95% SUBMITTAL

NAME OF CONTRACTOR: _____

DATE OF LETTING: _____

DATE WORK BEGAN: _____

DATE WORK COMPLETED: _____

DATE WORK ACCEPTED: _____

SUMMARY OF CHANGE ORDERS:

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
LANDSCAPE ENHANCEMENT

FEDERAL AID PROJECT
NH ( )
CSJ: 0134-09-066

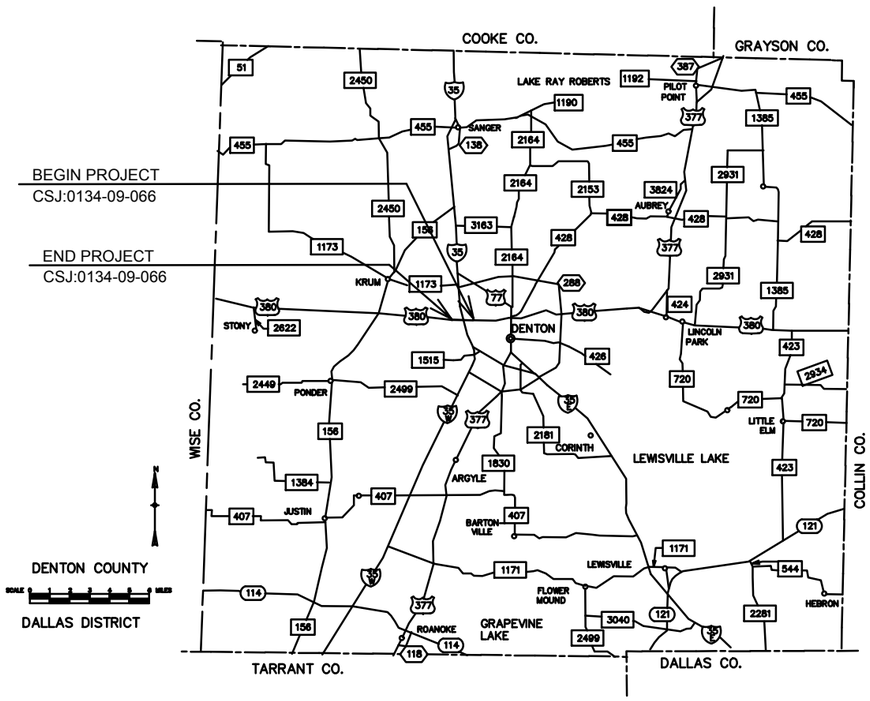
HWY 380

DENTON COUNTY

LIMITS: FROM US 77(ELM) TO: WEST OF NORTH MASCH BRANCH RD

TOTAL LENGTH OF PROJECT = 20038 FT. 3.795 MI.

TYPE OF WORK: LANDSCAPE ENHANCEMENT



EQUATIONS: ----
EXCEPTIONS: ----
RAILROAD CROSSINGS: ----

WORK WAS COMPLETED ACCORDING TO THE PLANS AND CONTRACT.

_____, P.E.
Signature of Registrant & Date

$DATE$
$FILE$

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	CSJ 0134 09 066,ETC		380
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
EBB	TEXAS	DALLAS	DENTON	
CHECK	CONTROL	SECTION	JOB	
EBB	0134	09	066,ETC	
CHECK				
EBB				

DESIGN SPEEDS:

NOTE:

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

TEXAS DEPARTMENT OF TRANSPORTATION

SUBMITTED FOR LETTING 20__
_____, R.L.A.
LANDSCAPE ARCHITECT

SUBMITTED FOR LETTING 20__
_____, P.E.
DESIGN ENGINEER

RECOMMENDED FOR LETTING 20__
_____, P.E.
DIRECTOR OF OPERATIONS

RECOMMENDED FOR LETTING 20__
_____, P.E.
AREA ENGINEER

APPROVED FOR LETTING: 20__
_____, P.E.
DISTRICT ENGINEER

USER ID

INDEX OF SHEETS

SHEET DESCRIPTION

I. GENERAL

II. SEGMENT 1: BONNIE BRAY – ELM

SEGMENT 2: I–35 – BONNIE BRAY

SEGMENT 3: MASCH BRANCH – I–35

III. SPECIFICATIONS

IV. TRAFFIC CONTROL PLANS– STANDARDS

V. ENVIRONMENTAL –STANDARDS

REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS
5-31-2019

CITY OF DENTON

EBA
E. Brooke Associates, LLC
8624 Ferguson Road #571642
Dallas, TX 75228
email: erin@ebrooke.com
phone: 817-219-2665

HWY 380
INDEX OF SHEETS

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

TEMPLATED REVISED: 10-23-02

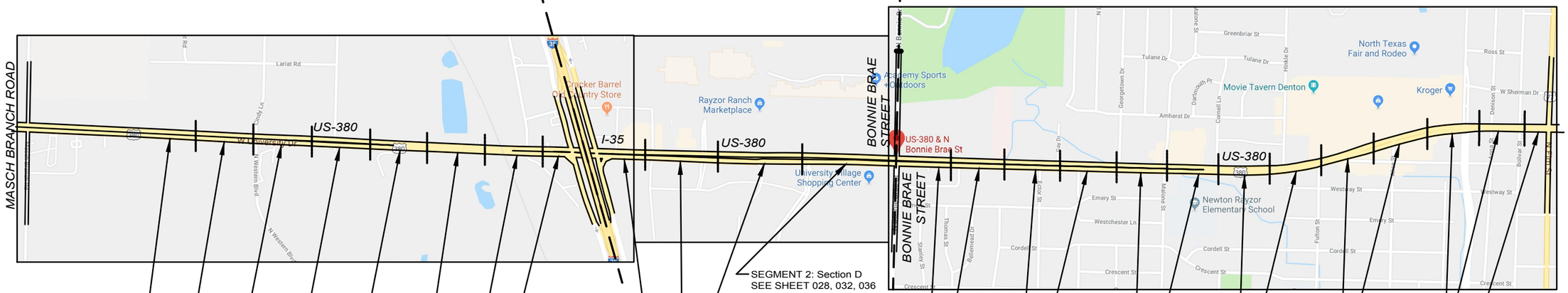
DATE

USER ID

SEGMENT 3
MASCH BRANCH to I-35

SEGMENT 2
I-35 to BONNIE BRAE

SEGMENT 1
BONNIE BRAE to ELM



SEGMENT 3: Section A
SEE SHEET 037, 045, 053

SEGMENT 3: Section B
SEE SHEET 038, 046, 054

SEGMENT 3: Section C
SEE SHEET 039, 047, 055

SEGMENT 3: Section D
SEE SHEET 040, 048, 056

SEGMENT 3: Section E
SEE SHEET 041, 049, 057

SEGMENT 3: Section F
SEE SHEET 042, 050, 058

SEGMENT 3: Section G
SEE SHEET 043, 051, 059

SEGMENT 3: Section H
SEE SHEET 044, 052, 060

SEGMENT 2: Section A
SEE SHEET 025, 029, 033

SEGMENT 2: Section B
SEE SHEET 026, 030, 034

SEGMENT 2: Section C
SEE SHEET 027, 031, 035

SEGMENT 2: Section D
SEE SHEET 028, 032, 036

SEGMENT 1: Section A
SEE SHEET 004, 011, 018

SEGMENT 1: Section B
SEE SHEET 005, 012, 019

SEGMENT 1: Section C
SEE SHEET 006, 013, 020

SEGMENT 1: Section D
SEE SHEET 007, 014, 021

SEGMENT 1: Section E
SEE SHEET 008, 015, 022

SEGMENT 1: Section F
SEE SHEET 009, 016, 023

SEGMENT 1: Section G
SEE SHEET 010, 017, 024

REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS

5-31-2019

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

CITY OF DENTON

EBA

HWY 380

PROJECT LAYOUT

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

TEMPLATED REVISED: 10-23-02

DATE

USER ID

SHEET	161-6017 Compost Manufactured Topsoil Type 1 Mix; Azalea Soil Blend(6")	168-6001 Vegetative Watering; AREA OF PLANTING: 0.57 ACERS; 60 DAY SCHEDULE	170-6002 Irrigation System Type 1	180-6001 Wildflower Seeding Gaillardia	180-6001 Wildflower Seeding Habiturf	180-6001 Wildflower Seeding Indian Blanket	180-6001 Wildflower Seeding Bluebonnet	192-6002 Plant Material (1 gal) Weeping Love Grass	192-6003 Plant Material (1 gal) Little Bluestem	192-6003 Plant Material (1 gal) Germander	192-6003 Plant Material (3 gal) Red Yucca	192-6003 Plant Material (1 gal) Regal Mist Muhly	192-6003 Plant Material (1 gal) Bright Edge Yucca	192-6012 Cypress Mulch No-float (2")	192-6016 Planting Bed Prep	192-6046 Plant Material 3" B&B Brackens Brown Southern Magnolia	192-6046 Plant Material 3" B&B Chinese Pistachio - Male	192-6046 Plant Material 3" B&B Autumn Blaze Red Maple
UNIT MEASURE	CY	GAL	LS	AC	AC	AC	AC	EA	EA	EA	EA	EA	EA	CY	SY	EA	EA	EA
SEGMENT 1: SECTION A	11.91			0	0	0	0	133	0	0	0	0	0	3.67	66	0	0	0
SEGMENT 1: SECTION B	27.66			0	0	0	0	0	667	221	0	0	0	9.22	166	0	0	0
SEGMENT 1: SECTION C	0			0	0	0	0	0	0	0	0	0	0		0	0	0	0
SEGMENT 1: SECTION D	39.82			0	0	0	0	471	229	157	0	0	0	13.28	239	0	0	0
SEGMENT 1: SECTION E	0			0	0	0	0	0	0	0	0	0	0		0	0	0	0
SEGMENT 1: SECTION F	0			0	0	0	0	0	0	0	0	0	0		0	0	0	0
SEGMENT 1: SECTION G	29.99			0	0	0	0	467	0	0	0	0	0	10	180	0	0	0
SEGMENT 2: SECTION A	23.82			0.03	0.03	0	0	0	0	0	0	0	0	7.94	143	0	0	0
SEGMENT 2: SECTION B	29.49			0	0	0	0	258	0	187	0	0	0	9.83	177	1	0	0
SEGMENT 2: SECTION C	84.13			0	0	0	0	0	840	0	0	0	0	28.06	505	0	0	1
SEGMENT 2: SECTION D	40.32			0	0	0	0	125	0	0	122	0	0	13.44	242	0	3	0
SEGMENT 3: SECTION A	35.98			0	0	0.009	0	0	0	0	111	0	0	12	216	6	4	0
SEGMENT 3: SECTION B	57.81			0	0	0.02	0.005	0	0	0	40	0	102	19.28	347	1	2	0
SEGMENT 3: SECTION C	7.66			0	0	0	0	118	0	0	0	0	0	2.56	46	0	0	2
SEGMENT 3: SECTION D	14.33			0	0	0	0	145	0	0	27	0	0	4.78	86	3	1	1
SEGMENT 3: SECTION E	8.66			0	0	0	0	0	0	0	32	0	0	2.89	52	3	2	0
SEGMENT 3: SECTION F	13.33			0	0	0	0	27	0	0	0	114	0	4.44	80	0	0	0
SEGMENT 3: SECTION G	7.16			0	0	0	0	109	0	0	0	0	0	2.39	43	0	0	0
SEGMENT 3: SECTION H	20.49			0	0	0.003	0	260	0	0	65	0	0	6.83	123	0	0	0
	452.56	**1,263,158**	**1**	**0.03**	**0.03**	**0.032**	**0.005**	**2113**	**1736**	**565**	**397**	**114**	**102**	**150.61**	**2711**	**14**	**12**	**4**

SHEET	192-6046 Plant Material 3" B&B Single Trunk Crepe Myrtle Natchez	192-6044 Plant Material 2" B&B Multi-Trunk Texas Mountain Laurel	192-6044 Plant Material 2" B&B Multi-Trunk Desert Willow Bubba	192-6097 Concrete Landscape Edge (12")	193-6001 Plant Maintenance	193-6007 Irrigation System Operation Maintenance	500-6001 Mobilization	1005-6001 Loose Aggregate for Groundcover - Red Decomposed Granite; 1/2"-1"; 2" Depth	1122-2048 Biodegradeable Erosion Control Logs 12"; Install	1122-2048 Biodegradeable Erosion Control Logs 12"; Remove	110-6003 Grading Earthwork; 7" Excavation of Soil	618-6034 4" Bore
UNIT MEASURE	EA	EA	EA	LF	MO	MO	LS	CY	LF	LF	CY	LF
SEGMENT 1: SECTION A	0	0	0	0				0	75	75	11.02	0
SEGMENT 1: SECTION B	0	0	0	12				0	150	150	27.58	0
SEGMENT 1: SECTION C	0	0	0	0				0	0	0	0	0
SEGMENT 1: SECTION D	0	0	0	16				0	175	175	39.88	0
SEGMENT 1: SECTION E	0	0	0	0				0	0	0	0	0
SEGMENT 1: SECTION F	0	0	0	0				0	0	0	0	0
SEGMENT 1: SECTION G	0	0	0	0				0	75	75	30	0
SEGMENT 2: SECTION A	0	0	0	0				0	100	100	23.84	367
SEGMENT 2: SECTION B	4	0	0	28				0	150	150	19.56	761
SEGMENT 2: SECTION C	0	6	0	45				0	275	275	84.22	608
SEGMENT 2: SECTION D	4	0	0	66				0	175	175	40.24	560
SEGMENT 3: SECTION A	6	3	0	1001				4.64	250	250	36.02	0
SEGMENT 3: SECTION B	2	3	0	865				14.23	200	200	57.88	36
SEGMENT 3: SECTION C	0	0	1	160				1.48	100	100	7.62	439
SEGMENT 3: SECTION D	2	3	1	298				6.1	250	250	14.26	220
SEGMENT 3: SECTION E	2	0	0	131				2.59	225	225	8.6	383
SEGMENT 3: SECTION F	0	0	6	254				5.01	50	50	13.84	530
SEGMENT 3: SECTION G	0	3	0	116				1.7	75	75	7.08	619
SEGMENT 3: SECTION H	0	0	0	443				7.35	50	50	20.4	75
	20	**18**	**8**	**3435**	9	9	1	**43.1**	**2375**	**2375**	**442.04**	**4598**

TEMPLATED REVISED: 10-23-02

DATE

REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS

5-31-2019

CITY OF DENTON

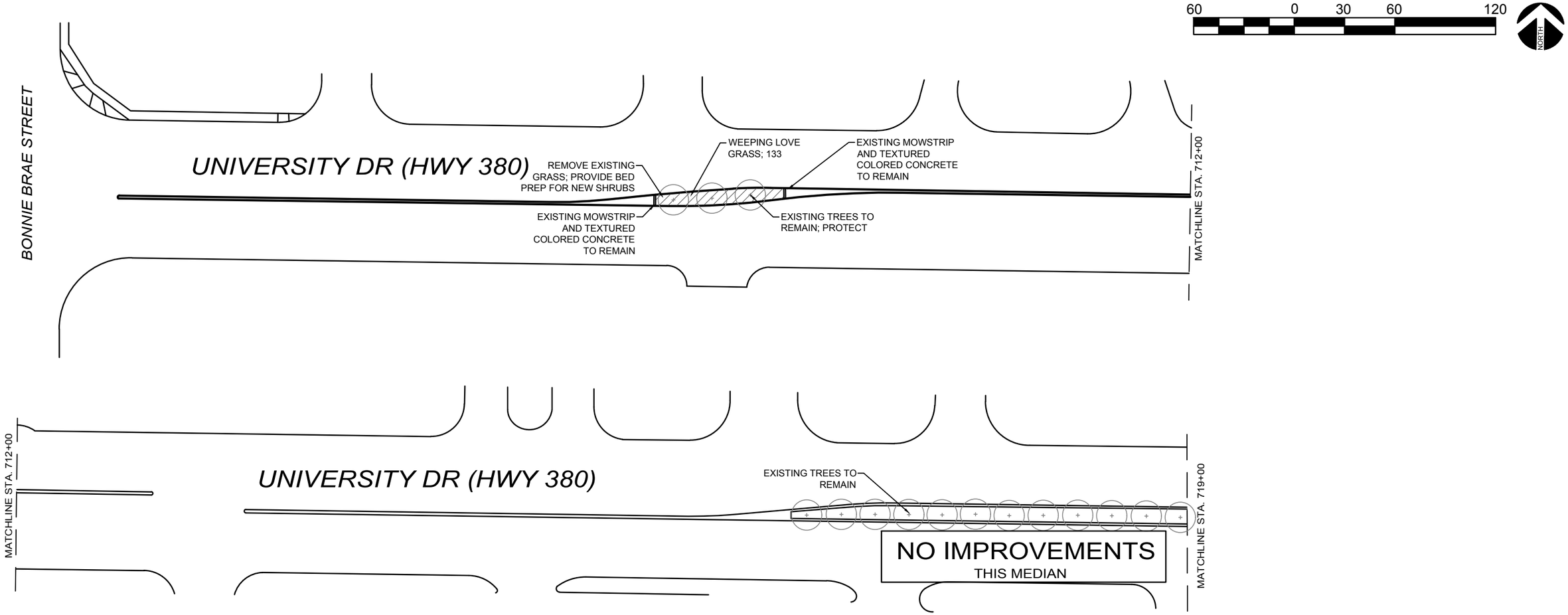
E. Brooke Associates, LLC
8624 Ferguson Road #571642
Dallas, TX 75228
email: erin@ebrooke.com
phone: 817-219-2665

Texas Department of Transportation

HWY 380

ESTIMATE AND QUANTITY SUMMARY

DESIGN EBB	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
GRAPHICS EBB	6	(SEE TITLE SHEET)		380
CHECK EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

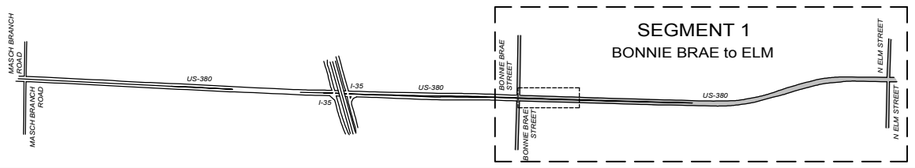


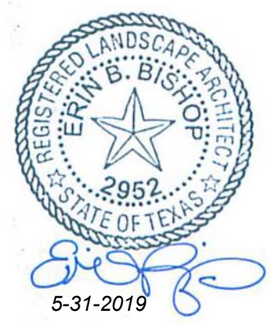
NOTES:

1. ALL EXISTING TEXTURED COLORED CONCRETE, MOWSTRIPS, AND CURBS TO REMAIN.
2. ALL EXISTING TREES TO REMAIN. ALL EXISTING TURF TO REMAIN EXCEPT WHERE NEW PLANTINGS ARE SHOWN. PLANT BED PREP REQUIRED FOR AREAS SHOWN WHERE NEW PLANTINGS ARE SHOWN. MAINTAIN A 30" UNDISTURBED AREA AROUND EXISTING TREE TRUNKS. NO EXCAVATION OR PLANT BED PREP TO OCCUR IN THESE AREAS.
3. ALL EXISTING IRRIGATION TO REMAIN. ALL EXISTING TREES SHOWN HAVE EXISTING IRRIGATION.

PLANT SCHEDULE & MATERIALS

SCIENTIFIC NAME	COMMON NAME	SIZE	QTY THIS PAGE
EXISTING TREE TO REMAIN			
ERAGROSTIS CURVULA	WEEPING LOVE GRASS	1 GALLON	133@ 24" SPACING
TEUCRIUM CHAMAEDRYS	GERMANDER	1 GALLON	0
SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	1 GALLON	0





CITY OF DENTON

EBA
E. Brooke Associates, LLC
8624 Ferguson Road #571642
Dallas, TX 75228
email: erin@ebrooke.com
phone: 817-219-2665

HWY 380

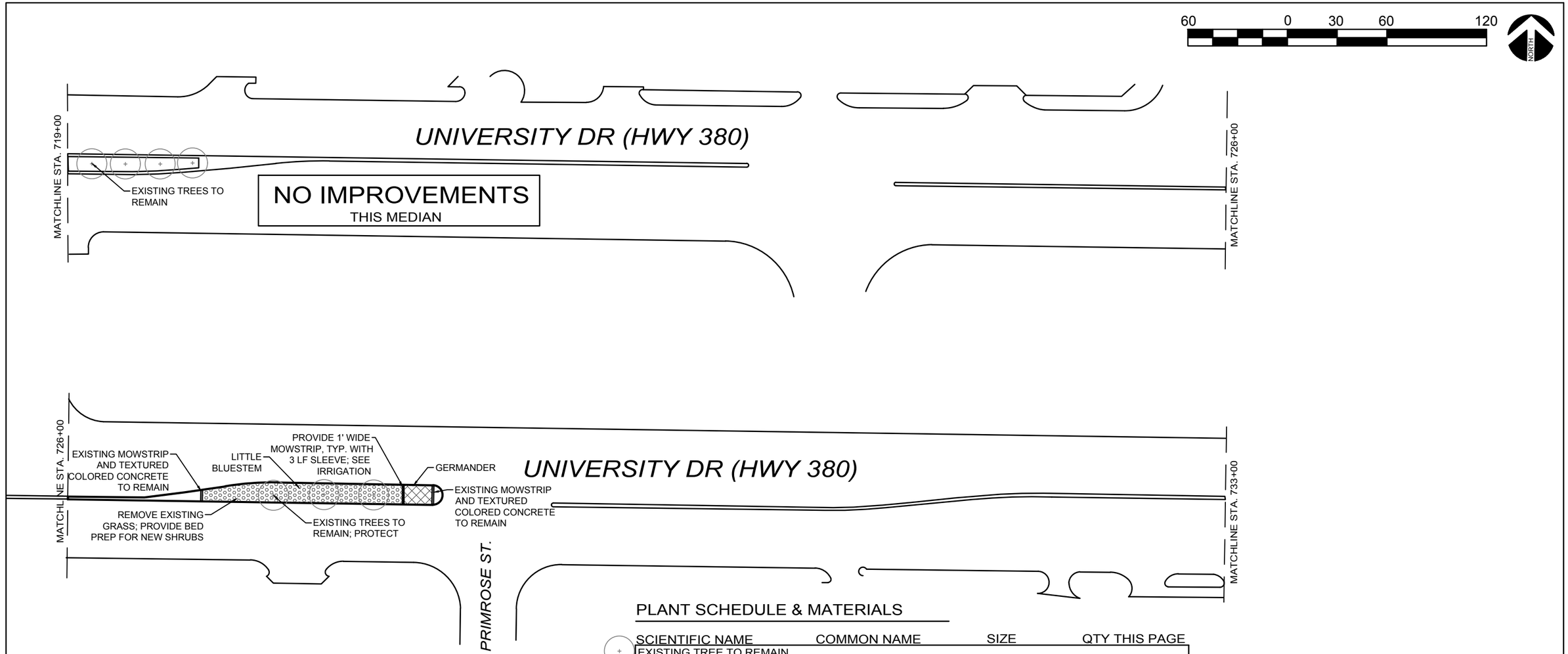
LANDSCAPE

SEGMENT 1: Section A

SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
EBB	TEXAS	DALLAS	DENTON	
CHECK	CONTROL	SECTION	JOB	
EBB	0134	09	066,ETC	
CHECK				
EBB				

DATE



PLANT SCHEDULE & MATERIALS

SCIENTIFIC NAME	COMMON NAME	SIZE	QTY THIS PAGE
+ EXISTING TREE TO REMAIN			
ERAGROSTIS CURVULA	WEEPING LOVE GRASS	1 GALLON	0
TEUCRIUM CHAMAEDRYS	GERMANDER	1 GALLON	221@ 12" SPACING
SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	1 GALLON	667@ 18" SPACING

NOTES:

1. ALL EXISTING TEXTURED COLORED CONCRETE, MOWSTRIPS, AND CURBS TO REMAIN.
2. ALL EXISTING TREES TO REMAIN. ALL EXISTING TURF TO REMAIN EXCEPT WHERE NEW PLANTINGS ARE SHOWN. PLANT BED PREP REQUIRED FOR AREAS SHOWN WHERE NEW PLANTINGS ARE SHOWN. MAINTAIN A 30" UNDISTURBED AREA AROUND EXISTING TREE TRUNK. NO EXCAVATION OR PLANT BED PREP TO OCCUR IN THESE AREAS.
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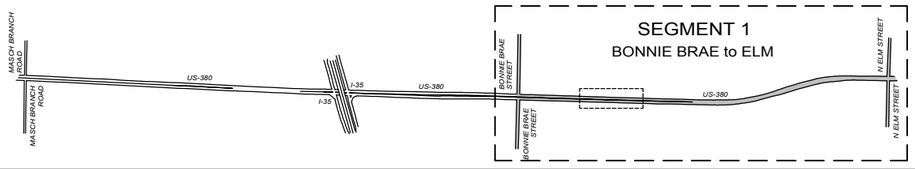


CITY OF DENTON
E. Brooke Associates, LLC
8624 Ferguson Road #571642
Dallas, TX 75228
email: erin@ebrooke.com
phone: 817-219-2665

REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS
5-31-2019

HWY 380
LANDSCAPE
SEGMENT 1: Section B

SCALE: 1" = 60'-0"

DESIGN EBB	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
GRAPHICS EBB	6	(SEE TITLE SHEET)		380
CHECK EBB	STATE	DISTRICT	COUNTY	SHEET NO.
	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE

60 0 30 60 120

NORTH

GEORGETOWN DR.

UNIVERSITY DR (HWY 380)

MALONE ST.

MATCHLINE STA. 733+00

MATCHLINE STA. 740+00

NO IMPROVEMENTS

THIS SHEET IS SHOWN FOR REFERENCE

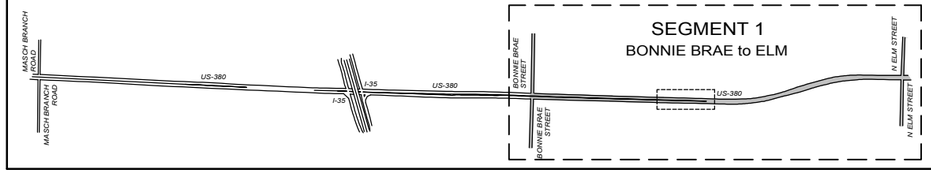
CORNELL DR.

MATCHLINE STA. 740+00

UNIVERSITY DR (HWY 380)

EXISTING TREES TO REMAIN

MATCHLINE STA. 747+00



CITY OF DENTON

EBA

E. Brooke Associates, LLC
8624 Ferguson Road #571642
Dallas, TX 75228
email: erin@ebrooke.com
phone: 817-219-2665

REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS

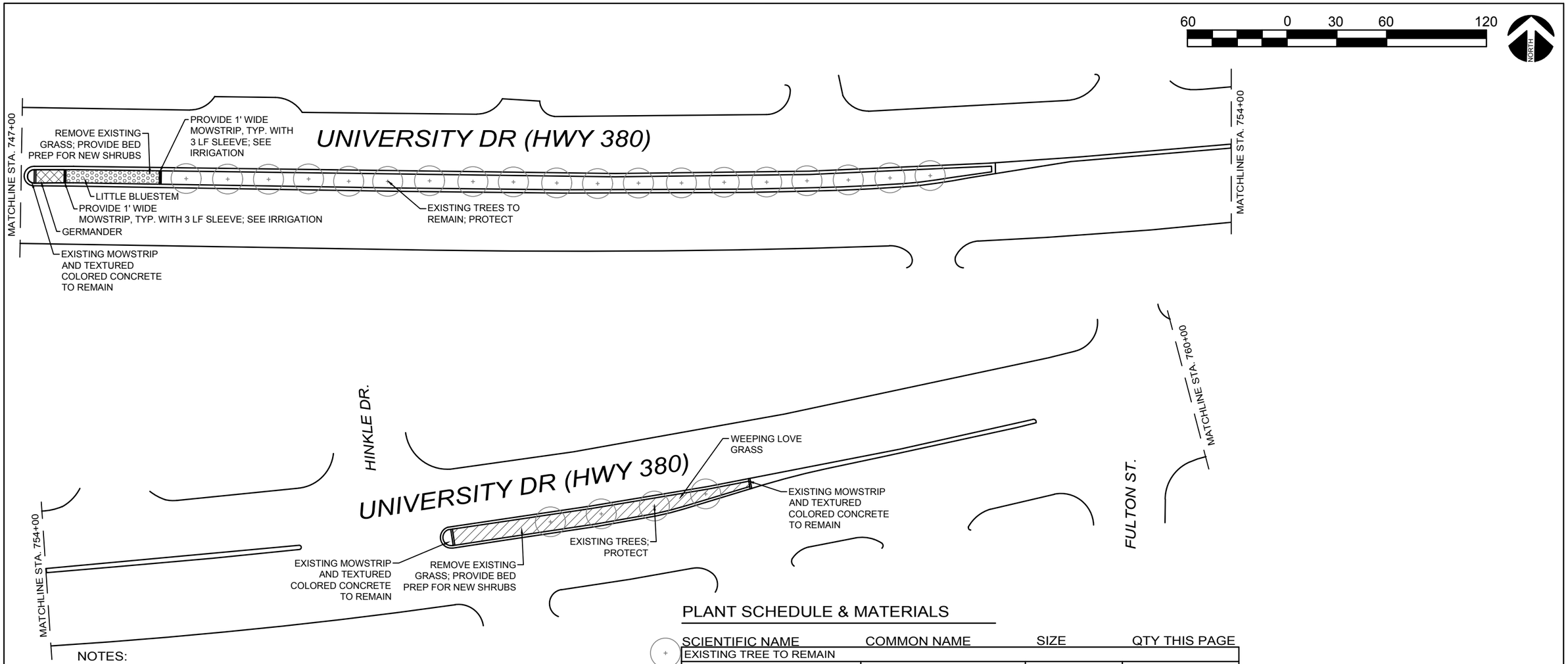
5-31-2019

HWY 380
LANDSCAPE
SEGMENT 1: Section C

SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
EBB	TEXAS	DALLAS	DENTON	
CHECK	CONTROL	SECTION	JOB	
EBB	0134	09	066,ETC	
CHECK				
EBB				

DATE



PLANT SCHEDULE & MATERIALS

SCIENTIFIC NAME	COMMON NAME	SIZE	QTY THIS PAGE
EXISTING TREE TO REMAIN			
ERAGROSTIS CURVULA	WEEPING LOVE GRASS	1 GALLON	471@ 24" SPACING
TEUCRIUM CHAMAEDRYS	GERMANDER	1 GALLON	157@ 12" SPACING
SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	1 GALLON	229@ 18" SPACING

NOTES:

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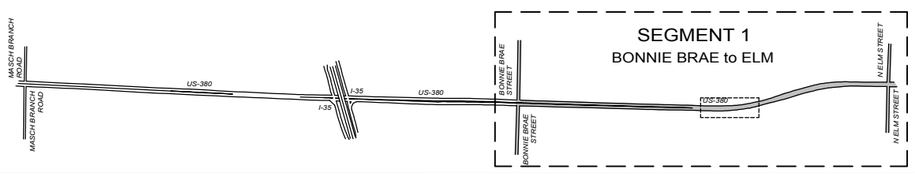


NORTH

DATE

E. Brooke Associates, LLC
8624 Ferguson Road #571642
Dallas, TX 75228
email: erin@ebrooke.com
phone: 817-219-2665

REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS

5-31-2019

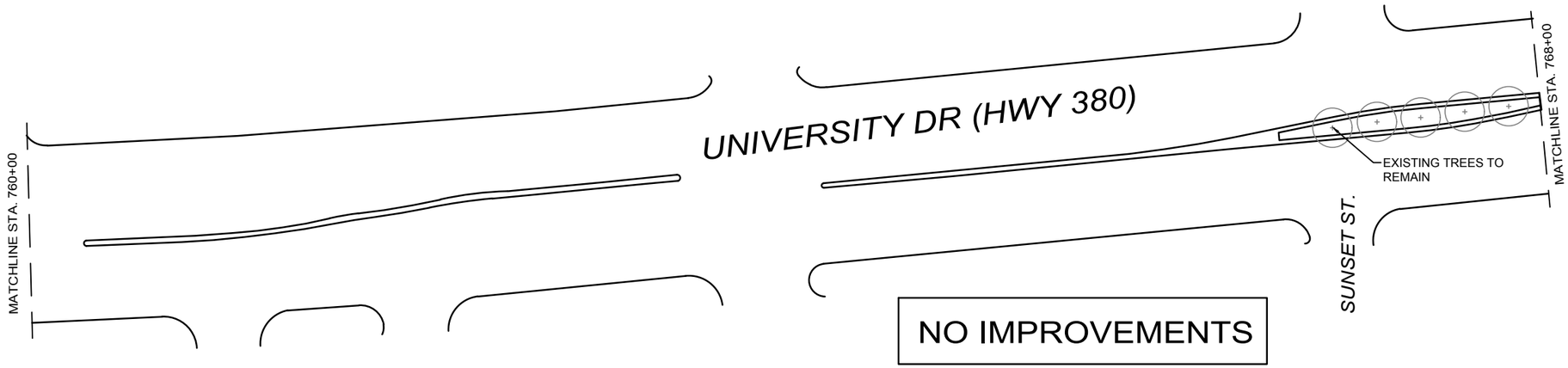
HWY 380
LANDSCAPE
SEGMENT 1: Section D

SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

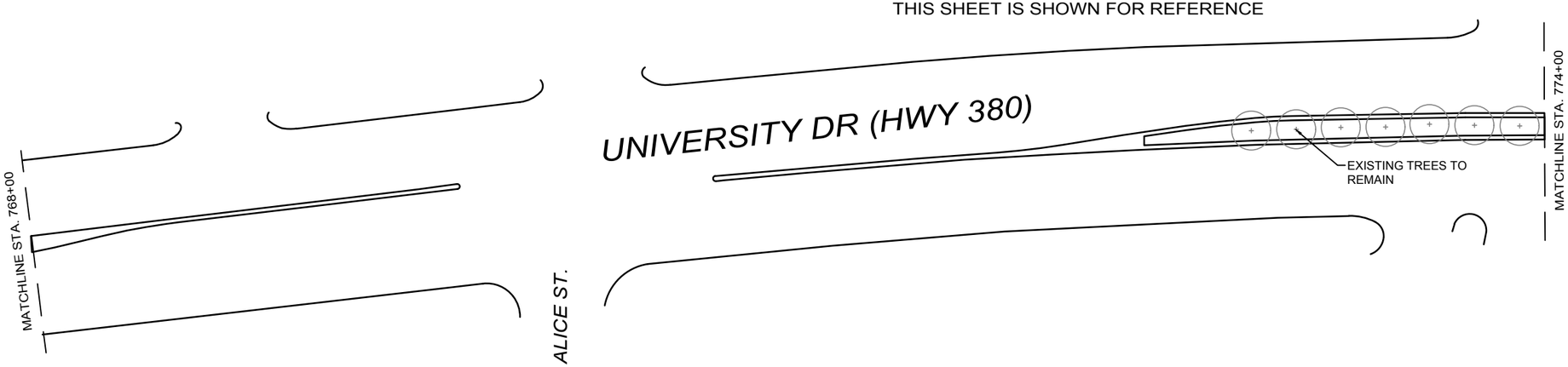
60 0 30 60 120

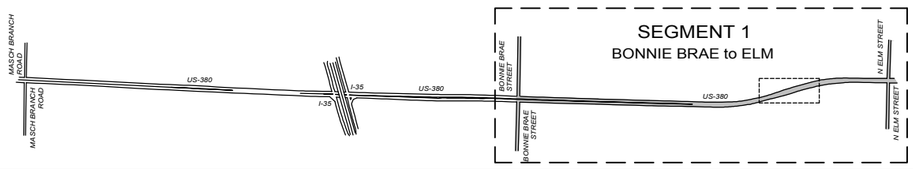
NORTH



NO IMPROVEMENTS

THIS SHEET IS SHOWN FOR REFERENCE





KEY

CITY OF DENTON

E. Brooke Associates, LLC
8624 Ferguson Road #571642
Dallas, TX 75228
email: erin@ebrooke.com
phone: 817-219-2665

REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS

5-31-2019

HWY 380
LANDSCAPE
SEGMENT 1: Section E

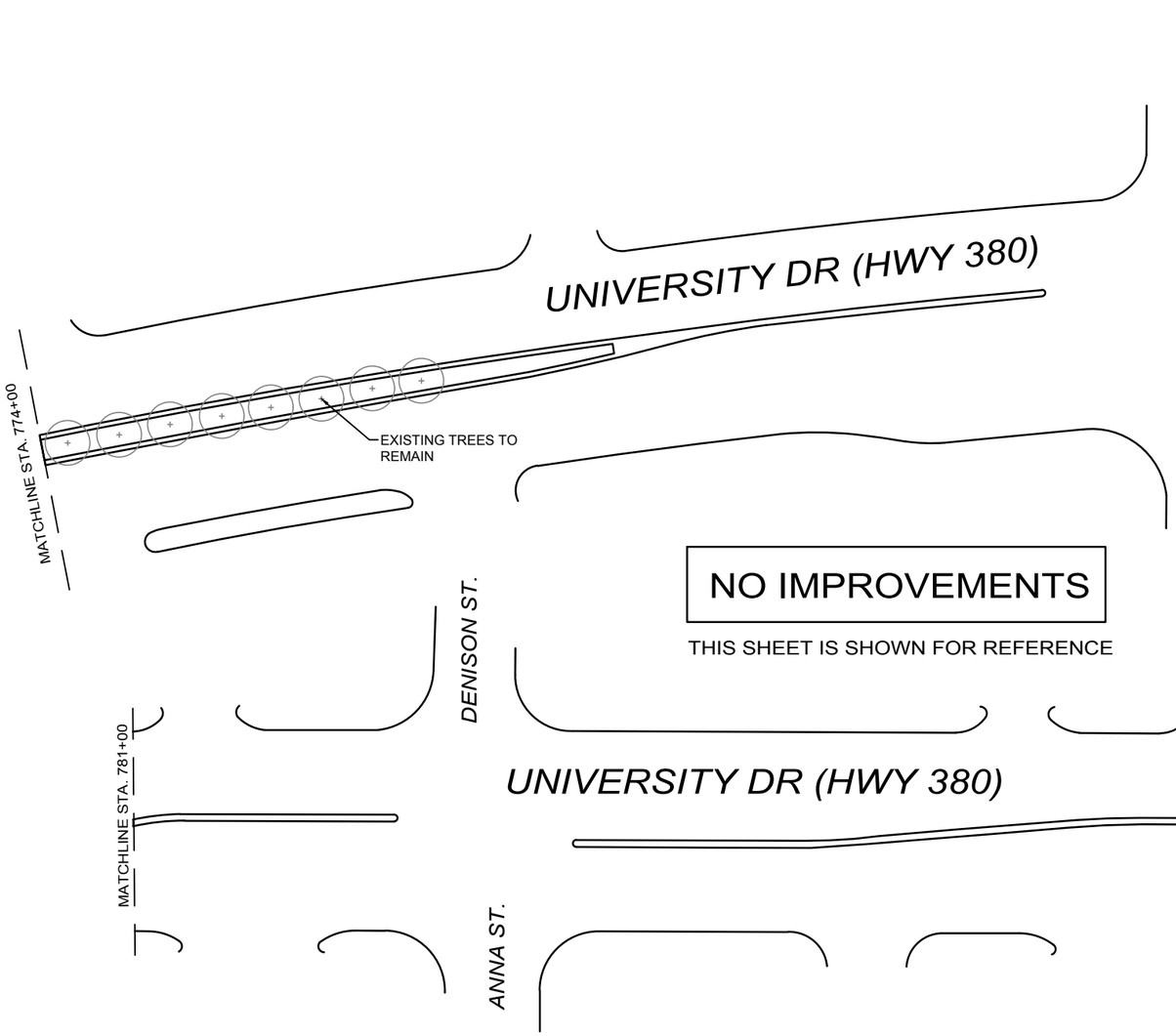
SCALE: 1" = 60'-0"

DESIGN EBB	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
GRAPHICS EBB	6	(SEE TITLE SHEET)		380
CHECK EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE

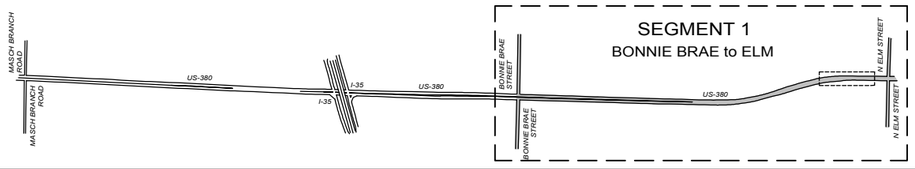
60 0 30 60 120

NORTH



NO IMPROVEMENTS

THIS SHEET IS SHOWN FOR REFERENCE



E. Brooke Associates, LLC
8624 Ferguson Road #571642
Dallas, TX 75228
email: erin@ebrooke.com
phone: 817-219-2665

REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS

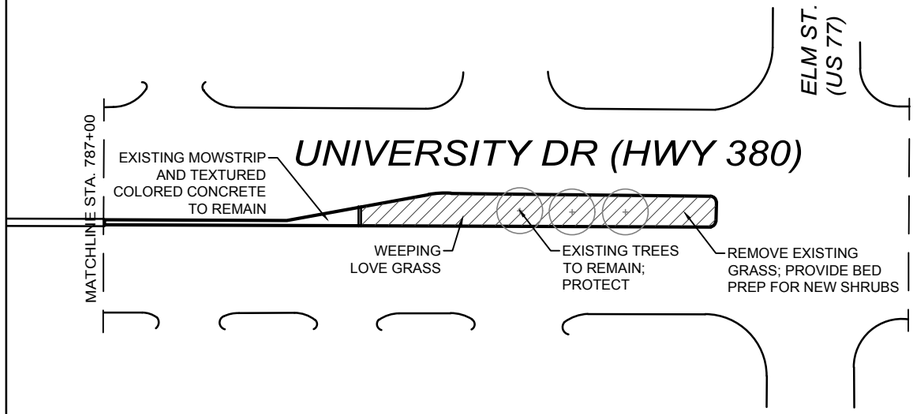
5-31-2019

HWY 380
LANDSCAPE
SEGMENT 1: Section F

SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK	CONTROL	SECTION	JOB	
EBB	0134	09	066,ETC	

DATE



PLANT SCHEDULE & MATERIALS

SCIENTIFIC NAME	COMMON NAME	SIZE	QTY THIS PAGE
EXISTING TREE TO REMAIN			
ERAGROSTIS CURVULA	WEEPING LOVE GRASS	1 GALLON	467@ 24" SPACING
TEUCRIUM CHAMAEDRYS	GERMANDER	1 GALLON	0
SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	1 GALLON	0

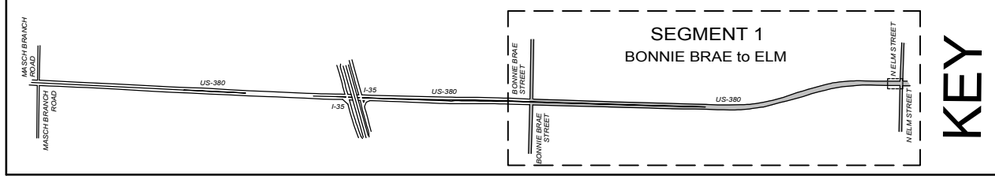
NOTES:

1. ALL EXISTING TEXTURED COLORED CONCRETE, MOWSTRIPS, AND CURBS TO REMAIN.
2. ALL EXISTING TREES TO REMAIN. ALL EXISTING TURF TO REMAIN EXCEPT WHERE NEW PLANTINGS ARE SHOWN. PLANT BED PREP REQUIRED FOR AREAS SHOWN WHERE NEW PLANTINGS ARE SHOWN. MAINTAIN A 30" UNDISTURBED AREA AROUND EXISTING TREE TRUNK. NO EXCAVATION OR PLANT BED PREP TO OCCUR IN THESE AREAS.
3. ALL EXISTING IRRIGATION TO REMAIN. ALL EXISTING TREES SHOWN HAVE EXISTING IRRIGATION.

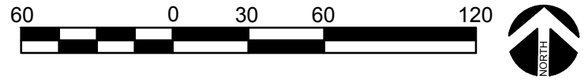
SEGMENT 1 - OVERALL PLANT SCHEDULE & MATERIALS

PLANT SCHEDULE & MATERIALS

SCIENTIFIC NAME	COMMON NAME	SIZE	QTY THIS PAGE
EXISTING TREE TO REMAIN			
ERAGROSTIS CURVULA	WEEPING LOVE GRASS	1 GALLON	822
TEUCRIUM CHAMAEDRYS	GERMANDER	1 GALLON	378
SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	1 GALLON	896



LANDSCAPE NOTES



NEW BED PLANTING SITES

1. Measure and stake planting sites in accordance to the plans. Obtain final approval of locations before continuing work under this item. Once approval is given, mark and call for line locates.
2. Apply a glyphosate type herbicide to the bed areas. (Two times, 15 days apart) to eradicate all existing vegetation except for existing trees. 15 days after second application, excavate the bed area a minimum of 12” to include any asphalt or concrete paving used during road construction for traffic lane configurations.
3. Install 1' concrete mowstrip as shown on plans. Top of mowstrip to be 1" above grade. Install sleeves with ID large enough to accommodate irrigation main line and wires.
4. For plant bed prep, excavate 7" and backfill bed to 1” from the top edge of the concrete with Azalea Soil Blend from Living Earth Technologies. Rake level and do not pack. Add Color Star Fertilizer 19-13-6 at rate of 1 lb per 1000 sq. ft. and rototill to a depth of 6”-8”. Rake bed level.
5. Confirm irrigation is stubbed up and quick couplers are functional before planting.
6. The City of Denton has right of refusal for any plants it deems unsuitable or inferior for planting. Plant material to be approved by the LA or TxDOT before installation.
7. Measure and set out plant material at specified spacing. Leave tags until spacing has been approved by the LA or TxDOT. Remove all tags after approval.
8. Install plant material leaving root ball 1” above soil grade. Plant material should be watered in immediately after planting at a rate of 2X the gallon size of the plant.
9. Install drip line in straight rows next to the plants and staple it into position with U shaped staples. Do not use flat sod staples. Ensure system adequately waters all plant material.
10. Install 3” of No Float Cypress mulch.
11. Provide plants with nametags attached per TxDOT standard spec. item 192.2. tags stay on until verified by the LA or TxDOT

NEW TREE PLANTING SITES

1. Measure and stake planting sites in accordance with the plans. Obtain final approval of locations. No trees to be located under overhead utility lines. Request alternative location in field to be approved if conflict is found.
2. The City of Denton has right of refusal for any trees it deems unsuitable or inferior for planting. Trees to be approved the the LA or TxDOT before installation. Place trees in location to be installed. Locations and tags must be approved prior to installation. Remove all tags after installation.
3. Excavate hole 2” less than the depth of the root ball and 2’ wider. Plant tree plumb with the shoulders of the root ball 2” higher than finish bed prep grade. Remove any asphalt, concrete, rocks, or other impediments that prevent the root ball from contacting the soil or impede root growth.
4. Install one 20-10-5 Agriform fertilizer tablet per caliper inch
5. Scarify the roots of all container grown trees prior to planting. Ensure there are no girdling roots.
6. Remove the twine from the top of all ball and burlap trees. Cut the top of the wire basket off and open the burlap to expose the top of the ball. Ensure there are no girdling roots.
7. Backfill hole with existing soil that came out of the hole. Build 4” tree well around perimeter of hole.
8. Install size appropriate Root Anchor system made by Tree Stake Solutions, or approved equal. Staking system will be subsidiary to tree planting. To be approved before installation.
9. Trees should be watered in immediately after planting at a rate of 2X the gallon size of the tree.
10. Remove all tags, ribbons, ties, and makers. Remove support pole if present. Trees not standing in vertical position or leaning after the pole is removed will be rejected.
11. Install bubblers.
12. Install 3” of No Float Cypress mulch
13. Provide plants with nametags attached per TxDOT standard spec. item 192.2. tags stay on until verified by the LA or TxDOT

5-31-2019

CITY OF DENTON

E. Brooke Associates, LLC
8624 Ferguson Road #571642
Dallas, TX 75228
email: erin@ebrooke.com
phone: 817-219-2665

Texas Department of Transportation

HWY 380

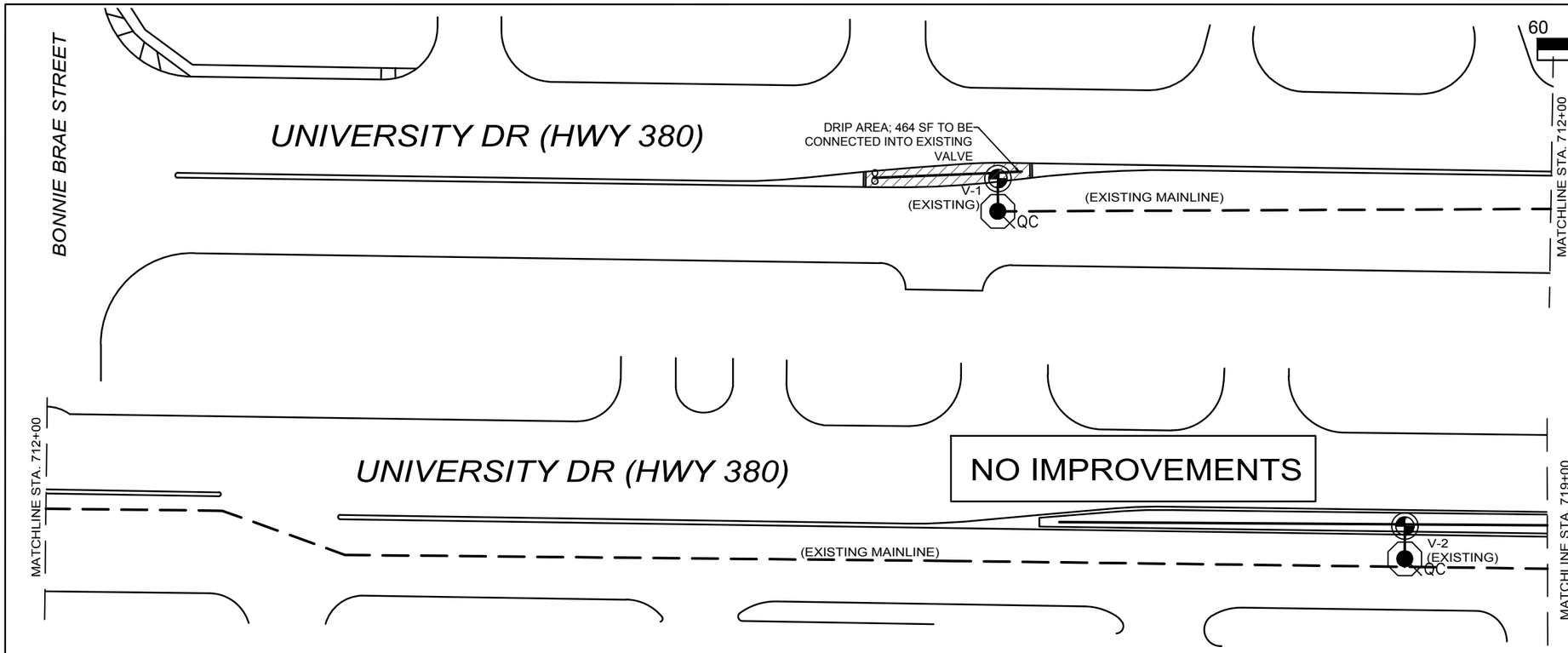
LANDSCAPE

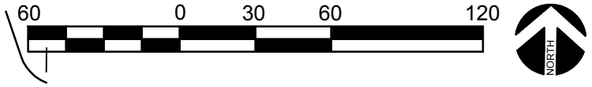
SEGMENT 1: Section G

SCALE: 1” = 60’–0”

DESIGN EBB	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
GRAPHICS EBB	6	(SEE TITLE SHEET)		380
CHECK EBB	STATE	DISTRICT	COUNTY	SHEET NO.
	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE





IRRIGATION NOTES:

1. ALL IRRIGATION LINES TO BE PLACED WITHIN PLANTER BEDS EXCEPT FOR SLEEVE LOCATIONS INDICATED ON PLANS. LINES SHOWN ACROSS PAVEMENT ARE DIAGRAMMATIC AND FOR LEGIBILITY PURPOSES ONLY.
2. ALL IRRIGATION LINES TO BE BURIED TO LOCAL CODE. IRRIGATION DRAWINGS BASED OFF 60 PSI. CONTRACTOR TO CONFIRM PROVIDED PSI ON-SITE BEFORE CONSTRUCTION.
3. CONTRACTOR TO HAVE ALL LOCATIONS OF THE CONTROLLER AND VALVES TO BE FLAGGED AND APPROVED BY CITY STAFF BEFORE INSTALLATION.
4. CONTRACTOR TO PROVIDE CUT SHEETS FOR ALL IRRIGATION MATERIALS APPROVED BY CITY STAFF BEFORE CONSTRUCTION/INSTALLATION.
5. THIS IRRIGATION PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL LAWS, ORDINANCES, RULES, REGULATIONS, OR ORDERS.
6. THE CITY OF DENTON DOES NOT ALLOW DOUBLE CHECK AS A BACKFLOW DEVICE.
7. STATIC PRESSURE: 60PSI; DESIGN PRESSURE: 40PSI
8. ALL IRRIGATION SLEEVES SHOULD BE 2-2.5 TIMES THE DIAMETER OF THE IRRIGATION LINE IT IS CARRYING
9. THIS SEGMENT INCLUDES EXISTING METER, CONTROLLER, BACKFLOW, MASTER VALVE, MAINLINE, AND LATERALS, QUICKCOUPLERS, AND BUBBLERS TO EXISTING TREES.
10. NEW IRRIGATION SHALL BE PROVIDED TO NEW PLANT BED AREAS AS INDICATED ON PLANS. THESE AREAS WILL REQUIRE A ZONE VALVE AND NECESSARY CONNECTION TO THE MAINLINE. NEW VALVE SHALL SERVICE DRIP IRRIGATION IN ALL NEW PLANT BED AREAS AS SHOWN.
11. ALL EXISTING IRRIGATION IS IN VERIFIED WORKING CONDITION BY THE CITY OF DENTON. ANY FAULTY PARTS PRIOR TO CONSTRUCTION MUST BE BROUGHT TO THE CITY'S ATTENTION FOR REPAIR. ONCE CONSTRUCTION HAS BEGUN, ANY DAMAGE TO EXISTING IRRIGATION BY THE CONTRACTOR WILL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE CITY, OR TXDOT.
12. PLACE SLEEVES UNDER ANY NEW MOWSTRIPS BEFORE INSTALLATION OF THE MOWSTRIP.

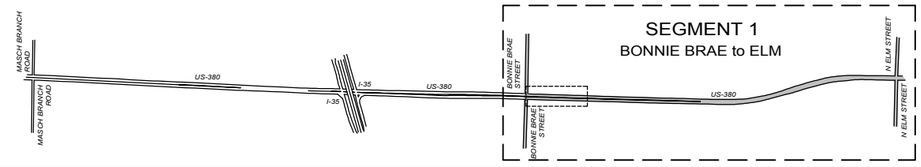
IRRIGATION LEGEND

- (S) DC — IRRInet-M DC 1¾ UHF RADIO SOLAR PEDESTAL ITEM# IS-R10-RU-SO. ARAD 1.5" DC LATCHING 1=10 ITEM# IS-BM-15-DC-10. FREEZE AND RAIN SENSOR TO BE INSTALLED FOR EACH CONTROLLER WITH CONCRETE PAD. ;EXISTING
- M — EXISTING 2" METER. POINT OF CONNECTION. CONTRACTOR SHALL VERIFY STATIC WATER PRESSURE AND FLOW AT THE METER AND CONTACT IRRIGATION DESIGNER FOR APPROVAL, PRIOR TO THE START OF WORK.;EXISTING
- 1.5" WILKINS RPZ 375 XL 115 REDUCED PRESSURE BACKFLOW ASSEMBLY; LEAD FREE. DEKORA BACKFLOW ENCLOSURE 302-BG-C3 WITH CONCRETE PAD AND INSULATED POUCH 603GN.;EXISTING
- 1.5" DC MASTER VALVE RAINBIRD 100 PGA. CONTRACTOR TO PULL 2 WIRES FOR MASTER VALVE AND 2 WIRES FOR FLOW METER. TO BE INSTALLED WITHIN A JUMBO RECTANGLE 21X15X13 VALVE BOX WITH THE FLOW METER.
- CLEAN OUT POINT ;EXISTING
- MAIN LINE ISOLATION VALVE, SPEARS HEAVY DUTY TRUE UNION TU-2000 BALL VALVE. TO BE INSTALLED IN SAME STANDARD VALVE BOX AS THE ZONE VALVES.;EXISTING
- 1" ZONE VALVE - RAINBIRD XCZ 100 PRB-LC.03-20GAL CONTROL VALVE; ALL WIRING MUST BE RATED FOR DIRECT BURIAL. TO BE INSTALLED WITHIN A STANDARD RECTANGLE 17X12X12 VALVE BOX.
- QC — 1" QUICK COUPLER VALVE;EXISTING
- TREE BUBBLER; RAINBIRD 4" HEAD 1804-SAM-PRS WITH HUNTER PCN-50;EXISTING
- SURFACE DRIP; RAINBIRD XFCV; 18 INCH EMITTER SPACING WITH .06 FLOW RATE (XFCV-06-12); INCLUDE RAINBIRD PRESSURE INDICATOR FLAGS; TO BE INSTALLED AS INSTRUCTED BY CITY STAFF; INSTALL ABOVE SOIL, STAPLE, 2" MULCH TO COVER DRIPLINE
- 1.5" MAINLINE; JM EAGLE SDR 11 RATED TO 200 PSI WITH BUTT FUSIONS. MINIMUM ROLL LENGTHS OF 500';EXISTING
- ADS POLYFLEX UTILITY GRADE OR SCHEDULE 40 3/4". STUB OUTS FROM LATERAL LINES TO TREES SHALL BE FLEX PIPE AS DESIGNATED BY THE CITY; STUB OUTS ARE 1/2". 12" MIN. DEPTH OF BURY;EXISTING, EXCEPT IN DRIP BED AREAS
- 4" HDPE ROLL PIPE CONDUIT ENDING WITH NO GREATER THAN A SWEEPING ANGLE OF 45° CURVE SO THAT MAIN LINE CAN BE PUSHED THROUGH; ALL BORES AND SLEEVING TO BE PROVIDED BY CONTRACTOR.;EXISTING

METER 1

VALVE No	EXISTING V-1	EXISTING V-2	NEW V-3	EXISTING V-4	NEW V-5	EXISTING V-6	EXISTING V-7	EXISTING V-8	EXISTING V-9	EXISTING V-1
VALVE SIZE	1"	EXIST.	1"	EXIST.	1"	EXIST.	1"	EXIST.	EXIST.	1"
GPM	2.06	EXIST.	4.15	EXIST.	2.71	EXIST.	7.26	EXIST.	EXIST.	3.39
TYPE	DRIP	EXIST.	DRIP	EXIST.	DRIP	EXIST.	DRIP	EXIST.	EXIST.	DRIP
OUTLET	XFS-09-12	EXIST.	XFS-09-12	EXIST.	XFS-09-12	EXIST.	XFS-09-12	EXIST.	EXIST.	XFS-09-12
PRECIP. RATE	0.9 IN	EXIST.	0.9 IN	EXIST.	0.9 IN	EXIST.	0.9 IN	EXIST.	EXIST.	0.9 IN
RUN TIME	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.

METER 2



CITY OF DENTON

E. Brooke Associates, LLC
8624 Ferguson Road #571642
Dallas, TX 75228
email: erin@ebrooke.com
phone: 817-219-2665

HWY 380

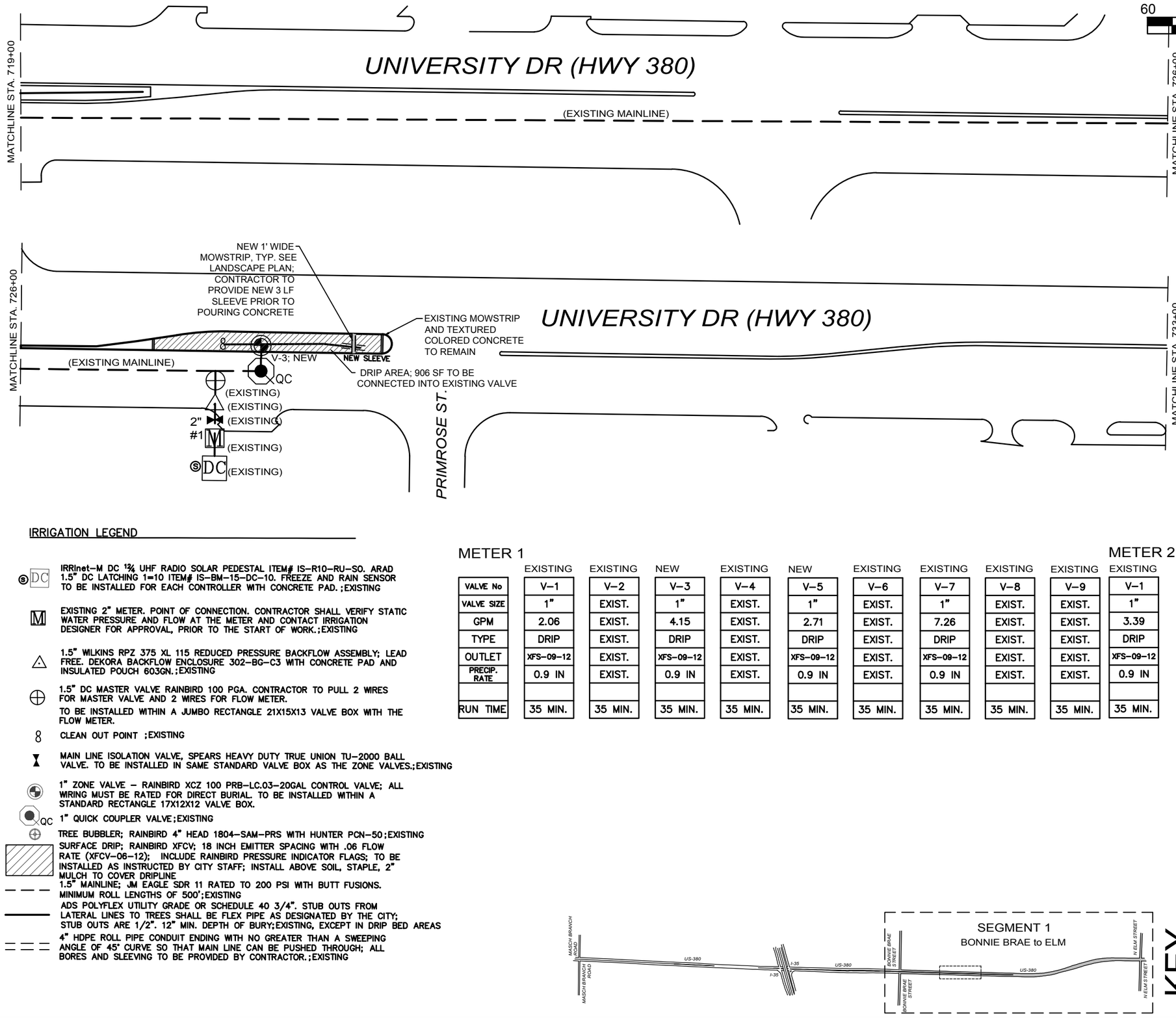
IRRIGATION

SEGMENT 1: Section A

SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
	CONTROL	SECTION	JOB	
CHECK EBB	0134	09	066,ETC	

DATE



60 0 30 60 120

NORTH

IRRIGATION NOTES:

1. ALL IRRIGATION LINES TO BE PLACED WITHIN PLANTER BEDS EXCEPT FOR SLEEVE LOCATIONS INDICATED ON PLANS. LINES SHOWN ACROSS PAVEMENT ARE DIAGRAMMATIC AND FOR LEGIBILITY PURPOSES ONLY.
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3. CONTRACTOR TO HAVE ALL LOCATIONS OF THE CONTROLLER AND VALVES TO BE FLAGGED AND APPROVED BY CITY STAFF BEFORE INSTALLATION.
4. CONTRACTOR TO PROVIDE CUT SHEETS FOR ALL IRRIGATION MATERIALS APPROVED BY CITY STAFF BEFORE CONSTRUCTION/INSTALLATION.
5. THIS IRRIGATION PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL LAWS, ORDINANCES, RULES, REGULATIONS, OR ORDERS.
6. THE CITY OF DENTON DOES NOT ALLOW DOUBLE CHECK AS A BACKFLOW DEVICE.
7. STATIC PRESSURE: 60PSI; DESIGN PRESSURE: 40PSI
8. ALL IRRIGATION SLEEVES SHOULD BE 2-2.5 TIMES THE DIAMETER OF THE IRRIGATION LINE IT IS CARRYING
9. THIS SEGMENT INCLUDES EXISTING METER, CONTROLLER, BACKFLOW, MASTER VALVE, MAINLINE, AND LATERALS, QUICKCOUPLERS, AND BUBBLERS TO EXISTING TREES.
10. NEW IRRIGATION SHALL BE PROVIDED TO NEW PLANT BED AREAS AS INDICATED ON PLANS. THESE AREAS WILL REQUIRE A ZONE VALVE AND NECESSARY CONNECTION TO THE MAINLINE. NEW VALVE SHALL SERVICE DRIP IRRIGATION IN ALL NEW PLANT BED AREAS AS SHOWN.
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12. PLACE SLEEVES UNDER ANY NEW MOWSTRIPS BEFORE INSTALLATION OF THE MOWSTRIP.

IRRIGATION LEGEND

- S DC — IRRInet-M DC 1¾ UHF RADIO SOLAR PEDESTAL ITEM# IS-R10-RU-SO. ARAD 1.5" DC LATCHING 1=10 ITEM# IS-BM-15-DC-10. FREEZE AND RAIN SENSOR TO BE INSTALLED FOR EACH CONTROLLER WITH CONCRETE PAD. ;EXISTING
- M — EXISTING 2" METER. POINT OF CONNECTION. CONTRACTOR SHALL VERIFY STATIC WATER PRESSURE AND FLOW AT THE METER AND CONTACT IRRIGATION DESIGNER FOR APPROVAL, PRIOR TO THE START OF WORK.;EXISTING
- △ — 1.5" WILKINS RPZ 375 XL 115 REDUCED PRESSURE BACKFLOW ASSEMBLY; LEAD FREE. DEKORA BACKFLOW ENCLOSURE 302-BG-C3 WITH CONCRETE PAD AND INSULATED POUCH 603GN.;EXISTING
- ⊕ — 1.5" DC MASTER VALVE RAINBIRD 100 PGA. CONTRACTOR TO PULL 2 WIRES FOR MASTER VALVE AND 2 WIRES FOR FLOW METER. TO BE INSTALLED WITHIN A JUMBO RECTANGLE 21X15X13 VALVE BOX WITH THE FLOW METER.
- 8 — CLEAN OUT POINT ;EXISTING
- ⧗ — MAIN LINE ISOLATION VALVE, SPEARS HEAVY DUTY TRUE UNION TU-2000 BALL VALVE. TO BE INSTALLED IN SAME STANDARD VALVE BOX AS THE ZONE VALVES.;EXISTING
- ⊕ — 1" ZONE VALVE - RAINBIRD XCZ 100 PRB-LC.03-20GAL CONTROL VALVE; ALL WIRING MUST BE RATED FOR DIRECT BURIAL. TO BE INSTALLED WITHIN A STANDARD RECTANGLE 17X12X12 VALVE BOX.
- QC — 1" QUICK COUPLER VALVE;EXISTING
- ⊕ — TREE BUBBLER; RAINBIRD 4" HEAD 1804-SAM-PRS WITH HUNTER PCN-50;EXISTING
- ▨ — SURFACE DRIP; RAINBIRD XFCV; 18 INCH EMITTER SPACING WITH .06 FLOW RATE (XFCV-06-12); INCLUDE RAINBIRD PRESSURE INDICATOR FLAGS; TO BE INSTALLED AS INSTRUCTED BY CITY STAFF; INSTALL ABOVE SOIL, STAPLE, 2" MULCH TO COVER DRIPLINE
- — — — 1.5" MAINLINE; JM EAGLE SDR 11 RATED TO 200 PSI WITH BUTT FUSIONS. MINIMUM ROLL LENGTHS OF 500';EXISTING
- ——— ADS POLYFLEX UTILITY GRADE OR SCHEDULE 40 3/4". STUB OUTS FROM LATERAL LINES TO TREES SHALL BE FLEX PIPE AS DESIGNATED BY THE CITY; STUB OUTS ARE 1/2". 12" MIN. DEPTH OF BURY;EXISTING, EXCEPT IN DRIP BED AREAS
- = = = — 4" HDPE ROLL PIPE CONDUIT ENDING WITH NO GREATER THAN A SWEEPING ANGLE OF 45° CURVE SO THAT MAIN LINE CAN BE PUSHED THROUGH; ALL BORES AND SLEEVING TO BE PROVIDED BY CONTRACTOR.;EXISTING

METER 1

VALVE No	EXISTING V-1	EXISTING V-2	NEW V-3	EXISTING V-4	NEW V-5	EXISTING V-6	EXISTING V-7	EXISTING V-8	EXISTING V-9	METER 2 EXISTING V-1
VALVE SIZE	1"	EXIST.	1"	EXIST.	1"	EXIST.	1"	EXIST.	EXIST.	1"
GPM	2.06	EXIST.	4.15	EXIST.	2.71	EXIST.	7.26	EXIST.	EXIST.	3.39
TYPE	DRIP	EXIST.	DRIP	EXIST.	DRIP	EXIST.	DRIP	EXIST.	EXIST.	DRIP
OUTLET	XFS-09-12	EXIST.	XFS-09-12	EXIST.	XFS-09-12	EXIST.	XFS-09-12	EXIST.	EXIST.	XFS-09-12
PRECIP. RATE	0.9 IN	EXIST.	0.9 IN	EXIST.	0.9 IN	EXIST.	0.9 IN	EXIST.	EXIST.	0.9 IN
RUN TIME	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.

REGISTERED LANDSCAPE ARCHITECT ERIN B. BISHOP 2952 STATE OF TEXAS

5-31-2019

CITY OF DENTON

E. Brooke Associates, LLC
8624 Ferguson Road #571642
Dallas, TX 75228
email: erin@ebrooke.com
phone: 817-219-2665

HWY 380

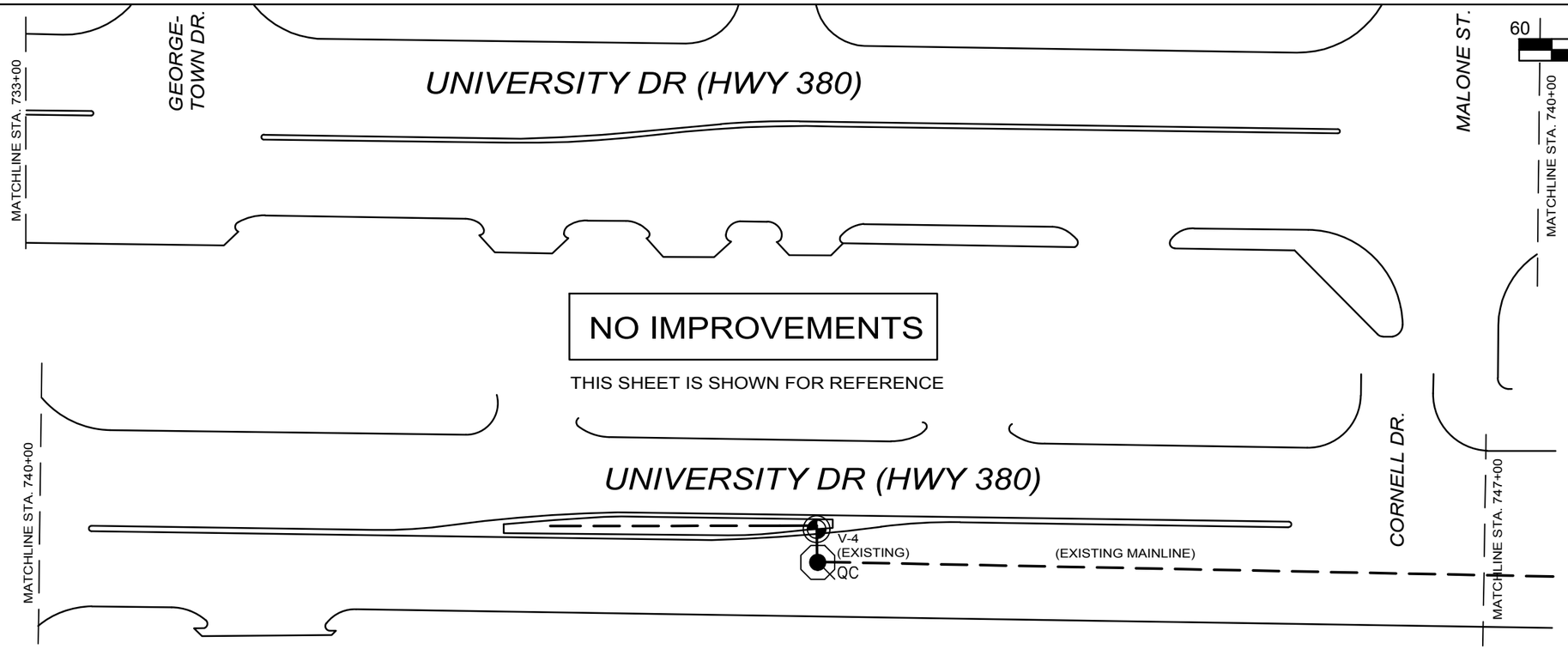
IRRIGATION

SEGMENT 1: Section B

SCALE: 1" = 60'-0"

DESIGN EBB	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
GRAPHICS EBB	6	(SEE TITLE SHEET)		380
CHECK EBB	STATE	DISTRICT	COUNTY	SHEET NO.
	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE



60 0 30 60 120

NORTH

IRRIGATION NOTES:

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2. ALL IRRIGATION LINES TO BE BURIED TO LOCAL CODE. IRRIGATION DRAWINGS BASED OFF 60 PSI. CONTRACTOR TO CONFIRM PROVIDED PSI ON-SITE BEFORE CONSTRUCTION.
3. CONTRACTOR TO HAVE ALL LOCATIONS OF THE CONTROLLER AND VALVES TO BE FLAGGED AND APPROVED BY CITY STAFF BEFORE INSTALLATION.
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5. THIS IRRIGATION PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL LAWS, ORDINANCES, RULES, REGULATIONS, OR ORDERS.
6. THE CITY OF DENTON DOES NOT ALLOW DOUBLE CHECK AS A BACKFLOW DEVICE.
7. STATIC PRESSURE: 60PSI; DESIGN PRESSURE: 40PSI
8. ALL IRRIGATION SLEEVES SHOULD BE 2-2.5 TIMES THE DIAMETER OF THE IRRIGATION LINE IT IS CARRYING
9. THIS SEGMENT INCLUDES EXISTING METER, CONTROLLER, BACKFLOW, MASTER VALVE, MAINLINE, AND LATERALS, QUCKCOUPLERS, AND BUBBLERS TO EXISTING TREES.
10. NEW IRRIGATION SHALL BE PROVIDED TO NEW PLANT BED AREAS AS INDICATED ON PLANS. THESE AREAS WILL REQUIRE A ZONE VALVE AND NECESSARY CONNECTION TO THE MAINLINE. NEW VALVE SHALL SERVICE DRIP IRRIGATION IN ALL NEW PLANT BED AREAS AS SHOWN.
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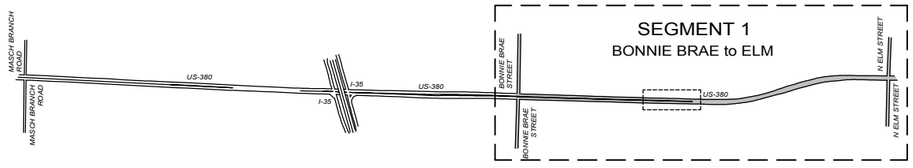
12. PLACE SLEEVES UNDER ANY NEW MOWSTRIPS BEFORE INSTALLATION OF THE MOWSTRIP.

