STATE PROJECT NO.			
C 508-1-381			
CONT	SECT	JOB	HIGHWAY
0508	01	381 etc.	IH 10
DIST	COUNTY		SHEET NO.
HOU	HARRIS		1

INDEX OF SHEETS

SEE SHEET 2 FOR
INDEX OF SHEETS

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

STATE PROJECT C 508-1-381

IH 10
HARRIS COUNTY

HIGHWAY	CSJ NO.	ADT(2021)	ADT(2041)	FUNCTIONAL CLASS
IH 10	0508-01-381	197,800	278,500	URBAN FREEWAY
IH 69	0177-05-121	129,300	182,000	URBAN FREEWAY
IH 69	0177-06-092	136,500	192,200	URBAN FREEWAY
IH 610	0271-14-241	205,200	288,900	URBAN FREEWAY
IH 610	0271-15-098	180,500	254,100	URBAN FREEWAY
US 90	0028-02-102	54,500	76,800	URBAN FREEWAY
SS 548	2483-01-015	63,200	77,500	URBAN FREEWAY

CSJ NO.	NET LENGTH OF PROJECT	
	FT	MILE
0508-01-381	149,756	28.363
0177-05-121	92,047	17.433
0177-06-092	13,876	2.628
0271-14-241	68,693	13.010
0271-15-098	18,100	3.428
0028-02-102	5,053	0.957
2483-01-015	7,530	1.426
TOTAL	355,055	67.245

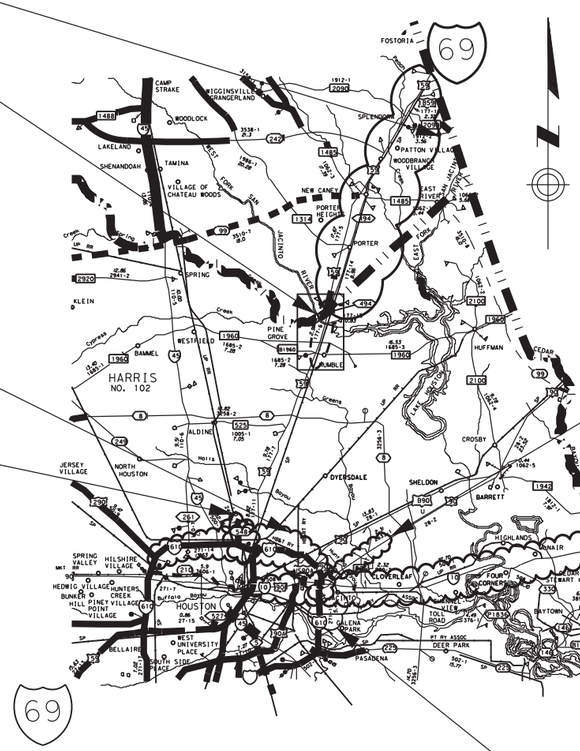
CONTROLLING CSJ LIMITS: Hogan St. to Chambers County Line
WORK CONSISTING OF LANDSCAPE DEVELOPMENTG

69 0177-05-121
BEGIN REF MRK: 151+0.747
END REF MRK: 168+0.945
END MP: 17.433

69 0177-06-092
BEGIN REF MARK: 148+1.135
END REF MARK: 151+1.747
END MP: 2.628

610 0271-14-241
BEGIN REF MRK: 12+0.981
END REF MRK: 26+0.134
BEGIN MP: 1.111
END MP: 14.121

548 2483-01-015
BEGIN REF MRK: 476+1.394
BEGIN MP: 1.000
END MP: 2.426



VICINITY MAP

0028-02-102
BEGIN REF MRK: 844+1.300
END REF MRK: 844+0.343
BEGIN MP: 3.277
END MP: 4.234

0508-01-381
BEGIN REF MRK: 768+0.668
END REF MRK: 797+0.167
END MP: 28.363

0271-15-098
BEGIN REF MRK: 29+0.520
BEGIN MP: 0.526
END MP: 3.954

PROJECT LOCATION MAP

NTS
EXCEPTIONS: NONE
EQUATIONS: NONE
RAILROAD CROSSINGS: NONE

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION, NOVEMBER 1, 2014 AND THE SPECIFICATION ITEMS LISTED AS FOLLOWS, SHALL GOVERN ON THIS PROJECT: SPECIAL LABOR PROVISIONS FOR STATE PROJECTS(000---008)

Texas Department of Transportation

SUBMITTED FOR LETTING: 2/24/2021

[signature], P.E.
SUPERVISING DESIGN ENGINEER

APPROVED FOR LETTING: 3/3/2021

DocuSigned by:
Larry W. Blackburn, P.E.
F5B20A05EDBE42F...
DISTRICT ENGINEER

DATE: $DATE$ $TIME$
FILE: $FILE$
COUNTY: HARRIS PROJECT NO: C 508-1-381
HIGHWAY NO: IH 10 LETTING DATE: MAY 2021
DATE ACCEPTED:

I. GENERAL

1		TITLE SHEET
2		INDEX SHEET
3, 3A, 3B		GENERAL NOTES
4-5		ESTIMATE & QUANTITY SHEET
6		SUMMARY OF LANDSCAPE QUANTITIES

II. TRAFFIC CONTROL PLAN

7	*	BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS BC(1)-14
8	*	BARRICADE AND CONSTRUCTION PROJECT LIMIT BC(2)-14
9	*	BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT BC(3)-14
10	*	BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES BC(4)-14
11	*	BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT BC(5)-14
12	*	BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS) BC(6)-14
13	*	BARRICADE AND CONSTRUCTION ARROW PANEL, REFLTRS, WARNING LIGHTS & ATTENUATOR BC(7)-14
14	*	BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES BC(8)-14
15	*	BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES BC(9)-14
16	*	BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES BC(10)-14
17	*	BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS BC(11)-14
18	*	BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS BC(12)-14
19	*	WORK ZONE "GIVE US A BRAKE" SIGNS WZ(BRK)-13
20	*	TRAFFIC CONTROL PLAN LANE CLOSURES FOR DIVIDED HIGHWAYS TCP(1-5)-18
21	*	TRAFFIC CONTROL PLAN CONVENTIONAL ROAD SHOULDER WORK TCP (2-1) - 18
22	*	TRAFFIC CONTROL PLAN LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS TCP (2-4) -18
23	*	TRAFFIC CONTROL PLAN LONG TERM LANE CLOSURES MULTILANE CONVENTIONAL RDS. TCP (2-5) -18
24	*	TRAFFIC CONTROL PLAN LANE CLOSURES ON DIVIDED HIGHWAYS TCP (2-6)- 18
25	*	TRAFFIC CONTROL PLANMOBILE OPERATIONS UNDIVIDED HIGHWAYS TCP (3-1)- 13
26	*	TRAFFIC CONTROL PLAN MOBILE OPERATIONS DIVIDED HIGHWAYS TCP (3-2)- 13
27	*	TRAFFIC CONTROL PLAN MOBILE OPERATIONS HERBICICE TRUCK OPERATIONS TCP (3-5)- 18
28	*	TRAFFIC CONTROL PLAN FREEWAY LANE CLOSURESTCP (6-1)- 12
29	*	TRAFFIC CONTROL PLAN WORK AREA NEAR RAMP TCP (6-2)- 12
30	*	TRAFFIC CONTROL PLAN WORK AREA BEYOND RAMP TCP (6-3)- 12
31	*	TRAFFIC CONTROL PLAN WORK AREA AT EXIT RAMP TCP (6-4)- 12
32	*	TRAFFIC CONTROL PLAN WORK AREA BEYOND EXIT RAMP TCP (6-5)- 12
33	*	WORK IN EXIT GORE FOR ADT GREATER THAN 10,000 TCP (6-8)- 14
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III. MISCELLANEOUS ITEMS

35		LANDSCAPE TREATMENT (TY 3)
36		LANDSCAPE TREATMENT (TY 4)
37-42		PLANT MEAINTENANCE
43-46		PLANTING, ESTABLISHMENT AND MAINTENANCE LAYOUT
47-48		PRUNING
49		PLANTING MAINTENANCE AND ESTABLISH TIMELINE
50-74		IH 10 SITE LOCATION
75-89		IH 69 SITE LOCATION (IH10 TO LITTLE YORK)
90-92		IH 69 SITE LOCATION (LITTLE YORK TO FM 1960)
93-103		IH 610 LOOP SITE LOCATION (US 290 TO IH 10 EAST)
104-106		IH 610 LOOP SITE LOCATION (IH 10 TO SHIP CHANNEL BRIDGE)
107-108		SS 548 SITE LOCATION
109-110		US 90 SITE LOCATION

IV. ENVIRONMENTAL ISSUES

111	*	TxDOT STORM WATER POLLUTION PREVENTION PLAN (SWP3) (HOU DIST)
112	*	ENVIRONMENTAL PERMITS ISSUES AND COMMITMENTS (EPIC)
113	*	TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES EROSION CONTROL LOG EC(9)-16

THE STANDARD SHEETS (*), SPECIFICALLY IDENTIFIED ABOVE, HAVE BEEN SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING

STATE OF TEXAS
LUCAS C. HERNANDEZ
136341
LICENSED PROFESSIONAL ENGINEER

2/23/2021

INDEX OF SHEET

SHEET 1 OF 1

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			2
STATE	STATE DIST. NO.	COUNTY	
TEXAS	HOU	HARRIS, etc.	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc.	IH 10, etc.

County: Harris Control: 0508-01-381, ETC.

Highway: IH 10

General Notes:

General:

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

(John Elam, P.E. email: John.Elam@txdot.gov)
(Phillip Garlin, P.E email: Phillip.Garlin@txdot.gov)

Contractor questions will be accepted through email, phone, and in person by the above individuals. Contractor questions will be reviewed by the Area Engineer or Assistant Area 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/

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, and CCSJ/Project Name.

If fixed features require, the governing slopes shown may vary between the limits shown and to the extent determined by the Engineer.

Notify the Engineer immediately if discrepancies are discovered in the horizontal control or the benchmark data.

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

The cost for materials, labor, and incidentals to provide for traffic across the roadway and for ingress and egress to private property in accordance with Section 7.2.4 of the standard specifications is subsidiary to the various bid items. Restore access roadways to their original condition upon completing construction.

Unless otherwise shown on the plans or otherwise directed, commence work after sunrise and ensure construction equipment is off the road by sunset.

Procure permits and licenses, which are to be issued by the City, County, or Municipal Utility District.

County: Harris Control: 0508-01-381, ETC.

Highway: IH 10

General: Site Management

Do not mix or store materials, or store or repair equipment, on top of concrete pavement or bridge decks unless authorized by the Engineer. Permission will be granted to store materials on surfaces if no damage or discoloration will result.

Personal vehicles of employees are not permitted to park within the right of way, including sections closed to public traffic. Employees may park on the right of way at the Contractor's office, equipment, and materials storage yard sites.

Assume ownership of debris and dispose of at an approved location. Do not dispose of debris on private property unless approved in writing by the District Engineer.

General: Traffic Control and Construction

Schedule construction operations such that preparing individual items of work follows in close sequence to constructing storm drains in order to provide as little inconvenience as practical to the businesses and residents along the project.

General: Utilities

Consider the locations of underground utilities depicted in the plans as approximate and employ responsible care to avoid damaging utility facilities. Depending upon scope and magnitude of planned construction activities, advanced field confirmation by the utility owner or operator may be prudent. Where possible, protect and preserve permanent signs, markers, and designations of underground facilities.

If the Contractor damages or causes damage (breaks, leaks, nicks, dents, gouges, etc.) to the utility, contact the utility facility owner or operator immediately.

Be aware that an operational Computerized Transportation Management System (CTMS) exists within the limits of this project and that the system must remain operational throughout construction. If the Contractor damages or causes damage to this system, repair such damage within 8 hours of occurrence at no cost to the Department. In the event of system damage, notify the Director of Traffic Management Systems at 713-881-3283 within one hour of occurrence. Failure of the Contractor to repair damage to the main fiber optic cable and CCTV cable trunk lines, which convey all corridor information to TranStar, will result in the Contractor being billed for the full cost of emergency repairs.

At least 72 hours before starting work, make arrangements for locating existing Department-owned above ground and underground fiber optic, communications, power, illumination, and traffic signal cabling and conduit. Do this by calling the Department's Houston District Traffic Signal Operations Office at 713-802-5662 to schedule marking of underground lines on the ground. Use caution if working in these areas to avoid damaging or interfering with existing facilities.

Notify the Engineer at least 48 hours before constructing junction boxes at storm drain and utility intersections.

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

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

Before beginning any underground work, notify the City of Houston's Chief Inspector, Public Works and Engineering, to establish the locations of any existing electrical systems for lighting facilities within the limits of this project.

Item 7: Legal Relations and Responsibilities

This project does not require a U.S. Army Corps of Engineers (USACE) Section 404 Permit before letting, but if a permit is needed during construction, assume responsibility for preparing the permit application. Submit the permit application to the Department's District Environmental Section for approval. Once the permit application is approved, the Department will submit it to the USACE. Assume responsibility for the requested revisions, in coordination with the Department's District Environmental Section.

The nesting / breeding season for migratory birds is February 15 through September 30.

Conduct any tree removal outside of the migratory bird nesting season. If this is not possible due to scheduling, then exercise caution to remove only those trees with no active nests. Do not destroy nests on structures or in trees within the project limits during the nesting / breeding season.

Take measures to prevent the building of nests on any structures or trees within the project limits throughout the duration of the construction if work / removal will be performed during the nesting / breeding season. This can be accomplished by application of bird repellent gel, netting by hand every 3 to 4 days, or any other non-threatening method approved by the Houston District Environmental Section. Obtain this approval well in advance of the planned use. Contact the Houston District Environmental Section at 713-802-5244. The cost of this work is subsidiary to the various bid items.

This project is on a hurricane evacuation route. Provide at the pre-construction meeting a written plan outlining procedures to suspend work and secure the job site in the event of a hurricane evacuation.

No significant traffic generator events have been identified.

Item 8: Prosecution and Progress

The Department will not adjust the number of days for the project and milestones, if any, due to differences in opinion regarding any assumptions made in the preparation of the schedule or for errors, omissions, or discrepancies found in the time determination schedule.

Working days will be computed and charged based on a *standard* workweek in accordance with Section 8.3.1.4

No Lane Closures are required or allowed for this project.

Item 100: Preparing Right of Way

The Item, "Preparing Right of Way" will be measured for payment only in those designated areas shown on the plans. Preparing right of way necessary to perform construction that is outside designated areas is subsidiary to this bid Item.

Item 502: Barricades, Signs, and Traffic Handling

Use a traffic control plan for handling traffic through the various phases of construction. Follow the phasing sequence unless otherwise agreed upon by the Area Engineer and the Project Manager. Ensure this plan conforms to the latest "Texas Manual on Uniform Traffic Control Devices" and the latest Barricade and Construction (BC) Standard Sheets. The latest versions of Work Zone Standard Sheets WZ (BTS-1) and WZ (BTS-2) are the traffic control plan for the signal installations.

Submit changes to the traffic control plan to the Area Engineer. Provide a layout showing the construction phasing, signs, striping, and signalizations for changes to the original traffic control plan.

Furnish and maintain the barricades and warning signs, including the necessary temporary and portable traffic control devices, during the various phases of construction. Place and construct these barricades and warning signs in accordance with the latest "Texas Manual on Uniform Traffic Control Devices" for typical construction layouts.

Cover work zone signs when work related to the signs is not in progress, or when any hazard related to the signs no longer exists.

Keep the delineation devices, signs, and pavement markings clean. This work is subsidiary to the Item, "Barricades, Signs, and Traffic Handling."

Do not mount signs on drums or barricades, except those listed in the latest Barricades and Construction standard sheets.

Use traffic cones for daytime work only. Replace the cones with plastic drums during nighttime hours.

County: Harris Control: 0508-01-381, ETC.

Highway: IH 10

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: Temporary Erosion, Sedimentation and Environmental Controls

The Storm Water Pollution Prevention Plan (SWP3) consists of temporary erosion control measures needed and provided for under this Item. The disturbed area is less than one acre and use of erosion control measures is not anticipated. Since the disturbed area is less than 5 acres, a “Notice of Intent” (NOI) is not required.

Use appropriate measures to prevent, minimize, and control the spill of hazardous materials in the construction staging area. Remove and dispose of materials in compliance with State and Federal laws.

Before starting construction, review with the Engineer the SWP3 used for temporary erosion control as outlined on the plans. Before construction, place the temporary erosion and sedimentation control features as shown on the SWP3.

Schedule the seeding or sodding work as soon as possible. The project schedule provides for a vegetation management plan.

Implement temporary and permanent erosion control measures to comply with the National Pollution Discharge Elimination System (NPDES) general permit under the Clean Water Act.

Item 6185: Truck Mounted Attenuator (TMA) and Trailer Attenuator (TA)

A shadow vehicle with Truck Mounted Attenuators (TMAs) or Trailer Attenuators (TAs) is required as shown on the appropriate Traffic Control Plan (TCP) sheets. TMAs/TAs must meet the requirements of the Compliant Work Zone Traffic Control Device List.

Level 3 Compliant TMAs/TAs are required for this project.

A total of one (1) shadow vehicle with a TMA/TA is required for the work with the exception of Pavement Marking Operations. The Contractor is responsible for determining if one or more of these operations will be ongoing at the same time to determine the total number of TMAs/TAs needed on the project.

QUANTITY SHEET

CONTROLLING PROJECT ID 0508-01-381 **DISTRICT** Houston **COUNTY** Harris, Montgomery
HIGHWAY IH 10, IH 610, IH 69, SS 548, US 90

				0028-02-102		0177-05-121		0177-06-092		0271-14-241		0271-15-098		0508-01-381	
		CONTROL SECTION JOB													
		PROJECT ID		A00138029		A00138010		A00138008		A00138012		A00138026		A00133429	
		COUNTY		Harris		Montgomery		Harris		Harris		Harris		Harris	
		HIGHWAY		US 90		IH 69		IH 69		IH 610		IH 610		IH 10	
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
	100-6013	PREP ROW (TREE) (2" TO 12" DIA)	EA											18.000	
	193-6002	PLANT MAINTENANCE	CYC											6.000	
	500-6001	MOBILIZATION	LS											100.00%	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO											3.000	
	506-6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF											100.000	
	506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF											100.000	
	751-6011	PRUNING	CYC							0.900				0.100	
	1022-6003	LANDSCAPE TREATMENT(TY 3)	EA	0.020		0.240		0.040		0.200		0.060		0.420	
	1022-6004	LANDSCAPE TREATMENT(TY 4)	EA	0.020		0.240		0.040		0.200		0.060		0.420	
	6185-6002	TMA (STATIONARY)	DAY											10.000	
	6185-6005	TMA (MOBILE OPERATION)	DAY											10.000	
	18	EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS											1.000	
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS											1.000	

QUANTITY SHEET

CONTROLLING PROJECT ID 0508-01-381 **DISTRICT** Houston **COUNTY** Harris, Montgomery
HIGHWAY IH 10, IH 610, IH 69, SS 548, US 90

						TOTAL EST.	TOTAL FINAL
		CONTROL SECTION JOB		**2483-01-015**			
		PROJECT ID		**A00138027**			
		COUNTY		**Harris**			
		HIGHWAY		**SS 548**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL		
	100-6013	PREP ROW (TREE) (2" TO 12" DIA)	EA			18.000	
	193-6002	PLANT MAINTENANCE	CYC			6.000	
	500-6001	MOBILIZATION	LS			100.00%	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO			3.000	
	506-6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF			100.000	
	506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF			100.000	
	751-6011	PRUNING	CYC			1.000	
	1022-6003	LANDSCAPE TREATMENT(TY 3)	EA	0.020		1.000	
	1022-6004	LANDSCAPE TREATMENT(TY 4)	EA	0.020		1.000	
	6185-6002	TMA (STATIONARY)	DAY			10.000	
	6185-6005	TMA (MOBILE OPERATION)	DAY			10.000	
	18	EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS			1.000	
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS			1.000	

SUMMARY OF LANDSCAPE QUANTITIES

ITEM CODE	100 6013	193 6002	502 6001	506 6041	506 6043	751 6011	1022 6003	1022 6004	6185 6002	6185 6005
DESCRIPTION / CSJ NO.	PREP ROW (TREE) (2" TO 12" DIA)	PLANT MAINTENANCE	BARRICADES, SIGNS AND TRAFFIC HANDLIN	BIODEG EROSN CONT LOGS (INSTL) (12")	BIODEG EROSN CONT LOGS (REMOVE)	PRUNING	LANDSCAPE TREATMENT (TY 3)	LANDSCAPE TREATMENT (TY 4)	TMA (STATIONARY)	TMA (MOBILE OPERATION)
	EA	CYC	MO	LF	LF	CYC	EA	EA	DAY	DAY
0508-01-381	18	6	3	100	100	0.1	0	0	10	10
0177-05-121							0	0		
0177-06-092							0	0		
0271-14-241						0.9	0	0		
0271-15-098							0	0		
2483-01-015							0	0		
0028-02-102							0	0		
TOTAL	18	6	3	100	100	1.0	1	1	10	10

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			6
STATE	STATE DIST. NO.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, ETC	IH 10

DATE:
FILE:

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. As shown on BC(2), the OBEY WARNING SIGNS STATE LAW sign, STAY ALERT TALK OR TEXT LATER (see Sign Detail G20-10T) and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of the CSJ limits. However, the TRAFFIC FINES DOUBLE sign will not be required on projects consisting solely of mobile operation work, such as striping or milling edgeline rumble strips. The BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the CSJ limits.

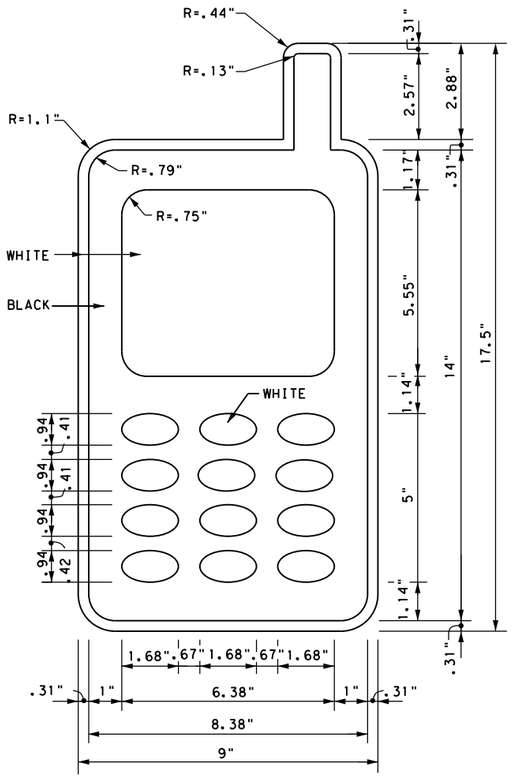
11. Except for devices required by Note 10, traffic control devices should be in place only while work is actually in progress or a definite need exists.

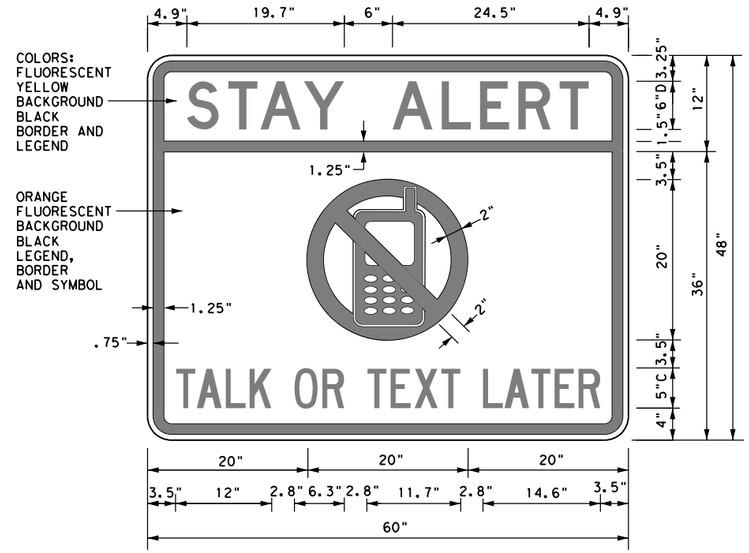
12. The Engineer has the final decision on the location of all traffic control devices.

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 APPAREL 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.





3.0" Radius, 1.25" Border, 0.75" Indent, Black on Yellow;
[STAY ALERT] Font: D
3.0" Radius, 1.25" Border, 0.75" Indent, Black on Orange;
[TALK OR TEXT LATER] Font: C specified length;

SIGN DETAIL (G20-10T)

Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be found on-line at the web address given below or by contacting:

Texas Department of Transportation
Traffic Operations Division - TE
Phone (512) 416-3118

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

Texas Department of Transportation | Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

BC(1)-14

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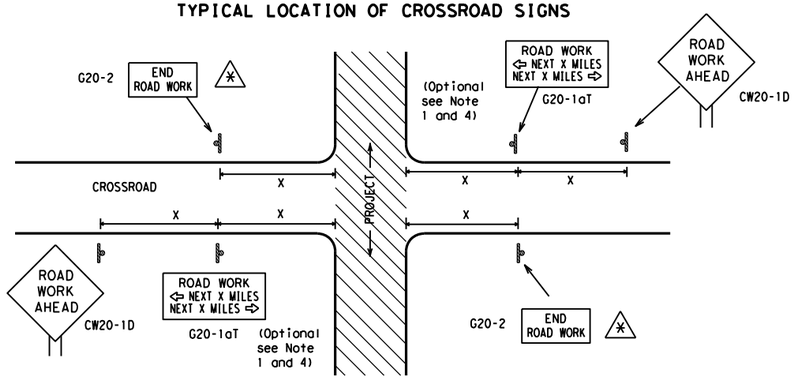
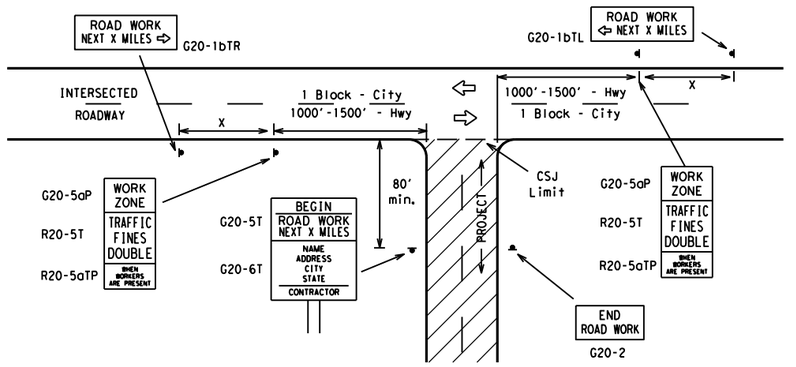
TYPICAL LOCATION OF CROSSROAD SIGNS



(*) May be mounted on back of "ROAD WORK AHEAD"(CW20-1D) sign with approval of Engineer. (See note 2 below)

1. The typical minimum signing on a crossroad approach should be a "ROAD WORK AHEAD" (CW20-1D)sign and a (G20-2) "END ROAD WORK" sign, unless noted otherwise in plans.
2. The Engineer may use the reduced size 36" x 36" ROAD WORK AHEAD (CW20-1D) sign mounted back to back with the reduced size 36" x 18" "END ROAD WORK"(G20-2) sign on low volume crossroads (see Note 4 under "Typical Construction Warning Sign Size and Spacing"). See the "Standard Highway Sign Designs for Texas" manual for sign details. The Engineer may omit the advance warning signs on low volume crossroads. The Engineer will determine whether a road is low volume. This information shall be shown in the plans.
3. Based on existing field conditions, the Engineer/Inspector may require additional signs such as FLAGGER AHEAD, LOOSE GRAVEL, or other appropriate signs. When additional signs are required, these signs will be considered part of the minimum requirements. The Engineer/Inspector will determine the proper location and spacing of any sign not shown on the BC sheets, Traffic Control Plan sheets or the Work Zone Standard Sheets.
4. The "ROAD WORK NEXT X MILES"(G20-1aT)sign shall be required at high volume crossroads to advise motorists of the length of construction in either direction from the intersection. The Engineer will determine whether a roadway is considered high volume.
5. Additional traffic control devices may be shown elsewhere in the plans for higher volume crossroads.
6. When work occurs in the intersection area, appropriate traffic control devices, as shown elsewhere in the plans or as determined by the Engineer/Inspector, shall be in place.

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

1. The Engineer will determine the types and location of any additional traffic control devices, such as a flagger and accompanying signs, or other signs, that should be used when work is being performed at or near an intersection.
2. If construction closes the road at a T-intersection the Contractor shall place the "CONTRACTOR NAME"(G20-6T) sign behind the Type 3 Barricades for the road closure (see BC(10) also). The "ROAD WORK NEXT X MILES" left arrow(G20-1bTL) and "ROAD WORK NEXT X MILES" right arrow (G20-1bTR)" signs shall be replaced by the detour signing called for in the plans.

TYPICAL CONSTRUCTION WARNING SIGN SIZE AND SPACING[1,5,6]

SIZE

Sign Number or Series	Conventional Road	Expressway/ Freeway
CW20[4] CW21 CW22 CW23 CW25	48" x 48"	48" x 48"
CW1, CW2, CW7, CW8, CW9, CW11, CW14	36" x 36"	48" x 48"
CW3, CW4, CW5, CW6, CW8-3, CW10, CW12	48" x 48"	48" x 48"

SPACING

Posted Speed	Sign Spacing "X" (△)
MPH	Feet (Apprx.)
30	120
35	160
40	240
45	320
50	400
55	500[2]
60	600[2]
65	700[2]
70	800[2]
75	900[2]
80	1000[2]
*	*[3]

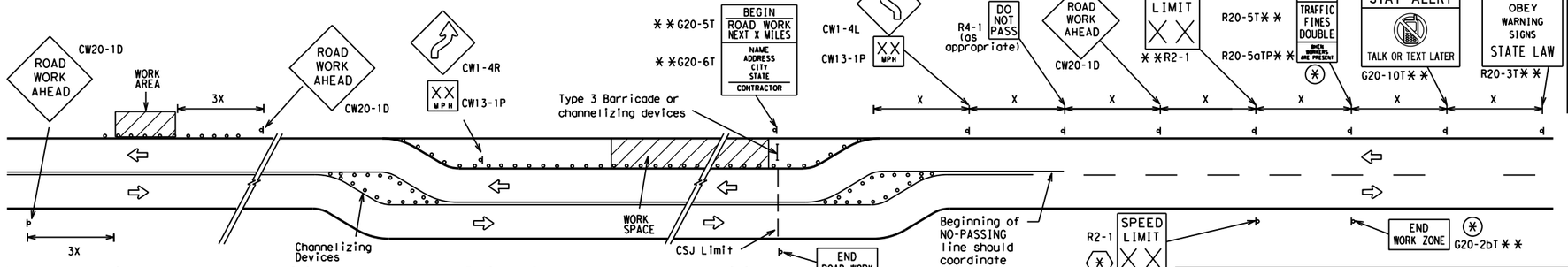
(*) For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

△ Minimum distance from work area to first Advance Warning sign nearest the work area and/or distance between each additional sign.

GENERAL NOTES

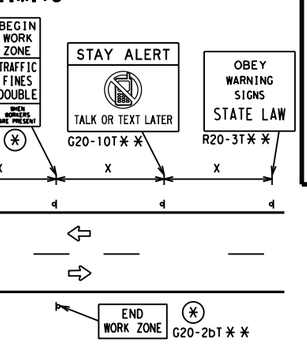
1. Special or larger size signs may be used as necessary.
2. Distance between signs should be increased as required to have 1500 feet advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. 36" x 36" "ROAD WORK AHEAD" (CW20-1D)signs may be used on low volume crossroads at the discretion of the Engineer. See Note 2 under "Typical Location of Crossroad Signs".
5. Only diamond shaped warning sign sizes are indicated.
6. See sign size listing in "TMUTCD", Sign Appendix or the "Standard Highway Sign Designs for Texas" manual for complete list of available sign design sizes.

WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS

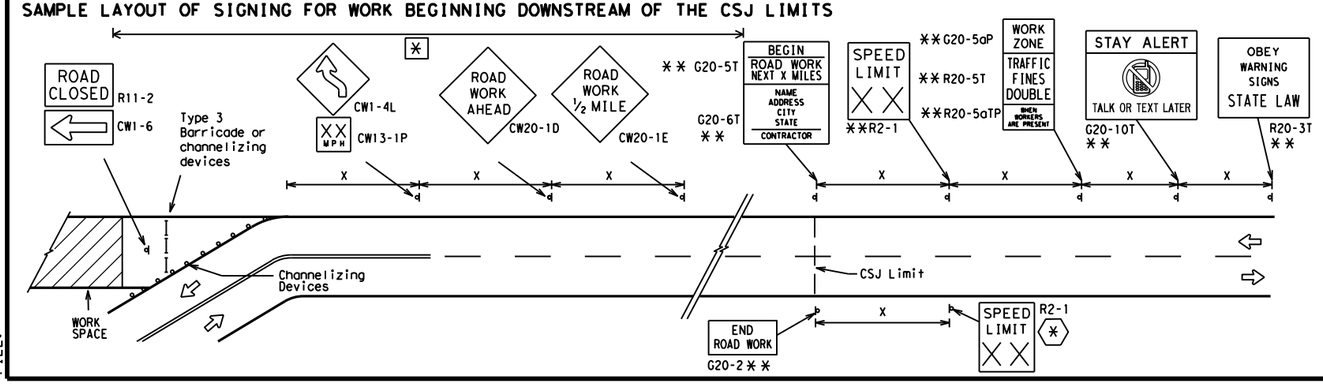


When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD"(CW20-1D)signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing of signs and channelizing devices.

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS



SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING DOWNSTREAM OF THE CSJ LIMITS



NOTES

The Contractor shall determine the appropriate distance to be placed on the G20-1 series signs and "BEGIN ROAD WORK NEXT X MILES"(G20-5T)sign for each specific project. This distance shall replace the "X" and shall be rounded to the nearest whole mile with the approval of the Engineer. No decimals shall be used.

(*) The "BEGIN WORK ZONE"(G20-9TP) and "END WORK ZONE" (G20-2bT) shall be used as shown on the sample layout when advance signs are required outside the CSJ Limits. They inform the motorist of entering or leaving a part of the work zone lying outside the CSJ Limits where traffic fines may double if workers are present.

** Required CSJ Limit signing. See Note 10 on BC(1). TRAFFIC FINES DOUBLE signs will not be required on projects consisting solely of mobile operations work.

[*] Area for placement of "ROAD WORK AHEAD" (CW20-1D)sign and other signs or devices as called for on the Traffic Control Plan.

(*) Contractor will install a regulatory speed limit sign at the end of the work zone.

LEGEND	
⊢⊣	Type 3 Barricade
○ ○ ○	Channelizing Devices
▬	Sign
X	See Typical Construction Warning Sign Size and Spacing chart or the TMUTCD for sign spacing requirements.

Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-14

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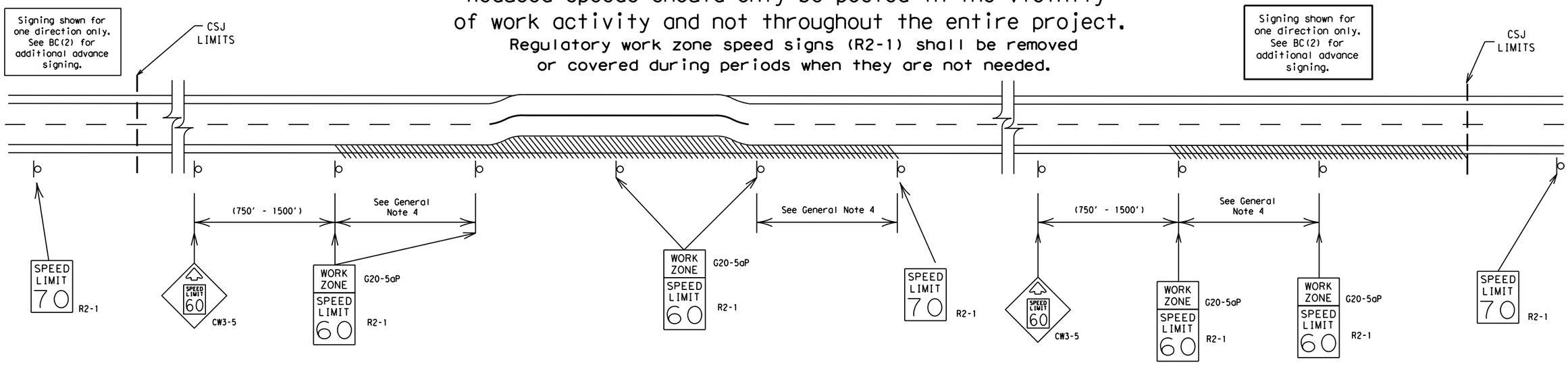
TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

Work zone speed limits shall be regulatory, established in accordance with the "Procedures for Establishing Speed Zones," and approved by the Texas Transportation Commission, or by City Ordinance when within Incorporated City Limits.

Reduced speeds should only be posted in the vicinity of work activity and not throughout the entire project.

Regulatory work zone speed signs (R2-1) shall be removed or covered during periods when they are not needed.



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

This type of work zone speed limit should be included on the design of the traffic control plans when restricted geometrics with a lower design speed are present in the work zone and modification of the geometrics to a higher design speed is not feasible.

Long/Intermediate Term Work Zone Speed Limit signs, when approved as described above, should be posted and visible to the motorist when work activity is present. Work activity may also be defined as a change in the roadway that requires a reduced speed for motorists to safely negotiate the work area, including:

a) rough road or damaged pavement surface
b) substantial alteration of roadway geometrics (diversions)
c) construction detours
d) grade
e) width
f) other conditions readily apparent to the driver

As long as any of these conditions exist, the work zone speed limit signs should remain in place.

SHORT TERM WORK ZONE SPEED LIMITS

This type of work zone speed limit may be included on the design of the traffic control plans when workers or equipment are not behind concrete barrier, when work activity is within 10 feet of the traveled way or actually in the travelled way.

Short Term Work Zone Speed Limit signs should be posted and visible to the motorists only when work activity is present. When work activity is not present, signs shall be removed or covered.
(See Removing or Covering on BC(4)).

GENERAL NOTES

1. Regulatory work zone speed limits should be used only for sections of construction projects where speed control is of major importance.
2. Regulatory work zone speed limit signs shall be placed on supports at a 7 foot minimum mounting height.
3. Speed zone signs are illustrated for one direction of travel and are normally posted for each direction of travel.
4. Frequency of work zone speed limit signs should be:
   40 mph and greater 0.2 to 2 miles
   35 mph and less 0.2 to 1 mile
5. Regulatory speed limit signs shall have black legend and border on a white reflective background (See "Reflective Sheeting" on BC(4)).
6. Fabrication, erection and maintenance of the"ADVANCE SPEED LIMIT"(CW3-5)sign, "WORK ZONE"(G20-5aP) plaque and the "SPEED LIMIT"(R2-1)signs shall not be paid for directly, but shall be considered subsidiary to Item 502.
7. Turning signs from view, laying signs over or down will not be allowed, unless as otherwise noted under "REMOVING OR COVERING" on BC(4).
8. Techniques that may help reduce traffic speeds include but are not limited to:
   A. Law enforcement.
   B. Flagger stationed next to sign.
   C. Portable changeable message sign (PCMS).
   D. Low-power (drone) radar transmitter.
   E. Speed monitor trailers or signs.
9. Speeds shown on details above are for illustration only. Work Zone Speed Limits should only be posted as approved for each project.
10. For more specific guidance concerning the type of work, work zone conditions and factors impacting allowable regulatory construction speed zone reduction see TxDOT form #1204 in the TxDOT e-form system.

Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC(3)-14

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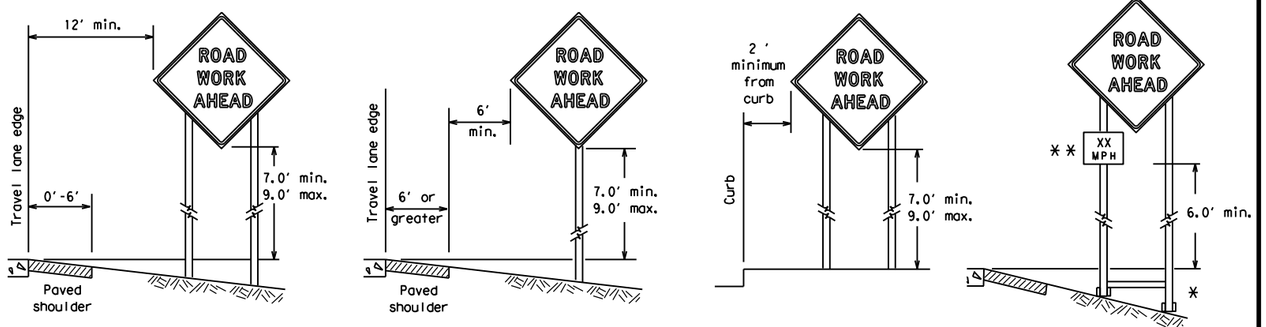
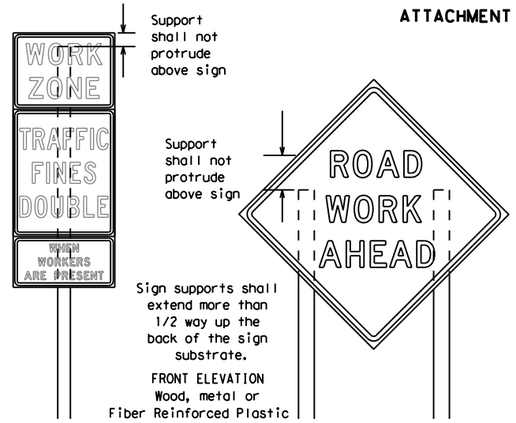
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



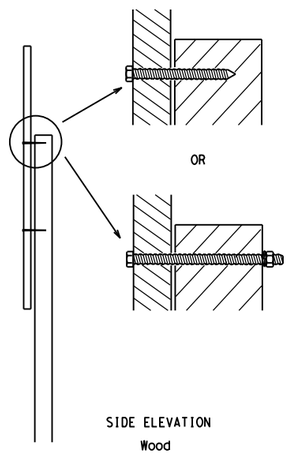
* When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

** 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 spice 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.

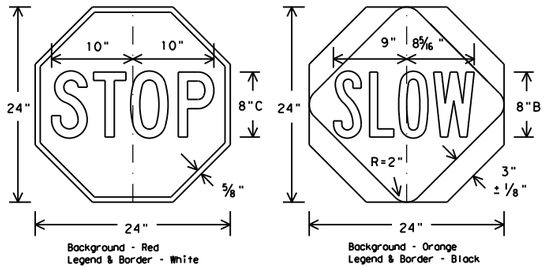


Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

Nails shall NOT be allowed. Each sign shall be attached directly to the sign support. Multiple signs shall not be joined or spliced by any means. Wood supports shall not be extended or repaired by splicing or other means.

STOP/SLOW PADDLES

1. STOP/SLOW paddles are the primary method to control traffic by flaggers. The STOP/SLOW paddle size should be 24" x 24" as detailed below.
2. When used at night, the STOP/SLOW paddle shall be retroreflectorized.
3. STOP/SLOW paddles may be attached to a staff with a minimum length of 6' to the bottom of the sign.
4. 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.



CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

1. 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, 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.
2. 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.
3. When existing permanent signs are moved and relocated due to construction purposes, they shall be visible to motorists at all times.
4. 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.
5. If permanent signs are to be removed and relocated using temporary supports, the Contractor shall use crashworthy supports as shown on the BC sheets or the CWZTCD. The signs shall meet the required mounting heights shown on the BC Sheets or the SMD Standards during construction. This work should be paid for under the appropriate pay item for relocating existing signs.
6. 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.

GENERAL NOTES FOR WORK ZONE SIGNS

1. Contractor shall install and maintain signs in a straight and plumb condition and/or as directed by the Engineer.
2. Wooden sign posts shall be painted white.
3. Barricades shall NOT be used as sign supports.
4. 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.
5. 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.
6. The Contractor shall furnish sign supports listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD). 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.
7. 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.
8. 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.
9. 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)

1. 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.
   a. Long-term stationary - work that occupies a location more than 3 days.
   b. 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.
   c. Short-term stationary - daytime work that occupies a location for more than 1 hour in a single daylight period.
   d. Short, duration - work that occupies a location up to 1 hour.
   e. Mobile - work that moves continuously or intermittently (stopping for up to approximately 15 minutes.)

SIGN MOUNTING HEIGHT

1. 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.
2. 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.
3. Long-term/Intermediate-term Signs may be used in lieu of Short-term/Short Duration signing.
4. 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.
5. 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

1. 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

1. 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.
2. "Mesh" type materials are NOT an approved sign substrate, regardless of the tightness of the weave.
3. 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

1. 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).
2. White sheeting, meeting the requirements of DMS-8300 Type A, shall be used for signs with a white background.
3. 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

1. 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

1. When sign messages may be confusing or do not apply, the signs shall be removed or completely covered.
2. 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.
3. 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.
4. 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.
5. Burlap shall NOT be used to cover signs.
6. Duct tape or other adhesive material shall NOT be affixed to a sign face.
7. Signs and anchor stubs shall be removed and holes backfilled upon completion of work.

SIGN SUPPORT WEIGHTS

1. Where sign supports require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand should be used.
2. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
3. Rock, concrete, iron, steel or other solid objects shall not be permitted for use as sign support weights.
4. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs.
5. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall NOT be used.
6. 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.
7. 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.
8. Sandbags shall NOT be placed under the skid and shall not be used to level sign supports placed on slopes.

FLAGS ON SIGNS

1. 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.

Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)-14

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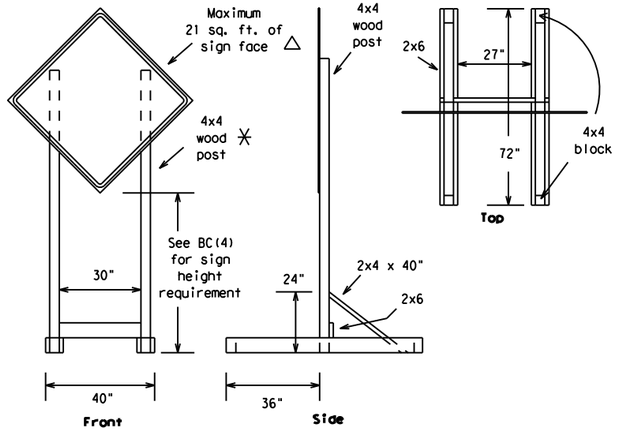
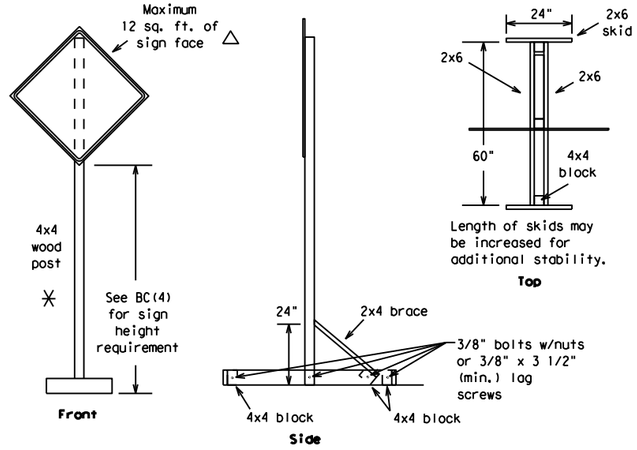
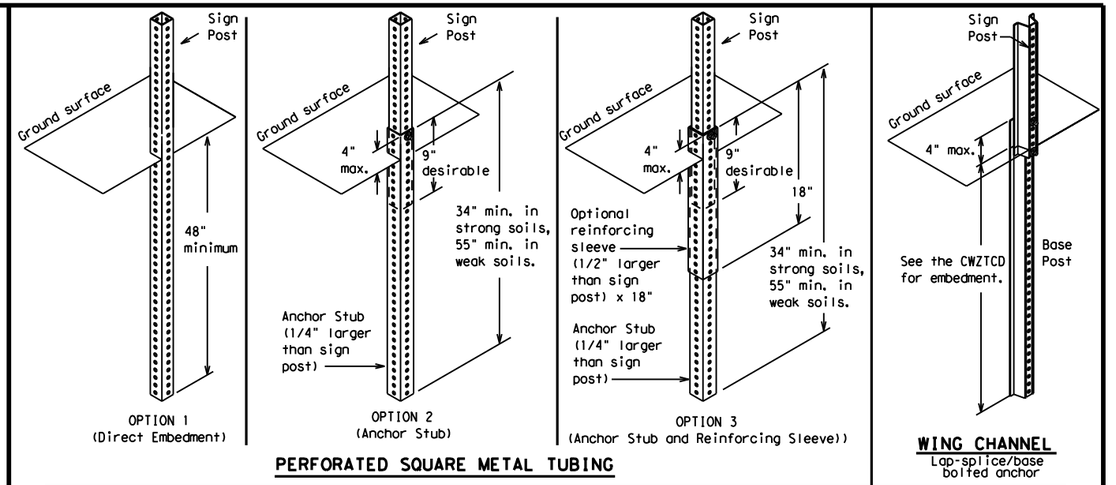




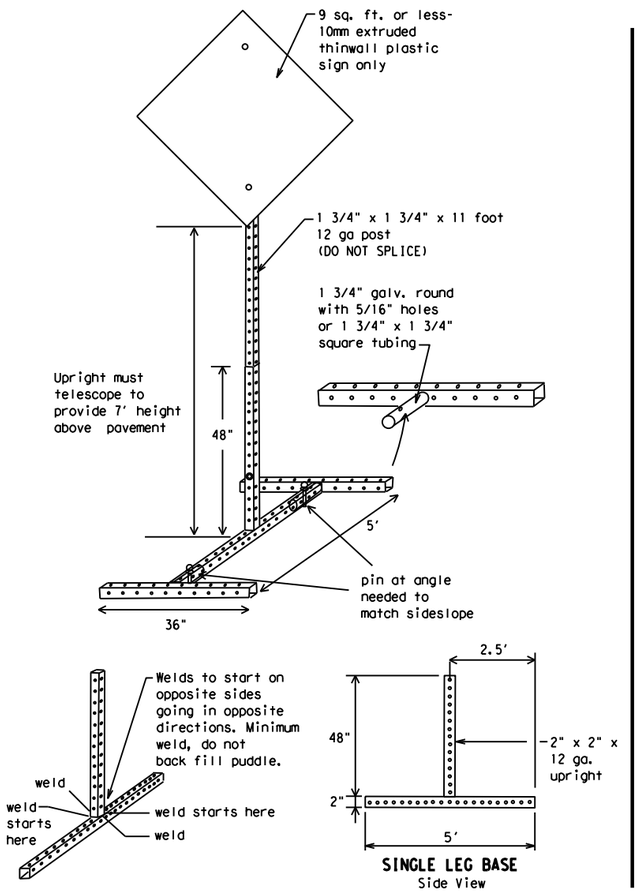
SKID MOUNTED WOOD SIGN SUPPORTS

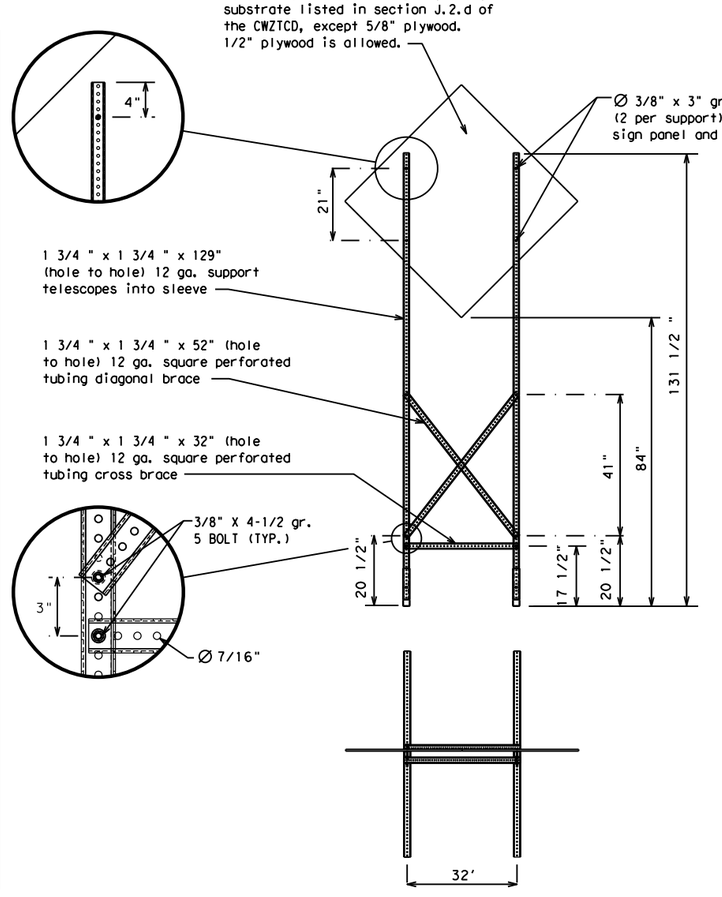
LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS □

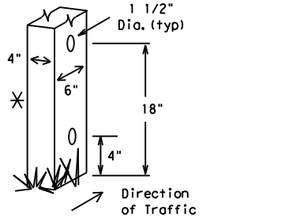


GROUND MOUNTED SIGN SUPPORTS

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.

