

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	STP 2022(882)HES		1
STATE	STATE DIST.	COUNTY	
TEXAS	SAT	FRIO	
CONT.	SECT.	JOB	HIGHWAY NO.
0017	06	091	IH 35

INDEX OF SHEETS
SEE SHEET 2 FOR INDEX OF SHEETS

STATE OF TEXAS DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT
PROJECT NO. STP 2022(882)HES
CSJ: 0017-06-091

FRIO COUNTY IH 35

LIMITS FROM: US 57
TO: FRIO/MEDINA COUNTY LINE

NET LENGTH OF ROADWAY = 37,759.64 FT = 7.15 MI
NET LENGTH OF BRIDGE = 0.00 FT = 0.000 MI
NET LENGTH OF PROJECT = 37,759.64 FT = 7.15 MI

FOR WORK CONSISTING OF INSTALLING CABLE MEDIAN BARRIER

DESIGN SPEED = N/A
AREA OF DISTURBED SOIL = 7.71 ACRES
AADT: N/A

FINAL PLANS

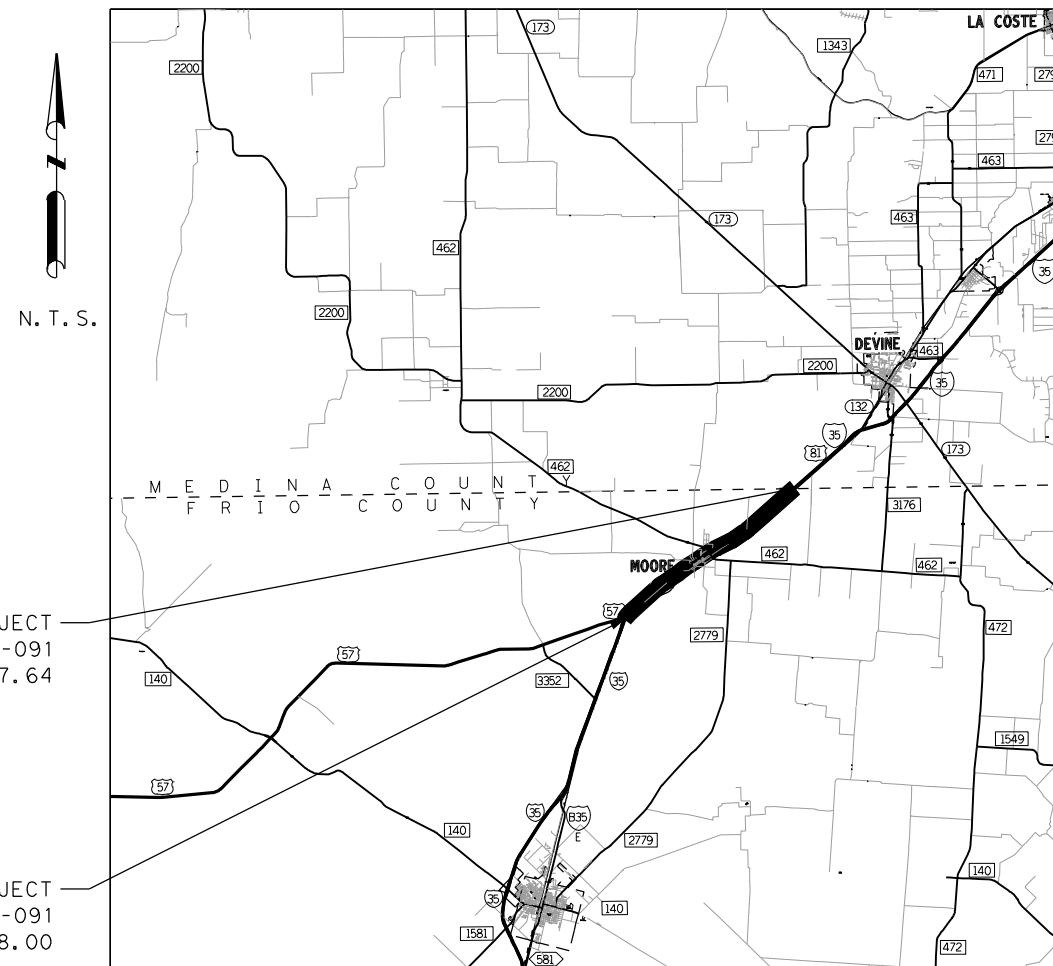
LETTING DATE: _____
DATE CONTRACTOR BEGAN WORK: _____
DATE WORK WAS ACCEPTED: _____
FINAL CONTRACT COST: \$ _____
CONTRACTOR: _____

FINAL PLANS STATEMENT:

THE CONSTRUCTION WORK WAS PERFORMED IN ACCORDANCE WITH THE PLANS.

AREA ENGINEER _____ P. E. _____ DATE _____

TEXAS DEPARTMENT OF TRANSPORTATION



END PROJECT
CSJ: 0017-06-091
STA 2012+27.64

BEGIN PROJECT
CSJ: 0017-06-091
STA. 1634+68.00

EXCEPTIONS: NONE
EQUATIONS: NONE
R. R. CROSSINGS: NONE



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SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION, NOVEMBER 1, 2014 AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS, SHALL GOVERN ON THIS PROJECT: REQUIRED CONTRACT PROVISIONS FOR ALL FEDERAL-AID CONSTRUCTION CONTRACTS (FORM FHWA 1273, MAY, 2012)

RECOMMENDED FOR LETTING 6/30/2022
DocuSigned by:
Clayton Ripps, P.E.
74F8A168304EB
STATE OF TEXAS DEPARTMENT OF TRANSPORTATION
PLANNING & DEVELOPMENT

RECOMMENDED FOR LETTING 6/29/2022
DocuSigned by:
Gress Granato, P.E.
0D08713886450E
DESIGN ENGINEER

APPROVED FOR LETTING 6/30/2022
DocuSigned by:
Gina Gallegos, P.E.
124372C0D15094E1
ENGINEER

FILE LOCATION AND NAME
T:\Engdata\Standard\Des\gn\TITLESHEET-2014Specs.dgn

LEVELS DISPLAYED	
1	

COUNTY _____ PROJ. NO. _____
HWY. NO. _____ LETTING DATE _____
DATE ACCEPTED _____

2:29:42 PM
 6/24/2022
 Legacy Engineering Group
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GENERAL	
1	TITLE SHEET
2	INDEX OF SHEETS
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6, 6A-6C	GENERAL NOTES
7	ESTIMATE AND QUANTITIES
8	SUMMARY OF QUANTITIES
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9	TCP NARRATIVE
10	TCP TYPICAL SECTIONS
11	SCHEDULE OF BARRICADES
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# 50-52	*EC(9)-16




 P. E. 6/24/2022
 ERIC HERNANDEZ DATE

THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ABOVE (#), HAVE BEEN SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.

* STATE STANDARD



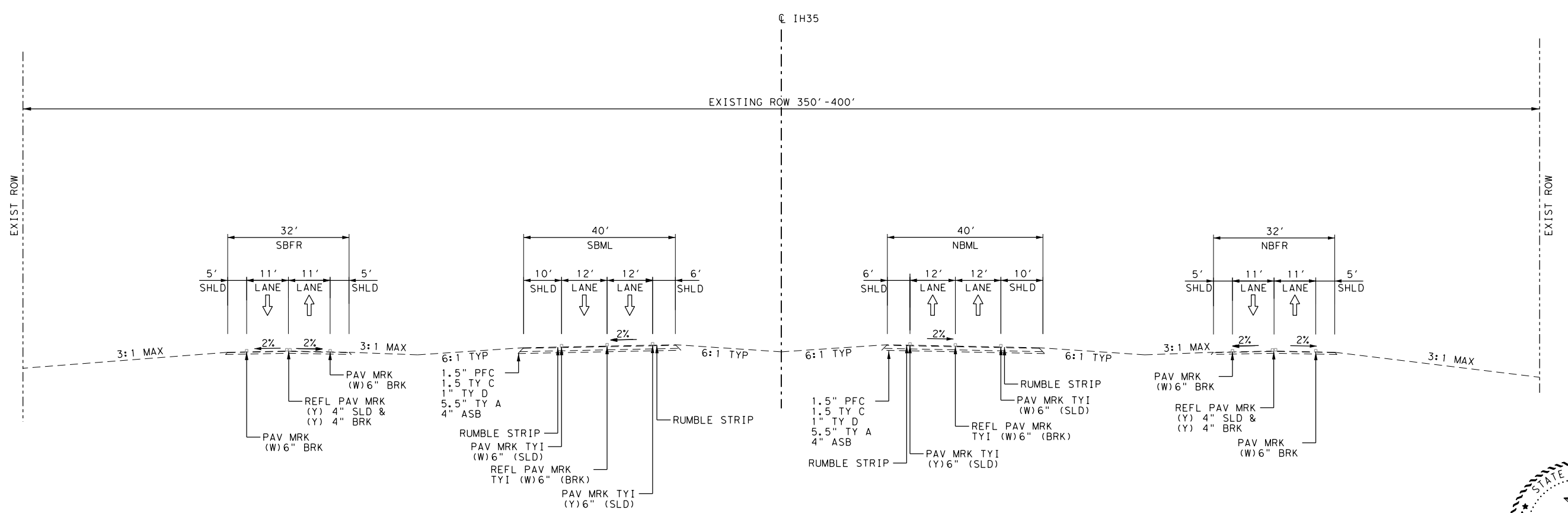
Legacy Engineering Group, PLLC
 7800 W Interstate 10, Ste. 830, San Antonio, Texas 78230, 210.660.1960
 TBPE Firm Registration No. 20623

IH 35
INDEX OF SHEETS

SHEET 1 OF 1

FED. RD. DIV. NO.	PROJECT NO.			SHEET
6	SEE TITLE SHEET			2
STATE	DIST.	COUNTY		
TEXAS	SAT	FRIO		
CONT.	SECT.	JOB	ROADWAY	
0017	06	091	IH 35	

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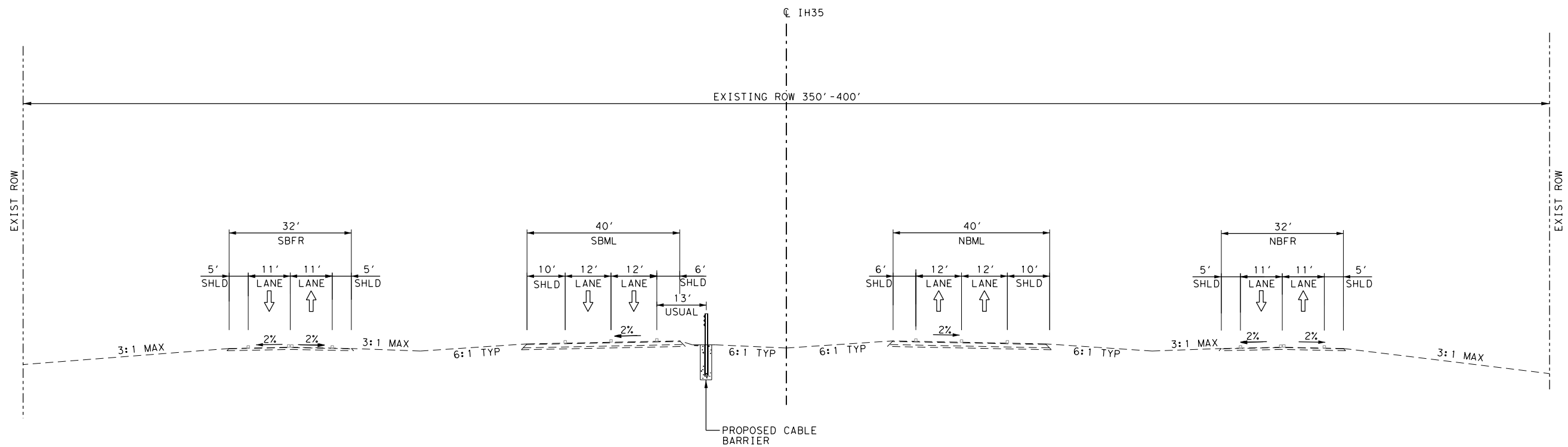


IH35 EXISTING TYPICAL SECTIONS
 STA 1634+68.00 TO STA 2012+27.64



IH 35		SHEET 1 OF 1	
EXISTING TYPICAL SECTIONS			
N. T. S.		PROJECT NO.	
FED. RD. DIV. NO.	6	SEE TITLE SHEET	SHEET 3
STATE	DIST.	COUNTY	
TEXAS	SAT	FRIO	
CONT.	SECT.	JOB	ROADWAY
0017	06	091	IH 35

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IH35 PROPOSED TYPICAL SECTION

STA 1634+68.00 TO STA 1786+25.06



5/31/2022



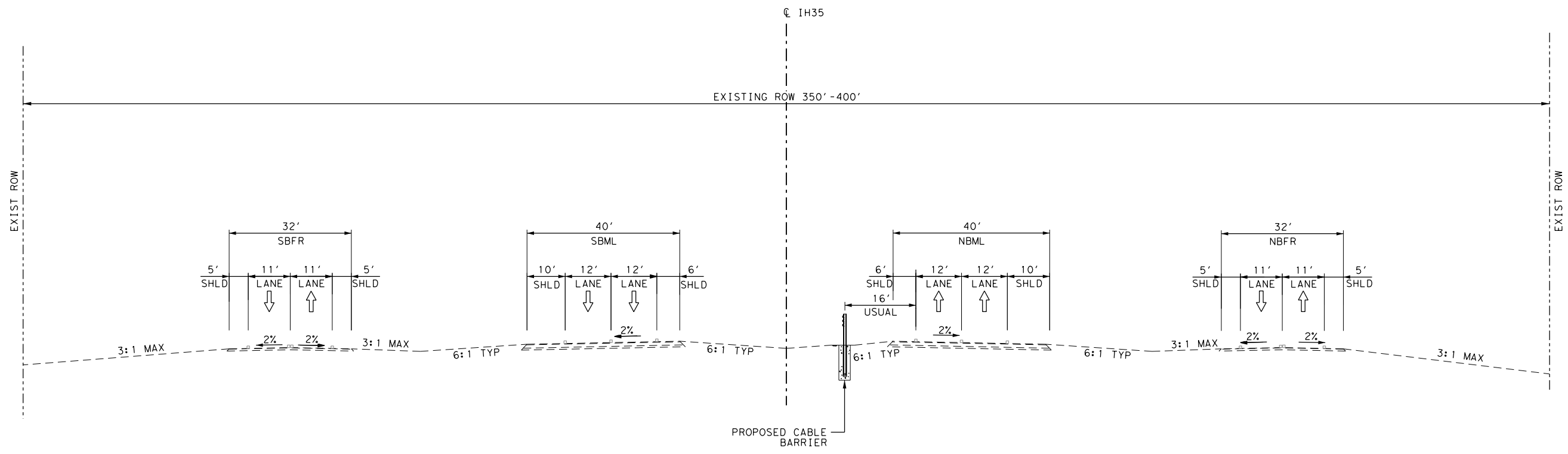
Legacy Engineering Group, PLLC
 7800 W Interstate 10, Ste. 830, San Antonio, Texas 78230, 210.660.1960
 TBPE Firm Registration No. 20623

IH 35
 PROPOSED TYPICAL
 SECTIONS

N. T. S. SHEET 1 OF 2

FED. RD. DIV. NO.	PROJECT NO.		SHEET
6	SEE TITLE SHEET		4
STATE	DIST.	COUNTY	
TEXAS	SAT	FRIO	
CONT.	SECT.	JOB	ROADWAY
0017	06	091	IH 35

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IH35 PROPOSED TYPICAL SECTION

- STA 1788+14.31 TO STA 1799+53.70
- STA 1802+11.21 TO STA 1819+71.56
- STA 1822+69.55 TO STA 1899+81.80
- STA 1902+09.94 TO STA 1932+00.00
- STA 1935+97.40 TO STA 2011+68.05



5/31/2022



Legacy Engineering Group, PLLC
 7800 W Interstate 10, Ste. 830, San Antonio, Texas 78230, 210.660.1960
 TBPE Firm Registration No. 20623

IH 35
 PROPOSED TYPICAL
 SECTIONS

N. T. S. SHEET 2 OF 2

FED. RD. DIV. NO.	PROJECT NO.		SHEET
6	SEE TITLE SHEET		5
STATE	DIST.	COUNTY	
TEXAS	SAT	FRIO	
CONT.	SECT.	JOB	ROADWAY
0017	06	091	IH 35

Control: 0017-06-091

County: Frio

Highway: IH 35

*****GENERAL NOTES*****
2014 Specification Book

Contact the Engineer or the City when construction operations are within 400 feet of a signalized intersection to determine/verify the location of loop detectors, conduit, ground-boxes, etc. Repair or replace any signal equipment damaged by construction operations. The method of repair or replacement shall be pre-approved and inspected. Depending on the type and extent of the damage, the Engineer reserves the right to perform the repair or replacement work and the Contractor will be billed for this work.

City of San Antonio: (210) 207-8642

Any sign panels that are adjusted or removed and replaced, shall be done the same workday unless otherwise approved. This work shall be considered subsidiary to Item 502.

Notify the Engineer at least two weeks prior to a proposed traffic pattern change(s) that will require a revision to traffic signals.

Hurricane Evacuation:

Hurricane Season is from June 1 thru November 30. As the closest metropolitan city inland from the Texas Coast, the City of San Antonio is a major shelter destination during mandatory hurricane evacuations. As such, planned work zone lane or road closures may be restricted and/or suspended during mandatory hurricane evacuation operations. The District will coordinate these restrictions at a minimum H-120 from any projected impact to the Texas Coast.

No time charges will be made if the Engineer determines that work on the project was impacted by the hurricane.

The Engineer may order changes in the Traffic Control Plan to accommodate evacuation traffic, and may suspend the work, all or in part, to ensure timely completion of this work. All work to implement changes in the Traffic Control Plan will be paid through existing bid prices or through Item 9.5, Force Account. However, the Department will not entertain any request for delay damages, loss of efficiency that may be attributed to the restriction or suspension of road or lane closures, or to changes in the Traffic Control Plan.

In accordance with the Underground Facility Damage Prevention Act (One Call Bill) the phone number for a utility locator is 811. It is the Contractor's responsibility to plan for utility locators as needed.

Underground utilities owned by the Texas Department of Transportation may be present within the Right-Of-Way. Call or email the TxDOT offices listed below for locates a minimum of 48 hours in advance of excavation. If city or town owned irrigation facilities are present, call the appropriate department of the local city or town a minimum of 48 hours in advance of

Control: 0017-06-091

Sheet 6

County: Frio

Highway: IH 35

excavation. The Contractor is liable for all damages incurred to the above-mentioned utilities when working without having the utilities located prior to excavation.

For signal and ITS locates call TransGuide at 210-731-5136 or email sat_its_locates@txdot.gov for ITS locates and signal.request@txdot.gov for signal locates.

Contractor questions on this project are to be addressed to the following individual(s):

Christen Longoria, PE (Area Engineer) Christen.Longoria@txdot.gov
Frances Marecka, PE (Assistant Area Engineer) Frances.Marecka@txdot.gov

Contractor questions will be accepted through email, phone, and in person by the above individuals.

All contractor questions will be reviewed by the Engineer. Once a response is developed, it will be posted to TxDOT's Public FTP at the following Address:

<https://ftp.dot.state.tx.us/pub/txdot-info/Pre-Letting%20Responses/>

All questions submitted that generate a response will be posted through this site. The site is organized by District, Project Type (Construction or Maintenance), Letting Date, CCSJ/Project Name.

--Item 5--

A horizontal boom or equivalent equipment is required for construction in the vicinity of the CPS Energy electric lines to provide vertical clearance of equipment during construction. Contact CPS Energy Utility Coordination Group sixteen (16) week in anticipation of pole bracing. The estimated duration for pole bracing is 6 to 10 weeks (or longer if temporary construction easements are required) after invoice is paid. For de-energizing or sleeving of the overhead electrical lines depicted on the plans, please contact CPS Energy Utility Coordination Group sixteen (16) week in anticipation of needed de-energization. The estimated duration for de-energizing is approximately 4 to 6 weeks (after invoice is paid) but could vary on system scenario and back feed requirements. De-energizing may not be possible in all instances or may be restricted during specific periods of time due to load demand. Contractor will be reimbursed for the invoice cost for pole bracing and/or de-energizing or sleeving through force account.

Prevention of Migratory Bird Nesting:

It is anticipated that migratory birds, a protected group of species, may try to nest on bridges, culverts, vegetation, or gravel substrate, at any time of the year. The preferred nesting season for migratory birds is from February 15 through October 1. When practicable, schedule construction operations outside of the preferred nesting season. Otherwise, nests containing migratory birds must be avoided and no work will be performed in the nesting areas until the young birds have fledged.

Control: 0017-06-091

County: Frio

Highway: IH 35

Structures:

Bridge and culvert construction operations cannot begin until swallow nesting prevention is implemented, until after October 1 if it's determined that swallow nesting is actively occurring, or until it's determined swallow nests have been abandoned. If the State installed nesting deterrent on the bridges and culverts, maintain the existing nesting deterrent to prevent swallow nesting until October 1 or completion of the bridge and culvert work, whichever occurs earlier. If new nests are built and occupied after the beginning of the work, do not perform work that can interfere with or discourage swallows from returning to their nests. Prevention of swallow nesting can be performed by one of the following methods:

1. By February 15 begin the removal of any existing mud nests and all other mud placed by swallows for the construction of nests on any portion of the bridge and culverts. The Engineer will inspect the bridges and culverts for nest building activity. If swallows begin nest building, scrape, or wash down all nest sites. Perform these activities daily unless the Engineer determines the need to do this work more frequently. Remove nests and mud through October 1 or until bridge and culvert construction operations are completed.
2. By February 15 place a nesting deterrent (which prevents access to the bridge and culvert by swallows) on the entire bridge (except deck and railing) and culverts. This work is subsidiary to the various bid items.

No extension of time or compensation payment will be granted for a delay or suspension of work caused by nesting swallows.

--Item 6--

Show the stockpile lot and/or sub lot numbers on all tickets for all materials.

--Item 7--

The project's total disturbed area is 7.71 acres. The disturbed area in all project locations and Contractor project specific locations (PSL's), within 1/4 mile of the project limits, will further establish the authorization requirements for storm water discharges. The department will obtain an authorization to discharge storm water from the Texas Commission on Environmental Quality (TCEQ) for the construction activities shown on the plans. Obtain any required authorization from the TCEQ for any PSL's on or off the ROW. When the total area disturbed on the project and PSL's within 1/4 mile of the project exceeds 5 acres, provide a copy of the Contractor NOI for PSL's to the Engineer (to the appropriate MS4 operator when the project is on an off-state system route).

Notify the Engineer of the disturbed acreage within one (1) mile of the project limits. Obtain authorization from the TCEQ for Contractor PSL's for construction support activities on or off ROW.

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Sheet 6A

County: Frio

Highway: IH 35

Roadway closures during the following key dates and/or special event are prohibited. See the TCP Narrative for these dates.

--Item 8--

Working days will be computed and charged in accordance with Article 8.3.1.4: Standard Workweek.

Create and maintain a Bar Chart schedule.

--Item 9--

When approved, provide uniformed, off-duty law enforcement officers with marked vehicles during work that requires a lane closure. The officer in marked vehicles shall be located as approved to monitor or direct traffic during the closure. The method used to direct traffic at signalized intersections shall be as approved. Additional officers and vehicles may be provided when approved or directed.

Complete the daily tracking form provided by the department and submit invoices that agree with the tracking form for payment at the end of each month approved services were provided.

Show proof of certification by the Texas Commission on Law Enforcement Standards.

All law enforcement personnel used in Work Zone Traffic Control shall be trained for performing duties in work zones and are required to take "Safe and Effective Use of Law Enforcement Personnel in Work Zones" (Course #133119) which can be found online at the following site: www.nhi.fhwa.dot.gov

Certificates of completion should be available to all who finish the course. These should be kept by the officers to substantiate completion when reporting to the work site.

Minimums, scheduling fees, etc. will not be paid; TxDOT will consider paying cancellation fees on a case-by-case basis.

--Item 164--

Drill seeding of permanent grasses requires the use of approved grass seeding equipment capable of properly storing and metering the release of small seeds (such as Bermuda grass) separately from fluffy type seeds (such as bluestems). Equipment manufactured for planting grain crops is acceptable for planting temporary cool season seeds, but not for planting the permanent seed mix.

If performing a permanent seeding in an area with established temporary grass cover and mowing is performed instead of tilling, seed and fertilizer may be distributed simultaneously during "Broadcast Seeding" operations, provided each component is applied at the specified rate.

Control: 0017-06-091

County: Frio

Highway: IH 35

--Item 166--

Use a fertilizer with an analysis of 13-13-13 (50% of the total N must be sulfur coated urea) to apply 60 lbs of actual N per acre. This requires 460 lbs of 13-13-13 per acre or .095 lbs per SY of area.

--Item 168--

Apply vegetative watering as needed to supplement natural rainfall during the vegetation establishment period. Plan quantity of irrigation water is based on the application of a total of 1.3 gal of water each week for each sq. yd. of area that is sodded or seeded. Establishment time is estimated to be 12 weeks for both sod and permanent seed mixes. Temporary seeding will require less time for establishment. Provide a schedule and coordinate watering cycles and rates per cycle with the Engineer. Obtain approval if the quantity of water to be applied is expected to exceed the plan quantity. Adjust the amount of water applied with each cycle and the number of cycles each wk. according to actual site conditions. Drought or other conditions, as determined by the Engineer, may require the application of supplemental irrigation during hours other than normal working hours.

--Item 421--

Use an automated ticket that contains the same information as shown in the standard specification. Submit the ticket for approval prior to use. The concrete producer will contact the District Laboratory or the Engineer's Office (outside the San Antonio area) to inform TxDOT of scheduled structural concrete batching. The Engineer may suspend concrete operations if ticket information is incomplete/incorrect.

Entrained air is allowed for Class P and Class HES concrete only. Air content testing is waived for all classes of concrete.

Poly-fiber reinforced concrete may be used as an option, with the approval by the Engineer, for riprap, sidewalk, curb/gutter, and mow strip. Use a TxDOT approved manufacturer or producer for the poly-fiber. The poly-fibers shall be combined with the concrete in proportions as recommended by the manufacturer. A concrete mix design must be approved by the Engineer.

--Item 500--

"Materials on Hand" payments will not be considered in determining percentages for mobilization payments.

--Item 502--

When advanced warning flashing arrow panels and/or changeable message sign is specified, have one standby unit in good condition at the job site. Standby time shall be considered subsidiary to the bid item.

Control: 0017-06-091

Sheet 6B

County: Frio

Highway: IH 35

Treat the pavement drop-offs as shown in the TCP.

After written notification, the time frame is provided on the Form 599 to provide properly maintained signs and barricades before considered in non-compliance with this item.

Notify the Engineer in writing 10 business days in advance of any temporary or permanent lane, ramp, connector, etc. closures/detours, restrictions to lane widths, alterations to vertical clearances, or modifications to radii. Any other modifications to the roadway that may adversely affect the mobility of oversized/overweight trucks also require 10 business days advance written notice to the Engineer. At least one lane has to remain open at all times.

For closures not listed in the TCP; the lane closures are limited to between the hours of 9 PM to 5 AM, and at least one lane has to remain open at all times.

Avoid placing stockpiles within the roadway's horizontal clear zone. If a stockpile is placed within the clear zone, address in accordance with the TMUTCD.

In addition to providing a Contractor's Responsible Person and a phone number for emergency contact, have an employee available to respond on the project for emergencies and for taking corrective measures within 2 hours or within a reasonable time frame as specified by the Engineer.

If Nighttime work is required and work is not behind positive barrier then full TY 3 reflective gear is required to be worn by all workers, hard hat halos are required to be worn by the flaggers at flagging stations, TY III barricades are required to be spaced at 500 ft, and a mandatory night work meeting is required.

The Contractor Force Account "Safety Contingency" that has been established for this project is intended to be utilized for work zone enhancements, to improve the effectiveness of the Traffic Control Plan, that could not be foreseen in the project planning and design stage. These enhancements will be mutually agreed upon by the Engineer and the Contractor's Responsible Person based on weekly or more frequent traffic management reviews on the project. The Engineer may choose to use existing bid items if it does not slow the implementation of enhancement.

--Item 506--

An Inspector will perform a regularly scheduled SWP3 inspection every 7 calendar days.

Failure to address items noted on the SW3P inspection report within two report cycles may result in the Department stopping all construction operations, exclusive of time charges, or withholding that month's estimate until the SW3P deficiencies are corrected unless the Engineer determines that the area is too wet to correct SW3P deficiencies.

Control: 0017-06-091

Sheet 6C

County: Frio

Highway: IH 35

Failure to correctly maintain daily monitoring reports and submitting to TxDOT on a daily/weekly basis may result in the monthly estimate being withheld.

--Item 6185--

One (1) shadow vehicles with TMA will be required for this project. The TMA's will be measured and paid for by the DAY for each TMA/TA set up and operational on the worksite. The contractor will be responsible for determining if one or more of these operations will be ongoing at the same time to determine the total number of TMA's needed for the project. See TMA and TA Summary sheet in the plans.



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0017-06-091

DISTRICT San Antonio

COUNTY Frio

HIGHWAY IH 35

CONTROL SECTION JOB				0017-06-091		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00185065			
COUNTY				Frio			
HIGHWAY				IH 35			
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL		
	160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	24,361.000		24,361.000	
	164-6021	CELL FBR MLCH SEED(PERM)(RURAL)(SANDY)	SY	24,361.000		24,361.000	
	168-6001	VEGETATIVE WATERING	MG	380.000		380.000	
	432-6066	RIPRAP (CL A) (MOW STRIP) (3 IN)	CY	1,031.000		1,031.000	
	500-6001	MOBILIZATION	LS	1.000		1.000	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	4.000		4.000	
	506-6040	BIODEG EROSN CONT LOGS (INSTL) (8")	LF	2,137.000		2,137.000	
	506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	2,137.000		2,137.000	
	543-6002	CABLE BARRIER SYSTEM (TL-4)	LF	36,295.000		36,295.000	
	543-6020	CABLE BARRIER TERMINAL SECTION (TL-4)	EA	14.000		14.000	
	658-6110	INSTL DEL ASSM (D-SY)SZ 1(BRF)(GF2)(BI)	EA	366.000		366.000	
	6185-6002	TMA (STATIONARY)	DAY	53.000		53.000	
18		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000		1.000	
		CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000		1.000	
		LAW ENFORCEMENT: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000		1.000	
		EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000		1.000	

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 Legacy Engineering Group
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SUMMARY OF ROADWAY & DELINEATORS ITEMS

ITEM NO.				432	543	543	658
DESCRIPTION CODE				6066	6002	6020	6110
SHEET NO.	ALIGNMENT	BEGINNING STATION	ENDING STATION	RIPRAP (CL A) (MOW STRIP) (3 IN)	CABLE BARRIER SYSTEM (TL-4)	CABLE BARRIER TERMINAL SECTION (TL-4)	INSTL DEL ASSM (D-SY) SZ 1 (BRF) GF2 (BI
				CY	LF	EA	EA
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2 of 16	IH35	1656+00.00	1680+00.00	68	2400		24
3 of 16	IH35	1680+00.00	1704+00.00	68	2400		24
4 of 16	IH35	1704+00.00	1728+00.00	68	2400		24
5 of 16	IH35	1728+00.00	1752+00.00	67	2358	2	24
6 of 16	IH35	1752+00.00	1776+00.00	68	2400		24
7 of 16	IH35	1776+00.00	1800+00.00	62	2163	3	22
8 of 16	IH35	1800+00.00	1824+00.00	54	1892	3	20
9 of 16	IH35	1824+00.00	1848+00.00	68	2400		24
10 of 16	IH35	1848+00.00	1872+00+00	68	2400		24
11 of 16	IH35	1872+00+00	1896+00.00	68	2400		24
12 of 16	IH35	1896+00.00	1920+00.00	63	2174	2	22
13 of 16	IH35	1920+00.00	1944+00.00	57	2003	2	20
14 of 16	IH35	1944+00.00	1968+00.00	68	2400		24
15 of 16	IH35	1968+00.00	1992+00.00	68	2400		24
16 of 16	IH35	1992+00.00	END PROJECT	56	1969	1	20
PROJECT TOTAL				1031	36295	14	366

SUMMARY OF SW3P ITEMS

ITEM NO.				160	164	168	506	506
DESCRIPTION CODE				6003	6021	6001	6040	6043
SHEET NO.	ALIGNMENT	BEGINNING STATION	ENDING STATION	FURNISHING AND PLACING TOPSOIL (4")	CELL FBR MLCH SEED (PERM) (RURAL) (SANDY)	VEGETATIVE WATERING	BIODEG EROSN CONT LOGS (INSTL) (8")	BIODEG EROSN CONT LOGS (REMOVE)
				SY	SY	MG	LF	LF
1 of 16	IH35	BEGIN PROJECT	1656+00.00	1427	1427	22	59	59
2 of 16	IH35	1656+00.00	1680+00.00	1600	1600	25	206	206
3 of 16	IH35	1680+00.00	1704+00.00	1600	1600	25	100	100
4 of 16	IH35	1704+00.00	1728+00.00	1600	1600	25	214	214
5 of 16	IH35	1728+00.00	1752+00.00	1600	1600	25	106	106
6 of 16	IH35	1752+00.00	1776+00.00	1600	1600	25	212	212
7 of 16	IH35	1776+00.00	1800+00.00	1451	1451	23	226	226
8 of 16	IH35	1800+00.00	1824+00.00	1272	1272	20	350	350
9 of 16	IH35	1824+00.00	1848+00.00	1600	1600	25	106	106
10 of 16	IH35	1848+00.00	1872+00+00	1600	1600	25	106	106
11 of 16	IH35	1872+00+00	1896+00.00	1600	1600	25		
12 of 16	IH35	1896+00.00	1920+00.00	1556	1556	24	120	120
13 of 16	IH35	1920+00.00	1944+00.00	1339	1339	21	120	120
14 of 16	IH35	1944+00.00	1968+00.00	1600	1600	25	106	106
15 of 16	IH35	1968+00.00	1992+00.00	1600	1600	25		
16 of 16	IH35	1992+00.00	END PROJECT	1316	1316	21	106	106
PROJECT TOTAL				24361	24361	380	2137	2137

SUMMARY OF TCP ITEMS

ITEM NO.				502	6185
DESCRIPTION CODE				6001	6002
SHEET NO.	ALIGNMENT	BEGINNING STATION	ENDING STATION	BARRICADES, SIGNS AND TRAFFIC HANDLING	TMA (STATIONARY)
				MO	DAY
1 of 16	IH35	BEGIN PROJECT	1656+00.00		
2 of 16	IH35	1656+00.00	1680+00.00		
3 of 16	IH35	1680+00.00	1704+00.00		
4 of 16	IH35	1704+00.00	1728+00.00		
5 of 16	IH35	1728+00.00	1752+00.00		
6 of 16	IH35	1752+00.00	1776+00.00		
7 of 16	IH35	1776+00.00	1800+00.00		
8 of 16	IH35	1800+00.00	1824+00.00		
9 of 16	IH35	1824+00.00	1848+00.00		
10 of 16	IH35	1848+00.00	1872+00+00		
11 of 16	IH35	1872+00+00	1896+00.00		
12 of 16	IH35	1896+00.00	1920+00.00		
13 of 16	IH35	1920+00.00	1944+00.00		
14 of 16	IH35	1944+00.00	1968+00.00		
15 of 16	IH35	1968+00.00	1992+00.00		
16 of 16	IH35	1992+00.00	END PROJECT		
PROJECT TOTAL				4	53



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IH 35
 SUMMARY OF QUANTITIES

SHEET 1 OF 1

FED. RD. DIV. NO.	PROJECT NO.			SHEET
6	SEE TITLE SHEET			8
STATE	DIST.	COUNTY		
TEXAS	SAT	FRIO		
CONT.	SECT.	JOB	ROADWAY	
0017	06	091	IH 35	

DETOURS, BARRICADES, WARNING SIGNS, SEQUENCE OF WORK, ETC.

THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE REQUIREMENTS OF ITEM 7, "LEGAL RELATIONS AND RESPONSIBILITIES TO THE PUBLIC", OF THE STANDARD SPECIFICATIONS. IN ADDITION TO THESE REQUIREMENTS, THE FOLLOWING PROVISIONS SHALL ALSO GOVERN ON THIS CONTRACT:

1. GENERAL

- (1) TRAFFIC MUST BE HANDLED THROUGHOUT THE PROJECT DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING A SAFE AND COMFORTABLE PASSAGE FOR VEHICULAR AND PEDESTRIAN TRAFFIC WITH MINIMAL INCONVENIENCE TO THE PUBLIC, AS SHOWN IN THE PLANS OR AS DIRECTED/APPROVED BY THE ENGINEER.
- (2) THE CONTRACTOR MAY PROPOSE/RECOMMEND MODIFICATIONS TO THE SEQUENCE OF WORK FOR CONSIDERATION BY THE ENGINEER. ANY MAJOR RECOMMENDED MODIFICATION BY THE CONTRACTOR SHALL INCLUDE ANY CHANGES TO THE VARIOUS BID ITEMS, IMPACT TO TRAFFIC, EFFECT OF OVERALL PROJECT IN TIME AND COST, ETC. IF THIS PROPOSAL IS IMPLEMENTED, THE CONTRACTOR WILL BE RESPONSIBLE FOR DEVELOPING DETAILED PLAN SHEETS TO BE SEALED BY A LICENSED PROFESSIONAL ENGINEER FOR INCLUSION WITH THE CHANGE ORDER. THE CONTRACTOR CANNOT PROCEED WITH ANY CONSTRUCTION OPERATIONS BASED ON A REVISED PHASE/SEQUENCE UNLESS WRITTEN APPROVAL IS OBTAINED FROM THE ENGINEER. IF AT ANY TIME DURING CONSTRUCTION THE CONTRACTOR'S PROPOSED PLAN OF OPERATION FOR HANDLING TRAFFIC DOES NOT PROVIDE FOR SAFE AND COMFORTABLE MOVEMENT, THE CONTRACTOR WILL IMMEDIATELY CHANGE THEIR OPERATION TO CORRECT THE UNSATISFACTORY CONDITION.
- (3) DO NOT STORE ANY CONSTRUCTION MATERIAL OR EQUIPMENT AT ANY LOCATION THAT WILL CONSTITUTE A HAZARD AND WILL ENDANGER TRAFFIC.
- (4) THE CONTRACTOR WILL PROVIDE ADVANCE NOTIFICATION TO THE ENGINEER OF IMPENDING / UPCOMING LANE CLOSURES FOR ALL TEMPORARY AND / OR PERMANENT LANE, RAMP, CONNECTOR, FRONTAGE, SHOULDER, ETC. CLOSURES OR DETOURS. SEE GENERAL NOTES FOR NOTIFICATION REQUIREMENTS.
- (5) ACCESS TO ADJOINING PROPERTY MUST BE MAINTAINED AT ALL TIMES.
- (6) TEMPORARY DRAINAGE IS THE RESPONSIBILITY OF THE CONTRACTOR.
- (7) AT NO TIME SHALL TWO CONSECUTIVE INTERSECTING ROADWAYS BE CLOSED AT ONE TIME DURING CONSTRUCTION.
- (8) AT NO TIME SHALL TWO CONSECUTIVE RAMPS BE CLOSED AT ONE TIME DURING CONSTRUCTION OR OVERLAY OPERATIONS.
- (9) UNLESS OTHERWISE NOTED IN THE PLANS AND/OR AS DIRECTED BY THE ENGINEER, DAILY LANE CLOSURES SHALL BE LIMITED ACCORDING TO THE FOLLOWING RESTRICTIONS:
 NIGHTTIME: 9:00PM TO 5:00AM (WITH UNIFORMED OFF DUTY LAW ENFORCEMENT OFFICERS) WEEKEND CLOSURES WHEN APPROVED BY THE ENGINEER. NO LANE CLOSURES WILL BE PERMITTED FOR THE FOLLOWING DATES AND/OR SPECIAL EVENTS:
 BETWEEN DECEMBER 15 AND JANUARY 1.
 WEDNESDAY BEFORE THANKSGIVING THRU THE SUNDAY AFTER THANKSGIVING
 SATURDAY AND SUNDAY BEFORE MEMORIAL DAY AND LABOR DAY.
 SATURDAY OR SUNDAY WHEN JULY 4 FALLS ON A FRIDAY OR MONDAY.
 SUNDAY APRIL 9, 2023
- (10) REMOVAL AND DISPOSAL OF EXISTING ABANDONED UTILITIES (EITHER PREVIOUSLY ABANDONED OR ABANDONED DURING THIS PROJECT) REQUIRED TO SUPPORT THIS PROJECT'S CONSTRUCTION SHALL BE PERFORMED UNDER THE OVERALL PREPARE RIGHT-OF-WAY ITEM (ITEM 100).
- (11) COORDINATE WITH ADJACENT PROJECTS.
- (12) COVER PERMANENT SIGNS IF NOT USED. THIS IS SUBSIDIARY TO ITEM 502.
- (13) EXCAVATION WITHIN 5 FEET OF AN EXISTING CPS ENERGY POLE WILL REQUIRE POLE BRACING. CONTACT CPS ENERGY UTILITY COORDINATION TO REQUEST POLE BRACING (JOHN OFFER, JOFFER@CPSENERGY.COM). THE ESTIMATED DURATION FOR THE POLE BRACING PROCESS IS APPROXIMATELY 10 TO 15 WEEKS.
- (14) COORDINATE WITH THE CITY OF SAN ANTONIO OR TXDOT FOR SIGNAL TIMING REVISIONS, AS NECESSARY.
- (15) CONTRACTOR IS NOT PERMITTED TO WORK IN AREAS WITH ONGOING UTILITY RELOCATION OR ROW ACQUISITION.

2. SEQUENCE OF WORK

- (1) THIS PROJECT WILL BE CONSTRUCTED IN (#) PHASES. BEFORE THE COMMENCEMENT OF EACH PHASE, INSTALL ADVANCE WARNING SIGNS, TEMPORARY SIGNS AND BARRICADES AS SHOWN ON THE PLANS AND/OR AS DIRECTED/APPROVED BY THE ENGINEER. DAILY LANE CLOSURES WILL BE USED IN ACCORDANCE WITH STATE TCP STANDARDS. DROP OFF CONDITIONS OF GREATER THAN 2" MUST HAVE A 3:1 SLOPE AT THE END OF EACH DAY, AS WELL AS THROUGHOUT THE PROJECT WHERE ACCESS TO ADJACENT PROPERTIES IS ALLOWED TO DRIVEWAYS AND SIDE STREETS.
- (2) PREPARING ROW / REMOVAL OF EXISTING ITEMS TO BE DONE ONLY IN AREAS WHERE WORK IS OCCURING, AS PER THE PHASES NOTED BELOW.
- (3) PLANING, SURFACE TREATMENTS AND OVERLAYS SHALL BE PERFORMED IN THE DIRECTION OF TRAFFIC. BEGIN SURFACE CONSTRUCTION ON HIGH SIDE OF ROAD TO AVOID WATER PONDING ISSUES.
- (4) A BRIEF DESCRIPTION OF THESE PHASES ARE AS FOLLOWS:

PHASE 1

THE INTENT OF THIS PHASE IS TO CONSTRUCT MEDIAN CABLE BARRIER, RIPRAP MOW STRIP AND PERMANENT SEEDING.

- 1. INSTALL ADVANCED WARNING SIGNS, BARRICADES AND CHANNELIZING DEVICES, AS SHOWN ON THE TCP TYPICAL SECTIONS, STANDARDS AND/OR AS DIRECTED BY ENGINEER.
- 2. CONSTRUCT MEDIAN CABLE BARRIER, RIPRAP MOW STRIP AND PERMANENT SEEDING.

3. SAFETY

- (1) THE CONTRACTOR WILL PROVIDE, CONSTRUCT AND MAINTAIN BARRICADES AND SIGNS IN ACCORDANCE WITH STATE STANDARDS. ANY SIGNS REQUIRED THAT ARE NOT DETAILED IN THE STANDARD SHEETS SHALL BE IN CONFORMANCE WITH THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" AND THE "STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS."
- (2) BARRICADES AND WARNING SIGNS SHALL BE PLACED AS INDICATED ON THE PLANS. THIS SHALL BE CONSIDERED THE MINIMUM REQUIRED TO PROVIDE FOR THE SAFETY OF TRAFFIC DURING CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN OTHER SUCH BARRICADES AND SIGNS DEEMED NECESSARY BY THE ENGINEER OR AS DIRECTED BY FIELD CONDITIONS, TO PROVIDE FOR THE PASSAGE OF TRAFFIC IN SAFETY AT ALL TIMES.
- (3) THE CONTRACTOR SHALL PROVIDE AND MAINTAIN FLAGGERS AS DIRECTED/APPROVED BY THE ENGINEER, AT SUCH POINTS, AND FOR SUCH PERIODS OF TIME AS MAY BE REQUIRED, TO PROVIDE FOR THE SAFETY OF THE TRAVELING PUBLIC AND THE CONTRACTOR'S PERSONNEL.
- (4) THE CONTRACTOR SHALL KEEP THE ROADWAY CLEAN AND FREE OF DIRT OR OTHER MATERIALS DURING HAULING OPERATIONS. IF THE CONTRACTOR DOES NOT MAINTAIN A CLEAN ROADWAY, THEY SHALL CEASE ALL CONSTRUCTION OPERATIONS, WHEN DIRECTED BY THE ENGINEER, TO CLEAN THE ROADWAY TO THE SATISFACTION OF THE ENGINEER.

