


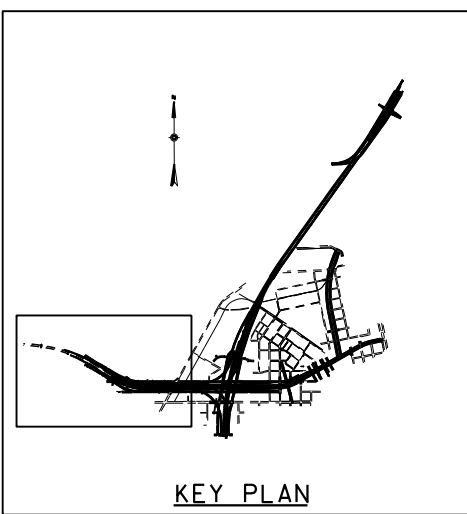


NO.	DATE		REVISION		APPROVED
 FLATIRON/DRAGADOS LLC			 FIGG TBPE, FIRM # F-4883		
 Texas Department of Transportation ® 2017					
US 181 HARBOR BRIDGE <h1>KEY MAP</h1> (ROADWAY BRIDGES AND WALLS)					
SCALE: 1"=500'			SHEET 1 OF 3		
DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.	
CF	X	(See Title Sheet)		US 181	
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.	
SGF	TEXAS	CRP	NUECES	BG	
CHECK	CONTROL	SECTION	JOB	003	
MJL	0101	06	095		
CHECK	CF				

FILE: c:\pw\online\stantec\dms91629\HBR*Keymap01.dgn
DATE: 6/30/2017 TIME: 7:38:52 AM USER: cfernandes

