

JEFFERSON COUNTY, TEXAS

2021 GLO CDBG-DR DRAINAGE IMPROVEMENTS PROJECT

DRAINAGE DITCH 110-B

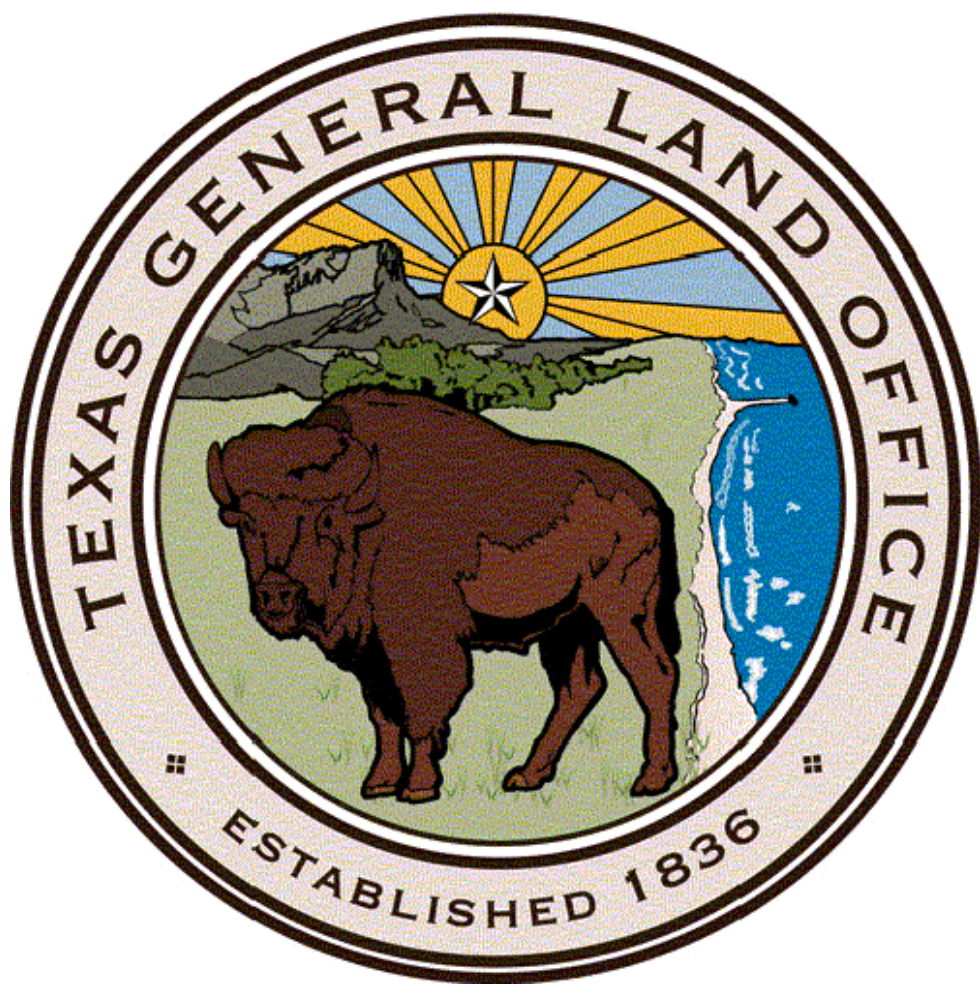
GLO CONTRACT NO. 20-065-121-C408

JEFFERSON COUNTY

COMMISSIONERS COURT

JEFF BRANICK – COUNTY JUDGE  
VERNON PIERCE – COMM. PCT. 1  
DARRELL BUSH – COMM. PCT. 2  
MICHAEL SINEGAL – COMM. PCT. 3  
EVERETTE "BO" ALFRED – COMM. PCT. 4

ENGINEER  
MICHELLE FALGOUT, P.E.



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WHITELEY  OLIVER  
ENGINEERING, LLC

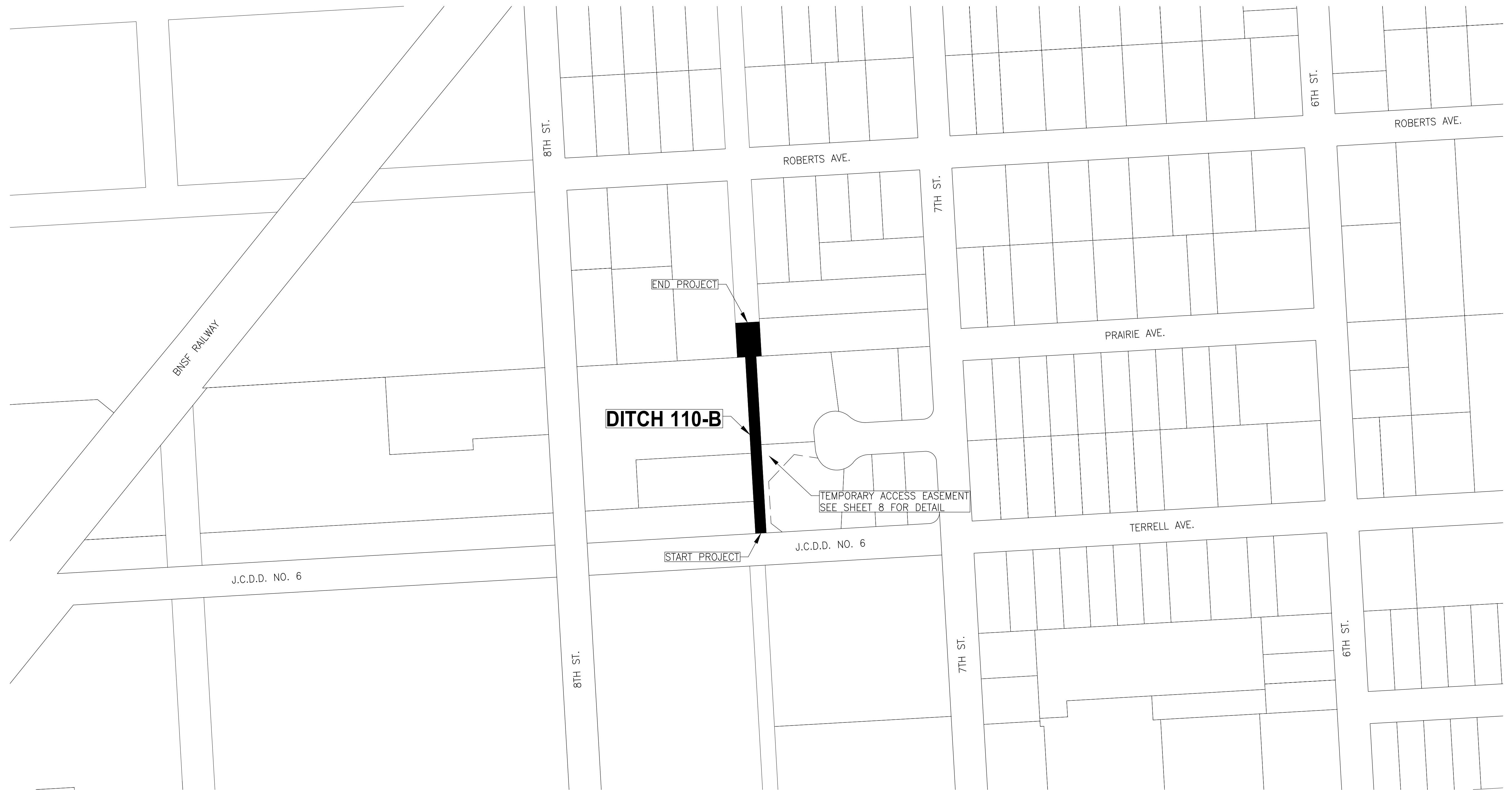
TEXAS ENGINEERING FIRM NO. F-22257  
4351 CROW ROAD, BEAUMONT, TEXAS 77706  
409-892-0421 | WHITELEYOLIVER.COM



JEFFERY D. LEAVINS, P.E.  
P.E. #111537

FEBRUARY 2022





2/10/2022

NO	REVISION	DRAWN	CHECK	DATE

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ENGINEERING, LLC**  
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Jefferson County			
DITCH 110-B IMPROVEMENTS			
LOCATION MAP			
DR BY: THC	CK BY: SAW/ZTR	APP BY: JDL	
DATE: JAN. 2022	SCALE: N.T.S.	SHEET NO:	2
JOB NO.	W:\2021\21-1742	REV.	0
21-1742_DWG DITCH 110-B CONSTRUCTION PLANS		21-1742_DWG DITCH 110-B CONSTRUCTION PLANS.DWG	

2.0 BID ITEM NOTES

Contractor's bid shall include all labor, material and equipment and overhead costs to perform work described in the plans and specifications. Any other work necessary for the intended work as described in the plans and specification not specifically detailed in the unit price description or in the plans and specifications shall be made subsidiary to the bid items provided. County shall award a contract for any bid in order to achieve the maximum benefit to the County within the allowable budget.

ITEM 100 – Preparing Right of Way  
Remove and dispose of all obstructions within the right of way that are not specifically shown in the plans. This will include obstructions within the temporary access easement.

ITEM 104 – Removing Concrete  
Remove and dispose of all concrete liner and riprap from the locations shown in the plans. The removed concrete will become the responsibility of the Contractor and will be disposed of offsite.

The right of way and easement for this project is limited. Work will be performed within the existing channel. Care shall be taken to not damage improvements outside of the easement and right of way. Repair of such damage will be the sole responsibility and cost of the Contractor.

ITEM 104 – Excavation  
Spoils will become the responsibility of the Contractor and may be used as embankment if they meet the requirements from Table 1 in Item 132 or shall be disposed of offsite.

ITEM 421 – Hydraulic Cement Concrete  
All miscellaneous concrete be Class A concrete

ITEM 432 – Riprap  
Concrete for riprap shall be Class A concrete

ITEM 462 – Concrete Box Culverts and Drains  
The right of way and easement for this project is limited. Work will be performed within the existing channel.

