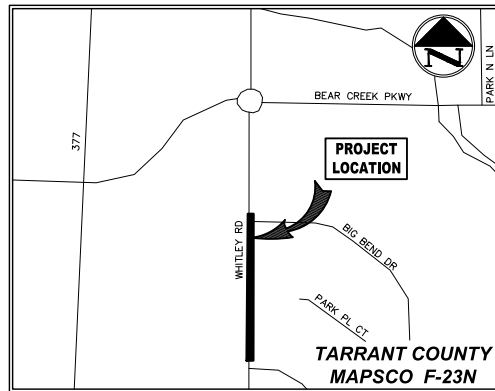


CONSTRUCTION PLANS FOR **WHITLEY ROAD BIKE/ PEDESTRIAN TRAIL** **PHASE 1**

CITY OF KELLER, TARRANT COUNTY, TEXAS
FEBRUARY 2023



1100 Bear Creek Parkway
Keller, Texas 76244
Phone (817) 743-4080 Fax (817) 743-4091



VICINITY MAP
(NOT TO SCALE)

SHEET INDEX

SHEET	DESCRIPTION
1	COVER SHEET
2	ESTIMATED QUANTITIES
3	GENERAL NOTES
4	TYPICAL SECTIONS
5	SURVEY CONTROL PLAN
6	EROSION CONTROL PLAN
7-8	PAVING PLAN AND PROFILE SHEETS
9-10	CROSS SECTIONS
11-12	RETAINING WALL PLAN AND PROFILE SHEETS
13	STORM PLAN AND PROFILE SHEET
14-28	STANDARD DETAILS



THE SEAL APPEARING ON THIS DOCUMENT WAS
AUTHORIZED BY EYLEY C. PAROULEK, P.E. 144188 ON
02/28/2023. ALTERATION OF A SEALED DOCUMENT
WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE
ENGINEER IS AN OFFENSE UNDER THE TEXAS
ENGINEERING PRACTICE ACT.

RCP:AMULEX 10.03.24AM
 M:\0165-21\0165-22\17A\DWG\CONV_C3D_2018\2165-22\17A_CVDWG

BID ITEM #	BID ITEM DESCRIPTION	SPEC REFERENCE	UNIT	PAVING			STORM	TOTAL
				SHEET				
				7	8	13		
1	Mobilization	TxDOT 500	LS	1	-	-	-	1
2	Video Project Area	-	LS	1	-	-	-	1
3	Barricades, Signs, and Traffic Handling	TxDOT 502	LS	1	-	-	-	1
4	Temporary Erosion, Sedimentation And Water Pollution Prevention (SWPPP)	NCTCOG 202	LS	1	-	-	-	1
5	Project Sign	NCTCOG 107.21	EA	1	1	-	-	2
6	General Site Preparation	NCTCOG 203.1	STA	3	3	-	-	6
7	Remove Concrete Curb And Gutter	NCTCOG 203.1	LF	-	12	-	-	12
8	Remove Concrete Sidewalk	NCTCOG 203.1	SY	1	3	-	-	4
9	Excavation (Trail)	NCTCOG 203.2	CY	400	-	-	-	400
10	Flex Base (6" Thick)	TxDOT 247	SY	456	422	-	-	878
11	Concrete Sidewalk Shared Use (10' x 6")	NCTCOG 305.2	SY	43	12	-	-	55
12	Concrete Sidewalk (4')	NCTCOG 305.2	SY	20	10	-	-	30
13	Conc Sidewalk (Special) (TY-FW)	TxDOT 531	SY	256	268	-	-	524
14	4" Topsoil	NCTCOG 204.2	SY	535	441	-	-	976
15	Solid Block Sodding	NCTCOG 204.5	SY	535	441	-	-	976
16	Curb Ramp (TY-1)	TxDOT 531	EA	-	2	-	-	2
17	Curb Ramp (TY-7)	TxDOT 531	EA	-	1	-	-	1
18	Remove SM RD SN SUP&AM	TxDOT 644	EA	-	1	-	-	1
19	Install SM RD SN SUP&AM TY/TWT(1) WS(P)	TxDOT 644	EA	-	3	-	-	3
20	REFL PAV MRK TY I (W)(12") (SLD)(100MIL)	TxDOT 666	LF	-	66	-	-	66
21	REFL PAV MRK TY I (W)(24") (SLD)(100MIL)	TxDOT 666	LF	-	15	-	-	15
22	Adjust Water Valve Lid To grade	NCTCOG 502.6	EA	-	1	-	-	1
23	Adjust Sanitary Sewer Manhole Lid to Grade	NCTCOG 502.1	EA	-	1	-	-	1
24	Irrigation Repair Allowance	NCTCOG 201.2	LS	1	-	-	-	1
25	Nyloplast 18" drain basin (2618AG) (Style 1899CGS)	-	EA	-	-	-	1	1
26	18" ADS N-12 Storm Drain	-	LF	-	-	-	4	4
27	ADS N-12 HDPE 36"x18" Tee	-	EA	-	-	-	1	1
28	Post-Construction As-Built Survey	-	LS	-	1	-	-	1



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NO.	DATE	REVISION
ESTIMATED QUANTITIES		
WHITLEY ROAD BIKE/PEDESTRIAN TRAIL PHASE 1		
CITY OF KELLER, TARRANT COUNTY, TEXAS		
DESIGN	DRAWN	DATE
CKT	ECW	FEBRUARY 2023
JOB NO.	SHEET NO.	
2165-22.174	2	

WHITLEY ROAD BIKE/PEDESTRIAN TRAIL PHASE 1

GENERAL NOTES:

1. THE CONTRACTOR MUST VIDEO THE PROJECT AREA. A COPY OF THE VIDEO SHALL BE SUBMITTED TO THE CITY.
2. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL MATERIALS REQUIRED AND FURNISH ALL LABOR AND EQUIPMENT NECESSARY FOR A COMPLETE AND FINISHED PROJECT READY FOR USE AND OPERATION BY THE CITY.
3. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH TXDOT AND NCTCOG TECHNICAL CONSTRUCTION STANDARDS AND SPECIFICATIONS.
4. THE CONTRACTOR IS TO NOTIFY THE CITY AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.
5. ALL CONSTRUCTION BARRICADING TO BE IN ACCORDANCE WITH THE TEXAS DEPARTMENT OF TRANSPORTATIONS CURRENT "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" GUIDELINES.
6. REFERENCE NCTCOG SPECIFICATIONS FOR ALL LABORATORY FIELD TESTING REQUIREMENTS
7. SAWING AND SEALING OF ALL LONGITUDINAL AND TRANSVERSE PAVEMENT JOINTS SHALL BE CONSIDERED SUBSIDIARY TO ALL PAVING ITEMS.
8. ALL REINFORCING STEEL SHALL BE GRADE 60.
9. REFER TO TXDOT SPECIFICATION ITEM 360 FOR TEMPERATURE RESTRICTIONS. CONCRETE TEMPERATURE PRIOR TO PLACEMENT SHALL NOT EXCEED 95°F.
10. ALL TRAIL PAVEMENT SHALL BE CLASS "A" CONCRETE PER NCTCOG ITEM 303, REINFORCED WITH #4 BARS, GRADE 60.
11. ALL FILL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR METHOD (ASTM D-698), UNLESS NOTED OTHERWISE.
12. "CURB RAMPS" ARE TO BE CONSTRUCTED ON ALL PERMANENT CURB RETURNS AT INTERSECTIONS OF ALL STREETS OR AS DIRECTED BY THE CITY.
13. AT THE END OF EACH WORK DAY ALL SPOILS SHALL BE REMOVED FROM THE CITY R.O.W. UNLESS PRIOR WRITTEN PERMISSION IS OBTAINED FROM THE OWNER TO STORE SPOILS IN DESIGNATED SPOIL STORAGE AREAS THAT DO NOT OBSTRUCT AUTOMOBILE OR PEDESTRIAN TRAFFIC.
14. ALL ITEMS REMOVED DURING THE COURSE OF CONSTRUCTION ARE THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF LEGALLY OFF SITE BY THE CONTRACTOR.
15. TOPSOIL SHALL BE 4 INCHES IN DEPTH AND SHALL BE LOOSE AND FREE OF ROCKS OR CLODS GREATER THAN 1/4" IN DIAMETER. ALL TOPSOIL SHALL BE APPROVED BY THE OWNER PRIOR TO INSTALLATION.
16. MATERIAL DISPOSAL FOR CITY PROJECTS- THE CONTRACTOR SHALL NOTIFY THE CITY IN WRITING OF PROPOSED MATERIAL DISPOSAL SITES TO BE UTILIZED WITHIN THE CITY OF KELLER. THE NOTIFICATION SHALL INCLUDE THE LEGAL LOT/BLOCK, ADDITION DESCRIPTION AND ADDRESS OF THE PROPOSED SITE. THE CITY SHALL BE NOTIFIED TWO (2) WEEKS IN ADVANCE OF ANY MATERIAL BEING DEPOSITED.
17. THE EXISTENCE AND LOCATIONS OF ALL UNDERGROUND UTILITIES SHOWN (MAIN LINES, NO LATERAL OR SERVICES SHOWN) ON THE DRAWINGS WERE OBTAINED FROM AVAILABLE RECORDS AND ARE APPROXIMATE. NO WARRANTY IS IMPLIED AS TO THE ACTUAL LOCATION OF EXISTING UTILITIES. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY FOR UTILITIES NOT SHOWN OR NOT IN THE LOCATION SHOWN. THE CONTRACTOR SHALL DETERMINE THE DEPTH AND LOCATION OF EXISTING UNDERGROUND UTILITIES PRIOR TO TRENCHING AND SHALL BE REQUIRED TO TAKE ANY PRECAUTIONARY MEASURES TO PROTECT ALL LINES SHOWN AND / OR ANY OTHER UNDERGROUND UTILITIES NOT OF RECORD OR NOT SHOWN ON THE PLANS. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL FRANCHISE AND CITY UTILITIES PRIOR TO CONSTRUCTION.
18. THROUGHOUT THE CONSTRUCTION, AND AT THE COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL ASSURE THAT DRAINAGE OF STORMWATER RUNOFF IS NOT BLOCKED.
19. THE CONTRACTOR SHALL RESTORE ALL AREAS DISTURBED BY CONSTRUCTION TO ORIGINAL CONDITION OR BETTER. RESTORED AREAS INCLUDE, BUT ARE NOT LIMITED TO SIDE SLOPES, FENCES, DRAINAGE DITCHES, PRIVATE YARDS, SPRINKLER SYSTEMS AND ROADWAYS.
20. THE CONSTRUCTION STAKING WILL BE CONDUCTED BY THE CONTRACTOR AT NO SEPARATE PAY BUT SHALL BE CONSIDERED SUBSIDIARY TO THE BID ITEMS.
21. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING/RELOCATING EXISTING IRRIGATION LINES, SPRINKLER HEADS, CONTROL BOXES AND OTHER IRRIGATION APPURTENANCES. ALL MATERIAL AND CONSTRUCTION SHALL BE EQUAL TO EXISTING IRRIGATION.
22. THE CONTRACTOR SHALL PROVIDE A POST-CONSTRUCTION AS-BUILT SURVEY OF THE PROPOSED CONCRETE SIDEWALK AND RETAINING WALL IMPROVEMENTS AT THE POINTS DESCRIBED BELOW.
 - A. TOP OF RETAINING WALL AT EACH VERTICAL BEND.
 - B. TOP OF SIDEWALK EVERY 20' EACH SIDE.
 - C. GUTTER AT CURB RAMP (EACH SIDE).
 - D. TOP OF CURB RAMP (EACH SIDE).
 - E. CONNECTION TO EXISTING SIDEWALK (EACH SIDE).



THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY WITLEY C. FAROUK, P.E. LICENSE NO. 02/28/2023 ALTERATION OF A SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

NO.	DATE	REVISION

Pacheco Koch 4650 BRYANT IRVIN ROAD FORT WORTH, TX 76109 817.412.2155 TX REG. ENGINEERING FIRM E-488 TX REG. SURVEYING FIRM LS-10009001
a Woodward company

GENERAL NOTES

WHITLEY ROAD BIKE/PEDESTRIAN TRAIL PHASE 1

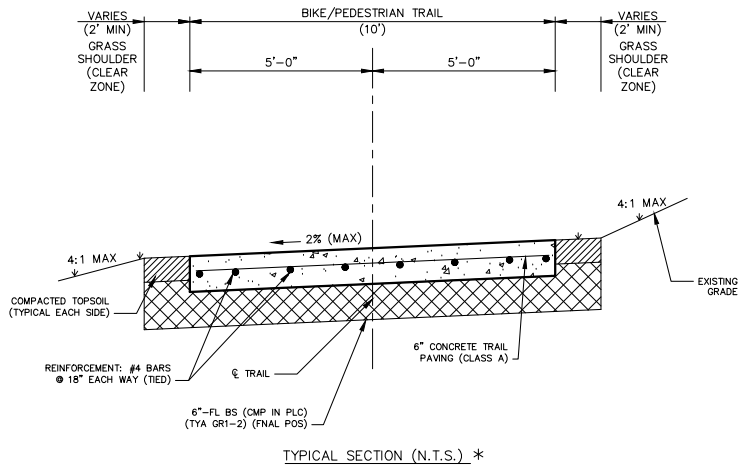
CITY OF KELLER, TARRANT COUNTY, TEXAS

DESIGN	DRAWN	DATE	JOB NO.	SHEET NO.
CKT	ECW	FEBRUARY 2023	2165-22.174	3

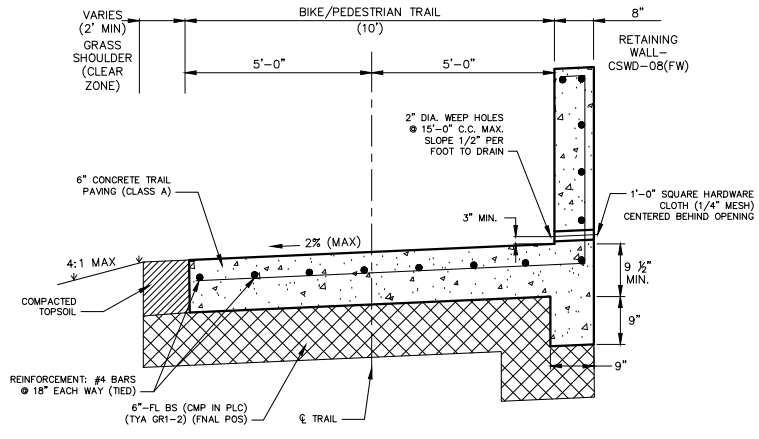
FAROUK WITLEY C. FAROUK, P.E. LICENSE NO. 02/28/2023 ALTERATION OF A SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

WHITLEY ROAD BIKE/PEDESTRIAN TRAIL PHASE 1

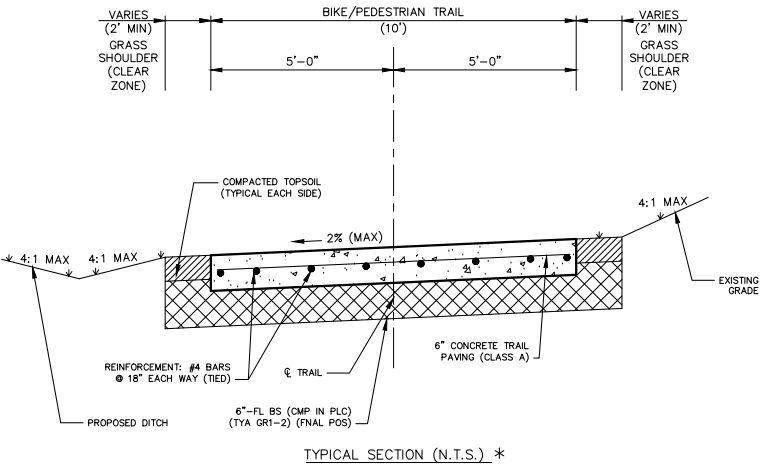
RCPANVILLE 10.31.2018
 M. CURRY-21/185-22.174 (WH) (CIVIL) C-30 2018/02/16-22.174 (CIVIL)



TYPICAL SECTION (N.T.S.) *



TYPICAL SECTION (N.T.S.) *



TYPICAL SECTION (N.T.S.) *

- NOTES:
1. ALL DISTURBED EARTHEN AREAS TO BE SEEDED OR SODDED AS SHOWN ON PLANS AND AS SPECIFIED.
 2. REFER TO PLAN & PROFILE SHEETS FOR TRAIL AND SHOULDER CROSS SLOPES.



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NO.	DATE	REVISION

Pacheco Koch 4050 BRYANT IRVIN ROAD FORT WORTH, TX 76109 817.412.2155 TX REG. ENGINEERING FIRM F-488 TX REG. SURVEYING FIRM LS-15009001
 a **Wattwood** company

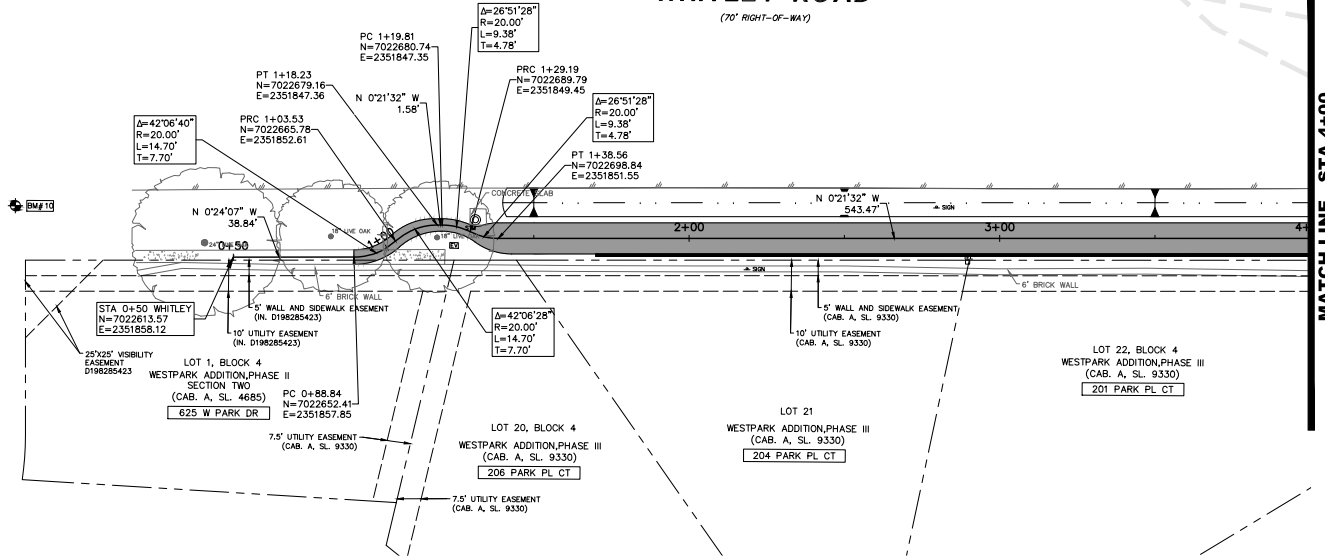
TYPICAL SECTIONS
WHITLEY ROAD BIKE/PEDESTRIAN TRAIL
PHASE 1
CITY OF KELLER, TARRANT COUNTY, TEXAS

DESIGN	DRAWN	DATE	JOB NO.	SHEET NO.
CKT	ECW	FEBRUARY 2023	2165-22.174	4

WHITLEY ROAD BIKE/PEDESTRIAN TRAIL PHASE 1

WHITLEY ROAD

(70' RIGHT-OF-WAY)



— FEMA FLOODPLAIN LIMITS

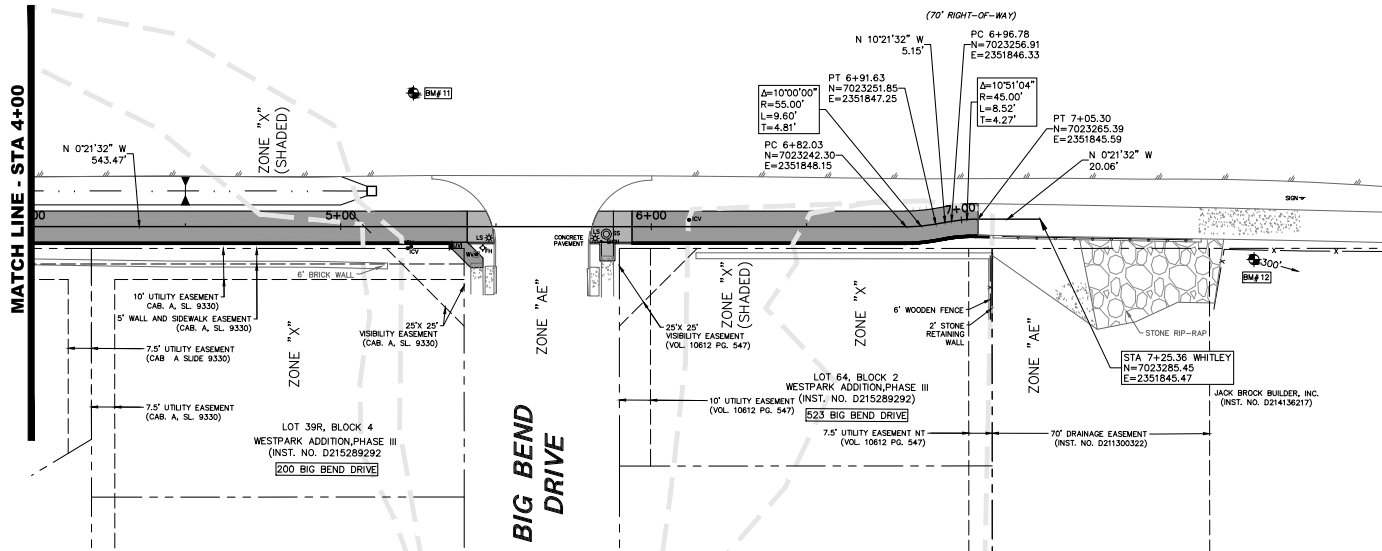
BENCH MARK LIST

BM# 10	PK NAIL SET AT THE CORNER SOUTH SIDE OF WHITLEY ROAD AND WEST OF WEST PARK DRIVE ± 150 FEET FROM MANHOLE IN CENTER OF WHITLEY ROAD ± 15 FROM WATER VALVE LOCATED NORTH OF WHITLEY ROAD	ELEV=688.52
BM# 11	“X” OUT ON BACK OF CURB ± 120 FEET ACROSS BIG BEND DRIVE ± 60 FEET FROM FIRE HYDRANT ON NORTH ENTRANCE OF 700 WHITLEY ROAD	ELEV=677.34
BM# 12	“X” OUT ON THE NORTH EAST SIDE OF BEAR CREEK PARKWAY ROUNDABOUT ± 60 FROM MANHOLE ± 12 FEET EAST OF STREET SIGN	ELEV=676.64

