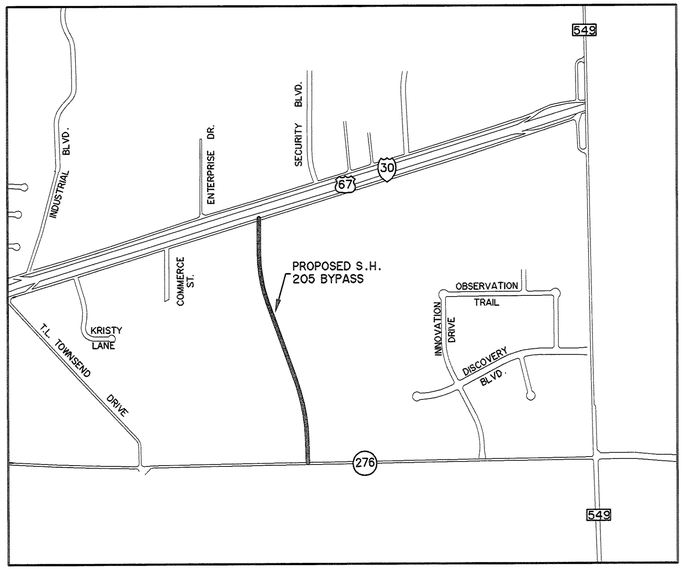
CITY OF ROCKWALL, TEXAS

CONSTRUCTION PLANS
FOR
PAVING, DRAINAGE & WATER IMPROVEMENTS
TO SERVE
PHASE I
S.H. 205 BYPASS
ROCKWALL COUNTY, TEXAS

NOTES:
1. STANDARD DRAWINGS OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, NORTH CENTRAL TEXAS, THIRD EDITION, DATED 1998 AND AS MODIFIED BY CITY OF ROCKWALL SPECIAL PROVISIONS SECTION 11 ARE HEREIN INCORPORATED BY REFERENCE.

2. THE STANDARD SHEETS P301 THROUGH P303, M203 THROUGH M206, D301 THROUGH D309, AND T201 THROUGH T221, SPECIFICALLY IDENTIFIED IN THIS INDEX OF SHEETS, HAVE BEEN SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.

3. SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION, JUNE 1, 2004 AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS SHALL GOVERN FOR CONSTRUCTION SHOWN ON SHEETS P101, P108, P109, P110, M102, D111 AND D112 OF THESE PLANS.



VICINITY MAP
N.T.S.

SHEET INDEX

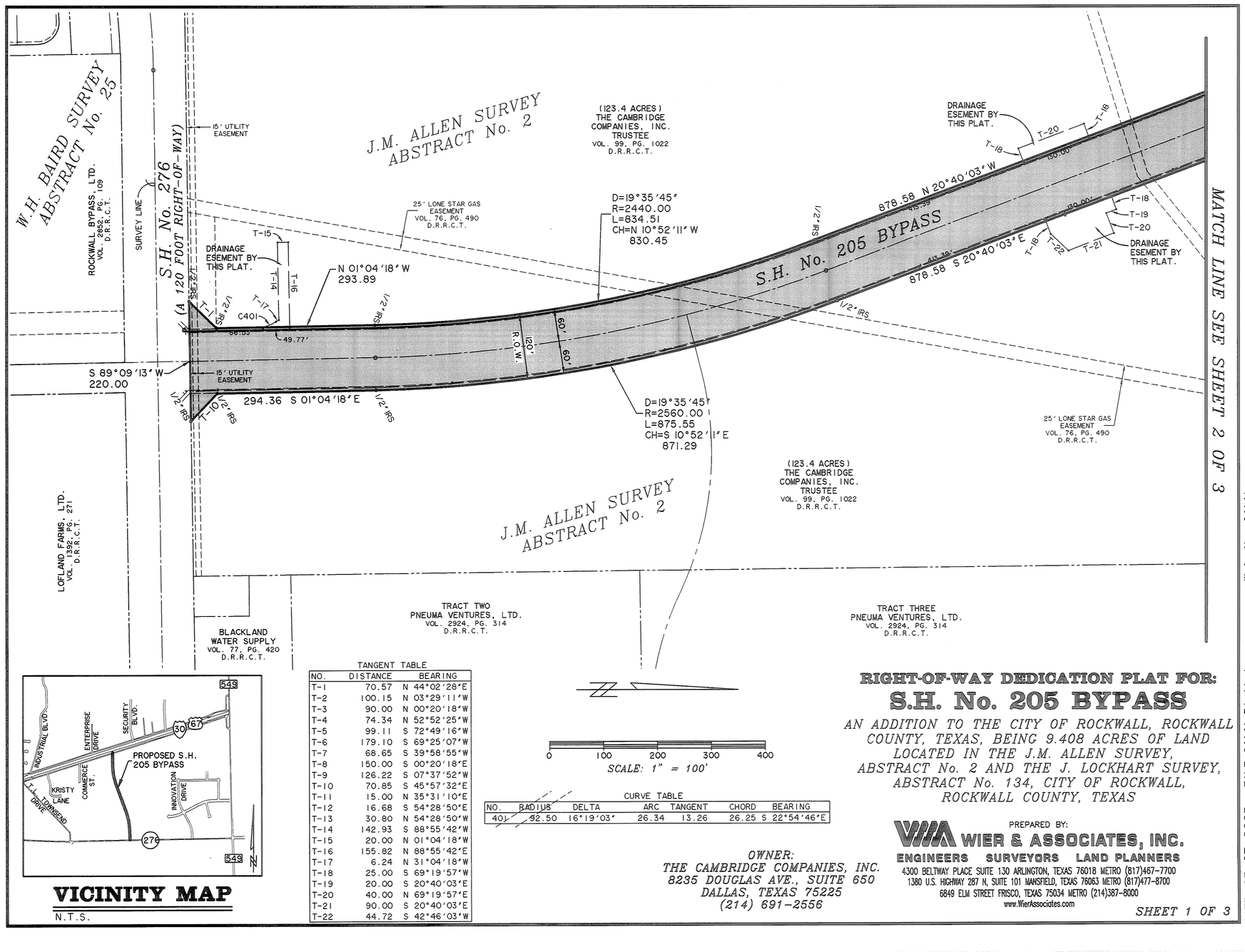
PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
4300 BELTWAY PLACE SUITE 130 ARLINGTON, TEXAS 76018 METRO (817)467-7700
1380 U.S. HIGHWAY 287 N, SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-8700
6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.WierAssociates.com

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED
PROFESSIONAL ENGINEER
5-18-2007

RECORD PLANS
MARCH 28, 2008

W&A #: 04141 DATE: 07-18-2007 TIME: 20:11 FILE: 04141-CoverPhase1.dwg

CONSTRUCTION PLANS FOR PAVING, DRAINAGE, AND WATER IMPROVEMENTS FOR S.H. No. 205 BYPASS



VICINITY MAP

N.T.S.

TANGENT TABLE

NO.	DISTANCE	BEARING
T-1	70.57	N 44°02'28"E
T-2	100.15	N 03°29'11"W
T-3	90.00	N 00°20'18"W
T-4	74.34	N 52°52'25"W
T-5	99.11	S 72°49'16"W
T-6	179.10	S 69°25'07"W
T-7	68.65	S 39°58'55"W
T-8	150.00	S 00°20'18"E
T-9	126.22	S 07°37'52"W
T-10	70.85	S 45°57'32"E
T-11	15.00	N 35°31'10"E
T-12	16.68	S 54°28'50"E
T-13	30.80	N 54°28'50"W
T-14	142.93	S 88°55'42"W
T-15	20.00	N 01°04'18"W
T-16	155.82	N 88°55'42"E
T-17	6.24	N 31°04'18"W
T-18	25.00	S 69°19'57"W
T-19	20.00	S 20°40'03"E
T-20	40.00	N 69°19'57"E
T-21	90.00	S 20°40'03"E
T-22	44.72	S 42°46'03"W

CURVE TABLE

NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	BEARING
401	92.50	16°19'03"	26.34	13.26	26.25	S 22°54'46"E

OWNER:
THE CAMBRIDGE COMPANIES, INC.
8235 DOUGLAS AVE., SUITE 650
DALLAS, TEXAS 75225
(214) 691-2556

RIGHT-OF-WAY DEDICATION PLAT FOR:

S.H. No. 205 BYPASS

AN ADDITION TO THE CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS, BEING 9.408 ACRES OF LAND LOCATED IN THE J.M. ALLEN SURVEY, ABSTRACT No. 2 AND THE J. LOCKHART SURVEY, ABSTRACT No. 134, CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

PREPARED BY:
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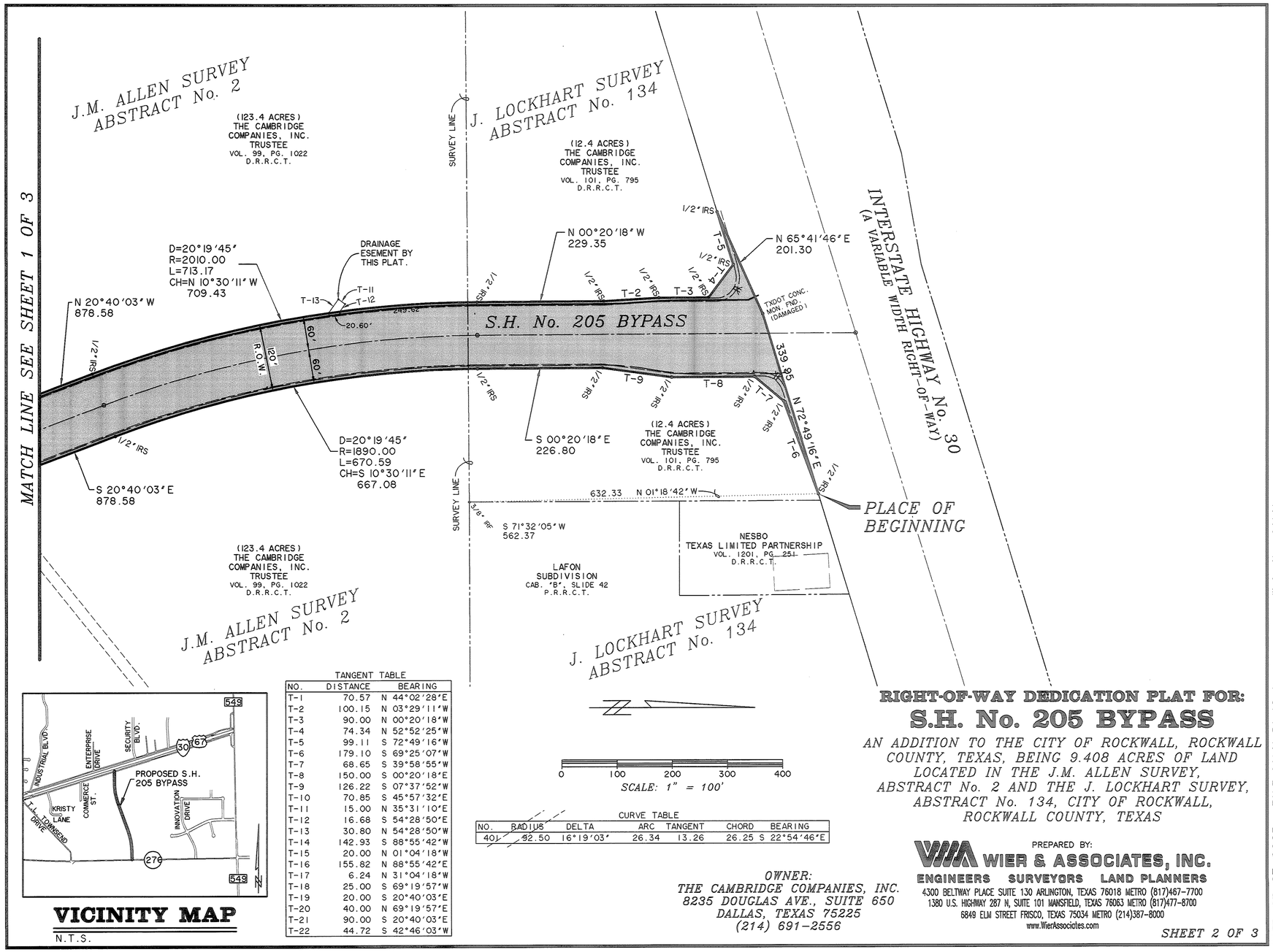
6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.WierAssociates.com

SHEET 1 OF 3

DATE: 03-07-2005 FILE: 04141-Plat1.dwg W.A. No. 04141

RECORD PLANS
MARCH 28, 2008



VICINITY MAP

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T-20	40.00	N 69°19'57"E
T-21	90.00	S 20°40'03"E
T-22	44.72	S 42°46'03"W

0 100 200 300 400

SCALE: 1" = 100'

CURVE TABLE

NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	BEARING
401	92.50	16°19'03"	26.34	13.26	26.25	S 22°54'46"E

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SHEET 2 OF 3

DATE: 03-07-2005 FILE: 04141-Plat2.dwg W.A. No. 04141

RECORD PLANS
MARCH 28, 2008

OWNER'S CERTIFICATE

STATE OF TEXAS
COUNTY OF ROCKWALL

WHEREAS THE CAMBRIDGE COMPANIES, INC., BEING THE OWNER OF A TRACT OF land in the County of Rockwall, State of Texas, said tract being described as follows:

LEGAL DESCRIPTION

BEING 9.408 ACRES OF LAND LOCATED IN THE J.M. ALLEN SURVEY, ABSTRACT No. 2 AND THE J. LOCKHART SURVEY, ABSTRACT No. 134, ROCKWALL COUNTY, TEXAS AND BEING A PORTION OF THOSE CERTAIN 123.4 AND 12.4 ACRE TRACTS OF LAND DESCRIBED IN DEED TO THE CAMBRIDGE COMPANIES, INC. AS RECORDED IN VOLUME 99, PAGE 1022 AND VOLUME 101, PAGE 795, OF THE DEED RECORDS OF ROCKWALL COUNTY, TEXAS AND BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING AT A 1/2" IRON ROD SET IN THE SOUTH RIGHT-OF-WAY LINE OF INTERSTATE HIGHWAY No. 30 AND THE NORTH BOUNDARY LINE OF SAID 12.4 ACRE CAMBRIDGE COMPANIES, INC. TRACT, LYING N 01°18'42"W, 632.33 FEET FROM A 3/8" IRON ROD FOUND FOR THE SOUTHEAST CORNER OF SAID 12.4 ACRE CAMBRIDGE COMPANIES TRACT, THE SOUTHWEST CORNER OF LAFON SUBDIVISION AS RECORDED IN CABINET "B", SLIDE 42 OF THE PLAT RECORDS OF ROCKWALL COUNTY, TEXAS AND IN THE NORTH BOUNDARY LINE OF SAID 123.4 ACRE CAMBRIDGE COMPANIES, INC. TRACT,

THENCE S 69°25'07"W, 179.10 FEET TO A 1/2" IRON ROD SET,

THENCE S 39°58'55"W, 68.65 FEET TO A 1/2" IRON ROD SET,

THENCE S 00°20'18"E, 150.00 FEET TO A 1/2" IRON ROD SET,

THENCE S 07°37'52"W, 126.22 FEET TO A 1/2" IRON ROD SET,

THENCE S 00°20'18"E, 226.80 FEET TO A 1/2" IRON ROD SET AT THE BEGINNING OF A CURVE TO THE LEFT,

THENCE SOUTHEASTERLY, 670.59 FEET ALONG SAID CURVE TO THE LEFT, HAVING A RADIUS OF 1,890.00 FEET, A CENTRAL ANGLE OF 20°19'45" AND A CHORD BEARING S 10°30'11"E, 667.08 FEET TO A 1/2" IRON ROD SET,

THENCE S 20°40'03"E, 878.58 FEET TO A 1/2" IRON ROD SET AT THE BEGINNING OF A CURVE TO THE RIGHT,

THENCE SOUTHEASTERLY, 875.55 FEET ALONG SAID CURVE TO THE RIGHT, HAVING A RADIUS OF 2,560.00 FEET, A CENTRAL ANGLE OF 19°35'45" AND A CHORD BEARING S 10°52'11"E, 871.29 FEET TO A 1/2" IRON ROD SET,

THENCE S 01°04'18"E, 294.36 FEET TO A 1/2" IRON ROD SET,

THENCE S 45°57'32"E, 70.85 FEET TO A 1/2" IRON ROD SET IN THE NORTH RIGHT-OF-WAY LINE OF STATE HIGHWAY No 276 (A 120 FOOT RIGHT-OF-WAY)

THENCE S 89°09'13"W ALONG THE NORTH RIGHT-OF-WAY LINE OF SAID STATE HIGHWAY No 276, 220.00 FEET TO A 1/2" IRON ROD SET,

THENCE N 44°02'28"E, 70.57 FEET TO A 1/2" IRON ROD SET,

THENCE N 01°04'18"W, 293.89 FEET TO A 1/2" IRON ROD SET AT THE BEGINNING OF A CURVE TO THE LEFT,

THENCE NORTHWESTERLY, 834.51 FEET ALONG SAID CURVE TO THE LEFT, HAVING A RADIUS OF 2,440.00 FEET, A CENTRAL ANGLE OF 19°35'45" AND A CHORD BEARING N 10°52'11"W, 830.45 FEET TO A 1/2" IRON ROD SET,

THENCE N 20°40'03"W, 878.58 FEET TO A 1/2" IRON ROD SET AT THE BEGINNING OF A CURVE TO THE RIGHT,

THENCE NORTHWESTERLY, 713.17 FEET ALONG SAID CURVE TO THE RIGHT, HAVING A RADIUS OF 2,010.00 FEET, A CENTRAL ANGLE OF 20°19'45" AND A CHORD BEARING N 10°30'11"W, 709.43 FEET TO A 1/2" IRON ROD SET,

THENCE N 00°20'18"W, 229.35 FEET TO A 1/2" IRON ROD SET,

THENCE N 03°29'11"W, 100.15 FEET TO A 1/2" IRON ROD SET,

THENCE N 00°20'18"W, 90.00 FEET TO A 1/2" IRON ROD SET,

THENCE N 52°52'25"W, 74.34 FEET TO A 1/2" IRON ROD SET,

THENCE S 72°49'16"W, 99.11 FEET TO A 1/2" IRON ROD SET IN THE SOUTH RIGHT-OF-WAY LINE OF INTERSTATE HIGHWAY No. 30 (A VARIABLE WIDTH RIGHT-OF-WAY),

THENCE ALONG THE SOUTH RIGHT-OF-WAY LINE OF SAID INTERSTATE HIGHWAY No. 30 AS FOLLOWS:

N 65°41'46"E, 201.30 FEET TO A DAMAGED CONCRETE TXDOT MONUMENT,

N 72°49'16"E, 339.95 FEET TO THE PLACE OF BEGINNING, CONTAINING 9.408 ACRES (409,808 SQUARE FEET) OF LAND.

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS:

STATE OF TEXAS
COUNTY OF ROCKWALL
I THE UNDERSIGNED OWNER OF THE LAND SHOWN ON THIS PLAT, AND DESIGNATED HEREIN AS THE STATE HIGHWAY NO. 205 BYPASS RIGHT-OF-WAY TO THE CITY OF ROCKWALL, TEXAS, AND WHOSE NAME IS SUBSCRIBED HERETO, HEREBY DEDICATE TO THE USE OF THE PUBLIC FOREVER ALL STREETS, ALLEYS, PARKS, WATER COURSES, DRAINS, EASEMENTS AND PUBLIC PLACES THEREON SHOWN ON THE PURPOSE AND CONSIDERATION THEREIN EXPRESSED. I FURTHER CERTIFY THAT ALL OTHER PARTIES WHO HAVE A MORTGAGE OR LIEN INTEREST IN THE STATE HIGHWAY NO. 205 BYPASS RIGHT-OF-WAY HAVE BEEN NOTIFIED AND SIGNED THIS PLAT.

I UNDERSTAND AND DO HEREBY RESERVE THE EASEMENT STRIPS SHOWN ON THIS PLAT FOR THE PURPOSES STATED AND FOR THE MUTUAL USE AND ACCOMMODATION OF ALL UTILITIES DESIRING TO USE OR USING SAME. I ALSO UNDERSTAND THE FOLLOWING,

1. NO BUILDINGS SHALL BE CONSTRUCTED OR PLACED UPON, OVER, OR ACROSS THE UTILITY EASEMENTS AS DESCRIBED HEREIN.

2. ANY PUBLIC UTILITY SHALL HAVE THE RIGHT TO REMOVE AND KEEP REMOVED ALL OR PART OF ANY BUILDINGS, FENCES, TREES, SHRUBS, OR OTHER GROWTHS OR IMPROVEMENTS WHICH IN ANY WAY ENDANGER OR INTERFERE WITH CONSTRUCTION, MAINTENANCE OR EFFICIENCY OF THEIR RESPECTIVE SYSTEM ON ANY OF THESE EASEMENT STRIPS, AND ANY PUBLIC UTILITY SHALL AT ALL TIMES HAVE THE RIGHT OF INGRESS OR EGRESS TO, FROM AND UPON THE SAID EASEMENT STRIPS FOR PURPOSE OF CONSTRUCTION, RECONSTRUCTION, INSPECTING, PATROLLING, MAINTAINING, AND EITHER ADDING TO OR REMOVING ALL OR PART OF THEIR RESPECTIVE SYSTEM WITHOUT THE NECESSITY OF, AT ANY TIME, PROCURING THE PERMISSION OF ANYONE.

3. THE CITY OF ROCKWALL WILL NOT BE RESPONSIBLE FOR ANY CLAIMS OF ANY NATURE RESULTING FROM OR OCCASIONED BY THE ESTABLISHMENT OF GRADE OF STREETS IN THE SUBDIVISION.

4. THE DEVELOPER AND ENGINEER SHALL BEAR TOTAL RESPONSIBILITY FOR STORM DRAIN IMPROVEMENTS.

5. THE DEVELOPER SHALL BE RESPONSIBLE FOR THE NECESSARY FACILITIES TO PROVIDE DRAINAGE PATTERNS AND DRAINAGE CONTROLS SUCH THAT PROPERTIES WITHIN THE DRAINAGE AREA ARE NOT ADVERSELY AFFECTED BY STORM DRAINAGE FROM THE DEVELOPMENT.

6. NO HOUSE DWELLING UNIT, OR OTHER STRUCTURE SHALL BE CONSTRUCTED ON ANY LOT IN THIS ADDITION BY THE OWNER OR ANY OTHER PERSON UNTIL THE DEVELOPER AND/OR OWNER HAS COMPLIED WITH ALL REQUIREMENTS OF THE SUBDIVISION REGULATIONS OF THE CITY OF ROCKWALL REGARDING IMPROVEMENTS WITH RESPECT TO THE ENTIRE BLOCK ON THE STREET OR STREETS ON WHICH PROPERTY ABUTS, INCLUDING THE ACTUAL INSTALLATION OF STREETS WITH THE REQUIRED BASE AND PAVING, CURB AND GUTTER, WATER AND SEWER, DRAINAGE STRUCTURES, STORM STRUCTURES, STORM SEWERS, AND ALLEYS, ALL ACCORDING TO THE SPECIFICATIONS OF THE CITY OF ROCKWALL, OR

UNTIL AN ESCROW DEPOSIT, SUFFICIENT TO PAY FOR THE COST OF SUCH IMPROVEMENTS, AS DETERMINED BY THE CITY'S ENGINEER AND/OR CITY ADMINISTRATOR, COMPUTED ON A PRIVATE COMMERCIAL RATE BASIS, HAS BEEN MADE WITH THE CITY SECRETARY, ACCOMPANIED BY AN AGREEMENT SIGNED BY THE DEVELOPER AND/OR OWNER, AUTHORIZING THE CITY TO MAKE SUCH IMPROVEMENTS AT PREVAILING PRIVATE COMMERCIAL RATES, OR HAVE THE SAME MADE BY A CONTRACTOR AND PAY FOR THE SAME OUT OF THE ESCROW DEPOSIT, SHOULD THE DEVELOPER AND/OR OWNER FAIL OR REFUSE TO INSTALL THE REQUIRED IMPROVEMENTS WITHIN THE TIME STATED IN SUCH WRITTEN AGREEMENT, BUT IN NO CASE SHALL THE CITY BE OBLIGATED TO MAKE SUCH IMPROVEMENTS ITSELF. SUCH DEPOSIT MAY BE USED BY THE OWNER AND/OR DEVELOPER AS PROGRESS PAYMENTS AS THE WORK PROGRESSES IN MAKING SUCH IMPROVEMENTS BY MAKING CERTIFIED REQUISITIONS TO THE CITY SECRETARY, SUPPORTED BY EVIDENCE OF WORK DONE, OR

UNTIL THE DEVELOPER AND/OR OWNER FILES A CORPORATE SURETY BOND WITH THE CITY SECRETARY IN A SUM EQUAL TO THE COST OF SUCH IMPROVEMENTS FOR THE DESIGNATED AREA, GUARANTEEING THE INSTALLATION THEREOF WITHIN THE TIME STATED IN THE BOND, WHICH TIME SHALL BE FIXED BY THE CITY COUNCIL OF THE CITY OF ROCKWALL.

I FURTHER ACKNOWLEDGE THAT THE DEDICATIONS AND/OR EXACTION'S MADE HEREIN ARE PROPORTIONAL TO THE IMPACT OF THE SUBDIVISION UPON THE PUBLIC SERVICES REQUIRED IN ORDER THAT THE DEVELOPMENT WILL COMPORT WITH THE PRESENT AND FUTURE GROWTH NEEDS OF THE CITY, I, MY SUCCESSORS AND ASSIGNS HEREBY WAIVE ANY CLAIM, DAMAGE, OR CAUSE OF ACTION THAT I (WE) MAY HAVE AS A RESULT OF THE DEDICATION OF EXACTIONS MADE HEREIN.

_____
OWNER

STATE OF TEXAS
COUNTY OF ROCKWALL

BEFORE ME, THE UNDERSIGNED AUTHORITY, ON THIS DAY PERSONALLY APPEARED _____, KNOWN TO ME TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE FOREGOING INSTRUMENT, AND ACKNOWLEDGED TO ME THAT HE EXECUTED THE SAME FOR THE PURPOSE AND CONSIDERATION THEREIN STATED.

GIVEN UPON MY HAND AND SEAL OF OFFICE THIS ____DAY OF_____, 2005.

_____ _____
NOTARY PUBLIC IN AND FOR THE STATE OF TEXAS MY COMMISSION EXPIRES:

OWNER:
THE CAMBRIDGE COMPANIES, INC.
8235 DOUGLAS AVE., SUITE 650
DALLAS, TEXAS 75225
(214) 691-2556

_____
SIGNATURE OF PARTY WITH MORTGAGE OR LIEN INTEREST

STATE OF TEXAS
COUNTY OF ROCKWALL

BEFORE ME, THE UNDERSIGNED AUTHORITY, ON THIS DAY PERSONALLY APPEARED _____, KNOWN TO ME TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE FOREGOING INSTRUMENT, AND ACKNOWLEDGED TO ME THAT HE EXECUTED THE SAME FOR THE PURPOSE AND CONSIDERATION THEREIN STATED.

GIVEN UPON MY HAND AND SEAL OF OFFICE THIS ____DAY OF_____, 2005.

_____ _____
NOTARY PUBLIC IN AND FOR THE STATE OF TEXAS MY COMMISSION EXPIRES:

_____ _____
NOTARY PUBLIC IN AND FOR THE STATE OF TEXAS MY COMMISSION EXPIRES:

NOTE: IT SHALL BE THE POLICY OF THE CITY OF ROCKWALL TO WITHHOLD ISSUING BUILDING PERMITS UNTIL ALL STREETS, WATER, SEWER AND STORM DRAINAGE SYSTEMS HAVE BEEN ACCEPTED BY THE CITY. THE APPROVAL OF A PLAT BY THE CITY DOES NOT CONSTITUTE ANY REPRESENTATION, ASSURANCE OR GUARANTEE THAT ANY BUILDING WITHIN SUCH PLAT SHALL BE APPROVED, AUTHORIZED OR PERMIT THEREFORE ISSUED, NOR SHALL SUCH APPROVAL CONSTITUTE ANY REPRESENTATION, ASSURANCE OR GUARANTEE BY THE CITY OF THE ADEQUACY AND AVAILABILITY FOR WATER FOR PERSONAL USE AND FIRE PROTECTION WITHIN SUCH PLAT, AS REQUIRED UNDER ORDINANCE 83-54.

SURVEYOR'S CERTIFICATE

NOW, THEREFORE KNOW ALL MEN BY THESE PRESENTS:

THAT I, GREGG A. E. MADSEN, DO HEREBY CERTIFY THAT I PREPARED THIS PLAT FROM AN ACTUAL AND ACCURATE SURVEY OF THE LAND, AND THAT THE CORNER MONUMENTS SHOWN THEREON WERE PROPERLY PLACED UNDER MY PERSONAL SUPERVISION.

_____ REGISTERED PUBLIC SURVEYOR NO. 5978

STATE OF TEXAS
REGISTERED
GREGG A. E. MADSEN
5798
PROFESSIONAL
LAND SURVEYOR

RECOMMENDED FOR FINAL APPROVAL

_____
PLANNING AND ZONING COMMISSION DATE

APPROVED

I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING PLAT OF AN ADDITION TO THE CITY OF ROCKWALL, TEXAS, WAS APPROVED BY THE CITY COUNCIL OF THE CITY OF ROCKWALL ON THE _____ DAY OF _____.

WITNESS OUR HANDS, THIS ____DAY OF_____, 2005.

_____ _____ _____
MAYOR, CITY OF ROCKWALL CITY SECRETARY CITY ENGINEER

APPROVED

I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING PLAT OF AN ADDITION TO THE CITY OF ROCKWALL, TEXAS, WAS APPROVED BY THE CITY PLANNING DIRECTOR OF THE CITY OF ROCKWALL ON THE ____DAY OF_____, 2005.

THIS APPROVAL SHALL BE INVALID UNLESS THE APPROVED PLAT FOR SUCH ADDITION IS RECORDED IN THE OFFICE OF THE COUNTY CLERK OF ROCKWALL, COUNTY, TEXAS, WITHIN ONE HUNDRED EIGHTY (180) DAYS FROM SAID DATE OF FINAL APPROVAL.

SAID ADDITION SHALL BE SUBJECT TO ALL THE REQUIREMENTS OF THE SUBDIVISION REGULATIONS OF THE CITY OF ROCKWALL.

_____ _____
DIRECTOR OF PLANNING CITY ENGINEER

RIGHT-OF-WAY DEDICATION PLAT FOR:
S.H. No. 205 BYPASS

AN ADDITION TO THE CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS, BEING 9.408 ACRES OF LAND LOCATED IN THE J.M. ALLEN SURVEY, ABSTRACT No. 2 AND THE J. LOCKHART SURVEY, ABSTRACT No. 134, CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

PREPARED BY:
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W.A. No. 04141-

DATE: 03-07-2005 FILE: 04141-Plat3.dwg

RECORD PLANS
MARCH 28, 2008

EXISTING FEATURES TOPOGRAPHIC LEGEND

OPP	POWER POLE
GUY (	POWER POLE DOWN GUY WIRE
—OE—	OVERHEAD ELECTRIC LINE
GL	GROUND LIGHT
SCV	GROUND LIGHT
—UE—	UNDERGROUND ELECTRIC LINE
—UT—	UNDERGROUND TELEPHONE LINE
—G—	UNDERGROUND GAS LINE
24" RCP	EXISTING STORM DRAIN LINE
MH SD	STORM DRAIN MANHOLE
SSMH	SANITARY SEWER MANHOLE
8" SS	SANITARY SEWER LINE
FH	FIRE HYDRANT
8" W	WATER LINE
SIGN	STREET SIGN
	CONCRETE PAVEMENT
640	EXISTING CONTOUR LINE
TRANSFORMER	TRANSFORMER
	EXISTING TREE
	EXISTING TREE LINE
T	WATER VALVE
GUARD RAIL	GUARD RAIL
BARBED WIRE FENCE	BARBED WIRE FENCE
FO	UNDERGROUND FIBER OPTIC
ELEC. MH	ELECTRIC MANHOLE
DI	DROP INLET
EB	ELECTRIC BOX
EM	ELECTRIC METER

GENERAL NOTES

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE CITY OF ROCKWALL "STANDARDS OF DESIGN AND CONSTRUCTION," DATED AUGUST, 2003 AND THE APPLICABLE SECTIONS OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, NORTH CENTRAL TEXAS, THIRD EDITION, 1998, SECTION I AND II, EXCEPT AS AMENDED BY THE CITY OF ROCKWALL'S SUPPLEMENTAL SPECIAL PROVISIONS, THESE PROJECT PLANS AND THE PROJECT CONTRACT DOCUMENTS.
2. EXISTING UTILITIES AND UNDERGROUND FACILITIES INDICATED ON THESE PLANS HAVE BEEN LOCATED FROM REFERENCE INFORMATION SUPPLIED BY VARIOUS OWNERS OF THE FACILITIES. THE ENGINEER DOES NOT ACCEPT RESPONSIBILITY FOR THE UTILITY LOCATIONS SHOWN. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY BOTH HORIZONTALLY AND VERTICALLY THE LOCATION OF ALL EXISTING UTILITIES AND UNDERGROUND FACILITIES PRIOR TO CONSTRUCTION, TO TAKE NECESSARY PRECAUTIONS IN ORDER TO PROTECT ALL FACILITIES ENCOUNTERED, AND TO NOTIFY THE ENGINEER PROMPTLY OF ALL CONFLICTS OF THE WORK WITH EXISTING FACILITIES. THE CONTRACTOR SHALL PRESERVE AND PROTECT ALL EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION. ANY DAMAGES BY THE CONTRACTOR TO EXISTING UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR AT HIS EXPENSE.
3. ALL DIMENSIONS ARE TO THE BACK OF CURB UNLESS INDICATED OTHERWISE.
4. CONTRACTOR SHALL SAW-CUT TO PROVIDE SMOOTH TRANSITION AT TIE-IN TO EXISTING EDGE OF PAVEMENT. PROVIDE DOWELED "BUTT" JOINT CONNECTIONS.
5. CONTRACTOR SHALL SAW-CUT TIE-INS AT EXISTING CURBS AS NECESSARY TO INSURE SMOOTH TRANSITIONS. CONTRACTOR SHALL SAW-CUT AND TRANSITION TO MEET EXISTING PAVEMENT AS NECESSARY TO INSURE POSITIVE DAMAGE. (TYPICAL ALL INTERSECTIONS)
6. ALL PARKWAYS ADJACENT TO PERMANENT CONCRETE PAVEMENT SHALL BE SODDED WITH BERMUDA GRASS SOD. BERMUDA GRASS SOD SHALL BE INSTALLED TO 5'-6" BACK OF TEMPORARY ASPHALT CURBS AND BACK OF CURB IN FUTURE MEDIANS.
7. ALL CUT AND FILL SLOPES SHALL BE HYDROMULCH SEED.
8. ALL SIGNS, BARRICADES, PAVEMENT MARKINGS, AND OTHER TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
9. CONTRACTOR SHALL FURNISH AND INSTALL ALL PAVEMENT MARKINGS AS SHOWN ON THE PLANS. STOP BARS AND CROSSWALKS SHALL BE INSTALLED AT ALL STREET INTERSECTIONS.
10. 2" PVC SCHEDULE 40 DOVE GREY ELECTRICAL STREET LIGHT CONDUIT SHALL BE PLACED IN ALL MEDIANS 2' OFF CENTERLINE EXCEPT AS SHOWN OTHERWISE ON PLANS. CONDUIT SHALL HAVE A MINIMUM (AND TYPICAL) 3'-0" BURIAL DEPTH BELOW FINISHED GRADE.
11. RED MARKER TAPE IS TO BE INSTALLED ON THE ENDS OF THE CONDUIT WITH 3" CAP.
12. A No. 9 GALVANIZED PULLWIRE SHALL BE PLACED IN ALL CONDUIT. THIS WIRE SHALL EXTEND A MINIMUM 1'-0" FROM THE END OF THE CONDUIT.
13. 3" PVC SCHEDULE 40 DOVE GREY ELECTRICAL TRAFFIC SIGNAL CONDUIT SHALL BE INSTALLED CONTINUOUS ACROSS ALL INTERSECTIONS AS SHOWN ON THE PLANS, EXTENDING TO 2'-0" BEHIND CURBS. SWEEP BENDS TO BE USED AT ALL PULL BOXES.
14. TRAFFIC SIGNAL PULL BOXES SHALL BE #36 FROM TRAFFIC SIGNAL EQUIPMENT COMPANY, FORTH WORTH, TEXAS OR APPROVED EQUAL. BOXES ARE APPROXIMATELY 10 1/2" x 17" x 12" AND SHALL BE PROVIDED WITH A CONCRETE COVER. BOXES TO BE INSTALLED 1/4" PER FOOT ABOVE TOP OF CURB.
15. ALL EROSION CONTROL FACILITIES SHALL BE INSTALLED PRIOR TO THE BEGINNING OF ANY CLEARING OR GRADING.
16. EXISTING ASPHALT PAVEMENT REMOVAL SHALL BE A SUBSIDIARY ITEM TO UNCLASSIFIED EXCAVATION. REFER TO THE PROJECT SPECIFICATIONS.

PROPOSED FEATURES LEGEND

	PROPOSED STORM DRAIN INLET
	PROPOSED CURB LINE
27" RCP	PROPOSED STORM DRAIN
	PROPOSED FIRE HYDRANT
12" W	PROPOSED WATER MAIN 12" OR SMALLER
T	PROPOSED GATE VALVE
	REDUCER
640	PROPOSED CONTOUR LINE

PAVEMENT LEGEND

	11" 4,200 PSI CONCRETE PAVEMENT
	6" TYPE "D" HMAC
	2" TYPE "D" ASPHALT OVERLAY & 4" TYPE "D" HMAC
	2" TYPE "D" ASPHALT OVERLAY

RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
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1380 U.S. HIGHWAY 287 N, SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-8700
6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-6000
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PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
GENERAL NOTES & TOPOGRAPHIC LEGEND

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
6-26-2007

LAST SHEET EDIT DATE 06-26-2007
WA# 04141
SHEET NO. S001

TIME:9:25 FILE:04141-LegendPhase1.dwg

PAVING, STRIPING, TRAFFIC & EROSION CONTROL SHEET QUANTITIES

ITEM No.	DESCRIPTION	SHEET UNITS	TOTAL QUANTITY	P101	P102	P103	P104	P105	P106	P107	P108	P109	P110	M101	M102	E102	E103
101	Unclassified Excavation	CY	15,685	935	1,423	2,736	1,077	667	5,746	2,684	110	49	258				
102	Controlled Density Roadway Embankment	CY	11,421	90	1,375	215	2,715	5,438	107	206	472	640	163				
103	Right-of-way Preparation	STA	44.6	1.7	5.0	5.0	5.0	5.0	5.0	5.0	1.4	5.5	6.0				
104	Remove Existing 12" RCP	LF	42										42				
105	8" Lime Stabilized Subgrade (42 lbs/SY)	SY	14,708	2,379	2,337	1,567	1,594	1,603	1,637	1,628	617	373	973				
106	Hydrated Lime	TON	309.0	50.0	49.1	32.9	33.5	33.7	34.4	34.2	13.0	7.8	20.4				
107	10" 5,000 p.s.i. reinforced Concrete Street Pavement	SY	10,966	2,147	1,913	1,348	1,371	1,380	1,410	1,397							
108	2" Type "D" Asphalt Concrete Pavement Overlay	SY	7,045									3,066	3,979				
109	4" Type "D" Asphalt Concrete Pavement	SY	1,458									393	1,065				
110	6" Type "D" Asphalt Concrete Pavement	SY	846	69	194						583						
111	6" Rolled Asphalt Curb	LF	352	102	74						176						
112	Concrete Street Header	LF	76		49					27							
113	TXDOT Type III Barricade	LF	141	94	47												
114	Bermuda Grass Sod	SY	6,746	551	1,054	973	978	982	1,000	1,025	183						
115	Hydromulch Seed Parkways & Slopes	SY	36,555	773	4,680	4,834	4,739	5,529	5,558	5,220	1,652	1,468	2,102				
116	Place 4" Topsoil on Parkways & Slopes	SY	43,301	1,324	5,734	5,807	5,717	6,511	6,558	6,245	1,835	1,468	2,102				
117	Metal Beam Guard Fence, MBGF Transition & Terminal	LF	75					75									
118	Adjust Existing Water Valve to Finished Grade	EA	1	1													
119	Adjust Existing Sanitary Sewer Manhole to Finished Grade	EA	1					1									
120	4" Type II-A Yellow Reflectorized Ceramic Pavement Markers	EA	221											149	72		
121	4" Type I-A White Reflectorized Ceramic Pavement Markers	EA	90											72	18		
122	4" Non-reflectorized Yellow Ceramic Pavement Markers	EA	434											292	142		
123	4" Non-reflectorized White Ceramic Pavement Markers	EA	42											42			
124	24" Type I Thermoplastic Stop Bar	EA	2											1	1		
125	Type I Thermoplastic Left Turn Arrow	EA	5											1	4		
126	Type I Thermoplastic Right Turn Arrow	EA	5												5		
127	Type I Thermoplastic Through/Right Turn Arrow	EA	2											2			
128	Type I Thermoplastic Through Arrow	EA	12												12		
129	Type I Thermoplastic "ONLY" Word	EA	6											1	5		
130	4" White Thermoplastic Edge Line	LF	2,465												2,465		
131	8" White Thermoplastic Solid Lane Line	LF	1,030												1,030		
132	Double 4" Yellow Thermoplastic Solid Line	LF	2,065												2,065		
133	24" Thermoplastic Cross Hatch Line	LS	1												1		
134	Stop Sign R1-1	EA	2											1	1		
135	Speed Limit Sign R2-1	EA	2											1	1		
136	Left Lane Must Turn Left Sign R3-5L	EA	1											1			
137	2" Grey Schedule 40 PVC Street Light Conduit	LF	3,200	136	504	502	503	503	502	500	50						
138	TxDOT Type C Pullbox	EA	2	1							1						
139	Prepare & Maintain SWP3 Plan	LS	1														
140	Curb Inlet Protection (All Phases)	EA	8													5	3
141	Drop Inlet Protection (All Phases)	EA	5													2	3
142	Reinforced Silt Fence	LF	3,425													2,265	1,160
143	Rock Check Dam	LF	550													400	150
144	12" High Rock Berm	LF	60													20	40
145	18" High Rock Berm	LF	25													25	
146	28" High Rock Berm	LF	45													45	
147	Stabilized Construction Entrance	EA	2														2
148	S.H. 276 Temporary Traffic Control	LS	1														
149	I.H. 30 Connection Temporary Traffic Control	LS	1														

DRAINAGE SHEET QUANTITIES

ITEM No.	DESCRIPTION	SHEET UNITS	TOTAL QUANTITY	D104	D105	D106	D107	D108	D109	D110	D111	D112	D201	D202	D203
201	Unclassified Channel Excavation	CY	1,404							59					1,345
202	4" Topsoil & Hydromulch Seed Slopes	SY	605							210					395
203	18" R.C.P. Storm Drain Pipe Class IV	LF	370								250	120			
204	18" R.C.P. Storm Drain Pipe Class III	LF	1,116				192	327	223		93		155	126	
205	21" R.C.P. Storm Drain Pipe Class III	LF	95	6						89					
206	24" R.C.P. Storm Drain Pipe Class III	LF	378				30	175		114			59		
207	27" R.C.P. Storm Drain Pipe Class III	LF	268			188	80								
208	30" R.C.P. Storm Drain Pipe Class III	LF	113			84				29					
209	33" R.C.P. Storm Drain Pipe Class III	LF	342		114	228									
210	36" R.C.P. Storm Drain Pipe Class III	LF	78		78										
211	42" R.C.P. Storm Drain Pipe Class III	LF	257		257										
212	48" R.C.P. Storm Drain Pipe Class III	LF	53		53										
213	4-9'x9' Multiple Box Culvert	LF	120	120											
214	10' Recessed Curb Inlet	EA	8		1	2	1	2	1	1					
215	15' Recessed Curb Inlet	EA	2		1					1					
216	4'x4' Drop Inlet	EA	3			1				2					
217	TxDOT Type H Horizontal Inlet	EA	2								1	1			
218	30" 4:1 CH-FW-0 Headwall	EA	1							1					
219	18" 6:1 SETP-PD Headwall	EA	1								1				
220	Box Culvert Headwall & Wingwalls	EA	2	2											
221	Combination Rail (including parapet wall & railing)	LF	246	246											
222	Min. 12" Dia. Grouted Rock Rubble Riprap	SY	880	880											
223	Min. 8" Dia. Grouted Rock Rubble Riprap	SY	82							52	30				
224	Trench Safety	LF	2,327	126	502	500	154	302	223	235			195	90	
225	Remove 4'x4' Drop Inlet	EA	2							2					
226	Remove 18" 6:1 SETP-PD Headwall	EA	1								1				

RECORD PLANS
MARCH 28, 2008

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PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
SHEET QUANTITIES

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED
PROFESSIONAL ENGINEER
11/30/2007

LAST SHEET EDIT DATE 11-30-2007
WA# 04141

SHEET NO.
S002

TIME: 16: 16 FILE: I:\04141-SheetQ\Phase1.dwg

WATER SHEET QUANTITIES

ITEM No.	DESCRIPTION	SHEET UNITS	TOTAL QUANTITY	U101	U102	U103	U104	U105	U106	U107
301	6" Water Main	LF	34	8	4	4	4	4	4	6
302	10" Water Main	LF	10	10						
303	12" Water Main	LF	3,294	490	500	500	500	500	500	304
304	6" Gate Valve	EA	8	2	1	1	1	1	1	1
305	12" Gate Valve	EA	8	1	1	1	3	1	1	
306	10"x10" Tapping Sleeve & Valve	EA	1	1						
307	16"x12" Tapping Sleeve & Valve	EA	1							1
308	6" Blow-off Valve	EA	2	1			1			
309	Cast Iron Fittings	TON	3.3	1.3	0.3	0.3	0.4	0.3	0.3	0.4
310	Trench Safety	LF	3,338	508	504	504	504	504	504	310
311	Relocate Existing 2" Air & Vacuum Release Valve & Manhole	LS	1							1
312	Blue EMS Locator Pads	EA	22	4	2	3	2	3	2	6
313										
314										

RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
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6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
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PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
SHEET QUANTITIES

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED
PROFESSIONAL ENGINEER
7-19-07

LAST SHEET EDIT DATE 07-19-2007
WA# 04141
SHEET NO. S003

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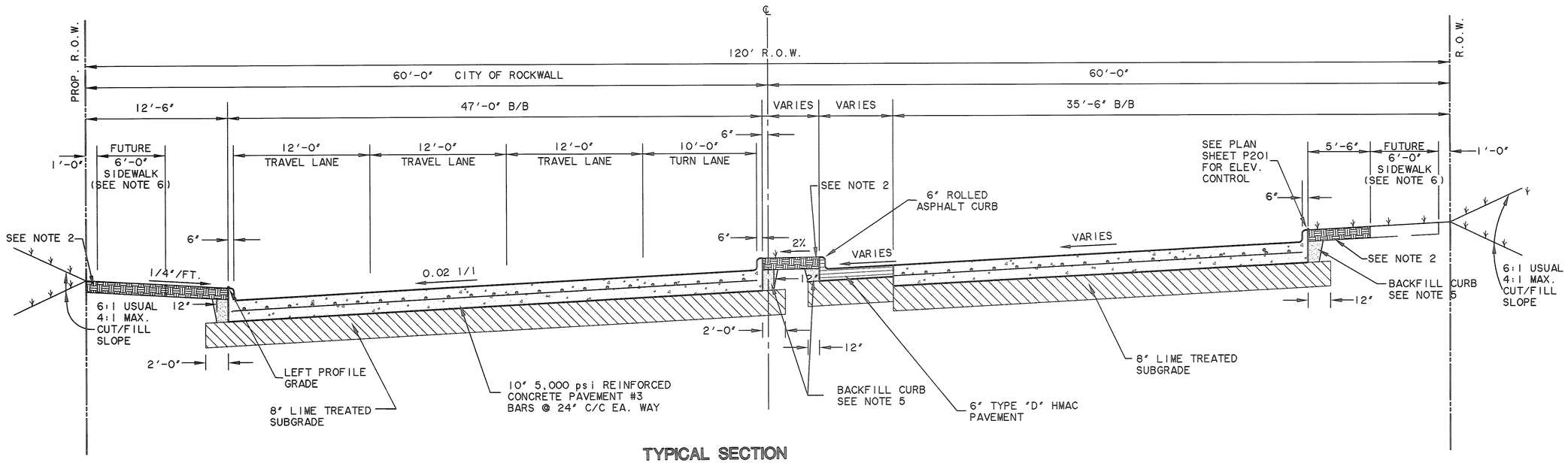
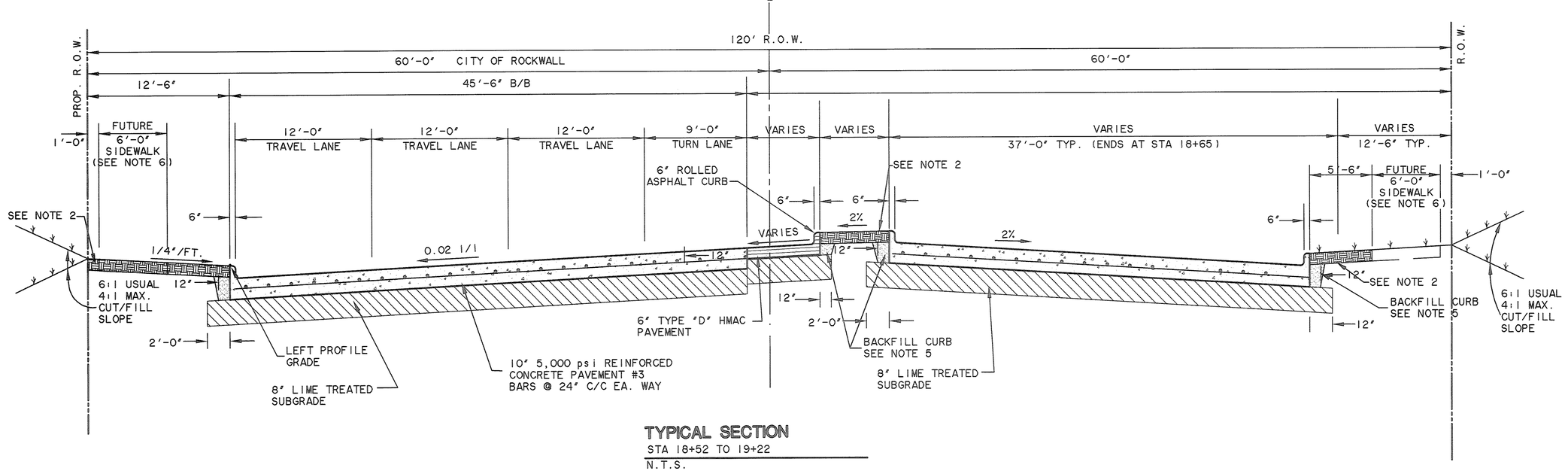


TYPICAL SECTION

STA 16+98 TO 18+52

N.T.S.



TYPICAL SECTION

STA 18+52 TO 19+22

N.T.S.

(A) SAWED LONGITUDINAL CONTRACTION JOINT

NOTES:

1. CONSTRUCT PAVEMENT IN ACCORDANCE WITH CITY STANDARD CONSTRUCTION DETAILS EXCEPT AS NOTED HEREON.
2. PLACE BERMUDA GRASS SOD IN PARKWAY AND TO LIMITS SHOWN IN FUTURE MEDIANS AS PER SPECIFICATIONS.
3. IMPORT AND PLACE MINIMUM 4" TOPSOIL ON CUT AND FILL SLOPES. HYDROMULCH SEED WITH BERMUDA GRASS AS PER SPECIFICATIONS.
4. COMPACT ALL FILLS TO MINIMUM 95% OF STANDARD PROCTOR DENSITY. FILL COMPACTION SHALL BE PERFORMED WITH A SHEEPSFOOT ROLLER.
5. BACKFILL ALL CURBS WITH ON-SITE BROWN CLAY SOILS COMPACTED TO A MINIMUM 95% OF STANDARD PROCTOR DENSITY. TYPICAL ALL ROADWAY AND STREET CURBS THIS PROJECT.
6. 6'-0" CONCRETE SIDEWALK SHALL BE CONSTRUCTED WITH DEVELOPMENT OF ADJACENT PROPERTY.

RECORD PLANS
MARCH 28, 2008

PREPARED BY:
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PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
TYPICAL
SECTIONS

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED
PROFESSIONAL ENGINEER
11/30/2007

LAST SHEET EDIT DATE 11-30-2007
WA# 04141

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P001

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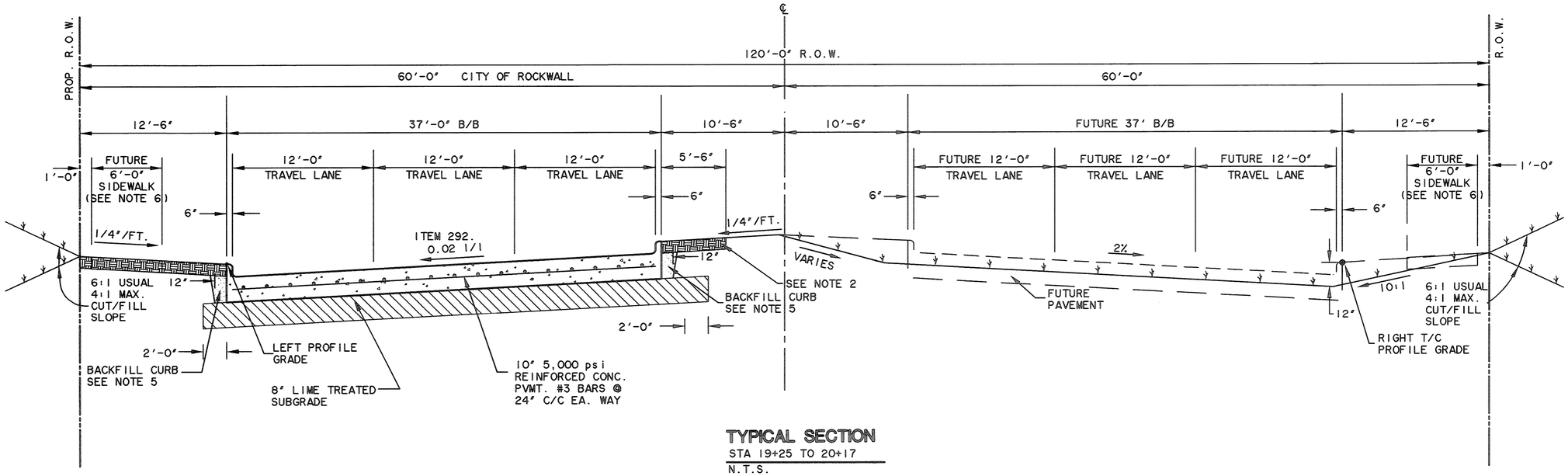

TYPICAL SECTION
STA 19+25 TO 20+17
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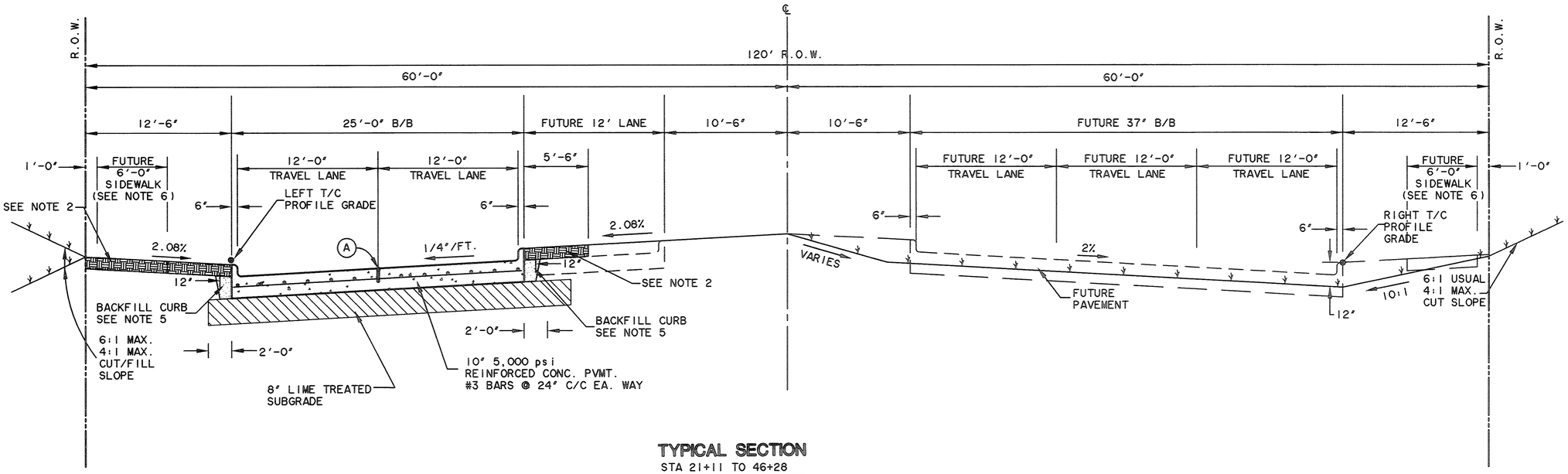

TYPICAL SECTION
STA 21+11 TO 46+28
N.T.S.

(A) SAWED LONGITUDINAL CONTRACTION JOINT

NOTES:
1. CONSTRUCT PAVEMENT IN ACCORDANCE WITH CITY STANDARD CONSTRUCTION DETAILS EXCEPT AS NOTED HEREON.
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RECORD PLANS
MARCH 28, 2008

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PHASE I S.H. 205 BYPASS FROM S.H. 276 TO INTERSTATE 30
TYPICAL SECTIONS

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
3/28/2008

LAST SHEET EDIT DATE 11-05-2007
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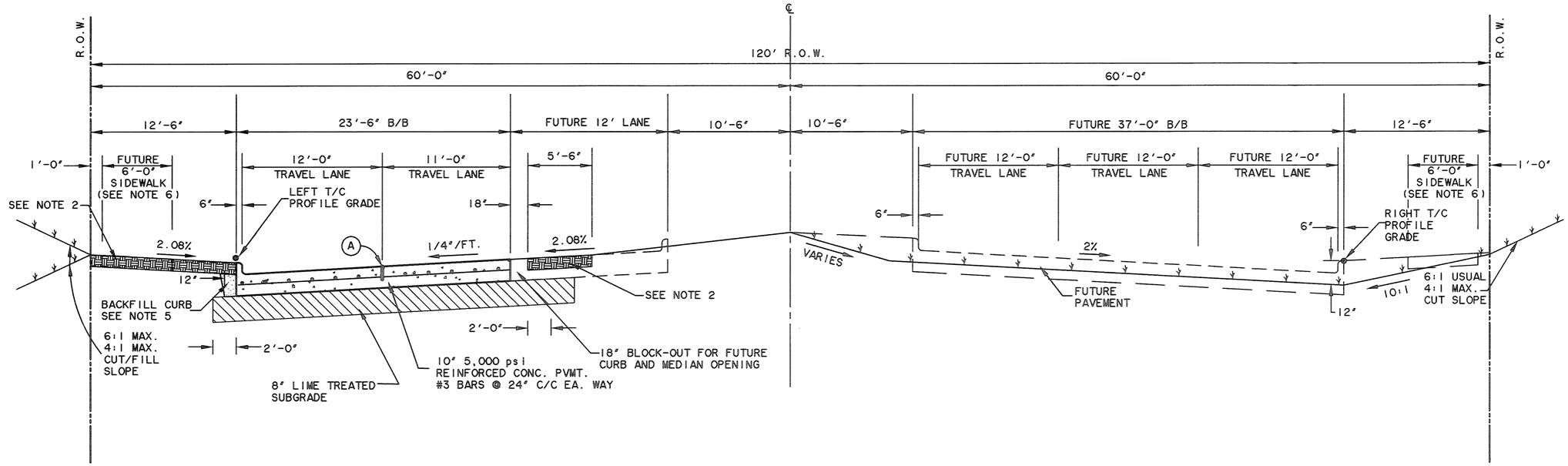

TYPICAL SECTION
STA 20+16 TO 21+11
N.T.S.

(A) SAWED LONGITUDINAL CONTRACTION JOINT

NOTES:
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RECORD PLANS
MARCH 28, 2008

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PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
TYPICAL SECTIONS

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
3/28/2008

LAST SHEET EDIT DATE 11-05-2007
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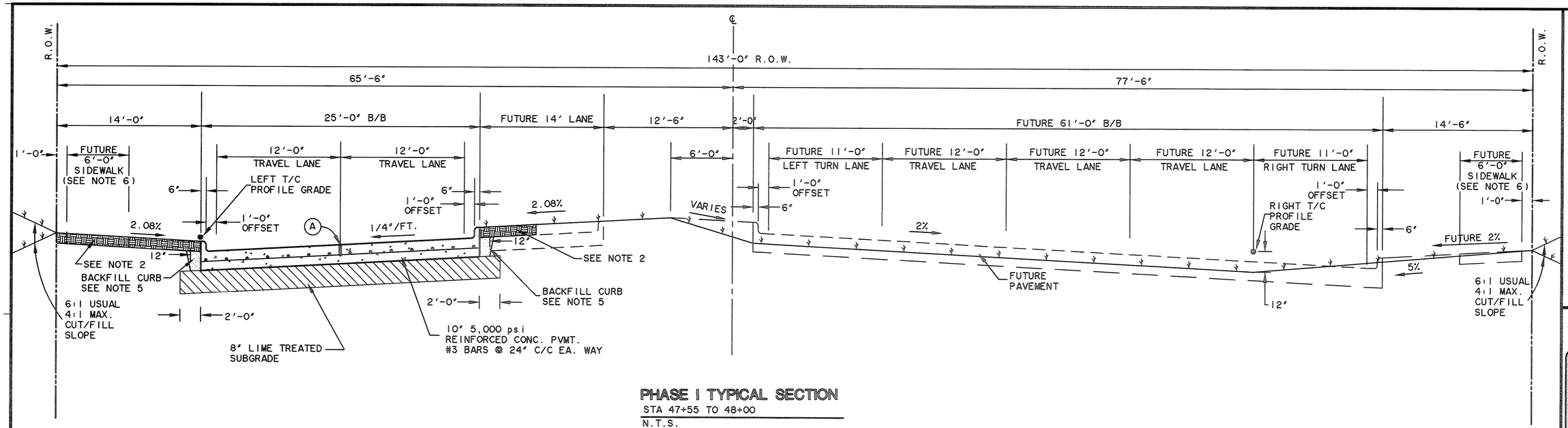
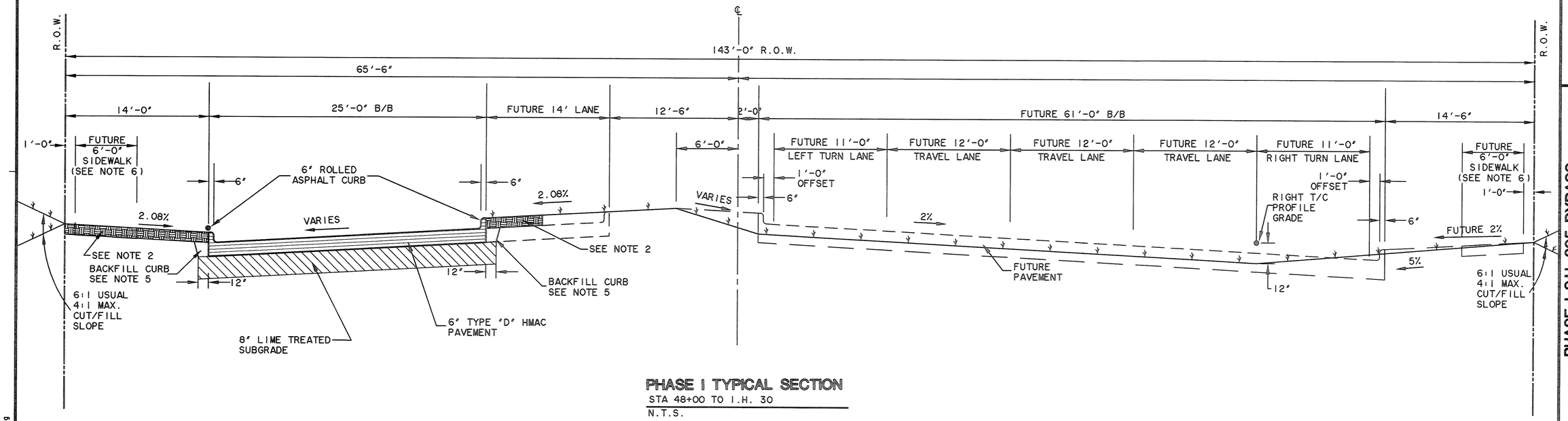


PHASE I TYPICAL SECTION

STA 47+55 TO 48+00

N.T.S.



PHASE I TYPICAL SECTION

STA 48+00 TO I.H. 30

N.T.S.

(A) SAWED LONGITUDINAL CONTRACTION JOINT

NOTES:

1. CONSTRUCT PAVEMENT IN ACCORDANCE WITH CITY STANDARD CONSTRUCTION DETAILS EXCEPT AS NOTED HEREON.
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RECORD PLANS
MARCH 28, 2008

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PHASE I S.H. 205 BYPASS FROM S.H. 276 TO INTERSTATE 30 TYPICAL SECTIONS

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
3/28/2008

LAST SHEET EDIT DATE 11-13-2007
WA# 04141

SHEET NO. P004

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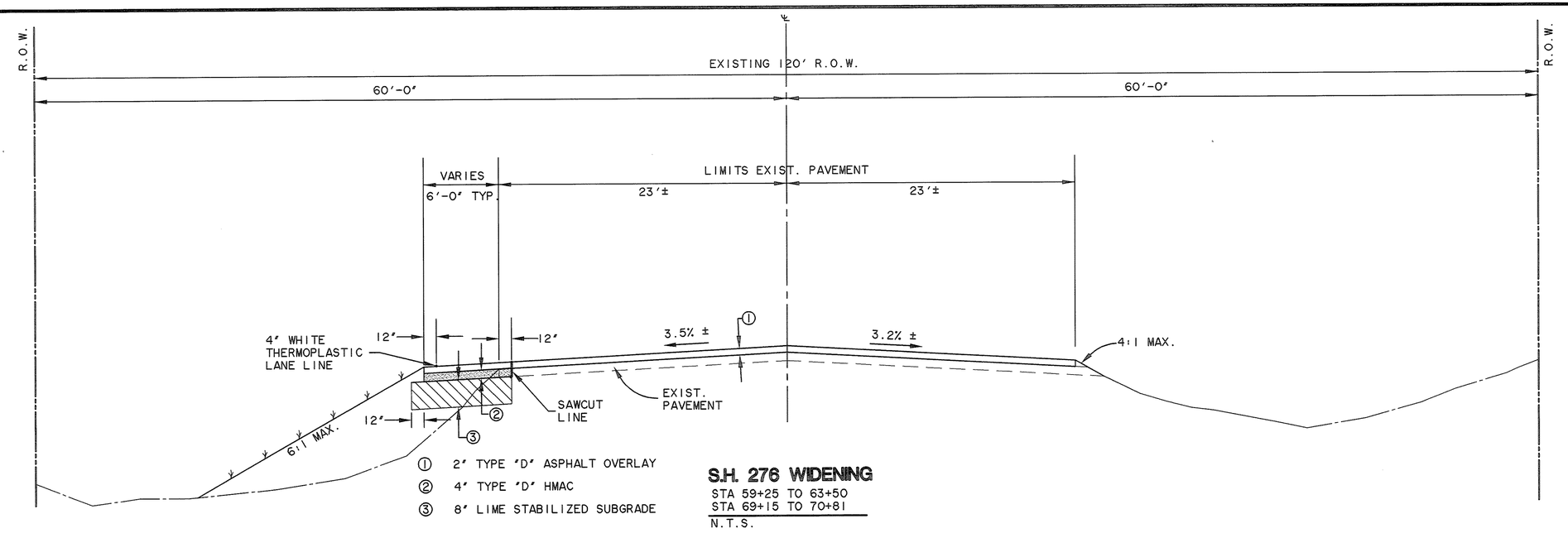
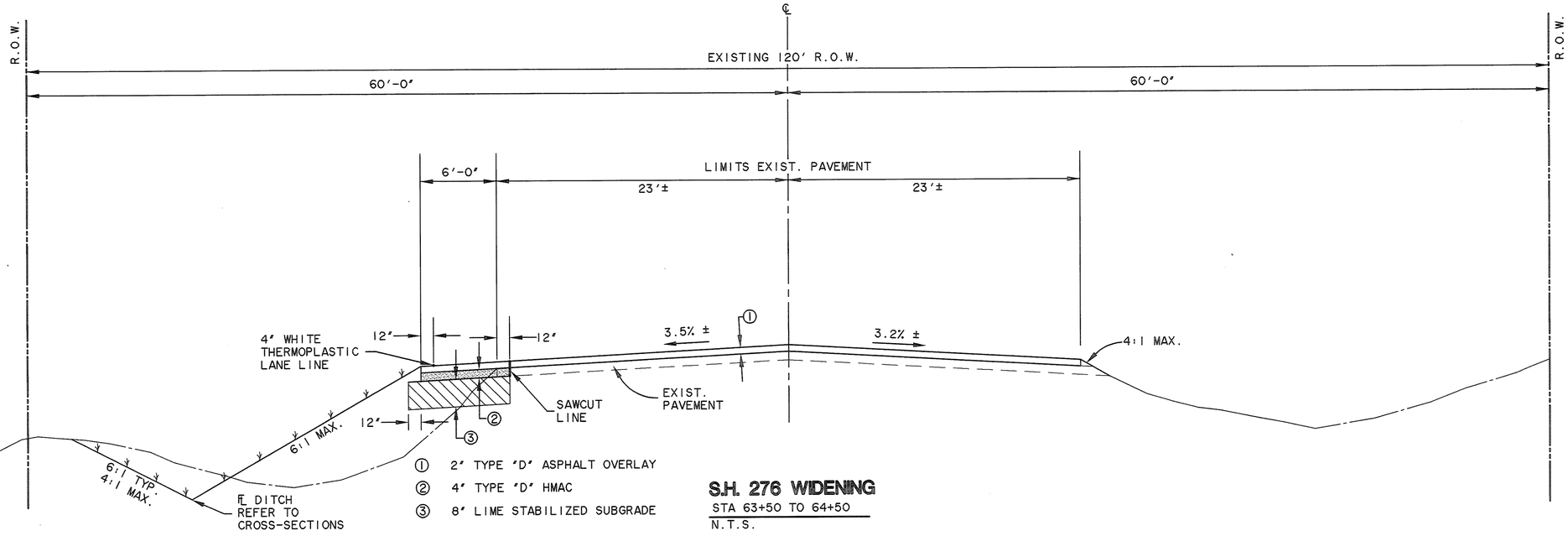


S.H. 276 WIDENING
STA 59+25 TO 63+50
STA 69+15 TO 70+81
N.T.S.



S.H. 276 WIDENING
STA 63+50 TO 64+50
N.T.S.

NOTES:

1. CONSTRUCT PAVEMENT IN ACCORDANCE WITH CITY STANDARD CONSTRUCTION DETAILS EXCEPT AS NOTED HEREON.
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MARCH 28, 2008

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4300 BELTWAY PLACE SUITE 130 ARLINGTON, TEXAS 76018 METRO (817)467-7700
1380 U.S. HIGHWAY 287 N. SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-6700
6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.Wierassociates.com

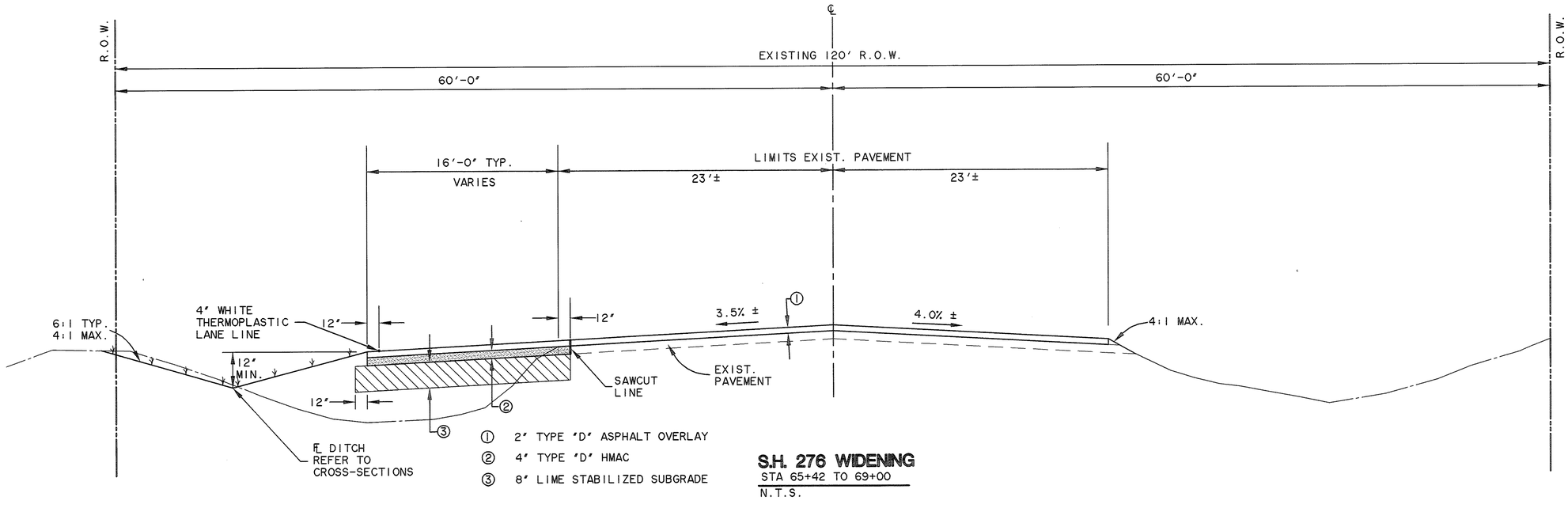
PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
TYPICAL SECTIONS

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
4-18-2007

LAST SHEET EDIT DATE 07-18-2007
WA# 04141

SHEET NO.
P005

TIME:15:16 FILE:04141-TypSec5Phase1.dwg



S.H. 276 WIDENING

STA 65+42 TO 69+00

N.T.S.

NOTES:

1. CONSTRUCT PAVEMENT IN ACCORDANCE WITH CITY STANDARD CONSTRUCTION DETAILS EXCEPT AS NOTED HEREON.
2. PLACE BERMUDA GRASS SOD IN PARKWAY AND TO LIMITS SHOWN IN FUTURE MEDIANS AS PER SPECIFICATIONS.
3. IMPORT AND PLACE MINIMUM 4" TOPSOIL ON CUT AND FILL SLOPES. HYDROMULCH SEED WITH BERMUDA GRASS AS PER SPECIFICATIONS.
4. COMPACT ALL FILLS TO MINIMUM 95% OF STANDARD PROCTOR DENSITY. FILL COMPACTION SHALL BE PERFORMED WITH A SHEEPSFOOT ROLLER.
5. BACKFILL ALL CURBS WITH ON-SITE BROWN CLAY SOILS COMPACTED TO A MINIMUM 95% OF STANDARD PROCTOR DENSITY. TYPICAL ALL ROADWAY AND STREET CURBS THIS PROJECT.
6. 6'-0" CONCRETE SIDEWALK SHALL BE CONSTRUCTED WITH DEVELOPMENT OF ADJACENT PROPERTY.

RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
4300 BELTWAY PLACE SUITE 130 ARLINGTON, TEXAS 76018 METRO (817)467-7700
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6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.Wierassociates.com

PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
TYPICAL
SECTIONS

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED
PROFESSIONAL ENGINEER
7-18-2007

LAST SHEET EDIT DATE 07-18-2007
WA# 04141
SHEET NO.
P006

FILE: 04141-TypSec6Phase1.dwg
TIME 15:17

NO.	DATE	DESCRIPTION	BY
1	9-07-07	CORRECTED LABELS & ELEVATIONS	JRA
2	10-31-07	REDESIGNED S.H. 276 CONNECTION & CHANGED S.H. 205 BYPASS TO CITY SECTION	JRA

CAUTION !!

EXISTING UTILITIES ARE INDICATED ON THE PLANS FROM AVAILABLE INFORMATION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION OF ALL UTILITIES, TO NOTIFY ALL UTILITY COMPANIES OF THE CONTRACTORS OPERATIONS, TO PROTECT ALL UTILITIES FROM DAMAGE, TO REPAIR ALL UTILITIES DAMAGED DUE TO THE CONTRACTORS OPERATIONS, AND TO NOTIFY THE ENGINEER PROMPTLY OF ALL CONFLICTS OF THE WORK WITH EXISTING UTILITIES.

BENCHMARKS

1. BOX CUT WITH 'X' CUT IN CENTER OF EXISTING SIDEWALK 2' SOUTH OF NORTH EDGE AT SOUTHEAST CORNER OF S.H. No. 205 BYPASS AND S.H. No. 276

ELEV. 580.40

2. BOX CUT ON SOUTHEAST TOP OF HEADWALL ON SOUTH SIDE OF I.H. No. 30 ACCESS ROAD APPROX. 325' EAST OF FUTURE S.H. No. 205 BYPASS AND ON WEST SIDE OF NESBIT METAL CO. ORANGE METAL BLDG.

ELEV. 573.70

ROCKWALL BYPASS, LTD.
VOL. 2852, PG. 109
D.R.R.C.T.

INSTALL 47 L.F. TXDOT TYPE III STREET BARRICADE.

STA 15+63.55 S.H. 205 BYPASS
STA 64+73.94 S.H. 276

1737.50 N 01°04'18"W

S.H. 205 BYPASS

S.H. 276

N 89°10'57"E 4484.48

REMAINDER
LOFLAND FARMS, LTD.
VOL. 1392, PG. 271
D.R.R.C.T.

CURVE TABLE

NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	BEARING
129	350.00	25°29'54"	155.76	79.19	154.48	S 13°49'15"E
132	375.00	21°39'09"	141.72	71.71	140.87	S 11°53'53"E
537	251.00	10°03'03"	44.03	22.07	43.97	S 07°28'03"E
542	30.00	90°21'30"	47.31	30.19	42.56	S 44°06'27"W
543	30.00	89°44'45"	46.99	29.87	42.33	N 45°56'40"W

ABANDONED GAS LINE

THE CAMBRIDGE COMPANIES, INC. TRUSTEE
VOL. 99, PG. 1022
D.R.R.C.T.

STA 63+96.15
OFF 23.22
T/P = 577.78

STA 16+17.11
OFF 47.50
T/C = 577.83
END CURB

STA 17+13.00 S.H. 205 BYPASS
OFF 51.88' LT. ⚠1 ⚠2
REMOVE EXIST. DROP INLET
CONST. 10' REC. CURB INLET
TOP = 576.67
FL = 571.67

FUTURE 6' SIDEWALK

12' W.L.

CAUTION!! EXISTING HIGH PRESSURE GAS LINE

S.H. 205 BYPASS

STA 16+45 CONST. JOINT

STA 16+98.34
OFF 10.50
T/C = 577.82

STA 16+29.44
OFF 0.50
T/C = 578.33

6' ROLLED ASPHALT CURB

STA 16+23.94
OFF 4.98
T/C = 578.58

STA 16+29.44
OFF 10.50
T/C = 578.37

2" PVC STREET LIGHT CONDUIT

TRANSITION CROSS-SLOPE

STA 17+80.00
OFF 0.57
T/C = 577.85

STA 16+98.34
OFF 47.50
T/C = 578.07

STA 16+45 CONST. JOINT

STA 65+51.14
OFF 39.00
T/P = 579.67

ADJ. W.V.

STA 16+40 1.67'±

FUTURE 12' W.L.

FUTURE 6' SIDEWALK

STA 16+32.20
OFF 47.50
T/C = 579.03
END CURB

STA 18+00.00 S.H. 205 BYPASS
OFF 49.00' RT. ⚠1 ⚠2
REMOVE EXIST. DROP INLET
CONST. 15' REC. CURB INLET
TOP = 577.02
FL = 572.52

THE CAMBRIDGE COMPANIES, INC. TRUSTEE
VOL. 99, PG. 1022
D.R.R.C.T.

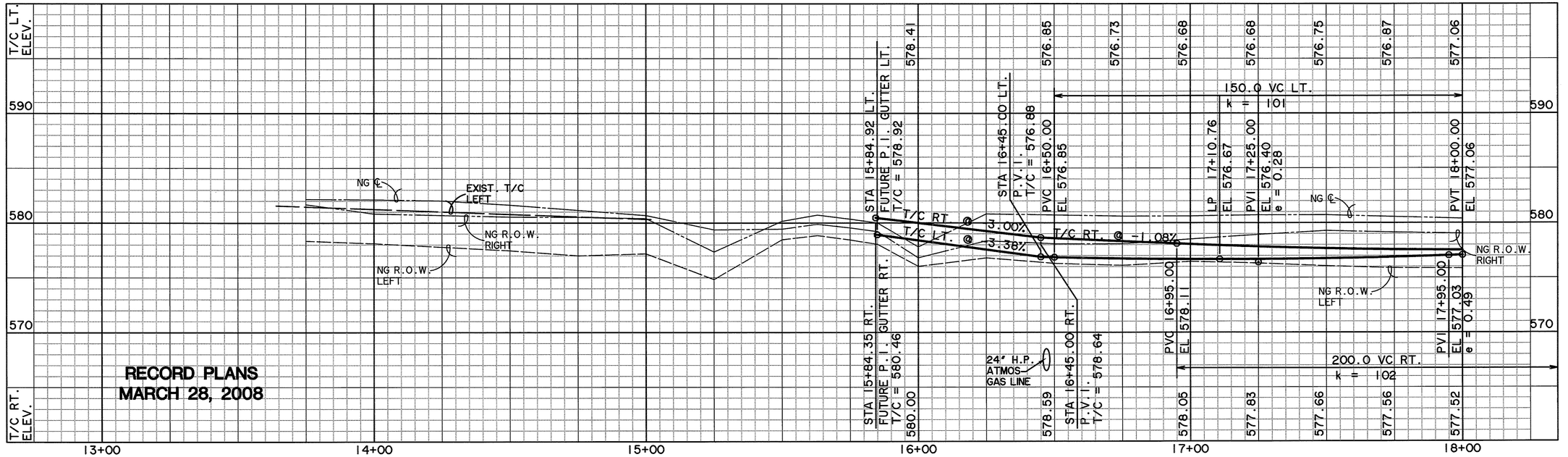
24" H.P.G.

MATCH LINE STA 18+00

INSTALL 47 L.F. TXDOT TYPE III STREET BARRICADE.

SCALE (feet)
0 20 40 60

S . H . 205 BYPASS



RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
4300 BELTWAY PLACE SUITE 130 ARLINGTON, TEXAS 76018 METRO (817)467-7700
1300 U.S. HIGHWAY 287 N. SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-8700
6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.WierAssociates.com

PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
PAVING
PLAN & PROFILE
STA 13+00± TO 18+00

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED
PROFESSIONAL ENGINEER
3/28/08

LAST SHEET EDIT DATE 03-28-2008
WA# 04141

SHEET NO. P101

FILE: 04141-PAVE1.dwg
TIME 16:34

CURVE TABLE						
NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	BEARING
118	2476.00	02°09'16"	93.10	46.55	93.09	S 03°16'22"E
130	350.00	24°50'55"	151.79	77.11	150.60	N 14°08'45"W
133	450.00	20°57'30"	164.61	83.23	163.69	N 12°14'42"W
136	2489.50	01°07'26"	48.83	24.42	48.83	S 01°38'01"E
537	215.00	12°01'47"	45.14	22.65	45.06	N 06°29'16"W
538	285.00	11°25'46"	56.85	28.52	56.76	S 06°47'17"E
541	2479.50	00°25'40"	18.51	9.25	18.51	S 01°56'08"E

CAUTION !!

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BENCHMARKS

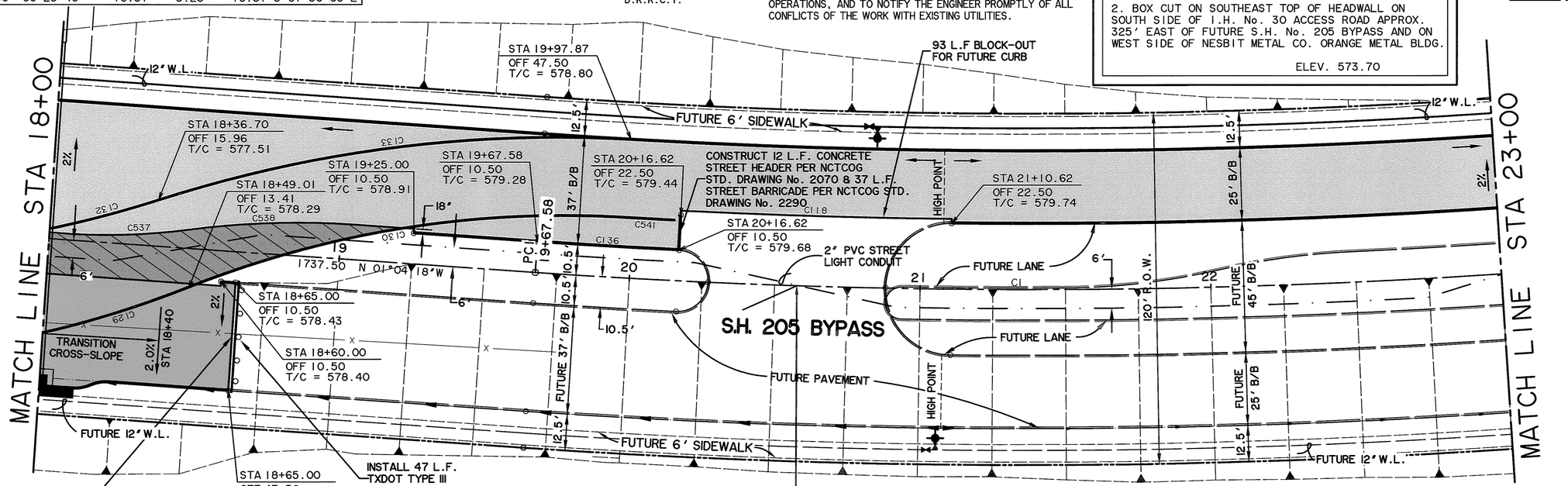
1. BOX CUT WITH "X" CUT IN CENTER OF EXISTING SIDEWALK 2' SOUTH OF NORTH EDGE AT SOUTHEAST CORNER OF S.H. No. 205 BYPASS AND S.H. No. 276

ELEV. 580.40

2. BOX CUT ON SOUTHEAST TOP OF HEADWALL ON SOUTH SIDE OF I.H. No. 30 ACCESS ROAD APPROX. 325' EAST OF FUTURE S.H. No. 205 BYPASS AND ON WEST SIDE OF NESBIT METAL CO. ORANGE METAL BLDG.

ELEV. 573.70

CURVE C1	
Δ	19°35'45"
D	02°17'31"
R	2500.00
T	431.73
L	855.03
E	37.00



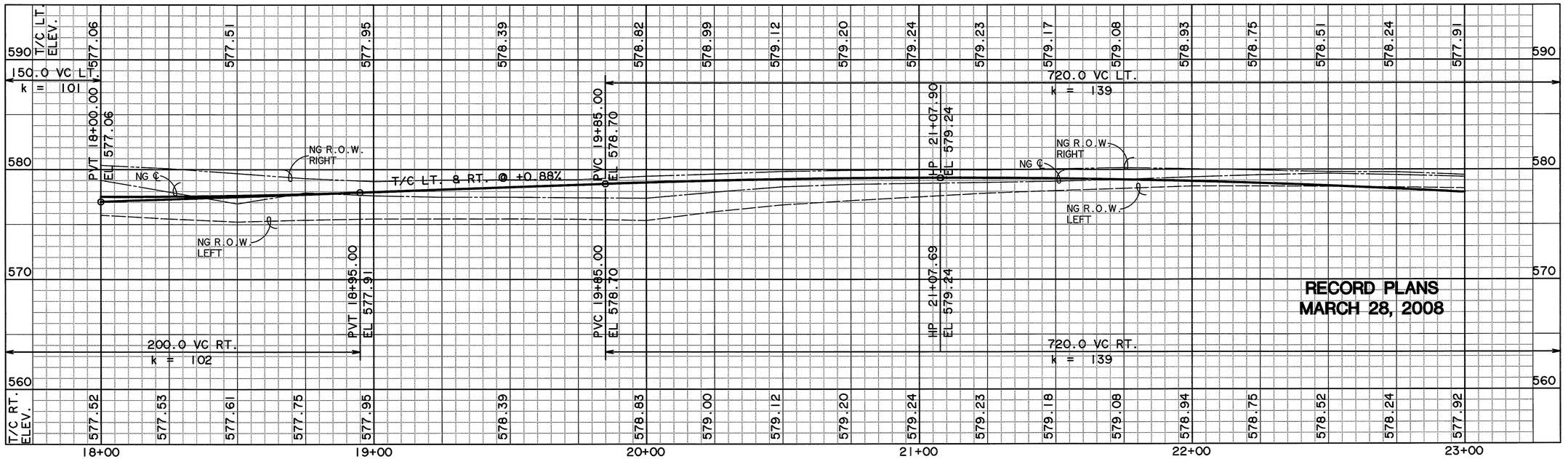
STA 20+57.62 S.H. No. 205 BYPASS
CENTER OF FUTURE 60' WIDE MEDIAN OPENING

THE CAMBRIDGE COMPANIES, INC. TRUSTEE VOL. 99, PG. 1022 D.R.R.C.T.

NO.	DATE	DESCRIPTION	BY
2	10-31-07	CHANGED S.H. 205 BYPASS TO CITY SECTION	JRA

SCALE (feet) 0 20 40 60

S . H . 2 0 5 B Y P A S S



RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
4300 BELTWAY PLACE SUITE 130 ARLINGTON, TEXAS 76018 METRO (817)467-7700
1380 U.S. HIGHWAY 287 N, SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-0700
6949 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-6000
www.Wierassociates.com

PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
PAVING
PLAN & PROFILE
STA 18+00 TO 23+00

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
3/28/08

LAST SHEET EDIT DATE 03-28-2008
WA# 04141

SHEET NO. P102

FILE: 04141-PAVE2.dwg
TIME: 6:35

NO.	DATE	DESCRIPTION	BY
2	10-31-07	CHANGED S.H. 205 BYPASS TO CITY SECTION	JRA

CAUTION ! !
EXISTING UTILITIES ARE INDICATED ON THE PLANS FROM AVAILABLE INFORMATION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION OF ALL UTILITIES, TO NOTIFY ALL UTILITY COMPANIES OF THE CONTRACTORS OPERATIONS, TO PROTECT ALL UTILITIES FROM DAMAGE, TO REPAIR ALL UTILITIES DAMAGED DUE TO THE CONTRACTORS OPERATIONS, AND TO NOTIFY THE ENGINEER PROMPTLY OF ALL CONFLICTS OF THE WORK WITH EXISTING UTILITIES.

BENCHMARKS

1. BOX CUT WITH 'X' CUT IN CENTER OF EXISTING SIDEWALK 2' SOUTH OF NORTH EDGE AT SOUTHEAST CORNER OF S.H. No. 205 BYPASS AND S.H. No. 276
ELEV. 580.40

2. BOX CUT ON SOUTHEAST TOP OF HEADWALL ON SOUTH SIDE OF I.H. No. 30 ACCESS ROAD APPROX. 325' EAST OF FUTURE S.H. No. 205 BYPASS AND ON WEST SIDE OF NESBIT METAL CO. ORANGE METAL BLDG.
ELEV. 573.70

CURVE C1	
A	19°35'45"
D	02°17'31"
R	2500.00
T	431.73
L	855.03
E	37.00

THE CAMBRIDGE COMPANIES, INC. TRUSTEE
VOL. 99, PG. 1022 D.R.R.C.T.

ABANDONED GAS LINE

STA 26+30.00 S.H. 205 BYPASS
OFF 50.50' LT.
CONST. 10' REC. CURB INLET
TOP = 569.47
FL = 564.47

MATCH LINE STA 23+00

MATCH LINE STA 28+00

12' W.L.

2%

T.O.P. = 570.09±

FUTURE 6' SIDEWALK

12.5

25' B/B

T.O.P. = 569.03±

T.O.P. = 566.93±

FUTURE LANE

24

6'

FUTURE 35' B/B

120' R.O.W.

25

2" PVC STREET LIGHT CONDUIT

CI

26

27

T.O.P.=564.97±

FUTURE PAVEMENT

S.H. 205 BYPASS

T.O.P. = 563.76±

FUTURE 12' W.L.

T.O.P.=560.71±

STA 25+51.71 S.H. No. 205 BYPASS
CENTER OF FUTURE 85' WIDE MEDIAN OPENING (DISCOVERY DRIVE)

T.O.P. = 561.61±

THE CAMBRIDGE COMPANIES, INC. TRUSTEE
VOL. 99, PG. 1022 D.R.R.C.T.

SCALE (feet)
0 20 40 60

S . H . 205 BYPASS

T/C LT. ELEV.
577.91 577.55 577.13 576.68 576.18 575.63 575.04 574.40 573.72 573.00 572.23 571.41 570.55 569.65 568.70 567.70 566.66 564.52 562.38

T/C RT. ELEV.
577.92 577.55 577.14 576.68 576.18 575.63 575.04 574.40 573.72 573.00 572.23 571.41 570.55 569.65 568.70 567.70 566.66 564.52 562.38

580
570
560

720.0 VC LT.
k = 139

720.0 VC RT.
k = 139

PVI 23+45.00 LT. & RT.
EL 581.87
e = -4.65

NG ℄

NG R.O.W. LEFT

NG R.O.W. RIGHT

T.O.P.= 570.09±

T.O.P.= 569.03±

T.O.P.= 566.93±

T.O.P.= 564.97±

T.O.P.= 563.76±

T.O.P.= 560.71±

T.O.P.= 561.61±

ABANDONED EXIST. 24" H.P. GAS LINE

PVT 27+05.00 EL 566.45

PVT 27+06.00 EL 566.45

T/C LT. & RT. @ -4.26%

RECORD PLANS
MARCH 28, 2008

23+00 24+00 25+00 26+00 27+00 28+00

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
4300 BELTWAY PLACE, SUITE 130, ARLINGTON, TEXAS 76018 METRO (817)467-7700
1300 U.S. HIGHWAY 287 N, SUITE 101 (MANSFIELD), TEXAS 76063 METRO (817)477-8700
6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.WierAssociates.com

PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
PAVING
PLAN & PROFILE
STA 23+00 TO 28+00

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
3/28/08

LAST SHEET EDIT DATE 03-28-2008
WA# 04141

SHEET NO.
P103

TIME: 6:37 FILE: 04141-PAVE3.dwg

NO.	DATE	DESCRIPTION	BY
2	10-31-07	CHANGED S.H. 205 BYPASS TO CITY SECTION	JRA

BENCHMARKS

1. BOX CUT WITH 'X' CUT IN CENTER OF EXISTING SIDEWALK 2' SOUTH OF NORTH EDGE AT SOUTHEAST CORNER OF S.H. No. 205 BYPASS AND S.H. No. 276

ELEV. 580.40

2. BOX CUT ON SOUTHEAST TOP OF HEADWALL ON SOUTH SIDE OF I.H. No. 30 ACCESS ROAD APPROX. 325' EAST OF FUTURE S.H. No. 205 BYPASS AND ON WEST SIDE OF NESBIT METAL CO. ORANGE METAL BLDG.

ELEV. 573.70

STA 28+50.00 S.H. 205 BYPASS
OFF 50.50' LT.
CONST. 10' REC. CURB INLET
TOP = 560.24
FL = 555.24

THE CAMBRIDGE COMPANIES, INC. TRUSTEE
VOL. 99, PG. 1022
D.R.R.C.T.

STA 31+00 S.H. 205 BYPASS
OFF 50.50' LT.
CONST. 10' REC. CURB INLET
TOP = 550.78
FL = 545.78

MATCH LINE STA 28+00

MATCH LINE STA 33+00

12' W.L.

FUTURE 6' SIDEWALK

12.5'

25' B/B

S.H. 205 BYPASS

FUTURE LANE

2%

2' PVC STREET LIGHT CONDUIT

PT 28+22.61

CL

29

30

31

32

878.50' N 20°40'03" W

120' R.O.W.

FUTURE 35' B/B

6'

FUTURE PAVEMENT

FUTURE 12' W.L.

STA 32+71.42 S.H. No. 205 BYPASS
CENTER OF FUTURE 60' WIDE MEDIAN OPENING

THE CAMBRIDGE COMPANIES, INC. TRUSTEE
VOL. 99, PG. 1022
D.R.R.C.T.

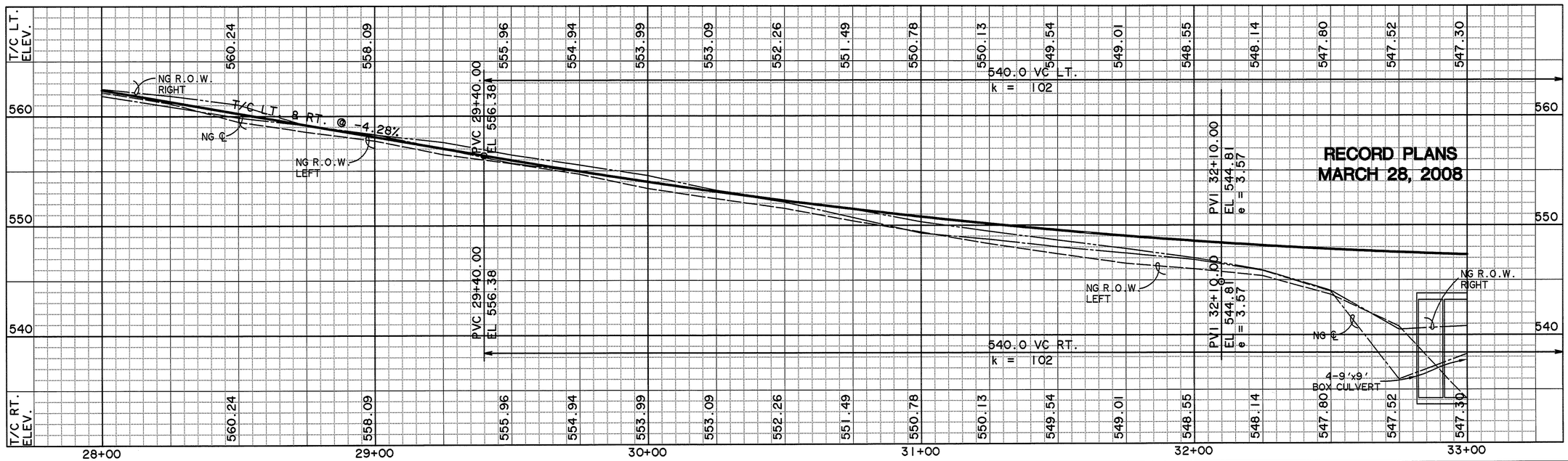
SCALE (feet)
0 20 40 60

CURVE C1	
A	19°35'45"
D	02°17'31"
R	2500.00
T	431.73
L	855.03
E	37.00

CAUTION !!

EXISTING UTILITIES ARE INDICATED ON THE PLANS FROM AVAILABLE INFORMATION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION OF ALL UTILITIES, TO NOTIFY ALL UTILITY COMPANIES OF THE CONTRACTORS OPERATIONS, TO PROTECT ALL UTILITIES FROM DAMAGE, TO REPAIR ALL UTILITIES DAMAGED DUE TO THE CONTRACTORS OPERATIONS, AND TO NOTIFY THE ENGINEER PROMPTLY OF ALL CONFLICTS OF THE WORK WITH EXISTING UTILITIES.

