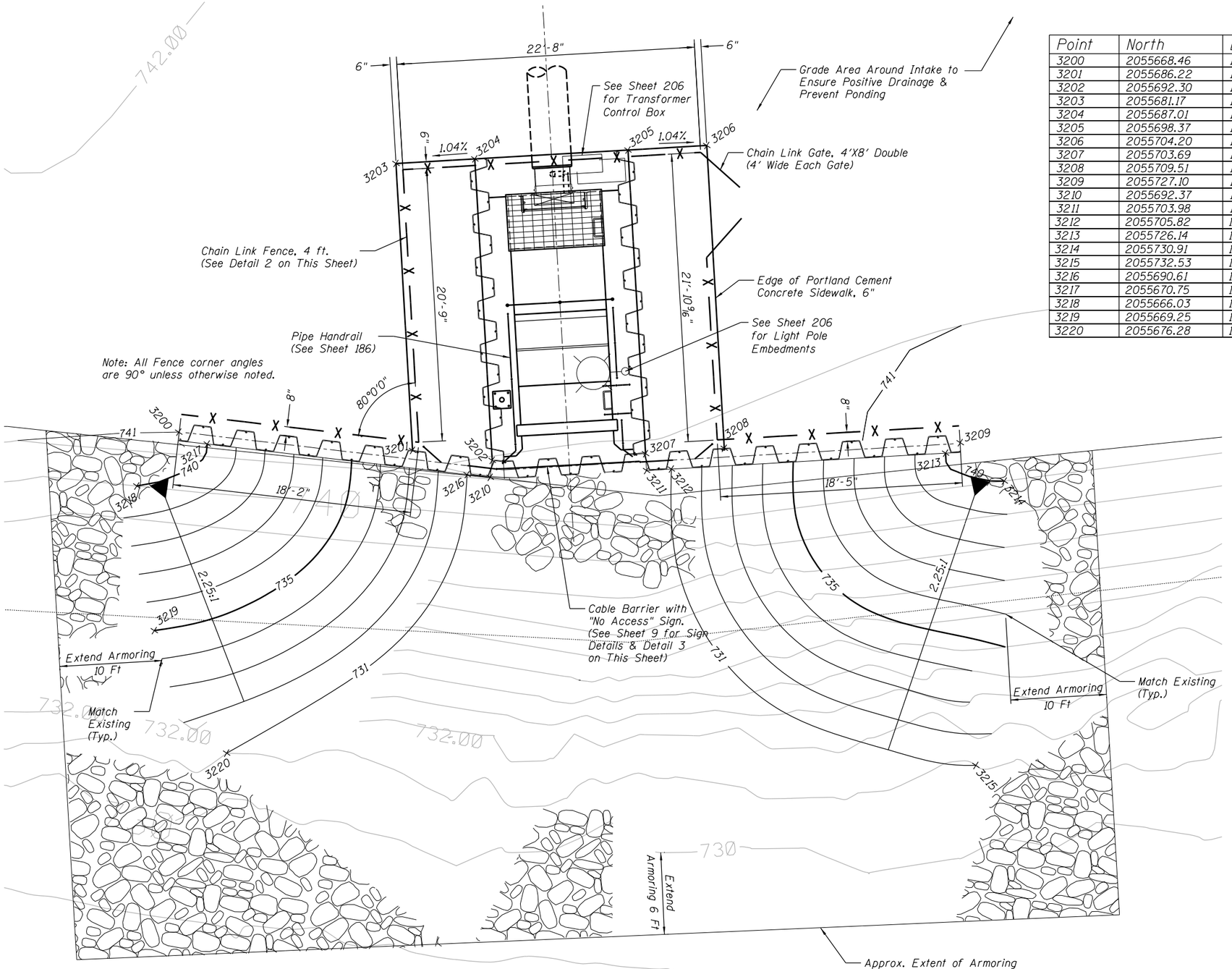
ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	157

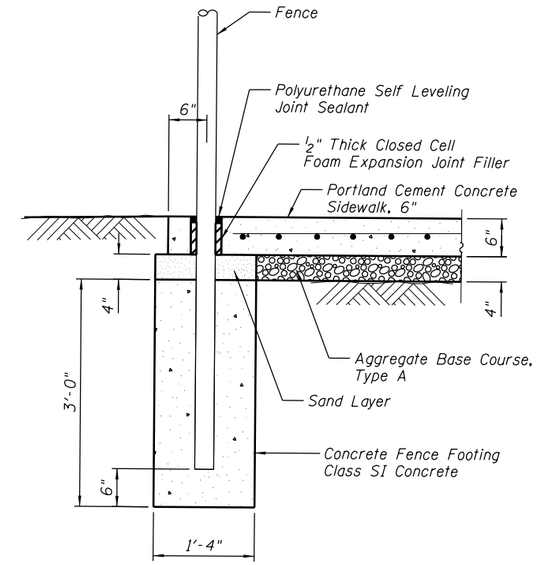
PROJECT FR-435

INTAKE STRUCTURE

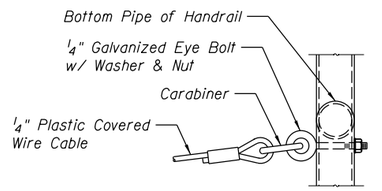
Point	North	East	Elevation	Description
3200	2055668.46	1006139.17	741.00	Finish Grade at Sheet Piling
3201	2055686.22	1006137.50	741.64	Top of Concrete at Sheet Piling
3202	2055692.30	1006137.15	741.70	Top of Concrete at Sheet Piling
3203	2055681.17	1006116.20	741.64	Top of Concrete/Finish Grade
3204	2055687.01	1006114.82	741.70	Top of Concrete/Finish Grade
3205	2055698.37	1006112.13	741.70	Top of Concrete/Finish Grade
3206	2055704.20	1006110.75	741.64	Top of Concrete/Finish Grade
3207	2055703.69	1006134.62	741.70	Top of Concrete at Sheet Piling
3208	2055709.51	1006133.18	741.64	Top of Concrete at Sheet Piling/Finish Grade
3209	2055727.10	1006129.65	740.50	Finish Grade At Sheet Piling
3210	2055692.37	1006138.44	730.20	Top of Intake Slab
3211	2055703.98	1003165.87	730.20	Top of Intake Slab
3212	2055705.82	1006135.43	731.00	Channel at Sheet Piling
3213	2055726.14	1006130.63	740.00	Channel Finish Grade at Sheet Piling
3214	2055730.91	1006131.94	740.00	Match Existing Grade
3215	2055732.53	1006153.60	731.00	Match Existing Grade
3216	2055690.61	1006138.54	731.00	Channel Finish Grade at Sheet Piling
3217	2055670.75	1006139.69	740.00	Finish Grade at Sheet Piling
3218	2055666.03	1006143.76	740.00	Match Existing Grade
3219	2055669.25	1006154.35	735.00	Match Existing Grade
3220	2055676.28	1006162.56	731.00	Match Existing Grade



1/158 INTAKE STRUCTURE GRADING FENCING PLAN



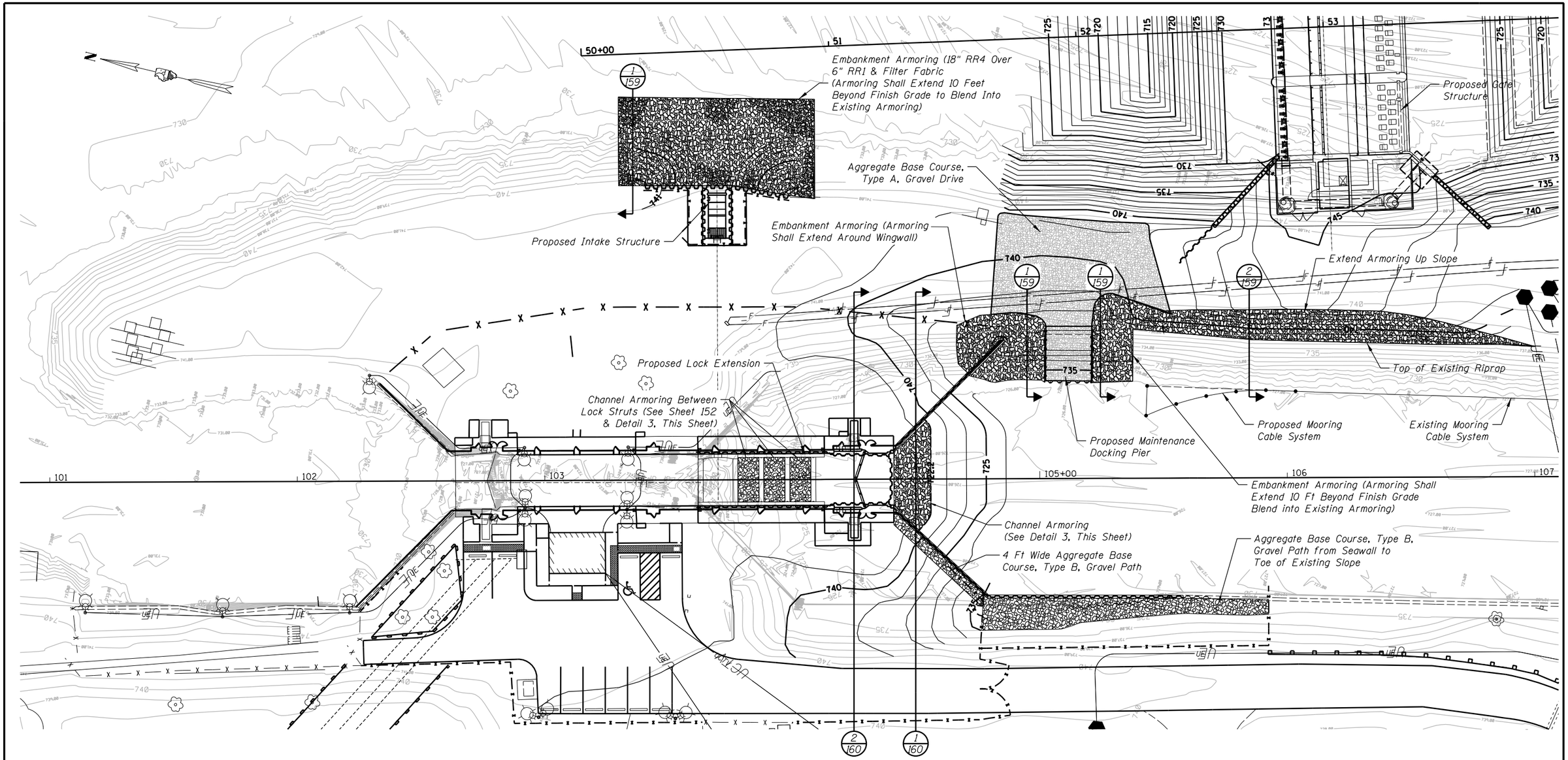
2/158 FENCE ANCHOR DETAIL

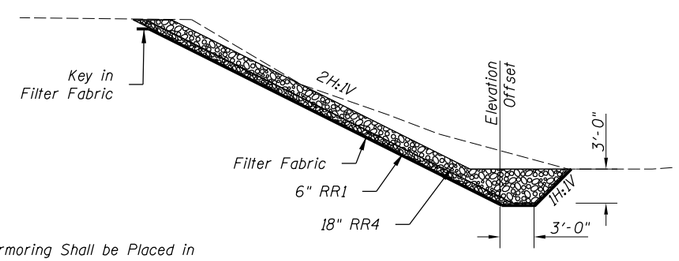


3/158 CABLE CONNECTION DETAIL

FILE NAME = C-1011-LOCK.dgn	USER NAME =	DESIGNED - LJB	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	INTAKE STRUCTURE GRADING AND FENCING PARTIAL PLAN STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HANSON		CHECKED - TMF	REVISED -		
	PLOT SCALE =	DRAWN - SKB	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - LJB	REVISED -		

ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	158
	PROJECT FR-435		

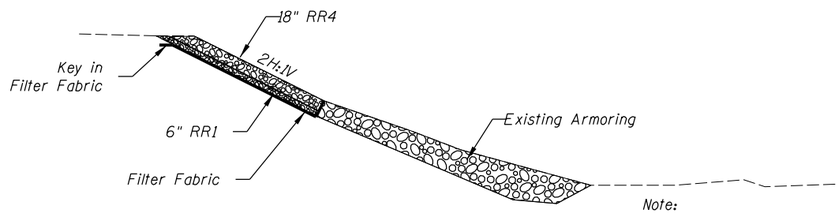




Notes:
1. Channel Armoring Shall be Placed in Uniform Thickness.

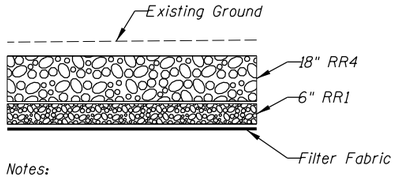
1/159 BANK ARMORING TYPICAL SECTION

PLAN



Note:
1. Channel Armoring Shall be Placed in Uniform Thickness.

2/159 EXTENSION OF EXISTING ARMORED SLOPE

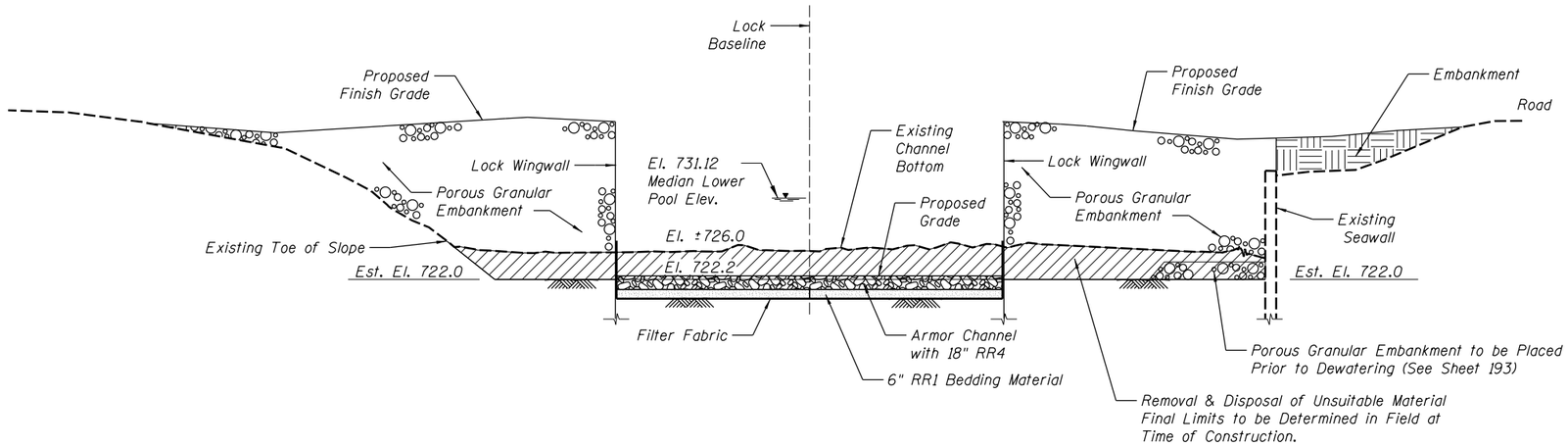


Notes:
1. Channel Armoring Shall be Placed in Uniform Thickness.

3/159 Channel Armoring Section

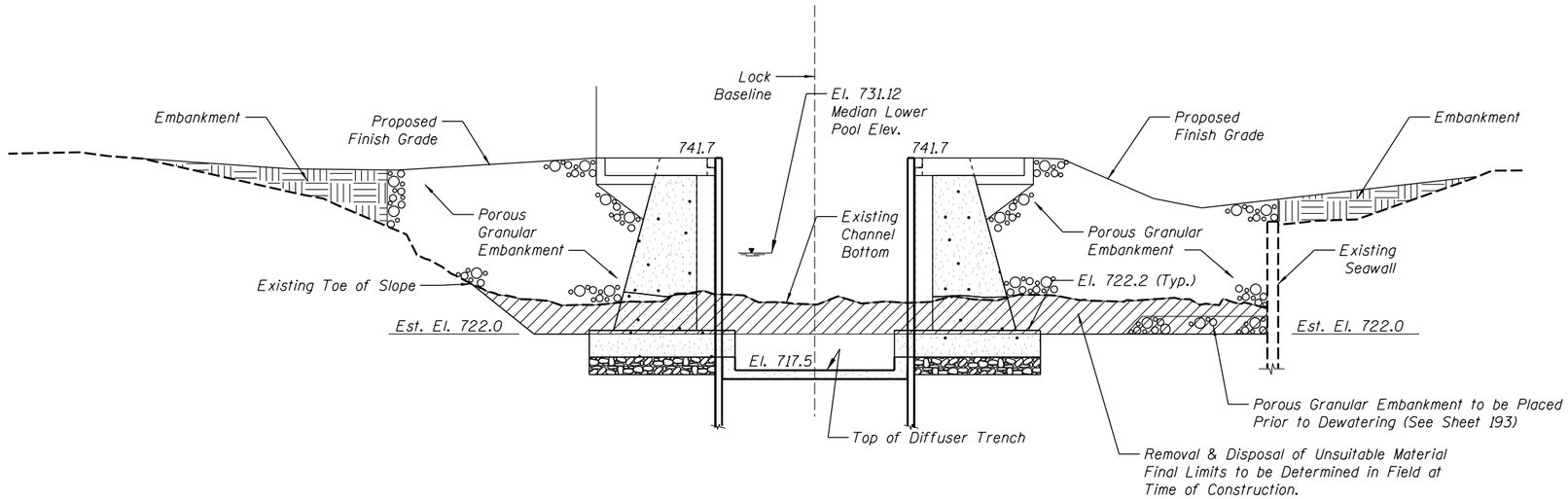
FILE NAME = C-1003-LOCK.dgn	USER NAME =	DESIGNED - LJB	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	LOCK CHANNEL & EMBANKMENT ARMORING PLAN STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HANSON		CHECKED - TMF	REVISED -		
	PLOT SCALE =	DRAWN - SKB/EJM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - LJB	REVISED -		

ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	159
	PROJECT FR-435		



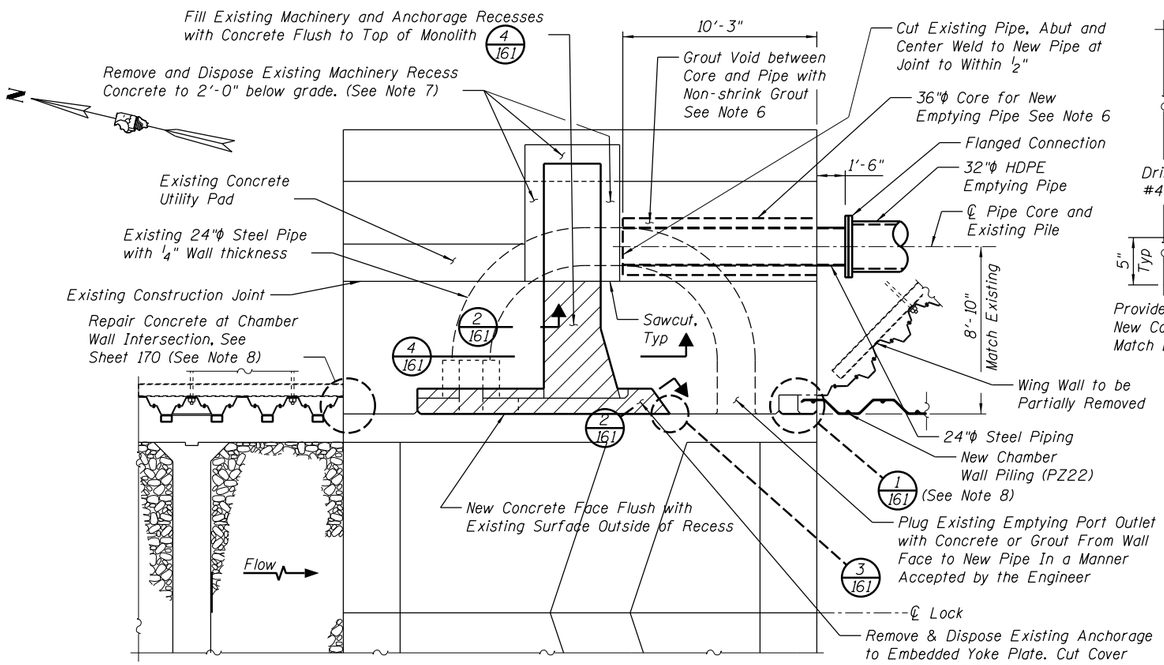
1/160 LOCK CHANNEL ARMORING SECTION

Note: Channel Armoring
Material to be Placed
in Uniform Thickness

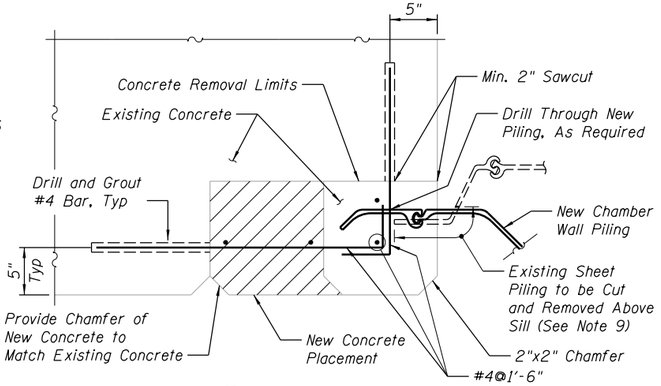


2/160 LOCK CHANNEL SECTION AT NEW MONOLITHS

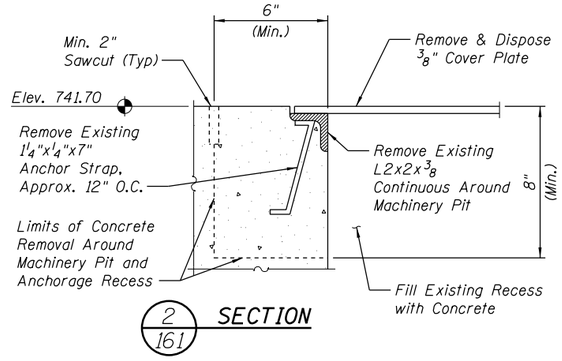
FILE NAME = C-5001-LOCK.dgn	USER NAME =	DESIGNED - LJB	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	LOCK CIVIL TYPICAL DETAILS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS	ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY / TOTAL SHEETS / SHEET NO.
HANSON		CHECKED - TMF	REVISED -				McHENRY / 238 / 160
	PLOT SCALE =	DRAWN - SKB	REVISED -				PROJECT FR-435
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - LJB	REVISED -				



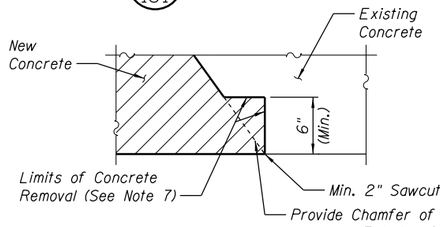
PLAN



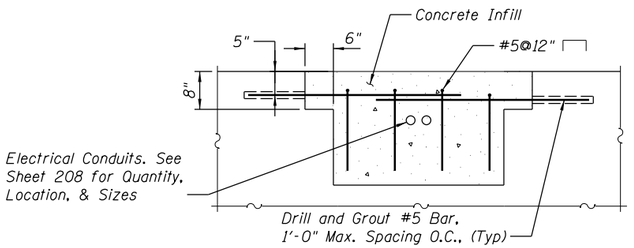
1/161 DETAIL



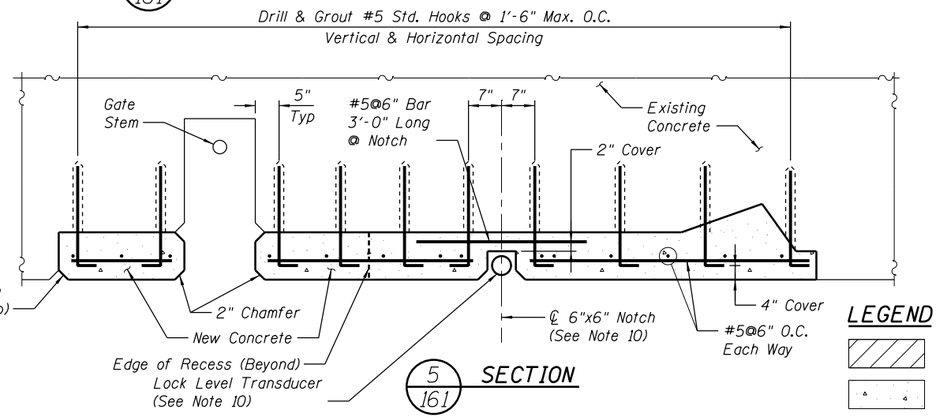
2/161 SECTION



3/161 SECTION



4/161 DETAIL

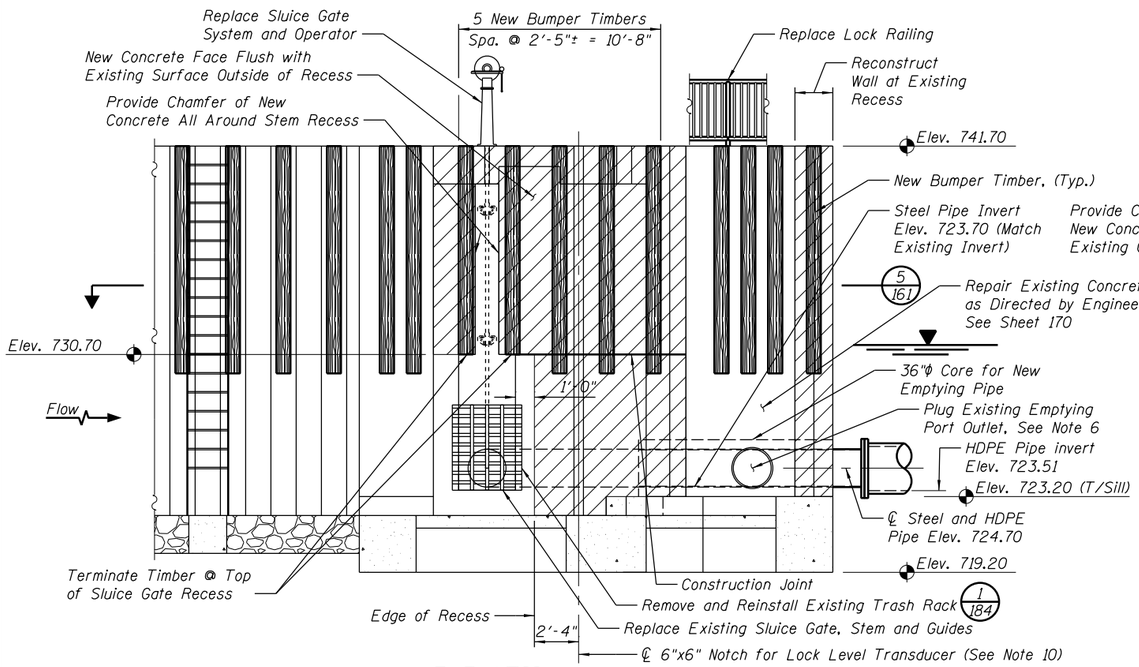


5/161 SECTION

LEGEND

New Concrete Surface

New Concrete Section



ELEVATION

Notes:

1. River Side Monolith Shown. Similar Work to be Performed for Land Side Monolith.
2. Replace Existing Bumper Timbers to Match Existing. Replace Nuts and Washers with in-kind SS Hardware. Existing Threaded Fasteners may be Reused with Acceptance by the Engineer. Drill and Grout 5/8" Dia. SS Fasteners into Concrete for New Timber Bumpers with SS Nuts and Washers. Provide 1/2" Clear Between Timber Face and Anchor Rod. This Work Shall be Considered Incidental to Treated Timber Work and Shall be Paid for Under the Treated Timber Pay Item. Confirm Locations of Timbers with Engineer Prior to Installation.
3. Steel Piping Shall be 1/2" Wall in Accordance with the Specifications. All Joints Shall be Welded.
4. Contractor Shall Furnish Six (6) New Spare Bumper Timbers to the Department.
5. Perform Repairs to Existing Concrete Surfaces as Directed by Engineer. See Sheet 170.
6. Include Cost for Coring 36" Diameter Hole, Grouting 24" Diameter Steel Pipe, and Plugging Existing Emptying Port in Lock Steel Piping - Existing Lock Monoliths Pay Item. Conduct Coring for New Emptying Pipe in a Manner Acceptable to The Engineer. Coring Work Shall not Damage Existing Monolith Concrete to Remain.
7. Cost for Removal of Concrete, Gate Anchorage Components, & Steel Embedments Shall be Considered Incidental to Concrete Structures Work. Concrete & Reinforcement to Fill Machinery Recess & Gate Recess Shall be Paid for Under the Concrete Structures & Reinforcement Bars Pay Items, Respectively.
8. Cost for Demolition, Reinforcement & Concrete Reconstruction at Corners of Monolith Shall be Paid for Under the Structural Repair of Concrete (Depth Greater Than 5") Pay Item.
9. Existing U-Sheetpile to be Removed Above Elev. 723.2 to Allow Clearance for Installation of New Chamber Wall Piling. Verify Conditions and Piling Locations and Coordinate Removal and Reconstruction Details with the Engineer.
10. Notch for Lock Level Transducer Shall be Constructed on West (Land) Side of Lock Only.

FILE NAME = S-100IBER-LOCK.dgn	USER NAME =	DESIGNED - TRM	REVISED -
Bergmann associates architects // engineers // planners		CHECKED - WRM	REVISED -
	PLOT SCALE =	DRAWN - JLM	REVISED -
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - TSH	REVISED -

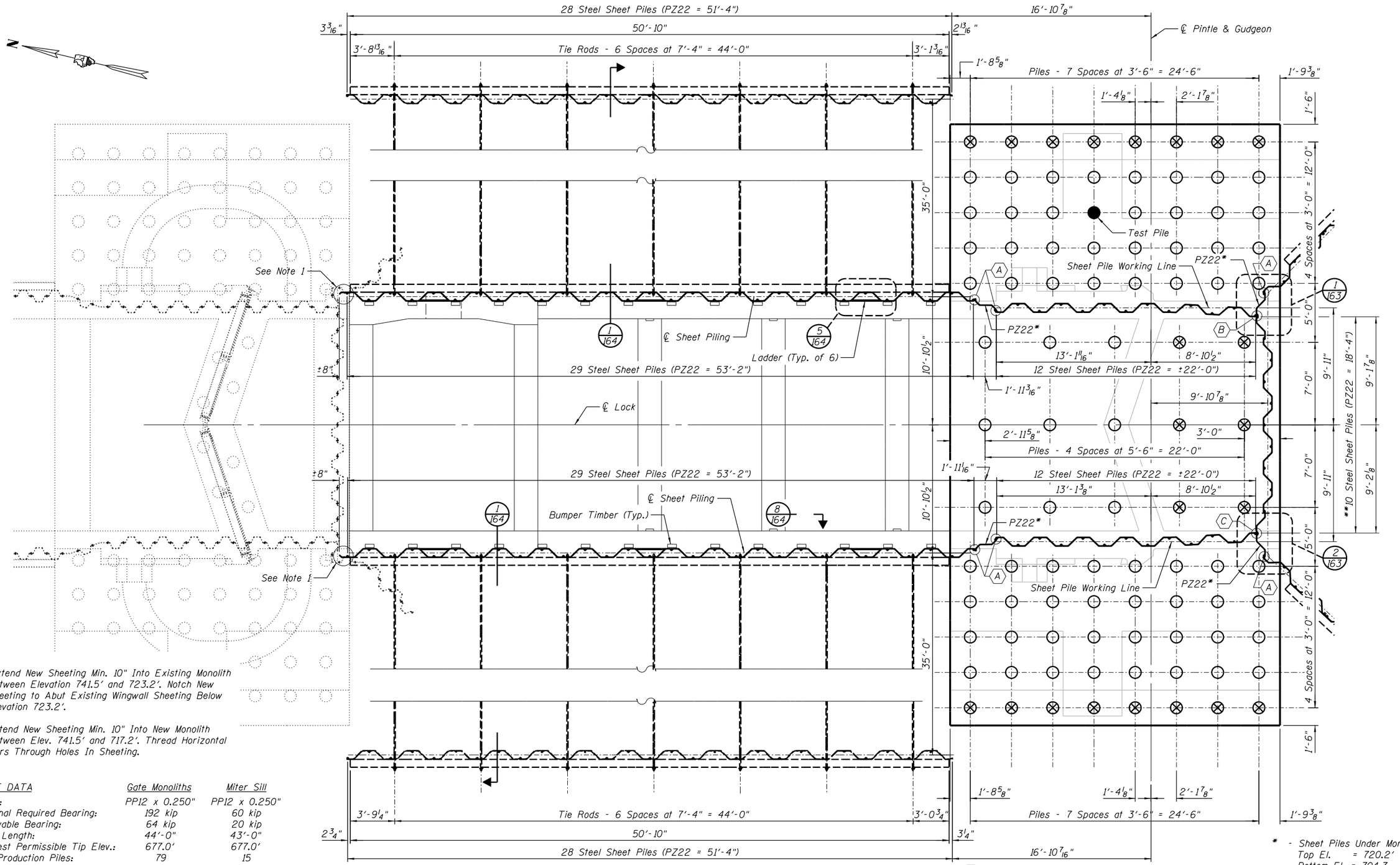
STATE OF ILLINOIS
DEPARTMENT OF NATURAL RESOURCES

EXISTING LOWER MONOLITH DECOMMISSIONING
STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS

ILLINOIS DEPARTMENT OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	161

PROJECT FR-435



Notes:

1. Extend New Sheeting Min. 10" Into Existing Monolith Between Elevation 741.5' and 723.2'. Notch New Sheeting to Abut Existing Wingwall Sheeting Below Elevation 723.2'.
2. Extend New Sheeting Min. 10" Into New Monolith Between Elev. 741.5' and 717.2'. Thread Horizontal Bars Through Holes In Sheeting.

PILE DATA	Gate Monoliths	Miter Sill
Type:	PP12 x 0.250"	PP12 x 0.250"
Nominal Required Bearing:	192 kip	60 kip
Allowable Bearing:	64 kip	20 kip
Est. Length:	44'-0"	43'-0"
Highest Permissible Tip Elev.:	677.0'	677.0'
No. Production Piles:	79	15
No. Test Piles:	1	0

⊗ - Denotes Pile to Include Head Reinforcement See Detail 3/163

All Bearing Piles Require Metal Shell Pile Shoes.

LOCK EXTENSION FOUNDATION PLAN

(A) Pile Connector - Colt, or Approved Equal
(B) Pile Connector - PZ Tee, or Approved Equal
(C) Pile Connector - Joker, or Approved Equal
Pile Connector Cost Included with Permanent Steel Sheet Piling.

* - Sheet Piles Under Monolith
Top El. = 720.2'
Bottom El. = 704.7

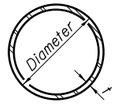
** - Sheet Piles Under Sill
Top El. = 719.2'
Bottom El. = 707.7'

FILE NAME = S-1002-LOCK.dgn	USER NAME =	DESIGNED - RGC	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	LOCK FOUNDATION PLAN STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HANSON		CHECKED - DDO	REVISED -		
	PLOT SCALE =	DRAWN - EJM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - RGC	REVISED -		

ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES

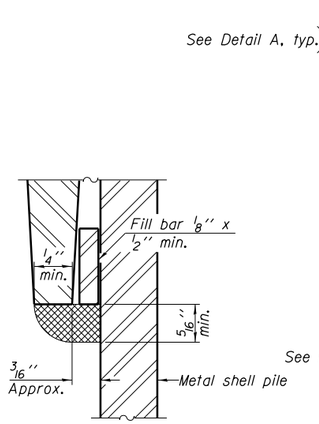
COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	162

PROJECT FR-435

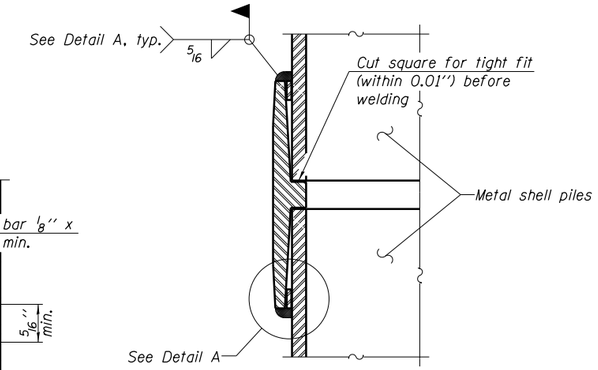


METAL SHELL PILE TABLE

Designation and outside diameter	Wall thickness t	Weight per foot (Lbs./ft.)	Inside volume ($yd.^3$/ft.)
PP12	0.179''	22.60	0.0274
PP12	0.250''	31.37	0.0267
PP14	0.250''	36.71	0.0368
PP14	0.312''	45.61	0.0361

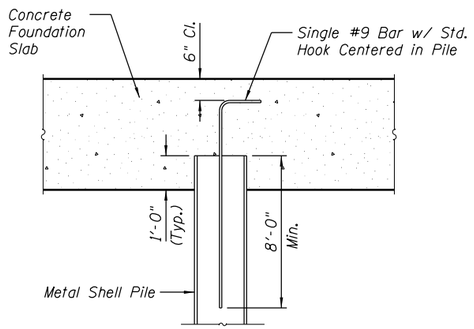


DETAIL A



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

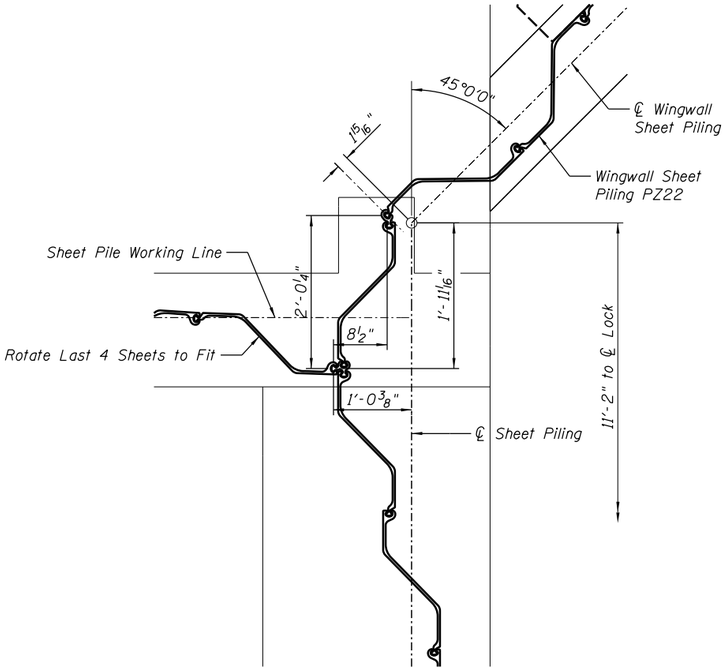
WELDED COMMERCIAL SPLICE



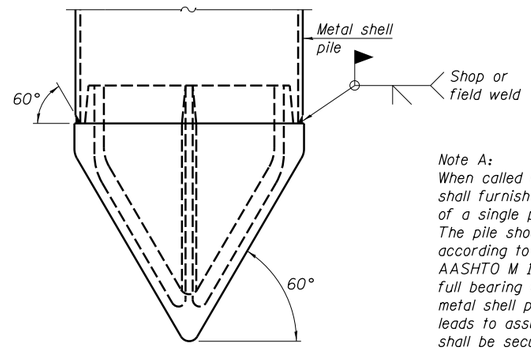
3/163 PILE HEAD REINFORCEMENT DETAIL

See Sheet 162 for Required Locations

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



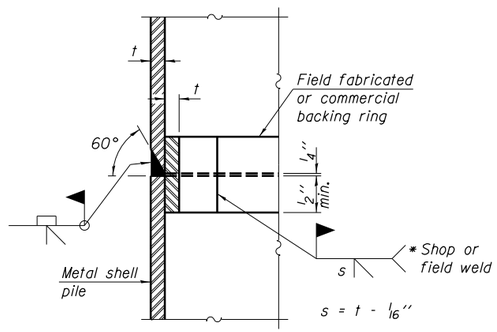
1/163 SHEET PILING CONNECTION DETAIL



Note A:
When called for on the plans, the Contractor shall furnish metal shell pile shoes consisting of a single piece conical pile point as shown. The pile shoes shall be cast in one piece steel according to either ASTM A 148 Grade 90-60 or AASHTO M 103 Grade 65-35 and shall provide full bearing over the full circumference of the metal shell pile. The pile shoe shall have tapered leads to assure proper alignment and fitting and shall be secured to the pile with a circumferential weld.

