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STANDARDS

- 000001 STANDARD SYMBOLS, ABBREVIATIONS, AND PATTERNS
- 280001 TEMPORARY EROSION CONTROL SYSTEMS
- 664001 CHAIN LINK FENCE

STATE OF ILLINOIS
 DEPARTMENT OF NATURAL RESOURCES
 OFFICE OF WATER RESOURCES

WILLIAM G. STRATTON LOCK & DAM
 FISH LADDER REPAIRS
 SEAWALL AND RIPRAP BANK PROTECTION

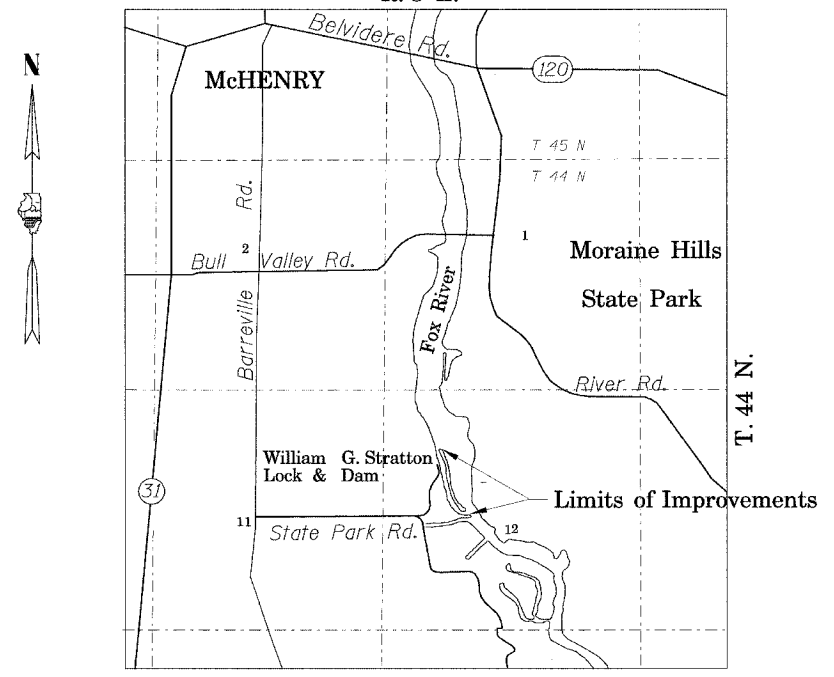
Mc HENRY COUNTY

FR-421

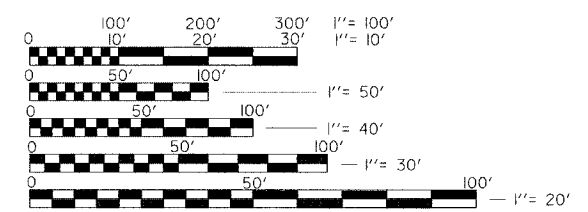
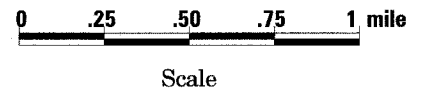
2005



REGIONAL MAP



LOCATION MAP



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.

Ted Montrey 5/5/05
 ILLINOIS REGISTERED STRUCTURAL ENGINEER NO.
 LICENSE EXPIRES 11-30-06



Ted Montrey 5/5/05
 ILLINOIS REGISTERED PROFESSIONAL ENGINEER NO.
 LICENSE EXPIRES 11-30-05



SUBMITTED BY *William J. Schuch* DATE 5/6/05
 MANAGER, DIVISION OF PROJECT IMPLEMENTATION
 APPROVED BY *Janet R. Clark* DATE 5/6/2005
 DIRECTOR

SUMMARY OF QUANTITIES			
CODE NO.	PAY ITEM	UNIT	QUANTITY
20200100	EARTH EXCAVATION	CU YD	323
20300100	CHANNEL EXCAVATION	CU YD	1,689
21101615	TOPSOIL FURNISH AND PLACE, 4"	SQ YD	585
28000400	PERIMETER EROSION BARRIER	FOOT	620
28100707	STONE DUMPED RIPRAP, CLASS A4	SQ YD	2,688
28200100	FILTER FABRIC FOR USE WITH RIPRAP	SQ YD	2,774
28500300	ARTICULATED BLOCK MAT	SQ YD	86
35100200	AGGREGATE BASE COURSE, TYPE A	CU YD	121
50102400	CONCRETE REMOVAL	CU YD	2.9
50300225	CONCRETE STRUCTURES	CU YD	6.3
50500405	FURNISHING & ERECTING STRUCTURAL STEEL	POUND	23,000
50500505	STUD SHEAR CONNECTORS	EACH	12
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	860
*51204900	STEEL SHEET PILING	SQ FT	15,165
54002020	EXPANSION BOLTS 3/4 INCH	EACH	11
54200439	PIPE CULVERTS, TYPE 1 RCCP 24"	FOOT	20
54248510	CONCRETE COLLAR	CU YD	0.9
60801024	FLAP GATE 24"	EACH	1
66400305	CHAIN LINK FENCE, 6'	FOOT	8
*67100100	MOBILIZATION	L SUM	1
84200600	REMOVAL OF EXISTING LIGHTING UNIT, NO SALVAGE	EACH	4
*X0323857	EXISTING LIGHT POLE FOUNDATION ADJUSTMENT	EACH	1
*	RIPRAP REMOVAL	CU YD	140
*	LIGHT POLE, STEEL, 20 FT. MOUNTING HEIGHT	EACH	4
*	12" HDPE PIPE SDR 17.0	FOOT	53
*	CONSTRUCTION STAKING	L SUM	1
*	BIAXIAL GEOGRID	SQ YD	93
*	FLOATING TURBIDITY CURTAIN	FOOT	700
*	SHEET PILING REMOVAL	SQ FT	412
*	SEEDING, MULCHING, AND FERTILIZING	ACRE	0.45
*	ELECTRICAL WORK	L SUM	1
*	TEMPORARY COFFERDAM SYSTEM	EACH	2

* SEE SPECIAL PROVISIONS

GENERAL NOTES

All elevations refer to N.A.V.D. (North American Vertical Datum).

All excess excavation and unsuitable materials shall be disposed of at locations provided by the Contractor at his expense and at locations inspected and approved by the Engineer.

Class SI Concrete shall be used throughout. All exposed edges of concrete shall be beveled 3/4".

Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-322 Grade 60.

The Contractor is reminded to protect and restore at his expense, in accordance with Article 107.19 of the Standard Specifications, any private or public property, including access roads, which may be damaged or destroyed due to construction operations.

With the exception of those utilities designated on the plans to be adjusted by the Contractor, all utilities affected by the improvement shall be adjusted by others. Prior to beginning work in the vicinity of the utilities, the Contractor shall contact the respective owners as shown on this sheet and shall schedule the work so as not to interfere with these adjustments.

Unless otherwise specified, all utilities shall be protected and not disturbed. All costs of protection shall be considered incidental to the contract, and no additional compensation will be allowed.

All open excavations are to be surrounded with a four foot high construction fence during non-working hours. The fence material shall be approved by the Engineer. The cost shall be incidental to the contract.

All lateral drainage that exists prior to construction shall be restored as shown on the plans and/or as directed by the Engineer. Unless otherwise specified, all costs of restoration shall be considered incidental to the Contract, and no additional compensation will be allowed.

The location, maintenance, removal, and restoration to original condition of all haul roads shall be approved by the Engineer, and all cost shall be incidental to the Contract.

The Contractor shall call J.U.L.I.E. (800-892-0123) for the location of existing utilities 48 hours prior to beginning construction.

Plan dimensions and details relative to the existing structures have been taken from existing plans and/or past surveys and reports and are subject to nominal construction variations. It shall be the Contractor's responsibility to verify such dimensions and details in the field and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in the scope of work, however, the Contractor will be paid for the quantity actually furnished at the unit bid price for the work.

All dewatering costs shall be included in the Contract.

The Contractor shall take due care while excavating near existing structures. Any damages caused by the construction activity shall be corrected at the expense of the Contractor.

All material excavated, except rock, from the existing channel must be deposited in a self-contained area in compliance with all state statutes, regulations and permit requirements with no discharge to public waters unless a permit has been issued by the Illinois Environmental Protection Agency.

The material to be used for embankment behind the retaining wall is to be approved channel excavation material. The embankment is to be placed and compacted according to the Specifications.

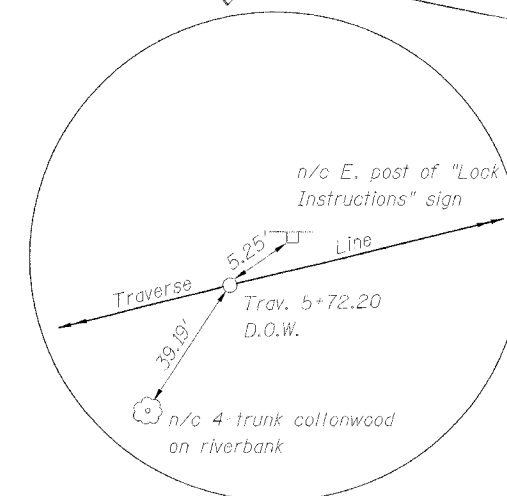
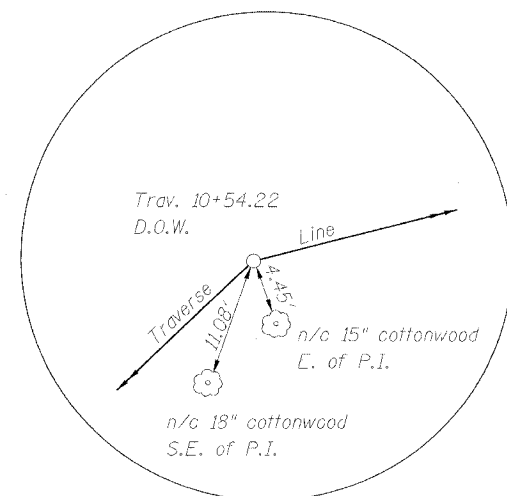
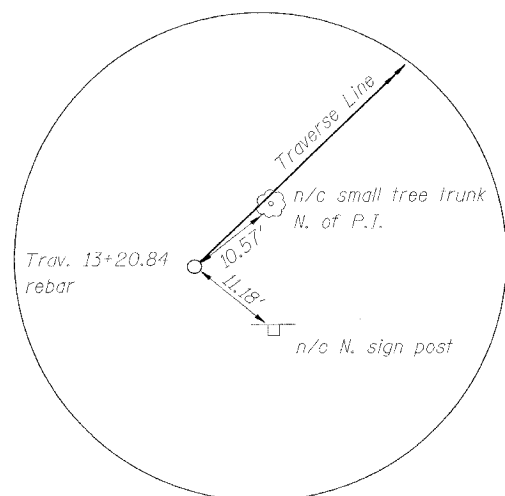
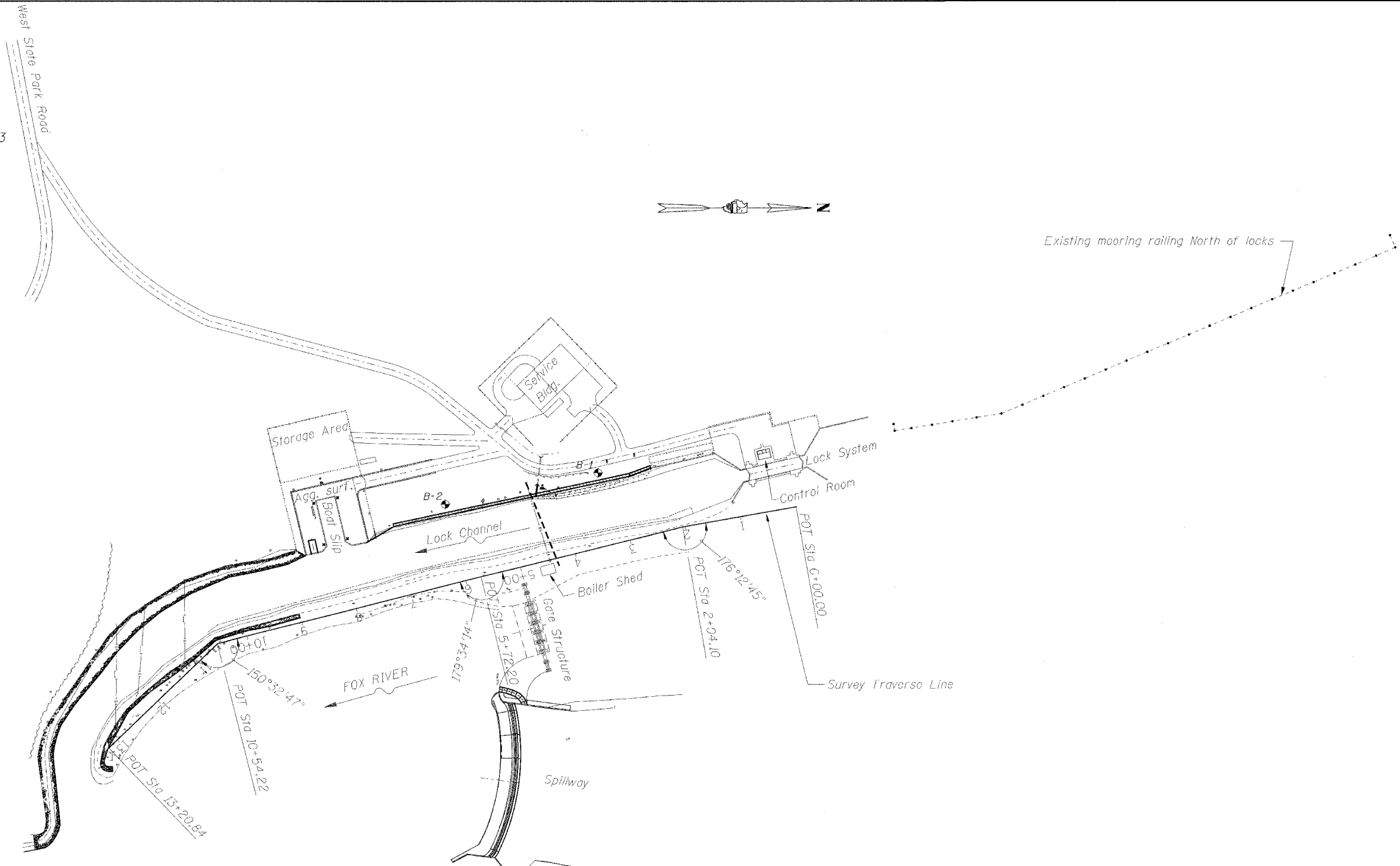
The Department will provide an Engineer's Field Office within the existing service building for use by the Contractor for the duration of the Contract.

UTILITY REFERENCE TABLE

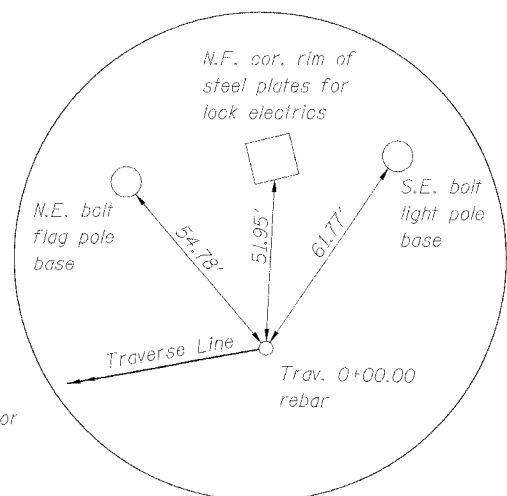
J.U.L.I.E.	Call 48 hours prior to construction	(800) 892-0123
Electricity	Wally Janz Commonwealth Edison 1500 Franklin Blvd. Libertyville, IL	(847) 816-5252
Telephone	Wally Zdon SBC 222 W. Jackson St. Woodstock, IL	(815) 337-4391
Gas	Scott Puffer NICOR 300 W. Terra Cotta Ave. Crystal Lake, IL	(815) 455-0271
Cable Television	Glen Burns Comcast Cable 688 Industrial Drive Elmhurst, IL	(847) 489-7320

Designed By J.J.F. Checked By TMM
 Drawn By J.J.F. Checked By TMM
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T.B.M.: Chis. square left D.S. end of lockwall Elev. 741.77
 T.B.M. #1: Lag screw set in root of 18" elm ±100' from S. end of island Elev. 739.28
 T.B.M.: Monument W. of gage house 14' from S.W. cor. on island in middle of river. Elev. 742.93



No Reference Marks for Sta. 2+04.10 rebar

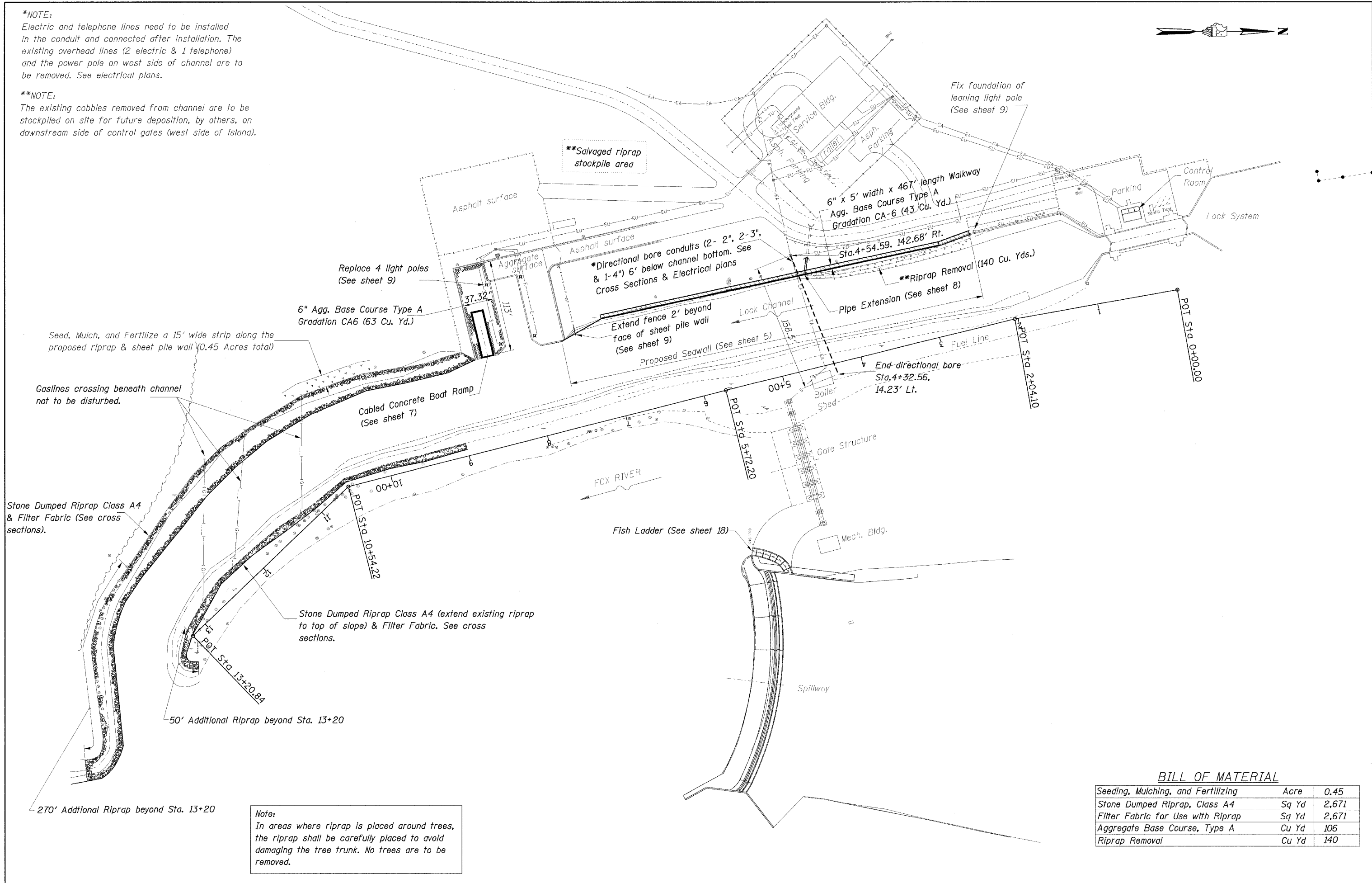


TRAVERSE REFERENCE MARKS

Designed By Tmm checked by JLF
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***NOTE:**
Electric and telephone lines need to be installed in the conduit and connected after installation. The existing overhead lines (2 electric & 1 telephone) and the power pole on west side of channel are to be removed. See electrical plans.

