PROPOSED PAVEMENT & DRAINAGE IMPROVEMENTS

THORNBERRY & AUSTIN'S ESTATES DRIVE

AUSTIN'S ESTATES DRIVE TO CARTER TRACT

BRYAN, BRAZOS COUNTY, TEXAS

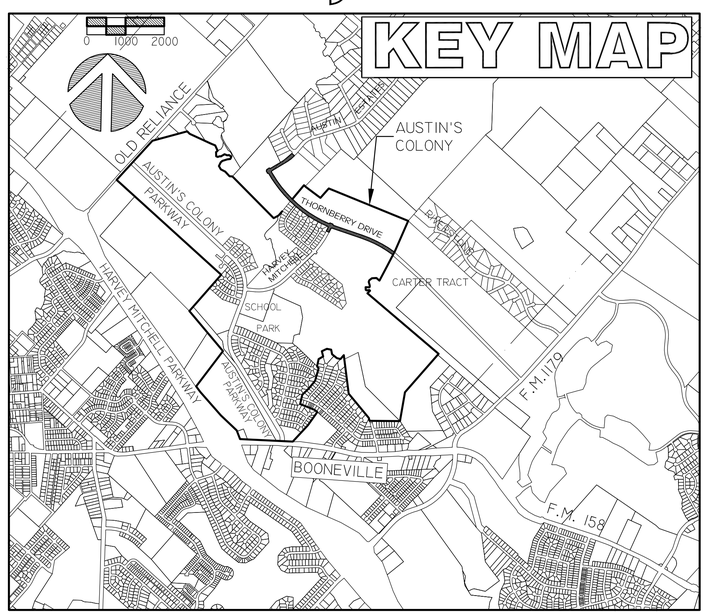
CITY OF BRYAN
The Good Life, Texas Style.™

MARCH, 2010

Austin's Colony

DEVELOPER:
MARK CARRABBA, PRESIDENT
HIGHLAND INTERESTS, INC.
4104 HWY. 21 EAST
BRYAN, TEXAS 77802
(979)778-8850

CITY COUNCIL:
MARK CONLEE, MAYOR
AL SAENZ
PAUL MADISION
JASON BIENSKI
ANN HORTON
ART HUGHES
MIKE SOUTHERLAND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PREPARED BY:
MICHAEL G. HESTER, P.E.
HESTER ENGINEERING COMPANY
7607 EASTMARK DRIVE, SU. 253-B
COLLEGE STATION, TX 77840
(979)693-1100

STATE OF TEXAS
MICHAEL G. HESTER
69104
LICENSED PROFESSIONAL ENGINEER

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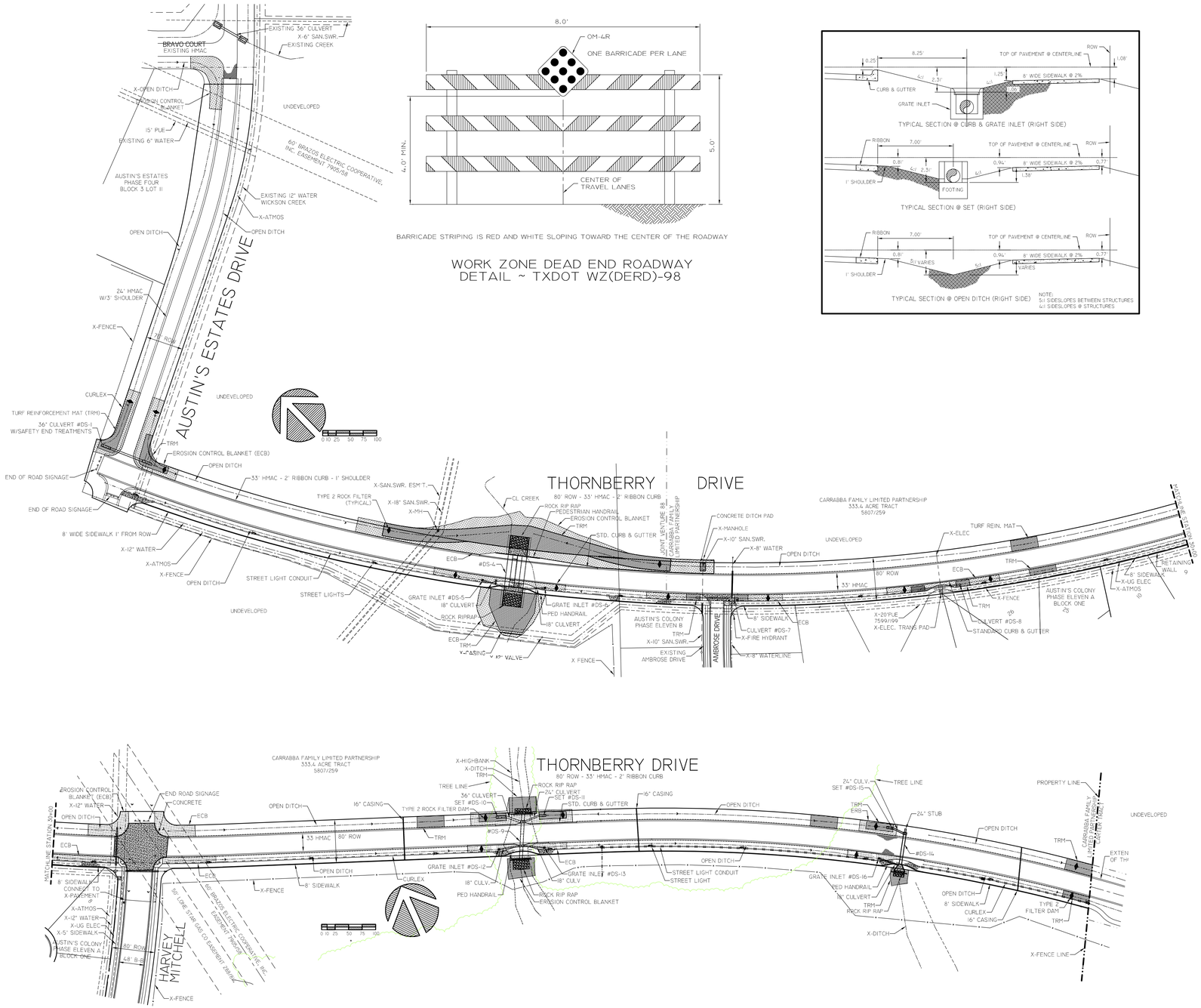

BARRICADE STRIPING IS RED AND WHITE SLOPING TOWARD THE CENTER OF THE ROADWAY

WORK ZONE DEAD END ROADWAY DETAIL ~ TXDOT WZ(DERD)-98

GENERAL NOTES:

ALL CONSTRUCTION SHALL BE INSPECTED BY A REPRESENTATIVE OF THE CITY ENGINEERS OFFICE AND IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE REPRESENTATIVE TO ASSURE COMPLIANCE.

NO HEAVY EQUIPMENT OR STOCK PILING OF MATERIAL WILL BE ALLOWED WITHIN THE DRIPLINE OF THE REMAINING TREES.

CONTRACTOR SHALL KEEP ALL STREETS CLEAR OF MUD AND DEBRIS AT ALL TIMES.

IN ALL INSTANCES REMOVE TOP LAYER OF ORGANIC MATERIAL PRIOR TO BEGINNING FILL.

THE CONTRACTOR SHAL CONTAIN ALL SEDIMENT FROM THE CONSTRUCTION ACTIVITIES ON SITE BY THE USE OF HAY BALES OR SEDIMENTATION FENCING AND SHALL BE RESPONSIBLE FOR OBTAINING THE TCEQ PERMIT FOR EROSION CONTROL AND SILT PROTECTION.

THE CONRACTOR IS RESPONSIBLE FOR FILING A NOTICE OF INTENT (NOI) WITH THE APPROPRIATE AGENCY IN ORDER TO COMPLY WITH EPA / TCEQ REQUIREMENTS. SAID NOI SHALL BE FILED TWO DAYS BEFORE CONSTRUCTION BEGINS.

SILT FENCING SHALL BE INSTALLED AROUND ALL INLETS AND MANHOLES UNDER CONSTRUCTION TO PREVENT SEDIMENT FROM ENTERING THE STORM SEWER SYSTEM.

ALL CONSTRUCTED INLETS SHALL BE SANDBAGGED. THE PLACEMENT OF THE SANDBAGS WILL BE IN THE STREETS AND WILL COLLECT SEDIMENT WHILE ALLOWING WATER TO FLOW INTO THE INLETS.

ALL MUD AND DEBRIS DEPOSITED IN THE STREETS AS A RESULT OF BECOMING SEPARATED FROM VEHICLES OR EQUIPMENT LEAVING THE SITE SHALL BE REMOVED FROM THE STREET IMMEDIATELY.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL SEDIMENT CONTROL DEVICES AFTER THE CONSTRUCTION IS COMPLETE AND THE PLANTED AREAS HAVE BEEN STABILIZED.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING A HEALTHY GROUND COVER IN AREA'S AFFECTED BY THE CONSTRUCTION.

EXCAVATE AND REMOVE ALL UNSTABLE AND/OR SATURATED SOILS PRIOR TO PLACEMENT OF ANY FILL MATERIAL OR CONCRETE TO AVOID SETTLEMENT.

UTILITY NOTES:

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF BRYAN CURRENT WATER AND WASTEWATER STANDARD DETAILS AND SPECIFICATIONS AND CURRENT STREET AND DRAINAGE STANDARD DETAILS AND SPECIFICATIONS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EXACT LOCATION OF ALL EXISTING UTILITIES AND SHALL CONTACT UTILITY COMPANY REPRESENTATIVES 48-HOURS IN ADVANCE OF EXCAVATION.

IN LIEU OF USING THE CONSTRUCTION MATERIALS INDICATED IN THESE PLANS THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FROM THE DESIGN AND CITY ENGINEER FOR ANY SUBSTITUTION.

THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH THE CITIES WATER AND SEWER SUPERINTENDENT TO AVOID DAMAGE TO EXISTING UNDERGROUND WATER AND SEWER FACILITIES.

ALL TRENCH DEPTHS GREATER THAT FIVE (5) FEET SHALL BE GUARDED FROM CAVE-IN BY A SATISFACTORY SYSTEM OF BRACING, SHORING, SHEETING OR OTHER MEANS IN CONFORMANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AND STATE REGULATION STANDARDS.

ALL SANITARY SEWER LINES SHALL BE TV'D IN THE PRESENCE OF A CITY INSPECTOR. AS PART OF THE ACCEPTANCE PROCEDURE A VHS OR DVD VIDEO TAPE WILL BE SUBMITTED TO THE CITY.

THE CONTRACTOR SHALL VERIFY EXISTING PIPE MATERIAL AND CLASSES PRIOR TO PURCHASING CONNECTION FITTINGS.

ALL WATERLINE FITTINGS WILL BE RESTRAINED.

ALL SANITARY SEWER SERVICES SHALL BE 4-INCH DIAMETER, SCH 40 PVC PER DETAIL S2-00.

TRENCH COMPACTION TO BE 95-PERCENT STANDARD PROCTOR DENSITY ON ALL WATER, SANITARY AND STORM DRAIN LINES EXCEPT UNDER THE STREETS, SIDEWALKS AND PARKING AREAS IT WILL BE 98-PERCENT STANDARD PROCTOR DENSITY PER ASTM D698 TO WITHIN -2 TO 4-PERCENT OF OPTIMUM MOISTURE CONTENT.

EMBED METAL LOCATOR TAPE ABOVE ALL PVC WATER AND SEWER. METAL DETECTOR TAPE SHALL BE 24" MAX BELOW FINISHED SURFACE GRADE. COPPER TRACING WIRE SHOULD ALSO BE INSTALLED DIRECTLY ABOVE THE PIPE IN ACCORDANCE WITH B/CS STANDAR DETAIL WE-03.

ALL ROWS AND EASEMENTS WILL BE CLEARED OF TREES, BRUSH, ETC.

MARK THE ENDS OF ALL SERVICES WITH "T-POSTS" PAINTED BLUE FOR WATER AND GREEN FOR SEWER.

ALL DUCTILE IRON FITTINGS, VALVES AND JOINTS SHALL BE POLY-WRAPPED. POLY WRAP OR ENCASEMENT OF METAL FITTINGS SHALL CONFORM TO AWWA C105. JOINT TAPE SHALL BE SELF-STICKING PVC OR POLYETHYLENE, 10 MILS THICK.

A VHS OR DVD VIDEO TAPE SHALL BE SUBMITTED TO THE CITY UPON FINAL COMPLETION OF THE STORM SEWER DRAIN SYSTEM INSTALLATION, THE LINE SHALL BE CLEAN AND AT THE REQUIRED SLOPES.

PAVEMENT:

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITIES STANDARD SPECIFICATIONS FOR STREET CONSTRUCTION UNLESS OTHERWISE STATED IN THE CONTRACT DOCUMENTS OR ON THE DRAWINGS.

BID AMOUNTS INCLUDE COSTS FOR ALL INCIDENTAL WORK.

THE TOP OF GROUND SLOPE TO BE A MINIMUM OF 1/4-INCH PER FOOT (2-PERCENT) BETWEEN THE CURB AND RIGHT OF WAY LINE, RISING TO THE ROW FROM THE CURB.

CONCRETE:

ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4-INCH.

REINFORCING STEEL SHALL BE PLACED WITH THE CENTER OF THE OUTSIDE LAYER OF BARS 2-INCHES FROM THE SURFACE OF THE CONCRETE. PLASTIC REBAR CHAIRS ARE REQUIRED TO SUPPORT THE REPAR.

ALL SIDEWALKS SHALL BE PLACED SO AS TO ACHIVE A MINIMUM OF 4-INCHES IN THICKNESS ON A COMPACTED SUBGRADE.

ALL SIDEWALKS AND FLUMES SHALL BE CONSTRUCTED USING CONCRETE HAVING 5-SACKS OF CEMENT PER CUBIC YARD AND A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI.

ALL STRUCTURES, CURB AND GUTTER AND PARKING LOTS SHALL BE CONSTRUCTED USING CONCRETE HAVING 6 SACKS OF CEMENT PER CUBIC YARD AND A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4000 PSI.

ALL CONCRETE CONNECTIONS SHALL BE OBTAINED BY DOWELS AT ALL CONNECTING FACES WITH NO. 3 SMOOTH REINFORCING BARS ON 12-INCH CENTERS. THE CONNECTIONS SHALL BE PROVIDED WITH 1/2-INCH EXPANSION JOINT MATERIAL (NON EXTRUDING FILLER) ALONG THE ENTIRE LENGTH AND SHALL BE CAULKED WITH SONNEBORN SL-1 OR AN APPROVED EQUAL. DEPTH OF DOWEL EMBEDMENT SHALL BE A MINIMUM OF 6-INCHES. CONNECTION TO EXISTING STRUCTURES SHALL BE SAWCUT.

BENCHMARK
CHISLED SQUARE IN CORNER OF INLET LOCATED ALONG NORTH SIDE OF HARVEY MITCHELL SCHOOL DRIVE ADJACENT TO COLONY VISTA DRIVE.
ELEVATION 292.91

NOTE:
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CITY OF BRYAN
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WATER ~ 209-5900 VERIZON ~ 1-800-DIGTESS
SANITARY SEWER~ 209-5900 SUDDENLINK ~ MIKE LAVENDAR ~ 846-2349
WICKSON CREEK SUD ~ KENT WATSON ~ 589-3030 MOBIL ~ KELLI MCMAHON 281-586-7535

NOTE:
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REVISIONS

PROJECT: THORNBERRY & AUSTIN'S ESTATES DRIVE STREET, DRAINAGE AND UTILITY IMPROVEMENTS
DATE: MARCH, 2010
DRAWN: M.G.H.
CHECKED: M.G.H.

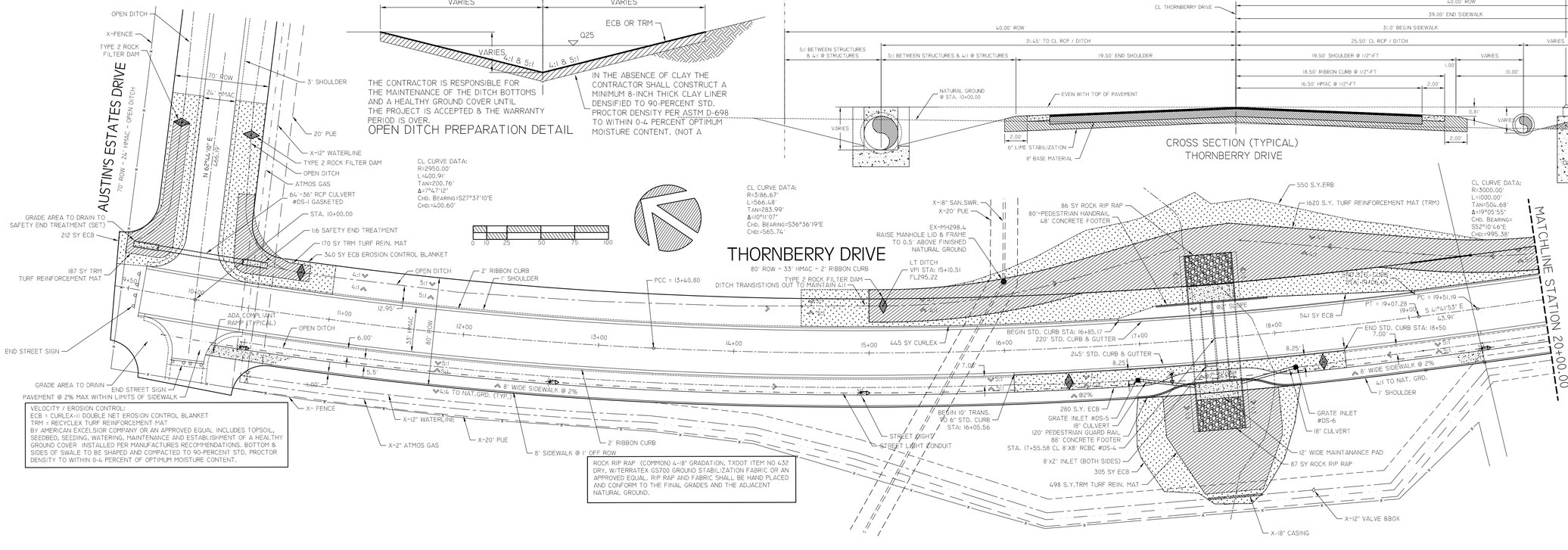
Hester Engineering Company

7607 EASTMARK DRIVE, SUITE 253-B, COLLEGE STATION TEXAS 77840 979-693-1100

THORNBERRY & AUSTIN'S ESTATES DRIVE
AUSTINS'S ESTATES DRIVE TO THE CARTER TRACT
OVERALL LAYOUT

STATE OF TEXAS
MICHAEL G. HESTER
69104
LICENSED PROFESSIONAL ENGINEER

SHEET NO. 0 OF 23 SHEETS



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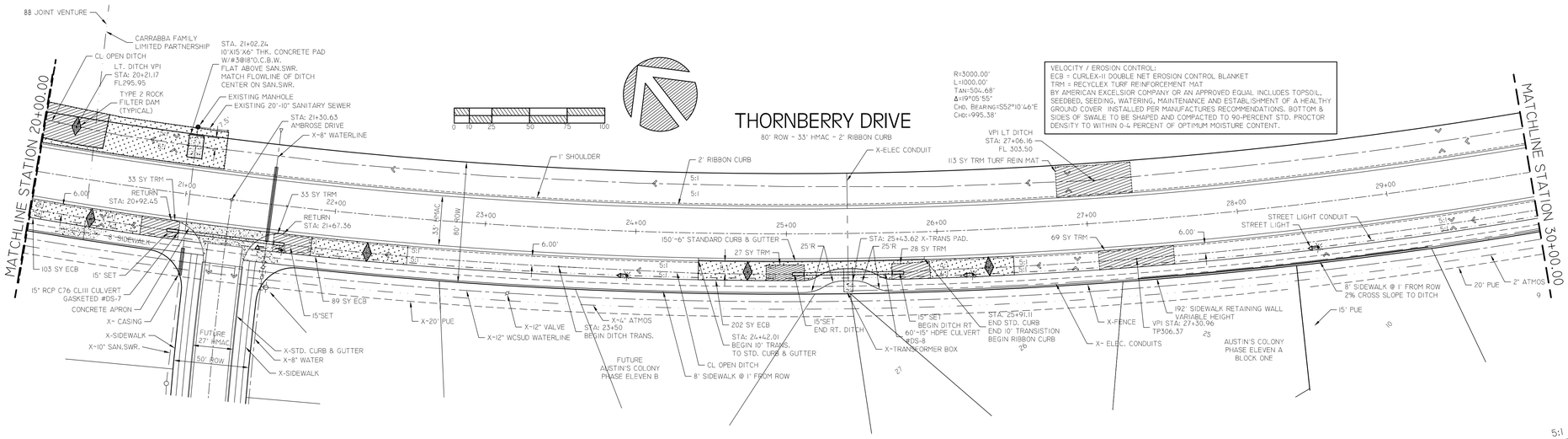
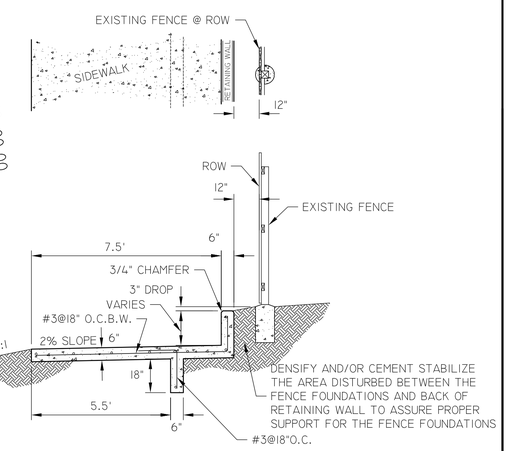
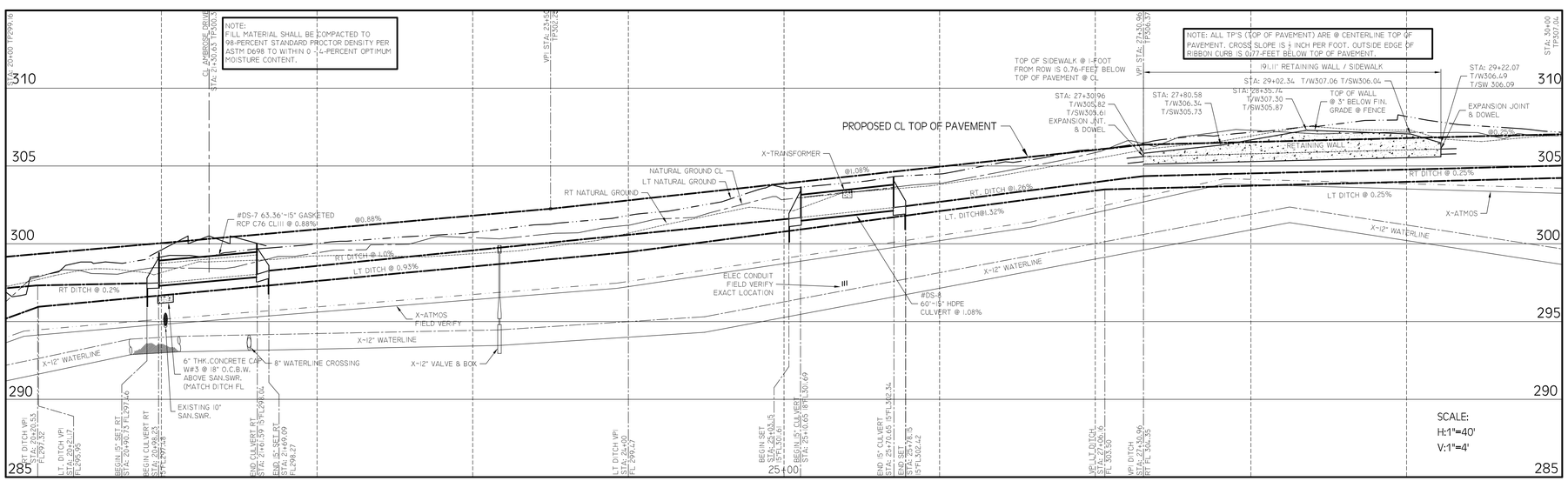




SIDEWALK RETAINING WALL



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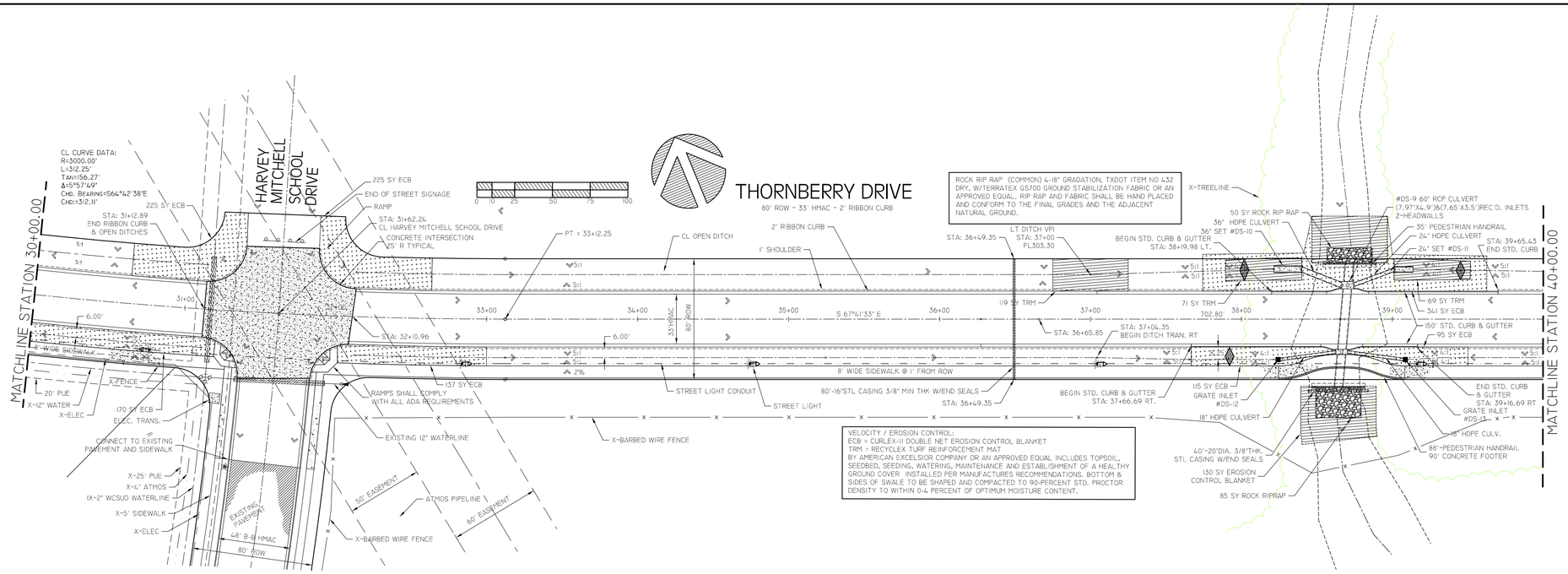
THORNBERRY & AUSTIN'S ESTATES DRIVE