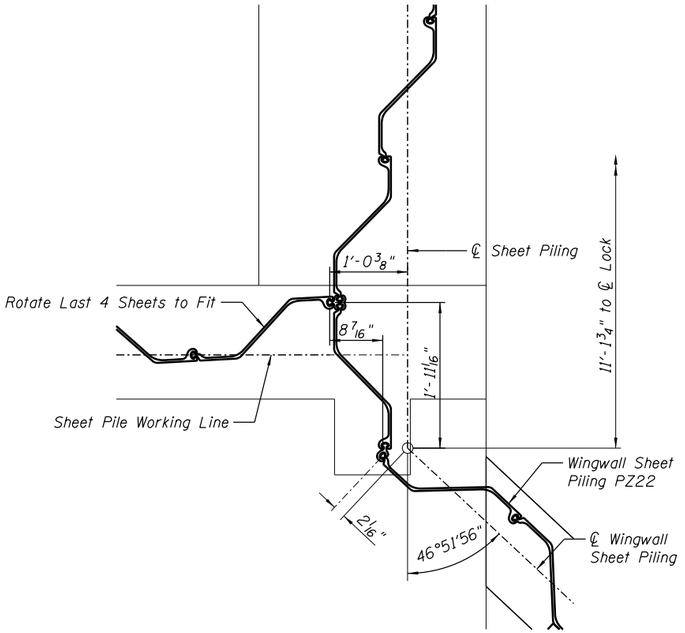
METAL SHELL PILE SHOE ATTACHMENT

(See Note A)



COMPLETE PENETRATION WELD SPLICE

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



2/163 SHEET PILING CONNECTION DETAIL

FILE NAME = S-5117-LOCK.dgn	USER NAME =	DESIGNED - RGC	REVISED -
HANSON		CHECKED - DDO	REVISED -
	PLOT SCALE =	DRAWN - EJM	REVISED -
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - RGC	REVISED -

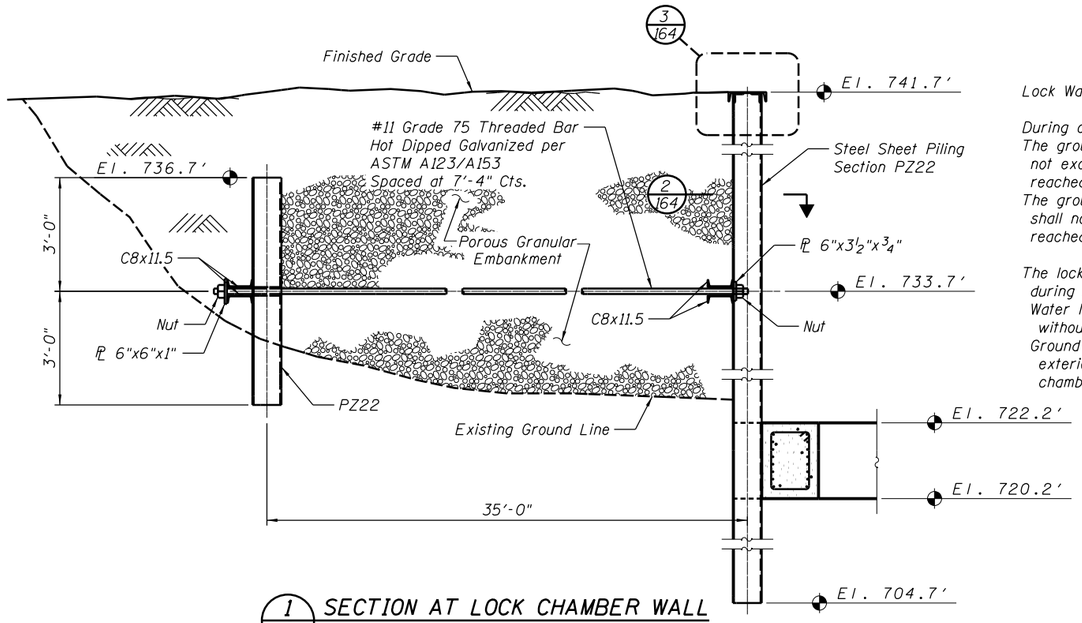
STATE OF ILLINOIS
DEPARTMENT OF NATURAL RESOURCES

PILE DETAILS
STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS

ILLINOIS DEPARTMENT OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	163

PROJECT FR-435

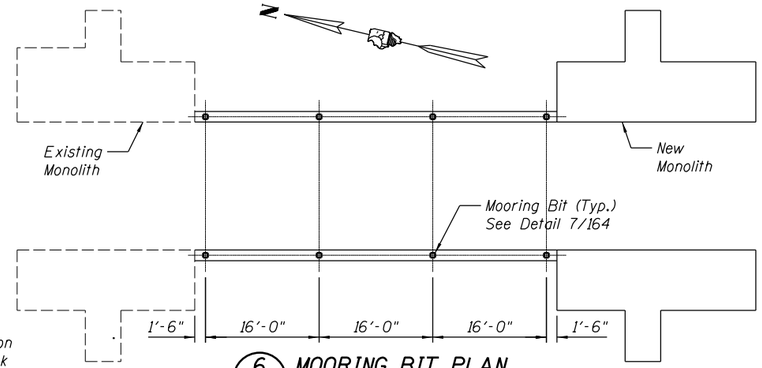


1/164 SECTION AT LOCK CHAMBER WALL

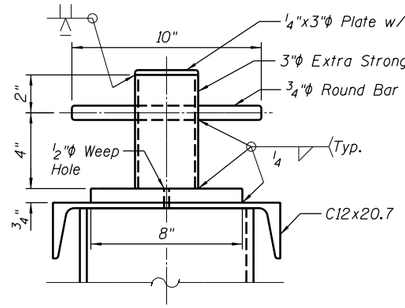
Lock Wall Staging Notes:

During construction of the lock chamber walls:
The ground line on the exterior side of the diffuser basin shall not exceed Elevation 722.2 until the diffuser basin floor slab has reached design strength.
The ground line on the exterior side of the lock chamber wall shall not exceed Elevation 724.7 until the lock chamber floor has reached design strength.

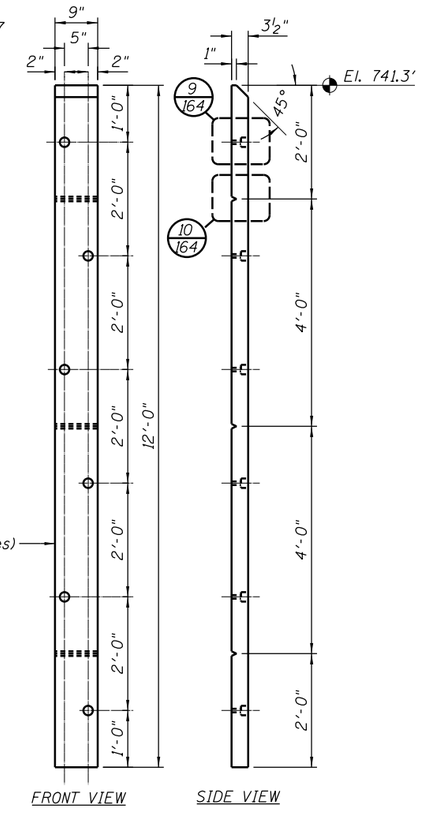
The lock chamber walls may be left in a partially completed state during the navigation season if all of the following are satisfied.
Water levels on both sides of the sheet pile are passively equalized without intervention by the contractor.
Ground line is equal on both sides of the sheet pile or ground line on exterior side is not more than 2.5 feet above top of completed lock chamber floor.



6/164 MOORING BIT PLAN

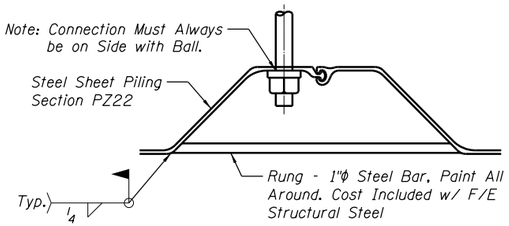


ELEVATION



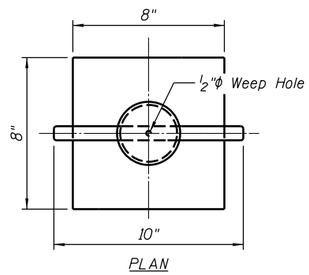
FRONT VIEW SIDE VIEW

8/164 BUMPER TIMBER DETAILS



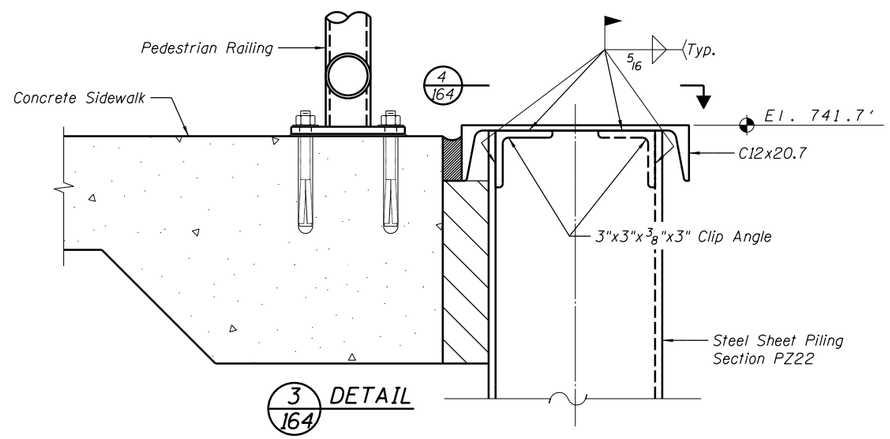
Rungs at 12" Cts.
Top Rung at El. 740.7'
Bottom Rung at El. 724.7'

5/164 LADDER DETAIL

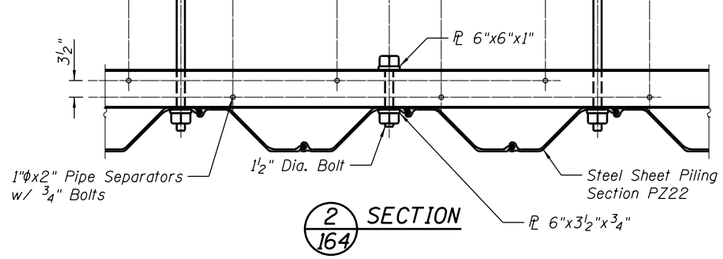


PLAN

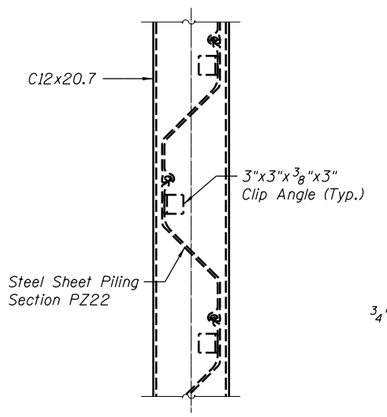
7/164 MOORING BIT DETAILS



3/164 DETAIL

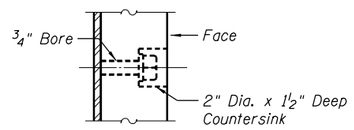


2/164 SECTION



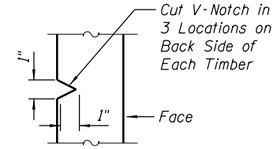
4/164 SECTION

Note:
Treated Timber Bumper Shall Be Attached Using ⅝"x3" Partially Threaded S.S. Studs w/ S.S. Nut & Washer. Cost Included with Treated Timber.



9/164 ATTACHMENT DETAIL

31 Required (Including 3 Spares)
Timbers Shall be Red Oak
Treated per Specifications



10/164 V-NOTCH DETAIL

FILE NAME = S-5001-LOCK.dgn	USER NAME =	DESIGNED - RGC	REVISED -
HANSON		CHECKED - DDO	REVISED -
	PLOT SCALE =	DRAWN - EJM	REVISED -
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - RGC	REVISED -

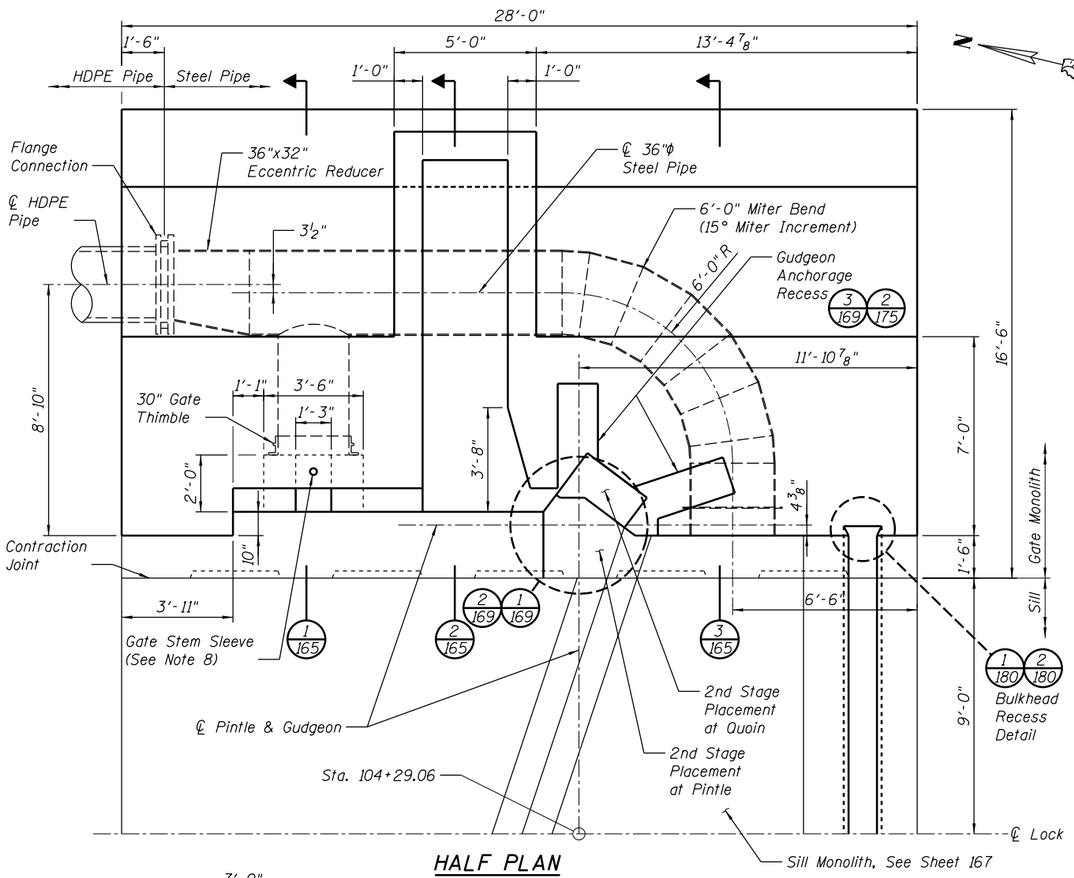
STATE OF ILLINOIS
DEPARTMENT OF NATURAL RESOURCES

LOCK CHAMBER WALL DETAILS
STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS

ILLINOIS DEPARTMENT OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES

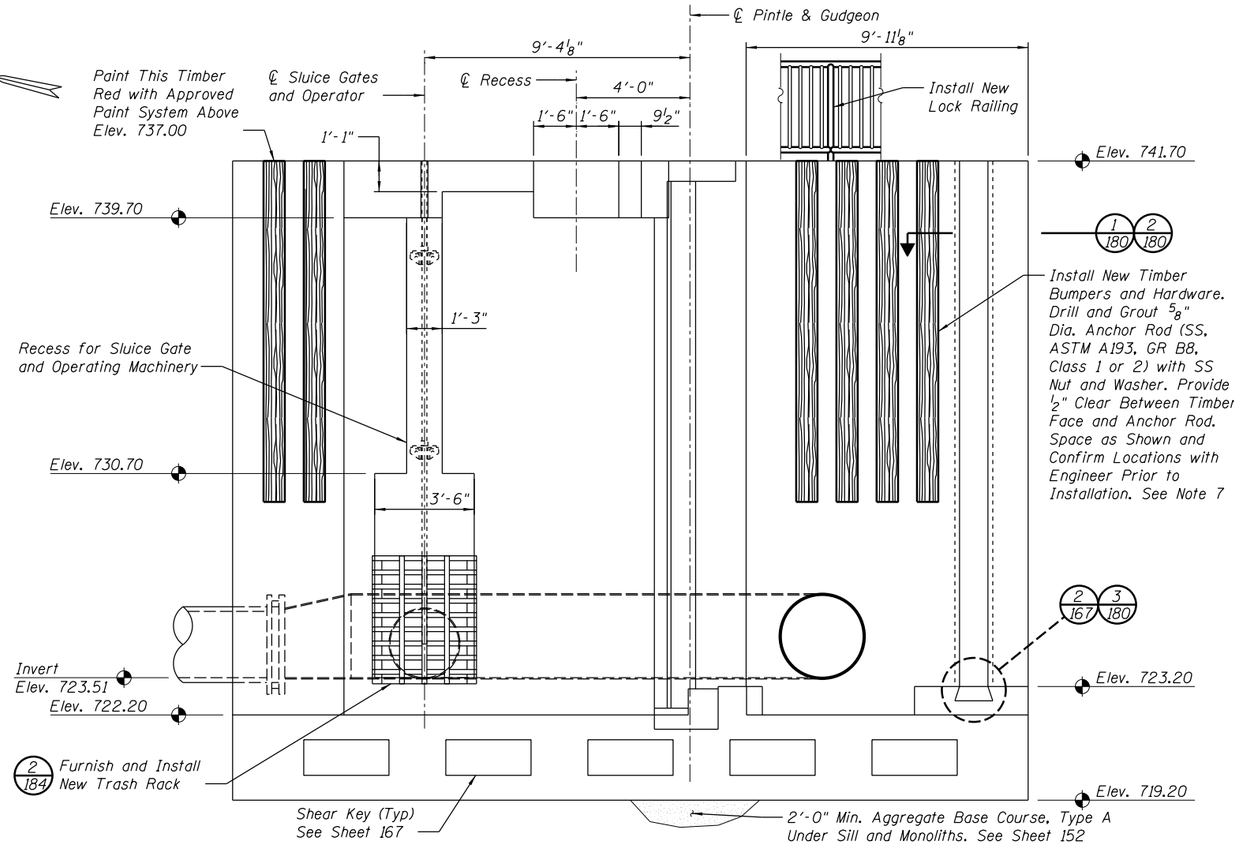
COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	164

PROJECT FR-435

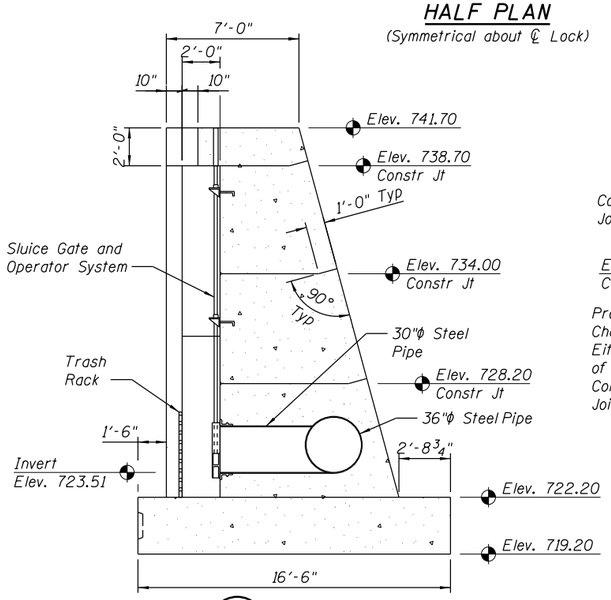


HALF PLAN

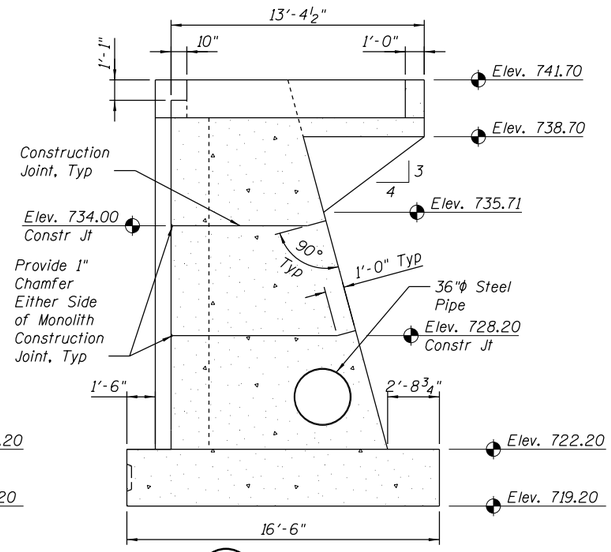
(Symmetrical about ℄ Lock)



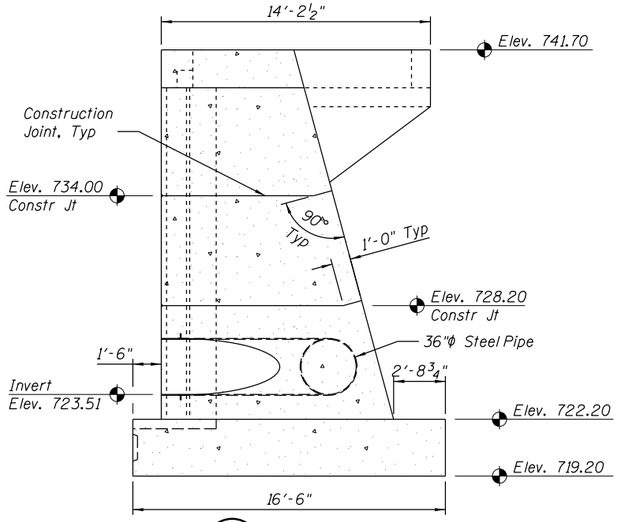
ELEVATION



1/165 SECTION



2/165 SECTION



3/165 SECTION

Notes:

1. Foundation Piling Not Shown, see Sheet 162.
2. Chamfer all Exposed Concrete Corners 2" UNO.
3. Steel Piping Shall be 1/2" Wall in Accordance with the Specifications. All Joints Shall be Welded.
4. The Contractor is Responsible for Sufficiently Bracing and Aligning Piping During Casting to Ensure Pipe Remains Stable and in Alignment.
5. Prepare All Construction Joints as Bonded Joint in Accordance with the Specifications. Provide 1/4" Minimum Amplitude Roughness.
6. Monolith Sill Shall be Constructed and Cured Prior to Backfilling Behind Lower Monolith Walls.
7. All Hardware, Anchor Rods, Metal Fasteners, and Drilling and Grouting Required to Connect New Timber Bumpers to New Lower Gate Monolith Shall be Considered Incidental to Treated Timber Work and Shall be Paid for Under the Treated Timber Pay Item.
8. Size & Locate Sleeve to Suit Gate/Operator Details.

FILE NAME = S-1002BER-LOCK.dgn	USER NAME =	DESIGNED - DTG	REVISED -
Bergmann associates architects // engineers // planners		CHECKED - WRM	REVISED -
	PLOT SCALE =	DRAWN - JLM	REVISED -
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - TSH	REVISED -

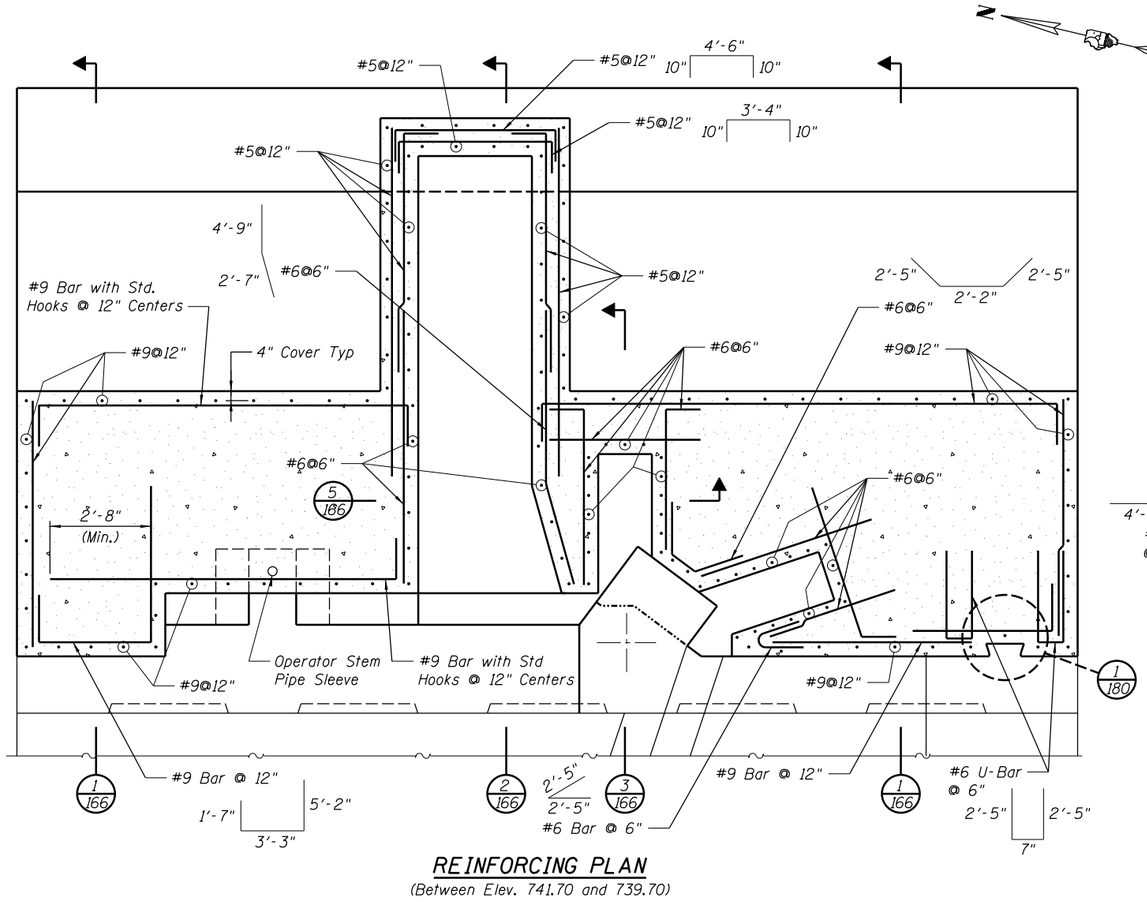
STATE OF ILLINOIS
DEPARTMENT OF NATURAL RESOURCES

NEW LOWER GATE MONOLITH – 1
STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS

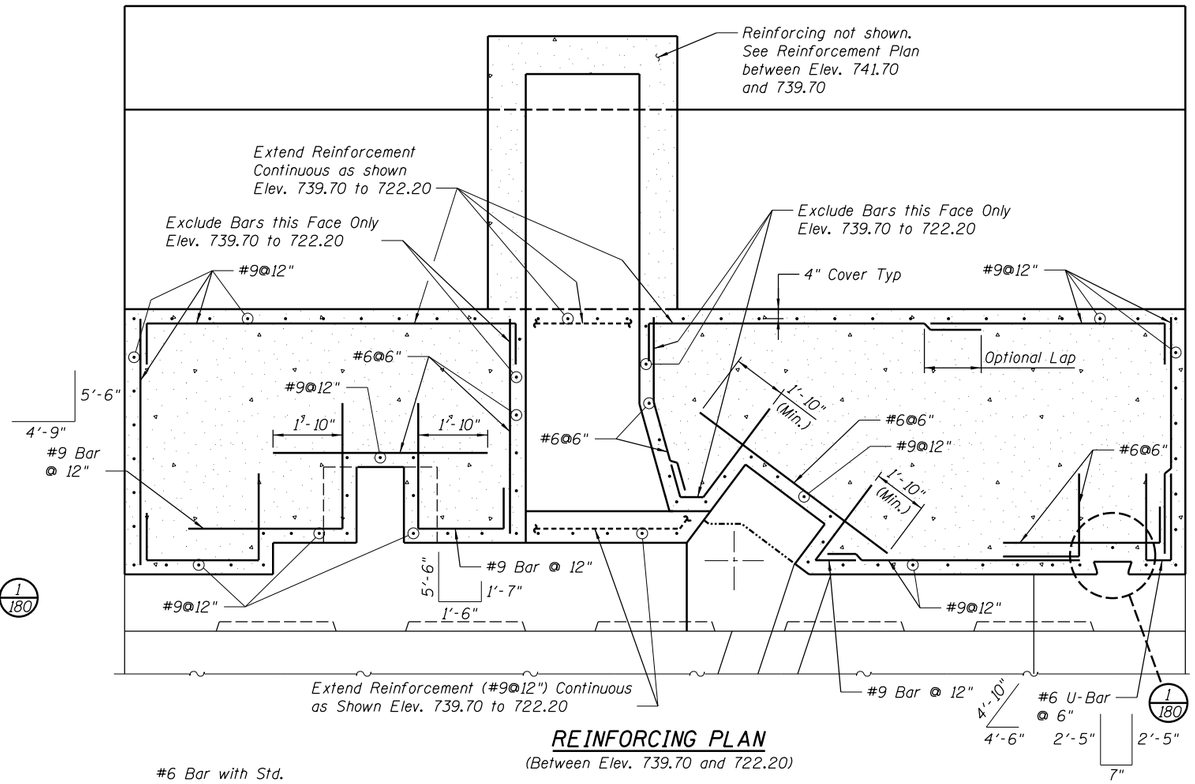
ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	165

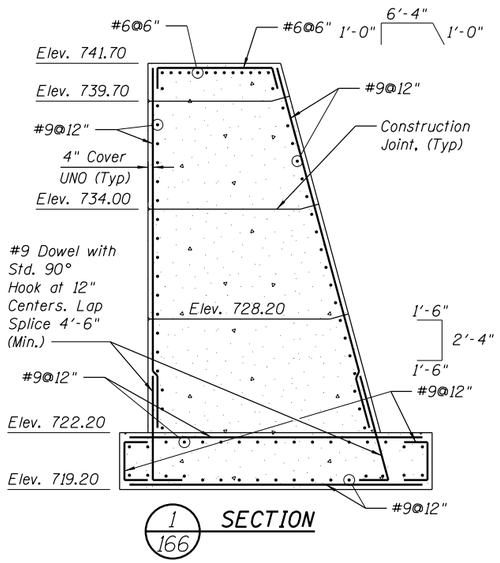
PROJECT FR-435



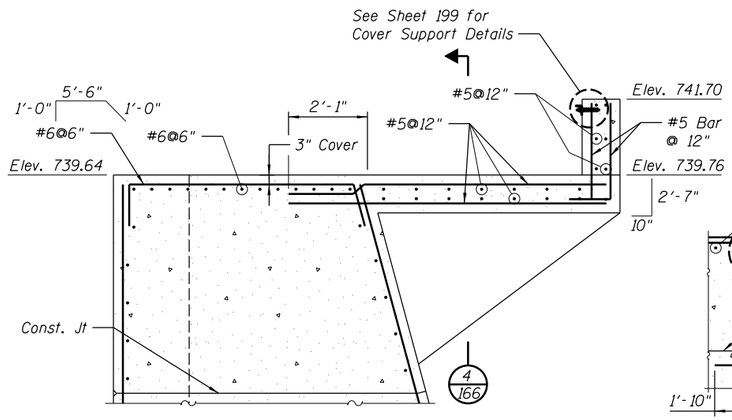
REINFORCING PLAN
(Between Elev. 741.70 and 739.70)



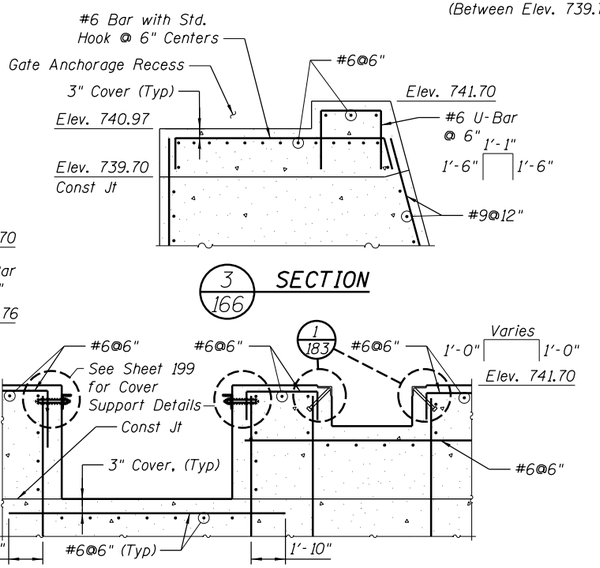
REINFORCING PLAN
(Between Elev. 739.70 and 722.20)



1/166 SECTION

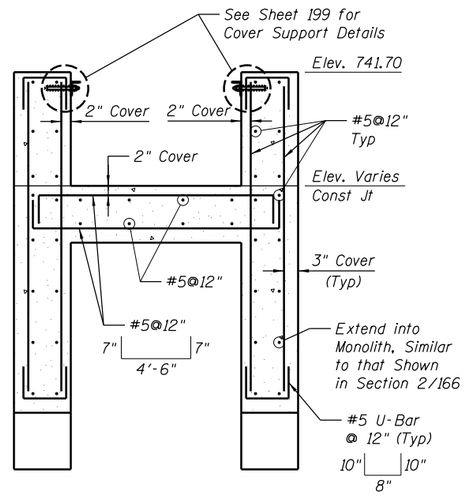


2/166 SECTION



3/166 SECTION

5/166 SECTION



4/166 SECTION

FILE NAME = S-1003BER-LOCK.dgn	USER NAME =	DESIGNED - DTG	REVISED -
Bergmann associates architects // engineers // planners		CHECKED - WRM	REVISED -
	PLOT SCALE =	DRAWN - JLM	REVISED -
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - TSH	REVISED -

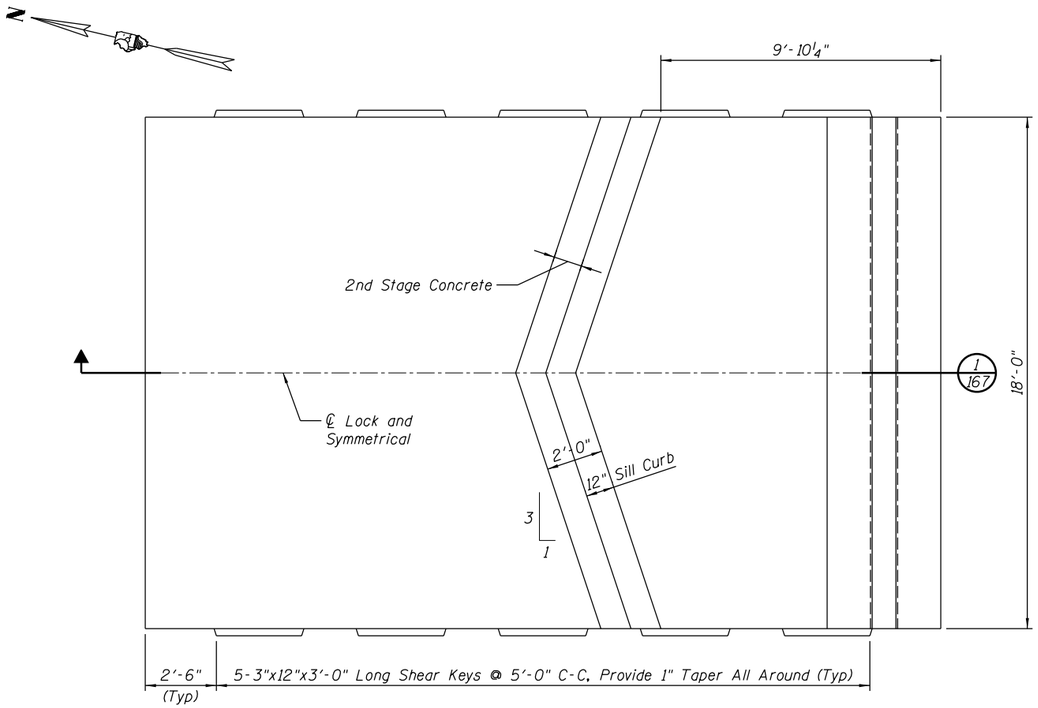
STATE OF ILLINOIS
DEPARTMENT OF NATURAL RESOURCES

NEW LOWER GATE MONOLITH – 2
STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS

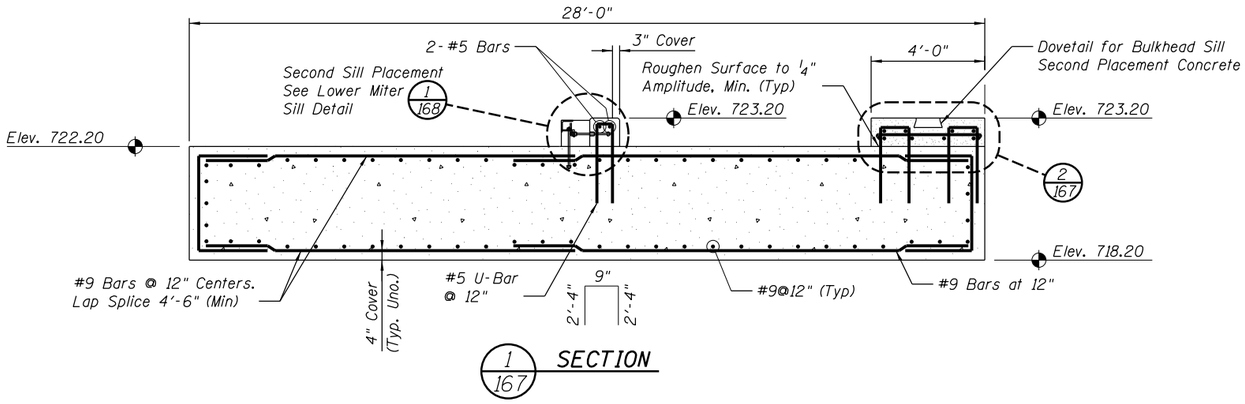
ILLINOIS DEPARTMENT OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	166

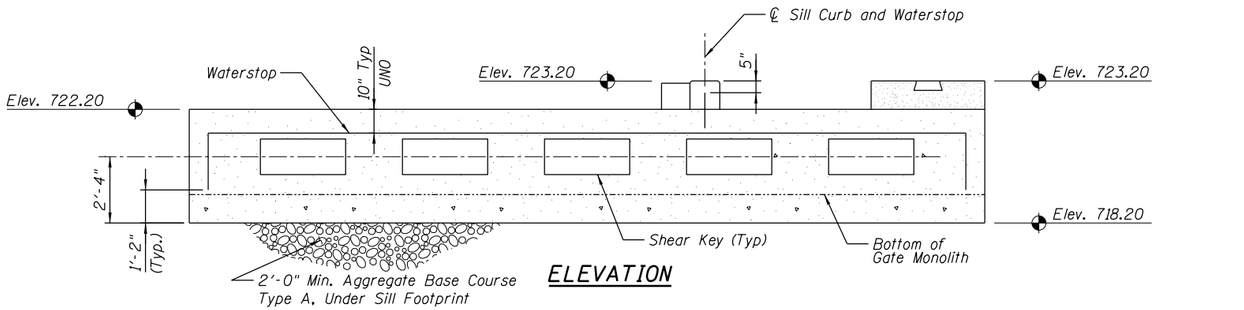
PROJECT FR-435



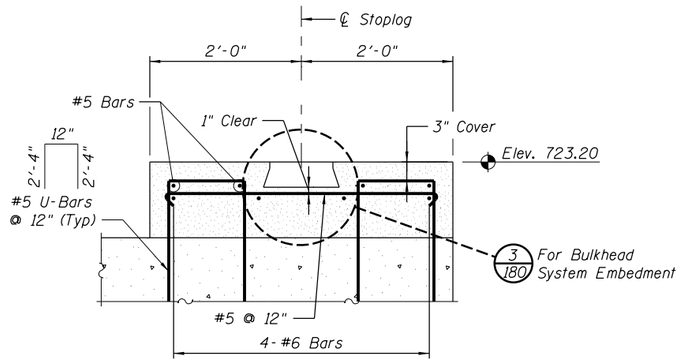
PLAN



1/167 SECTION



ELEVATION

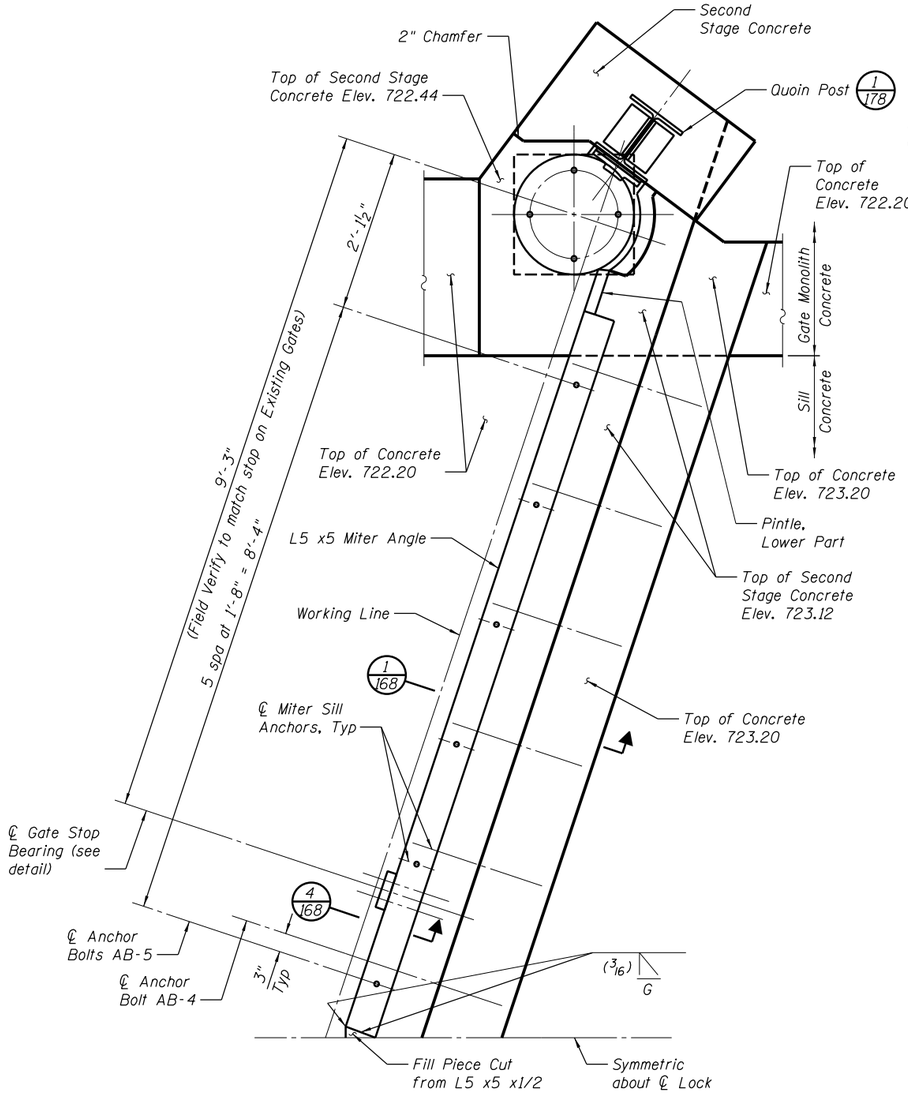


2/167 BULKHEAD SILL DETAIL

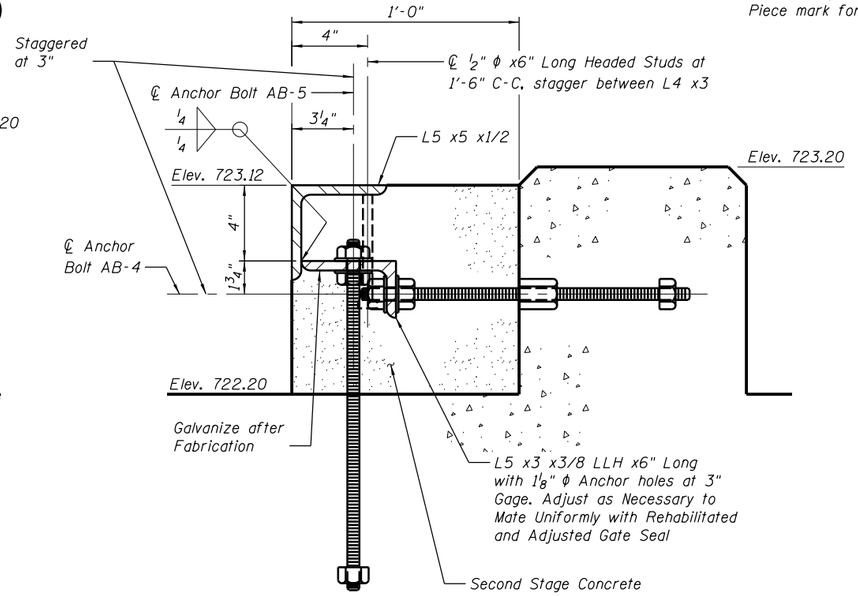
Note:
1. Foundations not Shown. See Sheet 162.