IRRIGATION LEGEND

- IRRInet-M DC ¾ UHF RADIO SOLAR PEDESTAL ITEM# IS-R10-RU-SO. ARAD 1.5" DC LATCHING 1=10 ITEM# IS-BM-15-DC-10. FREEZE AND RAIN SENSOR TO BE INSTALLED FOR EACH CONTROLLER WITH CONCRETE PAD.;EXISTING
- EXISTING 2" METER. POINT OF CONNECTION. CONTRACTOR SHALL VERIFY STATIC WATER PRESSURE AND FLOW AT THE METER AND CONTACT IRRIGATION DESIGNER FOR APPROVAL, PRIOR TO THE START OF WORK.;EXISTING
- 1.5" WILKINS RPZ 375 XL 115 REDUCED PRESSURE BACKFLOW ASSEMBLY; LEAD FREE. DEKORA BACKFLOW ENCLOSURE 302-BG-C3 WITH CONCRETE PAD AND INSULATED POUCH 603GN.;EXISTING
- 1.5" DC MASTER VALVE RAINBIRD 100 PGA. CONTRACTOR TO PULL 2 WIRES FOR MASTER VALVE AND 2 WIRES FOR FLOW METER. TO BE INSTALLED WITHIN A JUMBO RECTANGLE 21X15X13 VALVE BOX WITH THE FLOW METER.
- CLEAN OUT POINT ;EXISTING
- MAIN LINE ISOLATION VALVE, SPEARS HEAVY DUTY TRUE UNION TU-2000 BALL VALVE. TO BE INSTALLED IN SAME STANDARD VALVE BOX AS THE ZONE VALVES.;EXISTING
- 1" ZONE VALVE - RAINBIRD XCZ 100 PRB-LC.03-20GAL CONTROL VALVE; ALL WIRING MUST BE RATED FOR DIRECT BURIAL. TO BE INSTALLED WITHIN A STANDARD RECTANGLE 17X12X12 VALVE BOX.
- QC 1" QUICK COUPLER VALVE;EXISTING
- TREE BUBBLER; RAINBIRD 4" HEAD 1804-SAM-PRS WITH HUNTER PCN-50;EXISTING
- SURFACE DRIP; RAINBIRD XFCV; 18 INCH EMITTER SPACING WITH .06 FLOW RATE (XFCV-06-12); INCLUDE RAINBIRD PRESSURE INDICATOR FLAGS; TO BE INSTALLED AS INSTRUCTED BY CITY STAFF; INSTALL ABOVE SOIL, STAPLE, 2" MULCH TO COVER DRIPLINE
- 1.5" MAINLINE; JM EAGLE SDR 11 RATED TO 200 PSI WITH BUTT FUSIONS. MINIMUM ROLL LENGTHS OF 500';EXISTING
- ADS POLYFLEX UTILITY GRADE OR SCHEDULE 40 3/4". STUB OUTS FROM LATERAL LINES TO TREES SHALL BE FLEX PIPE AS DESIGNATED BY THE CITY; STUB OUTS ARE 1/2". 12" MIN. DEPTH OF BURY;EXISTING, EXCEPT IN DRIP BED AREAS
- 4" HDPE ROLL PIPE CONDUIT ENDING WITH NO GREATER THAN A SWEEPING ANGLE OF 45° CURVE SO THAT MAIN LINE CAN BE PUSHED THROUGH; ALL BORES AND SLEEVING TO BE PROVIDED BY CONTRACTOR.;EXISTING

METER 1

VALVE No	V-1	V-2	V-3	V-4	V-5	V-6	V-7	V-8	V-9	V-1
	EXISTING	EXISTING	NEW	EXISTING	NEW	EXISTING	EXISTING	EXISTING	EXISTING	METER EXISTING
VALVE SIZE	1"	EXIST.	1"	EXIST.	1"	EXIST.	1"	EXIST.	EXIST.	1"
GPM	2.06	EXIST.	4.15	EXIST.	2.71	EXIST.	7.26	EXIST.	EXIST.	3.39
TYPE	DRIP	EXIST.	DRIP	EXIST.	DRIP	EXIST.	DRIP	EXIST.	EXIST.	DRIP
OUTLET	XFS-09-12	EXIST.	XFS-09-12	EXIST.	XFS-09-12	EXIST.	XFS-09-12	EXIST.	EXIST.	XFS-09-12
PRECIP. RATE	0.9 IN	EXIST.	0.9 IN	EXIST.	0.9 IN	EXIST.	0.9 IN	EXIST.	EXIST.	0.9 IN
RUN TIME	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.



REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS

5-31-2019

CITY OF DENTON

E. Brooke Associates, LLC
8624 Ferguson Road #571642
Dallas, TX 75228
email: erin@ebrooke.com
phone: 817-219-2665

HWY 380

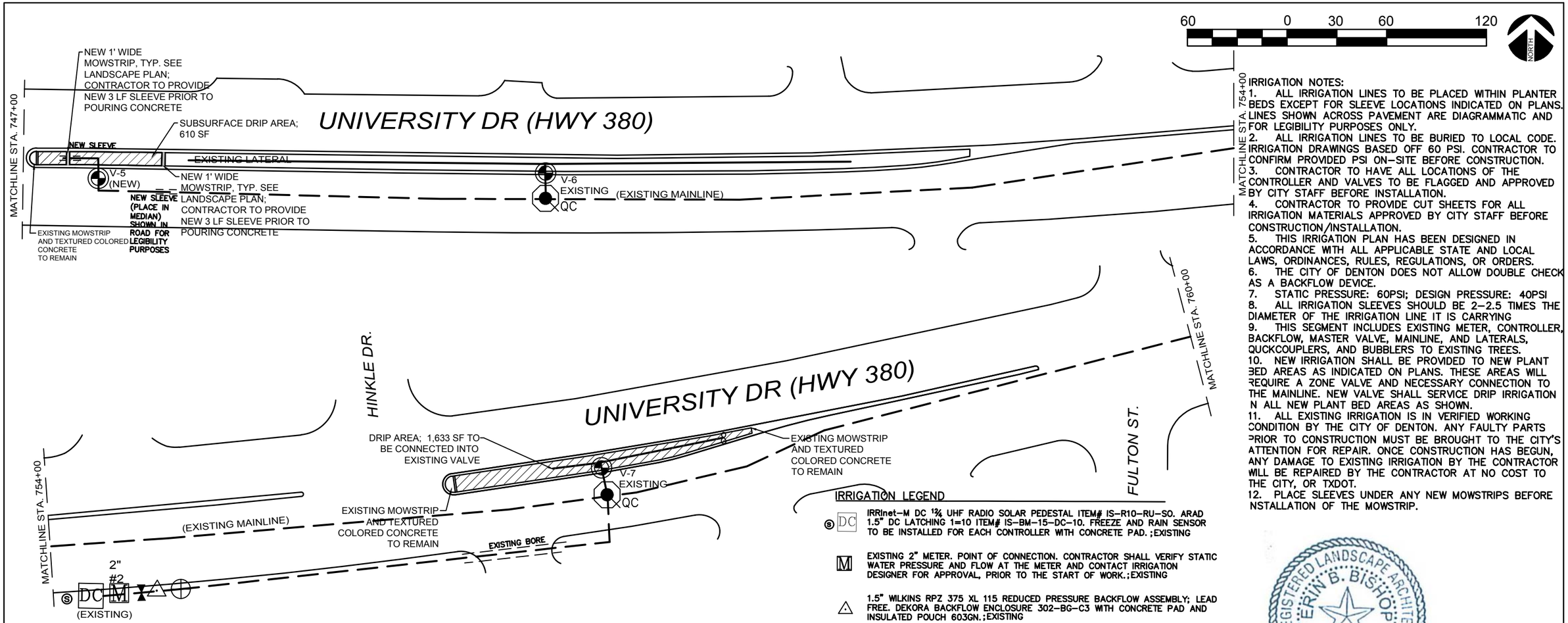
IRRIGATION

SEGMENT 1: Section C

SCALE: 1" = 60'-0"

DESIGN EBB	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
GRAPHICS EBB	6	(SEE TITLE SHEET)		380
CHECK EBB	STATE	DISTRICT	COUNTY	SHEET NO.
	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE



IRRIGATION NOTES:

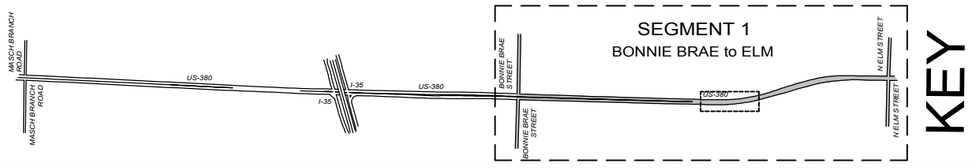
1. ALL IRRIGATION LINES TO BE PLACED WITHIN PLANTER BEDS EXCEPT FOR SLEEVE LOCATIONS INDICATED ON PLANS. LINES SHOWN ACROSS PAVEMENT ARE DIAGRAMMATIC AND FOR LEGIBILITY PURPOSES ONLY.
2. ALL IRRIGATION LINES TO BE BURIED TO LOCAL CODE. IRRIGATION DRAWINGS BASED OFF 60 PSI. CONTRACTOR TO CONFIRM PROVIDED PSI ON-SITE BEFORE CONSTRUCTION.
3. CONTRACTOR TO HAVE ALL LOCATIONS OF THE CONTROLLER AND VALVES TO BE FLAGGED AND APPROVED BY CITY STAFF BEFORE INSTALLATION.
4. CONTRACTOR TO PROVIDE CUT SHEETS FOR ALL IRRIGATION MATERIALS APPROVED BY CITY STAFF BEFORE CONSTRUCTION/INSTALLATION.
5. THIS IRRIGATION PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL LAWS, ORDINANCES, RULES, REGULATIONS, OR ORDERS.
6. THE CITY OF DENTON DOES NOT ALLOW DOUBLE CHECK AS A BACKFLOW DEVICE.
7. STATIC PRESSURE: 60PSI; DESIGN PRESSURE: 40PSI
8. ALL IRRIGATION SLEEVES SHOULD BE 2-2.5 TIMES THE DIAMETER OF THE IRRIGATION LINE IT IS CARRYING
9. THIS SEGMENT INCLUDES EXISTING METER, CONTROLLER, BACKFLOW, MASTER VALVE, MAINLINE, AND LATERALS, QUCKCOUPLERS, AND BUBBLERS TO EXISTING TREES.
10. NEW IRRIGATION SHALL BE PROVIDED TO NEW PLANT BED AREAS AS INDICATED ON PLANS. THESE AREAS WILL REQUIRE A ZONE VALVE AND NECESSARY CONNECTION TO THE MAINLINE. NEW VALVE SHALL SERVICE DRIP IRRIGATION N ALL NEW PLANT BED AREAS AS SHOWN.
11. ALL EXISTING IRRIGATION IS IN VERIFIED WORKING CONDITION BY THE CITY OF DENTON. ANY FAULTY PARTS PRIOR TO CONSTRUCTION MUST BE BROUGHT TO THE CITY'S ATTENTION FOR REPAIR. ONCE CONSTRUCTION HAS BEGUN, ANY DAMAGE TO EXISTING IRRIGATION BY THE CONTRACTOR WILL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE CITY, OR TXDOT.
12. PLACE SLEEVES UNDER ANY NEW MOWSTRIPS BEFORE NSTALLATION OF THE MOWSTRIP.

IRRIGATION LEGEND

- (S) DC — IRRInet-M DC 1¾ UHF RADIO SOLAR PEDESTAL ITEM# IS-R10-RU-SO. ARAD 1.5" DC LATCHING 1=10 ITEM# IS-BM-15-DC-10. FREEZE AND RAIN SENSOR TO BE INSTALLED FOR EACH CONTROLLER WITH CONCRETE PAD. ;EXISTING
- M — EXISTING 2" METER. POINT OF CONNECTION. CONTRACTOR SHALL VERIFY STATIC WATER PRESSURE AND FLOW AT THE METER AND CONTACT IRRIGATION DESIGNER FOR APPROVAL, PRIOR TO THE START OF WORK.;EXISTING
- 1.5" WILKINS RPZ 375 XL 115 REDUCED PRESSURE BACKFLOW ASSEMBLY; LEAD FREE. DEKORA BACKFLOW ENCLOSURE 302-BG-C3 WITH CONCRETE PAD AND INSULATED POUCH 603GN.;EXISTING
- 1.5" DC MASTER VALVE RAINBIRD 100 PGA. CONTRACTOR TO PULL 2 WIRES FOR MASTER VALVE AND 2 WIRES FOR FLOW METER. TO BE INSTALLED WITHIN A JUMBO RECTANGLE 21X15X13 VALVE BOX WITH THE FLOW METER.
- CLEAN OUT POINT ;EXISTING
- MAIN LINE ISOLATION VALVE, SPEARS HEAVY DUTY TRUE UNION TU-2000 BALL VALVE. TO BE INSTALLED IN SAME STANDARD VALVE BOX AS THE ZONE VALVES.;EXIST
- 1" ZONE VALVE - RAINBIRD XCZ 100 PRB-LC.03-20GAL CONTROL VALVE; ALL WIRING MUST BE RATED FOR DIRECT BURIAL. TO BE INSTALLED WITHIN A STANDARD RECTANGLE 17X12X12 VALVE BOX.
- QC — 1" QUICK COUPLER VALVE;EXISTING
- TREE BUBBLER; RAINBIRD 4" HEAD 1804-SAM-PRS WITH HUNTER PCN-50;EXISTING
- SURFACE DRIP; RAINBIRD XFCV; 18 INCH EMITTER SPACING WITH .06 FLOW RATE (XFCV-06-12); INCLUDE RAINBIRD PRESSURE INDICATOR FLAGS; TO BE INSTALLED AS INSTRUCTED BY CITY STAFF; INSTALL ABOVE SOIL, STAPLE, 2" MULCH TO COVER DRIPLINE
- 1.5" MAINLINE; JM EAGLE SDR 11 RATED TO 200 PSI WITH BUTT FUSIONS. MINIMUM ROLL LENGTHS OF 500';EXISTING
- ADS POLYFLEX UTILITY GRADE OR SCHEDULE 40 3/4". STUB OUTS FROM LATERAL LINES TO TREES SHALL BE FLEX PIPE AS DESIGNATED BY THE CITY; STUB OUTS ARE 1/2". 12" MIN. DEPTH OF BURY;EXISTING, EXCEPT IN DRIP BED AREAS
- 4" HDPE ROLL PIPE CONDUIT ENDING WITH NO GREATER THAN A SWEEPING ANGLE OF 45° CURVE SO THAT MAIN LINE CAN BE PUSHED THROUGH; ALL BORES AND SLEEVING TO BE PROVIDED BY CONTRACTOR.;EXISTING

METER 1

VALVE No	EXISTING V-1	EXISTING V-2	NEW V-3	EXISTING V-4	NEW V-5	EXISTING V-6	EXISTING V-7	EXISTING V-8	EXISTING V-9	METER 2 EXISTING V-1
VALVE SIZE	1"	EXIST.	1"	EXIST.	1"	EXIST.	1"	EXIST.	EXIST.	1"
GPM	2.06	EXIST.	4.15	EXIST.	2.71	EXIST.	7.26	EXIST.	EXIST.	3.39
TYPE	DRIP	EXIST.	DRIP	EXIST.	DRIP	EXIST.	DRIP	EXIST.	EXIST.	DRIP
OUTLET	XFS-09-12	EXIST.	XFS-09-12	EXIST.	XFS-09-12	EXIST.	XFS-09-12	EXIST.	EXIST.	XFS-09-12
PRECIP. RATE	0.9 IN	EXIST.	0.9 IN	EXIST.	0.9 IN	EXIST.	0.9 IN	EXIST.	EXIST.	0.9 IN
RUN TIME	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.



REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS

5-31-2019

CITY OF DENTON

EBA
E. Brooke Associates, LLC
8624 Ferguson Road #571642
Dallas, TX 75228
email: erin@ebrooke.com
phone: 817-219-2665

HWY 380

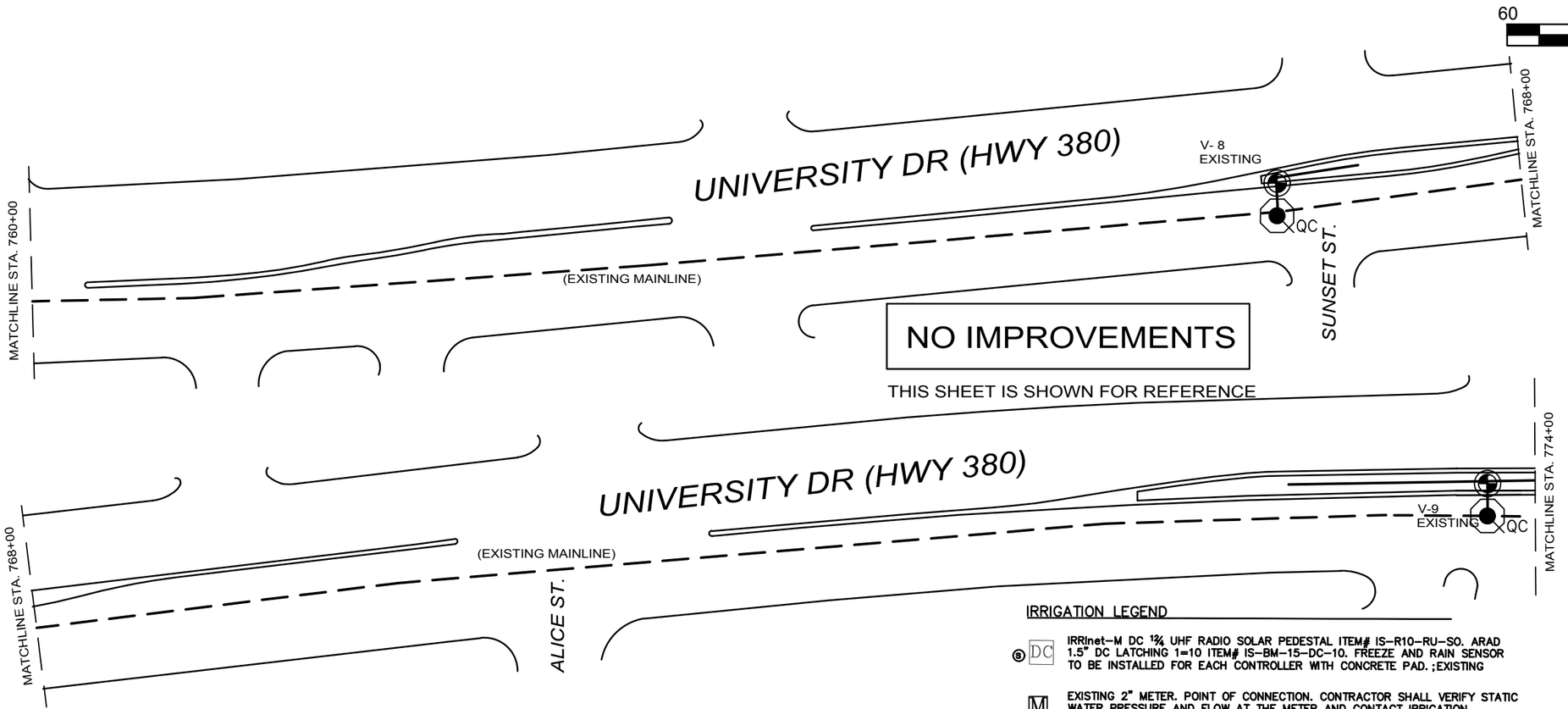
IRRIGATION

SEGMENT 1: Section D

SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK	CONTROL	SECTION	JOB	
EBB	0134	09	066,ETC	

DATE

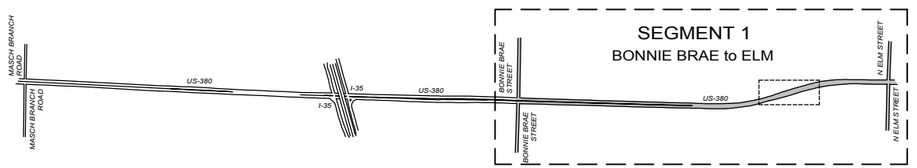


METER 1

VALVE No	EXISTING V–1	EXISTING V–2	NEW V–3	EXISTING V–4	NEW V–5	EXISTING V–6	EXISTING V–7	EXISTING V–8	EXISTING V–9	METER 2 EXISTING V–1
VALVE SIZE	1"	EXIST.	1"	EXIST.	1"	EXIST.	1"	EXIST.	EXIST.	1"
GPM	2.06	EXIST.	4.15	EXIST.	2.71	EXIST.	7.26	EXIST.	EXIST.	3.39
TYPE	DRIP	EXIST.	DRIP	EXIST.	DRIP	EXIST.	DRIP	EXIST.	EXIST.	DRIP
OUTLET	XFS–09–12	EXIST.	XFS–09–12	EXIST.	XFS–09–12	EXIST.	XFS–09–12	EXIST.	EXIST.	XFS–09–12
PRECIP. RATE	0.9 IN	EXIST.	0.9 IN	EXIST.	0.9 IN	EXIST.	0.9 IN	EXIST.	EXIST.	0.9 IN
RUN TIME	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.

IRRIGATION LEGEND

- (S) DC — IRRInet–M DC 1¾ UHF RADIO SOLAR PEDESTAL ITEM# IS–R10–RU–SO. ARAD 1.5" DC LATCHING 1=10 ITEM# IS–BM–15–DC–10. FREEZE AND RAIN SENSOR TO BE INSTALLED FOR EACH CONTROLLER WITH CONCRETE PAD. ;EXISTING
- M — EXISTING 2" METER. POINT OF CONNECTION. CONTRACTOR SHALL VERIFY STATIC WATER PRESSURE AND FLOW AT THE METER AND CONTACT IRRIGATION DESIGNER FOR APPROVAL, PRIOR TO THE START OF WORK.;EXISTING
- ⚠ — 1.5" WILKINS RPZ 375 XL 115 REDUCED PRESSURE BACKFLOW ASSEMBLY; LEAD FREE. DEKORA BACKFLOW ENCLOSURE 302–BG–C3 WITH CONCRETE PAD AND INSULATED POUCH 603GN.;EXISTING
- ⊕ — 1.5" DC MASTER VALVE RAINBIRD 100 PGA. CONTRACTOR TO PULL 2 WIRES FOR MASTER VALVE AND 2 WIRES FOR FLOW METER. TO BE INSTALLED WITHIN A JUMBO RECTANGLE 21X15X13 VALVE BOX WITH THE FLOW METER.
- CLEAN OUT POINT ;EXISTING
- MAIN LINE ISOLATION VALVE, SPEARS HEAVY DUTY TRUE UNION TU–2000 BALL VALVE. TO BE INSTALLED IN SAME STANDARD VALVE BOX AS THE ZONE VALVES.;EXISTING
- 1" ZONE VALVE – RAINBIRD XCZ 100 PRB–LC.03–20GAL CONTROL VALVE; ALL WIRING MUST BE RATED FOR DIRECT BURIAL. TO BE INSTALLED WITHIN A STANDARD RECTANGLE 17X12X12 VALVE BOX.
- QC — 1" QUICK COUPLER VALVE;EXISTING
- TREE BUBBLER; RAINBIRD 4" HEAD 1804–SAM–PRS WITH HUNTER PCN–50;EXISTING
- SURFACE DRIP; RAINBIRD XFCV; 18 INCH EMITTER SPACING WITH .06 FLOW RATE (XFCV–06–12); INCLUDE RAINBIRD PRESSURE INDICATOR FLAGS; TO BE INSTALLED AS INSTRUCTED BY CITY STAFF; INSTALL ABOVE SOIL, STAPLE, 2" MULCH TO COVER DRIPLINE
- 1.5" MAINLINE; JM EAGLE SDR 11 RATED TO 200 PSI WITH BUTT FUSIONS. MINIMUM ROLL LENGTHS OF 500';EXISTING
- ADS POLYFLEX UTILITY GRADE OR SCHEDULE 40 3/4". STUB OUTS FROM LATERAL LINES TO TREES SHALL BE FLEX PIPE AS DESIGNATED BY THE CITY; STUB OUTS ARE 1/2". 12" MIN. DEPTH OF BURY;EXISTING, EXCEPT IN DRIP BED AREAS
- 4" HDPE ROLL PIPE CONDUIT ENDING WITH NO GREATER THAN A SWEEPING ANGLE OF 45° CURVE SO THAT MAIN LINE CAN BE PUSHED THROUGH; ALL BORES AND SLEEVING TO BE PROVIDED BY CONTRACTOR.;EXISTING



IRRIGATION NOTES:

1. ALL IRRIGATION LINES TO BE PLACED WITHIN PLANTER BEDS EXCEPT FOR SLEEVE LOCATIONS INDICATED ON PLANS. LINES SHOWN ACROSS PAVEMENT ARE DIAGRAMMATIC AND FOR LEGIBILITY PURPOSES ONLY.
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3. CONTRACTOR TO HAVE ALL LOCATIONS OF THE CONTROLLER AND VALVES TO BE FLAGGED AND APPROVED BY CITY STAFF BEFORE INSTALLATION.
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5. THIS IRRIGATION PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL LAWS, ORDINANCES, RULES, REGULATIONS, OR ORDERS.
6. THE CITY OF DENTON DOES NOT ALLOW DOUBLE CHECK AS A BACKFLOW DEVICE.
7. STATIC PRESSURE: 60PSI; DESIGN PRESSURE: 40PSI
8. ALL IRRIGATION SLEEVES SHOULD BE 2–2.5 TIMES THE DIAMETER OF THE IRRIGATION LINE IT IS CARRYING
9. THIS SEGMENT INCLUDES EXISTING METER, CONTROLLER, BACKFLOW, MASTER VALVE, MAINLINE, AND LATERALS, QUCKCOUPLERS, AND BUBBLERS TO EXISTING TREES.
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12. PLACE SLEEVES UNDER ANY NEW MOWSTRIPS BEFORE INSTALLATION OF THE MOWSTRIP.

CITY OF DENTON

E. Brooke Associates, LLC
8624 Ferguson Road #571642
Dallas, TX 75228
email: erin@ebrooke.com
phone: 817-219-2665

HWY 380

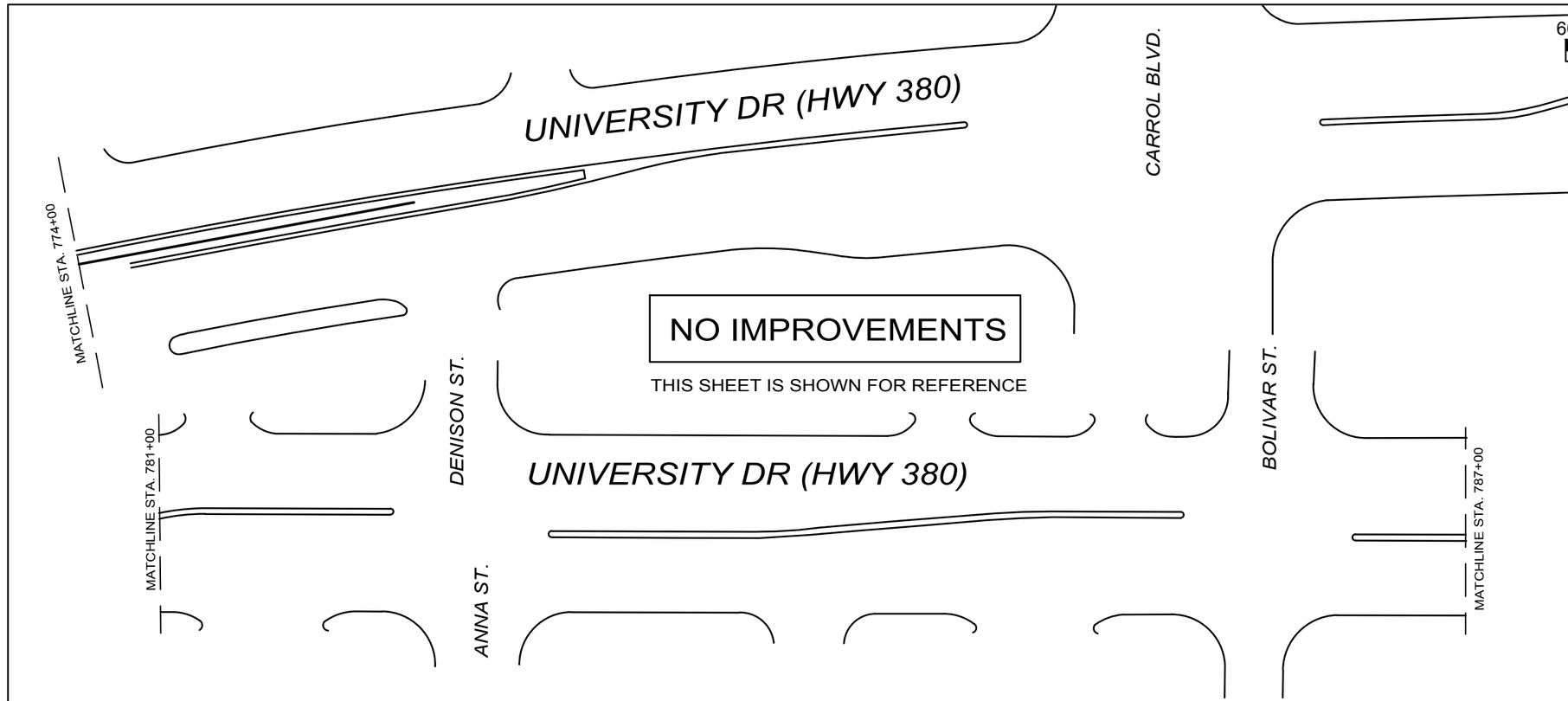
IRRIGATION

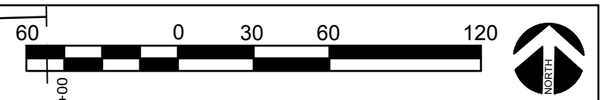
SEGMENT 1: Section E

SCALE: 1" = 60'–0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
	CONTROL	SECTION	JOB	
CHECK EBB	0134	09	066,ETC	

DATE





IRRIGATION NOTES:

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7. STATIC PRESSURE: 60PSI; DESIGN PRESSURE: 40PSI
8. ALL IRRIGATION SLEEVES SHOULD BE 2-2.5 TIMES THE DIAMETER OF THE IRRIGATION LINE IT IS CARRYING
9. THIS SEGMENT INCLUDES EXISTING METER, CONTROLLER, BACKFLOW, MASTER VALVE, MAINLINE, AND LATERALS, QUICKCOUPLERS, AND BUBBLERS TO EXISTING TREES.
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12. PLACE SLEEVES UNDER ANY NEW MOWSTRIPS BEFORE INSTALLATION OF THE MOWSTRIP.

METER 1

	EXISTING	EXISTING	NEW	EXISTING	NEW	EXISTING	EXISTING	EXISTING	EXISTING	METER 2
VALVE No	V-1	V-2	V-3	V-4	V-5	V-6	V-7	V-8	V-9	V-1
VALVE SIZE	1"	EXIST.	1"	EXIST.	1"	EXIST.	1"	EXIST.	EXIST.	1"
GPM	2.06	EXIST.	4.15	EXIST.	2.71	EXIST.	7.26	EXIST.	EXIST.	3.39
TYPE	DRIP	EXIST.	DRIP	EXIST.	DRIP	EXIST.	DRIP	EXIST.	EXIST.	DRIP
OUTLET	XFS-09-12	EXIST.	XFS-09-12	EXIST.	XFS-09-12	EXIST.	XFS-09-12	EXIST.	EXIST.	XFS-09-12
PRECIP. RATE	0.9 IN	EXIST.	0.9 IN	EXIST.	0.9 IN	EXIST.	0.9 IN	EXIST.	EXIST.	0.9 IN
RUN TIME	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.

IRRIGATION LEGEND

- (S) DC — IRRInet-M DC 1¾ UHF RADIO SOLAR PEDESTAL ITEM# IS-R10-RU-SO. ARAD 1.5" DC LATCHING 1=10 ITEM# IS-BM-15-DC-10. FREEZE AND RAIN SENSOR TO BE INSTALLED FOR EACH CONTROLLER WITH CONCRETE PAD.;EXISTING
- M — EXISTING 2" METER. POINT OF CONNECTION. CONTRACTOR SHALL VERIFY STATIC WATER PRESSURE AND FLOW AT THE METER AND CONTACT IRRIGATION DESIGNER FOR APPROVAL, PRIOR TO THE START OF WORK.;EXISTING
- 1.5" WILKINS RPZ 375 XL 115 REDUCED PRESSURE BACKFLOW ASSEMBLY; LEAD FREE. DEKORA BACKFLOW ENCLOSURE 302-BG-C3 WITH CONCRETE PAD AND INSULATED POUCH 603GN.;EXISTING
- 1.5" DC MASTER VALVE RAINBIRD 100 PGA. CONTRACTOR TO PULL 2 WIRES FOR MASTER VALVE AND 2 WIRES FOR FLOW METER.;EXISTING
  TO BE INSTALLED WITHIN A JUMBO RECTANGLE 21X15X13 VALVE BOX WITH THE FLOW METER.
- CLEAN OUT POINT ;EXISTING
- MAIN LINE ISOLATION VALVE, SPEARS HEAVY DUTY TRUE UNION TU-2000 BALL VALVE. TO BE INSTALLED IN SAME STANDARD VALVE BOX AS THE ZONE VALVES.;EXISTING
- 1" ZONE VALVE - RAINBIRD XCZ 100 PRB-LC.03-20GAL CONTROL VALVE; ALL WIRING MUST BE RATED FOR DIRECT BURIAL. TO BE INSTALLED WITHIN A STANDARD RECTANGLE 17X12X12 VALVE BOX.
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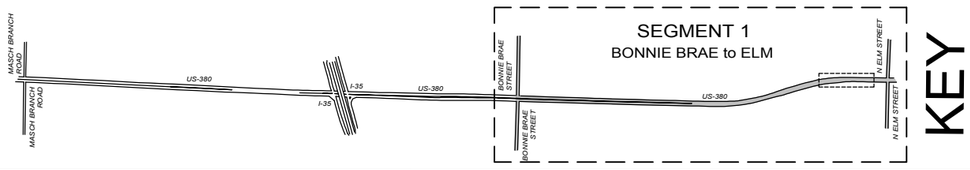
- SURFACE DRIP; RAINBIRD XFCV; 18 INCH EMITTER SPACING WITH .06 FLOW RATE (XFCV-06-12); INCLUDE RAINBIRD PRESSURE INDICATOR FLAGS; TO BE INSTALLED AS INSTRUCTED BY CITY STAFF; INSTALL ABOVE SOIL, STAPLE, 2" MULCH TO COVER DRIPLINE
- 1.5" MAINLINE; JM EAGLE SDR 11 RATED TO 200 PSI WITH BUTT FUSIONS. MINIMUM ROLL LENGTHS OF 500';EXISTING
- ADS POLYFLEX UTILITY GRADE OR SCHEDULE 40 3/4". STUB OUTS FROM LATERAL LINES TO TREES SHALL BE FLEX PIPE AS DESIGNATED BY THE CITY; STUB OUTS ARE 1/2". 12" MIN. DEPTH OF BURY;EXISTING, EXCEPT IN DRIP BED AREAS
- 4" HDPE ROLL PIPE CONDUIT ENDING WITH NO GREATER THAN A SWEEPING ANGLE OF 45° CURVE SO THAT MAIN LINE CAN BE PUSHED THROUGH; ALL BORES AND SLEEVING TO BE PROVIDED BY CONTRACTOR.;EXISTING



CITY OF DENTON

E. Brooke Associates, LLC
8624 Ferguson Road #571642
Dallas, TX 75228
email: erin@ebrooke.com
phone: 817-219-2665

HWY 380

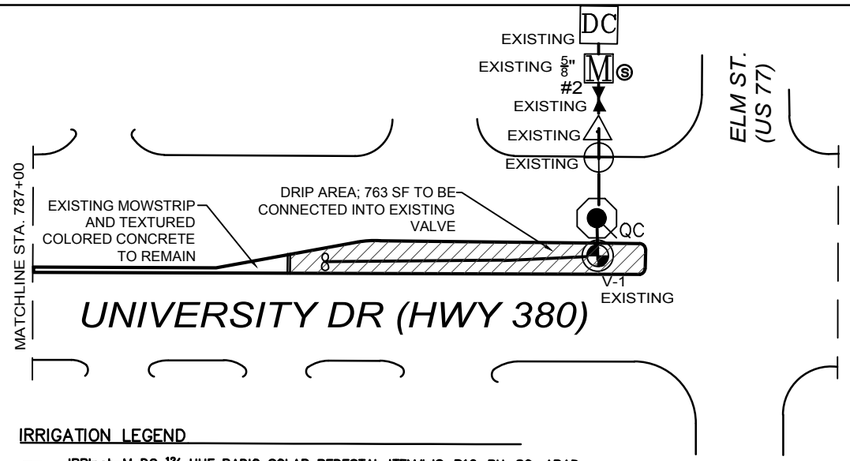
IRRIGATION

SEGMENT 1: Section F

SCALE: 1" = 60'-0"

DESIGN EBB	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
GRAPHICS EBB	6	(SEE TITLE SHEET)		380
CHECK EBB	STATE	DISTRICT	COUNTY	SHEET NO.
	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE



60 0 30 60 120

NORTH

IRRIGATION LEGEND

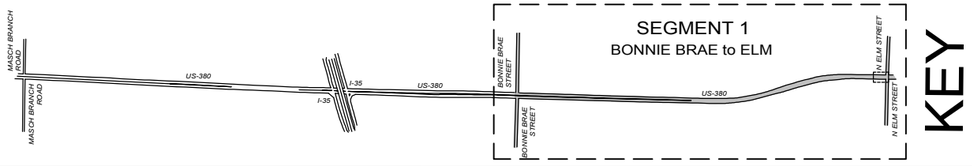
- DC — IRRInet–M DC ¾ UHF RADIO SOLAR PEDESTAL ITEM# IS–R10–RU–SO. ARAD 1.5" DC LATCHING 1=10 ITEM# IS–BM–15–DC–10. FREEZE AND RAIN SENSOR TO BE INSTALLED FOR EACH CONTROLLER WITH CONCRETE PAD. ;EXISTING
- M — EXISTING 2" METER. POINT OF CONNECTION. CONTRACTOR SHALL VERIFY STATIC WATER PRESSURE AND FLOW AT THE METER AND CONTACT IRRIGATION DESIGNER FOR APPROVAL, PRIOR TO THE START OF WORK.;EXISTING
- 1.5" WILKINS RPZ 375 XL 115 REDUCED PRESSURE BACKFLOW ASSEMBLY; LEAD FREE. DEKORA BACKFLOW ENCLOSURE 302–BG–C3 WITH CONCRETE PAD AND INSULATED POUCH 603GN.;EXISTING
- 1.5" DC MASTER VALVE RAINBIRD 100 PGA. CONTRACTOR TO PULL 2 WIRES FOR MASTER VALVE AND 2 WIRES FOR FLOW METER. TO BE INSTALLED WITHIN A JUMBO RECTANGLE 21X15X13 VALVE BOX WITH THE FLOW METER; EXISTING
- CLEAN OUT POINT ;EXISTING
- MAIN LINE ISOLATION VALVE, SPEARS HEAVY DUTY TRUE UNION TU–2000 BALL VALVE. TO BE INSTALLED IN SAME STANDARD VALVE BOX AS THE ZONE VALVES.;EXISTING
- 1" ZONE VALVE – RAINBIRD XCZ 100 PRB–LC.03–20GAL CONTROL VALVE; ALL WIRING MUST BE RATED FOR DIRECT BURIAL. TO BE INSTALLED WITHIN A STANDARD RECTANGLE 17X12X12 VALVE BOX.
- QC — 1" QUICK COUPLER VALVE;EXISTING
- TREE BUBBLER; RAINBIRD 4" HEAD 1804–SAM–PRS WITH HUNTER PCN–50;EXISTING
- SURFACE DRIP; RAINBIRD XFCV; 18 INCH EMITTER SPACING WITH .06 FLOW RATE (XFCV–06–12); INCLUDE RAINBIRD PRESSURE INDICATOR FLAGS; TO BE INSTALLED AS INSTRUCTED BY CITY STAFF; INSTALL ABOVE SOIL, STAPLE, 2" MULCH TO COVER DRIPLINE
- 1.5" MAINLINE; JM EAGLE SDR 11 RATED TO 200 PSI WITH BUTT FUSIONS. MINIMUM ROLL LENGTHS OF 500';EXISTING
- ADS POLYFLEX UTILITY GRADE OR SCHEDULE 40 3/4". STUB OUTS FROM LATERAL LINES TO TREES SHALL BE FLEX PIPE AS DESIGNATED BY THE CITY; STUB OUTS ARE 1/2". 12" MIN. DEPTH OF BURY;EXISTING, EXCEPT IN DRIP BED AREAS
- 4" HDPE ROLL PIPE CONDUIT ENDING WITH NO GREATER THAN A SWEEPING ANGLE OF 45° CURVE SO THAT MAIN LINE CAN BE PUSHED THROUGH; ALL BORES AND SLEEVING TO BE PROVIDED BY CONTRACTOR.;EXISTING

IRRIGATION NOTES:
1. ALL IRRIGATION LINES TO BE PLACED WITHIN PLANTER BEDS EXCEPT FOR SLEEVE LOCATIONS INDICATED ON PLANS. LINES SHOWN ACROSS PAVEMENT ARE DIAGRAMMATIC AND FOR LEGIBILITY PURPOSES ONLY.
2. ALL IRRIGATION LINES TO BE BURIED TO LOCAL CODE. IRRIGATION DRAWINGS BASED OFF 60 PSI. CONTRACTOR TO CONFIRM PROVIDED PSI ON–SITE BEFORE CONSTRUCTION.
3. CONTRACTOR TO HAVE ALL LOCATIONS OF THE CONTROLLER AND VALVES TO BE FLAGGED AND APPROVED BY CITY STAFF BEFORE INSTALLATION.
4. CONTRACTOR TO PROVIDE CUT SHEETS FOR ALL IRRIGATION MATERIALS APPROVED BY CITY STAFF BEFORE CONSTRUCTION/INSTALLATION.
5. THIS IRRIGATION PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL LAWS, ORDINANCES, RULES, REGULATIONS, OR ORDERS.
6. THE CITY OF DENTON DOES NOT ALLOW DOUBLE CHECK AS A BACKFLOW DEVICE.
7. STATIC PRESSURE: 60PSI; DESIGN PRESSURE: 40PSI
8. ALL IRRIGATION SLEEVES SHOULD BE 2–2.5 TIMES THE DIAMETER OF THE IRRIGATION LINE IT IS CARRYING
9. THIS SEGMENT INCLUDES EXISTING METER, CONTROLLER, BACKFLOW, MASTER VALVE, MAINLINE, AND LATERALS, QUICKCOUPLERS, AND BUBBLERS TO EXISTING TREES.
10. NEW IRRIGATION SHALL BE PROVIDED TO NEW PLANT BED AREAS AS INDICATED ON PLANS. THESE AREAS WILL REQUIRE A ZONE VALVE AND NECESSARY CONNECTION TO THE MAINLINE. NEW VALVE SHALL SERVICE DRIP IRRIGATION IN ALL NEW PLANT BED AREAS AS SHOWN.
11. ALL EXISTING IRRIGATION IS IN VERIFIED WORKING CONDITION BY THE CITY OF DENTON. ANY FAULTY PARTS PRIOR TO CONSTRUCTION MUST BE BROUGHT TO THE CITY'S ATTENTION FOR REPAIR. ONCE CONSTRUCTION HAS BEGUN, ANY DAMAGE TO EXISTING IRRIGATION BY THE CONTRACTOR WILL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE CITY, OR TXDOT.
12. PLACE SLEEVES UNDER ANY NEW MOWSTRIPS BEFORE INSTALLATION OF THE MOWSTRIP.

METER 1

	EXISTING	EXISTING	NEW	EXISTING	NEW	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING
VALVE No	V–1	V–2	V–3	V–4	V–5	V–6	V–7	V–8	V–9	V–1
VALVE SIZE	1"	EXIST.	1"	EXIST.	1"	EXIST.	1"	EXIST.	EXIST.	1"
GPM	2.06	EXIST.	4.15	EXIST.	2.71	EXIST.	7.26	EXIST.	EXIST.	3.39
TYPE	DRIP	EXIST.	DRIP	EXIST.	DRIP	EXIST.	DRIP	EXIST.	EXIST.	DRIP
OUTLET	XFS–09–12	EXIST.	XFS–09–12	EXIST.	XFS–09–12	EXIST.	XFS–09–12	EXIST.	EXIST.	XFS–09–12
PRECIP. RATE	0.9 IN	EXIST.	0.9 IN	EXIST.	0.9 IN	EXIST.	0.9 IN	EXIST.	EXIST.	0.9 IN
RUN TIME	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.

METER 2



CITY OF DENTON

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HWY 380

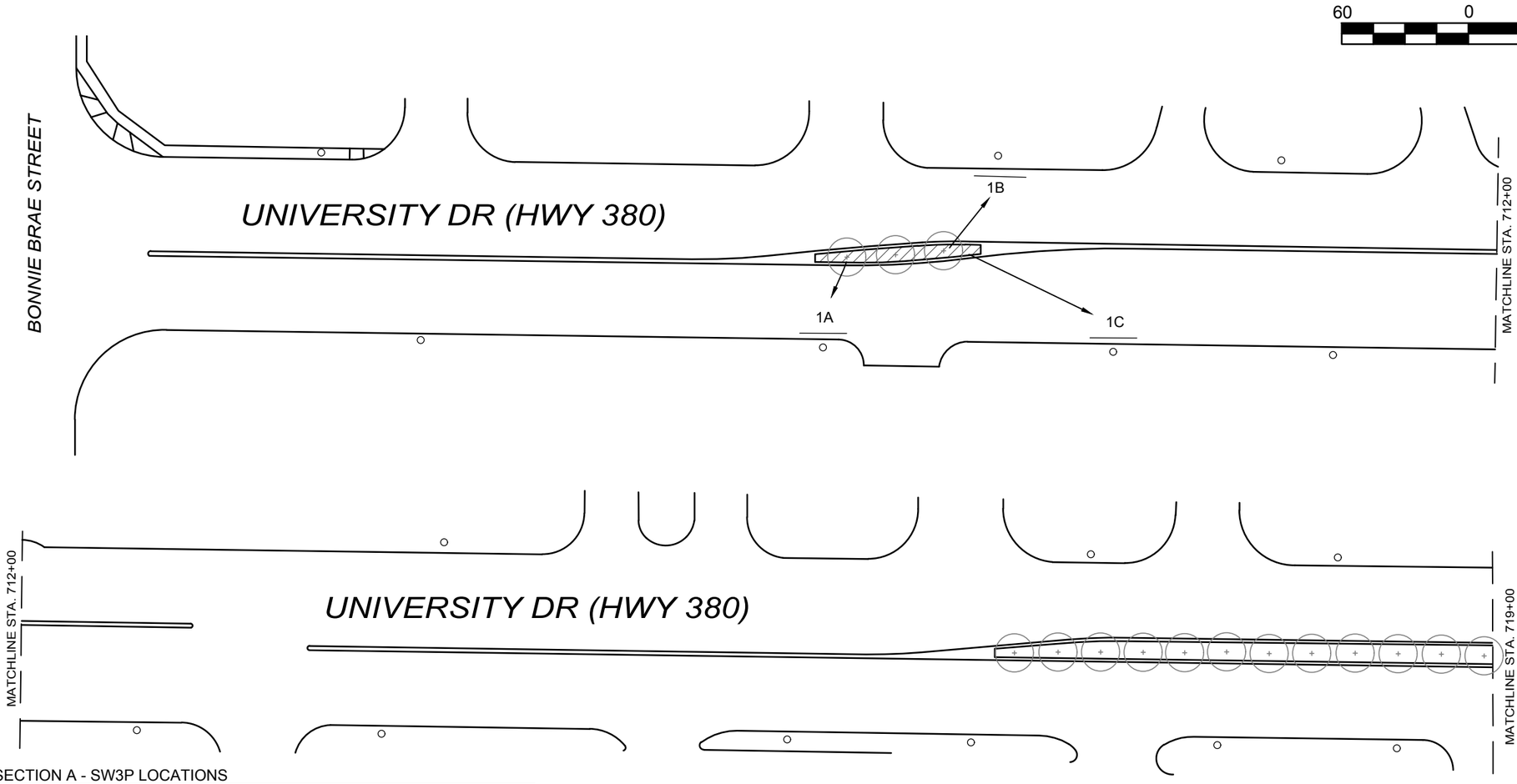
IRRIGATION

SEGMENT 1: Section G

SCALE: 1" = 60'–0"

DESIGN EBB	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
GRAPHICS EBB	6	(SEE TITLE SHEET)		380
CHECK EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE



SECTION A - SW3P LOCATIONS

BMP	BMP TYPE	Date installed	Init.	Date Removed	Init.
1A	Erosion Control Log*				
1B	Erosion Control Log*				
1C	Erosion Control Log*				

Notes:

1. BMP's shall not be installed in their control area any sooner that two weeks prior to soil disturbing activities
2. See daily work reports for initial stabilization time frames

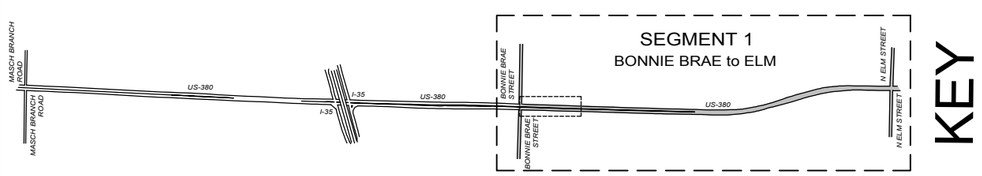
* (CL-C1); Or approved equal.

Legend

○	Existing storm drains
————	Erosion control log

Date Disturbed: _____

Date Stabilized: _____



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HWY 380

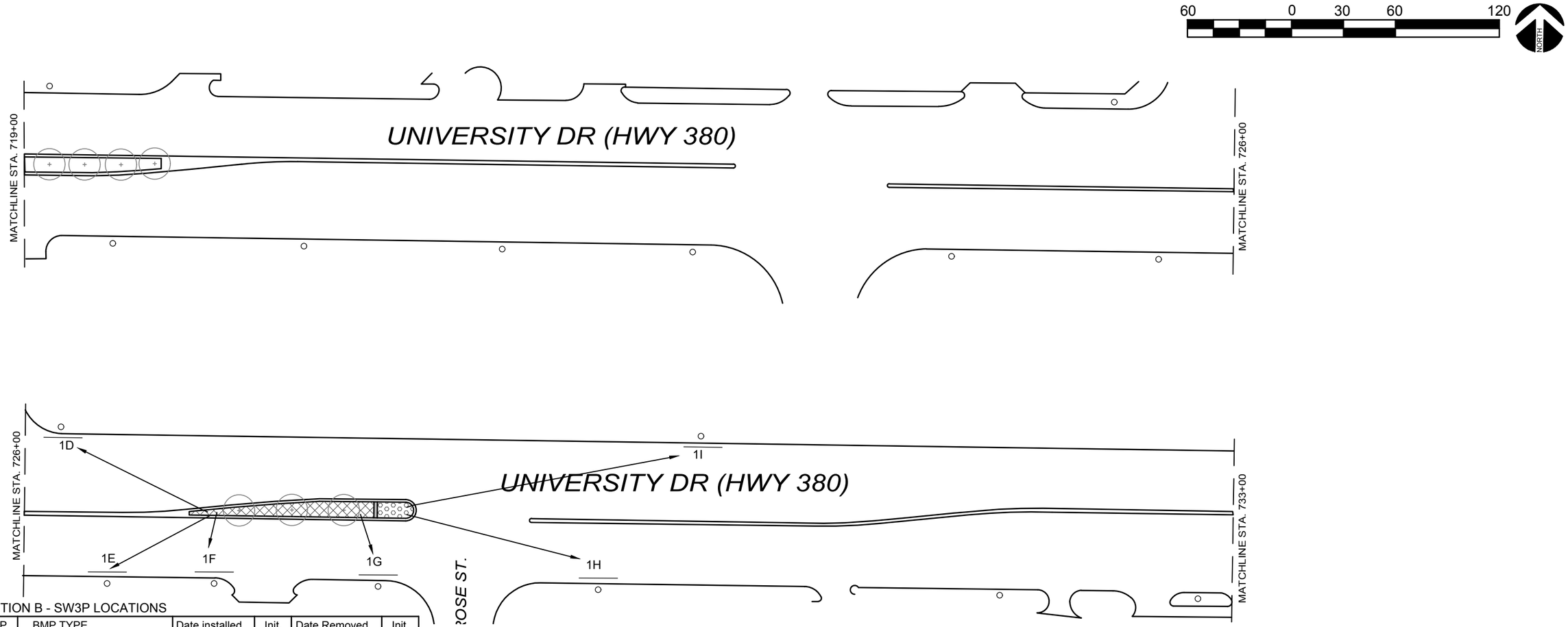
SW3P Layout

SEGMENT 1: Section A

SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK	CONTROL	SECTION	JOB	
EBB	0134	09	066,ETC	

DATE



SECTION B - SW3P LOCATIONS

BMP	BMP TYPE	Date installed	Init.	Date Removed	Init.
1D	Erosion Control Log*				
1E	Erosion Control Log*				
1F	Erosion Control Log*				
1G	Erosion Control Log*				
1H	Erosion Control Log*				
1I	Erosion Control Log*				

Notes:

1. BMP's shall not be installed in their control area any sooner that two weeks prior to soil disturbing activities
2. See daily work reports for initial stabilization time frames

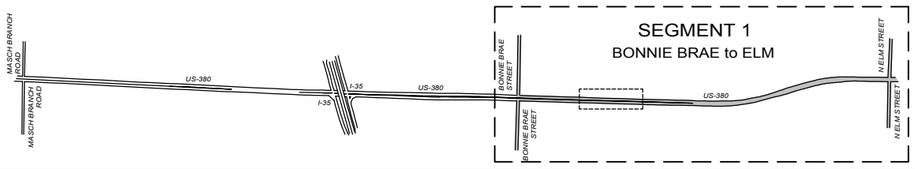
* (CL-C1); Or approved equal.

Legend

○	Existing storm drains
_____	Erosion control log

Date Disturbed: _____

Date Stabilized: _____



KEY

CITY OF DENTON
EBA
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Dallas, TX 75228
email: erin@ebrooke.com
phone: 817-219-2665

HWY 380

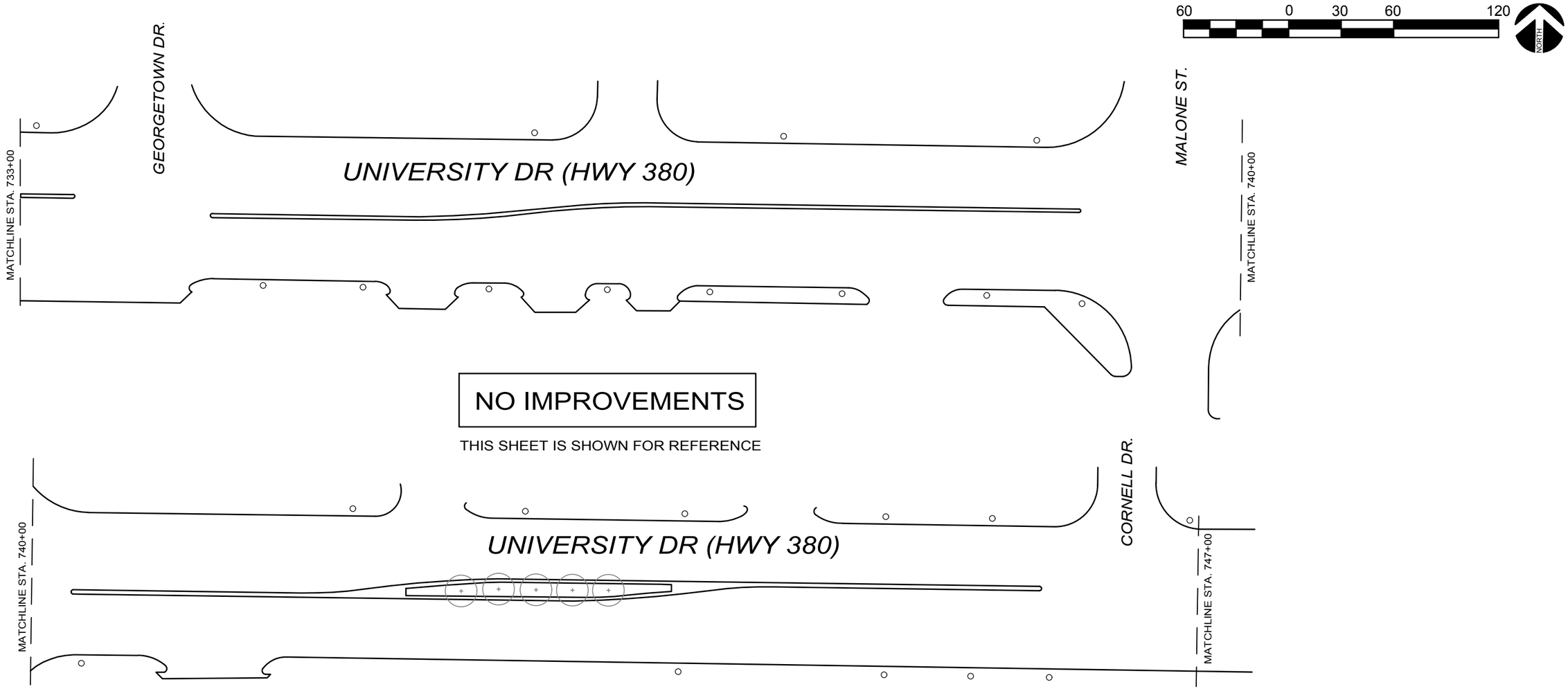
SW3P Layout

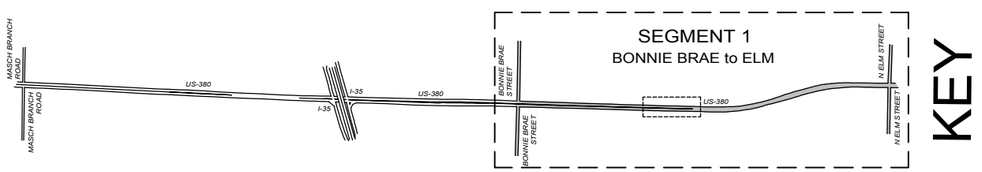
SEGMENT 1: Section B

SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE





CITY OF DENTON

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HWY 380

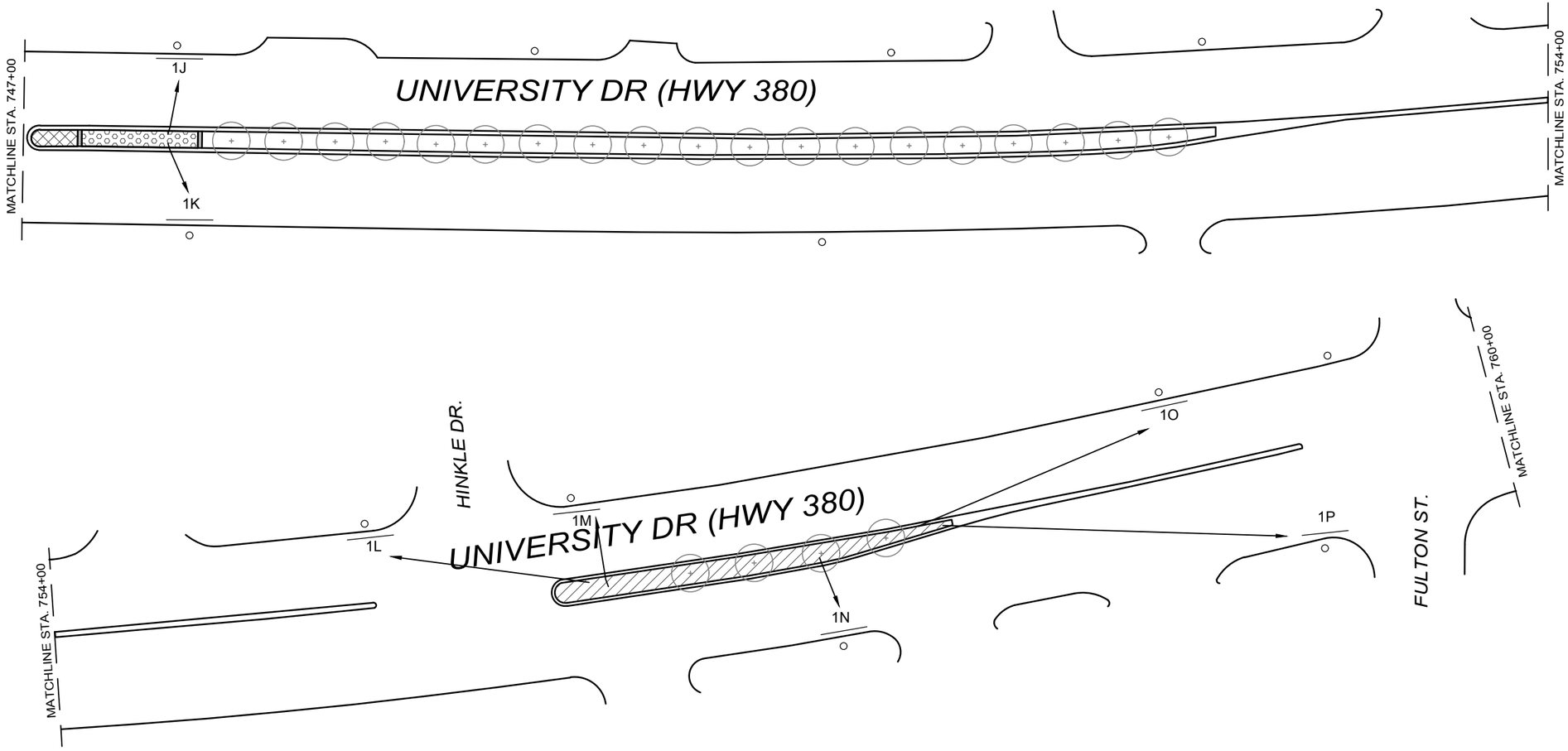
SW3P Layout

SEGMENT 1: Section C

SCALE: 1" = 60'-0"

DESIGN EBB	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
GRAPHICS EBB	6	(SEE TITLE SHEET)		380
CHECK EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE



SECTION D - SW3P LOCATIONS

BMP	BMP TYPE	Date installed	Init.	Date Removed	Init.
1J	Erosion Control Log*				
1K	Erosion Control Log*				
1L	Erosion Control Log*				
1M	Erosion Control Log*				
1N	Erosion Control Log*				
1O	Erosion Control Log*				
1P	Erosion Control Log*				

Notes:
1. BMP's shall not be installed in their control area any sooner that two weeks prior to soil disturbing activities
2. See daily work reports for initial stabilization time frames

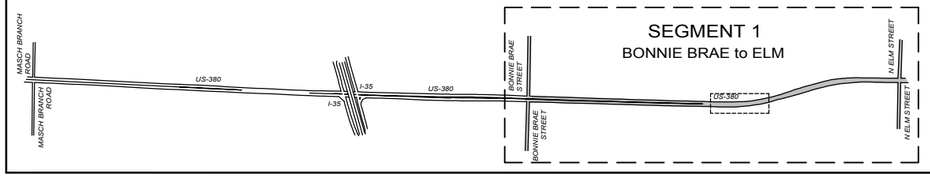
* (CL-C1); Or approved equal.

Legend

○	Existing storm drains
_____	Erosion control log

Date Disturbed: _____

Date Stabilized: _____



REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS
5-31-2019

CITY OF DENTON

EBA
E. Brooke Associates, LLC
8624 Ferguson Road #571642
Dallas, TX 75228
email: erin@ebrooke.com
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HWY 380

SW3P Layout

SEGMENT 1: Section D

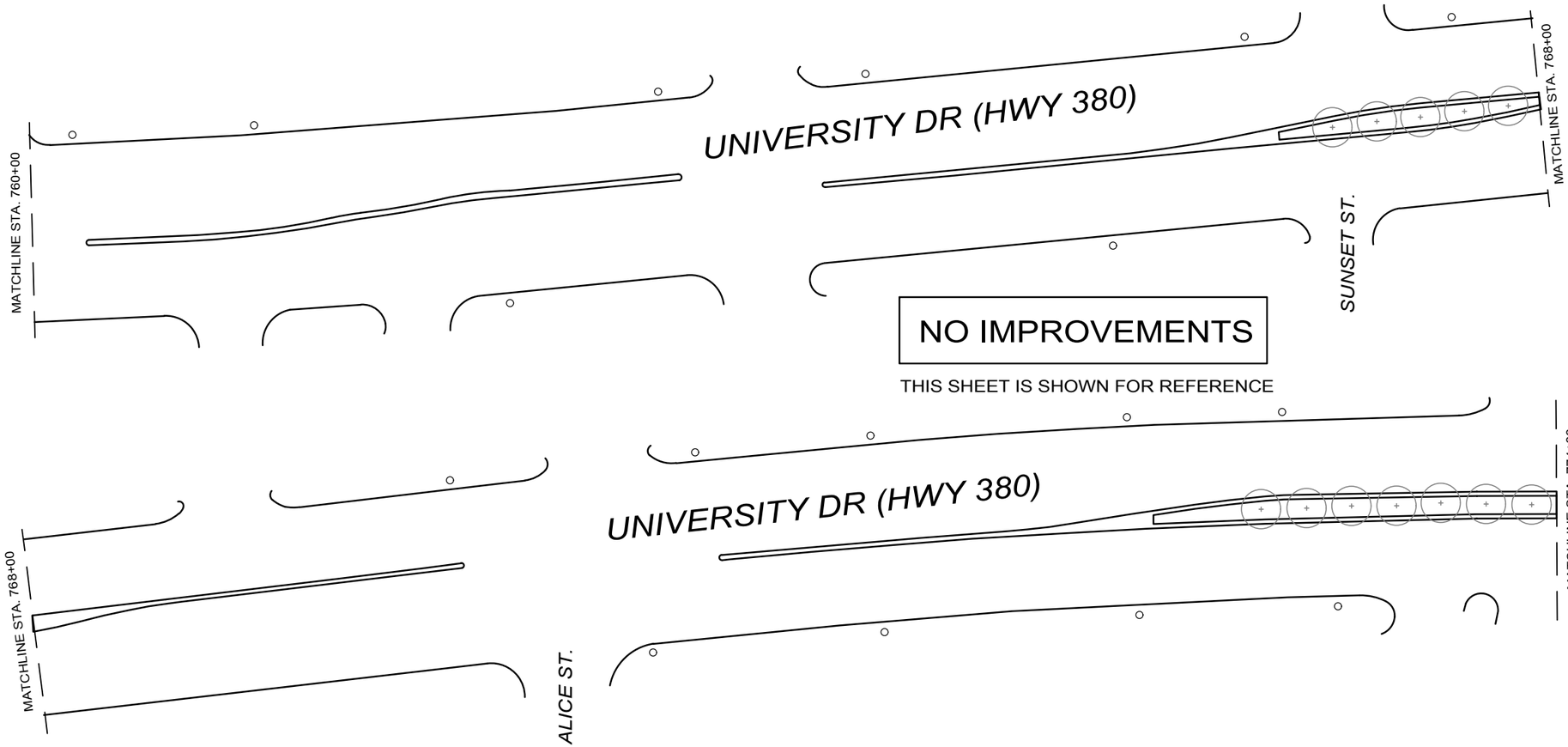
SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE

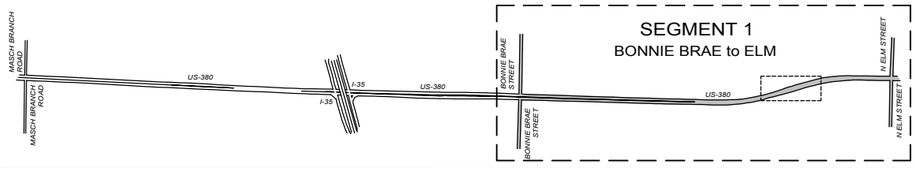
60 0 30 60 120

NORTH



NO IMPROVEMENTS

THIS SHEET IS SHOWN FOR REFERENCE



KEY

CITY OF DENTON

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8624 Ferguson Road #571642
Dallas, TX 75228
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phone: 817-219-2665

Texas Department of Transportation

HWY 380

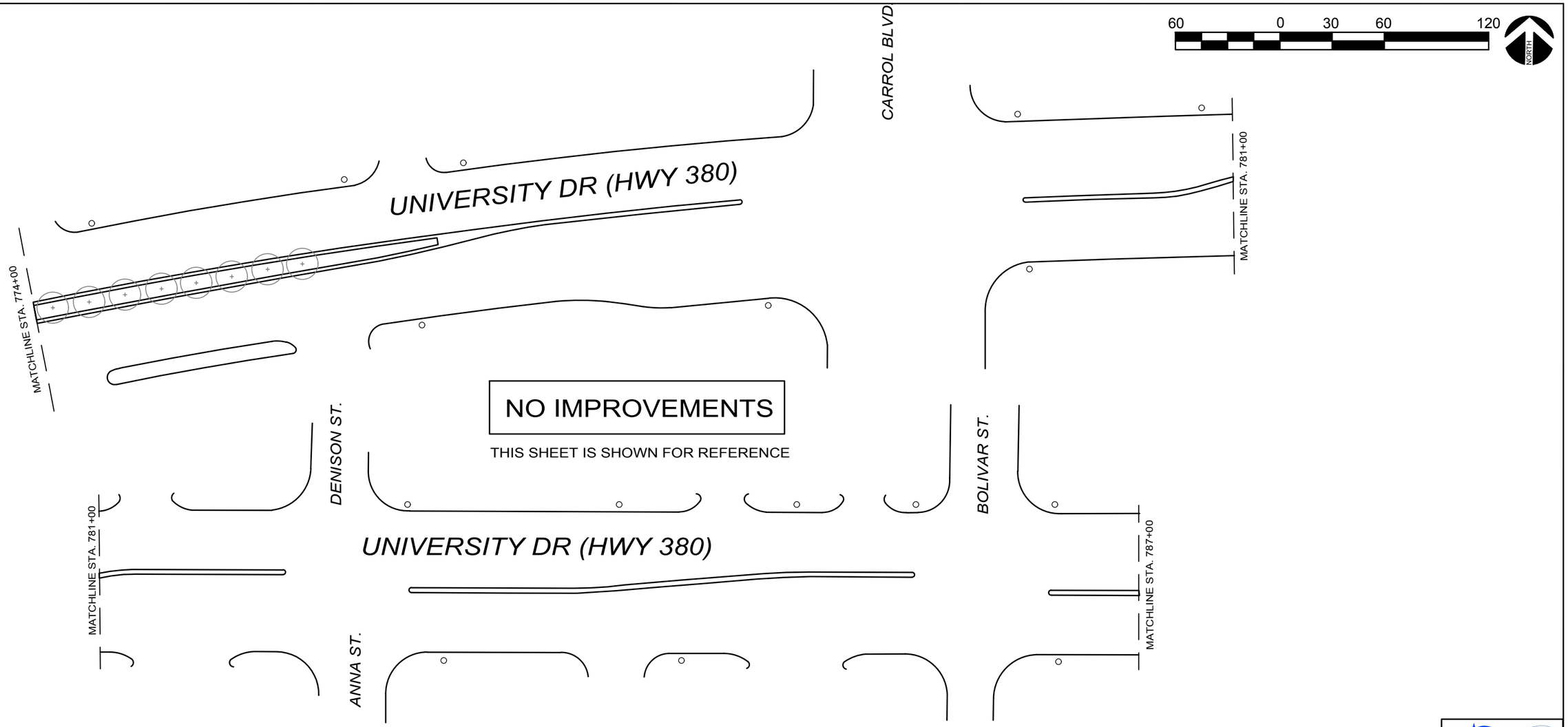
SW3P Layout

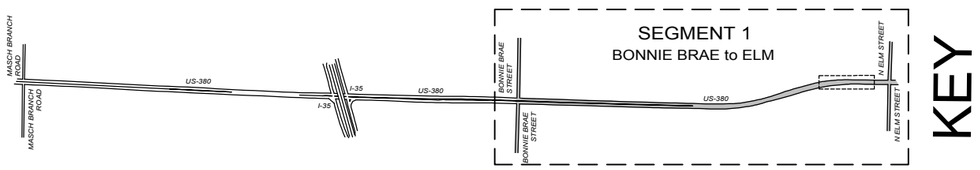
SEGMENT 1: Section E

SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK	CONTROL	SECTION	JOB	
EBB	0134	09	066,ETC	

DATE





CITY OF DENTON

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HWY 380

SW3P Layout

SEGMENT 1: Section F

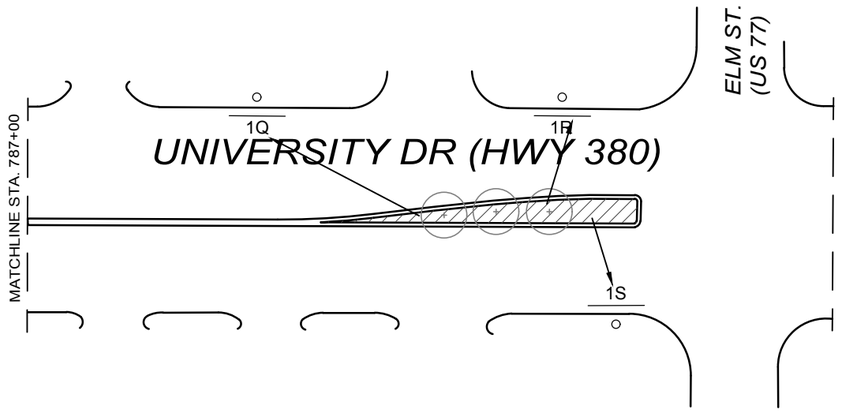
SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK	CONTROL	SECTION	JOB	
EBB	0134	09	066,ETC	

DATE

60 0 30 60 120

NORTH



SECTION G - SW3P LOCATIONS

BMP	BMP TYPE	Date installed	Init.	Date Removed	Init.
1Q	Erosion Control Log*				
1R	Erosion Control Log*				
1S	Erosion Control Log*				

Notes:
1. BMP's shall not be installed in their control area any sooner that two weeks prior to soil disturbing activities
2. See daily work reports for initial stabilization time frames

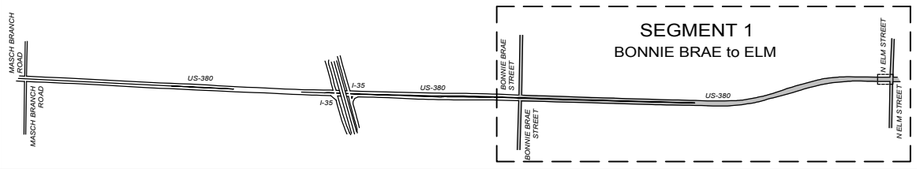
* (CL-C1); Or approved equal.