S . H . 2 0 5 B Y P A S S



RECORD PLANS
MARCH 28, 2008

PREPARED BY:
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6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-6000
www.WierAssociates.com

PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
PAVING
PLAN & PROFILE
STA 28+00 TO 33+00

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
3/28/08

LAST SHEET EDIT DATE 03-28-2008
WA# 04141

SHEET NO. P104

TIME 6:36 FILE I 04141-PAVE4.dwg

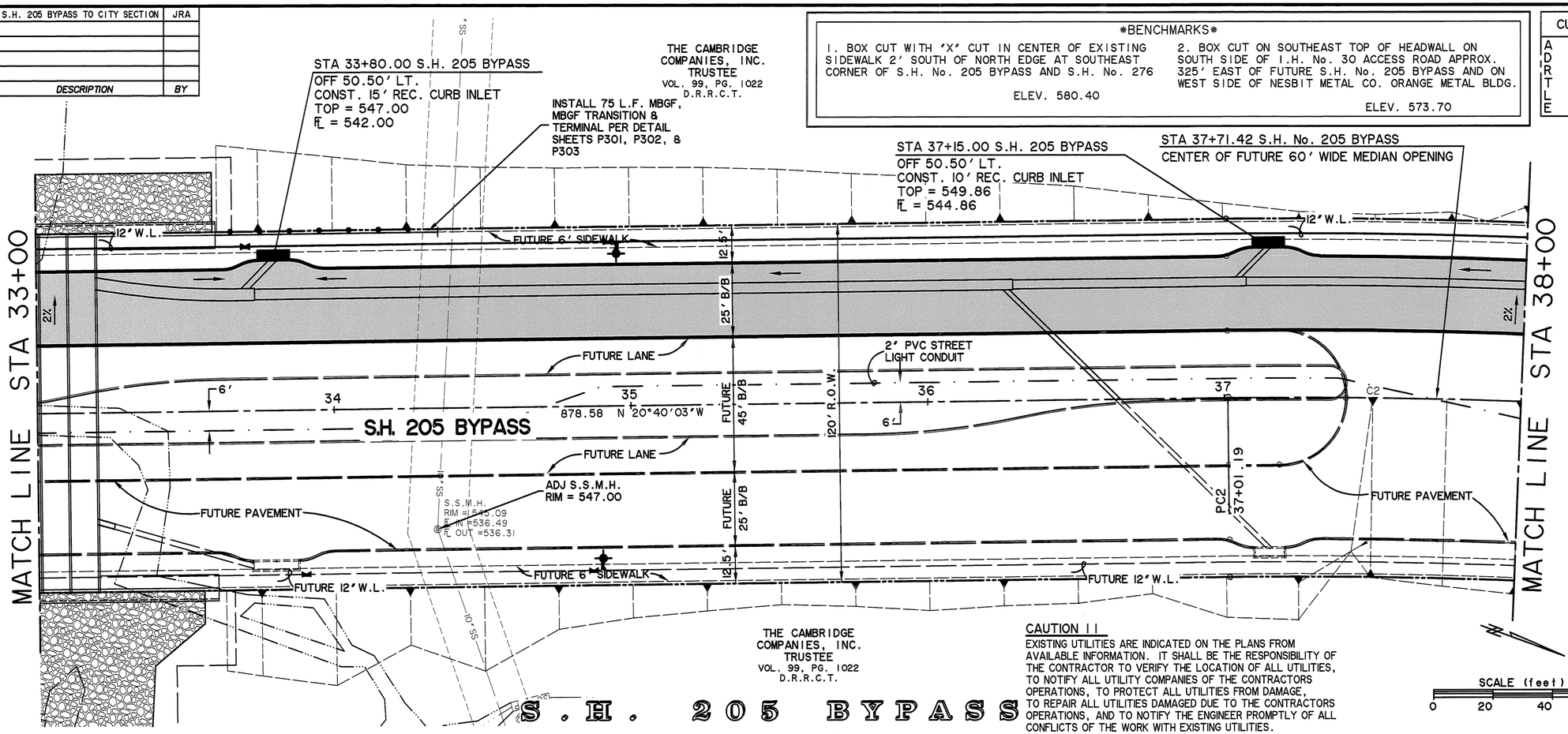
NO.	DATE	DESCRIPTION	BY
2	10-31-07	CHANGED S.H. 205 BYPASS TO CITY SECTION	JRA

BENCHMARKS

1. BOX CUT WITH "X" CUT IN CENTER OF EXISTING SIDEWALK 2' SOUTH OF NORTH EDGE AT SOUTHEAST CORNER OF S.H. No. 205 BYPASS AND S.H. No. 276
ELEV. 580.40

2. BOX CUT ON SOUTHEAST TOP OF HEADWALL ON SOUTH SIDE OF I.H. No. 30 ACCESS ROAD APPROX. 325' EAST OF FUTURE S.H. No. 205 BYPASS AND ON WEST SIDE OF NESBIT METAL CO. ORANGE METAL BLDG.
ELEV. 573.70

CURVE C2	
A	20°19'45"
D	02°56'18"
R	1950.00
T	349.62
L	691.88
E	31.09



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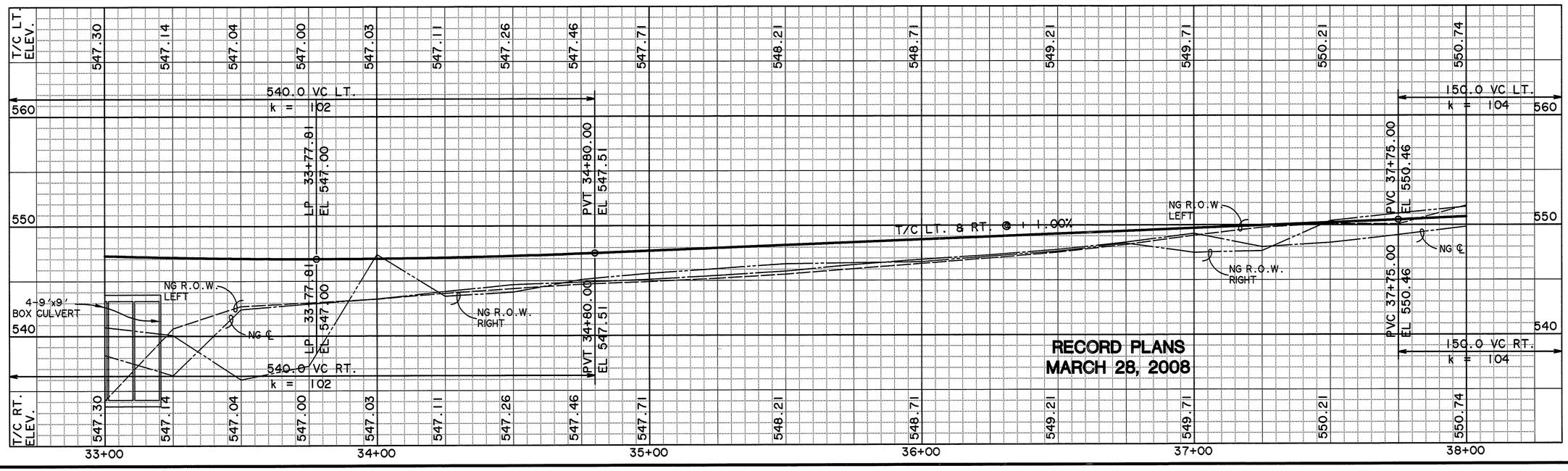
SCALE (feet)
0 20 40 60



RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
4300 BELTWAY PLACE SUITE 130 ARLINGTON, TEXAS 76018 METRO (817)467-7700
1300 U.S. HIGHWAY 287 N. SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-6700
6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.WierAssociates.com

PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
PAVING
PLAN & PROFILE
STA 33+00 TO 38+00

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED
PROFESSIONAL ENGINEER
3/28/08

LAST SHEET EDIT DATE 03-28-2008
WA# 04141

SHEET NO.
P105

FILE: 04141-PAVE5.dwg
TIME: 6:38

CAUTION !!

EXISTING UTILITIES ARE INDICATED ON THE PLANS FROM AVAILABLE INFORMATION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION OF ALL UTILITIES, TO NOTIFY ALL UTILITY COMPANIES OF THE CONTRACTORS OPERATIONS, TO PROTECT ALL UTILITIES FROM DAMAGE, TO REPAIR ALL UTILITIES DAMAGED DUE TO THE CONTRACTORS OPERATIONS, AND TO NOTIFY THE ENGINEER PROMPTLY OF ALL CONFLICTS OF THE WORK WITH EXISTING UTILITIES.

THE CAMBRIDGE COMPANIES, INC. TRUSTEE
VOL. 99, PG. 1022
D.R.R.C.T.

STA 40+50.00 S.H. 205 BYPASS
OFF 50.50' LT.
CONST. 10' REC. CURB INLET
TOP = 556.09
FL = 551.09

STA 41+51.32 S.H. 205 BYPASS
OFF 71.46' LT.
℄ 4'x4' DROP INLET
TOP = 560.43
THROAT = 559.43
FL = 554.93

BENCHMARKS

1. BOX CUT WITH 'X' CUT IN CENTER OF EXISTING SIDEWALK 2' SOUTH OF NORTH EDGE AT SOUTHEAST CORNER OF S.H. No. 205 BYPASS AND S.H. No. 276
ELEV. 580.40

2. BOX CUT ON SOUTHEAST TOP OF HEADWALL ON SOUTH SIDE OF I.H. No. 30 ACCESS ROAD APPROX. 325' EAST OF FUTURE S.H. No. 205 BYPASS AND ON WEST SIDE OF NESBIT METAL CO. ORANGE METAL BLDG.
ELEV. 573.70

MATCH LINE STA 38+00

MATCH LINE STA 43+00

12' W.L.

FUTURE 6' SIDEWALK

12.5'

25' B/B

2%

FUTURE LANE

2" PVC STREET LIGHT CONDUIT

39

40

C2

41

42

6'

120' R.O.W.

FUTURE 45' B/B

S.H. 205 BYPASS

FUTURE LANE

FUTURE 25' B/B

FUTURE PAVEMENT

FUTURE 12' W.L.

STA 42+75.00 S.H. 205 BYPASS
OFF 50.50' LT.
CONST. 10' REC. CURB INLET
TOP = 561.57
FL = 556.57

SCALE (feet)
0 20 40 60

THE CAMBRIDGE COMPANIES, INC. TRUSTEE
VOL. 99, PG. 1022
D.R.R.C.T.

CURVE C2	
A	20°19'45"
D	02°56'18"
R	1950.00
T	349.62
L	691.88
E	31.09

S . H . 205 BYPASS

T/C LT. ELEV.
550.74 551.08 551.48 551.94 552.46 553.04 553.65 554.87 556.09 557.30 558.52 559.74 560.96 562.18

150.0 VC LT.
k = 104

PVI 38+50.00
EL 551.21
e = 0.27

PVT 39+25.00
EL 553.04

T/C RT. ELEV.
550.74 551.08 551.48 551.94 552.46 553.04 553.65 554.87 556.09 557.30 558.52 559.74 560.96 562.18

150.0 VC RT.
k = 104

PVI 38+50.00
EL 551.21
e = 0.27

PVT 39+25.00
EL 553.04

570 560 550 540

NG R.O.W. LEFT
NG ℄
NG R.O.W. RIGHT
T/C LT. & RT. @ + 2.44%
NG R.O.W. LEFT
NG ℄
NG R.O.W. RIGHT

38+00 39+00 40+00 41+00 42+00 43+00

RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
4500 BELTWAY PLACE SUITE 130 ARLINGTON, TEXAS 76018 METRO (817)467-7700
1380 U.S. HIGHWAY 287 N. SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-8700
6949 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.wierassociates.com

PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
PAVING
PLAN & PROFILE
STA 38+00 TO 43+00

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
3/28/08

LAST SHEET EDIT DATE 03-28-2008
WA# 04141

SHEET NO.
P106

TIME: 6:40 FILE: 04141-PAVE6.dwg

BENCHMARKS

1. BOX CUT WITH 'X' CUT IN CENTER OF EXISTING SIDEWALK 2' SOUTH OF NORTH EDGE AT SOUTHEAST CORNER OF S.H. No. 205 BYPASS AND S.H. No. 276

ELEV. 580.40

2. BOX CUT ON SOUTHEAST TOP OF HEADWALL ON SOUTH SIDE OF I.H. No. 30 ACCESS ROAD APPROX. 325' EAST OF FUTURE S.H. No. 205 BYPASS AND ON WEST SIDE OF NESBIT METAL CO. ORANGE METAL BLDG.

ELEV. 573.70

THE CAMBRIDGE COMPANIES, INC. TRUSTEE VOL. 99, PG. 1022 D.R.R.C.T.

STA 43+71.42 S.H. No. 205 BYPASS
CENTER OF FUTURE 60' WIDE MEDIAN OPENING

STA 45+75.00 S.H. 205 BYPASS
OFF 50.50' LT.
CONST. 10' REC. CURB INLET
TOP = 568.75
FL = 563.75

THE CAMBRIDGE COMPANIES, INC. TRUSTEE VOL. 101, PG. 795 D.R.R.C.T.

MATCH LINE STA 43+00

MATCH LINE STA 48+00

12' W.L.

FUTURE 6' SIDEWALK

STA 46+90.88
OFF 49.46
T/C = 570.69
C103

STA 47+55.85
OFF 51.50
T/C = 571.67
C104

STA 46+28.24
OFF 47.50
T/C = 569.72

STA 46+92.47
OFF 24.51
T/C = 571.21
C109

STA 47+55.85
OFF 26.50
T/C = 572.17
C110

2%

14.5'

25' B/B

2" PVC STREET LIGHT CONDUIT

FUTURE LANE

STA 46+28.25
OFF 22.50
T/C = 570.02

TRANSITION CROSS-SLOPE

47+65
27'

14.0'

25' B/B

48+00
1.63%

STA 48+00
CONST. 27 L.F. CONCRETE STREET HEADER PER NCTCOG STD. DRAWING No. 2070

C2

6'

44 45 46 47

S.H. 205 BYPASS

1041.00' N 00°20'18"W

20' R.O.W.

FUTURE 45' B/B

FUTURE 25' B/B

PT2
43+93.07

FUTURE LANE

FUTURE PAVEMENT

FUTURE PAVEMENT

143' R.O.W.

FUTURE 28.5' B/B

FUTURE 61' B/B

FUTURE 12' W.L.

FUTURE 6' SIDEWALK

12.5'

14.5'

CURVE C2	
A	20°19'45"
D	02°56'18"
R	1950.00
T	349.62
L	691.88
E	31.09

CURVE TABLE

NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	BEARING
103	1000.00	03°35'28"	62.68	31.35	62.67	S 02°08'02"E
104	1037.00	03°35'28"	65.00	32.51	64.99	N 02°08'02"W
109	1025.00	03°35'28"	64.25	32.13	64.24	N 02°08'03"W
110	1012.00	03°35'28"	63.43	31.72	63.42	N 02°08'02"W

THE CAMBRIDGE COMPANIES, INC. TRUSTEE VOL. 99, PG. 1022 D.R.R.C.T.

THE CAMBRIDGE COMPANIES, INC. TRUSTEE VOL. 101, PG. 795 D.R.R.C.T.

SCALE (feet)
0 20 40 60

S.H. 205 BYPASS

T/C LT. ELEV.
563.40 564.61 565.83 567.05 567.66 568.23 568.75 569.23 569.67 570.06 570.82 571.58 572.34

580
570
560

CAUTION !!
EXISTING UTILITIES ARE INDICATED ON THE PLANS FROM AVAILABLE INFORMATION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION OF ALL UTILITIES, TO NOTIFY ALL UTILITY COMPANIES OF THE CONTRACTORS OPERATIONS, TO PROTECT ALL UTILITIES FROM DAMAGE, TO REPAIR ALL UTILITIES DAMAGED DUE TO THE CONTRACTORS OPERATIONS, AND TO NOTIFY THE ENGINEER PROMPTLY OF ALL CONFLICTS OF THE WORK WITH EXISTING UTILITIES

130.0 VC LT.
k = 142

PVC 45+15.00
EL 567.42

PVI 45+80.00
EL 569.00
e = -0.15

PVT 46+45.00
EL 569.99

NG R.O.W. LEFT

NG ℄

T/C LT. & RT. @ +2.44%

NG R.O.W. RIGHT

T/C LT. & RT. @ +1.52%

130.0 VC RT.
k = 142

T/C RT. ELEV.

43+00 44+00 45+00 46+00 47+00 48+00

RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
4300 BELTWAY PLACE SUITE 130 ARLINGTON, TEXAS 76018 METRO (817)467-7700
1380 U.S. HIGHWAY 287 N, SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-8700
6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.WierAssociates.com

PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
PAVING
PLAN & PROFILE
STA 43+00 TO 48+00

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
3/28/08

LAST SHEET EDIT DATE 03-28-2008
WA# 04141

SHEET NO.
P107

TIME 6:41 FILE: 04141-PAVE7.dwg

STA 48+26.84
OFF 51.50
FUTURE CURB RETURN
T/C = 572.75

STA 49+02.99
OFF 116.01
T/P = 577.01±

STA 49+06.86
OFF 117.20
T/P = 577.80±

FUTURE 6' SIDEWALK

THE CAMBRIDGE COMPANIES, INC. TRUSTEE
VOL. 101, PG. 795
D.R.R.C.T.

STA 48+55.09
OFF 51.50
T/C = 574.83

10 L.F. TRANSITION 6" TO 0" CURB

12' W.L.

STA 48+00.00
OFF 51.50
T/C = 572.34

6" ROLLED ASPHALT CURB

FUTURE PAVEMENT

REFER TO SHEET P203 FOR TEMPORARY ASPHALT GRADING

STA 49+26.70
OFF 51.50
T/P = 577.55±

SAWCUT LINE

INTERSTATE 30

TRANSITION CROSS-SLOPE

STA 48+00
CONST. 27 L.F.
CONCRETE STREET
HEADER PER
NCTCOG STD.
DRAWING No. 2070

STA 48+00.00
OFF 26.50
T/C = 572.75

10 L.F. TRANSITION 6" TO 0" CURB

STA 48+92.73
OFF 26.50
T/P = 575.64

STA 49+45.07
OFF 9.33
T/P = 576.82±

FUTURE UNDERPASS

1041.00' N 00°20'18" W

STA 50+78.62 S.H. 205 BYPASS
= STA 305+29.68 INTERSTATE 30

MATCH LINE STA 48+00

S.H. 205 BYPASS

2" PVC STREET LIGHT CONDUIT

STA 49+41.07
OFF 10.58
T/P = 575.81±

FUTURE PAVEMENT

FUTURE 12' W.L.

FUTURE 6' SIDEWALK

THE CAMBRIDGE COMPANIES, INC. TRUSTEE
VOL. 101, PG. 795
D.R.R.C.T.

S H . 2 0 5 B Y P A S S

CURVE TABLE						
NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	BEARING
106	50.00	106°52'13"	93.26	67.41	80.32	S 53°46'25"E
111	50.00	72°38'37"	63.39	36.76	59.23	N 35°59'00"E

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BENCHMARKS

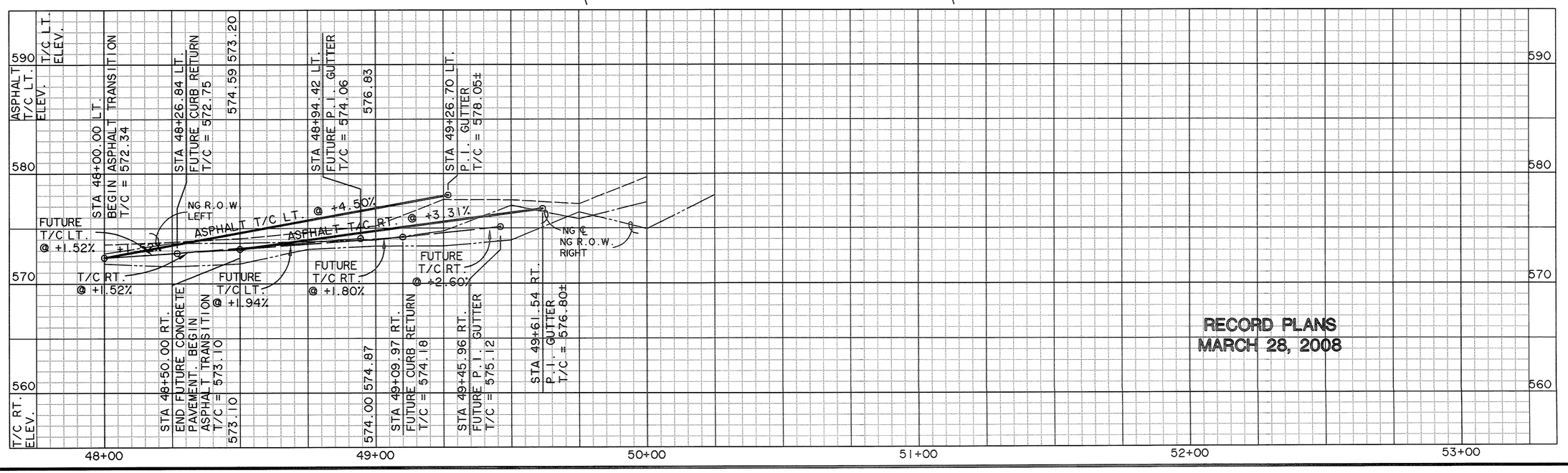
1. BOX CUT WITH "X" CUT IN CENTER OF EXISTING SIDEWALK 2' SOUTH OF NORTH EDGE AT SOUTHEAST CORNER OF S.H. No. 205 BYPASS AND S.H. No. 276

ELEV. 580.40

2. BOX CUT ON SOUTHEAST TOP OF HEADWALL ON SOUTH SIDE OF I.H. No. 30 ACCESS ROAD APPROX. 325' EAST OF FUTURE S.H. No. 205 BYPASS AND ON WEST SIDE OF NESBIT METAL CO. ORANGE METAL BLDG.

ELEV. 573.70

SCALE (feet)
0 20 40 60



RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
4300 BELTWAY PLACE SUITE 130 ARLINGTON, TEXAS 76018 METRO (817)467-7700
1380 U.S. HIGHWAY 287 N, SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-8700
6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.WierAssociates.com

PHASE I S.H. 205 BYPASS FROM S.H. 276 TO INTERSTATE 30
PAVING
PLAN & PROFILE
STA 48+00 TO END

STATE OF TEXAS
PHILIP L. GRAHAM
94719
(CENSED)
PROFESSIONAL ENGINEER
3/28/2008

LAST SHEET EDIT DATE 03-28-2008
WA# 04141

SHEET NO.
P108

TIME: 6:42 FILE: 04141-PAVE8.dwg

CAUTION !!

EXISTING UTILITIES ARE INDICATED ON THE PLANS FROM AVAILABLE INFORMATION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION OF ALL UTILITIES, TO NOTIFY ALL UTILITY COMPANIES OF THE CONTRACTORS OPERATIONS, TO PROTECT ALL UTILITIES FROM DAMAGE, TO REPAIR ALL UTILITIES DAMAGED DUE TO THE CONTRACTORS OPERATIONS, AND TO NOTIFY THE ENGINEER PROMPTLY OF ALL CONFLICTS OF THE WORK WITH EXISTING UTILITIES.

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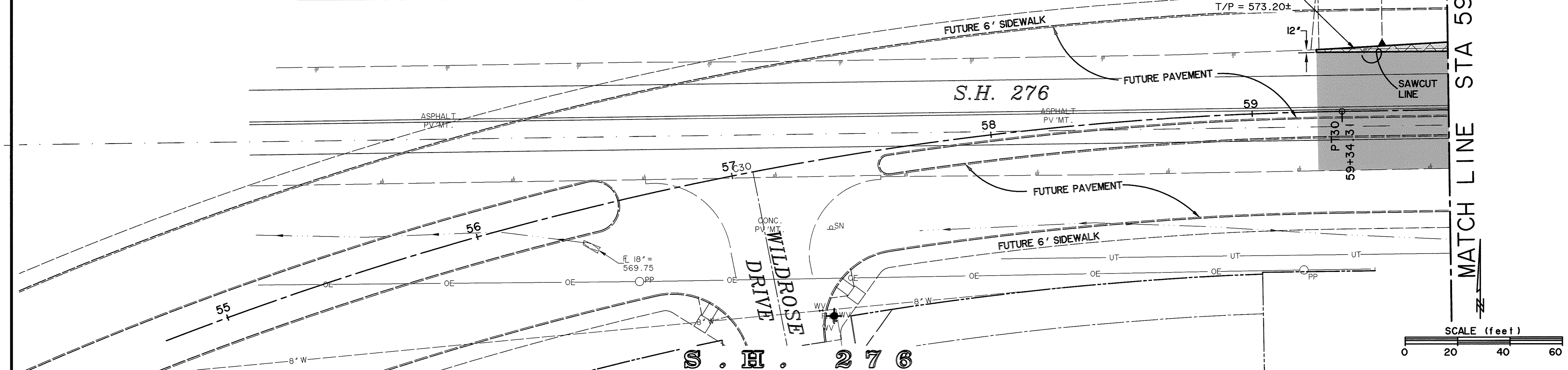
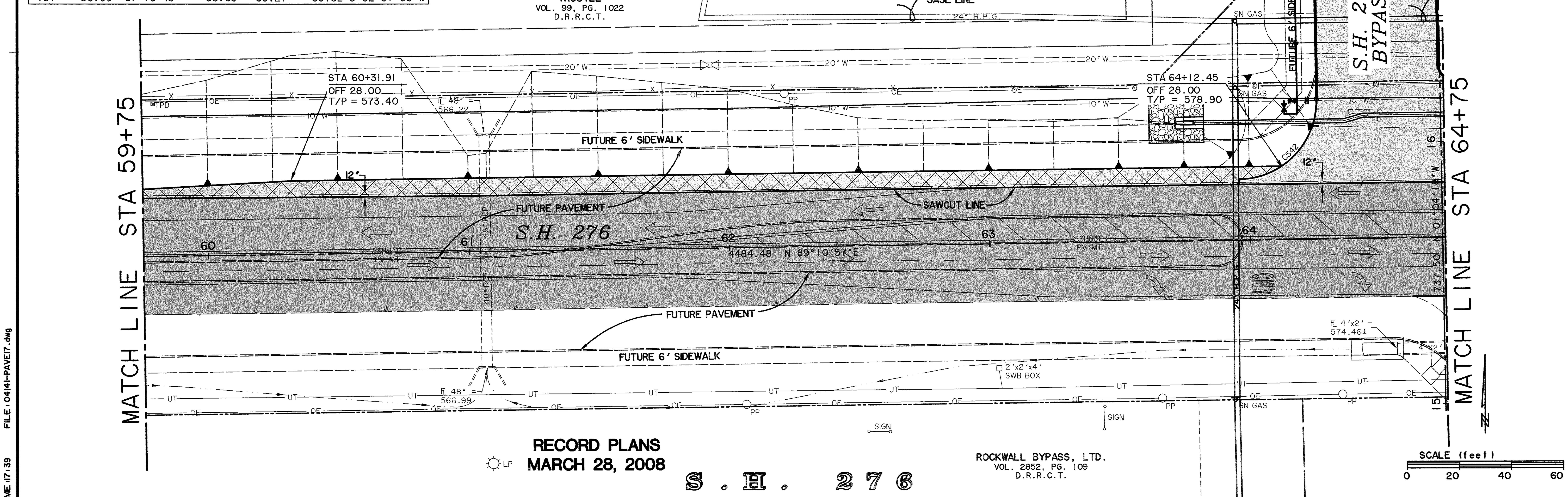
1. BOX CUT WITH 'X' CUT IN CENTER OF EXISTING SIDEWALK 2' SOUTH OF NORTH EDGE AT SOUTHEAST CORNER OF S.H. No. 205 BYPASS AND S.H. No. 276
   ELEV. 580.40
2. BOX CUT ON SOUTHEAST TOP OF HEADWALL ON SOUTH SIDE OF I.H. No. 30 ACCESS ROAD APPROX. 325' EAST OF FUTURE S.H. No. 205 BYPASS AND ON WEST SIDE OF NESBIT METAL CO. ORANGE METAL BLDG.
   ELEV. 573.70



CURVE TABLE

NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	BEARING
131	50.00	67°10'49"	58.63	33.21	55.32	S 32°31'06"W



RECORD PLANS
MARCH 28, 2008

FILE: 04141-PAVE17.dwg

TIME: 17:39

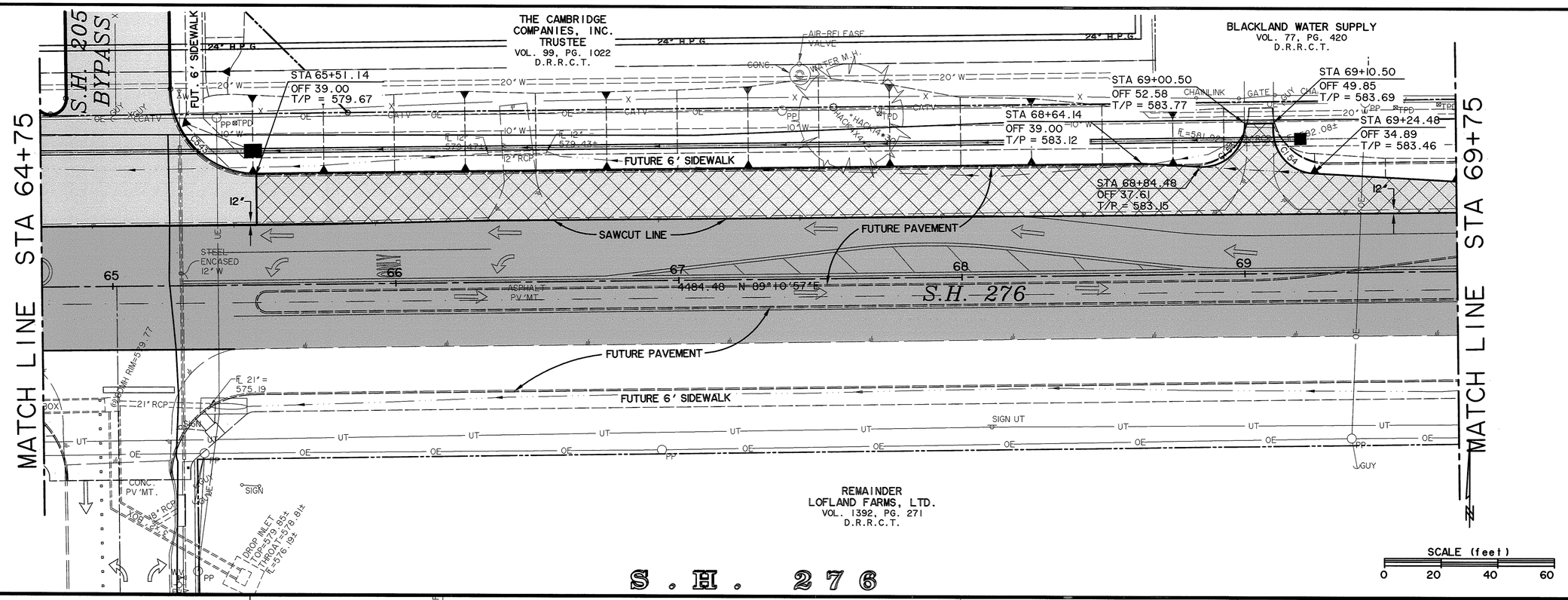
PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
4300 BELTWAY PLACE SUITE 130 ARLINGTON, TEXAS 76018 METRO (817)467-7700
1300 U.S. HIGHWAY 287 N, SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-8700
6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-6000
www.WierAssociates.com

PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
S.H. 276 WIDENING
PAVING PLAN

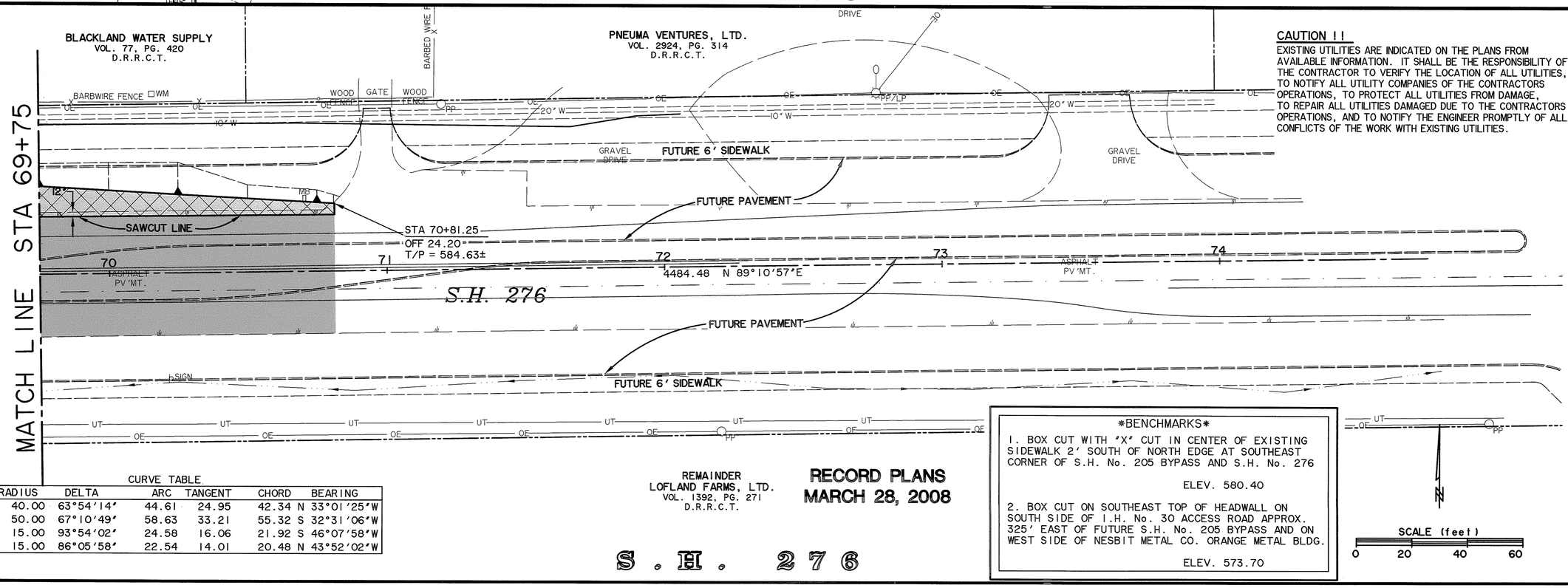
STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
3/22/08

LAST SHEET EDIT DATE 11-02-2007
WA# 04141

SHEET NO. P109



S . H . 276



S . H . 276

CURVE TABLE

NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	BEARING
128	40.00	63°54'14"	44.61	24.95	42.34	N 33°01'25"W
131	50.00	67°10'49"	58.63	33.21	55.32	S 32°31'06"W
153	15.00	93°54'02"	24.58	16.06	21.92	S 46°07'58"W
154	15.00	86°05'58"	22.54	14.01	20.48	N 43°52'02"W

CAUTION !!

EXISTING UTILITIES ARE INDICATED ON THE PLANS FROM AVAILABLE INFORMATION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION OF ALL UTILITIES, TO NOTIFY ALL UTILITY COMPANIES OF THE CONTRACTORS OPERATIONS, TO PROTECT ALL UTILITIES FROM DAMAGE, TO REPAIR ALL UTILITIES DAMAGED DUE TO THE CONTRACTORS OPERATIONS, AND TO NOTIFY THE ENGINEER PROMPTLY OF ALL CONFLICTS OF THE WORK WITH EXISTING UTILITIES.

BENCHMARKS

1. BOX CUT WITH 'X' CUT IN CENTER OF EXISTING SIDEWALK 2' SOUTH OF NORTH EDGE AT SOUTHEAST CORNER OF S.H. No. 205 BYPASS AND S.H. No. 276

ELEV. 580.40

2. BOX CUT ON SOUTHEAST TOP OF HEADWALL ON SOUTH SIDE OF I.H. No. 30 ACCESS ROAD APPROX. 325' EAST OF FUTURE S.H. No. 205 BYPASS AND ON WEST SIDE OF NESBIT METAL CO. ORANGE METAL BLDG.

ELEV. 573.70

RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
4300 BELTWAY PLACE SUITE 130 ARLINGTON, TEXAS 76018 METRO (817)467-7700
1380 U.S. HIGHWAY 287 N, SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-6700
6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8600
www.WierAssociates.com

PHASE I S.H. 205 BYPASS FROM S.H. 276 TO INTERSTATE 30
S.H. 276 WIDENING
PAVING PLAN

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
3/28/08

LAST SHEET EDIT DATE 11-02-2007
WA# 04141

SHEET NO. P110

FILE: 04141-PAVE18.dwg
TIME: 17:49

NO.	DATE	DESCRIPTION	BY
1	9-07-07	CORRECTED LABELS & ELEVATIONS	JRA
2	10-31-07	REDESIGNED S.H. 276 CONNECTION & CHANGED S.H. 205 BYPASS TO CITY SECTION	

ASPHALT TRANSITION T/C ELEVATIONS

POINT	STATION	LEFT T/C ELEVATION	RIGHT T/P ELEVATION
1	17+00	577.81	577.31
2	17+25	577.78	577.26
3	17+50	577.82	577.27
4	17+75	577.82	577.34
5	18+00	577.94	577.48

CURVE TABLE

NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	BEARING
C129	350.00	25°29'54"	155.76	79.19	154.48	S 13°49'15"E
C132	375.00	21°39'09"	141.72	71.71	140.87	S 11°53'53"E
C537	251.00	10°03'03"	44.03	22.07	43.97	S 07°28'03"E
C542	30.00	90°21'30"	47.31	30.19	42.56	S 44°06'27"W
C543	30.00	89°44'45"	46.99	29.87	42.33	N 45°56'40"W

S. H. 276

S. H. 205 BYPASS

MATCH LINE STA 18+00

STA 63+96.15
OFF 23.22
T/P = 577.78

STA 16+17.11
OFF 47.50
T/C = 577.83
END CURB

STA 17+13.00 S.H. 205 BYPASS
OFF 51.88' LT. 1 2
REMOVE EXIST. 4'x4' DROP INLET
CONST. 10' REC. CURB INLET
TOP = 576.67
FL = 571.67

THE CAMBRIDGE COMPANIES, INC.
VOL. 99, PG. 1022
D.R.R.C.T.

FUTURE 6' SIDEWALK

12" W.L.

STA 16+50.00
OFF 47.00
FL = 576.36

STA 16+75.00
OFF 47.00
FL = 576.24

STA 17+00.00
OFF 47.00
FL = 576.18

STA 16+23.94
OFF 4.98
T/C = 578.58

STA 16+29.44
OFF 0.50
T/C = 578.33

1737.50 N 01°04'18"W

STA 16+98.34
OFF 10.50
T/C = 577.82

6" ROLLED ASPHALT CURB

STA 18+00.00
OFF 3.54
T/C = 577.94

STA 16+29.44
OFF 10.50
T/C = 578.37

STA 16+32.20
OFF 47.50
T/C = 579.03
END CURB

STA 16+98.34
OFF 47.50
T/C = 578.07

6" ROLLED ASPHALT CURB

FUTURE 6' SIDEWALK

FUTURE 12" W.L.

STA 65+51.14
OFF 39.00
T/P = 579.67

THE CAMBRIDGE COMPANIES, INC.
VOL. 99, PG. 1022
D.R.R.C.T.

STA 18+00.00 S.H. 205 BYPASS
OFF 49.00' RT. 1
REMOVE EXIST. DROP INLET
CONST. 15' REC. CURB INLET
TOP = 577.02 2
FL = 572.52

BENCHMARKS

1. BOX CUT WITH "X" CUT IN CENTER OF EXISTING SIDEWALK 2' SOUTH OF NORTH EDGE AT SOUTHEAST CORNER OF S.H. No. 205 BYPASS AND S.H. No. 276
ELEV. 580.40

2. BOX CUT ON SOUTHEAST TOP OF HEADWALL ON SOUTH SIDE OF I.H. No. 30 ACCESS ROAD APPROX. 325' EAST OF FUTURE S.H. No. 205 BYPASS AND ON WEST SIDE OF NESBIT METAL CO. ORANGE METAL BLDG.
ELEV. 573.70

CAUTION !!

EXISTING UTILITIES ARE INDICATED ON THE PLANS FROM AVAILABLE INFORMATION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION OF ALL UTILITIES, TO NOTIFY ALL UTILITY COMPANIES OF THE CONTRACTORS OPERATIONS, TO PROTECT ALL UTILITIES FROM DAMAGE, TO REPAIR ALL UTILITIES DAMAGED DUE TO THE CONTRACTORS OPERATIONS, AND TO NOTIFY THE ENGINEER PROMPTLY OF ALL CONFLICTS OF THE WORK WITH EXISTING UTILITIES.

RECORD PLANS
MARCH 28, 2008

SCALE (feet)
0 10 20 30

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
4300 BELTWAY PLACE SUITE 130 ARLINGTON, TEXAS 76018 METRO (817)467-7700
1380 U.S. HIGHWAY 287 N. SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-6700
6949 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.Wierassociates.com

PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
S.H. 205 & S.H. 276 INTERSECTION
ASPHALT TRANSITION PAVING PLAN

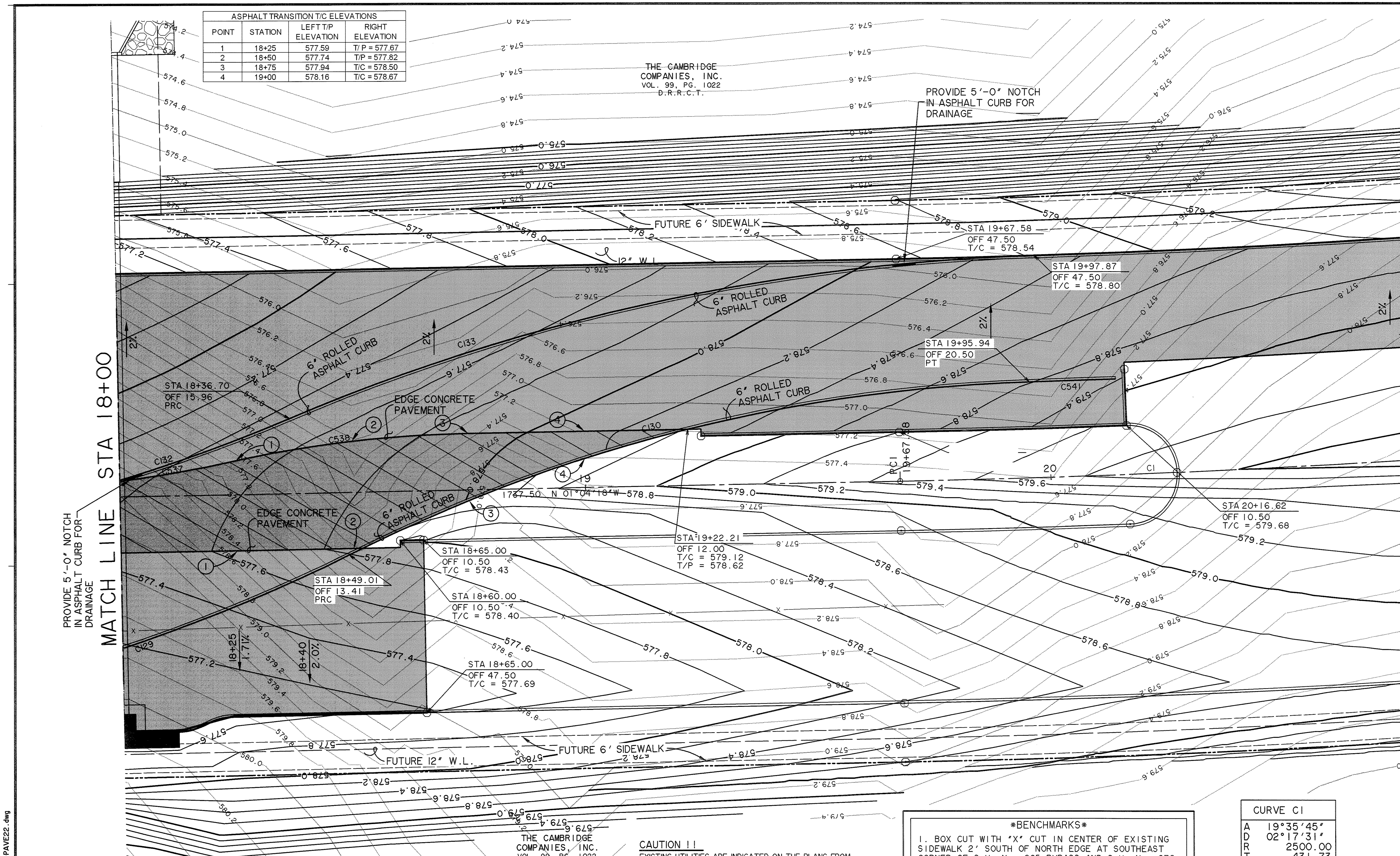
STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED
PROFESSIONAL ENGINEER
11/30/2007

LAST SHEET EDIT
DATE 11-14-2007
WA# 0414I

SHEET NO.
P201

FILE: I:\0414I-PAVE21.dwg
TIME: 8:36

ASPHALT TRANSITION T/C ELEVATIONS			
POINT	STATION	LEFT T/P ELEVATION	RIGHT ELEVATION
1	18+25	577.59	T/ P = 577.67
2	18+50	577.74	T/P = 577.82
3	18+75	577.94	T/C = 578.50
4	19+00	578.16	T/C = 578.67



CURVE TABLE

NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	BEARING
129	350.00	25°29'54"	155.76	79.19	154.48	S 13°49'15"E
130	350.00	24°50'55"	151.79	77.11	150.60	N 14°08'45"W
132	375.00	21°39'09"	141.72	71.71	140.87	S 11°53'53"E
133	450.00	20°57'30"	164.61	83.23	163.69	N 12°14'42"W
537	251.00	10°03'03"	44.03	22.07	43.97	S 07°28'03"E
538	254.00	11°25'16"	50.63	25.40	50.55	N 06°46'56"W
541	2479.50	00°25'40"	18.51	9.25	18.51	S 01°56'08"E

CAUTION !!

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RECORD PLANS
MARCH 28, 2008

BENCHMARKS

1. BOX CUT WITH "X" CUT IN CENTER OF EXISTING SIDEWALK 2' SOUTH OF NORTH EDGE AT SOUTHEAST CORNER OF S.H. No. 205 BYPASS AND S.H. No. 276

ELEV. 580.40

2. BOX CUT ON SOUTHEAST TOP OF HEADWALL ON SOUTH SIDE OF I.H. No. 30 ACCESS ROAD APPROX. 325' EAST OF FUTURE S.H. No. 205 BYPASS AND ON WEST SIDE OF NESBIT METAL CO. ORANGE METAL BLDG.

ELEV. 573.70

CURVE C1	
Δ	19°35'45"
D	02°17'31"
R	2500.00
T	431.73
L	855.03
E	37.00

SCALE (feet)
0 10 20 30

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
4300 BELTWAY PLACE SUITE 130 ARLINGTON, TEXAS 76018 METRO (817)467-7700
1380 U.S. HIGHWAY 287 N, SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-8700
6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.WierAssociates.com

PHASE I S.H. 205 BYPASS FROM S.H. 276 TO INTERSTATE 30
S.H. 205 & S.H. 276 INTERSECTION ASPHALT TRANSITION PAVING PLAN

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
11/30/2007

LAST SHEET EDIT DATE 11-30-2007
WA# 04141
SHEET NO. P202

FILE: 04141-PAVE22.dwg
TIME: 8:05

CURVE TABLE						
NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	BEARING
106	50.00	106°52'13"	93.26	67.41	80.32	S 53°46'25"E
111	50.00	72°38'37"	63.39	36.76	59.23	N 35°59'00"E

BENCHMARKS

1. BOX CUT WITH 'X' CUT IN CENTER OF EXISTING SIDEWALK 2' SOUTH OF NORTH EDGE AT SOUTHEAST CORNER OF S.H. No. 205 BYPASS AND S.H. No. 276

ELEV. 580.40

2. BOX CUT ON SOUTHEAST TOP OF HEADWALL ON SOUTH SIDE OF I.H. No. 30 ACCESS ROAD APPROX. 325' EAST OF FUTURE S.H. No. 205 BYPASS AND ON WEST SIDE OF NESBIT METAL CO. ORANGE METAL BLDG.

ELEV. 573.70

CAUTION !!

EXISTING UTILITIES ARE INDICATED ON THE PLANS FROM AVAILABLE INFORMATION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION OF ALL UTILITIES, TO NOTIFY ALL UTILITY COMPANIES OF THE CONTRACTORS OPERATIONS, TO PROTECT ALL UTILITIES FROM DAMAGE, TO REPAIR ALL UTILITIES DAMAGED DUE TO THE CONTRACTORS OPERATIONS, AND TO NOTIFY THE ENGINEER PROMPTLY OF ALL CONFLICTS OF THE WORK WITH EXISTING UTILITIES.

ASPHALT TRANSITION ELEVATIONS					
POINT	STATION	INSIDE T/C ELEV.	OUTSIDE T/C ELEV.	INSIDE T/P ELEV.	OUTSIDE T/P ELEV.
1	48+25	573.69	573.47		
2	48+50	574.6	574.60		
3	48+75	575.79	575.50		
4	49+00			575.87	576.90
5	49+25			576.74	577.58

STA 49+45.07
OFF 9.33
T/P = 576.82±

STA 49+41.07
OFF 10.58
T/P = 575.82±

STA 49+06.86
OFF 117.20
T/P = 577.80±

STA 49+02.95
OFF 116.01
T/P = 576.97±

STA 48+92.73
OFF 26.50
T/C = 575.64

STA 48+55.10
OFF 51.50
T/C = 574.83

STA 48+00.00
OFF 51.50
T/C = 572.34
BEGIN 6" ROLLED ASPHALT CURB

STA 48+00.00
OFF 26.50
T/C = 572.75
BEGIN 6" ROLLED ASPHALT CURB

SAWCUT LINE
1.94% 49+25
1.77% 49+00
0.92% 48+75
0.07% 48+50
0.76% 48+25
1.63% 48+00
.89% 47+75

10 L.F. TRANSITION 6" TO 0" CURB

6" ROLLED ASPHALT CURB

FUTURE PAVEMENT

FUTURE 12" W.L.

12" W.L.

16" W

NO CURB

ASPHALT PVMT

I.H. 30

S.H. 205 BYPASS

THE CAMBRIDGE COMPANIES, INC. TRUSTEE
VOL. 101, PG. 795
D.R.R.C.T.

SCALE (feet)
0 10 20 30

RECORD PLANS
MARCH 28, 2008

PREPARED BY:
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ENGINEERS SURVEYORS LAND PLANNERS
4300 BELTWAY PLACE SUITE 130 ARLINGTON, TEXAS 76018 METRO (817)467-7700
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6949 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.Wierassociates.com

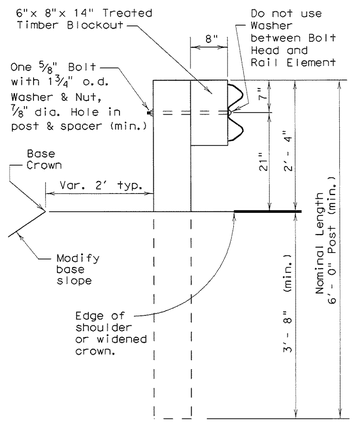
PHASE I S.H. 205 BYPASS FROM S.H. 276 TO INTERSTATE 30
S.H. 205 & I.H. 30 INTERSECTION ASPHALT TRANSITION PAVING PLAN

PHILIP L. GRAHAM 94719 LICENSED PROFESSIONAL ENGINEER
3/28/08

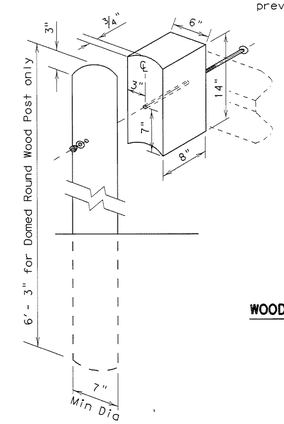
LAST SHEET EDIT DATE 03-28-2008
WA# 04141

SHEET NO. P203

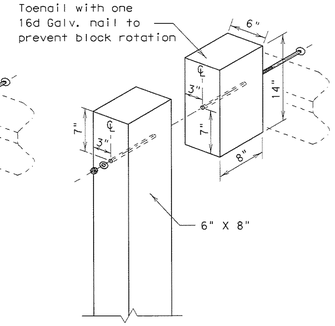
FILE: 04141-PAVE23.dwg
TIME: 11:46



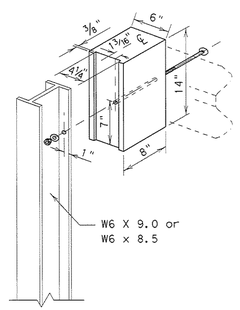
TYPICAL POST



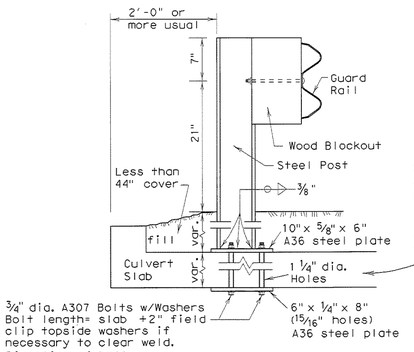
WOOD BLOCKOUT TO ROUND WOOD POST DETAIL



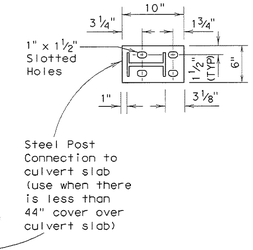
WOOD BLOCKOUT TO RECTANGULAR WOOD POST DETAIL

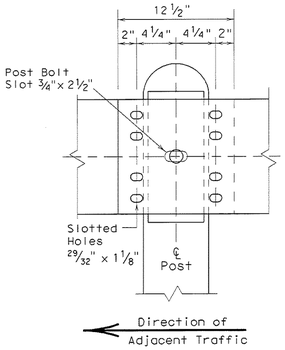


WOOD BLOCKOUT TO STEEL POST DETAIL

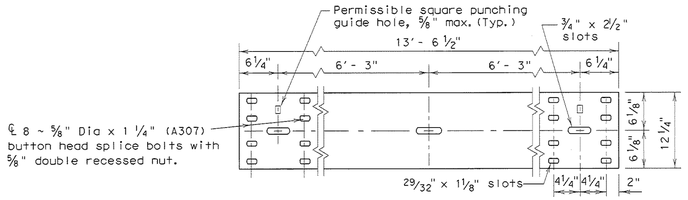


LOW FILL CULVERT POST MOUNTING OPTION





RAIL SPLICE

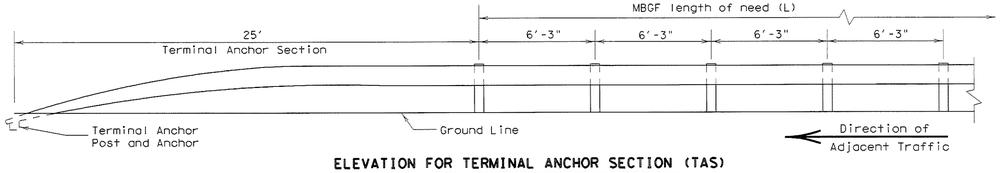


ELEVATION OF NOMINAL 12 1/2 FOOT GUARDRAIL

(25 foot sections may also be supplied)

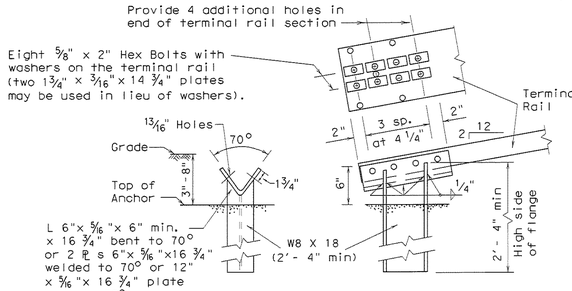
GENERAL NOTES

1. The exact position of guard fence shall be as shown elsewhere on the plans or as directed by the Engineer. Guard fence shall be transitioned to a smooth connection with other guard fence or structure railing as shown elsewhere on plans.
2. Rail element shall meet all requirements of AASHTO M-180 except as modified on the plans. The terminal connectors shall be of the same material, but shall not be less than 10 gauge.
   Contractor shall verify that the locations of bolt holes match those in the Terminal Connector prior to ordering of materials.
3. Unless otherwise shown in the plans, guard fence placed in the vicinity of curbs shall be blocked out so that the face of curb is located directly below or behind the face of the blockout. Rail placed over curbs shall be installed so that the post bolt is located approximately 21-inches above the gutter pan or roadway surface.
4. Unless otherwise shown in the plans, MBGF shall be placed with the face of rail directly above the shoulder edge (or curbface) except for upstream end treatments.
5. At the option of the Contractor, the rail elements for the guard fence may be furnished in either 12 1/2 or 25 foot nominal lengths with post bolt slots for connection to posts.
6. The terminal anchor post shall be set in Class "A" concrete in (unless otherwise shown on plans) in accordance with Item, "Portland Cement Concrete". Concrete shall be subsidiary to the bid item requiring construction of the terminal rail section and anchorage system.
7. An anchor other than to a terminal anchor post shall consist of a connection similar to the rail splice or similar to the terminal connector.
8. Galvanized washers used with the eight 5/8" splice bolts and nuts that are provided for terminal connectors and/or terminal anchor posts shall be 1 3/4" x 3" x 3/16", or 1" i.d. and 2" o.d. x 0.134" (ANSI B27.2) narrow Type A plain washers.
9. Special fabrication will be required at installations having a curvature of less than 150' radius.
10. Button head post bolts (A307) shall be of sufficient length to extend through the full thickness of the nut and no more than 3/4" beyond it. Button head splice bolts (A307) are 5/8" x 1 1/4" with a 5/8" double recessed nut. Fittings (bolts, nuts, and washers) shall be in accordance with Item, Metal for Structures". Fittings shall be subsidiary.
11. Crown will be widened to accommodate guard fence.
12. If guardrail is placed on a side slope away from the pavement edge, then the slope rate between the edge of the pavement and the face of the barrier will be 1V:10H or flatter.
13. Posts shall not be set full depth in concrete.
14. Where solid rock is encountered or where shown on the plans, the diameter of the holes shall be approximately 12 inches, the backfilling shall be with a cohesionless material, and embedment depth shall be 1'-6" or more as directed by the Engineer.
15. Unless otherwise directed by the Engineer, a composite material post and/or blockout from the Department approved list of suppliers may be substituted for a post and/or blockout of similar dimensions. The list of approved suppliers of posts and blockouts will be maintained by the Construction Division, TxDOT.

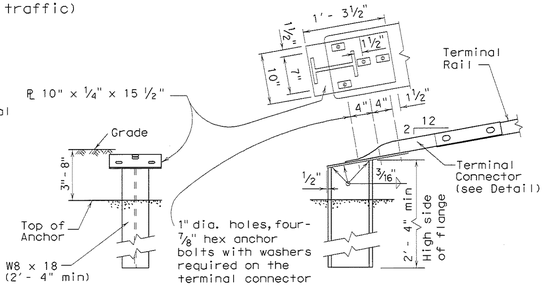


ELEVATION FOR TERMINAL ANCHOR SECTION (TAS)

(Terminal anchor sections are only for downstream guardrail end anchorage usage outside the horizontal clearance area of opposing traffic)

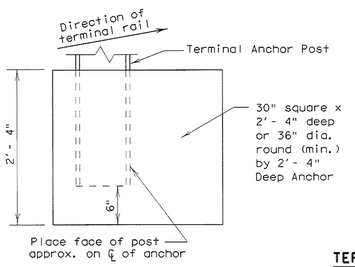


Note: This post requires four additional holes (shop or field) in the terminal rail member with eight 5/8" bolts and washer plates as shown for attachment.

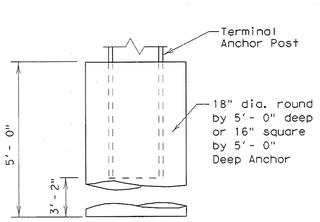


Note: This optional post requires the use of the 10 ga. terminal connector with four 7/8" hex bolts for attachment to the anchor post.

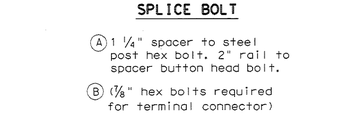
TERMINAL ANCHOR POST OPTIONS



Notes:
Either post may be used with either anchor.
No construction joint is allowed in the concrete anchor.
Terminal rail may be bolted to post and in twist position prior to placing concrete anchor.
If concrete anchor is precast, the area should be compacted as directed by the Engineer, when placed in the field.



TERMINAL CONCRETE ANCHOR OPTIONS

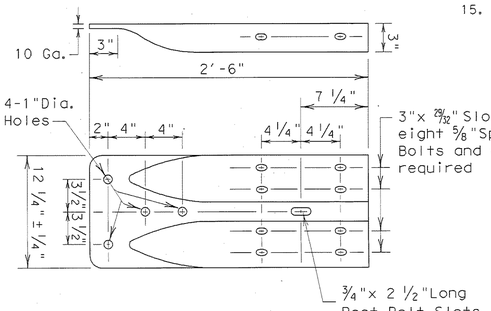


SPLICE BOLT

(A) 1 1/4" spacer to steel post hex bolt. 2" rail to spacer button head bolt.

(B) 7/8" hex bolts required for terminal connector)

TERMINAL CONNECTOR : The terminal connector may also be used on the MBGF(TL2) transition (See MBGF(TL2) Standard Sheet), or on the downstream end of a concrete rail located outside the horizontal clearance area of opposing traffic. (See BED Standard Sheet)



TERMINAL CONNECTOR

R = Radius
D = Diameter

RECORD PLANS
MARCH 28, 2008

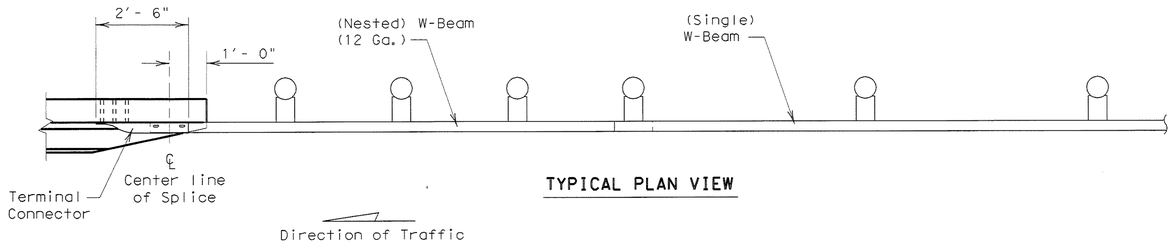
Texas Department of Transportation
Design Division (Roadway)

METAL BEAM GUARD FENCE

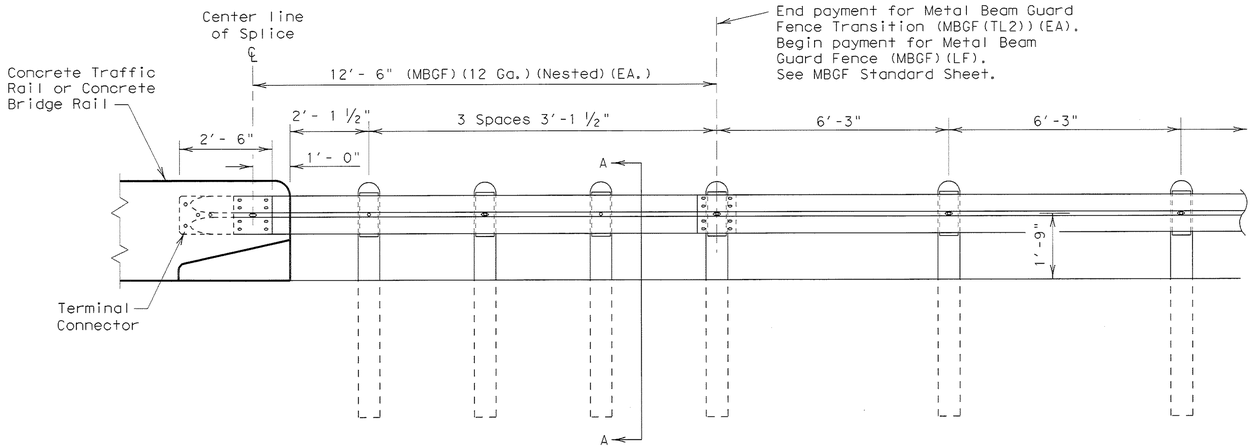
MBGF-03A

FILE: mbgf03a.dgn	DN: MAM	CK: MAM	DW: RAR	CK: MAM	
© TxDOT JULY 1994	DIST	FEDERAL AID PROJECT			SHEET
REVISIONS					P301
	COUNTY		CONTROL	SECT	JOB	HIGHWAY

LEVELS DISPLAYED
1



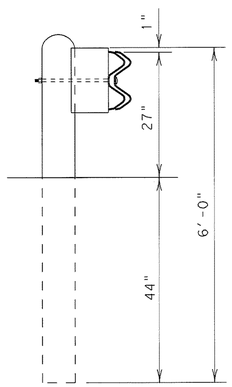
TYPICAL PLAN VIEW



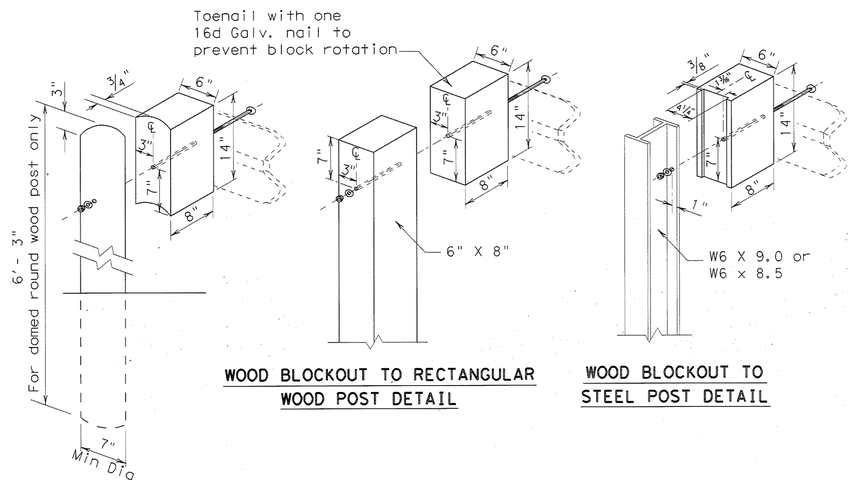
TYPICAL ELEVATION VIEW

GENERAL NOTES

1. The type of post (round wood post, rectangular wood post, or steel post) will be shown elsewhere in the plans. The exact position of transitions shall be shown elsewhere in the plans or as directed by the Engineer.
2. Rail element shall meet all requirements of AASHTO M-180 except as modified on the plans.
3. Button head post bolts (A307) shall be of sufficient length to extend through the full thickness of the nut and no more than ¾" beyond it. Button head splice bolts (A307) are ⅝" x 1 ¼" with a ⅝" double recessed nut. Galvanized fittings (bolts, nuts, and washers) shall be in accordance with Item, "Metal For Structures". Fittings shall be subsidiary to the bid item requiring construction of transition.
4. Crown will be widened to accommodate transitions.
5. Where solid rock is encountered or where shown on the plans, the diameter of the holes shall be approximately 12 inches, the backfilling shall be with a cohesionless material, and embedment depth shall be 1′- 6" or more as directed by the Engineer.
6. Posts shall not be set full depth in concrete.
7. Unless otherwise directed by the Engineer, a composite material post and/or blockout from the Department approved list of suppliers may be substituted for a post and/or blockout of similar dimensions. The list of approved suppliers of posts and blockouts will be maintained by the Construction Division, TxDOT.
8. Refer to MBGF Standard Sheet for additional details.



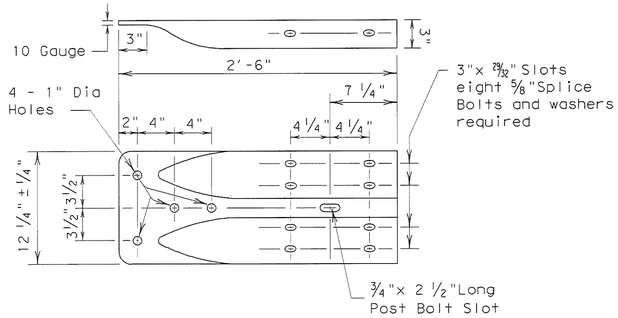
SECTION A-A



WOOD BLOCKOUT TO ROUND WOOD POST DETAIL

WOOD BLOCKOUT TO RECTANGULAR WOOD POST DETAIL

WOOD BLOCKOUT TO STEEL POST DETAIL



TERMINAL CONNECTOR

The use of this railing is restricted to design speeds of 45 mph or less.

RECORD PLANS
MARCH 28, 2008

Texas Department of Transportation
Design Division (Roadway)

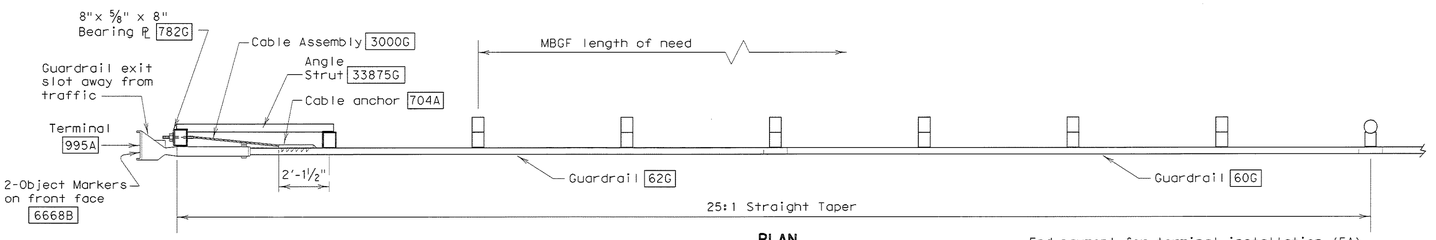
METAL BEAM GUARD FENCE TRANSITION (TL2)

(Low Speed Transition)

MBGF(TL2)-05

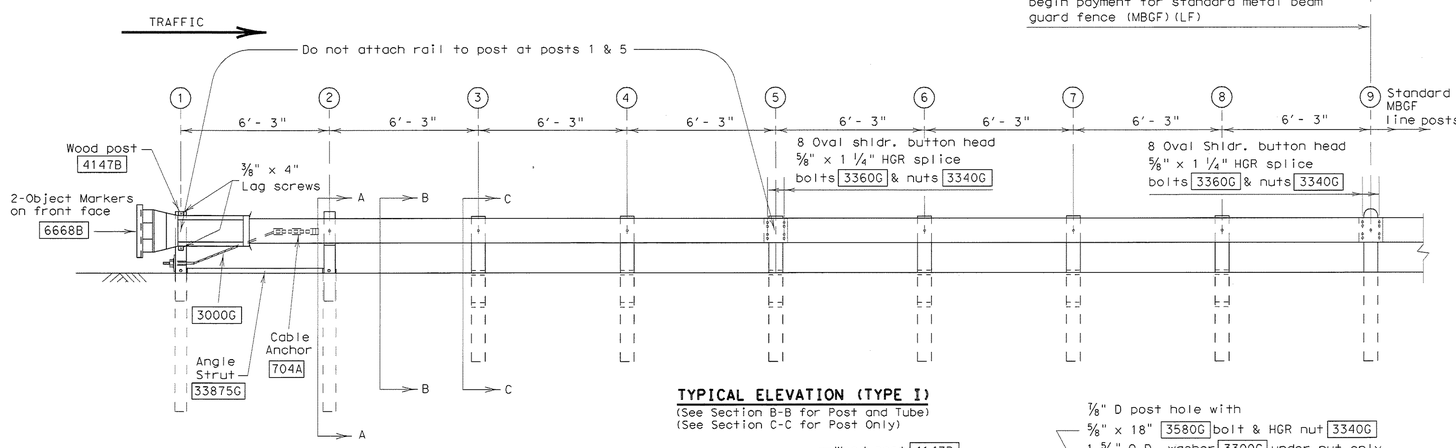
FILE: mbgt1205.dgn	DN: TxDOT	CK: AM	DW: BGD	CK:
©TxDOT April 2003	DIST	FEDERAL AID PROJECT		SHEET
REVISIONS				P302
	COUNTY	CONTROL	SECT	JOB	HIGHWAY

LEVELS DISPLAYED
1

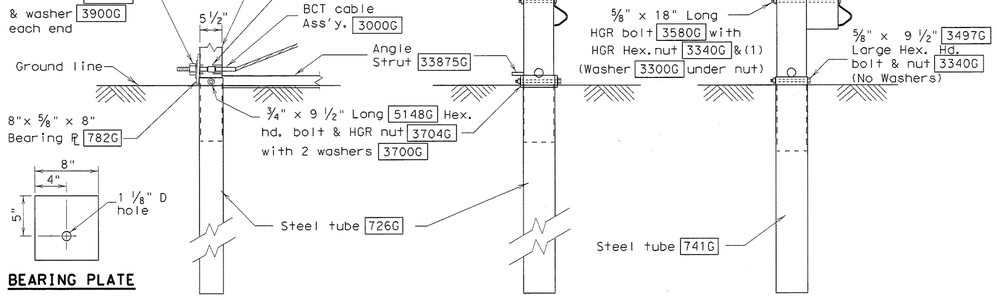


PLAN

End payment for terminal installation (EA) begin payment for standard metal beam guard fence (MBGF)(LF)



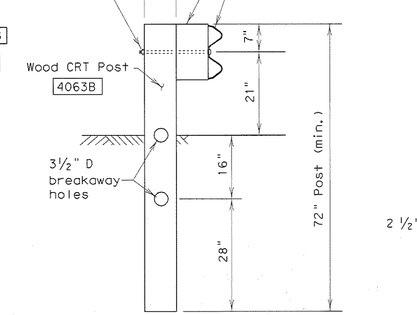
TYPICAL ELEVATION (TYPE I)
(See Section B-B for Post and Tube)
(See Section C-C for Post Only)



BEARING PLATE

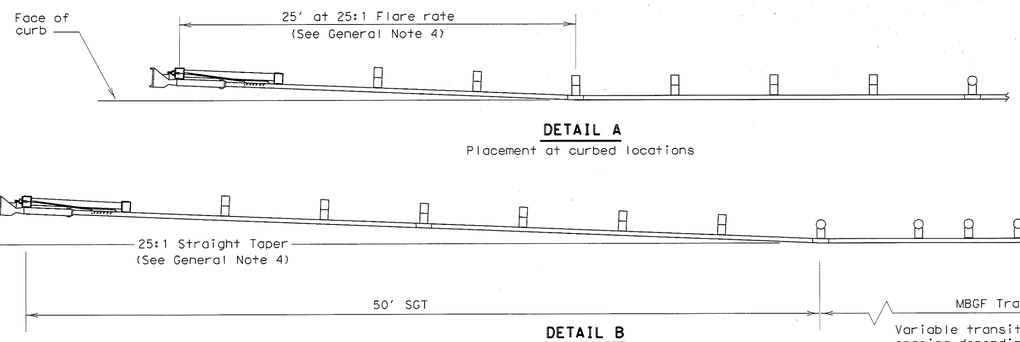
PARTIAL VIEW AT POST #1

SECTION A-A
(at post 2)



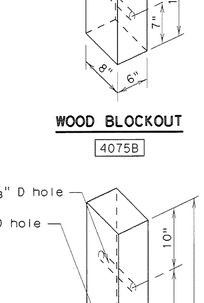
SECTION B-B
(Typ. at Posts 3 thru 8, Type II & III)

SECTION C-C
(Typ. at post only positions)

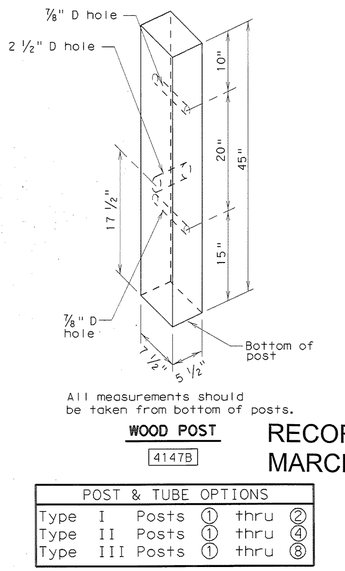


DETAIL A
Placement at curbed locations

DETAIL B
Usual minimum placement to protect bridge ends



WOOD BLOCKOUT
4075B



All measurements should be taken from bottom of posts.

WOOD POST
4147B

POST & TUBE OPTIONS			
Type I	Posts	①	thru ②
Type II	Posts	①	thru ④
Type III	Posts	①	thru ⑧

R = Radius
D = Diameter

RECORD PLANS
MARCH 28, 2008

GENERAL NOTES

1. The Type of SGT unit will be specified elsewhere in the plans. Numbers in circles indicate post position. The Type of SGT unit chosen is a maintenance consideration and does not affect the systems performance.

Post & Tube Options		Post Only
Type I	Posts ① thru ②	Posts ③ thru ⑧
Type II	Posts ① thru ④	Posts ⑤ thru ⑧
Type III	Posts ① thru ⑧	None

2. If the SGT system must be placed on a radius, the minimum radius is 150 feet.
3. All bolts, nuts, cable assemblies, cable anchors, steel tubes & bearing plates shall be galvanized.
4. For non-curb installations, the MBGF will be flared at a rate of 25:1 over the first 50 foot of the system to prevent the terminal head from encroaching on the shoulder. The flare may be decreased or eliminated for specific installations if directed by the Engineer. A 25:1 flare rate will be used at curb sections, beginning at post number 5 and ending at post number one.
5. The steel tubes shall not protrude more than 4 inches above ground. Site grading may be necessary to meet this requirement.
6. The steel tubes may be driven with an approved driving head. They shall not be driven with the wood post in the tube. If the steel tubes are placed in drilled holes, the backfill material must be satisfactorily compacted to prevent tube settlement.
7. When rock excavation is encountered, a 12 inch diameter post hole, 20 inches deep may be used if approved by the Engineer. Granular material will be placed in the bottom of the hole approximately 2 ½ inches deep to provide drainage. The steel tube sleeves will be field cut to 20 inches in length, placed in the hole and backfilled with adequately compacted material excavated from the hole.
8. The breakaway cable assembly must be taut. A locking device, (vice grips or channel lock pliers) should be used to prevent the cable from twisting when tightening the nuts.
9. The wood blockouts shall be "toe nailed" to the rectangular wood posts to prevent them from turning when the wood shrinks.
10. For curb installations, the soil tubes and posts shall be installed at the proper ground elevation behind the curb. The posts will then require field drilling new holes to accommodate the rail to post connection bolt to maintain the proper height of the rail above the gutter pan. The excess post length above the rail will be removed if directed by the Engineer.
11. An object marker shall be installed on the front of the impact head as detailed on D&OM(VIA).
12. A special site evaluation should be considered, prior to using this end treatment where there is less than 25 feet between the extrusion side of the end treatment and any adjacent driving lane.

BILL OF MATERIAL

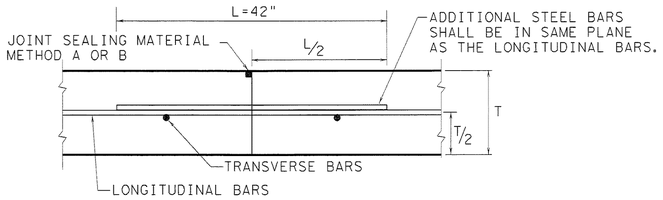
Code #	POST & TUBE OPTIONS Type I Qty.	Type II Qty.	Type III Qty.	DESCRIPTION
62G	1	1	1	#1 Deep Beam Guardrail (12 Ga) at 25'
60G	1	1	1	#2 Deep Beam Guardrail (12 Ga) at 25'
726G	2	2	2	Steel Tube - 6"x 8"x 72"x 1/8" min
741G	0	2	6	Steel Tube - 6" x 8" x 54" x 1/8" min
4147B	2	4	8	Wood Posts - 5 1/2" x 7 1/2" x 45"
4063B	6	4	0	Wood CRT Posts - 6"x 8"x 72"
4075B	6	6	6	Wood Block - 6"x 8"x 14"
705G	1	1	1	Pipe Sleeve - 2" std. pipe x 5 1/2"
782G	1	1	1	Bearing Plate - 8"x 8"x 5/8"
704A	1	1	1	Cable Anchor
3000G	1	1	1	Cable Assembly (3/4" x 78")
33875G	1	1	1	Angle Strut
995A	1	1	1	ET-2000 Plus Guardrail Terminal
				HARDWARE
5148G	2	2	2	3/4" x 9 1/2" Hex Hd (Top of tubes 1&2)A325
3300G	7	7	7	5/8" Washers
3478G	2	2	2	5/8" x 7 1/2" Hex Bolt
3500G	1	1	1	5/8" x 10" Post Bolt (Post 2 of LET)
3580G	6	6	6	5/8" x 18" HGR Post Bolt (posts ③ thru ⑧)
3360G	16	16	16	5/8" x 1 1/4" HGR Splice Bolt
3340G	25	27	31	5/8" HGR Nut (16-spl, 7-posts)
4228G	2	2	2	3/8" x 4" Lag Screw
3910G	2	2	2	1" Hex Nut (Anchor Cable)
3900G	2	2	2	1" Washer (Anchor Cable)
6668B	2	2	2	Object Marker (12" x 12")
3700G	4	4	4	3/4" Washer
3704G	2	2	2	3/4" Heavy Hex Nut
3497G	0	2	6	5/8" x 9 1/2" Hex Hd (Top of Tubes 3-8)A307

Texas Department of Transportation
Design Division (Roadway)

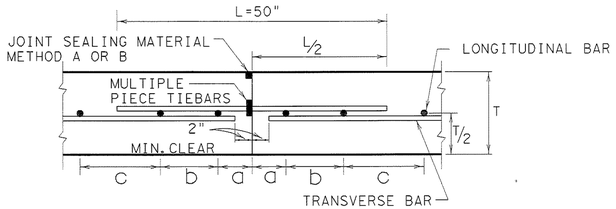
SINGLE GUARDRAIL TERMINAL
(ET-2000 PLUS)
(WOOD POST)
SGT(7)-03A

FILE: sgt703a.dgn	DN: MAM	CK: MAM	DW: BGD	CK:	
© TxDOT APRIL 1997	DIST	FEDERAL AID PROJECT			SHEET P303
REVISIONS	COUNTY	CONTROL	SECT	JOB	HIGHWAY

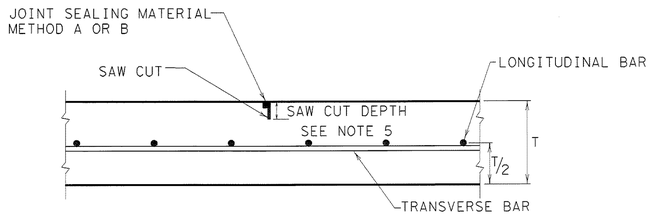
LEVELS DISPLAYED
1



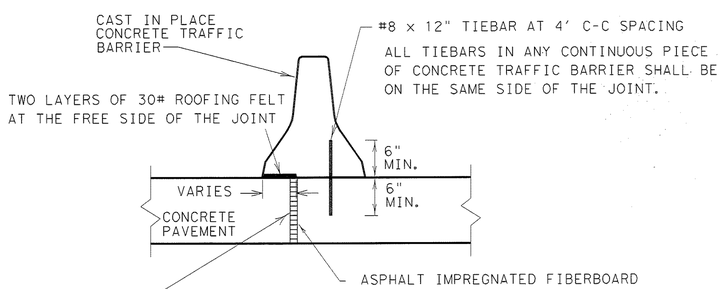
TRANSVERSE CONSTRUCTION JOINT
SECTION X - X



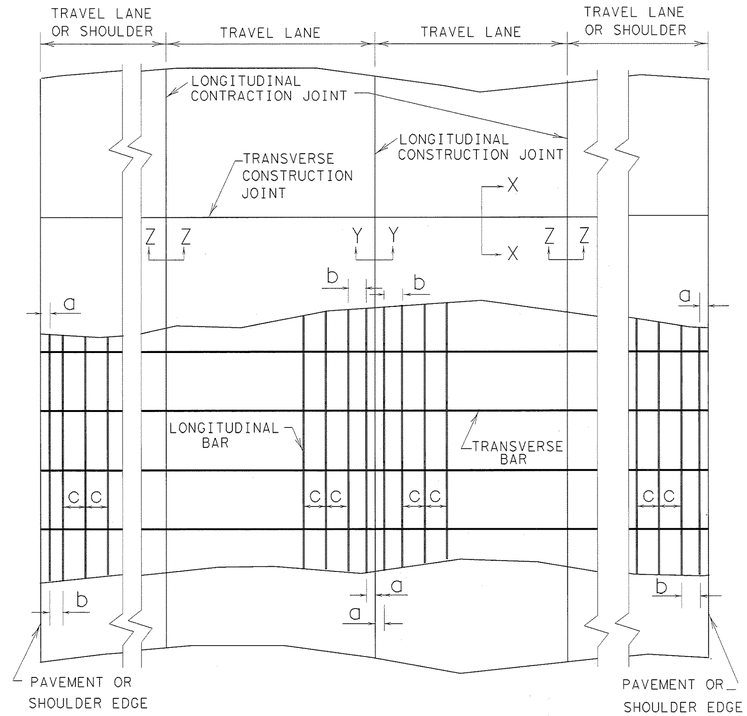
LONGITUDINAL CONSTRUCTION JOINT
SECTION Y - Y



LONGITUDINAL CONTRACTION JOINT
SECTION Z - Z



FREE LONGITUDINAL JOINT DETAIL



TYPICAL PAVEMENT LAYOUT

TABLE NO. 1 LONGITUDINAL STEEL						
SLAB THICKNESS AND BAR SIZE		REGULAR STEEL BARS	FIRST SPACING AT EDGE OR JOINT	SECOND SPACING FROM EDGE OR JOINT	ADDITIONAL STEEL BARS AT TRANSVERSE CONST. JOINT	
T (IN.)	BAR SIZE	SPACING c (IN.)	SPACING a (IN.)	SPACING b (IN.)	SPACING 2 x c (IN.)	LENGTH L (IN.)
8	#6	9	3 TO 4	3 TO 9	18	42
9	#6	8	3 TO 4	3 TO 8	16	42
10	#6	7	3 TO 4	3 TO 7	14	42
11	#6	6.5	3 TO 4	3 TO 6.5	13	42
12	#6	6	3 TO 4	3 TO 6	12	42
13	#6	5.5	3 TO 4	3 TO 5.5	11	42

TABLE NO. 2 TRANSVERSE STEEL								
SLAB THICKNESS AND BAR SIZE		PAVEMENT WIDTH (PW) FROM LONGITUDINAL FREE EDGE TO NEAREST LONGITUDINAL FREE EDGE, FT.						
		PW <=48	PW <=60	PW <=72	PW <=84	PW <=96	PW <=108	PW <=120
T (IN.)	BAR SIZE	SPACING (FT.)	SPACING (FT.)	SPACING (FT.)	SPACING (FT.)	SPACING (FT.)	SPACING (FT.)	SPACING (FT.)
8	#6	3	3	3	3	2.5	2.5	2
9	#6	3	3	3	2.5	2	2	1.5
10	#6	3	3	2.5	2.5	2	1.5	1.5
11	#6	3	2.5	2.5	2	2	1.5	1.5
12	#6	3	2.5	2	2	1.5	1.5	1
13	#6	2.5	2.5	2	1.5	1.5	1.5	1

GENERAL NOTES

1. DETAILS FOR PAVEMENT WIDTH, PAVEMENT THICKNESS AND THE CROWN CROSS-SLOPE SHALL BE SHOWN ELSEWHERE IN THE PLANS.
2. LONGITUDINAL AND TRANSVERSE REINFORCING STEEL SHALL BE #6 DEFORMED STEEL BARS CONFORMING TO ASTM A 615 (GRADE 60) OR ASTM A 996 (GRADE 60).
3. THE DETAIL FOR THE JOINT SEALANT AND RESERVOIR IS SHOWN ON STANDARD SHEET "CONCRETE PAVING DETAILS, JOINT SEALS."
4. PAVEMENT WIDTHS OF MORE THAN 15 FT. SHALL HAVE A LONGITUDINAL JOINT (SECTION Z-Z OR Y-Y). THESE JOINTS SHALL BE LOCATED WITHIN 6 IN. OF THE LANE LINE UNLESS THE JOINT LOCATION IS SHOWN ELSEWHERE ON THE PLANS.
5. THE SAW CUT DEPTH FOR THE LONGITUDINAL JOINT SHALL BE MINIMUM OF ONE THIRD THE SLAB THICKNESS. IT MAY BE MINIMUM OF ONE FOURTH THE SLAB THICKNESS WHEN CRUSHED LIMESTONE IS USED AS THE COARSE AGGREGATE.
6. REINFORCING STEEL SPLICES SHALL BE A MINIMUM OF 25 IN.
7. MULTIPLE PIECE TIEBARS SHALL BE USED AT LONGITUDINAL CONSTRUCTION JOINTS UNLESS OTHERWISE SPECIFIED IN THE PLANS. THE TIEBARS SHALL BE #6 BARS. THE TIEBAR SPACING SHALL BE EQUAL TO THE TRANSVERSE BAR SPACING.
8. STEEL BAR PLACEMENT TOLERANCE SHALL BE +/- 1 IN. HORIZONTALLY AND +/- 0.5 IN. VERTICALLY. THE AVERAGE BAR SPACINGS SHALL CONFORM TO TABLE NO.1 AND TABLE NO.2.
9. MISSING OR DAMAGED TIEBARS SHALL BE REPLACED BY DRILLING AND EPOXY GROUTING AT THE CONTRACTOR'S EXPENSE.
10. AT TRANSVERSE CONSTRUCTION JOINTS, THE ADDITIONAL STEEL BARS SHALL BE PLACED APPROXIMATELY MIDWAY BETWEEN THE LONGITUDINAL STEEL BARS.
11. CONSOLIDATION WITH HAND-MANIPULATED MECHANICAL VIBRATORS IS REQUIRED ADJACENT TO ALL TRANSVERSE CONSTRUCTION JOINTS.

FILE: CRCP103.DGN
LEVELS DISPLAYED

RECORD PLANS
MARCH 28, 2008

Texas Department of Transportation
Construction Division (Pavements)

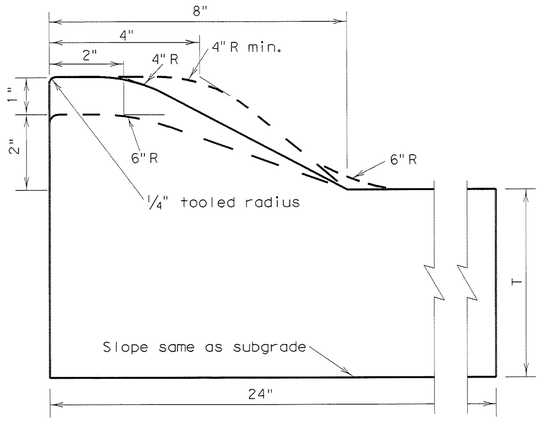
CONTINUOUSLY REINFORCED CONCRETE PAVEMENT

ONE LAYER STEEL BAR PLACEMENT
T-8, 9, 10, 11, 12, &13 INCHES

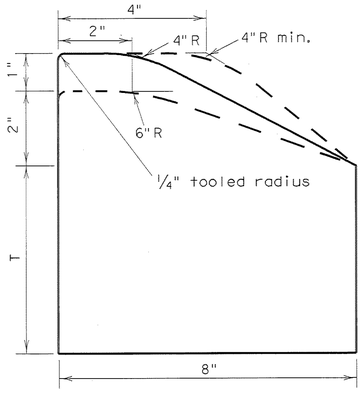
CRCP(1)-03

MODIFICATIONS

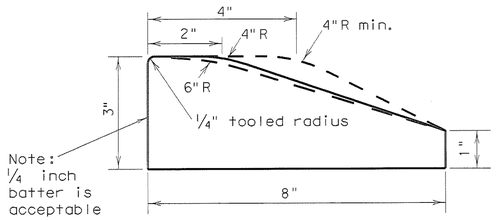
DN: HC	CK: MCW	DW: HC	CK: GEL	
DISTRICT	FEDERAL AID PROJECT			SHEET
				P304
COUNTY	CONTROL	SECTION	JOB	HIGHWAY



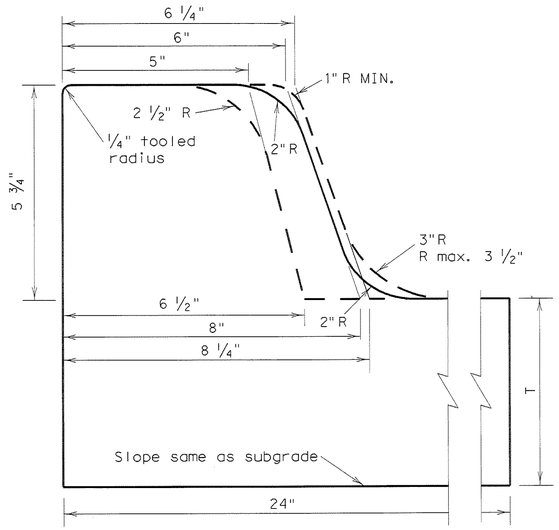
TYPE I CURB AND GUTTER



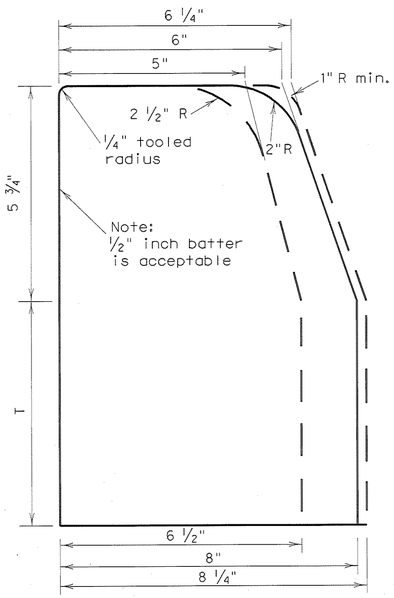
TYPE I CURB



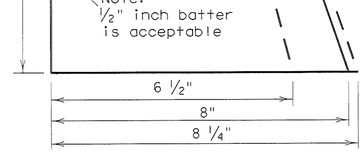
TYPE I MONO CURB OR
CURB PLACED ON PAVEMENT



TYPE II CURB AND GUTTER



TYPE II CURB



TYPE II MONO CURB OR
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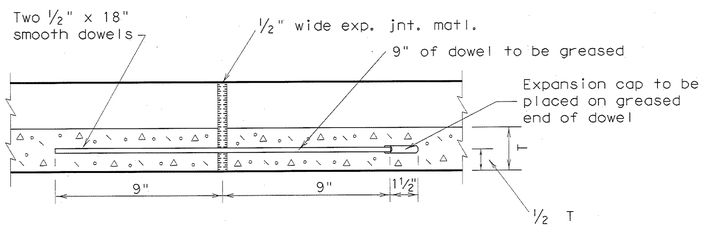


Longitudinal section thru curb and gutter showing typical expansion joint details.

Reinforcing steel (when used) shall not cross expansion joints. Steel shall be terminated 3" ± 1" from face of the joint.

GENERAL NOTES

1. Contractor may use existing forms if the cross section lies within the band shown by dotted lines. If new forms are to be purchased, leased, or constructed they shall conform to the solid line.
2. When reinforcing steel is required or placed at contractor's option, one of the following schemes of reinforcement shall be required. The manner of placement and location shall be to the satisfaction of the Engineer.
   a. Type I, or Type II, curb and gutter reinforcement shall have longitudinal reinforcing bars as follows: Three #3, two #4, two #5, or one #6.
   b. All types of curb (reinf.) shall have one #3 or #4 bar for for longitudinal reinforcement.
3. Reinforcing bars shall be lapped a minimum of 15".
4. When curb or curb and gutter is placed by a separate pour adjacent to or atop concrete pavement, curb or curb and gutter shall be tied to pavement in a manner satisfactory to the engineer with 8-inch long #3 or #4 bars spaced at 5 feet and expansion and/or contraction joints of curb or curb and gutter shall match those of pavement.

   When curb and curb and gutter is not constructed adjacent to concrete pavement, the following shall govern:
   a. Reinforced curb or curb and gutter shall have no contraction joints.
   b. Non-reinforced curb or curb and gutter shall have formed, tooled or sawed contraction joints at 10'±. The depth of these joints shall be sufficient to ensure cracking at the joints.
   c. Reinforcing curb or curb and gutter shall have expansion joints at points of curvature and at intervals no greater than 120' in all curves and at structures such as bridges, box culverts, curb inlets, etc.
   d. Non-reinforced curb or curb and gutter shall have expansion joints at points of curvature on curves of radius less than 25' and at structures such as bridges, box culverts, curb inlets, etc.
5. One-half inch expansion joint material shall be provided where curb or curb gutter is adjacent to sidewalk or riprap.
6. Unless otherwise shown, transitions between curbs or curbs and gutters of differing cross section shall be accomplished over a 20 foot length or as approved by the Engineer.
7. At contractor's option, dimension "T" may be thickness of pavement structure. In no case shall it be less than 6".
8. See the RAMP standard sheet for information on curb ramps and sidewalks crossing driveways.

LEVELS DISPLAYED

RECORD PLANS
MARCH 28, 2008

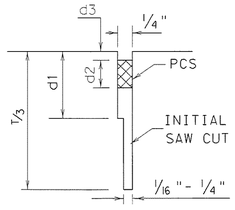
Texas Department of Transportation
Design Division (Roadway)

CONCRETE CURB AND CURB AND GUTTER

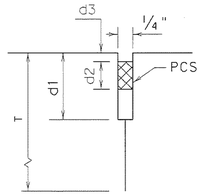
CCCG-01

FILE: cccg01.DGN	DN: MAM	CK: RAR	DW: RAR	CK: MAM	
© TxDOT 1995	DIST	FEDERAL AID PROJECT			SHEET
REVISIONS					P305
	COUNTY	CONTROL	SECT	JOB	HIGHWAY

LEVELS DISPLAYED
1

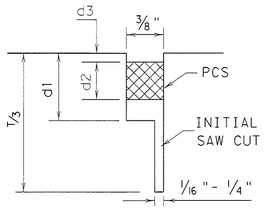


SAWED
LONGITUDINAL JOINT

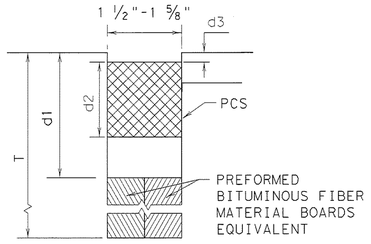


LONGITUDINAL
CONSTRUCTION JOINT

LONGITUDINAL JOINT SEALS



SAWED
CONTRACTION JOINT



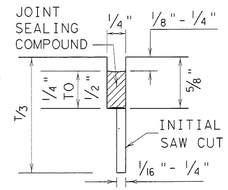
FORMED
FORMED EXPANSION JOINT

TRANSVERSE JOINT SEALS

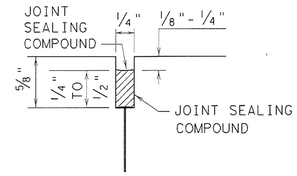
METHOD A: PREFORMED COMPRESSION SEALS (PCS)
(CLASS 6 PREFORMED JOINT SEALANT)

GENERAL NOTES FOR METHOD "A"

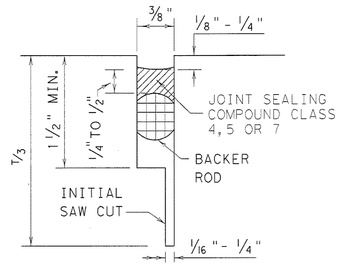
1. UNLESS OTHERWISE SHOWN IN THE PLANS, EITHER METHOD "A" OR METHOD "B" MAY BE USED.
2. THE LOCATION OF JOINTS SHALL BE AS SHOWN ELSEWHERE IN THE PLANS.
3. DIMENSIONS d1, d2, AND d3 SHALL BE IN ACCORDANCE WITH THE PREFORMED COMPRESSION SEAL MANUFACTURES RECOMMENDATION.
4. THE JOINT RESERVOIR FOR SEALANT SHALL BE SAWED UNLESS OTHERWISE SHOWN ON THE PLANS FOR THE LONGITUDINAL AND TRANSVERSE CONSTRUCTION AND THE TWO SAWED JOINTS.
5. THE JOINTS SHALL BE CLEANED IN ACCORDANCE WITH THE ITEM 438 AND PRIOR TO BEGINNING OPERATIONS, THE CONTRACTOR SHALL SUBMIT A STATEMENT FROM THE SEALANT MANUFACTURER SHOWING THE RECOMMENDED EQUIPMENT AND INSTALLATION PROCEDURES TO BE USED.
6. THE SAW CUT FOR THE LONGITUDINAL JOINT SHALL BE ONE FOURTH THE SLAB THICKNESS WHEN CRUSHED LIMESTONE IS USED AS THE COARSE AGGREGATE.



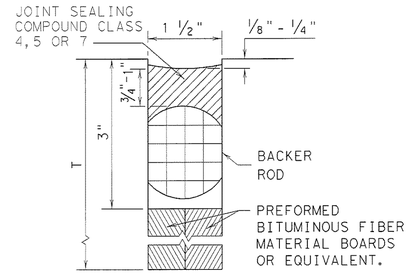
SAWED
LONGITUDINAL JOINT



LONGITUDINAL OR TRANSVERSE
CONSTRUCTION JOINT



TRANSVERSE SAWED
CONTRACTION JOINT



TRANSVERSE FORMED
EXPANSION JOINT

METHOD B: JOINT SEALING COMPOUND

GENERAL NOTES FOR METHOD "B"

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 ENGINEER SHALL SELECT A TARGET PLACEMENT THICKNESS FOR THE SEALANT DETAILS WHICH SHOW RANGES IN THICKNESS. THE TARGET THICKNESS WILL NORMALLY BE THE MIDPOINT OF THE RANGE.
4. THE JOINT RESERVOIR FOR SEALANT SHALL BE SAWED UNLESS OTHERWISE SHOWN ON THE PLANS FOR THE LONGITUDINAL AND TRANSVERSE CONSTRUCTION AND THE TWO SAWED JOINTS.
5. THE JOINTS SHALL BE CLEANED IN ACCORDANCE WITH THE ITEM 438 AND PRIOR TO BEGINNING OPERATIONS, THE CONTRACTOR SHALL SUBMIT A STATEMENT FROM THE SEALANT MANUFACTURER SHOWING THE RECOMMENDED EQUIPMENT AND INSTALLATION PROCEDURES TO BE USED.
6. THE SAW CUT FOR THE LONGITUDINAL JOINT SHALL BE ONE FOURTH THE SLAB THICKNESS WHEN CRUSHED LIMESTONE IS USED AS THE COARSE AGGREGATE.

