

FORT BEND COUNTY CONSTRUCTION DETAILS

MARCH 1, 2022

TITLE SHEET AND GENERAL NOTES

1. PROJECT COVER SHEET
2. CONSTRUCTION GENERAL NOTES
3. PUBLIC WORKS & SUBDIVISION GENERAL NOTES
4. TRAFFIC SIGNAL GENERAL NOTES

PAVEMENT CONSTRUCTION

5. CONCRETE PAVEMENT DETAILS (SHEET 1 OF 3)
6. CONCRETE PAVEMENT DETAILS (SHEET 2 OF 3)
7. CONCRETE PAVEMENT DETAILS (SHEET 3 OF 3)
8. TURN LANES AND MEDIAN OPENINGS
9. TYPICAL PAVEMENT SECTIONS FOR DEVELOPMENT PROJECTS
10. DRIVEWAY DETAILS FOR MAJOR ROADWAY CONSTRUCTION
11. DRIVEWAY DETAILS FOR RESIDENTIAL DRIVEWAYS
12. ASPHALT DRIVEWAY DETAILS
13. SIDEWALK DETAILS
14. PED-18 RAMP DETAILS (SHEET 1 OF 4)
15. PED-18 RAMP DETAILS (SHEET 2 OF 4)
16. PED-18 RAMP DETAILS (SHEET 3 OF 4)
17. PED-18 RAMP DETAILS (SHEET 4 OF 4)

STORM SEWER CONSTRUCTION

18. STORM SEWER CONSTRUCTION DETAILS
19. CAST-IN-PLACE CONCRETE STORM SEWER MANHOLE DETAILS
20. PRECAST CONCRETE STORM SEWER MANHOLE DETAILS
21. JUNCTION/BOX/MANHOLE DETAILS
22. TYPE "A" INLET DETAILS FOR MAXIMUM 30" O.D. PIPE
23. MODIFIED TYPE "A" INLET DETAILS FOR BEHIND THE CURB SWALES
24. TYPE "B" INLET DETAILS
25. TYPE "B-B" INLET DETAILS
26. MODIFIED TYPE "B-B" INLET FOR BACK OF CURB GRATE
27. TYPE "C", "C-1", "C-2", AND "C-2A" INLET DETAILS
28. TYPE "C MODIFIED" INLET DETAILS
29. TYPE "D" AND "D-1" INLET DETAILS
30. TYPE "E" INLET DETAILS
31. TYPE "H-2" INLET DETAILS
32. TYPE "H-2 MODIFIED" INLET DETAILS

MISCELLANEOUS CONSTRUCTION DETAILS

33. SINGLE GUARDRAIL TERMINAL
34. METAL BEAM GUARD FENCE
35. PROJECT SIGN DETAILS
36. COUNTY FUNDED PROJECT SIGN DETAILS
37. COUNTY/OTHER FUNDED PROJECT SIGN DETAILS
38. PRECINCT FUNDED PROJECT SIGN DETAILS
39. CHAIN LINK FENCING DETAILS
40. CHAIN LINK FENCING ROLLING GATE DETAILS
41. BARBED WIRE FENCING DETAILS
42. ROUNDABOUT CONSTRUCTION DET I
43. ROUNDABOUT CONSTRUCTION DET II
44. ROUNDABOUT CONSTRUCTION DET III
45. EXPANSION JOINTS AND SAWCUTS

SIGNING AND PAVEMENT MARKINGS

46. PAVEMENT MARKING DETAILS (SHEET 1 OF 2)
47. PAVEMENT MARKING DETAILS (SHEET 2 OF 2)
48. MID BLOCK CROSSING WITH RESIDENTIAL FRONTAGE
49. MID BLOCK CROSSING WITHOUT RESIDENTIAL FRONTAGE
50. MID BLOCK BOULEVARDS
51. TYPE III BARRICADE DETAILS
52. TYPICAL GROUND SIGN INSTALLATION
53. STREET SIGN NAME AND INSTALLATION DETAIL

STORM WATER POLLUTION PREVENTION AND STORM WATER QUALITY

54. STORM WATER POLLUTION PREVENTION PLAN DETAILS

1. DO NOT INCLUDE THIS SHEET IN YOUR PLAN SETS.
2. TO BE USED WHEN OUTSIDE CITY EXTRATERRITORIAL JURISDICAITON OR IF THE CITY DOES NOT HAVE ITS OWN DETAIL.
3. FOR BRIDGES, BRIDGE RAILS, OR TRAFFIC SIGNALS, USE TXDOT STANDARDS.
4. CHOSEN STANDARDS ARE TO BE IDENTIFIED AND SIGNED BY THE DESIGN ENGINEER ON THE INDEX SHEET AS DESCRIBED IN CHAPTER 12.4 OF THE FBC DESIGN MANUAL.

FORT BEND COUNTY ENGINEERING DEPARTMENT

PROJECT NAME PROJECT LIMITS

PROJECT NO. _____

XX% SUBMITTAL

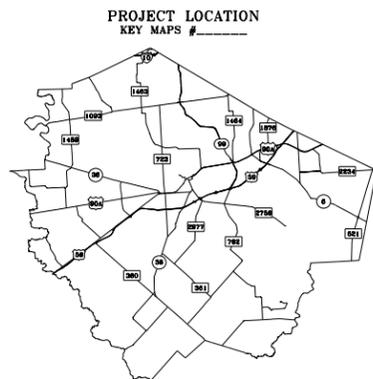
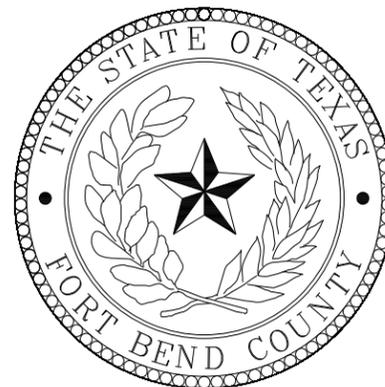
VINCENT M. MORALES, JR.
COMMISSIONER PRECINCT 1

ANDY MEYERS
COMMISSIONER PRECINCT 3

KP GEORGE
COUNTY JUDGE

GRADY PRESTAGE
COMMISSIONER PRECINCT 2

KEN R. DeMERCHANT
COMMISSIONER PRECINCT 4



PROJECT
LOCATION

APPROVED: _____ DATE _____
COUNTY ENGINEER
J. STACY SLAWINSKI, P.E.

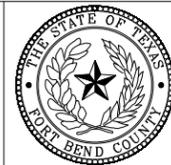
CONSTRUCTION

1. FORT BEND COUNTY MUST BE INVITED TO THE PRE-CONSTRUCTION MEETING.
2. CONTRACTOR SHALL NOTIFY FORT BEND COUNTY ENGINEERING DEPARTMENT 48 HOURS PRIOR TO COMMENCING CONSTRUCTION AND 48 HOUR NOTICE TO ANY CONSTRUCTION ACTIVITY WITHIN THE LIMITS OF THE PAVING AT CONSTRUCTION@FBCTX.GOV.
3. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FROM FORT BEND COUNTY PRIOR TO COMMENCING CONSTRUCTION OF ANY IMPROVEMENTS WITHIN COUNTY ROAD RIGHT OF WAYS.
4. ALL PAVING IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH FORT BEND COUNTY "RULES, REGULATIONS AND REQUIREMENTS" RELATING TO THE APPROVAL AND ACCEPTANCE OF IMPROVEMENTS IN SUBDIVISIONS AS CURRENTLY AMENDED.
5. ALL ROAD WIDTHS, CURB RADII AND CURB ALIGNMENT SHOWN INDICATES BACK OF CURB.
6. A CONTINUOUS LONGITUDINAL REINFORCING BAR SHALL BE USED IN THE CURBS.
7. ALL CONCRETE PAVEMENT SHALL BE 5½ SACK CEMENT WITH A MINIMUM COMPRESSIVE STRENGTH OF 3500 PSI AT 28 DAYS. TRANSVERSE EXPANSION JOINTS SHALL BE INSTALLED AT EACH CURB RETURN AND AT A MAXIMUM SPACING OF 60 FEET.
8. ALL WEATHER ACCESS TO ALL EXISTING STREETS AND DRIVEWAYS SHALL BE MAINTAINED AT ALL TIMES.
9. 4" X 12" REINFORCED CONCRETE CURB SHALL BE PLACED IN FRONT OF SINGLE FAMILY LOTS ONLY. ALL OTHER AREAS SHALL BE 6" REINFORCED CONCRETE CURB.
10. CURB HEADERS ARE REQUIRED AT CURB CONNECTIONS TO HANDICAP RAMPS, WITH NO CONSTRUCTION JOINT WITHIN 5' OF RAMPS.
11. GUIDELINES ARE SET FORTH IN THE TEXAS "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", AS CURRENTLY AMENDED, SHALL BE OBSERVED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE FLAGMEN, SIGNING, STRIPING AND WARNING DEVICES, ETC., DURING CONSTRUCTION - BOTH DAY AND NIGHT.
12. ALL R1-1 STOP SIGNS SHALL BE A MINIMUM OF 36"x36" WITH DIAMOND GRADE SHEETING PER TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
13. STREET NAME SIGNAGE SHALL BE ON A 9" HIGH SIGN FLAT BLADE W/REFLECTIVE GREEN BACKGROUND. STREET NAMES SHALL BE UPPER AND LOWERCASE LETTERING WITH UPPERCASE LETTERS OF 6" MINIMUM AND LOWERCASE LETTERS OF 4.5" MINIMUM. THE LETTERS SHALL BE REFLECTIVE WHITE. STREET NAME SIGNS SHALL BE MOUNTED ON STOP SIGN POST.
14. A BLUE DOUBLE REFLECTORIZED BUTTON SHALL BE PLACED AT ALL FIRE HYDRANT LOCATIONS. THE BUTTON SHALL BE PLACED 12 INCHES OFF OF THE CENTERLINE OF THE STREET ON THE SAME SIDE AS THE HYDRANT.
15. THE PROJECT AND ALL PARTS THEREOF SHALL BE SUBJECT TO INSPECTION FROM TIME TO TIME BY INSPECTORS DESIGNATED BY FORT BEND COUNTY. NO SUCH INSPECTIONS SHALL RELIEVE THE CONTRACTOR OF ANY OF ITS OBLIGATIONS HEREUNDER. NEITHER FAILURE TO INSPECT NOR FAILURE TO DISCOVER OR REJECT ANY OF THE WORK AS NOT IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS, REQUIREMENTS AND SPECIFICATIONS OF FORT BEND COUNTY OR ANY PROVISION OF THIS PROJECT SHALL BE CONSTRUED TO IMPLY AN ACCEPTANCE OF SUCH WORK OR TO RELIEVE THE CONTRACTOR OF ANY OF ITS OBLIGATIONS HEREUNDER.
16. STABILIZED SUBGRADE: DETERMINE THE THICKNESS OF THE STABILIZED SUBGRADE AFTER CURING AND COMPACTION. IF THE SUBGRADE DEPTH IS GREATER THAN THE PROPOSED THICKNESS BY 20% OR MORE, THE CMT LAB MUST PROVIDE VERIFICATION THE PERCENTAGE OF MATERIAL BEING USED TO STABILIZE THE SUBGRADE MEETS OR EXCEEDS PROJECT REQUIREMENTS. TEST RESULTS REQUIRED.

NOTE: FORT BEND COUNTY NOTES SUPERSEDE ANY CONFLICTING NOTES.

NO.	REVISIONS	DATE	NAME
▲	ORIGINAL STANDARD ISSUED	2-1-22	RJS
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FORT BEND COUNTY
ENGINEERING DEPARTMENT



PROJECT TITLE:		
DRAWN BY: INIT		FBCED STANDARD
CK'D BY: INIT	SHEET DESCRIPTION: CONSTRUCTION GENERAL NOTES	02
SCALE: NONE		SHEET NO:
DATE: 2-1-22	APPROVED BY:	/

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GENERAL

1. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS BEFORE BEGINNING CONSTRUCTION.
2. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING SECURITY TO PROTECT THE PROJECT SITE, CONTRACTOR PROPERTY, EQUIPMENT, AND WORK.
3. THE CONTRACTOR IS RESPONSIBLE FOR CLEANING STREETS OF CONSTRUCTION DIRT AND DEBRIS AT CLOSE OF EACH WORK DAY.
4. THE CONDITION OF THE ROAD AND/OR RIGHT-OF-WAY, UPON COMPLETION OF THE JOB SHALL BE AS GOOD AS OR BETTER THAN PRIOR TO STARTING WORK.
5. PRIOR TO CONSTRUCTION, THE CONTRACTOR, ALONG WITH CONCURRENCE FROM THE FIELD ENGINEER, SHALL DETERMINE HIS/HER LAY-DOWN AND/OR STAGING AREA LOCATIONS.
6. THE CONTRACTOR SHALL NOTIFY ALL PROPERTY OWNERS A MINIMUM OF 24 HOURS PRIOR TO BLOCKING DRIVEWAYS OR ENTERING UTILITY EASEMENTS.
7. TRAFFIC INGRESS AND EGRESS FOR DRIVEWAYS AND PEDESTRIAN ACCESS FACILITIES SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION WITH ALL WEATHER SURFACES.
8. THE CONTRACTOR SHALL REMOVE ANY FENCES, POSTS, MAILBOXES, PLANTERS, PERMANENT TRASH CONTAINERS, CULVERTS, ETC. OR SECTIONS THEREOF, THAT ENCR OACH WITHIN THE COUNTY'S RIGHT-OF-WAY. NOTE: PRIOR TO CONSTRUCTION, THE PROPERTY OWNER WAS PAID TO RELOCATE OR REPLACE THESE ITEMS OUTSIDE OF THE COUNTY'S RIGHT-OF-WAY. IF THE OWNER HAS FAILED TO DO SO, THE CONTRACTOR WILL REPLACE THEM WITH THE MINIMUM LEVEL OF QUALITY NEEDED TO SECURE THE PROPERTY AND/OR MAINTAIN MAIL DELIVERY. IN THAT CASE, PAYMENT FOR THESE INSTALLATIONS WILL BE INCLUDED AS EXTRA WORK ITEMS OR AS OVERRUNS TO EXISTING PAY ITEMS.

ANY DAMAGE CAUSED BY THE CONTRACTOR TO SUCH ITEMS LOCATED OUTSIDE OF THE COUNTY'S RIGHT-OF-WAY, SHALL BE REPLACED WITH LIKE-KIND OR BETTER AT THE CONTRACTOR'S EXPENSE.

ALSO, IF THESE ITEMS ARE LOCATED WITHIN THE PROJECT RIGHT-OF-WAY AND ARE DESIGNATED TO REMAIN, ANY DAMAGE CAUSED BY THE CONTRACTOR TO SUCH ITEMS, SHALL BE REPLACED WITH LIKE-KIND OR BETTER AT THE CONTRACTOR'S EXPENSE.

TREES, BUSHES, SHRUBBERY AND OTHER DAMAGED PLANTINGS DESIGNATED TO REMAIN SHALL BE REPLACED WITHIN 72 HOURS OF REMOVAL AND ARE TO BE THOROUGHLY WATERED-IN. NO SEPARATE PAY.
9. PAVED SURFACES, PAVEMENT MARKERS AND MARKINGS SHALL BE PROTECTED FROM DAMAGE BY TRACKED EQUIPMENT.
10. IRON RODS DISTURBED DURING CONSTRUCTION ARE TO BE REPLACED BY A REGISTERED PROFESSIONAL LAND SURVEYOR FOR THE ORIGINAL PROPERTY OWNER AT NO SEPARATE PAY.
11. CONSTRUCTION STAKING WILL BE PROVIDED BY THE CONTRACTOR. TWO COPIES OF STAKING NOTES TO BE PROVIDED TO THE ENGINEER PRIOR TO CONSTRUCTION.
12. THE COUNTY OR THE COUNTY'S SURVEYOR SHALL PROVIDE A BENCHMARK OR TEMPORARY BENCHMARK AND SURVEY CONTROLS.
13. THE CONTRACTOR SHALL MAINTAIN UPDATED RED-LINED RECORD DRAWINGS ON SITE FOR INSPECTION BY THE ENGINEER.
14. MOWING, MAINTENANCE, AND CLEAN-UP OF THE PROJECT SHALL MEET THE REQUIREMENT OF SPECIFICATION ITEM 560 (NO SEPARATE PAY). MOWING, MAINTENANCE, AND CLEAN-UP IS REQUIRED FOR THE PROJECT LIMITS AND DURATION, REGARDLESS OF THE CONTRACTOR'S SCOPE OF ACTIVITIES WITHIN THE PROJECT LIMITS.
15. THE REMOVAL OF ANY ABANDONED UTILITIES REQUIRED TO COMPLETE THE WORK SHALL BE INCIDENTAL AND NO SEPARATE PAYMENT SHALL BE MADE.
16. IT IS THE CONTRACTOR'S RESPONSIBILITY TO STOCKPILE NECESSARY MATERIAL ON-SITE OR AT A SECURED OFF-SITE LOCATION AT NO ADDITIONAL EXPENSE TO FORT BEND COUNTY. ANY SUITABLE EXCAVATED MATERIAL ON THE PROJECT WHICH IS AVAILABLE AT THE TIME OF NEED; WHETHER FROM STORM SEWER, ROADWAY, AND/OR CHANNEL EXCAVATION, SHALL BE USED BEFORE BORROW IS BROUGHT ON-SITE.
17. MANHOLES, JUNCTION BOXES, INLETS, AND RISERS ARE TO BE PRE-CAST OR CAST IN PLACE.
18. THE FOLLOWING DETAILS ARE MINIMUM REQUIREMENTS AND MAY BE SUPERSEDED BY GEOTECHNICAL ENGINEER RECOMMENDATIONS OR MORE STRINGENT REQUIREMENTS FROM THE CITY'S ETJ PROJECT IS WITHIN.
19. POP UP DRAINS ARE NOT ALLOWED IN FORT BEND COUNTY RIGHT OF WAY.

TRAFFIC SIGNAL

1. ALL ITEMS RELATING TO THE CONSTRUCTION OF TRAFFIC SIGNAL INSTALLATIONS, EXCEPT FOR PUNCHLIST ITEMS, SHALL BE COMPLETED PRIOR TO THE ACTIVATION OF THE SIGNAL SYSTEM(S), UNLESS OTHERWISE REQUIRED BY THE CONTRACT.
2. THE CONTRACTOR SHALL MEET WITH THE FORT BEND COUNTY TRAFFIC SIGNAL MAINTENANCE GROUPS FIELD INSPECTOR, HEREAFTER REFERRED TO AS THE TRAFFIC INSPECTOR, ONE-WEEK PRIOR TO THE DESIRED ACTIVATION OF ANY NEW TRAFFIC SIGNALS. THE CONTRACTOR SHALL OBTAIN VERBAL CONCURRENCE FROM THE TRAFFIC INSPECTOR THAT ADEQUATE PROGRESS HAS BEEN ACHIEVED AND THAT ADEQUATE PREPARATIONS ARE IN PLACE TO SCHEDULE A PRE-"TURN ON" WALK-THROUGH INSPECTION MEETING. IF IN THE OPINION OF THE TRAFFIC INSPECTOR, REQUIRED PROGRESS AND ADEQUATE PREPARATIONS ARE NOT COMPLETE, THE PRE-"TURN ON" WALK-THROUGH INSPECTION MEETING WILL BE POSTPONED TO ALLOW ADEQUATE TIME FOR INCOMPLETE CONSTRUCTION ITEMS AND PREPARATIONS TO BE COMPLETED. AFTER THE CONTRACTOR HAS COMPLETED ALL INCOMPLETE ITEMS AND PREPARATIONS, THE CONTRACTOR SHALL REQUEST THE TRAFFIC INSPECTOR REVIEW AND APPROVE ITEMS PREVIOUSLY IDENTIFIED. IF, IN THE OPINION OF THE TRAFFIC INSPECTOR, ALL ITEMS HAVE BEEN ADDRESSED SATISFACTORILY, THE DATE OF THE PRE-"TURN ON" WALK-THROUGH INSPECTION SHALL BE ESTABLISHED. TIME EXTENSIONS TO THE CONTRACT TIME WILL NOT BE GRANTED FOR DELAYS CAUSED BY INCOMPLETE CONSTRUCTION OR INADEQUATE CONTRACTOR PREPARATIONS REQUIRED TO COMPLETE TRAFFIC SIGNAL SYSTEM WITHIN THE TIMEFRAME SET FORTH IN THE CONTRACT.
3. PRIOR TO ACTIVATING A NEW TRAFFIC SIGNAL, THE CONTRACTOR SHALL REQUEST A PRE-TURN ON WALK-THROUGH INSPECTION MEETING, IN ACCORDANCE WITH ITEM 2. THE PURPOSE OF THE MEETING WILL BE TO ESTABLISH THAT THE TRAFFIC SIGNAL SYSTEM HAS BEEN CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT, AND IN A MANNER THAT DOES NOT ADVERSELY IMPACT PUBLIC SAFETY. THIS MEETING SHALL BE ATTENDED BY THE TRAFFIC INSPECTOR, THE ENGINEER OF RECORD, AND THE CONTRACTOR. AS A MINIMUM, ANY DEFICIENCIES THAT ADVERSELY IMPACT PUBLIC SAFETY WILL BE IDENTIFIED FOR CORRECTION PRIOR TO ESTABLISHING THE "TURN ON" DATE FOR THE TRAFFIC SIGNAL SYSTEM. ITEMS THAT HAVE AN IMPACT ON PUBLIC SAFETY INCLUDE, BUT ARE NOT LIMITED TO: PAVEMENT MARKINGS AND SIGNAGE, PROPER AND ACCEPTABLE BONDING OF EARTH GROUNDS, PROPERLY ALIGNED TRAFFIC SIGNALS, FULLY OPERATIONAL VEHICULAR AND PEDESTRIAN DETECTION, COMPLETED CABINET-TO-FIELD WIRING, AND PROPERLY TERMINATED ELECTRICAL SERVICE CONDUCTORS. FAILURE TO ADDRESS THE PUNCHLIST ITEMS IDENTIFIED AS BEING CRITICAL TO PUBLIC SAFETY PRIOR TO THE PRE-TURN ON WALK-THROUGH MEETING WILL RESULT IN THE "TURN ON" BEING POSTPONED TO ALLOW ADEQUATE TIME FOR THE INCOMPLETE ITEMS TO BE COMPLETED. AT SUCH TIME AS MEETING ATTENDEES AGREE THAT THE TRAFFIC SIGNAL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT, AND THAT THE TRAFFIC SIGNAL, AS IT EXISTS, IS NOT A THREAT TO PUBLIC SAFETY, A "TURN ON" DATE WILL BE ESTABLISHED.
4. THE CONTRACTOR SHALL HAVE 10 DAYS FROM THE DATE THE TRAFFIC SIGNAL SYSTEM IS TURNED ON TO COMPLETE ANY PUNCHLIST ITEMS IDENTIFIED AT THE PRE-"TURN ON" WALK-THROUGH MEETING OR AT THE TIME THE SIGNAL SYSTEM IS ACTIVATED THAT ARE NOT OTHERWISE ADDRESSED PRIOR TO ACTIVATION OF THE TRAFFIC SIGNAL SYSTEM.
5. THE CONTRACTOR'S ATTENTION IS DIRECTED TO STANDARD SPECIFICATION ITEM 1000, TRAFFIC SIGNAL INSTALLATION AND MODIFICATION, WHICH INCLUDES PROCEDURES AND REQUIREMENTS REGARDING ACTIVATION OF TRAFFIC SIGNAL CONTROL SYSTEMS. THE PROJECT MANUAL MAY INCLUDE SPECIAL SPECIFICATIONS AND/OR SPECIAL PROVISIONS RELATED TO PROPOSED TRAFFIC CONTROL SIGNAL SYSTEM INSTALLATION(S) AND MODIFICATION(S) REQUIRING THE CONTRACTOR'S ADHERENCE TO DEFINED CHECKLISTS, PROCEDURES AND/OR REPORTS AT NO ADDITIONAL COST TO THE COUNTY BEYOND THE ESTABLISHED BID ITEMS OF THE CONTRACT.
6. ALL SIGNAL ALTERATIONS MUST BE APPROVED AND COORDINATED THROUGH FBC ENGINEERING AND ROAD & BRIDGE.

TRAFFIC CONTROL

1. THE CONTRACTOR SHALL PROVIDE AND INSTALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH PART VI OF THE MOST RECENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND THE APPROVED TRAFFIC CONTROL PLAN.
2. THE CONTRACTOR SHALL MAINTAIN AT LEAST ONE LANE OF TRAFFIC IN EACH DIRECTION DURING WORKING HOURS EXCEPT DURING FLAGGING OPERATION
3. LANE CLOSURES SHALL BE DURING OFF-PEAK HOURS ONLY (MONDAY THROUGH FRIDAY 9 A.M. TO 4 P.M.) UNIFORMED PEACE OFFICERS OR FLAGGERS IN RADIO CONTACT ARE REQUIRED TO DIRECT TRAFFIC DURING LANE CLOSURES.
4. DETOURS REQUIRE PRIOR APPROVAL OF THE FIELD ENGINEER AND PRECINCT. DETOUR PLANS, IF ALLOWED, MUST INCLUDE APPROPRIATE DETOUR SIGNAGE, PUBLIC NOTICE VIA SIGNAGE TWO WEEKS IN ADVANCE STATING THE DATES OF THE AGREED UPON DATE OF CLOSURE AND DATE THE ROAD WILL RE-OPEN TO TRAFFIC. CONTRACTOR TO USE (WITH PRIOR APPROVAL OF THE FIELD ENGINEER) HIGH EARLY STRENGTH CONCRETE AND OTHER RELATED CONSTRUCTION METHODS TO MINIMIZE THE DURATION OF THE DETOUR AND TO ENSURE THAT THE ROADWAY IS OPEN ON, OR PRIOR TO, THE AGREED UPON DATE.
5. ONE DAY PRIOR TO THE IMPLEMENTATION OF A TRAFFIC CONTROL PLAN PHASE OR STEP, OR THE IMPLEMENTATION OF AN ADDITIONAL, REVISED, OR NEW TRAFFIC CONTROL ELEMENT, THE CONTRACTOR SHALL MEET WITH THE ENGINEER TO GIVE A DETAILED DESCRIPTION OF THE CONTRACTOR'S PLAN AND PREPARATIONS. THE CONTRACTOR SHALL OBTAIN WRITTEN CONCURRENCE FROM THE ENGINEER THAT ADEQUATE PROJECT PROGRESS HAS BEEN ACHIEVED AND THAT ADEQUATE PREPARATIONS ARE IN PLACE PRIOR TO SWITCHING TRAFFIC. IF, IN THE OPINION OF THE ENGINEER, REQUIRED PROGRESS AND ADEQUATE PREPARATIONS ARE NOT COMPLETE, THE CONTRACTOR SHALL NOT IMPLEMENT THE NEXT PHASE, STEP, OR ELEMENT OF TRAFFIC CONTROL UNTIL INCOMPLETE CONSTRUCTION ITEMS OR PREPARATIONS ARE COMPLETED. TIME EXTENSIONS WILL NOT BE GRANTED FOR DELAYS CAUSED BY THE INCOMPLETE CONSTRUCTION ITEMS OR INADEQUATE CONTRACTOR PREPARATIONS REQUIRED TO IMPLEMENT TRAFFIC CONTROL.
6. TRAFFIC CONTROL PER THE CONTRACT IS REQUIRED FOR THE ENTIRE DURATION OF THE PROJECT, INCLUDING THE PUNCHLIST PERIOD. PAYMENT FOR TRAFFIC CONTROL THAT IS PROPERLY INSTALLED FOR LESS THAN A FULL MONTH SHALL BE BASED ON A PERCENTAGE BASIS OF THE TIME INSTALLED. TRAFFIC CONTROL PAYMENTS TO THE CONTRACTOR SHALL END 10 DAYS AFTER SUBSTANTIAL COMPLETION, ALTHOUGH PROPER TRAFFIC CONTROL MUST BE MAINTAINED UNTIL PUNCHLIST COMPLETION.
7. THE PURPOSE OF THE CONSTRUCTION SEQUENCE AND TRAFFIC HANDLING OUTLINED HEREIN IS TO DOCUMENT A VIABLE TCP THAT CAN BE UTILIZED TO CONSTRUCT THE PROJECT. IT IS THE BASIS OF ESTIMATION FOR THE TRAFFIC CONTROL BID ITEMS, AND IS TO BE UTILIZED AND IMPLEMENTED, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. IF THE CONTRACTOR CHOOSES TO USE A DIFFERENT TCP, HE/SHE SHALL PREPARE AND SUBMIT THE ALTERNATIVE TCP TO THE COUNTY FOR APPROVAL NO LESS THAN 10 WORKING DAYS PRIOR TO THE PROPOSED IMPLEMENTATION DATE. THE TCP SHALL BE DRAWN TO SCALE AND SIGNED & SEALED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF TEXAS. UPON APPROVAL BY FORT BEND COUNTY, THE ALTERNATIVE PLAN SHALL BECOME THE BASIS FOR A "CHANGE IN CONTRACT" TO REVISE THE TRAFFIC CONTROL BID ITEMS ACCORDINGLY AND BECOME PART OF THE CONTRACT DOCUMENTS.
8. ALL TEMPORARY PAVEMENT MARKINGS ON PERMANENT PAVEMENT SHOULD BE RPMS OR TABS.
9. TRAFFIC PATTERN CHANGES REQUIRE CHANGEABLE MESSAGE BOARDS PLACED AT LEAST 2 WEEKS IN ADVANCE OF PROPOSED CHANGE. QUANTITY, PLACEMENT AND WORDING TBD BY FBC.

NO.	REVISIONS	DATE	NAME
△	ORIGINAL STANDARD ISSUED	2-1-22	RJS
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FORT BEND COUNTY
ENGINEERING DEPARTMENT



PROJECT TITLE:		
DRAWN BY: INIT		FBCD STANDARD
CK'D BY: INIT	SHEET DESCRIPTION: PUBLIC WORKS AND SUBDIVISION	03
SCALE: NONE	GENERAL NOTES	SHEET NO:
DATE: 2-1-22	APPROVED BY:	/

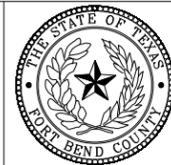
TRAFFIC SIGNAL

1. INSTALL SIGNS AND SIGNALS HORIZONTALLY ON MAST ARM 17 FT-6 IN MINIMUM ABOVE THE ROADWAY.
2. FURNISH BLACK HOUSING FOR VEHICLE SIGNALS WITH 12-IN LENS AND BLACK BACKPLATES.
3. TRAFFIC SIGNAL STRAIN POLES AND MAST ARMS SHALL BE STANDARD GALVANIZED. (SIGNAL POLES AND MAST ARMS SHALL BE POWDER-COATED IN BLACK POLES UNLESS OTHER ENTITY IS PAYING FOR UPGRADES.)
4. FURNISH VEHICLE AND COUNTDOWN PEDESTRIAN SIGNALS WITH LIGHT EMITTING DIODE (LED) SIGNAL LAMP UNITS.
5. SYMBOLIC PEDESTRIAN SIGNAL HEAD SHALL BE LED AUDIBLE PEDESTRIAN AND 12-IN COUNTDOWN.
6. USE DIAMOND GRADE RETROREFLECTIVE SHEETING FOR SIGNS MOUNTED UNDER OR ADJACENT TO THE SIGNAL HEADS.
7. FURNISH SYMBOL TYPE PEDESTRIAN COUNTDOWN SIGNALS. INSTALL USING MOUNTING HEIGHT IN ACCORDANCE WITH THE LATEST "TEXAS MANUAL ON UNIFORM CONTROL DEVICES."
8. FURNISH MATERIALS NECESSARY TO INSTALL ACCESSIBLE PEDESTRIAN UNITS (SEE FBC APPROVED TRAFFIC SIGNAL EQUIPMENT LIST) AS SHOWN IN THE PLANS. INSTALL PUSH BUTTON AT 3 FT-6 IN. TO 4 FT.-0 IN ABOVE THE SIDEWALK OR CONCRETE WALKWAY.
9. ROUTE CABLE FOR LUMINAIRES (4/C NO. 12 TRAY CABLE) TO THE SERVICE ENCLOSURE. SEE ELECTRICAL DETAILS SHEET.
10. INSTALL FULL-ACTUATED, ETHERNET-CAPABLE CONTROLLER WITH INTERNAL TIME BASED COORDINATION UNIT AND COMMUNICATION IN A BASE MOUNTED CABINET. SEE FBC APPROVED TRAFFIC SIGNAL EQUIPMENT LIST.
11. LOCATE CONTROLLERS, STEEL POLES, DETECTION ZONES AS APPROVED BY FORT BEND COUNTY IN THE FIELD.
12. REPAIR OR REPLACE PAVEMENT AND SIDEWALKS DAMAGED BY THE CONTRACTOR'S FORCES DURING CONSTRUCTION AT NO COST TO THE COUNTY.
13. FURNISH AND INSTALL DUCT SEAL TO ENCLOSE THE ENDS OF EACH CONDUIT CONTAINING SIGNAL CABLE.
14. THE CONTRACTOR SHALL INSTALL A CLOSED NIPPLE WITH LOCK NUT AND BUSHING (SIZE AS REQUIRED) TO PREVENT ABRASION TO SIGNAL CABLE WHERE THE CABLE ENTERS THE UPPER PORTION OF THE SIGNAL POLE.
15. DO NOT PLACE SIGNAL HEADS OVER THE ROADWAY UNTIL ALL NECESSARY MATERIALS ARE ON HAND AS APPROVED.
16. INSTALL TWO SET SCREWS ON ALL VEHICLE SIGNAL HEAD MOUNTING HARDWARE FITTINGS.
17. WRAP SIGNAL HEADS WITH DARK PLASTIC OR SUITABLE MATERIAL TO CONCEAL THE SIGNAL FACES FROM THE ITEM OF INSTALLATION UNTIL PLACING INTO OPERATION. DO NOT USE BURLAP.
18. INSTALL A 5/8-IN (MINIMUM) EYE BOLT FOR THE POINT OF ATTACHMENT BELOW THE SERVICE ENTRANCE WEATHERHEAD FOR THE SERVICE DROP (120/240 VOLT SERVICE) TO STEEL POLE.
19. LUMINAIRES MOUNTED ON TRAFFIC SIGNAL POLES SHALL BE IN COMPLIANCE WITH TXDOT STANDARDS.
20. PROVIDE LIGHT-EMITTING DIODE (LED) LUMINAIRES EQUIVALENT TO "250 WATT HIGH PRESSURE SODIUM" LUMINAIRES, OPERATING AT 240 VOLTS.
21. GROUND STEEL MAST ARM POLE ASSEMBLIES IN ACCORDANCE WITH REQUIREMENTS SHOWN ON THE LATEST TXDOT TRAFFIC SIGNAL POLE FOUNDATION STANDARD. USE THE GROUNDING LUG ON THE POLE TO GROUND THE POLE TO THE GROUND CONDUCTORS FROM THE CONDUITS.
22. VERIFY THE CORRECT MAST ARM POLE LENGTHS FOR THE ULTIMATE CONFIGURATION OF THIS SIGNALIZED INTERSECTION PRIOR TO ORDERING THE EQUIPMENT.
23. ELECTRICAL POWER TO OPERATE THE TRAFFIC SIGNAL INSTALLATION WILL BE PLACED IN THE COUNTY'S NAME. THIS INCLUDES ALL POWER TO OPERATE THE SIGNAL DURING THE VARIOUS PHASES OF CONSTRUCTION AND DURING THE TEST PERIOD PRIOR TO ACCEPTANCE OF THE WORK BY FORT BEND COUNTY.
24. INSTALL PEDESTRIAN SIGNAL POLES WITH SCREW-IN ANCHOR FOUNDATION.
25. THE ENGINEER WILL PROVIDE PHASING AND TIMINGS FOR TEMPORARY AND PERMANENT TRAFFIC SIGNALS.
26. EXISTING STOP SIGNS AND SCHOOL CROSSING ASSEMBLIES AT THE INTERSECTION SHALL BE REMOVED AND RETURNED TO FORT BEND COUNTY.
27. ALL EXISTING EQUIPMENT THAT WILL NOT BE INSTALLED ON THE SIGNAL POLES AND/OR MAST ARMS SHALL BE RETURNED TO FORT BEND COUNTY.
28. ALL TRAFFIC SIGNAL POLE FOUNDATION LOCATIONS SHALL BE APPROVED BY THE ENGINEER OR REPRESENTATIVE IN THE FIELD PRIOR TO DRILLING.
29. FURNISH VIDEO IMAGING VEHICLE DETECTION SYSTEM (VIVDS) CABLE RECOMMENDED BY MANUFACTURER OR PURCHASE CABLE FROM THE SAME MANUFACTURER THAT SUPPLIED/PROVIDED THE VIVDS EQUIPMENT.
30. THE LOCATION OF THE VIVDS DETECTION ZONE IS APPROXIMATE. THE EXACT LOCATION WILL BE DETERMINED BY THE ENGINEER AND/OR FORT BEND COUNTY ROAD AND BRIDGE SIGNAL TECHNICIANS.
31. THE VENDORS' REPRESENTATIVES OF THE VIVDS EQUIPMENT SUPPLIED FOR THIS PROJECT MUST SUPERVISE THE INSTALLATION, SETUP AND TESTING. THE REPRESENTATIVE MUST BE ON SITE DURING THIS TIME. ANY EQUIPMENT REQUIRED FOR SETUP AND OPERATION OF THE VIVDS DEVICES MUST BE PROVIDED TO THE COUNTY UPON COMPLETION.

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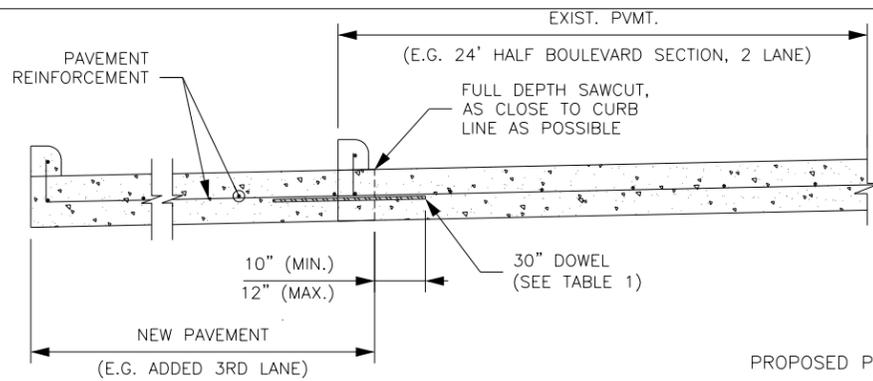
NO.	REVISIONS	DATE	NAME
▲	ORIGINAL STANDARD ISSUED	2-1-22	RJS
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FORT BEND COUNTY
ENGINEERING DEPARTMENT



PROJECT TITLE:		
DRAWN BY: INIT		FBCED STANDARD
CK'D BY: INIT	SHEET DESCRIPTION: TRAFFIC SIGNAL NOTES	04
SCALE: NONE		SHEET NO:
DATE: 2-1-22	APPROVED BY:	/

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TYPICAL CONCRETE ROADWAY WIDENING DETAIL
SCALE: 1" = 1'-6"

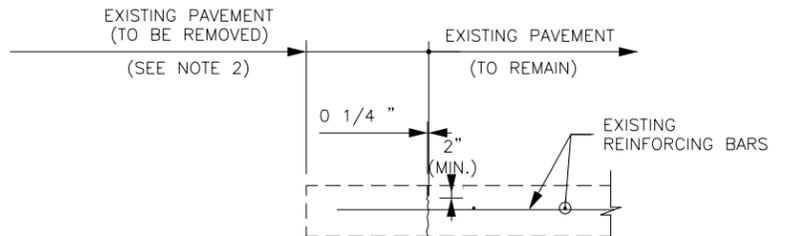
**TABLE 1
(CONSTRUCTION JOINT DOWELS)**

DOWEL SIZE	PAVEMENT DEPTH
#4 BAR	< 6"
#5 BAR	6" ≤ D < 9"
#6 BAR	≥ 9"

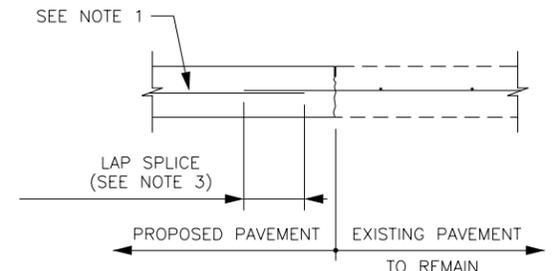
DOWEL SHALL BE DRILLED INTO EXISTING PAVEMENT (MIN. 10", MAX. 12") AND EPOXIED. (SEE ITEM 361.3)

EXPANSION JOINT DOWELS 12" O.C.

PAVEMENT THICKNESS (D)	DOWEL DIA.
6"	3/4"
7"	1"
8"	1"
9" & 10"	1 1/4"



STEP 1 DEMOLITION OF EXISTING PAVEMENT

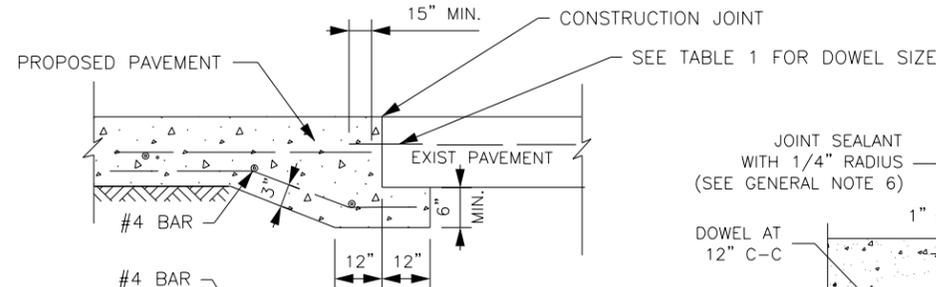


STEP 2 CONSTRUCTION OF NEW PAVEMENT

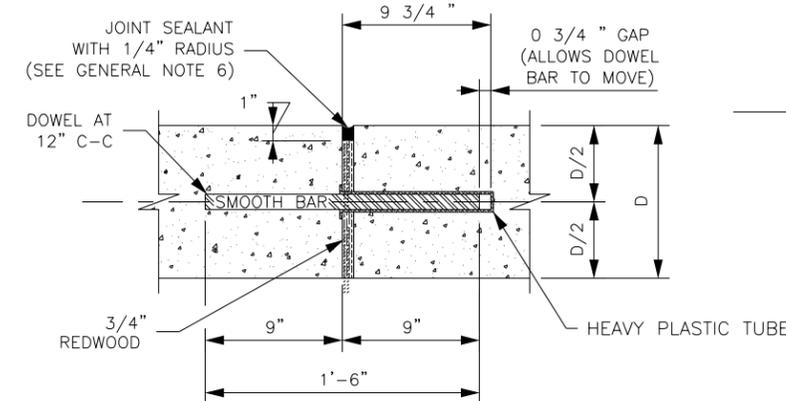
CONCRETE TO CONCRETE STANDARD PAVEMENT TIE-IN
SCALE: 1" = 1'-6"

NOTES FOR STANDARD PAVEMENT TIE-IN:

1. REINFORCING CENTERED IN PROPOSED PAVEMENT, 3" CLEAR AT EDGES.
2. ONLY FULL DEPTH SAWCUTS WILL BE ALLOWED
3. USE FULL DEPTH SAWCUT WITH DRILLED IN DOWELS (AS SHOWN IN THE "TYPICAL CONCRETE ROADWAY WIDENING DETAIL" ON THIS SHEET. THE SAWCUTTING AND DOWELS WILL BE AT CONTRACTOR'S EXPENSE.
4. ALL PAVEMENT CONCRETE SHALL BE 5 1/2 SACK PER CY, 3500, PSI AT 28 DAYS
5. SIZE OF DOWEL BARS SHALL CONFORM TO TABLE 1. DOWELS SHALL BE PLACED 24" CENTER TO CENTER OR MATCH EXISTING, IF CLOSER



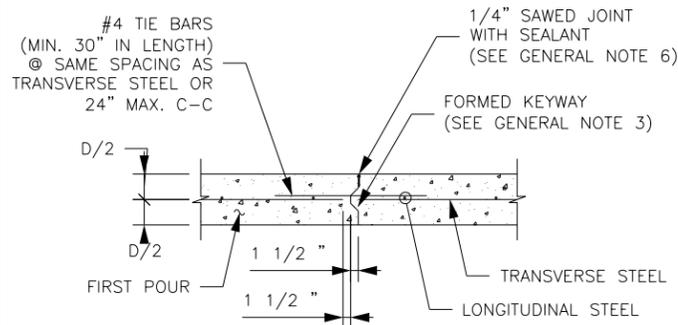
A: UNDERCUT BAR LAYOUT



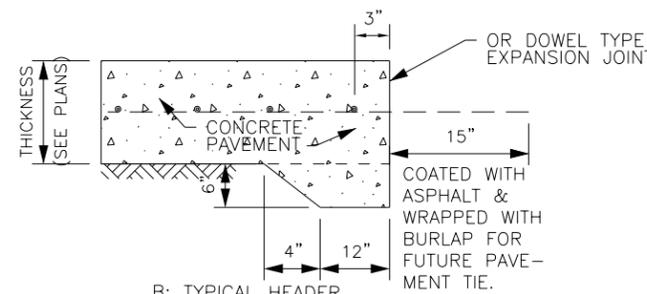
DOWEL TYPE EXPANSION JOINT
SCALE: 1" = 6"

NOTES FOR DOWEL EXPANSION JOINT:

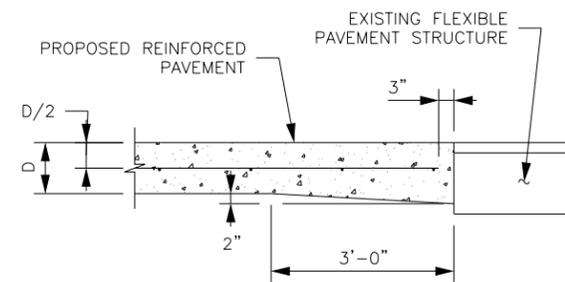
1. EXPANSION JOINT SHALL BE PLACED AT THE END OF EACH CURB RADIUS AND SPACED AT A MAXIMUM DISTANCE OF 60 FEET.
2. CENTER DOWEL HORIZONTALLY ON JOINT.
3. EXPANSION JOINT BARS SHALL BE HELD PARALLEL TO THE FINISHED CONCRETE SURFACE.



LONGITUDINAL CONSTRUCTION JOINT
SCALE: 1" = 1'-6"



PAVEMENT HEADER/ UNDERCUT
N.T.S.



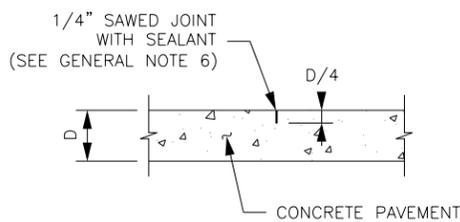
TYPICAL PAVING HEADER
SCALE: 1" = 1'-6"

NOTES FOR PAVING HEADER:

1. ADDITIONAL CONCRETE FOR PAVING HEADER SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAVING BID ITEMS.
2. DISTURBED MATERIAL IN THE FLEXIBLE PAVEMENT WILL BE BACKFILLED WITH ASPHALT CONCRETE PAVEMENT (ACP). THE ACP WILL BE CONSIDERED INCIDENTAL TO VARIOUS PAVING BID ITEMS.

GENERAL NOTES:

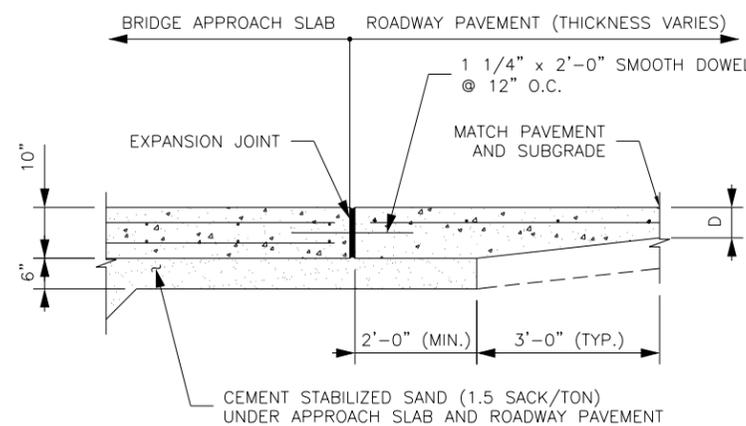
1. FOR FURTHER INFORMATION REGARDING THE PLACEMENT OF CONCRETE AND REINFORCING, REFER TO ITEM 360 HARRIS COUNTY SPECIFICATIONS
2. THE CHAIRS USED TO SUPPORT THE BAR MATS SHALL BE OF SUFFICIENT STRUCTURAL QUALITY AND NUMBER TO HOLD THE MAT WITHIN THE PLACEMENT HEIGHT, AND SHALL BE OF A TYPE APPROVED BY THE ENGINEER. SPACING OF BAR SUPPORT CHAIRS SHALL BE 3'-0" MAXIMUM.
3. SAWED CONTRACTION JOINTS SHALL BE USED FOR LONGITUDINAL JOINTS WHEREVER MORE THAN ONE LANE WIDTH IS PLACED IN A SINGLE POUR. KEYED CONSTRUCTION JOINTS SHALL BE USED AT ALL OTHER JOINTS.
4. ALL SAW CUTTING SHOWN ON THIS DETAIL SHALL BE INCIDENTAL TO ITEM 360 "CONCRETE PAVEMENT".
5. D = THICKNESS OF CONCRETE PAVEMENT.
 - FOR DEVELOPMENT PROJECTS SEE REGULATIONS OF FORT BEND COUNTY, TEXAS FOR THE APPROVAL AND ACCEPTANCE OF INFRASTRUCTURE.
6. ALL CONSTRUCTION JOINTS SHALL BE SEALED. JOINT SEALANT SHALL CONFORM TO THE REQUIREMENTS OF ITEM 360
7. NO TRAFFIC ON CONCRETE PAVEMENT UNTIL 7 DAYS CURE TIME AND 3,500 PSI HAS BEEN REACHED.



CONTRACTION JOINT (SAWED)
SCALE: 1" = 1'-6"

NOTE FOR CONTRACTION JOINT:

1. 20'-0" MAXIMUM SPACING BETWEEN JOINTS.



TYPICAL SECTION PAVING TIE-IN TO BRIDGE APPROACH SLAB
SCALE: 1" = 1'-6"

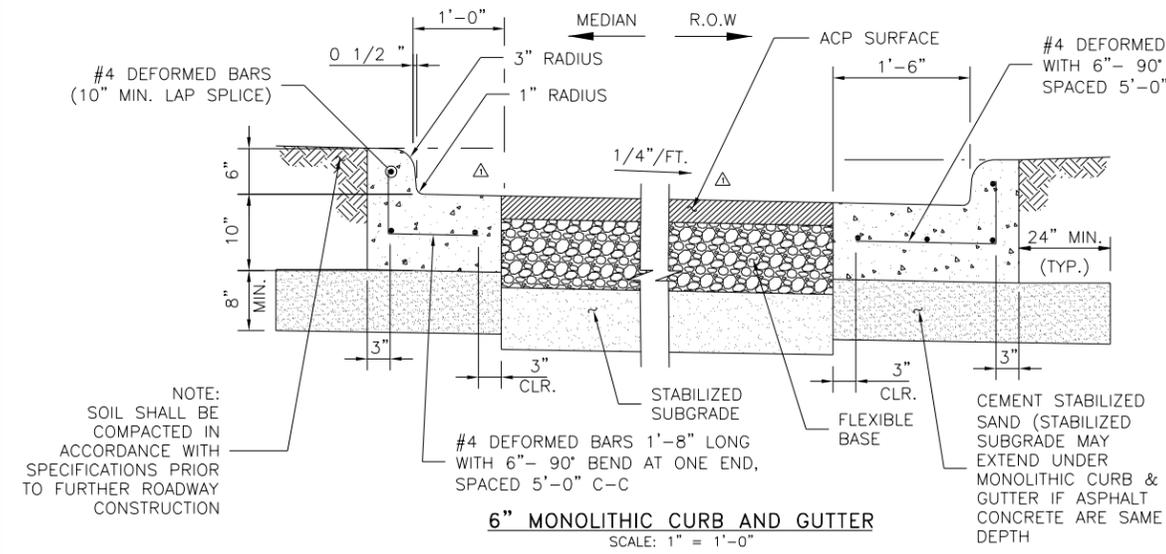
NO.	REVISIONS	DATE	NAME
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FORT BEND COUNTY
ENGINEERING DEPARTMENT

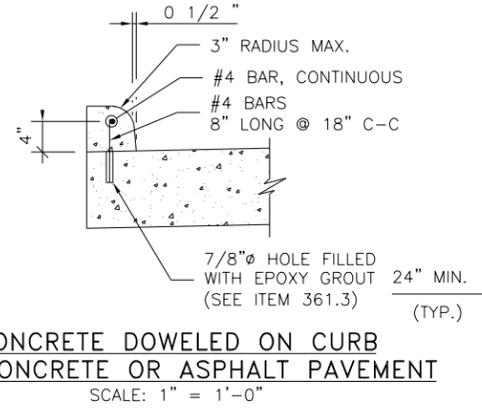
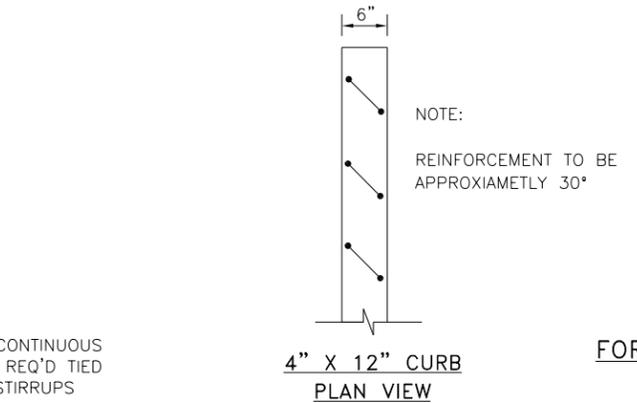
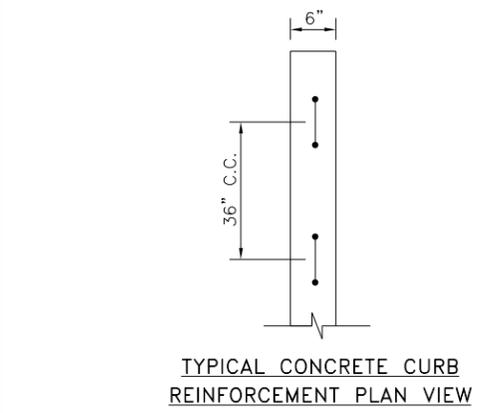
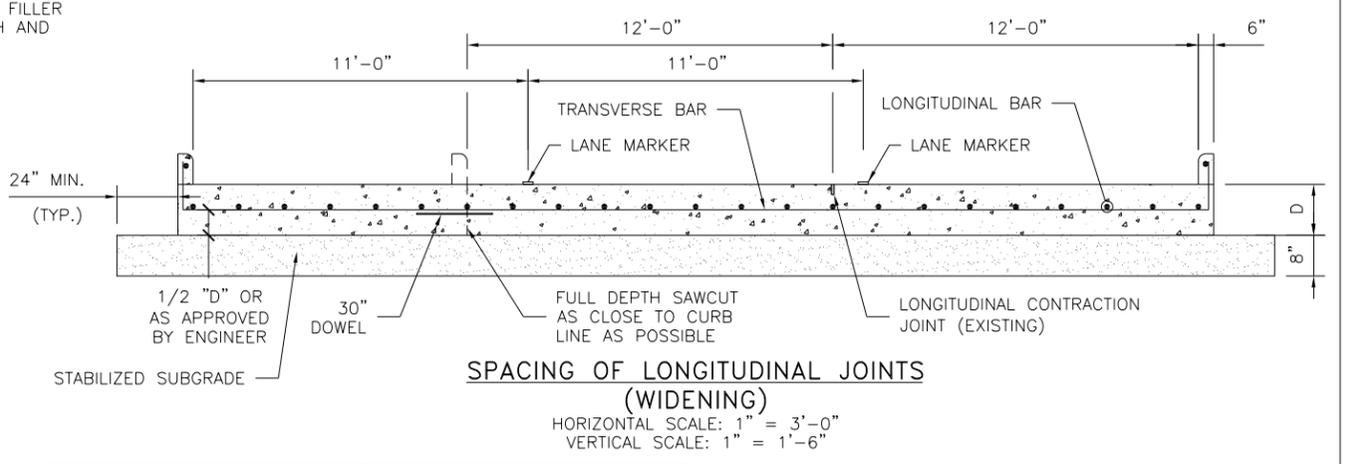
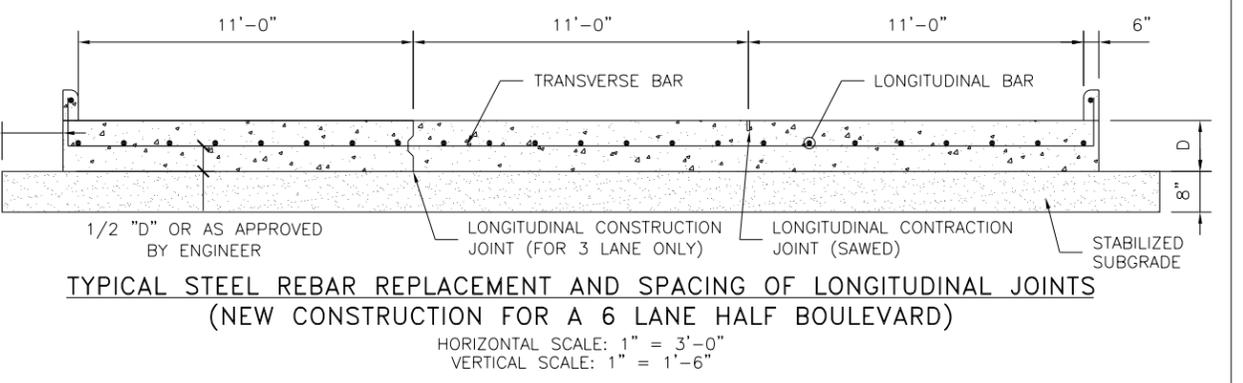
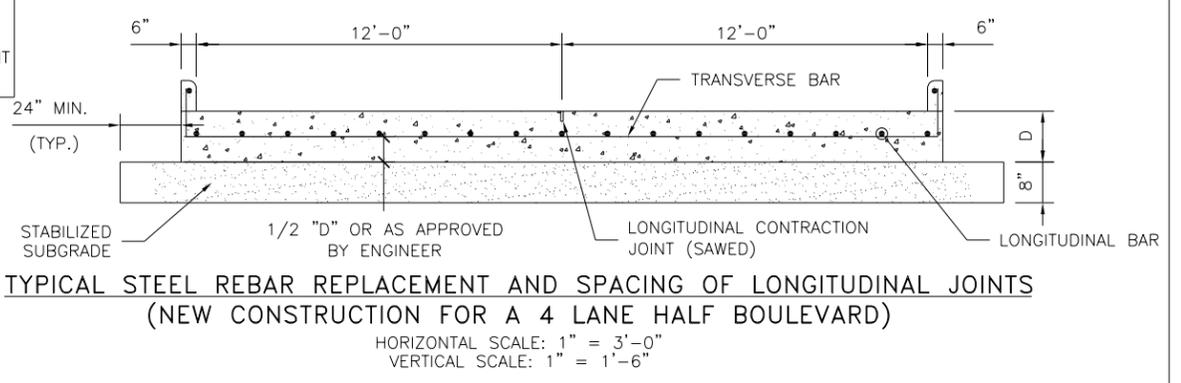
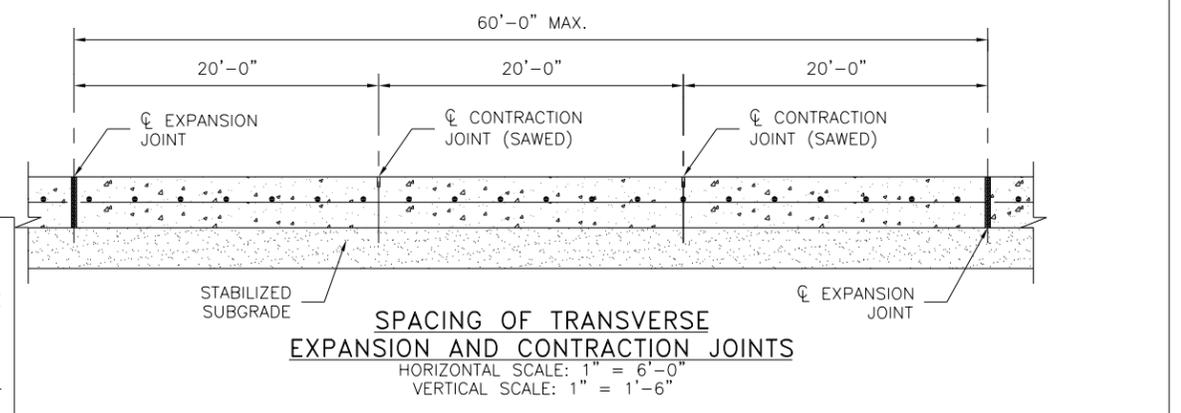


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DRAWN BY: INIT	SHEET DESCRIPTION: CONCRETE PAVEMENT DETAILS	FBCD STANDARD 05
CK'D BY: INIT		
SCALE: AS NOTED	SHEET 1 OF 3	SHEET NO: /
DATE: 2-1-22	APPROVED BY:	

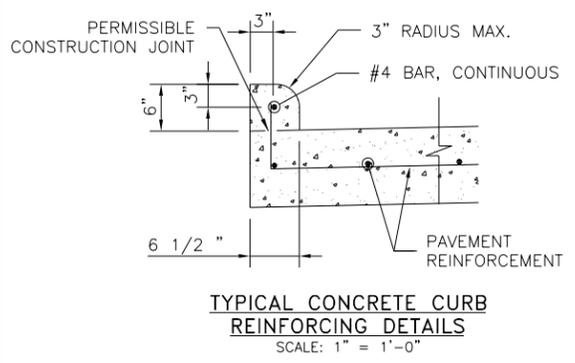
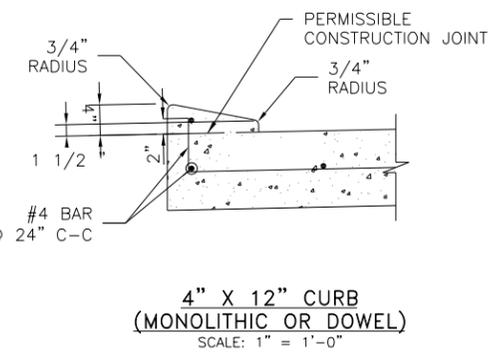
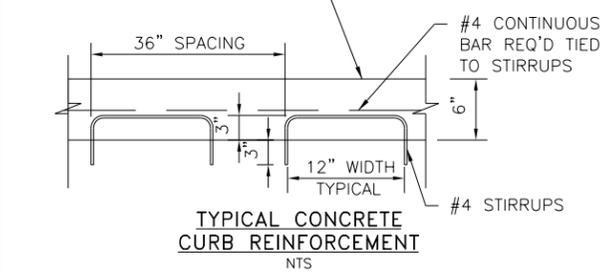
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- SLAB AND REBAR NOTES:**
1. TYPICAL SLAB THICKNESS D=8"
 2. TYPICAL REBAR SIZE AND SPACING ARE:
a. #4 BAR @ 18" C-C LONGITUDINAL
b. #4 BAR @ 18" C-C TRANSVERSE
 3. REBAR SIZE FOR PAVEMENT LESS THAN 8" THICK
a. #4 BAR @ 24" C-C LONGITUDINAL
b. #4 BAR @ 24" C-C TRANSVERSE
 4. REBAR SHALL NOT BE PLACED WITHIN 3" FROM THE EDGE OF PAVEMENT.
 5. TYPICAL STABILIZED SUBGRADE THICKNESS IS 8 INCHES.
 6. FOR HEAVY INDUSTRIAL TRAFFIC, SLAB THICKNESS AND REBAR SIZE AND SPACING WILL BE AS PER GEOTECHNICAL RECOMMENDATION.
 7. ALL BENT BARS SHALL BE GRADE 40 STEEL, ALL OTHER SHALL BE GRADE 60.
 8. MINIMUM LAP SPLICE 16".
 9. LAP SPLICES SHOULD BE ON ALTERNATING BARS, ADJACENT LAP SPLICES ARE NOT ACCEPTABLE.