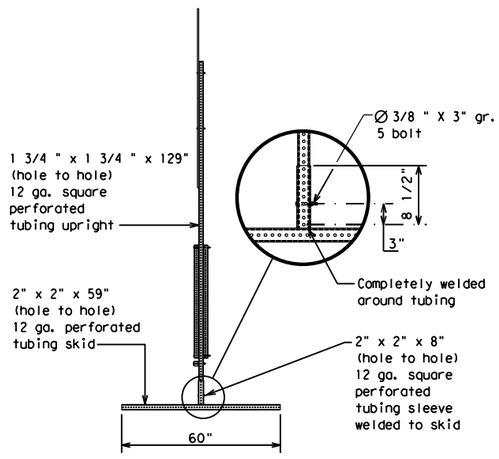






Nominal Post Size	Number of Posts	Maximum Sq. feet of Sign Face	Minimum Soil Embedment	Drilled Hole(s) Required
4 x 4	1	12	36"	NO
4 x 4	2	21	36"	NO
4 x 6	1	21	36"	YES
4 x 6	2	36	36"	YES

WOOD POST SYSTEM FOR GROUND 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

1. 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.
2. No more than 2 sign posts shall be placed within a 7 ft. circle, except for specific materials noted on the CWZTCD List.
3. 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.

Texas Department of Transportation — Traffic Operations Division Standard

SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	508	01	381,ETC.	IH 10
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13	HOU	HARRIS		11

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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

PORTABLE CHANGEABLE MESSAGE SIGNS

1. The Engineer/Inspector shall approve all messages used on portable changeable message signs (PCMS).
2. 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.
3. 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.
4. Use the word "EXIT" to refer to an exit ramp on a freeway; i.e., "EXIT CLOSED." Do not use the term "RAMP."
5. Always use the route or interstate designation (IH, US, SH, FM) along with the number when referring to a roadway.
6. When in use the bottom of a stationary PCMS message panel should be a minimum 7 feet above the roadway, where possible.
7. 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.
8. 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.
9. Do not "flash" messages or words included in a message. The message should be steady burn or continuous while displayed.
10. 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.
11. Do not use the word "Danger" in message.
12. Do not display the message "LANES SHIFT LEFT" or "LANES SHIFT RIGHT" on a PCMS. Drivers do not understand the message.
13. Do not display messages that scroll horizontally or vertically across the face of the sign.
14. 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.
15. 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.
16. Each line of text should be centered on the message board rather than left or right justified.
17. 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.

WORD OR PHRASE	ABBREVIATION
Access Road	ACCS RD
Alternate	ALT
Avenue	AVE
Best Route	BEST RTE
Boulevard	BLVD
Bridge	BRDG
Cannot	CANT
Center	CTR
Construction Ahead	CONST AHD
CROSSING	XING
Detour Route	DETOUR RTE
Do Not	DONT
East	E
Eastbound	(route) E
Emergency	EMER
Emergency Vehicle	EMER VEH
Entrance, Enter	ENT
Express Lane	EXP LN
Expressway	EXPWY
XXXX Feet	XXXX FT
Fog Ahead	FOG AHD
Freeway	FRWY, FWY
Freeway Blocked	FWY BLKD
Friday	FRI
Hazardous Driving	HAZ DRIVING
Hazardous Material	HAZMAT
High-Occupancy	HOV
Vehicle Highway	HWY
Hour(s)	HR, HRS
Information	INFO
It Is	ITS
Junction	JCT
Left	LFT
Left Lane	LFT LN
Lane Closed	LN CLOSED
Lower Level	LWR LEVEL
Maintenance	MAINT

WORD OR PHRASE	ABBREVIATION
Major	MAJ
Miles	MI
Miles Per Hour	MPH
Minor	MNR
Monday	MON
Normal	NORM
North	N
Northbound	(route) N
Parking	PKING
Road	RD
Right Lane	RT LN
Saturday	SAT
Service Road	SERV RD
Shoulder	SHLDR
Slippery	SLIP
South	S
Southbound	(route) S
Speed	SPD
Street	ST
Sunday	SUN
Telephone	PHONE
Temporary	TEMP
Thursday	THURS
To Downtown	TO DWNTN
Traffic	TRAF
Travelers	TRVLRS
Tuesday	TUES
Time Minutes	TIME MIN
Upper Level	UPR LEVEL
Vehicles (s)	VEH, VEHS
Warning	WARN
Wednesday	WED
Weight Limit	WT LIMIT
West	W
Westbound	(route) W
Wet Pavement	WET PVMT
Will Not	WONT

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

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

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

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
- XXXXXXX TO XXXXXXX
- 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

1. Only 1 or 2 phases are to be used on a PCMS.
2. The 1st phase (or both) should be selected from the "Road/Lane/Ramp Closure List" and the "Other Condition List".
3. A 2nd phase can be selected from the "Action to Take/Effect on Travel, Location, General Warning, or Advance Notice Phase Lists".
4. A Location Phase is necessary only if a distance or location is not included in the first phase selected.
5. 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.
6. 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

1. The words RIGHT, LEFT and ALL can be interchanged as appropriate.
2. Roadway designations IH, US, SH, FM and LP can be interchanged as appropriate.
3. EAST, WEST, NORTH and SOUTH (or abbreviations E, W, N and S) can be interchanged as appropriate.
4. Highway names and numbers replaced as appropriate.
5. ROAD, HIGHWAY and FREEWAY can be interchanged as needed.
6. AHEAD may be used instead of distances if necessary.
7. FT and MI, MILE and MILES interchanged as appropriate.
8. AT, BEFORE and PAST interchanged as needed.
9. 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

1. 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.
2. 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.
3. 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.
4. 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.

Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC(6)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	508	01	381,ETC.	IH 10
9-07 8-14	DIST	COUNTY		SHEET NO.
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DATE:
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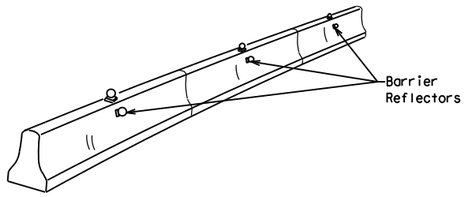
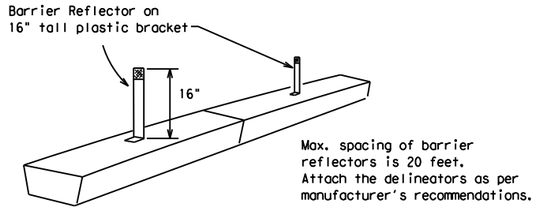
1. Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
2. Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost of the reflectors shall be considered subsidiary to Item 512.

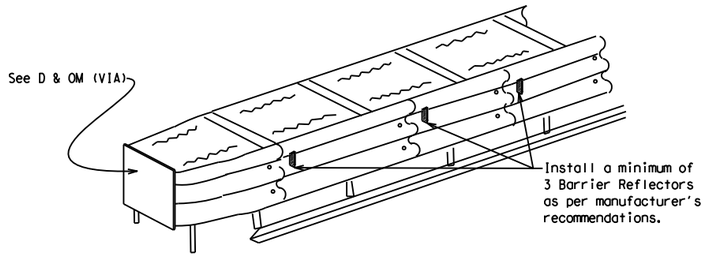


CONCRETE TRAFFIC BARRIER (CTB)

3. 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.
4. 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.
5. When CTB separates traffic traveling in the same direction, no barrier reflectors will be required on top of the CTB.
6. Barrier Reflector units shall be yellow or white in color to match the edgeline being supplemented.
7. Maximum spacing of Barrier Reflectors is forty (40) feet.
8. Pavement markers or temporary flexible-reflective roadway marker tabs shall NOT be used as CTB delineation.
9. Attachment of Barrier Reflectors to CTB shall be per manufacturer's recommendations.
10. Missing or damaged Barrier Reflectors shall be replaced as directed by the Engineer.
11. Single slope barriers shall be delineated as shown on the above detail.



LOW PROFILE CONCRETE BARRIER (LPCB)

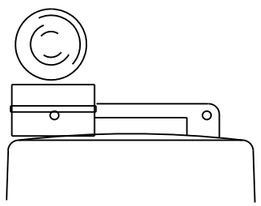


DELINEATION OF END TREATMENTS

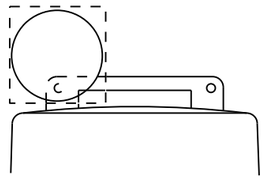
END TREATMENTS FOR CTB'S USED IN WORK ZONES

End treatments used on CTB's in work zones shall meet crashworthy standards as defined in the National Cooperative Highway Research Report 350. Refer to the CWZTCD List for approved end treatments and manufacturers.

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS



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

WARNING LIGHTS

1. Warning lights shall meet the requirements of the TMUTCD.
2. Warning lights shall NOT be installed on barricades.
3. 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.
4. 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".
5. The Engineer/Inspector or the plans shall specify the location and type of warning lights to be installed on the traffic control devices.
6. 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.
7. 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.
8. The location of warning lights and warning reflectors on drums shall be as shown elsewhere in the plans.

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

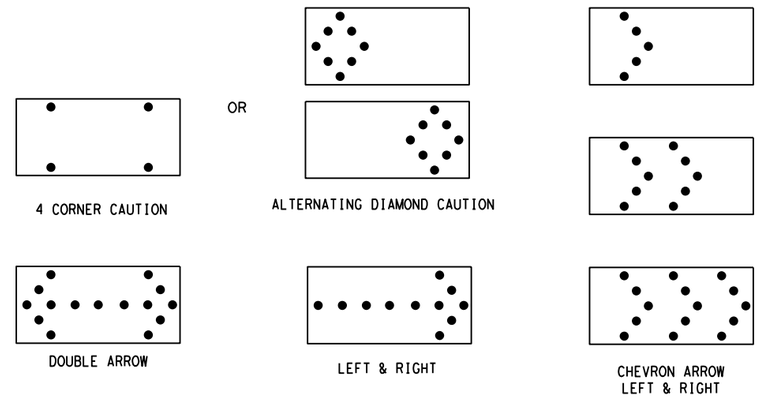
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing 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.
4. 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.
5. Type A, Type C and Type D warning lights shall be installed at locations as detailed on other sheets in the plans.
6. Warning lights shall not be installed on a drum that has a sign, chevron or vertical panel.
7. 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

1. 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.
2. 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.
3. The warning reflector shall have a minimum retroreflective surface area (one-side) of 30 square inches.
4. Round reflectors shall be fully reflectorized, including the area where attached to the drum.
5. 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.
6. 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.
7. When used near two-way traffic, both sides of the warning reflector shall be reflectorized.
8. The warning reflector should be mounted on the side of the handle nearest approaching traffic.
9. The maximum spacing for warning reflectors should be identical to the channelizing device spacing requirements.

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.

1. 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.
2. 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.
3. 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.
4. The Flashing Arrow Board should be able to display the following symbols:



5. The "CAUTION" display consists of four corner lamps flashing simultaneously, or the Alternating Diamond Caution mode as shown.
6. The straight line caution display is NOT ALLOWED.
7. 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.
8. 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.
9. The sequential arrow display is NOT ALLOWED.
10. The flashing arrow display is the TxDOT standard; however, the sequential Chevron display may be used during daylight operations.
11. The Flashing Arrow Board shall be mounted on a vehicle, trailer or other suitable support.
12. A Flashing Arrow Board SHALL NOT BE USED to laterally shift traffic.
13. 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.
14. 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

TRUCK-MOUNTED ATTENUATORS

1. Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the National Cooperative Highway Research Report No. 350 (NCHRP 350) or the Manual for Assessing Safety Hardware (MASH).
2. Refer to the CWZTCD for the requirements of Level 2 or Level 3 TMAs.
3. Refer to the CWZTCD for a list of approved TMAs.
4. TMAs are required on freeways unless otherwise noted in the plans.
5. 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.
6. 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.

Texas Department of Transportation

Traffic Operations Division Standard

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

BC(7)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 9-07 8-14 7-13	508	01	381,ETC.	IH 10
	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		13

DATE:
FILE:

GENERAL NOTES

1. For long term stationary work zones on freeways, drums shall be used as the primary channelizing device.
2. 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.
3. 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.
4. 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).
5. 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.
6. 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:

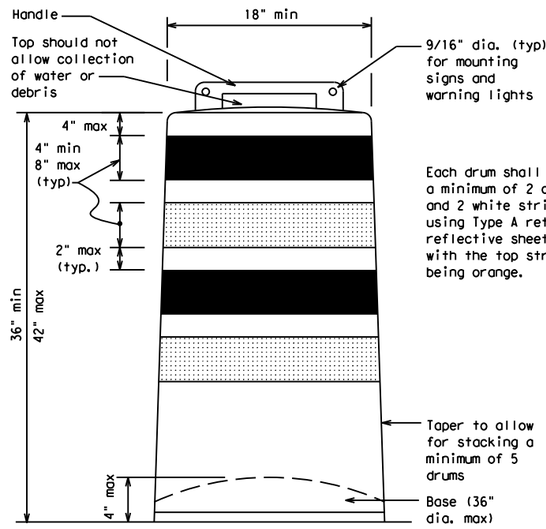
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents accidental separation due to normal handling and/or air turbulence created by passing vehicles.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.
8. Plastic drums shall be constructed of ultra-violet stabilized, orange, high-density polyethylene (HDPE) or other approved material.
9. Drum body shall have a maximum unballasted weight of 11 lbs.
10. Drum and base shall be marked with manufacturer's name and model number.

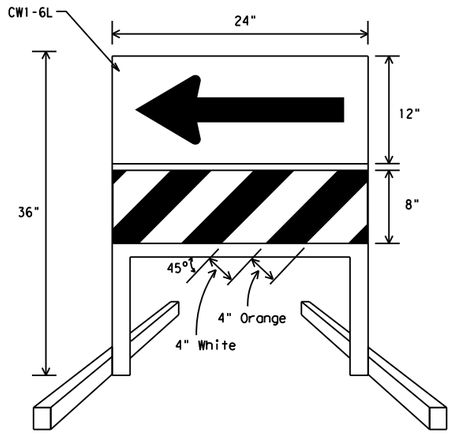
RETROREFLECTIVE SHEETING

1. 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 reflective sheeting shall be supplied unless otherwise specified in the plans.
2. 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

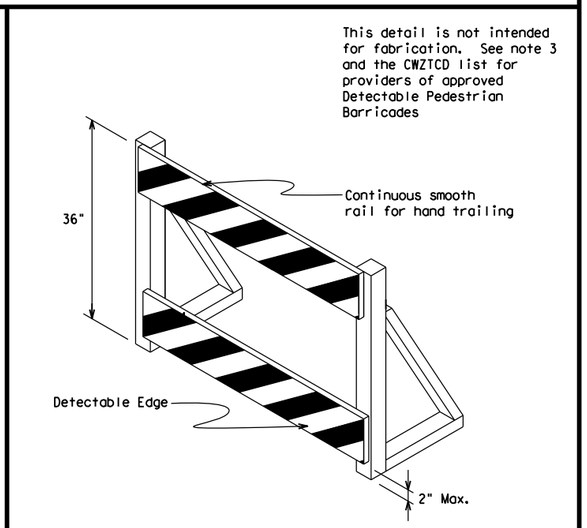
1. Unballasted bases shall be large enough to hold up to 50 lbs. of sand. This base, when filled with the ballast material, should weigh between 35 lbs (minimum) and 50 lbs (maximum). The ballast may be sand in one to three sandbags separate from the base, sand in a sand-filled plastic base, or other 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.
2. 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.
3. Recycled truck tire sidewalls may be used for ballast on drums approved for this type of ballast on the CWZTCD list.
4. 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.
5. 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.
6. Ballast shall not be placed on top of drums.
7. Adhesives may be used to secure base of drums to pavement.





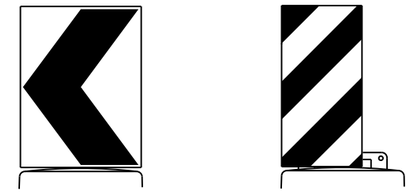
DIRECTION INDICATOR BARRICADE

1. The Direction Indicator Barricade may be used in tapers, transitions, and other areas where specific directional guidance to drivers is necessary.
2. If used, the Direction Indicator Barricade should be used in series to direct the driver through the transition and into the intended travel lane.
3. The Direction Indicator Barricade shall consist of One-Direction Large Arrow (CW1-6) sign in the size shown with a black arrow on a background of Type B_{FL} or Type C_{FL} Orange retroreflective sheeting above a rail with Type A retroreflective sheeting in alternating 4" white and orange stripes sloping downward at an angle of 45 degrees in the direction road users are to pass. Sheeting types shall be as per DMS 8300.
4. Double arrows on the Direction Indicator Barricade will not be allowed.
5. Approved manufacturers are shown on the CWZTCD List. Ballast shall be as approved by the manufacturers instructions.



DETECTABLE PEDESTRIAN BARRICADES

1. 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.
2. Where pedestrians with visual disabilities normally use the closed sidewalk, a device that is detectable by a person with a visual disability traveling with the aid of a long cane shall be placed across the full width of the closed sidewalk.
3. 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.
4. 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 for Buildings and Facilities (ADAAG)" and should not be used as a control for pedestrian movements.
5. Warning lights shall not be attached to detectable pedestrian barricades.
6. Detectable pedestrian barricades may 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

1. Signs used on plastic drums shall be manufactured using substrates listed on the CWZTCD.
2. 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.
3. Vertical Panels shall be manufactured with orange and white sheeting meeting the requirements of DMS-8300 Type A Diagonal stripes on Vertical Panels shall slope down toward the intended traveled lane.
4. 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.
5. Signs shall be installed using a 1/2 inch bolt (nominal) and nut, two washers, and one locking washer for each connection.
6. Mounting bolts and nuts shall be fully engaged and adequately torqued. Bolts should not extend more than 1/2 inch beyond nuts.
7. 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.
8. 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.

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BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-14

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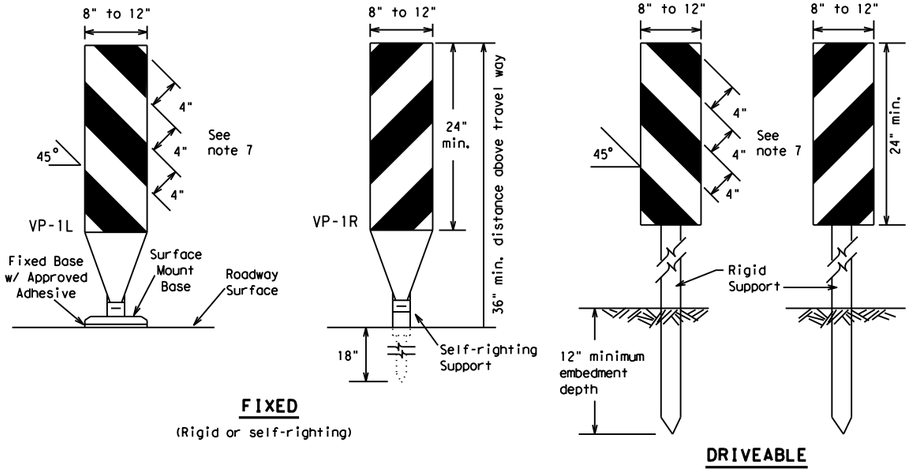
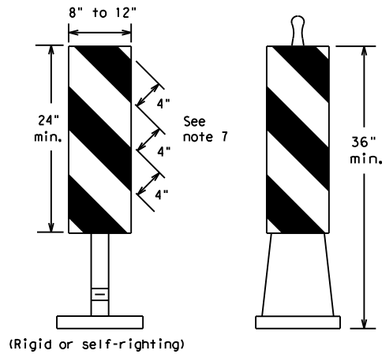


FIXED
(Rigid or self-righting)

DRIVEABLE

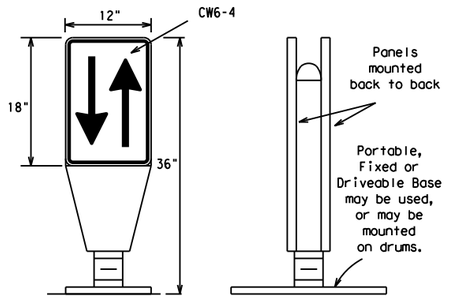


(Rigid or self-righting)

PORTABLE

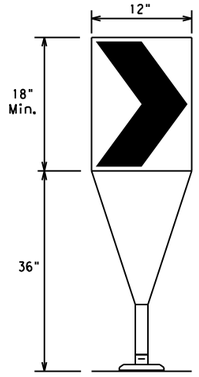
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is required. The Engineer/Inspector shall refer to the Roadway Design Manual Appendix B "Treatment of Pavement Drop-offs in Work Zones" for additional guidelines on the use of VP's for drop-offs.
3. 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.
4. VP's used on expressways and freeways or other high speed roadways, may have more than 270 square inches of retroreflective area facing traffic.
5. Self-righting supports are available with portable base. See "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
6. Sheeting for the VP's shall be retroreflective Type A conforming to Departmental Material Specification DMS-8300, unless noted otherwise.
7. Where the height of reflective material on the vertical panel is 36 inches or greater, a panel stripe of 6 inches shall be used.

VERTICAL PANELS (VPs)



1. 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.
2. The OTLD may be used in combination with 42" cones or VPs.
3. Spacing between the OTLD shall not exceed 500 feet. 42" cones or VPs placed between the OTLD's should not exceed 100 foot spacing.
4. 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.

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



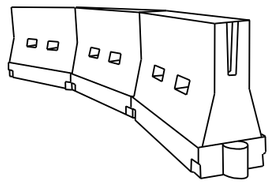
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

1. The chevron shall be a vertical rectangle with a minimum size of 12 by 18 inches.
2. 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.
3. 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.
4. To be effective, the chevron should be visible for at least 500 feet.
5. 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.
6. 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

GENERAL NOTES

1. 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).
2. 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.
3. 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).
4. 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.
5. Portable bases shall be fabricated from virgin and/or recycled rubber. The portable bases shall weigh a minimum of 30 lbs.
6. 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.
7. 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.



LONGITUDINAL CHANNELIZING DEVICES (LCD)

1. 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.
2. LCDs may be used instead of a line of cones or drums.
3. LCDs shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
4. LCDs should not be used to provide positive protection for obstacles, pedestrians or workers.
5. LCDs shall be supplemented with retroreflective delineation as required for temporary barriers on BC(7) when placed roughly parallel to the travel lanes.
6. 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) placed near the top of the LCD along the full length of the device.

WATER BALLASTED SYSTEMS USED AS BARRIERS

1. 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 NCHRP 350 crashworthiness requirements based on roadway speed and barrier application.
2. 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.
3. 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.
4. 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.
5. 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

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent
30	$L = \frac{WS^2}{60}$	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

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BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

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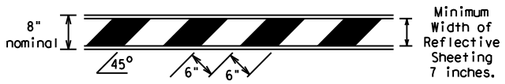
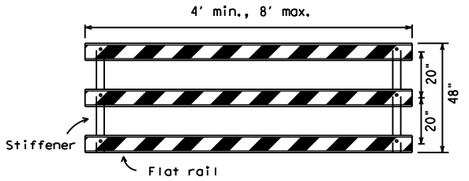
TYPE 3 BARRICADES

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 conforming to Departmental Material Specification DMS-8300 unless otherwise noted.

Barricades shall NOT be used as a sign support.



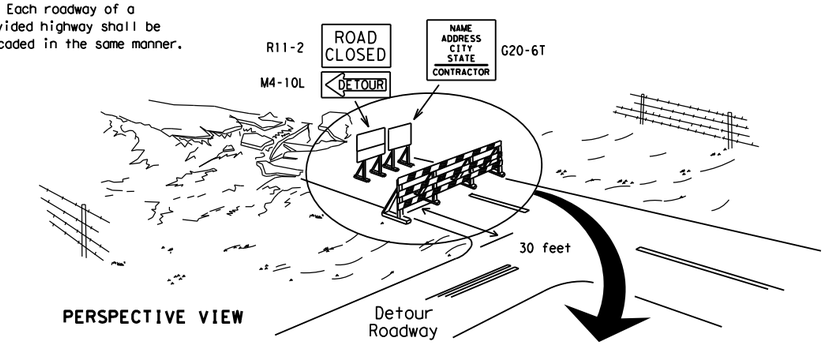
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



Stiffener may be inside or outside of support, but no more than 2 stiffeners shall be allowed on one barricade.

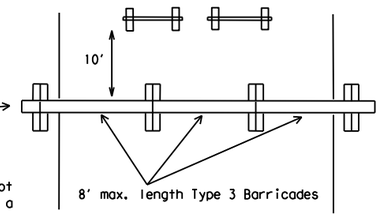
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

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



PERSPECTIVE VIEW

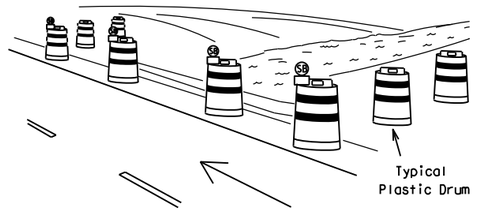
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

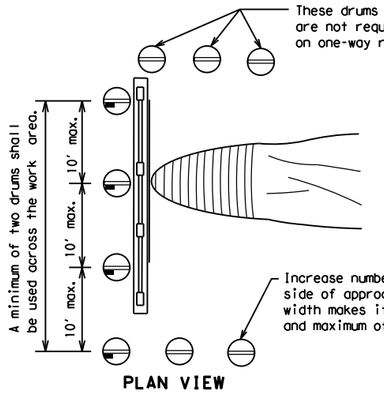
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

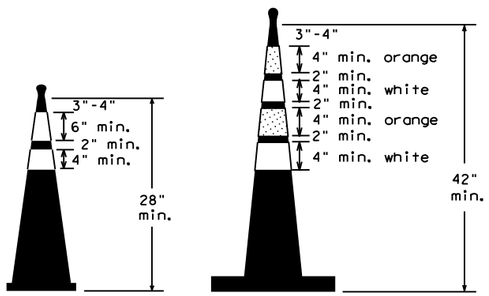
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder 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.



PLAN VIEW

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

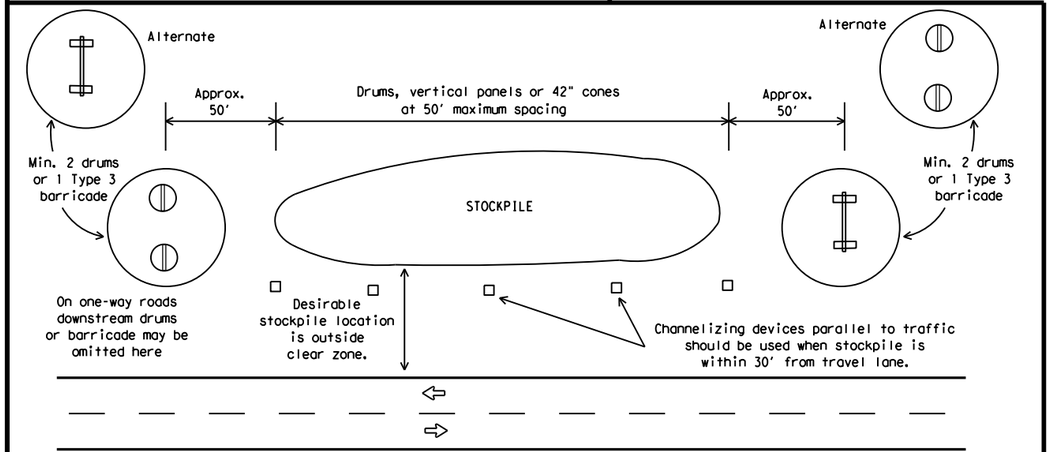
CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



28" Cones shall have a minimum weight of 9 1/2 lbs.

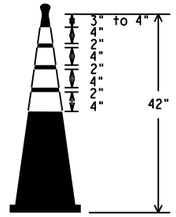
42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

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 used at night 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.
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

THIS DEVICE SHALL NOT BE USED ON PROJECTS LET AFTER MARCH 2014.



EDGELINE CHANNELIZER

1. This device is intended only for use in place of a vertical panel to channelize traffic by indicating the edge of the travel lane. It is not intended to be used in transitions or tapers.
2. This device shall not be used to separate lanes of traffic (opposing or otherwise) or warn of objects.
3. This device is based on a 42 inch, two-piece cone with an alternate striping pattern: four 4 inch retroreflective bands, with an approximate 2 inch gap between bands. The color of the band should correspond to the color of the edgeline (yellow for left edgeline, white for right edgeline) for which the device is substituted or for which it supplements. The reflectorized bands shall be retroreflective Type A conforming to Departmental Material Specification DMS-8300, unless otherwise noted.
4. The base must weigh a minimum of 30 lbs.

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	HOU	HARRIS		16

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DATE:
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WORK ZONE PAVEMENT MARKINGS

GENERAL

1. The Contractor shall be responsible for maintaining work zone and existing pavement markings, in accordance with the standard specifications and special provisions, on all roadways open to traffic within the CSJ limits unless otherwise stated in the plans.
2. Color, patterns and dimensions shall be in conformance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
3. Additional supplemental pavement marking details may be found in the plans or specifications.
4. Pavement markings shall be installed in accordance with the TMUTCD and as shown on the plans.
5. When short term markings are required on the plans, short term markings shall conform with the TMUTCD, the plans and details as shown on the Standard Plan Sheet WZ(STPM).
6. When standard pavement markings are not in place and the roadway is opened to traffic, DO NOT PASS signs shall be erected to mark the beginning of the sections where passing is prohibited and PASS WITH CARE signs at the beginning of sections where passing is permitted.
7. All work zone pavement markings shall be installed in accordance with Item 662, "Work Zone Pavement Markings."

RAISED PAVEMENT MARKERS

1. Raised pavement markers are to be placed according to the patterns on BC(12).
2. All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS" and Departmental Material Specification DMS-4200 or DMS-4300.

PREFABRICATED PAVEMENT MARKINGS

1. Removable prefabricated pavement markings shall meet the requirements of DMS-8241.
2. Non-removable prefabricated pavement markings (foil back) shall meet the requirements of DMS-8240.

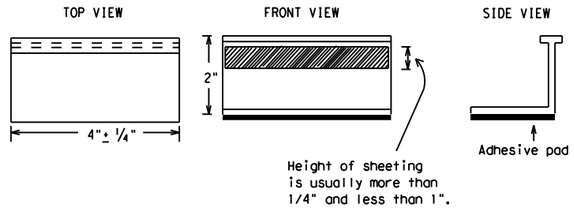
MAINTAINING WORK ZONE PAVEMENT MARKINGS

1. The Contractor will be responsible for maintaining work zone pavement markings within the work limits.
2. Work zone pavement markings shall be inspected in accordance with the frequency and reporting requirements of work zone traffic control device inspections as required by Form 599.
3. The markings should provide a visible reference for a minimum distance of 300 feet during normal daylight hours and 160 feet when illuminated by automobile low-beam headlights at night, unless sight distance is restricted by roadway geometrics.
4. Markings failing to meet this criteria within the first 30 days after placement shall be replaced at the expense of the Contractor as per Specification Item 662.

REMOVAL OF PAVEMENT MARKINGS

1. Pavement markings that are no longer applicable, could create confusion or direct a motorist toward or into the closed portion of the roadway shall be removed or obliterated before the roadway is opened to traffic.
2. The above shall not apply to detours in place for less than three days, where flaggers and/or sufficient channelizing devices are used in lieu of markings to outline the detour route.
3. Pavement markings shall be removed to the fullest extent possible, so as not to leave a discernable marking. This shall be by any method approved by TxDOT Specification Item 677 for "Eliminating Existing Pavement Markings and Markers".
4. The removal of pavement markings may require resurfacing or seal coating portions of the roadway as described in Item 677.
5. Subject to the approval of the Engineer, any method that proves to be successful on a particular type pavement may be used.
6. Blast cleaning may be used but will not be required unless specifically shown in the plans.
7. Over-painting of the markings SHALL NOT BE permitted.
8. Removal of raised pavement markers shall be as directed by the Engineer.
9. Removal of existing pavement markings and markers will be paid for directly in accordance with Item 677, "ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS," unless otherwise stated in the plans.
10. Black-out marking tape may be used to cover conflicting existing markings for periods less than two weeks when approved by the Engineer.

Temporary Flexible-Reflective Roadway Marker Tabs



STAPLES OR NAILS SHALL NOT BE USED TO SECURE TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS TO THE PAVEMENT SURFACE

1. Temporary flexible-reflective roadway marker tabs used as guidemarks shall meet the requirements of DMS-8242.
2. Tabs detailed on this sheet are to be inspected and accepted by the Engineer or designated representative. Sampling and testing is not normally required, however at the option of the Engineer, either "A" or "B" below may be imposed to assure quality before placement on the roadway.
   A. Select five (5) or more tabs at random from each lot or shipment and submit to the Construction Division, Materials and Pavement Section to determine specification compliance.
   B. Select five (5) tabs and perform the following test. Affix five (5) tabs at 24 inch intervals on an asphaltic pavement in a straight line. Using a medium size passenger vehicle or pickup, run over the markers with the front and rear tires at a speed of 35 to 40 miles per hour, four (4) times in each direction. No more than one (1) out of the five (5) reflective surfaces shall be lost or displaced as a result of this test.
3. Small design variances may be noted between tab manufacturers.
4. See Standard Sheet WZ(STPM) for tab placement on new pavements. See Standard Sheet TCP(7-1) for tab placement on seal coat work.

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

1. Raised pavement markers used as guidemarks shall be from the approved product list, and meet the requirements of DMS-4200.
2. All temporary construction raised pavement markers provided on a project shall be of the same manufacturer.
3. Adhesive for guidemarks shall be bituminous material hot applied or butyl rubber pad for all surfaces, or thermoplastic for concrete surfaces.

Guidemarks shall be designated as:
YELLOW - (two amber reflective surfaces with yellow body).
WHITE - (one silver reflective surface with white body).

DEPARTMENTAL MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
TRAFFIC BUTTONS	DMS-4300
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240
TEMPORARY REMOVABLE, PREFABRICATED PAVEMENT MARKINGS	DMS-8241
TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS	DMS-8242

A list of prequalified reflective raised pavement markers, non-reflective traffic buttons, roadway marker tabs and other pavement markings can be found at the Material Producer List web address shown on BC(1).

Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-14

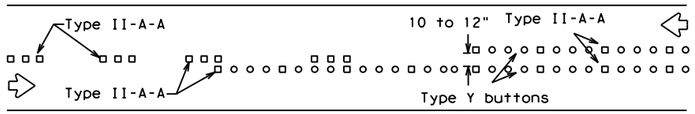
FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	508	01	381, ETC.	IH 10
2-98 9-07	DIST	COUNTY		SHEET NO.
1-02 7-13	HOU	HARRIS		17
11-02 8-14				

105

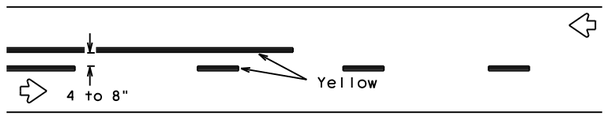
DATE:
FILE:

PAVEMENT MARKING PATTERNS

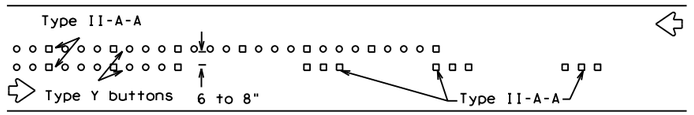
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



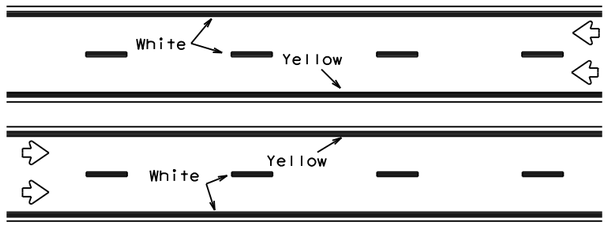
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



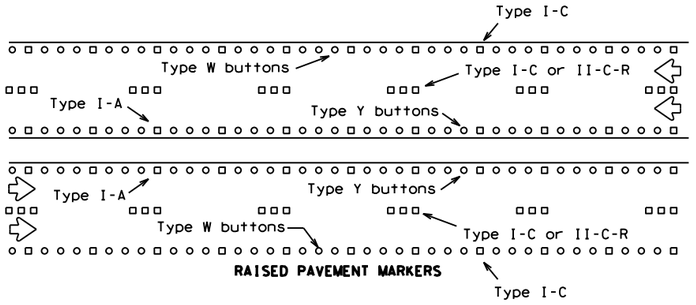
RAISED PAVEMENT MARKERS - PATTERN B

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.

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



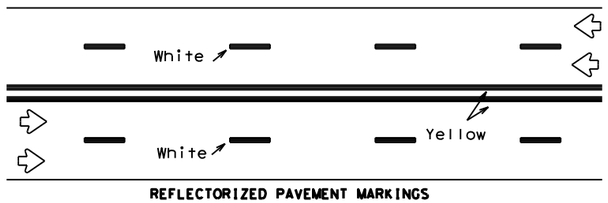
REFLECTORIZED PAVEMENT MARKINGS



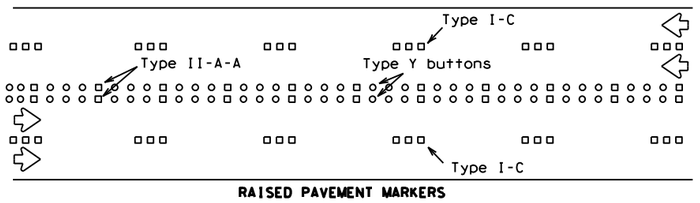
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



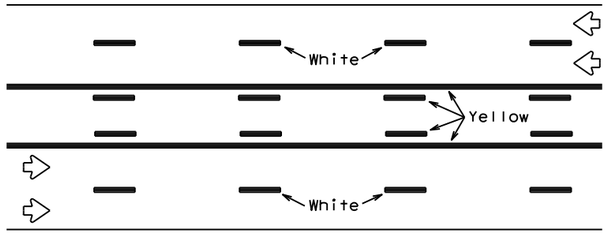
REFLECTORIZED PAVEMENT MARKINGS



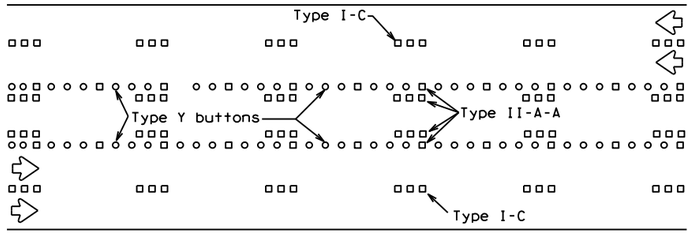
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

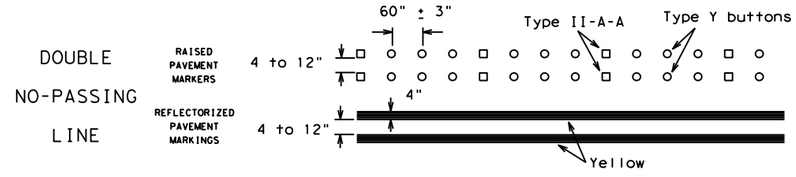
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

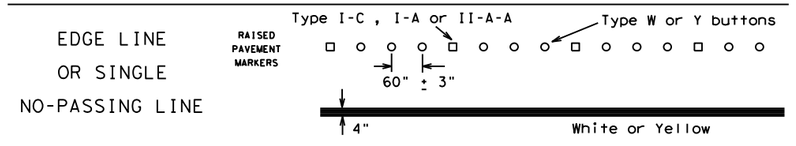
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

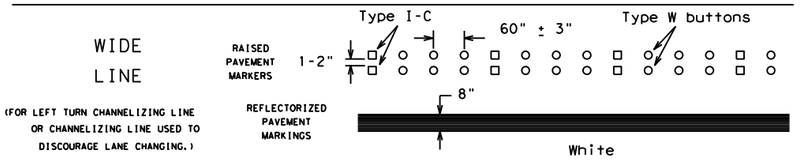


EDGE LINE OR SINGLE NO-PASSING LINE



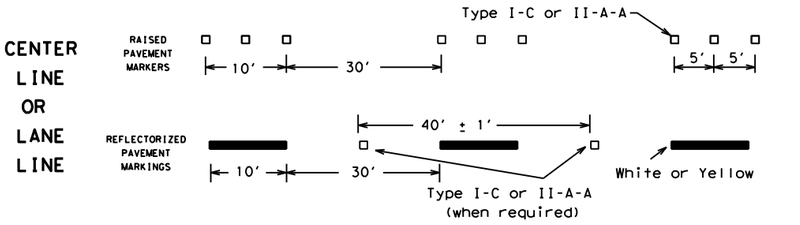
WIDE LINE

(FOR LEFT TURN CHANNELIZING LINE OR CHANNELIZING LINE USED TO DISCOURAGE LANE CHANGING.)

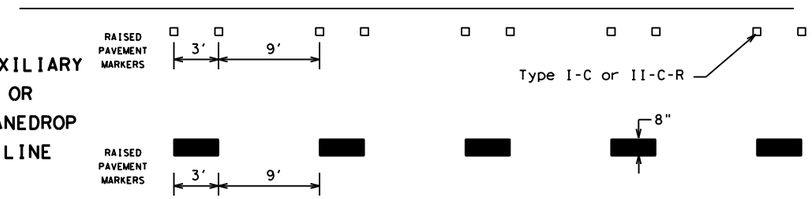


BROKEN LINES

CENTER LINE OR LANE LINE

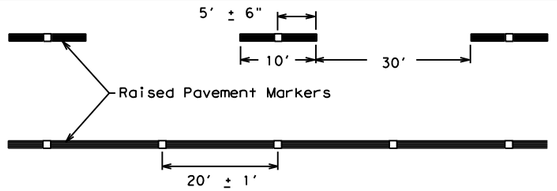


AUXILIARY OR LANEDROP LINE



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.



Centerline only - not to be used on edge lines

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."

Texas Department of Transportation

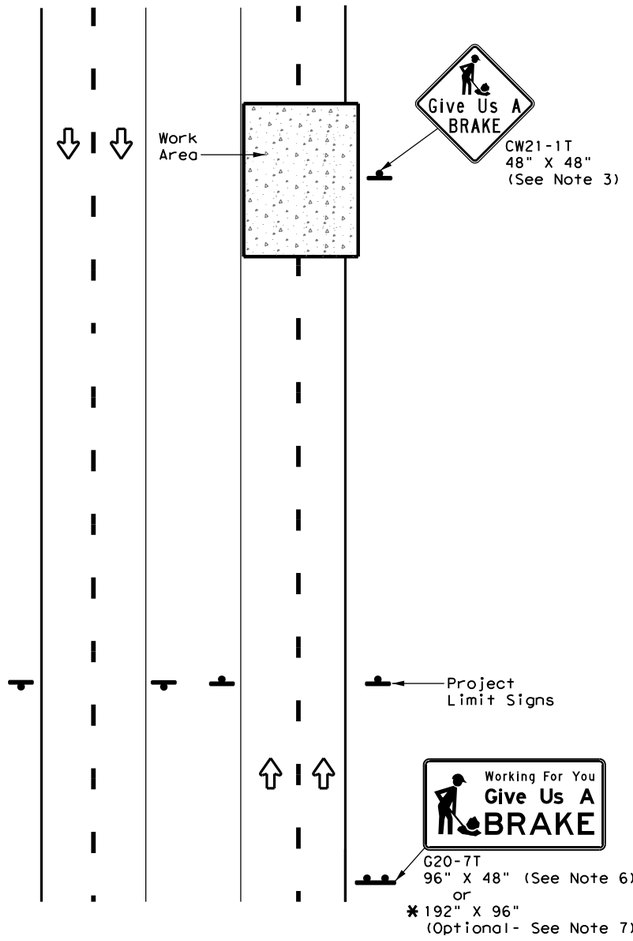
Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

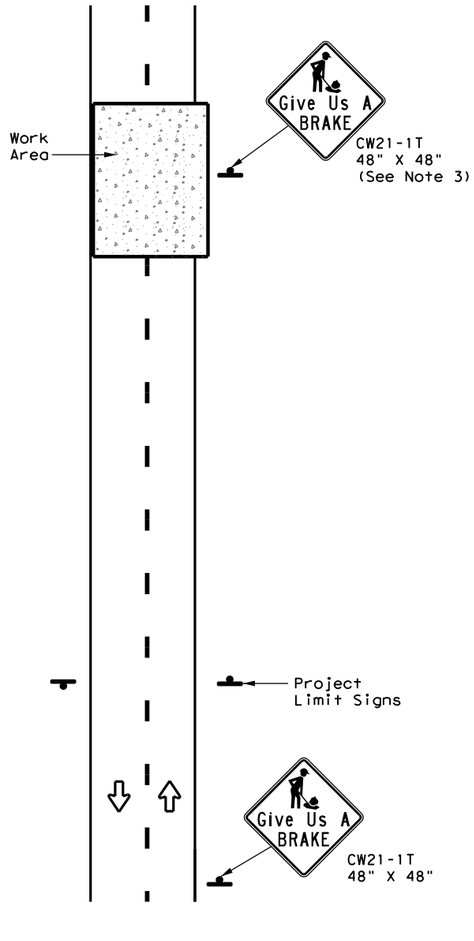
BC(12)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	508	01	381, ETC.	IH 10
1-97 9-07	DIST	COUNTY		SHEET NO.
2-98 7-13	HOU	HARRIS		18
11-02 8-14				

106



DIVIDED HIGHWAY



UNDIVIDED HIGHWAY

SIGNS ARE SHOWN FOR ONE DIRECTION OF TRAVEL

* When the optional larger WORKING FOR YOU GIVE US A BRAKE (G20-7T) 192" x 96" sign is required, the locations shall be noted elsewhere in the plans.

SUMMARY OF LARGE SIGNS

BACKGROUND COLOR	SIGN DESIGNATION	SIGN	SIGN DIMENSIONS	REFLECTIVE SHEETING	SQ FT	GALVANIZED STRUCTURAL STEEL			DRILLED SHAFT 24" DIA. (LF)
						Size	(LF) ①	(LF) ②	
Orange	G20-7T	Working For You Give Us A BRAKE	96" X 48"	Type B_{FL} or C_{FL}	32	▲	▲	▲	▲
Orange	G20-7T	Working For You Give Us A BRAKE	192" X 96"	Type B_{FL} or C_{FL}	128	W8x18	16	17	12

▲ See Note 6 Below

LEGEND	
	Sign
	Large Sign
	Traffic Flow

DEPARTMENTAL MATERIAL SPECIFICATIONS	
PLYWOOD SIGN BLANKS	DMS-7100
ALUMINUM SIGN BLANKS	DMS-7110
SIGN FACE MATERIALS	DMS-8300

COLOR	USAGE	SHEETING MATERIAL
ORANGE	BACKGROUND	TYPE B_{FL} OR TYPE C_{FL}
BLACK	LEGEND & BORDERS	NON-REFLECTIVE ACRYLIC FILM

GENERAL NOTES

1. See BC and SMD sheets for additional sign support details.
2. Sign locations shall be approved by the Engineer.
3. For projects more than two miles in length, Give Us a BRAKE signs should be repeated halfway through the project. The Give Us a Brake (CW21-1T) may be used for this purpose.
4. Work zone speed limits are sometimes used in conjunction with GIVE US A BRAKE signing. See BC(3) for location and spacing of construction speed zone signing when required.
5. Give Us a Brake (CW21-1T) signs and supports shall be considered subsidiary to Item 502, "Barricades, Signs and Traffic Handling."
6. The 96" X 48" Working For You Give Us A BRAKE (G20-7T) may use a 1/2" or 5/8" plywood substrate or 0.125" aluminum sheeting substrate and may be supported by two 4" x 6" wood posts with drilled holes for breakaway as per BC(5) and will be subsidiary to Item 502.
7. The Working For You Give Us A BRAKE (G20-7T) 192" X 96" sign shall be paid for under the following specification items:
   Item 636 - Aluminum Signs
   Item 647 - Large Roadside Sign Supports and Assemblies.
   Item 416 - Drilled Shaft Foundations
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.