FILE NAME = S-1004BER-LOCK.dgn	USER NAME =	DESIGNED - TRM	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	NEW LOWER GATE MONOLITH MITER SILL STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
Bergmann associates architects // engineers // planners		CHECKED - WRM	REVISED -		
	PLOT SCALE =	DRAWN - JLM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - TSH	REVISED -		

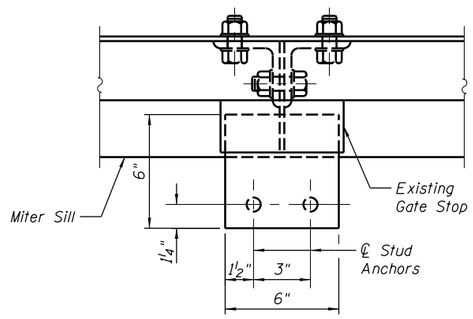
ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	167
	PROJECT FR-435		



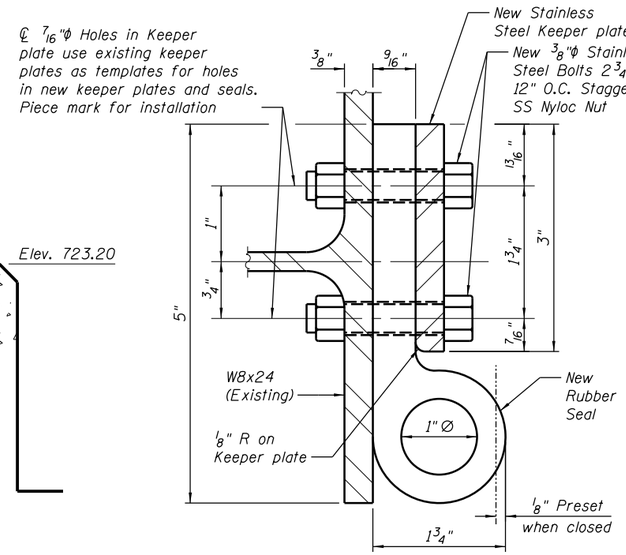
LOWER MITER GATE SILL PLAN



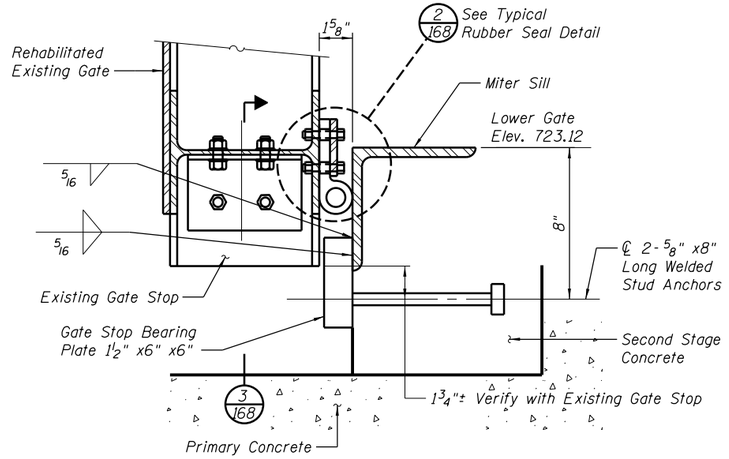
1/168 LOWER MITER SILL DETAIL
($\frac{5}{8}$" ϕ Anchors)



3/168 UPSTREAM ELEVATION OF GATE STOP BEARING



2/168 TYPICAL RUBBER SEAL DETAIL

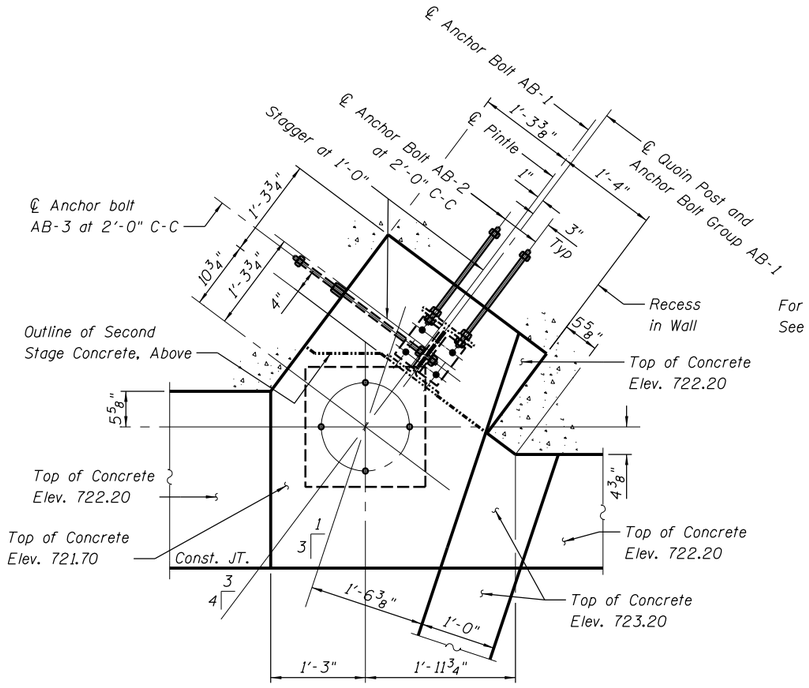


4/168 SECTION

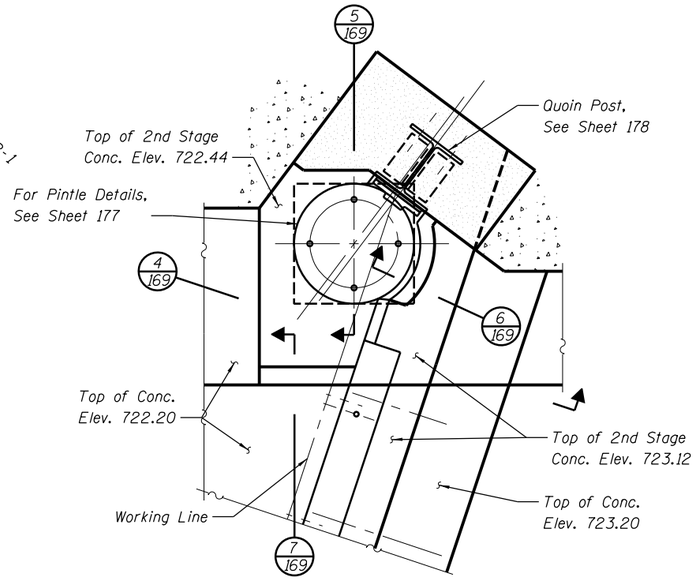
Note:

1. Cast Second Stage Concrete After Final Adjustment and Fit of Rehabilitated Miter Gate. Engineer to Observe Condition Prior to Casting.

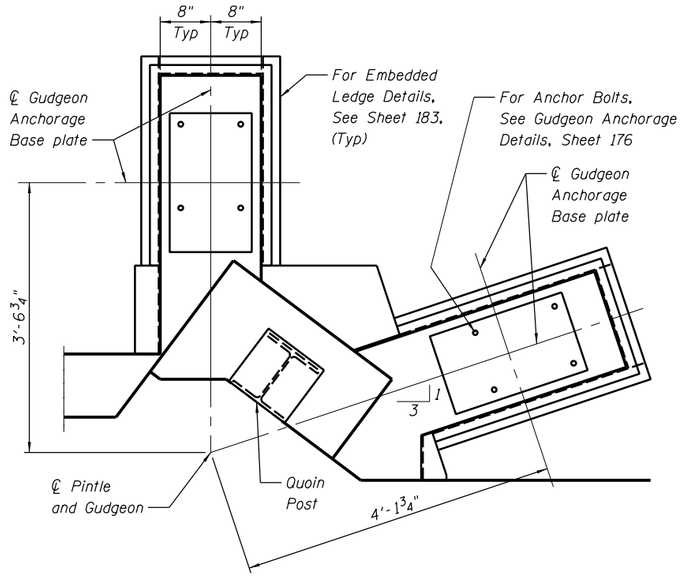
FILE NAME = S-5002BER-LOCK.dgn Bergmann associates architects // engineers // planners	USER NAME =	DESIGNED - RCP	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	NEW LOWER GATE MONOLITH DETAILS – 1 STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS	ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY / TOTAL SHEETS / SHEET NO.
		CHECKED - WRM	REVISED -				McHENRY / 238 / 168
	PLOT SCALE =	DRAWN - DCM	REVISED -				PROJECT FR-435
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - TSH	REVISED -				



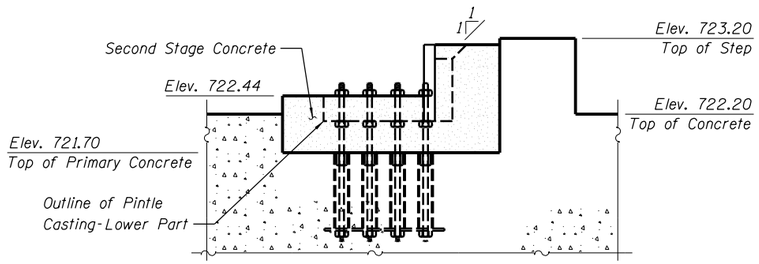
1/169 **DETAIL**
Primary Concrete
Second Stage Concrete Not
Shown, Except as Noted



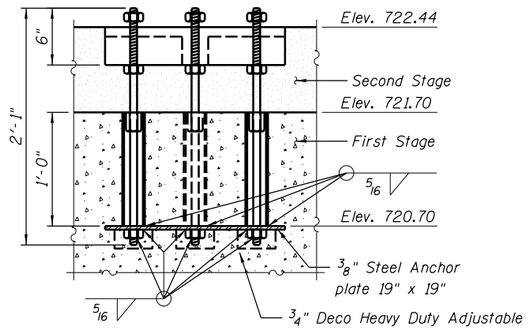
2/169 **DETAIL**
Second Stage Concrete



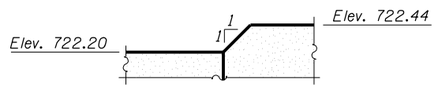
3/169 **DETAIL**
Gudgeon Anchorage Recess



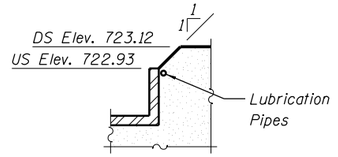
4/169 **SECTION**



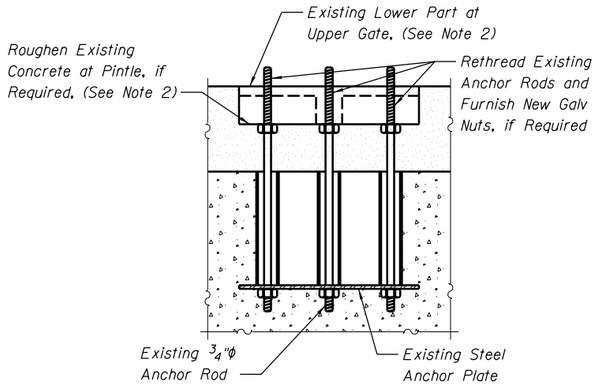
5/169 **SECTION**



7/169 **SECTION**



6/169 **SECTION**

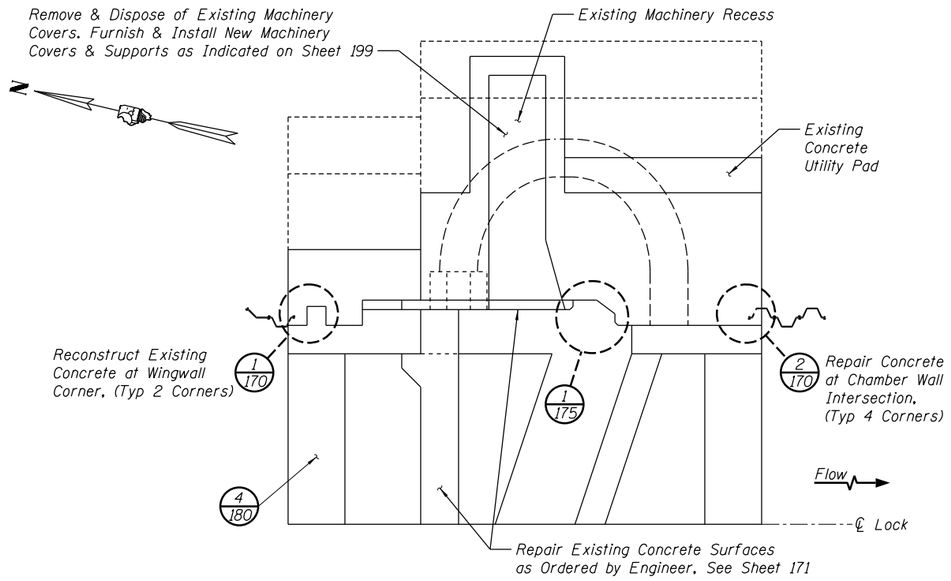


EXISTING UPPER GATE
PINTLE ANCHORAGE (TO REMAIN)
One Land Side and One River Side

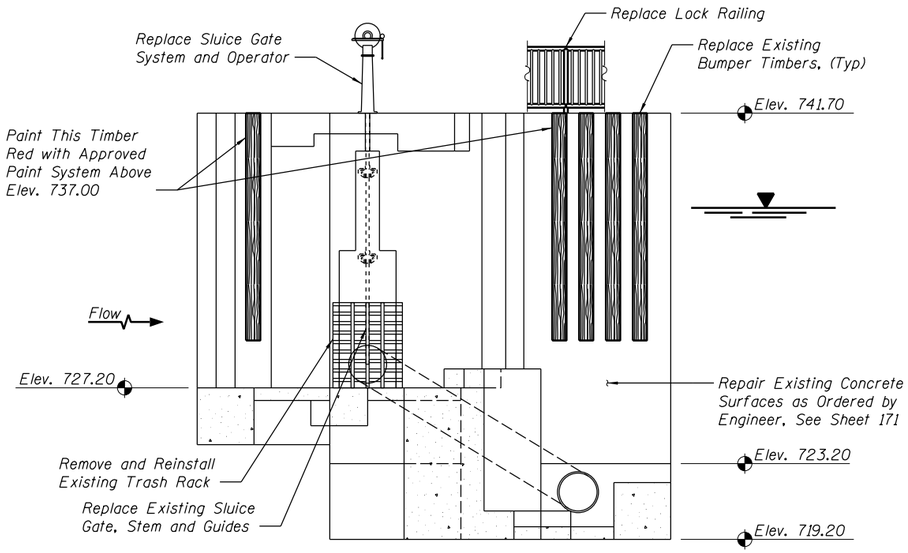
Notes:
1. The Contractor Shall Verify All Dimensions, Elevations and Geometry for the Existing Miter Gates, Including, But Not Limited to Gate, Pintles, Anchorages, Sills and Quoin Embedments to Ensure Proper Fit of the Rehabilitated Gate Within the New Lower Monolith. Report All Variances to the Engineer, As Changes to the Design My be Required.

2. Only Remove Existing Pintle Lower Part and Refurbish/Replace Anchors and Pintle Lower Part if Required by Engineer, Pending Inspection. Roughen Concrete Surface, Install New Lower Parts and Grout into Place using Non-Shrink Structural Grout. Payment Shall be as Approved by Engineer.

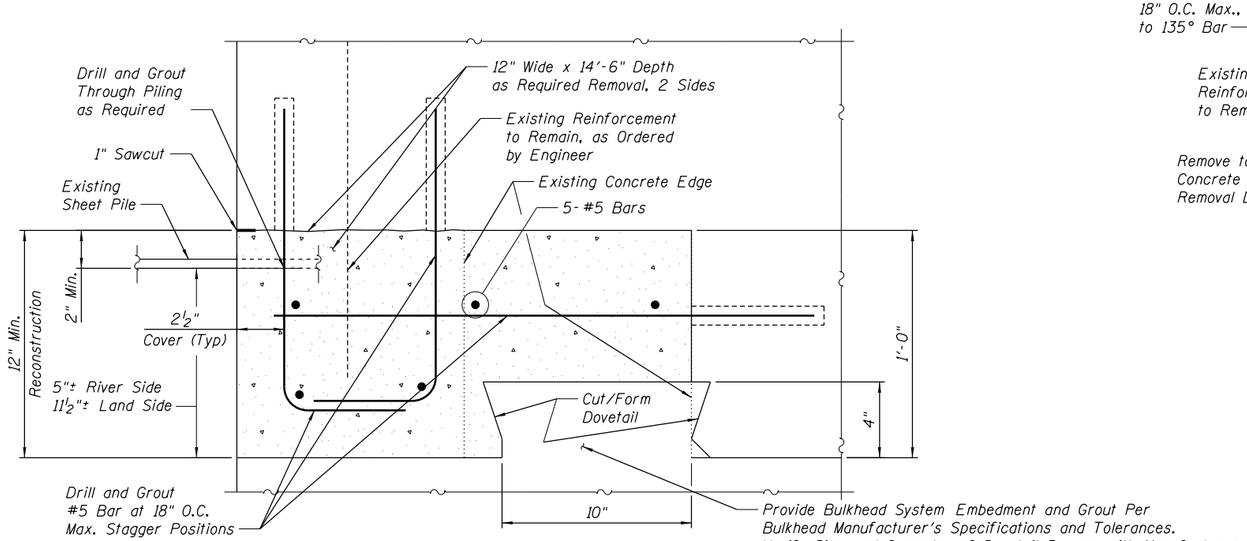
FILE NAME = S-5003BER-LOCK.dgn Bergmann associates architects // engineers // planners	USER NAME =	DESIGNED - RCP	REVISED -	**STATE OF ILLINOIS** **DEPARTMENT OF NATURAL RESOURCES**	**NEW LOWER GATE MONOLITH DETAILS – 2** **STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS**	ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY: McHENRY; TOTAL SHEETS: 238; SHEET NO.: 169
		CHECKED - WRM	REVISED -				
	PLOT SCALE =	DRAWN - DCM	REVISED -				PROJECT FR-435
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - TSH	REVISED -				



PLAN

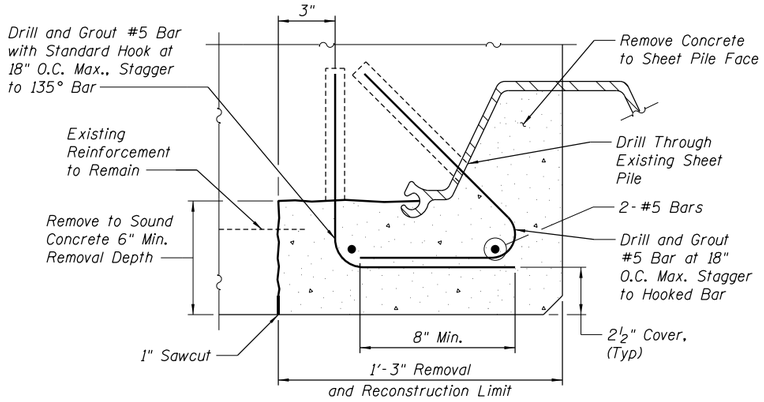


ELEVATION



1/170 WINGWALL CORNER RECONSTRUCTION

Notes:
1. Repair Shall be Applied at 2 Existing Upper Wingwall Corners Over Full Height of Chamber.
2. Limits of Removal and Reconstruction May be Adjusted by the Engineer During Construction. Verify Limits Prior to Conducting Work.
3. All Work to Conduct Corner Repair Shall be Paid for Using the Structural Repair of Concrete (Depth Greater than 5") Pay Item.



2/170 CHAMBER WALL CORNER REPAIR

Notes:
1. Repair Shall be Applied at 4 Existing Sheet Pile Corners in Chamber Over the Full Height of the Lock Wall.
2. Limits of Removal and Reconstruction May be Adjusted by the Engineer During Construction. Verify Limits Prior to Conducting Work.
3. All Work to Conduct Corner Repair Shall be Paid for Using the Structural Repair of Concrete (Depth Greater than 5") Pay Item.

SUMMARY OF CONCRETE REPAIR QUANTITIES

PAY ITEM	FEATURE	UNIT	QUANTITY
Structural Repair of Concrete (Depth	Existing Upper Monolith	Sq Ft	30
Equal To Or Less Than 5 Inches)	Existing Lower Monolith	Sq Ft	30
Structural Repair of Concrete (Depth	Existing Upper Monolith	Sq Ft	105
Greater Than 5 Inches)	Existing Lower Monolith	Sq Ft	120

Notes:
1. River Side Monolith Shown. Similar Work to be Performed for Land Side Monolith.
2. Replace Existing Bumper Timbers to Match Existing. Replace Nuts and Washers with in-kind SS Hardware. Existing Threaded Fasteners may be Reused with Acceptance by the Engineer. This Work Shall be Considered Incidental to Treated Timber Work and Shall be Paid for Under the Treated Timber Pay Item. Confirm Locations of Timbers with Engineer Prior to Installation.
3. Perform Repairs to Existing Concrete Surfaces as Directed by the Engineer. See Sheet 171 for Typical Concrete Removal Details.

FILE NAME = S-50138ER-LOCK.dgn
USER NAME =
PLOT SCALE =
PLOT DATE = SEPTEMBER 18, 2013

Bergmann associates
architects // engineers // planners

DESIGNED - JMR
CHECKED - WRM
DRAWN - JLM
CHECKED - TSH

REVISED -
REVISED -
REVISED -
REVISED -

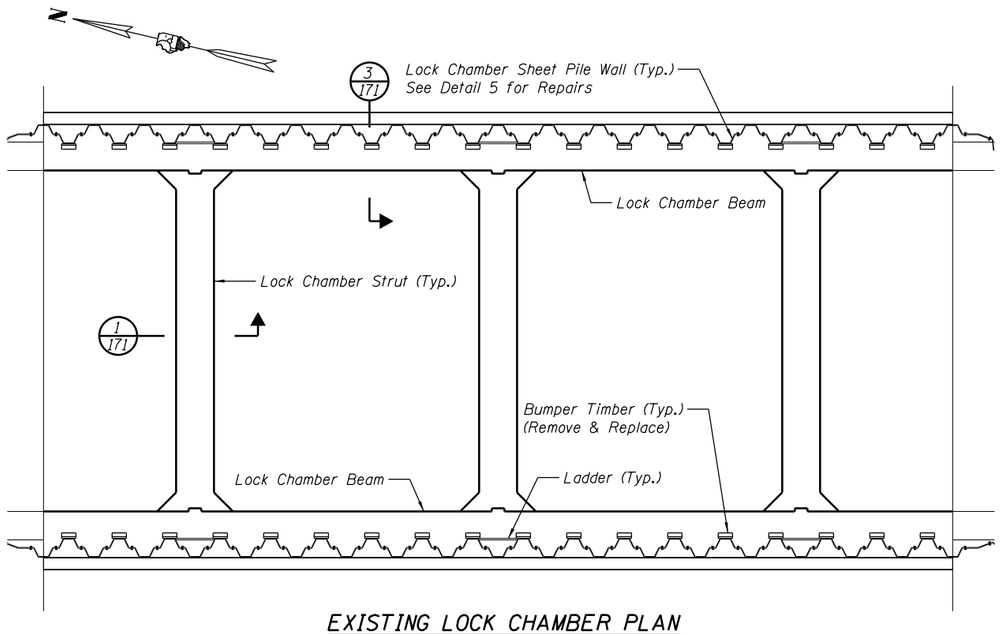
STATE OF ILLINOIS
DEPARTMENT OF NATURAL RESOURCES

EXISTING UPPER GATE MONOLITH PLAN AND DETAILS
STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS

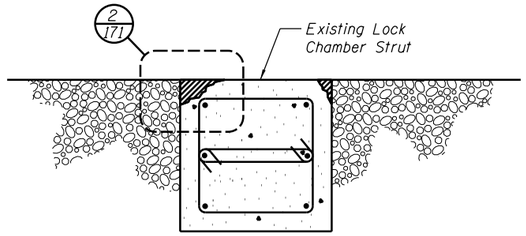
ILLINOIS DEPARTMENT OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	170

PROJECT FR-435



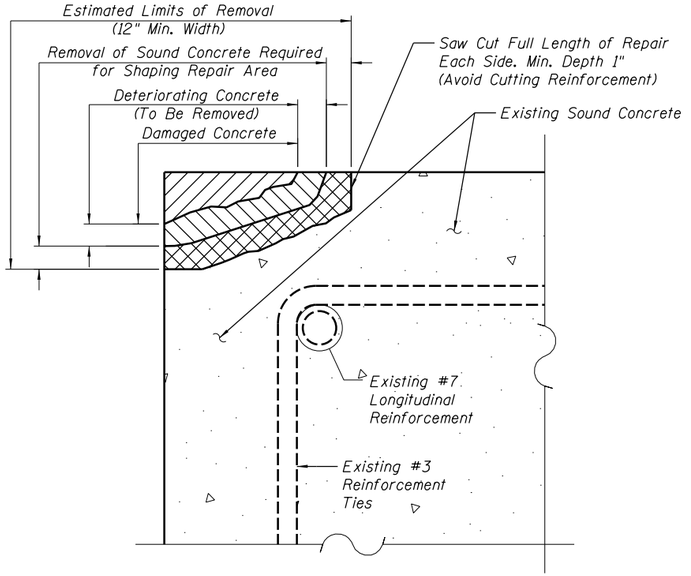
EXISTING LOCK CHAMBER PLAN



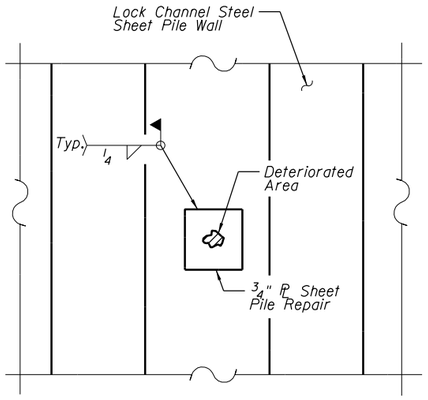
1/171 SECTION AT STRUT

Notes:

1. Removal of Existing Concrete Shall be Done with a Light Chipping Hammer or Other Method that will not Damage Adjacent Construction to Remain.
2. If More than $\frac{1}{2}$ Diameter of Reinforcement Bar is Exposed, Remove Sound Concrete to Provide $\frac{3}{4}$" Clearance of Patch Material Around Bar.
3. Cracks Shall be Sealed with an Approved Epoxy. Cost Included in Structural Repair of Concrete.

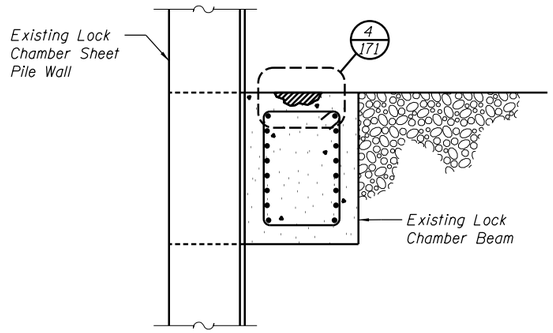


2/171 CONCRETE REMOVAL DETAIL



5/171 SHEET PILE REPAIR DETAIL

Not Paid for Separately, Cost Included with Cleaning and Painting Existing Steel Sheet Piling. Assume 10 Locations @ 1 Sq. Ft. Min. Each Location.

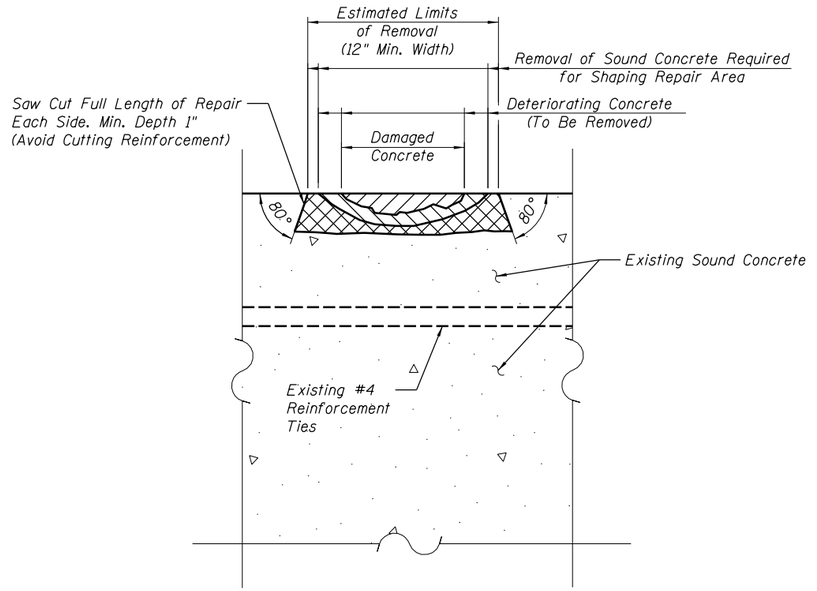


3/171 SECTION AT BEAM

BILL OF MATERIALS

CODE NO.	PAY ITEM	UNIT	QUANTITY
Z0012754	Structural Repair of Concrete (Depth Equal To Or Less Than 5 Inches)	Sq. Ft.	30
*	Treated Timber	FBM	1228.5

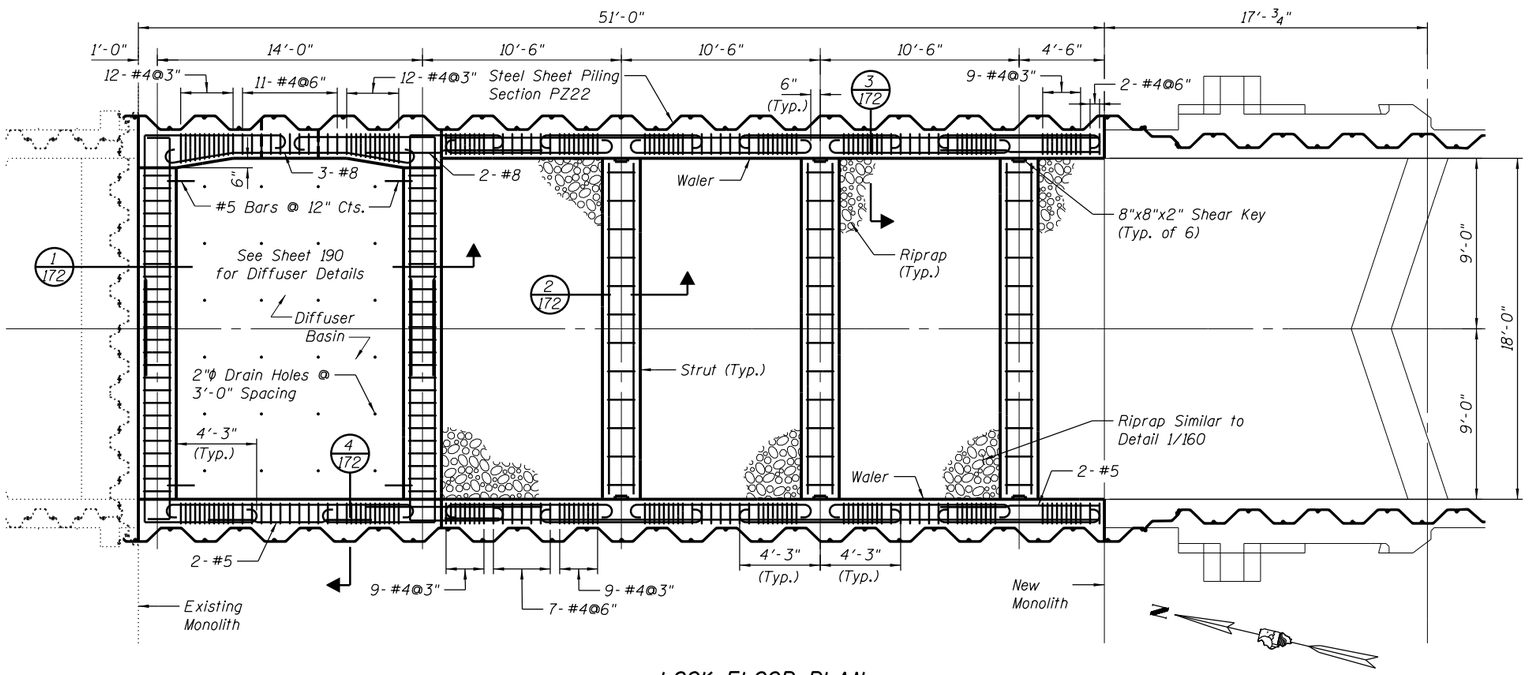
Timber Quantity Includes 36 Timbers Plus 3 Spares



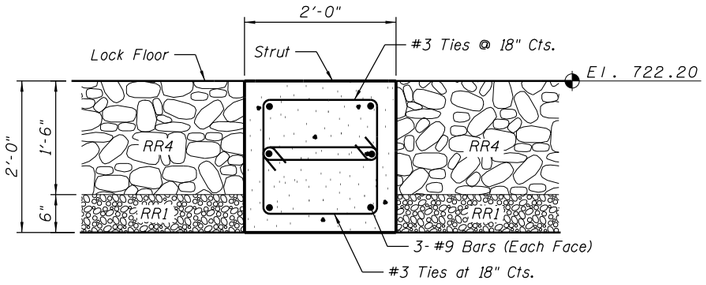
4/171 CONCRETE REMOVAL DETAIL

FILE NAME = S-5002-LOCK.dgn	USER NAME =	DESIGNED - JJT	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	LOCK CHAMBER CONCRETE & WALL REPAIR PLAN & DETAILS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HANSON		CHECKED - RGC	REVISED -		
	PLOT SCALE =	DRAWN - EJM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -		