NOTE: BEARING SYSTEM FOR THIS SURVEY IS BASED ON THE TEXAS COORDINATE SYSTEM OF 1983 (2011 ADJUSTMENT), NORTH CENTRAL ZONE 4202, BASED ON OBSERVATIONS MADE AT CITY OF KELLER MONUMENT NO. 7 ON SEPTEMBER 27, 2022 WITH A COMBINED SCALE FACTOR OF 1.000159591

WHITLEY ROAD

(70' RIGHT-OF-WAY)



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NO.	DATE	REVISION

Pacheco Koeh 4806 BRYANT IRVIN ROAD
FORT WORTH, TX 76109
817.412.7155
TX REG. ENGINEERING FIRM E-488
TX REG. SURVEYING FIRM LS-10089001

SURVEY CONTROL PLAN

WHITLEY ROAD BIKE/PEDESTRIAN TRAIL

PHASE 1

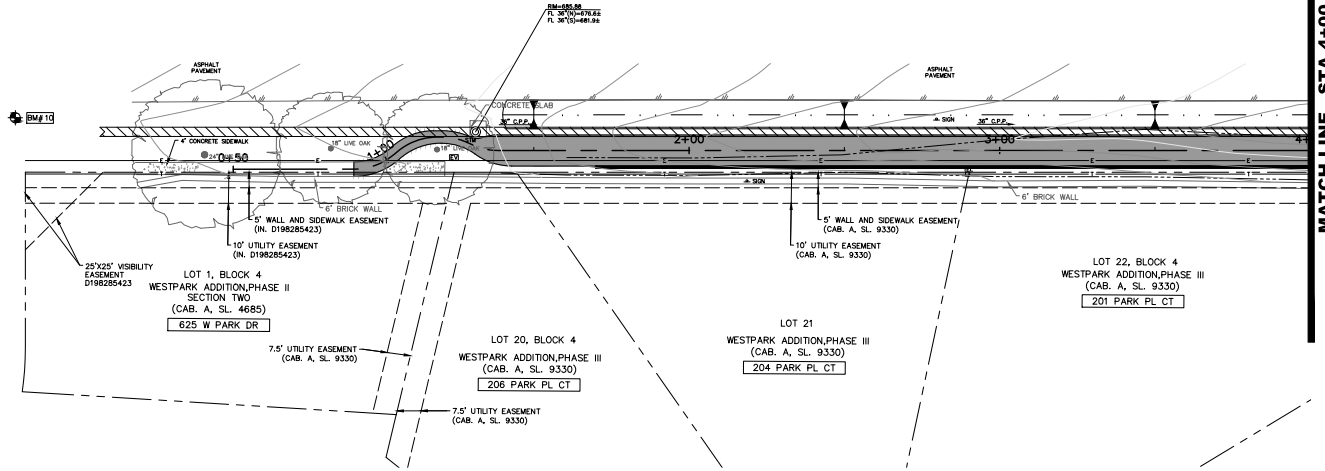
CITY OF KELLER, TARRANT COUNTY, TEXAS

DESIGN	DRAWN	DATE	JOB NO.	SHEET NO.
CKT	ECW	FEBRUARY 2023	2165-22.174	5

ROADWALKED 10.30AM
M. KUMAR-21/01/2023
CSD 2018/02/16-22/174 SCLDWG

WHITLEY ROAD BIKE/PEDESTRIAN TRAIL PHASE 1

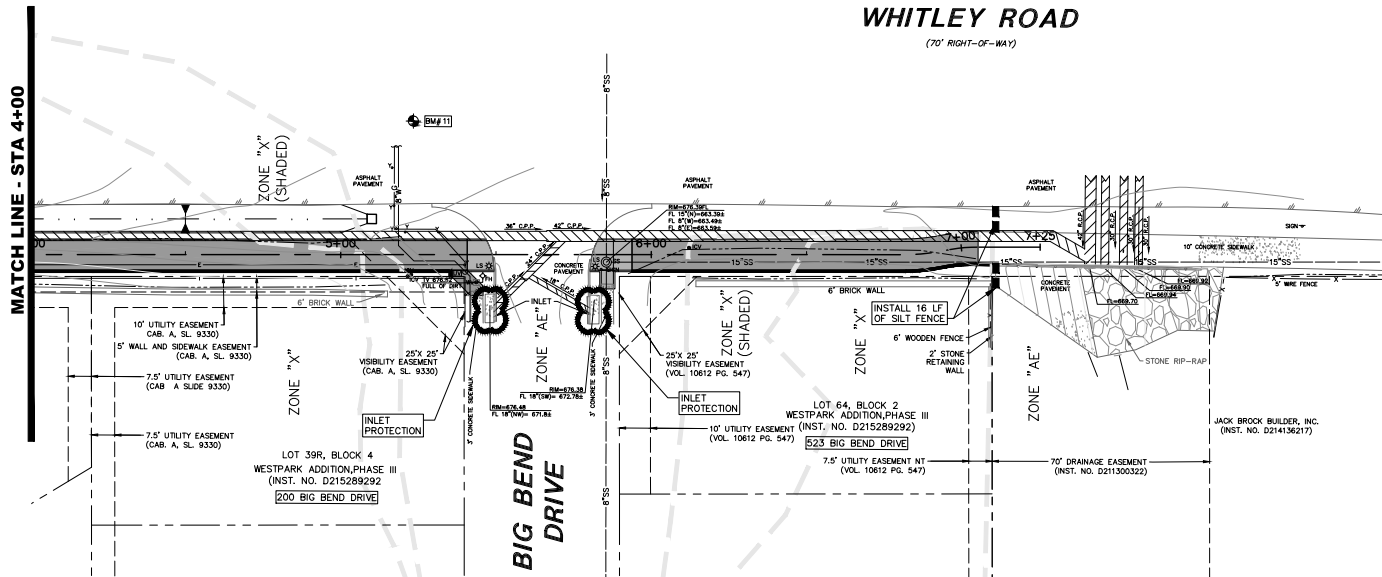
WHITLEY ROAD
(70' RIGHT-OF-WAY)



LEGEND

- DRAINAGE FLOW DIRECTION
- INLET PROTECTION
- ROCK CHECK DAM
- SILT FENCE (LIMITS OF DISTURBED AREA)
- EROSION CONTROL BLANKETS
- FEMA FLOODPLAIN LIMITS

WHITLEY ROAD
(70' RIGHT-OF-WAY)



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NO.	DATE	REVISION

Pacheco Koeh 4806 BRYANT IRVIN ROAD
FORT WORTH, TX 76109
817.412.2155
TX REG. ENGINEERING FIRM F-488
TX REG. SURVEYING FIRM LS-15008001

EROSION CONTROL PLAN

WHITLEY ROAD BIKE/PEDESTRIAN TRAIL
PHASE 1
CITY OF KELLER, TARRANT COUNTY, TEXAS

DESIGN	DRAWN	DATE	JOB NO.	SHEET NO.
CKT	ECW	FEBRUARY 2023	2165-22.174	6

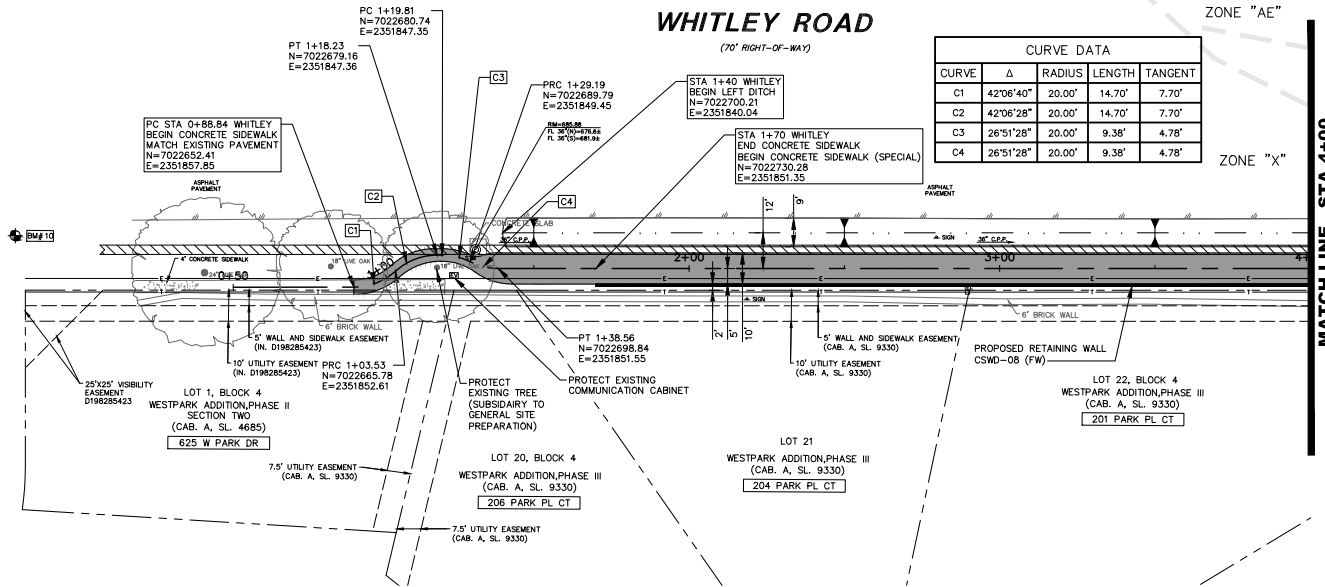
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WHITLEY ROAD BIKE/PEDESTRIAN TRAIL PHASE 1

WHITLEY ROAD

(70' RIGHT-OF-WAY)

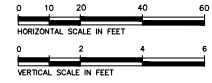
CURVE DATA				
CURVE	Δ	RADIUS	LENGTH	TANGENT
C1	42°06'40"	20.00'	14.70'	7.70'
C2	42°06'28"	20.00'	14.70'	7.70'
C3	26°51'28"	20.00'	9.38'	4.78'
C4	26°51'28"	20.00'	9.38'	4.78'



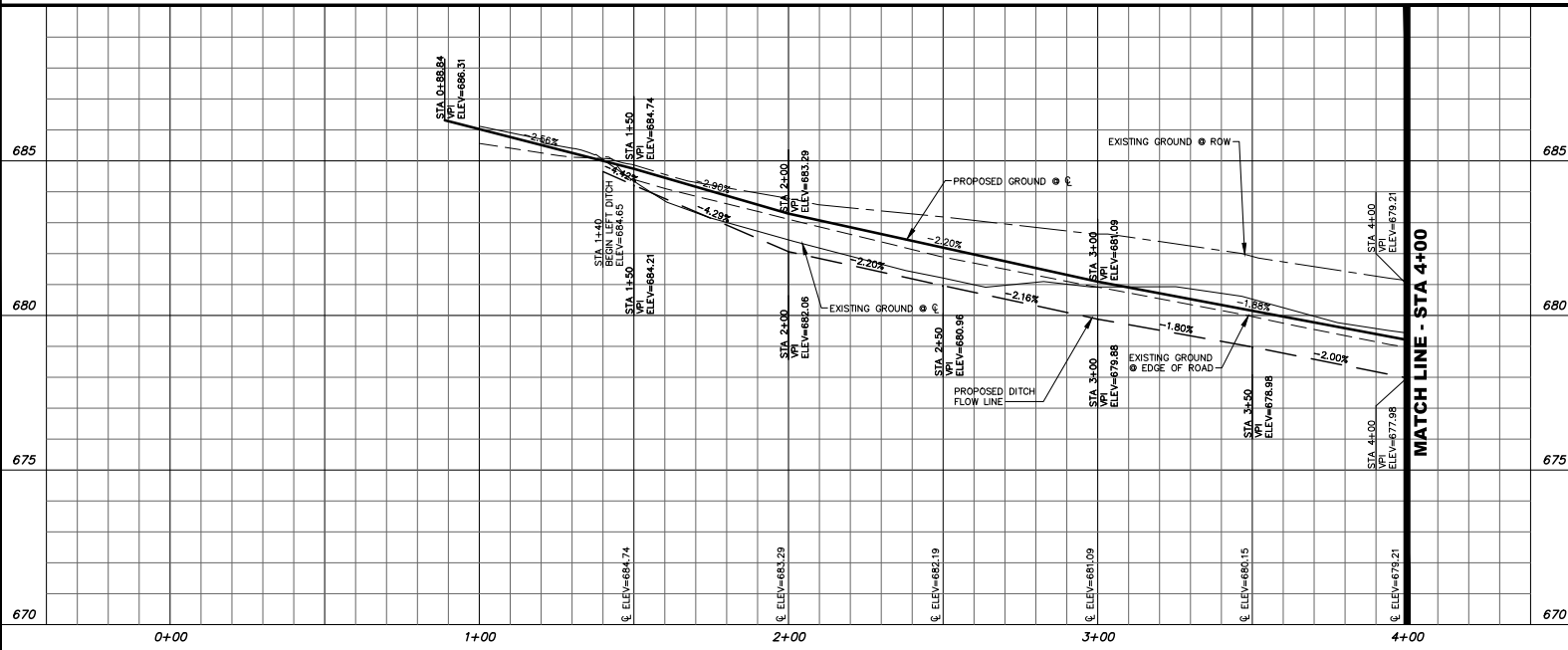
ZONE "AE"

ZONE "X"

MATCH LINE - STA 4+00



— FEMA FLOODPLAIN LIMITS



MATCH LINE - STA 4+00



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NO.	DATE	REVISION

Pacheco Koeh
4068 BRYANT IRVIN ROAD
FORT WORTH, TX 76109
817.412.2155
TX REG. ENGINEERING FIRM E-488
TX REG. SURVEYING FIRM LS-10089001

PAVING PLAN AND PROFILE
STA 0+00 TO STA 4+00

WHITLEY ROAD BIKE/PEDESTRIAN TRAIL
PHASE 1
CITY OF KELLER, TARRANT COUNTY, TEXAS

DESIGN	DRAWN	DATE	JOB NO.	SHEET NO.
CKT	ECW	FEBRUARY 2023	2165-22.174	7

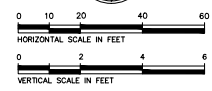
ROADWALK 10.96AM
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WHITLEY ROAD BIKE/PEDESTRIAN TRAIL PHASE 1

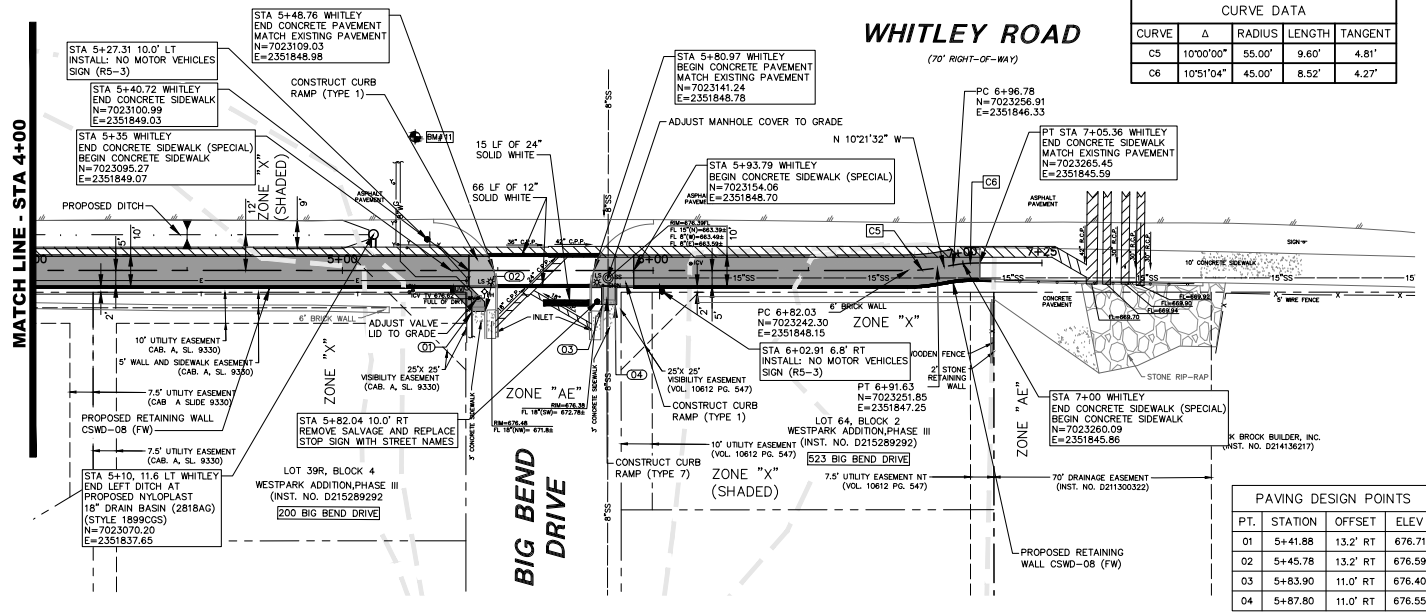
WHITLEY ROAD

(70' RIGHT-OF-WAY)

CURVE DATA				
CURVE	Δ	RADIUS	LENGTH	TANGENT
C5	10°00'00"	55.00'	9.60'	4.81'
C6	10°51'04"	45.00'	8.52'	4.27'

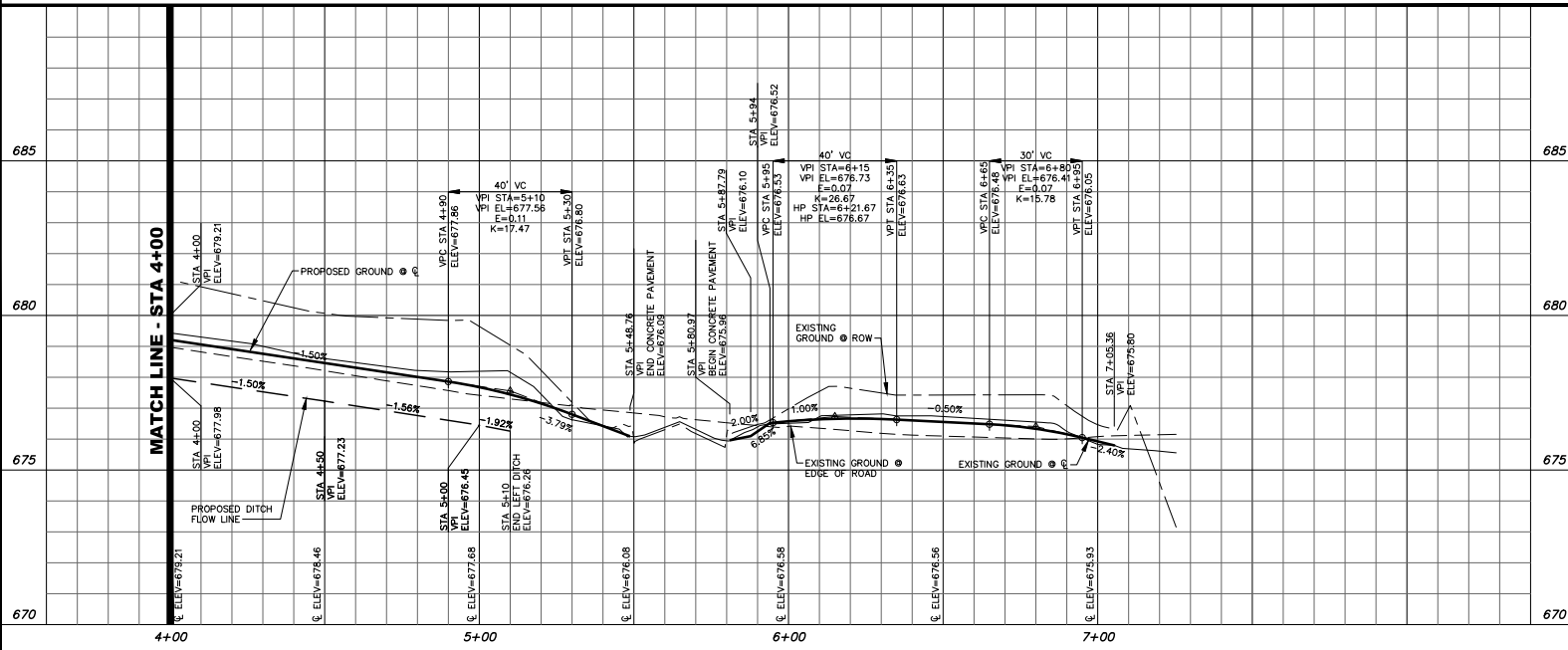


FEMA FLOODPLAIN LIMITS



PAVING DESIGN POINTS			
PT.	STATION	OFFSET	ELEV
01	5+41.88	13.2' RT	676.71
02	5+45.78	13.2' RT	676.59
03	5+83.90	11.0' RT	676.40
04	5+87.80	11.0' RT	676.55