4. HAULING EQUIPMENT

- (1) THE USE OF RUBBER-TIRED EQUIPMENT WILL BE REQUIRED FOR MOVING DIRT OR OTHER MATERIALS ALONG OR ACROSS PAVEMENTED SURFACES. WHERE THE CONTRACTOR DESIRES TO MOVE ANY EQUIPMENT NOT LICENSED FOR OPERATION ON PUBLIC HIGHWAYS, ON OR ACROSS PAVEMENT. THEY SHALL PROTECT THE PAVEMENT FROM DAMAGE AS DIRECTED / APPROVED BY THE ENGINEER.
- (2) THROUGHOUT CONSTRUCTION OPERATIONS, THE CONTRACTOR WILL BE REQUIRED TO CONDUCT THEIR HAULING OPERATIONS IN A MANNER SUCH THAT VEHICLES WILL NOT HAUL OVER PREVIOUSLY RECOMPACTED SUBGRADE OR COMPACTED BASE MATERIAL, EXCEPT IN SHORT SECTIONS FOR DUMPING MANIPULATIONS.

5. FINAL CLEAN UP

UPON COMPLETION OF THE WORK AND BEFORE FINAL ACCEPTANCE AND FINAL PAYMENT IS MADE, THE CONTRACTOR SHALL CLEAR AND REMOVE FROM THE SITE ALL SURPLUS AND DISCARDED MATERIALS AND DEBRIS OF EVERY KIND AND LEAVE THE ENTIRE PROJECT IN A SMOOTH, NEAT AND SLIGHTLY CONDITION.

6. PAYMENT

ALL BARRICADES, SIGNS, AND FLAGGERS SHALL BE SUBSIDIARY TO ITEM 502 BARRICADES, SIGNS AND TRAFFIC HANDLING. ALL EROSION AND SEDIMENT CONTROL DEVICES WILL BE PAID FOR UNDER ITEM 506 TEMPORARY EROSION, SEDIMENTATION, AND ENVIRONMENTAL CONTROLS. ALL WORK ZONE PAVEMENT MARKINGS WILL BE PAID FOR UNDER ITEM 662 WORK ZONE PAVEMENT MARKINGS. ALL OTHER WORK AND MATERIALS SHALL BE SUBSIDIARY TO THE VARIOUS BID ITEMS UNLESS OTHERWISE INDICATED IN THE PLANS.



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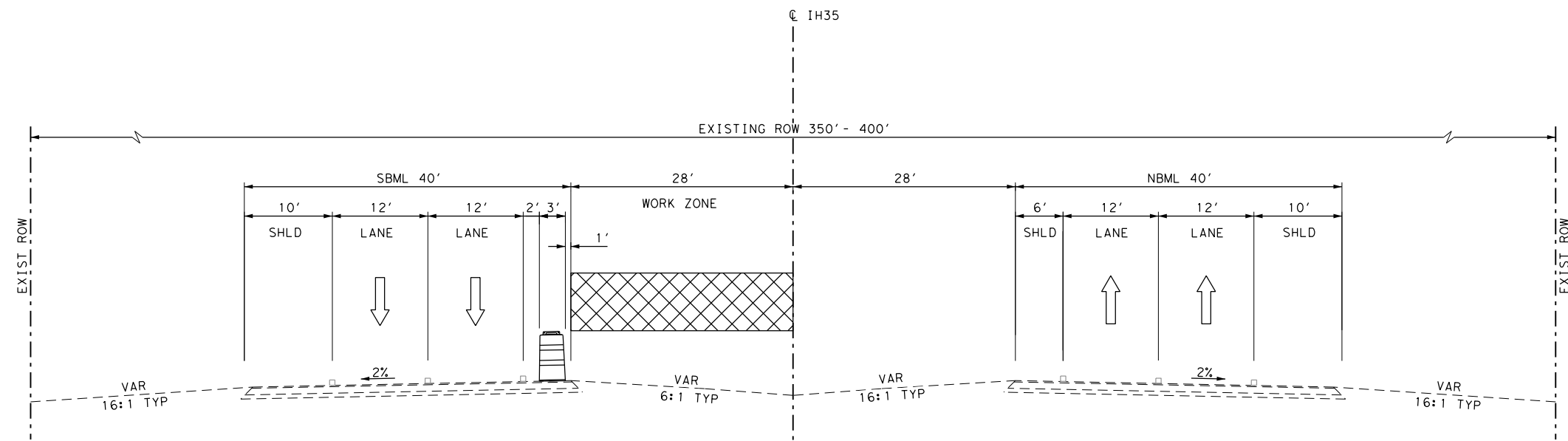
**IH 35
 TCP
 NARRATIVE**

SHEET 1 OF 1

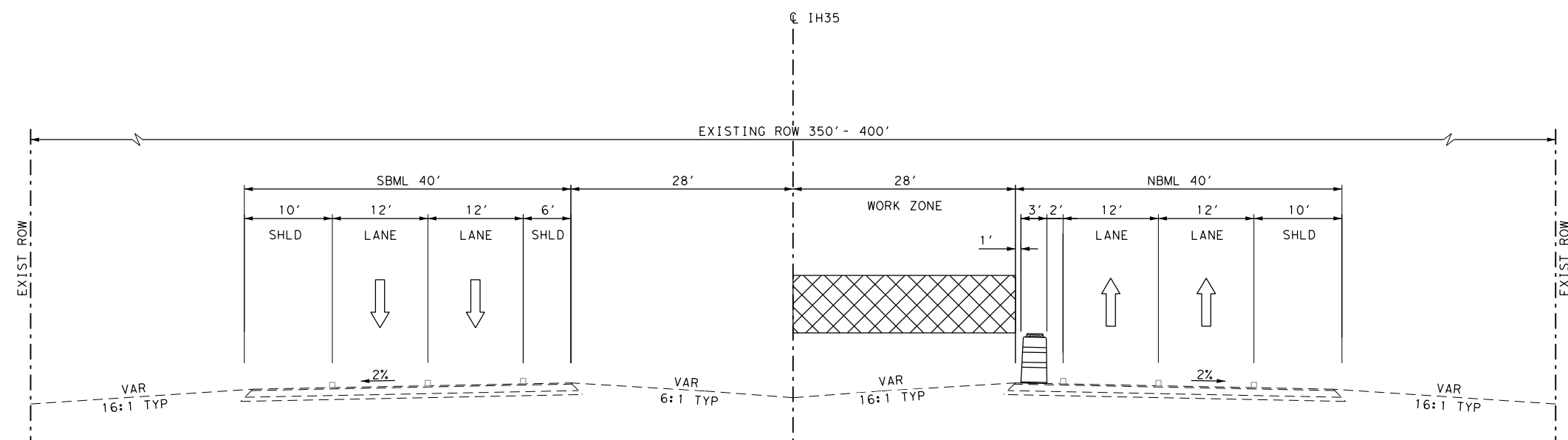
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6	SEE TITLE SHEET		9
STATE	DIST.	COUNTY	
TEXAS	SAT	FRIO	
CONT.	SECT.	JOB	ROADWAY
0017	06	091	IH 35

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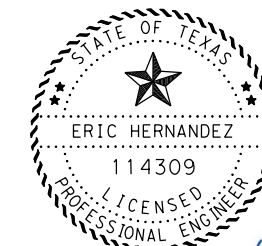
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IH35 TCP TYPICAL SECTION
 STA 1634+68.00 TO STA 1786+25.06



IH35 TCP TYPICAL SECTION
 STA 1788+14.31 TO STA 2011+68.05



Eric Hernandez
 5/31/2022



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IH 35
TCP
TYPICAL SECTIONS

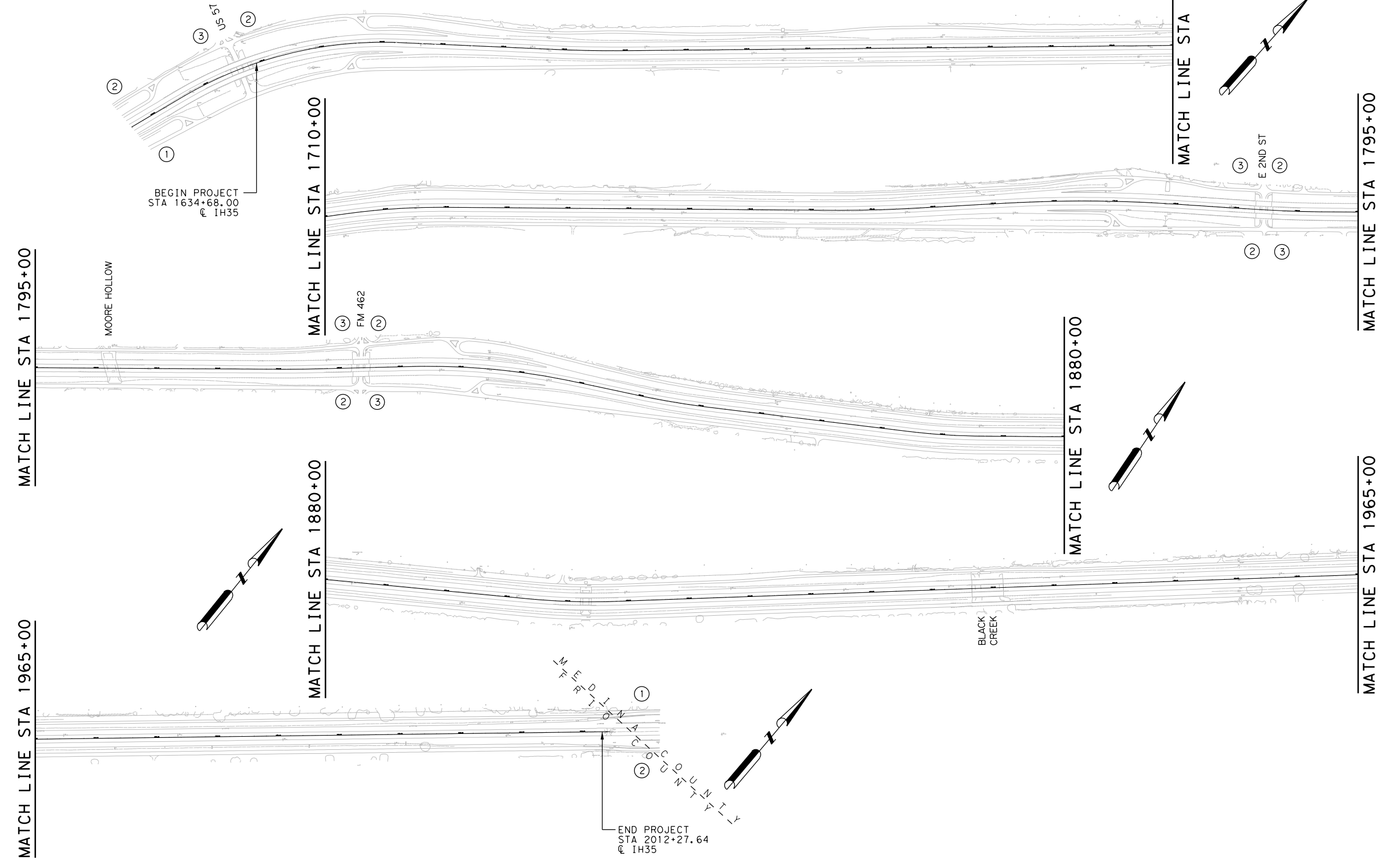
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FED. RD. DIV. NO.	PROJECT NO.	SHEET	
6	SEE TITLE SHEET	10	
STATE	DIST.	COUNTY	
TEXAS	SAT	FRIO	
CONT.	SECT.	JOB	ROADWAY
0017	06	091	IH 35

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LOCATION																									
	CW21-1T	G20-2	G20-6T	G20-1bT L/R	G20-1aT	G20-5aP	R20-3T	G20-9TP	R20-5T	G20-5T	R20-5aTP PLAQUE	G20-2bT	CW20-1D	CW13-1P	G20-10T	CW1-4 L/R	CW3-5	TRAILER MOUNTED FLASHING ARROW PANEL	CW21-5	CW20-8T	BARRELS	CW1-6aT	CW20-4D	CW28-1T	
1	X		X				X	X	X	X	X		X		X										
2		X										X													
3				X	X																				
4						X								X		X	X	X	X	X	X	X	X	X	X

- NOTES :
- CERTAIN SIGNS MUST BE USED IN CONJUNCTION WITH OTHER SIGNS. EXAMPLE: "FLAGGER AHEAD" MUST HAVE A "BE PREPARED TO STOP".
 - BARRICADES AND WARNING SIGNS ON THIS SHEET ARE MINIMAL CONSTRUCTION ZONE SIGNING. ADDITIONAL BARRICADES, WARNING SIGNS, ARROW PANELS, CONES, ETC. IN ACCORDANCE WITH CURRENT BC STANDARDS AND THE TEXAS MUTCD MAY BE REQUIRED IN AREAS OF ACTUAL CONSTRUCTION.
 - BARRICADES SHALL NOT BE USED AS A SIGN SUPPORT. SUPPORTS FOR SIGNS SHALL BE TEMPORARY, OR PORTABLE SIGN SUPPORTS AS DIRECTED BY THE ENGINEER OR IN ACCORDANCE WITH CURRENT BC STANDARDS AND THE TEXAS MUTCD.
 - A DISTANCE PLAQUE IN FEET OR MILES MAY BE REQUIRED FOR USE IN CONJUNCTION WITH WARNING SIGNS.
 - NOT ALL WORK ZONE SIGNS ARE SHOWN ON THIS SHEET. REFER TO 'TCP' PLAN SHEETS, TXDOT STANDARDS, AND TEXAS MUTCD FOR OTHER SIGNS TO BE USED AS NEEDED FOR THIS PROJECT.

LOCATION NO. 1 TO BE USED AT BEGINNING OF PROJECT.
 LOCATION NO. 2 TO BE USED AT THE END OF THE PROJECT AND EXITING SIDE STREETS.
 LOCATION NO. 3 TO BE USED AT ENTERING SIDE STREETS.
 LOCATION NO. 4 TO BE USED THROUGHOUT THE COURSE OF THE PROJECT AS DIRECTED BY THE ENGINEER.



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IH 35
 SCHEDULE OF BARRICADES

SCALE: 1" = 900' SHEET 1 OF 1

FED. RD. DIV. NO.	PROJECT NO.		SHEET
6	SEE TITLE SHEET		11
STATE	DIST.	COUNTY	
TEXAS	SAT	FRIO	
CONT.	SECT.	JOB	ROADWAY
0017	06	091	IH 35

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BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

1. The Barricade and Construction Standard Sheets (BC sheets) are intended to show typical examples for placement of temporary traffic control devices, construction pavement markings, and typical work zone signs. The information contained in these sheets meet or exceed the requirements shown in the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
2. The development and design of the Traffic Control Plan (TCP) is the responsibility of the Engineer.
3. The Contractor may propose changes to the TCP that are signed and sealed by a licensed professional engineer for approval. The Engineer may develop, sign and seal Contractor proposed changes.
4. The Contractor is responsible for installing and maintaining the traffic control devices as shown in the plans. The Contractor may not move or change the approximate location of any device without the approval of the Engineer.
5. Geometric design of lane shifts and detours should, when possible, meet the applicable design criteria contained in manuals such as the American Association of State Highway and Transportation Officials (AASHTO), "A Policy on Geometric Design of Highways and Streets," the TxDOT "Roadway Design Manual" or engineering judgment.
6. When projects abut, the Engineer(s) may omit the END ROAD WORK, TRAFFIC FINES DOUBLE, and other advance warning signs if the signing would be redundant and the work areas appear continuous to the motorists. If the adjacent project is completed first, the Contractor shall erect the necessary warning signs as shown on these sheets, the TCP sheets or as directed by the Engineer. The BEGIN ROAD WORK NEXT X MILES sign shall be revised to show appropriate work zone distance.
7. The Engineer may require duplicate warning signs on the median side of divided highways where median width will permit and traffic volumes justify the signing.
8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.
9. The temporary traffic control devices shown in the illustrations of the BC sheets are examples. As necessary, the Engineer will determine the most appropriate traffic control devices to be used.
10. Where highway construction or maintenance work is being undertaken, other than mobile operations as defined by the Texas Manual on Uniform Traffic Control Devices, CSJ limit signs are required. CSJ limit signs are shown on BC(2). The OBEY WARNING SIGNS STATE LAW sign, STAY ALERT TALK OR TEXT LATER and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of the CSJ limits. The BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the CSJ limits. For mobile operations, CSJ limit signs are not required.
11. Traffic control devices should be in place only while work is actually in progress or a definite need exists.
12. The Engineer has the final decision on the location of all traffic control devices.
13. Inactive equipment and work vehicles, including workers' private vehicles must be parked away from travel lanes. They should be as close to the right-of-way line as possible, or located behind a barrier or guardrail, or as approved by the Engineer.

WORKER SAFETY NOTES:


1. Workers on foot who are exposed to traffic or to construction equipment within the right-of-way shall wear high-visibility safety apparel meeting the requirements of ISEA "American National Standard for High-Visibility Apparel," or equivalent revisions, and labeled as ANSI 107-2004 standard performance for Class 2 or 3 risk exposure. Class 3 garments should be considered for high traffic volume work areas or night time work.
2. Except in emergency situations, flagger stations shall be illuminated when flagging is used at night.

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

1. Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources.
2. Work zone traffic control devices shall be compliant with the Manual for Assessing safety Hardware (MASH).

THE DOCUMENTS BELOW CAN BE FOUND ON-LINE AT http://www.txdot.gov
COMPLIANT WORK ZONE TRAFFIC CONTROL DEVICES LIST (CWZTCD)
DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS)
MATERIAL PRODUCER LIST (MPL)
ROADWAY DESIGN MANUAL - SEE "MANUALS (ONLINE MANUALS)"
STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS (SHSD)
TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD)
TRAFFIC ENGINEERING STANDARD SHEETS

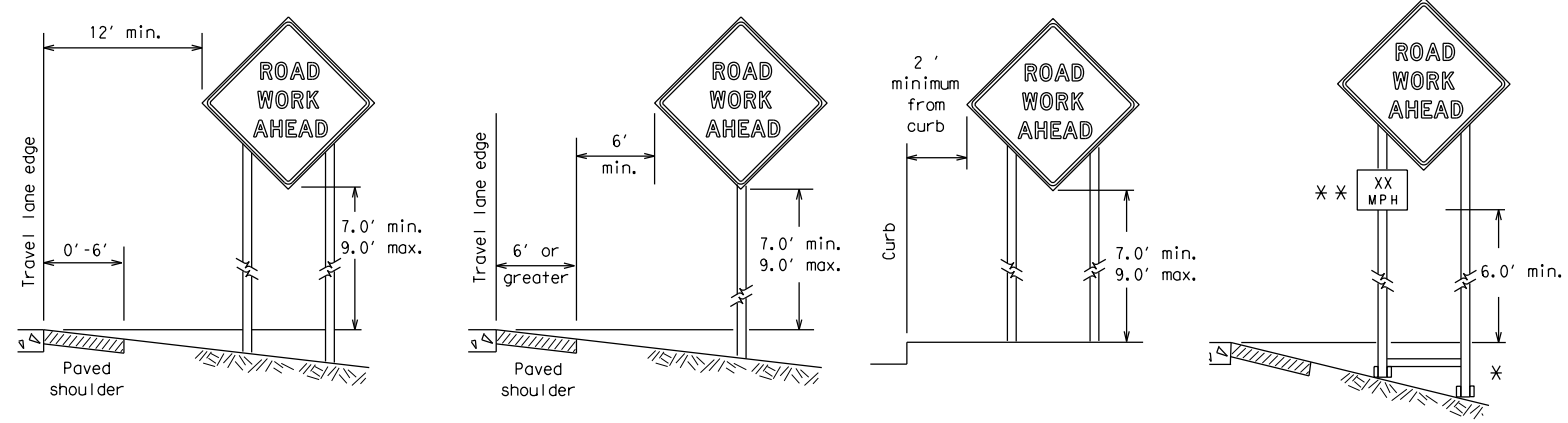
SHEET 1 OF 12

 Texas Department of Transportation		Traffic Safety Division Standard	
BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS			
BC (1) - 21			
FILE:	bc-21.dgn	DN:	TxDOT
© TxDOT	November 2002	CK:	TxDOT
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9-07 8-14			
5-10 5-21			
	DIST	COUNTY	SHEET NO.
	SAT	FRIO	13

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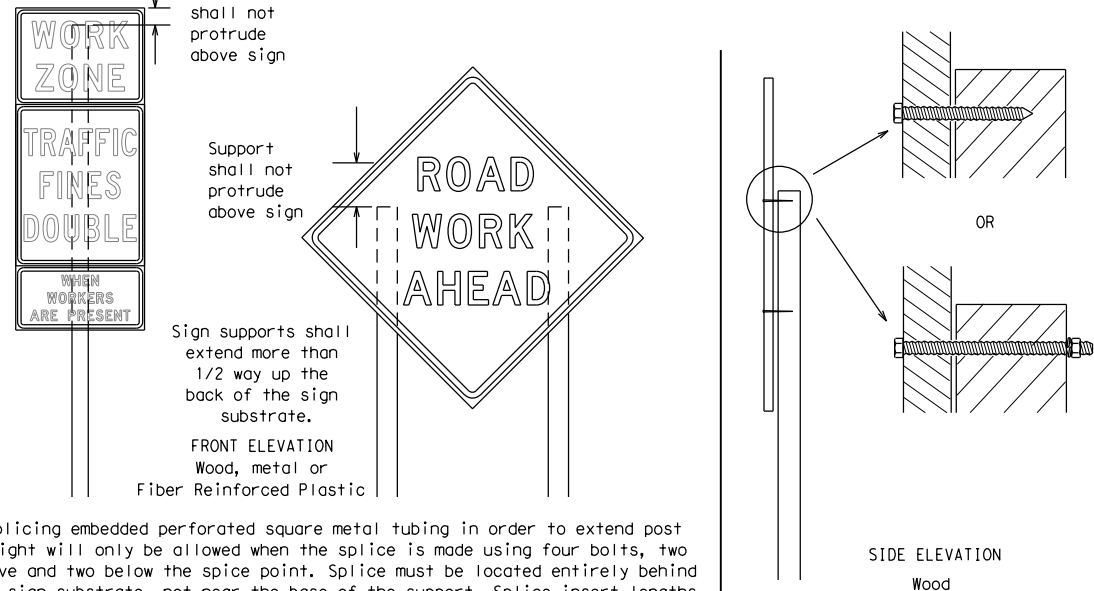
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



* When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

** When plaques are placed on dual-leg supports, they should be attached to the upright nearest the travel lane. Supplemental plaques (advisory or distance) should not cover the surface of the parent sign.

ATTACHMENT FOR SIGN SUPPORTS



Splicing embedded perforated square metal tubing in order to extend post height will only be allowed when the splice is made using four bolts, two above and two below the splice point. Splice must be located entirely behind the sign substrate, not near the base of the support. Splice insert lengths should be at least 5 times nominal post size, centered on the splice and of at least the same gauge material.

GENERAL NOTES FOR WORK ZONE SIGNS

- Contractor shall install and maintain signs in a straight and plumb condition and/or as directed by the Engineer.
- Wooden sign posts shall be painted white.
- Barricades shall NOT be used as sign supports.
- All signs shall be installed in accordance with the plans or as directed by the Engineer. Signs shall be used to regulate, warn, and guide the traveling public safely through the work zone.
- The Contractor may furnish either the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD). The Engineer/Inspector may require the Contractor to furnish other work zone signs that are shown in the TMUTCD but may have been omitted from the plans. Any variation in the plans shall be documented by written agreement between the Engineer and the Contractor's Responsible Person. All changes must be documented in writing before being implemented. This can include documenting the changes in the Inspector's TxDOT diary and having both the Inspector and Contractor initial and date the agreed upon changes.
- The Contractor shall furnish sign supports listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD) for small roadside signs. Supports for temporary large roadside signs shall meet the requirements detailed on the Temporary Large Roadside Signs (TLRS) standard sheets. The Contractor shall install the sign support in accordance with the manufacturer's recommendations. If there is a question regarding installation procedures, the Contractor shall furnish the Engineer a copy of the manufacturer's installation recommendations so the Engineer can verify the correct procedures are being followed.
- The Contractor is responsible for installing signs on approved supports and replacing signs with damaged or cracked substrates and/or damaged or marred reflective sheeting as directed by the Engineer/Inspector.
- Identification markings may be shown only on the back of the sign substrate. The maximum height of letters and/or company logos used for identification shall be 1 inch.
- The Contractor shall replace damaged wood posts. New or damaged wood sign posts shall not be spliced.

DURATION OF WORK (as defined by the "Texas Manual on Uniform Traffic Control Devices" Part 6)

- The types of sign supports, sign mounting height, the size of signs, and the type of sign substrates can vary based on the type of work being performed. The Engineer is responsible for selecting the appropriate size sign for the type of work being performed. The Contractor is responsible for ensuring the sign support, sign mounting height and substrate meets manufacturer's recommendations in regard to crashworthiness and duration of work requirements.
 - Long-term stationary - work that occupies a location more than 3 days.
 - Intermediate-term stationary - work that occupies a location more than one daylight period up to 3 days, or nighttime work lasting more than one hour.
 - Short-term stationary - daytime work that occupies a location for more than 1 hour in a single daylight period.
 - Short, duration - work that occupies a location up to 1 hour.
 - Mobile - work that moves continuously or intermittently (stopping for up to approximately 15 minutes.)

SIGN MOUNTING HEIGHT

- The bottom of Long-term/Intermediate-term signs shall be at least 7 feet, but not more than 9 feet, above the paved surface, except as shown for supplemental plaques mounted below other signs.
- The bottom of Short-term/Short Duration signs shall be a minimum of 1 foot above the pavement surface but no more than 2 feet above the ground.
- Long-term/Intermediate-term Signs may be used in lieu of Short-term/Short Duration signing.
- Short-term/Short Duration signs shall be used only during daylight and shall be removed at the end of the workday or raised to appropriate Long-term/Intermediate sign height.
- Regulatory signs shall be mounted at least 7 feet, but not more than 9 feet, above the paved surface regardless of work duration.

SIZE OF SIGNS

- The Contractor shall furnish the sign sizes shown on BC (2) unless otherwise shown in the plans or as directed by the Engineer.

SIGN SUBSTRATES

- The Contractor shall ensure the sign substrate is installed in accordance with the manufacturer's recommendations for the type of sign support that is being used. The CWZTCD lists each substrate that can be used on the different types and models of sign supports.
- "Mesh" type materials are NOT an approved sign substrate, regardless of the tightness of the weave.
- All wooden individual sign panels fabricated from 2 or more pieces shall have one or more plywood cleat, 1/2" thick by 6" wide, fastened to the back of the sign and extending fully across the sign. The cleat shall be attached to the back of the sign using wood screws that do not penetrate the face of the sign panel. The screws shall be placed on both sides of the splice and spaced at 6" centers. The Engineer may approve other methods of splicing the sign face.

REFLECTIVE SHEETING

- All signs shall be retroreflective and constructed of sheeting meeting the color and retro-reflectivity requirements of DMS-8300 for rigid signs or DMS-8310 for roll-up signs. The web address for DMS specifications is shown on BC(1).
- White sheeting, meeting the requirements of DMS-8300 Type A, shall be used for signs with a white background.
- Orange sheeting, meeting the requirements of DMS-8300 Type B_{FL} or Type C_{FL}, shall be used for rigid signs with orange backgrounds.

SIGN LETTERS

- All sign letters and numbers shall be clear, and open rounded type uppercase alphabet letters as approved by the Federal Highway Administration (FHWA) and as published in the "Standard Highway Sign Design for Texas" manual. Signs, letters and numbers shall be of first class workmanship in accordance with Department Standards and Specifications.

REMOVING OR COVERING

- When sign messages may be confusing or do not apply, the signs shall be removed or completely covered.
- Long-term stationary or intermediate stationary signs installed on square metal tubing may be turned away from traffic 90 degrees when the sign message is not applicable. This technique may not be used for signs installed in the median of divided highways or near any intersections where the sign may be seen from approaching traffic.
- Signs installed on wooden skids shall not be turned at 90 degree angles to the roadway. These signs should be removed or completely covered when not required.
- When signs are covered, the material used shall be opaque, such as heavy mil black plastic, or other materials which will cover the entire sign face and maintain their opaque properties under automobile headlights at night, without damaging the sign sheeting.
- Burlap shall NOT be used to cover signs.
- Duct tape or other adhesive material shall NOT be affixed to a sign face.
- Signs and anchor stubs shall be removed and holes backfilled upon completion of work.

SIGN SUPPORT WEIGHTS

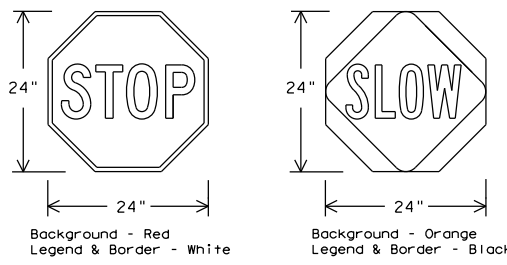
- Where sign supports require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand should be used.
- The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
- Rock, concrete, iron, steel or other solid objects shall not be permitted for use as sign support weights.
- Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs.
- Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall NOT be used.
- Rubber ballasts designed for channelizing devices should not be used for ballast on portable sign supports. Sign supports designed and manufactured with rubber bases may be used when shown on the CWZTCD list.
- Sandbags shall only be placed along or laid over the base supports of the traffic control device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners. Sandbags shall be placed along the length of the skids to weigh down the sign support.
- Sandbags shall NOT be placed under the skid and shall not be used to level sign supports placed on slopes.

FLAGS ON SIGNS

- Flags may be used to draw attention to warning signs. When used, the flag shall be 16 inches square or larger and shall be orange or fluorescent red-orange in color. Flags shall not be allowed to cover any portion of the sign face.

STOP/SLOW PADDLES

- STOP/SLOW paddles are the primary method to control traffic by flaggers. The STOP/SLOW paddle size should be 24" x 24".
- STOP/SLOW paddles shall be retroreflectORIZED when used at night.
- STOP/SLOW paddles may be attached to a staff with a minimum length of 6' to the bottom of the sign.
- Any lights incorporated into the STOP or SLOW paddle faces shall only be as specifically described in Section 6E.03 Hand Signaling Devices in the TMUTCD.



SHEETING REQUIREMENTS (WHEN USED AT NIGHT)		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	RED	TYPE B OR C SHEETING
BACKGROUND	ORANGE	TYPE B _{FL} OR C _{FL} SHEETING
LEGEND & BORDER	WHITE	TYPE B OR C SHEETING
LEGEND & BORDER	BLACK	ACRYLIC NON-REFLECTIVE FILM

CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

- Permanent signs are used to give notice of traffic laws or regulations, call attention to conditions that are potentially hazardous to traffic operations, show route designations, destinations, directions, distances, services, points of interest, and other geographical, recreational, specific service (LOGO), or cultural information. Drivers proceeding through a work zone need the same, if not better route guidance as normally installed on a roadway without construction.
- When permanent regulatory or warning signs conflict with work zone conditions, remove or cover the permanent signs until the permanent sign message matches the roadway condition. For details for covering large guide signs see the TS-CD standard.
- When existing permanent signs are moved and relocated due to construction purposes, they shall be visible to motorists at all times.
- If existing signs are to be relocated on their original supports, they shall be installed on crashworthy bases as shown on the SMD Standard sheets. The signs shall meet the required mounting heights shown on the BC Sheets or the SMD Standards. This work should be paid for under the appropriate pay item for relocating existing signs.
- If permanent signs are to be removed and relocated using temporary supports, the Contractor shall use crashworthy supports as shown on the BC standard sheets, TLRS standard sheets or the CWZTCD list. The signs shall meet the required mounting heights shown on the BC, or the SMD standard sheets during construction. This work should be paid for under the appropriate pay item for relocating existing signs.
- Any sign or traffic control device that is struck or damaged by the Contractor or his/her construction equipment shall be replaced as soon as possible by the Contractor to ensure proper guidance for the motorists. This will be subsidiary to Item 502.

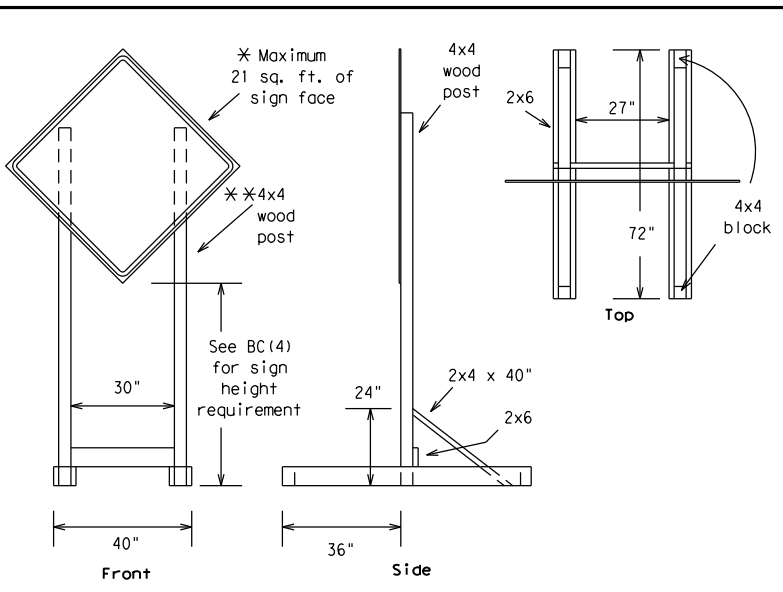
Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC (4) - 21

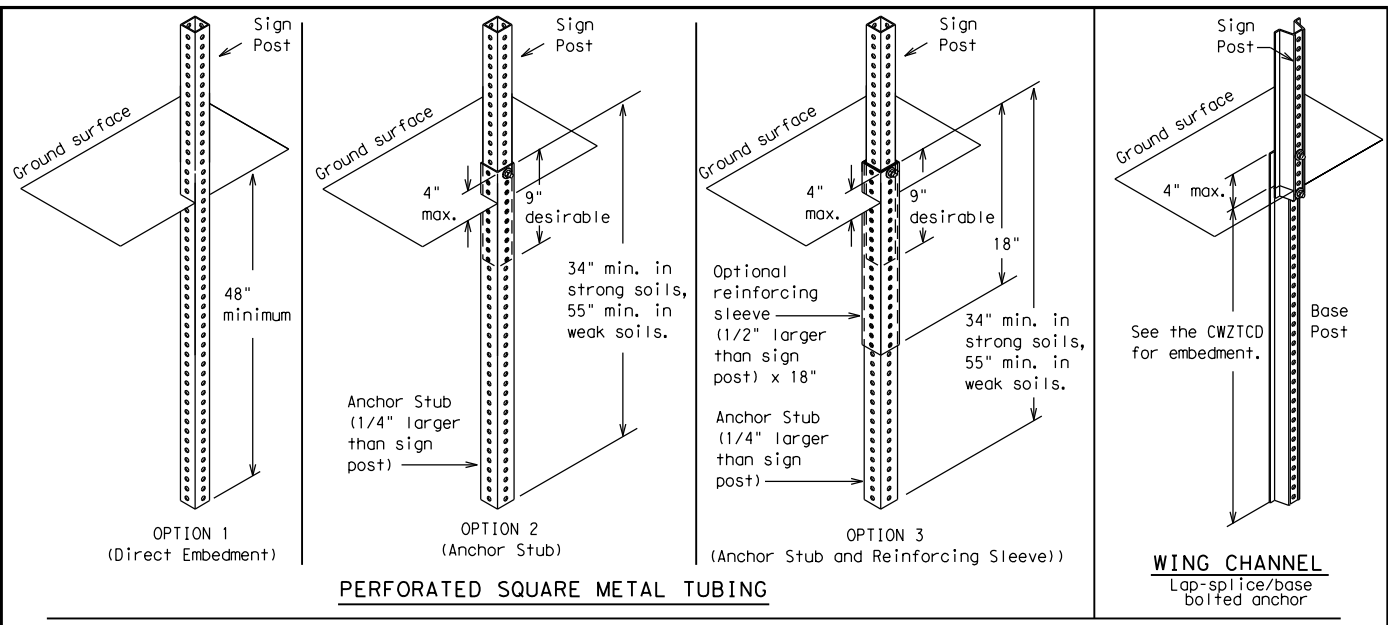
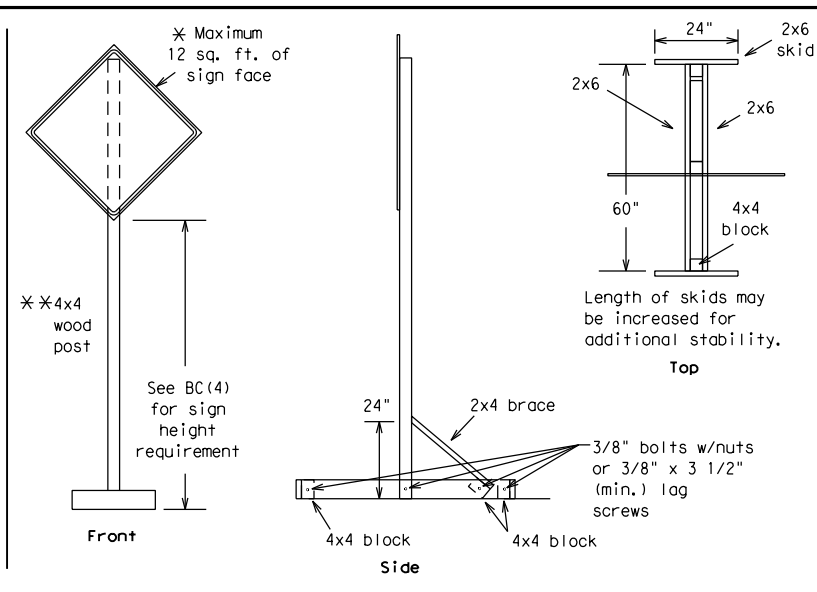
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© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0017	06	091	IH 35
9-07 8-14	DIST	COUNTY	SHEET NO.	
7-13 5-21	SAT	FRIO	16	

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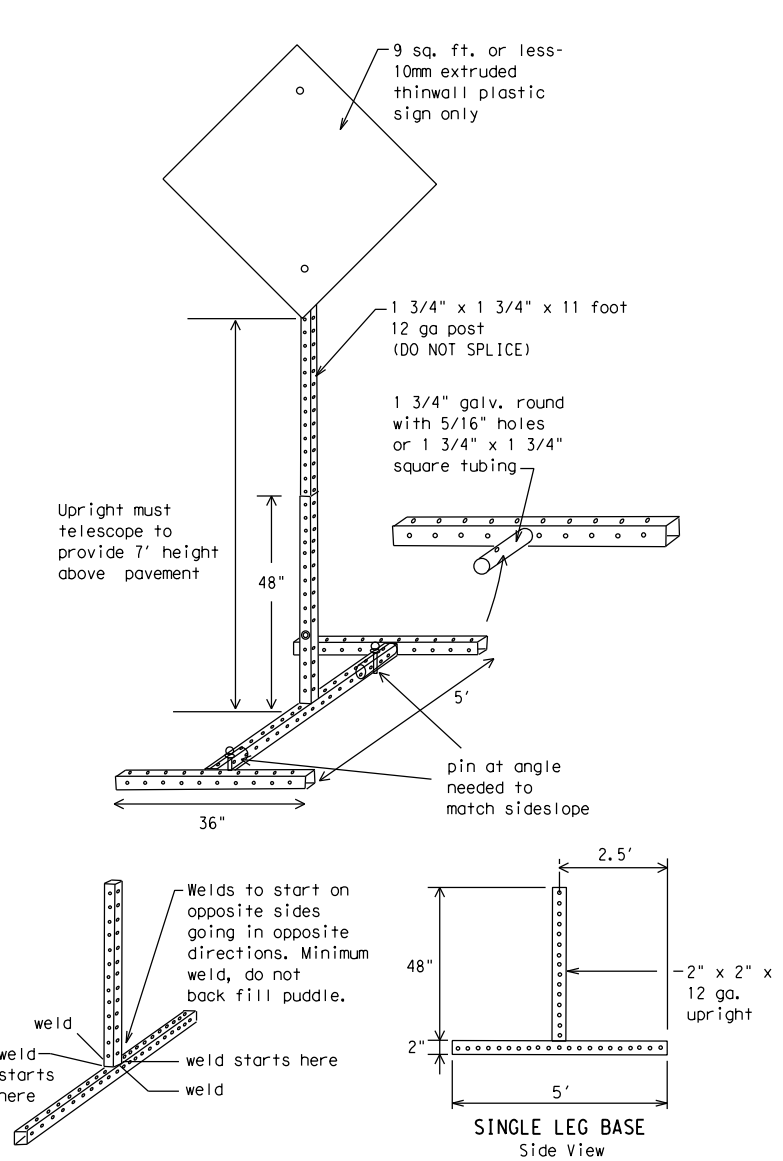
SKID MOUNTED WOOD SIGN SUPPORTS

* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS



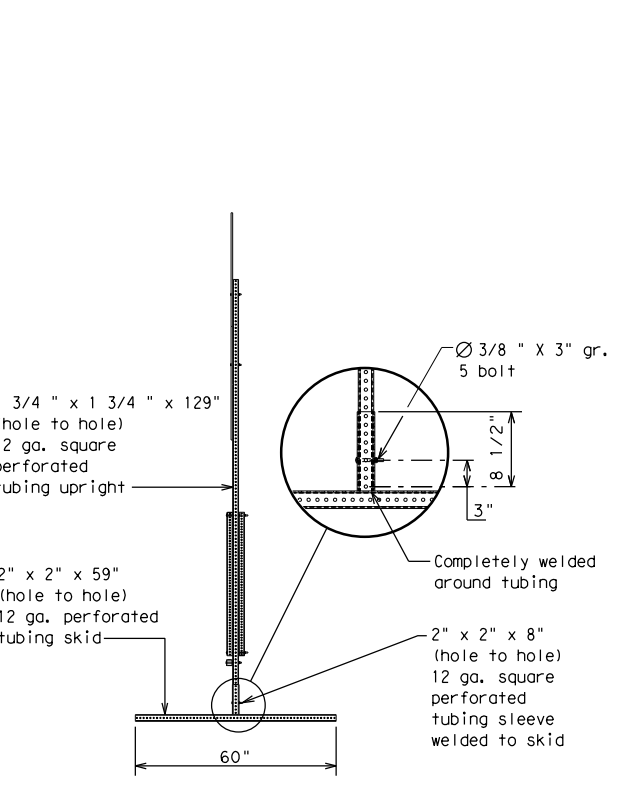
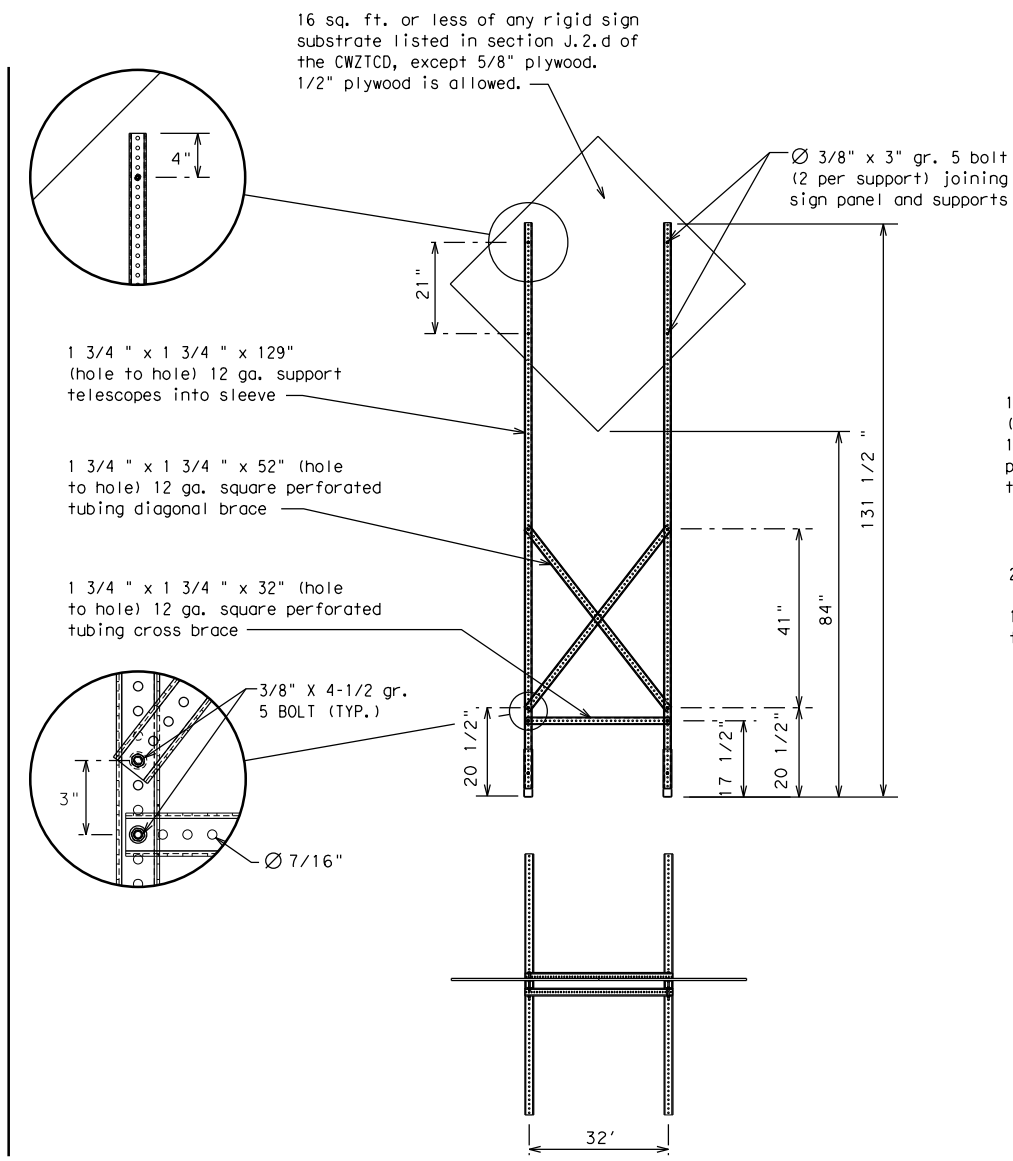
GROUND MOUNTED SIGN SUPPORTS

Refer to the CWZTCD and the manufacturer's installation procedure for each type sign support. The maximum sign square footage shall adhere to the manufacturer's recommendation. Two post installations can be used for larger signs.



SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS



WEDGE ANCHORS
 Both steel and plastic Wedge Anchor Systems as shown on the SMD Standard Sheets may be used as temporary sign supports for signs up to 10 square feet of sign face. They may be set in concrete or in sturdy soils if approved by the Engineer. (See web address for "Traffic Engineering Standard Sheets" on BC(1)).

OTHER DESIGNS
 MORE DETAILS OF APPROVED LONG/INTERMEDIATE AND SHORT TERM SUPPORTS CAN BE FOUND ON THE CWZTCD LIST. SEE BC(1) FOR WEBSITE LOCATION.

- GENERAL NOTES**
- Nails may be used in the assembly of wooden sign supports, but 3/8" bolts with nuts or 3/8" x 3 1/2" lag screws must be used on every joint for final connection.
 - No more than 2 sign posts shall be placed within a 7 ft. circle, except for specific materials noted on the CWZTCD List.
 - When project is completed, all sign supports and foundations shall be removed from the project site. This will be considered subsidiary to Item 502.
- * See BC(4) for definition of "Work Duration."
 - ** Wood sign posts MUST be one piece. Splicing will NOT be allowed. Posts shall be painted white.
 - See the CWZTCD for the type of sign substrate that can be used for each approved sign support.

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5) - 21

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© TxDOT	November 2002	CONT	SECT	JOB	HIGHWAY				
REVISIONS		0017	06	091	IH 35				
9-07	8-14	DIST	COUNTY	SHEET NO.					
7-13	5-21	SAT	FRIO	17					

WHEN NOT IN USE, REMOVE THE PCMS FROM THE RIGHT-OF-WAY OR PLACE THE PCMS BEHIND BARRIER OR GUARDRAIL WITH SIGN PANEL TURNED PARALLEL TO TRAFFIC

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

(The Engineer may approve other messages not specifically covered here.)

PORTABLE CHANGEABLE MESSAGE SIGNS

- The Engineer/Inspector shall approve all messages used on portable changeable message signs (PCMS).
- Messages on PCMS should contain no more than 8 words (about four to eight characters per word), not including simple words such as "TO," "FOR," "AT," etc.
- Messages should consist of a single phase, or two phases that alternate. Three-phase messages are not allowed. Each phase of the message should convey a single thought, and must be understood by itself.
- Use the word "EXIT" to refer to an exit ramp on a freeway; i.e., "EXIT CLOSED." Do not use the term "RAMP."
- Always use the route or interstate designation (IH, US, SH, FM) along with the number when referring to a roadway.
- When in use, the bottom of a stationary PCMS message panel should be a minimum 7 feet above the roadway, where possible.
- The message term "WEEKEND" should be used only if the work is to start on Saturday morning and end by Sunday evening at midnight. Actual days and hours of work should be displayed on the PCMS if work is to begin on Friday evening and/or continue into Monday morning.
- The Engineer/Inspector may select one of two options which are available for displaying a two-phase message on a PCMS. Each phase may be displayed for either four seconds each or for three seconds each.
- Do not "flash" messages or words included in a message. The message should be steady burn or continuous while displayed.
- Do not present redundant information on a two-phase message; i.e., keeping two lines of the message the same and changing the third line.
- Do not use the word "Danger" in message.
- Do not display the message "LANES SHIFT LEFT" or "LANES SHIFT RIGHT" on a PCMS. Drivers do not understand the message.
- Do not display messages that scroll horizontally or vertically across the face of the sign.
- The following table lists abbreviated words and two-word phrases that are acceptable for use on a PCMS. Both words in a phrase must be displayed together. Words or phrases not on this list should not be abbreviated, unless shown in the TMUTCD.
- PCMS character height should be at least 18 inches for trailer mounted units. They should be visible from at least 1/2 (.5) mile and the text should be legible from at least 600 feet at night and 800 feet in daylight. Truck mounted units must have a character height of 10 inches and must be legible from at least 400 feet.
- Each line of text should be centered on the message board rather than left or right justified.
- If disabled, the PCMS should default to an illegible display that will not alarm motorists and will only be used to alert workers that the PCMS has malfunctioned. A pattern such as a series of horizontal solid bars is appropriate.

Phase 1: Condition Lists

Road/Lane/Ramp Closure List

FREEWAY CLOSED X MILE	FRONTAGE ROAD CLOSED
ROAD CLOSED AT SH XXX	SHOULDER CLOSED XXX FT
ROAD CLSD AT FM XXXX	RIGHT LN CLOSED XXX FT
RIGHT X LANES CLOSED	RIGHT X LANES OPEN
CENTER LANE CLOSED	DAYTIME LANE CLOSURES
NIGHT LANE CLOSURES	I-XX SOUTH EXIT CLOSED
VARIOUS LANES CLOSED	EXIT XXX CLOSED X MILE
EXIT CLOSED	RIGHT LN TO BE CLOSED
MALL DRIVEWAY CLOSED	X LANES CLOSED TUE - FRI
XXXXXXXX BLVD CLOSED	

Other Condition List

ROADWORK XXX FT	ROAD REPAIRS XXXX FT
FLAGGER XXXX FT	LANE NARROWS XXXX FT
RIGHT LN NARROWS XXXX FT	TWO-WAY TRAFFIC XX MILE
MERGING TRAFFIC XXXX FT	CONST TRAFFIC XXX FT
LOOSE GRAVEL XXXX FT	UNEVEN LANES XXXX FT
DETOUR X MILE	ROUGH ROAD XXXX FT
ROADWORK PAST SH XXXX	ROADWORK NEXT FRI-SUN
BUMP XXXX FT	US XXX EXIT X MILES
TRAFFIC SIGNAL XXXX FT	LANES SHIFT *

* LANES SHIFT in Phase 1 must be used with STAY IN LANE in Phase 2.

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List

MERGE RIGHT	FORM X LINES RIGHT
DETOUR NEXT X EXITS	USE XXXXX RD EXIT
USE EXIT XXX	USE EXIT I-XX NORTH
STAY ON US XXX SOUTH	USE I-XX E TO I-XX N
TRUCKS USE US XXX N	WATCH FOR TRUCKS
WATCH FOR TRUCKS	EXPECT DELAYS
EXPECT DELAYS	PREPARE TO STOP
REDUCE SPEED XXX FT	END SHOULDER USE
USE OTHER ROUTES	WATCH FOR WORKERS
STAY IN LANE *	

Location List

AT FM XXXX
BEFORE RAILROAD CROSSING
NEXT X MILES
PAST US XXX EXIT
XXXXXXXX TO XXXXXX
US XXX TO FM XXXX

Warning List

SPEED LIMIT XX MPH
MAXIMUM SPEED XX MPH
MINIMUM SPEED XX MPH
ADVISORY SPEED XX MPH
RIGHT LANE EXIT
USE CAUTION
DRIVE SAFELY
DRIVE WITH CARE

** Advance Notice List

TUE-FRI XX AM-X PM
APR XX-XX X PM-X AM
BEGINS MONDAY
BEGINS MAY XX
MAY X-X XX PM - XX AM
NEXT FRI-SUN
XX AM TO XX PM
NEXT TUE AUG XX
TONIGHT XX PM-XX AM

** See Application Guidelines Note 6.

APPLICATION GUIDELINES

- Only 1 or 2 phases are to be used on a PCMS.
- The 1st phase (or both) should be selected from the "Road/Lane/Ramp Closure List" and the "Other Condition List".
- A 2nd phase can be selected from the "Action to Take/Effect on Travel, Location, General Warning, or Advance Notice Phase Lists".
- A Location Phase is necessary only if a distance or location is not included in the first phase selected.
- If two PCMS are used in sequence, they must be separated by a minimum of 1000 ft. Each PCMS shall be limited to two phases, and should be understandable by themselves.
- For advance notice, when the current date is within seven days of the actual work date, calendar days should be replaced with days of the week. Advance notification should typically be for no more than one week prior to the work.

WORDING ALTERNATIVES

- The words RIGHT, LEFT and ALL can be interchanged as appropriate.
- Roadway designations IH, US, SH, FM and LP can be interchanged as appropriate.
- EAST, WEST, NORTH and SOUTH (or abbreviations E, W, N and S) can be interchanged as appropriate.
- Highway names and numbers replaced as appropriate.
- ROAD, HIGHWAY and FREEWAY can be interchanged as needed.
- AHEAD may be used instead of distances if necessary.
- FT and MI, MILE and MILES interchanged as appropriate.
- AT, BEFORE and PAST interchanged as needed.
- Distances or AHEAD can be eliminated from the message if a location phase is used.

PCMS SIGNS WITHIN THE R.O.W. SHALL BE BEHIND GUARDRAIL OR CONCRETE BARRIER OR SHALL HAVE A MINIMUM OF FOUR (4) PLASTIC DRUMS PLACED PERPENDICULAR TO TRAFFIC ON THE UPSTREAM SIDE OF THE PCMS, WHEN EXPOSED TO ONE DIRECTION OF TRAFFIC. WHEN EXPOSED TO TWO WAY TRAFFIC, THE FOUR DRUMS SHOULD BE PLACED WITH ONE DRUM AT EACH OF THE FOUR CORNERS OF THE UNIT.

FULL MATRIX PCMS SIGNS

- When Full Matrix PCMS signs are used, the character height and legibility/visibility requirements shall be maintained as listed in Note 15 under "PORTABLE CHANGEABLE MESSAGE SIGNS" above.
- When symbol signs, such as the "Flagger Symbol" (CW20-7) are represented graphically on the Full Matrix PCMS sign and, with the approval of the Engineer, it shall maintain the legibility/visibility requirement listed above.
- When symbol signs are represented graphically on the Full Matrix PCMS, they shall only supplement the use of the static sign represented, and shall not substitute for, or replace that sign.
- A full matrix PCMS may be used to simulate a flashing arrow board provided it meets the visibility, flash rate and dimming requirements on BC(7), for the same size arrow.

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WORD OR PHRASE	ABBREVIATION	WORD OR PHRASE	ABBREVIATION
Access Road	ACCS RD	Major	MAJ
Alternate	ALT	Miles	MI
Avenue	AVE	Miles Per Hour	MPH
Best Route	BEST RTE	Minor	MNR
Boulevard	BLVD	Monday	MON
Bridge	BRDG	Normal	NORM
Cannot	CANT	North	N
Center	CTR	Northbound	(route) N
Construction Ahead	CONST AHD	Parking	PKING
CROSSING	XING	Road	RD
Detour Route	DETOUR RTE	Right Lane	RT LN
Do Not	DONT	Saturday	SAT
East	E	Service Road	SERV RD
Eastbound	(route) E	Shoulder	SHLDR
Emergency	EMER	Slippery	SLIP
Emergency Vehicle	EMER VEH	South	S
Entrance, Enter	ENT	Southbound	(route) S
Express Lane	EXP LN	Speed	SPD
Expressway	EXPWY	Street	ST
XXXX Feet	XXXX FT	Sunday	SUN
Fog Ahead	FOG AHD	Telephone	PHONE
Freeway	FRWY, FWY	Temporary	TEMP
Freeway Blocked	FWY BLKD	Thursday	THURS
Friday	FRI	To Downtown	TO DWNTN
Hazardous Driving	HAZ DRIVING	Traffic	TRAF
Hazardous Material	HAZMAT	Travelers	TRVLR
High-Occupancy Vehicle	HOV	Tuesday	TUES
Highway	Hwy	Time Minutes	TIME MIN
Hour(s)	HR, HRS	Upper Level	UPR LEVEL
Information	INFO	Vehicles (s)	VEH, VEHS
It Is	ITS	Warning	WARN
Junction	JCT	Wednesday	WED
Left	LFT	Weight Limit	WT LIMIT
Left Lane	LFT LN	West	W
Lane Closed	LN CLOSED	Westbound	(route) W
Lower Level	LWR LEVEL	Wet Pavement	WET PVMT
Maintenance	MAINT	Will Not	WONT

Roadway designation # IH-number, US-number, SH-number, FM-number



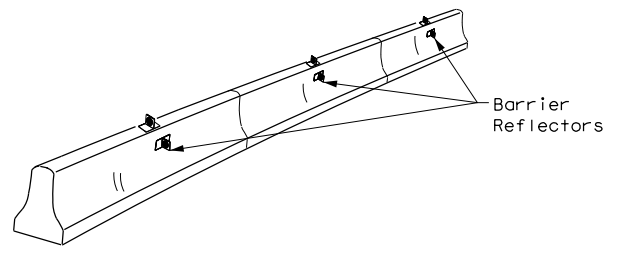
BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC (6) - 21

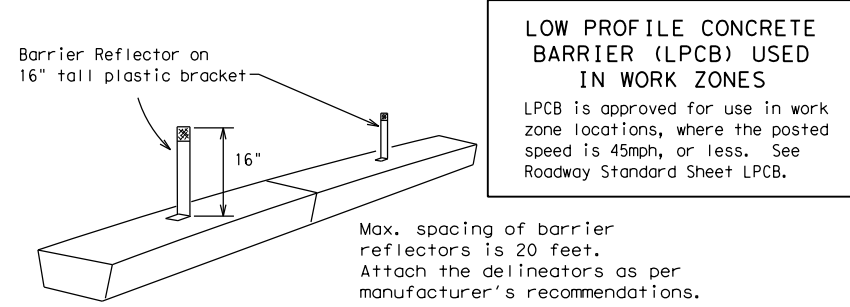
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9-07	8-14	DIST:		COUNTY:		SHEET NO.:			
7-13	5-21	SAT:		FRIO					18

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- Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
- Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost of the reflectors shall be considered subsidiary to Item 512.



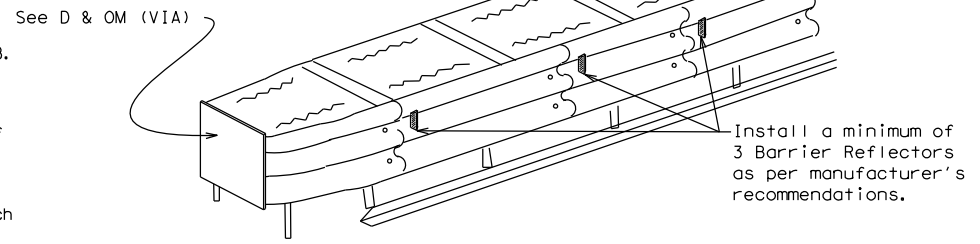
CONCRETE TRAFFIC BARRIER (CTB)



LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES
 LPCB is approved for use in work zone locations, where the posted speed is 45mph, or less. See Roadway Standard Sheet LPCB.

LOW PROFILE CONCRETE BARRIER (LPCB)

- Where traffic is on one side of the CTB, two (2) Barrier Reflectors shall be mounted in approximately the midsection of each section of CTB. An alternate mounting location is uniformly spaced at one end of each CTB. This will allow for attachment of a barrier grapple without damaging the reflector. The Barrier Reflector mounted on the side of the CTB shall be located directly below the reflector mounted on top of the barrier, as shown in the detail above.
- Where CTB separates two-way traffic, three barrier reflectors shall be mounted on each section of CTB. The reflector unit on top shall have two yellow reflective faces (Bi-Directional) while the reflectors on each side of the barrier shall have one yellow reflective face, as shown in the detail above.
- When CTB separates traffic traveling in the same direction, no barrier reflectors will be required on top of the CTB.
- Barrier Reflector units shall be yellow or white in color to match the edgeline being supplemented.
- Maximum spacing of Barrier Reflectors is forty (40) feet.
- Pavement markers or temporary flexible-reflective roadway marker tabs shall NOT be used as CTB delineation.
- Attachment of Barrier Reflectors to CTB shall be per manufacturer's recommendations.
- Missing or damaged Barrier Reflectors shall be replaced as directed by the Engineer.
- Single slope barriers shall be delineated as shown on the above detail.



DELINEATION OF END TREATMENTS

END TREATMENTS FOR CTB'S USED IN WORK ZONES
 End treatments used on CTB's in work zones shall meet the appropriate crashworthy standards as defined in the Manual for Assessing Safety Hardware (MASH). Refer to the CWZTCD List for approved end treatments and manufacturers.

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS

WARNING LIGHTS

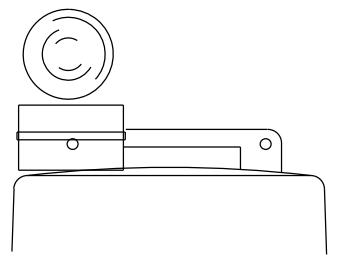
- Warning lights shall meet the requirements of the TMUTCD.
- Warning lights shall NOT be installed on barricades.
- Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn of or mark a potentially hazardous area. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "FL". The Type A Warning Lights shall not be used with signs manufactured with Type B_{FL} or C_{FL} Sheeting meeting the requirements of Departmental Material Specification DMS-8300.
- Type-C and Type D 360 degree Steady Burn Lights are intended to be used in a series for delineation to supplement other traffic control devices. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "SB".
- The Engineer/Inspector or the plans shall specify the location and type of warning lights to be installed on the traffic control devices.
- When required by the Engineer, the Contractor shall furnish a copy of the warning lights certification. The warning light manufacturer will certify the warning lights meet the requirements of the latest ITE Purchase Specifications for Flashing and Steady-Burn Warning Lights.
- When used to delineate curves, Type-C and Type D Steady Burn Lights should only be placed on the outside of the curve, not the inside.
- The location of warning lights and warning reflectors on drums shall be as shown elsewhere in the plans.

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

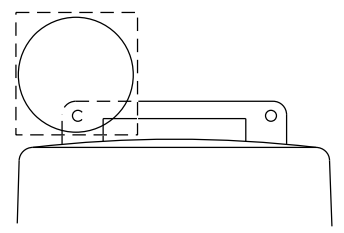
- Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
- Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
- A series of sequential flashing warning lights placed on channelizing devices to form a merging taper may be used for delineation. If used, the successive flashing of the sequential warning lights should occur from the beginning of the taper to the end of the merging taper in order to identify the desired vehicle path. The rate of flashing for each light shall be 65 flashes per minute, plus or minus 10 flashes.
- Type C and D steady-burn warning lights are intended to be used in a series to delineate the edge of the travel lane on detours, on lane changes, on lane closures, and on other similar conditions.
- Type A, Type C and Type D warning lights shall be installed at locations as detailed on other sheets in the plans.
- Warning lights shall not be installed on a drum that has a sign, chevron or vertical panel.
- The maximum spacing for warning lights on drums should be identical to the channelizing device spacing.

WARNING REFLECTORS MOUNTED ON PLASTIC DRUMS AS A SUBSTITUTE FOR TYPE C (STEADY BURN) WARNING LIGHTS

- A warning reflector or approved substitute may be mounted on a plastic drum as a substitute for a Type C, steady burn warning light at the discretion of the Contractor unless otherwise noted in the plans.
- The warning reflector shall be yellow in color and shall be manufactured using a sign substrate approved for use with plastic drums listed on the CWZTCD.
- The warning reflector shall have a minimum retroreflective surface area (one-side) of 30 square inches.
- Round reflectors shall be fully reflectorized, including the area where attached to the drum.
- Square substrates must have a minimum of 30 square inches of reflectorized sheeting. They do not have to be reflectorized where it attaches to the drum.
- The side of the warning reflector facing approaching traffic shall have sheeting meeting the color and retroreflectivity requirements for DMS 8300-Type B or Type C.
- When used near two-way traffic, both sides of the warning reflector shall be reflectorized.
- The warning reflector should be mounted on the side of the handle nearest approaching traffic.
- The maximum spacing for warning reflectors should be identical to the channelizing device spacing requirements.



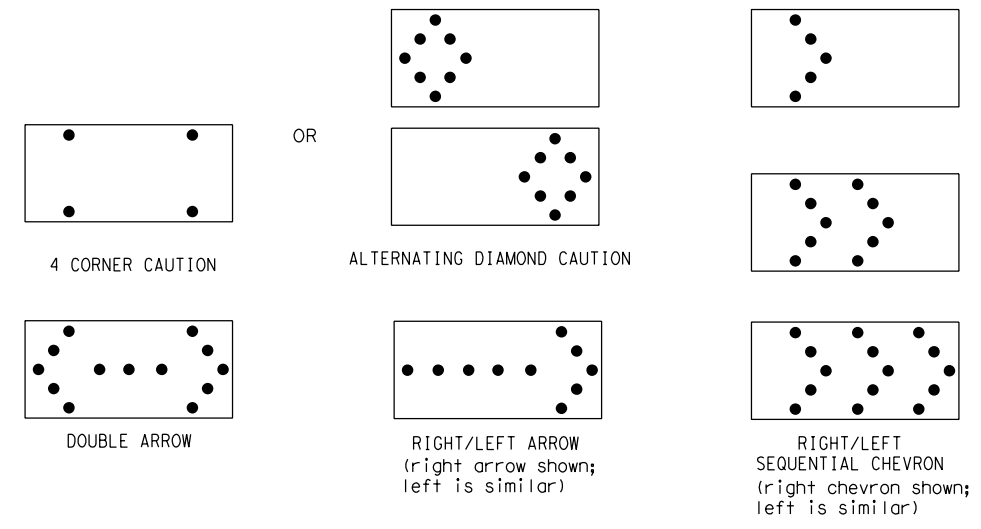
Type C Warning Light or approved substitute mounted on a drum adjacent to the travel way.



Warning reflector may be round or square. Must have a yellow reflective surface area of at least 30 square inches

Arrow Boards may be located behind channelizing devices in place for a shoulder taper or merging taper, otherwise they shall be delineated with four (4) channelizing devices placed perpendicular to traffic on the upstream side of traffic.

- The Flashing Arrow Board should be used for all lane closures on multi-lane roadways, or slow moving maintenance or construction activities on the travel lanes.
- Flashing Arrow Boards should not be used on two-lane, two-way roadways, detours, diversions or work on shoulders unless the "CAUTION" display (see detail below) is used.
- The Engineer/Inspector shall choose all appropriate signs, barricades and/or other traffic control devices that should be used in conjunction with the Flashing Arrow Board.
- The Flashing Arrow Board should be able to display the following symbols:



- The "CAUTION" display consists of four corner lamps flashing simultaneously, or the Alternating Diamond Caution mode as shown.
- The straight line caution display is NOT ALLOWED.
- The Flashing Arrow Board shall be capable of minimum 50 percent dimming from rated lamp voltage. The flashing rate of the lamps shall not be less than 25 nor more than 40 flashes per minute.
- Minimum lamp "on time" shall be approximately 50 percent for the flashing arrow and equal intervals of 25 percent for each sequential phase of the flashing chevron.
- The sequential arrow display is NOT ALLOWED.
- The flashing arrow display is the TxDOT standard; however, the sequential chevron display may be used during daylight operations.
- The Flashing Arrow Board shall be mounted on a vehicle, trailer or other suitable support.
- A Flashing Arrow Board SHALL NOT BE USED to laterally shift traffic.
- A full matrix PCMS may be used to simulate a Flashing Arrow Board provided it meets visibility, flash rate and dimming requirements on this sheet for the same size arrow.
- Minimum mounting height of trailer mounted Arrow Boards should be 7 feet from roadway to bottom of panel.

REQUIREMENTS			
TYPE	MINIMUM SIZE	MINIMUM NUMBER OF PANEL LAMPS	MINIMUM VISIBILITY DISTANCE
B	30 x 60	13	3/4 mile
C	48 x 96	15	1 mile

ATTENTION
 Flashing Arrow Boards shall be equipped with automatic dimming devices.

WHEN NOT IN USE, REMOVE THE ARROW BOARD FROM THE RIGHT-OF-WAY OR PLACE THE ARROW BOARD BEHIND CONCRETE TRAFFIC BARRIER OR GUARDRAIL.

FLASHING ARROW BOARDS

SHEET 7 OF 12

TRUCK-MOUNTED ATTENUATORS

- Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the Manual for Assessing Safety Hardware (MASH).
- Refer to the CWZTCD for the requirements of Level 2 or Level 3 TMAs.
- Refer to the CWZTCD for a list of approved TMAs.
- TMAs are required on freeways unless otherwise noted in the plans.
- A TMA should be used anytime that it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the work performance.
- The only reason a TMA should not be required is when a work area is spread down the roadway and the work crew is an extended distance from the TMA.



BARRICADE AND CONSTRUCTION ARROW PANEL, REFLECTORS, WARNING LIGHTS & ATTENUATOR

BC (7) - 21

FILE:	bc-21.dgn	DN:	TxDOT	CR:	TxDOT	OW:	TxDOT	CK:	TxDOT
© TxDOT	November 2002	CONT	SECT	JOB	HIGHWAY				
REVISIONS		0017	06	091	IH 35				
9-07	8-14	DIST	COUNTY	SHEET NO.					
7-13	5-21	SAT	FRIO	19					

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GENERAL NOTES

- For long term stationary work zones on freeways, drums shall be used as the primary channelizing device.
- For intermediate term stationary work zones on freeways, drums should be used as the primary channelizing device but may be replaced in tangent sections by vertical panels, or 42" two-piece cones. In tangent sections, one-piece cones may be used with the approval of the Engineer but only if personnel are present on the project at all times to maintain the cones in proper position and location.
- For short term stationary work zones on freeways, drums are the preferred channelizing device but may be replaced in tapers, transitions and tangent sections by vertical panels, two-piece cones or one-piece cones as approved by the Engineer.
- Drums and all related items shall comply with the requirements of the current version of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
- Drums, bases, and related materials shall exhibit good workmanship and shall be free from objectionable marks or defects that would adversely affect their appearance or serviceability.
- The Contractor shall have a maximum of 24 hours to replace any plastic drums identified for replacement by the Engineer/Inspector. The replacement device must be an approved device.

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

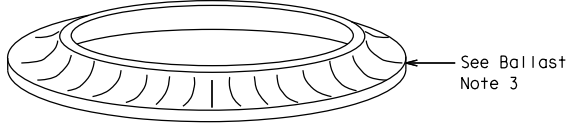
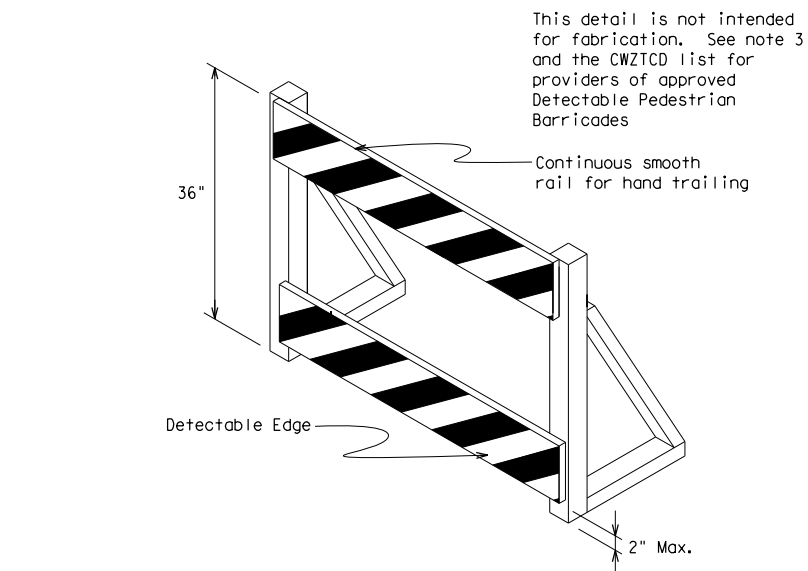
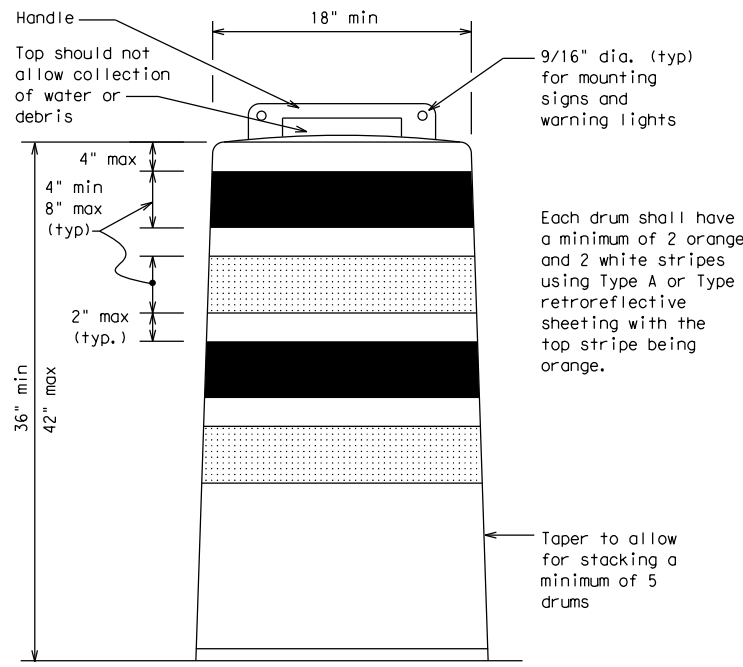
- Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
- The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents accidental separation due to normal handling and/or air turbulence created by passing vehicles.
- Plastic drums shall be constructed of lightweight flexible, and deformable materials. The Contractor shall NOT use metal drums or single piece plastic drums as channelization devices or sign supports.
- Drums shall present a profile that is a minimum of 18 inches in width at the 36 inch height when viewed from any direction. The height of drum unit (body installed on base) shall be a minimum of 36 inches and a maximum of 42 inches.
- The top of the drum shall have a built-in handle for easy pickup and shall be designed to drain water and not collect debris. The handle shall have a minimum of two widely spaced 9/16 inch diameter holes to allow attachment of a warning light, warning reflector unit or approved compliant sign.
- The exterior of the drum body shall have a minimum of four alternating orange and white retroreflective circumferential stripes not less than 4 inches nor greater than 8 inches in width. Any non-reflectorized space between any two adjacent stripes shall not exceed 2 inches in width.
- Bases shall have a maximum width of 36 inches, a maximum height of 4 inches, and a minimum of two footholds of sufficient size to allow base to be held down while separating the drum body from the base.
- Plastic drums shall be constructed of ultra-violet stabilized, orange, high-density polyethylene (HDPE) or other approved material.
- Drum body shall have a maximum unballasted weight of 11 lbs.
- Drum and base shall be marked with manufacturer's name and model number.

RETROREFLECTIVE SHEETING

- The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials." Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
- The sheeting shall be suitable for use on and shall adhere to the drum surface such that, upon vehicular impact, the sheeting shall remain adhered in-place and exhibit no delaminating, cracking, or loss of retroreflectivity other than that loss due to abrasion of the sheeting surface.

BALLAST

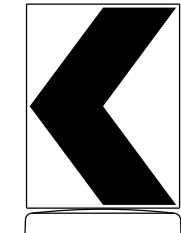
- Unballasted bases shall be large enough to hold up to 50 lbs. of sand. This base, when filled with the ballast material, should weigh between 35 lbs (minimum) and 50 lbs (maximum). The ballast may be sand in one to three sandbags separate from the base, sand in a sand-filled plastic base, or other ballasting devices as approved by the Engineer. Stacking of sandbags will be allowed, however height of sandbags above pavement surface may not exceed 12 inches.
- Bases with built-in ballast shall weigh between 40 lbs. and 50 lbs. Built-in ballast can be constructed of an integral crumb rubber base or a solid rubber base.
- Recycled truck tire sidewalls may be used for ballast on drums approved for this type of ballast on the CWZTCD list.
- The ballast shall not be heavy objects, water, or any material that would become hazardous to motorists, pedestrians, or workers when the drum is struck by a vehicle.
- When used in regions susceptible to freezing, drums shall have drainage holes in the bottoms so that water will not collect and freeze becoming a hazard when struck by a vehicle.
- Ballast shall not be placed on top of drums.
- Adhesives may be used to secure base of drums to pavement.



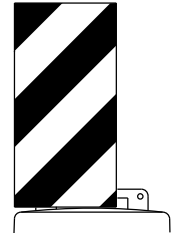
This detail is not intended for fabrication. See note 3 and the CWZTCD list for providers of approved Detectable Pedestrian Barricades

DETECTABLE PEDESTRIAN BARRICADES

- When existing pedestrian facilities are disrupted, closed, or relocated in a TTC zone, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility. Refer to WZ(BTS-2) for Pedestrian Control requirements for Sidewalk Diversions, Sidewalk Detours and Crosswalk Closures.
- Where pedestrians with visual disabilities normally use the closed sidewalk, a Detectable Pedestrian Barricade shall be placed across the full width of the closed sidewalk instead of a Type 3 Barricade.
- Detectable pedestrian barricades similar to the one pictured above, longitudinal channelizing devices, some concrete barriers, and wood or chain link fencing with a continuous detectable edging can satisfactorily delineate a pedestrian path.
- Tape, rope, or plastic chain strung between devices are not detectable, do not comply with the design standards in the "Americans with Disabilities Act Accessibility Guidelines (ADAAG)" and should not be used as a control for pedestrian movements.
- Warning lights shall not be attached to detectable pedestrian barricades.
- Detectable pedestrian barricades should use 8" nominal barricade rails as shown on BC(10) provided that the top rail provides a smooth continuous rail suitable for hand trailing with no splinters, burrs, or sharp edges.



18" x 24" Sign
(Maximum Sign Dimension)
Chevron CW1-8, Opposing Traffic Lane
Divider, Driveway sign D70a, Keep Right
R4 series or other signs as approved
by Engineer



12" x 24"
Vertical Panel
mount with diagonals
sloping down towards
travel way

Plywood, Aluminum or Metal sign substrates shall NOT be used on plastic drums

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

- Signs used on plastic drums shall be manufactured using substrates listed on the CWZTCD.
- Chevrons and other work zone signs with an orange background shall be manufactured with Type B_{FL} or Type C_{FL} Orange sheeting meeting the color and retroreflectivity requirements of DMS-8300, "Sign Face Material," unless otherwise specified in the plans.
- Vertical Panels shall be manufactured with orange and white sheeting meeting the requirements of DMS-8300 Type A or Type B. Diagonal stripes on Vertical Panels shall slope down toward the intended traveled lane.
- Other sign messages (text or symbolic) may be used as approved by the Engineer. Sign dimensions shall not exceed 18 inches in width or 24 inches in height, except for the R9 series signs discussed in note 8 below.
- Signs shall be installed using a 1/2 inch bolt (nominal) and nut, two washers, and one locking washer for each connection.
- Mounting bolts and nuts shall be fully engaged and adequately torqued. Bolts should not extend more than 1/2 inch beyond nuts.
- Chevrons may be placed on drums on the outside of curves, on merging tapers or on shifting tapers. When used in these locations, they may be placed on every drum or spaced not more than on every third drum. A minimum of three (3) should be used at each location called for in the plans.
- R9-9, R9-10, R9-11 and R9-11a Sidewalk Closed signs which are 24 inches wide may be mounted on plastic drums, with approval of the Engineer.

SHEET 8 OF 12



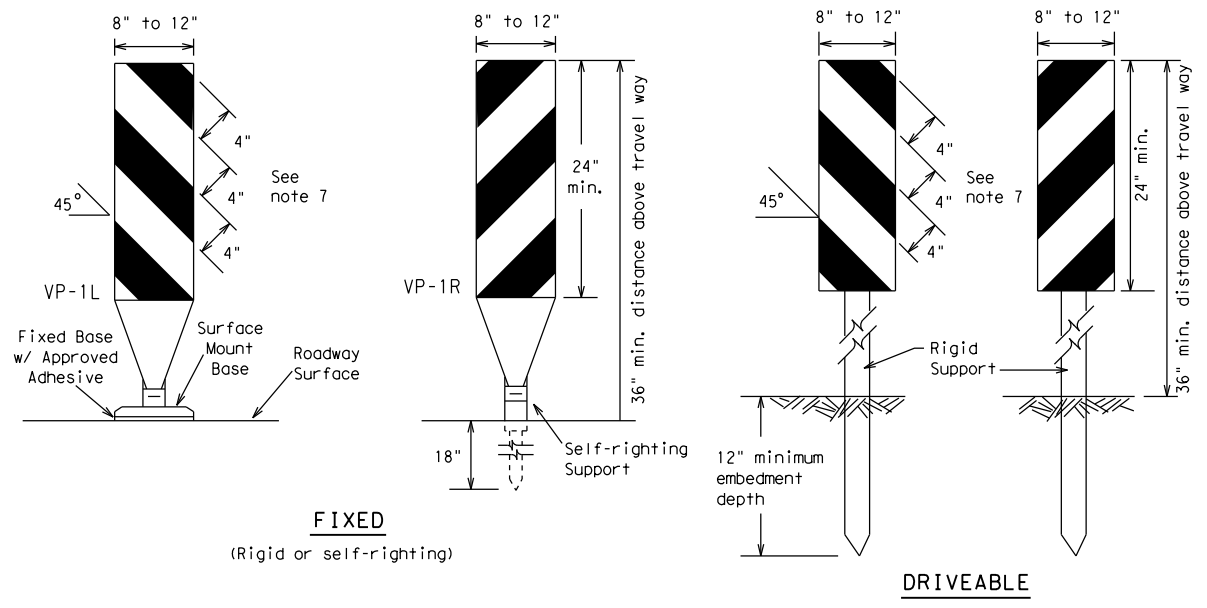
BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC (8) - 21

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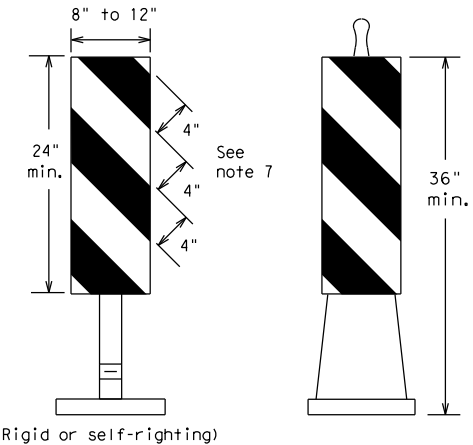
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FIXED
(Rigid or self-righting)

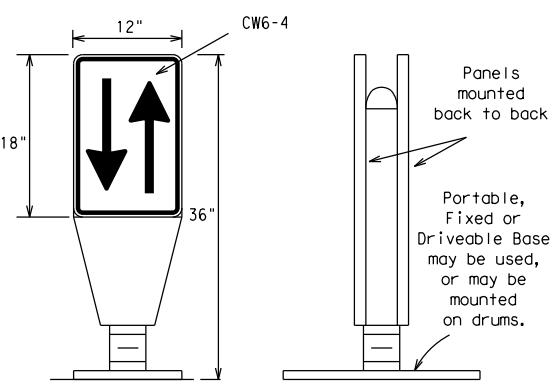
DRIVEABLE



PORTABLE

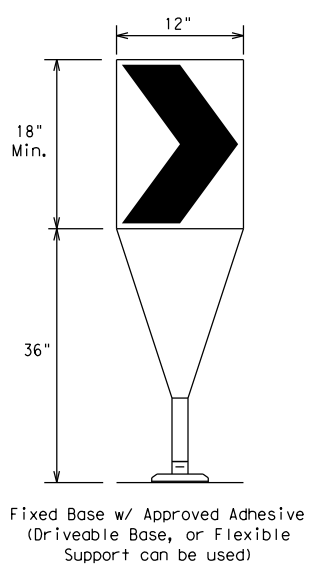
VERTICAL PANELS (VPs)

- Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
- VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is required. The Engineer/Inspector shall refer to the Roadway Design Manual for additional requirements on the use VP's for drop-offs.
- VP's should be mounted back to back if used at the edge of cuts adjacent to two-way two lane roadways. Stripes are to be reflective orange and reflective white and should always slope downward toward the travel lane.
- VP's used on expressways and freeways or other high speed roadways, may have more than 270 square inches of retroreflective area facing traffic.
- Self-righting supports are available with portable base. See "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
- Sheeting for the VP's shall be retroreflective Type A or Type B conforming to Departmental Material Specification DMS-8300, unless noted otherwise.
- Where the height of reflective material on the vertical panel is 36 inches or greater, a panel stripe of 6 inches shall be used.



OPPOSING TRAFFIC LANE DIVIDERS (OTLD)

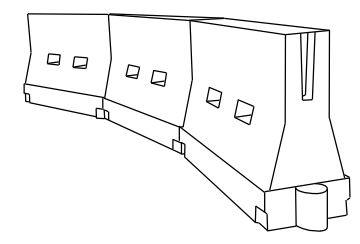
- Opposing Traffic Lane Dividers (OTLD) are delineation devices designed to convert a normal one-way roadway section to two-way operation. OTLD's are used on temporary centerlines. The upward and downward arrows on the sign's face indicate the direction of traffic on either side of the divider. The base is secured to the pavement with an adhesive or rubber weight to minimize movement caused by a vehicle impact or wind gust.
- The OTLD may be used in combination with 42" cones or VPs.
- Spacing between the OTLD shall not exceed 500 feet. 42" cones or VPs placed between the OTLD's should not exceed 100 foot spacing.
- The OTLD shall be orange with a black non-reflective legend. Sheeting for the OTLD shall be retroreflective Type B_{FL} or Type C_{FL} conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.



Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

- The chevron shall be a vertical rectangle with a minimum size of 12 by 18 inches.
- Chevrons are intended to give notice of a sharp change of alignment with the direction of travel and provide additional emphasis and guidance for vehicle operators with regard to changes in horizontal alignment of the roadway.
- Chevrons, when used, shall be erected on the outside of a sharp curve or turn, or on the far side of an intersection. They shall be in line with and at right angles to approaching traffic. Spacing should be such that the motorist always has three in view, until the change in alignment eliminates its need.
- To be effective, the chevron should be visible for at least 500 feet.
- Chevrons shall be orange with a black nonreflective legend. Sheeting for the chevron shall be retroreflective Type B_{FL} or Type C_{FL} conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.
- For Long Term Stationary use on tapers or transitions on freeways and divided highways, self-righting chevrons may be used to supplement plastic drums but not to replace plastic drums.

CHEVRONS



LONGITUDINAL CHANNELIZING DEVICES (LCD)

- LCDs are crashworthy, lightweight, deformable devices that are highly visible, have good target value and can be connected together. They are not designed to contain or redirect a vehicle on impact.
- LCDs may be used instead of a line of cones or drums.
- LCDs shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
- LCDs should not be used to provide positive protection for obstacles, pedestrians or workers.
- LCDs shall be supplemented with retroreflective delineation as required for temporary barriers on BC(7) when placed roughly parallel to the travel lanes.
- LCDs used as barricades placed perpendicular to traffic should have at least one row of reflective sheeting meeting the requirements for barricade rails as shown on BC(10). Place reflective sheeting near the top of the LCD along the full length of the device.

WATER BALLASTED SYSTEMS USED AS BARRIERS

- Water ballasted systems used as barriers shall not be used solely to channelize road users, but also to protect the work space per the appropriate Manual for Assessing Safety Hardware (MASH) crashworthiness requirements based on roadway speed and barrier application.
- Water ballasted systems used to channelize vehicular traffic shall be supplemented with retroreflective delineation or channelizing devices to improve daytime/nighttime visibility. They may also be supplemented with pavement markings.
- Water ballasted systems used as barriers shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
- Water ballasted systems used as barriers should not be used for a merging taper except in low speed (less than 45 MPH) urban areas. When used on a taper in a low speed urban area, the taper shall be delineated and the taper length should be designed to optimize road user operations considering the available geometric conditions.
- When water ballasted systems used as barriers have blunt ends exposed to traffic, they should be attenuated as per manufacturer recommendations or flared to a point outside the clear zone.

If used to channelize pedestrians, longitudinal channelizing devices or water ballasted systems must have a continuous detectable bottom for users of long canes and the top of the unit shall not be less than 32 inches in height.

HOLLOW OR WATER BALLASTED SYSTEMS USED AS LONGITUDINAL CHANNELIZING DEVICES OR BARRIERS

GENERAL NOTES

- Work Zone channelizing devices illustrated on this sheet may be installed in close proximity to traffic and are suitable for use on high or low speed roadways. The Engineer/Inspector shall ensure that spacing and placement is uniform and in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
- Channelizing devices shown on this sheet may have a driveable, fixed or portable base. The requirement for self-righting channelizing devices must be specified in the General Notes or other plan sheets.
- Channelizing devices on self-righting supports should be used in work zone areas where channelizing devices are frequently impacted by errant vehicles or vehicle related wind gusts making alignment of the channelizing devices difficult to maintain. Locations of these devices shall be detailed elsewhere in the plans. These devices shall conform to the TMUTCD and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
- The Contractor shall maintain devices in a clean condition and replace damaged, nonreflective, faded, or broken devices and bases as required by the Engineer/Inspector. The Contractor shall be required to maintain proper device spacing and alignment.
- Portable bases shall be fabricated from virgin and/or recycled rubber. The portable bases shall weigh a minimum of 30 lbs.
- Pavement surfaces shall be prepared in a manner that ensures proper bonding between the adhesives, the fixed mount bases and the pavement surface. Adhesives shall be prepared and applied according to the manufacturer's recommendations.
- The installation and removal of channelizing devices shall not cause detrimental effects to the final pavement surfaces, including pavement surface discoloration or surface integrity. Driveable bases shall not be permitted on final pavement surfaces. The Engineer/Inspector shall approve all application and removal procedures of fixed bases.