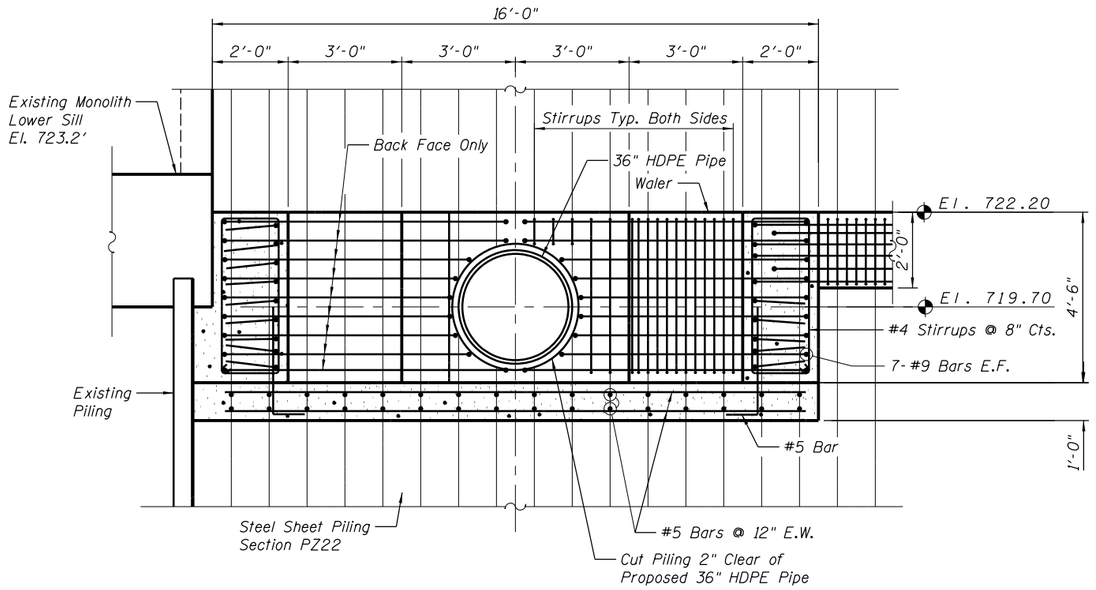
ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	171
	PROJECT FR-435		



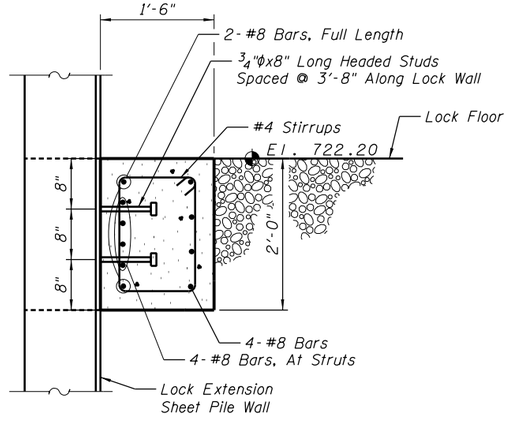
LOCK FLOOR PLAN



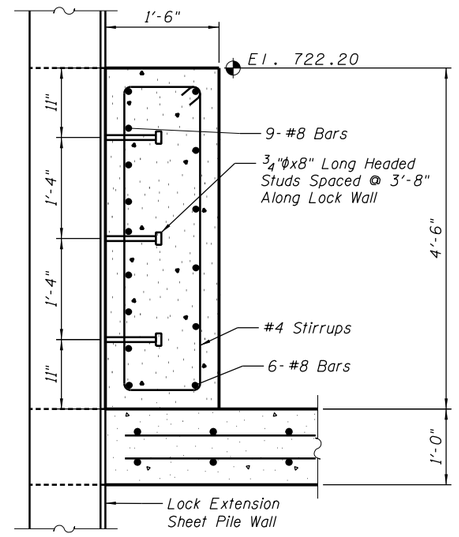
2/172 SECTION AT STRUT



1/172 SECTION AT DIFFUSER BASIN



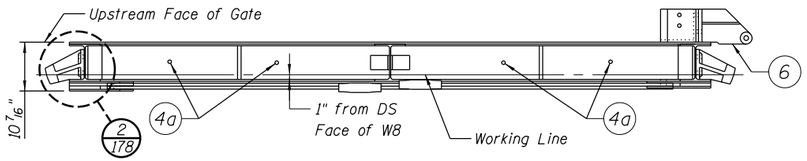
3/172 SECTION AT WALER



4/172 SECTION AT DIFFUSER WALL

FILE NAME = S-5003-LOCK.dgn	USER NAME =	DESIGNED - RGC	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	LOCK CHAMBER FLOOR PLAN AND SECTIONS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HANSON		CHECKED - DDO	REVISED -		
	PLOT SCALE =	DRAWN - EJM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - RGC	REVISED -		

ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	172
PROJECT FR-435			

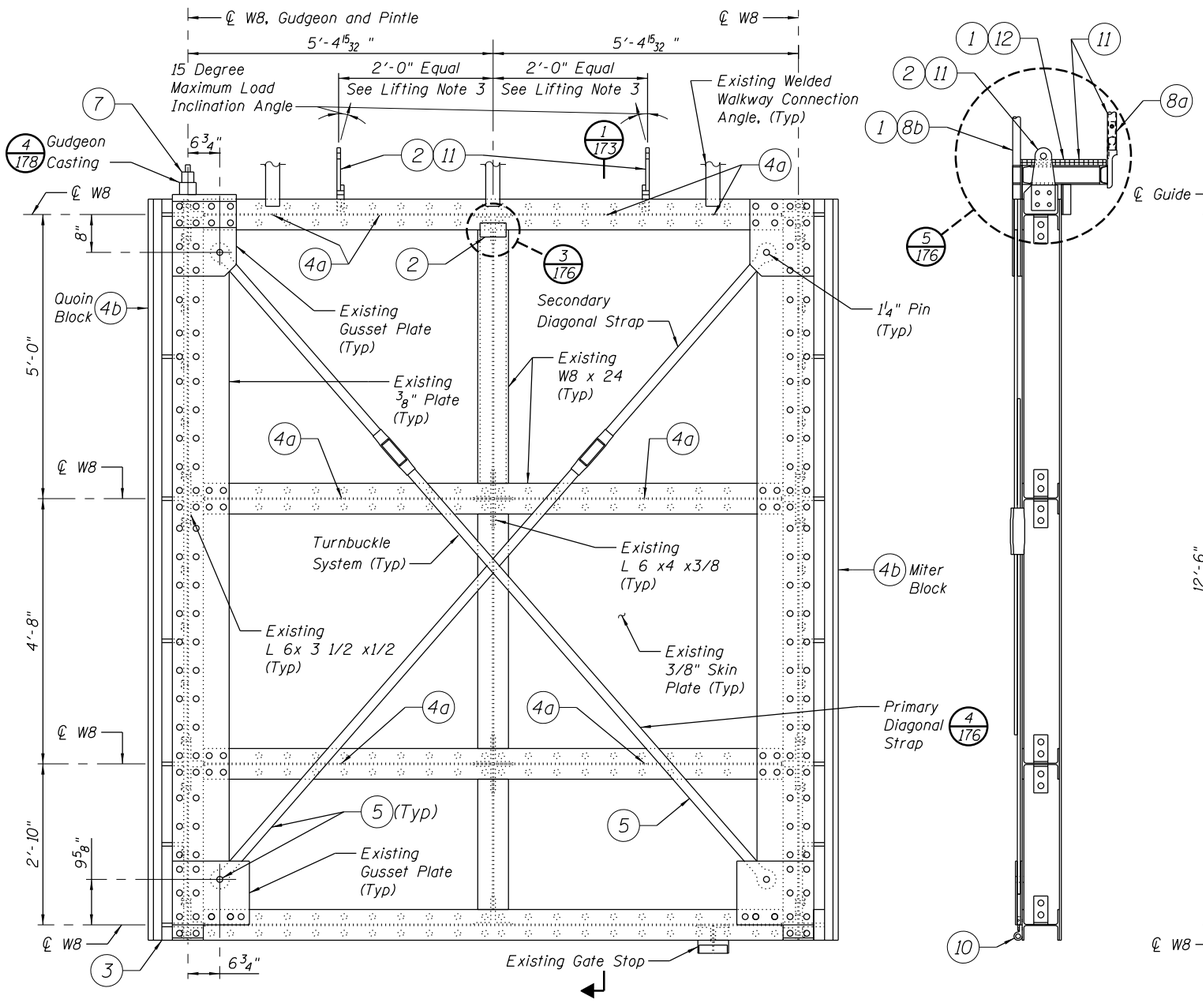


PLAN

Walkway Not Shown For Clarity

Upper Gate Structural Rehabilitation Work Items:

1. Temporarily Remove Gate Walkway Grating and Handrail
2. Furnish and Install Gate Lifting Lugs and Stiffener Plates
3. Replace Pintle Assembly
4. Perform Steel Repairs
   a. Add (or Increase Existing to) 1½" Dia Drain Holes
   b. Refurbish Miter and Quoin Blocks
   c. Perform Unidentified Repairs as Directed in Accordance with Specifications
5. Replace Diagonal Strap and Pins
6. Disassemble, Clean and Paint Miter Guide
7. Replace Gudgeon Assembly
8. Retrofit Grating/Walkway
   a. Furnish and Install Upstream Handrail System
   b. Retrofit Existing Downstream Handrail
9. Clean and Paint Miter Gate and Walkway
10. Replace Sill Seal System
11. Remove and Store Lifting Lug Plates
12. Re-install Walkway Grating

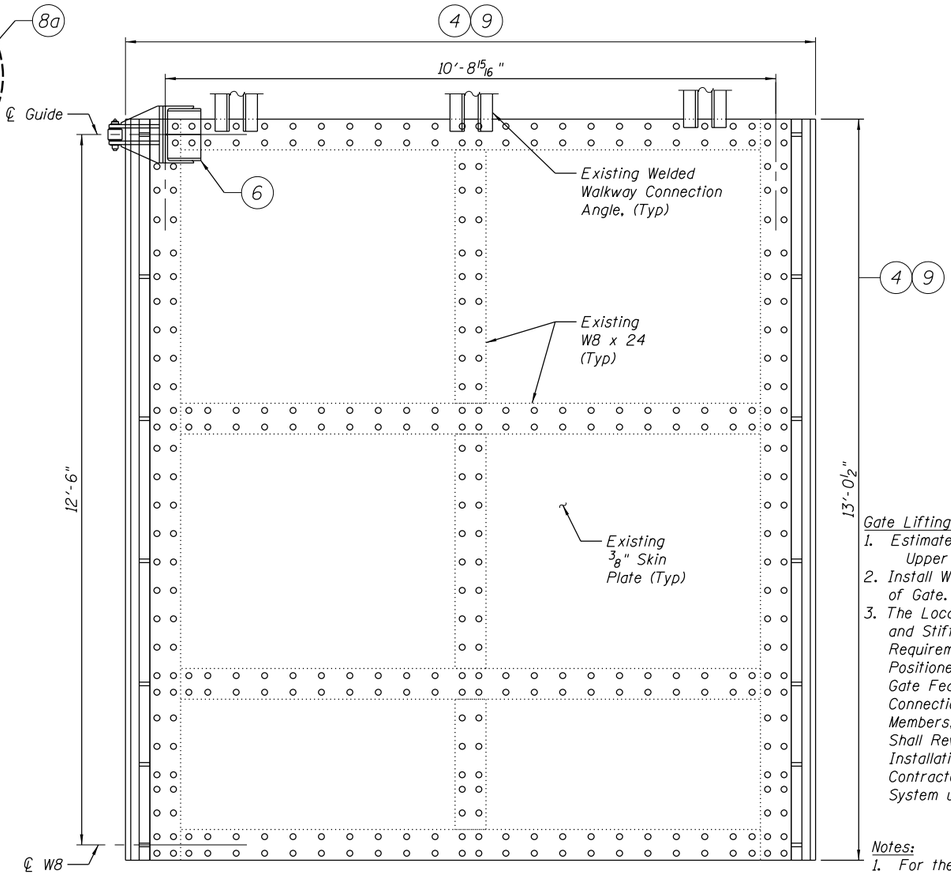


DOWNSTREAM ELEVATION

Sill Seal and Walkway Not Shown For Clarity

1/173 SECTION

Miter Guide Not Shown For Clarity



UPSTREAM ELEVATION

Gate Lifting Notes:

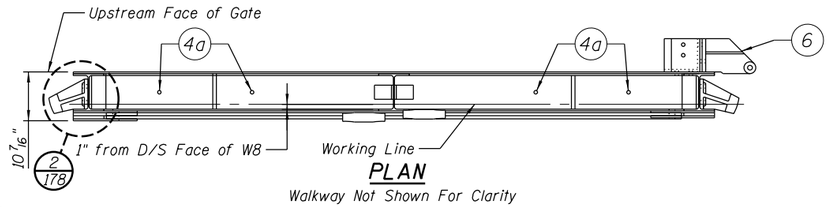
1. Estimated Gate Weight:
   Upper Gate Leaf = 8,000 lbs
2. Install W8 Reinforcing Plate Prior to Removal of Gate.
3. The Location of the New Gate Lifting Lugs and Stiffener Plate Shall meet the Dimensional Requirements Shown on the Plans and Shall be Positioned to Avoid Interference with Existing Gate Features Including, but not Limited to, Connection Hardware, Holes in Existing Members, and Walkway Supports. The Engineer Shall Review and Accept this Location Prior to Installation of the Lifting Lugs. The Contractor may Provide Alternative Gate Lifting System upon Acceptance by the Engineer.

Notes:

1. For the following Miter Gate Information see: Sheet No.
   a. Pintle 177
   b. Gudgeon 178
   c. Rubber Seal 168
   d. Anchorage 175
   e. Railing Details 179
2. Land Side Leaf Shown. River Side Leaf is Similar and Opposite Hand.
3. Some Gate Features Not Shown for Clarity.

FILE NAME = S-2001BER-GATE.dgn	USER NAME =	DESIGNED - DTG	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	UPPER GATE REHABILITATION STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
Bergmann associates architects // engineers // planners		CHECKED - WRM	REVISED -		
	PLOT SCALE =	DRAWN - DCM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - TSH	REVISED -		

ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	173
	PROJECT FR-435		

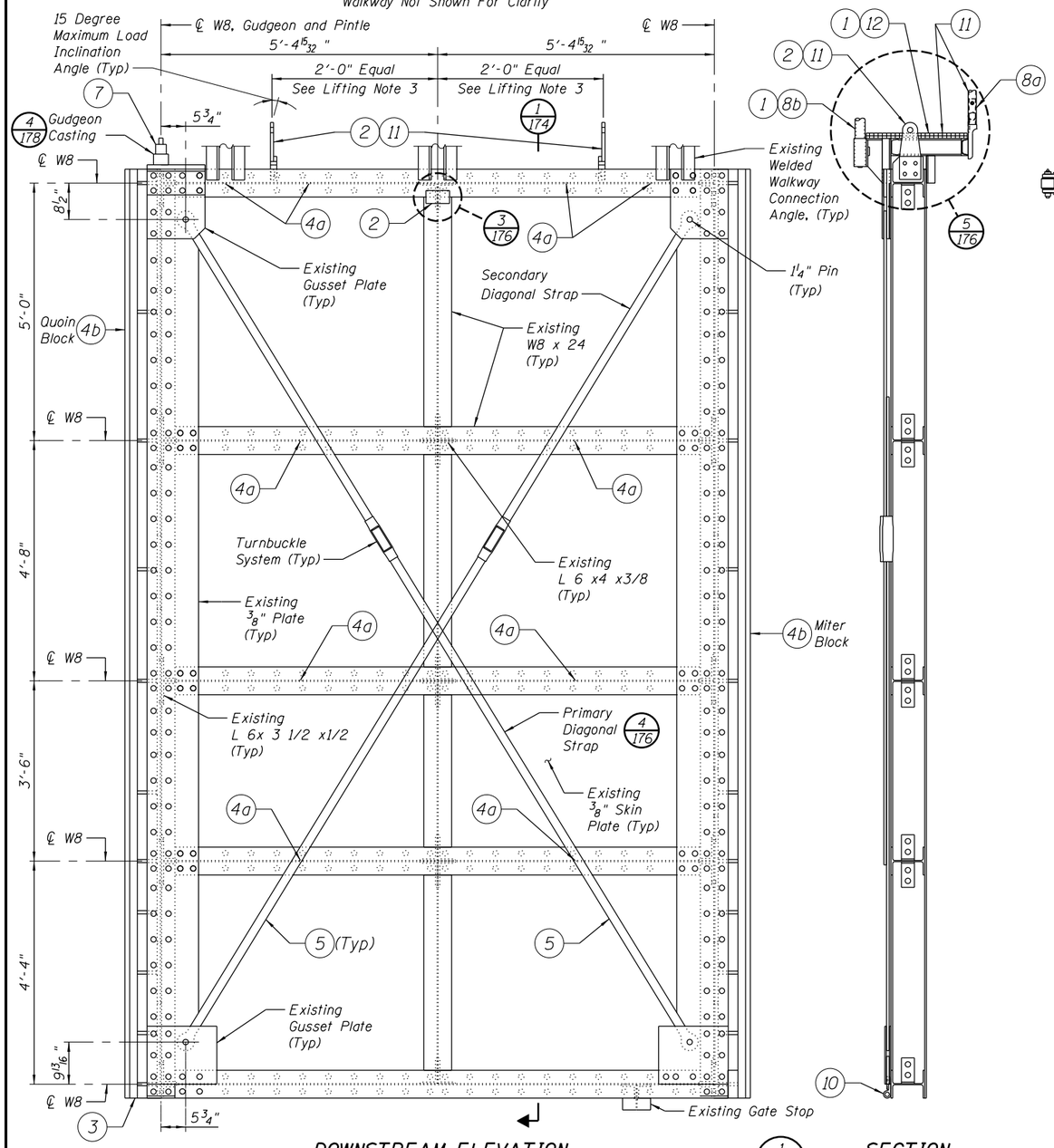


PLAN

Walkway Not Shown For Clarity

Lower Gate Structural Rehabilitation Work Items:

1. Temporarily Remove Gate Walkway Grating and Handrail
2. Furnish and Install Gate Lifting Lugs and Stiffener Plates
3. Replace Pintle Assembly
4. Perform Steel Repairs
   a. Add (or Increase Existing to) 1 1/2" Dia Drain Holes
   b. Refurbish Miter and Quoin Blocks
   c. Perform Unidentified Repairs as Directed in Accordance with Specifications
5. Replace Diagonal Strap and Pins
6. Disassemble, Clean and Paint Miter Guide
7. Replace Gudgeon Assembly
8. Retrofit Grating/Walkway
   a. Furnish and Install Upstream Handrail System
   b. Retrofit Existing Downstream Handrail
9. Clean and Paint Miter Gate and Walkway
10. Replace Sill Seal System
11. Remove and Store Lifting Lug Plates
12. Re-install Walkway Grating

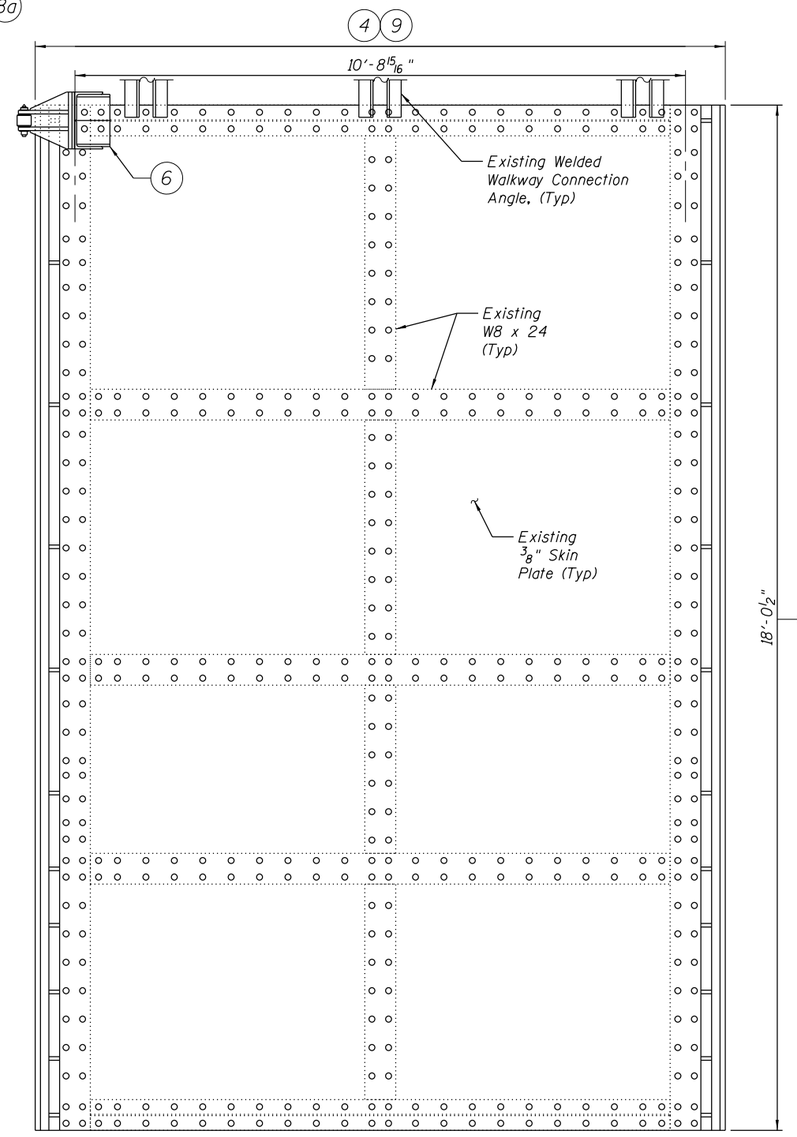


DOWNSTREAM ELEVATION

Sill Seal and Walkway Not Shown For Clarity

1/174 SECTION

Miter Guide Not Shown For Clarity



UPSTREAM ELEVATION

Gate Lifting Notes:

1. Estimated Gate Weight:
   Lower Gate Leaf = 11,000 lbs
2. Install W8 Reinforcing Plate Prior to Removal of Gate.
3. The Location of the New Gate Lifting Lugs and Stiffener Plate Shall meet the Dimensional Requirements Shown on the Plans and Shall be Positioned to Avoid Interference with Existing Gate Features Including, but not Limited to, Connection Hardware, Holes in Existing Members, and Walkway Supports. The Engineer Shall Review and Accept this Location Prior to Installation of the Lifting Lugs. The Contractor may Provide Alternative Gate Lifting System upon Acceptance by the Engineer.

Notes:

1. For the following Miter Gate Information see:

	Sheet No.
a. Pintle	177
b. Gudgeon	178
c. Rubber Seal	168
d. Anchorage	175
e. Railing Details	179

2. Land Side Leaf Shown. River Side Leaf is Similar and Opposite Hand.
3. Some Gate Features Not Shown for Clarity.

FILE NAME = S-2002BER-GATE.dgn	USER NAME =	DESIGNED - DTG	REVISED -
Bergmann associates architects // engineers // planners		CHECKED - WRM	REVISED -
	PLOT SCALE =	DRAWN - DCM	REVISED -
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - TSH	REVISED -

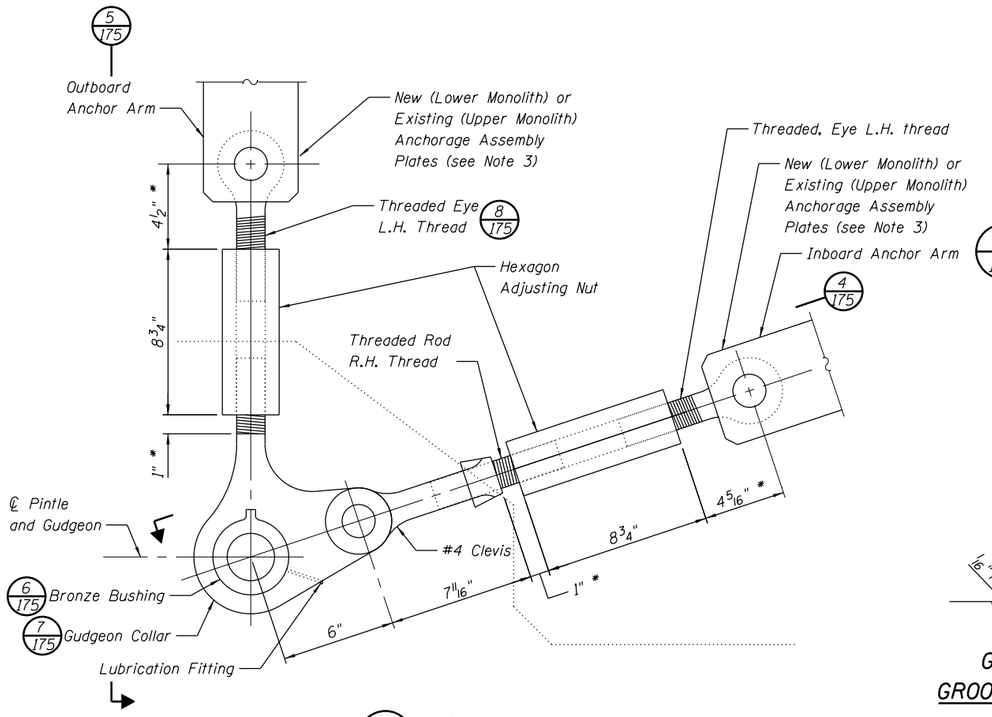
STATE OF ILLINOIS
DEPARTMENT OF NATURAL RESOURCES

LOWER GATE REHABILITATION
STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS

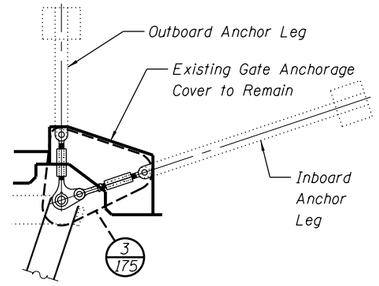
ILLINOIS DEPARTMENT OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	174

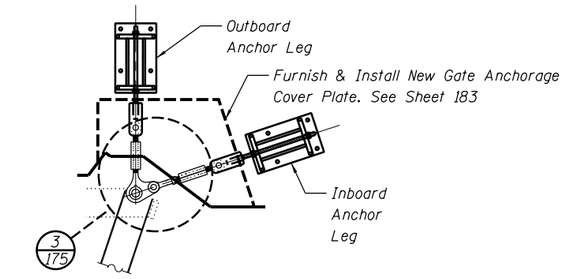
PROJECT FR-435



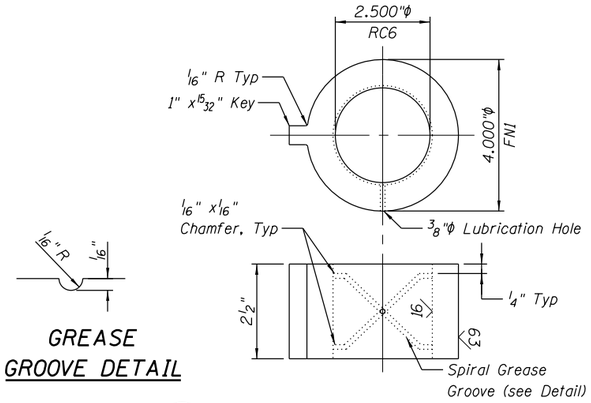
3/175 **PLAN**
* See Note 5



1/175 **EXISTING UPPER MONOLITH ANCHORAGE PLAN**

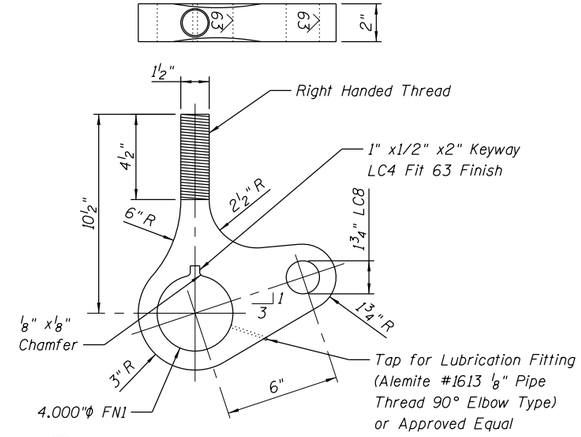


2/175 **NEW LOWER MONOLITH ANCHORAGE PLAN**
(See Note 1)

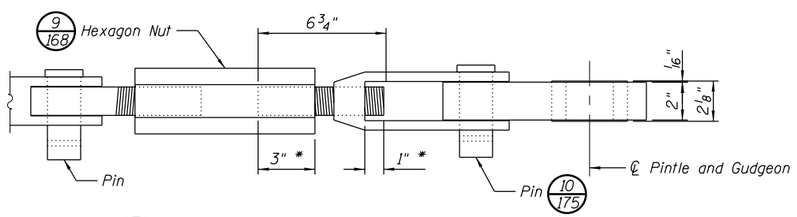


GREASE GROOVE DETAIL

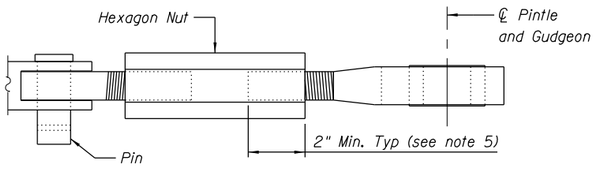
6/175 **BRONZE BUSHING DETAIL**
Material: Bronze ASTM B-22 Alloy C91300



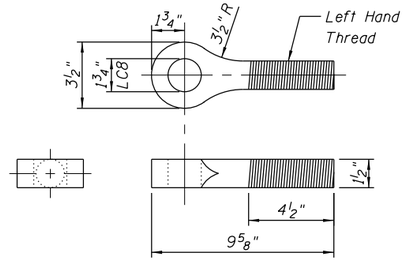
7/175 **GUDGEON COLLAR DETAIL**
Material: Cast Steel A.S.T.M. A27 Grade 60-30



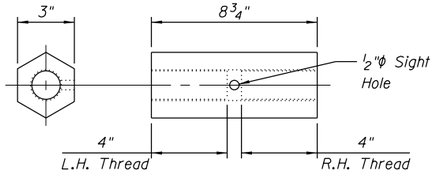
4/175 **INBOARD ANCHOR LINKS ELEVATION**
* See Note 5



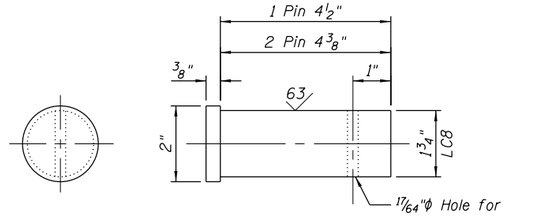
5/175 **OUTBOARD ANCHOR LINKS ELEVATION**



8/175 **THREADED EYE DETAIL**
Material: Steel ASTM A668 Class E



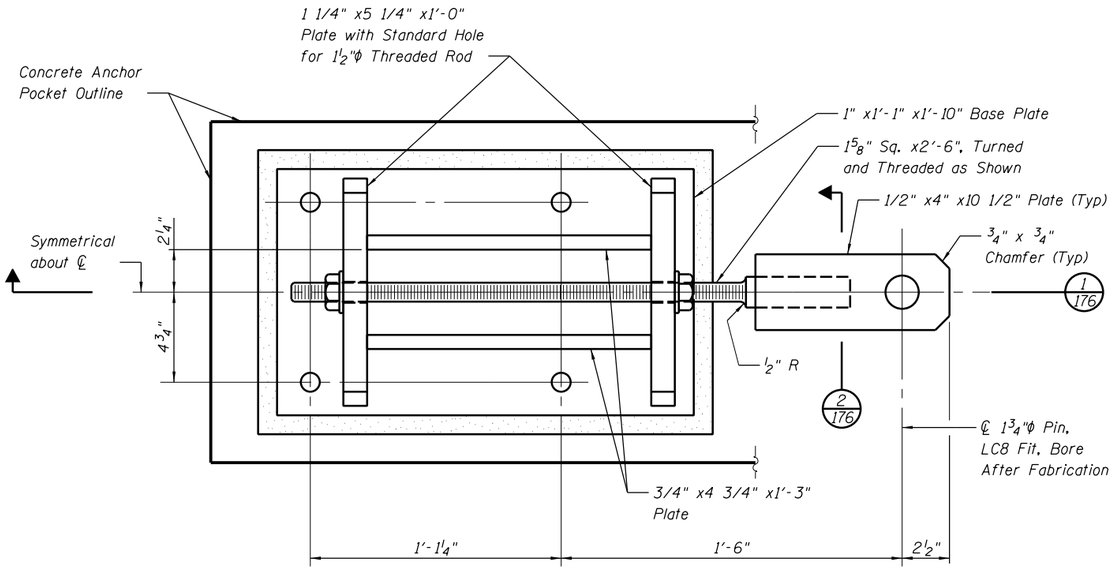
9/175 **HEXAGON NUT DETAIL**
Material: Steel ASTM A668 Class E
1½" - 6 UNC Class 2 B Threads



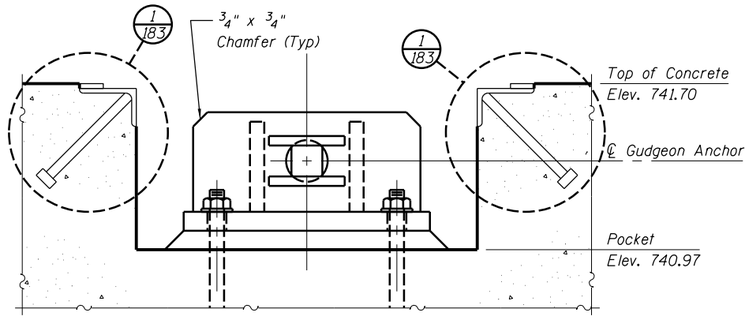
10/175 **PIN DETAIL**
Material: Steel ASTM A668 Class E

Notes:
1. River Side (RS) Anchorage Shown. Land Side (LS) Anchorage Opposite Hand. Provide 4 Complete Linkage Sets (2 LS; 2 RS) for Upper and Lower Gates.
2. For New Lower Monolith Ancorage Assemblies see Sheet 176.
3. New Lower Monolith Anchorage Assembly Shown. Existing Upper Monolith Anchorages to Remain. Clean and Paint Exposed Surfaces Prior to Installation of New Link Components.
4. Discrepancies Between Plans and Existing Conditions May Exist Due to Undocumented Changes and Variations in Rounding of Record Dimensions. The Contractor is Responsible for Obtaining and Utilizing Field Measurements of Existing Conditions to Ensure Proper Fit Up of Final Products. Report any Discrepancies to the Engineer Prior to Installation of Affected Components.
5. Dimensions Marked with * are Approximate and May be Adjusted in the Field During Gate Alignment. A Minimum of 2" of Thread Engagement is Required Between Threaded Parts and the Hexagon Nuts. All Clevis Threads Must be Fully Engaged.

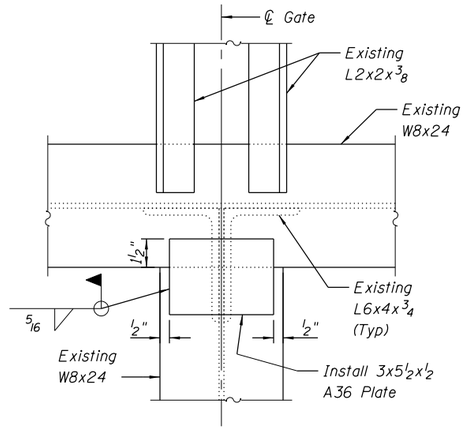
FILE NAME = S-5001BER-GATE.dgn	USER NAME =	DESIGNED - TRM	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	MISCELLANEOUS GATE DETAILS – 1 STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
Bergmann associates architects // engineers // planners		CHECKED - WRM	REVISED -		ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES
	PLOT SCALE =	DRAWN - DCM	REVISED -		COUNTY: McHENRY; TOTAL SHEETS: 238; SHEET NO.: 175
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - TSH	REVISED -		PROJECT FR-435



PLAN



2/176 SECTION



3/176 W8 REINFORCING PLATE DETAIL

SECTION

1/176 LOWER GATE ANCHORAGE ASSEMBLY

4/176 REPLACEMENT DIAGONAL STRAP DETAIL

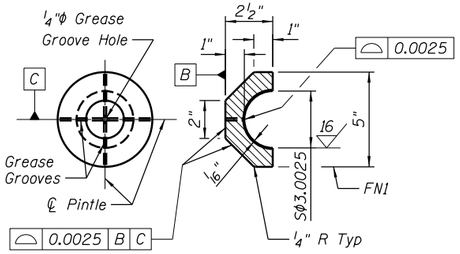
5/176 LIFTING PLATE & STIFFENER DETAIL

Notes:

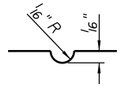
1. Contractor to Verify and Confirm Existing Gudgeon Anchor Elevation and Verify Geometry of Existing Lower Gate Prior to Elevating New Anchorage Assembly. Coordinate with New Pintle Elevation. Report Discrepancies to the Engineer.

2. Gate Anchorages and Turnbuckles for Diagonal Straps will Require Field Adjustment to Align the Gate Upon Gate Installation. Tension Primary Diagonal Prior to Secondary. All Adjustments Shall be Performed and to the Satisfaction of the Engineer.