- NOTES FOR CURB:**
1. AT EACH PAVEMENT CONTRACTION JOINT, PROVIDE A 1/4" THICK PRE-MOLDED EXPANSION JOINT AT THE FULL WIDTH AND HEIGHT OF THE CURB.
 2. FOR EACH PAVEMENT EXPANSION JOINT, THE PRE-MOLDED EXPANSION JOINT FILLER MATERIAL SHALL BE THE FULL WIDTH AND HEIGHT OF THE CURB.



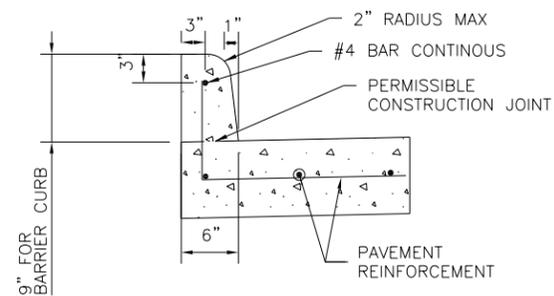
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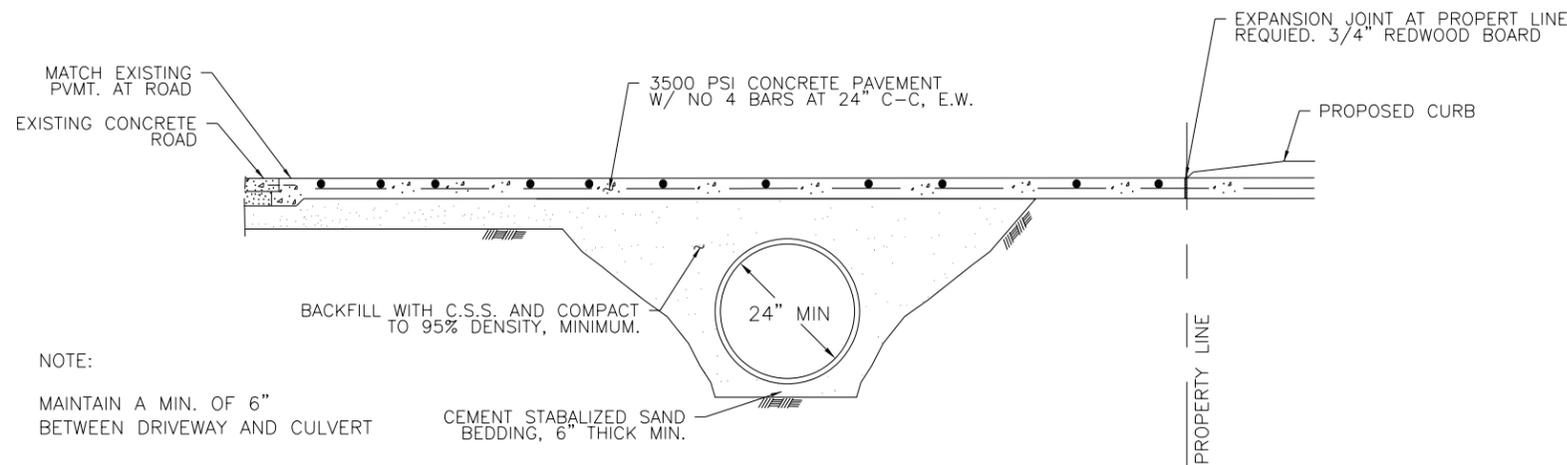


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DRAWN BY:	INIT	06
CK'D BY:	INIT	
SCALE:	AS NOTED	
DATE:	2-1-22	
SHEET DESCRIPTION: CONCRETE PAVEMENT DETAILS		SHEET NO:
SHEET 2 OF 3		/
APPROVED BY:		

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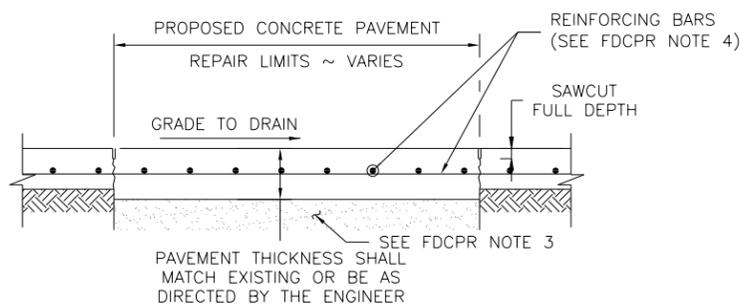
9" BARRIER CURB



NOTE:

MAINTAIN A MIN. OF 6" BETWEEN DRIVEWAY AND CULVERT

CONCRETE APRON DETAIL - DRIVEWAY PROFILE FOR CULVERT DRAINAGE



FULL DEPTH CONCRETE PAVEMENT REPAIR

HORIZONTAL SCALE: 1" = 3'-0"
VERTICAL SCALE: 1" = 1'-6"

FULL DEPTH CONCRETE PAVEMENT REPAIR (FDCPR) NOTES:

1. ONLY FULL DEPTH SAWCUTS WILL BE ALLOWED
2. EXISTING CONCRETE VERTICAL FACES SHALL BE CLEANED OF ALL DELETERIOUS LOOSE MATERIAL PRIOR TO CONCRETE PLACEMENT.
3. FOR REPAIR/REPLACE AREAS, A 8" DEPTH BASE SHALL BE REMOVED AND REPLACED WITH CEMENT STABILIZED SAND PER ITEM 433 HARRIS COUNTY SPECIFICATIONS.
4. REINFORCEMENT OF 9"-10" THICK CONCRETE PAVEMENT SHALL BE NO. 5 BARS AT 18" SPACING IN EACH DIRECTION. REFER TO TABLE ON CONCRETE PAVEMENT SHEET 2 OF 2
5. REFER TO FBC STREET ACCEPTANCE GUIDELINES

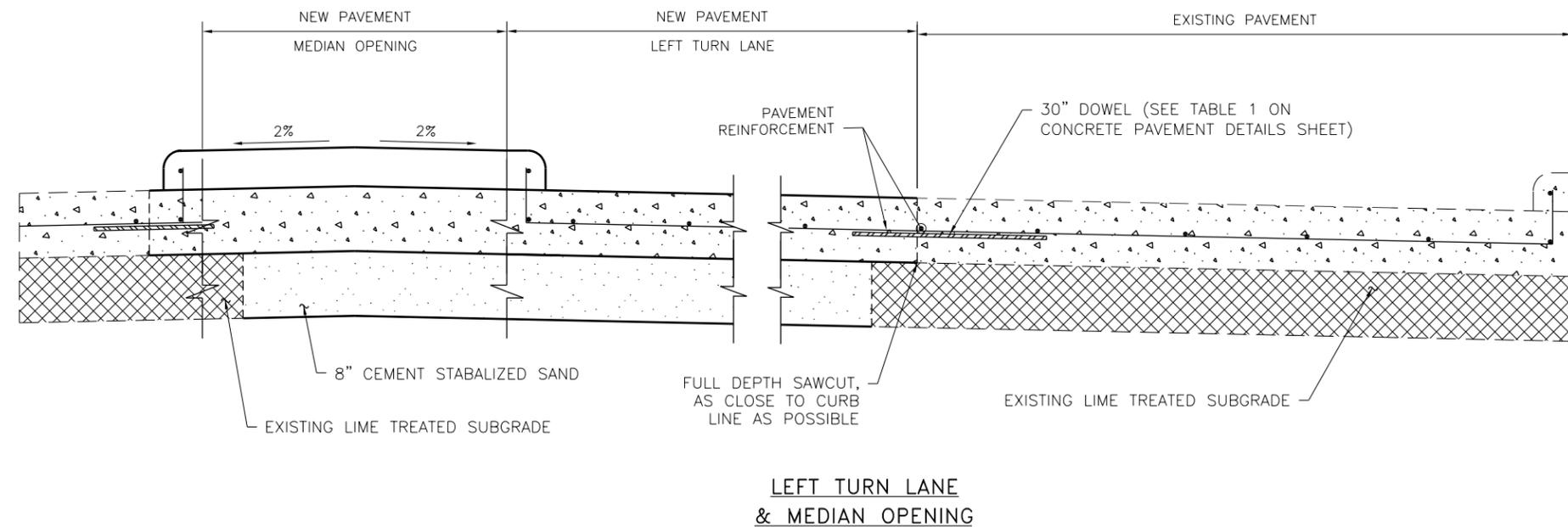
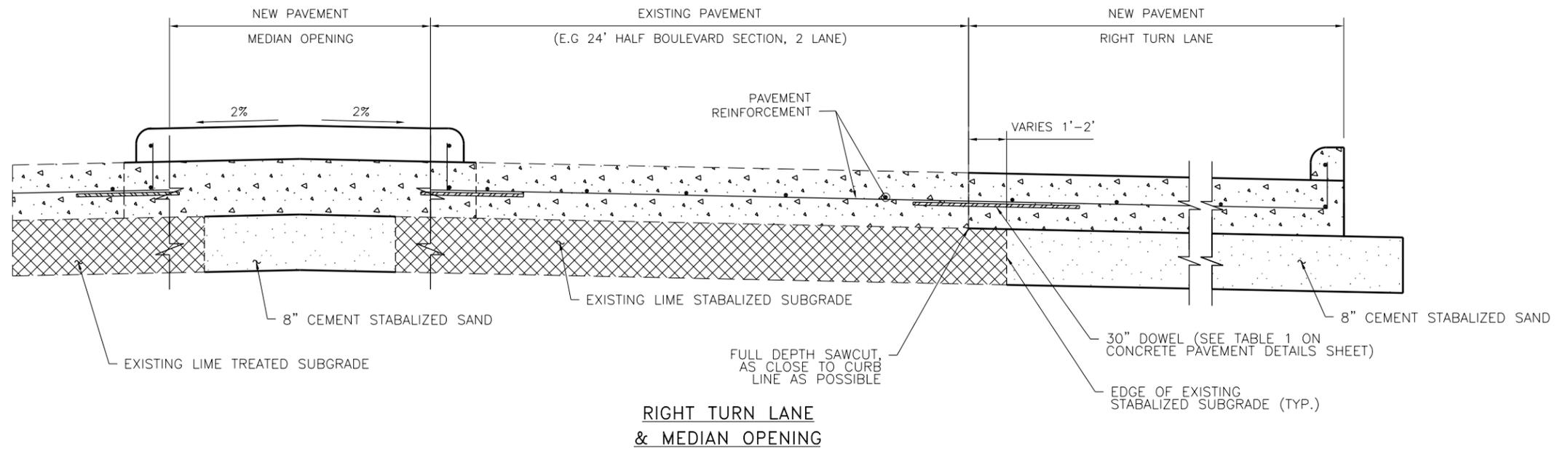
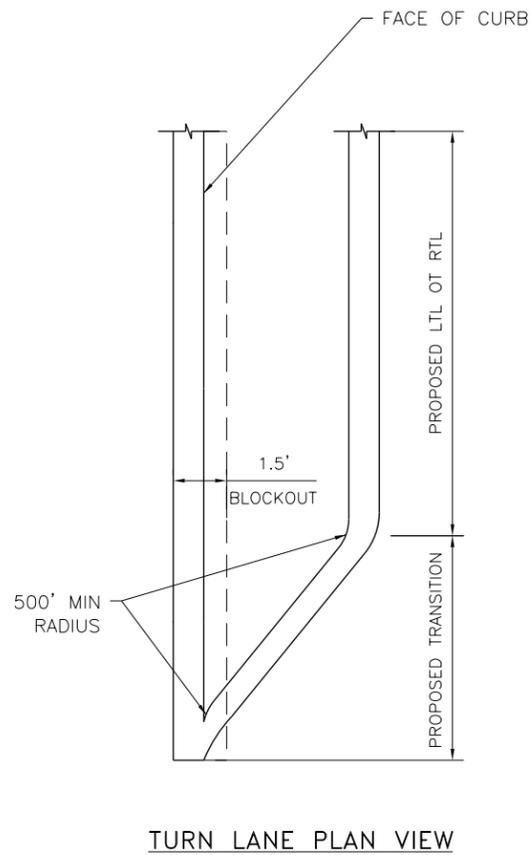
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PROJECT TITLE:		FBCED STANDARD
DRAWN BY: INIT	SHEET DESCRIPTION: CONCRETE PAVEMENT DETAILS	07
CK'D BY: INIT		
SCALE: AS NOTED	SHEET 3 OF 3	SHEET NO: /
DATE: 2-1-22	APPROVED BY:	

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NOTES

- FOR CONCRETE PAVEMENT REINFORCEMENT AND JOINT DETAILS, SEE CONCRETE PAVEMENT DETAILS SHEET

NO.	REVISIONS	DATE	NAME
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PROJECT TITLE:		FBCD STANDARD
DRAWN BY: INIT	SHEET DESCRIPTION: TURN LANE & MEDIAN OPENING DETAIL	08
CK'D BY: INIT		SHEET NO:
SCALE: AS NOTED	APPROVED BY:	/
DATE: 2-1-22		

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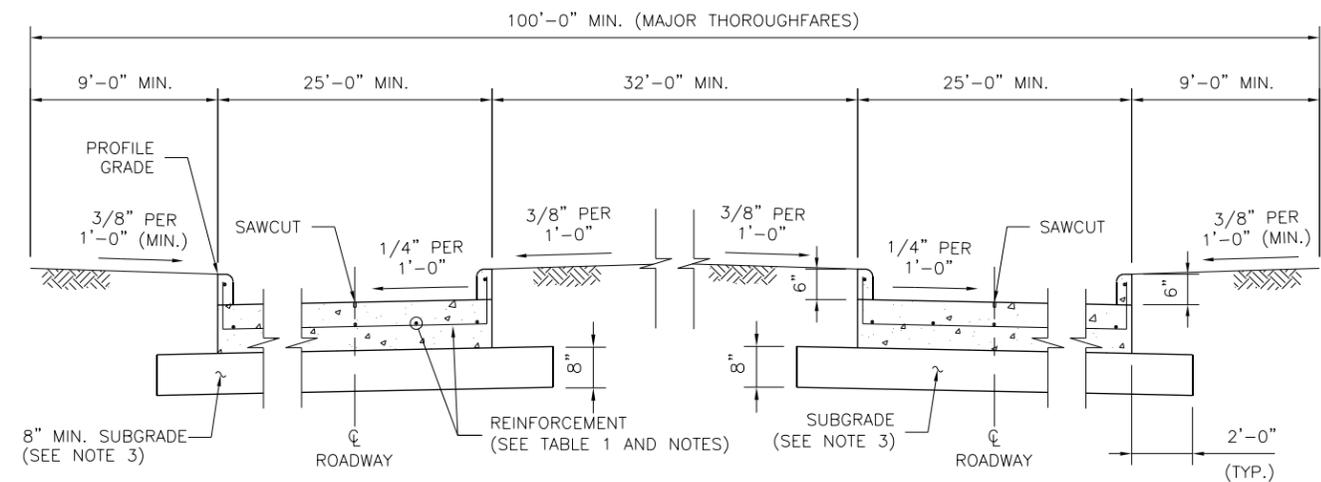
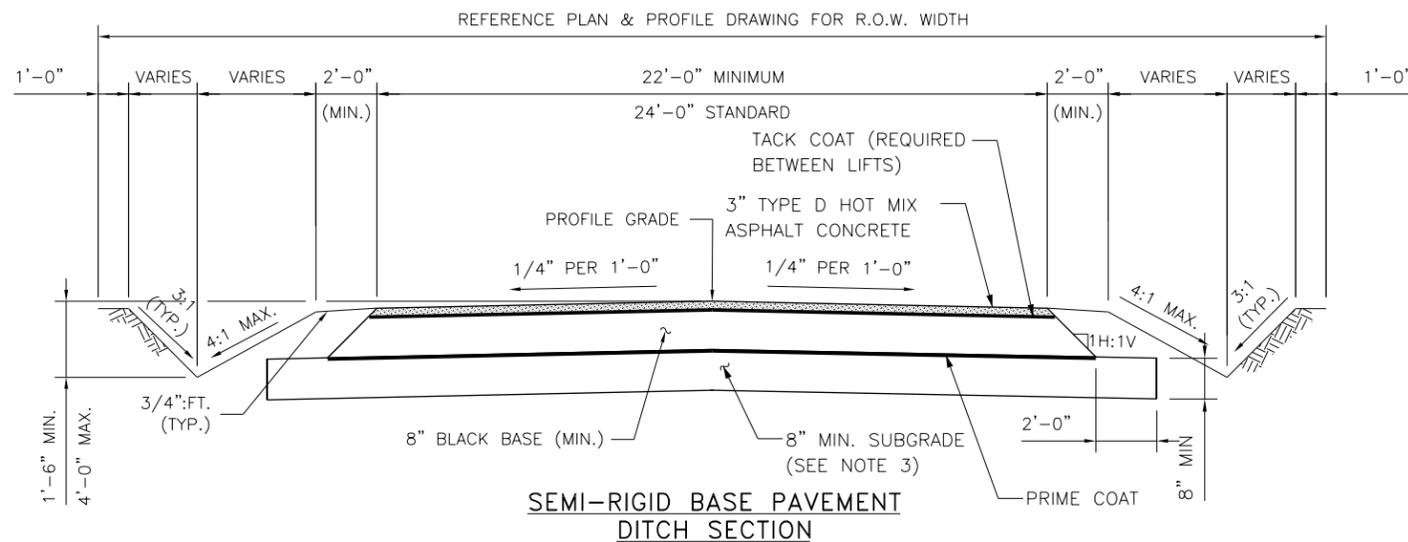
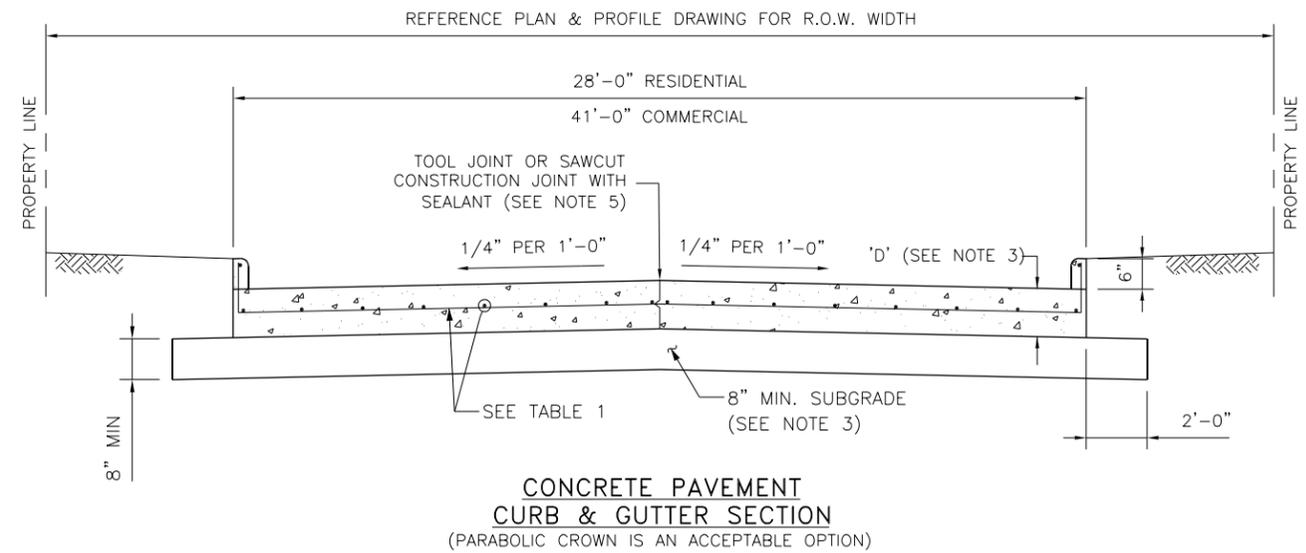
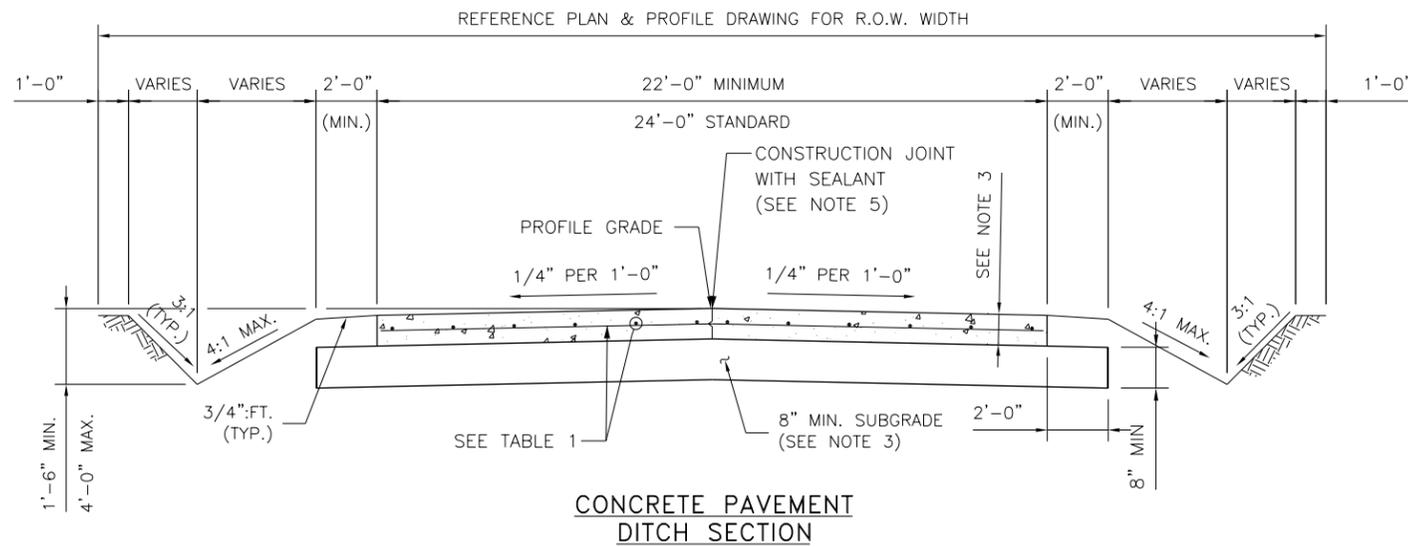


TABLE 1 (CONSTRUCTION JOINT DOWELS)

DOWEL SIZE	PAVEMENT DEPTH
#4 BAR	< 6"
#5 BAR	6" ≤ D < 9"
#6 BAR	≥ 9"

DOWEL SHALL BE DRILLED INTO EXISTING PAVEMENT (MIN. 10", MAX. 12") AND EPOXIED. (SEE ITEM 361.3)

NOTES:

- PAVEMENT SECTIONS SHOWN ARE INTENDED FOR DEVELOPMENT PROJECTS AND NOT FOR PUBLIC PROJECTS, WHERE WIDTH OF R.O.W. MAY VARY.
- PAVEMENT SECTIONS SHALL BE LOCATED IN CENTER OF R.O.W.
- SUBGRADE TREATMENT AND PAVEMENT THICKNESS AS DESIGNATED IN PLANS
- REFERENCE CONSTRUCTION JOINT DETAIL ON THE STANDARD CIVIL DRAWING "CONCRETE PAVEMENT DETAILS - SHEET 1 OF 2" FOR JOINT AND SEALANT REQUIREMENTS.
- NO TRAFFIC ON CONCRETE PAVEMENT FOR 7 DAYS AND COMPRESSIVE STRENGTH OF 3,500 psi HAS BEEN REACHED.
- ALL CONSTRUCTION JOINTS SHALL BE SEALED

HORIZONTAL SCALE: 1"=3'-0"
VERTICAL SCALE: 1"=1'-6"

SLAB AND REBAR NOTES:

- TYPICAL SLAB THICKNESS D=8"
- TYPICAL REBAR SIZE AND SPACING ARE:
 - #4 BAR @ 18" C-C LONGITUDINAL
 - #4 BAR @ 18" C-C TRANSVERSE
- REBAR SIZE FOR PAVEMENT LESS THAN 8" THICK
 - #4 BAR @ 24" C-C LONGITUDINAL
 - #4 BAR @ 24" C-C TRANSVERSE
- REBAR SHALL NOT BE PLACED WITHIN 3" FROM THE EDGE OF PAVEMENT.
- TYPICAL STABILIZED SUBGRADE THICKNESS IS 8 INCHES.
- FOR HEAVY INDUSTRIAL TRAFFIC, SLAB THICKNESS AND REBAR SIZE AND SPACING WILL BE AS PER GEOTECHNICAL RECOMMENDATION.
- ALL BENT BARS SHALL BE GRADE 40 STEEL, ALL OTHER SHALL BE GRADE 60.
- MINIMUM LAP SPLICE 16".
- LAP SPLICES SHOULD BE ON ALTERNATING BARS, ADJACENT LAP SPLICES ARE NOT ACCEPTABLE.

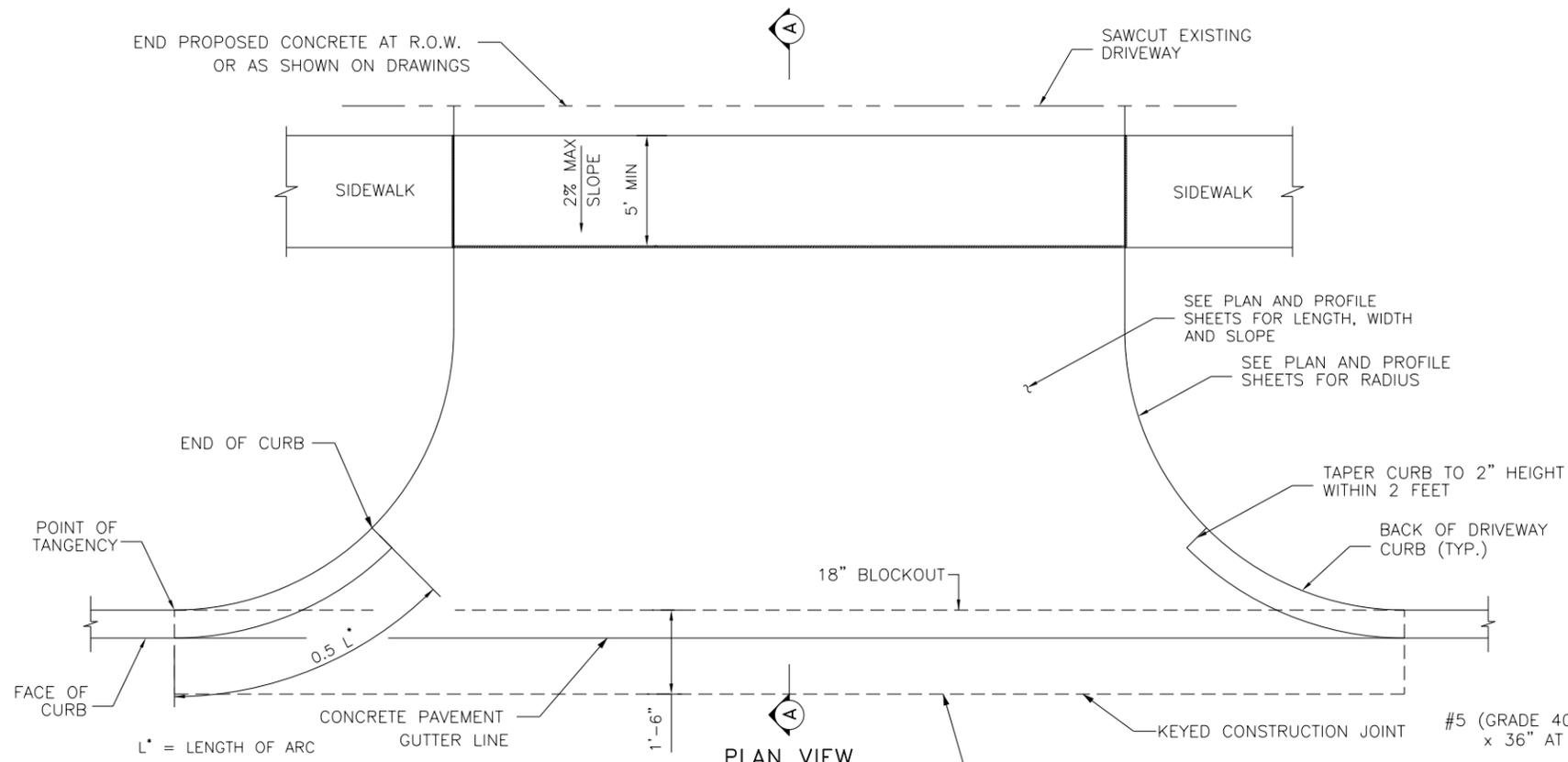
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PROJECT TITLE:		
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CK'D BY:	INIT	09
SCALE:	AS NOTED	SHEET NO:
DATE:	2-1-22	APPROVED BY:
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NOTES:

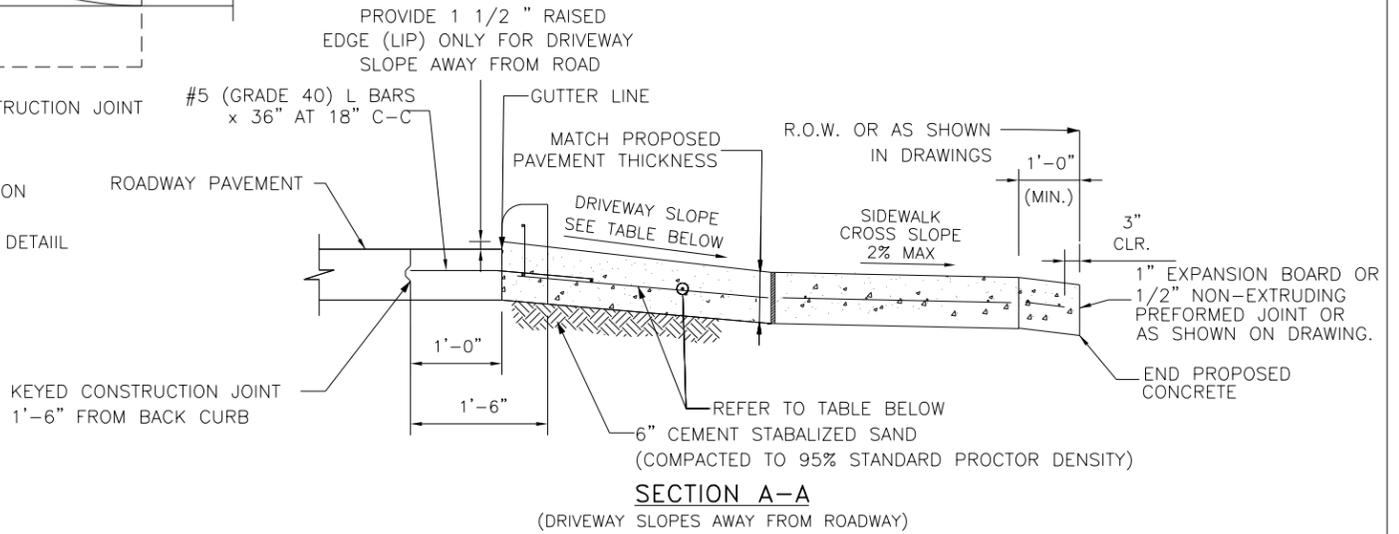
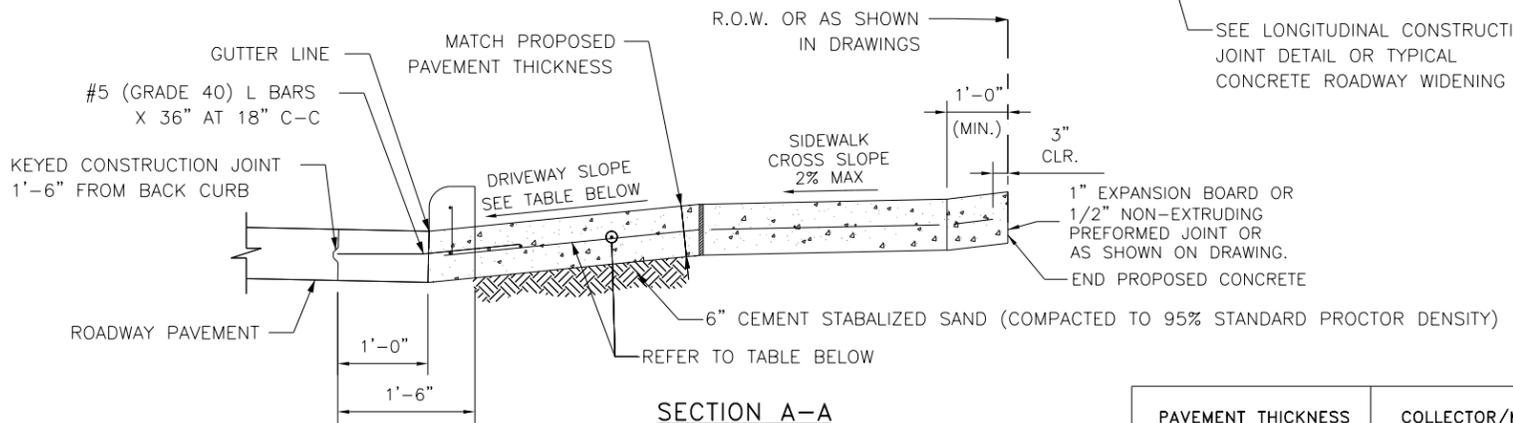
1. SAWCUT EXISTING DRIVEWAY AT R.O.W. LINE OR AS SHOWN ON DRAWING AND REMOVE EXISTING DRIVEWAY TO SAWCUT LINE.
2. IF THERE IS EXISTING CURB ON DRIVEWAY, CONNECT PROPOSED CURB TO EXISTING CURB; OTHERWISE TAPER CURB HEIGHT AS SHOWN.
3. SEE PAVEMENT DETAIL SHEET FOR CONCRETE CURB REINFORCEMENT.
4. THIS DRIVEWAY INSTALLATION IS GOVERNED BY HARRIS COUNTY ITEM 360.
5. DRIVEWAY WIDTHS ARE MEASURED AT THE ROW LINE

MINIMUM RADII REQUIREMENTS - DRIVEWAYS

	LOCAL	COLLECTOR	MAJOR
RESIDENTIAL	5'	5'	-
COMMERCIAL	10'	10'	25'

DRIVEWAY WIDTHS

	MINIMUM	MAXIMUM
RESIDENTIAL	10'	25'
COMMERCIAL	20'	40'



	PAVEMENT THICKNESS	COLLECTOR/MAJOR	RESIDENTIAL (MAJOR THOROUGHFARE)	RESIDENTIAL (COLLECTORS AND LOCAL STREETS)
REINFORCEMENT	6"	#4 @ 24" O.C.E.W.	N/A	#4 @ 24" O.C.E.W.
	7"	#4 @ 24" O.C.E.W.	#4 @ 24" O.C.E.W.	#4 @ 24" O.C.E.W.
	8"	#4 @ 18" O.C.E.W.	#4 @ 18" O.C.E.W.	#4 @ 18" O.C.E.W.
	9"-10"	#5 @ 18" O.C.E.W.	#5 @ 18" O.C.E.W.	#5 @ 18" O.C.E.W.
EXPANSION DOWEL JOINT	6"	3/4" DIA. SMOOTH BAR	3/4" DIA. SMOOTH BAR	3/4" DIA. SMOOTH BAR
	7"	1" DIA. SMOOTH BAR	1" DIA. SMOOTH BAR	1" DIA. SMOOTH BAR
	8"	1" DIA. SMOOTH BAR	1" DIA. SMOOTH BAR	1" DIA. SMOOTH BAR
CONSTRUCTION JOINT DOWEL	9"-10"	1 1/2" DIA. SMOOTH BAR	1 1/2" DIA. SMOOTH BAR	1 1/2" DIA. SMOOTH BAR
	ALL	#5 REBAR	#5 REBAR	#5 REBAR
SUBGRADE	ALL	6" CEMENT-STABILIZED SAND	2" BANK SAND	2" BANK SAND
DRIVEWAY SLOPE	ALL	2% TO 4%	2% TO 6%	2% TO 10%*

*10% ALLOWABLE ON PRIVATELY CONSTRUCTED PROJECTS
6% MAX ON PUBLIC PROJECTS

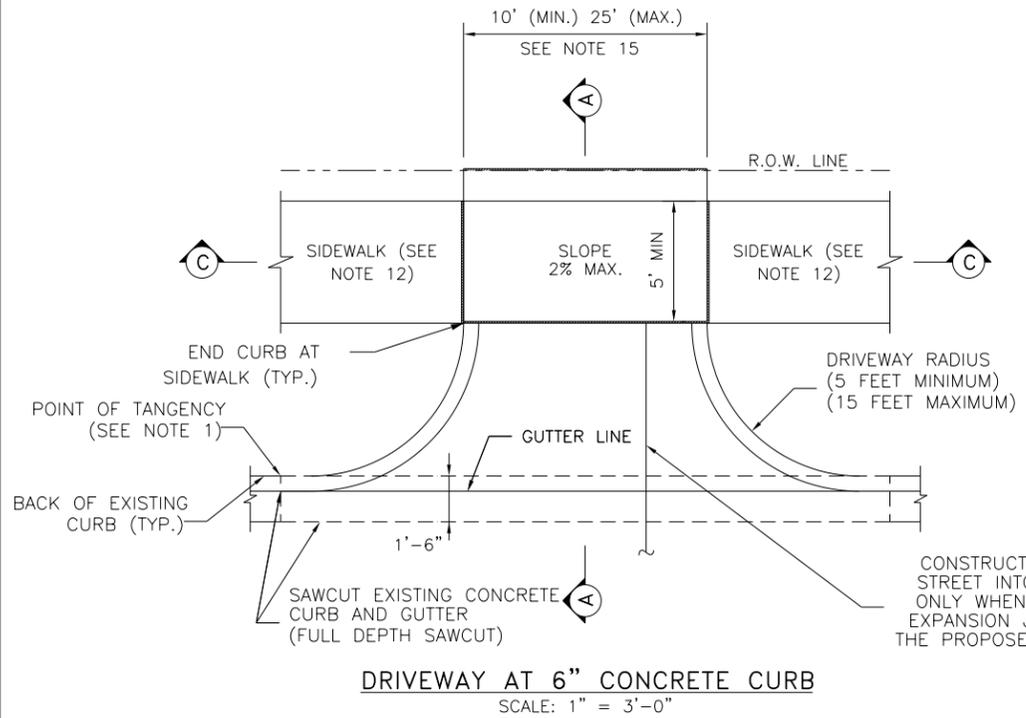
NO.	REVISIONS	DATE	NAME
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FORT BEND COUNTY
ENGINEERING DEPARTMENT

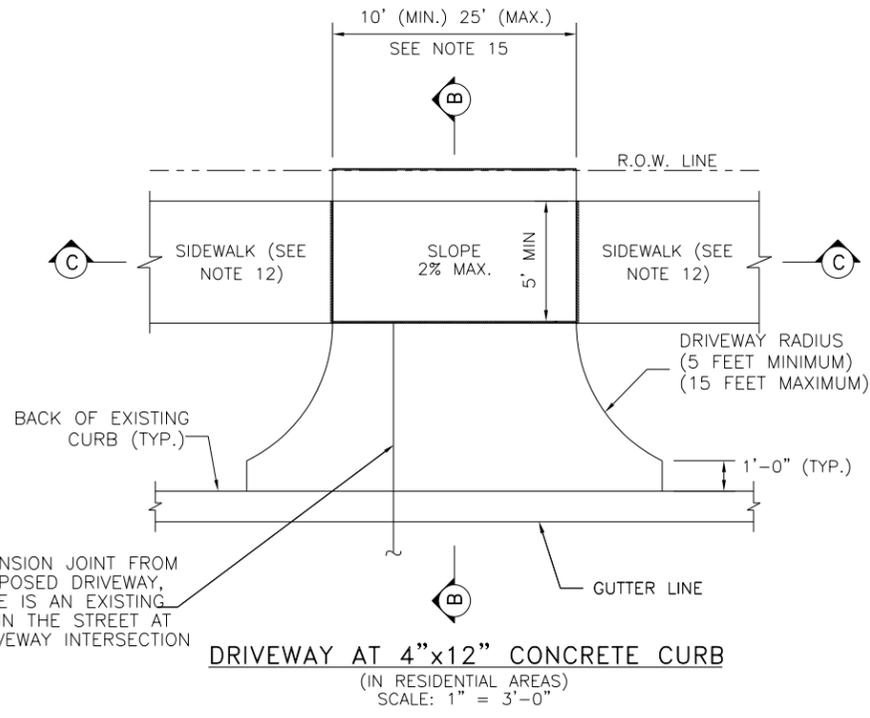


PROJECT TITLE:		FBCED STANDARD
DRAWN BY: INIT	SHEET DESCRIPTION: DRIVEWAY DETAILS FOR MAJOR ROADWAY CONSTRUCTION	10
CK'D BY: INIT		SHEET NO: /
SCALE: 1"=1'-6"	APPROVED BY:	
DATE: 3-1-22		

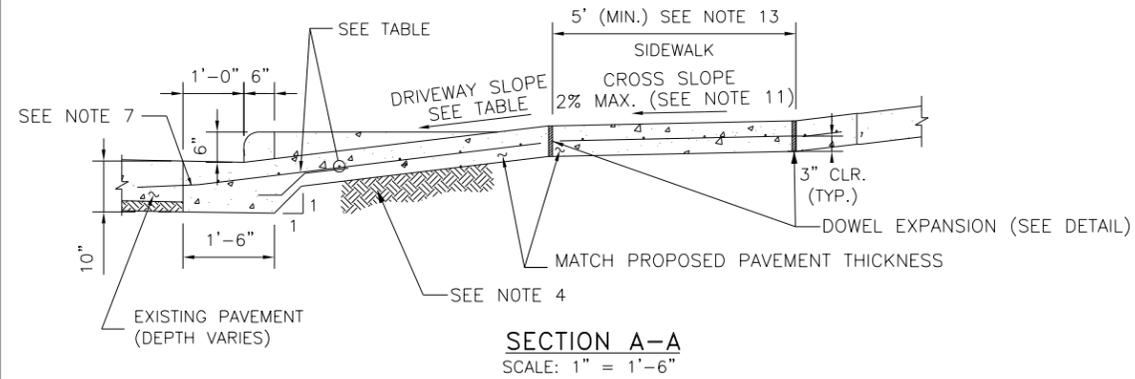
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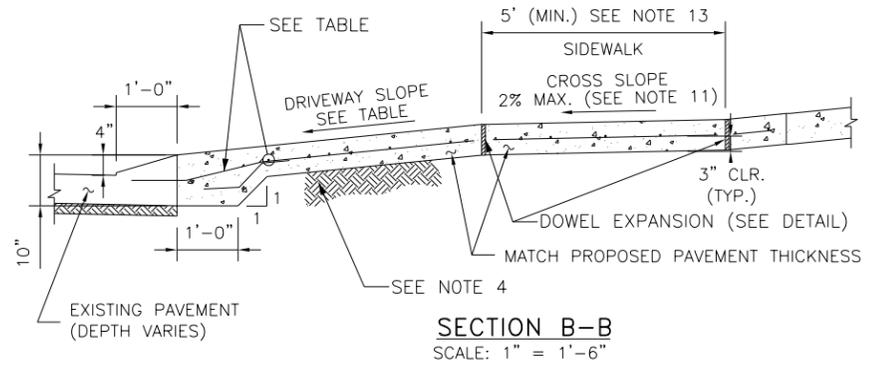
DRIVEWAY AT 6" CONCRETE CURB
SCALE: 1" = 3'-0"



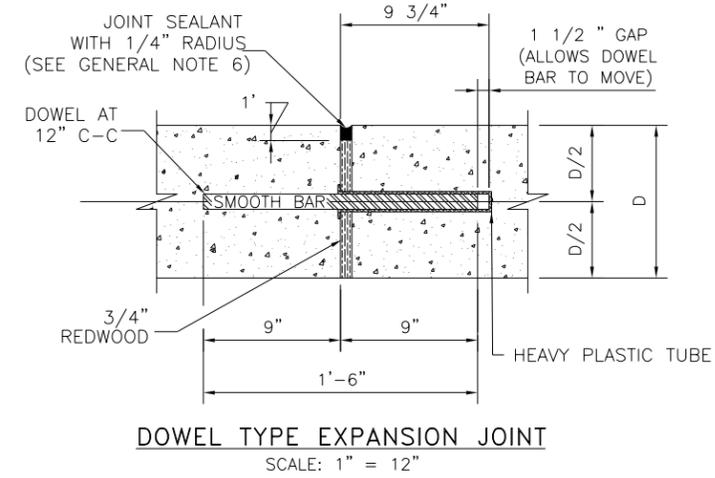
DRIVEWAY AT 4"x12" CONCRETE CURB
(IN RESIDENTIAL AREAS)
SCALE: 1" = 3'-0"



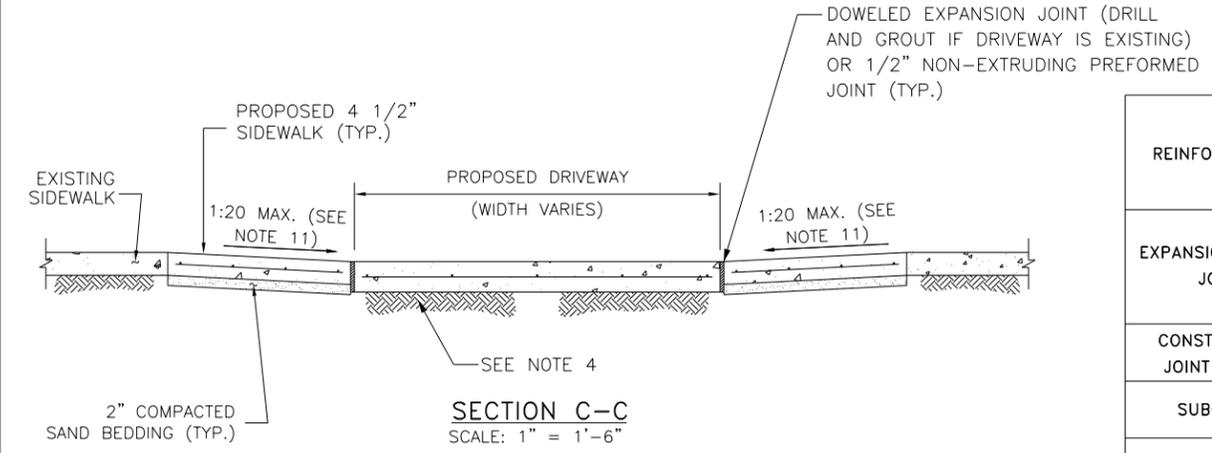
SECTION A-A
SCALE: 1" = 1'-6"



SECTION B-B
SCALE: 1" = 1'-6"



DOWEL TYPE EXPANSION JOINT
SCALE: 1" = 12"



SECTION C-C
SCALE: 1" = 1'-6"

	PAVEMENT THICKNESS	COLLECTOR/MAJOR	RESIDENTIAL (MAJOR THOROUGHFARE)	RESIDENTIAL (COLLECTORS AND LOCAL STREETS)
REINFORCEMENT	6"	#4 @ 24" O.C.E.W.	N/A	#4 @ 24" O.C.E.W.
	7"	#4 @ 24" O.C.E.W.	#4 @ 24" O.C.E.W.	#4 @ 24" O.C.E.W.
	8"	#4 @ 18" O.C.E.W.	#4 @ 18" O.C.E.W.	#4 @ 18" O.C.E.W.
	9"-10"	#5 @ 18" O.C.E.W.	#5 @ 18" O.C.E.W.	#5 @ 18" O.C.E.W.
EXPANSION DOWEL JOINT	6"	3/4" DIA. SMOOTH BAR	3/4" DIA. SMOOTH BAR	3/4" DIA. SMOOTH BAR
	7"	1" DIA. SMOOTH BAR	1" DIA. SMOOTH BAR	1" DIA. SMOOTH BAR
	8"-10"	1 1/4" DIA. SMOOTH BAR	1 1/4" DIA. SMOOTH BAR	1 1/4" DIA. SMOOTH BAR
CONSTRUCTION JOINT DOWEL	ALL	#5 REBAR	#5 REBAR	#5 REBAR
SUBGRADE	ALL	6" CEMENT-STABILIZED SAND	2" BANK SAND	2" BANK SAND
DRIVEWAY SLOPE	ALL	2% TO 4%	2% TO 6%	2% TO 10%*

*10% ALLOWABLE ON PRIVATELY CONSTRUCTED PROJECTS
6% MAX ON PUBLIC PROJECTS

NOTES:

- PROPOSED DRIVEWAY AT 6" CONCRETE CURB SHALL MATCH EXISTING CURB AT POINT OF TANGENCY.
- PROPOSED DRIVEWAY SHALL BE BUILT WITH PORTLAND CEMENT CONCRETE, 5 1/2 SACK MINIMUM PER CUBIC YARD. 3,500 PSI STRENGTH AT 28 DAYS. THIS DRIVEWAY INSTALLATION IS GOVERNED BY HARRIS COUNTY ITEM 530.
- COMPACTION OF SUBGRADE TO 95% OF STANDARD PROCTOR DENSITY (ASTM D698) (\pm 2% OPTIMUM MOISTURE) FOR PROPOSED DRIVEWAY CONNECTION. THE COUNTY ENGINEER RESERVES THE RIGHT TO INSPECT AND REQUIRE LABORATORY TEST TO BE CONDUCTED.
- FOR COMMERCIAL DRIVEWAYS, USE 6" OF COMPACTED CEMENT STABILIZED SAND. FOR RESIDENTIAL DRIVEWAYS, USE 2" OF COMPACTED BANK SAND.
- A PROPOSED DRIVEWAY TO BE BUILT ON A CORNER LOT CANNOT BE LOCATED WITHIN ANY PORTION OF THE PUBLIC STREET CURB RADIUS. (THE POINTS OF TANGENCY MAY BE THE SAME POINT ALONG THE STREET CURB LINE)
- PROPOSED DRIVEWAY REINFORCING STEEL SHALL BE TIED TO EXISTING CONCRETE PAVEMENT WITH A MINIMUM LAP OF 16 INCHES.
- IF EXISTING STREET REBAR IS CUT OFF, THEN #4 DOWEL BARS (18" LONG) NEED TO BE INSTALLED AT 24" SPACING, EMBEDDED 9 INCHES AND EPOXIED OR MATCH EXISTING SPACING IF TIGHTER.
- 3" NON-METALLIC CHAIRS ARE REQUIRED.
- FOR CAPITAL IMPROVEMENT PROJECTS, THE SUBGRADE SHALL BE STABILIZED ACCORDING TO THE GEOTECHNICAL REPORT RECOMMENDATIONS.
- SAW AND SEAL ALL CONSTRUCTION JOINTS.
- SIDEWALK SLOPES SHALL COMPLY WITH THE TEXAS ACCESSIBILITY STANDARDS 403.3 "SLOPE"
- IF SIDEWALK IS EXISTING, SEE SECTION C-C.
- SIDEWALKS MAY BE REDUCED TO 4' IN FRONT OF SINGLE-FAMILY RESIDENTIAL LOTS WHEN A 5' PASSING AREA IS PROVIDED IN THE DRIVEWAY.
- FOR SIDEWALK DETAILS SEE SIDEWALK DETAILS SHEET
- DRIVEWAY WIDTHS ARE MEASURED AT THE ROW LINE

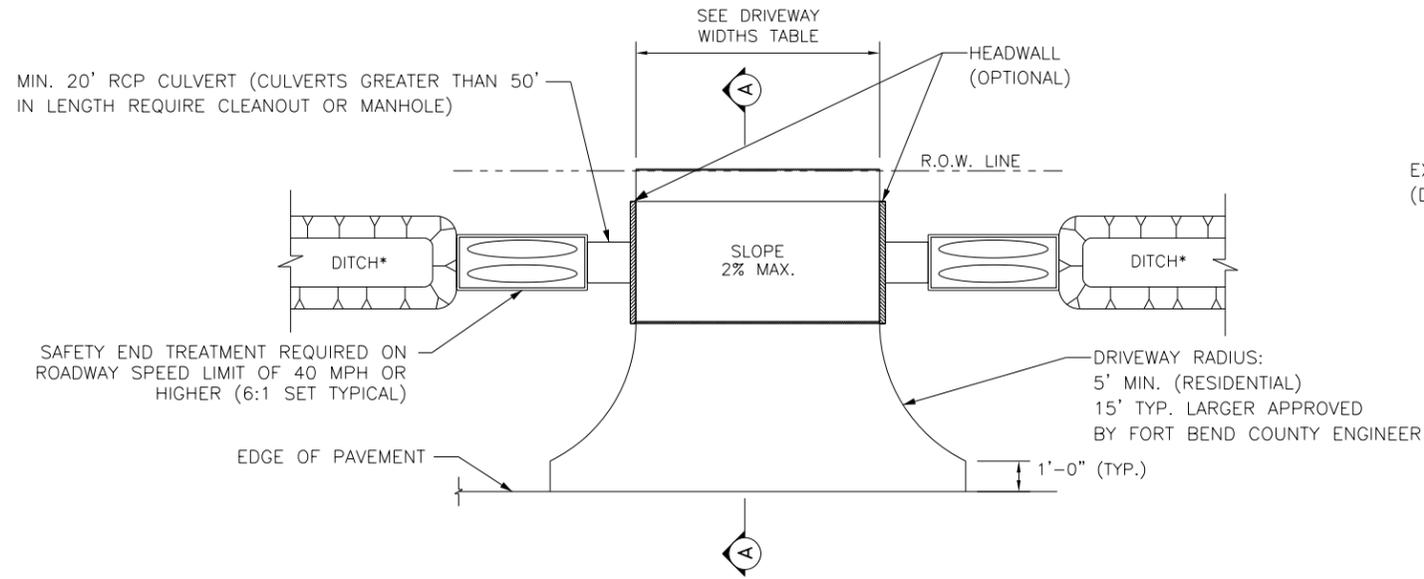
NO.	REVISIONS	DATE	NAME
1	ORIGINAL STANDARD ISSUED	3-1-22	RJS
2			
3			
4			

FORT BEND COUNTY
ENGINEERING DEPARTMENT



PROJECT TITLE:		FBCD STANDARD
DRAWN BY: INIT	SHEET DESCRIPTION: DRIVEWAY DETAILS FOR RESIDENTIAL DRIVEWAYS	
CK'D BY: INIT		
SCALE: AS NOTED		SHEET NO:
DATE: 3-1-22		APPROVED BY:

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OPEN DITCH DRIVEWAY

*DITCH IS TO HAVE 4:1 SLOPE

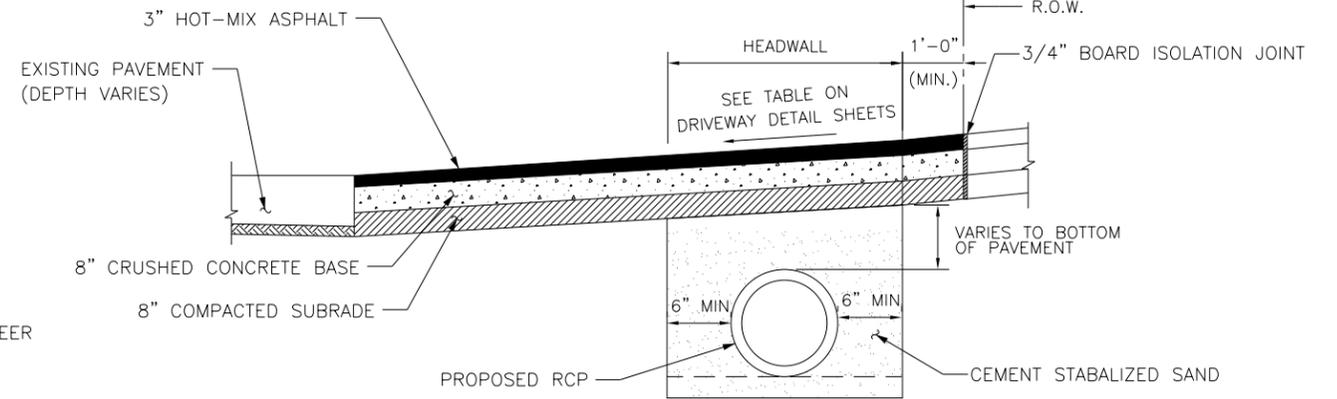
MINIMUM RADII REQUIREMENTS - DRIVEWAYS

	LOCAL	COLLECTOR	MAJOR
RESIDENTIAL	5'	5'	-
COMMERCIAL	10'	10'	25'

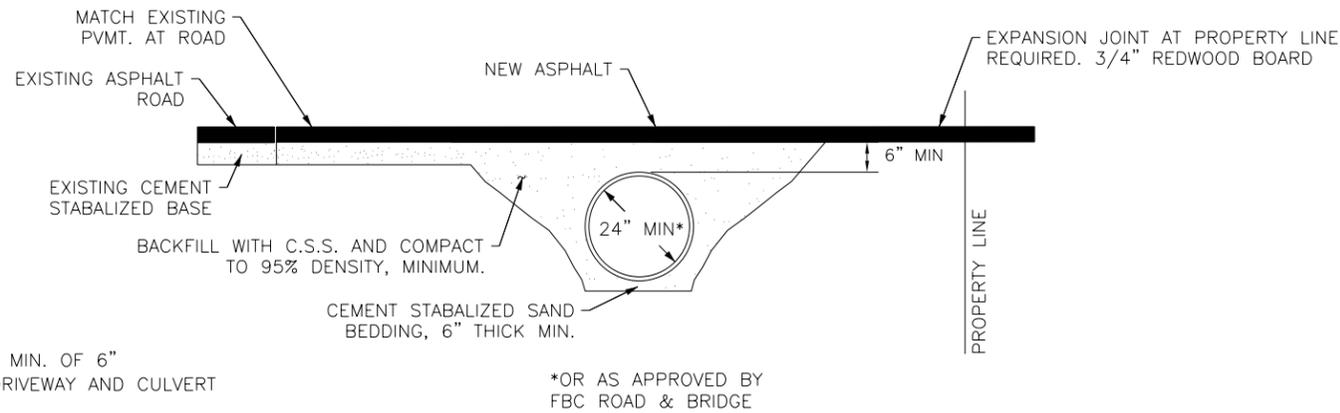
DRIVEWAY WIDTHS*

	MINIMUM	MAXIMUM
RESIDENTIAL	10'	25'
COMMERCIAL	20'	40'

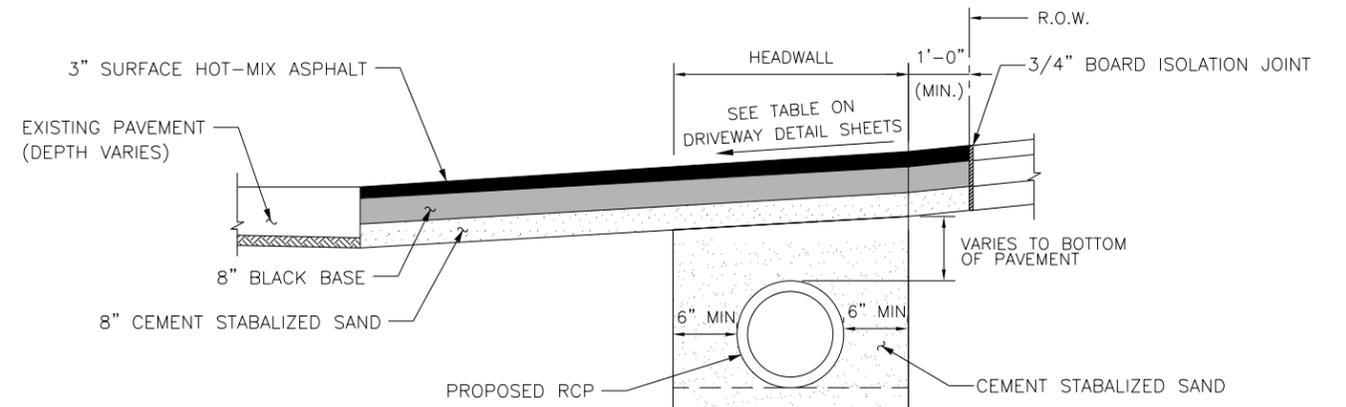
*DRIVEWAY WIDTHS ARE MEASURED AT THE ROW LINE



SECTION A-A FOR RESIDENTIAL DRIVEWAYS



ASPHALT APRON DETAIL - DRIVEWAY PROFILE FOR CULVERT DRAINAGE



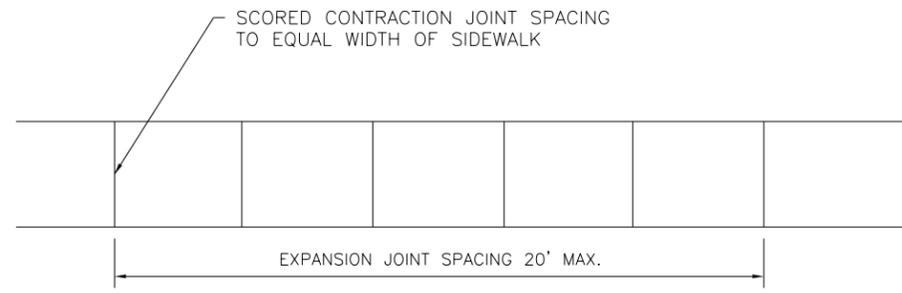
SECTION A-A FOR COMMERCIAL DRIVEWAYS

NO.	REVISIONS	DATE	NAME
1	ORIGINAL STANDARD ISSUED	3-1-22	RJS

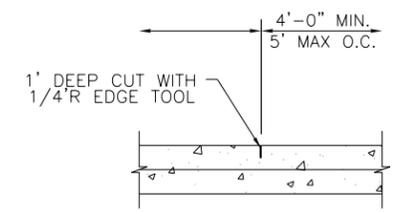
FORT BEND COUNTY
ENGINEERING DEPARTMENT



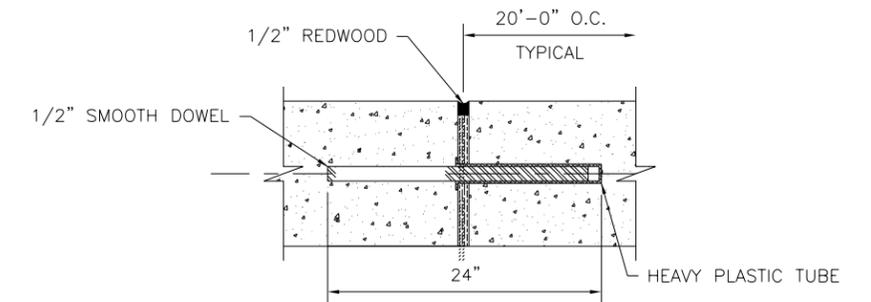
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CK'D BY:	INIT	12
SCALE:	AS NOTED	SHEET NO:
DATE:	3-1-22	APPROVED BY:
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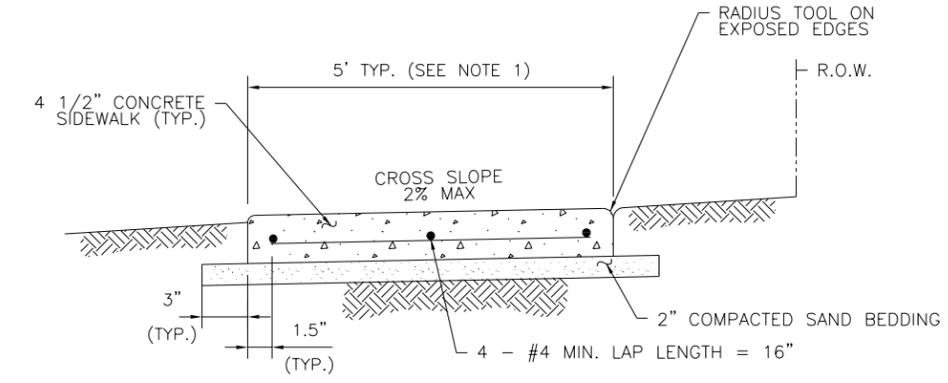
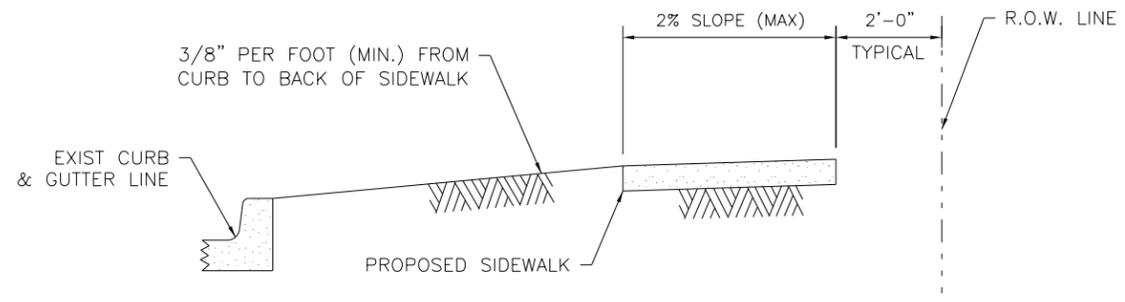
SIDEWALK JOINT DETAILS



CONTRACTION JOINT SEAL



EXPANSION JOINT



SIDEWALK CROSS SECTION

NOTES:

1. TYPICAL SIDEWALK WIDTH IS 5'. SIDEWALKS OF 4' WIDTH ARE ALLOWED IN FRONT OF SINGLE FAMILY HOMES IF ALL DRIVEWAYS PROVIDE A 5' AREA FOR PASSING. SIDEWALKS OF 4' WITH 5' X 5' PASSING ZONES MUST BE SPECIFICALLY APPROVED BY FORT BEND COUNTY
2. THE MAXIMUM WIDTH BETWEEN EXPANSION JOINTS SHALL NOT EXCEED 20'-0"
3. EXPANSION JOINT IS TO BE 1/2" THICK CLEAR HEART REDWOOD DOWELS
4. SCORED CONTRACTION JOINTS SHALL BE EVERY 5' OR EQUAL TO SIDEWALK WIDTH
5. ALL EARTHEN AREAS ARE TO BE SODDED UNLESS SHOWN OTHERWISE ON DRAWINGS.
6. SIDEWALKS ARE TO BE REINFORCED CONCRETE (3500 PSI) WITH #3 BARS, 18 INCHES C-C.
7. USE RADIUS TOOL ON ALL EXPOSED EDGES.
8. MEMBRANE CURING COMPOUND IS REQUIRED AS DESCRIBED IN ITEM 526 IN THE TXDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION
9. SIDEWALK EXPANSION JOINTS SHALL CONFORM TO STREET EXPANSION JOINT STANDARDS

NOTE:

BANK SAND IS DEFINED AS A WELL-GRADED SAND, FREE OF SILT, CLAY, LOAM, FRIABLE OR SOLUBLE MATERIALS AND ORGANIC MATTER, MEETING THE UNIFIED SOILS CLASSIFICATION SYSTEM GROUP SW CRITERIA W/ A PLASTICITY INDEX OF LESS THAN 10, AND NO MORE THAN 12% OF MATERIAL CAN PASS THE NO. 200 SIEVE.