****NOTE:**
The existing cobbles removed from channel are to be stockpiled on site for future deposition, by others, on downstream side of control gates (west side of island).

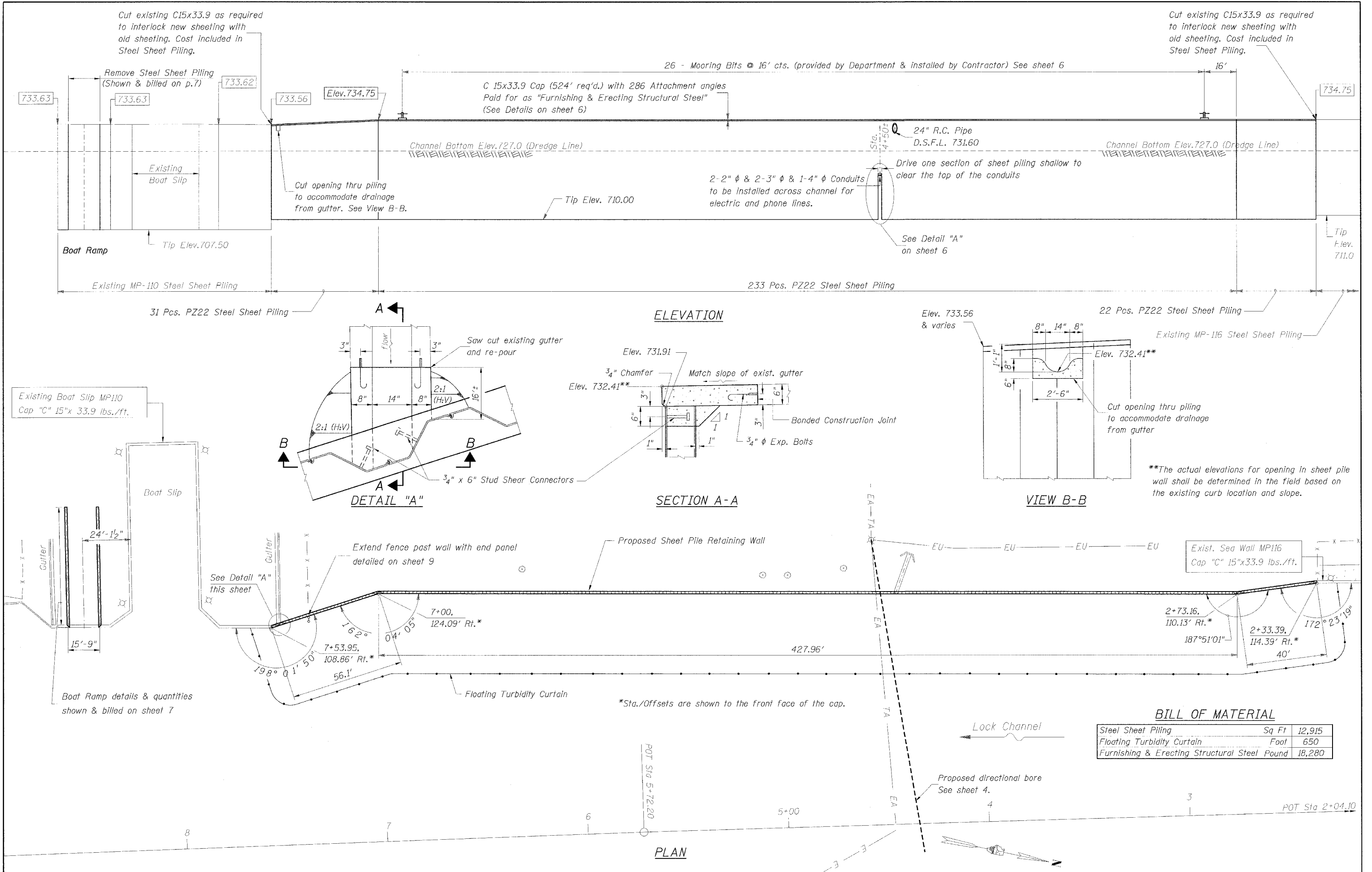


Note:
In areas where riprap is placed around trees, the riprap shall be carefully placed to avoid damaging the tree trunk. No trees are to be removed.

BILL OF MATERIAL

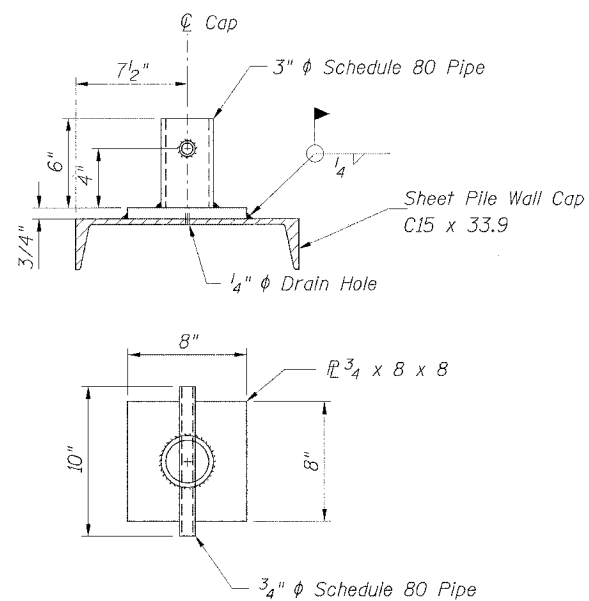
Seeding, Mulching, and Fertilizing	Acre	0.45
Stone Dumped Riprap, Class A4	Sq Yd	2,671
Filter Fabric for Use with Riprap	Sq Yd	2,671
Aggregate Base Course, Type A	Cu Yd	106
Riprap Removal	Cu Yd	140

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 Drawn by J.F. checked by Timm



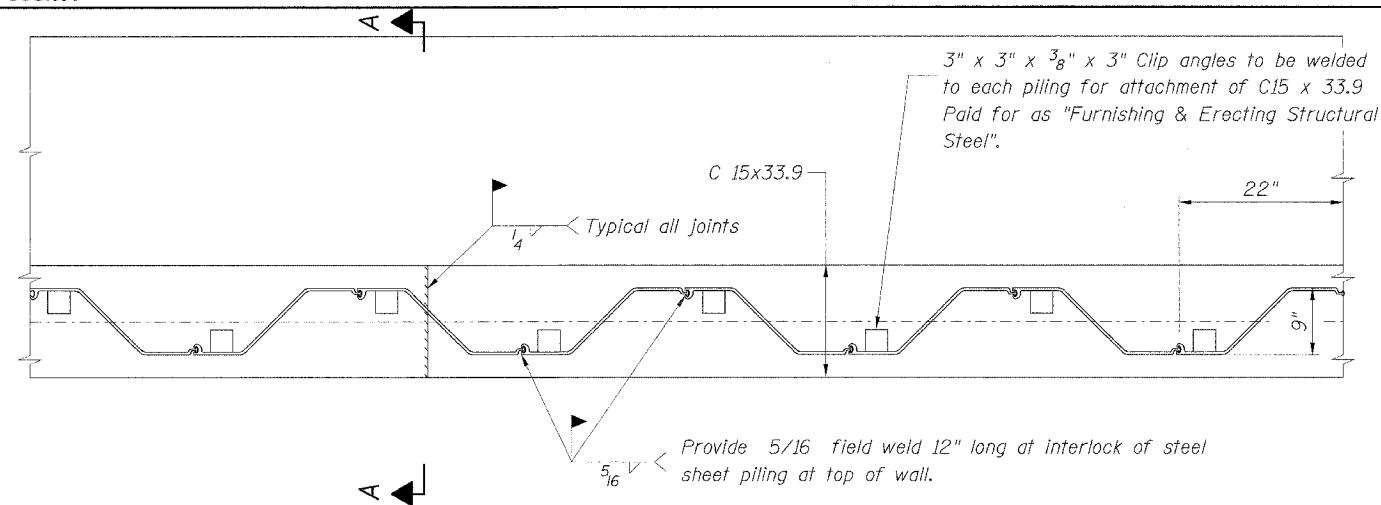
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Designed by TMM Checked by JWF
Drawn by JWF Checked by TMM

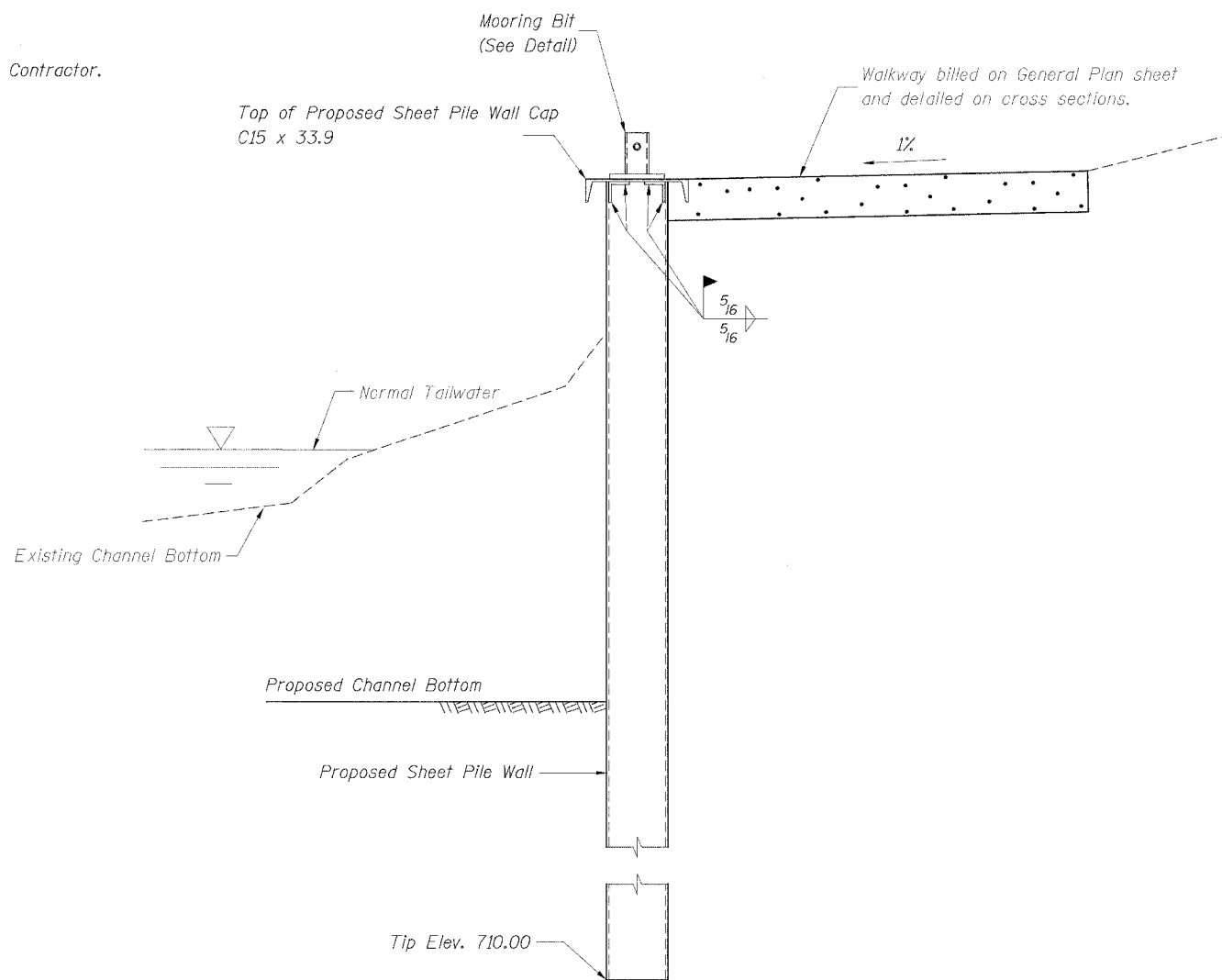


MOORING BIT DETAIL

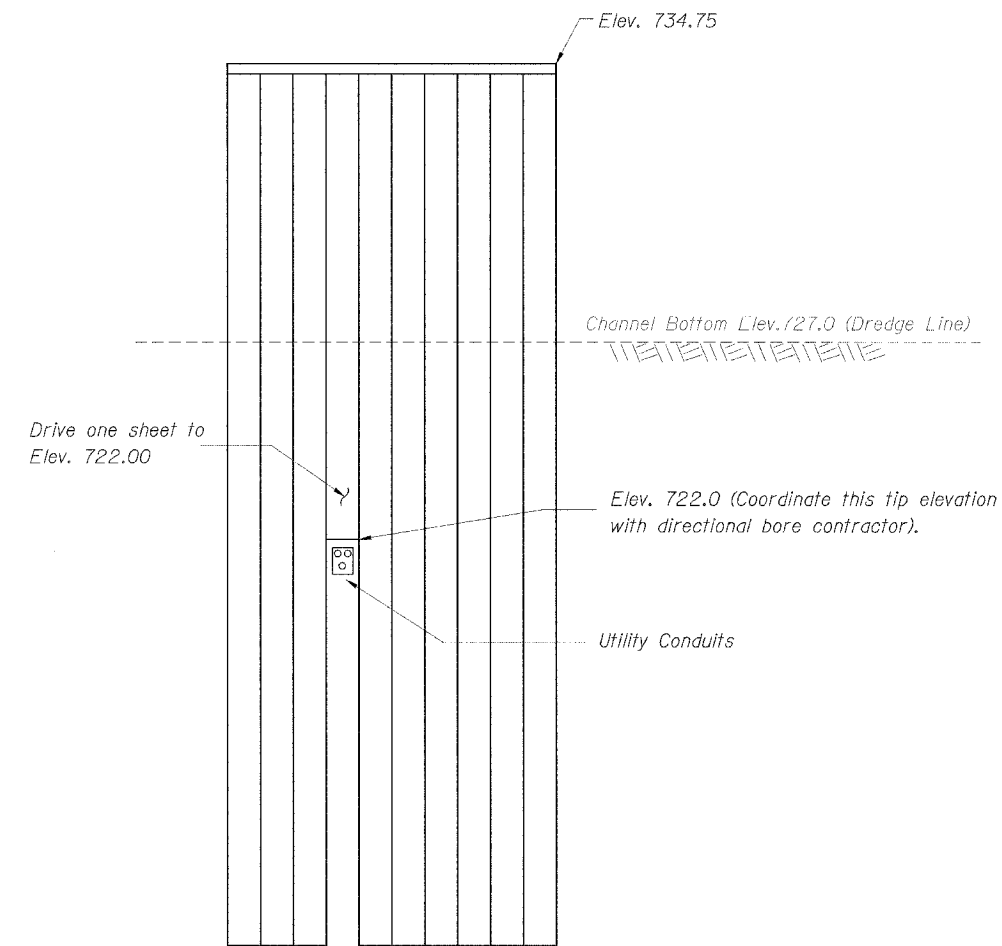
(To be furnished by the Department and installed by Contractor. Location shown on sheet 5).