- NOTES:
- 3 EXISTING RED OAK TREES TO BE REMOVED AND SHALL BE SUBSIDIARY TO GENERAL SITE PREPARATION ITEM.
 - 2 EXISTING STREETLIGHTS TO BE RELOCATED BY OTHERS



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NO.	DATE	REVISION

Pacheco Koeh 4806 BRYANT IRVIN ROAD
 FORT WORTH, TX 76109
 817.412.2155
 TX REG. ENGINEERING FIRM E-688
 TX REG. SURVEYING FIRM LS-15089001

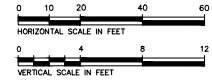
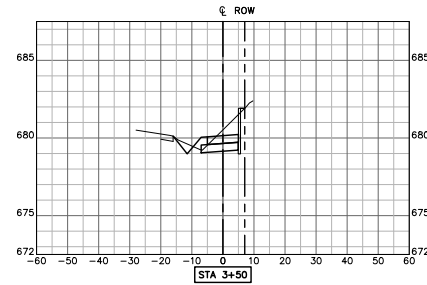
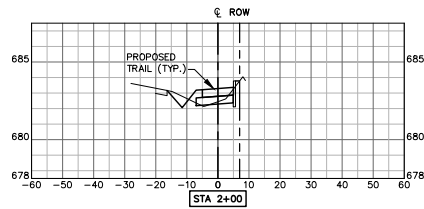
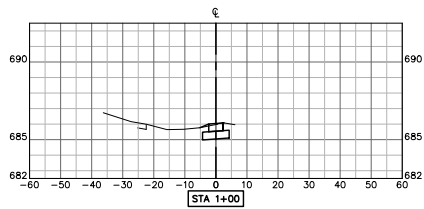
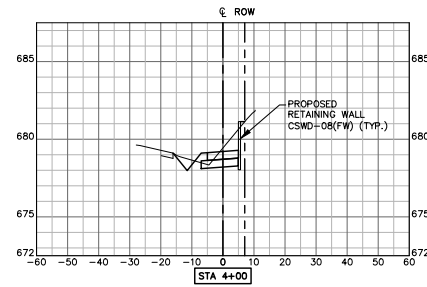
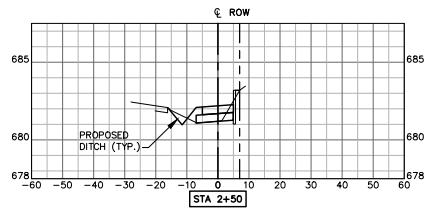
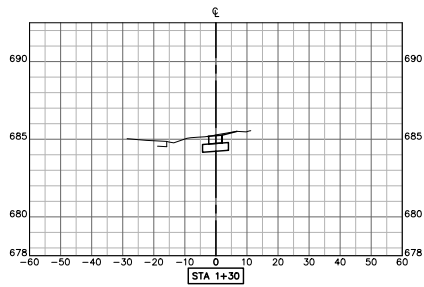
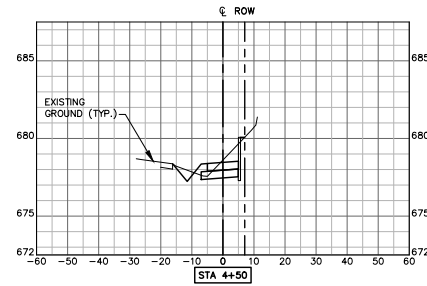
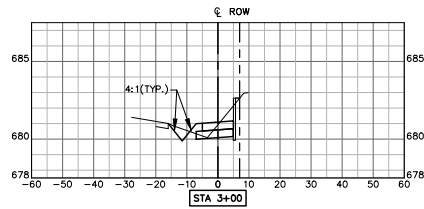
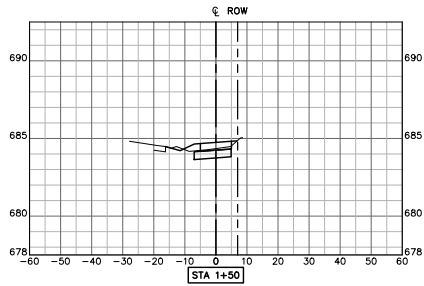
PAVING PLAN AND PROFILE
STA 4+00 TO STA 7+05.36
WHITLEY ROAD BIKE/PEDESTRIAN TRAIL
PHASE 1
CITY OF KELLER, TARRANT COUNTY, TEXAS

DESIGN	DRAWN	DATE	JOB NO.	SHEET NO.
CKT	ECW	FEBRUARY 2023	2165-22.174	8

ROADWALK 10.99AM
 M. CURVE 21.165-22.174 (WH) CON. CSD 2018/2/165-22.174 PAVING

WHITLEY ROAD BIKE/PEDESTRIAN TRAIL PHASE 1

RCP:AMULEX 10.03.2018
 M: KUMAR-21/1/18-22/17A/08/04M_C3D_2018/2/16-22/17A_XSEC.DWG



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NO.	DATE	REVISION

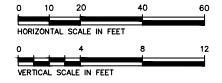
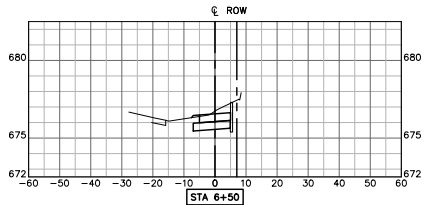
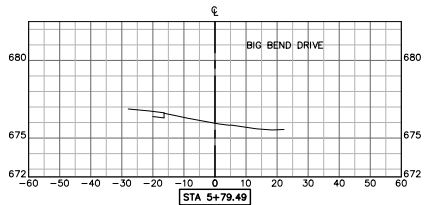
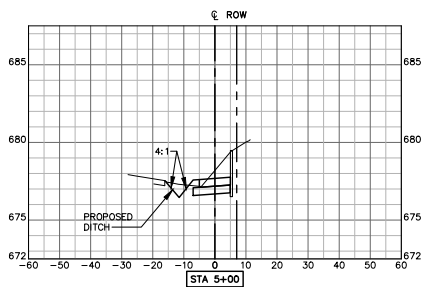
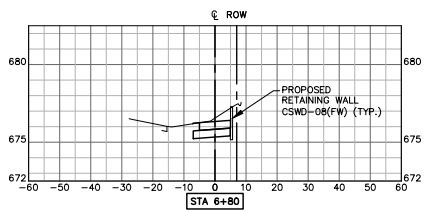
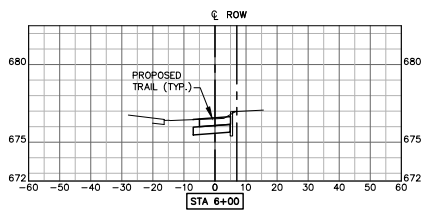
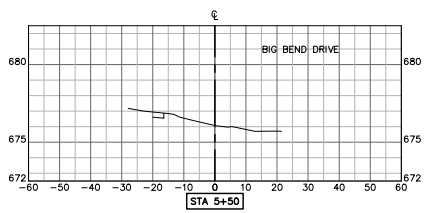
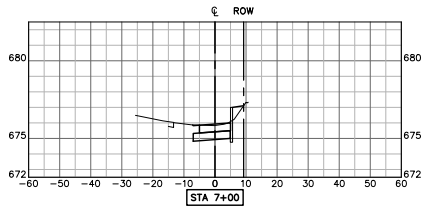
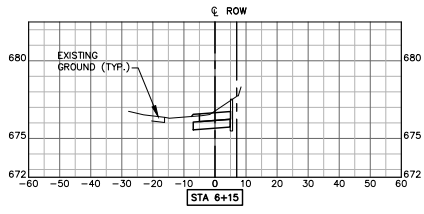
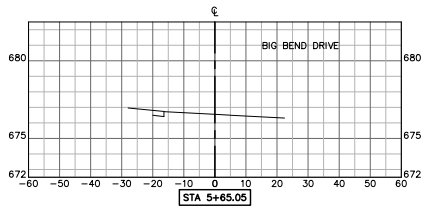
Pacheco Koeh 4050 BRYANT IRVIN ROAD
 FORT WORTH, TX 76109
 817.412.2155
 TX REG. ENGINEERING FIRM E-488
 TX REG. SURVEYING FIRM LS-15009001

CROSS SECTIONS
STA 1+00 TO STA 4+50
WHITLEY ROAD BIKE/PEDESTRIAN TRAIL
PHASE 1
CITY OF KELLER, TARRANT COUNTY, TEXAS

DESIGN	DRAWN	DATE	JOB NO.	SHEET NO.
CKT	ECW	FEBRUARY 2023	2165-22.174	9

WHITLEY ROAD BIKE/PEDESTRIAN TRAIL PHASE 1

RCP:AMULEX 10.03.2024
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NO.	DATE	REVISION

Pacheco Koeh 4868 BRYANT IRVING ROAD FORT WORTH, TX 76109
 Westwood COMPANY 817.412.2155
 TX REG. ENGINEERING FIRM E-488 TX REG. SURVEYING FIRM LS-10009001

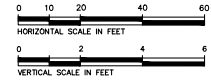
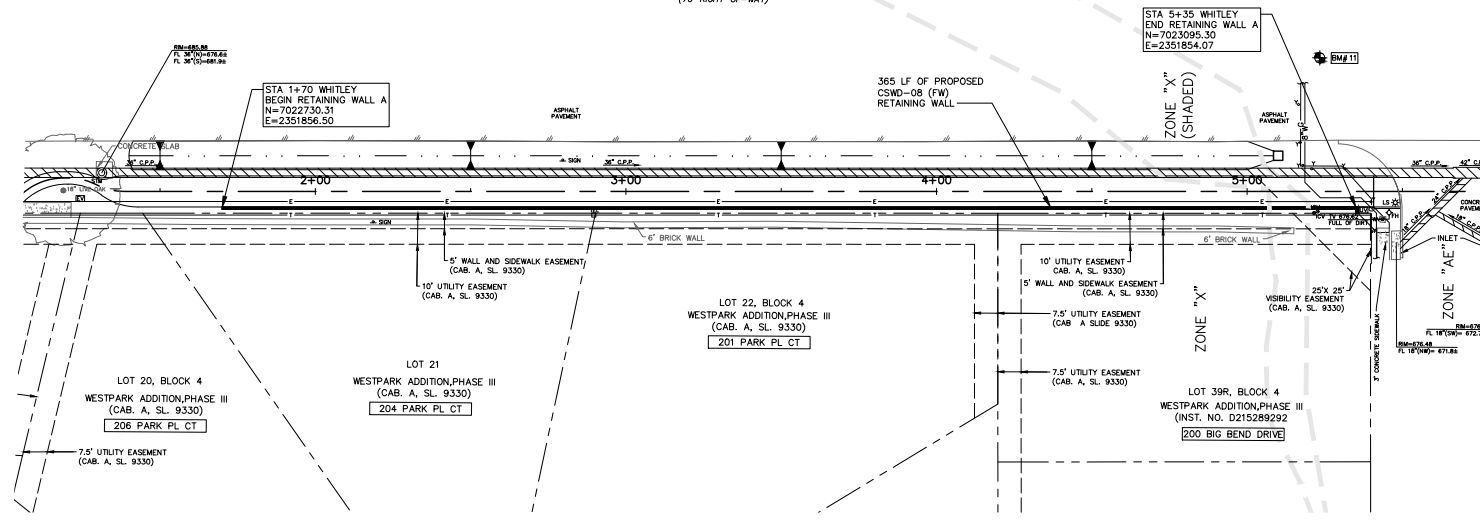
CROSS SECTIONS
STA 5+00 TO STA 7+00
WHITLEY ROAD BIKE/PEDESTRIAN TRAIL
PHASE 1
CITY OF KELLER, TARRANT COUNTY, TEXAS

DESIGN	DRAWN	DATE	JOB NO.	SHEET NO.
CKT	ECW	FEBRUARY 2023	2165-22.174	10

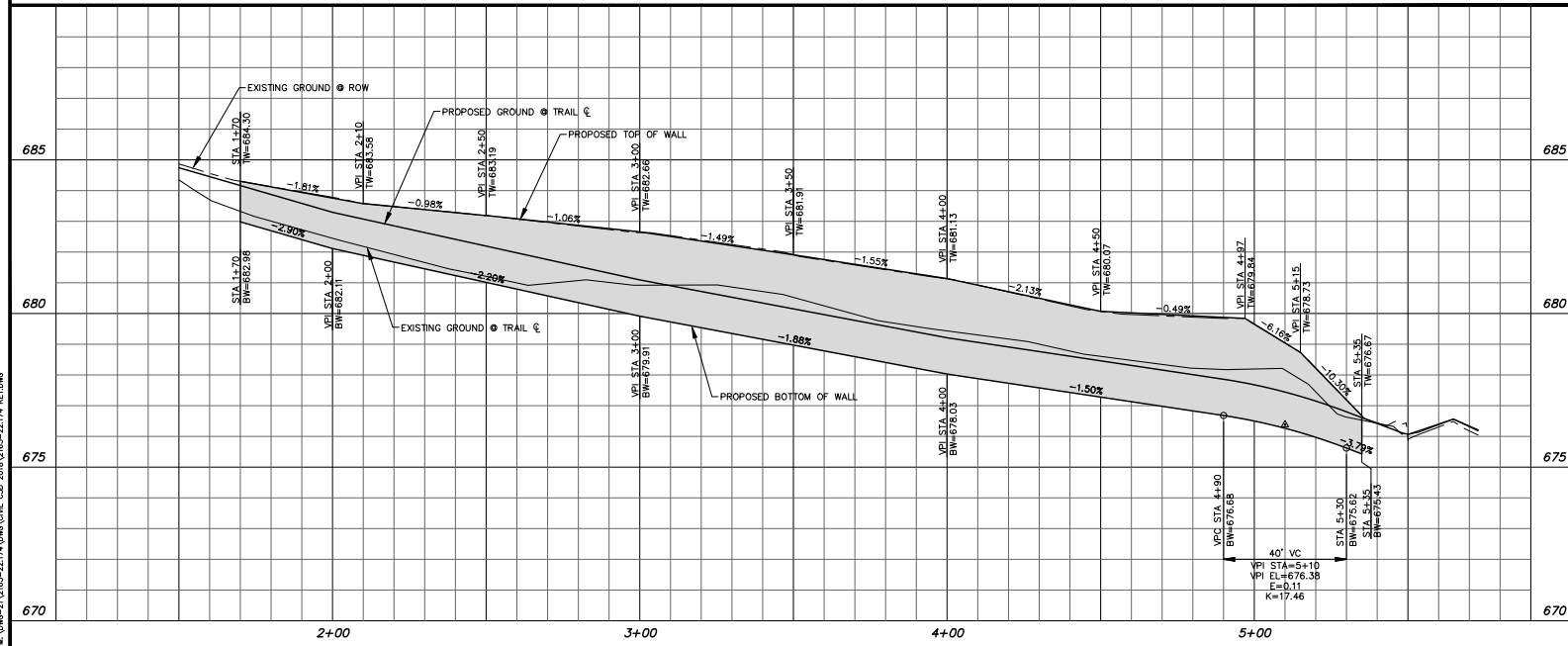
WHITLEY ROAD BIKE/PEDESTRIAN TRAIL PHASE 1

WHITLEY ROAD

(70' RIGHT-OF-WAY)



— FEMA FLOODPLAIN LIMITS



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NO.	DATE	REVISION
RETAINING WALL A STA 1+70 TO STA 5+35		
PHASE 1 CITY OF KELLER, TARRANT COUNTY, TEXAS		
DESIGN	DRAWN	DATE
CKT	ECW	FEBRUARY 2023
JOB NO.	2165-22.174	
SHEET NO.	11	

ROADWALK 10.99AM
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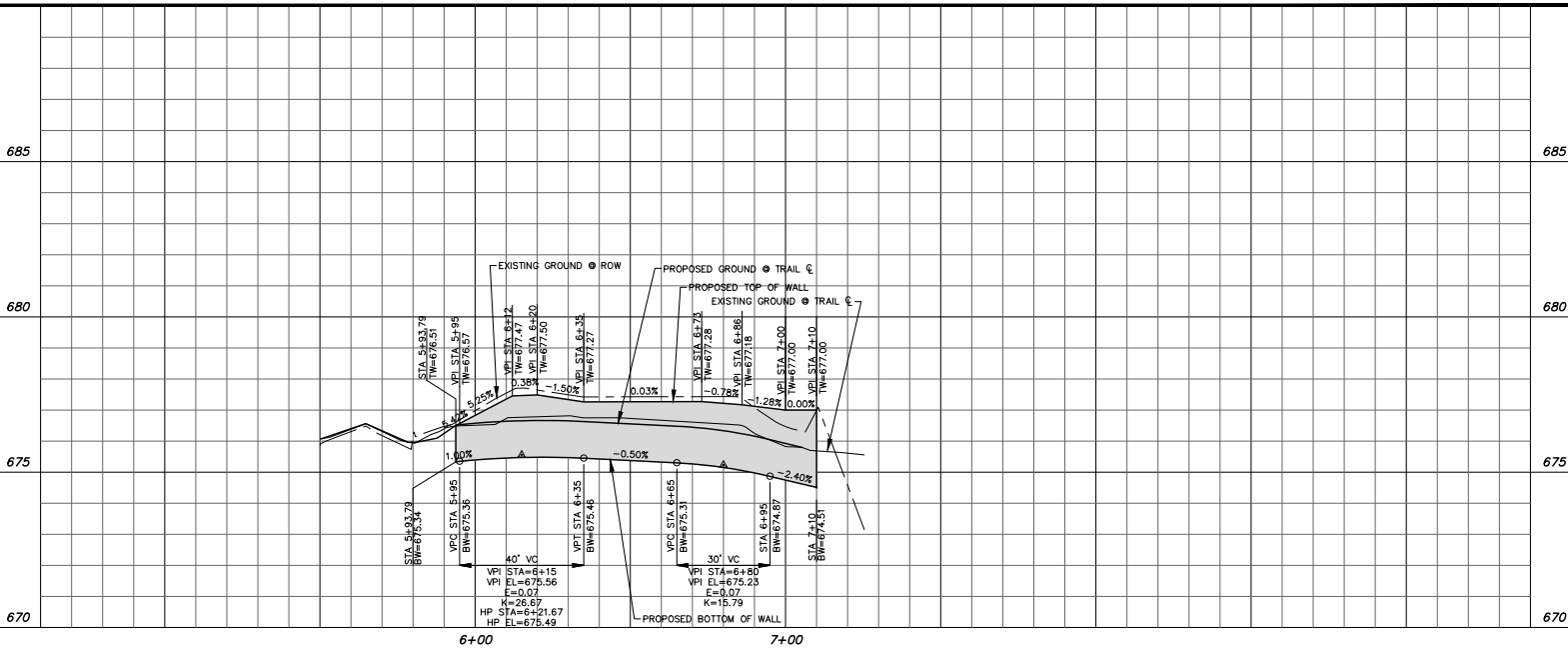
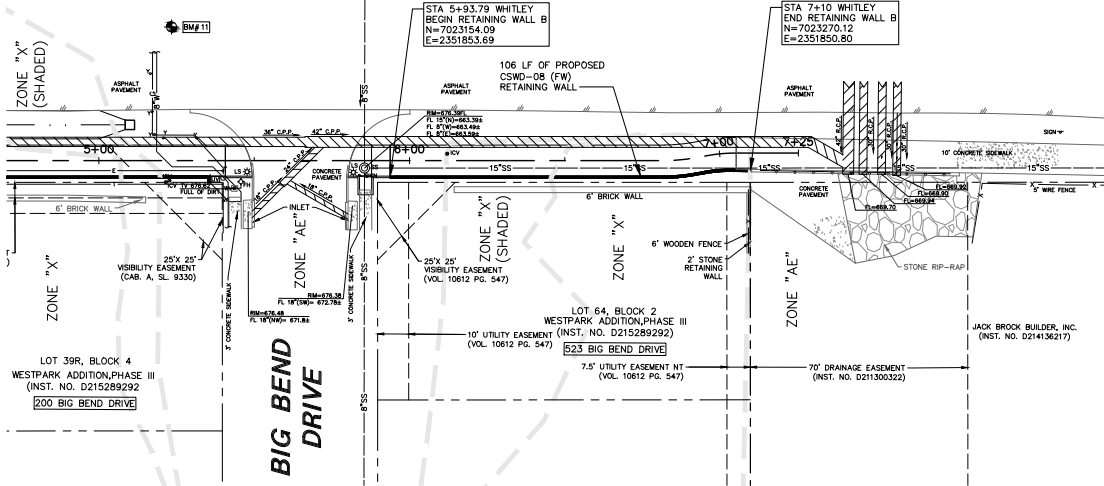
WHITLEY ROAD BIKE/PEDESTRIAN TRAIL PHASE 1

WHITLEY ROAD

(70' RIGHT-OF-WAY)



— FEMA FLOODPLAIN LIMITS



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NO.	DATE	REVISION

Pacheco Koeh 4806 BRYANT IRVIN ROAD FORT WORTH, TX 76109
Westwood company 617.412.2155 TX REG. ENGINEERING FIRM E-488 TX REG. SURVEYING FIRM LS-1008001