Texas Department of Transportation

Traffic Operations Division Standard

WORK ZONE "GIVE US A BRAKE" SIGNS

WZ(BRK)-13

FILE: wzbrk-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT August 1995	CONT	SECT	JOB	HIGHWAY
REVISIONS	0508	01	381,etc.	IH 10
6-96 5-98 7-13	DIST	COUNTY		SHEET NO.
8-96 3-03	HOU	HARRIS		19

DATE:
FILE:

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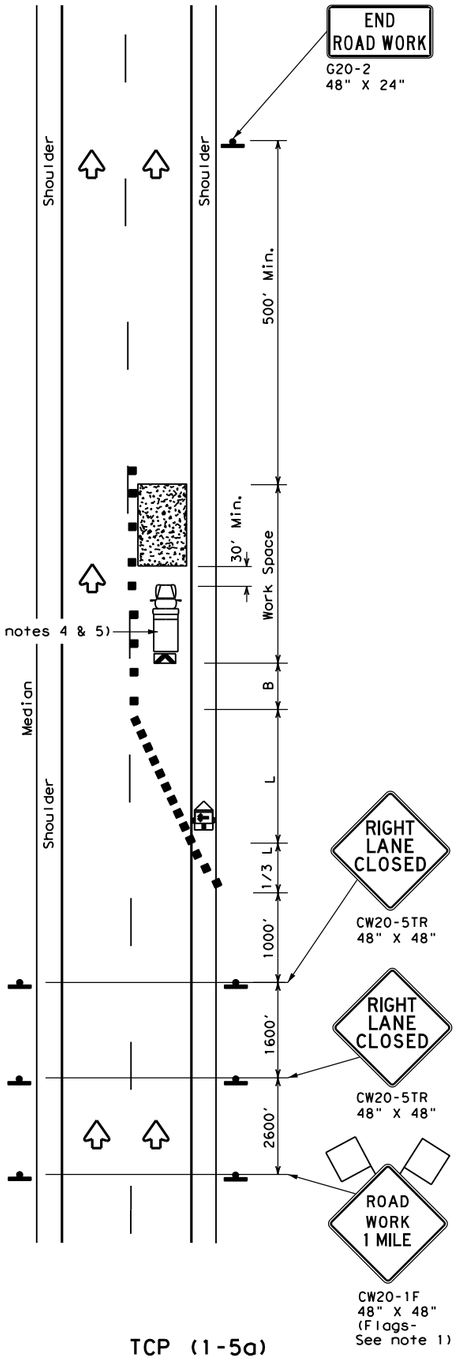
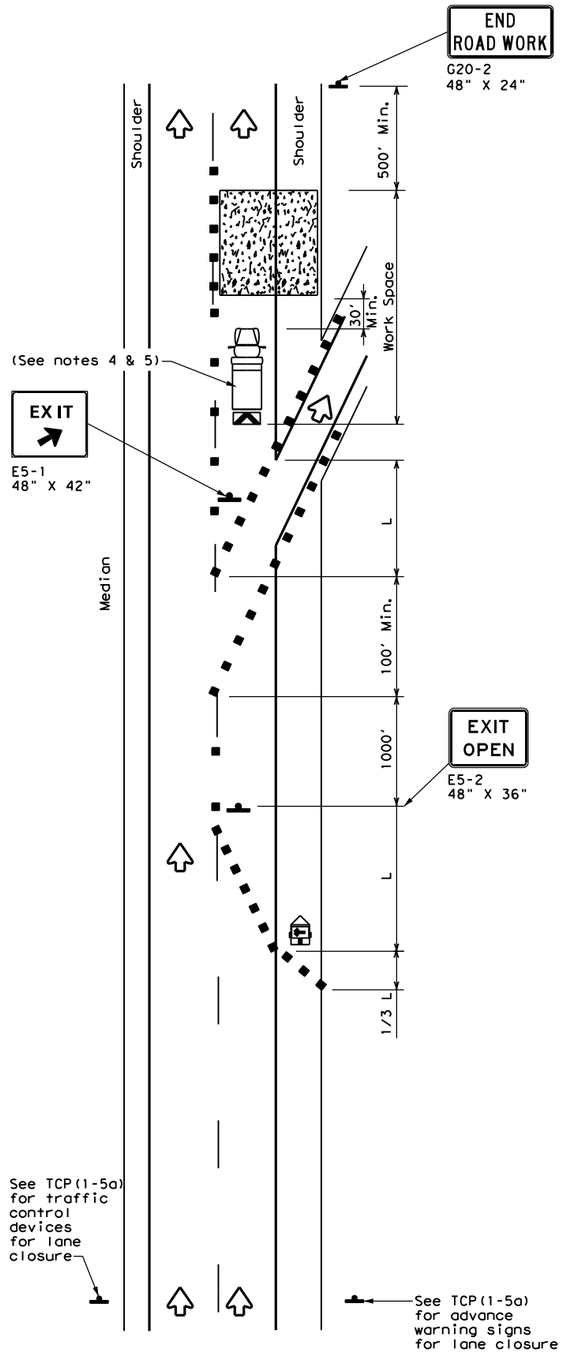


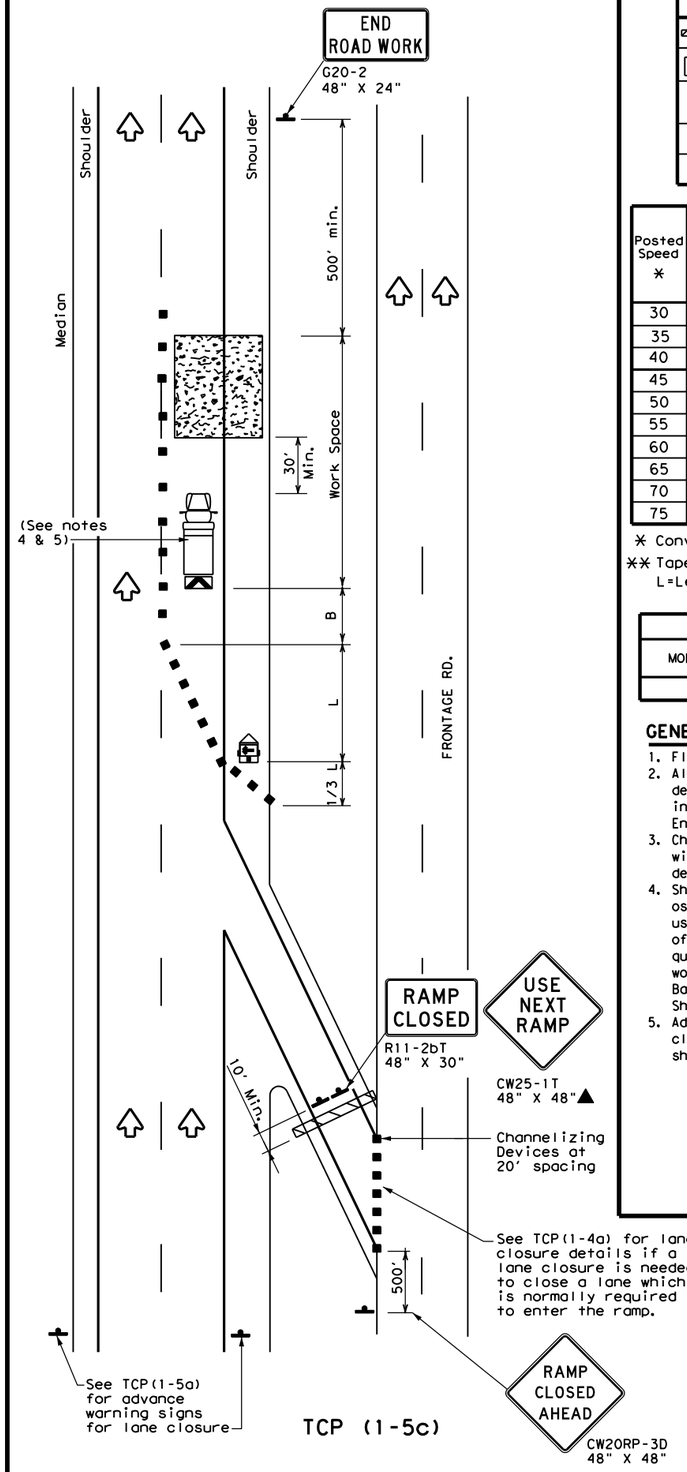
TCP (1-5a)

ONE LANE CLOSURE



TCP (1-5b)

LANE CLOSURE NEAR EXIT RAMPS



TCP (1-5c)

LANE CLOSURE NEAR ENTRANCE RAMPS

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L=WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only

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

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
		✓		

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. Channelizing devices used to close lanes may be supplemented with the Chevron Alignment Sign placed on every other channelizing device. Chevrons may be attached to plastic drums as per BC Standards.
4. Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
5. Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES FOR DIVIDED HIGHWAYS

TCP(1-5)-18

FILE: tcp1-5-18.dgn	DN:	CK:	DW:	CK:
©TxDOT February 2012	CONT	SECT	JOB	HIGHWAY
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	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		20

DATE:
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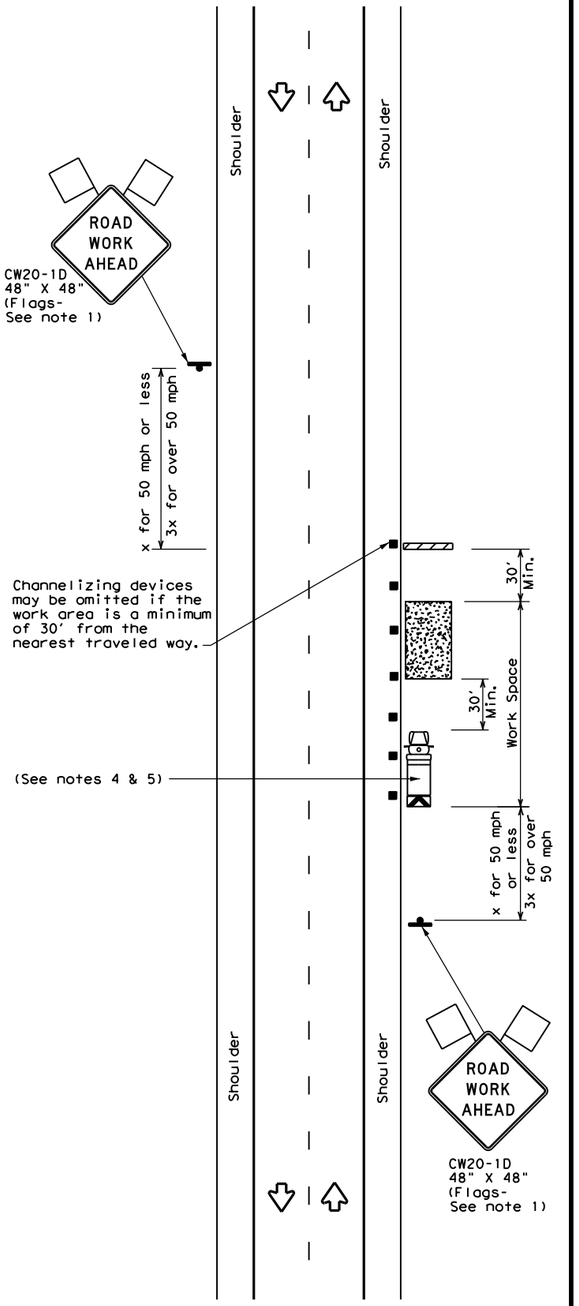
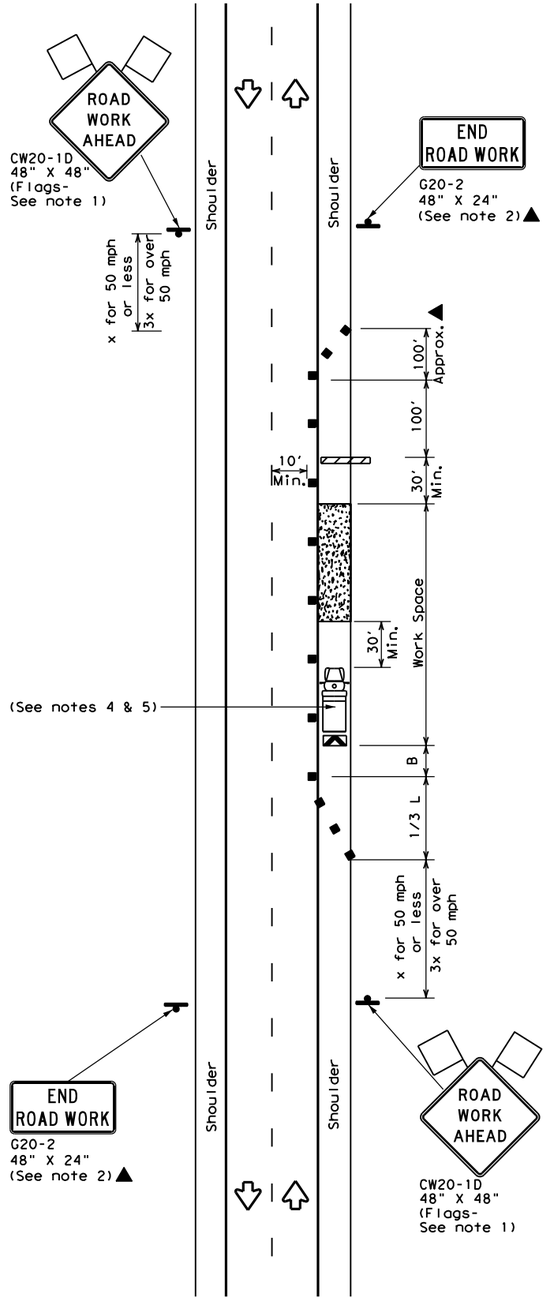


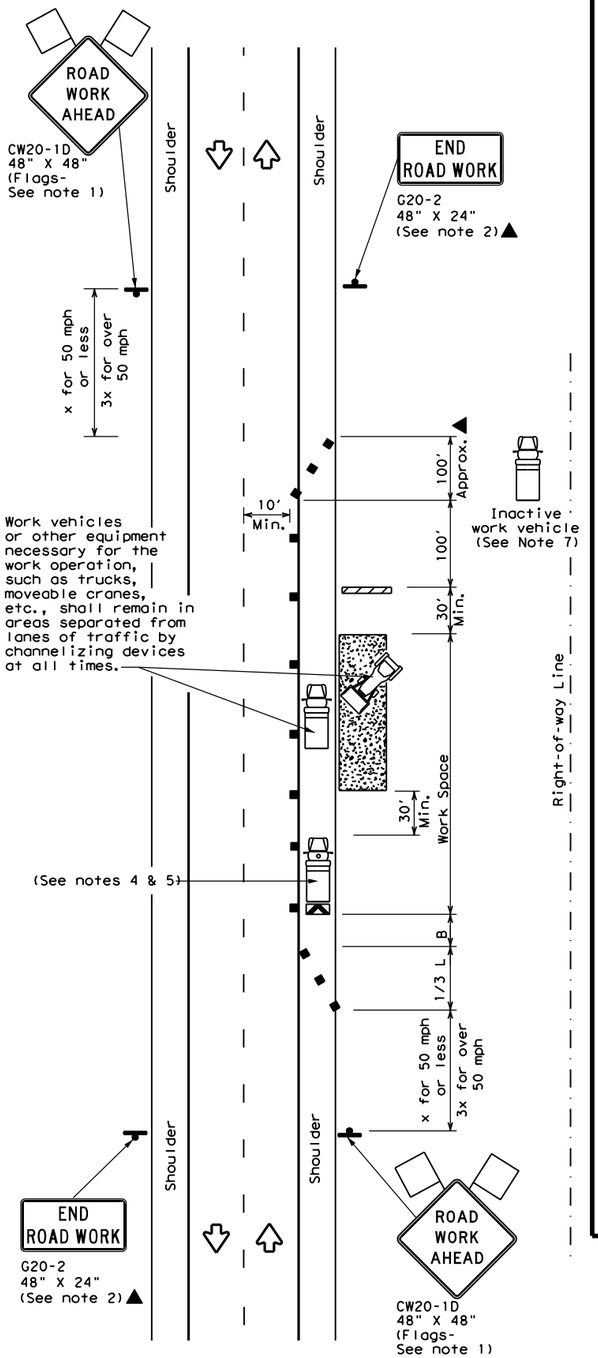
TCP (2-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads



TCP (2-1b)

WORK SPACE ON SHOULDER
Conventional Roads



TCP (2-1c)

WORK VEHICLES ON SHOULDER
Conventional Roads

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L=WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only

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

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓	✓	✓

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated in the plans, or for routine maintenance work, when approved by the Engineer.
3. Stockpiled material should be placed a minimum of 30 feet from nearest traveled way.
4. Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
5. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.
6. See TCP(5-1) for shoulder work on divided highways, expressways and freeways.
7. Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
8. CW21-5 "SHOULDER WORK" signs may be used in place of CW20-1D "ROAD WORK AHEAD" signs for shoulder work on conventional roadways.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN CONVENTIONAL ROAD SHOULDER WORK

TCP(2-1)-18

FILE: tcp2-1-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 2-12 1-97 2-18	0508	01	381,etc.	IH 10
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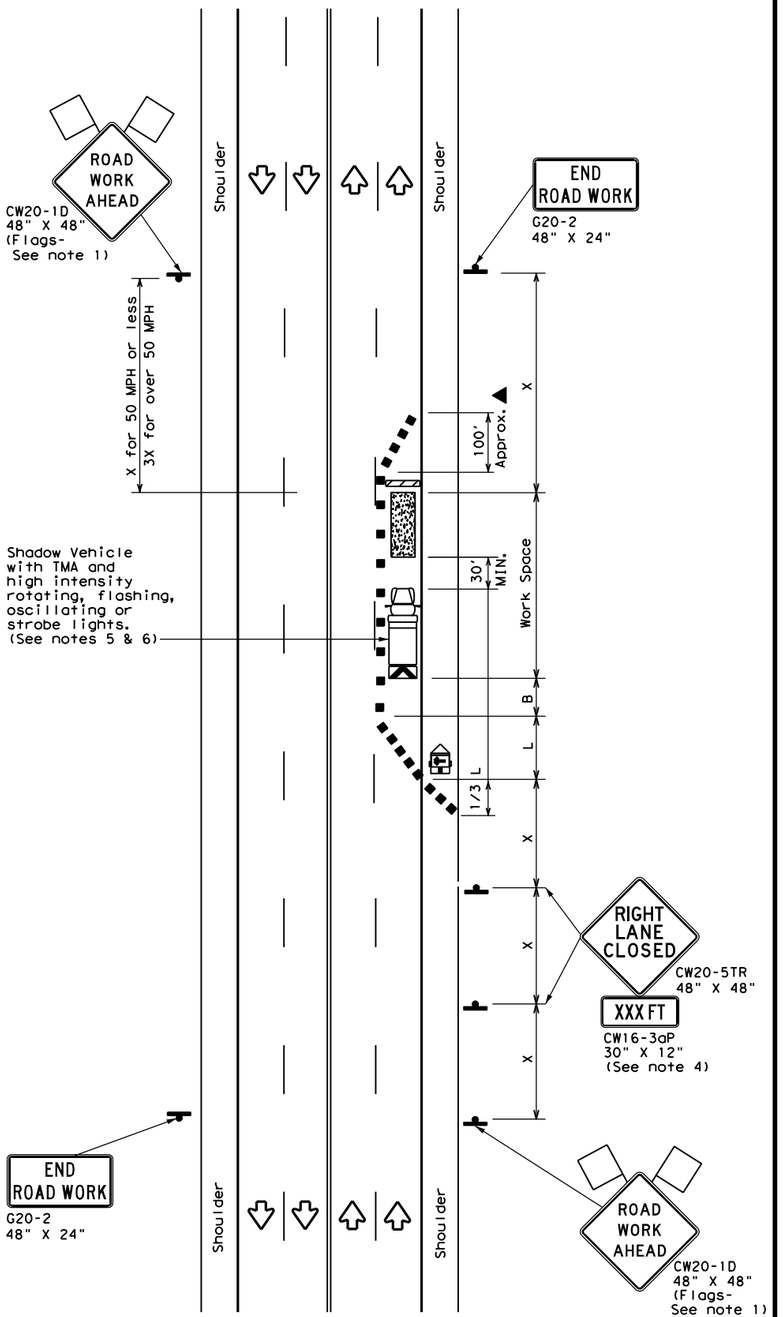
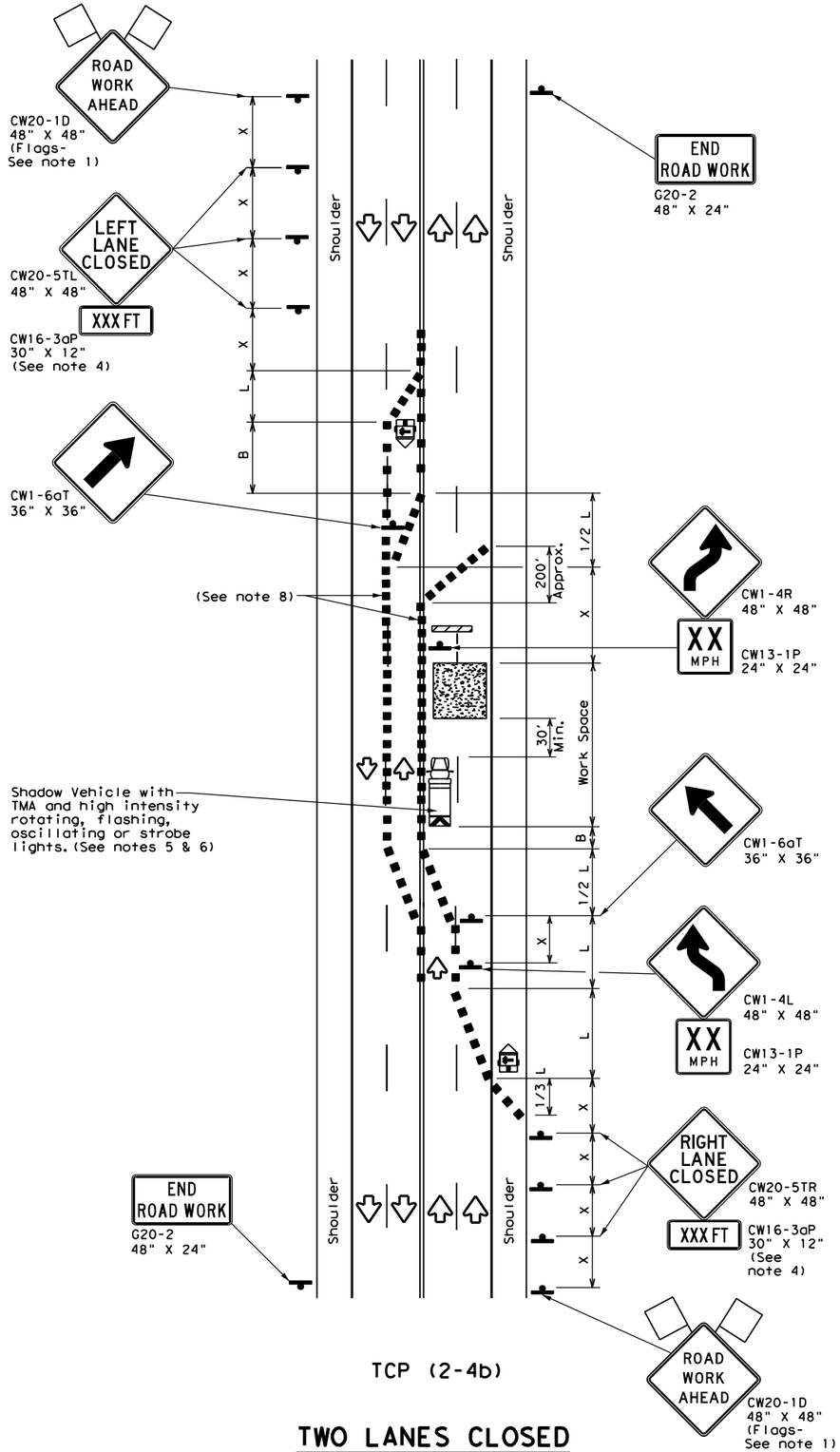


TCP (2-4a)

ONE LANE CLOSED



TCP (2-4b)

TWO LANES CLOSED

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L=WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only

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

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
		✓	✓	

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. The downstream taper is optional. When used, it should be 100 feet minimum length per lane.
4. For short term applications, when post mounted signs are not used, the distance legend may be shown on the sign face rather than on a CW16-3aP supplemental plaque.
5. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
6. Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.

TCP (2-4a)

7. If this TCP is used for a left lane closure, CW20-5TL "LEFT LANE CLOSED"signs shall be used and channelizing devices shall be placed on the centerline to protect the work space from opposing traffic with the arrow board placed in the closed lane near the end of the merging taper.

TCP (2-4b)

8. For shorter durations where traffic is directed over a yellow centerline, channelizing devices which separate two-way traffic should be spaced on tapers at 20' or 15' if posted speeds are 35 mph or slower, and for tangent sections, at 1/2(S) where S is the speed in mph. This tighter devices spacing is intended for the area of conflicting markings, not the entire work zone.

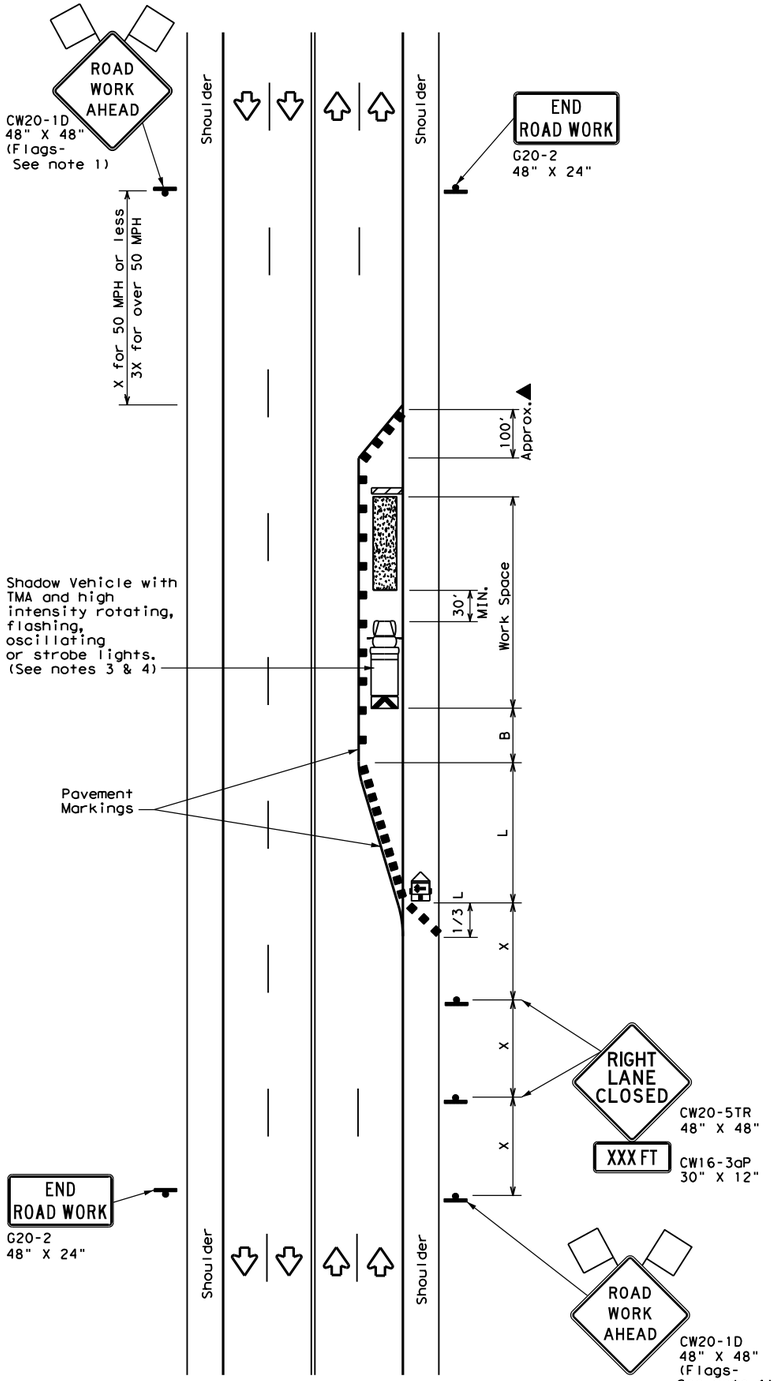
Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

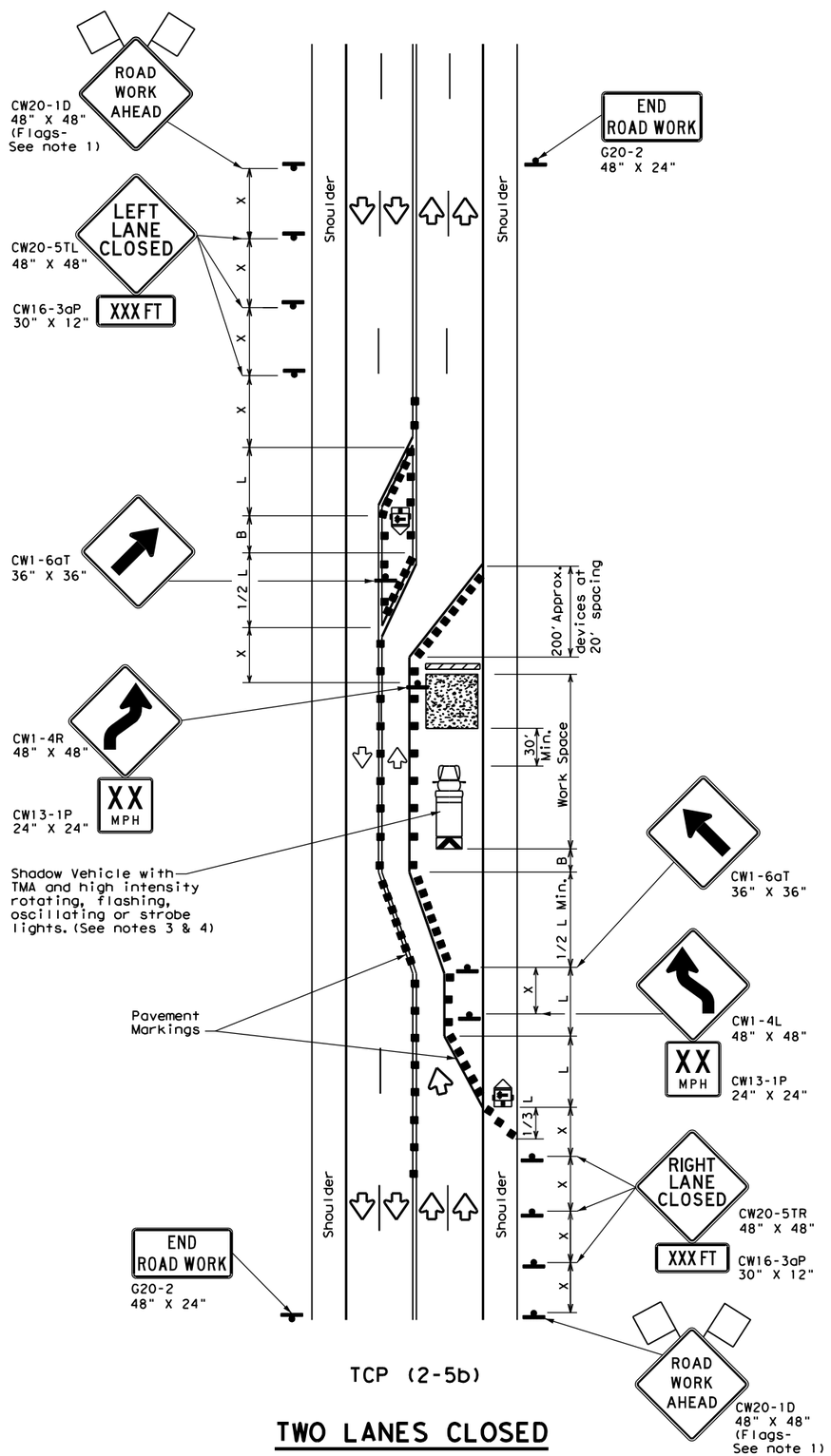
TCP(2-4)-18

FILE: tcp2-4-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03	0508	01	381,etc.	IH 10
1-97 2-12	DIST	COUNTY		SHEET NO.
4-98 2-18	HOU	HARRIS		22



TCP (2-5a)

ONE LANE CLOSED



TCP (2-5b)

TWO LANES CLOSED

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L=WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only

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

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
			✓	✓

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew eposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substitutued for the Shadow Vehicle and TMA.
4. Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.
5. The downstream taper is optional. When used, it should be 100 feet approximately per lane, with channelizing devices spaced at 20 feet.

TCP (2-5a)

6. If this TCP is used for a left lane closure, CW20-5TL "LEFT LANE CLOSED" signs shall be used and channelizing devices shall be placed on the centerline to protect the work space from opposing traffic, with the arrow board placed in the closed lane near the end of the merging taper.

TCP (2-5b)

7. Conflicting pavement markings shall be removed for long-term projects.

Texas Department of Transportation

Traffic Operations Division Standard

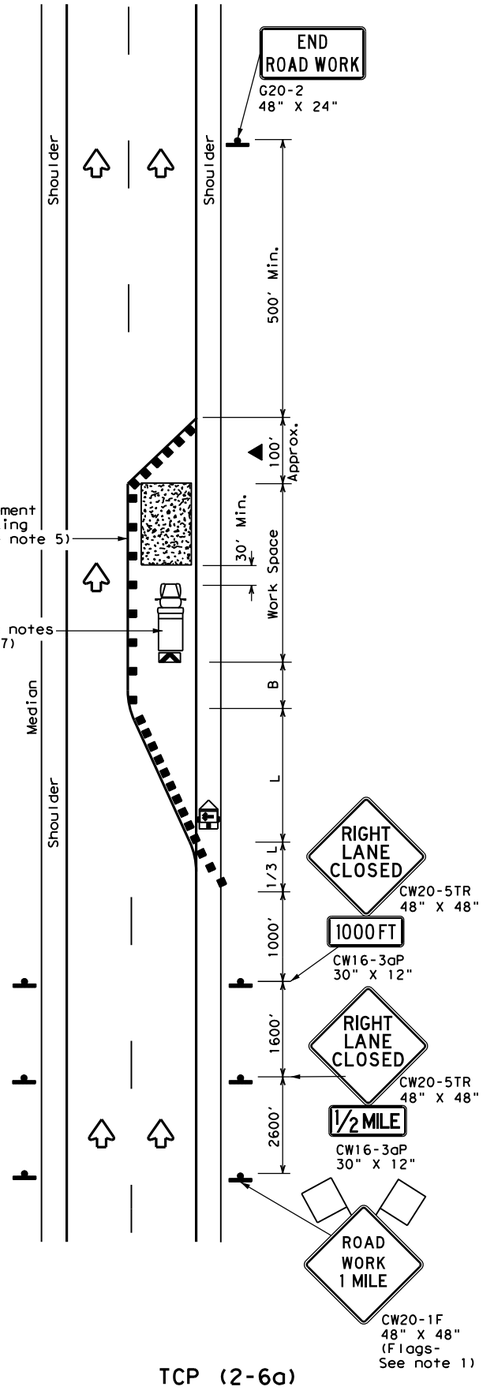
TRAFFIC CONTROL PLAN LONG TERM LANE CLOSURES MULTILANE CONVENTIONAL RDS.

TCP(2-5)-18

FILE: tcp2-5-18.dgn	DN:	CK:	DW:	CK:
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 2-12	0508	01	381,etc.	IH 10
1-97 3-03	DIST	COUNTY		SHEET NO.
4-98 2-18	HOU	HARRIS		23

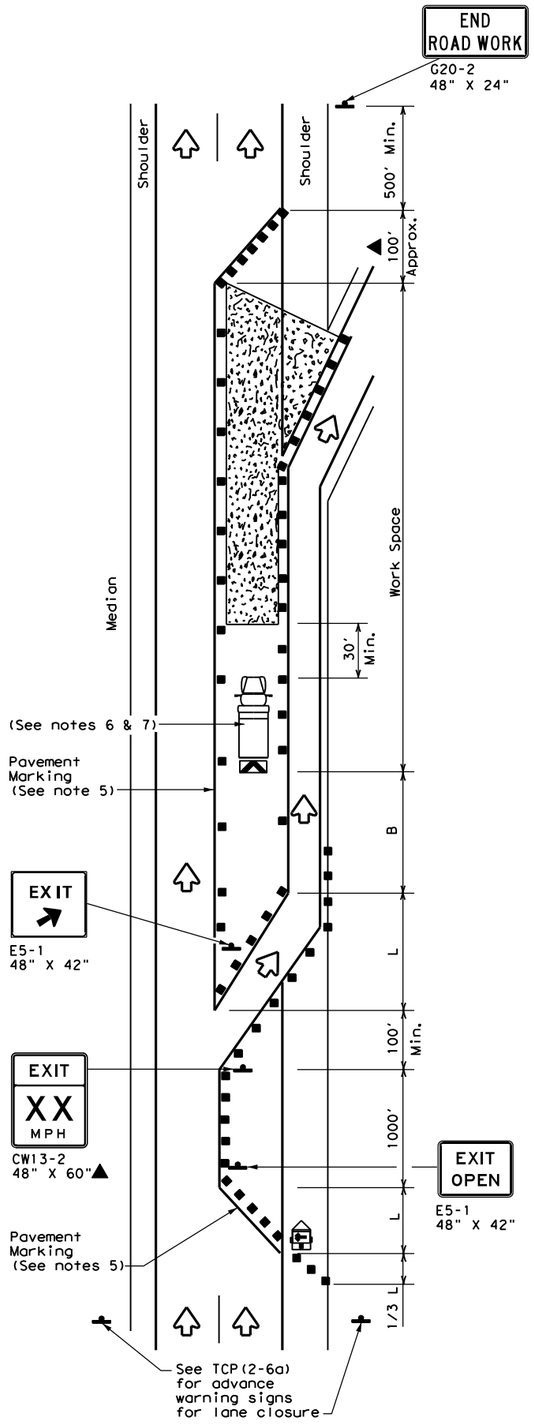
DATE:
FILE:

DATE:
FILE:



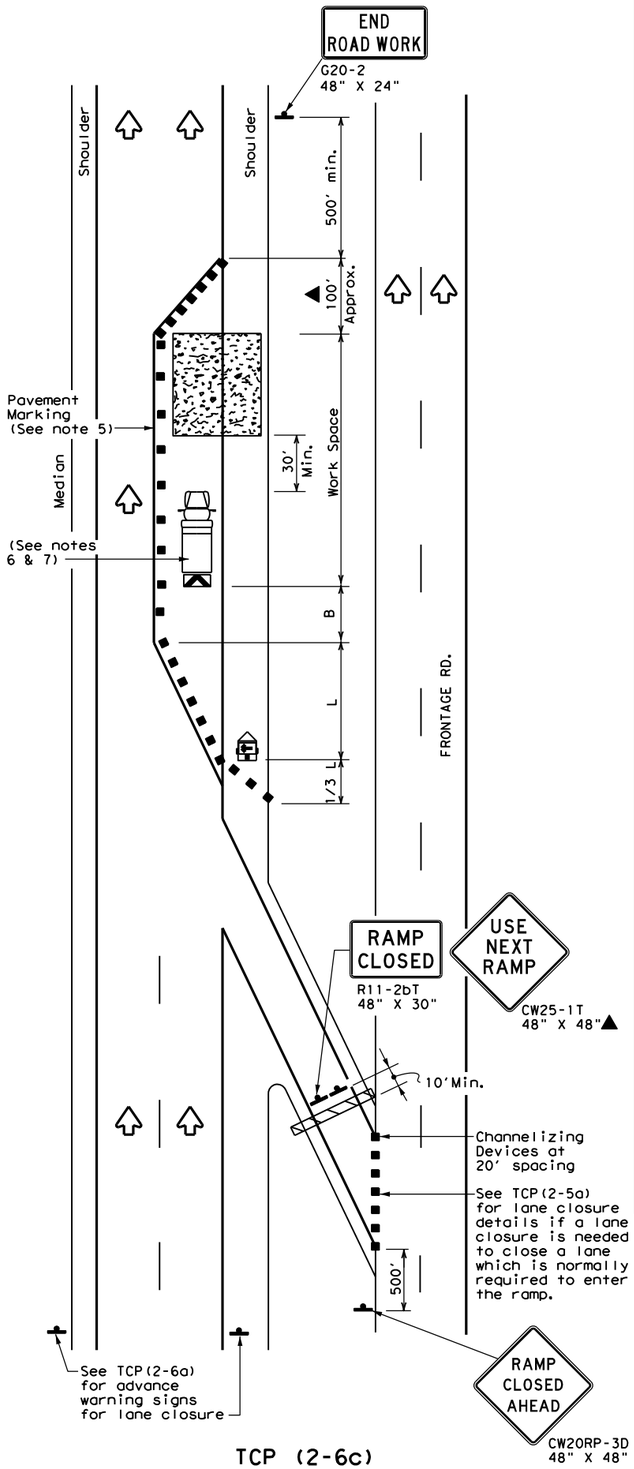
TCP (2-6a)

ONE LANE CLOSURE



TCP (2-6b)

LANE CLOSURE NEAR EXIT RAMPS



TCP (2-6c)

LANE CLOSURE NEAR ENTRANCE RAMPS

LEGEND			
	Type 3 Barricade	■ ■	Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L=WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only

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

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
			✓	✓

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. Channelizing devices used to close lanes may be supplemented with the Chevron Alignment Sign placed on every other channelizing device. Chevrons may be attached to plastic drums as per BC Standards.
4. Channelizing devices used along the work space or along tangent sections may be supplemented with vertical panels (VP) placed on everyother channelizing device. If night time conditions make it difficult to see at least two VPs, the VPs may be placed on each channelizing device.
5. The placement of pavement markings may be omitted on Intermediate-term stationary work zones with the approval of the Engineer.
6. Shadow Vehicle with TMA and high intensity rotating, flashing,oscillating or strobe lights. Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
7. Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.

Texas Department of Transportation

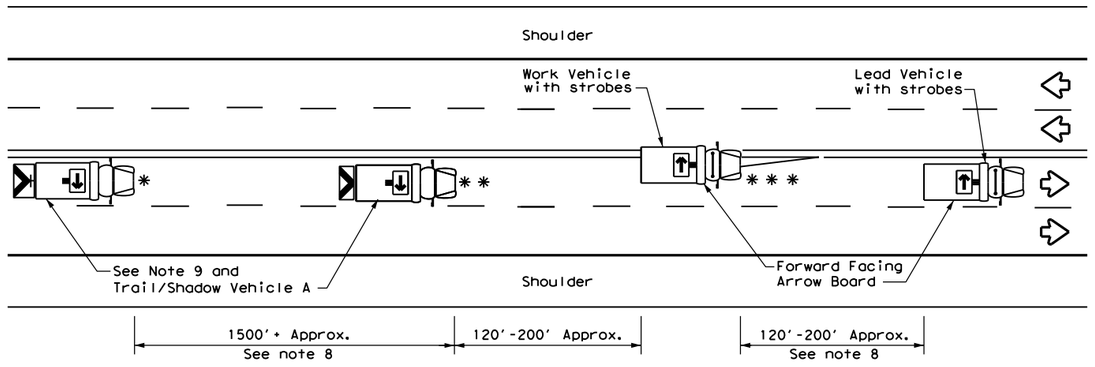
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES ON DIVIDED HIGHWAYS

TCP(2-6)-18

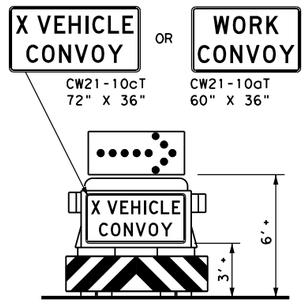
FILE: tcp2-6-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 2-12 1-97 2-18	0508	01	381,etc.	IH 10
	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		24

DATE:
FILE:



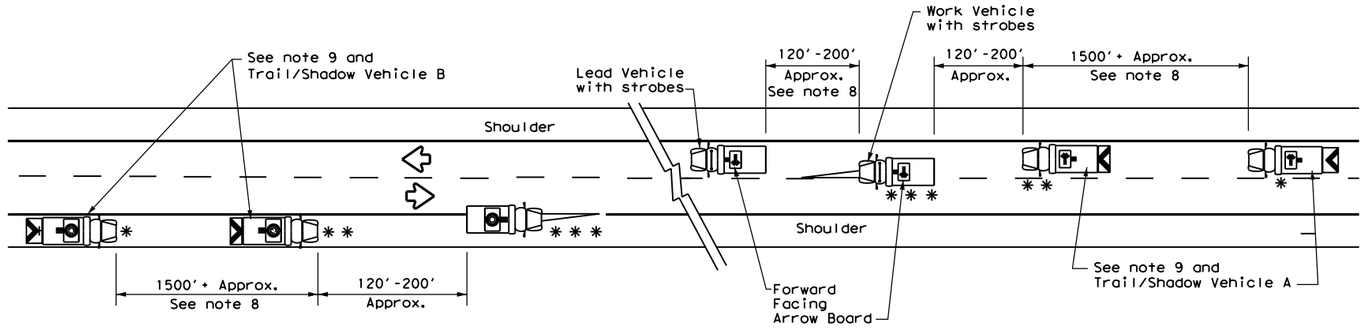
TCP (3-1a)

UNDIVIDED MULTILANE ROADWAY



TRAIL/SHADOW VEHICLE A

with RIGHT Directional display Flashing Arrow Board

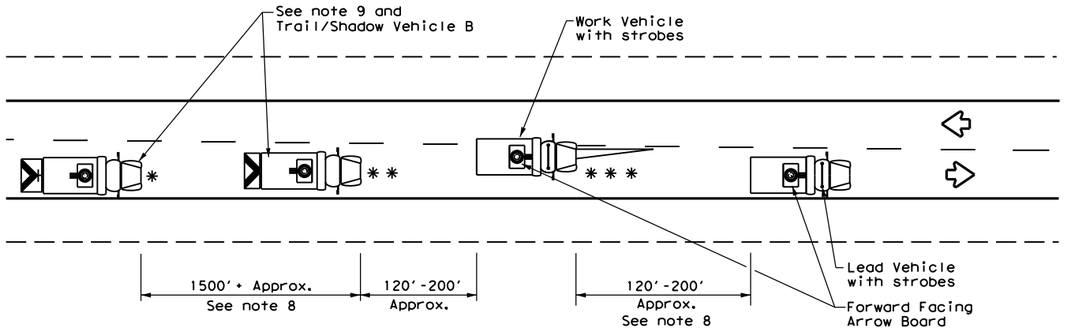


WORK ON SHOULDER

WORK ON TRAVEL LANE

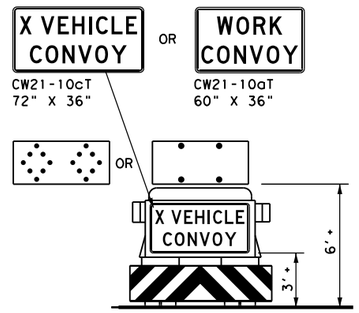
TCP (3-1b)

TWO-WAY ROADWAY WITH PAVED SHOULDERS



TCP (3-1c)

TWO-WAY ROADWAY WITHOUT PAVED SHOULDERS



TRAIL/SHADOW VEHICLE B

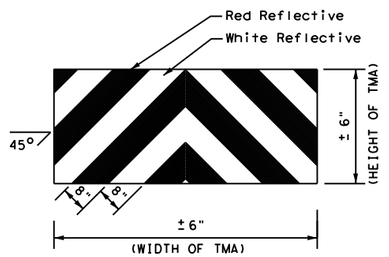
with Flashing Arrow Board in CAUTION display

LEGEND			
*	Trail Vehicle	ARROW BOARD DISPLAY	
* *	Shadow Vehicle		
* * *	Work Vehicle		RIGHT Directional
	Heavy Work Vehicle		LEFT Directional
	Truck Mounted Attenuator (TMA)		Double Arrow
	Traffic Flow		CAUTION (Alternating Diamond or 4 Corner Flash)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
✓				

GENERAL NOTES

1. TRAIL, SHADOW, and LEAD vehicles shall be equipped with arrow boards as illustrated. When a LEAD vehicle is not used the WORK vehicle must be equipped with an arrow board. The Engineer will determine if the LEAD VEHICLE and/or TRAIL VEHICLE are required based on prevailing roadway conditions, traffic volume, and sight distance restrictions.
2. The use of amber high intensity rotating, flashing, oscillating, or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating or strobe lights when mounted on the driver's side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.
3. The use of truck mounted attenuators (TMA) on the SHADOW VEHICLE and TRAIL VEHICLE are required.
4. Reflective sheeting on the rear of the TMA shall meet or exceed the reflectivity and color requirements of DEPARTMENTAL MATERIAL SPECIFICATION DMS 8300, Type A.
5. Flashing arrow boards shall be Type B or Type C as per the Barricade and Construction (BC) standards. The board shall be controlled from inside the vehicle.
6. Each vehicle shall have two-way radio communication capability.
7. When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
8. Vehicle spacing between the TRAIL VEHICLE and the SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the work convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE. Vehicle spacing between the WORK VEHICLE and SHADOW VEHICLE and vehicle spacing between WORK VEHICLE and LEAD VEHICLE may vary according to terrain, work activity and other factors.
9. "X VEHICLE CONVOY" (CW21-10cT) or "WORK CONVOY" (CW21-10aT) signs shall be used on TRAIL VEHICLES and SHADOW VEHICLES as shown. As an option 48" X 48" diamond shaped "WORK CONVOY"(CW21-10T) or "X VEHICLE CONVOY" (CW21-10bT) signs may be used where adequate mounting space exists. When used, the X VEHICLE CONVOY sign shall have the number of the convoy vehicles displayed on the sign in the number designation "X" location. The "X VEHICLE CONVOY" sign shall not be used on the SHADOW VEHICLE if a TRAIL VEHICLE is used.
10. On two-lane two-way roadways, the work and protection vehicles should pull over periodically to allow motor vehicle traffic to pass. If motorists are not allowed to pass the work convoy, a "DO NOT PASS" (R4-1) sign should be placed on the back of the rearmost protection vehicle.



STRIPING FOR TMA

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN MOBILE OPERATIONS UNDIVIDED HIGHWAYS

TCP(3-1)-13

FILE: tcp3-1.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 7-13 1-97	0508	01	381,etc.	IH 10
	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		25

DATE:
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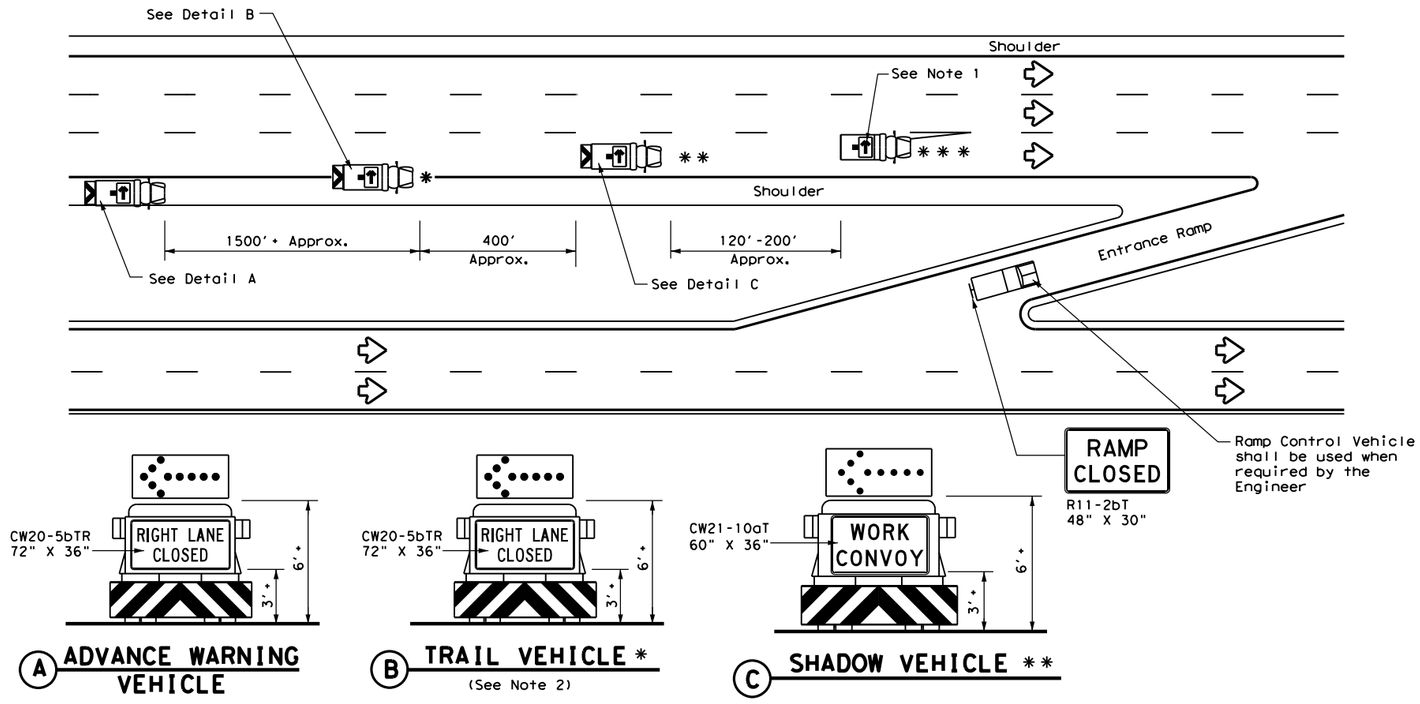
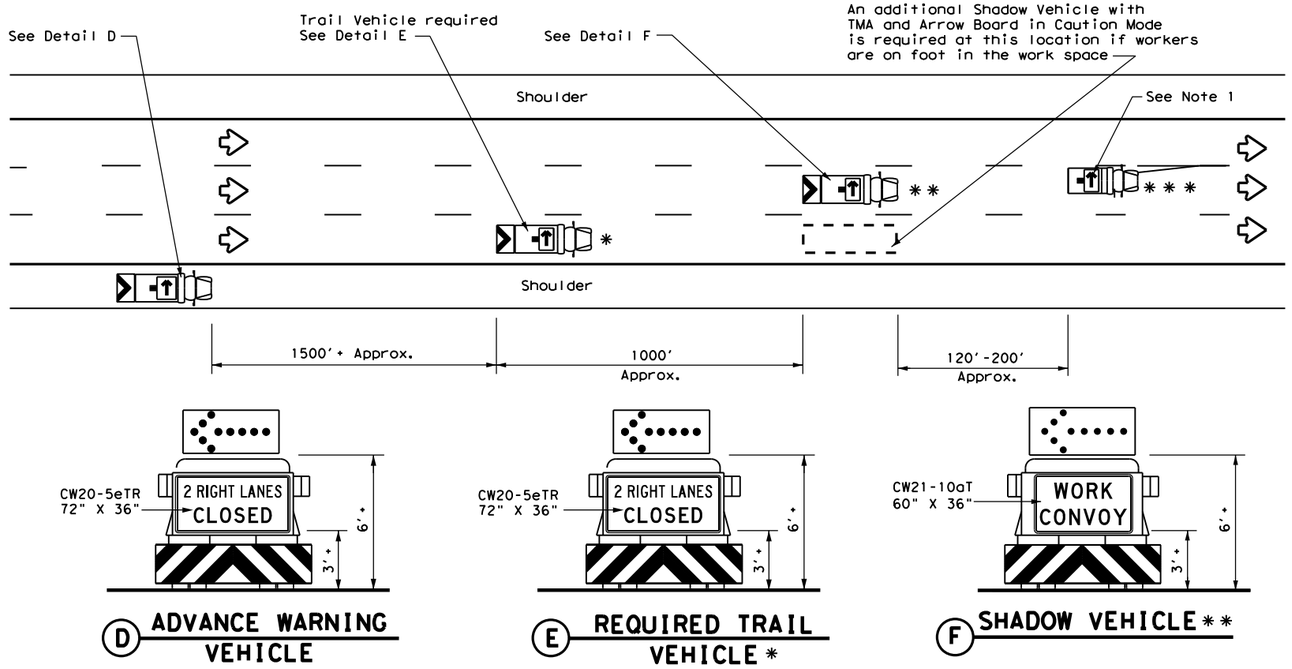


RIGHT LANE CLOSURE ON DIVIDED HIGHWAY - TCP(3-2a)



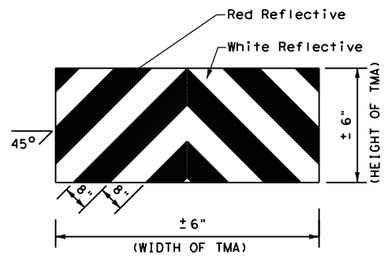
INTERIOR LANE CLOSURE ON MULTI-LANE DIVIDED HIGHWAY - TCP(3-2b)

LEGEND			
*	Trail Vehicle	ARROW BOARD DISPLAY	
**	Shadow Vehicle		
***	Work Vehicle		RIGHT Directional
	Heavy Work Vehicle		LEFT Directional
	Truck Mounted Attenuator (TMA)		Double Arrow
	Traffic Flow		CAUTION (Alternating Diamond or 4 Corner Flash)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
✓				

GENERAL NOTES

1. ADVANCE WARNING, TRAIL and SHADOW vehicles shall be equipped with Type B or Type C flashing arrow boards as per the Barricade and Construction (BC) standards. Arrow boards on WORK vehicles will be optional based on the type of work being performed. The arrow boards shall be operated from inside the vehicle.
2. For TCP(3-2a) the Engineer will determine if the TRAIL VEHICLE is required based on prevailing roadway conditions, traffic volume, and sight distance restrictions. All other vehicles shown for both TCP(3-2a) and TCP(3-2b) are required.
3. The use of amber high intensity rotating, flashing, oscillating, or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating or strobe lights when mounted on the driver's side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.
4. The use of truck mounted attenuators (TMA) on the ADVANCE WARNING, SHADOW, and TRAIL vehicles are required.
5. Reflective sheeting on the rear of the TMA shall meet or exceed the reflectivity and color requirements of DMS 8300, Type A.
6. Each vehicle shall have two-way radio communication capability.
7. When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
8. Vehicle spacing between the TRAIL VEHICLE and the SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the work convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE. Vehicle spacing between the WORK VEHICLE and SHADOW VEHICLE may vary according to terrain, work activity and other factors.
9. Standard 48" X 48" diamond shaped warning signs with the same message as those shown may be used where adequate mounting space exists.
10. The signs shown should be used on the Advance Warning Vehicle. As an option, a portable changeable message sign (PCMS) or a truck mounted changeable message sign (TMCMS) with a minimum character height of 12", and displaying the same legend may be substituted for these signs. An appropriate directional arrow display, simulating the size and legibility of the flashing arrow board, must be used in the second phase of the PCMS/TMCMS message. When this is done, the arrow board will not be required on the Advance Warning Vehicle.
11. Standard diamond shape versions of the CW20-5 series signs may be used as an option if the rectangular signs shown are not available.
12. The principles on this sheet may be used to close lanes from the left side of the roadway considering the number of lanes, shoulder width, sight distance, and ramp frequency.
13. Signs and flashing arrow board modes shall be appropriately altered when implementing left lane closures or interior closures which close the left lanes.
14. The Advance Warning Vehicle may straddle the edgeline when shoulder width makes it necessary.