Posted Speed	Formula	Minimum Desirable Taper Lengths * *			Suggested Maximum Spacing of Channelizing Devices	
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent
30	L = WS ² / 60	150'	165'	180'	30'	60'
35		205'	225'	245'	35'	70'
40		265'	295'	320'	40'	80'
45	L = WS	450'	495'	540'	45'	90'
50		500'	550'	600'	50'	100'
55		550'	605'	660'	55'	110'
60		600'	660'	720'	60'	120'
65		650'	715'	780'	65'	130'
70		700'	770'	840'	70'	140'
75		750'	825'	900'	75'	150'
80		800'	880'	960'	80'	160'

* * * Taper lengths have been rounded off.
 L=Length of Taper (FT.) W=Width of Offset (FT.)
 S=Posted Speed (MPH)

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

SHEET 9 OF 12



BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC (9) - 21

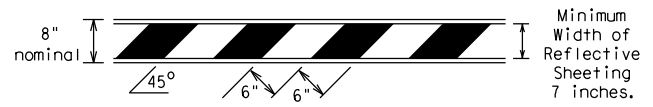
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© TxDOT	November 2002	CONT	SECT	JOB	SECT	HIGHWAY			
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9-07	8-14	DIST	COUNTY		SHEET NO.				
7-13	5-21	SAT	FRIO		21				

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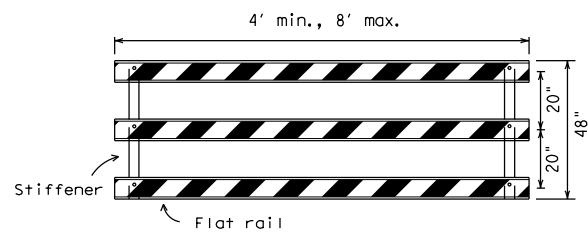
TYPE 3 BARRICADES

1. Refer to the Compliant Work Zone Traffic Control Devices List (CWZTCD) for details of the Type 3 Barricades and a list of all materials used in the construction of Type 3 Barricades.
2. Type 3 Barricades shall be used at each end of construction projects closed to all traffic.
3. Barricades extending across a roadway should have stripes that slope downward in the direction toward which traffic must turn in detouring. When both right and left turns are provided, the chevron striping may slope downward in both directions from the center of the barricade. Where no turns are provided at a closed road, striping should slope downward in both directions toward the center of roadway.
4. Striping of rails, for the right side of the roadway, should slope downward to the left. For the left side of the roadway, striping should slope downward to the right.
5. Identification markings may be shown only on the back of the barricade rails. The maximum height of letters and/or company logos used for identification shall be 1".
6. Barricades shall not be placed parallel to traffic unless an adequate clear zone is provided.
7. Warning lights shall NOT be installed on barricades.
8. Where barricades require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand is recommended. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight. Sand bags shall not be stacked in a manner that covers any portion of a barricade rails reflective sheeting. Rock, concrete, iron, steel or other solid objects will NOT be permitted. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall not be used for sandbags. Sandbags shall only be placed along or upon the base supports of the device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners.
9. Sheeting for barricades shall be retroreflective Type A or Type B conforming to Departmental Material Specification DMS-8300 unless otherwise noted.

Barricades shall NOT be used as a sign support.

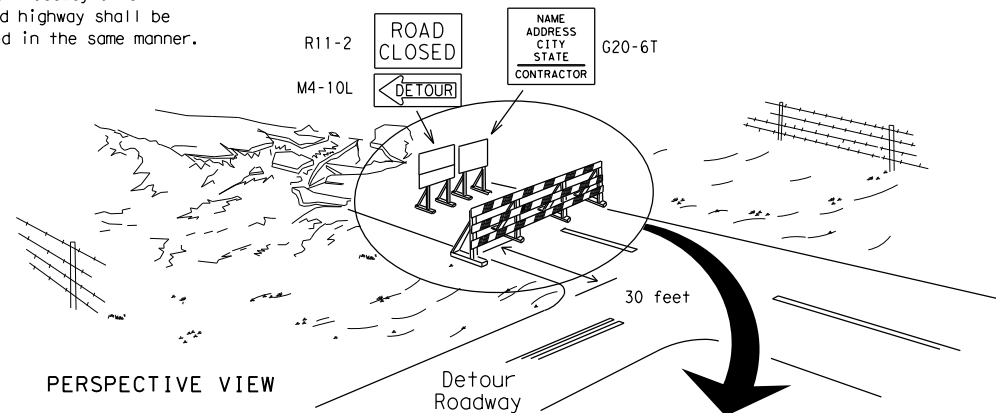


TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



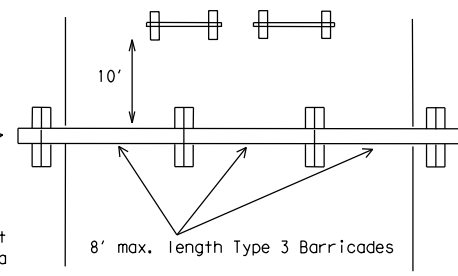
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

Each roadway of a divided highway shall be barricaded in the same manner.



PERSPECTIVE VIEW

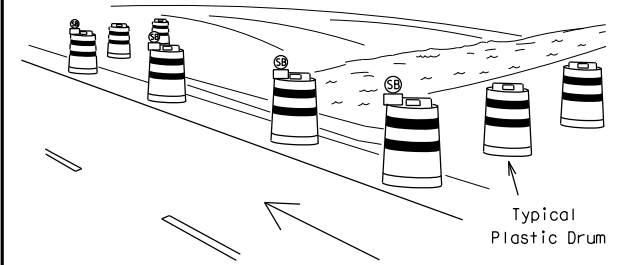
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic. Barricade striping should slant downward in the direction of detour.



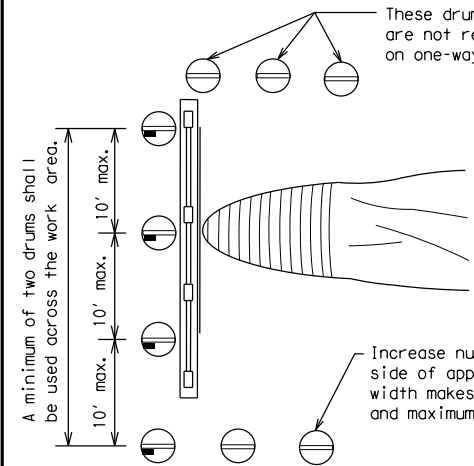
PLAN VIEW

1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

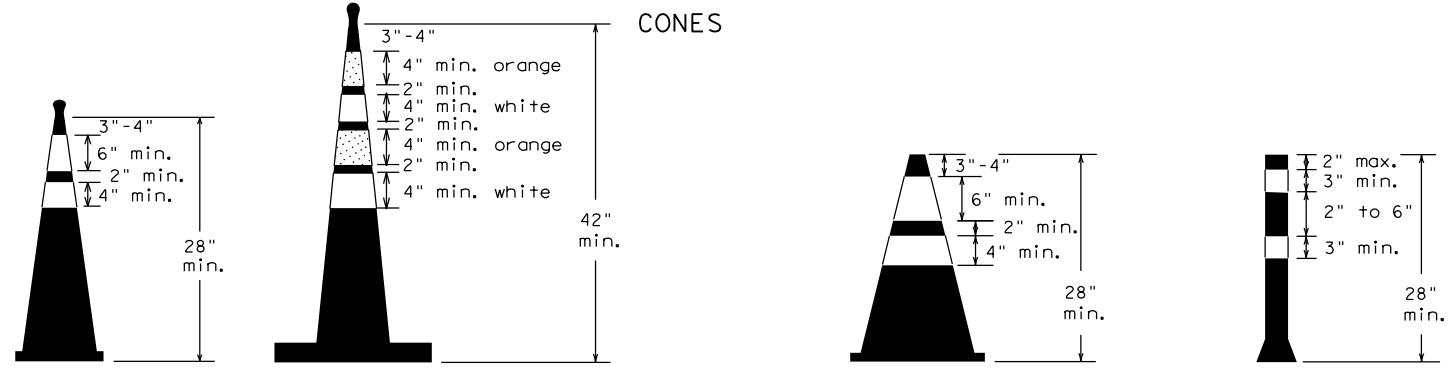


PLAN VIEW

1. Where positive redirection capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder width is greater than 12 feet, steady-burn lights may be omitted if drums are used.
5. Drums must extend the length of the culvert widening.

LEGEND	
	Plastic drum
	Plastic drum with steady burn light or yellow warning reflector
	Steady burn warning light or yellow warning reflector

CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



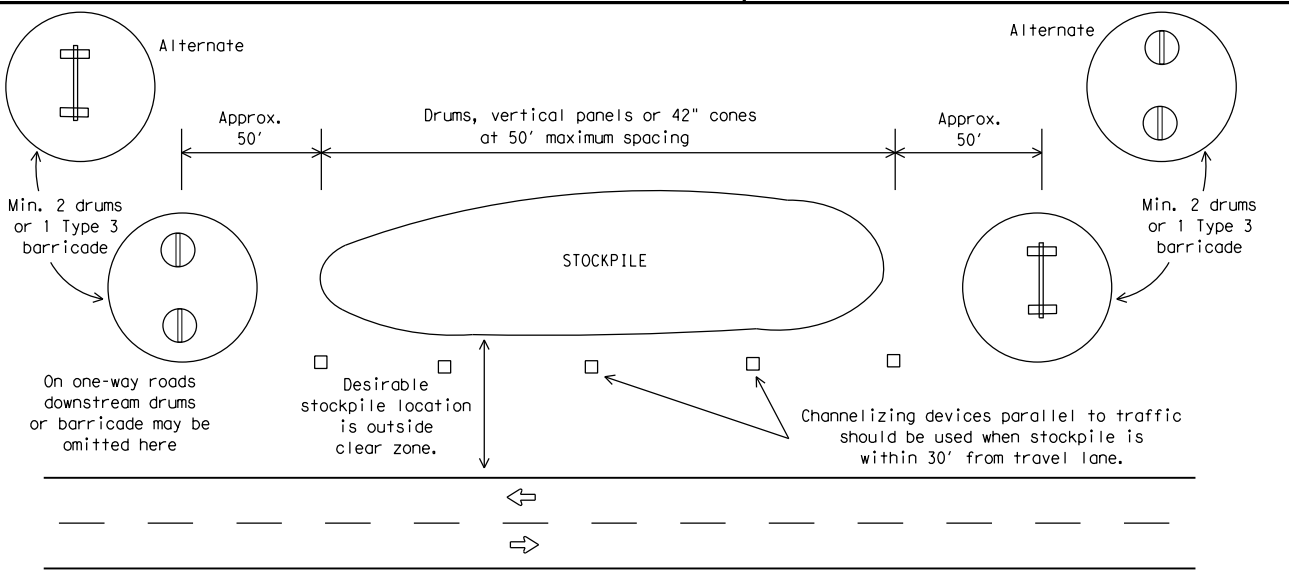
Two-Piece cones

One-Piece cones

Tubular Marker

28" Cones shall have a minimum weight of 9 1/2 lbs.
 42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

1. Traffic cones and tubular markers shall be predominantly orange, and meet the height and weight requirements shown above.
2. One-piece cones have the body and base of the cone molded in one consolidated unit. Two-piece cones have a cone shaped body and a separate rubber base, or ballast, that is added to keep the device upright and in place.
3. Two-piece cones may have a handle or loop extending up to 8" above the minimum height shown, in order to aid in retrieving the device.
4. Cones or tubular markers shall have white or white and orange reflective bands as shown above. The reflective bands shall have a smooth, sealed outer surface and meet the requirements of Departmental Material Specification DMS-8300 Type A or Type B.
5. 28" cones and tubular markers are generally suitable for short duration and short-term stationary work as defined on BC(4). These should not be used for intermediate-term or long-term stationary work unless personnel is on-site to maintain them in their proper upright position.
6. 42" two-piece cones, vertical panels or drums are suitable for all work zone durations.
7. Cones or tubular markers used on each project should be of the same size and shape.



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

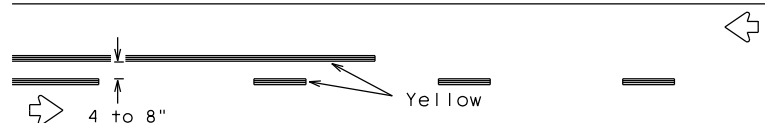
BC (10) - 21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	OW: TxDOT	CR: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0017	06	091	IH 35
9-07 8-14	DIST	COUNTY	SHEET NO.	
7-13 5-21	SAT	FRIO	22	

PAVEMENT MARKING PATTERNS

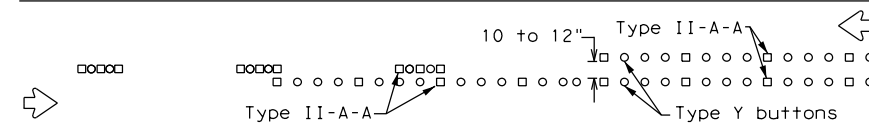


REFLECTORIZED PAVEMENT MARKINGS - PATTERN A

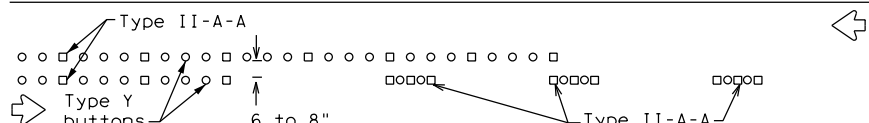


REFLECTORIZED PAVEMENT MARKINGS - PATTERN B

Pattern A is the TXDOT Standard, however Pattern B may be used if approved by the Engineer. Prefabricated markings may be substituted for reflectorized pavement markings.

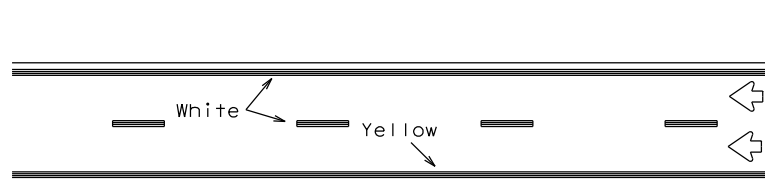


RAISED PAVEMENT MARKERS - PATTERN A



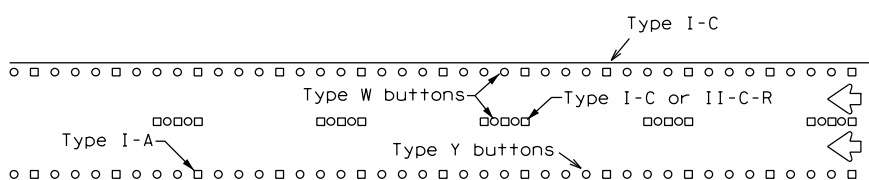
RAISED PAVEMENT MARKERS - PATTERN B

CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO-LANE, TWO-WAY HIGHWAYS



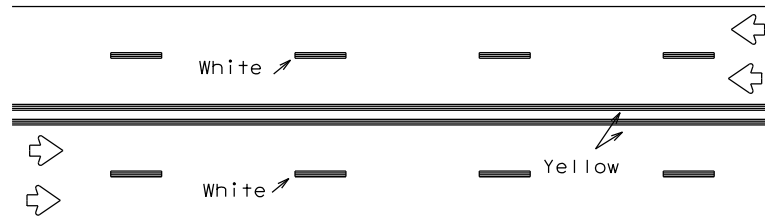
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectorized pavement markings.



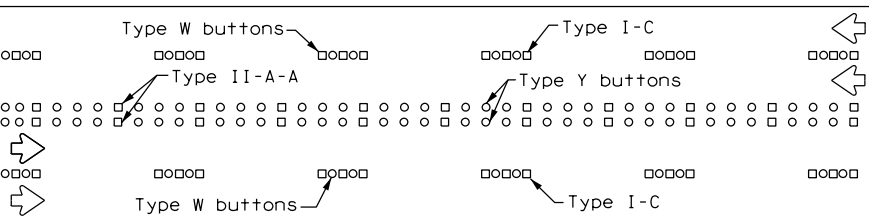
RAISED PAVEMENT MARKERS

EDGE & LANE LINES FOR DIVIDED HIGHWAY



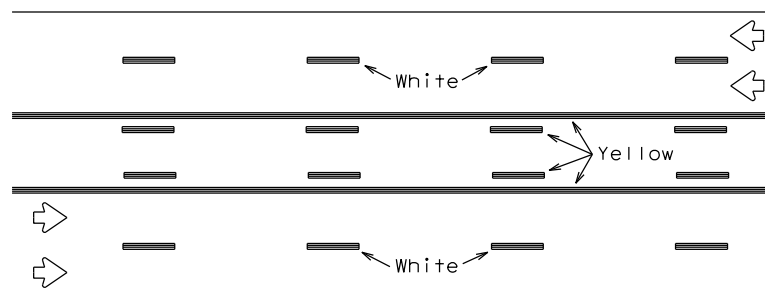
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectorized pavement markings.



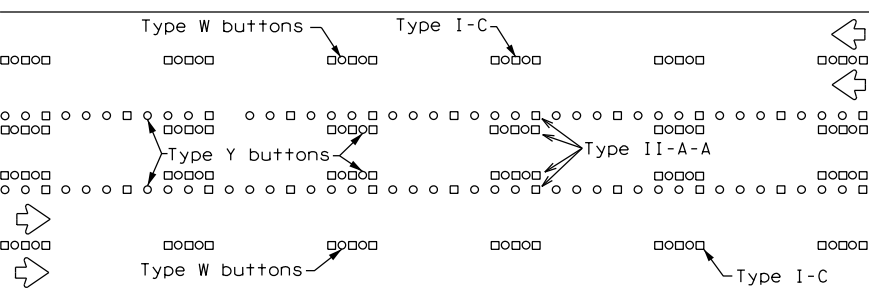
RAISED PAVEMENT MARKERS

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS

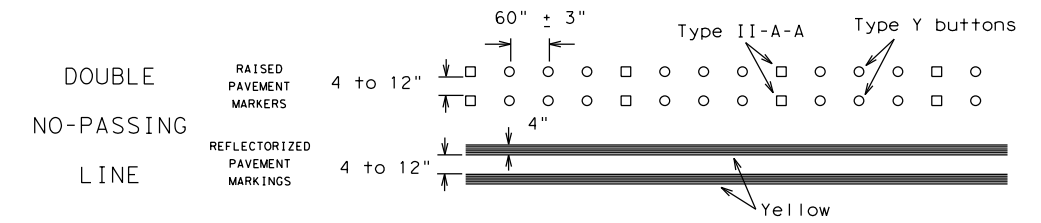
Prefabricated markings may be substituted for reflectorized pavement markings.



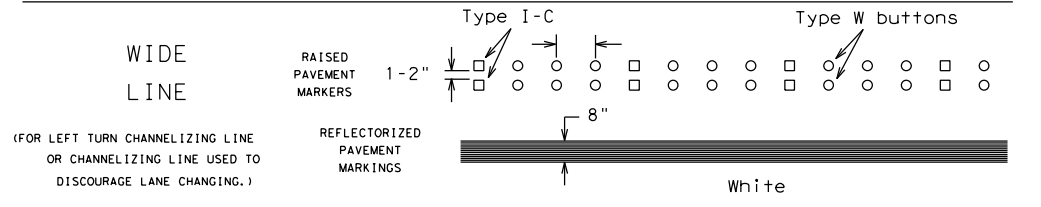
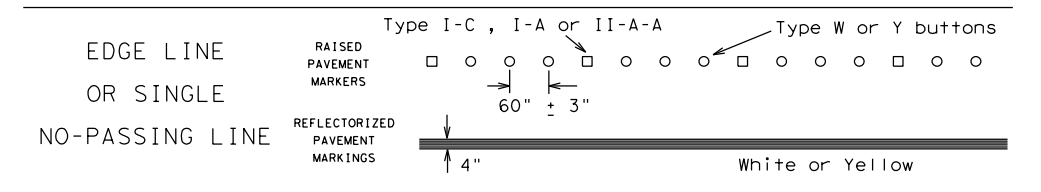
RAISED PAVEMENT MARKERS

TWO-WAY LEFT TURN LANE

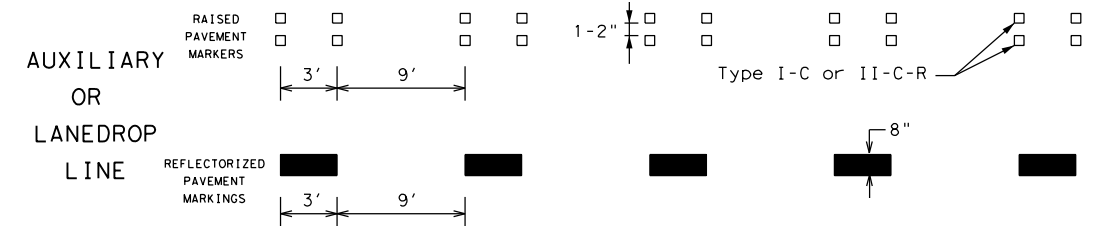
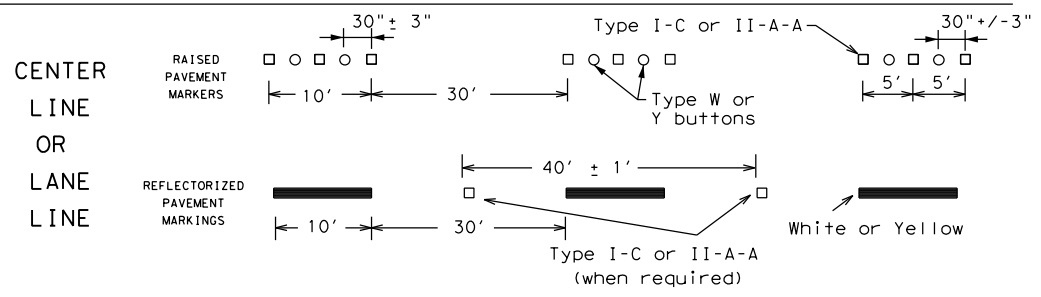
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS



SOLID LINES

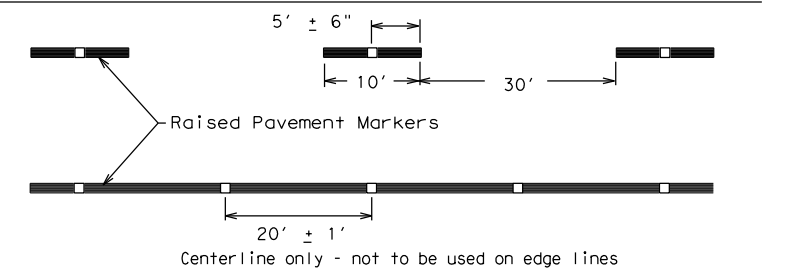


BROKEN LINES



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

If raised pavement markers are used to supplement REMOVABLE markings, the markers shall be applied to the top of the tape at the approximate mid length of tape used for broken lines or at 20 foot spacing for solid lines. This allows an easier removal of raised pavement markers and tape.



SHEET 12 OF 12



BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC (12) - 21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	OW: TxDOT	CR: TxDOT
©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	0017	06	091	IH 35
1-97 9-07 5-21				
2-98 7-13	DIST	COUNTY	SHEET NO.	
11-02 8-14	SAT	FRIO	24	

Raised pavement markers used as standard pavement markings shall be from the approved products list and meet the requirements of Item 672 "RAISED PAVEMENT MARKERS."

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TXDOT for any purpose whatsoever. TXDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

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 Legacy Engineering Group
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QUANTITY SUMMARY CSJ: 0017-06-091			
ITEM NO.	DESCRIPTION	UNIT	QTY
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	1427
0164-6021	CELL FBR MLCH SEED (PERM) (RURAL) (SANDY)	SY	1427
0168-6001	VEGETATIVE WATERING	MG	22
0432-6066	RIPRAP (CL A) (MOW STRIP) (3 IN)	CY	60
0506-6040	BIODEG EROSN CONT LOGS (INSL) (8")	LF	59
0506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	59
0543-6002	CABLE BARRIER SYSTEM (TL-4)	LF	2136
0543-6020	CABLE BARRIER TERMINAL SECTION (TL-4)	EA	1
0658-****	INST DEL ASSM (D-SY) SZ 1 (BRF) (GF2) (BT)	EA	22

LEGEND

	EROSION CONTROL LOG
	TRAFFIC FLOW
	CELLULOSE FIBER MULCH SEED
	50FT. T-BASE POLE (DBL ARM)
	50FT. T-BASE POLE (SINGLE ARM)
	ELECTRICAL SERVICE
	GROUND BOX
	CONDUIT AND CONDUCTOR RUN
	OVERHEAD UTILITIES
	DELINEATORS

- NOTES:
1. TOPOGRAPHIC SURVEY NOT COMPLETED FOR THIS PROJECT. BEST FIT ALIGNMENT PROVIDED FOR REFERENCE AND QUANTITIES PURPOSES.
 2. REFER TO MISCELLANEOUS DETAILS SHEET FOR CELLULOSE FIBER MULCH SEED DETAILS.
 3. CABLE BARRIERS ARE DESIGNED TO BE PLACED ON 6:1 OR FLATTER SIDE SLOPES. CABLE BARRIER LOCATIONS MAY BE ADJUSTED AS NEEDED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.
 4. CONTRACTOR SHALL STRADDLE CULVERTS AND CONDUITS, AND ENSURE CABLE BARRIER POST SPACING IS MAINTAINED AS PER STANDARDS.
 5. CONTRACTOR SHALL LOCATE EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
 6. CONTRACTOR SHALL INSTALL OVERHEAD POWER LINES SIGNING UPSTREAM AND DOWNSTREAM OF ALL OVERHEAD POWER LINE LOCATIONS.



5/31/2022

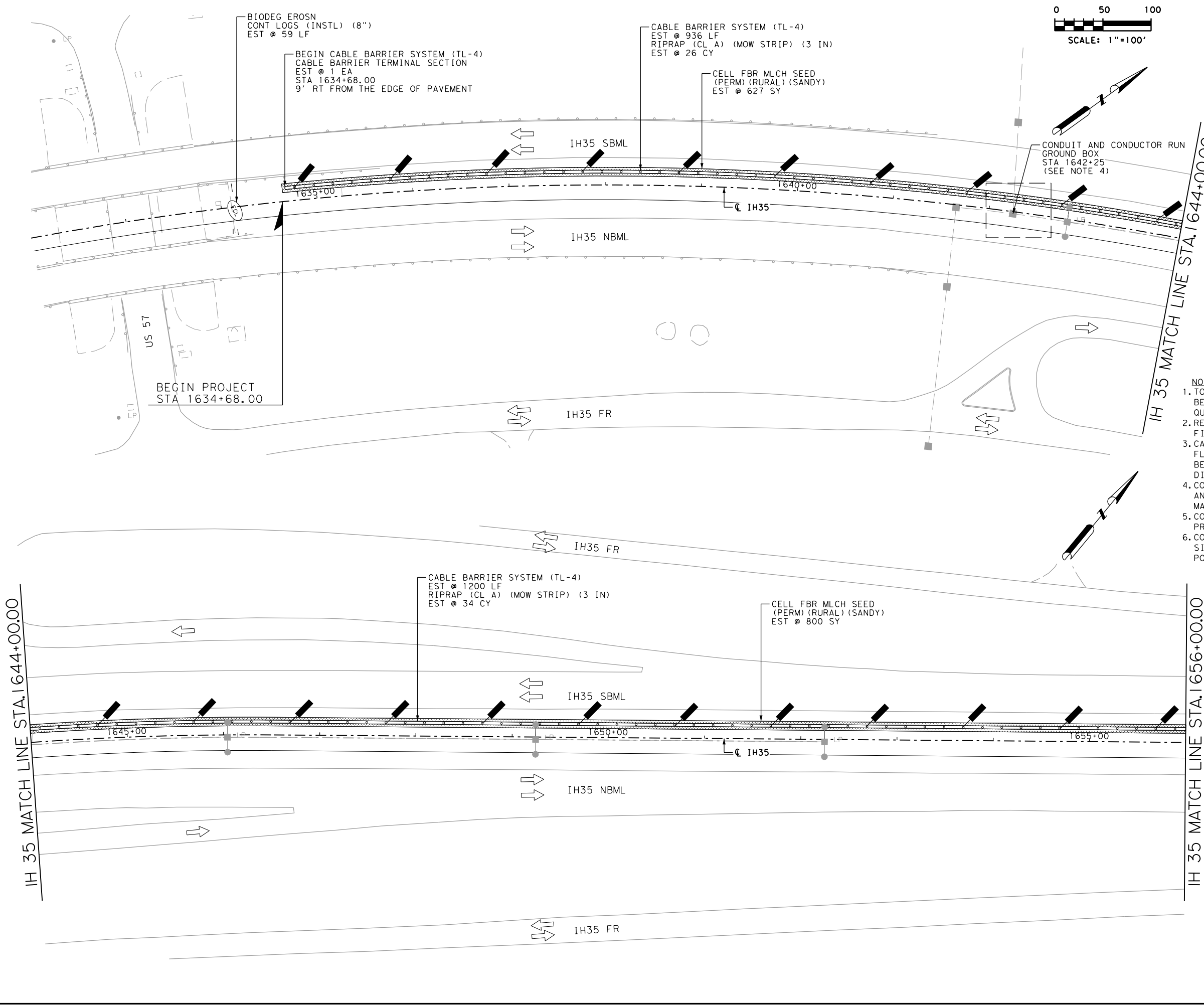


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 TBPE Firm Registration No. 20623

IH 35
 ROADWAY LAYOUT

SCALE: 1" = 100' SHEET 1 OF 16

FED. RD. DIV. NO.	PROJECT NO.		SHEET
6	SEE TITLE SHEET		26
STATE	DIST.	COUNTY	
TEXAS	SAT	FRIO	
CONT.	SECT.	JOB	ROADWAY
0017	06	091	IH 35



BEGIN PROJECT
 STA 1634+68.00

BIODEG EROSN
 CONT LOGS (INSL) (8")
 EST @ 59 LF

BEGIN CABLE BARRIER SYSTEM (TL-4)
 CABLE BARRIER TERMINAL SECTION
 EST @ 1 EA
 STA 1634+68.00
 9' RT FROM THE EDGE OF PAVEMENT

CABLE BARRIER SYSTEM (TL-4)
 EST @ 936 LF
 RIPRAP (CL A) (MOW STRIP) (3 IN)
 EST @ 26 CY

CELL FBR MLCH SEED
 (PERM) (RURAL) (SANDY)
 EST @ 627 SY

CONDUIT AND CONDUCTOR RUN
 GROUND BOX
 STA 1642+25
 (SEE NOTE 4)

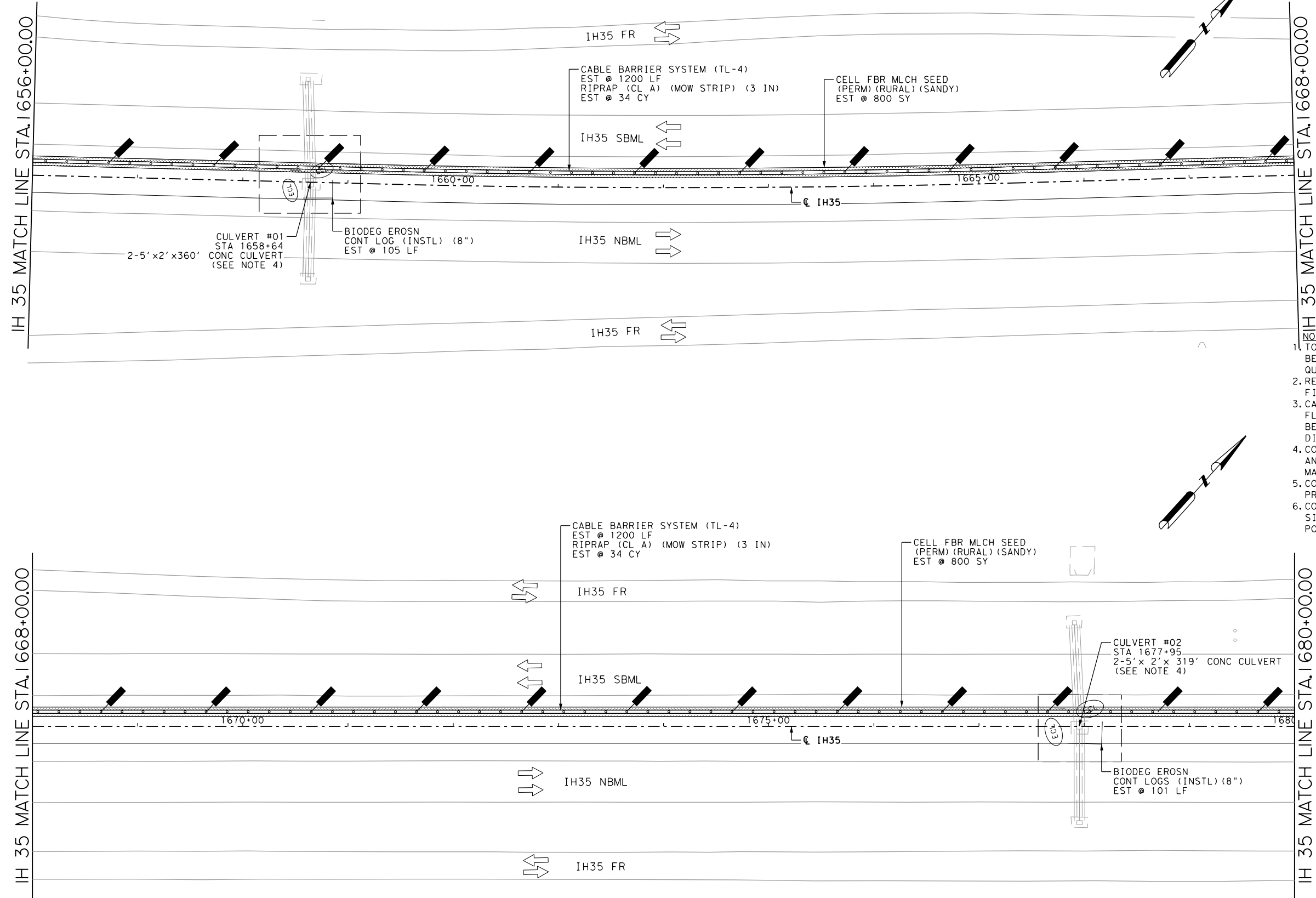
CABLE BARRIER SYSTEM (TL-4)
 EST @ 1200 LF
 RIPRAP (CL A) (MOW STRIP) (3 IN)
 EST @ 34 CY

CELL FBR MLCH SEED
 (PERM) (RURAL) (SANDY)
 EST @ 800 SY

IH 35 MATCH LINE STA. 1644+00.00

IH 35 MATCH LINE STA. 1656+00.00

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QUANTITY SUMMARY CSJ: 0017-06-091			
ITEM NO.	DESCRIPTION	UNIT	QTY
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	1600
0164-6021	CELL FBR MLCH SEED (PERM) (RURAL) (SANDY)	SY	1600
0168-6001	VEGETATIVE WATERING	MG	25
0432-6066	RIPRAP (CL A) (MOW STRIP) (3 IN)	CY	68
0506-6040	BIODEG EROSN CONT LOGS (INSL) (8")	LF	206
0506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	206
0543-6002	CABLE BARRIER SYSTEM (TL-4)	LF	2400
0658-****	INST DEL ASSM (D-SY) SZ 1 (BRF) (GF2) (BI)	EA	24

LEGEND	
	EROSION CONTROL LOG
	TRAFFIC FLOW
	CELLULOSE FIBER MULCH SEED
	50FT. T-BASE POLE (DBL ARM)
	50FT. T-BASE POLE (SINGLE ARM)
	ELECTRICAL SERVICE
	GROUND BOX
	CONDUIT AND CONDUCTOR RUN
	OVERHEAD UTILITIES
	DELINEATORS

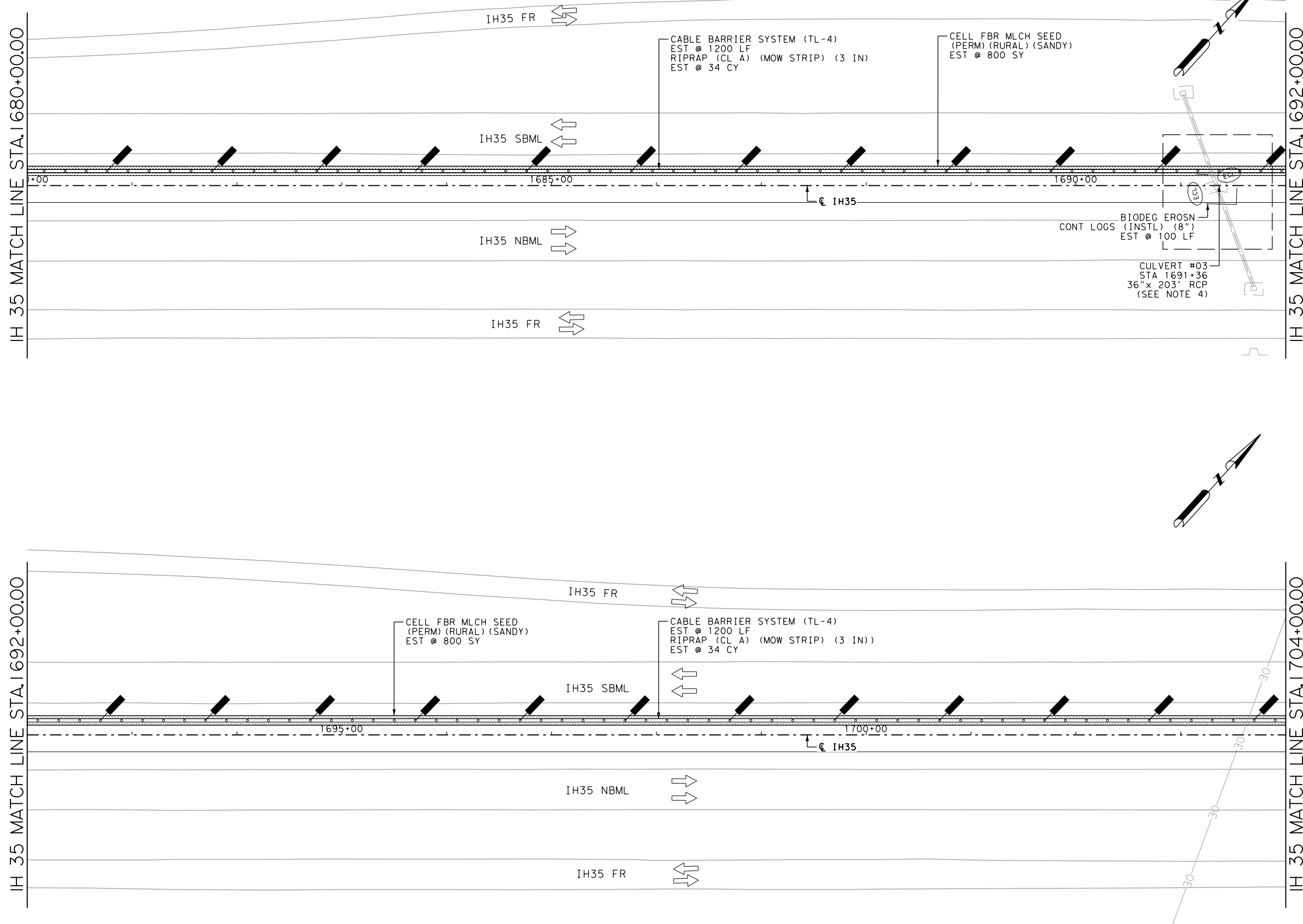
- NOTES:**
- TOPOGRAPHIC SURVEY NOT COMPLETED FOR THIS PROJECT. BEST FIT ALIGNMENT PROVIDED FOR REFERENCE AND QUANTITIES PURPOSES.
 - REFER TO MISCELLANEOUS DETAILS SHEET FOR CELLULOSE FIBER MULCH SEED DETAILS.
 - CABLE BARRIERS ARE DESIGNED TO BE PLACED ON 6:1 OR FLATTER SIDE SLOPES. CABLE BARRIER LOCATIONS MAY BE ADJUSTED AS NEEDED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.
 - CONTRACTOR SHALL STRADDLE CULVERTS AND CONDUITS, AND ENSURE CABLE BARRIER POST SPACING IS MAINTAINED AS PER STANDARDS.
 - CONTRACTOR SHALL LOCATE EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
 - CONTRACTOR SHALL INSTALL OVERHEAD POWER LINES SIGNING UPSTREAM AND DOWNSTREAM OF ALL OVERHEAD POWER LINE LOCATIONS.