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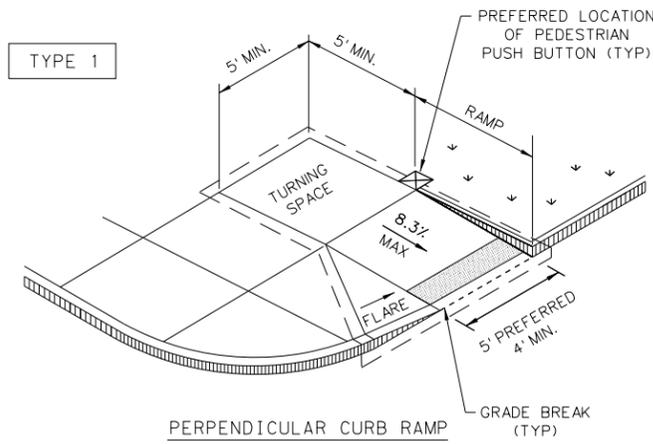
NO.	REVISIONS	DATE	NAME
△	ORIGINAL STANDARD ISSUED	2-1-22	RJS
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FORT BEND COUNTY
ENGINEERING DEPARTMENT

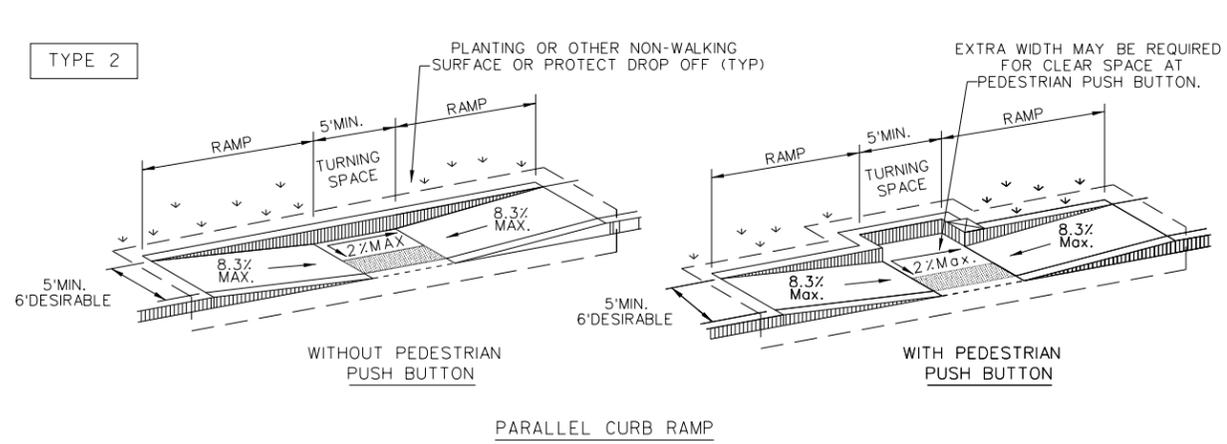


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CK'D BY: INIT		13
SCALE: AS NOTED		SHEET NO:
DATE: 2-1-22	APPROVED BY:	/

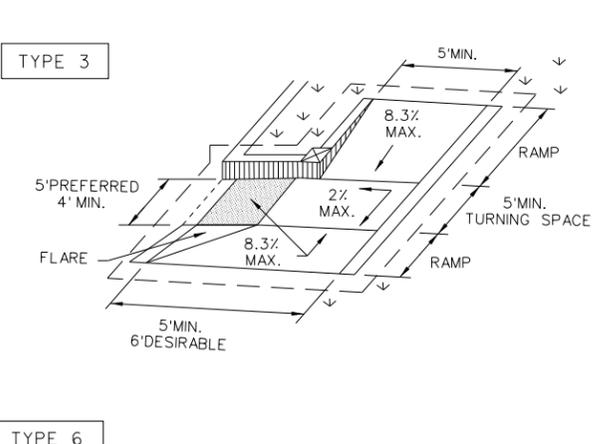
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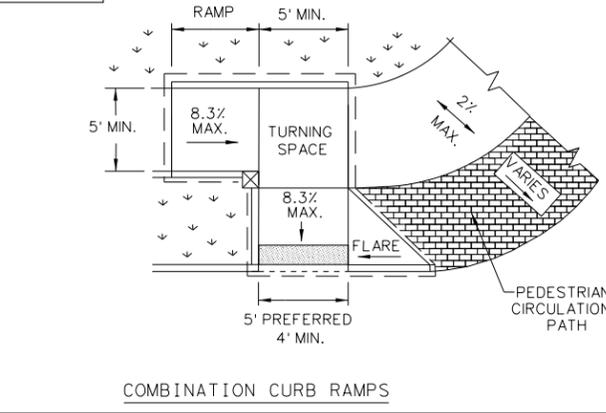
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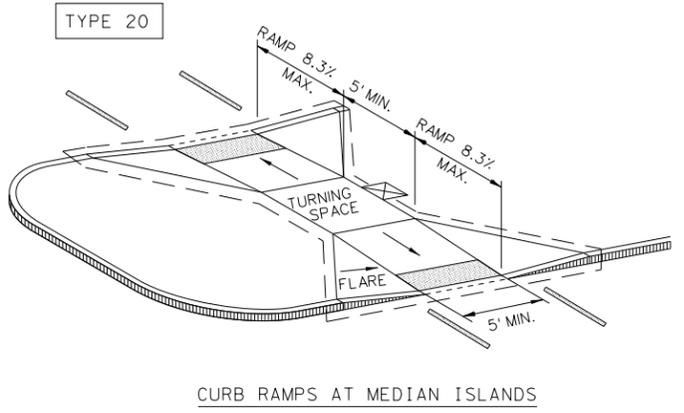
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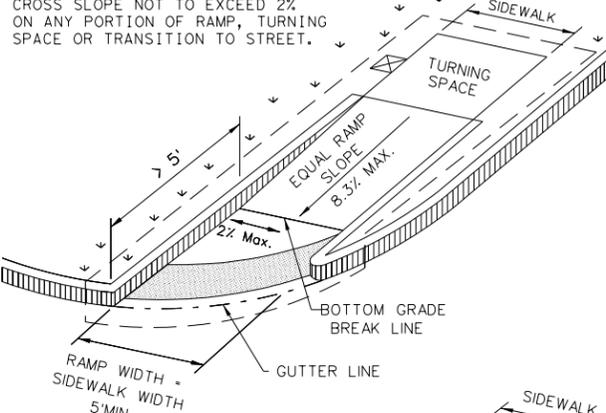
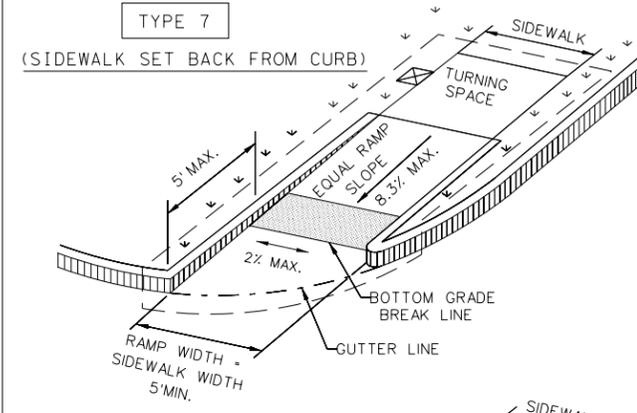
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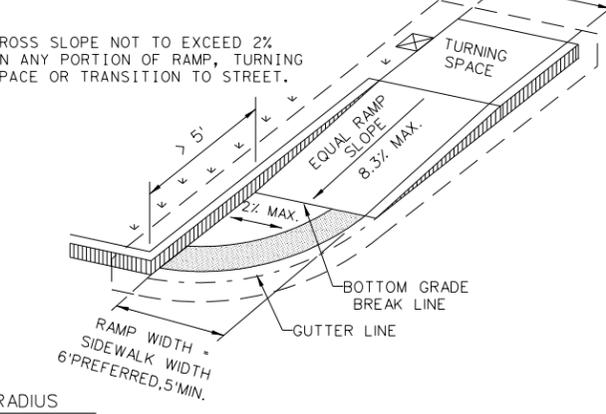
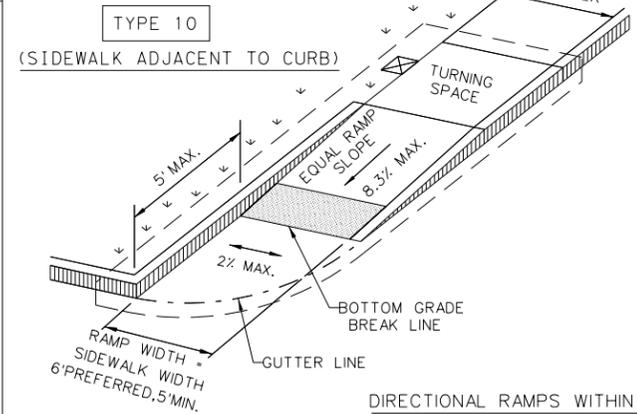
TYPE 20



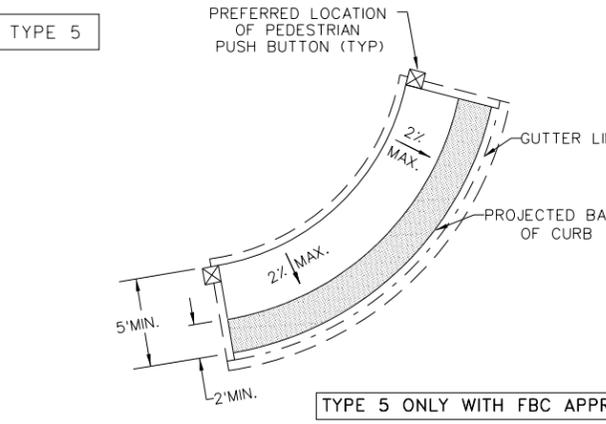
TYPE 7



TYPE 10

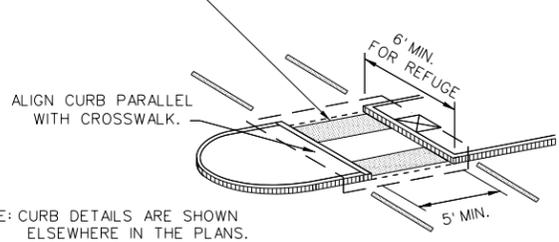


TYPE 5

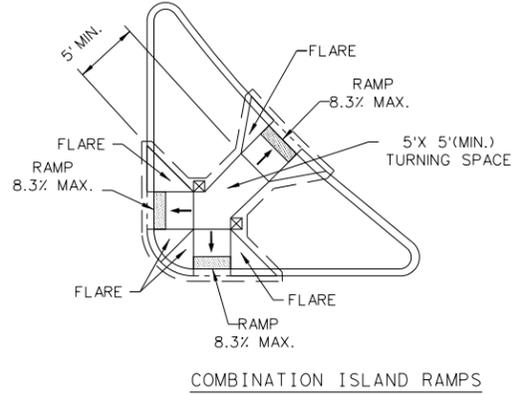


INSTALL DETECTABLE WARNING SURFACE AT EACH END OF THE CUT-THROUGH RAMP WITH A MINIMUM 2' USUAL SIDEWALK SURFACE BETWEEN. IF MEDIAN IS LESS THAN 6' WIDE, ELIMINATE DETECTABLE WARNING SURFACES.

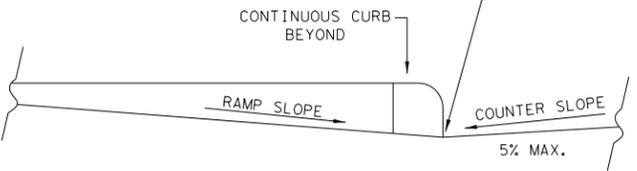
TYPE 21



TYPE 22



BOTTOM GRADE BREAK OF CURB RAMP WILL NORMALLY BE AT GUTTER LINE. SURFACE SLOPES AT GRADE BREAKS SHALL BE FLUSH.



NOTES / LEGEND:

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

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

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NO.	REVISIONS	DATE	NAME
1	ORIGINAL STANDARD ISSUED	1-1-22	RJS

FORT BEND COUNTY
ENGINEERING DEPARTMENT



PROJECT TITLE:		FBCD STANDARD
DRAWN BY: INIT	SHEET DESCRIPTION: PED-18 RAMP DETAILS	14
CK'D BY: INIT		SHEET NO:
SCALE: 1" = 1'	SHEET 1 OF 4	/
DATE: 2-1-22	APPROVED BY:	

GENERAL NOTES

CURB RAMPS

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

DETECTABLE WARNING MATERIAL

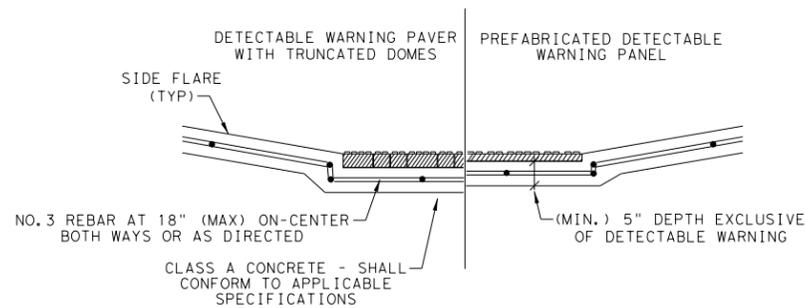
19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with PROWAG. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material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

DETECTABLE WARNING PAVERS (IF USED)

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

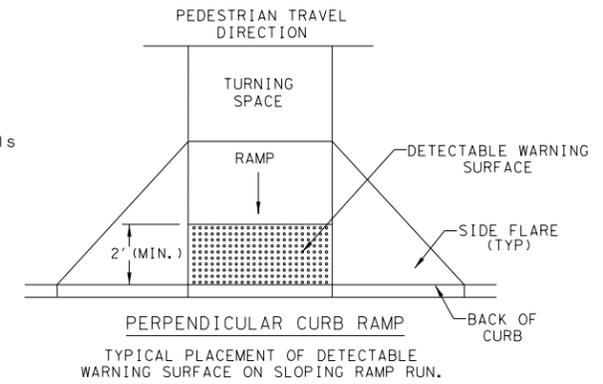
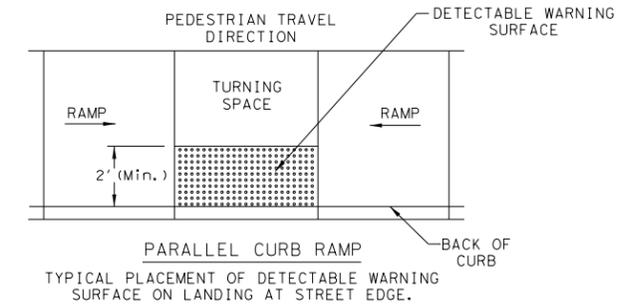
SIDEWALKS

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

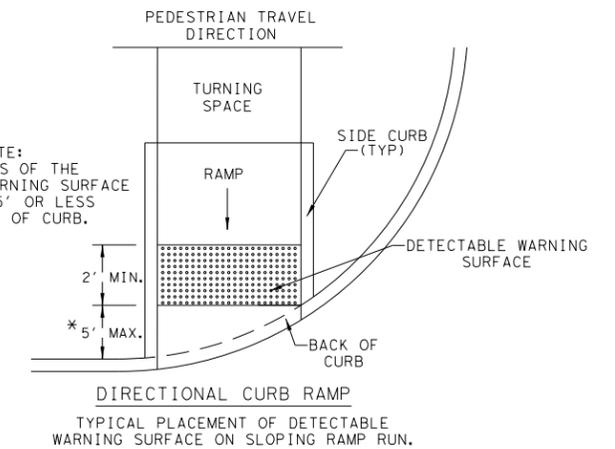


SECTION VIEW DETAIL
CURB RAMP AT DETECTABLE WARNINGS

DETECTABLE WARNING SURFACE DETAILS



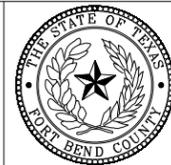
* NOTE:
BOTH ENDS OF THE
DETECTABLE WARNING SURFACE
SHALL BE 5' OR LESS
FROM BACK OF CURB.



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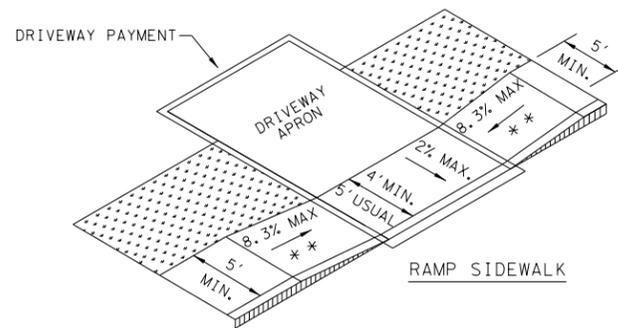
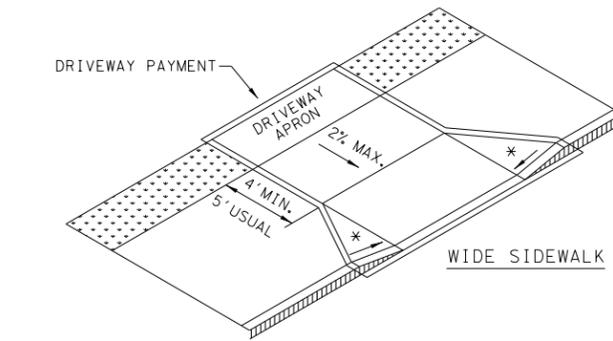
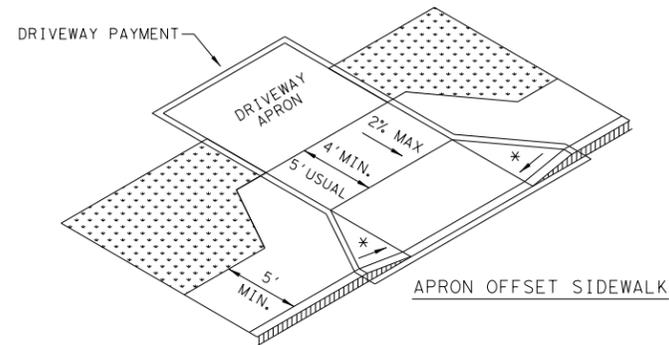
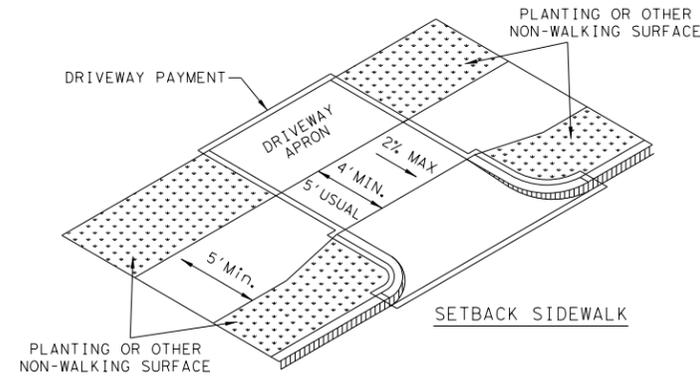
NO.	REVISIONS	DATE	NAME
▲	ORIGINAL STANDARD ISSUED	2-1-22	RJS
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FORT BEND COUNTY
ENGINEERING DEPARTMENT



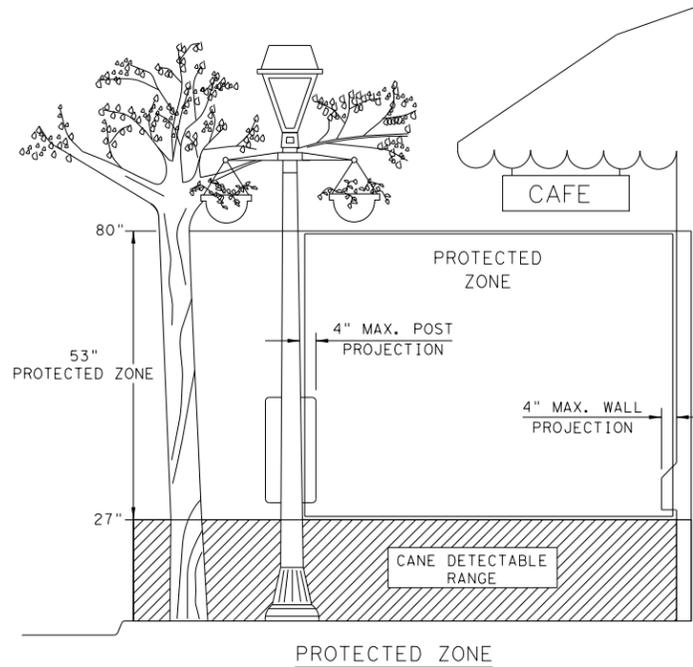
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CK'D BY: INIT		15
SCALE: 1" = 1'	APPROVED BY:	SHEET NO:
DATE: 2-1-22		/

SIDEWALK TREATMENT AT DRIVEWAYS

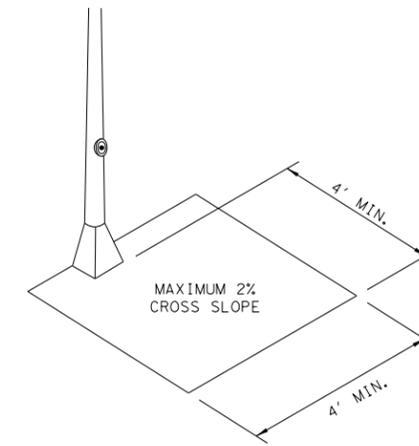


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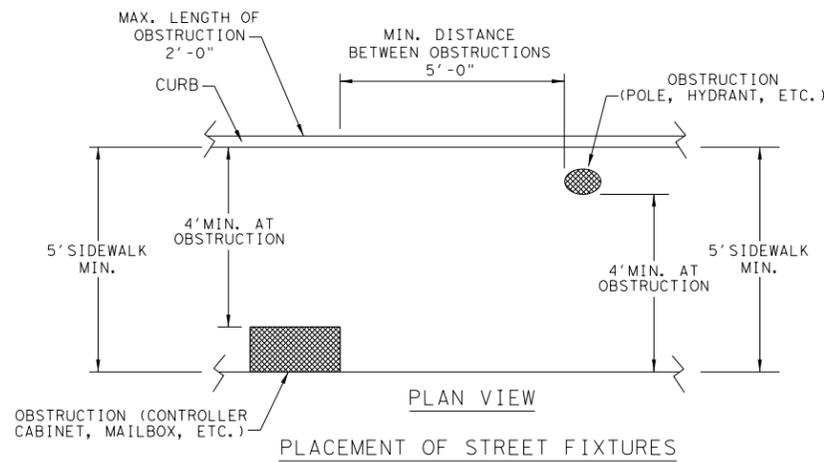
- * WHERE DRIVEWAYS CROSS THE PEDESTRIAN ROUTE, SIDES SHALL BE FLARED AT 10% MAX SLOPE.
- ** IF CURB HEIGHT IS GREATER THAN 6 INCHES, USE GRADE LESS THAN OR EQUAL TO 5%. HANDRAIL AND DETECTABLE WARNING ARE NOT REQUIRED.



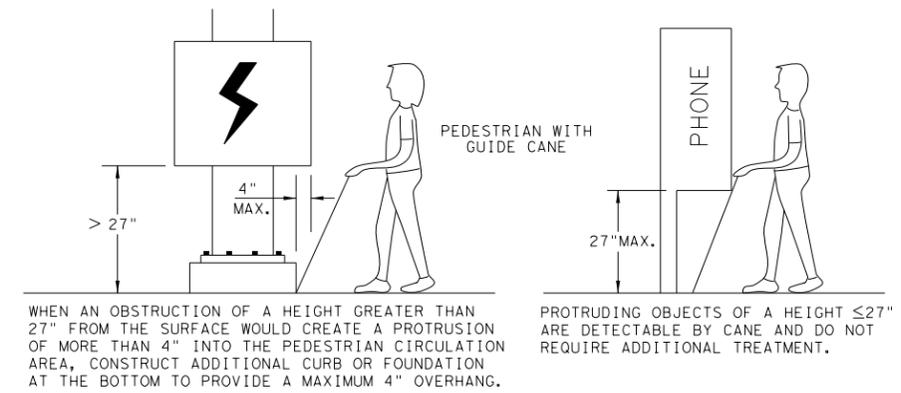
NOTE: IN PEDESTRIAN CIRCULATION AREA, MAXIMUM 4" PROJECTION FOR POST OR WALL MOUNTED OBJECTS BETWEEN 27" AND 80" ABOVE THE SURFACE.



CLEAR SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON



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



DETECTION BARRIER FOR VERTICAL CLEARANCE < 80"

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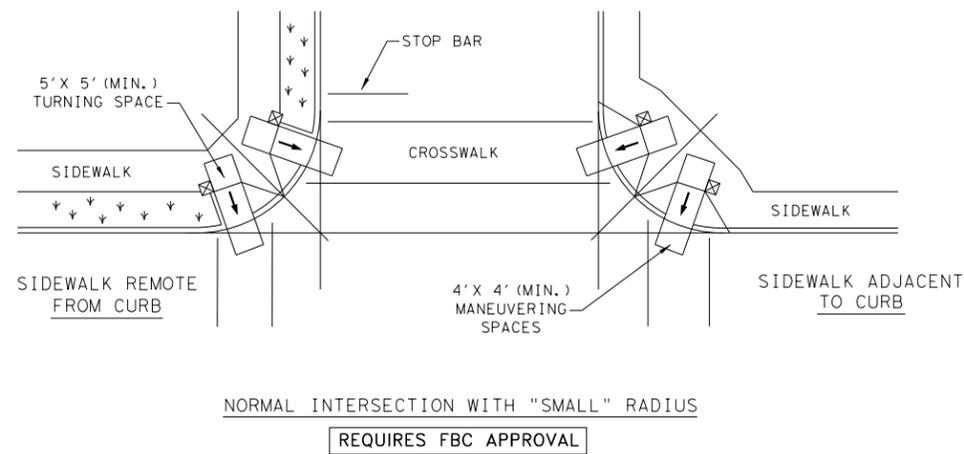
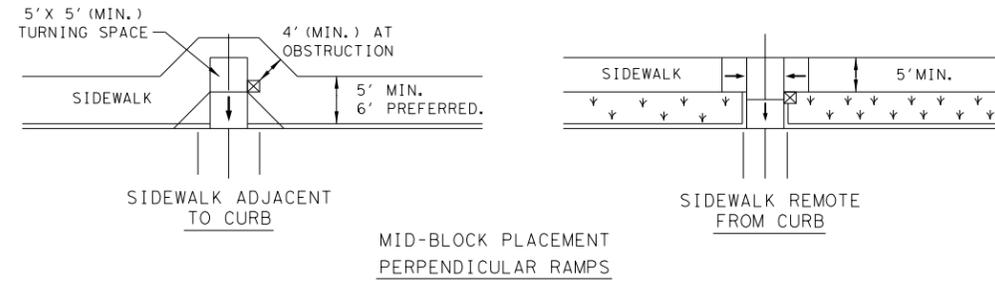
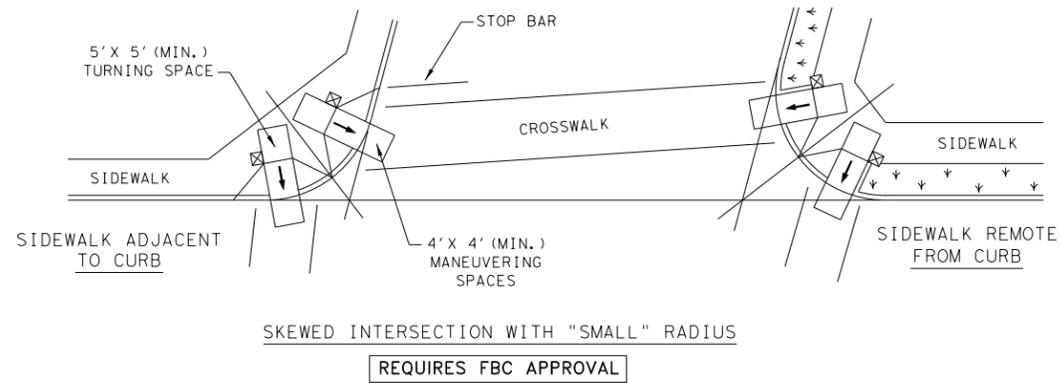
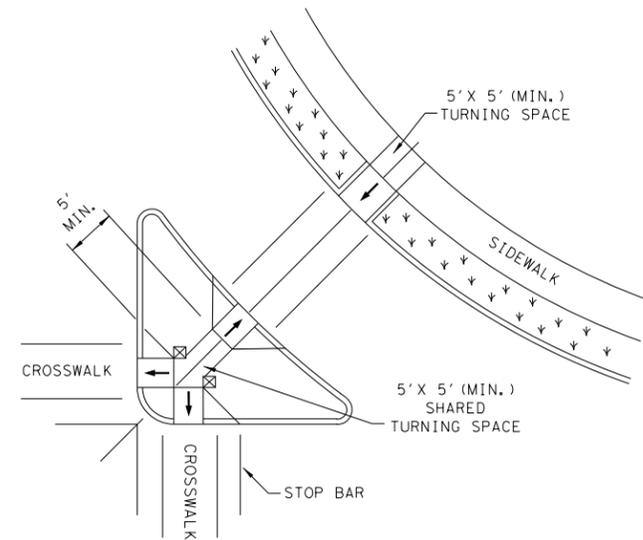
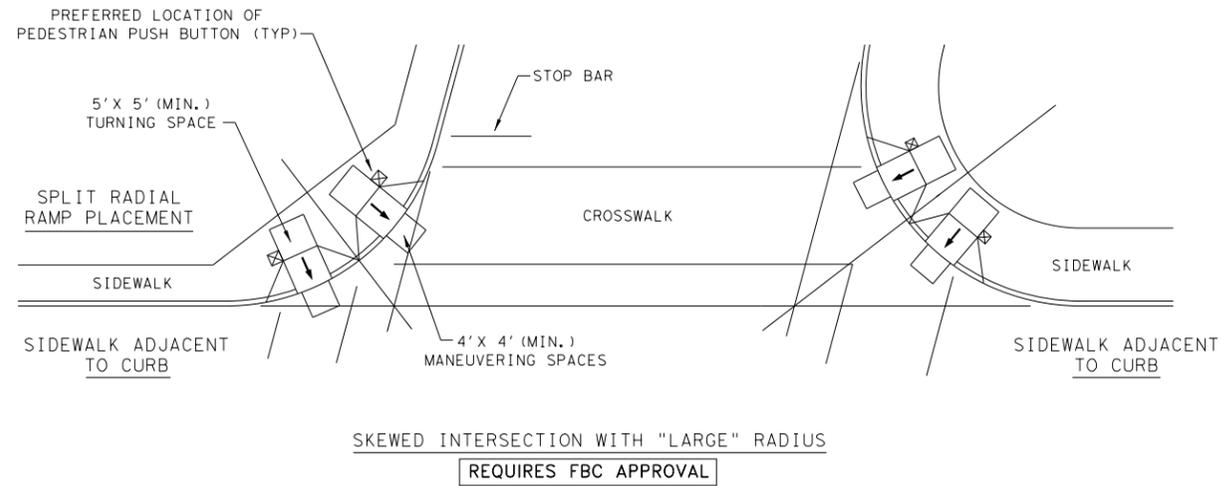
NO.	REVISIONS	DATE	NAME
▲	ORIGINAL STANDARD ISSUED	2-1-22	RJS
▲			
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FORT BEND COUNTY
ENGINEERING DEPARTMENT



PROJECT TITLE:		FBCD STANDARD
DRAWN BY: INIT	SHEET DESCRIPTION: PED-18 RAMP DETAILS	16
CK'D BY: INIT	SCALE: 1" = 1'	SHEET NO: /
DATE: 2-1-22	APPROVED BY:	

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



LEGEND:

SHOWS DOWNWARD SLOPE. →

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

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

J:\1704\1703\Standard Sheets\07 FBC PED-18 RAMP DETAILS\PED-18_RAMP_DETAILS.dwg

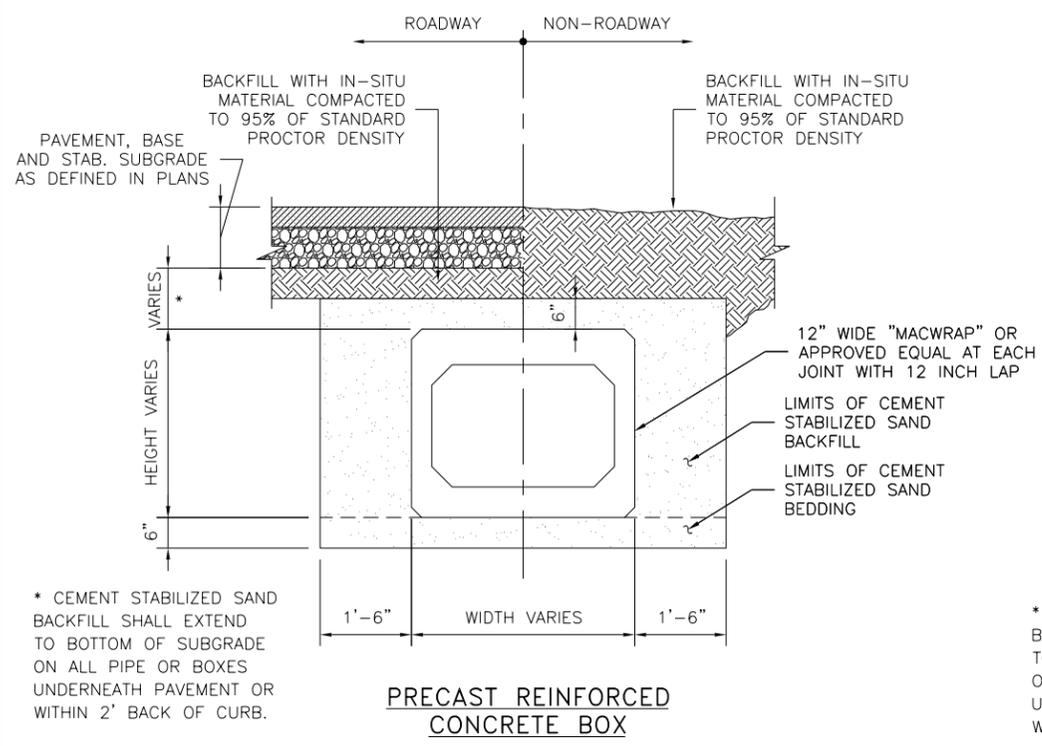
NO.	REVISIONS	DATE	NAME
▲	ORIGINAL STANDARD ISSUED	2-1-22	RJS
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FORT BEND COUNTY
ENGINEERING DEPARTMENT



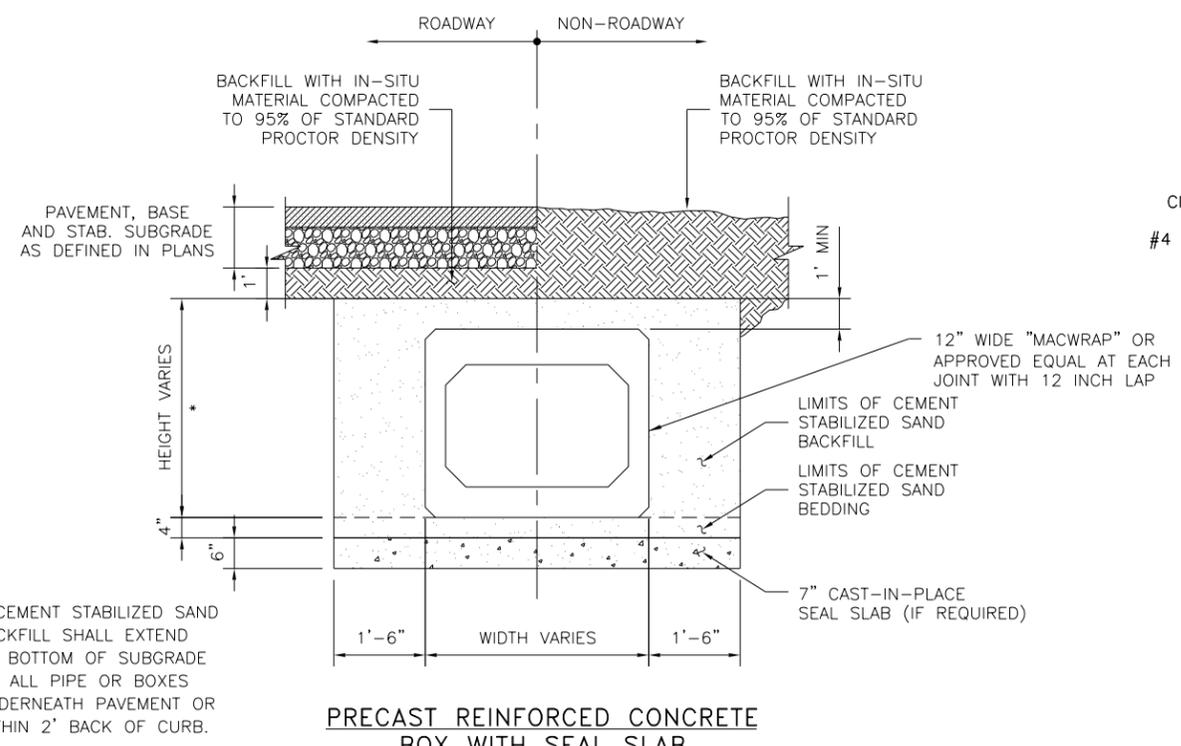
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DRAWN BY: INIT	SHEET DESCRIPTION: PED-18 RAMP DETAILS	17
CK'D BY: INIT		SHEET NO: /
SCALE: 1" = 1'	SHEET 4 OF 4	
DATE: 2-1-22	APPROVED BY:	

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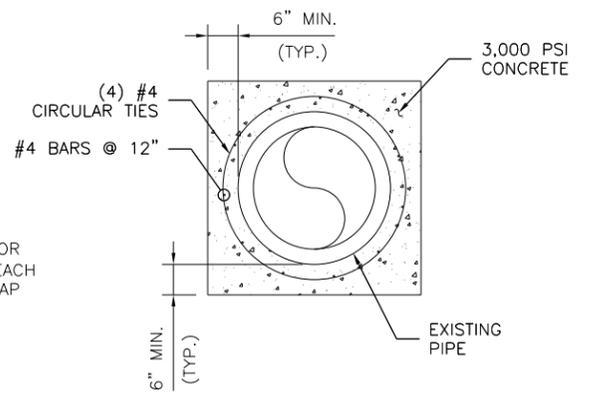
PRECAST REINFORCED CONCRETE BOX

* CEMENT STABILIZED SAND BACKFILL SHALL EXTEND TO BOTTOM OF SUBGRADE ON ALL PIPE OR BOXES UNDERNEATH PAVEMENT OR WITHIN 2' BACK OF CURB.

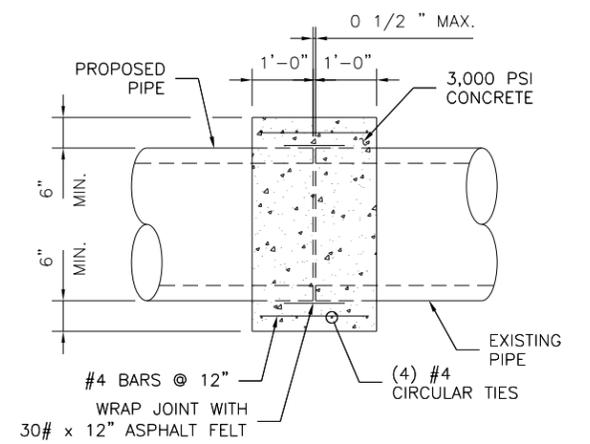


PRECAST REINFORCED CONCRETE BOX WITH SEAL SLAB

* CEMENT STABILIZED SAND BACKFILL SHALL EXTEND TO BOTTOM OF SUBGRADE ON ALL PIPE OR BOXES UNDERNEATH PAVEMENT OR WITHIN 2' BACK OF CURB.

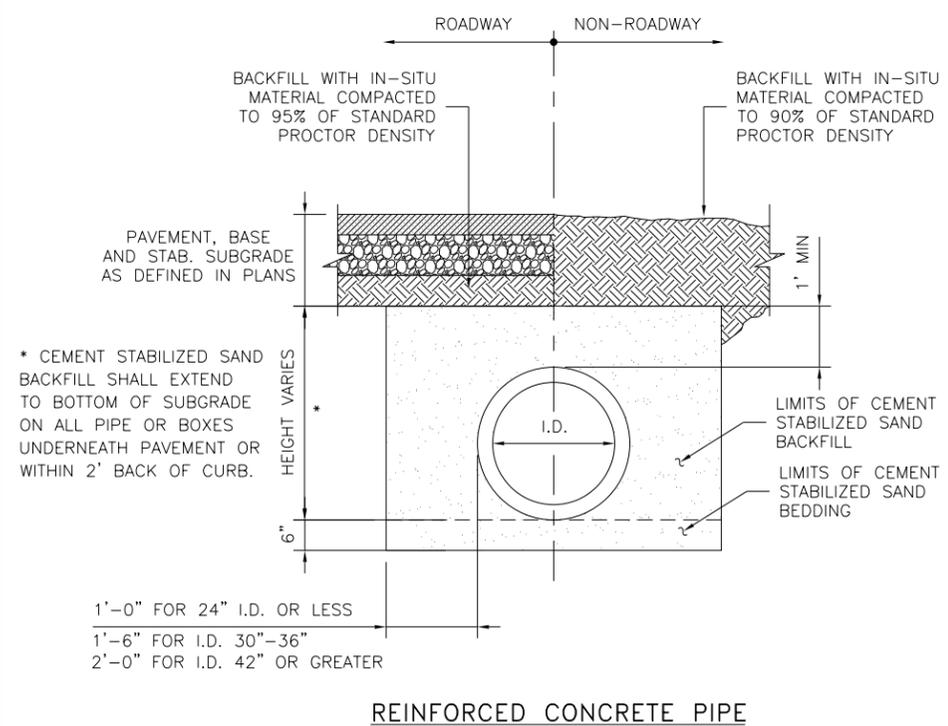


SECTION VIEW



ELEVATION VIEW

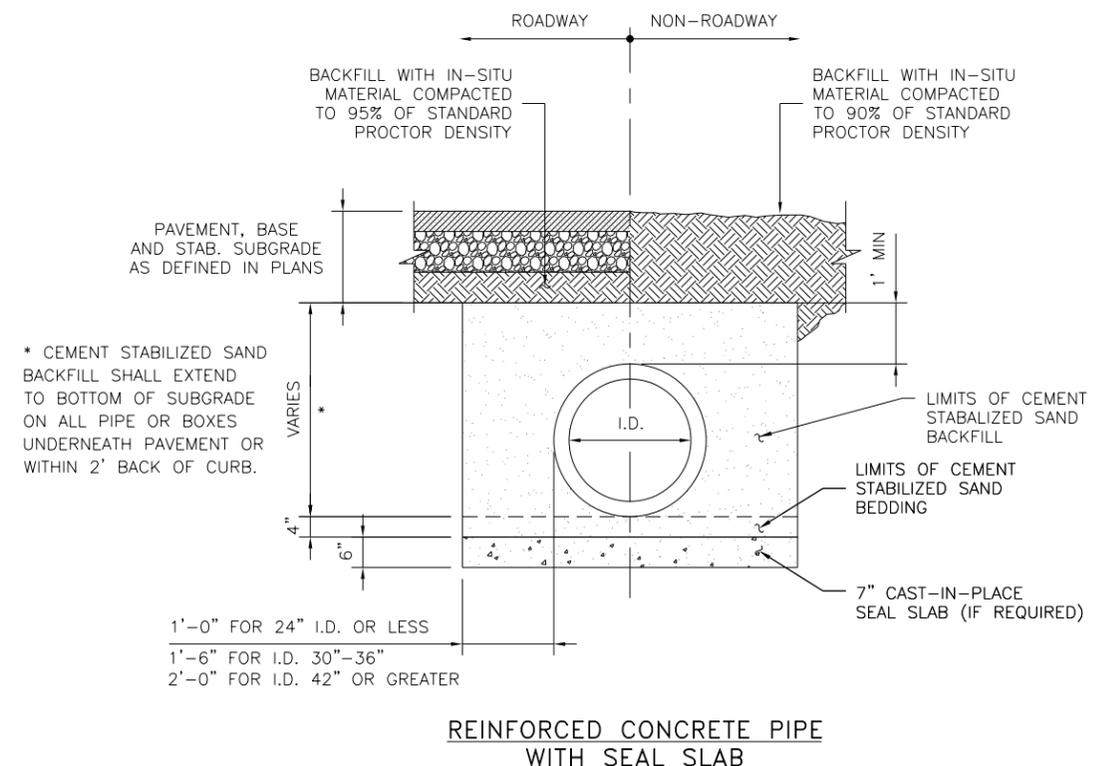
TYPICAL CONCRETE COLLAR FOR 36" & SMALLER RCP



REINFORCED CONCRETE PIPE

* CEMENT STABILIZED SAND BACKFILL SHALL EXTEND TO BOTTOM OF SUBGRADE ON ALL PIPE OR BOXES UNDERNEATH PAVEMENT OR WITHIN 2' BACK OF CURB.

1'-0" FOR 24" I.D. OR LESS
1'-6" FOR I.D. 30"-36"
2'-0" FOR I.D. 42" OR GREATER



REINFORCED CONCRETE PIPE WITH SEAL SLAB

* CEMENT STABILIZED SAND BACKFILL SHALL EXTEND TO BOTTOM OF SUBGRADE ON ALL PIPE OR BOXES UNDERNEATH PAVEMENT OR WITHIN 2' BACK OF CURB.

1'-0" FOR 24" I.D. OR LESS
1'-6" FOR I.D. 30"-36"
2'-0" FOR I.D. 42" OR GREATER

GENERAL NOTES:

- FOR RCP LARGER THAN 36" DIAMETER, CONCRETE COLLARS MUST BE DESIGNED BY THE ENGINEER OF RECORD.
- ALL TRENCHES IN ROW SHALL BE BACKFILLED WITH 1.5 SACK CEMENT STABILIZED SAND TO WITHIN 1' OF SUBGRADE. COMPACTED TO 95% STANDARD PROCTOR DENSITY

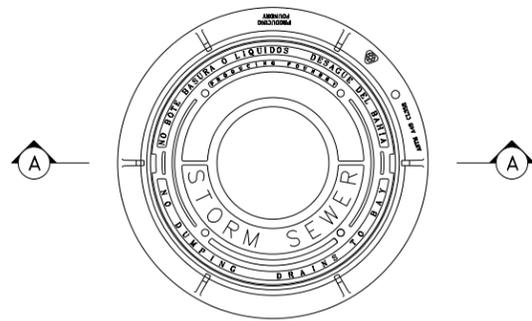
NO.	REVISIONS	DATE	NAME
1	ORIGINAL STANDARD ISSUED	2-1-22	RJS
2			
3			
4			

FORT BEND COUNTY
ENGINEERING DEPARTMENT



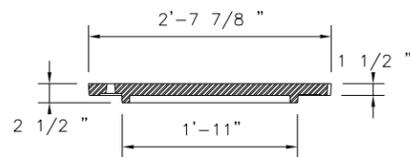
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CK'D BY:	INIT	18
SCALE:	1"=1'-6"	SHEET DESCRIPTION:
DATE:	2-1-22	APPROVED BY:
		DETAILS
		SHEET NO:
		/

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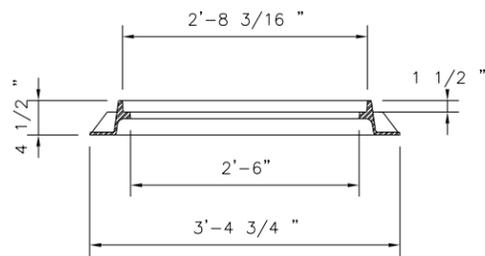


PLAN VIEW
FRAME AND COVER
SCALE: 1" = 1'-0"

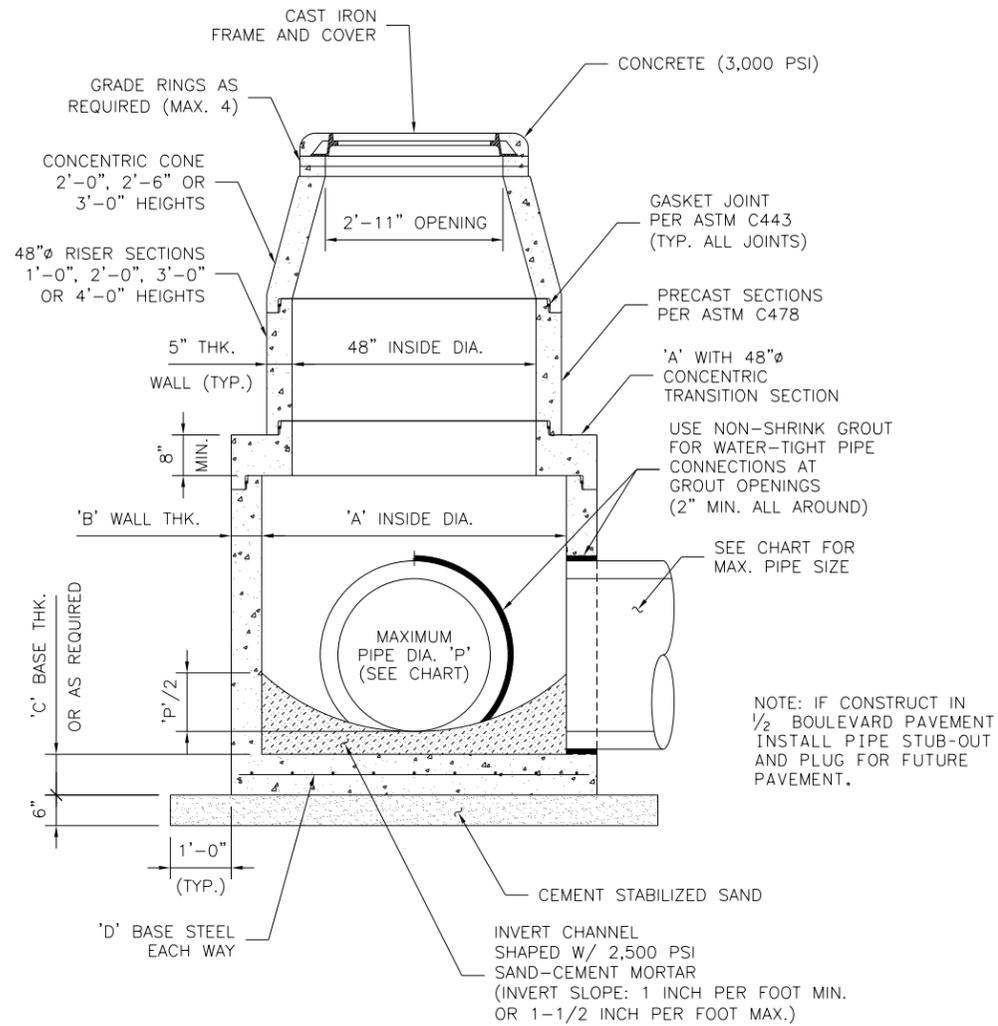
NOTE: IF PROJECT IS WITHIN A CITY ETJ OR CITY LIMITS, USE CITY'S STD MANHOLE COVER



COVER SECTION A-A
SCALE: 1" = 1'-0"

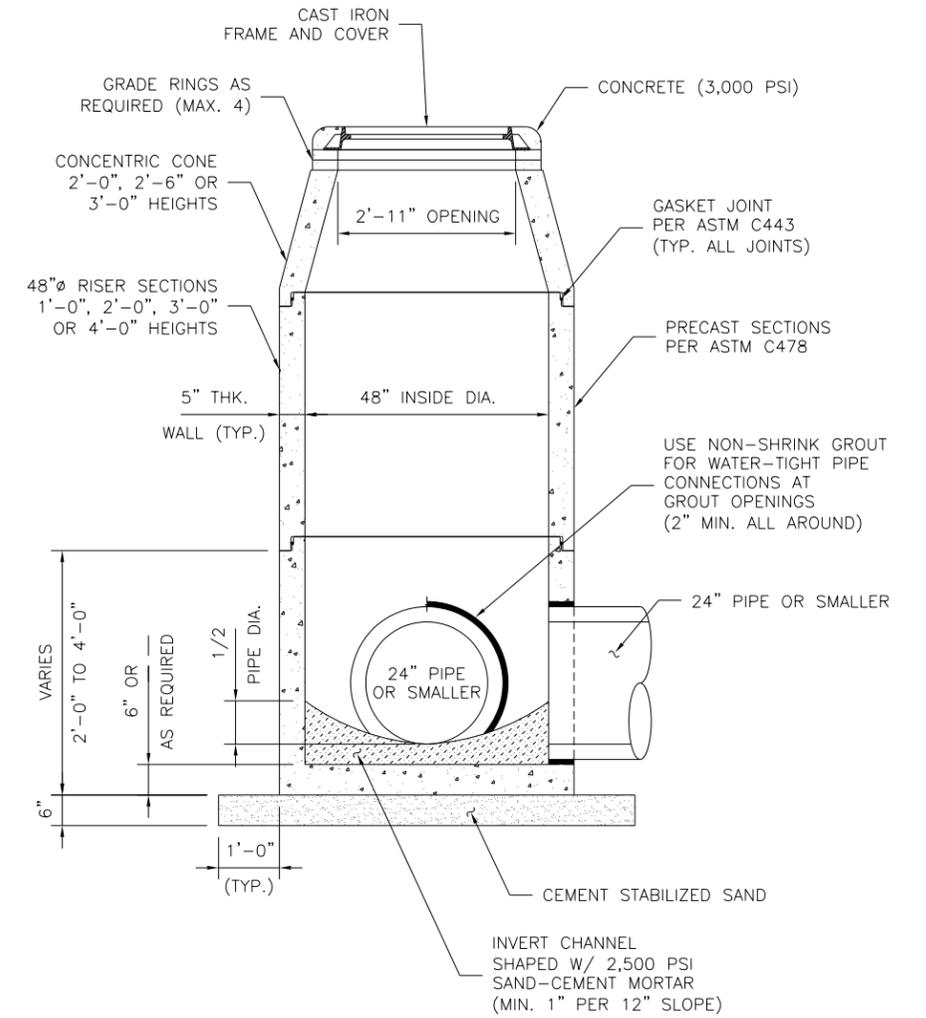


FRAME SECTION A-A
SCALE: 1" = 1'-0"



PRECAST CONCENTRIC MANHOLE
FOR PIPE SIZES GREATER THAN 24"
SCALE: 1" = 1'-6"

MAXIMUM PIPE DIA. 'P'	INSIDE DIA. 'A'	WALL THICKNESS 'B'	BASE THICKNESS 'C'	BASE STEEL 'D'
30"	5'-0"	6"	8"	#5 @ 8"
42"	6'-0"	7"	8"	#5 @ 8"
54"	7'-0"	8"	10"	#6 @ 12" (2 LAYERS)
60"	8'-0"	9"	10"	#6 @ 12" (2 LAYERS)



48"Ø PRECAST CONCENTRIC MANHOLE
FOR PIPE SIZES 24" OR SMALLER
SCALE: 1" = 1'-6"

GENERAL NOTES:

- CONSTRUCTION AND MATERIALS SHALL MEET REQUIREMENTS OF ITEM 471 "PRECAST CONCRETE MANHOLES".
- CONCRETE FOR MANHOLE: MINIMUM 4,000 PSI IN 28 DAYS
- HS-20 LOADING; MANHOLE DESIGN SHALL MEET OR EXCEED ASTM C478 REQUIREMENTS.
- GASKET JOINT: PER ASTM C443
- FRAME AND COVER SHALL BE EAST JORDAN IRON WORKS MODEL V-1420 OR APPROVED EQUAL.
- SHOP DRAWINGS WITH MANUFACTURER'S CERTIFICATION SHALL BE SUBMITTED FOR ENGINEER'S APPROVAL.