Legend

○	Existing storm drains
————	Erosion control log

Date Disturbed: _____

Date Stabilized: _____



KEY

REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS

5-31-2019

CITY OF DENTON

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Dallas, TX 75228
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HWY 380

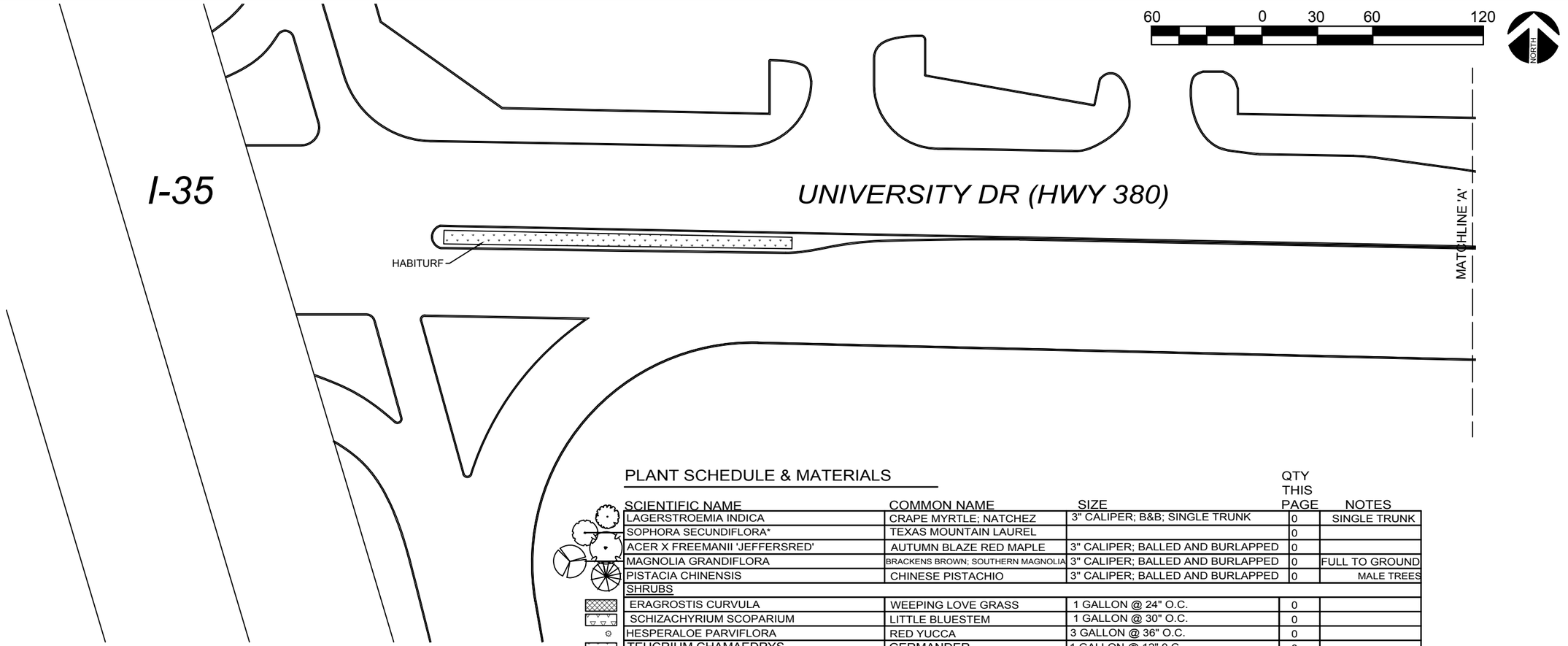
SW3P Layout

SEGMENT 1: Section G

SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
	CONTROL	SECTION	JOB	
CHECK EBB	0134	09	066,ETC	

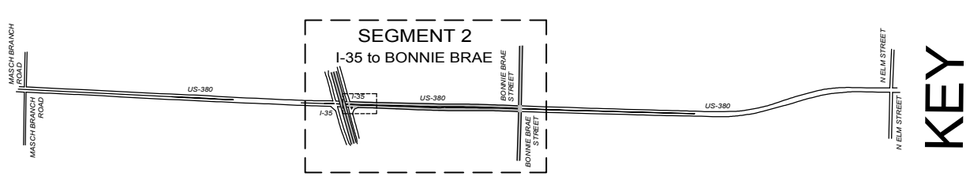
DATE



PLANT SCHEDULE & MATERIALS

	SCIENTIFIC NAME	COMMON NAME	SIZE	QTY THIS PAGE	NOTES
	LAGERSTROEMIA INDICA	CRAPE MYRTLE; NATCHEZ	3" CALIPER; B&B; SINGLE TRUNK	0	SINGLE TRUNK
	SOPHORA SECUNDIFLORA*	TEXAS MOUNTAIN LAUREL		0	
	ACER X FREEMANII 'JEFFERSRED'	AUTUMN BLAZE RED MAPLE	3" CALIPER; BALLED AND BURLAPPED	0	
	MAGNOLIA GRANDIFLORA	BRACKENS BROWN; SOUTHERN MAGNOLIA	3" CALIPER; BALLED AND BURLAPPED	0	FULL TO GROUND
	PISTACIA CHINENSIS	CHINESE PISTACHIO	3" CALIPER; BALLED AND BURLAPPED	0	MALE TREES
	SHRUBS				
	ERAGROSTIS CURVULA	WEEPING LOVE GRASS	1 GALLON @ 24" O.C.	0	
	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	1 GALLON @ 30" O.C.	0	
	HESPERALOE PARVIFLORA	RED YUCCA	3 GALLON @ 36" O.C.	0	
	TEUCRIUM CHAMAEDRYS	GERMANDER	1 GALLON @ 12" 0.C.	0	
	GROUND COVER				
	HABITURF*		SEED	143 SY	
	* OVERSEED WITH GAILLARDIA		SEED	1287 SF	

ROOT BARRIER; TO BE PROVIDED ALONG CURBS FOR A MINIMUM DISTANCE OF 10' ON EITHER SIDE OF TREES AS INDICATED ON PLANS. TO BE INSTALLED PER MANUFACTURER SPECS.



CITY OF DENTON

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REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS

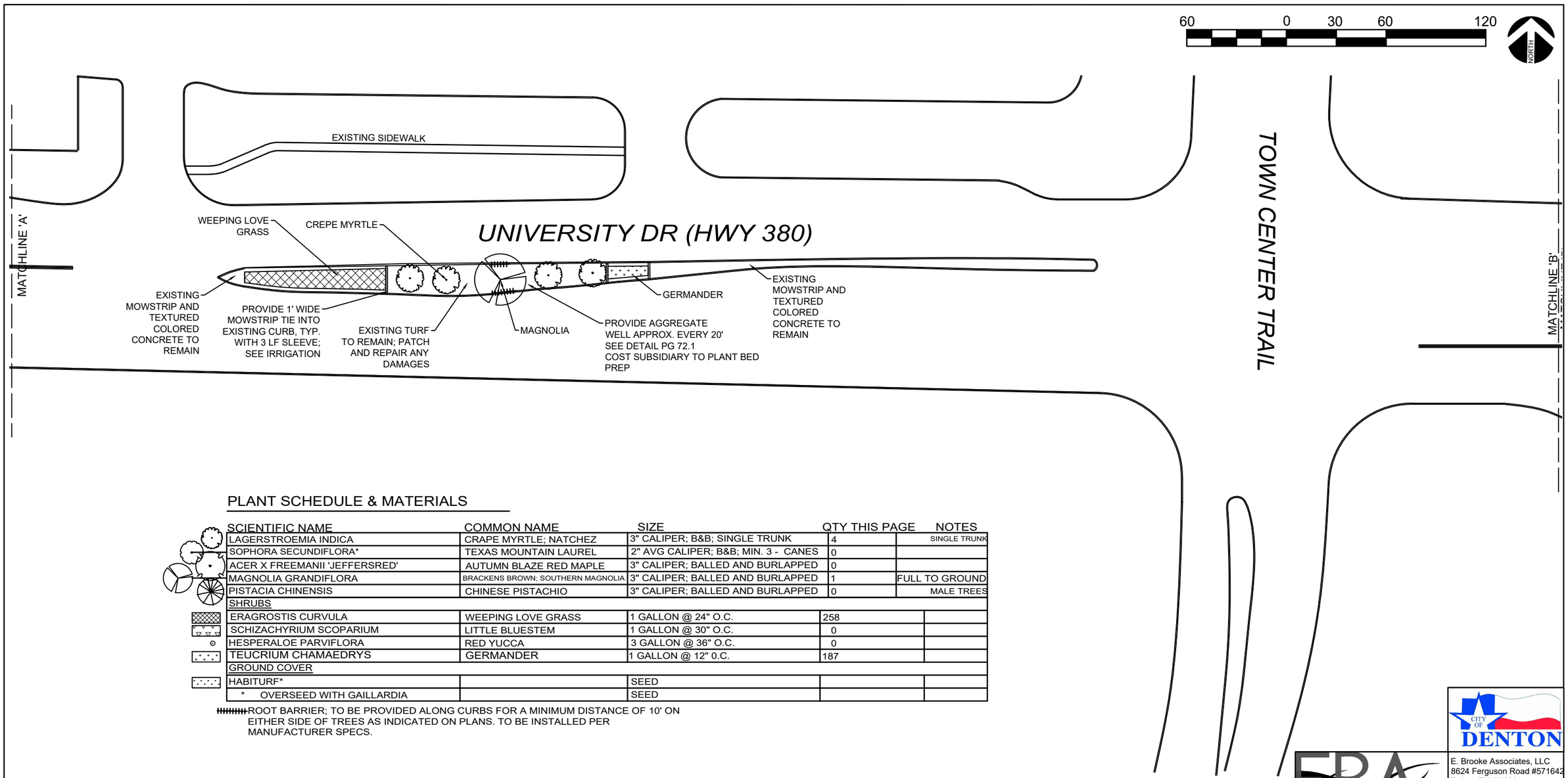
5-31-2019

HWY 380
LANDSCAPE
SEGMENT 2: Section A

SCALE: 1" = 60'-0"

DESIGN EBB	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
GRAPHICS EBB	6	(SEE TITLE SHEET)		380
CHECK EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

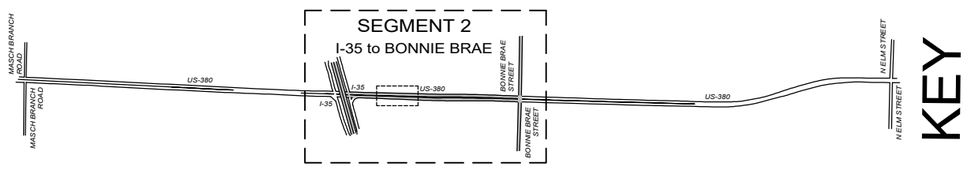
DATE



PLANT SCHEDULE & MATERIALS

SCIENTIFIC NAME	COMMON NAME	SIZE	QTY THIS PAGE	NOTES
LAGERSTROEMIA INDICA	CRAPE MYRTLE; NATCHEZ	3" CALIPER; B&B; SINGLE TRUNK	4	SINGLE TRUNK
SOPHORA SECUNDIFLORA*	TEXAS MOUNTAIN LAUREL	2" AVG CALIPER; B&B; MIN. 3 - CANES	0	
ACER X FREEMANII 'JEFFERSRED'	AUTUMN BLAZE RED MAPLE	3" CALIPER; BALLED AND BURLAPPED	0	
MAGNOLIA GRANDIFLORA	BRACKENS BROWN; SOUTHERN MAGNOLIA	3" CALIPER; BALLED AND BURLAPPED	1	FULL TO GROUND
PISTACIA CHINENSIS	CHINESE PISTACHIO	3" CALIPER; BALLED AND BURLAPPED	0	MALE TREES
SHRUBS				
ERAGROSTIS CURVULA	WEEPING LOVE GRASS	1 GALLON @ 24" O.C.	258	
SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	1 GALLON @ 30" O.C.	0	
HESPERALOE PARVIFLORA	RED YUCCA	3 GALLON @ 36" O.C.	0	
TEUCRIUM CHAMAEDRYS	GERMANDER	1 GALLON @ 12" 0.C.	187	
GROUND COVER				
HABITURF*		SEED		
* OVERSEED WITH GAILLARDIA		SEED		

ROOT BARRIER; TO BE PROVIDED ALONG CURBS FOR A MINIMUM DISTANCE OF 10' ON EITHER SIDE OF TREES AS INDICATED ON PLANS. TO BE INSTALLED PER MANUFACTURER SPECS.



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phone: 817-219-2665

HWY 380

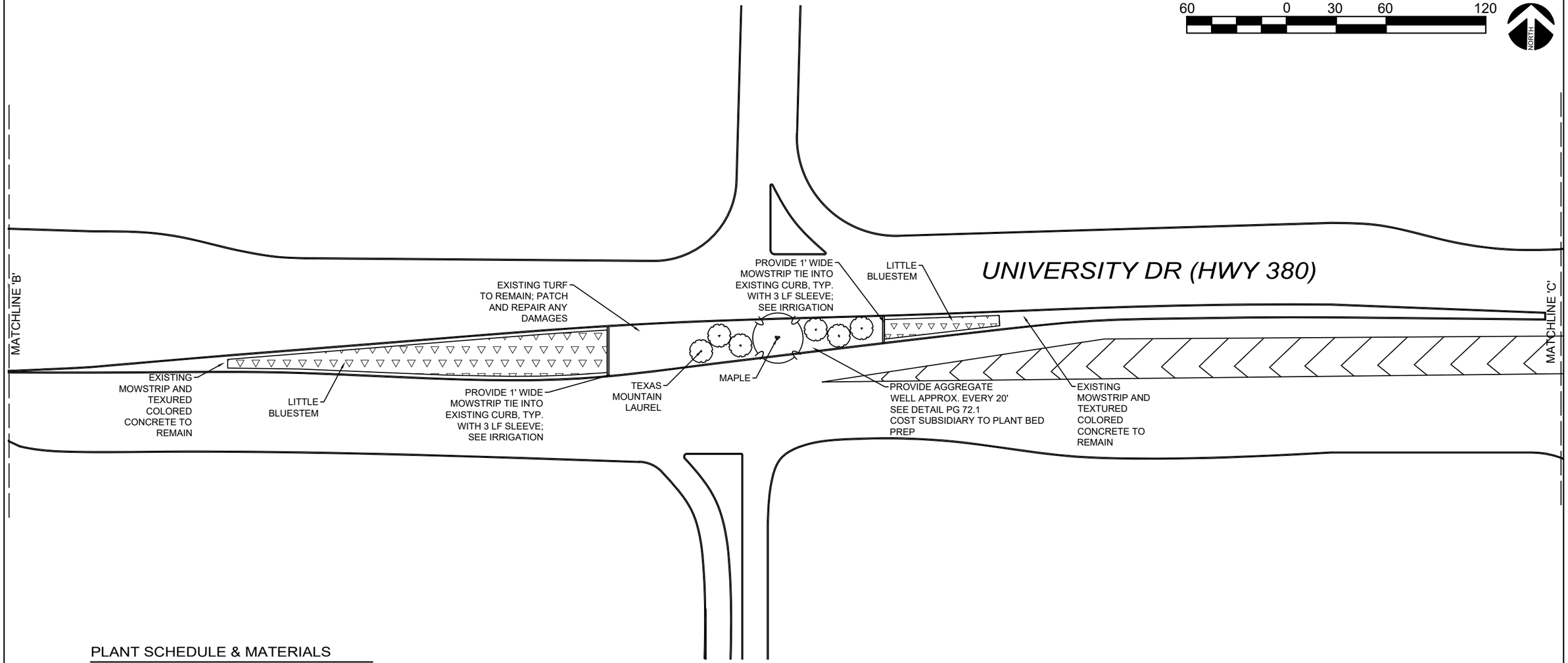
LANDSCAPE

SEGMENT 2: Section B

SCALE: 1" = 60'-0"

DESIGN EBB	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
GRAPHICS EBB	6	(SEE TITLE SHEET)		380
	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
	CONTROL	SECTION	JOB	
CHECK EBB	0134	09	066,ETC	

DATE

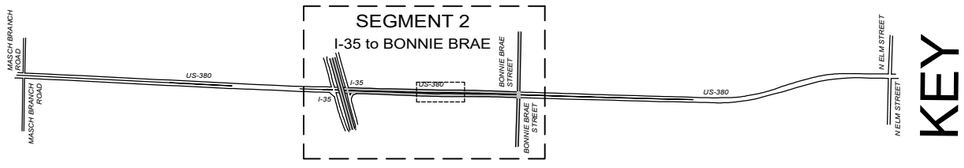


PLANT SCHEDULE & MATERIALS

	SCIENTIFIC NAME	COMMON NAME	SIZE	QTY THIS PAGE	NOTES
	LAGERSTROEMIA INDICA	CRAPE MYRTLE; NATCHEZ	3" CALIPER; B&B; SINGLE TRUNK	0	SINGLE TRUNK
	SOPHORA SECUNDIFLORA*	TEXAS MOUNTAIN LAUREL	2" AVG CALIPER; B&B; MIN. 3 - CANES	6	
	ACER X FREEMANII 'JEFFERSRED'	AUTUMN BLAZE RED MAPLE	3" CALIPER; BALLED AND BURLAPPED	1	
	MAGNOLIA GRANDIFLORA	BRACKENS BROWN; SOUTHERN MAGNOLIA	3" CALIPER; BALLED AND BURLAPPED	0	FULL TO GROUND
	PISTACIA CHINENSIS	CHINESE PISTACHIO	3" CALIPER; BALLED AND BURLAPPED	0	MALE TREES
	SHRUBS				
	ERAGROSTIS CURVULA	WEEPING LOVE GRASS	1 GALLON @ 24" O.C.	0	
	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	1 GALLON @ 30" O.C.	840	
	HESPERALOE PARVIFLORA	RED YUCCA	3 GALLON @ 36" O.C.	0	
	TEUCRIUM CHAMAEDRYS	GERMANDER	1 GALLON @ 12" O.C.	0	
	GROUND COVER				
	HABITURF*		SEED	0	

* OVERSEED WITH GAILLARDIA

~~~~~~~ ROOT BARRIER; TO BE PROVIDED ALONG CURBS FOR A MINIMUM DISTANCE OF 10' ON EITHER SIDE OF TREES AS INDICATED ON PLANS. TO BE INSTALLED PER MANUFACTURER SPECS.



E. Brooke Associates, LLC
8624 Ferguson Road #571642
Dallas, TX 75228
email: erin@ebrooke.com
phone: 817-219-2665

REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS
5-31-2019

HWY 380
LANDSCAPE
SEGMENT 2: Section C

SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK	CONTROL	SECTION	JOB	
EBB	0134	09	066,ETC	

DATE
~~~~~~~

PLANT SCHEDULE & MATERIALS

SCIENTIFIC NAME	COMMON NAME	SIZE	QTY THIS PAGE	NOTES
LAGERSTROEMIA INDICA	CRAPE MYRTLE; NATCHEZ	3" CALIPER; B&B; SINGLE TRUNK	4	SINGLE TRUNK
SOPHORA SECUNDIFLORA*	TEXAS MOUNTAIN LAUREL	2" AVG CALIPER; B&B; MIN. 3 - CANES	0	3 CANE MIN.
ACER X FREEMANII 'JEFFERSRED'	AUTUMN BLAZE RED MAPLE	3" CALIPER; BALLED AND BURLAPPED	0	
MAGNOLIA GRANDIFLORA	BRACKENS BROWN; SOUTHERN MAGNOLIA	3" CALIPER; BALLED AND BURLAPPED	0	FULL TO GROUND
PISTACIA CHINENSIS	CHINESE PISTACHIO	3" CALIPER; BALLED AND BURLAPPED	3	MALE TREES
SHRUBS				
ERAGROSTIS CURVULA	WEEPING LOVE GRASS	1 GALLON @ 24" O.C.	125	
SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	1 GALLON @ 30" O.C.	0	
HESPERALOE PARVIFLORA	RED YUCCA	3 GALLON @ 36" O.C.	122	
TEUCRIUM CHAMAEDRYS	GERMANDER	1 GALLON @ 12" 0.C.	0	
GROUND COVER				
HABITURF*		SEED	0	

* OVERSEED WITH GAILLARDIA

ROOT BARRIER; TO BE PROVIDED ALONG CURBS FOR A MINIMUM DISTANCE OF 10' ON EITHER SIDE OF TREES AS INDICATED ON PLANS. TO BE INSTALLED PER MANUFACTURER SPECS.

60 0 30 60 120

NORTH

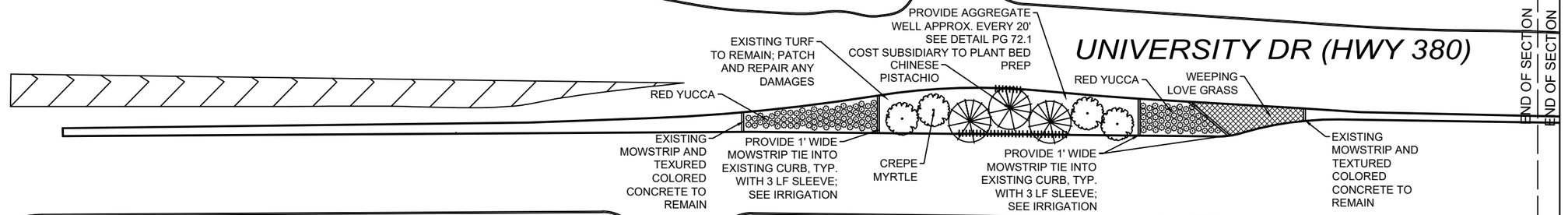
HERITAGE TRAIL

MATCHLINE 'C'

UNIVERSITY DR (HWY 380)

END OF SECTION

END OF SECTION

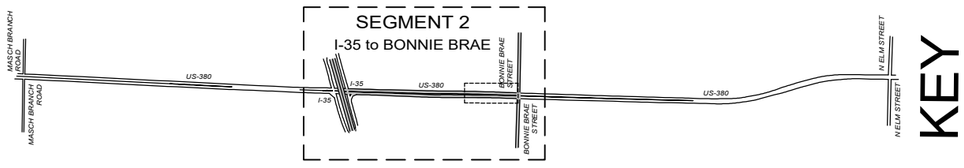


SEGMENT 2 - OVERALL PLANT SCHEDULE & MATERIALS

PLANT SCHEDULE & MATERIALS

SCIENTIFIC NAME	COMMON NAME	SIZE	QTY	NOTES
LAGERSTROEMIA INDICA	CRAPE MYRTLE; NATCHEZ	3" CALIPER; B&B; SINGLE TRUNK	8	SINGLE TRUNK
SOPHORA SECUNDIFLORA*	TEXAS MOUNTAIN LAUREL	2" AVG CALIPER; B&B; MIN. 3 - CANES	6	
ACER X FREEMANII 'JEFFERSRED'	AUTUMN BLAZE RED MAPLE	3" CALIPER; BALLED AND BURLAPPED	1	
MAGNOLIA GRANDIFLORA	BRACKENS BROWN; SOUTHERN MAGNOLIA	3" CALIPER; BALLED AND BURLAPPED	1	FULL TO GROUND
PISTACIA CHINENSIS	CHINESE PISTACHIO	3" CALIPER; BALLED AND BURLAPPED	3	MALE TREES
SHRUBS				
ERAGROSTIS CURVULA	WEEPING LOVE GRASS	1 GALLON @ 24" O.C.	383	
SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	1 GALLON @ 30" O.C.	840	
HESPERALOE PARVIFLORA	RED YUCCA	3 GALLON @ 36" O.C.	122	
TEUCRIUM CHAMAEDRYS	GERMANDER	1 GALLON @ 12" 0.C.	187	
GROUND COVER				
HABITURF*		SEED	143 SY	
* OVERSEED WITH GAILLARDIA		SEED	1287 SF	

ROOT BARRIER; TO BE PROVIDED ALONG CURBS FOR A MINIMUM DISTANCE OF 10' ON EITHER SIDE OF TREES AS INDICATED ON PLANS. TO BE INSTALLED PER MANUFACTURER SPECS. COST SUBSIDIARY TO TREE COST.



REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS

5-31-2019

CITY OF DENTON

EBA
E. Brooke Associates, LLC
8624 Ferguson Road #571642
Dallas, TX 75228
email: erin@ebrooke.com
phone: 817-219-2665

Texas Department of Transportation

HWY 380

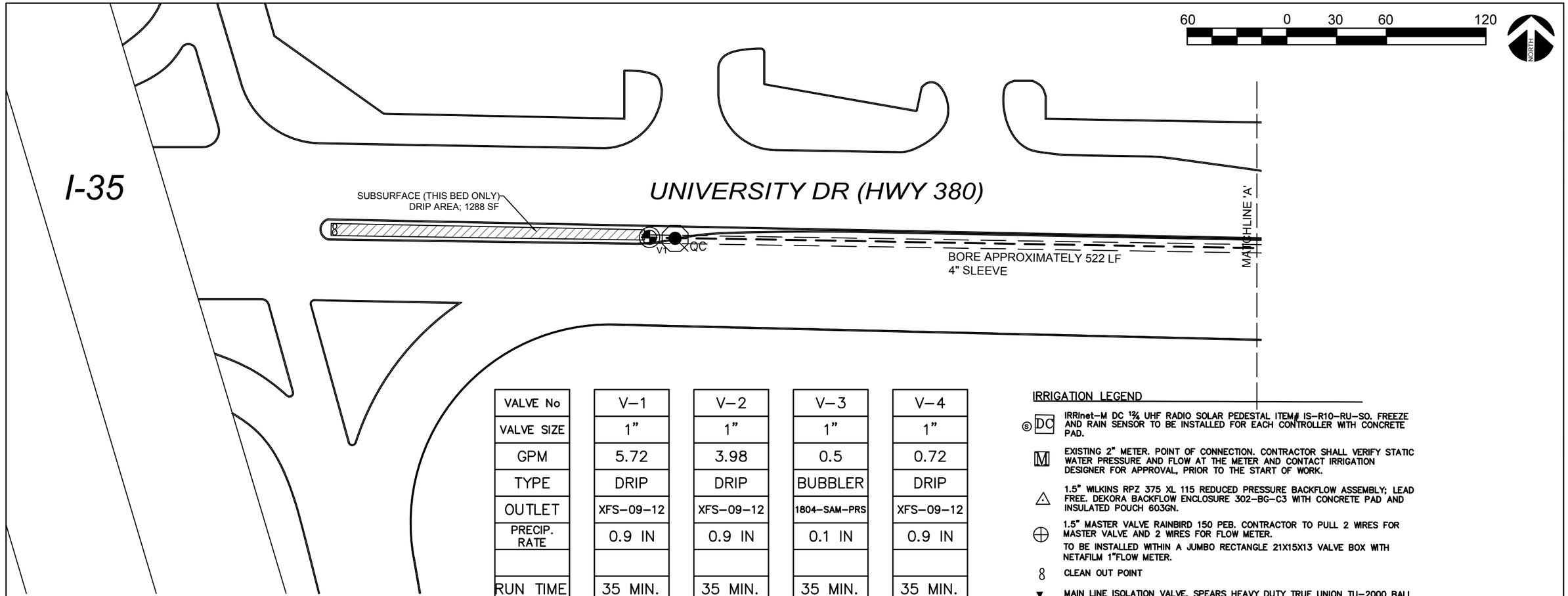
LANDSCAPE

SEGMENT 2: Section D

SCALE: 1" = 60'-0"

DESIGN EBB	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
GRAPHICS EBB	6	(SEE TITLE SHEET)		380
CHECK EBB	STATE	DISTRICT	COUNTY	SHEET NO.
	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

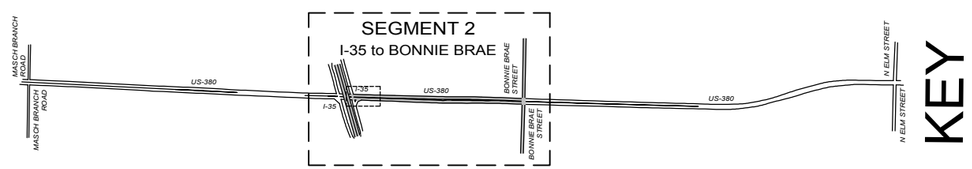
DATE



VALVE No	V–1	V–2	V–3	V–4
VALVE SIZE	1"	1"	1"	1"
GPM	5.72	3.98	0.5	0.72
TYPE	DRIP	DRIP	BUBBLER	DRIP
OUTLET	XFS–09–12	XFS–09–12	1804–SAM–PRS	XFS–09–12
PRECIP. RATE	0.9 IN	0.9 IN	0.1 IN	0.9 IN
RUN TIME	35 MIN.	35 MIN.	35 MIN.	35 MIN.

V–5	V–6	V–7	V–8	V–9	V–10
1"	1"	1"	1"	1"	1"
17.45	0.7	1.5	0.7	3.64	4.3
DRIP	BUBBLER	DRIP	BUBBLER	DRIP	DRIP
XFS–09–12	1804–SAM–PRS	XFS–09–12	1804–SAM–PRS	XFS–09–12	XFS–09–12
0.9 IN	0.1IN	0.9 IN	0.1 IN	0.9 IN	0.9 IN
35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.

NOTES:
1. ALL IRRIGATION LINES TO BE PLACED WITHIN PLANTER BEDS EXCEPT FOR SLEEVE LOCATIONS INDICATED ON PLANS. LINES SHOWN ACROSS PAVEMENT ARE DIAGRAMMATIC AND FOR LEGIBILITY PURPOSES ONLY.
2. ALL IRRIGATION LINES TO BE BURIED A MINIMUM OF 6" BELOW GRADE.
3. IRRIGATION DRAWINGS BASED OFF 60 PSI. CONTRACTOR TO CONFIRM PROVIDED PSI ON–SITE BEFORE CONSTRUCTION.
4. CONTRACTOR TO HAVE ALL LOCATIONS OF THE CONTROLLER AND VALVES TO BE FLAGGED AND APPROVED BY CITY STAFF BEFORE INSTALLATION.
5. CONTRACTOR TO PROVIDE CUT SHEETS FOR ALL IRRIGATION MATERIALS APPROVED BY CITY STAFF BEFORE CONSTRUCTION/INSTALLATION.
6. THIS IRRIGATION PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL LAWS, ORDINANCES, RULES, REGULATIONS, OR ORDERS.
7. THE CITY OF DENTON DOES NOT ALLOW DOUBLE CHECK AS A BACKFLOW DEVICE.
8. THE STATE OF TEXAS STATUTE 344.62(B) PROHIBITS IRRIGATION SPRAY HEADS IN PARKWAYS LESS THAN 48" WIDE.
9. STATIC PRESSURE: 60PSI; DESIGN PRESSURE: 40PSI
10. PLACE SLEEVES UNDER ANY NEW MOWSTRIPS BEFORE INSTALLATION OF THE MOWSTRIP.



IRRIGATION LEGEND

- IRRInet–M DC ¾ UHF RADIO SOLAR PEDESTAL ITEM# IS–R10–RU–SO. FREEZE AND RAIN SENSOR TO BE INSTALLED FOR EACH CONTROLLER WITH CONCRETE PAD.
- EXISTING 2" METER. POINT OF CONNECTION. CONTRACTOR SHALL VERIFY STATIC WATER PRESSURE AND FLOW AT THE METER AND CONTACT IRRIGATION DESIGNER FOR APPROVAL, PRIOR TO THE START OF WORK.
- 1.5" WILKINS RPZ 375 XL 115 REDUCED PRESSURE BACKFLOW ASSEMBLY; LEAD FREE. DEKORA BACKFLOW ENCLOSURE 302–BG–C3 WITH CONCRETE PAD AND INSULATED POUCH 603GN.
- 1.5" MASTER VALVE RAINBIRD 150 PEB. CONTRACTOR TO PULL 2 WIRES FOR MASTER VALVE AND 2 WIRES FOR FLOW METER. TO BE INSTALLED WITHIN A JUMBO RECTANGLE 21X15X13 VALVE BOX WITH NETAFILM 1"FLOW METER.
- CLEAN OUT POINT
- MAIN LINE ISOLATION VALVE, SPEARS HEAVY DUTY TRUE UNION TU–2000 BALL VALVE. TO BE INSTALLED IN SAME STANDARD VALVE BOX AS THE ZONE VALVES.
- 1" ZONE VALVE – RAINBIRD XCZ 100 PRB–LC.03–20GAL CONTROL VALVE; ALL WIRING MUST BE RATED FOR DIRECT BURIAL. TO BE INSTALLED WITHIN A STANDARD RECTANGLE 17X12X12 VALVE BOX.
- QC 1" QUICK COUPLER VALVE
- TREE BUBBLER; RAINBIRD 4" HEAD 1804–SAM–PRS WITH HUNTER PCN–50 SURFACE DRIP; RAINBIRD XFCV; 18 INCH EMITTER SPACING WITH .06 FLOW RATE (XFCV–06–12); INCLUDE RAINBIRD PRESSURE INDICATOR FLAGS; TO BE INSTALLED AS INSTRUCTED BY CITY STAFF; INSTALL ABOVE SOIL, STAPLE, 2" MULCH TO COVER DRIPLINE
- 1.5" MAINLINE; JM EAGLE SDR 11 RATED TO 200 PSI WITH BUTT FUSIONS. MINIMUM ROLL LENGTHS OF 500'
- ADS POLYFLEX UTILITY GRADE OR SCHEDULE 40 3/4". STUB OUTS FROM LATERAL LINES TO TREES SHALL BE FLEX PIPE AS DESIGNATED BY THE CITY; STUB OUTS ARE 1/2". 6" MIN. DEPTH OF BURY.
- 4" HDPE ROLL PIPE CONDUIT ENDING WITH NO GREATER THAN A SWEEPING ANGLE OF 45° CURVE SO THAT MAIN LINE CAN BE PUSHED THROUGH; ALL BORES AND SLEEVING TO BE PROVIDED BY CONTRACTOR.

CITY OF DENTON

E. Brooke Associates, LLC
8624 Ferguson Road #571642
Dallas, TX 75228
email: erin@ebrooke.com
phone: 817-219-2665

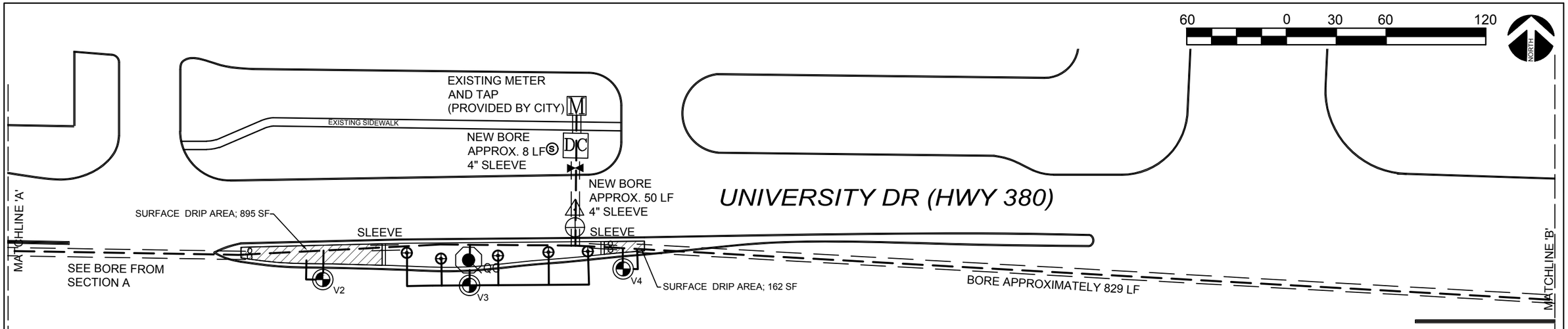
EBA

HWY 380
IRRIGATION
SEGMENT 2: Section A

SCALE: 1" = 60'–0"

DESIGN EBB	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
GRAPHICS EBB	6	(SEE TITLE SHEET)		380
CHECK EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

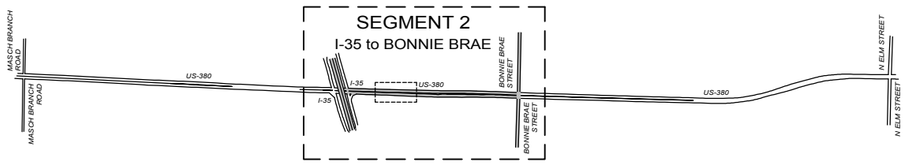
DATE



VALVE No	V–1	V–2	V–3	V–4
VALVE SIZE	1"	1"	1"	1"
GPM	5.72	3.98	0.5	0.72
TYPE	DRIP	DRIP	BUBBLER	DRIP
OUTLET	XFS–09–12	XFS–09–12	1804–SAM–PRS	XFS–09–12
PRECIP. RATE	0.9 IN	0.9 IN	0.1 IN	0.9 IN
RUN TIME	35 MIN.	35 MIN.	35 MIN.	35 MIN.

V–5	V–6	V–7	V–8	V–9	V–10
1"	1"	1"	1"	1"	1"
17.45	0.7	1.5	0.7	3.64	4.3
DRIP	BUBBLER	DRIP	BUBBLER	DRIP	DRIP
XFS–09–12	1804–SAM–PRS	XFS–09–12	1804–SAM–PRS	XFS–09–12	XFS–09–12
0.9 IN	0.1IN	0.9 IN	0.1 IN	0.9 IN	0.9 IN
35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.

NOTES:
1. ALL IRRIGATION LINES TO BE PLACED WITHIN PLANTER BEDS EXCEPT FOR SLEEVE LOCATIONS INDICATED ON PLANS. LINES SHOWN ACROSS PAVEMENT ARE DIAGRAMMATIC AND FOR LEGIBILITY PURPOSES ONLY.
2. ALL IRRIGATION LINES TO BE BURIED A MINIMUM OF 6" BELOW GRADE.
3. IRRIGATION DRAWINGS BASED OFF 60 PSI. CONTRACTOR TO CONFIRM PROVIDED PSI ON–SITE BEFORE CONSTRUCTION.
4. CONTRACTOR TO HAVE ALL LOCATIONS OF THE CONTROLLER AND VALVES TO BE FLAGGED AND APPROVED BY CITY STAFF BEFORE INSTALLATION.
5. CONTRACTOR TO PROVIDE CUT SHEETS FOR ALL IRRIGATION MATERIALS APPROVED BY CITY STAFF BEFORE CONSTRUCTION/INSTALLATION.
6. THIS IRRIGATION PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL LAWS, ORDINANCES, RULES, REGULATIONS, OR ORDERS.
7. THE CITY OF DENTON DOES NOT ALLOW DOUBLE CHECK AS A BACKFLOW DEVICE.
8. THE STATE OF TEXAS STATUTE 344.62(B) PROHIBITS IRRIGATION SPRAY HEADS IN PARKWAYS LESS THAN 48" WIDE.
9. STATIC PRESSURE: 60PSI; DESIGN PRESSURE: 40PSI
10. PLACE SLEEVES UNDER ANY NEW MOWSTRIPS BEFORE INSTALLATION OF THE MOWSTRIP.



KEY

IRRIGATION LEGEND

- DC — IRRInet–M DC ¾ UHF RADIO SOLAR PEDESTAL ITEM# IS–R10–RU–SO. FREEZE AND RAIN SENSOR TO BE INSTALLED FOR EACH CONTROLLER WITH CONCRETE PAD.
- M — EXISTING 2" METER. POINT OF CONNECTION. CONTRACTOR SHALL VERIFY STATIC WATER PRESSURE AND FLOW AT THE METER AND CONTACT IRRIGATION DESIGNER FOR APPROVAL, PRIOR TO THE START OF WORK.
- 1.5" WILKINS RPZ 375 XL 115 REDUCED PRESSURE BACKFLOW ASSEMBLY; LEAD FREE. DEKORA BACKFLOW ENCLOSURE 302–BG–C3 WITH CONCRETE PAD AND INSULATED POUCH 603GN.
- 1.5" MASTER VALVE RAINBIRD 150 PEB. CONTRACTOR TO PULL 2 WIRES FOR MASTER VALVE AND 2 WIRES FOR FLOW METER. TO BE INSTALLED WITHIN A JUMBO RECTANGLE 21X15X13 VALVE BOX WITH NETAFILM 1"FLOW METER.
- CLEAN OUT POINT
- MAIN LINE ISOLATION VALVE, SPEARS HEAVY DUTY TRUE UNION TU–2000 BALL VALVE. TO BE INSTALLED IN SAME STANDARD VALVE BOX AS THE ZONE VALVES.
- 1" ZONE VALVE – RAINBIRD XCZ 100 PRB–LC.03–20GAL CONTROL VALVE; ALL WIRING MUST BE RATED FOR DIRECT BURIAL. TO BE INSTALLED WITHIN A STANDARD RECTANGLE 17X12X12 VALVE BOX.
- QC — 1" QUICK COUPLER VALVE
- TREE BUBBLER; RAINBIRD 4" HEAD 1804–SAM–PRS WITH HUNTER PCN–50 SURFACE DRIP; RAINBIRD XFCV; 18 INCH EMITTER SPACING WITH .06 FLOW RATE (XFCV–06–12); INCLUDE RAINBIRD PRESSURE INDICATOR FLAGS; TO BE INSTALLED AS INSTRUCTED BY CITY STAFF; INSTALL ABOVE SOIL, STAPLE, 2" MULCH TO COVER DRIPLINE
- 1.5" MAINLINE; JM EAGLE SDR 11 RATED TO 200 PSI WITH BUTT FUSIONS. MINIMUM ROLL LENGTHS OF 500'
- ADS POLYFLEX UTILITY GRADE OR SCHEDULE 40 3/4". STUB OUTS FROM LATERAL LINES TO TREES SHALL BE FLEX PIPE AS DESIGNATED BY THE CITY; STUB OUTS ARE 1/2". 6" MIN. DEPTH OF BURY.
- 4" HDPE ROLL PIPE CONDUIT ENDING WITH NO GREATER THAN A SWEEPING ANGLE OF 45° CURVE SO THAT MAIN LINE CAN BE PUSHED THROUGH; ALL BORES AND SLEEVING TO BE PROVIDED BY CONTRACTOR.

REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS
5-31-2019

CITY OF DENTON

EBA
E. Brooke Associates, LLC
8624 Ferguson Road #571642
Dallas, TX 75228
email: erin@ebrooke.com
phone: 817-219-2665

Texas Department of Transportation

HWY 380
IRRIGATION
SEGMENT 2: Section B

SCALE: 1" = 60'–0"

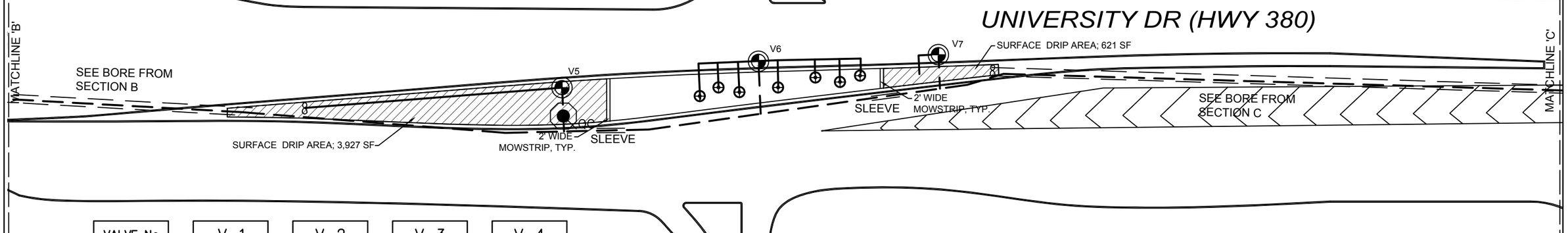
DESIGN EBB	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
GRAPHICS EBB	6	(SEE TITLE SHEET)		380
CHECK EBB	STATE	DISTRICT	COUNTY	SHEET NO.
	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE

NOTES:
1. ALL IRRIGATION LINES TO BE PLACED WITHIN PLANTER BEDS EXCEPT FOR SLEEVE LOCATIONS INDICATED ON PLANS. LINES SHOWN ACROSS PAVEMENT ARE DIAGRAMMATIC AND FOR LEGIBILITY PURPOSES ONLY.
2. ALL IRRIGATION LINES TO BE BURIED A MINIMUM OF 6" BELOW GRADE.
3. IRRIGATION DRAWINGS BASED OFF 60 PSI. CONTRACTOR TO CONFIRM PROVIDED PSI ON-SITE BEFORE CONSTRUCTION.
4. CONTRACTOR TO HAVE ALL LOCATIONS OF THE CONTROLLER AND VALVES TO BE FLAGGED AND APPROVED BY CITY STAFF BEFORE INSTALLATION.
5. CONTRACTOR TO PROVIDE CUT SHEETS FOR ALL IRRIGATION MATERIALS APPROVED BY CITY STAFF BEFORE CONSTRUCTION/INSTALLATION.
6. THIS IRRIGATION PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL LAWS, ORDINANCES, RULES, REGULATIONS, OR ORDERS.
7. THE CITY OF DENTON DOES NOT ALLOW DOUBLE CHECK AS A BACKFLOW DEVICE.
8. THE STATE OF TEXAS STATUTE 344.62(B) PROHIBITS IRRIGATION SPRAY HEADS IN PARKWAYS LESS THAN 48" WIDE.
9. STATIC PRESSURE: 60PSI; DESIGN PRESSURE: 40PSI
10. PLACE SLEEVES UNDER ANY NEW MOWSTRIPS BEFORE INSTALLATION OF THE MOWSTRIP.

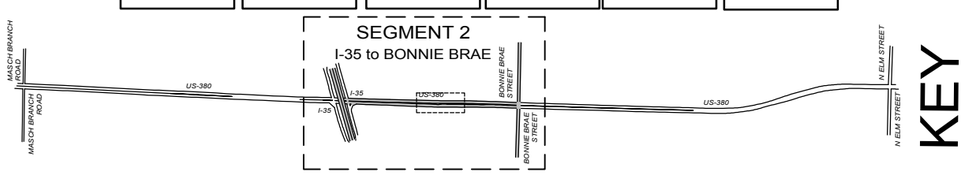
60 0 30 60 120

NORTH



VALVE No	V-1	V-2	V-3	V-4
VALVE SIZE	1"	1"	1"	1"
GPM	5.72	3.98	0.5	0.72
TYPE	DRIP	DRIP	BUBBLER	DRIP
OUTLET	XFS-09-12	XFS-09-12	1804-SAM-PRS	XFS-09-12
PRECIP. RATE	0.9 IN	0.9 IN	0.1 IN	0.9 IN
RUN TIME	35 MIN.	35 MIN.	35 MIN.	35 MIN.

V-5	V-6	V-7	V-8	V-9	V-10
1"	1"	1"	1"	1"	1"
17.45	0.7	1.5	0.7	3.64	4.3
DRIP	BUBBLER	DRIP	BUBBLER	DRIP	DRIP
XFS-09-12	1804-SAM-PRS	XFS-09-12	1804-SAM-PRS	XFS-09-12	XFS-09-12
0.9 IN	0.1IN	0.9 IN	0.1 IN	0.9 IN	0.9 IN
35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.



KEY

IRRIGATION LEGEND

- DC — IRRInet-M DC 1¾ UHF RADIO SOLAR PEDESTAL ITEM# IS-R10-RU-SO. FREEZE AND RAIN SENSOR TO BE INSTALLED FOR EACH CONTROLLER WITH CONCRETE PAD.
- M — EXISTING 2" METER. POINT OF CONNECTION. CONTRACTOR SHALL VERIFY STATIC WATER PRESSURE AND FLOW AT THE METER AND CONTACT IRRIGATION DESIGNER FOR APPROVAL, PRIOR TO THE START OF WORK.
- 1.5" WILKINS RPZ 375 XL 115 REDUCED PRESSURE BACKFLOW ASSEMBLY; LEAD FREE. DEKORA BACKFLOW ENCLOSURE 302-BG-C3 WITH CONCRETE PAD AND INSULATED POUCH 603GN.
- 1.5" MASTER VALVE RAINBIRD 150 PEB. CONTRACTOR TO PULL 2 WIRES FOR MASTER VALVE AND 2 WIRES FOR FLOW METER. TO BE INSTALLED WITHIN A JUMBO RECTANGLE 21X15X13 VALVE BOX WITH NETAFILM 1"FLOW METER.
- CLEAN OUT POINT
- MAIN LINE ISOLATION VALVE, SPEARS HEAVY DUTY TRUE UNION TU-2000 BALL VALVE. TO BE INSTALLED IN SAME STANDARD VALVE BOX AS THE ZONE VALVES.
- 1" ZONE VALVE – RAINBIRD XCZ 100 PRB-LC.03-20GAL CONTROL VALVE; ALL WIRING MUST BE RATED FOR DIRECT BURIAL. TO BE INSTALLED WITHIN A STANDARD RECTANGLE 17X12X12 VALVE BOX.
- QC — 1" QUICK COUPLER VALVE
- TREE BUBBLER; RAINBIRD 4" HEAD 1804-SAM-PRS WITH HUNTER PCN-50
- SURFACE DRIP; RAINBIRD XFCV; 18 INCH EMITTER SPACING WITH .06 FLOW RATE (XFCV-06-12); INCLUDE RAINBIRD PRESSURE INDICATOR FLAGS; TO BE INSTALLED AS INSTRUCTED BY CITY STAFF; INSTALL ABOVE SOIL, STAPLE, 2" MULCH TO COVER DRIPLINE
- 1.5" MAINLINE; JM EAGLE SDR 11 RATED TO 200 PSI WITH BUTT FUSIONS. MINIMUM ROLL LENGTHS OF 500'
- ADS POLYFLEX UTILITY GRADE OR SCHEDULE 40 3/4". STUB OUTS FROM LATERAL LINES TO TREES SHALL BE FLEX PIPE AS DESIGNATED BY THE CITY; STUB OUTS ARE 1/2". 6" MIN. DEPTH OF BURY.
- 4" HDPE ROLL PIPE CONDUIT ENDING WITH NO GREATER THAN A SWEEPING ANGLE OF 45° CURVE SO THAT MAIN LINE CAN BE PUSHED THROUGH; ALL BORES AND SLEEVING TO BE PROVIDED BY CONTRACTOR.

REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS

5-31-2019

CITY OF DENTON

E. Brooke Associates, LLC
8624 Ferguson Road #571642
Dallas, TX 75228
email: erin@ebrooke.com
phone: 817-219-2665

HWY 380
IRRIGATION
SEGMENT 2: Section C

SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE

NOTES:
1. ALL IRRIGATION LINES TO BE PLACED WITHIN PLANTER BEDS EXCEPT FOR SLEEVE LOCATIONS INDICATED ON PLANS. LINES SHOWN ACROSS PAVEMENT ARE DIAGRAMMATIC AND FOR LEGIBILITY PURPOSES ONLY.
2. ALL IRRIGATION LINES TO BE BURIED A MINIMUM OF 6" BELOW GRADE.
3. IRRIGATION DRAWINGS BASED OFF 60 PSI. CONTRACTOR TO CONFIRM PROVIDED PSI ON-SITE BEFORE CONSTRUCTION.
4. CONTRACTOR TO HAVE ALL LOCATIONS OF THE CONTROLLER AND VALVES TO BE FLAGGED AND APPROVED BY CITY STAFF BEFORE INSTALLATION.
5. CONTRACTOR TO PROVIDE CUT SHEETS FOR ALL IRRIGATION MATERIALS APPROVED BY CITY STAFF BEFORE CONSTRUCTION/INSTALLATION.
6. THIS IRRIGATION PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL LAWS, ORDINANCES, RULES, REGULATIONS, OR ORDERS.
7. THE CITY OF DENTON DOES NOT ALLOW DOUBLE CHECK AS A BACKFLOW DEVICE.
8. THE STATE OF TEXAS STATUTE 344.62(B) PROHIBITS IRRIGATION SPRAY HEADS IN PARKWAYS LESS THAN 48" WIDE.
9. STATIC PRESSURE: 60PSI; DESIGN PRESSURE: 40PSI
10. PLACE SLEEVES UNDER ANY NEW MOWSTRIPS BEFORE INSTALLATION OF THE MOWSTRIP.

60 0 30 60 120

NORTH

TOWN CENTER TRAIL

UNIVERSITY DR (HWY 380)

MATCHLINE 'C'

BORE APPROXIMATELY 900 LF

QC

V8

V9

V10

SURFACE DRIP AREA; 819 SF

SURFACE DRIP AREA; 967SF

SLEEVE

SLEEVE

2' WIDE MOWSTRIP, TYP.

2' WIDE MOWSTRIP, TYP.

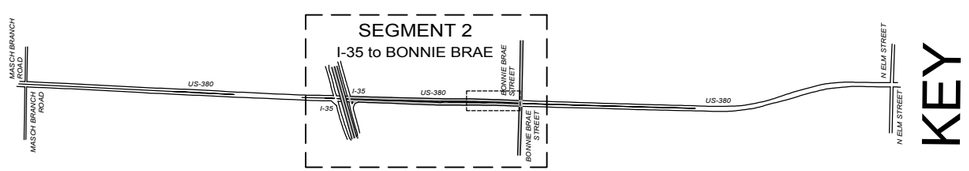
2' WIDE MOWSTRIP, TYP.

END OF SECTION

END OF SECTION

VALVE No	V-1	V-2	V-3	V-4
VALVE SIZE	1"	1"	1"	1"
GPM	5.72	3.98	0.5	0.72
TYPE	DRIP	DRIP	BUBBLER	DRIP
OUTLET	XFS-09-12	XFS-09-12	1804-SAM-PRS	XFS-09-12
PRECIP. RATE	0.9 IN	0.9 IN	0.1 IN	0.9 IN
RUN TIME	35 MIN.	35 MIN.	35 MIN.	35 MIN.

V-5	V-6	V-7	V-8	V-9	V-10
1"	1"	1"	1"	1"	1"
17.45	0.7	1.5	0.7	3.64	4.3
DRIP	BUBBLER	DRIP	BUBBLER	DRIP	DRIP
XFS-09-12	1804-SAM-PRS	XFS-09-12	1804-SAM-PRS	XFS-09-12	XFS-09-12
0.9 IN	0.1IN	0.9 IN	0.1 IN	0.9 IN	0.9 IN
35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.



KEY

IRRIGATION LEGEND

- DC — IRRInet-M DC 1¾ UHF RADIO SOLAR PEDESTAL ITEM# IS-R10-RU-SO. FREEZE AND RAIN SENSOR TO BE INSTALLED FOR EACH CONTROLLER WITH CONCRETE PAD.
- M — EXISTING 2" METER. POINT OF CONNECTION. CONTRACTOR SHALL VERIFY STATIC WATER PRESSURE AND FLOW AT THE METER AND CONTACT IRRIGATION DESIGNER FOR APPROVAL, PRIOR TO THE START OF WORK.
- 1.5" WILKINS RPZ 375 XL 115 REDUCED PRESSURE BACKFLOW ASSEMBLY; LEAD FREE. DEKORA BACKFLOW ENCLOSURE 302-BG-C3 WITH CONCRETE PAD AND INSULATED POUCH 603GN.
- 1.5" MASTER VALVE RAINBIRD 150 PEB. CONTRACTOR TO PULL 2 WIRES FOR MASTER VALVE AND 2 WIRES FOR FLOW METER. TO BE INSTALLED WITHIN A JUMBO RECTANGLE 21X15X13 VALVE BOX WITH NETAFILM 1"FLOW METER.
- CLEAN OUT POINT
- MAIN LINE ISOLATION VALVE, SPEARS HEAVY DUTY TRUE UNION TU-2000 BALL VALVE. TO BE INSTALLED IN SAME STANDARD VALVE BOX AS THE ZONE VALVES.
- 1" ZONE VALVE - RAINBIRD XCZ 100 PRB-LC.03-20GAL CONTROL VALVE; ALL WIRING MUST BE RATED FOR DIRECT BURIAL. TO BE INSTALLED WITHIN A STANDARD RECTANGLE 17X12X12 VALVE BOX.
- QC — 1" QUICK COUPLER VALVE
- TREE BUBBLER; RAINBIRD 4" HEAD 1804-SAM-PRS WITH HUNTER PCN-50 SURFACE DRIP; RAINBIRD XFCV; 18 INCH EMITTER SPACING WITH .06 FLOW RATE (XFCV-06-12); INCLUDE RAINBIRD PRESSURE INDICATOR FLAGS; TO BE INSTALLED AS INSTRUCTED BY CITY STAFF; INSTALL ABOVE SOIL, STAPLE, 2" MULCH TO COVER DRIPLINE
- 1.5" MAINLINE; JM EAGLE SDR 11 RATED TO 200 PSI WITH BUTT FUSIONS. MINIMUM ROLL LENGTHS OF 500'
- ADS POLYFLEX UTILITY GRADE OR SCHEDULE 40 3/4". STUB OUTS FROM LATERAL LINES TO TREES SHALL BE FLEX PIPE AS DESIGNATED BY THE CITY; STUB OUTS ARE 1/2". 6" MIN. DEPTH OF BURY.
- 4" HDPE ROLL PIPE CONDUIT ENDING WITH NO GREATER THAN A SWEEPING ANGLE OF 45° CURVE SO THAT MAIN LINE CAN BE PUSHED THROUGH; ALL BORES AND SLEEVING TO BE PROVIDED BY CONTRACTOR.

REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS

5-31-2019

CITY OF DENTON

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HWY 380

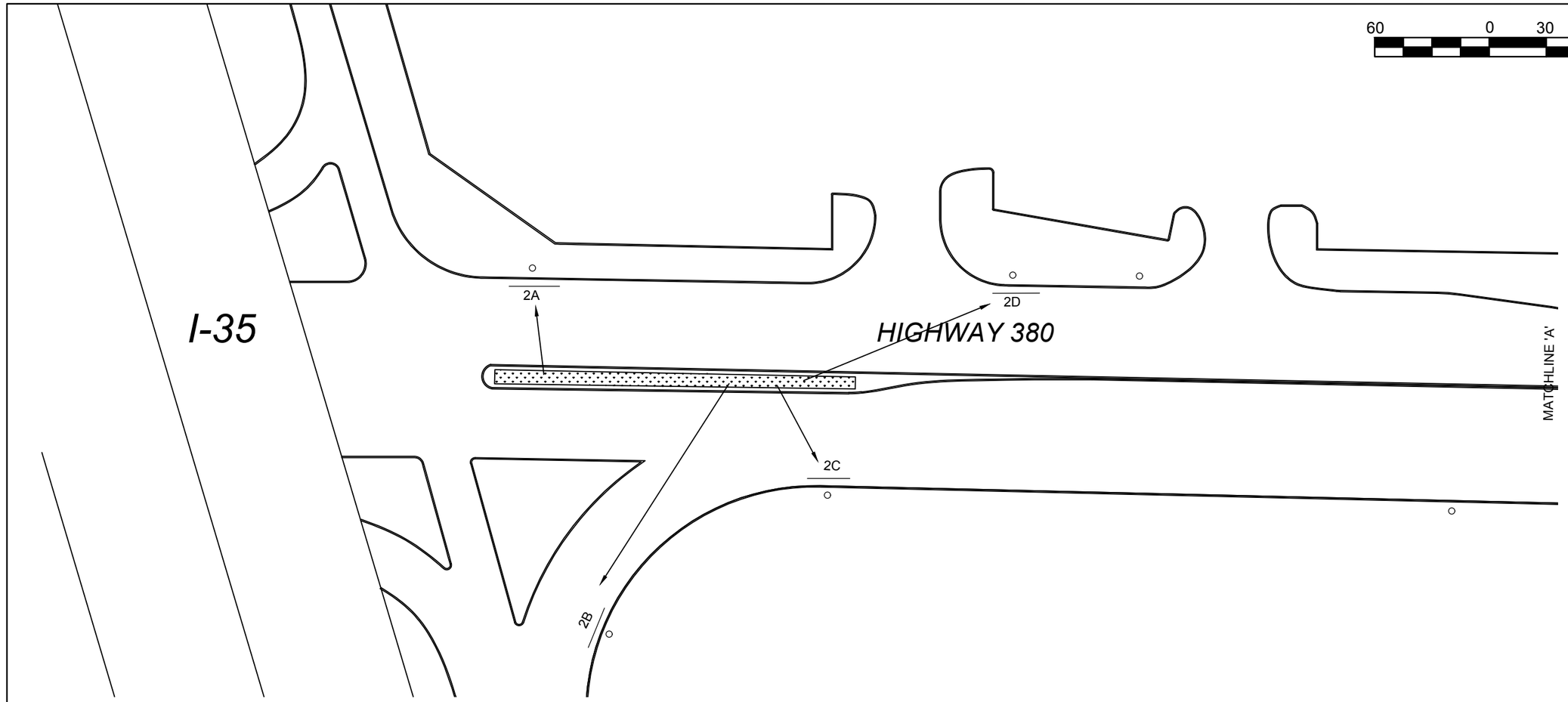
IRRIGATION

SEGMENT 2: Section D

SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE



SECTION A - SW3P LOCATIONS

BMP	BMP TYPE	Date installed	Init.	Date Removed	Init.
2A	Erosion Control Log*				
2B	Erosion Control Log*				
2C	Erosion Control Log*				
2D	Erosion Control Log*				

Notes:

1. BMP's shall not be installed in their control area any sooner that two weeks prior to soil disturbing activities
2. See daily work reports for initial stabilization time frames

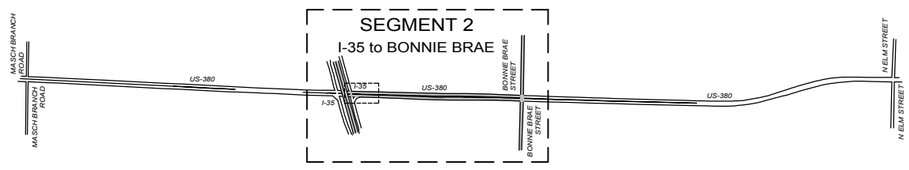
* (CL-C1); Or approved equal.

Legend

○	Existing storm drains
_____	Erosion control log

Date Disturbed: _____

Date Stabilized: _____



CITY OF DENTON
EBA
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Dallas, TX 75228
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phone: 817-219-2665

HWY 380

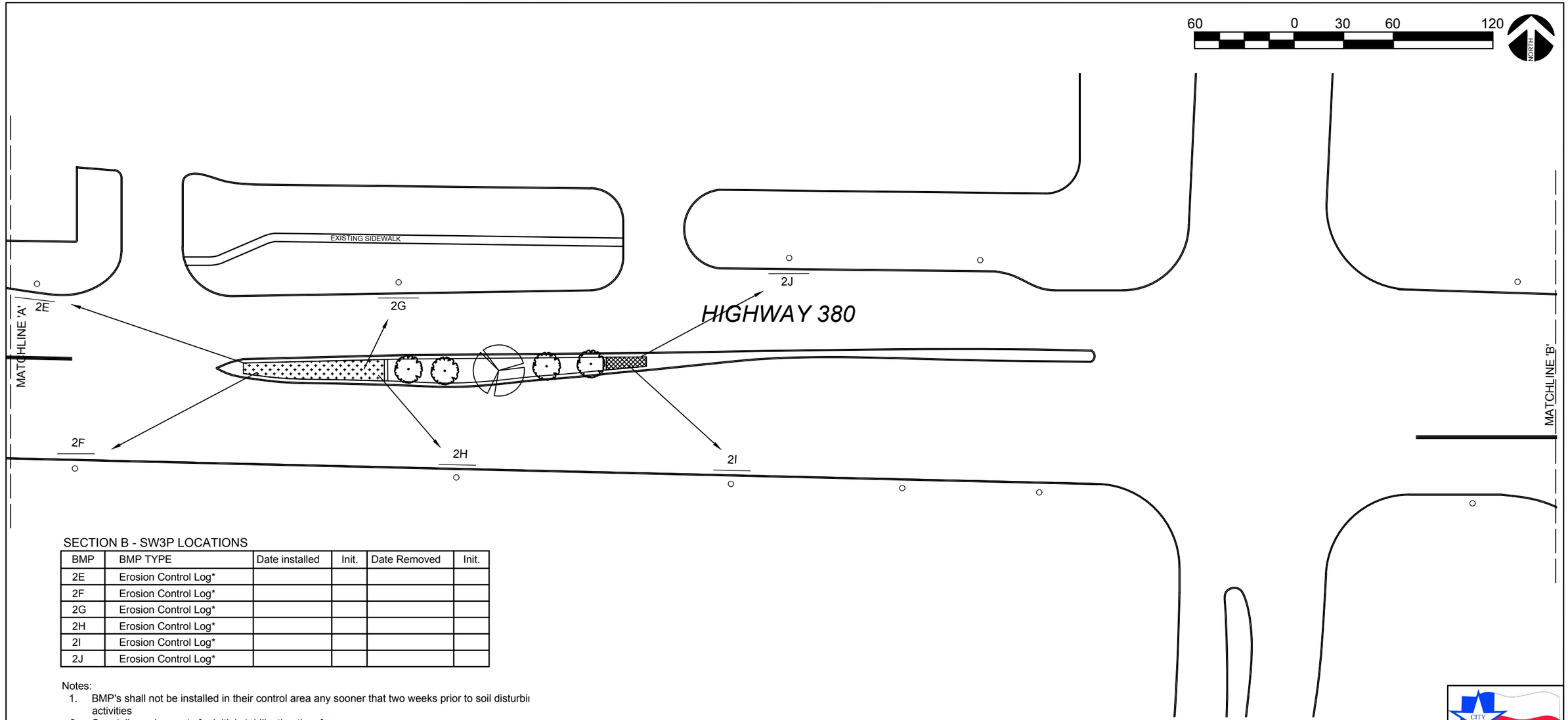
SW3P Layout

SEGMENT 2: Section A

SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE



SECTION B - SW3P LOCATIONS

BMP	BMP TYPE	Date installed	Init.	Date Removed	Init.
2E	Erosion Control Log*				
2F	Erosion Control Log*				
2G	Erosion Control Log*				
2H	Erosion Control Log*				
2I	Erosion Control Log*				
2J	Erosion Control Log*				

Notes:
1. BMP's shall not be installed in their control area any sooner that two weeks prior to soil disturbi activities
2. See daily work reports for initial stabilization time frames

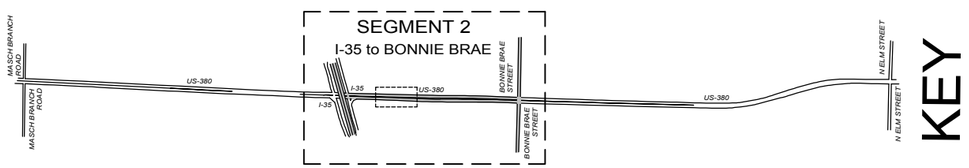
* (CL-C1); Or approved equal.

Legend

○	Existing storm drains
————	Erosion control log

Date Disturbed: _____

Date Stabilized: _____



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REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS
5-31-2019

HWY 380

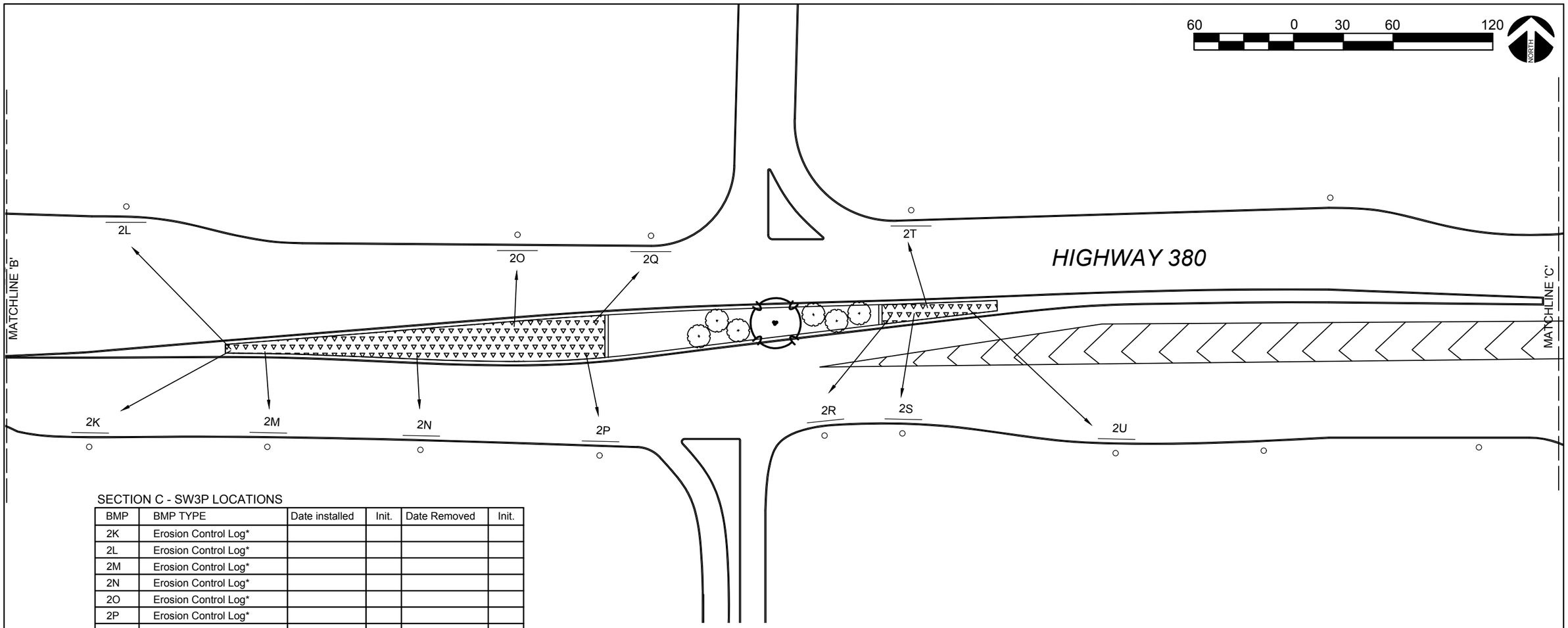
SW3P Layout

SEGMENT 2: Section B

SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE



SECTION C - SW3P LOCATIONS

BMP	BMP TYPE	Date installed	Init.	Date Removed	Init.
2K	Erosion Control Log*				
2L	Erosion Control Log*				
2M	Erosion Control Log*				
2N	Erosion Control Log*				
2O	Erosion Control Log*				
2P	Erosion Control Log*				
2Q	Erosion Control Log*				
2R	Erosion Control Log*				
2S	Erosion Control Log*				
2T	Erosion Control Log*				
2U	Erosion Control Log*				

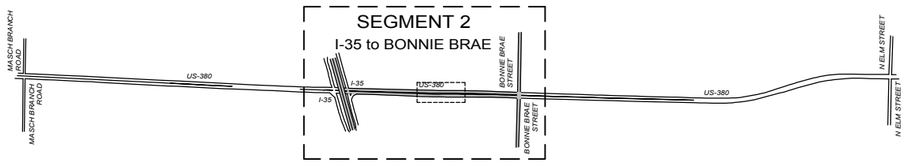
Notes:
1. BMP's shall not be installed in their control area any sooner that two weeks prior to soil disturbing activities
2. See daily work reports for initial stabilization time frames
* (CL-C1); Or approved equal.