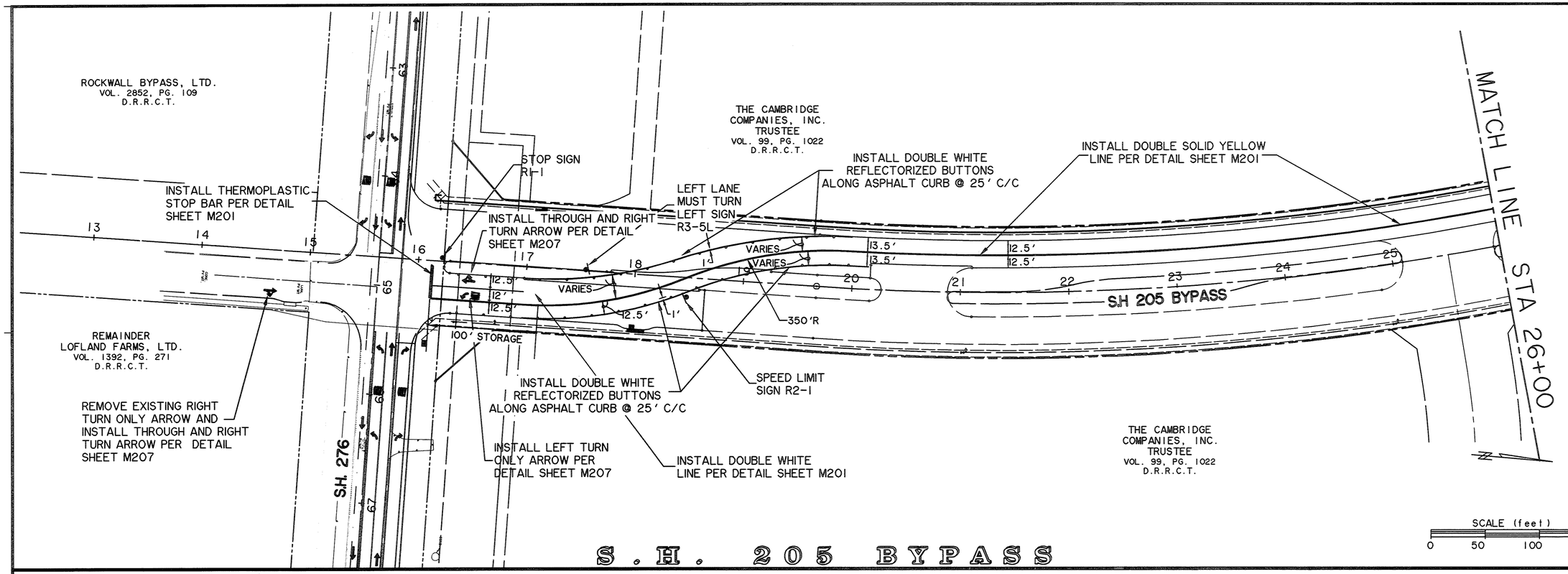
RECORD PLANS
MARCH 28, 2008

Texas Department of Transportation
Construction Division (Pavement)

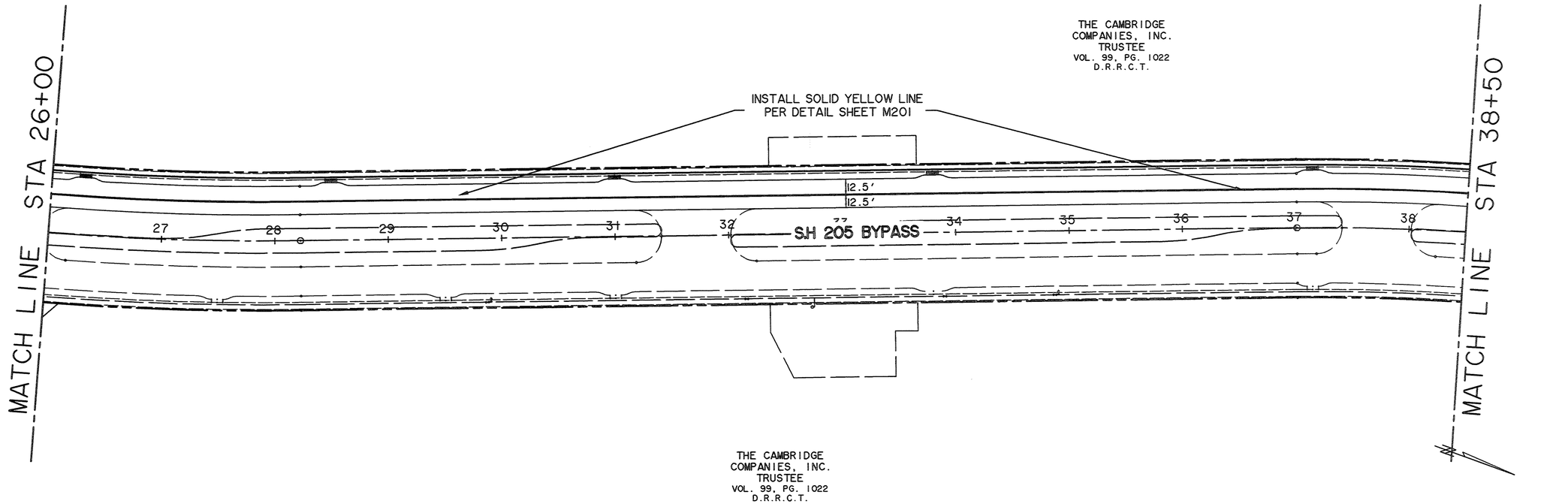
CONCRETE PAVING DETAILS
JOINT SEALS

JS-94

DN: LJB	CK: LJB	DW: BGD	CK: GLC	
MODIFICATIONS	DISTRICT	FEDERAL AID PROJECT		SHEET
				P308
	COUNTY	CONTROL	SECTION	JOB	HIGHWAY



S . H . 205 BYPASS



S . H . 205 BYPASS

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
4300 BELTWAY PLACE SUITE 130 ARLINGTON, TEXAS 76018 METRO (817)467-7700
1380 U.S. HIGHWAY 287 N. SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-8700
6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.wierassociates.com

PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
STRIPING
PLAN
STA 13+50± TO 38+50

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
03/28/08

LAST SHEET EDIT
DATE 03-28-2008
WA# 04141
SHEET NO.
M101

TIME-16:13 FILE: 04141-STRIPE5.dwg

THE CAMBRIDGE COMPANIES, INC. TRUSTEE VOL. 99, PG. 1022 D.R.R.C.T.

THE CAMBRIDGE COMPANIES, INC. TRUSTEE VOL. 101, PG. 795 D.R.R.C.T.

MATCH LINE STA 38+50

INSTALL DOUBLE WHITE REFLECTORIZED BUTTONS ALONG ASPHALT CURB @ 25' C/C

SPEED LIMIT SIGN R2-1

INSTALL THERMOPLASTIC STOP BAR PER DETAIL SHEET M201

12.5'
12.5'
12.5'
12.5'
1'
1'

39 40 41 42 43 44 45 46 47 48 49 50 51 52

S.H 205 BYPASS

INSTALL RIGHT TURN ONLY ARROW PER DETAIL SHEET M207

INSTALL SOLID YELLOW LINE PER DETAIL SHEET M201

STOP SIGN R1-1

305 I-30 306 307

THE CAMBRIDGE COMPANIES, INC. TRUSTEE VOL. 99, PG. 1022 D.R.R.C.T.

THE CAMBRIDGE COMPANIES, INC. TRUSTEE VOL. 101, PG. 795 D.R.R.C.T.

SCALE (feet)
0 50 100 150

S. H. 205 BYPASS

THE CAMBRIDGE COMPANIES, INC. TRUSTEE VOL. 99, PG. 1022 D.R.R.C.T.

INSTALL LEFT TURN ONLY ARROW PER DETAIL SHEET M207

S.H 205 BYPASS

THE CAMBRIDGE COMPANIES, INC. TRUSTEE VOL. 99, PG. 1022 D.R.R.C.T.

PNEUMA VENTURES, LTD. VOL. 2924, PG. 314 D.R.R.C.T.

INSTALL RIGHT TURN ONLY ARROW PER DETAIL SHEET M207

BLACKLAND WATER SUPPLY VOL. 77, PG. 420 D.R.R.C.T.

DBL. 4" THERMOPLASTIC YELLOW SOLID LINE PER DETAIL SHEET M205

4" THERMOPLASTIC WHITE EDGE LINE PER DETAIL SHEET M204

4" THERMOPLASTIC WHITE EDGE LINE PER DETAIL SHEET M204

24" CROSS HATCH PER DETAIL SHEET M205

S.H. 276

INSTALL THROUGH ARROW PER DETAIL SHEET M207

INSTALL LEFT TURN ONLY ARROW PER DETAIL SHEET M207

24" CROSS HATCH PER DETAIL SHEET M204

INSTALL THROUGH ARROW PER DETAIL SHEET M207

DBL. 4" THERMOPLASTIC YELLOW SOLID LINE PER DETAIL SHEET M205

DBL. 4" THERMOPLASTIC YELLOW SOLID LINE PER DETAIL SHEET M204

8" THERMOPLASTIC WHITE LANE LINE PER DETAIL SHEET M205

8" THERMOPLASTIC WHITE LANE LINE PER DETAIL SHEET M205

INSTALL THROUGH ARROW PER DETAIL SHEET M207

DBL. 4" THERMOPLASTIC YELLOW SOLID LINE PER DETAIL SHEET M205

REMAINDER LOFLAND FARMS, LTD. VOL. 1392, PG. 271 D.R.R.C.T.

ROCKWALL BYPASS, LTD. VOL. 2852, PG. 109 D.R.R.C.T.

S. H. 276

RECORD PLANS
MARCH 28, 2008

SCALE (feet)
0 50 100 150

PREPARED BY:
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PHASE I S.H. 205 BYPASS FROM S.H. 276 TO INTERSTATE 30 STRIPING PLAN

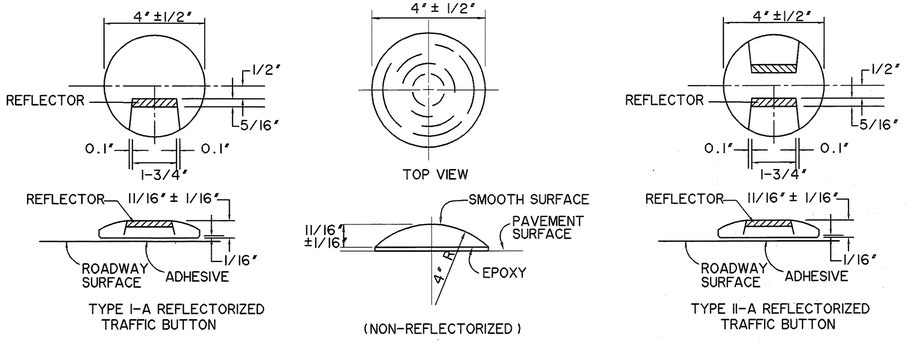
STA 38+50 TO I-30

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
3/28/08

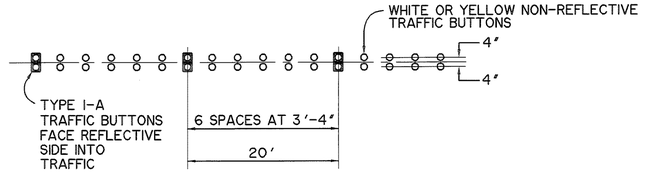
LAST SHEET EDIT DATE 03-28-2008
WA# 04141

SHEET NO. M102

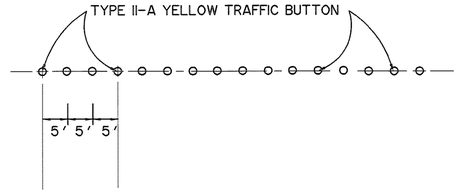
FILE: I 04141-STRIPE6.dwg
TIME: 6:14



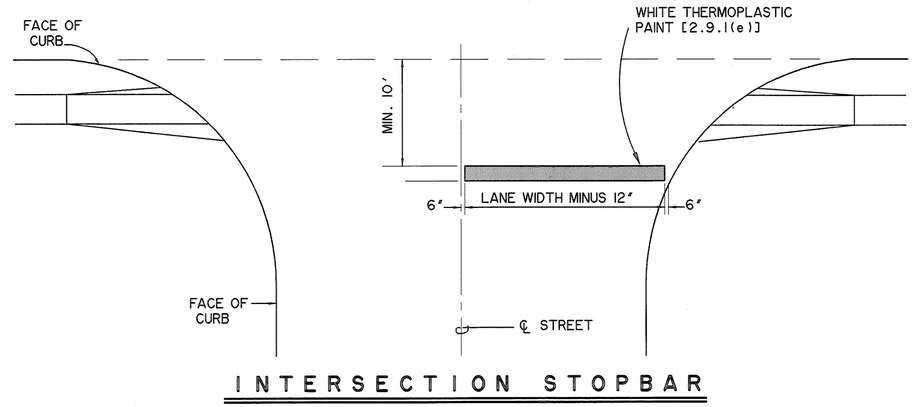
4" TRAFFIC BUTTONS



DOUBLE SOLID LINE



SOLID LINE



INTERSECTION STOPBAR

RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
4300 BELTWAY PLACE SUITE 130 ARLINGTON, TEXAS 76018 METRO (817)467-7700
1380 U.S. HIGHWAY 287 N. SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-8700
6846 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.WierAssociates.com

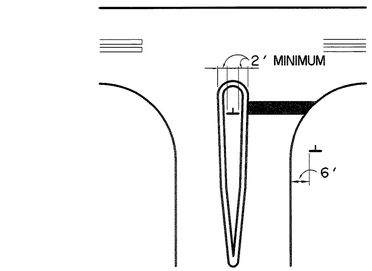
PHASE I S.H. 205 BYPASS FROM S.H. 276 TO INTERSTATE 30
STRIPING DETAILS

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
5-25-2006

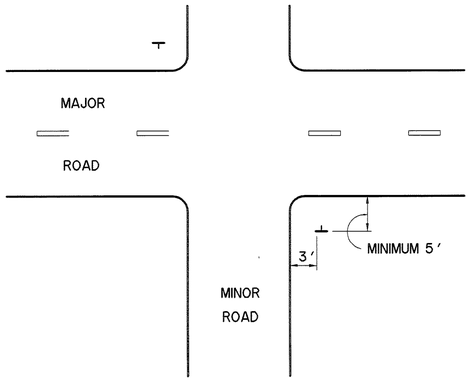
LAST SHEET EDIT DATE 02-06-2006
WA# 0414I

SHEET NO.
M201

TIME: 9:26 FILE: I:\0414I-StripingDetPhaseI.dwg



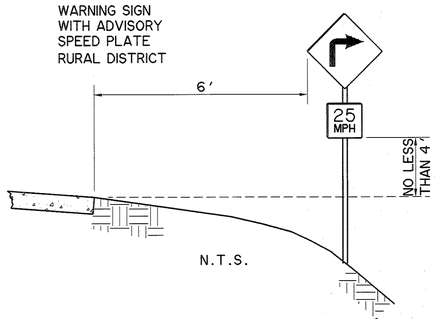
DIVISION ISLAND

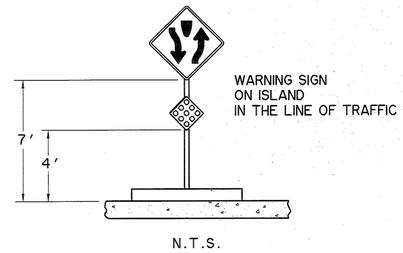


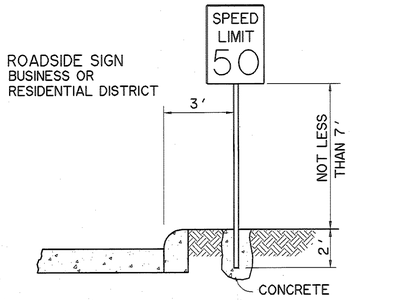
URBAN CROSS ROAD

N.T.S.

STREET SIGN PLACEMENT

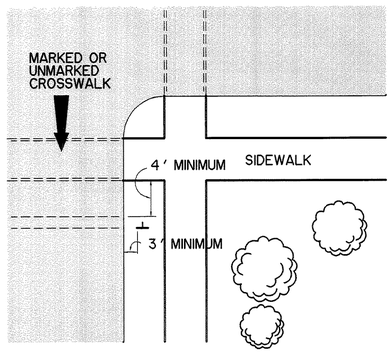






MINIMUM DIAMETER OF CONCRETE BASE 6', MAXIMUM 12'

N.T.S.



URBAN INTERSECTION

N.T.S.

STREET SIGN PLACEMENT

GENERAL STREET SIGN REQUIREMENTS: (INSTALLATION BY CITY)

1. THE STOCK NUMBERS LISTED FOR SIGNS ARE AVAILABLE FROM SARGENT-SOWEL INC. (SASO) IN GRAND PRAIRIE, TEXAS AND UNLESS OTHERWISE SPECIFIED, ANY SUBSTITUTIONS SHALL BE APPROVED BY THE ENGINEERING DEPARTMENT PRIOR TO INSTALLATION.

2. ALL SIGNS SHALL BE OF ALUMINUM SHEET WITH REFLECTORIZED SHEETING AND REFLECTORIZED LETTERS.

   A. STOP SIGNS: SASO #09-398 30"x30" STANDARD SIZE

   B. OTHER SIGNS: 'YIELD', SASO #09-512, 30"x30"x30"
   SPEED LIMIT 30, SASO #01-312, 24"x30"
   4 WAY STOP, SASO #09E418, 12"x6"
   3 WAY STOP, SASO #09E419, 12"x6"
   NO PARKING, SASO #01E539, 18"x24"
   DEAD END/NO OUTLET, SASO #01E070/09E121, 30" x 30"

   C. STREET SIGNS: 24" TO 42" IN LENGTH, EXTRUDED ALUMINUM PLATES, .091 THICK, 6-3/4" HIGH, LENGTH SUITABLE TO THE STREET NAME.

3. THE STREET SIGN SHALL BE A GREEN BACKGROUND WITH WHITE REFLECTORIZED LETTERS. THE LETTERS SHALL BE 4" HIGH FOR THE STREET NAME, AND 2" HIGH FOR ALL OTHER LETTERS. THE LENGTH OF THE SIGN SHALL BE APPROPRIATE FOR THE STREET NAME. EACH STREET SIGN SHALL HAVE THE APPROPRIATE HUNDRED BLOCK FOR ITS LOCATION. ALL LETTERS SHALL BE CAPITAL LETTERS.

   A. POSTS: ALL POSTS SHALL BE OF GALVANIZED STEEL TUBING 12' LONG x 2-3/8" DIA. WITH A WALL THICKNESS OF .080 INCHES SASO #03-099, ALSO AVAILABLE AT ANY LOCAL FENCE SUPPLY COMPANY.

   B. TEE'S: 90 DEGREE BRACKETS, SASO #45E683
   45 DEGREE BRACKETS, SASO #45E684

   C. POST CAP: SASO #45E682

   D. ALUMINUM SIGN CLAMPS: SASO #03E154

4. LOCATIONS FOR SIGNS SHALL BE ASSIGNED BY THE CITY OF ROCKWALL ENGINEERING DEPARTMENT AND SHALL BE PLACED IN THE FIELD AS DIAGRAMMED AND/OR SHALL MEET OR EXCEED THE REQUIREMENTS GIVEN IN THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 1980 ED. WITH ADDENDUMS.

RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
4300 BELTWAY PLACE SUITE 130 ARLINGTON, TEXAS 76018 METRO (817)467-7700
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6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.WierAssociates.com

PHASE I
S.H. 205 BYPASS
STREET SIGN DETAILS

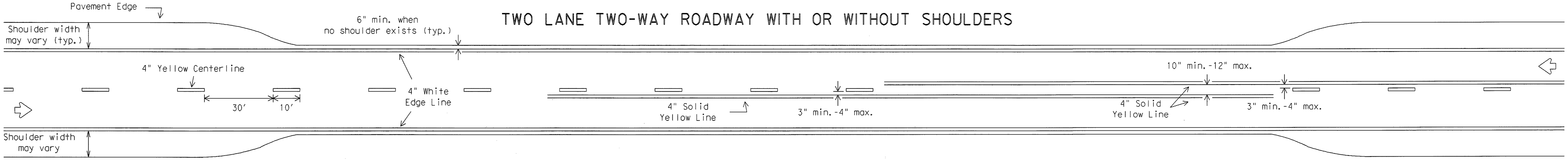
STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
4-25-2006

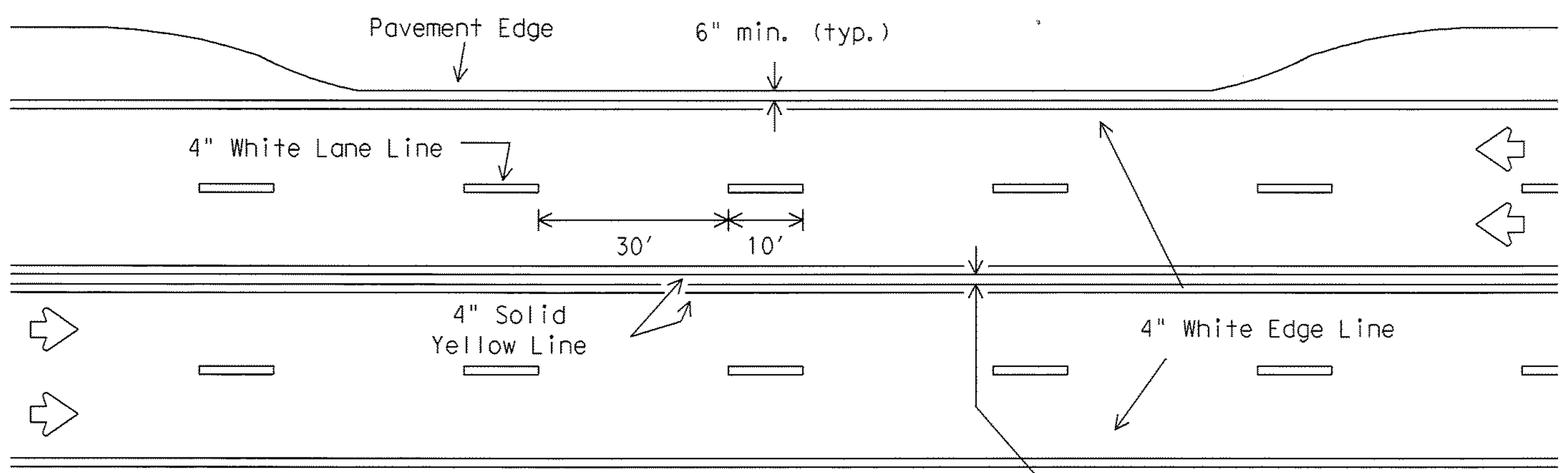
LAST SHEET EDIT DATE 02-06-2006
WA# 04141

SHEET NO.
M202

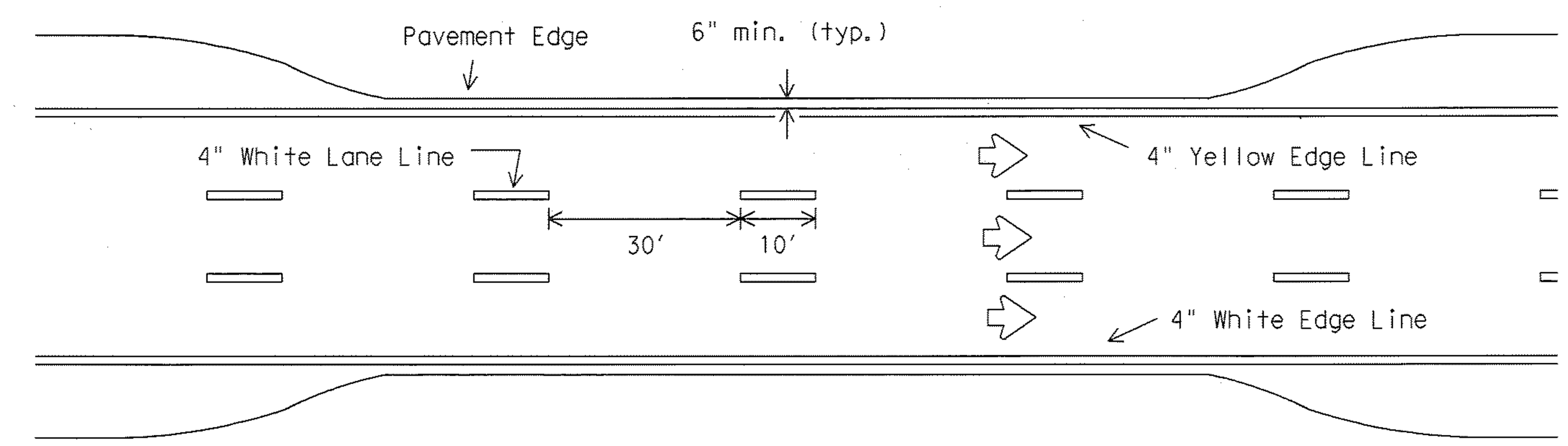
FILE: I:\04141-SignDetlPhase1.dwg
TIME: 12:15

TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS

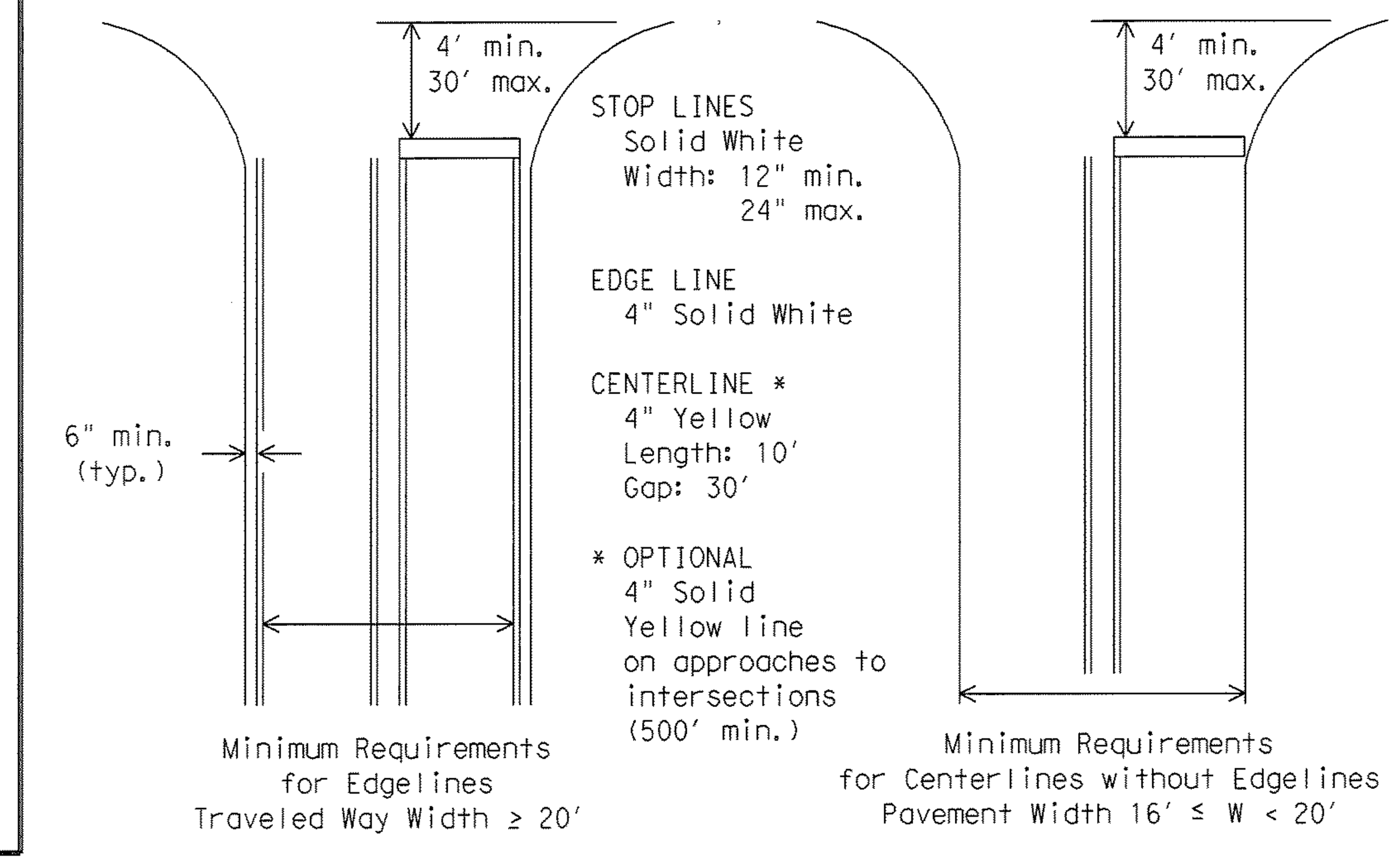




CENTERLINE AND LANE LINES FOUR LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



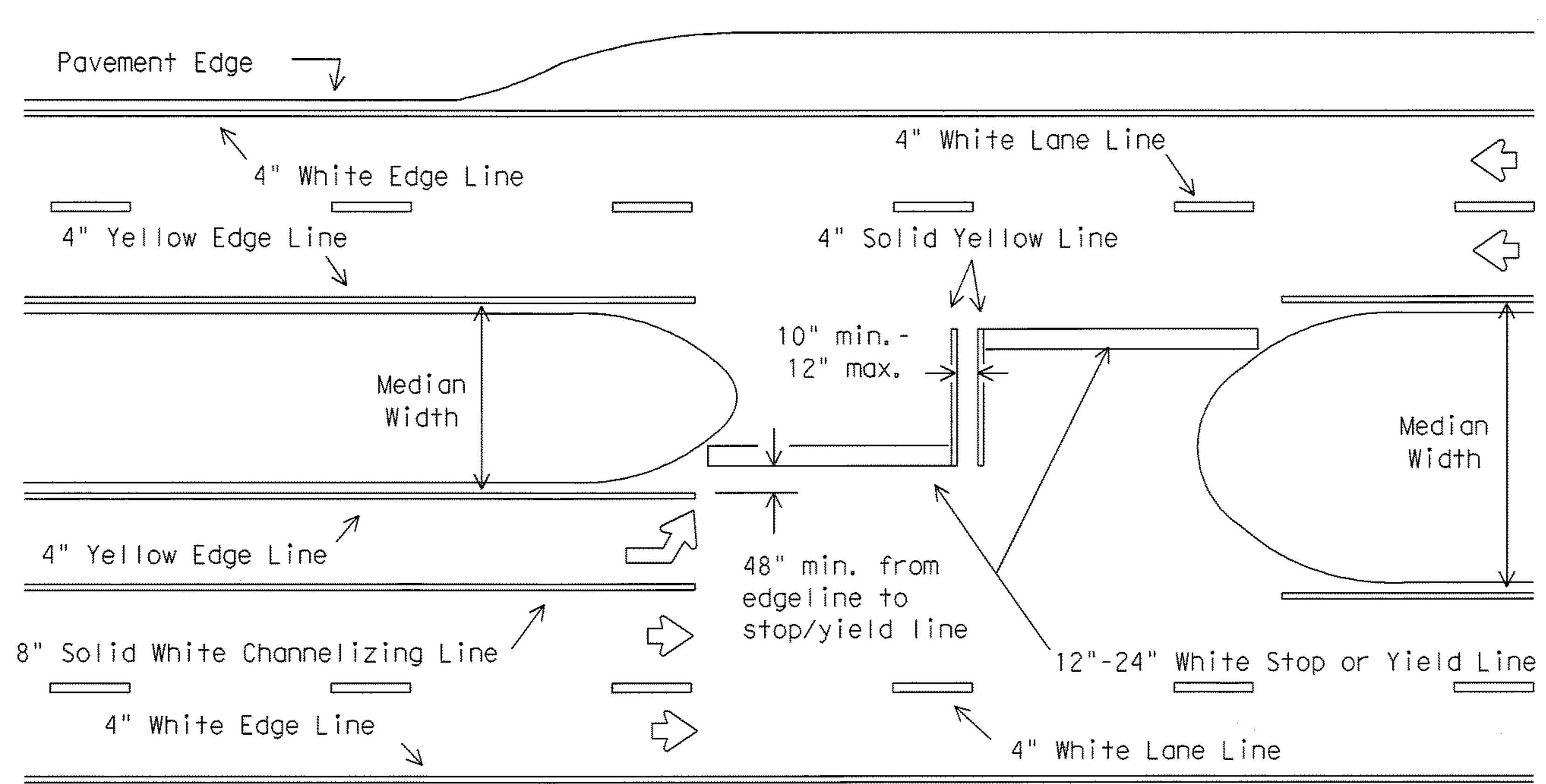
EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS



GUIDE FOR PLACEMENT OF STOP LINES, EDGE LINE & CENTERLINE

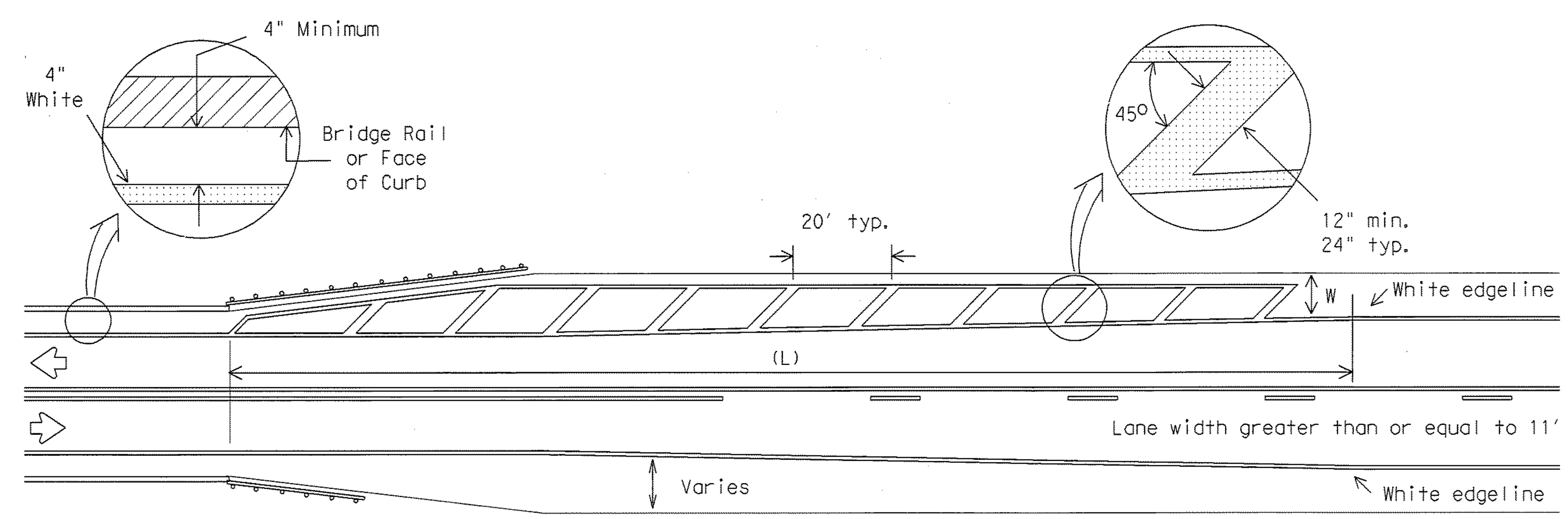
Based on Traveled Way and Pavement Widths for Undivided Highways

FOUR LANE DIVIDED ROADWAY INTERSECTIONS



All medians shall be field measured to determine the location of necessary striping. Stop/Yield bars and centerlines shall be placed when the median width is greater than 30 ft. The median width is defined as the area between two roadways of a divided highway measured from edge of traveled way to edge of traveled way. The median excludes turn lanes. The median width might be different between intersections, interchanges and of opposite approaches of the same intersection. The narrow median width will be the controlling width to determine if markings are required.

ROADWAYS WITH REDUCED SHOULDER WIDTHS ACROSS BRIDGE OR CULVERT



NOTES:

1. No-passing zone on bridge approach is optional but if used, it shall be a minimum 500 feet long.
2. For crosshatching length (L) see Table 1.
3. The width of the offset (W) and the required crosshatching width is the full shoulder width in advance of the bridge.
4. The crosshatching should be required if the shoulder width in advance of the bridge is 4 foot or wider and any reduction in shoulder width across the bridge occurs.
5. For guard fence details, refer elsewhere in the plans.

TABLE 1 - TYPICAL LENGTH (L)

Posted Speed *	Formula
30, 35, 40	$L = \frac{WS^2}{60}$
45, 50, 55, 60, 65, 70	L=WS

* 85th Percentile Speed may be used on roads where traffic speeds normally exceed the posted speed limit. Crosshatching length should be rounded up to nearest 5 foot increment.

L=Length of Crosshatching (FT.) W=Width of Offset (FT.)
S=Posted Speed (MPH)

EXAMPLES:

An 8 foot shoulder in advance of a bridge reduces to 4 feet on a 70 MPH roadway. The length of the cross-hatching should be:
L = 8 x 70 = 560 ft.
A 4 foot shoulder in advance of a bridge reduces to 2 feet on a 40 MPH roadway. The length of the cross-hatching should be:
$L = 4(40)^2 / 60 = 106.67$ ft. rounded to 110 ft.

GENERAL NOTES:

Edgeline striping shall be as shown in the plans or as directed by the Engineer. The edgeline should typically be placed a minimum of 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edgelines are not required in curb and gutter sections of roadways.

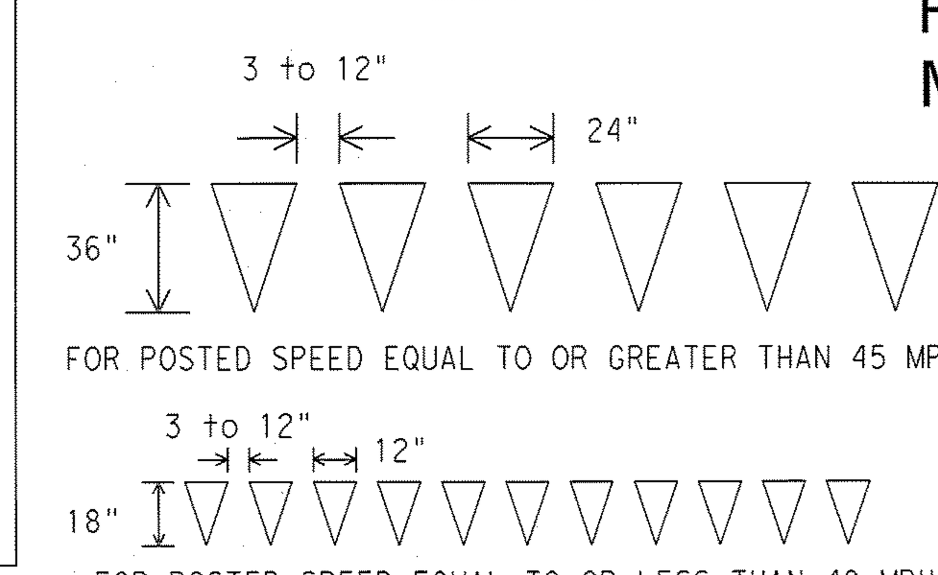
The traveled way includes only that portion of the roadway used for vehicular travel and not the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the inside of edgeline to inside of edgeline of a two lane roadway.

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

SPECIFICATION REFERENCE TABLE
MATERIAL SPECIFICATIONS

PAVEMENT MARKERS (REFLECT.)	DMS-4200
EPOXY	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130

YIELD LINES



RECORD PLANS
MARCH 28, 2008

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

TYPICAL STANDARD PAVEMENT MARKINGS

PM(1)-03

©TxDOT November 1978	DN: BAS	CK: GRB	DW: FDN	CK: CAL	NEG NO.:
REVISIONS 8-95 5-00 8-00 3-03	STATE DISTRICT	FEDERAL REGION 6	FEDERAL AID PROJECT		SHEET M203
	COUNTY		CONTROL	SECTION / JOB	HIGHWAY

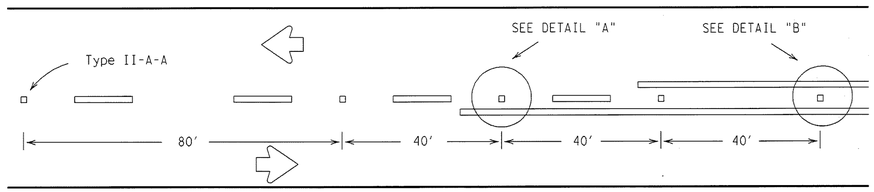
22A

LEVELS DISPLAYED

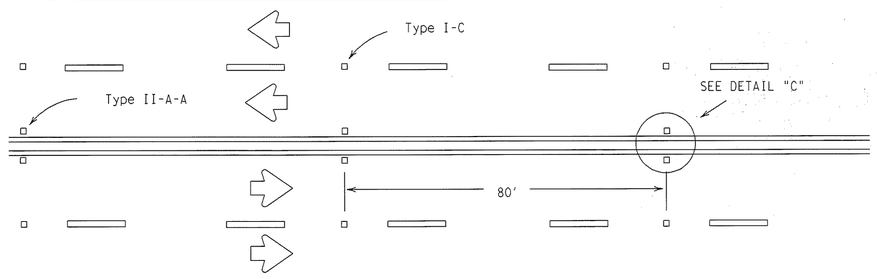
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	

ACC:

REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE

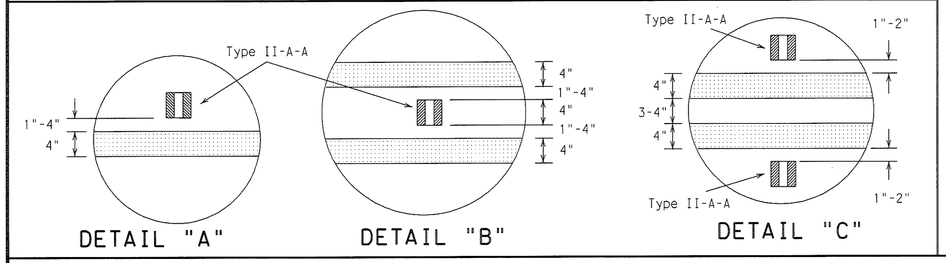


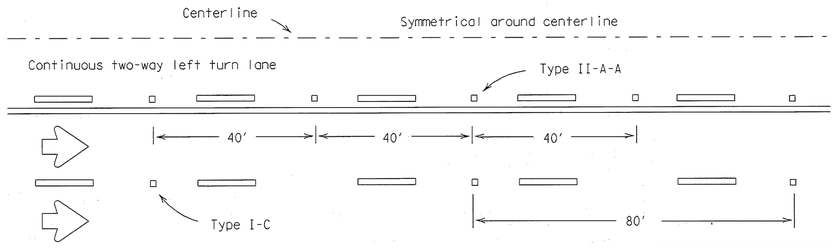
CENTERLINE FOR ALL TWO LANE ROADWAYS



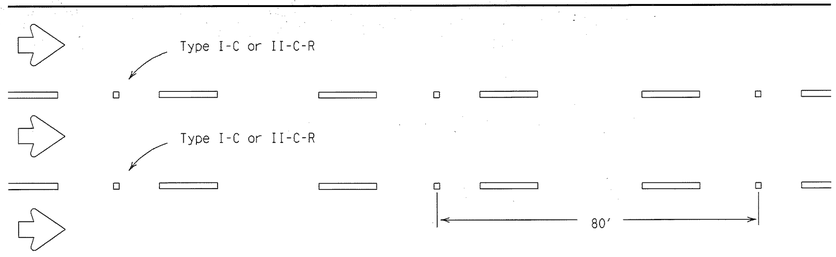
CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY HIGHWAYS

Raised pavement marker Type I-C, clear face toward normal traffic, shall be placed on 80-foot centers.





CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

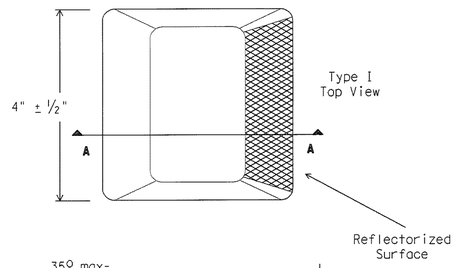
Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic.

As required by the Engineer or shown elsewhere in the plans, Type II-C-R or Type I-C markers may be placed on 40-foot centers for the below listed conditions:

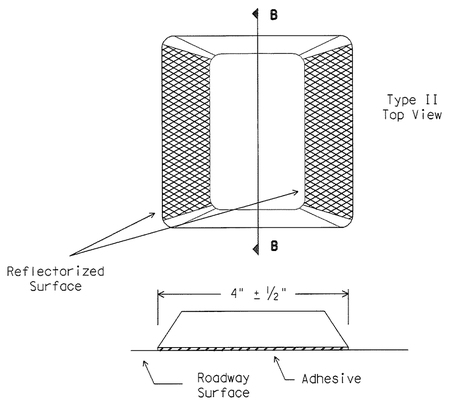
1. horizontal curves,
2. continuously illuminated sections,
3. high volume roadways
4. or roadways where safety concerns exist.

RAISED PAVEMENT MARKERS

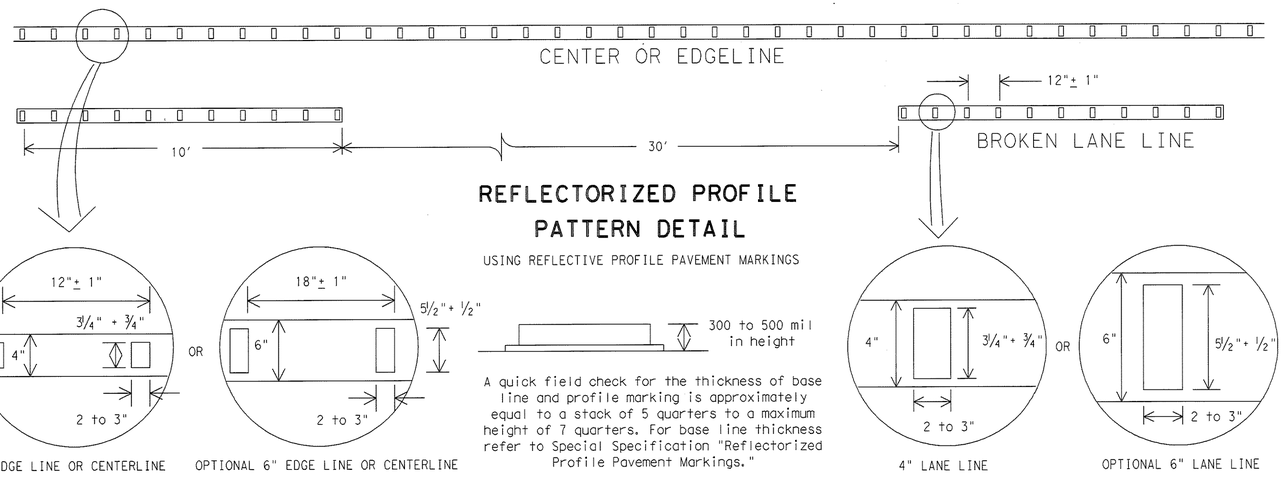
(REFLECTORIZED)



SECTION A



SECTION B



REFLECTORIZED PROFILE PATTERN DETAIL

USING REFLECTIVE PROFILE PAVEMENT MARKINGS

A quick field check for the thickness of base line and profile marking is approximately equal to a stack of 5 quarters to a maximum height of 7 quarters. For base line thickness refer to Special Specification "Reflectorized Profile Pavement Markings."

GENERAL NOTES:

All raised pavement markers placed in broken lines shall be placed in line with and midway between the stripes.

On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.

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

SPECIFICATION REFERENCE TABLE

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECT.)	DMS-4200
EPOXY	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130

RECORD PLANS
MARCH 28, 2008

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

POSITION GUIDANCE USING RAISED MARKERS
REFLECTORIZED PROFILE MARKINGS

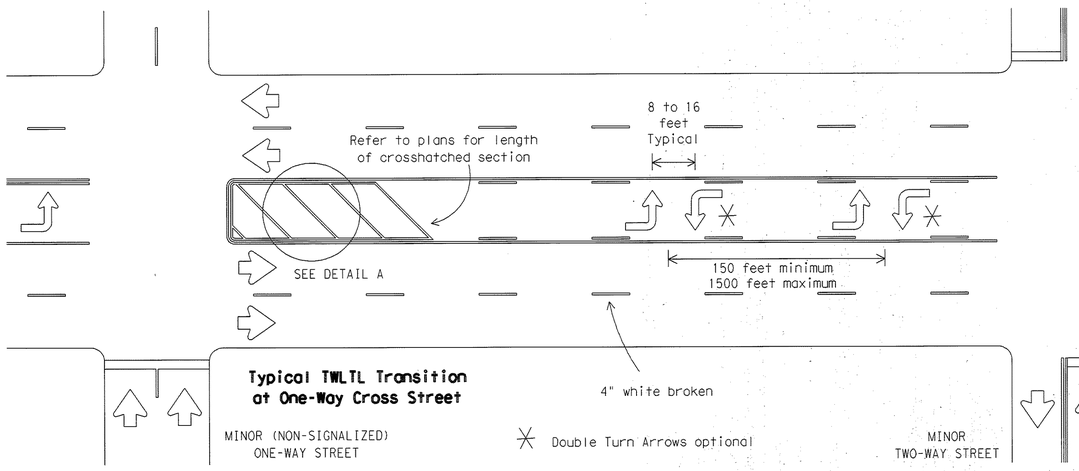
PM(2)-00A

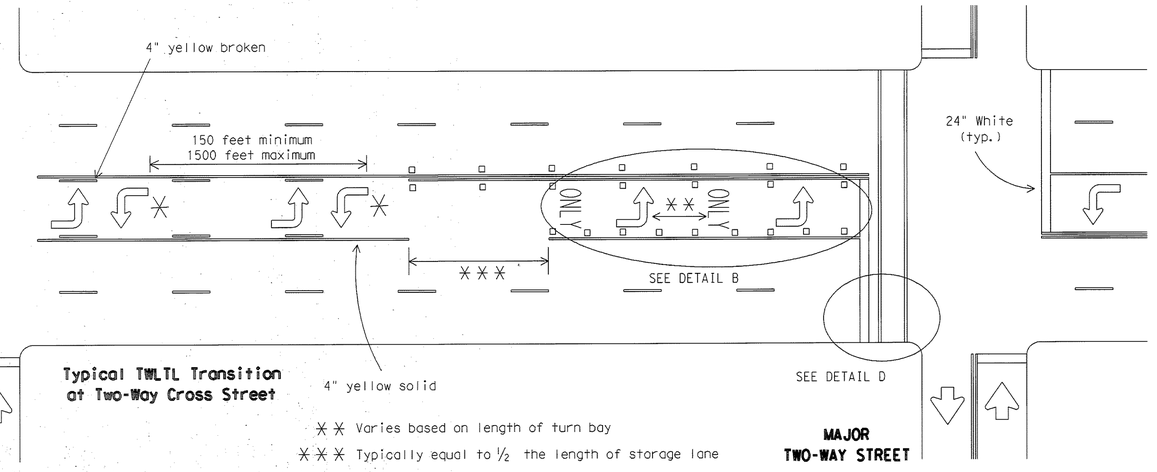
DN: BAS	CK: GRB	DW: FDN	CK: CAL

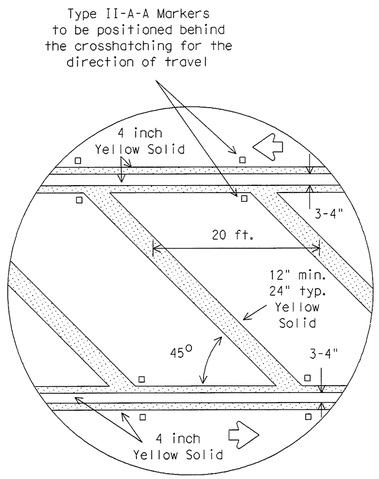
REVISIONS	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
10-86		6		M204
4-92				
5-00	COUNTY	CONTROL	SECTION / JOB	HIGHWAY
8-00				

LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

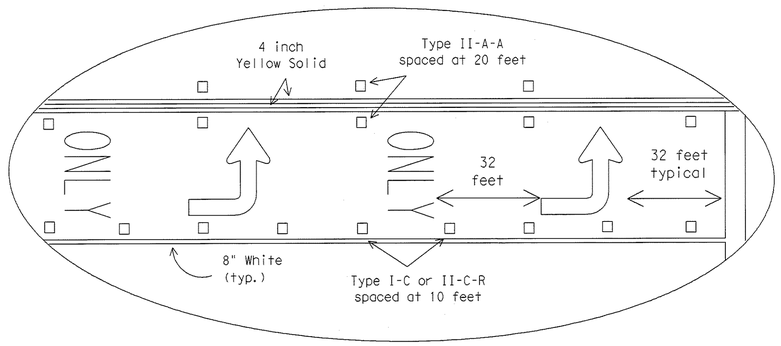
ACC:



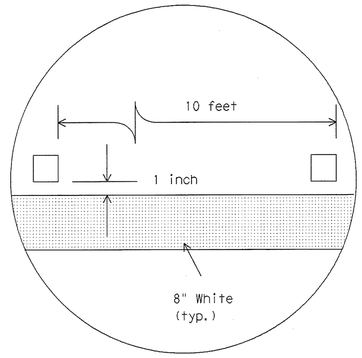




DETAIL A

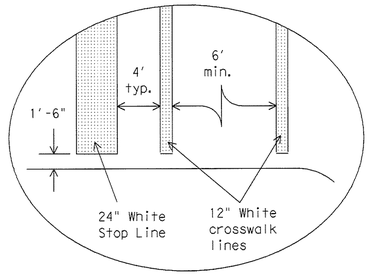


DETAIL B



DETAIL C

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.



DETAIL D

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

GENERAL NOTES

Refer elsewhere in plans for additional RPM placement and details.

Details for words and arrows as shown on other sheets.

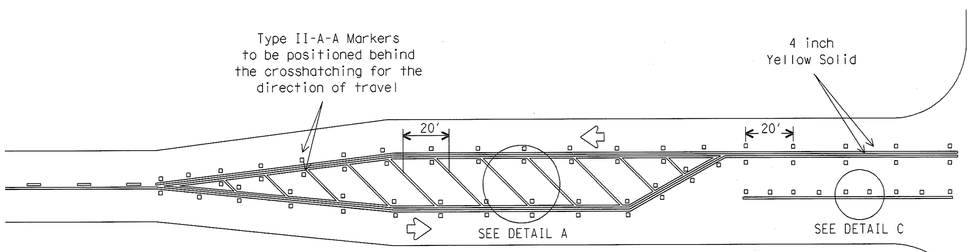
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.

For a left turn bay, two sets of words and arrows shall be used if the length of the bay is equal to or greater than 180 feet. The bottom of the first ONLY shall be placed at the beginning of the turn bay lane line as shown above.

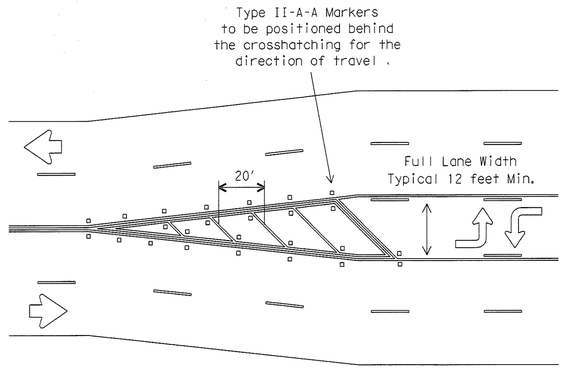
Other crosswalk paterns as shown in the "Texas Manual on Uniform Traffic Control Devices" may be used.

SPECIFICATION REFERENCE TABLE

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECT.)	DMS-4200
EPOXY	DMS-6100
BITUMINOUS ADHESIVE FOR PAVE. MKS.	DMS-6130



TYPICAL TWO-LANE HIGHWAY INTERSECTION WITH LEFT TURN BAYS



TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY

RECORD PLANS
MARCH 28, 2008

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

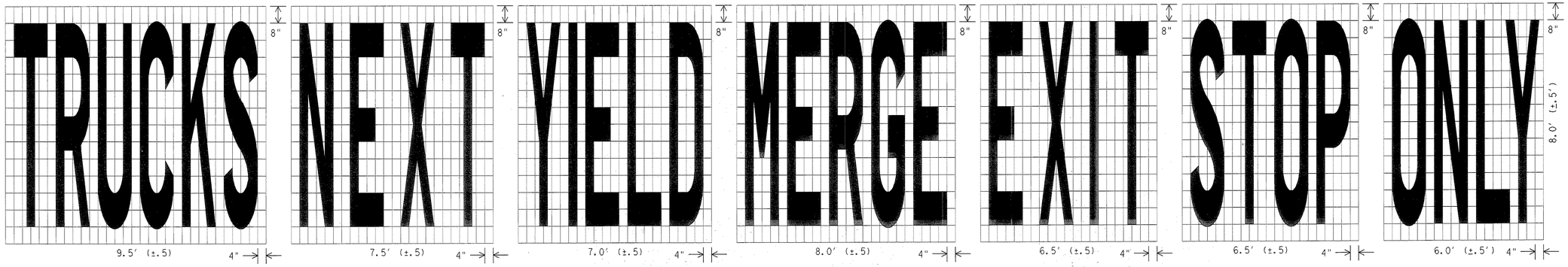
PAVEMENT MARKINGS FOR TWO-WAY LEFT TURN LANES DIVIDED HIGHWAYS AND RURAL LEFT TURN BAYS

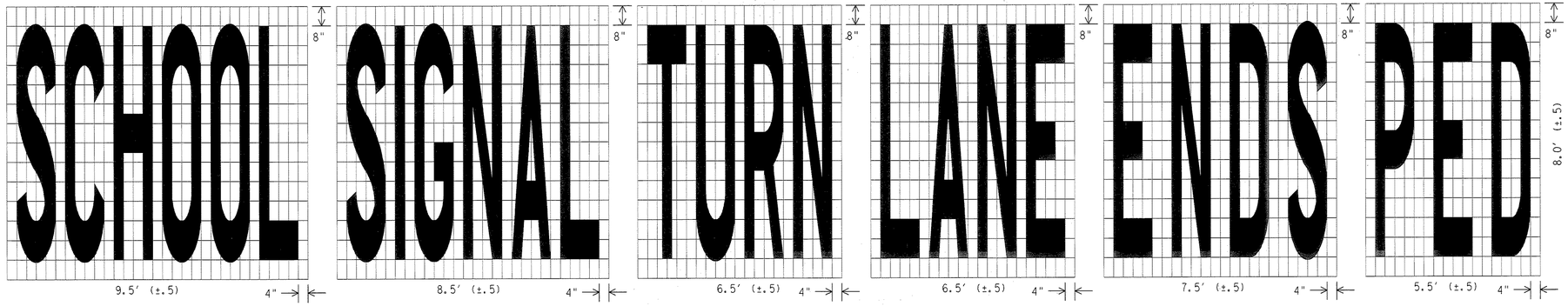
PM(4)-03

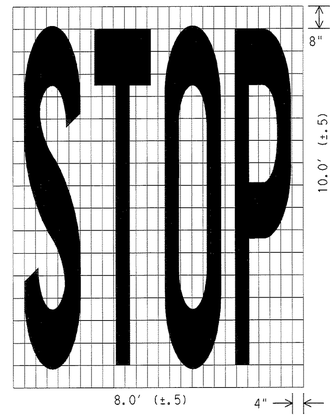
DN: BAS	CK: GRB	DW: FDN	CK: CAL	MSG NO.:

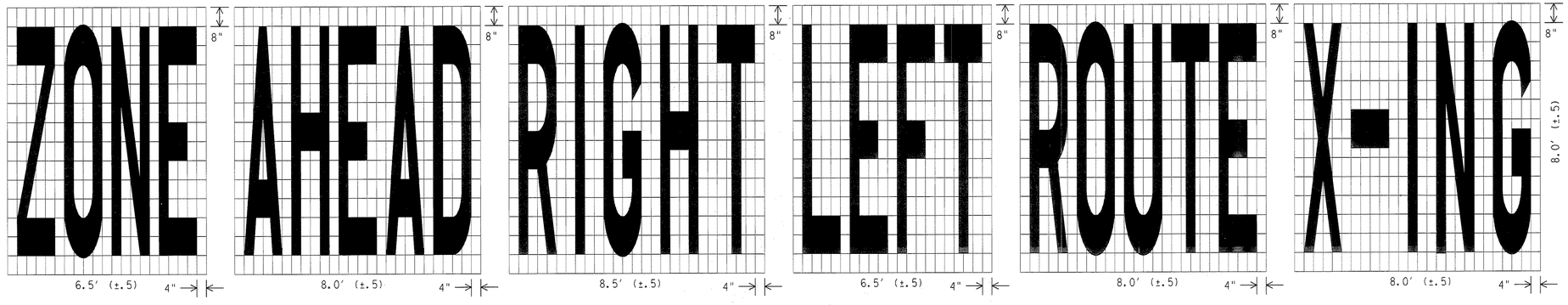
REVISIONS	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
5-00				
8-00		6		M205
3-03	COUNTY		CONTROL SECTION JOB	HIGHWAY

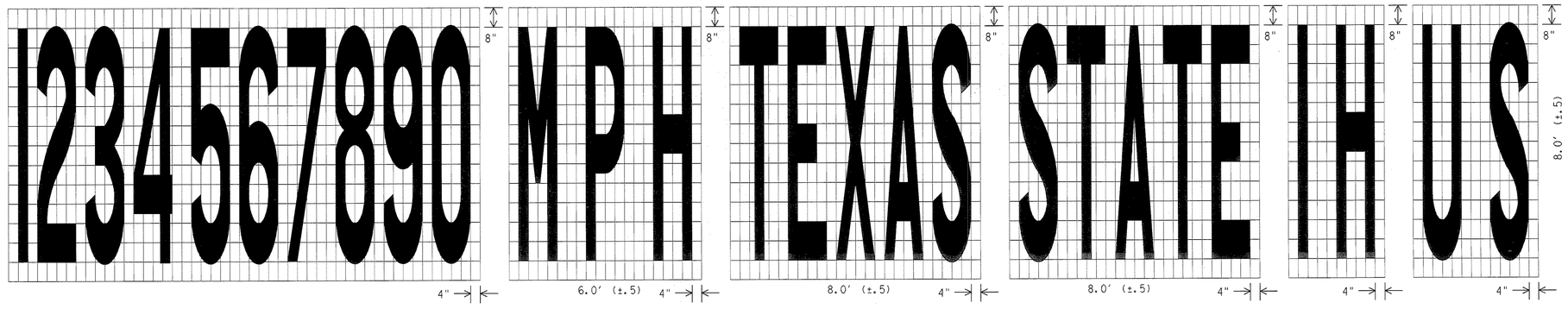
LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 ACC:











RECORD PLANS
MARCH 28, 2008

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

STANDARD PAVEMENT MARKINGS (WORDS)

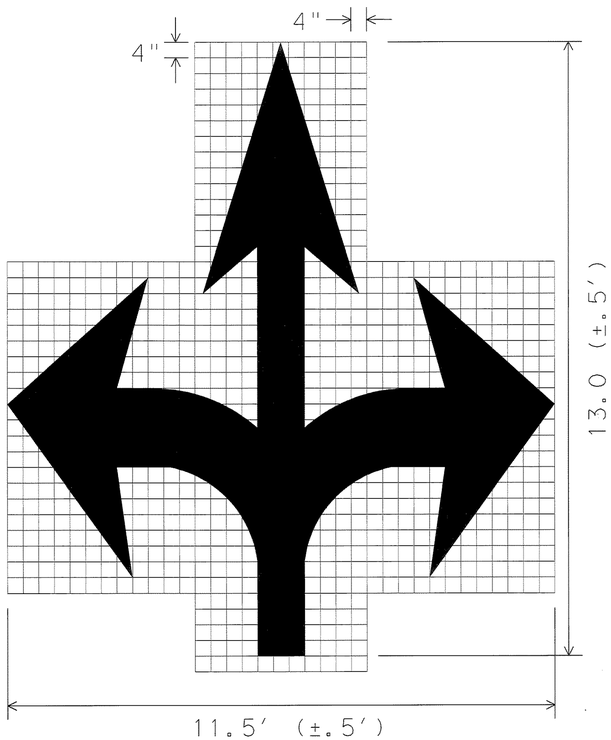
PM(5)-01

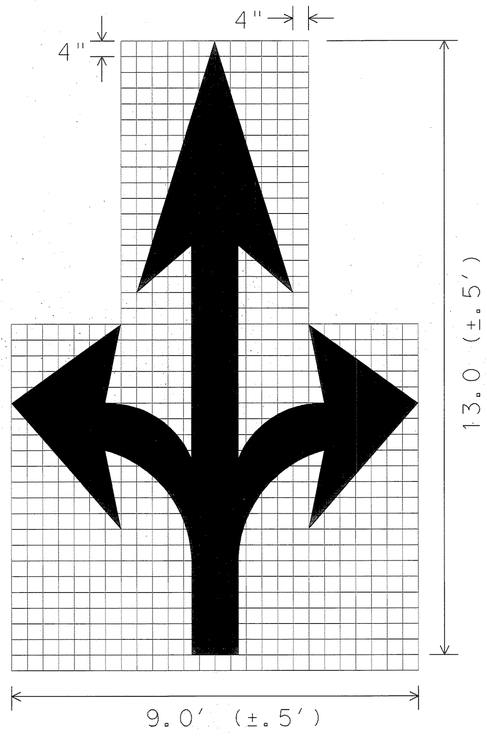
© TxDOT March 2001	DN: -	CK: - GRB	DW: - FDN	CK: - CAL
REVISIONS	STATE DISTRICT: 6	FEDERAL REGION	FEDERAL AID PROJECT	SHEET: M206
	COUNTY	CONTROL	SECTION	JOB / HIGHWAY

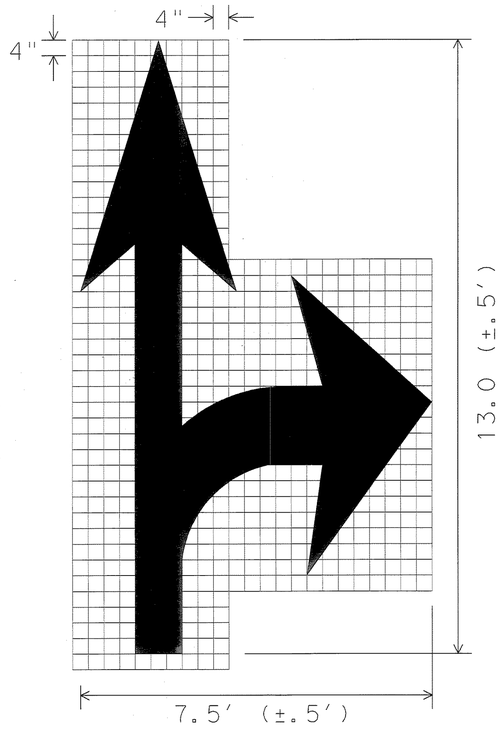
22G

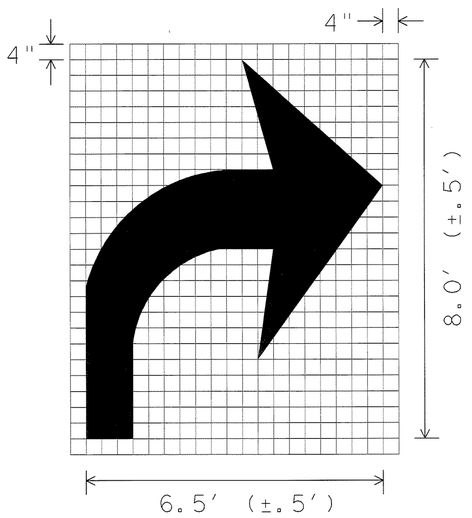
LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

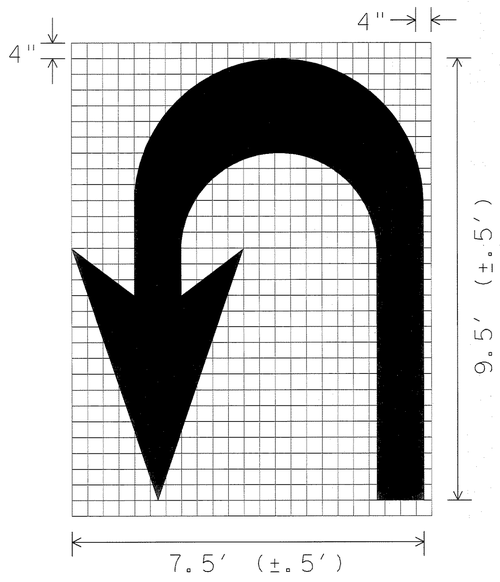
ACC:

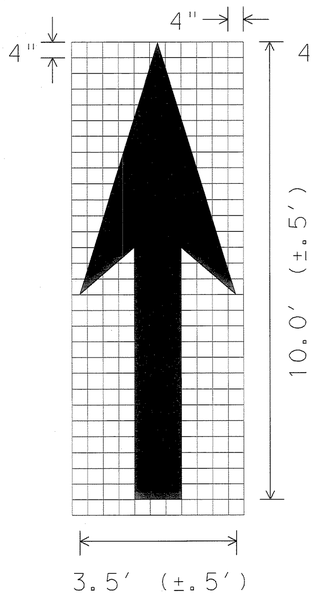


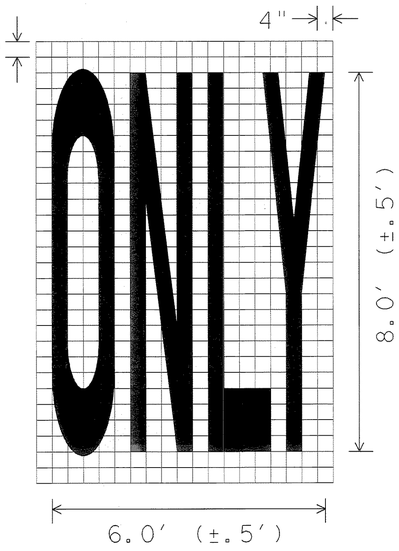












GENERAL NOTES;

1. Minimum 8 foot white markings should be used, unless otherwise noted. If message consists of more than one word, it should be placed with first word nearest the driver.
2. These details are standard size for normal installation; sizes may be reduced approximately one-third for low speed urban conditions; larger sizes may be needed for freeways, above average speed conditions or other critical locations.
3. The longitudinal space between markings should be at least four times the height of the markings, on low speed roads, but should not exceed ten times the height under any condition.
4. Markings considered appropriate for use when warranted include the following:
   A. Regulatory
      STOP
      RIGHT (LEFT) TURN ONLY
      25 MPH
      SYMBOL ARROWS
   B. Warning
      STOP AHEAD
      SIGNAL AHEAD
      SCHOOL
      SCHOOL X-ING
      PED X-ING
      R X R (see RCPM standard)
   C. Guide
      US XXX
      ROUTE XXX
      STATE XXX
      Other words or symbols may be necessary under certain conditions
5. Uncontrolled use of pavement markings can result in driver confusion. Word and symbol markings should be no more than three lines.
6. The word "STOP" shall not be used on the pavement unless accompanied by a Stop line and Stop sign. The word "STOP" shall not be placed on the pavement in advance to a stop line, unless every vehicle is required to stop at all times.
7. Pavement markings should generally be no more than one lane in width, with School messages being the exception. For details of School and School crossing pavement markings, refer to Part VII of the "Texas Manual on Uniform Traffic Control Devices".
8. Spacing between letters should be approximately 4 inches. The width of letters may vary depending on the width of the travel lanes.
9. Lane-Use arrow markings may be used to convey either guidance or mandatory messages. Arrows used to convey a mandatory movement must be accompanied by standard signs and the pavement marking word "ONLY".
10. Pavement markings are to be located as specified elsewhere in the plans.

SPACING BETWEEN LINES OF PAVEMENT MARKINGS	
MPH	SPACING
≤ 45	MINIMUM 4 TIMES THE LETTER HEIGHT
> 45	MINIMUM - 4 TIMES THE LETTER HEIGHT MAXIMUM - 10 TIMES THE LETTER HEIGHT

LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

ACC:

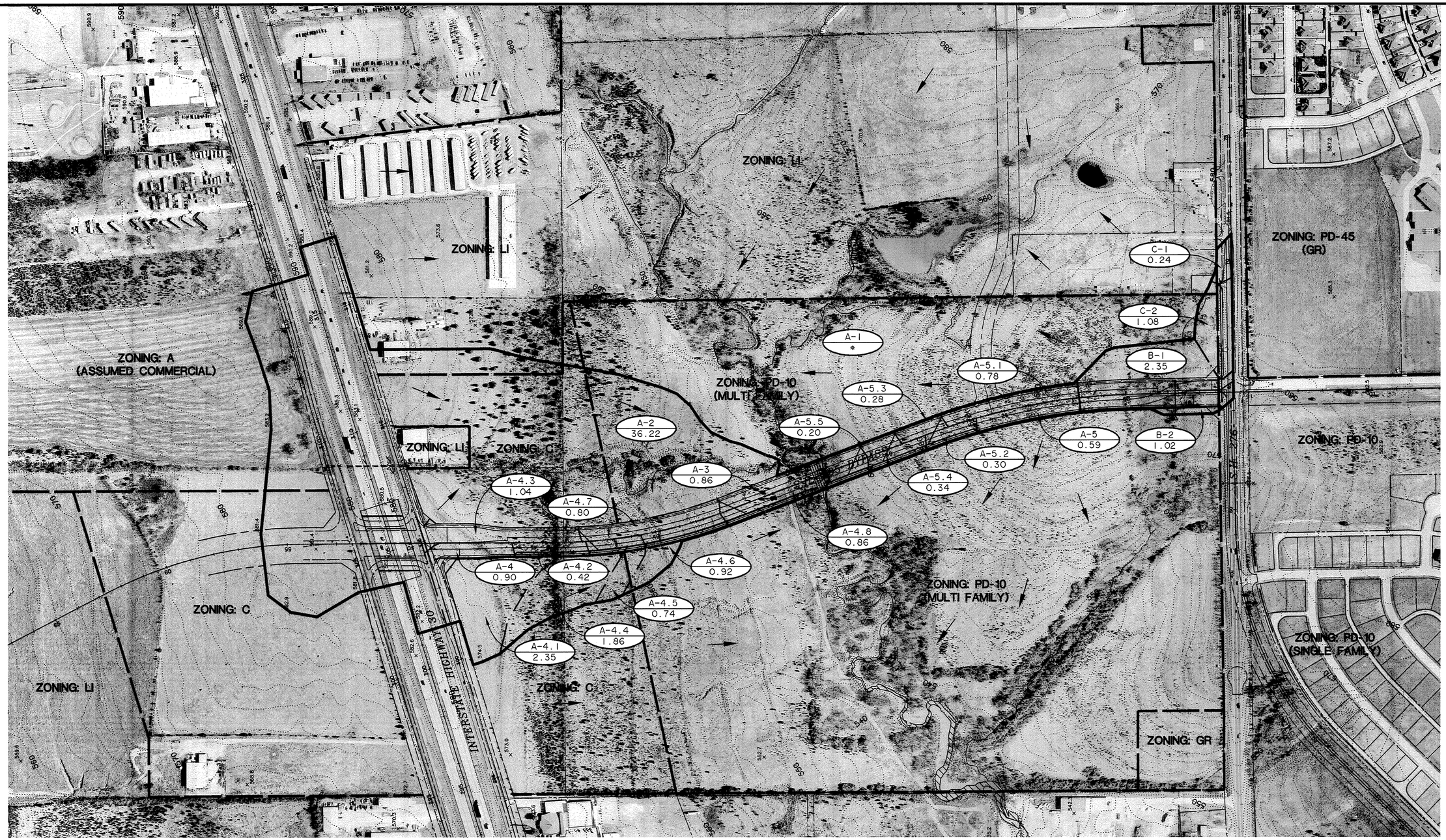
RECORD PLANS
MARCH 28, 2008

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

STANDARD PAVEMENT MARKINGS (ARROWS)

PM(6)-01

© TxDOT March 2001	DN: -	CK: - GRB	DW: - FDN	CK: - CAL
REVISIONS	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
		6		M207
	COUNTY	CONTROL	SECTION	JOB / HIGHWAY



LEGEND

- DENOTES WATERSHED BOUNDARY
- DENOTES MAJOR DRAINAGE AREA DIVIDE
- DENOTES MAJOR DRAINAGE AREA SUBDIVIDE
- X-1 / XX.XX — DRAINAGE AREA DESIGNATION DRAINAGE AREA ACRES
- PROPOSED STORM DRAIN & INLET
- ZONING BOUNDARY LINE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- (1) DESIGN POINT

*A-1 REFER TO FLOOD STUDY PREPARED BY NATIONWIDE WATER RESOURCE SERVICES, INC. FOR DRAINAGE AREA A-1 Q_{100} = 2841 cfs.

RECORD PLANS
MARCH 28, 2008

0 200 400 600 800

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
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1380 U.S. HIGHWAY 287 N. SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-6700
6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.WierAssociates.com

S.H. No. 205 BYPASS
I.H. No. 30 TO S.H. No. 276
PHASE I
DRAINAGE AREA MAP

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
9-25-2006

LAST SHEET EDIT DATE 08-31-2006
WA# 04141

SHEET NO. D101

TIME 18:59 FILE I 04141-DAMAP1-Phase1.dwg

DRAINAGE AREA CALCULATIONS

DRAINAGE AREA DESIGNATION	TOTAL AREA (ACRES)	C 0.35 PARKS, OPEN SPACE & FLOOD PLAIN	C 0.50 SINGLE FAMILY & DUPLEX RESIDENTIAL	C 0.70 SCHOOL	C 0.75 MULTI FAMILY RESIDENTIAL	C 0.80 TOWNHOUSE / CHURCHES	C 0.90 INDUSTRIAL / COMMERCIAL MERCANTILE RETAIL	C 0.90 STREET RIGHT-OF-WAY	C x A	tc (min.)	I (In./Hr.) 10 YEAR STORM	I (In./Hr.) 25 YEAR STORM	I (In./Hr.) 100 YEAR STORM	Q (cfs) 10 YEAR STORM	Q (cfs) 25 YEAR STORM	Q (cfs) 100 YEAR STORM
A-1	653															2,841
A-2	36.22				6.21		18.49	11.52	31.67	13.9	6.65	7.51	9.11	210.6	237.8	288.5
A-3	0.86							0.86	0.77	10	7.24	8.15	9.80	5.6	6.3	7.5
A-4	0.90							0.90	0.81	10	7.24	8.15	9.80	5.9	6.6	7.9
A-4.1	2.35						2.35		2.12	10	7.24	8.15	9.80	15.3	17.3	20.8
A-4.2	0.42							0.42	0.38	10	7.24	8.15	9.80	2.8	3.1	3.7
A-4.3	1.04							1.04	0.94	10	7.24	8.15	9.80	6.8	7.7	9.2
A-4.4	1.86						1.86		1.67	10	7.24	8.15	9.80	12.1	13.6	16.4
A-4.5	0.74				0.13		0.30	0.31	0.65	10	7.24	8.15	9.80	4.7	5.3	6.4
A-4.6	0.92				0.43		0.02	0.47	0.76	10	7.24	8.15	9.80	5.5	6.2	7.4
A-4.7	0.80							0.80	0.72	10	7.24	8.15	9.80	5.2	5.9	7.1
A-4.8	0.86							0.86	0.77	10	7.24	8.15	9.80	5.6	6.3	7.5
A-5	0.59							0.59	0.53	10	7.24	8.15	9.80	3.8	4.3	5.2
A-5.1	0.78				0.01			0.77	0.70	10	7.24	8.15	9.80	5.1	5.7	6.9
A-5.2	0.30							0.30	0.27	10	7.24	8.15	9.80	2.0	2.2	2.6
A-5.3	0.28							0.28	0.25	10	7.24	8.15	9.80	1.8	2.0	2.5
A-5.4	0.34							0.34	0.31	10	7.24	8.15	9.80	2.2	2.5	3.0
A-5.5	0.20							0.20	0.18	10	7.24	8.15	9.80	1.3	1.5	1.8
B-1	2.35				1.49			0.86	1.89	10	7.24	8.15	9.80	13.7	15.4	18.5
B-2	1.02				0.12			0.90	0.90	10	7.24	8.15	9.80	6.5	7.3	8.8
C-1	0.24						0.02	0.22	0.22	10	7.24	8.15	9.80	1.6	1.8	2.2
C-2	1.08				0.50		0.04	0.54	0.90	10	7.24	8.15	9.80	6.5	7.3	8.8

NOTE: FOR DRAINAGE BASIN "A-1", REFER TO FLOOD STUDY PREPARED BY NATIONWIDE RESOURCE SERVICES, INC.
Q100 FOR DRAINAGE BASIN "A-1" PER THIS STUDY = 2,841 cfs AT PROPOSED BOX CULVERT CROSSING LOCATION.

TIME OF CONCENTRATION CALCULATION DRAINAGE AREA "A-2"

Drainage Area	Travel Distance (ft)	Average Slope (%)	Type Of Conveyance	Average Velocity (ft/sec)	Travel Time (min.)	Time Of Concen. (min.)
A-2	150	0.7	Paved Swale	2.5	1.0	
	600	1.1	Earthen Swale	1.5	6.7	
	310	2.5	Enclosed Storm Drain System	11.4	0.5	
	270	1.5	Earthen Swale	1.8	2.5	
	1550	1.8	Earthen Ditch	8.2	3.2	13.9

INLET DESIGN CALCULATIONS

INLET No.	DISCHARGES TO	DESIGN STORM FREQUENCY (years)	TIME OF CONC. (min.)	RAINFALL INTENSITY (in./hr.)	DRAINAGE AREA (acres)	DRAINAGE AREA CA	FLOW FROM DRAINAGE AREA (cfs)	CARRY-OVER (cfs)	TOTAL GUTTER FLOW (cfs)	GUTTER SLOPE (%)	STREET SECTION	CROSS-SLOPE OR CROWN (ft/ft) OR (in.)	DEPTH OF FLOW (ft)	PONDED WIDTH (ft)	INLET LENGTH	FLOW COLLECTED	CARRY-OVER (cfs)	REMARKS
INLET A-3	LINE A-3	100	10	9.8	0.86	0.77	7.5	4.4	11.9	-	TRIANGULAR	2.00%	0.41	-	15	11.9	0.0	FUTURE RECESSED CURB INLET
INLET A-4	LINE A-4	100	10	9.8	0.90	0.81	7.9	0.0	7.9	1.30	TRIANGULAR	2.00%	0.29	14.6	10	5.5	2.4	RECESSED CURB INLET
AREA A-4.1	LAT. A-4.1	100	10	9.8	2.35	2.12	20.8	0.0	20.8	-	TRIANGULAR	2.00%	0.40	-	N/A	20.8	0.0	FUTURE STORM DRAIN EXTENSION
INLET A-4.2	LAT. A-4.2	100	10	9.8	0.42	0.38	3.7	2.4	6.1	2.44	TRIANGULAR	2.00%	0.23	11.7	10	4.6	1.5	RECESSED CURB INLET
INLET A-4.3	LAT. A-4.3	100	10	9.8	1.04	0.94	9.2	0.0	9.2	2.44	TRIANGULAR	2.00%	0.27	13.7	10	5.4	3.8	FUTURE RECESSED CURB INLET
INLET A-4.4	LAT. A-4.4	100	10	9.8	1.86	1.67	16.4	0.0	16.4	-	TRIANGULAR	2.00%	0.37	-	16	16.4	0.0	TEMP. DROP INLET FUTURE STORM DRAIN EXTENSION
INLET A-4.5	LAT. A-4.5	100	10	9.8	0.74	0.65	6.4	1.5	7.9	2.44	TRIANGULAR	2.00%	0.26	13.0	10	5.2	2.7	RECESSED CURB INLET
INLET A-4.6	LAT. A-4.6	100	10	9.8	0.92	0.76	7.4	2.7	10.1	1.00	TRIANGULAR	2.00%	0.33	16.7	10	6.4	3.7	RECESSED CURB INLET
INLET A-4.7	LAT. A-4.7	100	10	9.8	0.80	0.72	7.1	3.8	10.9	1.00	TRIANGULAR	2.00%	0.34	17.2	10	6.5	4.4	FUTURE RECESSED CURB INLET
INLET A-4.8	LAT. A-4.8	100	10	9.8	0.86	0.77	7.5	3.7	11.2	-	TRIANGULAR	2.00%	0.40	-	15	11.2	0.0	RECESSED CURB INLET
INLET A-5	LINE A-5	100	10	9.8	0.59	0.53	5.2	0.0	5.2	3.74	TRIANGULAR	2.00%	0.20	10.2	10	4.2	1.0	RECESSED CURB INLET
INLET A-5.1	LAT. A-5.1	100	10	9.8	0.78	0.70	6.9	0.0	6.9	4.28	TRIANGULAR	2.00%	0.22	11.1	10	4.6	2.3	FUTURE RECESSED CURB INLET
INLET A-5.2	LAT. A-5.2	100	10	9.8	0.30	0.27	2.6	1.0	3.6	4.28	TRIANGULAR	2.00%	0.17	8.7	10	3.5	0.1	RECESSED CURB INLET
INLET A-5.3	LAT. A-5.3	100	10	9.8	0.28	0.25	2.5	2.3	4.8	4.28	TRIANGULAR	2.00%	0.19	9.6	10	4.0	0.8	FUTURE RECESSED CURB INLET
INLET A-5.4	LAT. A-5.4	100	10	9.8	0.34	0.31	3.0	0.1	3.1	2.72	TRIANGULAR	2.00%	0.18	8.9	10	3.1	0.0	RECESSED CURB INLET
INLET A-5.5	LAT. A-5.5	100	10	9.8	0.20	0.18	1.8	0.8	2.6	2.72	TRIANGULAR	2.00%	0.17	8.3	10	2.6	0.0	FUTURE RECESSED CURB INLET
INLET B-1	LINE B	100	10	9.8	2.35	1.89	18.5	0.0	18.5	-	TRIANGULAR	2.00%	0.48	-	15	18.5	0.0	RECESSED CURB INLET
INLET B-2	LAT. B-2	100	10	9.8	1.02	0.90	8.8	0.0	8.8	-	TRIANGULAR	2.00%	0.36	-	10	8.8	0.0	RECESSED CURB INLET
INLET C-1	LINE C	100	10	9.80	0.24	0.22	2.2	0.0	2.2	1.00	SWALE	12" INVERT	0.50	6.0	3.5'x5'	2.2	0.0	TxDOT TYPE H HORIZONTAL GRATE INLET
INLET C-2	LINE C	100	10	9.80	1.08	0.90	8.8	0.0	8.8	1.00	SWALE	12" INVERT	0.90	11.0	3'x3'	8.8	0.0	TxDOT TYPE H HORIZONTAL GRATE INLET

RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
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1380 U.S. HIGHWAY 287 N, SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-0700
6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.WierAssociates.com

PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
DRAINAGE AREA &
INLET DESIGN CALCULATIONS

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED
PROFESSIONAL ENGINEER
3/28/08

LAST SHEET EDIT DATE 11-30-2006
WA# 04141
SHEET NO. D102

TIME: 10:06 FILE: 04141-DACALC.dwg

STORM DRAIN DESIGN CALCULATIONS

FROM	REACH TO	INFLOW (INLETS & HEADWALLS) LENGTH (ft)	SOURCE	'CA'	INLET TIME (min)	TOTAL 'CA'	TIME AT UPSTREAM OF REACH (min)	DESIGN STORM FREQUENCY (yr)	RAINFALL INTENSITY 'I' (in/hr)	TOTAL FLOW 'Q' (cfs)	STORM DRAIN SIZE	VELOCITY (ft/sec)	SLOPE OF FRICTION GRADIENT (ft/ft)	STRUCTURE LOSS COEFF. 'Kj'	STRUCTURE LOSS AT UPSTREAM OF REACH (ft)	FLOW TIME IN DRAIN (min)	TIME AT DOWNSTREAM OF REACH (min)	H.G. AT UPSTREAM OF REACH (ft)	REMARKS
SYSTEM "A"																			
1+94.41	1+70.83	23.58		289.90	10.0	289.90	10.0	100	9.80	2841.0	9x9	8.8	0.0020	0.00	0.00	0.0	10.0	544.67	
INLET A-3	1+70.83	54.85		1.21	10.0	1.21	10.0	100	9.80	11.9	21	4.9	0.0056	1.25	0.48	0.2	10.2	545.41	
1+70.83	0+91.06	76.77	-	-	-	291.11	10.2	100	9.77	2844.1	9x9	8.8	0.0020	0.00	0.00	0.1	10.3	544.63	
INLET A-4	13+55.71	16.26		0.56	10.0	0.56	10.0	100	9.80	5.5	18	3.1	0.0027	1.25	0.19	0.0	10.0	565.94	
13+55.71	11+76.18	179.53	-	-	-	0.56	10.0	100	9.80	5.5	18	3.1	0.0027	0.50	0.08	0.3	10.3	565.55	
AREA A-4.1	11+76.18	29.73		2.12	10.0	2.12	10.0	100	9.80	20.8	24	6.6	0.0085	0.00	0.00	0.0	10.0	561.82	FUTURE STORM DRAIN EXTENSTION
11+76.18	10+53.31	122.87	-	-	-	2.68	10.3	100	9.76	26.2	27	6.6	0.0072	0.30	0.63	0.2	10.5	561.33	
INLET A-4.2	10+53.31	16.31		0.47	10.0	0.47	10.0	100	9.80	4.6	18	2.6	0.0019	1.25	0.13	0.1	10.1	559.49	
10+53.31	10+24.54	28.77	-	-	-	3.15	10.5	100	9.73	30.6	27	7.7	0.0098	0.30	0.72	0.1	10.6	559.33	
INLET A-4.3	10+24.54	119.54		0.55	10.0	0.55	10.0	100	9.80	5.4	18	3.1	0.0026	1.25	0.18	0.2	10.2	560.69	
10+24.54	9+08.24	116.3	-	-	-	3.70	10.6	100	9.71	35.9	27	9.0	0.0134	0.30	0.98	0.2	10.8	558.33	
INLET A-4.4	9+08.24	42.68		1.67	10.0	1.67	10.0	100	9.80	16.4	24	5.2	0.0053	1.25	0.53	0.0	10.0	557.46	
9+08.24	8+23.81	84.43	-	-	-	5.37	10.8	100	9.68	52.0	30	10.6	0.0161	0.30	1.37	0.1	10.9	555.79	
INLET A-4.5	8+23.81	16.31		0.53	10.0	0.53	10.0	100	9.80	5.2	18	2.9	0.0025	1.25	0.17	0.1	10.1	553.27	
8+23.81	4+82.11	341.7	-	-	-	5.90	10.9	100	9.67	57.1	33	9.6	0.0117	0.30	0.91	0.6	11.5	553.06	
INLET A-4.6	4+82.11	16.31		0.65	10.0	0.65	10.0	100	9.80	6.4	18	3.6	0.0037	1.25	0.25	0.1	10.1	548.47	
4+82.11	4+03.46	78.65	-	-	-	6.55	11.5	100	9.57	62.7	36	8.9	0.0088	0.30	0.80	0.1	11.6	548.15	
INLET A-4.7	4+03.46	126.64		0.66	10.0	0.66	10.0	100	9.80	6.5	18	3.7	0.0038	1.25	0.26	0.6	10.6	547.41	
4+03.46	1+75	228.46	-	-	-	7.21	11.6	100	9.56	68.9	42	7.2	0.0047	0.30	0.44	0.5	12.1	546.66	
1+75	1+46.87	28.13	-	-	-	7.21	12.1	100	9.49	68.4	42	7.1	0.0046	0.00	0.00	0.1	12.2	545.15	
INLET A-4.8	1+46.87	16.26		1.14	10.0	1.14	10.0	100	9.80	11.2	24	3.6	0.0025	1.25	0.25	0.1	10.1	545.31	
1+46.87	0+91.06	55.81	-	-	-	8.35	12.2	100	9.47	79.1	48	6.3	0.0030	0.30	0.38	0.1	12.3	545.02	
INLET A-5	7+35.89	16.23		0.43	10.0	0.43	10.0	100	9.80	4.2	18	2.4	0.0016	1.25	0.11	0.0	10.0	566.08	
7+35.89	5+38.11	197.78	-	-	-	0.43	10.0	100	9.80	4.2	18	2.4	0.0016	0.50	0.04	0.3	10.3	565.41	
INLET A-5.1	5+38.11	128.85		0.47	10.0	0.47	10.0	100	9.80	4.6	18	2.6	0.0019	1.25	0.13	0.2	10.2	561.15	
5+38.11	5+18.87	19.24	-	-	-	0.90	10.3	100	9.76	8.8	18	5.0	0.0070	0.30	0.36	0.1	10.4	557.50	
INLET A-5.2	5+18.87	16.26		0.36	10.0	0.36	10.0	100	9.80	3.5	18	2.0	0.0011	1.25	0.08	0.1	10.1	557.10	
5+18.87	3+40.87	178	-	-	-	1.26	10.4	100	9.74	12.3	18	7.0	0.0137	0.30	0.64	0.2	10.6	557.00	
INLET A-5.3	3+40.87	126.57		0.41	10.0	0.41	10.0	100	9.80	4.0	18	2.3	0.0015	1.25	0.10	0.3	10.3	552.56	
3+40.87	2+68.87	72	-	-	-	1.67	10.6	100	9.71	16.2	18	9.2	0.0238	0.30	1.09	0.1	10.7	550.79	
INLET A-5.4	2+68.87	16.26		0.32	10.0	0.32	10.0	100	9.80	3.1	18	1.8	0.0009	1.25	0.06	0.0	10.0	547.84	
2+68.87	1+90.87	78	-	-	-	1.99	10.7	100	9.70	19.3	24	6.1	0.0073	0.30	0.18	0.1	10.8	547.58	
INLET A-5.5	1+90.87	126.57		0.27	10.0	0.27	10.0	100	9.80	2.6	18	1.5	0.0006	1.25	0.04	0.3	10.3	547.32	
1+90.87	0+91.06	92.9	-	-	-	2.26	10.8	100	9.68	21.9	24	7.0	0.0094	0.30	0.59	0.2	11.0	545.93	
0+91.06	0+74.41	16.65	-	-	-	301.72	12.3	100	9.46	2854.3	9x9	8.8	0.0020	0.00	0.00	0.0	12.3	544.47	
SYSTEM "B"																			
INLET B-1	2+30.00	117.50		1.89	10.0	1.89	10.0	100	9.80	18.5	24	5.9	0.0067	1.25	0.67	0.3	10.3	575.19	
INLET B-2	2+30.00	88.63		0.90	10.0	0.90	10.0	100	9.80	8.8	21	3.7	0.0031	1.25	0.26	0.4	10.4	574.25	
2+30.00	2+05.00	25.00	-	-	-	2.79	10.4	100	9.74	27.2	30	5.5	0.0044	0.50	0.20	0.1	10.5	573.72	
SYSTEM "C"																			
INLET C-1	INLET C-2	370.00		0.22	10.0	0.22	10.0	100	9.80	2.2	18	1.2	0.0004	1.25	0.03	1.3	11.3	580.88	
INLET C-2	1+46.00	104.00		0.90	10.0	1.12	11.3	100	9.60	10.8	18	6.1	0.0106	0.50	0.57	0.3	11.6	578.16	

RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
4300 BELTWAY PLACE SUITE 130 ARLINGTON, TEXAS 76018 METRO (817)467-7700
1380 U.S. HIGHWAY 287 N, SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-0700
6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.WierAssociates.com

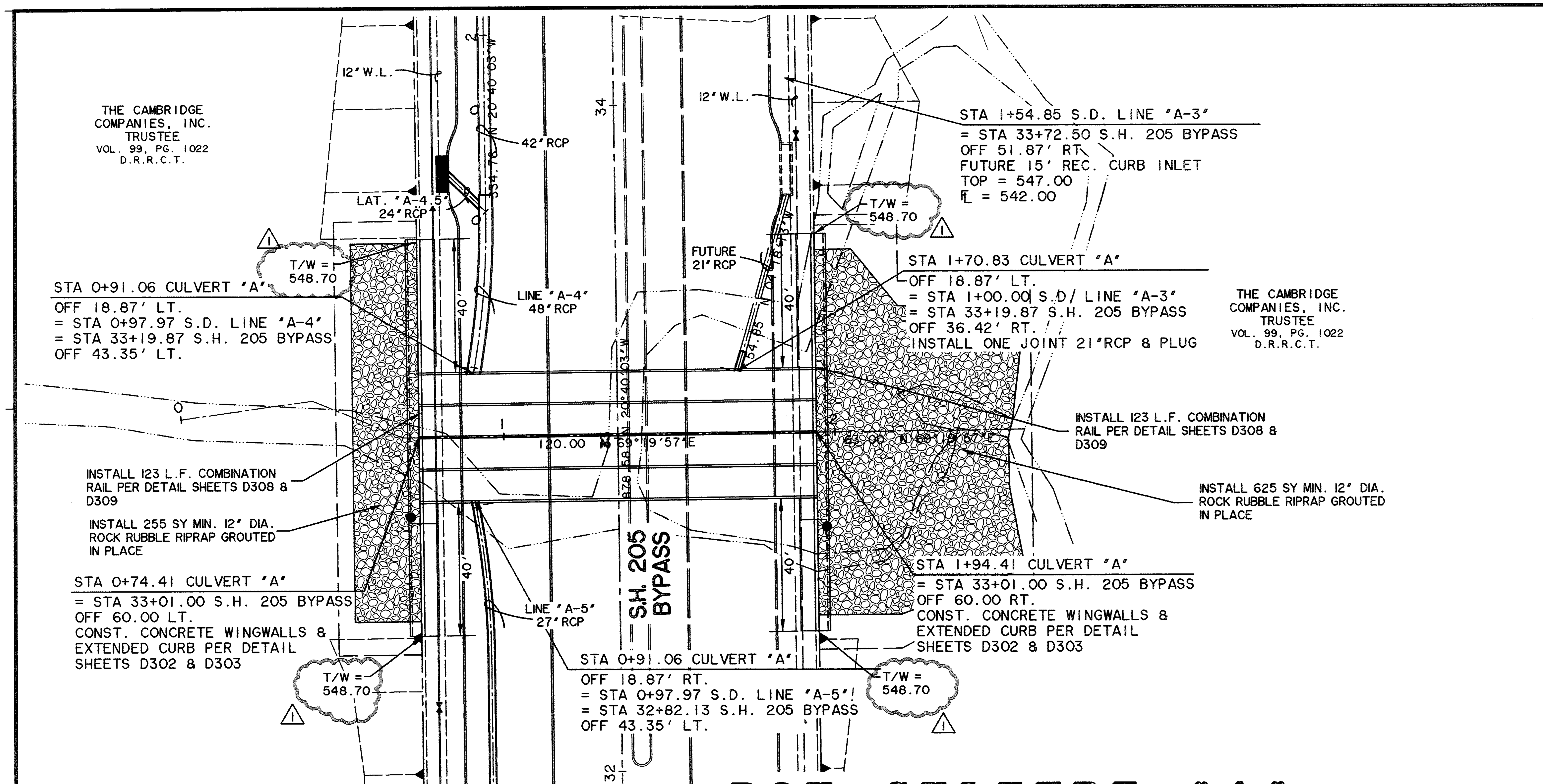
PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
STORM DRAIN
DESIGN CALCULATIONS

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED
PROFESSIONAL ENGINEER
7-18-07

LAST SHEET EDIT DATE 07-18-2007
WA# 04141
SHEET NO. D103

TIME:22:03 FILE:\04141-SDCALC.dwg

NO.	DATE	DESCRIPTION	BY
1	10/31/07	REVISED HEADWALL TOP ELEV	PLG



THE CAMBRIDGE COMPANIES, INC. TRUSTEE VOL. 99, PG. 1022 D.R.R.C.T.
12' W.L.
42' RCP
LAT. 'A-4.5' 24' RCP
T/W = 548.70
STA 0+91.06 CULVERT 'A'
OFF 18.87' LT.
= STA 0+97.97 S.D. LINE 'A-4'
= STA 33+19.87 S.H. 205 BYPASS
OFF 43.35' LT.
LINE 'A-4' 48' RCP
INSTALL 123 L.F. COMBINATION RAIL PER DETAIL SHEETS D308 & D309
INSTALL 255 SY MIN. 12' DIA. ROCK RUBBLE RIPRAP GROUTED IN PLACE
STA 0+74.41 CULVERT 'A'
= STA 33+01.00 S.H. 205 BYPASS
OFF 60.00 LT.
CONST. CONCRETE WINGWALLS & EXTENDED CURB PER DETAIL SHEETS D302 & D303
LINE 'A-5' 27' RCP
S.H. 205 BYPASS
120.00
STA 0+91.06 CULVERT 'A'
OFF 18.87' RT.
= STA 0+97.97 S.D. LINE 'A-5'
= STA 32+82.13 S.H. 205 BYPASS
OFF 43.35' LT.
FUTURE 21' RCP
STA 1+54.85 S.D. LINE 'A-3'
= STA 33+72.50 S.H. 205 BYPASS
OFF 51.87' RT.
FUTURE 15' REC. CURB INLET
TOP = 547.00
FL = 542.00
STA 1+70.83 CULVERT 'A'
OFF 18.87' LT.
= STA 1+00.00 S.D. LINE 'A-3'
= STA 33+19.87 S.H. 205 BYPASS
OFF 36.42' RT.
INSTALL ONE JOINT 21' RCP & PLUG
THE CAMBRIDGE COMPANIES, INC. TRUSTEE VOL. 99, PG. 1022 D.R.R.C.T.
INSTALL 123 L.F. COMBINATION RAIL PER DETAIL SHEETS D308 & D309
INSTALL 625 SY MIN. 12' DIA. ROCK RUBBLE RIPRAP GROUTED IN PLACE
STA 1+94.41 CULVERT 'A'
= STA 33+01.00 S.H. 205 BYPASS
OFF 60.00 RT.
CONST. CONCRETE WINGWALLS & EXTENDED CURB PER DETAIL SHEETS D302 & D303

CAUTION !!