STRIPING FOR TMA

Texas Department of Transportation

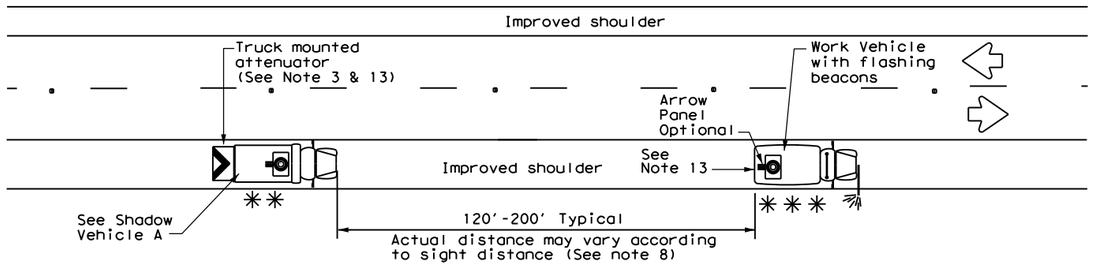
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN MOBILE OPERATIONS DIVIDED HIGHWAYS

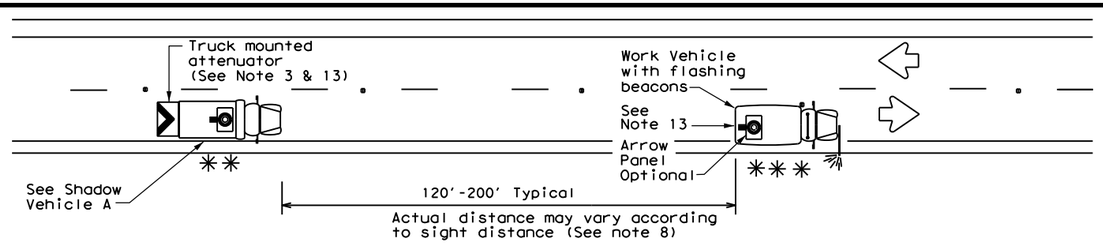
TCP(3-2)-13

FILE: tcp3-2.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	0508	01	381, etc.	IH 10
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 7-13	HOU	HARRIS		26
1-97				

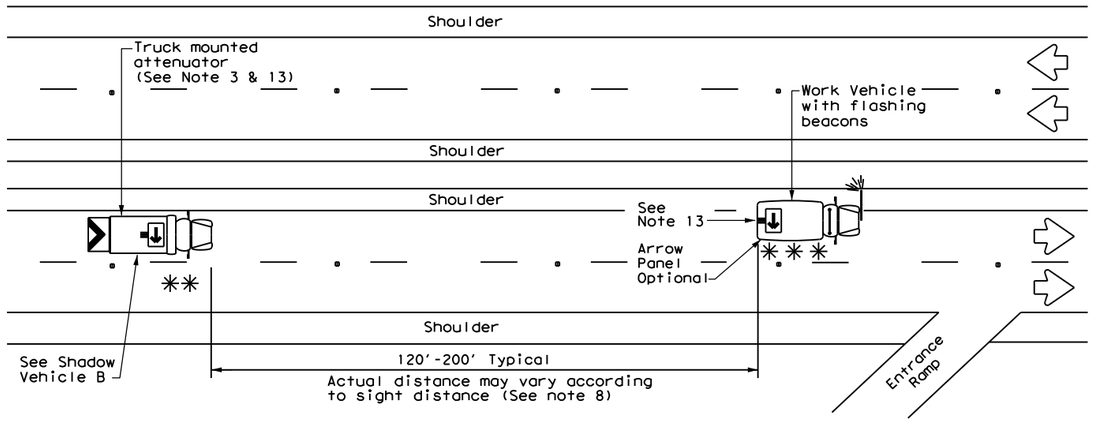
176



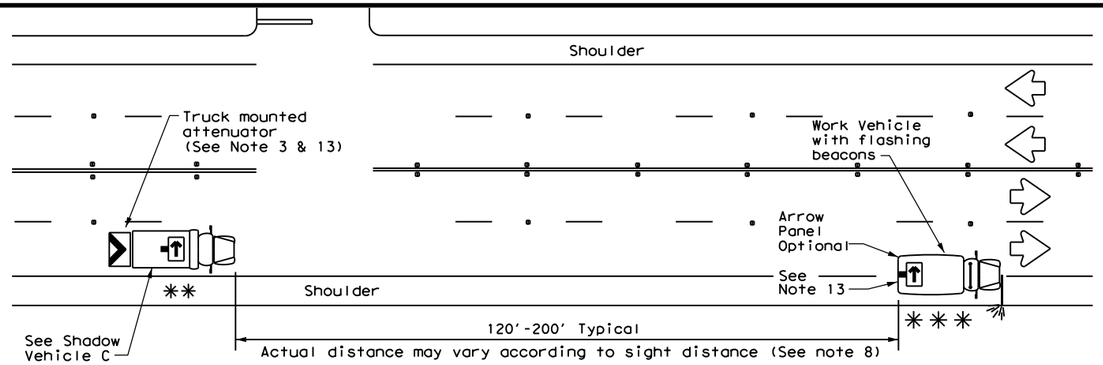
TWO LANE HIGHWAY WITH PAVED SHOULDERS MINIMUM 8'



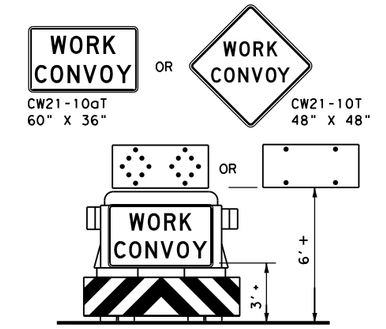
TWO LANE HIGHWAY WITH NO SHOULDER OR NARROW SHOULDER



MULTILANE HIGHWAY

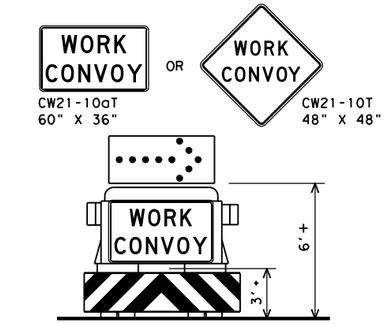


MULTILANE HIGHWAY



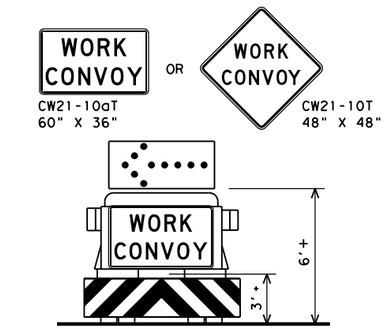
SHADOW VEHICLE A

with Flashing Arrow Board in Caution Mode



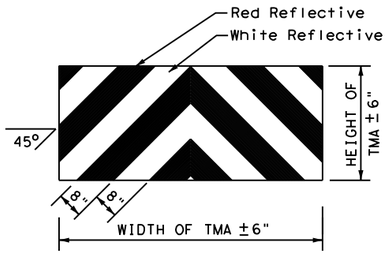
TYPICAL SHADOW VEHICLE B

with RIGHT Directional display Flashing Arrow Board



TYPICAL SHADOW VEHICLE C

with LEFT Directional display Flashing Arrow Board



STRIPING FOR TMA

LEGEND			
**	Shadow Vehicle	ARROW BOARD DISPLAY	
***	Work Vehicle		
	Sign		RIGHT Directional
	Heavy Work Vehicle		LEFT Directional
	Traffic Flow		Double Arrow
	Truck Mounted Attenuator (TMA) or Trailer Attenuator (TA)		CAUTION (Alternating Diamond or 4 Corner Flash)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
✓				

GENERAL NOTES

1. All traffic control devices shall be in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD), latest edition.
2. The use of amber high intensity rotating, flashing, oscillating, or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating or strobe lights when mounted on the driver's side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.
3. The use of truck mounted attenuators (TMA) on the Shadow Vehicle is required.
4. Striping on the back panel of all TMAs shall be 8" red reflective sheeting with white background, placed in an inverted "V" design. Reflective sheeting shall meet or exceed the reflectivity and color requirements of DEPARTMENTAL MATERIAL SPECIFICATION DMS-8300, TYPE A.
5. Flashing Arrow Panels shall be Type B or Type C as per BC Standards. The panel operation shall be controlled from inside the vehicle.
6. Each vehicle shall have two-way radio communication capability.
7. When the work convoy must change lanes, the Shadow Vehicle should change lanes first to protect the Work Vehicle.
8. Spacing between Shadow and Work Vehicle will vary depending on sight distance restrictions. Motorists approaching the work convoy should be able to see the Shadow Vehicle in time to slow down and/or change lanes as they approach the Work Convoy.
9. Use of an arrow panel on the Work Vehicle is optional except as provided in note 13, but may be required by the Engineer. If an arrow panel is not used, dual flashing beacons, mounted as high and as widely separated as practicable at the rear of the Work Vehicle shall be required.
10. On two-lane two-way roadways, the Work and Shadow Vehicles should pull over periodically to allow motor vehicle traffic to pass.
11. Work and Shadow Vehicles should stay on the shoulder of highways having 8' or wider shoulders when possible.
12. A Trail Vehicle may be added to the operation when approved by the Engineer. See TCP(3) series standards.
13. The shadow vehicle may be omitted on conventional roadways when a TMA or TA and arrow panel is mounted to the herbicide vehicle. A separate shadow vehicle will be required on expressways and Freeways.

Texas Department of Transportation

Traffic Operations Division Standard

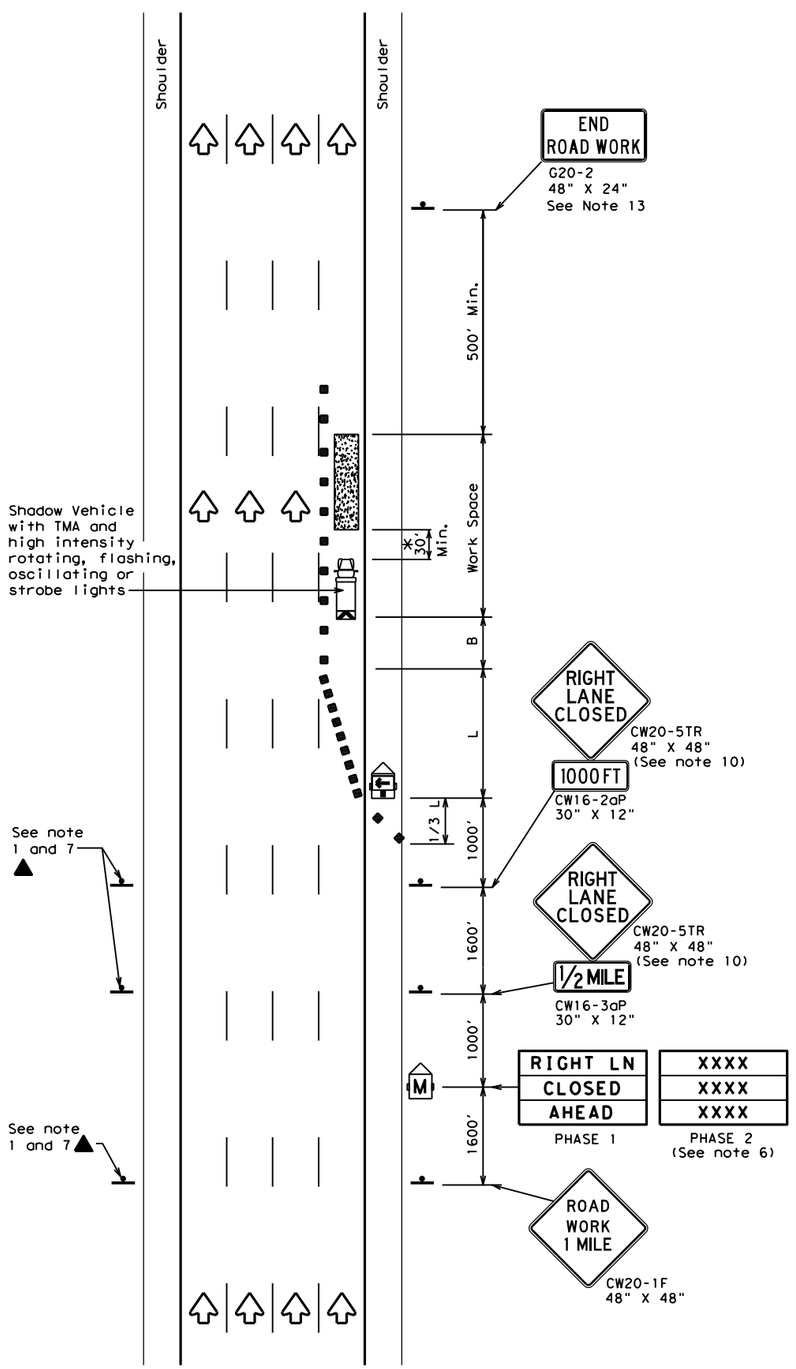
TRAFFIC CONTROL PLAN MOBILE OPERATIONS HERBICIDE TRUCK OPERATIONS

TCP(3-5)-18

FILE: tcp3-5.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT July 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS	0508	01	381,etc.	IH 10
4-18	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		27

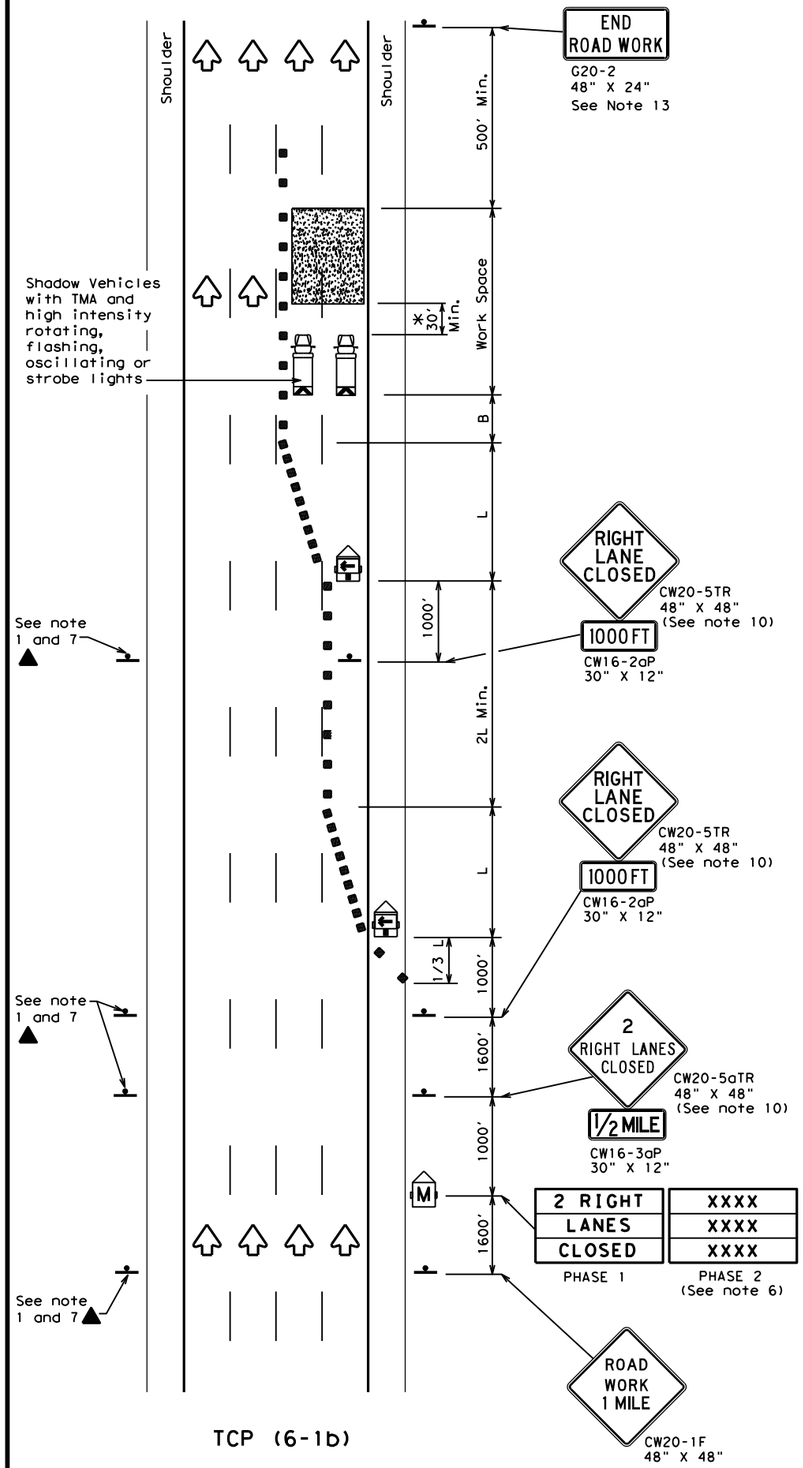
DATE:
FILE:

DATE:
FILE:



TCP (6-1a)

TYPICAL FREEWAY ONE LANE CLOSURE



TCP (6-1b)

TYPICAL FREEWAY TWO LANE CLOSURE

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed	Formula	Minimum Desirable Taper Lengths "L" ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Suggested Longitudinal Buffer Space "B"
45	L=WS	450'	495'	540'	45'	90'	195'
50		500'	550'	600'	50'	100'	240'
55		550'	605'	660'	55'	110'	295'
60		600'	660'	720'	60'	120'	350'
65		650'	715'	780'	65'	130'	410'
70		700'	770'	840'	70'	140'	475'
75		750'	825'	900'	75'	150'	540'
80		800'	880'	960'	80'	160'	615'

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

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓	✓	

GENERAL NOTES

1. All traffic control devices illustrated are REQUIRED. Devices denoted with the triangle symbol may be omitted when stated elsewhere in the plans.
2. Drums or 42"cones are the typical channelizing devices. For Intermediate Term Stationary work, drums shall be used on tapers with drums or 42" cones used on tangent sections. Other channelizing devices may be used as directed by the Engineer.
3. All construction signs and barricades placed during any phase of work shall remain in place until removal is approved by the Engineer.
4. The Engineer may direct the Contractor to furnish additional signs and barricades as required to maintain traffic flow, detours and motorist safety during construction.
5. Static message boards or changeable message signs stating the date and duration of ramp or freeway lane closures shall be placed a minimum of seven (7) calendar days in advance of the actual closure.
6. Phase 2 of the PCMS message should include appropriate information formatted as shown on BC(6), such as "MERGE LEFT," recommended advisory speed, delay information, or other specific warnings.
7. Duplicate construction warning signs should be erected on the medians side of freeways where median width will permit and traffic volume justifies the signing.
8. The number of closed lanes may be increased provided the spacing of traffic control devices, taper lengths and tangent lengths meet the requirements of the TMUTCD.
9. Warning signs for intermediate term stationary work should be mounted at 7' to the bottom of the sign.
10. Warning signs shown shall be appropriately altered for left lane closures. When signs are mounted at 1' height for short term stationary or short duration work, sign versions shown in the SHSD for Texas with distances on the sign face rather than mounted on a plaque below the sign may be used.
11. When possible, PCMS units should be located in advance of the last available exit ramp prior to the lane closure to allow motorists an alternate route. They may also be relocated to improve advance warning in case of unanticipated queuing or congestion.
12. For Intermediate Term Stationary work at night, floodlights should be used to illuminate the work area and equipment crossings. Floodlights shall not produce a disabling glare condition for road users or workers.
13. The END ROAD WORK (G20-2) sign may be omitted when it conflicts with G20-2 signs already in place on the project.

* A shadow vehicle equipped with a Truck Mounted Attenuator is typically required. A shadow vehicle equipped with a TMA shall be used if it can be positioned 30' to 100' in advance of the area of crew exposure without adversely affecting the work performance.

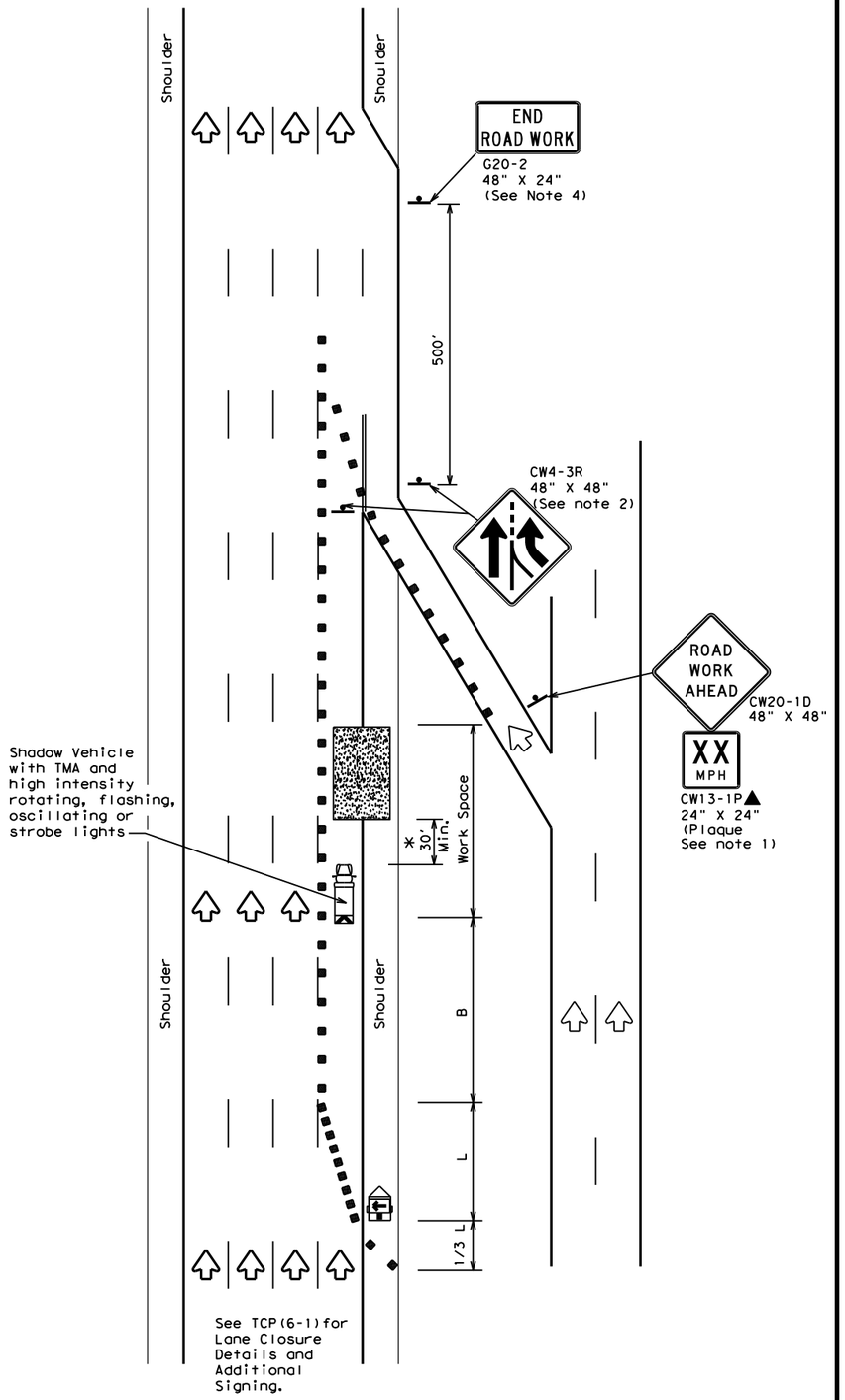
Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN FREEWAY LANE CLOSURES

TCP(6-1)-12

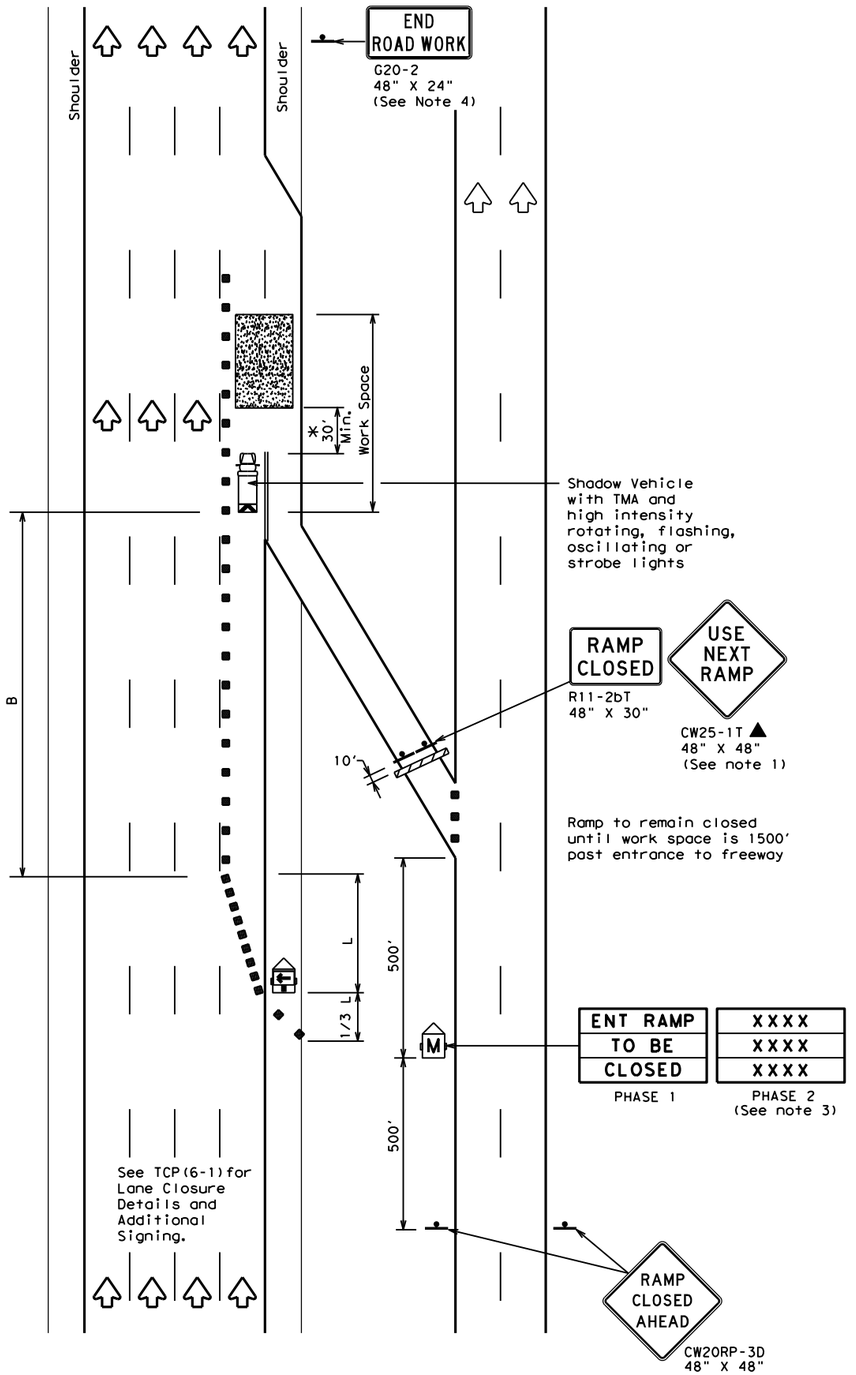
FILE: tcp6-1.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-12	0508	01	381,etc.	IH 10
	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		28

DATE:
FILE:



TCP (6-2a)

ENTRANCE RAMP OPEN
WORK WITHIN 500' OF RAMP



TCP (6-2b)

ENTRANCE RAMP CLOSED

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed	Formula	Minimum Desirable Taper Lengths "L" **			Suggested Maximum Spacing of Channelizing Devices		Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent	
45	L=WS	450'	495'	540'	45'	90'	195'
50		500'	550'	600'	50'	100'	240'
55		550'	605'	660'	55'	110'	295'
60		600'	660'	720'	60'	120'	350'
65		650'	715'	780'	65'	130'	410'
70		700'	770'	840'	70'	140'	475'
75		750'	825'	900'	75'	150'	540'
80		800'	880'	960'	80'	160'	615'

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

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓	✓	

GENERAL NOTES

1. All traffic control devices illustrated are REQUIRED. Devices denoted with the triangle symbol may be omitted when stated elsewhere in the plans.
2. ADDED LANE Symbol (CW4-3) sign may be omitted when sign between ramp and mainlane can be seen from both roadways.
3. See "Advance Notice List" on BC(6) for recommended date and time formatting options for PCMS Phase 2 message.
4. The END ROAD WORK (G20-2) sign may be omitted when it conflicts with G20-2 signs already in place on the project.

*A shadow vehicle equipped with a Truck Mounted Attenuator is typically required. A shadow vehicle equipped with a TMA shall be used if it can be positioned 30' to 100' in advance of the area of crew exposure without adversely affecting the work performance.

Additional requirements for lane closures and advance signing shall be as shown on TCP (6-1) or as directed by the Engineer.

Texas Department of Transportation
Traffic Operations Division Standard

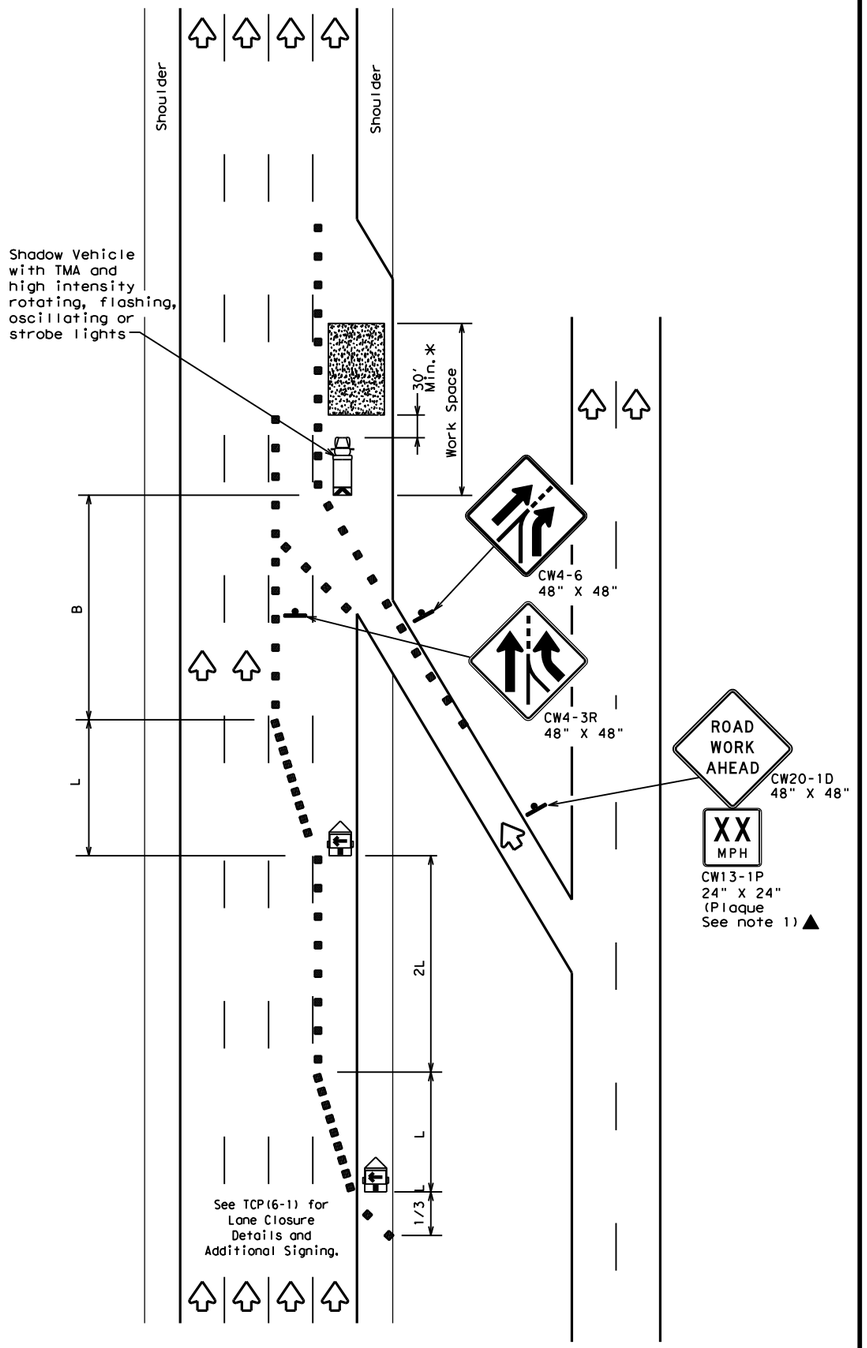
TRAFFIC CONTROL PLAN
WORK AREA NEAR RAMP

TCP(6-2)-12

FILE: tcp6-2.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1994	CONT	SECT	JOB	HIGHWAY
REVISIONS	508	01	381,ETC.	IH 10
1-97 8-98	DIST	COUNTY		SHEET NO.
4-98 8-12	HOU	HARRIS		29

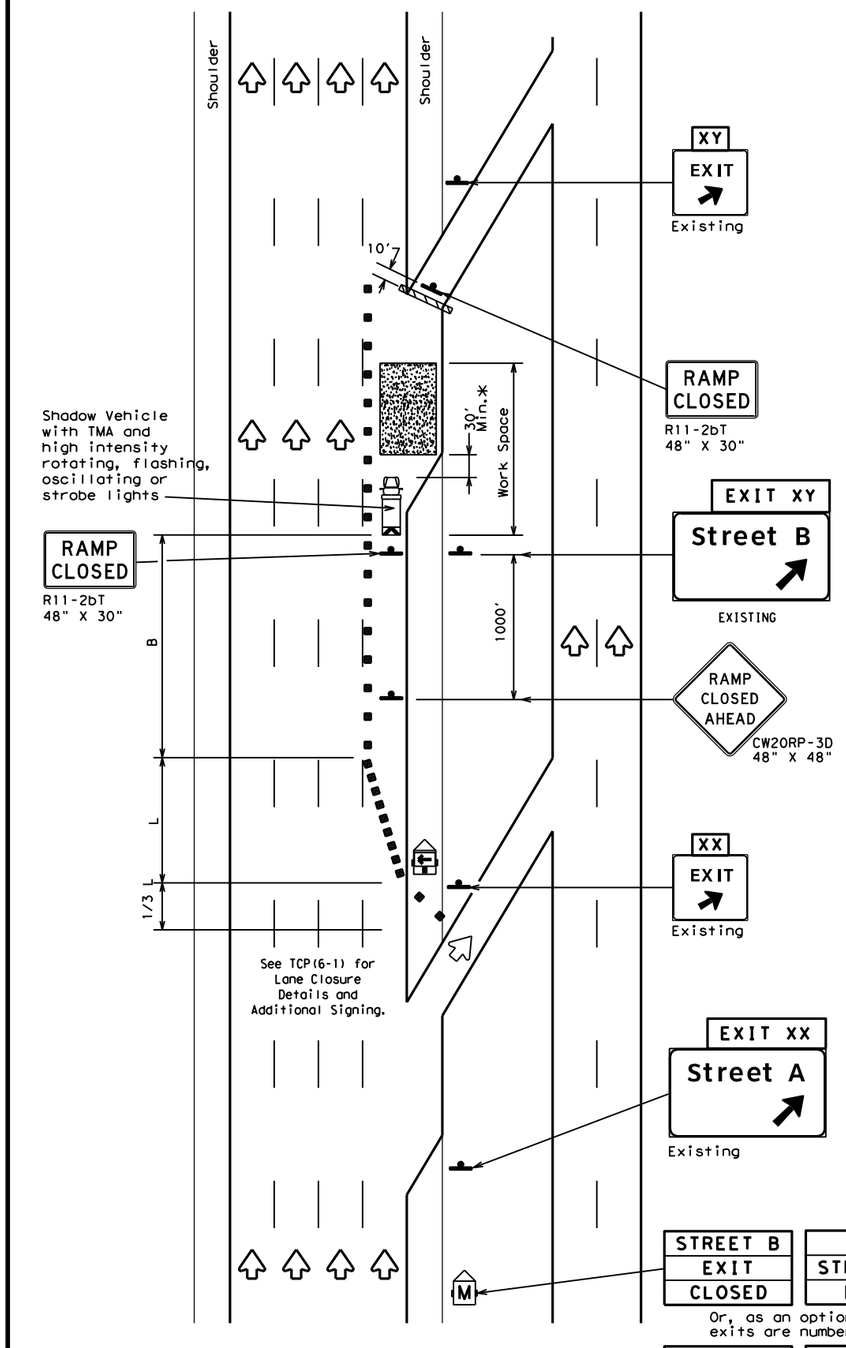
202

DATE:
FILE:



TCP (6-3a)

ENTRANCE RAMP OPEN



STREET B	USE
EXIT	STREET A
CLOSED	EXIT

Or, as an option when exits are numbered

EXIT XY	USE
CLOSED	EXIT XX

Place 1 mile (approx.) in advance of Street A exit.

TCP (6-3b)

EXIT RAMP CLOSED

TRAFFIC EXITS PRIOR TO CLOSED RAMP

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed	Formula	Minimum Desirable Taper Lengths "L" **			Suggested Maximum Spacing of Channelizing Devices		Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent	
45	L=WS	450'	495'	540'	45'	90'	195'
50		500'	550'	600'	50'	100'	240'
55		550'	605'	660'	55'	110'	295'
60		600'	660'	720'	60'	120'	350'
65		650'	715'	780'	65'	130'	410'
70		700'	770'	840'	70'	140'	475'
75		750'	825'	900'	75'	150'	540'
80		800'	880'	960'	80'	160'	615'

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

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓	✓	

GENERAL NOTES:

1. All traffic control devices illustrated are REQUIRED. Devices denoted with the triangle symbol may be omitted when stated elsewhere in the plans.

*A shadow vehicle equipped with a Truck Mounted Attenuator is typically required. A shadow vehicle equipped with a TMA shall be used if it can be positioned 30' to 100' in advance of the area of crew exposure without adversely affecting the work performance.

Additional requirements for lane closures and advance signing shall be as shown on TCP (6-1) or as directed by the Engineer.

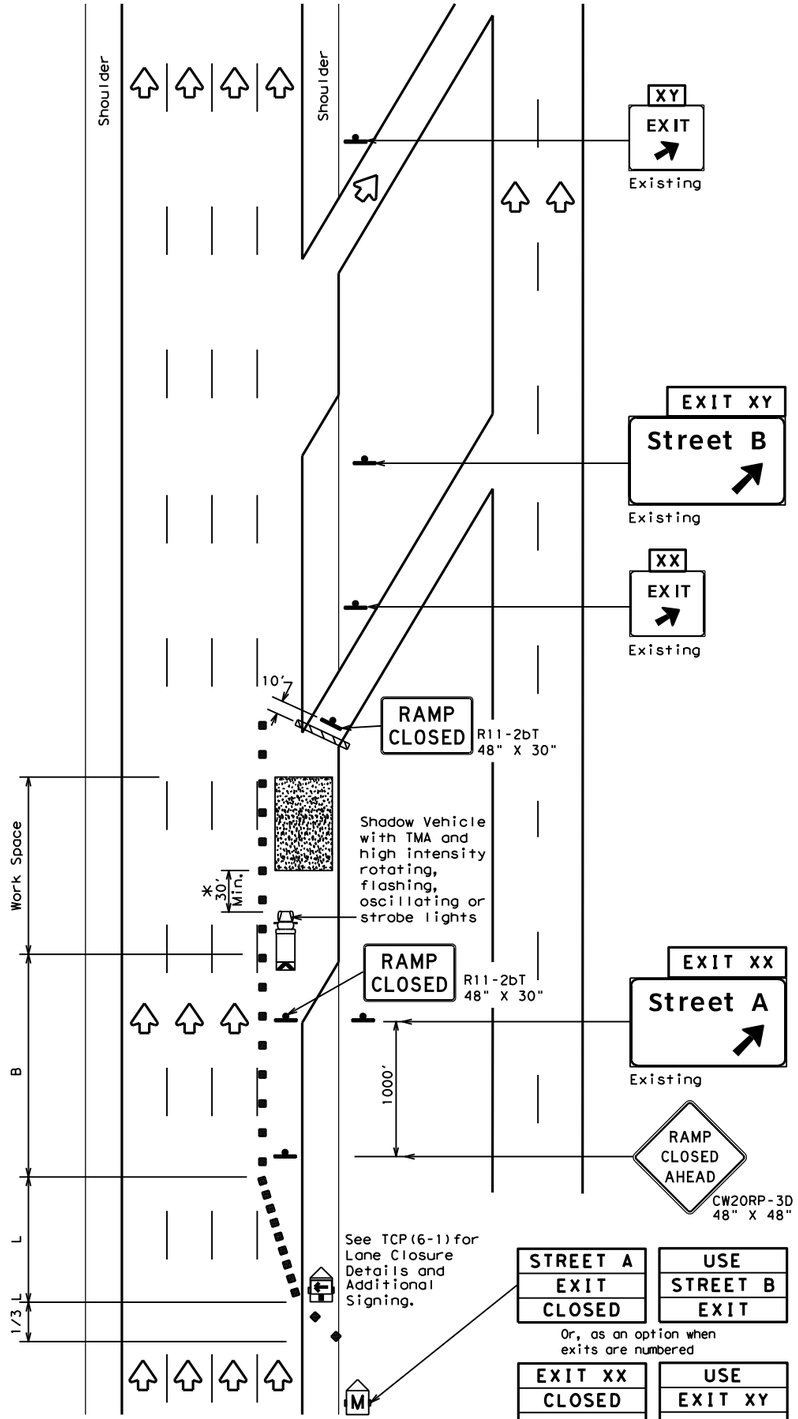
Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
WORK AREA BEYOND RAMP

TCP(6-3)-12

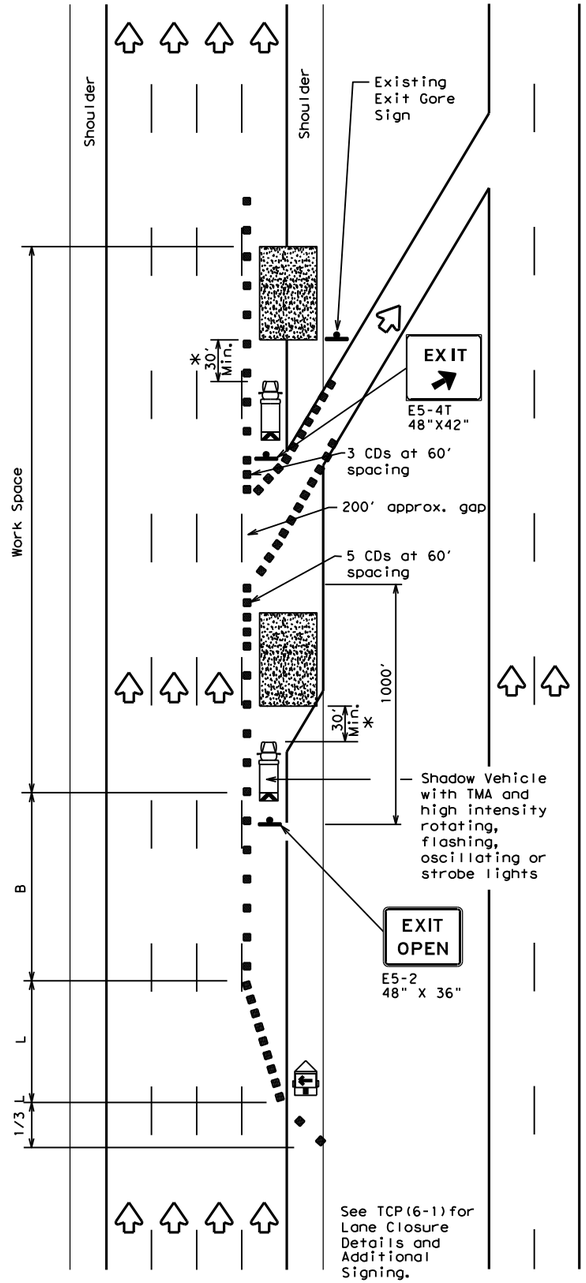
FILE: tcp6-3.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1994	CONT	SECT	JOB	HIGHWAY
REVISIONS	508	01	381,ETC.	IH 10
1-97 8-98	DIST	COUNTY		SHEET NO.
4-98 8-12	HOU	HARRIS		30

DATE:
FILE:



TCP (6-4a)

EXIT RAMP CLOSED
TRAFFIC EXITS PAST CLOSED RAMP



TCP (6-4b)

EXIT RAMP OPEN

LEGEND

	Type 3 Barricade		Channelizing Devices (CDs)
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed	Formula	Minimum Desirable Taper Lengths "L" ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Suggested Longitudinal Buffer Space "B"
45	L=WS	450'	495'	540'	45'	90'	195'
50		500'	550'	600'	50'	100'	240'
55		550'	605'	660'	55'	110'	295'
60		600'	660'	720'	60'	120'	350'
65		650'	715'	780'	65'	130'	410'
70		700'	770'	840'	70'	140'	475'
75		750'	825'	900'	75'	150'	540'
80		800'	880'	960'	80'	160'	615'

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

TYPICAL USAGE

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓	✓	

GENERAL NOTES

1. All traffic control devices illustrated are REQUIRED. Devices denoted with the triangle symbol may be omitted when stated elsewhere in the plans.
2. See BC Standards for sign details.

*A shadow vehicle equipped with a Truck Mounted Attenuator is typically required. A shadow vehicle equipped with a TMA shall be used if it can be positioned 30' to 100' in advance of the area of crew exposure without adversely affecting the work performance.

Additional requirements for lane closures and advance signing shall be as shown on TCP (6-1) or as directed by the Engineer.

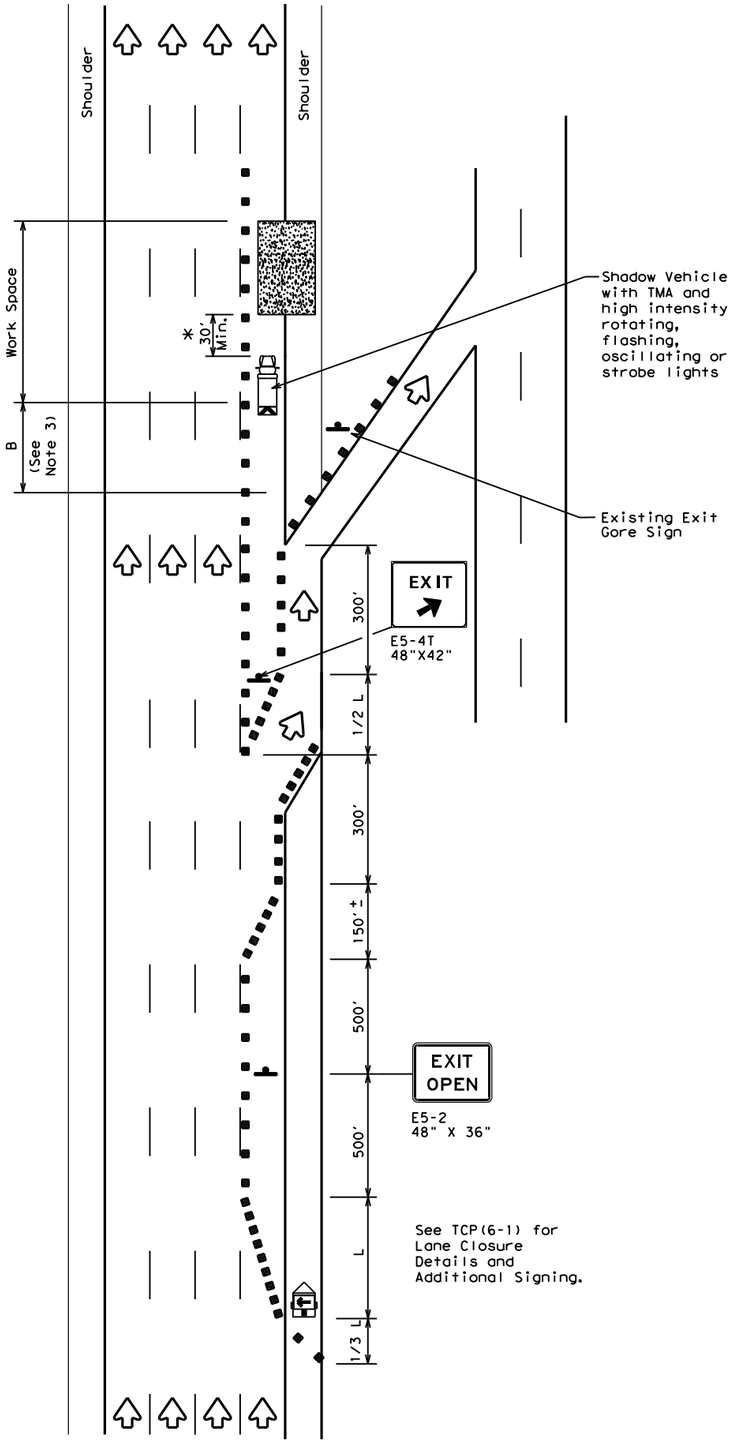
Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
WORK AREA AT EXIT RAMP

TCP(6-4)-12

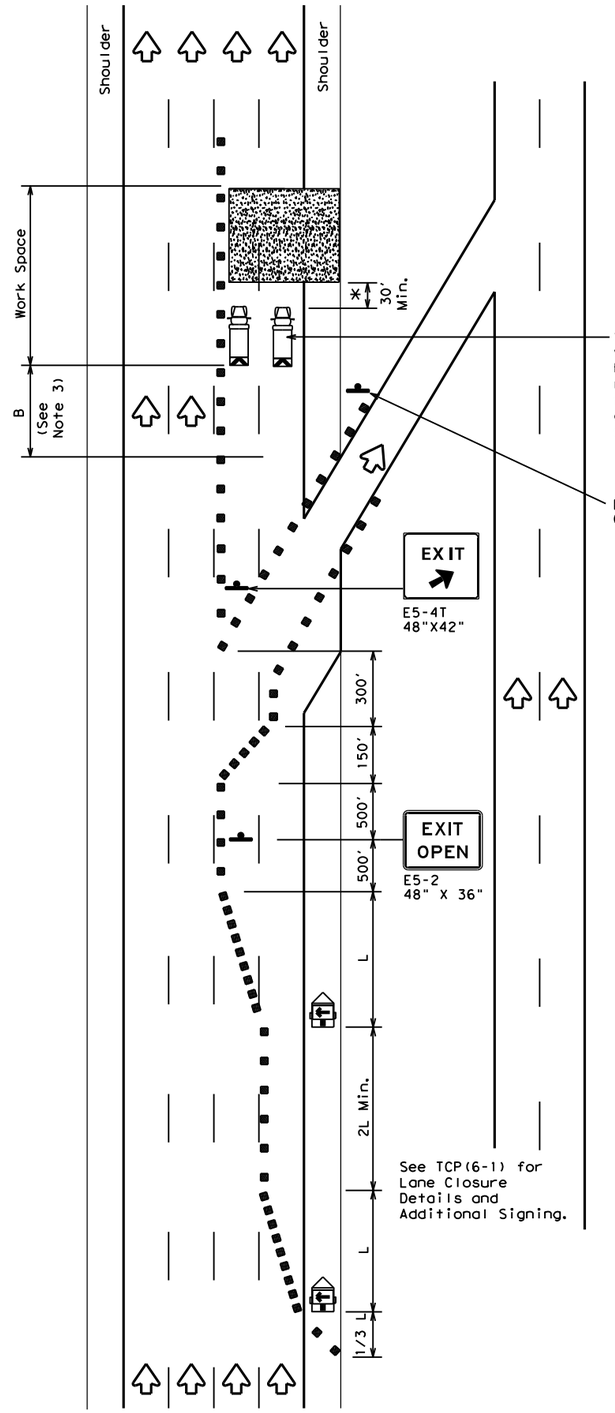
FILE: tcp6-4.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT Feburary 1994	CONT	SECT	JOB	HIGHWAY
REVISIONS	508	01	381,ETC.	IH 10
1-97 8-98	DIST	COUNTY		SHEET NO.
4-98 8-12	HOU	HARRIS		31

DATE:
FILE:



TCP (6-5a)

EXIT RAMP OPEN



TCP (6-5b)

EXIT RAMP OPEN
TWO LANE CLOSURE WITHIN 1500' PAST EXIT RAMP

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed	Formula	Minimum Desirable Taper Lengths "L" ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Suggested Longitudinal Buffer Space "B"
45	L=WS	450'	495'	540'	45'	90'	195'
50		500'	550'	600'	50'	100'	240'
55		550'	605'	660'	55'	110'	295'
60		600'	660'	720'	60'	120'	350'
65		650'	715'	780'	65'	130'	410'
70		700'	770'	840'	70'	140'	475'
75		750'	825'	900'	75'	150'	540'
80		800'	880'	960'	80'	160'	615'

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

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓	✓	

GENERAL NOTES

1. All traffic control devices illustrated are REQUIRED. Devices denoted with the triangle symbol may be omitted when stated elsewhere in the plans.
2. See BC standards for sign details.
3. If adequate longitudinal buffer length "B" does not exist between the work space and the exit ramp, consideration should be given to closing the ramp.

* A shadow vehicle equipped with a Truck Mounted Attenuator is typically required. A shadow vehicle equipped with a TMA shall be used if it can be positioned 30' to 100' in advance of the area of crew exposure without adversely affecting the work performance.