AUSTINS'S ESTATES DRIVE TO THE CARTER TRACT
THORNBERRY DRIVE STA. 20+00.00 TO 30+00.00

STATE OF TEXAS MICHAEL G. HESTER 69104 LICENSED PROFESSIONAL ENGINEER

SHEET NO. 2 OF 23 SHEETS

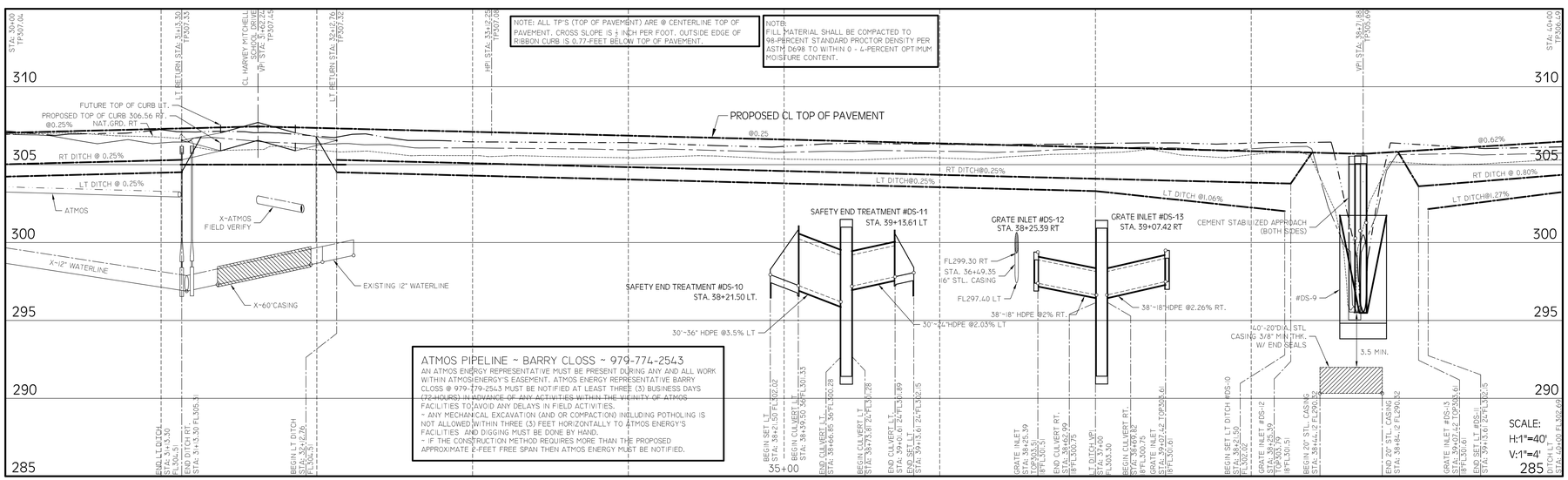


ROCK RIP RAP (COMMON) 4-18" GRADATION, TXDOT ITEM NO 432 DRY, W/TERRATEX GS700 GROUND STABILIZATION FABRIC OR AN APPROVED EQUAL. RIP RAP AND FABRIC SHALL BE HAND PLACED AND CONFORM TO THE FINAL GRADES AND THE ADJACENT NATURAL GROUND.

VELOCITY / EROSION CONTROL:
ECB = CURLEX-II DOUBLE NET EROSION CONTROL BLANKET
TRM = RECYCLEX TURF REINFORCEMENT MAT
BY AMERICAN EXCELSIOR COMPANY OR AN APPROVED EQUAL INCLUDES TOPSOIL, SEEDBED, SEEDING, WATERING, MAINTENANCE AND ESTABLISHMENT OF A HEALTHY GROUND COVER INSTALLED PER MANUFACTURES RECOMMENDATIONS. BOTTOM & SIDES OF SWALE TO BE SHAPED AND COMPACTED TO 90-PERCENT STD. PROCTOR DENSITY TO WITHIN 0-4 PERCENT OF OPTIMUM MOISTURE CONTENT.

NOTE: ALL TP'S (TOP OF PAVEMENT) ARE @ CENTERLINE TOP OF PAVEMENT. CROSS SLOPE IS 1 INCH PER FOOT. OUTSIDE EDGE OF RIBBON CURB IS 0.77-FEET BELOW TOP OF PAVEMENT.

NOTE:
FILL MATERIAL SHALL BE COMPACTED TO 98-PERCENT STANDARD PROCTOR DENSITY PER ASTM D698 TO WITHIN 0 - 4-PERCENT OPTIMUM MOISTURE CONTENT.



ATMOS PIPELINE ~ BARRY CLOSS ~ 979-774-2543
AN ATMOS ENERGY REPRESENTATIVE MUST BE PRESENT DURING ANY AND ALL WORK WITHIN ATMOS ENERGY'S EASEMENT. ATMOS ENERGY REPRESENTATIVE BARRY CLOSS @ 979-779-2543 MUST BE NOTIFIED AT LEAST THREE (3) BUSINESS DAYS (72-HOURS) IN ADVANCE OF ANY ACTIVITIES WITHIN THE VICINITY OF ATMOS FACILITIES TO AVOID ANY DELAYS IN FIELD ACTIVITIES.
~ ANY MECHANICAL EXCAVATION (AND OR COMPACTION) INCLUDING POTHOLING IS NOT ALLOWED WITHIN THREE (3) FEET HORIZONTALLY TO ATMOS ENERGY'S FACILITIES AND DIGGING MUST BE DONE BY HAND.
~ IF THE CONSTRUCTION METHOD REQUIRES MORE THAN THE PROPOSED APPROXIMATE 2-FEET FREE SPAN THEN ATMOS ENERGY MUST BE NOTIFIED.

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CHISLED SQUARE IN CORNER OF INLET LOCATED ALONG NORTH SIDE OF HARVEY MITCHELL SCHOOL DRIVE ADJACENT TO COLONY VISTA DRIVE.
ELEVATION 292.91

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AUSTINS'S ESTATES DRIVE TO THE CARTER TRACT
THORNBERRY DRIVE STA. 30+00.00 TO STA. 40+00.00

STATE OF TEXAS
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SHEET NO.
3
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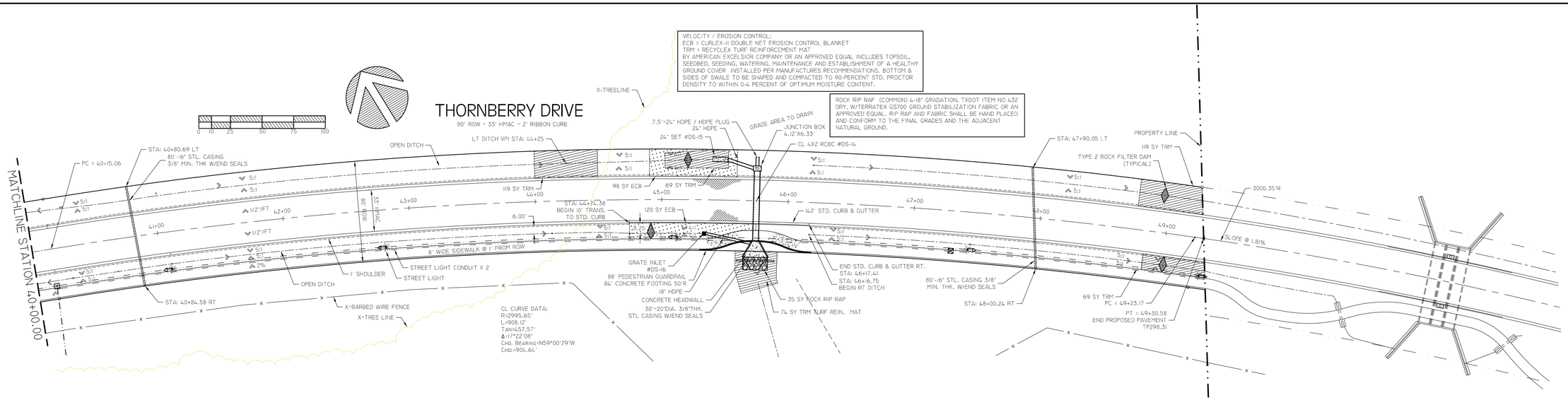

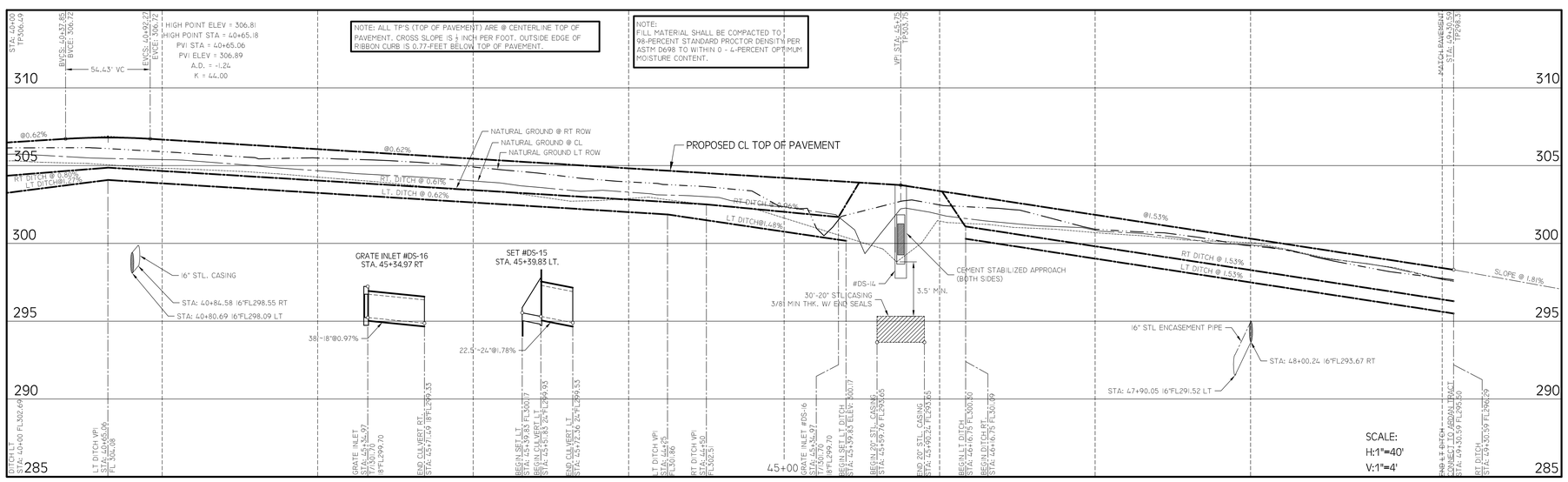

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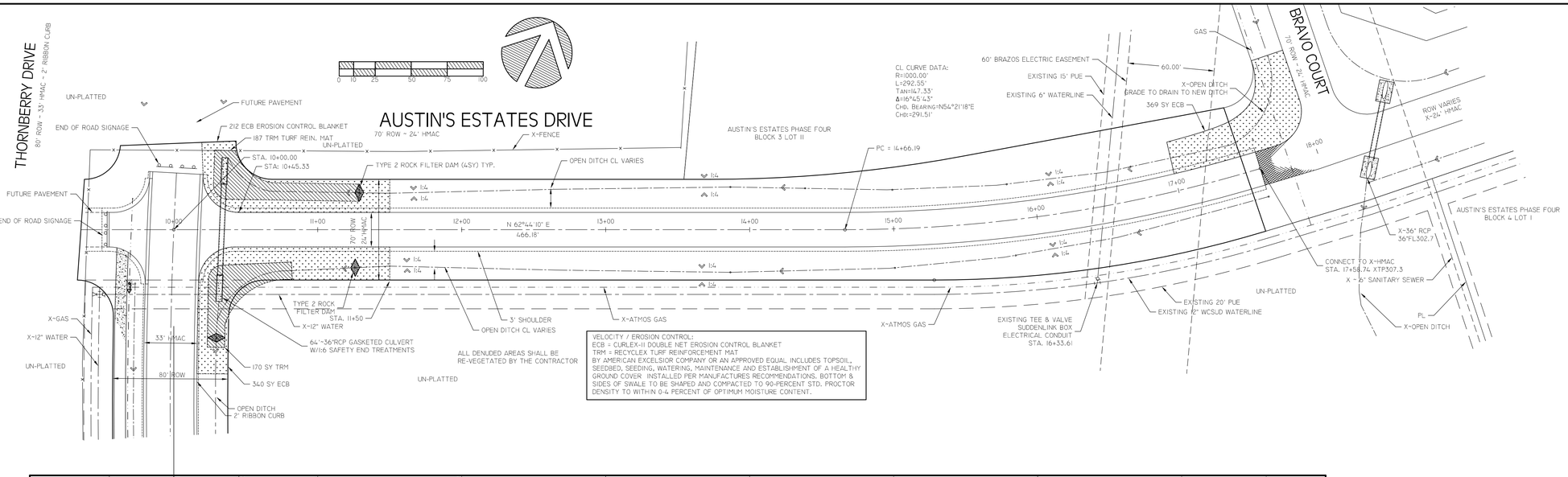
7607 EASTMARK DRIVE, SUITE 253-B, COLLEGE STATION TEXAS 77840 979-693-1100

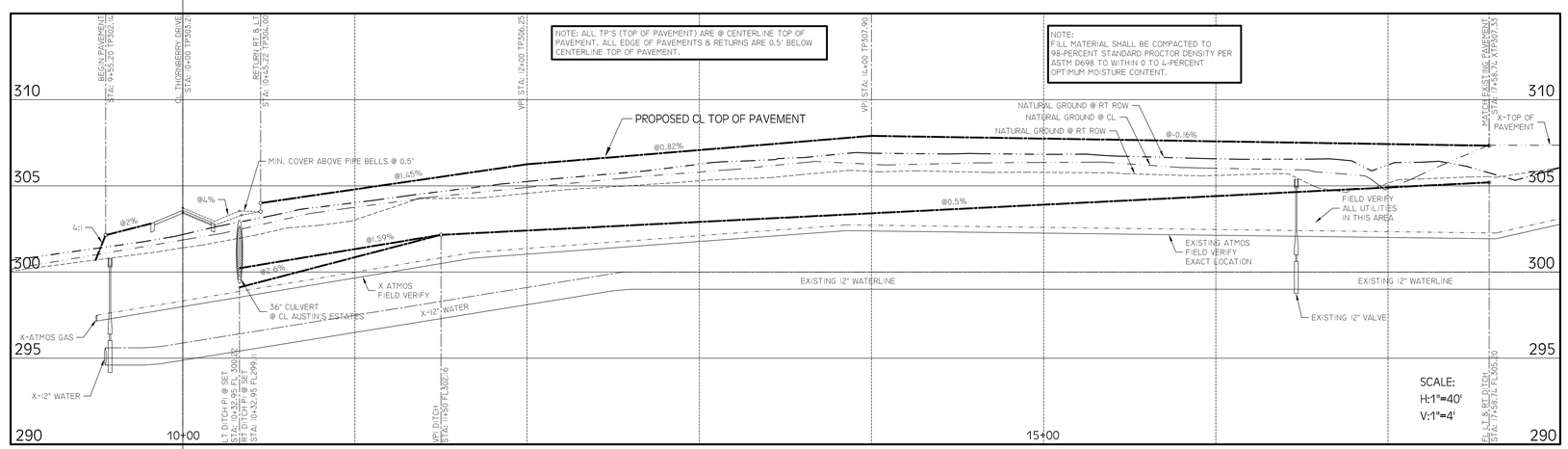
THORNBERRY & AUSTIN'S ESTATES DRIVE

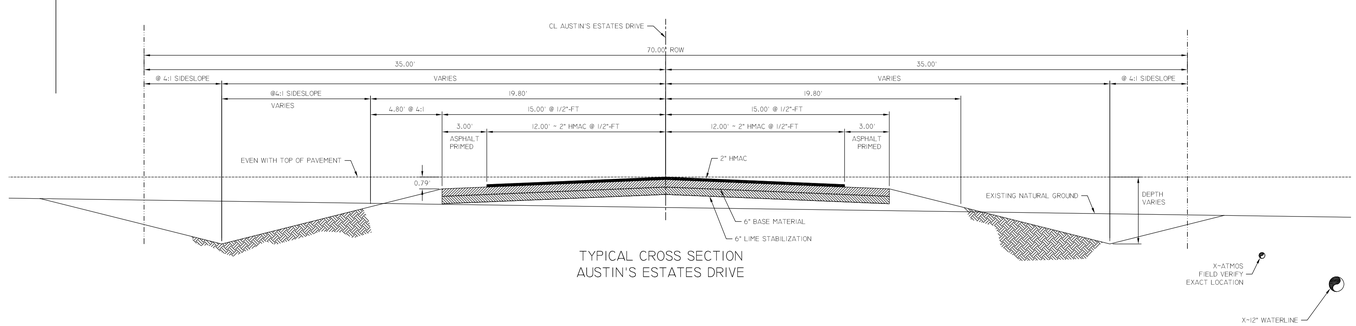
AUSTINS'S ESTATES DRIVE TO THE CARTER TRACT
THORNBERRY DRIVE ~ STA. 40+00.00 TO END

STATE OF TEXAS
MICHAEL G. HESTER
69104
LICENSED PROFESSIONAL ENGINEER

SHEET NO.
4
OF 23 SHEETS







TYPICAL CROSS SECTION
AUSTIN'S ESTATES DRIVE

NOTE: WHEN SCALING PLOTTED SHEETS USE BAR SCALE FOR ACCURACY.

BENCHMARK
CHISLED SQUARE IN CORNER OF INLET LOCATED ALONG NORTH SIDE OF HARVEY MITCHELL SCHOOL DRIVE ADJACENT TO COLONY VISTA DRIVE.
ELEVATION 292.91

NOTE:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EXACT LOCATION OF ALL EXISTING UTILITIES AND SHALL CONTACT UTILITY COMPANY REPRESENTATIVES 48 HOURS IN ADVANCE OF ANY EXCAVATION.
CITY OF BRYAN
ELECTRICAL (BTU) DAVID ALVERS ~ 821-5760 ATMOS ~ KIMBERLY WINN ~ 774-2506
WATER ~ 209-5900 VERIZON ~ 1-800-DIGTESS
SANITARY SEWER~ 209-5900 SUDDENLINK ~ MIKE LAVENDAR ~ 846-2349
WICKSON CREEK SUD ~ KENT WATSON ~ 589-3030 MOBIL ~ KELLI MCMAHON 281-386-7535

NOTE:
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★ RELEASED FOR CONSTRUCTION ★

REVISIONS	PROJECT: THORNBERRY & AUSTIN'S ESTATES DRIVE STREET, DRAINAGE AND UTILITY IMPROVEMENTS
	DATE: MARCH, 2010
	DRAWN: M.G.H.
	CHECKED: M.G.H.

Hester Engineering Company

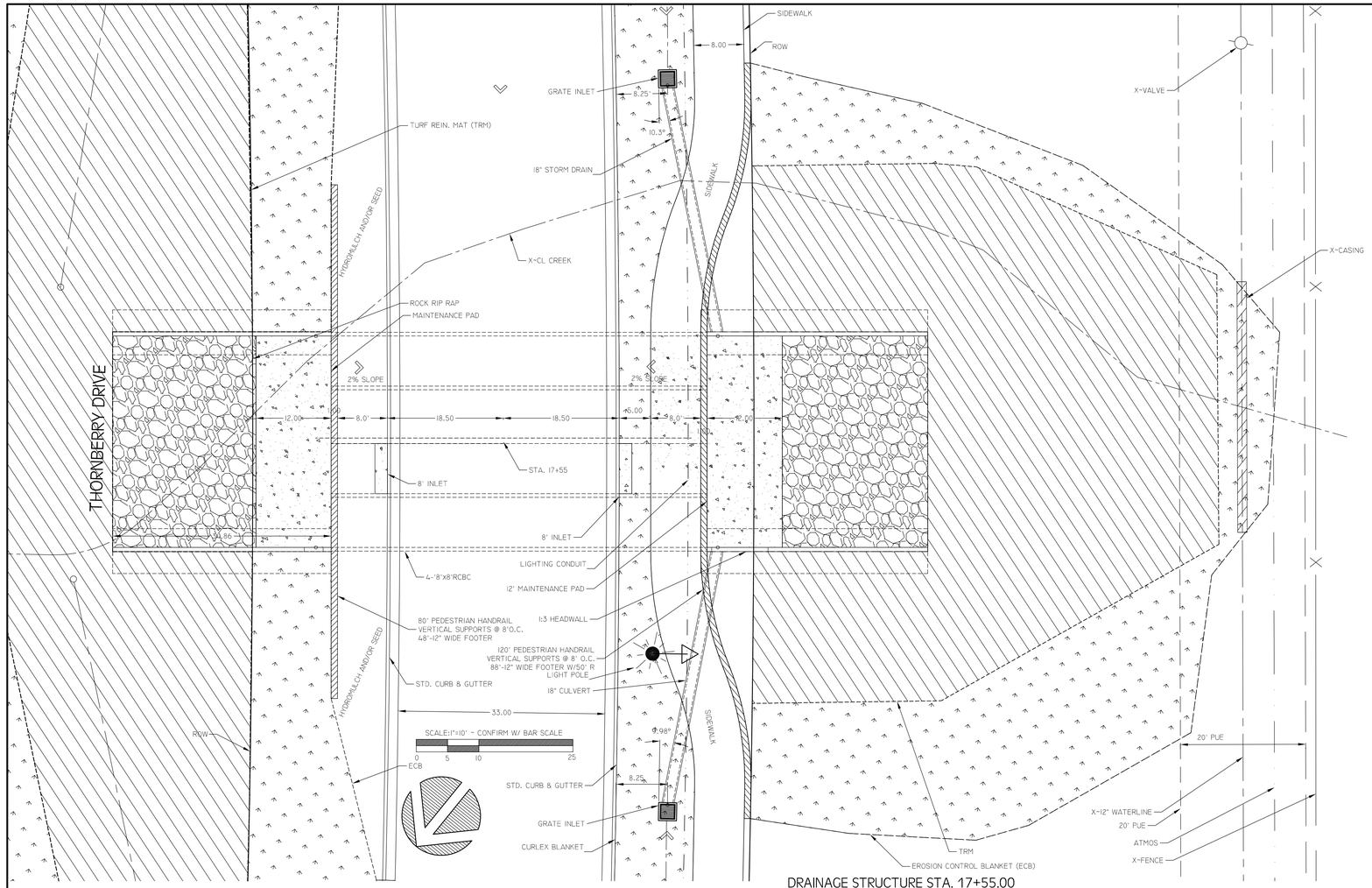
7607 EASTMARK DRIVE, SUITE 253-B, COLLEGE STATION TEXAS 77840 979-693-1100

THORNBERRY & AUSTIN'S ESTATES DRIVE

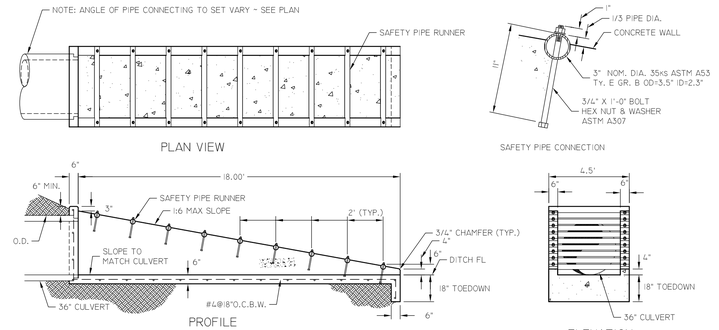
AUSTINS'S ESTATES DRIVE TO THE CARTER TRACT
AUSTINS'S ESTATES DRIVE ~ STA. 10+00 TO END

STATE OF TEXAS
MICHAEL G. HESTER
69104
LICENSED PROFESSIONAL ENGINEER

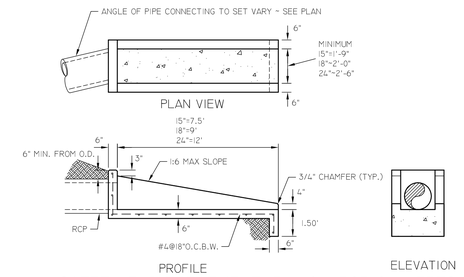
SHEET NO.
5
OF 23 SHEETS



DRAINAGE STRUCTURE STA. 17+55.00



SAFETY END TREATMENT 36" RCP CULVERTS
SCALE: 1"=4'



SAFETY END TREATMENT 15" - 24" RCP CULVERTS
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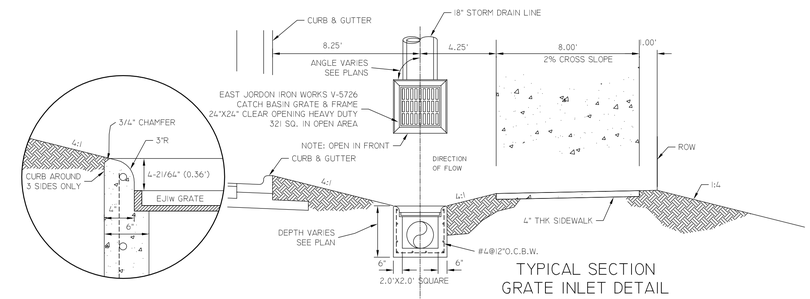
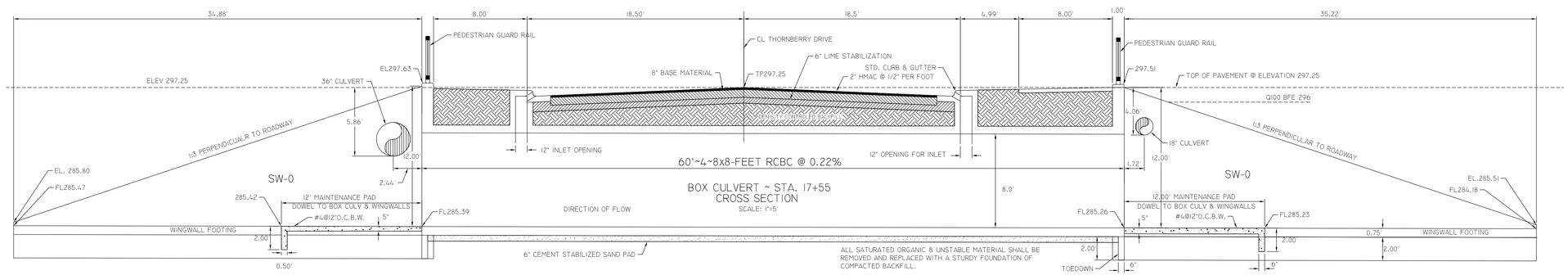
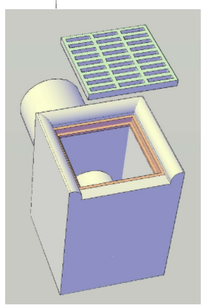


TYPICAL SECTION
GRATE INLET DETAIL
SCALE: 1"=4'



BOX CULVERT ~ STA. 17+55
CROSS SECTION
SCALE: 1"=5'



BENCHMARK
CHISLED SQUARE IN CORNER OF INLET LOCATED ALONG NORTH SIDE OF HARVEY MITCHELL SCHOOL DRIVE ADJACENT TO COLONY VISTA DRIVE.
ELEVATION 292.91

NOTE:
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	DATE: MARCH, 2010
	DRAWN: M.G.H.
	CHECKED: M.G.H.