NO.	REVISIONS	DATE	NAME
1	ORIGINAL STANDARD ISSUED	2-1-22	RJS

FORT BEND COUNTY
ENGINEERING DEPARTMENT

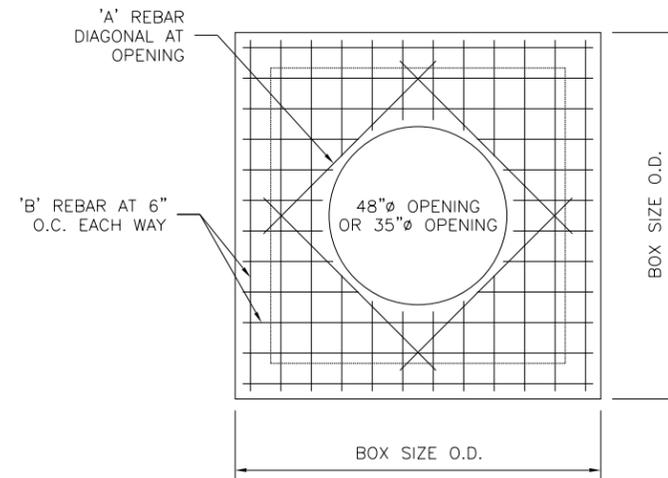


PROJECT TITLE:		FBCD STANDARD
DRAWN BY: INIT	SHEET DESCRIPTION: PRECAST CONCRETE STORM SEWER	
CK'D BY: INIT	SCALE: AS NOTED	MANHOLE DETAILS
DATE: 2-1-22	APPROVED BY:	SHEET NO: /

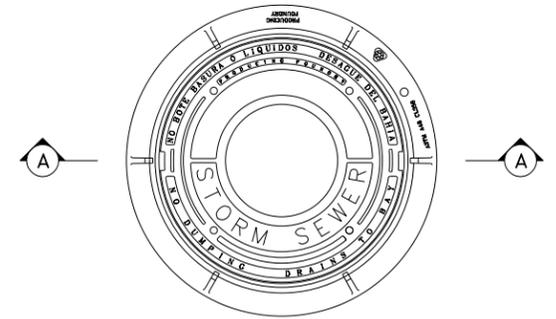
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BOX SIZE I.D.	MAX. OPENING SIZE	FLAT SLAB THK.	WALL THK.	BASE THK.	BAR 'A'	BAR 'B'	BAR 'C'	*BAR 'D'
4'x4'	48"	8"	6"	6"	#4	#4	#4	#4
5'x5'	60"	10"	6"	8"	#5	#5	#4	#4
6'x6'	72"	10"	8"	8"	#5	#5	#5	#5
7'x7'	84"	10"	8"	8"	#5	#5	#5	#5
8'x8'	96"	10"	8"	8"	#5	#5	#5	#5

* FOR 7'x7' AND 8'x8' BOX SIZE: TWO LAYERS OF STEEL REQUIRED. (FOR DEPTHS GREATER THAN 15')

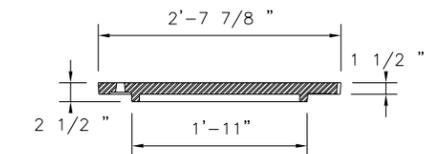


PLAN VIEW
FLAT SLAB WITH OPENING
SCALE: 1"=1'-6"

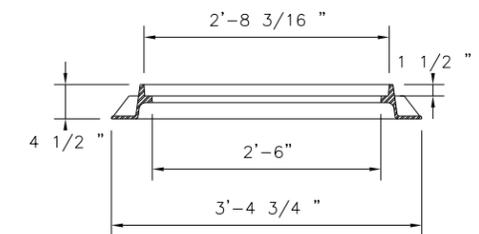


PLAN VIEW
FRAME AND COVER
SCALE: 1"=1'-0"

NOTE: IF PROJECT IS WITHIN A CITY ETJ USE CITY'S STD MANHOLE COVER

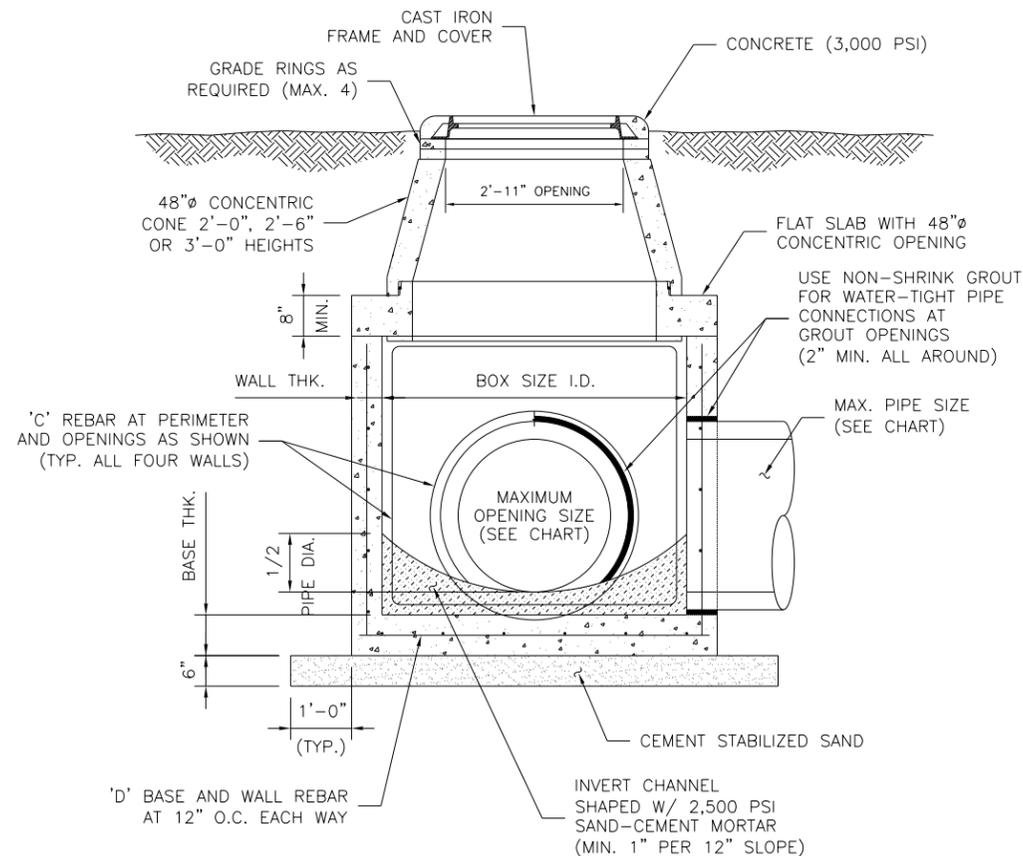


COVER SECTION A-A
SCALE: 1"=1'-0"

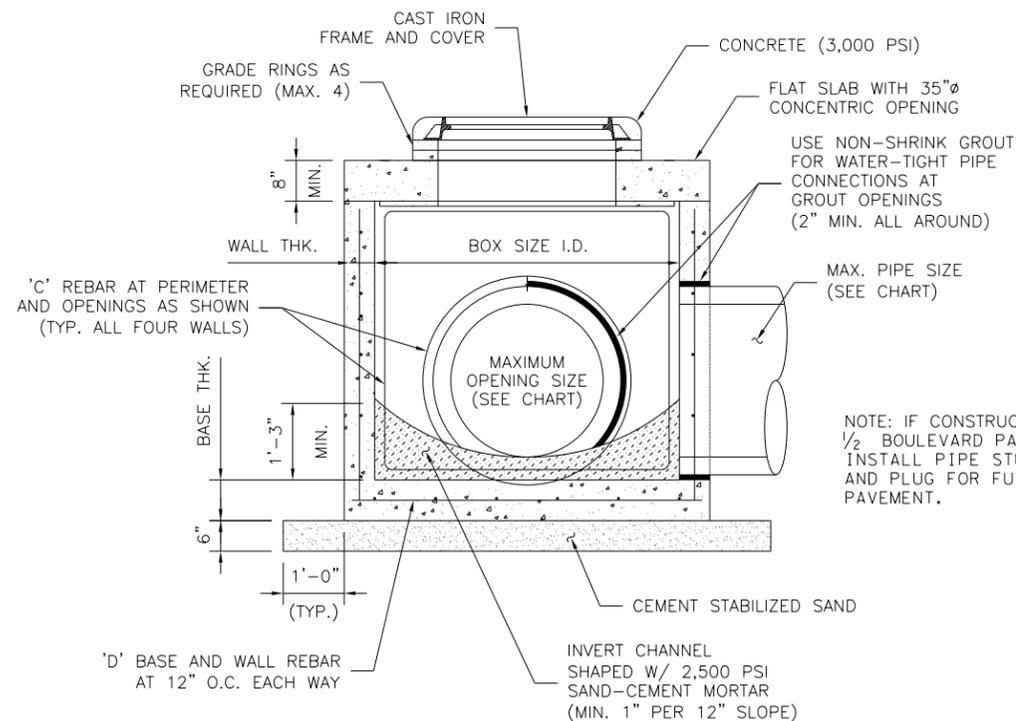


FRAME SECTION A-A
SCALE: 1"=1'-0"

NOTE: IF CONSTRUCT IN 1/2 BOULEVARD PAVEMENT INSTALL PIPE STUB-OUT AND PLUG FOR FUTURE PAVEMENT.



JUNCTION BOX/MANHOLE
WITH CONCENTRIC CONE
SCALE: 1"=1'-6"



JUNCTION BOX/MANHOLE
WITH FLAT SLAB
SCALE: 1"=1'-6"

GENERAL NOTES:

- CONSTRUCTION AND MATERIALS SHALL MEET REQUIREMENTS OF ITEM 471 "PRECAST CONCRETE MANHOLES".
- CONCRETE FOR JUNCTION BOX: MINIMUM 4,000 PSI IN 28 DAYS
- HS-20 LOADING; MANHOLE DESIGN SHALL MEET OR EXCEED ASTM C478 AND ASTM C913 REQUIREMENTS.
- JOINT SEALANT: RAM-NEK GASKET MATERIAL
- FRAME AND COVER SHALL BE EAST JORDAN IRON WORKS MODEL V-1420 OR APPROVED EQUAL.
- SHOP DRAWINGS WITH MANUFACTURER'S CERTIFICATION SHALL BE SUBMITTED FOR ENGINEER'S APPROVAL.

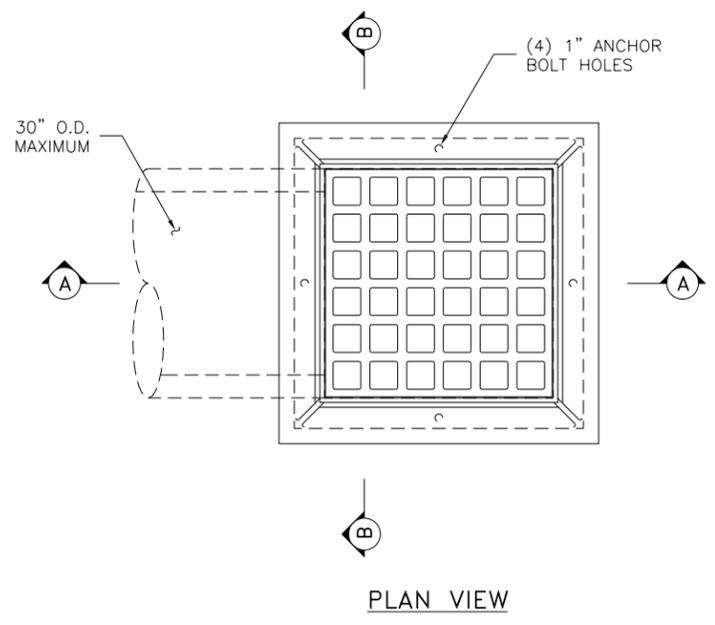
NO.	REVISIONS	DATE	NAME
1	ORIGINAL STANDARD ISSUED	2-1-22	RJS

FORT BEND COUNTY
ENGINEERING DEPARTMENT

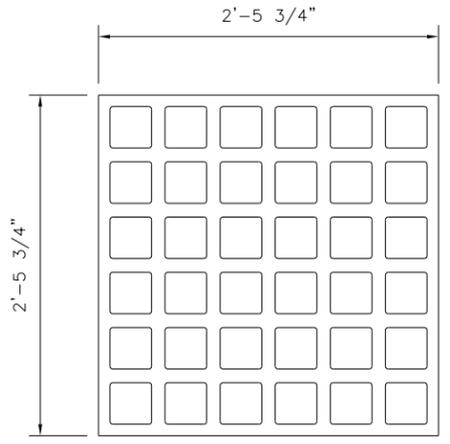


PROJECT TITLE:		
DRAWN BY: INIT	SHEET DESCRIPTION: JUNCTION BOX/ MANHOLE	FBCD STANDARD
CK'D BY: INIT		21
SCALE: AS NOTED	DETAILS	SHEET NO:
DATE: 2-1-22	APPROVED BY:	/

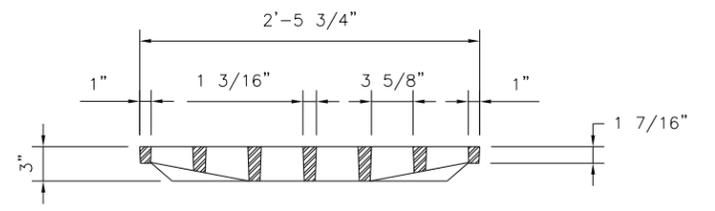
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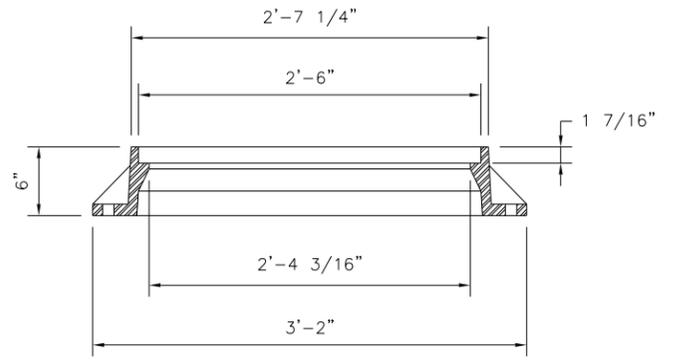
PLAN VIEW



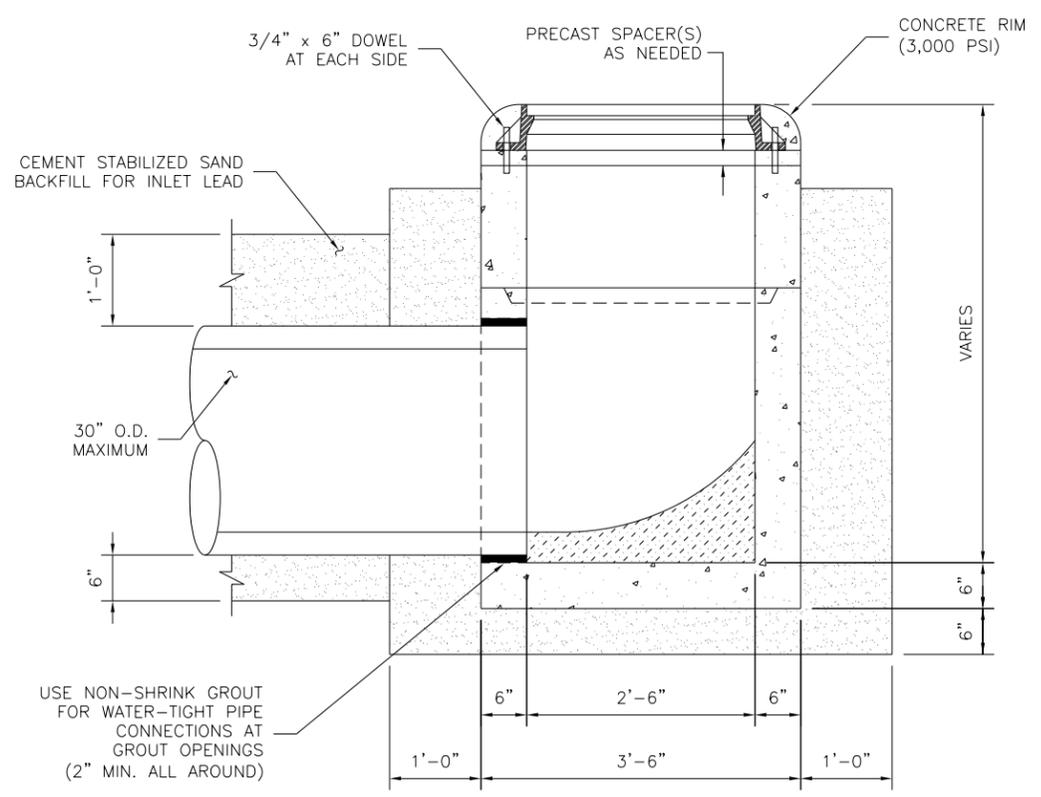
GRATE PLAN VIEW



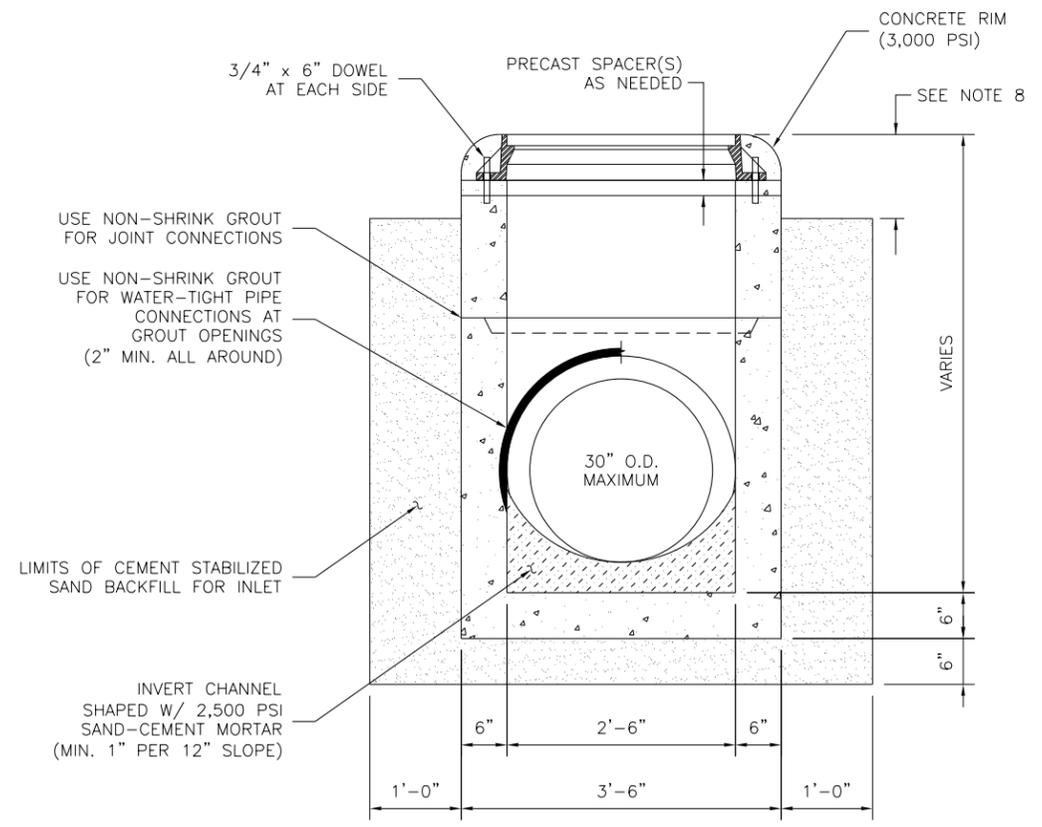
GRATE SECTION A-A



FRAME SECTION A-A



SECTION A-A



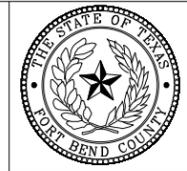
SECTION B-B

GENERAL NOTES:

1. CONSTRUCTION AND MATERIALS SHALL MEET REQUIREMENTS OF ITEM 472 "INLETS".
2. CONCRETE FOR INLET: MINIMUM 4,000 PSI IN 28 DAYS
3. PRECAST STRUCTURE TO MEET ASTM C913
4. FRAME AND GRATE SHALL BE EAST JORDAN IRON WORKS MODEL V-4880-1 (OPEN AREA 473 SQ. IN.) OR APPROVED EQUAL.
5. IF THE ENGINEER OF RECORD SPECIFIES A CAST-IN-PLACE INLET, HE/SHE SHALL INCORPORATE A DETAILED DRAWING INTO THE CONTRACT DOCUMENTS. HOWEVER, IF THE CONTRACTOR ELECTS TO CONSTRUCT A CAST-IN-PLACE INLET, THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING A DETAILED DRAWING, SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF TEXAS.
6. SHOP DRAWINGS SHALL BE REQUIRED FOR PRECAST CONSTRUCTION OF INLET.
7. KNOCK-OUTS ARE NOT PERMISSIBLE FOR PRECAST CONSTRUCTION OF INLET.
8. CEMENT STABILIZED SAND SHALL EXTEND TO THE BOTTOM OF PAVEMENT OR SLOPE PAVING, OR 12 INCHES BELOW THE SURFACE IF INLET IS LOCATED IN AN UNPAVED AREA.

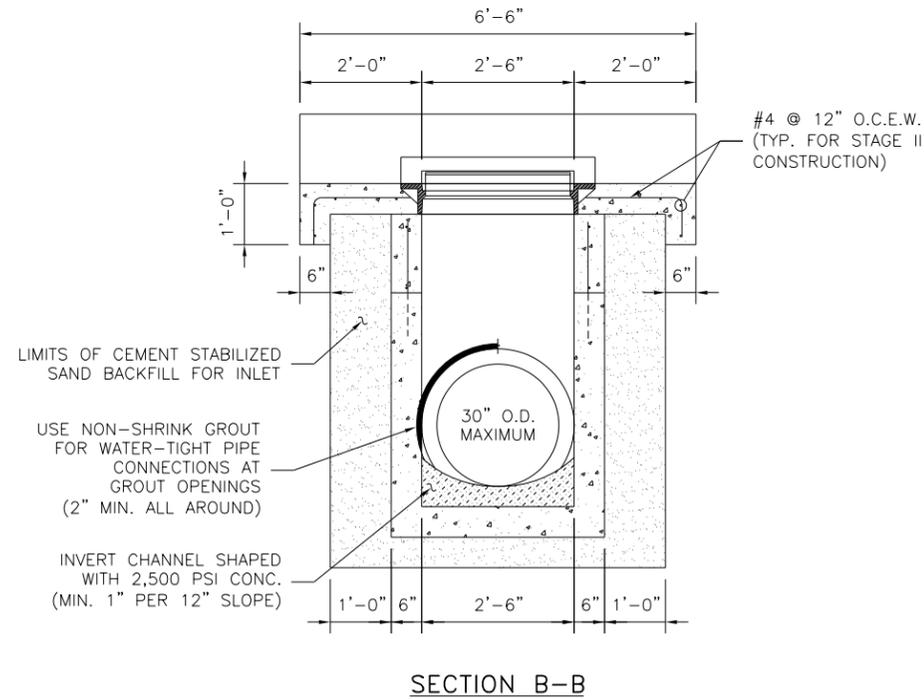
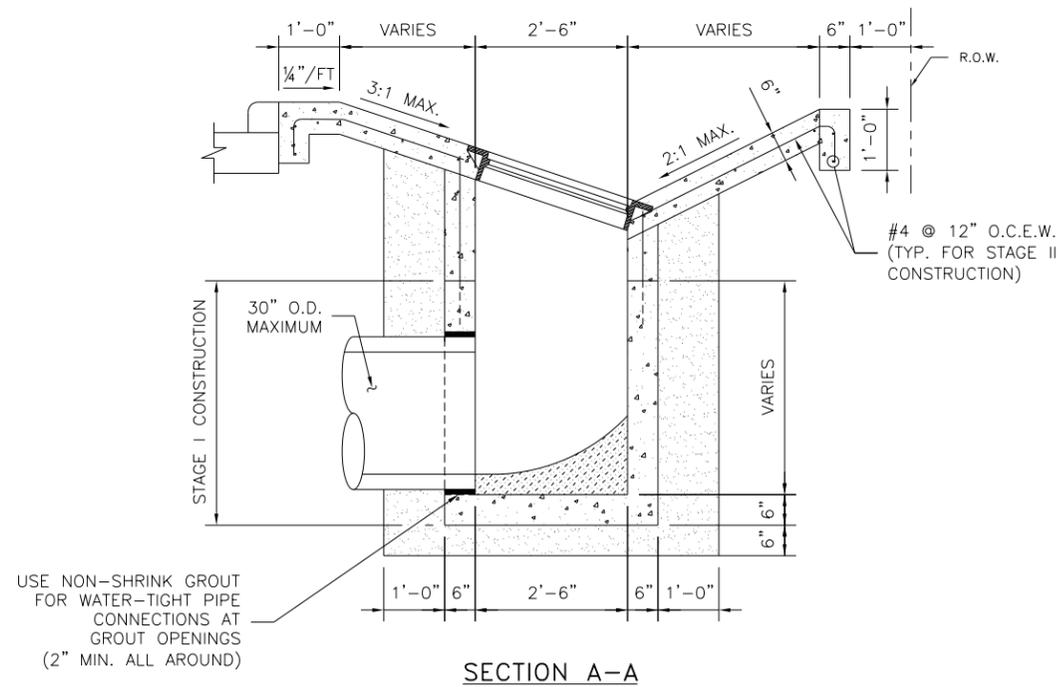
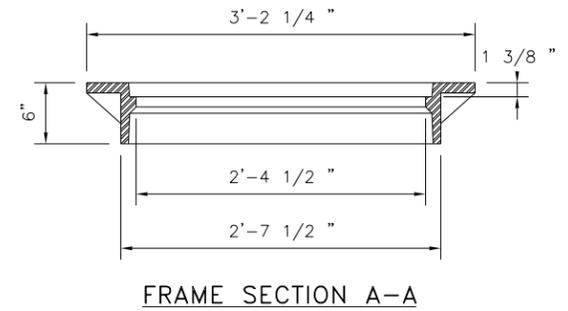
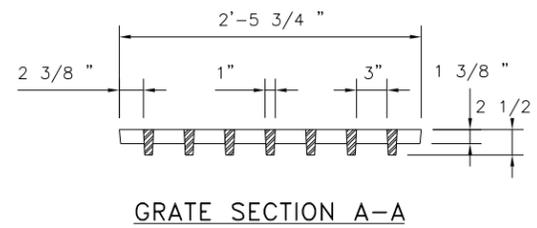
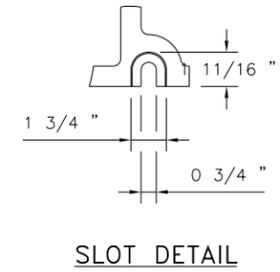
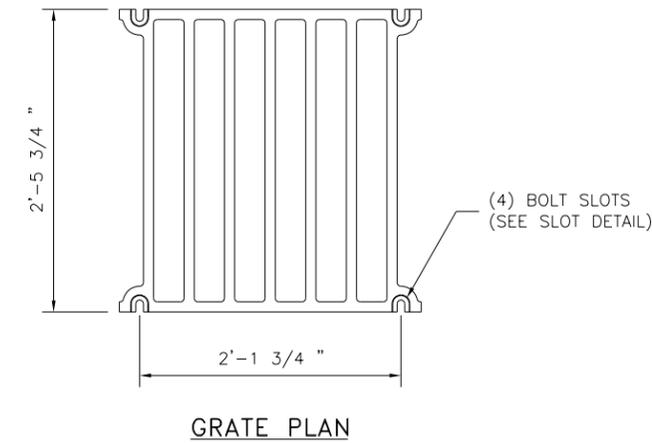
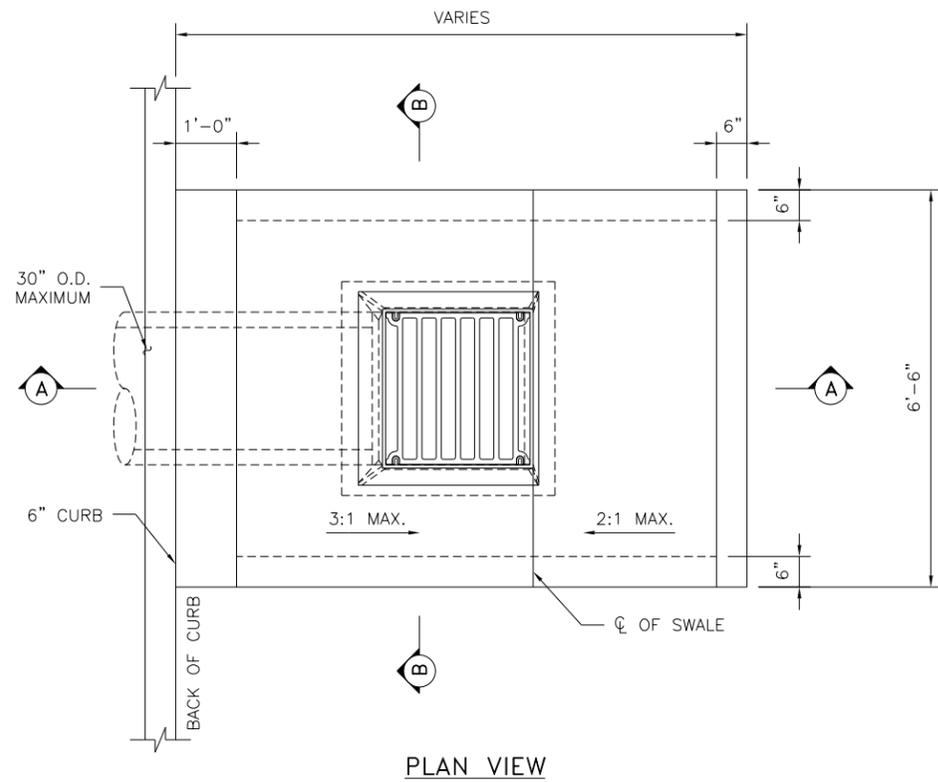
NO.	REVISIONS	DATE	NAME
▲	ORIGINAL STANDARD ISSUED	2-1-22	RJS
▲			
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FORT BEND COUNTY
ENGINEERING DEPARTMENT



PROJECT TITLE:		
DRAWN BY: INIT	SHEET DESCRIPTION: TYPE "A" INLET DETAILS	FBCD STANDARD
CK'D BY: INIT		22
SCALE: 1"=1'-0"	FOR MAXIMUM 30" O.D. PIPE	SHEET NO:
DATE: 2-1-22	APPROVED BY:	/

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GENERAL NOTES:

1. CONSTRUCTION AND MATERIALS SHALL MEET REQUIREMENTS OF ITEM 472 "INLETS".
2. CONCRETE: MINIMUM 4,000 PSI IN 28 DAYS
3. PRECAST STRUCTURE TO MEET ASTM C913.
4. FRAME AND GRATE SHALL BE EAST JORDAN IRON WORKS MODEL V-4882-3 FRAME AND V-4880-2 GRATE WITH (4) BOLT SLOT GRATE OR APPROVED EQUAL.
5. IF THE ENGINEER OF RECORD SPECIFIES A CAST-IN-PLACE INLET; HE/SHE SHALL INCORPORATE A DETAILED DRAWING INTO THE CONTRACT DOCUMENTS. HOWEVER, IF THE CONTRACTOR ELECTS TO CONSTRUCT A CAST-IN-PLACE INLET, THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING A DETAILED DRAWING, SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF TEXAS.
6. USE PRECAST UNITS FOR STAGE I CONSTRUCTION. CAST IN PLACE MAY BE REQUIRED DURING STAGE II CONSTRUCTION. SHOP DRAWINGS WILL BE REQUIRED FOR PRECAST CONSTRUCTION OF INLET.
7. KNOCK-OUTS ARE NOT PERMISSIBLE FOR PRECAST CONSTRUCTION OF INLET.
8. CONCRETE SLOPE PAVING SHALL CONFORM TO ITEM 491 "REINFORCED CONCRETE SLOPE PAVING", BUT IS INCIDENTAL TO THE INLET.
9. STAGE I OF THE INLET SHALL BE PRECAST. STAGE II SHALL BE CAST-IN-PLACE.
10. MINIMUM CLEARANCE FOR REINFORCING STEEL IN SLOPE PAVING SHALL BE TWO INCHES.

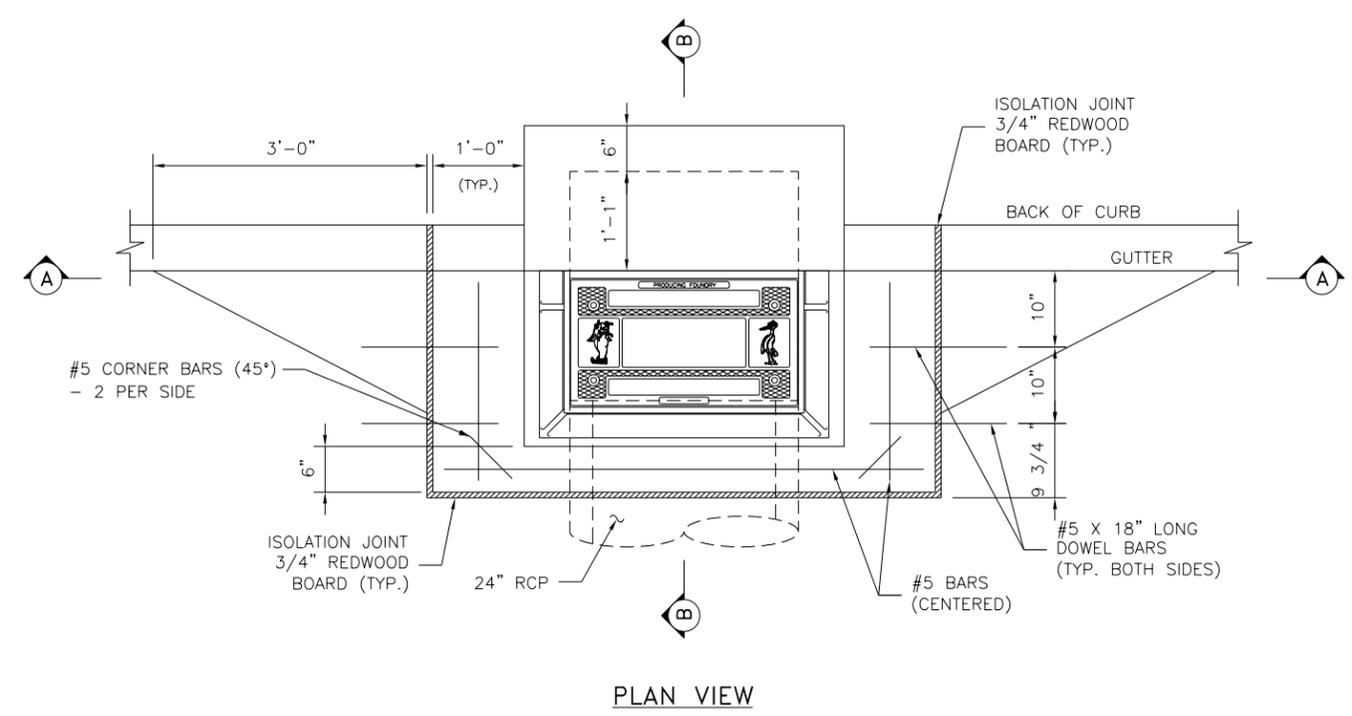
NO.	REVISIONS	DATE	NAME
▲	ORIGINAL STANDARD ISSUED	2-1-22	RJS
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FORT BEND COUNTY
ENGINEERING DEPARTMENT

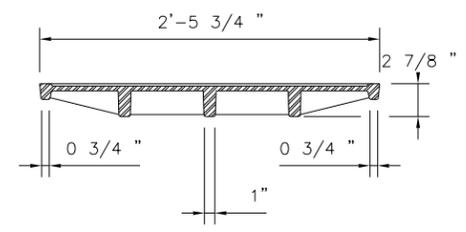


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DATE:	2-1-22	APPROVED BY:
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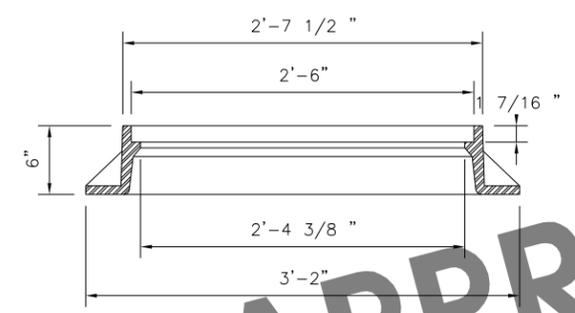
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PLAN VIEW

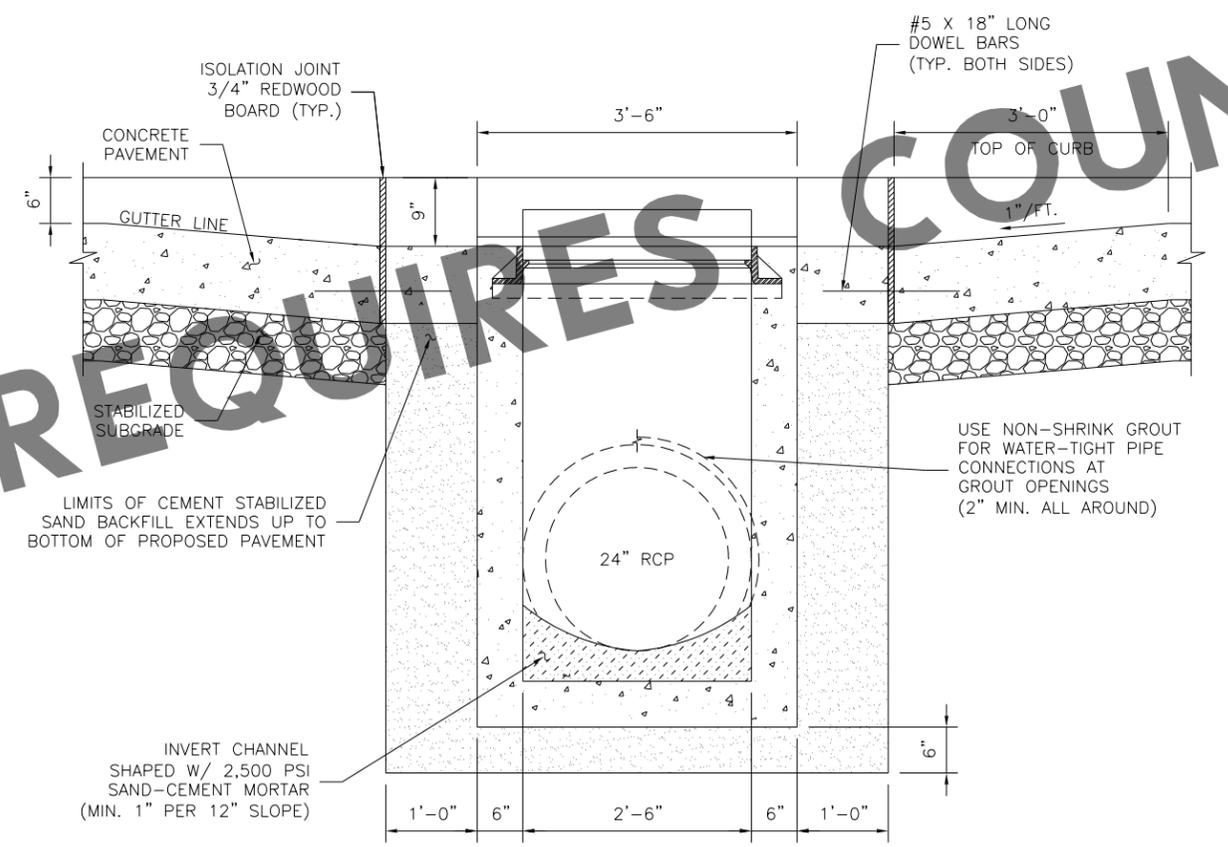


FRAME SECTION A-A

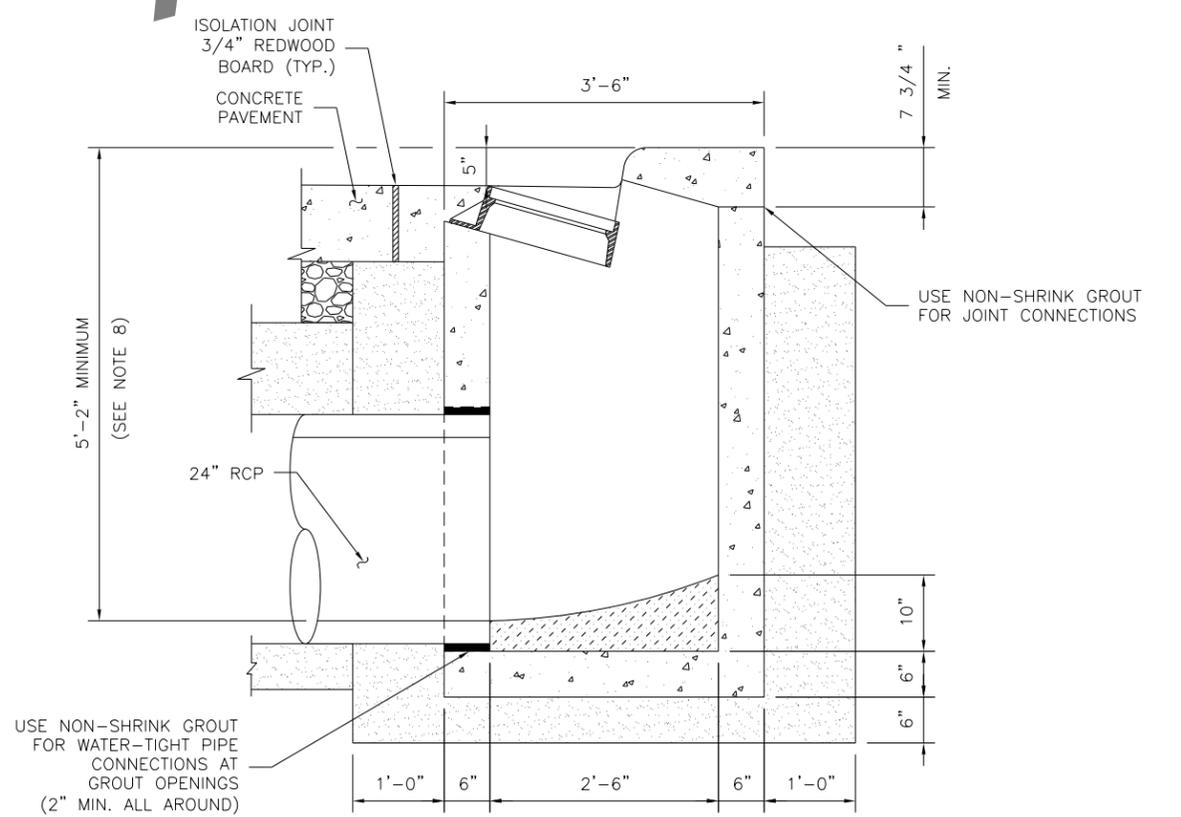


FRAME SECTION A-A

- GENERAL NOTES:**
1. CONSTRUCTION AND MATERIALS SHALL MEET REQUIREMENTS OF ITEM 472 "INLETS".
 2. CONCRETE FOR INLET: MINIMUM 4,000 PSI IN 28 DAYS
 3. PRECAST STRUCTURE TO MEET ASTM C913.
 4. FRAME WITH EITHER SOLID PLATE OR GRATE SHALL BE EAST JORDAN IRON WORKS MODEL V-4241 OR APPROVED EQUAL.
 5. IF THE ENGINEER OF RECORD SPECIFIES A CAST-IN-PLACE INLET, HE/SHE SHALL INCORPORATE A DETAILED DRAWING INTO THE CONTRACT DOCUMENTS. HOWEVER, IF THE CONTRACTOR ELECTS TO CONSTRUCT A CAST-IN-PLACE INLET, THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING A DETAILED DRAWING, SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF TEXAS.
 6. SHOP DRAWINGS SHALL BE REQUIRED FOR PRECAST CONSTRUCTION OF INLET.
 7. KNOCK-OUTS ARE NOT PERMISSIBLE FOR PRECAST CONSTRUCTION OF INLET.
 8. 5'-2" MINIMUM OR AS SPECIFIED BY THE ENGINEER OF RECORD.



SECTION A-A



SECTION B-B

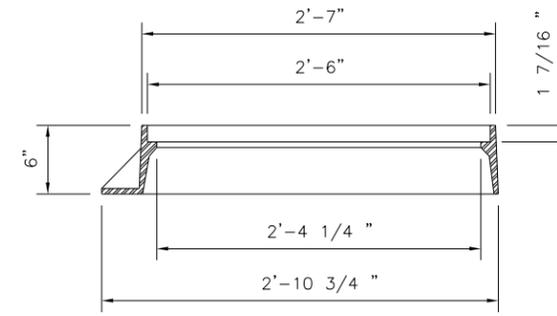
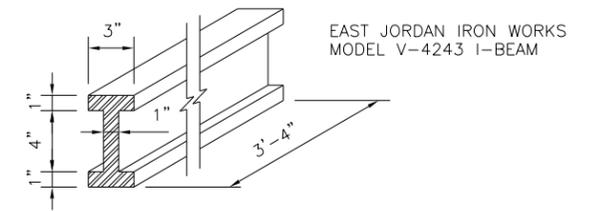
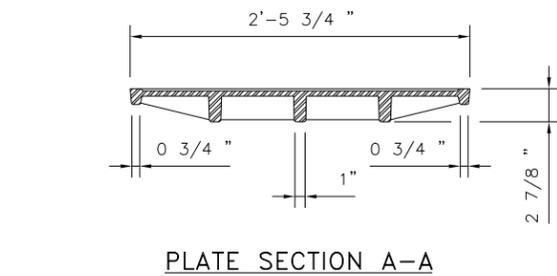
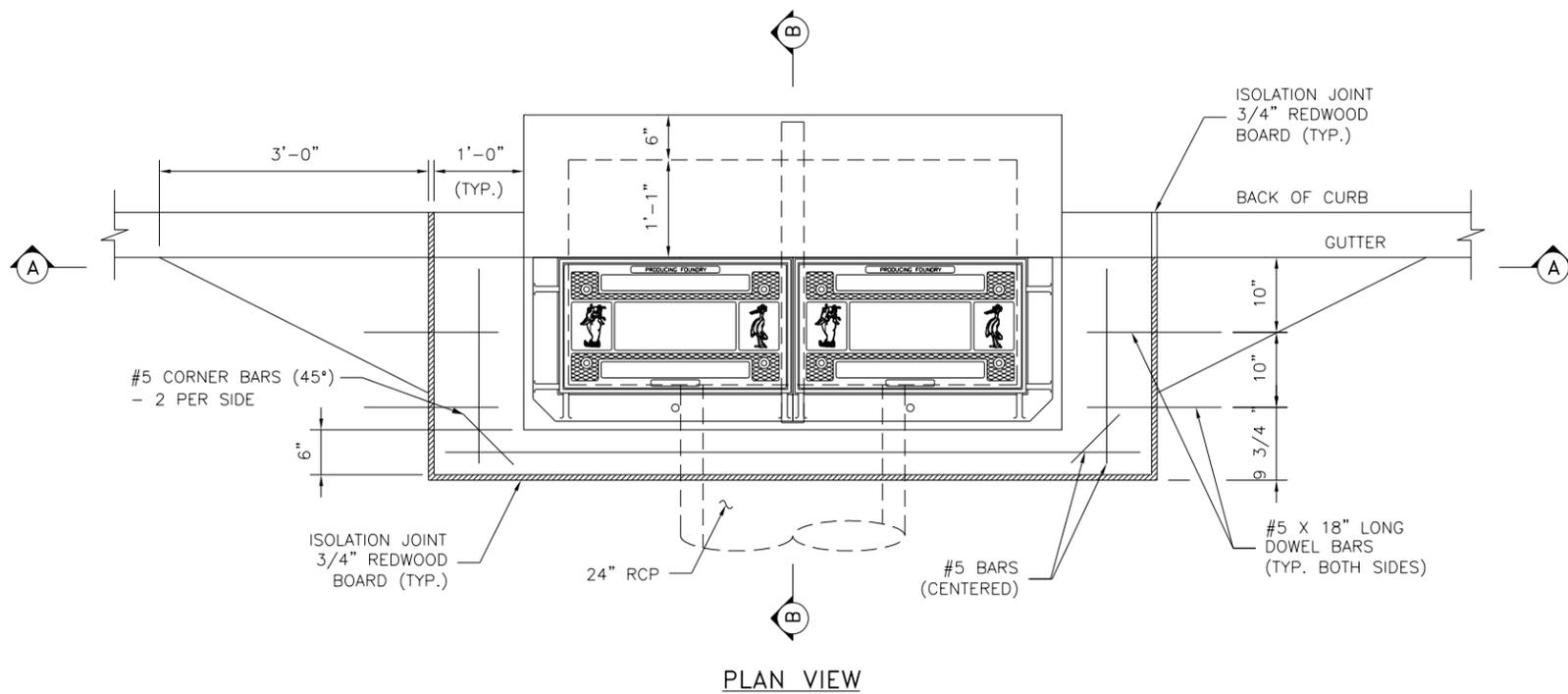
NO.	REVISIONS	DATE	NAME
▲	ORIGINAL STANDARD ISSUED	2-1-22	RJS
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FORT BEND COUNTY
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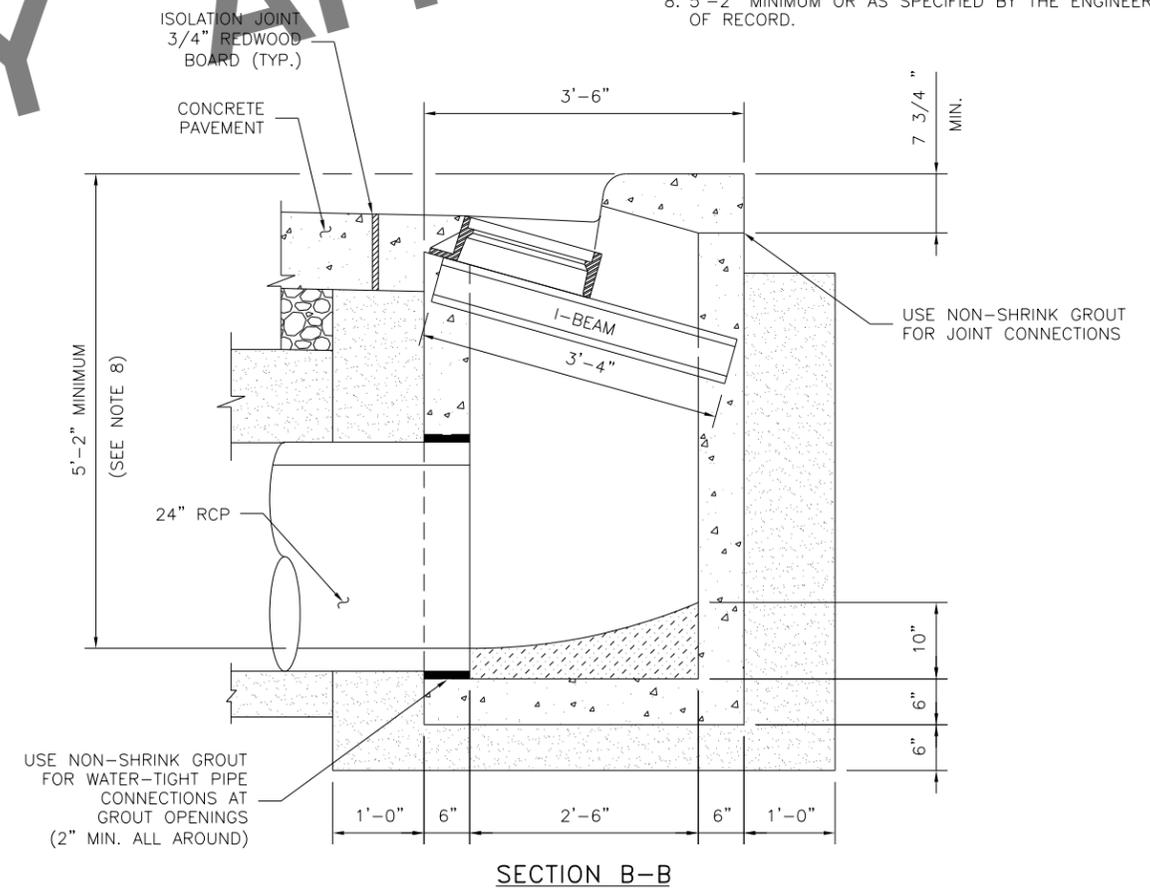
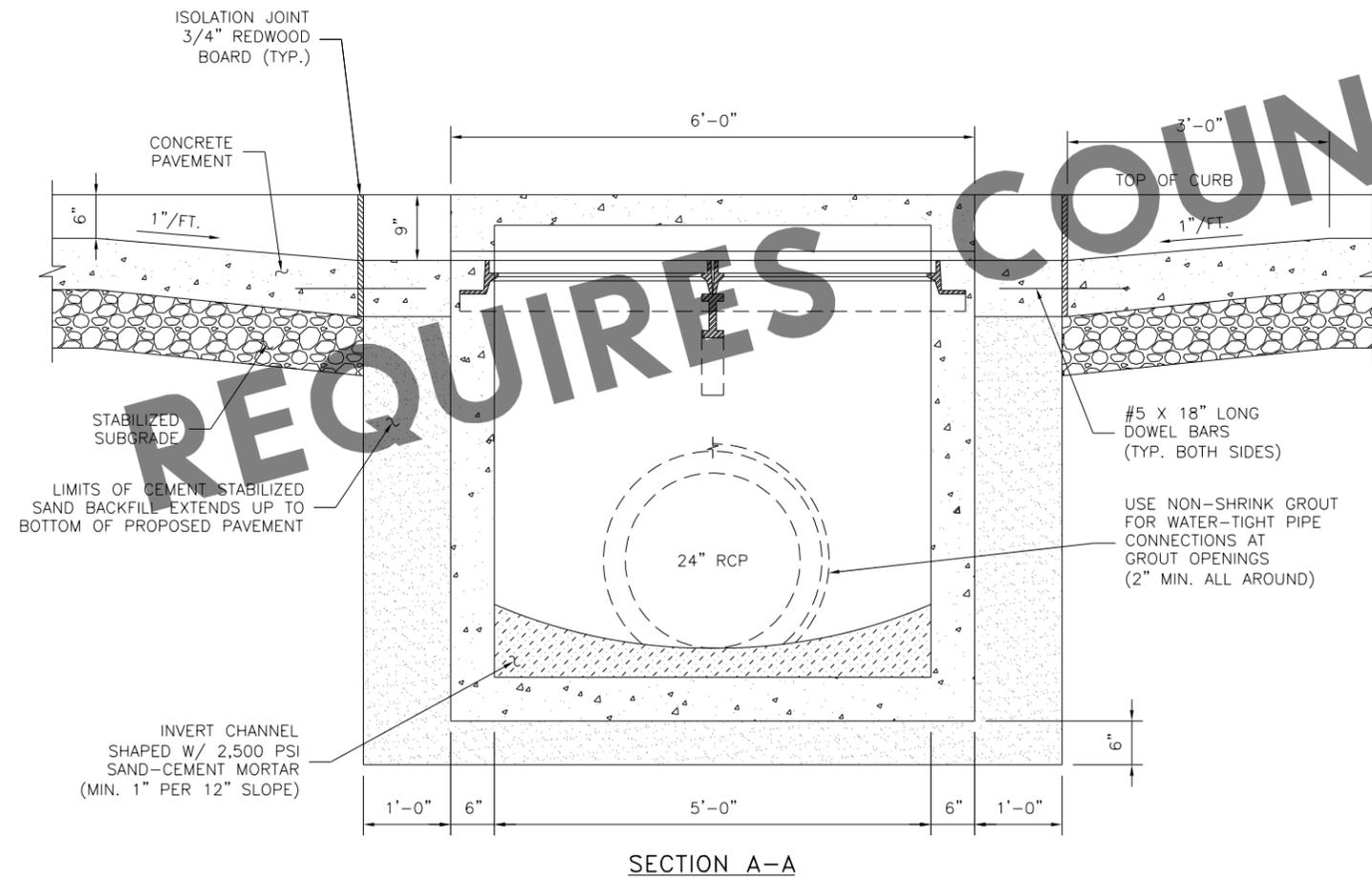
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CK'D BY:	INIT	24
SCALE:	1"=1'-0"	SHEET DESCRIPTION:
DATE:	2-1-22	APPROVED BY:
		SHEET NO:
		/

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GENERAL NOTES:

1. CONSTRUCTION AND MATERIALS SHALL MEET REQUIREMENTS OF ITEM 472 "INLETS".
2. CONCRETE FOR INLET: MINIMUM 4,000 PSI IN 28 DAYS
3. PRECAST STRUCTURE TO MEET ASTM C913.
4. FRAME WITH EITHER SOLID PLATE OR GRATE SHALL BE EAST JORDAN IRON WORKS MODEL V-4243 OR APPROVED EQUAL.
5. IF THE ENGINEER OF RECORD SPECIFIES A CAST-IN-PLACE INLET, HE/SHE SHALL INCORPORATE A DETAILED DRAWING INTO THE CONTRACT DOCUMENTS. HOWEVER, IF THE CONTRACTOR ELECTS TO CONSTRUCT A CAST-IN-PLACE INLET, THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING A DETAILED DRAWING, SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF TEXAS.
6. SHOP DRAWINGS WILL BE REQUIRED FOR PRECAST CONSTRUCTION OF INLET.
7. KNOCK-OUTS ARE NOT PERMISSIBLE FOR PRECAST CONSTRUCTION OF INLET.
8. 5'-2" MINIMUM OR AS SPECIFIED BY THE ENGINEER OF RECORD.