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BENCHMARKS

1. BOX CUT WITH 'X' CUT IN CENTER OF EXISTING SIDEWALK 2' SOUTH OF NORTH EDGE AT SOUTHEAST CORNER OF S.H. No. 205 BYPASS AND S.H. No. 276

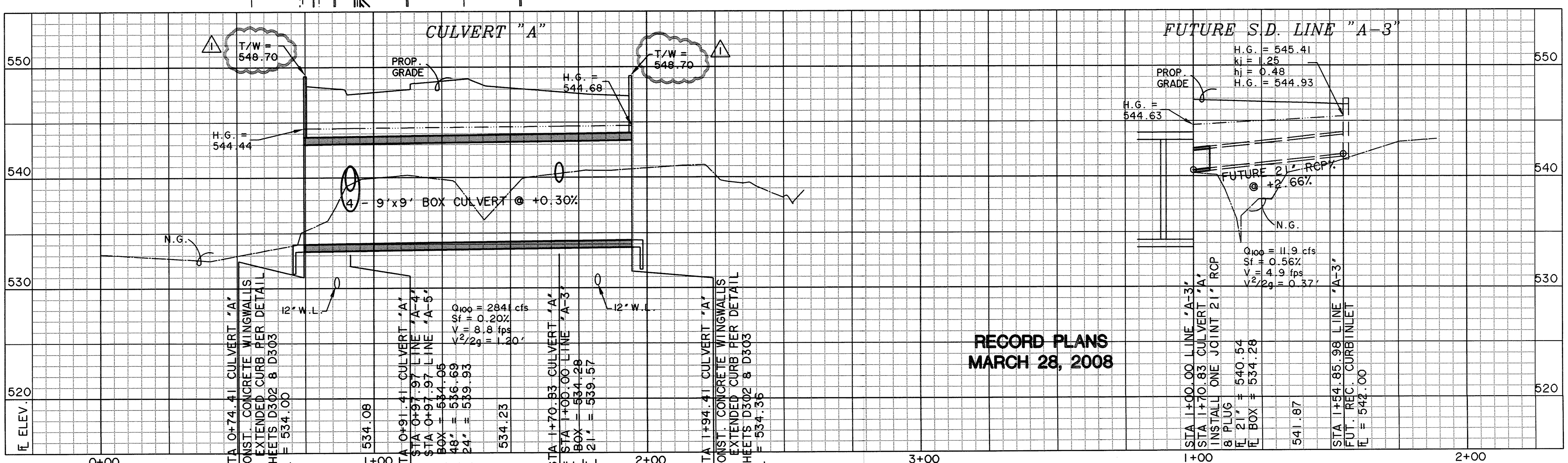
ELEV. 580.40

2. BOX CUT ON SOUTHEAST TOP OF HEADWALL ON SOUTH SIDE OF I.H. No. 30 ACCESS ROAD APPROX. 325' EAST OF FUTURE S.H. No. 205 BYPASS AND ON WEST SIDE OF NESBIT METAL CO. ORANGE METAL BLDG.

ELEV. 573.70

SCALE (feet) 0 20 40 60

BOX CULVERT "A"



CULVERT "A"
FUTURE S.D. LINE "A-3"
T/W = 548.70
PROP. GRADE
H.G. = 544.68
H.G. = 544.44
4 - 9'x9' BOX CULVERT @ +0.30%
N.G.
12' W.L.
Q100 = 2841 cfs
Sf = 0.20%
V = 8.8 fps
V²/2g = 1.20'
H.G. = 545.41
ki = 1.25
hi = 0.48
H.G. = 544.93
H.G. = 544.63
FUTURE 21' RCP @ +2.66%
Q100 = 11.9 cfs
Sf = 0.56%
V = 4.9 fps
V²/2g = 0.37'
STA 0+74.41 CULVERT 'A' CONST. CONCRETE WINGWALLS & EXTENDED CURB PER DETAIL SHEETS D302 & D303 FL = 534.00
534.08
STA 0+91.41 CULVERT 'A' = STA 0+97.97 LINE 'A-4' = STA 0+97.97 LINE 'A-5' FL BOX = 534.05 FL 48' = 536.69 FL 24' = 539.93
534.23
STA 1+70.83 CULVERT 'A' = STA 1+00.00 LINE 'A-3' FL BOX = 534.28 FL 21' = 539.57
STA 1+94.41 CULVERT 'A' CONST. CONCRETE WINGWALLS & EXTENDED CURB PER DETAIL SHEETS D302 & D303 FL = 534.35
STA 1+00.00 LINE 'A-3' STA 1+70.83 CULVERT 'A' INSTALL ONE JOINT 21' RCP & PLUG FL 21' = 540.54 FL BOX = 534.28
541.87
STA 1+54.85.98 LINE 'A-3' FUT. REC. CURB INLET FL = 542.00
FL ELEV.
0+00 1+00 2+00 3+00 1+00 2+00

RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
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6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.WierAssociates.com

PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
BOX CULVERT "A"
PLAN & PROFILE

STATE OF TEXAS PHILIP L. GRAHAM 94719 LICENSED PROFESSIONAL ENGINEER
3/28/08

LAST SHEET EDIT DATE 10-31-2007
WA# 04141

SHEET NO. D104

FILE: 04141-SDPP1.dwg
TIME: 16:19

CAUTION !!

EXISTING UTILITIES ARE INDICATED ON THE PLANS FROM AVAILABLE INFORMATION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION OF ALL UTILITIES, TO NOTIFY ALL UTILITY COMPANIES OF THE CONTRACTORS OPERATIONS, TO PROTECT ALL UTILITIES FROM DAMAGE, TO REPAIR ALL UTILITIES DAMAGED DUE TO THE CONTRACTORS OPERATIONS, AND TO NOTIFY THE ENGINEER PROMPTLY OF ALL CONFLICTS OF THE WORK WITH EXISTING UTILITIES.

THE CAMBRIDGE COMPANIES, INC. TRUSTEE
VOL. 99, PG. 1022 D.R.R.C.T.

BENCHMARKS

1. BOX CUT WITH "X" CUT IN CENTER OF EXISTING SIDEWALK 2' SOUTH OF NORTH EDGE AT SOUTHEAST CORNER OF S.H. No. 205 BYPASS AND S.H. No. 276
ELEV. 580.40

2. BOX CUT ON SOUTHEAST TOP OF HEADWALL ON SOUTH SIDE OF I.H. No. 30 ACCESS ROAD APPROX. 325' EAST OF FUTURE S.H. No. 205 BYPASS AND ON WEST SIDE OF NESBIT METAL CO. ORANGE METAL BLDG.
ELEV. 573.70

STA 0+16.26 LAT. "A-4.8"
STA 33+80.00 S.H. 205 BYPASS
OFF 50.50' LT.
15' REC. CURB INLET
TOP = 547.00
FL = 542.00

STA 0+16.31 LAT. "A-4.6"
STA 37+15.00 S.H. 205 BYPASS
OFF 50.50' LT.
10' REC. CURB INLET
TOP = 549.86
FL = 544.86

CURVE C208	
A	10°00'00"
D	22°55'06"
R	250.00
T	21.87
L	43.63
E	0.95

CURVE C209	
A	17°57'29"
D	02°52'50"
R	1989.00
T	314.28
L	623.40
E	24.68

STA 4+03.46 LINE "A-4"
= STA 0+00.00 LAT. "A-4.7"
= STA 36+05.09 S.H. 205 BYPASS
OFF 39.00' LT.
45° MANUFACTURED WYE

LAT "A-4.8"
24" RCP
12" W.L.
LAT "A-4.6"
18" RCP
C208
C209
48" RCP
36" RCP
33" RCP
LINE "A-4"
42" RCP
LAT "A-4.7"
18" RCP

STA 1+46.87 LINE "A-4"
= STA 0+00.00 LAT. "A-4.8"
= STA 33+68.50 S.H. 205 BYPASS
OFF 39.00' LT.
45° MANUFACTURED WYE

334.76 N 20°40'03"W

STA 1+44.80 LINE "A-4"
= STA 33+66.43 S.H. 205 BYPASS
OFF 39.00' LT.
PT208

STA 4+79.56 LINE "A-4"
= STA 37+01.19 S.H. 205 BYPASS
OFF 39.00' LT.
PC209

STA 4+82.11 LINE "A-4"
= STA 0+00.00 LAT. "A-4.6"
= STA 37+03.69 S.H. 205 BYPASS
OFF 39.00' LT.
45° MANUFACTURED WYE

878.58 N 20°40'03"W

S.H. 205 BYPASS

N 24°19'57" E

FUTURE 18" RCP

STA 1+01.16 LINE "A-4"
= STA 33+23.02 S.H. 205 BYPASS
OFF 42.80' LT.
PC208

STA 0+55.00 LAT. "A-4.7"
= STA 36+63.99 S.H. 205 BYPASS
OFF 0.11' LT.
INSTALL 18" PLUG

STA 0+97.97 LINE "A-4"
= STA 0+91.06 CULVERT "A"
OFF 18.87' LT.
= STA 33+19.87 S.H. 205 BYPASS
OFF 43.35' LT.

S.S.M.H.
RIM = 545.09
FL IN = 536.49
FL OUT = 536.31

STA 1+26.64 LAT. "A-4.7"
= STA 37+15.00 S.H. 205 BYPASS
OFF 50.50' RT.
FUTURE 10' REC. CURB INLET
TOP = 549.86
FL = 544.86

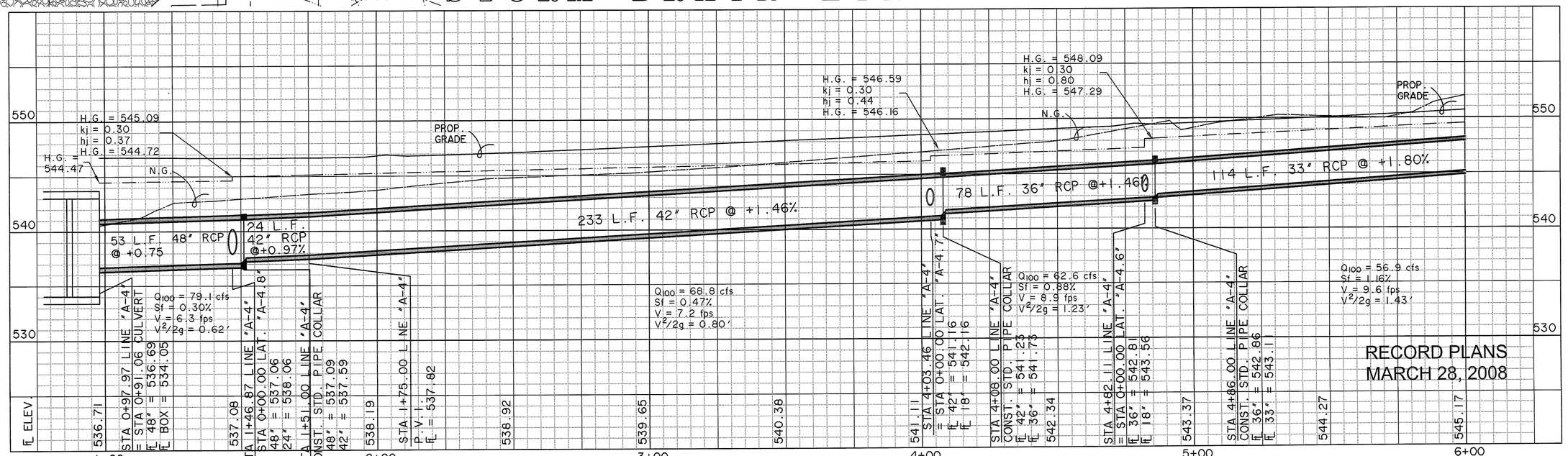
12" W.L.

THE CAMBRIDGE COMPANIES, INC. TRUSTEE
VOL. 99, PG. 1022 D.R.R.C.T.

MATCH LINE STA 6+00

SCALE (feet)
0 20 40 60

STORM DRAIN LINE "A-4"



RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
4300 BELTWAY PLACE, SUITE 130, ARLINGTON, TEXAS 76018 METRO (817)467-7700
1380 U.S. HIGHWAY 287 N, SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-8700
6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.WierAssociates.com

PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
STORM DRAIN LINE "A-4"
PLAN & PROFILE
STA 1+00 TO 6+00

STATE OF TEXAS
PHILIP GRAHAM
94719
LICENSED
PROFESSIONAL ENGINEER
7-19-07

LAST SHEET EDIT DATE 07-19-2007
WA# 04141

SHEET NO.
D105

FILE: 04141-SDPP2.dwg
TIME: 11:52

BENCHMARKS

1. BOX CUT WITH "X" CUT IN CENTER OF EXISTING SIDEWALK 2' SOUTH OF NORTH EDGE AT SOUTHEAST CORNER OF S.H. No. 205 BYPASS AND S.H. No. 276

ELEV. 580.40

2. BOX CUT ON SOUTHEAST TOP OF HEADWALL ON SOUTH SIDE OF I.H. No. 30 ACCESS ROAD APPROX. 325' EAST OF FUTURE S.H. No. 205 BYPASS AND ON WEST SIDE OF NESBIT METAL CO. ORANGE METAL BLDG.

ELEV. 573.70

THE CAMBRIDGE COMPANIES, INC. TRUSTEE
VOL. 99, PG. 1022 D.R.R.C.T.

CAUTION !!

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MATCH LINE STA 6+00

STA 0+16.31 LAT. "A-4.5"
= STA 40+50.00 S.H. 205 BYPASS
OFF 50.50' LT.
10' REC. CURB INLET
TOP = 556.09
FL = 551.09

STA 0+42.68 LAT. "A-4.4"
= STA 41+50.00 S.H. 205 BYPASS
OFF 70.00' LT.

STA 41+51.32 S.H. 205 BYPASS
OFF 71.46' LT.
℄ 4'x4' DROP INLET
TOP = 560.43
THROAT = 559.43
FL = 554.93

STA 0+16.31 LAT. "A-4.2"
= STA 42+75.00 S.H. 205 BYPASS
OFF 50.50' LT.
10' REC. CURB INLET
TOP = 561.57
FL = 556.57

12' W.L.
LAT. "A-4.5" 18" RCP
LAT. "A-4.4" 24" RCP
12' W.L.
LAT. "A-4.2" 18" RCP
LINE "A-4" 33" RCP
30" RCP
27" RCP
27" RCP

STA 8+23.81 LINE "A-4"
= STA 0+00.00 LAT. "A-4.5"
= STA 40+38.69 S.H. 205 BYPASS
OFF 39.00' LT.
45° MANUFACTURED WYE

STA 9+08.24 LINE "A-4"
= STA 0+00.00 LAT. "A-4.4"
= STA 41+21.46 S.H. 205 BYPASS
OFF 39.00' LT.
45° MANUFACTURED WYE

STA 10+24.54 LINE "A-4"
= STA 0+00.00 LAT. "A-4.3"
= STA 42+35.49 S.H. 205 BYPASS
OFF 39.00' LT.
45° MANUFACTURED WYE

LAT. "A-4.3" 18" RCP

STA 10+53.31 LINE "A-4"
= STA 0+00.00 LAT. "A-4.2"
= STA 42+63.69 S.H. 205 BYPASS
OFF 39.00' LT.
45° MANUFACTURED WYE

STA 0+55.00 LAT. "A-4.3"
= STA 42+71.16 S.H. 205 BYPASS
OFF 2.58' RT.
INSTALL 18" PLUG

39 40 41 42 43

S.H. 205 BYPASS

FUTURE 12' W.L.
FUTURE 12' W.L.

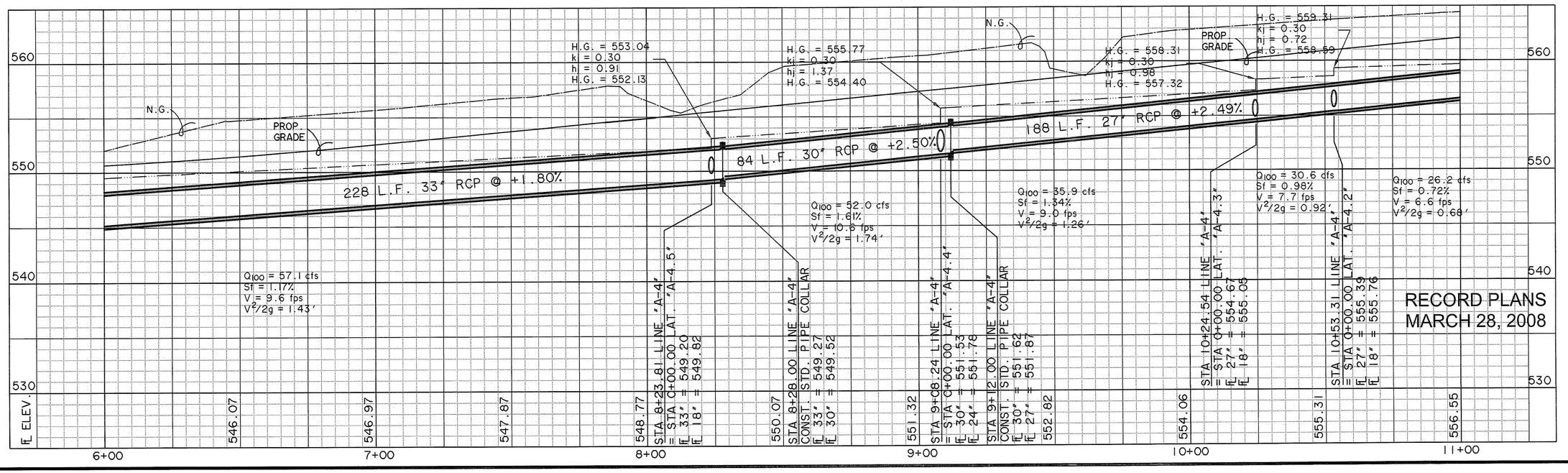
THE CAMBRIDGE COMPANIES, INC. TRUSTEE
VOL. 99, PG. 1022 D.R.R.C.T.

MATCH LINE STA 11+00

CURVE C209	
A	17°57'29"
D	02°52'50"
R	1989.00
T	314.28
L	623.40
E	24.68

SCALE (feet) 0 20 40 60

STORM DRAIN LINE "A-4"



RECORD PLANS
MARCH 28, 2008

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PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
STORM DRAIN LINE "A-4"
PLAN & PROFILE
STA 6+00 TO 11+00

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
7-19-07

LAST SHEET EDIT DATE 07-19-2007
WA# 04141

SHEET NO. D106

FILE: 04141-SDPP3.dwg
TIME 11:32

CURVE C209	
A	17°57'29"
D	02°52'50"
R	1989.00
T	314.28
L	623.40
E	24.68

CURVE C210	
A	22°21'11"
D	22°55'06"
R	250.00
T	49.39
L	97.53
E	4.83

THE CAMBRIDGE COMPANIES, INC. TRUSTEE VOL. 99, PG. 1022 D.R.R.C.T.

THE CAMBRIDGE COMPANIES, INC. TRUSTEE VOL. 101, PG. 795 D.R.R.C.T.

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ELEV. 580.40

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ELEV. 573.70

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MATCH LINE STA 11+00

STA 0+29.73 LINE "A-4.1"
= STA 44+05.00 S.H. 205 BYPASS
OFF 60.00' LT.
INSTALL 24" PLUG

LAT. "A-4.1"
24" RCP

12' W.L.

STA 13+71.97 LINE "A-4"
= STA 45+75.00 S.H. 205 BYPASS
OFF 50.50' LT.
10' RECESSED CURB INLET
TOP = 568.75
FL = 564.25

C209

LINE "A-4"
27" RCP

12

13

173.43 N 00°20'18"W

18" RCP

STA 13+55.71 S.D. LINE "A"
= STA 45+63.50 S.H. 205 BYPASS
OFF 39.00' LT.
INSTALL 45° BEND

STA 11+85.28 LINE "A-4"
= STA 43+93.07 S.H. 205 BYPASS
OFF 39.00' LT.
PT209

STA 11+76.18 S.D. LINE "A-4"
= STA 0+00.00 S.D. LAT. "A-4.1"
= STA 43+84.16 S.H. No. 205 BYPASS
OFF 39.00' LT.
INSTALL 45° MANUFACTURED WYE

44

45

S.H. 205 BYPASS

46

1041.00 N 00°20'18"W

47

48

STA 1+19.54 LAT. "A-4.3"
= STA 43+75.00 S.H. 205 BYPASS
OFF 50.50' RT.
FUTURE 10' RECESSED CURB INLET
TOP = 564.01
FL = 559.01

FUTURE 12' W.L.

FUTURE 12' W.L.

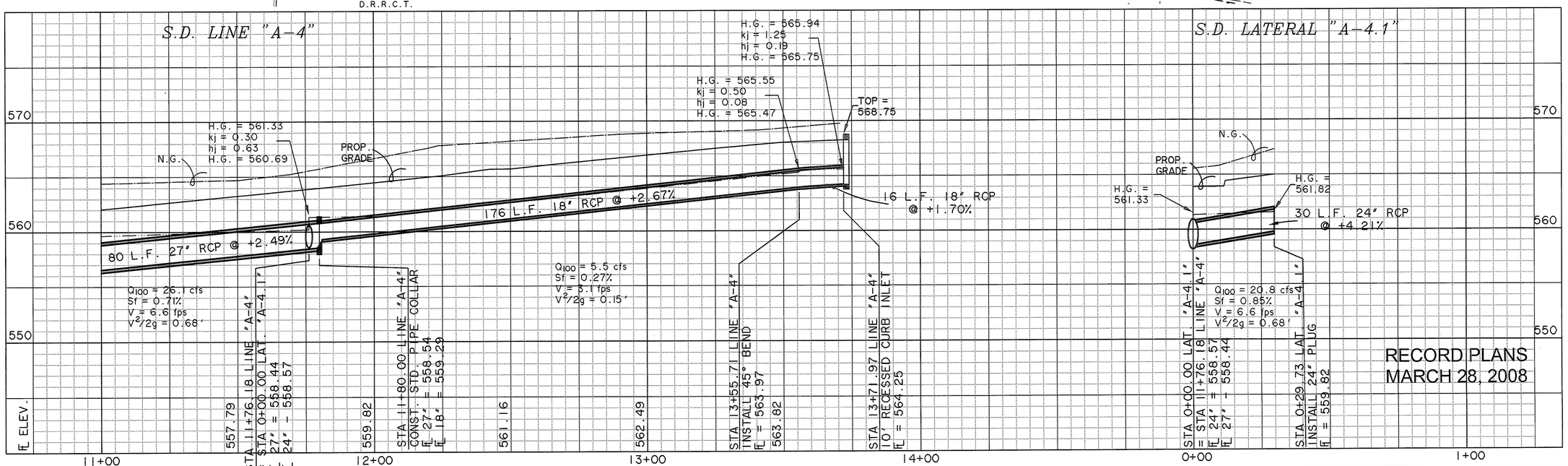
FUTURE 12' W.L.

THE CAMBRIDGE COMPANIES, INC. TRUSTEE VOL. 99, PG. 1022 D.R.R.C.T.

THE CAMBRIDGE COMPANIES, INC. TRUSTEE VOL. 101, PG. 795 D.R.R.C.T.

SCALE (feet)
0 20 40 60

STORM DRAIN LINE "A-4"



RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
4300 BELTWAY PLACE, SUITE 130, ARLINGTON, TEXAS 76018 METRO (817)467-7700
1380 U.S. HIGHWAY 287 N, SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-8700
6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.wierassociates.com

PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
STORM DRAIN LINE "A-4"
PLAN & PROFILE
STA 11+00 TO END

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
7-19-07

LAST SHEET EDIT DATE 07-19-2007
WA# 04141

SHEET NO. D107

FILE: 04141-SDPP4.dwg
TIME: 11:04

STORM DRAIN LINE "A-5"

STA 1+26.57 LAT. "A-5.5"
= STA 31+00.00 S.H. 205 BYPASS
OFF 50.50' RT.
FUTURE 10' REC. CURB INLET
TOP = 550.78
FL = 545.78

STA 1+26.57 S.D. LAT. "A-5.3"
= STA 29+50.00 S.H. 205 BYPASS
OFF 50.50' RT.
FUTURE 10' REC. CURB INLET
TOP = 555.96
FL = 550.96

CURVE C212	
A	04°13'00"
D	02°19'41"
R	2461.00
T	90.60
L	181.12
E	1.67

STA 0+55.00 S.D. LAT. "A-5.5"
= STA 31+50.61 S.H. 205 BYPASS
OFF 0.11' LT.
INSTALL 18" PLUG

STA 0+55.00 S.D. LAT. "A-5.3"
= STA 30+00.61 S.H. 205 BYPASS
OFF 0.11' LT.
INSTALL 18" PLUG

STA 0+55.00 S.D. LAT. "A-5.1"
= STA 28+02.25 S.H. 205 BYPASS
OFF 1.17' LT.
INSTALL 18" PLUG

STA 1+90.87 S.D. LINE "A-5"
= STA 0+00.00 S.D. LAT. "A-5.5"
= STA 31+89.50 S.H. 205 BYPASS
OFF 39.00' LT.
45° MANUFACTURED WYE

STA 2+68.87 S.D. LINE "A-5"
= STA 0+00.00 S.D. LAT. "A-5.4"
= STA 31+11.50 S.H. 205 BYPASS
OFF 39.00' LT.
45° MANUFACTURED WYE

STA 5+38.11 S.D. LINE "A-5"
= STA 0+00.00 LAT. "A-5.1"
= STA 28+42.26 S.H. 205 BYPASS
OFF 39.00' LT.
45° MANUFACTURED WYE

STA 5+18.87 S.D. LINE "A-5"
= STA 0+00.00 LAT. "A-5.2"
= STA 28+61.50 S.H. 205 BYPASS
OFF 39.00' LT.
45° MANUFACTURED WYE

STA 3+40.87 S.D. LINE "A-5"
= STA 0+00.00 S.D. LAT. "A-5.3"
= STA 30+39.50 S.H. 205 BYPASS
OFF 39.00' LT.
45° MANUFACTURED WYE

STA 1+44.80 LINE "A-5"
= STA 32+35.57 S.H. 205 BYPASS
OFF 39.00' LT.
PT211

STA 1+01.17 LINE "A-5"
= STA 32+78.98 S.H. 205 BYPASS
OFF 42.80' LT.
PT211

STA 0+16.26 S.D. LAT. "A-5.4"
= STA 31+00.00 S.H. No. 205 BYPASS
OFF 50.50' LT.
10' REC. CURB INLET
TOP = 550.78
FL = 546.28

STA 0+16.26 S.D. LAT. "A-5.2"
= STA 28+50.00 S.H. No. 205 BYPASS
OFF 50.50' LT.
10' REC. CURB INLET
TOP = 560.24
FL = 555.24

STA 5+57.79 S.D LINE "A-5"
= STA 28+22.61 S.H. 205 BYPASS
OFF 39.00' LT.
PC212

STA 0+97.97 LINE "A-5"
= STA 0+91.06 CULVERT "A"
OFF 18.87' RT.
= STA 32+82.13 S.H. 205 BYPASS
OFF 43.35' LT.

CURVE C211	
A	10°00'00"
D	22°55'06"
R	250.00
T	21.87
L	43.63
E	0.95

THE CAMBRIDGE COMPANIES, INC.
TRUSTEE
VOL. 99, PG. 1022
D.R.R.C.T.

S.H. 205 BYPASS

MATCH LINE STA 6+00

FUTURE 12' W.L.

FUTURE 18" RCP

24" RCP C211

LAT. "A-5.5" 18" RCP

LAT. "A-5.3" 18" RCP

LAT. "A-5.1" 18" RCP

LAT. "A-5.4" 18" RCP

LAT. "A-5.2" 18" RCP

LINE "A-5" 18" RCP

12' W.L.

878.58 N 20°40'03"W

412.96' S 20°40'03"E

126.57' S 65°40'03"E

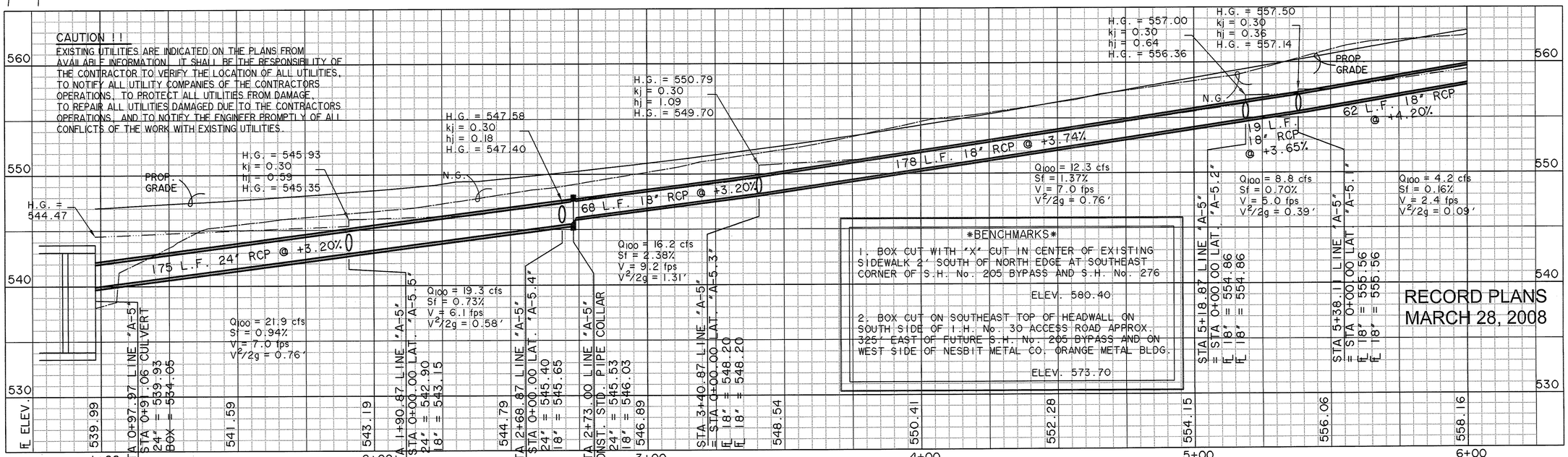
126.57' S 65°40'03"E

128.85' S64°00'12"E

120.00' N 69°19'57"E

421.80'

SCALE (feet)
0 20 40 60



PREPARED BY:
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4300 BELTWAY PLACE SUITE 130 ARLINGTON, TEXAS 76018 METRO (817)467-7700
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6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.WierAssociates.com

PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
STORM DRAIN LINE "A-5"
PLAN & PROFILE
STA 1+00 TO 6+00

PHILIP L. GRAHAM
94719
LICENSED
PROFESSIONAL ENGINEER
7-19-07

LAST SHEET EDIT DATE 07-19-2007
WA# 04141

SHEET NO.
D108

TIME 11:14 FILE 04141-SDPP5.dwg

STA 1+28.85 S.D. LAT. "A-5.1"
= STA 27+50.00 S.H. 205 BYPASS
OFF 50.50' RT.
FUTURE 10' REC. CURB INLET
TOP = 564.52
FL = 559.52

THE CAMBRIDGE COMPANIES, INC. TRUSTEE
VOL. 99, PG. 1022
D.R.R.C.T.

BENCHMARKS

1. BOX CUT WITH "X" CUT IN CENTER OF EXISTING SIDEWALK 2' SOUTH OF NORTH EDGE AT SOUTHEAST CORNER OF S.H. No. 205 BYPASS AND S.H. No. 276
ELEV. 580.40

2. BOX CUT ON SOUTHEAST TOP OF HEADWALL ON SOUTH SIDE OF I.H. No. 30 ACCESS ROAD APPROX. 325' EAST OF FUTURE S.H. No. 205 BYPASS AND ON WEST SIDE OF NESBIT METAL CO. ORANGE METAL BLDG.
ELEV. 573.70

FUTURE 18" RCP

STA 7+35.89 S.D. LINE "A-5"
= STA 26+41.66 S.H. 205 BYPASS
OFF 39.00' LT.
PT212
INSTALL 45° BEND

MATCH LINE STA 6+00

LINE "A-5" 18" RCP

C212

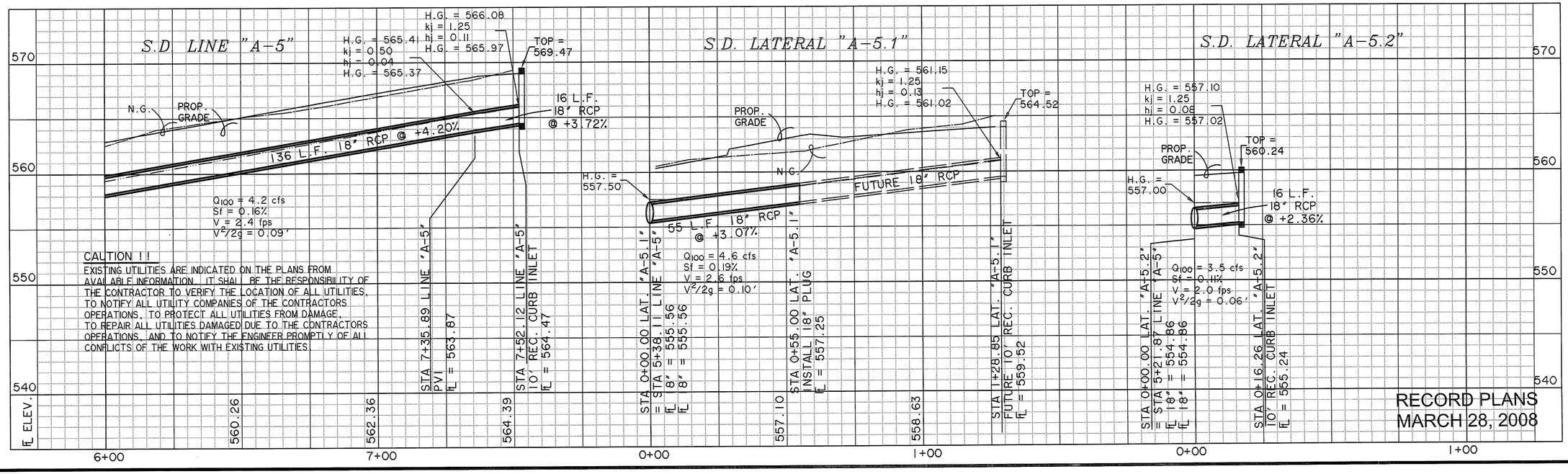
STA 7+52.12 S.D. LINE "A-5"
= STA 26+30.00 S.H. 205 BYPASS
OFF 50.50' LT.
10' REC. CURB INLET
TOP = 569.47
FL = 564.47

THE CAMBRIDGE COMPANIES, INC. TRUSTEE
VOL. 99, PG. 1022
D.R.R.C.T.

CURVE C212	
A	04°08'50"
D	02°19'41"
R	2461.00
T	89.11
L	178.13
E	1.61

SCALE (feet)
0 20 40 60

STORM DRAIN LINE "A-5"



CAUTION !!
EXISTING UTILITIES ARE INDICATED ON THE PLANS FROM AVAILABLE INFORMATION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION OF ALL UTILITIES, TO NOTIFY ALL UTILITY COMPANIES OF THE CONTRACTORS OPERATIONS, TO PROTECT ALL UTILITIES FROM DAMAGE, TO REPAIR ALL UTILITIES DAMAGED DUE TO THE CONTRACTORS OPERATIONS, AND TO NOTIFY THE ENGINEER PROMPTLY OF ALL CONFLICTS OF THE WORK WITH EXISTING UTILITIES.

RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
4300 BELTWAY PLACE, SUITE 130, ARLINGTON, TEXAS 76018 METRO (817)467-7700
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6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.WierAssociates.com

PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
STORM DRAIN LINE "A-5"
PLAN & PROFILE
STA 6+00 TO END

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED
PROFESSIONAL ENGINEER
7-19-07

LAST SHEET EDIT DATE 07-19-2007
WA# 04141

SHEET NO.
D109

TIME:10:35 FILE:04141-SDPP6.dwg

NO.	DATE	DESCRIPTION	BY
2	10-31-07	REDESIGNED S.H. 276 CONNECTION & CHANGED S.H. 205 BYPASS TO CITY SECTION	JRA

CAUTION !!

EXISTING UTILITIES ARE INDICATED ON THE PLANS FROM AVAILABLE INFORMATION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION OF ALL UTILITIES, TO NOTIFY ALL UTILITY COMPANIES OF THE CONTRACTORS OPERATIONS, TO PROTECT ALL UTILITIES FROM DAMAGE, TO REPAIR ALL UTILITIES DAMAGED DUE TO THE CONTRACTORS OPERATIONS, AND TO NOTIFY THE ENGINEER PROMPTLY OF ALL CONFLICTS OF THE WORK WITH EXISTING UTILITIES.

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ELEV. 580.40

2. BOX CUT ON SOUTHEAST TOP OF HEADWALL ON SOUTH SIDE OF I.H. No. 30 ACCESS ROAD APPROX. 325' EAST OF FUTURE S.H. No. 205 BYPASS AND ON WEST SIDE OF NESBIT METAL CO. ORANGE METAL BLDG.
ELEV. 573.70

S.H. 205 BYPASS

24' HPG

ABANDONED

24' HPG

THE CAMBRIDGE COMPANIES, INC. TRUSTEE VOL. 99, PG. 1022 D.R.R.C.T.

12' W.L.

FUTURE 12' W.L.

STA 2+05.00 LINE "B"
= STA 18+00.00 S.H. 205 BYPASS
OFF 95.00' LT.
CONST. 30" 4:1 CH-FW-O
HEADWALL PER DETAIL SHEET D304

SEE DITCH SECTION THIS SHEET

27'

297.50' N 88°55'42" E

30" RCP

10'

INSTALL 52 S.Y. MIN. 8" DIA. GROUTED ROCK RUBBLE RIPRAP

STA 2+30.00 LINE "B"
= STA 0+00.00 LAT. "B-2"
= STA 18+00.00 S.H. 205 BYPASS
OFF 70.00' LT.
60° MANUFACTURED WYE

STA 3+47.50 LINE "B"
= STA 18+00.00 S.H. 205 BYPASS
OFF 47.50' RT.

N 31°04'13" E
97.50'

LINE "B" 24" RCP

STA 0+09.46 LAT. "B-2"
= STA 17+91.81 S.H. 205 BYPASS
OFF 65.27' LT.
PC213

STA 0+61.81 LAT. "B-2"
= STA 17+41.81 S.H. 205 BYPASS
OFF 51.87' LT.
PT213

LAT. "B-2" 21" RCP

12' W.L.

STA 0+88.63 LAT. "B-2"
= STA 17+15.00 S.H. 205 BYPASS
OFF 51.87' LT.

STA 17+13.00 S.H. 205 BYPASS
OFF 51.88' LT.
REMOVE ℄ 4'x4' DROP INLET
CONST. 10' REC. CURB INLET
TOP = 576.67
THROAT = 575.67 (2)
FL = 571.67

CURVE C213

Δ	30°00'00"
D	57°17'45"
R	100.00
T	26.79
L	52.36
E	3.53

STA 18+00.00 S.H. 205 BYPASS
OFF 49.00' RT.
REMOVE ℄ 4'x4' DROP INLET
CONST. 15' REC. CURB INLET
TOP = 577.02
THROAT = 576.02 (2)
FL = 572.52

THE CAMBRIDGE COMPANIES, INC. TRUSTEE VOL. 99, PG. 1022 D.R.R.C.T.

5:1 SLOPES MAX.

HYDROMULCH SEED SLOPES

DITCH ℄

DITCH SECTION
N.T.S.

FUTURE 12" W.L.

SCALE (feet)
0 20 40 60

STORM DRAIN LINE "B"

S.D. LINE "B"

S.D. LATERAL "B-2"

H.G. = 573.72
kj = 0.50
hj = 0.20
H.G. = 573.52

H.G. = 575.19
kj = 1.25
hj = 0.67
H.G. = 574.52

TOP = 577.02
THROAT = 576.02

H.G. = 574.25
kj = 1.25
hj = 0.26
H.G. = 573.99

PROP. GRADE

N.G.

H.G. = 573.40

H.G. = 573.72

DITCH ℄ @ +0.50%

114 L.F. 24" RCP @ +0.86%

89 L.F. 21" RCP @ +0.32%

INSTALL MIN. 8" DIA. GROUTED ROCK RUBBLE RIPRAP

29 L.F. 30" RCP @ +0.50%

12" W.L.

Q_{100} = 27.2 cfs
n = 0.05
d = 1.7 ft.
V = 1.9 fps

Q_{100} = 27.2 cfs
Sf = 0.44%
V = 5.5 fps
$V^2/2g$ = 0.47 ft.

Q_{100} = 18.5 cfs
Sf = 0.67%
V = 5.9 fps
$V^2/2g$ = 0.54'

Q_{100} = 8.8 cfs
Sf = 0.31%
V = 3.7 fps
$V^2/2g$ = 0.21'

STA 0+60.00 LINE "B"
FL DITCH = 570.16

STA 2+05.00 LINE "B"
CONST. 30" 4:1 CH-FW-O
HEADWALL PER DETAIL
SHEET D304
FL = 570.90

STA 2+30.00 LINE "B"
= STA 0+00.00 AT "B-2"
FL 30" = 571.02
FL 21" = 571.39

571.68

STA 2+34.00 LINE "B"
CONST. STD. PIPE COLLAR
FL 30" = 571.04
FL 24" = 571.54

572.11

STA 3+47.50 LINE "B"
REMOVE INSIDE FACE 4'x4'
DROP INLET
CONST. 10' REC. CURB INLET
FL = 572.52

STA 0+00.00 LINE "B-2"
= STA 2+30.00 LINE "B"
FL 21" = 571.39
FL 30" = 571.02

571.58

STA 0+88.63 LAT. "B-2"
REMOVE EXIST. DROP INLET
CONST 15' REC. CURB INLET
FL = 571.67

FL ELEV.

580
570
560

0+00 1+00 2+00 3+00 0+00 1+00

RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
4300 BELTWAY PLACE SUITE 130 ARLINGTON, TEXAS 76018 METRO (817)467-7700
1300 U.S. HIGHWAY 287 N. SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-0700
6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.Wierassociates.com

PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
STORM DRAIN LINE "B"
PLAN & PROFILE
STA 0+00 TO END

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
11/30/2007

LAST SHEET EDIT DATE 11-30-2007
WA# 04141

SHEET NO. D110

FILE: 04141-SDPP7.dwg
TIME: 15:24

CAUTION !!

EXISTING UTILITIES ARE INDICATED ON THE PLANS FROM AVAILABLE INFORMATION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION OF ALL UTILITIES, TO NOTIFY ALL UTILITY COMPANIES OF THE CONTRACTORS OPERATIONS, TO PROTECT ALL UTILITIES FROM DAMAGE, TO REPAIR ALL UTILITIES DAMAGED DUE TO THE CONTRACTORS OPERATIONS, AND TO NOTIFY THE ENGINEER PROMPTLY OF ALL CONFLICTS OF THE WORK WITH EXISTING UTILITIES.

NO.	DATE	DESCRIPTION	BY
2	10-31-07	REDESIGNED S.H. 276 CONNECTION & CHANGED S.H. 205 BYPASS TO CITY SECTION	JRA

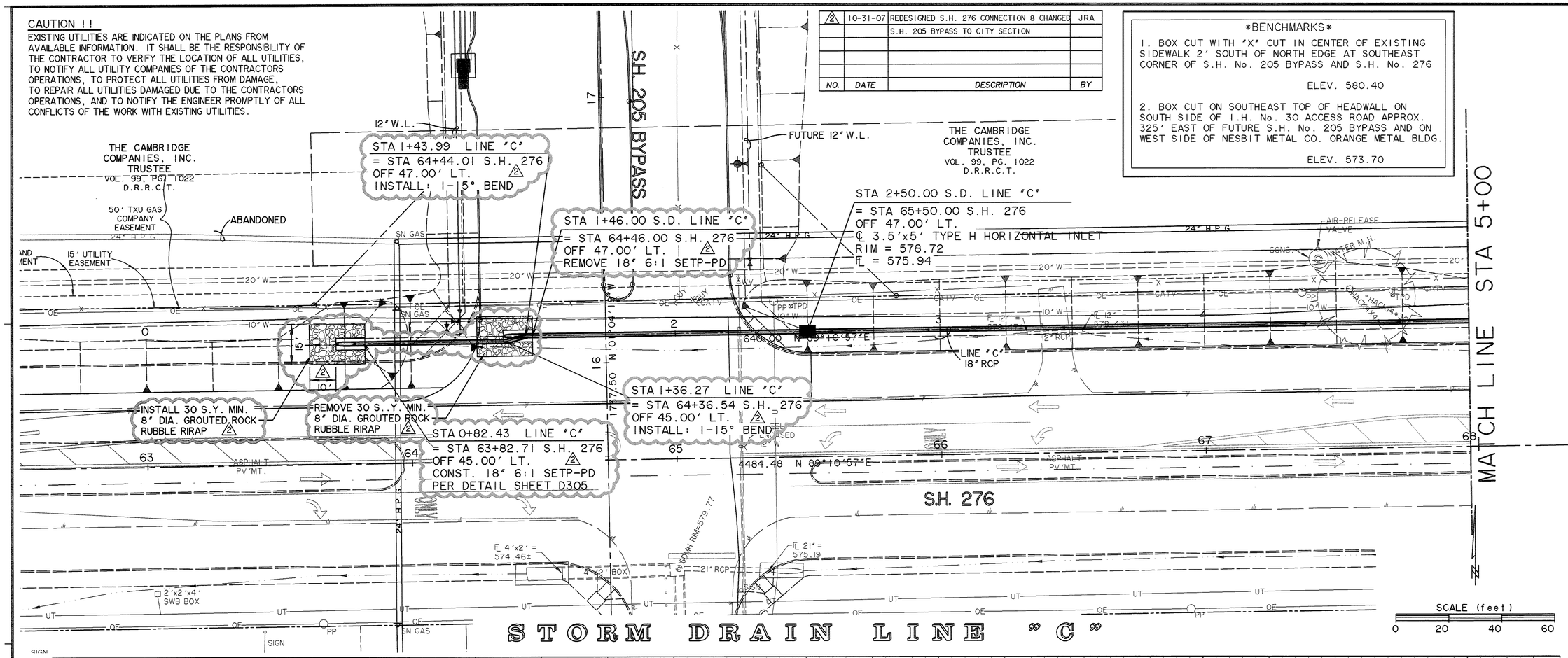
BENCHMARKS

1. BOX CUT WITH 'X' CUT IN CENTER OF EXISTING SIDEWALK 2' SOUTH OF NORTH EDGE AT SOUTHEAST CORNER OF S.H. No. 205 BYPASS AND S.H. No. 276

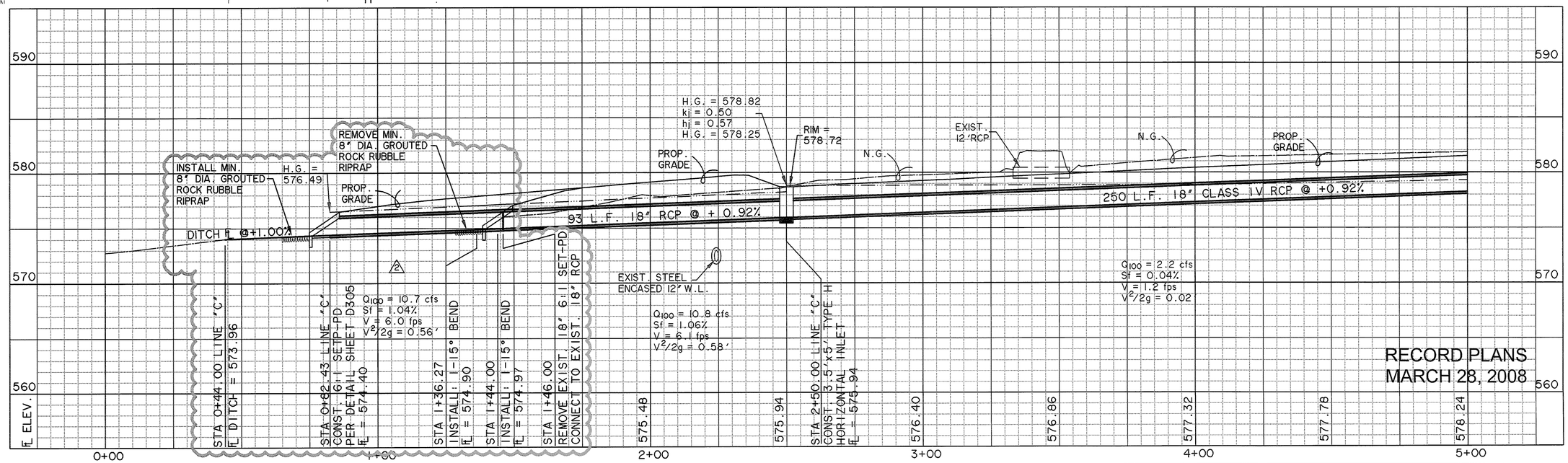
ELEV. 580.40

2. BOX CUT ON SOUTHEAST TOP OF HEADWALL ON SOUTH SIDE OF I.H. No. 30 ACCESS ROAD APPROX. 325' EAST OF FUTURE S.H. No. 205 BYPASS AND ON WEST SIDE OF NESBIT METAL CO. ORANGE METAL BLDG.

ELEV. 573.70



STORM DRAIN LINE "C"



RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
4300 BELTWAY PLACE SUITE 130 ARLINGTON, TEXAS 76018 METRO (817)467-7700
1300 U.S. HIGHWAY 287 N. SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-6700
6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.WierAssociates.com

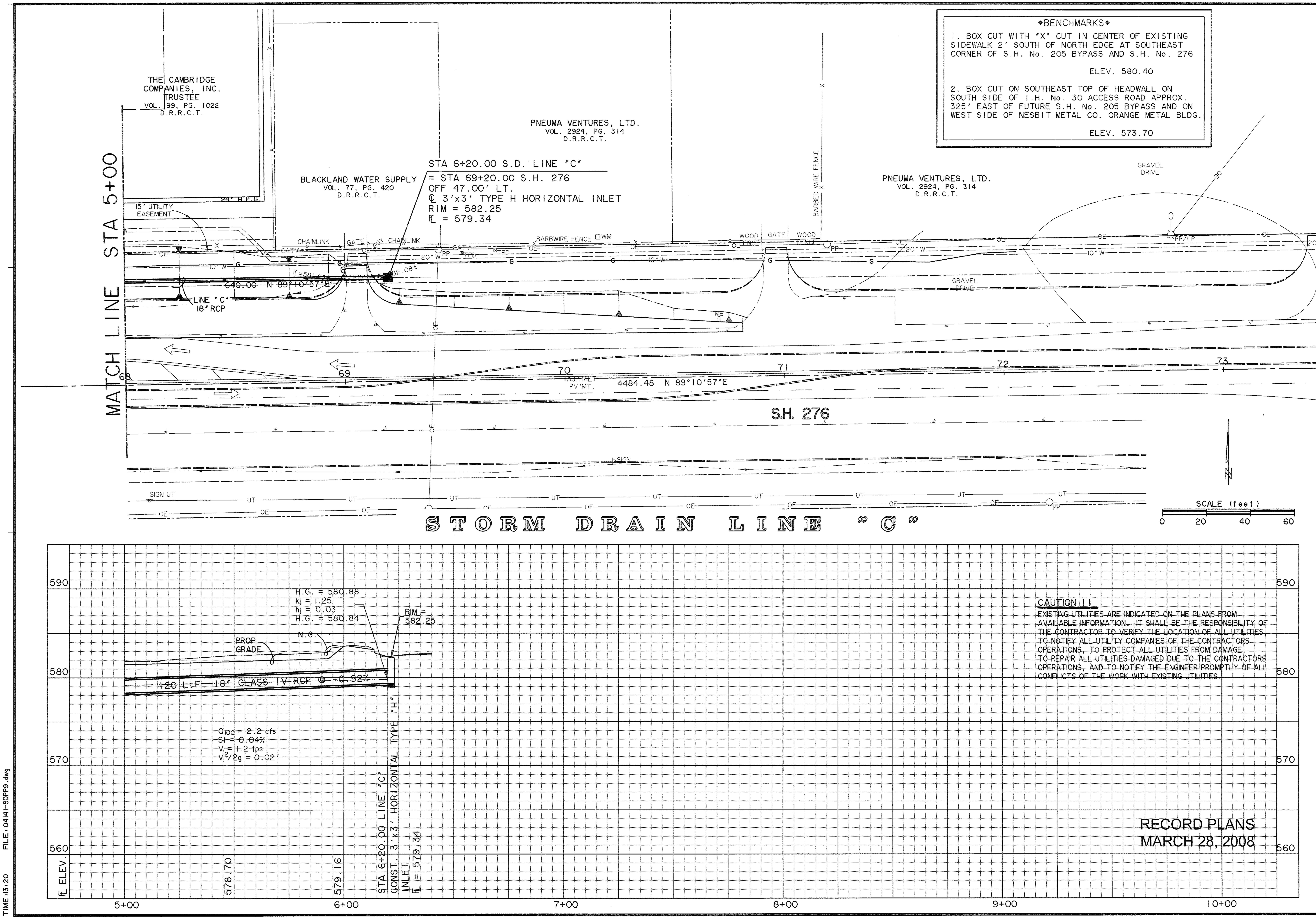
PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
STORM DRAIN LINE "C"
PLAN & PROFILE
STA 0+00 TO 5+00

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
11/30/2007

LAST SHEET EDIT DATE 11-30-2007
WA# 0414

SHEET NO. D111

FILE: 0414-SDPP8.dwg
TIME: 15:16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1. BOX CUT WITH "X" CUT IN CENTER OF EXISTING SIDEWALK 2' SOUTH OF NORTH EDGE AT SOUTHEAST CORNER OF S.H. No. 205 BYPASS AND S.H. No. 276
ELEV. 580.40
2. BOX CUT ON SOUTHEAST TOP OF HEADWALL ON SOUTH SIDE OF I.H. No. 30 ACCESS ROAD APPROX. 325' EAST OF FUTURE S.H. No. 205 BYPASS AND ON WEST SIDE OF NESBIT METAL CO. ORANGE METAL BLDG.
ELEV. 573.70
THE CAMBRIDGE COMPANIES, INC. TRUSTEE VOL. 99, PG. 1022 D.R.R.C.T.
PNEUMA VENTURES, LTD. VOL. 2924, PG. 314 D.R.R.C.T.
BLACKLAND WATER SUPPLY VOL. 77, PG. 420 D.R.R.C.T.
STA 6+20.00 S.D. LINE "C"
= STA 69+20.00 S.H. 276
OFF 47.00' LT.
℄ 3'x3' TYPE H HORIZONTAL INLET
RIM = 582.25
FL = 579.34
MATCH LINE STA 5+00
15' UTILITY EASEMENT
LINE "C" 18" RCP
640.00 N 89°10'57"E
4484.48 N 89°10'57"E
S.H. 276
GRAVEL DRIVE
BARBED WIRE FENCE
SCALE (feet) 0 20 40 60
STORM DRAIN LINE "C"
H.G. = 580.88
kj = 1.25
hj = 0.03
H.G. = 580.84
RIM = 582.25
PROP. GRADE
N.G.
120 L.F. 18" CLASS IV RCP @ +0.92%
Q100 = 2.2 cfs
Sf = 0.04%
V = 1.2 fps
V²/2g = 0.02'
STA 6+20.00 LINE "C"
CONST. 3'x3' HORIZONTAL TYPE "H" INLET
FL = 579.34
FL ELEV. 578.70 579.16
5+00 6+00 7+00 8+00 9+00 10+00
CAUTION !!
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RECORD PLANS
MARCH 28, 2008

PREPARED BY:
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6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
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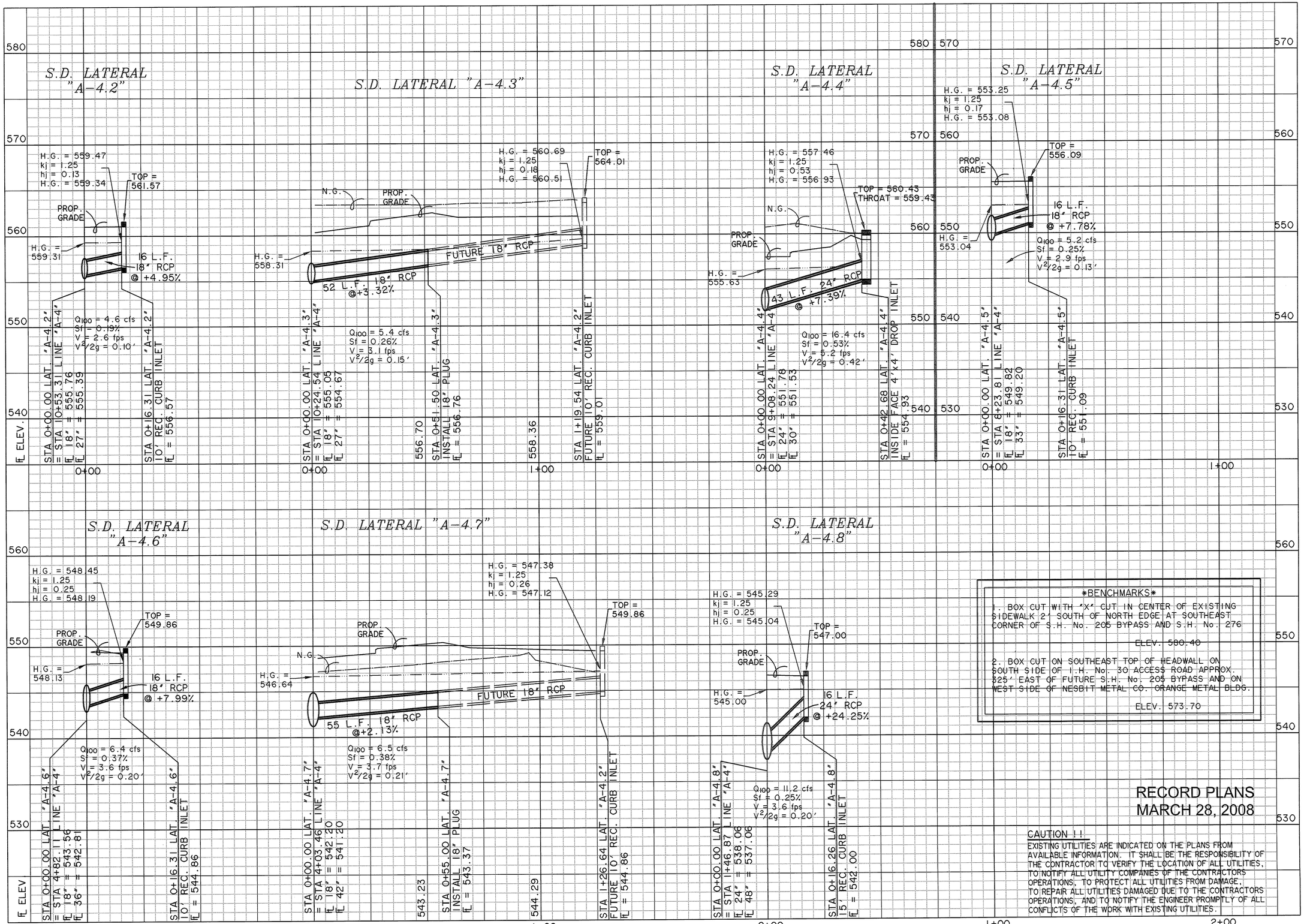
PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
STORM DRAIN LINE "C"
PLAN & PROFILE
STA 5+00 TO END

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
12-01-2006

LAST SHEET EDIT DATE 11-30-2006
WA# 04141
SHEET NO. D112

FILE: 04141-SDPP9.dwg
TIME: 13:20



BENCHMARKS

1. BOX CUT WITH 'X' CUT IN CENTER OF EXISTING SIDEWALK 2' SOUTH OF NORTH EDGE AT SOUTHEAST CORNER OF S.H. No. 205 BYPASS AND S.H. No. 276
ELEV. 580.40

2. BOX CUT ON SOUTHEAST TOP OF HEADWALL ON SOUTH SIDE OF I.H. No. 30 ACCESS ROAD APPROX. 325' EAST OF FUTURE S.H. No. 205 BYPASS AND ON WEST SIDE OF NESBIT METAL CO. ORANGE METAL BLDG.
ELEV. 573.70

RECORD PLANS
MARCH 28, 2008

CAUTION !!
EXISTING UTILITIES ARE INDICATED ON THE PLANS FROM AVAILABLE INFORMATION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION OF ALL UTILITIES, TO NOTIFY ALL UTILITY COMPANIES OF THE CONTRACTORS OPERATIONS, TO PROTECT ALL UTILITIES FROM DAMAGE, TO REPAIR ALL UTILITIES DAMAGED DUE TO THE CONTRACTORS OPERATIONS, AND TO NOTIFY THE ENGINEER PROMPTLY OF ALL CONFLICTS OF THE WORK WITH EXISTING UTILITIES.

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
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1380 U.S. HIGHWAY 287 N, SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-6700
6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-6000
www.Wierassociates.com

PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
STORM DRAIN
LATERAL PROFILES

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
7-18-07

LAST SHEET EDIT DATE 07-18-2007
WA# 04141
SHEET NO. D201

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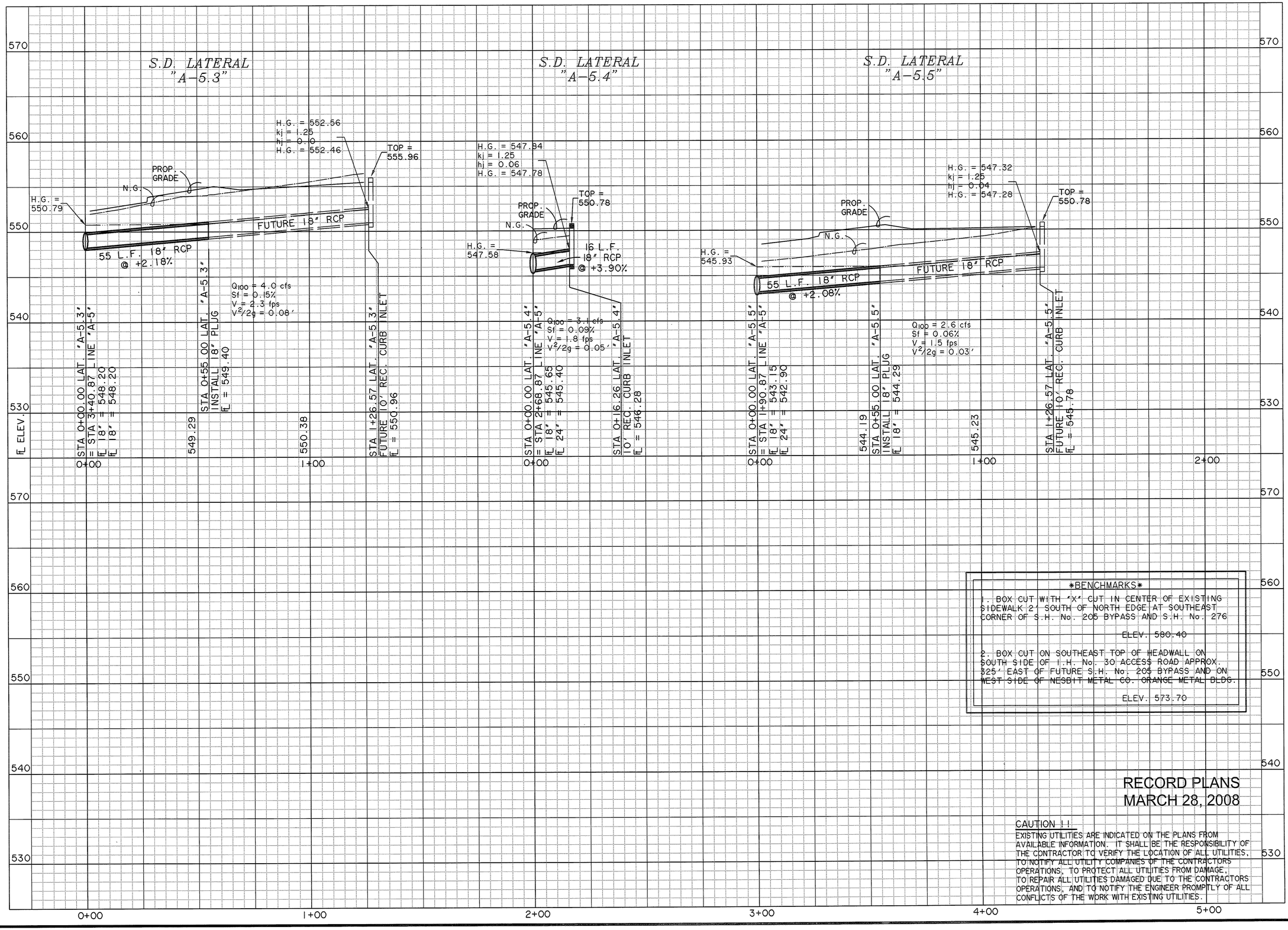

BENCHMARKS

1. BOX CUT WITH 'X' CUT IN CENTER OF EXISTING SIDEWALK 2' SOUTH OF NORTH EDGE AT SOUTHEAST CORNER OF S.H. No. 205 BYPASS AND S.H. No. 276

ELEV. 580.40

2. BOX CUT ON SOUTHEAST TOP OF HEADWALL ON SOUTH SIDE OF I.H. No. 30 ACCESS ROAD APPROX. 325' EAST OF FUTURE S.H. No. 205 BYPASS AND ON WEST SIDE OF NESBIT METAL CO. ORANGE METAL BLDG.

ELEV. 573.70

RECORD PLANS
MARCH 28, 2008

CAUTION !!

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PREPARED BY:
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4300 BELTWAY PLACE SUITE 130 ARLINGTON, TEXAS 76018 METRO (817)467-7700
1380 U.S. HIGHWAY 287 N, SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-0700
6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
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PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
STORM DRAIN
LATERAL PROFILES

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
5-18-07

LAST SHEET EDIT DATE 07-18-2007
WA# 04141
SHEET NO. D202

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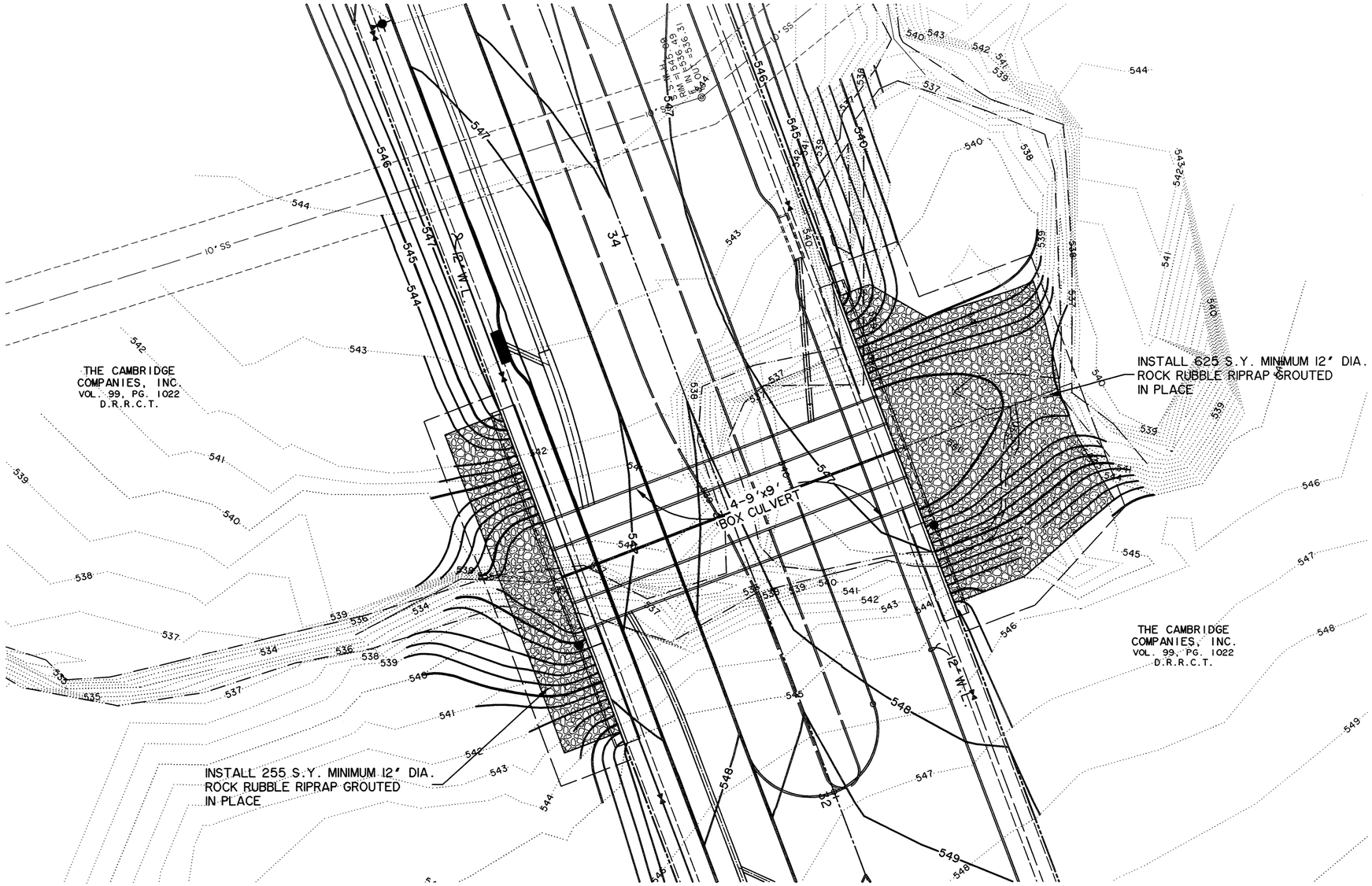

RECORD PLANS
MARCH 28, 2008

CAUTION ! !

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BENCHMARKS

1. BOX CUT WITH "X" CUT IN CENTER OF EXISTING SIDEWALK 2' SOUTH OF NORTH EDGE AT SOUTHEAST CORNER OF S.H. No. 205 BYPASS AND S.H. No. 276

ELEV. 580.40

2. BOX CUT ON SOUTHEAST TOP OF HEADWALL ON SOUTH SIDE OF I.H. No. 30 ACCESS ROAD APPROX. 325' EAST OF FUTURE S.H. No. 205 BYPASS AND ON WEST SIDE OF NESBIT METAL CO. ORANGE METAL BLDG.

ELEV. 573.70

SCALE (feet)
0 20 40 60

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
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1380 U.S. HIGHWAY 287 N, SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-8700
6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.WierAssociates.com

PHASE I S.H. 205 BYPASS FROM S.H. 276 TO INTERSTATE 30 BOX CULVERT GRADING PLAN

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
3/28/08

LAST SHEET EDIT DATE 12-01-2006
WA# 04141

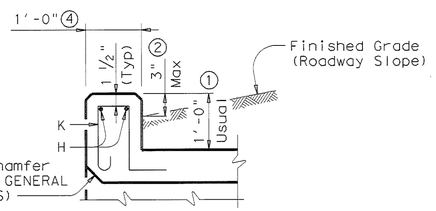
SHEET NO.
D203

FILE: 04141-CULVERT-GRADE.dwg
TIME: 11:58

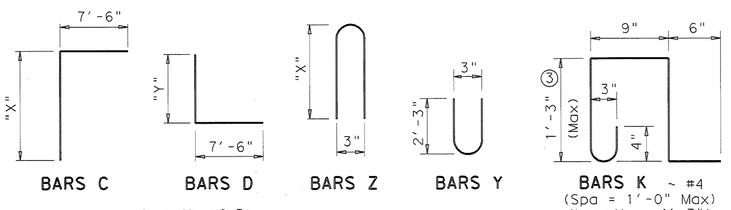
BILLS OF REINFORCING STEEL (For Box Length = 40 feet)

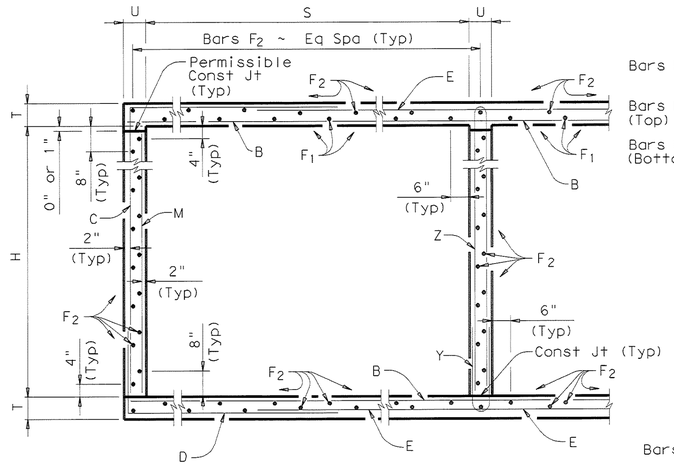
NUMBER OF SPANS	SECTION DIMENSIONS				Bars B					Bars C & D							Bars E					Bars F_1 ~#4				Bars F_2 ~#4 at 1'-6" Max			Bars M~#4 at 1'-6" Max			Bars Y & Z~#4 at 9" Max					Bars H 4~#4		Bars K		QUANTITIES					
													Bar C		Bar D																												Per foot of Barrel		Curb		Total	
	S	H	T	U	No.	Size	Spa	Length	Wt	No.	Size	Spa	Length	Wt	Length	Wt	No.	Size	Spa	Length	Wt	No.	Spa	Length	Wt	No.	Length	Wt	No.	Length	Wt	No.	Bar Y Length	Bar Y Wt	Bar Z Length	Bar Z Wt	Length	Weight	No.	Weight	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)
2	9'-0"	5'-0"	8"	7"	194	#5	5"	19'- 6"	3,946	194	#4	5"	13'- 0"	1,685	9'- 9"	1,264	194	#6	5"	8'-10"	2,574	24	9"	39'-9"	637	68	39'-9"	1,806	56	5'- 0"	187	54	4'- 8"	168	11'- 2"	403	19'- 6"	52	42	119	1.299	316.8	1.5	171	53.5	12,841
3	9'-0"	5'-0"	8"	7"	194	#5	5"	29'- 1"	5,885	194	#4	5"	13'- 0"	1,685	9'- 9"	1,264	194	#6	5"	18'- 5"	5,366	36	9"	39'-9"	956	97	39'-9"	2,576	56	5'- 0"	187	108	4'- 8"	337	11'- 2"	806	29'- 1"	78	60	170	1.881	476.6	2.2	248	77.4	19,310
4	9'-0"	5'-0"	8"	7"	194	#5	5"	38'- 8"	7,824	194	#4	5"	13'- 0"	1,685	9'- 9"	1,264	194	#6	5"	28'- 0"	8,159	48	9"	39'-9"	1,275	126	39'-9"	3,346	56	5'- 0"	187	162	4'- 8"	505	11'- 2"	1,208	38'- 8"	103	80	227	2.462	636.3	2.9	330	101.4	25,783
5	9'-0"	5'-0"	8"	7"	194	#5	5"	48'- 3"	9,763	194	#4	5"	13'- 0"	1,685	9'- 9"	1,264	194	#6	5"	37'- 7"	10,951	60	9"	39'-9"	1,593	155	39'-9"	4,116	56	5'- 0"	187	216	4'- 8"	673	11'- 2"	1,611	48'- 3"	129	100	284	3.043	796.1	3.6	413	125.3	32,256
6	9'-0"	5'-0"	8"	7"	194	#5	5"	57'-10"	11,702	194	#4	5"	13'- 0"	1,685	9'- 9"	1,264	194	#6	5"	47'- 2"	13,744	72	9"	39'-9"	1,912	184	39'-9"	4,886	56	5'- 0"	187	270	4'- 8"	842	11'- 2"	2,014	57'-10"	155	118	335	3.624	955.9	4.3	490	149.3	38,726
2	9'-0"	6'-0"	8"	7"	194	#5	5"	19'- 6"	3,946	194	#4	5"	14'- 0"	1,814	9'- 9"	1,264	194	#6	5"	8'-10"	2,574	24	9"	39'-9"	637	74	39'-9"	1,965	56	6'- 0"	224	54	4'- 8"	168	13'- 2"	475	19'- 6"	52	42	119	1.364	326.7	1.5	171	56.1	13,238
3	9'-0"	6'-0"	8"	7"	194	#5	5"	29'- 1"	5,885	194	#4	5"	14'- 0"	1,814	9'- 9"	1,264	194	#6	5"	18'- 5"	5,366	36	9"	39'-9"	956	105	39'-9"	2,788	56	6'- 0"	224	108	4'- 8"	337	13'- 2"	950	29'- 1"	78	60	170	1.967	489.6	2.2	248	80.9	19,832
4	9'-0"	6'-0"	8"	7"	194	#5	5"	38'- 8"	7,824	194	#4	5"	14'- 0"	1,814	9'- 9"	1,264	194	#6	5"	28'- 0"	8,159	48	9"	39'-9"	1,275	136	39'-9"	3,611	56	6'- 0"	224	162	4'- 8"	505	13'- 2"	1,425	38'- 8"	103	80	227	2.570	652.5	2.9	330	105.7	26,431
5	9'-0"	6'-0"	8"	7"	194	#5	5"	48'- 3"	9,763	194	#4	5"	14'- 0"	1,814	9'- 9"	1,264	194	#6	5"	37'- 7"	10,951	60	9"	39'-9"	1,593	167	39'-9"	4,434	56	6'- 0"	224	216	4'- 8"	673	13'- 2"	1,900	48'- 3"	129	100	284	3.173	815.4	3.6	413	130.5	33,029
6	9'-0"	6'-0"	8"	7"	194	#5	5"	57'-10"	11,702	194	#4	5"	14'- 0"	1,814	9'- 9"	1,264	194	#6	5"	47'- 2"	13,744	72	9"	39'-9"	1,912	198	39'-9"	5,257	56	6'- 0"	224	270	4'- 8"	842	13'- 2"	2,375	57'-10"	155	118	335	3.776	978.4	4.3	490	155.3	39,624
2	9'-0"	7'-0"	8"	7"	194	#5	5"	19'- 6"	3,946	162	#5	6"	15'- 0"	2,534	10'- 2"	1,718	194	#6	5"	8'-10"	2,574	24	9"	39'-9"	637	74	39'-9"	1,965	56	7'- 0"	262	54	4'- 8"	168	15'- 2"	547	19'- 6"	52	42	119	1.429	358.8	1.5	171	58.7	14,522
3	9'-0"	7'-0"	8"	7"	194	#5	5"	29'- 1"	5,885	162	#5	6"	15'- 0"	2,534	10'- 2"	1,718	194	#6	5"	18'- 5"	5,366	36	9"	39'-9"	956	105	39'-9"	2,788	56	7'- 0"	262	108	4'- 8"	337	15'- 2"	1,094	29'- 1"	78	60	170	2.053	523.5	2.2	248	84.3	21,188
4	9'-0"	7'-0"	8"	7"	194	#5	5"	38'- 8"	7,824	162	#5	6"	15'- 0"	2,534	10'- 2"	1,718	194	#6	5"	28'- 0"	8,159	48	9"	39'-9"	1,275	136	39'-9"	3,611	56	7'- 0"	262	162	4'- 8"	505	15'- 2"	1,641	38'- 8"	103	80	227	2.678	688.2	2.9	330	110.0	27,859
5	9'-0"	7'-0"	8"	7"	194	#5	5"	48'- 3"	9,763	162	#5	6"	15'- 0"	2,534	10'- 2"	1,718	194	#6	5"	37'- 7"	10,951	60	9"	39'-9"	1,593	167	39'-9"	4,434	56	7'- 0"	262	216	4'- 8"	673	15'- 2"	2,188	48'- 3"	129	100	284	3.302	852.9	3.6	413	135.7	34,529
6	9'-0"	7'-0"	8"	7"	194	#5	5"	57'-10"	11,702	162	#5	6"	15'- 0"	2,534	10'- 2"	1,718	194	#6	5"	47'- 2"	13,744	72	9"	39'-9"	1,912	198	39'-9"	5,257	56	7'- 0"	262	270	4'- 8"	842	15'- 2"	2,735	57'-10"	155	118	335	3.927	1,017.7	4.3	490	161.4	41,196
2	9'-0"	8'-0"	8"	7"	194	#5	5"	19'- 6"	3,946	162	#5	6"	16'- 0"	2,703	10'- 2"	1,718	194	#6	5"	8'-10"	2,574	24	9"	39'-9"	637	80	39'-9"	2,124	56	8'- 0"	299	54	4'- 8"	168	17'- 2"	619	19'- 6"	52	42	119	1.494	369.7	1.5	171	61.3	14,959
3	9'-0"	8'-0"	8"	7"	194	#5	5"	29'- 1"	5,885	162	#5	6"	16'- 0"	2,703	10'- 2"	1,718	194	#6	5"	18'- 5"	5,366	36	9"	39'-9"	956	113	39'-9"	3,000	56	8'- 0"	299	108	4'- 8"	337	17'- 2"	1,238	29'- 1"	78	60	170	2.140	537.6	2.2	248	87.8	21,750
4	9'-0"	8'-0"	8"	7"	194	#5	5"	38'- 8"	7,824	162	#5	6"	16'- 0"	2,703	10'- 2"	1,718	194	#6	5"	28'- 0"	8,159	48	9"	39'-9"	1,275	146	39'-9"	3,877	56	8'- 0"	299	162	4'- 8"	505	17'- 2"	1,858	38'- 8"	103	80	227	2.786	705.5	2.9	330	114.3	28,548
5	9'-0"	8'-0"	8"	7"	194	#5	5"	48'- 3"	9,763	162	#5	6"	16'- 0"	2,703	10'- 2"	1,718	194	#6	5"	37'- 7"	10,951	60	9"	39'-9"	1,593	179	39'-9"	4,753	56	8'- 0"	299	216	4'- 8"	673	17'- 2"	2,477	48'- 3"	129	100	284	3.432	873.3	3.6	413	140.9	35,343
6	9'-0"	8'-0"	8"	7"	194	#5	5"	57'-10"	11,702	162	#5	6"	16'- 0"	2,703	10'- 2"	1,718	194	#6	5"	47'- 2"	13,744	72	9"	39'-9"	1,912	212	39'-9"	5,629	56	8'- 0"	299	270	4'- 8"	842	17'- 2"	3,096	57'-10"	155	118	335	4.078	1,041.1	4.3	490	167.4	42,135
2	9'-0"	9'-0"	8"	7"	194	#5	5"	19'- 6"	3,946	194	#5	5"	17'- 0"	3,440	10'- 2"	2,057	194	#6	5"	8'-10"	2,574	24	9"	39'-9"	637	86	39'-9"	2,284	56	9'- 0"	337	54	4'- 8"	168	19'- 2"	691	19'- 6"	52	42	119	1.559	403.4	1.5	171	63.9	16,305
3	9'-0"	9'-0"	8"	7"	194	#5	5"	29'- 1"	5,885	194	#5	5"	17'- 0"	3,440	10'- 2"	2,057	194	#6	5"	18'- 5"	5,366	36	9"	39'-9"	956	121	39'-9"	3,213	56	9'- 0"	337	108	4'- 8"	337	19'- 2"	1,383	29'- 1"	78	60	170	2.226	574.4	2.2	248	91.2	23,222
4	9'-0"	9'-0"	8"	7"	194	#5	5"	38'- 8"	7,824	194	#5	5"	17'- 0"	3,440	10'- 2"	2,057	194	#6	5"	28'- 0"	8,159	48	9"	39'-9"	1,275	156	39'-9"	4,142	56	9'- 0"	337	162	4'- 8"	505	19'- 2"	2,074	38'- 8"	103	80	227	2.894	745.3	2.9	330	118.7	30,143
5	9'-0"	9'-0"	8"	7"	194	#5	5"	48'- 3"	9,763	194	#5	5"	17'- 0"	3,440	10'- 2"	2,057	194	#6	5"	37'- 7"	10,951	60	9"	39'-9"	1,593	191	39'-9"	5,072	56	9'- 0"	337	216	4'- 8"	673	19'- 2"	2,766	48'- 3"	129	100	284	3.562	916.3	3.6	413	146.1	37,065
6	9'-0"	9'-0"	8"	7"	194	#5	5"	57'-10"	11,702	194	#5	5"	17'- 0"	3,440	10'- 2"	2,057	194	#6	5"	47'- 2"	13,744	72	9"	39'-9"	1,912	226	39'-9"	6,001	56	9'- 0"	337	270	4'- 8"	842	19'- 2"	3,457	57'-10"	155	118	335	4.229	1,087.3	4.3	490	173.5	43,982

H	Bar Dimensions "X"	"Y"
5'-0"	5'-6"	2'- 3"
6'-0"	6'-6"	2'- 3"
7'-0"	7'-6"	2'- 8"
8'-0"	8'-6"	2'- 8"
9'-0"	9'-6"	2'- 8"

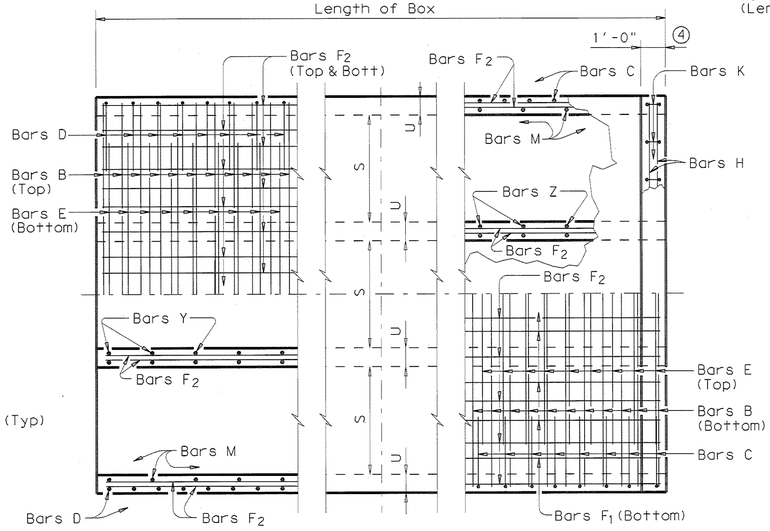


SECTION THRU CURB





TYPICAL SECTION



GENERAL NOTES:

Designed according to current AASHTO Standard and Interim Specifications.
Designed to the maximum fill height shown.
All reinforcing steel shall be Grade 60.
All concrete shall be Class "C" with these exceptions: use Class "S" for top slabs of culverts with overlay, with 1-to-2 course surface treatment, or with the top slab as the final riding surface.
Class "C" concrete shall have a minimum compressive strength of 3,600 psi. Class "S" concrete shall have a minimum compressive strength of 4,000 psi.
The use of permanent forms is not allowed.
The bottom edge of the top slab shall be chamfered 3" at the entrance.
Reinforcing bars shall be adjusted to provide a minimum of 1 1/4" clear cover.
Construction joints shown at the flow line may be raised a maximum of 6" at the Contractor's option. If this option is used, Bars M may be cut off or raised, Bars C and D may be reversed, and Bars Y and Z may be reversed.
See standard MC-MD for skewed ends, angle sections and lengthening details.

① 0" min to 5'-0" max. Estimated curb heights are shown elsewhere in the plans. For structures without railing and curbs taller than 1'-0", refer to ECD standard. For structures with T6 bridge rail, refer to T6-CM standard. For structures with bridge rail, other than T6, refer to RAC standard.

② For vehicle safety, the following requirements must be met:
- For structures without bridge rail, curbs shall project no more than 3" above finished grade.
- For structures with bridge rail, curbs shall be flush with finished grade.

Curb heights shall be reduced, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

③ For curbs less than 1'-0" high, tilt bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, bars K may be omitted.

④ 1'-0" typical. 2'-0" when RAC standard is referred to elsewhere in the plans.

RECORD PLANS
MARCH 28, 2008

HS20 LOADING

Texas Department of Transportation
Bridge Division

MULTIPLE BOX CULVERTS CAST-IN-PLACE 9'-0" SPAN 0' TO 10' FILL

MC-9-10

FILE: mc910ste.dgn	DN: GAF	CK: LMW	DW: BWH/TxDOT	CK: GAF
© TxDOT May 2005	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS				D301
	COUNTY	CONTROL	SECT	JOB	HIGHWAY

ACC:
LEVELS DISPLAYED
1

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LEVELS DISPLAYED | ACC:

TABLE OF DIMENSIONS & REINFORCING STEEL
(Wings for One Structure End)

Dimensions					Variable Reinforcing				Estimated ④ Quantities per ft of wing (2~Wings)		Estimated Quantities per ft of Toewall (1~Toewall)	
					Bars J1		Bars J2					
Maximum Wingwall Height Hw	W	X	Y	Z	Size	Spa	Size	Spa	Reinf (Lb/Ft)	Conc (CY/Ft)	Reinf (Lb/Ft)	Conc (CY/Ft)
2'-6"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	43.13	0.406	6.85	0.071
2'-9"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	43.80	0.424	6.85	0.071
3'-0"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	44.47	0.444	6.85	0.071
3'-3"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	47.81	0.462	6.85	0.071
3'-6"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	48.48	0.480	6.85	0.071
4'-0"	3'- 2"	1'- 2"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	50.26	0.532	6.85	0.071
4'-6"	3'- 2"	1'- 2"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	54.27	0.568	6.85	0.071
5'-0"	3'- 9"	1'- 7"	1'- 2"	7"	#4	1'-0"	#4	1'-0"	57.94	0.632	6.96	0.075
5'-6"	3'- 9"	1'- 7"	1'- 2"	7"	#4	1'-0"	#4	1'-0"	61.95	0.668	6.96	0.075
6'-0"	4'- 4"	2'- 0"	1'- 4"	7"	#5	1'-0"	#5	1'-0"	75.16	0.730	7.07	0.078
6'-6"	4'- 4"	2'- 0"	1'- 4"	7"	#5	1'-0"	#5	1'-0"	79.54	0.768	7.07	0.078
7'-0"	5'- 0"	2'- 3"	1'- 9"	8"	#5	1'-0"	#5	1'-0"	86.65	0.864	8.07	0.093
7'-6"	5'- 0"	2'- 3"	1'- 9"	8"	#5	1'-0"	#5	1'-0"	91.03	0.902	8.07	0.093
8'-0"	5'- 6"	2'- 8"	1'-10"	8"	#5	6"	#5	6"	133.54	0.962	8.13	0.095
8'-6"	5'- 6"	2'- 8"	1'-10"	8"	#5	6"	#5	6"	138.96	1.000	8.13	0.095
9'-6"	6'- 0"	2'-10"	2'- 2"	9"	#5	6"	#5	6"	151.43	1.136	8.41	0.110
10'-6"	6'- 5"	3'- 0"	2'- 5"	9"	#6	6"	#5	6"	190.76	1.234	8.57	0.117
11'-6"	7'- 2"	3'- 6"	2'- 8"	11"	#6	6"	#6	6"	224.62	1.438	9.52	0.140
12'-6"	7'- 8"	3'- 9"	2'-11"	1'- 0"	#7	6"	#6	6"	277.90	1.592	9.74	0.157
13'-6"	8'- 2"	4'- 0"	3'- 2"	1'- 2"	#8	6"	#6	6"	343.21	1.804	10.02	0.186
14'-6"	8'-10"	4'- 5"	3'- 5"	1'- 4"	#9	6"	#6	6"	427.43	2.046	10.30	0.218
15'-6"	9'- 6"	4'-10"	3'- 8"	1'- 6"	#9	6"	#7	6"	484.01	2.302	11.24	0.253
16'-0"	9'-11"	5'- 0"	3'-11"	1'- 7"	#9	6"	#7	6"	500.21	2.448	11.47	0.279

TABLE OF WINGWALL REINFORCING (2~Wings)

Bar	Size	No.	Spa
D1	#5	~	1'-0"
D2	#5	~	1'-0"
E1	#4	~	1'-0"
F	#4	~	1'-0"
G	#5	~	1'-0"
M1	#4	4	~
P	#4	~	1'-0"
V	#4	~	1'-0"

TABLE OF TOEWALL REINFORCING

Bar	Size	No	Spa
J3	#4	~	1'-0"
M2	#4	2	~
E2	#4	~	1'-0"

WING DIMENSION CALCULATIONS:

Formulas: (All values are in Feet)

Hw = H + T + C

Lw = (Hw) (SL) ÷ Cosine (Φ)

For Cast-in-place culverts:

Ltw = [(N) (S) + (N + 1) (U)] ÷ (Cosine Φ)

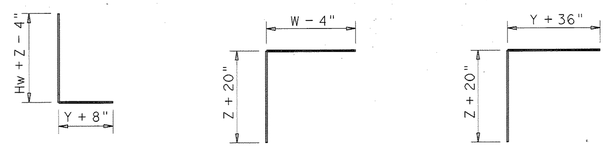
For Precast culverts:

Ltw = [(N) (2 U + S) + (N − 1) (0.5′)] ÷ (Cosine Φ)

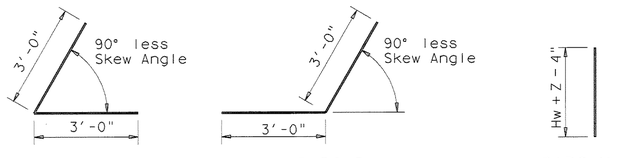
Total Wingwall Area (Two Wings ~ S.F.) = (2) (Hw) (Lw)

Hw = Height of Wingwall
Lw = Length of Wingwall
Ltw = Culvert Toewall Length
N = Number of Culvert Spans
SL:1 = Channel Slope ratio. (Horizontal: 1 Vertical, Usual value is 2:1)
Φ = Culvert Skew

See applicable box culvert standard for S, H, T and U values.



BARS J1 BARS J2 BARS J3



BARS D1 BARS D2 BARS V

1. Skew Angle = 0°
2. At discharge end, chamfer may be ¾".
3. For 15° Skew ~ 1"
   For 30° Skew ~ 2"
   For 45° Skew ~ 3"
4. Quantities shown are for two wings. To determine total quantities for two wings, multiply the tabulated values by Lw.
5. Provide weepholes for Hw = 5′-0" and greater. Fill around weepholes with coarse gravel.
6. Extend Bars E1 1′-6" minimum into the bottom slab of the culvert.
7. Lap Bars M1 1′-6" minimum with Bars M2.
8. Bars G shall be equally spaced at 1′-0" maximum, placed as shown. There shall be at least 4 Bars G per wing.
9. 0" min to 5′-0" max. For T6 or C6 Rail, see T6-CM standard for additional details. For all other rail types, refer to the RAC standard. For curbs without rail and greater than 1′-0" high, see ECD standard for additional details. Estimated curb heights are shown elsewhere in the plans.
10. For vehicle safety, the following requirements must be met:
    - For structures without bridge rail, curbs shall project no more than 3" above finished grade.
    - For structures with bridge rail, curbs shall be flush with finished grade.

    Curb heights shall be reduced, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
11. 1′-0" typical. 2′-0" typical when RAC standard is referenced elsewhere in the plans.

GENERAL NOTES:

Designed according to current AASHTO Standard and Interim Specifications.

All reinforcing steel shall be Grade 60.

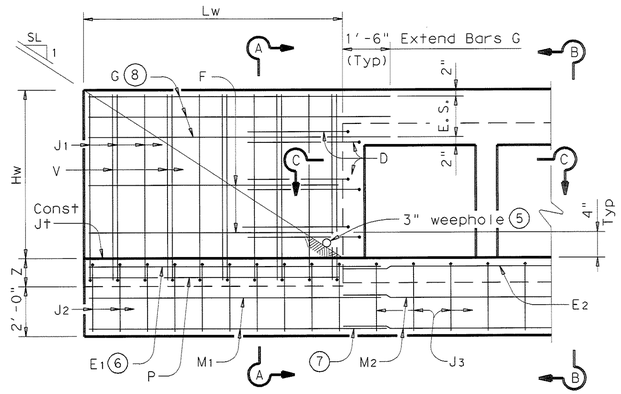
All concrete shall be Class "C" and shall have a minimum compressive strength of 3600 psi.

All reinforcing bars shall be adjusted to provide a minimum of 1 ¼" clear cover.

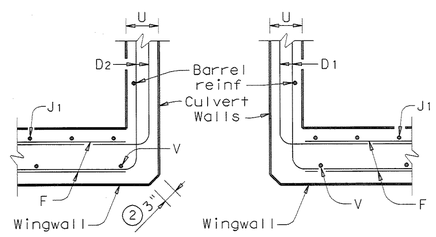
When structure is founded on solid rock, depth of toewalls for culverts and wingwalls may be reduced or eliminated as directed by the Engineer.

See BCS sheet for additional dimensions and information.

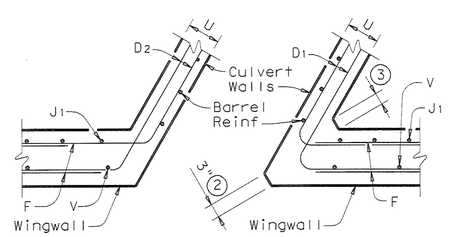
The quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for Contractor's information only.



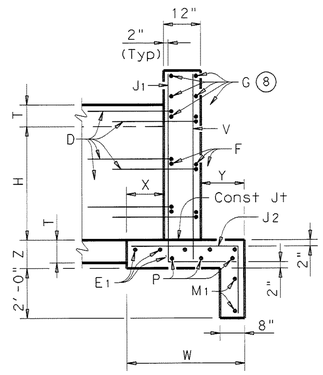
PARTIAL ELEVATION



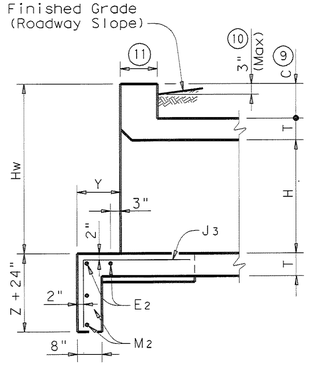
SECTION C-C



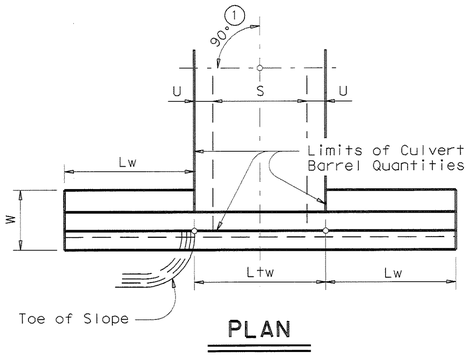
SECTION C-C



SECTION A-A
(Showing Wing Reinf)

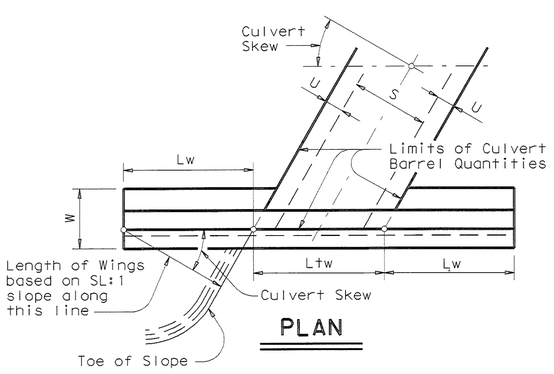


SECTION B-B
(Showing Toewall Reinf)



PLAN

DETAILS FOR NON-SKEWED BOX CULVERTS



PLAN

DETAILS FOR SKEWED BOX CULVERTS
(Showing 30° Skew)

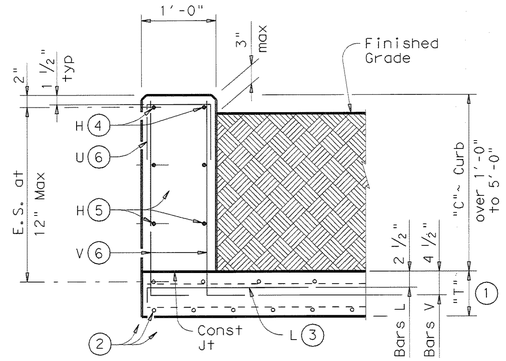
RECORD PLANS
MARCH 28, 2008

Texas Department of Transportation
Bridge Division

CONCRETE WINGWALLS
WITH PARALLEL WINGS FOR SKEWED AND NON-SKEWED BOX CULVERTS

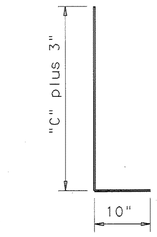
PW

FILE: pwstde01.dgn	DN: GAF	CK: CAT	DW: TxDOT	CK: GAF
©TxDOT May 2005	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS				D302
	COUNTY	CONTROL	SECT	JOB / HIGHWAY



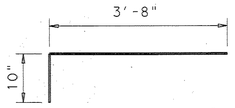
TYPICAL SECTION

Used for Curbs over 1'-0" to 5'-0"



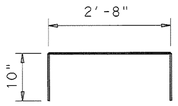
BARS V (#5) (6)

Spaced at 12" max



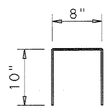
BARS L (#5) (3)

Spaced at 12" max



OPTIONAL BARS L (#5) (3)(7)

Spaced at 12" max



BARS U (#4) (6)

Spaced at 12" max

(1) "T" is equal to the culvert top slab thickness. For Precast Boxes with slabs less than 7", see SCP-MD Standard for additional details.