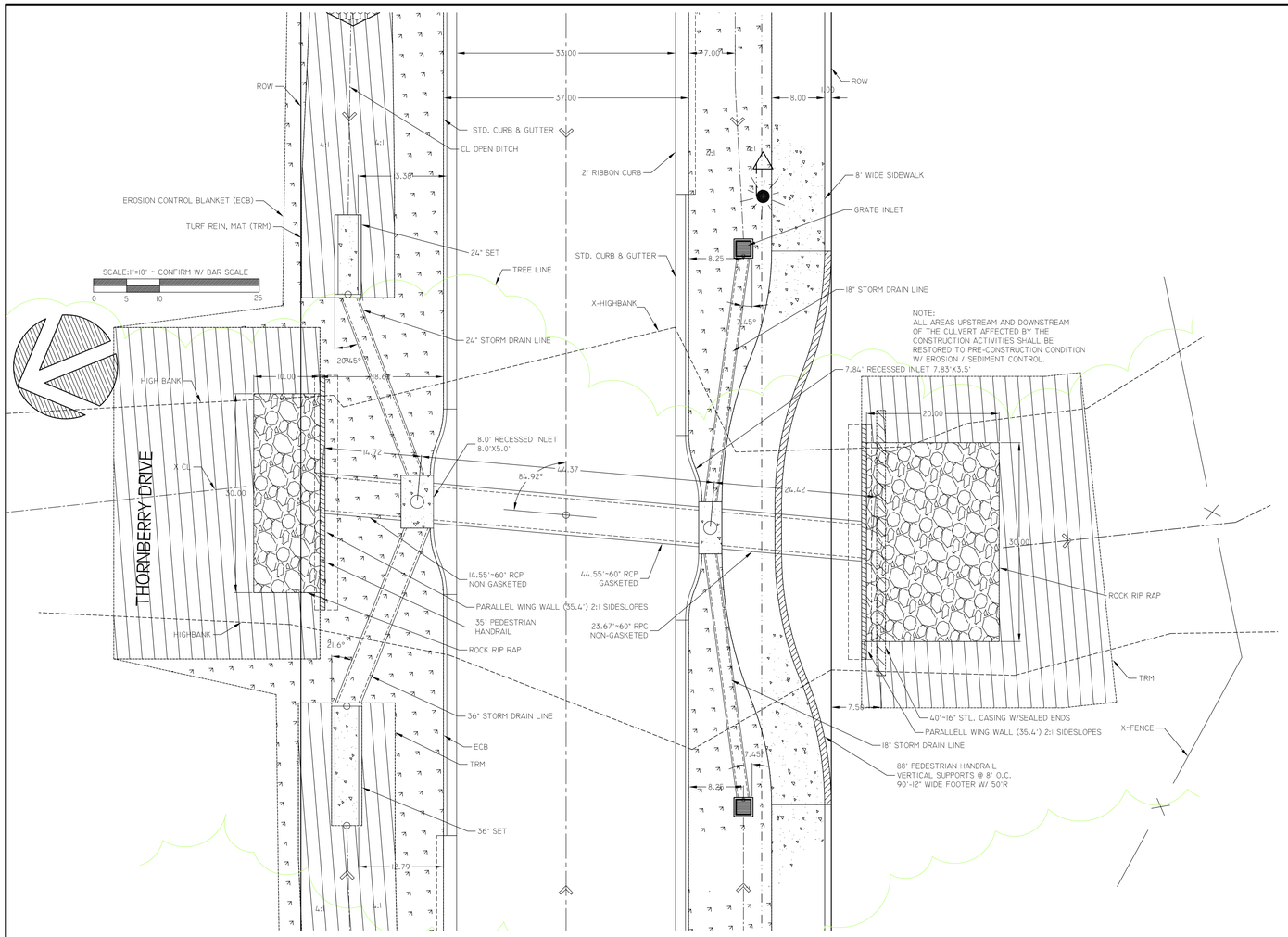
Hester Engineering Company

7607 EASTMARK DRIVE, SUITE 253-B, COLLEGE STATION TEXAS 77840 979-693-1100

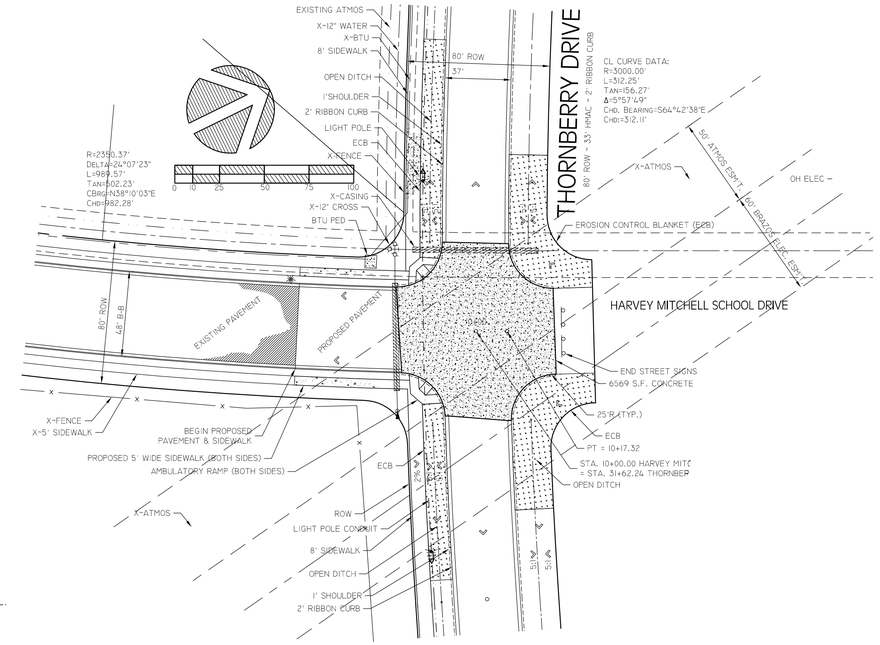
THORNBERRY & AUSTIN'S ESTATES DRIVE
AUSTINS'S ESTATES DRIVE TO THE CARTER TRACT
DRAINAGE STRUCTURE STA. 17+55 & DETAILS

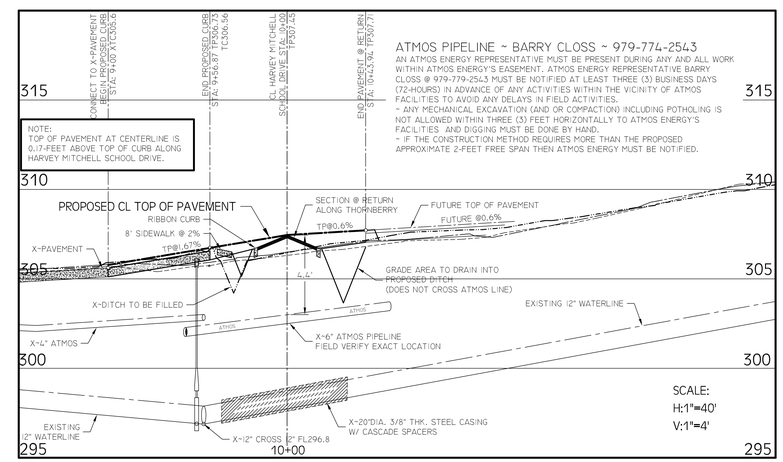
STATE OF TEXAS
MICHAEL G. HESTER
69104
LICENSED
PROFESSIONAL ENGINEER

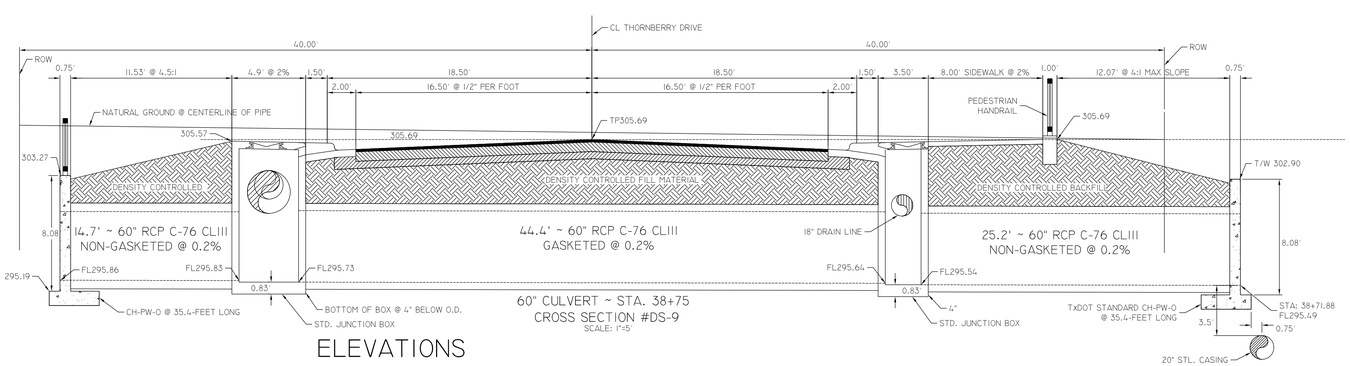
SHEET NO.
6
OF 23 SHEETS



STA. 38+68 CULVERT CROSSING







ELEVATIONS

BENCHMARK
CHISLED SQUARE IN CORNER OF INLET LOCATED ALONG NORTH SIDE OF HARVEY MITCHELL SCHOOL DRIVE ADJACENT TO COLONY VISTA DRIVE.
ELEVATION 292.91

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	DATE: MARCH, 2010
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	CHECKED: M.G.H.

Hester Engineering Company

7607 EASTMARK DRIVE, SUITE 253-B, COLLEGE STATION TEXAS 77840 979-693-1100

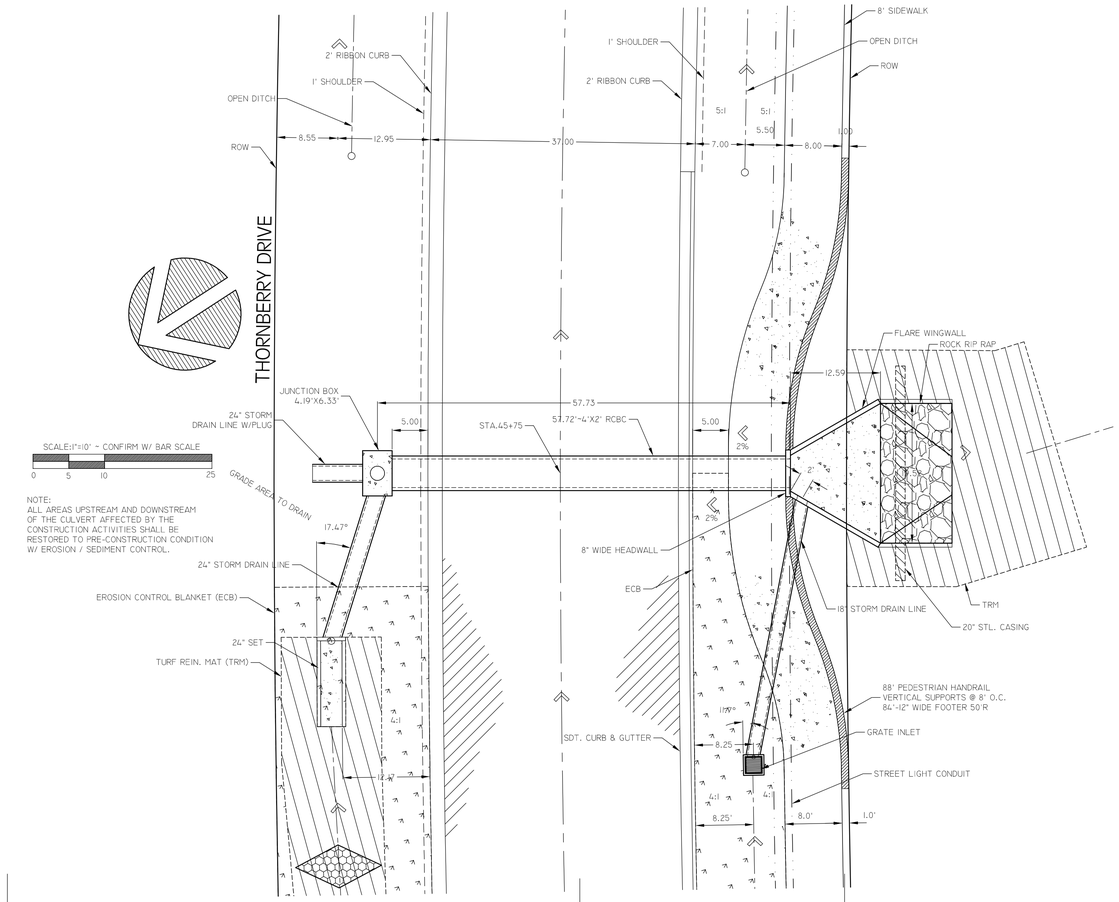
THORNBERRY & AUSTIN'S ESTATES DRIVE

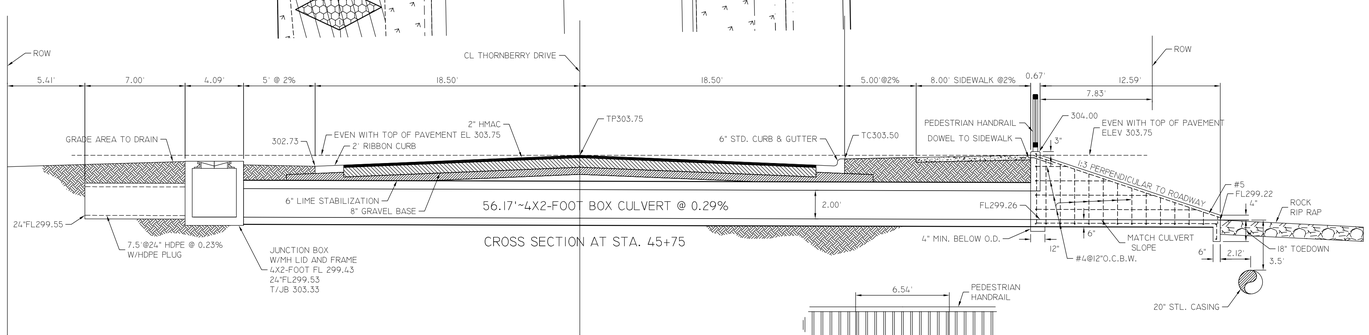
AUSTINS'S ESTATES DRIVE TO THE CARTER TRACT

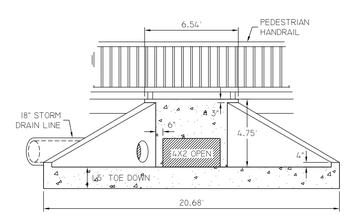
STA. 38+75 DRAINAGE STRUCTURE & HARVEY MITCHELL SCHOOL DRIVE

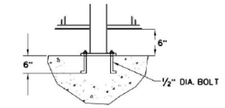
STATE OF TEXAS
MICHAEL G. HESTER
69104
LICENSED
PROFESSIONAL ENGINEER

SHEET NO.
7
OF 23 SHEETS

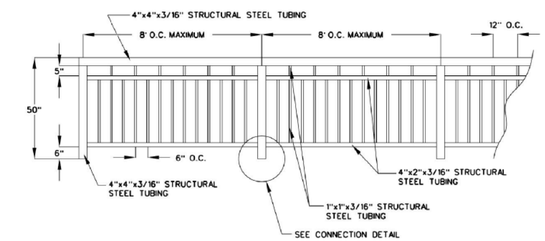




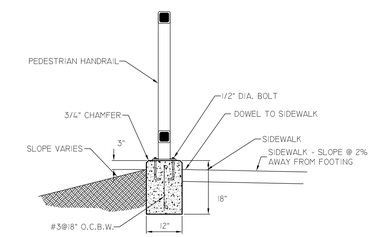




CONNECTION DETAIL



PEDESTRIAN HANDRAIL DETAIL



PEDESTRIAN HANDRAIL FOOTING DETAIL

BENCHMARK
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ELEVATION 292.91

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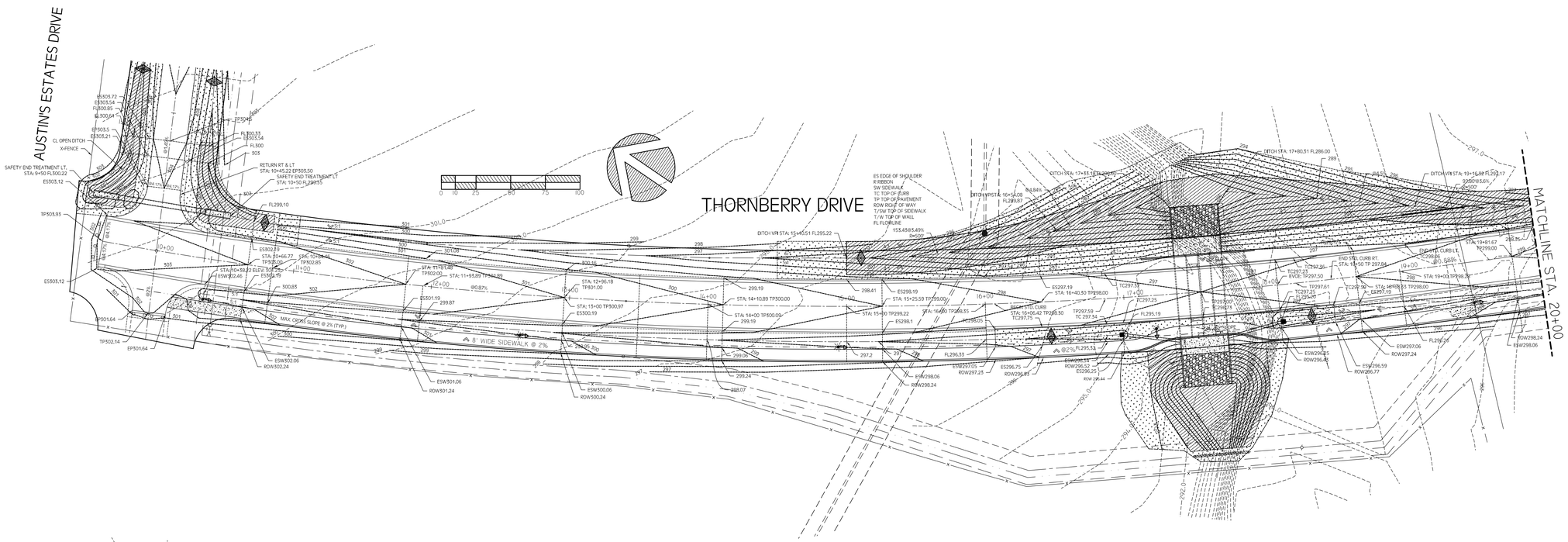
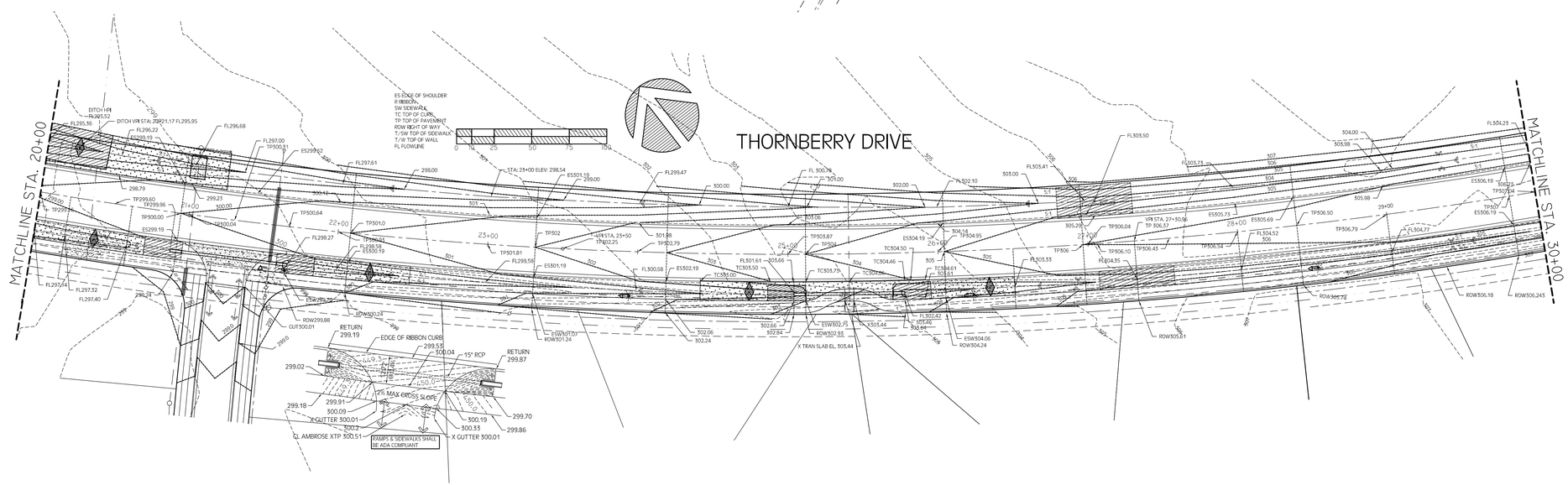
	DATE: MARCH, 2010	7607 EASTMARK DRIVE, SUITE 253-B, COLLEGE STATION TEXAS 77840 979-693-1100	AUSTINS'S ESTATES DRIVE TO THE CARTER TRACT		OF 23 SHEETS
	DRAWN: M.G.H.		STA. 45+75 DRAINAGE STRUCTURE & DETAILS		
	CHECKED: M.G.H.				





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BENCHMARK
CHISLED SQUARE IN CORNER OF INLET LOCATED ALONG NORTH SIDE OF HARVEY MITCHELL SCHOOL DRIVE ADJACENT TO COLONY VISTA DRIVE.
ELEVATION 292.91

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Michael G. Hester, P.E.

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	DATE: MARCH, 2010
	DRAWN: M.G.H.
	CHECKED: M.G.H.