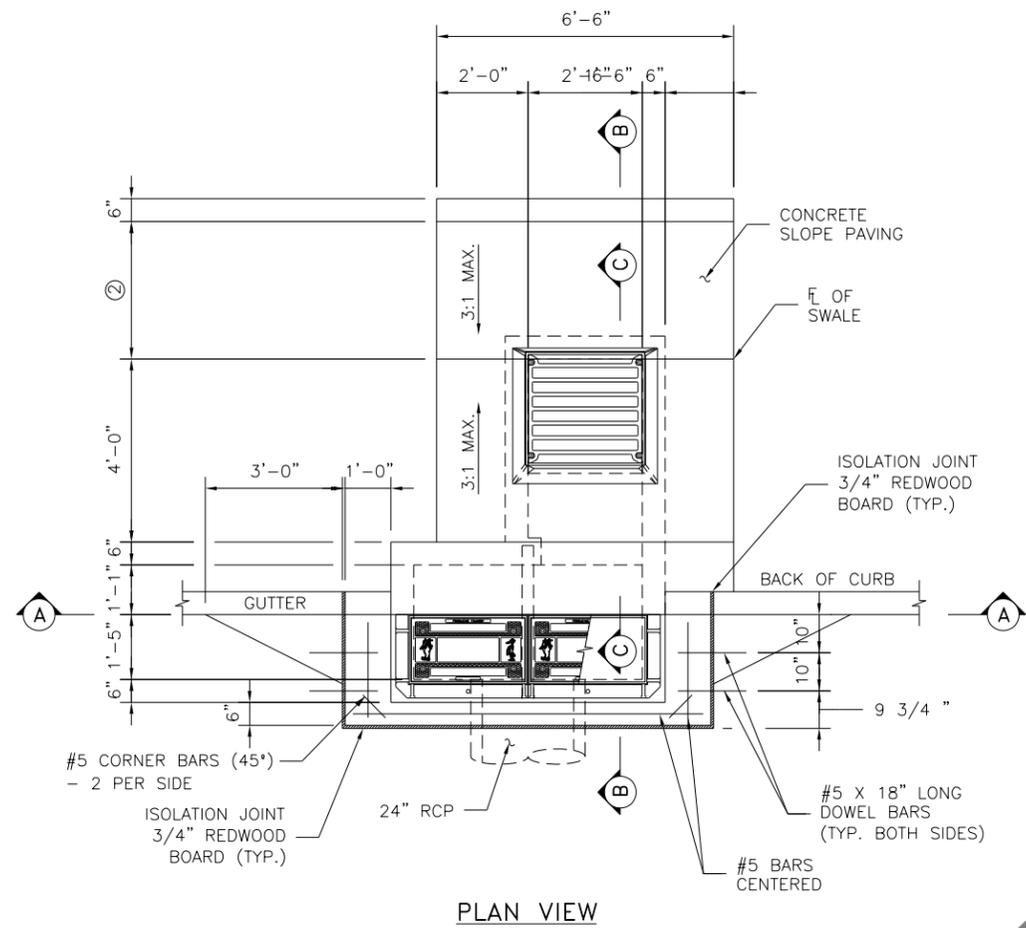
NO.	REVISIONS	DATE	NAME
▲	ORIGINAL STANDARD ISSUED	2-1-22	RJS
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FORT BEND COUNTY
ENGINEERING DEPARTMENT

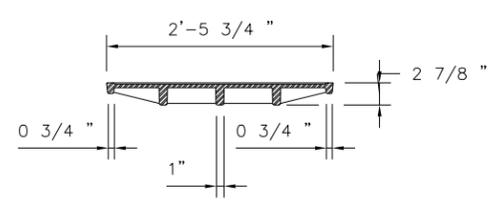


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CK'D BY: INIT		SHEET NO: /
SCALE: 1"=1'-0"	APPROVED BY:	
DATE: 2-1-22		

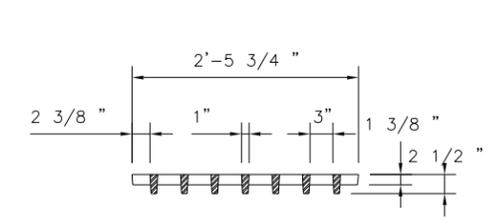
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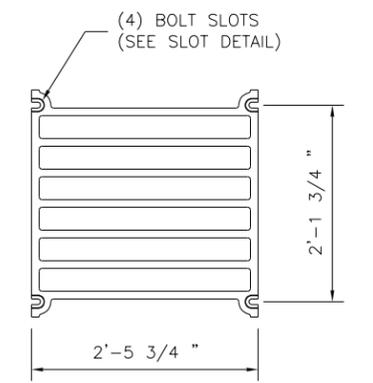
PLAN VIEW



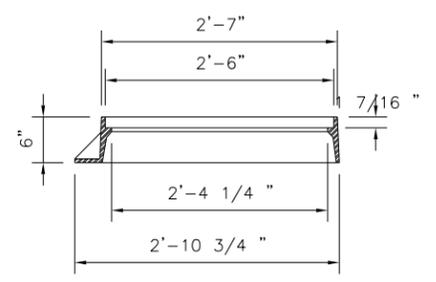
FRONT OF CURB: PLATE SECTION A-A



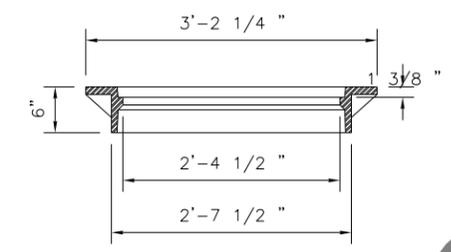
BACK OF CURB: GRATE SECTION B-B



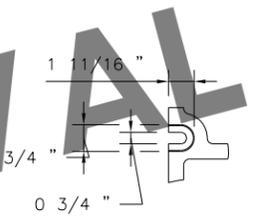
BACK OF CURB: GRATE PLAN VIEW



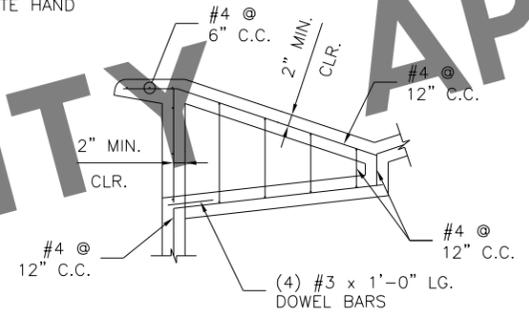
FRONT OF CURB: LEFT FRAME SECTION A-A
RIGHT FRAME IS OPPOSITE HAND



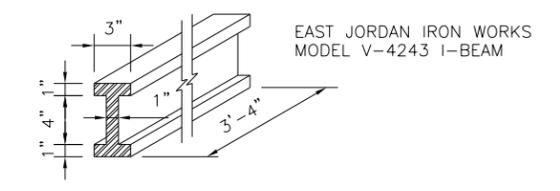
BACK OF CURB: FRAME SECTION A-A



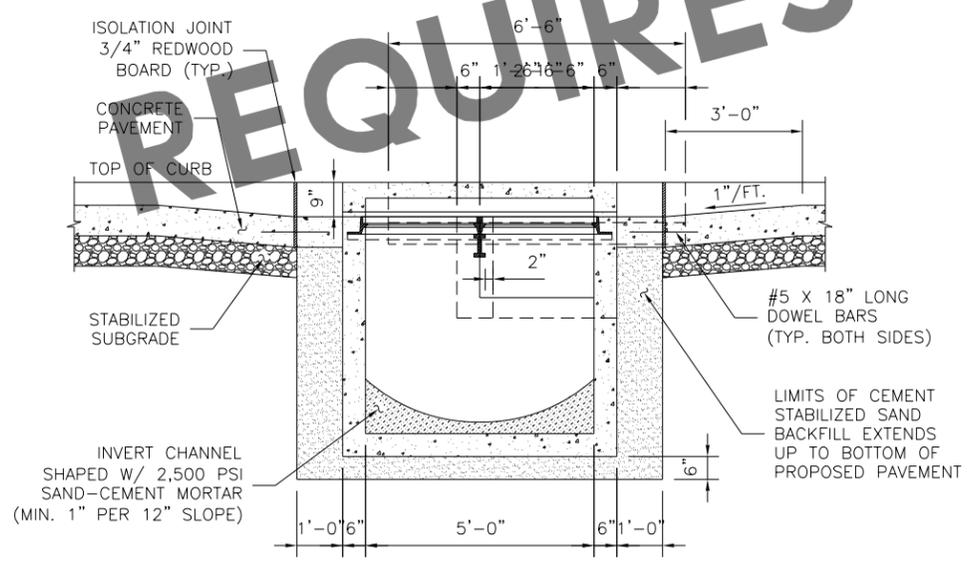
SLOT DETAIL



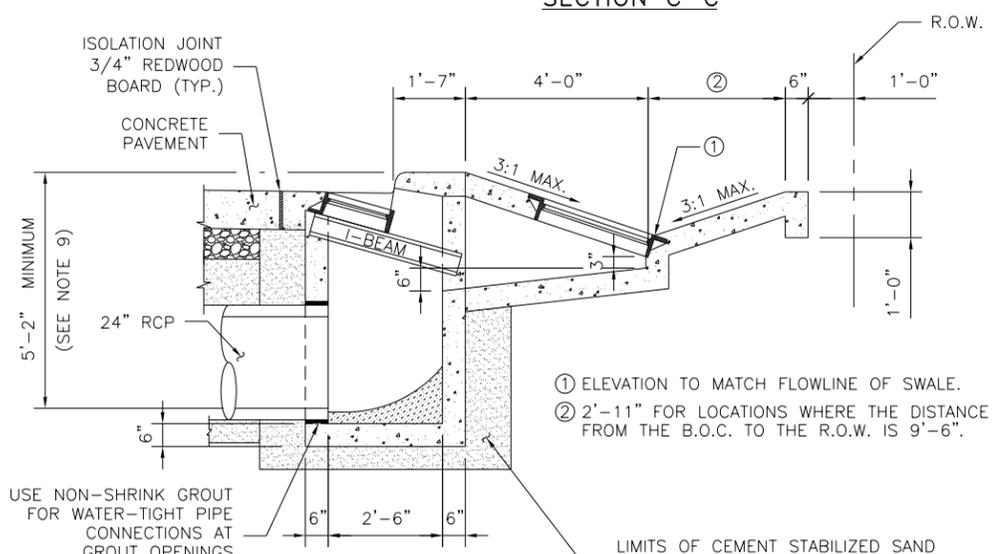
SECTION C-C



I-BEAM SECTION



SECTION A-A



SECTION B-B

GENERAL NOTES:

- CONSTRUCTION AND MATERIALS SHALL MEET REQUIREMENTS OF ITEM 472 "INLETS".
- SLOPE PAVING SHALL CONFORM TO THE REQUIREMENTS OF ITEM 491 "REINFORCED CONCRETE SLOPE PAVING AND PAYMENT SHALL BE INCLUDED IN THE COST OF THE INLET."
- CONCRETE FOR INLET: MINIMUM 4,000 PSI IN 28 DAYS
- PRECAST STRUCTURE TO MEET ASTM C913.
- FRONT OF CURB: FRAME WITH EITHER SOLID PLATE OR GRATE SHALL BE EAST JORDAN IRON WORKS MODEL V-4243 OR APPROVED EQUAL. BACK OF CURB: SHALL BE EAST JORDAN IRON WORKS FRAME MODEL V-4882-3 AND GRATE MODEL V-4880-2 WITH (4) BOLT SLOT GRATE OR APPROVED EQUAL.
- IF THE ENGINEER OF RECORD SPECIFIES A CAST-IN-PLACE INLET, HE/SHE SHALL INCORPORATE A DETAILED DRAWING INTO THE CONTRACT DOCUMENTS. HOWEVER, IF THE CONTRACTOR ELECTS TO CONSTRUCT A CAST-IN-PLACE INLET, THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING A DETAILED DRAWING, SEALED AND SIGNED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF TEXAS.
- USE PRECAST UNITS FOR STAGE I CONSTRUCTION. CAST-IN-PLACE MAY BE REQUIRED DURING STAGE II CONSTRUCTION. SHOP DRAWINGS WILL BE REQUIRED FOR THE PRECAST SECTION OF INLET.
- KNOCK-OUTS ARE NOT PERMISSIBLE FOR THE PRECAST SECTION OF INLET.
- 5'-2" MINIMUM OR AS SPECIFIED BY THE ENGINEER OF RECORD.
- TOP OF CURB ELEVATION, DITCH AND STORM SEWER FLOWLINES ARE SHOWN ON THE PLAN AND PROFILE SHEETS.

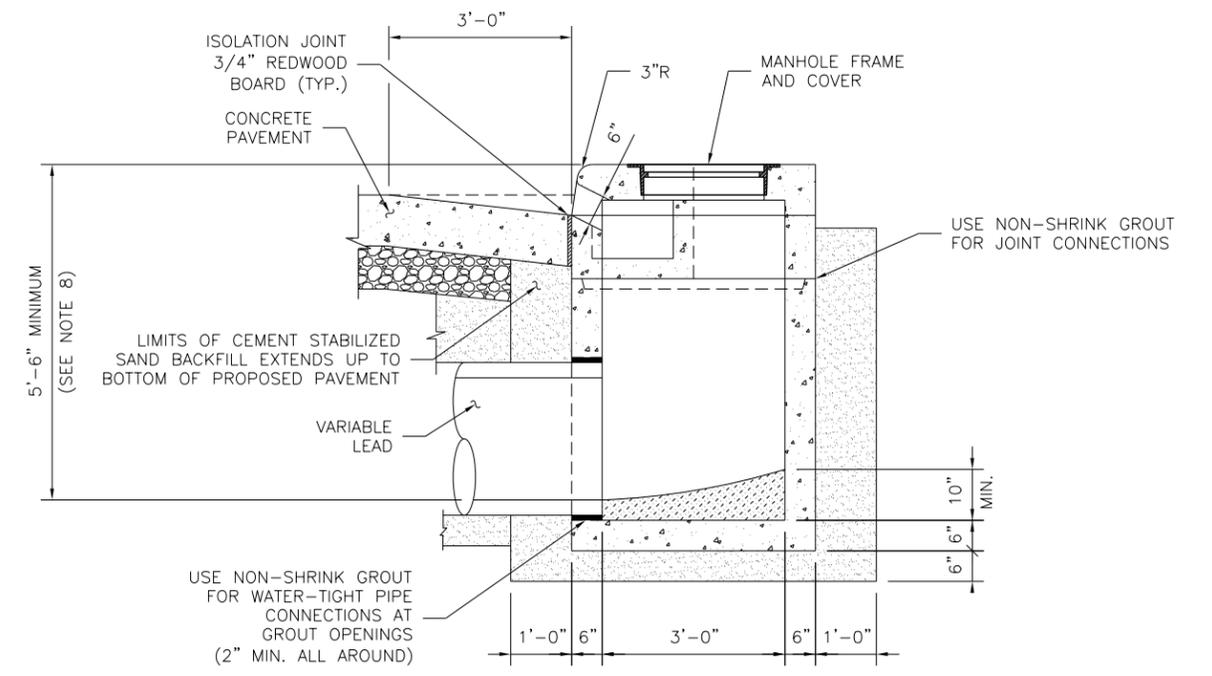
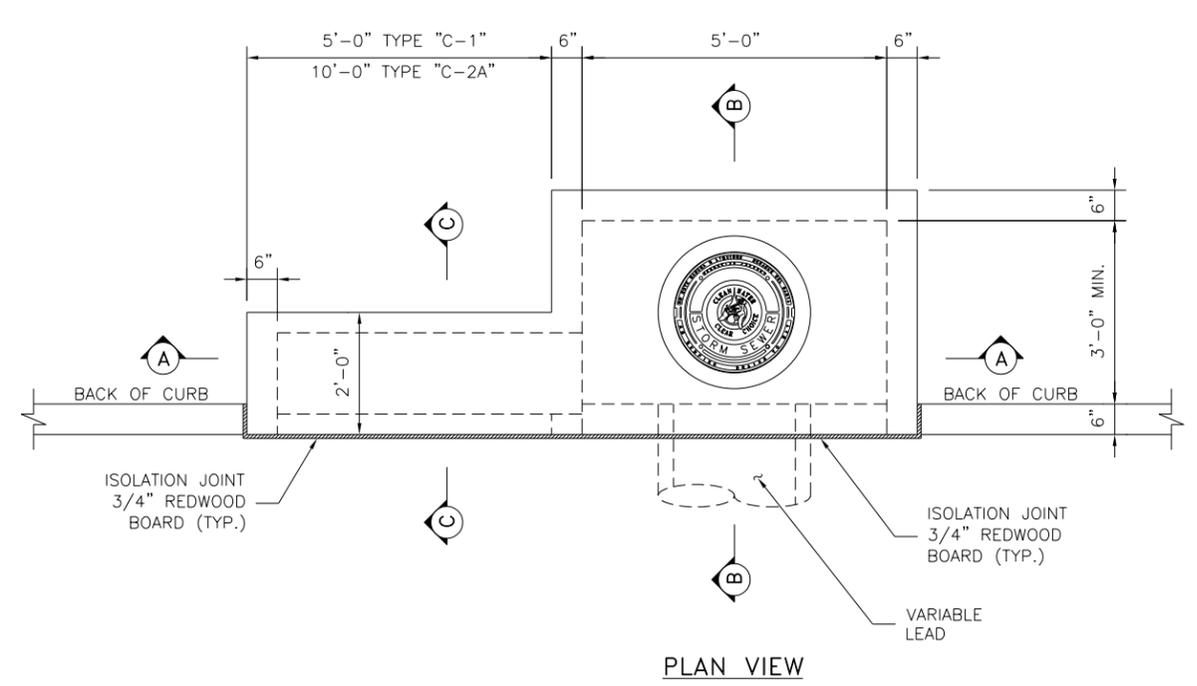
NO.	REVISIONS	DATE	NAME
1	ORIGINAL STANDARD ISSUED	2-1-22	RJS

FORT BEND COUNTY
ENGINEERING DEPARTMENT

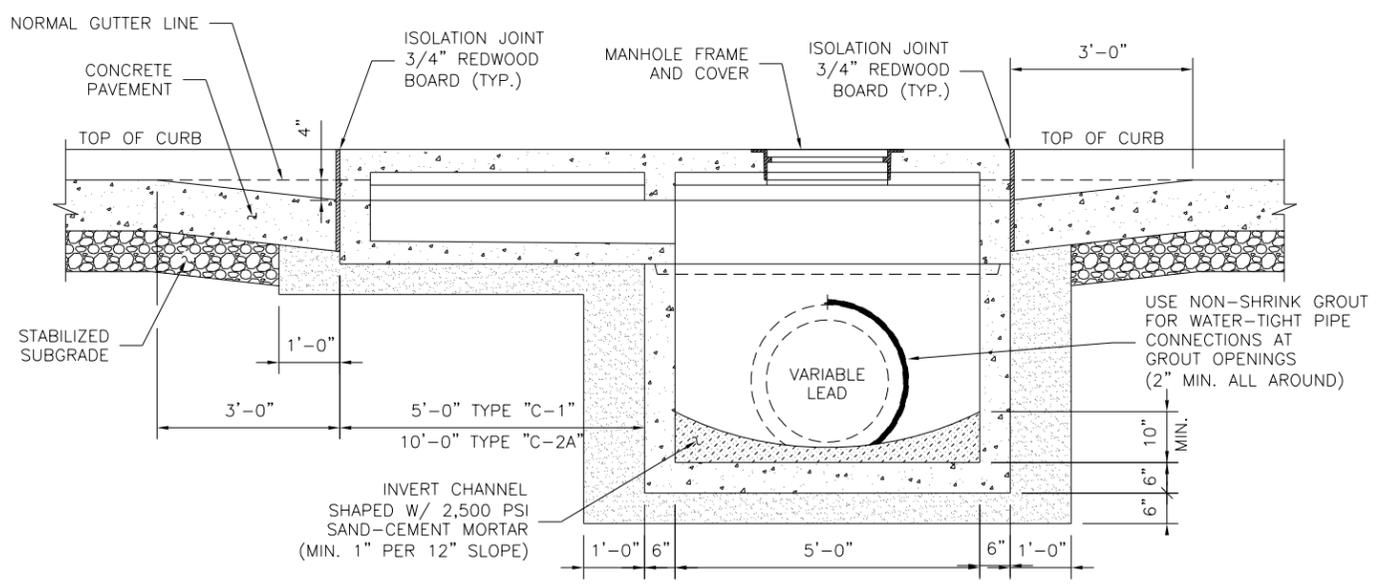


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CK'D BY: INIT		SHEET NO:
SCALE: 1"=2'-0"	FOR BACK OF CURB GRATE	/
DATE: 2-1-22	APPROVED BY:	

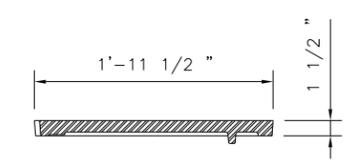
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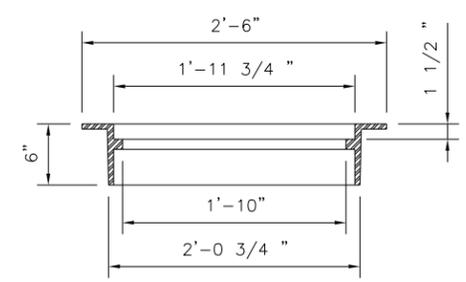
SECTION B-B



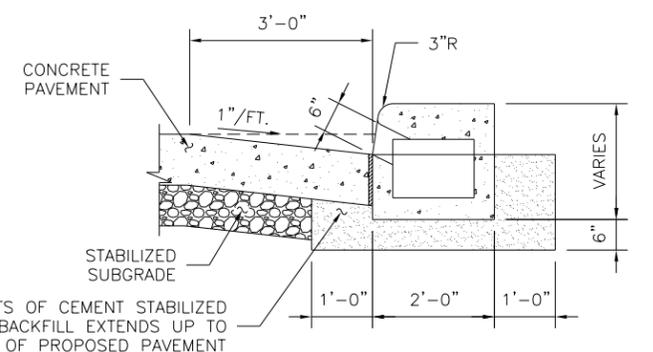
SECTION A-A INLET



COVER SECTION A-A



FRAME SECTION A-A



SECTION C-C

INLET NOTES:

- TYPE "C": INLET ONLY - NO EXTENSION
- TYPE "C-1": INLET WITH ONE EXTENSION (5'-0" LONG)
- TYPE "C-2": INLET WITH ONE EXTENSION (5'-0" LONG) ON EACH SIDE
- TYPE "C-2A": INLET WITH ONE DOUBLE EXTENSION (10'-0" LONG) ON ONE SIDE
- * FOR TYPE "C-2A" INLETS, PROVIDE A CENTER 6"x6" COLUMN IN THE CURB LINE BETWEEN ALL EXTENSIONS.

GENERAL NOTES:

1. CONSTRUCTION AND MATERIALS SHALL MEET REQUIREMENTS OF ITEM 472 "INLETS".
2. CONCRETE FOR INLET: MINIMUM 4,000 PSI IN 28 DAYS
3. PRECAST STRUCTURE TO MEET ASTM C913.
4. FRAME AND COVER SHALL BE EAST JORDAN IRON WORKS MODEL V-1814 FRAME AND V-1418 COVER OR APPROVED EQUAL.
5. IF THE ENGINEER OF RECORD SPECIFIES A CAST-IN-PLACE INLET, HE/SHE SHALL INCORPORATE A DETAILED DRAWING INTO THE CONTRACT DOCUMENTS. HOWEVER, IF THE CONTRACTOR ELECTS TO CONSTRUCT A CAST-IN-PLACE INLET, THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING A DETAILED DRAWING, SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF TEXAS.
6. SHOP DRAWINGS WILL BE REQUIRED FOR THE PRECAST SECTION OF INLET.
7. KNOCK-OUTS ARE NOT PERMISSIBLE FOR THE PRECAST SECTION OF INLET.
8. 5'-6" MINIMUM OR AS SPECIFIED BY THE ENGINEER OF RECORD.

NO.	REVISIONS	DATE	NAME
▲	ORIGINAL STANDARD ISSUED	2-1-22	RJS
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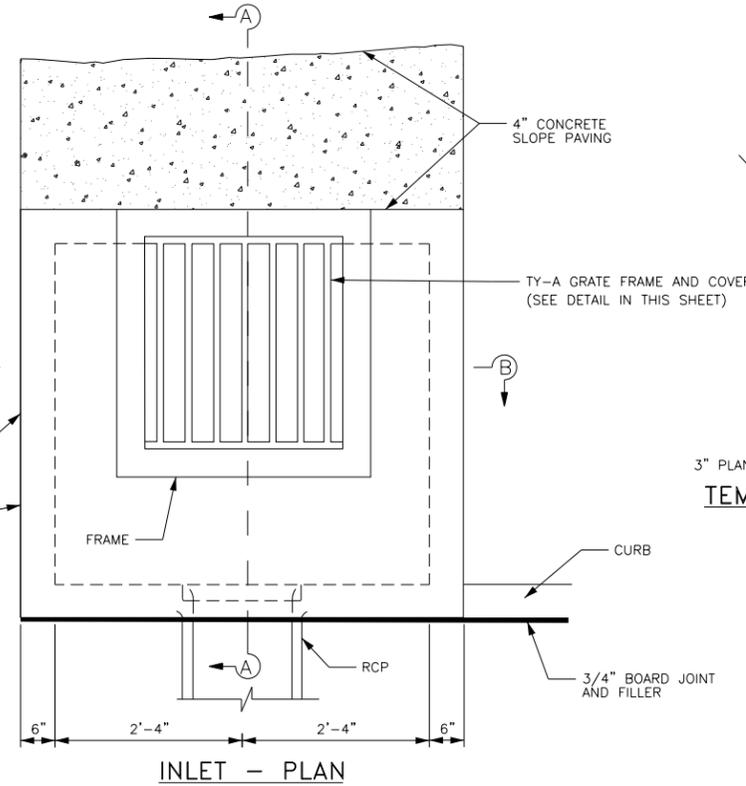
FORT BEND COUNTY
ENGINEERING DEPARTMENT



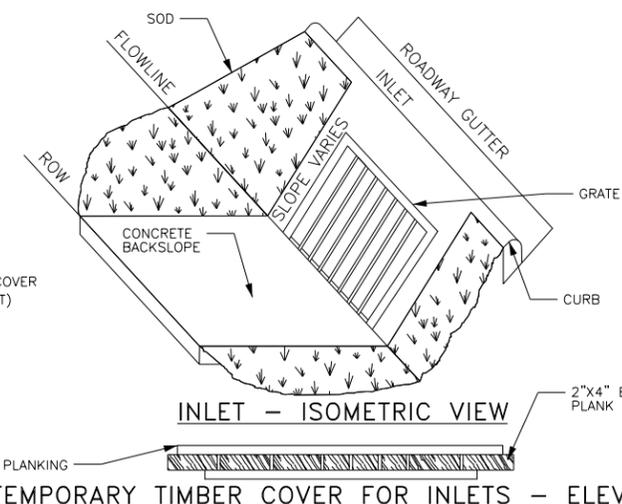
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CK'D BY:	INIT	27
SCALE:	1"=1'-6"	SHEET NO:
DATE:	2-1-22	APPROVED BY:
		/

GENERAL NOTES:

- CONSTRUCTION AND MATERIALS SHALL MEET REQUIREMENTS OF HC BID ITEM 472 "INLETS"
- CONCRETE FOR INLET: MINIMUM 4,000 PSI IN 28 DAYS
- PRECAST STRUCTURE TO MEET ASTM
- FRAME AND COVER SHALL BE JORDAN IRON WORKS MODEL V-1814 FRAME AND V-1418 COVER OR APPROVED EQUAL.
- IF THE ENGINEER OF RECORD SPECIFIES A CAST-IN-PLACE INLET, HE/SHE SHALL INCORPORATE A DETAILED DRAWING INTO THE CONTRACT DOCUMENTS. HOWEVER, IF THE CONTRACTOR ELECTS TO CONSTRUCT A CAST-IN-PLACE INLET, THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING A DETAILS DRAWING, SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF TEXAS.
- SHOP DRAWINGS WILL BE REQUIRED FOR THE PRECAST SECTION OF INLET.
- KNOCK-OUTS ARE NOT PERMISSIBLE FOR THE PRECAST SECTION OF INLET.
- 5'-6" MINIMUM OR AS SPECIFIED BY THE ENGINEER OF RECORD



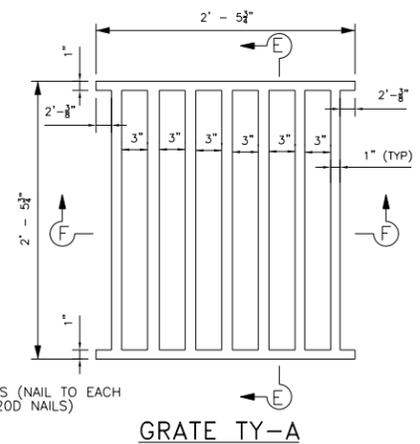
INLET - PLAN



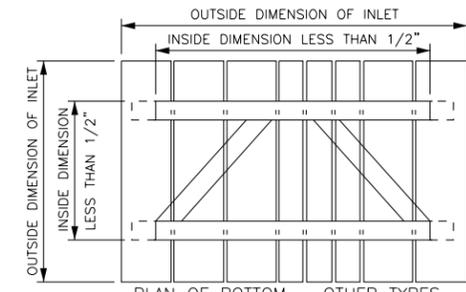
INLET - ISOMETRIC VIEW



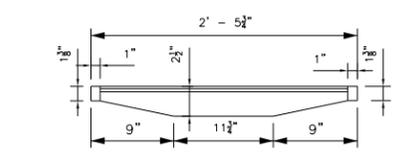
TEMPORARY TIMBER COVER FOR INLETS - ELEVATION



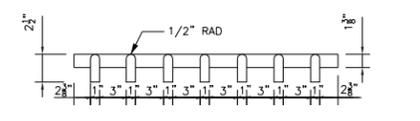
GRATE TY-A



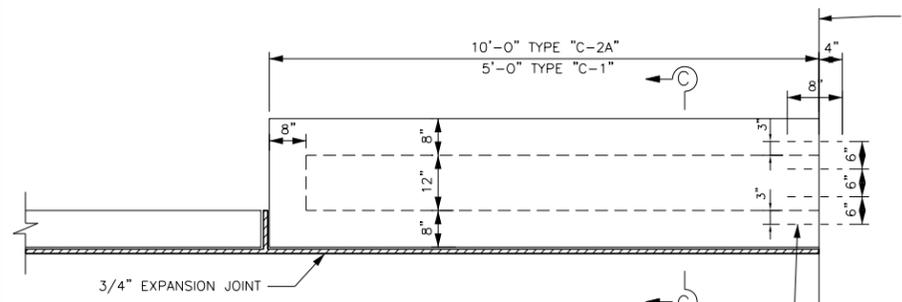
PLAN OF BOTTOM - OTHER TYPES



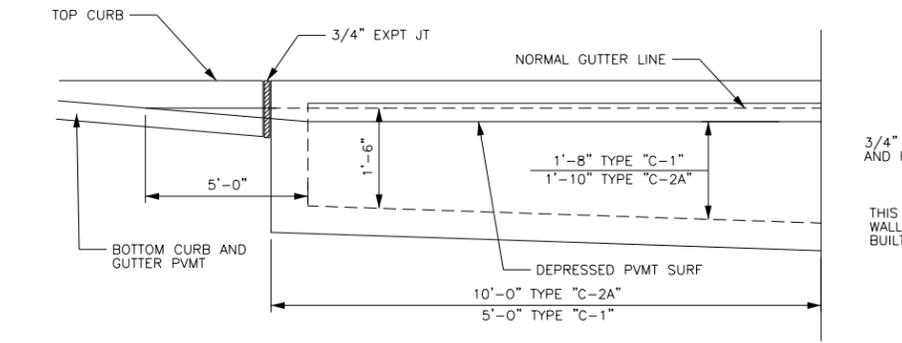
SECTION E-E



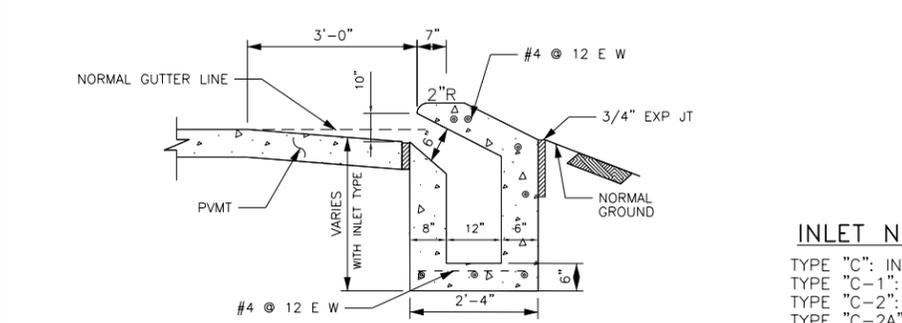
SECTION F-F



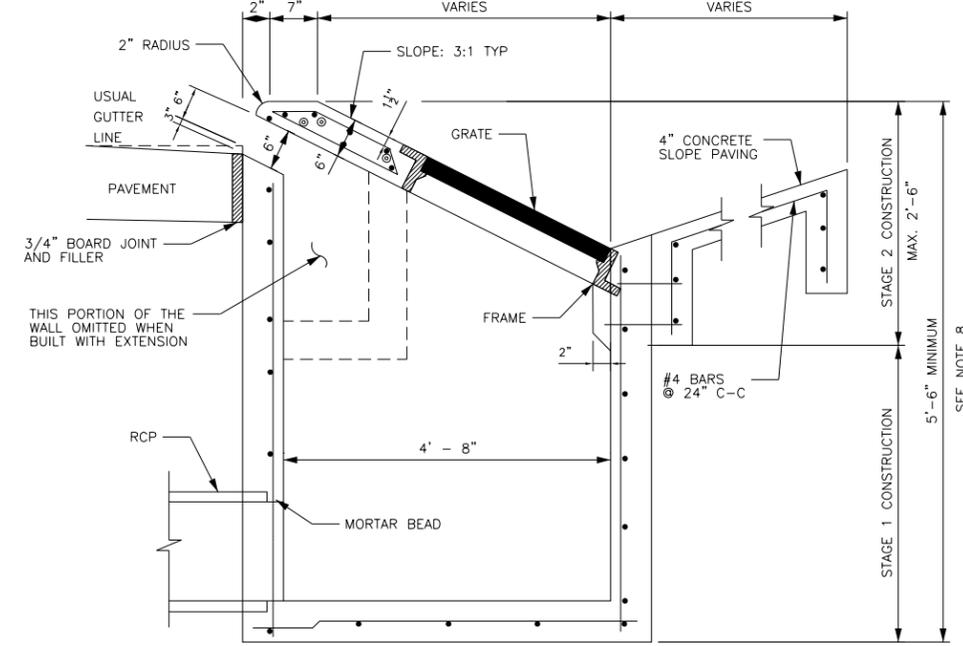
EXTENSION - PLAN



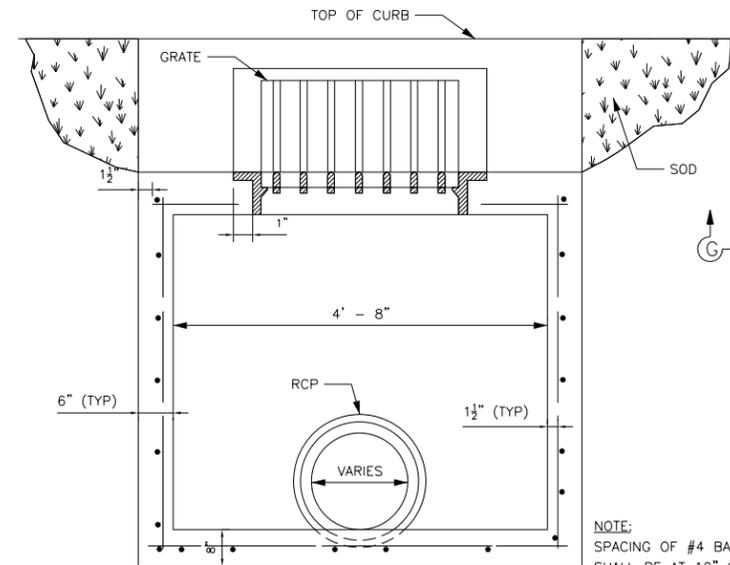
EXTENSION ELEVATION



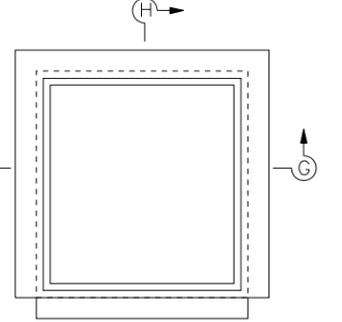
SECTION C-C



INLET - SECTION A-A

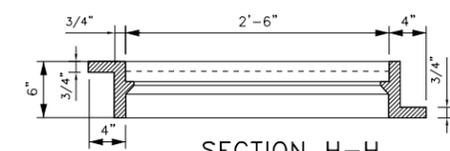


SECTION B-B

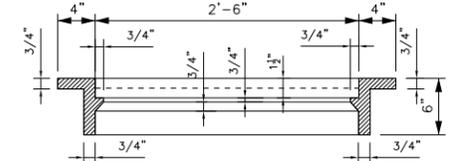


FRAME TY-A

NOTE: SPACING OF #4 BARS SHALL BE AT 12" CENTERS



SECTION H-H



SECTION G-G

INLET NOTES:

- TYPE "C": INLET ONLY - NO EXTENSION
- TYPE "C-1": INLET WITH ONE EXTENSION (5'-0" LONG)
- TYPE "C-2": INLET WITH ONE EXTENSION (5'-0" LONG) ON EACH SIDE
- TYPE "C-2A": INLET WITH ONE DOUBLE EXTENSION (10'-0" LONG) ON ONE SIDE
- * FOR TYPE "C-2A" INLETS, PROVIDE A CENTER 6"x6" COLUMN IN THE CURB LINE BETWEEN ALL EXTENSIONS.

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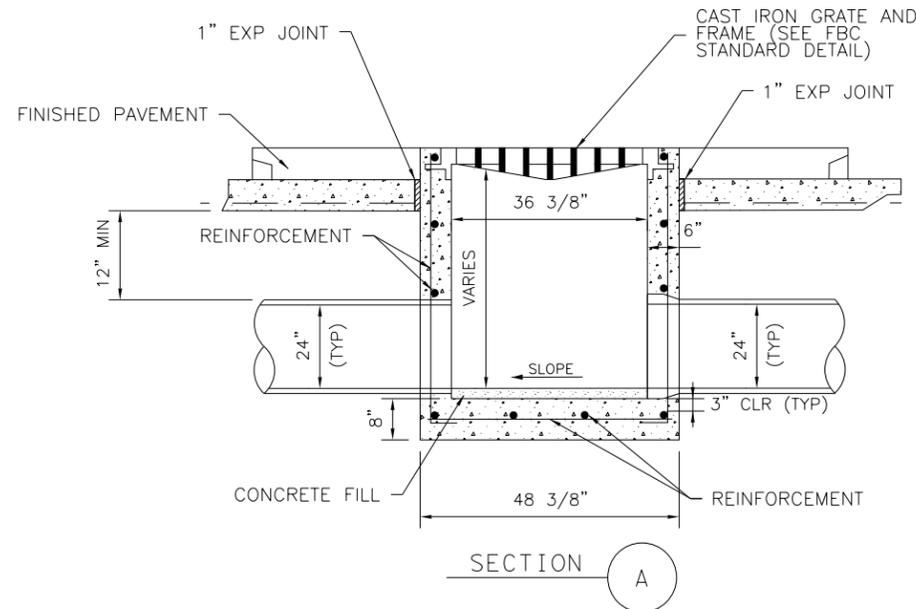
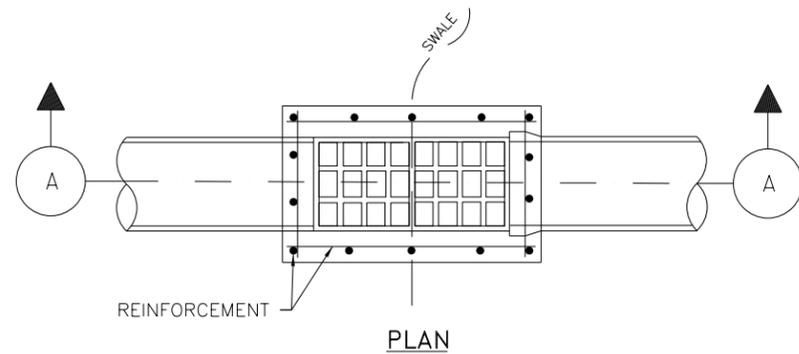
NO.	REVISIONS	DATE	NAME
1	ORIGINAL STANDARD ISSUED	2-1-22	RJS

FORT BEND COUNTY
ENGINEERING DEPARTMENT

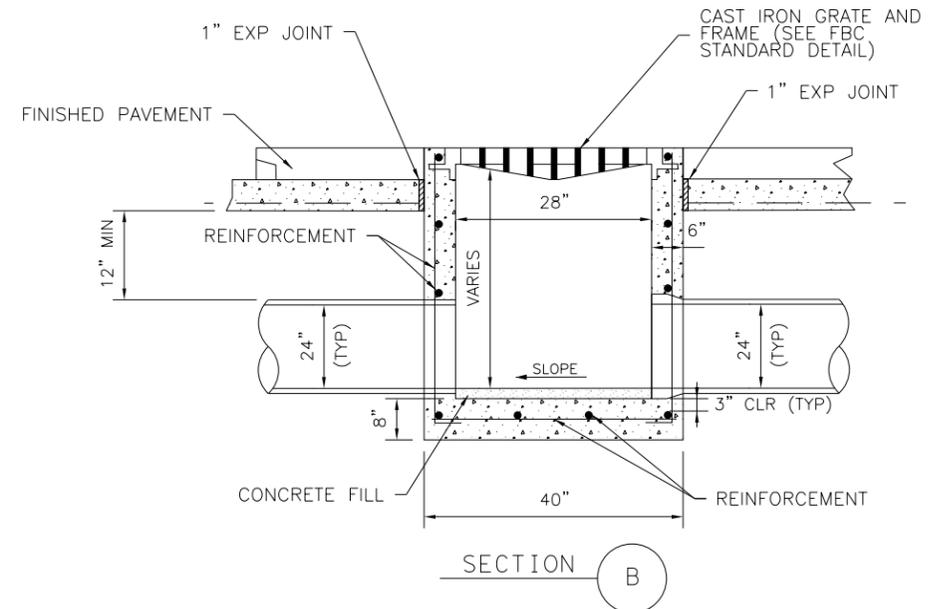
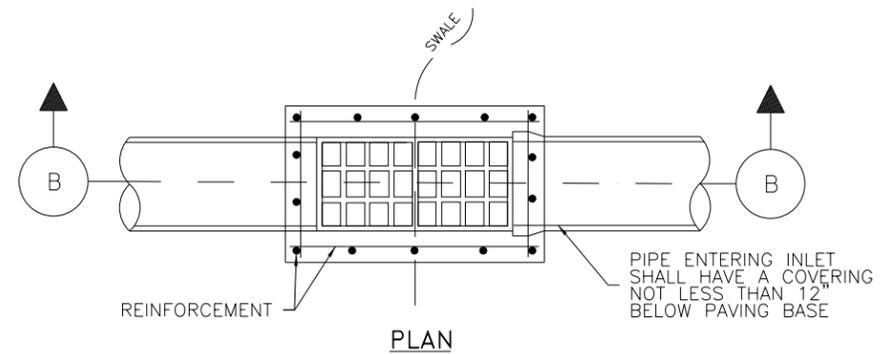


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CK'D BY: INIT	APPROVED BY:	SHEET NO: /
SCALE: AS NOTED		
DATE: 2-1-22		

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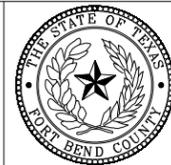
SECTION A
STORM SEWER TYPE "D" INLET



SECTION B
STORM SEWER TYPE "D-1" INLET

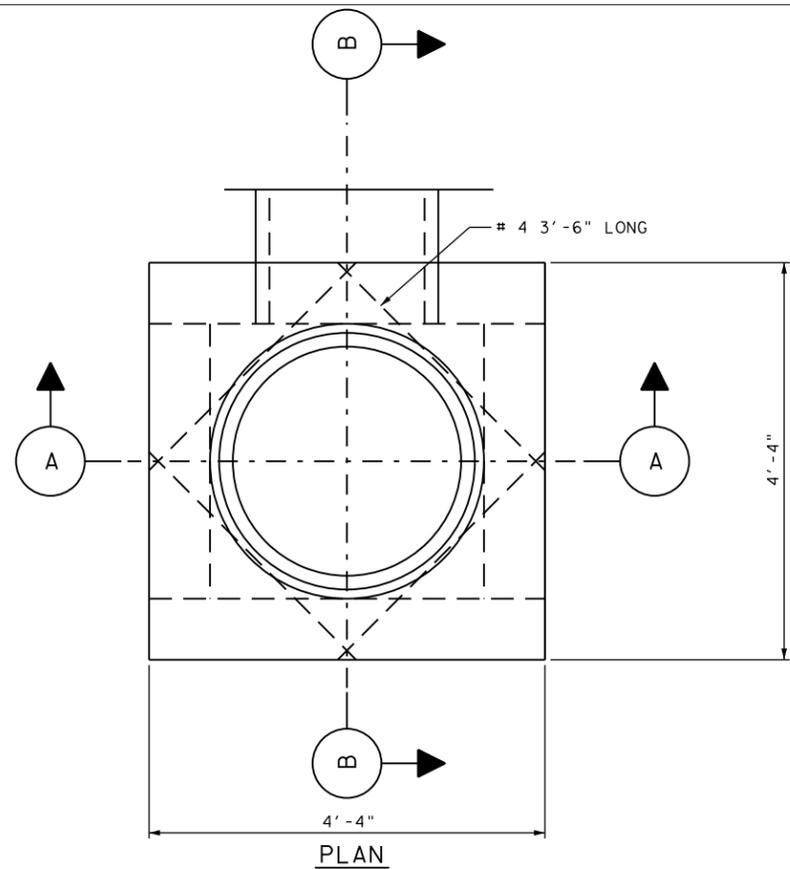
NO.	REVISIONS	DATE	NAME
▲	ORIGINAL STANDARD ISSUED	2-1-22	RJS
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FORT BEND COUNTY
ENGINEERING DEPARTMENT

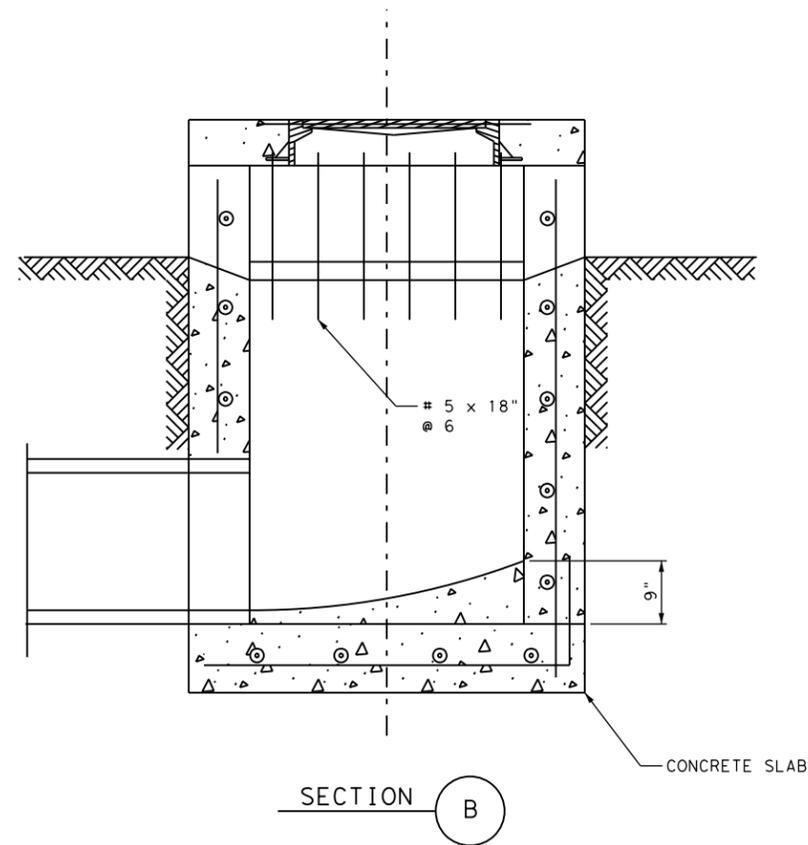
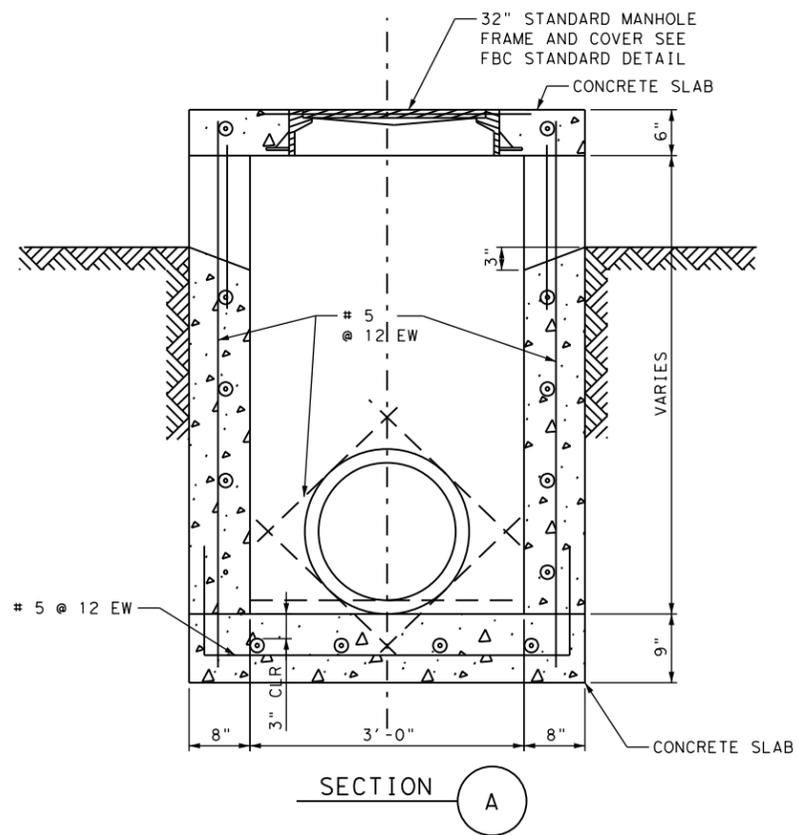


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DRAWN BY: INIT	SHEET DESCRIPTION: TYPE "D" & "D-1" INLET DETAILS	29
CK'D BY: INIT		SHEET NO:
SCALE: AS NOTED	APPROVED BY:	/
DATE: 2-1-22		

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NOTE:
1. TYPE "E" INLET TOP CAN BE CONSTRUCTED ON A STANDARD "C" MANHOLE.



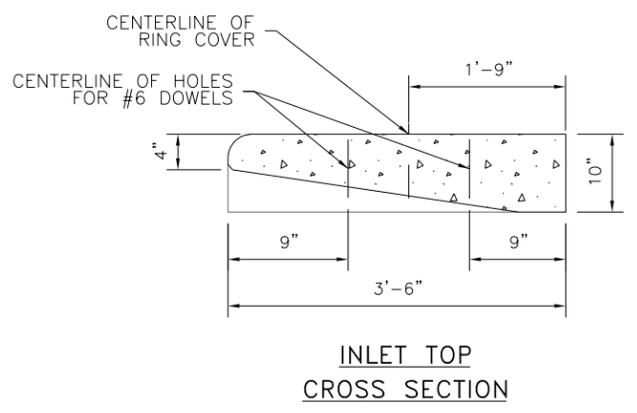
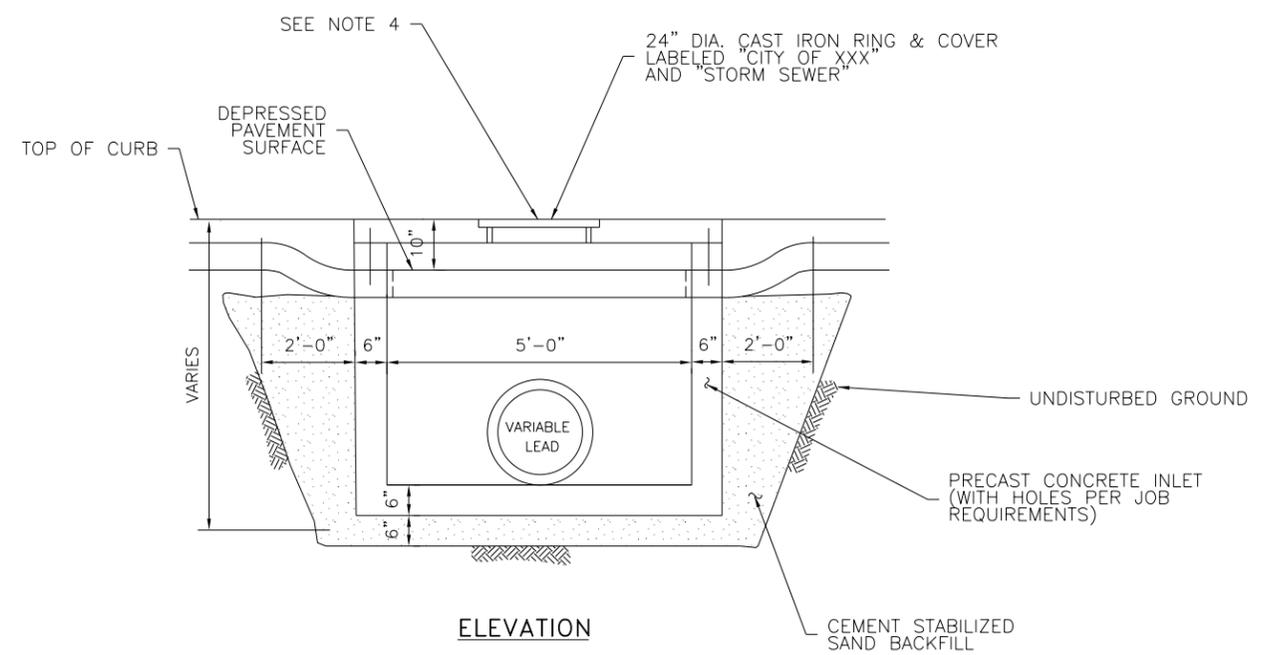
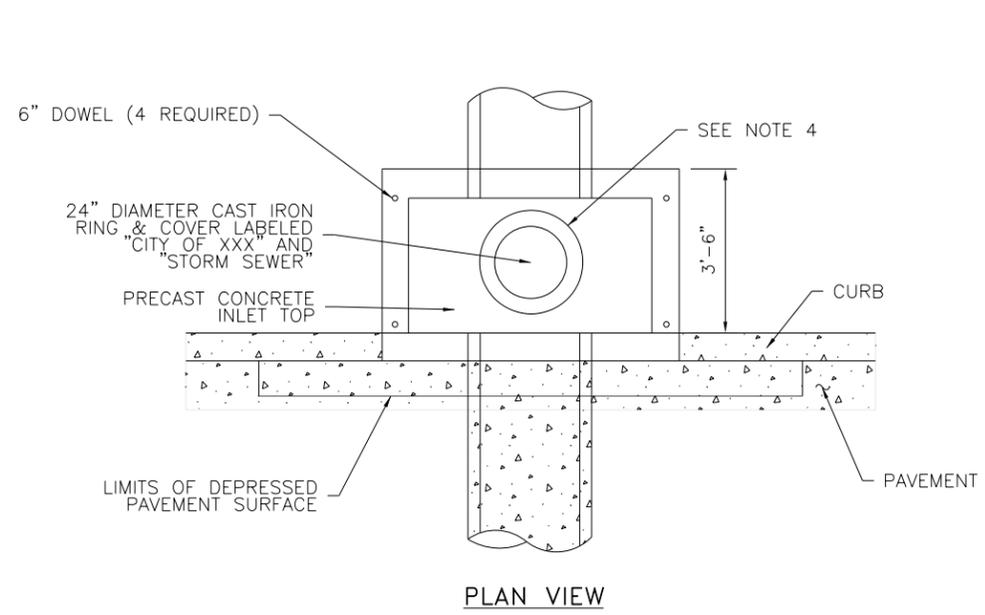
NO.	REVISIONS	DATE	NAME
1	ORIGINAL STANDARD ISSUED	2-1-22	RJS

FORT BEND COUNTY
ENGINEERING DEPARTMENT



PROJECT TITLE:		FBCED STANDARD
DRAWN BY: INIT	SHEET DESCRIPTION: TYPE "E" INLET DETAILS	30
CK'D BY: INIT		SHEET NO: /
SCALE: 1" = 4'	APPROVED BY:	
DATE: 2-1-22		

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- NOTES:**
1. INLET WALLS MAY BE EXTENDED USING PRECAST RISER SECTION.
 2. INLET TOPS MUST BE SECURED TO THE INLET WALL USING #6 DOWELS DRILLED AND GROUTED A MINIMUM DEPTH OF 5" INTO THE INLET WALL
 3. INLET BACKFILL SHALL BE CEMENT STABILIZED SAND TO THE TOP OF FIRST STAGE
 4. ALL STORM SEWER COVERS SHALL COMPLY WITH LOCAL CITY/ETJ REQUIREMENTS

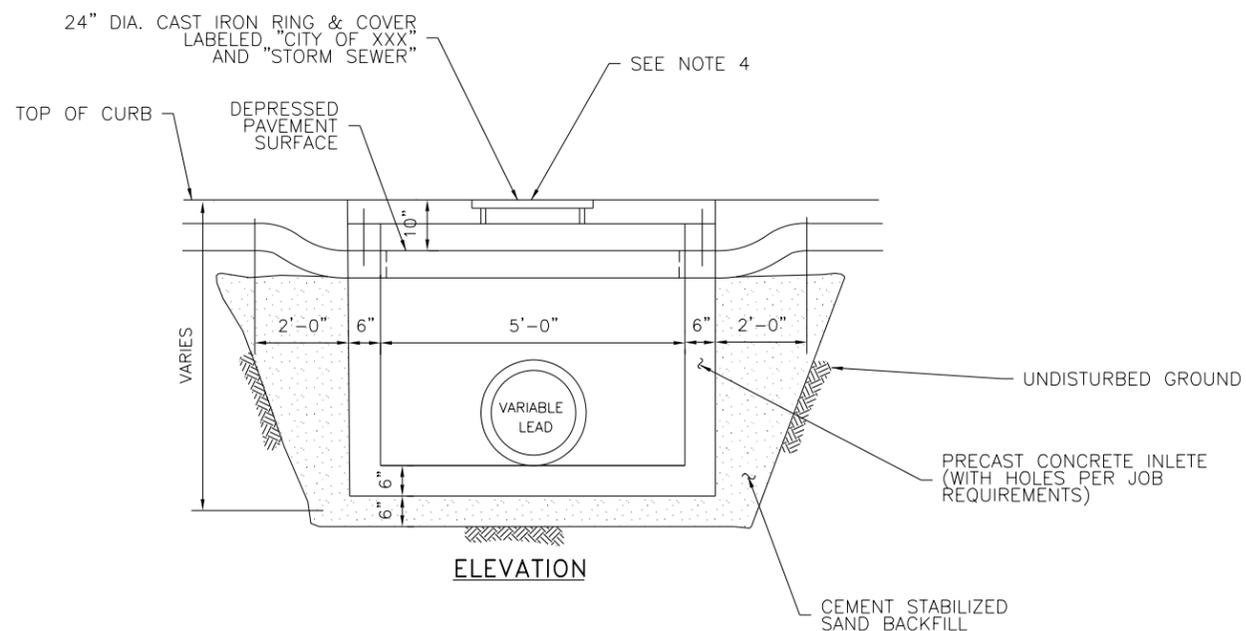
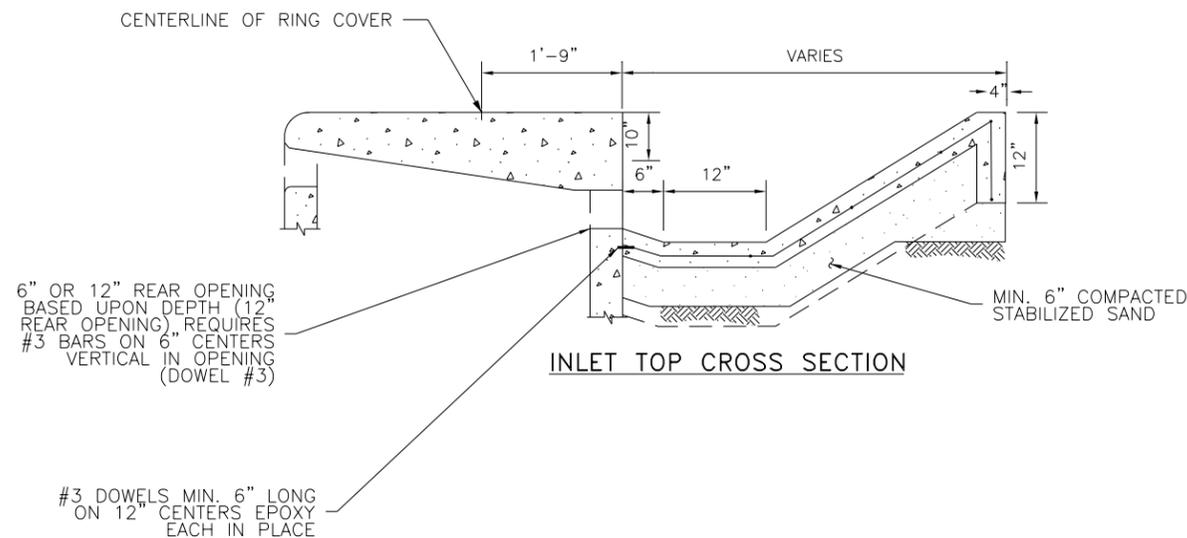
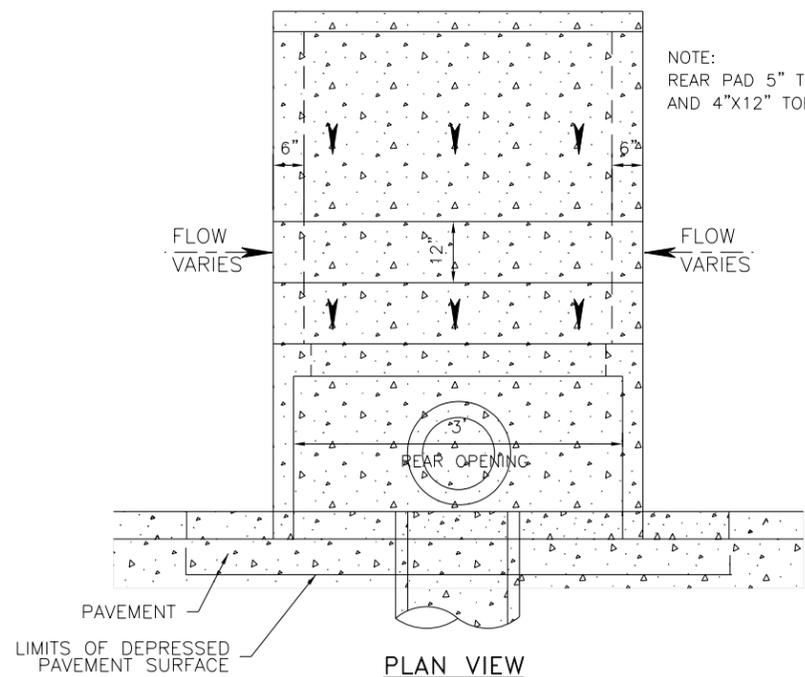
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▲	ORIGINAL STANDARD ISSUED	2-1-22	RJS
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FORT BEND COUNTY
ENGINEERING DEPARTMENT