Legend

○	Existing storm drains
_____	Erosion control log

Date Disturbed: _____

Date Stabilized: _____



KEY

DATE

REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS
5-31-2019

CITY OF DENTON

EBA

E. Brooke Associates, LLC
8624 Ferguson Road #571642
Dallas, TX 75228
email: erin@ebrooke.com
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Texas Department of Transportation

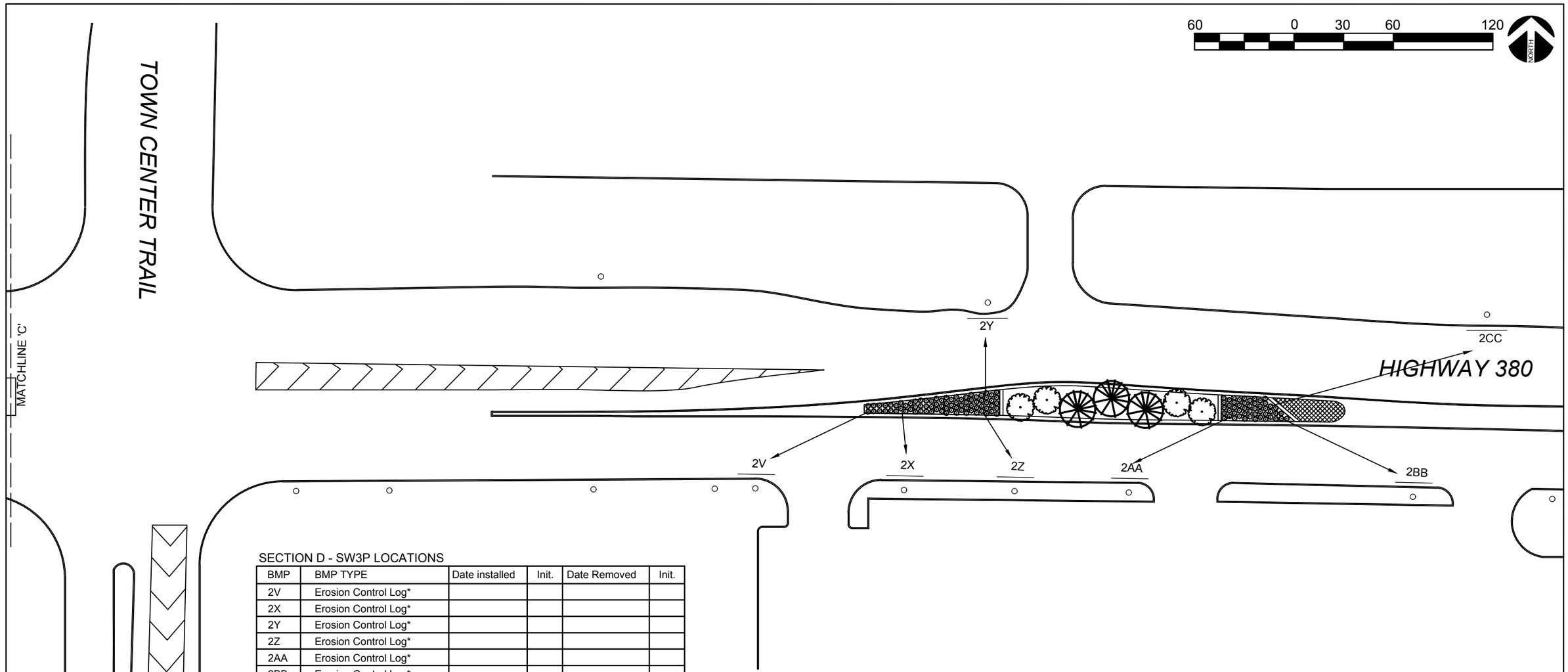
HWY 380

SW3P Layout

SEGMENT 2: Section C

SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	



SECTION D - SW3P LOCATIONS

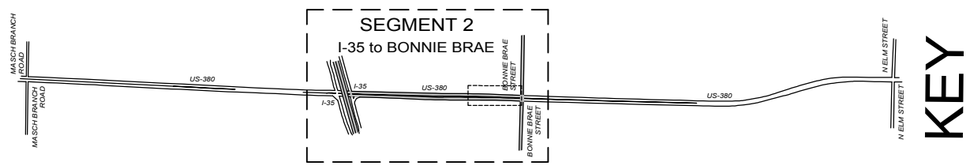
BMP	BMP TYPE	Date installed	Init.	Date Removed	Init.
2V	Erosion Control Log*				
2X	Erosion Control Log*				
2Y	Erosion Control Log*				
2Z	Erosion Control Log*				
2AA	Erosion Control Log*				
2BB	Erosion Control Log*				
2CC	Erosion Control Log*				

Legend

○	Existing storm drains
———	Erosion control log

Date Disturbed: _____

Date Stabilized: _____



CITY OF DENTON

EBA

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phone: 817-219-2665

HWY 380

SW3P Layout

SEGMENT 2: Section D

SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE

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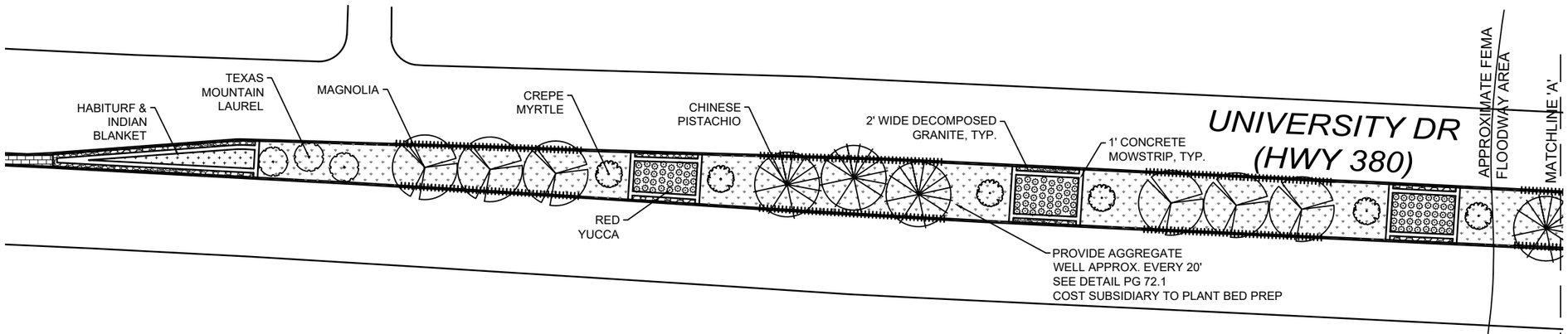
NORTH

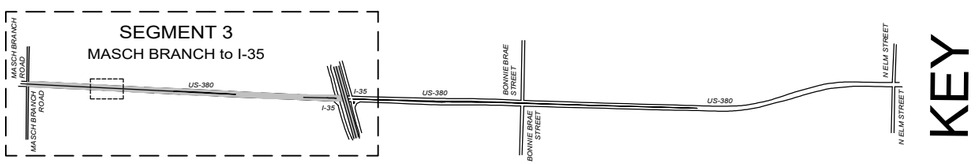


PLANT SCHEDULE & MATERIALS

SCIENTIFIC NAME	COMMON NAME	SIZE	QTY THIS PAGE
LAGERSTROEMIA INDICA 'NATCHEZ'*	CRAPE MYRTLE; NATCHEZ	3" CALIPER; B&B; SINGLE TRUNK	6
SOPHORA SECUNDIFLORA*	TEXAS MOUNTAIN LAUREL	2" AVG. CALIPER; B&B; MIN. 3 CANES	3
ACER X FREEMANII 'JEFFERSRED'	AUTUMN BLAZE RED MAPLE	3" CALIPER; BALLED AND BURLAPPED	0
MAGNOLIA GRANDIFLORA	BRACKENS BROWN; SOUTHERN MAGNOLIA	3" CALIPER; BALLED AND BURLAPPED	6
PISTACIA CHINENSIS	CHINESE PISTACHIO	3" CALIPER; BALLED AND BURLAPPED	4
CHILOPSIS LINEARIS*	DESERT WILLOW 'BUBBA'	2" AVG. CALIPER; B&B; MIN. 3 CANES	0
SHRUBS			
ERAGROSTIS CURVULA	WEEPING LOVE GRASS	1 GALLON	0
HESPERALOE PARVIFLORA	RED YUCCA	3 GALLON	111
YUCCA FILAMENTOSA	BRIGHT EDGE YUCCA	1 GALLON	0
MUHLENBERGIA CAPILLARIS	REGAL MIST MUHLY	1 GALLON	0
HABITURF; OVERSEED WITH GAILLARDIA	INDIAN BLANKET	SEED	387 SF
LUPINUS TEXENSIS	BLUEBONNET	WILDFLOWER SEED	0
GROUND COVER			
EXISTING TURF TO REMAIN			
DECOMPOSED GRANITE; RED		1/2" -1"; 2" DEPTH	4.64 CY

* PROVIDE 24" WIDE MULCH RING AROUND TRUNK

ROOT BARRIER; TO BE PROVIDED ALONG CURBS FOR A MINIMUM DISTANCE OF 10' ON EITHER SIDE OF TREES AS INDICATED ON PLANS. TO BE INSTALLED PER MANUFACTURER SPECS.



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REGISTERED LANDSCAPE ARCHITECT ERIN B. BISHOP 2952 STATE OF TEXAS

5-31-2019

HWY 380

LANDSCAPE

SEGMENT 3: Section A

SCALE: 1" = 60'-0"

DESIGN EBB	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
GRAPHICS EBB	6	(SEE TITLE SHEET)		380
CHECK EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE

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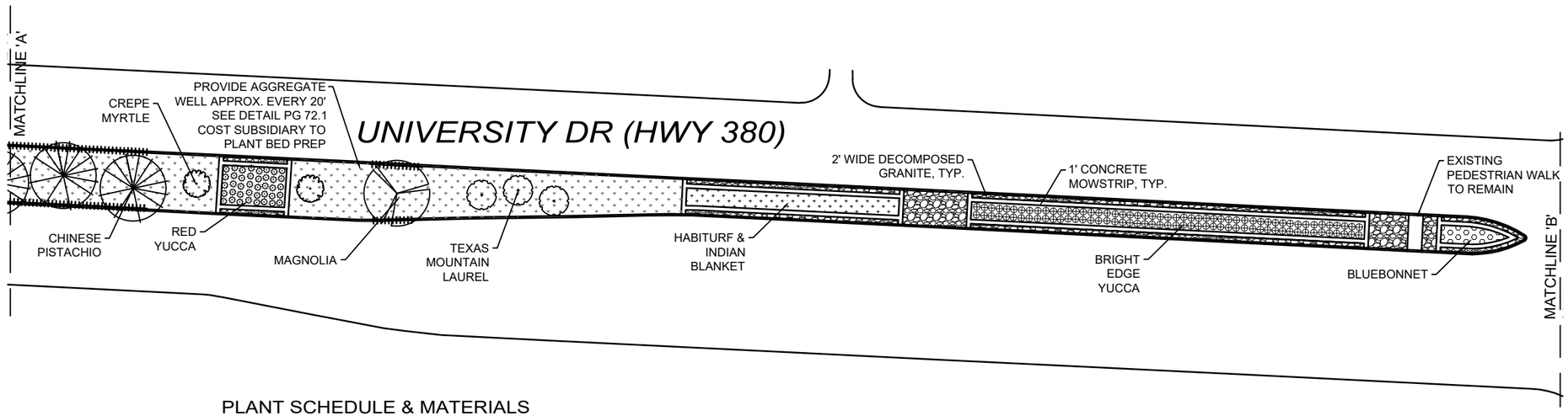
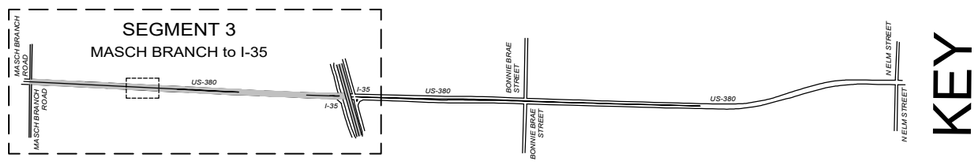
NORTH



PLANT SCHEDULE & MATERIALS

SCIENTIFIC NAME	COMMON NAME	SIZE	QTY THIS PAGE
LAGERSTROEMIA INDICA	CRAPE MYRTLE; NATCHEZ	3" CALIPER; B&B; SINGLE TRUNK	2
SOPHORA SECUNDIFLORA*	TEXAS MOUNTAIN LAUREL	2" CALIPER; B&B; MIN. 3 - 2" CAL CANES	3
ACER X FREEMANII 'JEFFERSRED'	AUTUMN BLAZE RED MAPLE	3" CALIPER; BALLED AND BURLAPPED	0
MAGNOLIA GRANDIFLORA	BRACKENS BROWN; SOUTHERN MAGNOLIA	3" CALIPER; BALLED AND BURLAPPED	1
PISTACIA CHINENSIS	CHINESE PISTACHIO	3" CALIPER; BALLED AND BURLAPPED	2
CHILOPSIS LINEARIS	DESERT WILLOW 'BUBBA'	2" CALIPER; B&B; MIN. 3 - 2" CAL CANES	0
SHRUBS			
ERAGROSTIS CURVULA	WEEPING LOVE GRASS	1 GALLON	0
HESPERALOE PARVIFLORA	RED YUCCA	3 GALLON	40
YUCCA FILAMENTOSA	BRIGHT EDGE YUCCA	1 GALLON	102
MUHLENBERGIA CAPILLARIS	REGAL MIST MUHLY	1 GALLON	0
GAILLARDIA	INDIAN BLANKET	SEED	824 SF
LUPINUS TEXENSIS	BLUEBONNET	WILDFLOWER SEED	212 SF
GROUND COVER			
EXISTING TURF TO REMAIN			
DECOMPOSED GRANITE		1/2" -1"; 2" DEPTH	14.23 CY

ROOT BARRIER; TO BE PROVIDED ALONG CURBS FOR A MINIMUM DISTANCE OF 10' ON EITHER SIDE OF TREES AS INDICATED ON PLANS. TO BE INSTALLED PER MANUFACTURER SPECS.



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REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS
5-31-2019

HWY 380

LANDSCAPE

SEGMENT 3: Section B

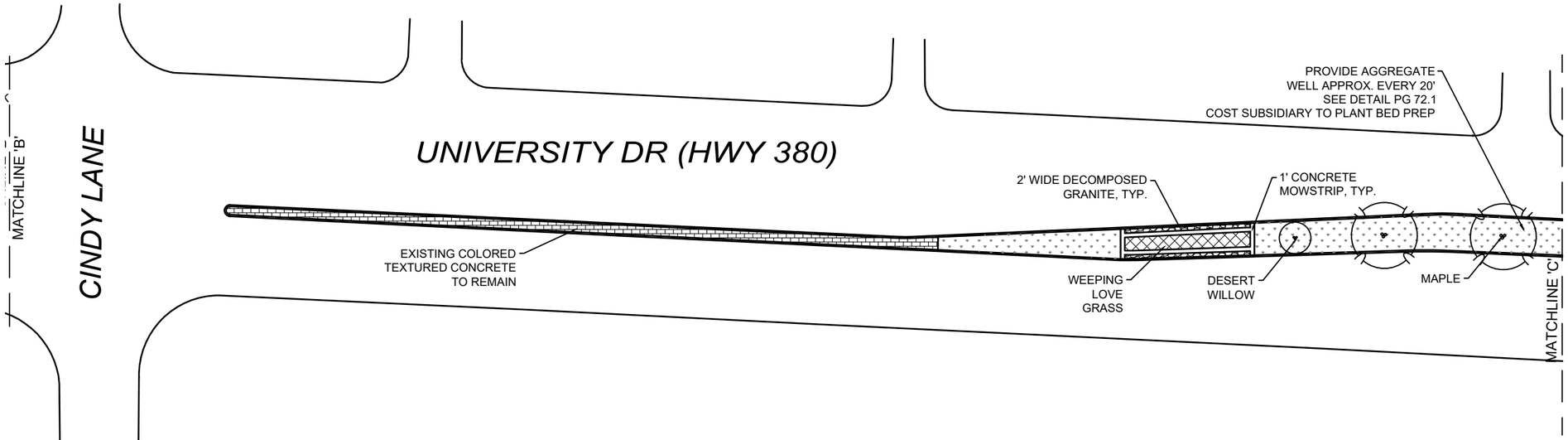
SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE

60 0 30 60 120

NORTH



PLANT SCHEDULE & MATERIALS

SCIENTIFIC NAME	COMMON NAME	SIZE	QTY THIS PAGE
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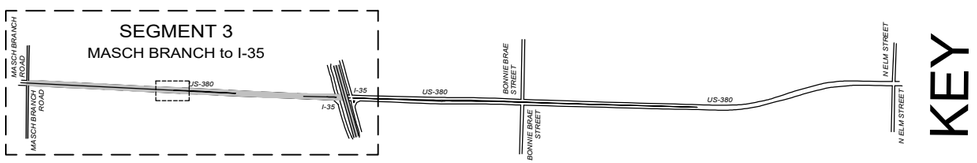
SOPHORA SECUNDIFLORA*	TEXAS MOUNTAIN LAUREL	2" AVG. CALIPER; B&B; MIN. 3 CANES	0
ACER X FREEMANII 'JEFFERSRED'	AUTUMN BLAZE RED MAPLE	3" CALIPER; BALLED AND BURLAPPED	2
MAGNOLIA GRANDIFLORA	BRACKENS BROWN; SOUTHERN MAGNOLIA	3" CALIPER; BALLED AND BURLAPPED	0
PISTACIA CHINENSIS	CHINESE PISTACHIO	3" CALIPER; BALLED AND BURLAPPED	0
CHILOPSIS LINEARIS*	DESERT WILLOW 'BUBBA'	2" AVG. CALIPER; B&B; MIN. 3 CANES	1
SHRUBS			
ERAGROSTIS CURVULA	WEEPING LOVE GRASS	1 GALLON	118 @ 24" SPACING
HESPERALOE PARVIFLORA	RED YUCCA	3 GALLON	0
YUCCA FILAMENTOSA	BRIGHT EDGE YUCCA	1 GALLON	0
MUHLENBERGIA CAPILLARIS	REGAL MIST MUHLY	1 GALLON	0
HABITURF; OVERSEED WITH GAILLARDIA	INDIAN BLANKET	SEED	0
LUPINUS TEXENSIS	BLUEBONNET	WILDFLOWER SEED	0
GROUND COVER			
EXISTING TURF TO REMAIN			
DECOMPOSED GRANITE; RED		½" -1"; 2" DEPTH	1.48 CY

* PROVIDE 24" WIDE MULCH RING AROUND TRUNK

ROOT BARRIER; TO BE PROVIDED ALONG CURBS FOR A MINIMUM DISTANCE OF 10' ON EITHER SIDE OF TREES AS INDICATED ON PLANS. TO BE INSTALLED PER MANUFACTURER SPECS.



NORTH

DATE

REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS
5-31-2019

CITY OF DENTON

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email: erin@ebrooke.com
phone: 817-219-2665

HWY 380

LANDSCAPE

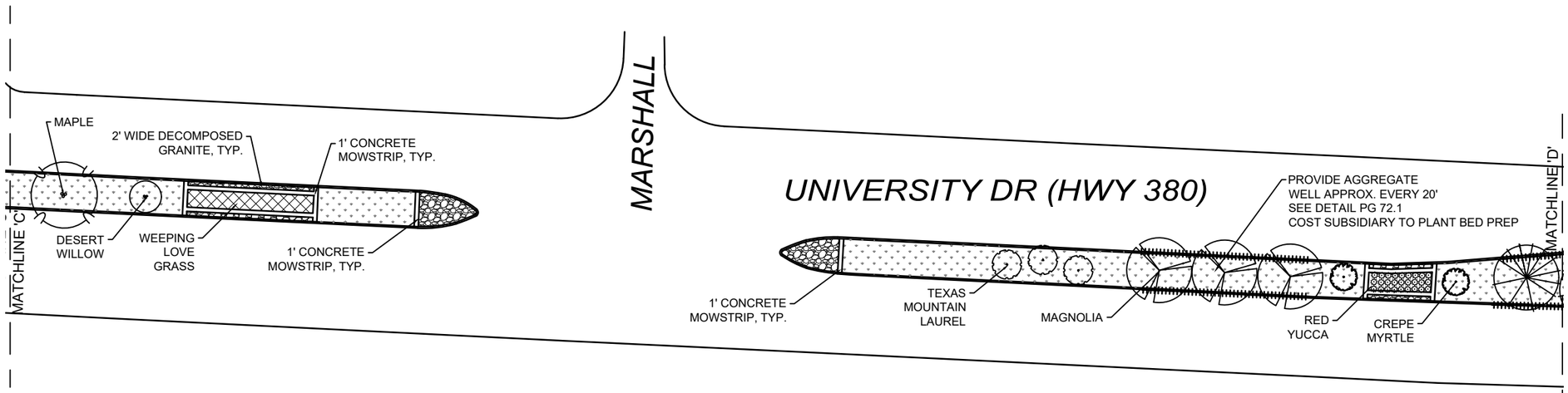
SEGMENT 3: Section C

SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

60 0 30 60 120

NORTH

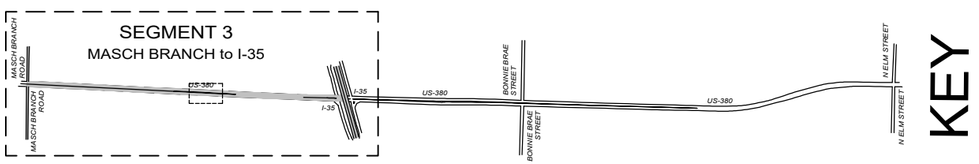


PLANT SCHEDULE & MATERIALS

SCIENTIFIC NAME	COMMON NAME	SIZE	QTY THIS PAGE
LAGERSTROEMIA INDICA 'NATCHEZ'*	CRAPE MYRTLE; NATCHEZ	3" CALIPER; B&B; SINGLE TRUNK	2
SOPHORA SECUNDIFLORA*	TEXAS MOUNTAIN LAUREL	2" AVG. CALIPER; B&B; MIN. 3 CANES	3
ACER X FREEMANII 'JEFFERSRED'	AUTUMN BLAZE RED MAPLE	3" CALIPER; BALLED AND BURLAPPED	1
MAGNOLIA GRANDIFLORA	BRACKENS BROWN; SOUTHERN MAGNOLIA	3" CALIPER; BALLED AND BURLAPPED	3
PISTACIA CHINENSIS	CHINESE PISTACHIO	3" CALIPER; BALLED AND BURLAPPED	1
CHILOPSIS LINEARIS*	DESERT WILLOW 'BUBBA'	2" AVG. CALIPER; B&B; MIN. 3 CANES	1
SHRUBS			
ERAGROSTIS CURVULA	WEEPING LOVE GRASS	1 GALLON	145 @ 24" SPACING
HESPERALOE PARVIFLORA	RED YUCCA	3 GALLON	27
YUCCA FILAMENTOSA	BRIGHT EDGE YUCCA	1 GALLON	0
MUHLENBERGIA CAPILLARIS	REGAL MIST MUHLY	1 GALLON	0
HABITURF; OVERSEED WITH GAILLARDIA	INDIAN BLANKET	SEED	0
LUPINUS TEXENSIS	BLUEBONNET	WILDFLOWER SEED	0
GROUND COVER			
EXISTING TURF TO REMAIN			
DECOMPOSED GRANITE; RED		½" -1"; 2" DEPTH	6.10 CY

* PROVIDE 24" WIDE MULCH RING AROUND TRUNK

ROOT BARRIER; TO BE PROVIDED ALONG CURBS FOR A MINIMUM DISTANCE OF 10' ON EITHER SIDE OF TREES AS INDICATED ON PLANS. TO BE INSTALLED PER MANUFACTURER SPECS.



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REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS

5-31-2019

HWY 380

LANDSCAPE

SEGMENT 3: Section D

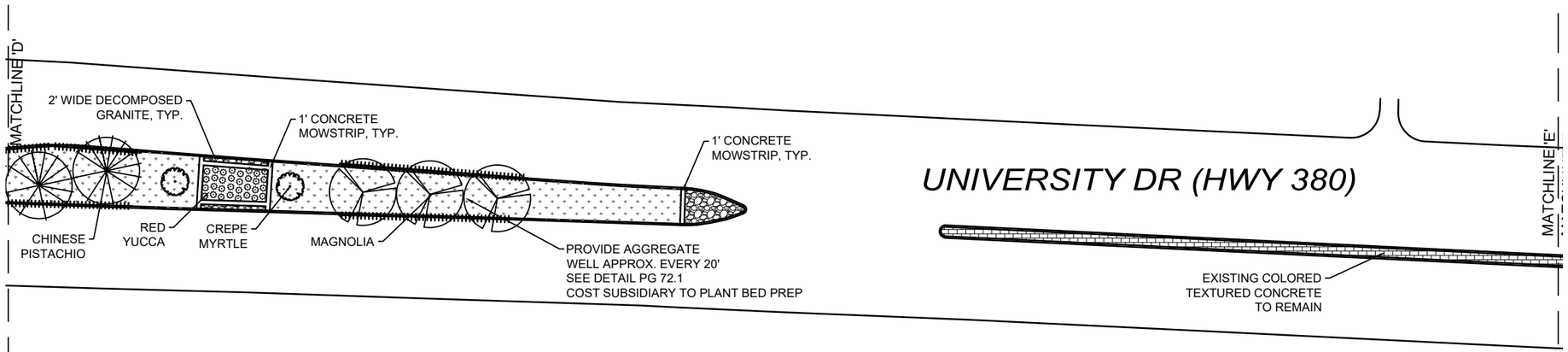
SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE

60 0 30 60 120

NORTH

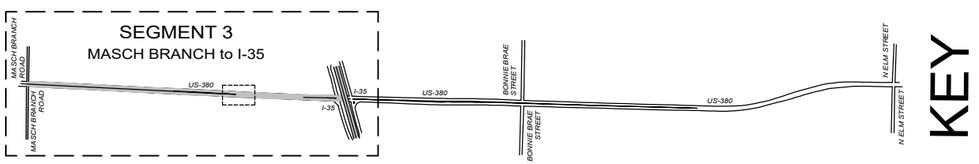


PLANT SCHEDULE & MATERIALS

SCIENTIFIC NAME	COMMON NAME	SIZE	QTY THIS PAGE
LAGERSTROEMIA INDICA 'NATCHEZ'*	CRAPE MYRTLE; NATCHEZ	3" CALIPER; B&B; SINGLE TRUNK	2
SOPHORA SECUNDIFLORA*	TEXAS MOUNTAIN LAUREL	2" AVG. CALIPER; B&B; MIN. 3 CANES	0
ACER X FREEMANII 'JEFFERSRED'	AUTUMN BLAZE RED MAPLE	3" CALIPER; BALLED AND BURLAPPED	0
MAGNOLIA GRANDIFLORA	BRACKENS BROWN; SOUTHERN MAGNOLIA	3" CALIPER; BALLED AND BURLAPPED	3
PISTACIA CHINENSIS	CHINESE PISTACHIO	3" CALIPER; BALLED AND BURLAPPED	2
CHILOPSIS LINEARIS*	DESERT WILLOW 'BUBBA'	2" AVG. CALIPER; B&B; MIN. 3 CANES	0
SHRUBS			
ERAGROSTIS CURVULA	WEEPING LOVE GRASS	1 GALLON	0
HESPERALOE PARVIFLORA	RED YUCCA	3 GALLON	32
YUCCA FILAMENTOSA	BRIGHT EDGE YUCCA	1 GALLON	0
MUHLENBERGIA CAPILLARIS	REGAL MIST MUHLY	1 GALLON	0
HABITURF; OVERSEED WITH GAILLARDIA	INDIAN BLANKET	SEED	0
LUPINUS TEXENSIS	BLUEBONNET	WILDFLOWER SEED	0
GROUND COVER			
EXISTING TURF TO REMAIN			
DECOMPOSED GRANITE; RED		½" -1"; 2" DEPTH	2.59 CY

* PROVIDE 24" WIDE MULCH RING AROUND TRUNK

ROOT BARRIER; TO BE PROVIDED ALONG CURBS FOR A MINIMUM DISTANCE OF 10' ON EITHER SIDE OF TREES AS INDICATED ON PLANS. TO BE INSTALLED PER MANUFACTURER SPECS.



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REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS
5-31-2019

HWY 380
LANDSCAPE
SEGMENT 3: Section E

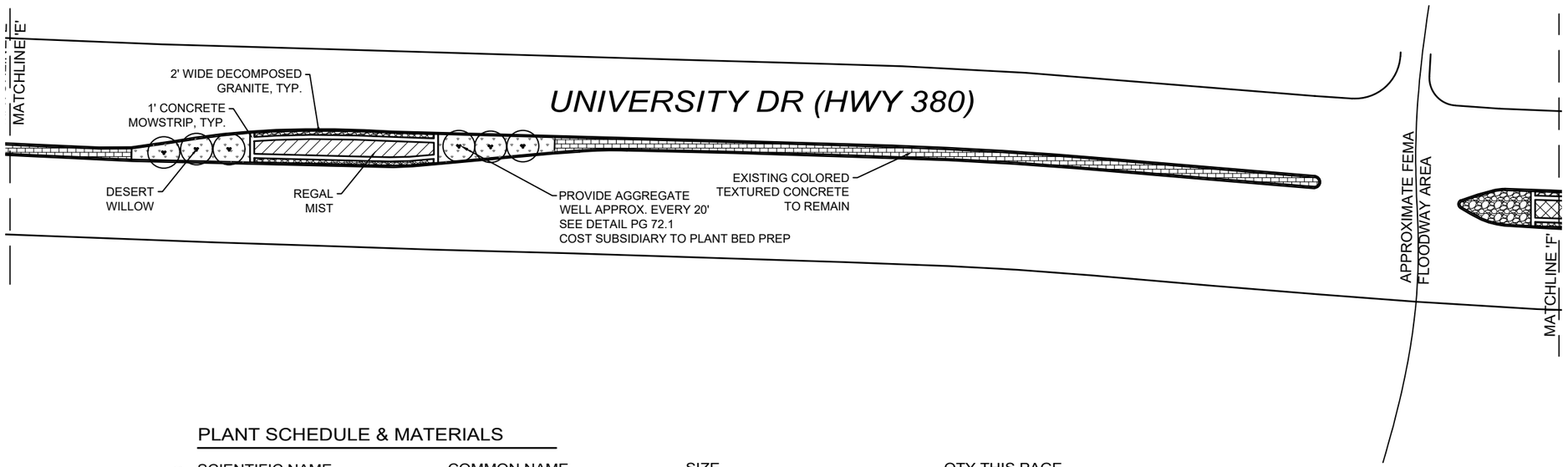
SCALE: 1" = 60'-0"

DESIGN EBB	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
GRAPHICS EBB	6	(SEE TITLE SHEET)		380
CHECK EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE

60 0 30 60 120

NORTH

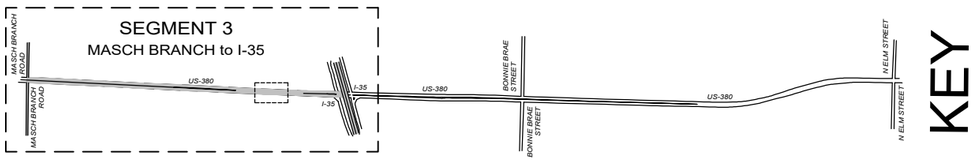


PLANT SCHEDULE & MATERIALS

SCIENTIFIC NAME	COMMON NAME	SIZE	QTY THIS PAGE
LAGERSTROEMIA INDICA 'NATCHEZ'*	CRAPE MYRTLE; NATCHEZ	3" CALIPER; B&B; SINGLE TRUNK	0
SOPHORA SECUNDIFLORA*	TEXAS MOUNTAIN LAUREL	2" AVG. CALIPER; B&B; MIN. 3 CANES	0
ACER X FREEMANII 'JEFFERSRED'	AUTUMN BLAZE RED MAPLE	3" CALIPER; BALLED AND BURLAPPED	0
MAGNOLIA GRANDIFLORA	BRACKENS BROWN; SOUTHERN MAGNOLIA	3" CALIPER; BALLED AND BURLAPPED	0
PISTACIA CHINENSIS	CHINESE PISTACHIO	3" CALIPER; BALLED AND BURLAPPED	0
CHILOPSIS LINEARIS*	DESERT WILLOW 'BUBBA'	2" AVG. CALIPER; B&B; MIN. 3 CANES	6
SHRUBS			
ERAGROSTIS CURVULA	WEEPING LOVE GRASS	1 GALLON	27 @ 24" SPACING
HESPERALOE PARVIFLORA	RED YUCCA	3 GALLON	0
YUCCA FILAMENTOSA	BRIGHT EDGE YUCCA	1 GALLON	0
MUHLENBERGIA CAPILLARIS	REGAL MIST MUHLY	1 GALLON	114 @ 30" SPACING
HABITURF; OVERSEED WITH GAILLARDIA	INDIAN BLANKET	SEED	0
LUPINUS TEXENSIS	BLUEBONNET	WILDFLOWER SEED	0
GROUND COVER			
EXISTING TURF TO REMAIN			
DECOMPOSED GRANITE; RED		$\frac{1}{2}$" -1"; 2" DEPTH	5.01 CY

* PROVIDE 24" WIDE MULCH RING AROUND TRUNK

ROOT BARRIER; TO BE PROVIDED ALONG CURBS FOR A MINIMUM DISTANCE OF 10' ON EITHER SIDE OF TREES AS INDICATED ON PLANS. TO BE INSTALLED PER MANUFACTURER SPECS.



CITY OF DENTON

EBA

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HWY 380

LANDSCAPE

SEGMENT 3: Section F

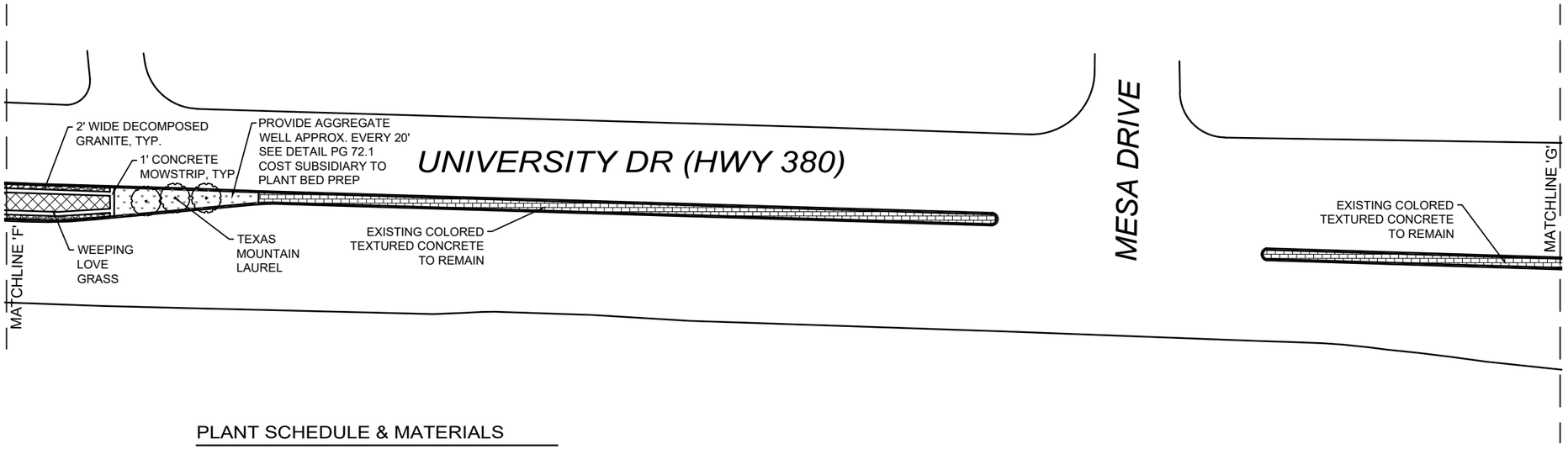
SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE

60 0 30 60 120

NORTH

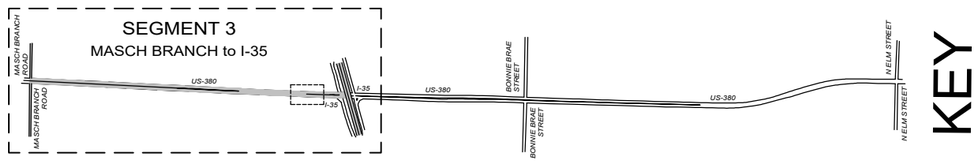


PLANT SCHEDULE & MATERIALS

SCIENTIFIC NAME	COMMON NAME	SIZE	QTY THIS PAGE
LAGERSTROEMIA INDICA 'NATCHEZ'*	CRAPE MYRTLE; NATCHEZ	3" CALIPER; B&B; SINGLE TRUNK	0
SOPHORA SECUNDIFLORA*	TEXAS MOUNTAIN LAUREL	2" AVG. CALIPER; B&B; MIN. 3 CANES	3
ACER X FREEMANII 'JEFFERSRED'	AUTUMN BLAZE RED MAPLE	3" CALIPER; BALLED AND BURLAPPED	0
MAGNOLIA GRANDIFLORA	BRACKENS BROWN; SOUTHERN MAGNOLIA	3" CALIPER; BALLED AND BURLAPPED	0
PISTACIA CHINENSIS	CHINESE PISTACHIO	3" CALIPER; BALLED AND BURLAPPED	0
CHILOPSIS LINEARIS*	DESERT WILLOW 'BUBBA'	2" AVG. CALIPER; B&B; MIN. 3 CANES	0
SHRUBS			
ERAGROSTIS CURVULA	WEEPING LOVE GRASS	1 GALLON	109 @ 24" SPACING
HESPERALOE PARVIFLORA	RED YUCCA	3 GALLON	0
YUCCA FILAMENTOSA	BRIGHT EDGE YUCCA	1 GALLON	0
MUHLENBERGIA CAPILLARIS	REGAL MIST MUHLY	1 GALLON	0
HABITURF; OVERSEED WITH GAILLARDIA	INDIAN BLANKET	SEED	0
LUPINUS TEXENSIS	BLUEBONNET	WILDFLOWER SEED	0
GROUND COVER			
EXISTING TURF TO REMAIN			
DECOMPOSED GRANITE; RED		1/2" -1"; 2" DEPTH	1.7 CY

* PROVIDE 24" WIDE MULCH RING AROUND TRUNK

ROOT BARRIER; TO BE PROVIDED ALONG CURBS FOR A MINIMUM DISTANCE OF 10' ON EITHER SIDE OF TREES AS INDICATED ON PLANS. TO BE INSTALLED PER MANUFACTURER SPECS.



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REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS

5-31-2019

HWY 380

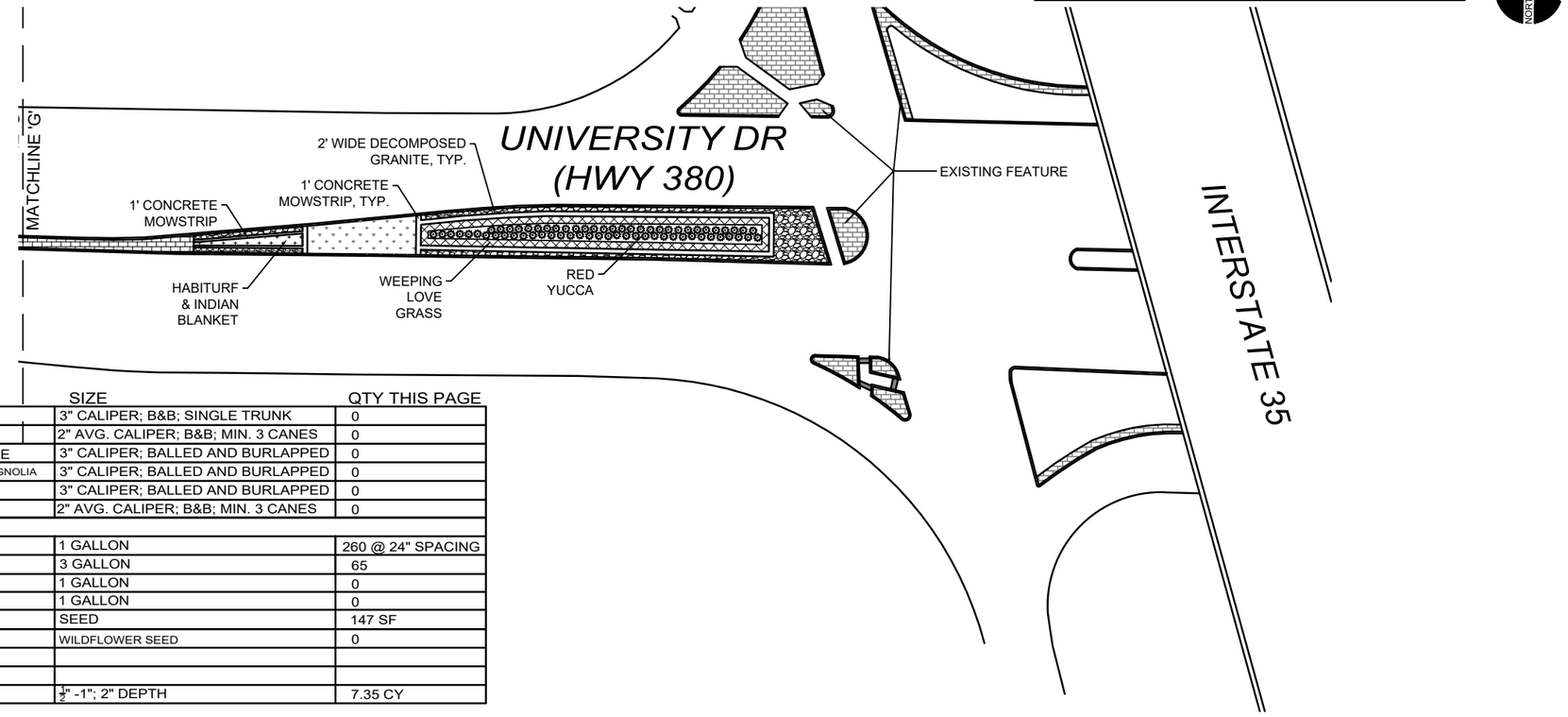
LANDSCAPE

SEGMENT 3: Section G

SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE



PLANT SCHEDULE & MATERIALS

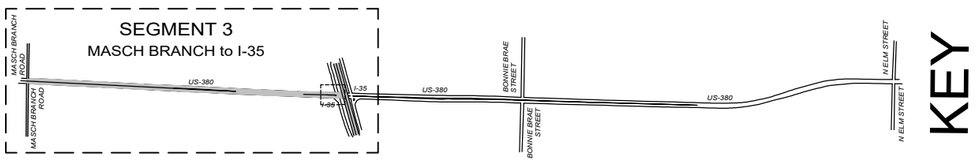
SCIENTIFIC NAME	COMMON NAME	SIZE	QTY THIS PAGE
LAGERSTROEMIA INDICA 'NATCHEZ'*	CRAPE MYRTLE; NATCHEZ	3" CALIPER; B&B; SINGLE TRUNK	0
SOPHORA SECUNDIFLORA*	TEXAS MOUNTAIN LAUREL	2" AVG. CALIPER; B&B; MIN. 3 CANES	0
ACER X FREEMANII 'JEFFERSRED'	AUTUMN BLAZE RED MAPLE	3" CALIPER; BALLED AND BURLAPPED	0
MAGNOLIA GRANDIFLORA	BRACKENS BROWN; SOUTHERN MAGNOLIA	3" CALIPER; BALLED AND BURLAPPED	0
PISTACIA CHINENSIS	CHINESE PISTACHIO	3" CALIPER; BALLED AND BURLAPPED	0
CHILOPSIS LINEARIS*	DESERT WILLOW 'BUBBA'	2" AVG. CALIPER; B&B; MIN. 3 CANES	0
SHRUBS			
ERAGROSTIS CURVULA	WEEPING LOVE GRASS	1 GALLON	260 @ 24" SPACING
HESPERALOE PARVIFLORA	RED YUCCA	3 GALLON	65
YUCCA FILAMENTOSA	BRIGHT EDGE YUCCA	1 GALLON	0
MUHLENBERGIA CAPILLARIS	REGAL MIST MUHLY	1 GALLON	0
HABITURF; OVERSEED WITH GAILLARDIA	INDIAN BLANKET	SEED	147 SF
LUPINUS TEXENSIS	BLUEBONNET	WILDFLOWER SEED	0
GROUND COVER			
EXISTING TURF TO REMAIN			
DECOMPOSED GRANITE; RED		1/2" -1"; 2" DEPTH	7.35 CY

* PROVIDE 24" WIDE MULCH RING AROUND TRUNK

SEGMENT 3 - OVERALL PLANT SCHEDULE & MATERIALS

SCIENTIFIC NAME	COMMON NAME	SIZE	OVERALL QTY.
LAGERSTROEMIA INDICA 'NATCHEZ'*	CRAPE MYRTLE; NATCHEZ	3" CALIPER; B&B; SINGLE TRUNK	12
SOPHORA SECUNDIFLORA*	TEXAS MOUNTAIN LAUREL	2" AVG. CALIPER; B&B; MIN. 3 CANES	12
ACER X FREEMANII 'JEFFERSRED'	AUTUMN BLAZE RED MAPLE	3" CALIPER; BALLED AND BURLAPPED	3
MAGNOLIA GRANDIFLORA	BRACKENS BROWN; SOUTHERN MAGNOLIA	3" CALIPER; BALLED AND BURLAPPED	13
PISTACIA CHINENSIS	CHINESE PISTACHIO	3" CALIPER; BALLED AND BURLAPPED	9
CHILOPSIS LINEARIS*	DESERT WILLOW 'BUBBA'	2" AVG. CALIPER; B&B; MIN. 3 CANES	8
SHRUBS			
ERAGROSTIS CURVULA	WEEPING LOVE GRASS	1 GALLON	659
HESPERALOE PARVIFLORA	RED YUCCA	3 GALLON	275
YUCCA FILAMENTOSA	BRIGHT EDGE YUCCA	1 GALLON	102
MUHLENBERGIA CAPILLARIS	REGAL MIST MUHLY	1 GALLON	114
HABITURF; OVERSEED WITH GAILLARDIA	INDIAN BLANKET	SEED	1358
LUPINUS TEXENSIS	BLUEBONNET	WILDFLOWER SEED	212
GROUND COVER			
EXISTING TURF TO REMAIN			
DECOMPOSED GRANITE; RED		1/2" -1"; 2" DEPTH	43.1 CUBIC YARDS

ROOT BARRIER; TO BE PROVIDED ALONG CURBS FOR A MINIMUM DISTANCE OF 10' ON EITHER SIDE OF TREES AS INDICATED ON PLANS. TO BE INSTALLED PER MANUFACTURER SPECS. COST SUBSIDIARY TO TREE COST.



5-31-2019

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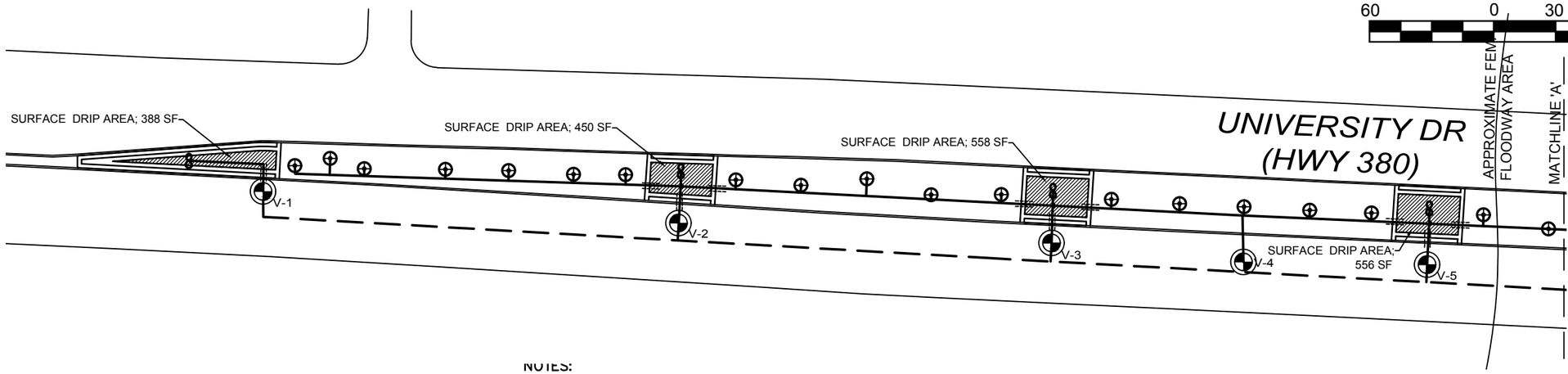
HWY 380
LANDSCAPE
SEGMENT 3: Section H

SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE



IRRIGATION LEGEND

- (S) AC — IRRInet–M AC 24/4 UHF RADIO SOLAR PEDESTAL ITEM# IS–R10–RU–SO. FREEZE AND RAIN SENSOR TO BE INSTALLED FOR EACH CONTROLLER WITH CONCRETE PAD.
- M — EXISTING 2" METER. POINT OF CONNECTION. CONTRACTOR SHALL VERIFY STATIC WATER PRESSURE AND FLOW AT THE METER AND CONTACT IRRIGATION DESIGNER FOR APPROVAL, PRIOR TO THE START OF WORK.
- △ — 2" WILKINS RPZ 375 XL 115 REDUCED PRESSURE BACKFLOW ASSEMBLY; LEAD FREE. DEKORA BACKFLOW ENCLOSURE 302–BG–C3 WITH CONCRETE PAD AND INSULATED POUCH 603GN.
- ⊕ — 2" MASTER VALVE RAINBIRD 200 PEB. CONTRACTOR TO PULL 2 WIRES FOR MASTER VALVE AND 2 WIRES FOR FLOW METER. TO BE INSTALLED WITHIN A JUMBO RECTANGLE 21X15X13 VALVE BOX WITH NETAFILM 2"FLOW METER.
- 8 — CLEAN OUT POINT
- ⧗ — MAIN LINE ISOLATION VALVE, SPEARS HEAVY DUTY TRUE UNION TU–2000 BALL VALVE. TO BE INSTALLED IN SAME STANDARD VALVE BOX AS THE ZONE VALVES.
- ⊕ — 1" ZONE VALVE – RAINBIRD XCZ 100 PRB–LC.03–20GAL CONTROL VALVE; ALL WIRING MUST BE RATED FOR DIRECT BURIAL. TO BE INSTALLED WITHIN A STANDARD RECTANGLE 17X12X12 VALVE BOX.
- QC — 1" QUICK COUPLER VALVE
- ⊕ — TREE BUBBLER; RAINBIRD 4" HEAD 1804–SAM–PRS WITH HUNTER PCN–50
- SURFACE DRIP; RAINBIRD XFCV; 18 INCH EMITTER SPACING WITH .06 FLOW RATE (XFCV–06–12); INCLUDE RAINBIRD PRESSURE INDICATOR FLAGS; TO BE INSTALLED AS INSTRUCTED BY CITY STAFF; INSTALL ABOVE SOIL, STAPLE WITH U–SHAPED STAPLES, 2" MULCH TO COVER DRIPLINE
- 2" MAINLINE; JM EAGLE SDR 11 RATED TO 200 PSI WITH BUTT FUSIONS. MINIMUM ROLL LENGTHS OF 500'
- ADS POLYFLEX UTILITY GRADE OR SCHEDULE 40 3/4". STUB OUTS FROM LATERAL LINES TO TREES SHALL BE FLEX PIPE AS DESIGNATED BY THE CITY; STUB OUTS ARE 1/2". 6" MIN. DEPTH OF BURY.
- 4" HDPE ROLL PIPE CONDUIT ENDING WITH NO GREATER THAN A SWEEPING ANGLE OF 45° CURVE SO THAT MAIN LINE CAN BE PUSHED THROUGH; ALL BORES AND SLEEVING TO BE PROVIDED BY CONTRACTOR.

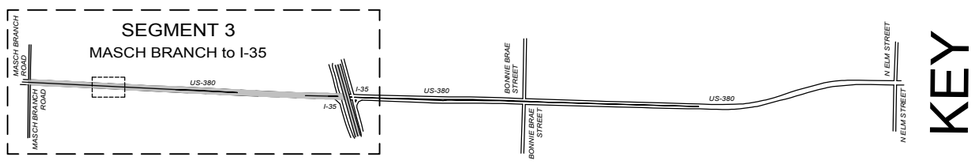
NOTES:

1. ALL IRRIGATION LINES TO BE PLACED WITHIN PLANTER BEDS EXCEPT FOR SLEEVE LOCATIONS INDICATED ON PLANS. LINES SHOWN ACROSS PAVEMENT ARE DIAGRAMMATIC AND FOR LEGIBILITY PURPOSES ONLY. VALVES TO BE LOCATED IN PLANTING BEDS.
2. ALL IRRIGATION LINES TO BE BURIED A MINIMUM OF 6" BELOW GRADE.
3. IRRIGATION DRAWINGS BASED OFF 60 PSI. CONTRACTOR TO CONFIRM PROVIDED PSI ON–SITE BEFORE CONSTRUCTION.
4. CONTRACTOR TO HAVE ALL LOCATIONS OF THE CONTROLLER AND VALVES TO BE FLAGGED AND APPROVED BY CITY STAFF BEFORE INSTALLATION.
5. CONTRACTOR TO PROVIDE CUT SHEETS FOR ALL IRRIGATION MATERIALS APPROVED BY CITY STAFF BEFORE CONSTRUCTION/INSTALLATION.
6. THIS IRRIGATION PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL LAWS, ORDINANCES, RULES, REGULATIONS, OR ORDERS.
7. THE CITY OF DENTON DOES NOT ALLOW DOUBLE CHECK AS A BACKFLOW DEVICE.
8. THE STATE OF TEXAS STATUTE 344.62(B) PROHIBITS IRRIGATION SPRAY HEADS IN PARKWAYS LESS THAN 48" WIDE.
9. STATIC PRESSURE: 60PSI; DESIGN PRESSURE: 40PSI
10. PLACE SLEEVES UNDER ANY NEW MOWSTRIPS BEFORE INSTALLATION OF THE MOWSTRIP.

METER 1

VALVE No	V–1	V–2	V–3	V–4	V–5	V–6	V–7	V–8	V–9	V–10
VALVE SIZE	1"	1"	1"	1"	1"	1"	1"	1"	1"	1"
GPM	1.17	2.0	2.48	13.5	2.47	2.48	3.69	6.89	0.95	1.81
TYPE	DRIP	DRIP	DRIP	BUBBLER	DRIP	DRIP	DRIP	DRIP	DRIP	DRIP
OUTLET	XFS–09–12	XFS–09–12	XFS–09–12	1804–SAM–PR	XFS–09–12	XFS–09–12	XFS–09–12	XFS–09–12	XFS–09–12	XFS–09–12
PRECIP. RATE	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN
RUN TIME	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.

V–11	V–12	V–13	V–14	V–15	V–16	V–17	V–18	V–19	V–20	V–21
1"	1"	1"	1"	1"	1"	1"	1"	1"	1"	1"
5.0	2.24	1.17	16.0	2.05	6.0	2.74	2.12	3.0	0.66	8.32
BUBBLER	DRIP	DRIP	BUBBLER	DRIP	BUBBLER	DRIP	DRIP	BUBBLER	DRIP	DRIP
1804–SAM–PR	XFS–09–12	XFS–09–12	1804–SAM–PR	XFS–09–12	1804–SAM–PR	XFS–09–12	XFS–09–12	1804–SAM–PR	XFS–09–12	XFS–09–12
0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN
35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.



REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS
5-31-2019

CITY OF DENTON

EBA
E. Brooke Associates, LLC
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HWY 380

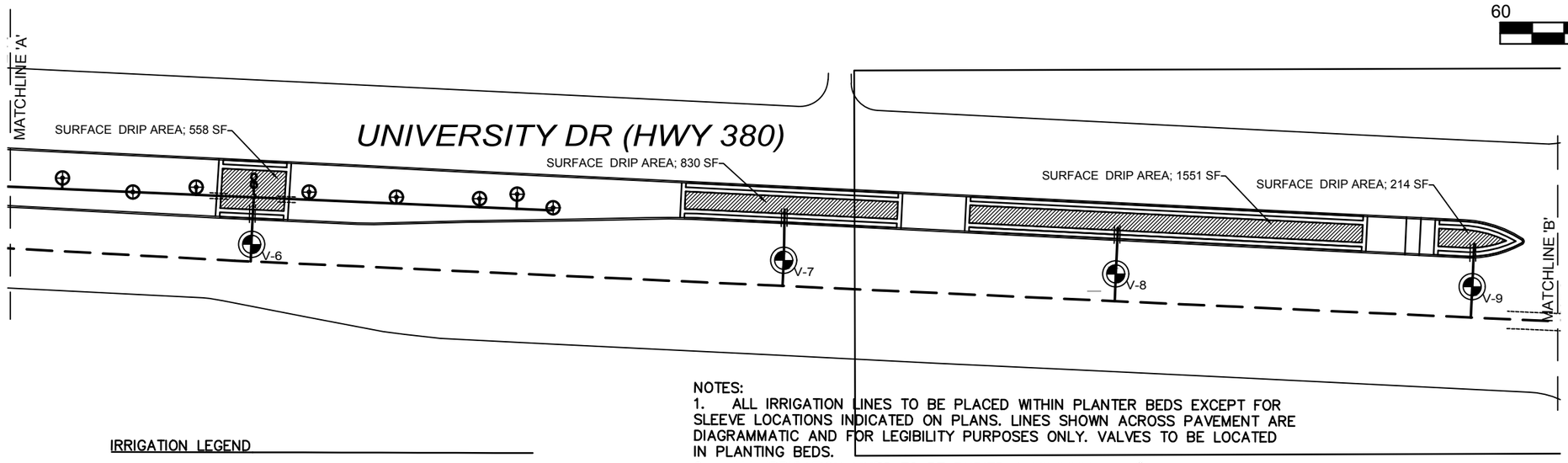
IRRIGATION

SEGMENT 3: Section A

SCALE: 1" = 60'–0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE



60 0 30 60 120

NORTH

IRRIGATION LEGEND

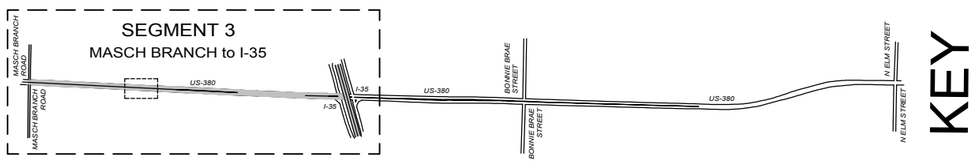
- (S) AC — IRRInet–M AC 24/4 UHF RADIO SOLAR PEDESTAL ITEM# IS–R10–RU–SO. FREEZE AND RAIN SENSOR TO BE INSTALLED FOR EACH CONTROLLER WITH CONCRETE PAD.
- M — EXISTING 2" METER. POINT OF CONNECTION. CONTRACTOR SHALL VERIFY STATIC WATER PRESSURE AND FLOW AT THE METER AND CONTACT IRRIGATION DESIGNER FOR APPROVAL, PRIOR TO THE START OF WORK.
- △ — 2" WILKINS RPZ 375 XL 115 REDUCED PRESSURE BACKFLOW ASSEMBLY; LEAD FREE. DEKORA BACKFLOW ENCLOSURE 302–BG–C3 WITH CONCRETE PAD AND INSULATED POUCH 603GN.
- ⊕ — 2" MASTER VALVE RAINBIRD 200 PEB. CONTRACTOR TO PULL 2 WIRES FOR MASTER VALVE AND 2 WIRES FOR FLOW METER. TO BE INSTALLED WITHIN A JUMBO RECTANGLE 21X15X13 VALVE BOX WITH NETAFILM 2"FLOW METER.
- 8 — CLEAN OUT POINT
- ⧗ — MAIN LINE ISOLATION VALVE, SPEARS HEAVY DUTY TRUE UNION TU–2000 BALL VALVE. TO BE INSTALLED IN SAME STANDARD VALVE BOX AS THE ZONE VALVES.
- ⊕ — 1" ZONE VALVE – RAINBIRD XCZ 100 PRB–LC.03–20GAL CONTROL VALVE; ALL WIRING MUST BE RATED FOR DIRECT BURIAL. TO BE INSTALLED WITHIN A STANDARD RECTANGLE 17X12X12 VALVE BOX.
- QC — 1" QUICK COUPLER VALVE
- ⊕ — TREE BUBBLER; RAINBIRD 4" HEAD 1804–SAM–PRS WITH HUNTER PCN–50
- ▤ — SURFACE DRIP; RAINBIRD XFCV; 18 INCH EMITTER SPACING WITH .06 FLOW RATE (XFCV–06–12); INCLUDE RAINBIRD PRESSURE INDICATOR FLAGS; TO BE INSTALLED AS INSTRUCTED BY CITY STAFF; INSTALL ABOVE SOIL, STAPLE WITH U–SHAPED STAPLES, 2" MULCH TO COVER DRIPLINE
- – – – — 2" MAINLINE; JM EAGLE SDR 11 RATED TO 200 PSI WITH BUTT FUSIONS. MINIMUM ROLL LENGTHS OF 500'
- ——— — ADS POLYFLEX UTILITY GRADE OR SCHEDULE 40 3/4". STUB OUTS FROM LATERAL LINES TO TREES SHALL BE FLEX PIPE AS DESIGNATED BY THE CITY; STUB OUTS ARE 1/2". 6" MIN. DEPTH OF BURY.
- = = = — 4" HDPE ROLL PIPE CONDUIT ENDING WITH NO GREATER THAN A SWEEPING ANGLE OF 45° CURVE SO THAT MAIN LINE CAN BE PUSHED THROUGH; ALL BORES AND SLEEVING TO BE PROVIDED BY CONTRACTOR.

NOTES:
1. ALL IRRIGATION LINES TO BE PLACED WITHIN PLANTER BEDS EXCEPT FOR SLEEVE LOCATIONS INDICATED ON PLANS. LINES SHOWN ACROSS PAVEMENT ARE DIAGRAMMATIC AND FOR LEGIBILITY PURPOSES ONLY. VALVES TO BE LOCATED IN PLANTING BEDS.
2. ALL IRRIGATION LINES TO BE BURIED A MINIMUM OF 6" BELOW GRADE.
3. IRRIGATION DRAWINGS BASED OFF 60 PSI. CONTRACTOR TO CONFIRM PROVIDED PSI ON–SITE BEFORE CONSTRUCTION.
4. CONTRACTOR TO HAVE ALL LOCATIONS OF THE CONTROLLER AND VALVES TO BE FLAGGED AND APPROVED BY CITY STAFF BEFORE INSTALLATION.
5. CONTRACTOR TO PROVIDE CUT SHEETS FOR ALL IRRIGATION MATERIALS APPROVED BY CITY STAFF BEFORE CONSTRUCTION/INSTALLATION.
6. THIS IRRIGATION PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL LAWS, ORDINANCES, RULES, REGULATIONS, OR ORDERS.
7. THE CITY OF DENTON DOES NOT ALLOW DOUBLE CHECK AS A BACKFLOW DEVICE.
8. THE STATE OF TEXAS STATUTE 344.62(B) PROHIBITS IRRIGATION SPRAY HEADS IN PARKWAYS LESS THAN 48" WIDE.
9. STATIC PRESSURE: 60PSI; DESIGN PRESSURE: 40PSI
10. PLACE SLEEVES UNDER ANY NEW MOWSTRIPS BEFORE INSTALLATION OF THE MOWSTRIP.

METER 1

VALVE No	V–1	V–2	V–3	V–4	V–5	V–6	V–7	V–8	V–9	V–10
VALVE SIZE	1"	1"	1"	1"	1"	1"	1"	1"	1"	1"
GPM	1.17	2.0	2.48	13.5	2.47	2.48	3.69	6.89	0.95	1.81
TYPE	DRIP	DRIP	DRIP	BUBBLER	DRIP	DRIP	DRIP	DRIP	DRIP	DRIP
OUTLET	XFS–09–12	XFS–09–12	XFS–09–12	1804–SAM–PR	XFS–09–12	XFS–09–12	XFS–09–12	XFS–09–12	XFS–09–12	XFS–09–12
PRECIP. RATE	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN
RUN TIME	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.

V–11	V–12	V–13	V–14	V–15	V–16	V–17	V–18	V–19	V–20	V–21
1"	1"	1"	1"	1"	1"	1"	1"	1"	1"	1"
5.0	2.24	1.17	16.0	2.05	6.0	2.74	2.12	3.0	0.66	8.32
BUBBLER	DRIP	DRIP	BUBBLER	DRIP	BUBBLER	DRIP	DRIP	BUBBLER	DRIP	DRIP
1804–SAM–PR	XFS–09–12	XFS–09–12	1804–SAM–PR	XFS–09–12	1804–SAM–PR	XFS–09–12	XFS–09–12	1804–SAM–PR	XFS–09–12	XFS–09–12
0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN
35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.



REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS

5-31-2019

CITY OF DENTON

E. Brooke Associates, LLC
8624 Ferguson Road #571642
Dallas, TX 75228
email: erin@ebrooke.com
phone: 817-219-2665

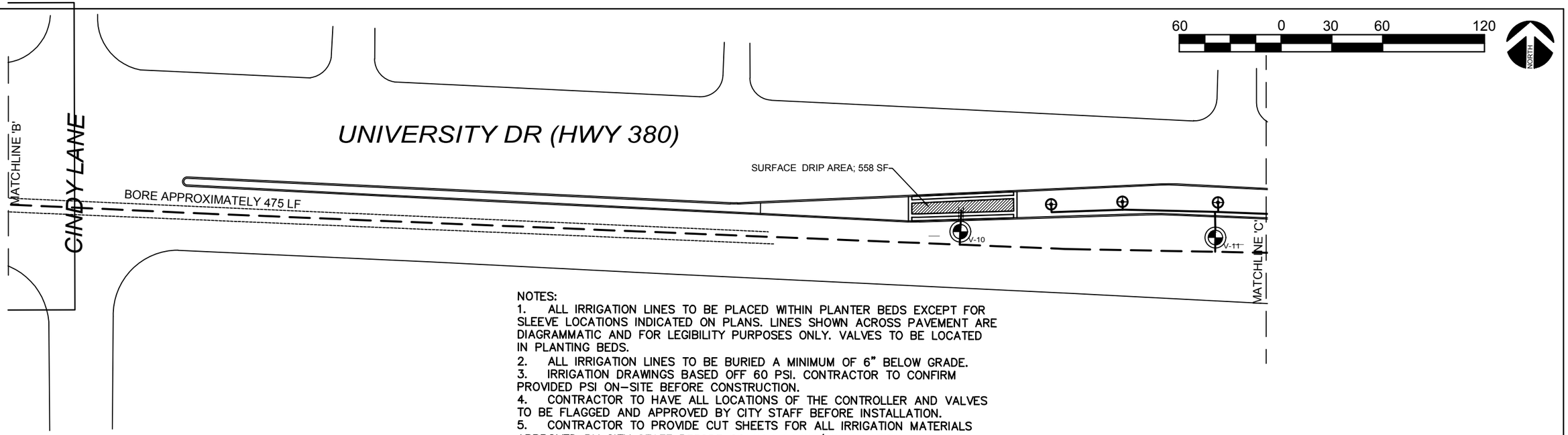
Texas Department of Transportation

HWY 380
IRRIGATION
SEGMENT 3: Section B

SCALE: 1" = 60'–0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE



NOTES:
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2. ALL IRRIGATION LINES TO BE BURIED A MINIMUM OF 6" BELOW GRADE.
3. IRRIGATION DRAWINGS BASED OFF 60 PSI. CONTRACTOR TO CONFIRM PROVIDED PSI ON-SITE BEFORE CONSTRUCTION.
4. CONTRACTOR TO HAVE ALL LOCATIONS OF THE CONTROLLER AND VALVES TO BE FLAGGED AND APPROVED BY CITY STAFF BEFORE INSTALLATION.
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9. STATIC PRESSURE: 60PSI; DESIGN PRESSURE: 40PSI
10. PLACE SLEEVES UNDER ANY NEW MOWSTRIPS BEFORE INSTALLATION OF THE MOWSTRIP.

IRRIGATION LEGEND

- (S) AC — IRRInet-M AC 24/4 UHF RADIO SOLAR PEDESTAL ITEM# IS-R10-RU-SO. FREEZE AND RAIN SENSOR TO BE INSTALLED FOR EACH CONTROLLER WITH CONCRETE PAD.
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- 8 — CLEAN OUT POINT
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- ——— ADS POLYFLEX UTILITY GRADE OR SCHEDULE 40 3/4". STUB OUTS FROM LATERAL LINES TO TREES SHALL BE FLEX PIPE AS DESIGNATED BY THE CITY; STUB OUTS ARE 1/2". 6" MIN. DEPTH OF BURY.
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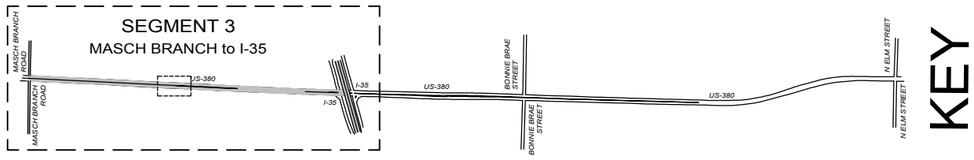
METER 1

VALVE No	V-1	V-2	V-3	V-4	V-5	V-6	V-7	V-8	V-9	V-10
VALVE SIZE	1"	1"	1"	1"	1"	1"	1"	1"	1"	1"
GPM	1.17	2.0	2.48	13.5	2.47	2.48	3.69	6.89	0.95	1.81
TYPE	DRIP	DRIP	DRIP	BUBBLER	DRIP	DRIP	DRIP	DRIP	DRIP	DRIP
OUTLET	XFS-09-12	XFS-09-12	XFS-09-12	1804-SAM-PR	XFS-09-12	XFS-09-12	XFS-09-12	XFS-09-12	XFS-09-12	XFS-09-12
PRECIP. RATE	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN
RUN TIME	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.

V-11	V-12	V-13	V-14	V-15	V-16	V-17	V-18	V-19	V-20	V-21
1"	1"	1"	1"	1"	1"	1"	1"	1"	1"	1"
5.0	2.24	1.17	16.0	2.05	6.0	2.74	2.12	3.0	0.66	8.32
BUBBLER	DRIP	DRIP	BUBBLER	DRIP	BUBBLER	DRIP	DRIP	BUBBLER	DRIP	DRIP
1804-SAM-PR	XFS-09-12	XFS-09-12	1804-SAM-PR	XFS-09-12	1804-SAM-PR	XFS-09-12	XFS-09-12	1804-SAM-PR	XFS-09-12	XFS-09-12
0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN
35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.



CITY OF DENTON

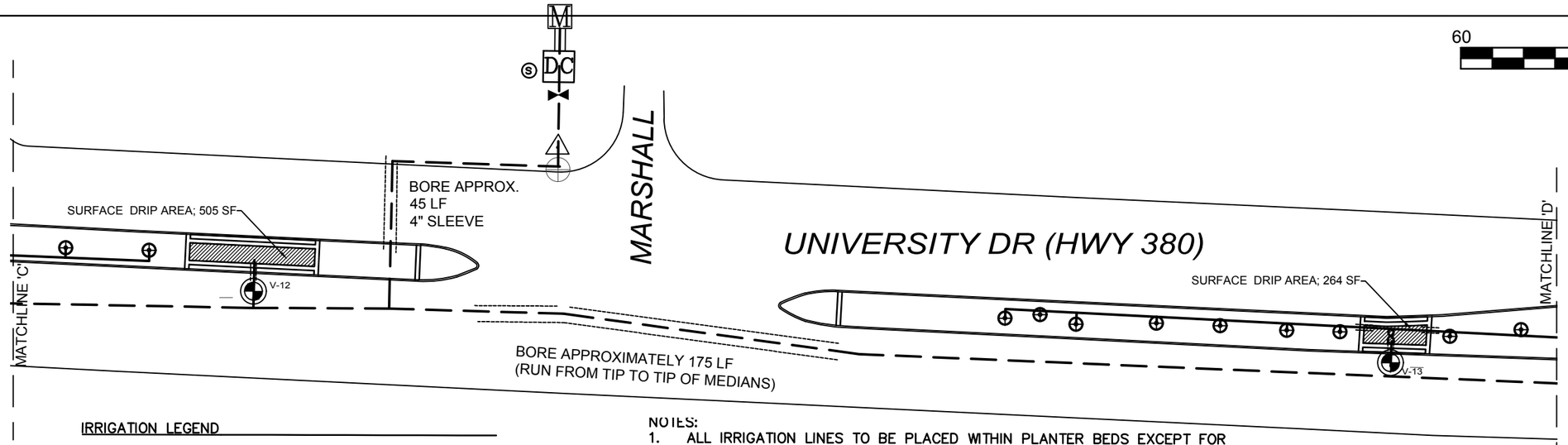
E. Brooke Associates, LLC
8624 Ferguson Road #571642
Dallas, TX 75228
email: erin@ebrooke.com
phone: 817-219-2665

HWY 380
IRRIGATION
SEGMENT 3: Section C

SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE



60 0 30 60 120

NORTH

IRRIGATION LEGEND

- AC — IRRInet–M AC 24/4 UHF RADIO SOLAR PEDESTAL ITEM# IS–R10–RU–SO. FREEZE AND RAIN SENSOR TO BE INSTALLED FOR EACH CONTROLLER WITH CONCRETE PAD.
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- — — — 2" MAINLINE; JM EAGLE SDR 11 RATED TO 200 PSI WITH BUTT FUSIONS. MINIMUM ROLL LENGTHS OF 500'
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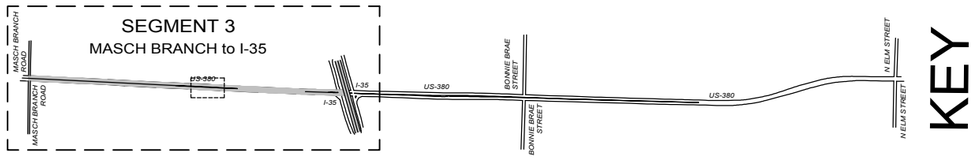
8. THE STATE OF TEXAS STATUTE 344.62(B) PROHIBITS IRRIGATION SPRAY HEADS IN PARKWAYS LESS THAN 48" WIDE.
9. STATIC PRESSURE: 60PSI; DESIGN PRESSURE: 40PSI
10. PLACE SLEEVES UNDER ANY NEW MOWSTRIPS BEFORE INSTALLATION OF THE MOWSTRIP.