Hester Engineering Company

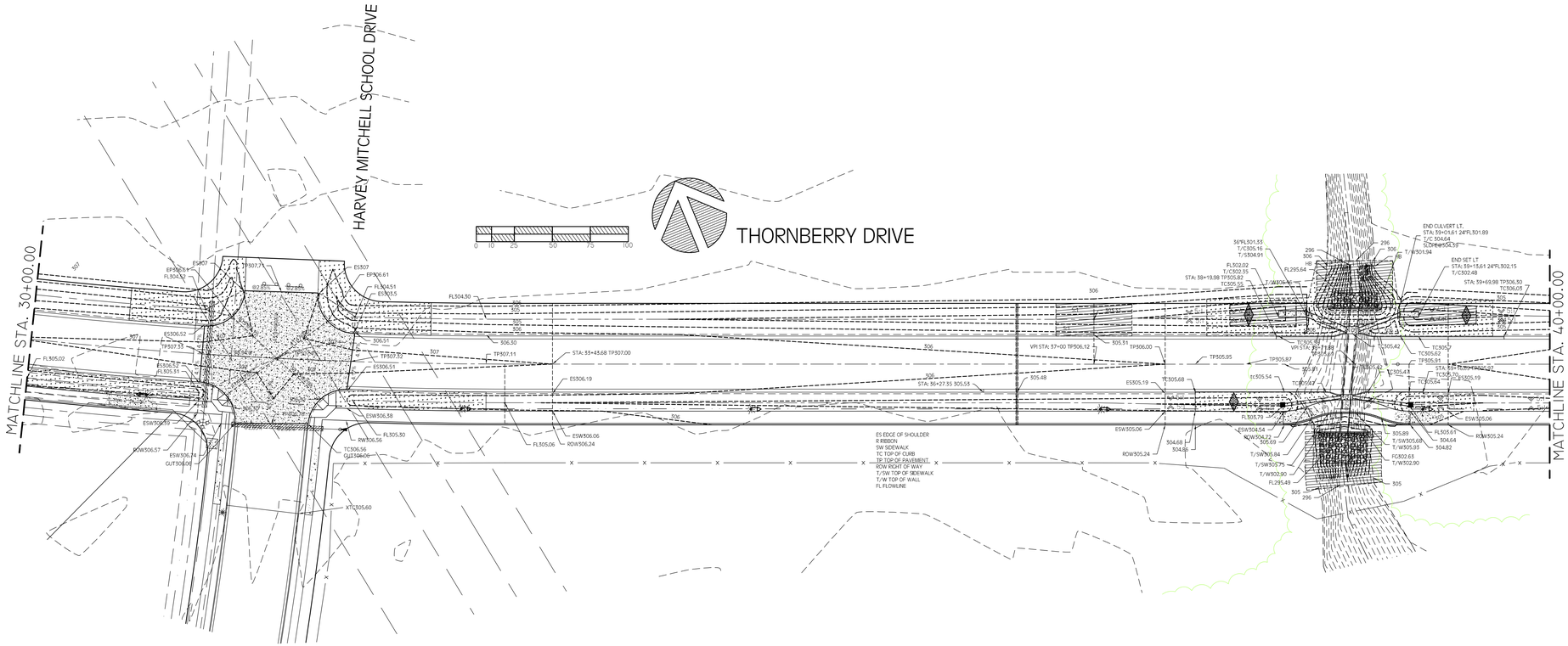
7607 EASTMARK DRIVE, SUITE 253-B, COLLEGE STATION TEXAS 77840 979-693-1100

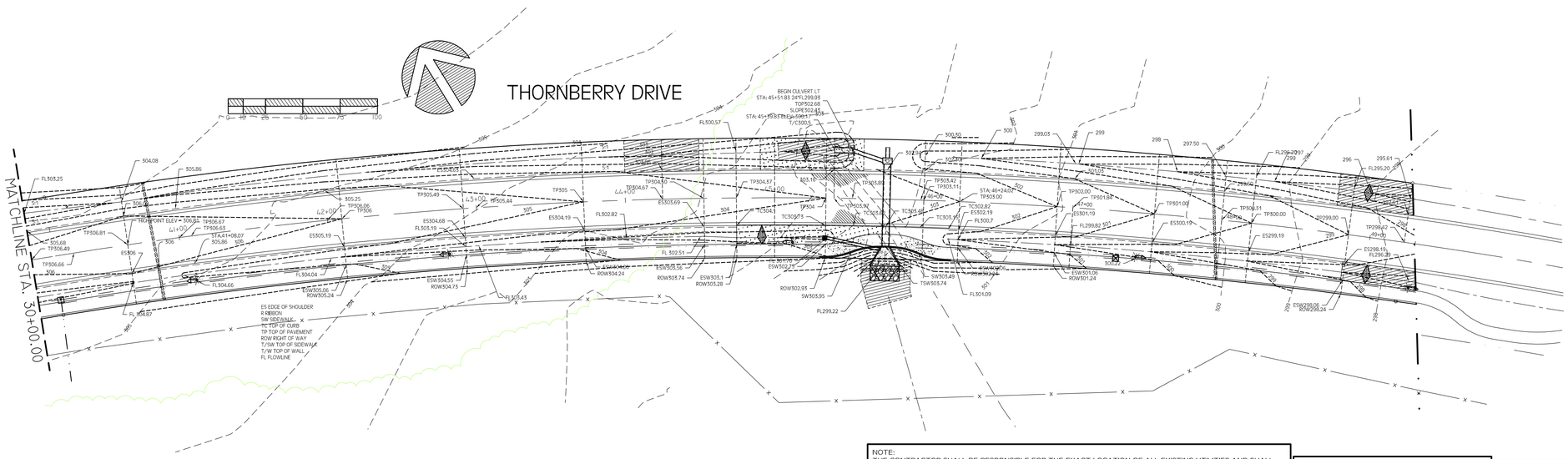
THORNBERRY & AUSTIN'S ESTATES DRIVE

AUSTINS'S ESTATES DRIVE TO THE CARTER TRACT
GRADING PLAN - THORNBERRY DRIVE STA. 10+00 + 30+00

STATE OF TEXAS
MICHAEL G. HESTER
69104
LICENSED PROFESSIONAL ENGINEER

SHEET NO.
9
OF 23 SHEETS





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	DATE: MARCH, 2010
	DRAWN: M.G.H.
	CHECKED: M.G.H.

Hester Engineering Company

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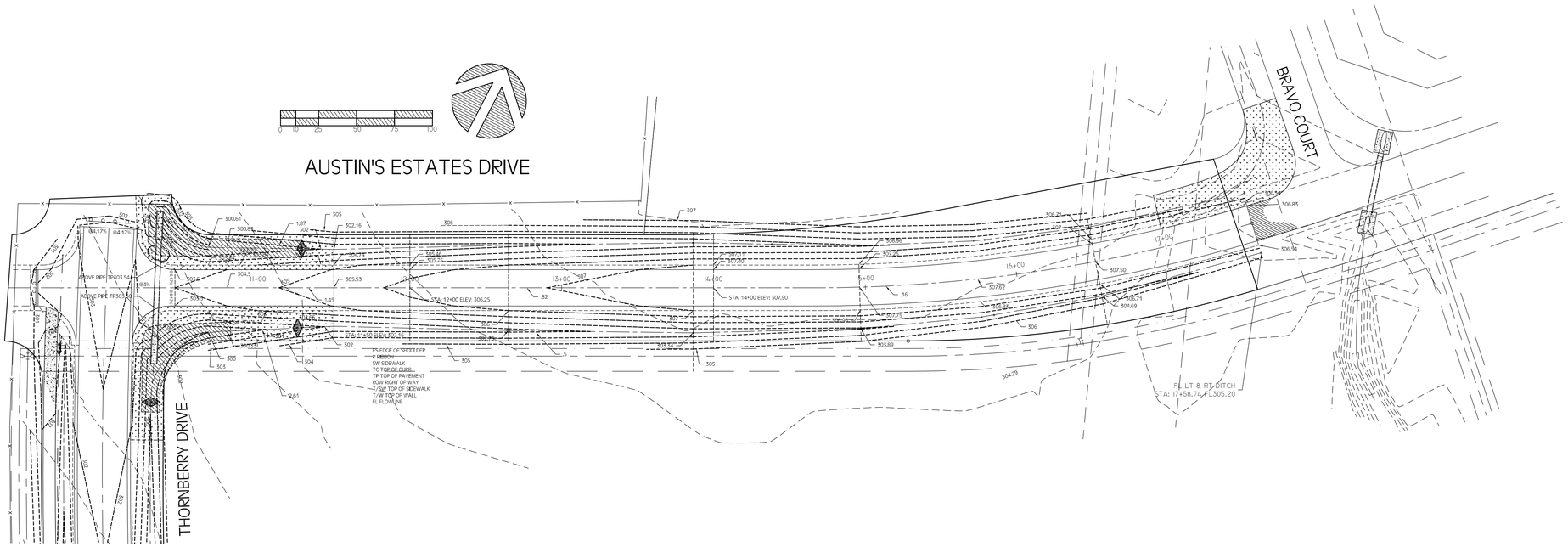
THORNBERRY & AUSTIN'S ESTATES DRIVE

AUSTINS'S ESTATES DRIVE TO THE CARTER TRACT

GRADING PLAN STA. 30+00.00 TO CARTER/ARDAN TRACT

STATE OF TEXAS
MICHAEL G. HESTER
69104
LICENSED PROFESSIONAL ENGINEER

SHEET NO.
10
OF 23 SHEETS



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THORNBERRY & AUSTIN'S ESTATES DRIVE

AUSTINS'S ESTATES DRIVE TO THE CARTER TRACT

GRADING PLAN AUSTIN'S ESTATE DRIVE

STATE OF TEXAS
MICHAEL G. HESTER
69104
LICENSED PROFESSIONAL ENGINEER

SHEET NO.
11
OF 23 SHEETS

SITE DESCRIPTION

PROJECT NAME AND LOCATION:

OWNER AND DEVELOPER:

MARK CARRABBA, CARRABBA INTERESTS
4104 HWY 21 EAST
BRYAN, TEXAS 77802
979-778-8850

THORNBERRY DRIVE AUSTIN ESTATES DRIVE TO THE CARTER TRACT

BRYAN, BRAZOS COUNTY, TEXAS

THE SITE IS NOT LOCATED ON INDIAN LANDS.

LATITUDE: 30°41'11.79"N
LONGITUDE: 96°19'42.79"W

MS4 OPERATOR NAME: CITY OF BRYAN

RECEIVING WATER BODY: CARTER'S CREEK
ESTIMATED AREA TO BE DISTURBED: 8.9 ACRES

THIS STORM WATER POLLUTION PREVENTION PLAN IS IN COMPLIANCE WITH STATE AND LOCAL SEDIMENT AND EROSION PLANS.

OPERATOR REQUIREMENTS:

THE OPERATOR SHALL POST A COPY OF THE NOI AT THE CONSTRUCTION SITE 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.

THE OPERATOR SHALL PROVIDE A COPY OF THE NOI TO THE OPERATOR OF THE MUNICIPAL SEPARATE STORM SEWER SYSTEM RECEIVING THE DISCHARGE, AT LEAST TWO (2) DAYS PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES.

THE OPERATOR SHALL IMPLEMENT THE STORM WATER PLAN PRIOR TO BEGINNING CONSTRUCTION ACTIVITIES.

THE OPERATOR SHALL SUBMIT A NOT (NOTICE OF TERMINATION) TO THE TCEQ AND A COPY TO THE OPERATOR OF THE MUNICIPAL STORM SEWER SYSTEM ONCE THE FINAL STABILIZATION HAS BEEN ACHIEVED AND THE TEMPORARY EROSION CONTROLS HAVE BEEN REMOVED.

CONTROLS MUST BE DEVELOPED TO LIMIT, TO THE EXTENT PRACTICABLE, OFFSITE TRANSPORT OF LITTER, CONSTRUCTION DEBRIS AND CONSTRUCTION MATERIALS.

COMPLY WITH ALL PERMIT REQUIREMENTS NOT STATED ON THIS SHEET.

COMPLY WITH ALL ADDITIONAL REQUIREMENTS SUGGESTED BY THE CITIES INSPECTOR.

REVISIONS TO SWP3 PLAN	DATE

OPERATOR INSPECTION REQUIREMENTS

THE FOLLOWING RECORDS MUST BE MAINTAINED AND EITHER ATTACHED TO OR REFERENCED IN THE STORM WATER PLAN:

THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR

THE DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE

THE DATES WHEN STABILIZATION MEASURES ARE INITIATED

A REPORT SUMMARIZING THE SCOPE OF THE INSPECTION, NAMES AND QUALIFICATIONS OF PERSONNEL MAKING THE INSPECTION, THE DATES OF THE INSPECITON, AND MAJOR OBSERVATIONS MUST BE MADE AND RETAINED WITH THE STORM WATER PLAN. MAJOR OBSERVASTIONS SHOULD INCLUDE:

THE LOCATIONS OF DISCHARGES OF SEDIMENT OR OTHER POLLUTANTS FROM THE SITE; LOCATIONS OF BMP'S (BEST MANAGEMENT PRACTICES) THAT NEED TO BE MAINTAINED; LOCATIONS OF BMP'S THAT FAILED TO OPERATE AS DESIGNED OR PROVED INADEQUATE FOR A PARTICULAR LOCATION; AND LOCATIONS WHERE ADDITIONAL BMP'S ARE NEEDED.

OPERATORS RECORD KEEPING

THE PERMITTEE MUST RETAIN THE FOLLOWING RECORDS FOR A MINIMUM OF 3 YEARS FROM THE DATE THAT A NOT IS SUBMITTED.

A COPY OF THE STORM WATER PLAN
ALL REPORTS AND ACTIONS REQUIRED BY THIS PERMIT, INCLUDING A COPY OF THE CONSTRUCITON SITE NOTICE
ALL DATA USED TO COMPLETE THE NOI

NATURE OF CONSTRUCTION ACTIVITY:

ROADWAY CONSTRUCTION

POTENTIAL POLLUTANTS AND SOURCES:

SEDIMENT FROM EXCAVATIONS AND EQUIPMENT MOVEMENTS AROUND THE SITE.

NOTE:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSPECTION AND MAINTENANCE OF THE SWP3 SYSTEM. THE CONSTRACTOR SHALL TURN IN THE INSPECTION REPORTS WITH THE MONTHLY PAYMENT APPLICATIONS. (IF REQUIRED BY OWNER NO MONTHLY PAYMENT WILL BE MADE UNLESS THE INSPECTION REPORTS ARE SUBMITTED WITH THE PAYMENT REQUEST).

SCHEDULE OF EVENTS:

1.) INSTALL SILT FENCING
2.) INSTALL STABILIZED CONSTRUCTION ENTRANCE
3.) CLEAR AND GRUBB
4.) INSTALL STORM DRAIN LINES, FILL MATERIAL, LANDSCAPING, IRRIGATION
5.) COMPLETE GRADING AND INSTALL PERMANENT SEEDING
6.) WHEN ALL CONSTRUCTION ACTIVITY IS COMPLETED THE SITE IS STABILIZED, REMOVE SILT FENCE AND RESEED ANY AREA DISTURBED DURING CONSTRUCTION AND ASSURE A HEALTHY GROUND COVER. CONTROLS WILL STAY IN PLACE UNTIL VEGETATION IS RE-ESTABILISHED.

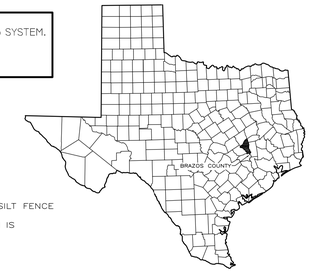
TOTAL NUMBER OF ACRES INCLUDING:

OFF-SITE MATERIAL STORAGE _____

OVERBURDEN AND STOCKPILES OF DIRT _____

BORROW AREAS _____

TOTAL NUMBER OF ACRES DISTURBED _____



LOCATION MAP
BRAZOS COUNTY, TEXAS

DESCRIPTION OF SOIL:

AREAS OF SOIL DISTURBANCE:

THE ENTIRE SITE WILL BE AFFECTED.

STRUCTURAL CONTROLS:

TEMPORARY STABILIZATION ~ AREAS WHERE CONSTRUCTION ACTIVITY TEMPORARY CEASES FOR AT LEAST 21 DAYS WILL BE STABILIZED WITH TEMPORARY SEED NO LATER THAN 14 DAYS FROM THE LAST CONSTRUCTION ACTIVITY IN THAT AREA ALL PROPOSED FILL MATERIAL WILL BE SEEDED.

SILT FENCE AND OR HAY BALES WILL BE INSTALLED AT ALL OUTFALLS, AREAS WHERE WATER RUNS OFF THE SITE, INLETS UNDER CONSTRUCTION WILL HAVE SILT FENCING OR HAY BALES PLACED AROUND THE PERIMETER OF THE INLET. ALL CONSTRUCTED INLETS WILL HAVE SANDBAGS PLACED IN FRONT OF THE THROAT TO COLLECT SEDIMENT BUT ALLOW FLOW OF WATER INTO THE

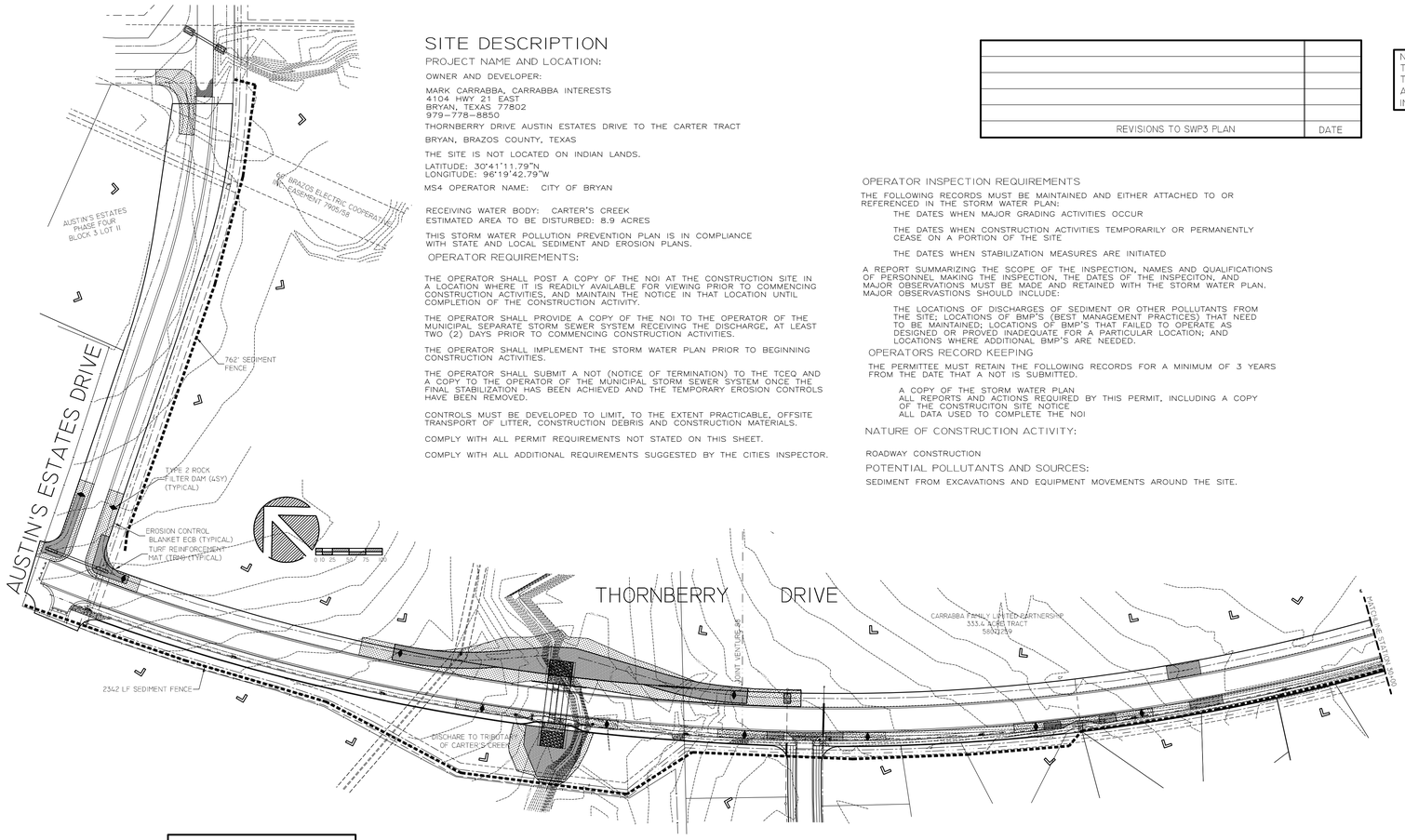
SURFACE WATERS ARE NOT PRESENT AT THIS SITE

STORM WATER MANAGEMENT

NO CHANGES TO THE STORM RUNOFF ARE PROPOSED THE RUNOFF WILL FOLLOW THE EXISTING PATHS AND WILL DISCHARGE INTO EXISTING INLETS. NO SIGNIFICANT INCREASE IN RUNOFF IS EXPECTED.

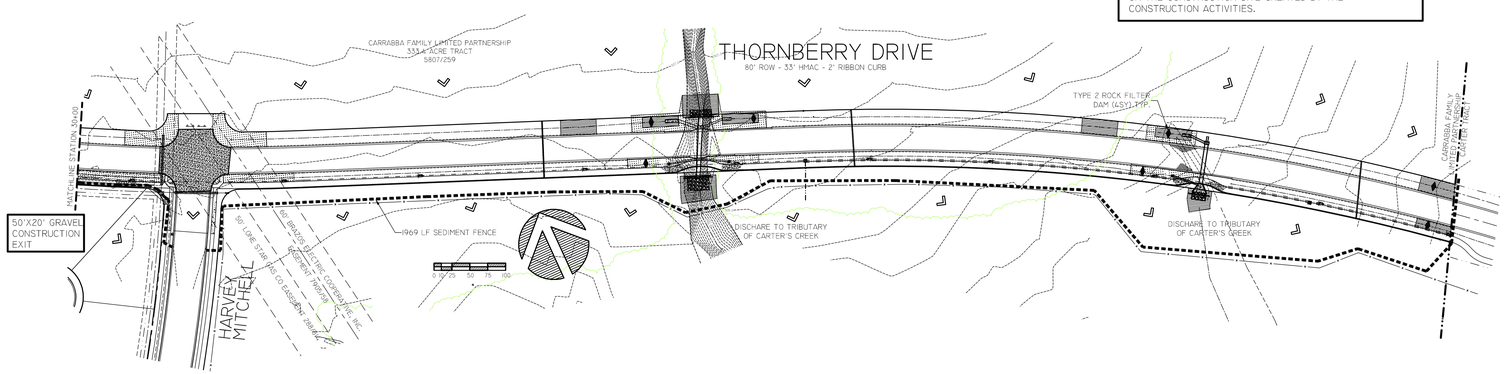
OFFSITE VEHICLE TRACKING

A STABILIZED CONSTRUCTION ENTRANCE WILL BE PROVIDED TO HELP REDUCE VEHICLE TRACKING OF SEDIMENTS. THE PAVED STREET ADJACENT TO THE SITE ENTRANCE WILL BE SWEPT TO REMOVE ANY EXCESS MUD, DIRT OR ROCK TRACKED FROM THE SITE. DUMP TRUCKS HAULING MATERIAL FROM THE CONSTRUCTION SITE WILL BE COVERED WITH A TARPAULIN.



NOTE:
ALL WASTE AREAS SHALL HAVE A SILT FENCE INSTALLED ALONG THE LOW SIDE.

NOTE:
THE CONTRACTOR SHALL PLACE SEDIMENT FENCE OUTSIDE THE LIMITS OF HIS WORK AREA AND CONTAIN ALL SEDIMENT ON THE CONSTRUCTION SITE CREATED BY THE CONSTRUCTION ACTIVITIES.



NOI SHALL BE POSTED AT ENTRANCE TO SITE

CERTIFICATION OF COMPLIANCE WITH STATE AND LOCAL REGULATIONS

THE STORM WATER POLLUTION PREVENTION PLAN REFLECTS THE CITY'S REQUIREMENTS FOR STORM WATER MANAGEMENT AND EROSION AND SEDIMENT CONTROL. TO ENSURE COMPLIANCE, THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE CITIES DRAINAGE POLICY. THERE ARE NO OTHER APPLICABLE STATE OR FEDERAL REQUIREMENTS FOR SEDIMENT AND EROSION SITE PLANS (OR PERMITS) OR STORM WATER MANAGEMENT SITE PLANS (OR PERMITS).

MAINTENANCE / INSPECTION PROCEDURES

THESE ARE THE INSPECTION AND MAINTENANCE PRACTICES THAT WILL BE USED TO MAINTAIN EROSION AND SEDIMENT CONTROLS.

-ALL CONTROL MEASURES WILL BE INSPECTED AT LEAST ONCE EVERY 14 DAYS AND FOLLOWING ANY STORM EVENT OF 0.5 INCHES OR GREATER.

-ALL MEASURES WILL BE MAINTAINED IN GOOD WORKING ORDER; IF A REPAIR IS NECESSARY IT WILL ME INITIATED WITHIN 24 HOURS OF THE REPORT.

-BUILT UP SEDIMENT WILL BE REMOVED FROM SILT FENCE WHEN IT HAS REACHED ONE-HALF THE HEIGHT OF THE FENCE.

-SILT FENCE WILL BE INSPECTED FOR DEPTH OF SEDIMENT, TEARS, TO SEE IF THE FABRIC IS SECURELY ATTACHED TO THE FENCE POSTS, TO SEE THAT THE FENCE POSTS ARE FIRMLY IN THE GROUND.

-TEMPORARY AND PERMANENT SEEDING AND PLANTING WILL BE INSPECTED FOR BARE SPOTS, WASHOUTS, AND HEALTHY GROWTH.

-A MAINTENANCE INSPECTION REPORT WILL BE MADE AFTER EACH INSPECTION. THE INSPECTION REPORT FORM WILL BE PREPARED BY THE SITE SUPERINTENDENT AND FILED FOR RECORD.

-A SITE SUPERINTENDENT WILL BE RESPONSIBLE FOR INSPECTIONS, MAINTENANCE AND REPAIR ACTIVITIES AND FILLING OUT THE INSPECTION AND MAINTENANCE REPORT.

NON-STORM WATER DISCHARGES

IT IS EXPECTED THAT THE FOLLOWING NON-STORM WATER DISCHARGES WILL OCCUR FROM THE SITE DURING THE CONSTRUCTION PERIOD.

-WATER FROM WATERLINE TAP

BENCHMARK
CHISLED SQUARE IN CORNER OF INLET LOCATED ALONG NORTH SIDE OF HARVEY MITCHELL SCHOOL DRIVE ADJACENT TO COLONY VISTA DRIVE.
ELEVATION 292.91

NOTE:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EXACT LOCATION OF ALL EXISTING UTILITIES AND SHALL CONTACT UTILITY COMPANY REPRESENTATIVES 48 HOURS IN ADVANCE OF ANY EXCAVATION.
CITY OF BRYAN
ELECTRICAL (BTU) DAVID ALVERS ~ 821-5760 ATMOS ~ KIMBERLY WINN ~ 774-2506
WATER ~ 209-5900 VERIZON ~ 1-800-DIGTESS
SANITARY SEWER~ 209-5900 SUDDENLINK ~ MIKE LAVENDAR ~ 846-2349
WICKSON CREEK SUD ~ KENT WATSON ~ 589-5030 MOBIL ~ KELLI MCMAHON 281-586-7535

NOTE:
HESTER ENGINEERING COMPANY IS NOT RESPONSIBLE FOR THE ACCURACY OF THE TOPOGRAPHIC SURVEY WORK SHOWN ON THIS PROJECT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFIRMING EXISTING ELEVATIONS AND DIMENSIONS PRIOR TO CONSTRUCTION.