ITEM 502 – Barricades, Signs and Traffic Handling  
Traffic control shall be in accordance will all applicable provisions of the Texas Manual on Uniform Traffic Control Devices (TMUTCD) as required to provide adequate traffic handling in order to adhere to the detour plans.

ITEM 506 – Temporary Erosion, Sedimentation, and Environmental Controls  
Contractor shall install, maintain and remove erosion, sedimentation, and environmental control measures to prevent or reduce the discharge of pollutants in in accordance with the plans and the (TPDES) general permit TXR150000.

Final seeding will be subsidiary to this bid item. It will be the Contractor's responsibility to provide and install seed, fertilizer and water to re-establish vegetation in all disturbed areas. Sod will be accepted in leu of seeding.

Measurement and Payment  
All quantities presented in the Bid Form are in-place quantities. All quantities presented for payment shall be in-place measured quantities in the units provided in the Bid Form. Measurement for Payment shall be based on the limits of construction shown in the plans. Work performed outside those described limits will not be considered for payment unless authorized by the Engineer. Items not specifically listed in the bid form shall be considered subsidiary to other items of work.

3.0 GENERAL NOTES

3.1 Surveying

All elevations shown in the plans are referenced to a brass disk on north box culvert at the south end of the project as shown on the plans.

Existing monuments or property corners shall not be disturbed. The Contractor will replace and accurately relocate all reference points and construction stakes lost, destroyed, or moved solely at his expense.

Engineer shall establish and provide basic horizontal control on the site for the Contractor for reference purposes and for construction layout by the Contractor. The information will be provided ONE TIME at the beginning of the job. It will be the Contractor's responsibility to preserve the control points. Any damage to the control points will be replaced at his sole cost. Contractor shall provide all onsite general construction surveying for the construction of the project.

3.2 General Construction Notes

The right of way and easement for this project is limited. Contractor will be required to perform work within the existing drainage channel. Care shall be taken to not damage improvements outside of the easement and right of way. Repair of such damage will be the sole responsibility and cost of the Contractor. This includes fences, lawns and sidewalks as well as other miscellaneous items not mentioned herein.

Existing surface drainage shall not be impaired.

Access to the ditch will be limited. Matting or other items necessary to access the work area will not be paid for directly but will be subsidiary to various other bid items

Any permits or fees required by the City or any other entity shall be paid for by the Contractor.

References to manufacturer's trade name or catalog numbers are for the purpose of identification only. Similar materials from other manufacturers are permitted if they are of equal quality, comply with the specifications for this project, and are approved.

All materials and construction shall conform to County standards, except as noted herein and approved by the engineer.

Ingress and egress adjacent to the project shall be maintained by the Contractor at all times. The Contractor will be responsible for keeping mud and debris off existing public streets adjacent to the site.

Contractor shall keep one complete set of plans and specifications in good condition on the job site at all times.

Upon completion of all project improvements and inspections, and Owner acceptance of these improvements, the Contractor shall be required to furnish an Affidavit of Warranty to Owner for a one (1) year period on all work.

All areas disturbed by construction activity shall be restored to an equal or better condition at the expense of the Contractor.

All culverts shall be protected from damage during construction operations. Culverts damaged as a result of Contractor's negligence shall be replaced at Contractor's expense.

If required, Contractor shall furnish, erect, and maintain all barricades, warning signs, and markings for hazards necessary to protect the public and the work site. When used during periods of darkness, such barricades, warning signs and hazard markings shall be suitably illuminated. All traffic control devices and their placement shall be in accordance with the latest Texas Manual on Uniform Traffic Control Devices. No payment will be made for barricades, signs, and traffic handling, but it will be considered subsidiary to the various bid items.

Contractor shall pay for all required testing.

The Contractor shall allow City, County or Drainage District forces to enter this project to accomplish such work as shown in the plans and as may be deemed necessary by the engineer.

Any storm water permit and associated fees required for construction of this project shall be at the Contractor's expense. Also, any temporary erosion, sediment and water control measures required shall be in accordance with city and state standards.

All traffic control shall conform to the latest barricade and construction standard sheets issued by TxDot or the City and shall be approved by the engineer prior to construction operations.

3.3 Drainage

Contractor shall maintain adequate drainage throughout the project during all construction activities.

No permanent structures shall be constructed to control flow within the channel during construction. However, temporary dams such as earthen dams will be allowed for daily work within the following conditions:

Contractor shall be responsible for monitoring the weather and storm situations 24 hours a day, including weekends.

The Contractor shall remove the obstruction in advance of severe weather or as directed by the engineer.

Properly sized equipment shall remain on site for the immediate removal of said obstructions in the case of emergency or storm event.

Pumping or other alternatives methods to achieve continuous drainage shall not be paid for directly but will be subsidiary to various other bid items.

Contractor shall be responsible for the de-watering of the project site for the proper construction of all items of work. De-watering shall not be paid for directly but will be subsidiary to various other bid items

4.0 UTILITY COORDINATION

Utility locations shown on the plans are for informational purposes only and are not exact. The Engineer and the Owner assume no responsibility for variation in location and grades. Contractor shall verify location and elevation of existing facilities prior to construction of proposed facilities. Discrepancies between the two shall be immediately reported to the owner or engineer.

Contractor will be responsible for contacting all utility companies with existing facilities in the areas of construction 48 hours prior to construction in areas of possible underground utilities which may or not be shown on drawing. Contractor is responsible for making the Texas One Call and following all requirements set forth through that agency.

The Contractor shall be responsible for locating and protecting all utility lines during construction. The Contractor shall be responsible for any damage to existing utilities and shall promptly repair same or make arrangements for such repair with the Owner of the utility involved.

In all cases the Contractor shall inform and coordinate work with the owners of the various utilities sufficiently in advance of the Contractor's operation to enable such utility owners, in advance of any work which might damage, interfere with or require adjustments to utilities along or adjacent to the work, to reroute, provide temporary detours, or to make other adjustments to utilities in order that the Contractor may proceed with his work with a minimum amount of delay and expense.

The Contractor shall cooperate with all utility owners concerned in effecting any utility adjustments necessary and shall not hold the owner or Engineer liable for any expenses due to delay or additional work because of conflicts. The Contractor shall allow utility and/or pipeline companies to enter this project to accomplish such work as required for placement or protection of their services and as may be deemed necessary by the Engineer.

All utility adjustments shall be the responsibility of the Owners of the utilities and if, in the opinion of the Engineer, adjustment is required, the Contractor will be responsible for notifying the respective owner.

The Contractor shall be responsible for confirming the exact location of utility lines and of any others which may exist. It shall be the Contractor's responsibility to notify the utility involved in case of conflict or damage and the Contractor shall be held responsible for any damage that occurs. Where the Contractor encounters abandoned lines that interfere with the construction of this project, such lines shall be removed and disposed of by the Contractor. There will be no direct payment for this work and it shall be considered subsidiary to the various bid items in the contract.

Before excavating near existing utilities, contact the utility companies or the utility coordinating committee for exact locations to prevent damage or interference with present facilities. Notify the utility coordinating committee and the Texas One Call System at the following numbers:

Texas One Call, toll-free 1-800-245-4545

This action does not relieve the Contractor of the responsibilities under the terms of the contract or the plans and specifications. Damage caused by the Contractor's operations shall be repaired and restored to service in a timely manner at no expense to the County. Notify the Engineer at least 48 hours before constructing of storm drains and utilities.

If overhead or underground power lines need to be de-energized, contact the electrical service provider to perform this work. Costs associated with de-energizing the power lines or other protective measures required are at no expense to the County.

If working near power lines, comply with the appropriate sections of Texas State Law and Federal Regulations relating to the type of work involved.

Contractor shall be responsible for protecting all public utilities in the construction of this project. All manholes, clean-outs, valve boxes, fire hydrants, etc. must be adjusted to proper line and grade by the Contractor prior to and after the placing of permanent paving. Utilities must be maintained to proper line and grade during construction of the paving for this development.

Contractor shall protect all manhole covers, valve covers, vault lids, fire hydrants, power poles, guy wires, and telephone boxes that are to remain in place and undisturbed during construction.

5.0 WORK SCHEDULING

Contractor shall provide a written schedule describing the sequencing and routes of work.

Contractor shall notify Owner no later than 48 hours prior to the commencement of work.

Work shall be performed between the hours of 7:00 am and 6:00 pm Monday through Friday unless otherwise approved by the Owner.

Contractor shall schedule work in a manner that will cause minimum interference with traffic and to the general public.

6.0 SUBMITTALS

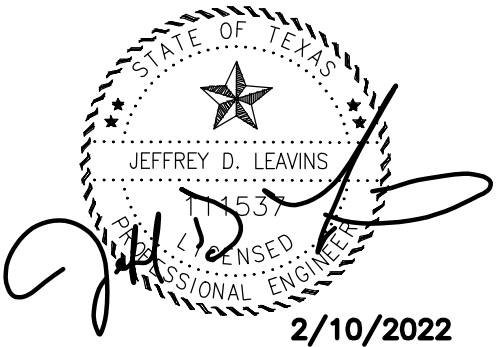
Bar type schedule showing estimated work times and written description of the general sequencing of project work including hauling and concrete delivery routes. Submit for review along with signed contracts.

Mix designs for all concrete to be utilized on project.

Record Drawings shall be submitted prior to the approval of final payment.