PLAN

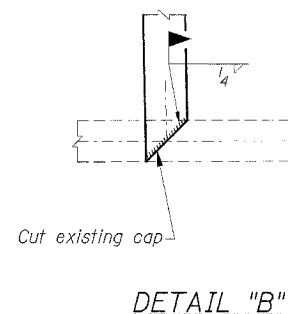
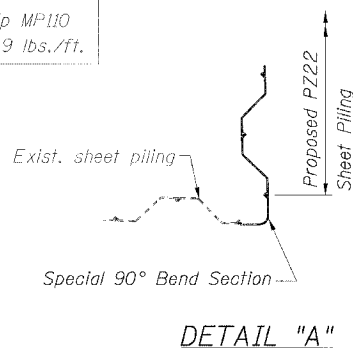
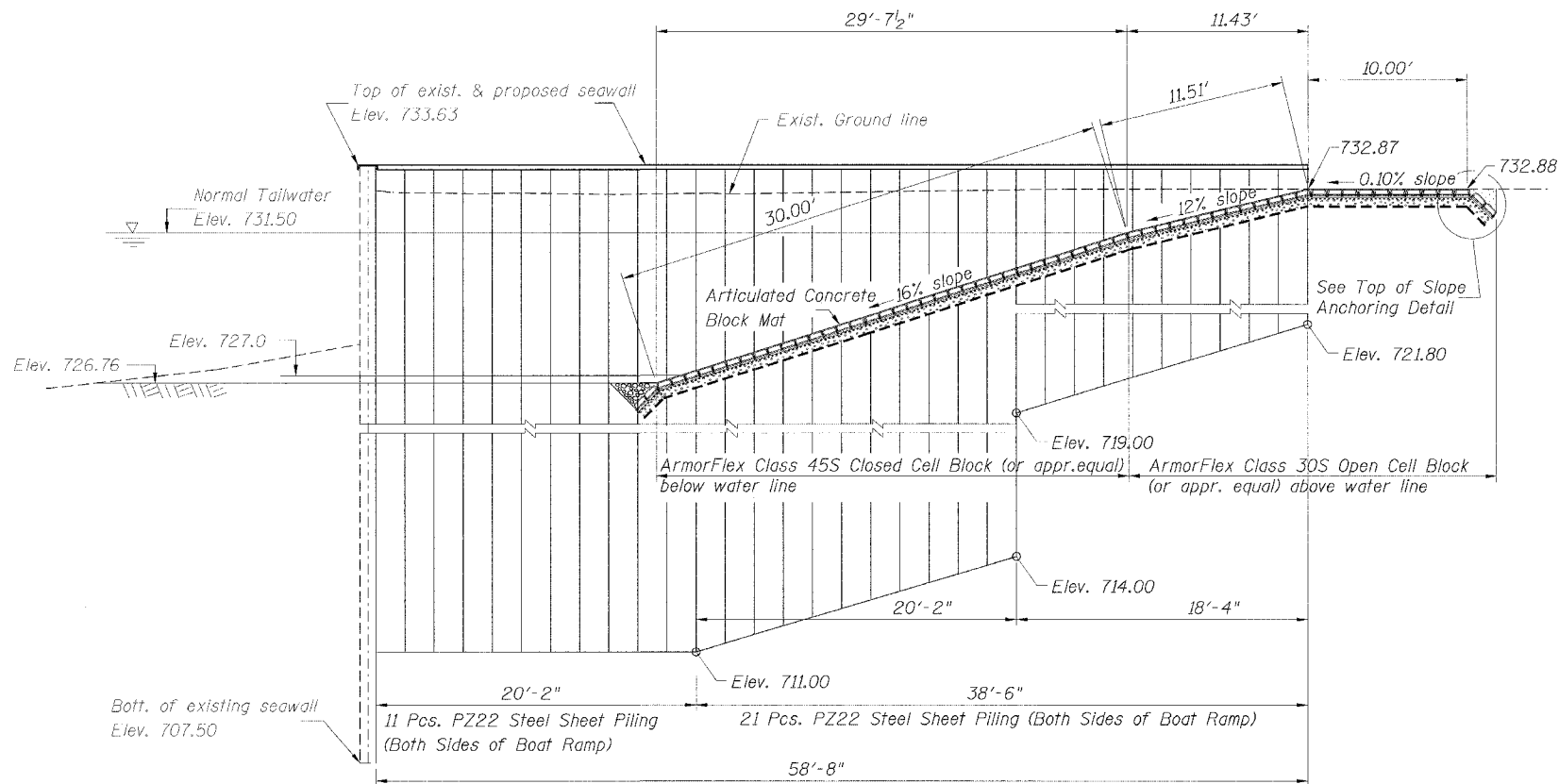
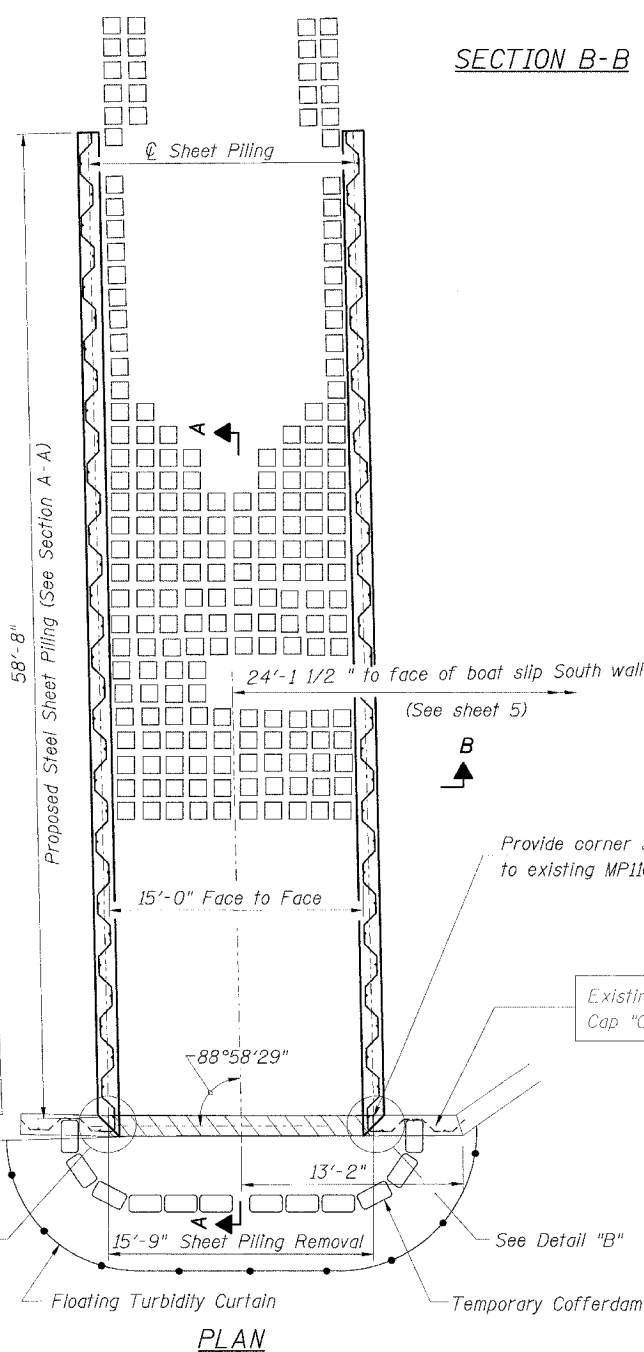
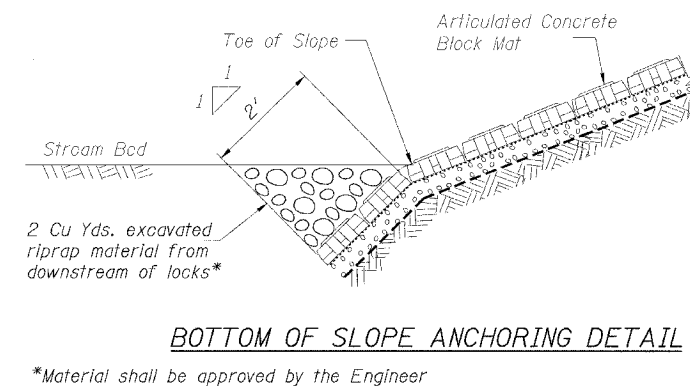
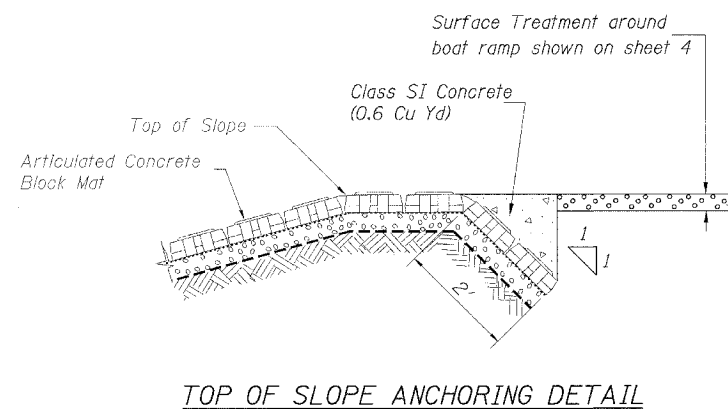
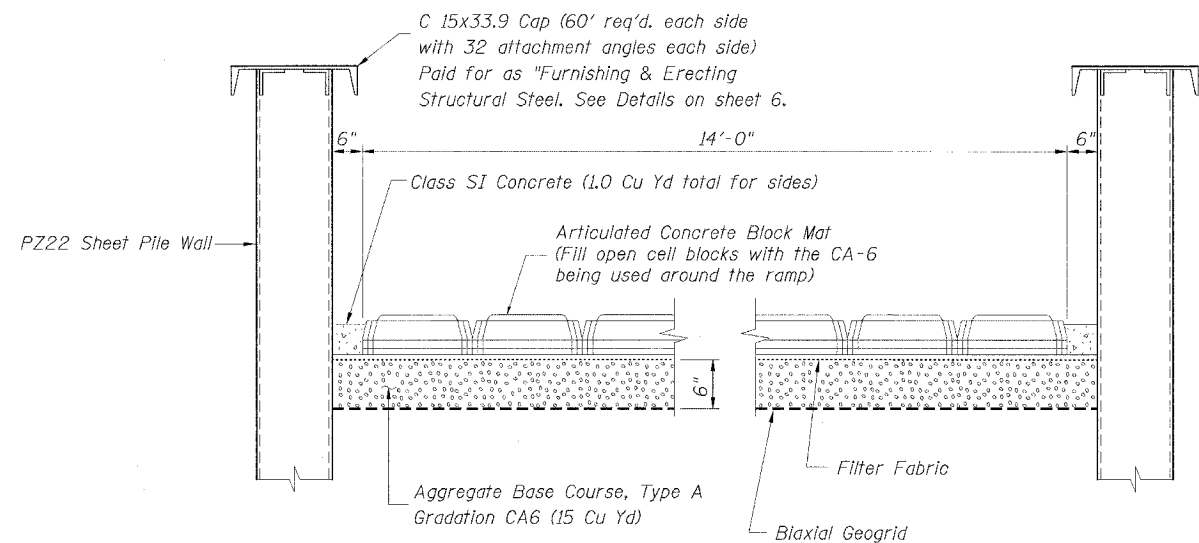


SECTION A-A



DETAIL "A"

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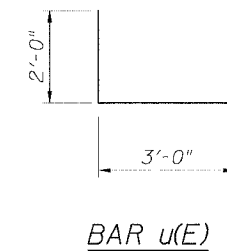
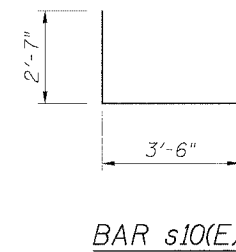
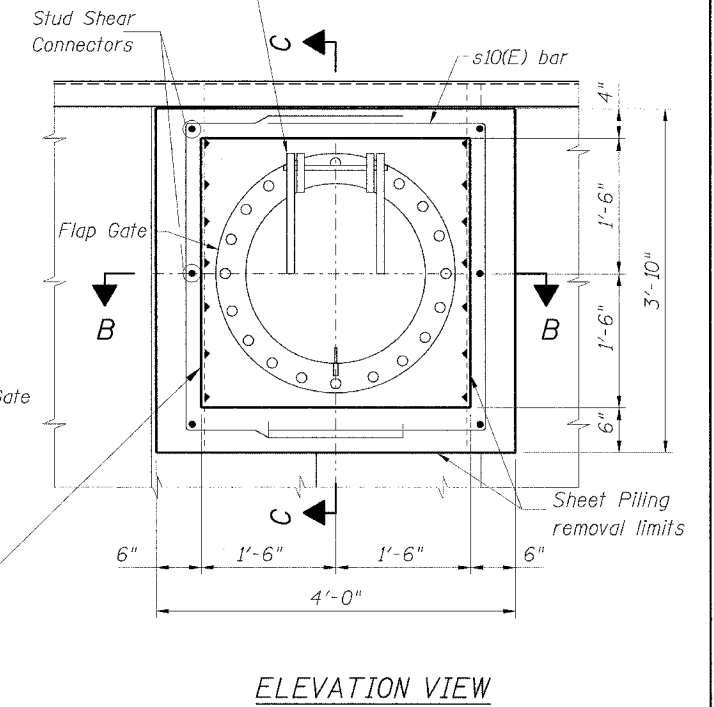
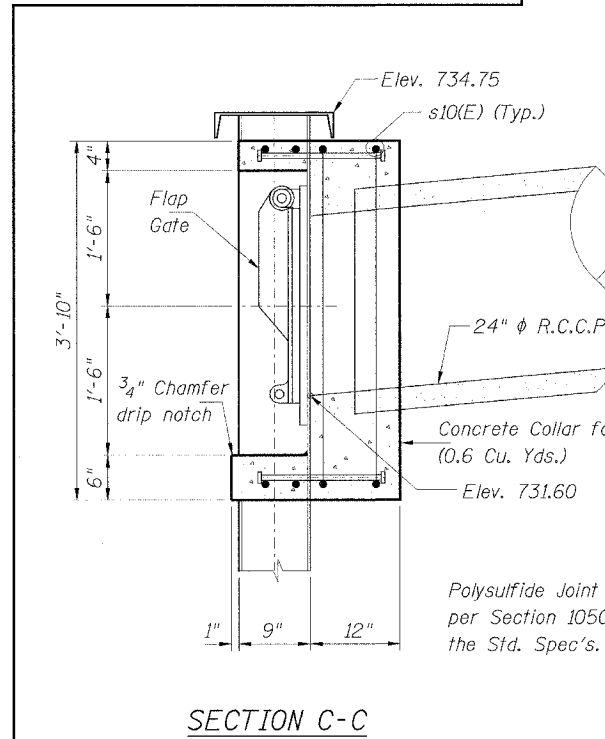
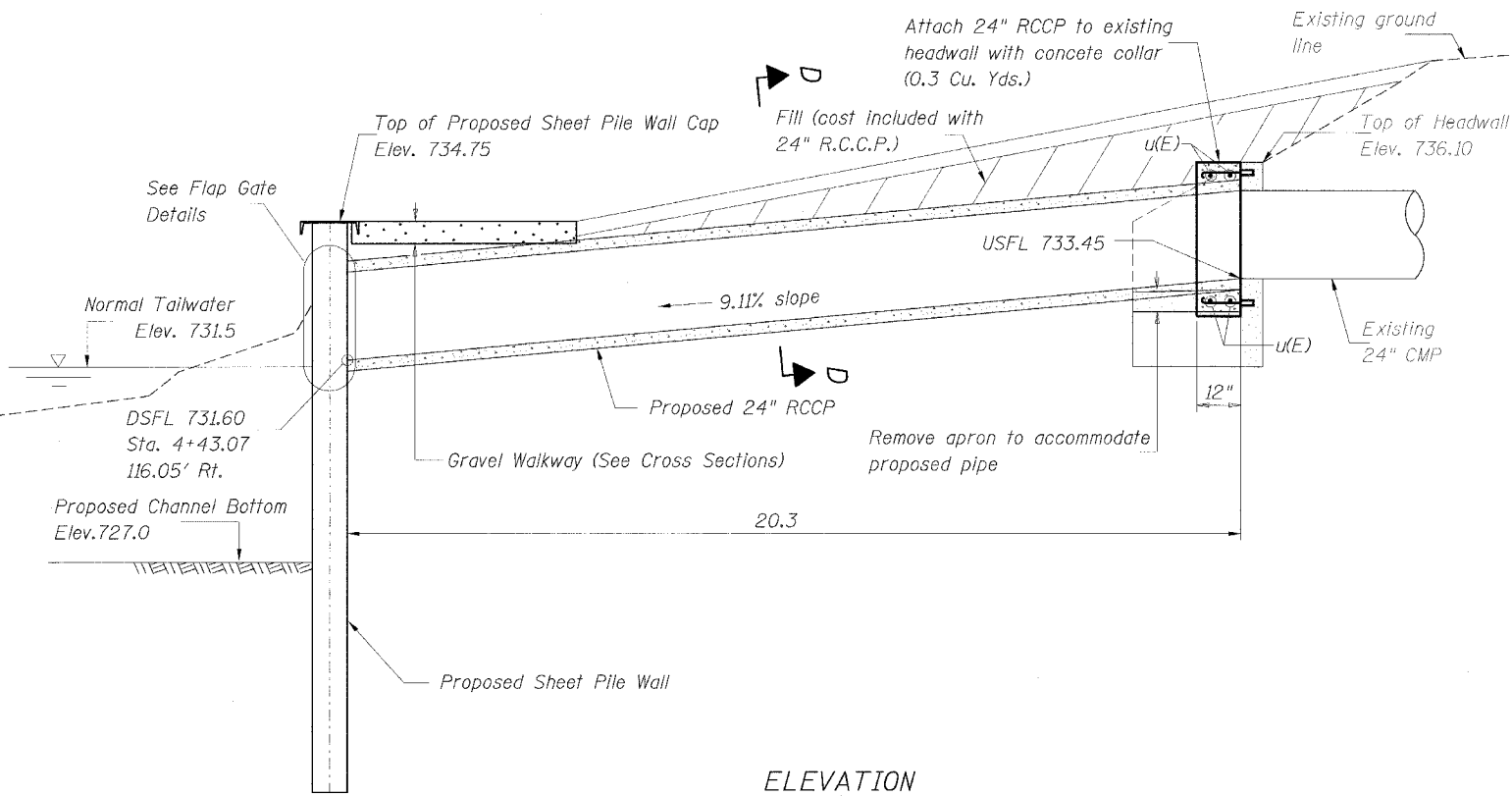
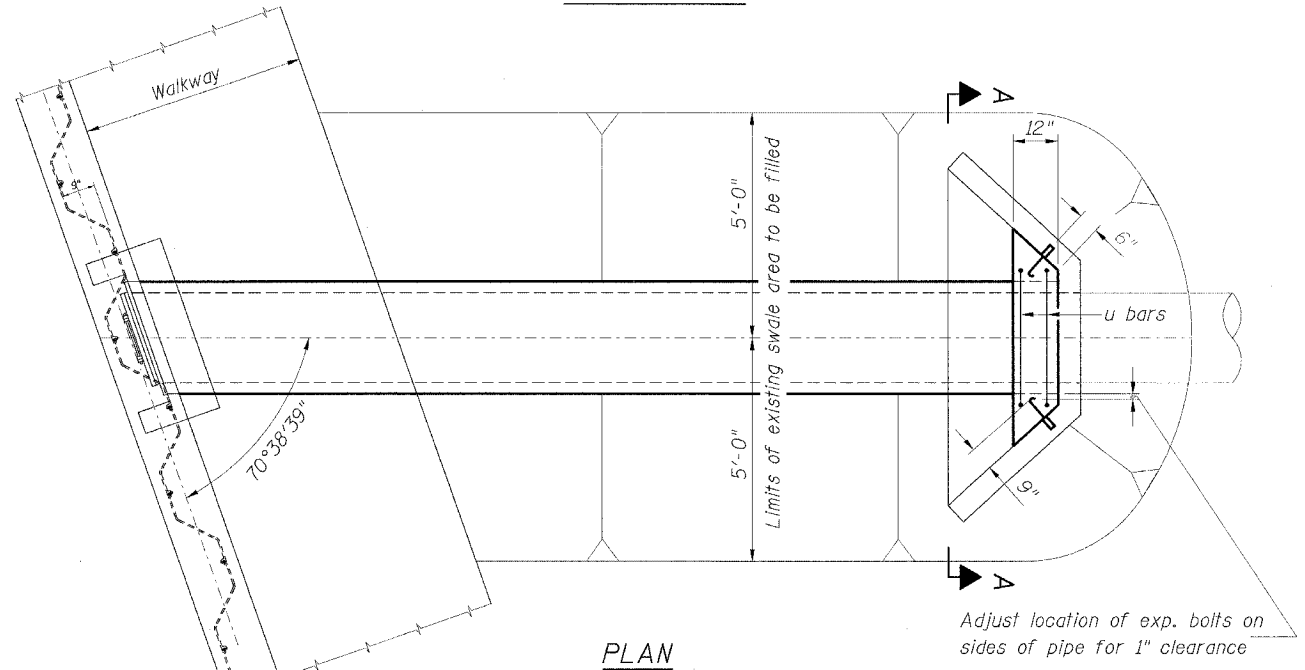
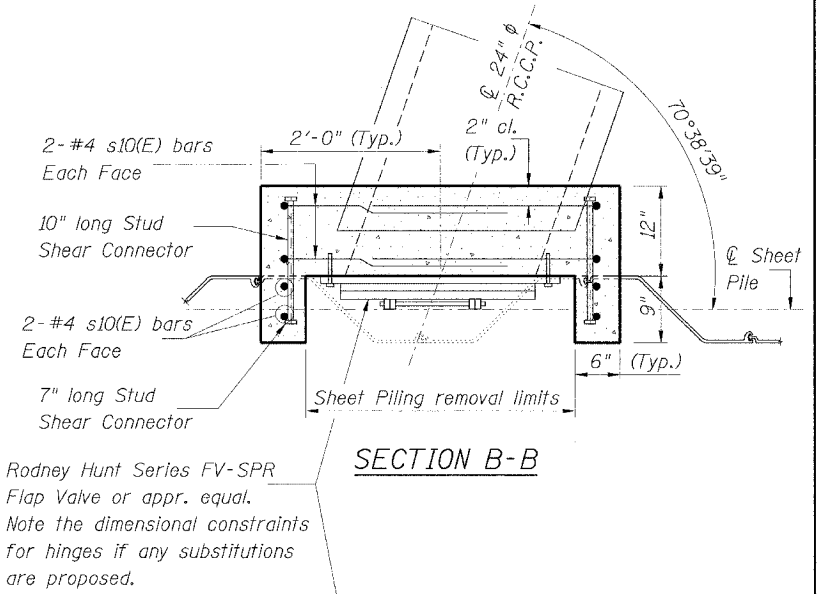
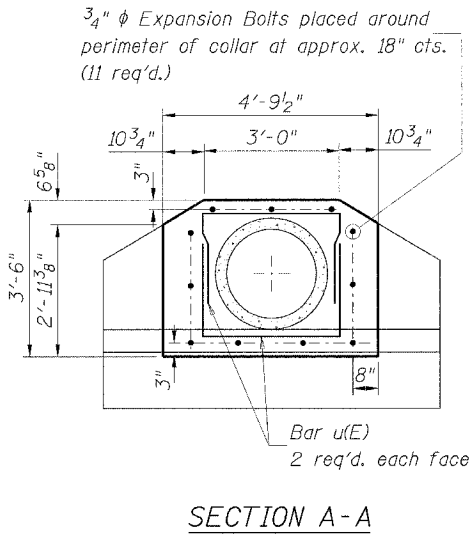
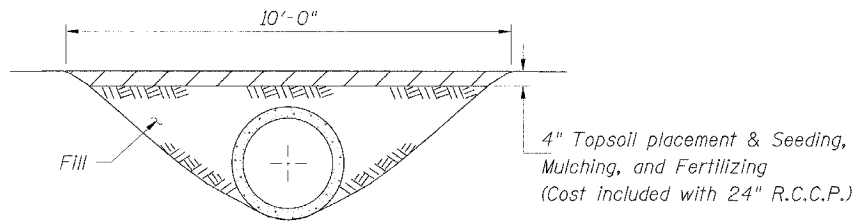