PROJECT TITLE:		FBCED STANDARD
DRAWN BY: INIT	SHEET DESCRIPTION: TYPE H-2 INLET DETAILS	31
CK'D BY: INIT		SHEET NO: /
SCALE: AS NOTED	APPROVED BY:	
DATE: 2-1-22		

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NOTES:

1. INLET WALLS MAY BE EXTENDED USING PRECAST RISER SECTION.
2. INLET TOPS MUST BE SECURED TO THE INLET WALL USING #6 DOWELS DRILLED AND GROUTED A MINIMUM DEPTH OF 5" INTO THE INLET WALL
3. INLET BACKFILL SHALL BE CEMENT STABILIZED SAND TO THE TOP OF FIRST STAGE
4. ALL STORM SEWER COVERS SHALL COMPLY WITH LOCAL CITY/ETJ REQUIREMENTS

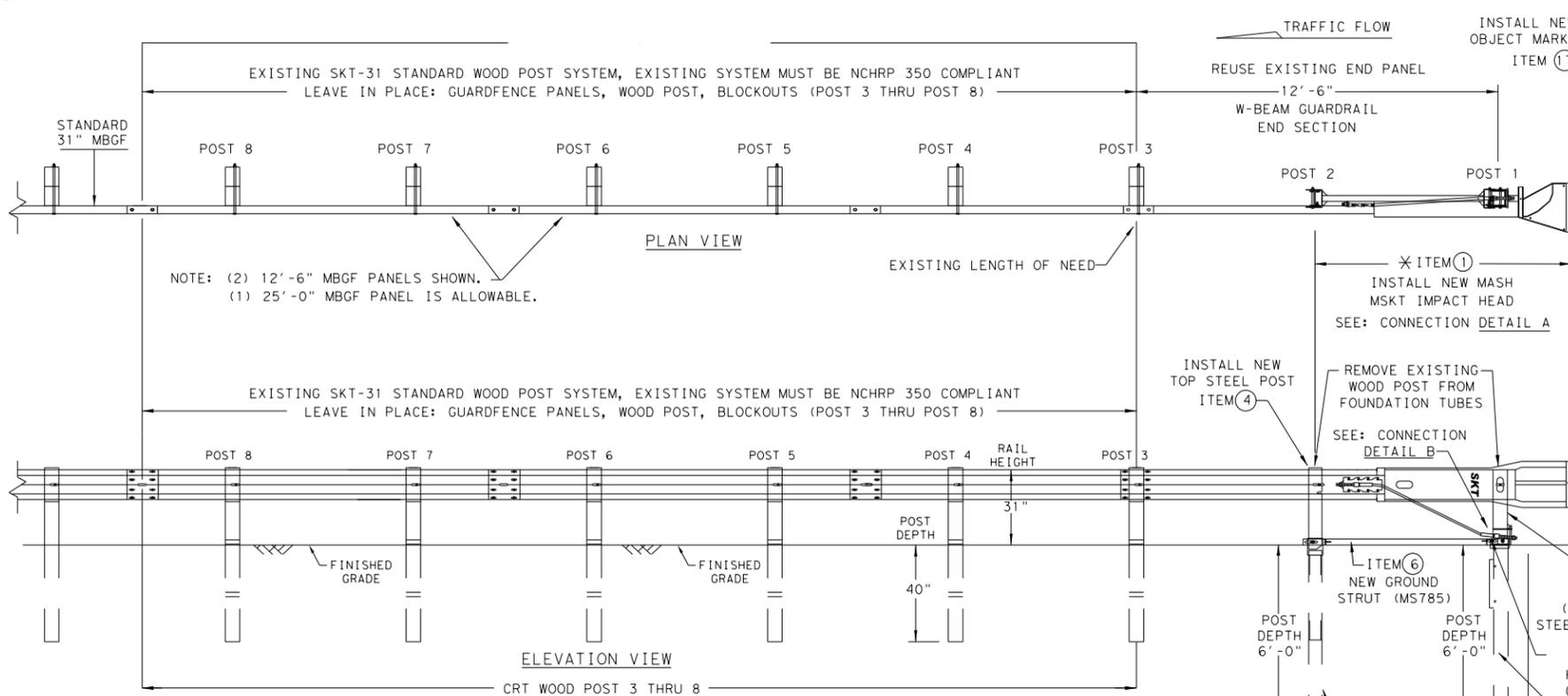
NO.	REVISIONS	DATE	NAME
△	ORIGINAL STANDARD ISSUED	2-1-22	RJS
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FORT BEND COUNTY
ENGINEERING DEPARTMENT



PROJECT TITLE:		
DRAWN BY: INIT		FBCD STANDARD 32
CK'D BY: INIT	SHEET DESCRIPTION: TYPE H-2 MODIFIED INLET DETAILS	
SCALE: AS NOTED		SHEET NO: /
DATE: 2-1-22	APPROVED BY:	

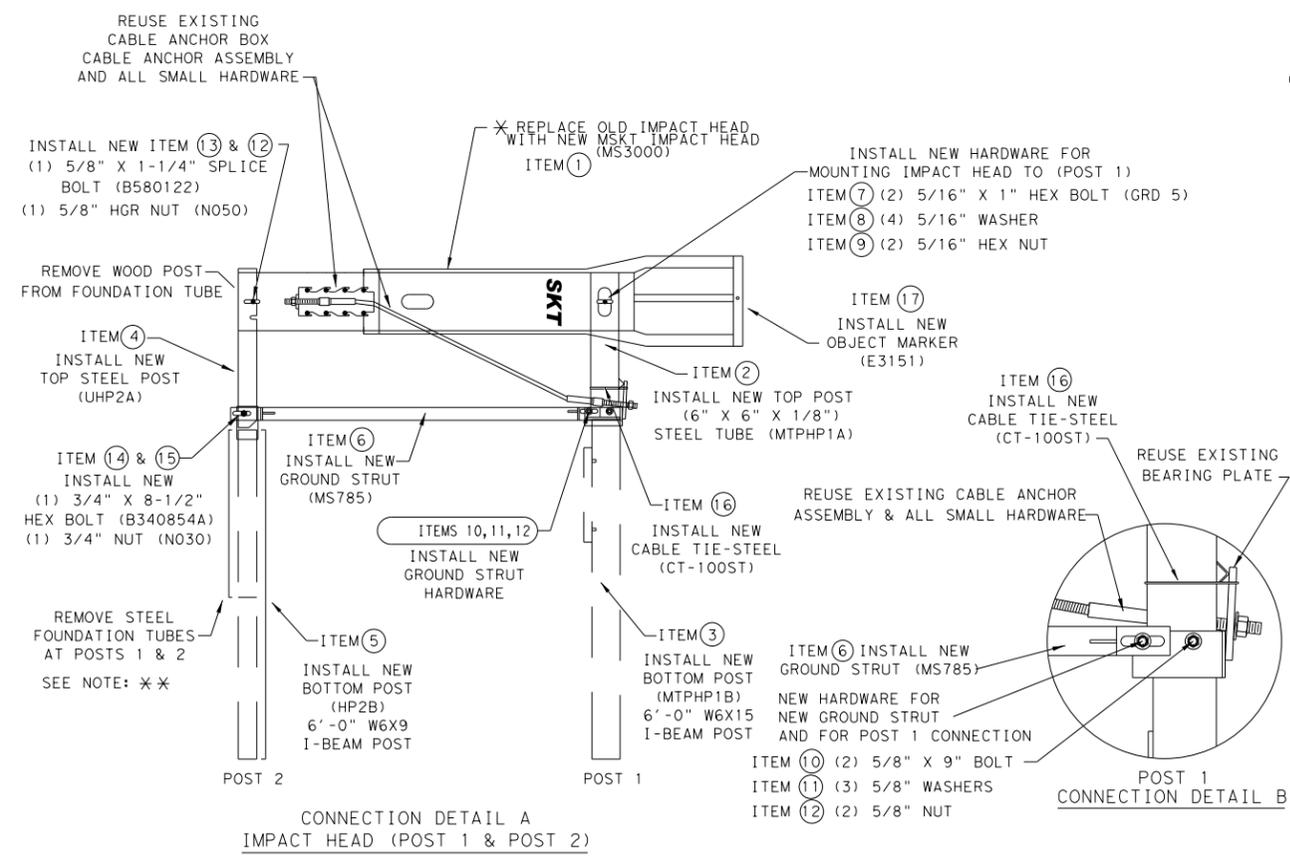
J:\1704\1601\Fort Bend County Standards\Fort Bend County STD\FBC FLEX BEAM GUARDRAIL DETAILS-1of2.dwg



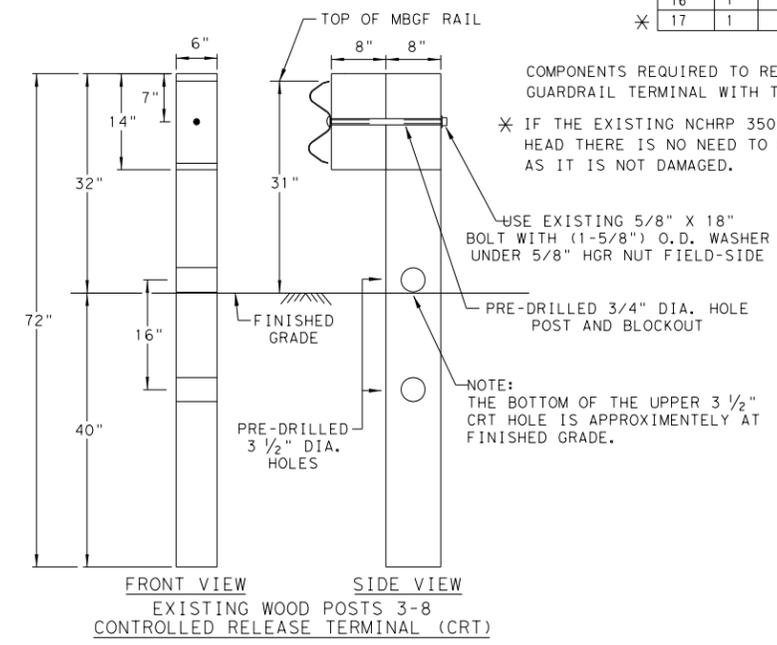
GENERAL NOTES

- FOR SPECIFIC INFORMATION REGARDING INSTALLATION AND TECHNICAL GUIDANCE OF THE SYSTEM, CONTACT: ROAD SYSTEMS, INC. (432) 263-2435. 3616 OLD HOWARD COUNTY AIRPORT, BIG SPRING, TX 79720
- FOR INSTALLATION, REPAIR AND MAINTENANCE REFER TO: MSKT END TERMINAL, PRODUCT DESCRIPTION ASSEMBLY MANUAL (PUBLICATION-062717).
- APPLY HIGH INTENSITY REFLECTIVE SHEETING, "OBJECT MARKER" ON THE FRONT FACE OF THE DEVICE PER MANUFACTURER'S RECOMMENDATIONS. OBJECT MARKER SHALL CONFORM TO THE STANDARDS REQUIRED IN TEXAS MUTCD.
- FOR POST (LEAVE-OUT) INSTALLATION AND GUIDANCE SEE TXDOT'S LATEST ROADWAY MOW STRIP STANDARD.
- HARDWARE (BOLTS, NUTS, & WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING". FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
- IF SOLID ROCK IS ENCOUNTERED IN THE AREA OF (POST 1) AND / OR (POST 2) CONTACT THE MANUFACTURER, AND REFER TO THE LATEST ROADWAY MBSF STANDARD FOR INSTALLATION GUIDANCE.
- POSTS SHALL NOT BE SET IN CONCRETE.
- THE EXISTING SKT 31" STANDARD WOOD POST SYSTEM MUST BE THOROUGHLY INSPECTED, AND DETERMINED TO BE INTACT, AND FREE OF ANY DAMAGE OR DEFECTS BEFORE RETROFITTING. THIS INSPECTION INCLUDES COMPLETING THE MSKT RETROFIT CHECKLIST FOR THE EXISTING SKT 31" WOOD POST NCHRP 350 SYSTEM. ALL EXISTING, AND REUSABLE PARTS MUST BE FREE OF ANY DAMAGE FOR A MASH COMPLIANT RETROFIT.
- UNDER NO CIRCUMSTANCES SHALL THE GUARDRAIL WITHIN THE MSKT SYSTEM BE CURVED.
- A FLARE RATE OF UP TO 25:1 MAY BE USED TO PREVENT THE TERMINAL HEAD FROM ENCRUCHING ON THE SHOULDER. THE FLARE MAY BE DECREASED OR ELIMINATED FOR SPECIFIC INSTALLATIONS, IF DIRECTED BY THE ENGINEER.
- SPECIAL DRIVING CAP TO BE USED WHEN DRIVING (LOWER POSTS 1 & 2) TO PREVENT DAMAGE TO THE WELDED PLATES.

ITEMS	QTY	MAIN SYSTEM COMPONENTS	PART NUMBERS
1	1	MSKT IMPACT HEAD	MS3000
2	1	POST 1 - TOP (6" X 6" X 1/8" TUBE)	MTPHP1A
3	1	POST 1 - BOTTOM (6' W6X15)	MTPHP1B
4	1	POST 2 - ASSEMBLY TOP	UHP2A
5	1	POST 2 - ASSEMBLY BOTTOM (6' W6X9)	HP2B
6	1	GROUND STRUT	MS785
7	2	5/16" X 1" HEX BOLT (GRD 5)	B516014A
8	4	5/16" WASHERS	W0516
9	2	5/16" HEX NUT	N0516
10	2	5/8" X 9" HEX BOLT (GRD A449)	B580904A
11	3	5/8" WASHERS	W050
12	3	5/8" H.G.R NUT	N050
13	1	5/8" X 1-1/4" SPLICE BOLT	B580122
14	1	3/4" X 8-1/2" HEX BOLT (GRD 5)	B340854A
15	1	3/4" HEX NUT	N030
16	1	CABLE TIE-STEEL	CT-100ST
17	1	OBJECT MARKER 18" X 18"	E3151



*** NOTE: EXTRA SOIL COMPACTION WILL BE NEEDED AROUND NEW (POSTS 1 & 2) DUE TO THE REMOVAL OF THE STEEL FOUNDATION TUBES.



COMPONENTS REQUIRED TO RETROFIT: EXISTING 31" WOOD POST (NCHRP 350 SKT) GUARDRAIL TERMINAL WITH THE NEW 31" (MASH COMPLIANT MSKT IMPACT HEAD).
 * IF THE EXISTING NCHRP 350 (31" WOOD POST SKT) ALREADY HAS THE MSKT IMPACT HEAD THERE IS NO NEED TO REPLACE THE IMPACT HEAD OR OBJECT MARKER AS LONG AS IT IS NOT DAMAGED.

NOTE: THIS STANDARD IS A BASIC REPRESENTATION OF THE EXISTING; SKT END TERMINAL RETROFITTED TO THE MSKT MASH COMPLIANT TERMINAL, IT IS NOT INTENDED TO REPLACE THE PRODUCT DESCRIPTION ASSEMBLY MANUAL.

NO.	REVISIONS	DATE	NAME
1	ORIGINAL STANDARD ISSUED	2-1-22	RJS

FORT BEND COUNTY
ENGINEERING DEPARTMENT

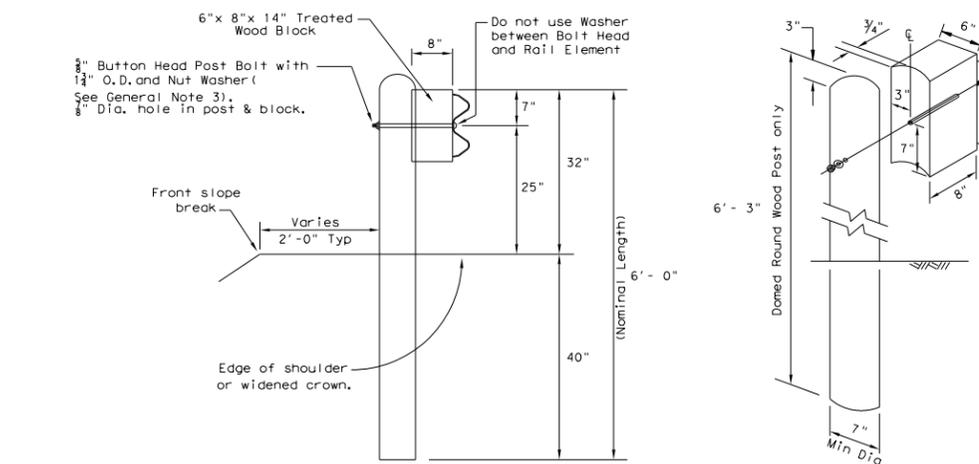


PROJECT TITLE:		
DRAWN BY: INIT	SHEET DESCRIPTION: SINGLE GUARDRAIL TERMINAL	FBCD STANDARD
CK'D BY: INIT		33
SCALE: AS NOTED	SHEET 1 OF 1	SHEET NO:
DATE: 2-1-22	APPROVED BY:	/

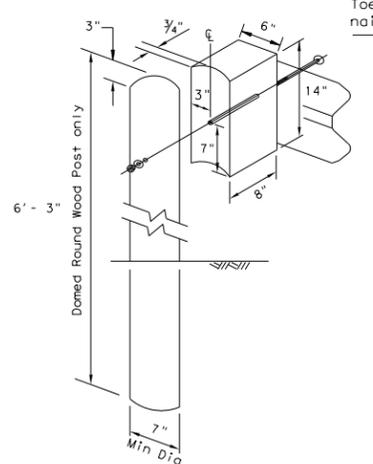
J:\1704\1601\Fort Bend County Standards\Fort Bend County STD\FBC FLEX BEAM GUARDRAIL DETAILS-2of2.dwg

GENERAL NOTES

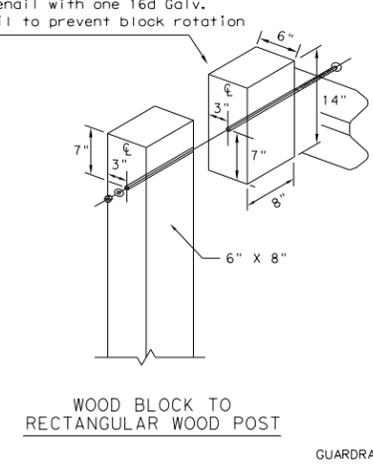
- The type of post (round wood post, rectangular wood post, or steel post) will be as shown in the plans. The exact position of MBSGF shall be shown in the plans or as directed by the Engineer. Steel posts to be galvanized in accordance with Item 445, "Galvanizing."
- Rail element shall meet the requirements of Item 540, "Metal Beam Guard Fence" except as modified in the plans. The Contractor may furnish rail elements of 25'-0", or 12'-6" (nom.) lengths. Rail elements may have slotted holes at 3'-1/2" C-C or 6'-3" C-C. A special length of rail may be manufactured to accommodate the downstream anchor terminal (DAT) and the transition sections of guardrail.
- Button head "post" bolts (ASTM A307) shall be of sufficient length to extend through the full thickness of the nut (ASTM A563) and 3/8" washer and not more than 1" beyond it. Button head "splice" bolts (ASTM A307) are 3/8" x 1 1/4" (or 2" long at triple rail splices) with a 3/8" double recessed nut (ASTM A563). Thrie beam "connection" 3/8" dia. (ASTM A325) hex bolts shall be of sufficient length to extend through the full thickness of the rail, washers, and nuts.
- Fittings (bolts, nuts, and washers) shall be galvanized in accordance with Item 445, "Galvanizing." Fittings shall be subsidiary to the bid item.
- Crown shall be widened to accommodate the Metal Beam Guard Fence.
- The lateral approach to the guard fence, shall have a maximum slope of 1V:10H.
- If shown elsewhere in the plans or as directed by the Engineer, the guard fence may be flared at a rate of 25:1 or flatter.
- Unless otherwise shown in the plans, guard fence placed in the vicinity of curbs shall be positioned so that the face of curb is located directly below or behind the face of the rail. Rail placed over curbs shall be installed so that the post bolt is located approximately 25 inches above the gutter pan or edge of shoulder.
- If solid rock is encountered within 0 to 18" of the finished grade, drill a 22" dia. hole, or drill two 12" dia. front to back overlapping holes, 24" into the rock. If solid rock is encountered below 18", drill a 12" dia. hole, 12" into the rock or to the standard embedment depth, whichever may be less. Any excess post length, after meeting these depths, may be field cut to ensure proper guardrail mounting height. Backfill with a cohesionless material.
- Posts shall not be set in concrete, of any depth.
- Special fabrication will be required at installations having a curvature of less than 150 ft. radius.
- Unless otherwise shown in the plans, a composite material post and/or block that meets the requirements of DMS-7210, "Composite Material Posts and Blocks for Metal Beam Guard Fence" may be substituted for posts and/or blocks of similar dimensions. The Construction Division, TxDOT maintains a Material Producer List (MPL) for producers of materials conforming to DMS-7210. Only producers on the MPL may furnish composite material posts and/or blocks.
- For posts located partially or wholly between precast box culvert units, the use of a cast-in-place concrete closure between boxes is required. See Detail "A" on TxDOT Bridge Standards SCP-MD.



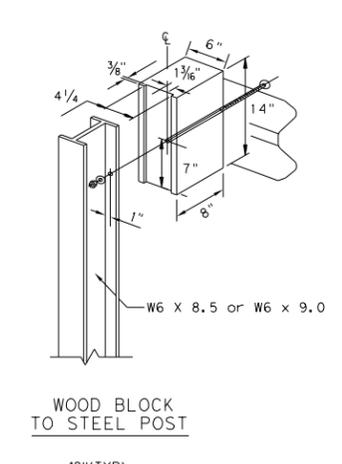
TYPICAL POST



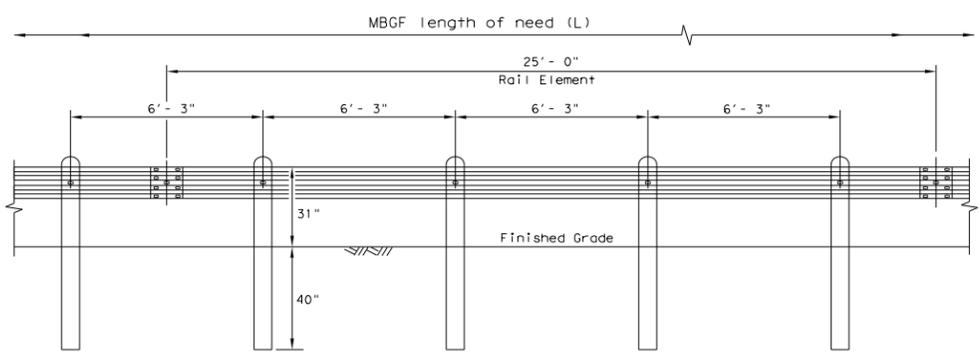
WOOD BLOCK TO ROUND WOOD POST



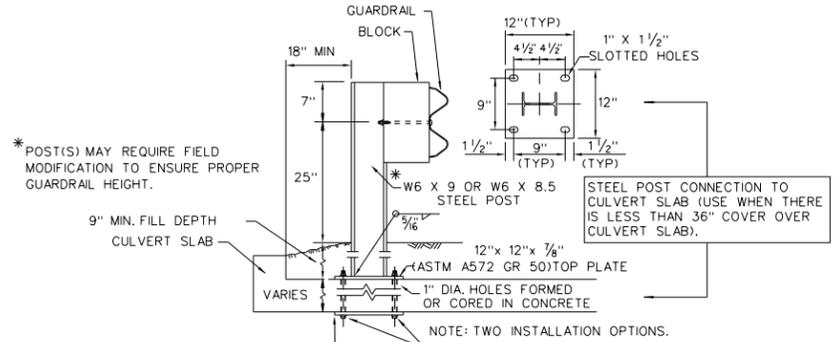
WOOD BLOCK TO RECTANGULAR WOOD POST



WOOD BLOCK TO STEEL POST



ELEVATION MID-SPAN RAIL SPLICE



* POST(S) MAY REQUIRE FIELD MODIFICATION TO ENSURE PROPER GUARDRAIL HEIGHT.

9" MIN. FILL DEPTH CULVERT SLAB

STEEL POST CONNECTION TO CULVERT SLAB (USE WHEN THERE IS LESS THAN 36" COVER OVER CULVERT SLAB).

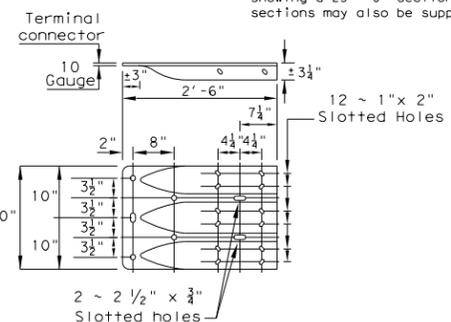
NOTE: TWO INSTALLATION OPTIONS.

1. BOLT-THROUGH OPTION: REQUIRES A 6" MIN. SLAB THICKNESS. 7/8" DIA. (ASTM A449) HEAVY HEX BOLTS WITH TWO HARDENED WASHER EACH AND HEAVY HEX NUTS. NOTE: BOLT LENGTH = SLAB PLUS 2 1/4" MIN.

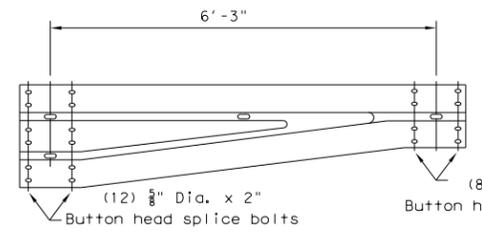
2. EPOXY ANCHOR OPTION: THIS OPTION MAY ONLY BE USED IF THE CULVERT SLAB IS 8" MIN. THICK. THREADED ANCHOR RODS MUST BE 7/8" DIA. ASTM A449 OR A193 GRADE B7 WITH HEAVY HEX NUT, AND ONE HARDENED WASHER EACH. EMBED ANCHOR RODS 6" WITH HILTI HIT RE 500 EPOXY ADHESIVE. OTHER TYPE III CLASS C EPOXY ADHESIVES MEETING THE REQUIREMENTS OF DMS-6100, "EPOXIES AND ADHESIVES", MAY BE USED IF IT CAN BE DEMONSTRATED THAT THEY MEET OR EXCEED THE STRENGTH OF HILTI HIT RE 500 WITH THE SAME EMBEDMENT DEPTH AND THREADED ROD DIA. FOLLOW THE MANUFACTURER'S REQUIREMENTS FOR INSTALLING EPOXIED THREADED RODS. EXTEND RODS 1/4" MIN. BEYOND NUT.

LOW FILL CULVERT POST

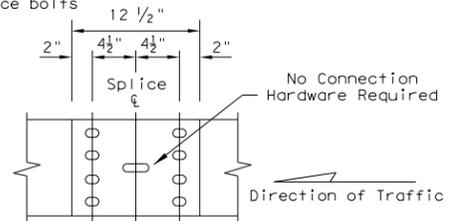
Culverts of 25 ft. or less, see TxDOT GF(31)LS standard for "Long Span" option.



THRIE-BEAM TERMINAL CONNECTION (SEE GENERAL NOTES 9 FOR REQUIRED HARDWARE)



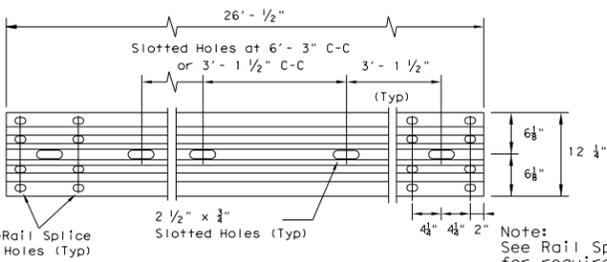
NON-SYMMETRICAL TRANSITION TO W-BEAM (10 GAUGE)



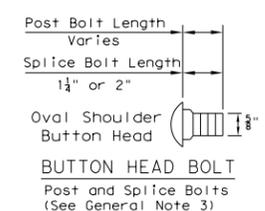
Note: Mid-Span rail splices are required with 6'-3" post spacings.

3/8" X 1 1/4" Button Head Splice Bolts and Nuts (See General Note 3)

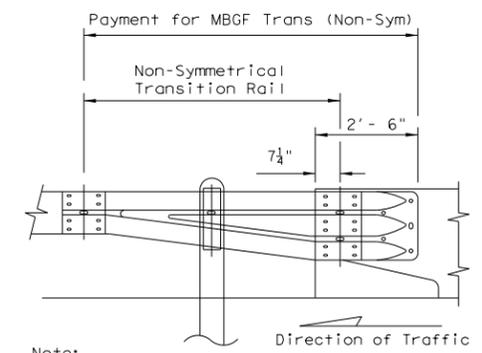
MID-SPAN RAIL SPLICE DETAIL



ELEVATION 25'-0" (NOM.) W-BEAM SECTION 12'-6" RAIL SECTIONS MAY ALSO BE SUPPLIED (SEE GENERAL NOTE 2)

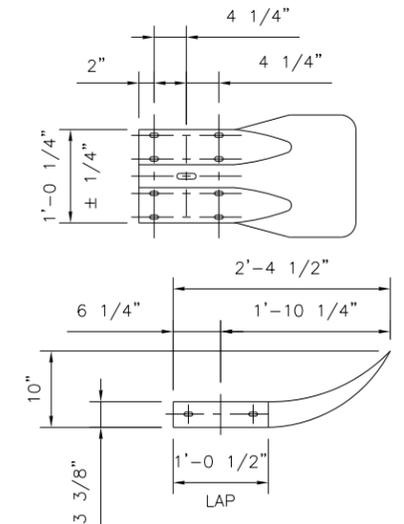


BUTTON HEAD BOLT Post and Splice Bolts (See General Note 3)



Note: All rail elements shall be lapped in the direction of adjacent traffic.

DOWNSTREAM RAIL ATTACHMENT



TERMINAL SECTION

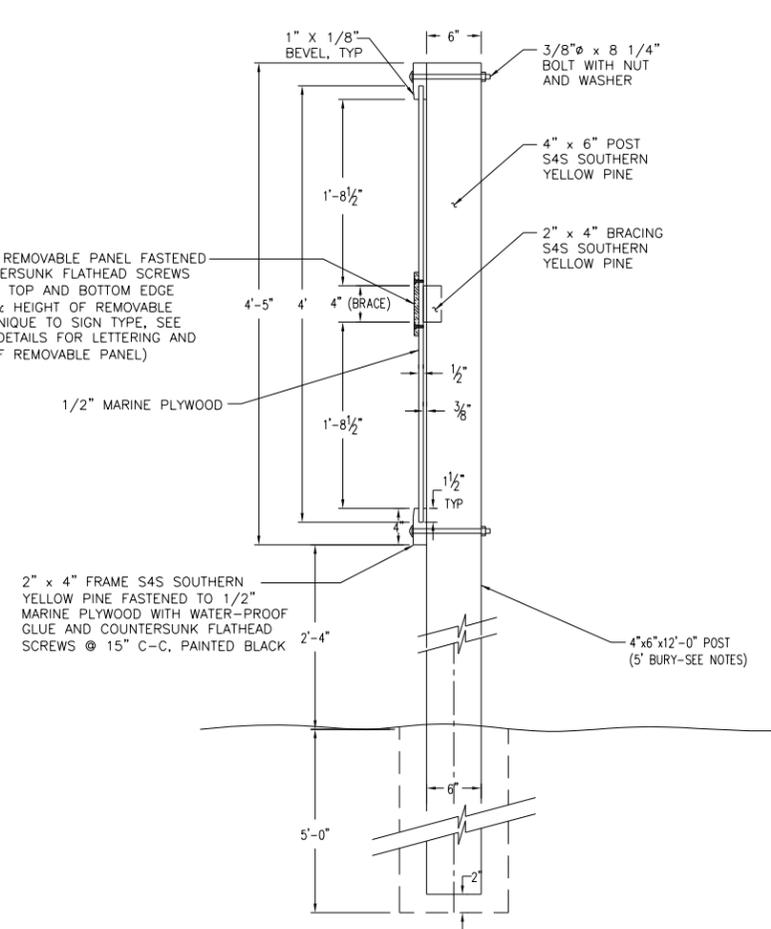
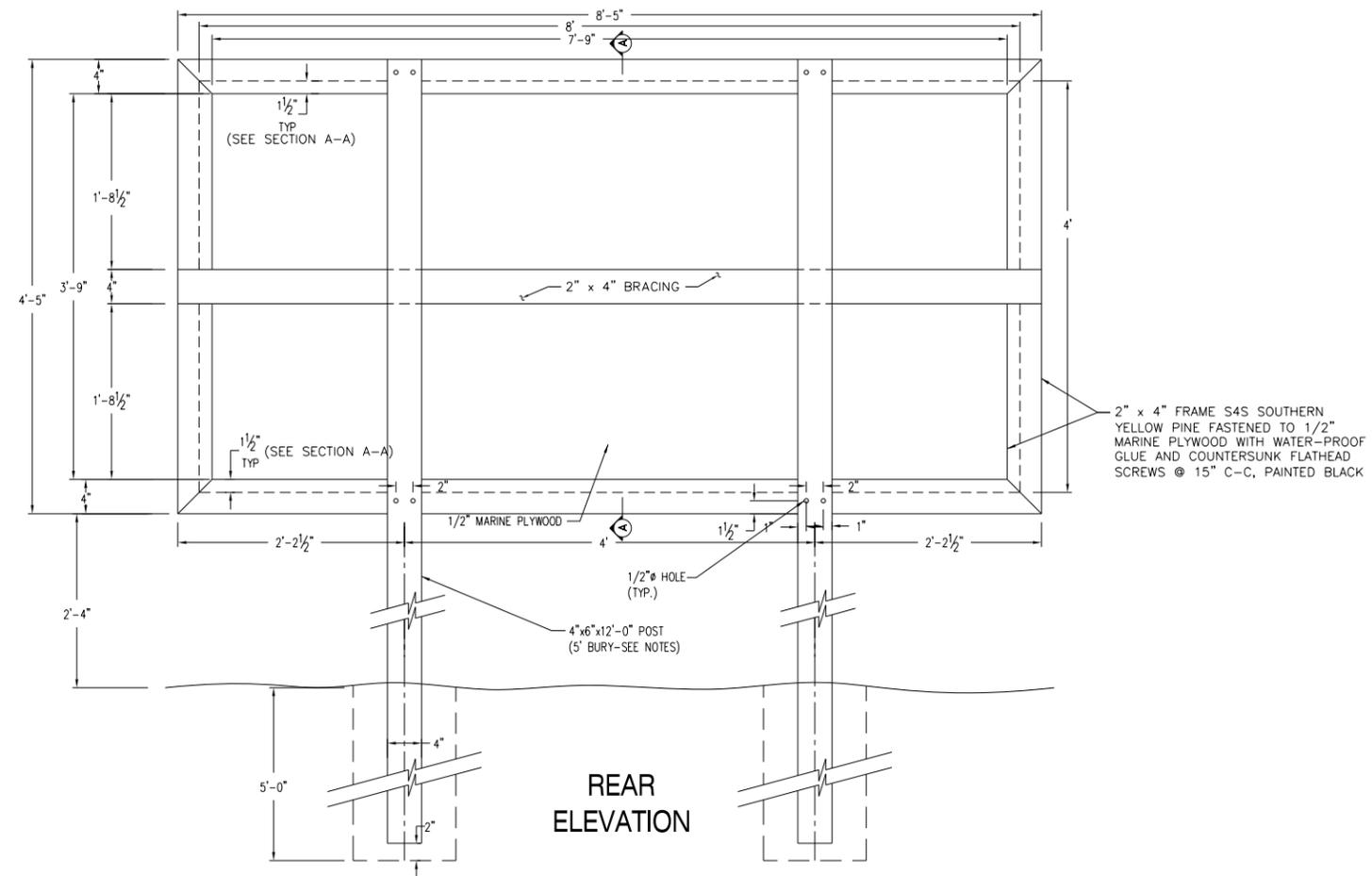
NO.	REVISIONS	DATE	NAME
1	ORIGINAL STANDARD ISSUED	2-1-22	RJS

FORT BEND COUNTY ENGINEERING DEPARTMENT

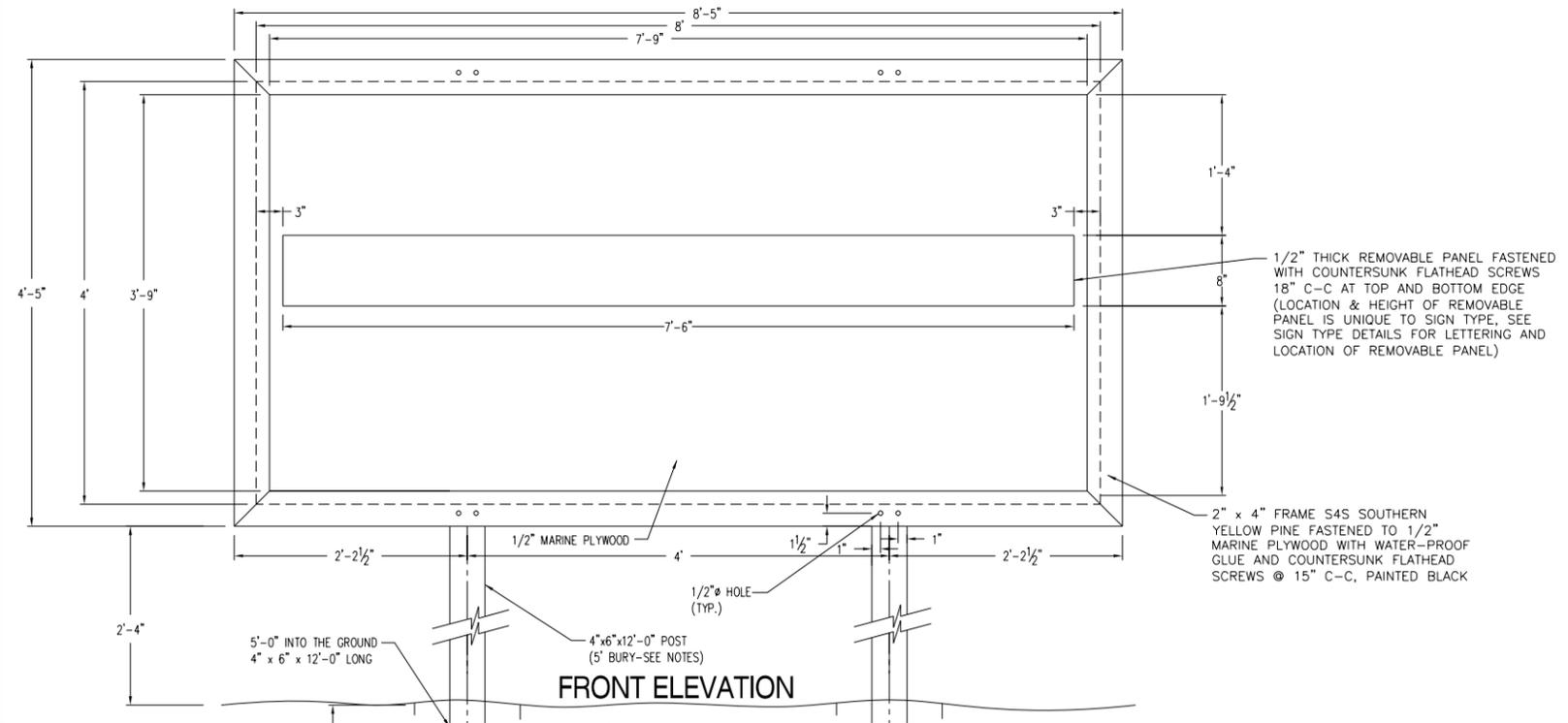


PROJECT TITLE:		
DRAWN BY:	INIT	FBCD STANDARD
CK'D BY:	INIT	34
SCALE:	NONE	SHEET DESCRIPTION: METAL BEAM GUARD FENCE
DATE:	2-1-22	APPROVED BY:
		SHEET 1 OF 1
		SHEET NO: /

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- GENERAL NOTES:**
1. THE SIGN SHALL HAVE BLACK LETTERS WITH WHITE BACKGROUND.
 2. ALL LETTERING SHALL BE EITHER AERIAL FONT OR HELVETICA FONT.
 3. SIGN SHALL BE MOUNTED ON 4" x 6" POSTS AND LOCATED BY THE ENGINEER.
 4. REMOVABLE PANEL SHALL BE 1/2" MARINE PLYWOOD.
 5. ALL BOLTS, SCREWS, NAILS, NUTS AND WASHERS SHALL BE GALVANIZED OR CADMIUM PLATED.
 6. 4" x 6" POST SHALL BE WOLMANIZED OR PENTACHLOROPHENOL TREATED.
 7. ALL WOOD SURFACES SHALL HAVE PRIME COAT AND TWO (2) COATS OF SHERWIN-WILLIAMS KEM-LUSTRA ENAMEL OR EQUAL.



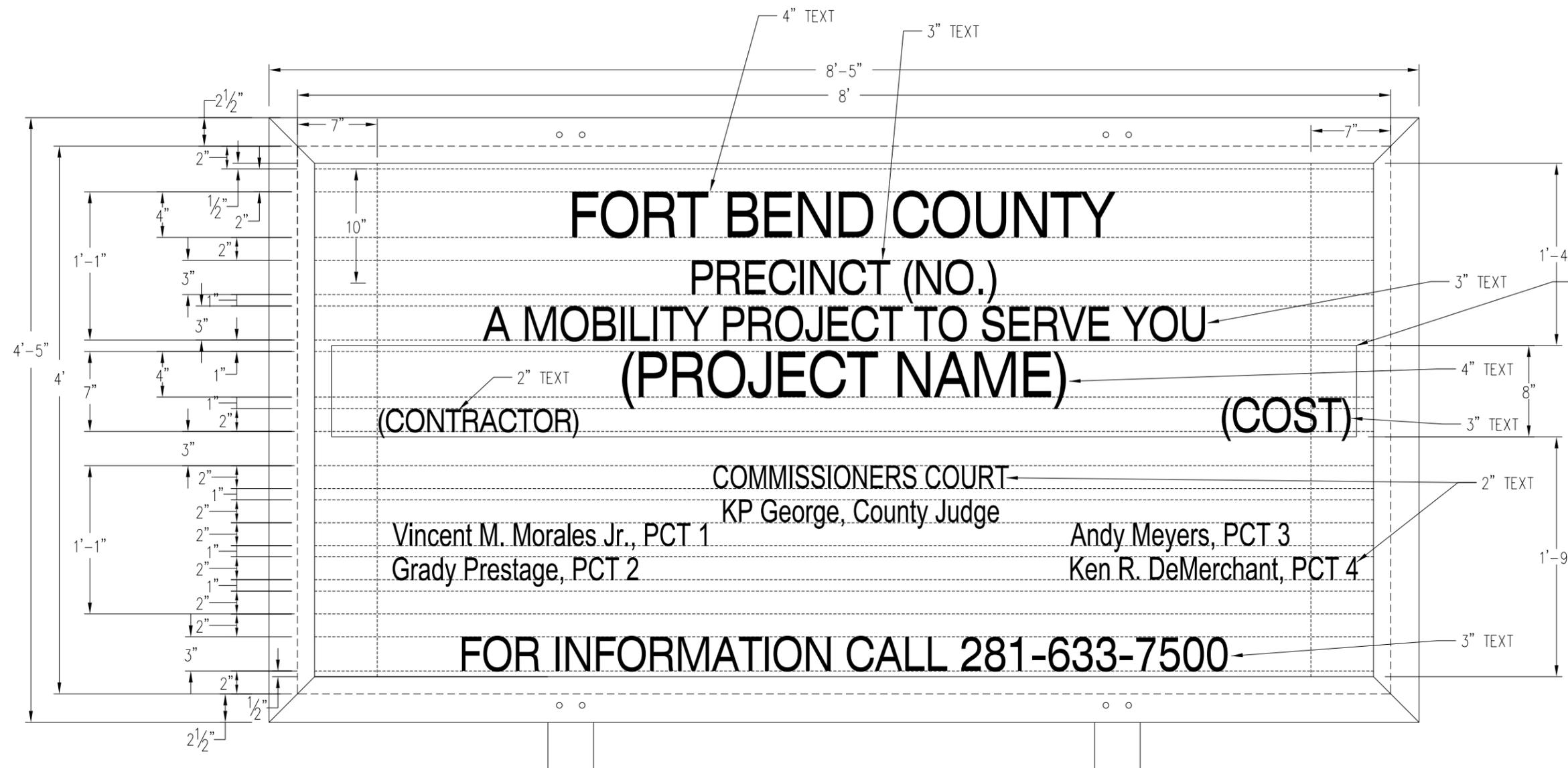
NO.	REVISIONS	DATE	NAME
▲	ORIGINAL STANDARD ISSUED	2-1-22	RJS
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FORT BEND COUNTY
ENGINEERING DEPARTMENT



PROJECT TITLE:		FBCED STANDARD
DRAWN BY: INIT	SHEET DESCRIPTION: PROJECT SIGN DETAILS	35
CK'D BY: INIT		SHEET NO:
SCALE: NONE	SHEET 1 OF 4	/
DATE: 2-1-22	APPROVED BY:	

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1/2" THICK REMOVABLE PANEL FASTENED WITH COUNTERSUNK FLATHEAD SCREWS 18" C-C AT TOP AND BOTTOM EDGE (LOCATION & HEIGHT OF REMOVABLE PANEL IS UNIQUE TO SIGN TYPE, SEE SIGN TYPE DETAILS FOR LETTERING AND LOCATION OF REMOVABLE PANEL)

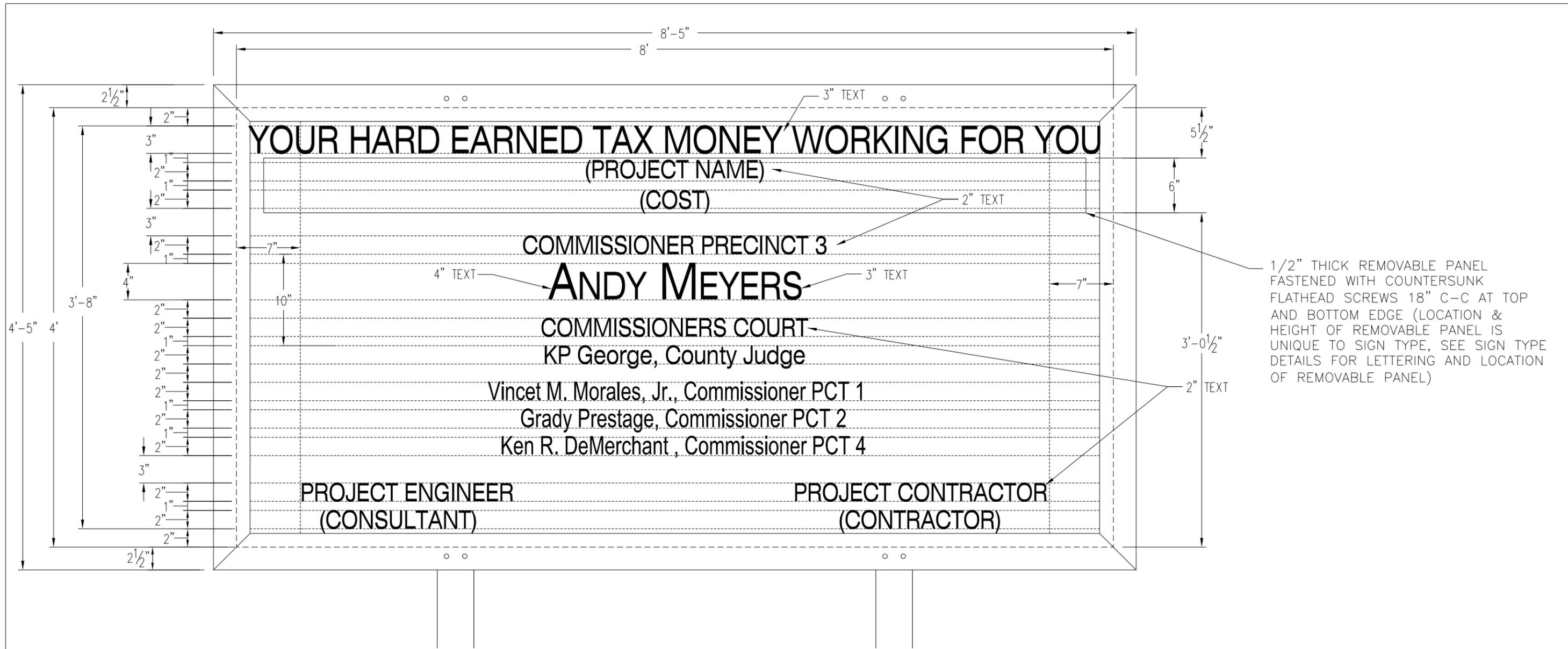
NO.	REVISIONS	DATE	NAME
△	ORIGINAL STANDARD ISSUED	2-1-22	RJS
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FORT BEND COUNTY
ENGINEERING DEPARTMENT



PROJECT TITLE:		FBCD STANDARD
DRAWN BY: INIT	SHEET DESCRIPTION: COUNTY FUNDED PROJECT SIGN	36
CK'D BY: INIT		
SCALE: NONE	(FOR PCNT. 1, 2, & 4) SHEET 2 OF 4	SHEET NO:
DATE: 2-1-22	APPROVED BY:	/

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GENERAL NOTES:

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2. ALL LETTERING SHALL BE EITHER AERIAL FONT OR HELVETICA FONT.
3. SIGN SHALL BE MOUNTED ON 4" x 6" POSTS AND LOCATED BY THE ENGINEER.
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6. 4" x 6" POST SHALL BE WOLMANIZED OR PENTACHLOROPHENOL TREATED.
7. ALL WOOD SURFACES SHALL HAVE PRIME COAT AND TWO (2) COATS OF SHERWIN-WILLIAMS KEM-LUSTRA ENAMEL OR EQUAL.

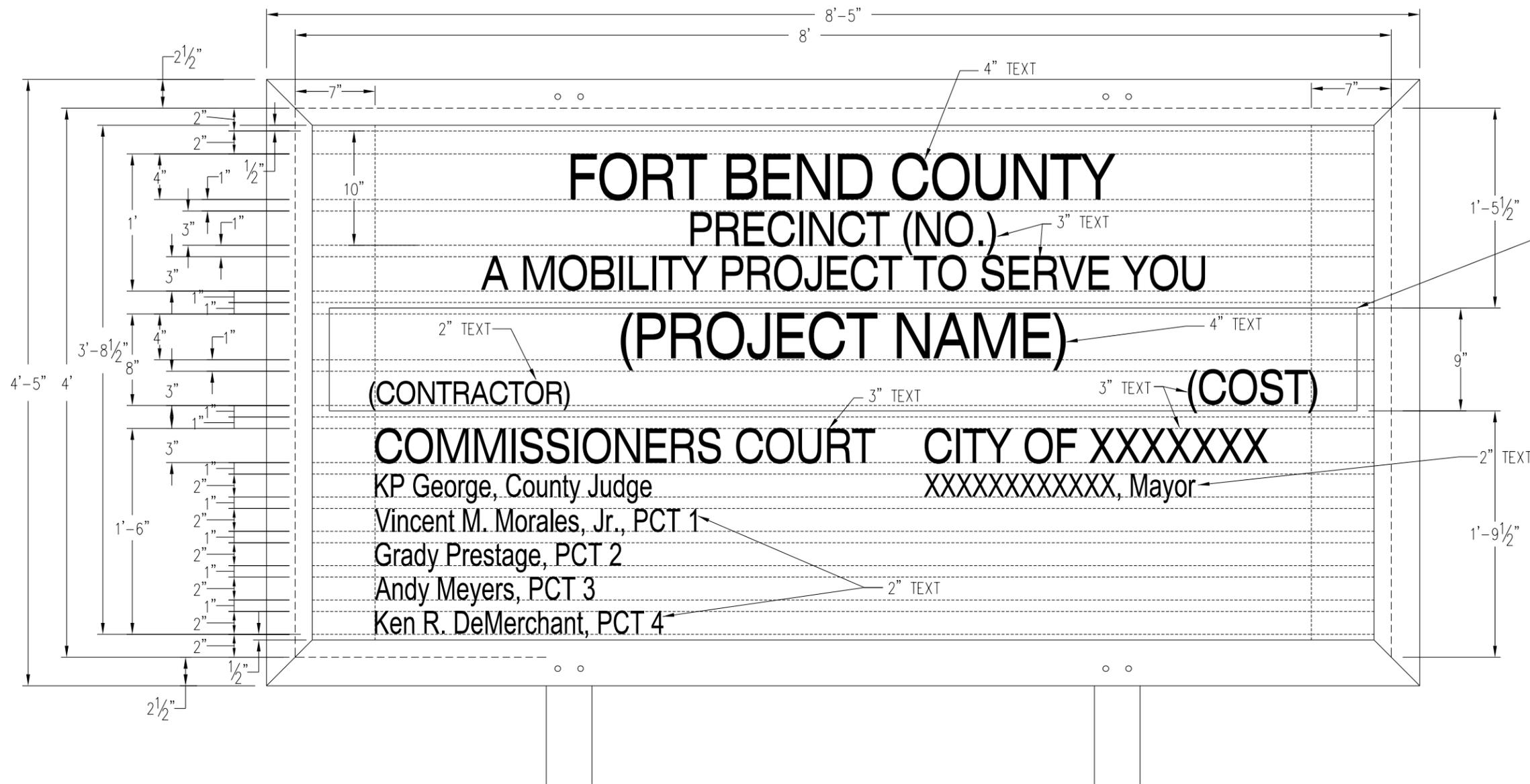
NO.	REVISIONS	DATE	NAME
△	ORIGINAL STANDARD ISSUED	2-1-22	RJS
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FORT BEND COUNTY
ENGINEERING DEPARTMENT



PROJECT TITLE:		FBCED STANDARD
DRAWN BY: INIT	SHEET DESCRIPTION: COUNTY FUNDED PROJECT SIGN (FOR PCNT. 3) SHEET 3 OF 4	37
CK'D BY: INIT		
SCALE:		SHEET NO:
DATE: 2-1-22	APPROVED BY:	/

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1/2" THICK REMOVABLE PANEL FASTENED WITH COUNTERSUNK FLATHEAD SCREWS 18" C-C AT TOP AND BOTTOM EDGE (LOCATION & HEIGHT OF REMOVABLE PANEL IS UNIQUE TO SIGN TYPE, SEE SIGN TYPE DETAILS FOR LETTERING AND LOCATION OF REMOVABLE PANEL)

GENERAL NOTES:

1. THE SIGN SHALL HAVE BLACK LETTERS WITH WHITE BACKGROUND.
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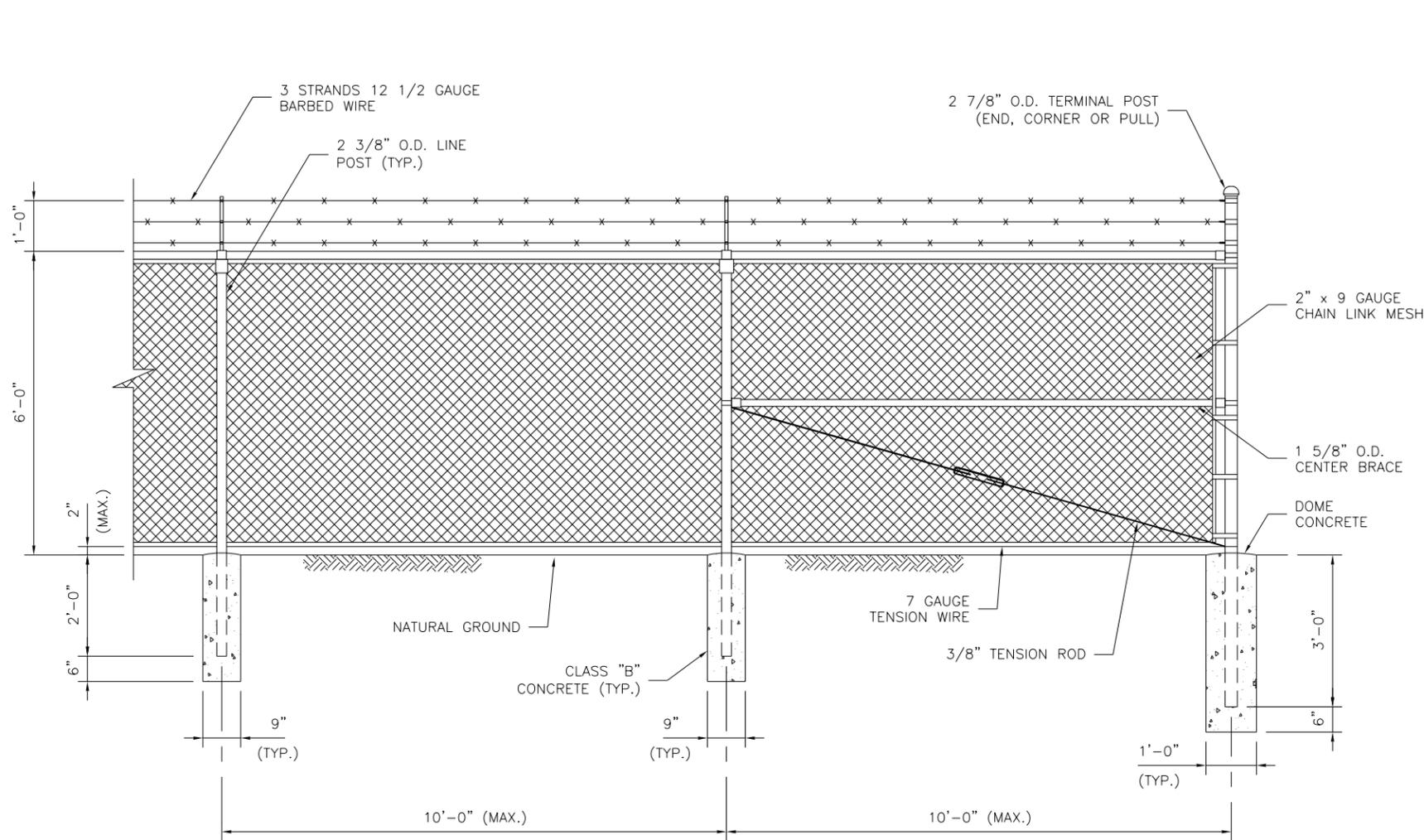
NO.	REVISIONS	DATE	NAME
△	ORIGINAL STANDARD ISSUED	2-1-22	RJS
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FORT BEND COUNTY
ENGINEERING DEPARTMENT

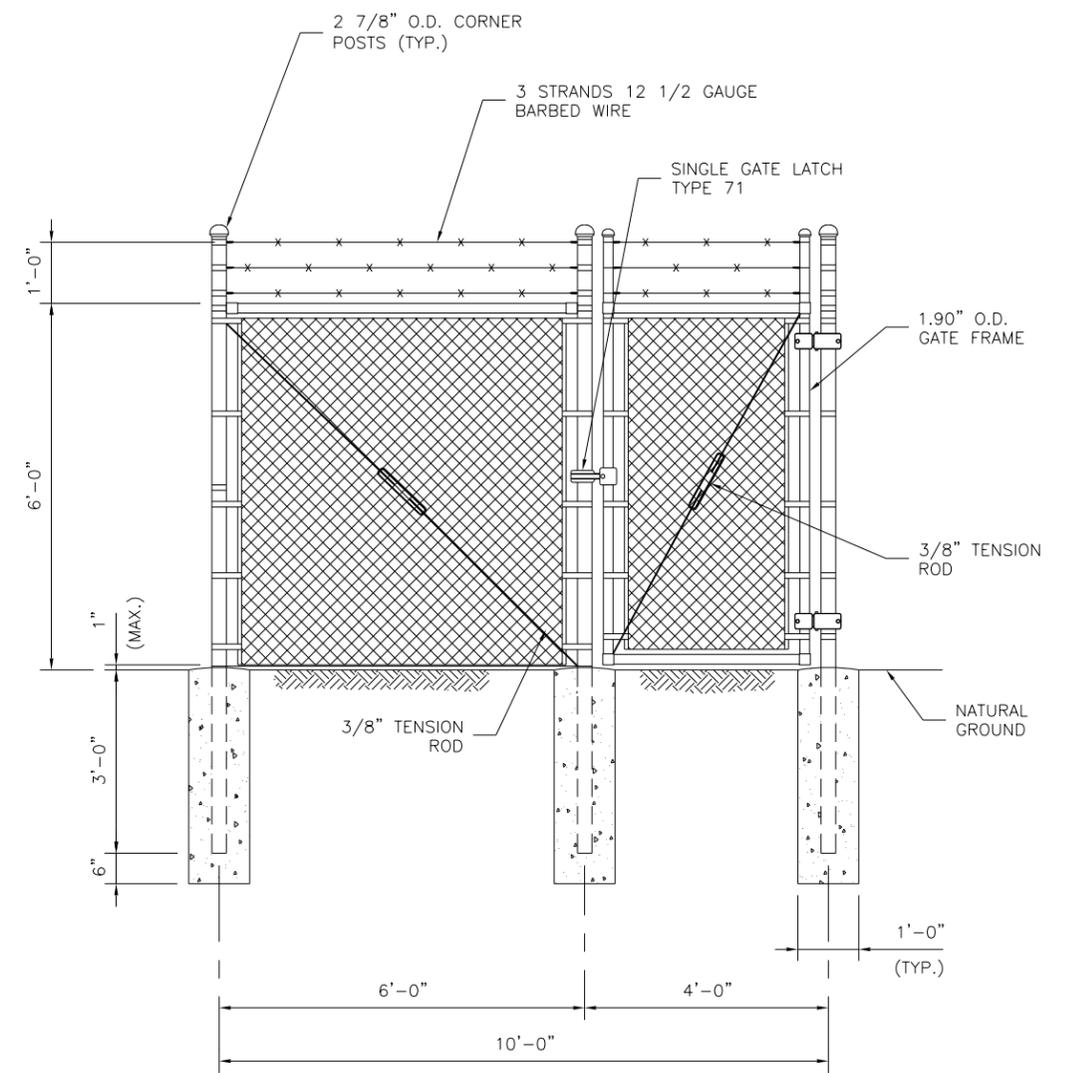


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DRAWN BY:	INIT	FBCED STANDARD
CK'D BY:	SHEET DESCRIPTION:	38
SCALE:	NONE	SHEET 4 OF 4
DATE:	APPROVED BY:	SHEET NO:
2-1-22		/