Michael G. Hester, P.E.

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY MICHAEL G. HESTER, P.E. NO. 69104 ~ HESTER ENGINEERING COMPANY ~ FIRM NO. F-3476 ~ MARCH 2, 2010. ALTERATION OF A SEALED DOCUMENT WITHOUT NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

★ RELEASED FOR CONSTRUCTION ★

NOTE: WHEN SCALING PLOTTED SHEETS USE BAR SCALE FOR ACCURACY.

REVISIONS

PROJECT:
THORNBERRY & AUSTIN'S ESTATES DRIVE
STREET, DRAINAGE AND UTILITY IMPROVEMENTS
DATE: MARCH, 2010
DRAWN: M.G.H.
CHECKED: M.G.H.

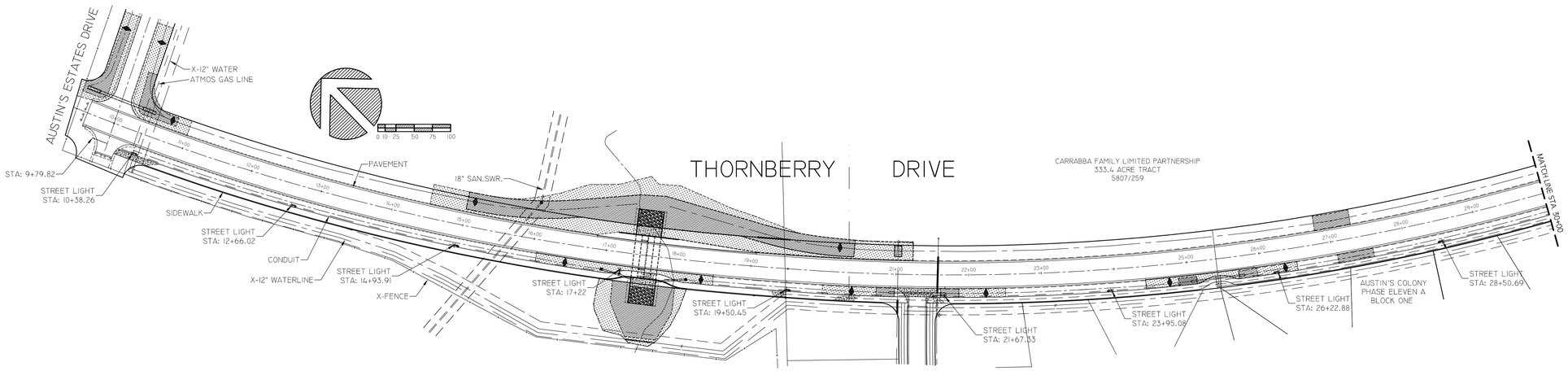
Hester Engineering Company

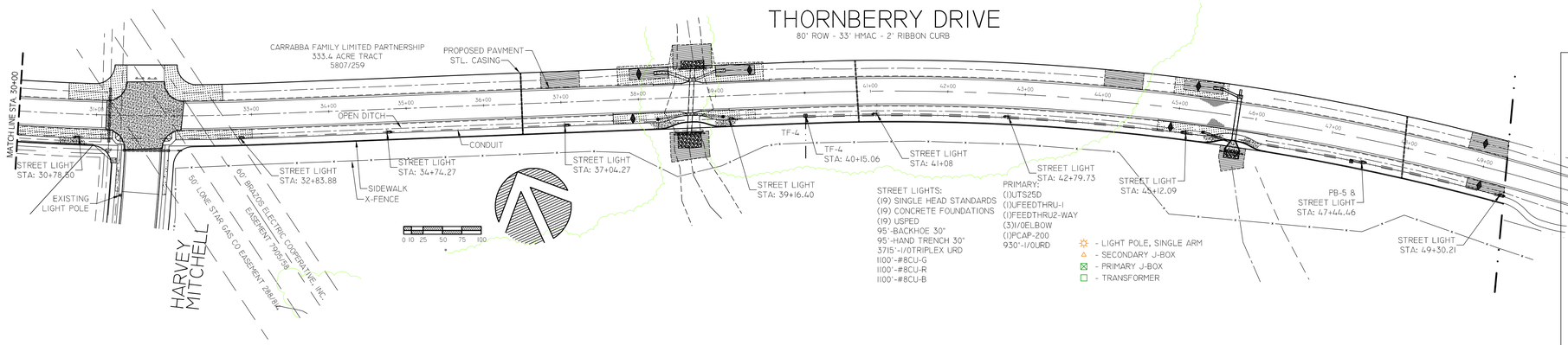
7607 EASTMARK DRIVE, SUITE 253-B, COLLEGE STATION TEXAS 77840 979-693-1100

THORNBERRY & AUSTIN'S ESTATES DRIVE
AUSTINS'S ESTATES DRIVE TO THE CARTER TRACT
EROSION CONTROL PLAN

STATE OF TEXAS
MICHAEL G. HESTER
69104
LICENSED
PROFESSIONAL ENGINEER

SHEET NO.
ECP
OF 23 SHEETS

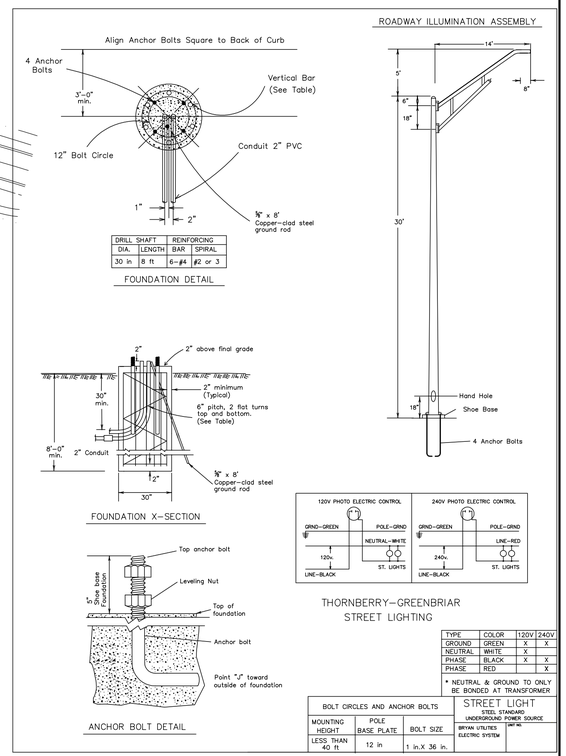




STREET LIGHTS:
(19) SINGLE HEAD STANDARDS
(19) CONCRETE FOUNDATIONS
(19) USPED
95'-BACKHOE 30"
95'-HAND TRENCH 30"
3715'-I/OTRIPLEX URD
1100'-#8CU-G
1100'-#8CU-R
1100'-#8CU-B

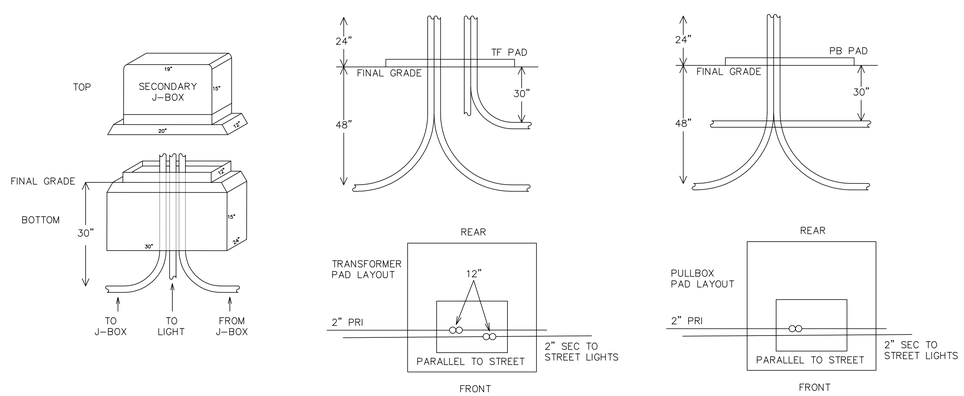
PRIMARY:
(1)UTS25D
(1)UFEEDTHRU-I
(1)FEEDTHRU2-WAY
(3)I/0ELBOW
(1)PCAP-200
930'-I/0URD

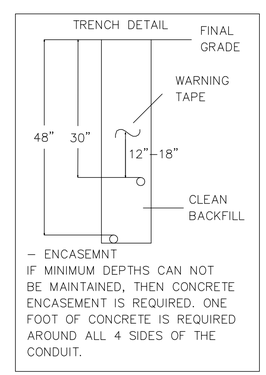
- LIGHT POLE, SINGLE ARM
- SECONDARY J-BOX
- PRIMARY J-BOX
- TRANSFORMER



TYPE	COLOR	120V	240V
GROUND	GREEN	X	X
NEUTRAL	WHITE	X	
PHASE	BLACK	X	X
PHASE	RED		X

* NEUTRAL & GROUND TO ONLY BE BONDED AT TRANSFORMER





BENCHMARK
CHISLED SQUARE IN CORNER OF INLET LOCATED ALONG NORTH SIDE OF HARVEY MITCHELL SCHOOL DRIVE ADJACENT TO COLONY VISTA DRIVE.
ELEVATION 292.91

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NOTE: WHEN SCALING PLOTTED SHEETS USE BAR SCALE FOR ACCURACY.

REVISIONS	PROJECT: THORNBERRY & AUSTIN'S ESTATES DRIVE STREET, DRAINAGE AND UTILITY IMPROVEMENTS
	DATE: MARCH, 2010
	DRAWN: M.G.H.
	CHECKED: M.G.H.

Hester Engineering Company

7607 EASTMARK DRIVE, SUITE 253-B, COLLEGE STATION TEXAS 77840 979-693-1100

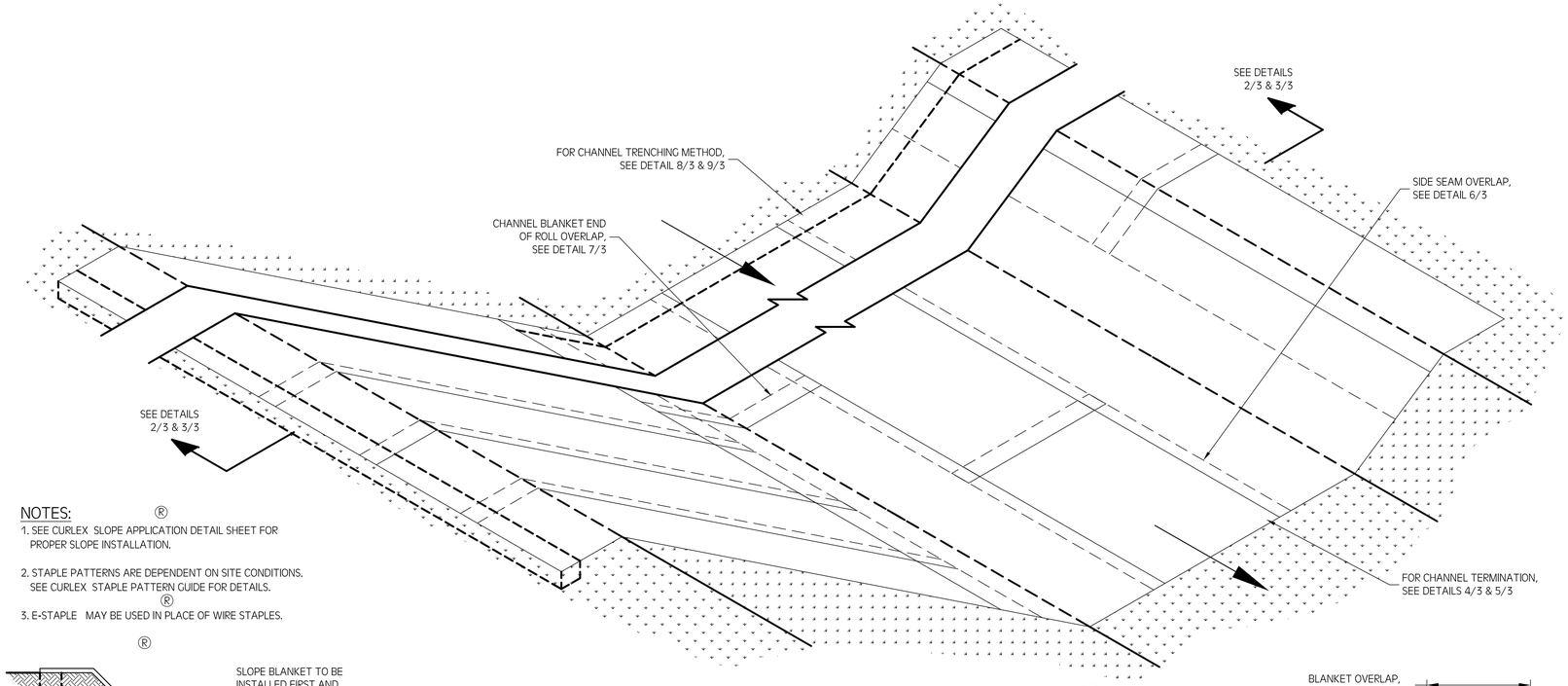
THORNBERRY & AUSTIN'S ESTATES DRIVE

AUSTINS'S ESTATES DRIVE TO THE CARTER TRACT

STREET LIGHTING PLAN, PROFILE & DETAILS

STATE OF TEXAS
MICHAEL G. HESTER
69104
LICENSED
PROFESSIONAL ENGINEER

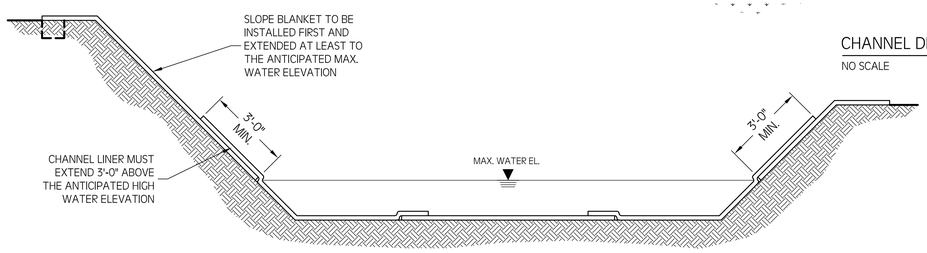
SHEET NO.
SL
OF 23 SHEETS



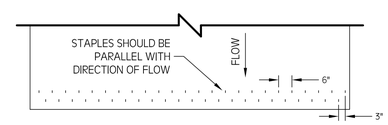
CHANNEL DETAIL
NO SCALE
1/3

NOTES:

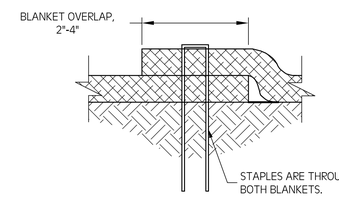
1. SEE CURLEX® SLOPE APPLICATION DETAIL SHEET FOR PROPER SLOPE INSTALLATION.
2. STAPLE PATTERNS ARE DEPENDENT ON SITE CONDITIONS. SEE CURLEX® STAPLE PATTERN GUIDE FOR DETAILS.
3. E-STAPLE® MAY BE USED IN PLACE OF WIRE STAPLES.



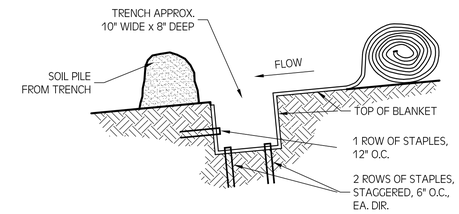
CHANNEL INSTALLATION
METHOD "A"
NO SCALE
2/3



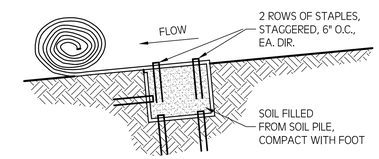
CHANNEL TERMINATION
PLAN
NO SCALE
4/3



SIDE SEAM OVERLAP
STAPLE DETAIL
NO SCALE
6/3

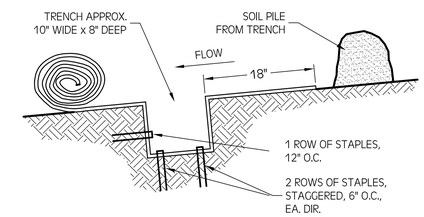


STEP 1

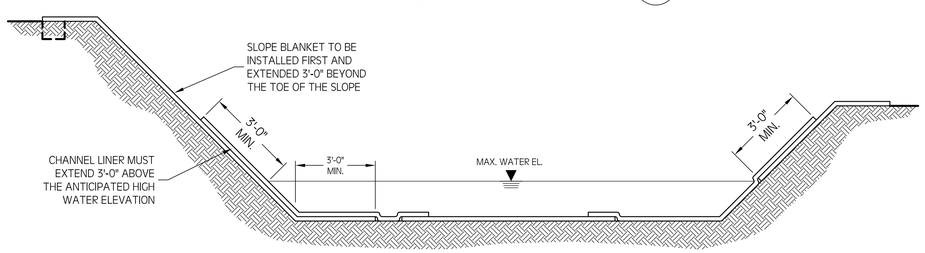


STEP 2

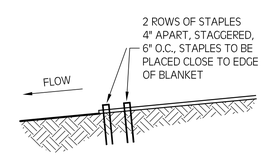
CHANNEL TRENCHING
METHOD "A"
NO SCALE
8/3



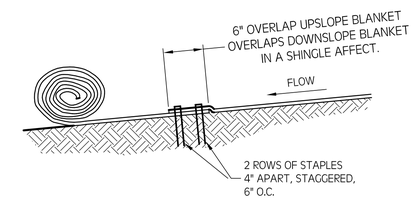
STEP 1



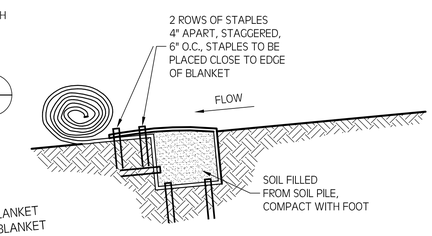
CHANNEL INSTALLATION
METHOD "B"
NO SCALE
3/3



CHANNEL TERMINATION
NO SCALE
5/3



CHANNEL BLANKET END
OF ROLL OVERLAP
NO SCALE
7/3



STEP 2

CHANNEL TRENCHING
METHOD "B"
NO SCALE
9/3

American Excelsior Company®
Earth Science Division

BENCHMARK
CHISLED SQUARE IN CORNER OF INLET LOCATED ALONG NORTH SIDE OF HARVEY MITCHELL SCHOOL DRIVE ADJACENT TO COLONY VISTA DRIVE.
ELEVATION 292.91

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REVISIONS	PROJECT: THORNBERRY & AUSTIN'S ESTATES DRIVE STREET, DRAINAGE AND UTILITY IMPROVEMENTS
	DATE: MARCH, 2010
	DRAWN: M.G.H.
	CHECKED: M.G.H.

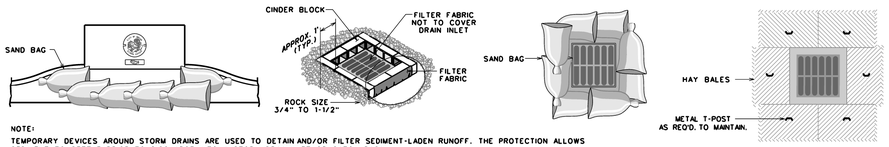
Hester Engineering Company

7607 EASTMARK DRIVE, SUITE 253-B, COLLEGE STATION TEXAS 77840 979-693-1100

THORNBERRY & AUSTIN'S ESTATES DRIVE
AUSTINS'S ESTATES DRIVE TO THE CARTER TRACT
EROSION CONTROL BLANKET (ECB) & TURF REINFORCEMENT MAT (TRM) INSTALLATION

STATE OF TEXAS
MICHAEL G. HESTER
69104
LICENSED
PROFESSIONAL ENGINEER

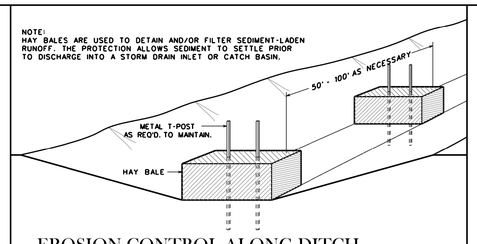
SHEET NO.
CL
OF 23 SHEETS



NOTE:
TEMPORARY DEVICES AROUND STORM DRAINS ARE USED TO DETAIN AND/OR FILTER SEDIMENT-LADEN RUNOFF. THE PROTECTION ALLOWS SEDIMENT TO SETTLE PRIOR TO DISCHARGE INTO A STORM DRAININLET OR CATCH BASIN.
SAND BAGS SHALL BE UV RESISTANT AND MUST NOT DEGRADE DUE TO ATMOSPHERIC CONDITIONS.
SAND BAGS SHALL BE REPLACED UPON FIRST SIGN OF DETERIORATION.

STORM DRAIN INLET PROTECTION

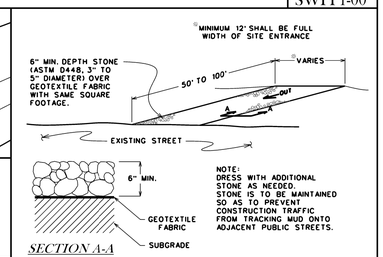
SWPP1-00



NOTE:
HAY BALES ARE USED TO DETAIN AND/OR FILTER SEDIMENT-LADEN RUNOFF. THE PROTECTION ALLOWS SEDIMENT TO SETTLE PRIOR TO DISCHARGE INTO A STORM DRAIN INLET OR CATCH BASIN.

EROSION CONTROL ALONG DITCH

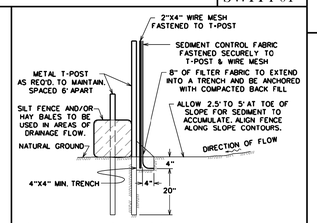
SWPP1-01



NOTE:
DRESS WITH ADDITIONAL STONE AS NEEDED. STONE IS TO BE MAINTAINED SO AS TO PREVENT CONSTRUCTION TRAFFIC FROM TRACKING MUD ONTO ADJACENT PUBLIC STREETS.

CONSTRUCTION EXIT SILT CONTROL

SWPP1-02



SILT FENCE ASSEMBLY

SWPP1-03

GENERAL NOTES:

ALL AREAS WHERE EXISTING VEGETATION AND GRASS COVER HAVE BEEN BARED BY CONSTRUCTION SHALL BE ADEQUATELY BLOCK SODDED OR HYDROMULCHED AND WATERED UNTIL GROWTH IS ESTABLISHED. IN DEVELOPED AREAS WHERE GRASS IS PRESENT, BLOCK SOD WILL BE REQUIRED. BARED AREAS SHALL BE SEEDED OR SODDED WITHIN 14 CALENDAR DAYS OF LAST DISTURBANCE.

APPROVED EROSION CONTROL MEASURES MUST BE INSTALLED DURING THE ENTIRE TIME THAT EARTH HAS BEEN BARED BY CONSTRUCTION AND SHALL STAY IN PLACE UNTIL ACCEPTABLE VEGETATIVE GROWTH IS ESTABLISHED AFTER CONSTRUCTION IS COMPLETE AND THEN REMOVED BY CONTRACTOR.

ALL EROSION CONTROL MEASURES SHOULD BE CLEANED OF SILT AFTER EVERY RAIN.

REVISIONS:

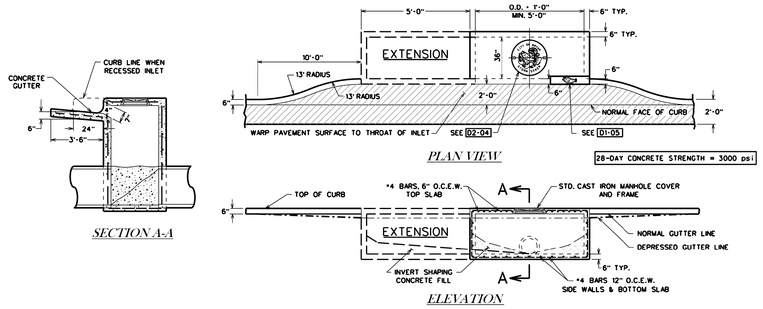
BRYAN - COLLEGE STATION STANDARD STORM WATER POLLUTION PREVENTION DETAILS

CITY OF COLLEGE STATION

CITY OF BRYAN
The Good Life, Texas Style.

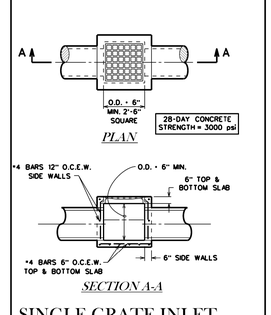
DRAWN BY: C.L.M.
DATE: 01-01-09
SCALE: N T S
APPROVED: W. P. K.