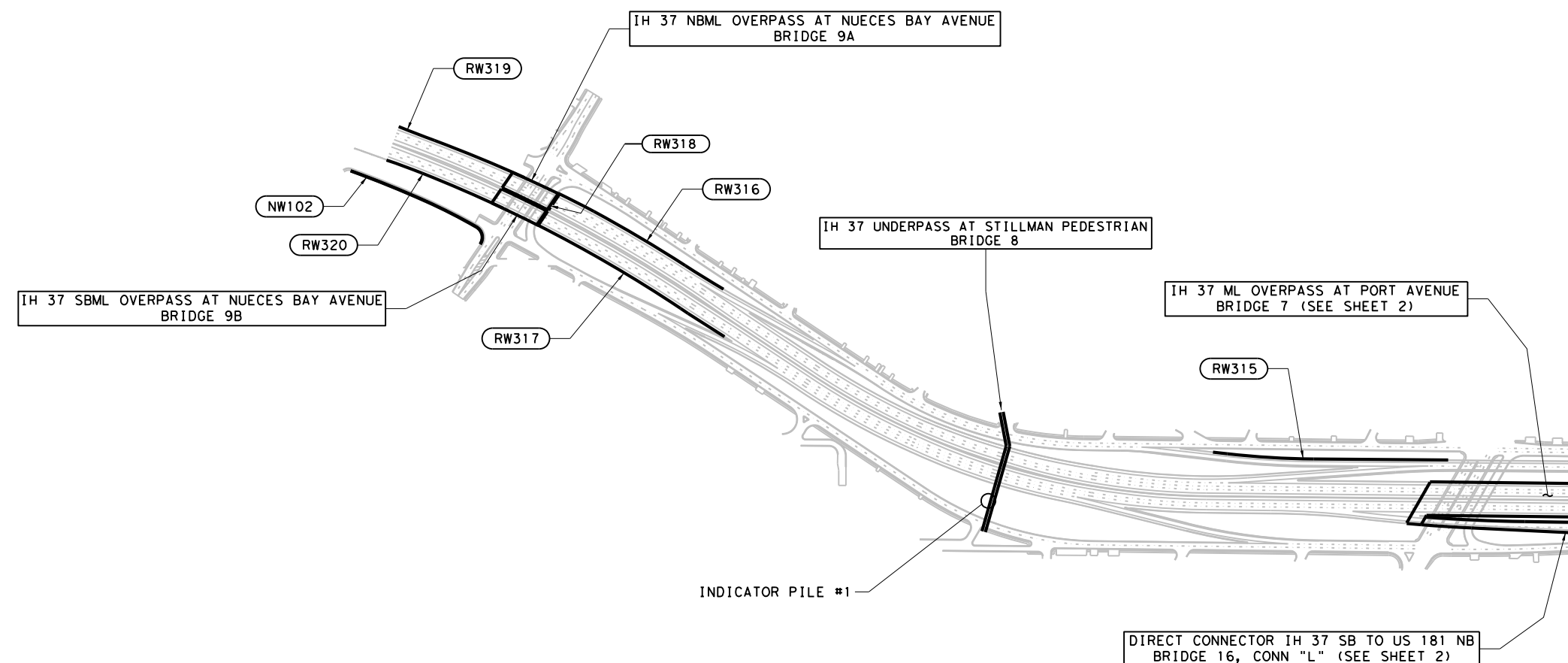


LEGEND

BRIDGE #




RET WALL #

NOISE WALL X



PLAN



NO.	DATE	REVISION	APPROVED
 FLATIRON/DRAGADOS LLC		 FIGG TBPE, FIRM # F-4883	
 <i>Texas Department of Transportation</i> [®] 2017			
US 181 HARBOR BRIDGE <h1>KEY MAP</h1> (ROADWAY BRIDGES AND WALLS)			
SCALE: 1"=500'		SHEET 3 OF 3	
DESIGN CF	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
GRAPHICS SGF	X	(See Title Sheet)	US 181
CHECK MJL	STATE	DISTRICT	COUNTY
CHECK CF	TEXAS	CRP	NUECES
	CONTROL	SECTION	JOB
	0101	06	095
			BG 0005

FILE: c:\pw*online\stontec\dms91629\HBR*GenNotes01*RDwy.dgn
DATE: 6/30/2017 TIME: 7:40:18 AM USER: cfernandes

1.0 DESIGN NOTES

A. GENERAL

1. ALL STRUCTURAL DESIGN ELEMENTS SHALL CONFORM TO THE REQUIREMENTS AND CRITERIA CONTAINED IN THE COMPREHENSIVE DEVELOPMENT AGREEMENT (CDA) AND THE TECHNICAL PROVISIONS (TP).
2. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL UNLESS NOTED OTHERWISE (UNO) AND MUST BE CORRECTED FOR VERTICAL GRADE AND/OR SUPERELEVATION WHERE APPLICABLE.
3. IN CASE OF CONFLICT BETWEEN THE DESIGN DRAWINGS AND TXDOT STANDARD DRAWINGS, DESIGN DRAWING INFORMATION PREVAILS.
4. CONSTRUCTION JOINTS OTHER THAN THOSE SHOWN ON THE PLANS WILL NOT BE PERMITTED WITHOUT PRIOR APPROVAL BY THE ENGINEER.
5. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4" UNLESS NOTED OTHERWISE.
6. WHERE THE DRILLED SHAFT EXTENDS OUTSIDE THE PERIMETER OF THE COLUMN, THE TOP OF THE DRILLED SHAFT SHALL RECEIVE A WOOD FLOAT FINISH OUTSIDE THE REBAR DOWELS TO THE EDGE OF THE DRILLED SHAFT. THE TOP OF THE DRILLED SHAFT SHOULD PROVIDE POSITIVE DRAINAGE AWAY FROM THE COLUMN FACE.
7. SEE UTILITY PLANS FOR IDENTIFICATION AND RELOCATION OF EXISTING UTILITIES.
8. SEE ROADWAY PLANS FOR ROADWAY TYPICAL SECTIONS.
9. SEE RETAINING WALL PLANS FOR RETAINING WALLS LIMITS AND DETAILS.
10. SEE AESTHETIC TREATMENTS PACKAGE FOR ALL AESTHETIC DETAILS NOT SHOWN HEREIN.
11. SEE BRIDGE LAYOUTS FOR LOCATION OF BRIDGE DECK DRAINS.
12. SEE BRIDGE DRAINAGE PLANS FOR DECK DRAIN PIPE SIZE, LOCATION, AND DETAILS.
13. SEE ILLUMINATION PLANS FOR LOCATION OF CONDUITS AND LIGHTING FIXTURES ON BRIDGE STRUCTURES.
14. SEE SIGNAGE PLANS FOR LOCATION OF SIGNS ON BRIDGE STRUCTURES.