(2) Normal culvert slab bars adjusted as necessary to clear obstructions.

(3) Place bars L as shown. Tilt hook as necessary to maintain cover.

(4) Place normal culvert curb bars H (#4) as shown. Adjust as necessary to clear obstructions.

(5) Additional bars H (#4) as required to maintain 12" max spa.

(6) Replace normal culvert curb bars K with one bar U and two bars V as shown spaced at 12" max. Adjust length of bars V as necessary to maintain clear cover.

(7) Optional bars L are to be used only for precast box culverts with 3'-0" closure pour.

(8) Quantities shown are for contractor's information only. Quantities are per linear foot of curb length. The values for each section type in table can be interpolated for intermediate values of curb height, "C". Quantity includes bars K (when applicable).

TABLE OF ESTIMATED CURB QUANTITIES (8)

Curb Height "C"	Conc (CY/LF)	Reinf Steel (Lb/LF)
1'-0"	0.037	8.9
1'-6"	0.056	14.3
2'-0"	0.074	15.4
2'-6"	0.093	17.7
3'-0"	0.111	18.8
3'-6"	0.130	21.2
4'-0"	0.148	22.2
4'-6"	0.167	24.6
5'-0"	0.185	25.6

GENERAL NOTES:

Designed according to current AASHTO Standard and Interim Specifications.

These extended curb details have sufficient strength to allow for future retrofit of Type T6 railing. These details are not suitable for the mounting of other rail types. For new construction using T6 railing, use the T6-CM standards.

All reinforcing shall be Grade 60. Adjust reinforcing as necessary to provide 1 ¼" cover.

All concrete for curbs shall be Class "C" with a minimum compressive strength of 3600 psi.

This Curb shall be considered as part of the Box Culvert for payment.

For vehicle safety, the top of the curb shall project no more than 3" above the finished grade.

LEVELS DISPLAYED

PATH:

RECORD PLANS
MARCH 28, 2008

Texas Department of Transportation
Bridge Division

EXTENDED CURB DETAILS

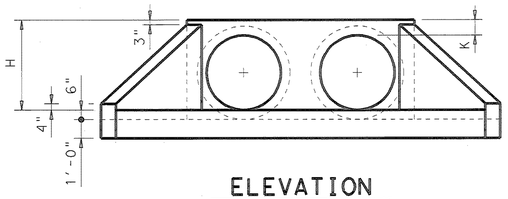
FOR BOX CULVERTS WITH CURBS OVER 1'-0" TO 5'-0" TALL

ECD

FILE: ecdstdet.dgn	DN: GAF	CK:	DW: TxDOT	CK: GAF
© TxDOT May 2005	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS				D303
	COUNTY		CONTROL SECT	JOB HIGHWAY

TABLE OF VARIABLE DIMENSIONS AND QUANTITIES FOR ONE HEADWALL (4)

SLOPE	DIA OF PIPE, D	Values for one Pipe W	X	Y	L	Reinf (Lbs)	Conc (CY) (1)	Values to be added for each addt'l Pipe X and W	Reinf (Lbs)	Conc (CY) (1)
2:1	12"	4'- 7 1/2"	2'- 6"	2'-10"	3'- 3 1/4"	84	0.6	1'- 9"	20	0.2
	15"	5'- 5 3/4"	2'- 9 1/2"	3'- 4"	3'-10 1/4"	99	0.7	2'- 2"	24	0.3
	18"	6'- 4 1/4"	3'- 1"	3'-10"	4'- 5"	120	0.9	2'- 8"	32	0.3
	21"	7'- 2 3/4"	3'- 4 1/2"	4'- 4"	5'- 0"	137	1.1	3'- 1"	43	0.4
	24"	8'- 2 1/2"	3'- 9 1/2"	4'-10"	5'- 7"	158	1.3	3'- 7"	50	0.5
	27"	9'- 1"	4'- 1"	5'- 4"	6'- 2"	173	1.5	3'-11"	56	0.6
	30"	9'-11 1/2"	4'- 4 1/2"	5'-10"	6'- 8 3/4"	197	1.7	4'- 4"	65	0.8
	33"	10'-10"	4'- 8"	6'- 4"	7'- 3 3/4"	216	2.0	4'- 8"	71	0.9
	36"	11'- 8 1/4"	4'-11 1/2"	6'-10"	7'-10 3/4"	241	2.2	5'- 1"	81	1.0
	42"	13'- 5 1/4"	5'- 6 1/2"	7'-10"	9'- 0 1/2"	290	2.8	5'-10"	97	1.3
	48"	15'- 9"	6'- 1 1/2"	9'- 4"	10'- 9 1/4"	350	3.8	6'- 7"	117	1.7
	54"	17'- 5 3/4"	6'- 8 1/2"	10'- 4"	11'-11 1/4"	415	4.5	7'- 6"	151	2.1
	60"	19'- 2 3/4"	7'- 3 1/2"	11'- 4"	13'- 1"	469	5.3	8'- 3"	174	2.5
	66"	20'-11 1/2"	7'-10 1/2"	12'- 4"	14'- 3"	530	6.2	8'- 9"	194	2.9
	72"	22'- 8 1/2"	8'- 5 1/2"	13'- 4"	15'- 4 3/4"	587	7.1	9'- 4"	213	3.3
3:1	12"	6'- 3"	2'- 6"	4'- 3"	4'-11"	114	0.8	1'- 9"	22	0.2
	15"	7'- 5"	2'- 9 1/2"	5'- 0"	5'- 9 1/4"	133	1.1	2'- 2"	28	0.3
	18"	8'- 6 3/4"	3'- 1"	5'- 9"	6'- 7 3/4"	166	1.3	2'- 8"	37	0.5
	21"	9'- 8 3/4"	3'- 4 1/2"	6'- 6"	7'- 6"	189	1.6	3'- 1"	48	0.6
	24"	11'- 0"	3'- 9 1/2"	7'- 3"	8'- 4 1/2"	221	2.0	3'- 7"	58	0.7
	27"	12'- 2"	4'- 1"	8'- 0"	9'- 2 3/4"	245	2.3	3'-11"	67	0.8
	30"	13'- 4"	4'- 4 1/2"	8'- 9"	10'- 1 1/4"	287	2.7	4'- 4"	77	1.0
	33"	14'- 5 3/4"	4'- 8"	9'- 6"	10'-11 3/4"	310	3.1	4'- 8"	84	1.2
	36"	15'- 7 3/4"	4'-11 1/2"	10'- 3"	11'-10"	343	3.5	5'- 1"	96	1.4
	42"	17'-11 1/2"	5'- 6 1/2"	11'- 9"	13'- 6 3/4"	424	4.5	5'-10"	119	1.7
	48"	21'- 1 3/4"	6'- 1 1/2"	14'- 0"	16'- 2"	527	6.1	6'- 7"	146	2.3
	54"	23'- 5 1/2"	6'- 8 1/2"	15'- 6"	17'-10 3/4"	618	7.3	7'- 6"	186	2.9
	60"	25'- 9 1/4"	7'- 3 1/2"	17'- 0"	19'- 7 1/2"	707	8.7	8'- 3"	219	3.4
	66"	28'- 1"	7'-10 1/2"	18'- 6"	21'- 4 1/4"	797	10.1	8'- 9"	242	3.9
	72"	30'- 4 3/4"	8'- 5 1/2"	20'- 0"	23'- 1 1/4"	910	11.7	9'- 4"	272	4.4
4:1	12"	7'-10 3/4"	2'- 6"	5'- 8"	6'- 6 1/2"	144	1.1	1'- 9"	24	0.3
	15"	9'- 4"	2'- 9 1/2"	6'- 8"	7'- 8 1/2"	177	1.5	2'- 2"	32	0.4
	18"	10'- 9 1/2"	3'- 1"	7'- 8"	8'-10 1/4"	217	1.9	2'- 8"	42	0.5
	21"	12'- 2 3/4"	3'- 4 1/2"	8'- 8"	10'- 0"	254	2.3	3'- 1"	57	0.7
	24"	13'- 9 1/2"	3'- 9 1/2"	9'- 8"	11'- 2"	295	2.8	3'- 7"	67	0.9
	27"	15'- 3"	4'- 1"	10'- 8"	12'- 3 3/4"	328	3.3	3'-11"	77	1.0
	30"	16'- 8 1/4"	4'- 4 1/2"	11'- 8"	13'- 5 3/4"	379	3.8	4'- 4"	89	1.3
	33"	18'- 1 3/4"	4'- 8"	12'- 8"	14'- 7 1/2"	417	4.5	4'- 8"	101	1.4
	36"	19'- 7"	4'-11 1/2"	13'- 8"	15'- 9 1/4"	464	5.1	5'-1"	115	1.7
	42"	22'- 5 3/4"	5'- 6 1/2"	15'- 8"	18'- 1"	575	6.5	5'-10"	141	2.1
	48"	26'- 6 1/4"	6'- 1 1/2"	18'- 8"	21'- 6 3/4"	720	8.9	6'- 7"	175	2.8
	54"	29'- 5"	6'- 8 1/2"	20'- 8"	23'-10 1/4"	863	10.7	7'- 6"	226	3.6
	60"	32'- 3 3/4"	7'- 3 1/2"	22'- 8"	26'- 2"	984	12.7	8'- 3"	264	4.3
	66"	35'- 2 1/2"	7'-10 1/2"	24'- 8"	28'- 5 3/4"	1126	14.9	8'- 9"	300	4.9
	72"	38'- 1 1/4"	8'- 5 1/2"	26'- 8"	30'- 9 1/2"	1283	17.3	9'- 4"	334	5.6
6:1	12"	11'- 2"	2'- 6"	8'- 6"	9'- 9 3/4"	220	1.9	1'- 9"	28	0.4
	15"	13'- 2 1/4"	2'- 9 1/2"	10'- 0"	11'- 6 1/2"	264	2.5	2'- 2"	37	0.5
	18"	15'- 2 1/2"	3'- 1"	11'- 6"	13'- 3 1/4"	326	3.2	2'- 8"	50	0.7
	21"	17'- 2 3/4"	3'- 4 1/2"	13'- 0"	15'- 0 1/4"	381	3.9	3'- 1"	69	0.9
	24"	19'- 4 1/2"	3'- 9 1/2"	14'- 6"	16'- 9"	447	4.8	3'- 7"	80	1.2
	27"	21'- 4 3/4"	4'- 1"	16'- 0"	18'- 5 3/4"	506	5.7	3'-11"	96	1.4
	30"	23'- 5 1/4"	4'- 4 1/2"	17'- 6"	20'- 2 1/2"	587	6.7	4'- 4"	110	1.7
	33"	25'- 5 1/2"	4'- 8"	19'- 0"	21'-11 1/4"	667	7.8	4'- 8"	127	2.0
	36"	27'- 5 3/4"	4'-11 1/2"	20'- 6"	23'- 8"	727	9.0	5'- 1"	144	2.3
	42"	31'- 6 1/4"	5'- 6 1/2"	23'- 6"	27'- 1 1/2"	914	11.5	5'-10"	179	3.0
	48"	37'- 3 1/2"	6'- 1 1/2"	28'- 0"	32'- 4"	1181	15.9	6'- 7"	231	4.0
	54"	41'- 4 1/4"	6'- 8 1/2"	31'- 0"	35'- 9 1/2"	1412	19.2	7'- 6"	300	5.0
	60"	45'- 4 3/4"	7'- 3 1/2"	34'- 0"	39'- 3"	1619	22.9	8'- 3"	353	6.0



ELEVATION
Showing dimensions

1. Quantities shown are for concrete pipe and will increase slightly for metal pipe installations.
2. For vehicle safety, curbs shall project no more than 3" above finished grade. Curb heights shall be reduced, if necessary, to meet these requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
3. Provide a 1'-0" footing as shown where required to maintain 4" Min cover for pipes.
4. Quantities shown are for one structure end only (one headwall).
5. Min Length = 6" + 3" x $\left(\frac{12 \times H - 7}{12 \times L}\right)$

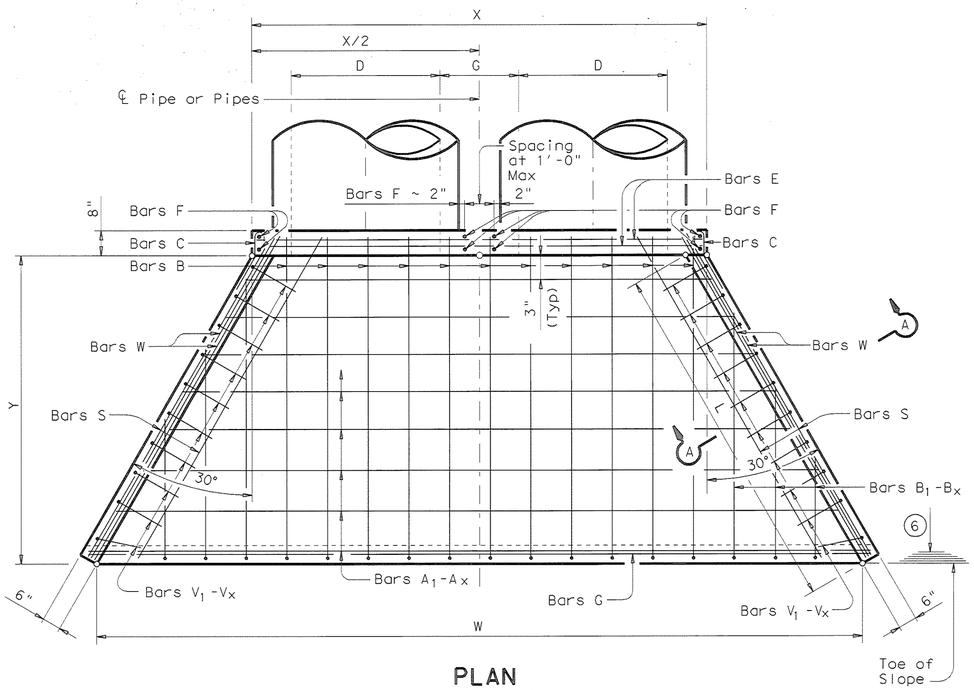
   Max Length = 12 x H - 3" x $\left(\frac{12 \times H - 7}{12 \times L}\right)$ - 1"
6. Lengths of wings based on SL:1 Slope along this line.

TABLE OF REINFORCING STEEL (4)

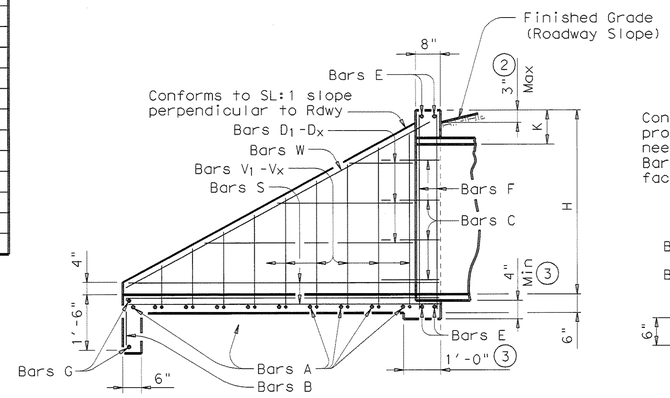
Bar	Size	Spa	No.
A	# 4	1'-0"	~
B	# 3	1'-6"	~
C	# 4	1'-0"	~
D	# 3	1'-0"	~
E	# 5	~	4
F	# 5	~	~
G	# 3	~	2
S	# 4	~	6
V	# 4	1'-0"	~
W	# 5	~	4

TABLE OF CONSTANT DIMENSIONS

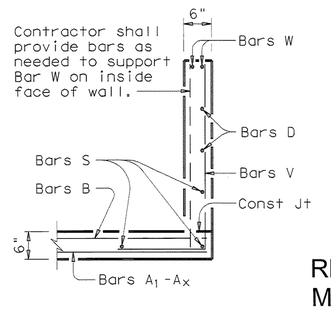
DIA OF PIPE, D	G	K	H
12"	9"	1'- 0"	2'- 0"
15"	11"	1'- 0"	2'- 3"
18"	1'- 2"	1'- 0"	2'- 6"
21"	1'- 4"	1'- 0"	2'- 9"
24"	1'- 7"	1'- 0"	3'- 0"
27"	1'- 8"	1'- 0"	3'- 3"
30"	1'-10"	1'- 0"	3'- 6"
33"	1'-11"	1'- 0"	3'- 9"
36"	2'- 1"	1'- 0"	4'- 0"
42"	2'- 4"	1'- 0"	4'- 6"
48"	2'- 7"	1'- 3"	5'- 3"
54"	3'- 0"	1'- 3"	5'- 9"
60"	3'- 3"	1'- 3"	6'- 3"
66"	3'- 3"	1'- 3"	6'- 9"
72"	3'- 4"	1'- 3"	7'- 3"



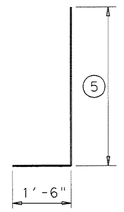
PLAN



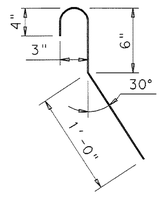
TYPICAL WING ELEVATION



SECTION A-A



BARS V



BARS C
(2'-0" long)

BARS B & B1 -Bx

GENERAL NOTES:

Designed according to current AASHTO Standard and Interim Specifications.

Reinforcing steel shall be placed with the center of the outside layer of bars 2" from the surface of the concrete.

All reinforcing steel shall be Grade 60.

All concrete shall be Class "C" and shall have a minimum compressive strength of 3600 psi.

No bridge rails of any type may be mounted directly to these culvert headwalls.

RECORD PLANS
MARCH 28, 2008

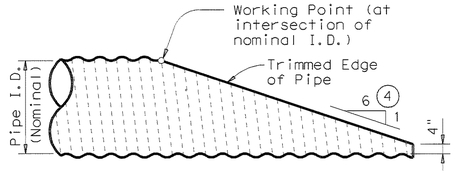
Texas Department of Transportation
Bridge Division

CONCRETE HEADWALLS WITH FLARED WINGS FOR 0° SKEW PIPE CULVERTS

CH-FW-0

FILE: chfw00se.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: GAF
©TxDOT May 2005	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS				1304
	COUNTY	CONTROL	SECT	JOB	HIGHWAY

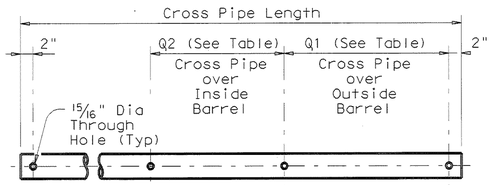
LEVELS DISPLAYED
ACC:



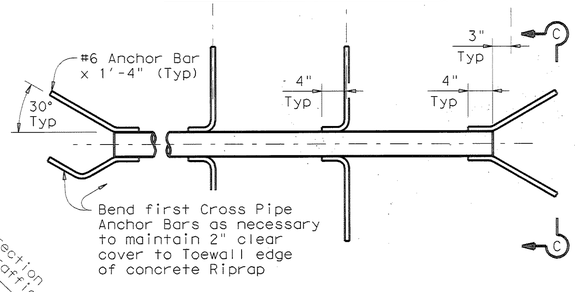
NOTE: All Cross Pipes, calculations, and dimensions are based on the pipe culverts mitered as shown in this detail. Alternate styles of mitered ends will require that appropriate adjustments be made to the values presented on this standard.

SIDE ELEVATION OF TYPICAL PIPE CULVERT MITER

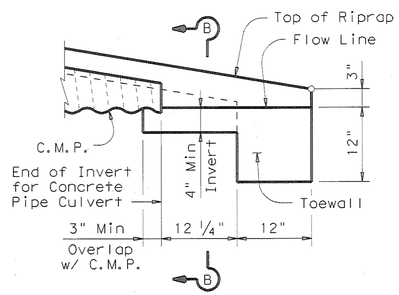
(Showing Corrugated Metal Pipe Culvert.)
(Details at Concrete Pipe Culvert are similar.)



PIPE W/ BOLTED ANCHOR

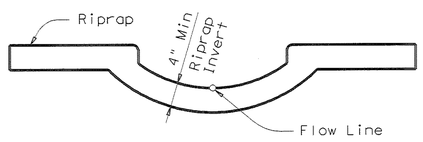


PIPE W/ ANCHOR BARS



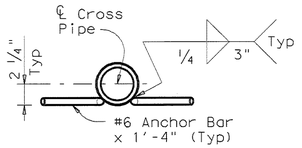
DETAIL "A"

(Showing Invert with Corrugated Metal Pipe Culvert. Concrete Pipe Culvert details are similar. Cross Pipes not shown for clarity.)



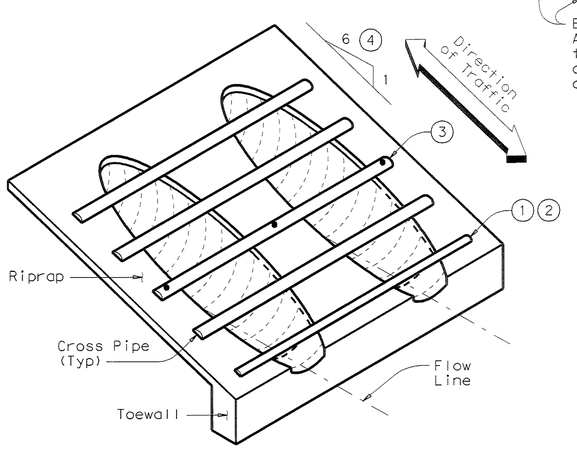
SECTION B-B

(Cross Pipes not shown for clarity.)



SECTION C-C

CROSS PIPE DETAILS



ISOMETRIC VIEW OF TYPICAL INSTALLATION

CROSS PIPE LENGTHS, REQUIRED PIPE SIZES, & RIPRAP QUANTITIES (2)							
Nominal Culvert I.D.	Conc Riprap (CY) (6)	Pipe Culvert Spa ~ G	Single Barrel ~ Q1	Multi-Barrel ~ Q1	Q2	Conditions for use of Cross Pipes	Cross Pipe Size
12"	0.6	9"	N/A	2'- 1"	1'- 9"	3 or more Pipe Culverts	3" Std (3.500" O.D.)
15"	0.7	11"	N/A	2'- 5"	2'- 2"		
18"	0.8	1'- 2"	N/A	2'-10"	2'- 8"		
21"	0.9	1'- 4"	N/A	3'- 2"	3'- 1"		
24"	0.9	1'- 7"	N/A	3'- 6"	3'- 7"		
27"	1.0	1'- 8"	N/A	3'-10"	3'-11"	3 or more Pipe Culverts	3 1/2" Std (4.000" O.D.)
30"	1.1	1'-10"	N/A	4'- 2"	4'- 4"	2 or more Pipe Culverts	
33"	1.2	1'-11"	4'- 2"	4'- 5"	4'- 8"	All Pipe Culverts	
36"	1.3	2'- 1"	4'- 5"	4'- 9"	5'- 1"	All Pipe Culverts	4" Std (4.500" O.D.)
42"	1.5	2'- 4"	4'-11"	5'- 5"	5'-10"		
48"	1.7	2'- 7"	5'- 5"	6'- 0"	6'- 7"	All Pipe Culverts	5" Std (5.563" O.D.)
54"	2.0	3'- 0"	5'-11"	6'- 9"	7'- 6"		
60"	2.2	3'- 3"	6'- 5"	7'- 4"	8'- 3"		
66"	2.4	3'- 3"	6'-11"	7'-10"	8'- 9"		
72"	2.7	3'- 4"	7'- 5"	8'- 5"	9'- 4"		

(1) The proper installation of the first Cross Pipe is critical for vehicle safety. The top of the first Cross Pipe must be placed at no more than 6" above the flow line.

(2) Size of Cross Pipes, except the first bottom pipe, shall be as shown in the PIPE SIZE table. The first bottom pipe shall be 3 1/2" Standard Pipe (4" O.D.).

(3) The third Cross Pipe from the bottom of the Culvert shall always be installed using a bolted connection. Care shall be taken to ensure that Riprap concrete does not flow into the Cross Pipe so as to permit disassembly of the bolted connection to allow cleanout access. At the Contractor's option, all other Cross Pipes may also be installed using the bolted connection details.

(4) Match Cross Slope as shown elsewhere in the plans. Cross Slope of 6:1 or flatter is required for vehicle safety.

(5) Riprap placed beyond the limits shown will be paid as Concrete Riprap in accordance with Item 432, "Riprap".

(6) Quantities shown are for one end of one reinforced Concrete Pipe Culvert. For multiple pipe culverts or for Corrugated Metal Pipe Culverts, quantities will need to be adjusted. Riprap quantities are for Contractor's information only.

GENERAL NOTES:

Cross Pipes are designed for a traversing load of 10,000 pounds at yield as recommended by Research Report 280-2F, "Safety Treatment of of Roadside Parallel-Drainage Structures", Texas Transportation Institute, March 1981.

Safety End Treatments shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the Cross Pipes.

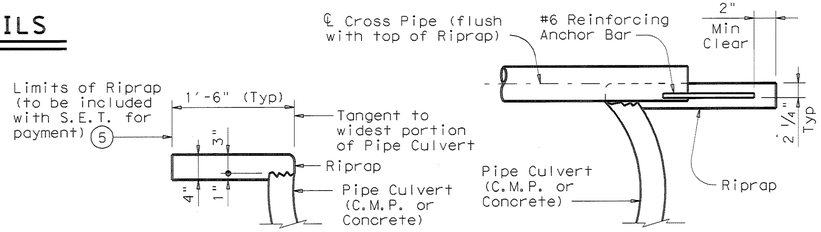
Riprap and all necessary inverts shall be Concrete Riprap conforming to the requirements of Item 432, "Riprap".

Payment for riprap and toewall is included in the Price Bid for each Safety End Treatment.

Cross Pipes shall conform to the requirements of ASTM A53 (Type E or S, Grade B), ASTM A500 (Grade B), or API 5LX52.

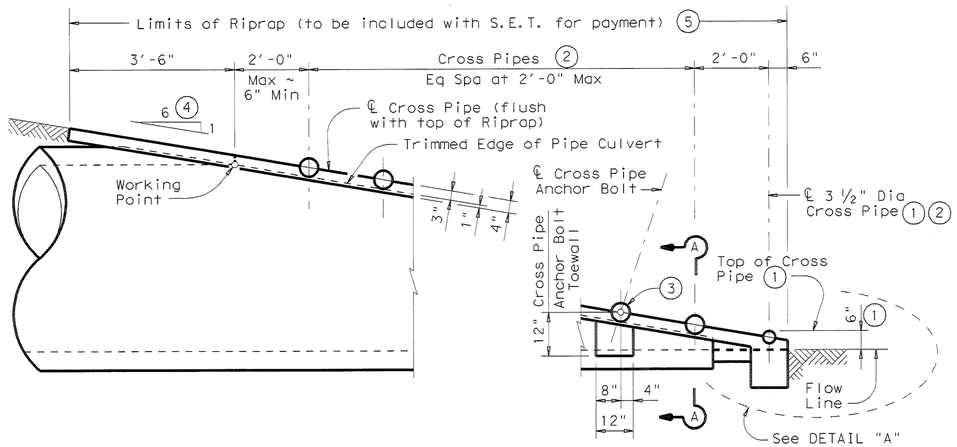
Bolts and nuts shall conform to ASTM A307.

All steel components, except concrete reinforcing, shall be galvanized after fabrication. Galvanizing damaged during transport or construction shall be repaired in accordance with the specifications.



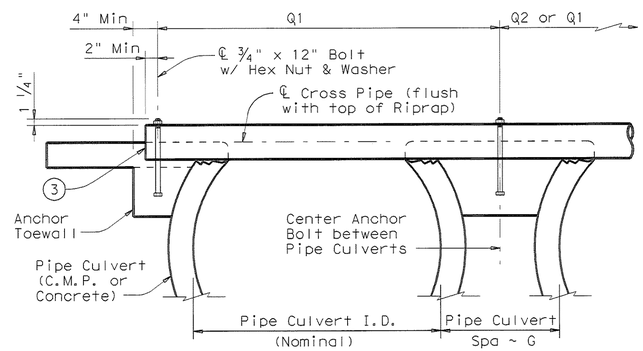
SHOWING TYPICAL PIPE CULVERT & RIPRAP

SHOWING CROSS PIPE WITH ANCHOR BAR



SIDE ELEVATION OF CAST-IN-PLACE CONCRETE

(Showing Concrete Pipe Culvert.)
(Details at Corrugated Metal Pipe Culvert are similar.)



SHOWING CROSS PIPE WITH BOLTED ANCHOR

SECTION A-A

RECORD PLANS
MARCH 28, 2008

Texas Department of Transportation
Bridge Division

SAFETY END TREATMENT
FOR 12" DIA TO 72" DIA PIPE CULVERTS TYPE II ~ PARALLEL DRAINAGE

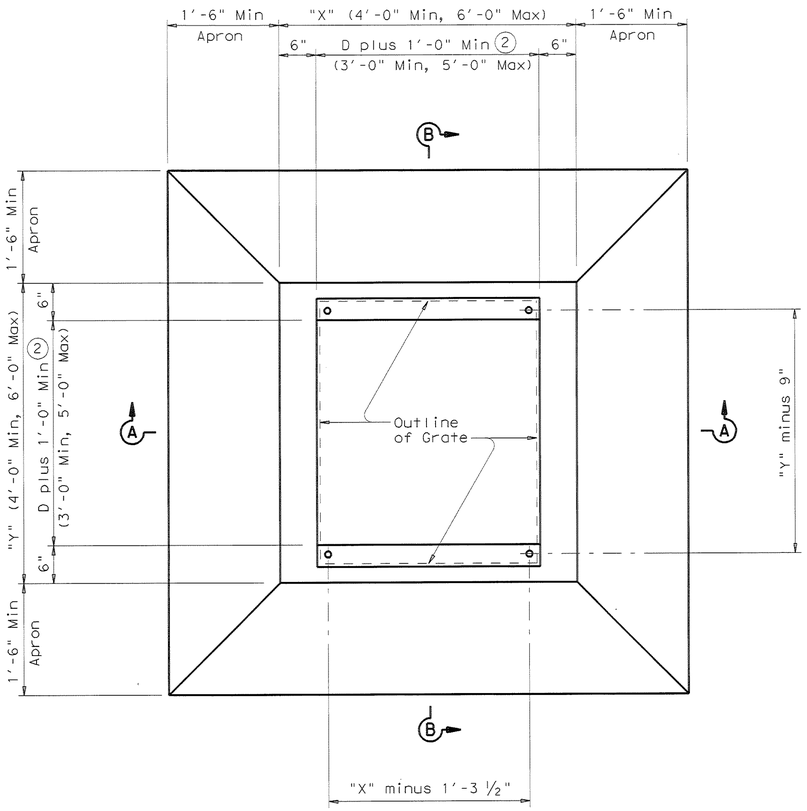
SETP-PD

FILE: setppdse.dgn	DN: GAF	CK: CAT	DW: JRP	CK: GAF
© TxDOT May 2005	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS				D305
	COUNTY	CONTROL	SECT	JOB	HIGHWAY

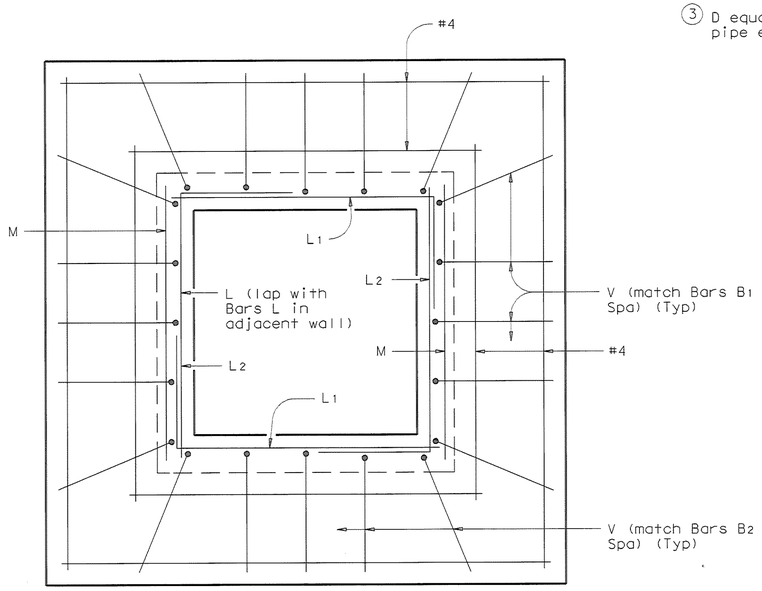
LEVELS DISPLAYED
ACC:
1

LEVELS DISPLAYED | PATH:

1



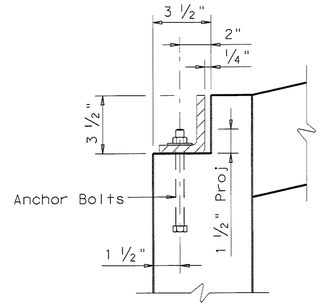
PLAN



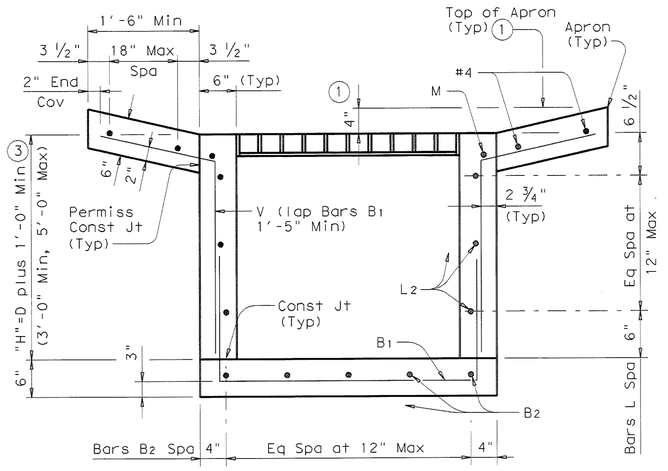
TYPICAL APRON PLAN

(Showing reinforcing in walls and in apron)

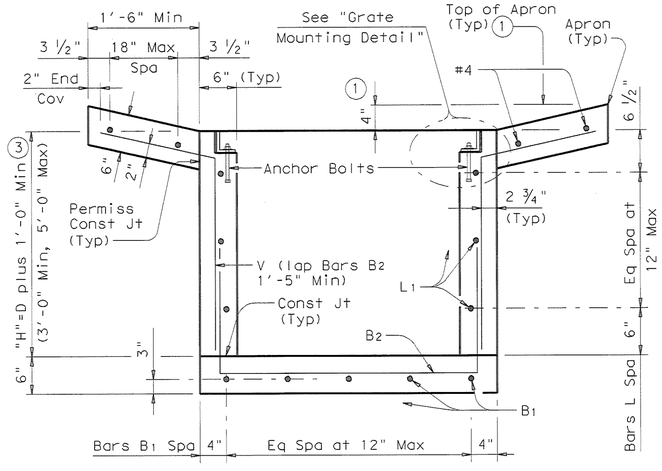
1. May be changed as directed by the Engineer.
2. D equals the maximum inside diameter of any pipe entering the wall shown or the opposite wall.
3. D equals the maximum inside diameter of any pipe entering the inlet.



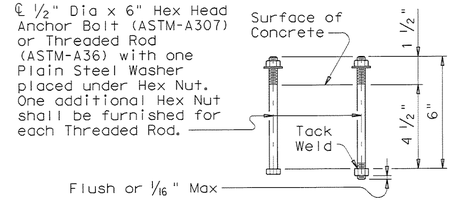
GRATE MOUNTING DETAIL



SECTION A-A



SECTION B-B



ANCHOR BOLT OPTIONS

RECORD PLANS
MARCH 28, 2008

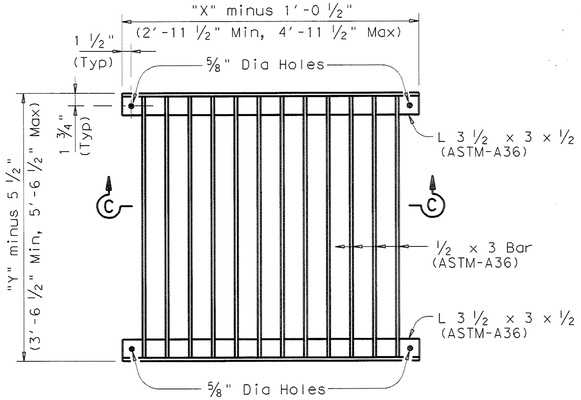
SHEET 1 OF 2

Texas Department of Transportation
Bridge Division

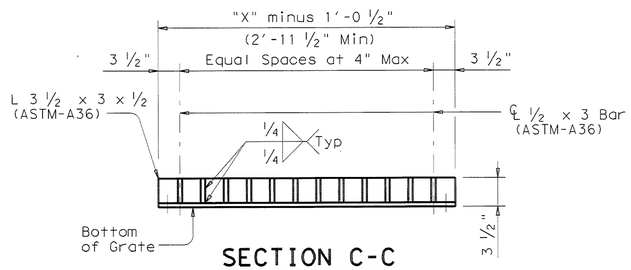
HORIZONTAL INLET TYPE H WITH GRATE (MAX 48" DIA PIPES)

IL-H-G

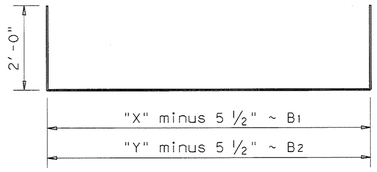
FILE: ilhste01.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT May 2005	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS				D3UG
	COUNTY	CONTROL	SECT	JOB	HIGHWAY



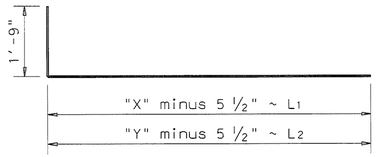
TYPICAL GRATE PLAN



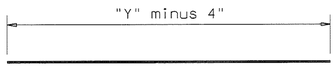
SECTION C-C



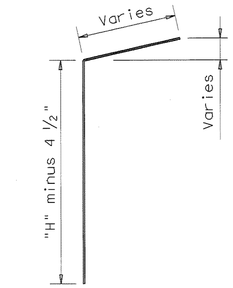
BARS B (#4)



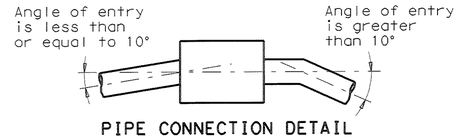
BARS L (#4)



BARS M (#4)

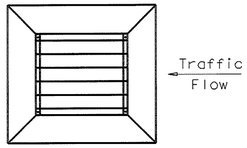


BARS V (#4)



PIPE CONNECTION DETAIL

Connecting pipes should enter within 10° of normal to inlet wall. If necessary, pipe elbow or curved approach alignment should be used to stay within this limit.



GRATE ORIENTATION DETAIL

If possible, horizontal grate inlet should be oriented such that both traffic and ditch water approach parallel to bars on grate. If this is not possible, orientation must favor traffic flow. Grate is not to be used under direct traffic, rather it is to be used in ditches and medians away from the roadway.

GENERAL NOTES:

When approved, precast inlets with equivalent structural capacity may be furnished. Sealed engineering calculations and drawings shall be submitted for approval prior to construction.

Shop drawings will not be required.

Apron shall be cast-in-place.

In areas of conflict between reinforcing steel, blockouts, pipes, anchor bolts or other reinforcing steel, the reinforcement shall be bent or adjusted to clear as directed by the Engineer.

Anchor Bolts are ½" Dia ASTM A307 Grade A bolts (or A36 threaded rods with one tack welded hex head nut each) with one hex head nut and one plain steel washer.

Structural Steel for grates shall conform to the requirements of ASTM Designation A-36 or AISI Designation M1010-M1020.

All reinforcing steel shall be Grade 60 unless otherwise noted.

All steel components except reinforcing, shall be galvanized after fabrication. Galvanizing damaged during transport or construction shall be repaired in accordance with the specifications.

All concrete shall be Class "A" (f'c = 3,000 psi).

RECORD PLANS
MARCH 28, 2008

Texas Department of Transportation
Bridge Division

HORIZONTAL INLET TYPE H WITH GRATE
(MAX 48" DIA PIPES)

IL-H-G

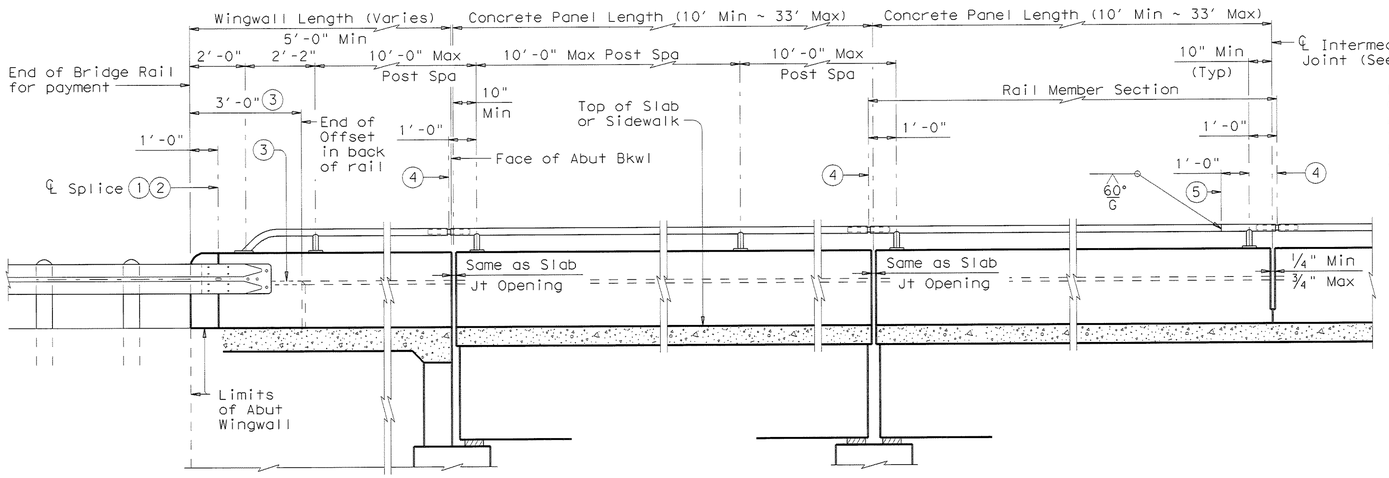
FILE: ilhste01.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT May 2005	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS				D304
	COUNTY	CONTROL	SECT	JOB	HIGHWAY

LEVELS DISPLAYED
PATH:
1

ACC:

LEVELS DISPLAYED

1



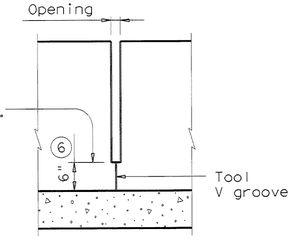
AT ABUTMENT BENTS
Showing TL-2 Transition

AT SLAB EXP JOINTS

ROADWAY ELEVATION OF RAIL

AT INTERMEDIATE WALL JOINTS

Form to here. Optionally, joint may be formed to top of slab. Fill bottom 6" of joint with concrete if this option is used.



INTERMEDIATE WALL JOINT DETAIL

Note: Provide intermediate wall joints over all slab construction joints, over interior supports on continuous units, and at equal intervals in between as necessary to maintain a 33' maximum length of unbroken wall.

(1) Metal Beam Guard Fence Transitions must be attached to the bridge rail and extended along the embankment unless otherwise shown in the plans.

(2) Terminal Connector and associated hardware are to be paid for under the Item "Metal Beam Guard Fence".

(3) Back of rail offset may, with Engineer's approval be continued to the end of the railing.

(4) ℄ Exp Joint or Splice Joint as required.

(5) One shop splice per rail member section is permitted with minimum 85 percent penetration. The weld may be square groove, or single vee groove. Grind smooth.

(6) Increase 2" for structures with overlay.

(7) Bolts shall be of sufficient length to extend 1/2" to 3/4" beyond nut.

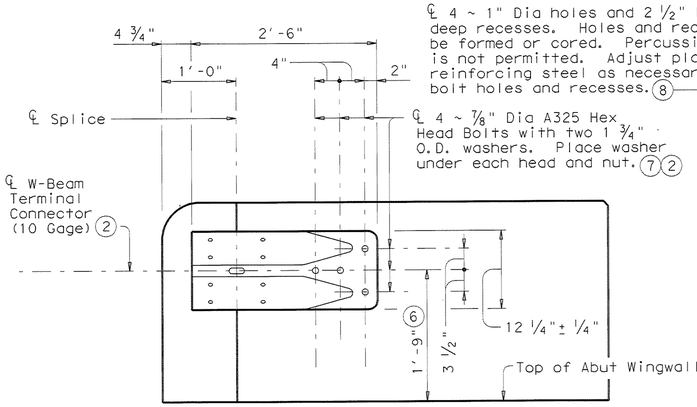
(8) Bolt recesses are only required when pedestrian sidewalks are adjacent to back of rail.

(9) 4 additional Bars R(#5) 3'-8" in length shall be placed inside Bars S(#5) and centered 2'-0" from end of rail when Terminal Connections are required. Field bend as needed.

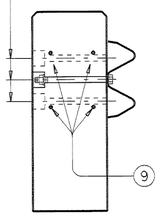
(10) 2 1/2" Std Pipe (2.875" O.D. 0.203" wall thickness)

(11) 2" Std Pipe (2.375" O.D., 0.154" wall thickness)

(12) 3/8" Dia Hole in bottom of pipe or tube (Minimum 1 hole between posts ~ Typ)

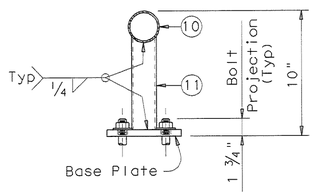


ELEVATION

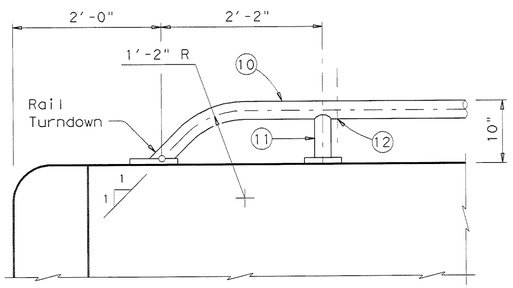


SECTION

TL-2 TERMINAL CONNECTION DETAILS

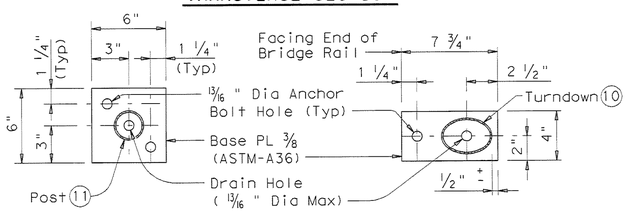


TRANSVERSE SECTION



Note that at least two anchor points (as shown) are required for the Bridge Rail on the Abutment Wingwall. Longer Wingwalls may require more than two Rail anchorages.

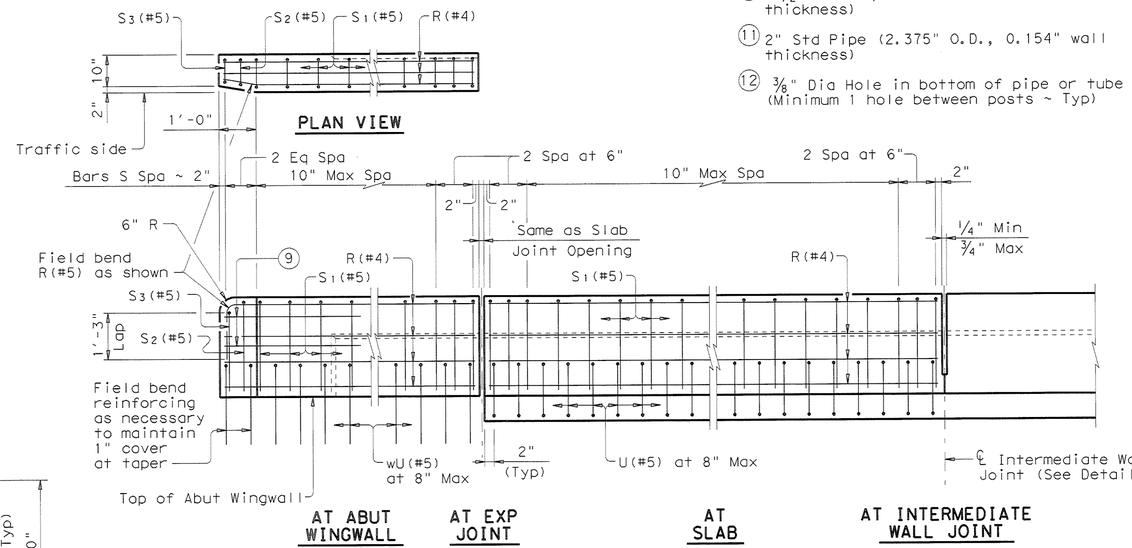
PIPE RAIL TERMINAL DETAIL



POST BASE PLATE PLAN

RAIL TURNDOWN BASE PLATE PLAN

PIPE RAIL DETAILS



ELEVATION SHOWING TYPICAL REINFORCING PLACEMENT

The use of this railing is restricted to design speeds of 45 mph or less.

RECORD PLANS
MARCH 28, 2008

REVISIONS:
08-06: Changed Base Plate Thickness, Rail Turndown and Rail Turndown Base Plate.

REVISIONS
03-06: Changed 2'-6" to 2'-2" and removed 1" dimension on Pipe Rail Terminal Detail.

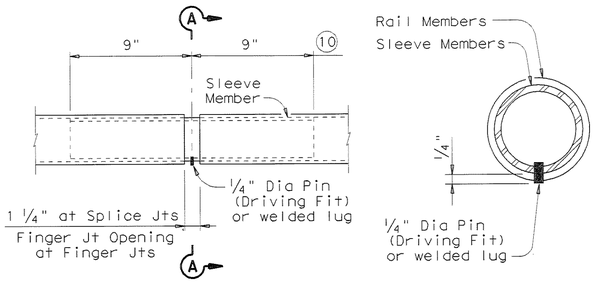
SHEET 1 OF 2

Texas Department of Transportation
Bridge Division

TRAFFIC RAIL

TYPE C221

FILE: rlstde27.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: TxDOT
©TxDOT April 2005	DISTRICT	FEDERAL AID PROJECT		SHEET D308
	COUNTY	CONTROL	SECT	JOB	HIGHWAY

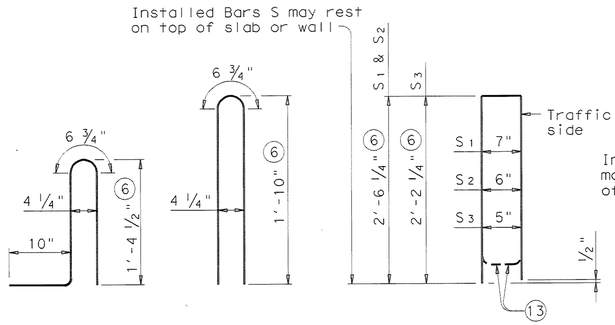


AT SPLICE OR EXP JTS

SECTION A-A

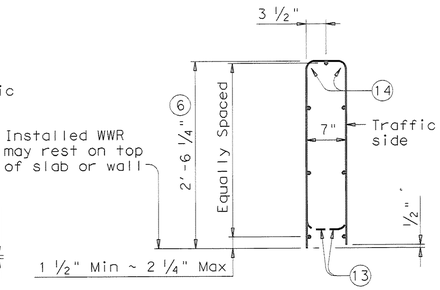
The difference between the outside dimension of sleeve and inside dimension of rail member shall not exceed 0.167" before galvanizing. Minimum wall thickness of sleeve shall be 0.120".

PIPE SPLICE DETAILS



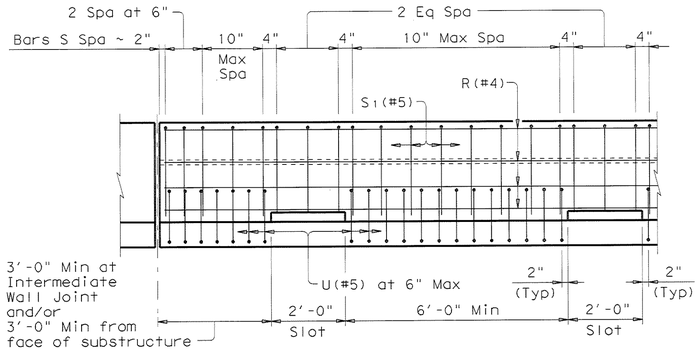
BARS U (#5) BARS wU (#5)

BARS S (#5)

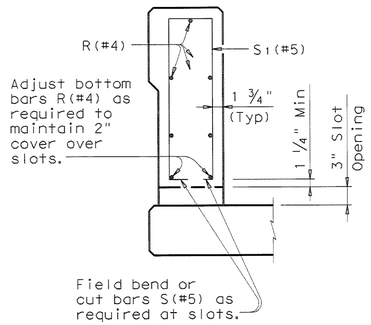


OPTIONAL WELDED WIRE REINFORCEMENT (WWR)

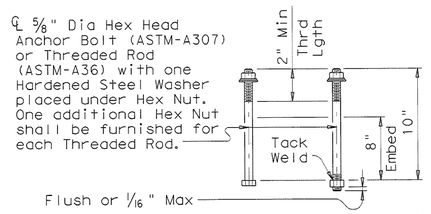
DESCRIPTION	LONGITUDINAL WIRES	VERTICAL WIRES
Minimum (Cumulative Total) Wire Area	0.933 Sq In.	0.248 Sq In. per Ft
	No. of Wires	Spacing
Minimum	7	4"
Maximum	11	12"
Maximum Wire Size Differential	The smaller wire shall have an area of 40% or more of the larger wire.	



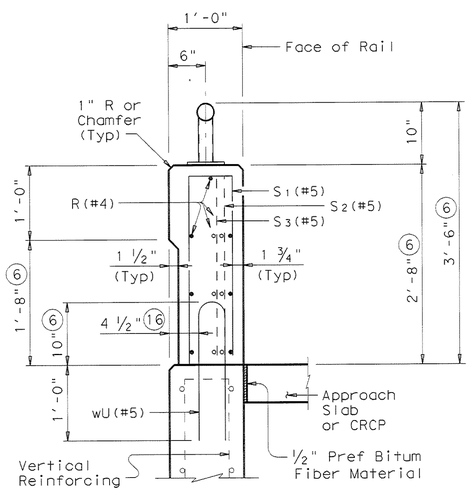
OPTIONAL SIDE SLOT DRAIN DETAIL (15)



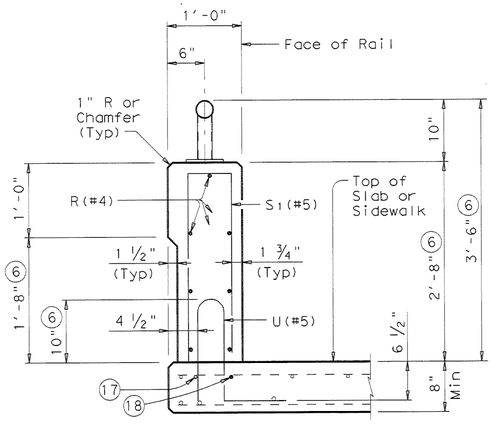
SECTION THRU OPTIONAL SIDE SLOT DRAIN



CAST-IN-PLACE (19) ANCHOR BOLT OPTIONS



ON ABUTMENT WINGWALLS OR CIP RETAINING WALLS



ON BRIDGE SLAB

SECTIONS THRU RAIL

(6) Increase 2" for structures with overlay.

(10) 2 1/2" Std Pipe (2.875" O.D. 0.203" wall thickness)

(13) Bend or cut as required to clear drain slots.

(14) No longitudinal wires may be within upper bend.

(15) Side Slot Drains may be used where shown elsewhere on the plans or as directed by the Engineer. Drains should not be placed over railroad tracks, lower roadways, or sidewalks. When this rail is used as a separator between a roadway surface and a sidewalk surface, side drain slots will not be permitted.

(16) 5 1/2" when vertical reinforcing has closer clear cover over horizontal reinforcing in abutment wingwalls or retaining walls on traffic side of wall.

(17) As an aid in supporting reinforcement, additional longitudinal bars may be used in the slab with the approval of the Engineer. Such bars shall be furnished at the Contractors expense.

(18) Top longitudinal slab bar may be adjusted laterally 3" ± to tie reinforcing.

(19) See "General Notes" for anchor bolt information.

(20) Shop drawings required for tubular steel sections (may be submitted as 11"x 17" prints, provided they are clearly legible).

RAIL DATA FOR HORIZONTAL CURVES

	RADIUS TO FACE OF RAIL	MAX CHORD LENGTH	CONSTRUCT OR FABRICATE
Pipe Rail	Over 2800'	29'-0"	Straight rail panels
	Over 1400' thru 2800'	14'-6"	To required radius or to chords shown (20)
	Over 700' thru 1400'	7'-3"	
	Thru 700'	Zero	To required radius (20)

RECORD PLANS
MARCH 28, 2008

REVISIONS:
08-06: Changed Base Plate Thickness, Rail Turndown and Rail Turndown Base Plate.

GENERAL NOTES:

This rail, without the pipe rail, has been evaluated and accepted to be of equal strength to railings with like geometry, which have been crash tested to meet NCHRP Report 350 TL-3 criteria. However, its use is limited to design speeds of 45 mph and less, because the pipe rail presents an occupant compartment intrusion threat to high speed vehicular traffic.

Rail anchorage details shown on this standard may require modification for select structure types. See appropriate details elsewhere in plans for these modifications.

All steel components except reinforcing shall be galvanized unless otherwise shown on plans.

All concrete shall be Class "C".

Chamfer all exposed corners.

All reinforcing shall be Grade 60.

Pipe for pipe rail shall conform to ASTM A53 Grade B or A501.

Erection drawings showing panel lengths, rail post spacing, and anchor bolt setting shall be submitted to the Engineer for approval.

Anchor bolts shall be 5/8" Dia ASTM A36 threaded rods with one hex nut and one hardened steel washer at each bolt. Embed threaded rods into parapet wall with an epoxy anchorage system. Estimated required embedment depth is 3". Core drill holes (percussion drilling not permitted). Anchorage system chosen must be able to achieve an ultimate tensile resistance of 3.9 kips. The Contractor must provide evidence to the Engineer that this can be achieved. Evidence of adequate tensile resistance can be based on the manufacturer's published values of ultimate tensile strength (anchor spacing and edge distance must be accounted for). Anchor installation, including hole size, drilling, and clean-out, must be in accordance with the manufacturer's recommendations.

At the contractor's option anchor bolts may be cast with the parapet (See Cast-in-Place Anchor Bolt Options).

Optional cast-in-place anchor bolts shall be 5/8" Dia ASTM A307 Grade A bolts (or A36 threaded rods with one tack welded hex nut each) with one hex nut and one hardened steel washer at each bolt.

This railing may be constructed with slip-forms when approved by the Engineer, with equipment approved by the Engineer and when epoxy adhesive anchor bolts are used. Slip-forming parapet is not allowed if anchor bolts are cast with parapet wall. Sensor control for both line and grade must be provided. Tack welding to provide bracing for slip-form operations is acceptable. Welding can be performed at a minimum spacing of 3 ft between the cage and the anchorage. It is permissible to weld to U, wU and S bars at any location on the cage. If increased bracing is needed, additional anchorage devices must be added and welding must be performed in the upper two thirds of the cage.

Face of rail, parapet shall be plumb unless otherwise approved by the Engineer. Pipe rail posts shall be square to the top of parapet. Grout may be used under pipe rail post base plates if necessary.

Pipe rail sections shall not include less than two posts, and no more than four (except at Abutments).

Exposed edges of pipe rail and pipe rail posts shall be rounded or chamfered to approximately 1/16" by grinding.

Deformed welded wire reinforcement (WWR) may be used as an option to conventional reinforcement and shall be made in accordance with ASTM A497 (Deformed Wire). Combinations of Reinforcing Steel and WWR or configurations of WWR other than shown will be permitted when the conditions in the table are satisfied and the dimension from end of section to first welded vertical wire does not exceed 3".

Epoxy coat bars U and wU if slab bars are epoxy coated.

Average weight of railing with no overlay: 370 plf (Conc) 10 plf (Steel)

ACC:

LEVELS DISPLAYED

SHEET 2 OF 2

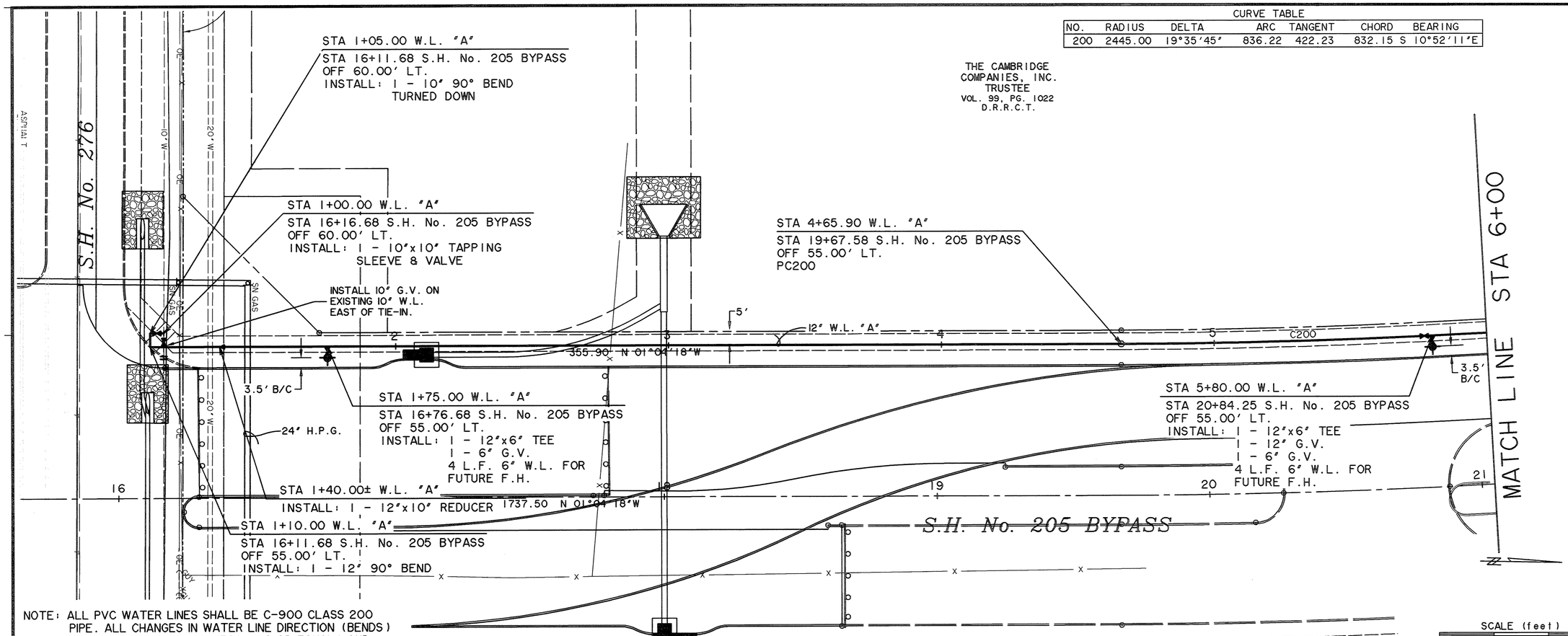
Texas Department of Transportation
Bridge Division

TRAFFIC RAIL

TYPE C221

FILE: rlstde27.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: TxDOT
©TxDOT April 2005	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS 03-06: Changed 2'-6" to 2'-2" and removed 1" dimension on Pipe Rail Terminal Detail.				D309
	COUNTY	CONTROL	SECT	JOB	HIGHWAY

CURVE TABLE						
NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	BEARING
200	2445.00	19°35'45"	836.22	422.23	832.15	S 10°52'11"E



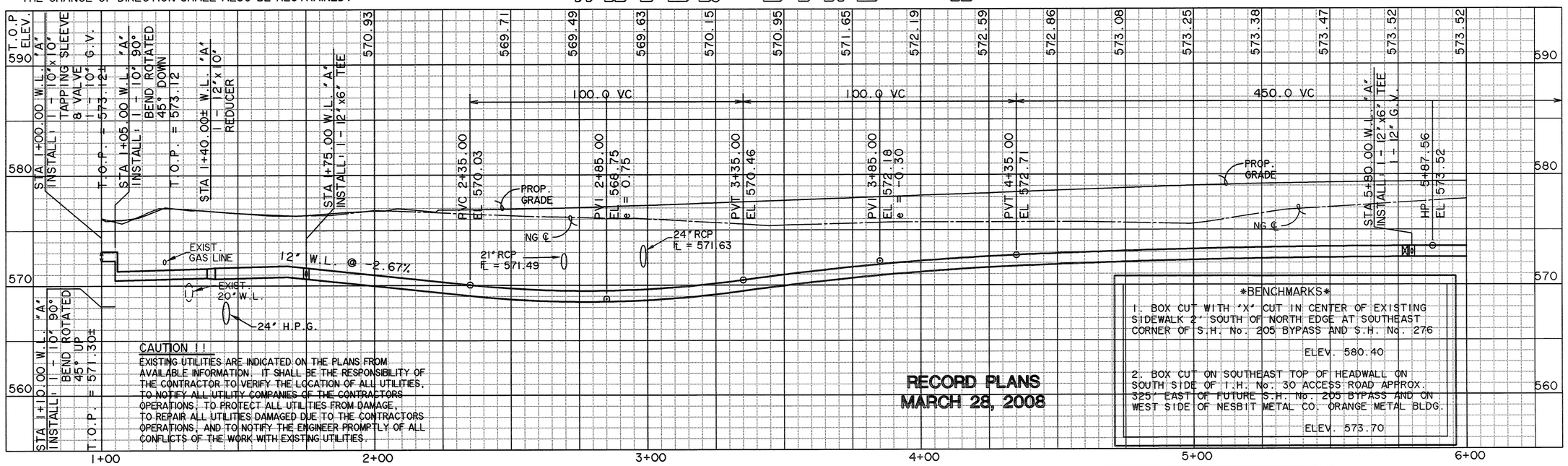
NOTE: ALL PVC WATER LINES SHALL BE C-900 CLASS 200 PIPE. ALL CHANGES IN WATER LINE DIRECTION (BENDS) SHALL BE RESTRAINED (MEGA-LUG OR EQUAL) AND CONCRETE BLOCKED. THE NEXT JOINT EITHER SIDE OF THE CHANGE OF DIRECTION SHALL ALSO BE RESTRAINED.

FUTURE 12" W.L. "B"

WATER LINE "A"

FUTURE 12" W.L. "B"

SCALE (feet) 0 20 40 60



CAUTION !!
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BENCHMARKS

1. BOX CUT WITH "X" CUT IN CENTER OF EXISTING SIDEWALK 2' SOUTH OF NORTH EDGE AT SOUTHEAST CORNER OF S.H. No. 205 BYPASS AND S.H. No. 276
ELEV. 580.40

2. BOX CUT ON SOUTHEAST TOP OF HEADWALL ON SOUTH SIDE OF I.H. No. 30 ACCESS ROAD APPROX. 325' EAST OF FUTURE S.H. No. 205 BYPASS AND ON WEST SIDE OF NESBIT METAL CO. ORANGE METAL BLDG.
ELEV. 573.70

RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
4300 BELTWAY PLACE SUITE 130 ARLINGTON, TEXAS 76018 METRO (817)467-7700
1380 U.S. HIGHWAY 287 N. SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-6700
6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.WierAssociates.com

PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
WATER LINE "A"
PLAN & PROFILE
STA 1+00 TO 6+00

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
3/28/08

LAST SHEET EDIT DATE 03-28-2008
WA# 04141

SHEET NO.
U101

TIME:7:41 FILE:04141-WLPP1.dwg

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NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	BEARING
200	2445.00	19°35'45"	836.22	422.23	832.15	S 10°52'11"E

NOTE: ALL PVC WATER LINES SHALL BE C-900 CLASS 200 PIPE. ALL CHANGES IN WATER LINE DIRECTION (BENDS) SHALL BE RESTRAINED (MEGA-LUG OR EQUAL) AND CONCRETE BLOCKED. THE NEXT JOINT EITHER SIDE OF THE CHANGE OF DIRECTION SHALL ALSO BE RESTRAINED.

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ELEV. 580.40

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ELEV. 573.70

THE CAMBRIDGE COMPANIES, INC. TRUSTEE
VOL. 99, PG. 1022
D.R.R.C.T.

STA 9+75.00 W.L. "A"
STA 24+88.13 S.H. No. 205 BYPASS
OFF 55.00 LT.
INSTALL: 1 - 12"x6" TEE
1 - 12" G.V.
1 - 6" G.V.
4 L.F. 6" W.L. FOR FUTURE F.H.

MATCH LINE STA 6+00

MATCH LINE STA 11+00

12" W.L. "A"

5'

C200

T.O.P.=579.09±

3.5' B/C

ABANDONED

S.H. No. 205 BYPASS

22 23 24 25 26

FUTURE 12" W.L. "B"

FUTURE 12" W.L. "B"

SCALE (feet)
0 20 40 60

WATER LINE "A"

	6+00	7+00	8+00	9+00	10+00	11+00
T.O.P. ELEV.	573.52	573.47	573.39	573.25	573.08	572.86
	572.60	572.30	571.95	571.56	571.12	570.65
	570.13	569.10	568.57	567.94	567.19	566.31
	564.30					

450.0 VC

PROP. GRADE

PVI 6+60.00
EL 575.10
e = 11.76

NG ℄

PVT 8+85.00
EL 570.44

12" W.L. @ -2.07%

100.0 VC

PVC 9+65.00
EL 568.79

STA 9+75.00 W.L. "A"
INSTALL: 1 - 12"x6" TEE
1 - 12" G.V.

PVI 10+15.00
EL 567.75
e = -0.25

NG ℄

PROP GRADE

PVT 10+65.00
EL 566.72

12" W.L. @ -4.06%

ABANDONED 24" H.P.C.

590 580 570 560

CAUTION !!

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RECORD PLANS
MARCH 28, 2008

PREPARED BY:
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ENGINEERS SURVEYORS LAND PLANNERS
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6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.wierassociates.com

PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
WATER LINE "A"
PLAN & PROFILE
STA 6+00 TO 11+00

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
9-25-2006

LAST SHEET EDIT DATE 09-15-2006
WA# 04141

SHEET NO.
U102

FILE: 04141-WLPP2.dwg
TIME: 9:27

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NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	BEARING
200	2445.00	19°35'45"	836.22	422.23	832.15	S 10°52'11"E

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THE CAMBRIDGE COMPANIES, INC.
TRUSTEE
VOL. 99, PG. 1022
D.R.R.C.T.

BENCHMARKS

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ELEV. 580.40

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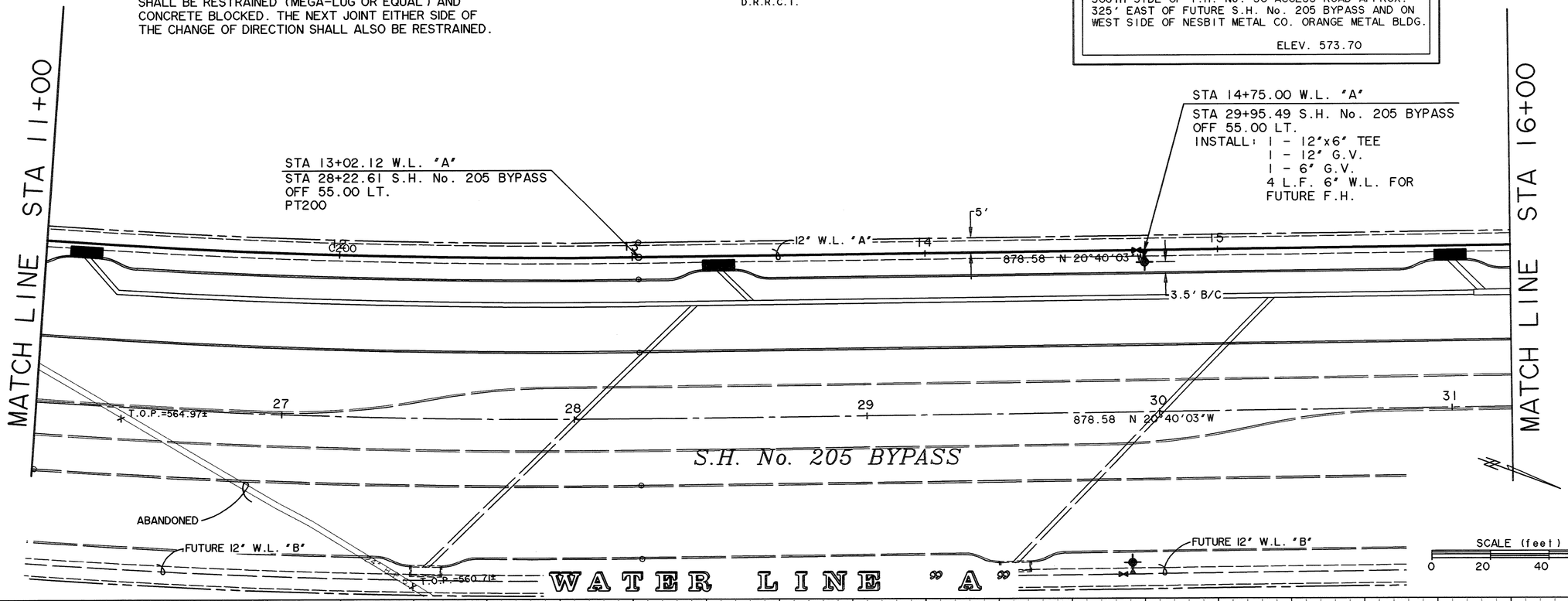
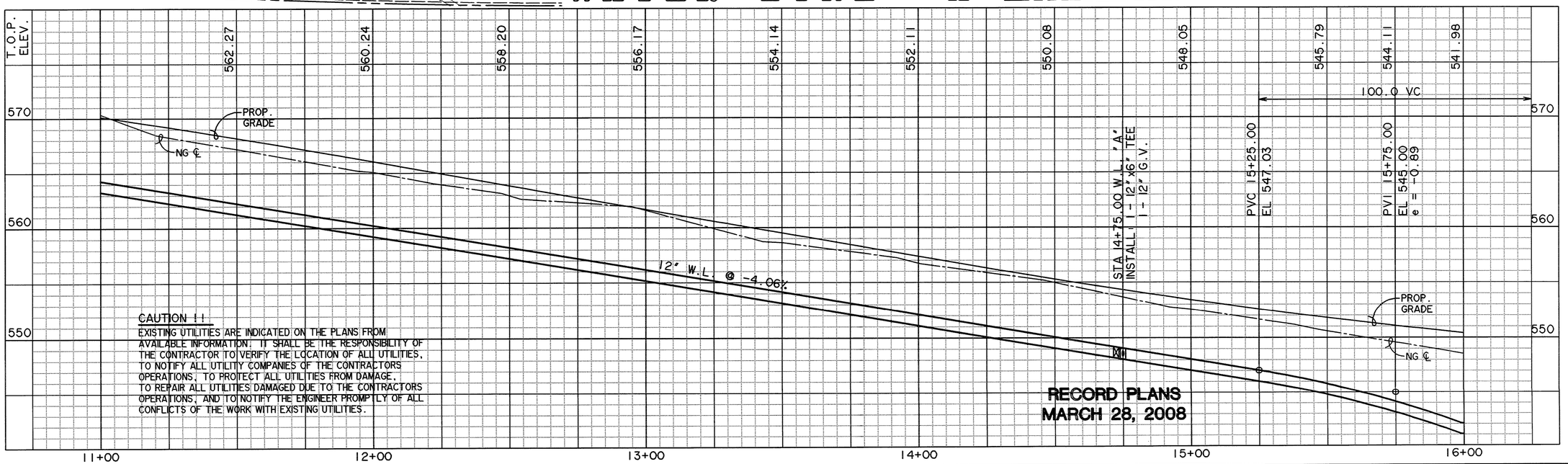
ELEV. 573.70



WATER LINE "A"



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RECORD PLANS
MARCH 28, 2008

PREPARED BY:
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6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
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PHASE I S.H. 205 BYPASS FROM S.H. 276 TO INTERSTATE 30 WATER LINE "A" PLAN & PROFILE

STA 11+00 TO 16+00

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED
PROFESSIONAL ENGINEER
3/28/08

LAST SHEET EDIT DATE 09-15-2006
WA# 04141

SHEET NO.
U103

TIME: 9:28 FILE: 04141-WLPP3.dwg

BENCHMARKS

1. BOX CUT WITH 'X' CUT IN CENTER OF EXISTING SIDEWALK 2' SOUTH OF NORTH EDGE AT SOUTHEAST CORNER OF S.H. No. 205 BYPASS AND S.H. No. 276

ELEV. 580.40

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ELEV. 573.70

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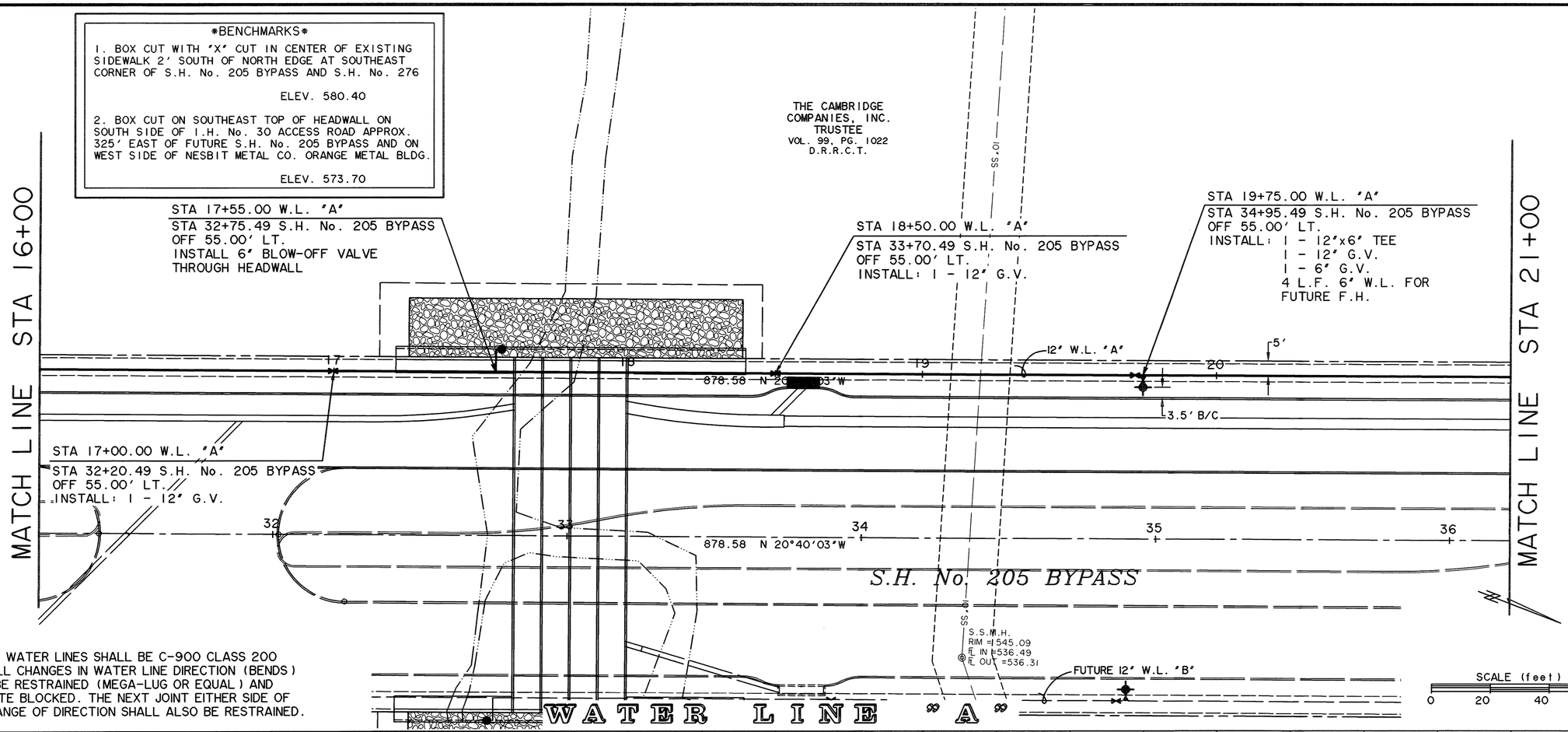

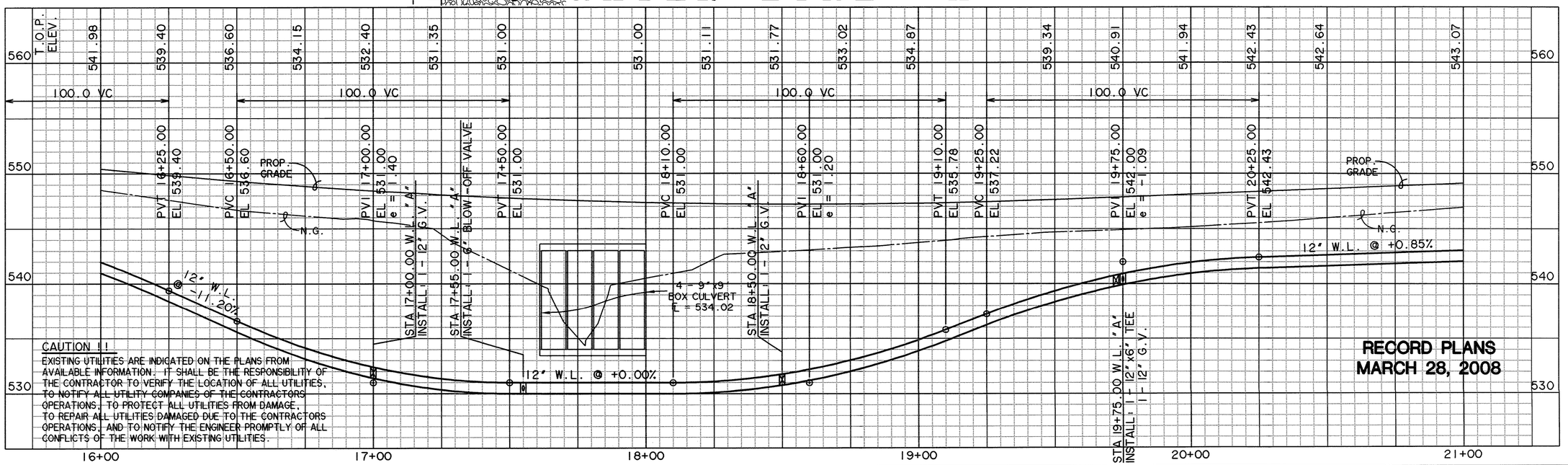

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RECORD PLANS
MARCH 28, 2008

PREPARED BY:
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6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.Wierassociates.com

PHASE I S.H. 205 BYPASS FROM S.H. 276 TO INTERSTATE 30
WATER LINE "A" PLAN & PROFILE
STA 16+00 TO 21+00

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
3/28/08

LAST SHEET EDIT DATE 09-15-2006
WA# 04141

SHEET NO.
U104

TIME 9:38 FILE: 04141-WLPP4.dwg

CURVE TABLE						
NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	BEARING
201	2005.00	20°19'45"	711.39	359.48	707.67	N 10°30'11"W

BENCHMARKS

1. BOX CUT WITH "X" CUT IN CENTER OF EXISTING SIDEWALK 2' SOUTH OF NORTH EDGE AT SOUTHEAST CORNER OF S.H. No. 205 BYPASS AND S.H. No. 276

ELEV. 580.40

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ELEV. 573.70

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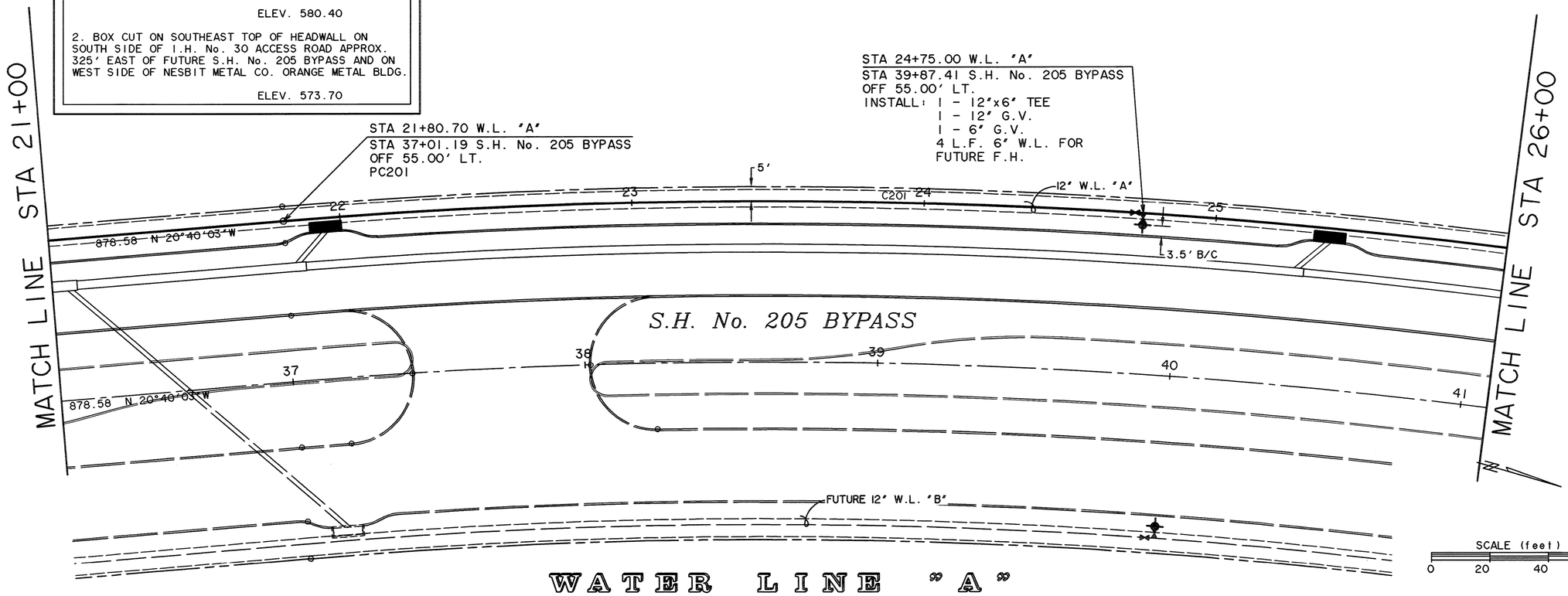
THE CAMBRIDGE COMPANIES, INC. TRUSTEE
VOL. 99, PG. 1022
D.R.R.C.T.

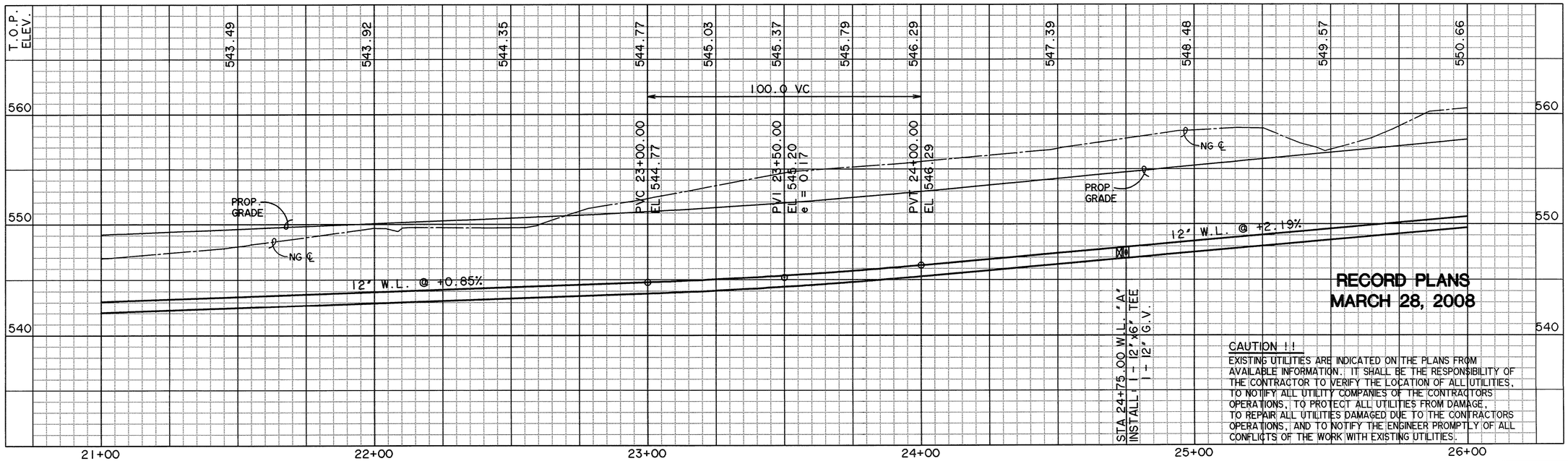
STA 21+80.70 W.L. "A"
STA 37+01.19 S.H. No. 205 BYPASS
OFF 55.00' LT.
PC201

STA 24+75.00 W.L. "A"
STA 39+87.41 S.H. No. 205 BYPASS
OFF 55.00' LT.
INSTALL: 1 - 12"x6" TEE
1 - 12" G.V.
1 - 6" G.V.
4 L.F. 6" W.L. FOR FUTURE F.H.



SCALE (feet)
0 20 40 60

WATER LINE "A"



RECORD PLANS
MARCH 28, 2008

CAUTION !!
EXISTING UTILITIES ARE INDICATED ON THE PLANS FROM AVAILABLE INFORMATION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION OF ALL UTILITIES, TO NOTIFY ALL UTILITY COMPANIES OF THE CONTRACTORS OPERATIONS, TO PROTECT ALL UTILITIES FROM DAMAGE, TO REPAIR ALL UTILITIES DAMAGED DUE TO THE CONTRACTORS OPERATIONS, AND TO NOTIFY THE ENGINEER PROMPTLY OF ALL CONFLICTS OF THE WORK WITH EXISTING UTILITIES.

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
4300 BELTWAY PLACE SUITE 130 ARLINGTON, TEXAS 76018 METRO (817)467-7700
1380 U.S. HIGHWAY 287 N, SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-8700
6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.WierAssociates.com

PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
WATER LINE "A"
PLAN & PROFILE
STA 21+00 TO 26+00

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
3/28/08

LAST SHEET EDIT DATE 09-15-2006
WA# 04141

SHEET NO.
U105

FILE: 04141-WLPP5.dwg
TIME: 9:39

CURVE TABLE

NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	BEARING
201	2005.00	20°19'45"	711.39	359.48	707.67	N 10°30'11"W

PIPE. ALL CHANGES IN WATER LINE DIRECTION (BENDS) SHALL BE RESTRAINED (MEGA-LUG OR EQUAL) AND CONCRETE BLOCKED. THE NEXT JOINT EITHER SIDE OF THE CHANGE OF DIRECTION SHALL ALSO BE RESTRAINED.

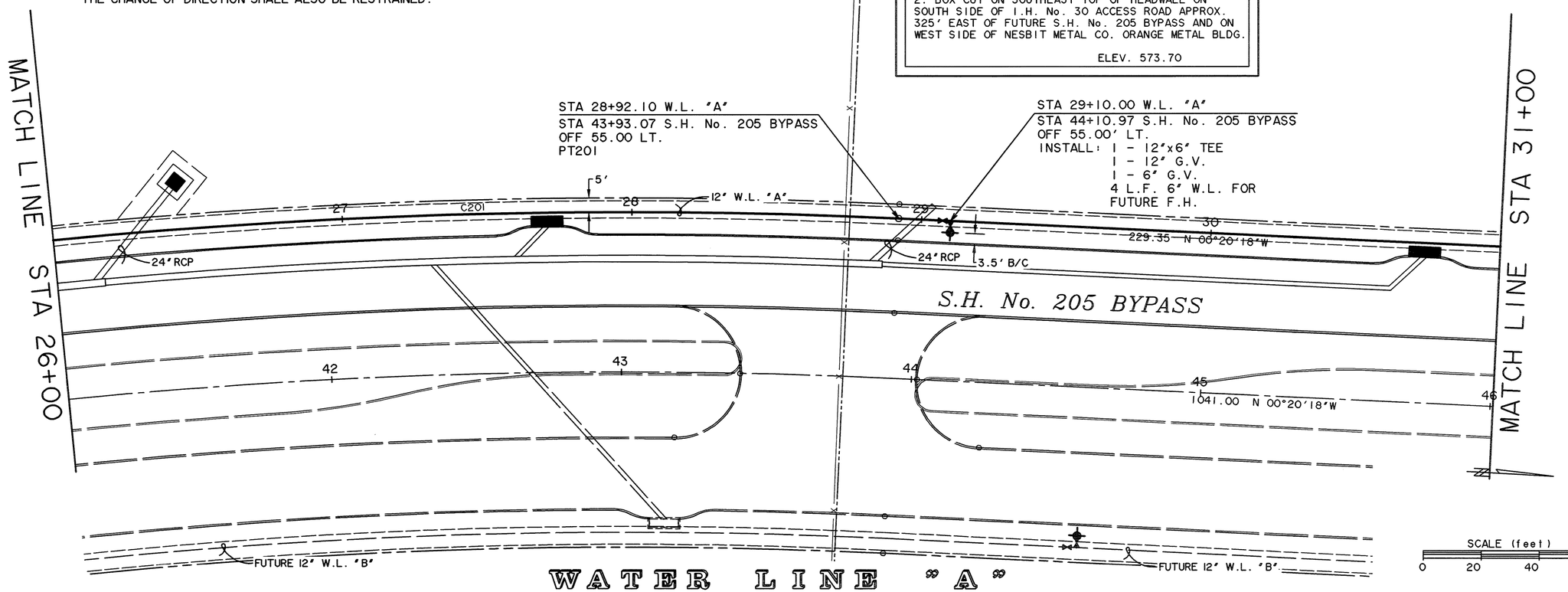
THE CAMBRIDGE COMPANIES, INC. TRUSTEE
VOL. 99, PG. 1022
D.R.R.C.T.

BENCHMARKS

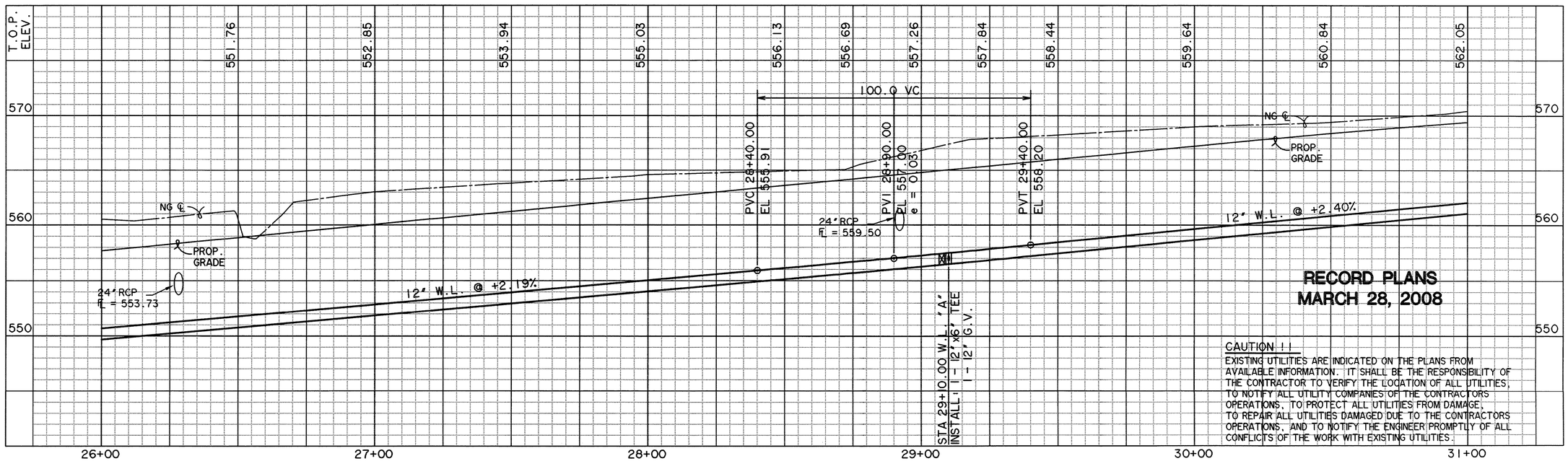
1. BOX CUT WITH "X" CUT IN CENTER OF EXISTING SIDEWALK 2' SOUTH OF NORTH EDGE AT SOUTHEAST CORNER OF S.H. No. 205 BYPASS AND S.H. No. 276
ELEV. 580.40

2. BOX CUT ON SOUTHEAST TOP OF HEADWALL ON SOUTH SIDE OF I.H. No. 30 ACCESS ROAD APPROX. 325' EAST OF FUTURE S.H. No. 205 BYPASS AND ON WEST SIDE OF NESBIT METAL CO. ORANGE METAL BLDG.
ELEV. 573.70

THE CAMBRIDGE COMPANIES, INC. TRUSTEE
VOL. 101, PG. 795
D.R.R.C.T.



WATER LINE "A"



RECORD PLANS
MARCH 28, 2008

CAUTION !!
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1380 U.S. HIGHWAY 287 N. SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-8700
6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.WierAssociates.com

PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
WATER LINE "A"
PLAN & PROFILE
STA 26+00 TO 31+00

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
3/24/08

LAST SHEET EDIT DATE 11-30-2006
W&A# 04141

SHEET NO.
U106

TIME 14:09 FILE : 04141-WLPP6.dwg

CURVE TABLE						
NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	BEARING
202	911.50	04°27'06"	70.82	35.43	70.80	S 02°33'51"E
203	911.50	04°27'06"	70.82	35.43	70.80	N 02°33'51"W

NOTE: ALL PVC WATER LINES SHALL BE C-900 CLASS 200 PIPE. ALL CHANGES IN WATER LINE DIRECTION (BENDS) SHALL BE RESTRAINED (MEGA-LUG OR EQUAL) AND CONCRETE BLOCKED. THE NEXT JOINT EITHER SIDE OF THE CHANGE OF DIRECTION SHALL ALSO BE RESTRAINED.

NO.	DATE	DESCRIPTION	BY
1	11/02/07	REVISE W.L. ALIGNMENT & PROFILE	PLG

MATCH LINE STA 31+00

THE CAMBRIDGE COMPANIES, INC. TRUSTEE VOL. 101, PG. 795 D.R.R.C.T.

STA 31+92.27 W.L. "A"
STA 46+93.18 S.H. No. 205 BYPASS
OFF 57.75' LT.
PRC

STA 33+10.00 W.L. "A"
STA 48+10.83 S.H. No. 205 BYPASS
OFF 60.50' LT.
INSTALL: 1 - 12"x6" TEE
1 - 6" G.V.
6 L.F. 6" W.L. FOR FUTURE F.H.

STA 34+98.91 W.L. "A"
STA 48+68.98 S.H. No. 205 BYPASS
OFF 122.85' LT.
INSTALL: 1 - 12" 22-1/2° BEND

STA 34+04.24± W.L. "A"
STA 48+73.85 S.H. No. 205 BYPASS
OFF 125.02'± LT.
MAKE DRY CONNECTION TO EXIST. 12" W.L.