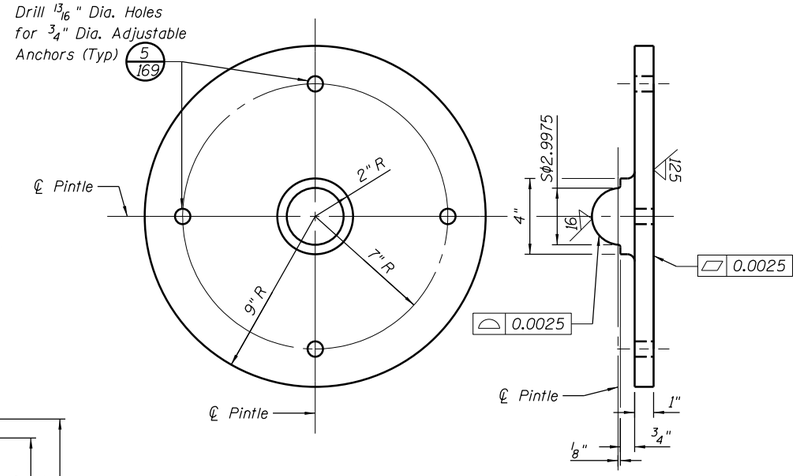
FILE NAME = S-5002BER-GATE.dgn Bergmann associates architects // engineers // planners	USER NAME =	DESIGNED - DTG	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	MISCELLANEOUS GATE DETAILS – 2 STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS	ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY / TOTAL SHEETS / SHEET NO.
		CHECKED - WRM	REVISED -				McHENRY / 238 / 176
	PLOT SCALE =	DRAWN - DCM	REVISED -				PROJECT FR-435
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - TSH	REVISED -				



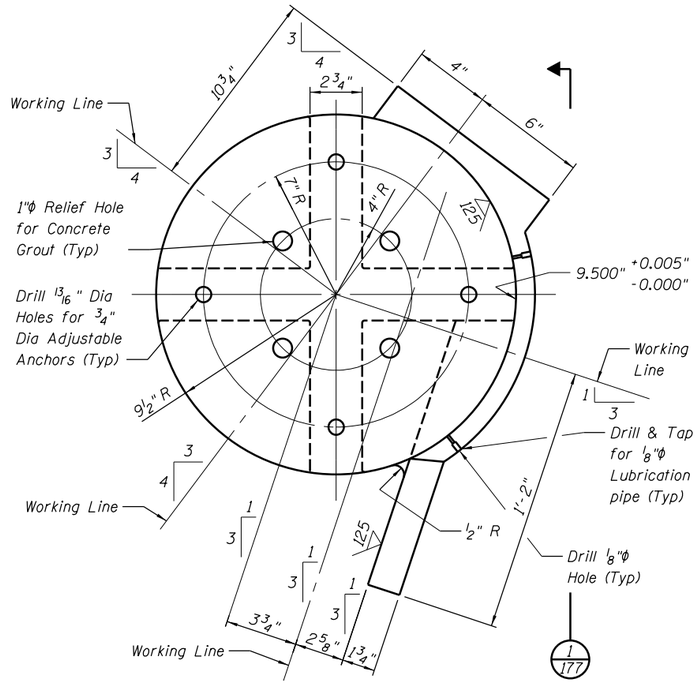
4/177 **BRONZE BUSHING**



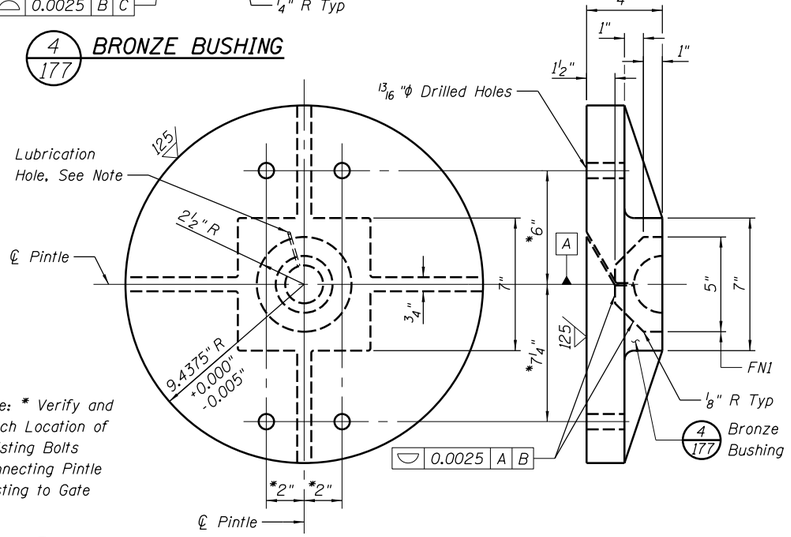
GREASE GROOVE DETAIL



PINTLE CASTING - CENTER PART



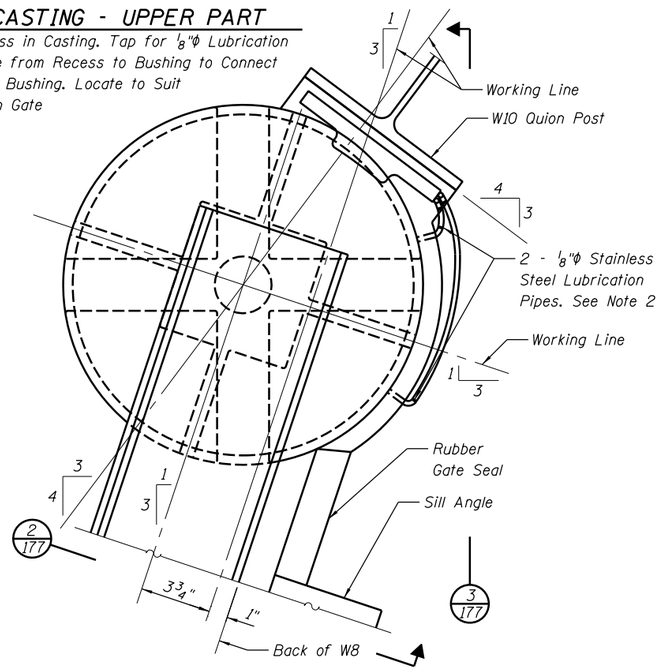
PINTLE CASTING - LOWER PART



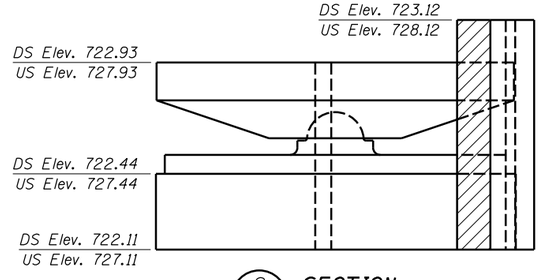
Note: * Verify and Match Location of Existing Bolts Connecting Pintle Casting to Gate

1/177 **PINTLE CASTING - UPPER PART**

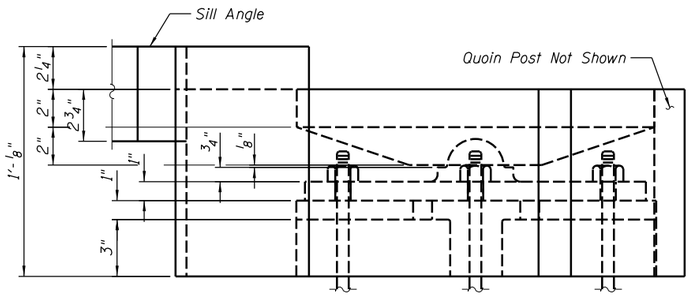
Note: Provide Recess in Casting. Tap for 1/8"ϕ Lubrication Pipe. Drill 1/8"ϕ Hole from Recess to Bushing to Connect Lubrication Hole in Bushing. Locate to Suit Lubrication Pipe on Gate



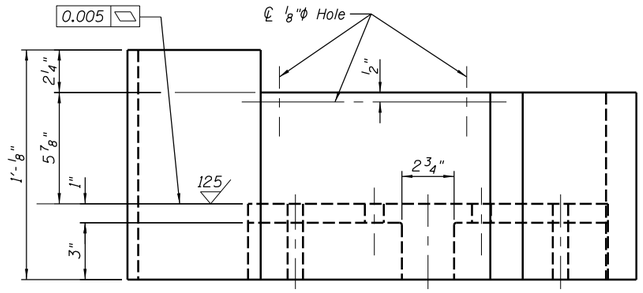
ASSEMBLED PINTLE PLAN



2/177 **SECTION**



3/177 **SECTION**



1/177 **ELEVATION**

Notes:

1. Castings to be Annealed Steel ASTM A27 Grade 60-30. Bronze to be ASTM B22 Alloy C91300 or ASTM B148 Alloy C95400. Castings Shown are for One Miter Leaf, River Side (RS). Land Side (LS) Pieces are Opposite Hand. Provide Pintle Parts as Follows:
   - Two (2) Lower Parts (One (1) LS, One (1) RS) for Lower Gate, Provide Lower Parts for Upper Gate as Directed by Engineer
   - Four (4) Center Parts (Two (2) LS, Two (2) RS) for Upper and Lower Gates
   - Four (4) Upper Parts (Two (2) LS, Two (2) RS) for Upper and Lower Gates
2. Lubrication Pipe to Install at Each Lower Gate Leaf and Replaced at Each Lower Gate Leaf. Lubrication Fitting to be Alemite #1610 (Straight Surface check Types or Approved Equal. Fitting to be Installed in Such a Manner as to be Accessible From the Gate Walkway and Quoin Recess Cover. Support Pipe at 24" Maximum Spalling in an Approved Manner Using Stainless Steel Clamps. Cost to be Included in Pintle Upper Part Item.

FILE NAME = S-5003BER-GATE.dgn	USER NAME =	DESIGNED - JMR	REVISED -
Bergmann associates architects // engineers // planners		CHECKED - WRM	REVISED -
	PLOT SCALE =	DRAWN - DCM	REVISED -
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - TSH	REVISED -

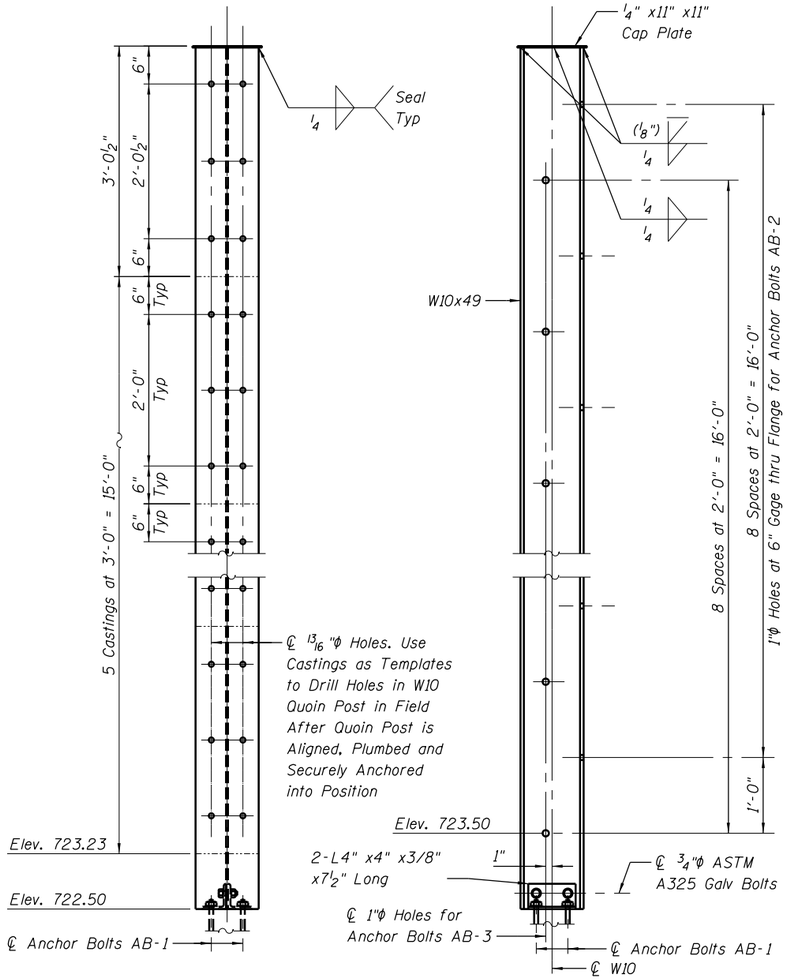
STATE OF ILLINOIS
DEPARTMENT OF NATURAL RESOURCES

MISCELLANEOUS GATE DETAILS – 3
STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS

ILLINOIS DEPARTMENT OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES

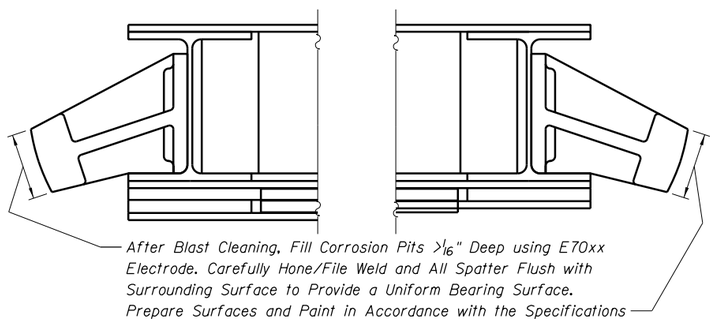
COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	177

PROJECT FR-435



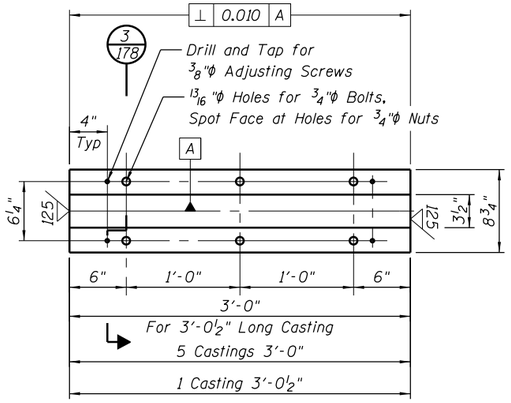
1/178 NEW LOWER QUOIN POST

Material: Wide Flange ASTM A992 Plate; Angles ASTM A36



MITER QUOIN

2/178 UPPER/LOWER MITER/QUOIN BLOCK DETAIL



ELEVATION

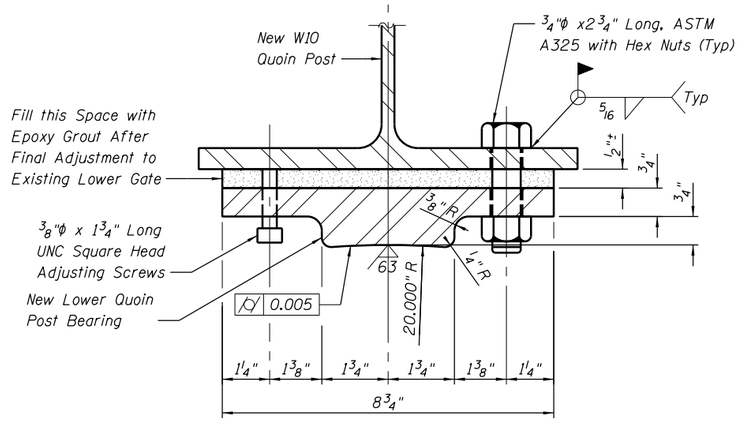
SIDE VIEW

NEW LOWER QUOIN POST BEARINGS

Material: Cast Steel ASTM A27 Grade 60-30, Annealed

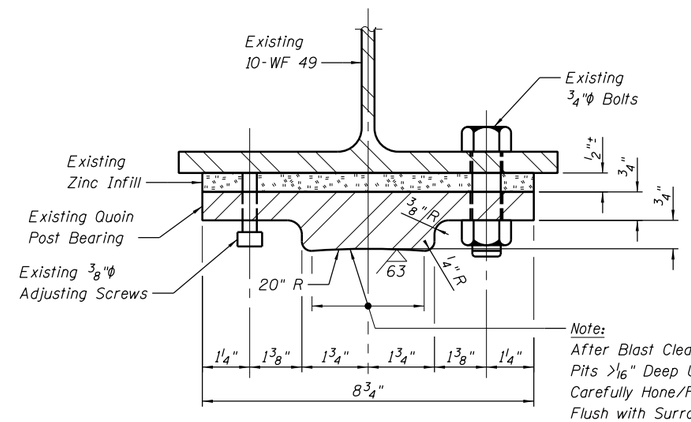
Notes:

1. Overall Length of assembled castings shall not vary more than 1/16" from theoretical length.
2. Number of castings shown are for one miter gate leaf. Provide Quoin post bearings for two miter gate leaves.



3/178 SECTION A-A

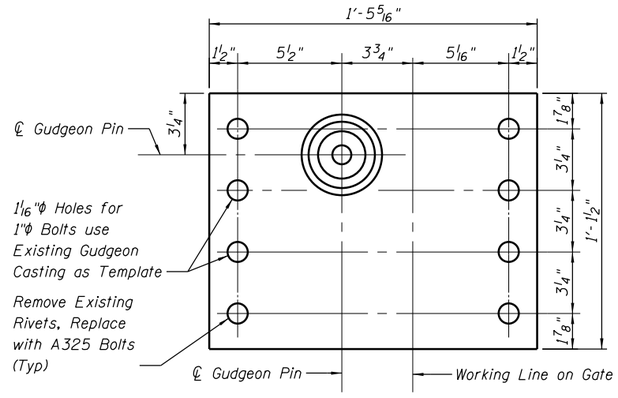
New Lower Quoin Post Bearing



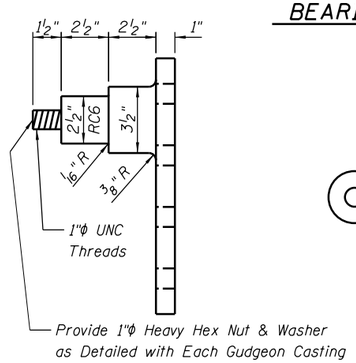
Note:

After Blast Cleaning, Fill Corrosion Pits >1/16" Deep Using E70xx Electrode. Carefully Hone/File Weld and Spatter Flush with Surrounding Surface to Meet Surface Finish Requirements and Provide a Uniform Bearing Surface. Prepare Surfaces and Paint in Accordance with the Specifications

EXISTING UPPER QUOIN POST BEARING RETROFIT DETAIL



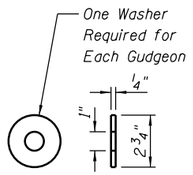
PLAN



ELEVATION

4/178 GUDGEON PIN AND PLATE

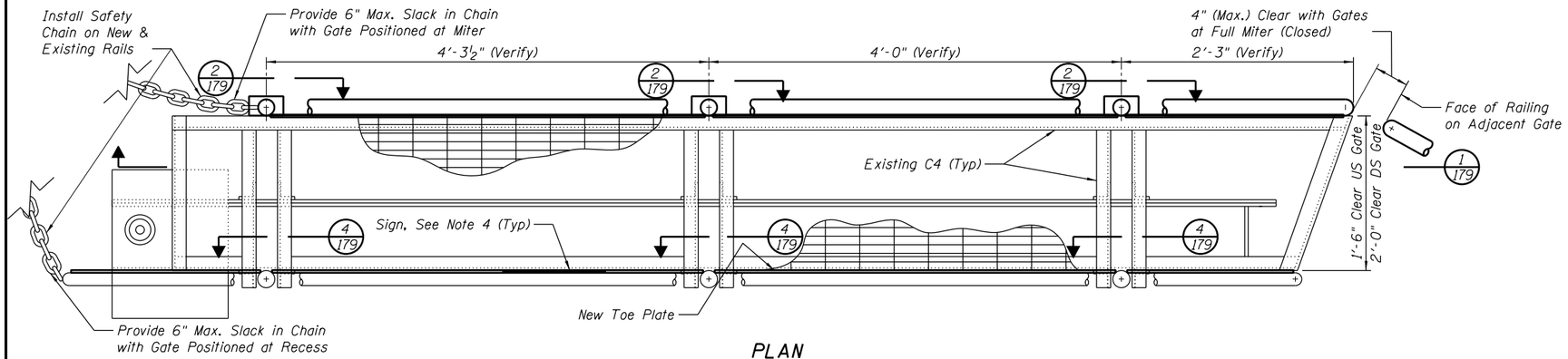
Material: Cast Steel ASTM A27 Grade 60-30, Annealed
River Side Shown, Land Side Opposite Hand



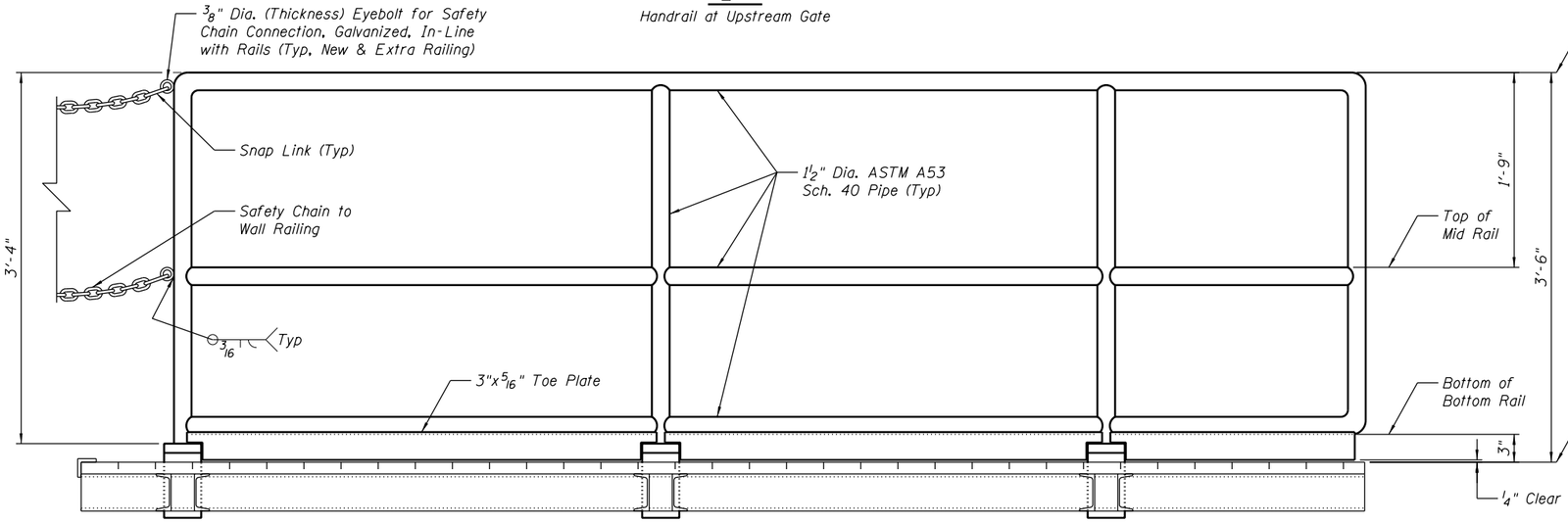
WASHER

FILE NAME = S-5004BER-GATE.dgn	USER NAME =	DESIGNED - RCP	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES
Bergmann associates architects // engineers // planners		CHECKED - WRM	REVISED -	MISCELLANEOUS GATE DETAILS – 4 STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
	PLOT SCALE =	DRAWN - DCM	REVISED -	ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - TSH	REVISED -	PROJECT FR-435

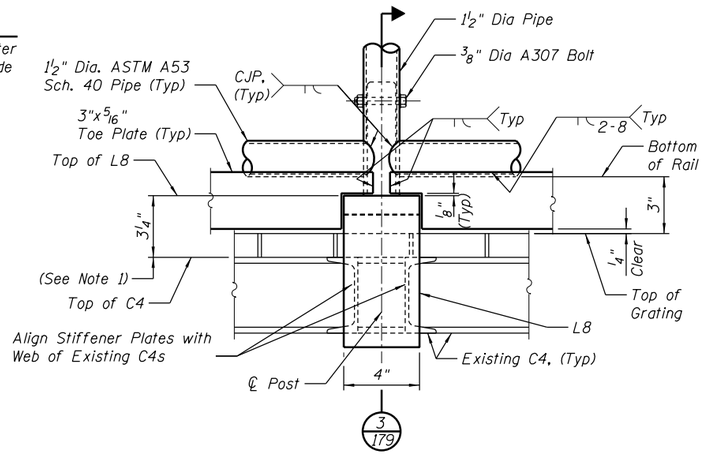
COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	178



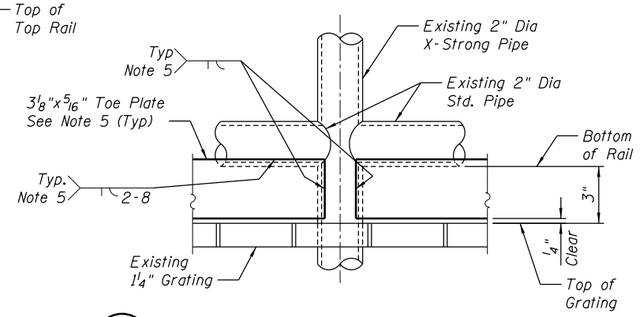
PLAN
Handrail at Upstream Gate



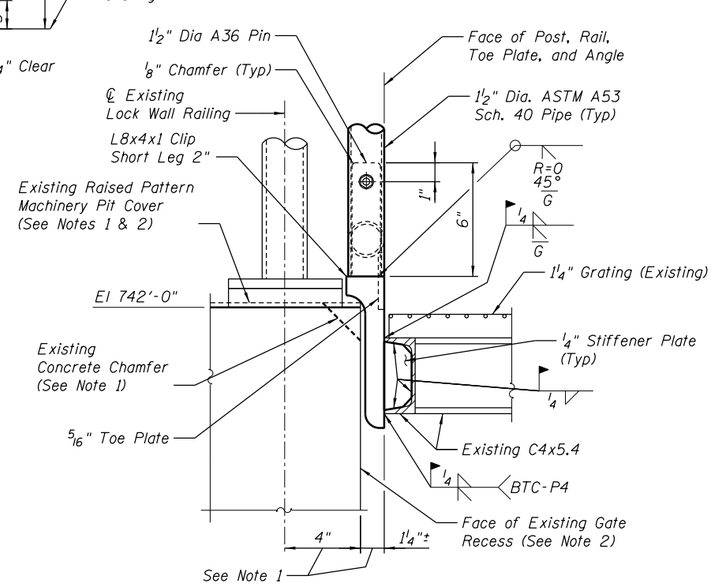
1/179 ELEVATION
Upstream Handrail at Miter Gate Upstream Land Side



2/179 DETAIL



4/179 DOWNSTREAM RAILING DETAIL
(Railing Post Sleeve and Bracket Assembly Not Shown)



3/179 SECTION

Notes:
1. Dimensions and Locations of Existing Features are Approximate Based on Site Observations and Record Drawings. Field Verify Dimensions and Interferences Prior to Railing System Fabrication.
2. Perform Select Removals (Grinding) of Existing Wall and Cover Plate, as Necessary, to Provide a Minimum 1/2" Clearance for Railing Supports with Gate at Full Recess Position.
3. Work Shall be Conducted on Each Gate Leaf (4 Total). Upper Landside Miter Gate Shown. New Upstream Railing Layout same for Lower Landside Miter Gate & Similar for Existing Downstream Railing Layout. Riverside Gate Railing same Opposite Hand.
4. See Sheet 8 for Signage Requirements.
5. Face of the Toe Plate Shall be Flush with the Face of the Existing Railing.
6. Galvanize New Rail After Fabrication. Galvanize Existing Railing After Modification. Paint Walkway After Modification in Accordance with Specifications.
7. Include Cost for New Railing & Existing Railing Work at Each Gate in Associated Lock Gate Rehabilitation - General (Upper or Lower) Gate Item.

FILE NAME = S-5005BER-GATE.dgn	USER NAME =	DESIGNED - TRM	REVISED -
Bergmann associates architects // engineers // planners		CHECKED - WRM	REVISED -
	PLOT SCALE =	DRAWN - JLM	REVISED -
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - TSH	REVISED -

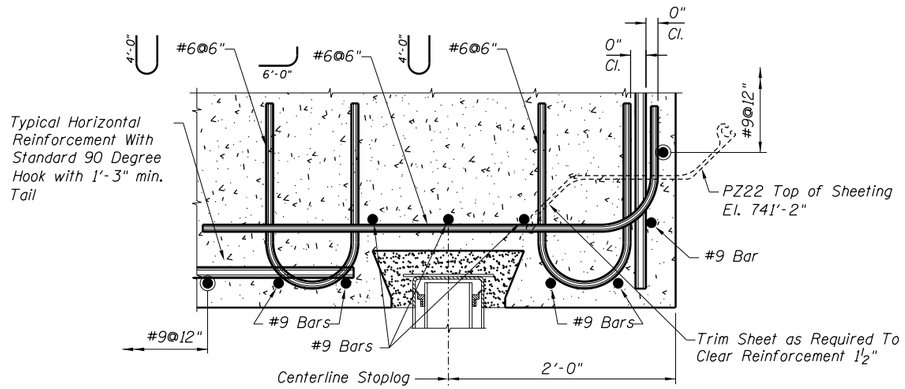
STATE OF ILLINOIS
DEPARTMENT OF NATURAL RESOURCES

MISCELLANEOUS GATE DETAILS – 5
STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS

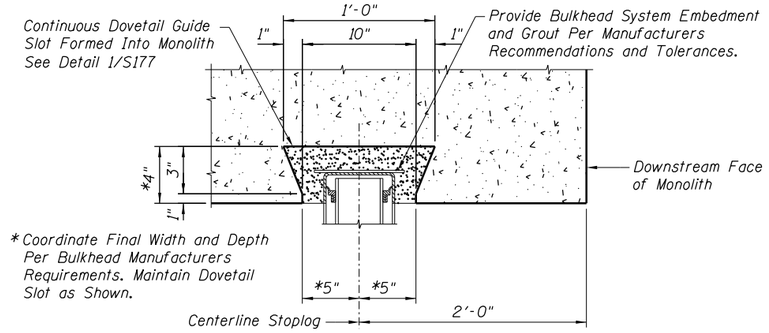
ILLINOIS DEPARTMENT OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	179

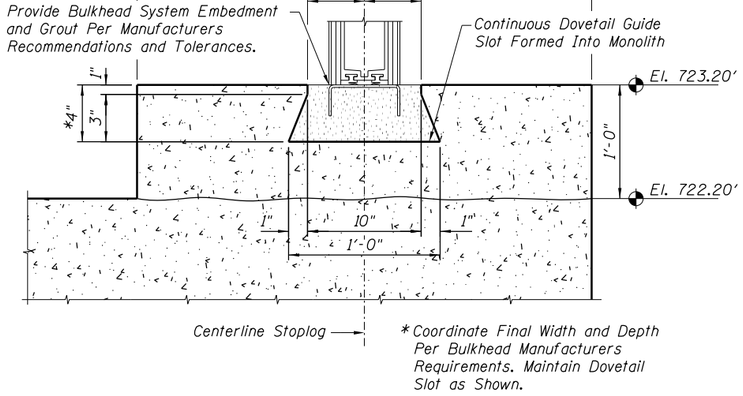
PROJECT FR-435



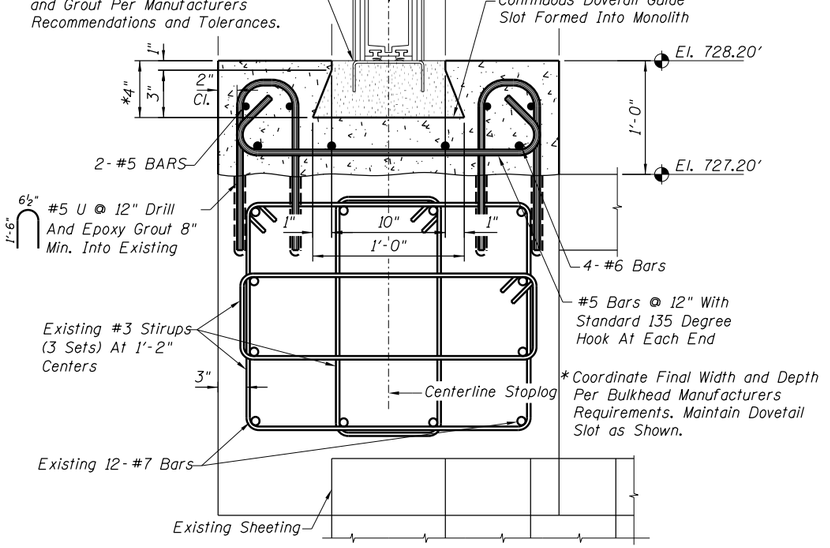
1/180 SECTION AT DOWNSTREAM STOP LOG GUIDE SLOT



2/180 SECTION AT DOWNSTREAM STOP LOG GUIDE SLOT

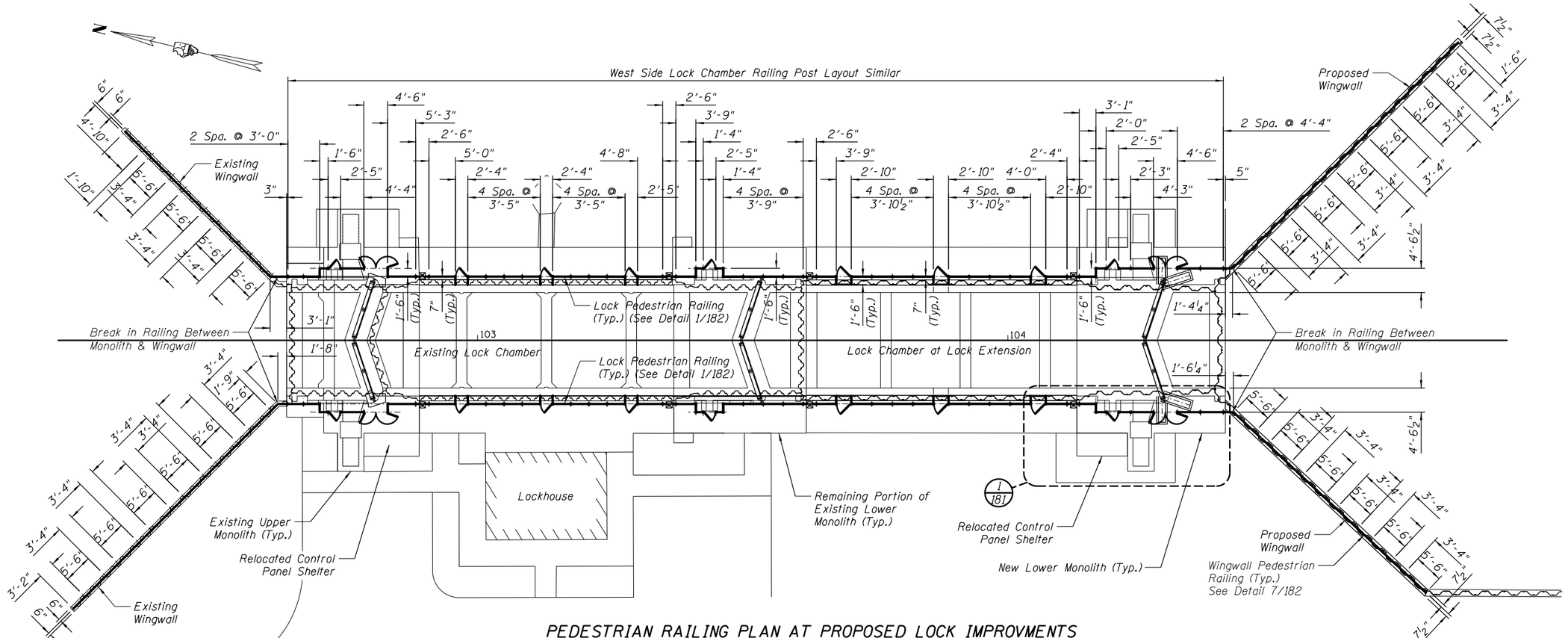


3/180 SECTION AT DOWNSTREAM STOP LOG SILL

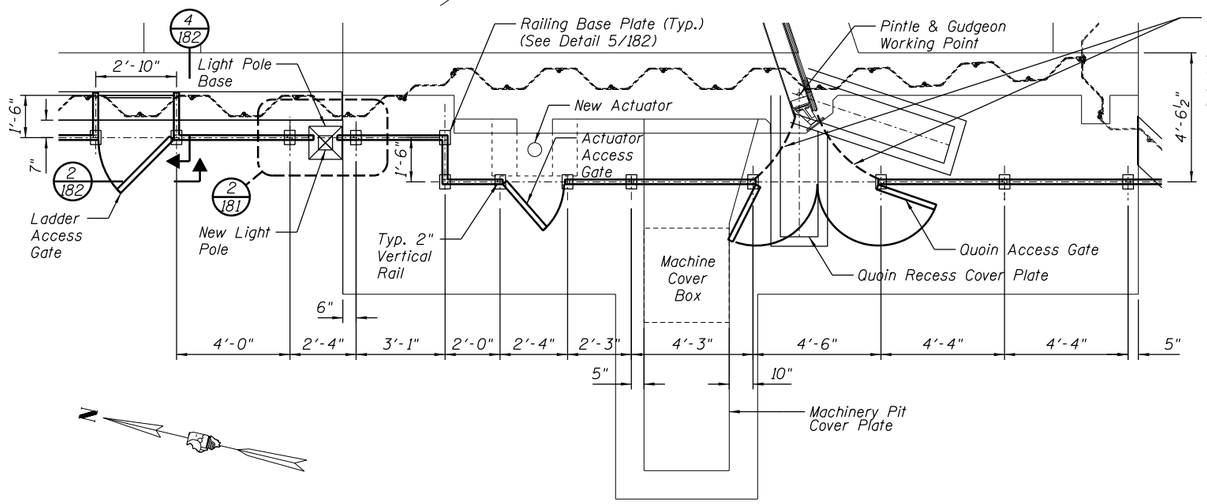


4/180 SECTION AT UPSTREAM STOP LOG SILL

FILE NAME = S-5004-LOCK.dgn	USER NAME =	DESIGNED - RGC	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	LOCK STOP LOG SECTIONS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS	ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY / TOTAL SHEETS / SHEET NO.
HANSON		CHECKED - JJT	REVISED -				McHENRY / 238 / 180
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -				PROJECT FR-435
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - RGC	REVISED -				

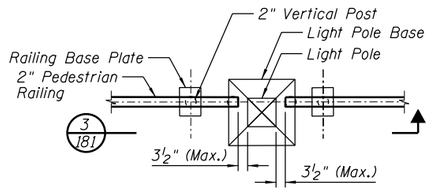


PEDESTRIAN RAILING PLAN AT PROPOSED LOCK IMPROVMENTS

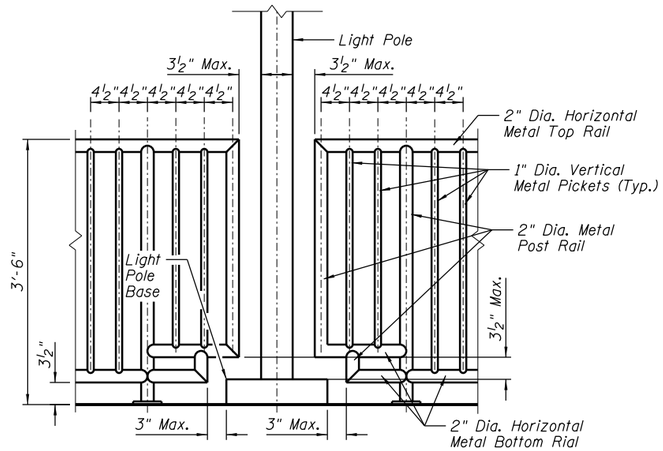


1/181 PARTIAL PEDESTRIAN RAILING PLAN AT NEW LOWER MONOLITH

Similar to Existing Monolith Railing Configuration

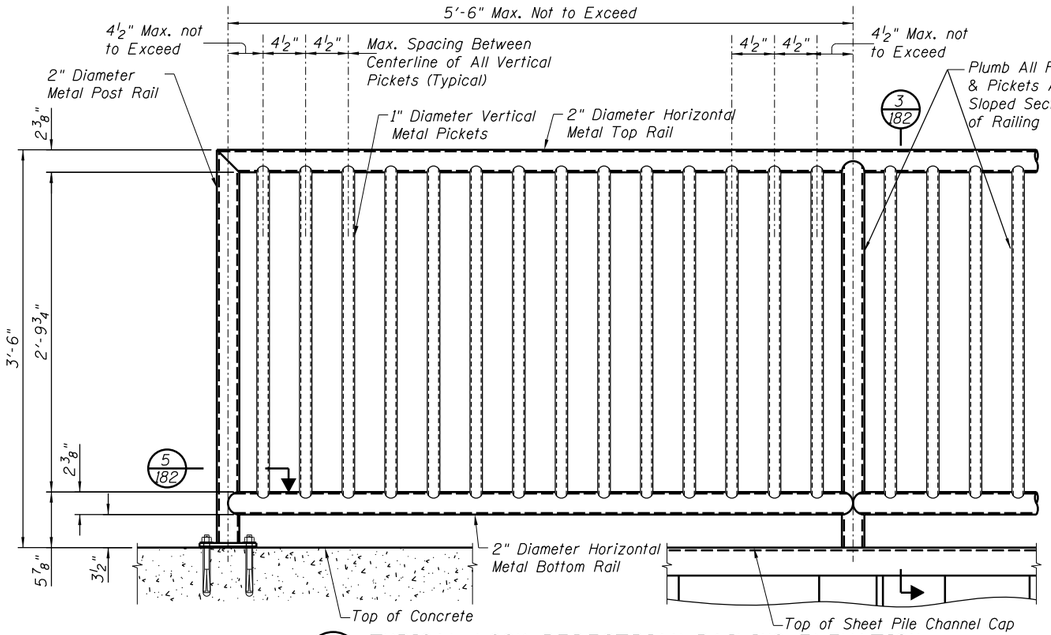


2/181 DETAIL AT LIGHT POLE

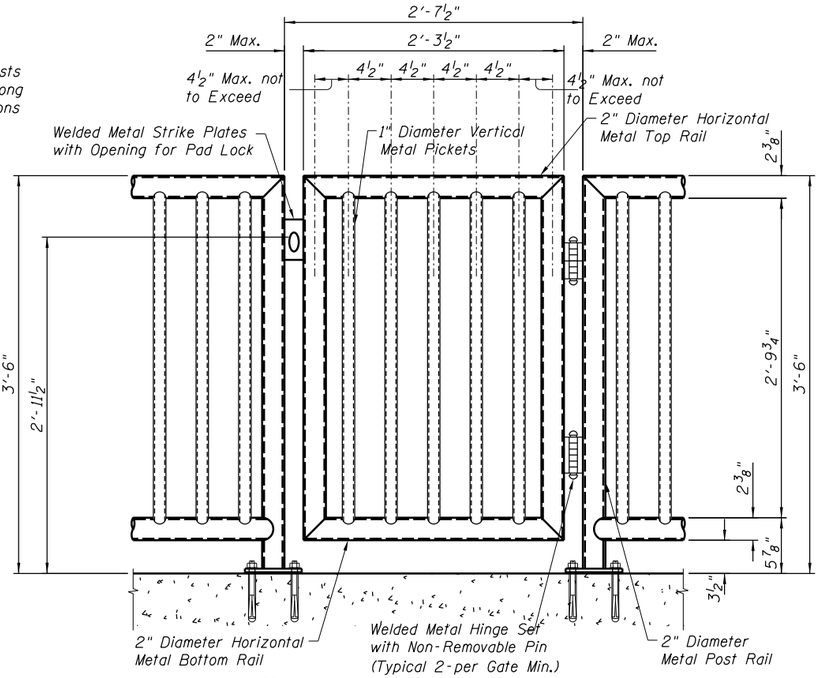


3/181 ELEVATION AT LIGHT POLE

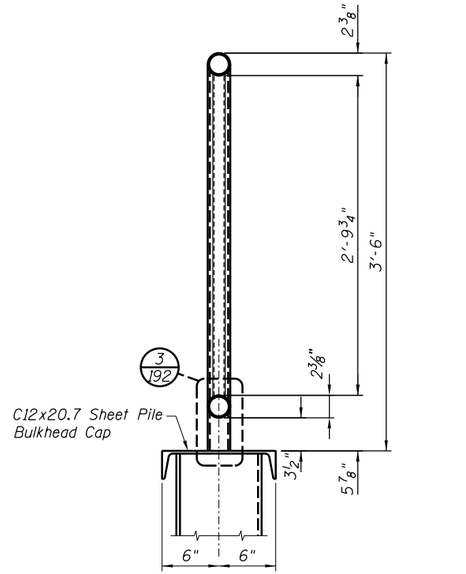
FILE NAME = S-1003-LOCK.dgn	USER NAME =	DESIGNED - ZA	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	LOCK RAILING PLAN & DETAILS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HANSON		CHECKED - NEM	REVISED -		ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES
	PLOT SCALE =	DRAWN - EJM	REVISED -		COUNTY: McHENRY; TOTAL SHEETS: 238; SHEET NO.: 181
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -		PROJECT FR-435



1/182 TYPICAL LOCK PEDESTRIAN RAILING ELEVATION



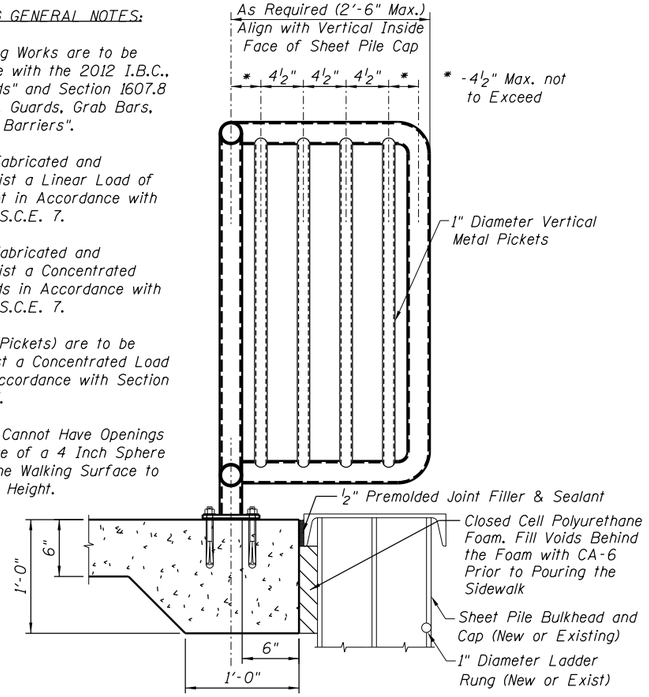
2/182 TYPICAL LOCK PEDESTRIAN RAILING GATE ELEVATION



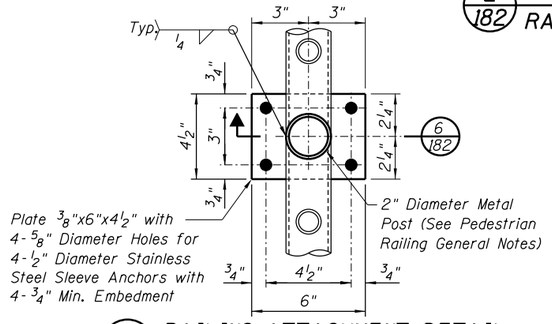
3/182 TYPICAL SECTION AT SHEET PILE

PEDESTRIAN RAILING GENERAL NOTES:

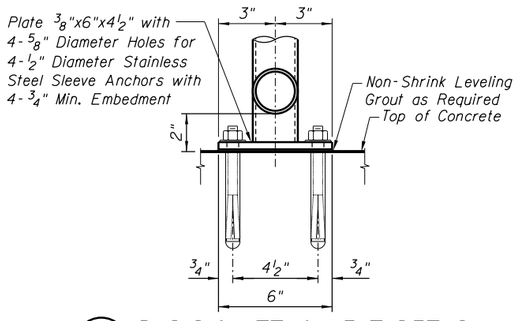
1. All Pedestrian Railing Works are to be Made in Accordance with the 2012 I.B.C., Section 1013 "Guards" and Section 1607.8 Loads on Handrails, Guards, Grab Bars, Seats and Vechicle Barriers".
2. Guards are to be Fabricated and Constructed to Resist a Linear Load of 50 Pounds per Foot in Accordance with Section 4.5.1 of A.S.C.E. 7.
3. Guards are to be Fabricated and Constructed to Resist a Concentrated Load of 200 Pounds in Accordance with Section 4.5.1 of A.S.C.E. 7.
4. Intermediate Rails (Pickets) are to be Fabricated to Resist a Concentrated Load of 50 Pounds in Accordance with Section 4.5.1 of A.S.C.E. 7.
5. Pedestrian Railings Cannot Have Openings Which Allow Passage of a 4 Inch Sphere in Diameter from the Walking Surface to the Required Guard Height.