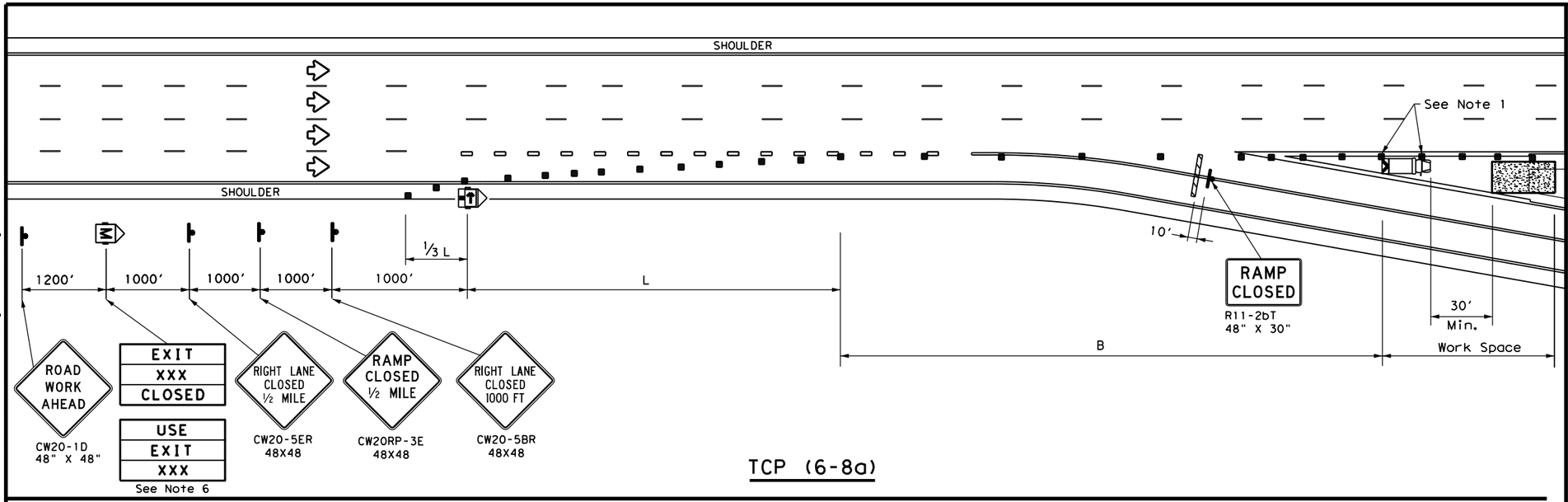
Additional requirements for lane closures and advance signing shall be as shown on TCP (6-1) or as directed by the Engineer.

Texas Department of Transportation
Traffic Operations Division Standard

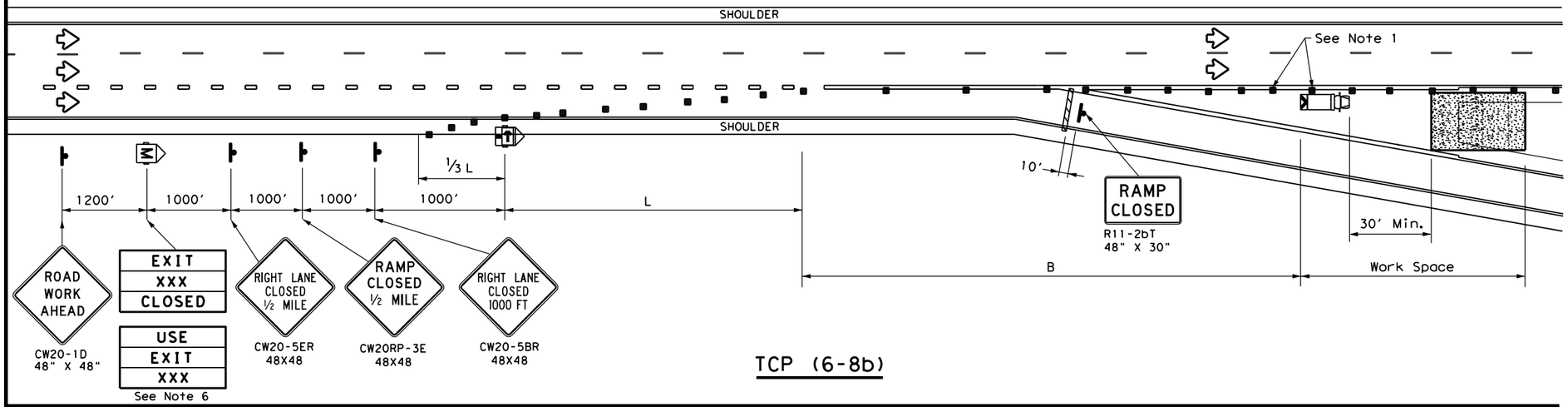
TRAFFIC CONTROL PLAN
WORK AREA BEYOND EXIT RAMP

TCP(6-5)-12

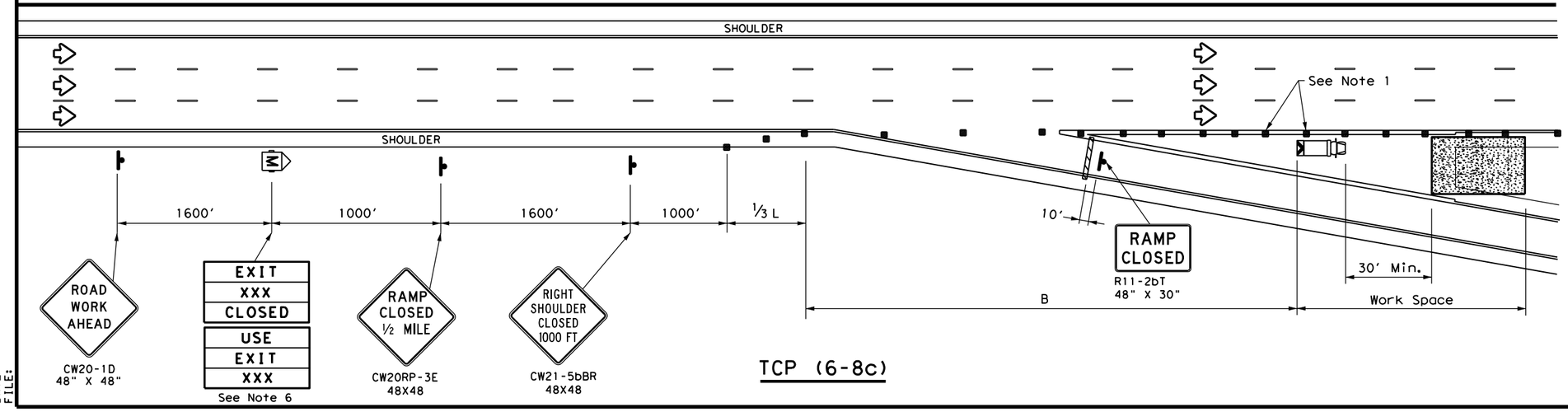
FILE: tcp6-5.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT Feburary 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	508	01	381,ETC.	IH 10
1-97 8-98	DIST	COUNTY		SHEET NO.
4-98 8-12	HOU	HARRIS		32



TCP (6-8a)



TCP (6-8b)



TCP (6-8c)

DATE:
FILE:

LEGEND

	Type 3 Barricade		Channelizing Devices (CDs)
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed	Formula	Minimum Desirable Taper Lengths "L" ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Suggested Longitudinal Buffer Space "B"
45	L=WS	450'	495'	540'	45'	90'	195'
50		500'	550'	600'	50'	100'	240'
55		550'	605'	660'	55'	110'	295'
60		600'	660'	720'	60'	120'	350'
65		650'	715'	780'	65'	130'	410'
70		700'	770'	840'	70'	140'	475'
75		750'	825'	900'	75'	150'	540'
80		800'	880'	960'	80'	160'	615'

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

TYPICAL USAGE

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

GENERAL NOTES

1. Place channelizing devices in the gore at 20' spacing.
2. See the Standard Highway Sign Design for Texas (SHSD) for sign details.
3. The PCMS may be omitted when a permanent DMS sign is available in an appropriate location to display a similar message as called for on the PCMS.
4. When it is determined that a through lane should be closed in addition to the exit ramp, refer to TCP(6-4) for traffic control details.
5. Truck mounted attenuator is required.
6. The PCMS may be omitted if replaced with a "RAMP CLOSED" AHEAD (CW20RP-3D) Sign.
7. Roadway ADT should be greater than 10,000.

Texas Department of Transportation

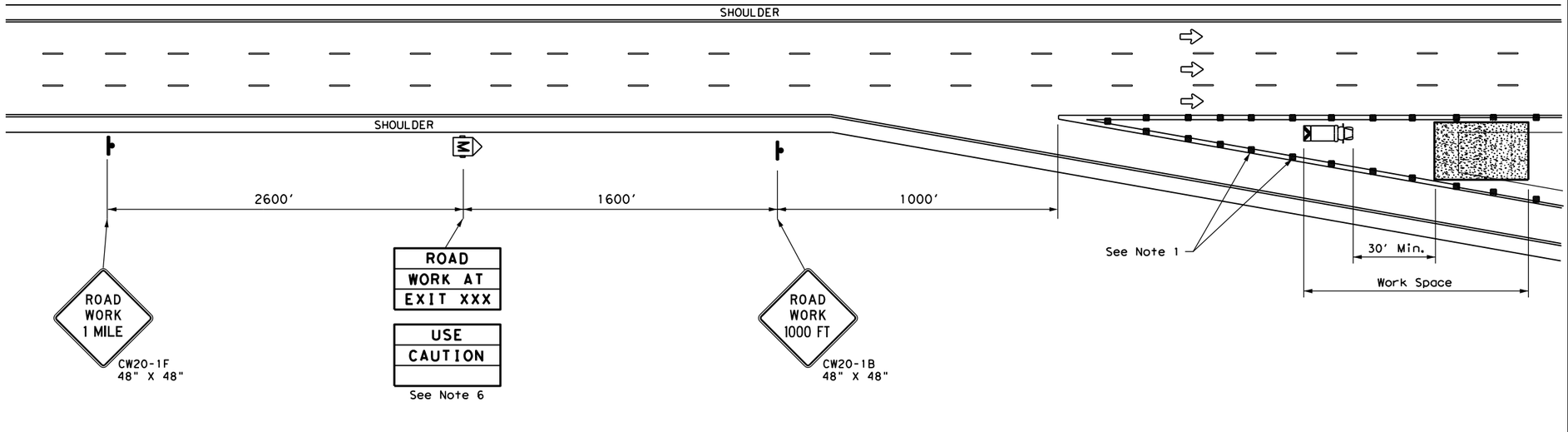
Traffic Operations Division Standard

WORK IN EXIT GORE FOR ADT GREATER THAN 10,000

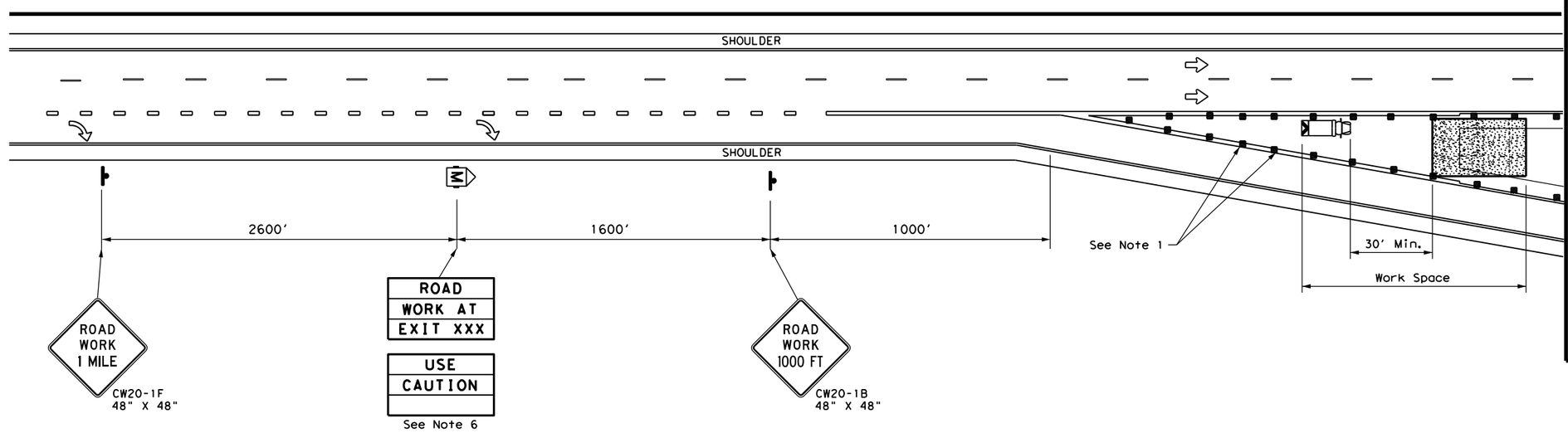
TCP(6-8)-14

FILE: tcp6-8.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	0508	01	381,etc.	IH 10
	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		33

DATE:
FILE:



TCP (6-9a)



TCP (6-9b)

LEGEND			
	Type 3 Barricade		Channelizing Devices (CDs)
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed	Formula	Minimum Desirable Taper Lengths "L" ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Suggested Longitudinal Buffer Space "B"
45	L=WS	450'	495'	540'	45'	90'	195'
50		500'	550'	600'	50'	100'	240'
55		550'	605'	660'	55'	110'	295'
60		600'	660'	720'	60'	120'	350'
65		650'	715'	780'	65'	130'	410'
70		700'	770'	840'	70'	140'	475'
75		750'	825'	900'	75'	150'	540'
80		800'	880'	960'	80'	160'	615'

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

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

GENERAL NOTES

1. Place channelizing devices in the gore at 20' spacing.
2. See the Standard Highway Sign Design for Texas (SHSD) for sign details.
3. The PCMS may be omitted when a permanent DMS sign is available in an appropriate location to display a similar message as called for on the PCMS.
4. When it is determined that a through lane should be closed in addition to the exit ramp, refer to TCP(6-4) and TCP(6-8) for traffic control details.
5. Truck mounted attenuators are required.
6. The PCMS may be omitted if replaced with a "ROAD WORK ½ MILE" (CW20-1E).
7. Roadway ADT should be less than 10,000.

Texas Department of Transportation

Traffic Operations Division Standard

WORK IN EXIT GORE FOR ADT LESS THAN 10,000

TCP(6-9)-14

FILE: tcp6-9.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	0508	01	381,etc.	IH 10
	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		34

ITEM 1022-6003 LANDSCAPE TREATMENT (TY3) - EA

BEGIN ** END

1022-6003
LANDSCAPE TREATMENT(TY3)
ALL LOCATIONS ONCE

AS SHOWN ON PLANTING, MAINTENANCE AND ESTABLISHMENT TIMELINE, SHEET 1 OF 1

REQUIREMENTS FOR EXISTING LANDSCAPE AREAS

GENERAL
1. Perform all requirements described on this sheet unless otherwise shown.
2. Work includes redefining all existing planting areas within project limits in accordance with PLANTING, ESTABLISHMENT AND MAINTENANCE LAYOUT, Sheets 1-4 except: landscape installed by adjacent property owners.
3. Work will be limited to the redefined planting areas and adjacent 5′- 7′ perimeter mow edge.
4. Work includes removing trees and/or shrubs which may actually reduce the original planting area size and eliminate further maintenance of an area.
5. Work includes pruning and removal of plant material:
   - Prune in accordance with ANSI A300.
   - Remove plant materail stumps to existing grade.
   - Chip and evenly distribute plant debris on site.
   - Remove any plant debris too large to chip from site.
   - Do not prune or remove more plant material than what can be chipped or removed the same day unless otherwise approved by Engineer.
   - Fill any holes from removal of dead plant material with topsoil, topsoil is incidental.
6. EACH CYCLE INCLUDES COMPLETING THE SPECIFIED WORK FOR ALL LOCATIONS IDENTIFIED WITHIN THE PROJECT LIMITS ONCE.

PLANT BED MAINTENANCE
7. Maintain and/or reshape planting areas to conform to original installation (see PLANTING, ESTABLISHMENT AND MAINTENANCE LAYOUT sheets) so that planting areas do not hinder roadway drainage, especially behind slotted barrier.
8. Chemically control weeds and undesirable grasses in planting areas with ROUNDUP PROMAX.
   - Perform herbicide applications under supervision of STATE LICENSED APPLICATOR.

UNDESIRABLES
9. Chemically treat and remove all JOHNSON GRASS within redefined planting areas, adjacent 5′- 7′ perimeter areas and along fences/walls/structures adjacent to perimeter area with an approved herbicide.
   - Perform herbicide applications under supervision of STATE LICENSED APPLICATOR.
   - Do not remove undesirable plant until herbicide manufacturer's recommended time period for herbicide absorption.
   - Repeat as required for complete kill.
   - Herbicide is subsidiary to ITEM 193-6002.
10. Remove invasive and/or undesirable trees, shrubs and vines within redefined planting areas, adjacent 5′- 7′ perimeter areas and along fences/walls/structures adjacent to perimeter area. Chemically treat stumps of cut invasive and/or undesirable plants with PATHFINDER II BASAL BARK HERBICIDE, or approved equal.
   - Perform herbicide applications under supervision of STATE LICENSED APPLICATOR.
   - Invasive and/or undesirable plants include but are not limited to: willow, tallow, baccharis, mulberry, trumpet vine, bind weed, japanese honeysuckle, morning glory, vetch, etc.
   - Repeat stump treatment as necessary for complete kill.
   - Herbicide is subsidiary to ITEM 193-6002.

HERBICIDE
11. Chemically treat all redefined planting areas with an approved herbicide as needed to control understory growth prior to mowing and trimming.
   - Perform herbicide applications under supervision of STATE LICENSED APPLICATOR.
   - Do not mow and/or trim understory until after herbicide manufacturer's recommended absorption time.
   - Do not allow herbicide to come in contact with desirable vines, shrubs, or trees, including seedlings.
   - Herbicide is subsidiary to ITEM 193-6002.

MOWING AND TRIMMING
12. Mow 5′- 7′ perimeter of all redefined planting areas to standard height (4"-7").
13. Scalp mow/trim within all redefined planting areas, including between trees after herbicide manufacturer's recommended time period for herbicide absorption.
   - Trimming with cord trimmer is allowed within planting areas in between trees.
   - Many existing and new desirable seedling plants exist in planting areas, extra caution IS NECESSARY TO PROTECT SEEDLINGS.
   - Do not touch, scratch, or scar existing and new desirable plants.
   - Do not trim within 12" inches of any existing and new desirable plant. Tall grass may remain around desirable plant. Hand pull undesirable plants within 12" inches of desirable plant.
   - Damaged plants will be replaced, maintained, and warrantied through duration of contract at Contractor's expense.
   - Damaged plants will be replaced immediately, unless otherwise directed.

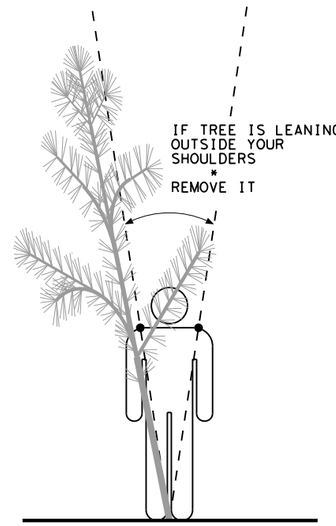
PRUNING AND REMOVALS
14. Prune all plants of any size, height, and diameter in the following conditions:
   - Within sight clearance areas for traffic and signage, see PLANT MAINTENANCE, Sheet 3, 4 AND 5 OF 6 (pruning related to signage applies to both exisiting and any new signs installed for the duration of contract.
   - With vertical clearance issues over any roadways and access routes (19′ Min.), 8′- 10′ width planting area perimeter (9′ Min.) and sidewalks (9′ Min.), see PLANT MAINTENANCE, Sheet 3 and 4 OF 6.
   - Prune all sucker growth and/or new limbs to maintain clear trunk in accordance with PLANT MAINTENANE, Sheet 2 of 6.
   - Prune dead, dying or damaged branches/limbs (includes freeze and/or drought damage to any existing plant materail).
15. Remove all plants of any size, height, and diameter not conforming to PLANT MAINTENANCE, Sheet 4 and 5 of 6, and:
   - Remove dead, dying and non-viable plants with permanent structural damage.
   - Remove invasive or undesirable plants as described on this sheet.
   - Remove leaning trees more than Approx. 8" off center measured at a height of Approx. 5′ (see leaning tree removal image this sheet).
   - Remove any existing stumps to grade.
   - Remove all pampas grass within planting areas unless otherwise noted on plans.
   - Remove oleanders, crape myrtle, wax myrtle, etc. (large shrubs) 75′ in front of and 25′ behind any ground mounted sign (small and large) unless otherwise noted on plans, treat stumps as described in note #10.
   - Remove crape myrtle, wax myrtle, etc. (multi-stemmed tree) located < 10′ from travel lane and along entire edge of sign site triangle.
   - Remove all vines from trees and shrubs and vines that have fallen from installed support structure(s).
   - Remove all vines from barriers, fences, retaining walls, sign structures, sound walls, etc. adjacent to planting areas unless otherwise noted on plans.

STAKES AND STRAPS
16. Remove all existing stakes, straps, guy wires, cables, and tags from site.

IRRIGATION SYSTEMS
17. Remove any existing irrigation system not in use to grade within redefined planting areas.
   - Receive TxDOT approval prior to any removals.
   - Cap and seal all cut irrigation lines and pipes.
   - Removed irrigation system becomes the property of the Contractor and will be disposed of appropriately - removal is incedental.

OTHER
18. Remove all litter and debris (rocks, tires, concrete, lumber, trash, bandit signs, etc.) located within planting areas.
19. Treat all fire ant colonies within planting areas.
20. Treat existing plants displaying evidence of insect, fungal, bacterial, or other negative indications - use appropriate methods and products for treatments.
21. Remove silt fence, erosion control logs, and staking associated with any planting area unless directed otherwise.
22. Access to some areas is constrained. No additional compensation is allowed for limited access.
23. Reference ITEM 5.10 INSPECTION OF THE TEXAS STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MAINTENANCE OF HIGHWAYS, STREETS, AND BRIDGES 2014. At any time during all phases of the contract, any materials or work performed not in accordance with plans and specifications will be replaced and/or reworked until in compliance with no additional compensation.
24. Any adjustments due to the falure to comply with plans and specifications shown will be at Contractor's expense.
25. District Landscape Architect or Vegetation Specialist must approve completed work prior to acceptance and payment.

CLEAR ZONE (Tree Setbacks)	
Dimensions are minimum requirements and are not limited to the items listed, adjustments will be made to accomodate site conditions.	
DO NOT PLANT WITHIN SIGHT TRIANGLE	
46′	Travel Lane (shoulder section) with slopes greater than or equal to 5:1
32′	Travel Lane (shoulder section)with slope less than 5:1, Direct Connector, Highmast Lighting, Overhead Transmission Line, CTMS, AVI, Camera, Sensor, Atenna, and/or Other Warning Devices
18′	Ramp, Overhead Distribution Line
10′	Bridge Overhang, Concrete Barrier, Curb, Ground Boxes, Guard Rail, Culvert/Inlet, Manhole, Retaining Wall, Ditch, Right-of-way Line, Riprap, Fence, Large and Small Sign (See PLANTING, ESTABLISHMENT AND MAINTENANCE LAYOUT, Sheet 3 of 4 for sight triangles)



LEANING TREE REMOVAL

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE'
1791
STATE OF TEXAS

07/29/2020

NTS

LANDSCAPE TREATMENT (TY 3)

SHEET 1 OF 1

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			35
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10

ITEM 1022-6004 LANDSCAPE TREATMENT (TY4) - EA

BEGIN ** END

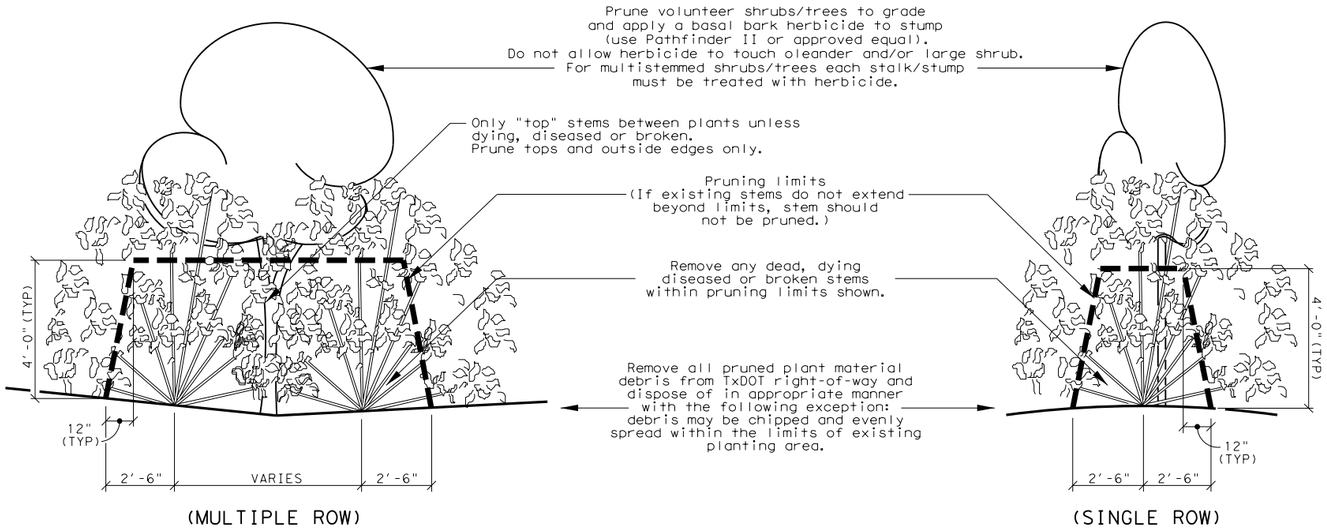
1022-6004
LANDSCAPE TREATMENT(TY4)
ALL LOCATIONS ONCE

AS SHOWN ON PLANTING, MAINTENANCE AND ESTABLISHMENT TIMELINE, SHEET 1 OF 1

REQUIREMENTS FOR TRIMMING EXISTING LARGE SHRUBS (OLEANDERS)

GENERAL
1. All requirements described under ITEM 1022-6004 for existing landscape areas apply.
2. Work areas shown in plans must be identified by Contractor in the field and approved by Engineer Prior to beginning any work.
   - For each treatment, perform all requirements described on this sheet unless otherwise shown.
3. Work includes pruning/trimming of oleanders and/or large shrubs and subsequent removal of plant material debris:
   - Prune/trim in accordance with ANSI 300.
   - Pruned/trimmed plant material debris maybe chipped and spread evenly of site or removed from site.
   - Do not create more plant material debris than what can be removed from the site the same day unless otherwise directed.
4. Each treatment includes completing the specified work for all locations identified within the project limits once.

TRIMMING
5. Trim all oleanders and/or large shrubs in designated areas shown in plans.
6. Trim all oleanders and/or large shrubs in accordance with details shown.
7. District Landscape Architect or Vegetation Specialist must approve completed work prior to acceptance and payment.



LARGE SHRUB PRUNING (OLEANDER AND/OR OTHER LARGE SHRUB SHOWN IN PLANS)

GENERAL
LARGE SHRUB PRUNING OCCURS ONLY ONCE DURING THE CONTRACT PERIOD AS DIRECTED.
Make an examination of the project site and become familiar with the nature and extent of the work to be accomplished. No extra compensation will be allowed for work made necessary by unusual conditions or obstacles encountered during the progress of the work.
Damage to any utilities, structures or right-of-way by the Contractor will be repaired at Contractor's expense.

SCHEDULE
Schedule and sequence all work activities in order to complete the work within the specified timeframe.

CERTIFICATION
Certification and/or reference that, through training and/or on the job experience, Contractor is familiar with the techniques and equipment required for the proposed work.

EQUIPMENT
Furnish all equipment, tools and machinery, in good repair and operating condition, necessary for the proper prosecution of the proposed work. If at anytime the Engineer determines any equipment is defective to the point that it may affect the quality of work, that equipment will be immediately repaired or replaced.

SCOPE OF WORK
The project limits include all area(s) shown on the plans. Confine all maintenance operations and associated work to these areas and other such areas of the right-of-way that may be required to gain access to the area(s).
Prune OLEANDERS in the manner described in these details. Pruning and trimming will conform to approved and/or acceptable horticultural practices included in ANSI 300 and appropriate to the type of shrub and special conditions.
PRUNE AND TRIM A 30' SECTION OF BOTH SINGLE AND MULTIPLE ROW PLANTINGS IN THE PRESENCE OF THE ENGINEER BEFORE FULL SCALE PRUNING OPERATIONS BEGIN.

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE'
1791
STATE OF TEXAS

07/28/2020

LANDSCAPE TREATMENT (TY 4)

SHEET 1 OF 1

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			36
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381,etc	IH 10

ITEM 193-6002 PLANT MAINTENANCE - CYC

BEGIN	** END BEGIN	** END BEGIN
193-6002 PLANT MAINTENANCE - CYC 1 ALL LOCATIONS ONCE	193-6002 PLANT MAINTENANCE - CYC 2 ALL LOCATIONS ONCE	193- PLANT MAINT ALL LOC

AS SHOWN ON PLANTING AND MAINTENANCE TIMELINE SHEET

REQUIREMENTS FOR EXISTING LANDSCAPE AREAS

GENERAL
1. Perform all requirements described on this sheet unless otherwise shown.
2. Work includes redefining all existing planting areas within project limits in accordance with PLANTING, ESTABLISHMENT AND MAINTENANCE LAYOUT, Sheets 1-4 except: landscape installed by adjacent property owners.
3. Work will be limited to the redefined planting areas and adjacent 5′- 7′ perimeter mow edge.
4. Work includes removing trees and/or shrubs which may actually reduce the original planting area size and eliminate further maintenance of an area.
5. Work includes pruning and removal of plant material:
   - Prune in accordance with ANSI A300.
   - Remove plant materail stumps to existing grade.
   - Chip and evenly distribute plant debris on site.
   - Remove any plant debris too large to chip from site.
   - Do not prune or remove more plant material than what can be chipped or removed the same day unless otherwise approved by Engineer.
   - Fill any holes from removal of dead plant material with topsoil, topsoil is incidental.
6. EACH CYCLE INCLUDES COMPLETING THE SPECIFIED WORK FOR ALL LOCATIONS IDENTIFIED WITHIN THE PROJECT LIMITS ONCE.

PLANT BED MAINTENANCE
7. Maintain and/or reshape planting areas to conform to original installation (see PLANTING, ESTABLISHMENT AND MAINTENANCE LAYOUT sheets) so that planting areas do not hinder roadway drainage, especially behind slotted barrier.
8. Chemically control weeds and undesirable grasses in planting areas with ROUNDUP PROMAX.
   - Perform herbicide applications under supervision of STATE LICENSED APPLICATOR.

UNDESIRABLES
9. Chemically treat and remove all JOHNSON GRASS within redefined planting areas, adjacent 5′- 7′ perimeter areas and along fences/walls/structures adjacent to perimeter area with an approved herbicide.
   - Perform herbicide applications under supervision of STATE LICENSED APPLICATOR.
   - Do not remove undesirable plant until herbicide manufacturer's recommended time period for herbicide absorption.
   - Repeat as required for complete kill.
   - Herbicide is subsidiary to ITEM 193-6002.
10. Remove invasive and/or undesirable trees, shrubs and vines within redefined planting areas, adjacent 5′- 7′ perimeter areas and along fences/walls/structures adjacent to perimeter area. Chemically treat stumps of cut invasive and/or undesirable plants with PATHFINDER II BASAL BARK HERBICIDE, or approved equal.
   - Perform herbicide applications under supervision of STATE LICENSED APPLICATOR.
   - Invasive and/or undesirable plants include but are not limited to: willow, tallow, baccharis, mulberry, trumpet vine, bind weed, japanese honeysuckle, morning glory, vetch, etc.
   - Repeat stump treatment as necessary for complete kill.
   - Herbicide is subsidiary to ITEM 193-6002.

HERBICIDE
11. Chemically treat all redefined planting areas with an approved herbicide as needed to control understory growth prior to mowing and trimming.
   - Perform herbicide applications under supervision of STATE LICENSED APPLICATOR.
   - Do not mow and/or trim understory until after herbicide manufacturer's recommended absorption time.
   - Do not allow herbicide to come in contact with desirable vines, shrubs, or trees, including seedlings.
   - Herbicide is subsidiary to ITEM 193-6002.

MOWING AND TRIMMING
12. Mow 5′- 7′ perimeter of all redefined planting areas to standard height (4"-7").
13. Scalp mow/trim within all redefined planting areas, including between trees after herbicide manufacturer's recommended time period for herbicide absorption.
   - Trimming with cord trimmer is allowed within planting areas in between trees.
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   - Do not trim within 12" inches of any existing and new desirable plant. Tall grass may remain around desirable plant. Hand pull undesirable plants within 12" inches of desirable plant.
   - Damaged plants will be replaced, maintained, and warrantied through duration of contract at Contractor's expense.
   - Damaged plants will be replaced immediately, unless otherwise directed.

PRUNING AND REMOVALS
14. Prune all plants of any size, height, and diameter in the following conditions:
   - Within sight clearance areas for traffic and signage, see PLANT MAINTENANCE, Sheet 3, 4 AND 5 OF 6 (pruning related to signage applies to both exisiting and any new signs installed for the duration of contract.
   - With vertical clearance issues over any roadways and access routes (19′ Min.), 8′- 10′ width planting area perimeter (9′ Min.) and sidewalks (9′ Min.), see PLANT MAINTENANCE, Sheet 3 and 4 OF 6.
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   - Prune dead, dying or damaged branches/limbs (includes freeze and/or drought damage to any existing plant materail).
15. Remove all plants of any size, height, and diameter not conforming to PLANT MAINTENANCE, Sheet 4 and 5 of 6, and:
   - Remove dead, dying and non-viable plants with permanent structural damage.
   - Remove invasive or undesirable plants as described on this sheet.
   - Remove leaning trees more than Approx. 8" off center measured at a height of Approx. 5′ (see leaning tree removal image this sheet).
   - Remove any existing stumps to grade.
   - Remove all pampas grass within planting areas unless otherwise noted on plans.
   - Remove oleanders, crape myrtle, wax myrtle, etc. (large shrubs) 75′ in front of and 25′ behind any ground mounted sign (small and large) unless otherwise noted on plans, treat stumps as described in note #10.
   - Remove crape myrtle, wax myrtle, etc. (multi-stemmed tree) located < 10′ from travel lane and along entire edge of sign site triangle.
   - Remove all vines from trees and shrubs and vines that have fallen from installed support structure(s).
   - Remove all vines from barriers, fences, retaining walls, sign structures, sound walls, etc. adjacent to planting areas unless otherwise noted on plans.

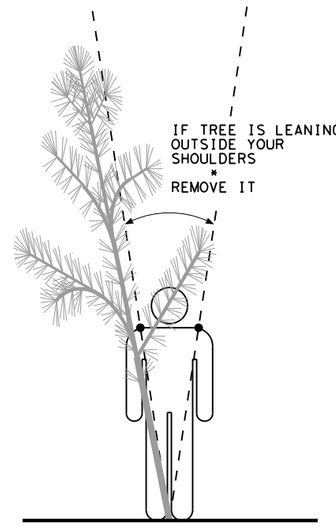
STAKES AND STRAPS
16. Remove all existing stakes, straps, guy wires, cables, and tags from site.

IRRIGATION SYSTEMS
17. Remove any existing irrigation system not in use to grade within redefined planting areas.
   - Receive TxDOT approval prior to any removals.
   - Cap and seal all cut irrigation lines and pipes.
   - Removed irrigation system becomes the property of the Contractor and will be disposed of appropriately - removal is incedental.

OTHER
18. Remove all litter and debris (rocks, tires, concrete, lumber, trash, bandit signs, etc.) located within planting areas.
19. Treat all fire ant colonies within planting areas.
20. Treat existing plants displaying evidence of insect, fungal, bacterial, or other negative indications - use appropriate methods and products for treatments.
21. Remove silt fence, erosion control logs, and staking associated with any planting area unless directed otherwise.
22. Access to some areas is constrained. No additional compensation is allowed for limited access.
23. Reference ITEM 5.10 INSPECTION OF THE TEXAS STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MAINTENANCE OF HIGHWAYS, STREETS, AND BRIDGES 2014. At any time during all phases of the contract, any materials or work performed not in accordance with plans and specifications will be replaced and/or reworked until in compliance with no additional compensation.
24. Any adjustments due to the falure to comply with plans and specifications shown will be at Contractor's expense.
25. District Landscape Architect or Vegetation Specialist must approve completed work prior to acceptance and payment.

CLEAR ZONE (Tree Setbacks)

Dimensions are minimum requirements and are not limited to the items listed, adjustments will be made to accomodate site conditions.	
DO NOT PLANT WITHIN SIGHT TRIANGLE	
46′	Travel Lane (shoulder section) with slopes greater than or equal to 5:1
32′	Travel Lane (shoulder section)with slope less than 5:1, Direct Connector, Highmast Lighting, Overhead Transmission Line, CTMS, AVI, Camera, Sensor, Atenna, and/or Other Warning Devices
18′	Ramp, Overhead Distribution Line
10′	Bridge Overhang, Concrete Barrier, Curb, Ground Boxes, Guard Rail, Culvert/Inlet, Manhole, Retaining Wall, Ditch, Right-of-way Line, Riprap, Fence, Large and Small Sign (See PLANTING, ESTABLISHMENT AND MAINTENANCE LAYOUT, Sheet 3 of 4 for sight triangles)



LEANING TREE REMOVAL

NTS

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE'
1791
STATE OF TEXAS

07/29/2020

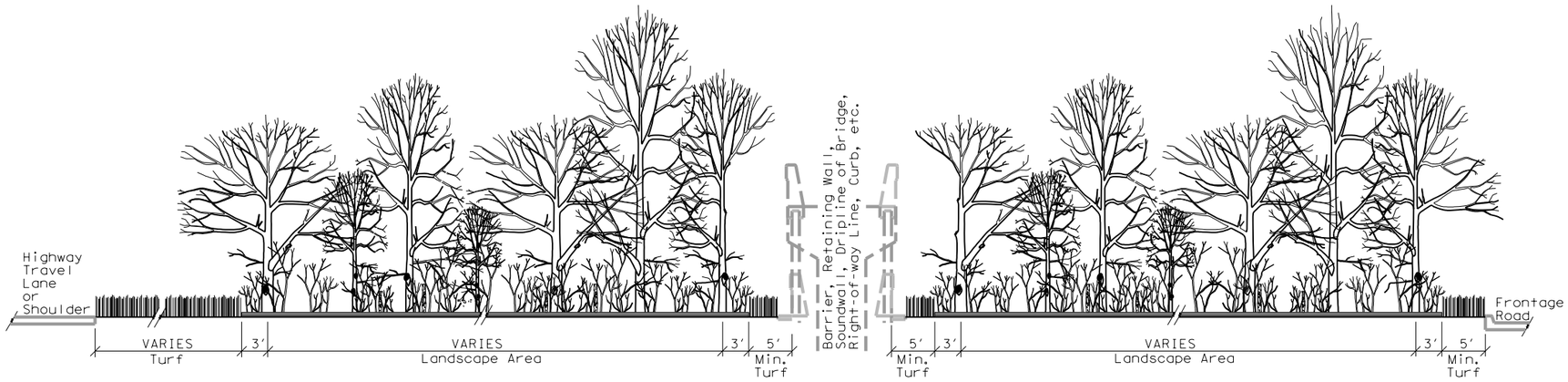
PLANT MAINTENANCE

SHEET 1 OF 6

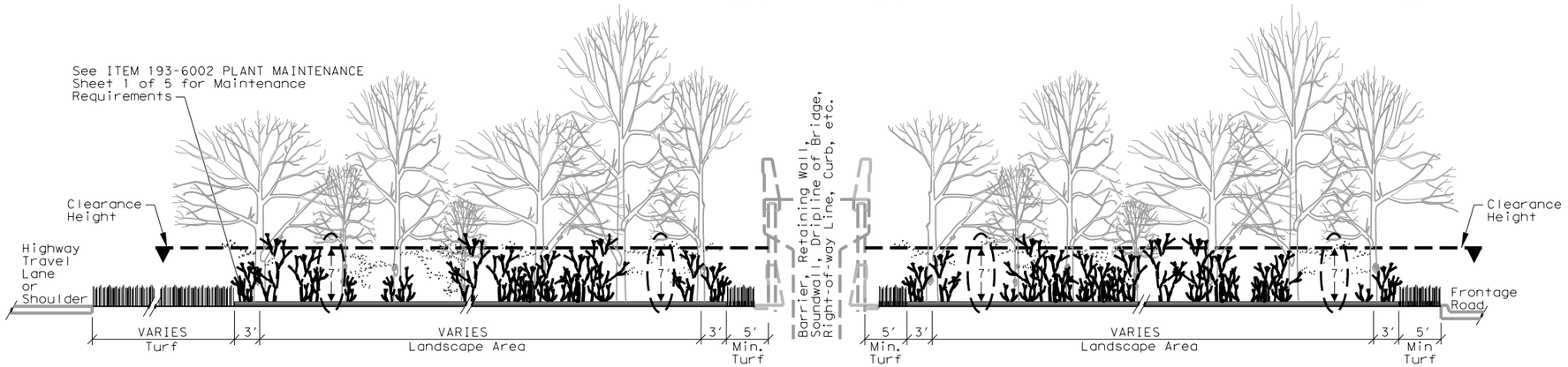
Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			37
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10

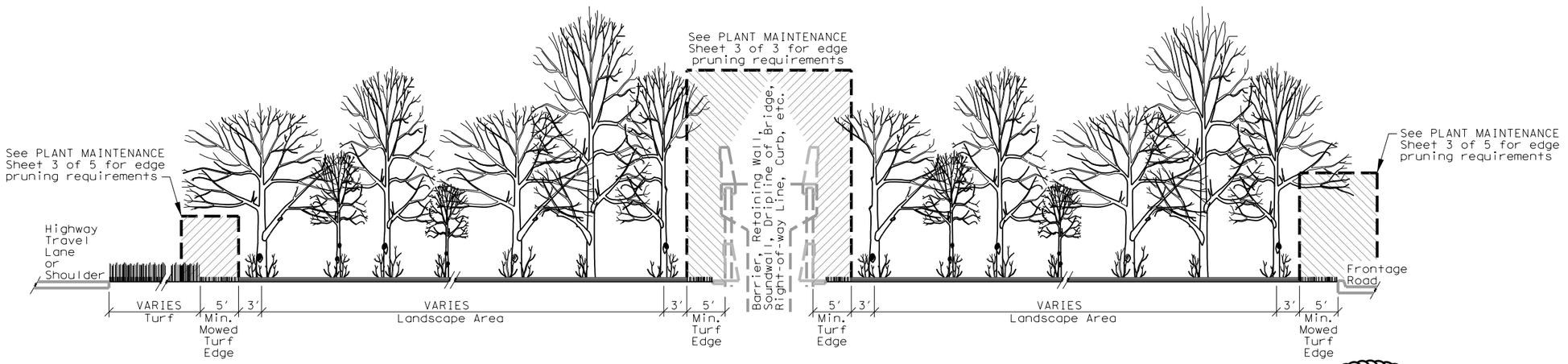
EXISTING CONDITION



PRUNE/REMOVAL REQUIREMENTS



FINAL CONDITION



PLANT MAINTENANCE - UNDERSTORY AND SUCKER GROWTH PRUNING, TRIMMING AND REMOVAL

NTS

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE'
1791
STATE OF TEXAS

07/29/2020

PLANT MAINTENANCE

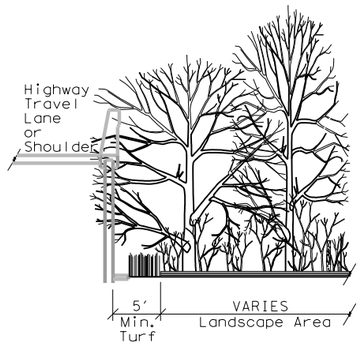
SHEET 2 OF 6

Texas Department of Transportation

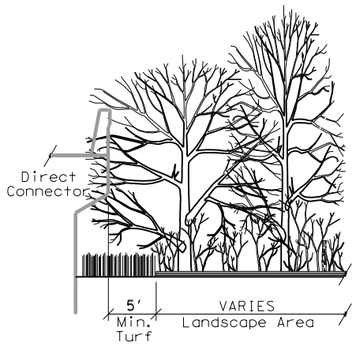
FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			38
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10

EXISTING CONDITION

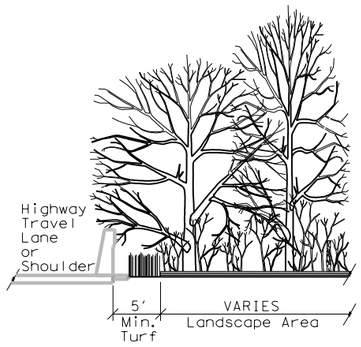
RETAINING WALL



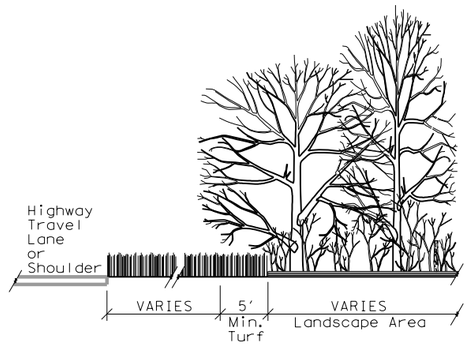
DIRECT CONNECTOR



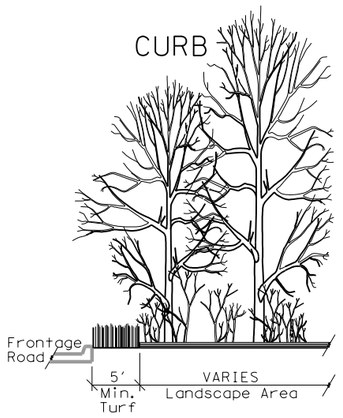
BARRIER



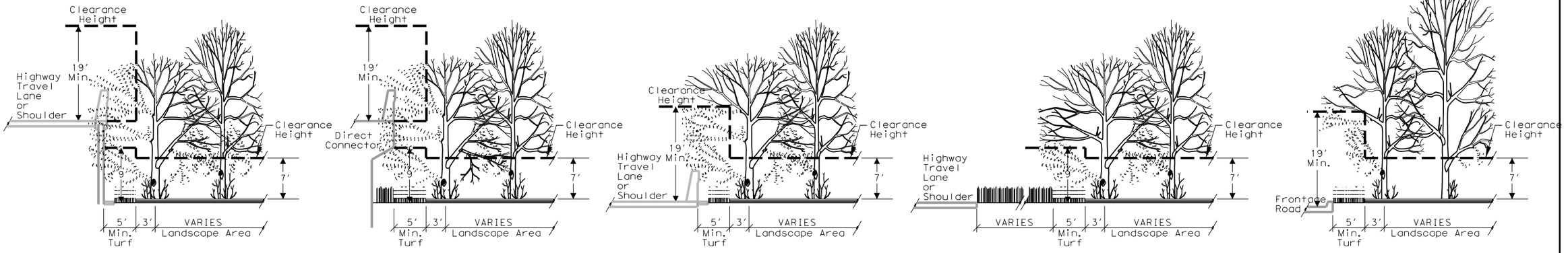
HIGHWAY SHOULDER



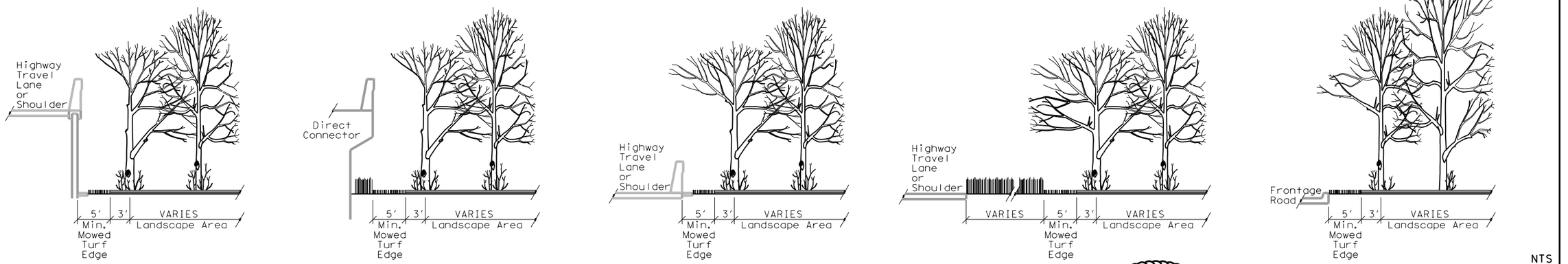
CURB



PRUNE/REMOVAL REQUIREMENTS



FINAL CONDITION



NTS

PLANT MAINTENANCE - EDGE PRUNING, TRIMMING AND REMOVAL

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE'
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PLANT MAINTENANCE

SHEET 3 OF 6

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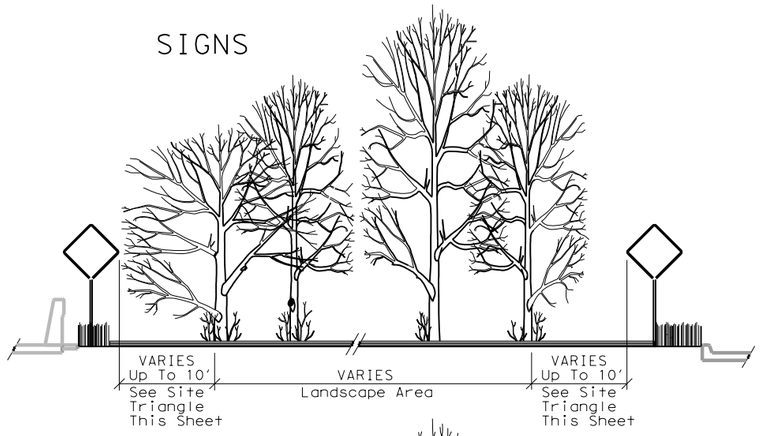
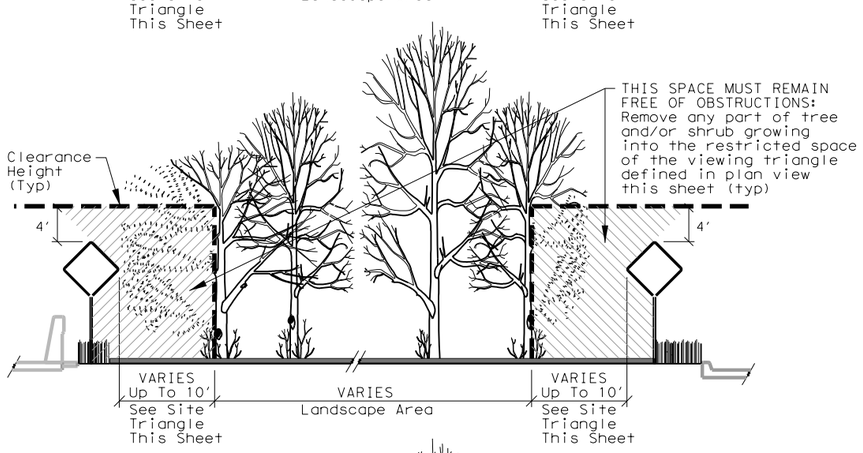
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10

SIGNS

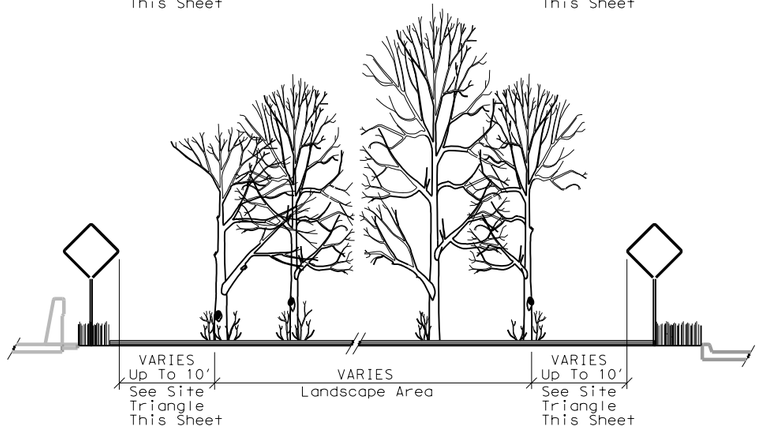
EXISTING CONDITION



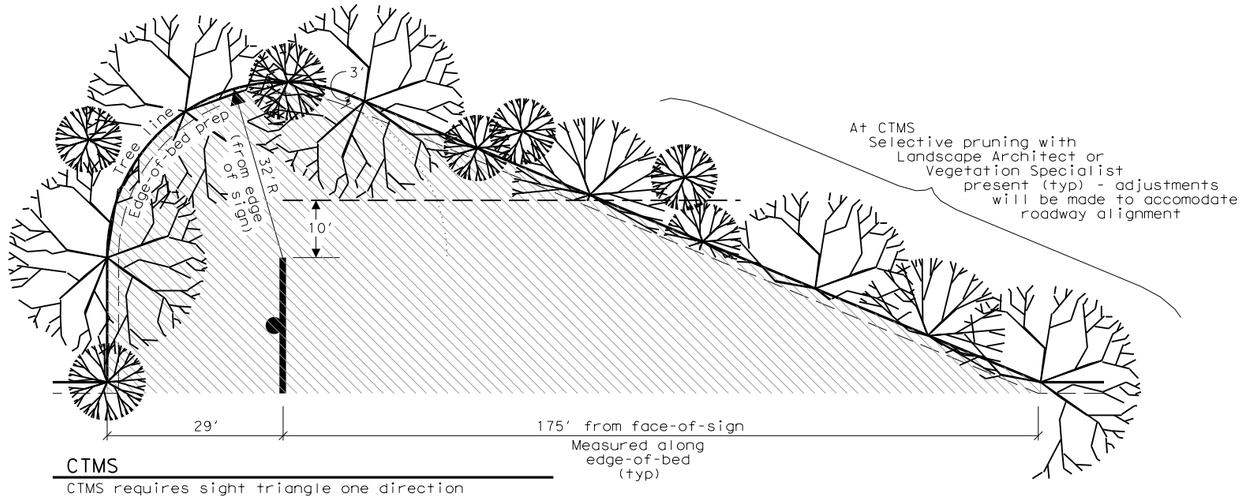
PRUNE/REMOVAL REQUIREMENTS



FINAL CONDITION

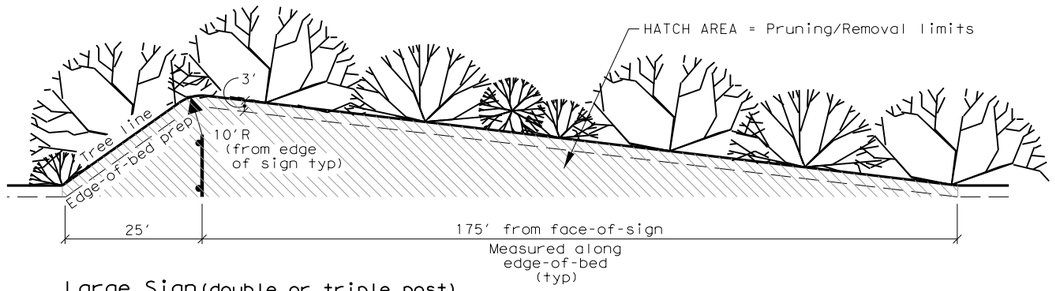


ELEVATION



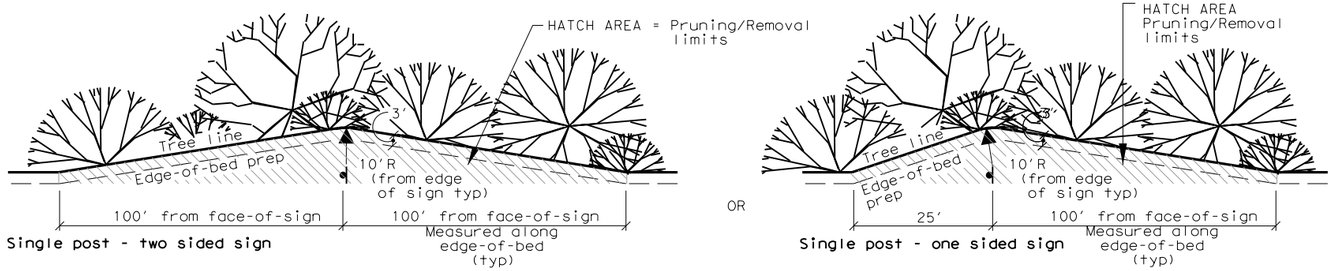
CTMS

CTMS requires sight triangle one direction



Large Sign (double or triple post)

Applies to ground mounted and structure mounted (rails, wall, columns, etc.) signs



PLAN

Small Sign

Applies to ground mounted and structure mounted (rails, wall, columns, etc.) signs

PLANT MAINTENANCE - SIGHT CLEARANCE FOR SIGNAGE

NTS

REGISTERED LANDSCAPE ARCHITECT
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PLANT MAINTENANCE

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STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
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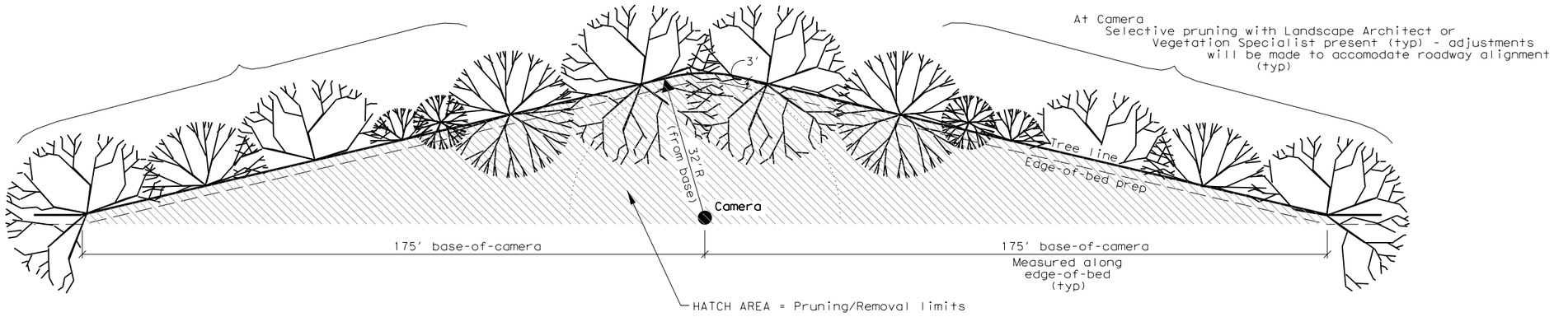
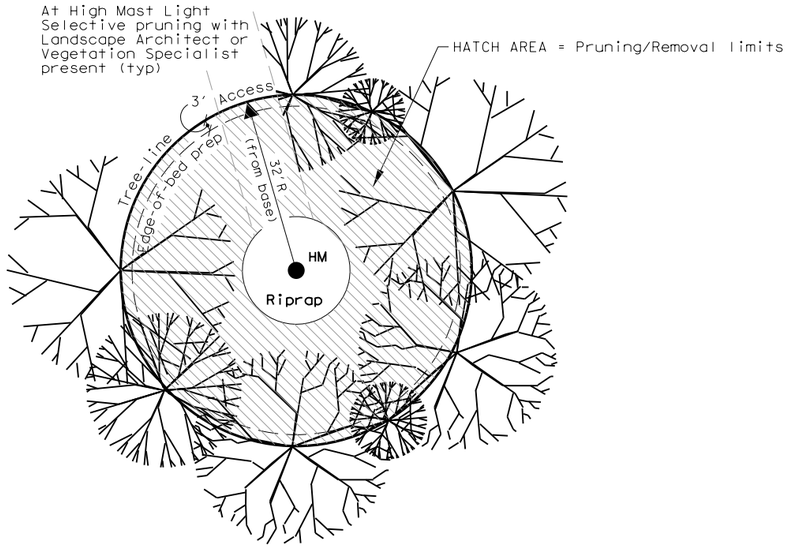


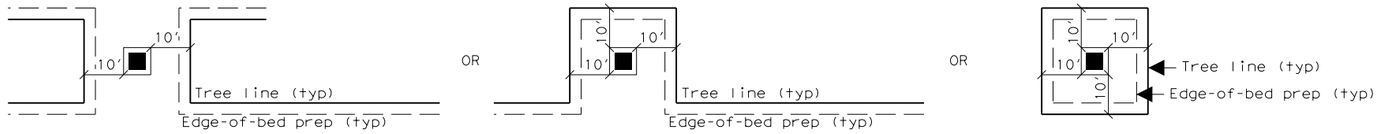
Camera

Camera requires sight triangle both directions



High Mast Lighting, etc.