METER 1

VALVE No	V–1	V–2	V–3	V–4	V–5	V–6	V–7	V–8	V–9	V–10
VALVE SIZE	1"	1"	1"	1"	1"	1"	1"	1"	1"	1"
GPM	1.17	2.0	2.48	13.5	2.47	2.48	3.69	6.89	0.95	1.81
TYPE	DRIP	DRIP	DRIP	BUBBLER	DRIP	DRIP	DRIP	DRIP	DRIP	DRIP
OUTLET	XFS–09–12	XFS–09–12	XFS–09–12	1804–SAM–PR	XFS–09–12	XFS–09–12	XFS–09–12	XFS–09–12	XFS–09–12	XFS–09–12
PRECIP. RATE	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN
RUN TIME	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.

V–11	V–12	V–13	V–14	V–15	V–16	V–17	V–18	V–19	V–20	V–21
1"	1"	1"	1"	1"	1"	1"	1"	1"	1"	1"
5.0	2.24	1.17	16.0	2.05	6.0	2.74	2.12	3.0	0.66	8.32
BUBBLER	DRIP	DRIP	BUBBLER	DRIP	BUBBLER	DRIP	DRIP	BUBBLER	DRIP	DRIP
1804–SAM–PR	XFS–09–12	XFS–09–12	1804–SAM–PR	XFS–09–12	1804–SAM–PR	XFS–09–12	XFS–09–12	1804–SAM–PR	XFS–09–12	XFS–09–12
0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN
35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.



REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS

5-31-2019

CITY OF DENTON

EBA
E. Brooke Associates, LLC
8624 Ferguson Road #571642
Dallas, TX 75228
email: erin@ebrooke.com
phone: 817-219-2665

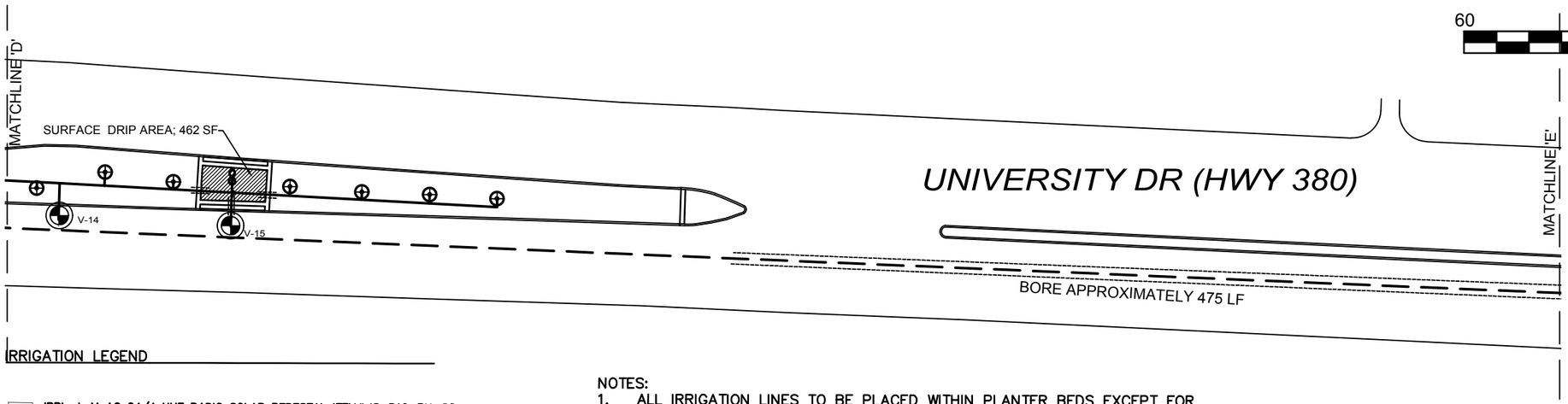
Texas Department of Transportation

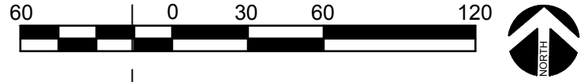
HWY 380
IRRIGATION
SEGMENT 3: Section D

SCALE: 1" = 60'–0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE





IRRIGATION LEGEND

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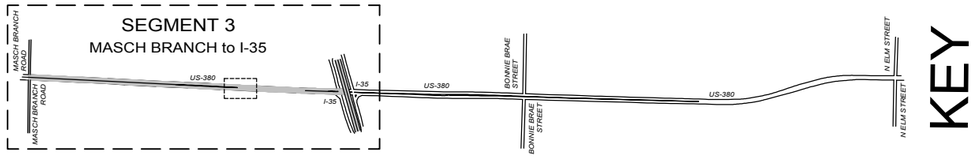
- – – – — 2" MAINLINE; JM EAGLE SDR 11 RATED TO 200 PSI WITH BUTT FUSIONS. MINIMUM ROLL LENGTHS OF 500'
- ——— — ADS POLYFLEX UTILITY GRADE OR SCHEDULE 40 3/4". STUB OUTS FROM LATERAL LINES TO TREES SHALL BE FLEX PIPE AS DESIGNATED BY THE CITY; STUB OUTS ARE 1/2". 6" MIN. DEPTH OF BURY.
- = = = — 4" HDPE ROLL PIPE CONDUIT ENDING WITH NO GREATER THAN A SWEEPING ANGLE OF 45° CURVE SO THAT MAIN LINE CAN BE PUSHED THROUGH; ALL BORES AND SLEEVING TO BE PROVIDED BY CONTRACTOR.

NOTES:
1. ALL IRRIGATION LINES TO BE PLACED WITHIN PLANTER BEDS EXCEPT FOR SLEEVE LOCATIONS INDICATED ON PLANS. LINES SHOWN ACROSS PAVEMENT ARE DIAGRAMMATIC AND FOR LEGIBILITY PURPOSES ONLY. VALVES TO BE LOCATED IN PLANTING BEDS.
2. ALL IRRIGATION LINES TO BE BURIED A MINIMUM OF 6" BELOW GRADE.
3. IRRIGATION DRAWINGS BASED OFF 60 PSI. CONTRACTOR TO CONFIRM PROVIDED PSI ON–SITE BEFORE CONSTRUCTION.
4. CONTRACTOR TO HAVE ALL LOCATIONS OF THE CONTROLLER AND VALVES TO BE FLAGGED AND APPROVED BY CITY STAFF BEFORE INSTALLATION.
5. CONTRACTOR TO PROVIDE CUT SHEETS FOR ALL IRRIGATION MATERIALS APPROVED BY CITY STAFF BEFORE CONSTRUCTION/INSTALLATION.
6. THIS IRRIGATION PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL LAWS, ORDINANCES, RULES, REGULATIONS, OR ORDERS.
7. THE CITY OF DENTON DOES NOT ALLOW DOUBLE CHECK AS A BACKFLOW DEVICE.
8. THE STATE OF TEXAS STATUTE 344.62(B) PROHIBITS IRRIGATION SPRAY HEADS IN PARKWAYS LESS THAN 48" WIDE.
9. STATIC PRESSURE: 60PSI; DESIGN PRESSURE: 40PSI
10. PLACE SLEEVES UNDER ANY NEW MOWSTRIPS BEFORE INSTALLATION OF THE MOWSTRIP.

METER 1

VALVE No	V–1	V–2	V–3	V–4	V–5	V–6	V–7	V–8	V–9	V–10
VALVE SIZE	1"	1"	1"	1"	1"	1"	1"	1"	1"	1"
GPM	1.17	2.0	2.48	13.5	2.47	2.48	3.69	6.89	0.95	1.81
TYPE	DRIP	DRIP	DRIP	BUBBLER	DRIP	DRIP	DRIP	DRIP	DRIP	DRIP
OUTLET	XFS–09–12	XFS–09–12	XFS–09–12	1804–SAM–PR	XFS–09–12	XFS–09–12	XFS–09–12	XFS–09–12	XFS–09–12	XFS–09–12
PRECIP. RATE	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN
RUN TIME	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.

V–11	V–12	V–13	V–14	V–15	V–16	V–17	V–18	V–19	V–20	V–21
1"	1"	1"	1"	1"	1"	1"	1"	1"	1"	1"
5.0	2.24	1.17	16.0	2.05	6.0	2.74	2.12	3.0	0.66	8.32
BUBBLER	DRIP	DRIP	BUBBLER	DRIP	BUBBLER	DRIP	DRIP	BUBBLER	DRIP	DRIP
1804–SAM–PR	XFS–09–12	XFS–09–12	1804–SAM–PR	XFS–09–12	1804–SAM–PR	XFS–09–12	XFS–09–12	1804–SAM–PR	XFS–09–12	XFS–09–12
0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN
35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.



CITY OF DENTON

E. Brooke Associates, LLC
8624 Ferguson Road #571642
Dallas, TX 75228
email: erin@ebrooke.com
phone: 817-219-2665

HWY 380

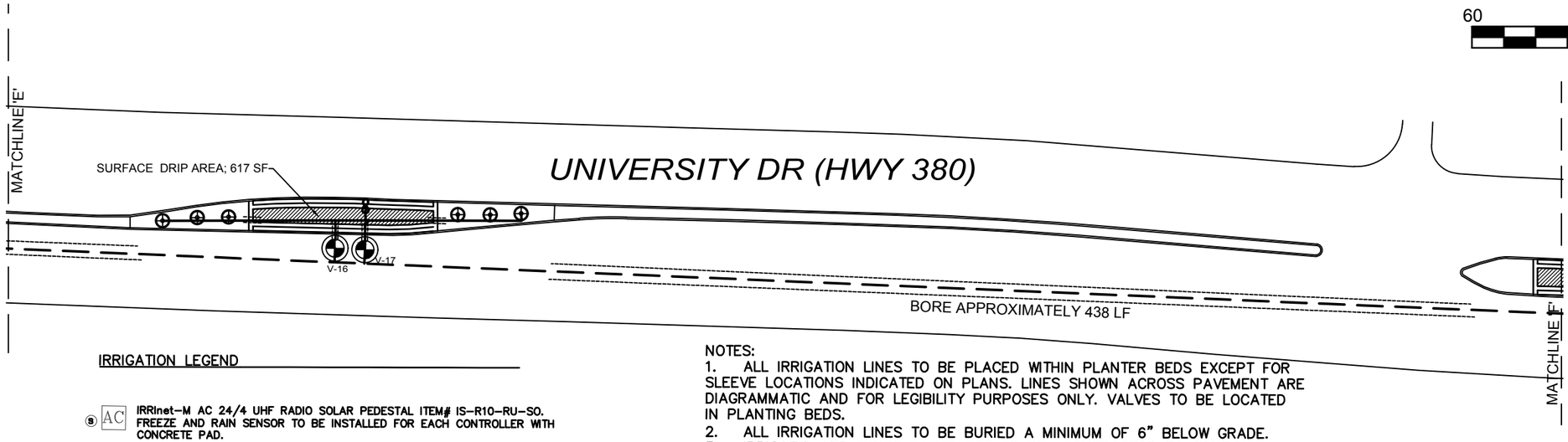
IRRIGATION

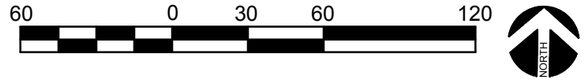
SEGMENT 3: Section E

SCALE: 1" = 60'–0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE





IRRIGATION LEGEND

- (S) AC — IRRInet–M AC 24/4 UHF RADIO SOLAR PEDESTAL ITEM# IS–R10–RU–SO. FREEZE AND RAIN SENSOR TO BE INSTALLED FOR EACH CONTROLLER WITH CONCRETE PAD.
- M — EXISTING 2" METER. POINT OF CONNECTION. CONTRACTOR SHALL VERIFY STATIC WATER PRESSURE AND FLOW AT THE METER AND CONTACT IRRIGATION DESIGNER FOR APPROVAL, PRIOR TO THE START OF WORK.
- △ — 2" WILKINS RPZ 375 XL 115 REDUCED PRESSURE BACKFLOW ASSEMBLY; LEAD FREE. DEKORA BACKFLOW ENCLOSURE 302–BG–C3 WITH CONCRETE PAD AND INSULATED POUCH 603GN.
- ⊕ — 2" MASTER VALVE RAINBIRD 200 PEB. CONTRACTOR TO PULL 2 WIRES FOR MASTER VALVE AND 2 WIRES FOR FLOW METER. TO BE INSTALLED WITHIN A JUMBO RECTANGLE 21X15X13 VALVE BOX WITH NETAFILM 2"FLOW METER.
- 8 — CLEAN OUT POINT
- ⧗ — MAIN LINE ISOLATION VALVE, SPEARS HEAVY DUTY TRUE UNION TU–2000 BALL VALVE. TO BE INSTALLED IN SAME STANDARD VALVE BOX AS THE ZONE VALVES.
- ⊕ — 1" ZONE VALVE – RAINBIRD XCZ 100 PRB–LC.03–20GAL CONTROL VALVE; ALL WIRING MUST BE RATED FOR DIRECT BURIAL. TO BE INSTALLED WITHIN A STANDARD RECTANGLE 17X12X12 VALVE BOX.
- QC — 1" QUICK COUPLER VALVE
- ⊕ — TREE BUBBLER; RAINBIRD 4" HEAD 1804–SAM–PRS WITH HUNTER PCN–50
- ▦ — SURFACE DRIP; RAINBIRD XFCV; 18 INCH EMITTER SPACING WITH .06 FLOW RATE (XFCV–06–12); INCLUDE RAINBIRD PRESSURE INDICATOR FLAGS; TO BE INSTALLED AS INSTRUCTED BY CITY STAFF; INSTALL ABOVE SOIL, STAPLE WITH U–SHAPED STAPLES, 2" MULCH TO COVER DRIPLINE
- — — — 2" MAINLINE; JM EAGLE SDR 11 RATED TO 200 PSI WITH BUTT FUSIONS. MINIMUM ROLL LENGTHS OF 500'
- ——— ADS POLYFLEX UTILITY GRADE OR SCHEDULE 40 3/4". STUB OUTS FROM LATERAL LINES TO TREES SHALL BE FLEX PIPE AS DESIGNATED BY THE CITY; STUB OUTS ARE 1/2". 6" MIN. DEPTH OF BURY.
- = = = 4" HDPE ROLL PIPE CONDUIT ENDING WITH NO GREATER THAN A SWEEPING ANGLE OF 45° CURVE SO THAT MAIN LINE CAN BE PUSHED THROUGH; ALL BORES AND SLEEVING TO BE PROVIDED BY CONTRACTOR.

NOTES:
1. ALL IRRIGATION LINES TO BE PLACED WITHIN PLANTER BEDS EXCEPT FOR SLEEVE LOCATIONS INDICATED ON PLANS. LINES SHOWN ACROSS PAVEMENT ARE DIAGRAMMATIC AND FOR LEGIBILITY PURPOSES ONLY. VALVES TO BE LOCATED IN PLANTING BEDS.
2. ALL IRRIGATION LINES TO BE BURIED A MINIMUM OF 6" BELOW GRADE.
3. IRRIGATION DRAWINGS BASED OFF 60 PSI. CONTRACTOR TO CONFIRM PROVIDED PSI ON–SITE BEFORE CONSTRUCTION.
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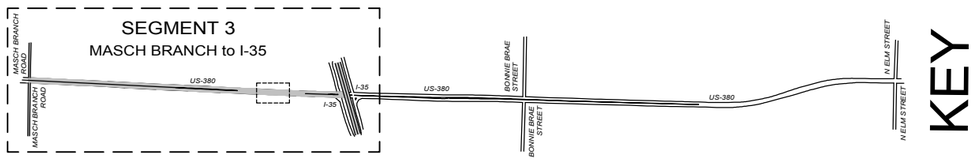
9. STATIC PRESSURE: 60PSI; DESIGN PRESSURE: 40PSI
10. PLACE SLEEVES UNDER ANY NEW MOWSTRIPS BEFORE INSTALLATION OF THE MOWSTRIP.

METER 1

VALVE No	V–1	V–2	V–3	V–4	V–5	V–6	V–7	V–8	V–9	V–10
VALVE SIZE	1"	1"	1"	1"	1"	1"	1"	1"	1"	1"
GPM	1.17	2.0	2.48	13.5	2.47	2.48	3.69	6.89	0.95	1.81
TYPE	DRIP	DRIP	DRIP	BUBBLER	DRIP	DRIP	DRIP	DRIP	DRIP	DRIP
OUTLET	XFS–09–12	XFS–09–12	XFS–09–12	1804–SAM–PR	XFS–09–12	XFS–09–12	XFS–09–12	XFS–09–12	XFS–09–12	XFS–09–12
PRECIP. RATE	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN
RUN TIME	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.

V–11	V–12	V–13	V–14	V–15	V–16	V–17	V–18	V–19	V–20	V–21
1"	1"	1"	1"	1"	1"	1"	1"	1"	1"	1"
5.0	2.24	1.17	16.0	2.05	6.0	2.74	2.12	3.0	0.66	8.32
BUBBLER	DRIP	DRIP	BUBBLER	DRIP	BUBBLER	DRIP	DRIP	BUBBLER	DRIP	DRIP
1804–SAM–PR	XFS–09–12	XFS–09–12	1804–SAM–PR	XFS–09–12	1804–SAM–PR	XFS–09–12	XFS–09–12	1804–SAM–PR	XFS–09–12	XFS–09–12
0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN
35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.



REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS

5-31-2019

CITY OF DENTON

E. Brooke Associates, LLC
8624 Ferguson Road #571642
Dallas, TX 75228
email: erin@ebrooke.com
phone: 817-219-2665

HWY 380

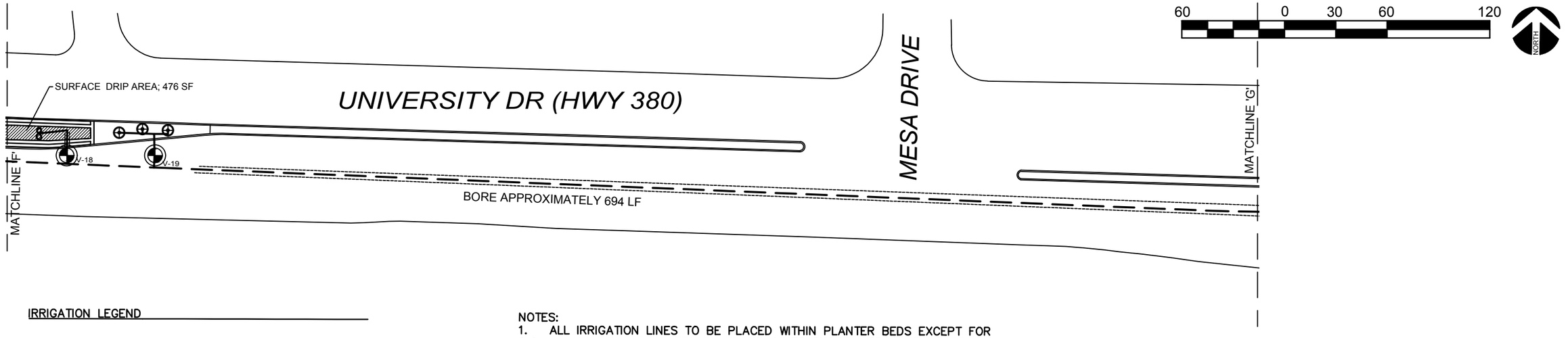
IRRIGATION

SEGMENT 3: Section F

SCALE: 1" = 60'–0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE



IRRIGATION LEGEND

- (8) AC — IRRInet–M AC 24/4 UHF RADIO SOLAR PEDESTAL ITEM# IS–R10–RU–SO. FREEZE AND RAIN SENSOR TO BE INSTALLED FOR EACH CONTROLLER WITH CONCRETE PAD.
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- – – – — 2" MAINLINE; JM EAGLE SDR 11 RATED TO 200 PSI WITH BUTT FUSIONS. MINIMUM ROLL LENGTHS OF 500'
- ——— — ADS POLYFLEX UTILITY GRADE OR SCHEDULE 40 3/4". STUB OUTS FROM LATERAL LINES TO TREES SHALL BE FLEX PIPE AS DESIGNATED BY THE CITY; STUB OUTS ARE 1/2". 6" MIN. DEPTH OF BURY.
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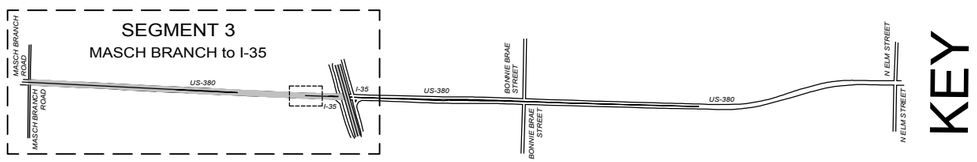
METER 1

VALVE No	V–1	V–2	V–3	V–4	V–5	V–6	V–7	V–8	V–9	V–10
VALVE SIZE	1"	1"	1"	1"	1"	1"	1"	1"	1"	1"
GPM	1.17	2.0	2.48	13.5	2.47	2.48	3.69	6.89	0.95	1.81
TYPE	DRIP	DRIP	DRIP	BUBBLER	DRIP	DRIP	DRIP	DRIP	DRIP	DRIP
OUTLET	XFS–09–12	XFS–09–12	XFS–09–12	1804–SAM–PR	XFS–09–12	XFS–09–12	XFS–09–12	XFS–09–12	XFS–09–12	XFS–09–12
PRECIP. RATE	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN
RUN TIME	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.

V–11	V–12	V–13	V–14	V–15	V–16	V–17	V–18	V–19	V–20	V–21
1"	1"	1"	1"	1"	1"	1"	1"	1"	1"	1"
5.0	2.24	1.17	16.0	2.05	6.0	2.74	2.12	3.0	0.66	8.32
BUBBLER	DRIP	DRIP	BUBBLER	DRIP	BUBBLER	DRIP	DRIP	BUBBLER	DRIP	DRIP
1804–SAM–PR	XFS–09–12	XFS–09–12	1804–SAM–PR	XFS–09–12	1804–SAM–PR	XFS–09–12	XFS–09–12	1804–SAM–PR	XFS–09–12	XFS–09–12
0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN
35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.



5-31-2019

CITY OF DENTON

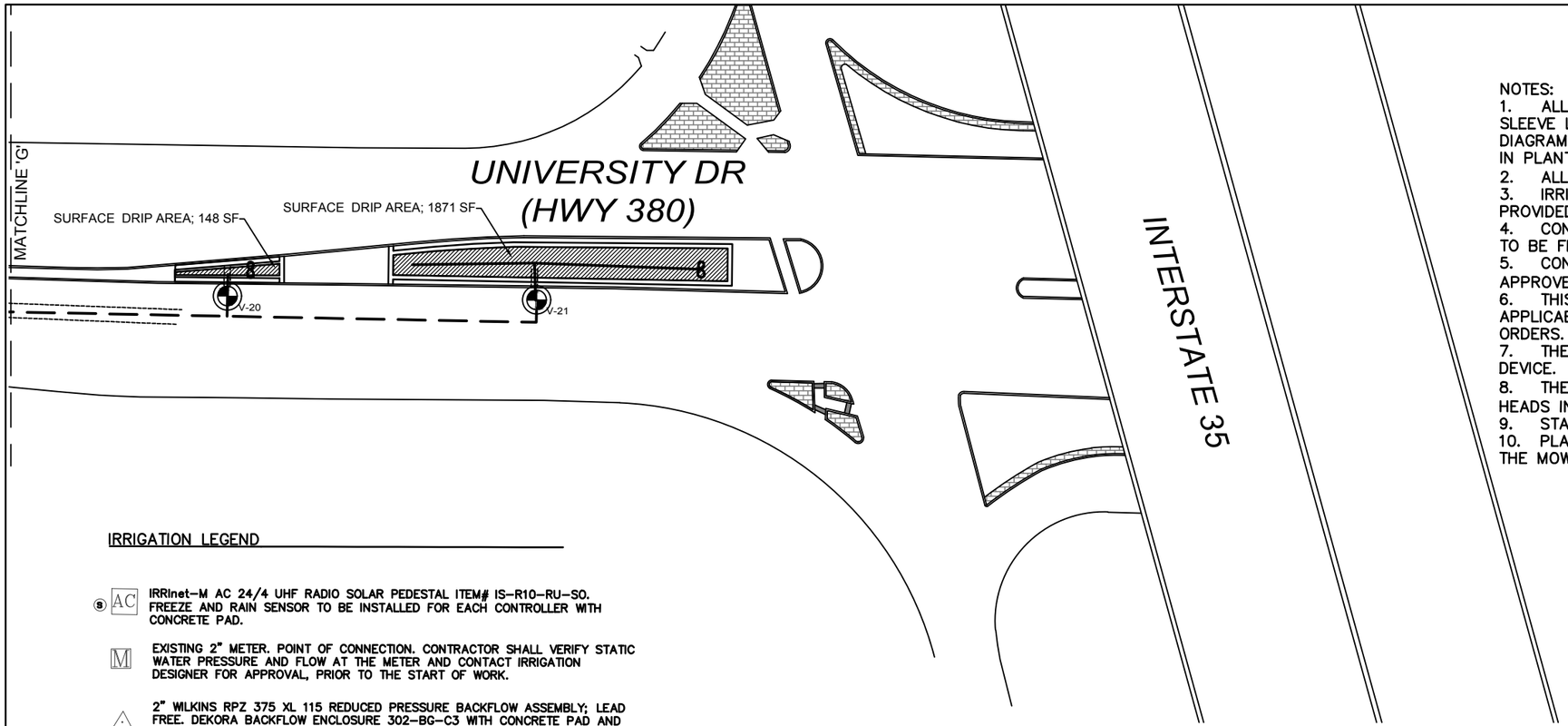
E. Brooke Associates, LLC
8624 Ferguson Road #571642
Dallas, TX 75228
email: erin@ebrooke.com
phone: 817-219-2665

HWY 380
IRRIGATION
SEGMENT 3: Section G

SCALE: 1" = 60'–0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE



60 0 30 60 120

NORTH

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- = = = = = = 4" HDPE ROLL PIPE CONDUIT ENDING WITH NO GREATER THAN A SWEEPING ANGLE OF 45° CURVE SO THAT MAIN LINE CAN BE PUSHED THROUGH; ALL BORES AND SLEEVING TO BE PROVIDED BY CONTRACTOR.

METER 1

VALVE No	V-1	V-2	V-3	V-4	V-5	V-6	V-7	V-8	V-9	V-10
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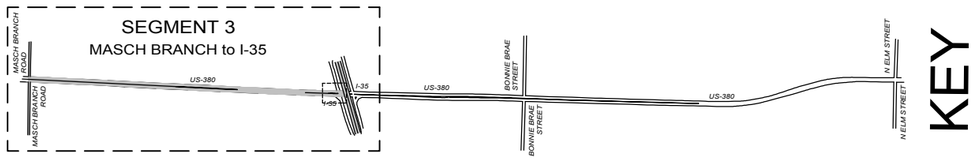
TYPE	DRIP	DRIP	DRIP	BUBBLER	DRIP	DRIP	DRIP	DRIP	DRIP	DRIP
OUTLET	XFS-09-12	XFS-09-12	XFS-09-12	1804-SAM-PR	XFS-09-12	XFS-09-12	XFS-09-12	XFS-09-12	XFS-09-12	XFS-09-12
PRECIP. RATE	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN
RUN TIME	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.

V-11	V-12	V-13	V-14	V-15	V-16	V-17	V-18	V-19	V-20	V-21
1"	1"	1"	1"	1"	1"	1"	1"	1"	1"	1"
5.0	2.24	1.17	16.0	2.05	6.0	2.74	2.12	3.0	0.66	8.32
BUBBLER	DRIP	DRIP	BUBBLER	DRIP	BUBBLER	DRIP	DRIP	BUBBLER	DRIP	DRIP
1804-SAM-PR	XFS-09-12	XFS-09-12	1804-SAM-PR	XFS-09-12	1804-SAM-PR	XFS-09-12	XFS-09-12	1804-SAM-PR	XFS-09-12	XFS-09-12
0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN	0.9 IN
35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.	35 MIN.



5-31-2019

CITY OF DENTON

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email: erin@ebrooke.com
phone: 817-219-2665

HWY 380

IRRIGATION

SEGMENT 3: Section H

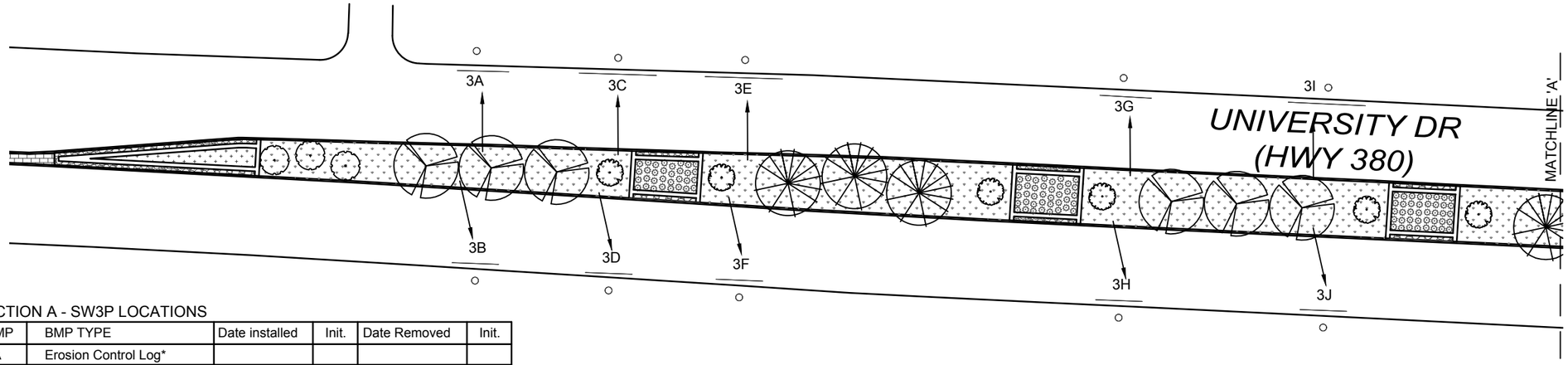
SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE

60 0 30 60 120

NORTH



SECTION A - SW3P LOCATIONS

BMP	BMP TYPE	Date installed	Init.	Date Removed	Init.
3A	Erosion Control Log*				
3B	Erosion Control Log*				
3C	Erosion Control Log*				
3D	Erosion Control Log*				
3E	Erosion Control Log*				
3F	Erosion Control Log*				
3G	Erosion Control Log*				
3H	Erosion Control Log*				
3I	Erosion Control Log*				
3J	Erosion Control Log*				

Notes:
1. BMP's shall not be installed in their control area any sooner that two weeks prior to soil disturbing activities
2. See daily work reports for initial stabilization time frames

* (CL-C1); Or approved equal.

Legend

○	Existing storm drains
_____	Erosion control log

Date Disturbed: _____

Date Stabilized: _____

KEY

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Texas Department of Transportation

HWY 380

SW3P Layout

SEGMENT 3: Section A

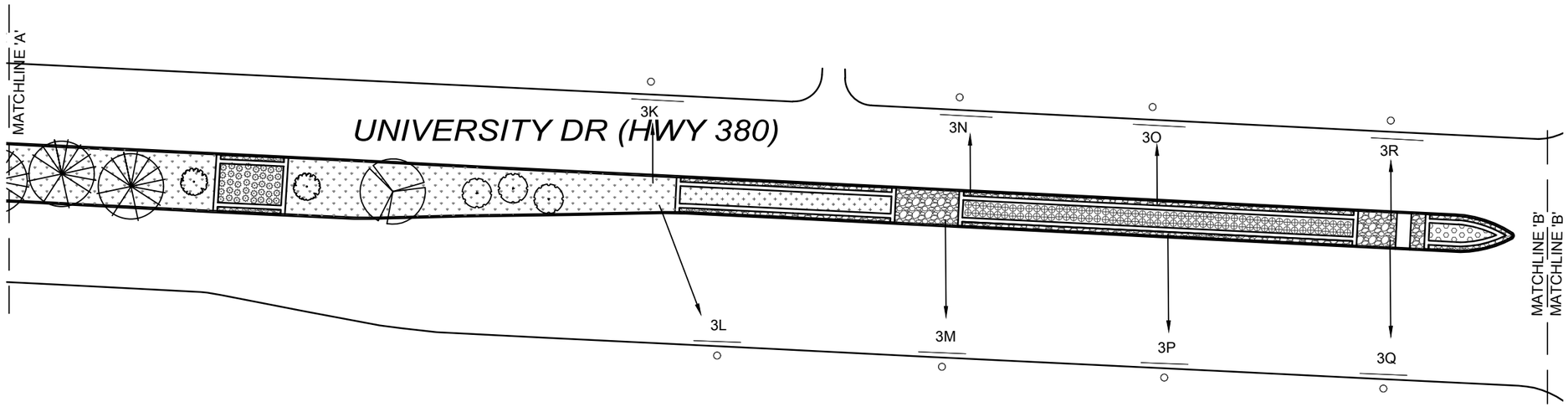
SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE

60 0 30 60 120

NORTH



SECTION B - SW3P LOCATIONS

BMP	BMP TYPE	Date installed	Init.	Date Removed	Init.
3K	Erosion Control Log*				
3L	Erosion Control Log*				
3M	Erosion Control Log*				
3N	Erosion Control Log*				
3O	Erosion Control Log*				
3P	Erosion Control Log*				
3Q	Erosion Control Log*				
3R	Erosion Control Log*				

Notes:
1. BMP's shall not be installed in their control area any sooner that two weeks prior to soil disturbing activities
2. See daily work reports for initial stabilization time frames

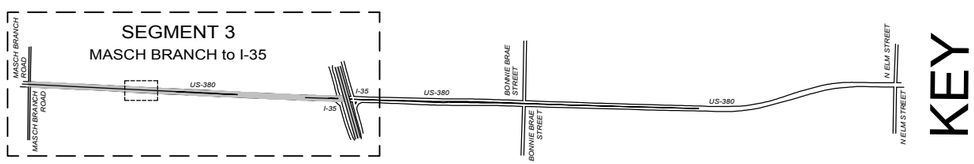
* (CL-C1); Or approved equal.

Legend

○	Existing storm drains
_____	Erosion control log

Date Disturbed: _____

Date Stabilized: _____



REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS

5-31-2019

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Texas Department of Transportation

HWY 380

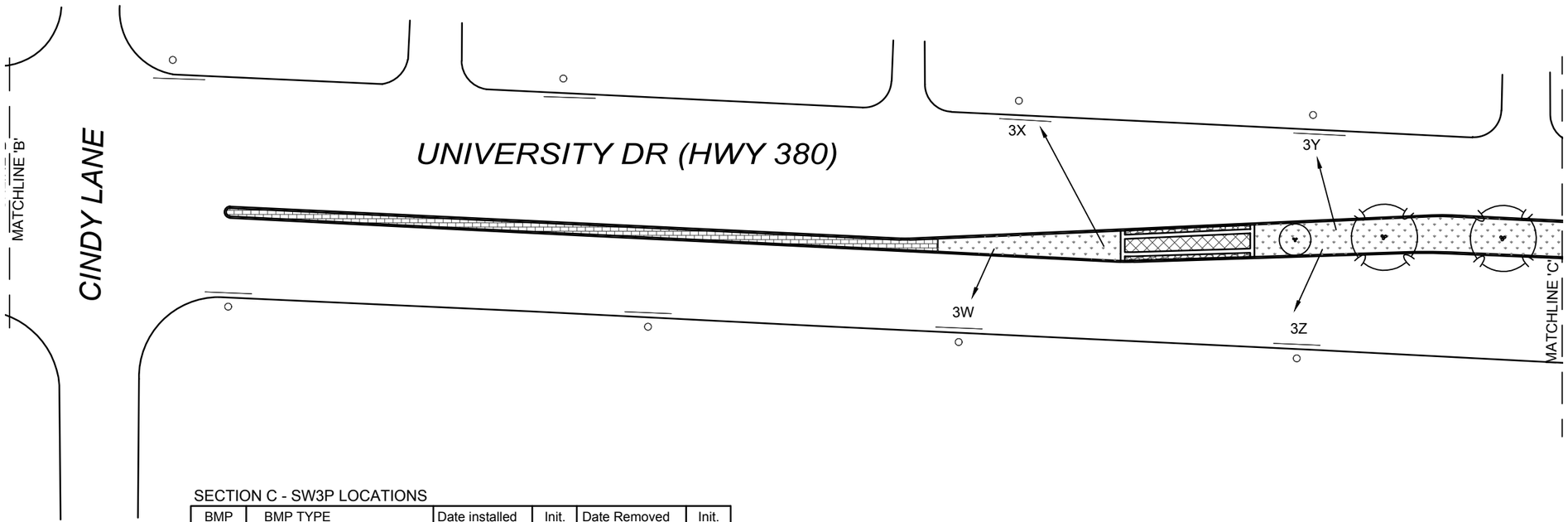
SW3P Layout

SEGMENT 3: Section B

SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE



SECTION C - SW3P LOCATIONS

BMP	BMP TYPE	Date installed	Init.	Date Removed	Init.
3W	Erosion Control Log*				
3X	Erosion Control Log*				
3Y	Erosion Control Log*				
3Z	Erosion Control Log*				

Notes:

1. BMP's shall not be installed in their control area any sooner that two weeks prior to soil disturbing activities
2. See daily work reports for initial stabilization time frames

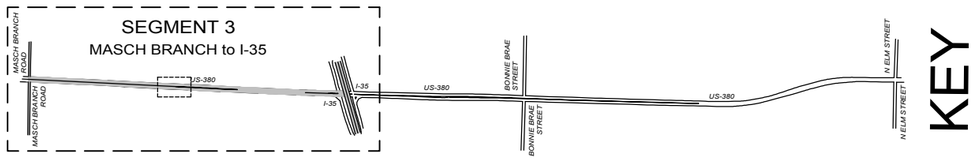
* (CL-C1); Or approved equal.

Legend

○	Existing storm drains
_____	Erosion control log

Date Disturbed: _____

Date Stabilized: _____



KEY

REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS

5-31-2019

CITY OF DENTON

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Texas Department of Transportation

HWY 380

SW3P Layout

SEGMENT 3: Section C

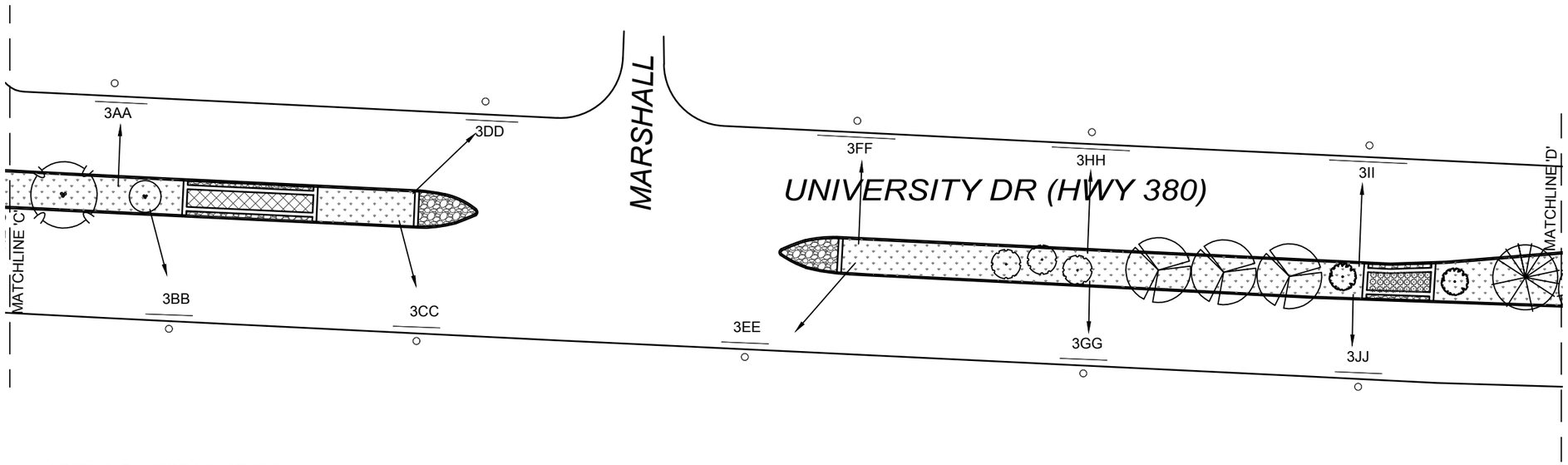
SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE

60 0 30 60 120

NORTH



SECTION D - SW3P LOCATIONS

BMP	BMP TYPE	Date installed	Init.	Date Removed	Init.
3AA	Erosion Control Log*				
3BB	Erosion Control Log*				
3CC	Erosion Control Log*				
3DD	Erosion Control Log*				
3EE	Erosion Control Log*				
3FF	Erosion Control Log*				
3GG	Erosion Control Log*				
3HH	Erosion Control Log*				
3II	Erosion Control Log*				
3JJ	Erosion Control Log*				

Notes:
1. BMP's shall not be installed in their control area any sooner that two weeks prior to soil disturbing activities
2. See daily work reports for initial stabilization time frames

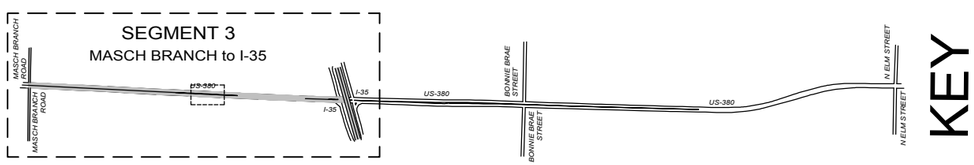
* (CL-C1); Or approved equal.

Legend

○	Existing storm drains
_____	Erosion control log

Date Disturbed: _____

Date Stabilized: _____



REGISTERED LANDSCAPE ARCHITECT
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HWY 380

SW3P Layout

SEGMENT 3: Section D

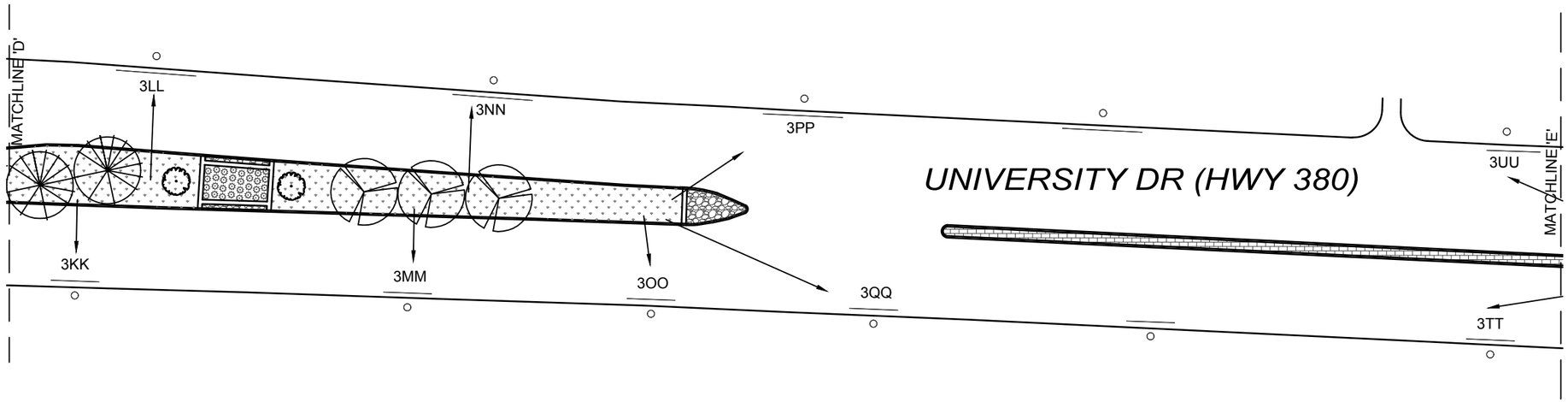
SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK	CONTROL	SECTION	JOB	
EBB	0134	09	066,ETC	

DATE

60 0 30 60 120

NORTH



SECTION E - SW3P LOCATIONS

BMP	BMP TYPE	Date installed	Init.	Date Removed	Init.
3KK	Erosion Control Log*				
3LL	Erosion Control Log*				
3MM	Erosion Control Log*				
3NN	Erosion Control Log*				
3OO	Erosion Control Log*				
3PP	Erosion Control Log*				
3QQ	Erosion Control Log*				
3TT	Erosion Control Log*				
3UU	Erosion Control Log*				

Notes:
1. BMP's shall not be installed in their control area any sooner that two weeks prior to soil disturbing activities
2. See daily work reports for initial stabilization time frames

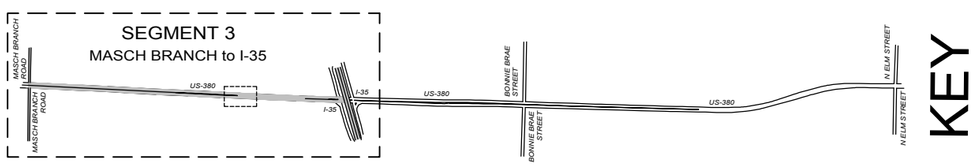
* (CL-C1); Or approved equal.

Legend

○	Existing storm drains
_____	Erosion control log

Date Disturbed: _____

Date Stabilized: _____



REGISTERED LANDSCAPE ARCHITECT
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5-31-2019

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Texas Department of Transportation

HWY 380

SW3P Layout

SEGMENT 3: Section E

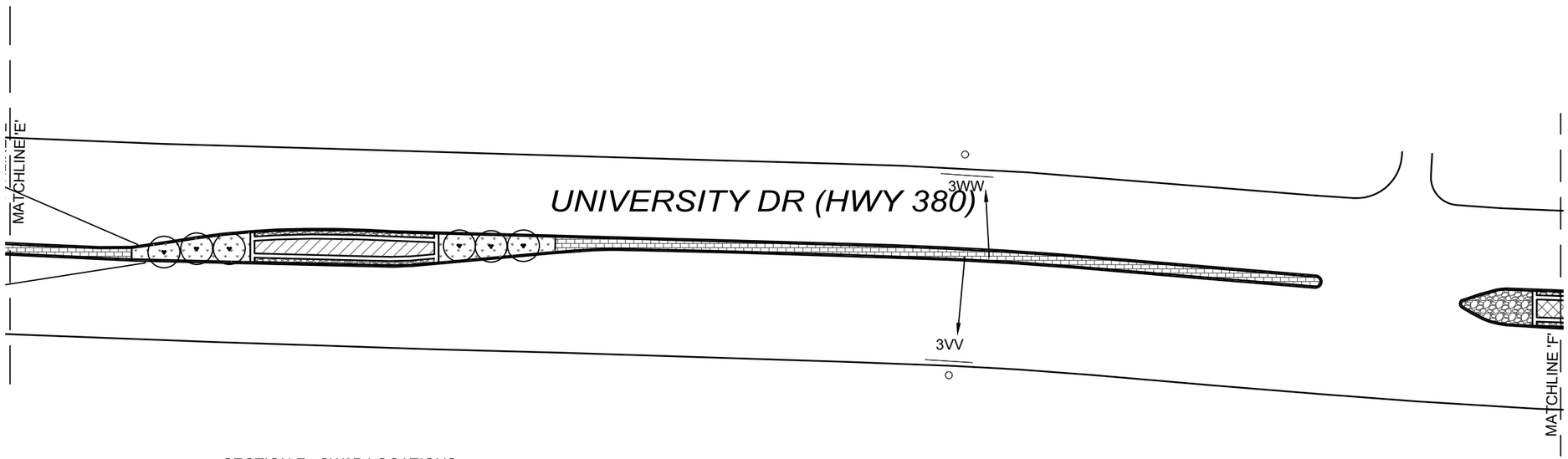
SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK	CONTROL	SECTION	JOB	
EBB	0134	09	066,ETC	

DATE

60 0 30 60 120

NORTH



SECTION F - SW3P LOCATIONS

BMP	BMP TYPE	Date installed	Init.	Date Removed	Init.
3VV	Erosion Control Log*				
3WW	Erosion Control Log*				

Notes:
1. BMP's shall not be installed in their control area any sooner that two weeks prior to soil disturbing activities
2. See daily work reports for initial stabilization time frames

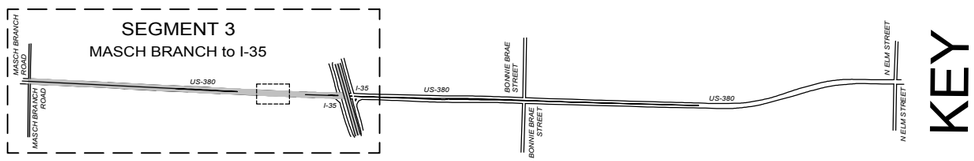
* (CL-C1); Or approved equal.

Legend

○	Existing storm drains
———	Erosion control log

Date Disturbed: _____

Date Stabilized: _____



REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
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5-31-2019

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Texas Department of Transportation

HWY 380

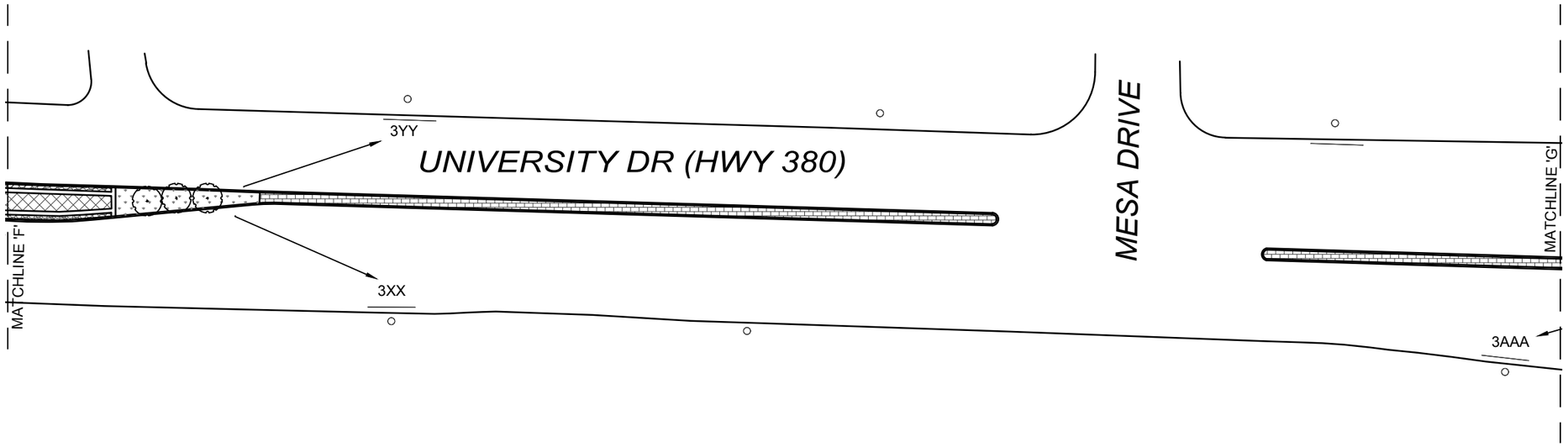
SW3P Layout

SEGMENT 3: Section F

SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE



SECTION G - SW3P LOCATIONS

BMP	BMP TYPE	Date installed	Init.	Date Removed	Init.
3XX	Erosion Control Log*				
3YY	Erosion Control Log*				
3AAA	Erosion Control Log*				

Notes:
1. BMP's shall not be installed in their control area any sooner that two weeks prior to soil disturbing activities
2. See daily work reports for initial stabilization time frames

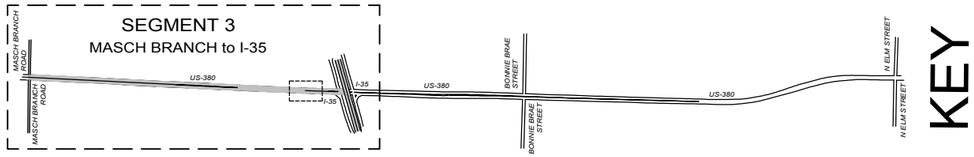
* (CL-C1); Or approved equal.

Legend

○	Existing storm drains
_____	Erosion control log

Date Disturbed: _____

Date Stabilized: _____



REGISTERED LANDSCAPE ARCHITECT
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HWY 380

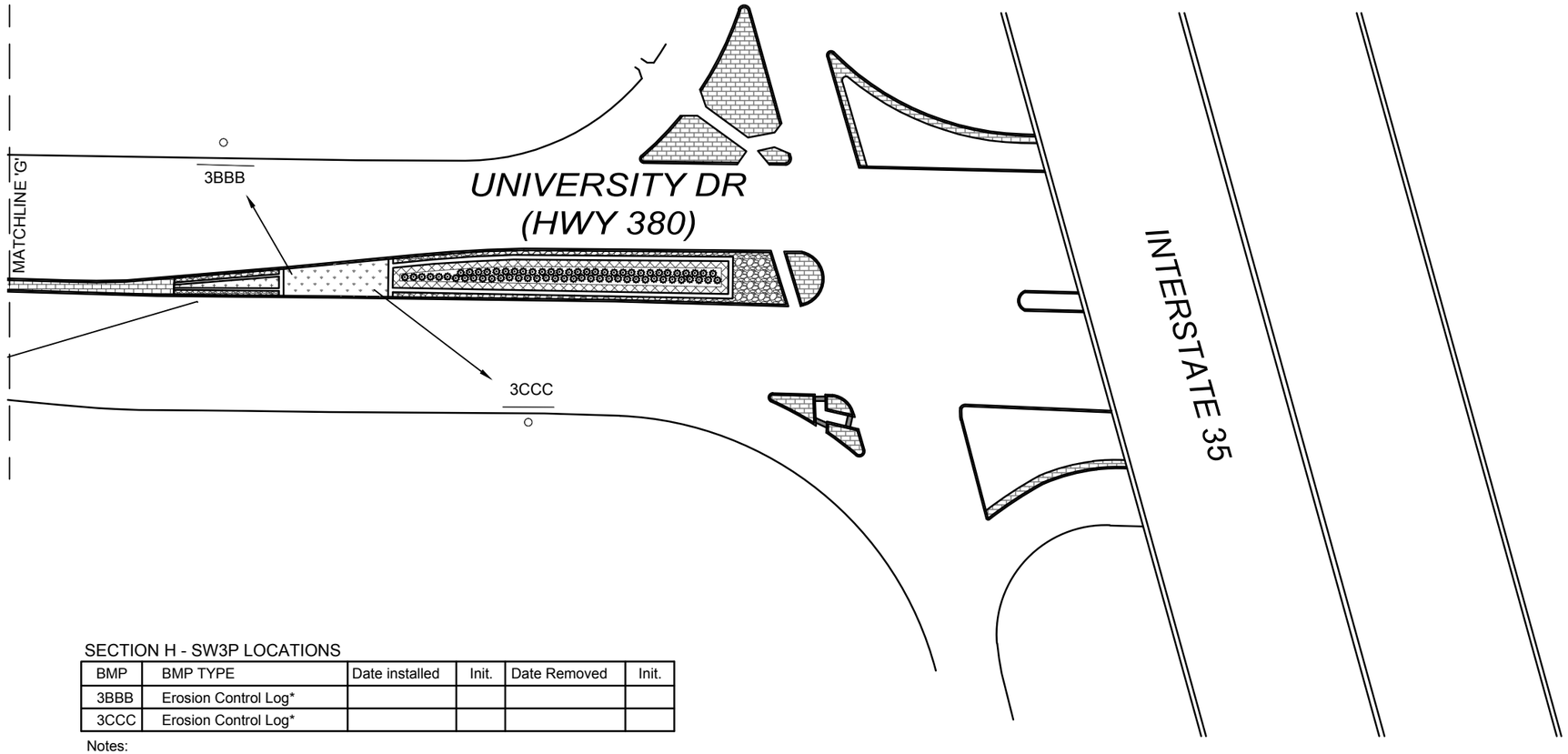
SW3P Layout

SEGMENT 3: Section G

SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE



SECTION H - SW3P LOCATIONS

BMP	BMP TYPE	Date installed	Init.	Date Removed	Init.
3BBB	Erosion Control Log*				
3CCC	Erosion Control Log*				

Notes:

1. BMP's shall not be installed in their control area any sooner that two weeks prior to soil disturbing activities
2. See daily work reports for initial stabilization time frames

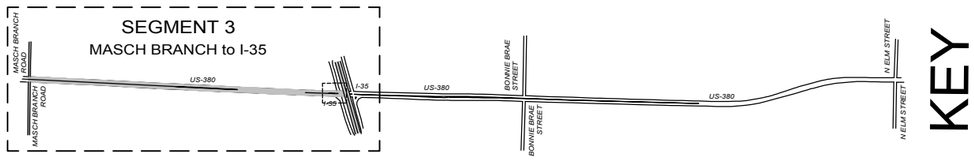
* (CL-C1); Or approved equal.

Legend

○	Existing storm drains
_____	Erosion control log

Date Disturbed: _____

Date Stabilized: _____



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HWY 380

SW3P Layout

SEGMENT 3: Section H

SCALE: 1" = 60'-0"

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

DATE

IRRIGATION MATERIALS SPECIFICATIONS

DESCRIPTION	* MODEL OR EQUAL	SIZE	APPROXIMATE QUANTITIES FOR INFORMATIONAL PURPOSE ONLY	UNIT	UNIT PRICE***
COPPER PIPE Extend from meter through Isolation Valve, Wye Strainer, to inlet side of Backflow Prevention Device.				LF	
PVC SCH 40 SLEEVING Pressure rated with slip type solvent welded joints				LF	
ABOVE GROUND PIPE INCLUDING BURIED RISERS AND SWING-JOINT COMPONENTS shall be PVC SCH 80 pipe rated for direct sunlight exposure				LF	
FITTINGS All fittings incorporated into system shall be of the same type, size and class material as the pipe				N/A	
CONTROL WIRE All control wire will be 2 wire system. Wire sizes shall conform to the controller manufacturer specifications for maximum distances for specific wire sizes. All wire shall be specifically manufactured for direct burial. All wire connections and splices shall be made in ground boxes. The splice shall be completely waterproof and shall be completely encapsulated within a King Safety Sealed Irrigation Connector/Splice enclusure or an approved equal				LF	
SOLVENT CEMENT Solvent cement shall be the type recommended by the pipe manufacturer				N/A	

IRRIGATION MATERIALS SPECIFICATIONS							
Control Valves							
	Type of zone	**Brand***	**Model**	**Link**	**APPROXIMATE QUANTITITES FOR INFORMATIONAL PURPOSES ONLY**	**UNIT**	**UNIT PRICE***
	Drip zones	Rain Bird	XCZ-100-PRB-COM	http://www.rainbird.com/landscape/products/dripControl/XCZ-100-PRB-COM.htm			
	Master Valve 1"	Rain Bird	100-PEB	http://www.rainbird.com/landscape/products/valves/PEB_PESBseries.htm			
	Master Valve 1.5"	Rain Bird	150-PEB	http://www.rainbird.com/landscape/products/valves/PEB_PESBseries.htm			
	Master Valve 2"	Rain Bird	200-PEB	http://www.rainbird.com/landscape/products/valves/PEB_PESBseries.htm			
	Flow Meter	Netafilm	1" Water Meter Cast Iron	https://www.netafimusa.com/agriculture/products/water-meters/m-wmr-series-water-meters/			
	Flow Meter	Netafilm	2" Water Meter Cast Iron	https://www.netafimusa.com/landscape/products/water-meters/water-meters/			
	Isolation Valve	Spears HD	CWV	http://www.parts.spearsmfg.com/ProductDetails.aspx?pid=245			
	Quick Coupler	Rain Bird	33-DRC	http://www.rainbird.com/landscape/products/valves/quickCouplingValves.htm			
Drip tubing and fittings							
	Type of tubing/fitting	**Brand***	**Model**	**Link**			
	Standard drip	Rain Bird	XFS-09-12	http://www.rainbird.com/landscape/products/dripline/XFS.htm			
	Check valve drip	Rain Bird	XFCV-09-12	http://www.rainbird.com/landscape/products/dripline/XFCV.htm			
	Drip tube fittings	Rain Bird	XF™ Series 17mm Insert Fittings	http://www.rainbird.com/landscape/products/dripDistribution/XFdriplineInsertFittings.htm			
	Tree bubbler	Hunter	PCN-50	https://www.hunterindustries.com/irrigation-product/nozzles/bubblers-bubbler-nozzles			
	Tree bubbler head 4"	Rain Bird	1804-SAM-PRS	https://www.rainbird.com/products/1800-sam-prs-series-spray-heads			
	Operation Indicator	Rain Bird	XFS OPERIND X17500	https://www.rainbird.com/documents/drip/bro_OperationIndicatorSellSheet.pdf			
Controllers							
	Make	**Brand***	**Model**	**Link**			
	Motorola	IRRInet AC/DC	(varies by number of zones and distance to base unit)	http://motorolairrigation.com/products/icc-pro/			
			Irrinet ACE or Irrinet M 12/4 UHF Radio				
	Rain/Freeze Sensor	Rain Bird	WR2-RFC Rain/Freeze Combo	http://www.rainbird.com/products/wr2-wr2-48-series-wireless-rainfreeze-sensors			
	Other		As specified by City				
	NOTE: Pedestal mount must be installed on concrete pad.						
Backflows							
	Type	**Brand***	**Model**	**Link**			
	RPZ	Wilkins	RPZ 375XL 115 Lead Free	http://www.zurn.com/products/water-safety/backflow-prevention/model-375-(sizes-1/2-2-)			
	RPZ	Wilkins	RPZ 375XL 020 Lead Free	http://www.zurn.com/products/water-safety/backflow-prevention/model-375-(sizes-1/2-2-)			
Backflow Enclosures							
	Color	**Brand***	**Model**	**Link**			
	Brown	Dekorra	302-BG-C3	http://www.dekorraproducts.com/Backflow.pdf			
	Insulated Pouch	Dekorra	603GN	http://www.dekorraproducts.com/accessories.html			
NOTE: Concrete pad with pipe sleeving must be installed							
Valve Boxes							
	Type	**Brand***	**Model**	**Link**			
	Jumbo Rectangle Box 21X15X13	NDS	117BC	https://www.ndspro.com/jumbo-valve-box-and-cover			
	Standard Rectangle 17X12X12	NDS	113BC	https://www.ndspro.com/14-inch-x-19-inch-overlapping-cover-black-green-icv			
	6" Round Box	NDS	107BC	https://www.ndspro.com/6-inch-round-box-cover-sewer			
	10" Round Box	NDS	111BC	https://www.ndspro.com/10-inch-round-box-round-overlapping-cover-icv-black-green			
	DRIP TUBING IS NOT TO BE INSTALLED SUB-SURFACE! TO BE COVERED WITH NO FLOAT CYPRESS MULCH ONLY UNLESS INDICATED DIFFERENTLY ON PLANS.						

* REFERENCE TO MANUFACTURER'S TRADE NAME OR CATALOG NUMBER IS FOR THE PURPOSE OF IDENTIFICATION ONLY, CONTRACTOR SHALL BE PERMITTED TO FURNISH LIKE MATERIALS OF OTHER MANUFACTURERS PROVIDED THEY ARE OF EQUAL QUALITY AND COMPLY WITH SPECIFICATIONS FOR THIS PROJECT AND ARE APPROVED BY THE ENGINEER.

*** NOTE: THE CONTRACTOR SHALL FILL THE 'UNIT PRICE' COLUMN ON THE ABOVE CHART AND BRING THIS SHEET BACK AT PRE CON MEETING.

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CITY OF DENTON

EBA

Texas Department of Transportation

HWY 380

IRRIGATION MATERIAL SPECIFICATIONS

DESIGN EBB	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
GRAPHICS EBB	6	(SEE TITLE SHEET)		380
CHECK EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

BID ITEM 170 - IRRIGATION SYSTEM
GENERAL NOTES AND SPECIFICATIONS SUBSIDIARY TO BID ITEM 170

PART 1 GENERAL

1.1 DESCRIPTION

1.1.1 THE GENERAL AND ANY SPECIAL CONDITIONS OF THE CONTRACT APPLY TO THE WORK OF THIS SECTION THE SAME AS THOUGH WRITTEN HEREIN.

1.1.2 COMPLY WITH ALL LOCAL AND STATE CODES, ORDINANCES, SAFETY ORDERS, AND REGULATIONS OF ALL LEGALLY CONSTITUTED AUTHORITIES HAVING JURISDICTION OVER THIS WORK.

1.1.3 OBTAIN AND PAY FOR ALL PLUMBING PERMITS AND ALL INSPECTIONS REQUIRED BY AUTHORITIES STATED ABOVE. CIT Y OF DENTON WILL PROVIDE ALL TAPS AND METERS.

1.1.4 NOTIFY THE LANDSCAPE ARCHITECT FOR TxDOT, HIS AUTHORIZED REPRESENTATIVE AND / THE TxDOT INSPECTOR IN THE EVENT ANY EQUIPMENT OR METHODS INDICATED ON THE DRAWINGS OR IN SPECIFICATIONS CONFLICTS WITH LOCAL CODES, PRIOR TO INSTALLATION.

1.2 WORK INCLUDED:

1.2.1 THE WORK CONSISTS OF FURNISHING LABOR, TOOLS, MACHINERY, MATERIALS, AND PROCESSES REQUIRED TO COMPLETE THE SPRINKLER IRRIGATION SYSTEM DESCRIBED HEREIN AND SHOWN ON THE DRAWINGS.

1.2.2 THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IS TO INDICATE AND SPECIFY A COMPLETE SPRINKLER SYSTEM, INSTALLED READY FOR USE WITHOUT FURTHER COST IN LABOR OR MATERIAL TO TxDOT.

1.2.3 IN THE EVENT OF CONFLICT BETWEEN THE DRAWINGS AND SPECIFICATIONS, THE LANDSCAPE ARCHITECT FOR TxDOT, HIS AUTHORIZED REPRESENTATIVE AND / THE TxDOT INSPECTOR SHALL BE CONSULTED.

1.2.4 DO NOT PROCEED WITH INSTALLATION IN AREAS OF DISCREPANCY UNTIL ALL SUCH DISCREPANCIES HAVE BEEN FULLY RESOLVED.

1.2.5 THE CONTRACTOR WILL PROTECT THE WORK, ADJACENT PROPERTY AND THE PUBLIC, AND WILL BE RESPONSIBLE FOR ANY DAMAGE, INJURY AND LOSS DUE TO HIS/HER ACTS OR NEGLIGENCE.

1.2.6 THE CONTRACTOR SHALL SUBMIT THE SHEET WITH UNIT COSTS FILLED IN TO THE LANDSCAPE ARCHITECT FOR TxDOT AND /OR HIS AUTHORIZED REPRESENTATIVE.

1.3 RELATED WORK

1.3.1 ITEM 170 - IRRIGATION SYSTEM

1.3.2 ITEM 192 AND 193 - LANDSCAPE PLANTING, AND LANDSCAPE ESTABLISHMENT

1.4 RESPONSIBILITY

1.4.1 THE LANDSCAPE CONTRACTOR WILL BE RESPONSIBLE FOR ALL WORK TO BE PERFORMED UNDER THIS CONTRACT. NO SUBCONTRACTOR SHALL RELIEVE THE LANDSCAPE CONTRACTOR OF HIS/HER LIABILITY TO COMPLETE THE WORK SHOWN ON THE DRAWINGS AND INDICATED IN THE TxDOT SPECIFICATIONS OR THESE SUBSIDIARY GENERAL NOTES AND SPECIFICATIONS.

1.4.2 THE LANDSCAPE CONTRACTOR WILL AT ALL TIMES PROTECT HIS/HER WORK FROM DAMAGE AND THEFT AND REPLACE ALL DAMAGED OR STOLEN PARTS AT HIS EXPENSE UNTIL THE WORK IS ACCEPTED IN WRITING BY THE LANDSCAPE ARCHITECT FOR TxDOT, HIS AUTHORIZED REPRESENTATIVE AND / THE TxDOT INSPECTOR.

1.4.3 THE LANDSCAPE CONTRACTOR WILL PROTECT THE OWNER'S PROPERTY FROM INJURY OR LOSS. ALL DAMAGE TO EXISTING PROPERTY (BUILDING, UTILITIES, ETC.) OR PLANTING (TREES, SHRUBS, LAWNS, OR GROUND COVERS) CAUSED BY THE LANDSCAPE CONTRACTOR DURING HIS/HER OPERATION OR AS A RESULT OF THE MALFUNCTION OF INSTALLED WORK DURING THE GUARANTEE PERIOD AND SHALL BE REPAIRED AT NO EXPENSE TO TxDOT OR CITY OF DENTON.

1.4.4 THE LANDSCAPE CONTRACTOR WILL CAREFULLY NOTE ALL FINISH GRADES BEFORE COMMENCING WORK. ANY FINISH GRADE CHANGED DURING THE COURSE OF HIS/HER WORK SHALL BE RESTORED TO THE ORIGINAL CONTOURS. BACKFILL AND COMPACT TRENCHES.

1.4.5 TxDOT WILL NOT BE RESPONSIBLE FOR DAMAGE CAUSED BY LABOR OR MATERIAL, FURNISHED BY THE LANDSCAPE CONTRACTOR UNDER THIS CONTRACT, WHICH MIGHT HAVE BEEN PREVENTED BY THE LANDSCAPE CONTRACTOR'S PRUDENCE.

1.4.6 THE LANDSCAPE CONTRACTOR WILL CAUSE MINIMUM INTERFERENCE WITH WORK PERSONS, MATERIALS, EQUIPMENT OF OTHER SUBCONTRACTORS.

1.5 EXAMINATION OF PROJECT DRAWINGS AND SITE

1.5.1 PRIOR TO SUBMISSION OF HIS/HER BID, THE LANDSCAPE CONTRACTOR WILL EXAMINE THE SITE, THE COMPLETE DRAWINGS OF THE PROJECT, AND THE SPECIFICATIONS FOR SAME, IN ADDITION TO THE DRAWINGS AND SPECIFICATIONS FOR THE SPRINKLER IRRIGATION PORTION OF THE WORK.

1.6 SUBMITTALS / APPROVALS

1.6.1 THE LANDSCAPE CONTRACTOR WILL FURNISH THE ARTICLES, EQUIPMENT, MATERIALS OR PROCESSES SPECIFIED BY NAME IN THE DRAWINGS AND SPECIFICATIONS OR EQUAL. NO SUBSTITUTION WILL BE ALLOWED WITHOUT PRIOR WRITTEN APPROVAL BY THE LANDSCAPE ARCHITECT FOR TxDOT, HIS AUTHORIZED REPRESENTATIVE AND / THE TxDOT INSPECTOR.

1.6.2 THE LANDSCAPE CONTRACTOR WILL SUBMIT TO THE LANDSCAPE ARCHITECT FOR TxDOT, HIS AUTHORIZED REPRESENTATIVE AND / THE TxDOT INSPECTOR, CATALOG DATA AND FULL DESCRIPTIVE LITERATURE FOR APPROVAL OF ALL ITEMS NOTED HEREIN OR THOSE ITEMS DIFFERENT THAN THOSE SPECIFIED.

1.6.3 SUBMIT SHOP DRAWINGS AND SPECIFICATIONS FOR CONTROLLER ENCLOSURE ASSEMBLY(S), INCLUDING ELECTRICAL WIRING SCHEMATIC. SUBMIT SHOP DRAWINGS AND SPECIFICATIONS FOR ALL SPECIAL ASSEMBLIES, I.E.. BOOSTER PUMP(S), FERTILIZER INJECTION, CONTROLLER ENCLOSURE, CENTRAL CONTROL SYSTEM, MOISTURE-SENSING EQUIPMENT, ETC., IF SHOWN ON THE DRAWINGS.

1.6.4 EQUIPMENT OR MATERIALS INSTALLED OR FURNISHED WITHOUT THE PRIOR APPROVAL OF THE LANDSCAPE ARCHITECT FOR TxDOT, HIS AUTHORIZED REPRESENTATIVE AND / THE TxDOT INSPECTOR MAY BE REJECTED AND THE LANDSCAPE CONTRACTOR REQUIRED TO REMOVE SUCH MATERIALS FROM THE SITE AT HIS/HER OWN EXPENSE.

1.6.5 APPROVAL OF ANY ITEM, ALTERNATE OR SUBSTITUTE, INDICATES ONLY THAT THE PRODUCT(S) APPARENTLY MEET THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS ON THE BASIS OF THE INFORMATION OR SAMPLES SUBMITTED.

1.6.6 MANUFACTURER'S WARRANTIES SHALL NOT RELIEVE THE LANDSCAPE CONTRACTOR OF HIS/HER LIABILITY UNDER THE GUARANTEE. SUCH MANUFACTURER'S WARRANTY SHALL ONLY SUPPLEMENT THE LANDSCAPE CONTRACTOR'S GUARANTEE FOR THE WORK PERFORMED UNDER THIS CONTRACT.

1.6.7 THE LANDSCAPE ARCHITECT FOR TxDOT, HIS AUTHORIZED REPRESENTATIVE AND / THE TxDOT INSPECTOR CAN, AT HIS OPTION, REQUIRE A MANUFACTURER'S WARRANTY ON ANY PRODUCT OFFERED FOR USE.

1.6.8 MATERIAL SHALL BE OF THE BEST QUALITY OBTAINABLE, OF AMERICAN MANUFACTURE, AND WILL COMPLY STRICTLY WITH THE DRAWINGS AND SPECIFICATIONS. ALL EQUIPMENT WILL BE NEW AND UNUSED PRIOR TO INSTALLATION.