SECTION A-A

BILL OF MATERIAL

Articulated Block Mat	Sq Yd	86
Filter Fabric for Use with Riprap	Sq Yd	86
Biaxial Geogrid	Sq Yd	93
Floating Turbidity Curtain	Foot	50
Steel Sheet Piling	Sq Ft	2,250
Aggregate Base Course, Type A	Cu Yd	15
Concrete Structures	Cu Yd	1.6
Sheet Piling Removal	Sq Ft	412
Furnishing & Erect. Structural Steel Pound		4,180
Temporary Cofferdam System	Each	1

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BILL OF MATERIAL

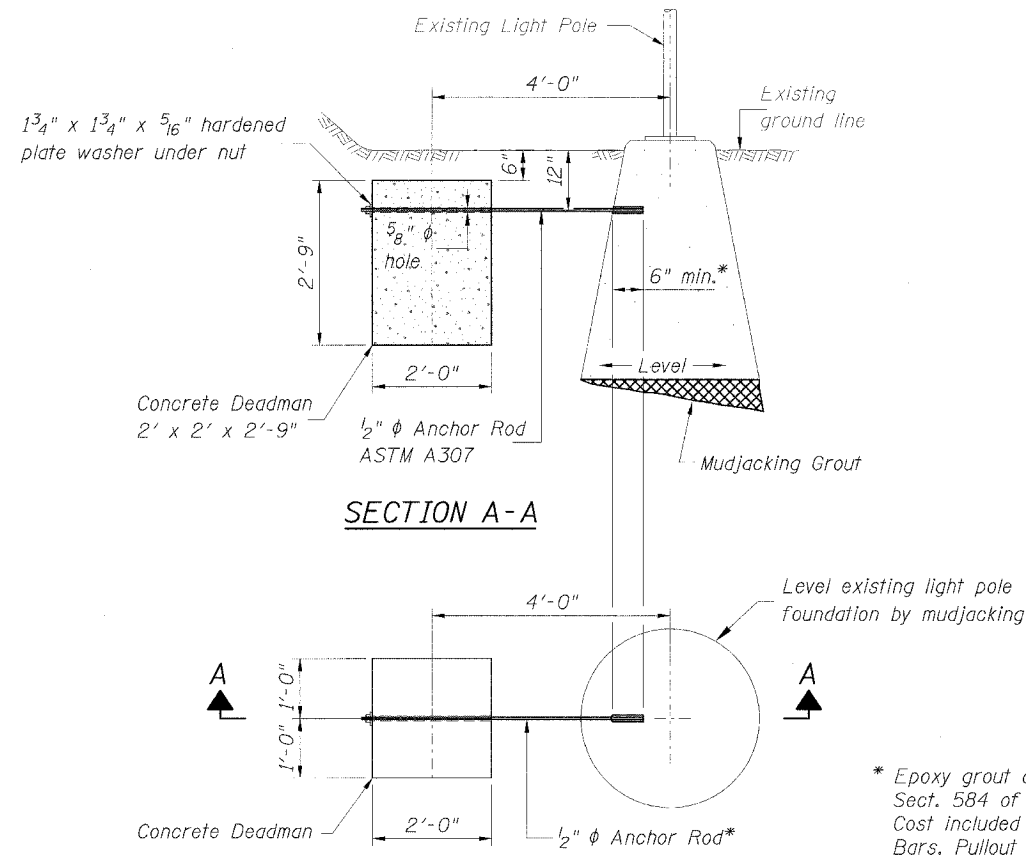
Bar	No.	Size	Length	Shape
u(E)	4	#4	7'-0"	
s10(E)	8	#4	8'-8"	
Expansion Bolts 3/4 Inch	Each			11
Concrete Collar			Cu. Yd.	0.9
Reinf. Bars, Epoxy Coated			Pound	70
Pipe Culverts, Ty. 1 RCCP 24"			Foot	20
Stud Shear Connectors			Each	12
Flap Gate 24"			Each	1

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Drawn By WF checked By Trm

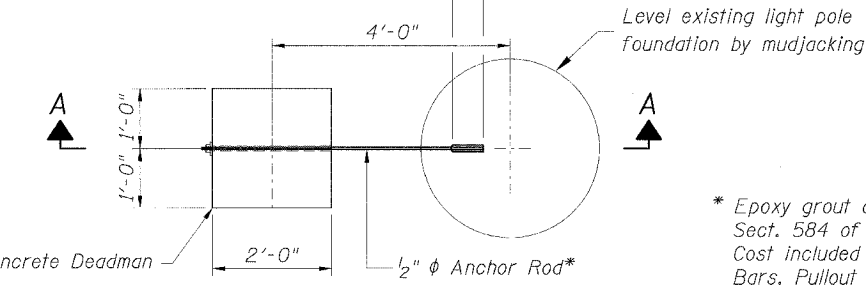
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NOTES:

The light pole foundation of the pole near the south west corner of the boat lock needs to be leveled. Refer to sheet 4 for location. See leveling details this sheet.

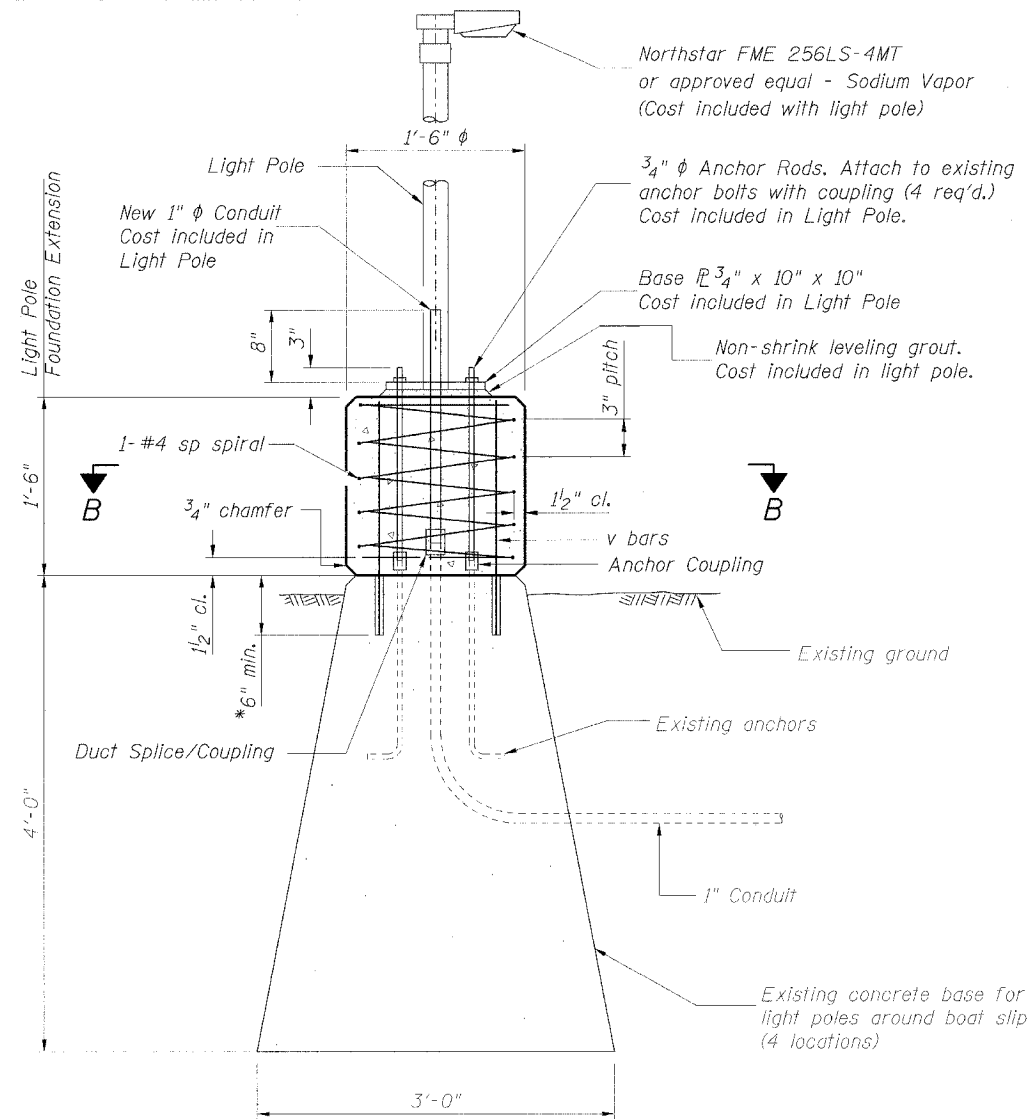


SECTION A-A

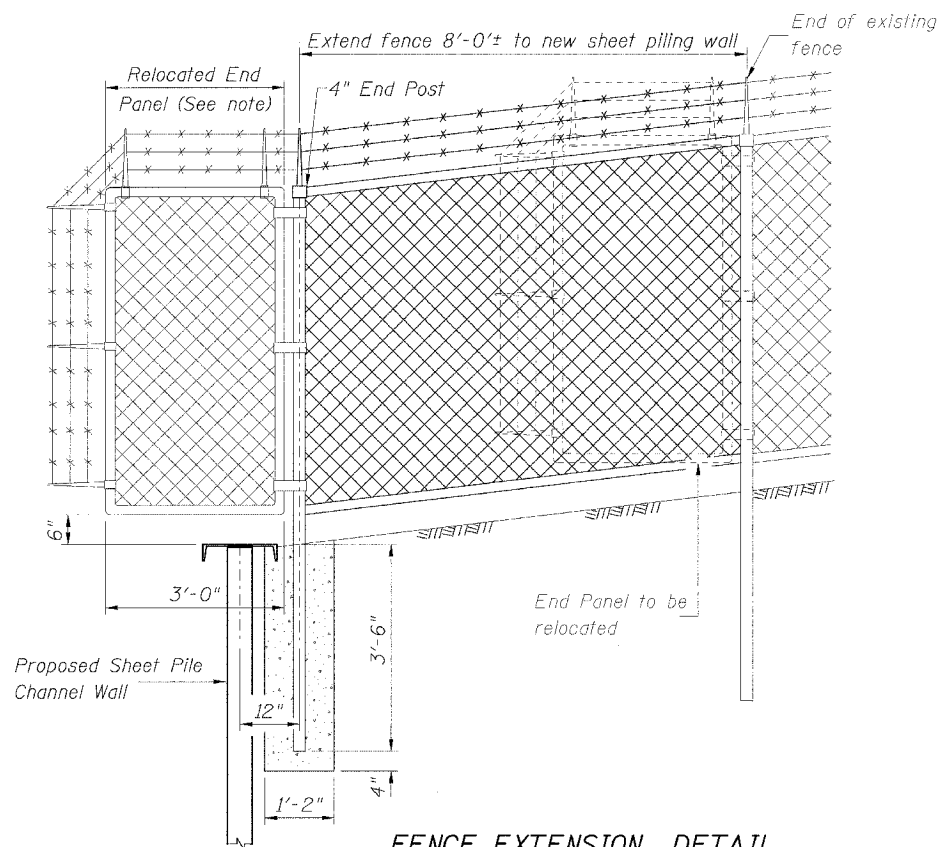


LIGHT POLE LEVELING DETAIL
(Paid for as "Existing Light Pole Foundation Adjustment")

* Epoxy grout according to Sect. 584 of the Std. Spec's.. Cost included in Reinforcement Bars. Pullout load = 4000 lbs.

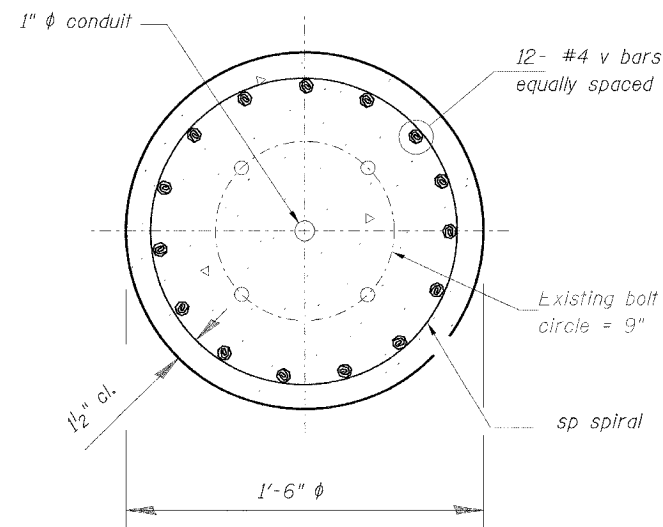


FOUNDATION DETAIL

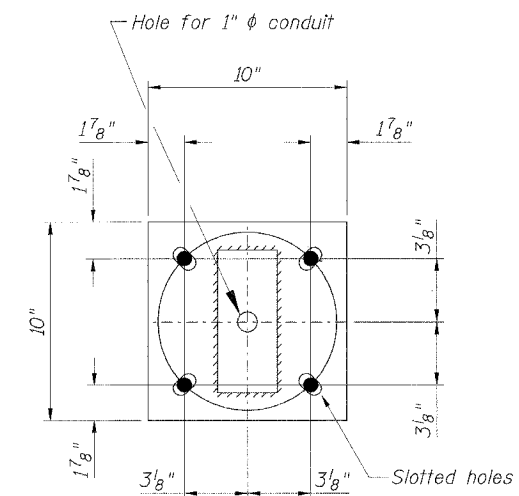


FENCE EXTENSION DETAIL
(For location of Fence, see sheet 4)

Note:
The cost to relocate fence end panel to be included with Chain Link Fence



SECTION B-B



BASE P DETAIL

(To be designed by manufacturer)

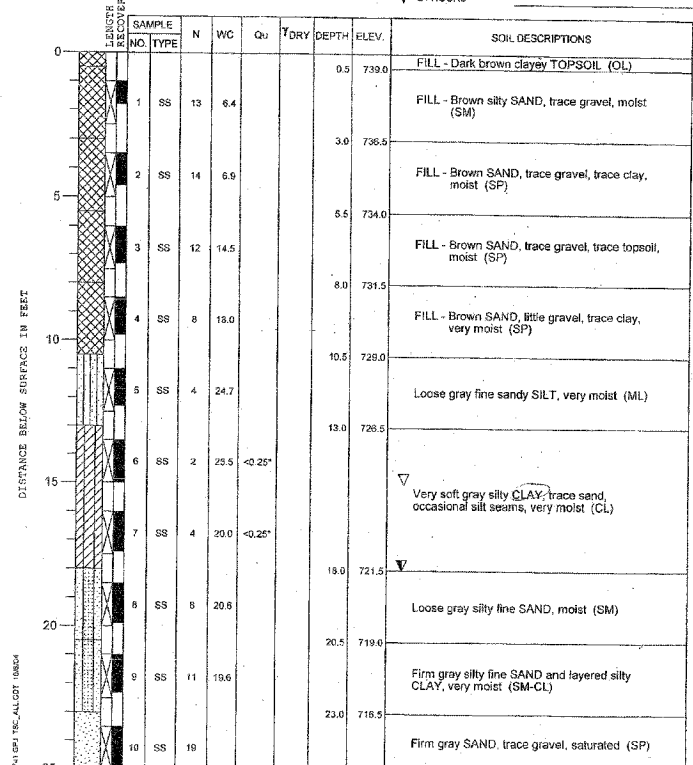
BILL OF MATERIAL

Bar	No.	Size	Length	Shape	
sp	4	#4	1'-3"	⌘	
v	48	#4	1'-11"	—	
Concrete Structures				Cu. Yd.	0.4
Reinf. Bars, Epoxy Coated Pound					60
Chain Link Fence, 6'				Foot	8
Light Pole, Steel, 20 Ft.					
Mounting Height				Each	4
Removal of Existing Lighting Unit, No Salvage				Each	4
Existing Light Pole Foundation Adjustment				Each	1

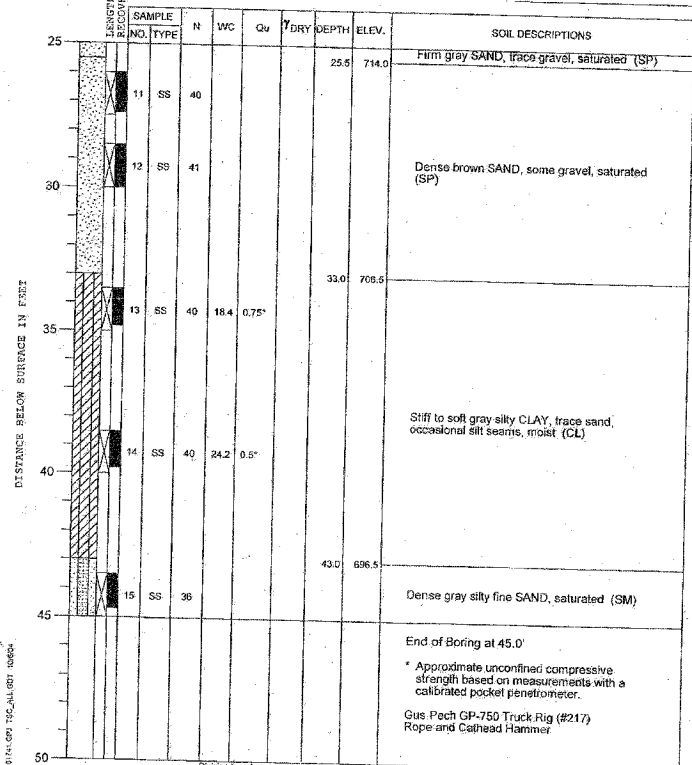
**Length is height of spiral.