High mast lighting, sensors, antennas, etc. require full or partial circle depending on location and access required - access will be determined in the field



Ground Box, Inlet, Manhole, etc.

Include any riprap as part of structure

PLANT MAINTENANCE - CAMERA, HIGHMAST LIGHTING AND DRAIN INLET CLEARANCE

REGISTERED LANDSCAPE ARCHITECT
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PLANT MAINTENANCE

SHEET 5 OF 6

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STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
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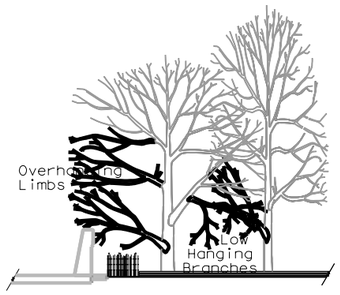
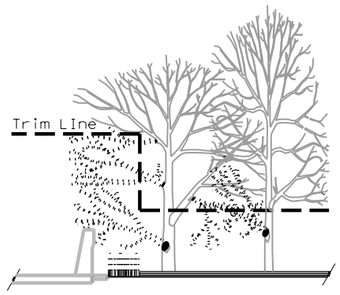
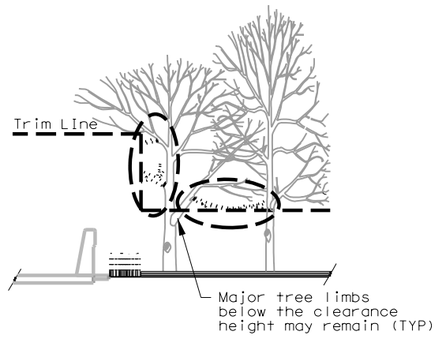


EXISTING CONDITION



BRANCHES / LIMBS TO BE REMOVED

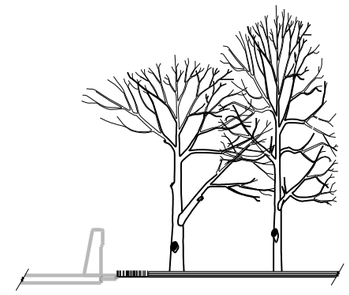


IMPROPERLY PRUNED TREES

Cut limbs at a major fork in the branch or, if the entire branch is encroaching into the area to be cleared, remove the branch at the trunk.

Do not leave a stub beyond the branch collar or cut through the branch collar when making pruning cuts.

The branch collar is generally visible, but if it is not, make the final cut approximately 1/2" from the parent branch or trunk, perpendicular to the branch or limb being removed.



PROPERLY PRUNED TREES

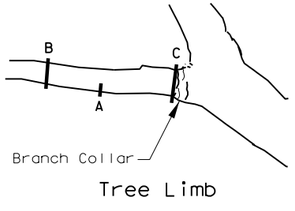
PLANT MAINTENANCE - BRANCH / LIMB REMOVAL

FLAILING EQUIPMENT IS NOT ALLOWED FOR THIS WORK

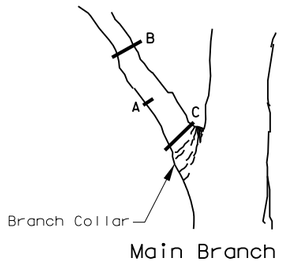
A - STEP 1
Cut 1/3 way through bottom of limb 8-12" above main stem or trunk

B - STEP 2
Remove limb 4-6" beyond the first cut

C - STEP 3
Remove stub with a smooth cut just beyond the branch collar of the removed limb



Tree Limb



Main Branch

PRUNING CUTS - LIMBS 2" IN DIAMETER AND GREATER

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PLANT MAINTENANCE

SHEET 6 OF 6

Texas Department of Transportation

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CLEAR ZONE (Tree Setbacks)

Dimensions are minimum requirements and are not limited to the items listed, adjustments will be made to accomodate site conditions.

DO NOT PLANT WITHIN SIGHT TRIANGLE

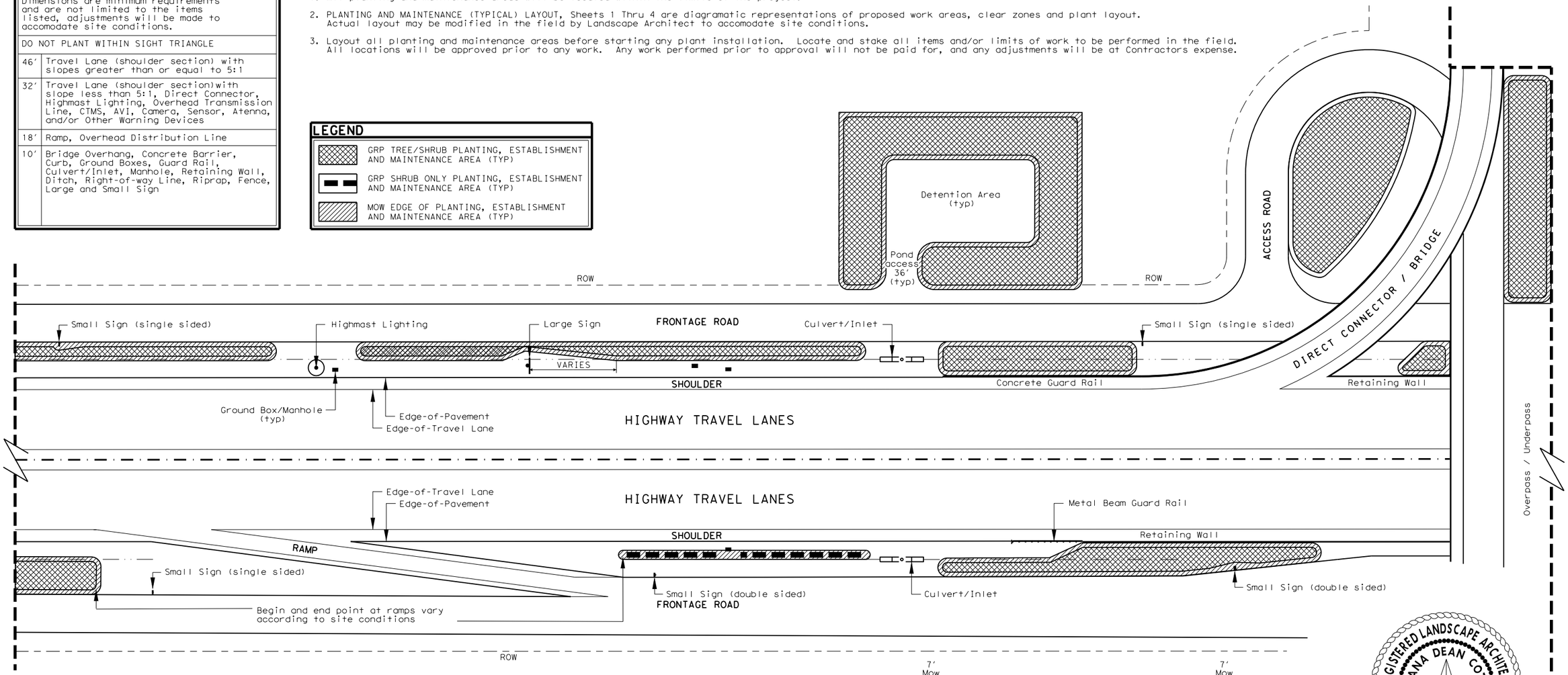
46′	Travel Lane (shoulder section) with slopes greater than or equal to 5:1
32′	Travel Lane (shoulder section)with slope less than 5:1, Direct Connector, Highmast Lighting, Overhead Transmission Line, CTMS, AVI, Camera, Sensor, Atenna, and/or Other Warning Devices
18′	Ramp, Overhead Distribution Line
10′	Bridge Overhang, Concrete Barrier, Curb, Ground Boxes, Guard Rail, Culvert/Inlet, Manhole, Retaining Wall, Ditch, Right-of-way Line, Riprap, Fence, Large and Small Sign

NOTES:

1. All planting and maintenance areas will be located within the limits of the project.
2. PLANTING AND MAINTENANCE (TYPICAL) LAYOUT, Sheets 1 Thru 4 are diagramatic representations of proposed work areas, clear zones and plant layout. Actual layout may be modified in the field by Landscape Architect to accomodate site conditions.
3. Layout all planting and maintenance areas before starting any plant installation. Locate and stake all items and/or limits of work to be performed in the field. All locations will be approved prior to any work. Any work performed prior to approval will not be paid for, and any adjustments will be at Contractors expense.

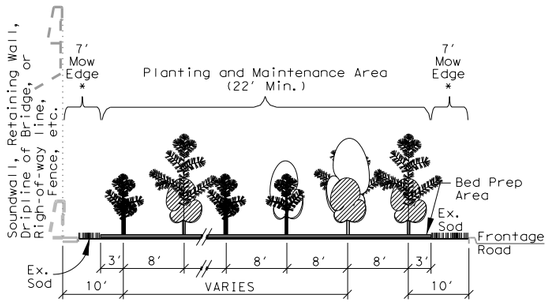
LEGEND

- GRP TREE/SHRUB PLANTING, ESTABLISHMENT AND MAINTENANCE AREA (TYP)
- GRP SHRUB ONLY PLANTING, ESTABLISHMENT AND MAINTENANCE AREA (TYP)
- MOW EDGE OF PLANTING, ESTABLISHMENT AND MAINTENANCE AREA (TYP)



Roadway Planting and Maintenance Areas (Typ)

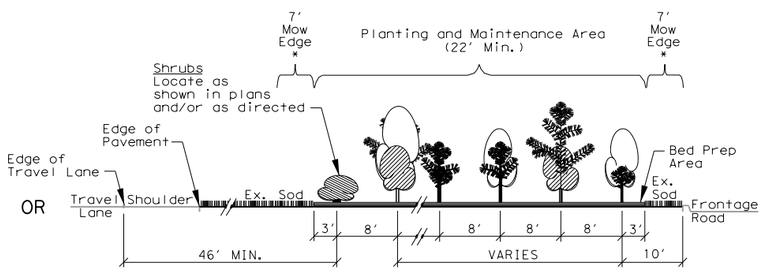
See CLEAR ZONE table this sheet for dimensions not shown.



* Mow edge varies at signs and structures

Typical Elevation

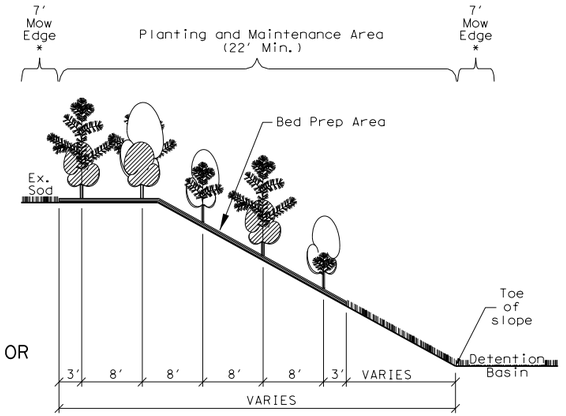
OR



* Mow edge varies at signs and structures

Typical Elevation

OR



* Mow edge varies at signs and structures

Typical Elevation

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE'
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PLANTING, ESTABLISHMENT AND MAINTENANCE LAYOUT

SHEET 1 OF 4

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STATE	DIST.	COUNTY	
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CONT.	SECT.	JOB	HIGHWAY NO.
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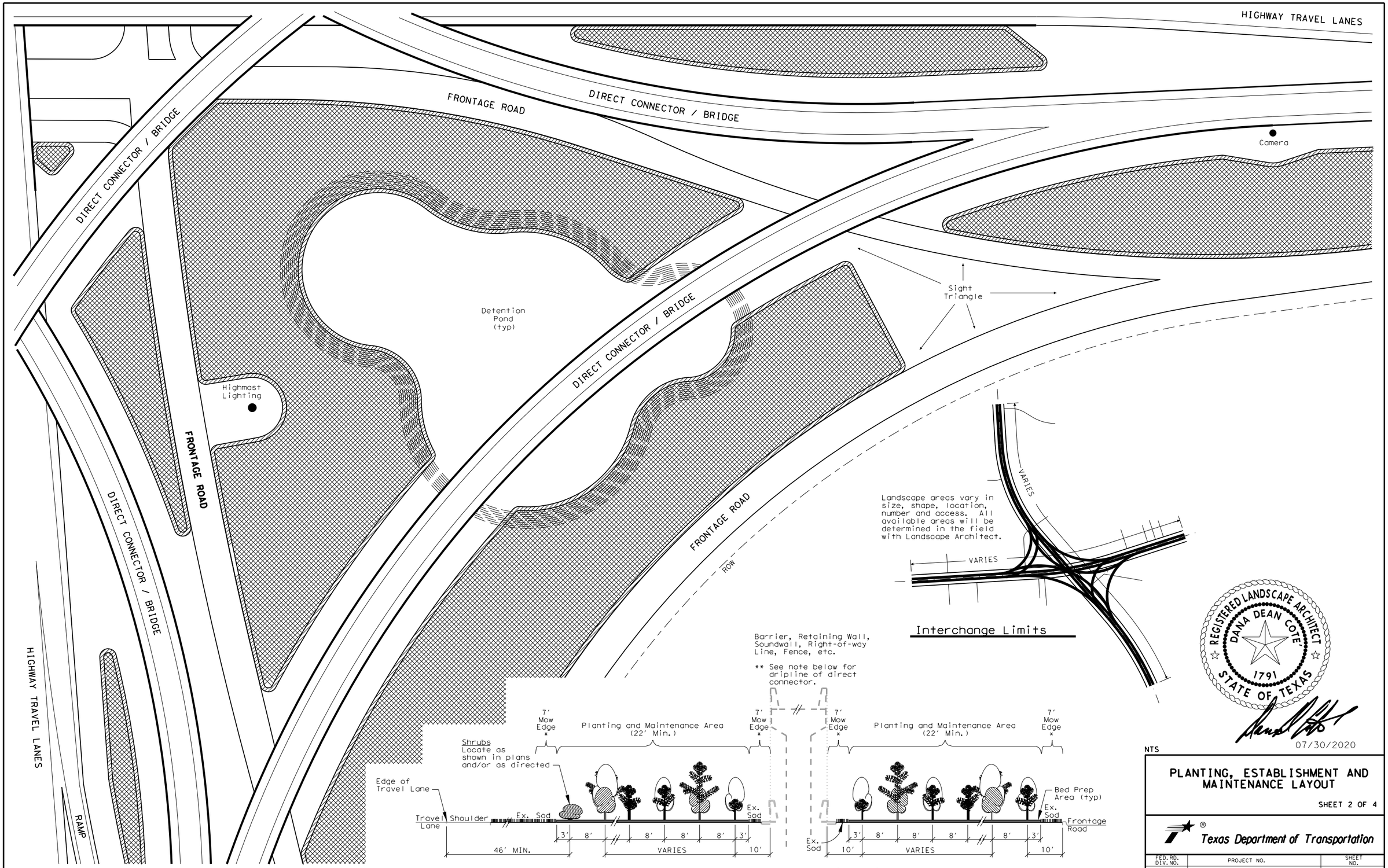

Interchange Planting and Maintenance Areas (Typ)

Interchange w/ Direct Connectors

Ⓓ TYPICAL ELEVATION

* Mow edge varies at signs and structures
** 29' mow edge adjacent to direct connectors

REGISTERED LANDSCAPE ARCHITECT
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PLANTING, ESTABLISHMENT AND MAINTENANCE LAYOUT

SHEET 2 OF 4

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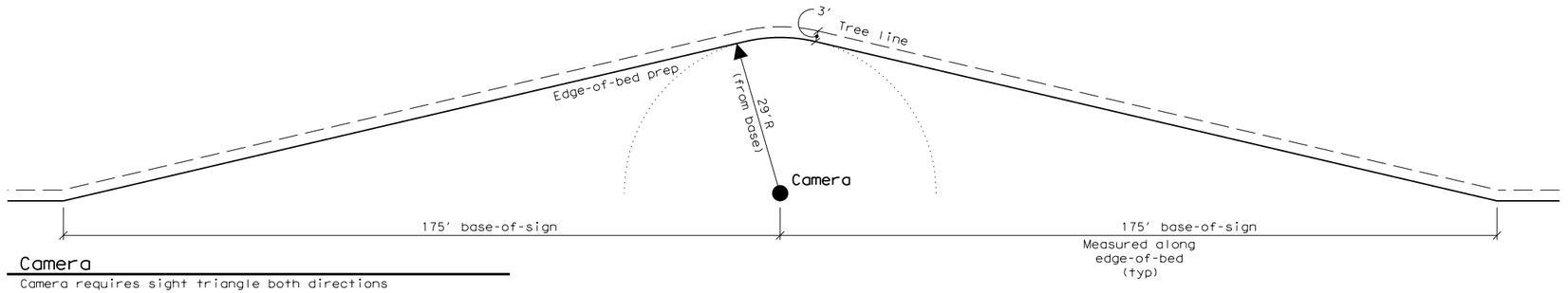
0508	01	381, etc	IH 10

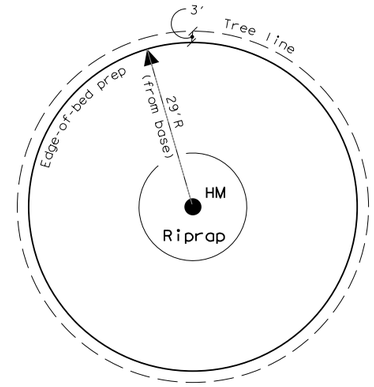
CLEAR ZONE / SIGHT DISTANCE REQUIREMENTS

Dimensions are minimum requirements and are not limited to the items shown, adjustments will be made to accomodate site conditions



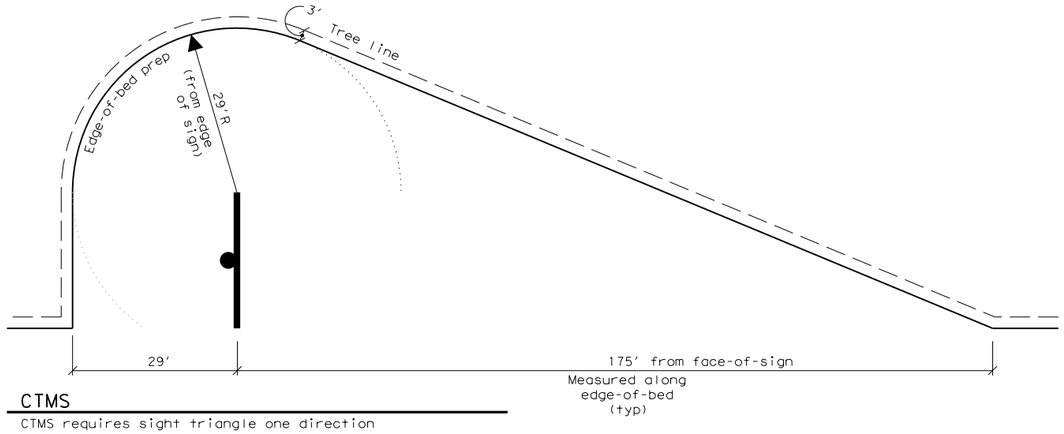
Camera

Camera requires sight triangle both directions



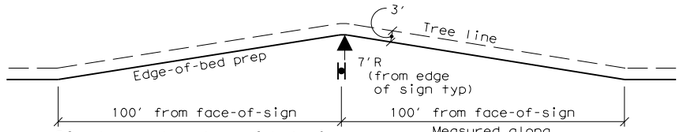
High Mast Lighting, etc.

High mast lighting, sensors, antennas, etc. require full or partial circle depending on location and access required - access will be determined in the field



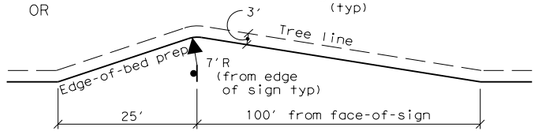
CTMS

CTMS requires sight triangle one direction

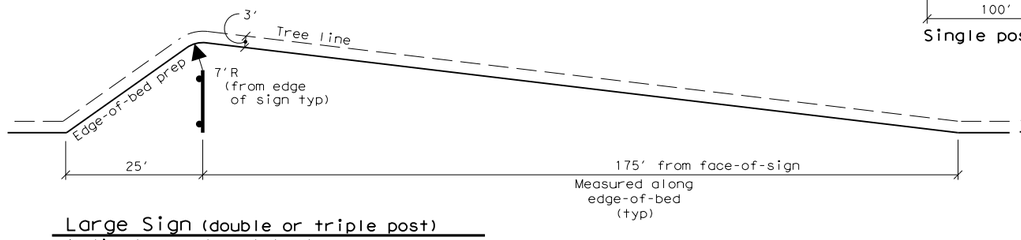


Single post - two sided sign

OR



Single post - one sided sign

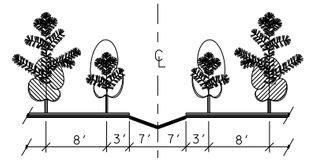


Large Sign (double or triple post)

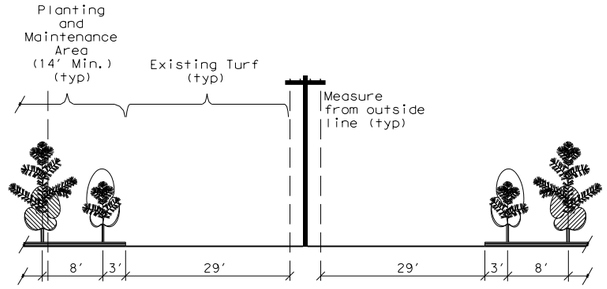
Applies to ground mounted and structure mounted (rails, wall, columns, etc.) signs

Small Sign

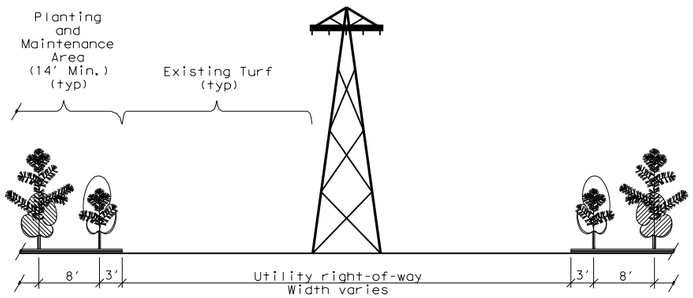
Applies to ground mounted and structure mounted (rails, wall, columns, etc.) signs



Ditch



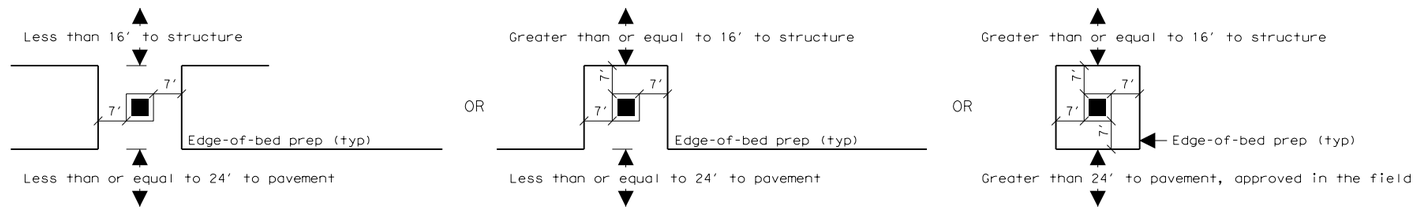
Distribution lines



Transmission lines

(Very high overhead power lines supported by large towers)

Overhead Lines



Ground Box, Inlet, Manhole, etc.

Include any riprap as part of structure

NTS

PLANTING, ESTABLISHMENT AND MAINTENANCE LAYOUT

SHEET 3 OF 4

Texas Department of Transportation

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0508	01	381, etc	IH 10

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
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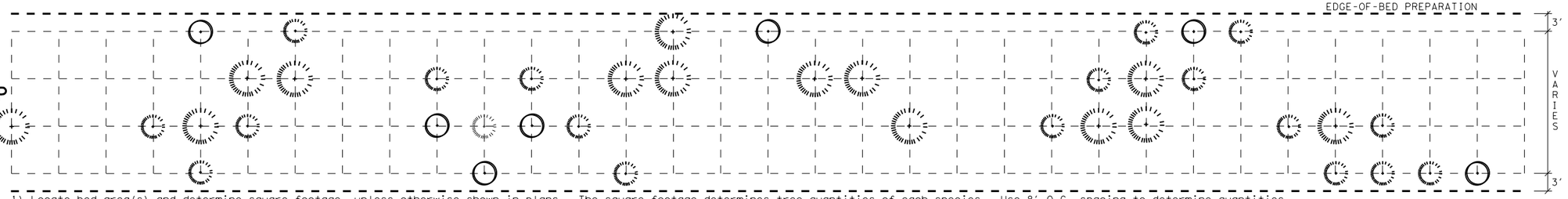
STATE OF TEXAS

07/30/2020

STEP 1

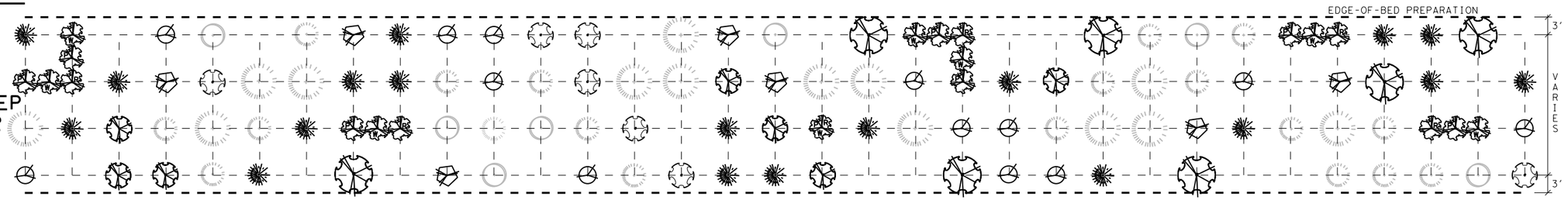


1) Locate bed area(s) and determine square footage, unless otherwise shown in plans. The square footage determines tree quantities of each species. Use 8' O.C. spacing to determine quantities.
2) Evenly distribute Bald Cypress and Sycamore 8'O.C. in groups of 1, 3 and 5.
These plants should be located first within and/or adjacent to poor drainage (moist and/or wet) areas of the site. If moist/wet areas dominate the site bald cypress should be planted one-for-one in lieu of loblolly pine.

PLANT LEGEND

SYMBOL	DESC	SIZE (GAL)	% QTY
	Bald Cypress	5g	15%
	Loblolly Pine	15g	10%
	Sycamore	5g	5%

STEP 2

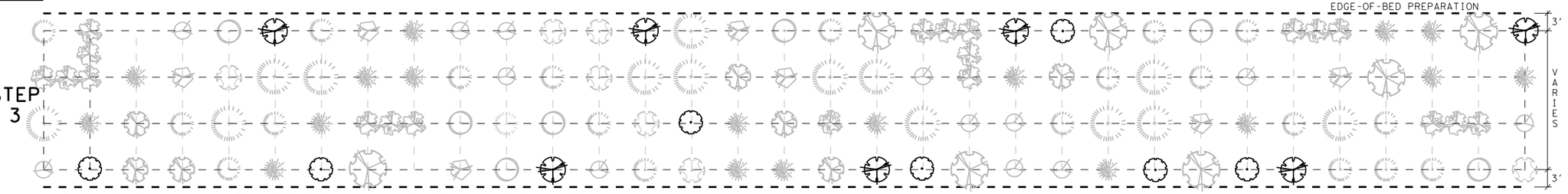


1) Evenly distribute American Holly, Elms, Pine and Magnolia 8'O.C. in groups of 1, 3 and 5.
2) Evenly distribute Crape Myrtles 4'O.C. in groups of 3, or 5 (red, white and pink) within the interior of planting area(s) and freeway edge without barrier. Locate a minimum of 18' from any curb, barrier or retaining wall and to avoid conflict with signage.

PLANT LEGEND

SYMBOL	DESC	SIZE (GAL)	% QTY
	American Holly	5g	5%
	Cedar Elm	5g	5%
	Cedar Elm	15g	5%
	Crape Myrtle	3g	15%
	Drake Elm	5g	5%
	Loblolly Pine	5g	15%
	Magnolia	5g	10%

STEP 3



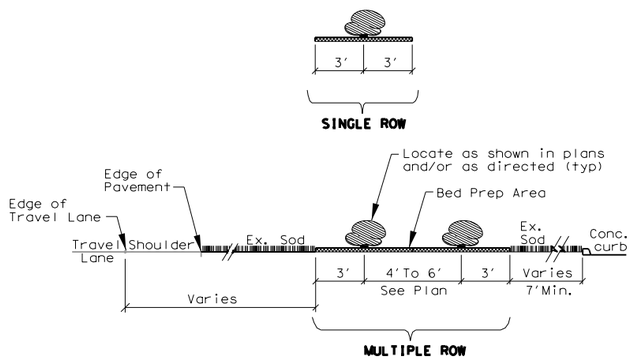
1) Evenly distribute Loblolly Pines 8'O.C. in groups and individually within remaining area(s) as shown.

PLANT LEGEND

SYMBOL	DESC	SIZE (GAL)	% QTY
	Bur Oak	5g	5%
	Shumard Oak	5g	5%

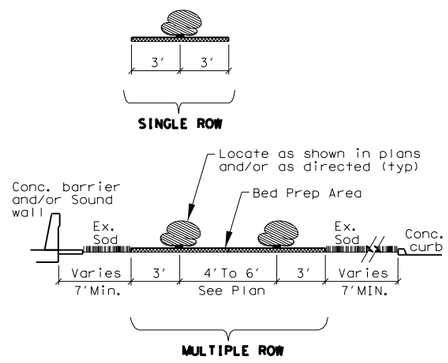
Tree Layout Sequence Within New Planting Area (Typ)

Trees Within New Planting Areas



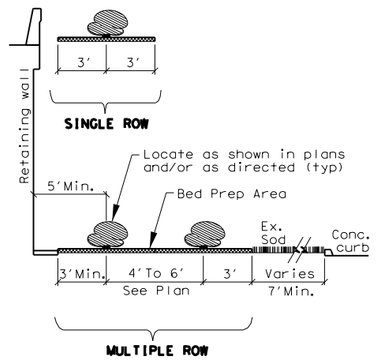
Shrub Planting Typical Elevation

Shoulder / Curb



Shrub Planting Typical Elevation

Barrier / Sound Wall / Curb



Shrub Planting Typical Elevation

Retaining Wall / Curb

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE'
1791
STATE OF TEXAS

07/30/2020

NTS

PLANTING, ESTABLISHMENT AND MAINTENANCE LAYOUT

SHEET 4 OF 4

Texas Department of Transportation

FED.RD. DIV.NO:	PROJECT NO.		SHEET NO.
6			46
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10

ITEM 751-6011 PRUNING - CYC (SEE ITEM 1, ABBREVIATIONS AND DEFINITIONS, 3.43. CYCLE)

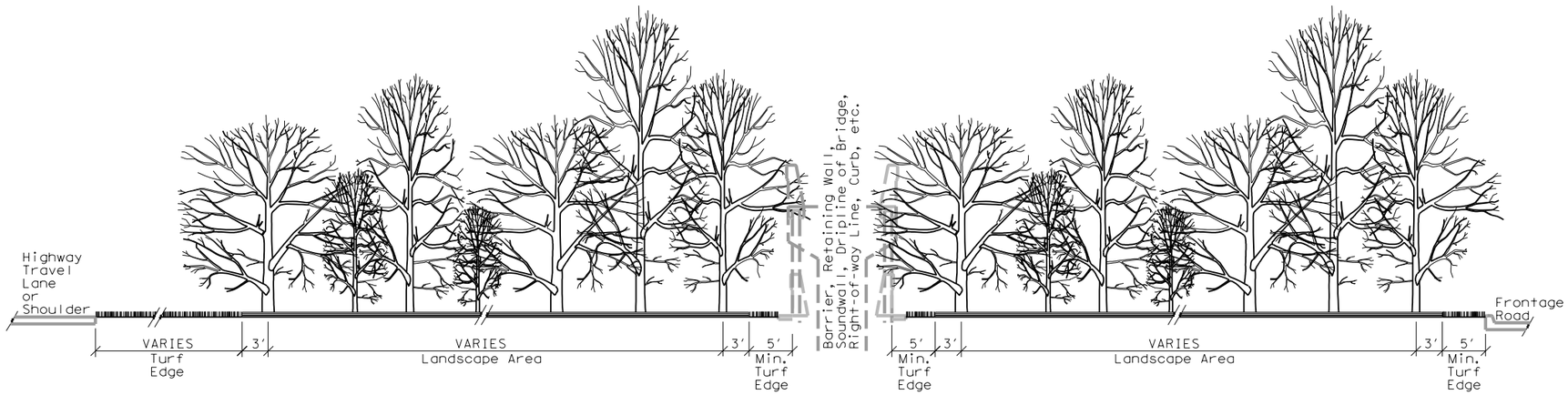
BEGIN

751-6011
PRUNING - CYC
ALL LOCATIONS ONCE

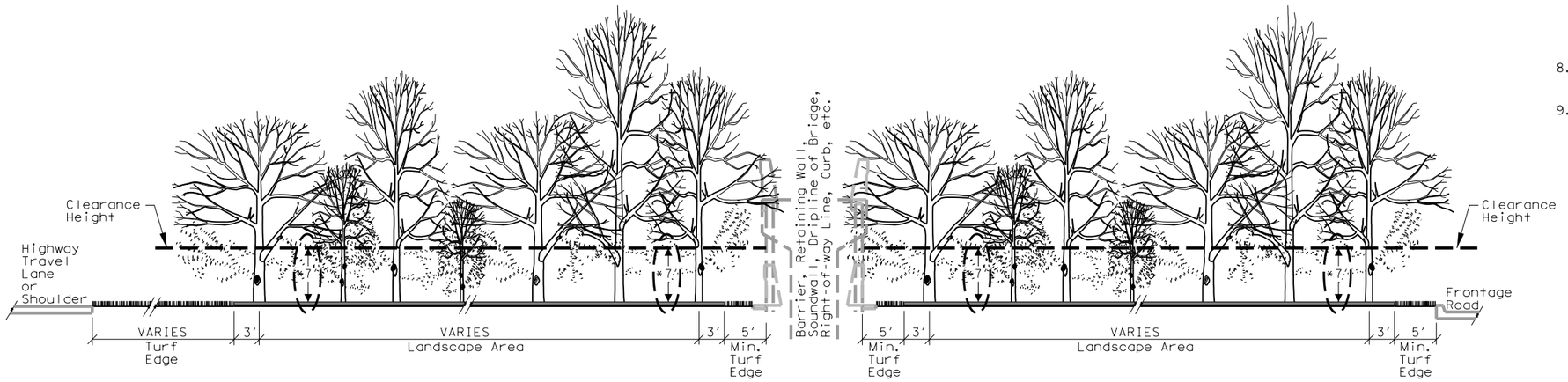
AS SHOWN ON PLANTING, MAINTENANCE AND ESTABLISHMENT TIMELINE, SHEET 1 OF 1.

PRUNING REQUIREMENTS FOR LIMBING-UP OF EXISTING LANDSCAPE AREAS

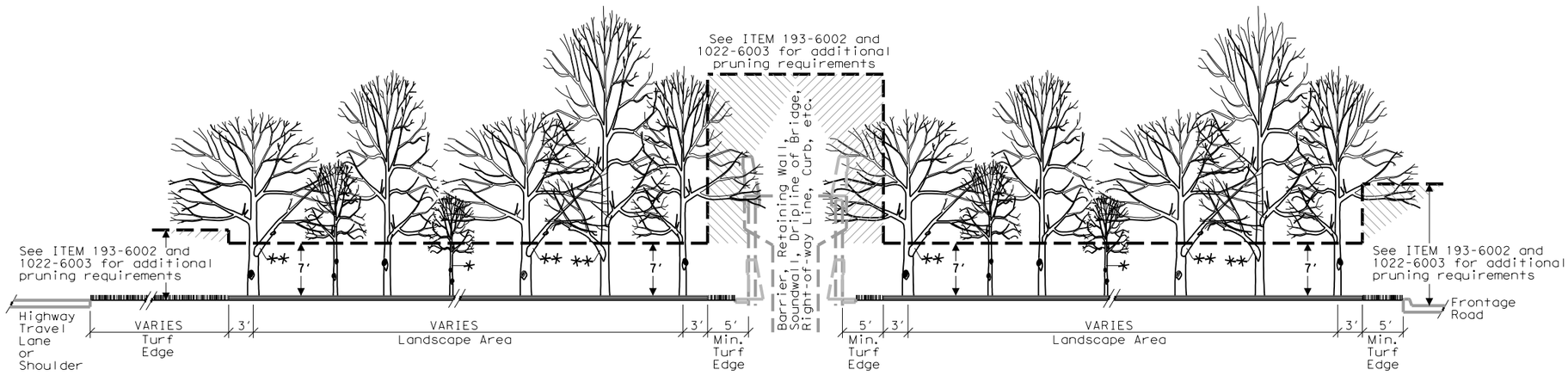
EXISTING CONDITION



PRUNE/REMOVAL REQUIREMENTS



FINAL CONDITION



TREE LIMBING UP

GENERAL

1. All requirements described under ITEM 751-6011 for existing areas apply.
2. Work areas shown in plans must be identified by Contractor in the field and approved by Engineer prior to beginning any work.
3. Work includes pruning (limbing-up) of existing trees.
   - Prune in accordance with ANSI A300.
   - Chip and evenly spread plant debris on site.
   - Remove any plant debris too large to chip from site.
   - Do not prune more plant material that what can be chipped or removed the same day unless otherwise directed.
4. Each cycle includes completing the specified work for all locations identified within the project limits once.

PRUNING

5. Prune all trees located within existing landscape areas identified in plans with the following exceptions:
   a) Detention Pond - Prune first 3 rows or 24′ along top and bottom edge of slope.
   b) Interchanges (identified in plans) - trim first 5 rows or 38′ along perimeter edge.
6. Prune all trees in accordance with details shown.
*7. Prune / remove lower limbs of each tree ≥ 16′ to a height of 7′ with the following exception:
   * Trees < 16′ to 1/2 the height of the tree.
   ** Major limbs anchored below the clearance hieght may remain as shown. Remove all other branches hanging below the clearance height.
8. Do not prune the following plant species: Wax Myrtle, Esperanze, Oleander, Vitex, or Yaupon unless otherwise shown on plans.
9. District Landscape Architect or Vegetation Specialist must approve completed work prior acceptance and payment.

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

07/29/2020

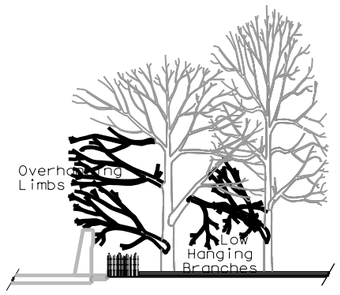
NTS

PRUNING

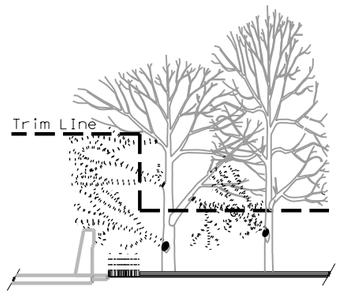
SHEET 1 OF 2

Texas Department of Transportation

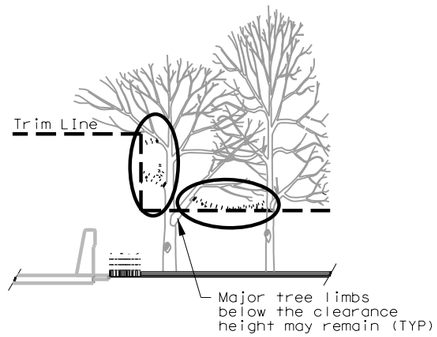
FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			47
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10



EXISTING CONDITION



BRANCHES / LIMBS TO BE REMOVED

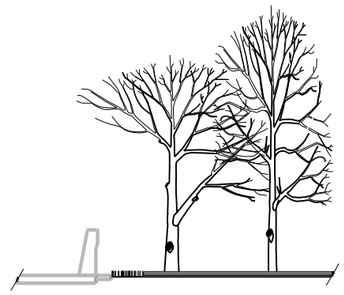


IMPROPERLY PRUNED TREES

Cut limbs at a major fork in the branch or, if the entire branch is encroaching into the area to be cleared, remove the branch at the trunk.

Do not leave a stub beyond the branch collar or cut through the branch collar when making pruning cuts.

The branch collar is generally visible, but if it is not, make the final cut approximately 1/2" from the parent branch or trunk, perpendicular to the branch or limb being removed.



PROPERLY PRUNED TREES

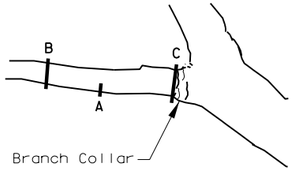
BRANCH / LIMB REMOVAL

FLAILING EQUIPMENT IS NOT ALLOWED FOR THIS WORK

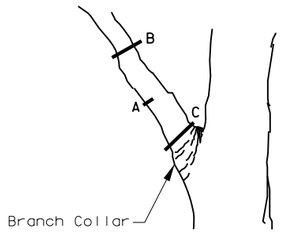
A - STEP 1
Cut 1/3 way through bottom of limb 8-12" above main stem or trunk

B - STEP 2
Remove limb 4-6" beyond the first cut

C - STEP 3
Remove stub with a smooth cut just beyond the branch collar of the removed limb



Tree Limb



Main Branch

PRUNING CUTS - LIMBS 2" IN DIAMETER AND GREATER

07/29/2020

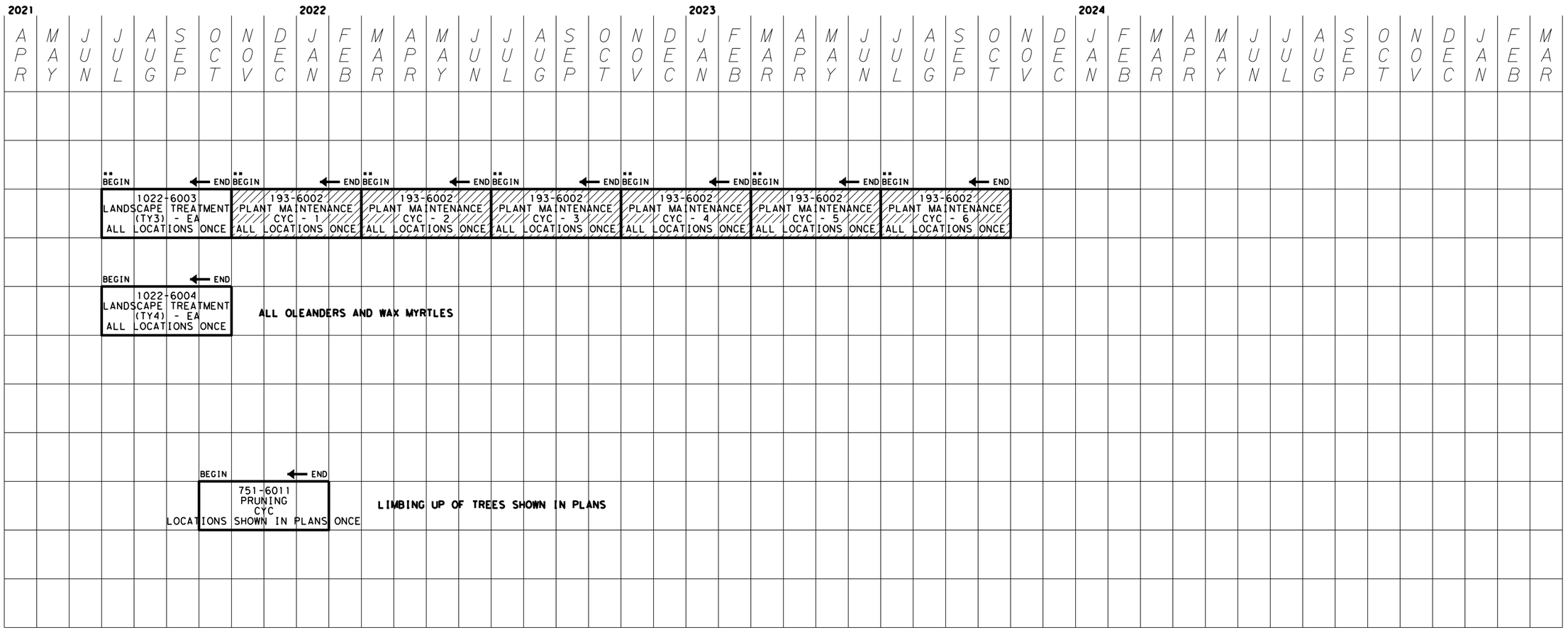
NTS

PRUNING

SHEET 2 OF 2

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			48
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10



* Start time for SP 192-001 will be adjusted to match end of CONSTRUCTION PHASE to avoid any break in maintenance and/or establishment of plant material.
All other items of work will remain as scheduled.

** Each cycle must be 100% complete prior to beginning the next cycle.
If all maintenance, as defined on PLANT MAINTNENANCE SHEET 1 OF 5, is not 100% complete and approved within the alotted time shown on this sheet, that cycle payment may be adjusted accordingly.
Any cycle not started and completed with alotted time will be forfeited.

NOTES:
1. Timeline is for Contractor's information only, actual dates may change as directed.
2. See PLANTING AND ESTABLISHMENT SHEETS for additional requirements and information not shown on this sheet.
3. Contractor will provide Engineer and Landscape Architect sufficient time to review and approve all proposed work locations and items prior to installation. Work completed prior to approval will not be paid for.
4. Reference ITEM 5.10, inspection or lack of inspection will not relieve the Contractor from obligation to provide materials or perform the work in accordance with the contract.
5. At any time during contract, the Engineer and Landscape Architect may remove installed items in order to inspect covered work and materials. Contractor is responsible for re-installing removed items per details. Re-installing inspected items is incidental and will not be paid for separately.