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IH 35			
ROADWAY LAYOUT			
SCALE: 1" = 100'		SHEET 2 OF 16	
FED. RD. DIV. NO.	PROJECT NO.		SHEET
6	SEE TITLE SHEET		27
STATE	DIST.	COUNTY	
TEXAS	SAT	FRIO	
CONT.	SECT.	JOB	ROADWAY
0017	06	091	IH 35

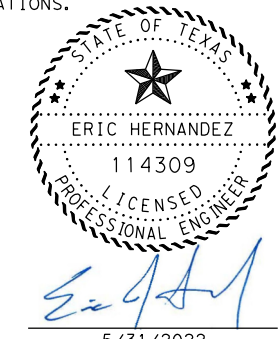
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QUANTITY SUMMARY CSJ: 0017-06-091			
ITEM NO.	DESCRIPTION	UNIT	QTY
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	1600
0164-6021	CELL FBR MLCH SEED (PERM) (RURAL) (SANDY)	SY	1600
0168-6001	VEGETATIVE WATERING	MG	25
0432-6066	RIPRAP (CL A) (MOW STRIP) (3 IN)	CY	68
0506-6040	BIODEG EROSN CONT LOGS (INSL) (8")	LF	100
0506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	100
0543-6002	CABLE BARRIER SYSTEM (TL-4)	LF	2400
0658-****	INST DEL ASSM (D-SY) SZ 1 (BRF) (GF2) (BI)	EA	24

LEGEND	
	EROSION CONTROL LOG
	TRAFFIC FLOW
	CELLULOSE FIBER MULCH SEED
	50FT. T-BASE POLE (DBL ARM)
	50FT. T-BASE POLE (SINGLE ARM)
	ELECTRICAL SERVICE
	GROUND BOX
	CONDUIT AND CONDUCTOR RUN
	OVERHEAD UTILITIES
	DELINEATORS

- NOTES:**
1. TOPOGRAPHIC SURVEY NOT COMPLETED FOR THIS PROJECT. BEST FIT ALIGNMENT PROVIDED FOR REFERENCE AND QUANTITIES PURPOSES.
 2. REFER TO MISCELLANEOUS DETAILS SHEET FOR CELLULOSE FIBER MULCH SEED DETAILS.
 3. CABLE BARRIERS ARE DESIGNED TO BE PLACED ON 6:1 OR FLATTER SIDE SLOPES. CABLE BARRIER LOCATIONS MAY BE ADJUSTED AS NEEDED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.
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IH 35
 ROADWAY LAYOUT

SCALE: 1" = 100' SHEET 3 OF 16

FED. RD. DIV. NO.	PROJECT NO.	SHEET
6	SEE TITLE SHEET	28
STATE	DIST.	COUNTY
TEXAS	SAT	FRIO
CONT.	SECT.	JOB
0017	06	091
		ROADWAY
		IH 35

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IH 35 MATCH LINE STA.1704+00.00

IH 35 MATCH LINE STA.1716+00.00

IH 35 MATCH LINE STA.1716+00.00

IH 35 MATCH LINE STA.1728+00.00



QUANTITY SUMMARY CSJ: 0017-06-091			
ITEM NO.	DESCRIPTION	UNIT	QTY
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	1600
0164-6021	CELL FBR MLCH SEED (PERM) (RURAL) (SANDY)	SY	1600
0168-6001	VEGETATIVE WATERING	MG	25
0432-6066	RIPRAP (CL A) (MOW STRIP) (3 IN)	CY	68
0506-6040	BIODEG EROSN CONT LOGS (INSL) (8")	LF	214
0506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	214
0543-6002	CABLE BARRIER SYSTEM (TL-4)	LF	2400
0658-****	INST DEL ASSM (D-SY)SZ 1(BRF) (GF2) (B1)	EA	24

LEGEND	
	EROSION CONTROL LOG
	TRAFFIC FLOW
	CELLULOSE FIBER MULCH SEED
	50FT. T-BASE POLE (DBL ARM)
	50FT. T-BASE POLE (SINGLE ARM)
	ELECTRICAL SERVICE
	GROUND BOX
	CONDUIT AND CONDUCTOR RUN
	OVERHEAD UTILITIES
	DELINEATORS

- NOTES:**
1. TOPOGRAPHIC SURVEY NOT COMPLETED FOR THIS PROJECT. BEST FIT ALIGNMENT PROVIDED FOR REFERENCE AND QUANTITIES PURPOSES.
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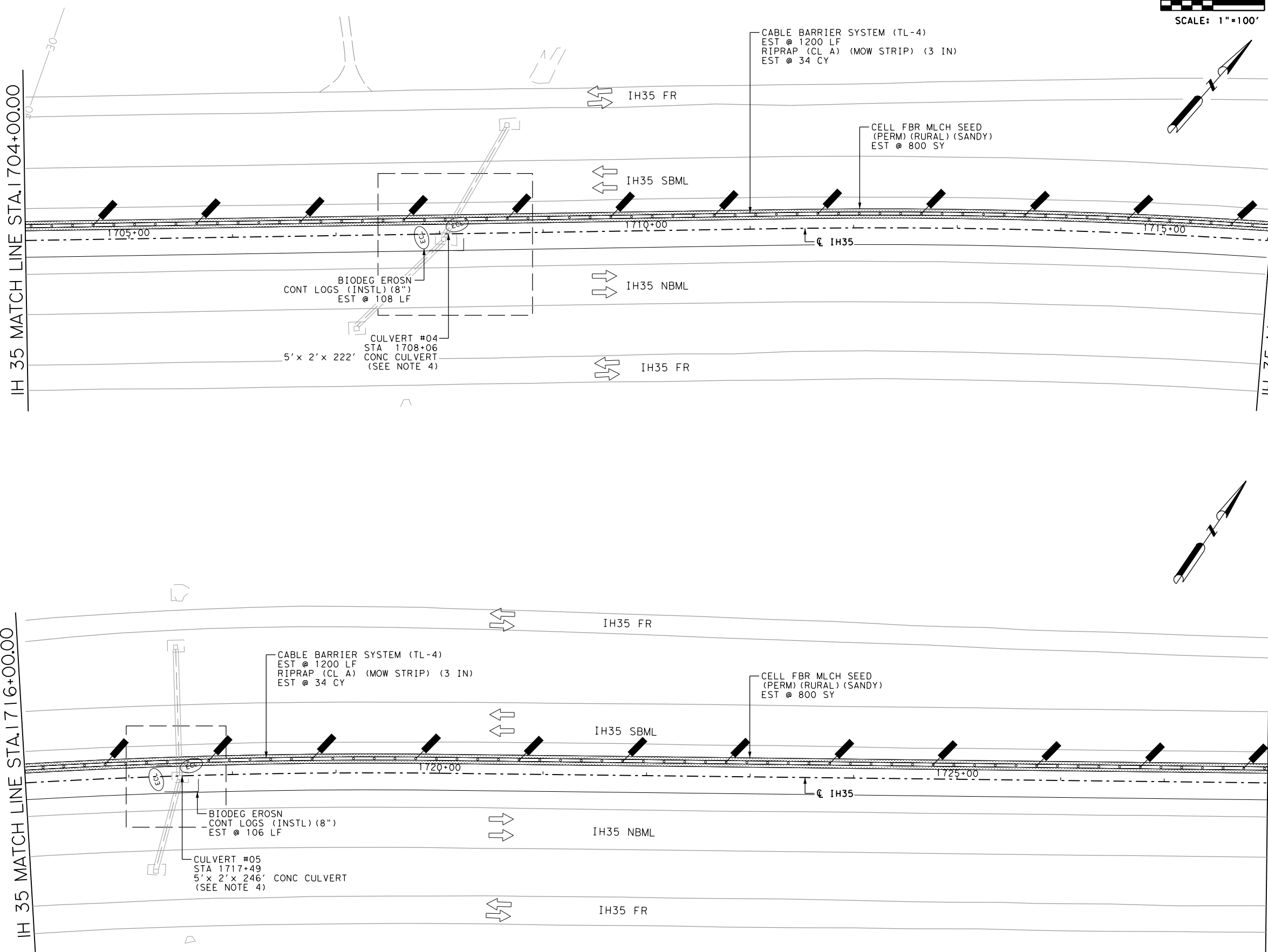


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IH 35
ROADWAY LAYOUT

SCALE: 1" = 100' SHEET 4 OF 16

FED. RD. DIV. NO.	PROJECT NO.		SHEET
6	SEE TITLE SHEET		29
STATE	DIST.	COUNTY	
TEXAS	SAT	FRIO	
CONT.	SECT.	JOB	ROADWAY
0017	06	091	IH 35



CABLE BARRIER SYSTEM (TL-4)
 EST @ 1200 LF
 RIPRAP (CL A) (MOW STRIP) (3 IN)
 EST @ 34 CY

CELL FBR MLCH SEED
 (PERM) (RURAL) (SANDY)
 EST @ 800 SY

BIODEG EROSN
 CONT LOGS (INSL) (8")
 EST @ 108 LF

CULVERT #04
 STA 1708+06
 CONC CULVERT
 (SEE NOTE 4)

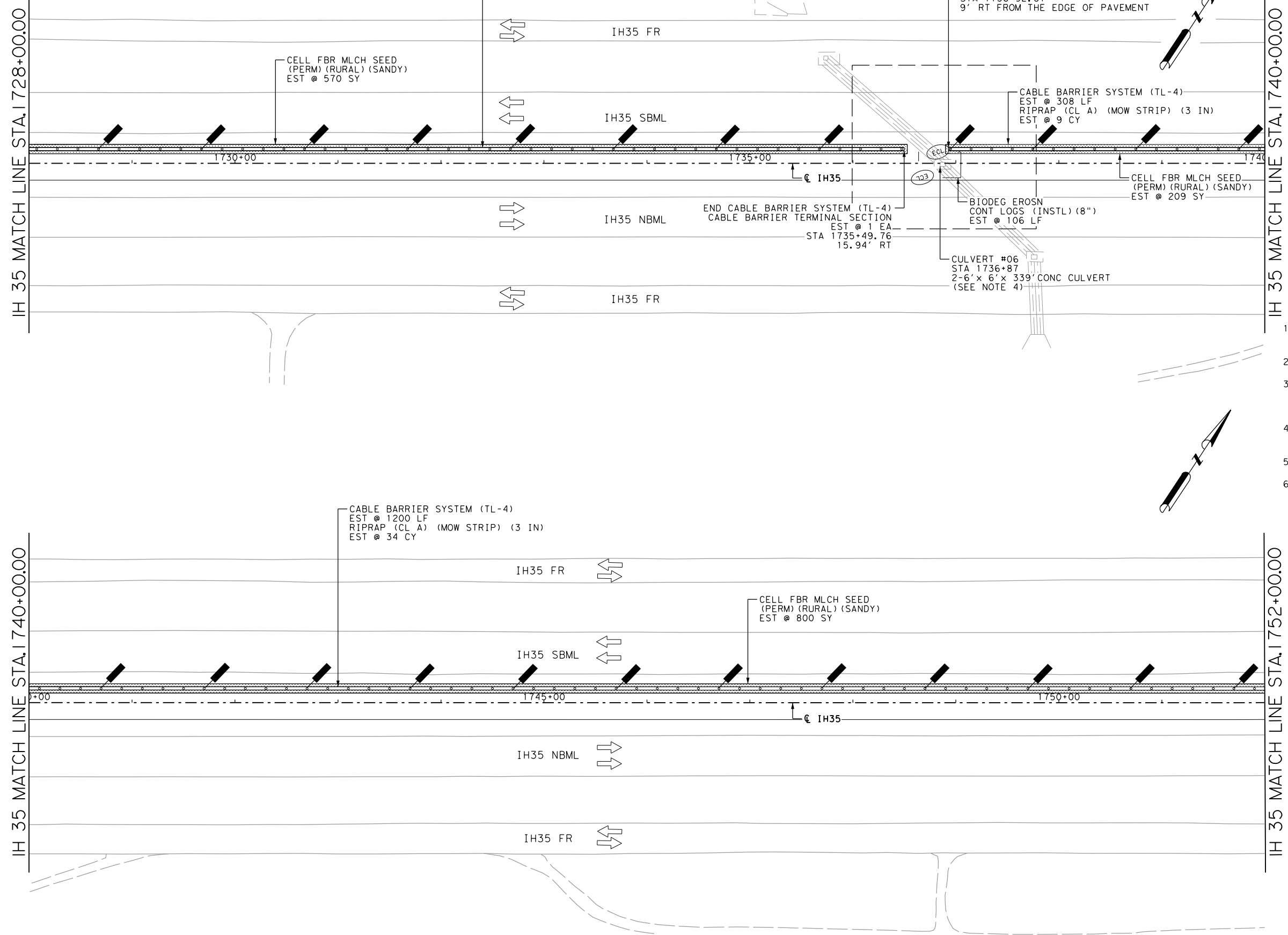
CABLE BARRIER SYSTEM (TL-4)
 EST @ 1200 LF
 RIPRAP (CL A) (MOW STRIP) (3 IN)
 EST @ 34 CY

CELL FBR MLCH SEED
 (PERM) (RURAL) (SANDY)
 EST @ 800 SY

BIODEG EROSN
 CONT LOGS (INSL) (8")
 EST @ 106 LF

CULVERT #05
 STA 1717+49
 CONC CULVERT
 (SEE NOTE 4)

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QUANTITY SUMMARY CSJ: 0017-06-091

ITEM NO.	DESCRIPTION	UNIT	QTY
0160-6003	FURNISHING AND PLACING TOPSOIL (4'')	SY	1600
0164-6021	CELL FBR MLCH SEED (PERM) (RURAL) (SANDY)	SY	1579
0168-6001	VEGETATIVE WATERING	MG	25
0432-6066	RIPRAP (CL A) (MOW STRIP) (3 IN)	CY	68
0506-6040	BIODEG EROSN CONT LOGS (INSTR) (8'')	LF	106
0506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	106
0543-6002	CABLE BARRIER SYSTEM (TL-4)	LF	2358
0658-****	INST DEL ASSM (D-SY) SZ 1 (BRF) (GF2) (BI)	EA	24

- LEGEND**
- EROSION CONTROL LOG
 - TRAFFIC FLOW
 - CELLULOSE FIBER MULCH SEED
 - 50FT. T-BASE POLE (DBL ARM)
 - 50FT. T-BASE POLE (SINGLE ARM)
 - ELECTRICAL SERVICE
 - GROUND BOX
 - CONDUIT AND CONDUCTOR RUN
 - OVERHEAD UTILITIES
 - DELINEATORS

- NOTES:**
1. TOPOGRAPHIC SURVEY NOT COMPLETED FOR THIS PROJECT. BEST FIT ALIGNMENT PROVIDED FOR REFERENCE AND QUANTITIES PURPOSES.
 2. REFER TO MISCELLANEOUS DETAILS SHEET FOR CELLULOSE FIBER MULCH SEED DETAILS.
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 6. CONTRACTOR SHALL INSTALL OVERHEAD POWER LINES SIGNING UPSTREAM AND DOWNSTREAM OF ALL OVERHEAD POWER LINE LOCATIONS.



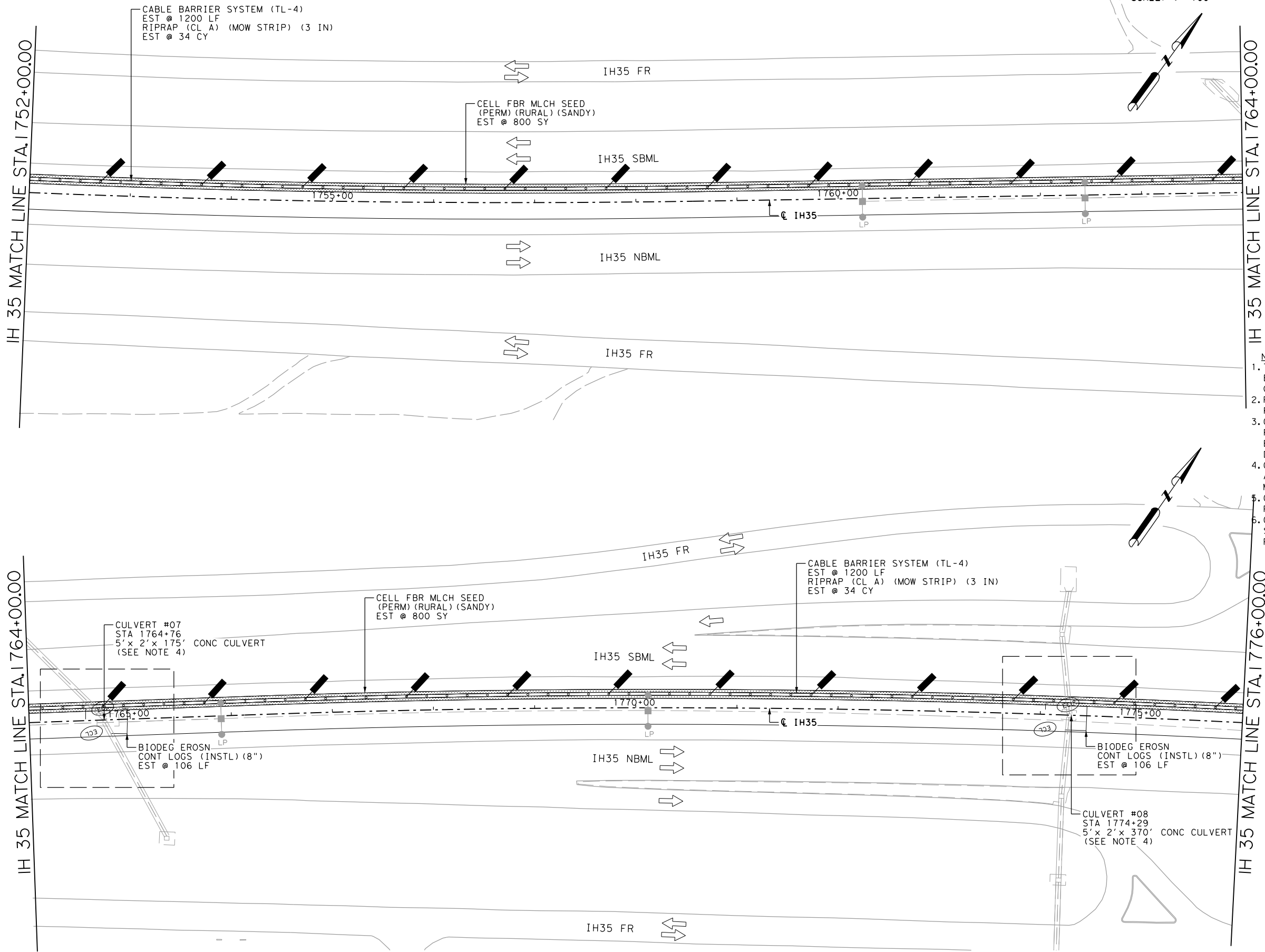
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 TBPE Firm Registration No. 20623

IH 35
ROADWAY LAYOUT

SCALE: 1" = 100' SHEET 5 OF 16

FED. RD. DIV. NO.	PROJECT NO.		SHEET
6	SEE TITLE SHEET		30
STATE	DIST.	COUNTY	
TEXAS	SAT	FRIO	
CONT.	SECT.	JOB	ROADWAY
0017	06	091	IH 35

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 Legacy Engineering Group
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QUANTITY SUMMARY CSJ: 0017-06-091

ITEM NO.	DESCRIPTION	UNIT	QTY
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	1600
0164-6021	CELL FBR MLCH SEED (PERM) (RURAL) (SANDY)	SY	1600
0168-6001	VEGETATIVE WATERING	MG	25
0432-6066	RIPRAP (CL A) (MOW STRIP) (3 IN)	CY	68
0506-6040	BIODEG EROSN CONT LOGS (INSL) (8")	LF	212
0506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	212
0543-6002	CABLE BARRIER SYSTEM (TL-4)	LF	2400
0658-****	INST DEL ASSM (D-SY) SZ 1 (BRF) (GF2) (B1)	EA	24

LEGEND

- EROSION CONTROL LOG
- TRAFFIC FLOW
- CELLULOSE FIBER MULCH SEED
- 50FT. T-BASE POLE (DBL ARM)
- 50FT. T-BASE POLE (SINGLE ARM)
- ELECTRICAL SERVICE
- GROUND BOX
- CONDUIT AND CONDUCTOR RUN
- OVERHEAD UTILITIES
- DELINEATORS

- NOTES:**
1. TOPOGRAPHIC SURVEY NOT COMPLETED FOR THIS PROJECT. BEST FIT ALIGNMENT PROVIDED FOR REFERENCE AND QUANTITIES PURPOSES.
 2. REFER TO MISCELLANEOUS DETAILS SHEET FOR CELLULOSE FIBER MULCH SEED DETAILS.
 3. CABLE BARRIERS ARE DESIGNED TO BE PLACED ON 6:1 OR FLATTER SIDE SLOPES. CABLE BARRIER LOCATIONS MAY BE ADJUSTED AS NEEDED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.
 4. CONTRACTOR SHALL STRADDLE CULVERTS AND CONDUITS, AND ENSURE CABLE BARRIER POST SPACING IS MAINTAINED AS PER STANDARDS.
 5. CONTRACTOR SHALL LOCATE EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
 6. CONTRACTOR SHALL INSTALL OVERHEAD POWER LINES SIGNING UPSTREAM AND DOWNSTREAM OF ALL OVERHEAD POWER LINE LOCATIONS.



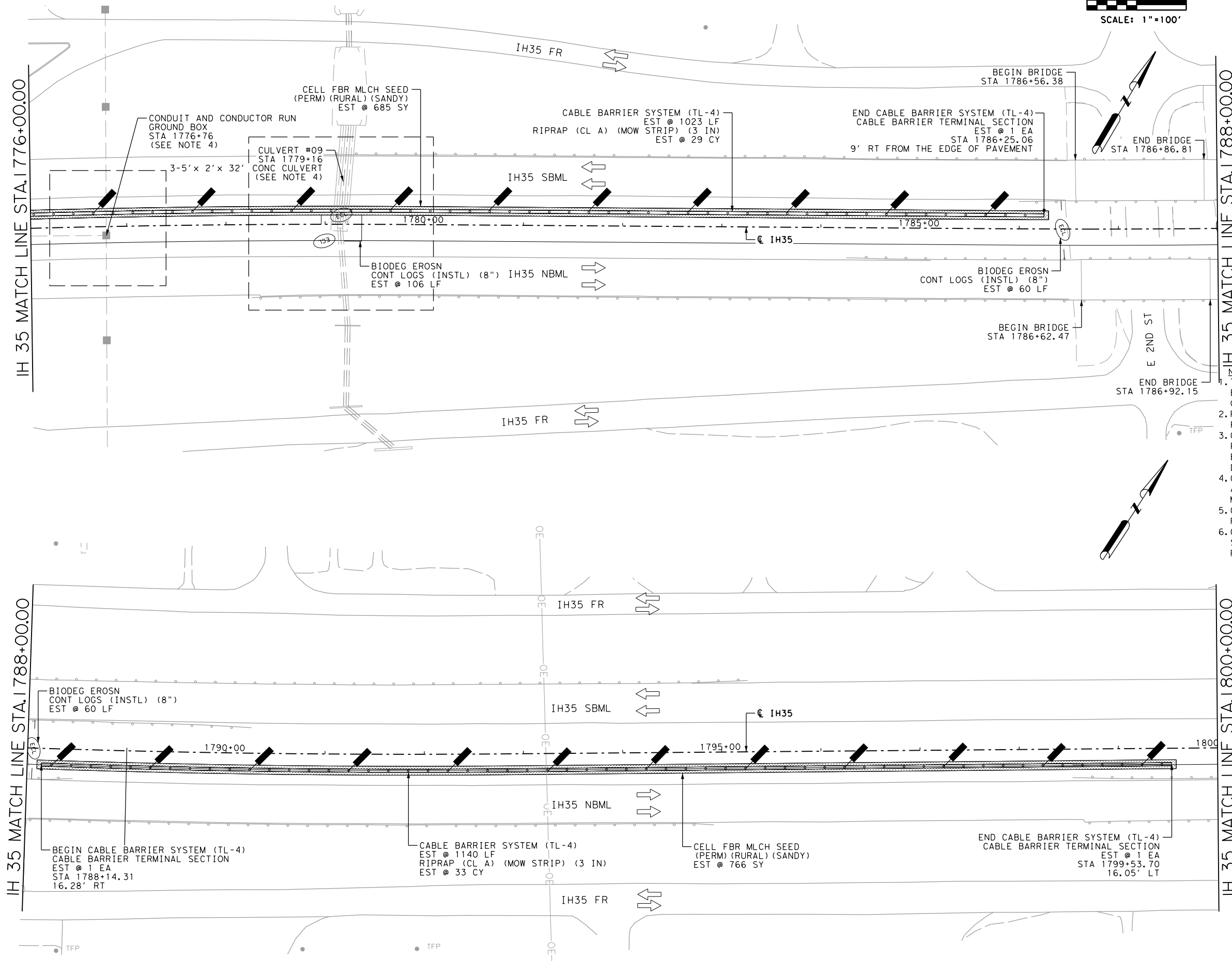
Legacy Engineering Group, PLLC
 10, Ste. 830, San Antonio, Texas 78230, 210.660.1960
 TBPE Firm Registration No. 20623

**IH 35
 ROADWAY LAYOUT**

SCALE: 1" = 100' SHEET 6 OF 16

FED. RD. DIV. NO.	PROJECT NO.	SHEET
6	SEE TITLE SHEET	31
STATE	DIST.	COUNTY
TEXAS	SAT	FRIO
CONT.	SECT.	JOB
0017	06	091
		ROADWAY
		IH 35

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 Legacy Engineering Group
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QUANTITY SUMMARY CSJ: 0017-06-091			
ITEM NO.	DESCRIPTION	UNIT	QTY
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	1451
0164-6021	CELL FBR MLCH SEED (PERM) (RURAL) (SANDY)	SY	1451
0168-6001	VEGETATIVE WATERING	MG	23
0432-6066	RIPRAP (CL A) (MOW STRIP) (3 IN)	CY	62
0506-6040	BIODEG EROSN CONT LOGS (INSL) (8")	LF	226
0506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	226
0543-6002	CABLE BARRIER SYSTEM (TL-4)	LF	2163
0543-6020	CABLE BARRIER TERMINAL SECTION (TL-4)	EA	3
0658-****	INST DEL ASSM (D-SY) SZ 1 (BRF) (GF2) (BT)	EA	22

- LEGEND**
- EROSION CONTROL LOG
 - TRAFFIC FLOW
 - CELLULOSE FIBER MULCH SEED
 - 50FT. T-BASE POLE (DBL ARM)
 - 50FT. T-BASE POLE (SINGLE ARM)
 - ELECTRICAL SERVICE
 - GROUND BOX
 - CONDUIT AND CONDUCTOR RUN
 - OVERHEAD UTILITIES
 - DELINEATORS

- NOTES:**
- TOPOGRAPHIC SURVEY NOT COMPLETED FOR THIS PROJECT. BEST FIT ALIGNMENT PROVIDED FOR REFERENCE AND QUANTITIES PURPOSES.
 - REFER TO MISCELLANEOUS DETAILS SHEET FOR CELLULOSE FIBER MULCH SEED DETAILS.
 - CABLE BARRIERS ARE DESIGNED TO BE PLACED ON 6:1 OR FLATTER SIDE SLOPES. CABLE BARRIER LOCATIONS MAY BE ADJUSTED AS NEEDED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.
 - CONTRACTOR SHALL STRADDLE CULVERTS AND CONDUITS, AND ENSURE CABLE BARRIER POST SPACING IS MAINTAINED AS PER STANDARDS.
 - CONTRACTOR SHALL LOCATE EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
 - CONTRACTOR SHALL INSTALL OVERHEAD POWER LINES SIGNING UPSTREAM AND DOWNSTREAM OF ALL OVERHEAD POWER LINE LOCATIONS.



5/31/2022



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 TBPE Firm Registration No. 20623

IH 35
ROADWAY LAYOUT

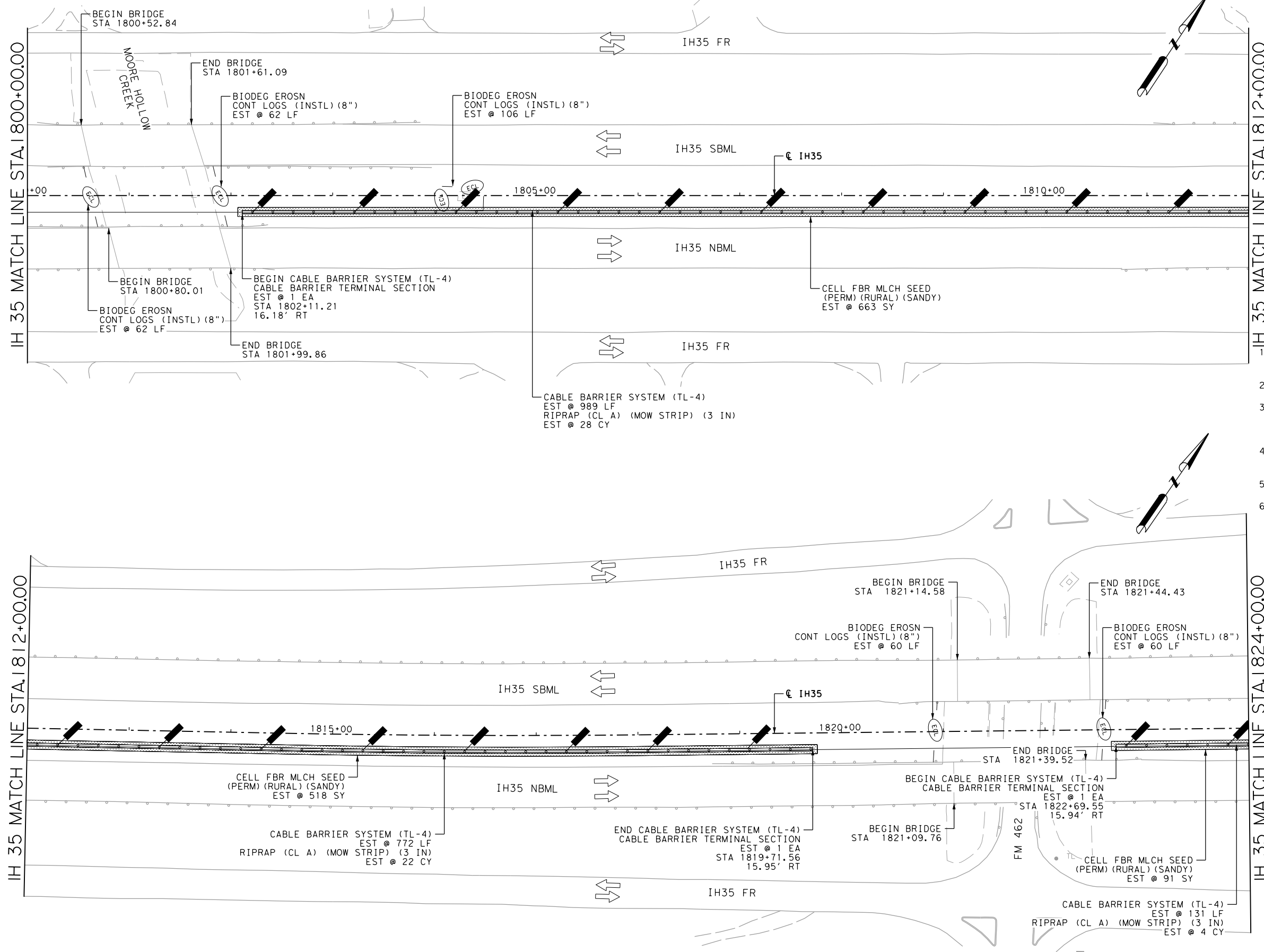
SCALE: 1" = 100' SHEET 7 OF 16

FED. RD. DIV. NO.	PROJECT NO.		SHEET
6	SEE TITLE SHEET		32
STATE	DIST.	COUNTY	
TEXAS	SAT	FRIO	
CONT.	SECT.	JOB	ROADWAY
0017	06	091	IH 35

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 Legacy Engineering Group
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IH 35 MATCH LINE STA. 1800+00.00

IH 35 MATCH LINE STA. 1812+00.00



QUANTITY SUMMARY CSJ: 0017-06-091			
ITEM NO.	DESCRIPTION	UNIT	QTY
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	1272
0164-6021	CELL FBR MLCH SEED (PERM) (RURAL) (SANDY)	SY	1272
0168-6001	VEGETATIVE WATERING	MG	20
0432-6066	RIPRAP (CL A) (MOW STRIP) (3 IN)	CY	54
0506-6040	BIODEG EROSN CONT LOGS (IN STL) (8")	LF	350
0506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	350
0543-6002	CABLE BARRIER SYSTEM (TL-4)	LF	1892
0543-6020	CABLE BARRIER TERMINAL SECTION (TL-4)	EA	3
0658-****	INST DEL ASSM (D-SY) SZ 1 (BRF) (GF2) (B1)	EA	20

LEGEND

	EROSION CONTROL LOG
	TRAFFIC FLOW
	CELLULOSE FIBER MULCH SEED
	50FT. T-BASE POLE (DBL ARM)
	50FT. T-BASE POLE (SINGLE ARM)
	ELECTRICAL SERVICE
	GROUND BOX
	CONDUIT AND CONDUCTOR RUN
	OVERHEAD UTILITIES
	DELINEATORS

- NOTES:**
1. TOPOGRAPHIC SURVEY NOT COMPLETED FOR THIS PROJECT. BEST FIT ALIGNMENT PROVIDED FOR REFERENCE AND QUANTITIES PURPOSES.
 2. REFER TO MISCELLANEOUS DETAILS SHEET FOR CELLULOSE FIBER MULCH SEED DETAILS.
 3. CABLE BARRIERS ARE DESIGNED TO BE PLACED ON 6:1 OR FLATTER SIDE SLOPES. CABLE BARRIER LOCATIONS MAY BE ADJUSTED AS NEEDED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.
 4. CONTRACTOR SHALL STRADDLE CULVERTS AND CONDUITS, AND ENSURE CABLE BARRIER POST SPACING IS MAINTAINED AS PER STANDARDS.
 5. CONTRACTOR SHALL LOCATE EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
 6. CONTRACTOR SHALL INSTALL OVERHEAD POWER LINES SIGNING UPSTREAM AND DOWNSTREAM OF ALL OVERHEAD POWER LINE LOCATIONS.



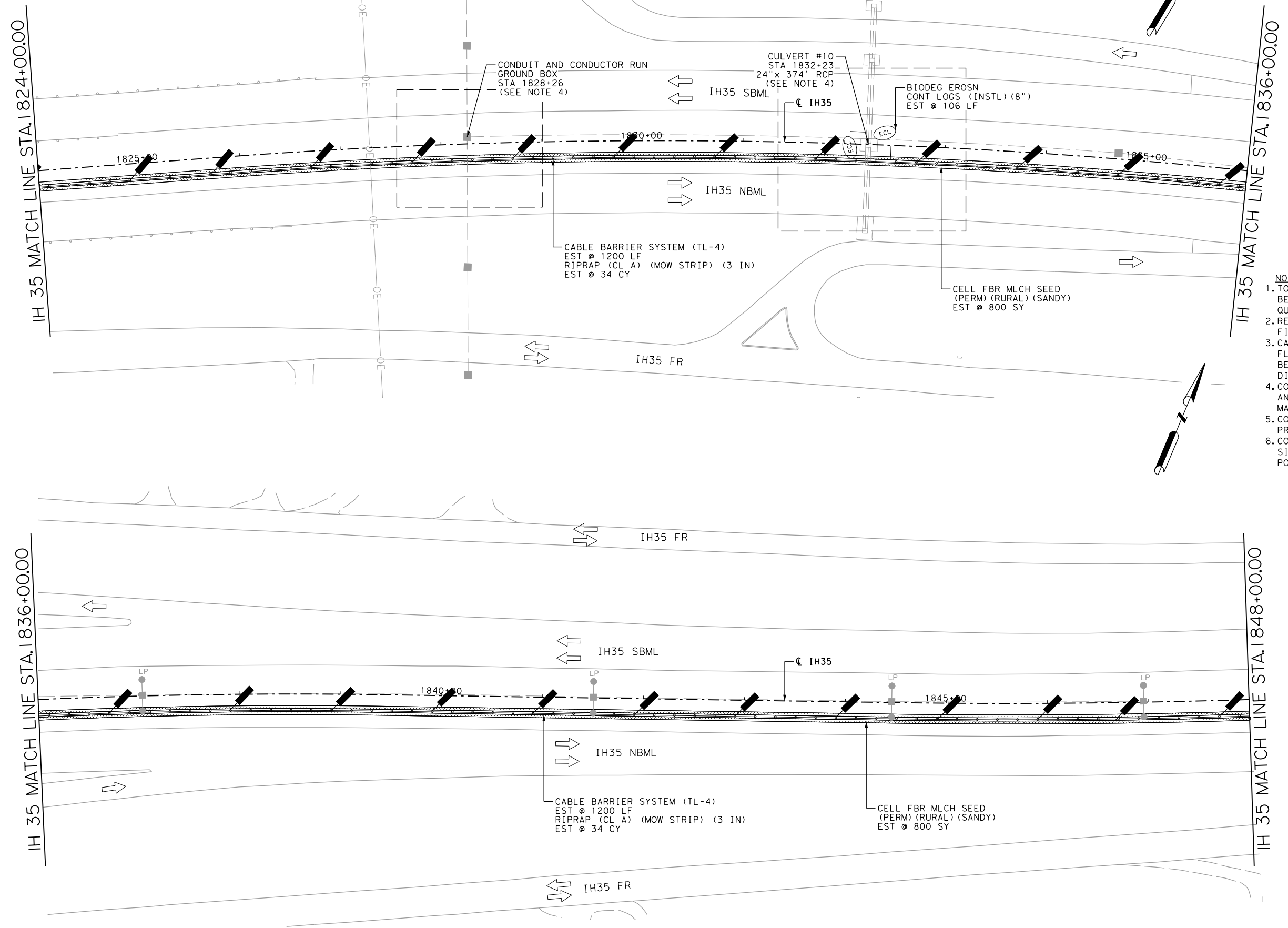
Legacy Engineering Group, PLLC
 7800 W Interstate 10, Ste. 830, San Antonio, Texas 78230, 210.660.1960
 TBPE Firm Registration No. 20623

**IH 35
ROADWAY LAYOUT**

SCALE: 1" = 100' SHEET 8 OF 16

FED. RD. DIV. NO.	PROJECT NO.		SHEET
6	SEE TITLE SHEET		33
STATE	DIST.	COUNTY	
TEXAS	SAT	FRIO	
CONT.	SECT.	JOB	ROADWAY
0017	06	091	IH 35

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 Legacy Engineering Group
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QUANTITY SUMMARY CSJ: 0017-06-091			
ITEM NO.	DESCRIPTION	UNIT	QTY
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	1600
0164-6021	CELL FBR MLCH SEED (PERM) (RURAL) (SANDY)	SY	1600
0168-6001	VEGETATIVE WATERING	MG	25
0432-6066	RIPRAP (CL A) (MOW STRIP) (3 IN)	CY	68
0506-6040	BIODEG EROSN CONT LOGS (INSL) (8")	LF	106
0506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	106
0543-6002	CABLE BARRIER SYSTEM (TL-4)	LF	2400
0658-****	INST DEL ASSM (D-SY) SZ 1 (BRF) (GF2) (B1)	EA	24

- LEGEND**
- EROSION CONTROL LOG
 - TRAFFIC FLOW
 - CELLULOSE FIBER MULCH SEED
 - 50FT. T-BASE POLE (DBL ARM)
 - 50FT. T-BASE POLE (SINGLE ARM)
 - ELECTRICAL SERVICE
 - GROUND BOX
 - CONDUIT AND CONDUCTOR RUN
 - OVERHEAD UTILITIES
 - DELINEATORS

- NOTES:**
1. TOPOGRAPHIC SURVEY NOT COMPLETED FOR THIS PROJECT. BEST FIT ALIGNMENT PROVIDED FOR REFERENCE AND QUANTITIES PURPOSES.
 2. REFER TO MISCELLANEOUS DETAILS SHEET FOR CELLULOSE FIBER SEED DETAILS.
 3. CABLE BARRIERS ARE DESIGNED TO BE PLACED ON 6:1 OR FLATTER SIDE SLOPES. CABLE BARRIER LOCATIONS MAY BE ADJUSTED AS NEEDED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.
 4. CONTRACTOR SHALL STRADDLE CULVERTS AND CONDUITS, AND ENSURE CABLE BARRIER POST SPACING IS MAINTAINED AS PER STANDARDS.
 5. CONTRACTOR SHALL LOCATE EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
 6. CONTRACTOR SHALL INSTALL OVERHEAD POWER LINES SIGNING UPSTREAM AND DOWNSTREAM OF ALL OVERHEAD POWER LINE LOCATIONS.



5/31/2022



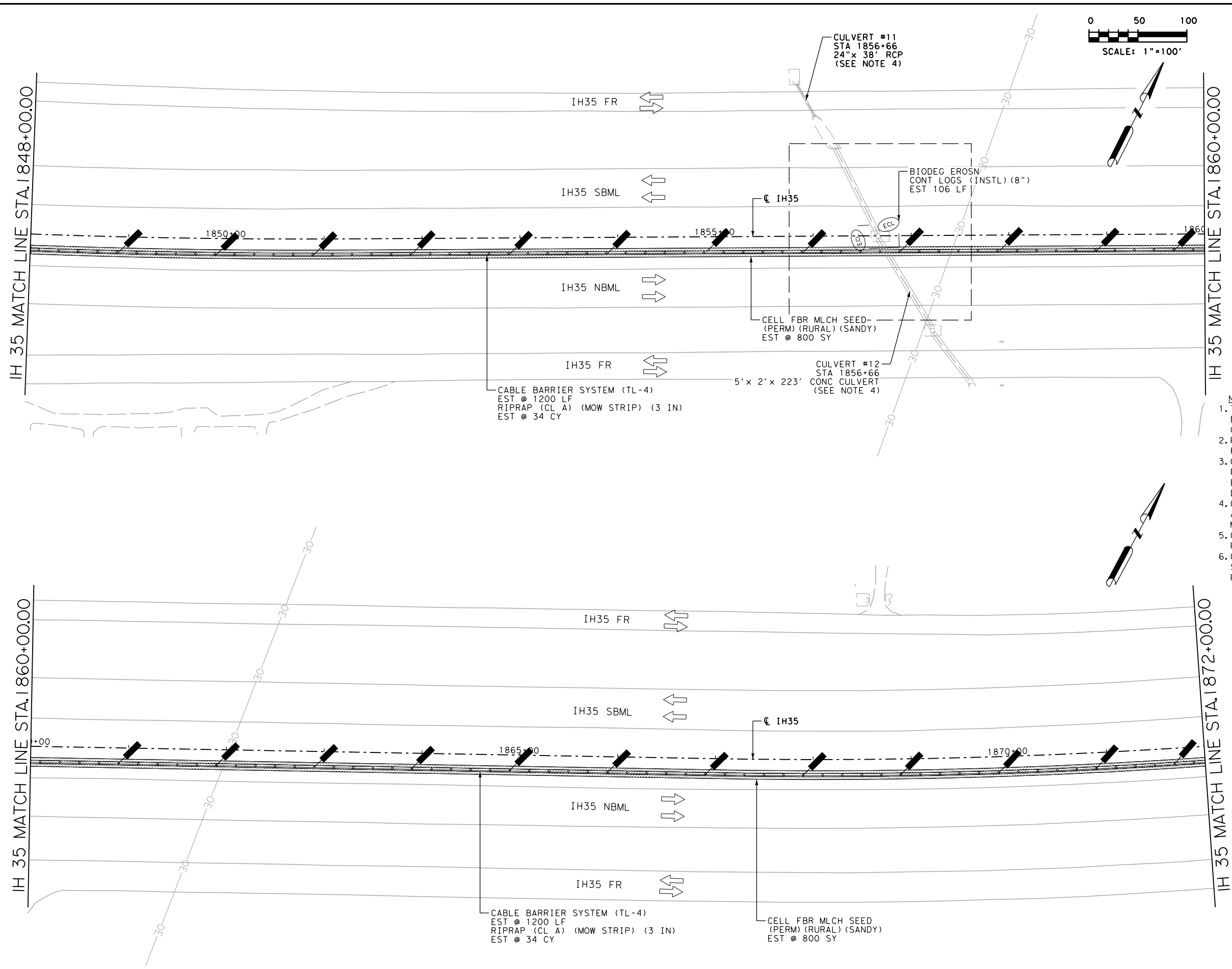
Legacy Engineering Group, PLLC
 7800 W Interstate 10, Ste. 830, San Antonio, Texas 78230, 210.660.1960
 TBPE Firm Registration No. 20623

IH 35
ROADWAY LAYOUT

SCALE: 1" = 100' SHEET 9 OF 16

FED. RD. DIV. NO.	PROJECT NO.		SHEET
6	SEE TITLE SHEET		34
STATE	DIST.	COUNTY	
TEXAS	SAT	FRIO	
CONT.	SECT.	JOB	ROADWAY
0017	06	091	IH 35

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QUANTITY SUMMARY CSJ: 0017-06-091			
ITEM NO.	DESCRIPTION	UNIT	QTY
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	1600
0164-6021	CELL FBR MLCH SEED (PERM) (RURAL) (SANDY)	SY	1600
0168-6001	VEGETATIVE WATERING	MG	25
0432-6066	RIPRAP (CL A) (MOW STRIP) (3 IN)	CY	68
0506-6040	BIODEG EROSN CONT LOGS (INSL) (8")	LF	106
0506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	106
0543-6002	CABLE BARRIER SYSTEM (TL-4)	LF	2400
0658-****	INST DEL ASSM (D-SY) SZ 1 (BRF) (GF2) (BI)	EA	24

LEGEND	
	EROSION CONTROL LOG
	TRAFFIC FLOW
	CELLULOSE FIBER MULCH SEED
	50FT. T-BASE POLE (DBL ARM)
	50FT. T-BASE POLE (SINGLE ARM)
	ELECTRICAL SERVICE
	GROUND BOX
	CONDUIT AND CONDUCTOR RUN
	OVERHEAD UTILITIES
	DELINEATORS

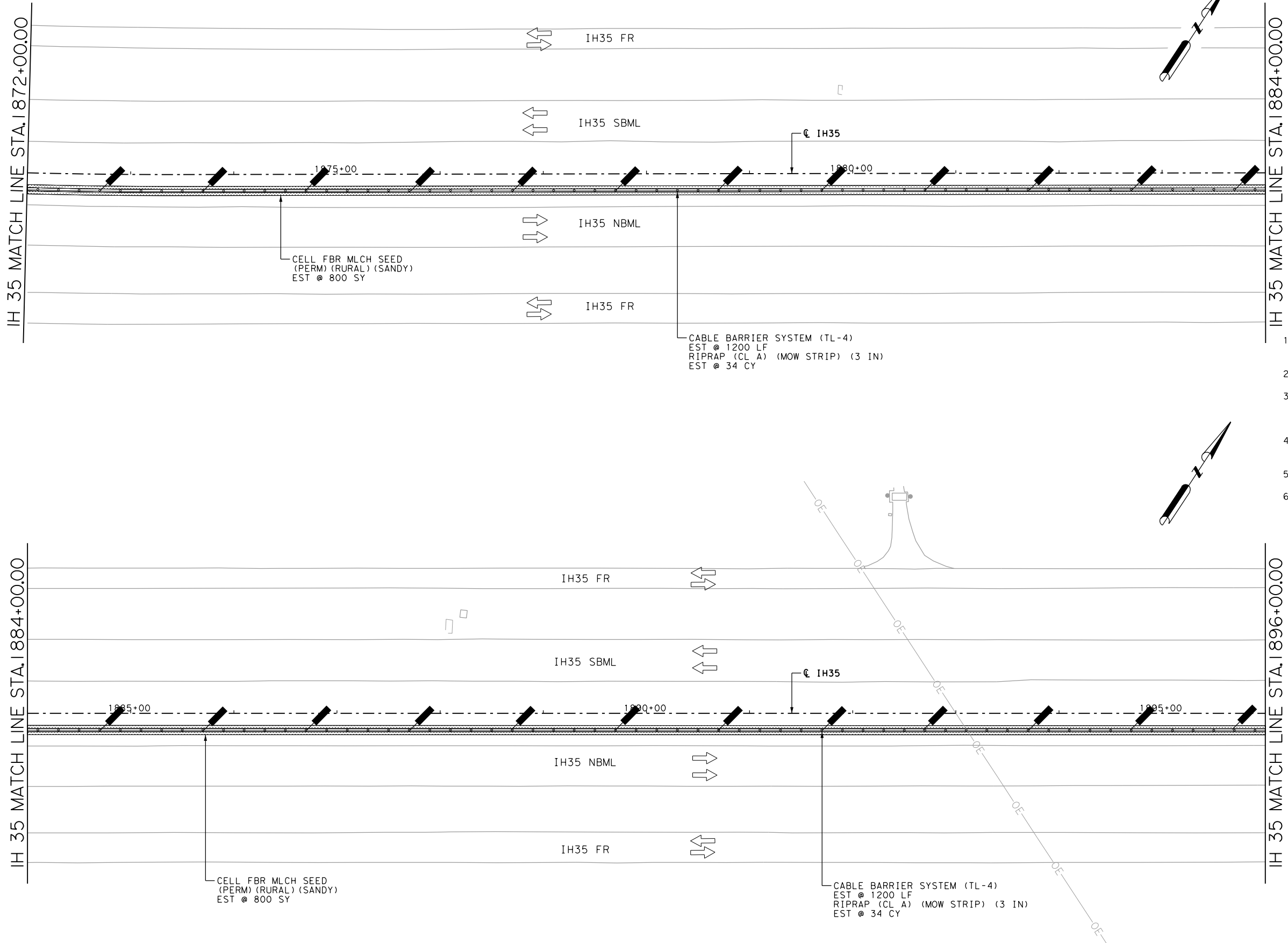
- NOTES:**
1. TOPOGRAPHIC SURVEY NOT COMPLETED FOR THIS PROJECT. BEST FIT ALIGNMENT PROVIDED FOR REFERENCE AND QUANTITIES PURPOSES.
 2. REFER TO MISCELLANEOUS DETAILS SHEET FOR CELLULOSE FIBER MULCH SEED DETAILS.
 3. CABLE BARRIERS ARE DESIGNED TO BE PLACED ON 6:1 OR FLATTER SIDE SLOPES. CABLE BARRIER LOCATIONS MAY BE ADJUSTED AS NEEDED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.
 4. CONTRACTOR SHALL STRADDLE CULVERTS AND CONDUITS, AND ENSURE CABLE BARRIER POST SPACING IS MAINTAINED AS PER STANDARDS.
 5. CONTRACTOR SHALL LOCATE EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
 6. CONTRACTOR SHALL INSTALL OVERHEAD POWER LINES SIGNING UPSTREAM AND DOWNSTREAM OF ALL OVERHEAD POWER LINE LOCATIONS.