ESTIMATED QUANTITIES

DESCRIPTION	UNIT	QUANTITY
PREPARING RIGHT OF WAY	LF	411
EXCAVATION (CHANNEL)	CY	858
EMBANKMENT (CHANNEL)	CY	686
REMOVAL OF CONCRETE RIP RAP	SY	5
REMOVAL OF CONCRETE LINER	LF	411
BOX CULVERT (4'x6')	LF	400
TIE IN 18" CPP	EA	1
ARMORTEC ARMORFLEX 45S – CLOSED CELL BLOCK	SF	3,269
WOOD PRIVACY FENCE (6FT)	LF	356



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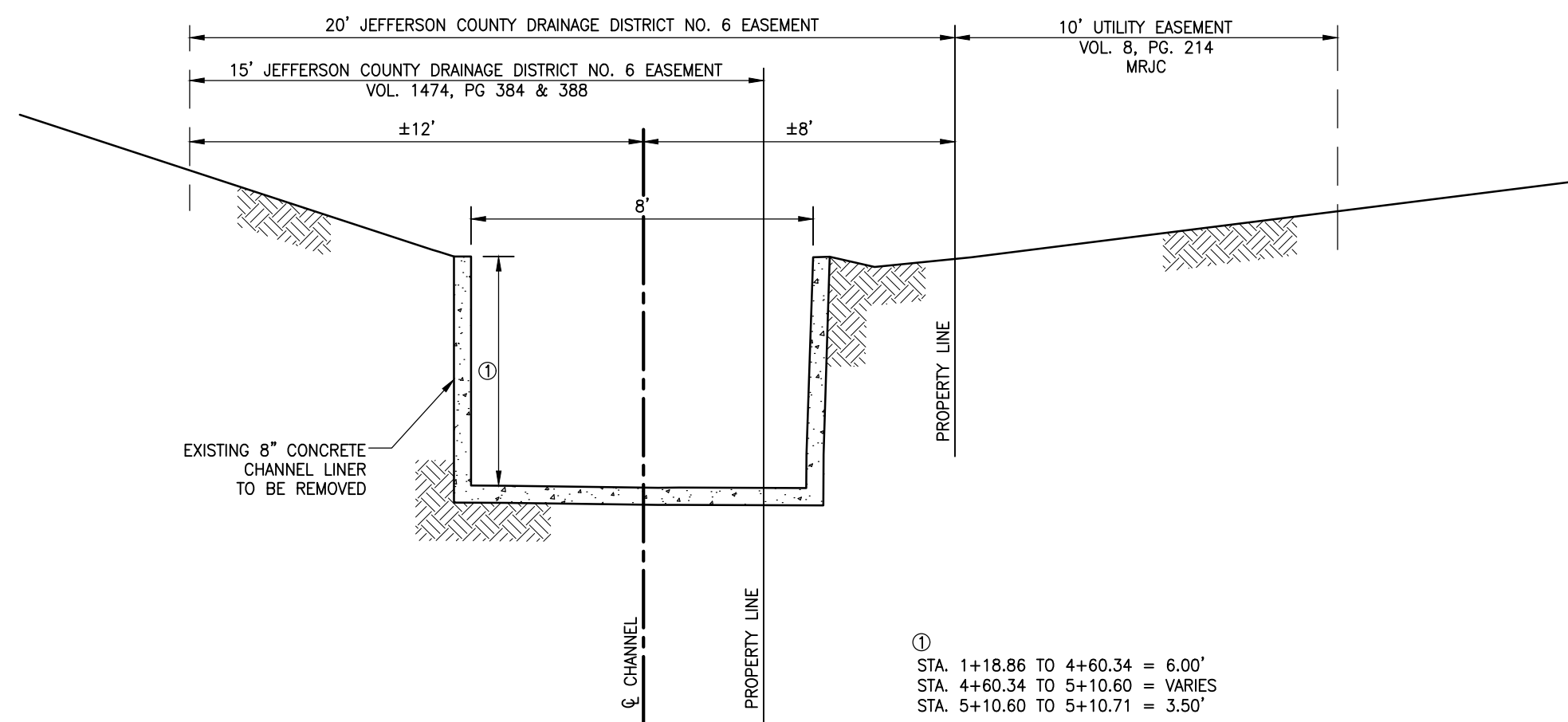
**Jefferson County**

**DITCH 110-B IMPROVEMENTS**

**GENERAL NOTES &  
ESTIMATED QUANTITIES**

DR BY: THC	CK BY: SAW/ZTR	APP BY: JDL
DATE: JAN. 2022	SCALE: N.T.S.	SHEET NO: 3
JOB NO.	W:\2021\21-1742	REV.
21-1742_DGS DITCH 110-B CONSTRUCTION PLANS	21-1742_DGS DITCH 110-B CONSTRUCTION PLANS.DWG	0

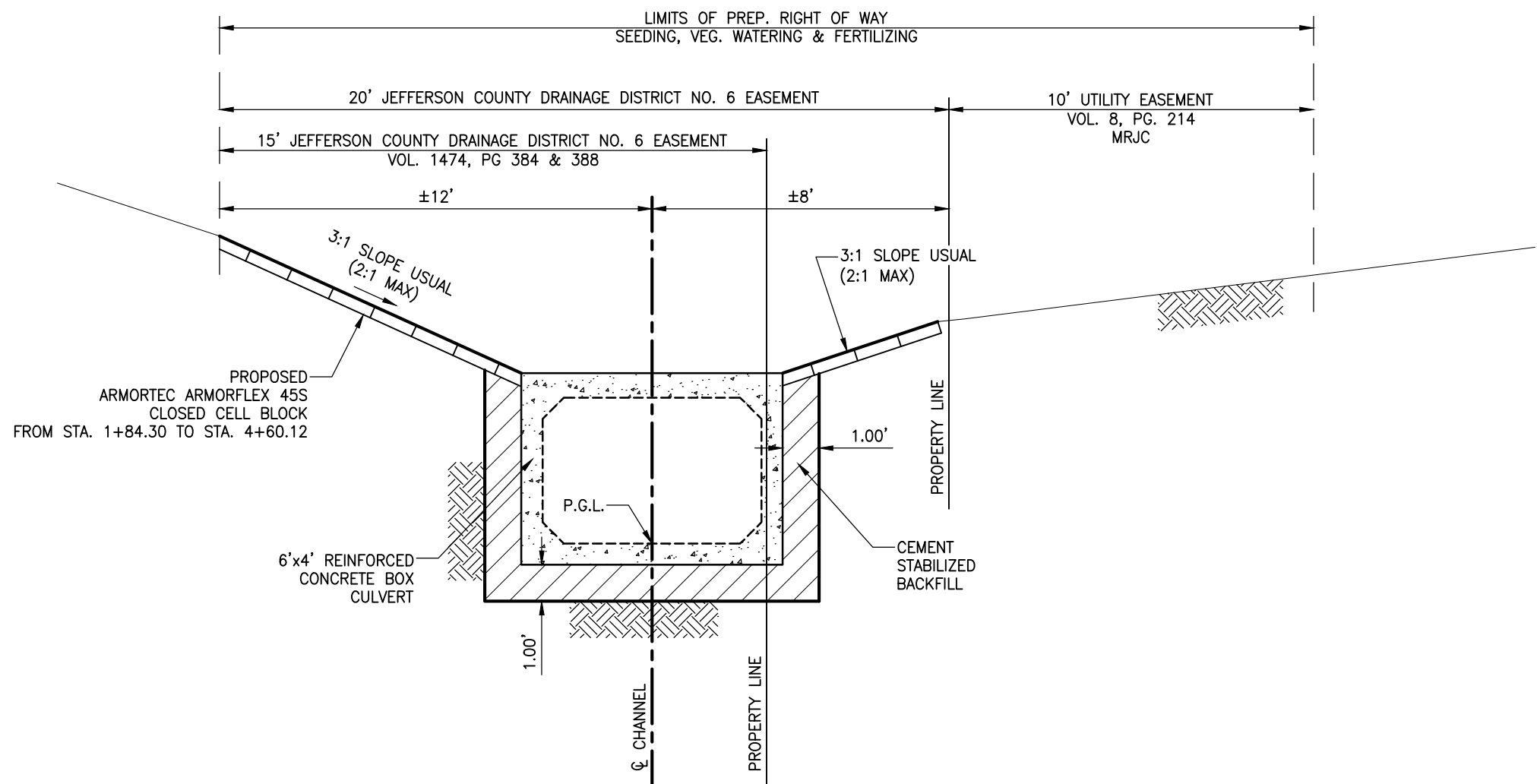




**DITCH 110B**  
**EXISTING TYPICAL DITCH SECTION**  
**STA. 1+00 TO STA. 5+10.71**

**EXISTING CHANNEL LINER ANALYSIS**  
**AT STA. 5+10.83**

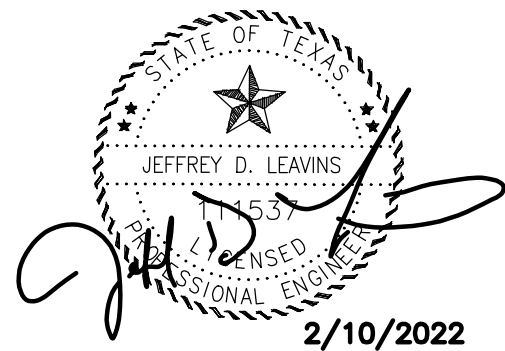
BOTTOM WIDTH:	8.00 FT.
TOTAL DEPTH:	3.50 FT.
INVERT ELEV.:	6.50 FT.
CHANNEL SLOPE:	0.20%
MANNING'S N:	0.012
FULL DEPTH CAPACITY:	235.13 CFS
FLOW AREA:	28.00 FT <sup>2</sup>
WETTED PERIMETER:	15.00 FT.
VELOCITY:	8.40 FT/SEC



**DITCH 110B**  
**PROPOSED TYPICAL DITCH SECTION**  
**STA. 1+00 TO STA. 5+10.71**

**PROPOSED 6'X4' R.C. BOX CULVERT**  
**ANALYSIS**

SPAN:	6 FT.
RISE:	4 FT.
INVERT ELEV.:	3.50 FT.
PIPE SLOPE:	0.35%
MANNING'S N:	0.012
FULL DEPTH CAPACITY:	240.35 CFS
FLOW AREA:	23.20 FT <sup>2</sup>
WETTED PERIMETER:	13.80 FT.
VELOCITY:	10.36 FT/SEC