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE'
1791
STATE OF TEXAS

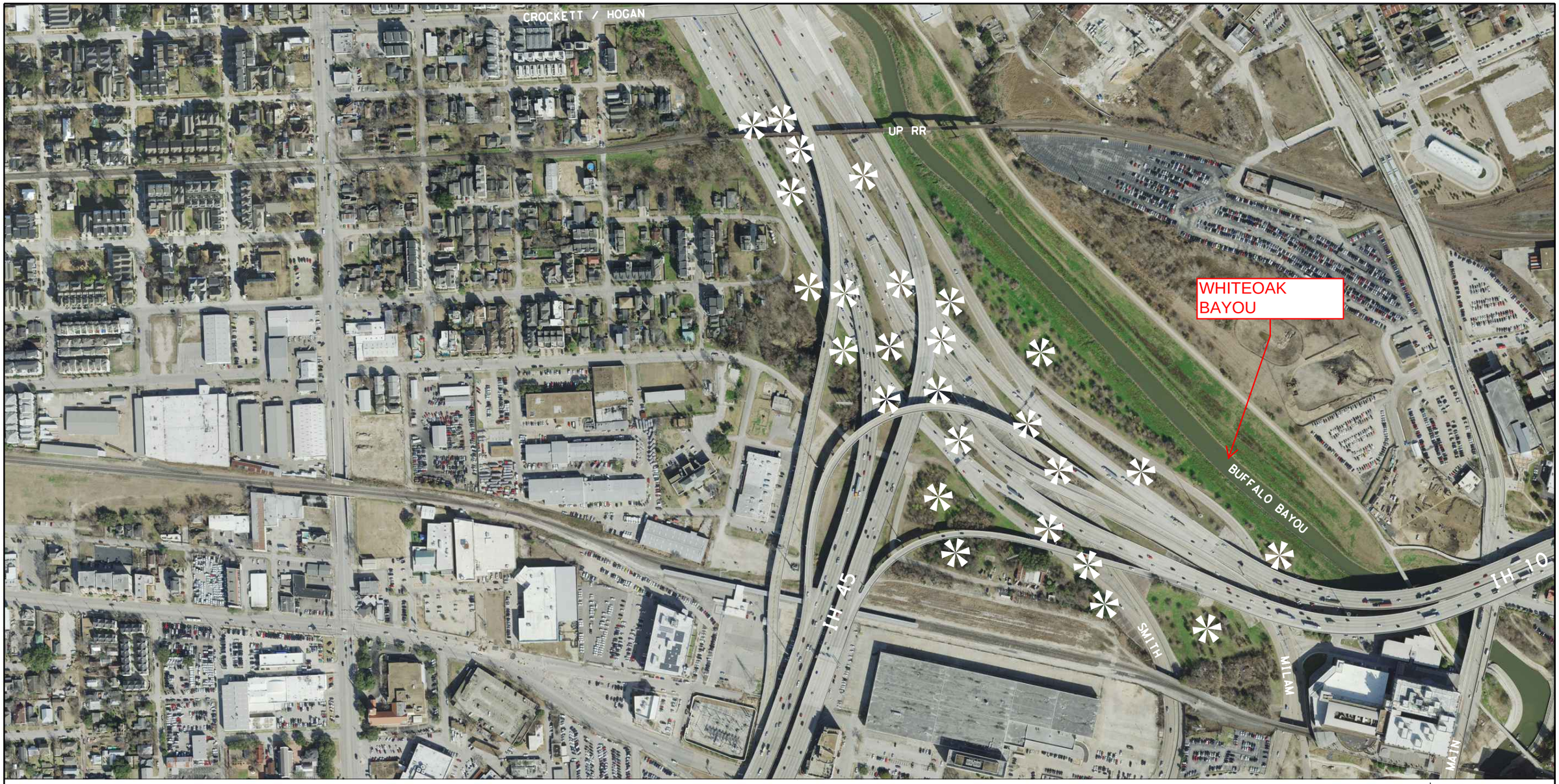
07/13/2020

PLANTING, MAINTENANCE AND ESTABLISHMENT TIMELINE

SHEET 1 OF 1

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			49
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381,etc	IH 10



193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

CSJ 0508-01-381

NOTE:
Site location sheets are diagramatic representations of proposed work areas only, additional areas may be identified in the field. Contractor is responsible for locating and staking limits of each original and new bed preparation area in accordance with the plans. Adjustments will be made to accomodate site conditions. All locations will be approved prior to any work.

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE'
1791
STATE OF TEXAS

9/3/2020

IH 10
SITE LOCATION

SHEET 1 OF 25

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			50
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

CSJ 0508-01-381

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE'
1791
STATE OF TEXAS

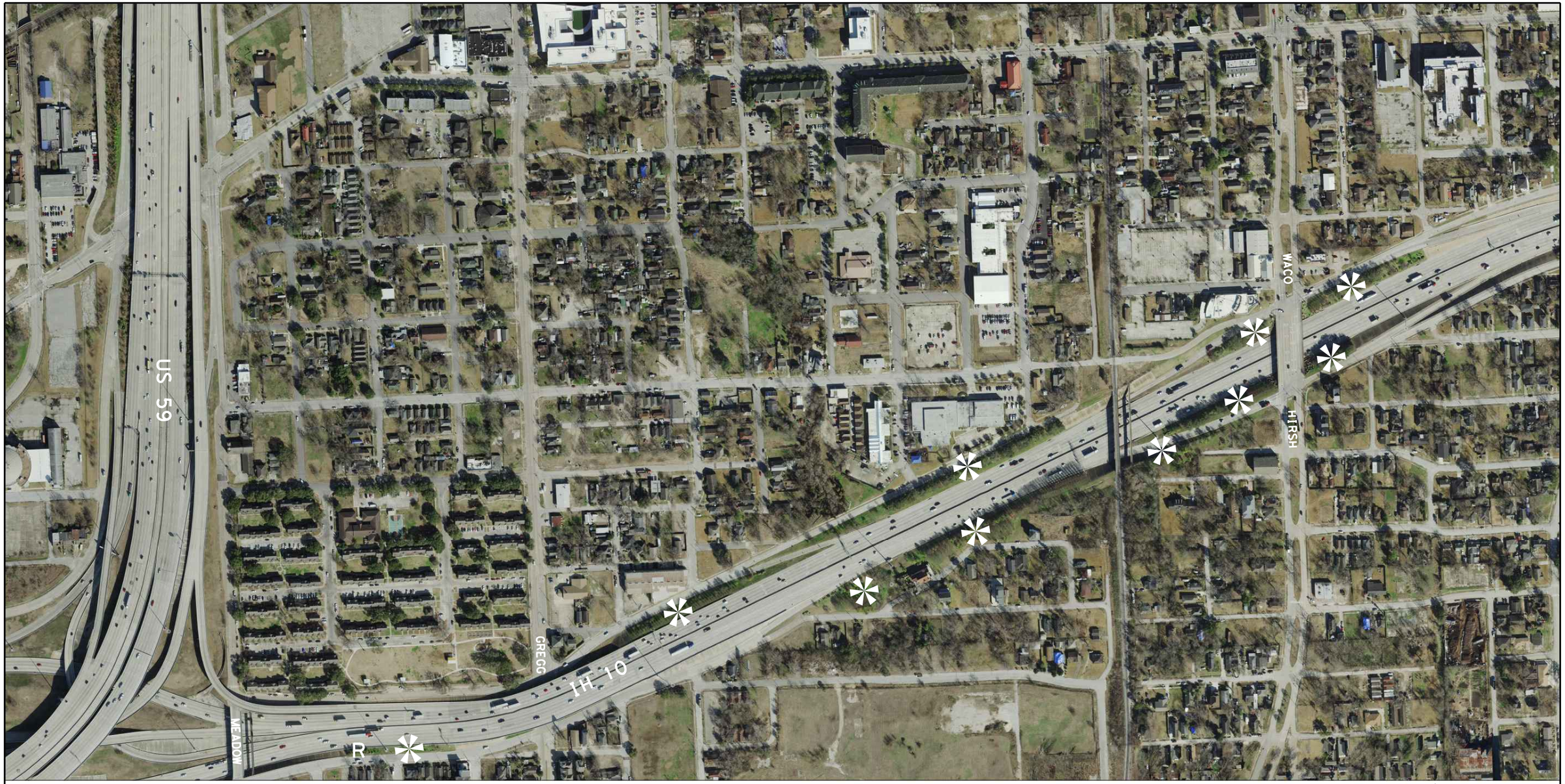
9/3/2020

IH 10
SITE LOCATION

SHEET 2 OF 25

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			51
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381	IH 10



193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

R 100-6013 PREP ROW (TREE)(2" TO 12" DIA) EA - 7

0 100 200 300 400

N

CSJ 0508-01-381

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/3/2020

IH 10
SITE LOCATION

SHEET 3 OF 25

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			52
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

193-6002 PLANT MAINTENANCE - CYC
751-6011 PRUNING - CYC (prune first tree(s) in presence of TxDOT Landscape Architect or Vegetation Manager)
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/3/2020

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IH 10
SITE LOCATION

SHEET 4 OF 25

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			53
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

CSJ 0508-01-381

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

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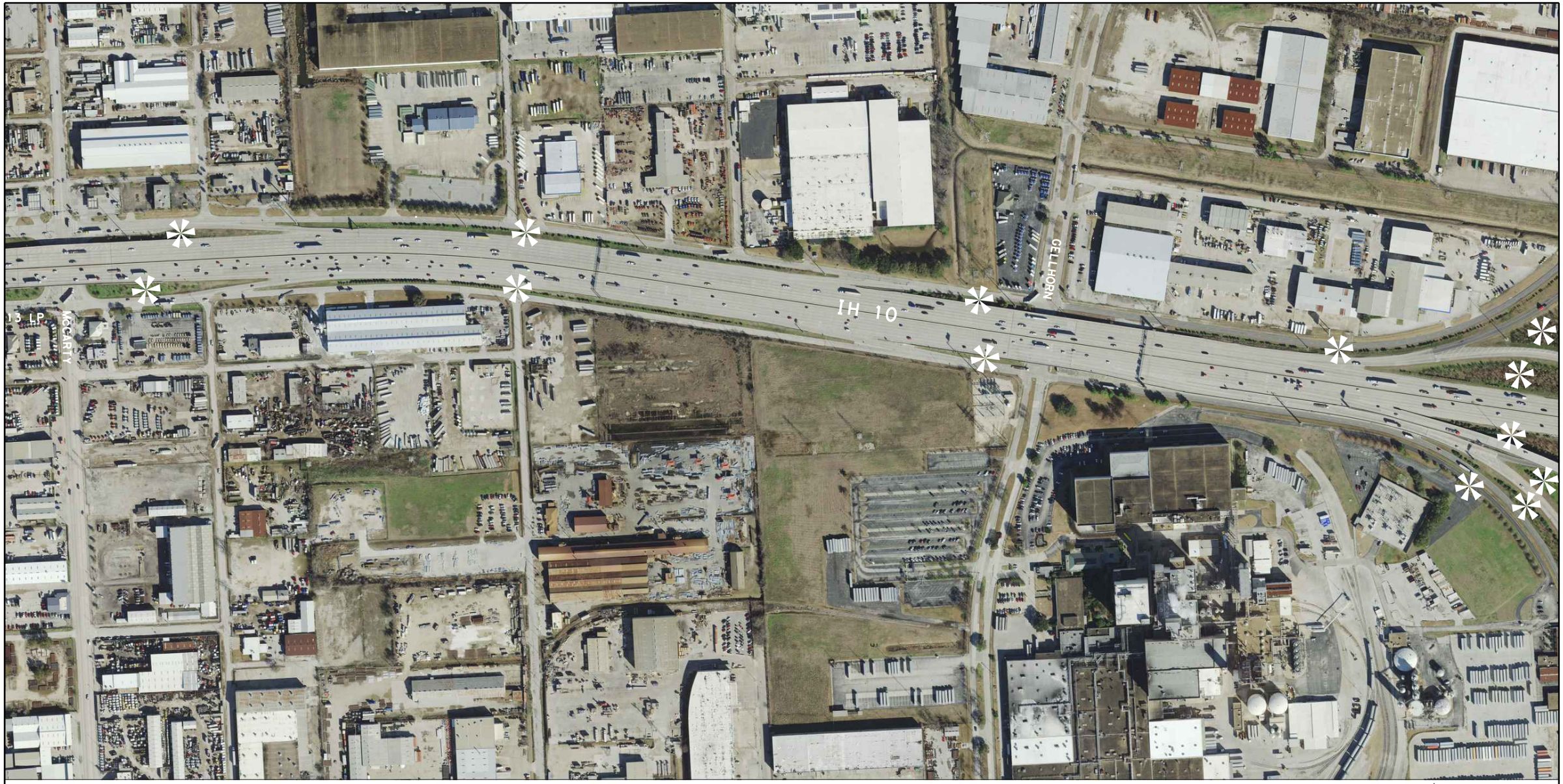
IH 10
SITE LOCATION

SHEET 5 OF 25

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			54
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381	IH 10



193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

CSJ 0508-01-381

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/3/2020

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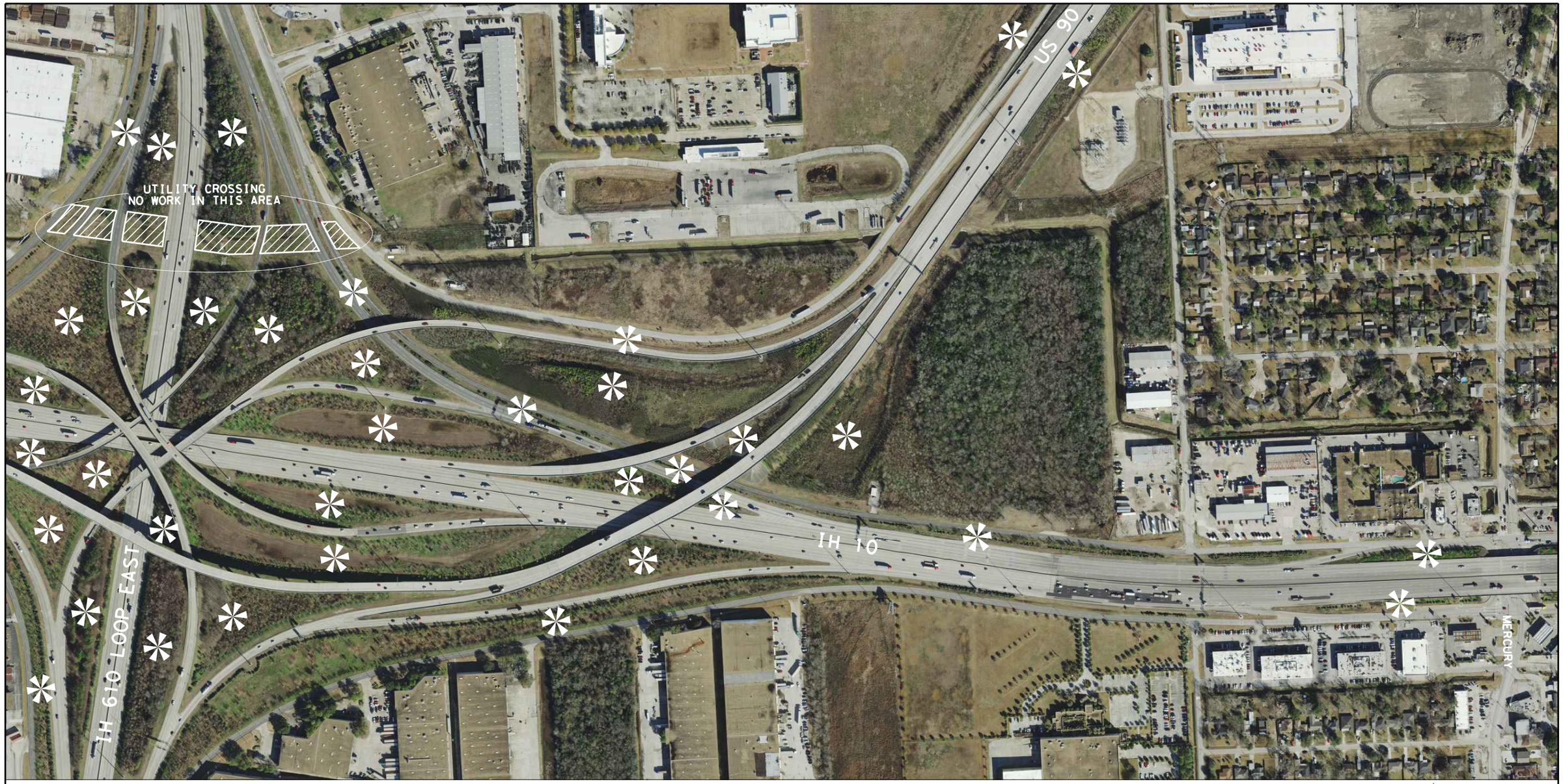
SITE LOCATION

SHEET 6 OF 25

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			55
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381	IH 10



193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

CSJ 0508-01-381

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/3/2020

IH 10
SITE LOCATION

SHEET 7 OF 25

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			56
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

CSJ 0508-01-381

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE'
1791
STATE OF TEXAS

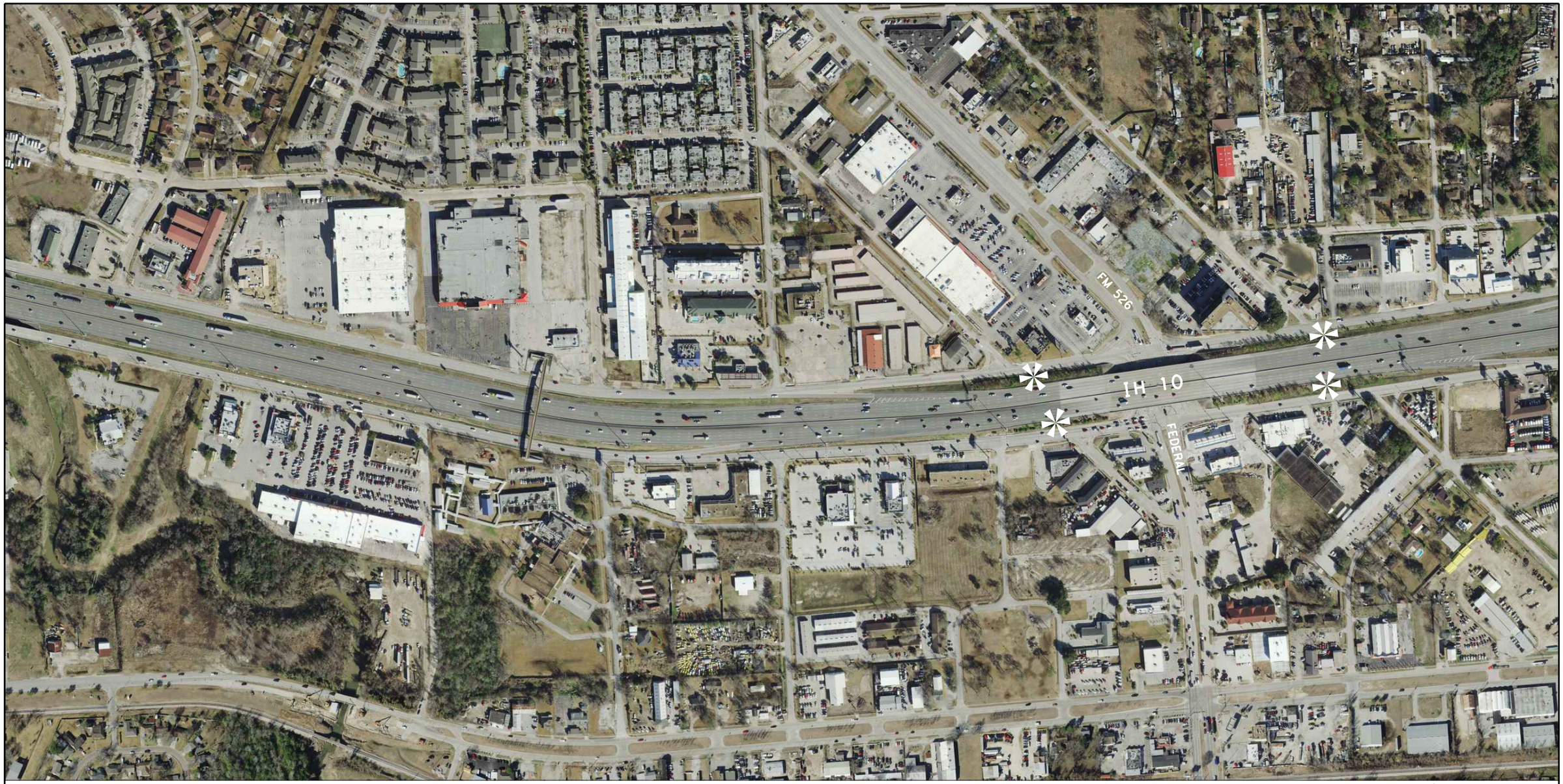
9/3/2020

IH 10
SITE LOCATION

SHEET 8 OF 25

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			57
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381	IH 10



193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

CSJ 0508-01-381

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/3/2020

IH 10
SITE LOCATION

SHEET 9 OF 25

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			58
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

CSJ 0508-01-381

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

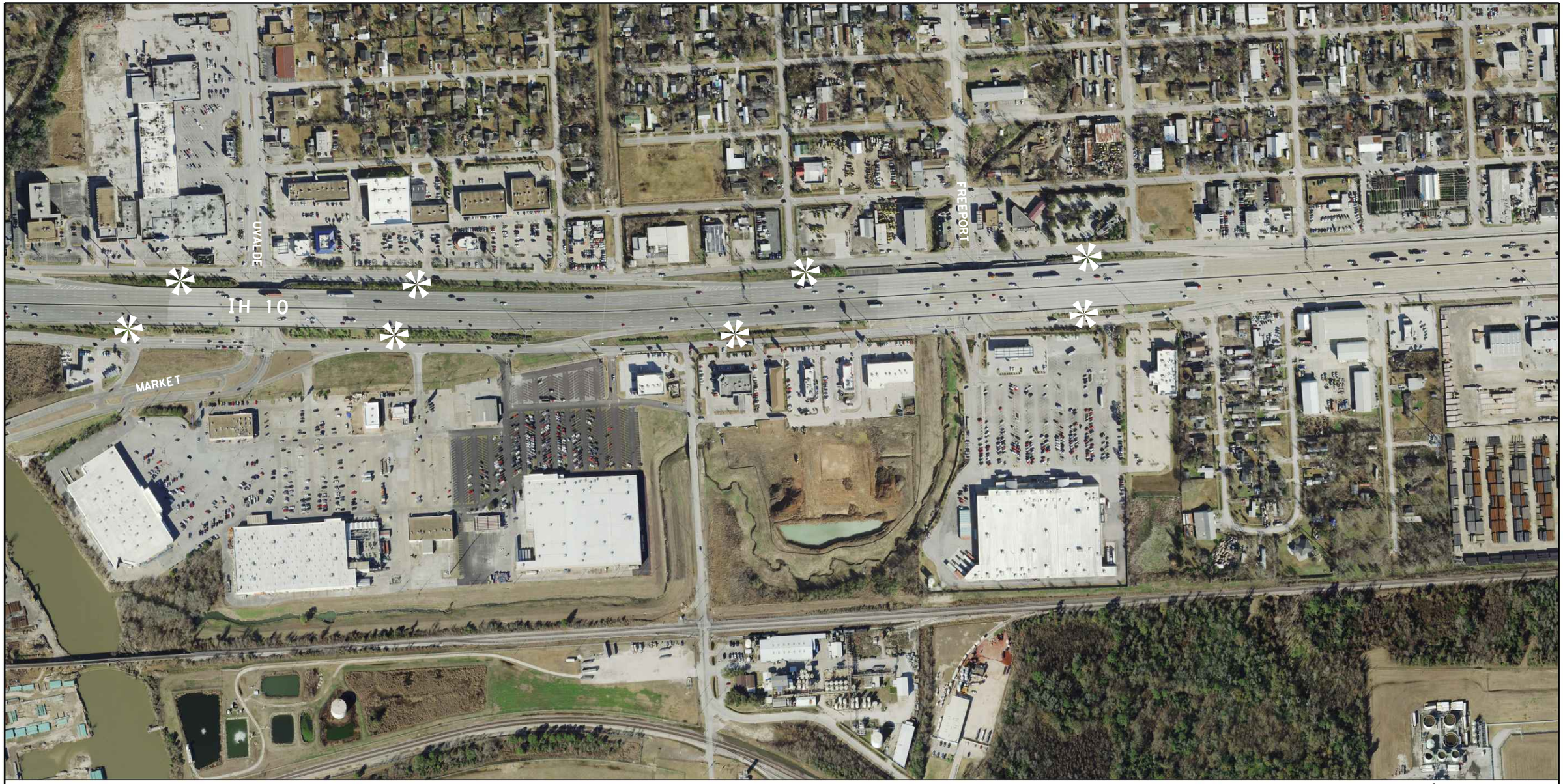
9/3/2020

IH 10
SITE LOCATION

SHEET 10 OF 25

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			59
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381	IH 10



193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/3/2020

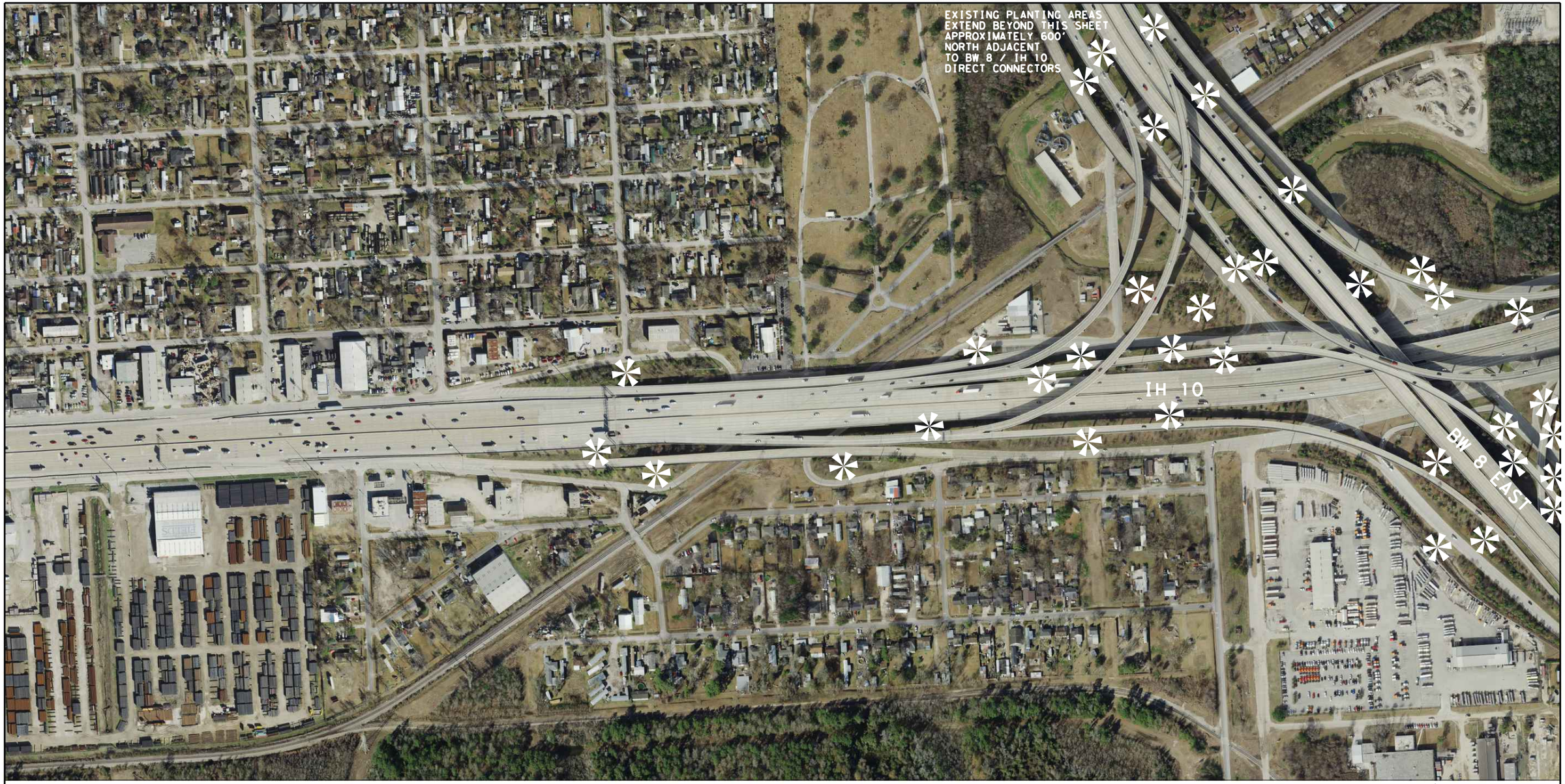
CSJ 0508-01-381

IH 10
SITE LOCATION

SHEET 11 OF 25

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			60
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381	IH 10



193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

CSJ 0508-01-381

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

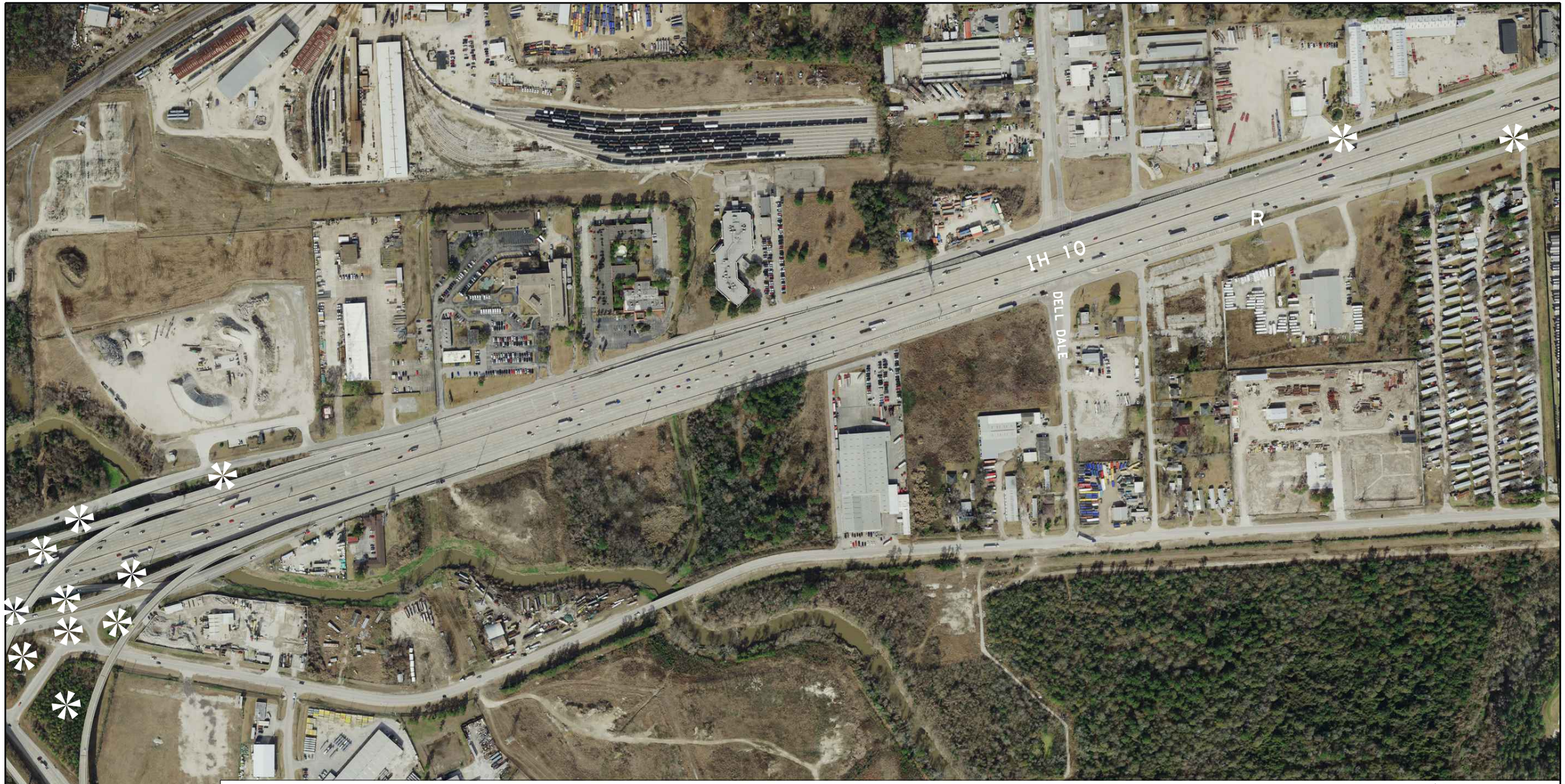
9/3/2020

IH 10
SITE LOCATION

SHEET 12 OF 25

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			61
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381	IH 10



193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

R 100-6013 PREP ROW (TREE)(2" TO 12" DIA) EA - 11

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/3/2020

0 100 200 300 400

CSJ 0508-01-381

IH 10
SITE LOCATION

SHEET 13 OF 25

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
6		62

STATE	DIST.	COUNTY
TEXAS	HOU	HARRIS

CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

CSJ 0508-01-381

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
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9/3/2020

IH 10
SITE LOCATION

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Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			63
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/3/2020

CSJ 0508-01-381

IH 10
SITE LOCATION

SHEET 15 OF 25

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			64
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/3/2020

CSJ 0508-01-381

IH 10
SITE LOCATION

SHEET 16 OF 25

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			65
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/3/2020

CSJ 0508-01-381

IH 10
SITE LOCATION

SHEET 17 OF 25

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			66
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

CSJ 0508-01-381

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE'
1791
STATE OF TEXAS

9/3/2020

IH 10
SITE LOCATION

SHEET 18 OF 25

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			67
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

CSJ 0508-01-381

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

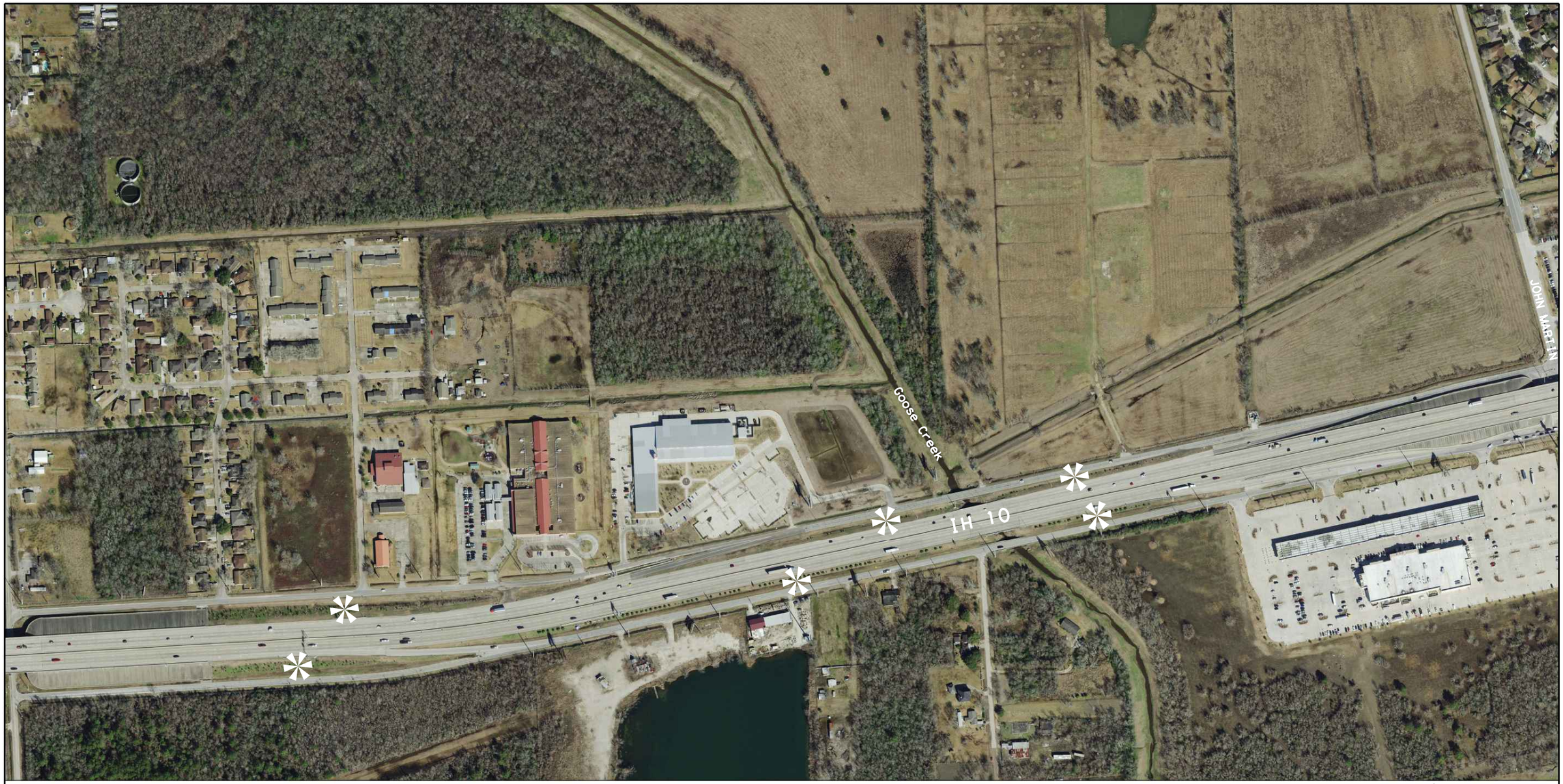
9/3/2020

IH 10
SITE LOCATION

SHEET 19 OF 25

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			68
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381	IH 10



193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

CSJ 0508-01-381

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/3/2020

IH 10
SITE LOCATION

SHEET 20 OF 25

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			69
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

CSJ 0508-01-381

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/3/2020

IH 10
SITE LOCATION

SHEET 21 OF 25

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			70
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

N

CSJ 0508-01-381

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

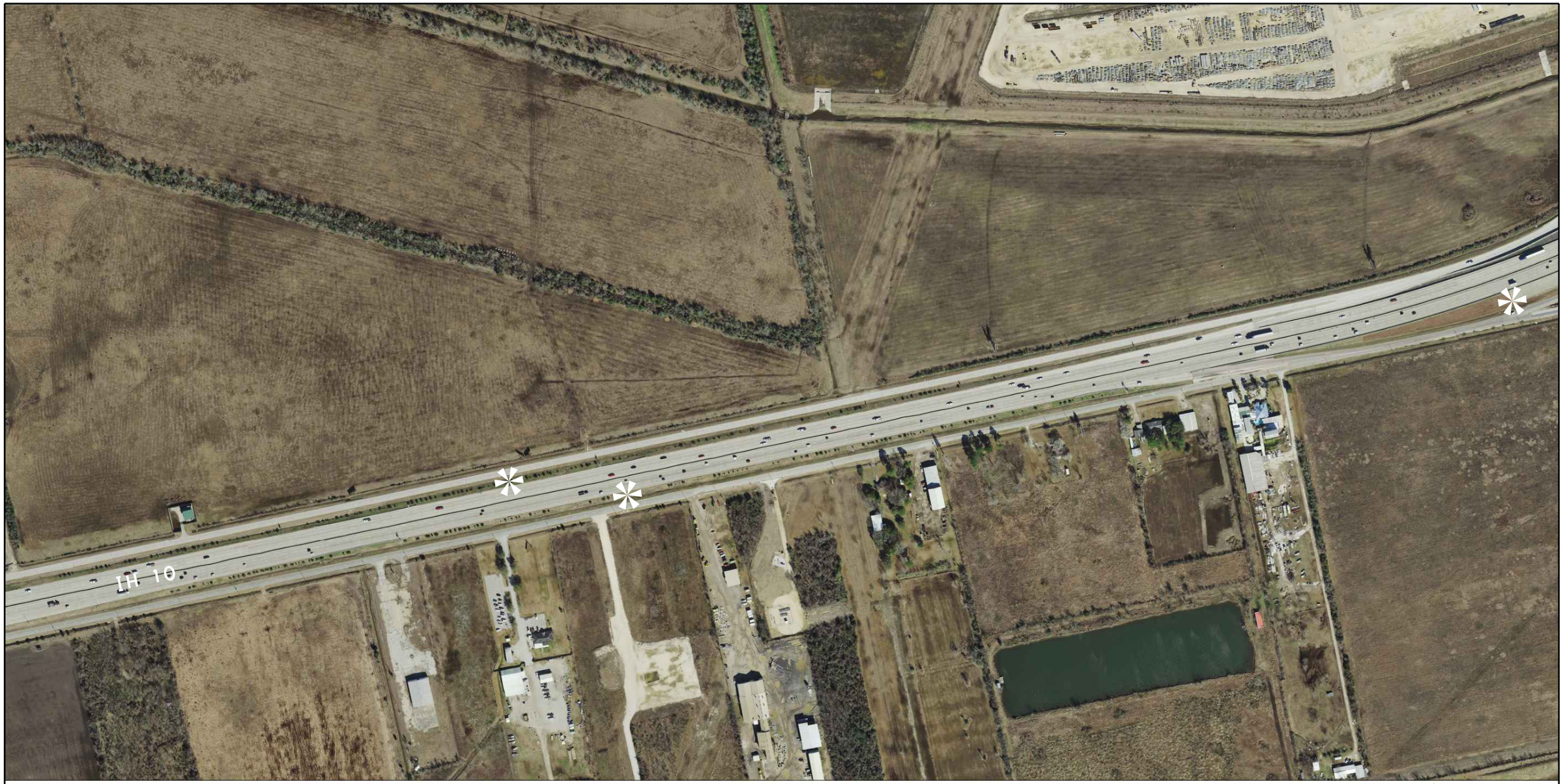
9/3/2020

IH 10
SITE LOCATION

SHEET 22 OF 25

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			71
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381	IH 10



193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE'
1791
STATE OF TEXAS

9/3/2020

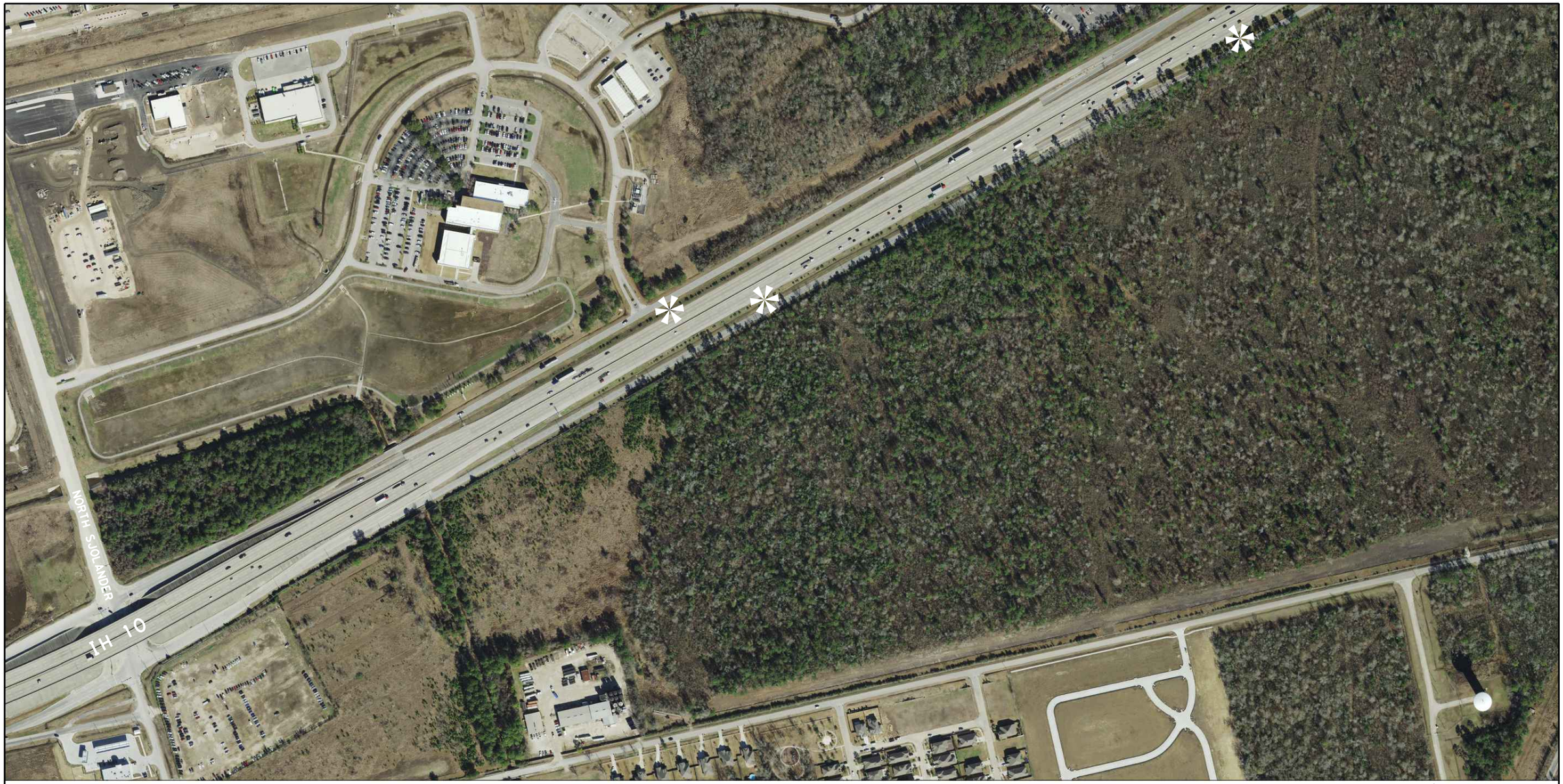
CSJ 0508-01-381

IH 10
SITE LOCATION

SHEET 23 OF 25

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			72
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381	IH 10



193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

CSJ 0508-01-381

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

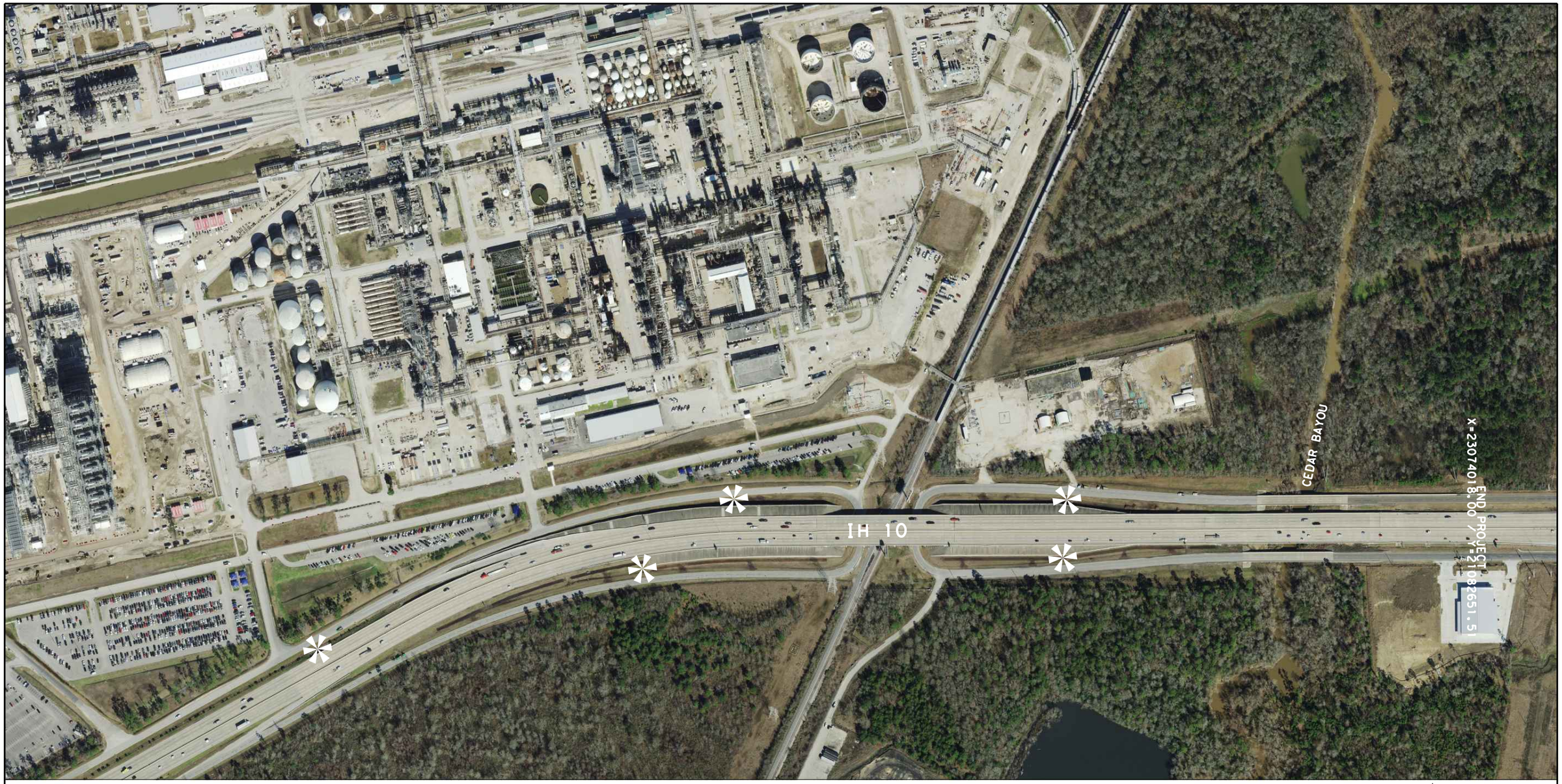
9/3/2020

IH 10
SITE LOCATION

SHEET 24 OF 25

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			73
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381	IH 10



193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

CSJ 0508-01-381

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/3/2020

IH 10
SITE LOCATION

SHEET 25 OF 25

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			74
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY3) - EA
1022-6004 LANDSCAPE TREATMENT (TY4) - EA

0 100 200 300 400

CSJ 0177-05-121

NOTE:
Site location sheets are diagramatic representations of proposed work areas only, additional areas may be identified in the field. Contractor is responsible for locating and staking limits of each original and new bed preparation area in accordance with the plans. Adjustments will be made to accomodate site conditions. All locations will be approved prior to any work.