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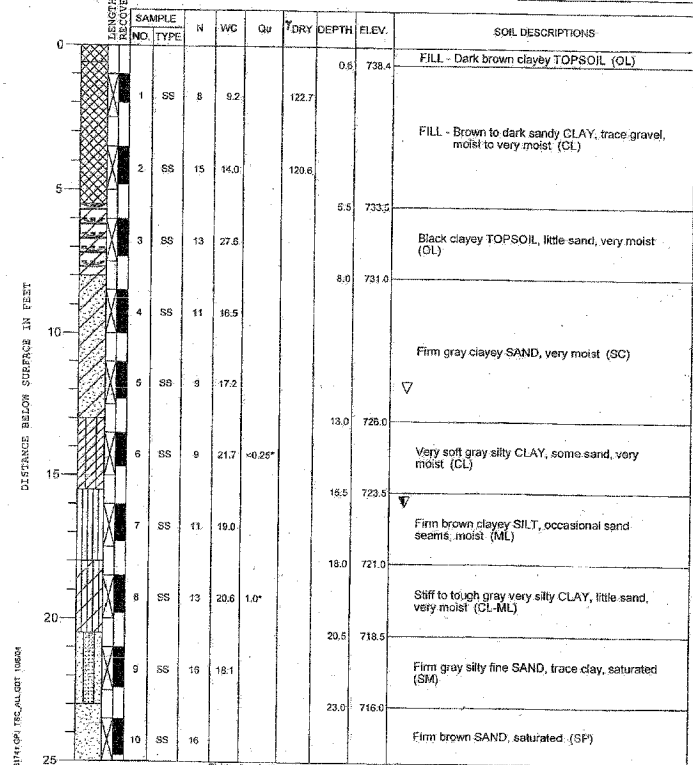
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ELEVATIONS WATER LEVEL OBSERVATIONS
GROUND SURFACE 739.5 WHILE DRILLING 18.0'
END OF BORING 694.5 AT END OF BORING 15.0'
24 HOURS



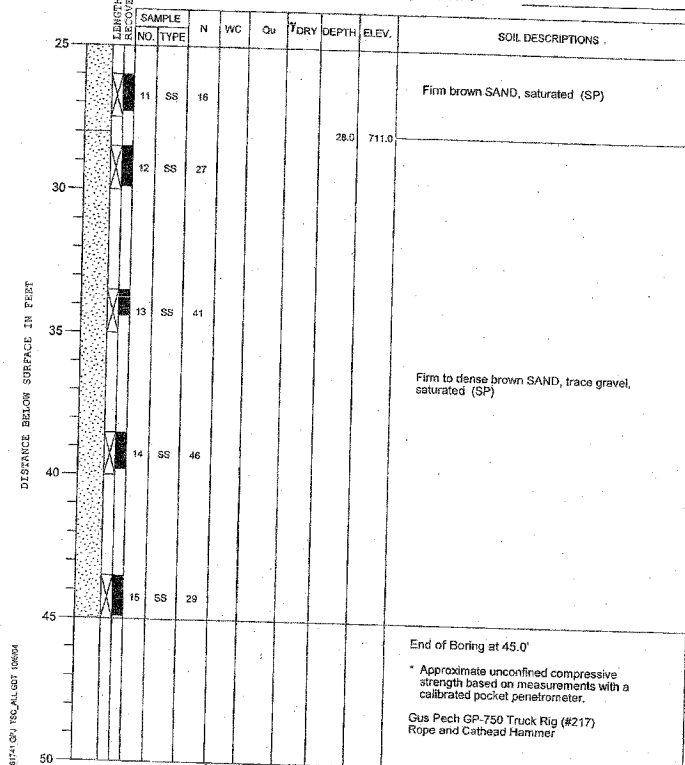
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GROUND SURFACE 739.5 WHILE DRILLING 18.0'
END OF BORING 694.5 AT END OF BORING 15.0'
24 HOURS



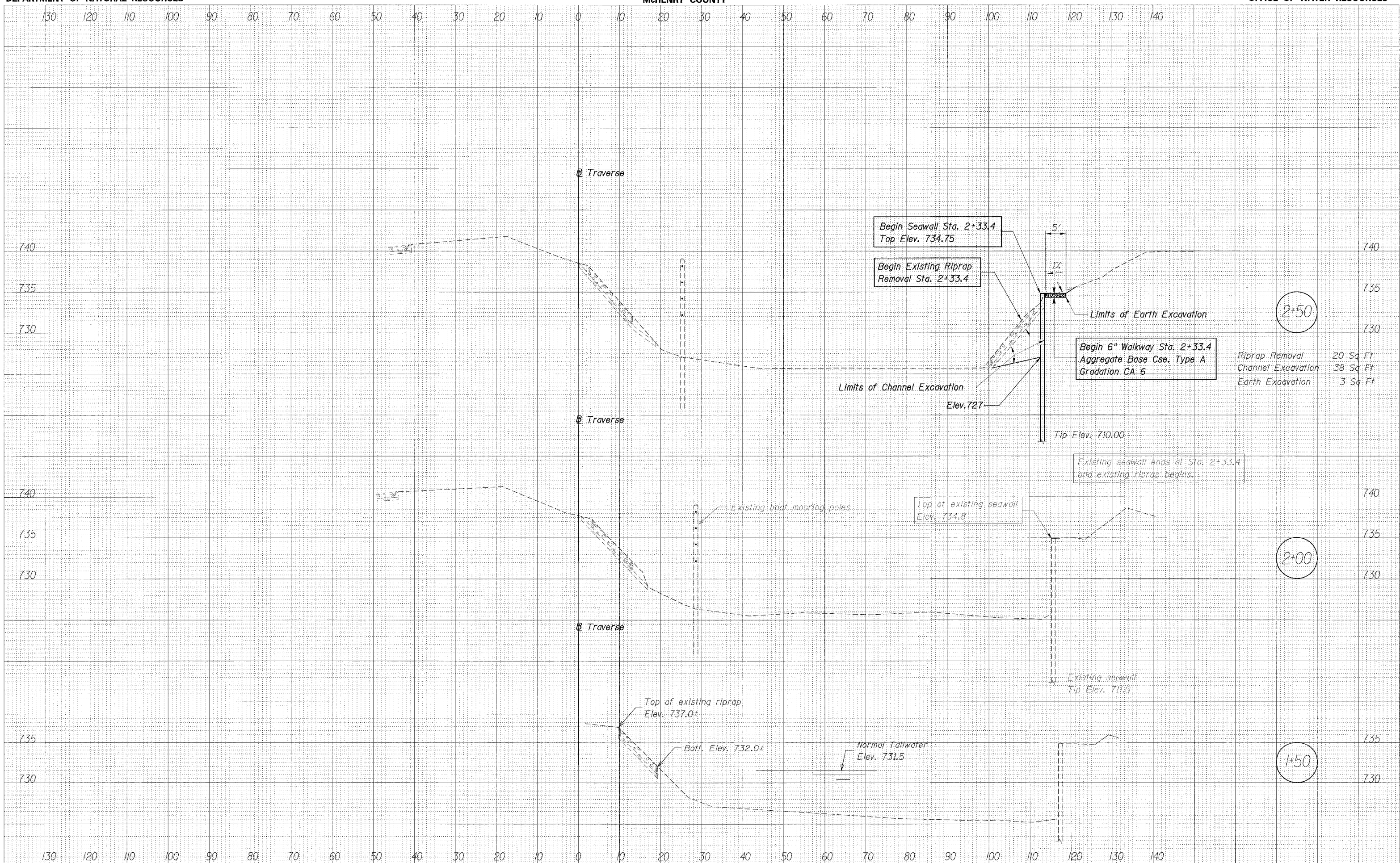
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ELEVATIONS WATER LEVEL OBSERVATIONS
GROUND SURFACE 739.0 WHILE DRILLING 16.0'
END OF BORING 694.0 AT END OF BORING 12.0'
24 HOURS



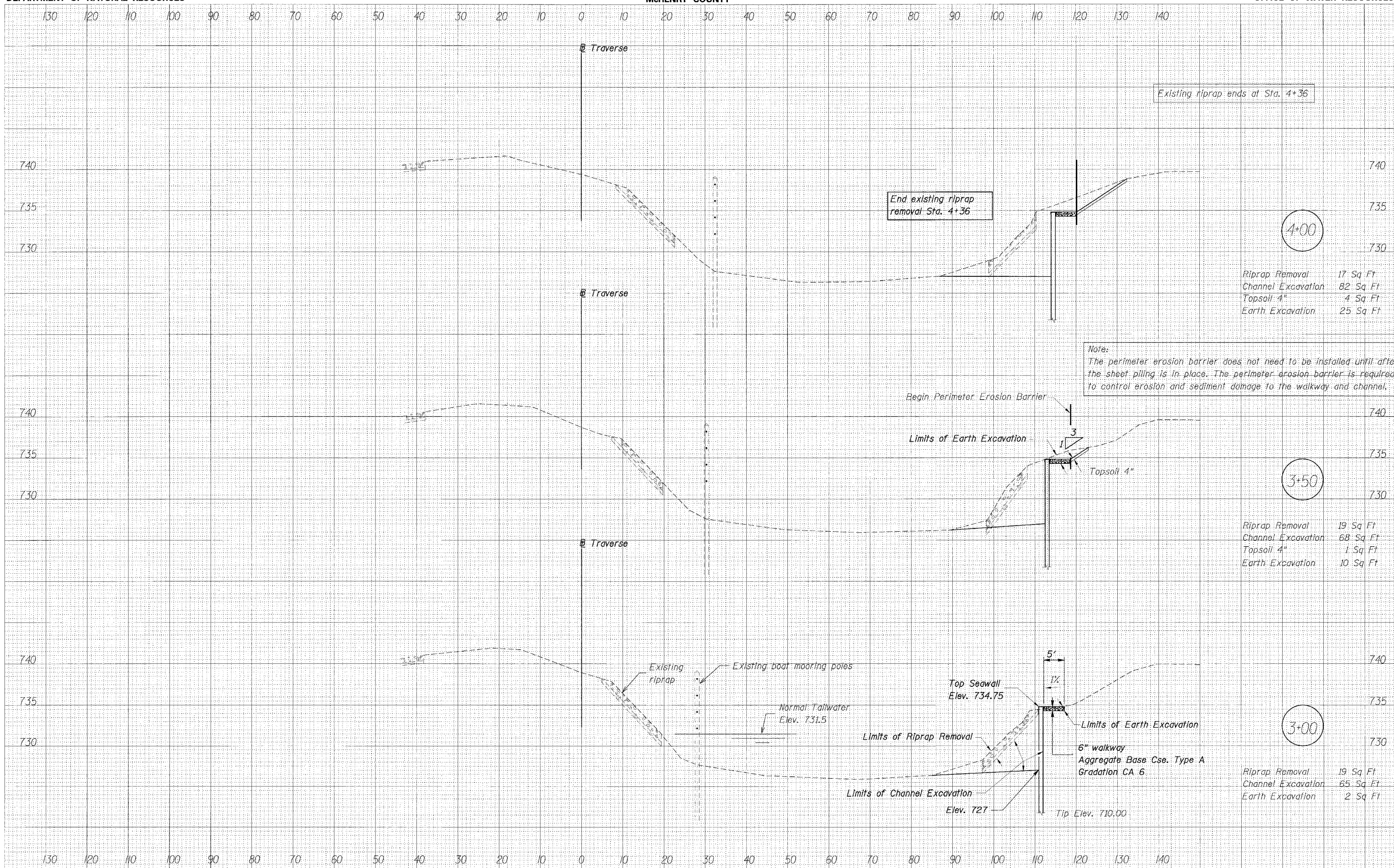
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CLIENT Illinois Department of Natural Resources, Springfield, Illinois
BORING 2 DATE STARTED 9-24-04 DATE COMPLETED 9-24-04 JOB L-61,741
ELEVATIONS WATER LEVEL OBSERVATIONS
GROUND SURFACE 739.0 WHILE DRILLING 16.0'
END OF BORING 694.0 AT END OF BORING 12.0'
24 HOURS



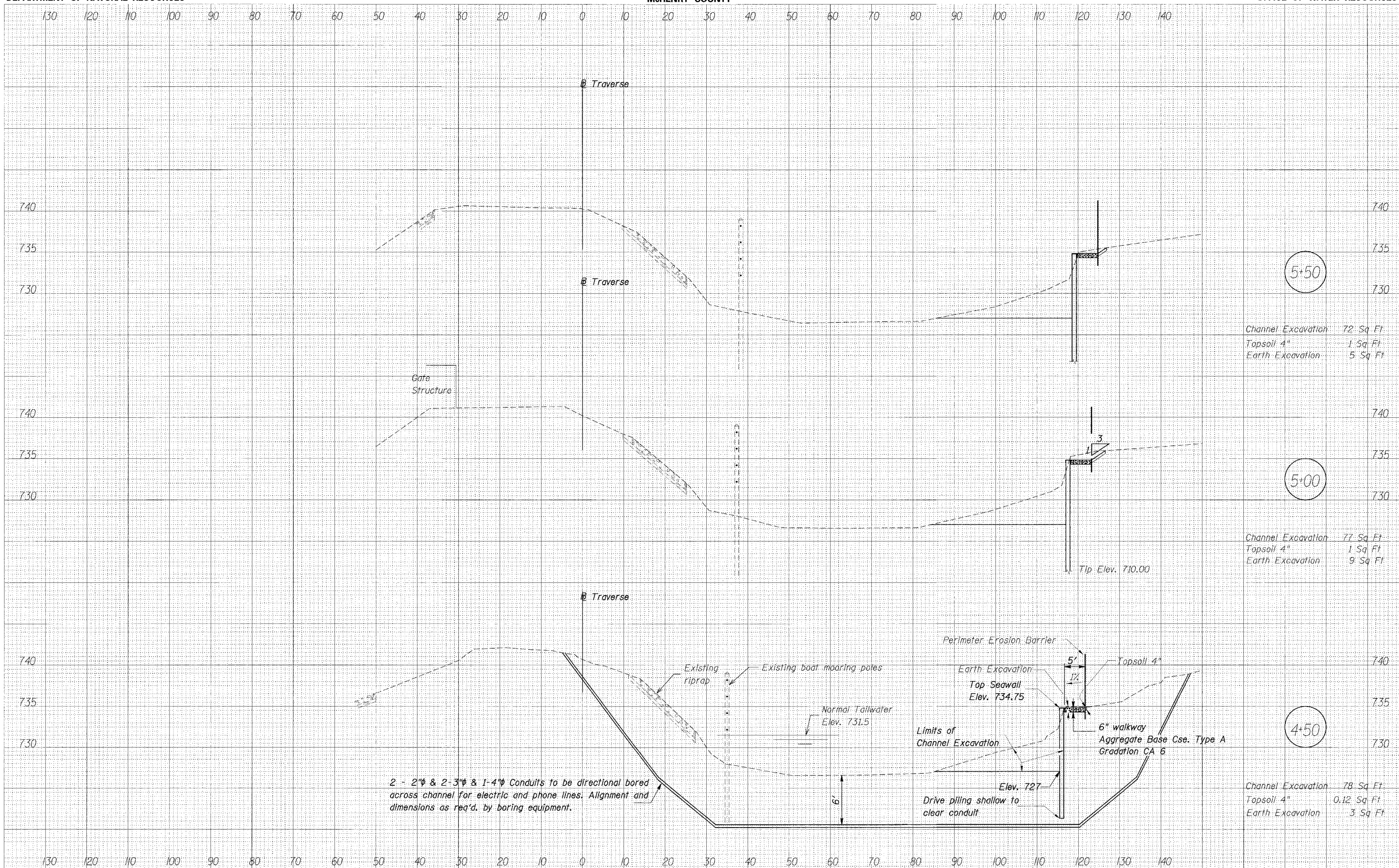
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Drawn By _____