B. SPECIFICATIONS

1. TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT) "BRIDGE DESIGN MANUAL-LRFD", REVISED OCTOBER 2015
2. TXDOT "GEOTECHNICAL MANUAL", DECEMBER 2012 (FOUNDATION DESIGN)
3. TXDOT "BRIDGE DETAILING GUIDE", AUGUST 2014
4. TXDOT "STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MAINTENANCE OF HIGHWAYS, STREETS, AND BRIDGES", NOVEMBER 2014. 400 ITEMS SHALL BE PER PROJECT TECHNICAL PROVISIONS ATTACHMENT 13-1.
5. TXDOT "BRIDGE INSPECTION MANUAL", REVISED AUGUST 2013
6. TXDOT AND TEXAS STEEL QUALITY COUNCIL "PREFERRED PRACTICES FOR STEEL BRIDGE DESIGN, FABRICATION, AND ERECTION", FEBRUARY 2015
7. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) "LRFD BRIDGE DESIGN SPECIFICATIONS, 7TH EDITION, 2014", WITH 2015 INTERIM REVISIONS (AASHTO LRFD)
8. AASHTO "MANUAL FOR BRIDGE EVALUATION, 2ND EDITION, 2010", WITH 2011, 2013, 2014, AND 2015 INTERIM REVISIONS
9. AASHTO "LRFD GUIDE SPECIFICATIONS FOR DESIGN OF PEDESTRIAN BRIDGES, 2ND EDITION, 2009", WITH 2015 INTERIM REVISIONS
10. AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 17TH EDITION - 2002" (FOR LOAD RATING OF EXISTING PORTIONS OF BRIDGE 10 STRUCTURE THAT WILL REMAIN) (AASHTO STD SPECS)

2.0 DESIGN LOADINGS

A. LOAD MODIFIERS

IN ACCORDANCE WITH AASHTO LRFD AND THE TXDOT BRIDGE DESIGN MANUAL. ALL ROADWAY BRIDGES CLASSIFIED AS TYPICAL BRIDGES WHEN APPLYING THE OPERATIONAL IMPORTANCE FACTOR, $\gamma(I)$ TO STRENGTH LIMIT STATES.
FOR ALL LIMIT STATES: $\gamma(D)$ =1.0
 $\gamma(R)$ =1.0
 $\gamma(I)$ =1.0

B. PERMANENT LOADS (DC, DW, EV, EH, ES, EL, PS)

UNIT WEIGHT OF STRUCTURAL CONCRETE	150 PCF
TRAFFIC RAILING TYPE T551 (EACH)	382 PLF
PEDESTRIAN RAILING TYPE C221 (EACH)	380 PLF
PEDESTRIAN RAILING TYPE PR3 W/ HAND RAIL (EACH)	162 PLF
SUP PEDESTRIAN FENCING (EACH)	200 PLF
UTILITY ALLOWANCE	200 PLF
ALLOWANCE FOR MISC. STEEL DETAILS (STEEL GIRDERS ONLY) (PER GIRDER)	15 PLF
PERMANENT METAL DECK (IF USED)	15 PSF

C. LIVE LOAD (LL, IM, PL, CE, BR, LS)

1. ALL NEW BRIDGES HL-93 LOADING PER AASHTO LRFD.
- BRIDGE 10 EXISTING PORTIONS TO REMAIN HS-20 PER AASHTO STD SPECS.
2. ALL PEDESTRIAN BRIDGES 90 PSF UNIFORM PEDESTRIAN LOADING & H10 VEHICULAR LOADING (NOT TO BE COMBINED WITH PEDESTRIAN LOADING).