FIGURE:
SWPP



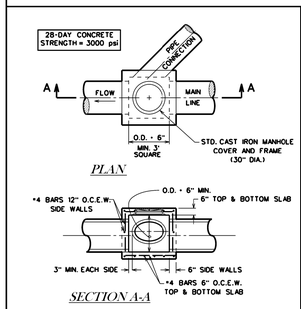
SINGLE RECESSED CURB INLET & CURB INLET W/EXTENSION

D1-00



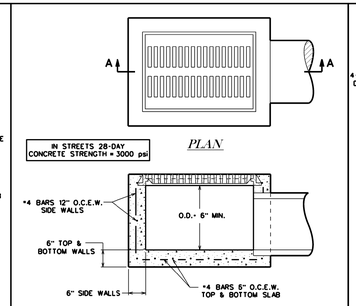
SINGLE GRATE INLET

D1-01



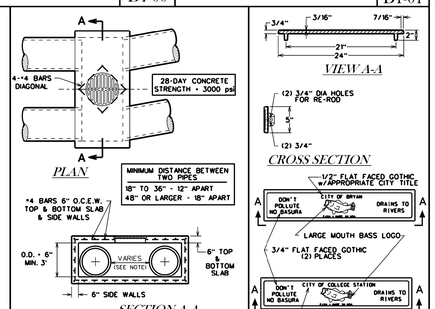
STORM SEWER JUNCTION BOX

D1-02



GRATE INLET

D1-03

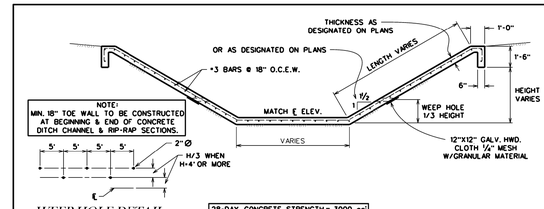


DOUBLE BARREL INLET

D1-04

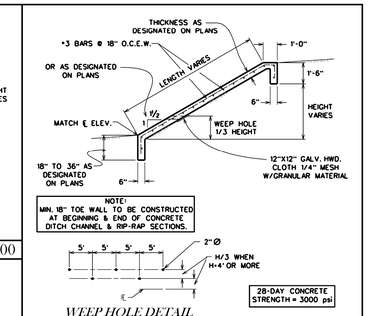
TROUT LOGO PLATE

D1-05



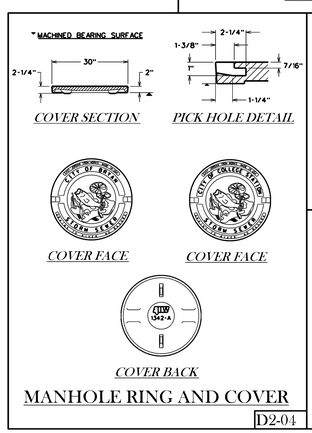
CONCRETE CHANNEL LINING

D2-00



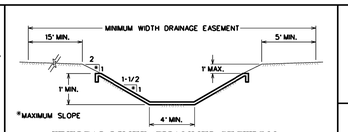
CONCRETE RIP-RAP

D2-01



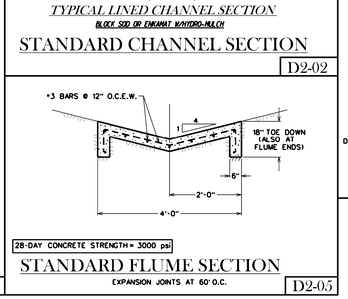
MANHOLE RING AND COVER

D2-04



STANDARD CHANNEL SECTION

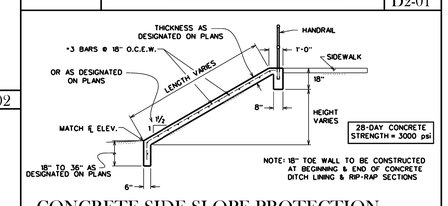
D2-02



STANDARD FLUME SECTION

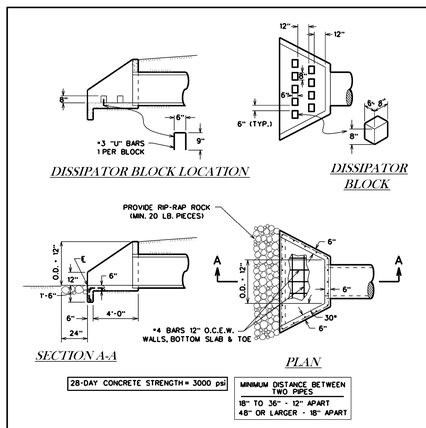
EXPANSION JOINTS AT 60' O.C.

D2-05



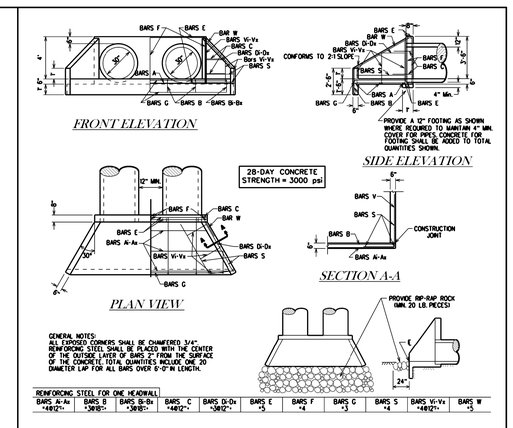
CONCRETE SIDE SLOPE PROTECTION

D2-03



TYPICAL CONCRETE HEADWALL & END WALL WITH WINGS

D3-00



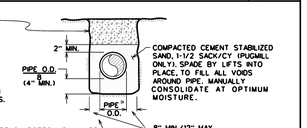
REINFORCING STEEL FOR ONE HEADWALL											
BARS A-Aa *48@2'-	BARS B *36@8'-	BARS B-Ba *36@8'-	BARS C *48@2'-	BARS D-Da *36@2'-	BARS E *5	BARS F *4	BARS G *3	BARS S *4	BARS V-Va *48@2'-	BARS W *5

CONCRETE HEADWALL FOR 2 PIPES

D3-01

SELECT MATERIAL
MATERIAL EXCAVATED FROM THE DITCH, (WHICH IS FREE OF ROCKS, LUMPS, CLODS, OR DEBRIS LARGER THAN TWO (2) INCHES IN THE LARGEST DIMENSION), COMPACTED TO A MINIMUM OF 90% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D698 (STANDARD) AT A MOISTURE CONTENT WITHIN OPTIMUM TO +4% OF OPTIMUM UNDER NON-STRUCTURAL AREAS (i.e., YARDS, PASTURES, EASEMENTS) AND TO A MINIMUM OF 95% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D698 (STANDARD) AT A MOISTURE CONTENT WITHIN OPTIMUM TO +4% OF OPTIMUM UNDER FUTURE STREET AREAS.

* PE MUST DESIGN TRENCH DETAIL SITE SPECIFIC FOR HDPE PIPE. HDPE PIPE IS NOT TO BE USED UNDER PUBLIC STREET PAVEMENT. CEMENT STABILIZED SAND AS A MINIMUM WILL ALWAYS BE REQUIRED.



THE TRENCH BOTTOM SHALL BE GRADED SO AS TO PROVIDE UNIFORM AND CONTINUOUS SUPPORT FOR THE PIPE BARREL BETWEEN BELL HOLES.

BEDDING AND TRENCH FOR REINFORCED CONCRETE PIPE

D3-02

REVISIONS:

BRYAN - COLLEGE STATION STANDARD DRAINAGE DETAILS

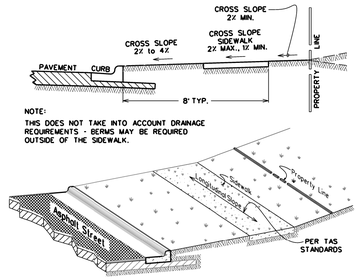
CITY OF COLLEGE STATION

CITY OF BRYAN
The Good Life, Texas Style.

DRAWN BY: C. L. M.
DATE: 01-01-09
SCALE: N T S
APPROVED: W. P. K.

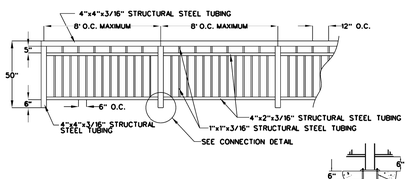
FIGURE:
D

SHEET 1 OF 1

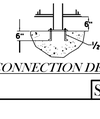


SIDEWALK SLOPE REQUIREMENTS

SW1-00



TYPICAL PEDESTRIAN GUARDRAIL



CONNECTION DETAIL

SW1-01

GENERAL NOTES:

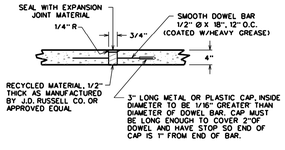
ALL AREAS WHERE EXISTING VEGETATION AND GRASS COVER HAVE BEEN BARED BY CONSTRUCTION SHALL BE ADEQUATELY BLOCK SODDED OR HYDROMULCHED AND WATERED UNTIL GROWTH IS ESTABLISHED. IN DEVELOPED AREAS WHERE GRASS IS PRESENT, BLOCK SOD WILL BE REQUIRED. BARED AREAS SHALL BE SEEDED OR SODDED WITHIN 14 CALENDAR DAYS OF LAST DISTURBANCE.

APPROVED EROSION CONTROL MEASURES MUST BE INSTALLED DURING THE ENTIRE TIME THAT EARTH HAS BEEN BARED BY CONSTRUCTION AND SHALL STAY IN PLACE UNTIL ACCEPTABLE VEGETATIVE GROWTH IS ESTABLISHED AFTER CONSTRUCTION IS COMPLETE AND THEN REMOVED BY CONTRACTOR.

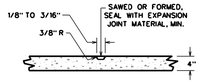
ALL EROSION CONTROL MEASURES SHOULD BE CLEANED OF SILT AFTER EVERY RAIN.

NOTES:

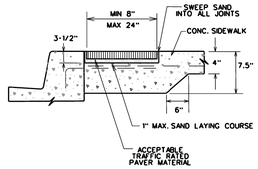
1. SIDEWALK PLACEMENT SHALL BE IN ACCORDANCE WITH B/CS UNIFIED DESIGN GUIDELINES.
2. FINISH: LIGHT BROOM FINISH. JOINTS TO BE TOOLED 1" DEEP AT AN INTERVAL EQUAL TO THE SIDEWALK WIDTH. EXPANSION JOINTS @ 40' O.C., CONTRACTION JOINTS @ 4' O.C.
3. DOWEL IN AND TIE TO ANY CONCRETE STRUCTURE ADJACENT TO SIDEWALK (DRIVEWAY, INLET BOX, CURB, JUNCTION BOX, ETC.) WITH #3 x 12" BARS @ 12" O.C. OR #4 x 12" BARS @ 18" O.C.
4. COMPACTION: COMPACTED SUBGRADE MATERIAL COMPACTED TO A DENSITY AT LEAST 98% OF MAXIMUM DRY DENSITY AS DETERMINED BY PROCTOR COMPACTION TEST ASTM D698 (STANDARD) AND SHALL BE 0-4% WET OF THE OPTIMUM MOISTURE CONTENT
5. A MINIMUM CLEAR PEDESTRIAN WIDTH AS DEFINED BY TAS AND ADA SHALL BE PROVIDED FOR ENTIRE LENGTH OF SIDEWALK.



SIDEWALK EXPANSION & CONSTRUCTION JOINT

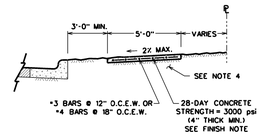


SIDEWALK CONTRACTION JOINT

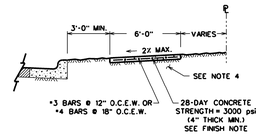


SIDEWALK PAVER SECTION

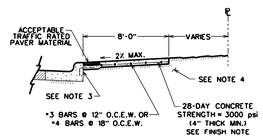
CONCRETE SIDEWALK



ALONG LOCAL STREETS

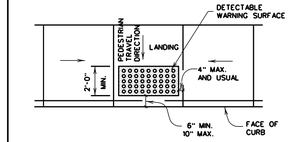


ALONG MINOR COLLECTORS AND LARGER



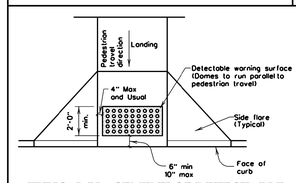
ALONG MINOR COLLECTORS AND LARGER

SW1-02



TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON LANDING AT STREET EDGE

SW2-00



TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN

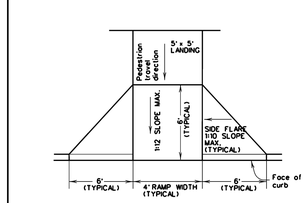
SW2-01

GENERAL NOTES FOR DETECTABLE WARNINGS

1. CURB RAMPS MUST CONTAIN A DETECTABLE WARNING SURFACE THAT CONSISTS OF RAISED TRUNCATED DOMES COMPLYING WITH SECTION 4.29 OF THE TEXAS ACCESSIBILITY STANDARDS (TAS). THE SURFACE MUST CONTRAST VISUALLY WITH ADJOINING SURFACES, INCLUDING SIDE FLARES. FURNISH DARK BROWN OR DARK RED DETECTABLE WARNING SURFACE ADJACENT TO UNCOLORED CONCRETE, UNLESS SPECIFIED ELSEWHERE IN THE PLANS.
2. DETECTABLE WARNING SURFACES MUST BE SLIP RESISTANT AND NOT ALLOW WATER TO ACCUMULATE.
3. ALIGN TRUNCATED DOMES IN THE DIRECTION OF PEDESTRIAN TRAVEL WHEN ENTERING THE STREET.
4. SHADED AREAS ON SHEETS 3 AND 4 INDICATE THE APPROXIMATE LOCATION FOR THE DETECABLE WARNING SURFACE FOR EACH CURB RAMP TYPE.
5. DETECTABLE WARNING SURFACES SHALL BE A MINIMUM OF 24" IN DEPTH IN THE DIRECTION OF PEDESTRIAN TRAVEL, AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR LANDING WHERE THE PEDESTRIAN ACCESS ROUTE ENTERS THE STREET.
6. DETECTABLE WARNING SURFACES SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS A MINIMUM OF 6" AND A MAXIMUM OF 10" FROM THE EXTENSION OF THE FACE OF CURB. DETECTABLE WARNING SURFACES MAY BE CURVED ALONG THE CORNER RADIUS.
7. ACCEPTABLE PAVER MATERIAL SHALL BE CLAY, VITRIFIED POLYMER COMPOSITE, PRECAST POLYMER CONCRETE, AND CONCRETE.

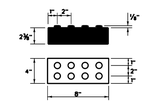
PEDESTRIAN FACILITES GENERAL NOTES

1. ALL SLOPES ARE MAXIMUM ALLOWABLE. THE LEAST POSSIBLE SLOPE THAT WILL STILL DRAIN PROPERLY SHOULD BE USED. ADJUST CURB RAMP LENGTH OR GRADE OF APPROACH SIDEWALKS AS DIRECTED.
2. LANDINGS SHALL BE A 5' X 5' MINIMUM WITH A MAXIMUM 2% SLOPE IN ANY DIRECTION.
3. MANEUVERING SPACE AT THE BOTTOM OF CURB RAMPS SHALL BE A MINIMUM OF 4' X 4' WHOLLY CONTAINED WITHIN THE CROSSWALK AND WHOLLY OUTSIDE THE PARALLEL VEHICULAR TRAVEL PATH.
4. MAXIMUM ALLOWABLE CROSS SLOPE ON SIDEWALK AND CURB RAMP IS 2%.
5. CURB RAMPS WITH RETURNED CURBS MAY BE USED ONLY WHERE PEDESTRIANS WOULD NOT NORMALLY WALK ACROSS THE RAMP, EITHER BECAUSE THE ADJACENT SURFACE IS PLANTING OR OTHER NON-WALKING SURFACE OR BECAUSE THE SIDE APPROACH IS SUBSTANTIALLY OBSTRUCTED. OTHERWISE, PROVIDE FLARED SIDES.
6. ADDITIONAL INFORMATION ON CURB RAMP LOCATION, DESIGN, LIGHT REFLECTIVE VALUE AND TEXTURE MAY BE FOUND IN THE CURRENT EDITION OF THE TEXAS ACCESSIBILITY STANDARDS (TAS) AND 16 TAC § 68.102.
7. TO SERVE AS A PEDESTRIAN REFUGE AREA, THE MEDIAN SHOULD BE A MINIMUM OF 5' WIDE. MEDIANS SHOULD BE DESIGNED TO PROVIDE ACCESSIBLE PASSAGE OVER OR THROUGH THEM.
8. CROSSWALK DIMENSIONS, CROSSWALK MARKINGS AND STOP BAR LOCATIONS SHALL BE AS SHOWN ELSEWHERE IN THE PLANS. AT INTERSECTIONS WHERE CROSSWALK MARKINGS ARE NOT REQUIRED, CURB RAMPS SHALL BE ALIGNED WITH THEORETICAL CROSSWALKS, OR AS DIRECTED BY THE ENGINEER.
9. EXISTING FEATURES THAT COMPLY WITH TAS MAY REMAIN IN PLACE UNLESS OTHERWISE SHOWN ON THE PLANS.
10. HANDRAILS ARE NOT REQUIRED ON CURB RAMPS. PROVIDE CURB RAMPS WHEREVER ON ACCESSIBLE ROUTE CROSSES (PENETRATES) A CURB.
11. SEPARATE CURB RAMP AND LANDINGS FROM ADJACENT SIDEWALK AND ANY OTHER ELEMENTS WITH PREMOLD OR BOARD JOINT OF 3/4" UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
12. PROVIDE A SMOOTH TRANSITION WHERE THE CURB RAMPS CONNECT TO THE STREET.
13. FLARE SLOPE SHALL NOT EXCEED 10% MEASURED ALONG CURB LINE.

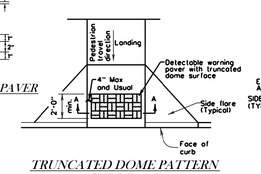


TYPICAL AMBULATORY RAMP W/ FLARED WINGS

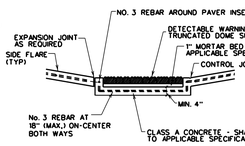
SW2-02



DETECTABLE WARNING PAVER



TRUNCATED DOME PATTERN CURB RAMP



SECTION A-A

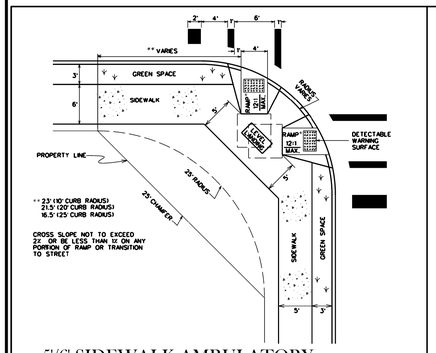
GENERAL NOTES (PAVERS)

FURNISH DETECTABLE WARNING PAVER UNITS MEETING ALL REQUIREMENTS OF ASTM C-936, C-33. LAY IN A TWO BY TWO UNIT BASKET WEAVE PATTERN OR AS DIRECTED.

LAY FULL-SIZE UNITS FIRST FOLLOWED BY CLOSURE UNITS CONSISTING OF AT LEAST 25 PERCENT OF A FULL UNIT. CUT DETECTABLE WARNING PAVER UNITS USING A POWER SAW.

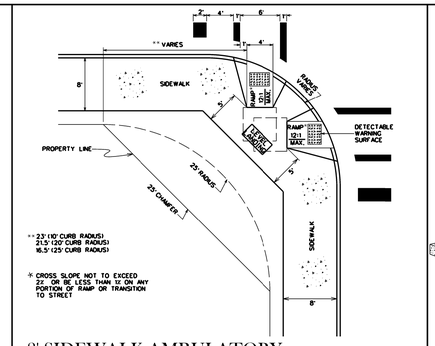
DETECTABLE WARNING PAVER

SW2-03



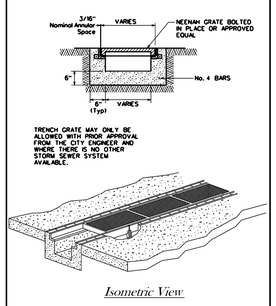
5'/6' SIDEWALK AMBULATORY RAMP AT STREET INTERSECTION

SW3-00



8' SIDEWALK AMBULATORY RAMP AT STREET INTERSECTION

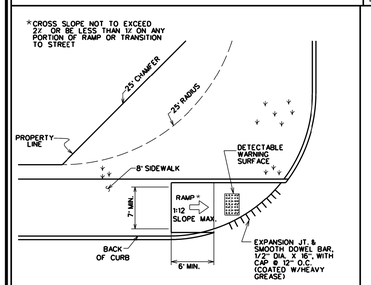
SW3-01



Isometric View

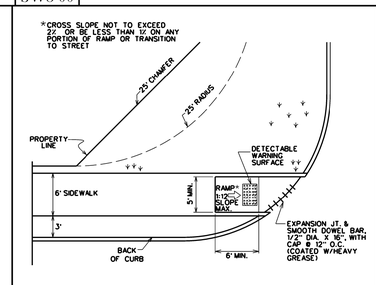
SIDEWALK DRAINAGE TRENCH GRATE

SW3-02



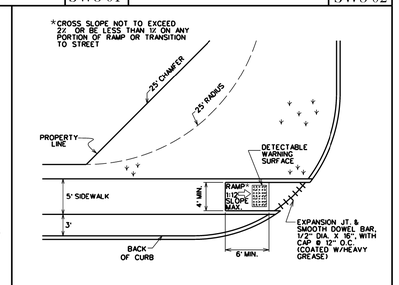
8' SIDEWALK AMBULATORY RAMP AT STREET INTERSECTION & DRIVES

SW3-03



6' SIDEWALK AMBULATORY RAMP AT STREET INTERSECTION & DRIVES

SW3-04



5' SIDEWALK AMBULATORY RAMP AT STREET INTERSECTION & DRIVES

SW3-05

REVISIONS:

BRYAN - COLLEGE STATION STANDARD SIDEWALK DETAILS

CITY OF COLLEGE STATION

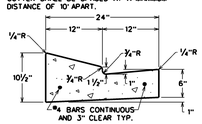
CITY OF BRYAN
The Good Life, Texas Style.

DRAWN BY: C.L.M.
DATE: 01-01-09
SCALE: N T S
APPROVED: W. P. K.

FIGURE:
SW

SHEET 1 OF 1

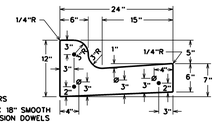
NOTE:
TYPE "G" EXPANSION JOINTS IN CURB & GUTTER SHALL BE SPACED AT A MAXIMUM DISTANCE OF 40' APART AND AT ALL RADIUS POINTS, P.T.'S AND P.C.'S. TYPE "B" CONTRACTION JOINTS IN CURB & GUTTER SHALL BE SPACED AT A MAXIMUM DISTANCE OF 10' APART.



24" LAY DOWN GUTTER SECTION

ST1-00

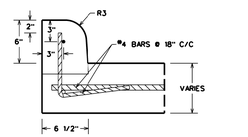
NOTE:
TYPE "G" EXPANSION JOINTS IN CURB & GUTTER SHALL BE SPACED AT A MAXIMUM DISTANCE OF 40' APART AND AT ALL RADIUS POINTS, P.T.'S AND P.C.'S. TYPE "B" CONTRACTION JOINTS IN CURB & GUTTER SHALL BE SPACED AT A MAXIMUM DISTANCE OF 10' APART.



● - *4 BARS
Ø - 3/4" X 18" SMOOTH EXPANSION DOWELS

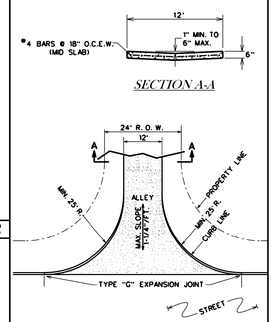
TYPICAL COMBINED CURB & GUTTER SECTION

ST1-01



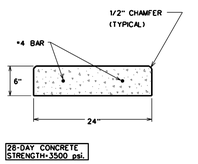
DOWELLED IN CURBS DETAIL

ST1-02



ALLEY PAVING

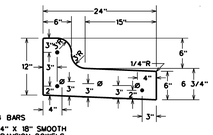
ST1-06



TYPICAL RIBBON CURB

ST1-03

NOTE:
TYPE "G" EXPANSION JOINTS IN CURB & GUTTER SHALL BE SPACED AT A MAXIMUM DISTANCE OF 40' APART AND AT ALL RADIUS POINTS, P.T.'s, AND P.C.'s. TYPE "B" CONTRACTION JOINTS IN CURB & GUTTER SHALL BE SPACED AT A MAXIMUM DISTANCE OF 10' APART

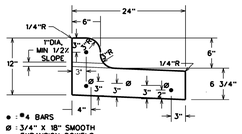


● - *4 BARS
Ø - 3/4" X 18" SMOOTH EXPANSION DOWELS

TYPICAL COMBINED SPILL CURB

ST1-04

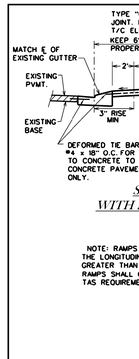
NOTE:
1. TYPE "G" EXPANSION JOINTS IN CURB & GUTTER SHALL BE SPACED AT A MAXIMUM DISTANCE OF 40' APART AND AT ALL RADIUS POINTS, P.T.'s, AND P.C.'s. TYPE "B" CONTRACTION JOINTS IN CURB & GUTTER SHALL BE SPACED AT A MAXIMUM DISTANCE OF 10' APART
2. PIPE EXTENDED 1'-2" FROM BOC TO BE COVERED WITH FABRIC AND TIED IN PLACE

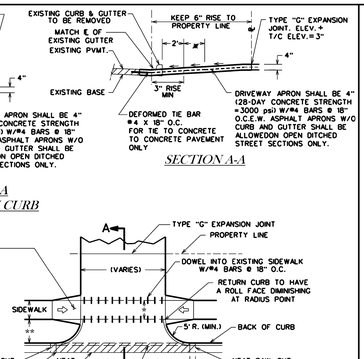


● - *4 BARS
Ø - 3/4" X 18" SMOOTH EXPANSION DOWELS

TYPICAL WEEPHOLE CURB

ST1-05

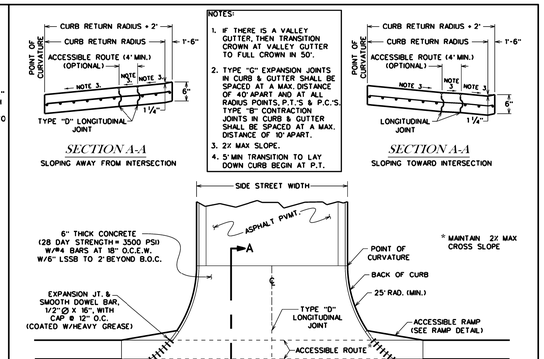




RESIDENTIAL DRIVEWAY

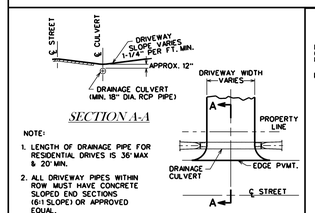
ST2-00

NOTES:
1. IF THERE IS A VALLEY GUTTER, THEN TRANSITION CROWN AT VALLEY GUTTER TO FULL CROWN IN 50'.
2. TYPE "G" EXPANSION JOINTS IN CURB & GUTTER SHALL BE SPACED AT A MAX. DISTANCE OF 40' APART AND AT ALL RADIUS POINTS, P.T.'S & P.C.'S. TYPE "B" CONTRACTION JOINTS IN CURB & GUTTER SHALL BE SPACED AT A MAX. DISTANCE OF 10' APART.
3. 2% MAX SLOPE.
4. 5' MIN TRANSITION TO LAY DOWN CURB BEGIN AT P.T.