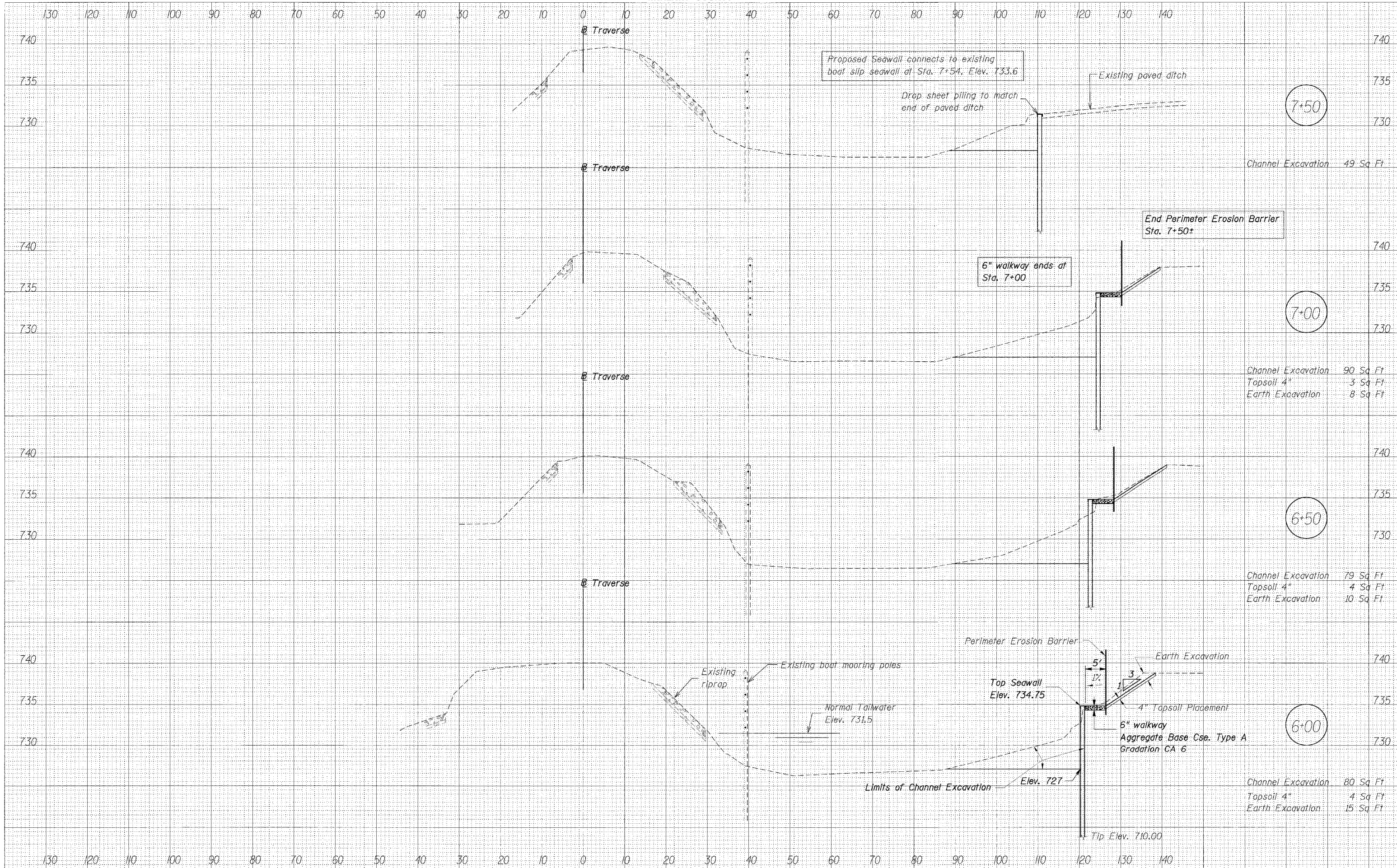
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CHECKED BY: JJE
CHECKED BY: Tmm



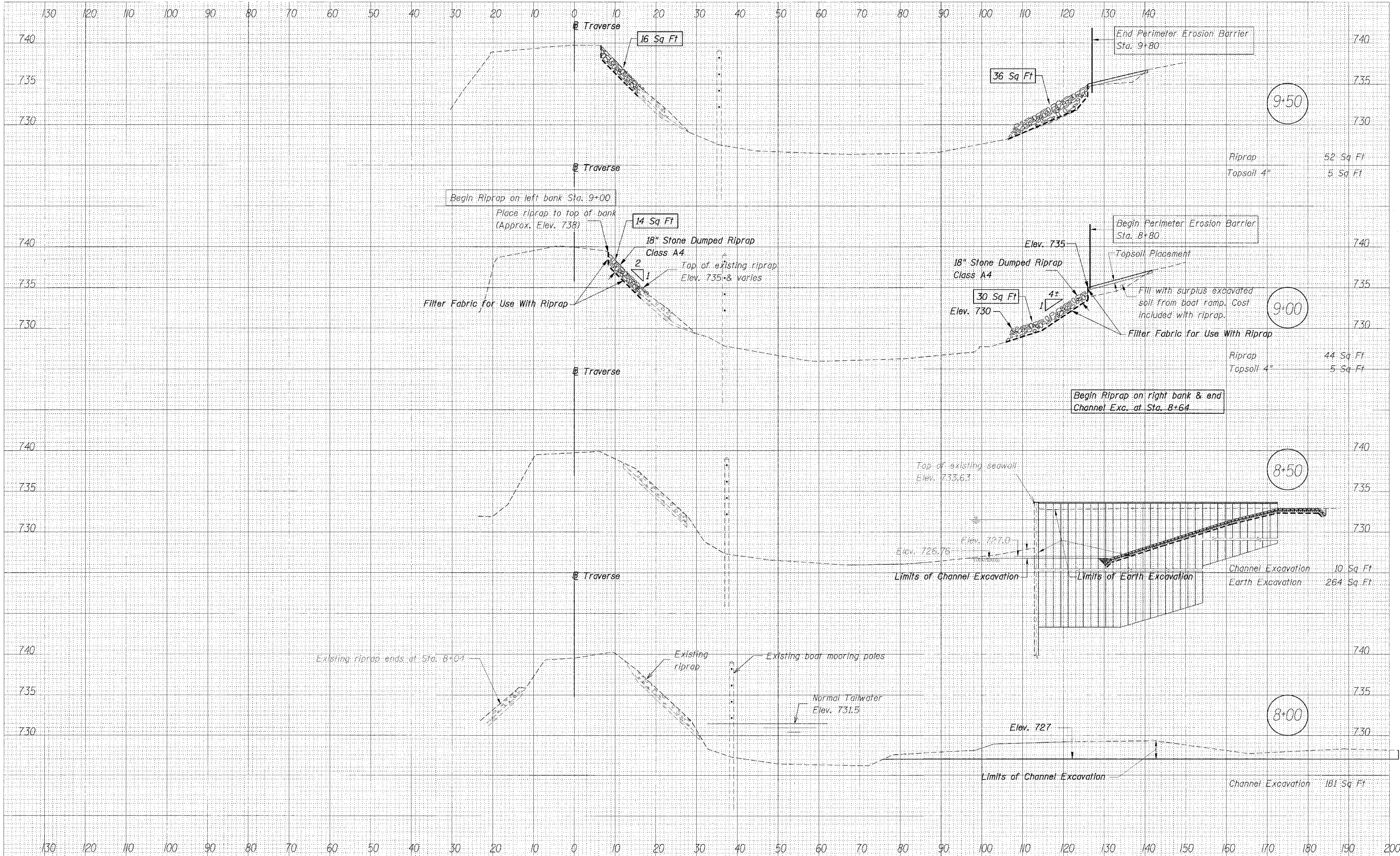
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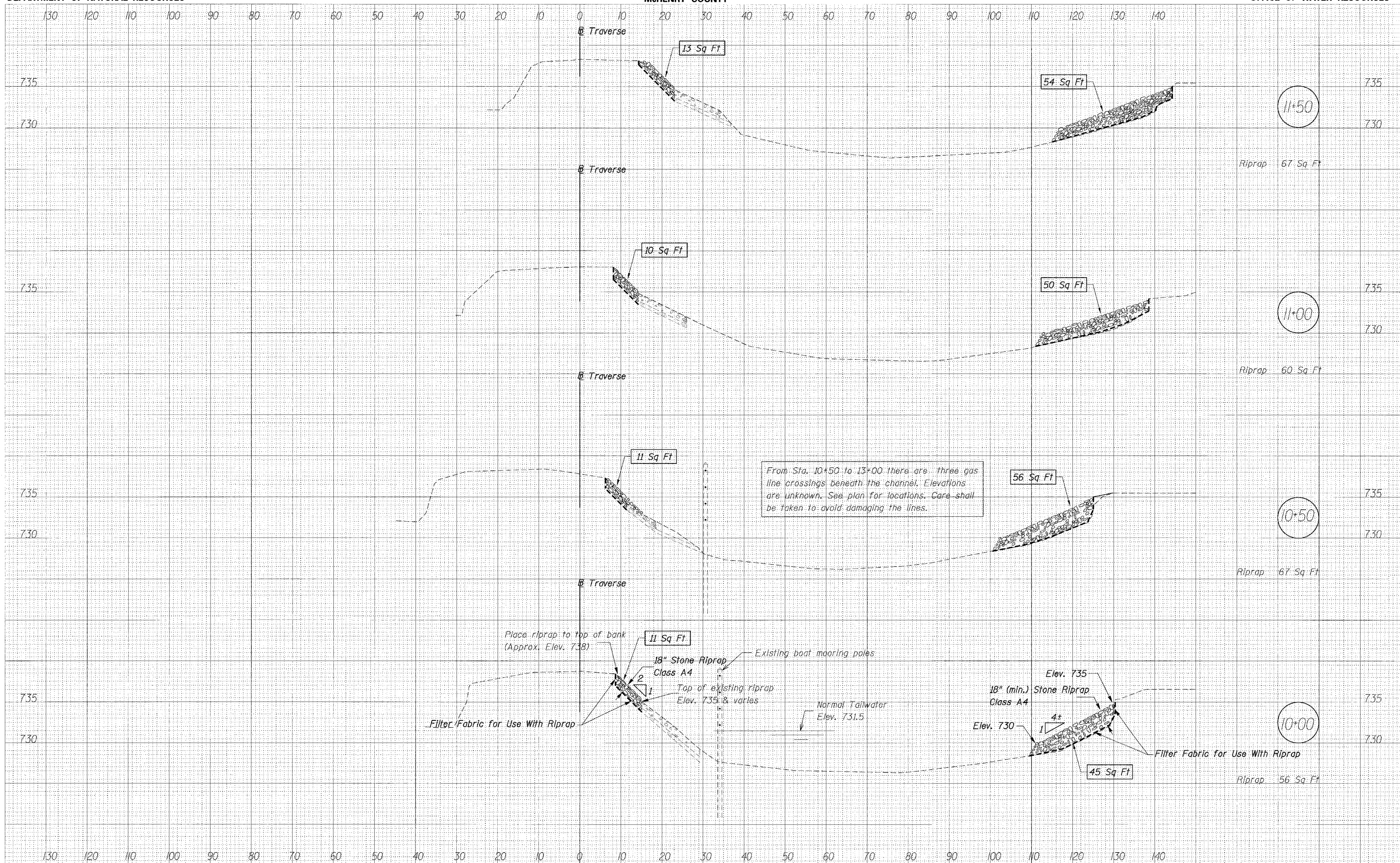
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DRAWN BY: JJF
CHECKED BY: JJF
CHECKED BY: Tmm



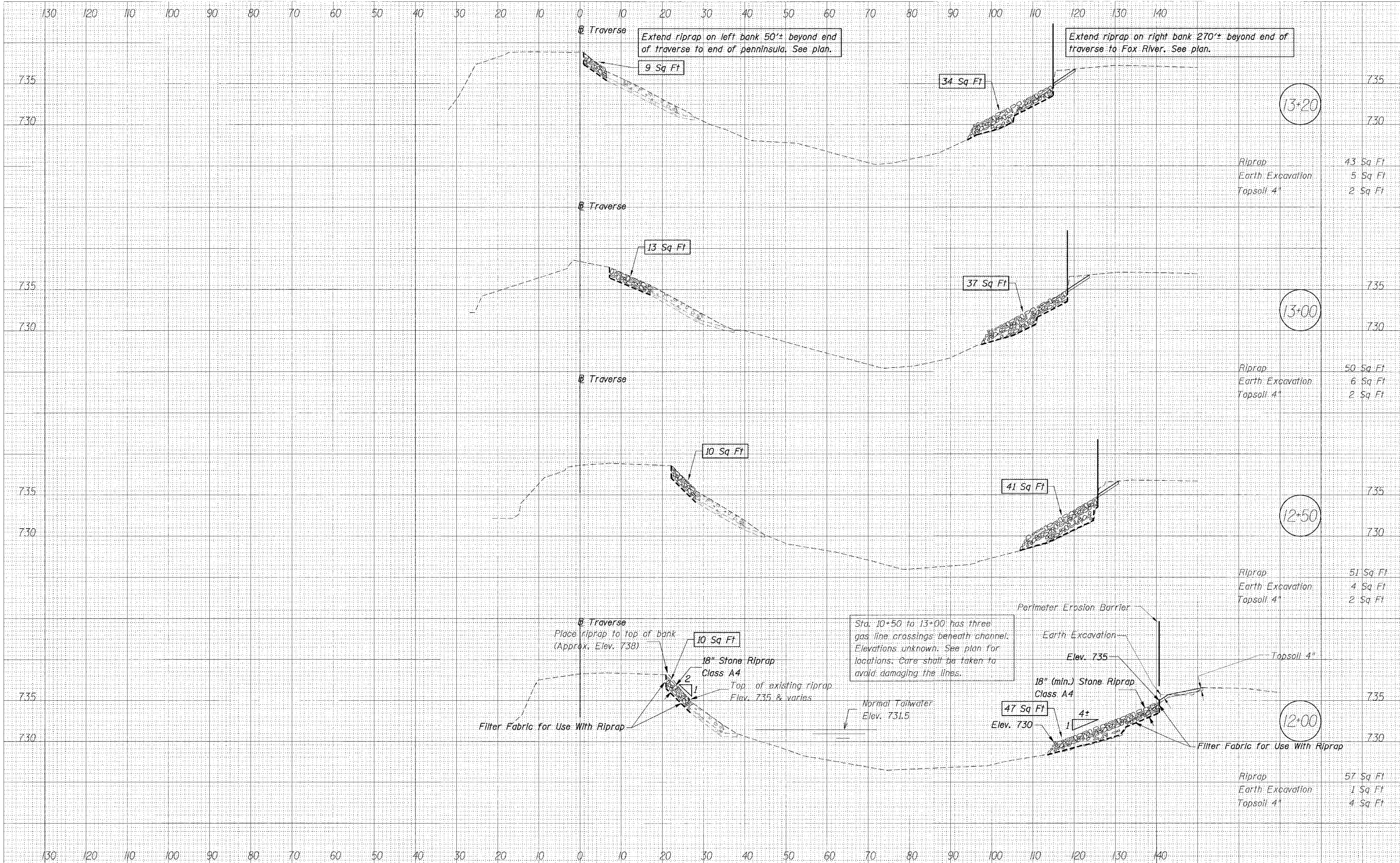
DESIGNED BY: Tmm
DRAWN BY: JJE
CHECKED BY: JJE
CHECKED BY: Tmm



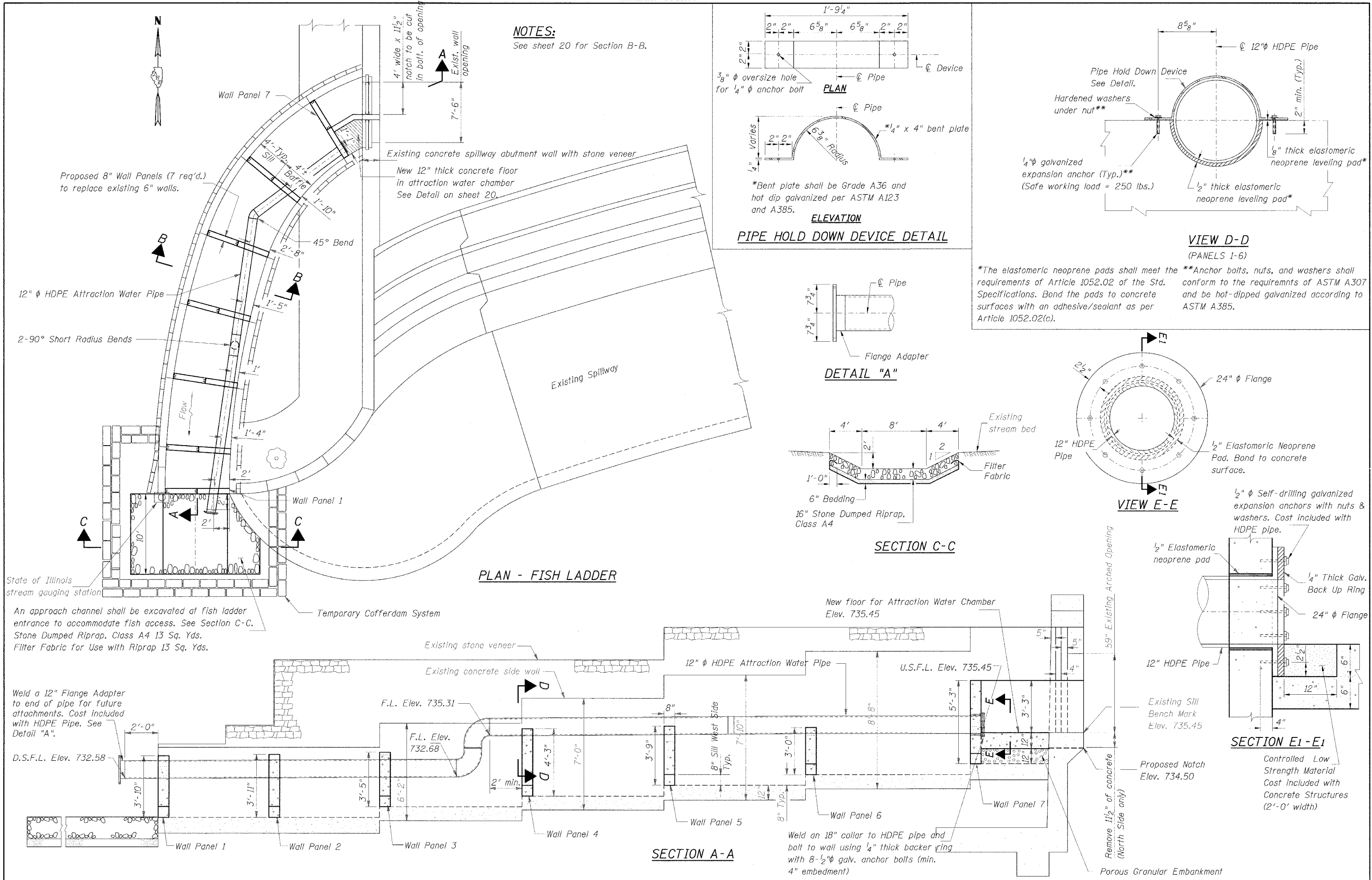
DESIGNED BY: Tmm
DRAWN BY: JJF
CHECKED BY: JJF
CHECKED BY: Tmm



DESIGNED BY: Tmm
DRAWN BY: JJF
CHECKED BY: JJF
CHECKED BY: Tmm



DESIGNED BY: Tmm
DRAWN BY: JJF
CHECKED BY: JJF
CHECKED BY: Tmm



Designed By T.M.M. Checked By J.J.F.
 Drawn By J.J.F. 7-17-00 Checked By T.M.M.

TABLE "1"

Wall Panel #	Dimension "A"	Dimension "B"
1	3'-10"	3'-2 1/2"
2	3'-11"	3'-7 1/2"
3	3'-5"	3'-4 1/2"
4	4'-3"	3'-1 1/2"
5	3'-9"	2'-10 1/2"
6	3'-0"	2'-7 5/8"
7	5'-3"	2'-4 5/8"

Location of 12" pipe varies at each panel. See Plan & Sec. A-A (sheet 18). Cut or shift rebars to clear pipe as necessary.

Remove existing 6" thick concrete fish ladder panels & replace with 8" thick panels.