D. THERMAL FORCES (TU, TG)

MEAN TEMPERATURE:	70 DEG. F
CONCRETE GIRDERS:	TMAX = 105 DEG. F
	TMIN = 30 DEG. F
STEEL GIRDERS:	TMAX = 115 DEG. F
	TMIN = 20 DEG. F

E. CREEP AND SHRINKAGE (CR, SH)

WHERE APPLICABLE, TIME DEPENDENT STRAINS ARE COMPUTED IN ACCORDANCE WITH THE CEB-FIP MODEL CODE (1990) WITH A RELATIVE HUMIDITY OF 75%. PRESTRESS LOSSES DUE TO CR, SH, ETC., ARE CALCULATED IN ACCORDANCE WITH THE TXDOT BRIDGE DESIGN MANUAL.

3.0 MATERIALS

A. CONCRETE (28 DAY SPECIFIED COMPRESSIVE STRENGTH, F'c)

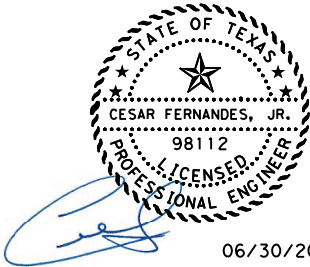
ABUTMENTS, MULTI COLUMN BENT CAPS AND COLUMNS,	F'c = 3600 PSI
BENTS, FOOTINGS & DRILLED SHAFTS (CLASS C) (HPC)	
SINGLE COLUMN PIERS, PIER CAPS, AND STRADDLE BENTS (CLASS F) (HPC)	F'c = 5000 PSI
PRESTRESSED CONCRETE PILES (CLASS H) (HPC)	F'ci = 4000 PSI
	F'c = 5000 PSI
BARRIERS (CLASS C) (HPC)	F'c = 3600 PSI
PRESTRESSED CONCRETE GIRDERS (CLASS H) (HPC)	F'ci = 6000 PSI (MAX)
	F'c = 8500 PSI (MAX)
DECK SLABS (CLASS S) (HPC)	F'c = 4000 PSI

3.0 MATERIALS (CONT)

PRECAST PANELS (CLASS H) (HPC) F'ci = 3500 PSI
F'c = 5000 PSI
APPROACH SLABS (CLASS S) (HPC) F'c = 4000 PSI
SLURRY DISPLACEMENT SHAFTS,
UNDERWATER DRILLED SHAFTS
(CLASS SS) (HPC) F'c = 3600 PSI

B. MINIMUM CONCRETE CLEAR COVER

1. SLABS	
ENDS OF ALL BARS	2"
TOP BARS	2 1/2"
BOTTOM BARS	1 1/4"
2. BEAMS (EXCEPT PRESTRESSED)	
ENDS OF ALL BARS	2"
TIES AND STIRRUPS	2"
3. ABUTMENTS	
STIRRUPS AND TOP SIDES	2"
STIRRUPS BOTTOM	3"
4. INTERIOR BENTS	
ENDS OF ALL BARS	2"
STIRRUPS	2"
5. WALLS/FOOTINGS	
UNFORMED FACE (CAST AGAINST EARTH)	3"
FORMED FACE (INCLUDING BACKFILLED)	2"
6. COLUMNS AND DRILLED SHAFTS	
SPIRALS	3"
STIRRUPS	2"
DRILLED SHAFTS	
DIA ≤ 3.0'	3"
3.0' < DIA < 5.0'	4"
DIA ≥ 5.0'	6"
7. DELICATE CASTINGS (RAILS, ETC)	1 1/2"-2"
8. BEARING SEAT PEDESTALS	2"