**RETAINING WALL B
 STA 5+93.79 TO STA 7+10**

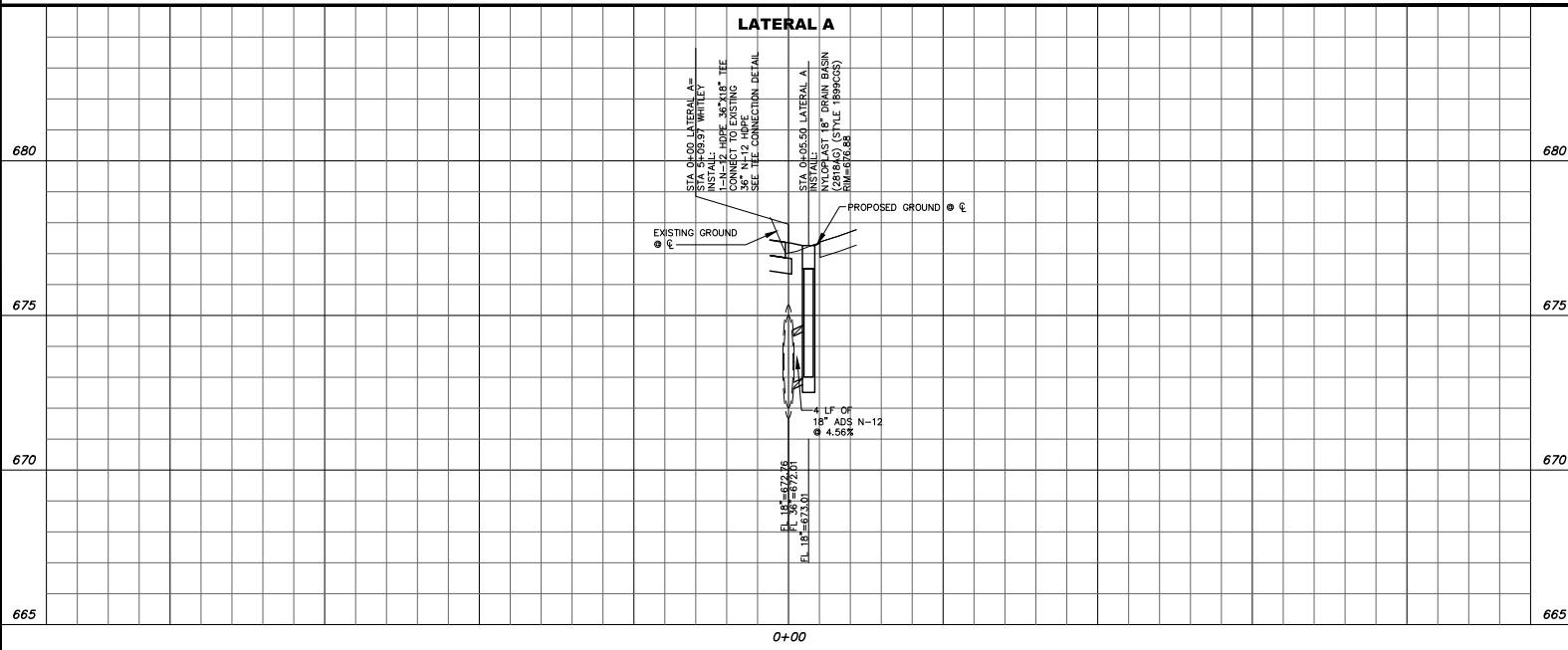
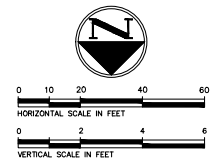
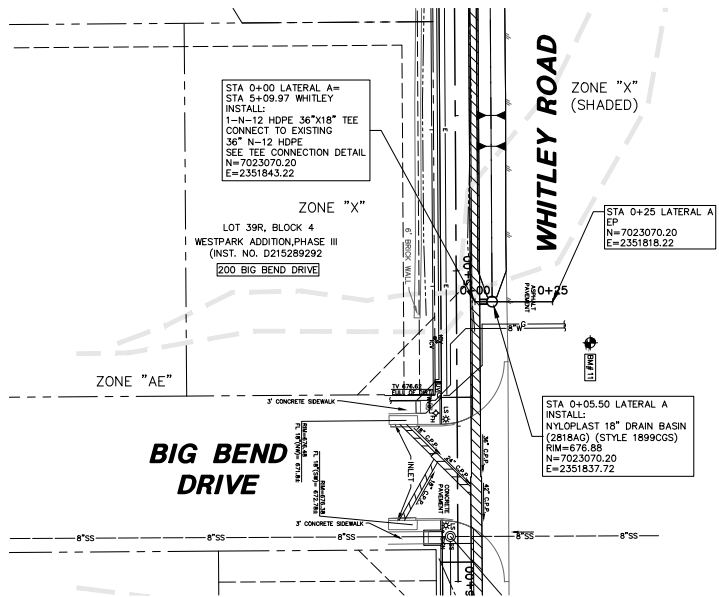
**WHITLEY ROAD BIKE/PEDESTRIAN TRAIL
 PHASE 1**

CITY OF KELLER, TARRANT COUNTY, TEXAS

DESIGN	DRAWN	DATE	JOB NO.	SHEET NO.
OKT	ECW	FEBRUARY 2023	2165-22.174	12

ROADWORK 11/09/AM
 M. CURTIS 2/1/16-22.174 (DWG) CSD 2018/02/16-22.174 RETDING

WHITLEY ROAD BIKE/PEDESTRIAN TRAIL PHASE 1



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NO.	DATE	REVISION

Pacheco Koeh
 Westwood company

4066 BRYANT IRVIN ROAD
 FORT WORTH, TX 76109
 817.412.2155
 TX REG. ENGINEERING FIRM E-488
 TX REG. SURVEYING FIRM LS-10089001

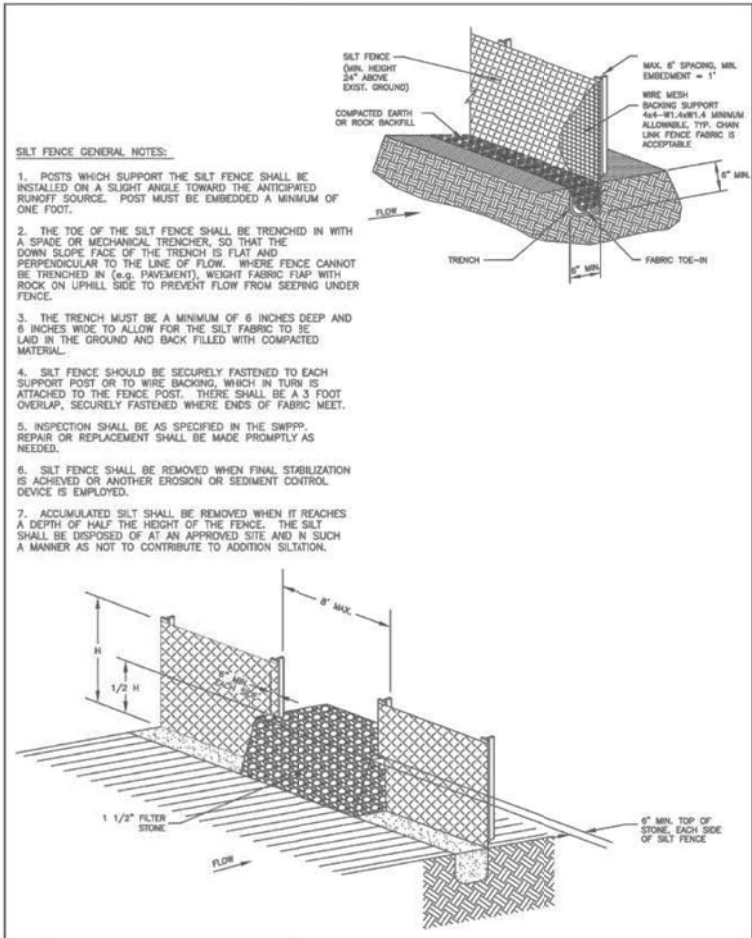
STORM PLAN AND PROFILE
LATERAL A
WHITLEY ROAD BIKE/PEDESTRIAN TRAIL
PHASE 1
CITY OF KELLER, TARRANT COUNTY, TEXAS

DESIGN	DRAWN	DATE	JOB NO.	SHEET NO.
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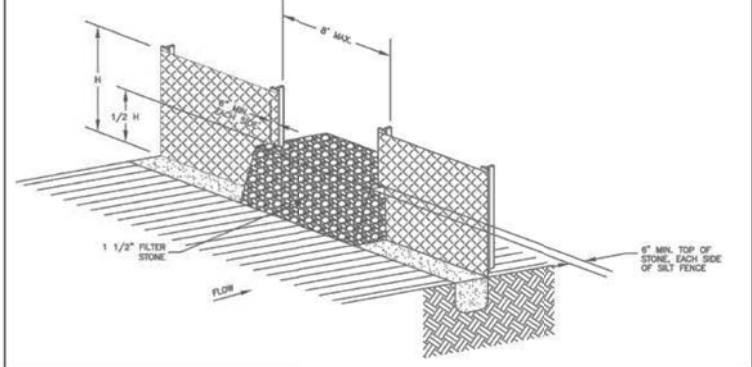
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WHITLEY ROAD BIKE/PEDESTRIAN TRAIL PHASE 1

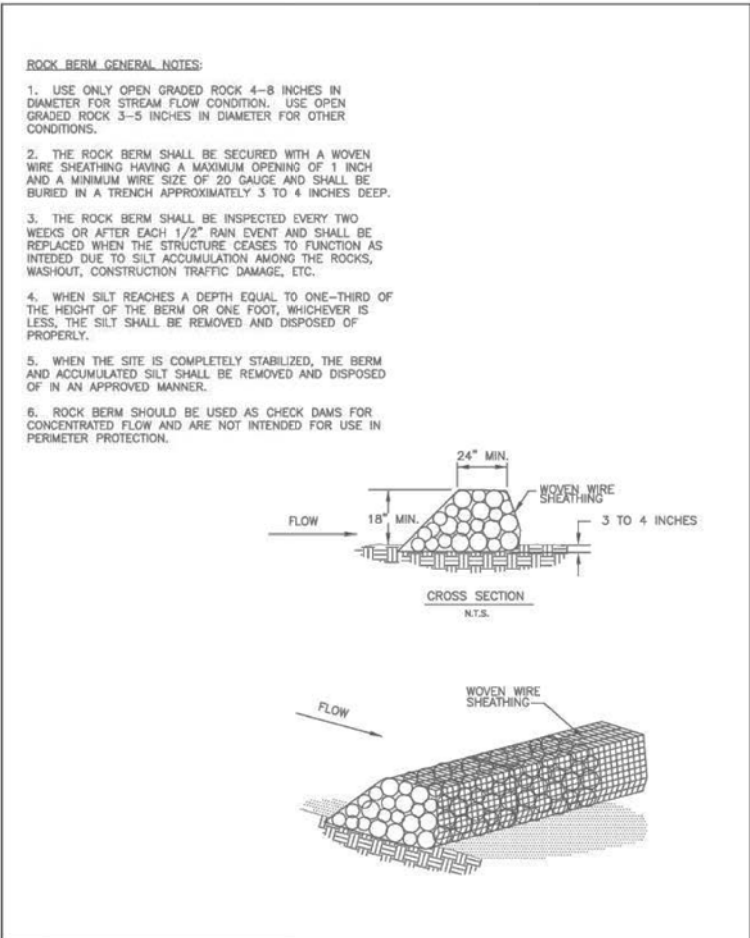
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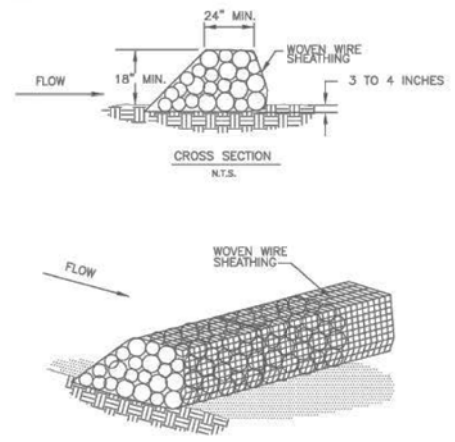
- SILT FENCE GENERAL NOTES:**
1. POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF ONE FOOT.
 2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWN SLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (E.G. PAVEMENT), WEIGHT FABRIC FLAP WITH ROCK ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.
 3. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FABRIC TO BE LAID IN THE GROUND AND BACK FILLED WITH COMPACTED MATERIAL.
 4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH SUPPORT POST OR TO WIRE BACKING, WHICH IN TURN IS ATTACHED TO THE FENCE POST. THERE SHALL BE A 3 FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.
 5. INSPECTION SHALL BE AS SPECIFIED IN THE SWPPP. REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
 6. SILT FENCE SHALL BE REMOVED WHEN FINAL STABILIZATION IS ACHIEVED OR ANOTHER EROSION OR SEDIMENT CONTROL DEVICE IS EMPLOYED.
 7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF HALF THE HEIGHT OF THE FENCE. THE SILT SHALL BE DISPOSED OF AT AN APPROVED SITE AND IN SUCH A MANNER AS NOT TO CONTRIBUTE TO ADDITION SILTATION.



	EROSION CONTROL DETAILS SILT FENCE STRUCTURES	REVISION DATE: 2/11/2009
		SHEET: E-01



- ROCK BERM GENERAL NOTES:**
1. USE ONLY OPEN GRADED ROCK 4-8 INCHES IN DIAMETER FOR STREAM FLOW CONDITION. USE OPEN GRADED ROCK 3-5 INCHES IN DIAMETER FOR OTHER CONDITIONS.
 2. THE ROCK BERM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING A MAXIMUM OPENING OF 1 INCH AND A MINIMUM WIRE SIZE OF 20 GAUGE AND SHALL BE BURIED IN A TRENCH APPROXIMATELY 3 TO 4 INCHES DEEP.
 3. THE ROCK BERM SHALL BE INSPECTED EVERY TWO WEEKS OR AFTER EACH 1/2" RAIN EVENT AND SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
 4. WHEN SILT REACHES A DEPTH EQUAL TO ONE-THIRD OF THE HEIGHT OF THE BERM OR ONE FOOT, WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF PROPERLY.
 5. WHEN THE SITE IS COMPLETELY STABILIZED, THE BERM AND ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.
 6. ROCK BERM SHOULD BE USED AS CHECK DAMS FOR CONCENTRATED FLOW AND ARE NOT INTENDED FOR USE IN PERIMETER PROTECTION.



	EROSION CONTROL DETAILS ROCK BERM	REVISION DATE: 2/11/2009
		SHEET: E-02

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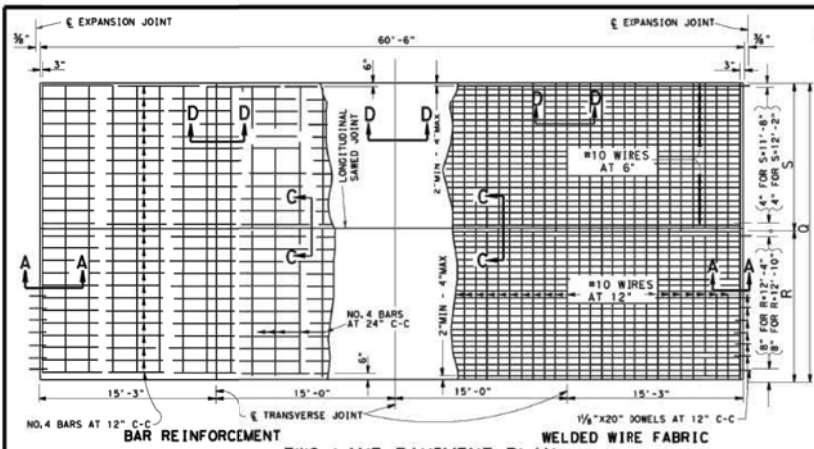
NO.	DATE	REVISION

4050 BRYANT IRVIN ROAD
 FORT WORTH, TX 76109
 817.412.2155
 TX REG. ENGINEERING FIRM E-488
 TX REG. SURVEYING FIRM LS-15009001

EROSION CONTROL DETAILS
WHITLEY ROAD BIKE/PEDESTRIAN TRAIL
PHASE 1
CITY OF KELLER, TARRANT COUNTY, TEXAS

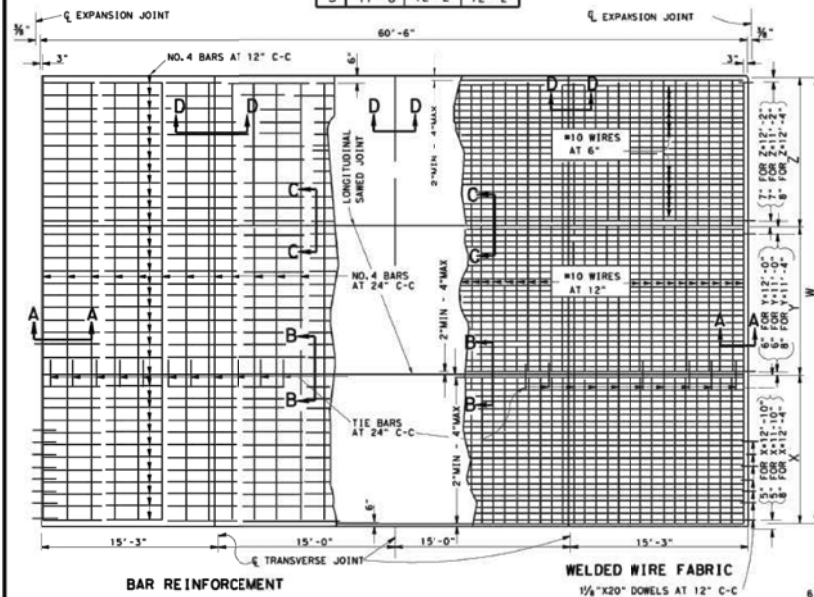
DESIGN	DRAWN	DATE	JOB NO.	SHEET NO.
CKT	ECW	FEBRUARY 2023	2165-22.174	14

WHITLEY ROAD BIKE/PEDESTRIAN TRAIL PHASE 1



TWO LANE PAVEMENT PLAN

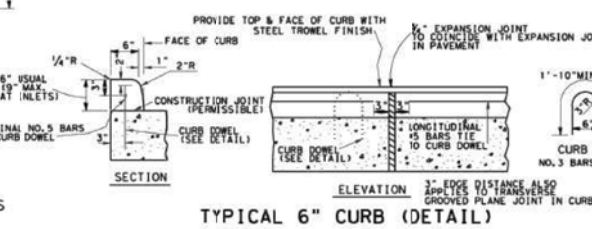
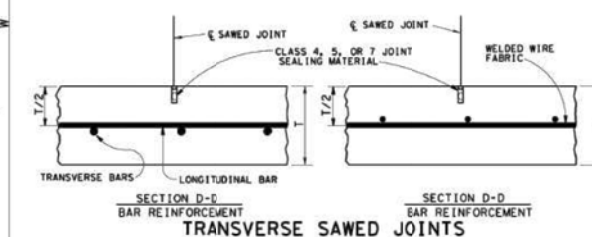
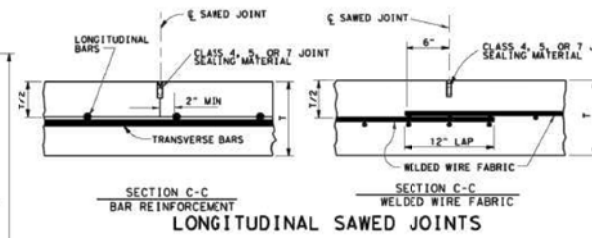
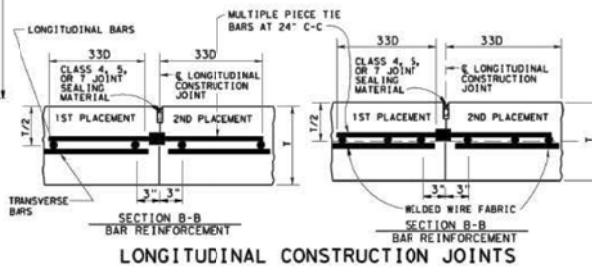
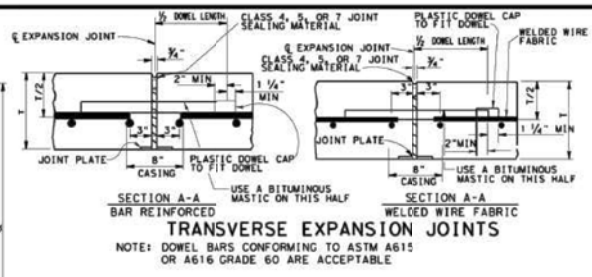
	WIDTH - Q		
	24'-0"	24'-6"	25'-0"
R	12'-4"	12'-4"	12'-10"
S	11'-8"	12'-2"	12'-2"



THREE LANE PAVEMENT PLAN

	WIDTH - W		
	37'-0"	36'-0"	34'-0"
X	12'-0"	12'-4"	11'-10"
Y	12'-0"	11'-4"	11'-0"
Z	12'-2"	12'-4"	11'-2"