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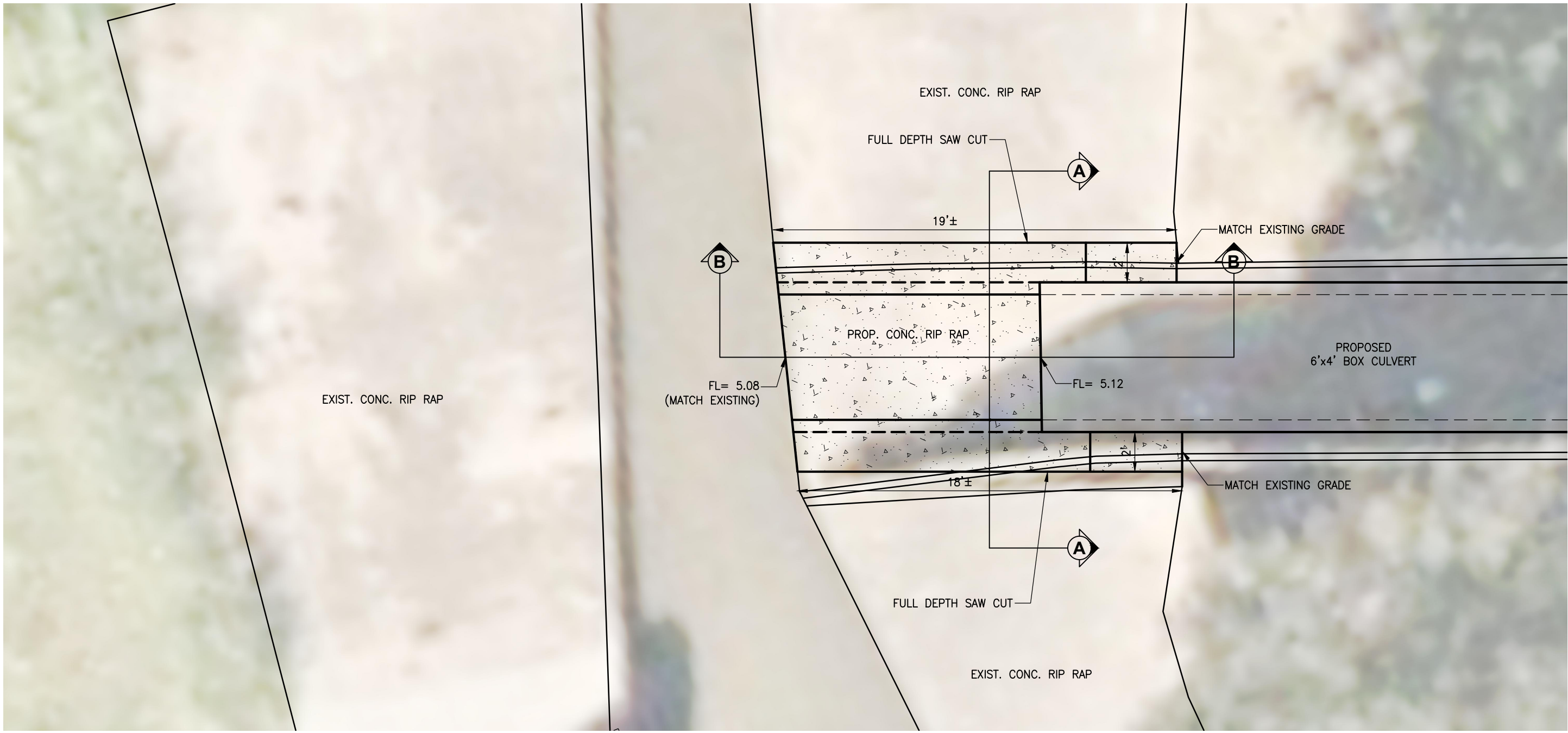
**DITCH 110-B IMPROVEMENTS**  
**TYPICAL SECTIONS**

DR BY: THC	CK BY: SAW/ZTR	APP BY: JDL
DATE: JAN. 2022	SCALE: N.T.S.	SHEET NO: 4
JOB NO.	W-2021-21-1742	REV.
21-1742_DGS DITCH 110-B CONSTRUCTION PLANS	21-1742_DGS DITCH 110-B CONSTRUCTION PLANS.DWG	0

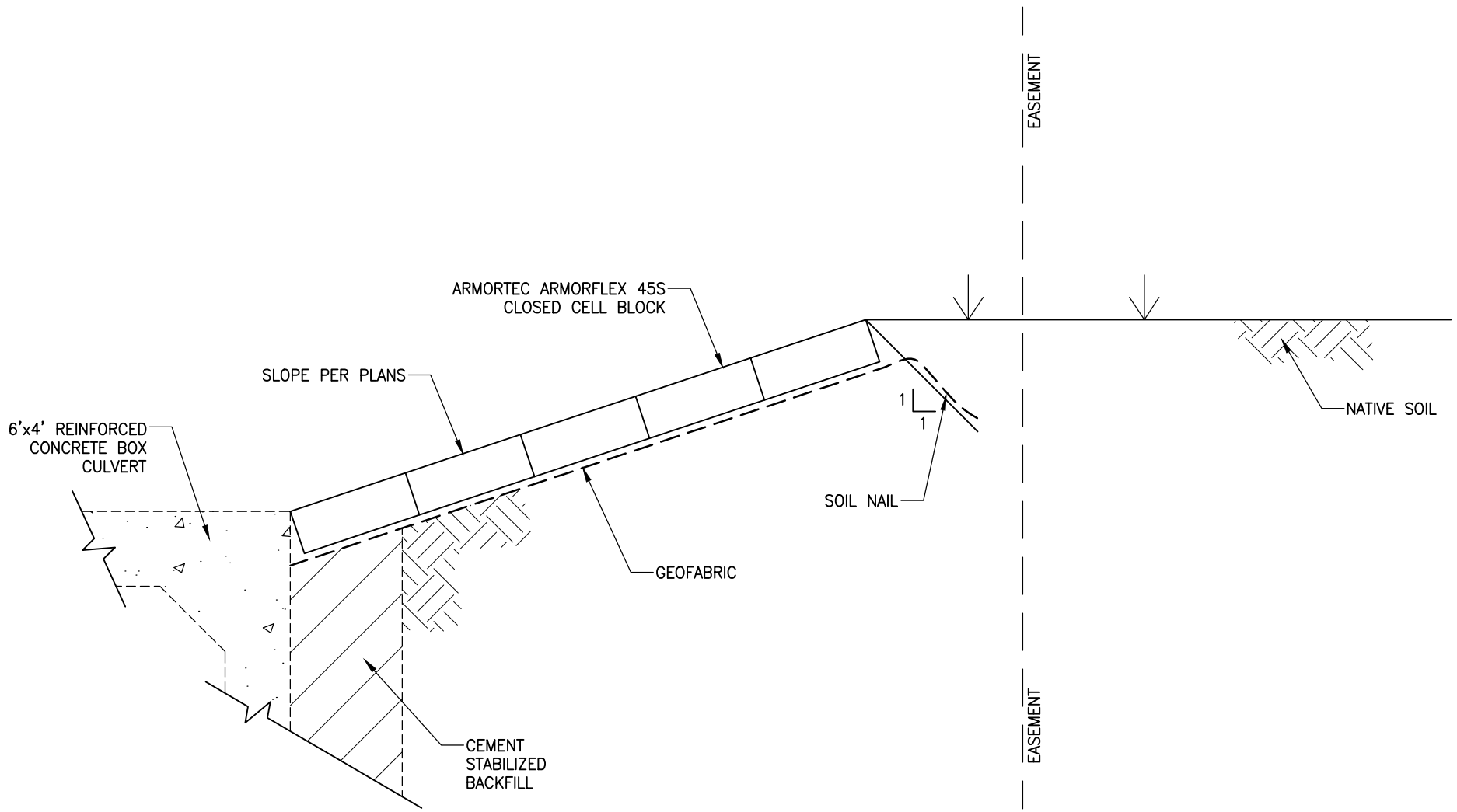




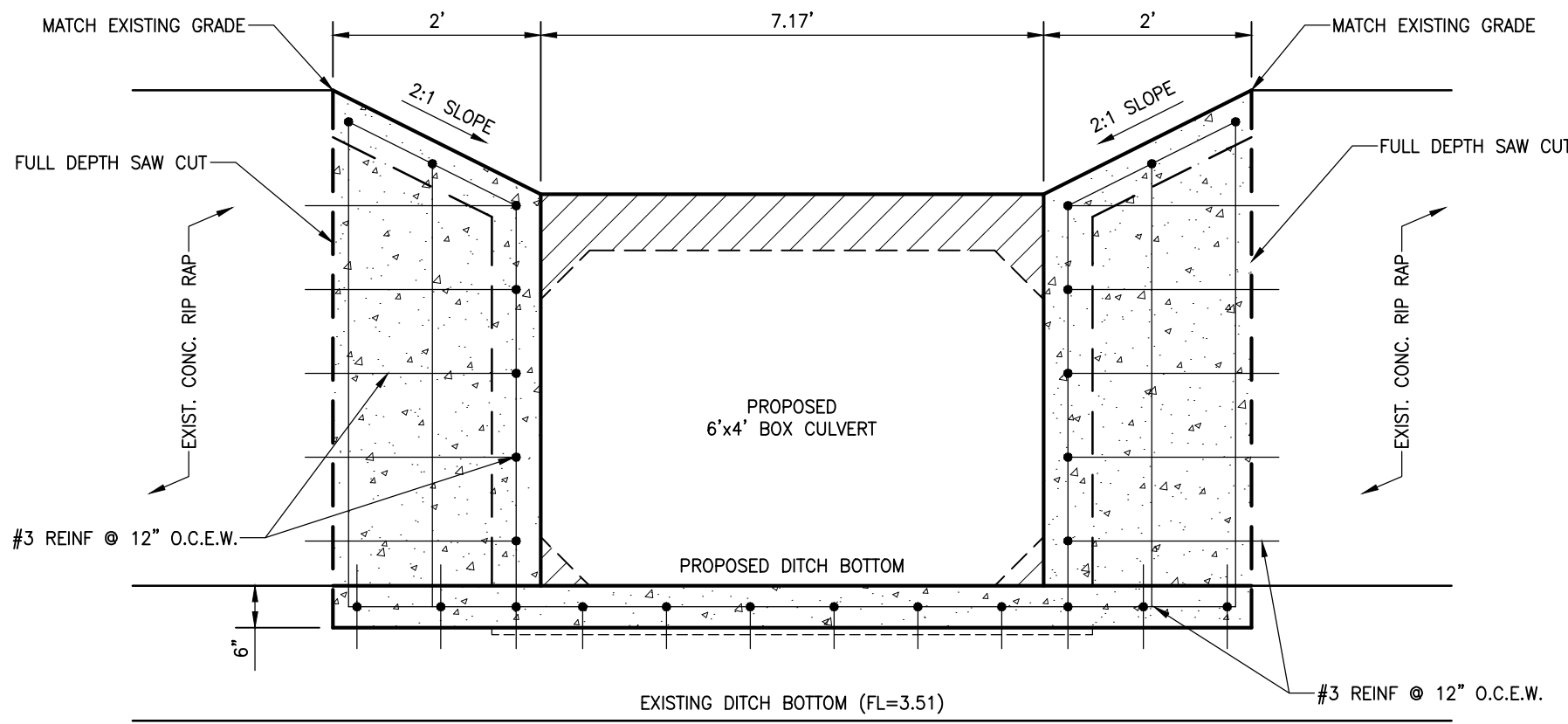




DITCH 110-B DETAIL  
SCALE 1"=5'