NO.	DATE	REVISION
		APPROVED
US 181 HARBOR BRIDGE		
GENERAL NOTES I		
(ROADWAY BRIDGE STRUCTURES)		
SCALE: NTS		SHEET 1 OF 2
DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.
CF	X	(See Title Sheet)
GRAPHICS	STATE	DISTRICT
SGF	TEXAS	CRP
CHECK	CONTROL	SECTION
MJL	0101	06
CHECK		JOB
CF		095

US 181
BG
013

FILE: c:\pw*online\stantec\dms91629\HBR*GenNotes02*Rdwy. dgn
DATE: 6/30/2017 TIME: 7:39:37 AM USER: cfernandes

ALL REINFORCEMENT SHALL CONFORM TO ASTM A615 , GRADE 60.

PLATES	ASTM A709, GRADE 50
DIAPHRAGMS AND STRUCTURAL STEEL SHAPES	ASTM A709, GRADE 50
HIGH STRENGTH BOLTS	ASTM A325
(HAVING UNTHREADED SHANK OF SUFFICIENT LENGTH	
TO NOT ALLOW ANY THREADS TO EXIST IN THE	
PLANE BETWEEN TWO CONNECTED PARTS (SHEAR PLANE))	
SHEAR STUD CONNECTORS	ASTM A108
WELDING ELECTRODES	E70XX

ALL PRESTRESSING STEEL STRANDS SHALL BE LOW RELAXATION WITH A MINIMUM TENSILE STRENGTH, F_{pu} , OF 270 KSI AND SHALL CONFORM TO ASTM A416.

DISTRIBUTION OF REINFORCEMENT FOR FLEXURAL ELEMENTS PER
AASHTO LRFD 5.7.3.4. TENSILE STRESS IN STEEL REINFORCEMENT
 f_{SS} , UNDER SERVICE I LOAD COMBINATION IS LIMITED TO 0.6 FY.
THE FOLLOWING EXPOSURE CONDITIONS ARE USED:
DECK - CLASS 2 WITH EXPOSURE FACTOR = 0.75
GIRDERS, BENT CAPS COLUMNS, AND FOOTINGS
- CLASS 1 WITH EXPOSURE FACTOR = 1.0

AS REQUIRED BY ITEM 420.4.13 OF ATTACHMENT 13-1 TO THE TECHNICAL PROVISIONS, APPLY AN ORDINARY SURFACE FINISH TO ALL CONCRETE SURFACES. THIS IS MEANT TO ENSURE THE CONCRETE SURFACE HAS A UNIFORM APPEARANCE, WHETHER FLAT OR TEXTURED AND IS ACCOMPLISHED BY THE FOLLOWING:

1. CHIP AWAY ALL LOOSE OR BROKEN MATERIAL TO SOUND CONCRETE WHERE POROUS, SPALLED OR HONEYCOMBED AREAS ARE VISIBLE AFTER FORM REMOVAL.
2. REPAIR SPALLS IN ACCORDANCE WITH THE PROCEDURES OUTLINED IN THE TXDOT CONCRETE REPAIR MANUAL AVAILABLE ON TXDOT'S WEB SITE.
3. CLEAN AND FILL HOLES OR SPALLS CAUSED BY THE REMOVAL OF FORM TIES, ETC. WITH LATEX GROUT, CEMENT GROUT, OR EPOXY GROUT AS APPROVED. FILL ONLY THE HOLES. DO NOT BLEND THE PATCH WITH THE SURROUNDING CONCRETE. ON SURFACES TO RECEIVE A RUB FINISH IN ACCORDANCE WITH ITEM 427, "SURFACE FINISHES FOR CONCRETE", CHIP OUT EXPOSED PARTS OF METAL CHAIRS TO A DEPTH OF 1/2" AND REPAIR THE SURFACE.
4. REMOVE ALL FINS, RUST STAINING, RUNS, DRIPS, OR MORTAR FROM SURFACES THAT WILL BE EXPOSED. SMOOTH ALL FORM MARKS AND CHAMFER EDGES BY GRINDING OR DRY RUBBING.
5. ENSURE ALL REPAIRS ARE DENSE, WELL BONDED, AND PROPERLY CURED. FINISH EXPOSED LARGE REPAIRS TO BLEND WITH THE SURROUNDING CONCRETE WHEN A HIGHER CLASS OF FINISH IS NOT SPECIFIED.