TYPICAL STREET CONCRETE APRON

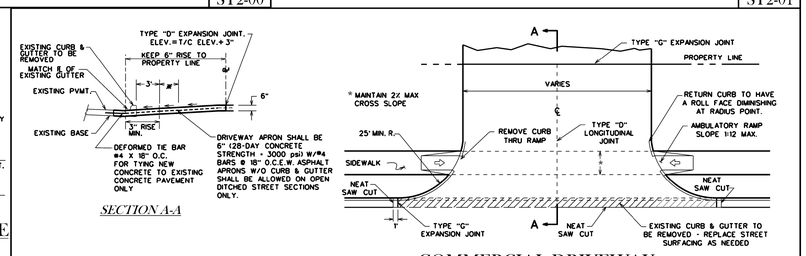
ST2-01



NOTE:
1. LENGTH OF DRAINAGE PIPE FOR RESIDENTIAL DRIVES IS 36' MAX & 20' MIN.
2. ALL DRIVEWAY PIPES WITHIN ROW MUST HAVE CONCRETE SLOPED END SECTIONS (6:1 SLOPE) OR APPROVED EQUAL.

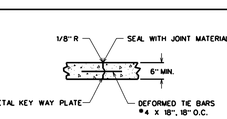
TYPICAL DRIVEWAY ENTRANCE WITH CULVERT

ST2-02



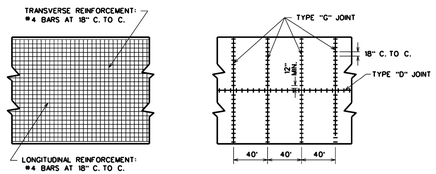
COMMERCIAL DRIVEWAY

ST2-03



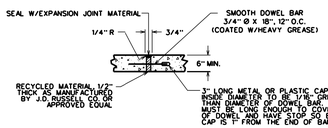
TYPE "D" LONGITUDINAL JOINT

LONGITUDINAL JOINTS SHALL BE REQURED ONLY ON THE CENTERLINE OF THE PAVEMENT & IN INTERSECTIONS AS DETAILED



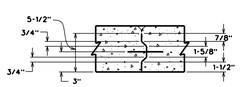
TANGENT SECTIONS

TYPICAL JOINT & REINFORCEMENT LAYOUT FOR CONCRETE PAVEMENT

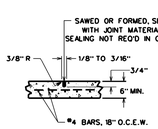


TYPE "G" EXPANSION & CONSTRUCTION JOINT

TO BE SPACED AT 40' INTERVALS & ALL RADIUS POINTS, P.C.'S, P.T.'S, & OPPOSITE P.I.'S, & ON ALL HORIZONTAL & VERTICAL CURVES

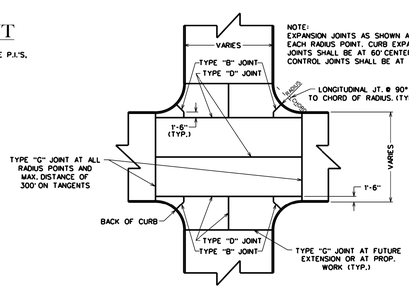


METAL KEY WAY PLATE



TYPE "B" CONTRACTION JOINT

TRANSVERSE JOINTS SHALL BE SPACED 15' CENTER TO CENTER



NOTE:
EXPANSION JOINTS AS SHOWN AND AT EACH RADIUS POINT. CURB EXPANSION JOINTS SHALL BE AT 60' CENTERS. CURB CONTROL JOINTS SHALL BE AT 10' CENTERS.

TYPICAL JOINT LAYOUT AT CONCRETE INTERSECTION

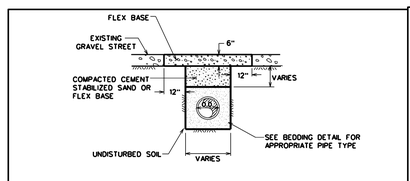
ST3-00

GENERAL NOTES:

ALL AREAS WHERE EXISTING VEGETATION AND GRASS COVER HAVE BEEN BARED BY CONSTRUCTION SHALL BE ADEQUATELY BLOCK SODDED OR HYDROMULCHED AND WATERED UNTIL GROWTH IS ESTABLISHED. IN DEVELOPED AREAS WHERE GRASS IS PRESENT, BLOCK SOD WILL BE REQUIRED. BARED AREAS SHALL BE SEEDED OR SODDED WITHIN 14 CALENDAR DAYS OF LAST DISTURBANCE.

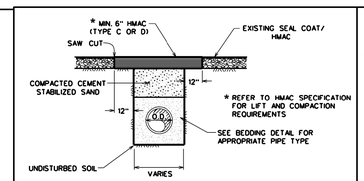
APPROVED EROSION CONTROL MEASURES MUST BE INSTALLED DURING THE ENTIRE TIME THAT EARTH HAS BEEN BARED BY CONSTRUCTION AND SHALL STAY IN PLACE UNTIL ACCEPTABLE VEGETATIVE GROWTH IS ESTABLISHED AFTER CONSTRUCTION IS COMPLETE AND THEN REMOVED BY CONTRACTOR.

ALL EROSION CONTROL MEASURES SHOULD BE CLEANED OF SILT AFTER EVERY RAIN.



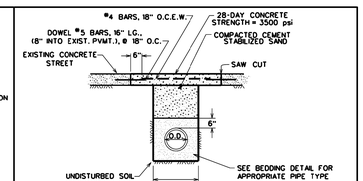
OPEN CUT GRAVEL STREET

ST4-00



OPEN CUT SEAL COAT/ OVERLAY STREET

ST4-01

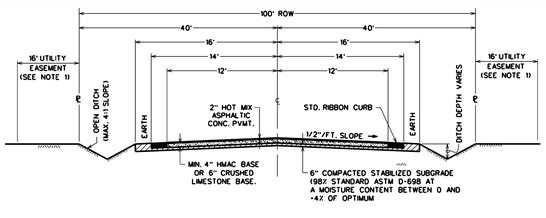


OPEN CUT CONCRETE STREET

ST4-02

	RESIDENTIAL SECTION	COLLECTOR SECTION
PAVEMENT WIDTH	24	30
R.O.W WIDTH	70	100

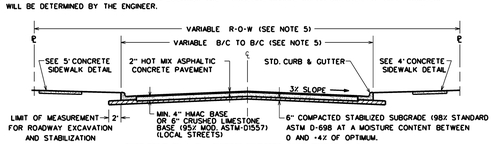
NOTES:
1. RURAL SECTIONS WILL NOT REQUIRE 16' EASEMENTS PARALLEL TO ROW WITHIN CITY LIMITS.
2. WITHIN ETJ AREA, RURAL SECTIONS SHALL FOLLOW COUNTY SPECS AND STANDARDS



TYPICAL RURAL ROAD RIBBON CURB SECTION

ST4-03

NOTES:
1. ALL SUBGRADES SHALL BE STABILIZED.
2. FOR SUBGRADES WITH PI>15 AND % PASSING THE #200 SIEVE ≥ 35%, USE LIME STABILIZATION.
3. FOR SUBGRADES WITH PI<15 AND % PASSING THE #200 SIEVE < 35%, USE PORTLAND CEMENT STABILIZATION.
4. SIDEWALK PLACEMENT VARIES WITH EACH LOCATION AND WILL BE DETERMINED BY THE ENGINEER.
5. REFER TO B/CS UNIFIED DESIGN GUIDELINE MANUAL FOR ACCEPTED RIGHT OF WAY AND PAVEMENT WIDTH.
6. COLLECTOR STREETS WILL BE REQUIRED TO USE 5" HMAC BASE OR 8" CRUSHED LIMESTONE BASE AND STABILIZED SUBGRADE IN ACCORDANCE WITH THE B/CS UNIFIED DESIGN GUIDELINE MANUAL OR AS DIRECTED BY CITY ENGINEER.

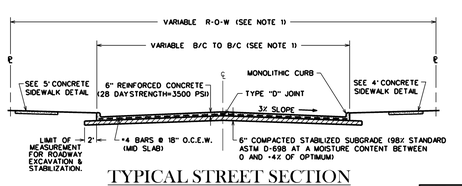


TYPICAL STREET SECTION

ASPHALTIC CONCRETE PAVEMENT

ST4-04

NOTES:
1. REFER TO B/CS UNIFIED DESIGN GUIDELINE MANUAL FOR ACCEPTED RIGHT OF WAY AND PAVEMENT WIDTH.
2. COLLECTOR STREETS WILL BE REQUIRED TO USE 8" REINFORCED CONCRETE (28 DAY STRENGTH-3500 PSI).



TYPICAL STREET SECTION

REINFORCED CONCRETE PAVEMENT

ST4-05

REVISIONS:

BRYAN - COLLEGE STATION STANDARD STREET DETAILS

CITY OF COLLEGE STATION

CITY OF BRYAN
The Good Life, Texas Style.

DRAWN BY: C.L.M.
DATE: 01-01-09
SCALE: N T S
APPROVED: W.P.K.

FIGURE:
ST

SHEET 1 OF 1

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

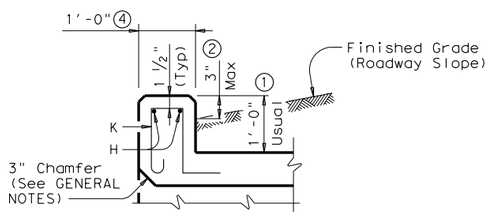
NUMBER OF SPANS	SECTION DIMENSIONS S	H	T	U	Bars B No.	Size	Spa	Length	Wt	Bars C & D No.	Size	Spa	Bar C Length	Bar C Wt	Bar D Length	Bar D Wt	Bars E No.	Size	Spa	Length	Wt
2	8'-0"	4'-0"	8"	7"	162	#5	6"	17'- 6"	2,957	194	#4	5"	10'- 7"	1,372	8'- 4"	1,080	194	#6	5"	8'-10"	2,574
3	8'-0"	4'-0"	8"	7"	162	#5	6"	26'- 1"	4,407	194	#4	5"	10'- 7"	1,372	8'- 4"	1,080	194	#6	5"	17'- 5"	5,075
4	8'-0"	4'-0"	8"	7"	162	#5	6"	34'- 8"	5,857	194	#4	5"	10'- 7"	1,372	8'- 4"	1,080	194	#6	5"	26'- 0"	7,576
5	8'-0"	4'-0"	8"	7"	162	#5	6"	43'- 3"	7,308	194	#4	5"	10'- 7"	1,372	8'- 4"	1,080	194	#6	5"	34'- 7"	10,077
6	8'-0"	4'-0"	8"	7"	162	#5	6"	51'-10"	8,758	194	#4	5"	10'- 7"	1,372	8'- 4"	1,080	194	#6	5"	43'- 2"	12,578
2	8'-0"	5'-0"	8"	7"	194	#5	5"	17'- 6"	3,541	194	#4	5"	11'- 7"	1,501	8'- 4"	1,080	194	#6	5"	8'-10"	2,574
3	8'-0"	5'-0"	8"	7"	194	#5	5"	26'- 1"	5,278	194	#4	5"	11'- 7"	1,501	8'- 4"	1,080	194	#6	5"	17'- 5"	5,075
4	8'-0"	5'-0"	8"	7"	194	#5	5"	34'- 8"	7,015	194	#4	5"	11'- 7"	1,501	8'- 4"	1,080	194	#6	5"	26'- 0"	7,576
5	8'-0"	5'-0"	8"	7"	194	#5	5"	43'- 3"	8,751	194	#4	5"	11'- 7"	1,501	8'- 4"	1,080	194	#6	5"	34'- 7"	10,077
6	8'-0"	5'-0"	8"	7"	194	#5	5"	51'-10"	10,488	194	#4	5"	11'- 7"	1,501	8'- 4"	1,080	194	#6	5"	43'- 2"	12,578
2	8'-0"	6'-0"	8"	7"	194	#5	5"	17'- 6"	3,541	194	#4	5"	12'- 7"	1,631	8'- 4"	1,080	194	#6	5"	8'-10"	2,574
3	8'-0"	6'-0"	8"	7"	194	#5	5"	26'- 1"	5,278	194	#4	5"	12'- 7"	1,631	8'- 4"	1,080	194	#6	5"	17'- 5"	5,075
4	8'-0"	6'-0"	8"	7"	194	#5	5"	34'- 8"	7,015	194	#4	5"	12'- 7"	1,631	8'- 4"	1,080	194	#6	5"	26'- 0"	7,576
5	8'-0"	6'-0"	8"	7"	194	#5	5"	43'- 3"	8,751	194	#4	5"	12'- 7"	1,631	8'- 4"	1,080	194	#6	5"	34'- 7"	10,077
6	8'-0"	6'-0"	8"	7"	194	#5	5"	51'-10"	10,488	194	#4	5"	12'- 7"	1,631	8'- 4"	1,080	194	#6	5"	43'- 2"	12,578
2	8'-0"	7'-0"	8"	7"	194	#5	5"	17'- 6"	3,541	194	#4	5"	13'- 7"	1,760	8'- 4"	1,080	194	#6	5"	8'-10"	2,574
3	8'-0"	7'-0"	8"	7"	194	#5	5"	26'- 1"	5,278	194	#4	5"	13'- 7"	1,760	8'- 4"	1,080	194	#6	5"	17'- 5"	5,075
4	8'-0"	7'-0"	8"	7"	194	#5	5"	34'- 8"	7,015	194	#4	5"	13'- 7"	1,760	8'- 4"	1,080	194	#6	5"	26'- 0"	7,576
5	8'-0"	7'-0"	8"	7"	194	#5	5"	43'- 3"	8,751	194	#4	5"	13'- 7"	1,760	8'- 4"	1,080	194	#6	5"	34'- 7"	10,077
6	8'-0"	7'-0"	8"	7"	194	#5	5"	51'-10"	10,488	194	#4	5"	13'- 7"	1,760	8'- 4"	1,080	194	#6	5"	43'- 2"	12,578
2	8'-0"	8'-0"	8"	7"	194	#5	5"	17'- 6"	3,541	162	#5	6"	14'- 7"	2,464	8'- 9"	1,478	194	#6	5"	8'-10"	2,574
3	8'-0"	8'-0"	8"	7"	194	#5	5"	26'- 1"	5,278	162	#5	6"	14'- 7"	2,464	8'- 9"	1,478	194	#6	5"	17'- 5"	5,075
4	8'-0"	8'-0"	8"	7"	194	#5	5"	34'- 8"	7,015	162	#5	6"	14'- 7"	2,464	8'- 9"	1,478	194	#6	5"	26'- 0"	7,576
5	8'-0"	8'-0"	8"	7"	194	#5	5"	43'- 3"	8,751	162	#5	6"	14'- 7"	2,464	8'- 9"	1,478	194	#6	5"	34'- 7"	10,077
6	8'-0"	8'-0"	8"	7"	194	#5	5"	51'-10"	10,488	162	#5	6"	14'- 7"	2,464	8'- 9"	1,478	194	#6	5"	43'- 2"	12,578

NUMBER OF SPANS	Bars F_1~#4 No.	Spa	Length	Wt	Bars F_2~#4 at 1'-6" Max No.	Length	Wt	Bars M~#4 at 1'-6" Max No.	Length	Wt	Bars Y & Z~#4 at 10" Max No.	Bar Y Length	Bar Y Wt	Bar Z Length	Bar Z Wt	Bars H 4~#4 Length	Weight	Bars K No.	Weight
2	22	9"	39'-9"	584	56	39'-9"	1,487	56	4'- 0"	150	49	4'- 8"	153	9'- 2"	300	17'- 6"	47	38	108
3	36	8"	39'-9"	956	80	39'-9"	2,124	56	4'- 0"	150	98	4'- 8"	305	9'- 2"	600	26'- 1"	70	54	153
4	48	8"	39'-9"	1,275	104	39'-9"	2,762	56	4'- 0"	150	147	4'- 8"	458	9'- 2"	900	34'- 8"	93	72	204
5	60	8"	39'-9"	1,593	128	39'-9"	3,399	56	4'- 0"	150	196	4'- 8"	611	9'- 2"	1,200	43'- 3"	116	90	256
6	72	8"	39'-9"	1,912	152	39'-9"	4,036	56	4'- 0"	150	245	4'- 8"	764	9'- 2"	1,500	51'-10"	138	106	301
2	22	9"	39'-9"	584	62	39'-9"	1,646	56	5'- 0"	187	49	4'- 8"	153	11'- 2"	366	17'- 6"	47	38	108
3	36	8"	39'-9"	956	88	39'-9"	2,337	56	5'- 0"	187	98	4'- 8"	305	11'- 2"	731	26'- 1"	70	54	153
4	48	8"	39'-9"	1,275	114	39'-9"	3,027	56	5'- 0"	187	147	4'- 8"	458	11'- 2"	1,097	34'- 8"	93	72	204
5	60	8"	39'-9"	1,593	140	39'-9"	3,717	56	5'- 0"	187	196	4'- 8"	611	11'- 2"	1,462	43'- 3"	116	90	256
6	72	8"	39'-9"	1,912	166	39'-9"	4,408	56	5'- 0"	187	245	4'- 8"	764	11'- 2"	1,828	51'-10"	138	106	301
2	22	9"	39'-9"	584	68	39'-9"	1,806	56	6'- 0"	224	49	4'- 8"	153	13'- 2"	431	17'- 6"	47	38	108
3	36	8"	39'-9"	956	96	39'-9"	2,549	56	6'- 0"	224	98	4'- 8"	305	13'- 2"	862	26'- 1"	70	54	153
4	48	8"	39'-9"	1,275	124	39'-9"	3,293	56	6'- 0"	224	147	4'- 8"	458	13'- 2"	1,293	34'- 8"	93	72	204
5	60	8"	39'-9"	1,593	152	39'-9"	4,036	56	6'- 0"	224	196	4'- 8"	611	13'- 2"	1,724	43'- 3"	116	90	256
6	72	8"	39'-9"	1,912	180	39'-9"	4,780	56	6'- 0"	224	245	4'- 8"	764	13'- 2"	2,155	51'-10"	138	106	301
2	22	9"	39'-9"	584	68	39'-9"	1,806	56	7'- 0"	262	49	4'- 8"	153	15'- 2"	496	17'- 6"	47	38	108
3	36	8"	39'-9"	956	96	39'-9"	2,549	56	7'- 0"	262	98	4'- 8"	305	15'- 2"	993	26'- 1"	70	54	153
4	48	8"	39'-9"	1,275	124	39'-9"	3,293	56	7'- 0"	262	147	4'- 8"	458	15'- 2"	1,489	34'- 8"	93	72	204
5	60	8"	39'-9"	1,593	152	39'-9"	4,036	56	7'- 0"	262	196	4'- 8"	611	15'- 2"	1,986	43'- 3"	116	90	256
6	72	8"	39'-9"	1,912	180	39'-9"	4,780	56	7'- 0"	262	245	4'- 8"	764	15'- 2"	2,482	51'-10"	138	106	301
2	22	9"	39'-9"	584	74	39'-9"	1,965	56	8'- 0"	299	49	4'- 8"	153	17'- 2"	562	17'- 6"	47	38	108
3	36	8"	39'-9"	956	104	39'-9"	2,762	56	8'- 0"	299	98	4'- 8"	305	17'- 2"	1,124	26'- 1"	70	54	153
4	48	8"	39'-9"	1,275	134	39'-9"	3,558	56	8'- 0"	299	147	4'- 8"	458	17'- 2"	1,686	34'- 8"	93	72	204
5	60	8"	39'-9"	1,593	164	39'-9"	4,355	56	8'- 0"	299	196	4'- 8"	611	17'- 2"	2,248	43'- 3"	116	90	256
6	72	8"	39'-9"	1,912	194	39'-9"	5,151	56	8'- 0"	299	245	4'- 8"	764	17'- 2"	2,809	51'-10"	138	106	301

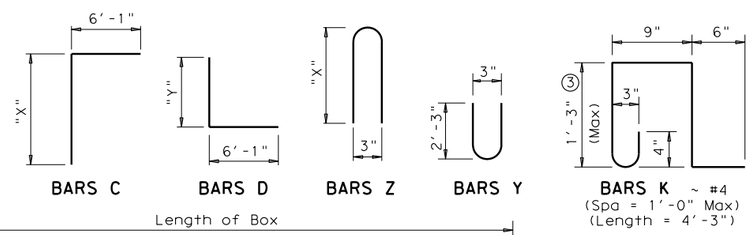
QUANTITIES

NUMBER OF SPANS	Per foot of Barrel Conc (CY)	Reinf (Lb)	Curb Conc (CY)	Reinf (Lb)	Total Conc (CY)	Reinf (Lb)
2	1.136	266.4	1.3	155	46.7	10,812
3	1.646	401.7	2.0	223	67.8	16,292
4	2.156	535.8	2.6	297	88.8	21,727
5	2.667	669.8	3.2	372	109.9	27,162
6	3.177	803.8	3.9	439	131.0	32,589
2	1.201	290.8	1.3	155	49.3	11,787
3	1.733	436.3	2.0	223	71.3	17,673
4	2.264	580.4	2.6	297	93.2	23,513
5	2.796	724.5	3.2	372	115.0	29,351
6	3.328	868.7	3.9	439	137.0	35,185
2	1.265	300.6	1.3	155	51.9	12,179
3	1.819	449.0	2.0	223	74.8	18,183
4	2.372	596.1	2.6	297	97.5	24,142
5	2.926	743.2	3.2	372	120.2	30,099
6	3.479	890.3	3.9	439	143.1	36,051
2	1.330	306.4	1.3	155	54.5	12,411
3	1.905	456.5	2.0	223	78.2	18,481
4	2.480	605.2	2.6	297	101.8	24,505
5	3.056	753.9	3.2	372	125.4	30,528
6	3.631	902.7	3.9	439	149.1	36,545
2	1.395	340.5	1.3	155	57.1	13,775
3	1.992	493.5	2.0	223	81.7	19,964
4	2.588	645.2	2.6	297	106.1	26,106
5	3.185	796.9	3.2	372	130.6	32,248
6	3.782	948.6	3.9	439	155.2	38,382

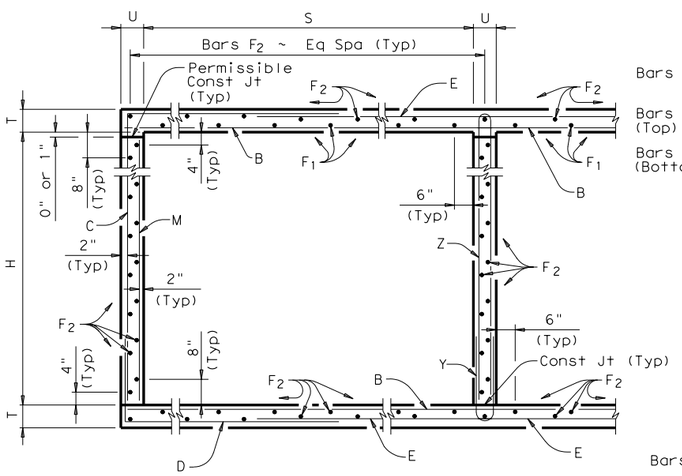
H	Bar Dimensions "X"	"Y"
4'-0"	4'-6"	2'-3"
5'-0"	5'-6"	2'-3"
6'-0"	6'-6"	2'-3"
7'-0"	7'-6"	2'-3"
8'-0"	8'-6"	2'-8"



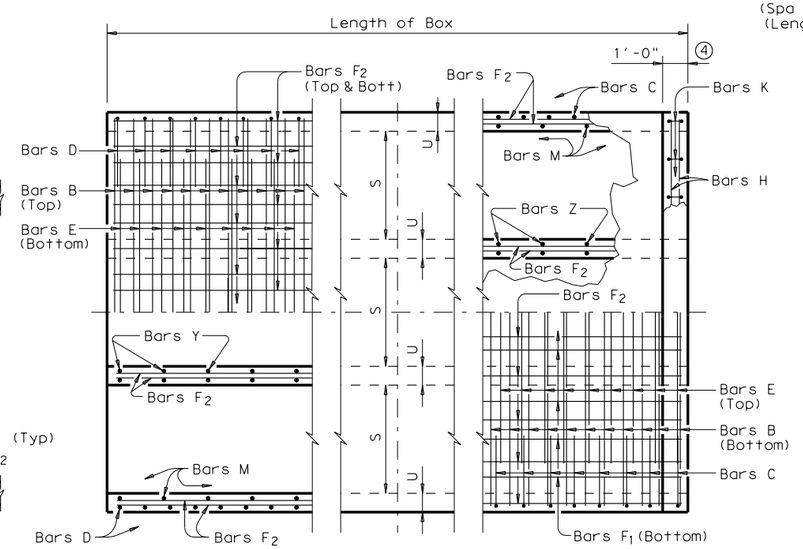
SECTION THRU CURB



BARS C BARS D BARS Z BARS Y BARS K ~ #4 (Spa = 1'-0" Max) (Length = 4'-3")



TYPICAL SECTION



BOTTOM SLAB PART PLANS TOP SLAB

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.