Anchor Rods (4 per angle-equaly spaced) See Anchor Rod Detail on sheet 20

5- #4v(E), v1(E), v2(E), v3(E), v4(E) or v5(E) bars Each Face (See Bar Table)

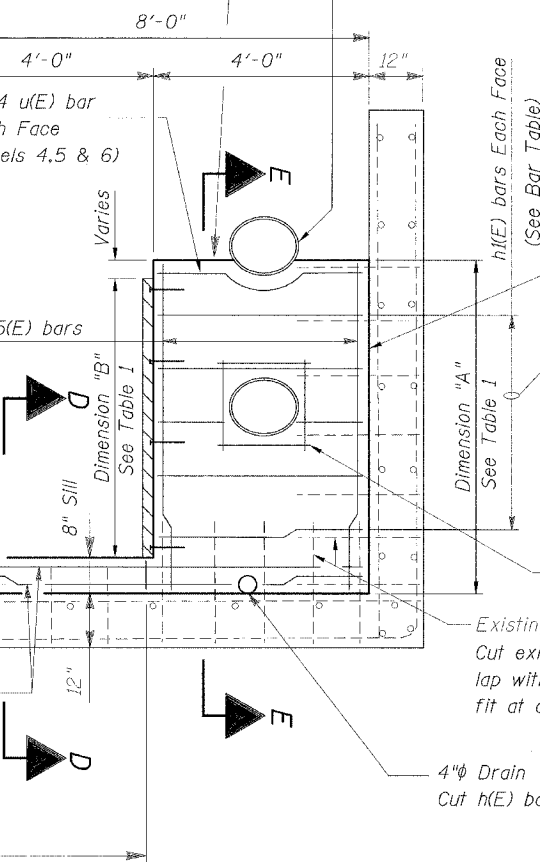
Cut sill bars to provide 2" end clearance*

2 1/2" x 2 1/2" x 3/8" Galvanized Steel Double Angles bolted to side wall and baffle

Bonded Construction Joint

2- #4h(E) bars Each Face

5- #4d(E) @ 12" cts.



SECTION B-B

(TYP. SECTION THRU FISH LADDER)

Note: If existing reinforcement is damaged, Contractor shall drill and epoxy grout a new bar 8" depth, at his expense in accordance with Section 584 of the Std. Spec's.

BAR TABLE

WALL PANEL #	VERT. BAR DESIGNATION	# OF h(E) BARS IN EACH FACE
1	v(E)	3
2	v(E)	3
3	v1(E)	3
4	v2(E)	4
5	v3(E)	3
6	v4(E)	3
7	v5(E)	6

Bonded Construction Joint

For Panels 1, 3, 5, and 7, provide 5- #4h2(E) bars Each Face epoxy grouted 8" into side wall in accordance with Sec. 584 of Std. Spec's. Space bars to miss HDPE pipe; do not cut.

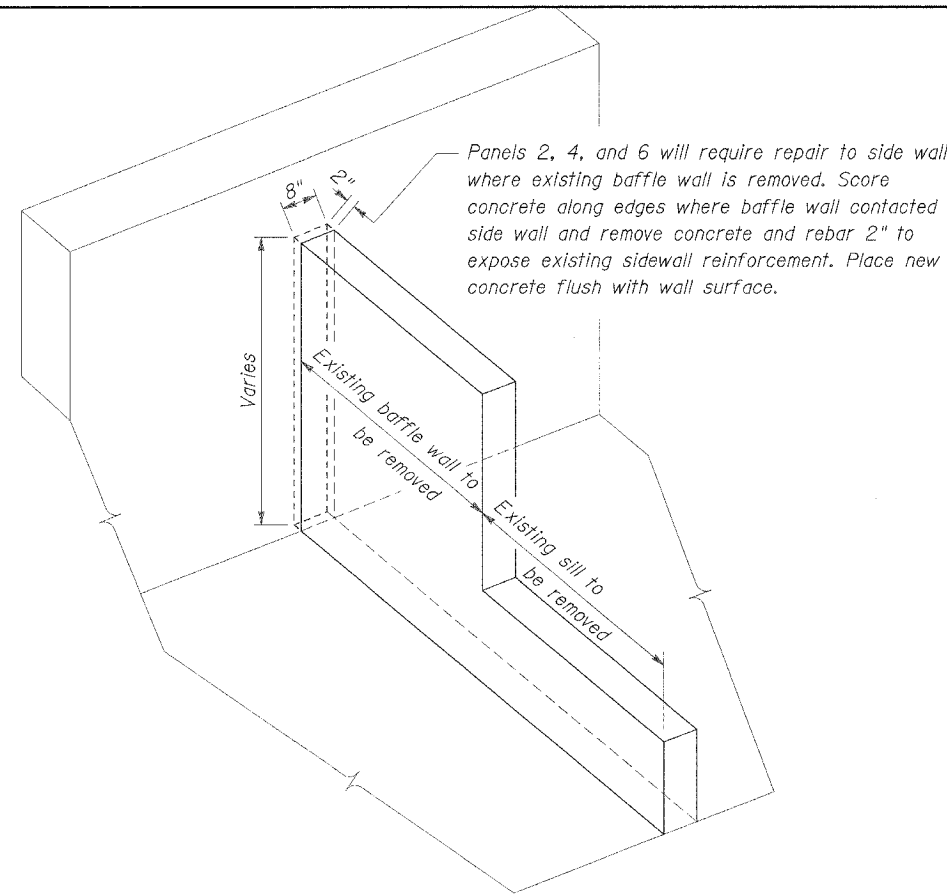
4- #4 d(E) bars Each Face (Panels 1, 2, 3, & 7) Clear pipe by 2"

Existing #4 bars @ 12" cts. in each face* Cut existing bars 1'-8" from side walls and lap with proposed reinforcement. Cut to fit at cradle.

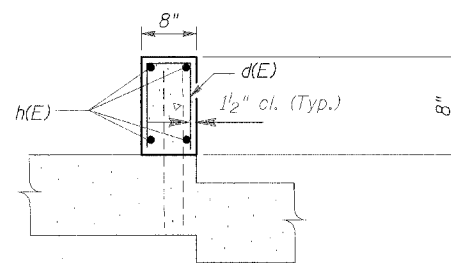
4" Drain Cut h(E) bars to clear drain

*The existing reinforcement bars extending into new concrete shall be cleaned, straightened and incorporated into new construction. The bars that are not being incorporated shall be burned off 2" into existing wall. Grind existing bars smooth and fill hole with epoxy mortar. Cost included with Concrete Removal.

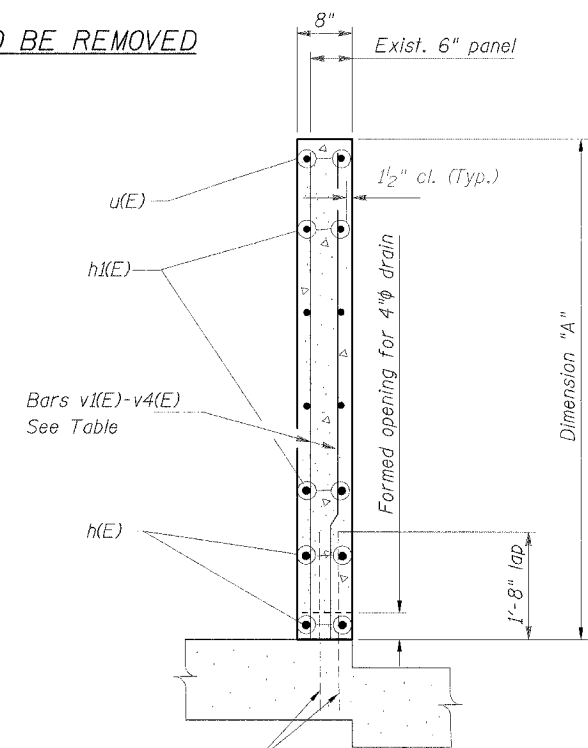
VIEW SHOWING EXISTING BAFFLE WALLS TO BE REMOVED



Panels 2, 4, and 6 will require repair to side wall where existing baffle wall is removed. Score concrete along edges where baffle wall contacted side wall and remove concrete and rebar 2" to expose existing sidewall reinforcement. Place new concrete flush with wall surface.



SECTION D-D



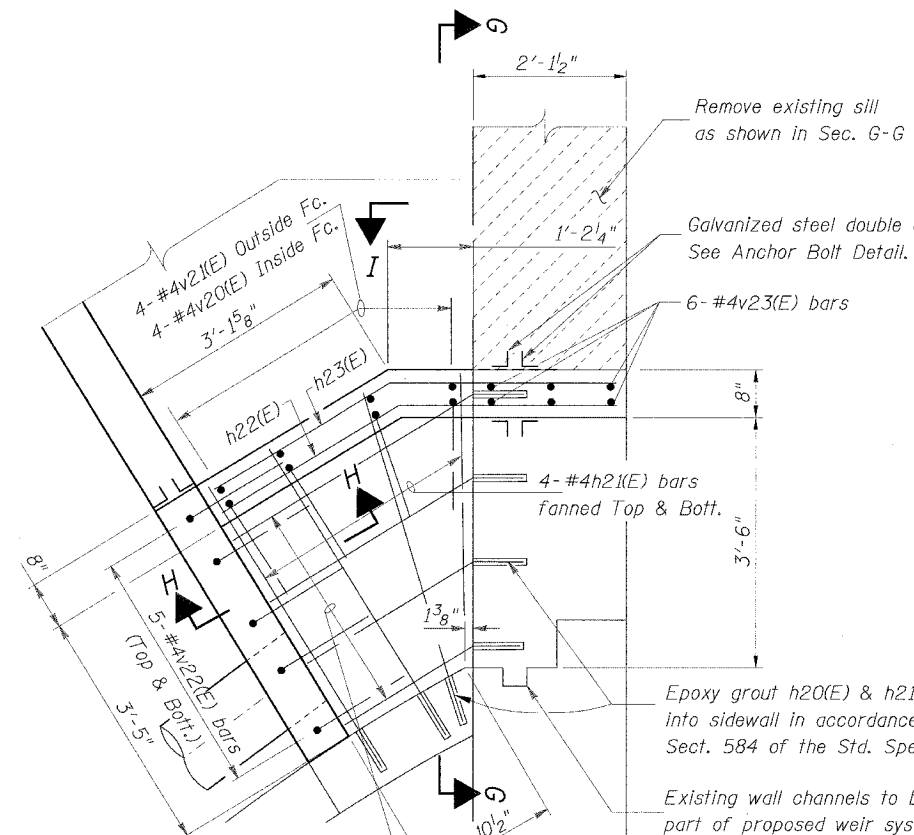
*Exist. vertical bars

SECTION E-E

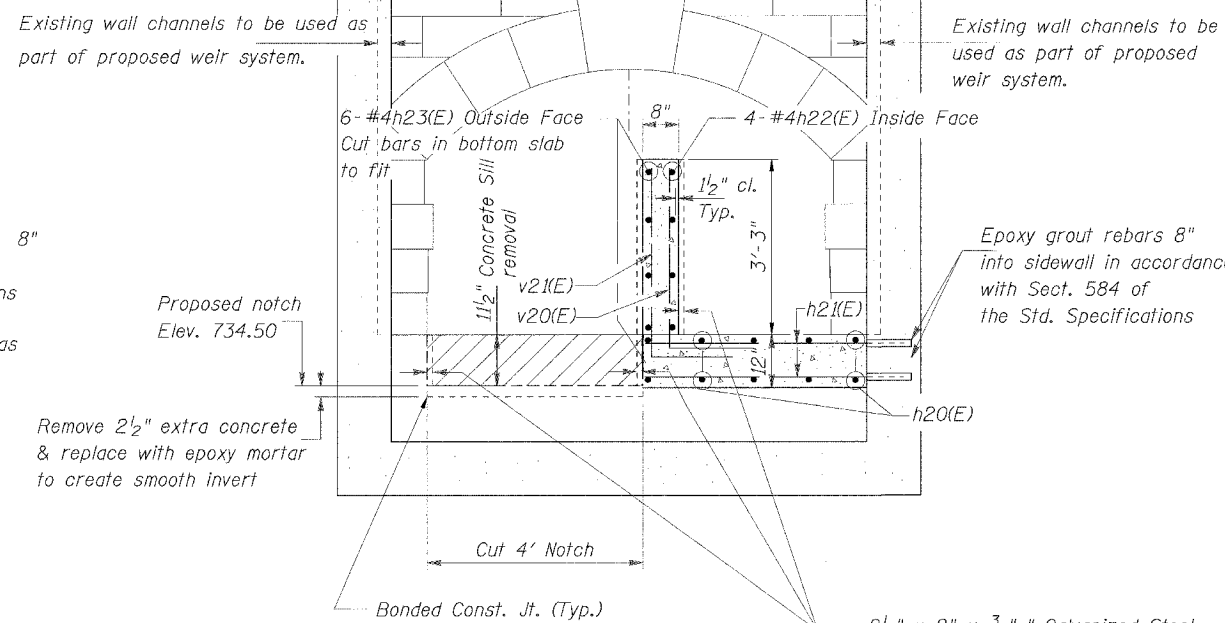
Designed by T.M.M. checked by J.J.F.
Drawn by J.J.F. checked by T.M.M.

NOTES:

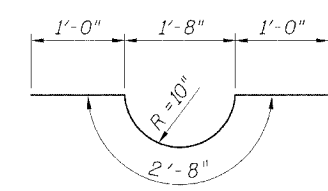
Structural steel shall be galvanized in accordance with AASHTO M-111 and ASTM A-385. Reinforcement bars designated (E) shall be epoxy coated.



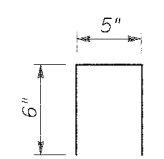
ATTRACTION WATER CHAMBER DETAIL



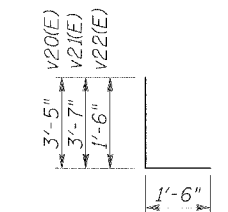
SECTION G-G



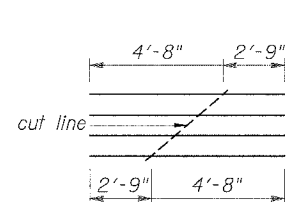
BAR u(E)



BAR d(E)

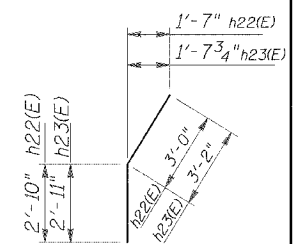


BARS v20(E), v21(E), & v22(E)



BAR CUTTING DIAGRAM

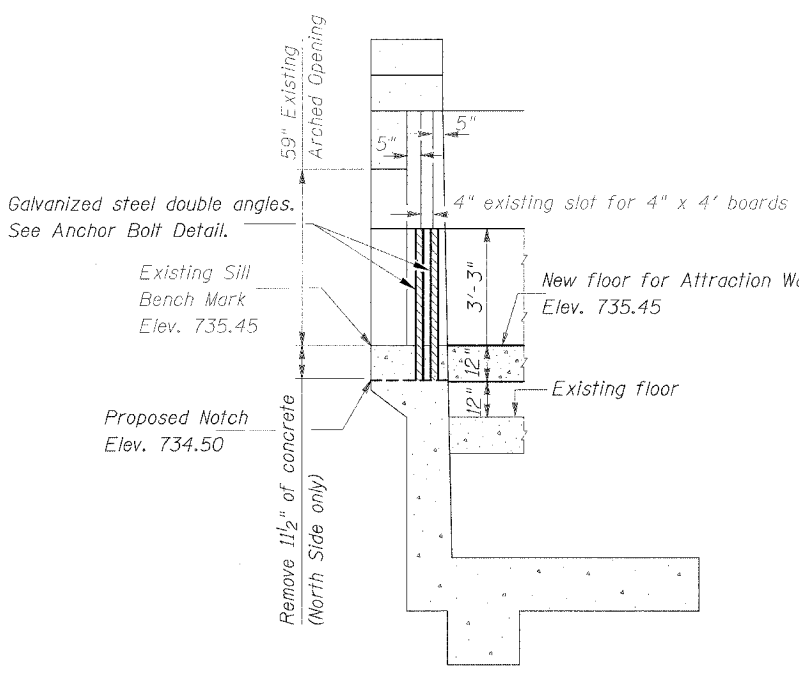
BAR h20(E)



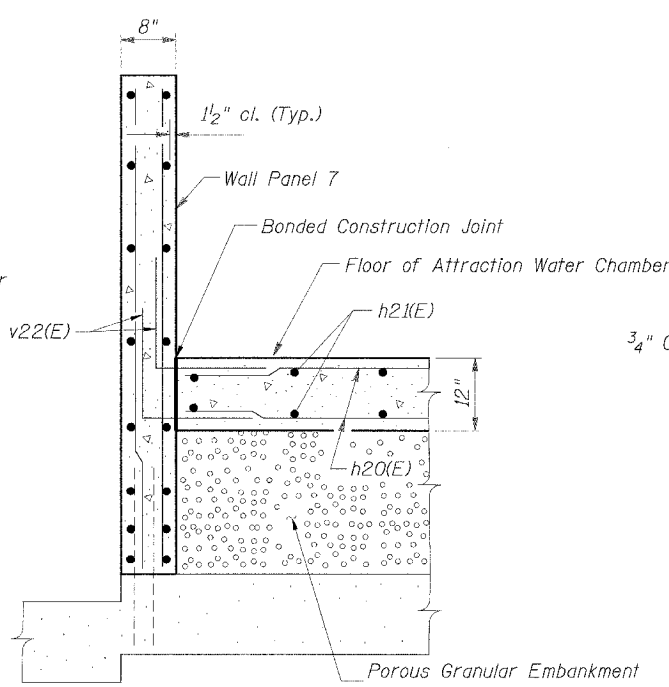
BARS h22(E) & h23(E)

BILL OF MATERIAL

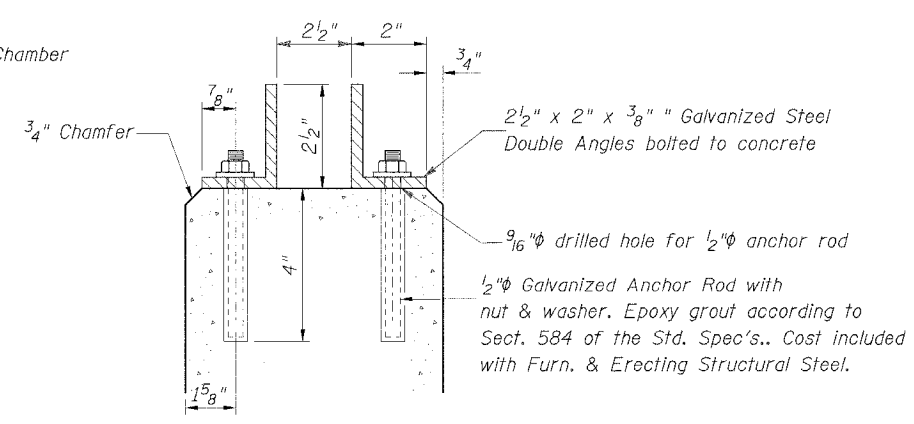
BAR	NO.	SIZE	LENGTH	SHAPE
d(E)	35	#4	1'-5"	□
d1(E)	32	#4	1'-6"	—
h(E)	28	#4	7'-9"	—
h1(E)	50		3'-10"	—
h2(E)	40		2'-3"	—
h20(E)	4		7'-5"	—
h21(E)	8		4'-6"	—
h22(E)	4		5'-10"	—
h23(E)	6		6'-1"	—
u(E)	6		4'-8"	—
v(E)	20		3'-8"	—
v1(E)	10		3'-3"	—
v2(E)	10		4'-1"	—
v3(E)	10		3'-7"	—
v4(E)	10		2'-10"	—
v5(E)	10		5'-1"	—
v20(E)	4		4'-11"	—
v21(E)	4		5'-1"	—
v22(E)	10		3'-0"	—
v23(E)	6	#4	3'-1"	—
Concrete Removal			Cu Yd	2.9
Concrete Structures			Cu Yd	4.3
Reinforcement Bars, Epoxy Coated			Pound	730
12" HDPE Pipe SDR 17.0			Foot	53
Furnishing & Erecting Structural Steel			Pound	540
Stone Dumped Riprap, Cl. A4			Sq Yd	17
Filter Fabric for Use with Riprap			Sq Yd	17
Temporary Cofferdam System			Each	1