D = DIAMETER
R = RADIUS
T = THICKNESS



- GENERAL NOTES**
- MULTIPLE PIECE TIE BARS ARE REQUIRED AT LONGITUDINAL CONSTRUCTION JOINTS. USE MULTIPLE PIECE TIE BAR ASSEMBLIES WITH STOP TYPE COURINGS AND WITH THREADS ON THE BARS. ENSURE THE MULTIPLE PIECE TIE BAR ASSEMBLIES DEVELOP A MINIMUM ULTIMATE TENSILE STRENGTH EQUAL TO 1.25 TIMES THE YIELD STRENGTH OF THE TRANSVERSE BARS BEING JOINED. USE DEFORMED REINFORCING BARS FOR TIE BARS. TIE BAR ASSEMBLIES MADE FROM STEELS OTHER THAN ASTM GRADE 60 AND WITH DEFORMATIONS OTHER THAN ASTM STANDARD MAY BE USED IF IT CAN BE PROVEN TO THE ENGINEER THAT THEY ARE IN EVERY RESPECT THE EQUAL OF THE ASSEMBLIES SPECIFIED. LABORATORY TESTING OF THE PROPOSED ASSEMBLIES, AT THE CONTRACTOR'S EXPENSE, MAY BE REQUIRED.
 - FORM CONSTRUCTION JOINTS WITH METAL OR WOOD FORMS EQUAL IN DEPTH TO THE NOMINAL DEPTH OF THE PAVEMENT OR BY OTHER MEANS APPROVED PRIOR TO THEIR USE.
 - SAW LONGITUDINAL AND TRANSVERSE JOINTS AS SOON AS SAWING CAN BE ACCOMPLISHED WITHOUT DAMAGE TO THE PAVEMENT AND BEFORE 24 HOURS AFTER PLACING THE CONCRETE, THE EXACT TIME WILL BE APPROVED BY THE ENGINEER. PREFORMED JOINT WITH ASPHALT STRIP IS NOT ACCEPTABLE.
 - LONGITUDINAL JOINTS ARE SHOWN OFFSET FOUR INCHES FROM THE THEORETICAL LANE LINE AND MAY BE OFFSET TO EITHER SIDE IF THE WIDTH OF THE WIRE FABRIC IS PROPERLY ADJUSTED.
 - ONE OF THE LONGITUDINAL JOINTS OF PAVEMENT SLABS WIDER THAN TWO LANES MAY BE A CONSTRUCTION JOINT. FOR PAVEMENT SLABS WIDER THAN 15 FT. PROVIDE A LONGITUDINAL SAWS JOINT UNLESS OTHERWISE DIRECTED.
 - FORM THE JOINT SEAL SPACE AT TRANSVERSE EXPANSION JOINTS BY USING A STRAIGHT FORM PLACED BEHIND THE LONGITUDINAL FLOAT. LOOSEN THE FORM AS SOON AS THE CONCRETE WILL RETAIN ITS SHAPE AND EDGE WITH AN APPROVED EDGING TOOL. TOOL BOTH EDGES OF LONGITUDINAL CONSTRUCTION JOINTS TO A 1/4 IN. RADIUS AT THE PAVEMENT SURFACE.
 - DO NOT DISCHARGE CONCRETE FROM THE MIXER DIRECTLY ON TOP OF OR ON THE SIDES OF THE EXPANSION JOINT ASSEMBLIES.
 - LAP TRANSVERSE EDGES OF SHEETS OF WELDED WIRE FABRIC 12 INCHES EXCEPT AT TRANSVERSE EXPANSION JOINTS. LAP LONGITUDINAL EDGES 6 INCHES EXCEPT AT LONGITUDINAL CONSTRUCTION JOINTS.
 - DOWEL BARS MAY BE COATED WITH STAINLESS STEEL, MONEL METAL, OR IN ACCORDANCE WITH THE ITEM "REINFORCING STEEL" SECTION ON EPOXY COATING; WITH A WELDED DOWEL ASSEMBLY SUPPORT, AS APPROVED. ENSURE THE CASING CONFORMS TO THE REQUIREMENTS OF ONE OF THE GRADES OF ASTM A167-70 OR A176-71 AND IS NOT LESS THAN 0.010 INCH THICK. PROVIDE A CASING AT LEAST 8 INCHES LONG AND THAT COVERS THE MIDDLE 8 INCHES OF THE DOWEL.
 - SECURE DOWELS PARALLEL TO THE PAVEMENT SURFACE AND PERPENDICULAR TO THE JOINT WITH THE AID OF APPROVED WELDED WIRE BASKET ARRANGEMENTS. ENSURE WELDED WIRE BASKET ARRANGEMENTS DO NOT CROSS THE EXPANSION JOINT. UNIFORMLY COAT DOWELS WITH A BITUMINOUS MASTIC ON THE END WITH THE DOWEL CAP.
 - DO NOT BEND TIE BARS AND DOWEL BARS. TO PREVENT DISPLACEMENT OF WIRE FABRIC BY CONCRETE PLACEMENT, TIE THE FABRIC PANEL TOGETHER AND TIE THE INITIAL FABRIC PANELS OF EACH SLAB TO THE DOWEL BASKET OR AS DIRECTED.
 - TOOL PAVEMENT EDGES TO A RADIUS OF 1/8 IN. WITH AN APPROVED EDGING TOOL.
 - DETAILS FOR PAVEMENT WIDTH, PAVEMENT THICKNESS, AND CROWN-SLOPE ARE ELSEWHERE SHOWN ON THE PLANS.
 - THE CONTRACTOR HAS THE OPTION OF USING WELDED WIRE FABRIC OR BAR REINFORCEMENT. LOCATE THE LONGITUDINAL STEEL AT THE CENTER OF THE SLAB. TAKE NECESSARY PRECAUTIONS TO INSURE THAT THE FINAL POSITION OF STEEL IS WITHIN 1/2 IN. OF THE SLAB CENTER. ENSURE THE LONGITUDINAL AND TRANSVERSE STEEL SPACING DOES NOT VARY MORE THAN ONE-THIRTIETH OF SPACING SHOWN.
 - LONGITUDINAL STEEL MAY BE SPLICED WITH 33 TIMES BAR DIAMETER LAPS.
 - FOR LANE WIDTHS NOT SHOWN OR FOR VARIABLE PANEL LENGTHS AND WIDTHS, SPACE REINFORCING STEEL AND DOWELS AS DIRECTED.
 - USE APPROVED BAR MAT CHAIRS. DO NOT EXCEED CHAIR SPACING OF 30 IN. C-C (TRANSVERSE) AND 48 IN. C-C (LONGITUDINAL). GALVANIZING THE CHAIRS IS NOT REQUIRED.
 - OBTAIN BOARDS FOR EXPANSION JOINT FILLER FROM REDWOOD TIMBER.
 - PROVIDE AND CONSTRUCT THE JOINT PLATE AS APPROVED.
 - WHEN CURB IS PLACED SEPARATELY FROM THE CONCRETE PAVEMENT, PROVIDE THE REINFORCING STEEL AS SHOWN IN THE CURB DETAIL. THE CURB REINFORCING STEEL MAY BE OMITTED WHEN THE CURB IS PLACED MONOLITHICALLY.

Texas Department of Transportation
Houston District

JOINTED REINFORCED CONCRETE PAVEMENT DETAILS
(FOR PAVEMENT THICKNESS 10 INCHES OR LESS)

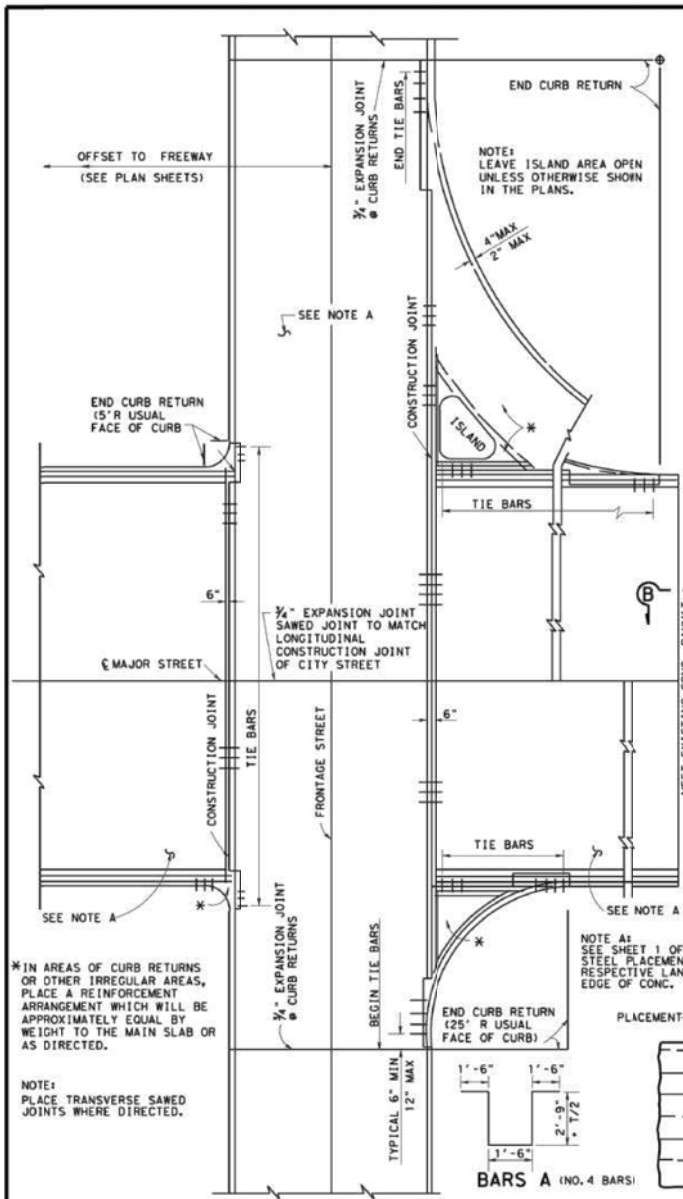
JRPC SHEET 1 OF 2

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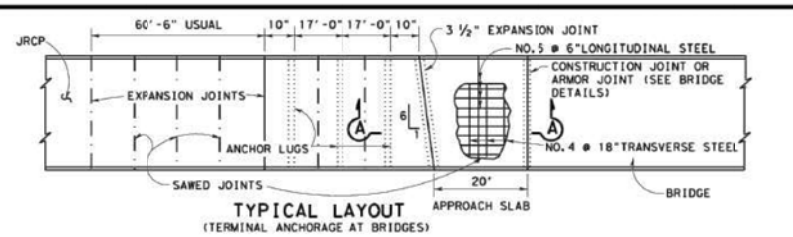
© TxDOT MAR. 2004 DIST: FEB REG PROJECT NO. SHEET

REVISIONS:
5/05 1504 SPECIES
1/10 ADDED NOTE
07/15 2014 SPECIES

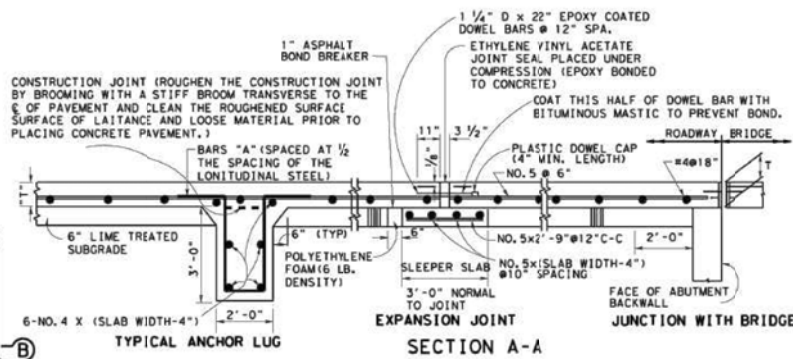
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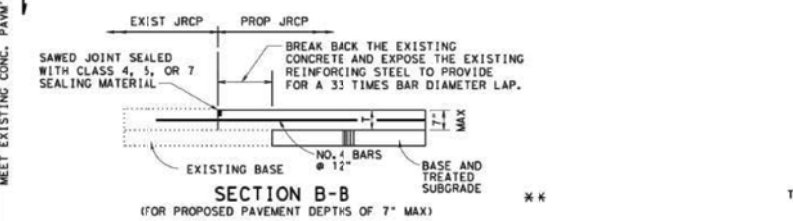
INTERSECTION OF MAJOR STREET WITH FRONTAGE STREET
TYPICAL REINFORCING PLAN



TYPICAL LAYOUT
(TERMINAL ANCHORAGE AT BRIDGES)

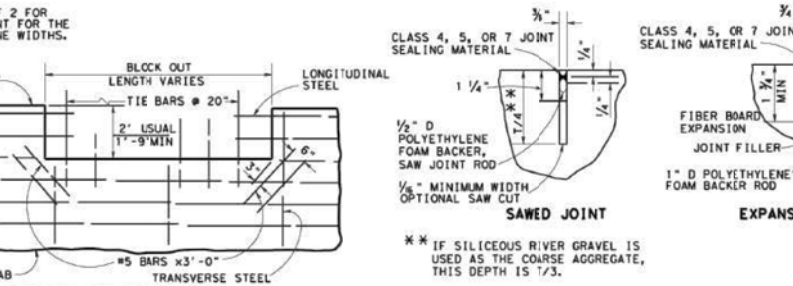


SECTION A-A



SECTION B-B
(FOR PROPOSED PAVEMENT DEPTHS OF 7" MAX)

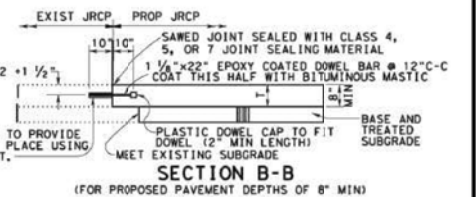
REPLACE ANY BENT LONGITUDINAL REINFORCING, IF THERE IS NOT SUFFICIENT EXPOSED REINFORCING TO PROVIDE A MINIMUM OF A 33 TIMES BAR DIAMETER LAP. REMOVE THE EXISTING PAVEMENT AND SUFFICIENTLY EXPOSE THE EXISTING REINFORCING TO PROVIDE A 33 TIMES BAR DIAMETER LAP. REPLACE ANY SHEAR BARS THAT ARE DISTURBED, BY DRILLING AND GROUTING AS REQUIRED BY NOTE #29. PERFORM THIS CORRECTIVE ACTION AT NO EXPENSE TO THE DEPARTMENT.



DETAIL OF BLOCKOUT

JOINT SEALING DETAILS

- GENERAL NOTES (CONTINUED FROM SHEET 1 OF 2)
- CONSTRUCT ANCHOR LUGS, EXPANSION JOINTS, AND SLEEPER SLABS AS DETAILED IN SECTION A-A. THESE WILL BE PAID FOR IN ACCORDANCE WITH ITEM, "CONCRETE PAVEMENT TERMINALS."
 - REINFORCING STEEL FOR TERMINAL ANCHOR SYSTEMS MAY BE GRADE 40 OR GRADE 60.
 - PLACE CONCRETE FOR ANCHOR LUGS AS SOON AS POSSIBLE AFTER COMPLETING EXCAVATION, TO PRESERVE THE INHERENT SOIL CHARACTERISTICS, EXCAVATING FOR AND PLACING CONCRETE FOR ANCHOR SYSTEM MAY BE IN PREFORMED SECTIONS CORRESPONDING TO THE WIDTH OF PAVING PLACEMENT.
 - APPLY A STEEL TROWEL FINISH TO SLEEPER SLABS AND COAT WITH AN ASPHALT BOND BREAKER.
 - THE DETAILS FOR ANCHORS, LUGS, EXPANSION JOINTS, AND SLEEPER SLABS ARE NOT APPLICABLE UNLESS SHOWN ELSEWHERE IN THE PLANS.
 - APPROACH SLAB WILL BE PAID FOR IN ACCORDANCE WITH THE ITEM "CONCRETE STRUCTURES."
 - WITHIN 5 MINUTES OF SAWING, COMPLETELY REMOVE THE RESULTING SLURRY FROM THE JOINT BY FLUSHING WITH HIGH PRESSURE WATER. THEN ALLOW THE JOINT TO DRY FOR A MINIMUM OF 48 HOURS BEFORE SANDBLASTING THE JOINT.
 - DO NOT SHEAR CUT DOWEL BARS.
 - SIZE ADDITIONAL SHEAR BARS AS LONGITUDINAL BARS AND SPACE THEM MIDWAY BETWEEN ALTERNATE LONGITUDINAL BARS ALONG THE TRANSVERSE CONSTRUCTION JOINT FORMED AT THE LEAVE-OUT.
 - IF THE CONCRETE DESIGN REQUIRES GREATER THAN 5.5 SACKS OF CEMENTITIOUS MATERIAL PER CUBIC YARD, WRITTEN APPROVAL BY THE AREA ENGINEER WILL BE REQUIRED. ENSURE CONCRETE PAVEMENT MIXES PLACED FROM APRIL 1 TO OCTOBER 31 CONTAIN A MINIMUM OF 25 PERCENT BY WEIGHT OF CLASS "F" FLY ASH.
 - IN LOCATIONS WHERE THE PLANS CALL FOR FAST TRACK CONCRETE PAVEMENT IN LIEU OF JRCP (LAID ON COMPACTED OR STABILIZED SUBGRADE), USE DETAILS IN THIS STANDARD IN CONJUNCTION WITH THE APPROPRIATE FAST TRACK CONCRETE SPECIFICATION. IF THE JRCP IS LAID UPON A BASE STRUCTURE, ADD 3" TO THE FAST TRACK PAVEMENT THICKNESS TO COMPENSATE FOR THE BASE.



SECTION B-B
(FOR PROPOSED PAVEMENT DEPTHS OF 8" MIN)

Texas Department of Transportation
Houston District

JOINED REINFORCED CONCRETE PAVEMENT DETAILS
EXPANSION JOINT DESIGN
(FOR PAVEMENT THICKNESS 10 INCHES OR LESS)

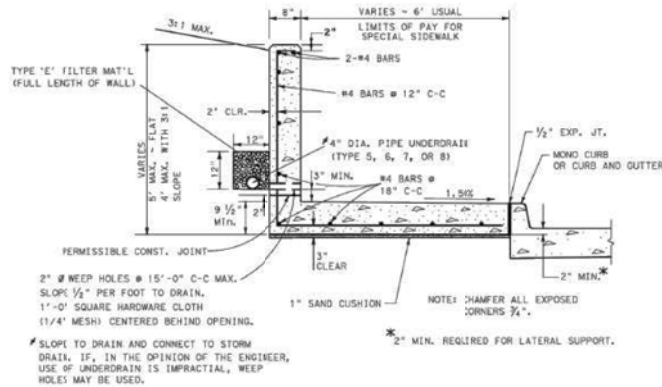
JRCP SHEET 2 OF 2

FILE: STDB-2.dgn	DN:	CR:	DR:	CEL:
© TxDOT MAR, 2004	DIST:	FEB REG:	PROJECT NO.:	SHEET:
REVISIONS: 5/05 TPO4 SPECIFICS 7/2010 ADDED NOTE 9/2011 ADDED NOTE	HOU:	6		16
	COUNTY:	CONTROL:	SECT:	JOB:
				HIGHWAY:

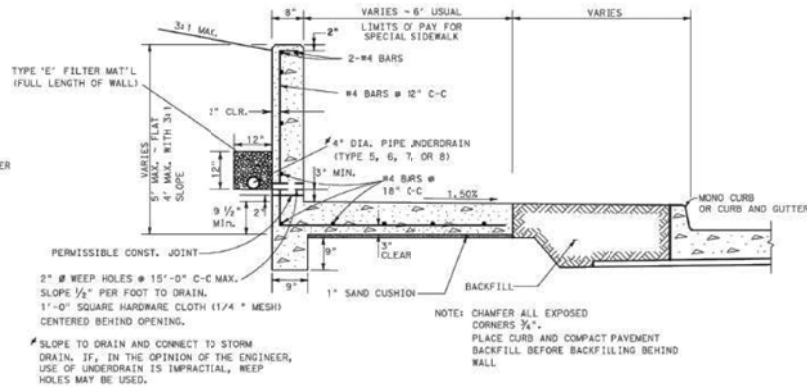
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http://www.dot.state.tx.us/ftw/spec/info/standard.htm cawdfw.dgn

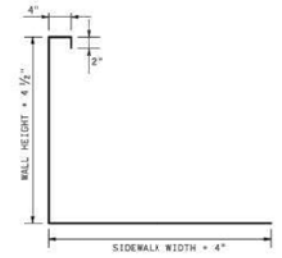
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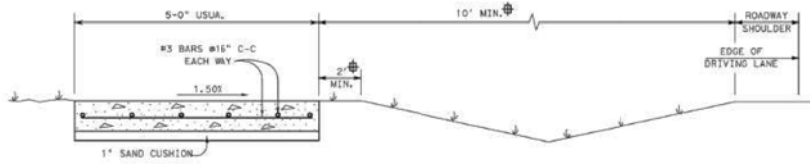
SIDEWALK ADJACENT TO CURB
SPECIAL CONCRETE SIDEWALK w/ RETAINING WALL



SIDEWALK REMOTE FROM CURB

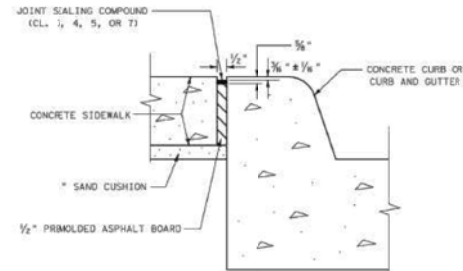


REINFORCING STEEL DETAIL



CONCRETE SIDEWALK (ROADWAY W/O CURB)

* SIDEWALK TO BE 10' MIN. FROM EDGE OF SHOULDER OR 2' MIN. FROM TOP OF DITCH BACK SLOPE, WHICHEVER IS GREATER (10' MIN. FROM EDGE OF SHOULDER IF NO DITCH.)



1/2" EXPANSION JOINT (SIDEWALK ADJACENT TO CURB)

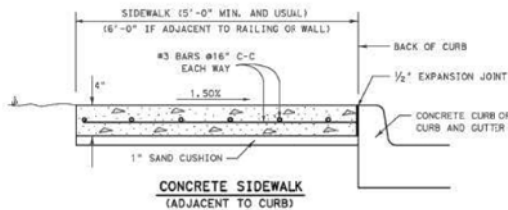
SEE PLAN SHEETS FOR LOCATIONS OF SIDEWALKS AND RETAINING WALLS.

LONGITUDINAL SLOPE OF SIDEWALKS SHALL NOT EXCEED 5% EXCEPT IN CASES WHERE THE ADJACENT ROADWAY SLOPE EXCEEDS 5%. IF ROADWAY SLOPE EXCEEDS 5%, LONGITUDINAL SLOPE OF SIDEWALK MAY MATCH THAT OF ROADWAY.