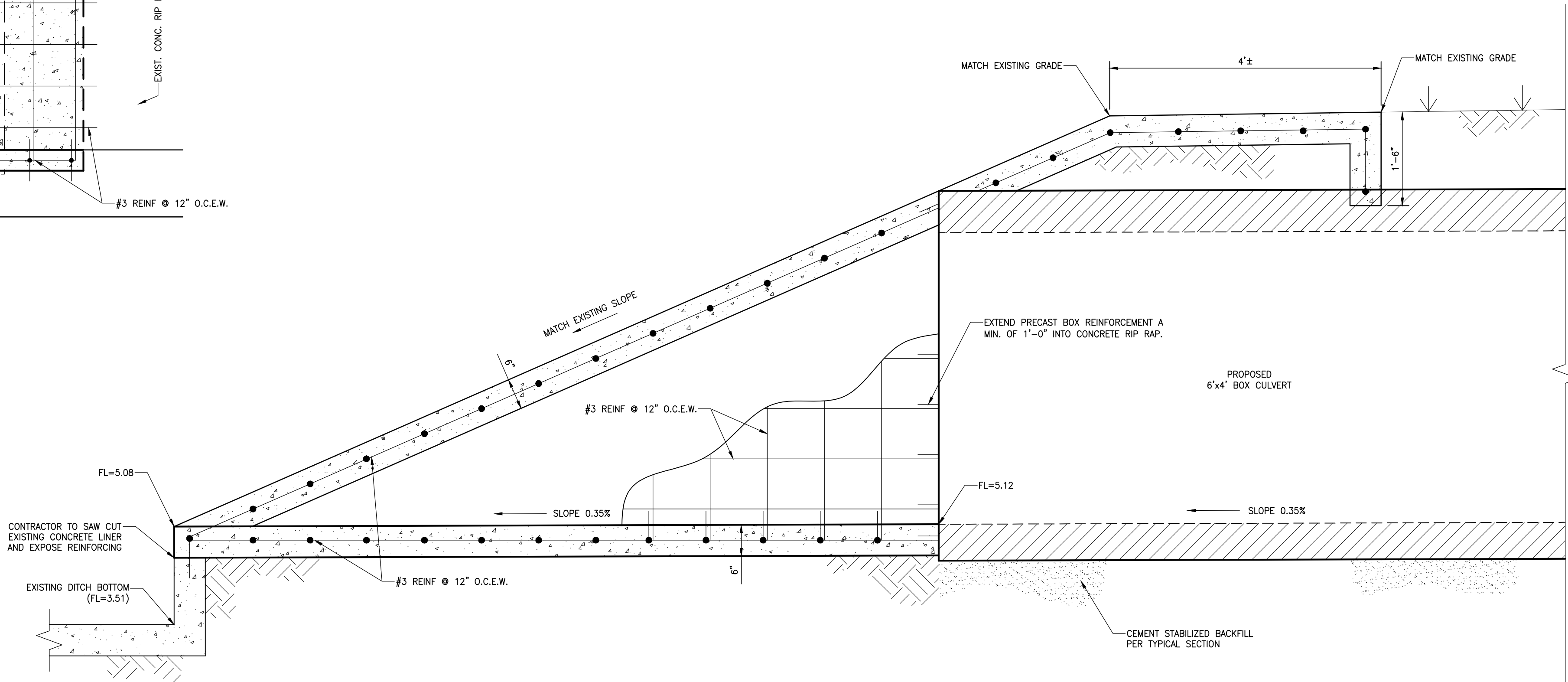


ARTICULATED MAT DETAIL  
NTS

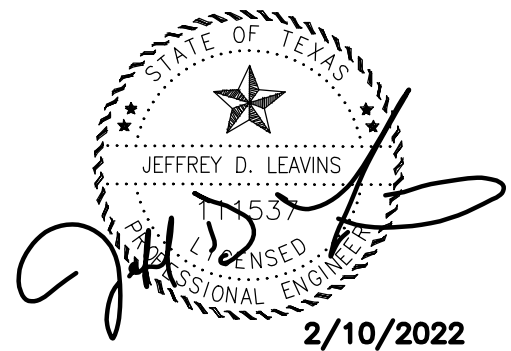


SECTION "A-A"  
NTS

NOTE:  
IF CONTRACTOR NOT ABLE TO PRESERVE EXISTING REINFORCING,  
CONTRACTOR MAY DRILL AND EPOXY TIE-IN BARS, DRILL AND DOWEL  
1/2" HOLE 9" DEEP AND PLACE #3 18" SMOOTH BAR 12" C-C  
EPOXY GROUTED IN.



SECTION "B-B"  
NTS



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**DITCH 110-B IMPROVEMENTS**  
**MISCELLANEOUS DETAILS**

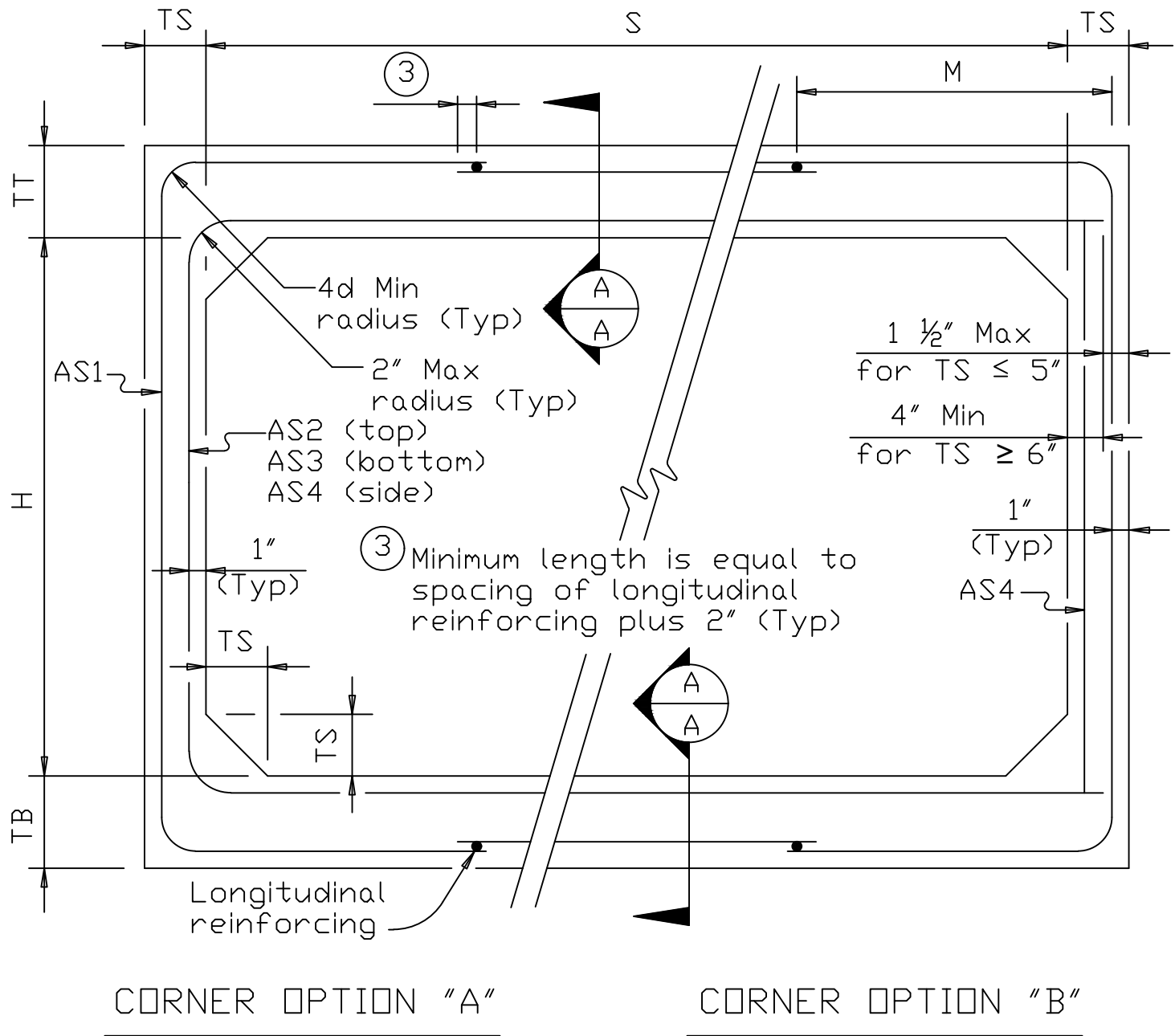
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DATE: JAN. 2022	SCALE: N.T.S.	SHEET NO: 6
JOB NO.	W-2021\21-1742	REV.
21-1742_DGS DITCH 110-B CONSTRUCTION PLANS	21-1742_DGS DITCH 110-B CONSTRUCTION PLANS.DWG	O