IH 35
ROADWAY LAYOUT

SCALE: 1" = 100'		SHEET 10 OF 16	
FED. RD. DIV. NO.	PROJECT NO.	SHEET	
6	SEE TITLE SHEET	35	
STATE	DIST.	COUNTY	
TEXAS	SAT	FRIO	
CONT.	SECT.	JOB	ROADWAY
0017	06	091	IH 35

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QUANTITY SUMMARY CSJ: 0017-06-091

ITEM NO.	DESCRIPTION	UNIT	QTY
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	1600
0164-6021	CELL FBR MLCH SEED (PERM) (RURAL) (SANDY)	SY	1600
0168-6001	VEGETATIVE WATERING	MG	25
0432-6066	RIPRAP (CL A) (MOW STRIP) (3 IN)	CY	68
0543-6002	CABLE BARRIER SYSTEM (TL-4)	LF	2400
0658-****	INST DEL ASSM (D-SY) SZ 1 (BRF) (GF2) (B1)	EA	24

- LEGEND**
- EROSION CONTROL LOG
 - TRAFFIC FLOW
 - CELLULOSE FIBER MULCH SEED
 - 50FT. T-BASE POLE (DBL ARM)
 - 50FT. T-BASE POLE (SINGLE ARM)
 - ELECTRICAL SERVICE
 - GROUND BOX
 - CONDUIT AND CONDUCTOR RUN
 - OVERHEAD UTILITIES
 - DELINEATORS

- NOTES:**
- TOPOGRAPHIC SURVEY NOT COMPLETED FOR THIS PROJECT. BEST FIT ALIGNMENT PROVIDED FOR REFERENCE AND QUANTITIES PURPOSES.
 - REFER TO MISCELLANEOUS DETAILS SHEET FOR CELLULOSE FIBER MULCH SEED DETAILS.
 - CABLE BARRIERS ARE DESIGNED TO BE PLACED ON 6:1 OR FLATTER SIDE SLOPES. CABLE BARRIER LOCATIONS MAY BE ADJUSTED AS NEEDED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.
 - CONTRACTOR SHALL STRADDLE CULVERTS AND CONDUITS, AND ENSURE CABLE BARRIER POST SPACING IS MAINTAINED AS PER STANDARDS.
 - CONTRACTOR SHALL LOCATE EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
 - CONTRACTOR SHALL INSTALL OVERHEAD POWER LINES SIGNING UPSTREAM AND DOWNSTREAM OF ALL OVERHEAD POWER LINE LOCATIONS.



IH 35 ROADWAY LAYOUT

SCALE: 1" = 100' SHEET 11 OF 16

FED. RD. DIV. NO.	PROJECT NO.	SHEET	
6	SEE TITLE SHEET	36	
STATE	DIST.	COUNTY	
TEXAS	SAT	FRIO	
CONT.	SECT.	JOB	ROADWAY
0017	06	091	IH 35

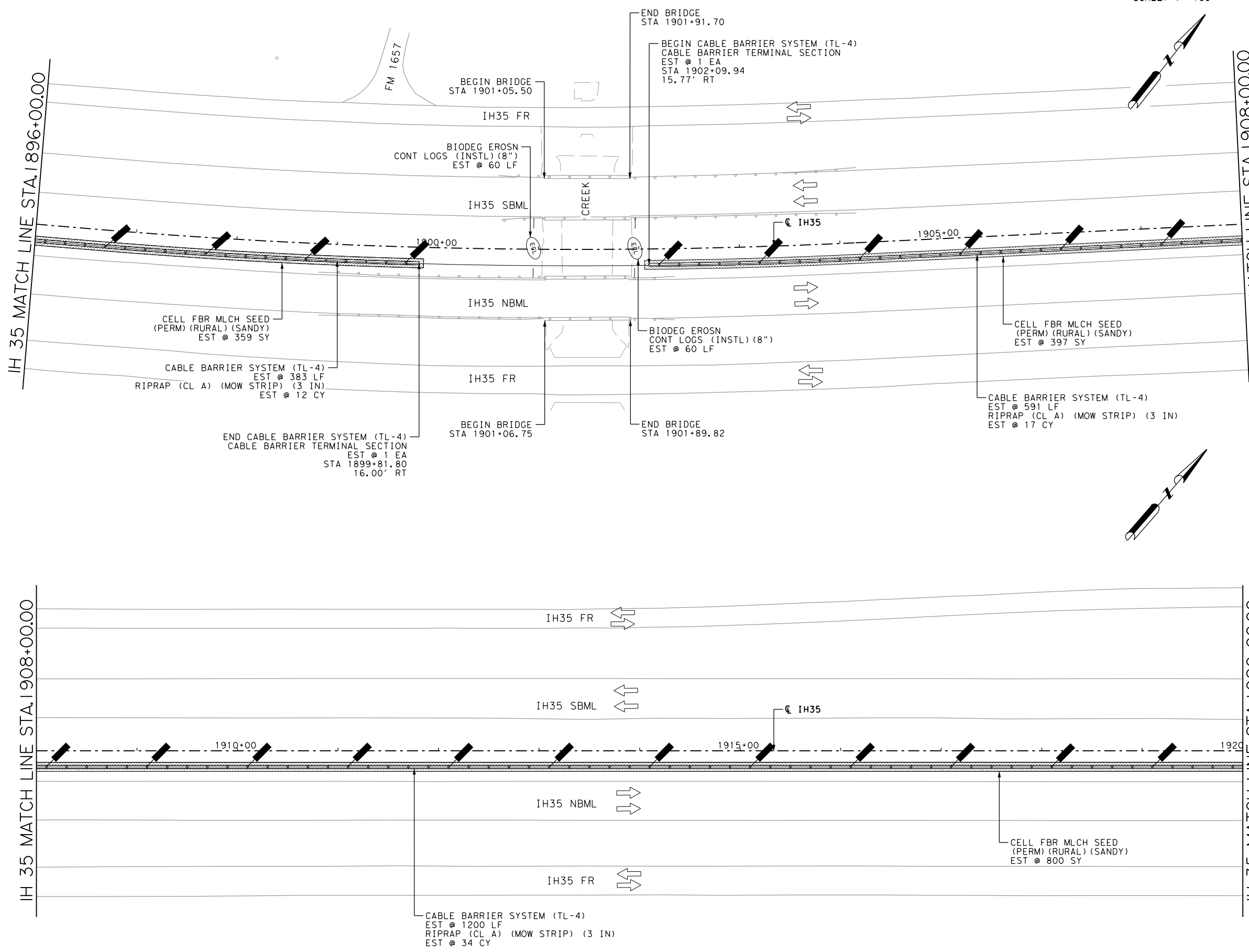
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IH 35 MATCH LINE STA. 1896+00.00

IH 35 MATCH LINE STA. 1908+00.00

IH 35 MATCH LINE STA. 1908+00.00

IH 35 MATCH LINE STA. 1920+00.00



QUANTITY SUMMARY CSJ: 0017-06-091			
ITEM NO.	DESCRIPTION	UNIT	QTY
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	1556
0164-6021	CELL FBR MLCH SEED (PERM) (RURAL) (SANDY)	SY	1556
0168-6001	VEGETATIVE WATERING	MG	24
0432-6066	RIPRAP (CL A) (MOW STRIP) (3 IN)	CY	63
0506-6040	BIODEG EROSN CONT LOGS (INSL) (8")	LF	120
0506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	120
0543-6020	CABLE BARRIER TERMINAL SECTION (TL-4)	EA	2
0658-****	INST DEL ASSM (D-SY) SZ 1 (BRF) (GF2) (B1)	EA	22

LEGEND	
	EROSION CONTROL LOG
	TRAFFIC FLOW
	CELLULOSE FIBER MULCH SEED
	50FT. T-BASE POLE (DBL ARM)
	50FT. T-BASE POLE (SINGLE ARM)
	ELECTRICAL SERVICE
	GROUND BOX
	CONDUIT AND CONDUCTOR RUN
	OVERHEAD UTILITIES
	DELINEATORS

- NOTES:**
1. TOPOGRAPHIC SURVEY NOT COMPLETED FOR THIS PROJECT. BEST FIT ALIGNMENT PROVIDED FOR REFERENCE AND QUANTITIES PURPOSES.
 2. REFER TO MISCELLANEOUS DETAILS SHEET FOR CELLULOSE FIBER MULCH SEED DETAILS.
 3. CABLE BARRIERS ARE DESIGNED TO BE PLACED ON 6:1 OR FLATTER SIDE SLOPES. CABLE BARRIER LOCATIONS MAY BE ADJUSTED AS NEEDED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.
 4. CONTRACTOR SHALL STRADDLE CULVERTS AND CONDUITS, AND ENSURE CABLE BARRIER POST SPACING IS MAINTAINED AS PER STANDARDS.
 5. CONTRACTOR SHALL LOCATE EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
 6. CONTRACTOR SHALL INSTALL OVERHEAD POWER LINES SIGNING UPSTREAM AND DOWNSTREAM OF ALL OVERHEAD POWER LINE LOCATIONS.



5/31/2022



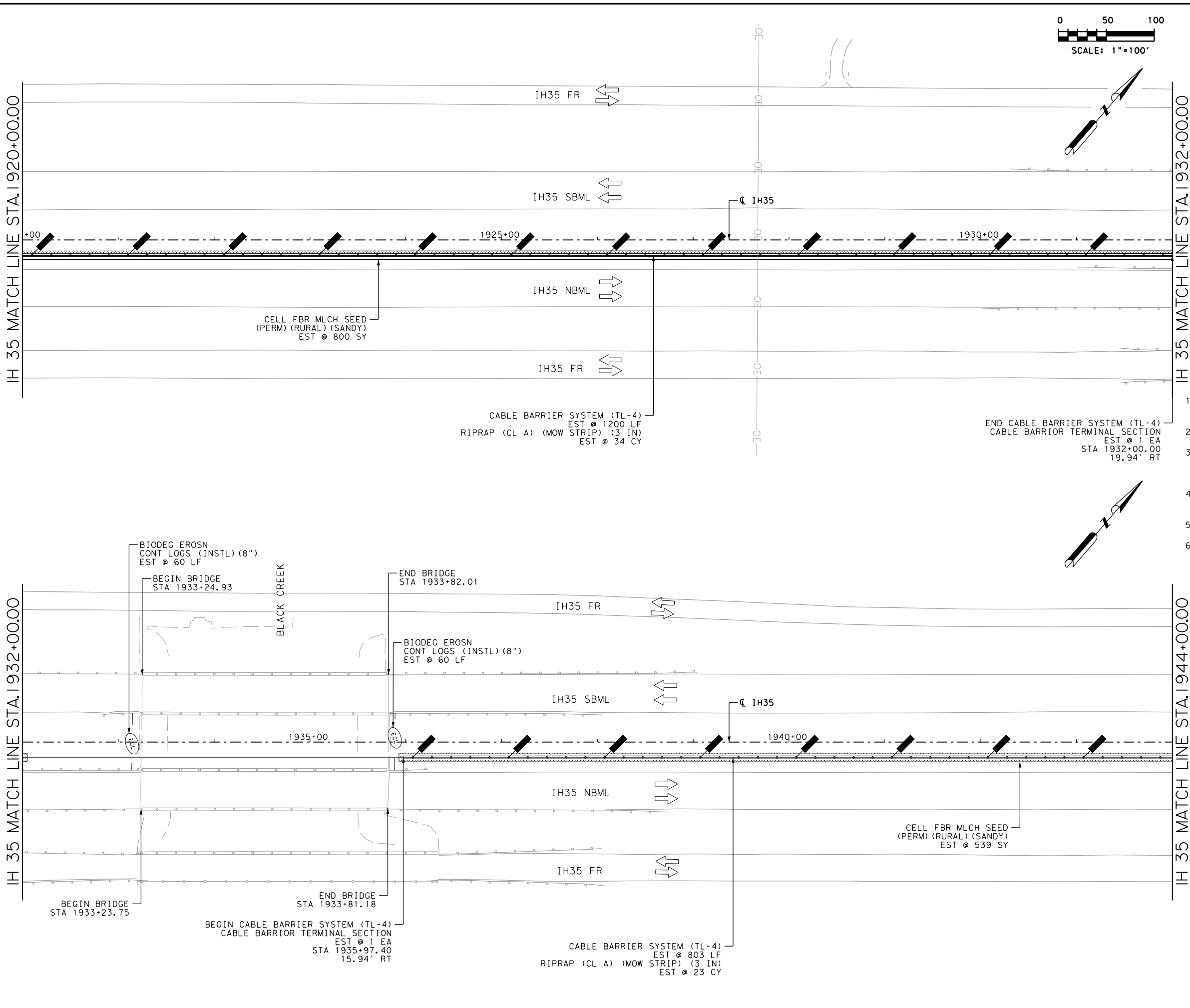
Legacy Engineering Group, PLLC
 7800 W Interstate 10, Ste. 830, San Antonio, Texas 78230, 210.660.1960
 TBPE Firm Registration No. 20623

IH 35
ROADWAY LAYOUT

SCALE: 1" = 100' SHEET 12 OF 16

FED. RD. DIV. NO.	PROJECT NO.		SHEET
6	SEE TITLE SHEET		37
STATE	DIST.	COUNTY	
TEXAS	SAT	FRIO	
CONT.	SECT.	JOB	ROADWAY
0017	06	091	IH 35

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QUANTITY SUMMARY CSJ: 0017-06-091

ITEM NO.	DESCRIPTION	UNIT	QTY
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	1339
0164-6021	CELL FBR MLCH SEED (PERM) (RURAL) (SANDY)	SY	1339
0168-6001	VEGETATIVE WATERING	MG	21
0432-6066	RIPRAP (CL A) (MOW STRIP) (3 IN)	CY	57
0506-6040	BIODEG EROSN CONT LOGS (INSL) (8")	LF	120
0506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	120
0543-6020	CABLE BARRIER TERMINAL SECTION (TL-4)	EA	2
0658-****	INST DEL ASSM (D-SY) SZ 1 (BRF) (GF2) (B1)	EA	20

- LEGEND**
- (ECL) EROSION CONTROL LOG
 - TRAFFIC FLOW
 - Cellulose Fiber Mulch Seed
 - 50FT. T-BASE POLE (DBL ARM)
 - 50FT. T-BASE POLE (SINGLE ARM)
 - ELECTRICAL SERVICE
 - GROUND BOX
 - CONDUIT AND CONDUCTOR RUN
 - OE OVERHEAD UTILITIES
 - DELINEATORS

- NOTES:**
- TOPOGRAPHIC SURVEY NOT COMPLETED FOR THIS PROJECT. BEST FIT ALIGNMENT PROVIDED FOR REFERENCE AND QUANTITIES PURPOSES.
 - REFER TO MISCELLANEOUS DETAILS SHEET FOR CELLULOSE FIBER MULCH SEED DETAILS.
 - CABLE BARRIERS ARE DESIGNED TO BE PLACED ON 6:1 OR FLATTER SIDE SLOPES. CABLE BARRIER LOCATIONS MAY BE ADJUSTED AS NEEDED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.
 - CONTRACTOR SHALL STRADDLE CULVERTS AND CONDUITS, AND ENSURE CABLE BARRIER POST SPACING IS MAINTAINED AS PER STANDARDS.
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 TBPE Firm Registration No. 20623

**IH 35
ROADWAY LAYOUT**

SCALE: 1" = 100' SHEET 13 OF 16

FED. RD. DIV. NO.	PROJECT NO.	SHEET
6	SEE TITLE SHEET	38
STATE	DIST.	COUNTY
TEXAS	SAT	FRIO
CONT.	SECT.	JOB
0017	06	091
		ROADWAY
		IH 35

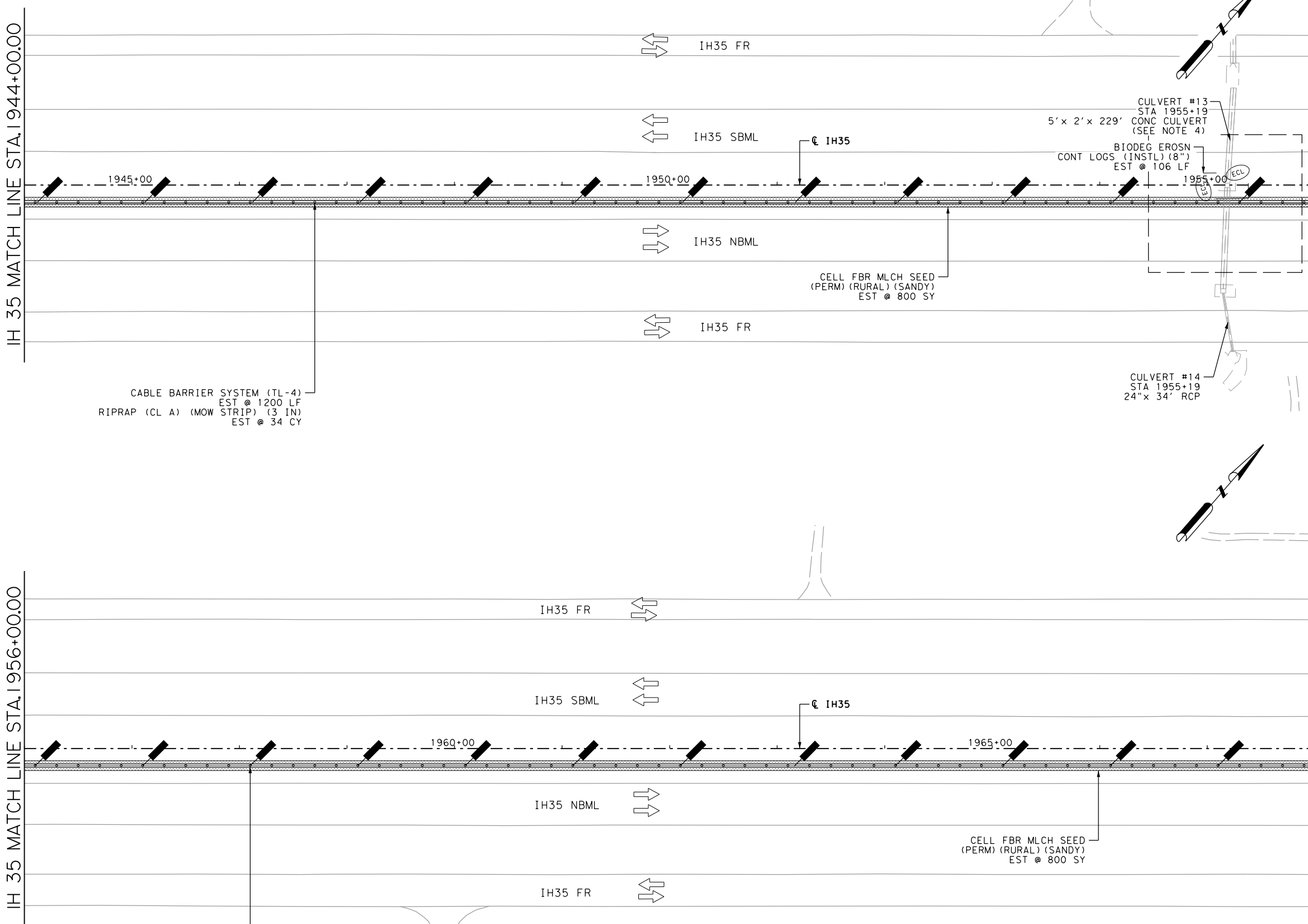
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 Legacy Engineering Group
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IH 35 MATCH LINE STA. 1944+00.00

IH 35 MATCH LINE STA. 1956+00.00

IH 35 MATCH LINE STA. 1956+00.00

IH 35 MATCH LINE STA. 1968+00.00



QUANTITY SUMMARY CSJ: 0017-06-091			
ITEM NO.	DESCRIPTION	UNIT	QTY
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	1600
0164-6021	CELL FBR MLCH SEED (PERM) (RURAL) (SANDY)	SY	1600
0168-6001	VEGETATIVE WATERING	MG	25
0432-6066	RIPRAP (CL A) (MOW STRIP) (3 IN)	CY	68
0506-6040	BIODEG EROSN CONT LOGS (INSL) (8")	LF	106
0506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	106
0543-6002	CABLE BARRIER SYSTEM (TL-4)	LF	2400
0658-****	INST DEL ASSM (D-SY) SZ 1 (BRF) (GF2) (B1)	EA	24

LEGEND	
	EROSION CONTROL LOG
	TRAFFIC FLOW
	CELLULOSE FIBER MULCH SEED
	50FT. T-BASE POLE (DBL ARM)
	50FT. T-BASE POLE (SINGLE ARM)
	ELECTRICAL SERVICE
	GROUND BOX
	CONDUIT AND CONDUCTOR RUN
	OVERHEAD UTILITIES
	DELINEATORS

- NOTES:**
1. TOPOGRAPHIC SURVEY NOT COMPLETED FOR THIS PROJECT. BEST FIT ALIGNMENT PROVIDED FOR REFERENCE AND QUANTITIES PURPOSES.
 2. REFER TO MISCELLANEOUS DETAILS SHEET FOR CELLULOSE FIBER MULCH SEED DETAILS.
 3. CABLE BARRIERS ARE DESIGNED TO BE PLACED ON 6:1 OR FLATTER SIDE SLOPES. CABLE BARRIER LOCATIONS MAY BE ADJUSTED AS NEEDED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.
 4. CONTRACTOR SHALL STRADDLE CULVERTS AND CONDUITS, AND ENSURE CABLE BARRIER POST SPACING IS MAINTAINED AS PER STANDARDS.
 5. CONTRACTOR SHALL LOCATE EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
 6. CONTRACTOR SHALL INSTALL OVERHEAD POWER LINES SIGNING UPSTREAM AND DOWNSTREAM OF ALL OVERHEAD POWER LINE LOCATIONS.



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 TBPE Firm Registration No. 20623

IH 35
ROADWAY LAYOUT

SCALE: 1" = 100'		SHEET 14 OF 16	
FED. RD. DIV. NO.	PROJECT NO.	SHEET	
6	SEE TITLE SHEET	39	
STATE	DIST.	COUNTY	
TEXAS	SAT	FRIO	
CONT.	SECT.	JOB	ROADWAY
0017	06	091	IH 35

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QUANTITY SUMMARY CSJ: 0017-06-091			
ITEM NO.	DESCRIPTION	UNIT	QTY
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	1600
0164-6021	CELL FBR MLCH SEED (PERM) (RURAL) (SANDY)	SY	1600
0168-6001	VEGETATIVE WATERING	MG	25
0432-6066	RIPRAP (CL A) (MOW STRIP) (3 IN)	CY	68
0543-6002	CABLE BARRIER SYSTEM (TL-4)	LF	2400
0658-****	INST DEL ASSM (D-SY) SZ 1 (BRF) (GF2) (B1)	EA	24

LEGEND

	EROSION CONTROL LOG
	TRAFFIC FLOW
	CELLULOSE FIBER MULCH SEED
	50FT. T-BASE POLE (DBL ARM)
	50FT. T-BASE POLE (SINGLE ARM)
	ELECTRICAL SERVICE
	GROUND BOX
	CONDUIT AND CONDUCTOR RUN
	OVERHEAD UTILITIES
	DELINEATORS

- NOTES:**
1. TOPOGRAPHIC SURVEY NOT COMPLETED FOR THIS PROJECT. BEST FIT ALIGNMENT PROVIDED FOR REFERENCE AND QUANTITIES PURPOSES.
 2. REFER TO MISCELLANEOUS DETAILS SHEET FOR CELLULOSE FIBER MULCH SEED DETAILS.
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IH 35
ROADWAY LAYOUT

SCALE: 1" = 100' SHEET 15 OF 16

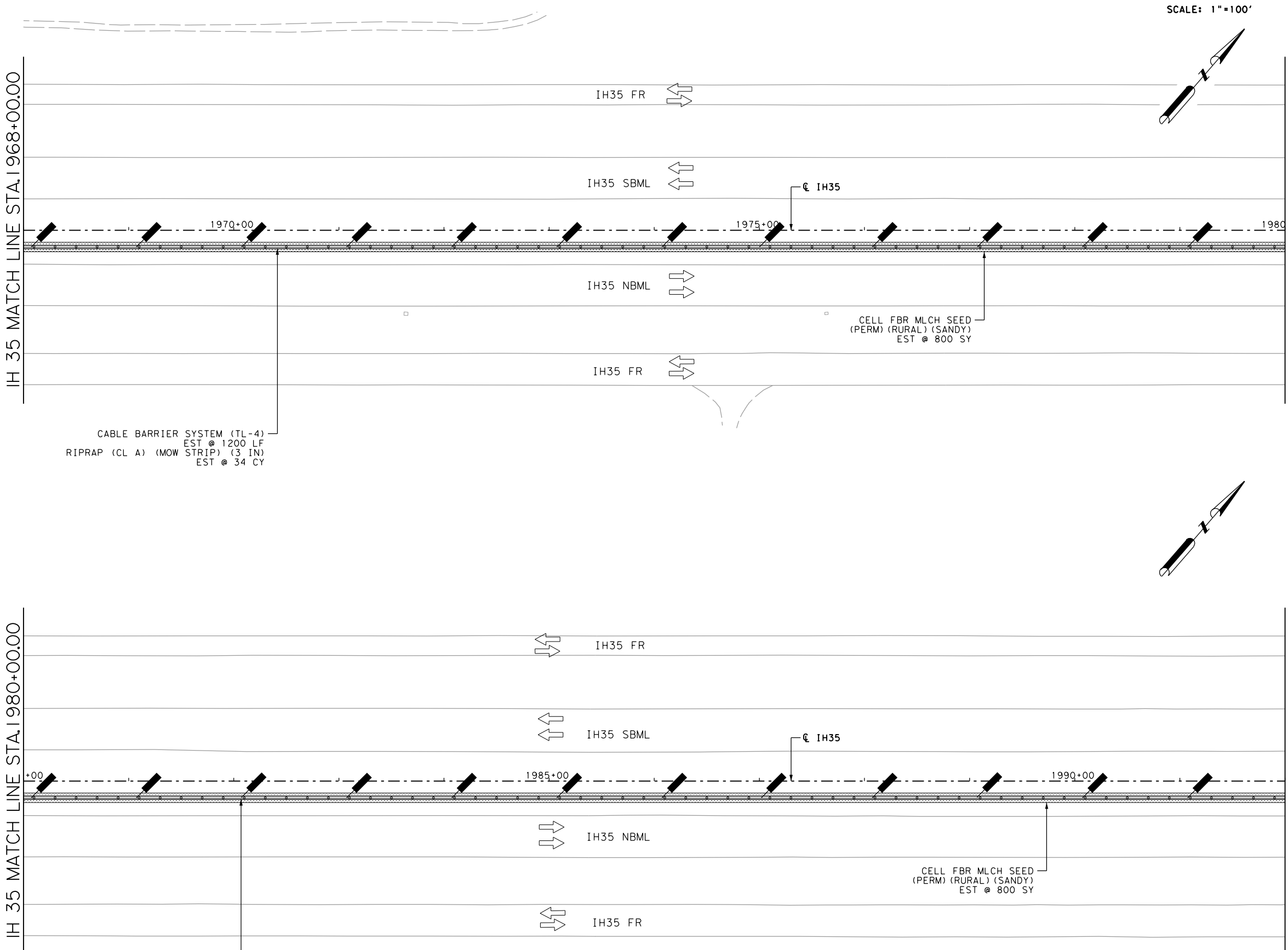
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STATE	DIST.	COUNTY	
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CONT.	SECT.	JOB	ROADWAY
0017	06	091	IH 35

IH 35 MATCH LINE STA. 1968+00.00

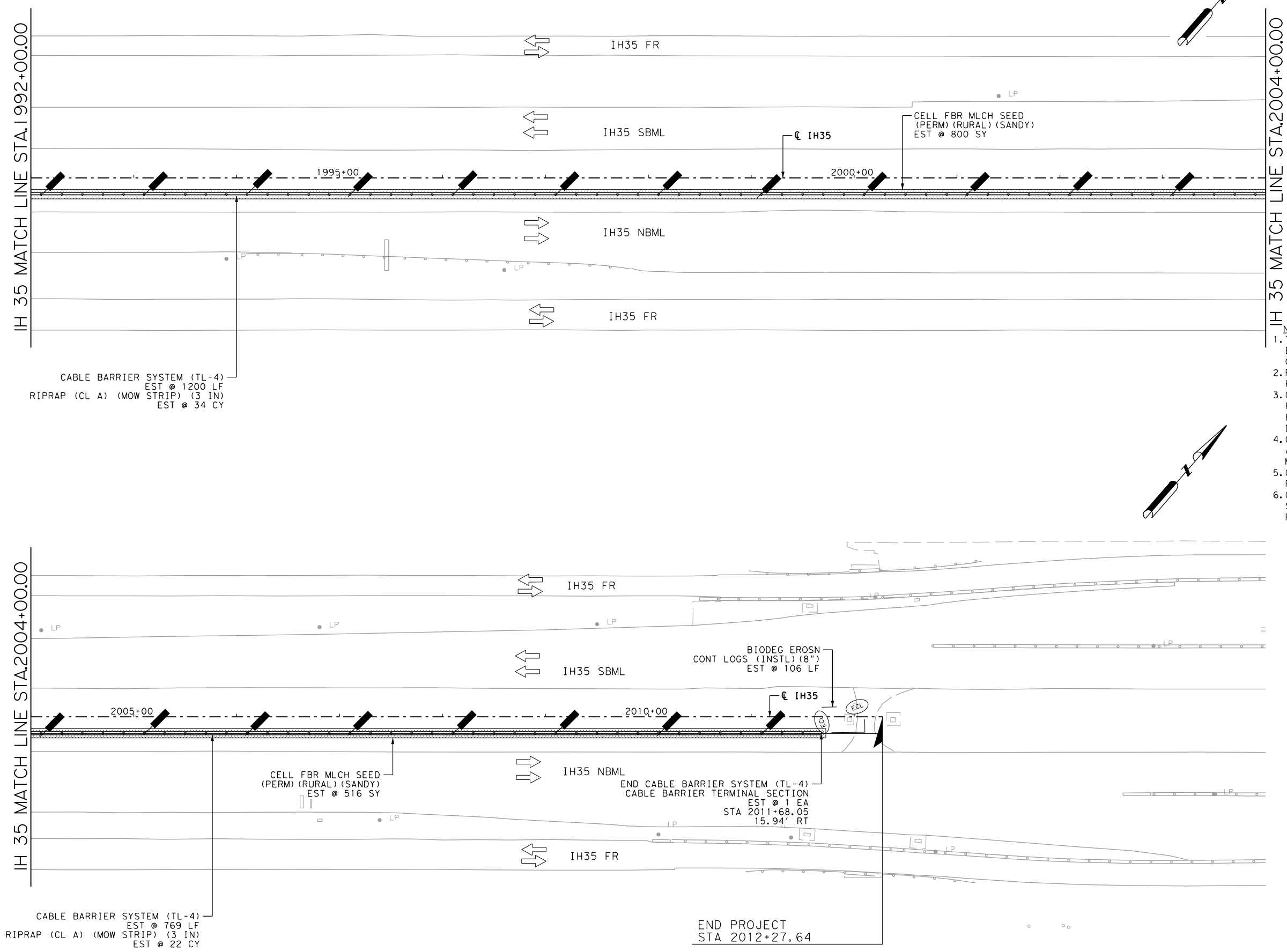
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QUANTITY SUMMARY CSJ: 0017-06-091			
ITEM NO.	DESCRIPTION	UNIT	QTY
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	1316
0164-6021	CELL FBR MLCH SEED (PERM) (RURAL) (SANDY)	SY	1316
0168-6001	VEGETATIVE WATERING	MG	21
0432-6066	RIPRAP (CL A) (MOW STRIP) (3 IN)	CY	56
0506-6040	BIODEG EROSN CONT LOGS (INSL) (8")	LF	106
0506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	106
0543-6002	CABLE BARRIER SYSTEM (TL-4)	LF	1969
0543-6020	CABLE BARRIER TERMINAL SECTION (TL-4)	EA	1
0658-****	INST DEL ASSM (D-SY)SZ 1 (BRF) (GF2) (BT)	EA	20

LEGEND

	EROSION CONTROL LOG
	TRAFFIC FLOW
	CELLULOSE FIBER MULCH SEED
	50FT. T-BASE POLE (DBL ARM)
	50FT. T-BASE POLE (SINGLE ARM)
	ELECTRICAL SERVICE
	GROUND BOX
	CONDUIT AND CONDUCTOR RUN
	OVERHEAD UTILITIES
	DELINEATORS

- NOTES:**
1. TOPOGRAPHIC SURVEY NOT COMPLETED FOR THIS PROJECT. BEST FIT ALIGNMENT PROVIDED FOR REFERENCE AND QUANTITIES PURPOSES.
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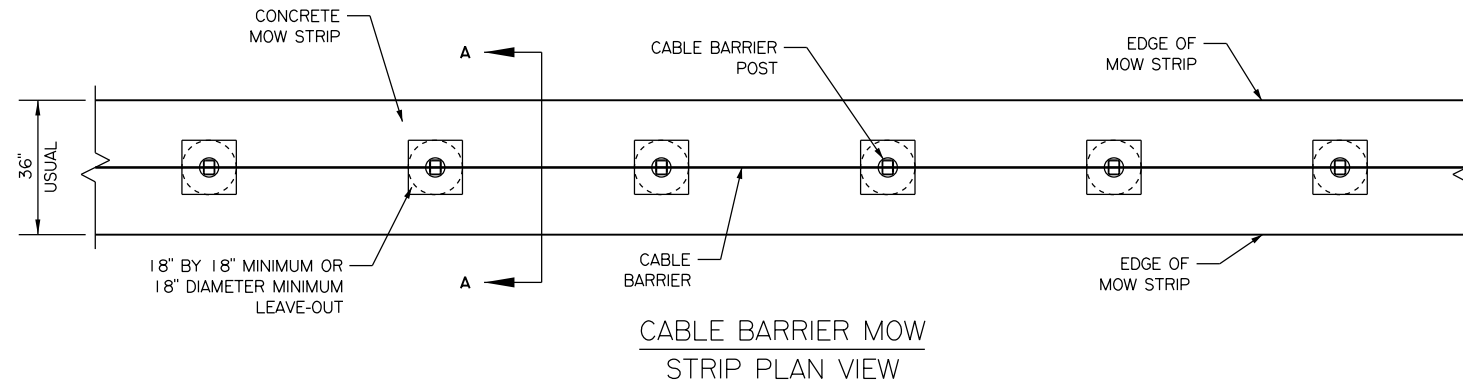
IH 35
ROADWAY LAYOUT

SCALE: 1" = 100' SHEET 16 OF 16

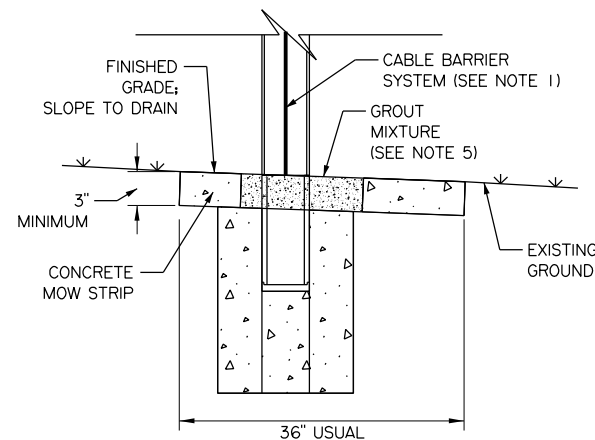
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STATE	DIST.	COUNTY
TEXAS	SAT	FRIO
CONT.	SECT.	JOB
0017	06	091
		ROADWAY
		IH 35

END PROJECT
 STA 2012+27.64

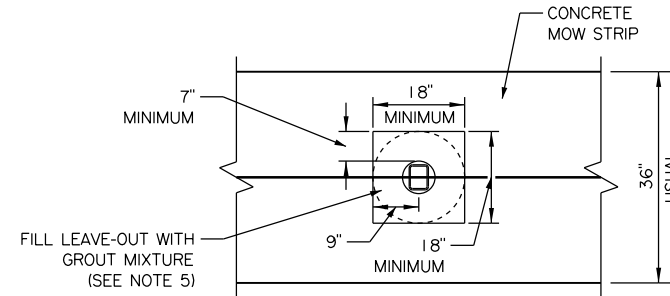
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CABLE BARRIER MOW STRIP PLAN VIEW



CABLE BARRIER MOW STRIP - SECTION A-A



CABLE BARRIER MOW STRIP PLAN VIEW - DETAIL

NOTES:

- FOR ADDITIONAL INFORMATION ON CABLE BARRIER AND FOUNDATION DETAILS, SEE APPLICABLE STANDARDS.
- MOW STRIPS SHALL BE REINFORCED CONCRETE WITH (WIRE MESH OR SYNTHETIC FIBER), AS SHOWN ON THE PLANS AND WILL BE PAID FOR UNDER THE PERTINENT BID ITEM. REINFORCED CONCRETE SHALL BE PLACED IN ACCORDANCE WITH ITEM 432, "RIPRAP". THE USE OF SYNTHETIC FIBER IN LIEU OF STEEL REINFORCING IS ACCEPTABLE, PROVIDED THE FIBER PRODUCER IS ON THE DEPARTMENT MATERIAL PRODUCER LIST (MPL), MAINTAINED BY TXDOT, CONSTRUCTION DIVISION.
- THE LEAVE-OUT AREAS AROUND THE CABLE BARRIER POSTS SHALL BE SEVEN (7) INCHES AT A MINIMUM. THE MOW STRIP SHALL BE THREE (3) INCHES THICK AT A MINIMUM.
- USE CLASS "A" CONCRETE IN ACCORDANCE WITH ITEM 421.
- THE LEAVE-OUTS SHALL BE FILLED WITH A GROUT MIXTURE CONSISTING OF: 2,719 POUNDS SAND, 188 POUNDS TYPE I OR II CEMENT, AND 550 POUNDS OF WATER PER CUBIC YARD, WITH A 28-DAY COMPRESSIVE STRENGTH OF APPROXIMATELY 230 POUNDS PER SQUARE INCH OR LESS. PROVIDE GROUT WITH A CONSISTENCY THAT WILL FLOW INTO AND COMPLETELY FILL ALL VOIDS. DUE TO AUGER SIZE, LARGER LEAVE-OUT DIMENSIONS ARE ACCEPTABLE FROM BOTH AN IMPACT PERFORMANCE AND A MAINTENANCE REPAIR STANDPOINT (SUGGESTED MAXIMUM LEAVE-OUT OF TWENTY (20) INCHES). PAYMENT FOR FURNISHING AND PLACING THE GROUT MIXTURE WILL BE SUBSIDIARY TO THE PAY ITEM OF RIPRAP MOW STRIP.



5/31/2022



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IH 35

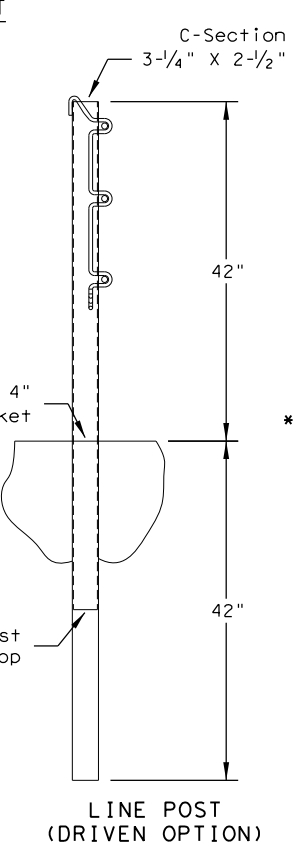
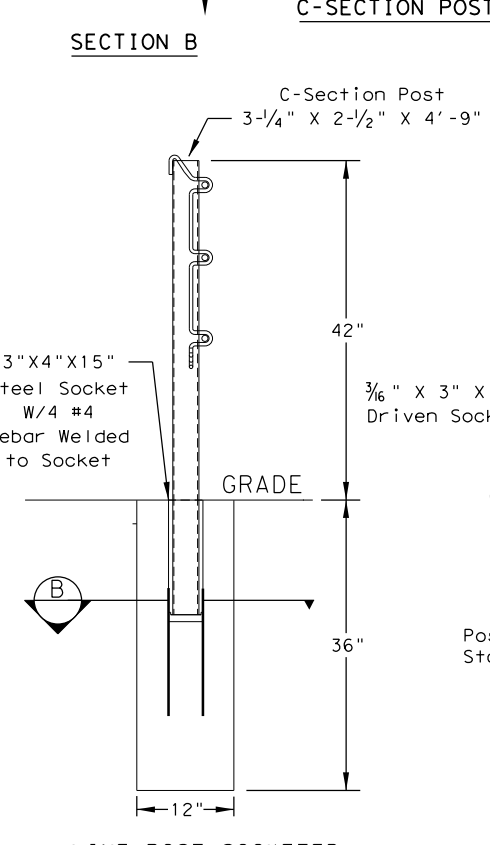
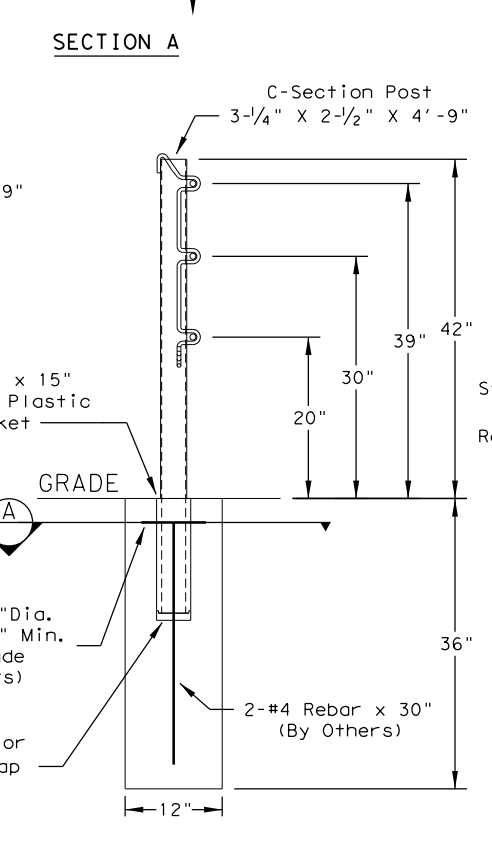
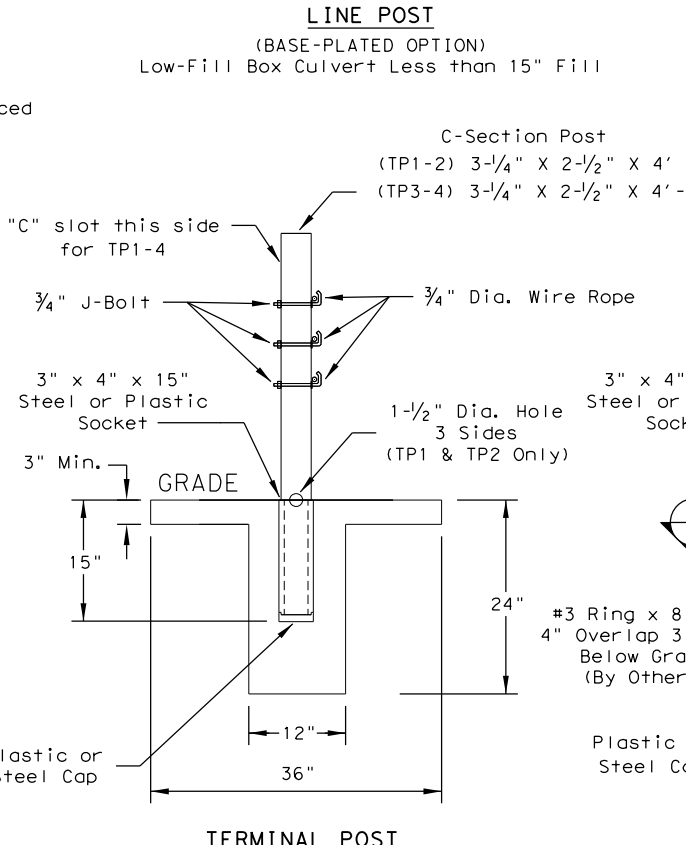
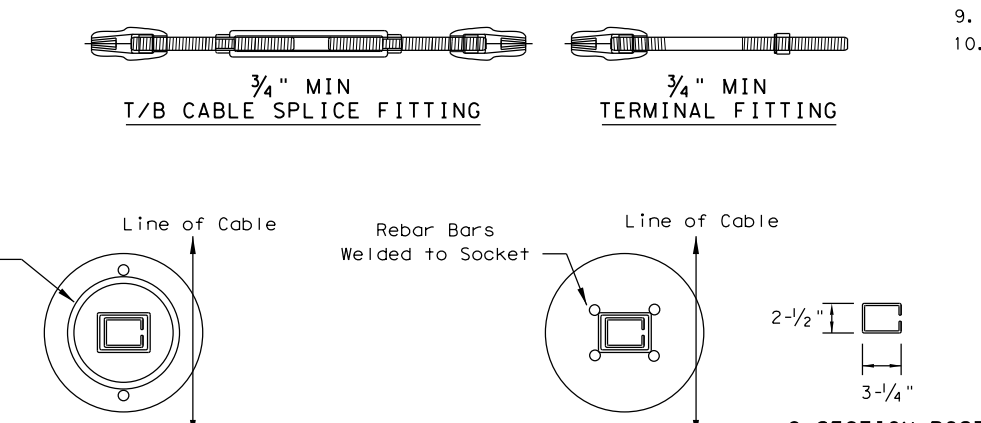
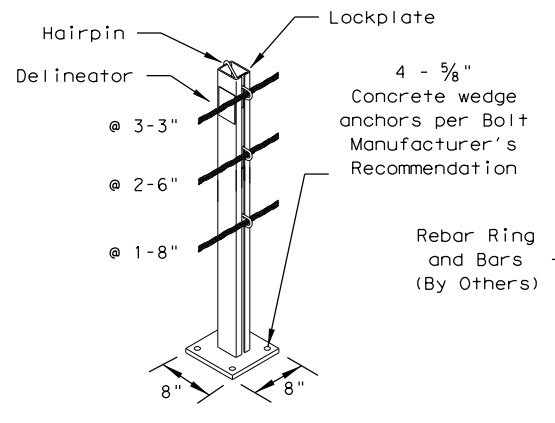
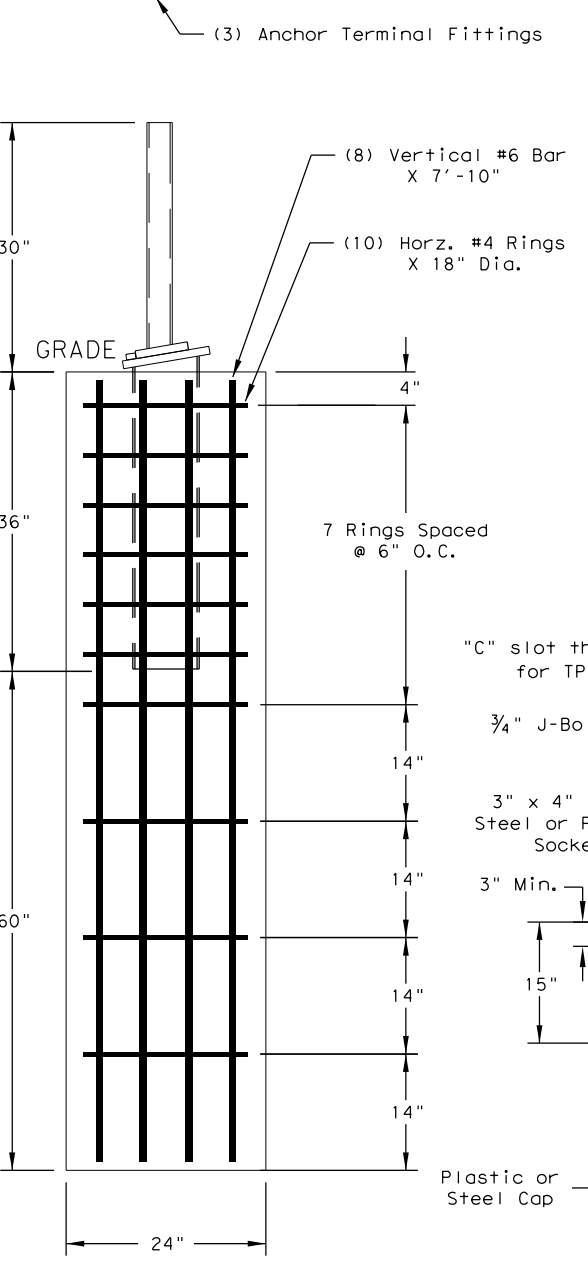
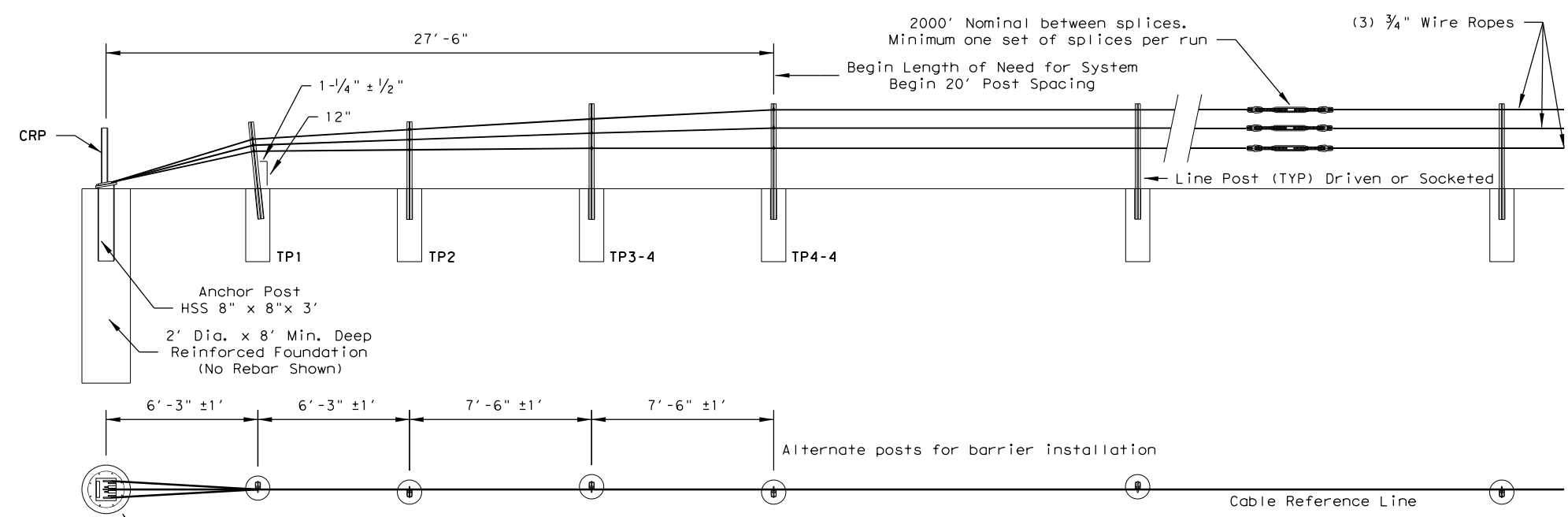
MISCELLANEOUS DETAILS