1.7 EXPERIENCE AND QUALIFICATIONS

1.7.1 THE LANDSCAPE CONTRACTOR SHALL EMPLOY ONLY TEXAS CERTIFIED LANDSCAPE PROFESSIONAL (TCLP) WITH CERTIFICATION AS A LANDSCAPE IRRIGATOR, TECHNICIAN, OR INSPECTOR, AS FOREMEN FOR ALL IRRIGATION INSTALLATION WORK.

1.7.2 LANDSCAPE CONTRACTOR SHALL SUBMIT TO THE LANDSCAPE ARCHITECT FOR TxDOT, HIS AUTHORIZED REPRESENTATIVE AND / THE TxDOT INSPECTOR, PHOTOCOPIES OF CURRENT CERTIFICATIONS FOR ALL FOREMEN PERFORMING WORK ON THIS PROJECT PRIOR TO COMMENCING WORK.

PART 2 PRODUCTS

2.0 COPPER PIPE

2.0.1 ASTM STANDARDS REQUIRES A MINIMUM OF 99.9 PERCENT PURE COPPER. THE COPPER CUSTOMARILY USED FOR TUBE SUPPLIED TO THESE SPECIFICATIONS IS DEOXIDIZED WITH PHOSPHORUS AND REFERRED TO AS UNS C12200 OR DHP1 COPPER.

2.0.2 USE TYPE K AS DESIGNATED BY ASTM STANDARD SIZES, WITH THE ACTUAL OUTSIDE DIAMETER ALWAYS 1/8-INCH LARGER THAN THE STANDARD SIZE DESIGNATION.

2.0.3 COPPER TUBE TYPES K (GREEN) MUST BE PERMANENTLY MARKED (INCISED) IN ACCORDANCE WITH ITS GOVERNING SPECIFICATIONS TO SHOW TUBE TYPE, THE NAME OR TRADEMARK OF THE MANUFACTURER, AND THE COUNTRY OF ORIGIN.

2.1 GALVANIZED PIPE AND FITTINGS

2.1.1 GALVANIZED PIPE, WHERE INDICATED ON THE DRAWINGS OR SPECIFIED, SHALL BE A.S.A. SCHEDULE 40 GALVANIZED MILLED STEEL SCREWED PIPE.

2.1.2 GALVANIZED FITTINGS SHALL BE MEDIUM GALVANIZED SCREWED BEADED MALLEABLE IRON. GALVANIZED COUPLINGS MAY BE MERCHANT COUPLING.

2.2 BRASS PIPE

2.2.1 BRASS PIPE SHALL BE HEAVY WALL TYPE WITH THREADS COMPLYING TO A.S.A. SPECIFICATIONS.

2.2.2 FITTINGS SHALL BE CASE BRASS OR CASE BRONZE THREADED JOINT AND SHALL COMPLY WITH A.S.A. SPECIFICATIONS. THREAD ON PIPE AND FITTINGS SHALL BE TAPER TYPE.

2.3 PLASTIC PIPE AND FITTINGS

2.3.1 PLASTIC PIPE SHALL BE EXTRUDED FROM 100% VIRGIN POLYVINYL CHLORIDE (PVC) TYPE 1, GRADE 11 AS MANUFACTURED BY PACIFIC PLASTIC OR APPROVED EQUAL

2.3.2 ALL PLASTIC PIPE SHALL BE CONTINUOUSLY AND PERMANENTLY MARKED WITH THE FOLLOWING INFORMATION: MANUFACTURER'S NAME, NOMINAL PIPE SIZE, PVC 1220, SDR (STANDARD DIMENSION RATIO) AND/OR THE PRESSURE RATING IN PSI, NSF (NATIONAL SANITATION FOUNDATION)

2.3.3 ALL PLASTIC PIPE TO BE INSTALLED ON THE NON-PRESSURE SIDE OF THE VALVES SHALL BE PVC 1220, CLASS 200 UNLESS OTHERWISE SHOWN ON THE DRAWINGS, DETAILS, OR LEGEND. ALL PIPE TO BE INSTALLED ON THE PRESSURE SIDE OF VALVES SHALL BE PVC 1220, SCHEDULE 40 FOR SIZES UP TO AND INCLUDING 2", CLASS 315 FOR SIZES LARGER THAN 2".

2.3.4 NOT USED

2.3.5 PLASTIC FITTINGS SHALL BE PVC 11, IPS, SCHEDULE 40, NSF SLIP FITTINGS AND SCHEDULE 80 THREADED FITTINGS AS SHOWN IN THE DETAILS AS MANUFACTURED BY LASCO, WESTERN, OR APPROVED EQUAL.

2.3.6 SOLVENT-WELD GLUE SHALL BE LASCO #711 GREY HEAVY BODY, OR APPROVED EQUAL. ALL PRESSURE-SIDE PIPE SHALL BE PRIMED WITH LASCO "PURPLE PRIMER" SOLVENT BEFORE GLUING. FIT AND GLUE PIPE PER MANUFACTURER'S SPECIFICATIONS.

2.3.7 ALL THREADED NIPPLES SHALL BE STANDARD WEIGHT SCHEDULE 80 MOLDED THREADS. ALL THREADED NIPPLES EXPOSED ABOVE GRADE SHALL BE GRAY IN COLOR.

2.3.8 PIPE FOR SLEEVING SHALL BE HDPE 4" ROLL PIPE; SIZED AS INDICATED ON THE DRAWINGS. PROVIDE PULL ROPE 10 FEET LONGER THAN SLEEVE.

2.3.9 ALL ABOVE-GRADE PIPE SHALL BE UVR (ULTRAVIOLET RESISTANT) SCHEDULE 40 PVC PIPE, AS MANUFACTURED BY PACIFIC PLASTICS, OR APPROVED EQUAL. ALL ABOVE-GRADE FITTINGS SHALL BE UVR, AS MANUFACTURED BY SPEARS MANUFACTURING COMPANY, OR APPROVED EQUAL.

2.3.10 NOT USED

2.4 QUICK COUPLING VALVES

2.4.1 QUICK COUPLING VALVES SHALL BE TWO-PIECE BODY DESIGNED FOR WORKING PRESSURE OF 150 PSI AS INDICATED IN THE LEGEND AND INSTALLED IN ACCORDANCE WITH DETAIL THEREOF. QUICK COUPLING VALVES SHALL BE INSTALLED WITH LOCKING YELLOW (PURPLE) VINYL COVERS.

2.5 AUTOMATIC CONTROLLER(S) AND RELATED EQUIPMENT

2.5.1 CONTROLLER(S) SHALL BE AS INDICATED ON THE DRAWINGS. CONTROLLER(S) SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS AND AS SHOWN ON THE DRAWINGS.

2.5.2 CONTROLLER ENCLOSURE(S) SHALL BE STAINLESS STEEL, HEAVY DUTY AS INDICATED ON THE DRAWINGS.

2.5.3 CONTROLLER NUMBER(S) AND REMOTE CONTROL ACCESS NUMBER(S) SHALL BE NEATLY STENCILED ONTO OUTSIDE OF ENCLOSURE DOOR IN 2" HIGH LETTERS, USING PAINT DESIGNED FOR DIRECT APPLICATION ONTO STAINLESS STEEL.

2.6 REMOTE CONTROL VALVES

2.6.1 REMOTE CONTROL VALVES SHALL BE AS INDICATED ON THE DRAWINGS AND INSTALLED IN ACCORDANCE WITH THE DETAILS THEREOF. BRASS VALVES SHALL BE PRIMED AND PAINTED WITH PRO-LINE EPOXY URETHANE PAINT SYSTEM IN COLOR TO MATCH "RECLAIMED PURPLE." PAINT VALVES BEFORE INSTALLATION. IF PLASTIC VALVES ARE SPECIFIED, THEY SHALL BE INTEGRAL COLORED PLASTIC, PAINTING SHALL BE OMITTED.

2.7 SPRINKLER HEADS

2.7.1 SPRINKLER HEADS SHALL BE AS INDICATED ON THE DRAWINGS.

2.7.2 ALL SPRINKLERS SHALL BE INSTALLED IN ACCORDANCE WITH DETAILS THEREOF.

2.8 CONTROL WIRE

2.8.1 ALL WIRE SHALL BE INSULATED, SOLID COPPER CONDUCTOR OF TYPE APPROVED FOR DIRECT BURIAL. USE COLOR-CODED WIRE FOR PILOT WIRES, A DIFFERENT COLOR FOR ALL VALVES OF EACH CONTROLLER, AND INSTALL PER VALVE MANUFACTURER'S SPECIFICATIONS AND WIRE CHART. COMMON WIRE FOR EACH CONTROLLER SHALL BE WHITE WITH STRIPE OF SAME COLOR AS PILOT WIRES. EXTRA WIRES SHALL BE BLACK. A COLOR DIFFERENT FROM ALL PILOT AND EXTRA WIRES SHALL BE USED FOR MASTER VALVE AND FLOW SENSOR WIRES.

2.8.2 SIZING OF WIRE SHALL BE IN ACCORDANCE TO MANUFACTURER'S RECOMMENDATIONS, IN NO CASE LESS THAN #14 IN SIZE.

2.8.3 CONNECTIONS ON 24 VOLT WIRE SHALL BE MADE BY SCOTCHLOCK CONNECTOR SEALING PACK #3570 G-N AS MANUFACTURED BY THE 3M COMPANY, OR APPROVED EQUAL. CONTRACTOR TO PROVIDE WATER PROOF CONNECTIONS

2.8.4 HIGHER VOLTAGE LINE CONNECTIONS OR 110 VOLT SHALL BE MADE BY CLAMP AND WATERPROOFED WITH 3M COMPANY SCOTCHCAST SPLICING KITS, MODEL # 82-A1, 82-A2, 82-A3 OR APPROVED EQUAL. INSTALL PER MANUFACTURERS RECOMMENDATION FOR THE APPROPRIATE WIRE TYPE AND SIZE.

2.9 VALVE BOXES

2.9.1 REMOTE CONTROL VALVE BOXES SHALL BE GLASS-FILLED PLASTIC TYPE AS MANUFACTURED BY NDS PRO, OR OTHER AS PER DETAIL. BOX LIDS SHALL HAVE THE LETTERS "RCV" MOLDED INTO THEM. BOXES SHALL HAVE LOCKING LIDS, PROVIDE TWO KEYS MINIMUM. BOX LIDS SHALL BE PURPLE COLOR, GLASS FILLED PLASTIC.

2.9.2 BOX LIDS SHALL BE NEATLY, AND PERMANENTLY MARKED AFTER INSTALLATION WITH THE CONTROLLER STATION NUMBER "HOT-MELTED" WITH PRE-FORMED STEEL LETTERS/NUMERALS AND BRANDING TOOL INTO THE CENTER OF THE LID.

2.9.3 CONTROL WIRES SHALL BE TAGGED WITH PERMANENT IMPRINTED TAGS INSIDE THE BOX WITH THE CONTROLLER DESIGNATION AND STATION NUMBER.

2.9.4 GRAVEL FOR SETTING VALVE BOXES SHALL BE 1/2" - 3/4" CRUSHED GRAVEL.

2.9.5 TOP DRESSING GRAVEL FOR INSIDE VALVE BOXES SHALL BE 3/8" PEA GRAVEL.

2.10 BALL VALVES

2.10.1 BALL VALVES OF SIZE, CAPACITY, AND MANUFACTURER AS INDICATED ON THE DRAWINGS SHALL BE PROVIDED, INSTALLED, AND LOCATED AS SHOWN THEREOF.

2.10.2 EACH BALL VALVE SHALL BE HOUSED IN A ROUND VALVE BOX, AS MANUFACTURED BY BROOKS, AMETEK, CARSON, OR OTHER AS PER DETAIL.

2.11 CHECK VALVES

2.11.1 SWING CHECK VALVES 2" AND SMALLER MANUFACTURED WITH BRASS : 200 POUND W.O.G. BRONZE CONSTRUCTION WITH REPLACEABLE COMPOSITION, NEOPRENE, OR RUBBER DISC MEETING OR EXCEEDING FEDERAL SPECIFICATION WW-V-51D, CLASS A, TYPE IV, MANUFACTURED BY NIBCO, MODEL T-480 OR EQUAL.

2.11.2 SWING CHECK VALVES 2" AND SMALLER MANUFACTURED WITH PVC : MAINTENANCE FREE OPERATION, 1" INLET X 1" OUT - SOC X SOC, PVC BODY / SEAL: EPDM, MINIMUM FLOW PRESSSURE: 2 PSI AS MANUFACTURED BY VALCON OR EQUAL

2.11.3 ANTI-DRAIN VALVES: OF HEAVY DUTY VIRGIN PVC CONSTRUCTION WITH FIP THREADED INLET AND OUTLET. INTERNAL PARTS SHALL BE STAINLESS STEEL AND NEOPRENE. ANTI-DRAIN VALVES SHALL BE FIELD ADJUSTABLE AGAINST DRAWOUT FROM 5 TO 40 FEET OF HEAD. ANTI-DRAIN VALVE SHALL BE SIMILAR TO THE VALCON "ADV" OR APPROVED EQUAL.

2.12 BACKFLOW PREVENTION UNITS

2.12.1 BACKFLOW PREVENTION UNITS SHALL BE OF THE SIZE AND TYPE INDICATED ON THE DRAWINGS.

2.12.2 WYE STRAINERS AT BACKFLOW PREVENTION UNITS: IF USED SHALL BE BRONZE THREADED BODY WITH 60 MESH MONEL SCREEN AND SHALL BE SIMILAR TO BAILEY #100B OR APPROVED EQUAL.

(continued on the next page)

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HWY 380

IRRIGATION SPECIFICATIONS

DESIGN EBB	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
GRAPHICS EBB	6	(SEE TITLE SHEET)		380
CHECK EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

2.13 NOT USED

2.14 FLOW METER

2.14.1 FLOW METER SHALL NETAFIM 'M', OR 'WRM' CAST IRON, OR APPROVED EQUAL.

2.15 MASTER VALVE

2.15.1 MASTER VALVE SHALL BE PLASTIC BODY WITH REMOVABLE SEAT AND HAVE TWO INLET TAPPINGS FOR EITHER ANGLE OR STRAIGHT INSTALLATION. NORMALLY CLOSED ENERGIZE SOLENOID TO OPEN VALVE. THE INTERNAL CONTROL SYSTEM OF THE VALVES MUST BE MECHANICALLY SELF-CLEANING AND AUTOMATICALLY SELF-PURGING WITHOUT THE USE OF SCREENS OR FILTERS.

PART 3 EXECUTION

3.1 SURFACE CONDITIONS

3.1.1 INSPECTION OF EXISTING CONDITIONS

3.1.1.1 PRIOR TO WORK OF THIS SECTION, CAREFULLY INSPECT PREVIOUSLY INSTALLED WORK. VERIFY ALL SUCH WORK IS COMPLETE TO THE POINT WHERE THIS INSTALLATION MAY PROPERLY COMMENCE.

3.1.1.2 VERIFY THAT WORK OF THIS SECTION IS INSTALLED IN STRICT ACCORDANCE WITH THE ORIGINAL DESIGN, ALL PERTINENT CODES AND REGULATIONS, AND ALL PERTINENT PORTIONS OF THE TXDOT STANDARDS.

3.1.1.3 IN THE EVENT OF DISCREPANCY, IMMEDIATELY NOTIFY THE LANDSCAPE ARCHITECT FOR THE TXDOT.

3.1.1.4 DO NOT PROCEED WITH INSTALLATION IN AREAS OF DISCREPANCY UNTIL ALL SUCH DISCREPANCIES HAVE BEEN FULLY RESOLVED.

3.2 SITE CONDITIONS / LAYOUT

3.2.1 ALL SCALED DIMENSIONS ARE APPROXIMATE. THE LANDSCAPE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS ON THE SITE PRIOR TO PROCEEDING WITH WORK UNDER THIS CONTRACT.

3.2.2 THE LANDSCAPE CONTRACTOR WILL LOCATE AND MARK ALL EXISTING UTILITIES SUCH AS POWER, TELEPHONE, DOMESTIC WATER, SEWER, AND STORM DRAINS. EXTREME CARE WILL BE TAKEN BY THE LANDSCAPE CONTRACTOR WHEN EXCAVATING OR WORKING IN THESE AREAS AND COORDINATION AND COOPERATION BETWEEN TxDOT'S REPRESENTATIVE AND THE LANDSCAPE CONTRACTOR IS REQUIRED AS THE WORK PROGRESSES TO THESE AREAS. LANDSCAPE CONTRACTOR WILL GIVE 24 HOUR NOTICE TO TxDOT'S REPRESENTATIVE AS WORK PROGRESSES TO UNDERGROUND UTILITY AREAS. LANDSCAPE CONTRACTOR WILL BE RESPONSIBLE FOR DAMAGE TO ANY UTILITIES.

3.2.3 SHOULD UTILITIES NOT LOCATED OR MARKED BE FOUND DURING EXCAVATION, THE LANDSCAPE CONTRACTOR WILL PROMPTLY NOTIFY TXDOT'S REPRESENTATIVE OR THE LANDSCAPE ARCHITECT FOR TxDOT AND WILL DISCONTINUE WITH THE WORK IN THE AREA EXCEPT NECESSARY EMERGENCY WORK REPAIR OR PREVENT DAMAGE UNTIL INSTRUCTIONS ARE RECEIVED.

3.2.4 FAILURE TO NOTIFY TXDOT'S REPRESENTATIVE OR THE LANDSCAPE ARCHITECT FOR TxDOT OF ANY DISCOVERY OF SUCH UTILITIES OR DAMAGE THERETO WILL RESULT IN THE LANDSCAPE CONTRACTOR BEING LIABLE FOR ANY AND ALL DAMAGE CAUSED TO THE UTILITIES AS A RESULT OF HIS/HER ACTIONS.

P P
3.2.5 THE LANDSCAPE CONTRACTOR WILL, BEFORE STARTING WORK ON THE SPRINKLER SYSTEM, CAREFULLY NOTE ALL FINISH GRADES IN ORDER TO SATISFY HIM/HERSELF THAT HE/SHE MAY PROCEED WITH THE WORK, AND TO RESTORE FINISH GRADES TO ORIGINAL CONTOURS BEFORE COMPLETION.

3.2.6 THE INSTALLATION OF ALL SPRINKLER MATERIALS, INCLUDING PIPE, WILL BE COORDINATED WITH THE LANDSCAPE DRAWINGS TO AVOID INTERFERING WITH THE TREES, SHRUBS, OR OTHER PLANTINGS.

3.2.7 LAYOUT SPRINKLER HEADS AND MAKE ANY MINOR ADJUSTMENTS REQUIRED DUE TO DIFFERENCES BETWEEN SITE AND DRAWINGS. ANY SUCH DEVIATIONS IN LAYOUT WILL BE WITHIN THE INTENT OF THE ORIGINAL DRAWINGS, AND WITHOUT ADDITIONAL COSTS. WHEN DIRECTED BY THE LANDSCAPE ARCHITECT FOR TxDOT, THE LAYOUT WILL BE APPROVED BEFORE INSTALLATION.

3.2.8 THE WORK SHOWN ON IRRIGATION PLANS IS SCHEMATIC. ALL ITEMS, I.E. CONTROLLERS, VALVES, MAINLINES, SLEEVES, WIRES, IRRIGATION HEADS, PIPING, ETC., ARE SHOWN IN THEIR APPROXIMATE LOCATIONS ONLY. DO NOT USE THESE PLANS TO SCALE DIMENSIONS FOR PLACEMENT OF THESE ITEMS. DETAIL DRAWINGS MAY PROVIDE ADDITIONAL CLARIFICATION OR LOCATION OF SOME ITEMS. LANDSCAPE CONTRACTOR WILL NOT LOCATE ANY ITEMS WHERE IT IS OBVIOUS THAT THEY ARE IN DIRECT CONFLICT WITH UNDERGROUND UTILITIES, STRUCTURES, PERMANENT IMPROVEMENTS, OR PEDESTRIAN AND VEHICULAR SAFETY CONSIDERATIONS. SPRINKLER HEADS ARE NOT TO BE SCALED OFF OF THE DRAWINGS, BUT LOCATED TO PREVENT OVERSPRAY ONTO BUILDINGS, WALKS, AND STRUCTURES. NOTIFY THE LANDSCAPE ARCHITECT FOR TxDOT IMMEDIATELY OF ANY DISCREPANCIES BETWEEN PLANS AND ACTUAL FIELD CONDITIONS.

3.2.9 DO NOT WILLFULLY INSTALL THE SPRINKLER SYSTEM AS INDICATED ON THE DRAWINGS WHEN IT IS OBVIOUS IN THE FIELD THAT UNKNOWN OBSTRUCTIONS OR GRADE DIFFERENCES EXIST THAT MIGHT NOT HAVE BEEN CONSIDERED IN THE ENGINEERING. SUCH OBSTRUCTIONS OR DIFFERENCES SHOULD BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT.

3.3 WATER SUPPLY

3.3.1 THE LANDSCAPE CONTRACTOR WILL CONNECT TO THE WATER SOURCE AS INDICATED ON THE DRAWINGS. THE LANDSCAPE CONTRACTOR WILL VERIFY STATIC PRESSURE AS STATED ON THE DRAWINGS PRIOR TO BEGINNING WORK. IF STATIC PRESSURE OR POINT OF CONNECTION DIFFERS FROM THAT SHOWN ON THE DRAWINGS, THE LANDSCAPE CONTRACTOR WILL PROMPTLY NOTIFY THE LANDSCAPE ARCHITECT FOR TxDOT BEFORE STARTING WORK.

3.4 WORKMANSHIP AND PROCEDURE

3.4.1 THE ROUTING OF THE PRESSURE SUPPLY LINES AS INDICATED ON THE DRAWING IS DIAGRAMMATIC. THE LANDSCAPE CONTRACTOR WILL INSTALL LINES IN SUCH A MANNER AS TO CONFORM TO THE VARIOUS DETAILS WITHOUT OFFSETTING THE VARIOUS ASSEMBLIES FROM THE PRESSURE SUPPLY LINE.

3.5 INSTALLATION

3.5.1 ASSEMBLIES

3.5.1.1 ALL THREADED PIPE AND FITTINGS SHALL BE ASSEMBLED USING TEFLON TAPE OR EQUIVALENT, APPLIED TO THE MALE THREADS ONLY.

3.5.1.2 ALL ASSEMBLIES SPECIFIED HEREIN WILL BE INSTALLED IN ACCORDANCE WITH THEIR RESPECTIVE DETAIL. IN THE ABSENCE OF DETAIL DRAWINGS OR SPECIFICATIONS PERTAINING TO THE SPECIFIC ITEMS REQUIRED TO COMPLETE THE WORK, THE LANDSCAPE CONTRACTOR SHALL PERFORM SUCH WORK IN ACCORDANCE WITH THE BEST STANDARD PRACTICE AND TO THE SATISFACTION OF THE LANDSCAPE ARCHITECT FOR TxDOT.

3.5.2 PIPE CLEARANCES

3.5.2.1 ALL SPRINKLER LINES WILL HAVE A MINIMUM CLEARANCE OF 6" FROM EACH OTHER. PARALLEL LINES SHALL NOT BE INSTALLED DIRECTLY OVER ONE ANOTHER.

3.5.2.2 ONE NEW ON-SITE SYSTEMS, RECLAIMED/NON-POTABLE WATER AND SEWER LINES SHOULD BE PLACED A MINIMUM OF FOUR FEET APART, OR AS DIRECTED BY THE PROJECT ENGINEER, AND/OR REGULATORY AGENCIES. MEASUREMENTS WILL BE BETWEEN FACING SURFACES, NOT PIPE CENTER LINES.

3.5.2.3 CONSTANT PRESSURE RECLAIMED/NON-POTABLE WATER LINES WILL CROSS AT LEAST 12" BELOW POTABLE WATER LINES AND WILL MAINTAIN AT LEAST 12" CROSSING SEPARATION BETWEEN OTHER UTILITIES.

3.5.2.4 IF A CONSTANT PRESSURE RECLAIMED/NON-POTABLE WATER LINE MUST BE INSTALLED ABOVE A POTABLE WATER LINE, OR LESS THAN 12" BELOW A POTABLE WATER LINE, THEN THE RECLAIMED WATER WILL BE INSTALLED WITH AN APPROVED PROTECTIVE SLEEVE. THE SLEEVE WILL EXTEND TEN FEET IN EACH DIRECTION FROM THE CENTER LINE OF POTABLE LINE FOR A TOTAL OF TWENTY FEET.

3.5.3 EXCAVATION, PIPING, AND BACKFILLING

3.5.3.1 TRENCHES: PIPE WILL HAVE THE CONTINUOUS SUPPORT OF THE TRENCH BOTTOM AND WILL BE LAID TO AN EVEN GRADE. TRENCHING EXCAVATION WILL FOLLOW THE LAYOUT INDICATED ON THE DRAWINGS AND WILL BE OF SUFFICIENT WIDTH TO ALLOW "SNAKING" OF PIPE IN TRENCH.

3.5.3.2 PROVIDE MINIMUM COVER OF 18 INCHES FOR ALL MAIN LINES.

3.5.3.3 PROVIDE MINIMUM COVER OF 20 INCHES FOR ALL CONTROL WIRE RUNS.

3.5.3.4 PROVIDE MINIMUM COVER OF 12 INCHES FOR ALL LATERAL LINES.

3.5.3.5 ALL LINES UNDER DRIVEWAY AND ROADWAY PAVEMENT SHALL HAVE A 24 INCH MINIMUM COVER.

3.5.3.6 BACKFILL FOR TRENCHING WILL BE COMPACT TO DRY DENSITY EQUAL TO THE ADJACENT UNDISTURBED SOIL IN PLANTING AREAS AND 90% UNDER PAVED AREAS AND WILL CONFORM TO THE ADJACENT GRADES WITHOUT DIPS, SUNKEN AREAS, HUMPS, OR OTHER IRREGULARITIES. INITIAL BACKFILL ON ALL LINES WILL BE OF A FINE GRANULAR MATERIAL WITH NO FOREIGN MATTER LARGER THAN ONE-HALF INCH IN SIZE.

3.5.3.7 IF, IN THE OPINION OF THE LANDSCAPE ARCHITECT FOR TxDOT, THE EXCAVATED MATERIAL IS NOT SATISFACTORY FOR USE AS BACKFILL, THE LANDSCAPE CONTRACTOR SHALL DISPOSE OF THIS UNSATISFACTORY MATERIAL OFF SITE.

3.5.3.8 PROVIDE CONCRETE THRUST BLOCKS AT ANGLES, TEES, AND BENDS IN MAINLINE RUNS AS REQUIRED BY INSUDTRY STANDARDS.

3.5.3.9 NON-POTABLE WARNING STENCILING ON ALL PVC PIPE WILL BE ORIENTED TOWARD THE TOP OF THE TRENCH.

3.5.3.10 ALL PRESSURE-SIDE PIPE WILL BE LAID WITH METALLIC WARNING TAPE 9" DIRECTLY ABOVE THE PIPE, PER DETAILS.

3.5.3.11 PROVIDE TWO INCH SAND BEDDING AND FOUR INCH SAND BACKFILL OVER PIPE IN PAVED AREAS. PROVIDE SLEEVES FOR MAIN LINE UNDER PAVED AREAS SUBJECT TO VEHICULAR TRAFFIC.

3.5.3.12 TRENCHES SHALL BE BACKFILLED PROMPTLY AFTER THE OPEN TRENCH INSPECTION.

3.5.4 SLEEVING

3.5.4.1 SLEEVING SHALL EXTEND 4' MINIMUM BEYOND EDGE OF PAVING OR WALKWAY AND BE STUBBED UP INTO 10" ROUND VALVE BOXES.

3.5.4.2 ALL SLEEVING SHALL BE LAID WITH METALLIC WARNING TAPE 9" DIRECTLY ABOVE SLEEVE.

3.5.5 CONTROL WIRES; 14 GAUGE DIRECT BURY WITH WATERPROOF CONNECTIONS

3.5.5.1 BETWEEN CONTROLLERS AND REMOTE CONTROL VALVES, USE A CONTINUOUS WIRERUN. UNDER NO CIRCUMSTANCE SHALL SPLICING OCCUR.

3.5.5.2 WHERE MORE THAN ONE WIRE IS PLACED IN A TRENCH, THE WIRING SHALL BE TAPED TOGETHER AT INTERVALS OF TEN FEET ON CENTER.

3.5.5.3 WIRING SHALL OCCUPY THE SAME TRENCH AND SHALL BE INSTALLED ALONG THE SAME ROUTE AS THE PRESSURE SUPPLY LINE WHEREVER POSSIBLE. WIRE BUNDLE SHALL BE PLACED ALONG THE SIDE OF MAINLINE PIPE. WIRE BUNDLES SHALL NOT CROSS OVER TOP OF MAINLINE.

3.5.5.4 A LOOP OF TWELVE INCHES SHALL BE PROVIDED AT EACH DIRECTIONAL TURN IN THE WIRE RUN.

3.5.5.5 WIRE WILL BE LAID LOOSELY IN TRENCH, NOT PULLED TIGHT. LAY WIRE SO THAT THERE IS 12 INCHES OF SLACK FOR EVERY 100 FEET OF LENGTH.

3.5.5.6 PROVIDE AT LEAST ONE (1) EXTRA SPARE WIRE FOR EVERY THREE VALVES BEING SERVED BY THE WIRE RUN. EXTRA WIRES SHALL BE CONTINUOUS TO END OF WIRE RUN.

3.5.5.7 PROVIDE SUFFICIENT EXTRA WIRE UNDER VALVE BOXES SO THAT VALVE CAN BE COMPLETELY REMOVED FROM GROUND AND BOX FOR SERVICING WITHOUT DISCONNECTING WIRES.

3.5.6 VALVE BOXES

3.5.6.1 INSTALL VALVE BOXES IN ACCORDANCE WITH THE DETAILS THEREOF.

3.5.6.2 SEAL ALL BELOW-GRADE OPENINGS IN VALVE BOXES AND AROUND PIPING TO PREVENT SOIL FROM ENTERING THE VALVE BOX. SUITABLE MATERIALS INCLUDE GEOTEXTILE FABRIC, HEAVY GAUGE SHRINK-WRAP PLASTIC, OR OTHER FLEXIBLE MATERIAL APPROVED BY THE LANDSCAPE ARCHITECT. DO NOT USE CARDBOARD, DUCT TAPE, OR OTHER MATERIALS THAT WILL DETERIORATE IN WET CONDITIONS.

3.5.6.3 KEEP VALVE BOX LIDS IN PLACE DURING SOIL PREPARATION TO KEEP SOIL OUT. REMOVE ALL SOIL MATERIALS WHICH ENTER THE VALVE BOX DURING CONSTRUCTION.

3.5.6.4 INSTALL VALVE BOXES SO RIM IS IN SAME PLANE AS ADJACENT GRADE. WHERE VALVE BOXES OCCUR ADJACENT TO WALKS, CURBS, OR HEADERBOARD, LOCATE THEM 12" CLEAR FROM EDGE OF IMPROVEMENT. WHERE TWO OR MORE VALVE BOXES OCCUR TOGETHER, LOCATE THEM WITH 6" CLEAR BETWEEN AND IN A STRAIGHT ROW. DUE TO THE SCHEMATIC NATURE OF PLANS, IF VALVE BOX LOCATION IS UNCERTAIN, CONFIRM ACTUAL VALVE MANIFOLD LOCATIONS WITH LANDSCAPE ARCHITECT BEFORE PROCEEDING WITH WORK.

3.5.7 FLOW METER

3.5.7.1 INSTALL FLOW METER, IF USED, 10 PIPE DIAMETERS DOWNSTREAM OF REDUCED PRESSURE BACKFLOW PREVENTOR PER MANUFACTURERS RECOMMENDATIONS. INSTALL IN PLASTIC VALVE BOX WITH PLASTIC LID LABELED 'FLOW METER'.

3.5.8 SPRINKLER HEADS

3.5.8.1 INSTALL EACH TYPE OF SPRINKLER HEAD IN ACCORDANCE WITH THEIR RESPECTIVE DETAILS.

3.5.8.2 INSTALL SPRINKLER HEADS 6" AWAY FROM WALKWAY OR PAVING EDGE; 12" AWAY FROM BUILDINGS, ABOVE GROUND UTILITY STRUCTURES, TRANSFORMERS, AND OTHER ITEMS.

3.5.8.3 INSTALL SPRINKLER HEADS 12" AWAY FROM WALLS AND WOOD FENCES.

3.5.8.4 INSTALL SPRINKLER HEADS 6" AWAY FROM CHAIN LINK FENCES.

3.5.8.5 DO NOT LOCATE SPRINKLER HEADS WHERE IT IS OBVIOUS THEY WILL SPRAY ONTO OR INTO UTILITY STRUCTURES, BUILDINGS, SIGNS, CONTROLLER EQUIPMENT, OR OTHER STRUCTURES.

3.5.9 PRESSURE TEST

3.5.9.1 ALL PRESSURE LINES TRENCHES SHALL BE OPEN DURING THIS PRESSURE TEST.

3.5.9.2 ALL PRESSURE LINES SHALL BE TESTED UNDER PER ITEM 170, 3.11 HYDROSTATIC PRESSURE OF 80 PSI. LANDSCAPE CONTRACTOR SHALL SUPPLY ALL EQUIPMENT NEEDED FOR TESTING.

3.5.9.3 PRESSURE SHALL BE SUSTAINED IN THE LINES FOR NOT LESS THAN TWO HOURS. IF LEAKS DEVELOP, THE JOINTS SHALL BE REPLACED AND THE TEST REPEATED UNTIL THE ENTIRE SYSTEM IS PROVEN WATERTIGHT.

3.5.9.4 TESTS SHALL BE OBSERVED AND APPROVED BY THE TXDOT LANDSCAPE ARCHITECT PRIOR TO ANY BACKFILL.

3.5.9.5 UPON COMPLETION OF EACH PHASE OF THE WORK, THE ENTIRE SYSTEM SHALL BE TESTED AND ADJUSTED TO MEET SITE REQUIREMENTS.

3.5.10 FLUSHING THE SYSTEM

3.5.10.1 AFTER ALL VALVES, SPRINKLER PIPE LATERAL LINES, AND RISERS ARE IN PLACE AND CONNECTED, FLUSH ENTIRE SYSTEM, ONE VALVE AT A TIME, TO CLEAR LINES OF ALL DIRT AND DEBRIS.

3.5.10.2 INSTALL SPRINKLER HEADS, FILTER SCREENS, AND NOZZLES IMMEDIATELY AFTER FLUSHING OPERATION IS COMPLETED.

3.5.11 ADJUSTING OF SYSTEM

3.5.11.1 THE LANDSCAPE CONTRACTOR WILL FLUSH AND ADJUST ALL SPRINKLER HEADS FOR BEST POSSIBLE PERFORMANCE AND TO PREVENT OVERSPRAY ONTO WALKS, ROADWAYS, FENCES, AND BUILDINGS.

3.5.11.2 IF IT IS DETERMINED THAT ADJUSTMENTS IN THE IRRIGATION EQUIPMENT OR NOZZLE CHANGES WILL PROVIDE PROPER AND MORE ADEQUATE COVERAGE, LANDSCAPE CONTRACTOR SHALL MAKE ALL NECESSARY CHANGES, INCLUDING INSTALLATION OF ADDITIONAL SPRINKLER HEADS, OR MOVING SPRINKLER HEADS, WITHOUT ADDITIONAL COST TO THE OWNER, PRIOR TO PLANTING.

3.5.11.3 THE ENTIRE SYSTEM WILL BE OPERATING PROPERLY BEFORE ANY PLANTING OPERATIONS COMMENCE AND WILL BE DEMONSTRATED TO THE LANDSCAPE ARCHITECT FOR TxDOT, HIS AUTHORIZED REPRESENTATIVE AND / THE TxDOT INSPECTOR.

3.5.12 ELECTRICAL

3.5.12.1 LANDSCAPE CONTRACTOR WILL VERIFY POWER SOURCES WILL BE AS INDICATED ON THE DRAWINGS.

3.5.12.2 THE LANDSCAPE CONTRACTOR WILL BE RESPONSIBLE FOR MAKING 110-VOLT ELECTRICAL CONNECTIONS TO THE AUTOMATIC CONTROLLER AND WIRE CIRCUITS FROM REMOTE CONTROL VALVES TO CONTROLLERS. ALL ELECTRICAL WORK WILL BE IN ACCORDANCE WITH ALL LOCAL AND /OR COUNTY ORDINANCES. WIRE SIZES TO BE AS PER MANUFACTURER'S SPECIFICATIONS.

3.6 EQUIPMENT TO BE FURNISHED

3.6.1 THE LANDSCAPE CONTRACTOR WILL PROVIDE AS PART OF THIS CONTRACT, TWO SETS OF SPRINKLER WRENCHES FOR ADJUSTING, CLEANING, OR DISASSEMBLING EACH TYPE OF SPRINKLER.

3.6.2 TWO EACH OF ANY SPECIAL TOOLS REQUIRED FOR ANY OTHER EQUIPMENT SHALL ALSO BE FURNISHED.

3.6.3 PROVIDE TWO KEYS FOR EACH AUTOMATIC CONTROLLER.

3.6.4 TWO SERVICE MANUALS AND INFORMATION PAGES FOR ALL EQUIPMENT USED WILL BE FURNISHED TO THE OWNER. MANUALS MAY BE LOOSE LEAF AND SHOULD SHOW DRAWINGS OR EXPLODED VIEWS OF EQUIPMENT AND CATALOG NUMBER. OPERATING INSTRUCTIONS FOR ALL EQUIPMENT WILL BE FURNISHED.

(continued on the next page)

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HWY 380

IRRIGATION SPECIFICATIONS

DESIGN EBB	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
GRAPHICS EBB	6	(SEE TITLE SHEET)		380
CHECK EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
	CONTROL	SECTION	JOB	
	0134	09	066 ,ETC	

3.7 INSPECTION OF WORK

3.7.1 INSTALLATIONS AND OPERATIONS MUST BE APPROVED BY THE LANDSCAPE ARCHITECT FOR TxDOT, HIS AUTHORIZED REPRESENTATIVE AND / THE TxDOT INSPECTOR.

3.7.2 IN NO EVENT WILL THE LANDSCAPE CONTRACTOR COVER-UP OR OTHERWISE REMOVE FROM VIEW ANY WORK UNDER THIS CONTRACT WITHOUT PRIOR APPROVAL OF THE LANDSCAPE ARCHITECT FOR TxDOT, HIS AUTHORIZED REPRESENTATIVE AND / THE TxDOT INSPECTOR. THE LANDSCAPE CONTRACTOR, AT HIS OWN EXPENSE, SHALL OPEN ANY WORK COVERED PRIOR TO INSPECTION FOR VIEWING. THE LANDSCAPE CONTRACTOR SHALL REQUEST AN INSPECTION BY THE LANDSCAPE ARCHITECT FOR TxDOT, HIS AUTHORIZED REPRESENTATIVE AND / THE TxDOT INSPECTOR. AT LEAST TWO DAYS IN ADVANCE. INSPECTION WILL BE REQUIRED AS FOLLOWS:

3.7.2.1 MAINLINE PRESSURE TEST AND TRENCH DEPTH INSPECTIONS:

3.7.2.1.1 PRIOR TO BACKFILL.

3.7.2.1.2 SPOT-CHECK UPON BACKFILL COMPLETION.

3.7.2.2 COVERAGE TEST UPON SPRINKLER SYSTEM COMPLETION.

3.8 RECORD DRAWINGS

3.8.1 RECORD ACCURATELY ON ONE SET OF DRAWINGS OF ALL CHANGES IN THE WORK IN THE FIELD CONSTITUTING DEPARTURES FROM THE ORIGINAL CONTRACT DRAWINGS AND THE ACTUAL FINAL INSTALLED LOCATIONS OF ALL COMPONENTS AS SHOWN BELOW FOR INCLUSION IN THE GPS DATA COLLECTED FOR THE AS-BUILTS. CONTRACTOR SHALL BE REQUIRED TO SUBMIT THIS FIELD SET TO THE LANDSCAPE ARCHITECT FOR TxDOT, HIS AUTHORIZED REPRESENTATIVE AND / OR THE TxDOT INSPECTOR. CONTRACTOR SHALL BE REQUIRED TO UPDATE THIS FIELD SET ON A DAILY BASIS FOR INSPECTION BY THE LANDSCAPE ARCHITECT FOR TxDOT, HIS AUTHORIZED REPRESENTATIVE AND / OR THE TxDOT INSPECTOR. IF THIS FIELD SET IS NOT PROVIDED OR NOT KEPT UP TO DATE, ALL IRRIGATION WORK WILL STOP UNTIL THIS FIELD SET IS PROVIDED AND WITH UP TO DATE CHANGES.

3.8.2 RECORD DRAWINGS WILL BE COMPILED USING A GPS DATA COLLECTION PROCESS. NO MANUAL FIELD MEASURED RECORD DRAWINGS WILL BE ACCEPTABLE. RECORD DRAWING INFORMATION WILL BE PROVIDED AS A PLOTTED DRAWING OF THE PROJECT IRRIGATION SYSTEM, A DIGITAL AUTOCAD FILE AND A GPS DATA FILE. ALL DIGITAL FILES SHALL BE PROVIDED ON A CD DISKETTE CLEARLY MARKED WITH THE PROJECT NAME, CSJ NUMBER, FILE DESCRIPTIONS, AND DATE.

3.8.3 THE GPS LOCATION WILL BE ACCURATE TO WITHIN 10 CENTIMETERS OF THE ACTUAL EQUIPMENT LOCATIONS. THE CHANGES AND DIMENSIONS WILL BE RECORDED IN AN AUTOCAD DRAWING FILE USING EITHER ACCURACY VERIFIED BASE SHEETS OR AN AERIAL PHOTOGRAPH OF THE PROJECT SITE. PRIOR TO FINAL INSPECTION OF WORK, SUBMIT RECORD DRAWINGS FOR REVIEW BY THE LANDSCAPE ARCHITECT FOR TxDOT AND / OR HIS AUTHORIZED REPRESENTATIVE.

3.8.4 GPS DATA FOR THE RECORD DRAWINGS SHALL BE COLLECTED ON A DAY TO DAY BASIS DURING THE INSTALLATION OF THE PRESSURE MAINLINE OR AS REQUIRED TO FULLY INDICATE ALL ROUTING LOCATIONS AND PIPE DEPTHS.

3.8.5 DIMENSIONS FROM/TO PERMANENT POINTS OF REFERENCE SUCH AS BUILDINGS, SIDEWALKS, CURBS, ETC. WILL BE SHOWN FOR EACH PIECE OF IRRIGATION EQUIPMENT SHOWN BELOW. ALL IRRIGATION SYMBOLS WILL BE CLEARLY SHOWN MATCHING THE IRRIGATION LEGEND FOR THE DRAWINGS. ALL LETTERING ON THE RECORD DRAWINGS WILL BE MINIMUM 1/8-INCH IN SIZE ON A 24 X 36" SHEET.

3.8.6 THE GPS DATA COLLECTED FOR THE IRRIGATION SYSTEM WILL CONSIST OF EQUIPMENT MANUFACTURER, MODEL NUMBERS, SIZE, TYPE AND, WHERE APPLICABLE, FLOW RATES.

3.8.7 SHOW LOCATIONS, DEPTHS AND THE REQUIRED GPS INFORMATION OF THE FOLLOWING ITEMS:

3.8.7.1 POINT OF CONNECTION INCLUDING WATER POC, BACKFLOW DEVICES, MASTER CONTROL VALVES, FLOW SENSORS, ETC.AND INDICATE MANUFACTURER, MODEL AND SIZE.

3.8.7.2 ROUTING OF SPRINKLER PRESSURE MAIN LINES (DIMENSIONS SHOWN AT A MAXIMUM OF 100 FEET ALONG ROUTING)

3.8.7.3 ISOLATION VALVES (INDICATE TYPE, MANUFACTURER, MODEL AND SIZE)

3.8.7.4 AUTOMATIC REMOTE CONTROL VALVES (INDICATE MANUFACTURER, MODEL, FLOW RATE AND SIZE)

3.8.7.5 QUICK COUPLING VALVES (INDICATE MANUFACTURER, MODEL AND SIZE)

3.8.7.6 ROUTING OF CONTROL WIRES

3.8.7.7 IRRIGATION CONTROLLERS (INDICATE MANUFACTURER, MODEL AND SIZE)

3.8.7.8 RELATED EQUIPMENT (AS MAY BE DIRECTED BY THE LANDSCAPE ARCHITECT FOR TxDOT, HIS AUTHORIZED REPRESENTATIVE AND / THE TxDOT INSPECTOR.)

3.8.8 A FIRM SPECIFICALLY ENGAGED IN GPS DATA COLLECTION AND MAPPING SHALL COLLECT GPS DATA FOR THE RECORD DRAWINGS.

3.8.9 RECORD DRAWINGS MUST BE APPROVED BY THE LANDSCAPE ARCHITECT FOR TxDOT, HIS AUTHORIZED REPRESENTATIVE AND / THE TxDOT INSPECTOR BEFORE CHARTS ARE PREPARED.

3.8.10 PROVIDE ONE CONTROLLER CHART FOR EACH AUTOMATIC CONTROLLER. CHART SHALL SHOW THE AREA COVERED BY THE PARTICULAR CONTROLLER.

3.8.11 THE CHART IS TO BE A REDUCED COPY OF THE ACTUAL "RECORD" DRAWING LARGE ENOUGH TO BE LEGIBLE AND MAY BE FOLDED AS REQUIRED. THIS CHART MUST BE APPROVED BY THE LANDSCAPE ARCHITECT FOR TxDOT, HIS AUTHORIZED REPRESENTATIVE AND / THE TxDOT INSPECTOR PRIOR TO INSERTION INTO THE CONTROLLER.

3.8.12 WHEN COMPLETED AND APPROVED, THE CHART SHALL BE HERMETICALLY SEALED BETWEEN TWO PIECES OF PLASTIC, EACH PIECE BEING A MINIMUM 20 MILS IN THICKNESS.

3.9 NO USED

3.10 CLEAN-UP AND REPAIR

3.10.1 UPON COMPLETION OF THE WORK, MAKE THE GROUND SURFACE LEVEL, REMOVE EXCESS MATERIALS, RUBBISH, DEBRIS, ETC., AND REMOVE CONSTRUCTION AND INSTALLATION EQUIPMENT FROM THE PREMISES. BACKFILL AND COMPACT TRENCHES.

3.10.2 REPLACE AND/OR REPAIR TO THE SATISFACTION OF THE LANDSCAPE ARCHITECT FOR TxDOT, HIS AUTHORIZED REPRESENTATIVE AND / THE TxDOT INSPECTOR, ALL EXISTING PAVING DISTURBED DURING THE COURSE OF THIS WORK. NEW PAVING SHALL BE THE SAME TYPE, STRENGTH, TEXTURE, FINISH, AND BE EQUAL IN EVERY WAY TO THE MATERIAL REMOVED.

3.10.3 LANDSCAPE CONTRACTOR WILL BE RESPONSIBLE FOR ALL MAINTENANCE AND REPAIR OF ENTIRE IRRIGATION SYSTEM, INCLUDING VANDALISM, UNTIL FINAL ACCEPTANCE.

3.10.4 LANDSCAPE CONTRACTOR WILL CONTINUE LANDSCAPE MAINTENANCE AS REQUIRED BY BID ITEM 193.

3.11 FINAL INSPECTION

3.11.1 THE LANDSCAPE CONTRACTOR WILL SHOW EVIDENCE TO THE LANDSCAPE ARCHITECT FOR TxDOT, HIS AUTHORIZED REPRESENTATIVE AND / THE TxDOT INSPECTOR THAT TxDOT HAS RECEIVED ALL REQUIRED ACCESSORIES, CHARTS, RECORD DRAWINGS, ETC., BEFORE FINAL INSPECTION CAN OCCUR.

3.11.2 NOTIFICATION BY THE LANDSCAPE CONTRACTOR WILL BE MADE IN WRITING TO THE LANDSCAPE ARCHITECT FOR TxDOT, HIS AUTHORIZED REPRESENTATIVE AND / THE TxDOT INSPECTOR SEVEN DAYS PRIOR TO FINAL INSPECTION. THE FINAL INSPECTION OF THE WORK WILL BE MADE IN THE PRESENCE OF THE LANDSCAPE ARCHITECT FOR TxDOT, HIS AUTHORIZED REPRESENTATIVE AND / THE TxDOT INSPECTOR AND THE GOVERNING PUBLIC AGENCY THAT WILL BE RESPONSIBLE FOR THE WATERING AND LANDSCAPE MAINTENANCE AT THE TIME THE WORK IS COMPLETED AND READY TO BE TURNED OVER.

3.12 GUARANTEE

3.12.1 THE ENTIRE SPRINKLER SYSTEM WILL BE GUARANTEED BY THE LANDSCAPE CONTRACTOR AS TO MATERIAL AND WORKMANSHIP, INCLUDING SETTLING OF BACKFILLED AREAS AND TRENCHES FOR A PERIOD OF ONE YEAR FOLLOWING THE DATE OF FINAL ACCEPTANCE OF THE WORK.

3.12.2 SHOULD ANY OPERATIONAL DEFICIENCIES IN CONNECTION WITH THE SPRINKLER SYSTEM DEVELOP WITHIN THE SPECIFIED GUARANTEE PERIOD, WHICH IN THE OPINION OF THE LANDSCAPE ARCHITECT FOR TxDOT, HIS AUTHORIZED REPRESENTATIVE AND / THE TxDOT INSPECTOR, MAY BE DUE TO INFERIOR MATERIAL AND/OR WORKMANSHIP, SAID DEFICIENCIES SHALL BE IMMEDIATELY CORRECTED BY THE LANDSCAPE CONTRACTOR TO THE SATISFACTION OF THE LANDSCAPE ARCHITECT FOR TxDOT, HIS AUTHORIZED REPRESENTATIVE AND / THE TxDOT INSPECTOR, AT NO ADDITIONAL COST.

3.13 TEMPORARY REPAIRS

3.13.1 THE LANDSCAPE ARCHITECT FOR TxDOT, HIS AUTHORIZED REPRESENTATIVE AND / THE TxDOT INSPECTOR RESERVES THE RIGHT TO MAKE TEMPORARY REPAIRS AS NECESSARY TO KEEP THE SPRINKLER SYSTEM EQUIPMENT IN OPERATING CONDITION. THE EXERCISE OF THIS RIGHT BY THE OWNER WILL NOT RELIEVE THE LANDSCAPE CONTRACTOR OF HIS/HER RESPONSIBILITIES UNDER THE TERM OF THE GUARANTEE AS HEREIN SPECIFIED.

PART 4 PAYMENT

4.1 PAYMENT FOR THE WORK OF THIS SECTION SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 170 FOR "IRRIGATION SYSTEM-COMPLETE" AND NO ADDITIONAL COSTS WILL BE CONSIDERED.

END OF SECTION

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HWY 380

IRRIGATION SPECIFICATIONS

DESIGN EBB	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
GRAPHICS EBB	6	(SEE TITLE SHEET)		380
CHECK EBB	STATE	DISTRICT	COUNTY	SHEET NO.
	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

BID ITEM 192 AND 193 - LANDSCAPE PLANTING / LANDSCAPE ESTABLISHMENT
GENERAL NOTES AND SPECIFICATIONS SUBSIDIARY TO BID ITEM 192 AND 193

PART 1 GENERAL

1.1 DESCRIPTION

1.1.1 THE GENERAL AND SPECIAL CONDITIONS OF THE CONTRACT APPLY TO THE WORK OF THIS SECTION THE SAME AS THOUGH WRITTEN HEREIN.

1.2 SCOPE OF WORK

1.2.1 THE WORK INCLUDES ALL LABOR, MATERIALS, AND EQUIPMENT TO PERFORM THE WORK HEREIN AND AS REQUIRED TO COMPLETE THE CONTRACT PROPERLY.

1.2.2 THE LANDSCAPE CONTRACTOR WILL ADEQUATELY PROTECT THE WORK, ADJACENT PROPERTY, AND THE PUBLIC, AND WILL BE RESPONSIBLE FOR ANY DAMAGE, INJURY, AND LOSS DUE TO HIS/HER ACTS OR NEGLIGENCE. LANDSCAPE CONTRACTOR WILL CONTINUOUSLY PROTECT AND MAINTAIN ALL AREAS INCLUDED IN THE CONTRACT DURING THE PROGRESS OF THE WORK, THROUGH THE ESTABLISHMENT PERIOD, AND UNTIL FINAL ACCEPTANCE OF THE WORK. LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS OR REPLACEMENTS CAUSED BY ACTS OF VANDALISM, INCLUDING REMOVAL OF GRAFFITI, AND/OR REFINISHING, AS REQUIRED.

1.2.3 THE LANDSCAPE ARCHITECT FOR TxDOT, HIS/HER AUTHORIZED REPRESENTATIVE, OR THE TxDOT INSPECTOR, WILL BE NOTIFIED OF ANY DISCREPANCIES BETWEEN THE RECOMMENDATIONS ON THE CONTRACT DOCUMENTS AND SITE CONDITIONS.

1.2.4 THE LANDSCAPE CONTRACTOR WILL EMPLOY ONLY CERTIFIED LANDSCAPE TECHNICIANS AS FOREMEN FOR ALL PLANTING INSTALLATION WORK. SEE 1.7.1 PG 62 TNLA CERTIFIED LANDSCAPE PROFESSIONAL (TCLP)

1.3 RELATED WORK

1.3.1 BID ITEM 170 - IRRIGATION SYSTEM

1.3.2 BID ITEM 193 - LANDSCAPE ESTABLISHMENT

1.4 SUBMITTALS, TESTS, AND INSPECTIONS

1.4.1 SUBMIT SAMPLES AND/OR DESCRIPTIVE LITERATURE AND SPECIFICATIONS FOR THE FOLLOWING:
A. ORGANIC SOIL AMENDMENTS.
B. PRE-EMERGENT HERBICIDE(S).
C. ALL INORGANIC SOIL AMENDMENTS, FERTILIZERS, AND CHEMICALS.
D. ALL PLANT MATERIALS: TREES, SHRUBS, SOD, AND GROUND COVERS (SEE SECTION 1.4.4 BELOW).
E. ORGANIC AND INORGANIC MULCH MATERIALS.
F. HYDRO SEEDING MATERIALS AND SEEDS.
G. POTTERY AND OTHER LANDSCAPE FURNISHINGS IF CALLED FOR ON THE DRAWINGS.

1.4.1.2 NOT USED

1.4.2 LANDSCAPE CONTRACTOR WILL SUBMIT TO THE LANDSCAPE ARCHITECT FOR TxDOT, HIS/HER AUTHORIZED REPRESENTATIVE, OR THE TxDOT INSPECTOR, PHOTOCOPIES OF CURRENT REGISTRATION FOR ALL FOREMEN PERFORMING WORK ON THIS PROJECT.

1.4.2.1 ANY SAMPLING, TESTING, OR INSPECTION COSTS OF MATERIAL ARE TO BE BORNE BY THE LANDSCAPE CONTRACTOR, AND COPIES OF INSPECTION CERTIFICATES, REQUIRED BY LAW, WILL BE FURNISHED WITHOUT ADDITIONAL CHARGE.

1.4.2.2 SUBMIT, TO THE LANDSCAPE ARCHITECT FOR TxDOT, HIS/HER AUTHORIZED REPRESENTATIVE, OR THE TxDOT INSPECTOR, ORIGINAL (NOT PHOTOCOPIED) DELIVERY TICKETS FOR ALL MATERIALS DELIVERED TO THE JOBSITE. IT IS THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR TO MAINTAIN COPIES OF TRIP TICKETS FOR HIS USE. THIS REQUIREMENT MUST BE SATISFIED PRIOR TO COMMENCEMENT OF THE ESTABLISHMENT PERIOD.

1.4.3 PLANT MATERIAL 15 GALLON AND LARGER WILL BE APPROVED AND TAGGED AT THE SOURCE PRIOR TO DELIVERY. WHEN THIS IS NOT PRACTICAL, AND APPROVED BY THE LANDSCAPE ARCHITECT FOR TxDOT, HIS/HER AUTHORIZED REPRESENTATIVE, OR THE TxDOT INSPECTOR, PHOTOS SHALL BE SUBMITTED FOR APPROVAL. SUBMIT SOURCE FOR ALL 5 GALLON AND SMALLER PLANT MATERIALS. REGARDLESS OF WHICH METHOD IS USED, FINAL APPROVAL OF PLANT MATERIAL SHALL OCCUR AT THE SITE. ANY PLANT MATERIAL THAT IS NOT ACCEPTED SHALL BE IMMEDIATELY REMOVED FROM THE SITE AT LANDSCAPE CONTRACTOR'S EXPENSE.

PART 2 PRODUCTS

2.1 BOXED TREES, CONTAINER TREES, AND OTHER PLANT MATERIAL

2.1.1 NOMENCLATURE: SEE LIST OF PLANT MATERIALS ON LANDSCAPE PLANTING PLAN. PLANT SPECIES' NAMES SHALL BE PER 2012 EDITION OF SUNSET WESTERN GARDEN BOOK. BOTANICAL NAMES WILL TAKE PRECEDENCE OVER COMMON NAMES.

2.1.2 CONDITIONS: PLANTS WILL BE SYMMETRICAL, TYPICAL FOR VARIETY AND SPECIES, SOUND, HEALTHY, VIGOROUS, FREE FROM PLANT DISEASE, INSECT PESTS OR THEIR EGGS, EXCESSIVE ABRASIONS OR OTHER OBJECTIONABLE DISFIGUREMENTS, AND WILL HAVE HEALTHY, NORMAL ROOT SYSTEMS, WELL-FILLING THEIR CONTAINERS, BUT NOT TO THE POINT OF BEING ROOT BOUND. TREE TRUNKS WILL BE STURDY AND WELL HARDENED-OFF. PLANTS WILL NOT BE PRUNED PRIOR TO DELIVERY EXCEPT AS AUTHORIZED BY THE LANDSCAPE ARCHITECT. ANY PLANT MATERIAL PRUNED PRIOR TO DELIVERY WILL BE REJECTED.

2.1.3 GROUNDCOVER PLANTS (ROOTED CUTTINGS) WILL HAVE BEEN GROWN IN FLATS AND WILL REMAIN IN THOSE FLATS UNTIL TIME FOR TRANSPLANTING. AT TIME OF TRANSPLANTING, THE FLAT SOIL WILL CONTAIN SUFFICIENT MOISTURE SO THAT THE SOIL DOES NOT FALL APART WHEN LIFTING PLANTS FROM FLAT. EACH PLANT WILL BE PLANTED WITH ITS PROPORTIONATE AMOUNT OF THE FLAT SOIL IN A MANNER THAT WILL ENSURE A MINIMUM OF DISTURBANCE TO THE ROOT SYSTEM. PLANTS WILL BE FULLY DEVELOPED AND HARDENED OFF AND WILL BE FILLING THE FLAT.

2.1.4 IN NO CASE WILL TREES OR SHRUBS BE TOPPED OR PRUNED WITHIN 6 MONTHS PRIOR TO DELIVERY. PLANTS WILL BE GROWN IN NURSERIES THAT HAVE BEEN INSPECTED BY THE STATE DEPARTMENT OF AGRICULTURE AND HAVE COMPLIED WITH ITS REGULATIONS. ANY TREE PRUNED PRIOR TO DELIVERY WILL BE REJECTED.

2.1.5 IDENTIFICATION: PLANTS WILL BE OF THE VARIETY AND SIZE SHOWN ON THE DRAWINGS, AND WILL CONFORM TO THE REQUIREMENTS HEREIN. ONE OF EACH BUNDLE OR LOT WILL BE TAGGED WITH PLANT NAME IN ACCORDANCE WITH RECOMMENDATIONS OF THE AMERICAN ASSOCIATION OF NURSERYMEN.

2.1.6 SUBSTITUTIONS: THE LANDSCAPE CONTRACTOR WILL NOT SUBSTITUTE ANY PLANT MATERIAL WITHOUT AUTHORIZATION BY THE LANDSCAPE ARCHITECT FOR TxDOT, HIS/HER AUTHORIZED REPRESENTATIVE, OR THE TxDOT INSPECTOR, WITHIN 10 CALENDAR DAYS OF NOTICE TO PROCEED. LANDSCAPE CONTRACTOR WILL SUBMIT COPIES OF ALL PAPERWORK TO THE LANDSCAPE ARCHITECT FOR TxDOT, HIS/HER AUTHORIZED REPRESENTATIVE, OR THE TxDOT INSPECTOR, STATING LOCATION OF PLANT MATERIAL TO BE PURCHASED AND TO BE INSTALLED ON THIS PROJECT. WORK WILL NOT PROCEED WITHOUT RECEIPT OF THIS PAPERWORK. SUBSTITUTIONS FOR THE INDICATED PLANT MATERIALS WILL BE PERMITTED PROVIDED THE LANDSCAPE CONTRACTOR BEING AWARDED THE PROJECT NOTIFIED THE LANDSCAPE ARCHITECT FOR TxDOT, HIS/HER AUTHORIZED REPRESENTATIVE, OR THE TxDOT INSPECTOR, OF LACK OF AVAILABILITY DURING THE BIDDING PROCESS. THE LANDSCAPE ARCHITECT FOR TxDOT, HIS/HER AUTHORIZED REPRESENTATIVE, OR THE TxDOT INSPECTOR, MAY ALLOW THE REQUESTED SUBSTITUTIONS AS LONG AS THE SUBSTITUTIONS ARE MADE AT NO ADDITIONAL COST TO TxDOT. EXCEPT FOR THE VARIATIONS SO AUTHORIZED, SUBSTITUTED PLANT MATERIALS WILL CONFORM TO THE REQUIREMENTS OF THESE SPECIFICATIONS. IF ACCEPTED, SUBSTITUTE MATERIALS THAT ARE LESS VALUE THAN THOSE INDICATED OR SPECIFIED, WILL BE ADJUSTED IN THE CONTRACT PRICE IN ACCORDANCE WITH THE PROVISIONS OF THE CONTRACT. SHOULD THE LANDSCAPE CONTRACTOR FAIL TO PROCURE THE REQUIRED PLANT MATERIAL CALLED FOR IN THE DRAWINGS AFTER SUBMITTING THE PAPERWORK CALLED FOR ABOVE INDICATING THE PLANT MATERIAL WAS AVAILABLE AND SET ASIDE FOR THIS PROJECT, THE LANDSCAPE CONTRACTOR WILL INSTALL THE NEXT SIZE UP AT NO ADDITIONAL COST TO TxDOT.

2.1.7 CONTAINER PLANT INSPECTION AND REJECTION: ROOT CONDITION OF CONTAINER PLANTS WILL BE DETERMINED BY THE LANDSCAPE ARCHITECT FOR TxDOT, HIS/HER AUTHORIZED REPRESENTATIVE, OR THE TxDOT INSPECTOR, THROUGH THE REMOVAL OF PLANTS FROM THEIR CONTAINERS OF AT LEAST TWO PLANTS BUT NOT MORE THAN 2% OF THE TOTAL NUMBER EACH SPECIES FROM EACH SOURCE AND EACH SIZE.

2.1.8 LANDSCAPE ARCHITECT FOR TxDOT, HIS/HER AUTHORIZED REPRESENTATIVE, OR THE TxDOT INSPECTOR, WILL INSPECT TREES UPON DELIVERY. PER BID ITEM 192, TREES AND/OR SHRUBS WILL BE REJECTED IF, AT A MINIMUM, ANY ONE OF THE FOLLOWING CHARACTERISTICS ARE PRESENT:

A. ENLARGED CANKERS OR GALLS AT THE BASE OF THE TRUNK, JUST ABOVE THE SOIL LEVEL.
B. CROOKED TRUNKS.
C. SCARS OR TRUNK DAMAGE, BROKEN BRANCHES, ETC.
D. ASYMMETRICAL BRANCHING.
E. ROOT BOUND CONDITION.
F. ANY TREES THAT HAVE BEEN RECENTLY PRUNED BACK.
H. NON-CURED B&B
I. SPLIT LEADERS
G. GIRDLING ROOTS

FOR COMPLETE LIST, REFER TO ITEM 192 2.2 OF THE TEXAS STANDARD SPECIFICATION FOR CONSTRUCTION AND MAINTENANCE OF HIGHWAY.

2.1.8.1 ALL TREES WILL BE MATCHING IN SIZE AND SHAPE.

2.1.9 QUANTITIES: IN ALL CASES, PLANT MATERIAL WILL BE FURNISHED AS NEEDED TO COMPLETE WORK AS INDICATED ON THE DRAWINGS, INCLUDING RESEEDING, REPLANTING, AND MAINTENANCE (REPLACEMENTS) DURING THE CONTRACT PERIOD.

2.1.10 SIZES AND CALIPER: MINIMUM HEIGHT (ABOVE SOIL LEVEL), WIDTH (AVERAGE DIAMETER OF DRIP LINE), AND CALIPER (TREES ONLY, MEASURED AT 6" ABOVE ROOT FLARE) OF PLANT MATERIALS WILL BE AS NOTED IN THE LEGEND.

2.1.11 WHERE PALMS ARE SPECIFIED BY HEIGHT, BTH (BROWN TRUNK HEIGHT) WILL BE AS MEASURED FROM THE SOIL LEVEL TO THE BASE OF THE PETIOLE OF THE LOWEST FROND WITH AN ANGLE OF LESS THAN 90 DEGREES TO THE TRUNK.

2.2 SOIL AMENDMENTS

2.2.1 ALL AREAS TO BE PLANTED AND IRRIGATED WILL RECEIVE SOIL AMENDMENTS, EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS.

2.2.2 NOT USED.

2.2.2.1 GENERAL SOIL PREPARATION FOR AREAS WHICH ARE LESS THAN 2:1 SLOPE ASPECT RATIO, AMOUNT PER 1000 SQUARE FEET:
- 4 CU. YDS. COMPOSTED ORGANIC SOIL AMENDMENT (PER SECTION 2.2.3).
- 75 LBS. HUMATE PLUS, (AVAILABLE FROM TRI-C ENTERPRISES, CHINO, CA, 800-927-3311
- 25 LBS. 16-6-8 GRANULAR FERTILIZER
- 100 LBS. AGRICULTURAL GYPSUM
- 10 LBS. SOIL SULFUR

2.2.2.2 NOT USED.
2.2.3 COMPOSTED ORGANIC SOIL AMENDMENT

2.2.3.1 LETCO - AZALEA SOIL BLEND

2.2.3.3 PRODUCT WILL BE RICH FULLY COMPOSTED 100 % RECYCLED ORGANIC PRODUCT CONSISTING OF 35% DIGESTED, CENTRIFUGED, COMPOSTED BIO-SOLIDS PRODUCT, AND 65% AGED WOOD FIBERS.

2.2.3.4 FOR EACH PRODUCT TO BE USED, LANDSCAPE CONTRACTOR WILL SUBMIT A SAMPLE AND SPECIFICATION SHEET, INCLUDING PARTICLE SIZE EVALUATION, TOTAL N (NITROGEN), NH4-N (AMMONIA), NO3-N (NITRATE), ECE, PH, MICRO NUTRIENTS, AND METALS. GUARANTEED ANALYSIS WILL CONFORM TO THE FOLLOWING, WITH A ± 10% VARIANCE ALLOWABLE OR AS PER ITEM 161 WHICHEVER IS MORE

TOTAL NITROGEN	0.50%
- (1) ORGANIC N	0.40%
- (2) AMMONIUM / N	0.09%
- (3) NITRATE N	0.01%
PHOSPHORUS (as P2O5)	8,684ppm
POTASSIUM (as K20)	5,485ppm
CALCIUM	25,783ppm
COPPER	195ppm
IRON	17,562ppm
MAGNESIUM	4,413ppm
MANGANESE	283ppm
SULFUR	4,927ppm
ZINC	362ppm
BORON	>1.00ppm
CARBON TO NITROGEN RATIO	20:01
ORGANIC MATTER (DRY WT BASIS)	40%
EcE LESS THAN 10.50 mmhos/cmpH RANGE	7.2-7.8
MOISTURE CONTENT	45-50%
BULK DENSITY	1,100 lbs. per cu. yd.

2.2.3.5 PARTICLE SIZE WILL BE 100 % PASSING A 1/2" SCREEN.

2.2.4 THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR CORRECTION OF SOIL PH, NUTRIENT LEVELS, AND CHEMICAL BALANCE UNTIL FINAL ACCEPTANCE BY TxDOT. THE LANDSCAPE CONTRACTOR WILL TAKE SOIL SAMPLES FROM THREE SEPARATE LOCATIONS AS DIRECTED BY THE LANDSCAPE ARCHITECT FOR TxDOT, HIS/HER AUTHORIZED REPRESENTATIVE, OR THE TxDOT INSPECTOR, AND PREPARE SOILS REPORTS BY A TESTING SERVICE APPROVED BY THE LANDSCAPE ARCHITECT FOR TxDOT, HIS/HER AUTHORIZED REPRESENTATIVE, OR THE TxDOT INSPECTOR. PREPARE SOILS REPORTS BEFORE PREPARING SOIL, AT THE START OF THE ESTABLISHMENT PERIOD, ON THE 45TH DAY OF ESTABLISHMENT PERIOD, AND ON THE 80TH DAY OF ESTABLISHMENT PERIOD OR AS DIRECTED BY THE DRAWINGS. CORRECT ANY DEFICIENCIES IDENTIFIED AT TESTING INTERVALS BY AMENDING OR TOP DRESSING AS REQUIRED, AT NO ADDITIONAL COST TO THE OWNER.

2.3 NOT USED

2.4 HYDROSEEDING MATERIALS

2.4.1 HYDROSEED SLURRY COMPOSITION WILL BE PER BID ITEM 164.

2.4.2 ALL SEED WILL BE NEW CROP SEED LABELED IN ACCORDANCE WITH US. DEPARTMENT OF AGRICULTURE RULES AND WILL BE FURNISHED IN SEALED, STANDARD CONTAINERS. SEED THAT HAS BECOME WET, MOLDY, OR OTHERWISE DAMAGED, WILL NOT BE ACCEPTABLE.

2.4.3 SEED AND/OR STOLON TYPES WILL BE AS SPECIFIED AND WILL BE APPLIED AT THE RATES INDICATED PER BID ITEM 164.

2.4.4 MULCH MATERIAL WILL BE CLEAN, NATURAL WOOD CELLULOSE FIBER. NATURAL WOOD CELLULOSE FIBER WILL BE PROCESSED IN SUCH A MANNER THAT IT WILL CONTAIN NO GROWTH OR GERMINATION INHIBITING FACTORS AND WILL BE DYED GREEN TO FACILITATE METERING OF MATERIALS. IT WILL BE MANUFACTURED IN SUCH A MANNER THAT AFTER EACH ADDITION AND AGITATION IN SLURRY TANKS WITH FERTILIZER, SEED, WATER, AND OTHER APPROVED ADDITIVES, THE FIBERS IN THE MATERIAL WILL BECOME UNIFORMLY SUSPENDED TO FORM A HOMOGENEOUS SLURRY; AND THAT WHEN HYDRAULICALLY SPRAYED, WILL UNIFORMLY COVER THE GROUND WITH SEED AND MULCH, AND WHICH AFTER APPLICATION, WILL ALLOW THE ABSORPTION OF MOISTURE AND WILL ALLOW RAINFALL TO PERCOLATE TO THE UNDERLYING SOIL. MATERIALS WHICH INHIBIT GERMINATION OR GROWTH SHALL NOT BE PRESENT IN THE MIXTURE.

2.4.5 STABILIZATION AND WATER RETAINING AGENTS WILL BE ECOLOGY CONTROLS "M" BINDER, OR APPROVED EQUAL.

2.4.6 FERTILIZER WILL BE AN APPROVED STANDARD BRAND CONFORMING WITH PERTINENT STATE FERTILIZER LAWS, UNIFORM IN COMPOSITION, DRY, AND FREE FLOWING.

2.4.7 FERTILIZER WILL BE A COMMERCIAL GRADE, UNIFORM IN COMPOSITION, DRY, AND FREE FLOWING, OF ANALYSIS AS NOTED ON DRAWINGS, AND PARTICLE SIZE OF NOT LESS THAN 2% THROUGH A NUMBER 48 MESH.

2.4.8 FERTILIZER WILL BE DELIVERED TO THE SITE IN THE ORIGINAL UNOPENED CONTAINER, BEARING THE MANUFACTURER'S GUARANTEED ANALYSIS. ANY FERTILIZER THAT BECOMES CAKED OR DAMAGED WILL NOT BE ACCEPTABLE.

(continued on the next page)

CITY OF DENTON

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REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS
5-31-2019

HWY 380

PLANTING SPECIFICATIONS

DESIGN EBB	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
GRAPHICS EBB	6	(SEE TITLE SHEET)		380
CHECK EBB	STATE	DISTRICT	COUNTY	SHEET NO.
	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

2.6 HEADER MATERIAL

2.6.1 CONCRETE HEADERS AND MOW CURBS WILL BE INSTALLED ACCORDING TO THE DETAILS AND IN STRICT ADHERENCE TO THE DIMENSIONING PLAN IF DIMENSIONS ARE INDICATED. FORMS FOR THE ABOVE WILL BE STAKED AT 4 FEET MAXIMUM INTERVALS AND ALL FORMING WILL BE APPROVED IN THE FIELD BY THE LANDSCAPE ARCHITECT FOR TxDOT, HIS/HER AUTHORIZED REPRESENTATIVE, OR THE TxDOT INSPECTOR PRIOR TO POURING CONCRETE. MOW CURBS MAY BE EXTRUDED IF THELANDSCAPE ARCHITECT FOR TxDOT, HIS/HER AUTHORIZED REPRESENTATIVE, OR THE TxDOT INSPECTORAPPROVES SUCH METHODS IN ADVANCE.

2.6.2 FORMING STAKES WILL BE AT LEAST ONE INCH BY TWO INCHES ACTUAL DIMENSIONS, OF LENGTH NECESSARY TO EXTEND INTO SOLID EARTH A MINIMUM OF TWELVE (12) INCHES.