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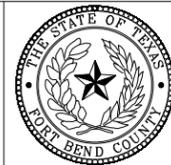
ELEVATION WITH CORNER POST



SECURITY FENCE AND GATE FOR ELECTRICAL PANEL BOARD

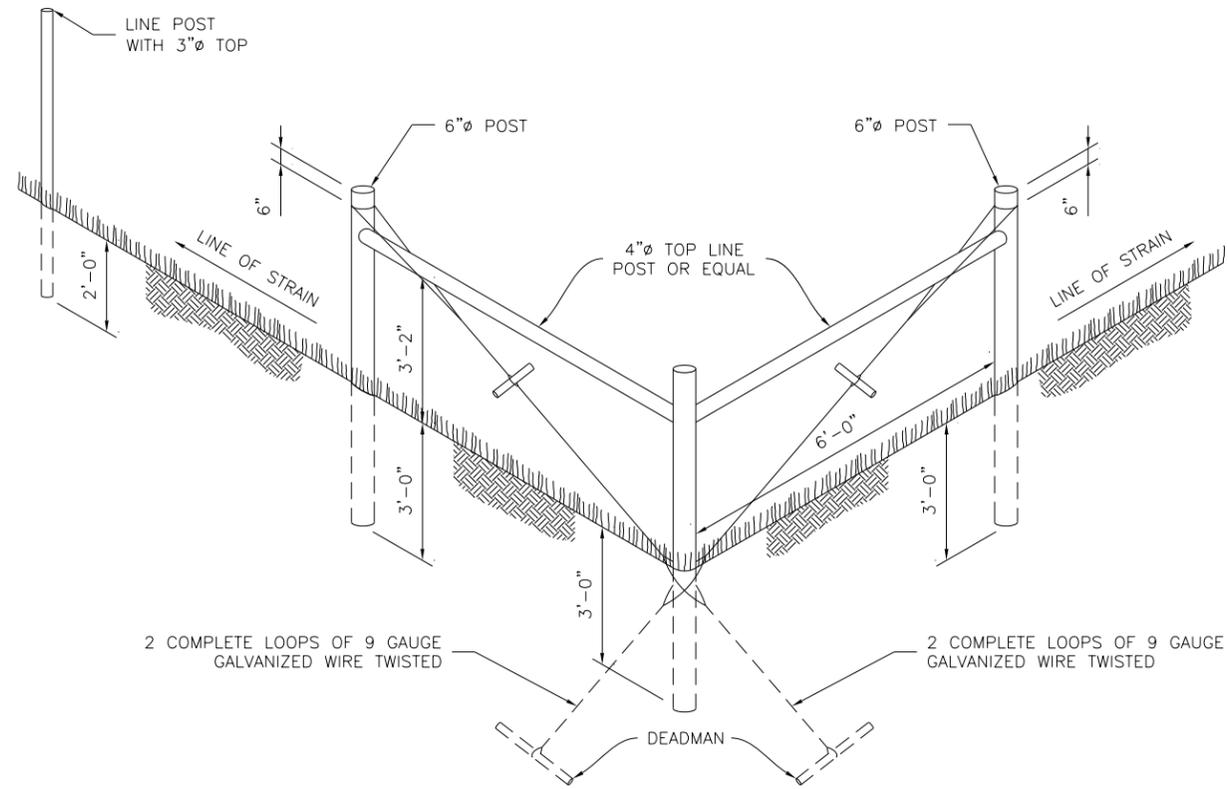
NO.	REVISIONS	DATE	NAME
1	ORIGINAL STANDARD ISSUED	2-1-22	RJS

FORT BEND COUNTY
ENGINEERING DEPARTMENT

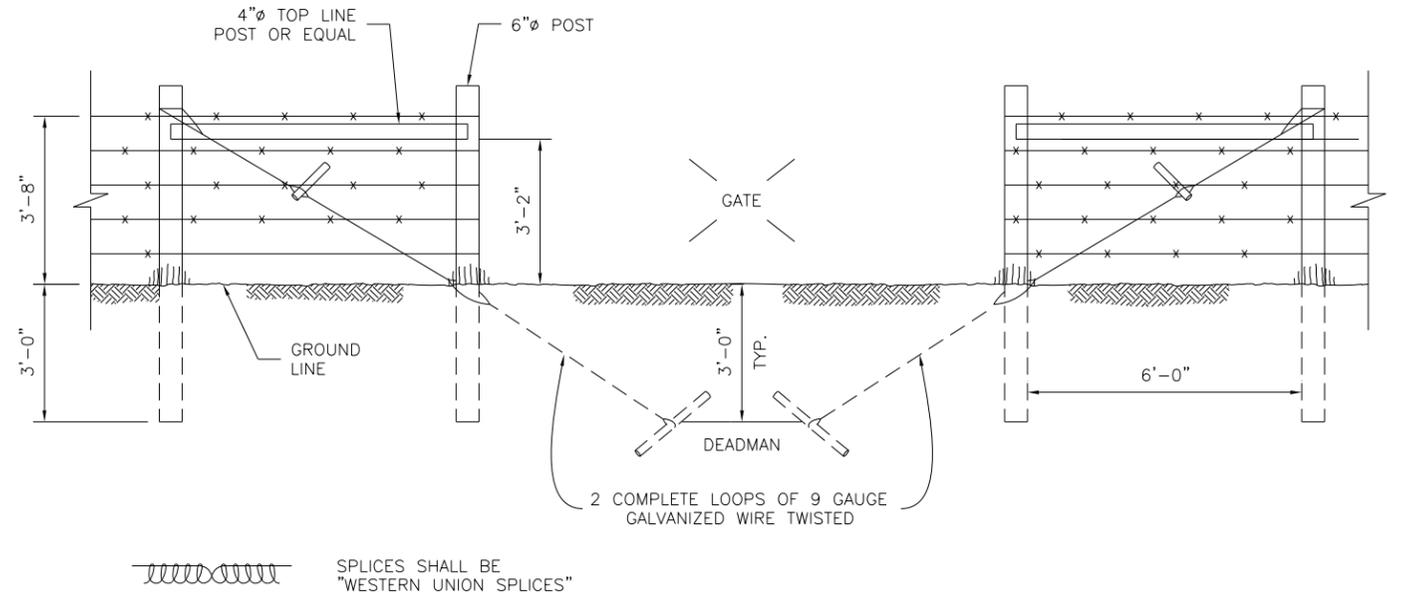


PROJECT TITLE:		FBCD STANDARD
DRAWN BY: INIT	SHEET DESCRIPTION: CHAIN LINK FENCING DETAILS	39
CK'D BY: INIT		SHEET NO: /
SCALE: NONE	APPROVED BY:	
DATE: 2-1-22		

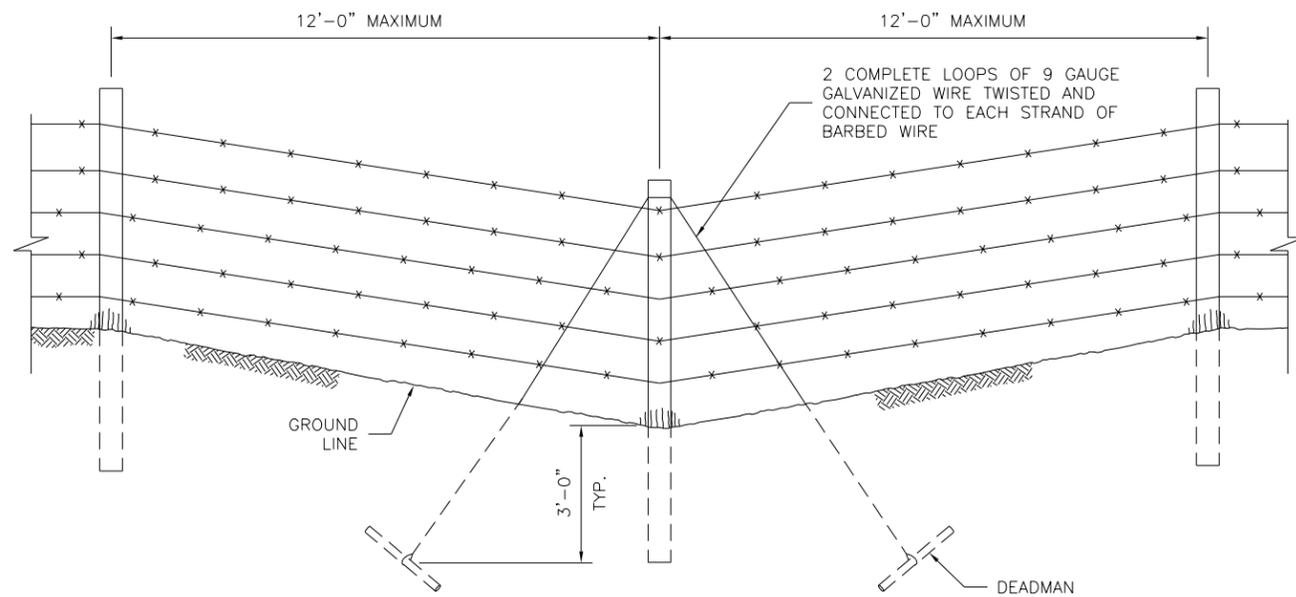
J:\1704\1601\Fort Bend County Standards\Fort Bend County STD\DONE\FBC BARBED WIRE FENCING DETAILS\BARBED_WIRE_FENCING_DETAILS.dwg



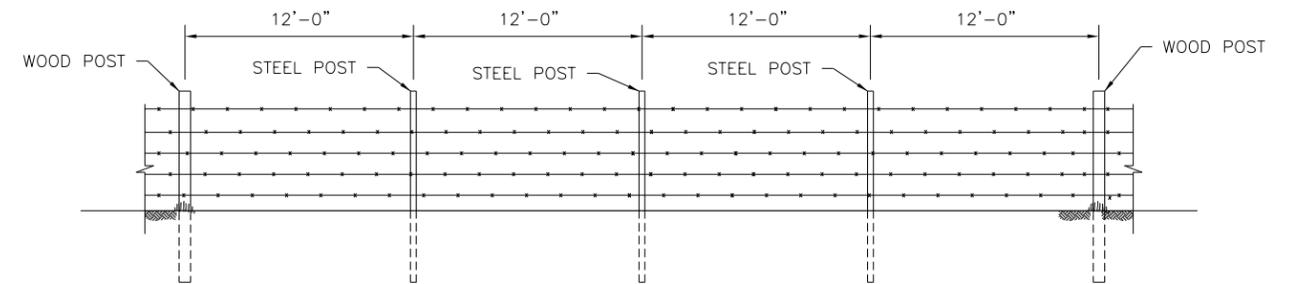
**ISOMETRIC VIEW
AT CORNER ELEVATION**
NOTE: ALL DIMENSIONS ARE MINIMUM



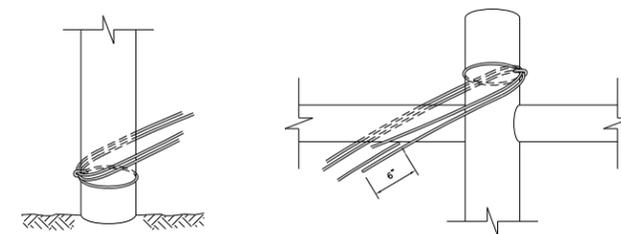
ELEVATION AT GATE OPENING
NOTE: ALL DIMENSIONS ARE MINIMUM



GRADE DEPRESSION DETAIL



TYPICAL FENCE ELEVATION



FASTENING DETAILS

FOR WIRE BRACE, TIE IN WOOD CORNER,
OR END POST ASSEMBLY

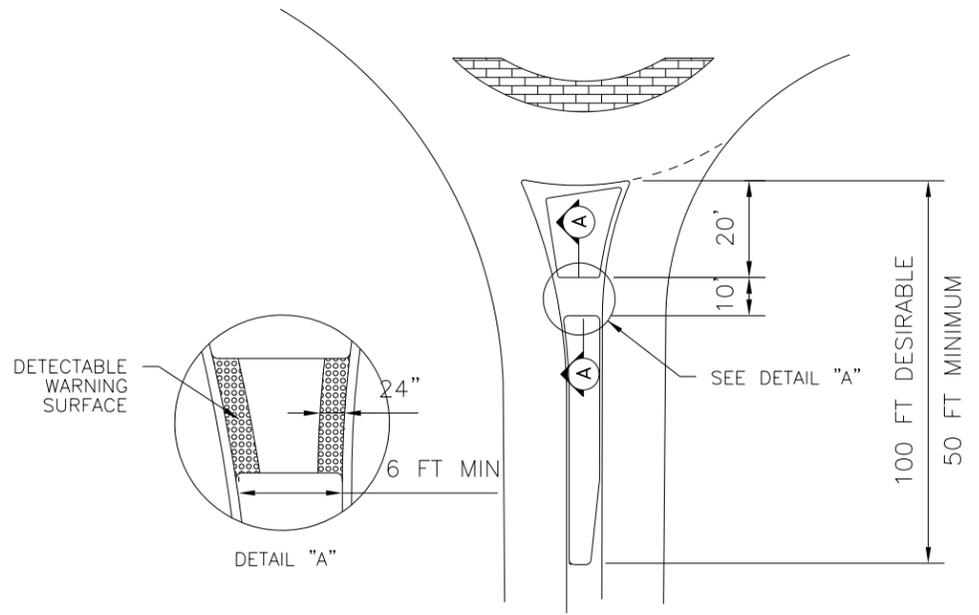
NO.	REVISIONS	DATE	NAME
1	ORIGINAL STANDARD ISSUED	2-1-22	RJS
2			
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FORT BEND COUNTY
ENGINEERING DEPARTMENT



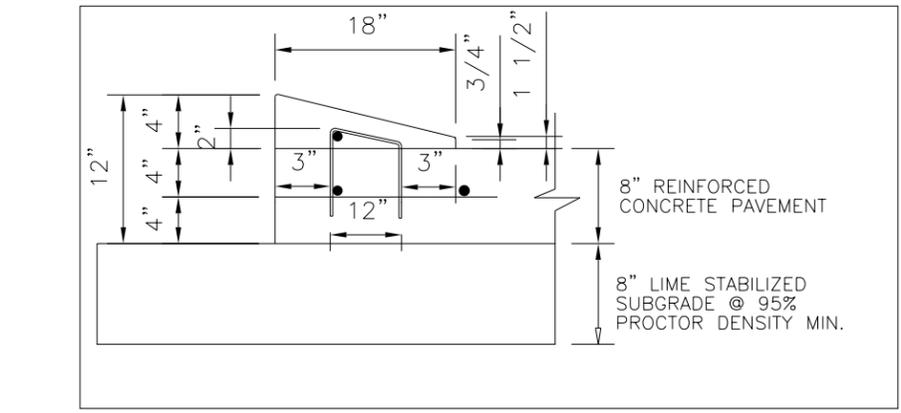
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DRAWN BY: INIT	SHEET DESCRIPTION: BARBED WIRE FENCING DETAILS	41
CK'D BY: INIT		SHEET NO: /
SCALE: NONE	APPROVED BY:	
DATE: 2-1-22		

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SPLITTER ISLAND DIMENSIONS

N.T.S.

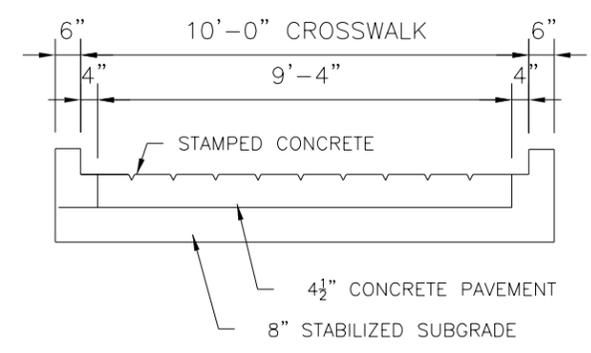


4"x18" MOUNTABLE CURB DETAIL

N.T.S.

NOTES

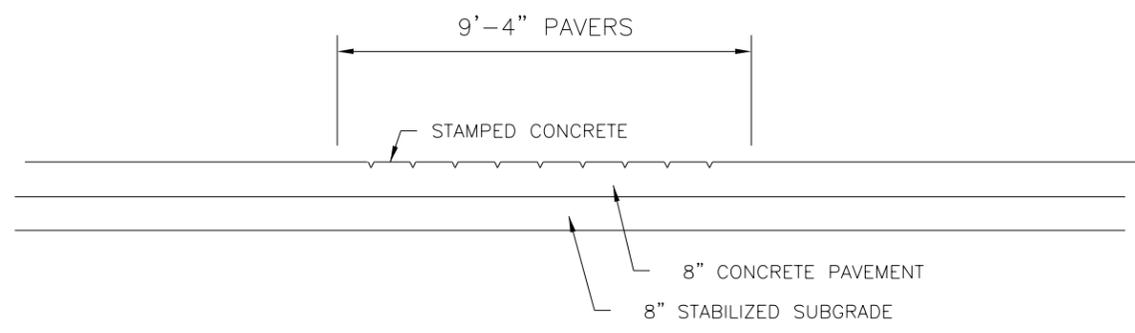
1. 1.0 LBS. OF APPROVED NON-METALLIC FIBER MESH PER C/Y ON 4"x18" CURBS.
2. #4 RE-BAR STIRRUPS TO BE PLACED AT INTERVALS OF 2' (FT) C-C.
3. #4 RE-BAR LONGITUDINAL SHALL BE TIED TO EACH STIRRUP.



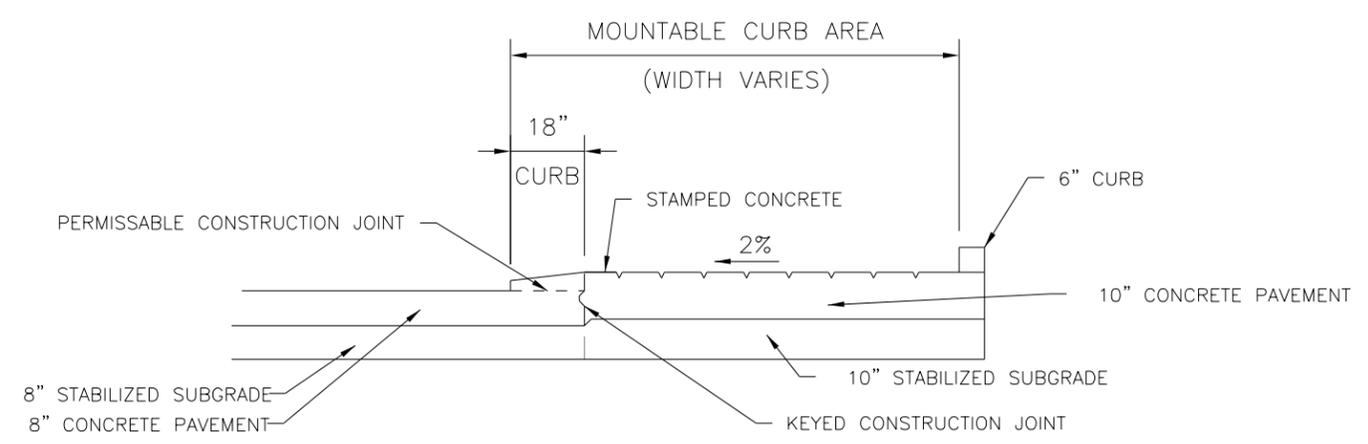
CROSS SECTION A-A SPLITTER ISLAND CUT THROUGH

GENERAL NOTES:

- 1.) CROSSWALK AND TRUCK APRON SHALL BE STAMPED CONCRETE WITH CONTRASTING COLORS



CROSS SECTION OF CROSS WALK WITH STAMPED CONCRETE



CROSS SECTION OF TRUCK APRON

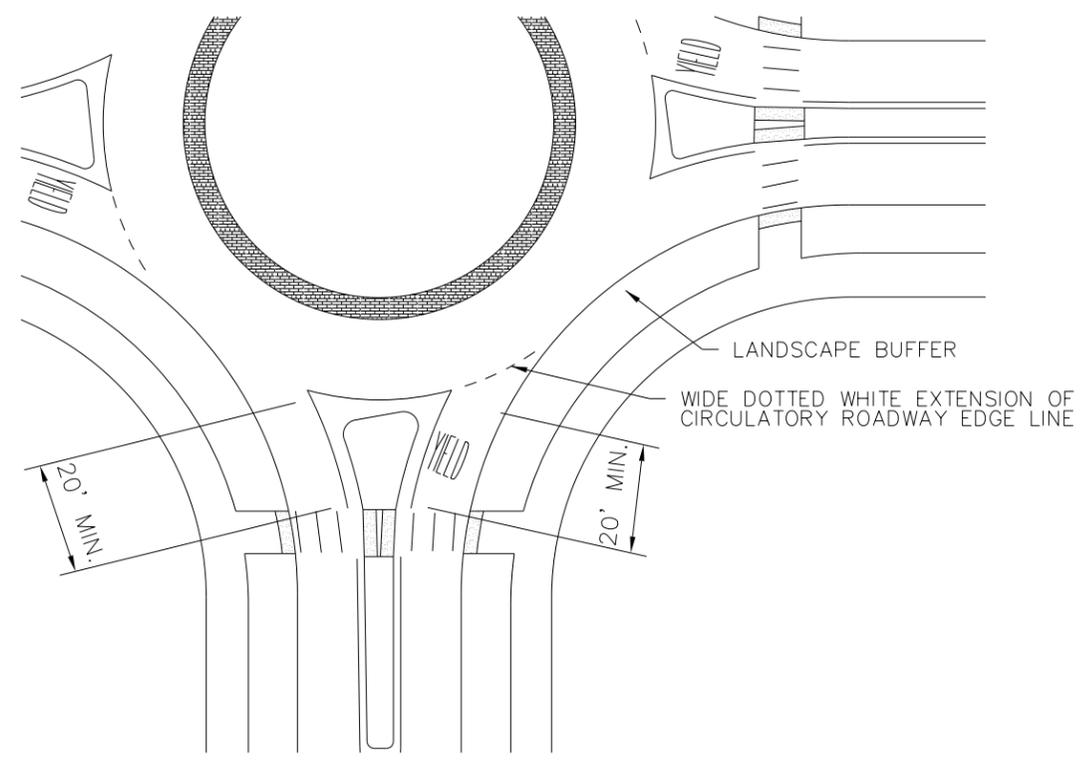
NO.	REVISIONS	DATE	NAME
△	ORIGINAL STANDARD ISSUED	2-1-22	RJS
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FORT BEND COUNTY
ENGINEERING DEPARTMENT



PROJECT TITLE:		
DRAWN BY:	INIT	FBCED STANDARD
CK'D BY:	INIT	42
SCALE:	AS NOTED	SHEET 1 OF 3
DATE:	2-1-22	APPROVED BY:
		SHEET NO:
		/

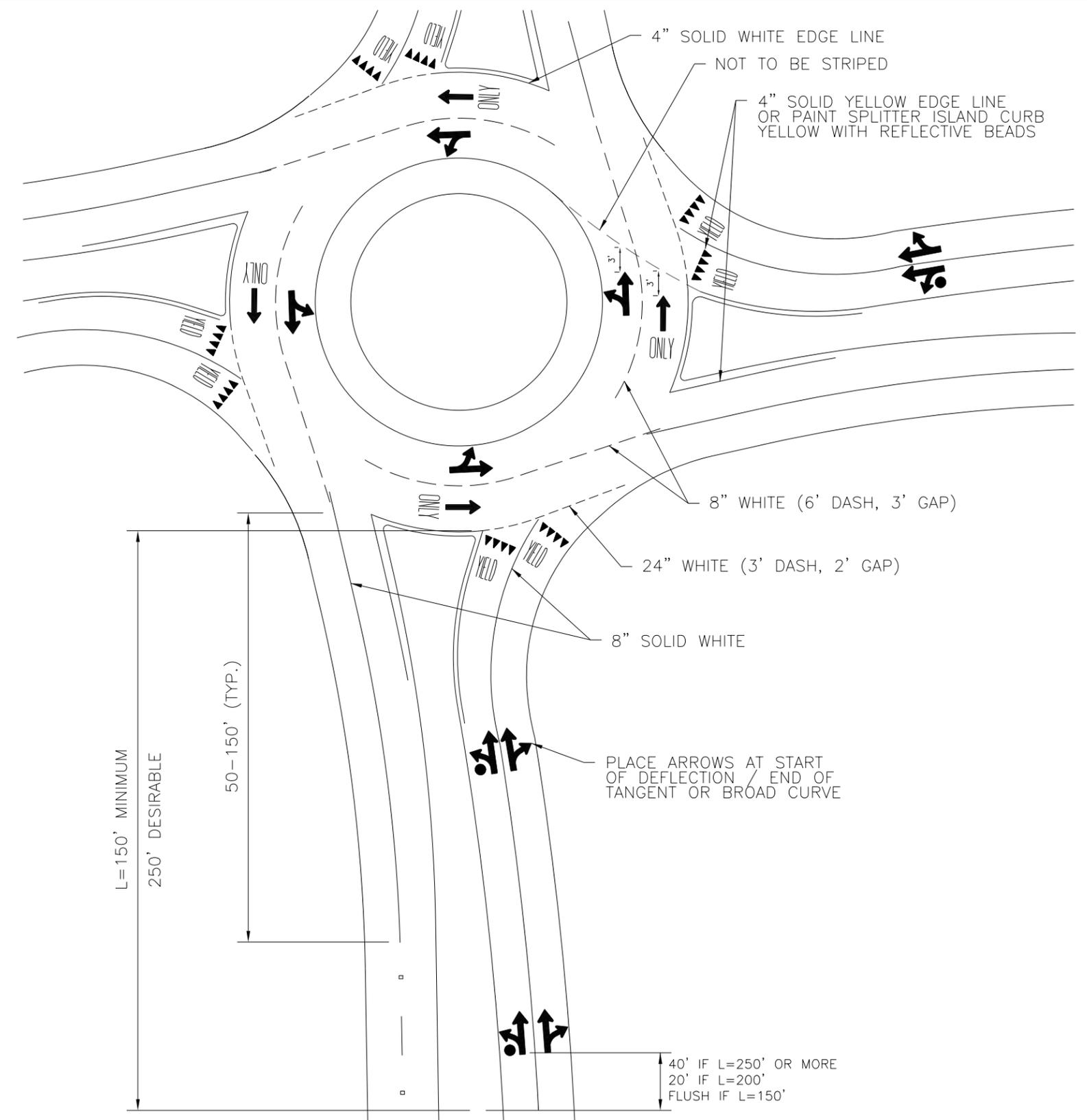
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PAVEMENT MARKINGS FOR SINGLE LANE ROUNDABOUT
N.T.S.

NOTES

1. USE STANDARD (NON FISHHOOK) ARROWS ON ROUNDABOUT APPROACHES AND IN CIRCULATORY ROADWAY.
2. PLACE "SHARK'S TEETH" YIELD MARKINGS PERPENDICULAR TO LEFT LANE LINE OR CURB FOR EACH LANE.
3. CROSSWALK OMITTED FROM TWO-LANE DETAIL FOR CLARITY. MINIMUM CROSSWALK DIMENSIONS FOR SINGLE -LANE ROUNDABOUT ALSO APPLY TO MULTI -LANE.
4. PAVEMENT MARKING MUST BE SHOWN ON THE APPROVED CONSTRUCTION PLANS.
5. PAVEMENT SURFACE AREAS PRIOR TO PLACEMENT OF PAVEMENT MARKINGS AND/OR RAISED PAVEMENT MARKERS SHALL BE CLEANING IN ACCORDANCE WITH COUNTY STANDARDS. CONCRETE SURFACES SHALL BE CLEANED BY ABRASIVE BLASTING MEDIUM. ASPHALT PAVEMENT SURFACE SHALL BE CLEANED BY BRUSHING WASHING, COMPRESSED AIR, AND/OR HIGH -PRESSURE WATER. AREAS MUST BE FREE OF CURING MEMBRANCE, DIRT, GREASE, LOOSE AND/OR FLAKING EXISTING MARKERS, AND FORMS OF DEBRIS.
6. ALL STREET CROSSING SHALL COMPLY WITH T.A.S. AND A.D.A. SEE HANDICAP CROSS DETAIL.
7. ALL PAVEMENT MARKING AND/OR RAISED PAVEMENT MARKERS SHALL COMPLY WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, A.D.A, T.A.S., AND COUNTY STANDARDS AND ALL REVISIONS THEREOF.
8. PAVEMENT MAKINGS PLACED THAT ARE NOT IN ALIGNMENT OR SEQUENCE AS SHOWN ON THE PLANS OR STATED IN THE PROJECT SPECIFICATIONS SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.



PAVEMENT MARKINGS FOR 2-LANE ROUNDABOUT
N.T.S.

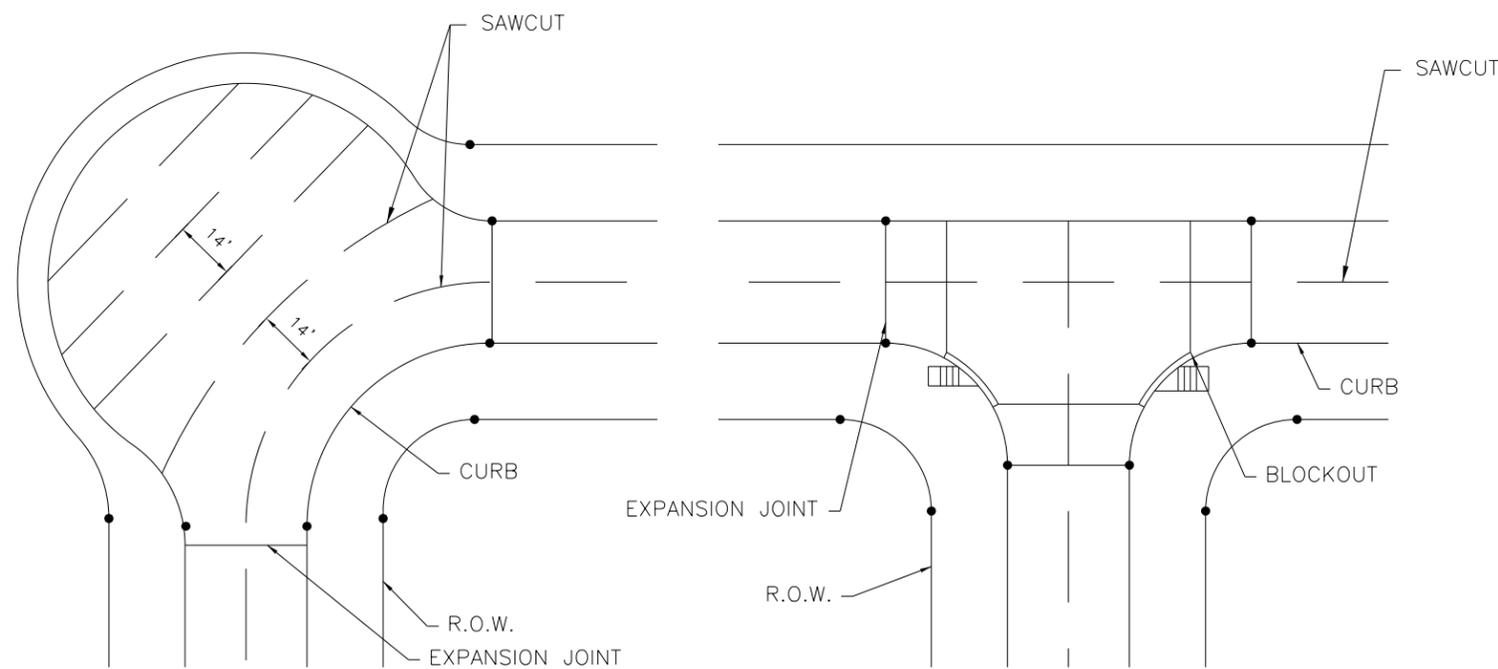
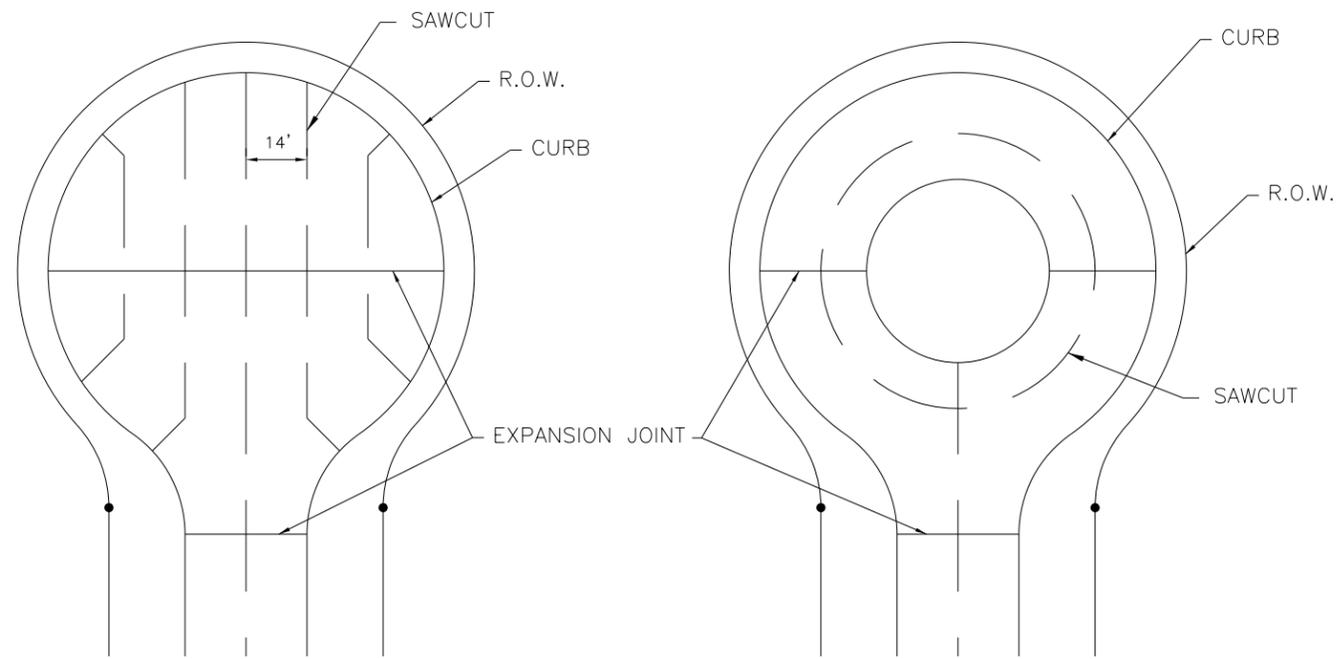
NO.	REVISIONS	DATE	NAME
△	ORIGINAL STANDARD ISSUED	2-1-22	RJS
△			
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FORT BEND COUNTY
ENGINEERING DEPARTMENT



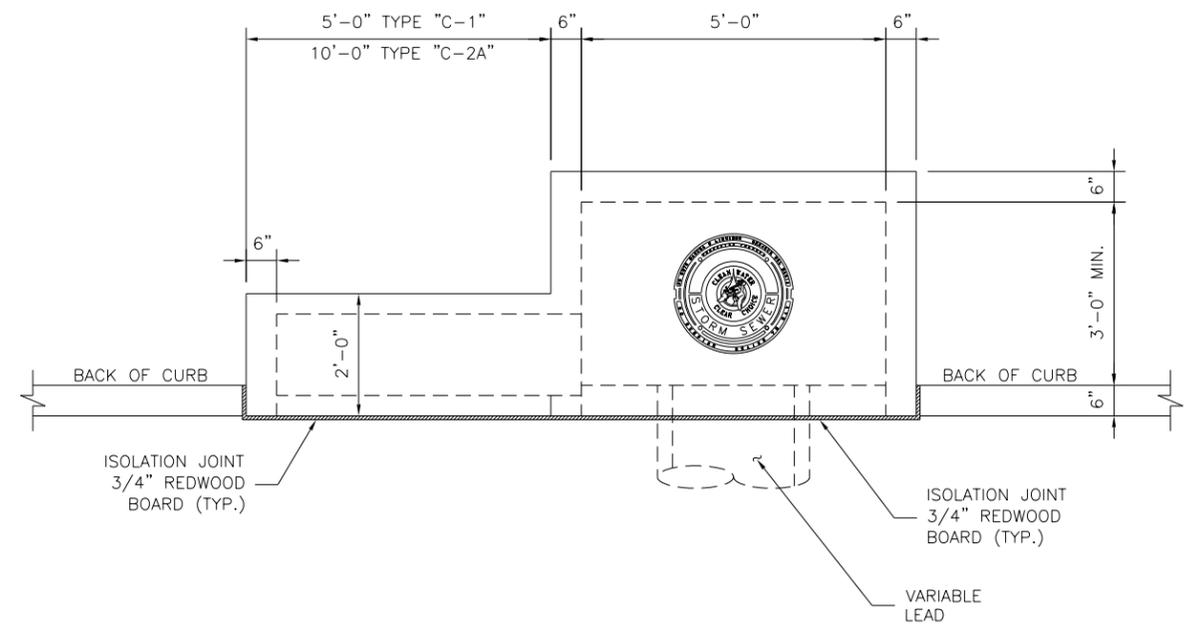
PROJECT TITLE:		FBCED STANDARD
DRAWN BY: INIT	SHEET DESCRIPTION: ROUNDABOUT CONSTRUCTION DET III	44
CK'D BY: INIT	AS NOTED	SHEET 3 OF 3
DATE: 2-1-22	APPROVED BY:	/

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TYPICAL LOCATION OF EXPANSION JOINTS AND SAWCUTS

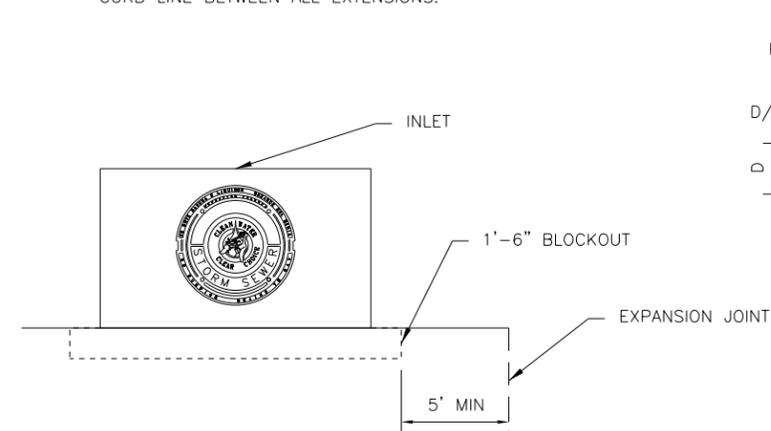
N.T.S.



PLAN VIEW

INLET NOTES:

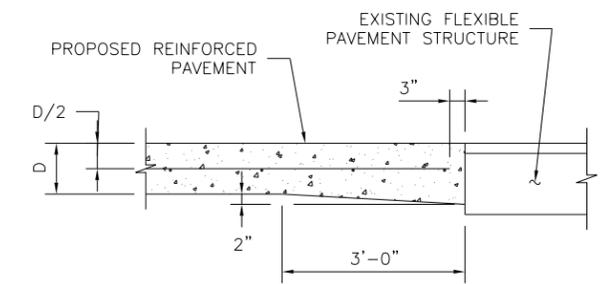
- TYPE "C": INLET ONLY - NO EXTENSION
- TYPE "C-1": INLET WITH ONE EXTENSION (5'-0" LONG)
- TYPE "C-2": INLET WITH ONE EXTENSION (5'-0" LONG) ON EACH SIDE
- TYPE "C-2A": INLET WITH ONE DOUBLE EXTENSION (10'-0" LONG) ON ONE SIDE
- * FOR TYPE "C-2A" INLETS, PROVIDE A CENTER 6"x6" COLUMN IN THE CURB LINE BETWEEN ALL EXTENSIONS.



HEADER SPACING FROM CURB INLETS

NOTE:

PAVEMENT EXPANSION JOINTS (LOAD TRANSFER DEVICE) SHALL NOT BE PLACED WITHIN THE PAVEMENT DEPRESSION OF AN EXISTING OR PROPOSED STORM SEWER INLET. A MINIMUM DISTANCE OF 5' MUST BE PROVIDED BETWEEN THE INLET BLOCKOUT AND THE EXPANSION JOINT.



TYPICAL PAVING HEADER

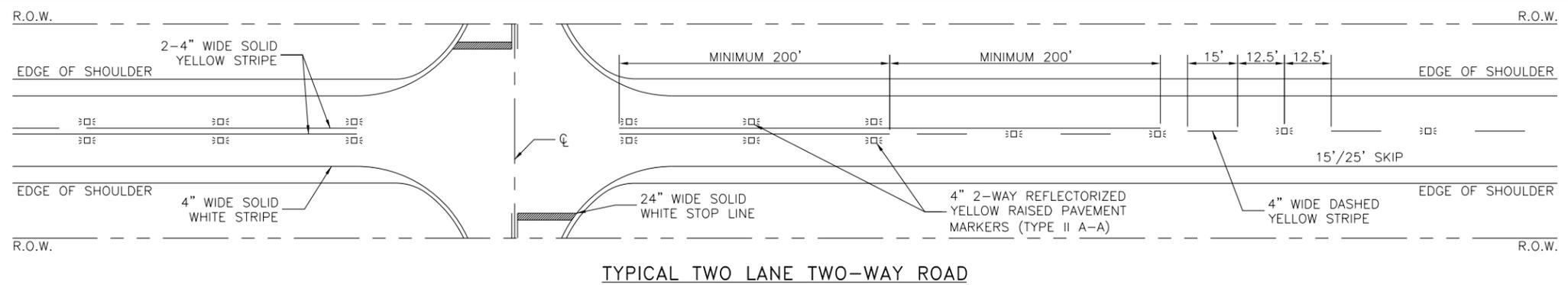
NO.	REVISIONS	DATE	NAME
▲	ORIGINAL STANDARD ISSUED	2-1-22	RJS
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FORT BEND COUNTY
ENGINEERING DEPARTMENT



PROJECT TITLE:		
DRAWN BY: INIT	SHEET DESCRIPTION: EXPANSION JOINTS AND SAWCUTS	FBCD STANDARD
CK'D BY: INIT		45
SCALE: AS NOTED		SHEET NO:
DATE: 2-1-22	APPROVED BY:	/

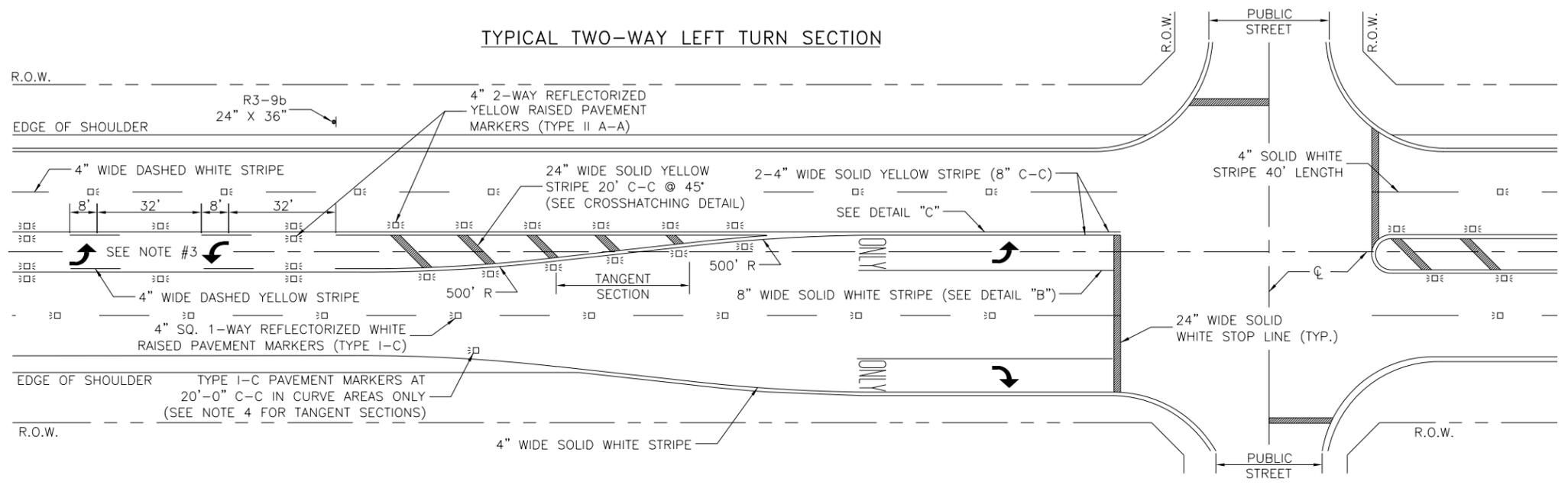
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TYPICAL TWO LANE TWO-WAY ROAD

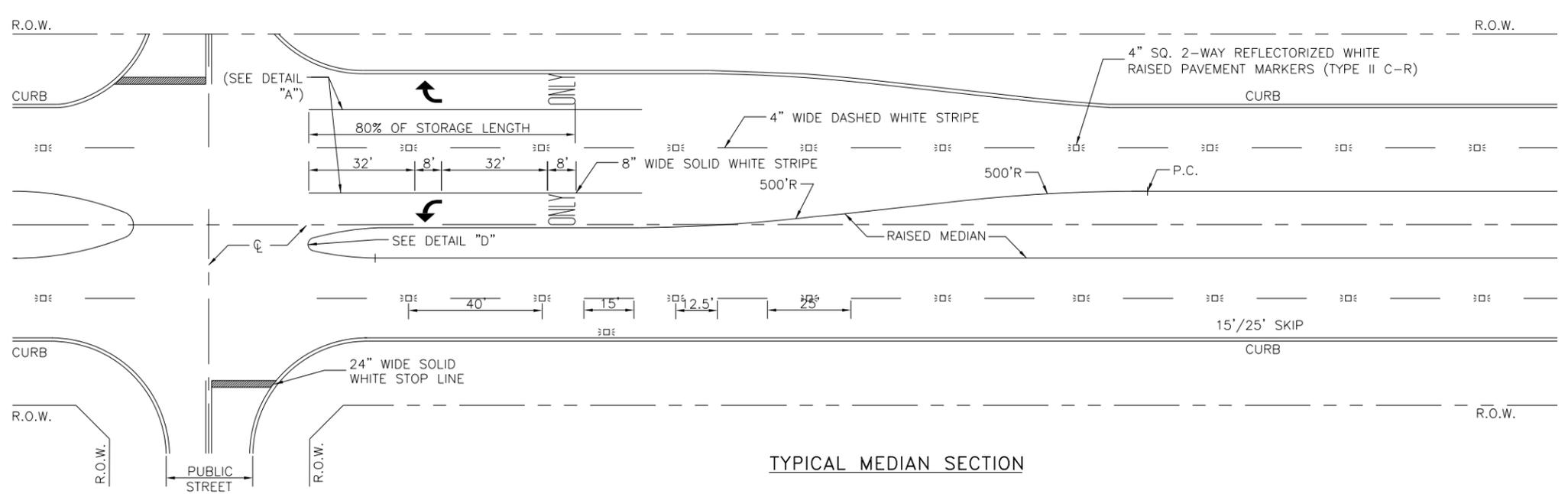
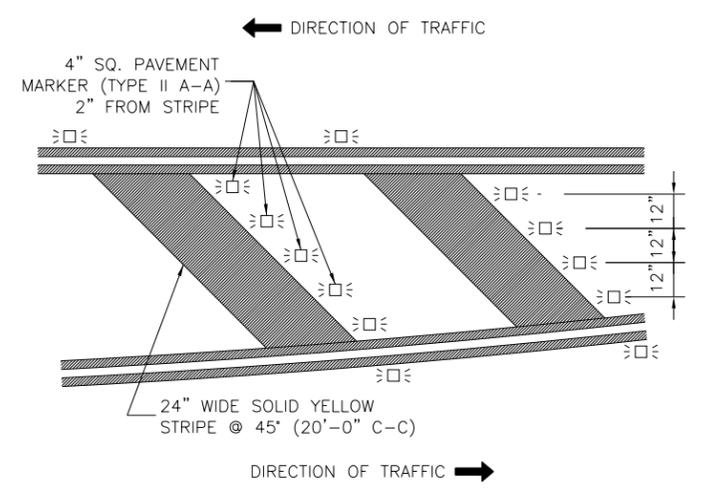
NOTES:

1. ALL PAVEMENT MARKINGS SHALL CONFORM TO THE LATEST EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (TMUTCD).
2. ALL TRAFFIC BUTTONS AND MARKERS SHALL BE INSTALLED ADJACENT TO STRIPES (APPROXIMATELY 2").
3. REPEAT ARROWS AT APPROXIMATELY 1000' INTERVALS WITHIN TWO-WAY LEFT TURN SECTION.
4. WITHIN A TANGENT SECTION THE TYPE I-C PAVEMENT MARKERS SHALL BE PLACED AT 40' C-C ON ROADWAYS WITHOUT CURB AND GUTTERS.
5. WHEN PAVEMENT MARKINGS EXTEND INTO OR CONTINUE THROUGH AN INTERSECTION AREA, THEY SHALL BE THE SAME COLOR AND AT LEAST THE SAME WIDTH AS THE LINE MARKINGS THEY EXTEND.
6. WHEN CROSSWALK MARKINGS ARE USED WITHIN AN ESTABLISHED SCHOOL ZONE, MID-BLOCK, OR AT UNCONTROLLED INTERSECTIONS, CROSSWALK SHALL BE CONTINENTAL STYLE.
7. ADDITIONAL SET OF "WORD" AND "ARROW" PAVEMENT MARKINGS SHALL BE USED WHEN TURN LANE STORAGE LENGTH IS 160 FEET OR GREATER.



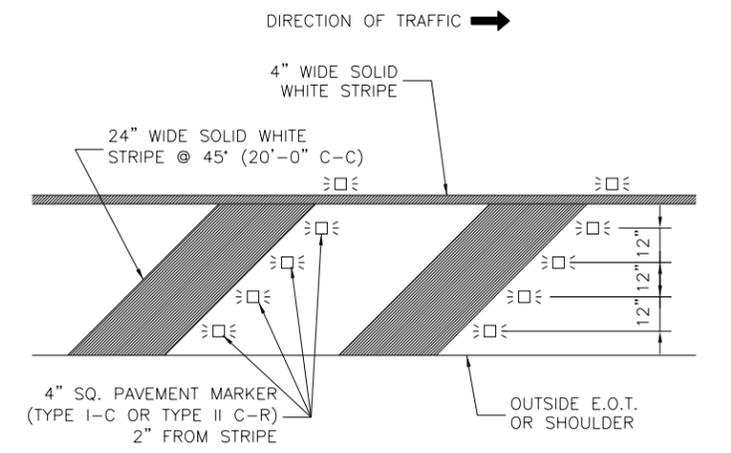
TYPICAL TWO-WAY LEFT TURN SECTION

CROSSHATCHING DETAIL



TYPICAL MEDIAN SECTION

OUTSIDE EDGE CROSSHATCHING DETAIL



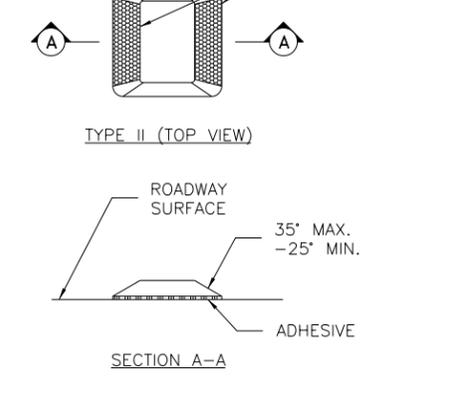
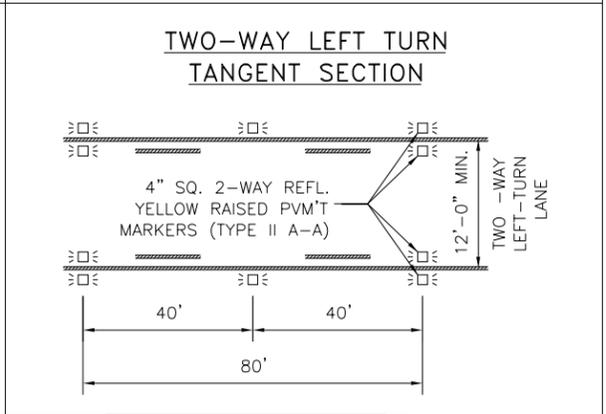
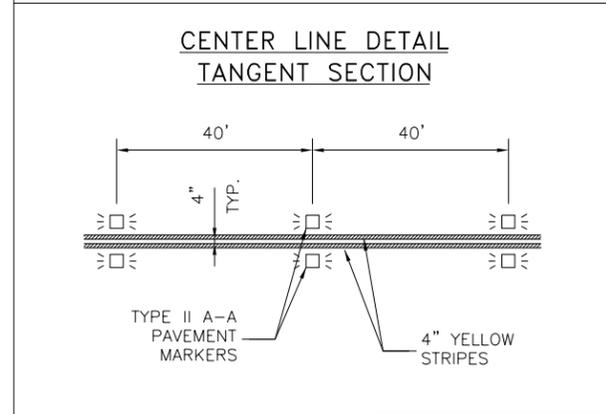
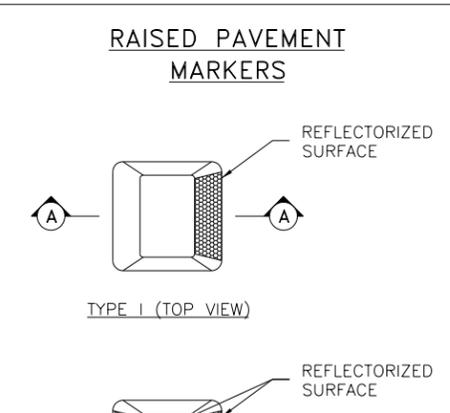
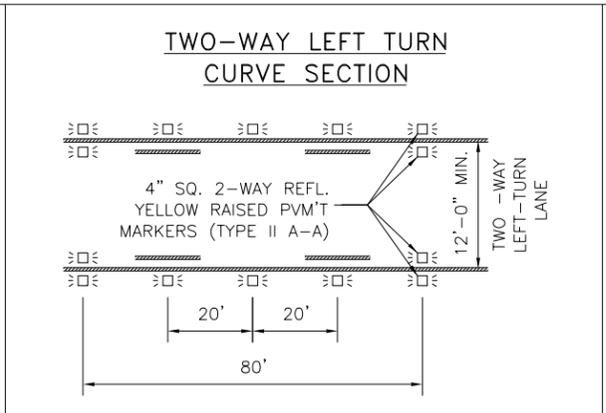
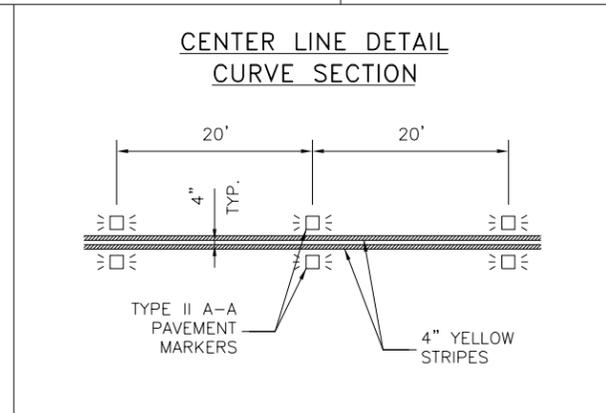
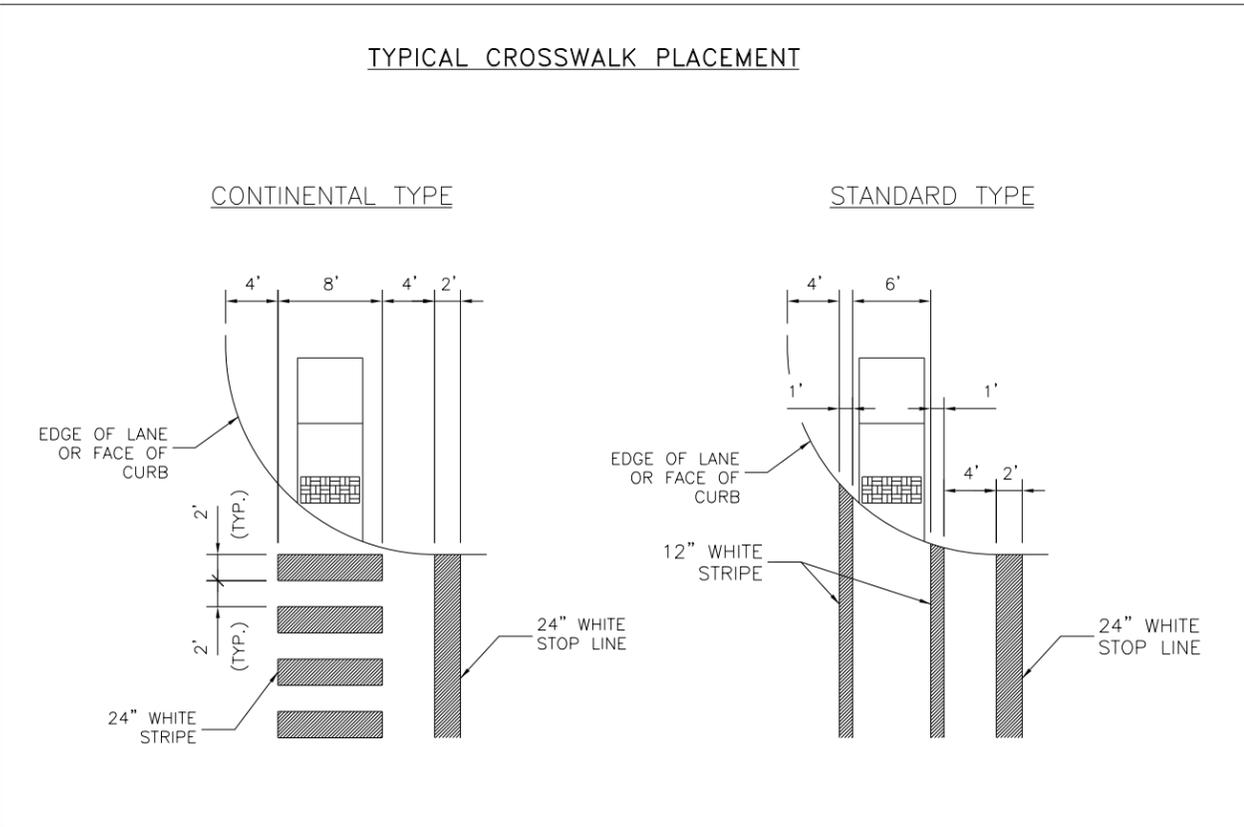
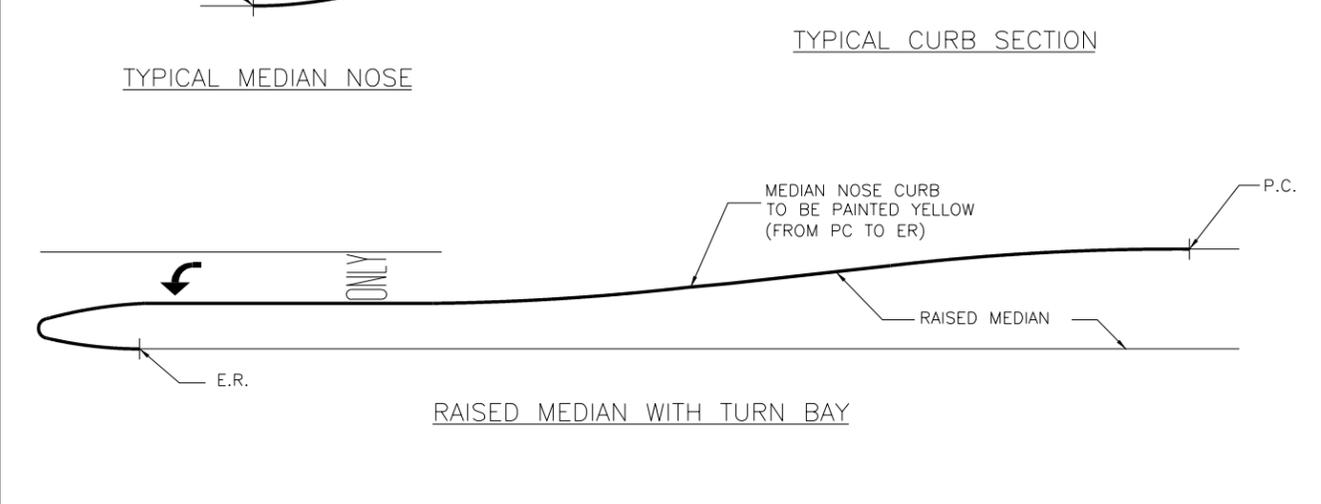
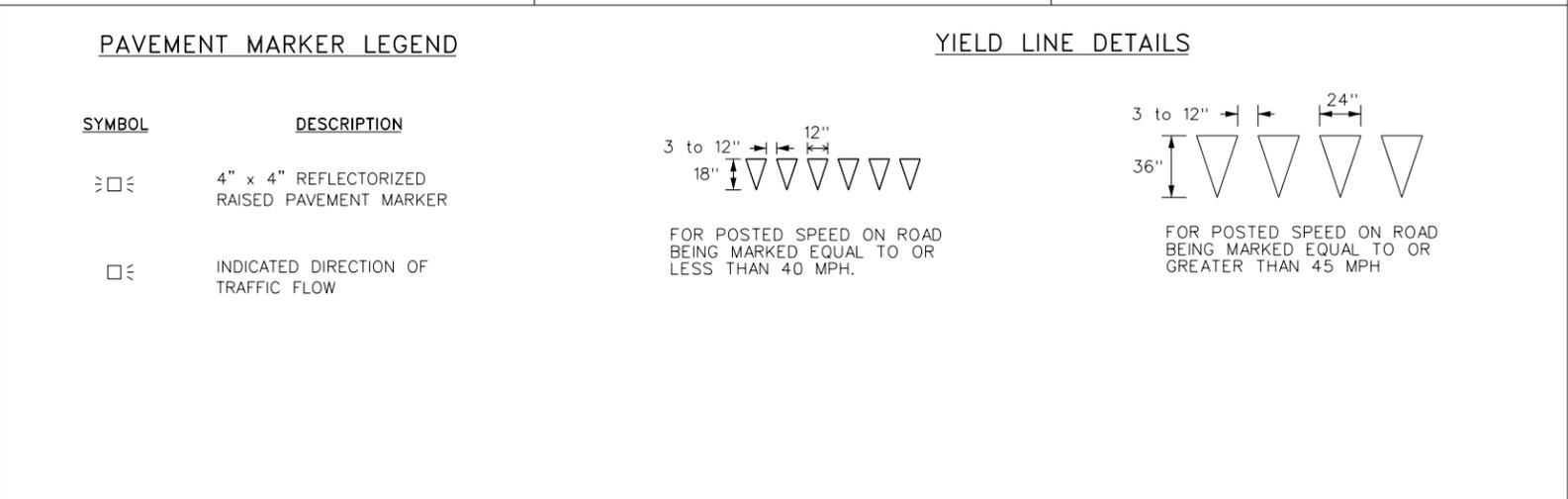
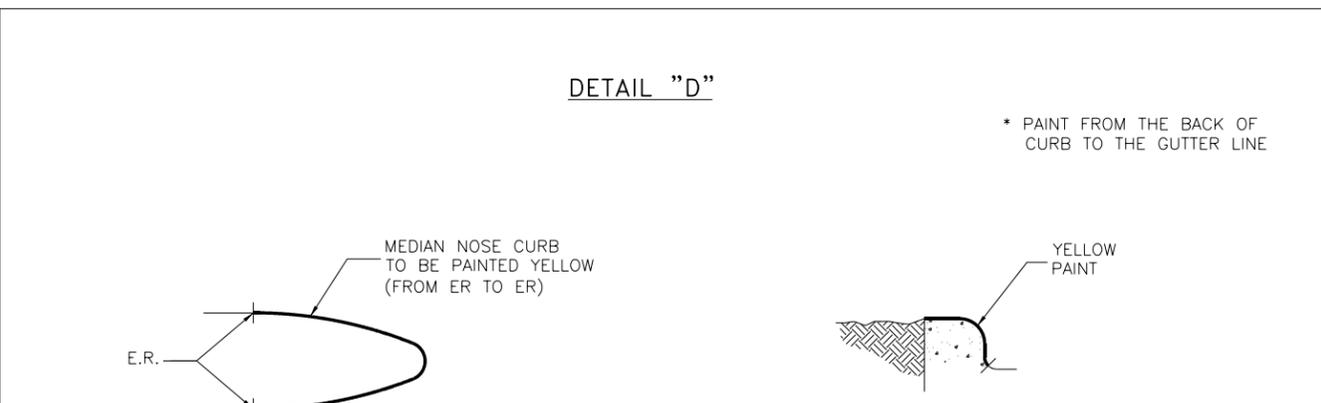
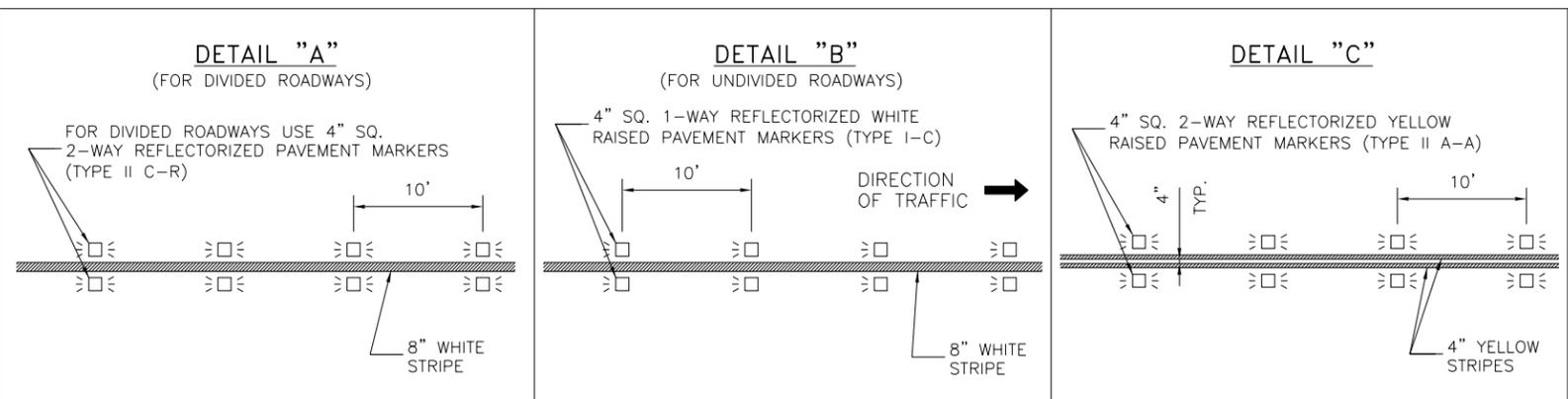
NO.	REVISIONS	DATE	NAME
1	ORIGINAL STANDARD ISSUED	2-1-22	RJS