SCALE: 1" = 100' SHEET 1 OF 1

FED. RD. DIV. NO.	PROJECT NO.		SHEET
6	SEE TITLE SHEET		42
STATE	DIST.	COUNTY	
TEXAS	SAT	FRIO	
CONT.	SECT.	JOB	ROADWAY
0017	06	091	IH 35

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DATE: 5/31/2022
 FILE: P:\TXDOT\Projects\Traffic On-Call for SA District\LEG WA_1\IH_35_0017-06-091\4 - Design\Plan_Set\3 - Roadway\STANDARDS\gbrltr+1414.dgn



- ### GENERAL NOTES
- For additional information contact Gibraltar, Inc. at 1-800-495-8957, 830-798-5444, or see the manufacturer's product manual.
 - All concrete shall be CLASS A.
 - The Cable Barrier System shall be installed on shoulders or on medians with slopes of 6:1 or flatter. If installed on slopes steeper than 6:1 up to 4:1 the TL-4 system performs as a TL-3 and Gibraltar must be contacted for various guidelines related to placement.
 - The Cable Barrier System is accepted by the FHWA Test Level - 4.
 - See the Texas MUTCD for proper "Barrier" delineation.
 - Rock Clause: Where solid rock is encountered:
 - For socketed post, continue digging 12" diameter, 15" deep into rock or the required plan depth, whichever comes first.
 - For driven post, core drill a 4" diameter hole 18" deep into rock or the required plan depth, whichever comes first.
 - For Anchor post, continue digging 24" diameter, 30" deep into rock or the required plan depth, whichever comes first.
 - Tolerances:
 - * LP = 3" out of plumb, at top
 - * Cable height = 1"
 - * Anchor Post = 5" off of Cable Reference Line
 - The Gibraltar cable barrier system shall be installed in NCHRP Report 350 standard compacted soil. Soil must be well drained.
 - All non-welded rebar by others.
 - Minimum recommended line post foundation.
 - Without mowstrip, 36" Deep x 12" diameter foundations with #3 rebar ring x 8" diameter with two #4 rebar vertical bars 30" long
 - With 4" minimum depth hot mix asphalt, 30" deep x 12" diameter foundations with #3 rebar ring x 8" diameter with two #4 rebar vertical bars 30" long.
 - With 3" minimum depth concrete mowstrip, 24" deep x 12" diameter foundations. (No rebar required)
 - Direct drive post 42" deep.

Temperature (°F)	Tension
-10 °F	8000
0 °F	7600
10 °F	7200
20 °F	6800
30 °F	6400
40 °F	6000
50 °F	5600
60 °F	5200
70 °F	4800
80 °F	4400
90 °F	4000
100 °F	3600
110 °F	3200

Deflection	Post Spacing
8'-0"	20 FT
7'-0"	12 FT
6'-8"	10 FT

* Allowable Deviation from Chart +/- 10%

Texas Department of Transportation Design Division Standard

GIBRALTAR CABLE BARRIER SYSTEM (TL-4)

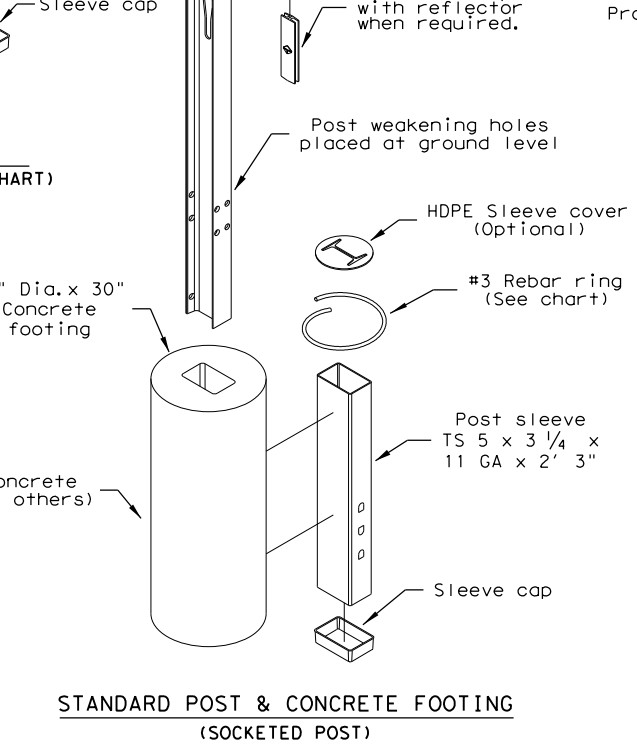
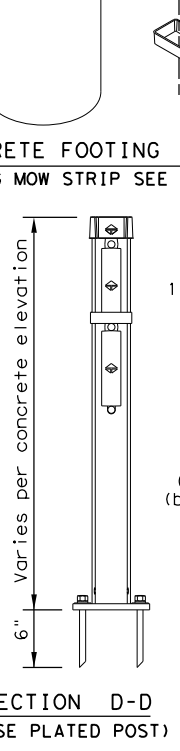
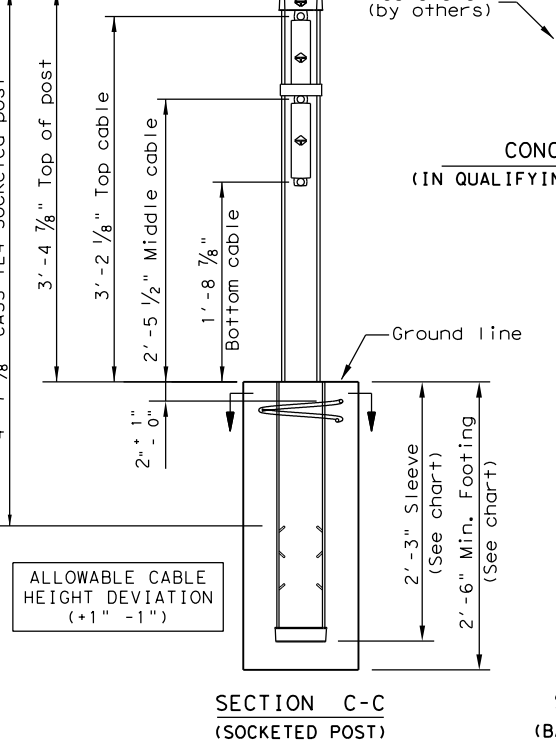
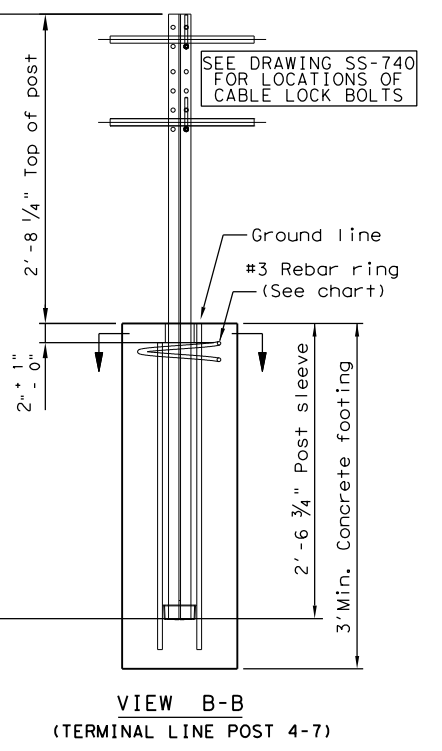
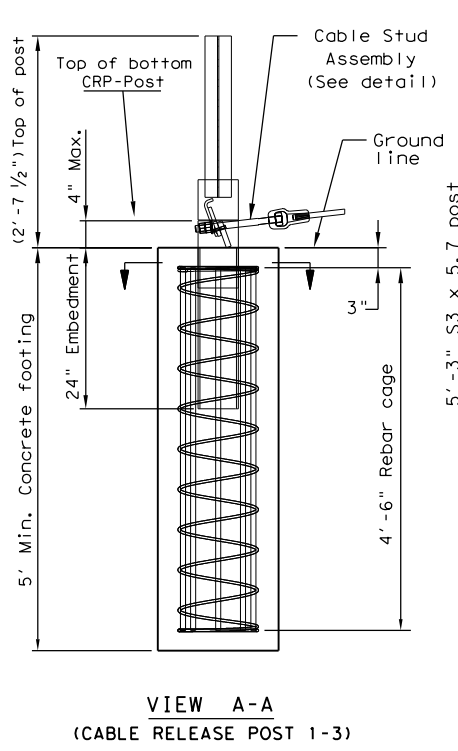
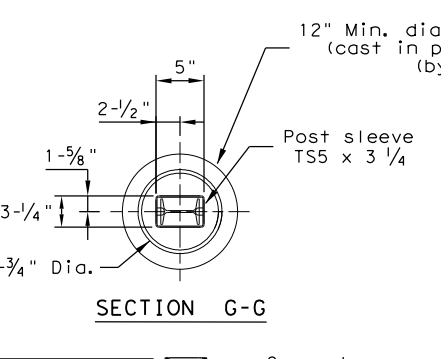
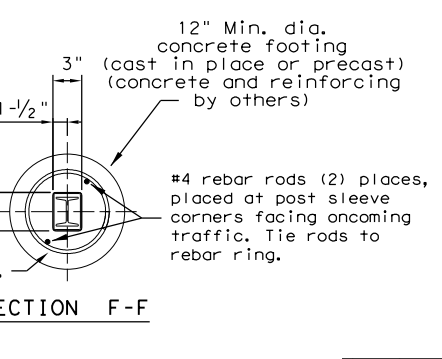
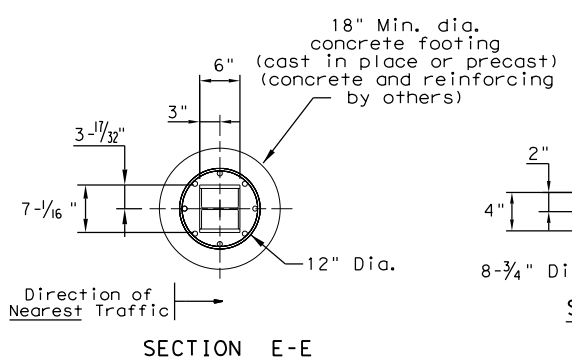
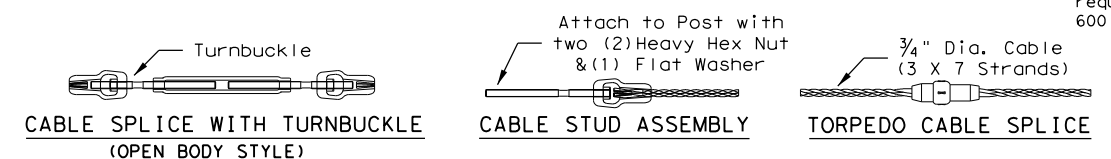
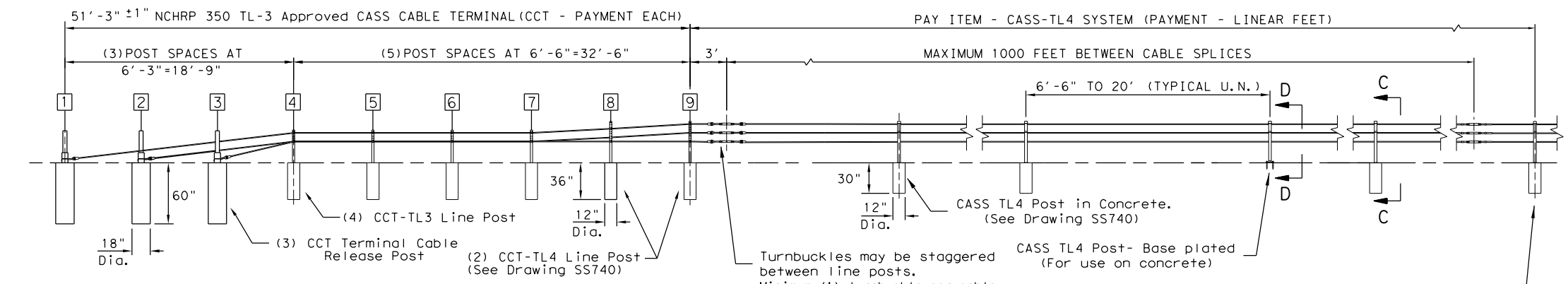
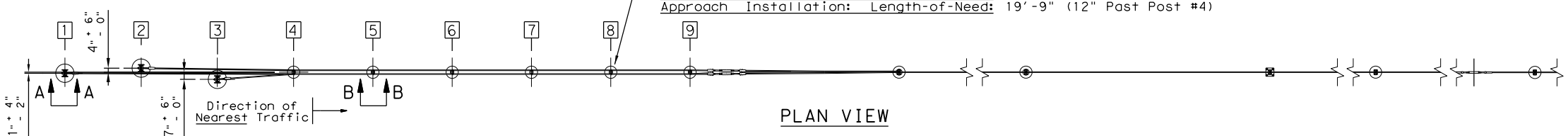
GBRLTR(TL4) - 14

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REVISIONS	DIST: SAT	COUNTY: FRIO	SHEET NO. 43	

DATE: 5/31/2022
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Preferred Installation: Locate post #2 away from nearest traffic.
 System has been successfully tested with opposite installation.

Length-of-Need Cass Cable Terminal (CCT):
Departure Installation: Length-of-Need: 44'-9" (At Post #8)
Approach Installation: Length-of-Need: 19'-9" (12" Post Post #4)



- GENERAL NOTES**
- This drawing is a general overview of CASS TL-4 Barrier System. See SS-740 (latest version) for specific details of CASS cable terminal (CCT) and cable safety system (CASS) requirements, proper installation, options and specification.
 - CASS is designed for bi-directional traffic flows and can be installed on either side of the median. Contact Trinity (800-527-6050) or consult the design, installation, or repair manual(s) for additional information.
 - All concrete for CASS footings shall be TxDOT class A. If class A or stronger concrete is utilized for the mowstrip, please see chart below for allowable footing depth and sleeve deviations.
 - All posts shall be socketed unless otherwise specified. All cables shall be pre-stretched unless otherwise specified.
 - For payment see Special Specification "Cable Barrier System".
 - CASS-TL4 shall be installed on shoulders or medians with slopes of 6:1 or flatter without obstructions, depressions, etc. That may significantly affect the stability of an errant vehicle. Grading of site and/or appropriate fill materials may be required. The designer/installer shall "Flatten" or "Round" various topographical inconsistencies that could interfere with the ability of the installer to consistently maintain the design height (in relation to the terrain) of the cables. Please consult manual(s) and / or TxDOT Memo(s) for installations in "Ditch Sections".
 - CASS TL-4 post spacing may be modified to avoid obstacles that conflict with the installation of cass-tl4 line posts or to reduce deflection on radiuses. No post space can exceed the maximum post TxDOT space limit of 20'. Reducing or increasing post spacing affects deflection. CASS TL-4 may be laterally transferred at a rate not to exceed 30:1.
 - Post foundations may be drilled through existing pavement. Please see line post foundation chart for minimum footing requirements in various applications.
 - For aesthetic purposes Trinity recommends all sleeves, driven posts, and lower cable release posts to be installed reasonably plumb (approximately 1/8" per foot).
 - CASS TL-4 shall be installed in well-drained, compacted, NCHRP Report 350 Standard soil. If soil does not meet this classification, if solid rock/concrete is encountered below grade or if soil is susceptible to severe freeze/thaw cycles, please contact Trinity about alternate footing design(s). Trinity suggests the use of "Mow strips" for erosion prevention and ease of maintenance / installation.
 - See the Texas MUTCD for proper "Barrier" Delineation.

MOW STRIP DETAIL*			CONCRETE FOOTING CHART		
MOW STRIP	DEPTH	WIDTH	FOOTING	TUBE SLEEVE	REBAR RING
NONE			30" Min.	27" Min.	YES
HMA	6" Min.	3' Min.	27" Min.	15" Min.	NO
HMA	8" Min.	3' Min.	24" Min.	15" Min.	NO
RC	3" Min.	3' Min.	24" Min.	15" Min.	NO

Chart does not apply to Terminal Posts 1 thru 9.
 * Mow strip or pavement.
 HMA = Hot Mix Asphalt (Not Recycled Asphalt Pavement).
 RC = Reinforced Concrete (TxDOT Class A Minimum).

Trinity Highway Products, LLC.
 2525 Stemmons Freeway
 Dallas, TX 75207
 Phone: (800) 644-7976
 Product: INFO@TRIN.NET

CABLE TENSION CHART	
FAHRENHEIT DEGREES	PRE-STRETCHED LB / FORCE
-10	7300
0	7000
10	6600
20	6300
30	6000
40	5600
50	5300
60	5000
70	4600
80	4300
90	4000
100	3600
110	3300
120	3000
130	2700
140	2500
150	2300

Allowable deviation from chart in tangent sections: +800, -200 pounds/force. Cable tension readings are typically higher in curved cable sections.

Texas Department of Transportation
TRINITY CABLE SAFETY SYSTEM (TL-4)
CASS (TL4) - 14

FILE: casst1414.dgn	DN: TxDOT	CK: RM	DW: VP	CK:
©TxDOT: March 2014	CONT	SECT	JOB	HIGHWAY
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	SAT	FRIO		44

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REFLECTOR UNIT SIZES FOR DELINEATORS AND OBJECT MARKERS				DELINEATORS				D & OM DESCRIPTIVE CODES		
DEVICE	SIZE 1	SIZE 2	SIZE 3	SIZE 4	SINGLE		DOUBLE		INSTL DEL ASSM (D-XX)SZ X (XXXX)XXX (XX) NUMBER OF REFLECTORS S = Single D = Double COLOR OF REFLECTORS W = White Y = Yellow R = Red REFLECTOR UNIT SIZE 1 or 2 TYPE OF POST OR DELINEATOR WC = Wing Channel Post YFLX = Yellow Flexible Post WFLX = White Flexible Post BRFL = Barrier Reflector TYPE OF MOUNT GND = Embedded (drivable or set in concrete) CTB = Concrete Barrier Mount GF1 or GF2 = Guard Fence Attachment SRF = Surface Mount DIRECTION If Required BI = Bi-Directional BR = Bi-Directional with red on back	
SHEETING	Yellow, White or Red Type B or C reflective sheeting				Yellow, White or Red Type B or C Reflective Sheeting					
NOTE	1. Size 1 and 4 - Direct applied reflective sheeting for use on flexible post (flx). 2. Size 2 and 3 - For use on wing channel (wc) post only. Use approved metal, plastic or fiberglass backplate with 17/64" mounting holes.				POST TYPE	WC	YFLX, WFLX	WC	YFLX, WFLX	INSTL OM ASSM (OM-XX) (XXXX)XXX (XX) TYPE OF OBJECT MARKER 1, 2, 3, or 4 NUMBER OF REFLECTORS OR DIRECTION X = 3-Size 2 reflector unit (Type 2 only) Y = 1-Size 3 reflector unit (Type 2 only) Z = 3-Size 1 or 1-Size 4 reflector unit(s) (Type 2 only) L = Left Side (Type 3 Object Marker only) R = Right Side (Type 3 Object Marker only) C = Center (Type 3 Object Marker only) TYPE OF POST WC = Wing Channel Post WFLX = White Flexible Post TWT = Thin Walled Tubing TYPE OF MOUNT GND = Embedded (drivable) SRF = Surface Mount WAS = Wedge Anchor Steel WAP = Wedge Anchor Plastic DIRECTION If Required BI = Bi-Directional
					MOUNT TYPE	GND	GND, SRF	GND	GND, SRF	

OBJECT MARKERS								
DEVICE	Type 1 (OM-1)	Type 2 (OM-2)			Type 3 (OM-3)			Type 4 (OM-4)
	OM-1	OM-2X	OM-2Y	OM-2Z	OM-3L	OM-3R	OM-3C	OM-4
SHEETING	Yellow-Type B _{FL} or C _{FL} Sheeting	Yellow - Type B or C Sheeting			Alternating acrylic black and retroreflective yellow - Type B _{FL} or C _{FL} Sheeting			Red -Type B _{FL} or C _{FL} Sheeting
POST TYPE	TWT	WC	WC	WFLX	TWT			TWT
MOUNT TYPE	WAS, WAP	GND	GND	GND, SRF	WAS, WAP			WAS, WAP

BARRIER REFLECTORS (BRF)			CHEVRONS				ONE DIRECTION LARGE ARROW		NOTE: Delineator and object marker substrates and sign substrates shall be 0.080" Aluminum sign blank to conform to ASTM B-209 Alloy 6061-T6 or approved alternative.		
DEVICE	GF1	GF2	CTB	W1-8				W1-6			
NOTE	1. Barrier reflectors shall meet the requirements of DMS 8600. 2. Approved Barrier Reflectors are listed on the "Barrier Reflectors" Material Producer List at: www.txdot.gov.			SIZE (W x L)	18" x 24" (Conventional)	24" x 30" (Conventional Oversize)	30" x 36" (Expressway)	36" x 48" (Freeway)	SIZE (W x L)	48" x 24" (Conventional)	60" x 30" (Expressway & Freeway)
				MOUNTING HEIGHT	4'-0" or 7'-0"		7'-0" Only		MOUNTING HEIGHT	7'-0"	
				NOTE	1. CHEVRON (W1-8) signs and ONE DIRECTION LARGE ARROW (W1-6) Signs shall be installed per Sign Mounting Details (SMD) Standard Sheets and paid under Item 644 (Small Roadside Sign Assemblies). 2. When there is a need to increase conspicuity, the Texas version of the ONE DIRECTION LARGE ARROW sign (W1-9T) may be used instead of the ONE DIRECTION LARGE ARROW (W1-6).						
SHEETING	Yellow, White, Red										

DEPARTMENTAL MATERIAL SPECIFICATIONS	
FLEXIBLE DELINEATOR & OBJECT MARKER POSTS (EMBEDDED & SURFACE MOUNT TYPES)	DMS-4400
SIGN FACE MATERIALS	DMS-8300
DELINEATORS, OBJECT MARKERS AND BARRIER REFLECTORS	DMS-8600

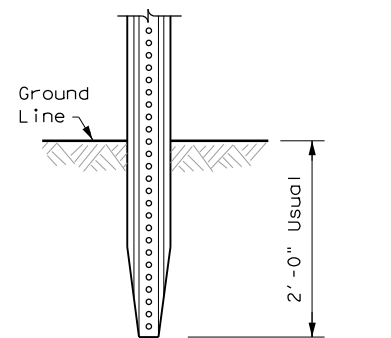
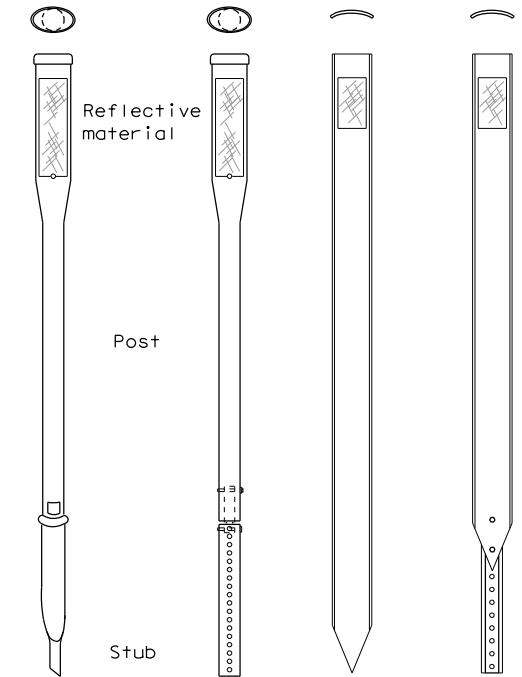
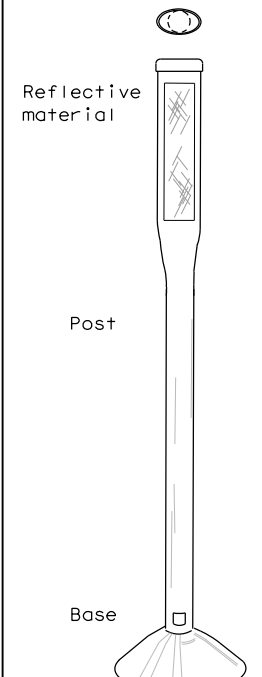
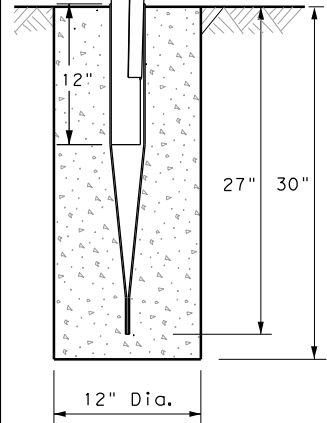
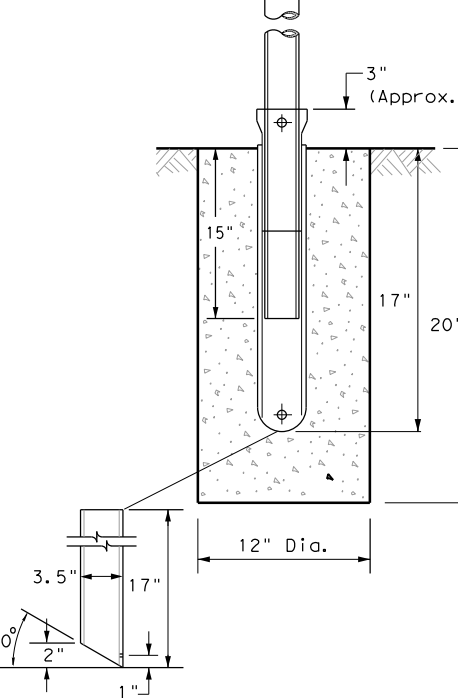
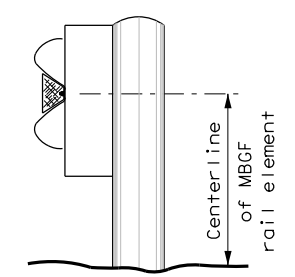
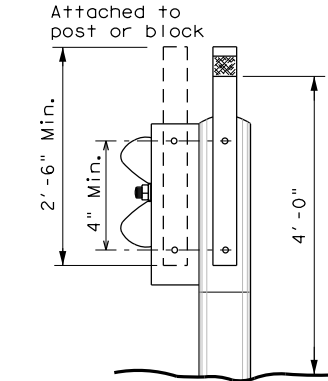
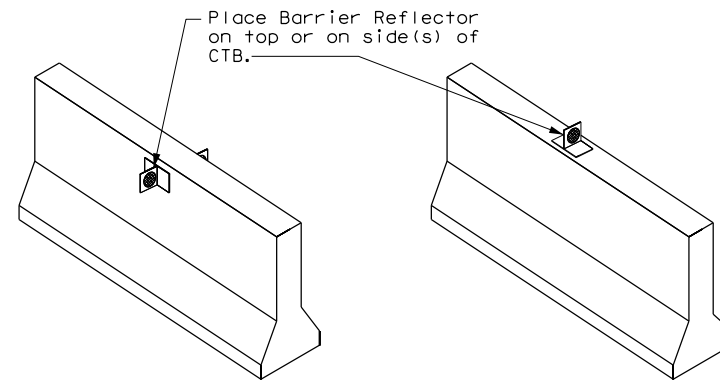
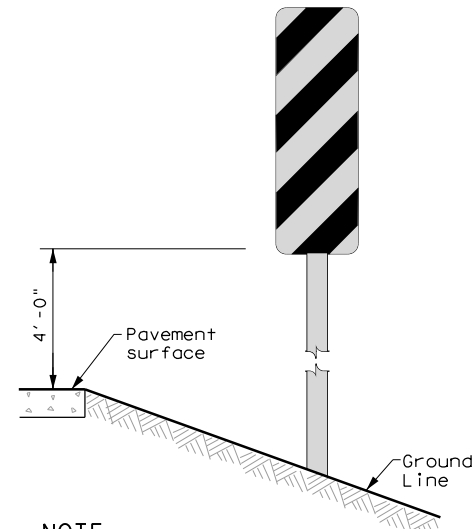
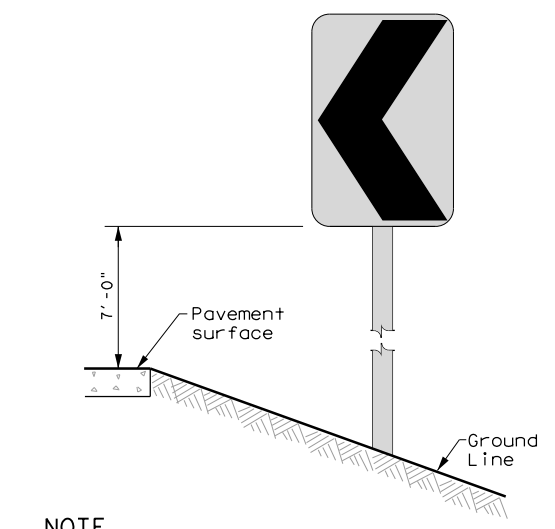
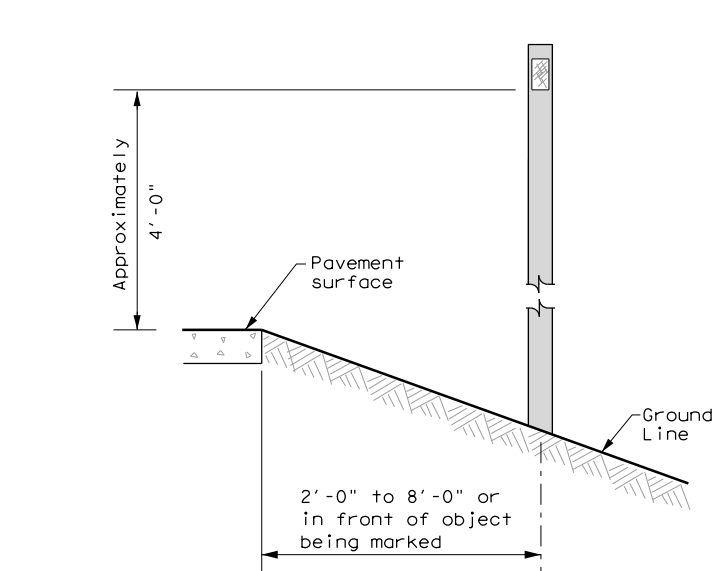
DELINEATOR & OBJECT MARKER MATERIAL DESCRIPTION
D & OM(1)-20


FILE: dom1-20.dgn	DN: TXDOT	CK: TXDOT	OW: TXDOT	CR: TXDOT
© TXDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	0017	06	091	IH 35
10-09 3-15	DIST	COUNTY	SHEET NO.	
4-10 7-20	SAT	FRIO		45

20A

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POST TYPE AND SUPPORT FOUNDATION DETAILS				TYPE OF BARRIER MOUNTS		
WING CHANNEL (WC)	FLEXIBLE POSTS (YFLX, WFLX)		WEDGE ANCHOR SYSTEMS		GUARD FENCE ATTACHMENT	
GND	GND	SRF	WAS	WAP	GF 1	
						
	EMBEDDED		SURFACE MOUNT	STEEL	PLASTIC	
NOTES 1. Embedded Wing Channel (WC) post option may be used for Type 2 Object Markers and Delineators only. 2. 1.12 lbs/ft steel per ASTM A 1011 SS Gr. 50, or ASTM A499.		NOTES 1. See "Flexible Delineator and Object Marker Posts" Material Producer List for approved devices. 2. Install per manufacturer's recommendations. 3. Post length may vary to meet field conditions. 4. When using yellow delineators with flexible posts to separate opposing direction of travel, such as centerline or median use, the flexible posts shall be yellow.		NOTE 1. Install per manufacturer's recommendations.		CONCRETE TRAFFIC BARRIER (CTB) GENERAL NOTES 1. Place delineators on a section of roadway at a consistent distance from the edge of pavement. 2. Where a restriction prevents consistent placement from the pavement edge, place the affected object markers in line with the innermost edge of the obstruction. 3. When Type 2 object markers and delineators are more than 8'-0" from the edge of the pavement, it may not be possible to maintain a height of approximately 4'-0". If this is the case, place the object marker or delineator as close to the desired height as possible. 4. Install all delineators, object markers and barrier reflectors in accordance with the manufacturer's recommendation. 5. Barrier reflectors should be installed a minimum of 18 inches above the edge of the pavement surface. 6. Diagonal stripes on Type 3 object markers shall slope down toward the intended travel lane.
TYPES 1,3, AND 4 OBJECT MARKERS AND CHEVRONS		CHEVRONS AND ONE DIRECTION LARGE ARROW SIGN		DELINEATORS AND TYPE 2 OBJECT MARKERS		
						
NOTE Mounting at 4 feet to the bottom of the chevron is permitted for chevrons that will not exceed a height of 6'-6" to the top of the chevron (sizes 24" x 30" and smaller)		NOTE Chevrons 30" x 36" and larger shall be mounted at a height of 7' to the bottom of the chevron. Chevron sign and ONE DIRECTION LARGE ARROW sign (W1-9T) shall be installed per SMD standard sheets and paid under item 644.		See general notes 1, 2 and 3.		



Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER INSTALLATION

D & OM(2)-20

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REVISIONS	0017	06	091	IH 35
10-09 3-15	DIST	COUNTY	SHEET NO.	
4-10 7-20	SAT	FRIO	46	

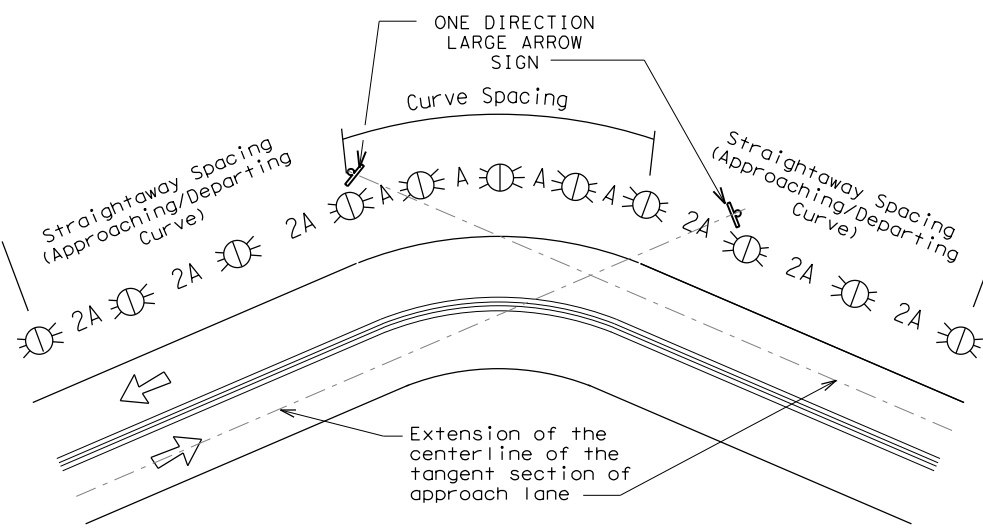
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DATE: 5/31/2022 5:24:48 PM
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MINIMUM WARNING DEVICES AT CURVES WITH ADVISORY SPEEDS

Amount by which Advisory Speed is less than Posted Speed	Curve Advisory Speed	
	Turn (30 MPH or less)	Curve (35 MPH or more)
5 MPH & 10 MPH	● RPMs	● RPMs
15 MPH & 20 MPH	● RPMs and One Direction Large Arrow sign	● RPMs and Chevrons; or ● RPMs and One Direction Large Arrow sign where geometric conditions or roadside obstacles prevent the installation of chevrons.
25 MPH & more	● RPMs and Chevrons; or ● RPMs and One Direction Large Arrow sign where geometric conditions or roadside obstacles prevent the installation of chevrons	● RPMs and Chevrons

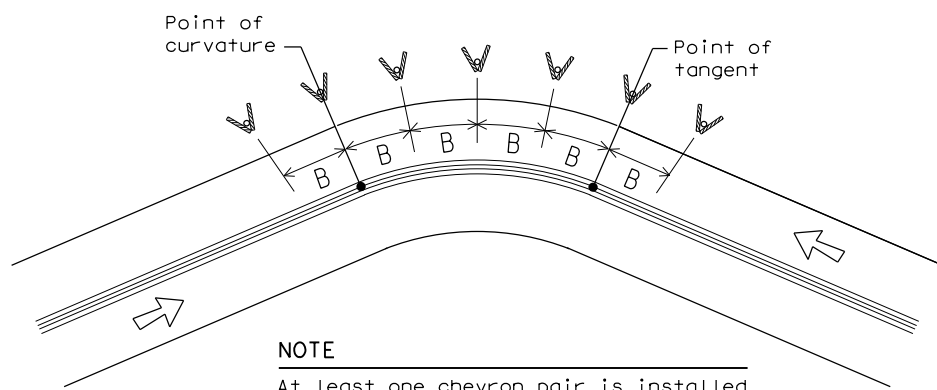
SUGGESTED SPACING FOR DELINEATORS ON HORIZONTAL CURVES



NOTE

ONE DIRECTION LARGE ARROW (W1-6) sign should be located at approximately and perpendicular to the extension of the centerline of the tangent section of approach lane.

SUGGESTED SPACING FOR CHEVRONS ON HORIZONTAL CURVES



NOTE

At least one chevron pair is installed beyond the point of tangent in tangent section.

DELINEATOR AND CHEVRON SPACING

WHEN DEGREE OF CURVE OR RADIUS IS KNOWN				
Degree of Curve	FEET			
	Radius of Curve	Spacing in Curve	Spacing in Straightaway	Chevron Spacing in Curve
		A	2A	B
1	5730	225	450	—
2	2865	160	320	—
3	1910	130	260	200
4	1433	110	220	160
5	1146	100	200	160
6	955	90	180	160
7	819	85	170	160
8	716	75	150	160
9	637	75	150	120
10	573	70	140	120
11	521	65	130	120
12	478	60	120	120
13	441	60	120	120
14	409	55	110	80
15	382	55	110	80
16	358	55	110	80
19	302	50	100	80
23	249	40	80	80
29	198	35	70	40
38	151	30	60	40
57	101	20	40	40

Curve delineator approach and departure spacing should include 3 delineators spaced at 2A. This spacing should be used during design preparation or when the degree of curve is known.

DELINEATOR AND CHEVRON SPACING

WHEN DEGREE OF CURVE OR RADIUS IS NOT KNOWN			
Advisory Speed (MPH)	Spacing in Curve	Spacing in Straightaway	Chevron Spacing in Curve
	A	2xA	B
65	130	260	200
60	110	220	160
55	100	200	160
50	85	170	160
45	75	150	120
40	70	140	120
35	60	120	120
30	55	110	80
25	50	100	80
20	40	80	80
15	35	70	40

If the degree of curve is not known, delineator spacing may be determined based on the Advisory Speed of the curve. Use the delineator curve spacing for each Advisory Speed (MPH).