STA 34+03.72 W.L. "A"
STA 49+02.83 S.H. No. 205 BYPASS
OFF 68.62' LT.
INSTALL: 1 - 16"x12" TAPPING SLEEVE & VALVE
1-12"x2" TAPPED PLUG
2" SERVICE LINE & METER BOX FOR BLOW-OFF

STA 32+63.10 W.L. "A"
STA 47+63.93 S.H. No. 205 BYPASS
OFF 60.50' LT.
PT203

STA 33+20.36 W.L. "A"
STA 48+84.56 S.H. No. 205 BYPASS
OFF 60.50' LT.
INSTALL: 1 - 12" 45° BEND
1 - 12" 22-1/2° BEND

STA 31+21.45 W.L. "A"
STA 46+22.42 S.H. No. 205 BYPASS
OFF 55.00' LT.
PC202

12" W.L. "A"
C202
C203
120.33' N 00°20'18"W
1041.00' N00°20'18"W
3' B/C
32
33
46
47
48
49
50
51
304
305
1329.95' N 72°46'07"E

S.H. No. 205 BYPASS

FUTURE 12" W.L. "B"

SCALE (feet) 0 20 40 60

WATER LINE "A"

T.O.P. ELEV.
563.25
564.45
565.08
565.78
566.55
567.39
569.13
570.87

100.0 VC

PVC 32+00.00 EL 564.45
PVI 32+50.00 EL 565.65 e = 0.13
PVT 33+00.00 EL 567.39
NG
PROP. GRADE

12" W.L. @ +2.40%
12" W.L. @ +3.56%

STA 33+10.00 W.L. "A"
INSTALL: 1 - 12"x6" TEE
STA 33+20.36 W.L. "A"
INSTALL 1 - 12" 45° BEND
1 - 12" 22-1/2° BEND
T.O.P. = 568.10

STA 33+98.91 W.L. "A"
INSTALL 1 - 12" 22-1/2° BEND
T.O.P. = 570.90

STA 34+63.43 W.L. "A"
MAKE DRY CONNECTION TO EXIST. 12" W.L.
T.O.P. = 571.00±

580
570
560

31+00 32+00 33+00 34+00 35+00 36+00

BENCHMARKS

1. BOX CUT WITH "X" CUT IN CENTER OF EXISTING SIDEWALK 2' SOUTH OF NORTH EDGE AT SOUTHEAST CORNER OF S.H. No. 205 BYPASS AND S.H. No. 276
ELEV. 580.40

2. BOX CUT ON SOUTHEAST TOP OF HEADWALL ON SOUTH SIDE OF I.H. No. 30 ACCESS ROAD APPROX. 325' EAST OF FUTURE S.H. No. 205 BYPASS AND ON WEST SIDE OF NESBIT METAL CO. ORANGE METAL BLDG.
ELEV. 573.70

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RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
4300 BELTWAY PLACE SUITE 130 ARLINGTON, TEXAS 76018 METRO (817)467-7700
1300 U.S. HIGHWAY 287 N. SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-0700
6949 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.WierAssociates.com

PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
WATER LINE "A"
PLAN & PROFILE
STA 31+00 TO END

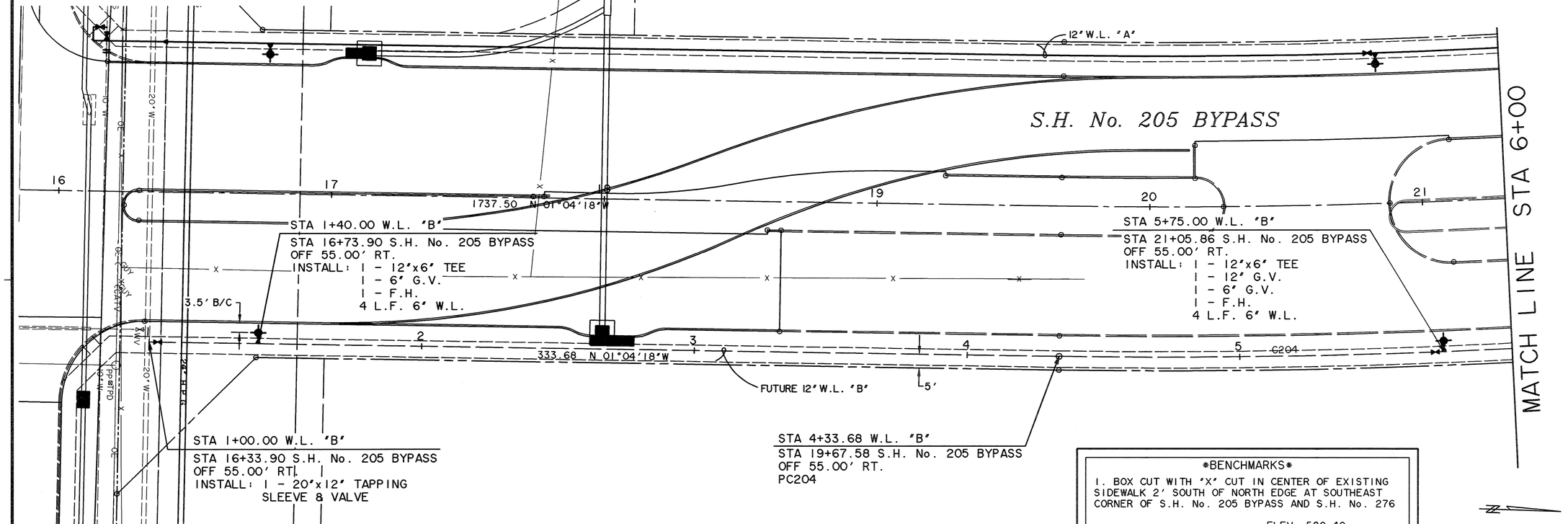
STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
11/02/07

LAST SHEET EDIT DATE 11-02-2007
WA# 04141

SHEET NO.
U107

TIME 14:42 FILE: 04141-WLPP7.dwg

CURVE TABLE						
NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	BEARING
204	2555.00	19°35'45"	873.84	441.23	869.59	S 10°52'11"E



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THE CAMBRIDGE COMPANIES, INC. TRUSTEE
VOL. 99, PG. 1022
D.R.R.C.T.

BENCHMARKS

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ELEV. 580.40

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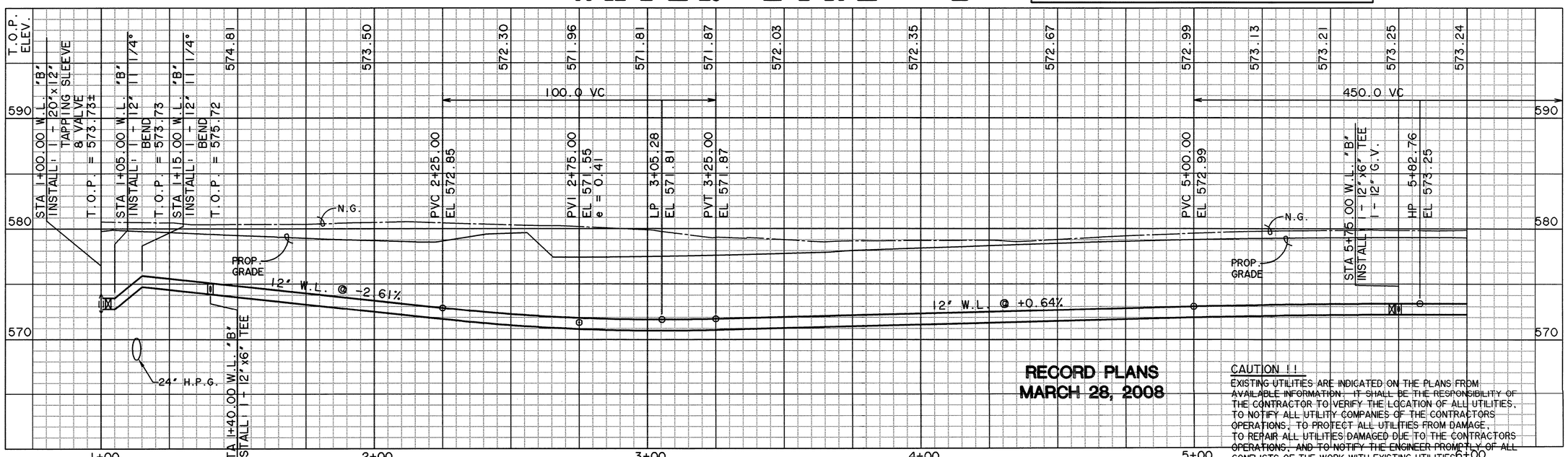
ELEV. 573.70

SCALE (feet)
0 20 40 60

WATER LINE "B"



RECORD PLANS
MARCH 28, 2008

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6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.WierAssociates.com

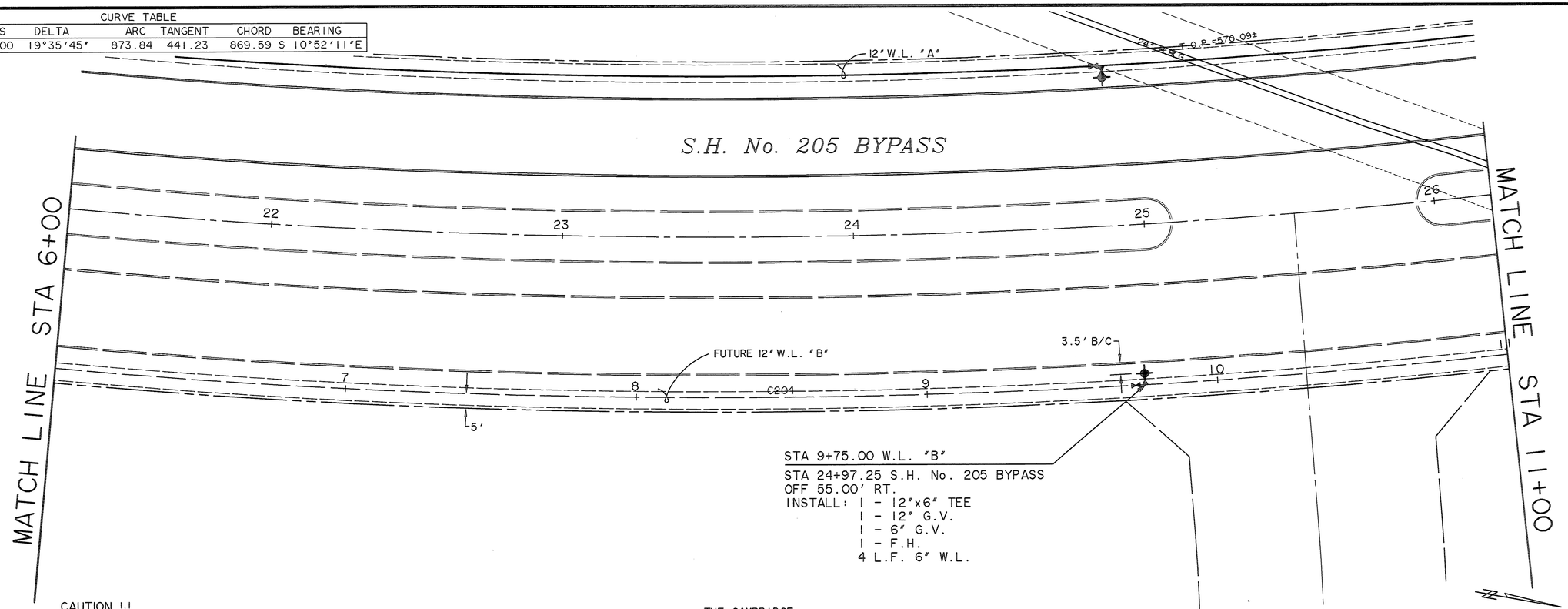
PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
FUTURE WATER LINE "B"
PLAN & PROFILE
STA 1+00 TO 6+00

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
3/28/08

LAST SHEET EDIT DATE 11-30-2006
WA# 04141
SHEET NO. U108

FILE: 04141-WLPP8.dwg
TIME: 13:46

CURVE TABLE						
NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	BEARING
204	2555.00	19°35'45"	873.84	441.23	869.59	S 10°52'11"E



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THE CAMBRIDGE COMPANIES, INC.
TRUSTEE
VOL. 99, PG. 1022
D.R.R.C.T.

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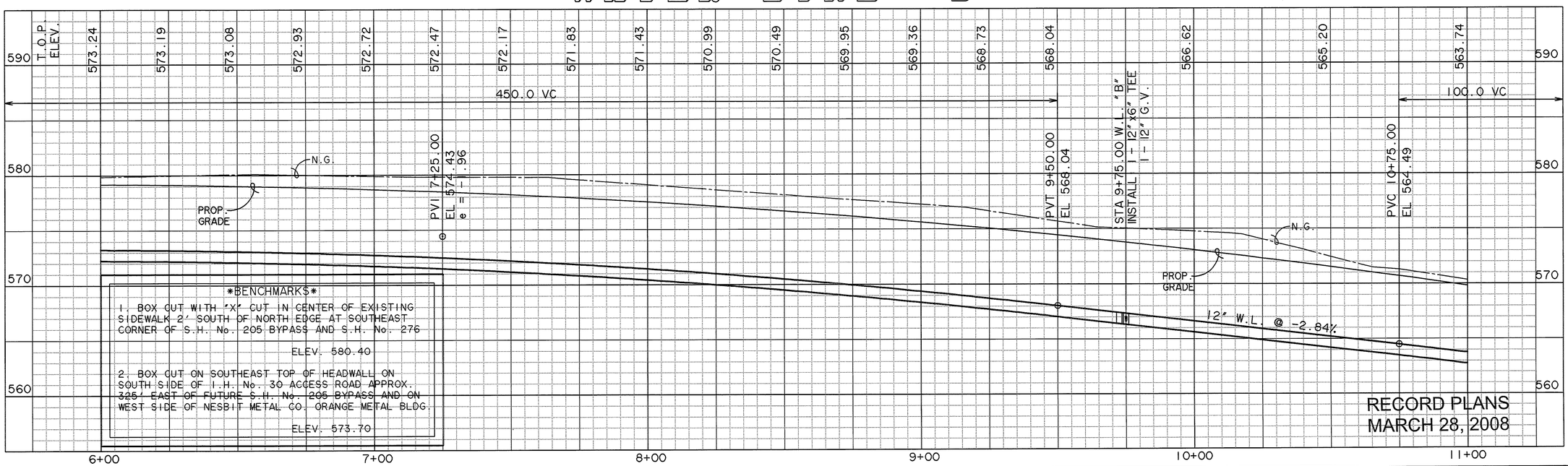
SCALE (feet)
0 20 40 60

WATER LINE "B"



BENCHMARKS

1. BOX CUT WITH 'X' CUT IN CENTER OF EXISTING SIDEWALK 2' SOUTH OF NORTH EDGE AT SOUTHEAST CORNER OF S.H. No. 205 BYPASS AND S.H. No. 276

ELEV. 580.40

2. BOX CUT ON SOUTHEAST TOP OF HEADWALL ON SOUTH SIDE OF I.H. No. 30 ACCESS ROAD APPROX. 325' EAST OF FUTURE S.H. No. 205 BYPASS AND ON WEST SIDE OF NESBIT METAL CO. ORANGE METAL BLDG.

ELEV. 573.70

RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
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1380 U.S. HIGHWAY 287 N. SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-8700
6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.WierAssociates.com

PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
FUTURE WATER LINE "B"
PLAN & PROFILE
STA 6+00 TO 11+00

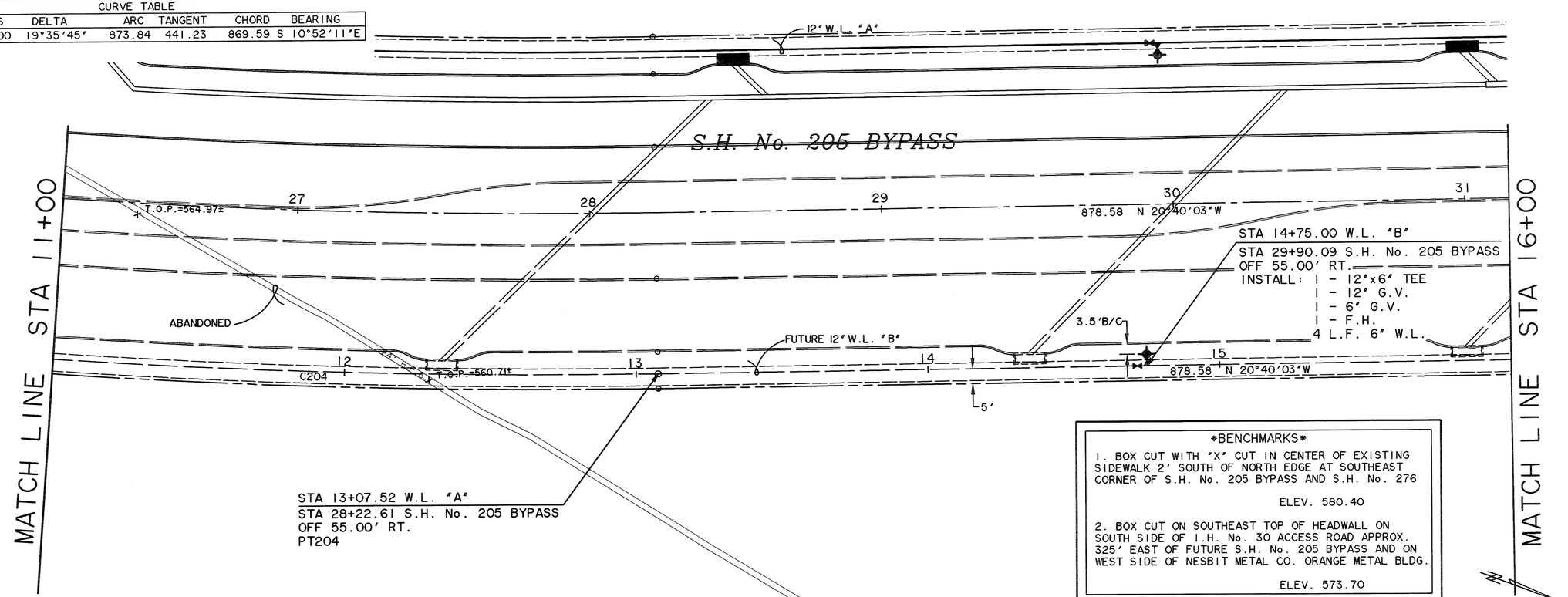
STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED
PROFESSIONAL ENGINEER
5-25-2006

LAST SHEET EDIT DATE 09-15-2006
WA# 04141

SHEET NO.
U109

TIME:9:43 FILE:04141-WLPP9.dwg

CURVE TABLE						
NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	BEARING
204	2555.00	19°35'45"	873.84	441.23	869.59	S 10°52'11"E



BENCHMARKS

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ELEV. 580.40

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ELEV. 573.70

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VOL. 99, PG. 1022
D.R.R.C.T.

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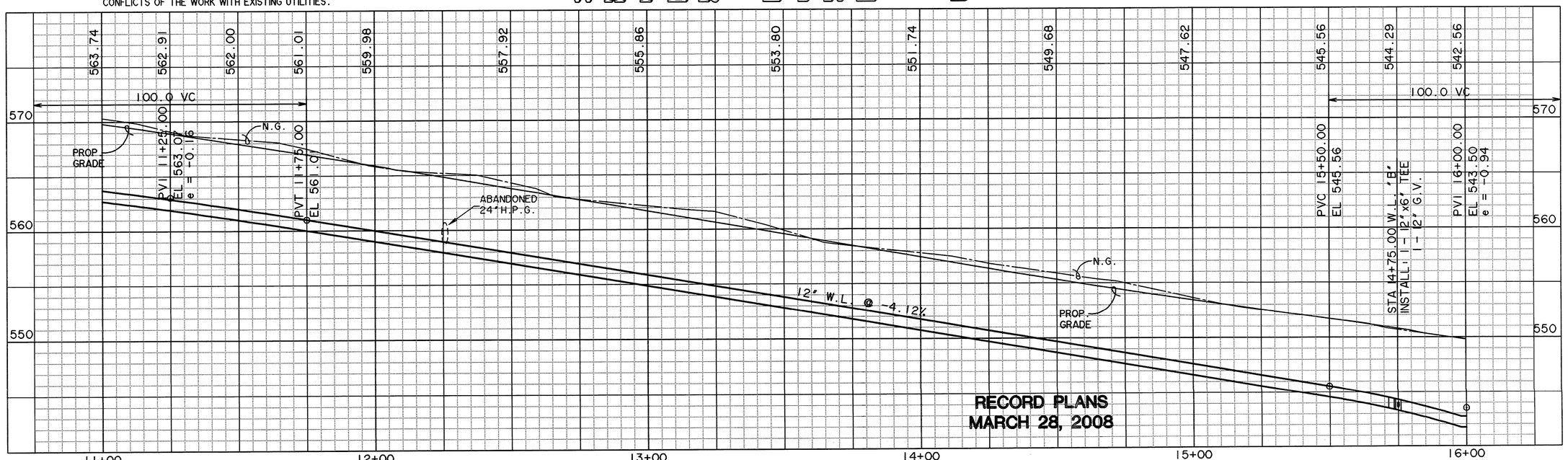
SCALE (feet)
0 20 40 60

WATER LINE "B"



RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
4300 BELTWAY PLACE SUITE 130 ARLINGTON, TEXAS 76018 METRO (817)467-7700
1380 U.S. HIGHWAY 287 N, SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-8700
6060 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.wierassociates.com

PHASE I S.H. 205 BYPASS FROM S.H. 276 TO INTERSTATE 30 FUTURE WATER LINE "B" PLAN & PROFILE

STA 11+00 TO 16+00

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
3/28/08

LAST SHEET EDIT DATE 09-15-2006
WA# 04141

SHEET NO. U110

TIME:9:59 FILE:04141-WLPP10.dwg

BENCHMARKS

1. BOX CUT WITH "X" CUT IN CENTER OF EXISTING SIDEWALK 2' SOUTH OF NORTH EDGE AT SOUTHEAST CORNER OF S.H. No. 205 BYPASS AND S.H. No. 276

ELEV. 580.40

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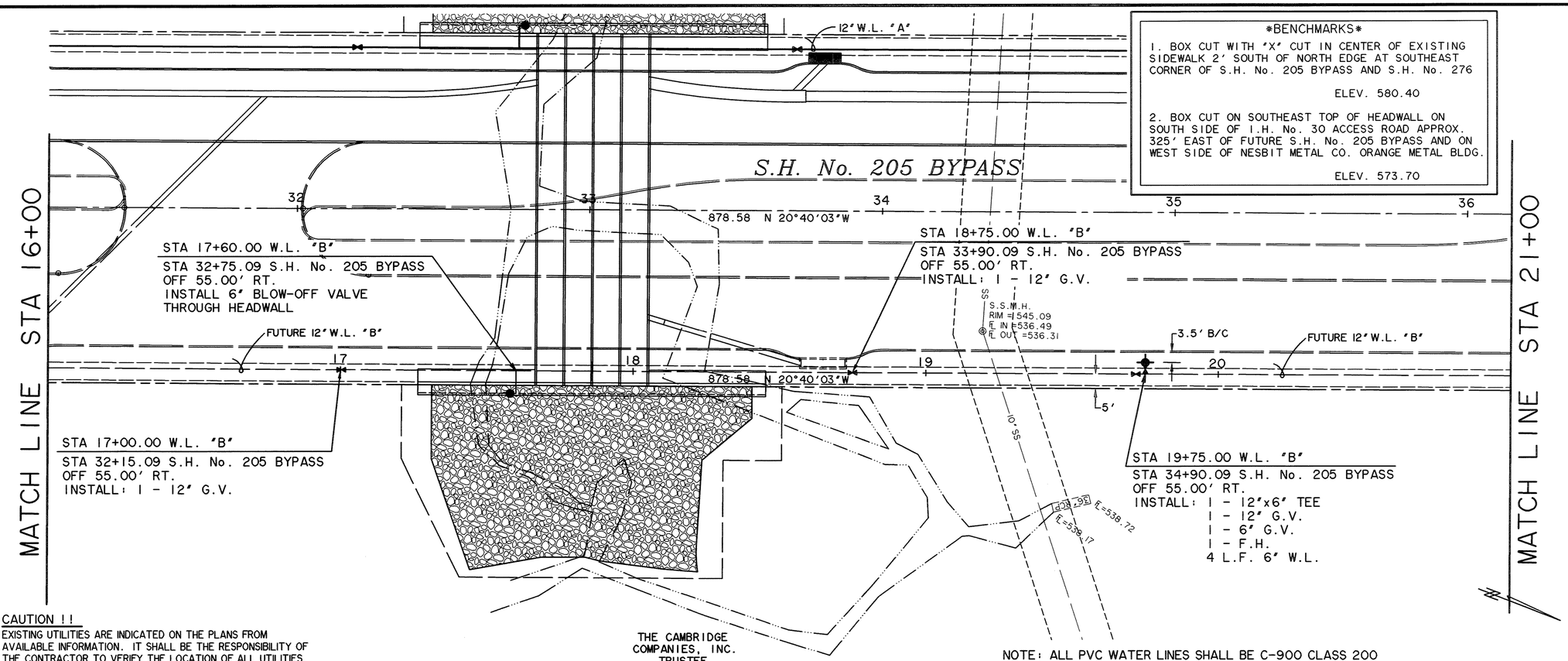
ELEV. 573.70



THE CAMBRIDGE COMPANIES, INC. TRUSTEE
VOL. 99, PG. 1022
D.R.R.C.T.

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SCALE (feet)
0 20 40 60

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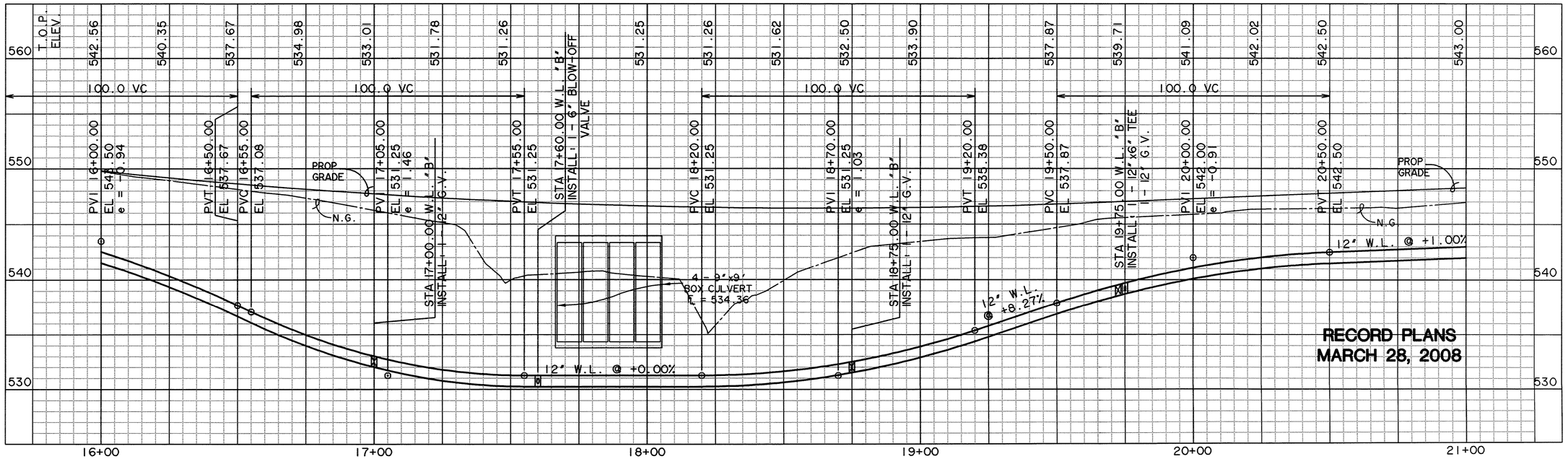
WATER LINE "B"



RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
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1380 U.S. HIGHWAY 287 N, SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-8700
6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.WierAssociates.com

PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
FUTURE WATER LINE "B"
PLAN & PROFILE
STA 16+00 TO 21+00

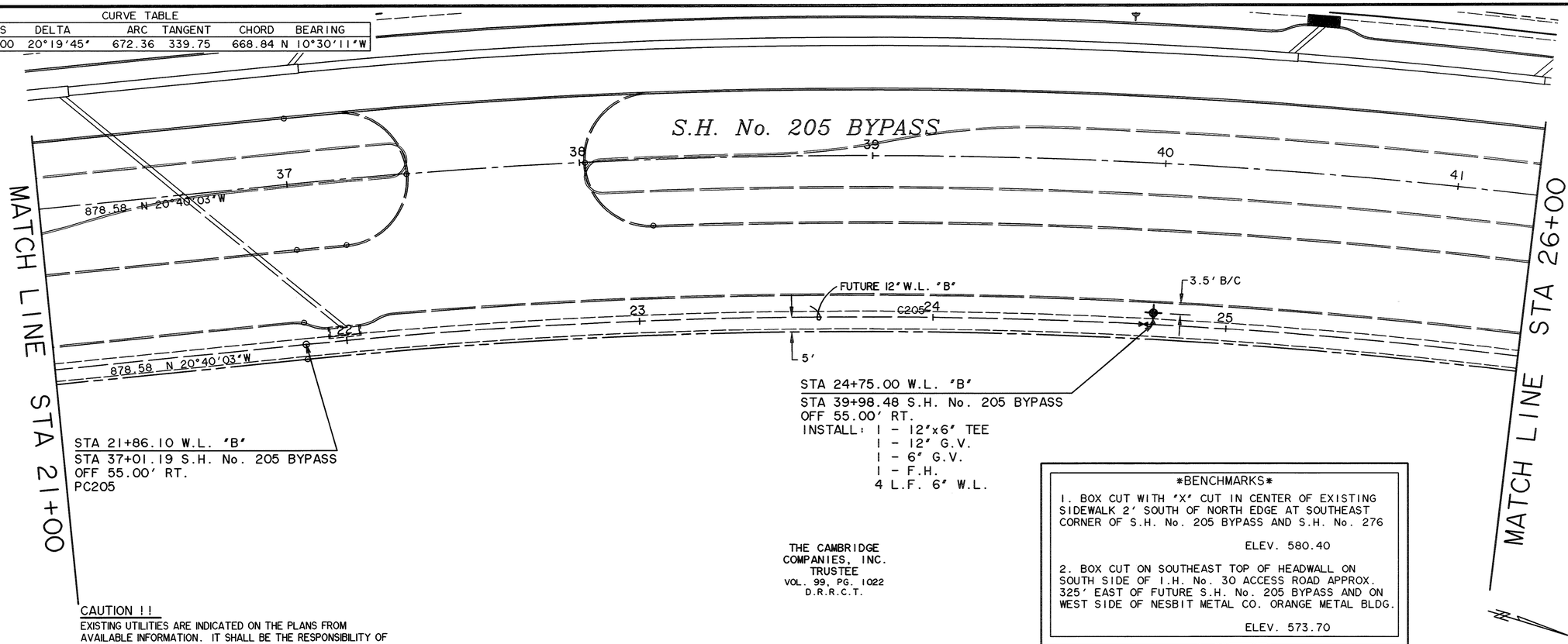
STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
3/28/08

LAST SHEET EDIT DATE 09-15-2006
WA# 04141

SHEET NO.
U111

FILE: 0414-WLPPII.dwg
TIME: 9:52

CURVE TABLE						
NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	BEARING
205	1895.00	20°19'45"	672.36	339.75	668.84	N 10°30'11"W



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BENCHMARKS

1. BOX CUT WITH "X" CUT IN CENTER OF EXISTING SIDEWALK 2' SOUTH OF NORTH EDGE AT SOUTHEAST CORNER OF S.H. No. 205 BYPASS AND S.H. No. 276

ELEV. 580.40

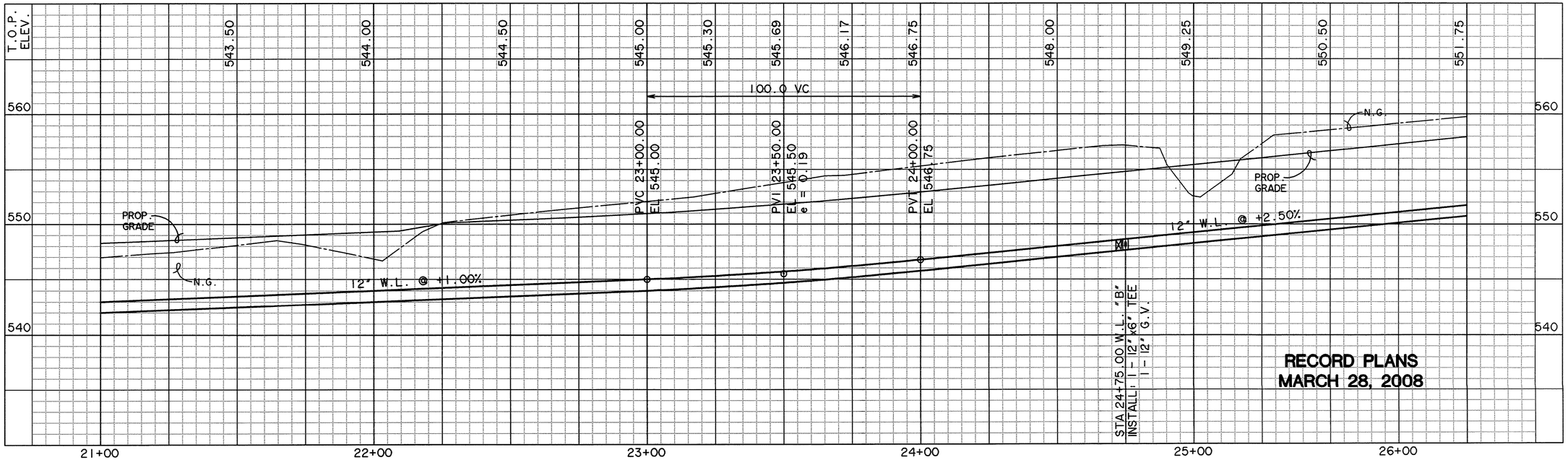
2. BOX CUT ON SOUTHEAST TOP OF HEADWALL ON SOUTH SIDE OF I.H. No. 30 ACCESS ROAD APPROX. 325' EAST OF FUTURE S.H. No. 205 BYPASS AND ON WEST SIDE OF NESBIT METAL CO. ORANGE METAL BLDG.

ELEV. 573.70

NOTE: ALL PVC WATER LINES SHALL BE C-900 CLASS 200 PIPE. ALL CHANGES IN WATER LINE DIRECTION (BENDS) SHALL BE RESTRAINED (MEGA-LUG OR EQUAL) AND CONCRETE BLOCKED. THE NEXT JOINT EITHER SIDE OF THE CHANGE OF DIRECTION SHALL ALSO BE RESTRAINED.

SCALE (feet)
0 20 40 60

WATER LINE "B"



RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
4300 BELTWAY PLACE SUITE 130 ARLINGTON, TEXAS 76018 METRO (817)467-7700
1380 U.S. HIGHWAY 287 N, SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-8700
6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.WierAssociates.com

PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
FUTURE WATER LINE "B"
PLAN & PROFILE
STA 21+00 TO 26+00

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
3/28/08

LAST SHEET EDIT DATE 09-15-2006
WA# 04141

SHEET NO.
U112

FILE: 04141-WLPP12.dwg
TIME: 9:53

CURVE TABLE						
NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	BEARING
205	1895.00	20°19'45"	672.36	339.75	668.84	N 10°30'11"W
206	455.00	11°15'17"	89.38	44.83	89.23	N 05°17'20"E

S.H. No. 205 BYPASS

MATCH LINE STA 26+00

MATCH LINE STA 31+00

42 43 44 45 46 27 C205 28 29 30 C206

1041.00 N 00°20'18"W

226.80 N 00°20'18"W

FUTURE 12" W.L. "B"

3.5' B/C

STA 28+58.46 W.L. "B"
STA 43+93.07 S.H. No. 205 BYPASS
OFF 55.00' RT.
PT205

STA 30+85.27 W.L. "B"
STA 46+19.88 S.H. No. 205 BYPASS
OFF 55.00' RT.
PC206

STA 29+25.00 W.L. "B"
STA 44+59.61 S.H. No. 205 BYPASS
OFF 55.00' RT.
INSTALL: 1 - 12"x6" TEE
1 - 12" G.V.
1 - 6" G.V.
1 - F.H.
4 L.F. 6" W.L.

THE CAMBRIDGE COMPANIES, INC. TRUSTEE
VOL. 101, PG. 795
D.R.R.C.T.

THE CAMBRIDGE COMPANIES, INC. TRUSTEE
VOL. 99, PG. 1022
D.R.R.C.T.

POND

CAUTION !!

EXISTING UTILITIES ARE INDICATED ON THE PLANS FROM AVAILABLE INFORMATION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION OF ALL UTILITIES, TO NOTIFY ALL UTILITY COMPANIES OF THE CONTRACTORS OPERATIONS, TO PROTECT ALL UTILITIES FROM DAMAGE, TO REPAIR ALL UTILITIES DAMAGED DUE TO THE CONTRACTORS OPERATIONS, AND TO NOTIFY THE ENGINEER PROMPTLY OF ALL CONFLICTS OF THE WORK WITH EXISTING UTILITIES.

NOTE: ALL PVC WATER LINES SHALL BE C-900 CLASS 200 PIPE. ALL CHANGES IN WATER LINE DIRECTION (BENDS) SHALL BE RESTRAINED (MEGA-LUG OR EQUAL) AND CONCRETE BLOCKED. THE NEXT JOINT EITHER SIDE OF THE CHANGE OF DIRECTION SHALL ALSO BE RESTRAINED.

BENCHMARKS

1. BOX CUT WITH "X" CUT IN CENTER OF EXISTING SIDEWALK 2' SOUTH OF NORTH EDGE AT SOUTHEAST CORNER OF S.H. No. 205 BYPASS AND S.H. No. 276

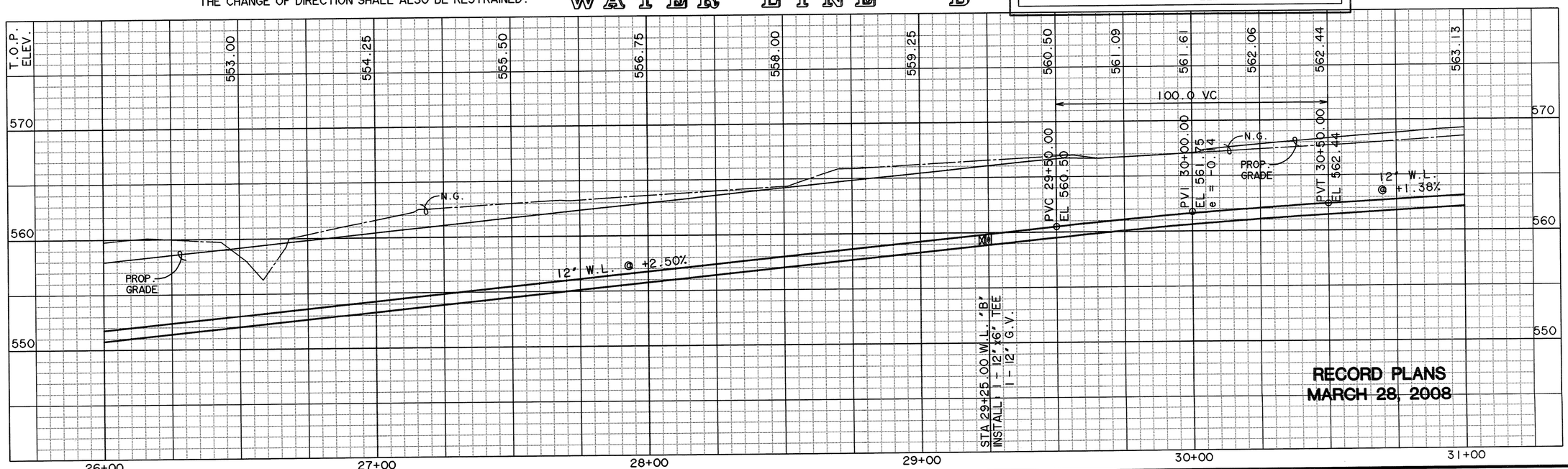
ELEV. 580.40

2. BOX CUT ON SOUTHEAST TOP OF HEADWALL ON SOUTH SIDE OF I.H. No. 30 ACCESS ROAD APPROX. 325' EAST OF FUTURE S.H. No. 205 BYPASS AND ON WEST SIDE OF NESBIT METAL CO. ORANGE METAL BLDG.

ELEV. 573.70

SCALE (feet)
0 20 40 60

WATER LINE "B"



RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
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6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.WierAssociates.com

PHASE I S.H. 205 BYPASS FROM S.H. 276 TO INTERSTATE 30 FUTURE WATER LINE "B" PLAN & PROFILE

STA 26+00 TO 31+00

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
3/28/08

LAST SHEET EDIT DATE 09-15-2006
WA# 04141

SHEET NO.
U113

TIME:9:53 FILE:04141-WLPP13.dwg

CURVE TABLE						
NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	BEARING
206	455.00	11°15'17"	89.38	44.83	89.23	N 05°17'20"E
207	455.00	11°15'17"	89.38	44.83	89.23	S 05°17'20"W

S.H. No. 205 BYPASS

MATCH LINE STA 31+00

47 48 49

1041.00 N 00°20'18"W

STA 32+64.02 W.L. "B"
STA 47+97.48 S.H. No. 205 BYPASS
OFF 72.50' RT.
PT207

C206 C207

32 33 34

FUTURE 12" W.L. "B"

3.5' B/C

145.15 N 00°20'18"W

STA 31+74.65 W.L. "B"
STA 47+08.68 S.H. No. 205 BYPASS
OFF 63.75' RT.
PRC

STA 33+60.00 W.L. "B"
STA 48+93.46 S.H. No. 205 BYPASS
OFF 72.50' RT.
INSTALL: 1 - 12"x6" TEE
1 - 12" G.V.
1 - 6" G.V.
1 - F.H.
6 L.F. 6" W.L.

INSTALL 16" G.V.
ON EXIST. 16" W.L.
WEST OF TIE IN

STA 34+19.17 W.L. "B"
STA 49+52.20 S.H. No. 205 BYPASS
OFF 69.60' RT.
INSTALL: 1 - 16"x12" TAPPING SLEEVE & VALVE

STA 34+09.17 W.L. "B"
STA 49+42.63 S.H. No. 205 BYPASS
OFF 72.50' RT.
INSTALL: 1 - 12" 22 1/2° BEND

13299.95 N 72°46'07"E

I.H. No. 30

ASPHALT PV MT.

SCALE (feet)
0 20 40 60

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THE CAMBRIDGE COMPANIES, INC.
TRUSTEE
VOL. 101, PG. 795
D.R.R.C.T.

WATER LINE "B"

T.O.P. ELEV.

563.82 564.51 565.20 565.95 566.48 567.12 567.89 568.72

100.0 VC

PVC 32+75.00 EL 565.54

PVI 33+25.00 EL 566.24 e = 0.24

PVT 33+75.00 EL 567.89

PROP. GRADE

N.G.

12" W.L. @ +1.38%

12" W.L. @ +3.31%

STA 34+19.17 W.L. "B" INSTALL: 1 - 16"x12" TAPPING SLEEVE & VALVE
T.O.P. = 569.35±

STA 33+60.00 W.L. "B" INSTALL: 1 - 12"x6" TEE

580 570 560

31+00 32+00 33+00 34+00 35+00 36+00

BENCHMARKS

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ELEV. 580.40

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ELEV. 573.70

RECORD PLANS
MARCH 28, 2008

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PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
FUTURE WATER LINE "B"
PLAN & PROFILE
STA 31+00 TO END

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
5-25-2006

LAST SHEET EDIT DATE 09-15-2006
WA# 04141

SHEET NO. U114

TIME: 9:55 FILE: 04141-WLPP14.dwg

1. THE CONTRACTOR AND SUB-CONTRACTORS WORKING ON THIS SITE SHALL THOROUGHLY REVIEW AND UNDERSTAND THE APPLICABLE REGULATIONS UNDER SECTION 402 OF THE CLEAN WATER ACT AND CHAPTER 26 OF THE TEXAS WATER CODE REGARDING GENERAL PERMIT PROVISIONS TO DISCHARGE WASTE UNDER TPDES CONSTRUCTION GENERAL PERMIT NO. TXR150000 ISSUED AND EFFECTIVE MARCH 5, 2003 BY THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY. REGULATIONS, PERMIT FORMS AND SUPPORT INFORMATION CAN BE OBTAINED BY CONTACTING THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ)STORM WATER PROGRAM AT (512)239-4671 OR 'STORM WATER' ON THE TCEQ WEB SITE AT www.tceq.state.tx.us.

2. SITE OPERATORS:

BY DEFINITION AN OPERATOR IS THE PERSON OR PERSONS ASSOCIATED WITH A LARGE OR SMALL CONSTRUCTION ACTIVITY THAT MEETS EITHER OF THE FOLLOWING CRITERIA:

A. THE PERSON OR PERSONS HAVE OPERATIONAL CONTROL OVER CONSTRUCTION PLANS AND SPECIFICATIONS TO THE EXTENT NECESSARY TO MEET THE REQUIREMENTS AND CONDITIONS OF THE TPDES GENERAL PERMIT, OR
B. THE PERSON OR PERSONS HAVE DAY-TO-DAY OPERATIONAL CONTROL OF THOSE ACTIVITIES AT A CONSTRUCTION SITE WHICH ARE NECESSARY TO ENSURE COMPLIANCE WITH A STORM WATER POLLUTION PREVENTION PLAN FOR THE SITE OR OTHER PERMIT CONDITIONS (E.G. THEY ARE AUTHORIZED TO DIRECT WORKERS AT A SITE TO CARRY OUT ACTIVITIES REQUIRED BY THE SWP3 OR COMPLY WITH OTHER PERMIT CONDITIONS).

(SIGNATURE)	(SIGNATURE)
OWNER	CONTRACTOR
OPERATOR IN CONTROL OF	OPERATOR IN CONTROL OF
PLANS & SITE SPECIFICATIONS	DAY-TO-DAY ACTIVITIES
CHUCK TODD, P.E. CITY ENGINEER	NAME & TITLE
CITY OF ROCKWALL	COMPANY NAME
385 SOUTH GOLIAD	ADDRESS
ROCKWALL, TEXAS 75087	
972-771-7746	PHONE

THE SWP3 SHALL BE SIGNED BY ALL SITE OPERATORS IN COMPLIANCE WITH TXR150000 PART III.A.1.

3. RESPONSIBILITIES OF ALL SITE OPERATORS:

EACH OPERATOR MUST:

A. SIGN THE SWP3 PLAN SHEETS IN THE LOCATIONS PROVIDED. SIGNATORIES MUST MEET THE REQUIREMENTS AS SET FORTH IN 30 TEXAS ADMINISTRATIVE CODE 305.44.
B. FOR SMALL CONSTRUCTION SITES WITH ONE TO LESS THAN FIVE ACRES OF DISTURBANCE, COMPLETE AND CERTIFY A CONSTRUCTION SITE NOTICE FOR SMALL CONSTRUCTION SITES. A COPY OF THE CONSTRUCTION SITE NOTICE MAY BE FOUND IN THE CONTRACT DOCUMENTS. A COPY OF THE SIGNED AND CERTIFIED CONSTRUCTION SITE NOTICE MUST BE POSTED IN A LOCATION WHERE IT IS READILY AVAILABLE FOR VIEWING BY THE GENERAL PUBLIC, LOCAL, STATE, AND FEDERAL AUTHORITIES PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES, AND MAINTAINED IN THAT LOCATION UNTIL COMPLETION OF THE CONSTRUCTION ACTIVITY. A COPY OF THE SIGNED AND CERTIFIED CONSTRUCTION SITE NOTICE MUST ALSO BE PROVIDED TO THE OPERATOR OF ANY MS4 RECEIVING THE DISCHARGE AT LEAST TWO DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
C. FOR LARGE CONSTRUCTION SITES WITH FIVE OR MORE ACRES OF DISTURBANCE, COMPLETE A CONSTRUCTION SITE NOTICE FOR LARGE CONSTRUCTION SITES. A COPY OF THE CONSTRUCTION SITE NOTICE MAY BE FOUND IN THE CONTRACT DOCUMENTS. EACH OPERATOR MUST SUBMIT A NOTICE OF INTENT (N.O.I.) TO THE TCEQ USING THE FORM PROVIDED BY THE EXECUTIVE DIRECTOR, AT LEAST TWO DAYS PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES. A COPY OF THE SIGNED N.O.I. MUST BE POSTED ALONG WITH THE CONSTRUCTION SITE NOTICE IN A LOCATION WHERE IT IS READILY AVAILABLE FOR VIEWING PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES, AND MAINTAIN THE NOTICE IN THAT LOCATION UNTIL COMPLETION OF THE CONSTRUCTION ACTIVITY. A COPY OF THE CONSTRUCTION SITE NOTICE AND SIGNED N.O.I. MUST ALSO BE PROVIDED TO THE OPERATOR OF ANY MS4 RECEIVING THE DISCHARGE AT LEAST TWO DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES. IF THE OPERATOR CHANGES, OR AN ADDITIONAL OPERATOR IS ADDED AFTER THE INITIAL N.O.I. IS SUBMITTED, THE NEW OPERATOR MUST SUBMIT AN NOI AT LEAST TWO DAYS PRIOR TO ASSUMING OPERATIONAL CONTROL.
D. DELEGATE AUTHORITY TO THE SPECIFICALLY DESCRIBED POSITION OR PERSON PERFORMING INSPECTIONS, AS PROVIDED BY 30 TAC 305.128, AS AN AUTHORIZED PERSON FOR SIGNING REPORTS AND PERFORMING CERTAIN ACTIVITIES REQUESTED BY THE DIRECTOR OR REQUIRED BY THE TPDES GENERAL PERMIT. THIS DELEGATION OF AUTHORITY MUST BE PROVIDED TO THE DIRECTOR OF TCEQ IN WRITING AND A COPY SHALL BE KEPT ALONG WITH THE SIGNED EFFECTIVE COPY OF THE SWP3. AN EXAMPLE DELEGATION LETTER IS PROVIDED IN THE CONTRACT DOCUMENTS.
E. RETAIN THE FOLLOWING RECORDS FOR A MINIMUM OF THREE YEARS FROM THE DATE THAT AN N.O.T. IS SUBMITTED. ON SMALL PROJECT SITES WHERE AN N.O.T. IS NOT REQUIRED, RECORDS SHALL BE KEPT FOR A PERIOD OF LEAST THREE YEARS FROM THE DATE OF FINAL STABILIZATION OR CHANGE OF OPERATOR.
   1. A COPY OF THE SWP3 PLAN.
   2. ALL REPORTS AND ACTIONS REQUIRED BY THE TPDES GENERAL PERMIT, INCLUDING A COPY OF THE CONSTRUCTION SITE NOTICE.
   3. ALL DATA USED TO COMPLETE THE N.O.I., IF AN N.O.I. IS REQUIRED.

4. RESPONSIBILITIES OF THE OWNER (OPERATOR IN CONTROL OF PLANS & SITE SPECIFICATIONS):

A. ENSURE THE PROJECT SPECIFICATIONS ALLOW OR PROVIDE THAT ADEQUATE BMPs MAY BE DEVELOPED TO MEET THE REQUIREMENTS OF PART III OF THE TPDES GENERAL PERMIT.
B. ENSURE THAT THE SWP3 INDICATES THE AREAS OF THE PROJECT WHERE THEY HAVE OPERATIONAL CONTROL.
C. ENSURE ALL OTHER OPERATORS AFFECTED BY MODIFICATIONS IN PROJECT SPECIFICATIONS ARE NOTIFIED IN A TIMELY MANNER SUCH THAT THOSE OPERATORS MAY MODIFY BMPs AS ARE NECESSARY TO REMAIN COMPLIANT WITH THE CONDITIONS OF THE TPDES GENERAL PERMIT.
D. ENSURE THAT THE SWP3 FOR PORTIONS OF THE PROJECT WHERE THEY ARE OPERATORS INDICATES THE NAME AND TPDES PERMIT NUMBERS FOR PERMITTEES WITH THE DAY-TO-DAY OPERATIONAL CONTROL OVER THOSE ACTIVITIES NECESSARY TO ENSURE COMPLIANCE WITH THE SWP3 AND OTHER PERMIT CONDITIONS. IN THE CASE THAT RESPONSIBLE PARTIES HAVE NOT BEEN IDENTIFIED, THE PERMITTEE WITH OPERATIONAL CONTROL OVER PROJECT SPECIFICATIONS MUST BE CONSIDERED TO BE THE RESPONSIBLE PARTY UNTIL SUCH TIME AS THE AUTHORITY IS TRANSFERRED TO ANOTHER PARTY AND THE PLAN IS UPDATED.

5. RESPONSIBILITIES OF THE CONTRACTOR (OPERATOR IN CONTROL OF DAY-TO-DAY ACTIVITIES):

A. PREPARE A STANDARD THREE RING NOTEBOOK ENTITLED 'SWP3 PLAN FOR PAVING, DRAINAGE AND WATER IMPROVEMENTS TO SERVE S.H. 205 BYPASS, ROCKWALL, TEXAS' TO KEEP TOGETHER THE EFFECTIVE SIGNED COPY OF THE SWP3 AND ALL RELATED DOCUMENTS. THE NOTEBOOK SHALL CONTAIN THE FOLLOWING:
   1. PLAN SHEETS INCLUDING, BUT NOT LIMITED TO, SIGNED COPY OF SWP3 NOTES (E001 THROUGH E004), SIGNED COPY SWP3 LAYOUT PLAN (E101), SWP3 DETAILS(E201 AND E202), AND EROSION CONTROL PLANS (E102 AND E103).
   2. COPY OF TPDES GENERAL PERMIT TXR150000.
   3. COPY OF A SIGNED N.O.I. FOR EACH OPERATOR, IF AN N.O.I. IS REQUIRED.
   4. COPY OF A SIGNED CONSTRUCTION SITE NOTICE FOR EACH OPERATOR.
   5. INSPECTION REPORTS.
   6. COPY OF A SIGNED DELEGATION LETTER FROM EACH OPERATOR.
   7. ALL UPDATES REQUIRED IN ITEM F. BELOW.
   8. ALL WORKSHEETS COMPLETED AND UPDATED AS REQUIRED IN ITEMS K THROUGH O BELOW.
B. AFTER AN N.O.T. IS SUBMITTED, OR ON SMALL PROJECT SITES WHERE AN N.O.T. IS NOT REQUIRED, AFTER FINAL STABILIZATION OR CHANGE OF OPERATOR, THE CONTRACTOR SHALL FORWARD ALL ORIGINALS TO THE OWNER, BUT SHALL MAINTAIN A COPY FOR THEIR RECORDS AS STIPULATED IN 3.D. ABOVE.
C. IMPLEMENT THE SWP3 MEASURES PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES THAT RESULT IN SOIL DISTURBANCE AT ANY TIME DURING THE PROJECT DURATION UNTIL RE-VEGETATION HAS OCCURRED.
D. RETAIN THE SWP3 NOTEBOOK ON-SITE AT THE CONSTRUCTION SITE OR, IF THE SITE IS INACTIVE OR DOES NOT HAVE AN ON-SITE LOCATION TO STORE THE PLAN, A NOTICE MUST BE POSTED DESCRIBING THE LOCATION OF THE SWP3.
E. MAKE THE SWP3 NOTEBOOK READILY AVAILABLE AT THE TIME OF AN ON-SITE INSPECTION TO: THE EXECUTIVE DIRECTOR, A FEDERAL, STATE, OR LOCAL AGENCY APPROVING SEDIMENT AND EROSION PLANS, GRADING PLANS, OR STORM WATER MANAGEMENT PLANS, LOCAL GOVERNMENT OFFICIALS, AND THE OPERATOR OF A MS4 RECEIVING DISCHARGES FROM THE SITE.
F. KEEP CURRENT AND UPDATE THE SWP3 AS NECESSARY FOR THE FOLLOWING CONDITIONS:
   1. NEW OPERATORS OR AREAS OF RESPONSIBILITY.
   2. CHANGES IN BEST MANAGEMENT PRACTICES.
   3. CHANGES IN THE DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE THAT HAS A SIGNIFICANT EFFECT ON THE DISCHARGE OF POLLUTANTS AND THAT HAS NOT BEEN PREVIOUSLY ADDRESSED BY THE SWP3.
   4. RESULTS OF INSPECTIONS OR INVESTIGATIONS BY SITE OPERATORS, OPERATORS OF A MS4 RECEIVING THE DISCHARGE, AUTHORIZED TCEQ PERSONNEL, OR A FEDERAL, STATE, OR LOCAL AGENCY APPROVING SEDIMENT AND EROSION PLANS INDICATE THE SWP3 IS PROVING INEFFECTIVE IN ELIMINATING OR SIGNIFICANTLY MINIMIZING POLLUTANTS IN DISCHARGES AUTHORIZED UNER THE TPDES GENERAL PERMIT.
   5. CHANGES APPLICABLE TO PROTECTING SURFACE WATER RESOURCES IN SEDIMENT EROSION SITE PLANS OR SITE PERMITS, OR STORM WATER MANAGEMENT SITE PLANS OR SITE PERMITS APPROVED BY STATE OR LOCAL OFFICIAL FOR WHICH THE PERMITTEE RECEIVES WRITTEN NOTICE.
G. ENSURE THAT THE SWP3 FOR PORTIONS OF THE PROJECT WHERE THEY ARE OPERATORS MEETS THE REQUIREMENTS OF THE TPDES GENERAL PERMIT AND ARE CONSISTENT WITH REQUIREMENTS SPECIFIED IN APPLICABLE SEDIMENT AND EROSION SITE PLANS OR SITE PERMITS, OR STORM WATER MANAGEMENT SITE PLANS OR SITE PERMITS APPROVED BY FEDERAL, STATE, OR LOCAL OFFICIALS.
H. ENSURE THAT THE SWP3 IDENTIFIES THE PARTIES RESPONSIBLE FOR IMPLEMENTATION OF BMPs DESCRIBED IN THE PLAN.
I. ENSURE THAT THE SWP3 INDICATES THE AREAS OF THE PROJECT WHERE THEY HAVE OPERATIONAL CONTROL.
J. ENSURE THAT THE SWP3 FOR PORTIONS OF THE PROJECT WHERE THEY ARE OPERATORS INDICATES THE NAME AND TPDES PERMIT NUMBERS FOR PERMITTEES WITH THE DAY-TO-DAY OPERATIONAL CONTROL OVER THOSE ACTIVITIES NECESSARY TO ENSURE COMPLIANCE WITH THE SWP3 AND OTHER PERMIT CONDITIONS.
K. MAINTAIN ALONG WITH THE EFFECTIVE COPY OF SWP3 DRAWINGS AN UPDATEABLE LIST OF ALL CONSTRUCTION AND WASTE MATERIALS TO BE STORED ON-SITE, AND A DESCRIPTION OF THE LOCATION. A WORKSHEET IS PROVIDED IN THE PLANS.
L. MAINTAIN ALONG WITH THE SIGNED EFFECTIVE COPY OF SWP3 DRAWINGS AN UPDATEABLE LIST IDENTIFYING ALL POTENTIAL SOURCES OF POLLUTION INCLUDING PORTA-POTTYS, FUEL TANKS, STAGING AREAS, WASTE CONTAINERS, CHEMICAL STORAGE AREAS, CONCRETE CURE, PAINTS SOLVENTS, ETC., AND A DESCRIPTION OF THE LOCATION. A WORKSHEET IS PROVIDED IN THE PLANS.
M. MAINTAIN ALONG WITH THE SIGNED EFFECTIVE COPY OF SWP3 DRAWINGS AN UPDATEABLE LIST IDENTIFYING GOOD HOUSEKEEPING PRACTICES IMPLEMENTED TO LIMIT THE OFF-SITE TRANSPORT OF LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION MATERIALS, AND A DESCRIPTION OF THE LOCATION. A WORKSHEET IS PROVIDED IN THE PLANS.
N. MAINTAIN ALONG WITH THE SIGNED EFFECTIVE COPY OF SWP3 DRAWINGS AN UPDATEABLE LIST IDENTIFYING ALL ELIGIBLE NON-STORM WATER DISCHARGES AND ENSURE THE IMPLEMENTATION OF APPROPRIATE POLLUTION PREVENTION MEASURES. A WORKSHEET IS PROVIDED IN THE PLANS.
O. MAINTAIN ALONG WITH THE SIGNED EFFECTIVE COPY OF THE SWP3 A RECORD OF THE DATES OF MAJOR GRADING ACTIVITIES, THE DATES CONSTRUCTION IS TEMPORARILY OR PERMANENTLY CEASED, AND THE DATES STABILIZATION MEASURES ARE INITIATED. A WORKSHEET IS PROVIDED IN THE PLANS.

6. BATCH PLANT PERMITS:

THIS SWP3 DOES NOT ADDRESS PERMITTING OF ON-SITE OR OFF-SITE BATCH PLANTS. THE SWP3 MAY INDICATE LOCATIONS WHERE BATCH PLANTS CAN BE SET UP ON THE SITE APPROVED BY THE OWNER, BUT THE CONTRACTOR SHALL OBTAIN HIS OWN SEPARATE PERMITS THROUGH THE TCEQ. CONSTRUCTION SITE OPERATORS SHOULD ALSO BE AWARE OF TEXAS 401 CERTIFICATION SPECIAL PERMIT CONDITIONS CONTAINED IN THE EPA REGION 6 CGP. THESE SPECIAL PERMIT CONDITIONS ADDRESS SPECIAL NUMERIC LIMITATIONS FOR DISCHARGES FROM READY-MIXED CONCRETE PLANTS (ALSO FOUND IN VOLUME 63 OF THE FEDERAL REGISTER ON PAGE 36511). THE CONTRACTOR SHALL FORWARD A COPY OF THE PERMIT, SWP3 PLANS, AND ANY REVISIONS OF SAME TO THE OWNER'S ENGINEER OR PROJECT MANAGER WITHIN 48 HOURS OF RECEIPT OF PERMITS OR REVISIONS TO SWP3 PLANS. PERMITTING FOR BATCH PLANT SITES SHALL BE INCIDENTAL WORK AT NO EXTRA COST TO THE OWNER. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ACT AS OPERATOR AND ASSURE FULL COMPLIANCE WITH THE BATCH PLANT SITE.

7. RELATED OFF-SITE ACTIVITIES:

IF THE CONTRACTOR ELECTS TO CREATE NEW OFF-SITE MATERIAL STORAGE AREAS, STOCKPILES OF DIRT/TOPSOIL, BORROW AREAS, VEHICLE REPAIR AREAS, FUELING AREAS, ETC. CREATED SOLELY FOR OR BY THE PERMITTED PROJECT, THESE SITES SHALL COMPLY WITH TCEQ REGULATIONS FOR STORM WATER POLLUTION PREVENTION. THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER SHALL PROVIDE DOCUMENTATION TO THE OWNER OR THE OWNER'S PROJECT REPRESENTATIVE THAT THE OFFSITE ACTIVITIES ARE PERMITTED IF REQUIRED BY TCEQ REGULATIONS. VERIFICATION OF PROPER OFF-SITE PERMITTING BY THE CONTRACTOR MUST BE PROVIDED AT LEAST 48 HOURS IN ADVANCE OF THE CONTRACTOR INCORPORATING THE SITE INTO SERVICE FOR THE SUBJECT PROJECT.

8. SIGN & NOTICE POSTINGS:

ALL SITE OPERATORS SHALL CERTIFY AND POST A CONSTRUCTION SITE NOTICE IN COMPLIANCE WITH PART II.D.2 AND PART II.D.3 OF THE TPDES GENERAL PERMIT NUMBER TXR150000.

ON SMALL PROJECT SITES WITH ONE TO LESS THAN FIVE ACRES OF DISTURBANCE, THE CONTRACTOR MUST POST CERTIFIED CONSTRUCTION SITE NOTICE(S) IN A LOCATION WHERE IT IS READILY AVAILABLE FOR VIEWING BY THE GENERAL PUBLIC, LOCAL, STATE, AND FEDERAL AUTHORITIES, PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES, AND MAINTAIN THE NOTICE IN THAT LOCATION UNTIL COMPLETION OF THE CONSTRUCTION ACTIVITY. IF THERE IS NO LOCATION TO STORE THE SWP3 AT THE SITE, THE CONSTRUCTION SITE NOTICE MUST IDENTIFY THE LOCATION WHERE A SWP3 CAN BE READILY OBTAINED FOR VIEWING ALONG WITH CONTACT INFORMATION.

ON LARGE PROJECT SITES WITH 5 OR MORE ACRES OF DISTURBANCE, THE CONSTRUCTION SITE NOTICE(S) AND N.O.I.(S) MUST BE POSTED IN A LOCATION WHERE IT IS READILY AVAILABLE FOR VIEWING NEAR THE MAIN ENTRANCE OF THE CONSTRUCTION SITE PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES, AND MAINTAIN THE NOTICE IN THAT LOCATION UNTIL COMPLETION OF THE CONSTRUCTION ACTIVITY. THE CONSTRUCTION SITE NOTICE SHALL CONTAIN THE INFORMATION BELOW:

(A) TPDES GENERAL PERMIT NUMBER FOR THE PROJECT OR A COPY OF THE N.O.I. IF A PERMIT NUMBER HAS NOT YET BEEN ASSIGNED.
(B) NAME AND TELEPHONE NUMBER OF A REPRESENTATIVE FOR THE OPERATOR.
(C) BRIEF DESCRIPTION OF THE PROJECT.
(D) LOCATION OF THE SWP3 ON OR OFF-SITE.

LINEAR CONSTRUCTION SITES SHALL POST CONSTRUCTION SITE NOTICE IN A PUBLICLY ACCESSIBLE LOCATION NEAR WHERE CONSTRUCTION IS ACTIVELY UNDERWAY. NOTICE FOR THESE LINEAR SITES MAY BE RELOCATED, AS NECESSARY, ALONG THE LENGTH OF THE PROJECT. THE NOTICE MUST BE READILY AVAILABLE FOR VIEWING BY THE GENERAL PUBLIC, LOCAL, STATE, AND FEDERAL AUTHORITIES, AND CONTAIN ALL INFORMATION REQUIRED ABOVE.

RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
4300 BELTWAY PLACE SUITE 130 ARLINGTON, TEXAS 76018 METRO (817)467-7700
1380 U.S. HIGHWAY 287 N, SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-0700
6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-6000
www.WierAssociates.com

PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
SWP3 - STORM WATER
POLLUTION PREVENTION NOTES

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED
PROFESSIONAL ENGINEER
8-23-2006

LAST SHEET EDIT
DATE 08-23-2006
WA# 0414I

SHEET NO.
E001

TIME:8:37 FILE:\0414I-SWP3-NOTES\-Phase1.dwg

9. EROSION AND SEDIMENT CONTROLS:

REFER TO THE SWP3 LAYOUT PLAN AND DETAILS FOR A DESCRIPTION OF THE BMPs THAT WILL BE USED TO RETAIN SEDIMENT ON-SITE. REFER TO THE SITE AND OR PROJECT DESCRIPTION DATA IN THESE NOTES FOR A GENERAL TIMING OR SEQUENCE FOR IMPLEMENTATION.

EROSION CONTROL FACILITIES SHALL BE INSTALLED AND MAINTAINED ON THE SITE DURING ALL PHASES OF CONSTRUCTION UNTIL PAVING IS COMPLETE AND VEGETATION ESTABLISHED ON OPEN AREAS. THE METHODS AND SEQUENCE OF IMPROVEMENTS AS DESCRIBED HEREIN SHALL BE CONSIDERED MINIMUM IMPROVEMENTS. THE CONTRACTORS SEQUENCE OF CONSTRUCTION AND WEATHER CONDITIONS MAY DICTATE CONSTRUCTION OF DIFFERENT STORM WATER MANAGEMENT FACILITIES. COORDINATE WITH THE ENGINEER IF SUBSTANTIALLY DIFFERENT METHODS AND FACILITIES ARE ANTICIPATED AT ANY TIME DURING CONSTRUCTION.

TECHNIQUES TO BE USED: TECHNIQUES TO BE USED SHALL BE AS INDICATED BY THE STORM WATER POLLUTION PREVENTION PLAN AND DETAILS. THE GOALS FOR CONTROLLING EROSION SHALL COMPLY WITH THIS PLAN AND SPECIFICATIONS AND SHALL INCLUDE THE FOLLOWING:

A. WHERE FEASIBLE AND COST EFFECTIVE DIVERT UPSLOPE WATER AROUND DISTURBED AREAS.
B. LIMIT THE EXPOSURE OF DISTURBED AREAS TO THE SHORTEST DURATION POSSIBLE.
C. REMOVE SEDIMENT FROM STORM WATER BEFORE IT LEAVES THE SITE BY STABILIZATION OR STRUCTURAL METHODS.

THE CONTRACTOR SHALL MAINTAIN ALONG WITH THE SIGNED EFFECTIVE COPY OF SWP3 DRAWINGS AN UPDATEABLE LIST IDENTIFYING GOOD HOUSEKEEPING PRACTICES IMPLEMENTED TO LIMIT THE OFF-SITE TRANSPORT OF LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION MATERIALS.

10. STABILIZATION PRACTICES:

REFER TO THE SWP3 LAYOUT PLAN FOR A DESCRIPTION OF INTERIM AND PERMANENT STABILIZATION PRACTICES FOR THE SITE, INCLUDING A SCHEDULE OF WHEN THE PRACTICES WILL BE IMPLEMENTED.

STABILIZATION PRACTICES SHALL INCLUDE THE FOLLOWING:

A. PRESERVE EXISTING VEGETATION WHERE POSSIBLE.
B. STABILIZE DISTURBED AREAS AS SOON AS POSSIBLE, BUT NO MORE THAN 14 DAYS AFTER CONSTRUCTION ACTIVITY HAS CEASED UNLESS CONSTRUCTION WILL RESUME ON THE PORTION OF THE SITE WITHIN 21 DAYS.
C. PERMANENT STABILIZATION TECHNIQUES SHALL BE AS IDENTIFIED ON THE PLANS. INTERIM STABILIZATION METHODS MAY INCLUDE TEMPORARY SEEDING, PERMANENT SEEDING, MULCHING, GEOTEXTILES, SOD STABILIZATION, VEGETATION BUFFER STRIPS, PRESERVATION OF MATURE VEGETATIVE BUFFER STRIPS, AND OTHER APPROPRIATE MEASURES. IF CLEARING OF TREES OCCURS ON THE SITE AND MULCHING IS TO BE USED, THE CONTRACTOR MUST CONTACT THE PROJECT ENGINEER TO CONSIDER FEASIBLE AREAS WHERE MULCH CAN BE USED FOR TEMPORARY EROSION CONTROL.

THE CONTRACTOR SHALL MAINTAIN ALONG WITH THE SIGNED EFFECTIVE COPY OF THE SWP3 A RECORD OF THE DATES OF MAJOR GRADING ACTIVITIES, THE DATES CONSTRUCTION IS TEMPORARILY OR PERMANENTLY CEASED, AND THE DATES STABILIZATION MEASURES ARE INITIATED.

11. STRUCTURAL CONTROL PRACTICES:

REFER TO THE SWP3 LAYOUT PLAN AND DETAILS FOR A DESCRIPTION, ENGINEERING CALCULATIONS AND SPECIFIC LOCATION OF ANY STRUCTURAL CONTROL PRACTICES USED TO DIVERT FLOWS AWAY FROM EXPOSED SOILS, TO LIMIT THE CONTACT OF RUNOFF WITH DISTURBED AREAS, OR TO LESSEN THE OFF-SITE TRANSPORT OF ERODED SOILS.

12. PERMANENT STORM WATER CONTROLS:

REFER TO THE SWP3 LAYOUT PLAN AND DETAILS FOR A DESCRIPTION AND SPECIFIC LOCATION OF ANY MEASURES THAT WILL BE INSTALLED DURING THE CONSTRUCTION PROCESS TO CONTROL POLLUTANTS IN STORM WATER DISCHARGES THAT WILL OCCUR AFTER CONSTRUCTION OPERATIONS HAVE BEEN COMPLETED.

13. OTHER CONTROLS:

A. MATERIAL STORAGE: STORE ONLY ENOUGH OF A MATERIAL TO DO THE JOB. KEEP MATERIALS IN ORIGINAL CONTAINER IF POSSIBLE. WHEN NOT POSSIBLE, ORIGINAL LABEL SHALL BE KEPT WITH THE PRODUCT. CONTRACTOR SHALL MAINTAIN ALONG WITH THE EFFECTIVE COPY OF SWP3 DRAWINGS AN UPDATEABLE LIST OF ALL MATERIALS TO BE STORED ON-SITE, AND A DESCRIPTION OF THE LOCATION.
B. FUEL & EQUIPMENT MAINTENANCE AND STORAGE: WHERE FUELS ARE STORED, MAINTENANCE OF EQUIPMENT AND LUBRICATING MAINTENANCE ARE PROVIDED ON THE SITE, THE AREA (FUELING OR LUBRICATING) SHALL CONTAIN A MINIMUM 18' BERM AND PLASTIC COVER TO PREVENT STORM WATER FROM CARRYING PETRO CHEMICAL PRODUCTS INTO STORM WATER OR SOILS. VEHICLES ARE TO RECEIVE REGULAR PREVENTIVE MAINTENANCE. IF LOCATION IS PAVEMENT, A 6' HIGH TEMPORARY CONCRETE CURB MAY BE PLACED AROUND THE FUEL SITE IN LIEU OF EARTHEN BERM.
C. PROVIDE COVERED PROTECTED AREAS FOR STORAGE OF CHEMICALS, PAINTS, SOLVENTS , FERTILIZERS, AND OTHER POTENTIALLY TOXIC MATERIALS SUCH THAT MATERIALS ARE NOT IN CONTACT WITH STORM WATER. MATERIALS SHALL BE APPLIED ONLY IN THE MINIMUM AMOUNTS RECOMMENDED BY MANUFACTURER.
D. IF PUBLIC SANITARY FACILITIES ARE NOT AVAILABLE, PROVIDE SELF CONTAINED SANITARY FACILITIES AT THE CONSTRUCTION SITE FOR COLLECTION OF HUMAN WASTE. MAINTAIN FACILITIES AT REGULAR INTERVAL TO PREVENT OVERFLOW.
E. VEHICLE TRACKING: THE MAJORITY OF THIS PROJECT IS LINEAR CONSTRUCTION. CONSTRUCTION WILL BE ACCESSED FROM STATE HIGHWAY No. 276 AND INTERSTATE HIGHWAY No. 30 EASTBOUND FRONTAGE ROAD ADJACENT TO THE SITE.
F. DUST CONTROL: THE DISTURBED AREAS ON SITE SHALL BE REGULARLY WATERED DURING DRY PERIODS TO PREVENT DUST LEAVING THE SITE.

14. THE CONTRACTOR SHALL PERFORM CONSTRUCTION OPERATIONS IN ACCORDANCE WITH BEST MANAGEMENT PRACTICES TO CONTROL POLLUTANTS IN STORM WATER DISCHARGES DURING CONSTRUCTION. THE CONTRACTOR SHALL CONFORM TO THE APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS TO CONTROL STORM WATER POLLUTANTS, AND TO CONTROL EROSION AND SEDIMENT FROM LEAVING THE SITE, INCLUDING DUST AND LITTER CONTROL. TRASH RECEPTACLES SHALL BE PROVIDED ON-SITE AND EMPTIED AT REGULAR INTERVALS.

15. THE CONTRACTOR SHALL LIMIT THE AREAS DISTURBED ON THE PROJECT SITE TO THE AREA NECESSARY FOR CONSTRUCTION OF THE PROPOSED IMPROVEMENTS. THE CONTRACTOR SHALL PREVENT PERSONNEL, SUPPLIERS, AND SUBCONTRACTORS FROM DISTURBING AREAS OUTSIDE OF DESIGNATED CONSTRUCTION AREAS.

16. TECHNICAL BASIS USED:

THE CONTRACTOR SHALL UTILIZE THE LATEST COPY OF THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENT'S STORM WATER MANAGEMENT HANDBOOK AS A GUIDE FOR THE PROPOSED STORM WATER MANAGEMENT FACILITIES AND TECHNIQUES. THE CONTRACTOR SHALL USE THE DETAILS PROVIDED FOR BUILDING THE SPECIFIED EROSION & SEDIMENTATION CONTROL STRUCTURES. THE CONTRACTOR SHALL ALSO REFER TO CONTRACT DOCUMENTS FOR TECHNICAL EVALUATION OF THESE STRUCTURES. IF SUCH STRUCTURES DO NOT MEET STANDARDS, THE ENGINEER SHALL BE CONTACTED IMMEDIATELY AND THE SITUATION REMEDIED. CALL (817)640-3300 FOR MORE INFORMATION PERTAINING TO THE ABOVE REFERENCED HANDBOOK.

17. MAINTENANCE:

MAINTENANCE OF EROSION CONTROL FACILITIES SHALL CONSIST OF THE MINIMUM REQUIREMENTS AS FOLLOWS:

A. IN ONGOING CONSTRUCTION AREAS INSPECT EROSION CONTROL IMPROVEMENTS TO CONFIRM FACILITIES ARE IN PLACE AND OPERABLE. WHERE FACILITIES HAVE BEEN TEMPORARILY SET ASIDE OR DAMAGED DUE TO CONSTRUCTION ACTIVITY, PLACE FACILITIES IN SERVICE BEFORE LEAVING JOB SITE.
B. IF WEATHER FORECAST PREDICTS POSSIBILITY OF RAIN, CHECK ENTIRE FACILITIES THROUGHOUT SITE TO ASSURE FACILITIES ARE IN PLACE AND OPERABLE. IF JOB SITE WEATHER CONDITIONS INDICATE HIGH PROBABILITY OF RAIN, MAKE SPECIAL INSPECTION OF EROSION CONTROL FACILITIES.
C. AFTER RAINFALL EVENTS REVIEW EROSION CONTROL FACILITIES AS SOON AS SITE IS ACCESSIBLE. CLEAN INLET PROTECTION, SILT PONDS, ROCK BERMS, BERM/SWALES AND OTHER STRUCTURAL FACILITIES. DETERMINE WHERE ADDITIONAL FACILITIES OR ALTERNATIVE TECHNIQUES ARE NEEDED TO CONTROL SEDIMENT LEAVING SITE.
D. AFTER PORTIONS OF SITE HAVE BEEN SEEDED, REVIEW THESE AREAS ON REGULAR BASIS IN ACCORDANCE WITH PROJECT SPECIFICATIONS TO ASSURE PROPER WATERING UNTIL GRASS IS ESTABLISHED. RESEED AREAS WHERE GRASS IS NOT WELL ESTABLISHED.
E. SPILLS ARE TO BE HANDLED AS SPECIFIED BY THE MANUFACTURER OF THE PRODUCT IN A TIMELY SAFE MANNER BY PERSONNEL. THE SITE SUPERINTENDENT WILL BE RESPONSIBLE FOR COORDINATING SPILL PREVENTION AND CLEANUP OPERATIONS.
F. CONCRETE TRUCKS WILL DISCHARGE EXTRA CONCRETE OR WASH OUT DRUM ONLY AT AN APPROVED LOCATION ON SITE. RESIDUAL PRODUCT SHALL BE PROPERLY DISPOSED OF.
G. INSPECT VEHICLE ENTRANCE AND EXITS FOR EVIDENCE OF OFF-SITE TRACKING AND CORRECT AS NEEDED.
H. VEHICLE WASH AREAS WILL BE INSPECTED TO INSURE PROPER DRAINAGE AND MAINTENANCE.
I. REMOVE SEDIMENT FROM TRAPS/PONDS NO LATER THAN WHEN THE DESIGN CAPACITY HAS BEEN REDUCED BY 50%.
J. IF SEDIMENT ESCAPES THE SITE, THE CONTRACTOR WHERE FEASIBLE AND WHERE ACCESS IS AVAILABLE SHALL COLLECT AND REMOVE SEDIMENTATION MATERIAL BY APPROPRIATE NON-DAMAGING METHODS. ADDITIONALLY, THE CONTRACTOR SHALL CORRECT THE CONDITION CAUSING DISCHARGES.
K. IF INSPECTIONS OR OTHER INFORMATION SOURCES REVEAL A CONTROL HAS BEEN USED INCORRECTLY, OR THAT A CONTROL IS PERFORMING INADEQUATELY, THE CONTRACTOR MUST REPLACE, CORRECT OR MODIFY THE CONTROL AS SOON AS PRACTICAL AFTER DISCOVERY OF THE DEFICIENCY.

18. INSPECTION:

INSPECTIONS SHALL BE CONDUCTED BY QUALIFIED REPRESENTATIVES OF THE CONTRACTOR ACTING ON BEHALF OF THE OWNER OR A DESIGNATED PARTY IF HIRED SEPARATELY BY THE OWNER. EACH OPERATOR MUST DELEGATE AUTHORITY TO THE SPECIFICALLY DESCRIBED POSITION OR PERSON PERFORMING INSPECTIONS, AS PROVIDED BY 30 TAC 305.128, AS AN AUTHORIZED PERSON FOR SIGNING REPORTS AND PERFORMING CERTAIN ACTIVITIES REQUESTED BY THE DIRECTOR OR REQUIRED BY THE TPDES GENERAL PERMIT. THIS DELEGATION OF AUTHORITY MUST BE PROVIDED TO THE DIRECTOR OF TCEQ IN WRITING AND A COPY SHALL BE KEPT ALONG WITH THE SIGNED EFFECTIVE COPY OF THE SWP3. AN EXAMPLE DELEGATION LETTER IS PROVIDED IN THE CONTRACT DOCUMENTS.

INSPECTIONS MUST COMPLY WITH ONE OF THE TWO OPTIONS AS FOLLOWS:

OPTION A. AN INSPECTION SHALL OCCUR AT LEAST ONCE EVERY FOURTEEN (14)CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT OF GREATER THAN 0.5 INCHES.

OPTION B. AN INSPECTION EVERY SEVEN (7) CALENDAR DAYS (THE SAME DAY FOR THE INSPECTION MUST OCCUR EACH WEEK REGARDLESS OF WEATHER CONDITIONS).

THE AUTHORIZED PARTY SHALL INSPECT ALL DISTURBED AREAS OF THE SITE, AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION, STRUCTURAL CONTROL MEASURES, AND LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE.

DISTURBED AREAS AND AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION MUST BE INSPECTED FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE RUNOFF FROM THE SITE. EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN MUST BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. OBSERVATIONS CAN BE MADE DURING WET OR DRY WEATHER CONDITIONS. WHERE DISCHARGE LOCATIONS OR POINTS ARE ACCESSIBLE, THEY MUST BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATERS. THIS CAN BE DONE BY INSPECTING RECEIVING WATERS TO SEE WHETHER ANY SIGNS OR EROSION OR SEDIMENT ARE ASSOCIATED WITH THE DISCHARGE LOCATION. LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE MUST BE INSPECTED FOR EVIDENCE OF OFF-SITE SEDIMENT TRACKING.

BASED ON THE RESULTS OF THE INSPECTION, THE SITE DESCRIPTION AND THE POLLUTION PREVENTION MEASURES IDENTIFIED IN THE PLAN MUST BE REVISED AS SOON AS POSSIBLE AFTER AN INSPECTION THAT REVEALS INADEQUACIES. THE INSPECTION AND PLAN REVIEW PROCESS MUST PROVIDE FOR TIMELY IMPLEMENTATION OF ANY CHANGES TO THE PLAN WITH 7 CALENDAR DAYS FOLLOWING THE INSPECTION.

AN INSPECTION REPORT THAT SUMMARIZES THE SCOPE OF THE INSPECTION, NAME(S) AND QUALIFICATIONS OF PERSONNEL CONDUCTING THE INSPECTION, THE DATES OF THE INSPECTION, MAJOR OBSERVATIONS RELATING TO THE IMPLEMENTATION OF THE SWP3. MAJOR OBSERVATIONS SHALL INCLUDE AS A MINIMUM LOCATION OF DISCHARGES OF SEDIMENT OR OTHER POLLUTANTS FROM THE SITE, LOCATION OF BMPs THAT NEED TO BE MAINTAINED, LOCATION OF BMPs THAT FAILED TO OPERATE AS DESIGNED OR PROVED INADEQUATE FOR A PARTICULAR LOCATION, AND LOCATIONS WHERE BMPs ARE NEEDED. ACTIONS TAKEN AS A RESULT OF THE INSPECTIONS MUST BE DESCRIBED WITHIN, AND RETAINED AS A PART OF, THE SWP3. REPORTS MUST IDENTIFY ANY INCIDENTS OF NON-COMPLIANCE. WHERE A REPORT DOES NOT IDENTIFY ANY INCIDENTS OF NON-COMPLIANCE, THE REPORT MUST CONTAIN A CERTIFICATION THAT THE FACILITY OR SITE IS IN COMPLIANCE WITH THE SWP3 AND THE TPDES GENERAL PERMIT. THE REPORT MUST BE SIGNED BY THE AUTHORIZED REPRESENTATIVE DELEGATED BY THE OPERATORS IN ACCORDANCE WITH TAC 305.128.

19. ELIGIBLE NON-STORM WATER DISCHARGE:

THE CONTRACTOR SHALL MAINTAIN ALONG WITH THE SIGNED EFFECTIVE COPY OF SWP3 DRAWINGS AN UPDATEABLE LIST IDENTIFYING ALL ELIGIBLE NON-STORM WATER DISCHARGES AND ENSURE THE IMPLEMENTATION OF APPROPRIATE POLLUTION PREVENTION MEASURES. A LISTING OF ELIGIBLE NON-STORM WATER DISCHARGE IS PROVIDED IN THE CONTRACT DOCUMENTS.

20. RETENTION OF RECORDS:

THE CONTRACTOR MUST RETAIN THE FOLLOWING RECORDS FOR A MINIMUM OF THREE YEARS FROM THE DATE THAT AN N.O.T. IS SUBMITTED. ON SMALL PROJECT SITES WHERE AN N.O.T. IS NOT REQUIRED, RECORDS SHALL BE KEPT FOR A PERIOD OF LEAST THREE YEARS FROM THE DATE OF FINAL STABILIZATION OR CHANGE OF OPERATOR. THE ORIGINALS SHALL BE FORWARDED TO THE OWNER.

A. A COPY OF THE SWP3 PLAN.
B. ALL REPORTS AND ACTIONS REQUIRED BY THE TPDES GENERAL PERMIT, INCLUDING A COPY OF THE CONSTRUCTION SITE NOTICE.
C. ALL DATA USED TO COMPLETE THE N.O.I., IF AN N.O.I. IS REQUIRED.

RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
4300 BELTWAY PLACE SUITE 130 ARLINGTON, TEXAS 76018 METRO (817)467-7700
1380 U.S. HIGHWAY 287 N. SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-0700
6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.WierAssociates.com

PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
SWP3 - STORM WATER
POLLUTION PREVENTION NOTES

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED
PROFESSIONAL ENGINEER
9-25-2006

LAST SHEET EDIT DATE 08-23-2006
WA# 04141
SHEET NO. E002

FILE: 04141-SWP3-NOTES2-Phase1.dwg
TIME: 8:38

SITE AND OR PROJECT DESCRIPTION DATA

1. NATURE OF THE CONSTRUCTION ACTIVITY:

   THE CONSTRUCTION ACTIVITY CONSISTS OF GRADING, DRAINAGE, WATER AND PAVING IMPROVEMENTS TO CONVERT THE SITE FROM OPEN PROPERTY TO DIVIDED BOULEVARD STREET.

2. POTENTIAL POLLUTANTS AND SOURCES:

   THE POTENTIAL SOURCES OF POLLUTION IDENTIFIED CONSIST OF STORM WATER RUNOFF FROM CONSTRUCTION ACTIVITIES. THERE ARE NO NON-STORM WATER DISCHARGES THAT ARE KNOWN TO EXIST AT THIS SITE. A SELF CONTAINED PORTABLE FACILITY WILL BE KEPT ON-SITE DURING CONSTRUCTION FOR HUMAN WASTE. CONSTRUCTION FUEL STORAGE IS NOT ANTICIPATED TO BE PROVIDED AT THE SITE. IF FUEL IS STORED AT THE SITE A BERM WILL BE PLACED AROUND THE FUEL TANK.

   CONTRACTOR SHALL MAINTAIN ALONG WITH THE SIGNED EFFECTIVE COPY OF SWP3 DRAWINGS AN UPDATEABLE LIST IDENTIFYING ALL POTENTIAL SOURCES OF POLLUTION INCLUDING PORTA-POTTYS, FUEL TANKS, STAGING AREAS, WASTE CONTAINERS, CHEMICAL STORAGE AREAS, CONCRETE CURE, PAINTS SOLVENTS, ETC., AND A DESCRIPTION OF THE LOCATION.

3. SEQUENCE OF MAJOR CONSTRUCTION ACTIVITIES:

   THE PROJECT SEQUENCE SHALL GENERALLY CONFORM TO THE FOLLOWING:

   PHASE I START DATE: _____ END DATE: _____

   A. CONSTRUCT TEMPORARY CONSTRUCTION ENTRANCE, ROCK BERMS, BERMS/SWALES AND SILT FENCE ACCORDING TO THE APPROXIMATE LOCATION AND DETAIL SHOWN ON EROSION CONTROL PLAN SHEETS AND SWP3 PLAN AND DETAILS.
   B. BEGIN CLEARING AND GRADING OF SITE.
   C. SEED AND RE-VEGETATE SLOPES WHERE SHOWN.

   PHASE II START DATE: _____ END DATE: _____

   A. KEEP ALL STORM WATER POLLUTION PREVENTION MEASURES IN PLACE.
   B. INSTALL WATER AND STORM DRAIN AS SPECIFIED ON PLAN SHEETS.
   C. CONSTRUCT PHASE I INLET PROTECTION AROUND OPEN STORM DRAIN INLETS ACCORDING TO THE DETAIL SHOWN ON SHEET E202 AND WHERE INDICATED ON EROSION CONTROL PLAN SHEETS E102 AND E103.
   D. CONSTRUCT ALL STORM WATER POLLUTION PREVENTION DEVICES SHOWN ON PLAN SHEETS E102 AND E103 FOR PHASE TWO CONSTRUCTION.

   PHASE III START DATE: _____ END DATE: _____

   A. KEEP ALL STORM WATER POLLUTION PREVENTION MEASURES IN PLACE.
   B. STABILIZE SUBGRADE.
   C. PAVE STREETS AS SPECIFIED ON PLAN SHEETS.
   D. CONSTRUCT STORM DRAIN PHASE II INLET TREATMENT AS SPECIFIED ON EROSION CONTROL PLAN SHEETS E102 AND E103 FOR PHASE THREE CONSTRUCTION.
   E. RE-VEGETATE PARKWAYS AND ALL DISTURBED AREAS.

4. AREA ESTIMATES:

   TOTAL AREA ONSITE: 12.7 ACRES
   ESTIMATED DISTURBED AREA ON-SITE: 11.3 ACRES
   ESTIMATED DISTURBED AREA OFF-SITE: 1.1 ACRES

5. ESTIMATED RUNOFF COEFFICIENT AFTER CONSTRUCTION IS COMPLETED:

   UNDEVELOPED C = 0.35
   DEVELOPED C = 0.90

6. SOIL AND OR QUALITY OF STORM WATER DISCHARGE DATA:

   REFER TO EFFICIENCY ESTIMATES FOR STRUCTURAL METHODS ON STANDARD MEASURES.

7. SOIL TYPE AT SITE:

   NEAR SURFACE SOILS CONSIST OF DARK BROWN, BROWN, LIGHT BROWN, DARK GRAY, GRAYISH BROWN, GRAY AND REDDISH BROWN CLAYS, SILTY CLAYS, AND SHALY CLAYS. REFER TO GEOTECHNICAL REPORT BY CMJ ENGINEERING, INC. PROVIDED IN THE SPECIFICATIONS.

8. GENERAL LOCATION MAP AND DETAILED SITE MAP:

   REFER TO SWP3 LAYOUT SHEET AND GRADING PLAN SHEETS FOR DRAINAGE PATTERNS AND APPROXIMATE SLOPES ANTICIPATED AFTER MAJOR GRADING ACTIVITIES, AREAS WHERE SOIL DISTURBANCE WILL OCCUR, SOILS DISTURBANCE AREAS, STRUCTURAL CONTROL MEASURES, NATURAL VEGETATIVE FILTERING, RE-VEGETATION, IMPROVED STABILIZATION METHODS, SURFACE WATERS INCLUDING WETLANDS, DIRECT DISCHARGE POINTS TO SURFACE WATER BODIES.

9. LOCATION AND DESCRIPTION OF OFF-SITE MATERIAL, WASTE, BORROW OR EQUIPMENT STORAGE AREAS:

   _____

   _____

   _____

   _____

10. LOCATION AND DESCRIPTION OF SUPPORT ASPHALT PLANTS AND CONCRETE PLANTS:

    _____

    _____

11. RECEIVING WATER BODY DESCRIPTION:

    BUFFALO CREEK

12. WETLANDS ACREAGE:

    0.09 ACRES OF WETLANDS ARE DISTURBED IN BUFFALO CREEK BY CONSTRUCTION.

13. TPDES GENERAL PERMIT NUMBERS:

    OWNER _____
    CONTRACTOR _____

    N.O.I. SUBMITTAL DATES:

    OWNER _____
    CONTRACTOR _____

RECORD PLANS
MARCH 28, 2008

EROSION AND SEDIMENT CONTROLS

BMP NO. OR LOCATION	CONDITION	BMP SELECTED	EXPLANATION
1	SHEET FLOW	REINFORCED SILT FENCE	DRAINAGE AREA TO SILT FENCE = 0.18 ac. < 0.25ac. / 100 L.F. MAX. DISTANCE OF FLOW = 80 ft. < 200 ft. PREVENTS DEBRIS AND SILT FROM LEAVING SITE VIA NON-CONCENTRATED FLOW
2	CONCENTRATED FLOW IN DITCH	12" HIGH ROCK BERM	REDUCES VELOCITY OF CONCENTRATED FLOW AND TRAPS SEDIMENT
3	SUMP DROP INLET	BLOCK & GRAVEL DROP INLET PROTECTION	FLOW = 4.9 cfs PREVENTS SILT FROM UPSTREAM GRADING FROM ENTERING STORM DRAIN SYSTEM
4	SUMP DROP INLET	BLOCK & GRAVEL DROP INLET PROTECTION	FLOW = 10.3 cfs PREVENTS SILT FROM UPSTREAM GRADING FROM ENTERING STORM DRAIN SYSTEM
5	SHEET FLOW	REINFORCED SILT FENCE	DRAINAGE AREA TO SILT FENCE = 0.25 ac. < 0.25ac. / 100 L.F. MAX. DISTANCE OF FLOW = 200 ft. < 200 ft. PREVENTS DEBRIS AND SILT FROM LEAVING SITE VIA NON-CONCENTRATED FLOW
6	SHEET FLOW	REINFORCED SILT FENCE	DRAINAGE AREA TO SILT FENCE = 0.16 ac. < 0.25ac. / 100 L.F. MAX. DISTANCE OF FLOW = 70 ft. < 200 ft. PREVENTS DEBRIS AND SILT FROM LEAVING SITE VIA NON-CONCENTRATED FLOW
7	CONCENTRATED FLOW IN WIDE SWALE	ROCK CHECK DAMS @ 150' SPACING	REDUCES VELOCITY OF CONCENTRATED FLOW AND TRAPS SEDIMENT
8	ON-GRADE CURB INLET	PHASE I FILTER FABRIC INLET PROTECTION PHASE II BLOCK & GRAVEL INLET PROTECTION	FLOW = 2.9 cfs PREVENTS SILT FROM UPSTREAM GRADING FROM ENTERING STORM DRAIN SYSTEM
9	ON-GRADE CURB INLET	PHASE I FILTER FABRIC INLET PROTECTION PHASE II BLOCK & GRAVEL INLET PROTECTION	FLOW = 1.5 cfs PREVENTS SILT FROM UPSTREAM GRADING FROM ENTERING STORM DRAIN SYSTEM
10	CONCENTRATED FLOW IN CREEK	28" HIGH EXCAVATED ROCK BERM	REDUCES VELOCITY OF CONCENTRATED FLOW AND TRAPS SEDIMENT
11	CONCENTRATED FLOW IN CREEK	18" HIGH ROCK BERM	REDUCES VELOCITY OF CONCENTRATED FLOW AND TRAPS SEDIMENT
12	ON-GRADE CURB INLET	PHASE I FILTER FABRIC INLET PROTECTION PHASE II BLOCK & GRAVEL INLET PROTECTION	FLOW = 1.7 cfs PREVENTS SILT FROM UPSTREAM GRADING FROM ENTERING STORM DRAIN SYSTEM
13	SUMP CURB INLET	PHASE I FILTER FABRIC INLET PROTECTION PHASE II BLOCK & GRAVEL INLET PROTECTION	FLOW = 3.9 cfs PREVENTS SILT FROM UPSTREAM GRADING FROM ENTERING STORM DRAIN SYSTEM
14	SHEET FLOW	REINFORCED SILT FENCE	DRAINAGE AREA TO SILT FENCE = 0.18 ac. < 0.25ac. / 100 L.F. MAX. DISTANCE OF FLOW = 80 ft. < 200 ft. PREVENTS DEBRIS AND SILT FROM LEAVING SITE VIA NON-CONCENTRATED FLOW
15	ON-GRADE CURB INLET	PHASE I FILTER FABRIC INLET PROTECTION PHASE II BLOCK & GRAVEL INLET PROTECTION	FLOW = 5.1 cfs PREVENTS SILT FROM UPSTREAM GRADING FROM ENTERING STORM DRAIN SYSTEM
16	SHEET FLOW	REINFORCED SILT FENCE	DRAINAGE AREA TO SILT FENCE = 0.17 ac. < 0.25ac. / 100 L.F. MAX. DISTANCE OF FLOW = 75 ft. < 200 ft. PREVENTS DEBRIS AND SILT FROM LEAVING SITE VIA NON-CONCENTRATED FLOW
17	SHEET FLOW	REINFORCED SILT FENCE	DRAINAGE AREA TO SILT FENCE = 0.17 ac. < 0.25ac. / 100 L.F. MAX. DISTANCE OF FLOW = 75 ft. < 200 ft. PREVENTS DEBRIS AND SILT FROM LEAVING SITE VIA NON-CONCENTRATED FLOW
18	CONCENTRATED FLOW IN WIDE SWALE	ROCK CHECK DAMS @ 150' SPACING	REDUCES VELOCITY OF CONCENTRATED FLOW AND TRAPS SEDIMENT
19	ON-GRADE CURB INLET	PHASE I FILTER FABRIC INLET PROTECTION PHASE II BLOCK & GRAVEL INLET PROTECTION	FLOW = 3.5 cfs PREVENTS SILT FROM UPSTREAM GRADING FROM ENTERING STORM DRAIN SYSTEM
20	ON-GRADE CURB INLET	PHASE I FILTER FABRIC INLET PROTECTION PHASE II BLOCK & GRAVEL INLET PROTECTION	FLOW = 9.1 cfs PREVENTS SILT FROM UPSTREAM GRADING FROM ENTERING STORM DRAIN SYSTEM
21	ON-GRADE CURB INLET	PHASE I FILTER FABRIC INLET PROTECTION PHASE II BLOCK & GRAVEL INLET PROTECTION	FLOW = 2.1 cfs PREVENTS SILT FROM UPSTREAM GRADING FROM ENTERING STORM DRAIN SYSTEM
22	ON-GRADE CURB INLET	PHASE I FILTER FABRIC INLET PROTECTION PHASE II BLOCK & GRAVEL INLET PROTECTION	FLOW = 4.4 cfs PREVENTS SILT FROM UPSTREAM GRADING FROM ENTERING STORM DRAIN SYSTEM
23	SHEET FLOW	REINFORCED SILT FENCE	DRAINAGE AREA TO SILT FENCE = 0.12 ac. < 0.25ac. / 100 L.F. MAX. DISTANCE OF FLOW = 50 ft. < 200 ft. PREVENTS DEBRIS AND SILT FROM LEAVING SITE VIA NON-CONCENTRATED FLOW
24	SHEET FLOW	REINFORCED SILT FENCE	DRAINAGE AREA TO SILT FENCE = 0.08 ac. < 0.25ac. / 100 L.F. MAX. DISTANCE OF FLOW = 50 ft. < 200 ft. PREVENTS DEBRIS AND SILT FROM LEAVING SITE VIA NON-CONCENTRATED FLOW
25	SHEET FLOW	REINFORCED SILT FENCE	DRAINAGE AREA TO SILT FENCE = 0.08 ac. < 0.25ac. / 100 L.F. MAX. DISTANCE OF FLOW = 50 ft. < 200 ft. PREVENTS DEBRIS AND SILT FROM LEAVING SITE VIA NON-CONCENTRATED FLOW
26	SHEET FLOW	REINFORCED SILT FENCE	DRAINAGE AREA TO SILT FENCE = 0.17 ac. < 0.25ac. / 100 L.F. MAX. DISTANCE OF FLOW = 75 ft. < 200 ft. PREVENTS DEBRIS AND SILT FROM LEAVING SITE VIA NON-CONCENTRATED FLOW
27	ENTRANCE / EXIT LOCATION	STABILIZED CONSTRUCTION ENTRANCE / EXIT	PREVENTS SILT AND DEBRIS FROM LEAVING SITE VIA CONSTRUCTION EQUIPMENT
28	SHEET FLOW	REINFORCED SILT FENCE	DRAINAGE AREA TO SILT FENCE = 0.18 ac. < 0.25ac. / 100 L.F. MAX. DISTANCE OF FLOW = 80 ft. < 200 ft. PREVENTS DEBRIS AND SILT FROM LEAVING SITE VIA NON-CONCENTRATED FLOW
29	CONCENTRATED FLOW IN DITCH	12" HIGH ROCK BERM	REDUCES VELOCITY OF CONCENTRATED FLOW AND TRAPS SEDIMENT
30	SHEET FLOW	REINFORCED SILT FENCE	DRAINAGE AREA TO SILT FENCE = 0.16 ac. < 0.25ac. / 100 L.F. MAX. DISTANCE OF FLOW = 70 ft. < 200 ft. PREVENTS DEBRIS AND SILT FROM LEAVING SITE VIA NON-CONCENTRATED FLOW
31	CONCENTRATED FLOW IN DITCH	12" HIGH ROCK BERM	REDUCES VELOCITY OF CONCENTRATED FLOW AND TRAPS SEDIMENT
32	SUMP DROP INLET	BLOCK & GRAVEL DROP INLET PROTECTION	FLOW = 4.9 cfs PREVENTS SILT FROM UPSTREAM GRADING FROM ENTERING STORM DRAIN SYSTEM
33	ENTRANCE / EXIT LOCATION	STABILIZED CONSTRUCTION ENTRANCE / EXIT	PREVENTS SILT AND DEBRIS FROM LEAVING SITE VIA CONSTRUCTION EQUIPMENT
34	SUMP DROP INLET	BLOCK & GRAVEL DROP INLET PROTECTION	FLOW = 1.2 cfs PREVENTS SILT FROM UPSTREAM GRADING FROM ENTERING STORM DRAIN SYSTEM

PREPARED BY:
WIER & ASSOCIATES, INC.
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6949 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.wierassociates.com

PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
SWP3 - STORM WATER
POLLUTION PREVENTION NOTES

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED
PROFESSIONAL ENGINEER
5-25-2006

LAST SHEET EDIT DATE 09-07-2006
WA# 04141

SHEET NO.
E003

TIME: 15:15 FILE: 04141-SWP3-NOTES3-Phase1.dwg

STABILIZATION PRACTICES

STABILIZATION PRACTICES	LOCATION ON-SITE	IMPLEMENTATION DATE	TEMPORARY OR PERMANENT
SOD STABILIZATION	5'-6" FROM BACK OF CURB		PERMANENT
HYDROMULCH SEEDING	REMAINDER OF PARKWAYS AND SLOPES		PERMANENT

STABILIZATION PRACTICES MAY INCLUDE, BUT ARE NOT LIMITED TO: ESTABLISHING TEMPORARY OR PERMANENT VEGETATION, MULCHING, GEOTEXTILES, SOD STABILIZATION, VEGETATIVE BUFFER STRIPS, AND PROTECTING EXISTING TREES AND VEGETATION.