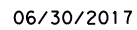
SELECT LOCATIONS REQUIRE THE APPLICATION OF AN OPAQUE SEALER, IN ADDITION TO THE ORDINARY SURFACE DESCRIBED ABOVE. THE PENETRATING-TYPE OPAQUE SEALER SHALL MEET ALL CRITERIA IN THE TXDOT DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS), SECTION DMS-8110, "COATINGS FOR CONCRETE". THE COLOR OF THE COATING SHALL MATCH FEDERAL STANDARD 595B COLOR 35630 CONCRETE GRAY. THE COATING SHALL BE APPLIED TO A DRY SURFACE IN 2 COATS AT A MAXIMUM RATE OF 200 SQUARE FEET PER GALLON. TABLE 1, DESCRIBES THE REQUIREMENTS FOR COATING WITH OPAQUE SEALER, FOR EACH BRIDGE ELEMENT.




6.0 STEEL FINISH

1. STRUCTURAL STEEL ELEMENTS USED IN FRAMING SYSTEMS SHALL RECEIVE A ZINC METALIZED OR GALVANIZED FINISH. A COMPATIBLE SEALER AND AN AESTHETIC TOP COAT SHALL BE APPLIED OVER THE METALIZED OR GALVANIZED FINISH. THE AESTHETIC TOP COAT SHALL PROVIDE UV PROTECTION AND SHALL BE SUPPLIED WITH MANUFACTURER'S RECOMMENDATION FOR REPAIRING, REMOVING, AND OVER-COATING THE COATING WITHOUT DAMAGING THE UNDERLYING METALIZING OR GALVANIZING. THE COLOR OF THE STRUCTURAL STEEL FINISH SHALL CONFORM TO THE AESTHETIC SCHEME OF THE PROJECT.

1. PROVIDE MATERIALS AND PERFORMANCE WORK IN ACCORDANCE WITH AASHTO LRFD AND THE CURRENT EDITION OF THE AASHTO/AWS D1.5 BRIDGE WELDING CODE.
2. DO NOT USE FORM SUPPORT SYSTEMS WHICH WILL CAUSE UNACCEPTABLE OVERSTRESS OR DEFORMATION TO PERMANENT BRIDGE MEMBERS.
3. STABILITY OF PARTIAL GIRDERS AND COMPLETE GIRDERS IS TO BE MAINTAINED BY THE CONTRACTOR DURING ERECTION, UNTIL ALL GIRDERS AND DIAPHRAGMS ARE IN PLACE AND ALL BOLTS ARE PROPERLY INSTALLED. ERECTION LOADS INCLUDING SELF WEIGHT OF THE STEEL MEMBERS, WIND LOADING, AND CONSTRUCTION LIVE LOAD EFFECTS ARE TO BE EVALUATED BY THE CONTRACTOR FOR STABILITY, STRESSES, AND DEFLECTIONS ON THE STEEL MEMBERS DURING ALL STAGES OF ERECTION.
4. THE CONTRACTOR SHALL ACCOUNT FOR DEFLECTIONS AND ROTATIONS OF THE GIRDERS DURING ERECTION SUCH THAT, AFTER PLACEMENT OF THE STEEL DEAD LOAD (STEEL DEAD LOAD FIT), GIRDER WEBS ARE VERTICAL. AFTER PLACEMENT OF THE FULL DEAD LOAD AT THE END OF CONSTRUCTION, BEARING STIFFENERS SHALL BE PLUMB (NOT CONSIDERING THE EFFECTS OF FUTURE WEARING SURFACE).
5. ALL BOLTS ARE $\frac{7}{8}$ " DIAMETER UNO ASTM A325, TYPE 1 HIGH STRENGTH BOLTS IN $\frac{1}{16}$ " DIAMETER HOLES RESPECTIVELY, EXCEPT AS NOTED, HAVING UNTHREADED SHANK OF SUFFICIENT LENGTH TO NOT ALLOW ANY THREADS TO EXIST IN THE PLANE BETWEEN THE TWO CONNECTED PARTS (SHEAR PLANE).
6. ALL NUTS ARE ASTM A563 GRADE DH, GALVANIZED AND ALL WASHERS ARE ASTM F436 GRADE 1, GALVANIZED.