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

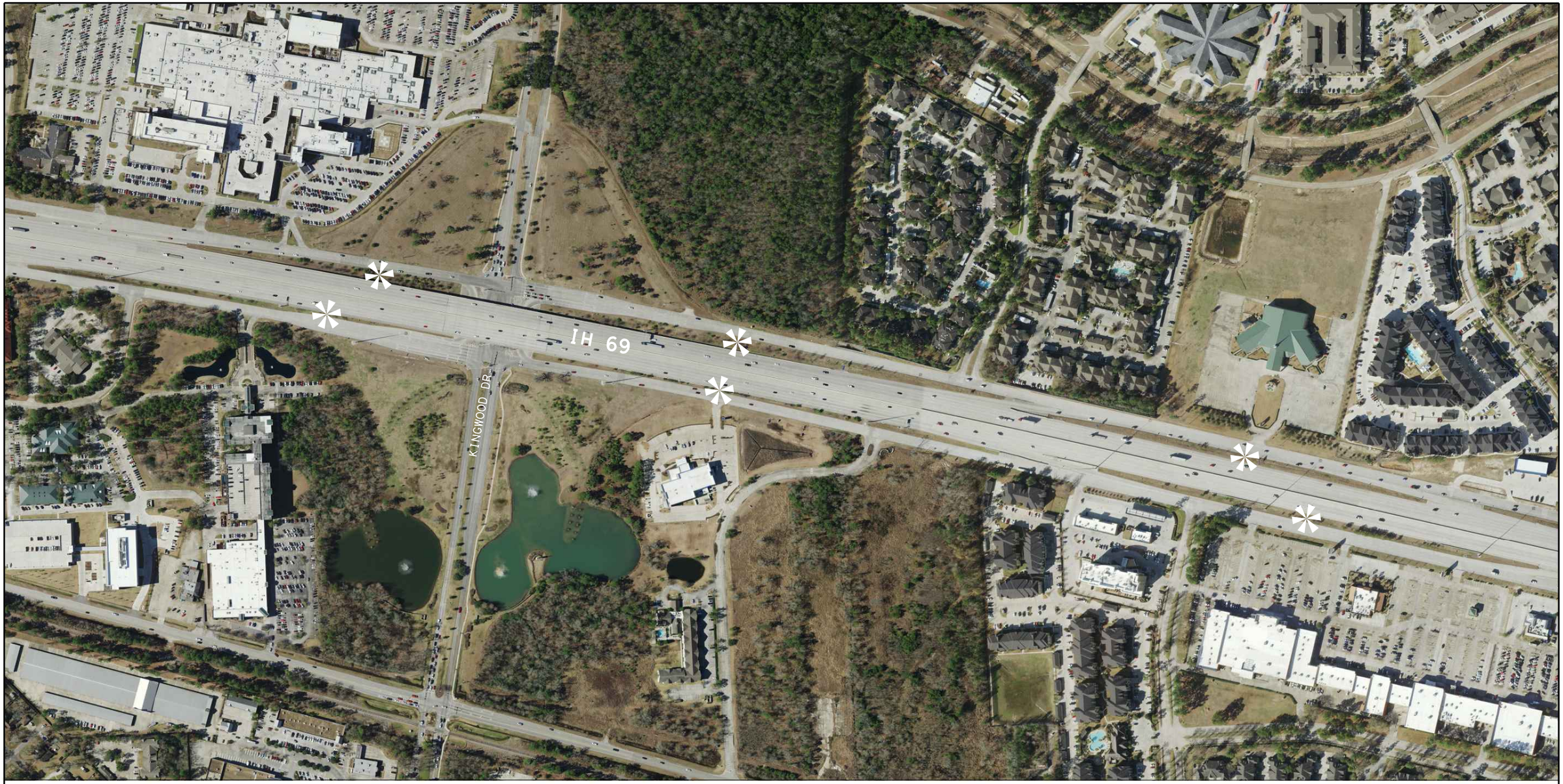
9/9/2020

IH 69
SITE LOCATION

SHEET 1 OF 15

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			75
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10



193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY3) - EA
1022-6004 LANDSCAPE TREATMENT (TY4) - EA

0 100 200 300 400

CSJ 0177-05-121

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE'
1791
STATE OF TEXAS

9/9/2020

IH 69
SITE LOCATION

SHEET 2 OF 15

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			76
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY3) - EA
1022-6004 LANDSCAPE TREATMENT (TY4) - EA

0 100 200 300 400

CSJ 0177-05-121

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/9/2020

IH 69
SITE LOCATION

SHEET 3 OF 15

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			77
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381,etc	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY3) - EA
1022-6004 LANDSCAPE TREATMENT (TY4) - EA

0 100 200 300 400

CSJ 0177-05-121

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/9/2020

IH 69
SITE LOCATION

SHEET 4 OF 15

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			78
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY3) - EA
1022-6004 LANDSCAPE TREATMENT (TY4) - EA

0 100 200 300 400

CSJ 0177-05-121

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/9/2020

IH 69
SITE LOCATION

SHEET 5 OF 15

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			79
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10

NO WORK THIS SHEET

0 100 200 300 400

CSJ 0177-05-121

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE'
1791
STATE OF TEXAS

9/9/2020

IH 69
SITE LOCATION

SHEET 6 OF 15

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			80
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10

NO WORK THIS SHEET

0 100 200 300 400

CSJ 0177-05-121

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/9/2020

IH 69
SITE LOCATION

SHEET 7 OF 15

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			81
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY3) - EA
1022-6004 LANDSCAPE TREATMENT (TY4) - EA

0 100 200 300 400

CSJ 0177-05-121

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE'
1791
STATE OF TEXAS

9/9/2020

IH 69
SITE LOCATION

SHEET 8 OF 15

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			82
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381,etc	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY3) - EA
1022-6004 LANDSCAPE TREATMENT (TY4) - EA

0 100 200 300 400

CSJ 0177-05-121

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE'
1791
STATE OF TEXAS

9/9/2020

IH 69
SITE LOCATION

SHEET 9 OF 15

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			83
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY3) - EA
1022-6004 LANDSCAPE TREATMENT (TY4) - EA

0 100 200 300 400

CSJ 0177-05-121

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/9/2020

IH 69
SITE LOCATION

SHEET 10 OF 15

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			84
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381,etc	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY3) - EA
1022-6004 LANDSCAPE TREATMENT (TY4) - EA

0 100 200 300 400

CSJ 0177-05-121

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/9/2020

IH 69
SITE LOCATION

SHEET 11 OF 15

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			85
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY3) - EA
1022-6004 LANDSCAPE TREATMENT (TY4) - EA

0 100 200 300 400

CSJ 0177-05-121

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/9/2020

IH 69
SITE LOCATION

SHEET 12 OF 15

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			86
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY3) - EA
1022-6004 LANDSCAPE TREATMENT (TY4) - EA

0 100 200 300 400

CSJ 0177-05-121

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/9/2020

IH 69
SITE LOCATION

SHEET 13 OF 15

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			87
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381,etc	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY3) - EA
1022-6004 LANDSCAPE TREATMENT (TY4) - EA

0 100 200 300 400

CSJ 0177-05-121

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/9/2020

IH 69
SITE LOCATION

SHEET 14 OF 15

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			88
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY3) - EA
1022-6004 LANDSCAPE TREATMENT (TY4) - EA

0 100 200 300 400

CSJ 0177-05-121

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

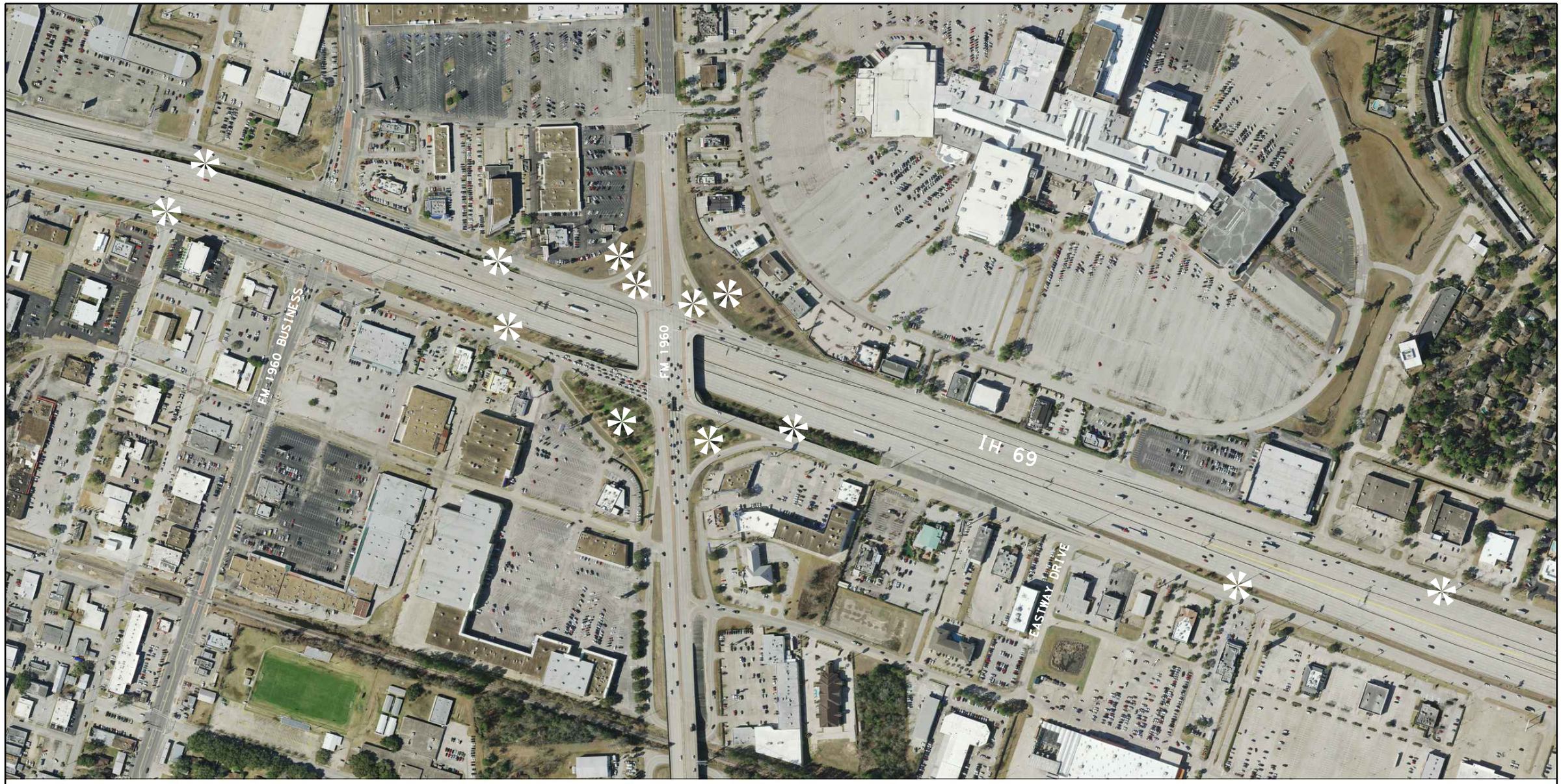
9/9/2020

IH 69
SITE LOCATION

SHEET 15 OF 15

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			89
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10



193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY3) - EA
1022-6004 LANDSCAPE TREATMENT (TY4) - EA

0 100 200 300 400

CSJ 0177-06-092

NOTE:
Site location sheets are diagramatic representations of proposed work areas only, additional areas may be identified in the field. Contractor is responsible for locating and staking limits of each original and new bed preparation area in accordance with the plans. Adjustments will be made to accomodate site conditions. All locations will be approved prior to any work.

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

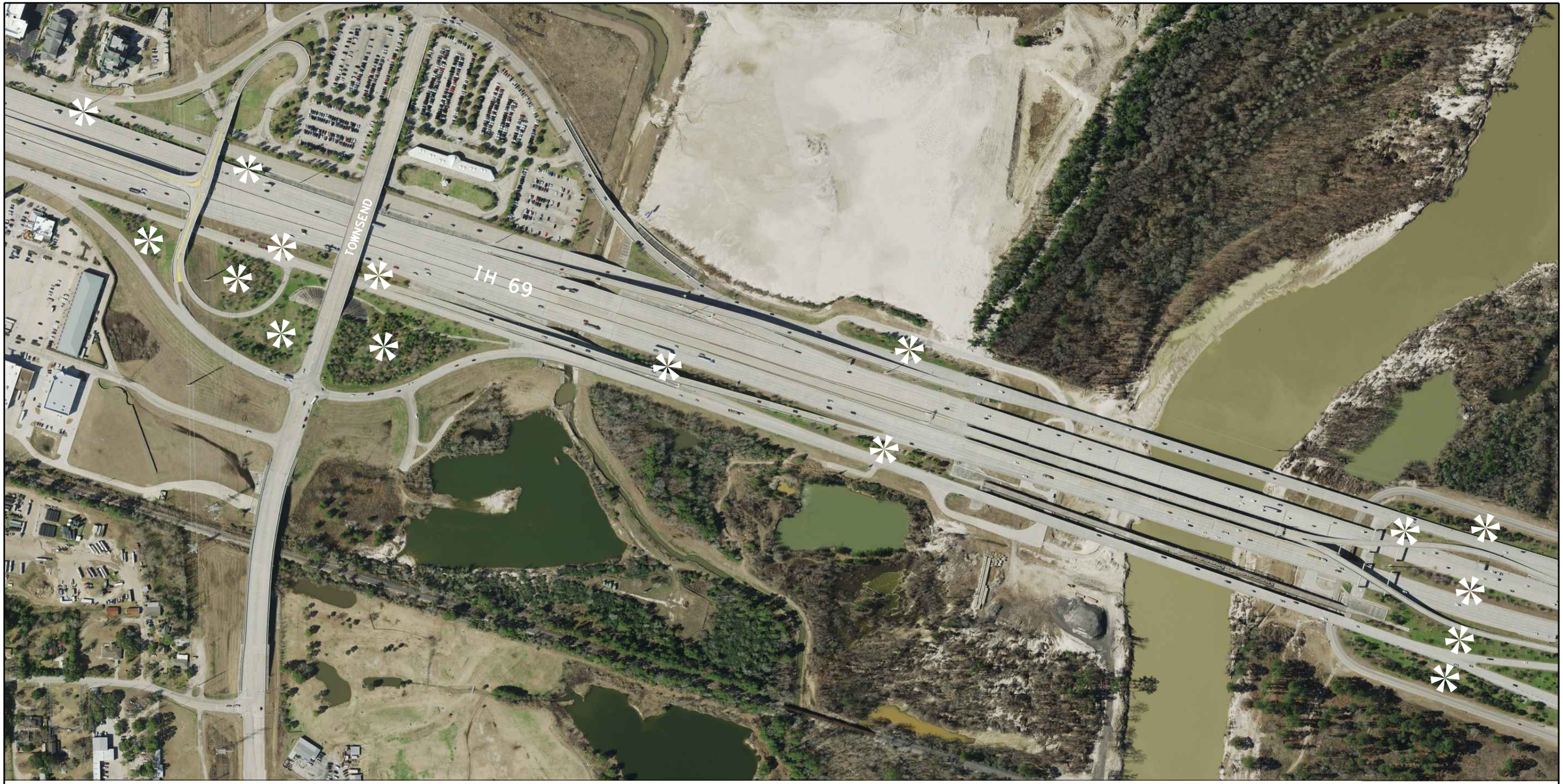
9/4/2020

IH 69
SITE LOCATION

SHEET 1 OF 3

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			90
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10



193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY3) - EA
1022-6004 LANDSCAPE TREATMENT (TY4) - EA

0 100 200 300 400

CSJ 0177-06-092

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/4/2020

IH 69
SITE LOCATION

SHEET 2 OF 3

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			91
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY3) - EA
1022-6004 LANDSCAPE TREATMENT (TY4) - EA

0 100 200 300 400

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE'
1791
STATE OF TEXAS

9/4/2020

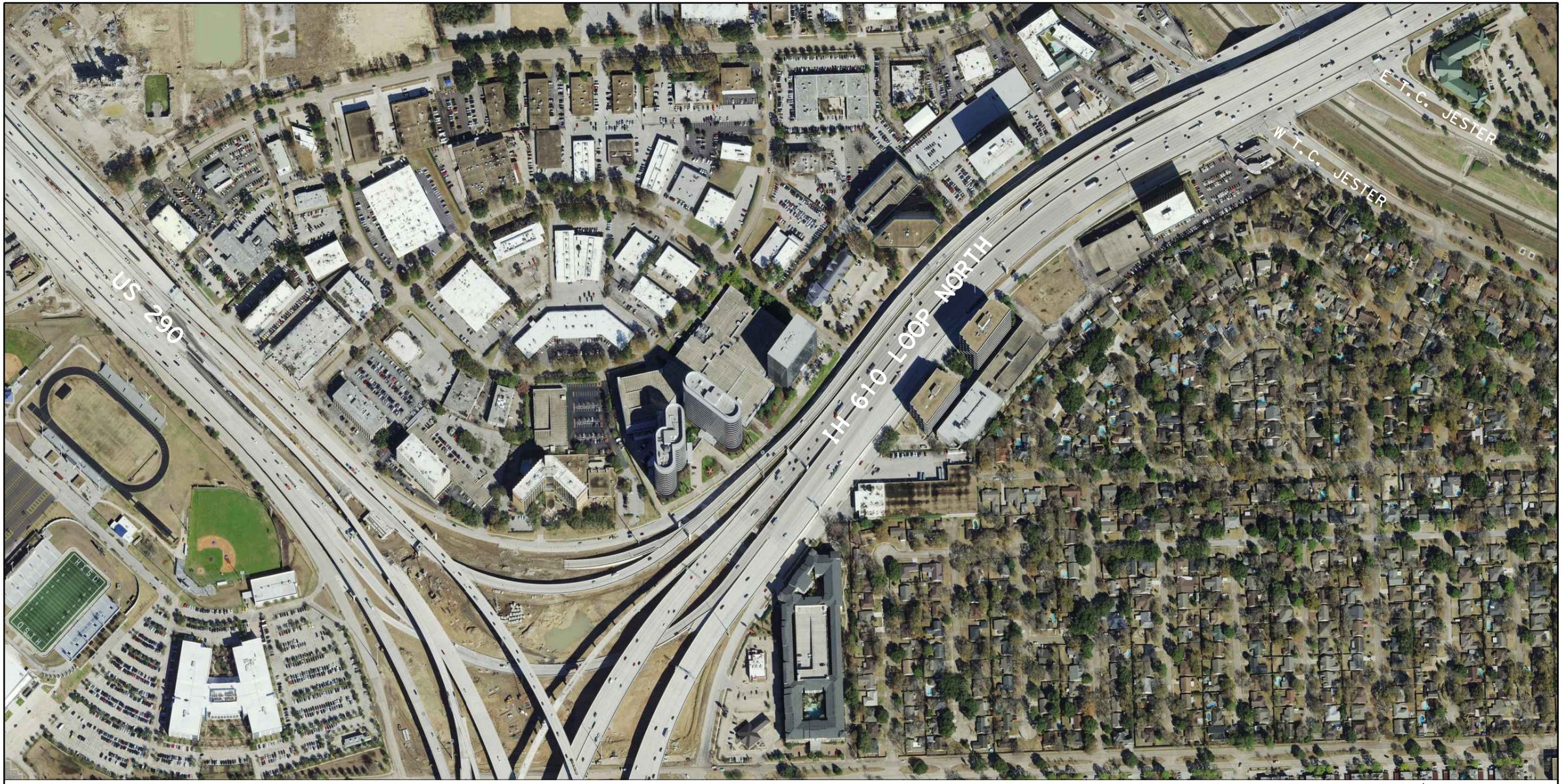
CSJ 0177-06-092

IH 69
SITE LOCATION

SHEET 3 OF 3

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			92
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10



193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

CSJ 0271-14-241

NOTE:
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Adjustments will be made to accomodate site conditions. All locations will be approved prior to any work.

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

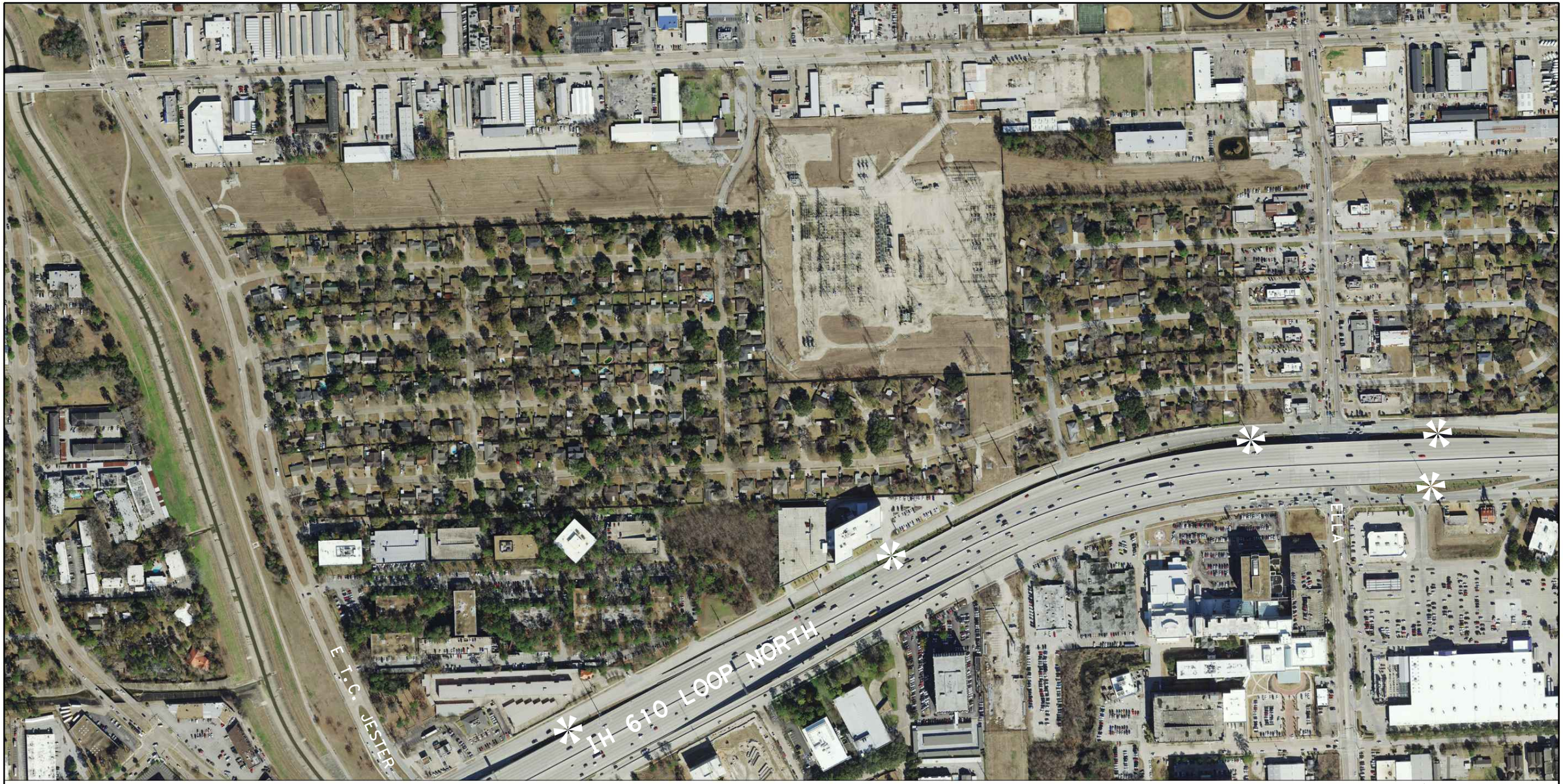
9/8/2020

IH 610 LOOP
SITE LOCATION

SHEET 1 OF 11

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			93
STATE	DIST.	COUNTY	
TEXAS	12	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10



193-6002 PLANT MAINTENANCE - CYC
751-6011 PRUNING - CYC (prune first tree(s) in presence of TxDOT Landscape Architect or Vegetation Manager)
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

CSJ 0271-14-241

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

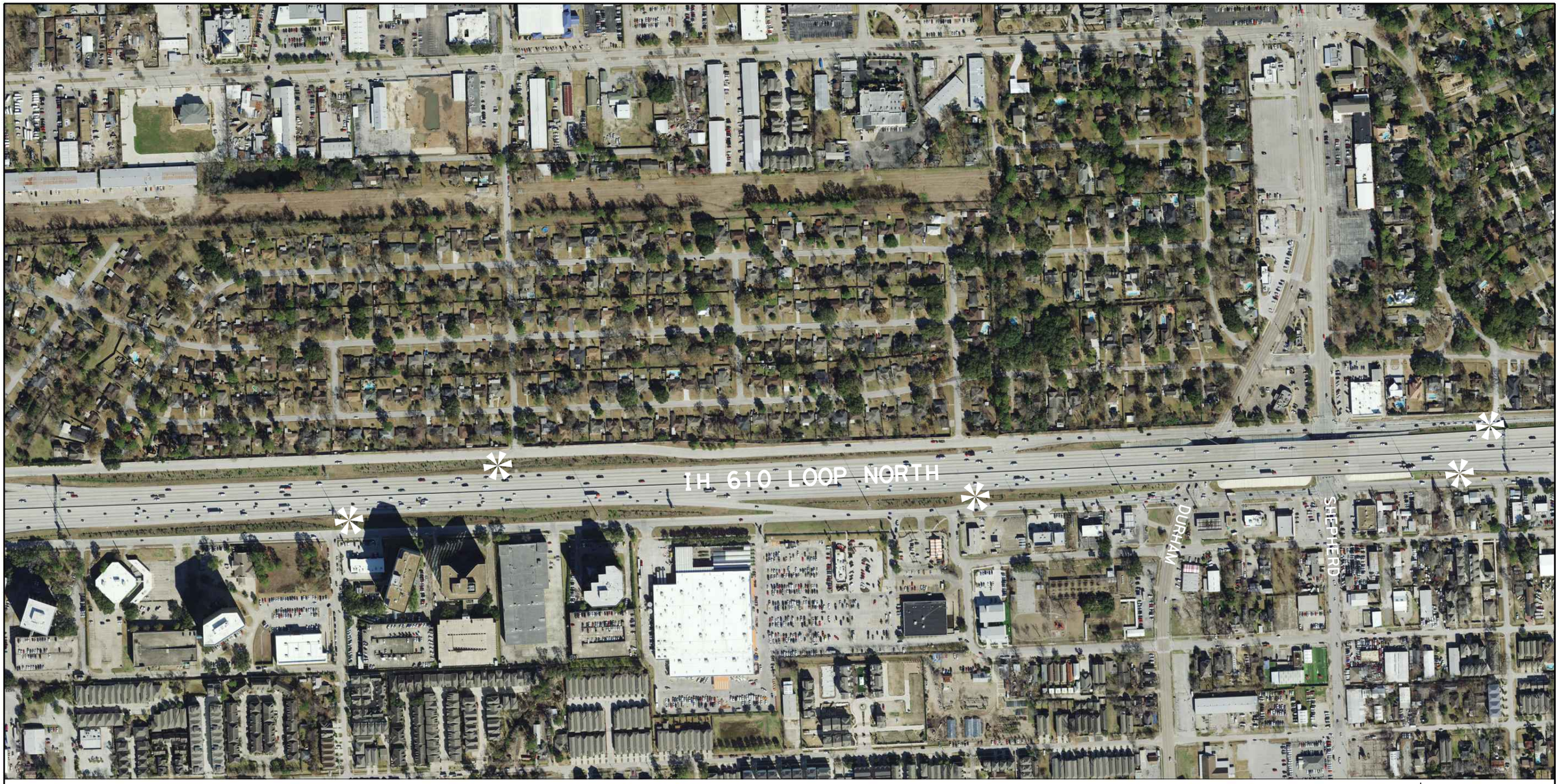
9/8/2020

IH 610 LOOP SITE LOCATION

SHEET 2 OF 11

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			94
STATE	DIST.	COUNTY	
TEXAS	12	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10



193-6002 PLANT MAINTENANCE - CYC
751-6011 PRUNING - CYC (prune first tree(s) in presence of TxDOT Landscape Architect or Vegetation Manager)
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

CSJ 0271-14-241

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

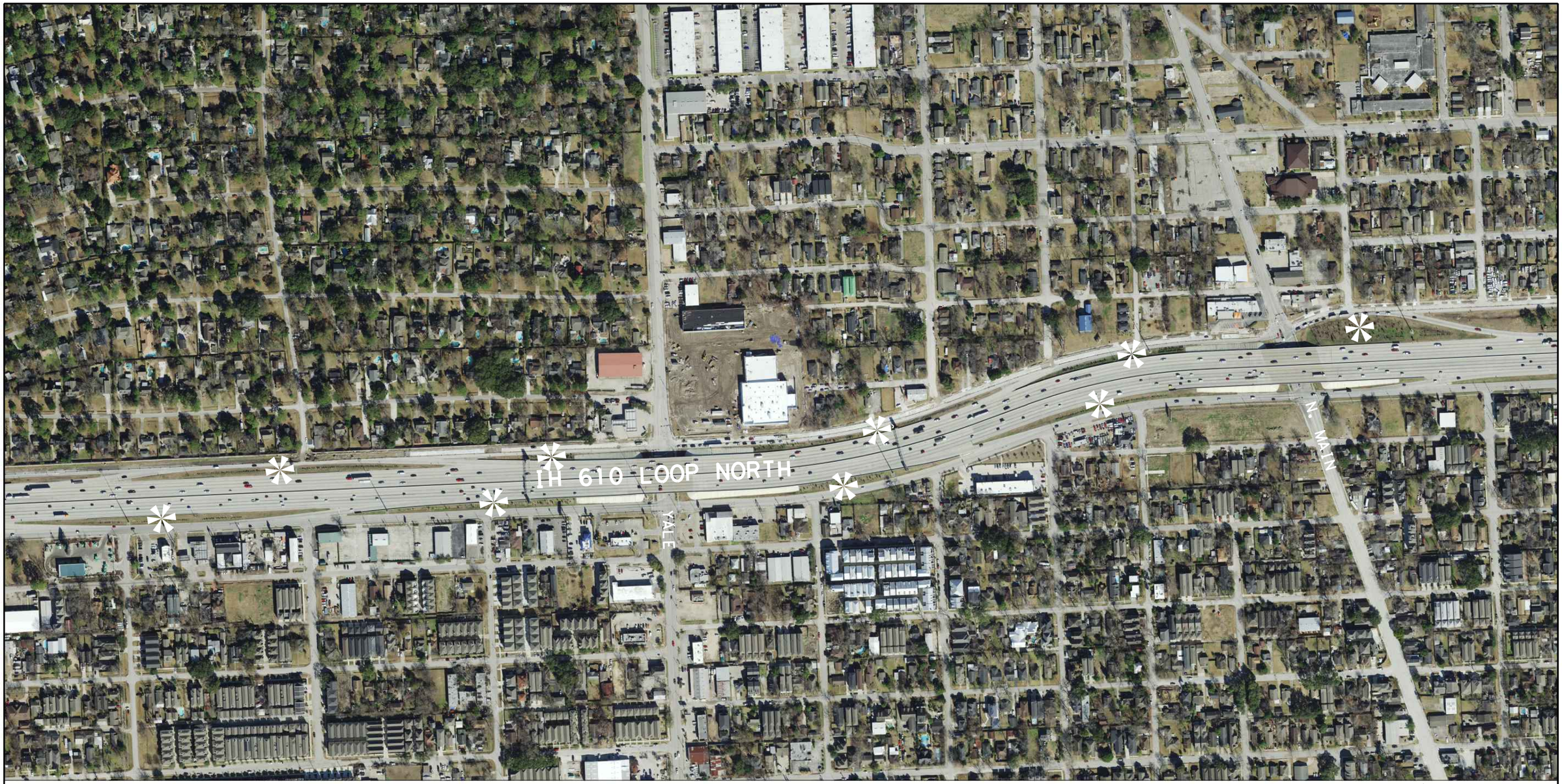
9/8/2020

IH 610 LOOP
SITE LOCATION

SHEET 3 OF 11

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			95
STATE	DIST.	COUNTY	
TEXAS	12	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10



193-6002 PLANT MAINTENANCE - CYC
751-6011 PRUNING - CYC (prune first tree(s) in presence of TxDOT Landscape Architect or Vegetation Manager)
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

CSJ 0271-14-241

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE'
1791
STATE OF TEXAS

9/8/2020

IH 610 LOOP
SITE LOCATION

SHEET 4 OF 11

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			96
STATE	DIST.	COUNTY	
TEXAS	12	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10

193-6002 PLANT MAINTENANCE - CYC
751-6011 PRUNING - CYC (prune first tree(s) in presence of TxDOT Landscape Architect or Vegetation Manager)
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

CSJ 0271-14-241

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE'
1791
STATE OF TEXAS

9/8/2020

IH 610 LOOP
SITE LOCATION

SHEET 5 OF 11

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			97
STATE	DIST.	COUNTY	
TEXAS	12	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381,etc	IH 10

193-6002 PLANT MAINTENANCE - CYC
751-6011 PRUNING - CYC (prune first tree(s) in presence of TxDOT Landscape Architect or Vegetation Manager)
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

CSJ 0271-14-241

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/8/2020

IH 610 LOOP
SITE LOCATION

SHEET 6 OF 11

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			98
STATE	DIST.	COUNTY	
TEXAS	12	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381,etc	IH 10

193-6002 PLANT MAINTENANCE - CYC
751-6011 PRUNING - CYC (prune first tree(s) in presence of TxDOT Landscape Architect or Vegetation Manager)
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

CSJ 0271-14-241

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

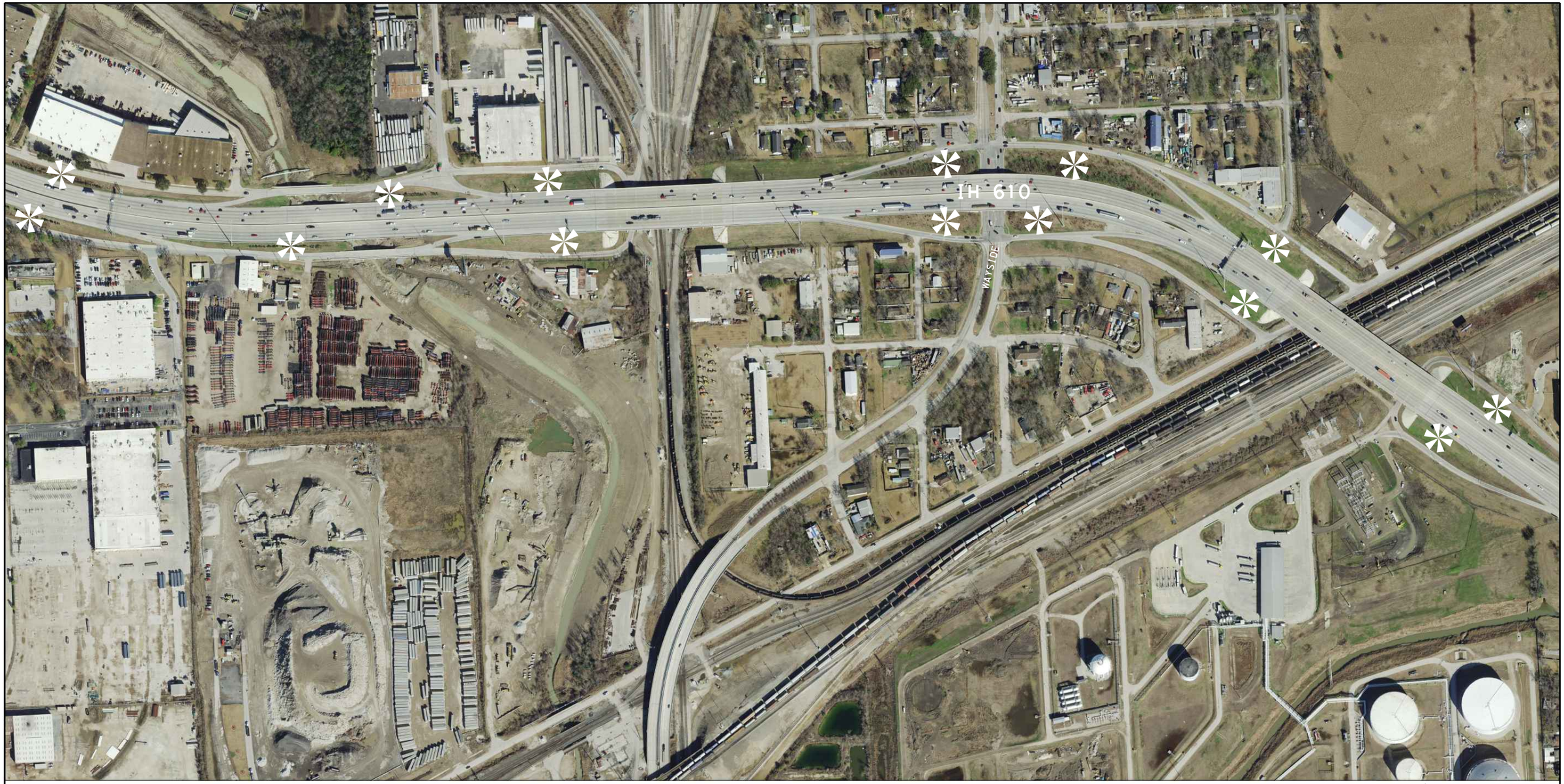
9/8/2020

IH 610 LOOP
SITE LOCATION

SHEET 7 OF 11

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			99
STATE	DIST.	COUNTY	
TEXAS	12	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10



193-6002 PLANT MAINTENANCE - CYC
751-6011 PRUNING - CYC (prune first tree(s) in presence of TxDOT Landscape Architect or Vegetation Manager)
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

CSJ 0271-14-241

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/8/2020

IH 610 LOOP
SITE LOCATION

SHEET 8 OF 11

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			100
STATE	DIST.	COUNTY	
TEXAS	12	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10

193-6002 PLANT MAINTENANCE - CYC
751-6011 PRUNING - CYC (prune first tree(s) in presence of TxDOT Landscape Architect or Vegetation Manager)
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

CSJ 0271-14-241

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/8/2020

IH 610 LOOP
SITE LOCATION

SHEET 9 OF 11

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			101
STATE	DIST.	COUNTY	
TEXAS	12	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381,etc	IH 10

193-6002 PLANT MAINTENANCE - CYC
751-6011 PRUNING - CYC (prune first tree(s) in presence of TxDOT Landscape Architect or Vegetation Manager)
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

CSJ 0271-14-241

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/8/2020

IH 610 LOOP
SITE LOCATION

SHEET 10 OF 11

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			102
STATE	DIST.	COUNTY	
TEXAS	12	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10

193-6002 PLANT MAINTENANCE - CYC
751-6011 PRUNING - CYC (prune first tree(s) in presence of TxDOT Landscape Architect or Vegetation Manager)
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

CSJ 0271-14-241

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/8/2020

IH 610 LOOP
SITE LOCATION

SHEET 11 OF 11

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			103
STATE	DIST.	COUNTY	
TEXAS	12	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

CSJ 0271-15-098

NOTE:
Site location sheets are diagramatic representations of proposed work areas only, additional areas may be identified in the field. Contractor is responsible for locating and staking limits of each original and new bed preparation area in accordance with the plans. Adjustments will be made to accomodate site conditions. All locations will be approved prior to any work.

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE'
1791
STATE OF TEXAS

9/8/2020

IH 610 LOOP
SITE LOCATION

SHEET 1 OF 3

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			104
STATE	DIST.	COUNTY	
TEXAS	12	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

CSJ 0271-15-098

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE'
1791
STATE OF TEXAS

9/8/2020

IH 610 LOOP
SITE LOCATION

SHEET 2 OF 3

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			105
STATE	DIST.	COUNTY	
TEXAS	12	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY 3) - EA
1022-6004 LANDSCAPE TREATMENT (TY 4) - EA

0 100 200 300 400

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/8/2020

CSJ 0271-15-098

IH 610 LOOP
SITE LOCATION

SHEET 3 OF 3

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			106
STATE	DIST.	COUNTY	
TEXAS	12	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY3) - EA
1022-6004 LANDSCAPE TREATMENT (TY4) - EA

NOTE:
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0 100 200 300 400

N

CSJ 2483-01-548

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/4/2020

SS 548
SITE LOCATION

SHEET 1 OF 2

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			107
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381,etc	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY3) - EA
1022-6004 LANDSCAPE TREATMENT (TY4) - EA

0 100 200 300 400

N

CSJ 2483-01-548

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/4/2020

SS 548
SITE LOCATION

SHEET 2 OF 2

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			108
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381, etc	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY3) - EA
1022-6004 LANDSCAPE TREATMENT (TY4) - EA

NOTE:
Site location sheets are diagramatic representations of proposed work areas only, additional areas may be identified in the field. Contractor is responsible for locating and staking limits of each original and new bed preparation area in accordance with the plans. Adjustments will be made to accomodate site conditions. All locations will be approved prior to any work.

0 100 200 300 400

CSJ 0028-02-102

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/4/2020

US 90
SITE LOCATION

SHEET 1 OF 2

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			109
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381,etc	IH 10

193-6002 PLANT MAINTENANCE - CYC
1022-6003 LANDSCAPE TREATMENT (TY3) - EA
1022-6004 LANDSCAPE TREATMENT (TY4) - EA

0 100 200 300 400

N

CSJ 0028-02-102

REGISTERED LANDSCAPE ARCHITECT
DANA DEAN COTE
1791
STATE OF TEXAS

9/4/2020

US 90
SITE LOCATION

SHEET 2 OF 2

Texas Department of Transportation

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			110
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0508	01	381,etc	IH 10

SITE DESCRIPTION

PROJECT LIMITS: IH 10 FROM HOGAN ST. TO CHAMBERS C/L

PROJECT DESCRIPTION: LANDSCAPE DEVELOPMENT

MAJOR SOIL DISTURBING ACTIVITIES:

PREP ROW, PLANT MAINTENANCE, AND LADSCAPE TREATMENT.

TOTAL PROJECT AREA: N/A

TOTAL AREA TO BE DISTURBED: N/A

WEIGHTED RUNOFF COEFFICIENT:
(AFTER CONSTRUCTION): 0.65

EXISTING CONDITION OF SOIL & VEGETATIVE
COVER AND % OF EXISTING VEGETATIVE COVER:

EXISTING VEGETATIVE COVER IS A MIX OF DOMESTIC GRASSES AND HERBACEOUS PLANTS.
SOIL TYPES INCLUDE URBAN LAND, LAKE CHARLES-BERNARD AND MIDLAND BEAUMONT.

NAME OF RECEIVING WATERS:

BUFFALO BAYOU TIDAL (1013)
SAN JACINTO RIVER TIDAL (1001)

EROSION AND SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES:

- ___ TEMPORARY SEEDING
- _X_ PERMANENT PLANTING, SODDING, OR SEEDING
- _X_ MULCHING
- ___ SOIL RETENTION BLANKET
- ___ BUFFER ZONES
- ___ PRESERVATION OF NATURAL RESOURCES

OTHER: N/A

STRUCTURAL PRACTICES:

- ___ SILT FENCES
- ___ HAY BALES
- ___ ROCK BERMS
- ___ 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
- _X_ EROSION CONTROL LOGS

OTHER:

NARRATIVE - SEQUENCE OF CONSTRUCTION (STORM WATER MANAGEMENT) ACTIVITIES:

- INSTALL SEDIMENT CONTROL DEVICES AS NEEDED.
- PERFORM LANDSCAPE DEVELOPMENT ACTIVITIES.
- REMOVE SEDIMENT CONTROL DEVICES WHEN WORK IS COMPLETED.

STORM WATER MANAGEMENT:

STORM WATER WILL BE CONVEYED BY EXISTING SWALES, DITCHES AND STORM SEWERS.

OTHER EROSION AND SEDIMENT CONTROLS:

MAINTENANCE: All erosion and sediment controls will be maintained in good working order. If a repair is necessary it will be done at the earliest date possible, but no later than 7 calendar days after the surrounding exposed ground has dried sufficiently to prevent further damage from heavy equipment. The area adjacent to creeks and drainageways shall have priority followed by devices protecting storm sewer inlets.

INSPECTION: All inspections will be performed by a TxDOT inspector per one of the options below as directed by the Area Engineer
1. At least every 7 calendar days
2. At least every 14 days or after 0.5 inches or more of rainfall
An inspection and maintenance report should be made for each inspection. Based on the inspection results, the controls shall be revised according to the inspection report.

WASTE MATERIALS: The dumpster used to store all waste material will meet all state and local city solid waste management regulations. All trash and construction debris will be deposited in the dumpster. The dumpster will be emptied as necessary or as required by local regulation and the trash will be hauled to a local dump. No construction waste material will be buried on site.

HAZARDOUS WASTE (INCLUDING SPILL REPORTING): In the event of a spill which may be considered hazardous, the Houston District Safety Office shall be contacted immediately at 713-802-5962.

SANITARY WASTE: All Sanitary Waste will be collected from the portable units as necessary or as required by local regulations by a licensed sanitary waste management contractor.

OFFSITE VEHICLE TRACKING:

- ___ HAUL ROADS DAMPENED FOR DUST CONTROL
- _X_ LOADED HAUL TRUCKS TO BE COVERED WITH TARPAULIN
- _X_ EXCESS DIRT ON ROAD REMOVED DAILY
- ___ STABILIZED CONSTRUCTION ENTRANCE

OTHER:

REMARKS: Disposal areas, stockpiles, and haul roads shall be constructed in a manner that will minimize and control the sediment that may enter receiving waterways. Disposal areas shall not be located in any waterway, waterbody or streambed. Construction staging areas and vehicle maintenance areas shall be constructed by the contractor in a manner which minimizes the runoff of all pollutants. All waterways shall be cleared as soon as practical of temporary embankments, temporary bridges, matting, falsework, piling, debris, and other obstructions placed during construction operations that are not part of the finished work.

STATE OF TEXAS
LUCAS C. HERNANDEZ
136341
LICENSED
PROFESSIONAL ENGINEER

2/23/2021

Texas Department of Transportation
Houston District

TxDOT STORM WATER POLLUTION PREVENTION PLAN

SWP3

FILE: STDG1.DGN	DN: TxDot	CK: TxDot	DW: TxDot	CK: TxDot
©TxDOT JANUARY 2007	DIST	FED REG	PROJECT NO.	SHEET
REVISIONS 9/2010 INSPECTION NOTE 9/2013 INSPECTION NOTE 11/2013 SW3P TO SWP3 05/2015 2014 SPECS	HOU	6		111
	COUNTY	CONTROL	SECT	JOB / HIGHWAY
	HARRIS	0508	01	381 ETC. / IH10

STD G-1

I. STORMWATER POLLUTION PREVENTION

Texas Pollutant Discharge Elimination System (TPDES) TXR 150000: Stormwater Discharge Permit or Construction General Permit is 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. Refer to Storm Water Pollution Prevention Plan (SWP3) Houston District standard plan.

No Additional Comments

II. WORK IN OR NEAR STREAMS, WATERBODIES AND WETLANDS

United States Army Corps of Engineers (USACE) Permit is required for filling, dredging, excavating or other work in water bodies, rivers, creeks, streams, wetlands or wet areas. The Contractor must adhere to all of the terms and general conditions associated with the following permit(s). If additional work not represented in the plans is required, contact the Engineer immediately.

☒ No United States Army Corps (USACE) Permit Required

☐ Work is authorized by the United States Army Corps of Engineers (USACE) under a Nationwide Permit (NWP) without a Pre-Construction Notification (PCN). Project specific permit was not issued by USACE, therefore is not in the plan set. The USACE general conditions are in the “General Notes."

☐ Work is authorized by the United States Army Corps of Engineers (USACE) under a Nationwide Permit (NWP) with a Pre-Construction Notification (PCN). The project specific permit issued by the United States Army Corps of Engineers (USACE) is included in the plan set. The USACE general conditions are in the “General Notes."

☐ Work is authorized by the United States Army Corps of Engineers (USACE) under a Individual Permit (IP). The project specific permit issued by the United States Army Corps of Engineers (USACE) is included in the plan set.

☐ Work would be authorized by the United States Army Corps of Engineers (USACE) permit. The project specific permit issued by the USACE will be provided to the contractor.

United States Coast Guard (USCG) Permit is required for projects that involve the construction or modification (including changes to lighting) of a bridge or causeway across a water body determined to be navigable by the United States Coast Guard (USCG) under Section 9 of the Rivers and Harbors Act. If additional work not represented in the plans is required, contact the Engineer immediately.

☒ No United States Coast Guard (USCG) Coordination Required

☐ United States Coast Guard (USCG) Permit

☐ United States Coast Guard (USCG) Exemption

No Additional Comments

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 area and contact the Engineer immediately.

No Additional Comments

IV. VEGETATION RESOURCES

Preserve native vegetation to the extent practical. Refer to TxDOT Standard Specifications in order to comply with requirements for invasive species, beneficial landscaping and tree/brush removal.

No Additional Comments

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

If any of the listed species below are observed, cease work in the area, do not disturb species or habitat and contact the Engineer immediately.

The work may not remove active nests (from bridges, structures, or vegetation adjacent to the roadway, etc.) during nesting season (February 15 to October 1). If removal of structures or vegetation is necessary during the nesting season, the Contractor shall conduct a bird survey no more than 3 days in advance of the clearing/demolish start date. All bird surveys shall be conducted by a Field Biologist and adhere to the guidance document “Avoiding Migratory Birds and Handling Potential Violations” found in the TxDOT Environmental Compliance Toolkits at the time of the survey. (See below for Field Biologist and Ornithologist qualifications)

No Additional Comments

Field Biologist, Ornithologist – a field biologist is defined as an individual qualified to perform field investigations, presence/absence surveys and habitat surveys for protected avian species or species of concern. A mandatory bachelor’s degree in biology or a related science is required. At a minimum, the Field Biologist, Ornithologist, shall have completed and reported a minimum of three presence/absence and habitat surveys for protected avian species in the past five years. A minimum of three projects must have been conducted in Texas. Surveys shall have been performed for documentation of species in accordance with a protocol approved by USFWS or TPWD, or following generally accepted methodologies.

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES

Refer to TxDOT Standard Specifications in the event potentially contaminated materials are observed, such as dead or distressed vegetation, trash disposal areas, drums, canisters, barrels, leaching or seepage of substances, unusual smells or odors, or stained soil, cease work in the area and contact the Engineer immediately.

No Additional Comments

VII. OTHER ENVIRONMENTAL ISSUES

Comments:

DATE: Dec 06, 2020
FILE:

Version 2.1

Texas Department of Transportation

TxDOT Houston District

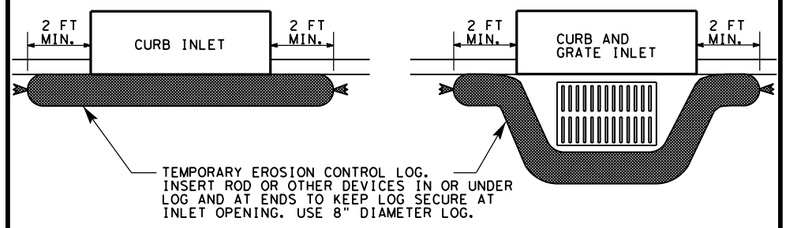
ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS

EPIC

FILE: EPIC Sheet.dgn	DN:	CK:	DW:	CK:
© TxDOT: March 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS	0508	01	381, ETC.	IH 10
UPDATED section V. text and added definition (10/17) ADDED USCG and USACE notes in Section VII (04/18)	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		112

CURB INLETS
8" DIAMETER LOGS

ITEM 506-6040 BIODEG EROSN CONT LOGS (INSTL) (8")



MATERIAL REQUIREMENTS

FILL:

Use 100% shredded mulch or other non-compost biodegradable material as fill for logs. No compost or fines.

DO NOT USE MATERIAL WHICH PROHIBITS WATER INFILTRATION.

LOG MESH:
Use mesh with 1/4" openings or larger. Mesh must allow water infiltration but also hold fill material in place.

SEDIMENT BASIN & TRAP USAGE GUIDELINES

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

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).

Sediment traps should be placed in the following locations:
1. Within drainage ditches spaced as needed or min. 500' on center
2. Immediately preceding ditch inlets
3. Just before the drainage enters a water course
4. Just before the drainage leaves the right of way

The trap should be cleaned when the capacity has been reduced by 1/2 or the sediment has accumulated to a depth of 1', whichever is less.

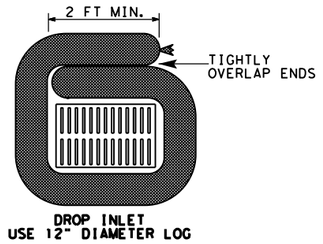
REQUIRED ITEMS:

- ITEM 506-6040 BIODEG EROSN CONT LOGS (INSTL) (8") LF
- ITEM 506-6041 BIODEG EROSN CONT LOGS (INSTL) (12") LF
- ITEM 506-6043 BIODEG EROSN CONT LOGS (REMOVE) LF

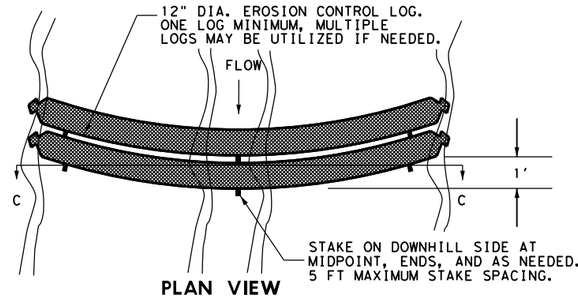
$TIME$
$DATE$
$FILE$

DROP INLETS AND OTHER LOCATIONS
12" DIAMETER LOGS

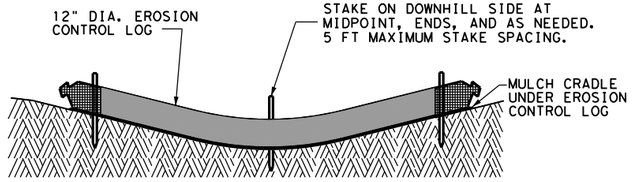
ITEM 506-6041 BIODEG EROSN CONT LOGS (INSTL)(12")



DROP INLETS

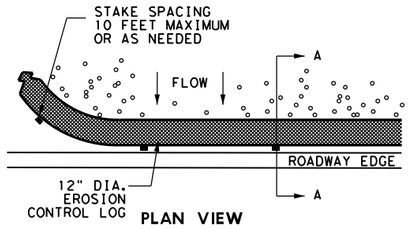


PLAN VIEW

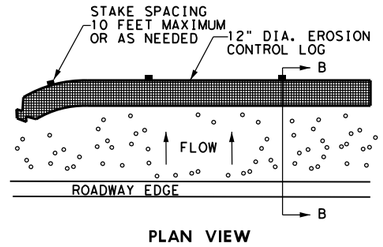


SECTION C-C

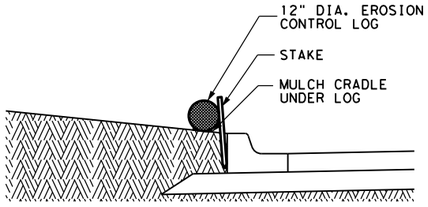
DRAINAGE SWALE OR DITCH



PLAN VIEW

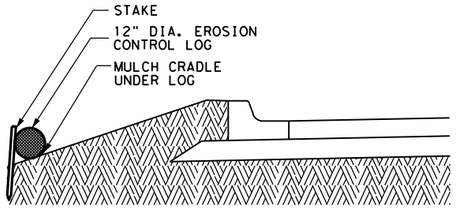


PLAN VIEW



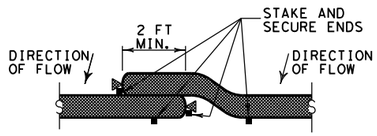
SECTION A-A

SLOPE TO ROADWAY EDGE

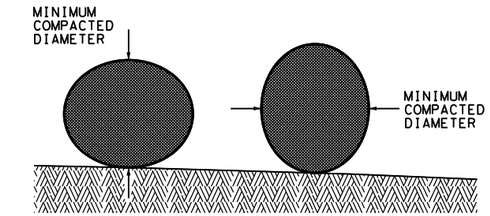


SECTION B-B

SLOPE AWAY FROM ROADWAY EDGE



END OF LOG OVERLAP



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

Texas Department of Transportation
Houston District

EROSION CONTROL LOG

ECL-12

FILE: STDG4a.DGN	DN: TxDot	CK: TxDot	DW: TxDot	CK: TxDot
© TxDOT 2014	DISTRICT	FED REG	PROJECT NUMBER	SHEET
REVISIONS 3/15 MINOR CORRECTIONS	HOU	6		113
	COUNTY		CONTROL / SECT / JOB	HIGHWAY
	HARRIS		0508 / 01 / 381	IH 10

ETC.

STD G-4A