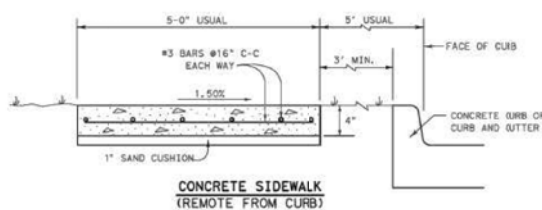
IF SIDEWALK WIDTH IS LESS THAN 5', PROVIDE 5' x 5' PASSING AREAS AT INTERVALS NOT TO EXCEED 200' SPACING.

WHERE SIDEWALK WITH RETAINING WALL IS SPECIFIED, RETAINING WALL WILL BE SUBSIDIARY TO THE ITEM, "CONCRETE SIDEWALK (SPECIAL) (RETAINING WALL)", WITH LIMITS OF PAY AS SHOWN HEREON.

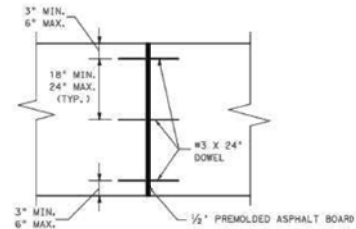
SURFACE TREATMENT OF RETAINING WALL FACE DETAILED ELSEWHERE IN THE PLANS.



CONCRETE SIDEWALK (ADJACENT TO CURB)



CONCRETE SIDEWALK (REMOTE FROM CURB)



TRANSVERSE EXPANSION JOINT

CONCRETE SIDEWALK DETAILS

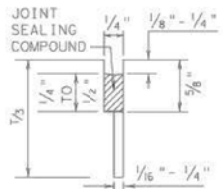
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Texas Department of Transportation			
FORT WORTH DISTRICT			
CONCRETE SIDEWALK DETAILS			
CSWD-08 (FW)			
ORIGINAL DRAWING	REV. NO.	PROJECT NO.	SHEET NO.
JUNE 2008	6		17
REVISIONS	STAT.	DIST.	COUNTY
	TEXAS		
	CONS.	SECT.	JOB
			ROADWAY NO.

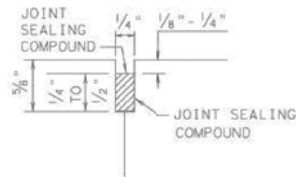
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DATE: FILE:

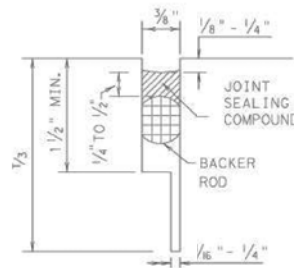
METHOD B: JOINT SEALING COMPOUND



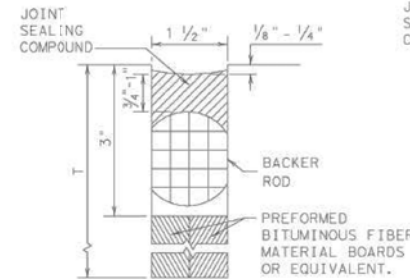
LONGITUDINAL SAWED CONTRACTION JOINT



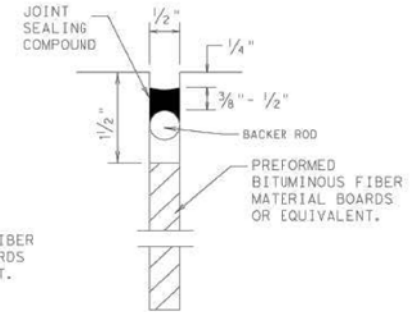
LONGITUDINAL OR TRANSVERSE CONSTRUCTION JOINT



TRANSVERSE SAWED CONTRACTION JOINT

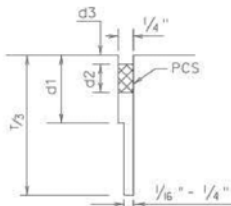


TRANSVERSE FORMED EXPANSION JOINT

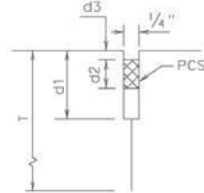


FORMED ISOLATION JOINT

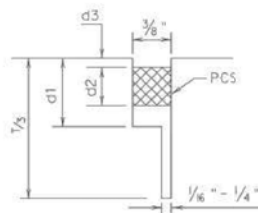
METHOD A: PREFORMED COMPRESSION SEALS (PCS) (DMS-6310 CLASS 6)



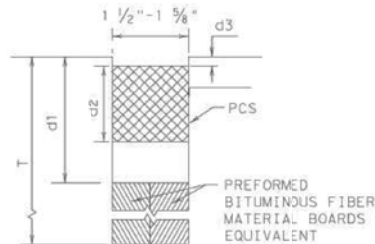
LONGITUDINAL SAWED CONTRACTION JOINT



LONGITUDINAL CONSTRUCTION JOINT



TRANSVERSE SAWED CONTRACTION JOINT



TRANSVERSE FORMED EXPANSION JOINT

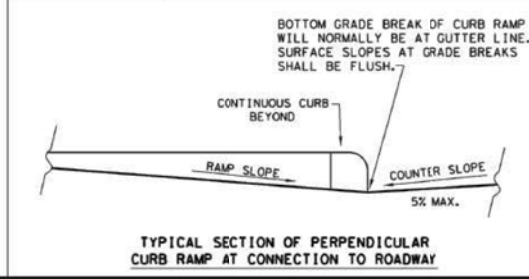
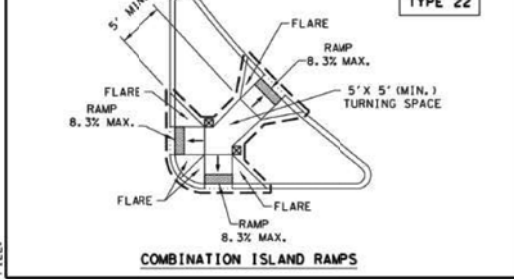
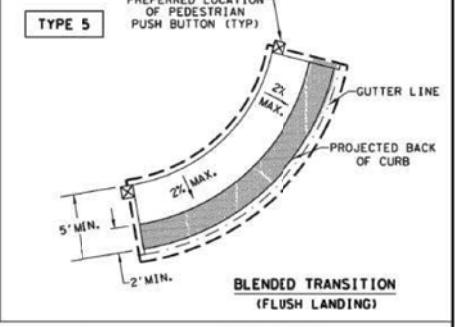
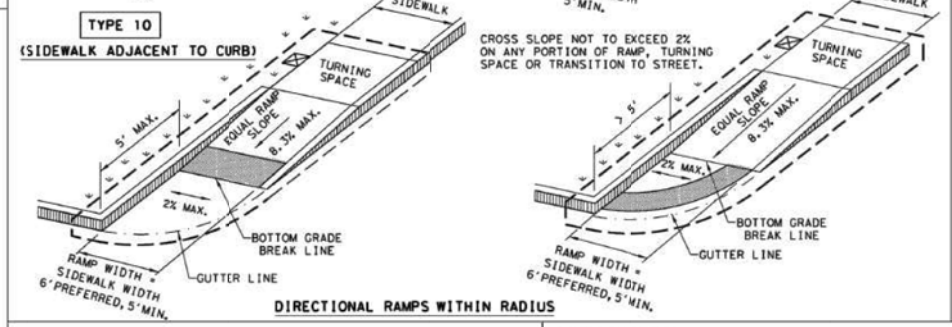
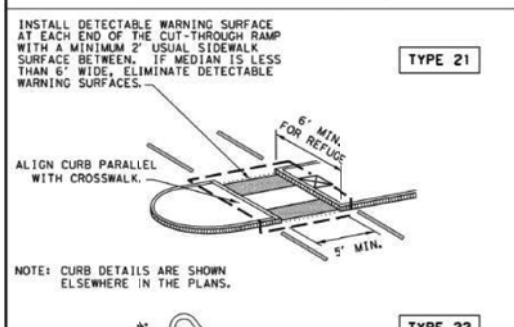
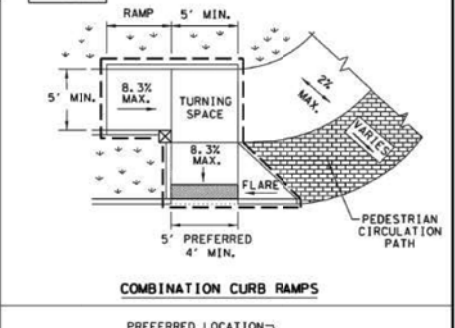
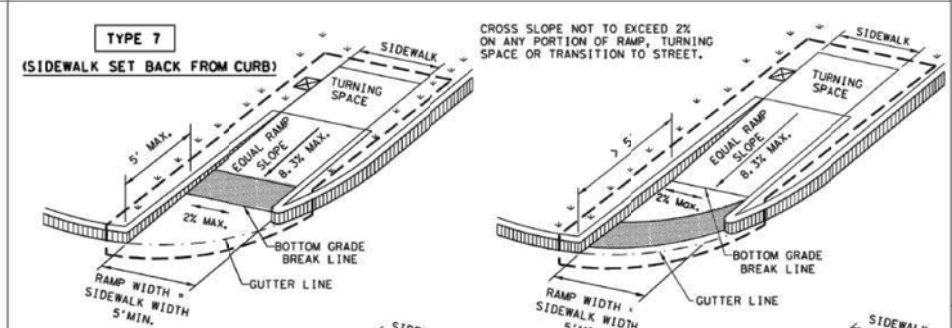
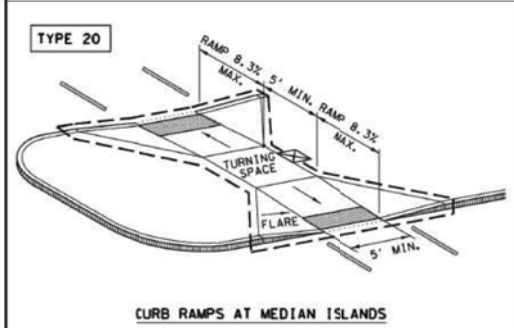
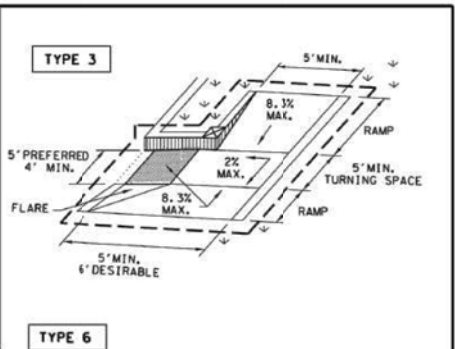
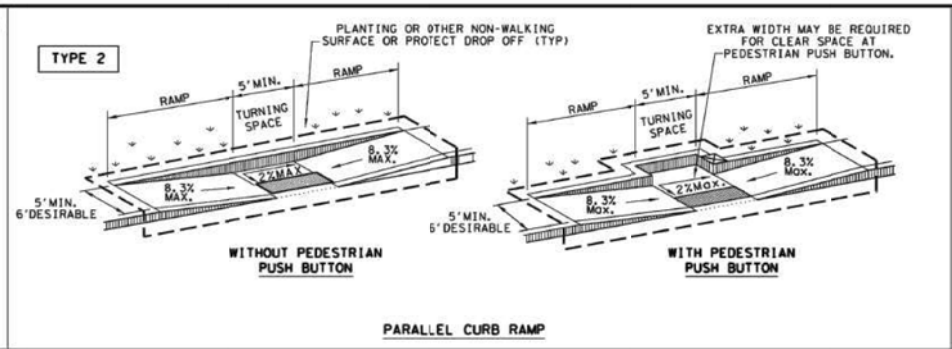
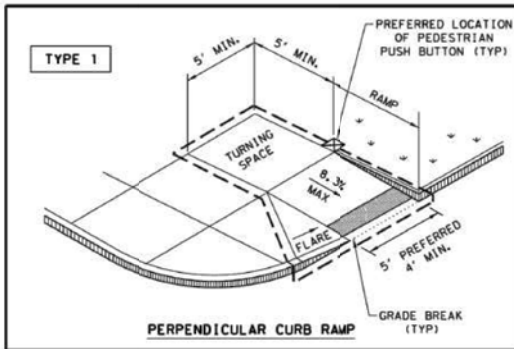
GENERAL NOTES

1. UNLESS OTHERWISE SHOWN IN THE PLANS, EITHER METHOD "A" OR METHOD "B" MAY BE USED.
2. THE LOCATION OF JOINTS SHALL BE AS SHOWN ELSEWHERE IN THE PLANS.
3. THE JOINT RESERVOIR FOR SEALANT OR PCS SHALL BE SAWED UNLESS OTHERWISE SHOWN ON THE PLANS FOR THE LONGITUDINAL AND TRANSVERSE CONSTRUCTION JOINTS AND THE SAWED JOINTS.
4. DIMENSIONS d1, d2, AND d3 SHOWN IN METHOD A SHALL BE IN ACCORDANCE WITH THE PREFORMED COMPRESSION SEAL MANUFACTURER'S RECOMMENDATION.
5. REFER TO DMS-6310 "JOINT SEALANTS AND FILLERS" FOR THE CLASSIFICATIONS.
6. FOR SAWED LONGITUDINAL JOINT, LONGITUDINAL OR TRANSVERSE CONSTRUCTION JOINT, USE JOINT SEALANT CLASS 5 OR 8 UNLESS OTHERWISE SHOWN ON THE PLAN OR APPROVED.
7. FOR TRANSVERSE SAWED CONTRACTION, TRANSVERSE FORMED EXPANSION JOINT, AND ISOLATION JOINT USE JOINT SEALANT CLASS 5 OR 8 AT NEW JOINTS. USE JOINT SEALANT CLASS 4,5,7, OR 8 FOR MAINTAINING EXISTING JOINTS.
8. THE JOINTS SHALL BE CLEANED IN ACCORDANCE WITH THE ITEM 438 "CLEANING AND SEALING JOINTS" OR ITEM 713 "CLEANING AND SEALING JOINTS AND CRACKS (CONCRETE PAVEMENT)".
9. ISOLATION JOINTS ACCOMMODATE HORIZONTAL AND VERTICAL MOVEMENTS THAT OCCUR BETWEEN A PAVEMENT AND A STRUCTURE. ISOLATION JOINTS MAY BE USED FOR BRIDGE ABUTMENTS, INTERSECTIONS, CURB AND GUTTER, OLD AND NEW PAVEMENTS, OR AROUND DRAINAGE INLETS, MANHOLES, FOOTINGS AND LIGHTING STRUCTURES.

		Design Division Standard	
CONCRETE PAVING DETAILS JOINT SEALS JS-14			
FILE# JS14.dgn © TxDOT DECEMBER 2014 REVISED:	DW TxDOT CONT SECT DIST COUNTY	DW NC DW NC JOB COUNTY	DW AN W/DRAWN SHEET NO.
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NOTES / LEGEND:

SEE GENERAL NOTES ON SHEET 2 OF 4 FOR MORE INFORMATION.

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH. GUTTER LINE
 DETECTABLE WARNING SURFACE GRADE BREAK
 DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON IF APPLICABLE. RAMP LIMITS OF PAYMENT

SHEET 1 OF 4

Texas Department of Transportation
Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: PED18	REV: TxDOT	DATE: 08/04/08	BY: PK & JG
© TxDOT, MARCH, 2002	CONT: SECT	JOB: WIDENAY	
REVISED 08/04/08	REVISIONS:	DIST: COUNTY:	SHEET NO. 19

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GENERAL NOTES

CURB RAMPS

1. Install a curb ramp or blended transition at each pedestrian street crossing.
2. All slopes shown are maximum allowable. Cross slopes of 1.5% and lesser running should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
3. Maximum allowable cross slope on sidewalk and curb ramp surfaces is 2%.
4. The minimum sidewalk width is 5'. Where the sidewalk is adjacent to the back of curb, a 6' sidewalk width is desirable. Where a 5' sidewalk cannot be provided due to site constraints, sidewalk width may be reduced to 4' for short distances. 5' x 5' passing areas at intervals not to exceed 200' are required.
5. Turning Spaces shall be 5' x 5' minimum. Cross slope shall be maximum 2%.
6. Clear space at the bottom of curb ramps shall be a minimum of 4' x 4' wholly contained within the crosswalk and wholly outside the parallel vehicular travel path.
7. Provide flared sides where the pedestrian circulation path crosses the curb ramp. Flared sides shall be sloped at 10% maximum, measured parallel to the curb. Returned curbs may be used only where pedestrians would not normally walk across the ramp, either because the adjacent surface is planted, substantially obstructed, or otherwise protected.
8. Additional information on curb ramp location, design, light reflective value and texture may be found in the latest draft of the Proposed Guidelines for Pedestrian Facilities in the Public Right of Way (PROWAG) as published by the U.S. Architectural and Transportation Barriers Compliance Board (Access Board).
9. To serve as a pedestrian refuge area, the median should be a minimum of 6' wide, measured from back of curbs. Medians should be designed to provide accessible passage over or through them.
10. Small channelization islands, which do not provide a minimum 5' x 5' landing at the top of curb ramps, shall be cut through level with the surface of the street.
11. Crosswalk dimensions, crosswalk markings and stop bar locations shall be as shown elsewhere in the plans. At intersections where crosswalk markings are not required, curb ramps shall align with theoretical crosswalks unless otherwise directed.
12. Provide curb ramps to connect the pedestrian access route at each pedestrian street crossing. Handrails are not required on curb ramps.
13. Curb ramps and landings shall be constructed and paid for in accordance with Item 531 "Sidewalks".
14. Place concrete at a minimum depth of 5' for ramps, flares and landings, unless otherwise directed.
15. Furnish and install No. 3 reinforcing steel bars at 18" o.c. both ways, unless otherwise directed.
16. Provide a smooth transition where the curb ramps connect to the street.
17. Curbs shown on sheet 1 within the limits of payment are considered part of the curb ramp for payment, whether it is concrete curb, gutter, or combined curb and gutter.
18. Existing features that comply with applicable standards may remain in place unless otherwise shown on the plans.

DETECTABLE WARNING MATERIAL

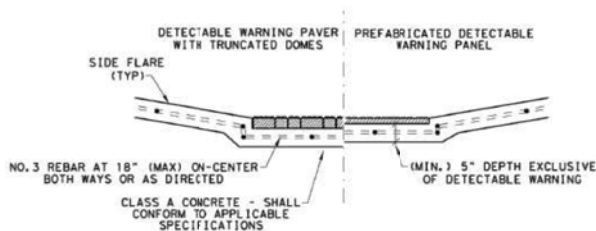
19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with PROWAG. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material adjacent to uncolored concrete, unless specified elsewhere in the plans.
20. Detectable Warning Materials must meet TxDOT Departmental Materials Specification DMS 4350 and be listed on the Material Producer List. Install products in accordance with manufacturer's specifications.
21. Detectable warning surfaces must be firm, stable and slip resistant.
22. Detectable warning surfaces shall be a minimum of 24 inches in depth in the direction of pedestrian travel, and extend the full width of the curb ramp or landing where the pedestrian access route enters the street.
23. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb and neither end of that edge is greater than 5 feet from the back of curb. Detectable warning surfaces may be curved along the corner radius.
24. Shaded areas on Sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.

DETECTABLE WARNING PAVERS (IF USED)

25. Furnish detectable warning paver units meeting all requirements of ASTM C-936, C-33. Lay in a two by two unit basket weave pattern or as directed.
26. Lay full-size units first followed by closure units consisting of at least 25 percent (25%) of a full unit. Cut detectable warning paver units using a power saw.

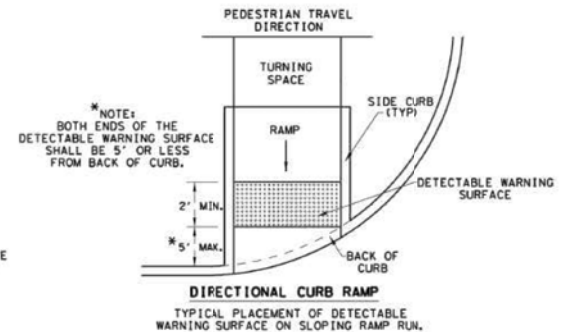
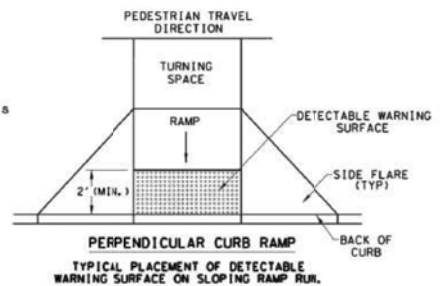
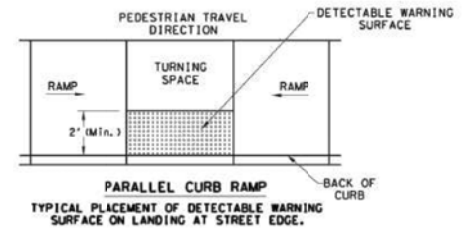
SIDEWALKS

27. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within unobstructed reach range specified in PROWAG section R406.
28. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not to obstruct the pedestrian access route or clear ground space.
29. Street grades and cross slopes shall be as shown elsewhere in the plans.
30. Changes in level greater than 1/4 inch are not permitted.
31. The least possible grade should be used to maximize accessibility. The running slope of sidewalks and crosswalks within the public right of way may follow the grade of the parallel roadway. Where a continuous grade greater than five percent (5%) must be provided, handrails may be desirable to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails shall comply with PROWAG R409.
32. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
33. Driveways and turnouts shall be constructed and paid for in accordance with Item "Intersections, Driveways and Turnouts". Sidewalks shall be constructed and paid for in accordance with Item, "Sidewalks".
34. Sidewalk details are shown elsewhere in the plans.