FORT BEND COUNTY
ENGINEERING DEPARTMENT



PROJECT TITLE:		FBCD STANDARD
DRAWN BY: INIT	SHEET DESCRIPTION: PAVEMENT MARKING DETAILS	
CK'D BY: INIT	SCALE: NONE	SHEET NO: /
DATE: 2-1-22	APPROVED BY:	

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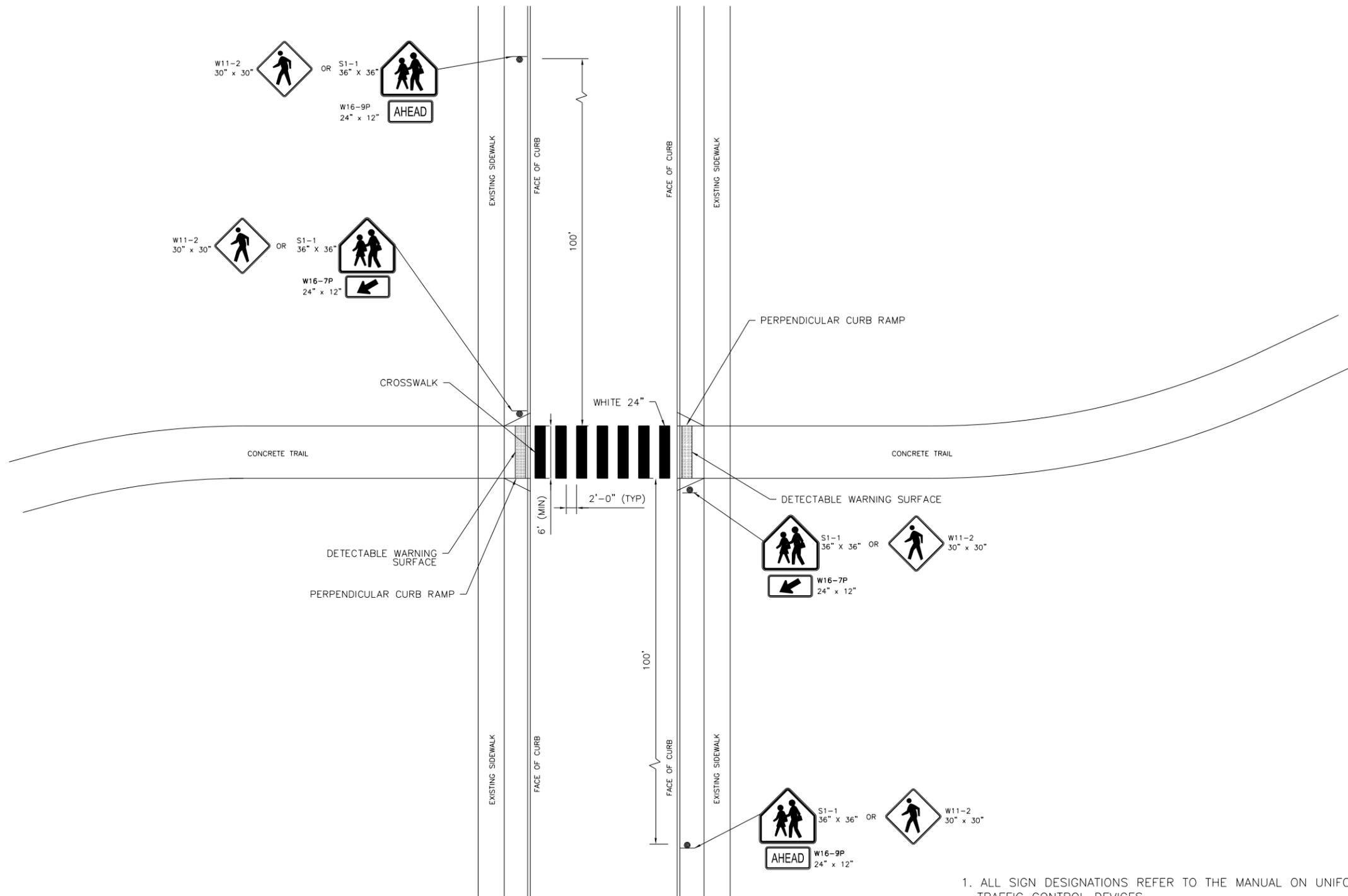
NO.	REVISIONS	DATE	NAME
1	ORIGINAL STANDARD ISSUED	2-1-22	RJS

FORT BEND COUNTY
ENGINEERING DEPARTMENT



PROJECT TITLE:		FBCED STANDARD
DRAWN BY: INIT	SHEET DESCRIPTION: PAVEMENT MARKING DETAILS	47
CK'D BY: INIT		SHEET NO:
SCALE: NONE	SHEET 2 OF 2	/
DATE: 2-1-22	APPROVED BY:	

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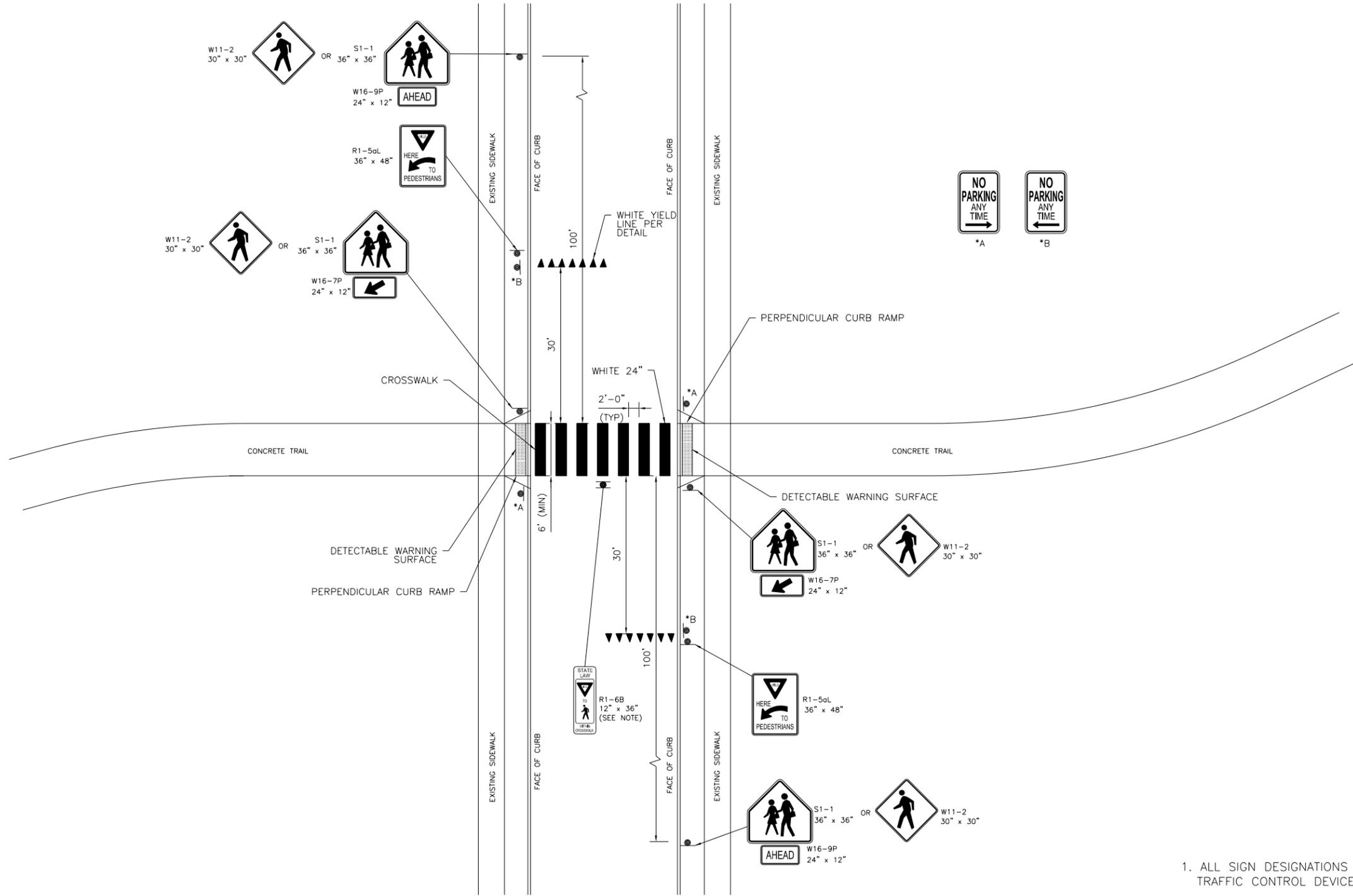
1. ALL SIGN DESIGNATIONS REFER TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
2. ALL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC APPLIED PER TXDOT SPEC.
3. S1-1 SIGNS ARE USED IN SCHOOL ZONES

NO.	REVISIONS	DATE	NAME
△	ORIGINAL STANDARD ISSUED	2-1-22	RJS
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FORT BEND COUNTY
ENGINEERING DEPARTMENT



PROJECT TITLE:		
DRAWN BY:	INIT	FBCED STANDARD
CK'D BY:	INIT	48
SCALE:	AS NOTED	WITH RESIDENTIAL FRONTAGE
DATE:	2-1-22	APPROVED BY:
		SHEET NO:
		/



1. ALL SIGN DESIGNATIONS REFER TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
2. ALL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC APPLIED PER TXDOT SPEC.
3. R1-6B SIGN TO BE MOUNTED TO PAVEMENT WITH TRAFFIC-RATED MOUNTING SYSTEM.
4. S1-1 SIGNS USED IN SCHOOL ZONES

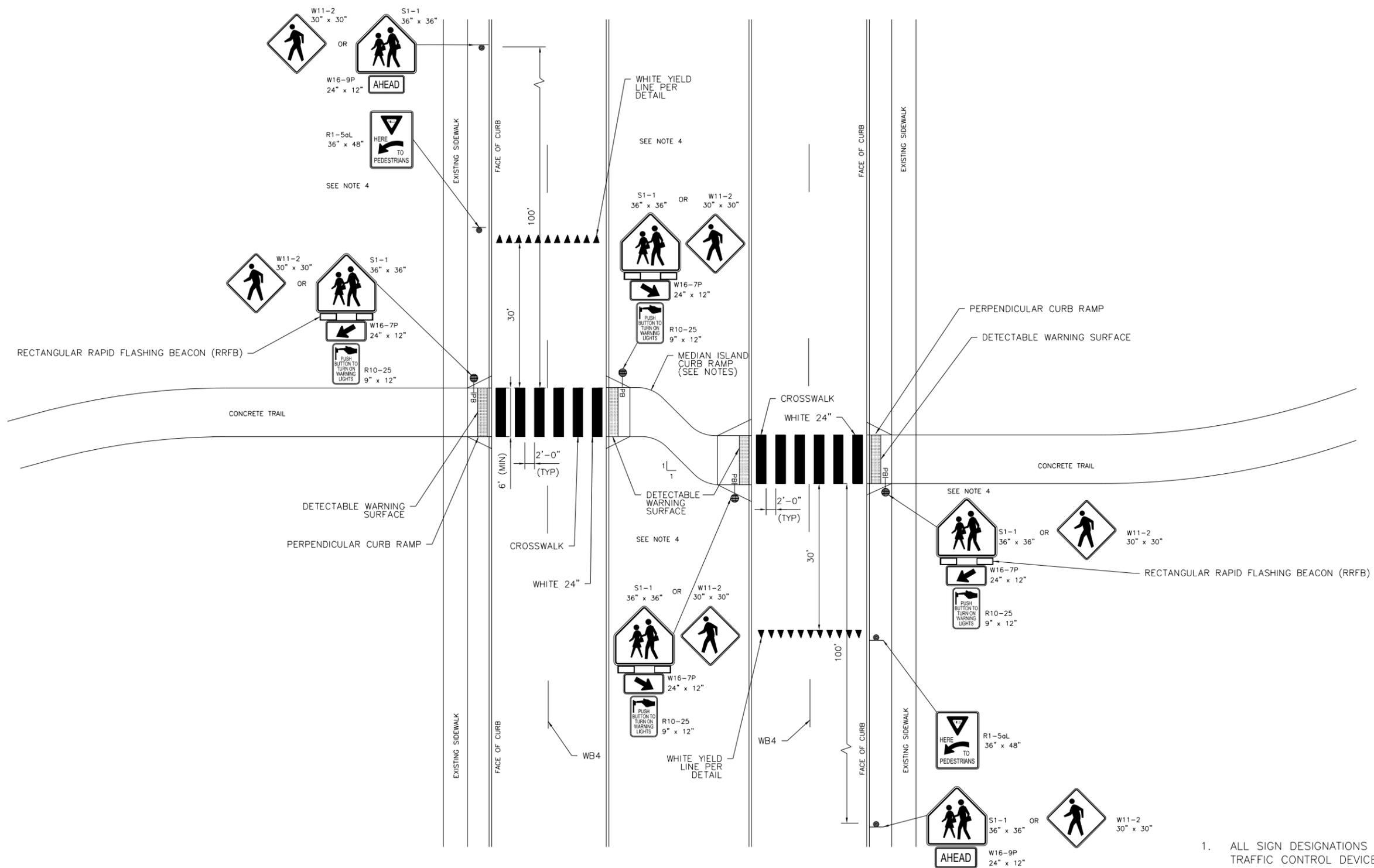
NO.	REVISIONS	DATE	NAME
▲	ORIGINAL STANDARD ISSUED	2-1-22	RJS
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FORT BEND COUNTY
ENGINEERING DEPARTMENT



PROJECT TITLE:		
DRAWN BY: INIT	SHEET DESCRIPTION: MID-BLOCK CROSSING STREET	FBCED STANDARD
CK'D BY: INIT		49
SCALE: AS NOTED	WITHOUT RESIDENTIAL FRONTAGE	SHEET NO:
DATE: 2-1-22	APPROVED BY:	/

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1. ALL SIGN DESIGNATIONS REFER TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
2. PROVIDE AT-GRADE CHANNEL IN MEDIAN AT AN ANGLE (45-DEGREE ANGLE PREFERRED) TOWARD ADVANCING TRAFFIC.
3. INSTALL SOLAR POWERED RECTANGULAR RAPID FLASHING BEACON ASSEMBLY. SHALL BE INSTALLED FOR CONDITIONS OF FHWA IA-21.
4. S1-1 USED IN SCHOOL ZONES

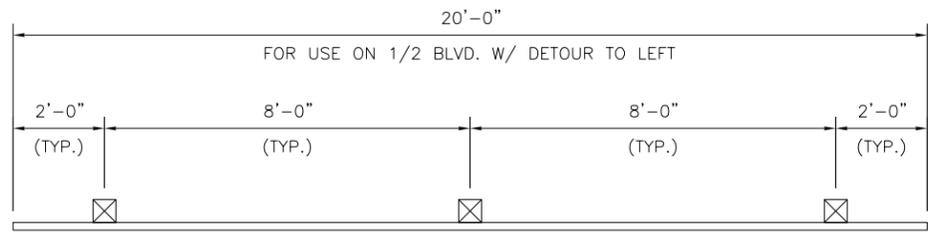
NO.	REVISIONS	DATE	NAME
▲	ORIGINAL STANDARD ISSUED	2-1-22	RJS
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FORT BEND COUNTY ENGINEERING DEPARTMENT

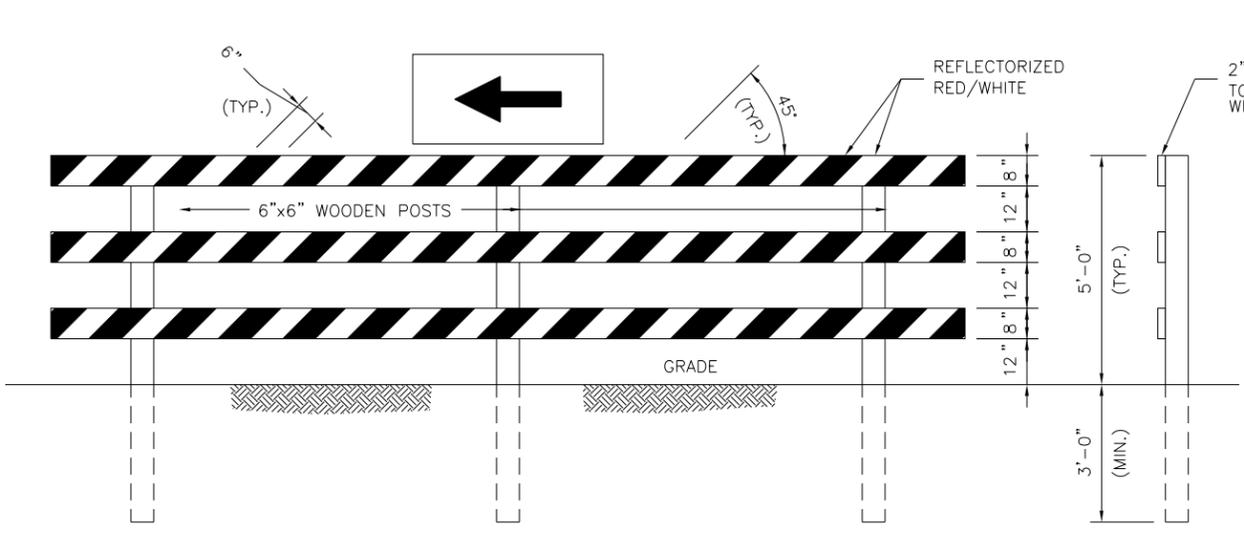


PROJECT TITLE:		
DRAWN BY:	INIT	FBCD STANDARD
CK'D BY:	INIT	50
SCALE:	AS NOTED	SHEET NO:
DATE:	2-1-22	APPROVED BY:
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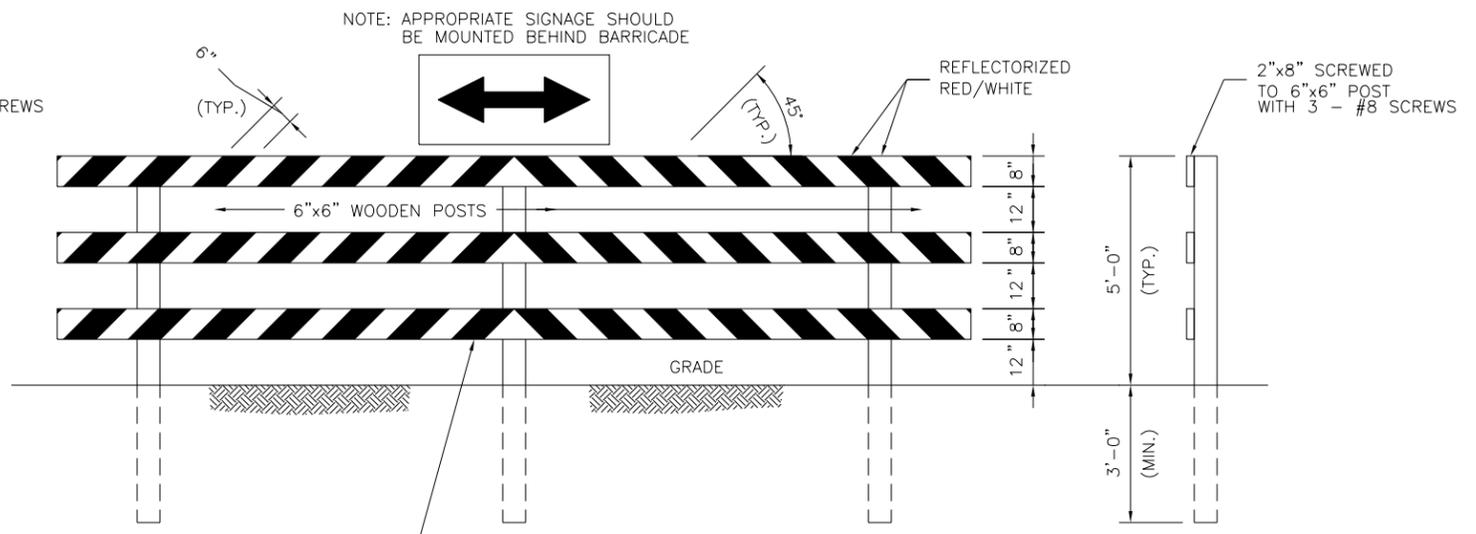
PLAN VIEW



FRONT VIEW

SIDE VIEW

DETOUR ROUTE



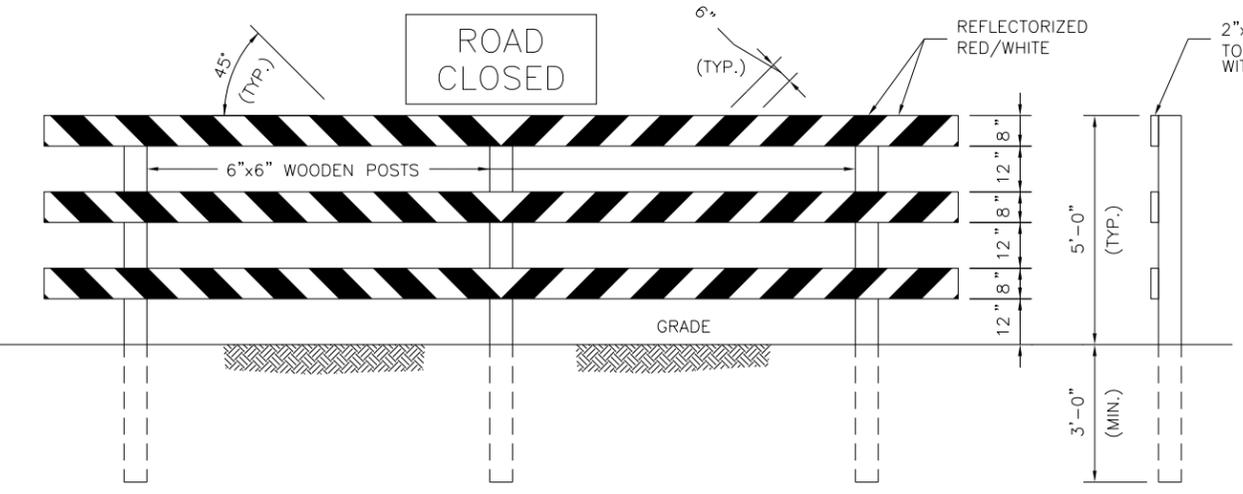
FRONT VIEW

SIDE VIEW

T-INTERSECTION

NOTE: APPROPRIATE SIGNAGE SHOULD BE MOUNTED BEHIND BARRICADE

STRIPING, COLOR, ANGLE AND DIRECTION IN ACCORDANCE WITH M.U.T.C.D.



FRONT VIEW

SIDE VIEW

ROAD CLOSED - NO OUTLET

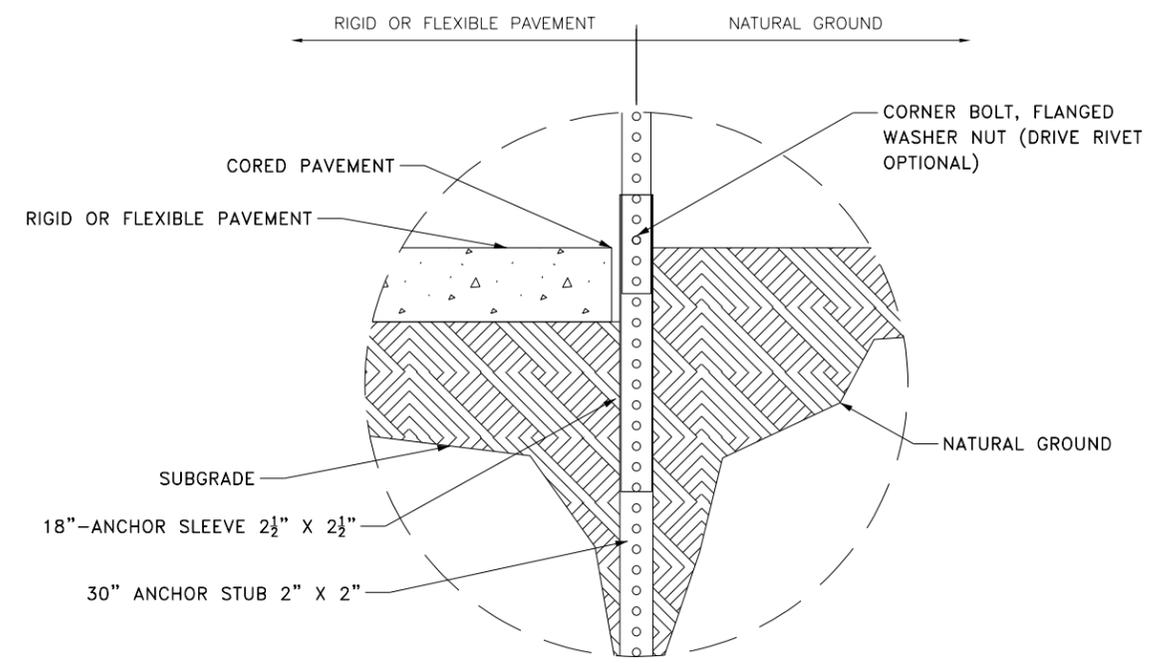
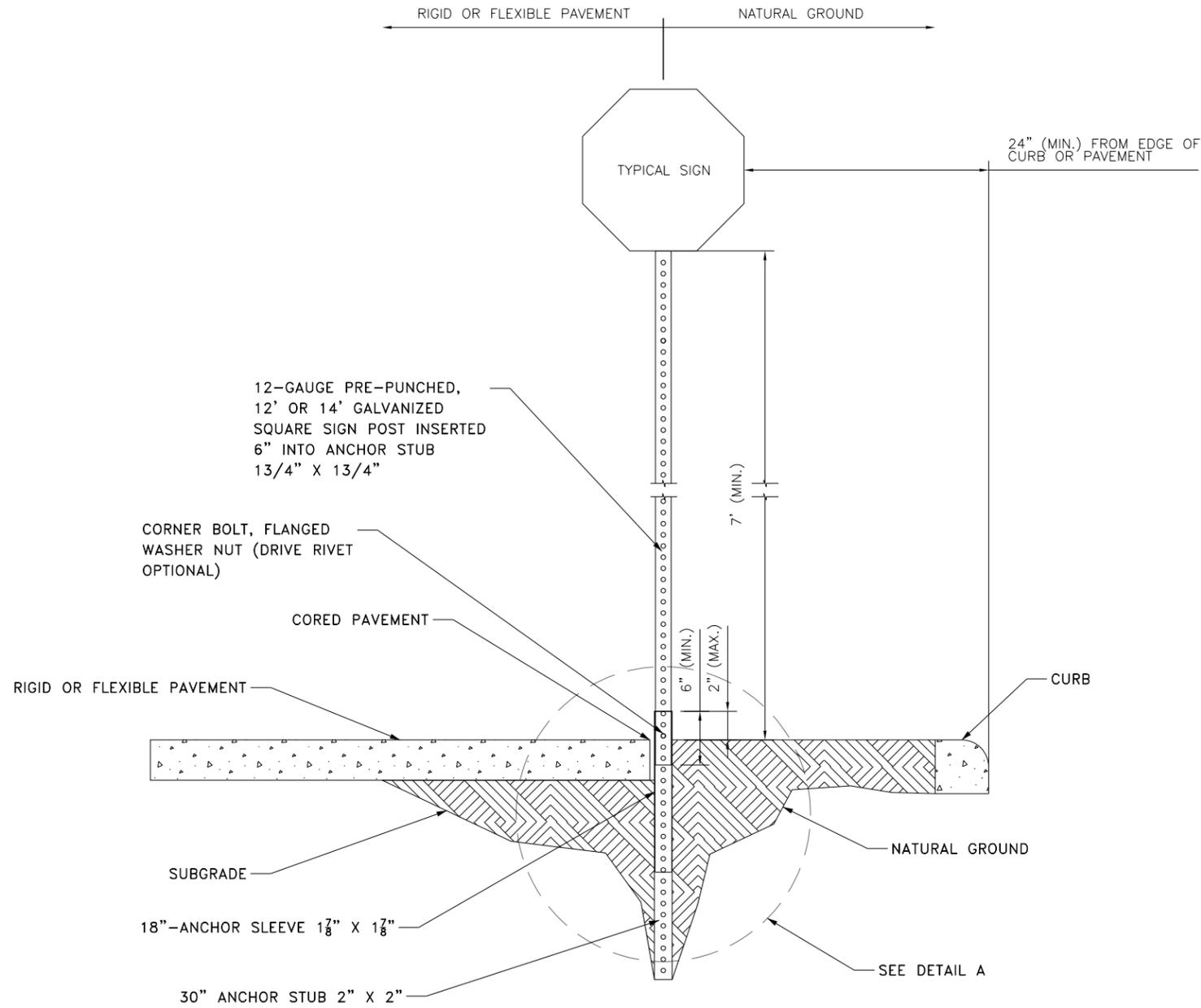
APPLICATION: PERMANENT AND SEMI-PERMANENT CLOSURE OF ROADWAY OR ROADWAY TERMINATION

NO.	REVISIONS	DATE	NAME
△	ORIGINAL STANDARD ISSUED	2-1-22	RJS
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FORT BEND COUNTY
ENGINEERING DEPARTMENT



PROJECT TITLE:		FBCD STANDARD
DRAWN BY: INIT	SHEET DESCRIPTION: TYPE III BARRICADE DETAILS	
CK'D BY: INIT	APPROVED BY:	SHEET NO: /
SCALE: 1"=2'-0"	DATE: 2-1-22	



TYPICAL GROUND SIGN INSTALLATION
DETAIL A

NOTES:

1. THE CROSS SECTION OF ALL MEMBERS SHALL BE SQUARE TUBE FORMED OF 12 GAUGE AND MANUFACTURED FROM HOT-GALVANIZED STEEL
2. THE TELESCOPE BREAKAWAY SYSTEM OR "SYSTEM" IS DEFINED AS FOLLOW:
 - A MINIMUM 30" ANCHOR STUB;
 - 18" ANCHOR SLEEVE.
3. DRIVE THE SYSTEM TOGETHER MAKING SURE THE HOLES ARE ALIGNED.
4. THE SYSTEM IS TO BE DRIVEN INTO NATURAL GROUND EXPOSED SUBGRADE UNTIL ONLY 1 TO 2 INCHES ARE LEFT EXPOSED.
5. ATTACH THE SIGN TO AN 1 3/4" SQUARE POST AT THE DESIRED HEIGHT, SUCH THAT IT MEETS THE MINIMUM VERTICAL CLEARANCE.
6. SIGNS ARE FASTENED TO THE POST BY USING DRIVE RIVETS OR BOLTS.
7. INSERT THE SIGN POST APPROXIMATELY 6 TO 8 INCHES INTO THE ANCHOR BASE.
8. BOLT THE SIGN POST TO THE ANCHOR ASSEMBLY WITH A CORNER BOLT.
9. WHEN INSTALLING IN RIGID OR FLEXIBLE PAVEMENT, USE A CORING MACHINE TO EXPOSE THE SUBGRADE MATERIAL AND INSTALL THE SYSTEM.

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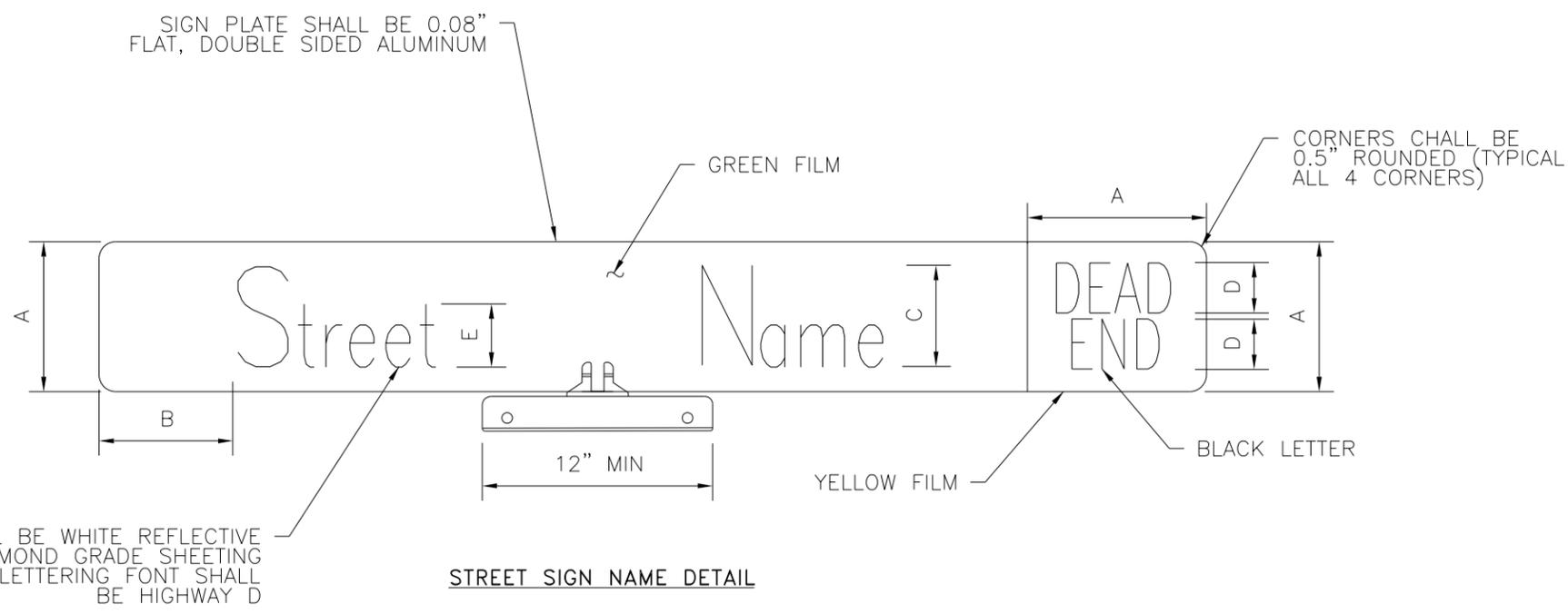
NO.	REVISIONS	DATE	NAME
1	ORIGINAL STANDARD ISSUED	2-1-22	RJS

FORT BEND COUNTY
ENGINEERING DEPARTMENT



PROJECT TITLE:		FBCE STANDARD 52
DRAWN BY: INIT	SHEET DESCRIPTION: TYPICAL GROUND SIGN INSTALLATION	
CK'D BY: INIT	AS NOTED	SHEET NO: /
DATE: 2-1-22	APPROVED BY:	

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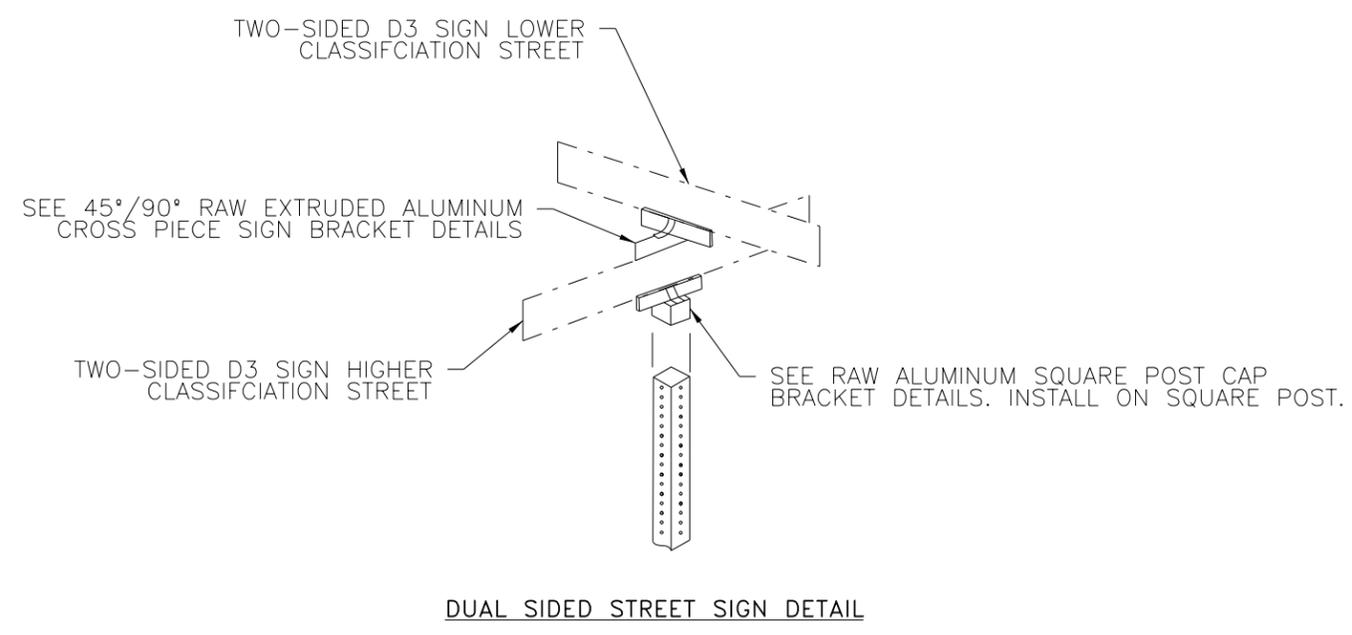
DIMENSION SCHEDULE

9" SIGN	
'A'	9"
'B'	2"
'C'	6"
'D'	3.5"
'E'	4.5"

NOTES:
ALL STREET BLADES SHALL BE 9" IN HEIGHT

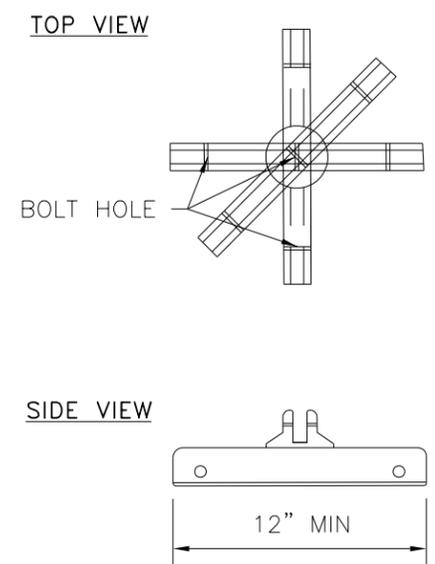
LETTERS SHALL BE WHITE REFLECTIVE VIP DIAMOND GRADE SHEETING (TYPICAL). LETTERING FONT SHALL BE HIGHWAY D

STREET SIGN NAME DETAIL

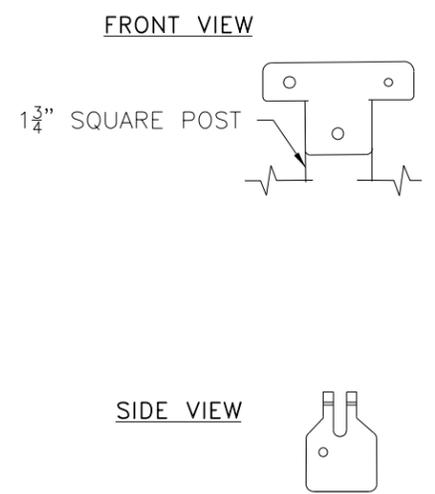


DUAL SIDED STREET SIGN DETAIL

45°/90° RAW EXTRUDED ALUMINUM CROSS PIECE SIGN BRACKET DETAILS

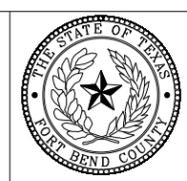


RAW ALUMINUM SQUARE POST CAP BRACKET DETAILS



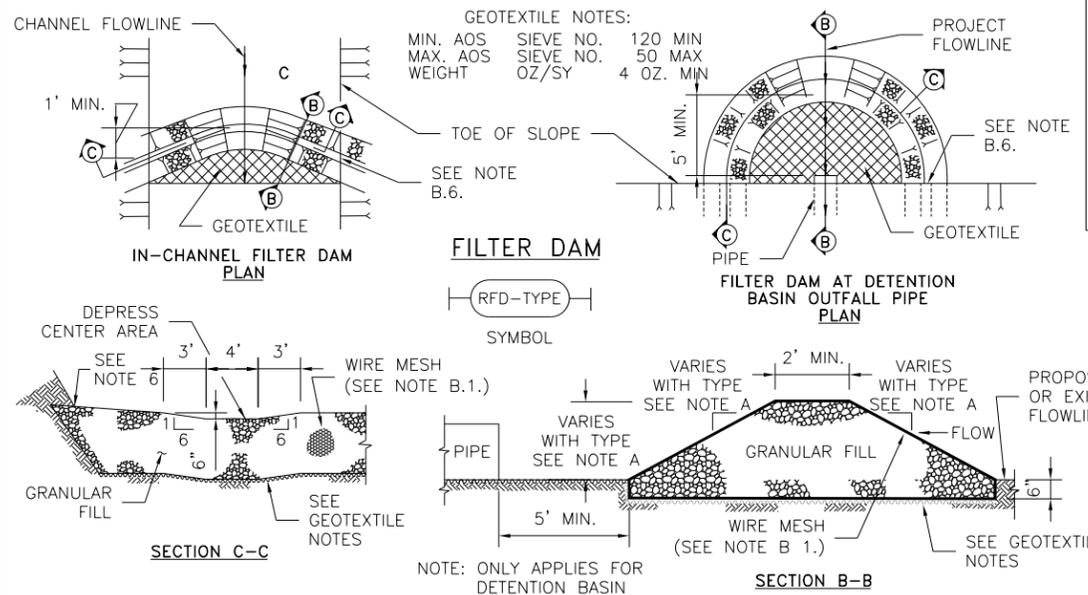
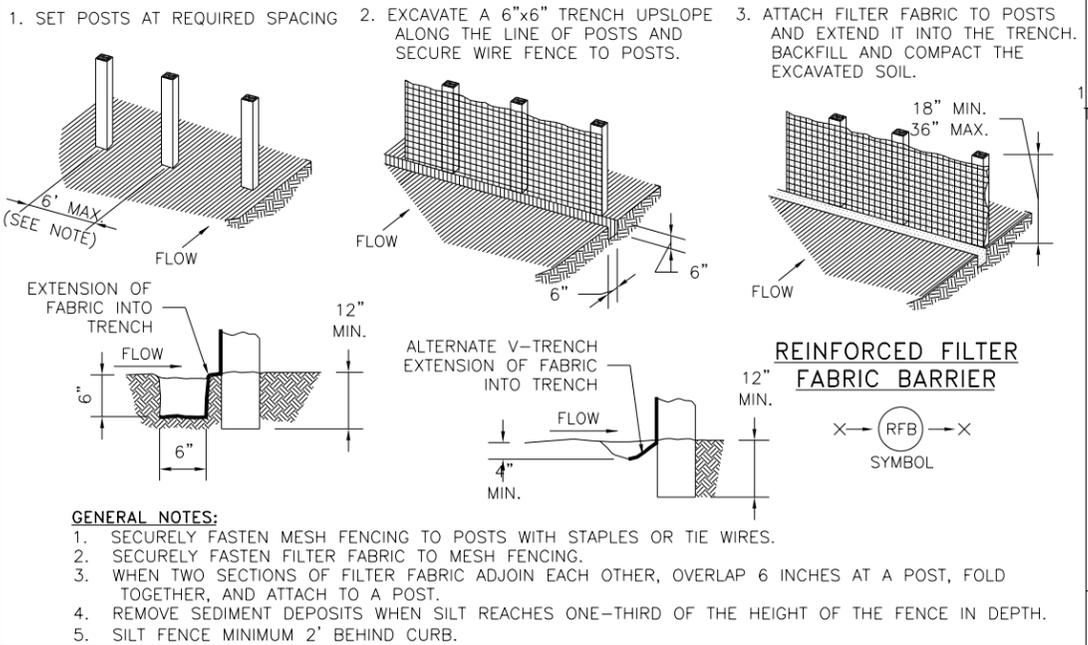
NO.	REVISIONS	DATE	NAME
△	ORIGINAL STANDARD ISSUED	2-1-22	RJS
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FORT BEND COUNTY
ENGINEERING DEPARTMENT

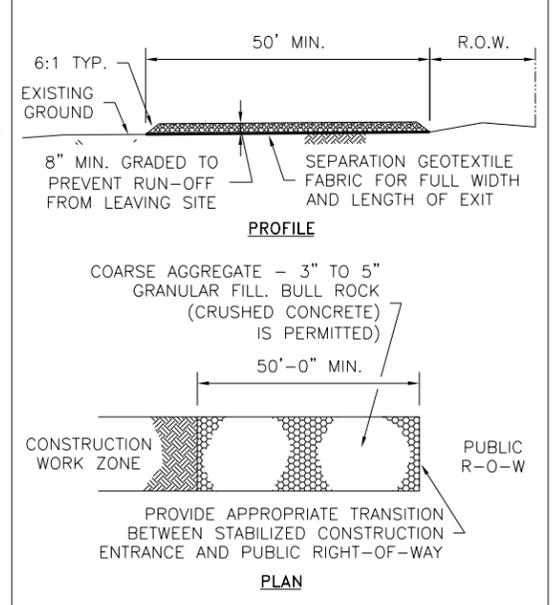
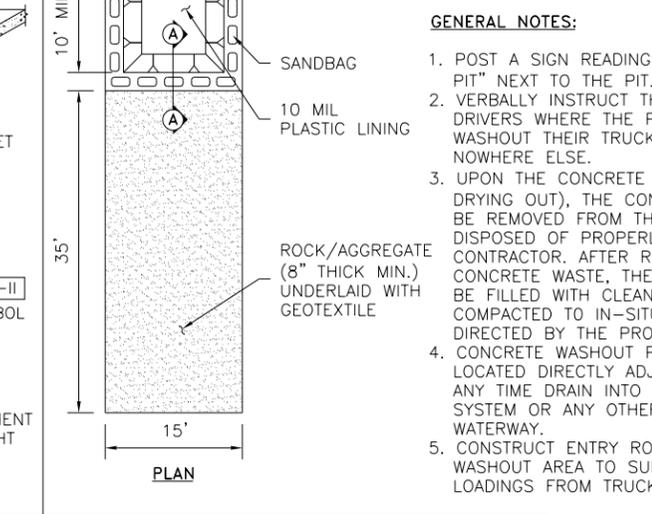
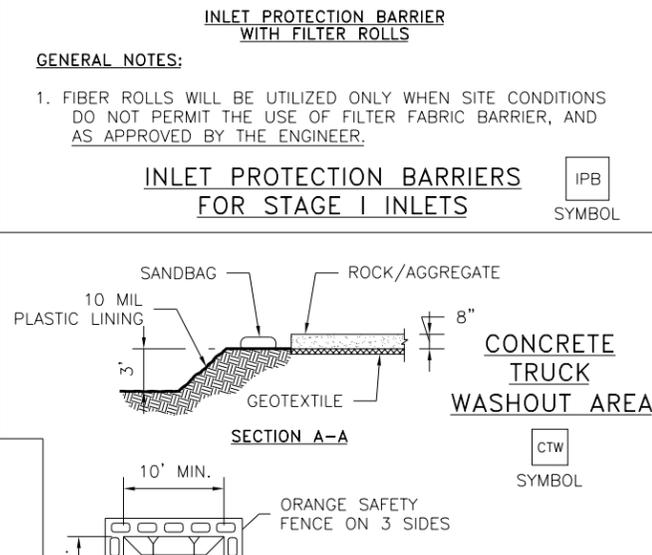
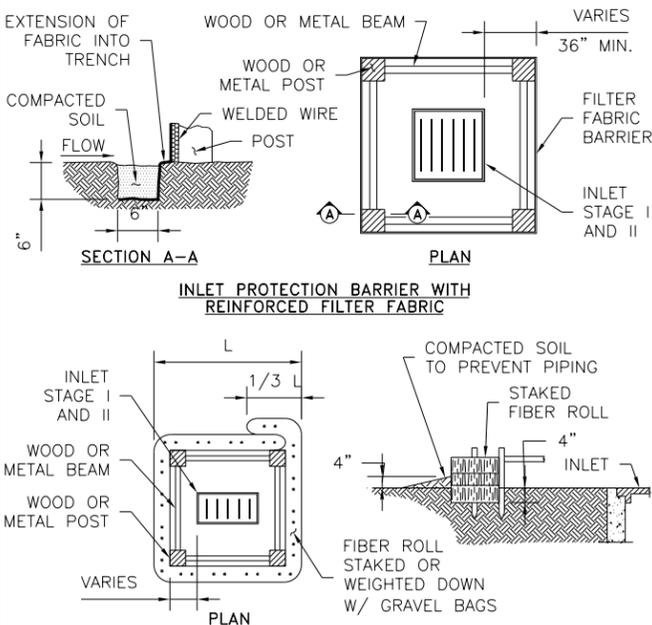
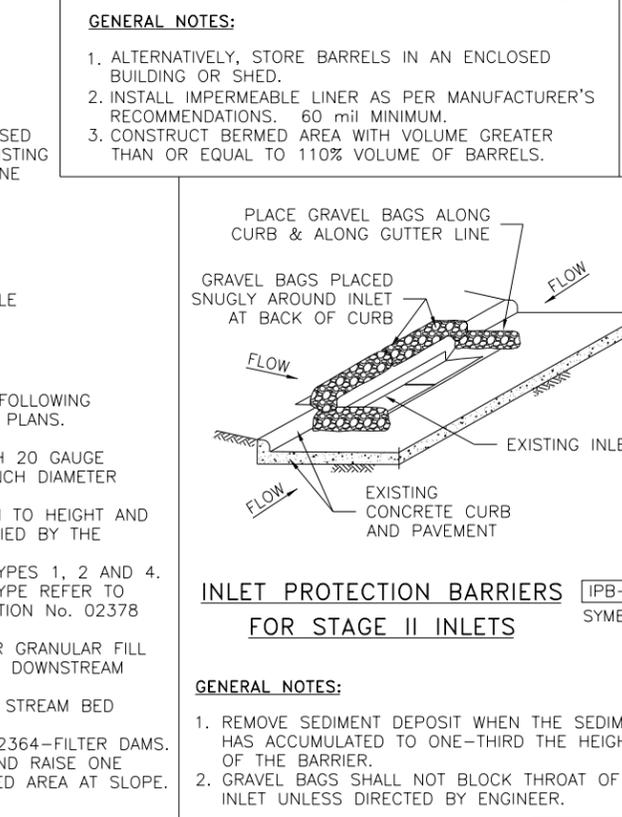
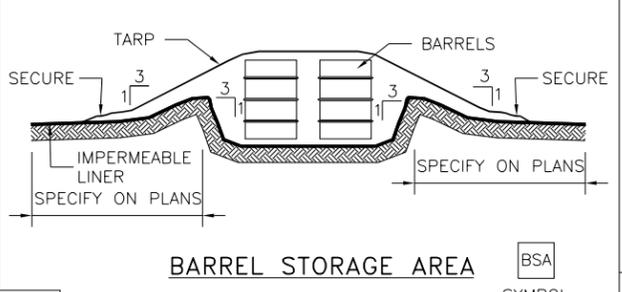
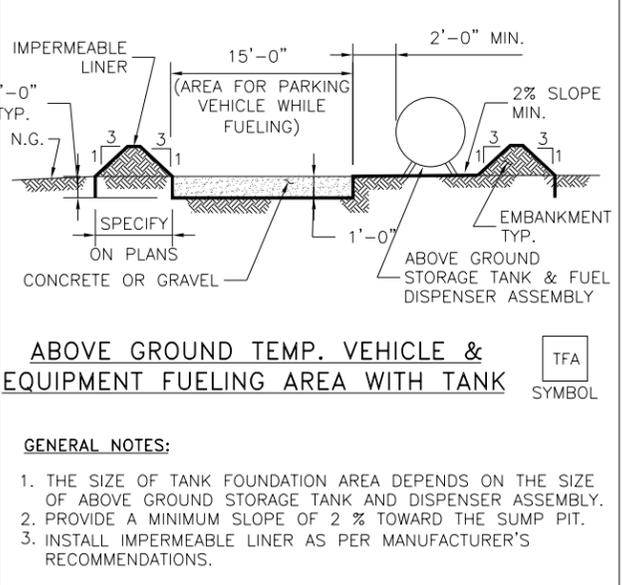


PROJECT TITLE:		FBCED STANDARD
DRAWN BY: INIT	SHEET DESCRIPTION: STREET SIGN NAME DETAILS	53
CK'D BY: INIT		
SCALE: AS NOTED	APPROVED BY:	SHEET NO: /
DATE: 2-1-22		

J:\1704\1601\Fort Bend County Standards\Fort Bend County STD\DONE\FBC STORM WATER POLLUTION PREVENTION PLAN DETAILS\STORM_WATER_POLLUTION_PREVENTION_PLAN_DETAILS.dwg

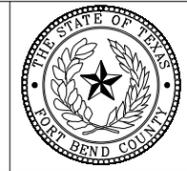


- A. TYPES OF FILTER DAMS**
1. TYPE 1 (NON-REINFORCED)
 - a. HEIGHT - 18-24 INCHES. MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
 - b. TOP WIDTH - 2 FEET (MINIMUM)
 - c. SLOPES - 2:1 (MAXIMUM).
 2. TYPE 2 (REINFORCED)
 - a. HEIGHT - 18-36 INCHES. MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
 - b. TOP WIDTH - 2 FEET (MINIMUM).
 - c. SLOPES - 2:1 (MAXIMUM).
 3. TYPE 3 (REINFORCED)
 - a. HEIGHT - 36-48 INCHES. MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
 - b. TOP WIDTH - 2 FEET (MINIMUM).
 - c. SLOPES - 3:1 (MAXIMUM).
 4. TYPE 4 (GABION)
 - a. HEIGHT - 30 INCHES (MINIMUM). MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
 - b. TOP WIDTH - 2 FEET (MINIMUM).
 5. TYPE 5. AS SHOWN ON THE PLANS.
- B. CONSTRUCT FILTER DAMS ACCORDING TO THE FOLLOWING CRITERIA UNLESS SHOWN OTHERWISE ON THE PLANS.**
1. TYPE 2 AND 3 FILTER DAMS: SECURE WITH 20 GAUGE GALVANIZED WOVEN WIRE MESH WITH 1 INCH DIAMETER HEXAGONAL OPENINGS.
 2. PLACE GRANULAR FILL ON THE WIRE MESH TO HEIGHT AND SLOPES SHOWN ON PLANS OR AS SPECIFIED BY THE ENGINEER.
 - a. 3-5 INCHES FOR ROCK FILTER DAM TYPES 1, 2 AND 4.
 - b. 4-8 INCHES FOR ROCK FILTER DAM TYPE REFER TO GRANULAR FILL IN SPECIFICATION SECTION NO. 02378 RIPRAP AND GRANULAR FILL.
 3. FOLD WIRE MESH AT UPSTREAM SIDE OVER GRANULAR FILL AND TIGHTLY SECURED TO ITSELF ON THE DOWNSTREAM SIDE USING WIRE TIES OR HOG RINGS.
 4. IN STREAMS: SECURE OR STAKE MESH TO STREAM BED PRIOR TO AGGREGATE PLACEMENT.
 5. SEE HCFC SPECIFICATION SECTION NO. 02364-FILTER DAMS.
 6. EMBED ONE FOOT MINIMUM INTO SLOPE AND RAISE ONE FOOT HIGHER THAN CENTER OF DEPRESSED AREA AT SLOPE.



NO.	REVISIONS	DATE	NAME
1	ORIGINAL STANDARD ISSUED	2-1-22	RJS

FORT BEND COUNTY
ENGINEERING DEPARTMENT



PROJECT TITLE:		FBCD STANDARD
DRAWN BY:	INIT	54
CK'D BY:	INIT	
SCALE:	NONE	
DATE:	2-1-22	
SHEET DESCRIPTION: STORM WATER POLLUTION PREVENTION PLAN DETAILS		SHEET NO: /
APPROVED BY:		