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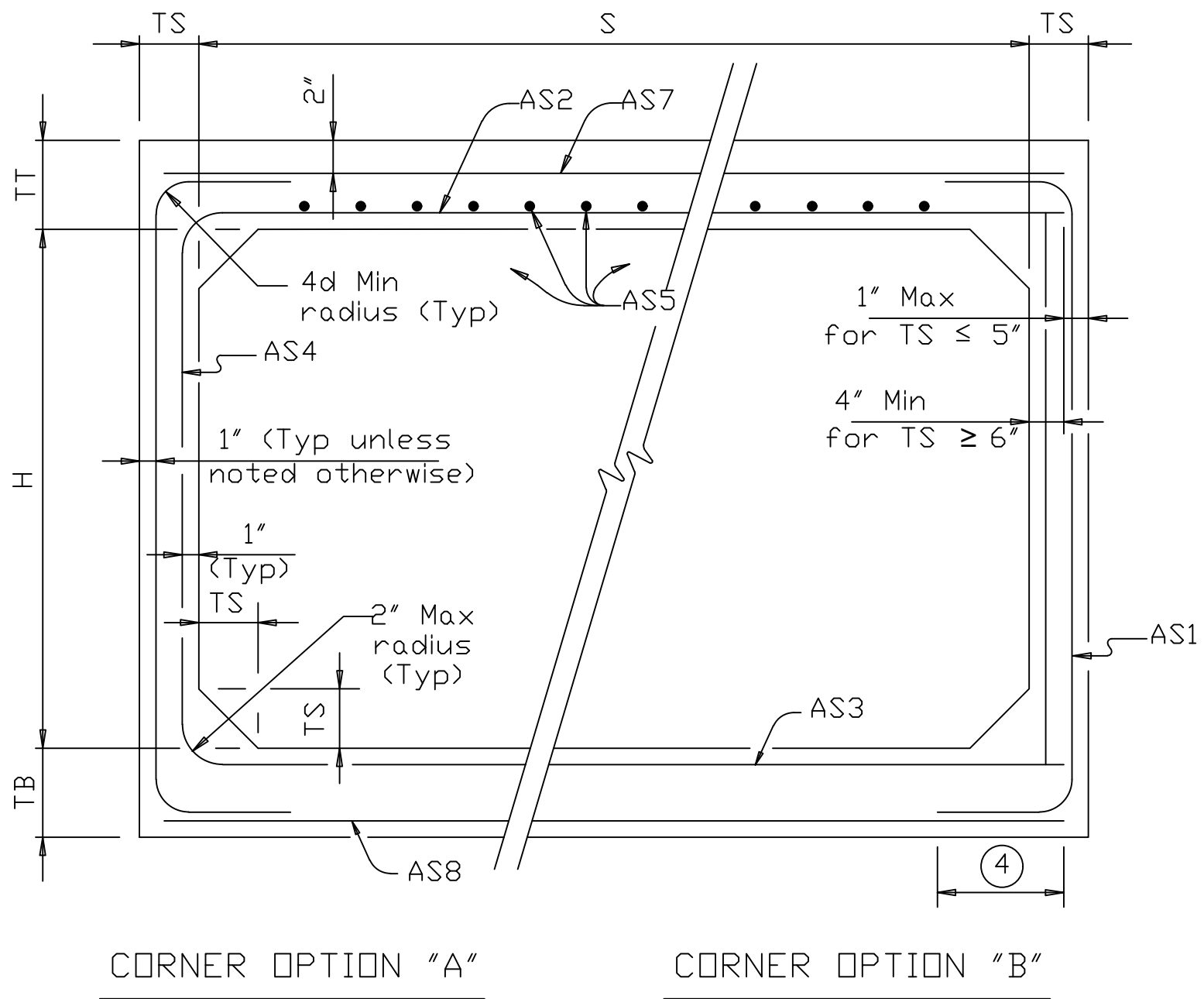
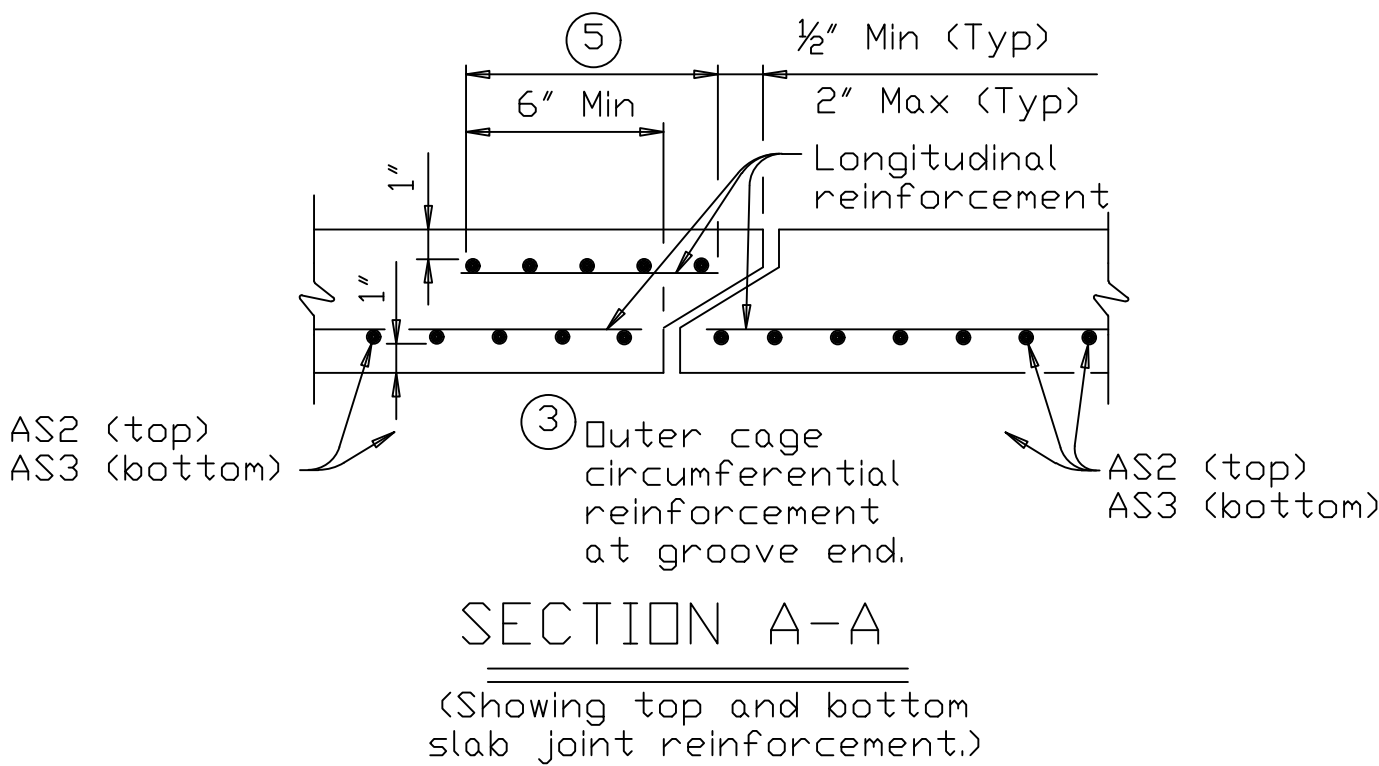
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BOX DATA														
SECTION DIMENSIONS					Fill Height (ft.)	M (Min) (in.)	REINFORCING (sq. in. / ft.) <sup>②</sup>							① Lift Weight (tons)
S (ft.)	H (ft.)	TT (in.)	TB (in.)	TS (in.)			AS1	AS2	AS3	AS4	AS5	AS7	AS8	
6	2	8	7	7	< 2	–	0.23	0.27	0.19	0.17	0.19	0.19	0.17	7.2
6	2	7	7	7	2 < 3	43	0.25	0.21	0.17	0.17	–	–	–	6.8
6	2	7	7	7	3 – 5	43	0.20	0.17	0.17	0.17	–	–	–	6.8
6	2	7	7	7	10	39	0.20	0.17	0.17	0.17	–	–	–	6.8
6	2	7	7	7	15	39	0.26	0.20	0.20	0.17	–	–	–	6.8
6	2	7	7	7	20	39	0.34	0.26	0.26	0.17	–	–	–	6.8
6	2	7	7	7	25	39	0.43	0.32	0.32	0.17	–	–	–	6.8
6	2	7	7	7	30	39	0.52	0.38	0.39	0.17	–	–	–	6.8
6	3	8	7	7	< 2	–	0.20	0.31	0.22	0.17	0.19	0.19	0.17	7.9
6	3	7	7	7	2 < 3	43	0.21	0.24	0.19	0.17	–	–	–	7.5
6	3	7	7	7	3 – 5	39	0.17	0.18	0.17	0.17	–	–	–	7.5
6	3	7	7	7	10	39	0.17	0.18	0.19	0.17	–	–	–	7.5
6	3	7	7	7	15	38	0.22	0.24	0.24	0.17	–	–	–	7.5
6	3	7	7	7	20	38	0.28	0.31	0.31	0.17	–	–	–	7.5
6	3	7	7	7	25	38	0.35	0.38	0.39	0.17	–	–	–	7.5
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6	4	7	7	7	2 < 3	43	0.19	0.27	0.21	0.17	–	–	–	8.2
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6	4	7	7	7	20	38	0.24	0.34	0.35	0.17	–	–	–	8.2
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6	6	7	7	7	20	39	0.18	0.38	0.39	0.17	–	–	–	9.6
6	6	7	7	7	25	38	0.23	0.46	0.48	0.17	–	–	–	9.6
6	6	7	7	7	30	38	0.27	0.55	0.57	0.17	–	–	–	9.6

- ① For box length = 8'-0"
- ② AS1 thru AS4, AS7 and AS8 are minimum required areas of reinforcement per linear foot of box length. AS5 is minimum required area of reinforcement per linear foot of box width.