SECTION VIEW DETAIL
CURB RAMP AT DETECTIBLE WARNINGS

DETECTABLE WARNING SURFACE DETAILS

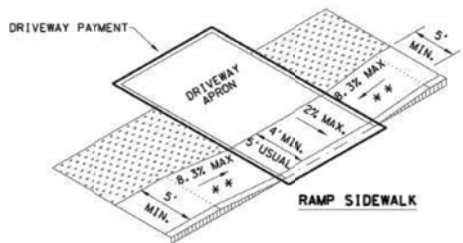
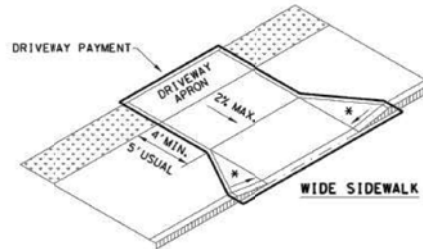
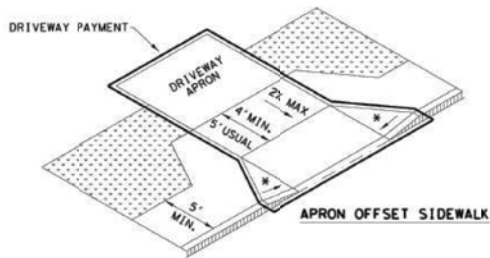
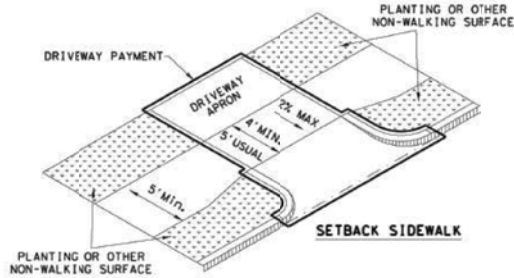


SHEET 2 OF 4

 Texas Department of Transportation		Design Division Standard		
<h2>PEDESTRIAN FACILITIES</h2> <h3>CURB RAMPS</h3> <h1>PED-18</h1>				
FILE: PED18	REV: TxDOT	DATE: YP	DATE: JM	DATE: PK & JD
TxDOT: MARCH, 2002	CONT: SECT	JOB	ROADWAY	
REVISED 08, 2005	REVISED 08, 2012	DIST	COUNTY	SHEET NO.
REVISED 07, 2016				20

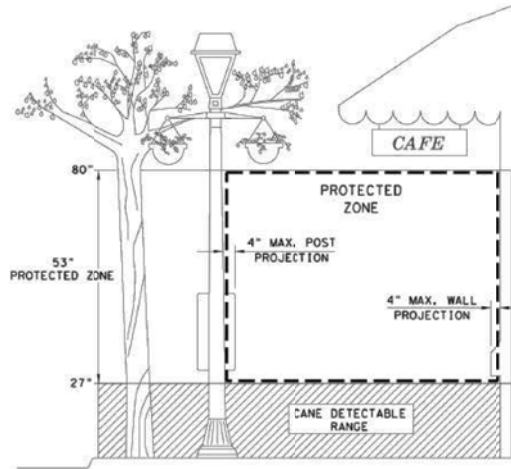
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SIDEWALK TREATMENT AT DRIVEWAYS

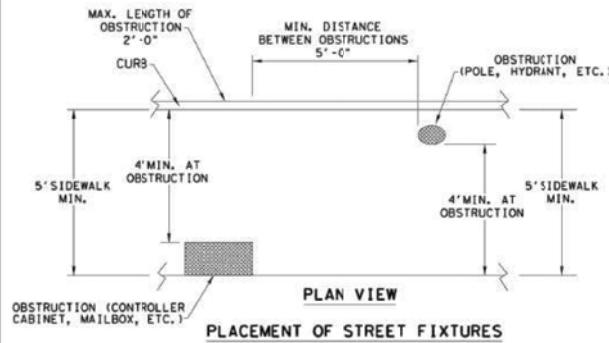
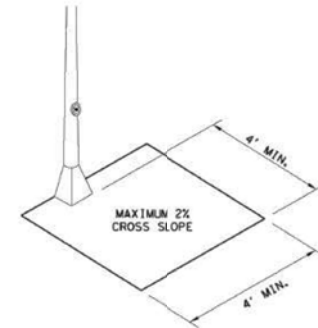


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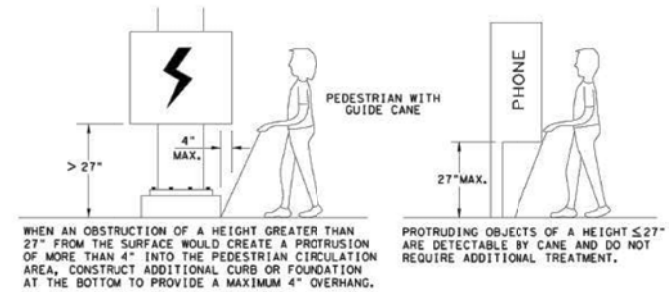
- * WHERE DRIVEWAYS CROSS THE PEDESTRIAN ROUTE, SIDES SHALL BE FLARED AT 10% MAX SLOPE.
- ** IF CURB HEIGHT IS GREATER THAN 6 INCHES, USE GRADE LESS THAN OR EQUAL TO 5%. HANDRAIL AND DETECTABLE WARNING ARE NOT REQUIRED.



NOTE: IN PEDESTRIAN CIRCULATION AREA, MAXIMUM 4" PROJECTION FOR POST OR WALL MOUNTED OBJECTS BETWEEN 27" AND 80" ABOVE THE SURFACE.



NOTE: ITEMS NOT INTENDED FOR PUBLIC USE. MINIMUM 4' X 4' CLEAR GROUND SPACE REQUIRED AT PUBLIC USE FIXTURES.



WHEN AN OBSTRUCTION OF A HEIGHT GREATER THAN 27" FROM THE SURFACE WOULD CREATE A PROTRUSION OF MORE THAN 4" INTO THE PEDESTRIAN CIRCULATION AREA, CONSTRUCT ADDITIONAL CURB OR FOUNDATION AT THE BOTTOM TO PROVIDE A MAXIMUM 4" OVERHANG.

PROTRUDING OBJECTS OF A HEIGHT ≤ 27" ARE DETECTABLE BY CANE AND DO NOT REQUIRE ADDITIONAL TREATMENT.

SHEET 3 OF 4

Texas Department of Transportation
Design Division Standard

**PEDESTRIAN FACILITIES
CURB RAMPS**

PED-18

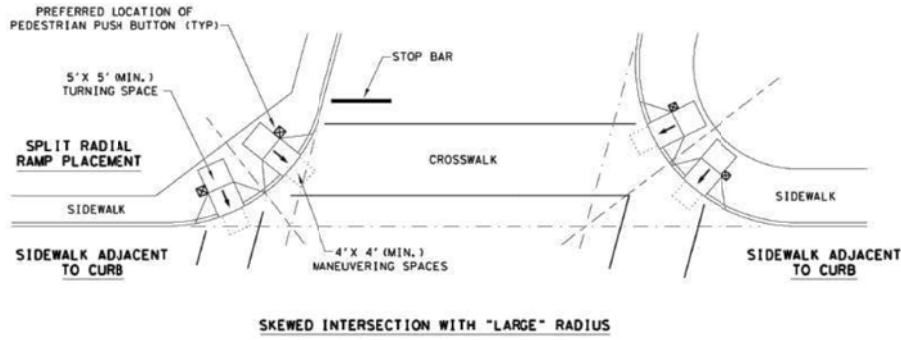
FILE: PED18	DATE: TxDOT	DATE: DW/VP	DATE: DW/DM	DATE: DW/PK & JC
TxDOT: MARCH, 2002	CONT: SECT	JOB	HIGHWAY	
REVISED 08, 2005	REVISED 06, 2012	DIST	COUNTY	SHEET NO.
REVISED 07, 2016				21

DATE: FILE:

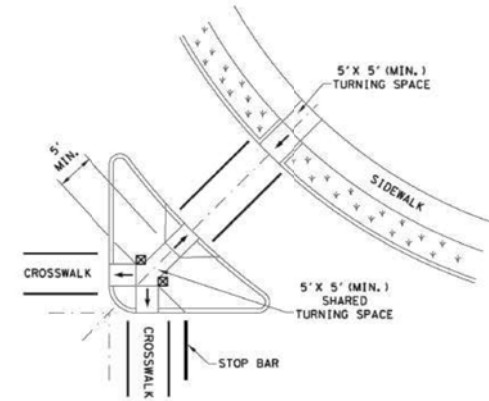
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DATE:
FILE:

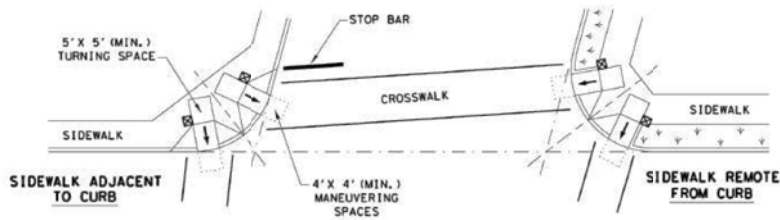
TYPICAL CROSSING LAYOUTS
SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS



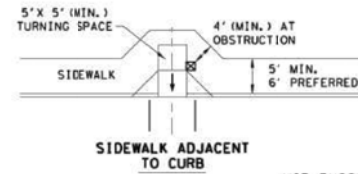
SKewed INTERSECTION WITH "LARGE" RADIUS



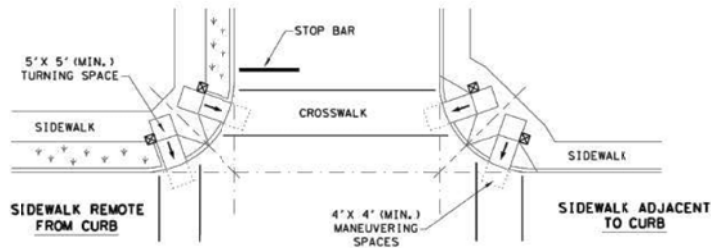
AT INTERSECTION
W/FREE RIGHT TURN & ISLAND



SKewed INTERSECTION WITH "SMALL" RADIUS



MID-BLOCK PLACEMENT
PERPENDICULAR RAMPs



NORMAL INTERSECTION WITH "SMALL" RADIUS

LEGEND:

SHOWS DOWNWARD SLOPE. ∇

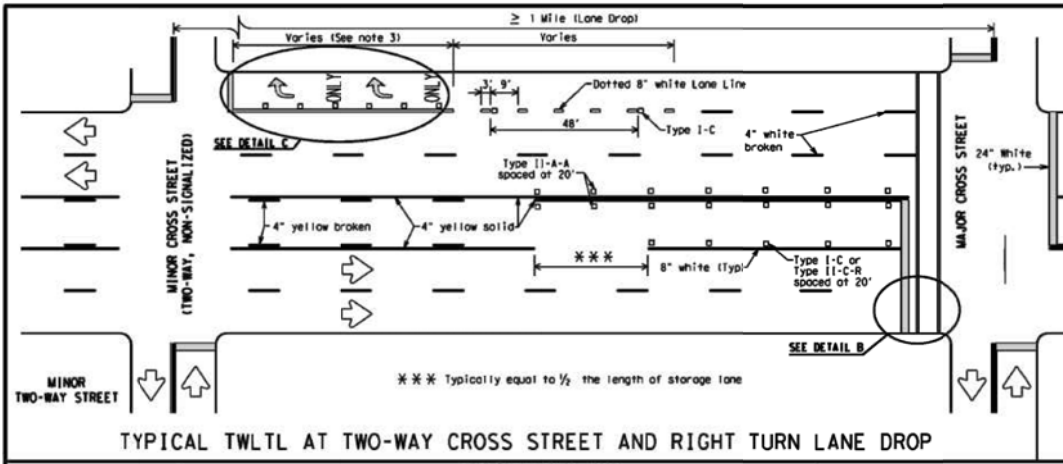
DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON (IF APPLICABLE). \square

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH. X X X X

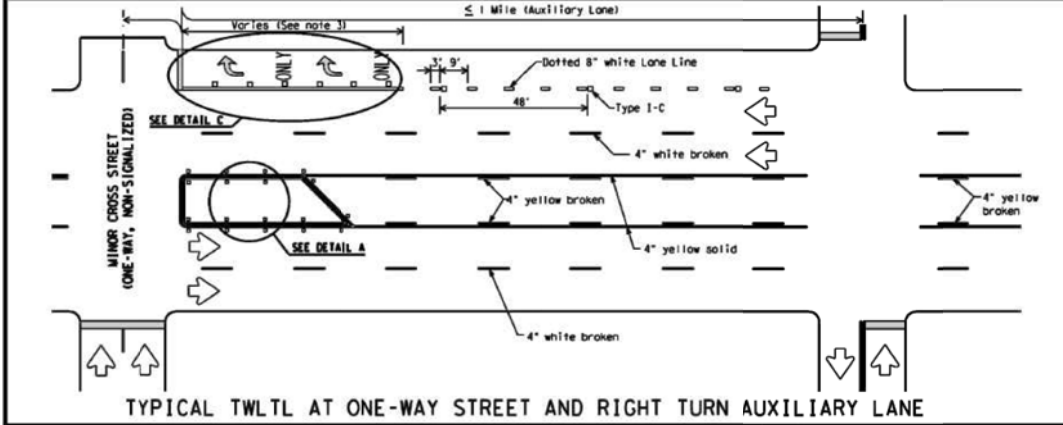
SHEET 4 OF 4

		Design Division Standard	
PEDESTRIAN FACILITIES CURB RAMPS			
PED-18			
FILE: PED18	REV: TxDOT	DATE: YP	DATE: JM
DATE: MARCH, 2002	CONT: SECT	JOB	W30861
REVISED 08, 2005	REVISED 06, 2012	DIST	COUNTY
REVISED 07, 2016			SHEET NO.
			22

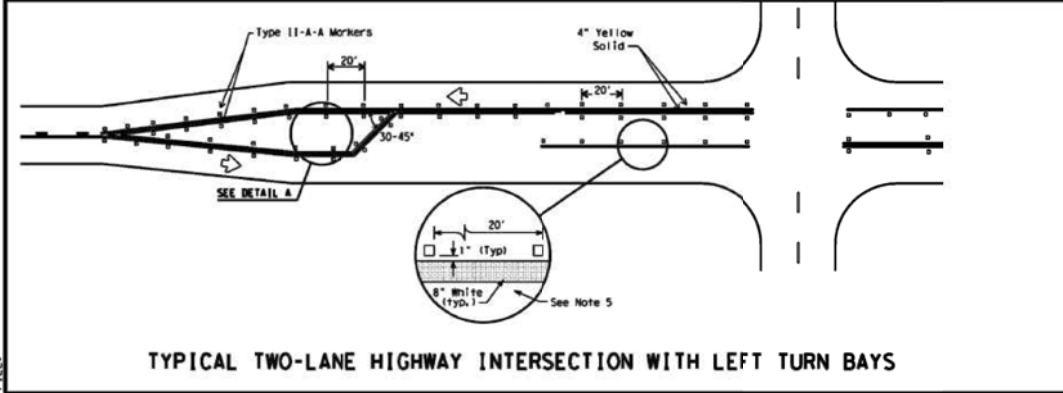
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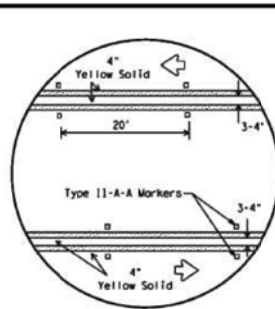
TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP



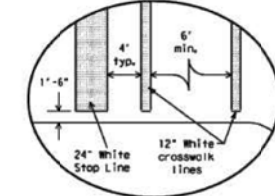
TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



TYPICAL TWO-LANE HIGHWAY INTERSECTION WITH LEFT TURN BAYS

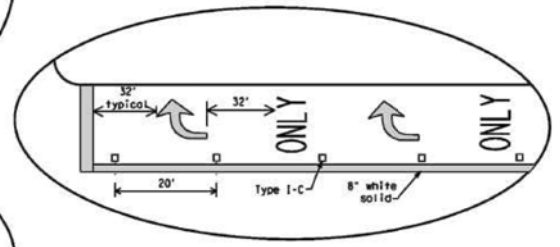


DETAIL A



DETAIL B

Final placement of Stop Bar and Crosswalk shall be approved by the Engineer in the field.

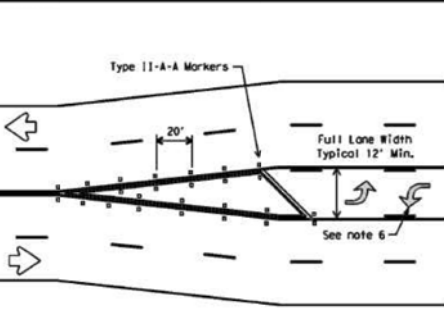


DETAIL C

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
NOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.

- GENERAL NOTES**
- Refer elsewhere in plans for additional RPM placement and details.
 - Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn bays for emphasis. Details for words and arrows as shown in the Standard Highway Sign Designs for Texas.
 - When lane used word and arrow markings are used, two sets of arrows should be used if the length of the bay is greater than 180 feet. When a single lane use arrow or word and arrow marking is used for a short turn lane, it should be located at or near the upstream end of the full-width turn lane.
 - Other crosswalk patterns as shown in the "Texas Manual on Uniform Traffic Control Devices" may be used.
 - Raised pavement marker Type I-C with undivided highways, flush medians and two way left turn lanes. Raised pavement marker Type II-C-R with divided highways and raised medians.
 - A two-way left-turn (TWLTL) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.



TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY

Texas Department of Transportation
 Traffic Operations Division
PAVEMENT MARKINGS FOR TWO-WAY LEFT TURN LANES DIVIDED HIGHWAYS AND RURAL LEFT TURN BAYS
PM(3)-12

© TxDOT April 1998	0m T300T	0m T300T	0m T300T	0m T300T
5-00 2-12	CONV	SECT	JOB	WIDENY
5-00 3-03	SIST	COUNTY		
5-10 2-10				SHEET NO. 23

DATE: FILE:

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SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

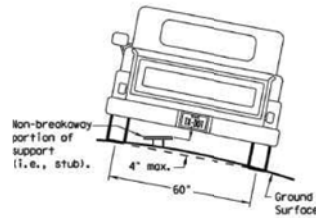
SM RD SGN ASSM TY XXXXX(X)XX(X-XXXX)

Post Type
 FRP = Fiberglass Reinforced Plastic Pipe (see SMD(FRP))
 TWT = Thin-Walled Tubing (see SMD(TWT))
 10BWG = 10 BWG Tubing (see SMD(SLIP-1) to (SLIP-3))
 S80 = Schedule 80 Pipe (see SMD(SLIP-1) to (SLIP-3))

Number of Posts (1 or 2)
Anchor Type
 UA = Universal Anchor - Concrete (see SMD(FRP) and (TWT))
 UB = Universal Anchor - Bolted Down (see SMD(FRP) and (TWT))
 WS = Wedge Anchor Steel - (see SMD(TWT))
 WP = Wedge Anchor Plastic (see SMD(TWT))
 SA = Silibase - Concrete (see SMD(SLIP-1) to (SLIP-3))
 SB = Silibase - Bolted Down (see SMD(SLIP-1) to (SLIP-3))

Sign Mounting Designation
 P = Prefab. "Plain" (see SMD(SLIP-1) to (SLIP-3), (TWT), (FRP))
 T = Prefab. "T" (see SMD(SLIP-1) to (SLIP-3), (TWT))
 U = Prefab. "U" (see SMD(SLIP-1) to (SLIP-3))
 IF REQUIRED
 1EXT or 2EXT = Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TWT))
 BM = Extruded Wind Beam (see SMD(SLIP-1) to (SLIP-3))
 WC = 1.12 #/ft Wing Channel (see SMD(SLIP-1) to (SLIP-3))
 EXAL = Extruded Aluminum Sign Panels (see SMD(SLIP-3))

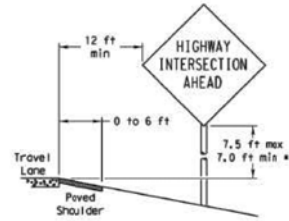
REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



To avoid vehicle undercarriage snagging, any substantial remains of a breakaway support, when it is broken away, should not project more than 4 inches above a 60-inch chord (i.e., typical space between wheel paths).

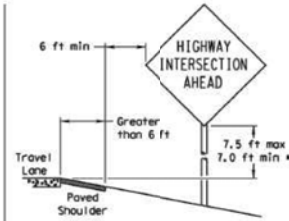
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

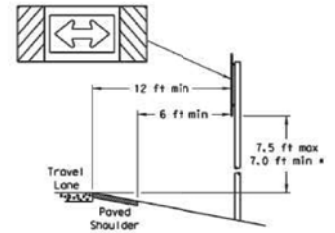
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



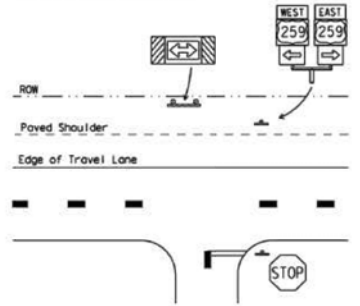
GREATER THAN 6 FT. WIDE

When the shoulder is greater than 6 ft. in width, the sign must be placed at least 6 ft. from the edge of the shoulder.

T-INTERSECTION



When this sign is needed at the end of a two-lane, two-way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.