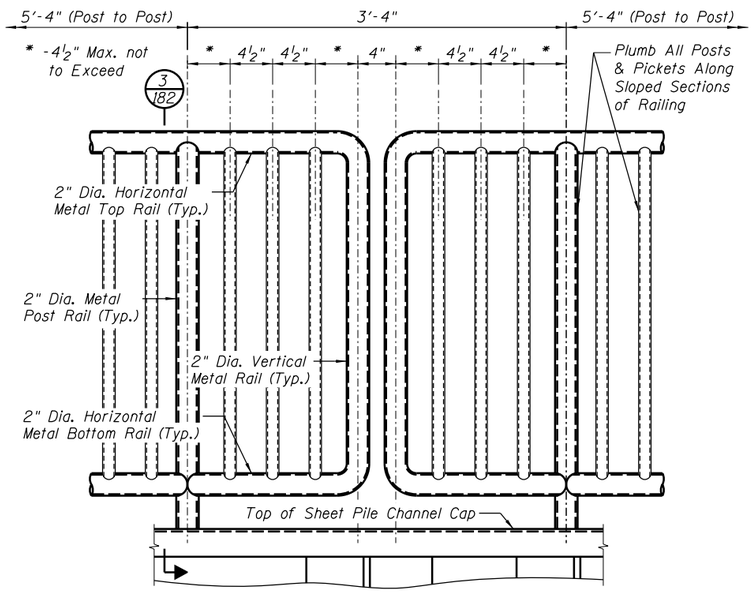
4/182 TYPICAL SECTION AT LADDER



5/182 RAILING ATTACHMENT DETAIL

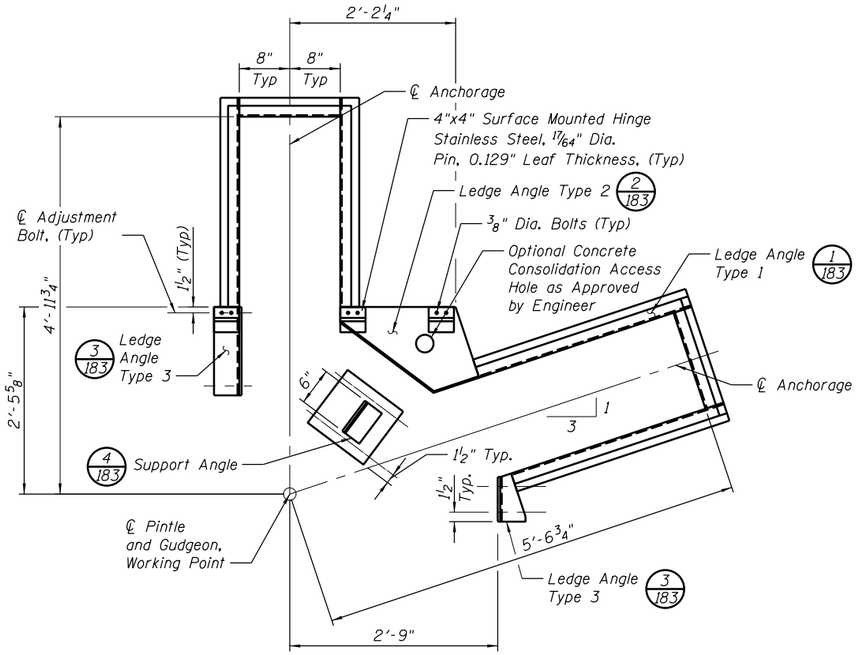


6/182 RAILING ATTACHMENT DETAIL



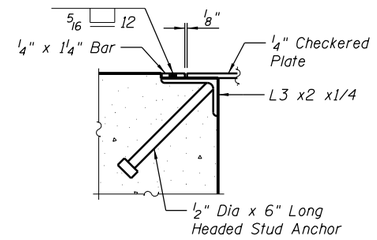
7/182 TYPICAL WINGWALL PEDESTRIAN RAILING ELEVATION

FILE NAME = S-5005-LOCK.dgn	USER NAME =	DESIGNED - ZA	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	LOCK RAILING DETAILS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HANSON		CHECKED - NEM	REVISED -		ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES
	PLOT SCALE =	DRAWN - MAE/EJM	REVISED -		COUNTY: McHENRY; TOTAL SHEETS: 238; SHEET NO.: 182
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - JJT	REVISED -		PROJECT FR-435

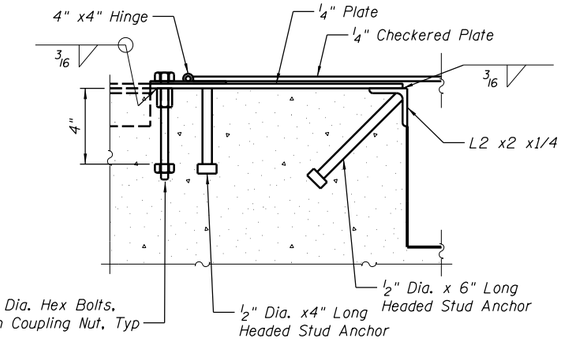


ANCHORAGE RECESS COVER PLATE SUPPORT PLAN

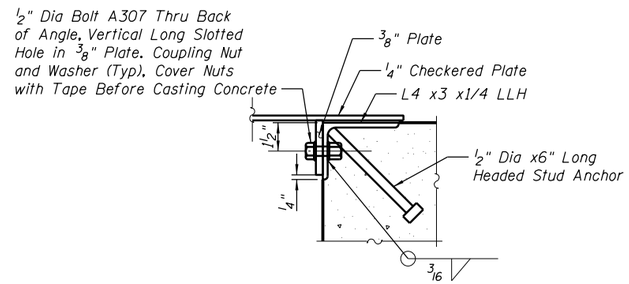
Material: ASTM A36, UNO Galvanize After Fabrrication



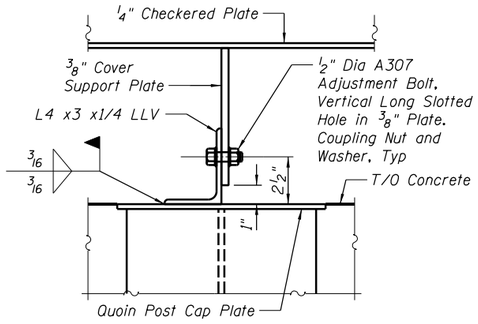
(1/183) LEDGE ANGLE TYPE 1



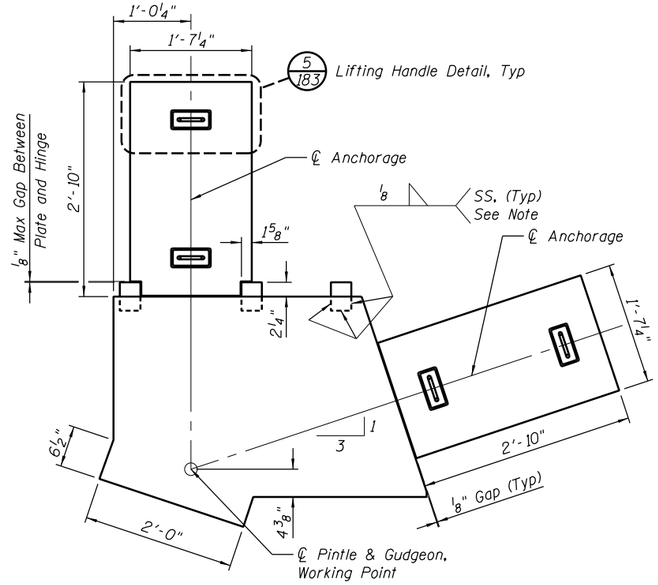
(2/183) LEDGE ANGLE TYPE 2



(3/183) LEDGE ANGLE TYPE 3

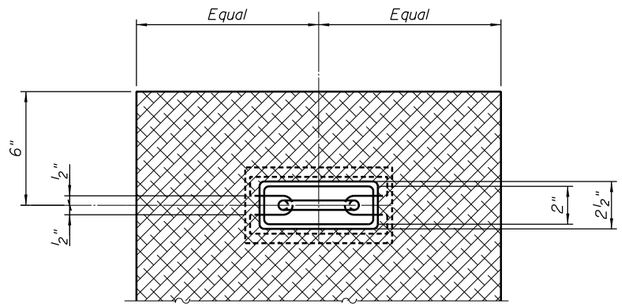


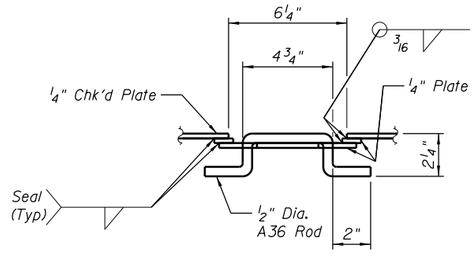
(4/183) SUPPORT ANGLE DETAIL



COVER PLATE PLAN

Note:
1. Verify Cover Plate Ledge Support Dimensions Prior to Fabrication of Cover Plate to Ensure Proper Fitting.
2. "Butter" Carbon Steel with Type E309 or E310 Electrodes Before Welding Stainless Steel to Carbon Steel.





(5/183) LIFTING HANDLE DETAIL

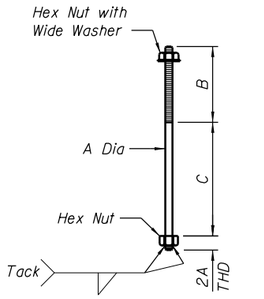
Notes:
1. All Materials Galvanized Unless Noted Otherwise.
2. River Side Shown, Land Side Opposite Hand.

FILE NAME = S-5011BER-LOCK.dgn	USER NAME =	DESIGNED - DTG	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	MISCELLANEOUS LOCK DETAILS – 1 STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
Bergmann associates architects // engineers // planners		CHECKED - WRM	REVISED -		
	PLOT SCALE =	DRAWN - DCM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - TSH	REVISED -		

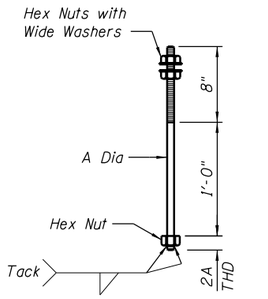
ILLINOIS DEPARTMENT OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	183

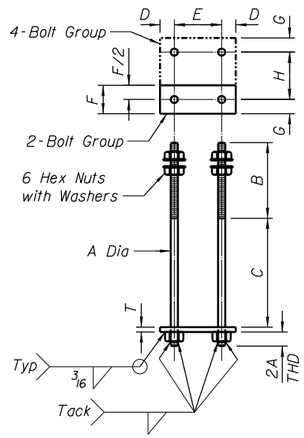
PROJECT FR-435



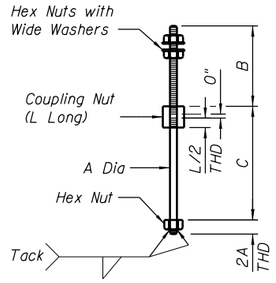
ANCHOR BOLT TYPE 1



ANCHOR BOLT TYPE 2



ANCHOR BOLT TYPE 3



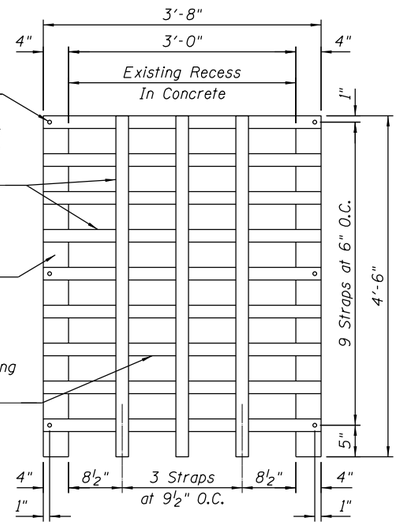
ANCHOR BOLT TYPE 4

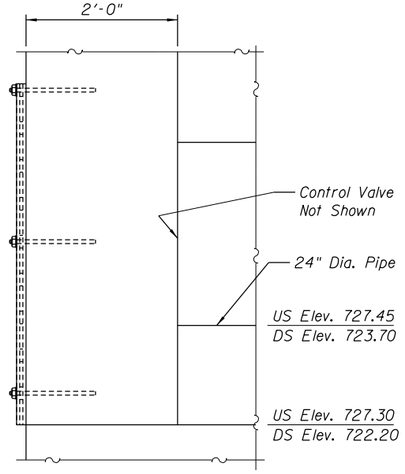
ANCHOR BOLT SCHEDULE

MARK	TYPE	A DIA	B PROJ. UNO	C EMBED. UNO	D	E	F	G	H	L (MIN)	T	REMARKS
AB-1	3	3/4"	8"	1'-0"	1 1/2"	5"		1 1/2"	5"		1/2"	Bottom of Quoin Post
AB-2	2	3/4"	8"	1'-0"								Quoin Post Flange
AB-3	4	3/4"	1'-6 1/2"	1'-0"						2 1/4"		Quoin Post Web
AB-4	4	5/8"	8 1/2"	7 1/2"						1 7/8"		Miter Sill
AB-5	2	5/8"	8 1/2"	10"								Miter Sill
AB-6	1	3/4"	8"	1'-0"								Gate Anchorage

Note:
1. Only Cast-In Anchor Bolts shown.
2. Provide Coupling Nuts with Sight Holes to Verify Full Engagement of Each Threaded Part.

Cut Existing Fastners Flush with Existing Concrete, Drill and Grout New 3/8" Dia. Min. ASTM A193 (GR B8 Class 1 or 2) Anchors with Type 316 Nuts and Washers. Provide 12" Min Embedment Offset Hole Location From Existing Hole in a Mannor Approved by the Engineer. Field Drill Rack for New Hole Locations. Contractor May Reuse Existing Anchors only with Approval from the Engineer. (Typ)

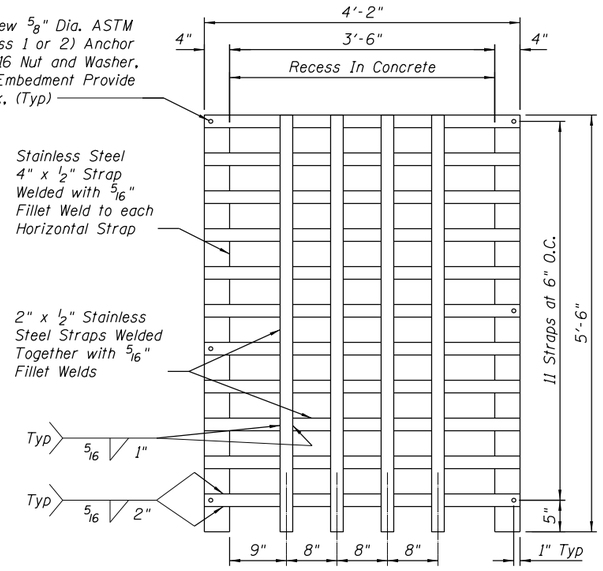


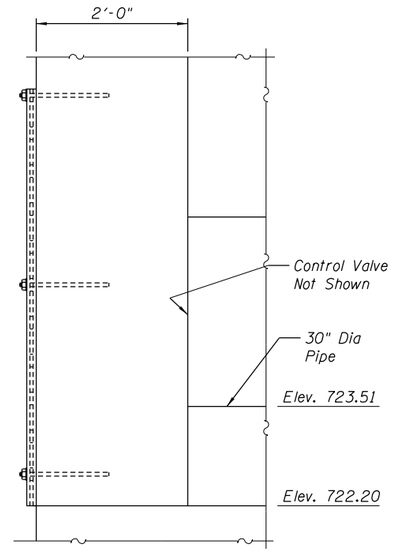


ELEVATION SECTION

1/184 EXISTING UPPER/LOWER GATE MONOLITH TRASH RACK DETAILS

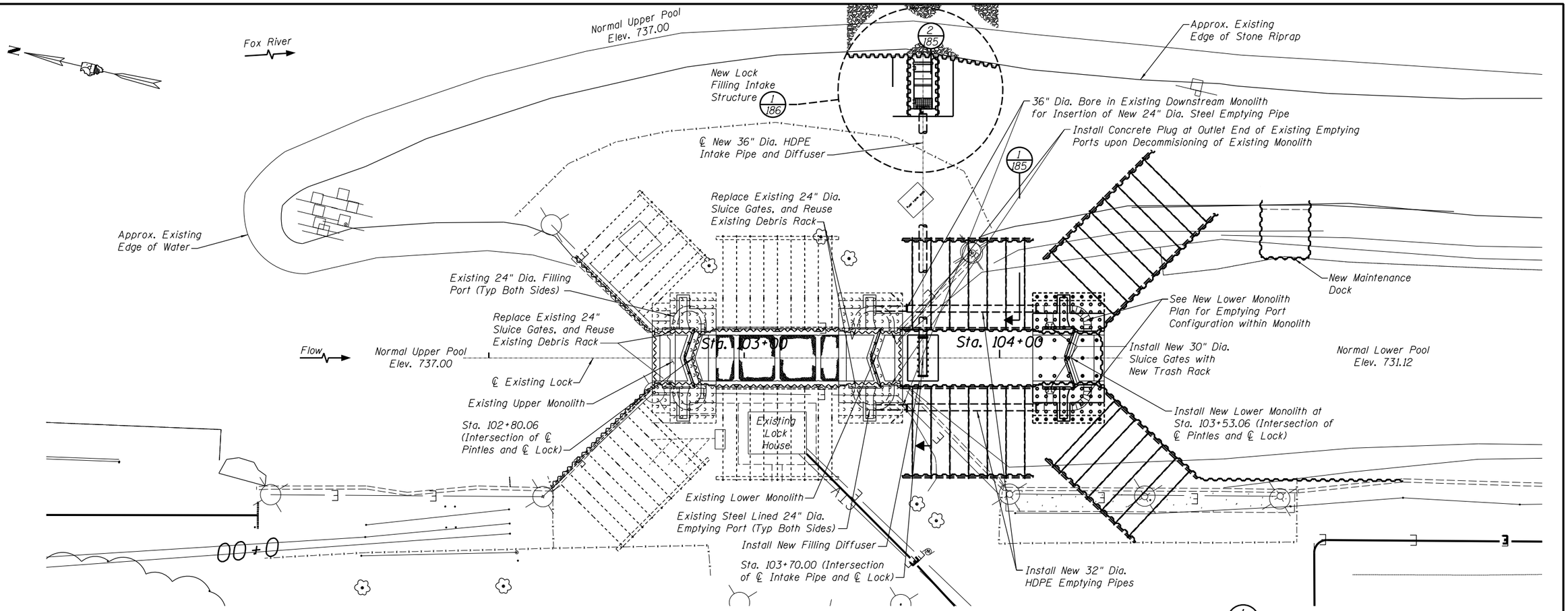
Drill and Grout New 5/8" Dia. ASTM A193 (GR B8 Class 1 or 2) Anchor Bolt with Type 316 Nut and Washer. Provide 12" Min Embedment Provide O.S. Hole in Rack. (Typ)



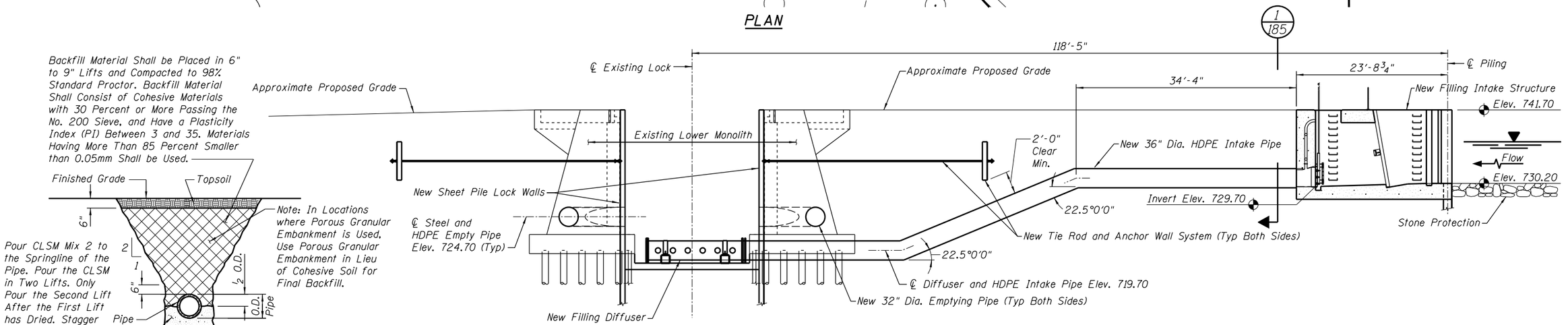


ELEVATION SECTION

2/184 NEW LOWER GATE MONOLITH TRASH RACK DETAILS



PLAN



2/185 PROFILE

Backfill Material Shall be Placed in 6" to 9" Lifts and Compacted to 98% Standard Proctor. Backfill Material Shall Consist of Cohesive Materials with 30 Percent or More Passing the No. 200 Sieve, and Have a Plasticity Index (PI) Between 3 and 35. Materials Having More Than 85 Percent Smaller than 0.05mm Shall be Used.

Pour CLSM Mix 2 to the Springline of the Pipe. Pour the CLSM in Two Lifts. Only Pour the Second Lift After the First Lift has Dried. Stagger the Pours Over the Pipe to Prevent Floatation of the Pipe.

Note: In Locations where Porous Granular Embankment is Used, Use Porous Granular Embankment in Lieu of Cohesive Soil for Final Backfill.

1/185 PIPE TRENCH DETAIL

Note:
1. Backfill Intake and Emptying Pipes in Accordance with the Specifications.

FILE NAME = S-7001BER-LOCK.dgn	USER NAME =	DESIGNED - JMR	REVISED -
Bergmann associates architects // engineers // planners		CHECKED - WRM	REVISED -
	PLOT SCALE =	DRAWN - JLM	REVISED -
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - TSH	REVISED -

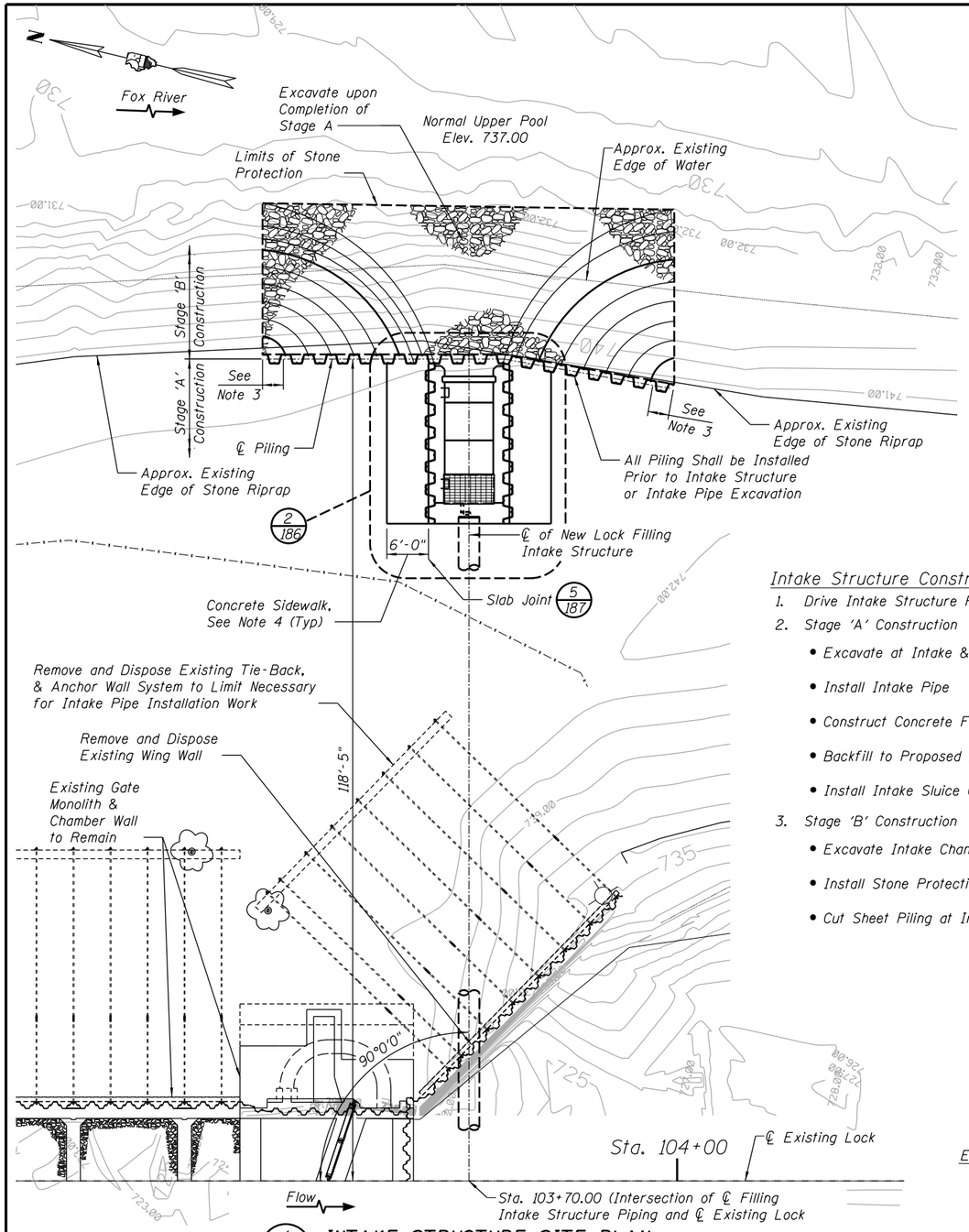
STATE OF ILLINOIS
DEPARTMENT OF NATURAL RESOURCES

LOCK FILLING / EMPTYING SYSTEM PLAN AND PROFILE
STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS

ILLINOIS DEPARTMENT OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	185

PROJECT FR-435



1/186 INTAKE STRUCTURE SITE PLAN

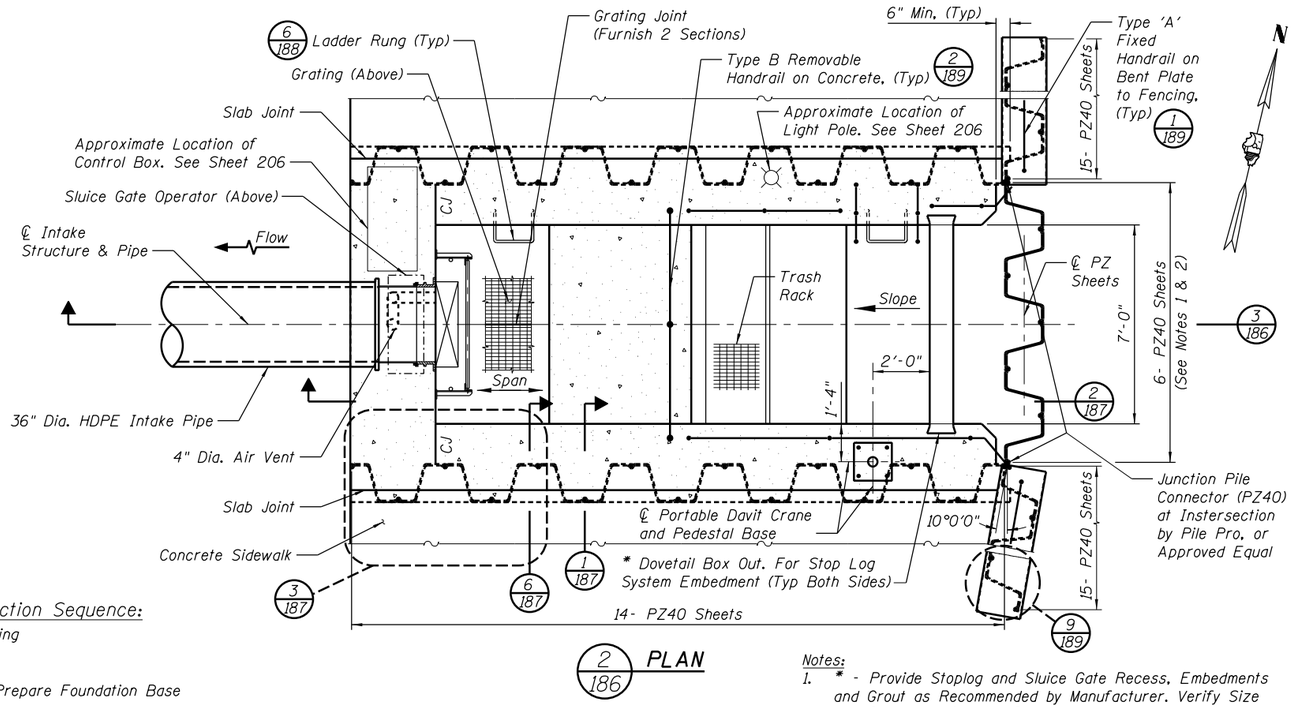
New Lock Features Not Shown for Clarity

Notes:

1. PZ40 Sheets Shown to Remain to Elev. 741.7 Thru Stage 'A' Construction.
2. Cut Sheet Flush with Top of Slab at Completion of Stage 'B'.
3. Temporary Excavation Shall Not Occur with the Last 3 Feet of the Piling Driven Along the Shoreline.
4. Provide Two (2) Control Joints in Each Intake Structure Slab in Accordance with Detail 3/41 at Approximate 1/3 Points. Confirm Location with Engineer Prior to Installation.
5. See Sheet 187 For Additional Notes.
6. See Sheet 158 for Intake Perimeter Fence (Not Shown This Sheet) and Grading Requirments.

Intake Structure Construction Sequence:

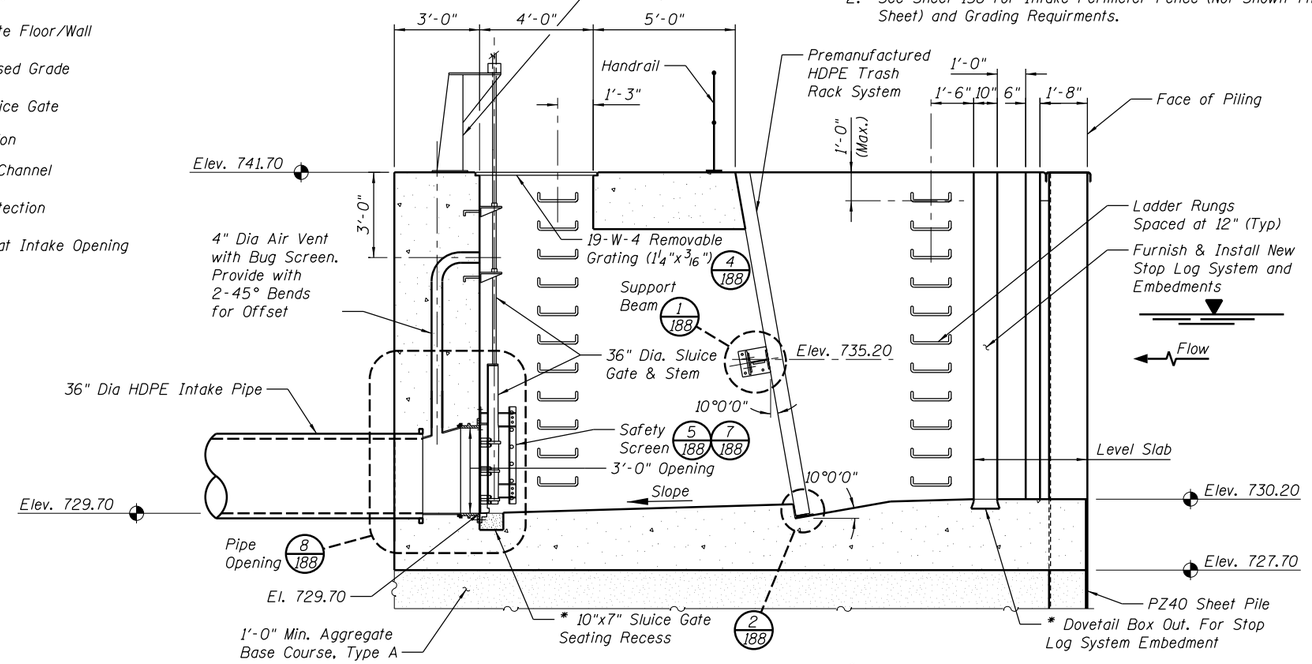
1. Drive Intake Structure Piling
2. Stage 'A' Construction
   - Excavate at Intake & Prepare Foundation Base
   - Install Intake Pipe
   - Construct Concrete Floor/Wall
   - Backfill to Proposed Grade
   - Install Intake Sluice Gate
3. Stage 'B' Construction
   - Excavate Intake Channel
   - Install Stone Protection
   - Cut Sheet Piling at Intake Opening



2/186 PLAN

Notes:

1. * - Provide Stoplog and Sluice Gate Recess, Embedments and Grout as Recommended by Manufacturer. Verify Size and Geometry with Manufacturer.
2. See Sheet 158 for Intake Perimeter Fence (Not Shown This Sheet) and Grading Requirments.



3/186 SECTION

* - Provide Stoplog and Sluice Gate Recess, Embedments and Grout as Recommended by Manufacturer. Verify Size and Geometry with Manufacturer.