### FILL HEIGHT 2 FT AND GREATER



### FILL HEIGHT LESS THAN 2 FT

- ④ Length is equal to spacing of longitudinal reinforcing plus 2". (10" Min) (Typ)

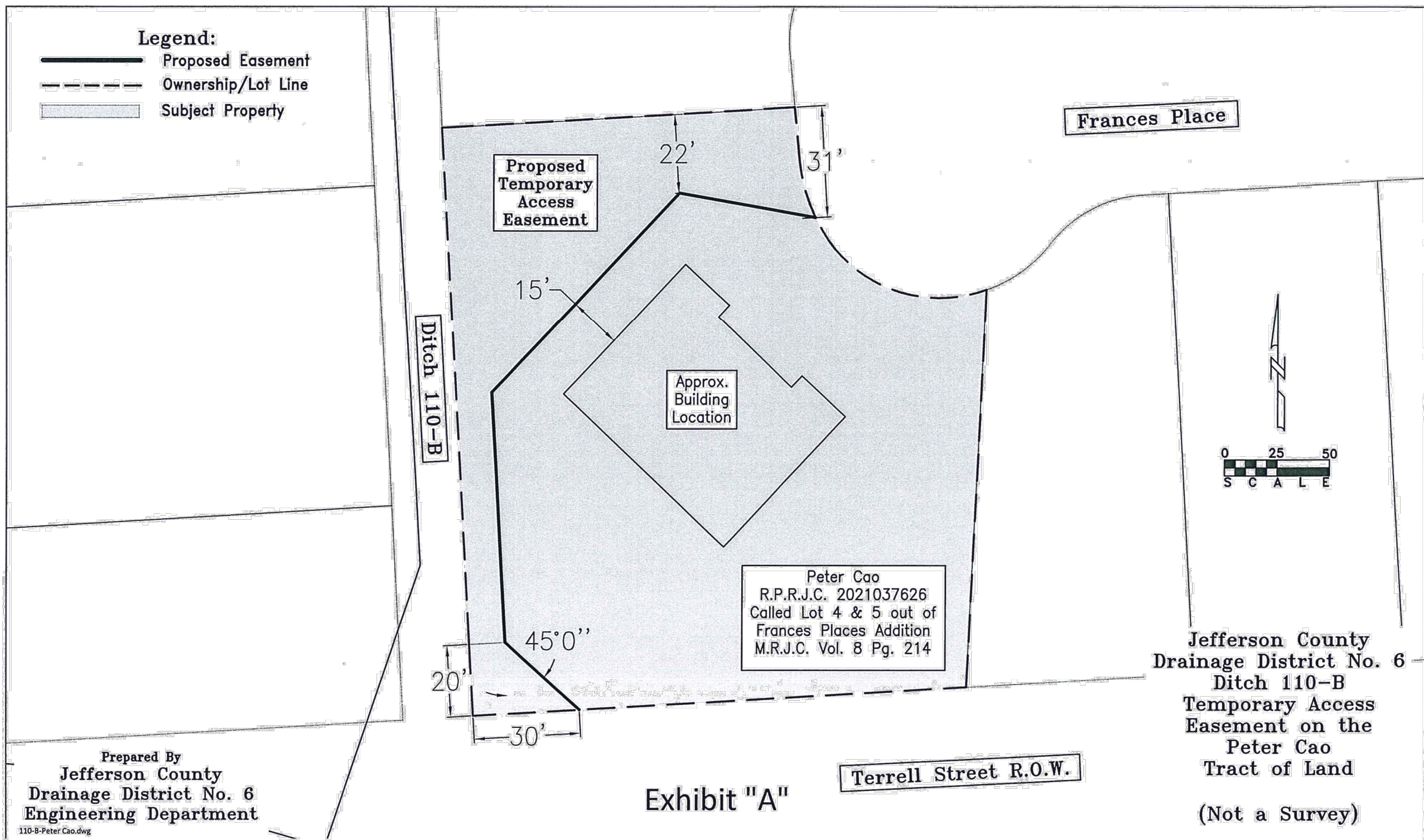
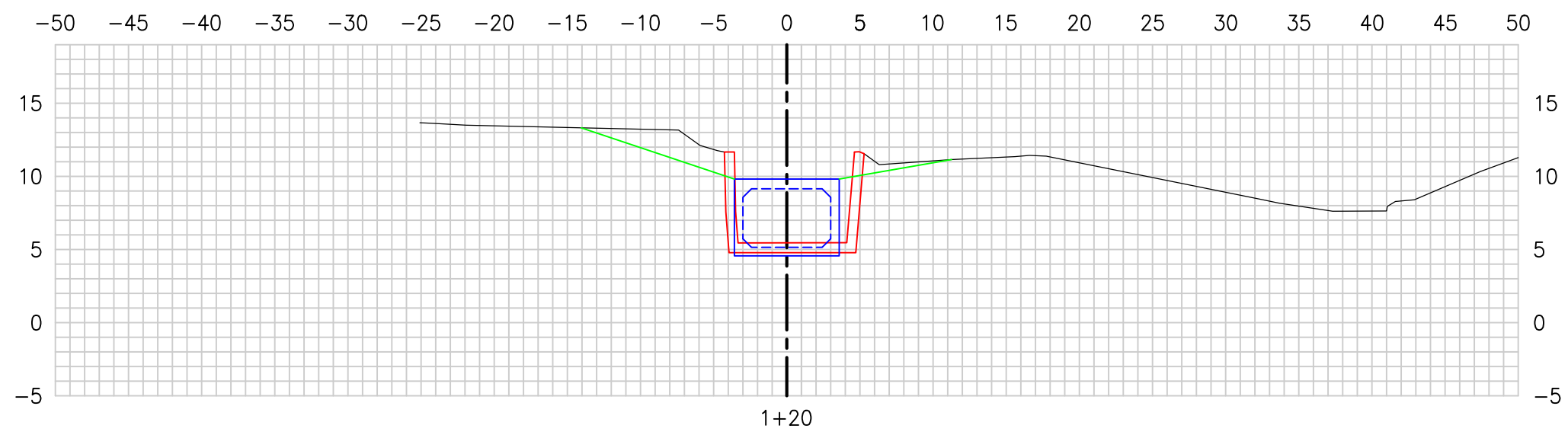
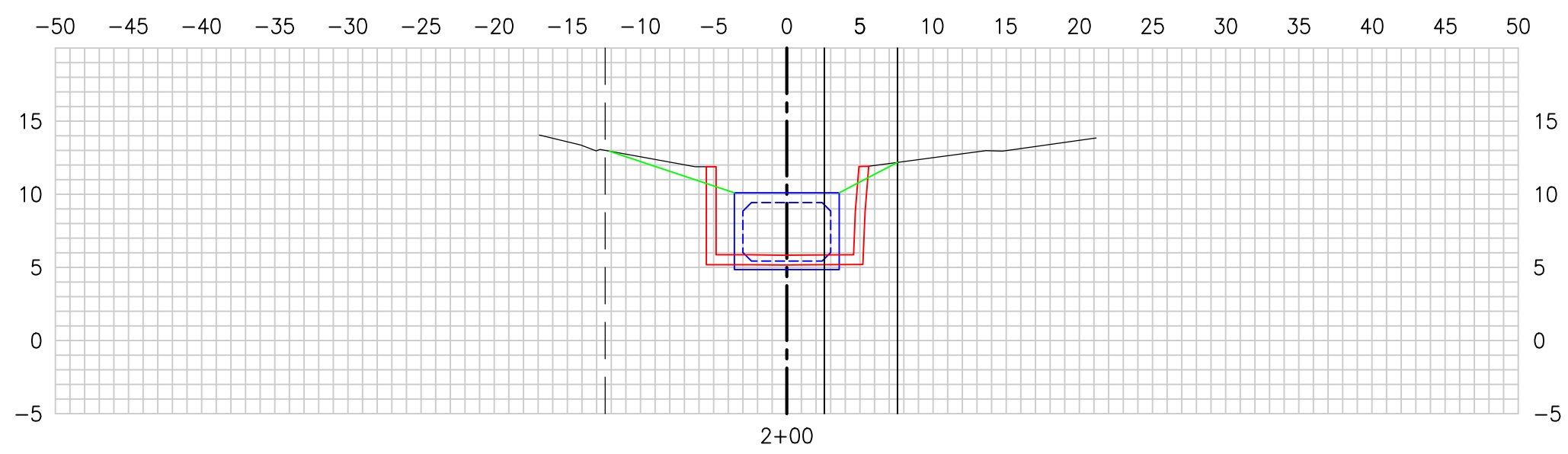
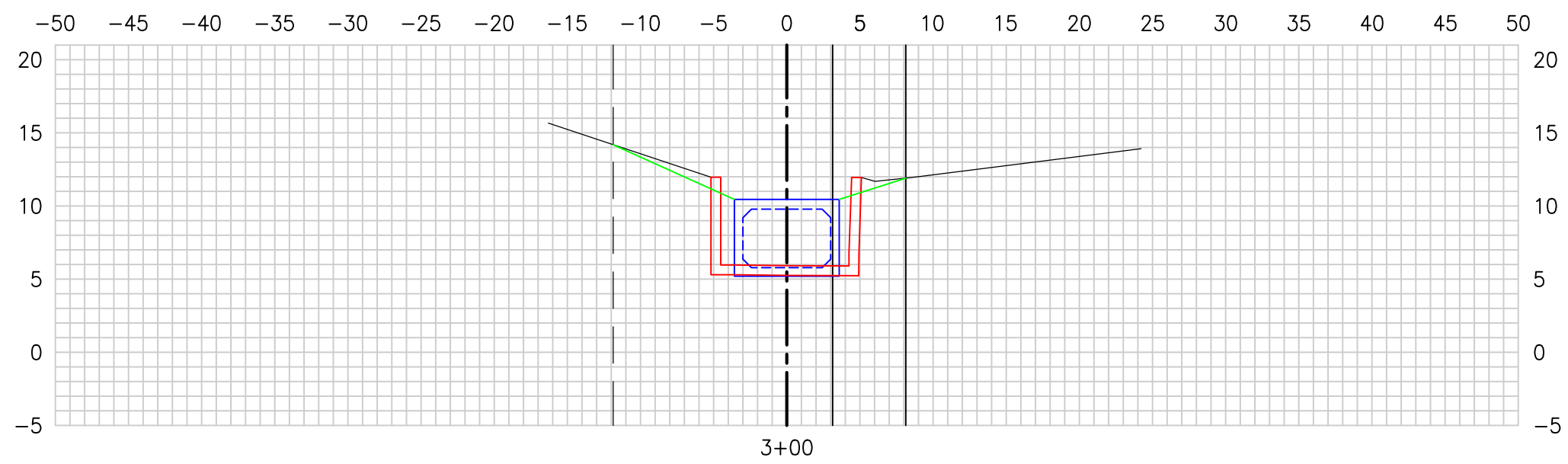
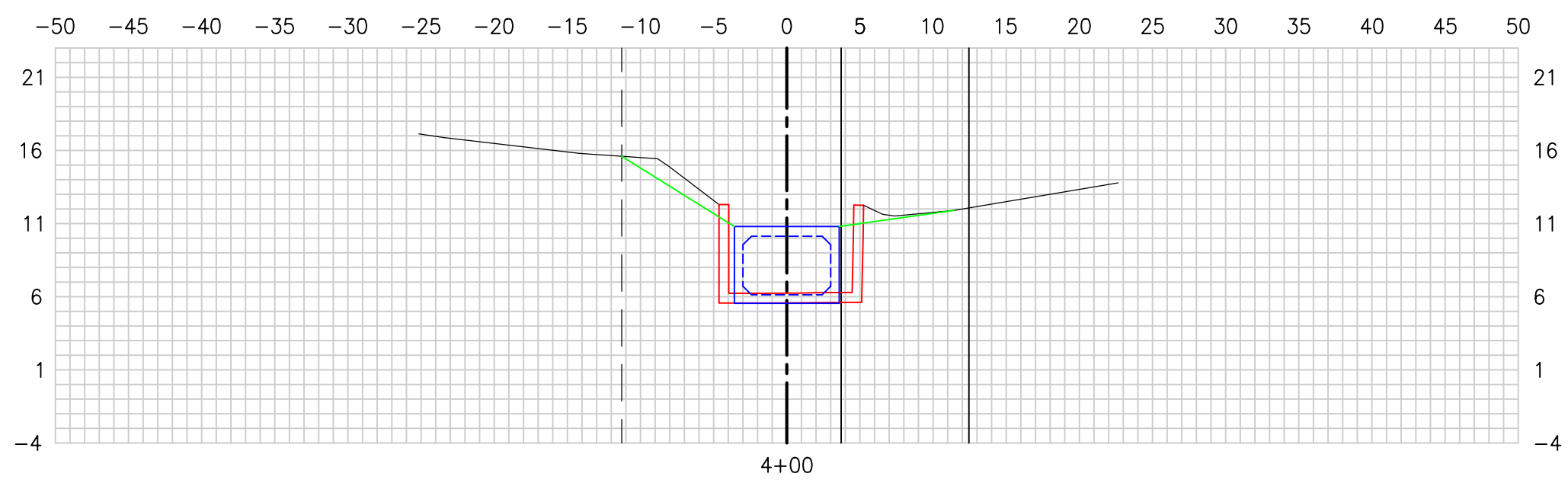
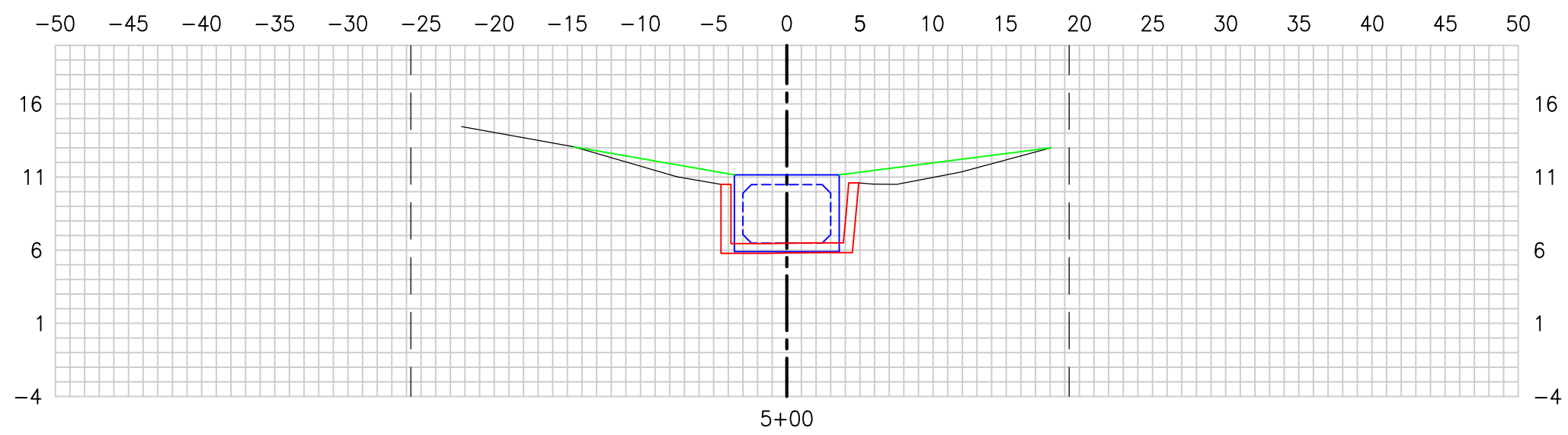
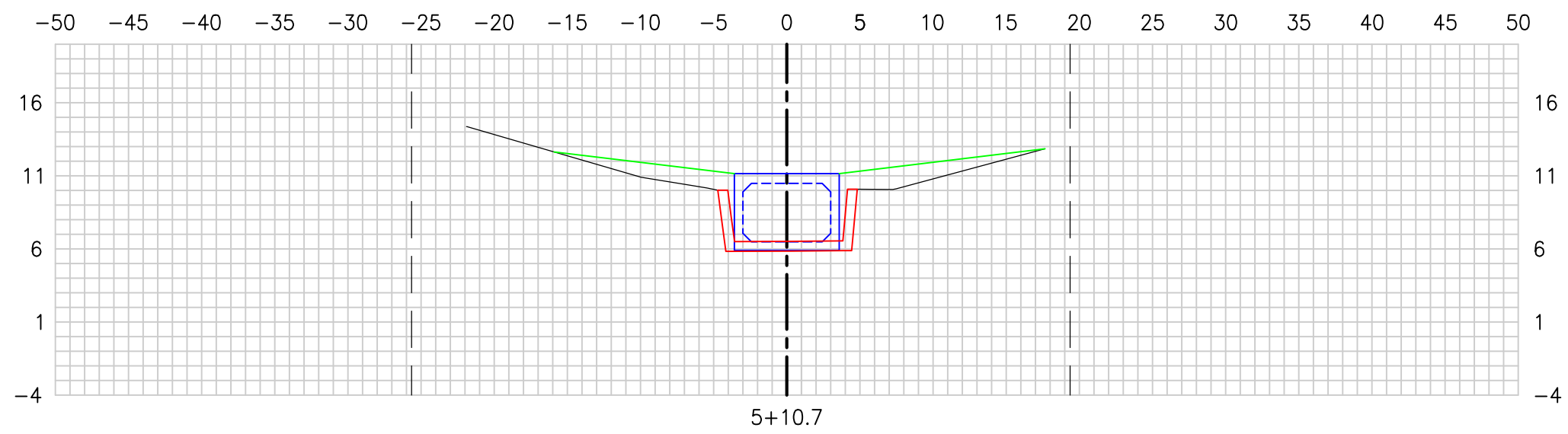
**MATERIAL NOTES:**  
Provide 0.03 sq. in./ft. minimum longitudinal reinforcement at each face in slabs and walls. This minimum requirement may be met by the transverse wires when wire mesh reinforcement is used.  
Provide Class H concrete (f'c = 5,000 psi).