2.7 TREE STAKES

2.7.1 USE TREE STAKE SOLUTION ROOT ANCHORS, OR APPROVED ROOT ANCHOR SYSTEM.

2.11 IMPORT SOIL OR TOPSOIL

2.11.1 IMPORT SOIL SHALL BE CLASS A TOPSOIL NATURAL, FRIABLE, WELL-DRAINING SOIL. PROVIDE SOIL FREE FROM SUBSOIL, BRUSH, OBJECTIONABLE WEEDS, SEEDS, ROCKS, ORGANIC OR INORGANIC DEBRIS, SILT, AND CLAY. THE SOIL SHALL BE FREE OF ANY TOXIC SUBSTANCE, ORGANIC OR INORGANIC; SOIL STERILANTS; SALTS; AND NO SOIL REMOVED FROM ROAD BED EXCAVATIONS. PLANTING BEDS SHALL USE LIVING EARTH TECHNOLOGY ALAKIA SOIL BLEND .

2.11 SOIL REPORT
THE LANDSCAPE CONTRACTOR SHALL FURNISH, UPON THE REQUEST OF THELANDSCAPE ARCHITECT FOR TxDOT, HIS/HER AUTHORIZED REPRESENTATIVE, OR THE TxDOT INSPECTORA SOILS REPORT MADE FORM THE INTENDED IMPORT BY AN APPROVED AGRICULTURAL LAB. THE REPORT SHALL INCLUDE PH, N-P-K, SAR, MINERALS, MICRO- NUTRIENTS, ECE, BORON LEVELS, SOIL PARTICLE SIZE, AND TEXTURAL ELEVATION. SOIL IMPORTED TO SITE AND FOUND TO BE UNSUITABLE BY THELANDSCAPE ARCHITECT FOR TxDOT, HIS/HER AUTHORIZED REPRESENTATIVE, OR THE TxDOT INSPECTORBASED ON A SOILS REPORT PROVIDED BY THE LANDSCAPE CONTARCTOR SHALL BE REMOVED FROM THE SITE AND REPLACED WITH AN APPROVED SOIL AT THE LANDSCAPE CONTRACTOR'S EXPENSE. THE LANDSCAPE CONTRACTOR SHALL PAY ALL EXPENSES FOR SOIL TESTING OF IMPORT MATERIALS.

2.13 ORGANIC MULCH MATERIAL

2.13.1 SHALL BE NO FLOAT CYPRESS (SHREDDED CYPRESS MULCH).
.

2.13.2 MULCH SHALL CONSIST OF 100% RECYCLED ABOVE GROUND TREE PRODUCTS. MULCH SHALL CONTAIN NO DEMOLITION WOOD WASTE, GRASS, WEED SEED, YUCCA, PALM, BAMBOO, OR OTHER SUCCULENTS OR CONTAMINANTS. MULCH SHALL BE NITROGEN STAS- BILIZED AND SHALL CONTAIN NO TRASH, HAZARDOUS WASTE, OR TOXIC MATERIALS.

2.13.3 MULCH SHALL BE GROUND AND SCREENED TO PRODUCE A 3" TO ⅛" PARTICLE SIZE.

2.14 PRE-EMERGENT HERBICIDE (SHRUB AND PLANTED GROUNDCOVER AREAS ONLY)

2.14.1 PRE-EMERGENT HERBICIDES SHALL BE WETTABLE POWDER OR GRANULAR TYPE.

2.14.2 SELECT PRE-EMERGENT HERBICIDE APPROPRIATE TO SITE AREA, SOIL TYPE, INDIGENOUS WEEDS TO BE CONTROLLED, AND TYPE OF GROUND COVER TO BE PLANTED.

2.14.3 DO NOT USE PRE-EMERGENT HERBICIDES IN AREAS TO BE HYDROSEEDED OR STOLONIZED.

2.14.4 FOLLOW ALL MANUFACTURER'S PRECAUTIONS AND LABEL INSTRUCTIONS. COMPLY WITH ALL LOCAL JURISDICTIONAL RESTRICTIONS AND ORDINANCES.

2.15 AGRIFORM TABS

2.15.1 USE IN ACCORDANCE TO RECOMMENDED APPLICATION BY MANUFACTURER.

PART 3 EXECUTION

3.1 SCHEDULING

3.1.1 INSPECTION

3.1.1.1 PRIOR TO WORK OF THIS SECTION, CAREFULLY INSPECT PREVIOUSLY INSTALLED WORK. VERIFY ALL SUCH WORK IS COMPLETE TO THE POINT WHERE THIS INSTALLATION MAY PROPERLY COMMENCE.

3.1.1.2 VERIFY THAT WORK OF THIS SECTION MAY BE INSTALLED IN STRICT ACCORDANCE WITH THE ORIGINAL DESIGN, ALL PERTINENT CODES AND REGULATIONS, AND ALL PERTINENT PORTIONS OF THE REFERENCED STANDARDS.

3.1.1.3 DO NOT PROCEED WITH INSTALLATION IN AREAS OF DISCREPANCY UNTIL ALL SUCH DISCREPANCIES HAVE BEEN FULLY RESOLVED.

3.1.2 PLANTING OPERATIONS WILL NOT COMMENCE UNTIL COMPLETION OF ALL CONSTRUCTION WORK, GRADING, SOIL PREPARATION, WEED CONTROL, AND SPRINKLER INSTALLATION.

3.2 SOIL PREPARATION

3.2.1 FOR AREAS TO RECEIVE HYDROSEEDING, SOD, STOLONS, OR FLATTED GROUNDCOVERS ONLY: IRRIGATE SITE NORMALLY FOR TWO WEEKS TO GERMINATE WEEDS. APPLY CONTACT HERBICIDE PER MANUFACTURER. REPEAT PROCESS IF REQUIRED BYLANDSCAPE ARCHITECT FOR TxDOT, HIS/HER AUTHORIZED REPRESENTATIVE, OR THE TxDOT INSPECTOR APPLY 2 POST EMERGENT APPLICATIONS 15 DAYS APART.

3.2.2 RIP IN TWO DIRECTIONS, ALL AREAS TO RECEIVE SOIL AMENDMENTS TO A MINIMUM DEPTH OF 3 INCHES WHERE EXISTING TREE ROOTS WILL NOT BE DISTURBED. WHERE THERE ARE NO EXISTING TREES, SOIL AMENDMENTS SHOULD BE A MINIMUM OF 12" INCHES AND UP TO 18". ROTOTILL TOP 6" OF SOIL TO A LOOSE AND FRIABLE CONSISTENCY. APPLY LETCO SOIL AMENDMENTS AS SPECIFIED, EVENLY AND AT THE SPECIFIED APPLICATION RATES.

3.2.3 FINISH GRADE TO CONTOURS AND SPOT ELEVATIONS SHOWN ON DRAWINGS.

3.2.4 AT TIME OF PLANTING, TOP 6" OF SOIL IN ALL AREAS TO BE PLANTED OR SEEDED WILL BE FREE OF STONES, STUMPS, ROOTS, OR OTHER DELETERIOUS MATTER 1" IN DIAMETER OR LARGER AND WILL BE FREE FROM ALL WIRE, PLASTER, OR SIMILAR OBJECTS THAT WOULD BE A POTENTIAL HAZARD OR HINDRANCE TO PLANTING OR MAINTENANCE.

3.2.5 SLOPES STEEPER THAN 2:1 SHALL BE RAKED SMOOTH, BUT WILL NOT RECEIVE SOIL AMENDMENTS (EXCEPT IN PLANT PITS), UNLESS SPECIFIED ON THE DRAWINGS.

3.3 LANDSCAPE FINISH GRADING

3.3.1 FINISH GRADING AFTER SOIL PREPARATION WILL ESTABLISH FINAL FLOW LINES AND GRADIENTS FOR UNIFORM WATER DRAINAGE. FLOW LINES AND GRADIENTS WILL BE ESTABLISHED FROM THE HIGH POINT TO THE DRAINAGE OUTLET OR AN INLET STRUCTURE.

3.3.2 FINISH GRADE WILL BE 1" BELOW SIDEWALKS AND CURBS, EXCEPT AT LOCATIONS WHERE DRAINAGE WATER WILL FLOW ONTO OR ACROSS HARDSCAPE, CURBS, OR PAVING. AT THESE CONDITIONS, THE GRADE WILL BE FLUSH OR NO MORE THAN 1/2" BELOW HARDSCAPING. FINISHED GRADES WILL BE OF UNIFORM SLOPE AND GRADE BETWEEN POINTS OF FIXED ELEVATIONS OR ELEVATION CONTROLS OR AS INDICATED ON THE DRAWINGS. FINISH GRADES SHALL BE ESTABLISHED FROM SUCH POINTS.

3.3.3 ALL FINISH GRADES WILL BE FLOATED TO ASSURE A UNIFORM SURFACE WITHOUT IRREGULAR DIPS OR RIDGES.

3.3.4 LANDSCAPE CONTRACTOR WILL BE RESPONSIBLE FOR BRINGING ALL SHRUB PLANTING AREAS TO FINISH GRADE AFTER SOIL PREPARATION WHICH SHALL BE 2" BELOW PAVING AND CURBS OR AS NOTED BY SPOT ELEVATIONS. SPECIAL ATTENTION WILL BE GIVEN TO MAINTAINING CONTINUOUS AND EVEN FLOW LINES, AND DRAINAGE AWAY FROM STRUCTURES, TO DRAIN INLET OR OUTLET. GRADES WILL BE ESTABLISHED TO DRAIN ALL WATER AWAY FROM STRUCTURES OR BEHIND WALLS. WHEN DRAINAGE IS DIFFICULT TO ACHIEVE, THE LANDSCAPE CONTRACTOR WILL NOTIFY THE LANDSCAPE ARCHITECT AND REQUEST A SOLUTION BEFORE CONTINUING. GRADES IN SHRUB AREAS WILL BE ESTABLISHED PRIOR TO PLANTING TO ENSURE PROPER FINAL PLANTING HEIGHTS.

3.3.5 ALL FILL AREAS AND CONSTRUCTED BERMS OR MOUNDS WILL BE COMPACTED IN EVEN LEVELS.

3.4 SPACING / LOCATION OF PLANT MATERIALS

3.4.1 WHEN PLANT MATERIAL IS SPACED IN ROWS, THE TOTAL DIMENSION WILL BE VERIFIED AND THE PLANTS EQUALLY SPACED WITHIN THE DESIGNATED AREA. WHEN PLANT MATERIAL IS SHOWN IN A LOOSE PATTERN, THE LANDSCAPE CONTRACTOR WILL SPACE THE MATERIAL AS SHOWN ON DRAWINGS AND AS DIRECTED BY LANDSCAPE ARCHITECT FOR TxDOT, HIS/HER AUTHORIZED REPRESENTATIVE, OR THE TxDOT INSPECTOR GROUND COVER MATERIAL SHALL BE TRIANGULARLY SPACED PER DIMENSION INDICATED ON DRAWINGS (WHERE APPLICABLE.)

3.4.2 ALL BOXED AND CONTAINER STOCK SHALL BE SPOTTED ON-SITE BY THE LANDSCAPE CONTRACTOR PER DRAWINGS PRIOR TO PLANTING. PLANT PITS SHALL NOT BE EXCAVATED UNTIL THE REVIEW OF PLANT LOCATIONS BY THE LANDSCAPE ARCHITECT FOR TxDOT, HIS/HER AUTHORIZED REPRESENTATIVE, OR THE TxDOT INSPECTOR.

3.4.3 THE WORK SHOWN ON PLANTING PLANS IS SCHEMATIC. ALL ITEMS, I.E. TREES, SHRUBS, GROUNDCOVERS, ETC., ARE SHOWN IN THEIR APPROXIMATE LOCATIONS ONLY. DETAIL DRAWINGS MAY PROVIDE ADDITIONAL CLARIFICATION OR LOCATION OF SOME ITEMS. LANDSCAPE CONTRACTOR SHALL NOT LOCATE ANY ITEMS WHERE IT IS OBVIOUS THAT THEY ARE IN DIRECT CONFLICT WITH PERMANENT IMPROVEMENTS, OR PEDESTRIAN AND VEHICULAR SAFETY CONSIDERATIONS. LANDSCAPE CONTRACTOR SHALL NOT INSTALL ANY PLANT MATERIALS IN LOCATIONS WHERE THE ULTIMATE GROWTH OF THE PLANT MATERIALS WIL DAMAGE OR AFFECT STRUCTURES OR IMPEDE PEDESTRIAN OR VEHICULAR CIRCULATION. DO NOT LOCATE TREES OR TALLER SHRUBS IN LOCATIONS WHERE THEY WILL BLOCK IRRIGATION HEADS AND PREVENT ADEQUATE COVERAGE. WHERE CALLED FOR, OBTAIN APPROVAL OF THELANDSCAPE ARCHITECT FOR TxDOT, HIS/HER AUTHORIZED REPRESENTATIVE, OR THE TxDOT INSPECTORFOR PLACEMENT OF TREES, SHRUBS, AND OTHER ITEMS OF WORK.

ADJUST TREE LOCATIONS IN FIELD WHERE THERE ARE OVERHEAD UTILITY CONFLICTS. CONTRACTOR TO SEEK APPROVAL FROM THE LA OR TXDOT OF ALTERNATE LOCATIONS BEFORE INSTALLING THE PLANT MATERIAL.

3.4.4 NOT USED.

3.5 PLANT PITS AND PLANTING TECHNIQUE

3.5.1 PLANT PITS WILL BE DUG WITH LEVEL BOTTOMS WITH WIDTHS AND DEPTHS AS SHOWN IN DETAIL DRAWINGS. PITS FOR TREES WILL BE DUG SQUARE. FILL PITS WITH WATER AND ALLOW TO PERCOLATE OUT OVER A 12 HOUR PERIOD. REFILL HOLE AND IF WATER IS NOT ABSORBED WITHIN 12 HOURS OF THE SECOND FILLING, CONTACT LANDSCAPE ARCHITECT FOR TxDOT, HIS/HER AUTHORIZED REPRESENTATIVE, OR THE TxDOT INSPECTOR FOR DIRECTION.

3.5.2 PLANT HOLES DUG BY AUGER METHOD WILL BE ACCEPTABLE, BUT SHALL HAVE SIDE WALLS ROUGHENED OR HEAVILY SCORED WITH A SHOVEL. SLICK PIT WALLS CAUSED BY AUGURING IN TOO WET SOIL WILL NOT BE ACCEPTED FOR PLANTING.

3.5.3 CONTAINER STOCK WILL BE REMOVED CAREFULLY FROM CANS AFTER LIGHTLY COMPRESSING THE SIDES OF THE CONTAINERS TO LOOSEN THE ROOT BALL. SLIDE PLANTS AND HANDLE BY EARTH BALL ONLY. SCARIFY ONE SIDE OF THE ROOT BALL, WITH THE APPROVAL OF THE LA OR TXDOT REPRESENTATIVE, TO PREVENT POTENTIAL ROOT GIRDLING. DO NOT STRIP THE ROOTS OF THE SOIL OR WEAKEN THE ROOT BALL FROM THE TOP OF PLANT.

3.5.4 HANDLING: NO CANNED PLANT MATERIAL SHALL BE PLANTED IF THE BALL IS BROKEN OR CRACKED EITHER BEFORE OR DURING THE PROCESS OF PLANTING.

3.5.5 SETTING: PLANTS WILL BE SET WITH TOP OF ROOT BALL 1" ABOVE FINISH GRADE. EACH PLANT WILL BE PLACED IN CENTER OF PLANT PIT.

3.5.6 PIT BACKFILLING

3.5.6.1 BACKFILL MATERIAL FOR PLANT PITS WILL BE A MIXTURE AS NOTED BELOW OR AS INDICATED ON DRAWINGS. THE MATERIALS SHALL BE THOROUGHLY BATCH-MIXED PRIOR TO PLACEMENT SO THAT THEY ARE EVENLY DISTRIBUTED AND WITHOUT CLODS OR LUMPS. BACKFILL WILL BE SO PLACED IN THE PITS THAT THE PLANT WILL BE AT ITS NATURAL GROWING HEIGHT AFTER SETTLEMENT.
- 90% BY VOLUME - EXCAVATED SOIL, FREE FROM ROCKS, ETC. (PER SECTION 3.2.6)
- 10% BY VOLUME - COMPOSTED ORGANIC SOIL AMENDMENT (PER SECTION 2.2.3)
- 10 LBS - AGRICULTURAL GYPSUM PER CU. YD. OF MIX (PER SECTION 2.2)
- 8 LBS - TRI-C 6-2-4 W/5% SULFUR PER CU. YD. OF MIX

3.5.6.2 NOT USED

3.5.6.3 NOT USED

3.5.6.4 BUILD MOUND OF COMPACTED BACKFILL WIDE ENOUGH IN BOTTOM OF HOLE TO SUPPORT ROOT BALL.

3.5.6.5 BACKFILL PIT WITH BACKFILL MIX HALF-WAY TO FINISH GRADE AND WATER THOROUGHLY.

3.5.6.6 PLACE REQUIRED RATIO OF COLOR STAR FOR GALLON MATERIAL IN PLANT PITS. PROVIDE AGRIFORM TABS FOR ALL TREES.
USE THE FOLLOWING SCHEDULE FOR GALLON MATERIAL:

CONTAINER SIZE:	APPLICATION QTY:
4-INCH	1 TEASPOON
6-INCH	1.5 TEASPOONS
1 GAL	1 TABLESPOON
5 GAL	¼ CUP
10 GAL	½ CUP
15 GAL	½ CUP

3.5.6.6.1 LA OR TXDOT REPRESENTATIVE MUST BE PRESENT TO VERIFY AGRIFORM INSTALLATION. IF THE LANDSCAPE CONTRACTOR BACKFILLS ANY HOLE BEFORE BEING VERIFIED, HE WILL BE ASKED TO REMOVE THE BACKFILL, AND THE PLANT IF NECESSARY, SO THE AGRIFORM TABS CAN BE COUNTED.

3.5.6.7 BACKFILL TO FINISH GRADE. BACKFILL MIX WILL BE TAMPED LIGHTLY, AND A SHALLOW BASIN FORMED AT PERIMETER OF ROOT BALL TO HOLD ENOUGH WATER TO SATURATE THE ROOT BALL AND BACKFILL MIX.

3.5.6.8 WATER IMMEDIATELY TO SATURATE ENTIRE ROOT BALL AND BACKFILL.

3.5.7 ROOT BARRIERS

3.5.7.1 INSTALL TREE ROOT BARRIERS AS CALLED FOR IN THESE SPECIFICATIONS.

3.6 TREE STAKING

3.6.1 STAKE ALL TREES AS SHOWN IN DETAILS.

3.6.2 TREE WILL BE VERTICAL IN ALL CASES. STAKES WILL BE HORIZONTAL.

3.6.3 ONE-GALLON TREES SHALL BE PLANTED WITH NURSERY STAKES REMOVED.

3.7 NOT USED

3.8 NOT USED

3.9 FLATTED GROUNDCOVER

3.9.1 ROOTED CUTTINGS WILL BE PLANTED SUFFICIENTLY DEEP TO COVER ALL ROOTS AND SPACED AS SPECIFIED IN PLANT MATERIAL LEGEND ON LANDSCAPE PLAN.

3.9.2 ROOTED CUTTINGS WILL NOT BE ALLOWED TO DRY OUT BEFORE OR WHILE BEING PLANTED. WILTED PLANTS WILL NOT BE ACCEPTED.

3.9.3 AT TIME OF PLANTING ALL GROUND COVER PLANTS, THE EARTH AROUND EACH PLANT WILL BE FIRMED SUFFICIENTLY TO FORCE OUT ALL AIR POCKETS.

3.9.4 EACH GROUND COVER PLANT WILL BE PLANTED WITH A MINIMUM OF ONE (1) 5 GRAM 20-15-5 PLANT TABLET ADJACENT TO ROOT ZONE.

(continued on the next page)

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HWY 380

PLANTING SPECIFICATIONS

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK	CONTROL	SECTION	JOB	
EBB	0134	09	066,ETC	

3.10 APPLICATION OF PRE-EMERGENT HERBICIDE(S)

3.10.1 APPLY PRE-EMERGENT HERBICIDE(S) TO SHRUB AND PLANTED GROUNDCOVER AREAS ONLY. DO NOT APPLY TO HYDROSEEDED AREAS. STRICTLY ADHERE TO MANUFACTURER'S SPECIFICATIONS FOR APPLICATION RATES AND METHODS. USE SNAPSHOT 2.5 TG 3 LBS PER 100 SF.

3.10.2 APPLY PRE-EMERGENT(S) ONLY AFTER ALL PLANTING OPERATIONS HAVE BEEN COMPLETED SO AS TO MINIMIZE DISTURBANCE OF THE CHEMICAL "BARRIER". REAPPLY WHERE NECESSARY TO ANY AREAS DISTURBED BY PLANTING OR REPAIR OPERATIONS AFTER INITIAL APPLICATION.

3.10.3 PAY CAREFUL ATTENTION TO ACTIVATION REQUIREMENTS, "WATERING-IN", ETC., PER MANUFACTURER'S SPECIFICATIONS AND LABEL INSTRUCTIONS. AVOID EXCESSIVE IRRIGATION RUN-OFF THAT WOULD MOVE OR WASH AWAY THE PRE-EMERGENT "BARRIER" -- USE REPEAT WATERING CYCLES AND SPLIT WATERING TIMES.

3.11 NOT USED

3.12 MULCHING OF GROUND COVER AREAS

3.12.1 AFTER, PLANTING OPERATIONS ARE COMPLETE AND GROUND COVER AREAS HAVE BEEN RAKED AND DRESSED, MULCH ALL GROUND COVER AREAS WITH A 2" LAYER OF ORGANIC NO FLOAT CYPRESS MULCH MATERIAL.

3.12.2 MULCH LAYER SHOULD TAPER TO ZERO AT PLANT STEM OR TREE TRUNK. DO NOT PLACE MULCH MATERIALS UP AGAINST PLANT CROWN OR TRUNK.

3.12.3 MULCH FLATTED GROUND COVER AREAS PRIOR TO PLANTING GROUND COVER, IF CALLED FOR ON THE DRAWINGS.

3.12.4 MULCH LAYER SUBSIDIARY TO ITEM 192 & ITEM 193.

3.13 PROTECTION

3.13.1 THE LANDSCAPE CONTRACTOR WILL CAREFULLY AND CONTINUOUSLY PROTECT ALL AREAS INCLUDED IN THE CONTRACT, INCLUDING LAWN AREAS, PLANT MATERIAL, SUPPORTS, ETC. UNTIL FINAL ACCEPTANCE OF THE WORK BY THE LANDSCAPE ARCHITECT FOR TxDOT, HIS/HER AUTHORIZED REPRESENTATIVE, OR THE TxDOT INSPECTOR.

3.14 CLEAN-UP

3.14.1 AFTER ALL PLANTING OPERATIONS ARE COMPLETED, LANDSCAPE CONTRACTOR WILL REMOVE ALL TRASH, EXCESS SOIL, EMPTY PLANT CONTAINERS, OR OTHER ACCUMULATED DEBRIS FROM THE SITE AT NO EXTRA COST TO TxDOT. LANDSCAPE CONTRACTOR SHALL REPAIR ALL SCARS, RUTS, OR MARS IN AREA CAUSED BY WORK OPERATIONS. AREAS SHALL BE LEFT IN A NEAT AND ORDERLY CONDITION.

3.15 OBSERVATIONS (PLANTING PHASE).

3.15.1 NOT USED.

3.15.2 REVIEW BY LANDSCAPE ARCHITECT FOR TxDOT, HIS/HER AUTHORIZED REPRESENTATIVE, OR THE TxDOT INSPECTOR SHALL BE SCHEDULED FOR THE FOLLOWING OPERATIONS:

3.15.2.1 REVIEW OF FINISH GRADING.

3.15.2.2 REVIEW OF ALL PLANT MATERIAL AFTER DELIVERY TO THE SITE.

3.15.2.3 TREE AND SHRUBS PLACEMENT PRIOR TO DIGGING HOLES.

3.15.2.4 REVIEW OF GROUND COVER LINES AND HEADERBOARD PRIOR TO PLANTING.

3.15.2.5 START OF ESTABLISHMENT PERIOD/ACCEPTANCE OF INSTALLATION.

3.15.2.6 FINAL ACCEPTANCE AT END OF ESTABLISHMENT PERIOD.

3.15.3 REVIEWS WILL BE CALLED FOR AT THE END OF ALL PLANTING OPERATIONS FOR THE PURPOSE OF DETERMINING COMPLIANCE WITH DRAWINGS AND SPECIFICATIONS, INTENT, WORKMANSHIP, AND CLEAN-UP. LANDSCAPE CONTRACTOR WILL SECURE WRITTEN VERIFICATION OF REVIEW DATA, ANY CORRECTIONS REQUIRED TO WORK, AND LIMITS OF REVIEWED AREA BEFORE BEGINNING THE DESCRIBED ESTABLISHMENT WORK.

3.15.4 NOT USED

3.16 GUARANTEE

3.16.1 ALL SHRUBS, GROUND COVERS, LAWN AREAS, AND 15 GALLON SIZE TREES OR LESS WILL BE GUARANTEED AS TO GROWTH AND HEALTH FOR A PERIOD OF ONE (1) YEAR AFTER FINAL ACCEPTANCE BY TxDOT OR THE LANDSCAPE ARCHITECT FOR TxDOT, HIS/HER AUTHORIZED REPRESENTATIVE, OR THE TxDOT INSPECTOR. BOX SIZED TREES SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER DATE OF SUBSTANTIAL COMPLETION.

3.16.2 PLANTS WHICH DIE OR LOSE MORE THAN THIRTY PERCENT (30%) OF THEIR ORIGINAL LEAVES WILL BE REPLACED UNDER THIS SECTION.

3.16.3 THE LANDSCAPE CONTRACTOR, WITHIN FOURTEEN (14) DAYS OF WRITTEN NOTIFICATION BY TxDOT, WILL REMOVE AND REPLACE ALL GUARANTEED PLANT MATERIALS WHICH FOR ANY REASON FAIL TO MEET THE REQUIREMENTS OF THE GUARANTEE. ALL PLANTS MATERIAL REPLACED WILL BE GUARANTEED FOR THE ORIGINAL PERIOD, STARTING FROM THE DATE OF REPLACEMENT.

PART 4 ESTABLISHMENT / MAINTENANCE PERIOD - BID ITEM 193

4.1 LANDSCAPE CONTRACTOR WILL CONTINUOUSLY PROTECT AND MAINTAIN ALL AREAS INCLUDED IN THE CONTRACT DURING THE PROGRESS OF THE WORK, THROUGH THE ESTABLISHMENT PERIOD, AND UNTIL FINAL ACCEPTANCE OF THE WORK.

4.2 THE ENTIRE PROJECT SHALL BE CONTINUOUSLY AND SATISFACTORILY MAINTAINED FOR A PERIOD OF ONE (1) YEAR. ESTABLISHMENT PERIOD SHALL COMMENCE UPON THE DATE OF COMPLETION OF THE WORK, AS AUTHORIZED IN A WRITTEN NOTICE FROM THE LANDSCAPE ARCHITECT FOR TxDOT, HIS/HER AUTHORIZED REPRESENTATIVE, OR THE TxDOT INSPECTORAFTER THE START OF ESTABLISHMENT PERIOD INSPECTION HAS BEEN COMPLETED AND ALL PUNCH LIST ITEMS HAVE BEEN CORRECTED BY THE LANDSCAPE CONTRACTOR.

4.3 CONTINUOUS MAINTENANCE AND ESTABLISHMENT WORK INCLUDES ALL MOWING, WATERING, WEEDING, RESEEDING, MULCHING, CULTIVATING, SPRAYING AND TRIMMING NECESSARY TO BRING THE PLANTED AREAS TO A HEALTHY GROWING CONDITION, AND ANY ADDITIONAL WORK NEEDED TO KEEP THE AREAS NEAT, EDGED, AND ATTRACTIVE.

4.4 WATERING:

4.4.1 PROVIDE WATER SCHEDULE TO LANDSCAPE ARCHITECT AT TXDOT FOR PROGRAMING BY EMAIL TO THOMAS.HUBACEK@TXDOT.COM

4.4.2 NOT USED

4.4.3 MONITOR WATERING USE ON A DAILY BASIS, AND MAKE ADJUSTMENTS TO CONTROLLER WATERING SCHEDULE AS NECESSARY TO APPLY ONLY THE PROPER AMOUNT OF WATER AT ALL TIMES. ADJUST WATERING SCHEDULE TO COMPENSATE FOR CHANGES IN ETO, RAINFALL, AND TEMPERATURE.

4.4.4 LANDSCAPE CONTRACTOR WILL ONLY APPLY SUFFICIENT WATER TO PROMOTE HEALTHY GROWTH OF THE PLANT MATERIAL. AT NO TIME WILL THE LANDSCAPE CONTRACTOR APPLY WATER AT A RATE OR FREQUENCY THAT CAUSES RUNOFF OR SOIL SATURATION.

4.4.5 LANDSCAPE CONTRACTOR WILL MAINTAIN A DAILY LOG OF WATERING TIMES ON THE JOBSITE, AND MAKE IT AVAILABLE FOR INSPECTION BY THE LANDSCAPE ARCHITECT FOR TxDOT, HIS/HER AUTHORIZED REPRESENTATIVE, OR THE TxDOT INSPECTOR

4.5 DURING THE PLANT ESTABLISHMENT PERIOD, ALL PLANTS AND PLANTED AREAS WILL BE KEPT WEED FREE AT ALL TIMES. WEEDS, NUT GRASS, DALLAS GRASS, JOHNSON GRASS, BERMUDA GRASS, AND ANY OTHER NOXIOUS GRASS SPECIES WILL BE REMOVED AND DISPOSED OF AS THEY APPEAR.

4.6 ANY DAY THE LANDSCAPE CONTRACTOR FAILS TO ADEQUATELY WATER, REPLACE UNSUITABLE PLANTS, WEED, AND OTHER WORK DETERMINED TO BE NECESSARY BY THELANDSCAPE ARCHITECT FOR TxDOT, HIS/HER AUTHORIZED REPRESENTATIVE, OR THE TxDOT INSPECTOR WILL NOT BE CREDITED AS PART OF THE ESTABLISHMENT PERIOD.

4.7 DURING THE ESTABLISHMENT PERIOD, ANY PLANT INDICATING WEAKNESS OR PROBABILITY OF DYING, WILL BE REPLACED BY THE LANDSCAPE CONTRACTOR AT HIS OWN EXPENSE.

4.8 TREE STAKES WHICH FOR ANY REASON ARE DAMAGED OR RENDERED INADEQUATE FOR SUPPORT WILL BE REPAIRED AND RESTORED TO THEIR ORIGINAL CONDITION.

4.9 CONSTANT DILIGENCE WILL BE MAINTAINED TO DETECT THE PRESENCE OF DISEASE, INSECTS, AND/OR RODENT INFESTATIONS AND PROPER PREVENTATIVE OR CONTROL MEASURES TAKEN. THIS WILL BE DONE AT NO ADDITIONAL COST TO TxDOT.

4.10 SHRUBS AND TREES WILL BE MAINTAINED IN THEIR NATURAL SHAPES. TALL OR SCRAGGLY BRANCHES WILL BE THINNED OUT WHERE NECESSARY. IN NO CASE WILL TREES OR SHRUBS BE TRIMMED BY HEADING, SHEARING OR 'LOLLI POPPED'. ANY PLANTS SEVERELY PRUNED IN THIS MANNER WILL BE REMOVED AND REPLACED AT LANDSCAPE CONTRACTOR'S EXPENSE.

4.11 AT COMPLETION OF ESTABLISHMENT PERIOD, AREAS INCLUDED IN THE CONTRACT WILL BE SUBSTANTIALLY CLEAN AND FREE OF DEBRIS AND WEEDS. PLANT MATERIALS WILL BE LIVE, HEALTHY, AND FREE OF INFESTATIONS.

4.12 ANY EROSION OR SLIPPAGE OF SOIL CAUSED BY WATERING WILL BE REPAIRED BY THE LANDSCAPE CONTRACTOR AT HIS EXPENSE.

4.13 WALKS, CURBS, AND GUTTERS WILL BE KEPT CLEAR OF DEBRIS, MUD, DUST, AND STANDING WATER BY SWEEPING, MOPPING OR HOSING DOWN AS REQUIRED TO MAINTAIN CLEANLINESS THROUGHOUT.

4.14 LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR PROTECTING THE WORK COVERED BY THIS SECTION FROM VANDALISM AND ACCIDENTAL DAMAGE. ANY DAMAGE WILL BE PROMPTLY REPAIRED BY THE LANDSCAPE CONTRACTOR AT NO ADDITIONAL COST TO TxDOT. LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS OR REPLACEMENTS CAUSED BY ACTS OF VANDALISM, INCLUDING REMOVAL OF GRAFFITI, AND/OR REFINISHING, AS REQUIRED.

4.15 LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR PROTECTING THE WORK COVERED BY THIS SECTION FROM DAMAGE CAUSED BY FROST AND/OR TORRENTIAL RAINS. ANY DAMAGE SHALL BE PROMPTLY REPAIRED BY THE LANDSCAPE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. PLANT MATERIALS DAMAGED BY FROST AND/OR TORRENTIAL RAINS SHALL BE REPLACED BY THE LANDSCAPE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

PART 5 PAYMENT

5.1 PAYMENT FOR THE WORK OF THIS SECTION SHALL BE INCLUDED IN THE PRICE BID FOR LANDSCAPE FINISH GRADING, PLANTING, AND ESTABLISHMENT PERIOD AND NO ADDITIONAL COSTS WILL BE CONSIDERED. REFER TO SPECIAL PROVISION ITEM 192 .

5.2 AT THE END OF THE SPECIFIED ESTABLISHMENT PERIOD, THE LANDSCAPE CONTRACTOR WILL PRESENT WRITTEN NOTICE TO THE LANDSCAPE ARCHITECT FOR TxDOT, HIS/HER AUTHORIZED REPRESENTATIVE, OR THE TxDOT INSPECTOR THAT HE/SHE HAS COMPLETED THE REQUIRED MAINTENANCE AND SUBMIT THE RECORD DRAWINGS. FURTHER MAINTENANCE WILL BE THE RESPONSIBILITY OF THE CITY FOR WHICH THE PROJECT WAS DONE..

END OF SECTION

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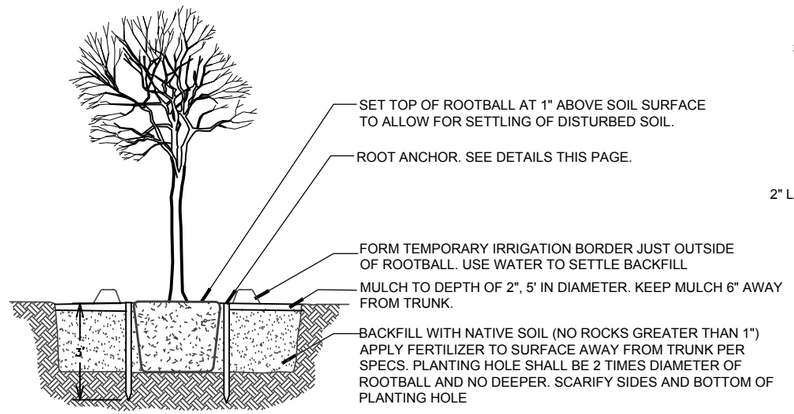
HWY 380

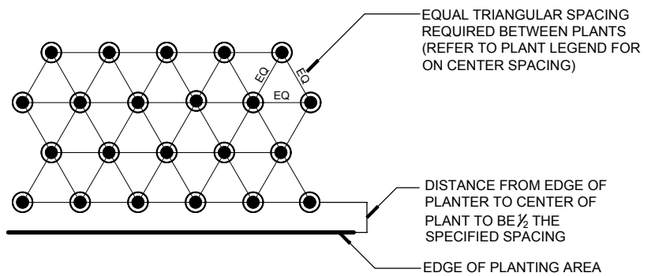
PLANTING SPECIFICATIONS

DESIGN EBB	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
GRAPHICS EBB	6	(SEE TITLE SHEET)		380
CHECK EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

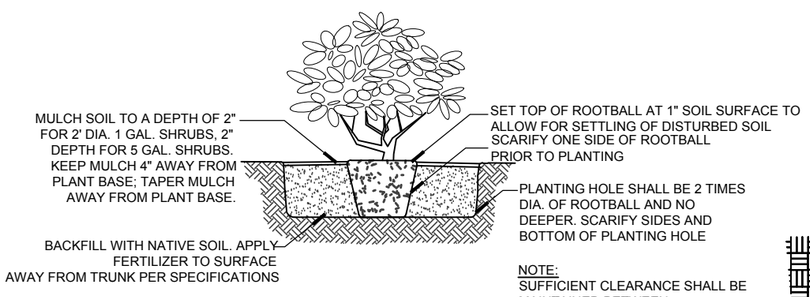


NOTE:
SUFFICIENT CLEARANCE SHALL BE MAINTAINED BETWEEN TREES AND UTILITY FACILITIES SO AS NOT TO HINDER USE OF THESE FACILITIES. SCARIFY ONE SIDE OF ROOTBALL PRIOR TO PLANTING.

1 TREE PLANTING
N.T.S.



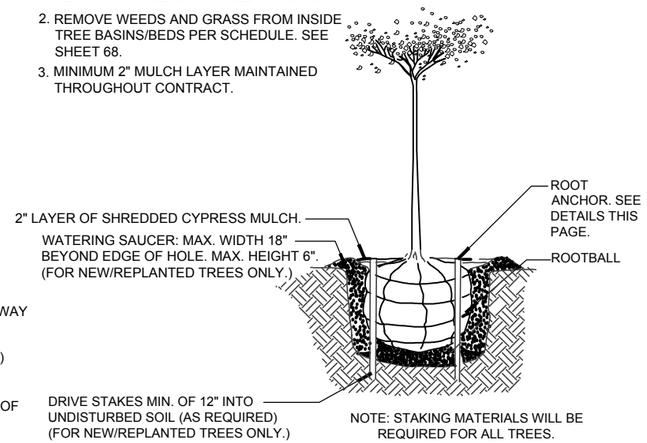
3 GROUND COVER PLANTING LAYOUT
N.T.S.



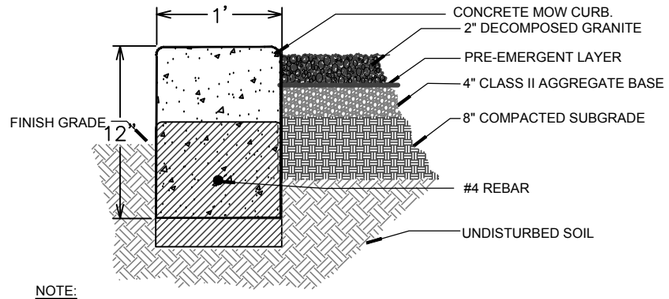
NOTE:
SUFFICIENT CLEARANCE SHALL BE MAINTAINED BETWEEN SHRUBS AND UTILITIES SO AS NOT TO HINDER OR HARM SAID UTILITIES.

5 SHRUB PLANTING DETAIL
N.T.S.

NOTES:
1. RESHAPE AS NECESSARY MINIMUM BASIN RIM FOR WATERING OF REPLANTED MATERIALS AS DIMENSIONED. NEW RIMS TO BE MAINTAINED THROUGHOUT CONTRACT.
2. REMOVE WEEDS AND GRASS FROM INSIDE TREE BASINS/BEDS PER SCHEDULE. SEE SHEET 68.
3. MINIMUM 2" MULCH LAYER MAINTAINED THROUGHOUT CONTRACT.

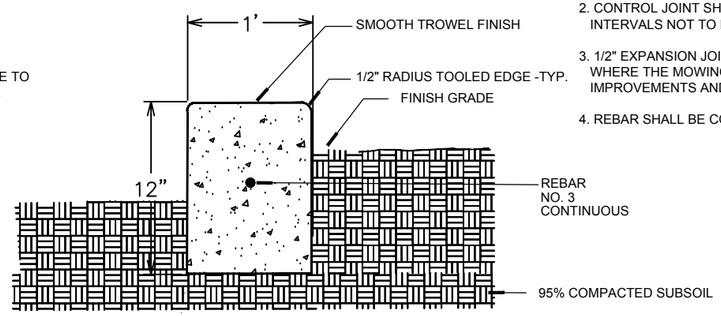


2 TREE MAINTENANCE DETAIL
N.T.S.



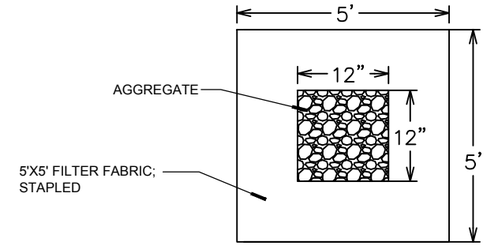
NOTE:
ALL AREAS TO RECEIVE DECOMPOSED GRANITE SHALL BE TREATED WITH A PRE-EMERGENT FOR WEED CONTROL. SUBMIT CUT SHEET FOR APPROVAL PRIOR TO INSTALLATION.

4 CRUSHED GRANITE BED
N.T.S.

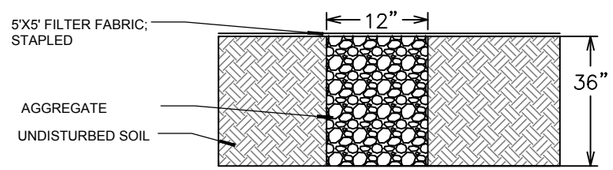


6 LANDSCAPE EDGE DETAIL
N.T.S.

NOTES:
1. FINISH GRADE SHALL BE 1" BELOW TOP OF MOWCURB IN LAWN AREA AND 2" BELOW IN SHRUB AREA.
2. CONTROL JOINT SHALL BE INSTALLED AT INTERVALS NOT TO EXCEED 5 FEET.
3. 1/2" EXPANSION JOINTS SHALL BE INSTALLED WHERE THE MOWING CURB ABUTS ANY CONCRETE IMPROVEMENTS AND AT INTERVALS NOT TO EXCEED 20 FEET.
4. REBAR SHALL BE CONTINUOUS WITH 18" OVERLAP SPLICES.



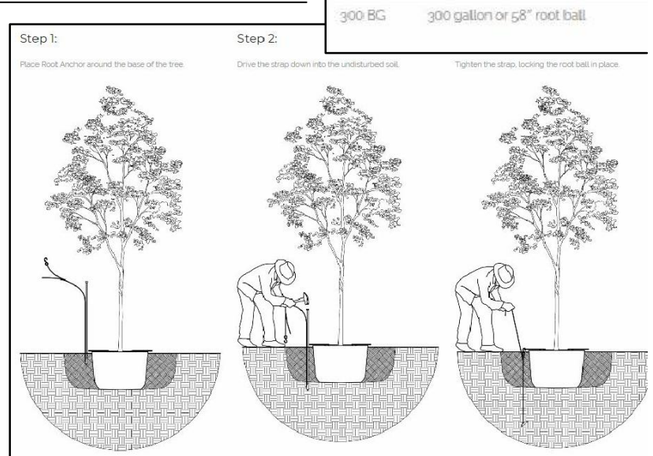
PLAN VIEW



7 AGGREGATE WELL

Size Chart N.T.S.

Size	Description
15 BG	10/15 gallon or 17" root ball
30 BG	20/30 gallon or 22" root ball
45/65 BG	45/65 gallon or 27-30" root ball
100 BG	95/100 gallon or 36" root ball
150 BG	150 gallon or 42" root ball
200 BG	200 gallon or 48" root ball
300 BG	300 gallon or 58" root ball



7 TREE STAKE
N.T.S.

CITY OF DENTON

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EBA

Texas Department of Transportation

HWY 380

PLANTING DETAILS

SCALE:

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
EBB	TEXAS	DALLAS	DENTON	
CHECK	CONTROL	SECTION	JOB	
EBB				
CHECK	0134	09	066,ETC	
EBB				

REGISTERED LANDSCAPE ARCHITECT
ERIN B. BISHOP
2952
STATE OF TEXAS

5-31-2019

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BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

1. The Barricade and Construction Standard Sheets (BC sheets) are intended to show typical examples for placement of temporary traffic control devices, construction pavement markings, and typical work zone signs. The information contained in these sheets meet or exceed the requirements shown in the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).

2. The development and design of the Traffic Control Plan (TCP)is the responsibility of the Engineer.

3. The Contractor may propose changes to the TCP that are signed and sealed by a licensed professional engineer for approval. The Engineer may develop, sign and seal Contractor proposed changes.

4. The Contractor is responsible for installing and maintaining the traffic control devices as shown in the plans. The Contractor may not move or change the approximate location of any device without the approval of the Engineer.

5. Geometric design of lane shifts and detours should, when possible, meet the applicable design criteria contained in manuals such as the American Association of State Highway and Transportation Officials (AASHTO), "A Policy on Geometric Design of Highways and Streets," the TxDOT "Roadway Design Manual" or engineering judgment.

6. When projects abut, the Engineer(s) may omit the END ROAD WORK, TRAFFIC FINES DOUBLE, and other advance warning signs if the signing would be redundant and the work areas appear continuous to the motorists. If the adjacent project is completed first, the Contractor shall erect the necessary warning signs as shown on these sheets, the TCP sheets or as directed by the Engineer. The BEGIN ROAD WORK NEXT X MILES sign shall be revised to show appropriate work zone distance.

7. The Engineer may require duplicate warning signs on the median side of divided highways where median width will permit and traffic volumes justify the signing.

8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.

9. The temporary traffic control devices shown in the illustrations of the BC sheets are examples. As necessary, the Engineer will determine the most appropriate traffic control devices to be used.

10. 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.

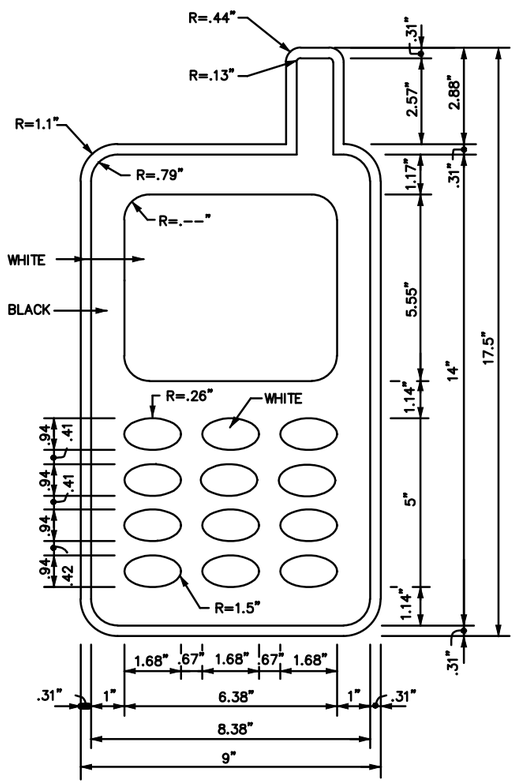
11. Except for devices required by Note 10, traffic control devices should be in place only while work is actually in progress or a definite need exists.

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.––" Indent, Black on Yellow;
[STAY ALERT] Font: D
3.0" Radius, 1.25" Border, 0.––" 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

CITY OF DENTON
EBA

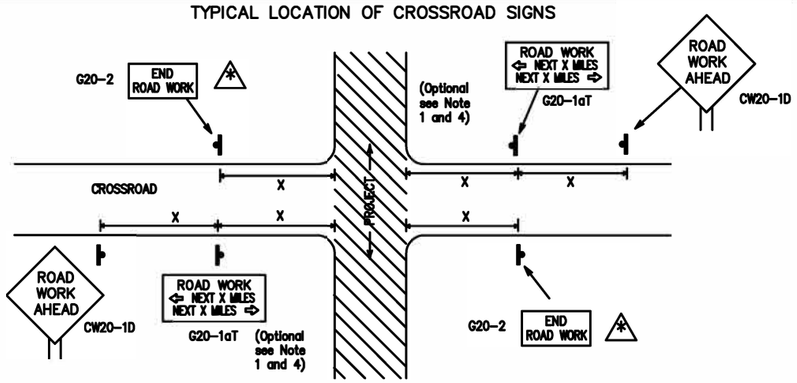
SHEET 1 OF 12

Texas Department of Transportation — Traffic Operations Division Standard

HWY 380
BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS
BC(1)–14

FILE: bc–14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT Nov 2002	CONT / SECT	JOB	HIGHWAY	SHEET NO.
REVISIONS	0134 / 09	066,ETC		
	DISTRICT	COUNTY		
	DALLAS	DENTON		

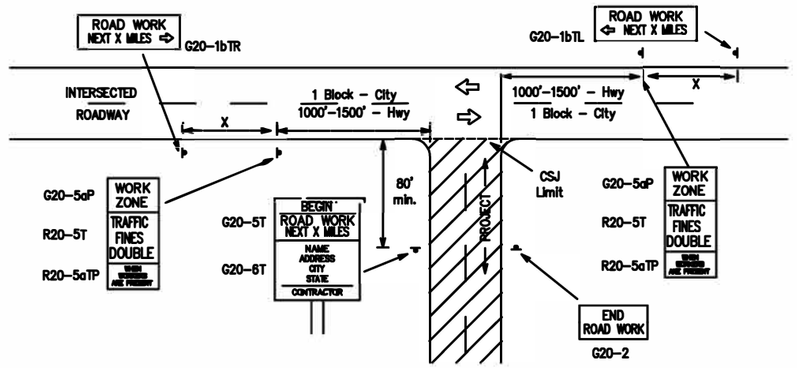
TYPICAL LOCATION OF CROSSROAD SIGNS



* 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" Δ
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]
—	900[2]
80	1000[2]
*	*[3]

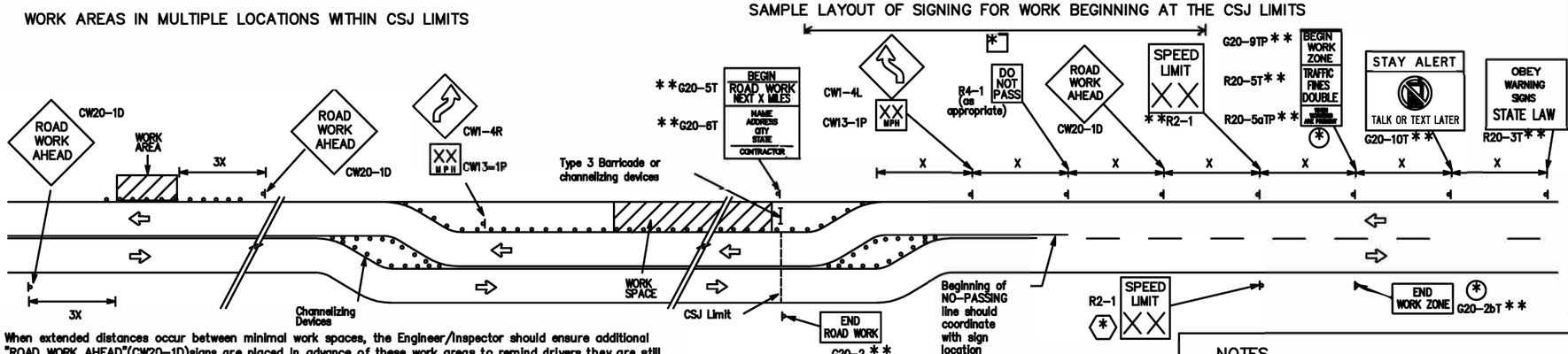
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

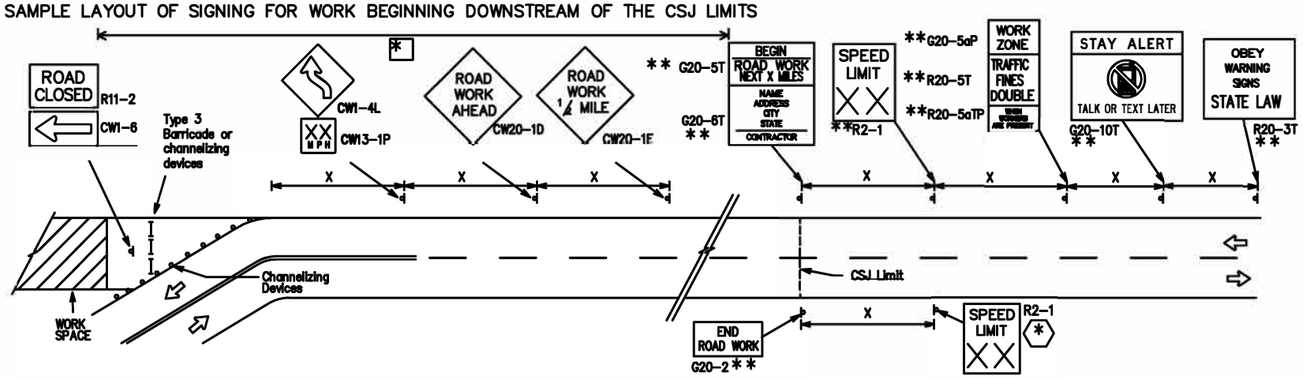
1. Special or larger size signs may be used as necessary.
2. Distance between signs should be increased as required to have 1500 feet advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. 36" x 36" "ROAD WORK AHEAD" (CW20–1D)signs may 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 DOWNSTREAM OF THE CSJ LIMITS



SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS

LEGEND

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

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.

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Texas Department of Transportation

Traffic Operations Division Standard

HWY 380
BARRICADE AND CONSTRUCTION PROJECT LIMIT
BC(2)–14

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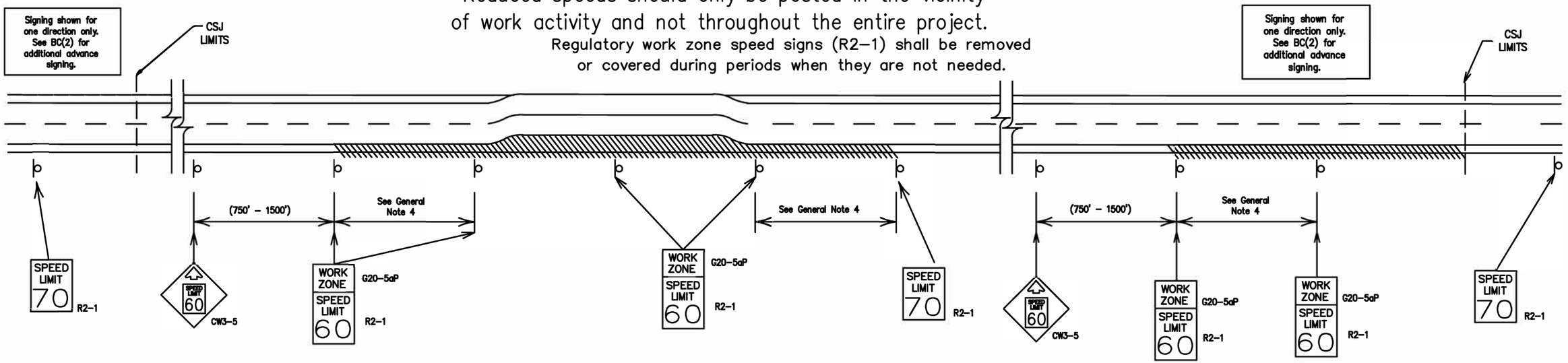
TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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.

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Traffic Operations Division Standard

HWY 380

BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC(3)–14

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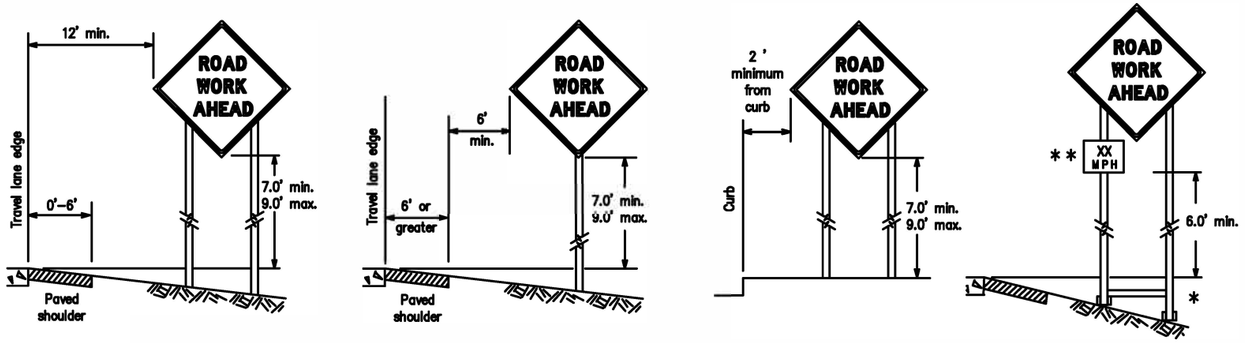
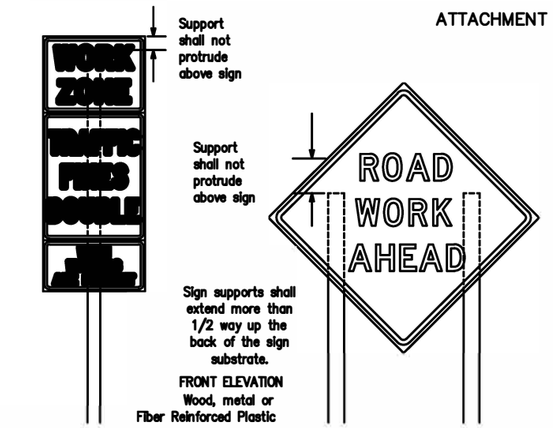
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



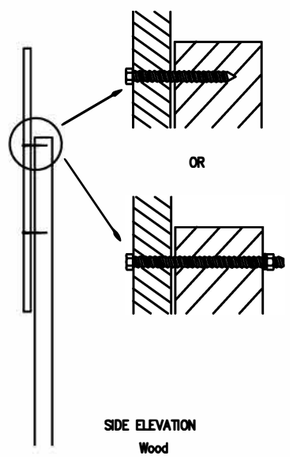
* When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

** 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.

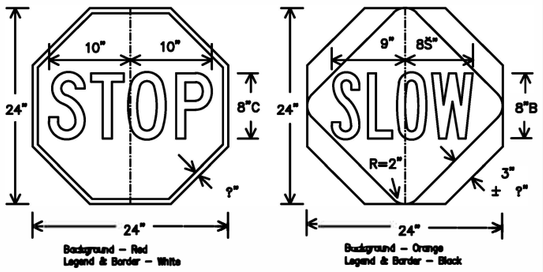


Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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 or Type C, 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.

CITY OF DENTON

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HWY 380

BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)–14

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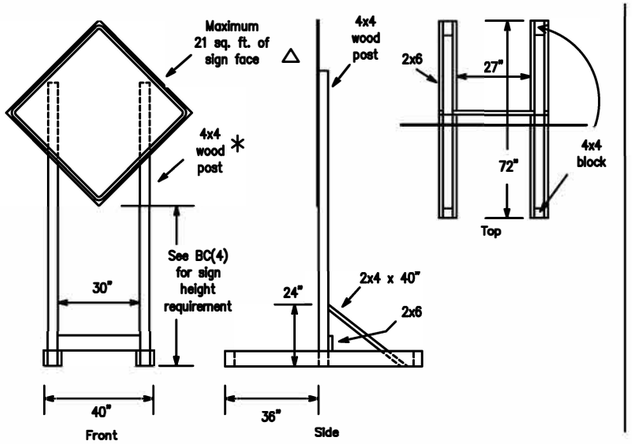
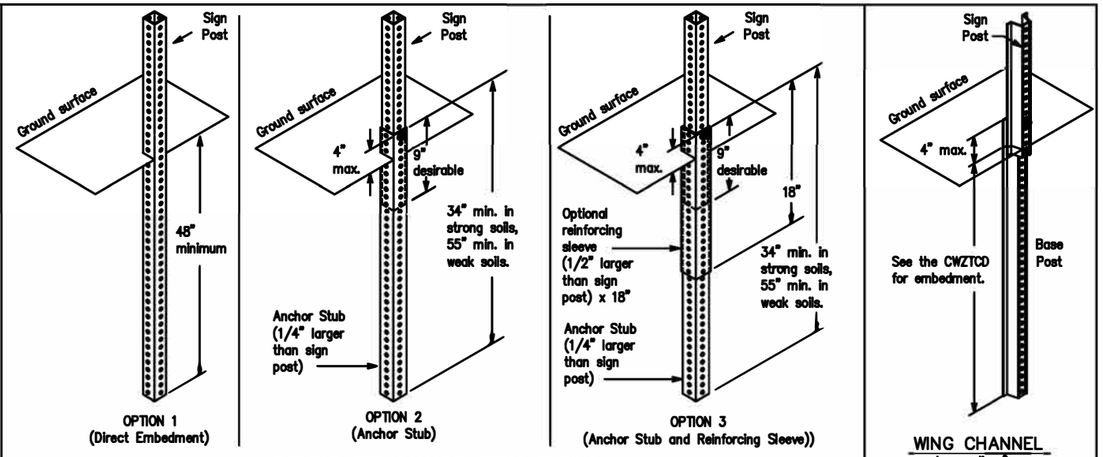


SKID MOUNTED WOOD SIGN SUPPORTS

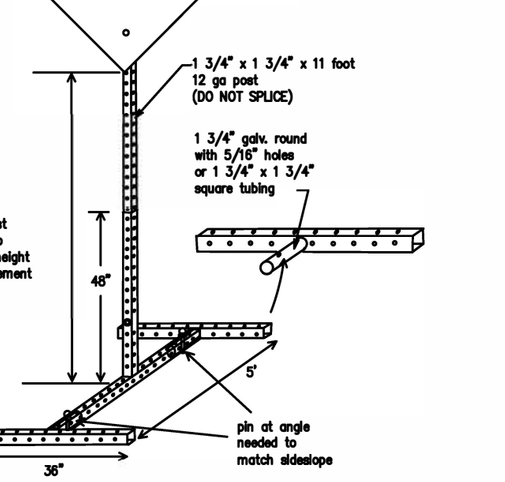
LONG/INTERMEDIATE TERM STATIONARY – PORTABLE SKID MOUNTED SIGN SUPPORTS □

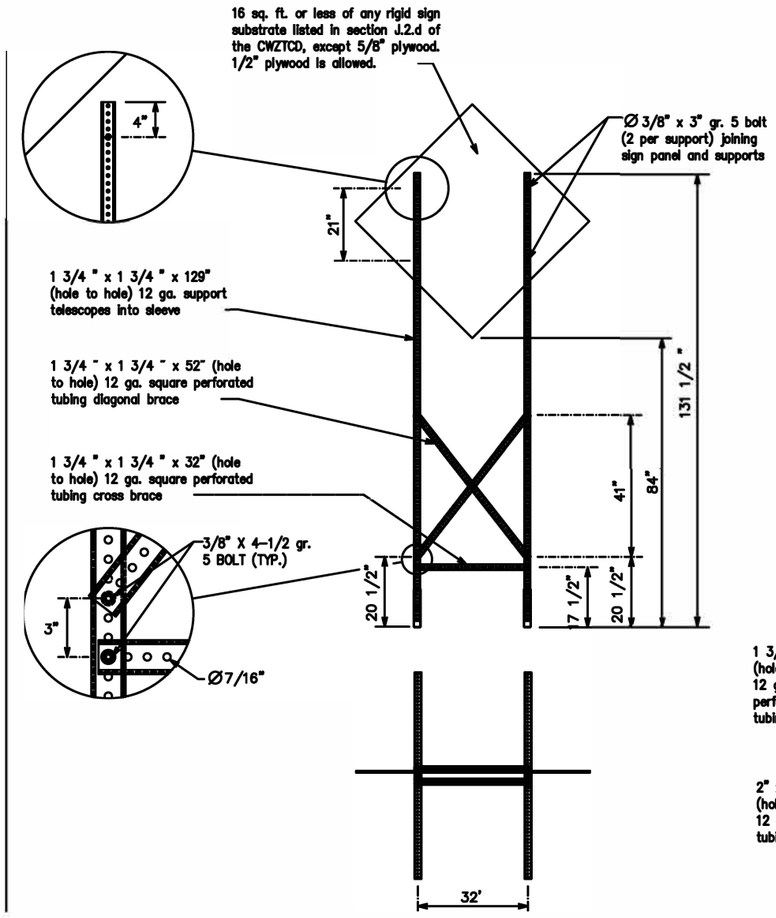


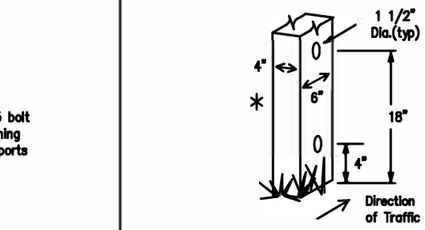
PERFORATED SQUARE METAL TUBING

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.

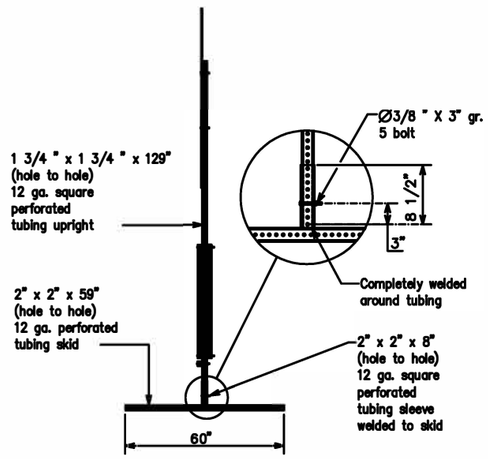






Nominal Post Size	Number of Posts	Maximum Sq. feet of Sign Face	Minimum Soil Embedment	Drilled Hole(s) Required
4 x 4	1	12	36"	NO
4 x 4	2	21	36"	NO
4 x 6	1	21	36"	YES
4 x 6	2	36	36"	YES

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.

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Texas Department of Transportation

Traffic Operations Division Standard

HWY 380

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)–14

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

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

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.

CITY OF DENTON

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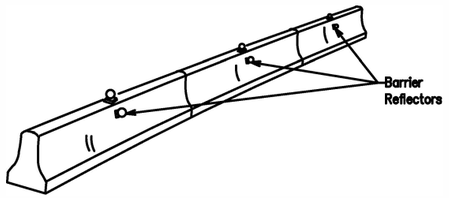
Texas Department of Transportation

Traffic Operations Division Standard

HWY 380
BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)
BC(6)-14

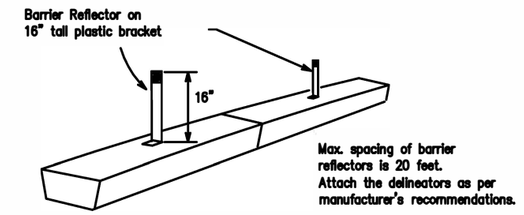
FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT Nov 2002	CONT / SECT	JOB	HIGHWAY	SHEET NO.
REVISIONS	0134 / 09	068,ETC		
	DISTRICT	COUNTY		
	DALLAS	DENTON		

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.

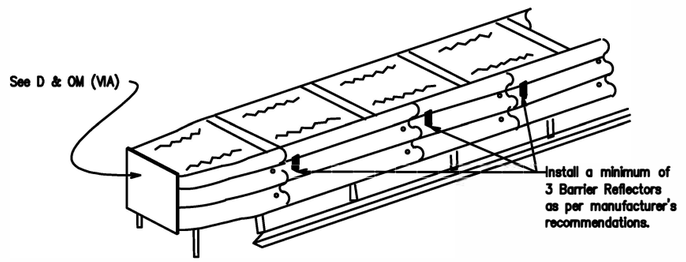


CONCRETE TRAFFIC BARRIER (CTB)

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)

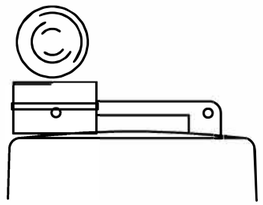


DELINEATION OF END TREATMENTS

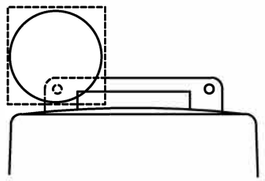
END TREATMENTS FOR CTB'S USED IN WORK ZONES

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 or C 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

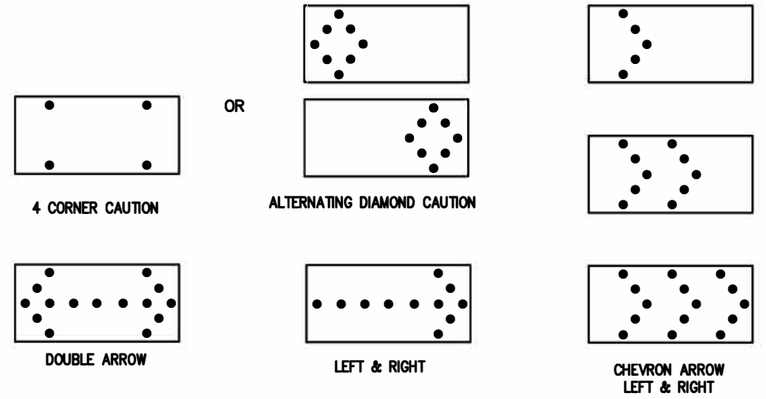
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing 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.

CITY OF DENTON

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SHEET 7 OF 12

Texas Department of Transportation

Traffic Operations Division Standard

HWY 380
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 Nov 2002	CONT	SECT	JOB	HIGHWAY	SHEET NO.
REVISIONS	0134	09	066,ETC		
	DISTRICT		COUNTY		
	DALLAS		DENTON		

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:

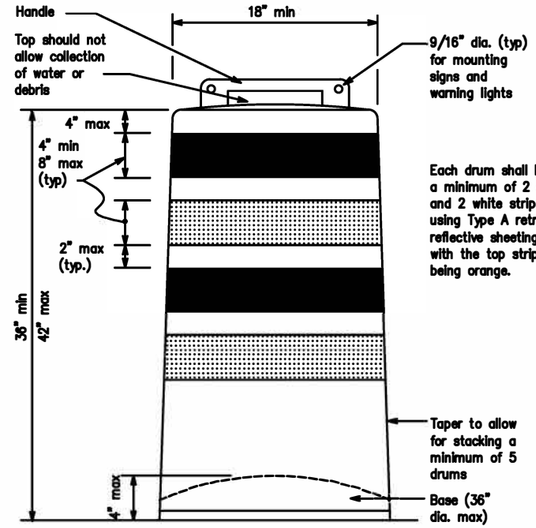
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents 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.

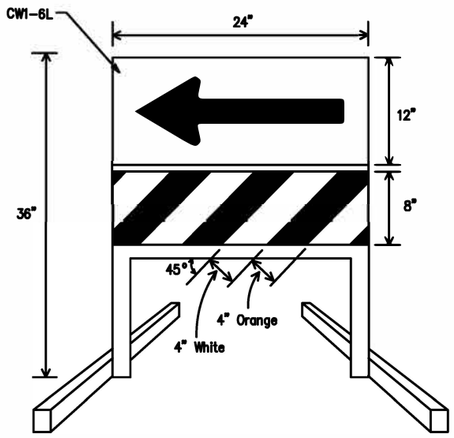
RETROREFLECTIVE SHEETING

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

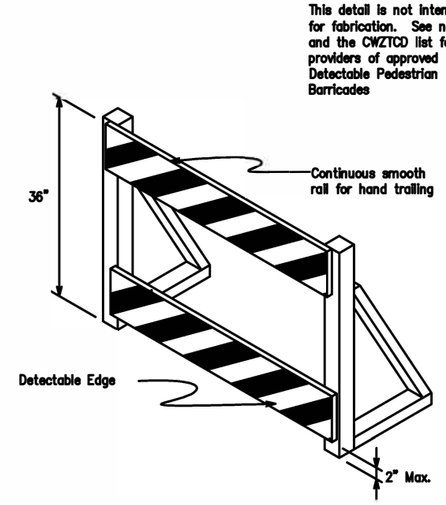
1. Unballasted bases shall be large enough to hold up to 50 lbs. of sand. This base, when filled with the ballast material, should weigh between 35 lbs (minimum) and 50 lbs (maximum). The ballast may be sand in one to three sandbags separate from the base, sand in a sand-filled plastic base, or other 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.





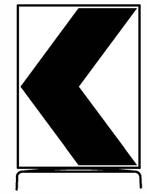
DIRECTION INDICATOR BARRICADE

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 or Type C 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.

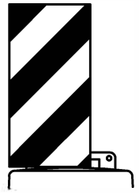


DETECTABLE PEDESTRIAN BARRICADES

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 or Type C 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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Traffic Operations Division Standard

HWY 380

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-14

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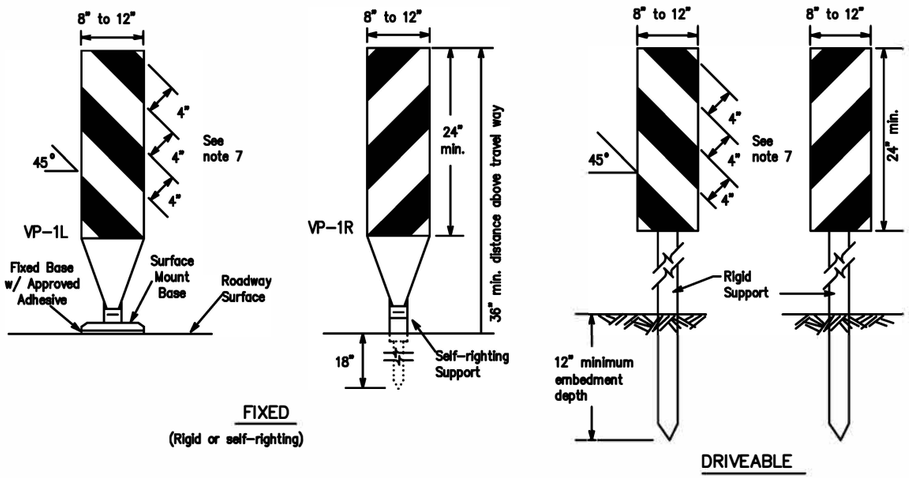
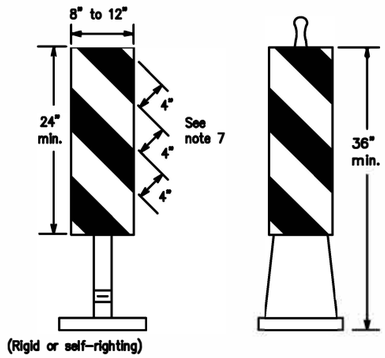


FIXED
(Rigid or self–righting)

DRIVEABLE

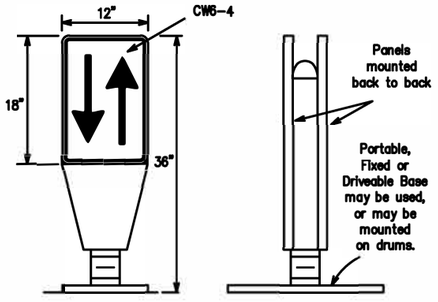


(Rigid or self–righting)

PORTABLE

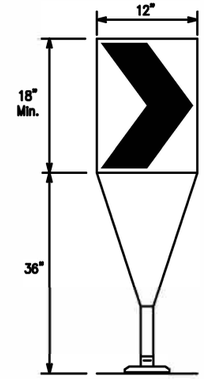
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop–offs and other areas such as lane transitions where positive daytime and nighttime delineation is 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 or Type C conforming to Departmental Material Specification DMS–8300, unless noted otherwise. The legend shall meet the requirements of DMS–8300.