DELINEATOR AND OBJECT MARKER APPLICATION AND SPACING

CONDITION	REQUIRED TREATMENT	MINIMUM SPACING
Frwy./Exp. Tangent	RPMs	See PM-series and FPM-series standard sheets
Frwy./Exp. Curve	Single delineators on right side	See delineator spacing table
Frwy/Exp. Ramp	Single delineators on at least one side of ramp (should be on outside of curves) (see Detail 3 on D&OM(4))	100 feet on ramp tangents Use delineator spacing table for ramp curves ("straightway spacing" does not apply to ramp curves)
Acceleration/Deceleration Lane	Double delineators (see Detail 3 on D&OM(4))	100 feet (See Detail 3 on D & OM (4))
Truck Escape Ramp	Single red delineators on both sides	50 feet
Bridge Rail (steel or concrete) and Metal Beam Guard Fence	Bi-Directional Delineators when undivided with one lane each direction Single Delineators when multiple lanes each direction	Equal spacing (100' max) but not less than 3 delineators
Concrete Traffic Barrier (CTB) or Steel Traffic Barrier	Barrier reflectors matching the color of the edge line	Equal spacing 100' max
Cable Barrier	Reflectors matching the color of the edge line	Every 5th cable barrier post (up to 100' max)
Guard Rail Terminus/Impact Head	Divided highway - Object marker on approach end Undivided 2-lane highways - Object marker on approach and departure end	Requires reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end See D & OM (5) and D & OM (6)
Bridges with no Approach Rail	Type 3 Object Marker (OM-3) at end of rail and 3 single delineators approaching rail	See D & OM(5)
Reduced Width Approaches to Bridge Rail	Type 2 and Type 3 Object Markers (OM-3) and 3 single delineators approaching bridge	Requires reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end See D & OM (5)
Culverts without MBGF	Type 2 Object Markers	See Detail 2 on D & OM(4)
Crossovers	Double yellow delineators and RPMs	See Detail 1 on D & OM (4)
Pavement Narrowing (lane merge) on Freeways/Expressway	Single delineators adjacent to affected lane for full length of transition	100 feet

NOTES

- Unless indicated otherwise, the delineator or barrier reflector color shall conform to the color of the pavement edge line on the side of the road where the delineators or barrier reflectors are placed.
- Barrier reflectors may be used to replace required delineators.
- Single red delineators may be mounted on the back side of delineator posts for wrong way driver applications

LEGEND	
	Bi-directional Delineator
	Delineator
	Sign



DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

D & OM(3) -20

FILE: dom3-20.dgn	DN: TXDOT	CK: TXDOT	OW: TXDOT	CR: TXDOT
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REVISIONS	0017	06	091	IH 35
3-15 8-15	DIST	COUNTY	SHEET NO.	
8-15 7-20	SAT	FRIO	47	

A. GENERAL SITE DATA

- PROJECT LIMITS:** Same as stated on the Title Sheet
- PROJECT SITE MAPS:**
 - * Project Latitude 29.02841 Project Longitude -99.04959
 - * Project Location Map: Shown on Title Sheet
 - * Drainage Patterns: Shown on Drainage Area Maps (N/A)
 - * Approx. Slopes Anticipated After Major Gradings and Areas of Soil Disturbance: Shown on Typical Sections (N/A)
 - * Major Controls and Locations of Stabilization Practices: Shown on SW3P Sheets (Sheets 12 - 27)
 - * Project Specific Locations: Off-site waste, borrow, or storage areas are not part of this SW3P.
 - * Surface Waters and Discharge Locations: Shown on Drainage and Culvert Layout Sheets (N/A)
- PROJECT DESCRIPTION:** Same description as stated on Title Sheet
 - * Joint-bid utilities are covered by this SW3P (N/A)
 - Non-Joint Bid Utilities are not part of this SW3P.
- FOR MAJOR SOIL DISTURBING ACTIVITIES SEQUENCE OF EVENTS:**
 - Install controls down-slope of work area and initiate inspection and maintenance activities.
 - Begin phased construction with interim stabilization practices. Adjust erosion and sedimentation controls during construction to meet requirements and changing conditions and as directed/approved by the Engineer.
 - Major soil disturbing activities may include but are not limited to: right-of-way preparation, cut and/or fill to improve roadway profile, final grading and placement of topsoil and the following (if marked):
 - ___ Placement of road base
 - ___ Extensive ditch grading
 - ___ Upgrading or replacing culverts or bridges
 - ___ Temporary detour road(s)
 - ___ Other: _____
- EXISTING AND PROPOSED CONDITIONS:**

Description of existing vegetative cover: UNIFORMLY ESTABLISHED

Percentage of existing vegetative cover: 80%

Existing vegetative cover: (mark one) Thick or uniformly established
 ___ Thin and Patchy
 ___ None or minimal cover

Description of soils: Duval very fine sandy loam and Amphion sandy clay loam

Site Acreage: 51.4 ACRES Acreage disturbed: 7.71 ACRES

Site runoff coefficient (pre-construction): 0.4 Site runoff coefficient (post-construction): 0.4
- RECEIVING WATERS:** (Mark all that apply)
 - ___ A classified stream does not pass through project.
 - ___ A classified stream passes through project. Name _____ Segment Number _____

Name of receiving waters that will receive discharges from disturbed areas of the project: BLACK CREEK, MOORE HOLLOW CREEK

Site is in a Municipal Separate Storm Sewer System (MS4).
MS4 Operator (name): _____

B. BEST MANAGEMENT PRACTICES

General timing or sequence for implementation of BMPs shall be as required and/or as directed/approved by the Engineer to provide adequate controls. BMPs shown on plan sheets are to be considered "proposed" unless/until install date is shown. BMPs are to reduce sediments from road construction activities.

- SOIL STABILIZATION PRACTICES:** (Select T = Temporary or P = Permanent, as applicable)

<input type="checkbox"/> P SEEDING	<input type="checkbox"/> PRESERVATION OF NATURAL RESOURCES
<input type="checkbox"/> MULCHING (Hay or Straw)	<input type="checkbox"/> FLEXIBLE CHANNEL LINER
<input type="checkbox"/> BUFFER ZONES	<input type="checkbox"/> RIGID CHANNEL LINER
<input type="checkbox"/> PLANTING	<input type="checkbox"/> SOIL RETENTION BLANKET
<input type="checkbox"/> COMPOST/MULCH FILTER BERM	<input type="checkbox"/> COMPOST MANUFACTURED TOPSOIL
<input type="checkbox"/> SODDING	<input type="checkbox"/> OTHER: (Specify Practice)
- STRUCTURAL PRACTICES:** (Select T = Temporary or P = Permanent, as applicable)
 - ___ SILT FENCES
 - ___ HAY BALES
 - ___ ROCK FILTER DAMS
 - ___ DIVERSION, INTERCEPTOR, OR PERIMETER DIKES
 - ___ DIVERSION, INTERCEPTOR, OR PERIMETER SWALES
 - ___ DIVERSION DIKE AND SWALE COMBINATIONS
 - ___ PIPE SLOPE DRAINS
 - ___ PAVED FLUMES
 - ___ ROCK BEDDING AT CONSTRUCTION EXIT
 - ___ TIMBER MATTING AT CONSTRUCTION EXIT
 - ___ CHANNEL LINERS
 - ___ SEDIMENT TRAPS
 - ___ SEDIMENT BASINS
 - ___ STORM INLET SEDIMENT TRAP
 - ___ STONE OUTLET STRUCTURES
 - ___ CURBS AND GUTTERS
 - ___ STORM SEWERS
 - ___ VELOCITY CONTROL DEVICES
 - OTHER: EROSION LOGS
- STORM WATER MANAGEMENT:**

The proposed facility was designed in consideration of hydraulic design standards to convey stormwater in a manner that is protective of public safety and property. The control of erosion from the facility is inherent to the design. Additional factors affecting post-construction stormwater at the project location include: (mark all that apply)

 - ___ Existing or new vegetation provides natural filtration.
 - The design includes provisions for permanent erosion controls provided by strategically placed pervious and impervious surfaces.
 - ___ Project includes permanent sedimentation controls (other than grass).
 - Velocities do not require dissipation devices.
 - ___ Velocity-dissipation devices included in the design.
 - ___ Other: _____
- NON-STORM WATER DISCHARGES:**

Off-site discharges are prohibited except as follows:

 - Discharges from fire fighting activities and/or fire hydrant flushings.
 - Vehicle, external building, and pavement wash water where detergents and soaps are not used and where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed).
 - Plain water used to control dust.
 - Plain water originating from potable water sources.
 - Uncontaminated groundwater, spring water or accumulated stormwater.
 - Foundation or footing drains where flows are not contaminated with process materials such as solvents.
 - Other: N/A

Concrete truck wash water discharges on the site should be prohibited or minimized. If allowed by the Engineer, they must be managed in a manner so as not to contaminate surface water. They must not be located in areas of concentrated flow. Concrete truck wash-out locations must be shown on the SW3P Layout and included in the inspections.

Hazardous material spill/leak shall be prevented or minimized. At a minimum, this includes asphalt products, fuels, oils, lubricants, solvents, paints, acids, concrete curing compounds and chemical additives for soil stabilization. BMPs shall be implemented to the storage areas of these products. All spills must be cleaned and disposed properly and reported to the Engineer. Report any release at or above the reportable quantity during a 24 hour period to the National Response Center at 1-800-424-8802.

C. OTHER REQUIREMENTS & PRACTICES

- MAINTENANCE:**

All erosion and sediment controls shall be maintained in good working order. If a repair is necessary, it shall be performed before the next anticipated storm event but no later than 7 calendar days after the surrounding exposed ground has dried sufficiently to prevent further damage from equipment. If maintenance prior to the next anticipated storm event is impracticable, maintenance must be scheduled and accomplished as soon as practicable. Disturbed areas on which construction activities have ceased, temporarily or permanently, shall be stabilized within 14 calendar days unless they are scheduled to and do resume within 21 calendar days. The areas adjacent to creeks and drainageways shall have priority followed by protecting storm sewer inlets.
- INSPECTION:**

For areas of the construction site that have not been finally stabilized, areas used for storage of materials, structural control measures, and locations where vehicles enter or exit the site, personnel provided by the permittee and familiar with the SW3P must inspect disturbed areas at least once every seven (7) calendar days. An Inspection and Maintenance Report shall be prepared for each inspection and the controls shall be revised on the SW3P within seven (7) calendar days following the inspection.
- WASTE MATERIALS:**

All non-hazardous municipal waste materials such as litter, rubbish, trash and garbage located on or originating from the project shall be collected and stored in a securely lidded metal dumpster, provided by the Contractor. The dumpster shall be emptied as necessary or as required by local regulation and the trash shall be hauled to a permitted disposal facility. The burying of non-hazardous municipal waste on the project shall not be permitted. Construction material waste sites, stockpiles and haul roads shall be constructed to minimize and control the amount of sediment that may enter receiving waters. Construction material waste sites shall not be located in any wetland, water body or stream bed. Construction staging areas and vehicle maintenance areas shall be constructed in a manner to minimize the runoff of pollutants.
- OFFSITE VEHICLE TRACKING:**

Off-site vehicle tracking of sediments and the generation of dust must be minimized. Excess sediments on road shall be removed on a regular basis as directed/approved by the Engineer.
- OTHER:**

See the EPIC sheet for additional environmental information.

Note To Designer:
 1. Do not alter Sheet Design or Font style, size or weight - match text attributes.
 2. If additional space is needed for a numbered section, fence and adjust sections up or down as needed for proportioning and readability but do not relocate from its relative position.



Eric Hernandez
5/31/2022



STORM WATER POLLUTION PREVENTION PLAN (SW3P)

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
6	SEE TITLE SHEET		IH 35
STATE	DISTRICT	COUNTY	
TEXAS	SAT	FRIO	SHEET NO.
CONTROL	SECTION	JOB	
0017	06	091	48

REVISION DATE: 10/12

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I. STORMWATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402

Texas Pollutant Discharge Elimination System (TPDES) TXR 150000: Stormwater Discharge Permit or Construction General Permit (CGP) required for projects with 1 or more acres disturbed soil. Projects with any disturbed soil must protect for erosion and sedimentation in accordance with Item 506.

- No Action Required Required Action

Action No.

- Prevent stormwater pollution by controlling erosion and sedimentation in accordance with TPDES Permit TXR 150000.
- Comply with the Storm Water Pollution Prevention Plan (SW3P) and revise when necessary to control pollution or required by the Engineer.
- Post Construction Site Notice (CSN) with SW3P information on or near the site, accessible to the public and Texas Commission on Environmental Quality (TCEQ), Environmental Protection Agency (EPA) or other inspectors.
- When Contractor project specific locations (PSL's) increase disturbed soil area to 5 acres or more, Contractor shall submit Notice of Intent (NOI) to TCEQ and the Engineer.
- NOI required: Yes No

Note: If amount of soil disturbance changes, permit requirements may change.

II. WORK IN OR NEAR STREAMS, WATERBODIES AND WETLANDS CLEAN WATER ACT SECTIONS 401 AND 404

US Army Corps of Engineers (USACE) Permit required for filling, dredging, excavating or other work in any potential USACE jurisdictional water, such as, rivers, creeks, streams, or wetlands.

The Contractor shall adhere to all of the terms and conditions associated with the following permit(s):

- No Permit Required
- Nationwide Permit (NWP) 14 - Pre-construction Notice (PCN) not Required
- Nationwide Permit 14 - PCN Required
- Individual 404 Permit Required
- Other Nationwide Permit Required: NWP# _____

Required Actions: List waters of the US permit applies to, location in project and check Best Management Practices (BMPs) planned to control erosion, sedimentation and post-project total suspended solids (TSS).

-
-
-
-

401 Best Management Practices: (Not applicable if no USACE permit)

Erosion	Sedimentation	Post-Construction TSS
<input type="checkbox"/> Temporary Vegetation	<input type="checkbox"/> Silt Fence	<input type="checkbox"/> Vegetative Filter Strips
<input type="checkbox"/> Blankets/Matting	<input type="checkbox"/> Rock Berm	<input type="checkbox"/> Retention/Irrigation Systems
<input checked="" type="checkbox"/> Mulch	<input type="checkbox"/> Triangular Filter Dike	<input type="checkbox"/> Extended Detention Basin
<input type="checkbox"/> Sodding	<input type="checkbox"/> Sand Bag Berm	<input type="checkbox"/> Constructed Wetlands
<input type="checkbox"/> Interceptor Swale	<input type="checkbox"/> Straw Bale Dike	<input type="checkbox"/> Wet Basin
<input type="checkbox"/> Diversion Dike	<input type="checkbox"/> Brush Berms	<input type="checkbox"/> Erosion Control Compost
<input type="checkbox"/> Erosion Control Compost	<input checked="" type="checkbox"/> Erosion Control Compost	<input type="checkbox"/> Mulch Filter Berm and Socks
<input type="checkbox"/> Mulch Filter Berm and Socks	<input type="checkbox"/> Mulch Filter Berm and Socks	<input type="checkbox"/> Compost Filter Berm and Socks
<input type="checkbox"/> Compost Filter Berm and Socks	<input type="checkbox"/> Compost Filter Berm and Socks	<input type="checkbox"/> Vegetation Lined Ditches
	<input type="checkbox"/> Stone Outlet Sediment Traps	<input type="checkbox"/> Sand Filter Systems
	<input type="checkbox"/> Sediment Basins	<input type="checkbox"/> Sedimentation Chambers
		<input type="checkbox"/> Grassy Swales

III. CULTURAL RESOURCES

Refer to TxDOT Standard Specifications in the event historical issues or archeological artifacts are found during construction. Upon discovery of archeological artifacts (bones, burnt rock, flint, pottery, etc.) cease work in the immediate area and contact the Engineer immediately.

- No Action Required Required Action

Action No.

-
-
-
-

IV. VEGETATION RESOURCES

Preserve native vegetation to the extent practical. Contractor must adhere to Construction Specification Requirements Specs 162,164, 192, 193, 506, 730, 751, 752 in order to comply with requirements for invasive species, beneficial landscaping, and tree/brush removal commitments.

- No Action Required Required Action

Action No.

-
-
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V. FEDERAL LISTED, PROPOSED THREATENED, ENDANGERED SPECIES, CRITICAL HABITAT, STATE LISTED SPECIES, CANDIDATE SPECIES AND MIGRATORY BIRDS.

- No Action Required Required Action

Action No.

1. MIGRATORY BIRD NESTS: Schedule construction activities as needed to meet the following requirements:

- A. Do not remove or destroy any active migratory bird nests (nests containing eggs and/or flightless birds) at any time of year. If there are any active nests, they shall not be removed until the nests become inactive.
- B. On/in structures, if there are any active nests, they shall not be removed until all nests become inactive. After inactive nests are removed and/or before nest activity begins, deterrent materials may be applied to the structures to prevent future nest building.

2. See Item 5 in General Notes.

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If any of the listed species are observed, cease work in the immediate area, do not disturb species or habitat and contact the Engineer immediately. The work may not remove active nests from bridges and other structures during nesting season of the birds associated with the nests. If caves or sinkholes are discovered, cease work in the immediated area, and contact the Engineer immediately.

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES

General (applies to all projects):

Comply with the Hazard Communication Act (the Act) for personnel who will be working with hazardous materials by conducting safety meetings prior to beginning construction and making workers aware of potential hazards in the workplace. Ensure that all workers are provided with personal protective equipment appropriate for any hazardous materials used.

Obtain and keep on-site Material Safety Data Sheets (MSDS) for all hazardous products used on the project, which may include, but are not limited to the following categories: Paints, acids, solvents, asphalt products, chemical additives, fuels and concrete curing compounds or additives. Provide protected storage, off bare ground and covered, for products which may be hazardous. Maintain product labelling as required by the Act.

Maintain an adequate supply of on-site spill response materials, as indicated in the MSDS. In the event of a spill, take actions to mitigate the spill as indicated in the MSDS, in accordance with safe work practices, and contact the District Spill Coordinator immediately. The Contractor shall be responsible for the proper containment and cleanup of all product spills.

Contact the Engineer if any of the following are detected:

- * Dead or distressed vegetation (not identified as normal)
- * Trash piles, drums, canister, barrels, etc.
- * Undesirable smells or odors
- * Evidence of leaching or seepage of substances

Hazardous Materials or Contamination Issues Specific to this Project:

- No Action Required Required Action

Action No.

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Does the project involve the demolition of a span bridge?

- Yes No (No further action required)

If "Yes", a pre-demolition notification must be submitted to the Texas Department of State Health Services. The contractor shall contact TxDOT's Project Engineer 25 calendar days prior to the demolition of the bridges(s) on the project to assist with the notification.

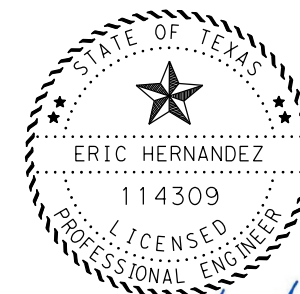
VII. OTHER ENVIRONMENTAL ISSUES

(includes regional issues such as Edwards Aquifer District, etc.)

- No Action Required Required Action

Action No.

-
-
-



Eric Hernandez

5/31/2022

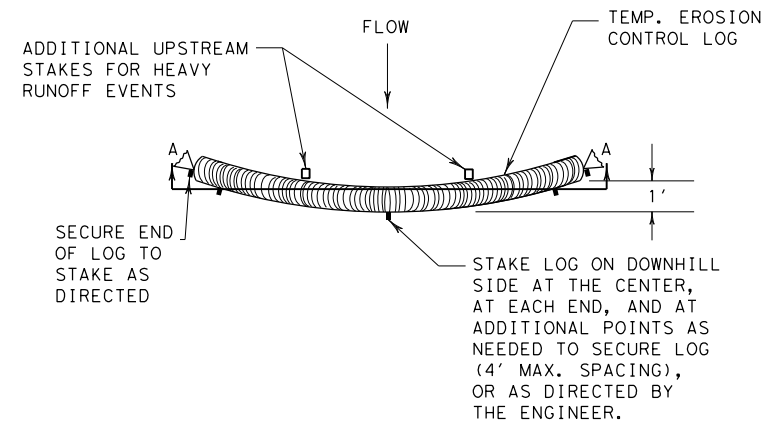


**ENVIRONMENTAL PERMITS,
ISSUES AND COMMITMENTS
EPIC**

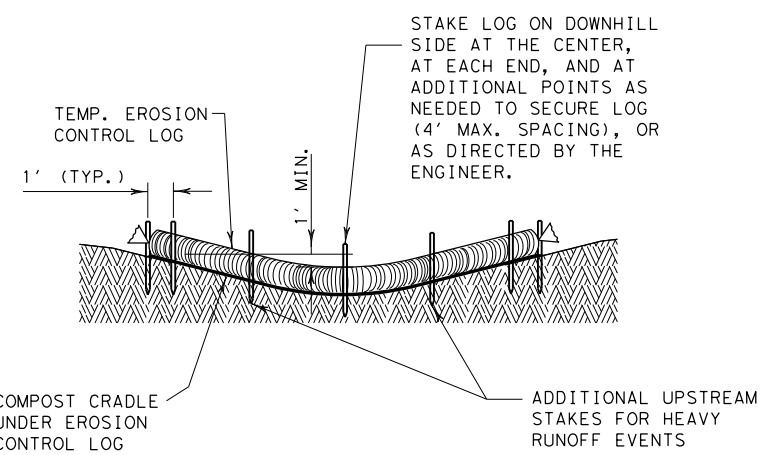
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© TxDOT OCTOBER 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS	0017	06	091	IH 35
	DIST	COUNTY	SHEET NO.	
	SAT	FRIO	49	

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PLAN VIEW

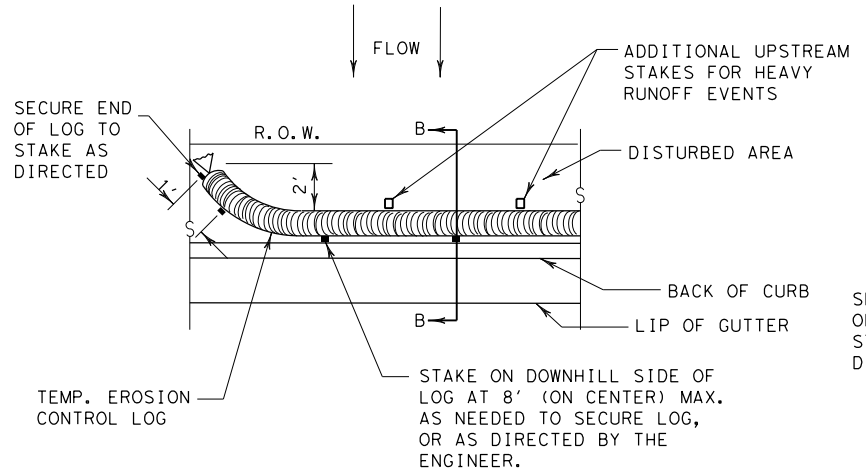


SECTION A-A

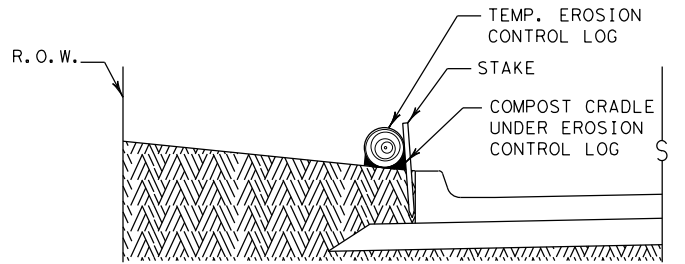
EROSION CONTROL LOG DAM

CL-D

- LEGEND**
- CL-D EROSION CONTROL LOG DAM
 - CL-BOC EROSION CONTROL LOG AT BACK OF CURB
 - CL-ROW EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY
 - CL-SST EROSION CONTROL LOGS ON SLOPES STAKE AND TRENCHING ANCHORING
 - CL-SSL EROSION CONTROL LOGS ON SLOPES STAKE AND LASHING ANCHORING
 - CL-DI EROSION CONTROL LOG AT DROP INLET
 - CL-CI EROSION CONTROL LOG AT CURB INLET
 - CL-GI EROSION CONTROL LOG AT CURB & GRATE INLET



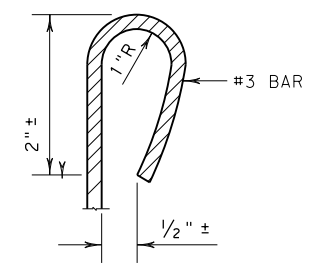
PLAN VIEW



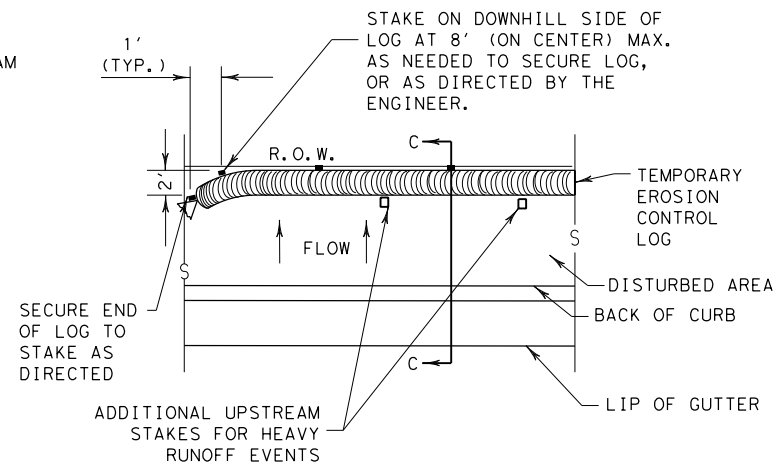
SECTION B-B

EROSION CONTROL LOG AT BACK OF CURB

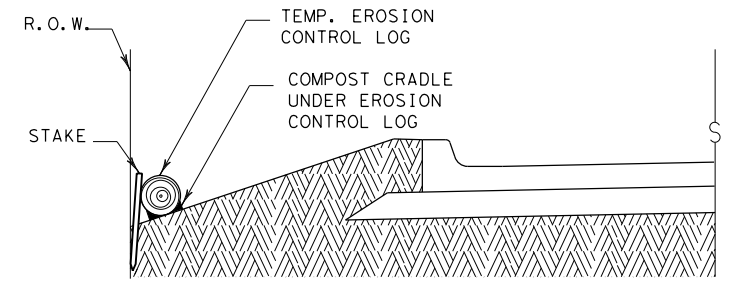
CL-BOC



REBAR STAKE DETAIL



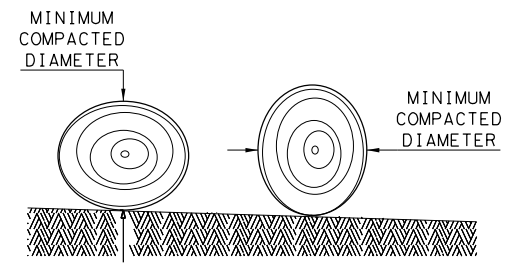
PLAN VIEW



SECTION C-C

EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY

CL-ROW



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

SEDIMENT BASIN & TRAP USAGE GUIDELINES

An erosion control log sediment trap may be used to filter sediment out of runoff draining from an unstabilized area.

Log Traps: The drainage area for a sediment trap should not exceed 5 acres. The trap capacity should be 1800 CF/Acre (0.5" over the drainage area).

Control logs should be placed in the following locations:

1. Within drainage ditches spaced as needed or min. 500' on center
2. Immediately preceding ditch inlets or drain inlets
3. Just before the drainage enters a water course
4. Just before the drainage leaves the right of way
5. Just before the drainage leaves the construction limits where drainage flows away from the project.

The logs should be cleaned when the sediment has accumulated to a depth of 1/2 the log diameter.

Cleaning and removal of accumulated sediment deposits is incidental and will not be paid for separately.

GENERAL NOTES:

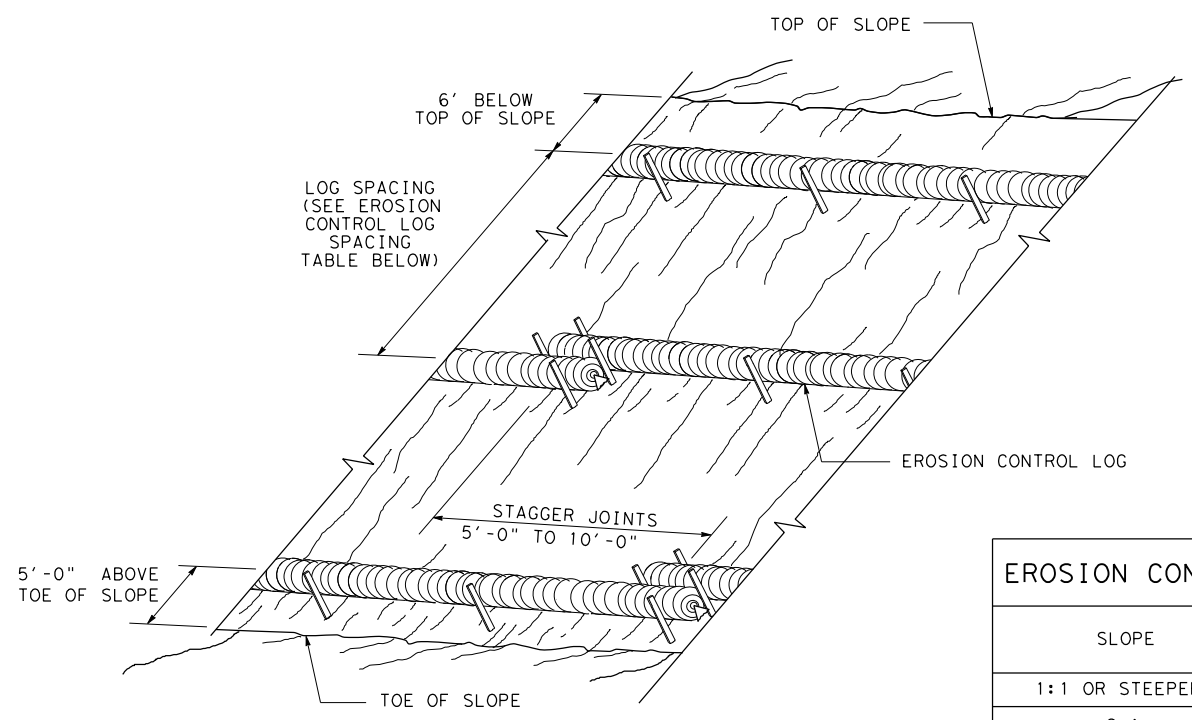
1. EROSION CONTROL LOGS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, OR AS DIRECTED BY THE ENGINEER.
2. LENGTHS OF EROSION CONTROL LOGS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS REQUIRED FOR THE PURPOSE INTENDED.
3. UNLESS OTHERWISE DIRECTED, USE BIODEGRADABLE OR PHOTODEGRADABLE CONTAINMENT MESH ONLY WHERE LOG WILL REMAIN IN PLACE AS PART OF A VEGETATIVE SYSTEM. FOR TEMPORARY INSTALLATIONS, USE RECYCLABLE CONTAINMENT MESH.
4. FILL LOGS WITH SUFFICIENT FILTER MATERIAL TO ACHIEVE THE MINIMUM COMPACTED DIAMETER SPECIFIED IN THE PLANS WITHOUT EXCESSIVE DEFORMATION.
5. STAKES SHALL BE 2" X 2" WOOD OR #3 REBAR, 2'-4' LONG, EMBEDDED SUCH THAT 2" PROTRUDES ABOVE LOG, OR AS DIRECTED BY THE ENGINEER.
6. DO NOT PLACE STAKES THROUGH CONTAINMENT MESH.
7. COMPOST CRADLE MATERIAL IS INCIDENTAL & WILL NOT BE PAID FOR SEPARATELY.
8. SANDBAGS USED AS ANCHORS SHALL BE PLACED ON TOP OF LOGS & SHALL BE OF SUFFICIENT SIZE TO HOLD LOGS IN PLACE.
9. TURN THE ENDS OF EACH ROW OF LOGS UPSLOPE TO PREVENT RUNOFF FROM FLOWING AROUND THE LOG.
10. FOR HEAVY RUNOFF EVENTS, ADDITIONAL UPSTREAM STAKES MAY BE NECESSARY TO KEEP LOG FROM FOLDING IN ON ITSELF.

SHEET 1 OF 3

		Design Division Standard	
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES EROSION CONTROL LOG EC (9) - 16			
FILE: ec916	DN: TxDOT	CK: KM	DW: LS/PT
© TxDOT: JULY 2016	CONT: 0017	SECT: 06	JOB: 091
REVISIONS			HIGHWAY: IH 35
	DIST: SAT	COUNTY: FRIO	SHEET NO.: 50

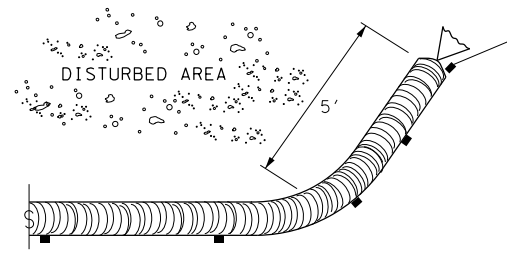
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EROSION CONTROL LOGS ON SLOPES
STAKE AND TRENCHING ANCHORING

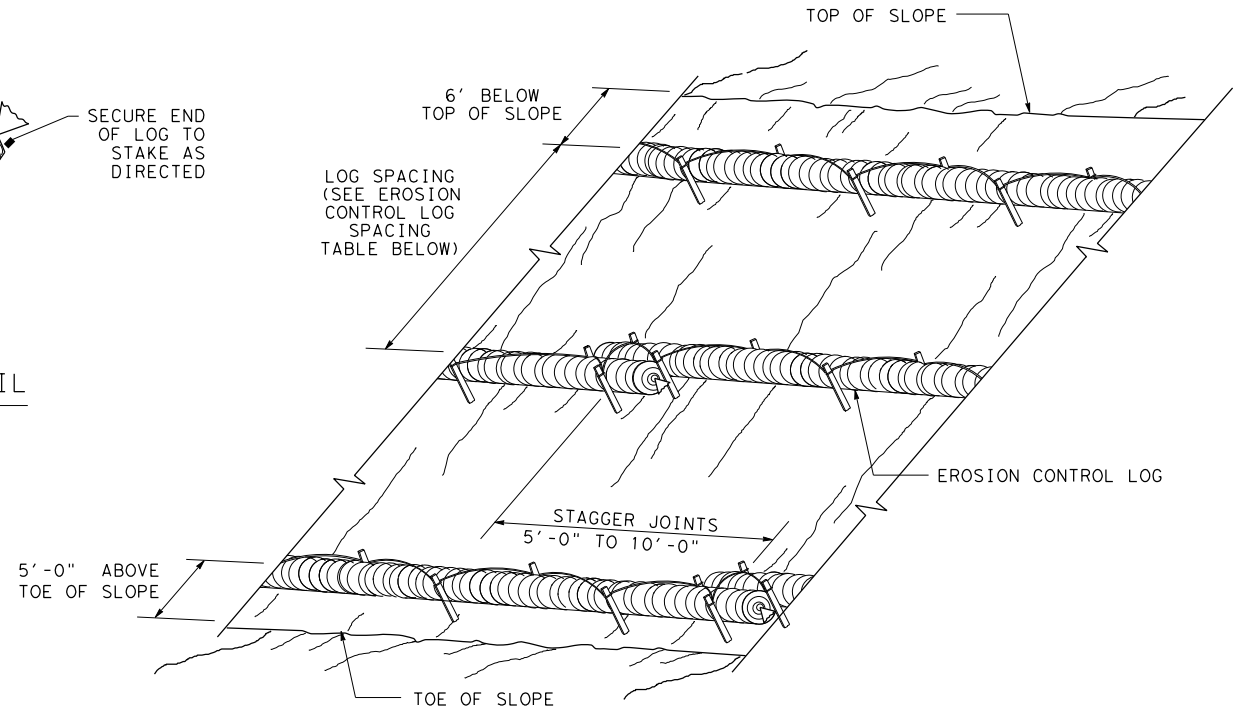
CL-SST



END SECTION RAP DETAIL

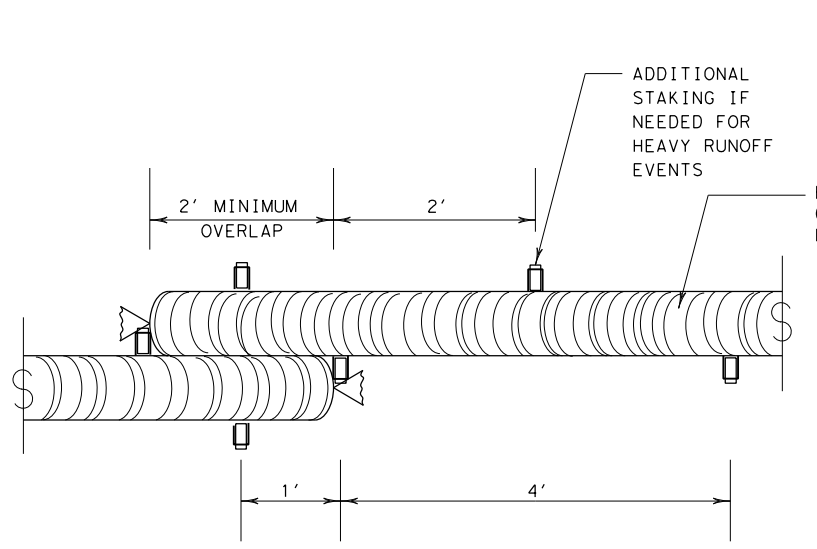
SLOPE	LOG DIAMETER			
	6"	8"	12"	18"
1:1 OR STEEPER	5'	10'	15'	20'
2:1	10'	20'	30'	40'
3:1	15'	30'	45'	60'
4:1 OR FLATTER	20'	40'	60'	80'

* ADJUSTMENTS CAN BE MADE FOR SOIL TYPE:
SOFT, LOAMY SOILS-ADJUST ROWS CLOSER TOGETHER;
HARD, ROCKY SOILS- ADJUST ROWS FARTHER APART



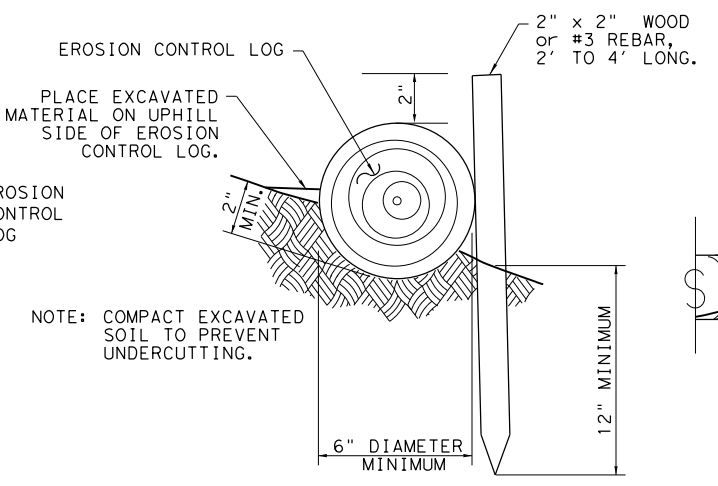
EROSION CONTROL LOGS ON SLOPES
STAKE AND LASHING ANCHORING

CL-SSL



STAKE AND TRENCHING ANCHORING DETAIL

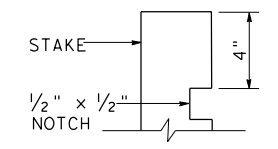
CL-SST



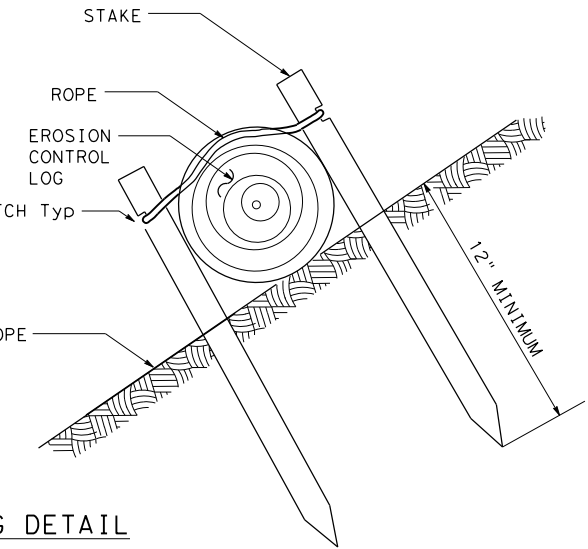
STAKE AND LASHING ANCHORING DETAIL

CL-SSL

LOG DIAMETER	DEPTH
6"	2"
8"	3"
12"	4"
18"	5"



STAKE NOTCH DETAIL

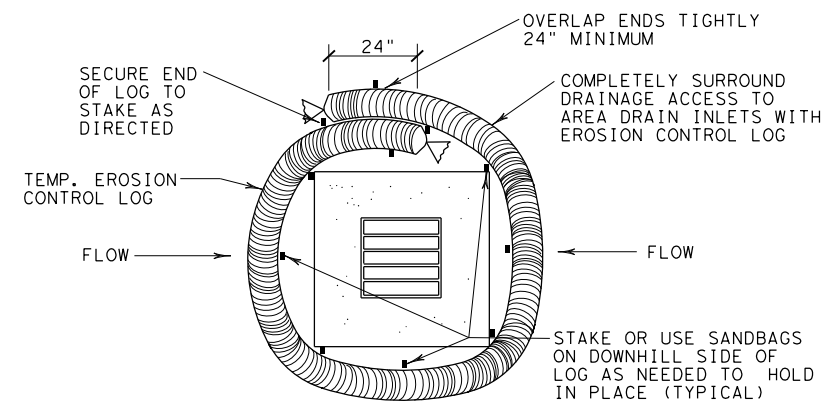


SHEET 2 OF 3

		Design Division Standard	
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES EROSION CONTROL LOG EC (9) - 16			
FILE: ec116	DN: TxDOT	CK: KM	DW: LS/PT
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REVISIONS	0017 06	091	IH 35
DIST	COUNTY	SHEET NO.	
SAT	FRIO	51	

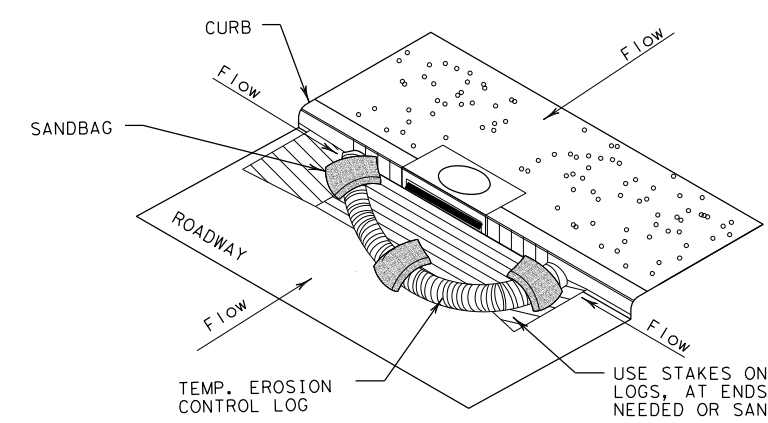
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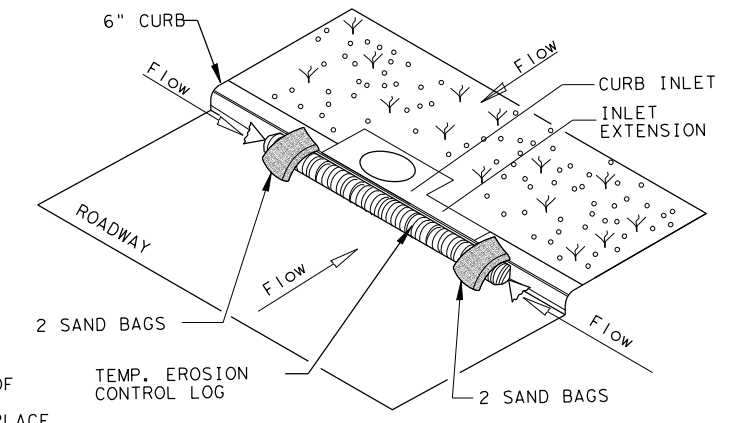
EROSION CONTROL LOG AT DROP INLET

CL-DI



EROSION CONTROL LOG AT CURB INLET

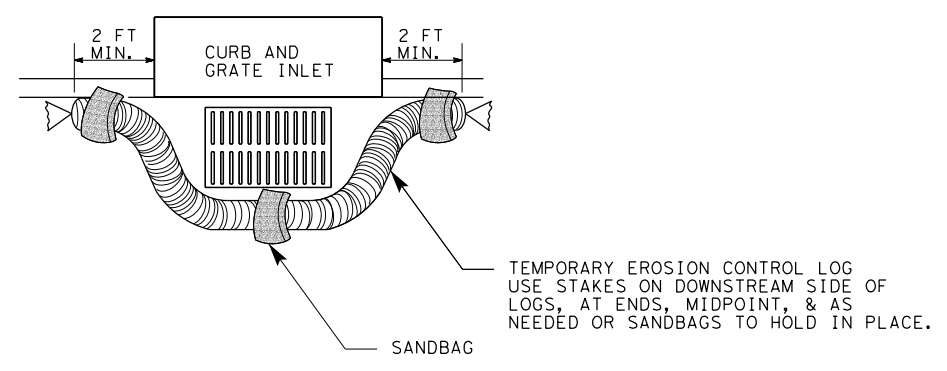
CL-CI



EROSION CONTROL LOG AT CURB INLET

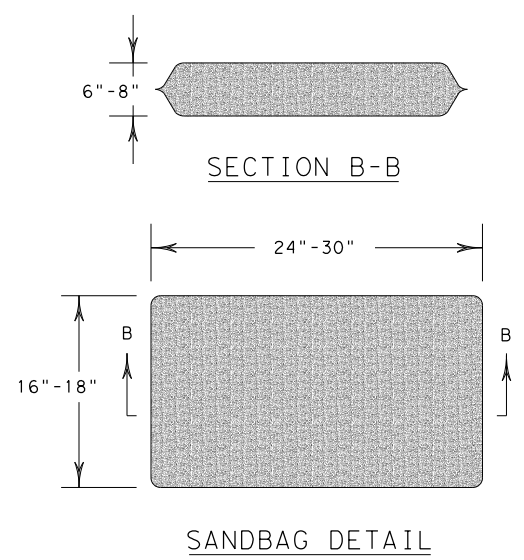
CL-CI

NOTE:
 EROSION CONTROL LOGS USED AT CURB INLETS SHOULD ONLY BE USED IF THEY WILL NOT IMPEDE TRAFFIC OR FLOOD THE ROADWAY OR WHEN THE STORM SEWER SYSTEM IS NOT FULLY FUNCTIONAL.



EROSION CONTROL LOG AT CURB & GRADE INLET

CL-GI



SHEET 3 OF 3

		Design Division Standard	
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES EROSION CONTROL LOG EC (9) - 16			
FILE: ec916	DN: TxDOT	CK: KM	DW: LS/PT
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REVISIONS	0017	06	091
	DIST	COUNTY	SHEET NO.
	SAT	FRIO	52