**GENERAL NOTES:**  
Designs shown conform to ASTM C1577. Refer to ASTM C1577 for information or details not shown.  
See Box Culverts Precast Miscellaneous Details (SCP-MD) standard sheet for details and notes not shown.  
In lieu of furnishing the designs shown on this sheet, the contractor may furnish an alternate design that is equal to or exceeds the box design for the design fill height in the table. Submit shop plans for alternate designs in accordance with Item "Precast Concrete Structural Members (Fabrication)".

HL93 LOADING

				Bridge Division Standard	
SINGLE BOX CULVERTS PRECAST 6'-0" SPAN					
SCP-6					
FILE: scp06sts-20.dgn	DN: TxDOT	CK: TxDOT	BW: TxDOT	CK: TxDOT	
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY	
REVISIONS					
		DIST	COUNTY	SHEET NO.	
				7	





**LEGEND**  
— NATURAL GROUND  
— EXISTING CONCRETE LINER  
— PROPOSED BOX CULVERT

STATE OF TEXAS  
JEFFREY D. LEAVINS  
LICENSED PROFESSIONAL ENGINEER  
2/10/2022

**WHITELEY OLIVER ENGINEERING, LLC**  
TEXAS ENGINEERING FIRM NO. F-22257  
4351 CROW ROAD, BEAUMONT, TEXAS 77706  
409-892-0421 WHITELEYOLIVER.COM

**Jefferson County**

**DITCH 110-B IMPROVEMENTS  
CROSS SECTIONS**

DR BY: THC	CK BY: SAW/ZTR	APP BY: JDL
DATE: JAN. 2022	SCALE: N.T.S.	SHEET NO: 8
JOB NO.	W-2021-21-1742	REV.
21-1742_DGS DITCH 110-B CONSTRUCTION PLANS	21-1742_DGS DITCH 110-B CONSTRUCTION PLANS.DWG	O