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



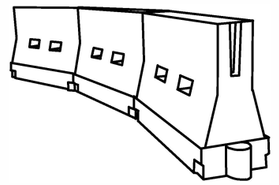
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

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 or Type C 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 **			Suggested Maximum Spacing of Channelizing Devices	
		10' Offset	11' Offset	12' Offset	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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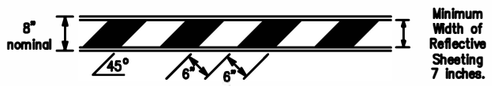
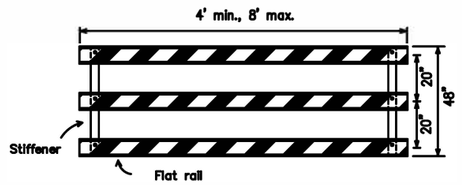
TYPE 3 BARRICADES

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.



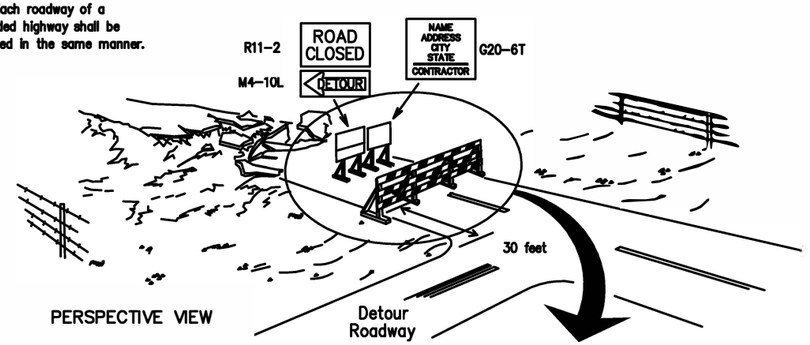
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

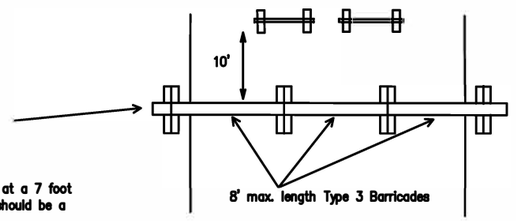
Each roadway of a divided highway shall be barricaded in the same manner.



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.

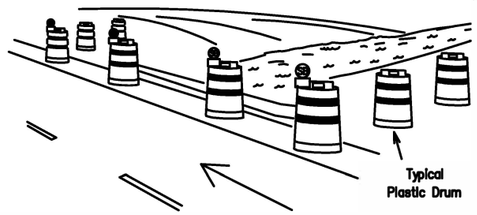
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

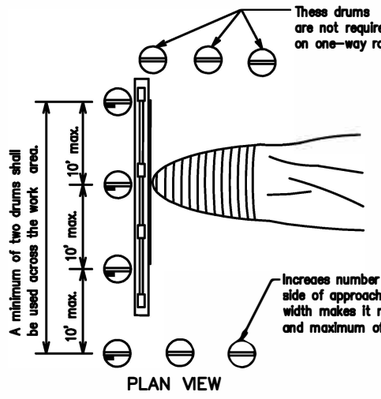
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

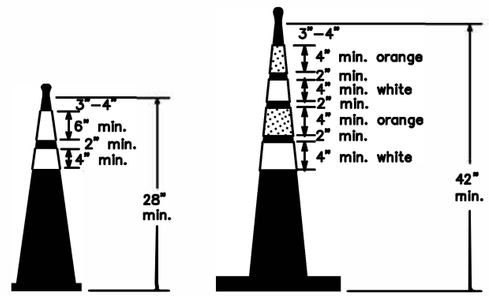
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder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

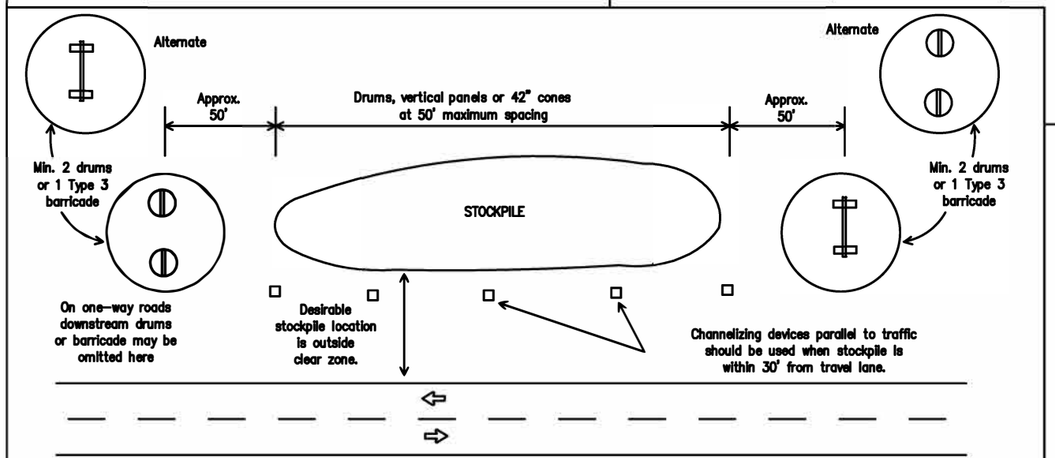
CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



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

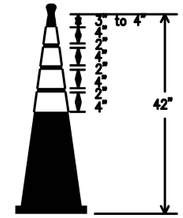
42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

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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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.

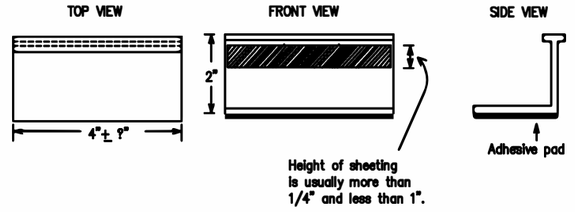
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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).

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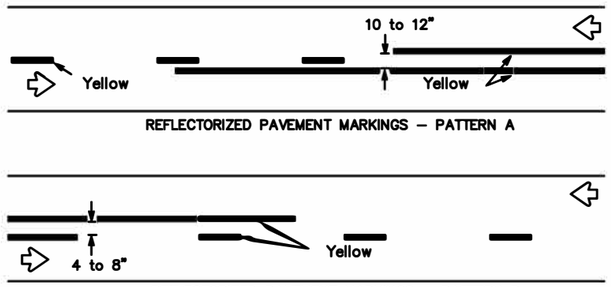
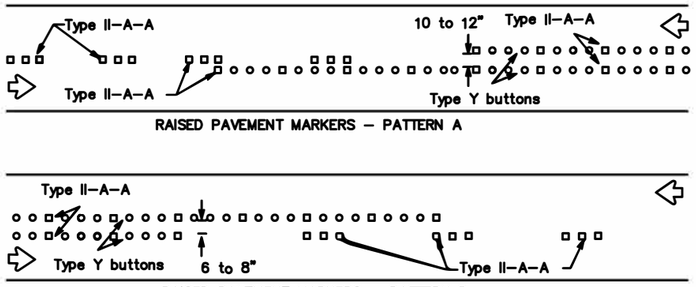
	DALLAS	DENTON		

PAVEMENT MARKING PATTERNS



REFLECTORIZED PAVEMENT MARKINGS – PATTERN A

REFLECTORIZED PAVEMENT MARKINGS – PATTERN B

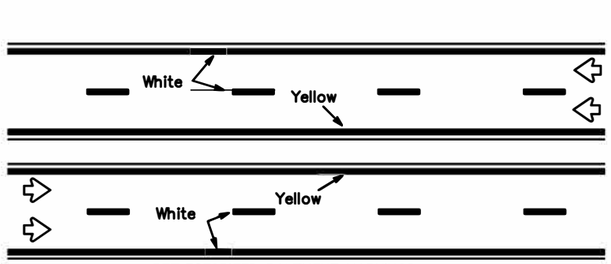


RAISED PAVEMENT MARKERS – PATTERN A

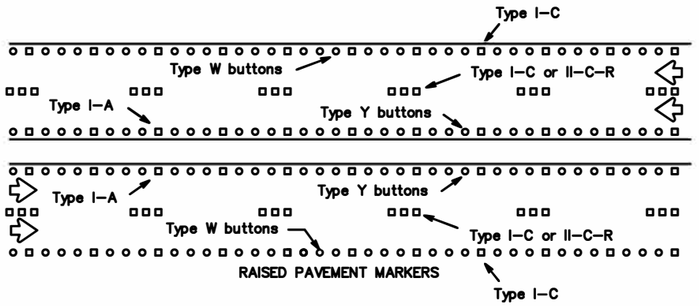
RAISED PAVEMENT MARKERS – PATTERN B

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



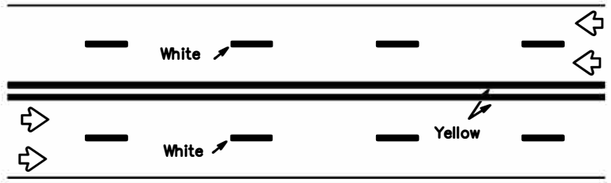
REFLECTORIZED PAVEMENT MARKINGS



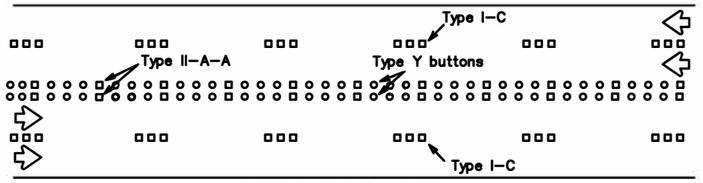
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



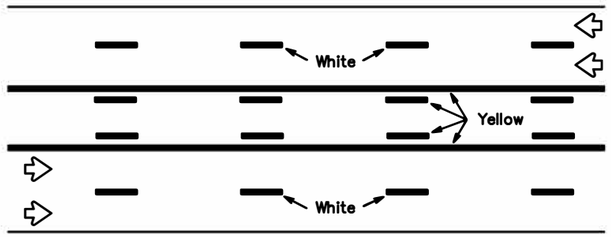
REFLECTORIZED PAVEMENT MARKINGS



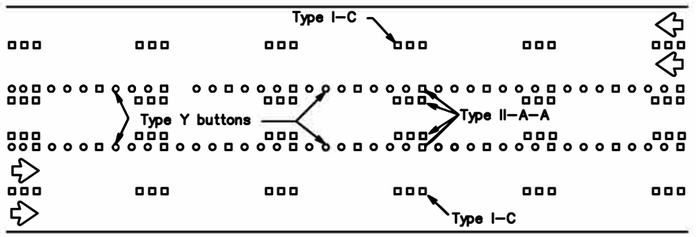
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS

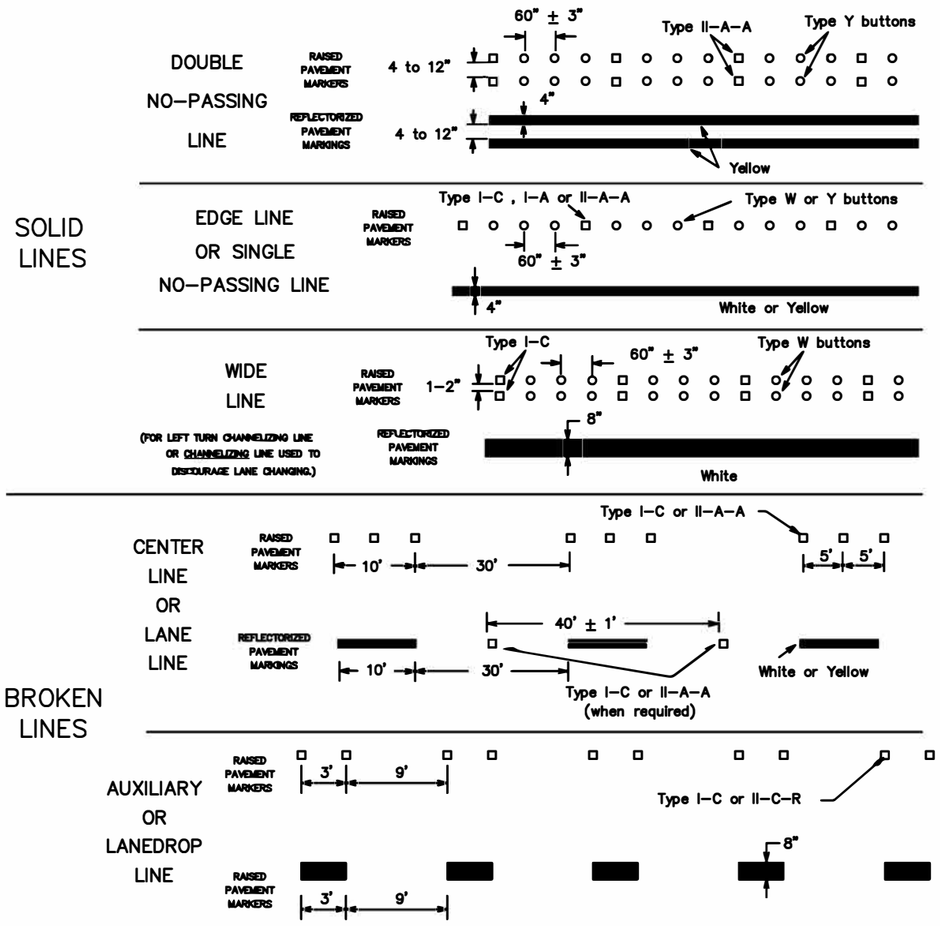


RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

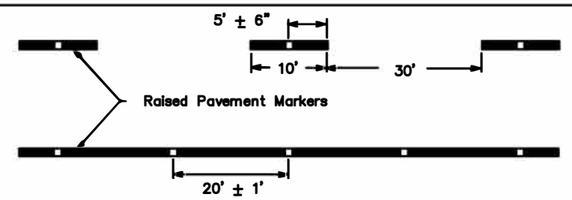
TWO–WAY LEFT TURN LANE

STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS



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

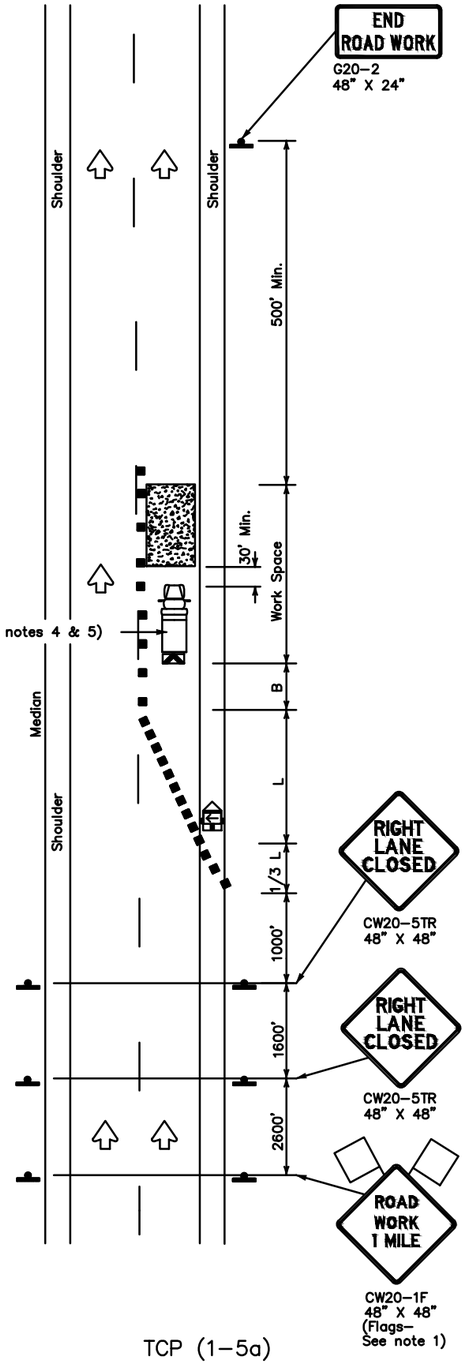
HWY 380
BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS
BC(12)–14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT Nov 2002	CONT	SECT	JOB	HIGHWAY	SHEET NO.
REVISIONS	0134	09	066,ETC		
	DISTRICT		COUNTY		
	DALLAS		DENTON		

CITY OF DENTON

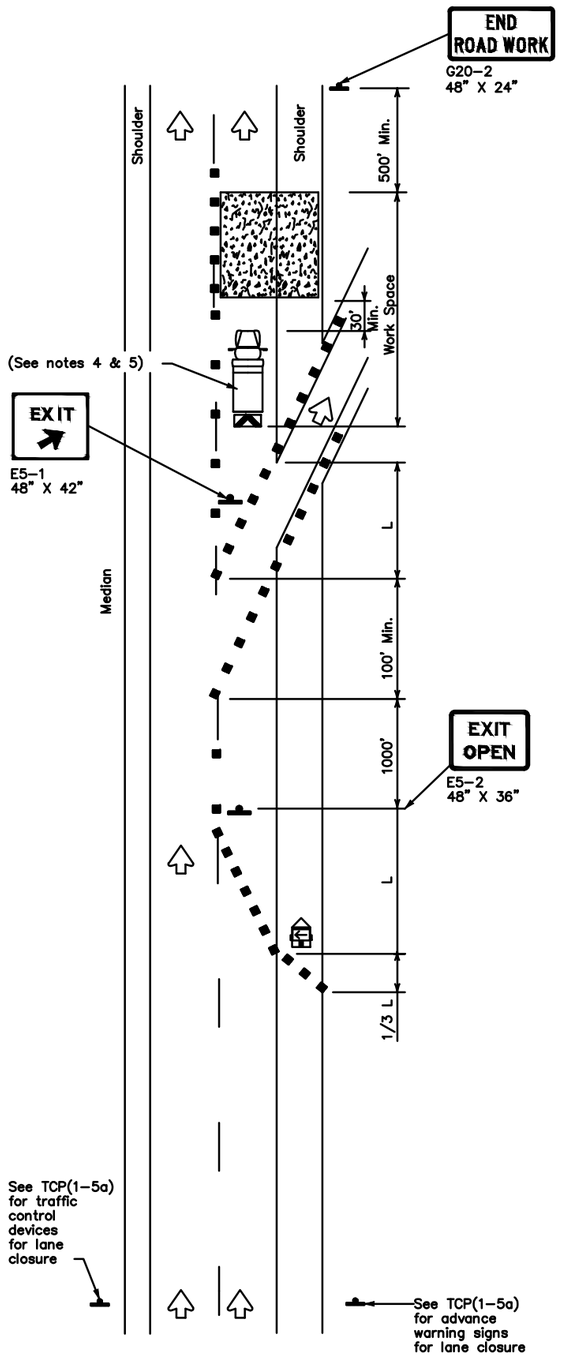
EBA

DATE:
FILE:



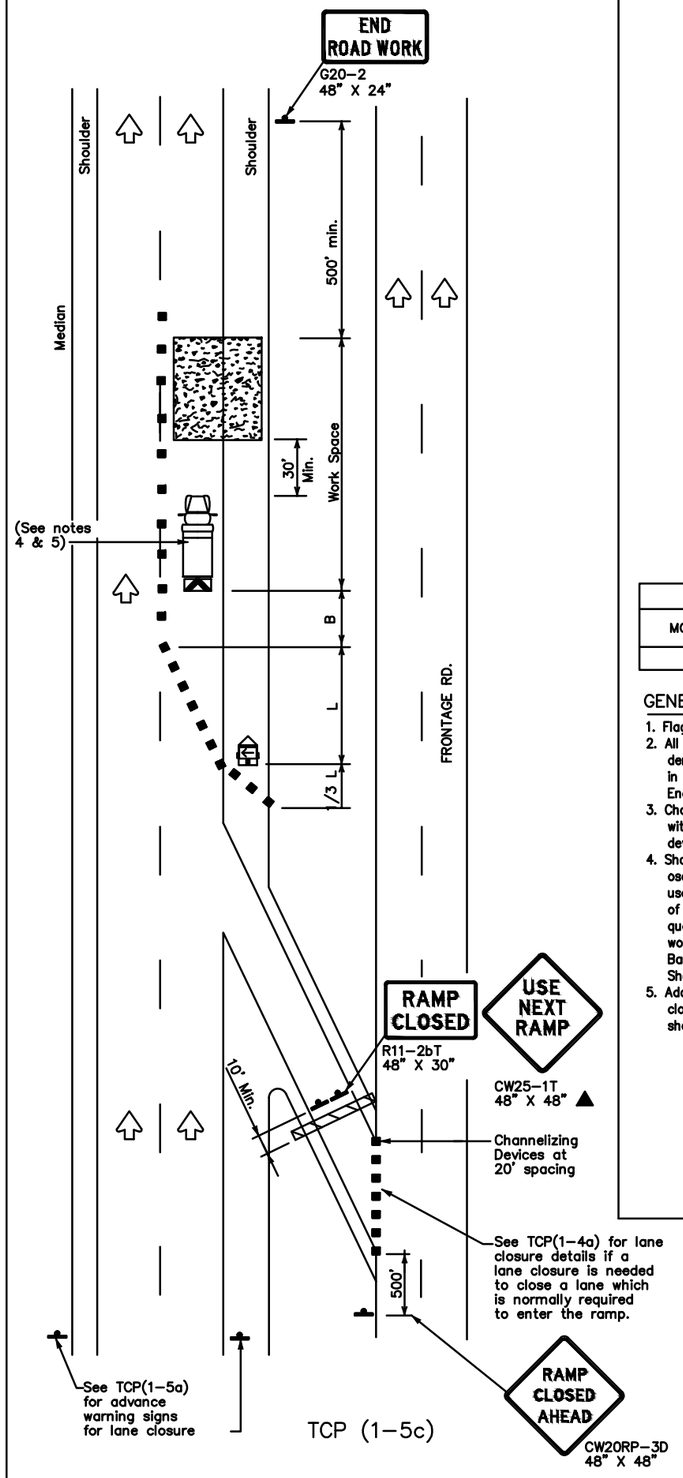
TCP (1–5a)

ONE LANE CLOSURE



TCP (1–5b)

LANE CLOSURE NEAR EXIT RAMPS



TCP (1–5c)

LANE CLOSURE NEAR ENTRANCE RAMPS

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.

CITY OF DENTON

EBA

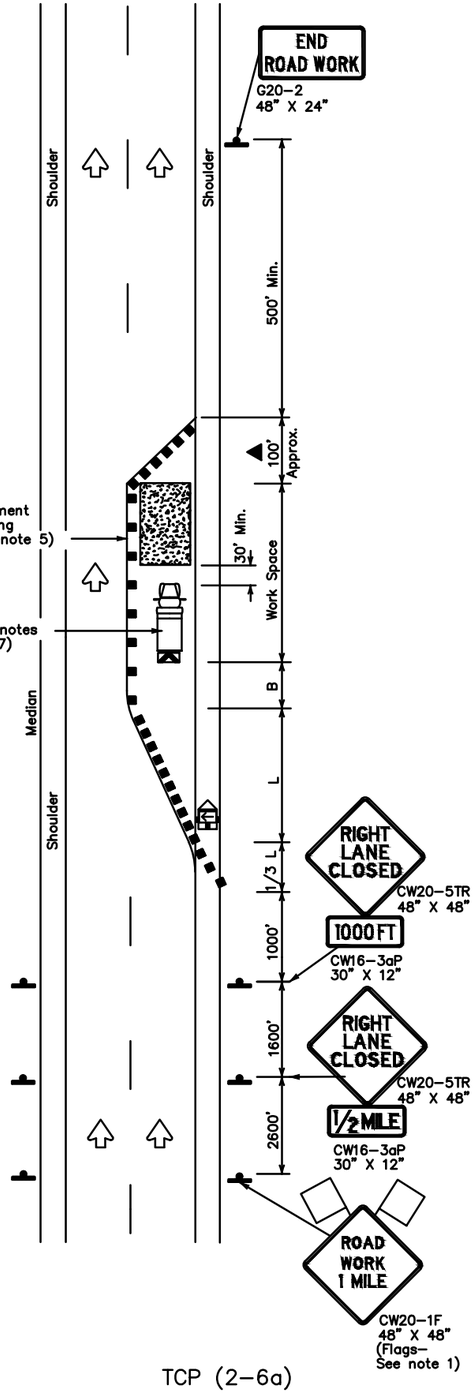
Texas Department of Transportation

Traffic Operations Division Standard

HWY 380
TRAFFIC CONTROL PLAN
LANE CLOSURES FOR DIVIDED HIGHWAYS
TCP(1–5)–18

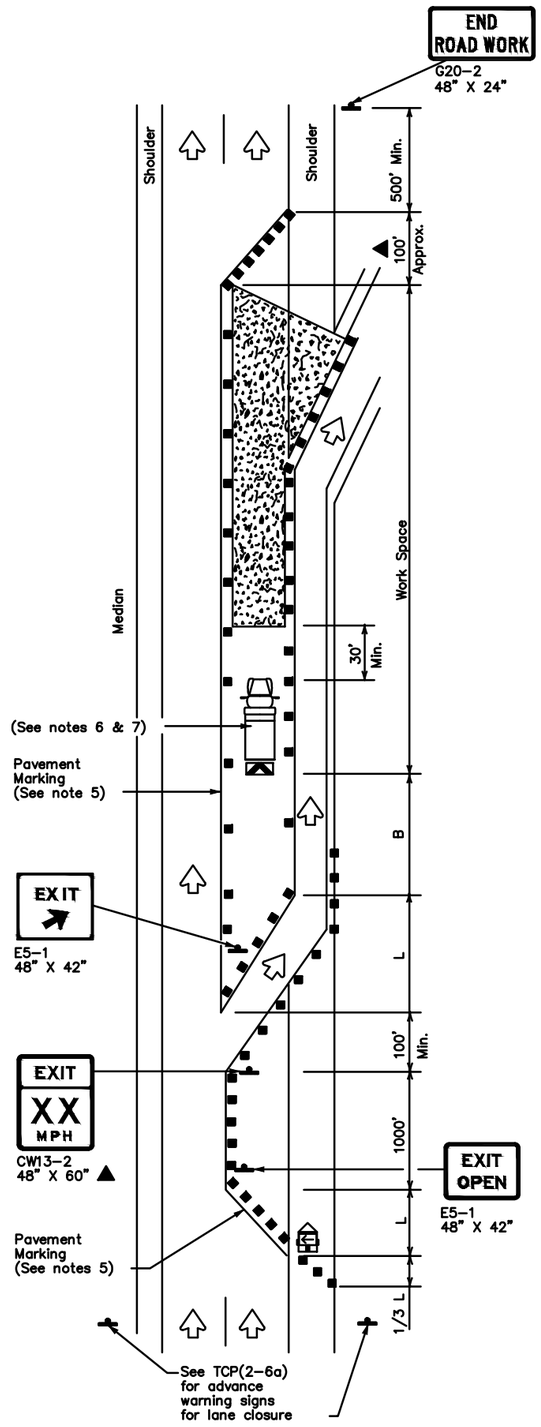
FILE: tcp1-5-18.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
©TxDOT	CONT	SECT	JOB	HIGHWAY
REVISIONS	0134	09	086,ETC	380
	DIST	COUNTY		SHEET NO.
	DALLAS	DENTON		

DATE:
FILE:



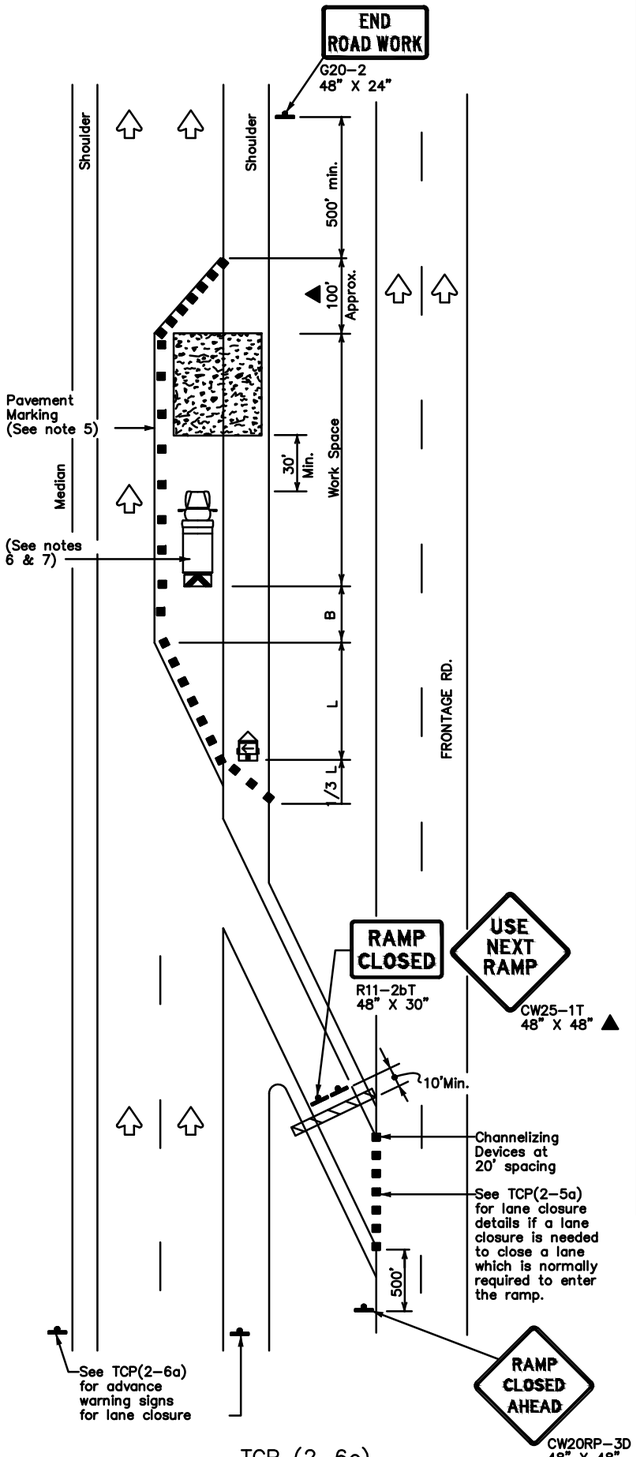
TCP (2-6a)

ONE LANE CLOSURE



TCP (2-6b)

LANE CLOSURE NEAR EXIT RAMPS



TCP (2-6c)

LANE CLOSURE NEAR ENTRANCE RAMPS

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.

CITY OF DENTON

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Texas Department of Transportation

Traffic Operations Division Standard

HWY 380

TRAFFIC CONTROL PLAN LANE CLOSURES ON DIVIDED HIGHWAYS TCP(2-6)-18

FILE: tcp2-6-18.dgn	DN:	CK:	DW:	CK:
©TxDOT	CONT	SECT	JOB	HIGHWAY
REVISIONS	0134	09	068,ETC	380
	DIST	COUNTY		SHEET NO.
	DALLAS	DENTON		

DATE:
FILE:

I. STORMWATER POLLUTION PREVENTION–CLEAN WATER ACT SECTION 402

TPDES TXR 150000: Stormwater Discharge Permit or Construction General Permit 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.

List MS4 Operator(s) that may receive discharges from this project. They may need to be notified prior to construction activities.

1.

2.

☐ No Action Required ☐ Required Action

Action No.

1. Prevent stormwater pollution by controlling erosion and sedimentation in accordance with TPDES Permit TXR 150000
2. Comply with the SW3P and revise when necessary to control pollution or required by the Engineer.
3. Post Construction Site Notice (CSN) with SW3P information on or near the site, accessible to the public and TCEQ, EPA or other inspectors.
4. When Contractor project specific locations (PSL's) increase disturbed soil area to 5 acres or more, submit NOI to TCEQ and the Engineer.

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

USACE Permit required for filling, dredging, excavating or other work in any water bodies, rivers, creeks, streams, wetlands or wet areas.

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

☐ No Permit Required
☐ Nationwide Permit 14 – PCN not Required (less than 1/10th acre waters or wetlands affected)
☐ Nationwide Permit 14 – PCN Required (1/10 to <1/2 acre, 1/3 in tidal waters)
☐ Individual 404 Permit Required
☐ Other Nationwide Permit Required: NWP# _____

Required Actions: List waters of the US permit applies to, location in project and check Best Management Practices planned to control erosion, sedimentation and post–project TSS.

1.

2.

3.

4.

The elevation of the ordinary high water marks of any areas requiring work to be performed in the waters of the US requiring the use of a nationwide permit can be found on the Bridge Layouts.

Best Management Practices:

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

II. CULTURAL RESOURCES

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

☐ No Action Required ☐ Required Action

Action No.

1.

2.

3.

4.

IV. VEGETATION RESOURCES

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

☐ No Action Required ☐ Required Action

Action No.

1.

2.

3.

4.

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

☐ No Action Required ☐ Required Action

Action No.

1.

2.

3.

4.

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

LIST OF ABBREVIATIONS

BMP: Best Management Practice	SPCC: Spill Prevention Control and Countermeasure
CGP: Construction General Permit	SW3P: Storm Water Pollution Prevention Plan
DSHS: Texas Department of State Health Services	PCN: Pre–Construction Notification
FHWA: Federal Highway Administration	PSL: Project Specific Location
MOA: Memorandum of Agreement	TCEQ: Texas Commission on Environmental Quality
MOU: Memorandum of Understanding	TPDES: Texas Pollutant Discharge Elimination System
MS4: Municipal Separate Stormwater Sewer System	TPWD: Texas Parks and Wildlife Department
MBTA: Migratory Bird Treaty Act	TxDOT: Texas Department of Transportation
NOT: Notice of Termination	T&E: Threatened and Endangered Species
NWP: Nationwide Permit	USACE: U.S. Army Corps of Engineers
NOI: Notice of Intent	USFWS: U.S. Fish and Wildlife Service

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES

General (applies to all projects):

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

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

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

Contact the Engineer if any of the following are detected:
* Dead or distressed vegetation (not identified as normal)
* Trash piles, drums, canister, barrels, etc.
* Undesirable smells or odors
* Evidence of leaching or seepage of substances

Does the project involve any bridge class structure rehabilitation or replacements (bridge class structures not including box culverts)?

☐ Yes ☐ No

If "No", then no further action is required.
If "Yes", then TxDOT is responsible for completing asbestos assessment/inspection.

Are the results of the asbestos inspection positive (is asbestos present)?

☐ Yes ☐ No

If "Yes", then TxDOT must retain a DSHS licensed asbestos consultant to assist with the notification, develop abatement/mitigation procedures, and perform management activities as necessary. The notification form to DSHS must be postmarked at least 15 working days prior to scheduled demolition.

If "No", then TxDOT is still required to notify DSHS 15 working days prior to any scheduled demolition.

In either case, the Contractor is responsible for providing the date(s) for abatement activities and/or demolition with careful coordination between the Engineer and asbestos consultant in order to minimize construction delays and subsequent claims.

Any other evidence indicating possible hazardous materials or contamination discovered on site. Hazardous Materials or Contamination Issues Specific to this Project:

☐ No Action Required ☐ Required Action

Action No.

1.

2.

3.

VII. OTHER ENVIRONMENTAL ISSUES

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

☐ No Action Required ☐ Required Action

Action No.

1.

2.

3.

CITY OF DENTON
EBA

HWY 380
EPIC

DESIGN EBB	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
GRAPHICS EBB	6	(SEE TITLE SHEET)		380
CHECK EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
	CONTROL	SECTION	JOB	
	0134	09	066 ,ETC	

A. GENERAL SITE DATA

1. **PROJECT LIMITS:** From Elm Street to Masch Branch Road
   Begin Project Coordinates :Latitude(N): N 33° 23' 0658" Longitude(W): W 97° 19' 2585"

2. **PROJECT SITE MAPS:**

* Project Location Map: The Title Sheet
* Drainage Patterns: Drainage Area Maps (n/a)
* Slopes Anticipated After Major Gradings or Areas of Soil Disturbance: Typical Sections(n/a)
* Location of Erosion and Sediment Controls: SW3P Layouts
* Surface Waters and Discharge Locations: Drainage and Culvert Layouts(n/a)
* Project Specific Location(s) (PSL): To be determined by the project Construction Personnel. Location(s) shown on SW3P Layout (If PSL location(s) is within one mile of project) and information located in project SW3P Binder (Reference Item #10 below).

3. **PROJECT DESCRIPTION:**
   LANDSCAPE AND IRRIGATION INSTALLATION

4. **MAJOR SOIL DISTURBING ACTIVITIES:**
   None

5. **EXISTING CONDITION OF SOIL & VEGETATIVE COVER AND % OF EXISTING VEGETATIVE COVER:**
   ------

6. **TOTAL PROJECT AREA:** 2.598 Acres

7. **TOTAL AREA TO BE DISTURBED:** 1.727 Acres

8. **WEIGHTED RUNOFF COEFFICIENT**
   BEFORE CONSTRUCTION:
   AFTER CONSTRUCTION:

9. **NAME OF RECEIVING WATERS:**
   ----

10. **PROJECT SW3P Binder:**

A. For projects disturbing one to five acres, TxDOT will maintain a SW3P Binder at the project field office (If there is not a project field office, should be kept at the Area Office) which contains the following: Index Sheet, TCEQ Signature Authority, TCEQ Small Construction Site Notice, Contractor Certification of Compliance, SW3P Inspector Qualification Statements, Inspection and Maintenance Reports (Form 2118), EPIC Sheet, SW3P Sheet, Site Location Maps, Stored Material Lists specifying associated control measures and the Appendix which contains the TPDES Construction General Permit, MS4 Operator Notification(s) and the Construction PSL Permits per all applicable requirements.

B. For projects disturbing 5 acres or more, TxDOT will follow the actions listed in (10.A.) above with the addition of the following: Notice Of Intent (N.O.I.) and Fee Payment Form, TCEQ Large Construction Site Notice (to be used instead of Small Site Notice), and TPDES Permit Coverage Notice.

C. For projects disturbing less than one acre, actions described in (10.A.) and (10.B.) above are not required. Acreage is calculated by adding Total Area To Be Disturbed Acres on project (See #7 above) and the PSL(s) acreage located within one mile of project.

FILE NAME
DATE
DESIGNER

B. EROSION AND SEDIMENT CONTROLS

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

___ TEMPORARY SEEDING	_P_ PRESERVATION OF NATURAL RESOURCES
_P_ MULCHING (Hay or Straw)	___ FLEXIBLE CHANNEL LINER
___ BUFFER ZONES	___ RIGID CHANNEL LINER
_P_ PLANTING	___ SOIL RETENTION BLANKET
___ SEEDING	___ COMPOST MANUFACTURED TOPSOIL
___ SODDING	___ VERTICAL TRACKING
	___ OTHER:

2. **STRUCTURAL PRACTICES:** (Select T = Temporary or P = Permanent, as applicable)

_T_ SILT FENCES
_T_ EROSION CONTROL LOGS
___ EROSION CONTROL COMPOST BERMS (Low Velocity)
___ ROCK FILTER DAMS
___ DIVERSION, INTERCEPTOR, OR PERIMETER DIKES
___ DIVERSION, INTERCEPTOR, OR PERIMETER SWALES
___ DIVERSION DIKE AND SWALE COMBINATIONS
___ PIPE SLOPE DRAINS
___ PAVED FLUMES
___ ROCK BEDDING AT CONSTRUCTION EXIT
___ TIMBER MATTING AT CONSTRUCTION EXIT
___ CHANNEL LINERS
___ SEDIMENT TRAPS
___ SEDIMENT BASINS
___ STORM INLET SEDIMENT TRAP
___ STONE OUTLET STRUCTURES
___ CURBS AND GUTTERS
___ STORM SEWERS
___ VELOCITY CONTROL DEVICES
___ OTHER:

NOTE: TOP OF BMP'S SHOULD NOT BE HIGHER THAN ROADWAY ELEVATION AS NOT TO FLOOD ROADWAY UNLESS PRIOR APPROVAL FROM ENGINEER IS OBTAINED.

3. **STORM WATER MANAGEMENT:**

A. Storm water drainage will be provided by ditches, inlets, and storm water systems which carry drainage within the R.O.W. to the lows within the roadway and project site which drains to natural facilities.

4. **STORM WATER MANAGEMENT ACTIVITIES:** (Sequence of Construction)

A. Prior to the start of construction, install erosion logs and silt fence in accordance with the SW3P standards or as directed by the Engineer.

B. When all construction activities are complete and site is stabilized and approved by the Engineer remove all temporary sediment control.

C. See construction progress schedule for schedule and durations of relevant soil disturbance and stabilization activities.

NON-STORM WATER DISCHARGES:

Filter non-storm water discharges, or hold in retention basins, before being allowed to mix with storm water. These discharges consist of, but not limited to, non-polluted ground water, spring water, foundation or footing drain water, water used for dust control or pavement washing and vehicle washwater containing no detergents.

C. OTHER REQUIREMENTS & PRACTICES

1. **MAINTENANCE:**
Maintain all erosion and sediment controls in good working order. Perform any necessary cleaning/repairs/replacements at the earliest possible date prior to next rain event, but no later than 7 calendar days, Ensure the surrounding ground has dried sufficiently to prevent damage from equipment. "Too Wet" is the only reason for not adhering to timeframes described. When construction activities permanently or temporarily cease and are not expected to resume for 14 or more days on a disturbed portion of the site, stabilization measures must be initiated immediately.

2. **INSPECTION:**
A TxDOT Inspector will perform a regularly scheduled SW3P inspection every 7 calendar days. An Inspection and Maintenance Report, signed by the TxDOT Inspector and the Contractor, will befiled for each inspection. Revise/clean/repair/replace each BMP control device in accordance with the current Field Inspection and Maintenance Report (Form 2118) and Item 1 (Maintenance) above.

3. **WASTE MATERIALS:**
On a daily basis, or as may be directed, collect all waste materials, trash and debris from the construction site and deposit into a metal dumpster having a secure cover and which meets all state and local city solid waste management requirements. Empty the dumpster as required by regulation, or as may be directed, at a local approved landfill site. Do not bury construction waste on the construction project site.

4. **HAZARDOUS WASTE & SPILL REPORTING:**
As a minimum, any products in the following categories are considered to be hazardous: Paints, Acids, Solvents, Fuels, Asphalt Products, Chemical Additives for Soil Stabilization, and Concrete Curing Compounds or Additives. When storing hazardous material on the project site, or at a Project Specific Location, take all practicable precaution to prevent and/or contain any spillage of these materials. In the event of a spill, contact the spill coordinator immediately.

5. **SANITARY WASTE:**
Use a licensed sanitary waste management contractor to collect all sanitary waste from portable units as may be required by local regulation, or as directed.

6. **CONSTRUCTION VEHICLE TRACKING:**
On a regular basis, or as may be directed, dampen haul roads for dust control and construct construction entrances/exits. Provide for a motorized broom or vacuum type sweeper to be available on a daily basis, or as may be directed, to remove sediment from paved roadways on project, abutting and traversing the project site.

7. **MANAGEMENT PRACTICES:**
A. Construct disposal areas, stockpiles,haul roads and PSL's in a manner that will minimize and control the amount of sediment that may enter receiving waters. Do not locate disposal areas in anywetland, waterbody or streambed.
B. Locate construction staging areas, vehicle maintenance and PSL's areas in a manner to minimize the runoff of pollutants.
C. When working in or near a wetland, install and maintain operating soil erosion and sediment controls at all times during construction and isolate the work from the wetland.
D. Clear all waterways as soon as practicable of temporary embankment, temporary bridges, matting, falsework, piling, debris or other obstructions placed during construction operations that are not a part of the finished work.
E. Procedures and/or practices should be taken to control dust.
F. Sediment to be removed from roadways daily or when work begins after weather events if construction activities have ceased due to weather event.

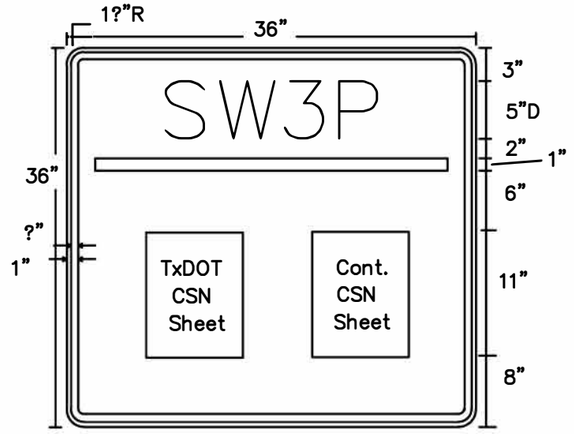
Texas Department of Transportation

CITY OF DENTON

EBA

HWY 380
STORM WATER POLLUTION PREVENTION PLAN (SW3P)

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066 ,ETC	



SW3P SIGN

TxDOT & Contractor Construction Site Note (CSN)

Sign Dimensions

36" X 36"

Letters – White
Numbers – White
Border – White
Background – Blue

GENERAL NOTES:

1. The alphabets and lateral spacing between letters and numerals shall conform with the "Texas Manual on Uniform Traffic Control Devices for Streets and Highways", (TMUTCD) latest edition, and the "Compliant Work Zone Traffic Control Devices List". Lateral spacing of text shall provide a balanced appearance. All materials shall conform to Department Specifications.
2. Legend and border may be applied by reverse screening process with transparent colored ink, cut–out white reflective sheeting applied to colored background or combination thereof. Background shall be reflective sheeting Type C.
3. CSN Sheets will be laminated and attached to the sign with an adhesive. Ensure sheets remain dry.(See Figure 1).
4. SW3P Signs should be placed just inside the ROW line at the project limits at a readable height. It may be placed perpendicular or parallel to ROW line.If the sign cannot be placed outside the clear zone, it will be mounted per TMUTCD requirements.
5. Final location of the signs will be as approved by the Engineer.

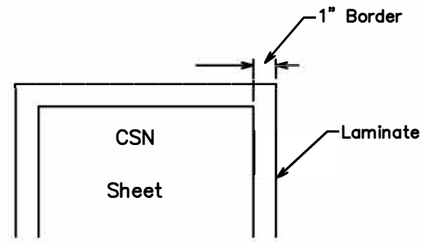
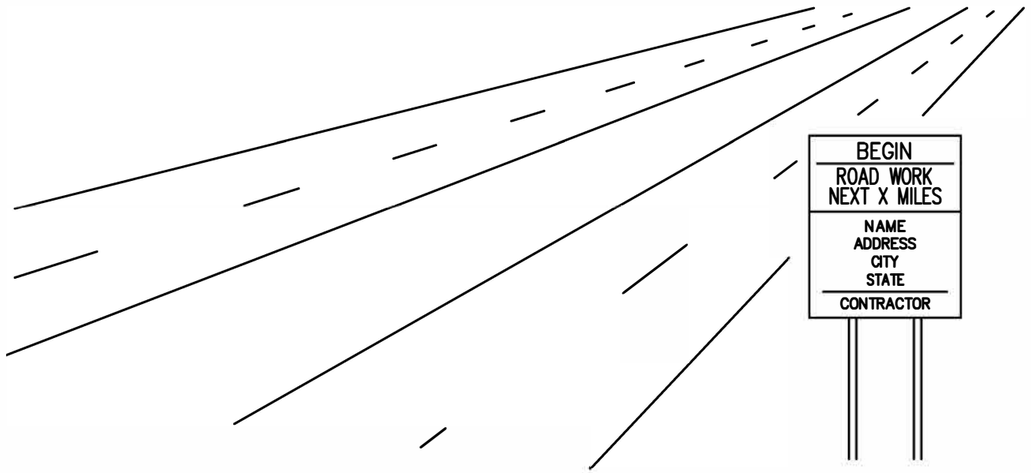
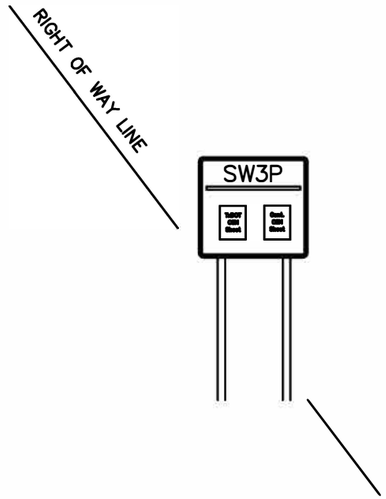


Figure 1

DEPARTMENT MATERIAL SPECIFICATIONS	
PLYWOOD SIGN BLANKS	DMS–7100
FLAT SURFACE REFLECTIVE SHEETING	DMS–8300
VINYL NON–REFLECTIVE DECAL SHEETING	DMS–8320

COLOR	USAGE	REFLECTIVE SHEETING OR OTHER MATERIAL
BLUE	BACKGROUND	TYPE C (FLUORESCENT PRISMATIC)
WHITE	LEGEND & BORDERS	VINYL NON–REFLECTIVE DECAL SHEETING





PATH:

LEVELS DISPLAYED

1

Texas Department of Transportation

HWY 380

SW3P PROJECT LIMITS SIGN (DAL)

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	STATE	(SEE TITLE SHEET)		380
GRAPHICS EBB	6	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

USER ID

ITEM 193 LANDSCAPE ESTABLISHMENT REQUIREMENTS

After completion of the Item 192 maintenance period, as shown in the plans and approved by the landscape architect, begin Item 193 establishment activities and continue for the duration of time shown in the plans.
Reference Item 193 of the Texas Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges 2014 for specifications, dimensions, volumes and measurements that are not shown.
All establishment work is paid for separately in accordance with Item 193 unless otherwise shown on plans.
Notify engineer prior to each site visit, determination of the completeness of work will be done in the presence of the engineer same day as work activity.

Item	DESCRIPTION OF WORK
193.3.1.1.	PRUNING
193.3.1.2.	INSECT, DISEASE, AND ANIMAL CONTROL (Exterminate all active ant colonies in planting bed preparation areas.)
193.3.1.3.	FERTILIZER
193.3.1.4.	MULCHING, PLANT BASIN, AND PLANT BED MAINTENANCE (Includes keeping all inlets within or near the bed preparation areas free of compost. Maintain bed preparation areas as shown below and reshape beds every 30 days or as site conditions and weather require. 3 feet from outermost trunk of a tree in grass areas, maintain the tree wells and mulch as shown on the plans or details, or notes. be sure no mulch is piled on the top against the base of the tree trunk. If no requirement is selected below, maintain per Item 193.3.1.4) WEED CONTROL REQUIREMENT ☑ Maintain weed-free per Item 193.3.1.4. Cord trimmers are not allowed. Replace damaged plants per Item 193.3.2. INVASIVE VINES MUST BE CHEMICALLY TREATED, NOT MANUALLY REMOVED. ☑ Eradicate all vines regardless of height, VINES MUST BE CHEMICALLY TREATED, NOT MANUALLY REMOVED.Eradicate invasive shrubs and trees as required. Method must be either a spot- treatment chemical application such as a wick applicator or manual hand pulling of weeds. Hand-pull previously treated dead plants .
193.3.1.5.	MOWING, TRIMMING, AND EDGING DO NOT MOW, TRIM, OR EDGE WITHIN 3' of ANY TREE MOW EIGHT TIMES PER 365 DAY PERIOD, ONCE PER MONTH, DURING THE LAST WEEK OF: APRIL, MAY, JUNE, JULY, AUGUST, SEPTEMBER, OCTOBER, NOVEMBER
193.3.1.6.	PLANT SUPPORTS- STAKING, GUYING, AND BRACING OF PLANTS (Remove tree stakes and all appurtenances within last 30 days of this schedule, unless otherwise directed by engineer and/or landscape architect)
193.3.2.	PLANT REPLACEMENT *
193.3.4.	IRRIGATION SYSTEM OPERATION AND MAINTENANCE (Only when Item 170 Irrigation System or a temporary irrigation system is part of the contract, see IRRIGATION DETAILS, SHEET 3 OF 4 GUARANTEE AND ACCEPTANCE)
	LITTER AND DEBRIS COLLECTION AND DISPOSAL (Includes tree planting areas and all shrub bed/planting areas. In addition, keep all inlets within or near planting preparation areas free of debris and litter)

TIMELINE (days)
(1 – 365 = Month 1 thru 12)

0 30 60 90 120 150 180 210 240 270 300 330 365

Item	1 Thru 7	8 Thru 15	16 Thru 22	23 Thru 30	31 Thru 37	38 Thru 45	46 Thru 52	53 Thru 60	61 Thru 67	68 Thru 75	76 Thru 82	83 Thru 90
193.3.1.1.				✓				✓				✓
193.3.1.2.		✓		✓		✓		✓		✓		✓
193.3.1.3.												
193.3.1.4.		✓		✓		✓		✓		✓		✓
193.3.1.5.												
193.3.1.6.		✓		✓		✓		✓		✓		✓
193.3.2.				✓				✓				✓
193.3.4.		✓		✓		✓		✓		✓		✓
Litter and debris												

Item	91 Thru 97	98 Thru 105	106 Thru 112	113 Thru 120	121 Thru 127	128 Thru 135	136 Thru 142	143 Thru 150	151 Thru 157	158 Thru 165	166 Thru 172	173 Thru 180
193.3.1.1.				✓				✓				✓
193.3.1.2.		✓		✓		✓		✓		✓		✓
193.3.1.3.				✓								
193.3.1.4.		✓		✓		✓		✓		✓		✓
193.3.1.5.												
193.3.1.6.		✓		✓		✓		✓		✓		✓
193.3.2.				✓				✓				✓
193.3.4.		✓		✓		✓		✓		✓		✓
Litter and debris										✓		✓

Item	181 Thru 187	188 Thru 195	196 Thru 202	203 Thru 210	211 Thru 217	218 Thru 225	226 Thru 232	233 Thru 240	241 Thru 247	248 Thru 255	256 Thru 262	263 Thru 270
193.3.1.1.				✓				✓				✓
193.3.1.2.		✓		✓		✓		✓		✓		✓
193.3.1.3.								✓				
193.3.1.4.		✓		✓		✓		✓		✓		✓
193.3.1.5.												
193.3.1.6.		✓		✓		✓		✓		✓		✓
193.3.2.				✓				✓				✓
193.3.4.		✓		✓		✓		✓		✓		✓
Litter and debris		✓		✓		✓		✓		✓		✓

Item	271 Thru 277	278 Thru 285	286 Thru 292	293 Thru 300	301 Thru 307	308 Thru 315	316 Thru 322	323 Thru 330	331 Thru 338	339 Thru 346	347 Thru 354	355 Thru 365
193.3.1.1.				✓				✓				✓
193.3.1.2.		✓		✓		✓		✓		✓		✓
193.3.1.3.												✓
193.3.1.4.		✓		✓		✓		✓		✓		✓
193.3.1.5.												
193.3.1.6.		✓		✓		✓		✓		✓		✓
193.3.2.				✓				✓				✓
193.3.4.		✓		✓		✓		✓		✓		✓
Litter and debris		✓		✓		✓		✓		✓		✓

✓ = Work required during defined period of timeline.
All work must be completed for entire project.

* Remove any materials damaged by actions described in Item 7.17.1.
Removal and disposal of damaged materials is incidental to Item 192.
Contracter may be reimbursed for plant replacement in accordance with Item 7.17.1.
Theft is not a reimbursable repair.

NOTES:
1. 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 the plans and specifications will be replaced and/or reworked until in compliance.
2. Any adjustments due to the failure to comply with plans and specifications shown will be at contractors expense.
3. Once the 90 day maintenance period is up, City of Denton will provide weekly bed maintenance and bi-weekly mowing during the growing season.

TEMPLATED REVISED: 10-23-02

DATE

Signature of Registrant & Date

HWY 380
PLANTING AND ESTABLISHMENT

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK EBB	CONTROL	SECTION	JOB	
	0134	09	066,ETC	

Texas Department of Transportation
© 2019

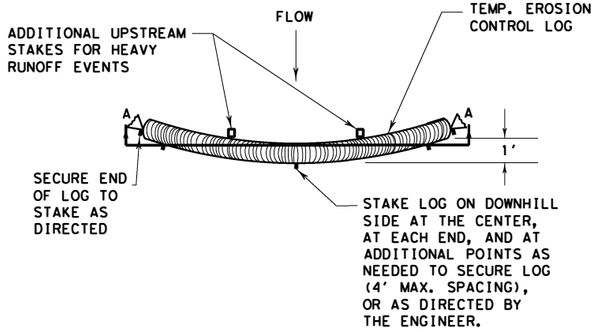
HWY 380

TxDOT Environmental Standards

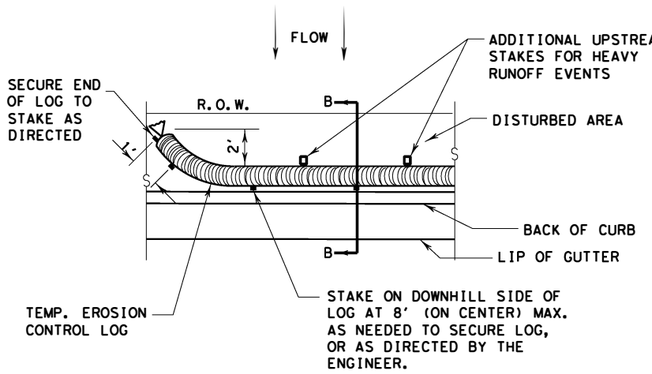
for Erosion Control Logs ED(9)–16

DESIGN	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
EBB	6	(SEE TITLE SHEET)		380
GRAPHICS EBB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EBB	TEXAS	DALLAS	DENTON	
CHECK	CONTROL	SECTION	JOB	
EBB	0134	09	066,ETC	

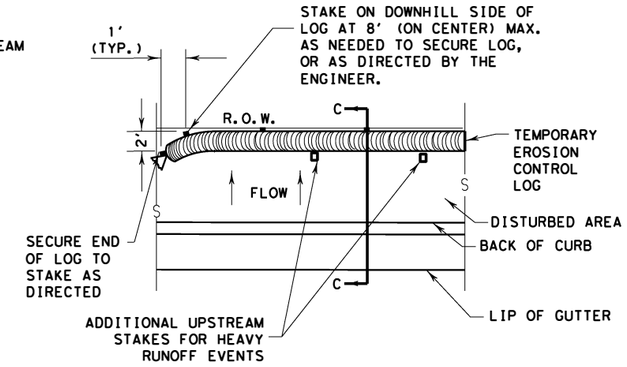
DATE:
FILE:



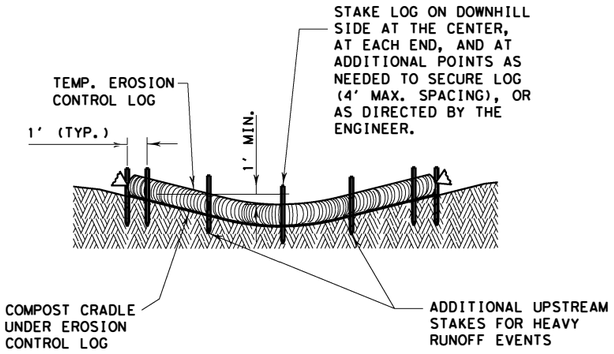
PLAN VIEW



PLAN VIEW



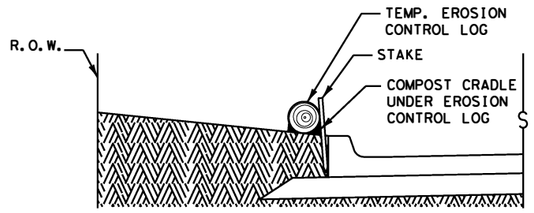
PLAN VIEW



SECTION A-A

EROSION CONTROL LOG DAM

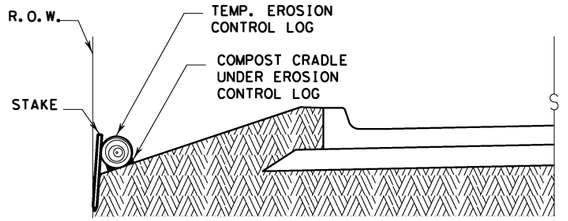
CL-D



SECTION B-B

EROSION CONTROL LOG AT BACK OF CURB

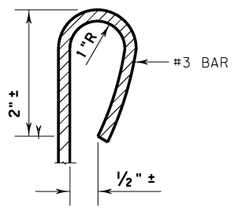
CL-BOC



SECTION C-C

EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY

CL-ROW



REBAR STAKE DETAIL

LEGEND

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

GENERAL NOTES:

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

SEDIMENT BASIN & TRAP USAGE GUIDELINES

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

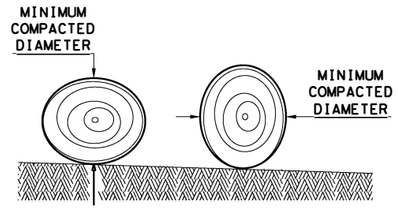
Log Traps: The drainage area for a sediment trap should not exceed 5 acres. The trap capacity should be 1800 CF/Acre (0.5" over the drainage area).

Control logs should be placed in the following locations:

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

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

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



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

Texas Department of Transportation

Design Division Standard

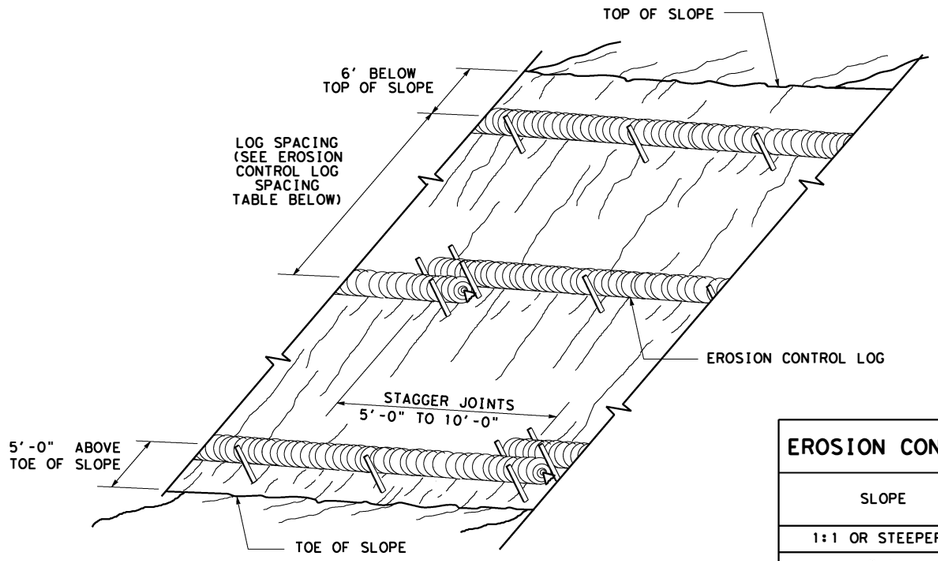
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

EC(9)-16

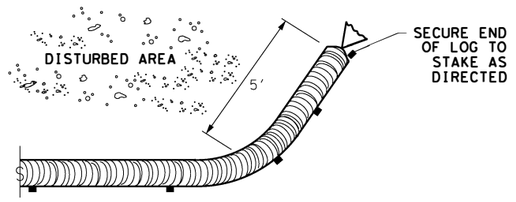
FILE: ec916	DN: TxDOT		CK: KM		DW: LS/PT	CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB		HIGHWAY	
REVISIONS	0134	09	066,ETC		380	
	DIST	COUNTY			SHEET NO.	
	DALLAS	DENTON				

DATE:
FILE:



EROSION CONTROL LOGS ON SLOPES
STAKE AND TRENCHING ANCHORING

CL-SST

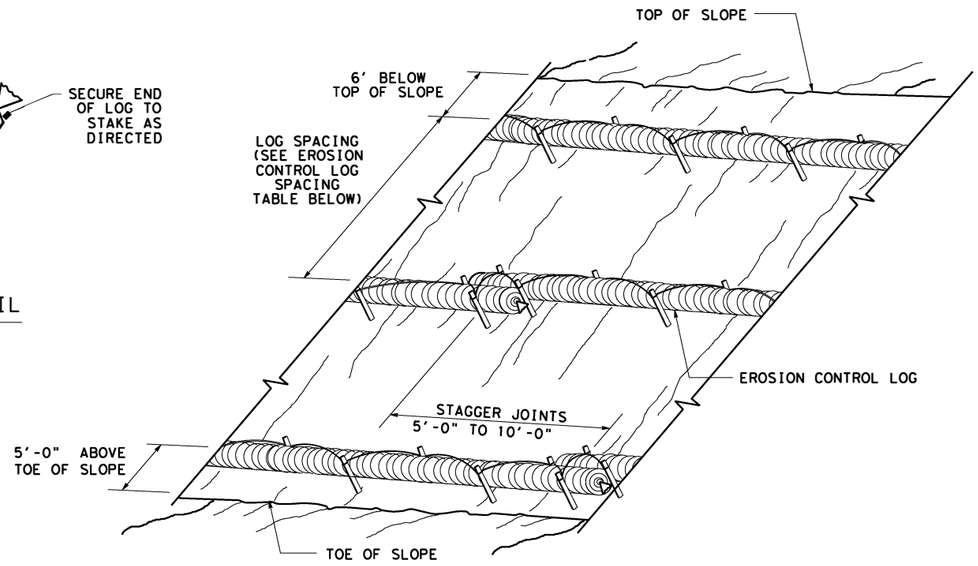


END SECTION RAP DETAIL

EROSION CONTROL LOG SPACING TABLE

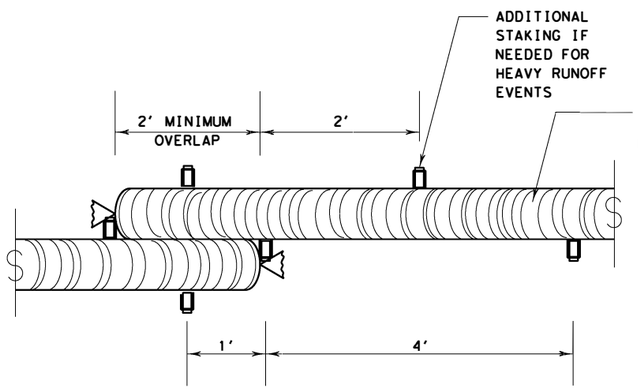
SLOPE	LOG DIAMETER			
	6"	8"	12"	18"
1:1 OR STEEPER	5'	10'	15'	20'
2:1	10'	20'	30'	40'
3:1	15'	30'	45'	60'
4:1 OR FLATTER	20'	40'	60'	80'

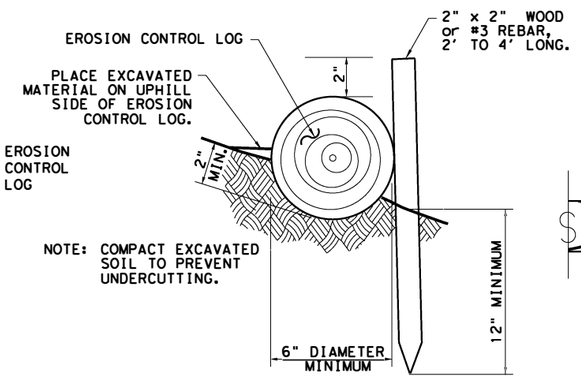
* ADJUSTMENTS CAN BE MADE FOR SOIL TYPE:
SOFT, LOAMY SOILS-ADJUST ROWS CLOSER TOGETHER;
HARD, ROCKY SOILS- ADJUST ROWS FARTHER APART



EROSION CONTROL LOGS ON SLOPES
STAKE AND LASHING ANCHORING

CL-SSL



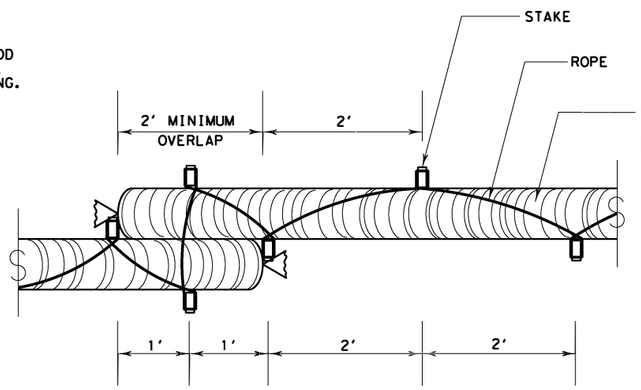


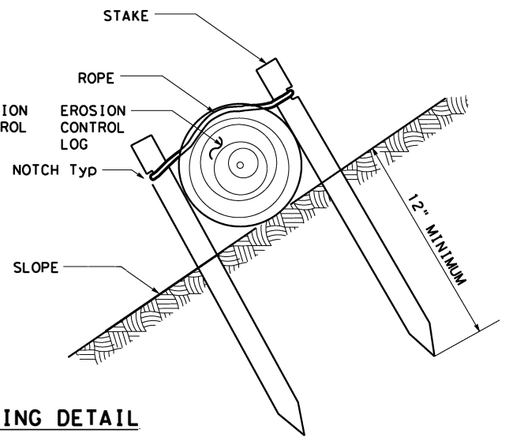
STAKE AND TRENCHING ANCHORING DETAIL

CL-SST

TRENCH DEPTH TABLE

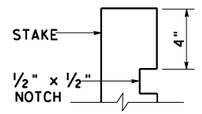
LOG DIAMETER	DEPTH
6"	2"
8"	3"
12"	4"
18"	5"





STAKE AND LASHING ANCHORING DETAIL

CL-SSL



STAKE NOTCH DETAIL

Texas Department of Transportation

Design Division Standard

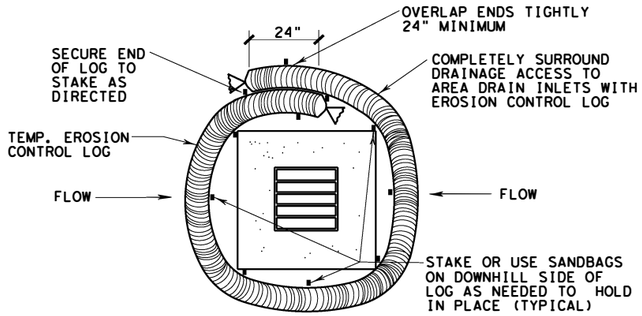
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

EC(9)-16

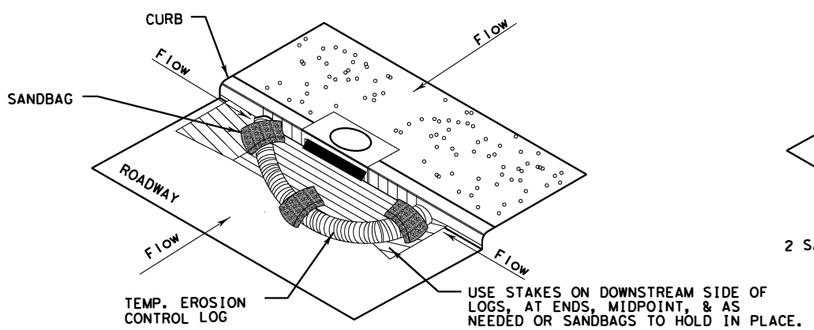
FILE: ec116	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0134	09	066,ETC	380
	DIST	COUNTY		SHEET NO.
	DALLAS	DENTON		

DATE:
FILE:



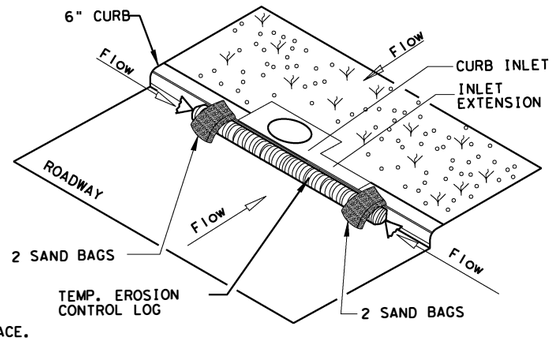
EROSION CONTROL LOG AT DROP INLET

CL-DI



EROSION CONTROL LOG AT CURB INLET

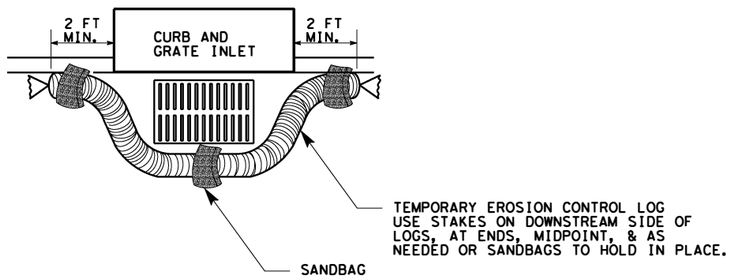
CL-CI



EROSION CONTROL LOG AT CURB INLET

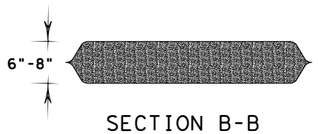
CL-CI

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

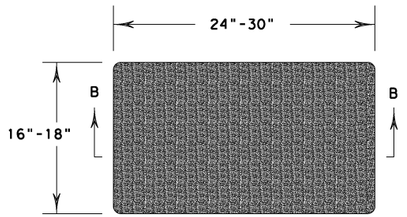


EROSION CONTROL LOG AT CURB & GRADE INLET

CL-GI



SECTION B-B



SANDBAG DETAIL

SHEET 3 OF 3

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

EC(9)-16

FILE: ec916	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS
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REVISIONS	0134	09	066,ETC	380
	DIST	COUNTY		SHEET NO.
	DALLAS	DENTON		