STRUCTURAL CONTROL PRACTICES

WILL THE PROJECT DISTURB 10 ACRES OR MORE AT ONE TIME? YES
IF YES, IS IT FEASIBLE TO INSTALL A SEDIMENT BASIN? NO

PROJECT IS A LINEAR PROJECT IN WHICH ALL MAJOR DISCHARGE LOCATIONS HAVE LESS THAN 10 ACRES OF DISTURBED AREA DRAINING TO THEM. THE TOTAL PROJECT DISTURBS 12.4 ACRES.

PERMANENT STORM WATER CONTROLS

THE FOLLOWING MEASURES WILL BE CONSTRUCTED TO CONTROL POST-CONSTRUCTION RUNOFF:

CONTROL MEASURE	LOCATION ON PROJECT SITE	CONTROL RUNOFF FROM WHAT AREAS
SOD PLACEMENT	5'-6" FROM BACK OF CURB	STREET PARKWAYS
HYDROMULCH SEEDING	REMAINDER OF PARKWAYS AND SLOPES	STREET PARKWAYS AND SLOPES

VELOCITY DISSIPATION DEVICES

THE FOLLOWING VELOCITY DISSIPATION DEVICES WILL BE PLACED AT DISCHARGE LOCATIONS AND ALONG THE LENGTH OF ANY OUTFALL CHANNEL:

VELOCITY DISSIPATION DEVICE	OUTFALL DISCHARGING TO (MS4, BAR DITCH, CREEK/STREAM)	AT OUTFALL OR CHANNEL (DISTANCE INTERVAL FOR CHANNEL)
MINIMUM 12" DIAMETER GROUTED ROCK RUBBLE RIPRAP	BUFFALO CREEK	OUTFALL ONLY

CONSTRUCTION AND WASTE MATERIALS STORED ON-SITE

The following construction and waste materials will be stored on-site:

Materials Stored On-Site	Average Amount Stored	Location On-Site	Controls Used to Prevent Pollutants

POTENTIAL SOURCES OF POLLUTION

Potential Sources of Pollution	Location On-Site	Controls Used to Prevent Pollutants

DATES OF MAJOR GRADING AND CONSTRUCTION ACTIVITIES

If you do not list activites below, either attach documentation or state where records for the activities can be accessed:

Documents Attached? _____

Where can documentation be found? _____

Contact Person: _____ Phone Number: _____

Dates when major grading activities will occur and locations on-site:

Activity	Location	Dates Activity is Scheduled to Occur

Dates when construction activity will temporarily or permanently cease:

Location on-site	Date activity is to be stopped	Temporary or Permanent?	Stabilization Initiation Date

ELIGIBLE NON-STORM WATER DISCHARGES

Eligible Non-storm Water Discharge	Used? (Y/N)	Pollution Prevention Measure(s)	Implementation Date
Fire Fighting Activites			
Fire Hydrant Flushings			
Washing of Vehicles, Buildings, or Pavement (see description TXR150000 Part II.3.[c])			
Dust Control			
Potable Water Sources (water line flushings)			
Air Conditioning Condensate			
Uncontaminated Ground/Spring Water			
Other:			

List any other non-storm water discharge permitted by a separate NPDES, TPDES, or TCEQ permit:

Non-Storm Water Discharge	Pollution Prevention Measure(s)	Implementation Date

RECORD PLANS
MARCH 28, 2008

GOOD HOUSEKEEPING PRACTICES

Good Housekeeping practices implemented to limit the off-site transport of litter, construction debris, and construction materials.

Litter Controls:

Good Housekeeping Activity	Location(s) On-Site

Construction Debris Controls:

Good Housekeeping Activity	Location(s) On-Site

Construction Materials Controls:

Good Housekeeping Activity	Location(s) On-Site

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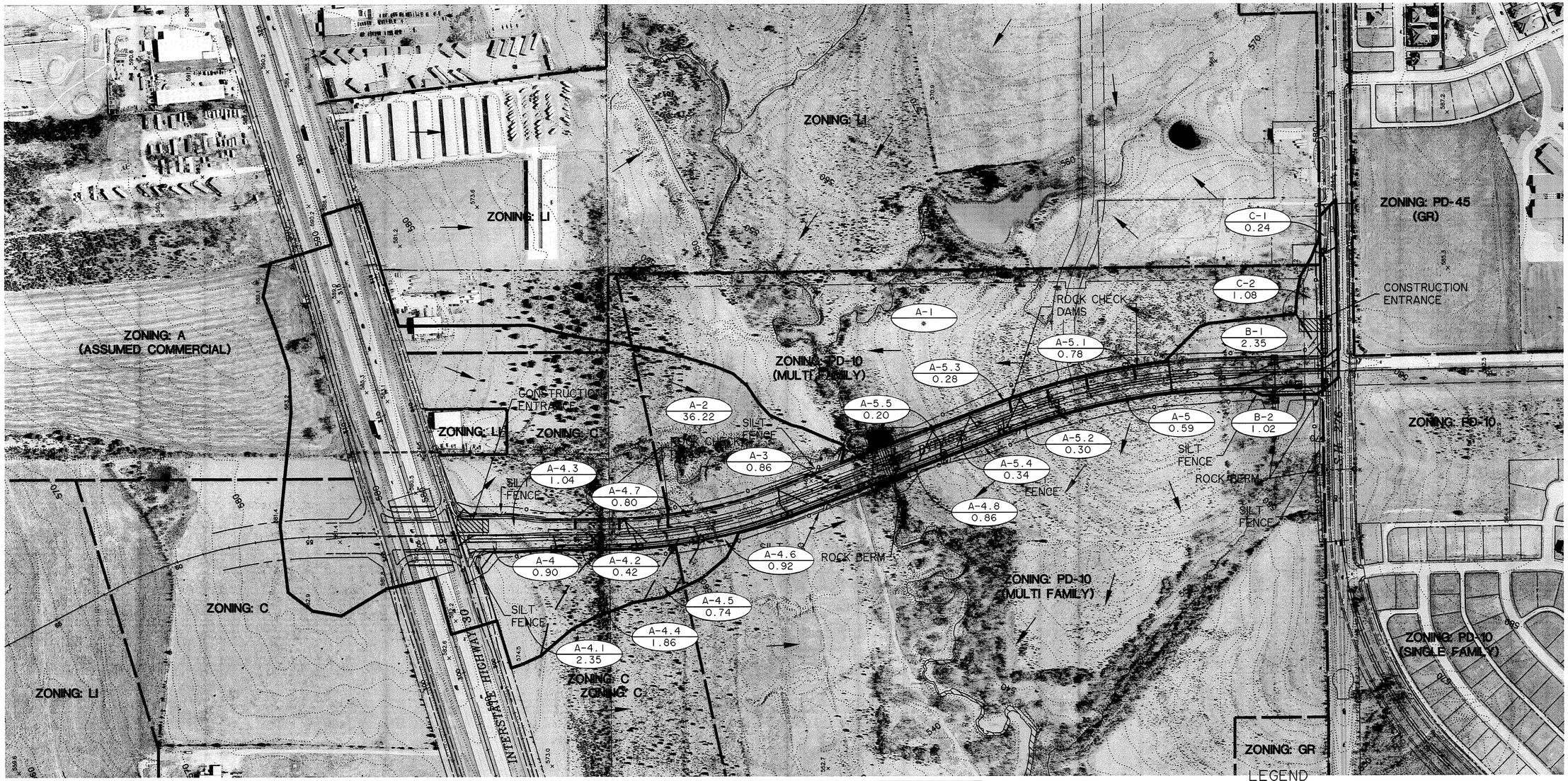
PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
SWP3 - STORM WATER
POLLUTION PREVENTION NOTES

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
5-25-2006

LAST SHEET EDIT DATE 08-23-2006
WA# 0414I
SHEET NO. E004

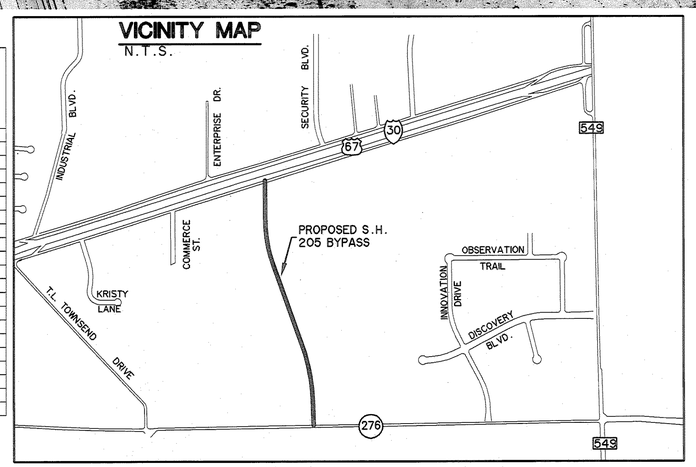
FILE: I:\0414I-SWP3-NOTES4-PhaseI.dwg
TIME: 8:39



S.H. 205 BYPASS DRAINAGE AREA CALCULATIONS TABLE

DRAINAGE AREA DESIGNATION	TOTAL AREA (ACRES)	C 0.75 MULTI FAMILY RESIDENTIAL	C 0.90 INDUSTRIAL	C 0.90 COMMERCIAL	C 0.90 STREET RIGHT-OF-WAY	C 0.70 SCHOOLS OR CHURCHES	C x A	tc (min.)	I (In./Hr.) 2 YEAR STORM	Q (cfs) 2 YEAR STORM
A-2	36.22	6.21	2.64	15.85	11.52		31.67	13.9	4.66	147.6
A-3	0.86				0.86		0.77	10.0	5.43	4.2
A-4	0.90				0.90		0.81	10.0	5.43	4.4
A-4.1	2.35			2.35			2.12	10.0	5.43	11.5
A-4.2	0.42				0.42		0.38	10.0	5.43	2.1
A-4.3	1.04				1.04		0.94	10.0	5.43	5.1
A-4.4	1.86			1.86			1.67	10.0	5.43	9.1
A-4.5	0.74	0.13		0.30	0.31		0.65	10.0	5.43	3.5
A-4.6	0.92	0.43		0.02	0.47		0.76	10.0	5.43	4.1
A-4.7	0.80				0.80		0.72	10.0	5.43	3.9
A-4.8	0.86				0.86		0.77	10.0	5.43	4.2
A-5	0.59				0.59		0.53	10.0	5.43	2.9
A-5.1	0.78	0.01			0.77		0.70	10.0	5.43	3.8
A-5.2	0.30				0.30		0.27	10.0	5.43	1.5
A-5.3	0.28				0.28		0.25	10.0	5.43	1.4
A-5.4	0.34				0.34		0.31	10.0	5.43	1.7
A-5.5	0.20				0.20		0.18	10.0	5.43	1.0
B-1	2.35	1.49			0.86		1.89	10.0	5.43	10.3
B-2	1.02	0.12			0.90		0.90	10.0	5.43	4.9
C-1	0.24		0.02		0.22		0.22	10.0	5.43	1.2
C-2	1.08	0.50	0.04		0.54		0.90	10.0	5.43	4.9

VICINITY MAP
N.T.S.



LEGEND

- DENOTES WATERSHED BOUNDARY
- DENOTES MAJOR DRAINAGE AREA DIVIDE
- DENOTES MAJOR DRAINAGE AREA SUBDIVIDE
- X-1 / XX.XX — DRAINAGE AREA DESIGNATION DRAINAGE AREA ACRES
- INLET TREATMENT
- ZONING BOUNDARY LINE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- SILT FENCE
- LIMITS OF OPERATOR DAY TO DAY CONTROL
- ROCK BERM

TPDES PERMIT No. _____

N.O.I. SUBMITTAL DATE: _____

_____
OPERATOR / OWNER

_____
OPERATOR / CONTRACTOR

RECORD PLANS
MARCH 28, 2008

0 200 400 600 800

PREPARED BY:
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ENGINEERS SURVEYORS LAND PLANNERS
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PHASE I S.H. 205 BYPASS FROM S.H. 276 TO INTERSTATE 30 SWP3 - LAYOUT PLAN

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED
PROFESSIONAL ENGINEER
5-25-2006

LAST SHEET EDIT
DATE 09-07-2006
WA# 0414

SHEET NO.
E101

FILE: 0414-SWP3-MAP-Phase1.dwg
TIME: 15:04

ROCKWALL BYPASS, LTD.
VOL. 2852, PG. 109
D.R.R.C.T.

LOFLAND FARMS, LTD.
VOL. 1392, PG. 271
D.R.R.C.T.

THE CAMBRIDGE
COMPANIES, INC. TRUSTEE
VOL. 99, PG. 1022
D.R.R.C.T.

BMP No. 3
INLET B-2: INSTALL BLOCK & GRAVEL
DROP INLET PROTECTION & MAINTAIN
UNTIL DISTURBED AREAS ARE REVEGETATED

BMP No. 2
INSTALL 20 L.F. 12" HIGH
ROCK BERM

BMP No. 1
INSTALL 630 L.F. REINFORCED
SILT FENCE AT TOE OF SLOPE

BMP No. 6
INSTALL 650 L.F. REINFORCED
SILT FENCE AT TOE OF SLOPE

BMP No. 8
INLET A-5: INSTALL PHASE I &
PHASE II INLET PROTECTION & MAINTAIN
UNTIL PARKWAYS ARE REVEGETATED

BMP No. 7
INSTALL 50 L.F. ROCK CHECK DAMS
AT APPROXIMATE 150' INTERVALS

BMP No. 5
INSTALL 40 L.F. REINFORCED
SILT FENCE

BMP No. 4
INLET B-1: INSTALL BLOCK & GRAVEL
DROP INLET PROTECTION & MAINTAIN
UNTIL DISTURBED AREAS ARE REVEGETATED

S.H. 276

S.H. 205 BYPASS

MATCH LINE STA 27+00

0 50 100 150

LEGEND

- LIMITS OF OPERATOR DAY TO DAY OPERATIONAL CONTROL
- INLET TREATMENT
- REINFORCED SILT FENCE
- ROCK SILT DAMS / BERMS
- CONSTRUCTION ENTRANCE

THE CAMBRIDGE
COMPANIES, INC. TRUSTEE
VOL. 99, PG. 1022
D.R.R.C.T.

BMP No. 6
INSTALL 650 L.F. REINFORCED
SILT FENCE AT TOE OF SLOPE

BMP No. 10
INSTALL 45 L.F. 28" HIGH ROCK BERM
EXCAVATED TO 12" BELOW CULVERT FL
TO CREATE SEDIMENT TRAP

BMP No. 11
INSTALL 25 L.F. 18" HIGH
ROCK BERM

BMP No. 14
INSTALL 440 L.F. REINFORCED
SILT FENCE AT TOE OF SLOPE

BMP No.'s 9 & 12
INLET A-5.2 & A-5.4: INSTALL PHASE I &
PHASE II INLET PROTECTION & MAINTAIN
UNTIL PARKWAYS ARE REVEGETATED

BMP No. 13
INLET A-4.7: INSTALL PHASE I &
PHASE II INLET PROTECTION & MAINTAIN
UNTIL PARKWAYS ARE REVEGETATED

BMP No. 15
INLET A-4.3: INSTALL PHASE I &
PHASE II INLET PROTECTION & MAINTAIN
UNTIL PARKWAYS ARE REVEGETATED

S.H. 205 BYPASS

MATCH LINE STA 27+00

MATCH LINE STA 40+00

BMP No. 7
INSTALL 50 L.F. ROCK CHECK DAMS
AT APPROXIMATE 150' INTERVALS

BMP No. 16
INSTALL 130 L.F. REINFORCED
SILT FENCE AT TOE OF SLOPE

THE CAMBRIDGE
COMPANIES, INC. TRUSTEE
VOL. 99, PG. 1022
D.R.R.C.T.

BMP No. 17
INSTALL 375 L.F. REINFORCED
SILT FENCE AT TOE OF SLOPE

BMP No. 18
INSTALL 50 L.F. ROCK CHECK DAMS
AT APPROXIMATE 150' INTERVALS

RECORD PLANS
MARCH 28, 2008

0 50 100 150

TIME:20:22 FILE:04141-SWP3-EROSION1-Phase1.dwg

PREPARED BY:
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PHASE I S.H. 205 BYPASS FROM S.H. 276 TO INTERSTATE 30
EROSION CONTROL PLAN
BEGINNING TO STA 40+00

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED
PROFESSIONAL ENGINEER
7-18-2007

LAST SHEET EDIT DATE 07-18-2007
WA# 04141

SHEET NO.
E102

BMP No. 20
INLET A-4.4: INSTALL BLOCK & GRAVEL DROP INLET PROTECTION & MAINTAIN UNTIL DISTURBED AREAS ARE REVEGETATED

THE CAMBRIDGE COMPANIES, INC. TRUSTEE
VOL. 99, PG. 1022
D.R.R.C.T.

BMP No.'s 19, 21, & 22
INLETS A-4.5, A-4.2, & A-4
INSTALL PHASE I & II INLET PROTECTION & MAINTAIN UNTIL PARKWAYS ARE REVEGETATED

THE CAMBRIDGE COMPANIES, INC. TRUSTEE
VOL. 101, PG. 795
D.R.R.C.T.

BMP No. 13
INSTALL 110 L.F. REINFORCED SILT FENCE AT TOE OF SLOPE

S.H. 205 BYPASS

INTERSTATE HIGHWAY No. 30

BMP No. 25
INSTALL 50 L.F. REINFORCED SILT FENCE AT TOE OF SLOPE

BMP No. 18
INSTALL 50 L.F. ROCK CHECK DAMS AT APPROXIMATE 150' INTERVALS

BMP No. 26
INSTALL 510 L.F. REINFORCED SILT FENCE AT TOE OF SLOPE

BMP No. 27
INSTALL CONSTRUCTION ENTRANCE

BMP No. 24
INSTALL 50 L.F. REINFORCED SILT FENCE AT TOE OF SLOPE

THE CAMBRIDGE COMPANIES, INC. TRUSTEE
VOL. 99, PG. 1022
D.R.R.C.T.

THE CAMBRIDGE COMPANIES, INC. TRUSTEE
VOL. 101, PG. 795
D.R.R.C.T.

0 50 100 150

BMP No. 31
INSTALL 20 L.F. 12" HIGH ROCK BERM

THE CAMBRIDGE COMPANIES, INC. TRUSTEE
VOL. 99, PG. 1022
D.R.R.C.T.

BMP No. 29
INSTALL 20 L.F. 12" HIGH ROCK BERM

S.H. 205 BYPASS

BMP No. 32
INLET C-2: INSTALL BLOCK & GRAVEL DROP INLET PROTECTION & MAINTAIN UNTIL DISTURBED AREAS ARE REVEGETATED

THE CAMBRIDGE COMPANIES, INC. TRUSTEE
VOL. 99, PG. 1022
D.R.R.C.T.

BLACKLAND WATER SUPPLY
VOL. 77, PG. 420
D.R.R.C.T.

PNEUMA VENTURES, LTD.
VOL. 2924, PG. 314
D.R.R.C.T.

BMP No. 33
INSTALL CONSTRUCTION ENTRANCE

S.H. 276

BMP No. 28
INSTALL 200 L.F. REINFORCED SILT FENCE AT TOE OF SLOPE

BMP No. 30
INSTALL 240 L.F. REINFORCED SILT FENCE AT TOE OF SLOPE

LOFLAND FARMS, LTD.
VOL. 1392, PG. 271
D.R.R.C.T.

BMP No. 34
INLET C-1: INSTALL BLOCK & GRAVEL DROP INLET PROTECTION & MAINTAIN UNTIL DISTURBED AREAS ARE REVEGETATED

ROCKWALL BYPASS, LTD.
VOL. 2852, PG. 109
D.R.R.C.T.

0 50 100 150

LEGEND

- LIMITS OF OPERATOR DAY TO DAY OPERATIONAL CONTROL
- INLET TREATMENT
- REINFORCED SILT FENCE
- ROCK SILT DAMS / BERMS
- CONSTRUCTION ENTRANCE

RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
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PHASE I S.H. 205 BYPASS FROM S.H. 276 TO INTERSTATE 30 EROSION CONTROL PLAN

STA 40+00 TO END & S.H. 276

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
7-18-07

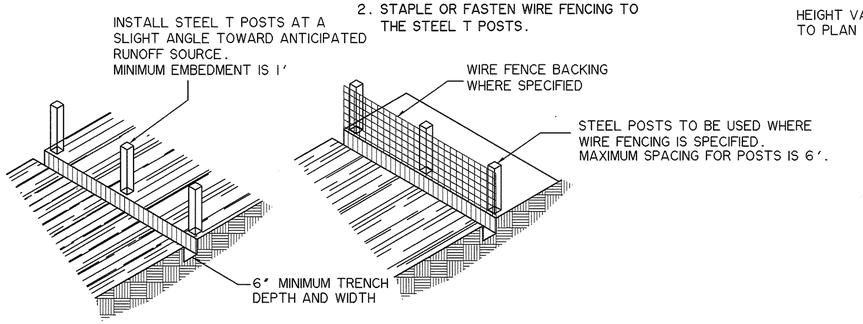
LAST SHEET EDIT DATE 07-18-2007
WA# 04141

SHEET NO. E103

FILE: 04141-SWP3-EROSION2-Phase1.dwg
TIME 21:51

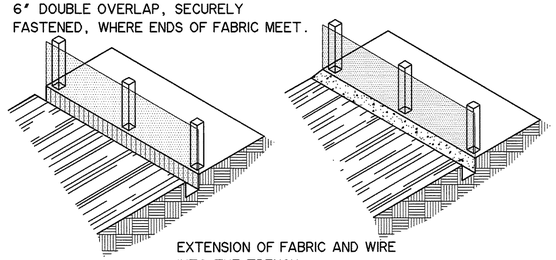
1. SET POSTS AND EXCAVATE A 6″ x 6″ TRENCH UPSLOPE ALONG THE LINE OF POSTS. WHERE FENCE CANNOT BE TRENCHED (e.g. PAVEMENT), WEIGHT FABRIC WITH CRUSHED STONE ON THE UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.

2. STAPLE OR FASTEN WIRE FENCING TO THE STEEL T POSTS.

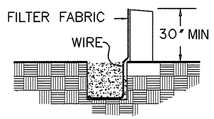


3. ATTACH THE FILTER FABRIC TO THE WIRE FENCE AND EXTEND IT INTO THE TRENCH. THERE SHALL BE A 6″ DOUBLE OVERLAP, SECURELY FASTENED, WHERE ENDS OF FABRIC MEET.

4. BACKFILL AND COMPACT THE EXCAVATED SOIL.



EXTENSION OF FABRIC AND WIRE INTO THE TRENCH.



GENERAL NOTES:

1. WIRE FENCE BACKING WHEN SPECIFIED ON PLANS SHALL BE CONSTRUCTED OF WI.4 X WI.4, 4′ X 4′, ZINC COATED (GALVANIZED) STEEL WOVEN WIRE FENCE FABRIC CONFORMING TO ASTM A116. STANDARD 2′ X 2′ CHAIN LINK FENCE FABRIC IS ACCEPTABLE AS WELL AS OTHER WELDED STEEL FABRICS CONSISTING OF EQUAL OR GREATER GAUGE WIRE AND EQUAL OR SMALLER SPACING AS THAT LISTED HEREIN.
2. SILT FENCE FABRIC SHALL BE NYLON REINFORCED POLYPROPYLENE FABRIC WHICH HAS A BUILT IN CORD RUNNING THE ENTIRE LENGTH OF THE TOP EDGE OF THE FABRIC. THE FABRIC MUST MEET THE FOLLOWING MINIMUM CRITERIA:

TENSILE STRENGTH, ASTM D4632	90 Lbs.,
PUNCTURE RATING, ASTM D4833	60 Lbs.,
MULLEN BURST RATING, ASTM D3786	280 Psi.,
APPARENT OPENING SIZE, U.S. SIEVE No.	70.

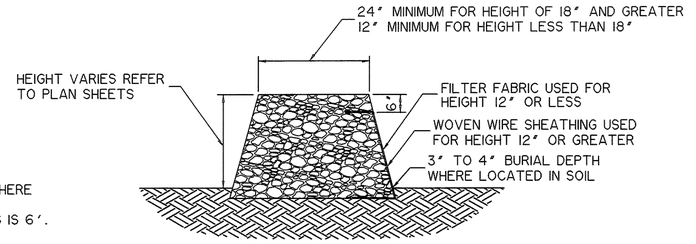
3. STEEL FENCE POSTS, WHEN REQUIRED, MAY BE ROLLED, FORMED, OR TUBULAR IN CROSS-SECTION. ALL POSTS NOT GALVANIZED SHALL BE PAINTED WITH AN APPROVED ANTI-CORROSIVE PAINT.
4. INSPECTION SHALL BE MADE WEEKLY AND AFTER EACH RAINFALL. REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
5. SILT FENCE SHALL BE REMOVED WHEN SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
6. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF HALF THE HEIGHT OF THE FENCE. THE SILT SHALL BE DISPOSED OF IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.

PRIMARY PURPOSE:
SLOW AND FILTER RUNOFF TO RETAIN SEDIMENT

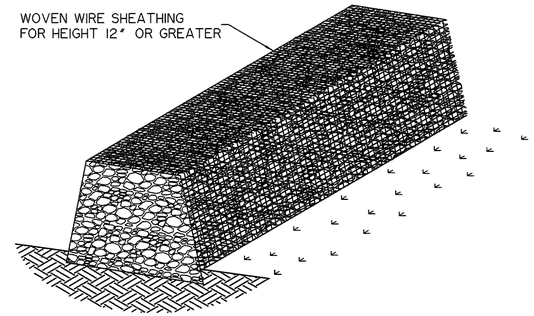
$$\text{RATING} = \frac{\text{SEDIMENT RETAINED}}{\text{TOTAL SEDIMENT LOADING}} = 0.75$$

SILT FENCE DETAIL

N.T.S.



CROSS SECTION



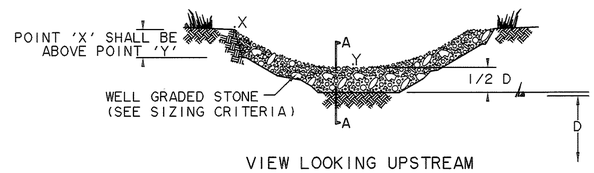
ISOMETRIC PLAN VIEW

GENERAL NOTES:

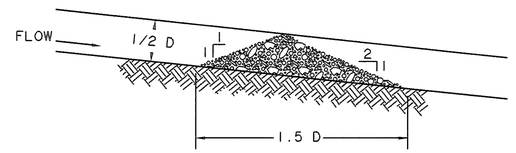
1. USE ONLY OPEN GRADED ROCK 4-8 INCHES IN DIAMETER FOR STREAM FLOW CONDITION. USE OPEN GRADED ROCK 3-5 INCHES IN DIAMETER FOR OTHER CONDITIONS.
2. THE ROCK BERM, IF GREATER THAN 12″ IN HEIGHT, SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING A MAXIMUM OPENING OF 1 INCH AND A MINIMUM WIRE SIZE OF 20 GAUGE AND SHALL BE BURIED IN A TRENCH APPROXIMATELY 3-4 INCHES DEEP WHERE LOCATED IN SOIL.
3. THE ROCK BERM SHALL BE INSPECTED WEEKLY OR AFTER EACH 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. SEE SILT FENCE DETAIL GENERAL NOTE No. 2, THIS SHEET, FOR FILTER FABRIC MATERIAL SPECIFICATIONS.

ROCK BERM DETAIL

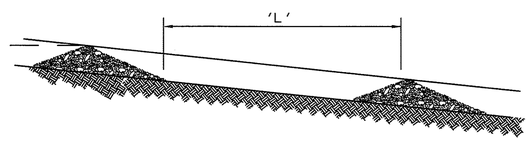
N.T.S.



VIEW LOOKING UPSTREAM



SECTION A - A



SPACING BETWEEN CHECK DAMS

ROCK CHECK DAM

N.T.S.

RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
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1380 U.S. HIGHWAY 287 N, SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-8700
6949 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.Wierassociates.com

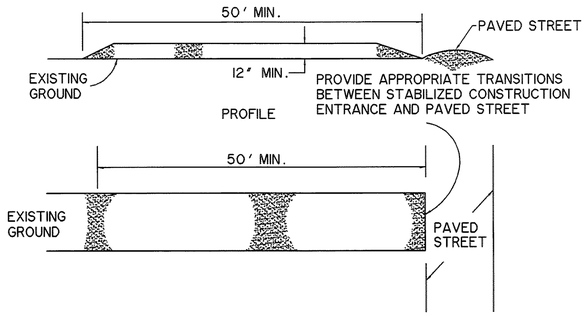
PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
EROSION CONTROL
DETAILS

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED
PROFESSIONAL ENGINEER
9-25-2006

LAST SHEET EDIT DATE 09-15-2006
WA# 04141

SHEET NO.
E201

FILE: 04141-ErosionDetlPhase1.dwg
TIME: 9:58



GENERAL NOTES:

1. STONE SIZE ASTM D448 (3" TO 5" DIAMETER) NO CRUSHED CONCRETE.
2. LENGTH - AS EFFECTIVE, BUT NOT LESS THAN 50 FEET, UNLESS APPROVED IN WRITING BY THE ENGINEER.
3. THICKNESS - NOT LESS THAN 12 INCHES.
4. WIDTH - NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
5. WASHING - WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO A PAVED STREET. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH, OR WATERCOURSE THROUGH USE OF SAND BAGS, OF SAND BAGS, GRAVEL, BOARDS OR OTHER APPROVED METHODS.
6. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO A PAVED STREET. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO A PAVED STREET MUST BE REMOVED IMMEDIATELY.

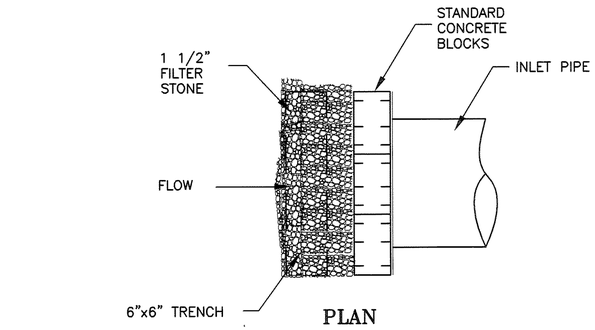
PRIMARY PURPOSE:

REDUCES OFFSITE SEDIMENT TRACKING FROM TRUCKS AND CONSTRUCTION EQUIPMENT.

RATING IS NOT APPLICABLE

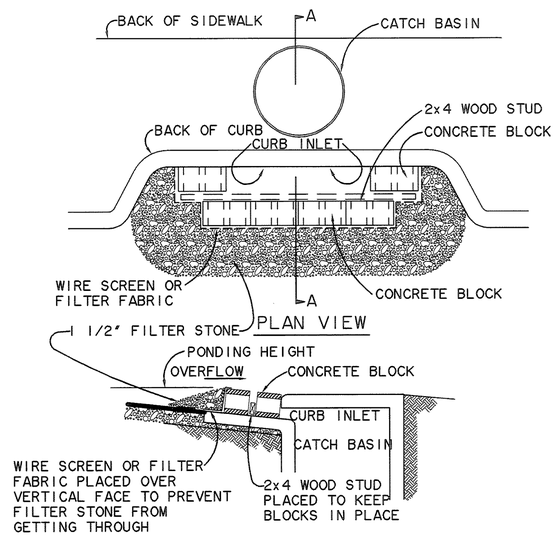
STABILIZED CONSTRUCTION ENTRANCE

N.T.S.



CINDER BLOCK PIPE INLET PROTECTION

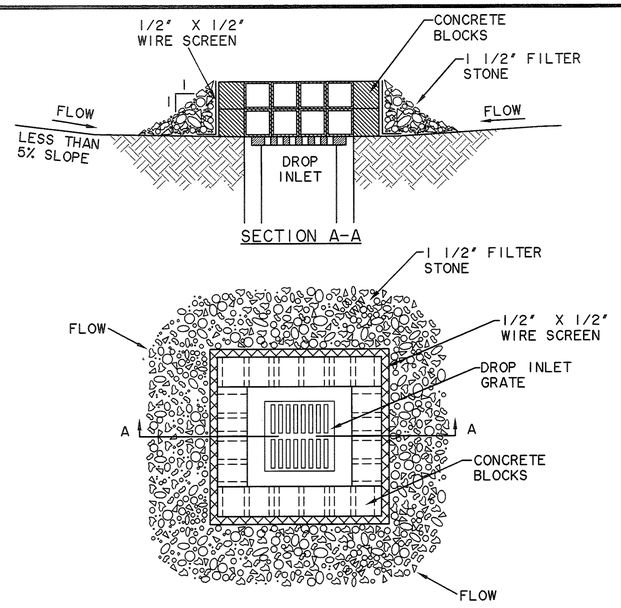
N.T.S.



SECTION A - A

PHASE II CURB INLET PROTECTION

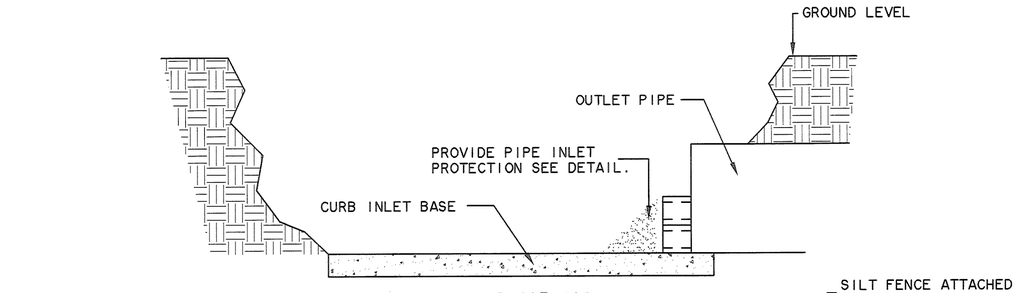
N.T.S.



PLAN VIEW

BLOCK / GRAVEL DROP INLET PROTECTION

N.T.S.



PHASE I CURB INLET PROTECTION

N.T.S.

RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
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6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.Wierkassociates.com

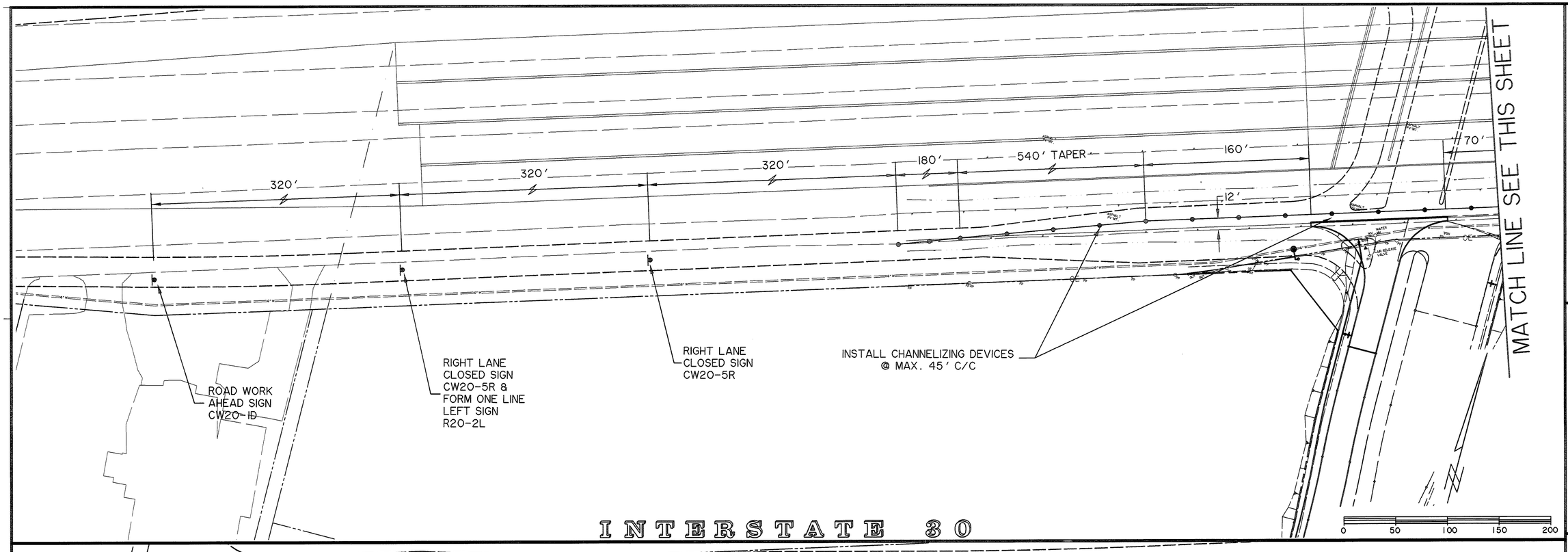
PHASE I S.H. 205 BYPASS
FROM S.H. 276 TO INTERSTATE 30
EROSION CONTROL
DETAILS

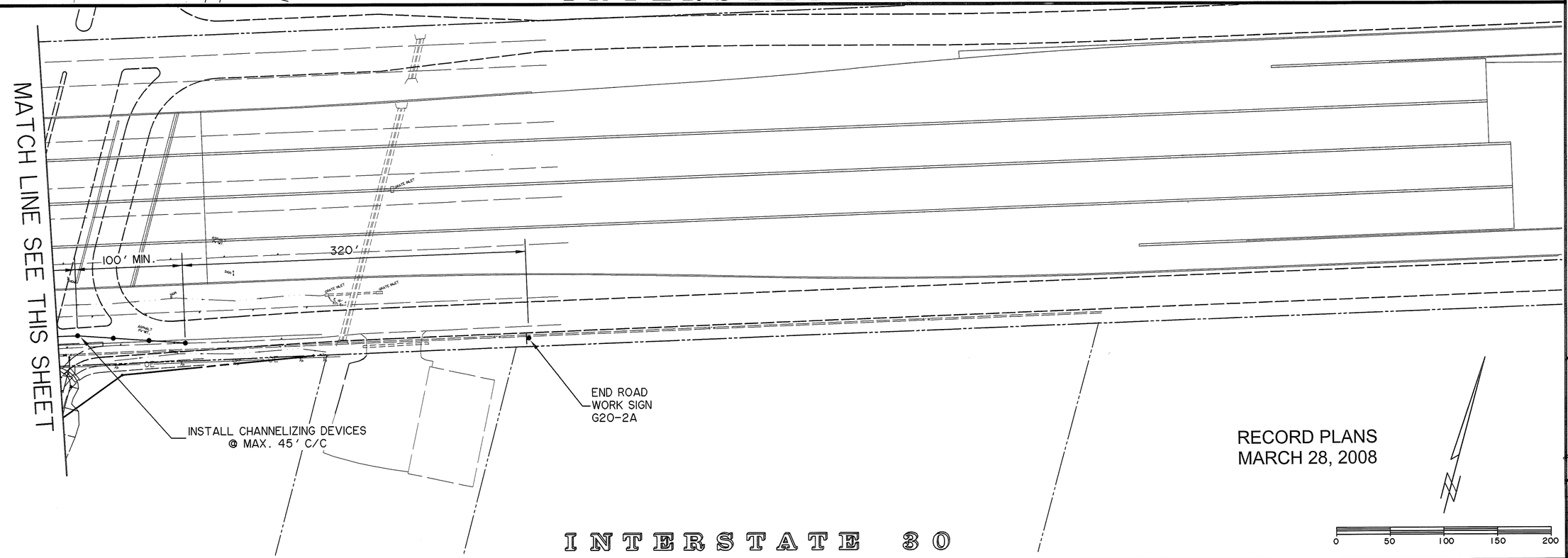
STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED
PROFESSIONAL ENGINEER
6-07-07

LAST SHEET EDIT DATE 06-07-2007
WA# 04141

SHEET NO.
E202

FILE: 04141-ErosionDet2Phase1.dwg
TIME: 8:50





RECORD PLANS
MARCH 28, 2008

PREPARED BY:
WIER & ASSOCIATES, INC.
ENGINEERS SURVEYORS LAND PLANNERS
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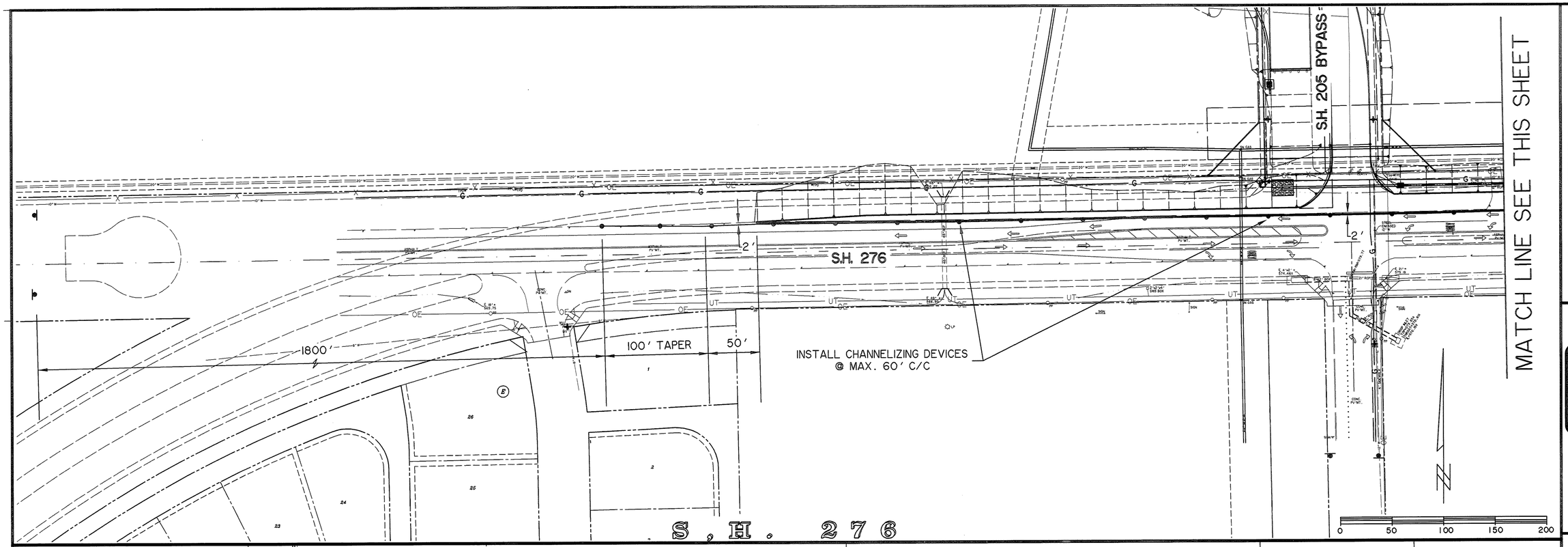
1380 U.S. HIGHWAY 287 N, SUITE 101 MANSFIELD, TEXAS 76063 METRO (817)477-6700
6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.WierAssociates.com

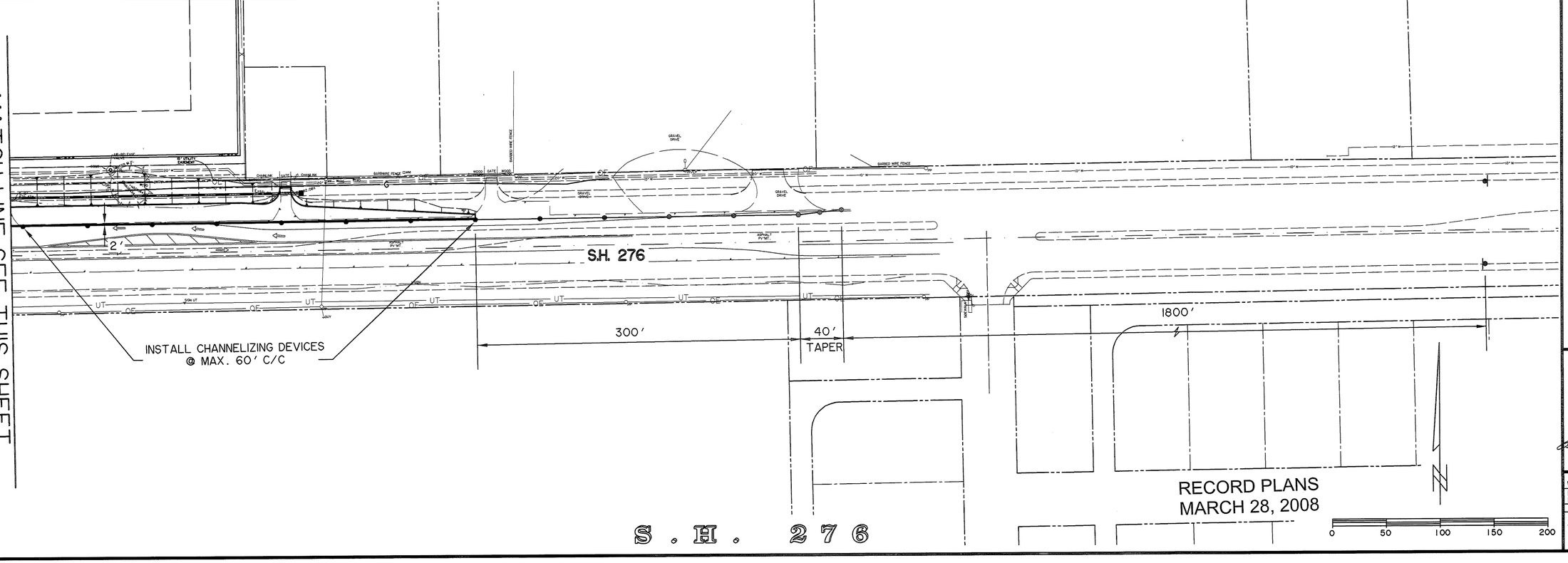
PHASE I S.H. 205 BYPASS FROM S.H. 276 TO INTERSTATE 30
TRAFFIC CONTROL PLAN

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
8-25-2006

LAST SHEET EDIT DATE 08-23-2006
WA# 04141
SHEET NO. T101

FILE: I:\0414\I-Traffic\Phase I.dwg
TIME: 9:34





PREPARED BY:
WIER & ASSOCIATES, INC.
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6849 ELM STREET FRISCO, TEXAS 75034 METRO (214)387-8000
www.wierassociates.com

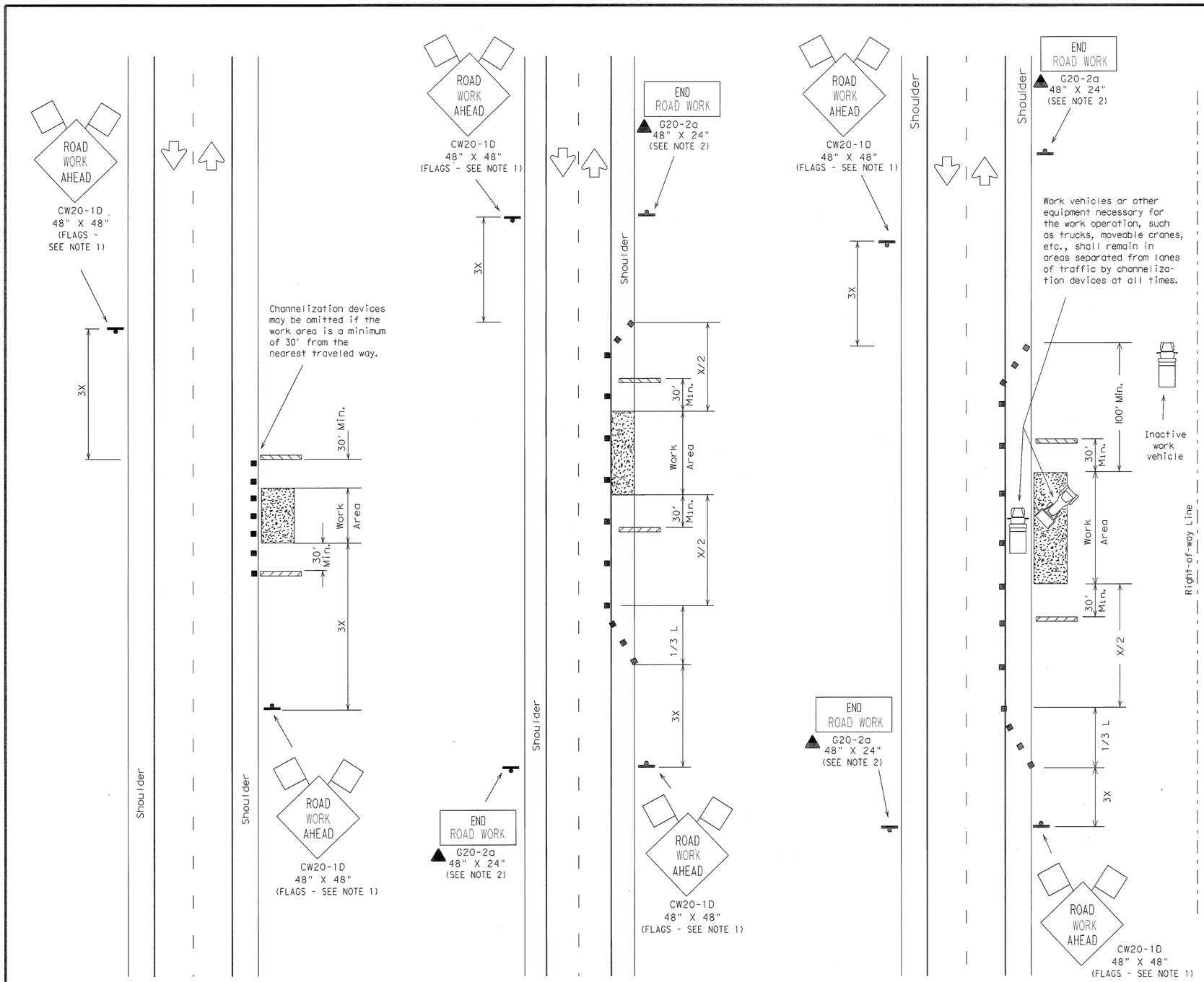
PHASE I S.H. 205 BYPASS FROM S.H. 276 TO INTERSTATE 30
TRAFFIC CONTROL PLAN

STATE OF TEXAS
PHILIP L. GRAHAM
94719
LICENSED PROFESSIONAL ENGINEER
4-25-2006

LAST SHEET EDIT DATE 08-23-2006
WA# 04141

SHEET NO.
T102

TIME: 9:35 FILE: 04141-Traffic2Phase1.dwg



TCP (2-1a)

Work Area Near Shoulder

TCP (2-1b)

Work Area on Shoulder

TCP (2-1c)

Work Vehicles on Shoulder

RECORD PLANS
MARCH 28, 2008

LEGEND

Type III Barricade | Channelizing Devices | Flag
Heavy Work Vehicle | Truck Mounted Attenuator
Trailer Mounted Flashing Arrow Panel | Portable Changeable Message Sign
Flagger | Sign Post

Posted Speed ✕	Formula	Minimum Desirable Taper Lengths ✕✕ 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent	Minimum Sign Spacing X Distance
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'-75'	120'
35		205'	225'	245'	35'	70'-90'	160'
40		265'	295'	320'	40'	80'-100'	240'
45	L=WS	450'	495'	540'	45'	90'-110'	320'
50		500'	550'	600'	50'	100'-125'	400'
55		550'	605'	660'	55'	110'-140'	500'
60		600'	660'	720'	60'	120'-150'	✕600'
65		650'	715'	780'	65'	130'-165'	✕700'
70		700'	770'	840'	70'	140'-175'	✕800'

✕ Conventional Roads Only

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

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

GENERAL NOTES:

1. Unless otherwise stated in the plans, flags attached to signs 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.
3. Type III barricades are required on both sides of work area at all times. (See BC Standards for barricade details.)
4. Stockpiled material should be placed a minimum 30' from nearest traveled way.
5. On high speed facilities advance warning signs should be installed approximately 3X from the work area or from the beginning of a lane or shoulder taper. On low speed facilities the advance warning sign should be placed on the "X" minimum distance.

Only pre-qualified products shall be used. A list of compliant products and their sources may be obtained by writing or faxing:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3335
Fax (512) 416-3161
E-mail TRF-STANDARD@mailgw.dot.state.tx.us

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

TRAFFIC CONTROL PLAN

TCP(2-1)-98

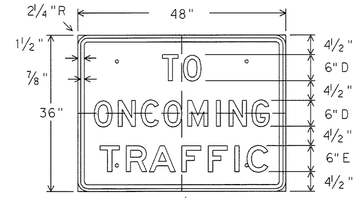
 DN: LR | CK: MT | DW: DN | CK: MT | NEG NO.:

REVISIONS	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
2-94		6		T201
8-95				
1-97	COUNTY	CONTROL	SECTION / JOB	HIGHWAY
4-98				

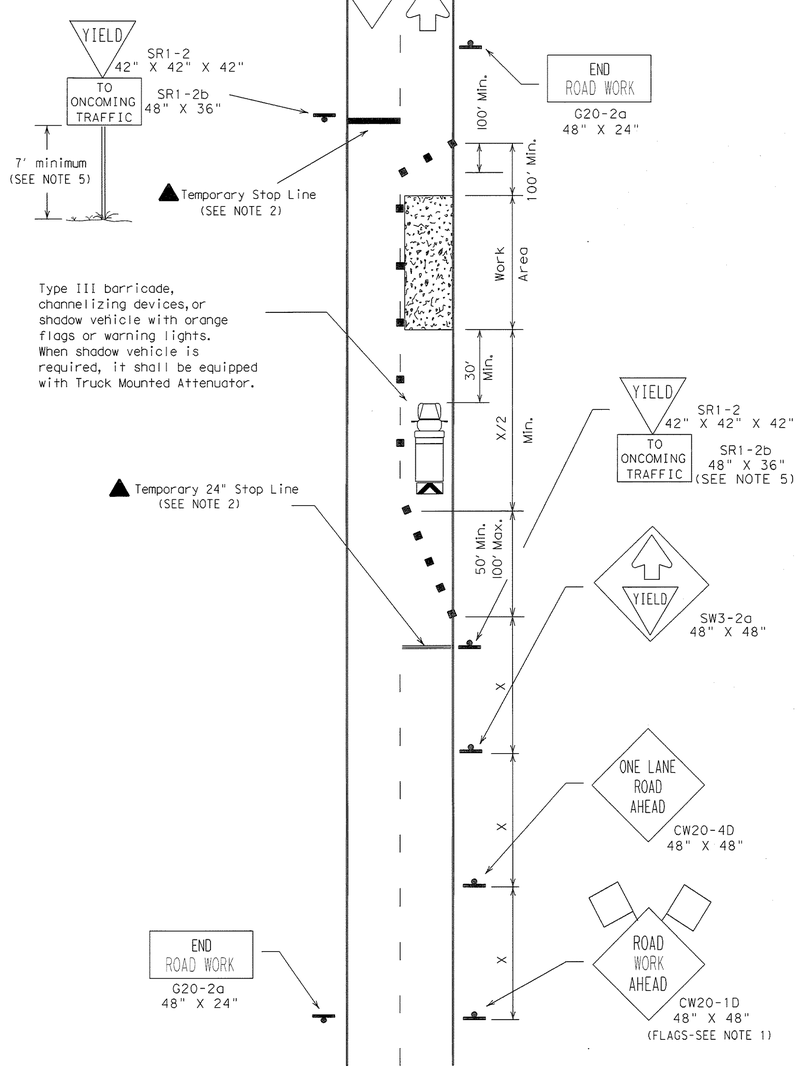
LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

DATE:
ACC:
FILE:
DN:
CK:
DW:
CK:

SR1-2b
48" x 36"
Legend & Boarder - Black
Background - White
Reflective



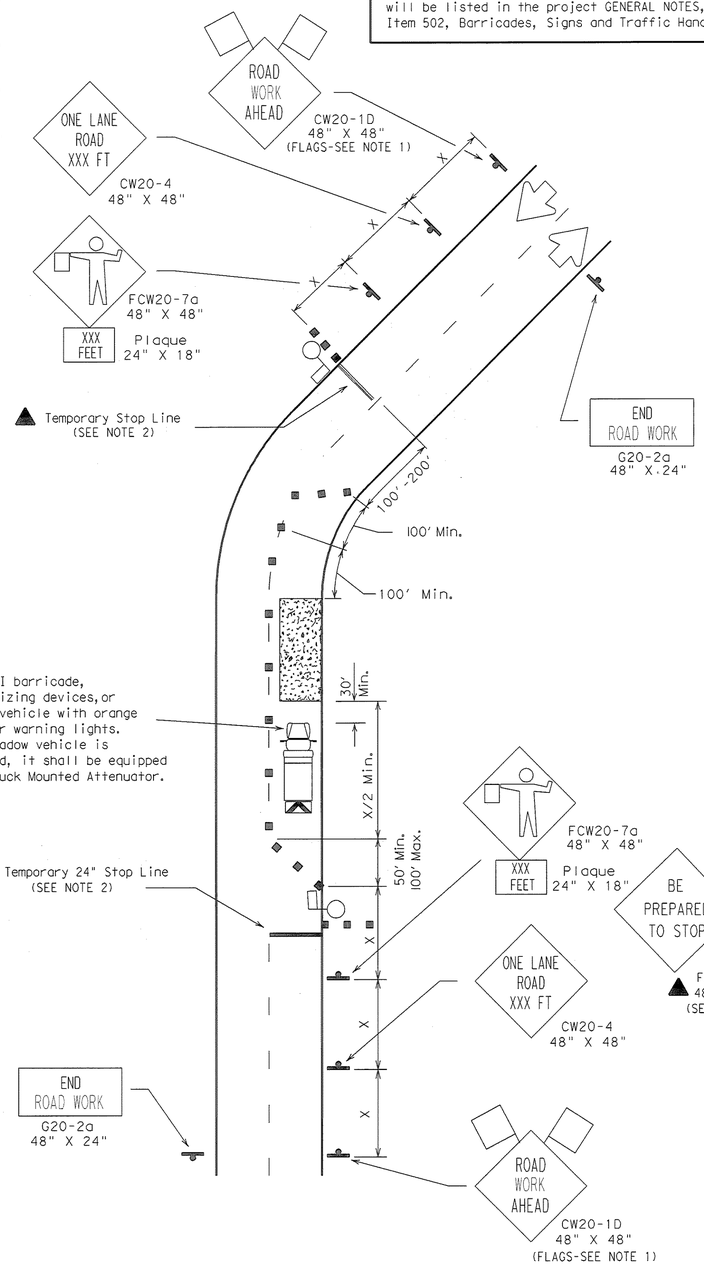
Warning Sign Sequence in Opposite Direction same as below.



TCP (2-2a)

2-Lane Roadway Without Paved Shoulders
One Lane Closed
Adequate Field of View

The requirement for shadow vehicles will be listed in the project GENERAL NOTES, Item 502, Barricades, Signs and Traffic Handling.



TCP (2-2b)

2-Lane Roadway Without Paved Shoulders
One Lane Closed
Inadequate Field of View

LEGEND

Type III Barricade | Channelizing Devices | Flag
Heavy Work Vehicle | Truck Mounted Attenuator
Trailer Mounted Flashing Arrow Panel | Portable Changeable Message Sign
Flagger | Sign Post

Posted Speed ✳	Formula	Minimum Desirable Taper Lengths ✳✳ 10′ Offset	11′ Offset	12′ Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent	Minimum Sign Spacing X Distance
30	$L=\frac{WS^2}{60}$	150′	165′	180′	30′	60′-75′	120′
35		205′	225′	245′	35′	70′-90′	160′
40		265′	295′	320′	40′	80′-100′	240′
45	L=WS	450′	495′	540′	45′	90′-110′	320′
50		500′	550′	600′	50′	100′-125′	400′
55		550′	605′	660′	55′	110′-140′	500′
60		600′	660′	720′	60′	120′-150′	✳600′
65		650′	715′	780′	65′	130′-165′	✳700′
70		700′	770′	840′	70′	140′-175′	✳800′

✳ Conventional Roads Only

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

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

GENERAL NOTES:

1. Flags attached to signs 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.
3. The BE PREPARED TO STOP sign may be installed after the ONE LANE ROAD XXX FT sign, but proper sign spacing shall be maintained.
4. YIELD sign traffic control may be used on projects with approaches that have adequate sight distance. For projects in urban areas, work zones should be no longer than one half city block. In rural areas on roadways with less than 4000 ADT and work areas should be no longer than 400′.
5. YIELD TO ONCOMING TRAFFIC sign shall be placed on a support at a 7′ minimum mounting height.
6. Flaggers should use two-way radios or other methods of communication to control traffic.
7. Length of work area should be based on the ability of flaggers to communicate.
8. For intermediate term situations, when it is not feasible to remove and restore pavement markings, the channelization must be made dominant by using a very close spacing. This is especially important in locations of conflicting information, such as where traffic is directed over a double yellow centerline. In such locations a maximum channelizing device spacing of 10 feet is recommended. The 10 foot channelizing device spacing recommendation is intended for the area of conflicting information and not the entire work zone.

RECORD PLANS
MARCH 28, 2008

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

TRAFFIC CONTROL PLAN

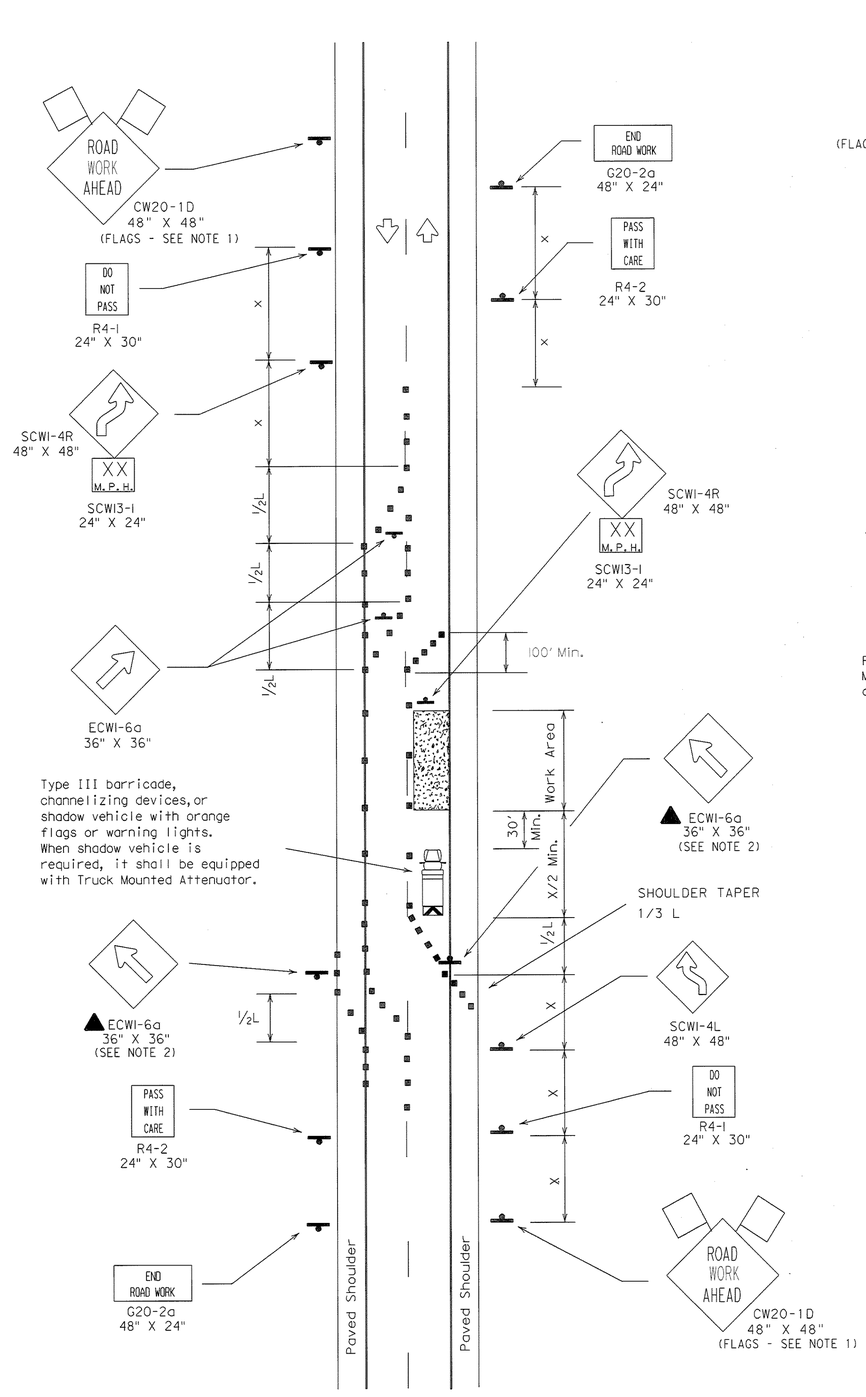
TCP(2-2)-03

DN: LR	CK: MT	DW: DN	CK: MT	REQ NO.:

REVISIONS	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
8-95		6		T202
1-97				
4-98	COUNTY	CONTROL	SECTION	JOB / HIGHWAY
3-03				

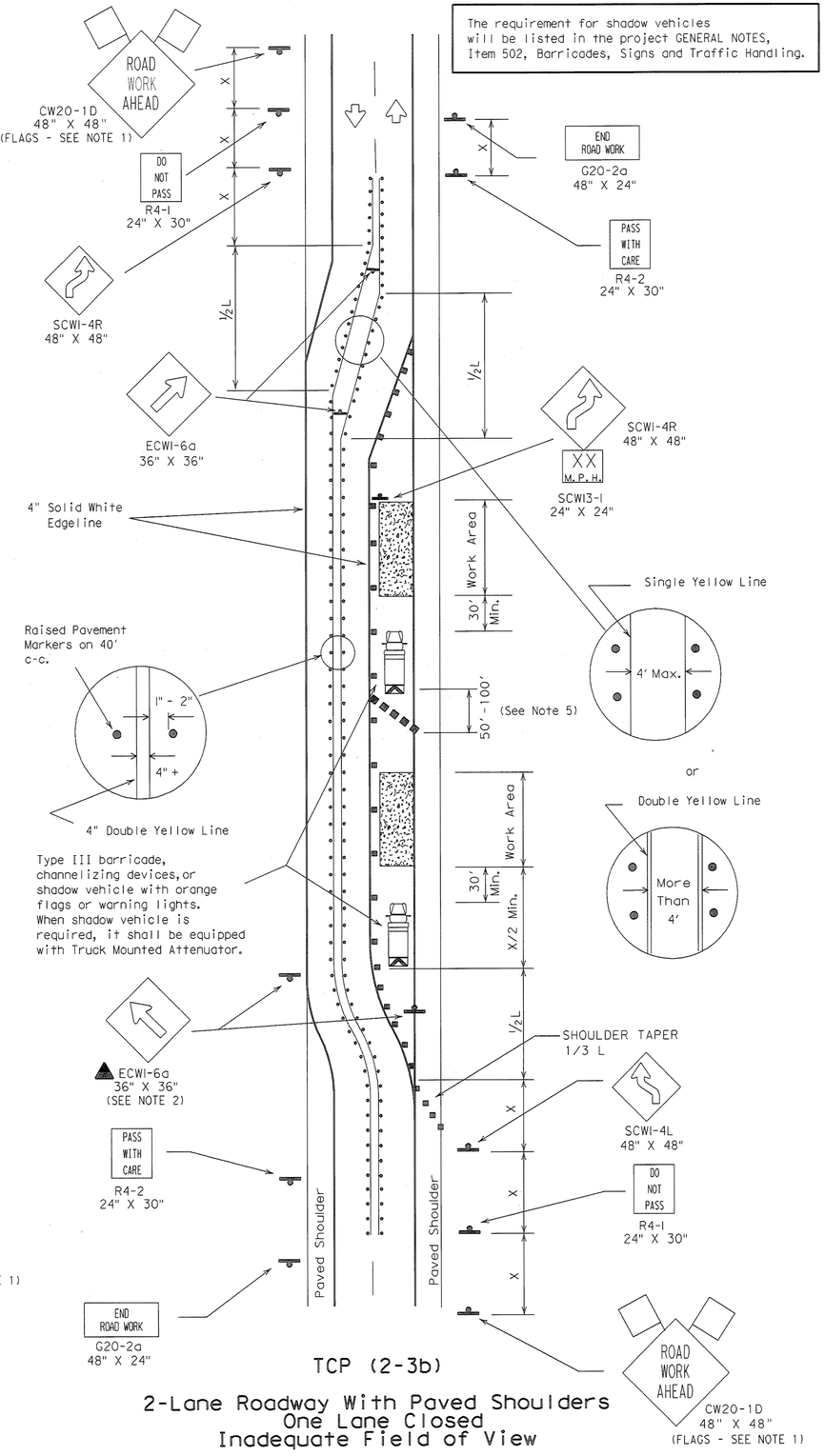
LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

DATE:
ACC:
FILE:



TCP (2-3a)

2-Lane Roadway With Paved Shoulders
One Lane Closed
Adequate Field of View



TCP (2-3b)

2-Lane Roadway With Paved Shoulders
One Lane Closed
Inadequate Field of View

LEGEND

Type III Barricade ▪▪ Channelizing Devices Flag
Heavy Work Vehicle Truck Mounted Attenuator
Trailer Mounted Flashing Arrow Panel (M) Portable Changeable Message Sign
Flagger Sign Post
• • • Raised Pavement Markers Type II-A-A (40' spacing)

Posted Speed ✳	Formula	Minimum Desirable Taper Lengths ✳✳ 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent	Minimum Sign Spacing X Distance
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'-75'	120'
35		205'	225'	245'	35'	70'-90'	160'
40		265'	295'	320'	40'	80'-100'	240'
45	L=WS	450'	495'	540'	45'	90'-110'	320'
50		500'	550'	600'	50'	100'-125'	400'
55		550'	605'	660'	55'	110'-140'	500'
60		600'	660'	720'	60'	120'-150'	✳600'
65		650'	715'	780'	65'	130'-165'	✳700'
70		700'	770'	840'	70'	140'-175'	✳800'

✳ Conventional Roads Only

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

TYPICAL USAGE:				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
		✓	✓	✓ (2-3b only)

GENERAL NOTES:

1. Unless otherwise stated in the plans, flags attached to signs 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.
3. When work area will be in place more than one day but less than 2 weeks existing pavement markings may remain in place. Channelizing devices shall be used to separate traffic.
4. Flagger control should NOT be used unless roadway conditions or heavy traffic volume require additional emphasis to safely control traffic. Flagger should be positioned at end of traffic queue.
5. DO NOT PASS, PASS WITH CARE, and construction regulatory speed zone signs may be installed within ROAD WORK AHEAD signs. Proper spacing of signs shall be maintained.
6. When the work zone will be in place more than two weeks, conflicting pavement markings shall be removed, unless approved by the Engineer. New markings shall be placed and maintained to the satisfaction of the Engineer.
7. For intermediate term situations, when it is not feasible to remove and restore pavement markings, the channelization must be made dominant by using a very close spacing. This is especially important in locations of conflicting information, such as where traffic is directed over a double yellow centerline. In such locations a maximum channelizing device spacing of 10 feet is recommended. The 10 foot channelizing device spacing recommendation is intended for the area of conflicting information and not the entire work zone.

RECORD PLANS
MARCH 28, 2008

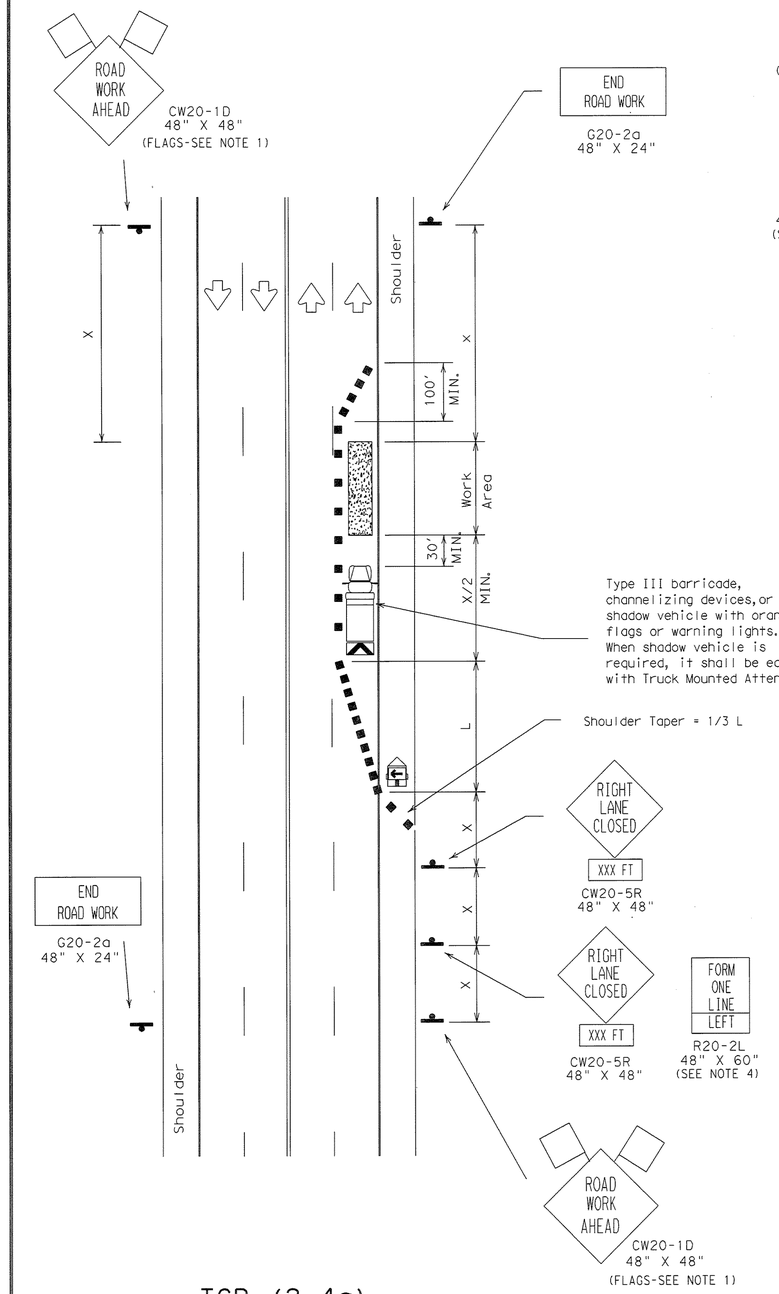
STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

TRAFFIC CONTROL PLAN

TCP(2-3)-03

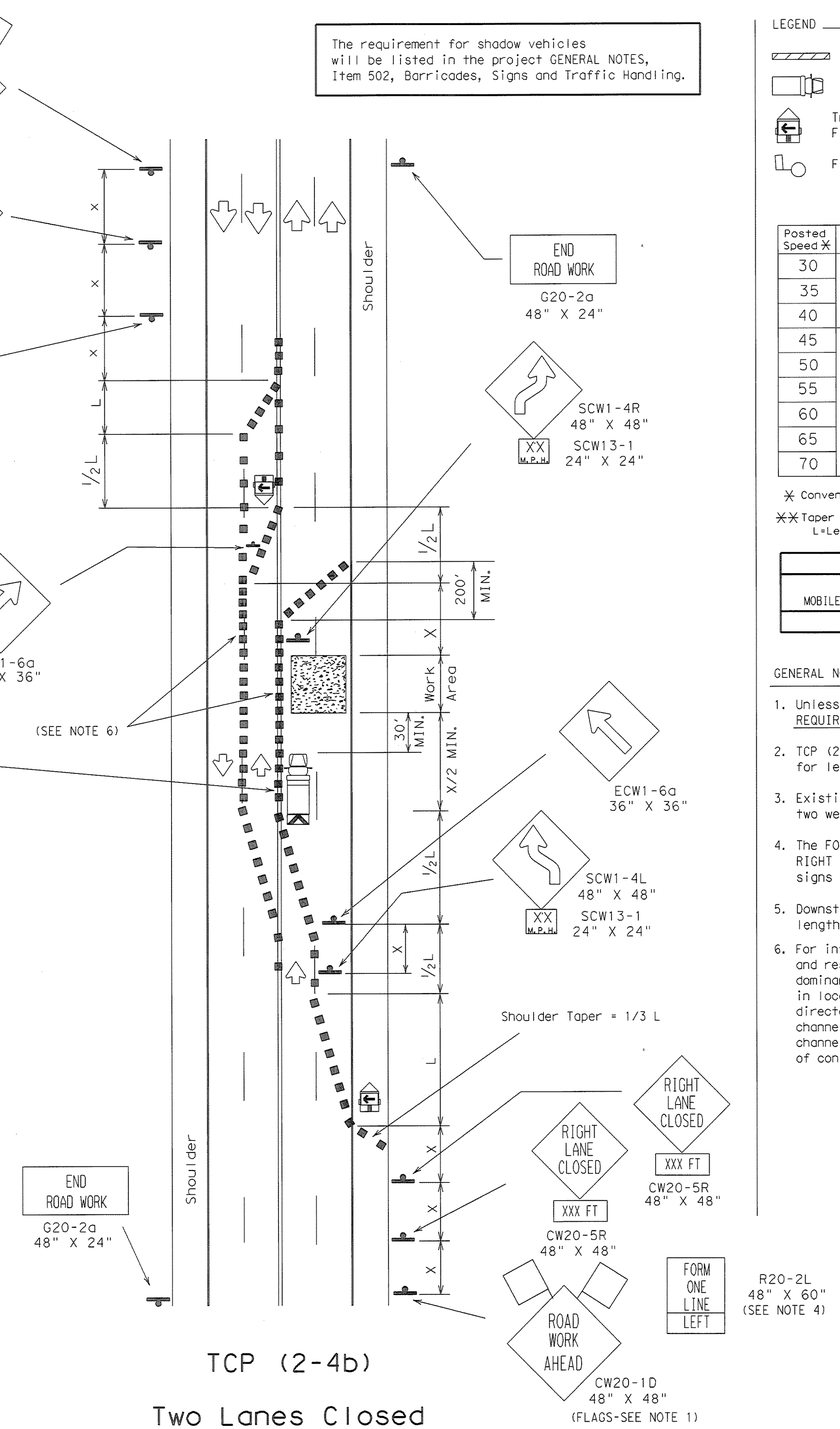
© TxDOT December 1985 | DN: LR | CK: MT | DW: DN | CK: DM | REQ NO.:
REVISIONS 8-95 1-97 4-98 3-03 | STATE DISTRICT | FEDERAL REGION 6 | FEDERAL AID PROJECT | SHEET 1203
COUNTY | CONTROL | SECTION | JOB | HIGHWAY

DN: CK: DW: CK:
DATE: ACC: FILE:
LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63



TCP (2-4a)

One Lane Closed
Less Than Two Weeks



TCP (2-4b)

Two Lanes Closed
Less Than Two Weeks

LEGEND

Type III Barricade | Channelizing Devices | Flag
Heavy Work Vehicle | Truck Mounted Attenuator
Trailer Mounted Flashing Arrow Panel | Portable Changeable Message Sign
Flagger | Sign Post

Posted Speed ✳	Formula	Minimum Desirable Taper Lengths ✳✳ 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent	Minimum Sign Spacing X Distance
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'-75'	120'
35		205'	225'	245'	35'	70'-90'	160'
40		265'	295'	320'	40'	80'-100'	240'
45	L=WS	450'	495'	540'	45'	90'-110'	320'
50		500'	550'	600'	50'	100'-125'	400'
55		550'	605'	660'	55'	110'-140'	500'
60		600'	660'	720'	60'	120'-150'	✳600'
65		650'	715'	780'	65'	130'-165'	✳700'
70		700'	770'	840'	70'	140'-175'	✳800'

✳ Conventional Roads Only

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

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

GENERAL NOTES:

1. Unless otherwise stated in the plans, flags attached to signs are REQUIRED.
2. TCP (2-4b) shall be used only on projects that will be at a location for less than two weeks.
3. Existing pavement markings may remain in place for projects less than two weeks in duration.
4. The FORM ONE LINE LEFT (or RIGHT) sign may be used following the RIGHT (or LEFT) LANE CLOSED XXX FT sign. Spacing distance between signs should be the minimum distance indicated.
5. Downstream taper is optional. When used, it should be 100' minimum length per lane.
6. For intermediate term situations, when it is not feasible to remove and restore pavement markings, the channelization must be made dominant by using a very close spacing. This is especially important in locations of conflicting information, such as where traffic is directed over a double yellow centerline. In such locations a maximum channelizing device spacing of 10 feet is recommended. The 10 foot channelizing device spacing recommendation is intended for the area of conflicting information and not the entire work zone.

RECORD PLANS
MARCH 28, 2008

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

TRAFFIC CONTROL PLAN

TCP(2-4)-03

DN: LR	CK: MT	DW: DN	CK: DM	REG NO.:

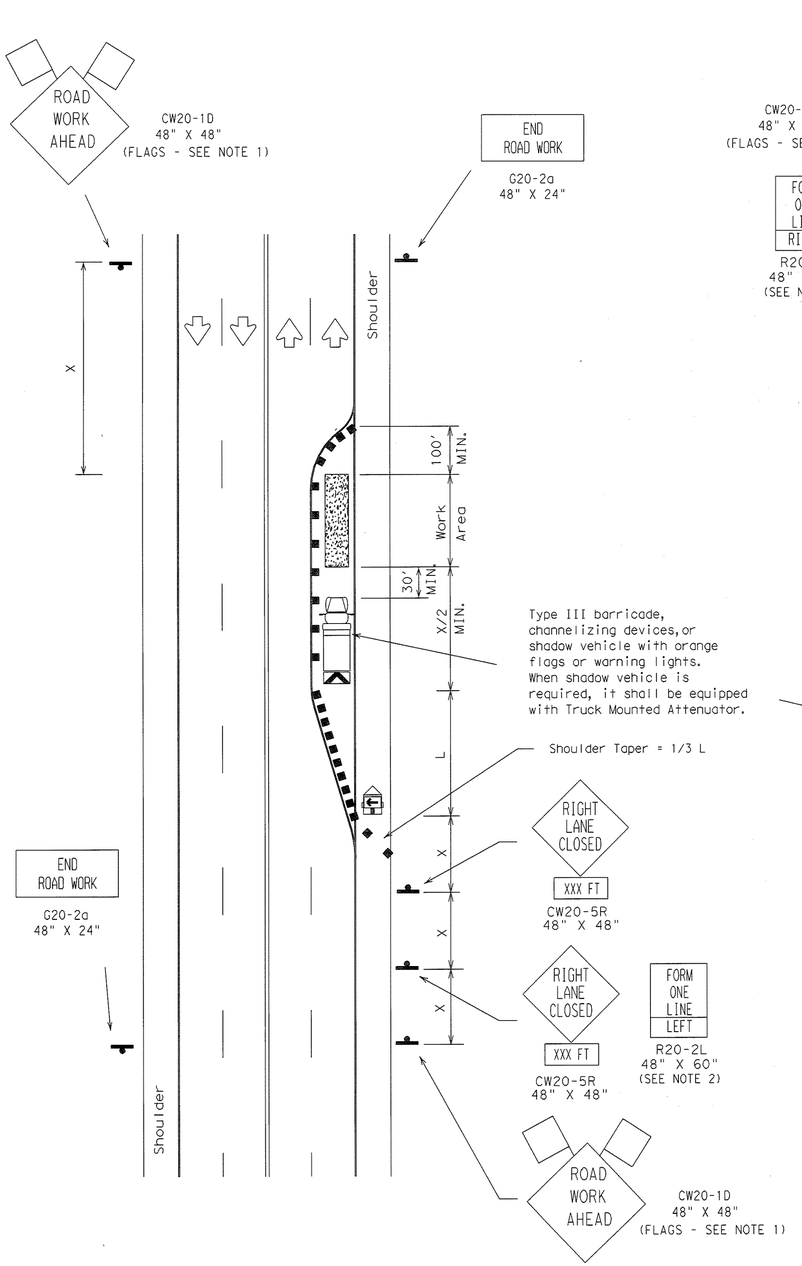
REVISIONS	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
8-95		6		1204
1-97				
4-98	COUNTY	CONTROL	SECTION	JOB / HIGHWAY
3-03				

LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

DATE:
ACC:
FILE:
DN:
CK:
DW:
CK:

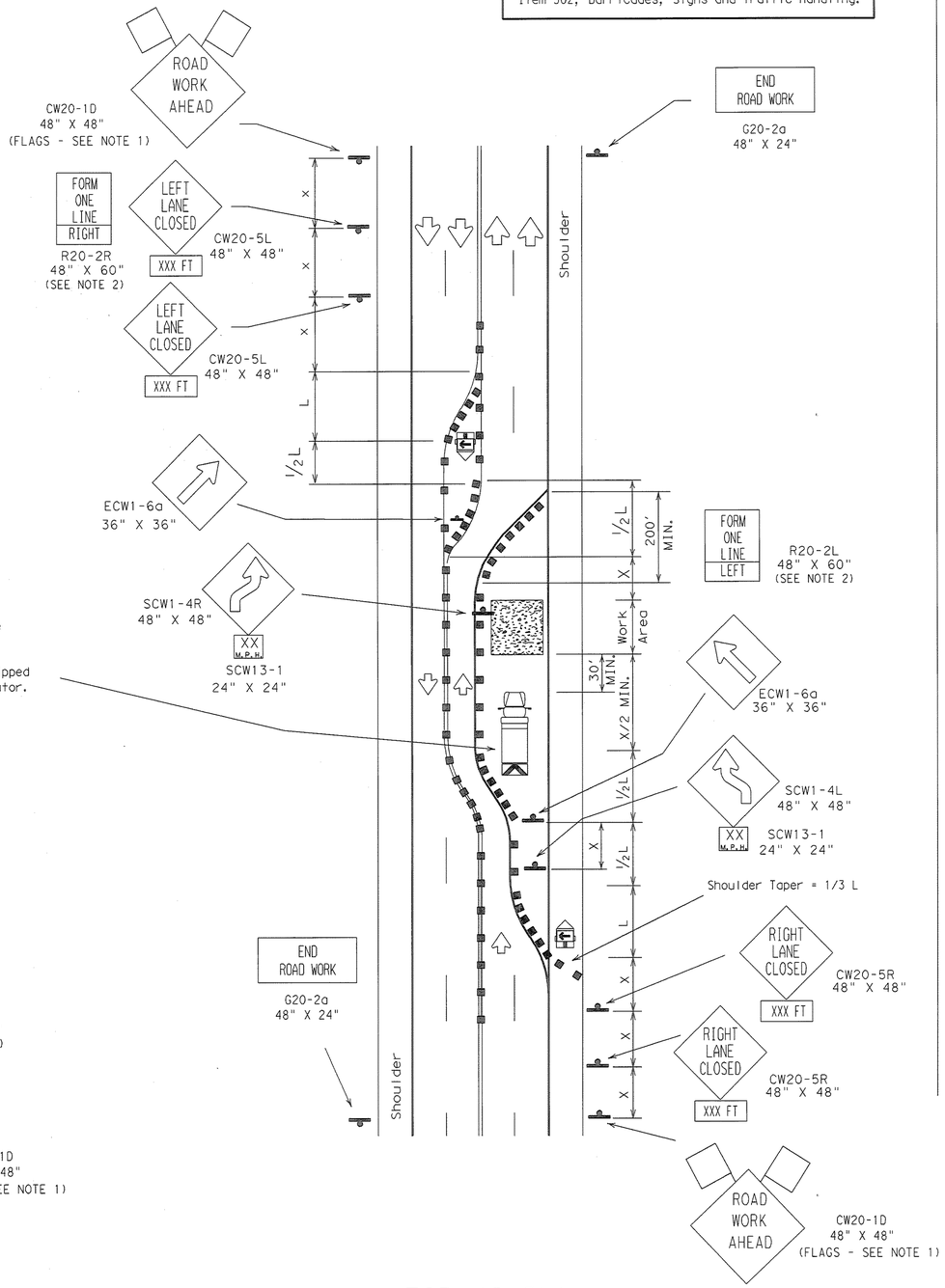
LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

DATE:
ACC:
FILE:
DN:
CK:
DW:
CK:



TCP (2-5a)
One Lane Closed
More Than Two Weeks

The requirement for shadow vehicles will be listed in the project GENERAL NOTES, Item 502, Barricades, Signs and Traffic Handling.



TCP (2-5b)
Two Lanes Closed
More Than Two Weeks

LEGEND

Type III Barricade ▪▪ Channelizing Devices Flag
Heavy Work Vehicle Truck Mounted Attenuator
Trailer Mounted Flashing Arrow Panel (M) Portable Changeable Message Sign
Flagger Sign Post

Posted Speed ✳	Formula	Minimum Desirable Taper Lengths ✳✳ 10′ offset	11′ Offset	12′ Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent	Minimum Sign Spacing X Distance
30	$L=\frac{WS^2}{60}$	150′	165′	180′	30′	60′-75′	120′
35		205′	225′	245′	35′	70′-90′	160′
40		265′	295′	320′	40′	80′-100′	240′
45	L=WS	450′	495′	540′	45′	90′-110′	320′
50		500′	550′	600′	50′	100′-125′	400′
55		550′	605′	660′	55′	110′-140′	500′
60		600′	660′	720′	60′	120′-150′	✳600′
65		650′	715′	780′	65′	130′-165′	✳700′
70		700′	770′	840′	70′	140′-175′	✳800′

✳ Conventional Roads Only

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

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

GENERAL NOTES:

1. Unless otherwise stated in the plans, flags attached to signs are REQUIRED.
2. The FORM ONE LINE LEFT (or RIGHT) sign may be used following the RIGHT (or LEFT) LANE CLOSED XXX FT sign. Spacing distance between signs should be the minimum distance indicated.
3. When the work zone will be in place more than two weeks, conflicting pavement markings shall be removed. New markings shall be installed and maintained to the satisfaction of the Engineer.
4. Downstream taper is optional. When used, it should be 100′ minimum length per lane.
5. For intermediate term situations, when it is not feasible to remove and restore pavement markings, the channelization must be made dominant by using a very close spacing. This is especially important in locations of conflicting information, such as where traffic is directed over a double yellow centerline. In such locations a maximum channelizing device spacing of 10 feet is recommended. The 10 foot channelizing device spacing recommendation is intended for the area of conflicting information and not the entire work zone.

RECORD PLANS
MARCH 28, 2008

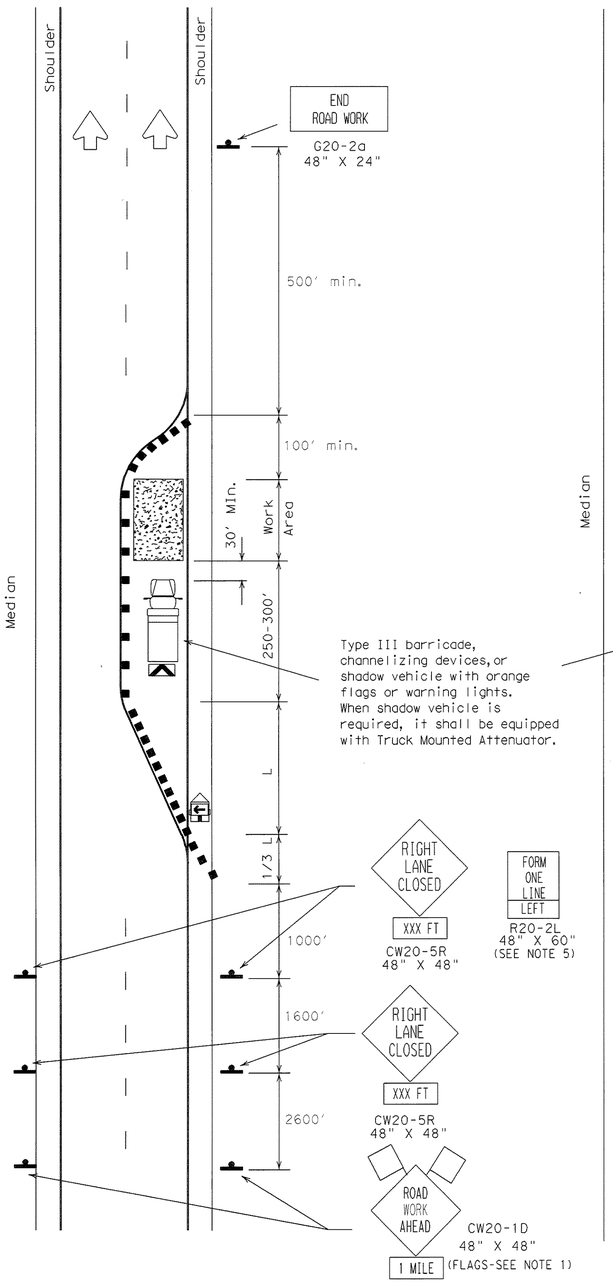
STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

TRAFFIC CONTROL PLAN

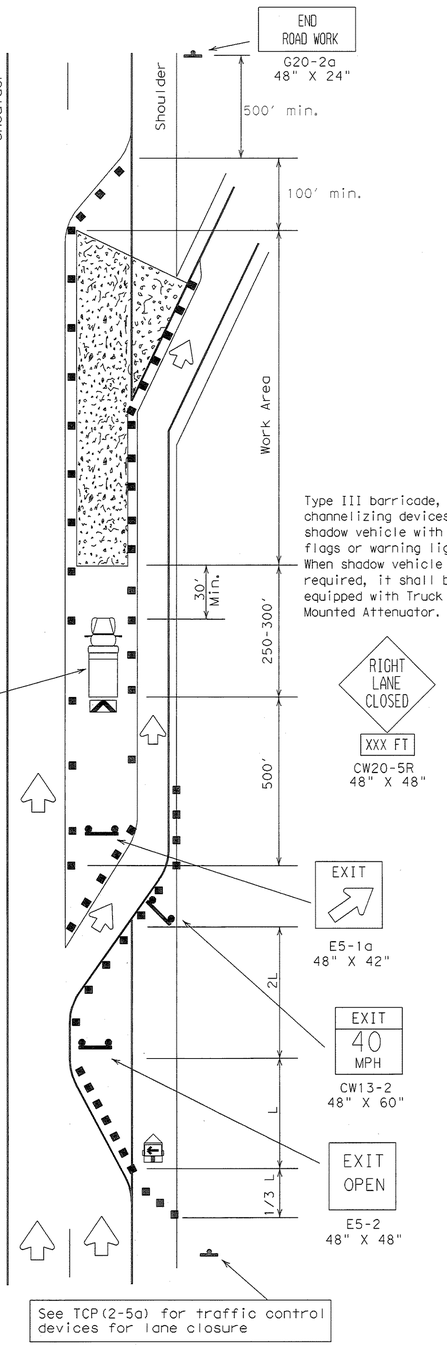
TCP(2-5)-03

DN: LR	CK: -	DW: DN	CK: MT	NEG. NO.:

REVISIONS	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
8-95		6		1205
1-97				
4-98	COUNTY	CONTROL	SECTION	JOB / HIGHWAY
3-03				

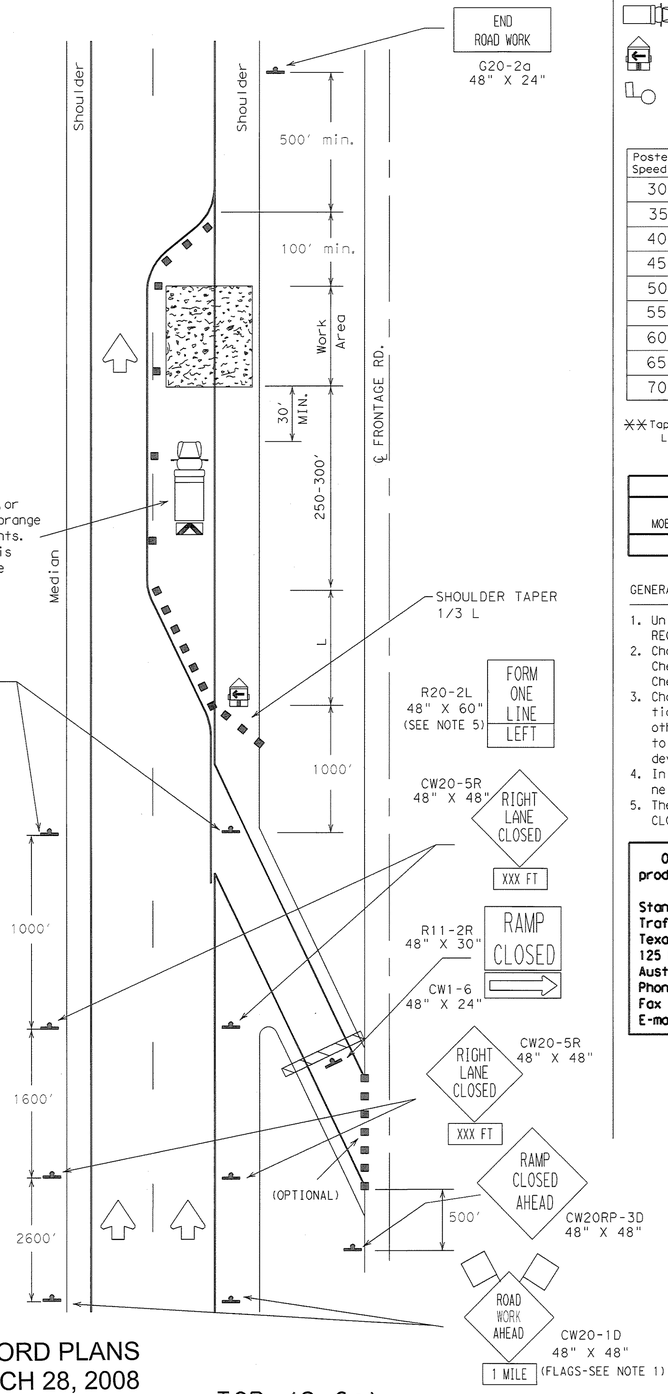


TCP (2-6a)
One Lane Closure



TCP (2-6b)
Lane Closure Near Exit Ramps

RECORD PLANS
MARCH 28, 2008



TCP (2-6c)
Lane Closure Near Entrance Ramps

LEGEND

Type III Barricade | Channelizing Devices | Flag
Heavy Work Vehicle | Truck Mounted Attenuator
Trailer Mounted Flashing Arrow Panel | Portable Changeable Message Sign
Flagger | Sign Post

Posted Speed	Formula	Minimum Desirable Taper Lengths ✕✕ 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'-75'
35		205'	225'	245'	35'	70'-90'
40		265'	295'	320'	40'	80'-100'
45	L=WS	450'	495'	540'	45'	90'-110'
50		500'	550'	600'	50'	100'-125'
55		550'	605'	660'	55'	110'-140'
60		600'	660'	720'	60'	120'-150'
65		650'	715'	780'	65'	130'-165'
70		700'	770'	840'	70'	140'-175'

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

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

GENERAL NOTES:

1. Unless otherwise stated in the plans, flags attached to signs are REQUIRED.
2. 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.
3. Channelizing devices used along the work area or along tangent sections may be supplemented with vertical panels (VP) placed on every other channelizing device. If night time conditions make it difficult to see at least two VP's, the VP's may be placed on each channelizing device.
4. In areas with safety lighting or continuous illumination the channelizing devices can be supplemented with delineators.
5. The FORM ONE LINE LEFT sign may be used following the RIGHT LANE CLOSED sign.

Only pre-qualified products shall be used. A list of compliant products and their sources may be obtained by writing or faxing:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3335
Fax (512) 416-3161
E-mail TRF-STANDARD@mailgw.dot.state.tx.us

The requirement for shadow vehicles will be listed in the project GENERAL NOTES, Item 502, Barricades, Signs and Traffic Handling.