SECTION I-I



SECTION H-H

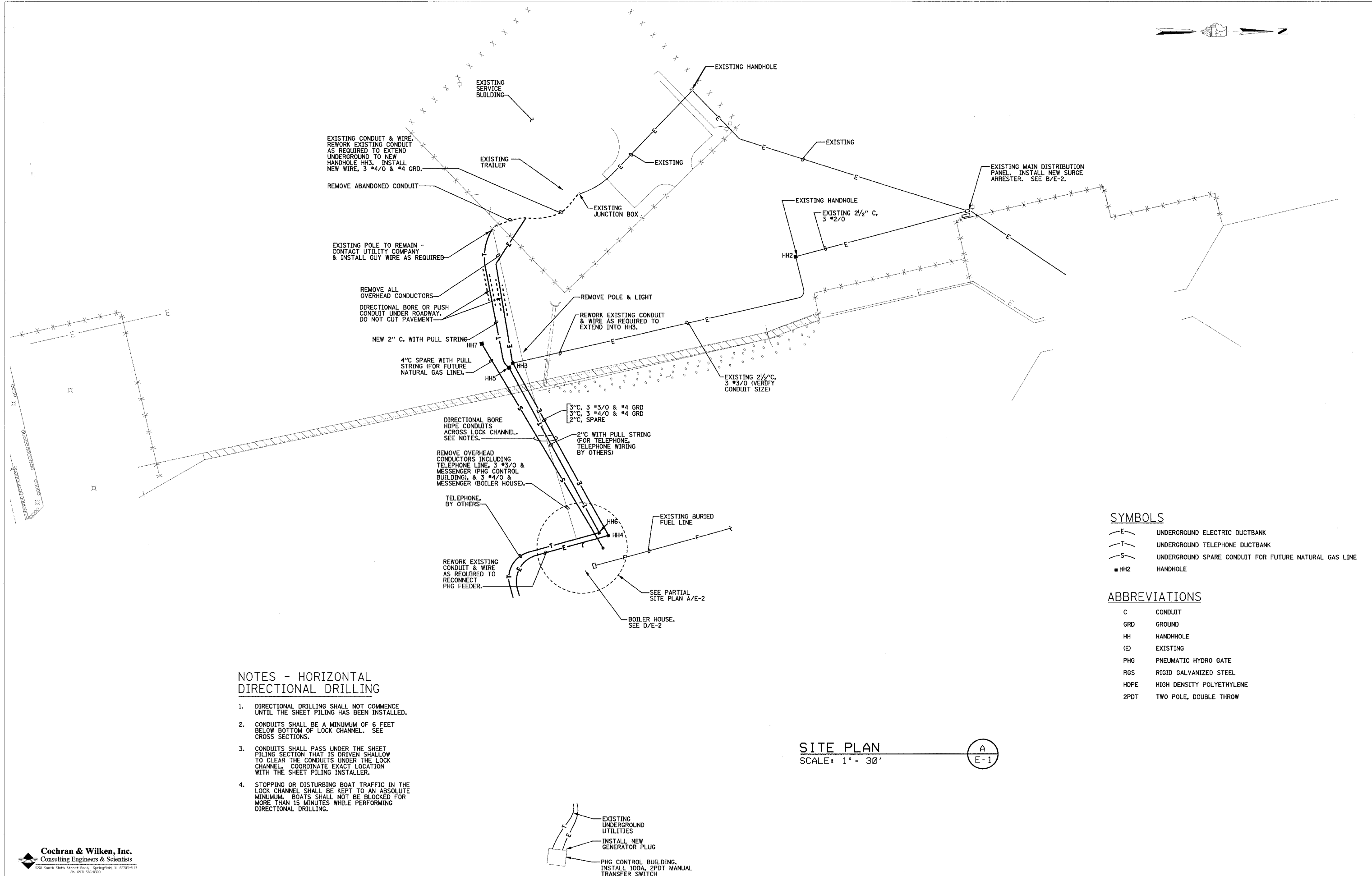


ANCHOR ROD DETAIL

DESIGN STRESSES

f'c = 3,500 p.s.i.
fy = 60,000 p.s.i.

Designed by T.M.M. Checked by J.J.F.
Drawn by J.J.F. Checked by T.M.M.



NOTES - HORIZONTAL DIRECTIONAL DRILLING

1. DIRECTIONAL DRILLING SHALL NOT COMMENCE UNTIL THE SHEET PILING HAS BEEN INSTALLED.
2. CONDUITS SHALL BE A MINIMUM OF 6 FEET BELOW BOTTOM OF LOCK CHANNEL. SEE CROSS SECTIONS.
3. CONDUITS SHALL PASS UNDER THE SHEET PILING SECTION THAT IS DRIVEN SHALLOW TO CLEAR THE CONDUITS UNDER THE LOCK CHANNEL. COORDINATE EXACT LOCATION WITH THE SHEET PILING INSTALLER.
4. STOPPING OR DISTURBING BOAT TRAFFIC IN THE LOCK CHANNEL SHALL BE KEPT TO AN ABSOLUTE MINIMUM. BOATS SHALL NOT BE BLOCKED FOR MORE THAN 15 MINUTES WHILE PERFORMING DIRECTIONAL DRILLING.

SYMBOLS

- E- UNDERGROUND ELECTRIC DUCTBANK
- T- UNDERGROUND TELEPHONE DUCTBANK
- S- UNDERGROUND SPARE CONDUIT FOR FUTURE NATURAL GAS LINE
- HH2 HANDHOLE

ABBREVIATIONS

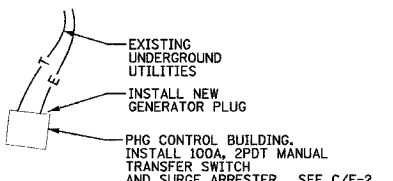
- C CONDUIT
- GRD GROUND
- HH HANDHOLE
- (E) EXISTING
- PHG PNEUMATIC HYDRO GATE
- RGS RIGID GALVANIZED STEEL
- HDPE HIGH DENSITY POLYETHYLENE
- 2PDT TWO POLE, DOUBLE THROW

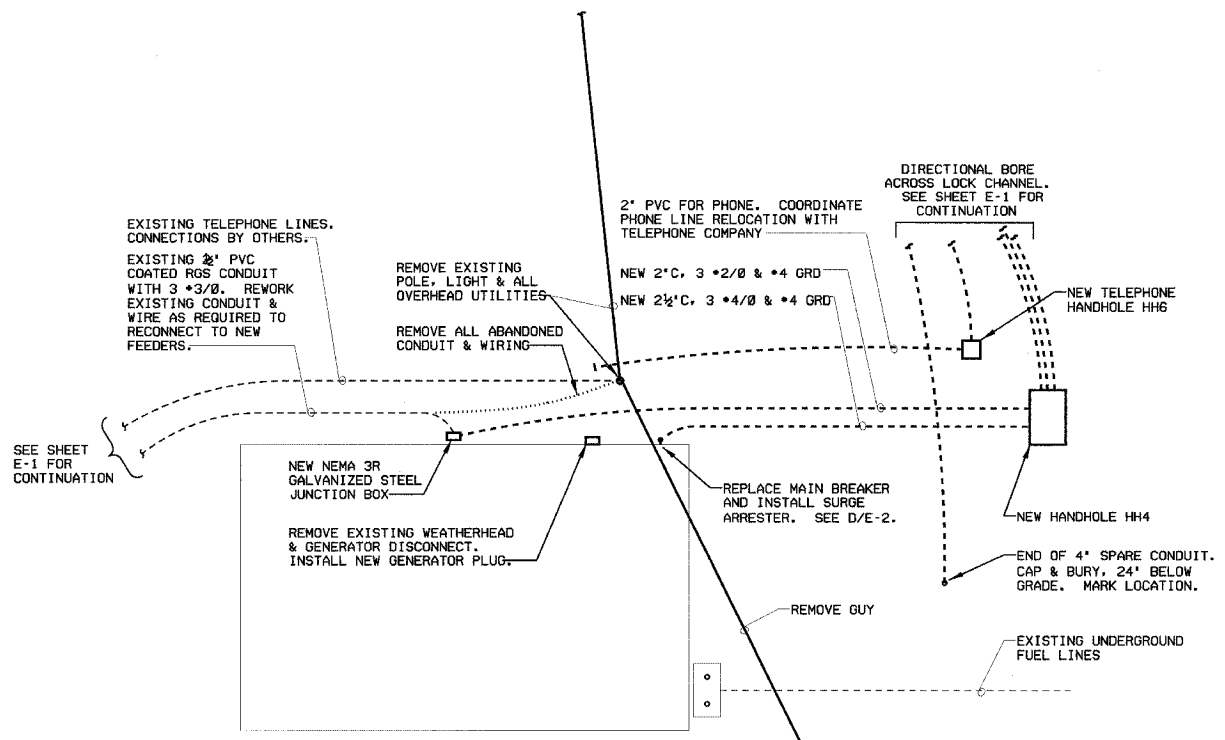
SITE PLAN
SCALE: 1" = 30'



DESIGNED BY RS CHECKED BY RS
DRAWN BY LT CHECKED BY RS

Cochran & Wilken, Inc.
Consulting Engineers & Scientists
5202 South Skelm Street Road, Springfield, IL 62703-5143
Ph. (217) 595-4300

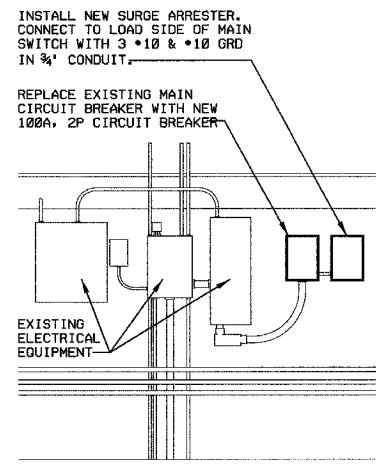




PARTIAL SITE PLAN - BOILER HOUSE

NOT TO SCALE

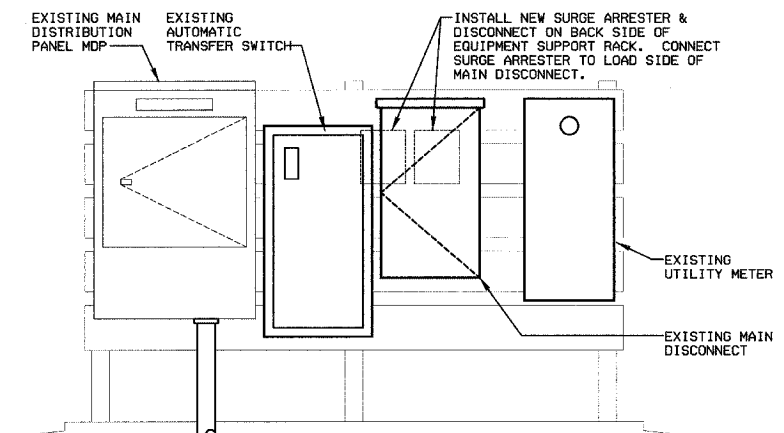
A
E-2



BOILER HOUSE - PANEL ELEVATION

NOT TO SCALE

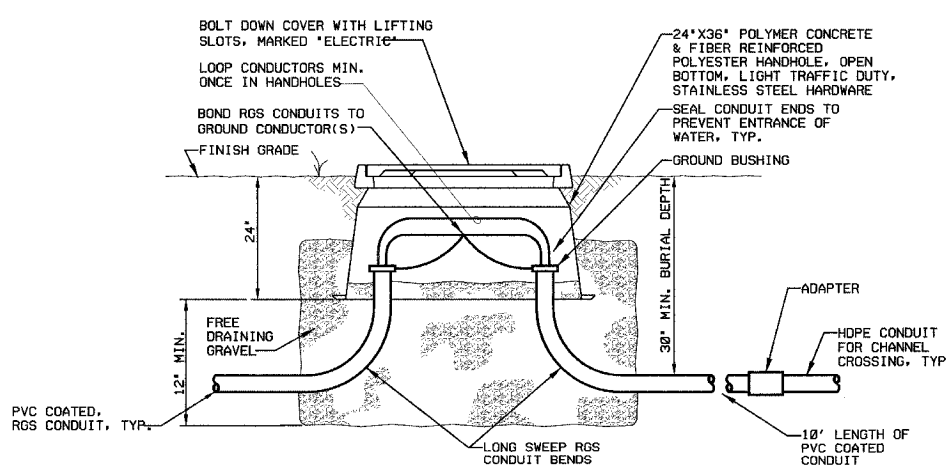
D
E-2



MAIN SERVICE - ELEVATIONS

NOT TO SCALE

B
E-2

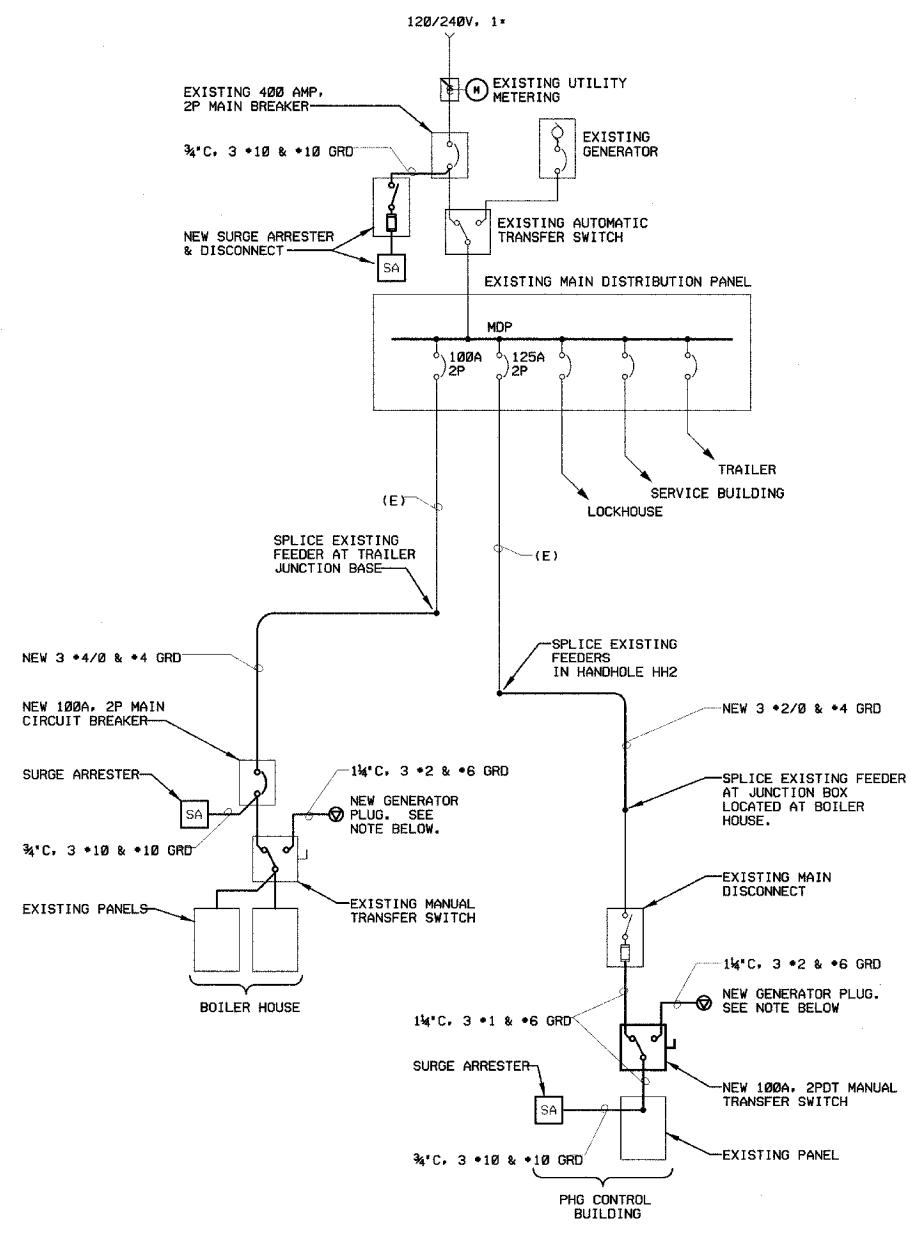


HANDHOLE DETAIL

NOT TO SCALE

E
E-2

1. TYPICAL FOR HANDHOLES HH 3 & 4. SIMILAR FOR HH 5, 6 & 7 EXCEPT MIN. SIZE SHALL BE 12"X12"X24" DEEP
2. SPLICES IN HANDHOLES SHALL BE KEPT TO A MINIMUM. ALL SPLICES IN HANDHOLES SHALL BE LISTED AS SUITABLE FOR WET LOCATIONS.

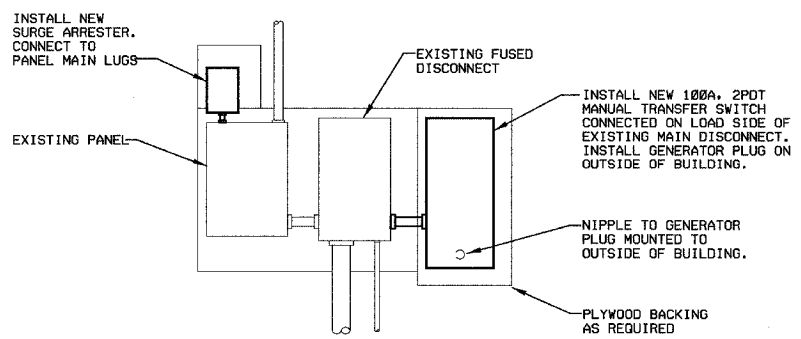


ONE LINE DIAGRAM

NOT TO SCALE

F
E-2

NOTE: NEW GENERATOR PLUGS SHALL BE 100 AMP, NON-FUSED, REVERSE SERVICE PIN AND SLEEVE OUTLET WITH MECHANICAL INTERLOCK. PROVIDE MATCHING PLUG FOR USE BY OWNER.



PHG CONTROL BUILDING - PANEL ELEVATION

NOT TO SCALE

C
E-2

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