HS20 LOADING

Texas Department of Transportation
Bridge Division

MULTIPLE BOX CULVERTS CAST-IN-PLACE 8'-0" SPAN 0' TO 13' FILL

MC-8-13

FILE: mc813ste.dgn	DN: GAF	CK: LMW	DW: BWH/TxDOT	CK: GAF
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	COUNTY	CONTROL	SECT	JOB	HIGHWAY

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ACC:
LEVELS DISPLAYED
1

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

Dimensions					Variable Reinforcing				Estimated Quantities (3) per ft of wing length (2~Wings)	
Maximum Wingwall Height Hw	W	X	Y	Z	Bars J1		Bars J2			
					Size	Spa	Size	Spa	Reinf (Lb/Ft)	Conc (CY/Ft)
2'-6"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	33.73	0.248
3'-0"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	37.07	0.261
3'-6"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	37.74	0.273
4'-0"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	38.41	0.285
4'-6"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	41.75	0.330
5'-0"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	45.09	0.343
5'-6"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	45.75	0.355
6'-0"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	46.42	0.367
7'-0"	3'- 8"	1'- 9"	1'- 3"	7"	#4	1'-0"	#4	1'-0"	52.77	0.414
8'-0"	4'- 2"	2'- 0"	1'- 6"	8"	#5	1'-0"	#4	1'-0"	60.19	0.486
9'-0"	4'- 8"	2'- 3"	1'- 9"	8"	#4	6"	#4	6"	81.49	0.535
10'-0"	5'- 2"	2'- 6"	2'- 0"	8"	#5	6"	#4	6"	97.25	0.584
11'-0"	5'- 8"	2'- 9"	2'- 3"	8"	#6	6"	#5	6"	133.65	0.634
12'-0"	6'- 2"	3'- 0"	2'- 6"	9"	#7	6"	#5	6"	162.29	0.721
13'-0"	6'- 8"	3'- 3"	2'- 9"	11"	#7	6"	#5	6"	178.80	0.856
14'-0"	7'- 2"	3'- 6"	3'- 0"	1'- 0"	#8	6"	#5	6"	216.78	0.959
15'-0"	7'- 8"	4'- 0"	3'- 0"	1'- 1"	#9	6"	#6	6"	283.06	1.068
16'-0"	8'- 2"	4'- 6"	3'- 0"	1'- 3"	#9	6"	#6	6"	297.02	1.234

TABLE OF WINGWALL REINFORCING (2~Wings)

Bar	Size	No.	Spa
D	#5	~	1'-0"
E	#4	~	1'-0"
F	#4	~	1'-0"
G	#6	4	~
M	#4	4	~
P	#4	~	1'-0"
R	#5	6	~
V	#4	~	1'-0"

TABLE OF ESTIMATED CULVERT TOEWALL QUANTITIES

Bar	Size	No.	Spa
L	#4	~	1'-6"
Q	#4	1	~
Reinf (Lb/Ft)			2.45
Conc (CY/Ft)			0.037

WING DIMENSION CALCULATIONS:

Formulas: (All values are in Feet)

Hw = H + T + C - 0.250'

Lw = (Hw - 0.333') (SL)

For Cast-in-place culverts:

Ltw = (N) (S) + (N + 1) (U)

For Precast culverts:

Ltw = (N) (2U + S) + (N - 1) (0.5')

Total Wingwall Area (Two Wings ~ S.F.) = (Hw + 0.333') (Lw)

Hw = Height of Wingwall
SL:1 = Side Slope Ratio (Horizontal:1 Vertical)
Lw = Length of Wingwall
Ltw = Culvert Toewall Length
N = Number of Culvert Spans

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

(1) Extend Bars P 3'-0" minimum into bottom slab of Box Culvert.

(2) Adjust to fit as necessary to maintain 1 1/4" clear cover and 4" minimum between bars.

(3) Quantities shown are based on an average wing height for two wings (one structure end). To determine total quantities for two wings multiply the tabulated values by Lw.

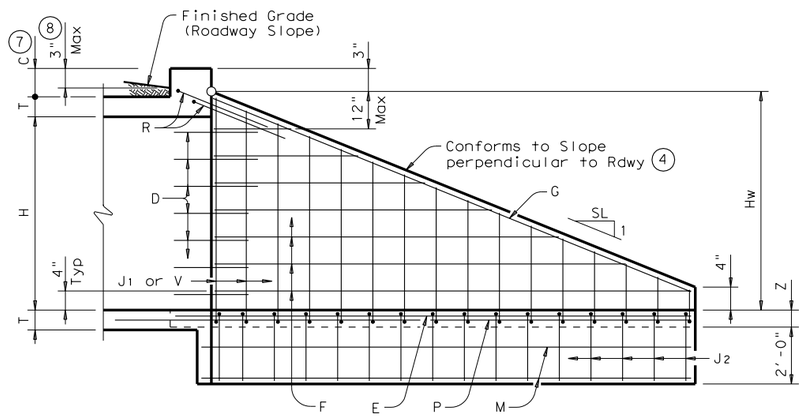
(4) Recommended values of Slope are: 2:1, 3:1, 4:1, & 6:1.

(5) When shown elsewhere on the plans, a 5" deep concrete riprap shall be constructed. Unless otherwise shown on the plans or directed by the Engineer, the riprap shall have a 6" wide by 1'-6" deep reinforced concrete toewall along all edges adjacent to natural ground; the toewall shall be reinforced by extending typical riprap reinforcing into the toewall; construction joints or grooved joints, oriented in the direction of flow, shall extend across the full distance of the riprap, at intervals of approximately 20'. When such riprap is provided, the culvert toewall shown in SECTION B-B will not be required. Payment for riprap shall be as required by Item 432, "Riprap".

(6) At Contractor's option, Culvert Toewall may be ended flush with Wingwall Toewall. Adjust reinforcing from that shown as necessary.

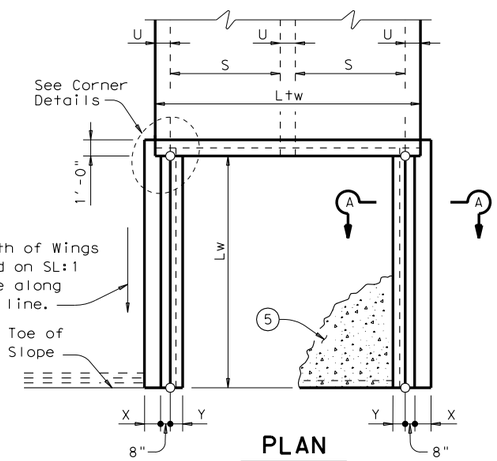
(7) 0" min to 5'-0" max. For T6 or C6 Rail, see T6-CM standard for additional details. For all other rail types, refer to the RAC standard. For curbs without rail and greater than 1'-0" high, see ECD standard for additional details. Estimated curb heights are shown elsewhere in the plans.

(8) For vehicle safety, curb heights and wall heights shall be reduced, if necessary, to provide a maximum 3" projection above finished grade. No changes will be made in quantities and no additional compensation will be allowed for this work.



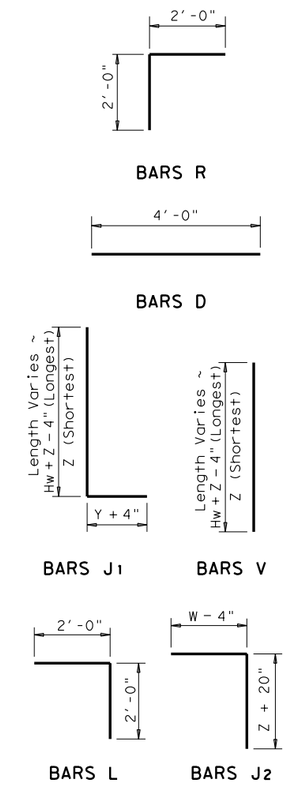
INSIDE ELEVATION

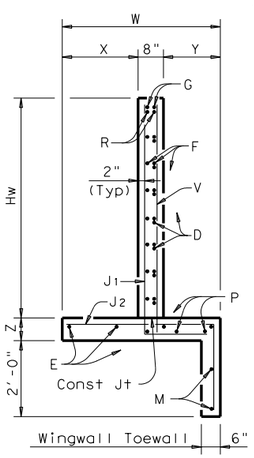
(Showing reinforcing. Culvert and Culvert Toewall reinforcing not shown for clarity.)



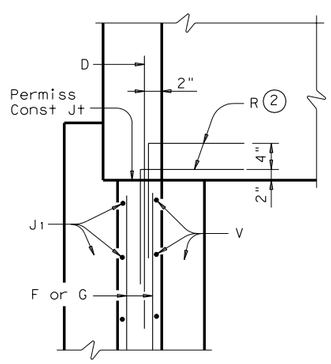
PLAN

(Showing Dimensions)

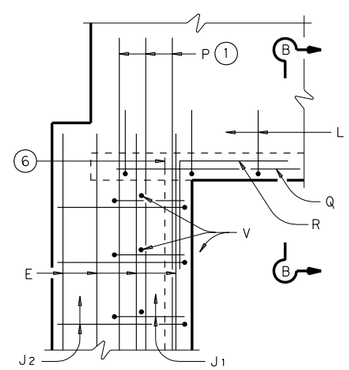




SECTION A-A



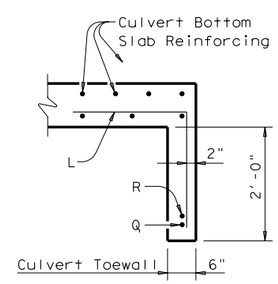
WINGWALL



FOOTING AND TOEWALL

CORNER DETAILS

(Culvert and Culvert Toewall reinforcing not shown for clarity.)



SECTION B-B (5)

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 1/4" 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.

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COMMENTS:

LEVELS DISPLAYED

Texas Department of Transportation
Bridge Division

CONCRETE WINGWALLS WITH STRAIGHT WINGS FOR 0° SKEW BOX CULVERTS

SW-0

FILE: sw-0stde.dgn	DN: GAF	CK: CAT	DW: TxDOT	CK: GAF
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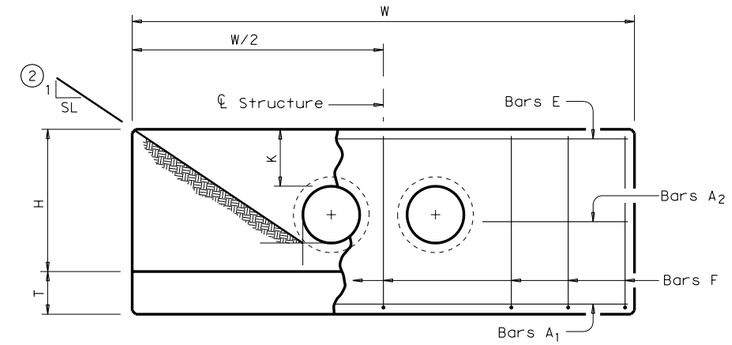
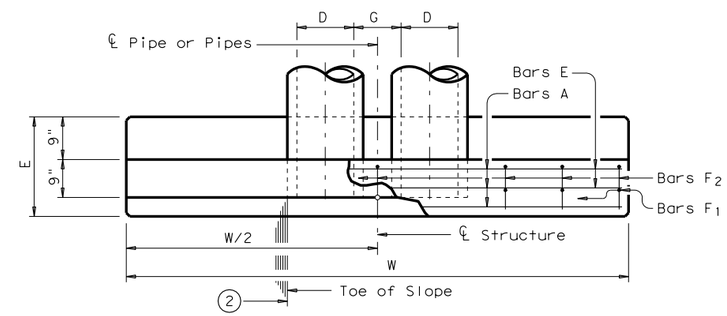
REVISIONS				
	COUNTY	CONTROL	SECT	JOB	HIGHWAY

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

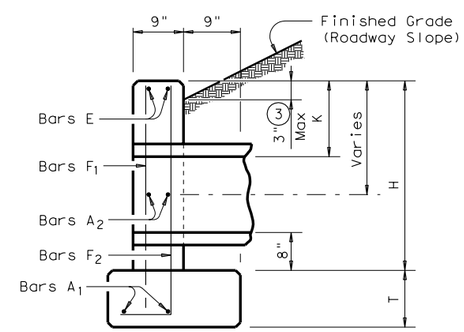
SLOPE	DIA OF PIPE, D	Values for one Pipe			Values to be added for each addt'l Pipe		
		W	Reinf (Lbs)	Conc (CY) (1)	W	Reinf (Lbs)	Conc (CY) (1)
2:1	12"	9'- 0"	122	1.1	1'- 9"	15	0.2
	15"	10'- 3"	136	1.3	2'- 2"	16	0.2
	18"	11'- 6"	163	1.5	2'- 8"	19	0.3
	21"	12'- 9"	200	1.8	3'- 1"	31	0.4
	24"	14'- 0"	217	2.1	3'- 7"	34	0.4
	27"	15'- 3"	254	2.4	3'-11"	37	0.5
	30"	16'- 6"	272	2.7	4'- 4"	40	0.6
	33"	17'- 9"	314	3.1	4'- 8"	43	0.6
	36"	19'- 0"	371	3.9	5'- 1"	46	0.8
	42"	21'- 6"	442	4.9	5'-10"	52	1.0
	48"	25'- 0"	569	6.4	6'- 7"	59	1.3
	54"	27'- 6"	701	7.5	7'- 6"	82	1.6
	60"	30'- 0"	794	8.8	8'- 3"	90	1.8
	66"	32'- 6"	894	10.2	8'- 9"	96	2.0
	72"	35'- 0"	1055	11.7	9'- 4"	103	2.3
3:1	12"	13'- 0"	175	1.6	1'- 9"	14	0.2
	15"	14'- 9"	193	1.9	2'- 2"	17	0.2
	18"	16'- 6"	228	2.2	2'- 8"	19	0.3
	21"	18'- 3"	299	2.6	3'- 1"	31	0.4
	24"	20'- 0"	323	3.0	3'- 7"	33	0.4
	27"	21'- 9"	371	3.5	3'-11"	37	0.5
	30"	23'- 6"	415	4.0	4'- 4"	40	0.5
	33"	25'- 3"	469	4.6	4'- 8"	43	0.6
	36"	27'- 0"	556	5.7	5'- 1"	46	0.8
	42"	30'- 6"	675	7.1	5'-10"	52	1.0
	48"	35'- 6"	837	9.2	6'- 7"	59	1.3
	54"	39'- 0"	1015	11.0	7'- 6"	84	1.6
	60"	42'- 6"	1171	12.9	8'- 3"	91	1.8
	66"	46'- 0"	1298	14.9	8'- 9"	98	2.0
	72"	49'- 6"	1561	17.1	9'- 4"	103	2.3
4:1	12"	17'- 0"	229	2.0	1'- 9"	15	0.2
	15"	19'- 3"	266	2.4	2'- 2"	17	0.2
	18"	21'- 6"	308	2.9	2'- 8"	19	0.3
	21"	23'- 9"	382	3.5	3'- 1"	31	0.3
	24"	26'- 0"	430	3.9	3'- 7"	34	0.4
	27"	28'- 3"	486	4.7	3'-11"	37	0.5
	30"	30'- 6"	539	5.2	4'- 4"	40	0.6
	33"	32'- 9"	603	6.0	4'- 8"	42	0.6
	36"	35'- 0"	738	7.5	5'- 1"	47	0.8
	42"	39'- 6"	881	9.3	5'-10"	52	1.0
	48"	46'- 0"	1102	12.1	6'- 7"	61	1.3
	54"	50'- 6"	1364	14.4	7'- 6"	84	1.6
	60"	55'- 0"	1547	16.9	8'- 3"	91	1.8
	66"	59'- 6"	1741	19.5	8'- 9"	98	2.0
	72"	64'- 0"	2069	22.4	9'- 4"	102	2.3
6:1	12"	25'- 0"	336	3.0	1'- 9"	14	0.2
	15"	28'- 3"	384	3.6	2'- 2"	17	0.2
	18"	31'- 6"	452	4.2	2'- 8"	19	0.3
	21"	34'- 9"	581	5.1	3'- 1"	31	0.4
	24"	38'- 0"	644	5.8	3'- 7"	34	0.4
	27"	41'- 3"	737	6.9	3'-11"	37	0.5
	30"	44'- 6"	807	7.7	4'- 4"	39	0.6
	33"	47'- 9"	912	8.9	4'- 8"	44	0.6
	36"	51'- 0"	1108	11.0	5'- 1"	48	0.8
	42"	57'- 6"	1318	13.7	5'-10"	54	1.0
	48"	67'- 0"	1674	17.9	6'- 7"	59	1.3
	54"	73'- 6"	2064	21.3	7'- 6"	83	1.6
	60"	80'- 0"	2343	24.9	8'- 3"	89	1.8
	66"	86'- 6"	2635	28.9	8'- 9"	96	2.0
	72"	93'- 0"	3123	33.1	9'- 4"	101	2.3



ELEVATION



PLAN OF NON-SKEWED PIPES



℄ SECTION

(1) Quantities shown are for concrete pipe and will increase slightly for metal pipe installations.

(2) Indicated slope is perpendicular to centerline Pipe or Pipes.

(3) 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.

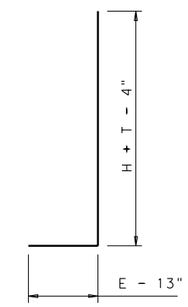
(4) Quantities shown are for one structure end only (one headwall).

TABLE OF CONSTANT DIMENSIONS

DIA OF PIPE, D	G	K	H	T	E
12"	9"	1'- 0"	2'- 8"	9"	1'- 9"
15"	11"	1'- 0"	2'-11"	9"	1'- 9"
18"	1'- 2"	1'- 0"	3'- 2"	9"	1'- 9"
21"	1'- 4"	1'- 0"	3'- 5"	9"	2'- 0"
24"	1'- 7"	1'- 0"	3'- 8"	9"	2'- 0"
27"	1'- 8"	1'- 0"	3'-11"	9"	2'- 3"
30"	1'-10"	1'- 0"	4'- 2"	9"	2'- 3"
33"	1'-11"	1'- 0"	4'- 5"	9"	2'- 6"
36"	2'- 1"	1'- 0"	4'- 8"	1'- 0"	2'- 6"
42"	2'- 4"	1'- 0"	5'- 2"	1'- 0"	2'- 9"
48"	2'- 7"	1'- 3"	5'-11"	1'- 0"	3'- 0"
54"	3'- 0"	1'- 3"	6'- 5"	1'- 0"	3'- 3"
60"	3'- 3"	1'- 3"	6'-11"	1'- 0"	3'- 6"
66"	3'- 3"	1'- 3"	7'- 5"	1'- 0"	3'- 9"
72"	3'- 4"	1'- 3"	7'-11"	1'- 0"	4'- 0"

TABLE OF REINFORCING STEEL (4)

Bar	Size	Spa	No.
A1	# 5	~	2
A2	# 5	1'-6"	~
E	# 5	~	2
F	# 5	1'-0"	~



BARS F_2

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.

DISCLAIMER:
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1

Texas Department of Transportation
Bridge Division

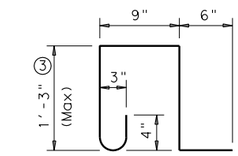
CONCRETE HEADWALLS WITH PARALLEL WINGS FOR NON-SKEWED PIPE CULVERTS

CH-PW-0

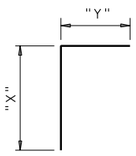
FILE: chpw0ste.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: GAF
©TxDOT May 2005	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS				
	COUNTY	CONTROL	SECT	JOB	HIGHWAY

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

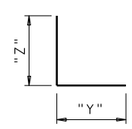
SECTION DIMENSIONS S	H	T	U	FILL HEIGHT	Bars B No.	Size	Spa	Length	Weight	Bars C No.	Size	Spa	Length	Weight	"X"	"Y"	Bars D No.	Size	Spa	Length	Weight	"Y"	"Z"	Bars E~#4 at 18" Max No.	Length	Wt	Bars F_1 ~#4 No.	Spa	Length	Wt	Bars F_2~#4 at 18" Max No.	Length	Wt	Bars H 4~#4 Length	Wt	Bars K No.	Wt	QUANTITIES Per foot of Barrel Conc (CY)	Reinf (Lb)	Curb Conc (CY)	Reinf (Lb)	Total Conc (CY)	Reinf (Lb)
3'-0"	2'-0"	7"	7"	30'	138	#4	7"	3'-11"	361	98	#4	10"	4'- 2"	273	2'- 5"	1'- 9"	98	#4	10"	3'-11"	256	1'- 9"	2'- 2"	56	2'-0"	75	3	13"	39'-9"	80	19	39'-9"	505	3'-11"	10	10	28	0.266	38.8	0.3	38	10.9	1,588
3'-0"	3'-0"	7"	7"	30'	162	#4	6"	3'-11"	424	98	#4	10"	5'- 2"	338	3'- 5"	1'- 9"	98	#4	10"	3'-11"	256	1'- 9"	2'- 2"	56	3'-0"	112	3	12"	39'-9"	80	23	39'-9"	611	3'-11"	10	10	28	0.310	45.5	0.3	38	12.7	1,859
4'-0"	2'-0"	7"	7"	30'	194	#4	5"	4'-11"	637	162	#4	6"	4'- 8"	505	2'- 5"	2'- 3"	162	#4	6"	4'- 5"	478	2'- 3"	2'- 2"	56	2'-0"	75	5	10"	39'-9"	133	21	39'-9"	558	4'-11"	13	12	34	0.310	59.7	0.4	47	12.8	2,433
4'-0"	3'-0"	7"	7"	30'	162	#5	6"	4'-11"	831	162	#4	6"	5'- 8"	613	3'- 5"	2'- 3"	162	#4	6"	4'- 5"	478	2'- 3"	2'- 2"	56	3'-0"	112	6	8"	39'-9"	159	25	39'-9"	664	4'-11"	13	12	34	0.353	71.4	0.4	47	14.5	2,904
4'-0"	4'-0"	7"	7"	30'	162	#5	6"	4'-11"	831	162	#4	6"	6'- 8"	721	4'- 5"	2'- 3"	162	#4	6"	4'- 5"	478	2'- 3"	2'- 2"	56	4'-0"	150	6	8"	39'-9"	159	25	39'-9"	664	4'-11"	13	12	34	0.396	75.1	0.4	47	16.2	3,050



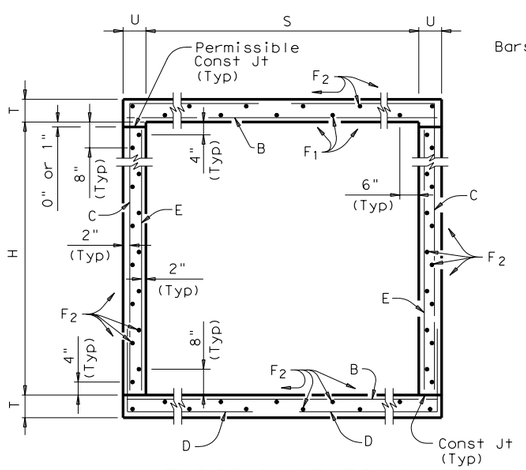
BARS K ~ #4
(Spa = 1'-0" Max)
(Length = 4'-3")



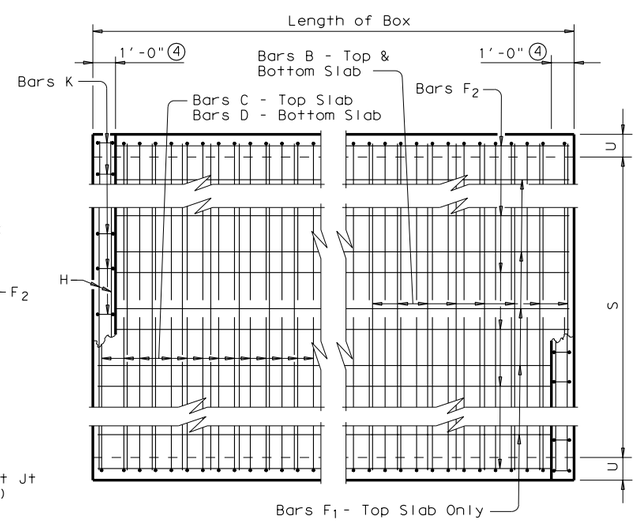
BARS C



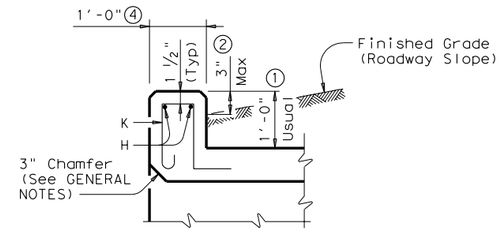
BARS D



TYPICAL SECTION



PLAN OF REINF STEEL



SECTION THRU CURB

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.

GENERAL NOTES:

Designed according to current AASHTO Standard and Interim Specifications.

Designed to the maximum fill heights 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.

Reinforcing bars shall be adjusted to provide a minimum of 1 1/4 inches clear cover.

The bottom edge of the top slab shall be chamfered 3 inches at the entrance.

Construction joints shown at the flow line may be raised a maximum of 6 inches at the Contractor's option. If this option is used, Bars E may be cut off or raised, and Bars C and D may be reversed.

See Standard SCC-MD for skewed ends, angle sections and lengthening details.

HS20 LOADING

Texas Department of Transportation
Bridge Division

SINGLE BOX CULVERTS CAST-IN-PLACE 0' TO 30' FILL

SCC-3 & 4

FILE: scc34ste.dgn	DN: GAF	CK: LMW	DW: BWH/TxDOT	CK: GAF
© TxDOT May 2005	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS				
	COUNTY		CONTROL SECT JOB	HIGHWAY

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