FILE NAME = S-4001BER-LOCK.dgn	USER NAME =	DESIGNED - DTG	REVISED -
Bergmann associates architects // engineers // planners		CHECKED - WRM	REVISED -
	PLOT SCALE =	DRAWN - JLM	REVISED -
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - TSH	REVISED -

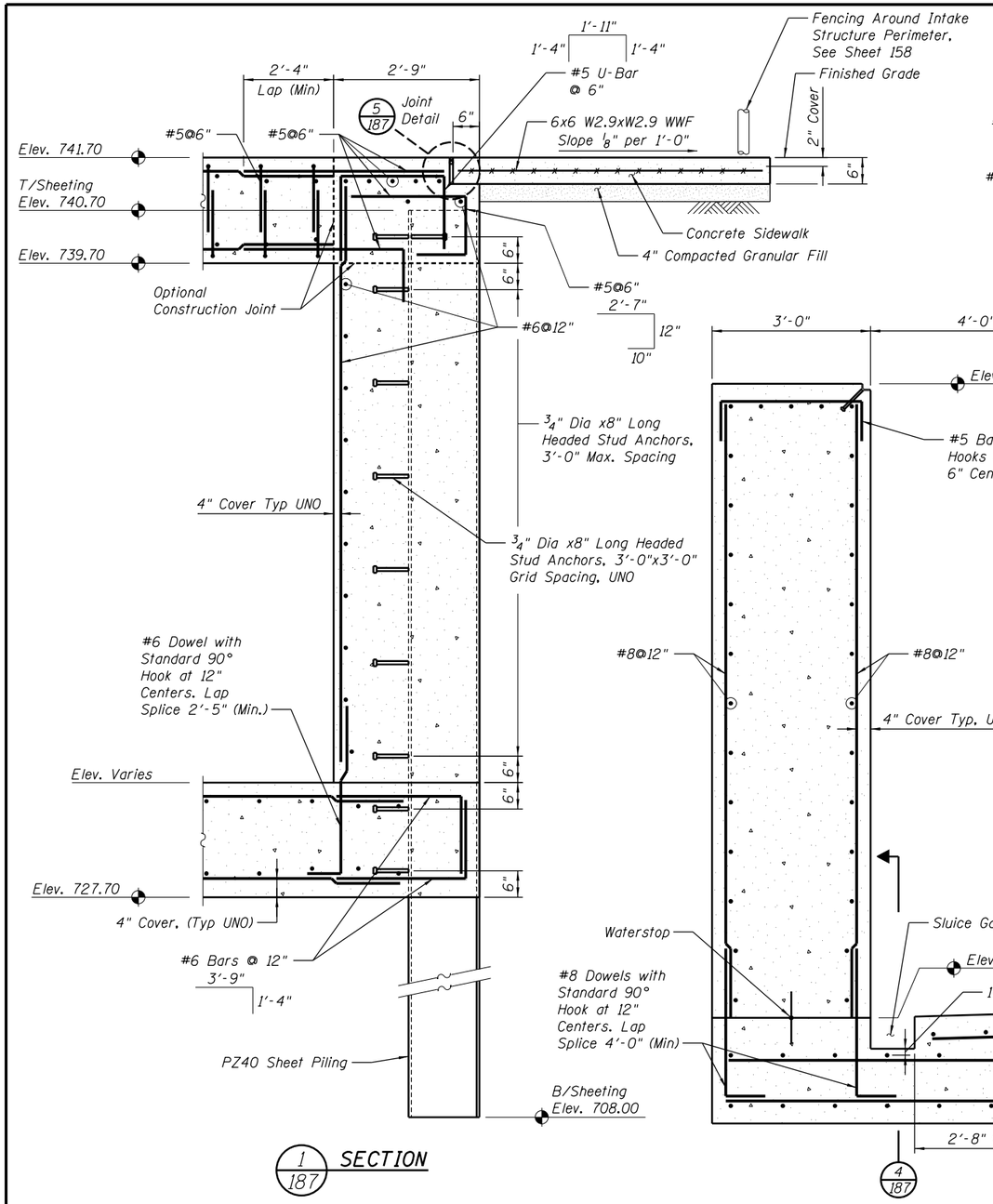
STATE OF ILLINOIS
DEPARTMENT OF NATURAL RESOURCES

LOCK FILLING INTAKE STRUCTURE PLANS AND SECTION
STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS

ILLINOIS DEPARTMENT OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	186

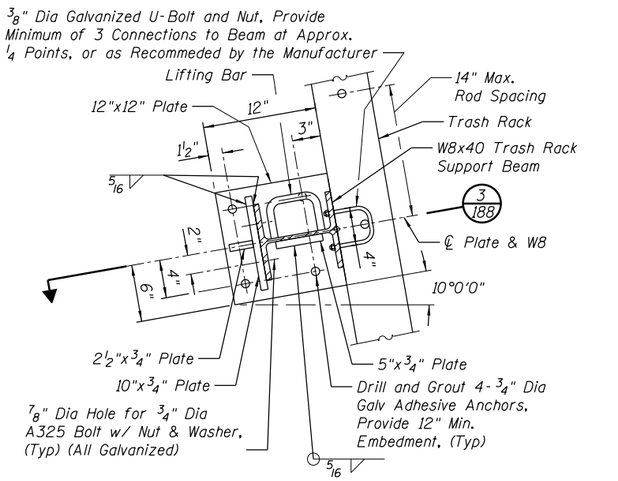
PROJECT FR-435



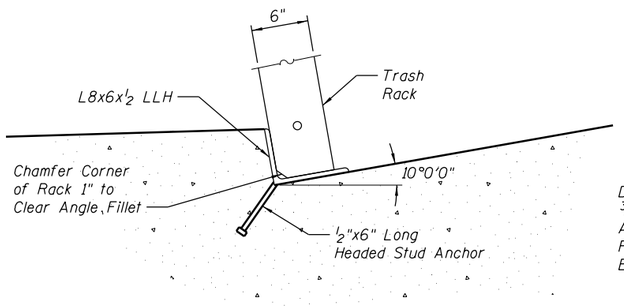
Notes:

1. *The Sheet Piling Layout and Tip Elevations Shall be Taken as the Minimum Amount Required for the Permanent Condition of the Intake Structure. Additional Piling May be Permissible to Facilitate Temporary Dewatering and Excavations for Construction of the Intake Structure. Cost for Sheet Piling, Additional to that Shown on the Drawings, Shall be Included Under the Associated Cofferdam Pay Item.*
2. *Design, Construction, Stability, and Maintenance of all Cofferdam and Dewatering Systems Shall be the Responsiblity of the Contractor and Subject to the Approval of the Engineer. Cost of the Work Shall be Included in the Cofferdam - Location 1 Pay Item. See Special Provisions.*
3. *All Exposed Faces of Sheet Pile at the Intake Structure Shall be Painted Above the Ground Line in Accordance with the Specifications.*
4. *The Contractor May Elect to Utilize a Marine Grade Interlock Sealant Between Sheet Piles to Reduce the Amount of Leakage Through the Walls During Temporary Dewatering at No Additional Cost to the Department.*

FILE NAME = S-5009BER-LOCK.dgn	USER NAME =	DESIGNED - DTG	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	LOCK FILLING INTAKE STRUCTURE DETAILS – 1 STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS	ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY / TOTAL SHEETS / SHEET NO.
Bergmann associates architects // engineers // planners		CHECKED - WRM	REVISED -				McHENRY / 238 / 187
	PLOT SCALE =	DRAWN - JLM	REVISED -				PROJECT FR-435
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - TSH	REVISED -				

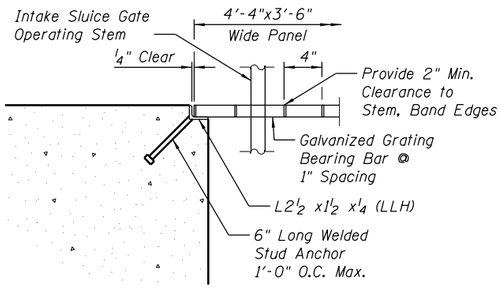


1/188 **DETAIL 1**
Support Beam



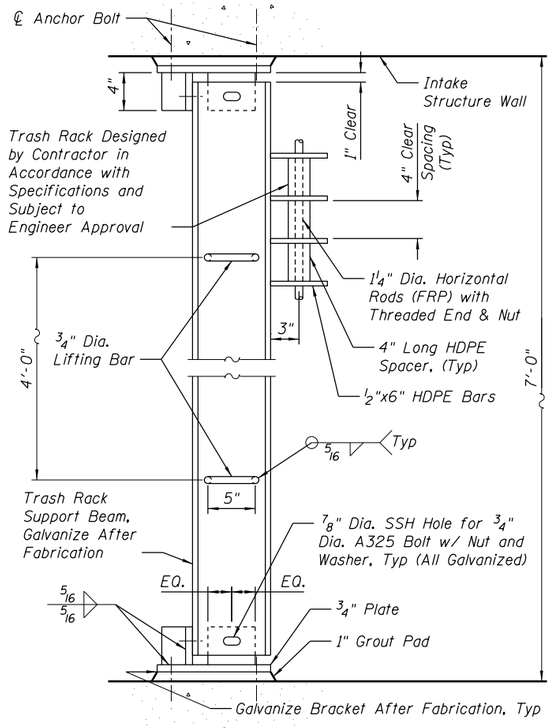
2/188 **DETAIL 2**
Trash Rack Base

Note:
1. Cost for Embedded Angle and Headed Stud Anchor Shall be Considered Incidental to Concrete Structures Work and Shall be Paid Under the Concrete Structures Pay Item.

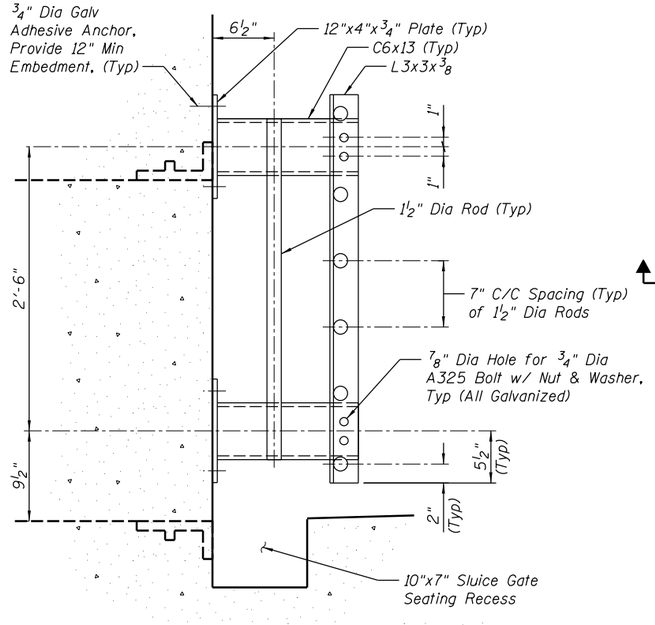


4/188 **GRATING SUPPORT LEDGE DETAIL**

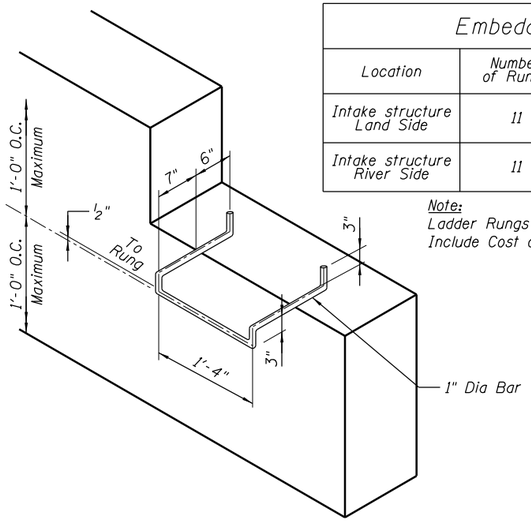
Note:
1. Provide Grating Attachment Per Detail on Sheet 83. Minimum 4 Clips Per Panel Section.



3/188 **SECTION**



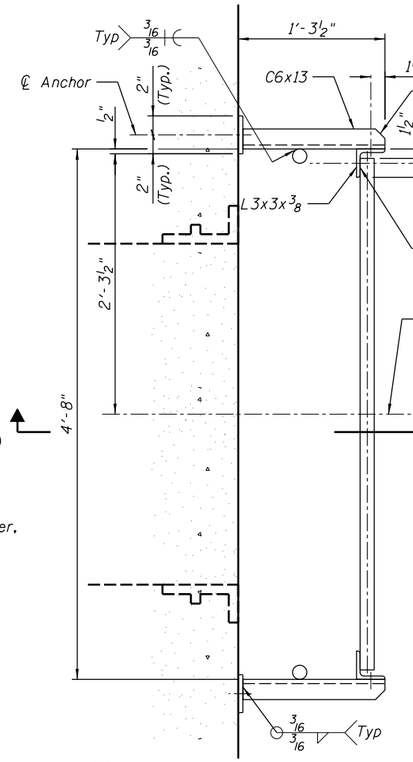
5/188 **SECTION**
Safety Screen



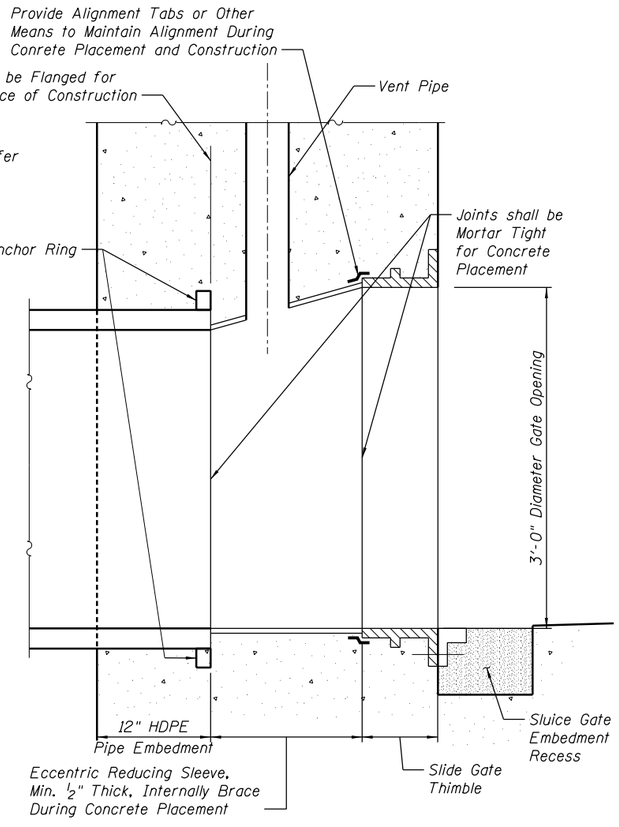
Embedded Ladder Rung Schedule				
Location	Number of Rungs	Top of First Ladder Rung	Top of Last Ladder Rung	Ladder Rung Spacing
Intake structure Land Side	11	740.70	731.20	12" Max.
Intake structure River Side	11	740.70	731.20	12" Max.

Note:
Ladder Rungs Shall be Stainless Steel with Non-Slip Finish. Include Cost of Rung in Pay Item for Concrete Structures.

6/188 **ELEVATION**
Safety Ladder



7/188 **SAFETY SCREEN PLAN**
Galvanize After Fabrication



8/188 **PIPE OPENING DETAIL**

FILE NAME = S-5006BER-LOCK.dgn	USER NAME =	DESIGNED - DTG	REVISED -
Bergmann associates architects // engineers // planners		CHECKED - WRM	REVISED -
	PLOT SCALE =	DRAWN - JLM	REVISED -
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - TSH	REVISED -

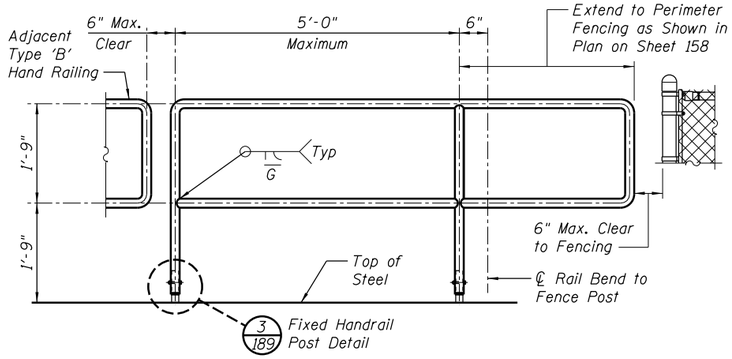
STATE OF ILLINOIS
DEPARTMENT OF NATURAL RESOURCES

LOCK FILLING INTAKE STRUCTURE DETAILS – 2
STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS

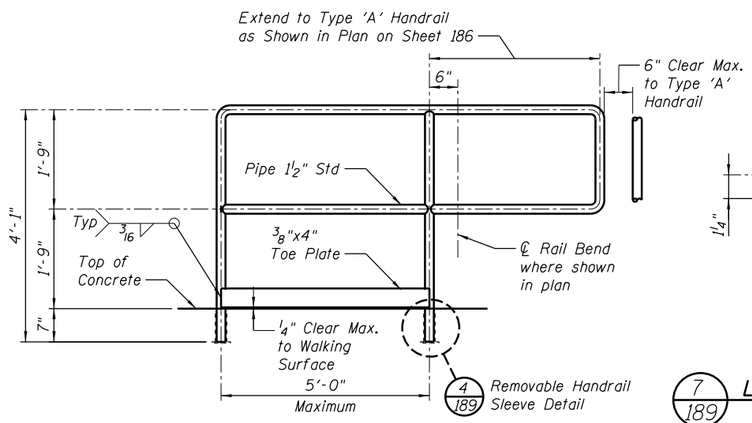
ILLINOIS DEPARTMENT OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	188

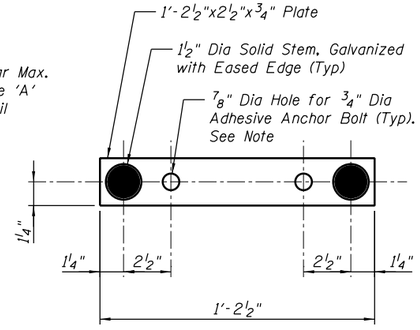
PROJECT FR-435



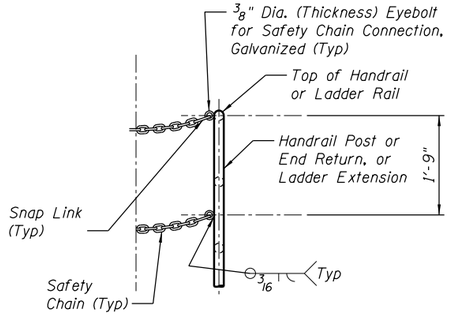
1 / 189 TYPE 'A' HANDRAIL
(Galvanize After Fabrication)



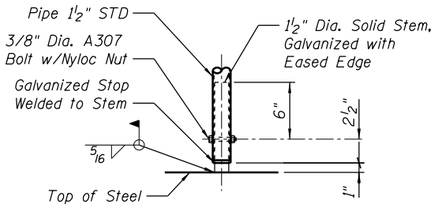
2 / 189 TYPE 'B' HANDRAIL
(Galvanize After Fabrication)



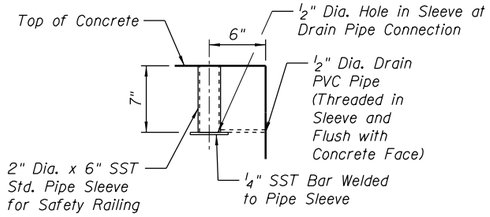
SECTION
7 / 189 LADDER EXTENSION BASE PLATE
(Galvanize After Fabrication)
Note: Provide 12" Min Embedment for Adhesive Anchors



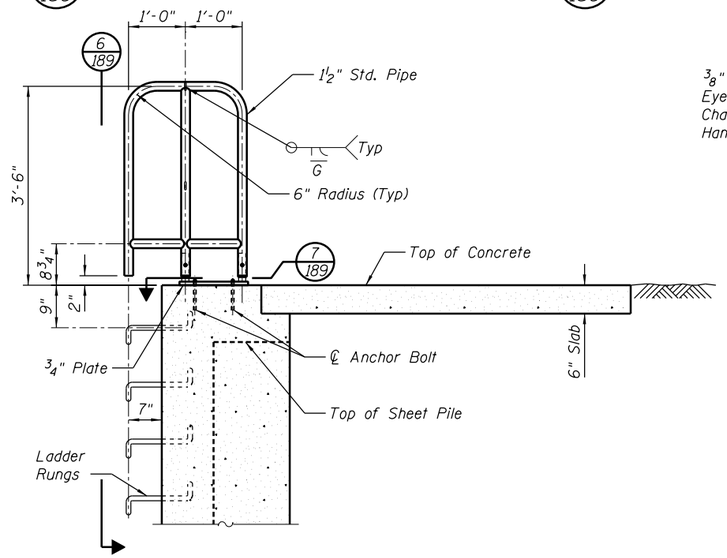
8 / 189 TYPICAL DETAIL
Safety Chain at Handrail or Ladder



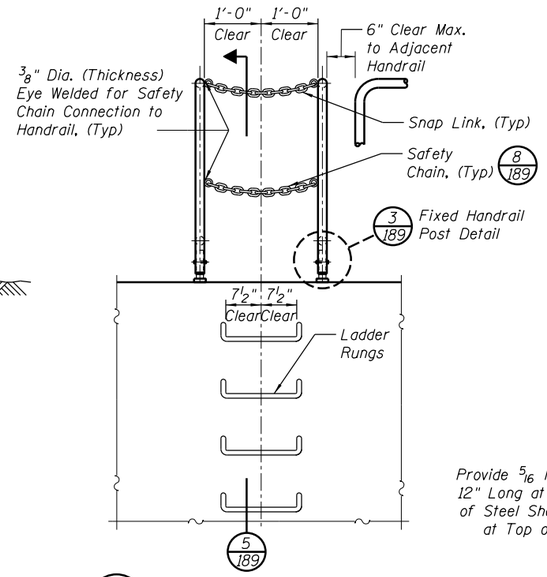
3 / 189 FIXED HANDRAIL POST DETAIL



4 / 189 REMOVABLE HANDRAIL SLEEVE DETAIL
(Galvanize After Fabrication)



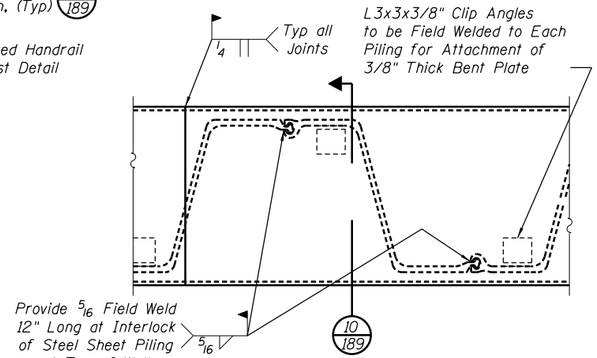
5 / 189 SECTION



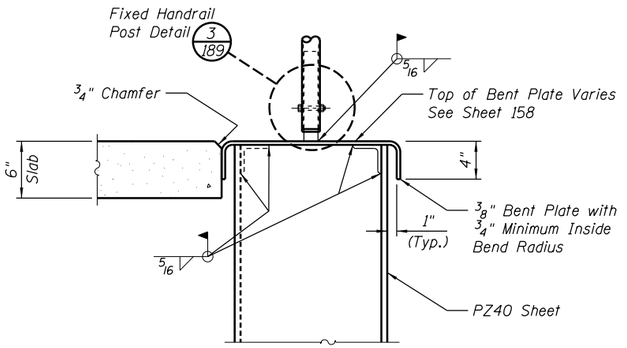
6 / 189 ELEVATION

TYPICAL DETAIL
Step Thru Ladder Extension
(Galvanize After Fabrication)

Note:
1. Include Cost of Ladder Extension, Ladder Extension Base Plate, Safety Chain, Handrail Posts, and Hardware with Pipe Handrail Pay Item.



9 / 189 PLAN



10 / 189 SECTION

TYPICAL DETAIL
Sheet Pile Bent Plate Cap and Fixed Handrail at Sheet Piling

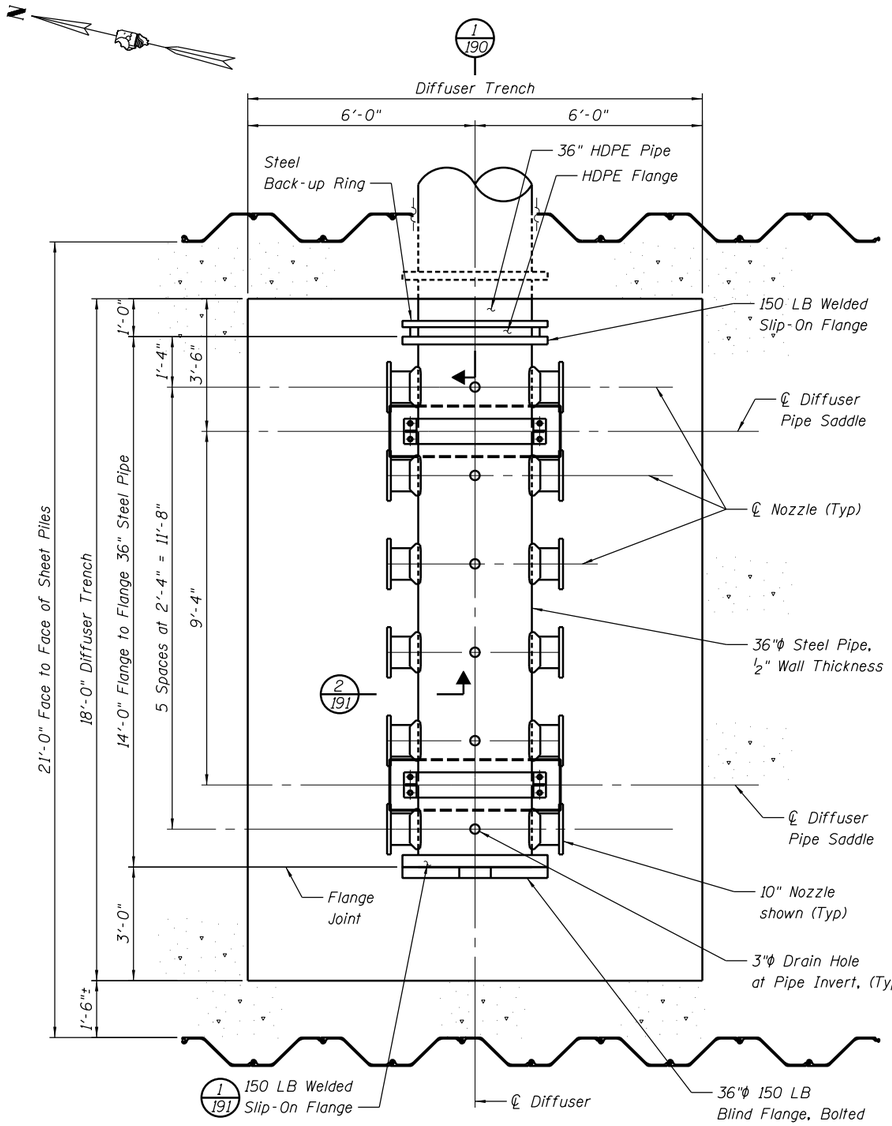
Note:
1. Include Bent Plate, Welding and Clip Angle in Cost to Furnish & Erect Structural Steel.

FILE NAME = S-5007BER-LOCK.dgn	USER NAME =	DESIGNED - DTG	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	LOCK FILLING INTAKE STRUCTURE DETAILS – 3 STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
Bergmann associates architects // engineers // planners		CHECKED - WRM	REVISED -		
	PLOT SCALE =	DRAWN - JLM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - TSH	REVISED -		

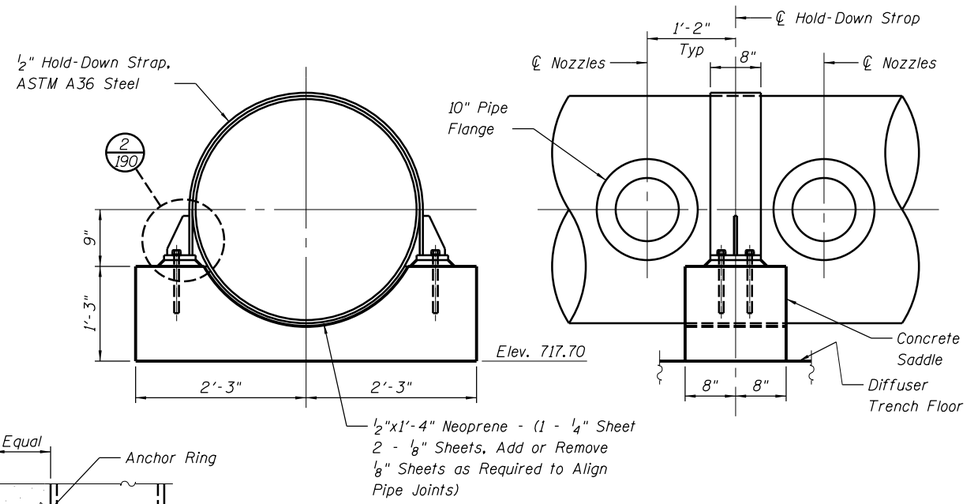
ILLINOIS DEPARTMENT OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES

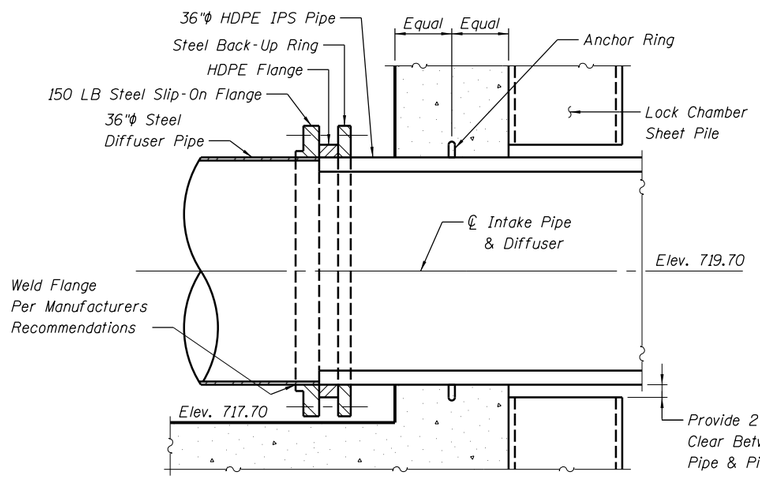
COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	189

PROJECT FR-435



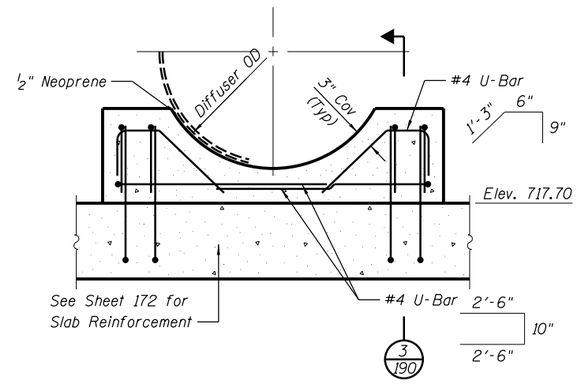
DIFFUSER PIPE PLAN



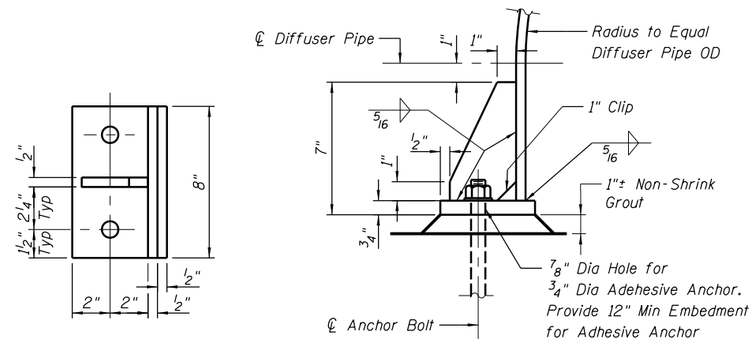


1/190 SECTION

DIFFUSER PIPE SADDLE

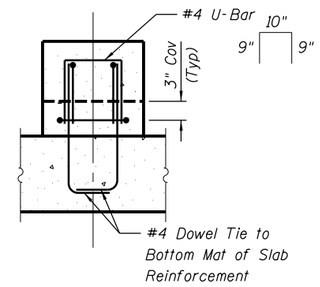


TYPICAL SADDLE REINFORCEMENT



PLAN ELEVATION

2/190 DETAIL
Material: ASTM A36, UNO

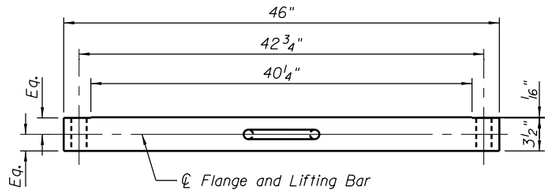


3/190 SECTION

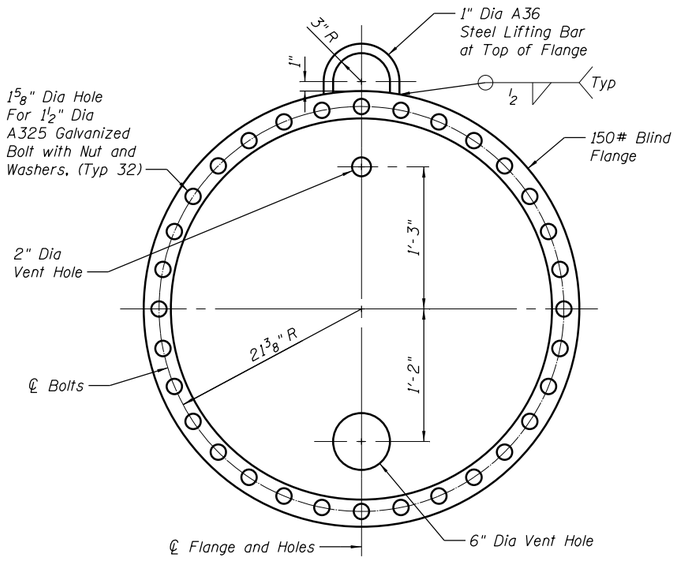
Notes:
1. Galvanize Diffuser Pipe, Flanges, Hold Down Straps and Hardware After Fabrication Per Specifications.
2. Include Cost For Diffuser System, Hold Down Straps, Flanges, Hardware and Neoprene Pads in Lock Steel Piping - Diffuser System Pay Item.

FILE NAME = S-5008BER-LOCK.dgn Bergmann associates architects // engineers // planners	USER NAME =	DESIGNED - RCP	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	LOCK FILLING /EMPTYING SYSTEM DETAILS – 1 STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS	ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES
		CHECKED - WRM	REVISED -			
	PLOT SCALE =	DRAWN - DCM	REVISED -			
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - TSH	REVISED -			

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	190
PROJECT FR-435		



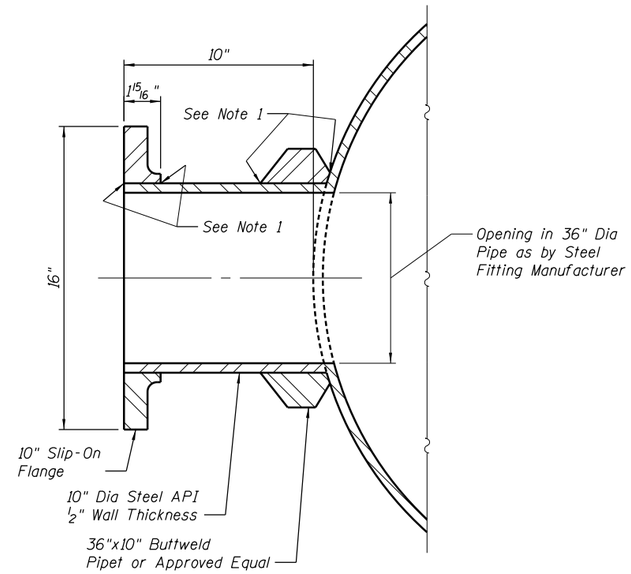
TOP PLAN



ELEVATION

1/191 **DIFFUSER END FLANGE**

Note:
Galvanize Ater Fabrication.

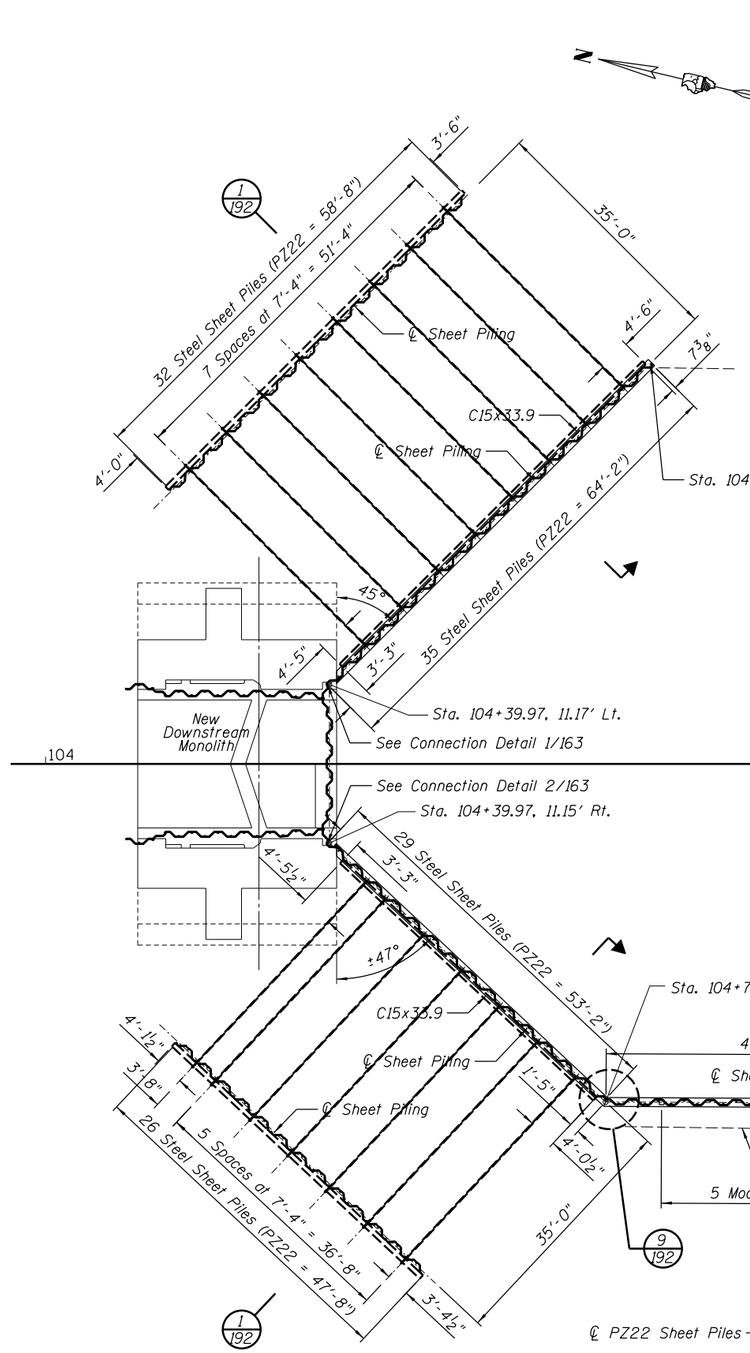


2/191 **TYPICAL DIFFUSER NOZZLE SECTION**

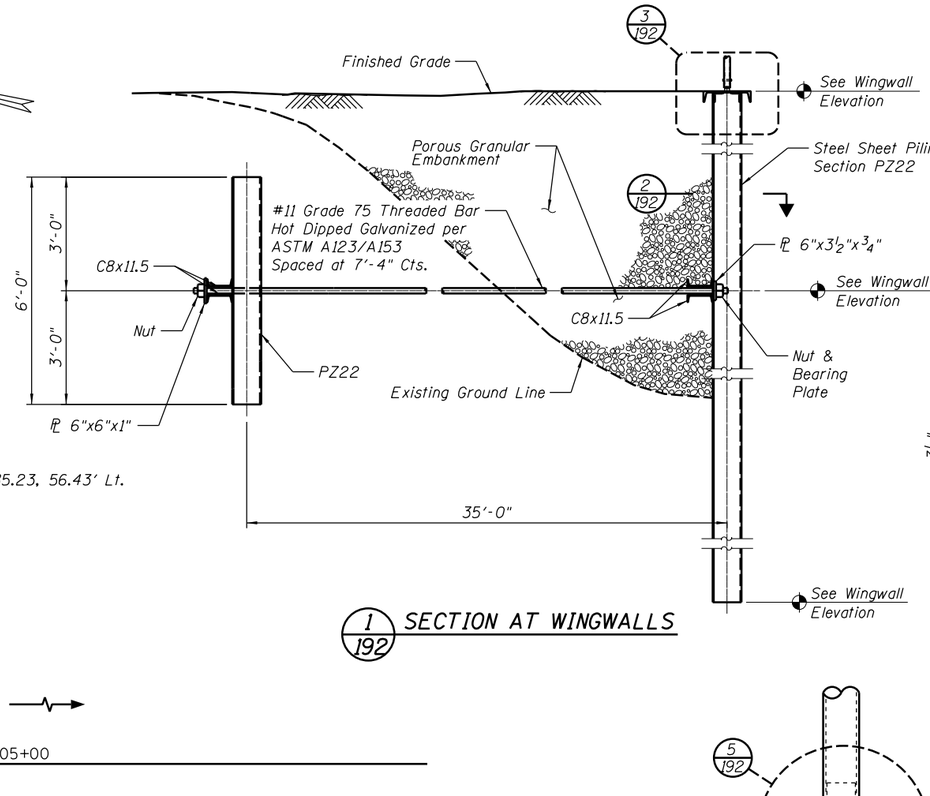
Note:
1. Welds for Diffuser Nozzle to be as Specified by Fitting Manufacturer, Subject to Acceptance by the Engineer.