Signs shall be mounted using the following condition that results in the greatest sign elevation:

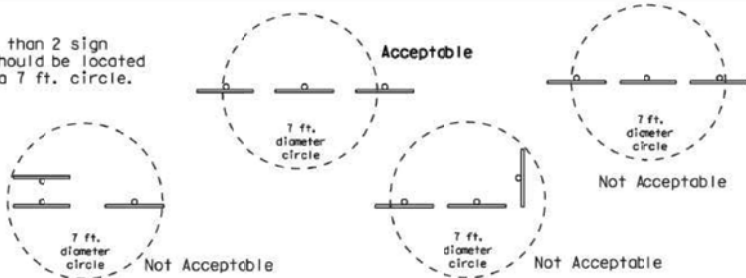
- (1) a minimum of 7 to a maximum of 7.5 feet above the edge of the travel lane or
- (2) a minimum of 7 to a maximum of 7.5 feet above the grade at the base of the support when sign is installed on the backslope.

The maximum values may be increased when directed by the Engineer.

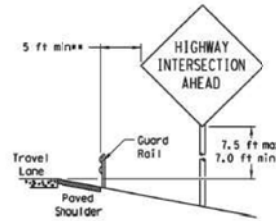
See the Traffic Operations Division website for detailed drawings of sign clamps, Triangular Silibase System components and Wedge Anchor System components.

The website address is:
<http://www.txdot.gov/publications/traffic.htm>

No more than 2 sign posts should be located within a 7 ft. circle.

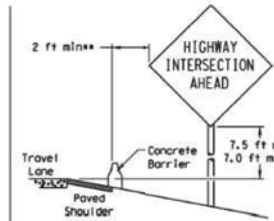


BEHIND BARRIER



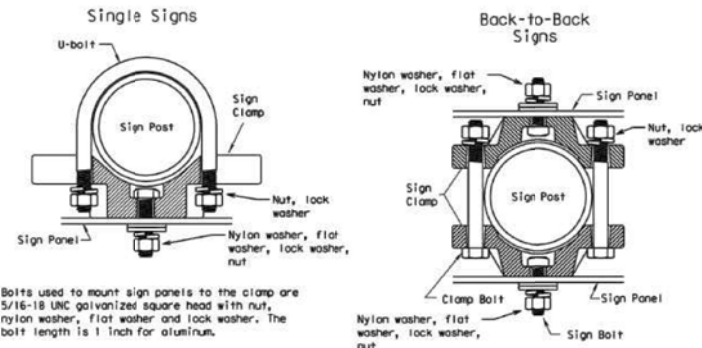
BEHIND GUARDRAIL

**Sign clearance based on distance required for proper guard rail or concrete barrier performance.



BEHIND CONCRETE BARRIER

TYPICAL SIGN ATTACHMENT DETAIL



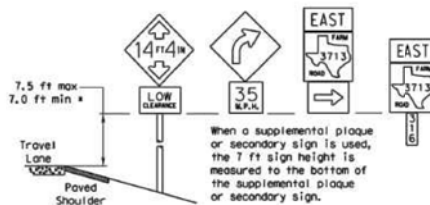
Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

When two sign clamps are used to mount signs back-to-back, use a 5/16-18 UNC galvanized hex head per ASTM A307 with nut and helical-spring lock washer. The approximate bolt lengths for various post sizes and sign clamp types are given in the table at right. The bolt length may need to be adjusted depending upon field conditions.

Sign clamps may be either the specific size clamp or the universal clamp.

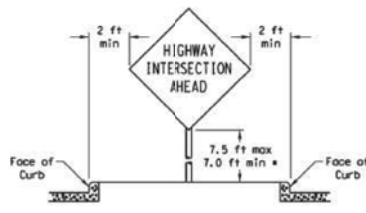
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES

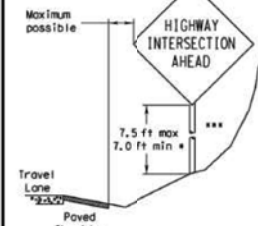


When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND



RESTRICTED RIGHT-OF-WAY (When 6 ft min. is not possible.)



Right-of-way restrictions may be created by rocks, water, vegetation, forest, buildings, a narrow island, or other factors.

In situations where a lateral restriction prevents the minimum horizontal clearance from the edge of the travel lane, signs should be placed as far from the travel lane as practical.

*** Post may be shorter if protected by guardrail or if Engineer determines the post could not be fit due to extreme slope.

Texas Department of Transportation
 Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

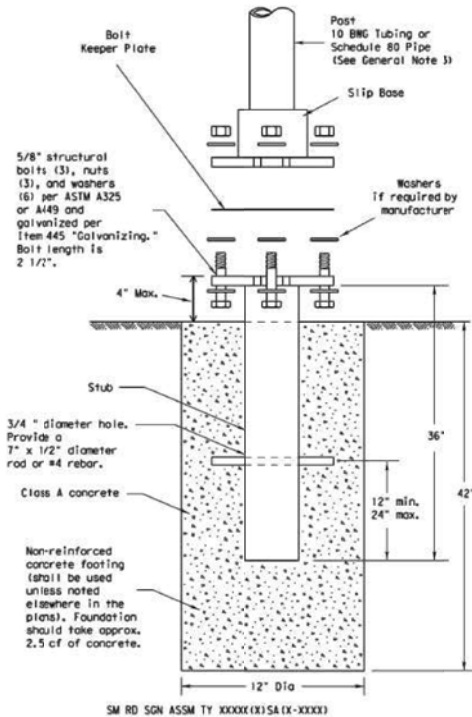
SMD (GEN) - 08

© TxDOT July 2002	CHK 1300T	CHK 1300T	CHK 1300T	CHK 1300T
9-08	CONTRACT	SECTION	JOB	HIGHWAY
DIST	COUNTY	SHEET NO.		24

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DATE: FILE:

TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



SM RD SGN ASSM TY XXXXX(X)SA(X-XXXX)

NOTE

There are various devices approved for the Triangular Slipbase System. Please reference the Material Producer List for approved slip base systems. http://www.txdot.gov/business/producer_list.htm The devices shall be installed per manufacturers' recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:

- Slip base shall be permanently marked to indicate manufacturer, method, design, and location of marking or subject to approval of the TxDOT Traffic Standards Engineer.
- Material used as part with this system shall conform to the following specifications:
 - 10 BNG Tubing (2.875" outside diameter)
 - 0.134" nominal wall thickness
 - Seamless or electric-resistance welded steel tubing or pipe
 - Steel shall be HRAS Gr 55 per ASTM A1011 or ASTM A1008
 - Other steels may be used if they meet the following:
 - 55,000 PSI minimum yield strength
 - 70,000 PSI minimum tensile strength
 - 20% minimum elongation in 2"
 - Wall thickness (uncoated) shall be within the range of 0.122" to 0.138"
 - Outside diameter (uncoated) shall be within the range of 2.867" to 2.883"
 - Galvanization per ASTM A123 or ASTM A653 G210. For pre-coated steel tubing (ASTM A653), recast tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.
 - Schedule 80 Pipe (2.875" outside diameter)
 - 0.276" nominal wall thickness
 - Steel tubing per ASTM A500 Gr C
 - Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
 - 46,000 PSI minimum yield strength
 - 62,000 PSI minimum tensile strength
 - 21% minimum elongation in 2"
 - Wall thickness (uncoated) shall be within the range of 0.248" to 0.304"
 - Outside diameter (uncoated) shall be within the range of 2.855" to 2.895"
 - Galvanization per ASTM A123
- See the Traffic Operations Division website for detailed drawings of sign clamps and Texas Universal Triangular Slipbase System components. The website address is <http://www.txdot.gov/publications/traffic.htm>
- Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.

ASSEMBLY PROCEDURE

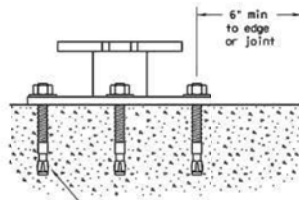
Foundation

- Prepare 12-inch diameter by 42-inch deep hole. If solid rock is encountered, the depth of the foundation may be reduced such that it is embedded a minimum of 18 inches into the solid rock.
- The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor-driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
- Push the pipe end of the slip base stub into the center of the concrete. Rotate the stub back and forth while pushing it down into the concrete to assure good contact between the concrete and stub. Continue to work the stub into the concrete until it is between 2 to 4 inches above the ground.
- Plumb the stub. Allow a minimum of 4 days to set, unless otherwise directed by the Engineer.
- The triangular slipbase system is multi-directional and is designed to release when struck from any direction.

Support

- Cut support so that the bottom of the sign will be 7 to 7.5 feet above the edge of the travelway (i.e., edge of the closest lane) when slip plate is below the edge of pavement or 7 to 7.5 feet above slip plate when the slip plate is above the edge of the travelway. The cut shall be plumb and straight.
- Attach sign to support using connections shown. When multiple signs are installed on the same support, ensure the minimum clearance between each sign is maintained. See SMD(SLIP-2) for clearances based on sign types.

CONCRETE ANCHOR



SM RD SGN ASSM TY XXXXX(X)SB(X-XXXX)

Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end, heavy hex nut per ASTM A563, and hardened washer per ASTM F436. The stud bolt shall have a minimum yield and ultimate tensile strength of 50 and 75 KSI, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxy Resins and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations. Top of bolt shall extend at least flush with top of the nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 5 1/2" minimum embedment, shall have a minimum allowable tension and shear of 3900 and 3100 psi, respectively.

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM
SMD(SLIP-1)-08

© TxDOT July 2002		DM-1100T	DM-1100T	DM-1100T	DM-1100T
CONF	SECT	JOB	HIGHWAY		
9-08					
	DIST	COUNTY			SHEET NO.
					25

26B

SUMMARY OF SMALL SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX)				BRIDGE MOUNT CLEARANCE SIGNS (See Note 2)	
							POST TYPE	POSTS	ANCHOR TYPE	MOUNTING DESIGNATION		TY = TYPE
8	1	R5-3	NO MOTOR VEHICLES	24X24	✓		TWT	1	WS	P		
8	2	R5-3	NO MOTOR VEHICLES	24X24	✓		TWT	1	WS	P		

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
Less than 7.5	0.080"
7.5 to 15	0.100"
Greater than 15	0.125"

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.
<http://www.txdot.gov>

- NOTE:**
1. Sign supports shall be located as shown on the plans, except that the Engineer may shift the sign supports, within design guidelines, where necessary to secure a more desirable location or to avoid conflict with utilities. Unless otherwise shown on the plans, the Contractor shall stake and the Engineer will verify all sign support locations.
 2. For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS) Standard Sheet.
 3. For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD (GEN).



SUMMARY OF SMALL SIGNS

SOSS

FILE: sump15.dgn	DW: TXDOT	CHK: TXDOT	DW: TXDOT	CHK: TXDOT
TXDOT	MAY 1987	CONT: SICT	JOB: HOGBAY	
REVISIONS				
4-18		BY:	COUNTY:	SHEET NO. 26
8-18				

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DATE: FILE:

RCP:AMULEX 10, 28MM
 N: 03/08/2019 00:00:00
 CSD: 2018/03/15-22:174_DETALS.DWG

NYLOPLAST 18" DRAIN BASIN: 2818AG _ _ X

(1) INTEGRATED DUCTILE IRON FRAME & GRATE TO MATCH BASIN D.O.

(2) VARIABLE BAY/SLIT HEIGHTS AVAILABLE ACCORDING TO PLAN(SIZE OFF)

(3) VARIABLE SLIP DEPTH ACCORDING TO PLANS

(4) VARIOUS TYPES OF INLET & OUTLET ADAPTERS AVAILABLE 4" - 18" FOR CORRUGATED HDPE, ABS & SHAWCOR DRAIN WALL, ADM-HANCON SINGLE WALL, 4-12 HP, PVC SEWER (EX. SOR 35), PVC DRY (EX. SOR 45), PVC CROSSCO, CORRUGATED & RIBBED PVC

WATER-TIGHT JOINT (CORRUGATED HOPE SHOWN)

MANUFACTURER'S RECOMMENDATION DEPTH PER PIPE

18" MIN WIDTH GUIDELINE

1/2" MIN THICKNESS GUIDELINE

TRAFFIC LOADS: CONCRETE SLAB DIMENSIONS ARE FOR GUIDELINE PURPOSES ONLY. ACTUAL CONCRETE SLAB MUST BE DESIGNED TAKING INTO CONSIDERATION LOCAL SOIL CONDITIONS, TRAFFIC LOADS, & OTHER APP. C.A.F. DESIGN FACTORS. SEE DRAWING NO. 700-115-111 FOR CON. TRAFFIC INSTALLATION.

THE BACKFILL MATERIAL SHALL BE CRUSHED STONE OR OTHER GRANULAR MATERIAL MEETING THE REQUIREMENTS OF CLASS 1, CLASS 1, OR CLASS II MATERIAL, AS DEFINED IN ASTM D2922. BEDDING & BACKFILL FOR SURFACE DRAINAGE INLETS SHALL BE PLACED & COMPACTED UNIFORMLY IN ACCORDANCE WITH ASTM D2922.

DATE	BY	REVISION
03/14/19	AM	ISSUED FOR PERMIT
03/14/19	AM	REVISED PER COMMENTS

DATE	BY	REVISION
03/14/19	AM	ISSUED FOR PERMIT
03/14/19	AM	REVISED PER COMMENTS

DATE	BY	REVISION
03/14/19	AM	ISSUED FOR PERMIT
03/14/19	AM	REVISED PER COMMENTS

1899CGS

APPROX. DRAIN AREA = 116.72 SQ IN
APPROX. WEIGHT WITH FRAME = 88.5 LBS

APPROX. DRAIN AREA = 116.72 SQ IN
APPROX. WEIGHT WITH FRAME = 88.5 LBS

2.75

1.25

Ø 18.54

Ø 18.13

THE BACKFILL MATERIAL SHALL BE CRUSHED STONE OR OTHER GRANULAR MATERIAL MEETING THE REQUIREMENTS OF CLASS 1, CLASS 1, OR CLASS II MATERIAL, AS DEFINED IN ASTM D2922. BEDDING & BACKFILL FOR SURFACE DRAINAGE INLETS SHALL BE PLACED & COMPACTED UNIFORMLY IN ACCORDANCE WITH ASTM D2922.

DATE	BY	REVISION
03/14/19	AM	ISSUED FOR PERMIT
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DATE	BY	REVISION
03/14/19	AM	ISSUED FOR PERMIT
03/14/19	AM	REVISED PER COMMENTS

DATE	BY	REVISION
03/14/19	AM	ISSUED FOR PERMIT
03/14/19	AM	REVISED PER COMMENTS

NON TRAFFIC INSTALLATION

DRAIN BASIN

TOP SOIL

GRATE COVER

18" MIN ON 18"

18" MIN ON 18"

THE BACKFILL MATERIAL SHALL BE CRUSHED STONE OR OTHER GRANULAR MATERIAL MEETING THE REQUIREMENTS OF CLASS 1, CLASS 1, OR CLASS II MATERIAL, AS DEFINED IN ASTM D2922. BEDDING & BACKFILL FOR SURFACE DRAINAGE INLETS SHALL BE PLACED & COMPACTED UNIFORMLY IN ACCORDANCE WITH ASTM D2922.

INLINE DRAIN

TOP SOIL

GRATE COVER

THE BACKFILL MATERIAL SHALL BE CRUSHED STONE OR OTHER GRANULAR MATERIAL MEETING THE REQUIREMENTS OF CLASS 1, CLASS 1, OR CLASS II MATERIAL, AS DEFINED IN ASTM D2922. BEDDING & BACKFILL FOR SURFACE DRAINAGE INLETS SHALL BE PLACED & COMPACTED UNIFORMLY IN ACCORDANCE WITH ASTM D2922.

DATE	BY	REVISION
03/14/19	AM	ISSUED FOR PERMIT
03/14/19	AM	REVISED PER COMMENTS

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Section 2721

Engineered Surface Drainage Products

GENERAL
PVC surface drainage inlets shall include the drain basin type as indicated on the contract drawing and referenced within the contract specifications. The ductile iron grates for each of these fittings are to be considered an integral part of the surface drainage inlet and shall be furnished by the same manufacturer. The surface drainage inlets shall be as manufactured by Nyloplast a division of Advanced Drainage Systems, Inc., or prior approved equal.

MATERIALS
The drain basins required for this contract shall be manufactured from PVC pipe stock, utilizing a thermforming process to reform the pipe stock to the specified configuration. The drainage pipe connection stubs shall be manufactured from PVC pipe stock and formed to provide a watertight connection with the specified pipe system. The joint gaskets shall conform to ASTM D2922 for joints for drain and sewer plastic pipe using flexible elastomeric seals. The flexible elastomeric seals shall conform to ASTM F477. The pipe bell spigot shall be joined to the main body of the drain basin or catch basin. The raw material used to manufacture the pipe stock that is used to manufacture the main body and pipe stubs of the surface drainage inlets shall conform to ASTM D1784 cell class 12454.

The grates and frames furnished for all surface drainage inlets shall be ductile iron for sizes 8", 10", 12", 15", 18", 24" and 30" and shall be made specifically for each basin so as to provide a round bottom flange that closely matches the diameter of the surface drainage inlet. Grates for drain basins shall be capable of supporting various wheel loads as specified by Nyloplast. 12" and 15" square grates will be hinged to the frame using pins. Ductile iron used in the manufacture of the castings shall conform to ASTM A536 grade 70-50-05. Grates and covers shall be provided painted black.

INSTALLATION
The specified PVC surface drainage inlet shall be installed using conventional flexible pipe backfill materials and procedures. The backfill material shall be crushed stone or other granular material meeting the requirements of class 1, class 2, or class 3 material as defined in ASTM D2922. Bedding and backfill for surface drainage inlets shall be well placed and compacted uniformly in accordance with ASTM D2922. The drain basin body will be cut at the time of the final grade. No brick, stone or concrete block will be required to set the grate to the final grade height. For load rated installations, a concrete slab shall be poured under and around the grate and frame. The concrete slab must be designed taking into consideration local soil conditions, traffic loading, and other applicable design factors. For other installation considerations such as migration of trees, ground water, and soft foundations refer to ASTM D2922 guidelines.

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NO.	DATE	REVISION

NYLOPLAST 18 INCH DRAIN BASIN DETAIL

WHITLEY ROAD BIKE/PEDESTRIAN TRAIL

PHASE 1

CITY OF KELLER, TARRANT COUNTY, TEXAS


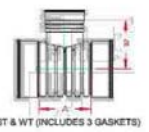
DESIGN	DRAWN	DATE	JOB NO.	SHEET NO.
CKT	ECW	FEBRUARY 2023	2165-22-174	27

WHITLEY ROAD BIKE/PEDESTRIAN TRAIL PHASE 1

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DUAL WALL FABRICATED REDUCING TEES
36"x12" - 36"x30" DIAMETER

PART #	PIPE SIZE	A	B	JOINT
3664AN	36 x 12 in (900 x 300 mm)	47.3 in (1200 mm)	30.1 in (764 mm)	*
3664AN8B	36 x 12 in (900 x 300 mm)	26.3 in (667 mm)	24.3 in (618 mm)	ST
3664AN8B	36 x 12 in (900 x 300 mm)	26.3 in (667 mm)	24.3 in (618 mm)	WT
3665AN	36 x 15 in (900 x 375 mm)	52.5 in (1344 mm)	33.5 in (852 mm)	*
3665AN8B	36 x 15 in (900 x 375 mm)	31.5 in (800 mm)	25.6 in (650 mm)	ST
3665AN8B	36 x 15 in (900 x 375 mm)	31.5 in (800 mm)	25.6 in (650 mm)	WT
3666AN	36 x 18 in (900 x 450 mm)	57.5 in (1461 mm)	33.5 in (852 mm)	*
3666AN8B	36 x 18 in (900 x 450 mm)	36.5 in (927 mm)	25.5 in (648 mm)	ST
3666AN8B	36 x 18 in (900 x 450 mm)	36.5 in (927 mm)	25.5 in (648 mm)	WT
3667AN	36 x 24 in (900 x 600 mm)	63.0 in (1600 mm)	36.4 in (926 mm)	*
3667AN8B	36 x 24 in (900 x 600 mm)	42.0 in (1067 mm)	32.0 in (813 mm)	ST
3667AN8B	36 x 24 in (900 x 600 mm)	42.0 in (1067 mm)	32.0 in (813 mm)	WT
3668AN	36 x 30 in (900 x 750 mm)	68.3 in (1734 mm)	37.4 in (949 mm)	*
3668AN8B	36 x 30 in (900 x 750 mm)	47.3 in (1200 mm)	25.0 in (635 mm)	ST
3668AN8B	36 x 30 in (900 x 750 mm)	47.3 in (1200 mm)	25.0 in (635 mm)	WT

* = PLAN END
ST = SOL TIGHT
WT = WATER TIGHT

NOTE: ALL FITTINGS DIMENSIONS ARE FOR REFERENCE ONLY!




DESIGNED BY	JK	DATE	04/18/17
DRAWN BY	JK	DATE	06/08/17
APPROVED BY	JK	DATE	06/08/17
REVISIONS	1	DATE	06/15/17



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NO.	DATE	REVISION



4056 BRYANT IRVIN ROAD
 FORT WORTH, TX 76109
 817.412.2155
 TX REG. ENGINEERING FIRM E-488
 TX REG. SURVEYING FIRM LS-10009001

NYLOPLAST 18 INCH DRAIN BASIN DETAIL

WHITLEY ROAD BIKE/PEDESTRIAN TRAIL PHASE 1

CITY OF KELLER, TARRANT COUNTY, TEXAS

DESIGN	DRAWN	DATE	JOB NO.	SHEET NO.
CKT	ECW	FEBRUARY 2023	2165-22.174	28

WHITLEY ROAD BIKE/PEDESTRIAN TRAIL PHASE 1