7. ALL FASTENERS (I.E. BOLTS, NUTS, AND WASHERS) FOR FIELD CONNECTIONS IN PAINTED STRUCTURES ARE TO BE GALVANIZED EXCEPT WHERE ASTM A490 BOLTS ARE SPECIFIED. WHERE ASTM A490 BOLTS ARE SPECIFIED, USE PLAIN FINISH.
8. DO NOT WELD ATTACHMENTS TO GIRDER FLANGES IN TENSION ZONES EXCEPT AS SHOWN. THE TENSION ZONES OF FLANGES ARE DESIGNATED ON THE PLANS.
9. TENSION ZONES PROVIDED ARE FOR LONGITUDINAL SUPERSTRUCTURE COMPONENTS AND CONNECTIONS SUSTAINING TENSILE STRESS DUE TO LRFD STRENGTH I LOAD COMBINATION.
10. PROVIDE WELDED STUD SHEAR CONNECTORS MANUFACTURED FROM STEEL CONFORMING TO ASTM A108, GRADE 1010, 1015, 1018, OR 1020, EITHER SEMI-KILLED OR KILLED. WELD STUDS IN ACCORDANCE WITH AASHTO/AWS D1.5.
11. FIELD WELDING IS NOT PERMITTED UNLESS NOTED OTHERWISE.
12. GRIND SURFACES OF ALL COPEs AND RE-ENTRANT CORNERS SMOOTH TO A BRIGHT METAL SURFACE.
13. SHAPE RE-ENTRANT CORNERS OF COPEs WITH A RADIUS OF NOT LESS THAN 1 INCH WITH A SMOOTH TRANSITION THAT MEETS THE ADJACENT EDGES WITHOUT OFFSET OR CUTTING PAST THE POINT OF TANGENCY. PROVIDE MINIMUM COPE RADIUS OF 1 INCH UNLESS NOTED OTHERWISE.
14. PROVIDE CHARPY V-NOTCH (CVN) TESTING FOR ZONE 1 IN ACCORDANCE WITH AASHTO LRFD 6.6.2 AND ASTM A673, FREQUENCY H. TEST THE FOLLOWING COMPONENTS SUBJECT TO TENSILE STRESS:
 - a. GIRDER WEBS
 - b. GIRDER FLANGES IN TENSION ZONES
 - c. GIRDER FIELD SPLICE MATERIAL
 - d. DIAPHRAGMS AND CONNECTION PLATES
15. FILLET WELDS INDICATED ON PLANS ARE $\frac{5}{16}$ " UNO.
16. PROVIDE CLASS A COATING ON THE FAYING SURFACES OF ALL FIELD SPLICES AND ALL BOLTED CONNECTIONS. CLASS A SURFACE CONDITION ASSUMES A MINIMUM SLIP COEFFICIENT = 0.33.



NO.	DATE	REVISION		APPROVED	
 FLATIRON/DRAGADOS LLC			 FIGG TBPE, FIRM # F-4883		
 Texas Department of Transportation ® 2017					
US 181 HARBOR BRIDGE GENERAL NOTES I I (ROADWAY BRIDGE STRUCTURES)					
SCALE: NTS			SHEET 2 OF 2		
DESIGN CF	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.	
GRAPHICS SGF	X	(See Title Sheet)		US 181	
CHECK MJL	STATE	DISTRICT	COUNTY	SHEET NO.	
CHECK JCL	Texas	CRP	NUECES	BG	
	CONTROL	SECTION	JOB	014	
CF	0101	06	095		