FILE NAME = S-5010BER-LOCK.dgn	USER NAME =	DESIGNED - RCP	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	LOCK FILLING /EMPTYING SYSTEM DETAILS – 2 STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
Bergmann associates architects // engineers // planners		CHECKED - WRM	REVISED -		
	PLOT SCALE =	DRAWN - JLM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - TSH	REVISED -		

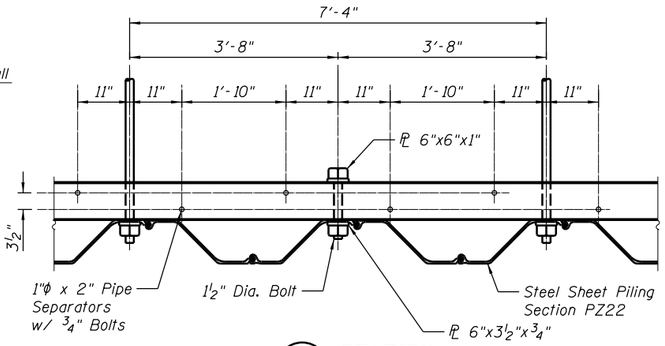
ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	191
	PROJECT FR-435		



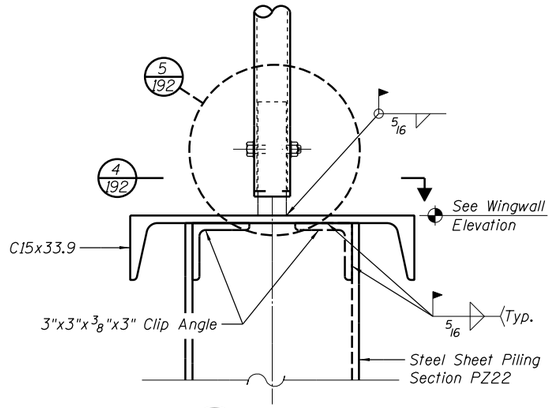
PLAN AT WINGWALLS



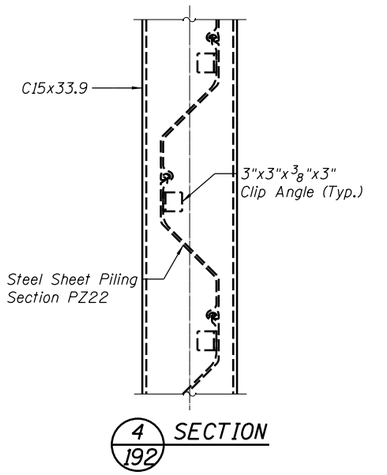
1/192 SECTION AT WINGWALLS



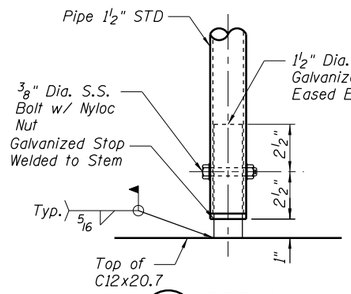
2/192 SECTION



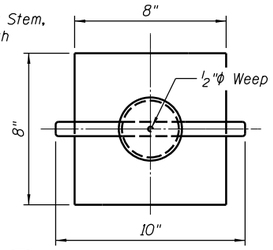
3/192 DETAIL



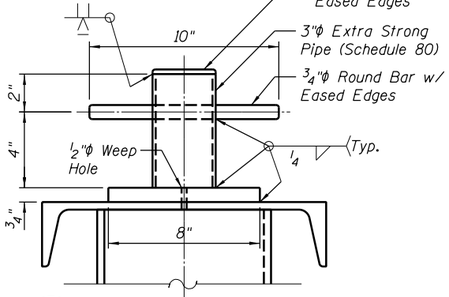
4/192 SECTION



5/192 DETAIL



6/192 MOORING BIT PLAN



7/192 MOORING BIT ELEVATION

FILE NAME = S-3001-LOCK.dgn	USER NAME =	DESIGNED - RGC	REVISED -
HANSON		CHECKED - DDO	REVISED -
	PLOT SCALE =	DRAWN - EJM	REVISED -
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - RGC	REVISED -

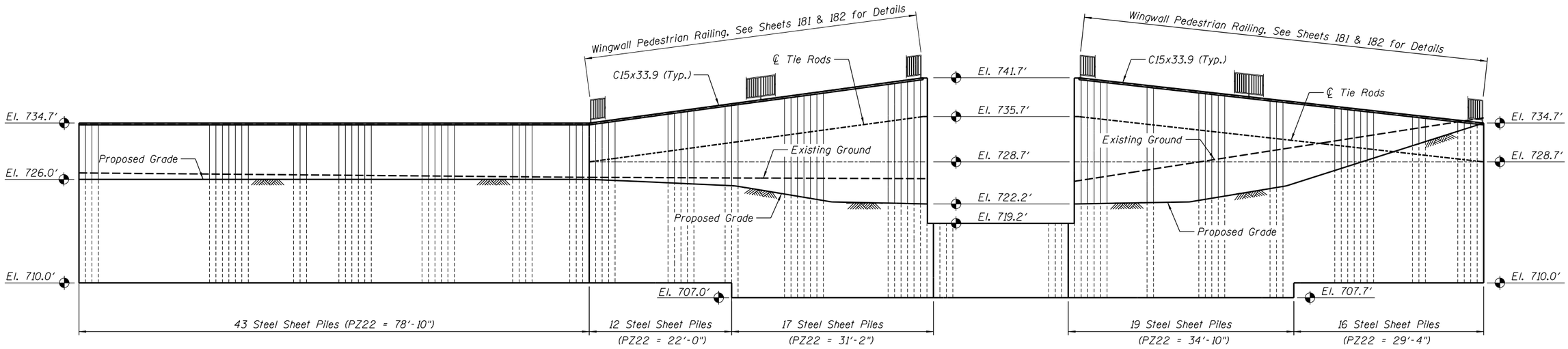
STATE OF ILLINOIS
DEPARTMENT OF NATURAL RESOURCES

LOCK WINGWALL & TIEBACK PLAN, SECTIONS, & DETAILS
STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS

ILLINOIS DEPARTMENT OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	192

PROJECT FR-435



S.W. SEAWALL

S.W. WINGWALL

S.E. WINGWALL

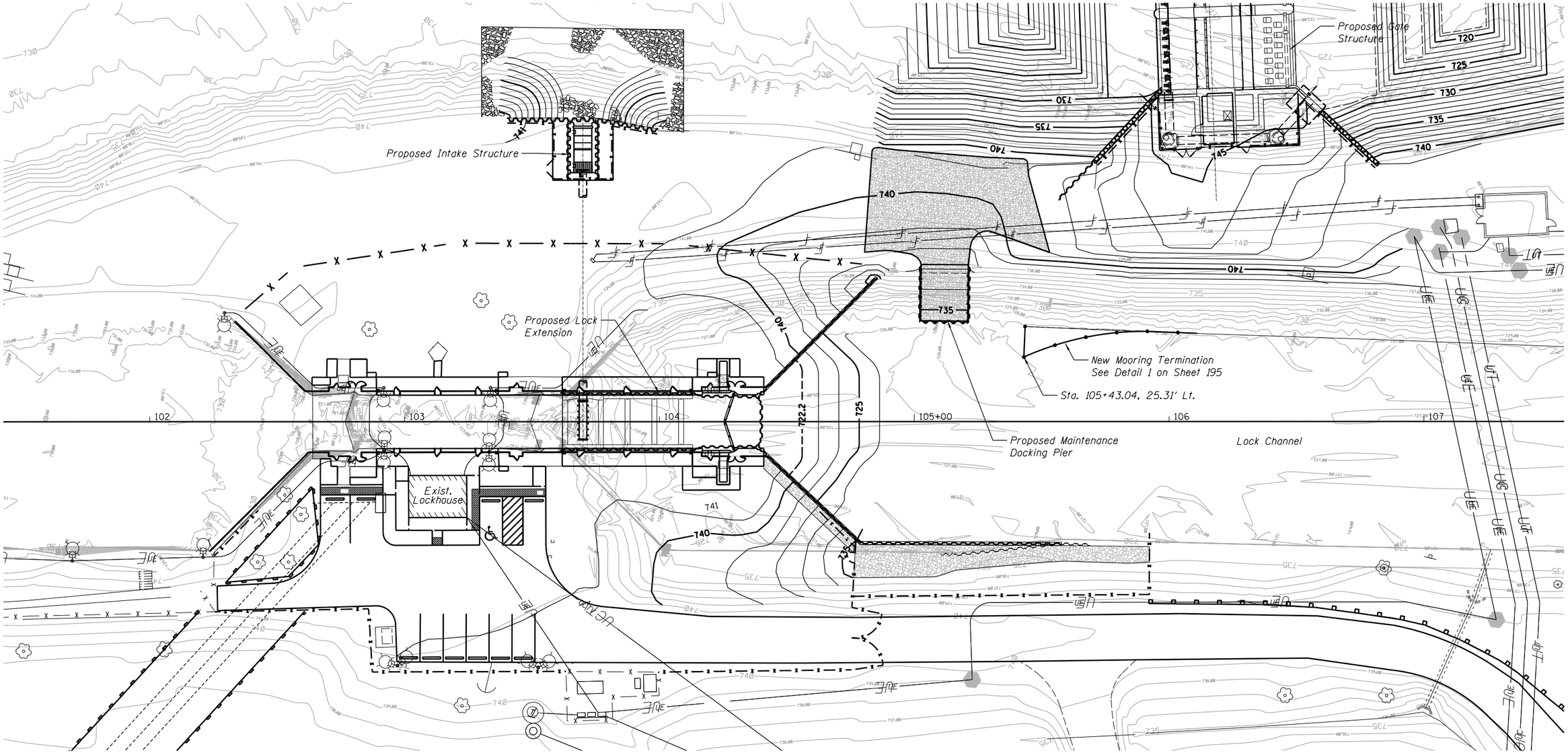
WINGWALL & SEAWALL ELEVATIONS

Lock Wingwall Staging Notes:

1. *The Contractor shall determine the limits of unsuitable material, which generally consists of unconsolidated channel sediments, prior to dewatering the channel.*
2. *The existing seawall along the west bank from Sta. 104+02 to Sta. 105+17 would be unstable with sediment removed and channel dewatered. All unsuitable material in front of this seawall shall be removed and immediately backfilled to at least Elevation 725.0 prior to dewatering.*

FILE NAME = S-3002-LOCK.dgn	USER NAME =	DESIGNED - RGC	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	LOCK WINGWALL & SEAWALL ELEVATION & DETAILS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HANSON		CHECKED - DDO	REVISED -		
	PLOT SCALE =	DRAWN - EJM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - RGC	REVISED -		

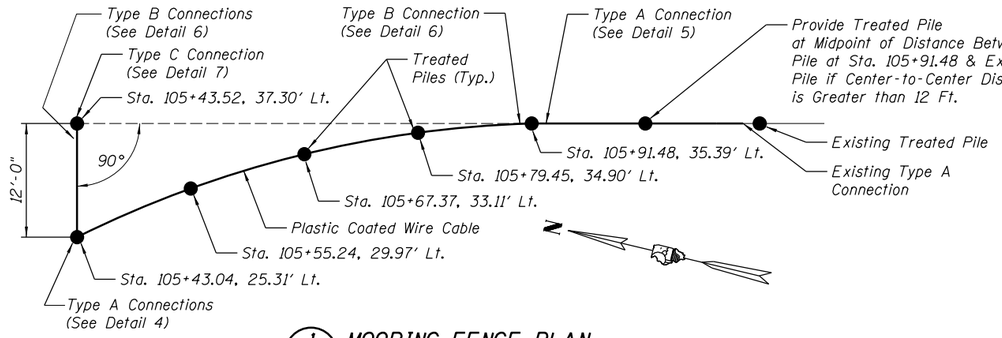
ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	193
PROJECT FR-435			



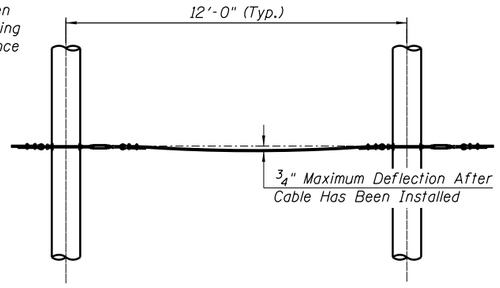
PLAN

FILE NAME = S-1004-LOCK.dgn	USER NAME =	DESIGNED - LJB	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	LOCK MOORING SYSTEM PLAN STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
HANSON		CHECKED - TMF	REVISED -		
	PLOT SCALE =	DRAWN - EJM	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - LJB	REVISED -		

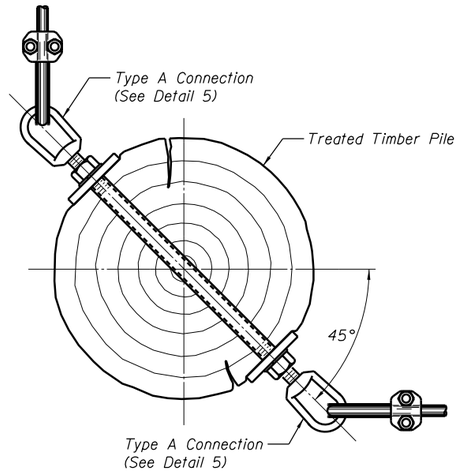
ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	194
PROJECT FR-435			



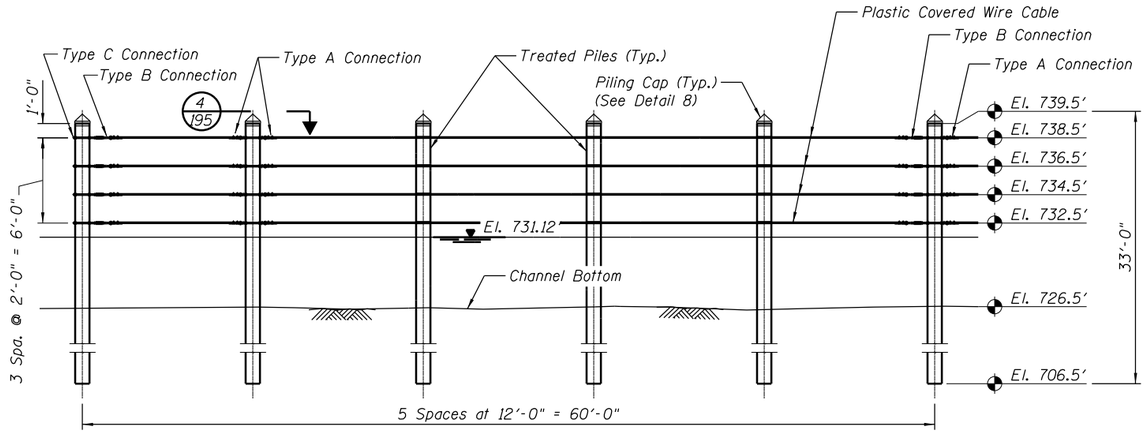
1/195 MOORING FENCE PLAN



3/195 CABLE INSTALLATION TOLERANCE ELEVATION



4/195 CORNER PILE DETAIL



2/195 UNFOLDED ELEVATION DOWNSTREAM

General Notes:

1. The Heads of the Treated Piles Shall Be Covered by UV Stabilized Black Polyethylene Conical Piling Cap with Stainless Steel Retainer Screws (4 per Pile). Contractor to Determine Proper Cap Diameter to Match Wood Piles. Cost Shall be Included in Furnishing Treated Piles 20.1' to 38'.

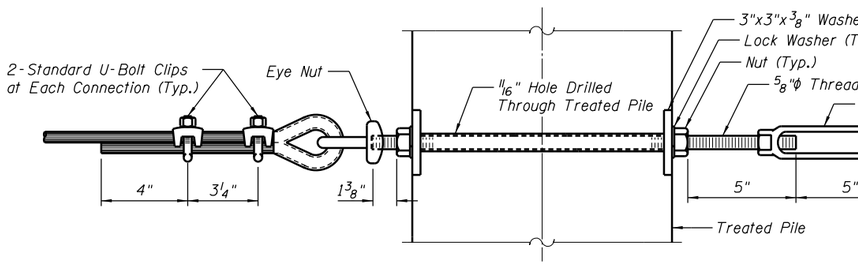
2. All Holes Drilled in the Treated Piles After Treatment Shall Be Treated as Specified in Article 1007.13 of the Standard Specifications. Cost Shall be Included in Furnishing Treated Piles 20.1' to 38'.

3. Flat Surfaces Shall Be Made on the Piles to Provide Smooth Bearing Surfaces for the 3"x3" Washers. These Surfaces Shall be Given 3 Brush Coats of Hot Preservative Oil. Each Coat Shall Be Allowed to Dry Before the Next Coat is Applied. Cost Shall be Included in Furnishing Treated Piles 20.1' to 38'.

4. The Butt Diameter of the Treated Piles Shall Not Exceed 16".

5. All Hardware Shall Be Galvanized in Accordance with AASHTO M 111.

8/195 PILING CAP DETAIL



5/195 TYPE A CONNECTION ELEVATION

6/195 TYPE B CONNECTION ELEVATION

7/195 TYPE C CONNECTION ELEVATION

FILE NAME = S-5007-LOCK.dgn	USER NAME =	DESIGNED - LJB	REVISED -
HANSON		CHECKED - TMF	REVISED -
	PLOT SCALE =	DRAWN - EJM	REVISED -
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - LJB	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF NATURAL RESOURCES

LOCK MOORING SYSTEM DETAILS
STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS

ILLINOIS DEPARTMENT OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	195

PROJECT FR-435

Illinois Department of Transportation
Division of Highways
HPB

SOIL BORING LOG

Page 1 of 2
Date 4/24/13

ROUTE Stratton Lock and Dam DESCRIPTION Lock Extension LOGGED BY kkc
SECTION IDNR LOCATION Lock - Downstream, SEC. , TWP. , RNG.
COUNTY McHenry DRILLING METHOD Mud Rotary HAMMER TYPE AUTO

STRUCT. NO.
Station
BORING NO. B13-1
Station
Offset
Ground Surface Elev. 739.20 ft

Surface Water Elev. 738.00 ft
Stream Bed Elev. 727.20 ft
Groundwater Elev.:
First Encounter 738.0 ft
Upon Completion 738.0 ft
After Hrs. ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Top of Barge El. 739.2			
737.90			
Lower Pool Water El. 738.0			
-5			
727.20			
Dark gray, saturated, very loose SILT with trace very fine sand, trace shell & organic [SEDIMENTS]. - Grab sample at stream bed was obtained using Bottom Sampling Dredge [for environmental testing]			
-15			
722.20			
Gray, saturated, loose SILT with little sand [MLS].	3		
	2		
	4		
719.20 -20			

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Gray, fine, medium dense SAND with trace to little silt [SM].			
	4		
	4		
	7		
- [PASSING #200=4.3%]			
-25			
713.20			
Gray, low plastic, very soft SILT with trace sand layers [ML-OL]. PP < 0.25 tsf			
	0		
	0		25.1
- [LL=25, PL=18, PI=7]	0		
-30			
708.20			
Gray, very fine, medium dense SAND with some silt [SM].			
	5		
- [PASSING #200=28.6%] 705.20	5		
Brown, fine, medium dense SAND [SP].	12		
-35			
- 2-inch thick layer of fine gravel with some coarse sand at 34 ft.			
	5		
- 6-inch thick layer of gray non plastic silt (PP =2 tsf) at 38.25 ft.	6		
699.70	10		
Boring Terminated at 39.5 ft -40			

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

Illinois Department of Transportation
Division of Highways
HPB

SOIL BORING LOG

Page 2 of 2
Date 4/24/13

ROUTE Stratton Lock and Dam DESCRIPTION Lock Extension LOGGED BY kkc
SECTION IDNR LOCATION Lock - Downstream, SEC. , TWP. , RNG.
COUNTY McHenry DRILLING METHOD Mud Rotary HAMMER TYPE AUTO

STRUCT. NO.
Station
BORING NO. B13-1
Station
Offset
Ground Surface Elev. 739.20 ft

Surface Water Elev. 738.00 ft
Stream Bed Elev. 727.20 ft
Groundwater Elev.:
First Encounter 738.0 ft
Upon Completion 738.0 ft
After Hrs. ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
[Barge drifted shifting the hole]. End of Boring			
-60			

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

Illinois Department of Transportation
Division of Highways
HPB

SOIL BORING LOG

Page 1 of 2
Date 6/4/13

ROUTE Stratton Lock and Dam DESCRIPTION Lock Extension LOGGED BY kkc
SECTION IDNR LOCATION Lock - Downstream, SEC. , TWP. , RNG.
COUNTY McHenry DRILLING METHOD Mud Rotary HAMMER TYPE AUTO

STRUCT. NO.
Station
BORING NO. B13-2
Station
Offset
Ground Surface Elev. 733.40 ft

Surface Water Elev. 732.40 ft
Stream Bed Elev. 726.00 ft
Groundwater Elev.:
First Encounter 732.4 ft
Upon Completion 732.4 ft
After Hrs. ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Top of Barge El. 733.4			
732.40			
Lower Pool Water El. 732.4			
-5			
726.00			
Dark gray, saturated, very loose SILT with trace very fine sand, trace shell & organic [SEDIMENTS]. - Grab sample at stream bed was obtained using Bottom Sampling Dredge [for environmental testing]			
-10			
721.90			
Gray, saturated, loose SILT with some fine sand [MLS].	1		
721.00	2		
Gray, very fine, very loose, SAND and SILT with trace medium to coarse sand [SM].	4		
	3		
	2		
	2		
-15			
717.60			
Gray, medium to coarse, medium dense SAND [SP].	4		
	5		
-20	5		

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
712.90			
Gray, non-plastic, medium dense SILT [ML].			
710.70			
Gray, low plastic, very stiff SILT [ML]. PP = 2.0 tsf - [LL=23, PL=18, PI=5]	4		
	5		28.3
	7		
-25			
707.90			
Gray, medium to high plastic, stiff, CLAY interlayered with silt and sand [CL]. PP = 1.0 to 2.0 tsf - 6-inch thick layer of gray, very soft, clayey silt (PP < 0.25 tsf) at 28.5 ft.			
	3		
- [LL=34, PL=16, PI=18]	1		21.3
- [PASSING #200=89.9%]	2		
-30			
702.40			
Multicolored, medium grain, medium dense, GRAVEL with little sand [GPS].			
	6		
- Rough drilling from 34 to 38 ft.	6		
	7		
-35			
693.90 -40			

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

Illinois Department of Transportation
Division of Highways
HPB

SOIL BORING LOG

Page 2 of 2
Date 6/4/13

ROUTE Stratton Lock and Dam DESCRIPTION Lock Extension LOGGED BY kkc
SECTION IDNR LOCATION Lock - Downstream, SEC. , TWP. , RNG.
COUNTY McHenry DRILLING METHOD Mud Rotary HAMMER TYPE AUTO

STRUCT. NO.
Station
BORING NO. B13-2
Station
Offset
Ground Surface Elev. 733.40 ft

Surface Water Elev. 732.40 ft
Stream Bed Elev. 726.00 ft
Groundwater Elev.:
First Encounter 732.4 ft
Upon Completion 732.4 ft
After Hrs. ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Multicolored, fine to coarse, medium dense, GRAVEL with little sand [GWS]. *(continued)* - Rough drilling from 41 to 43 ft.			
	4		
	7		
-45			
	8		
	15		
	11		
682.90 -50			
Gray, medium to high plastic, soft, CLAY with some silt [CL]. PP = 0.25 to 0.50 tsf			
-55			
- [LL=51, PL=19, PI=32] 676.90	8		
	6		43.2
	5		
Gray, fine to medium, medium dense SAND [SP]			
673.90 -60			

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Multicolored, coarse, medium dense to dense, GRAVEL [GP]. *(continued)*			
	4		
	7		
-65	8		
	[Auger refusal at 66 ft and sampler refusal at 66.1 ft. Rock coring methods employed to advance the through possible cobbles and boulders from 67 to 69 ft.]		
664.40	50/2"		
- 6-inch thick dark gray, very hard SILTSTONE at 66 ft.			
Boring Terminated at 69 ft [4-inch & 3-inch casings locked]. Bore hole relocated 3 ft to the north and drilled (see B13-2A). End of Boring			
-70			
-75			
-80			

The Unconfined Compressive Strength (UCS) Failure Mode Is Indicated by (B-Bulge, S-Shear, P-Penetrometer)
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BBS, from 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
HPB

SOIL BORING LOG

Page 1 of 2
Date 6/7/13

ROUTE Stratton Lock and Dam DESCRIPTION Lock Extension LOGGED BY kkc
SECTION IDNR LOCATION Lock - Downstream, SEC. , TWP. , RNG.
COUNTY McHenry DRILLING METHOD Mud Rotary HAMMER TYPE AUTO

STRUCT. NO.
Station
BORING NO. B13-2A
Station
Offset
Ground Surface Elev. 733.10 ft

Surface Water Elev. 732.10 ft
Stream Bed Elev. 726.00 ft
Groundwater Elev.:
First Encounter 732.1 ft
Upon Completion 732.1 ft
After Hrs. ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Top of Barge El. 733.1			
732.10			
Lower Pool Water El. 732.1			
-5			
726.00			
- Drilled no sampling to 74 ft.			
-10			
-15			
-20			

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
- Drilled no sampling to 74 ft. *(continued)*			
-25			
-30			
-35			
-40			

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

Illinois Department of Transportation
Division of Highways
HPB

SOIL BORING LOG

Page 2 of 2
Date 6/7/13

ROUTE Stratton Lock and Dam DESCRIPTION Lock Extension LOGGED BY kkc
SECTION IDNR LOCATION Lock - Downstream, SEC. , TWP. , RNG.
COUNTY McHenry DRILLING METHOD Mud Rotary HAMMER TYPE AUTO

STRUCT. NO.
Station
BORING NO. B13-2A
Station
Offset
Ground Surface Elev. 733.10 ft

Surface Water Elev. 732.10 ft
Stream Bed Elev. 726.00 ft
Groundwater Elev.:
First Encounter 732.1 ft
Upon Completion 732.1 ft
After Hrs. ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
- Drilled no sampling to 74 ft. *(continued)*			
-45			
-50			
-55			
-60			

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
- Drilled no sampling to 74 ft. *(continued)*			
-65			
654.40			
Multicolored, fine to medium, dense, GRAVEL with trace sand [GP].			
-70			
	8		
-75	16		
657.60	13		
Boring Terminated at 75.5 ft [Gravel Locked the Drill Bit]. End of Boring			
-80			

The Unconfined Compressive Strength (UCS) Failure Mode Is Indicated by (B-Bulge, S-Shear, P-Penetrometer)
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BBS, from 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
HPB

SOIL BORING LOG

Page 1 of 2
Date 4/16/13

ROUTE Stratton Lock and Dam DESCRIPTION Intake Structure LOGGED BY kkc
SECTION IDNR LOCATION .35-ft East Intake, SEC. , TWP. , RNG.
COUNTY McHenry DRILLING METHOD Mud Rotary HAMMER TYPE AUTO

STRUCT. NO.
Station
BORING NO. B13-3
Station
Offset
Ground Surface Elev. 738.50 ft

Surface Water Elev. 737.30 ft
Stream Bed Elev. 728.20 ft
Groundwater Elev.:
First Encounter 737.3 ft
Upon Completion 737.3 ft
After Hrs. ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Top of Barge El. 738.5			
737.30			
Upper Pool Water El. 737.3			
-5			
728.20			
Dark gray, saturated, very loose SILT with trace very fine sand, trace shell (SEDIMENTS). - Grab sample at stream bed was obtained using Bottom Sampling Dredge [for environmental testing]			
-10			
728.00			
Gray, low plastic, very soft SILT with trace very fine sand [ML-OL]. PP < 0.25 tsf - [LL=22, PL=17, PI=5]	0		
	0		26.8
	0		
-15			
722.50			
Gray, saturated, very fine to fine, medium dense SAND with some shell, little silt, trace fine gravel [SM].			
	2		
-20	5		

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Gray, saturated, very fine to fine, medium dense SAND with some shell, little silt, trace fine gravel [SM]. *(continued)* - [PASSING #200=7.0%] 716.50	6		
Gray, medium to coarse, medium dense SAND with some fine gravel [SPG].			
	8		
- [PASSING #200=2.9%]	9		
-25 713.25	6		
Gray, non plastic, very stiff SILT [ML]. 712.50 PP = 2 tsf			
Multicolored, medium to coarse, medium dense GRAVEL [GP].			
- Rough drilling from 26 to 37 ft.			
- Pieces of limestone.	3		
-30	13		
	12		
	7		
-35	8		
	10		
701.25			
Multicolored, medium to coarse, medium dense GRAVEL with some fine sand [GPS].			
- Rough drilling from 38 to 42 ft.	5		
-40	5		

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

Illinois Department of Transportation
Division of Highways
HPB

SOIL BORING LOG

Page 2 of 2
Date 4/16/13

ROUTE Stratton Lock and Dam DESCRIPTION Intake Structure LOGGED BY kkc
SECTION IDNR LOCATION .35-ft East Intake, SEC. , TWP. , RNG.
COUNTY McHenry DRILLING METHOD Mud Rotary HAMMER TYPE AUTO

STRUCT. NO.
Station
BORING NO. B13-3
Station
Offset
Ground Surface Elev. 738.50 ft

Surface Water Elev. 737.30 ft
Stream Bed Elev. 728.20 ft
Groundwater Elev.:
First Encounter 737.3 ft
Upon Completion 737.3 ft
After Hrs. ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Multicolored, medium to coarse, medium dense GRAVEL with some fine sand [GPS]. *(continued)*	10		
696.50			
Gray, fine, medium dense SAND with trace fine gravel [SP].			
-45			
	5		
- [PASSING #200=2.4%]	7		
-50	10		
683.50 -55			
Multicolored, coarse, medium dense GRAVEL [GP].			
- Rough drilling from 55 to 59 ft.			
-60	17		
	12		

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
678.00	15		
Boring Terminated at 60.5 ft. End of Boring			
-65			
-70			
-75			
-80			

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

FILE NAME = B-0002-LOCK.dgn
USER NAME =
PLOT SCALE =
PLOT DATE = SEPTEMBER 18, 2013

HANSON

DESIGNED - EJM
CHECKED - DDO
DRAWN - EJM
CHECKED - SLM

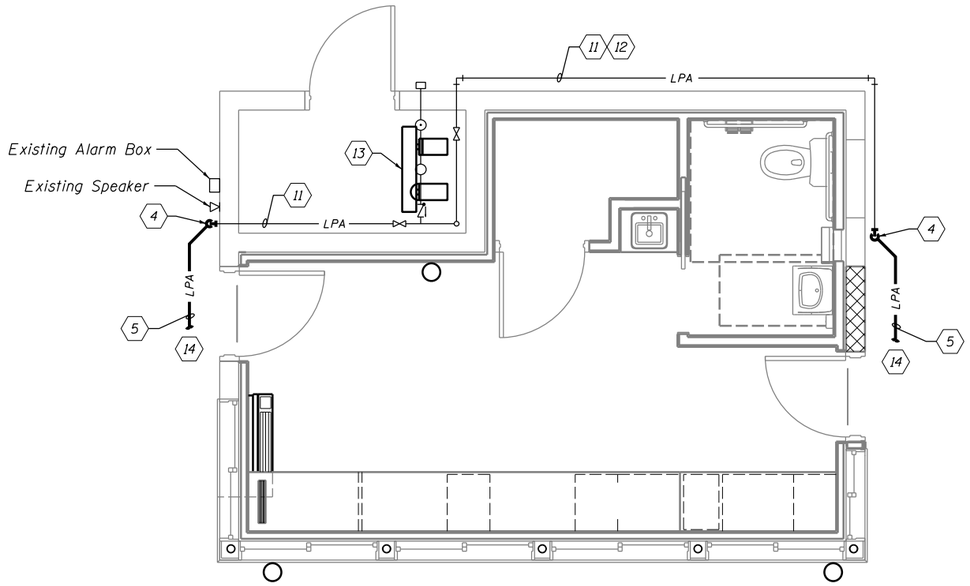
REVISED -
REVISED -
REVISED -
REVISED -

STATE OF ILLINOIS
DEPARTMENT OF NATURAL RESOURCES

LOCK STRUCTURE BORINGS
STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS

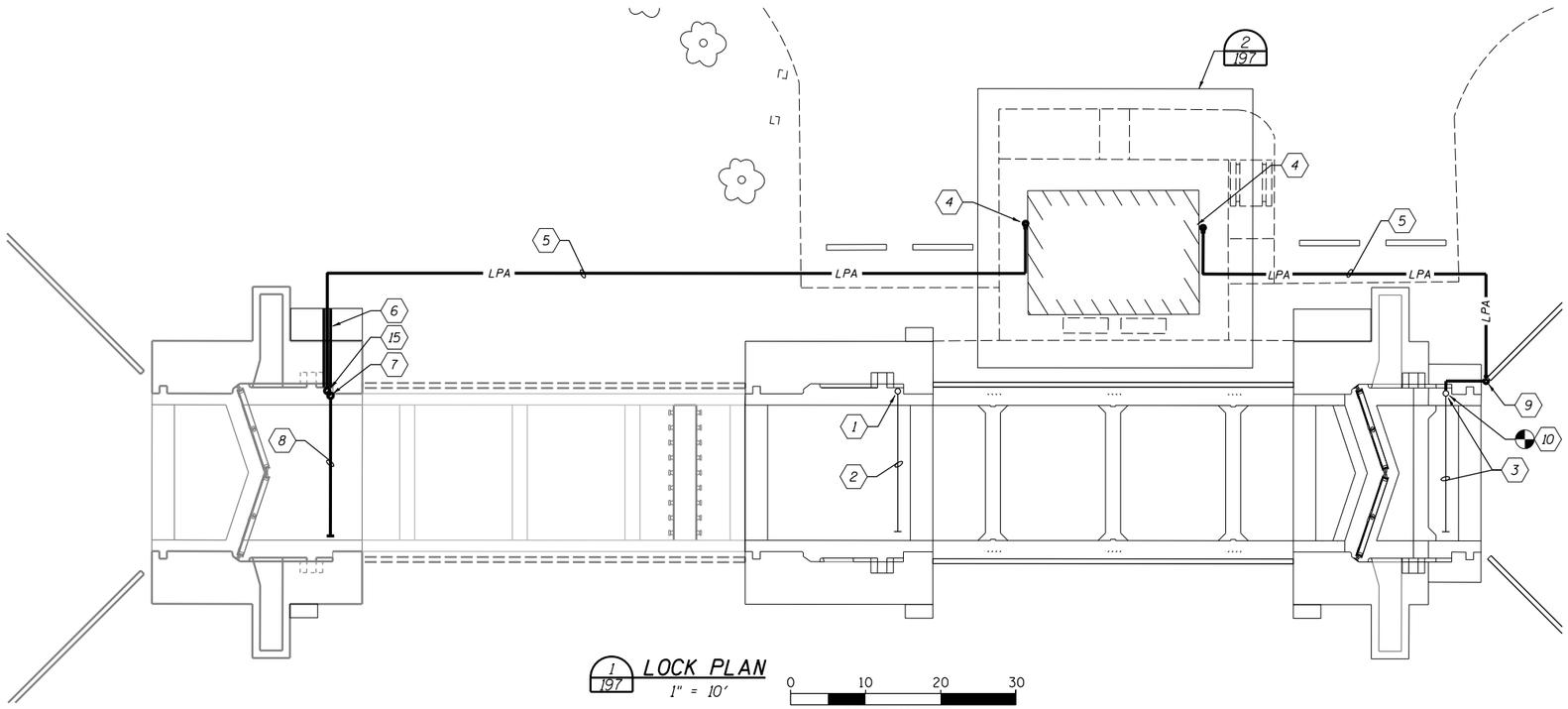
ILLINOIS DEPARTMENT OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES

COUNTY	TOTAL SHEETS	SHEET NO.
McHENRY	238	196
PROJECT FR-435		



2/197 LOCK HOUSE PLAN
3/8" = 1'-0"

2 0 2 4
SCALE IN FEET



1/197 LOCK PLAN
1" = 10'

0 10 20 30
SCALE IN FEET

GENERAL NOTES

1. All Fine Aggregate Type FA6 Bedding or Course Agregate Type CA6 Bedding and Backfill Required for LPA Piping Trenches Shall Be Included Under Lock Plumbing Work Pay Item.

KEYED NOTES

1. Remove Existing Galvanized Steel LPA Pipe From Lock Wall Down to Bubbler.
2. Disconnect the Existing Bubbler Pipe From the Bottom Of the Lock and Relocate to New Downstream Gates.
3. Existing Low Pressure Air (LPA) Supply Drop and Bubbler Pipe at the Bottom Of the Lock Shall Remain. Protect From Damage.
4. Provide New 90 Degree Elbow on End of Existing LPA Main On Wall. Drop New 2 1/2" Galvanized LPA Main Down Wall and Convert to Copper Pipe with a Dielectric Union Above Grade Then Continue to 24" Below Finish Grade.
5. New Low Pressure Air (LPA) Supply Pipe From the Building Connection to the New Or Existing Bubbler Drop Main As Shown. Bury 24" Below Grade. See Details 4/15 and 5/15.
6. Provide 4" Schedule 80 PVC Wall Sleeve Tight to the North Side of the Formed Notch in the Concrete for the New LPA Pipe to be Installed Which Shall be Copper. Seal Sleeve Around the New LPA Pipe With Link Seals At Both Ends Of the Sleeve.
7. Provide New 2 1/2" Galvanized Steel LPA Main Pipe Down the Wall Of the Lock In the Corner of the Lock Gate Recess Area and Secure to Concrete Wall With Galvanized Hold Down Clamps and Galvanized Anchors. Pipe Down to the Relocated Bubbler Pipe.
8. Reinstall Existing Bubbler Pipe On Top Of New Concrete Bottom Of the Extended Lock and Match the Existing Mounting System That This Pipe Was Installed Previously.
9. Run New 2 1/2" LPA Up Onto the Existing Concrete Lock Construction Then Convert to Galvanized Steel Pipe with Dielectric union and Pipe Over to the Existing Drop Pipe.
10. Reconnect the New 2 1/2" LPA Supply Pipe to the Existing LPA Drop Pipe Down to the Existing Bubbler.
11. Existing LPA Main Piping to Remain.
12. Clean Exterior Pipe and Paint With Two Coats Zinc Rich Primer
13. Existing LPA Compressor to Remain.
14. See 1/197 for Continuation.
15. As Copper Pipe Exits East End of Sleeve El Copper Up Above Concrete Then El Over to a Galvanized Steel El Down to bubbler Pipe. Provide Dielectric Union Above Concrete Between Copper and Galvanized Steel Pipe.

FILE NAME = P-1602-LOCK.dgn HDR	USER NAME =	DESIGNED - F. MARAS	REVISED -	STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES	LOCK PLUMBING PLANS STRATTON LOCK & DAM – LOCK & GATE STRUCTURE IMPROVEMENTS
		CHECKED - R. ADRIAN	REVISED -		
	PLOT SCALE =	DRAWN - C. STRATTON	REVISED -		
	PLOT DATE = SEPTEMBER 18, 2013	CHECKED - L. COCHRAN	REVISED -		

ILLINOIS DEPARTMENT OF NATURAL RESOURCES OFFICE OF WATER RESOURCES	COUNTY	TOTAL SHEETS	SHEET NO.
	McHENRY	238	197
	PROJECT FR-435		