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

TRAFFIC CONTROL PLAN

TCP(2-6)-98

DN: LR	CK: MT	DW: DN	CK: DM	REG NO.:

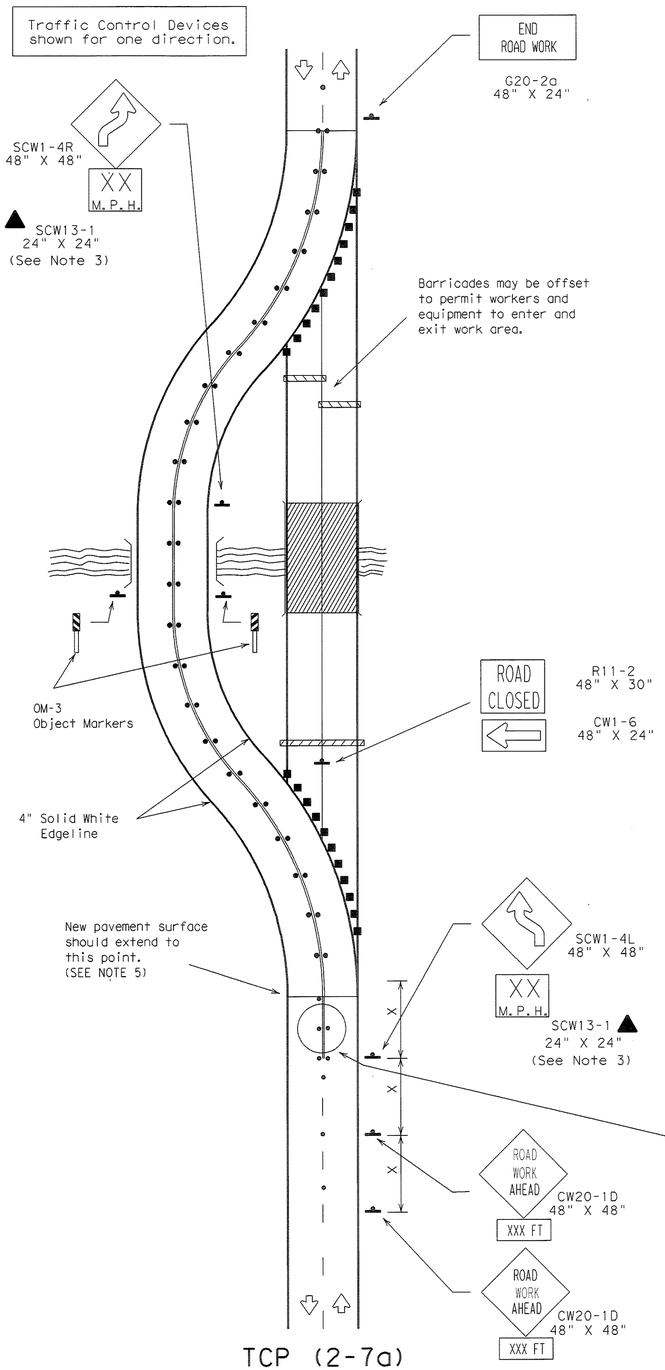
REVISIONS	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
2-94		6		1206
8-95				
1-97	COUNTY	CONTROL	SECTION	JOB	HIGHWAY
4-98					

DN: CK: DW: CK:
DATE: ACC: FILE:
LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 21 31 41 51 61
1 7 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 65 75 85 96 06 16 26 63

LEVELS DISPLAYED

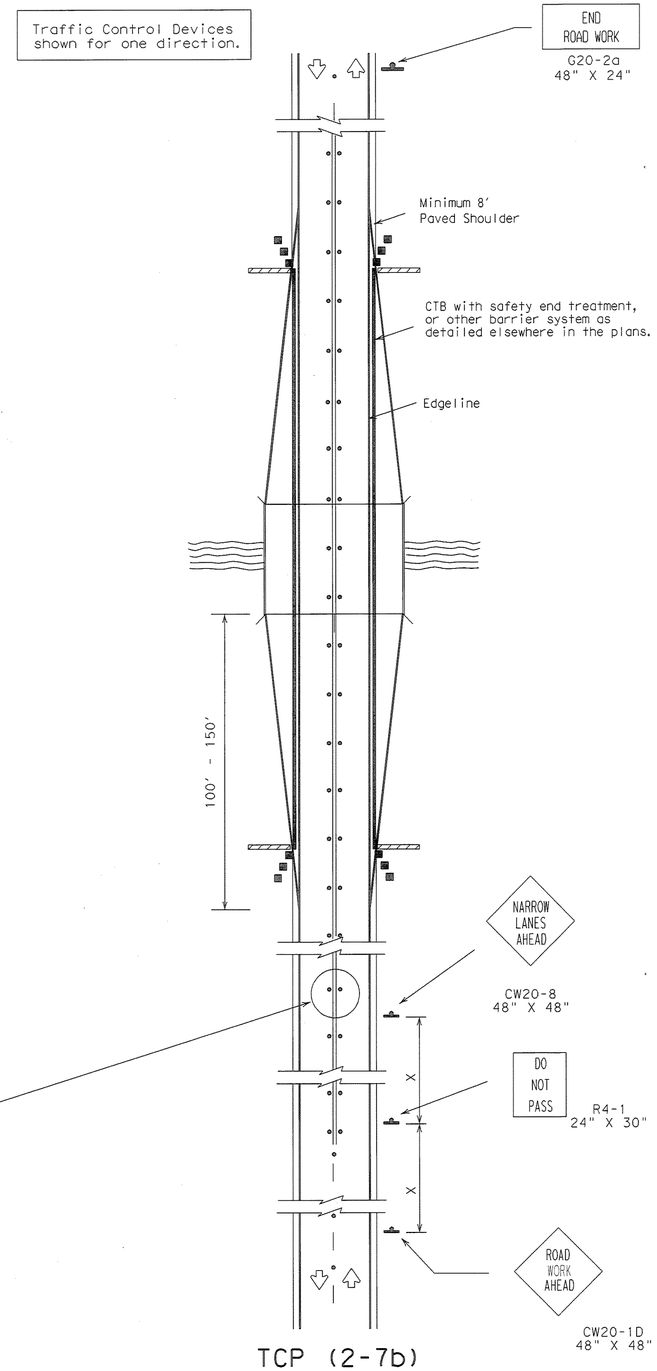
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	DATE:
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	ACC:
33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	FILE:
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63		

DN: CK: DW: CK:



TCP (2-7a)

Roadway Diversion



TCP (2-7b)

Bridge Widening

LEGEND

Type III Barricade ▨ ▨ Channelizing Devices Flag

Heavy Work Vehicle Truck Mounted Attenuator

Trailer Mounted Flashing Arrow Panel (M) Portable Changeable Message Sign

Flagger Sign Post

• • • Raised Pavement Markers Type III-A-A (40' spacing)

Posted Speed ✳	Formula	Minimum Desirable Taper Lengths ✳✳ 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent	Minimum Sign Spacing X Distance
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'-75'	120'
35		205'	225'	245'	35'	70'-90'	160'
40		265'	295'	320'	40'	80'-100'	240'
45	L=WS	450'	495'	540'	45'	90'-110'	320'
50		500'	550'	600'	50'	100'-125'	400'
55		550'	605'	660'	55'	110'-140'	500'
60		600'	660'	720'	60'	120'-150'	✳600'
65		650'	715'	780'	65'	130'-165'	✳700'
70		700'	770'	840'	70'	140'-175'	✳800'

✳ Conventional Roads Only

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

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

GENERAL NOTES:

1. Unless otherwise stated in the plans, flags attached to signs are REQUIRED.
2. Raised pavement markers shall be placed 40' c-c on centerline throughout project.

TCP (2-7a)

3. All traffic control devices illustrated are REQUIRED, except those with the triangle symbol may be omitted when stated elsewhere in the plans.
4. Roadway diversion design requirement should be based on posted speed limit or prevailing speed.
5. New pavement surface should be extended across existing roadway edge to a point where existing pavement markings left in place during project do not conflict with construction area pavement markings.

RECORD PLANS
MARCH 28, 2008

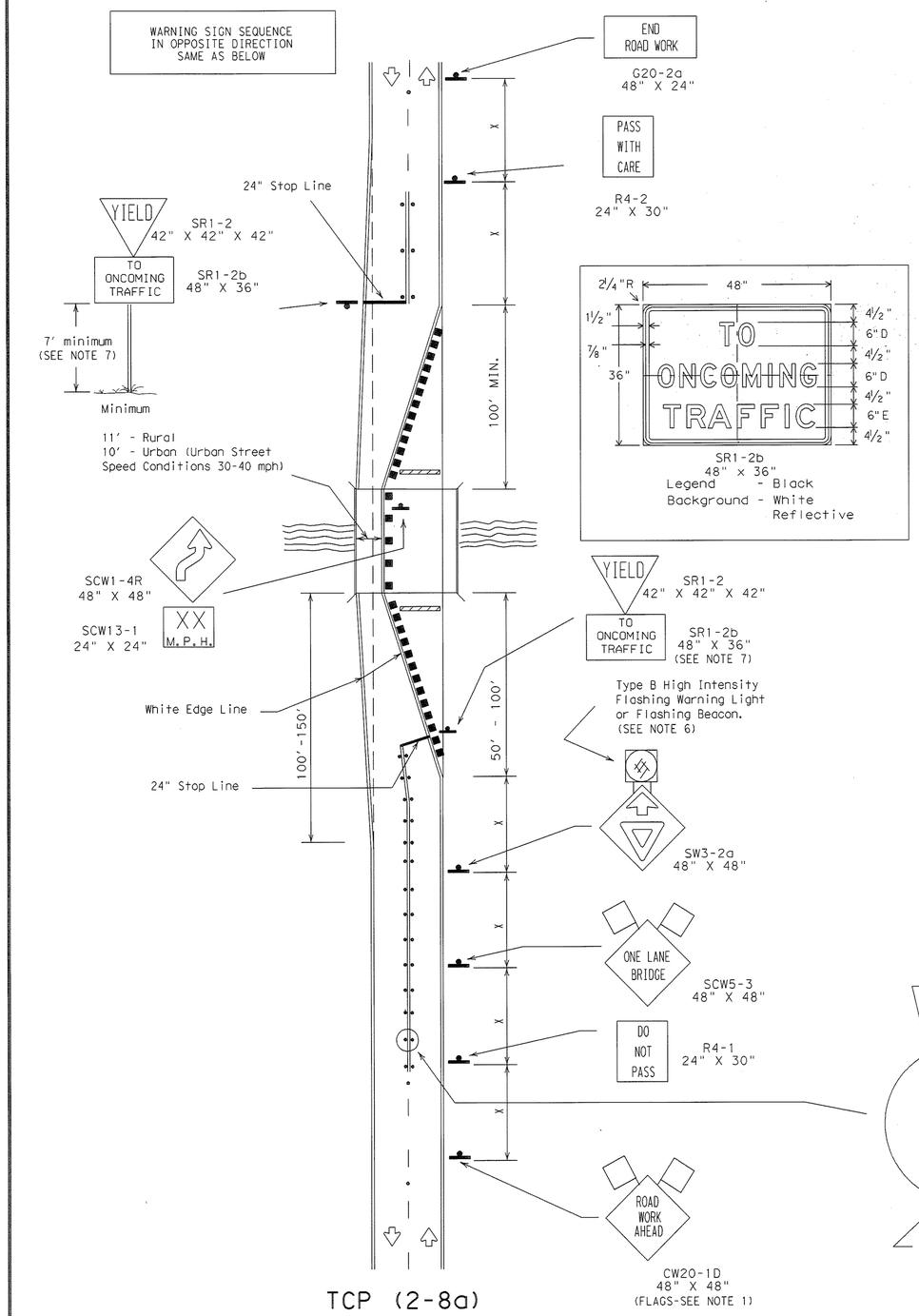
STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

TRAFFIC CONTROL PLAN

TCP(2-7)-03

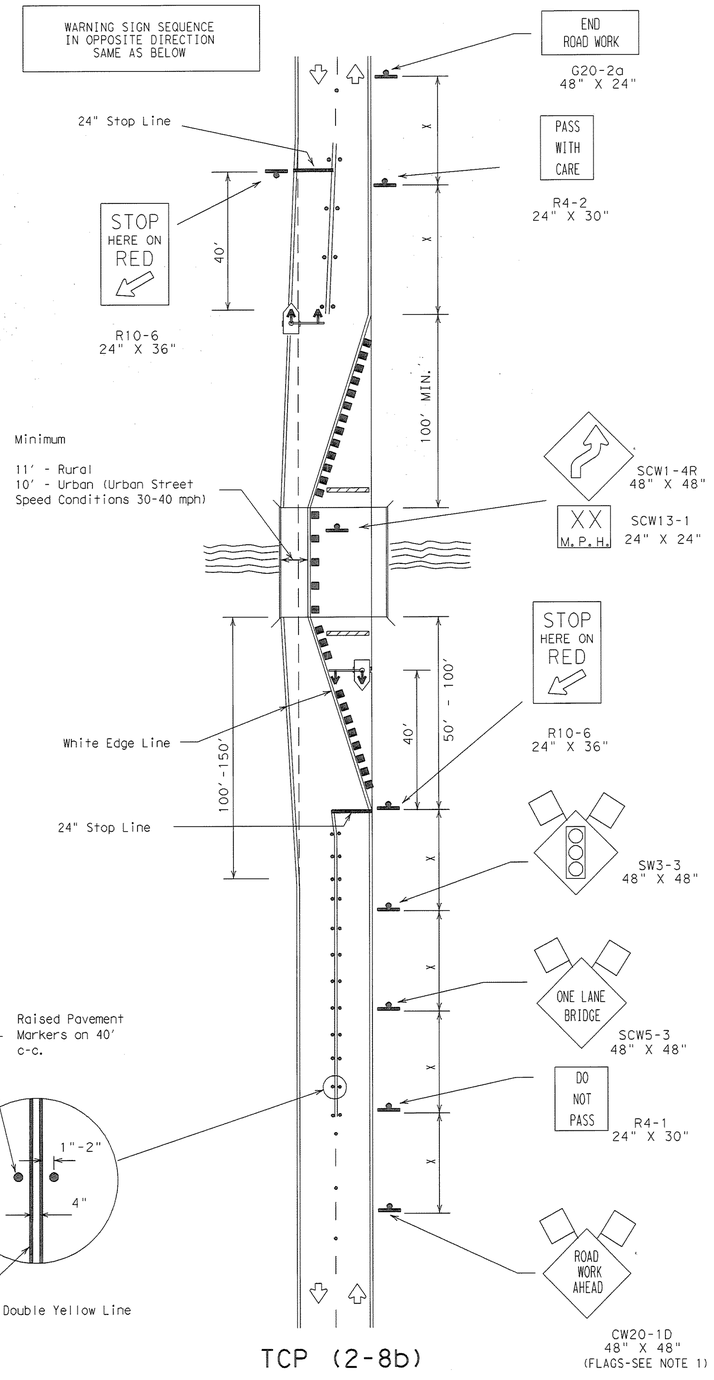
 DN: LR CK: MT DW: DN CK: DM REQ NO.:

REVISIONS	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
8-95		6		120
1-97				
4-98	COUNTY		CONTROL SECTION JOB	HIGHWAY
3-03				



TCP (2-8a)

Two-Way Traffic Control With Yield Signs



TCP (2-8b)

Two-Way Traffic Control With Traffic Signal

LEGEND

Type III Barricade ▩ ▩ Channelizing Devices Flag

Flagger Sign Post Temporary or Portable Traffic Signals

• • • Raised Pavement Markers Type II-A-A (40' spacing)

Posted Speed ✳	Formula	Minimum Desirable Taper Lengths ✳✳ 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent	Minimum Sign Spacing X Distance
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'-75'	120'
35		205'	225'	245'	35'	70'-90'	160'
40		265'	295'	320'	40'	80'-100'	240'
45	L=WS	450'	495'	540'	45'	90'-110'	320'
50		500'	550'	600'	50'	100'-125'	400'
55		550'	605'	660'	55'	110'-140'	500'
60		600'	660'	720'	60'	120'-150'	✳600'
65		650'	715'	780'	65'	130'-165'	✳700'
70		700'	770'	840'	70'	140'-175'	✳800'

✳ Conventional Roads Only

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

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

GENERAL NOTES:

1. Unless otherwise stated in the plans, flags attached to signs are REQUIRED.
2. Advance Warning signing shown for one direction.
3. Raised reflective pavement markers shall be placed 40' c-c on centerline between ROAD WORK AHEAD signs and stop lines.
4. For intermediate term situations, when it is not feasible to remove and restore pavement markings, the channelization must be made dominant by using a very close spacing. This is especially important in locations of conflicting information, such as where traffic is directed over a double yellow centerline. In such locations a maximum channelizing device spacing of 10 feet is recommended. The 10 foot channelizing device spacing recommendation is intended for the area of conflicting information and not the entire work zone.

TCP (2-8a)

5. Traffic control by YIELD AHEAD symbol signs for one lane two-way traffic control operations should be limited to structures less than 400' long and roadways with less than 4000 ADT. Portable traffic signals should be used on other roadways.
6. If power is available, a flashing beacon should be attached to the YIELD AHEAD symbol sign for emphasis.
7. YIELD and TO ONCOMING TRAFFIC signs and other regulatory signs shall be installed at 7' minimum mounting height.

TCP (2-8b)

8. A list of approved Portable Traffic Signals can be found on compliant products list.

RECORD PLANS
MARCH 28, 2008

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

TRAFFIC CONTROL PLAN

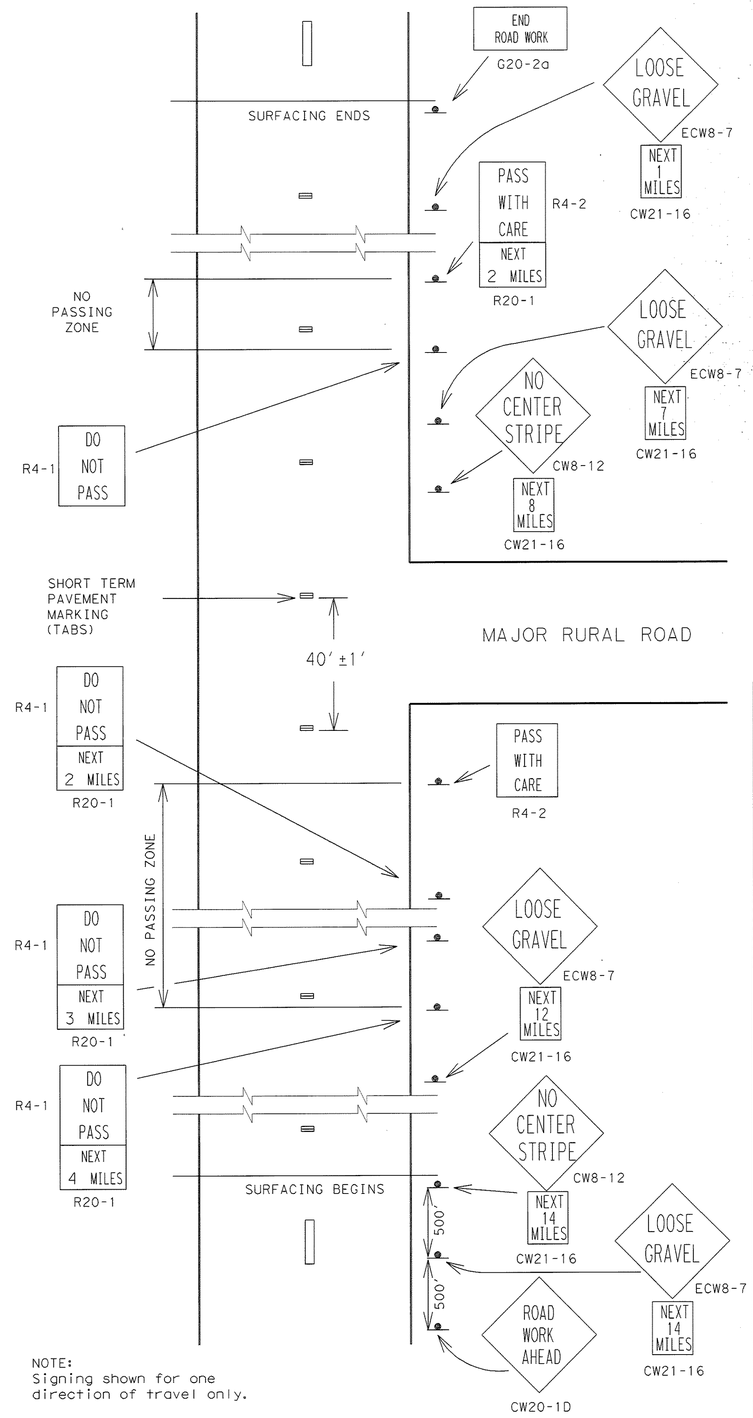
TCP(2-8)-03

DN: LR	CK: MT	DW: DN	CK: DM	REQ NO.:

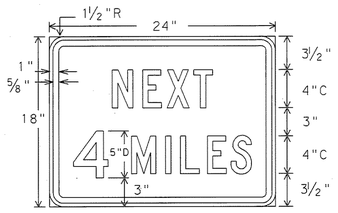
REVISIONS	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
8-95		6		1208
1-97				
4-98	COUNTY	CONTROL	SECTION	JOB / HIGHWAY
3-03				

LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
7 8 9 20 21 22 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

DATE:
ACC:
FILE:



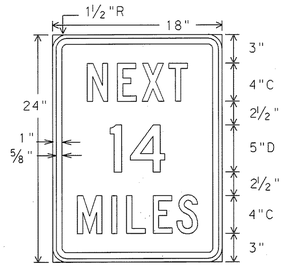
NOTE:
Signing shown for one direction of travel only.



R20-1
24"×18"

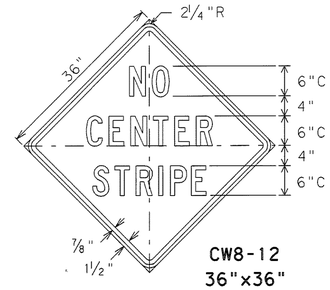
Legend - Black
Border - Black
Background - White Refl.

FOR USE WITH REGULATORY SIGNS ONLY



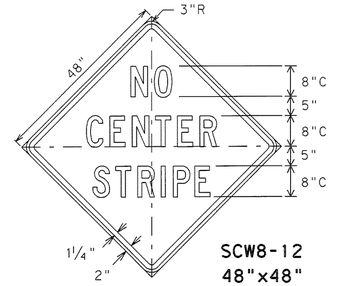
CW21-16
18"×24"

Legend - Black
Border - Black
Background - Orange Refl.



CW8-12
36"×36"

Legend - Black
Border - Black
Background - Orange Refl.



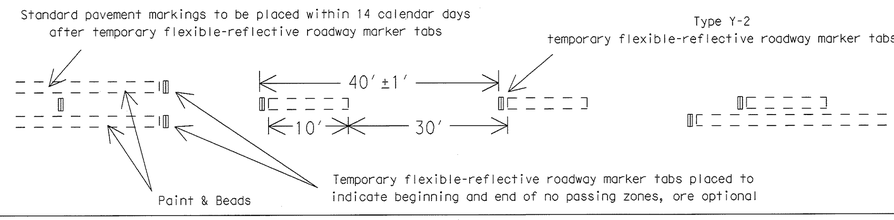
SCW8-12
48"×48"

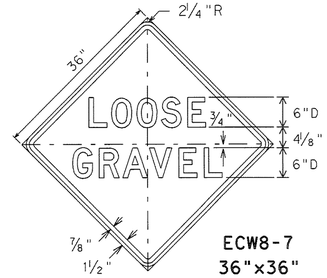
Legend - Black
Border - Black
Background - Orange Refl.

FOR USE WITH CONSTRUCTION WARNING SIGNS ONLY

TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS

for surfacing projects only





ECW8-7
36"×36"

Legend - Black
Border - Black
Background - Orange Refl.

GENERAL NOTES

The traffic control devices detailed on this sheet will be furnished and erected as directed by the Engineer on sections of roadway where the surfacing operation has covered or obliterated existing pavement markings. These traffic control devices are to be used to supplement those required by BC Standards.

"DO NOT PASS" SIGN (R4-1) and NO-PASSING ZONES

Prior to the beginning of construction, all currently striped no-passing zones should be signed with the DO NOT PASS sign (R4-1) and PASS WITH CARE sign (R4-2) placed at the beginning and end of each zone for each direction of travel except as otherwise provided herein. Signs marking these individual no-passing zones need not be covered prior to construction if the signs supplement the existing pavement markings.

At the discretion of the Engineer, in areas of numerous no-passing zones, several zones may be combined and signed as a single zone. If passing is to be prohibited over one or more lengthy sections, a DO NOT PASS sign and a NEXT XX MILES sign (R20-1) may be used at the beginning of such zones. The DO NOT PASS and NEXT XX MILES signs should be repeated every mile to the end of the no-passing zone. In areas where there is considerable distance between no-passing zones, the end of a no-passing zone may be signed with a PASS WITH CARE and NEXT XX MILES sign.

Depending on traffic volumes and length of sections, it may be desirable to prohibit passing throughout the project to prevent damage to windshields and lights. The DO NOT PASS and NEXT XX MILES sign should be used and repeated as often as necessary for this purpose. Where several existing zones are to be combined into one individual no-passing zone, the sign at the beginning of the zone should be covered until the surfacing operation has passed this location so as not to have the DO NOT PASS sign conflict with existing pavement markings. Also, unless one days operation completes the entire length of such combined zones, care must be taken to place DO NOT PASS and PASS WITH CARE signs in order to sign the beginning and end of the no-passing zones in the area where the surfacing operation has stopped for the day.

R4-1 and R4-2 signs should be mounted on fixed supports as detailed on BC Standards. These signs are to remain in place until standard pavement markings are placed.

"NO CENTER STRIPE" SIGN (CW21-15)

At the time construction activity obliterates the existing centerline (low volume roads may not have an existing centerline), a NO CENTER STRIPE sign (CW8-12) should be erected at each end of the work area and just beyond major rural intersections and other location deemed necessary by the Engineer. Where possible, the signs erected at each end of the work area should be located in such a manner that drivers can read the sign and immediately see the change to no centerline. The NO CENTER STRIPE sign should be supplemented with the NEXT XX MILES sign (CW21-16) mounted below it.

The NO CENTER STRIPE sign should be erected as detailed on BC Standards. These signs are to remain in place until standard pavement markings are placed.

"LOOSE GRAVEL" SIGN (ECW8-7)

When construction begins, a LOOSE GRAVEL sign (ECW8-7) should be erected at each end of the work area and repeated at intervals of approximately two (2) miles in rural areas and closer in urban areas. The LOOSE GRAVEL sign should be supplemented with the NEXT XX MILES sign (CW21-16) mounted below it.

The LOOSE GRAVEL sign should be erected as detailed on BC Standards. They should remain in place until the loose gravel condition no longer exists.

PAVEMENT MARKINGS

Short term pavement markings for surfacing projects shall use Temporary Flexible-reflective Roadway Marker Tabs. Tabs are to be installed to provide true alignment for striping crews or as directed by the Engineer. Tabs will be placed at the spacing indicated. Tabs should be applied to the pavement no more than two (2) days before the surfacing is applied. After the surfacing is rolled and swept the cover over the reflective strip shall be removed. Tabs shall NOT be used to simulate edge lines.

Only pre-qualified products shall be used. A list of compliant products and their sources may be obtained by writing or faxing:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3335
Fax (512) 416-3161
E-mail TRF-STANDARD@mailgw.dot.state.tx.us

RECORD PLANS
MARCH 28, 2008

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

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

TRAFFIC CONTROL DETAILS for SURFACING OPERATIONS

TCP(7-1)-98

©TxDOT March 1991	DN: - LR	CK: - MT	DW: - DN	CK: -	REQ NO.:
REVISIONS 4-92 1-97 4-98	STATE DISTRICT	FEDERAL REGION 6	FEDERAL AID PROJECT		SHEET T209
	COUNTY	CONTROL	SECTION	JOB	HIGHWAY

LEVEL'S DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64

DN:
CK:
DW:
CK:
DATE:
ACC:
FILE:

Barricade and Construction (BC) Standard Sheets General Notes: ⚠

1. The Barricade and Construction Standard Sheets (BC sheets) are intended to show typical examples for placement of traffic control devices, construction pavement markings, and typical construction 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) "Policy on the Geometric Design of Highways and Streets" or the TxDOT "Roadway Design Manual".
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 will 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 will be revised to show appropriate work zone distance.
7. The Engineer may require duplicate construction 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 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 OBSERVE WARNING SIGNS STATE LAW, BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the CSJ limits and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of 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.

Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be obtained by contacting:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3120
Fax (512) 416-3299

Instructions to locate the "CWZTCD" on TxDOT website are:

Start at website - www.dot.state.tx.us
Click on "About TxDOT",
Click on "Organizational Chart",
Click on Traffic Operations Box,
Click on "Compliant Work Zone Traffic Control Devices",
Click on "View PDF".
This site is printable.

RECORD PLANS
MARCH 28, 2008

4/03 Revision
⚠ Revised General Notes

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

1 of 12 BC(1)-03

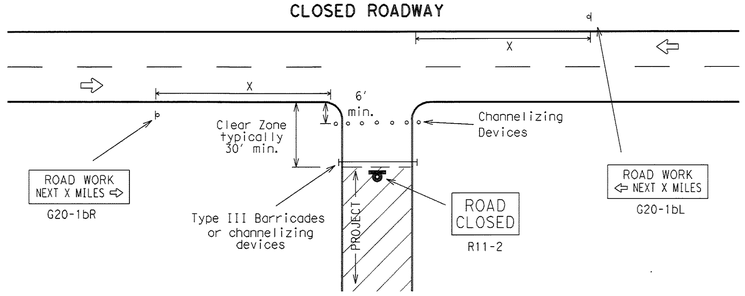
DN: - BAS	CK: - GRB	DW: - FDN	CK: - CAL

REVISIONS	STATE DISTRICT	FEDERAL REGION	PROJECT NUMBER	SHEET
4-03		6		T210
	COUNTY	CONTROL	SECTION JOB	HIGHWAY

LEVELS DISPLAYED ACC:

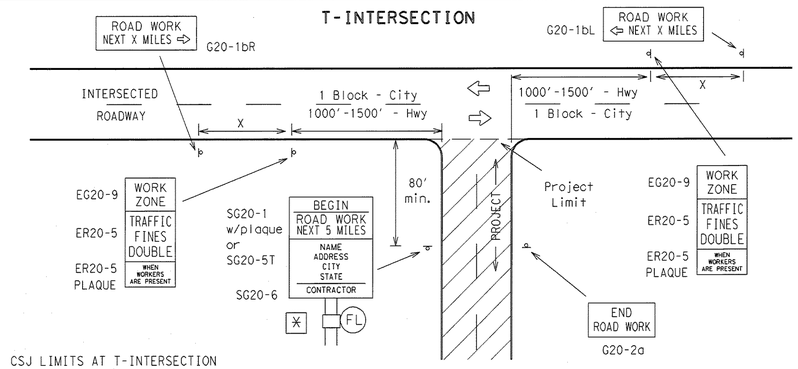
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63		

CLOSED ROADWAY



Barricades or channelizing devices shall be erected completely across roadway. Drums, vertical panels or cones shall be used in place of Type III Barricades when shown in plans or as specified by the Engineer.

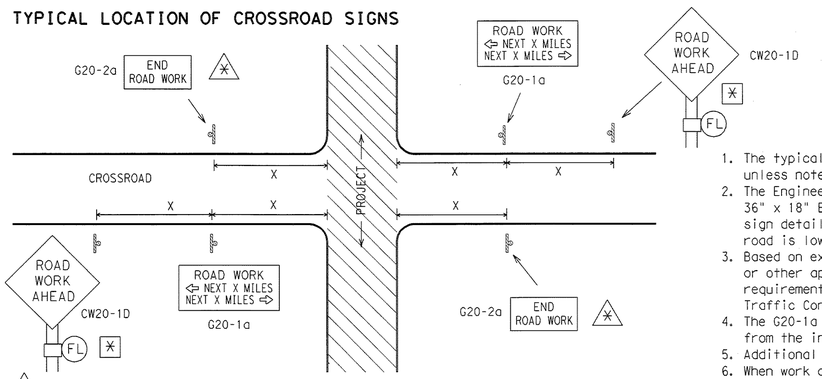
T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

1. A ROAD WORK NEXT X MILES (G20-1bR(L)) sign should be erected on the intersected highway as shown above.
2. 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.
3. The Engineer/Inspector shall ensure that construction work zone signs are installed with adequate spacing between the signs so the legibility of existing permanent and other work zone signs is not obstructed.

TYPICAL LOCATION OF CROSSROAD SIGNS



✳ May be mounted on back of CW20-1D sign with approval of engineer. (See note 2 at right)

1. The typical minimum signing on a crossroad approach should be a CW20-1D ROAD WORK AHEAD sign and a G20-2a END ROAD WORK sign, unless noted otherwise in plans.
2. The Engineer may use the reduced size 36" x 36" ROAD WORK AHEAD (MCW20-1D) sign mounted back to back with the reduced size 36" x 18" END ROAD WORK (SG20-2a) sign on low volume crossroads. 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 G20-1a sign shall be required on major 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.

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

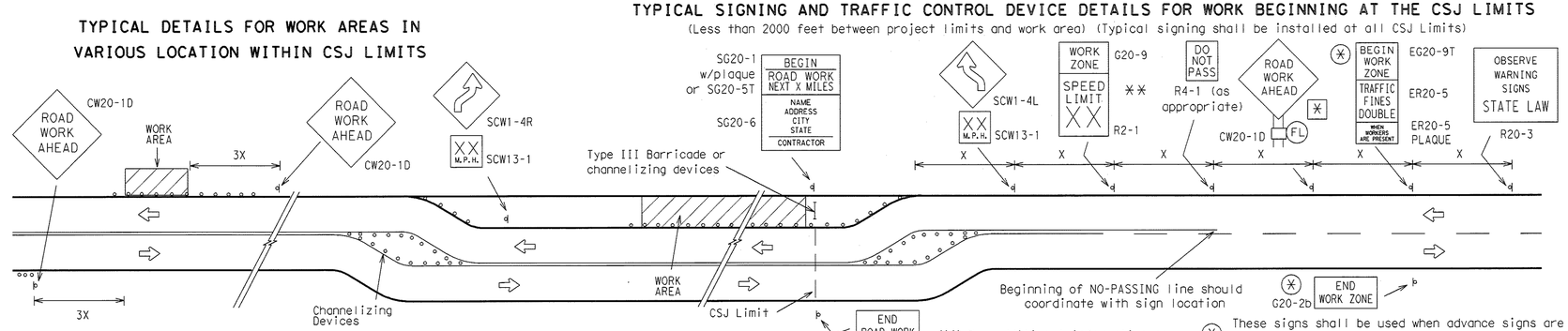
Posted Speed	Sign Spacing "X" △	Long-term Or Intermediate-term Stationary Approach Warning Signs CW20 and CW21 Series		Short-term Stationary Or Short Duration Approach Warning Signs CW21 Series		Other Warning Signs
MPH	Feet (Apprx.)	Standard inches	Minimum [4] inches	Standard inches [7]	Minimum [4] inches [7]	Standard inches [7]
30	120	48 x 48	36 x 36	30 x 30 or 36 x 36	24 x 24 or 30 x 30	30 x 30 or 36 x 36
35	160					
40	240					
45	320		Use Standard Size		Use Standard Size	
50	400					
55	500 [2]			48 x 48		48 x 48
60	600 [2]					
65	700 [2]					
70	800 [2]					
75	900 [2]					
✳	✳ [3]					

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

△ Minimum distance from work area to first Advance Warning sign 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 ½ mile or more advance warning.
4. For use only on secondary roads or city streets where speeds are low.
5. Only diamond shaped warning sign sizes are indicated.
6. See sign size listing in "TMUTCD", Appendix A or the "Standard Highway Sign Design" manual for complete list of available sign design sizes.
7. Where two sizes are listed, see sign size listing in "TMUTCD", Appendix A or the "Standard Highway Sign Design" manual for proper size.

TYPICAL DETAILS FOR WORK AREAS IN VARIOUS LOCATION WITHIN CSJ LIMITS



When extended distances occur between minimal work areas, 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.

TYPICAL SIGNING AND TRAFFIC CONTROL DEVICE DETAILS FOR WORK BEGINNING AT THE CSJ LIMITS

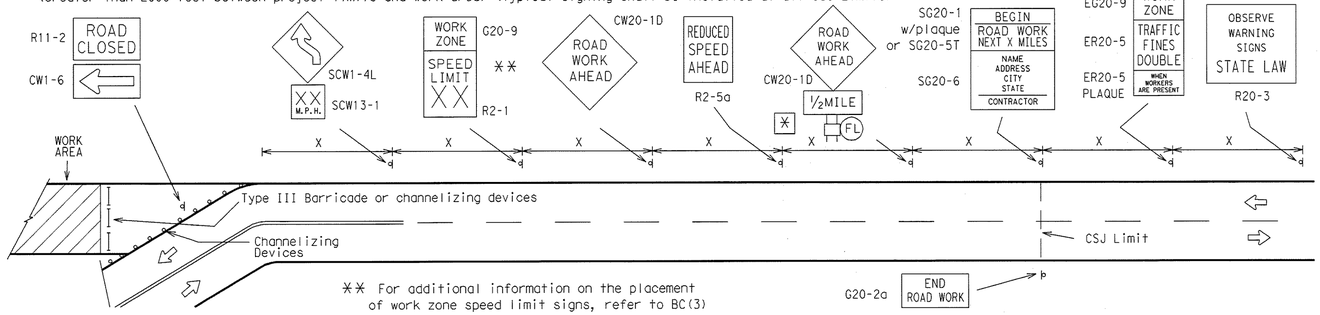
(Less than 2000 feet between project limits and work area) (Typical signing shall be installed at all CSJ Limits)

** For additional information on the placement of work zone speed limit signs, refer to BC(3)

✳ These signs shall be used when advance signs are required outside the CSJ Limits. They inform the motorist of entering or leaving a work zone where traffic fines may double if workers are present.

TYPICAL DETAIL FOR PROJECT LIMIT AWAY FROM WORK AREA

(Greater than 2000 feet between project limits and work area) (Typical signing shall be installed at all CSJ Limits)



** For additional information on the placement of work zone speed limit signs, refer to BC(3)

LEGEND

- Sign
- (FL) Flashing Type A-Low Intensity Warning Light
- ○ ○ Channelizing Devices
- I Type III Barricade
- ✳ The Type A Warning Lights shall not be used with signs manufactured with Type E Sheeting (Fluorescent Prismatic) meeting the requirements of Departmental Material Specification DMS-8300.
- X See Typical Construction Warning Sign Size and Spacing chart or the TMUTCD for sign spacing requirements.

Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be obtained by contacting:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3120
Fax (512) 416-3299

RECORD PLANS
MARCH 28, 2008

Instructions to locate the "CWZTCD" on TxDOT website are:

Start at website - www.dot.state.tx.us
Click on "About TxDOT",
Click on "Organizational Chart",
Click on Traffic Operations Box,
Click on "Compliant Work Zone Traffic Control Devices",
Click on "View PDF".
This site is printable.

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

BARRICADE AND CONSTRUCTION PROJECT LIMIT STANDARD

2 of 12 BC(2)-03

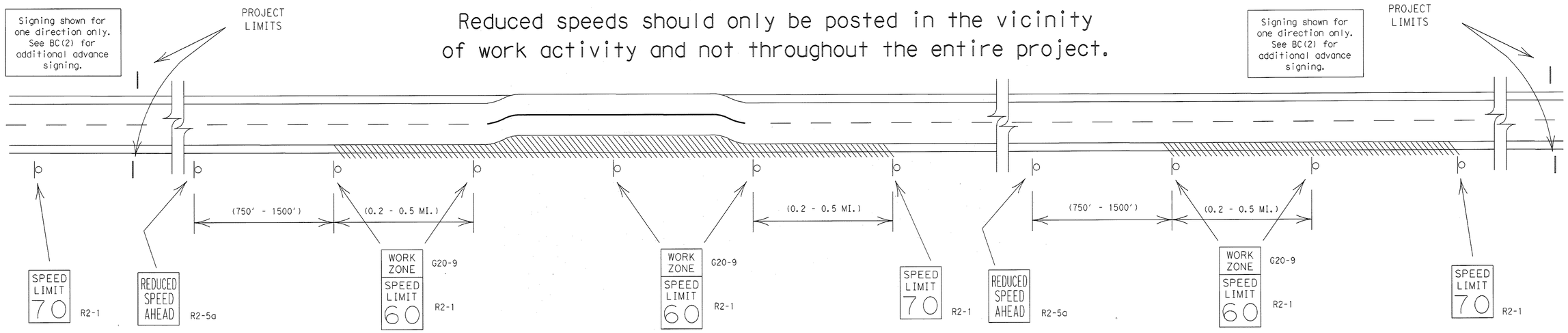
© TxDOT 11-4-02	DN: BAS	CK: GRB	DW: FDN	CK: CAL
REVISIONS	STATE DISTRICT: 6	FEDERAL REGION	FEDERAL AID PROJECT	SHEET: T211
	COUNTY	CONTROL	SECTION	JOB / HIGHWAY

ACC:
LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

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.

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



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 should be posted and visible to the motorists at all times. Work activity in the area of reduced speed zone should be greater than 12 consecutive hours per day. 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 should be included on the design of the traffic control plans when workers or equipment are not behind concrete barrier, work activity is within 15 feet of pavement edge or actually on the pavement.

SHORT TERM WORK ZONE SPEED LIMIT signs should be posted and visible to the motorists only when work activity is present. Work activity in the area of reduced speed should be less than 12 consecutive hours. When work activity is not present, signs should be covered with an approved sign cover or removed from work area.

GENERAL NOTES:

1. Regulatory work zone speed limits should be used only for sections of construction projects where speed control is of major importance. Regulatory work zone speed signs (R2-1) should be removed during periods when they are not needed to minimize interference with traffic.
2. Regulatory work zone speed limit signs shall be placed on supports at a 7 foot 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 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.
6. Fabrication, errection and maintenance of REDUCED SPEED AHEAD sign, WORK ZONE plaque and SPEED LIMIT 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 otherwise noted.
8. Techniques that may help reduce traffic speeds. (In order of effectiveness.)
   A. Flagger stationed next to sign.
   B. Law enforcement.
   C. Portable changeable message sign (PCMS).
   D. Low-power radar transmitter.
9. Refer to "Work Zone Speed Limit Work Sheets 1 and 2" to determine when a construction speed zone should be required.

LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

ACC:

RECORD PLANS
MARCH 28, 2008

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

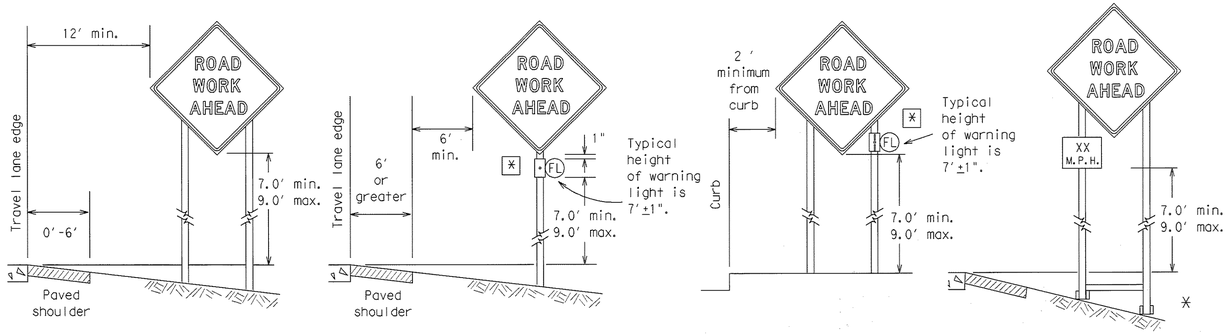
BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT STANDARD

3 of 12 BC(3)-03

© TxDOT 11-4-02	DN: - JWT	CK: - GRB	DW: - FDN	CK: - CAL

REVISIONS	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
	6			T212
	COUNTY	CONTROL	SECTION	JOB / HIGHWAY

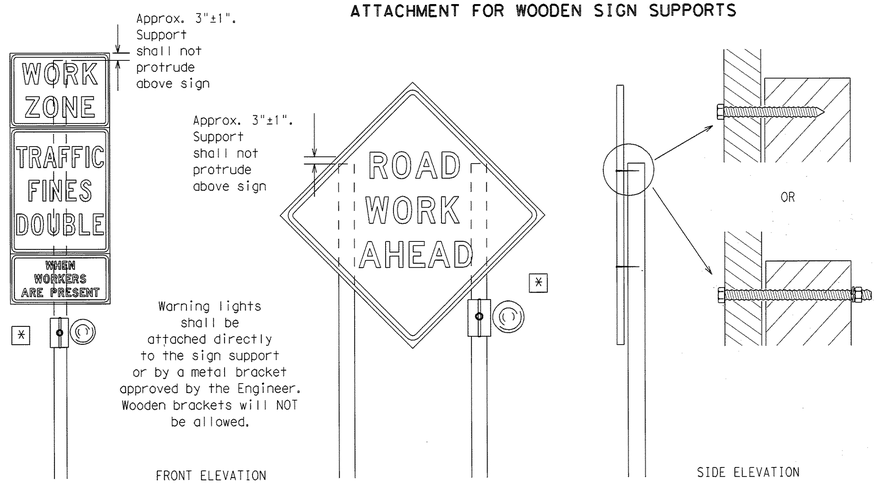
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



It is the intent of these plans to provide positive guidance to motorists throughout the project limits by the use of signs, pavement markings, delineation and/or channelizing devices. All traffic control devices shall conform with the "Texas Manual on Uniform Traffic Control Devices for Streets and Highways" (TMUTCD) and the "Compliant Work Zone Traffic Control Devices List" list (CWZTCD).

⁎ 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.

ATTACHMENT FOR WOODEN SIGN SUPPORTS



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 will NOT be allowed.

Each sign shall be attached directly to the sign support. Multiple signs shall not be joined or spliced by any means. Supports shall not be extended or repaired by splicing or other means.

Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be obtained by contacting:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3120
Fax (512) 416-3299

Instructions to locate the "CWZTCD" on TxDOT website are:

Start at website - www.dot.state.tx.us
Click on "About TxDOT",
Click on "Organizational Chart",
Click on Traffic Operations Box,
Click on "Compliant Work Zone Traffic Control Devices",
Click on "View PDF".
This site is printable.

(FL) Flashing Type A - Low Intensity Warning Light

⁎ The Type A Warning lights shall not be used with Type E Sheeting (Fluorescent Prismatic) meeting the requirements of DMS-8300.

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. Nails shall NOT be used to attach signs to any support.
5. 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.
6. The Contractor may furnish either the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD). The Engineer/Inspector may require the Contractor to furnish other work zone signs that are shown in the TMUTCD but may have been omitted from the plans. Any variation in the plans shall be documented by written agreement between the Engineer and the Contractor's Responsible Person. All changes must be documented in writing before being implemented. This can include documenting the changes in the Inspector's TxDOT diary and having both the Inspector and Contractor initial and date the agreed upon changes. The additional signs requested by the Engineer/Inspector shall not be subsidiary.
7. 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 that the Engineer can verify the correct procedures are being followed.
8. The contractor is responsible for sign installations and replacing signs with damaged or cracked substrates and/or damaged or marred reflective sheeting as directed by the Engineer/Inspector.
9. 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".
10. 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 VI)

1. The types of sign supports, 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 that the sign support and substrate meets crashworthiness and length 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 from overnight to 3 days.
   c. Short-term stationary - daytime work that occupies a location from 1 to 12 hours.
   d. Short, duration - work that occupies a location up to 1 hour.
   e. Mobile - work that moves intermittently or continuously. Does not stop for more than 15 minutes at a time.

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.
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.
5. Regulatory signs shall be mounted at least 7 feet, but not more than 9.0 feet, above the paved surface regardless of work duration.

SIZE OF SIGNS

1. The Engineer may allow the use of smaller size construction warning signs on secondary roads or city streets where speeds are low if the sign size is listed as an option on the "Typical Construction Warning Sign Size and Spacing" chart shown on BC(2).
2. The Contractor shall furnish the sign sizes shown in plans, the BC Sheets, the TCP sheets or as directed by the Engineer.

SIGN SUBSTRATES

1. The Contractor shall ensure that the sign substrate is allowed 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.
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 faces.

REFLECTIVE SHEETING

1. Reflectorized signs shall be constructed of sheeting meeting the color and retro-reflectivity requirements of DMS-8300 or DMS-8310. The DMS specifications can be accessed from the following web address:
   http://manuals.dot.state.tx.us:80/dynaweb/colmates/@Generic__CollectionView;cs=default;ts=default
2. White sheeting, meeting the requirements of DMS-8300 Type C (High Specific Intensity), shall be used for signs with white background and channelizing devices.
3. Orange sheeting, meeting the requirements of DMS-8300 Type E (Fluorescent Prismatic), shall be used for 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 type of sign support meets the crashworthiness standards regardless of the direction of impact. 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 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.
5. Burlap shall NOT be used to cover signs.
6. Duct tape or other adhesive material shall NOT be affixed to a sign face. These materials can damage the retroreflectivity of sign sheeting.
7. Signs shall be removed upon completion of the 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 is recommended.
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 will 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.
6. Rubber (such as tire inner tubes) shall NOT be used for sandbags.
7. Rubber ballasts (such as those used with cones or edgeline channelizers) shall NOT be used as sign support weights.
8. 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.
9. Sandbags shall NOT be placed under the skid and shall not be used to level sign supports placed on slopes.

RECORD PLANS
MARCH 28, 2008

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES STANDARD

4 of 12 BC(4)-03

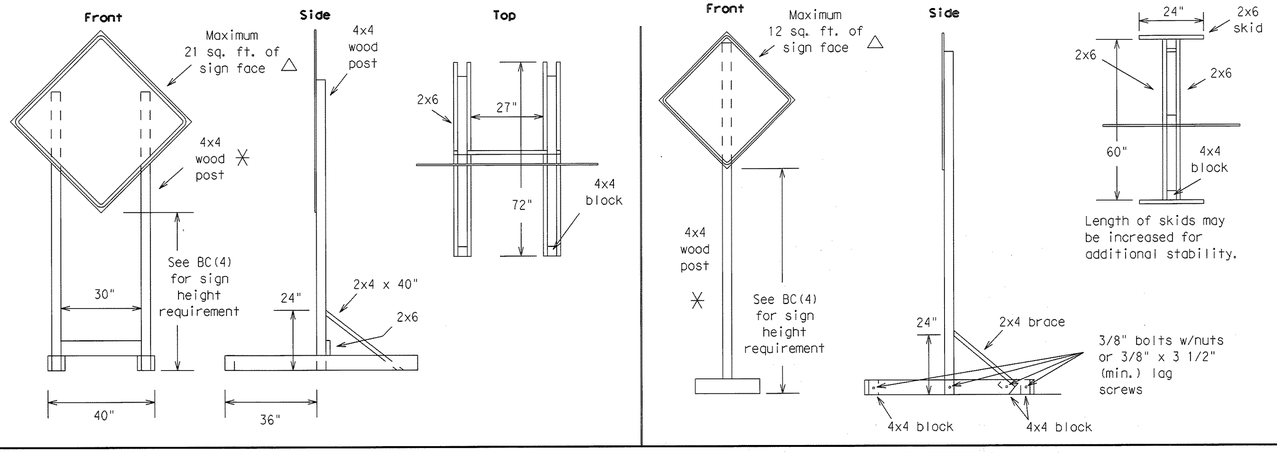
©TxDOT 11-4-02	DN: - BAS	CK: - GRB	DW: - FDN	CK: - CAL
REVISIONS	STATE DISTRICT: 6	FEDERAL REGION	FEDERAL AID PROJECT	SHEET: T213
	COUNTY	CONTROL	SECTION	JOB / HIGHWAY

LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

ACC:

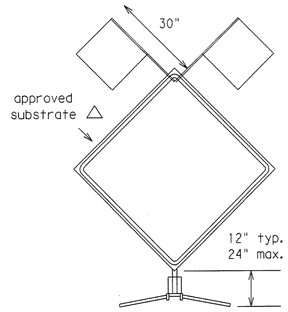
EXAMPLES OF SKID MOUNTED SIGN SUPPORTS

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

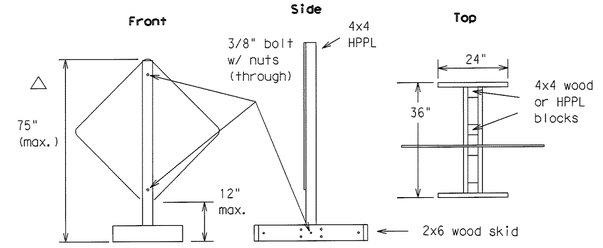


SHORT TERM STATIONARY/SHORT DURATION - PORTABLE SIGN SUPPORTS ☐

For Daytime use only.
1 Foot Mounting Height

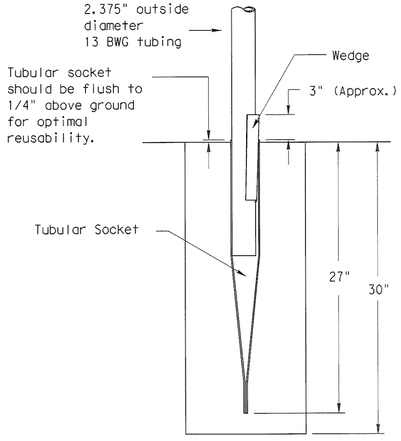


Flags as required by Engineer or as shown on plans



The upright SHALL be made of hollow-profile plastic lumber (HPPL). Wood or metal shall NOT be used.

EXAMPLES OF GROUND MOUNTED SIGN SUPPORTS



WEDGE ANCHOR SYSTEM WITH THIN-WALL TUBE

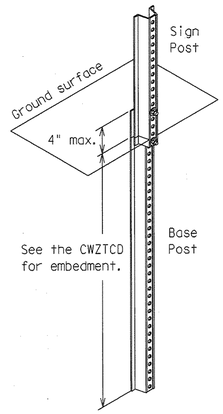
The wedge anchor system with thin wall tubing may be used to support up to 10 sq. ft. of sign area.

Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18 inches. When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18 inches or provide a minimum foundation depth of 30 inches. If solid rock is encountered, the socket/stub may be reduced in length as required to a min. length of 18 inches. Any material removed from the socket/stub shall be from the bottom and the clearance requirements shown above must still be adhered to. The inner surfaces of the socket/stub must remain free of debris.
Install Wedge Anchor System per manufacturer recommendations.
Attach the sign to the sign post.
Insert the sign post into the socket and align the sign face with the roadway.
Drive the wedge into the socket to secure post. This will leave approximately 3 inches of the wedge exposed.

Supports shall be straight within 1/4 inch per 5 feet of length and shall have a smooth, uniform finish free from defects affecting strength or appearance. Any bolt holes and sheared ends shall be free from burrs.

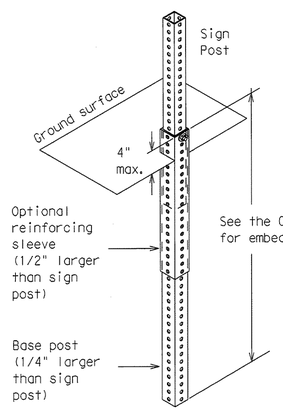
WING CHANNEL

Lap-splice/base bolted anchor

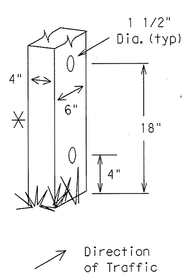


PERFORATED SQUARE METAL TUBING

With Anchor



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.



WOOD POST SYSTEM FOR GROUND MOUNTED SIGN SUPPORTS

Nominal Post Size	No. 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

No more than 2 sign posts shall be mounted within a 7 ft. circle.

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."

✳ 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.

Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be obtained by contacting:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3120
Fax (512) 416-3299

Instructions to locate the "CWZTCD" on TxDOT website are:

Start at website - www.dot.state.tx.us
Click on "About TxDOT",
Click on "Organizational Chart",
Click on Traffic Operations Box,
Click on "Compliant Work Zone Traffic Control Devices",
Click on "View PDF".
This site is printable.

RECORD PLANS
MARCH 28, 2008

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT STANDARD

5 of 12 BC(5)-03

© TxDOT 11-4-02	DN: - JWT	CK: - GRB	DW: - FDN	CK: - CAL
REVISIONS	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
		6		T214
	COUNTY	CONTROL	SECTION	JOB / HIGHWAY

LEVELS DISPLAYED ACC:

PORTABLE CHANGEABLE MESSAGE SIGNS

1. The Engineer/Inspector shall approve all messages used on portable changeable message signs (PCMS).
2. PCMS placed on the shoulder or within the R-O-W, but are not behind a concrete traffic barrier shall have a minimum of four plastic drums placed perpendicular to traffic, on the upstream side of the PCMS.
3. Messages on PCMS should contain no more than 8 words (four to eight characters per word), not including simple words such as "TO," "FOR," "AT," etc.
4. Messages should consist of a single phase, or two phases that alternate. Three-phase messages are not allowed.
5. Each phase of the message should convey a single thought.
6. Use the word "EXIT" to refer to an exit ramp on a freeway; i.e., "EXIT CLOSED." Do not use the term "RAMP."
7. Always use the route or interstate designation (IH, US, SH, FM) along with the number when referring to a roadway.
8. Specify the actual days of the week; e.g., TUES THROUGH FRI or TUES-FRI in the coming week that work activity will occur.
9. 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.
10. 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 two seconds each.
11. Do not "flash" messages or words included in a message. The message should be steady burn or continuous while displayed.
12. 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.
13. Do not use the words "Danger" or "Caution" in message.
14. Do not display the message "LANES SHIFT LEFT" or "LANES SHIFT RIGHT" on a PCMS. Drivers do not understand the message.
15. Do not display messages that scroll horizontally or vertically across the face of the sign.
16. 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.

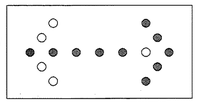
Word or Phrase	Abbreviation	Word or Phrase	Abbreviation
Access Road	ACCES RD	Miles	MI
Air Quality	AIR QLTY	Miles Per Hour	MPH
Avenue	AVE	Time Minutes	Time MIN
Best Route	BEST RTE	Monday	MON
Boulevard	BLVD	Normal	NORM
Bridge	BRDG	North	N
Cannot	CANT	Parking	PKING
Center	CNTR	Parking Lot	PRK LOT
Construction Ahead	CONST AHEAD	Road	RD
Detour Route	DETOUR RTE	Right Lane	RGT LN
East	E	Saturday	SAT
Emergency	EMER	Service Road	SERV RD
Emergency Vehicle	EMER VEH	Shoulder	SHLDR
Entrance, Enter	ENT	Slippery	SLIP
Express Lanes	EXP LANE	South	S
Expressway	EXPWY	Speed	SPD
Distance Feet	Distance FT	Street	ST
Fog Ahead	FOG AHD	Sunday	SUN
Freeway	FRWY, FWY	Telephone	PHONE
Freeway Blocked	FWY BLKD	Thursday	THURS
Friday	FRI	To Downtown	TO DWNTN
Hazardous Driving	HAZ DRIVING	Traffic	TRAF
Highway	HWY	Travelers	TRVLRS
Hours	HR	Tuesday	TUES
Information	INFO	Turnpike	Name TRNPK
Left	LFT	Upper Level	UPPR LVL
Left Lane	LFT LN	Warning	WARN
Lane Closed	LN CLSD	Wednesday	WED
Lower Level	LOWR LVL	Weight Limit	WT LIMIT
Maintenance	MAINT	Wet Pavement	WET PVMT
Roadway designation #	IH-number, US-number, SH-number, FM-number	West	W

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

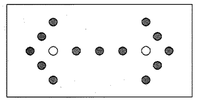
TYPICAL FLASHING ARROW PANEL

1. The Flashing Arrow Panel 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 Panels 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 Panel.
4. The Flashing Arrow Panel should be able to display the following symbols:

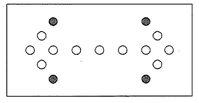
Flashing RIGHT (LEFT) ARROW



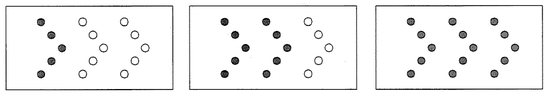
Flashing DOUBLE ARROW



Flashing CAUTION



5. The "CAUTION" display consists of four corner lamps flashing simultaneously.
6. The straight line caution display is NOT ALLOWED.
7. The Flashing Arrow Panel 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 Panel shall be mounted on a vehicle, trailer or other suitable support.
12. A Flashing Arrow Panel SHOULD NOT BE USED to laterally shift all lanes of traffic on a multi-lane roadway at once.

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

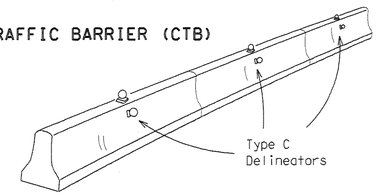
ATTENTION: Flashing Arrow Panels shall be equipped with automatic dimming devices.

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

TYPE C DELINEATORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS

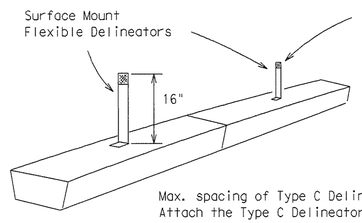
1. Type C Delineators shall be prequalified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Type C Delineators can be found at the following Web site: ftp://ftp.dot.state.tx.us/pub/txdot-info/gsd/pdf/dms8600preq.pdf.
2. Color of delineators shall be as specified in the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD). The cost of the Type C Delineators shall be considered subsidiary to Item 502.

CONCRETE TRAFFIC BARRIER (CTB)



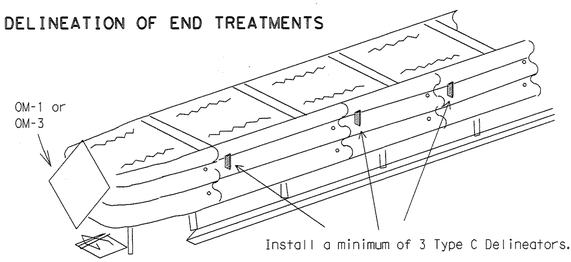
3. Two (2) Type C Delineators should be mounted on each section of CTB in approximately the midsection of the CTB. The Type C Delineator on the side of the CTB shall be installed directly below the Type C Delineator mounted on top of the CTB.
4. Maximum spacing of Type C Delineators is 40 feet.
5. Pavement markers or temporary flexible-reflective roadway marker tabs shall NOT be used as CTB delineation.
6. Attach Type C Delineators on CTB as per manufacturer's recommendations.
7. Missing or damaged Type C Delineators shall be replaced as directed by the Engineer.

LOW PROFILE CONCRETE BARRIER (LPCB)



Max. spacing of Type C Delineators is 20 feet. Attach the Type C Delineators as per manufacturer's recommendations.

DELINEATION OF END TREATMENTS



	APPROACHING TRAFFIC	
	BOTH SIDES	ONE SIDE
DELINEATION	OM-1	OM-3 or Vertical Panel

Attach the Type C Delineators as per manufacturer's recommendations.

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 signs. They are intended to warn of an approaching 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 E Sheeting (Fluorescent Prismatic) meeting the requirements of Departmental Material Specification DMS-8300.
4. Type-C 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.

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.

Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be obtained by contacting:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3120
Fax (512) 416-3299

Instructions to locate the "CWZTCD" on TxDOT website are:

Start at website - www.dot.state.tx.us
Click on "About TxDOT",
Click on "Organizational Chart",
Click on Traffic Operations Box,
Click on "Compliant Work Zone Traffic Control Devices",
Click on "View PDF".
This site is printable.

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).
2. Refer to the CWZTCD for the requirements of Level 2 or Level 3 TMAs.
3. Refer to the dates shown in the CWZTCD to ensure that the TMA meets the age requirements and the crashworthiness criteria established by the Federal Highway Administration (FHWA) for TMAs.
4. Refer to the CWZTCD for a list of approved TMAs.
5. TMAs are required on freeways unless otherwise noted in the plans.
6. A TMA should be used anytime that it can be positioned approximately 100 feet or less in advance of the area of crew exposure without adversely affecting the work performance.
7. 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.

RECORD PLANS
MARCH 28, 2008

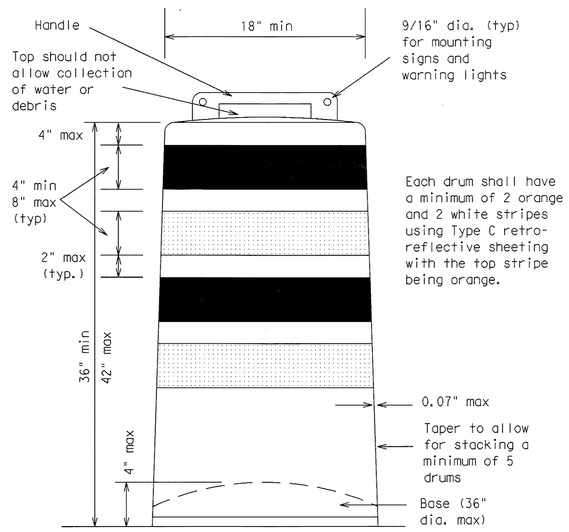
STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

BARRICADE AND CONSTRUCTION ARROW & MESSAGE SIGNS, REFLECTORS & WARNING LIGHT STANDARD

6 of 12 BC(6)-03

©TxDOT 11-4-02	DN: - BAS	CK: - GRB	DW: - FDN	CK: - CAL
REVISIONS	STATE DISTRICT: 6	FEDERAL REGION	FEDERAL AID PROJECT	SHEET: T215
	COUNTY	CONTROL	SECTION	JOB / HIGHWAY

ACC:
LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63



GENERAL NOTES

1. 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).
2. 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.
3. ⚠ The Contractor shall have a maximum of 24 hours to replace any plastic drums or other traffic control devices identified for replacement by the Engineer/Inspector. The replacement device must be an approved device.

Prequalified plastic drums shall meet the following requirements:

GENERAL DESIGN REQUIREMENTS

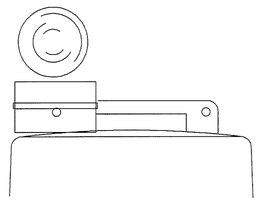
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents 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, delineator reflector unit or non-plywood 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 minimum unballasted weight of 7.7 lbs. and maximum unballasted weight of 11 lbs. The wall of the drum body shall be a minimum of 0.07 inch in thickness. Weight of any drum supplied shall not vary more than 0.5 lb. from that of the prequalified sample.
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, "Flat Surface Reflective Sheeting." High Specific Intensity (Type C) retro-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, checking, 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. 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.
4. 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.
5. Ballast shall not be placed on top of drums.
6. Adhesives may be used to secure base of drums to pavement.

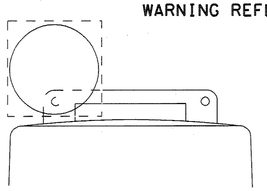


Type C Warning Light or approved substitute mounted adjacent to the travel way.

WARNING LIGHTS AND DELINEATORS 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 flashing warning lights are not intended for delineation and shall not be used in a series.
3. Type C 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.
4. Type A and Type C warning lights shall be installed at locations as detailed on other sheets in the plans.
5. Warning lights shall not be installed on a drum that has a sign, chevron or vertical panel.
6. Type A Class 1, Type A Class 2, or Type B Reflector Units (D & OM Standard) may be attached to drums to delineate the intended vehicular path. The color of the reflector unit shall correspond to the pavement marking it is supplementing or for which it is substituting (left edgeline-yellow or right edgeline-white). The reflective unit shall be attached to the handle of the drum using the mounting hole nearest the travel lane and shall be aligned perpendicular to approaching traffic.
7. Delineators may be used as directed by the Engineer. Delineators may not be used as a substitute for warning lights.

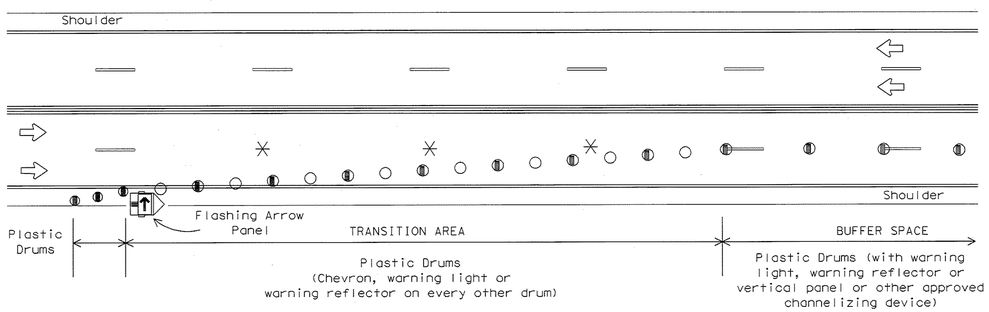
WARNING REFLECTORS MOUNTED ON PLASTIC DRUMS AS A SUBSTITUTE FOR TYPE C WARNING LIGHTS



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

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 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 D (Non-fluorescent Prismatic).
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.

TYPICAL DETAIL OF LANE CLOSURE USING PLASTIC DRUMS AS CHANNELIZING DEVICES



Provide adequate sight distance when placing lane closures. Do not place lane closures in vertical or horizontal curves.
See BC(8) for table showing the spacing of channelizing devices in the taper and tangent section.

* NOTE: Lane lines shall be removed when the lane closure occupies a location for longer than 2 weeks.

RECORD PLANS
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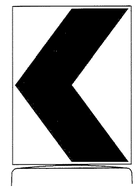
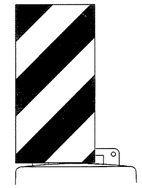


18" x 24" Sign
(Maximum Sign Dimension)
Chevron CW1-8, Driveway sign D70a, Keep Right R4 series or other signs as approved by Engineer



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 E (Fluorescent Prismatic) sheeting meeting the color and retroreflectivity requirements of DMS-8300, "Flat Surface Reflective Sheeting," unless otherwise specified in the plans.
3. Vertical Panels shall be manufactured with orange and white sheeting meeting the requirements of DMS-8300 Type C (High Specific Intensity). 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.
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.

Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be obtained by contacting:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3120
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Click on "View PDF".
This site is printable.

4/03 Revision

⚠ Revised note

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

BARRICADE AND CONSTRUCTION PLASTIC DRUM STANDARD

7 of 12 BC(7)-03

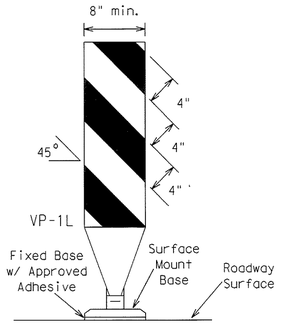
© TxDOT 11-4-02	DN: - BAS	CK: - GRB	DW: - FDN	CK: - CAL
REVISIONS 4-03	STATE DISTRICT	FEDERAL REGION 6	FEDERAL AID PROJECT	SHEET T216
	COUNTY	CONTROL	SECTION	JOB / HIGHWAY

LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

ACC:

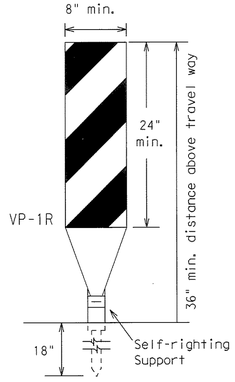
CHANNELIZING DEVICES

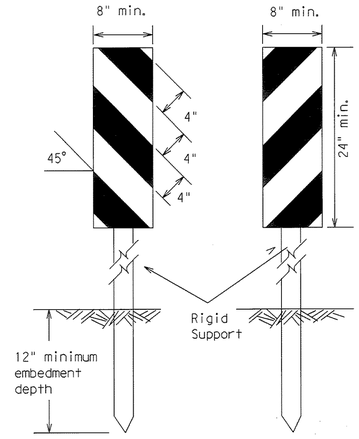
VERTICAL PANELS



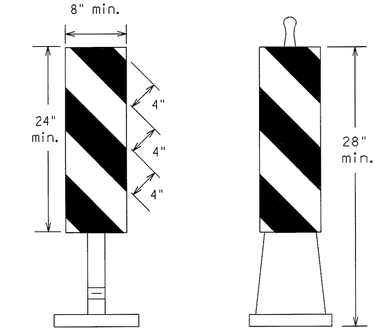
FIXED

(Rigid or self-righting)





DRIVEABLE

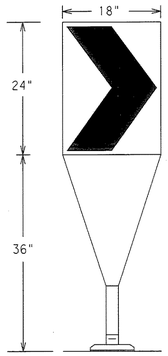


(Rigid or self-righting)

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, freeways, and on high speed roadways shall have a minimum of 2 square feet 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 C (High Specific Intensity) conforming to Departmental Material Specification DMS-8300, unless noted otherwise.

CHEVRONS



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 non-reflective legend. Sheeting for the chevron shall be retroreflective Type E (Fluorescent Prismatic) conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall be black vinyl non-reflective decal sheeting meeting the requirements of DMS-8320.

Posted Speed	Formula	Minimum Desirable Taper Lengths ✳✳ 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'-75'
35		205'	225'	245'	35'	70'-90'
40		265'	295'	320'	40'	80'-100'
45	L=WS	450'	495'	540'	45'	90'-110'
50		500'	550'	600'	50'	100'-125'
55		550'	605'	660'	55'	110'-140'
60		600'	660'	720'	60'	120'-150'
65		650'	715'	780'	65'	130'-165'
70		700'	770'	840'	70'	140'-175'
75		750'	825'	900'	75'	150'-185'

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

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, non-reflective, 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 approximately 35 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.
8. Examples on this sheet are the most commonly used channelizing devices in work zones. For other devices, refer to the CWZTCD.

Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be obtained by contacting:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3120
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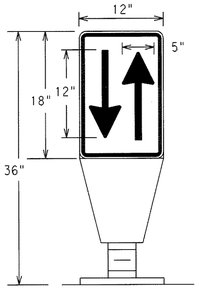
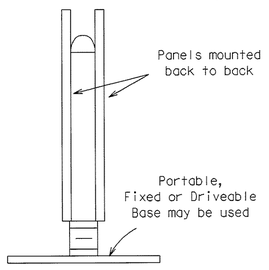
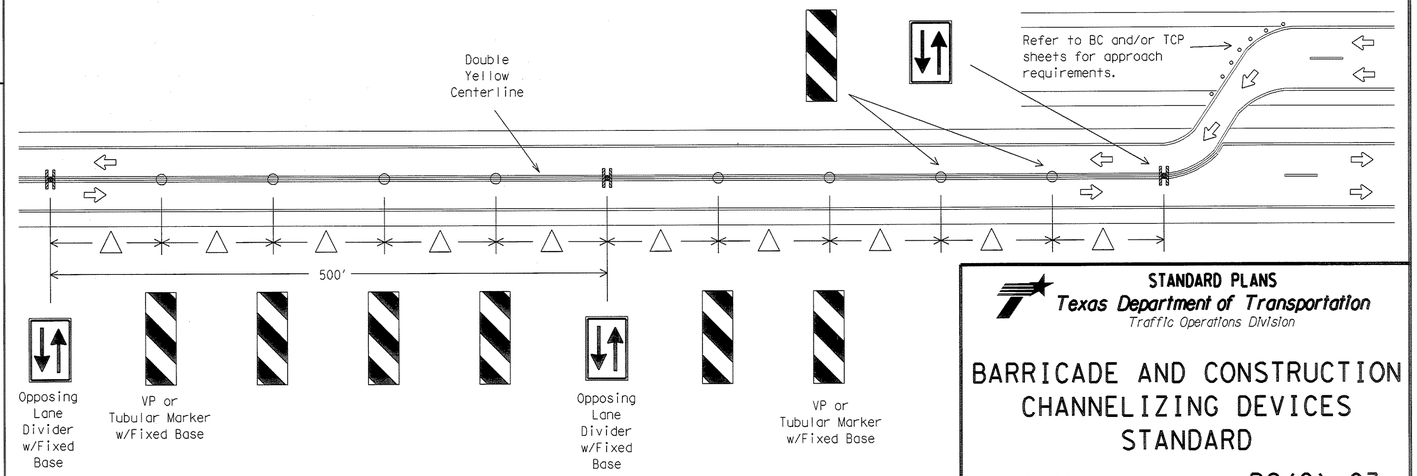
Click on Traffic Operations Box,
Click on "Compliant Work Zone Traffic Control Devices",
Click on "View PDF".
This site is printable.

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)





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. The OTLD is placed on a flexible self-righting support that returns to an upright position when impacted by a vehicle.
2. The OTLD may be used in combination with simple tubular markers or vertical panels (vp's).
3. Spacing between the OTLD shall not exceed 500 feet. Tubular markers or vp's 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 E (Fluorescent Prismatic) conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall be black vinyl non-reflective decal sheeting meeting the requirements of DMS-8320.



△ Spacing between the VP's or tubular markers shall not exceed 100 feet. On roadways with speeds less than 45 MPH, spacing between the tubular markers or VP's shall be as shown on the channelizing spacing table shown on this page. If the table shows spacing greater than 100 feet based on the roadway speed, then use a maximum of 100 feet spacing between the tubular markers or VP's. Every fifth channelizing device shall be an OTLD. Spacing between the OTLD shall not exceed 500 feet. When using this type of traffic control set-up, the OTLD, VP's or tubular markers shall have the fixed base with approved adhesive per the manufacturer's recommendations.

RECORD PLANS
MARCH 28, 2008

ACC: LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES STANDARD

8 of 12 BC(8)-03

© TxDOT 11-4-02	DN: BAS	CK: GRB	DW: FDN	CK: CAL
REVISIONS	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
		6		T217
	COUNTY	CONTROL	SECTION	JOB / HIGHWAY

LEVELS DISPLAYED

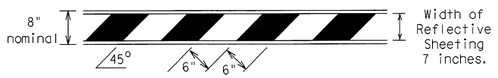
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	ACC:
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63		

TYPE III BARRICADES

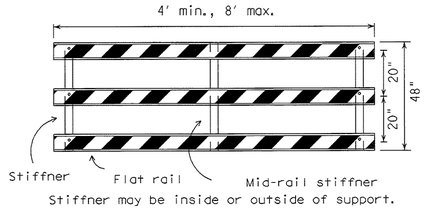
1. Refer to the Compliant Work Zone Traffic Control Devices List (CWZTCD) for details of the Type III Barricades and a list of all materials used in the construction of Type III Baricades.
2. Type III Barricades shall be used at each end of construction projects closed to all traffic.
3. Barricades extending 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.
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. 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.

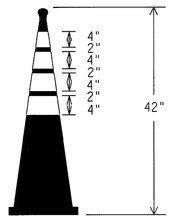
Barricades shall NOT be used as a sign support.

TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES



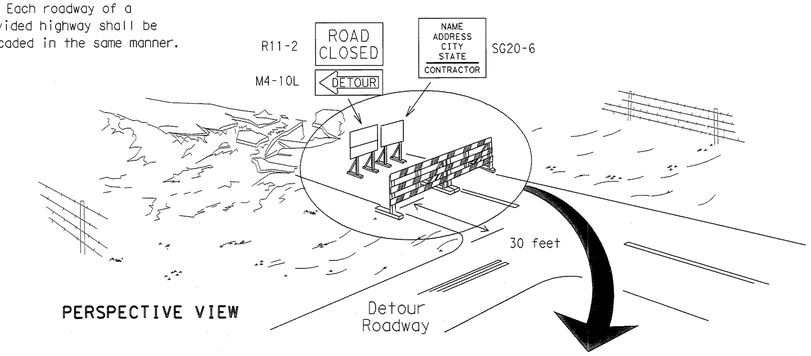


EDGELINE CHANNELIZER

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.
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 C (High Specific Intensity) conforming to Departmental Material Specification DMS-8300, unless otherwise noted.
4. The base must weigh a minimum of 30 lbs.

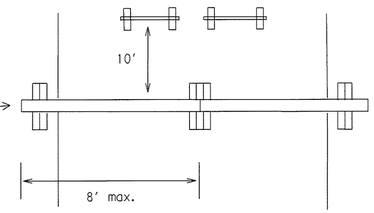
TYPE III BARRICADE (POST AND SKID) TYPICAL APPLICATION

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



PERSPECTIVE VIEW

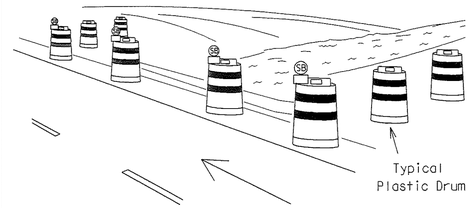
The three rails on Type III barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

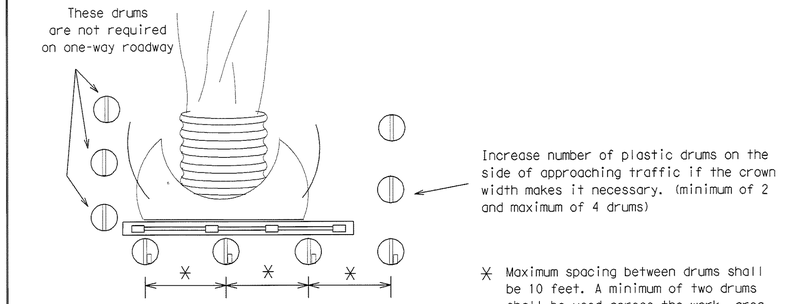
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type III Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



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

RECORD PLANS
MARCH 28, 2008

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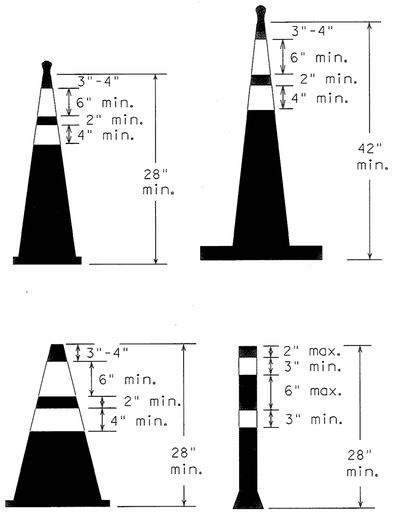
This site is printable.

CONES



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

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

1. Traffic cones and tubular markers shall be a minimum of 28 inches in height when used either on freeways or at nighttime.
2. Cones or tubular markers shall be predominantly orange, fluorescent red-orange, or fluorescent yellow-orange. They should be kept clean and bright for maximum visibility.
3. Cones used only for daytime operations do not require the reflectorized bands.
4. Cones used for nighttime operations shall be reflectorized. Reflectorized material shall have a smooth, sealed outer surface that displays the same approximate color during the day and night. The reflectorized bands shall be retroreflective Type C (High Specific Intensity) conforming to Departmental Material Specification DMS-8300, unless otherwise noted.
5. When used at night, appropriate personnel shall ensure that cones and tubular markers remain in their proper location and in an upright position.
6. Reflectorization of cones shall consist of a minimum 6 inch band placed at least 3 inches but not more than 4 inches from the top, supplemented by a minimum 4 inch band spaced a minimum of 2 inches below the 6 inch band.
7. Reflectorization of tubular markers shall be a minimum of two 3 inch bands placed a maximum of 2 inches from the top with a maximum of 6 inches between bands. The reflectorized bands shall be retroreflective Type C (High Specific Intensity) conforming to Departmental Material Specification DMS-8300, unless otherwise noted.
8. One-piece cones or tubular markers are generally suitable for temporary usage (up to 8 hours) with other channelization devices such as vertical panels, drums or two-piece cones for long term usage. Care should be taken to ensure they remain in their proper location and in an upright position.
9. Cones or tubular markers used on each project shall be of the same size and shape.
10. The handle may be designed as a hook or other shape, fabricated from non-rigid materials similar to the cone material, and may extend up to a maximum of 8 inches above the top of cone. Length of the handle shall not be considered with regard to the overall height of the cone.

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

BARRICADE AND CONSTRUCTION TYPE III BARRICADE & CONES STANDARD

9 of 12 BC(9)-03

©TxDOT 11-4-02	DN: - BAS	CK: - GRB	DW: - FDN	CK: - CAL
REVISIONS	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
		6		T218
	COUNTY	CONTROL	SECTION	JOB / HIGHWAY

LEVELS DISPLAYED ACC:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	ACC:
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	1	

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 the 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(11).
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.
3. A list of prequalified reflective raised pavement markers can be found at the following web site:
   ftp://ftp.dot.state.tx.us/pub/txdot-info/gsd/pdf/dms4200preq.pdf
4. A list of prequalified non-reflective traffic buttons can be found at the following web site:
   ftp://ftp.dot.state.tx.us/pub/txdot-info/gsd/pdf/4300preq.pdf

PREFABRICATED PAVEMENT MARKINGS

1. Removable prefabricated pavement markings shall meet the requirements of DMS-8241. A list of prequalified products can be found at the following web site:
   ftp://ftp.dot.state.tx.us/pub/txdot-info/gsd/pdf/pavemark.pdf
2. Non-removable prefabricated pavement markings (foil back) shall meet the requirements of DMS-8240 or the TXDOT Purchase Specification No. 550-74-89. A list of prequalified products and a copy of the TXDOT Purchase Specifications can be found at web sites:
   ftp://ftp.dot.state.tx.us/pub/txdot-info/gsd/pdf/pavement.pdf
   ftp://ftp.dot.state.tx.us/pub/txdot-info/gsd/pdf/tss/tss377.pdf

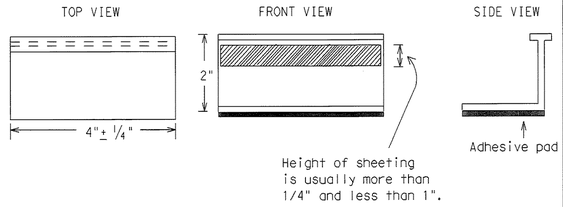
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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 150 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 shall be replaced as required by the Engineer at the expense of the Contractor.

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 two weeks, 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 discernible marking, by any method that does not materially damage the surface or texture of the pavement.
4. The removal of pavement markings may require resurfacing or seal coating portions of the roadway.
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.

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.

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
PREFABRICATED PAVEMENT MARKINGS-PERMANENT	DMS-8240
PREFABRICATED PAVEMENT MARKINGS-REMOVABLE	DMS-8241
TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS	DMS-8242

Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be obtained by contacting:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3120
Fax (512) 416-3299

Instructions to locate the "CWZTCD" on TxDOT website are:

Start at website - www.dot.state.tx.us
Click on "About TxDOT",
Click on "Organizational Chart",
Click on Traffic Operations Box,
Click on "Compliant Work Zone Traffic Control Devices",
Click on "View PDF".
This site is printable.

RECORD PLANS
MARCH 28, 2008

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS STANDARD

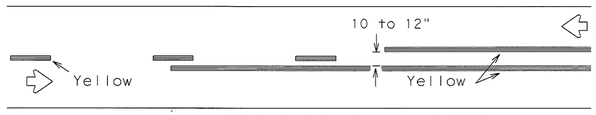
10 of 12 BC(10)-03

©TxDOT February 1998	DN: - LR	CK: - DTN	DW: - FDN	CK: - CAL	
REVISIONS	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT		SHEET
1-97		6			T219
2-98	COUNTY		CONTROL	SECTION	JOB
1-02					HIGHWAY
11-02					

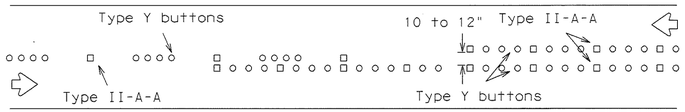
109A

PAVEMENT MARKING PATTERNS

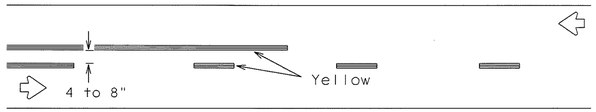
CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO-LANE, TWO-WAY HIGHWAYS



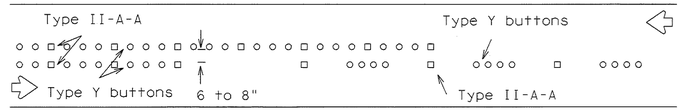
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



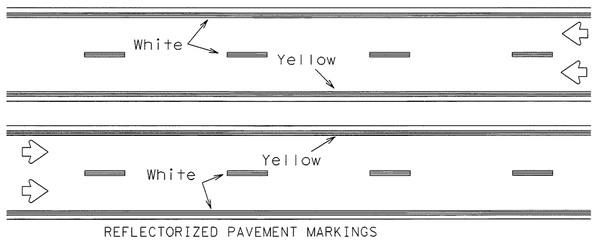
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



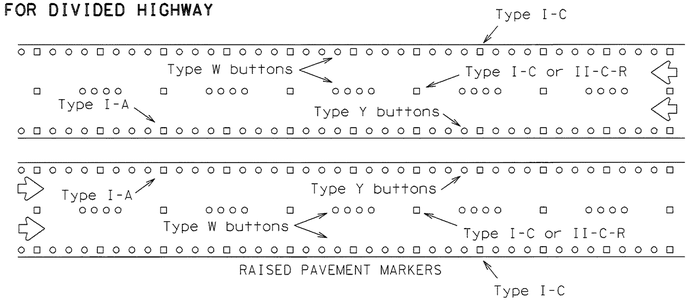
RAISED PAVEMENT MARKERS - PATTERN B

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

EDGE & LANE LINES FOR DIVIDED HIGHWAY



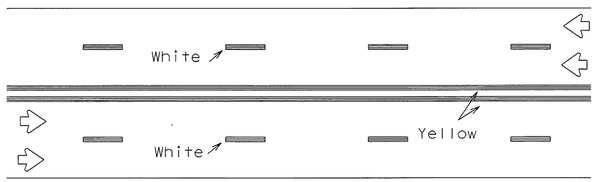
REFLECTORIZED PAVEMENT MARKINGS



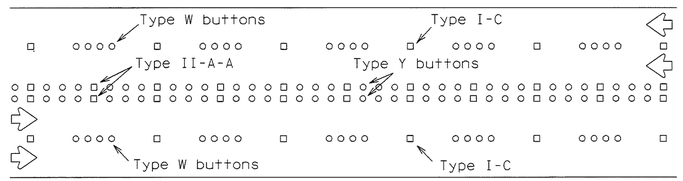
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS

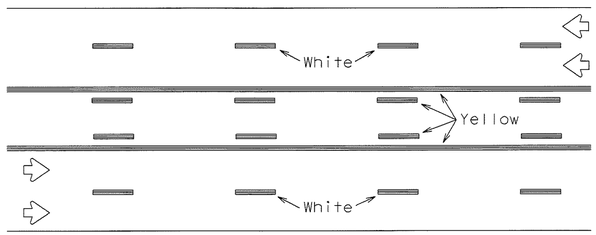


RAISED PAVEMENT MARKERS

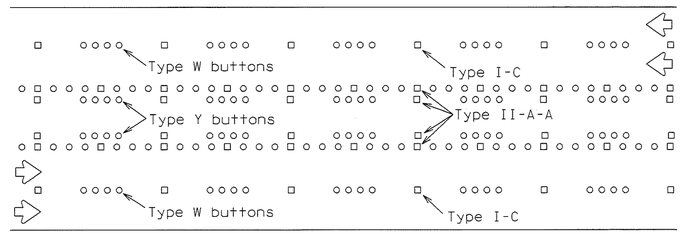
Prefabricated markings may be substituted for reflectorized pavement markings.

RECORD PLANS
MARCH 28, 2008

TWO-WAY LEFT TURN LANE



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LEVELS DISPLAYED

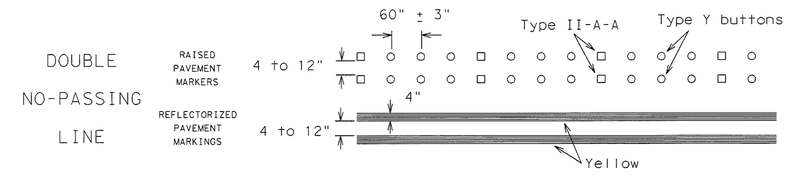
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	

ACC:

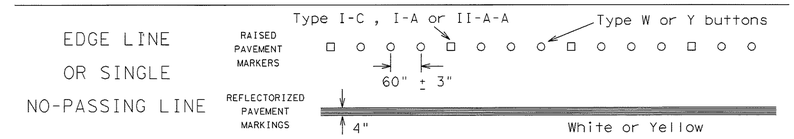
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

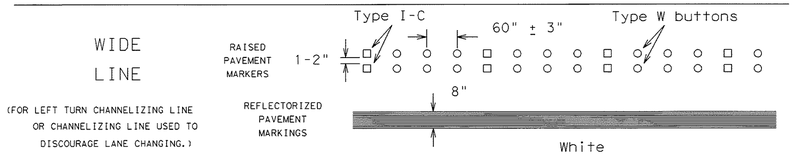


EDGE LINE OR SINGLE NO-PASSING LINE



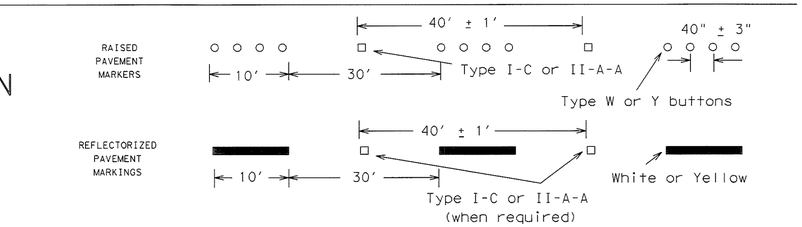
WIDE LINE

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



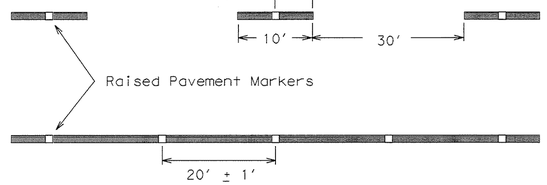
BROKEN LINE

(FOR CENTER LINE OR LANE LINE.)



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

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



Centerline only - not to be used on edge lines

Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be obtained by contacting:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3120
Fax (512) 416-3299

Instructions to locate the "CWZTCD" on TxDOT website are:

Start at website - www.dot.state.tx.us
Click on "About TxDOT",
Click on "Organizational Chart",
Click on Traffic Operations Box,
Click on "Compliant Work Zone Traffic Control Devices",
Click on "View PDF".
This site is printable.

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

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

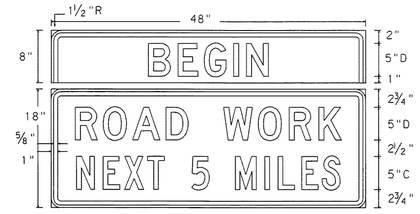
BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS STANDARD

11 of 12 BC(11)-03

© TxDOT February 1998	DN: - LR	CK: - DTN	DW: - FDN	CK: - CAL

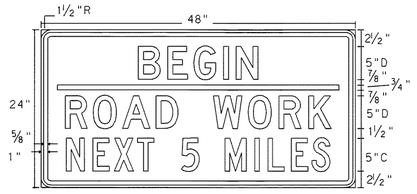
REVISIONS	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
2-94		6		T220
1-97	COUNTY	CONTROL	SECTION	JOB
2-98				HIGHWAY
11-02				

109B



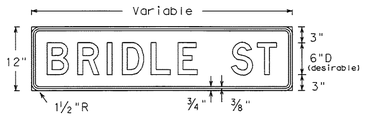
SG20-1 w/plaque
48" X 26"

Letters - Black
Numbers - Black
Border - Black
Background - Orange Refl.



SG20-5T
48" X 24"

Letters - Black
Numbers - Black
Border - Black
Background - Orange Refl.

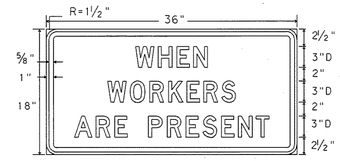


M4-9N
Variable X 12"

Letters - Black
Border - Black
Background - Orange Refl.

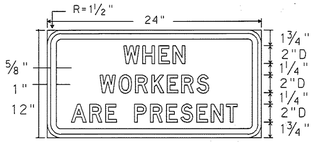
The M4-9R,L or S sign is to be used to detour local streets or roads that are not a State or Federal numbered highway; however, it should not be used in lieu of the M4-10 sign at the beginning of the detour or to detour State or Federal numbered routes.

Also, when the M4-9R,L or S sign is used, a sign (M4-9N) with the name of the street being detoured may be mounted above it.



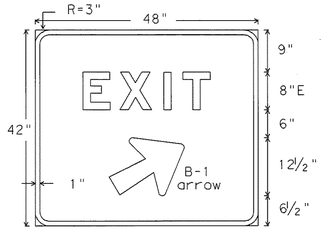
ER20-5
Plaque
36" X 18"

Letters - Black
Border - Black
Background - White Refl.



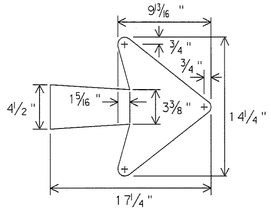
R20-5
Plaque
24" X 12"

Letters - Black
Border - Black
Background - White Refl.

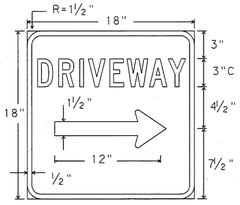


E5-1a
48" X 42"

Letters - White Refl.
Arrow - White Refl.
Border - White Refl.
Background - Green Refl.

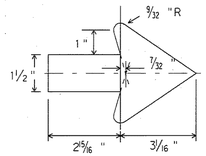


B-1 Arrow Detail



D-70a
18" X 18"

Letters - White Refl.
Symbol - White Refl.
Border - White Refl.
Background - Blue Refl.

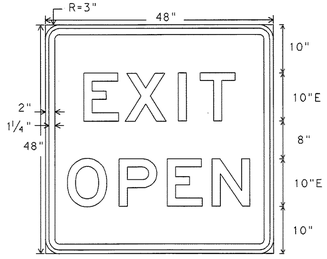


D-70S
42" X 14"

Letters - White Refl.
Symbol - White Refl.
Border - White Refl.
Background - Blue Refl.

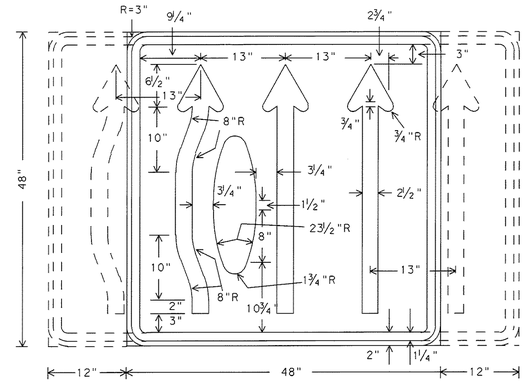
* Alternate first line legend for D-70S

RESTAURANT	D70R 4"C
BUSINESS	D70B 4"C
MOTEL	D70M 4"C
GAS	D70G 4"C



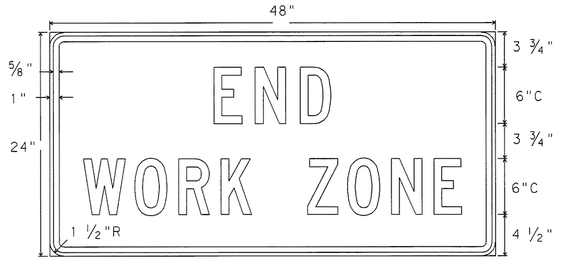
E5-2
48" X 48"

Letters - Black
Border - Black
Background - Orange Refl.



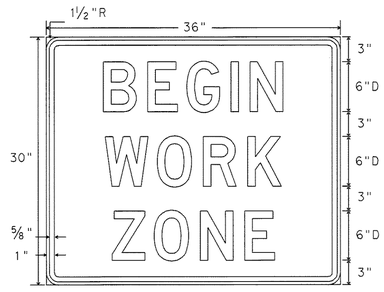
CW24-2
Var. X 48"

A mirror image may be used to show proper lane alignment.



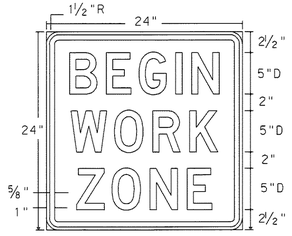
G20-2b
48" X 24"

Letters - Black
Border - Black
Background - Orange Refl.



EG20-9T
36" X 30"

Letters - Black
Border - Black
Background - Orange Refl.



G20-9T
24" X 24"

Letters - Black
Border - Black
Background - Orange Refl.

Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be obtained by contacting:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3120
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Click on "Organizational Chart",
Click on Traffic Operations Box,
Click on "Compliant Work Zone Traffic Control Devices",
Click on "View PDF".
This site is printable.

DEPARTMENT MATERIAL SPECIFICATIONS	
PLYWOOD SIGN BLANKS	DMS-7100
ALUMINUM SIGN BLANKS	DMS-7110
FLAT SURFACE REFLECTIVE SHEETING	DMS-8300
VINYL NON-REFLECTIVE DECAL SHEETING	DMS-8320

COLOR	USAGE	REFLECTIVE SHEETING OR OTHER MATERIAL
BLUE	BACKGROUND	TYPE C (HIGH SPECIFIC INTENSITY)
RED	BACKGROUND	TYPE C (HIGH SPECIFIC INTENSITY)
GREEN	BACKGROUND	TYPE C (HIGH SPECIFIC INTENSITY)
ORANGE	BACKGROUND	TYPE E (FLUORESCENT PRISMATIC)
WHITE	BACKGROUND	TYPE C (HIGH SPECIFIC INTENSITY)
YELLOW	BACKGROUND	TYPE C (HIGH SPECIFIC INTENSITY)
BLACK	LEGEND & BORDERS	VINYL NON-REFLECTIVE DECAL SHEETING
WHITE	LEGEND & BORDERS	TYPE C (HIGH SPECIFIC INTENSITY)

RECORD PLANS
MARCH 28, 2008

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

BARRICADE AND CONSTRUCTION REGULATORY & GUIDE SIGNS STANDARDS

12 of 12 BC(12)-03

©TxDOT February 1998	DN:- GRB	CK:- BAS	DW:- FDN	CK:- CAL

REVISIONS	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
10-99				T221
11-02		6		
COUNTY		CONTROL	SECTION	JOB / HIGHWAY

109C

LEVELS DISPLAYED

1	2	3	4	5	6	7	8	9	10	11	12	13	41	51	61
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
33	43	53	63	73	83	94	01	14	24	34	44	54	64	74	84
95	05	15	25	35	45	55	65	75	85	96	06	16	26	36	

ACC: