

### HOW TO READ THESE PLANS

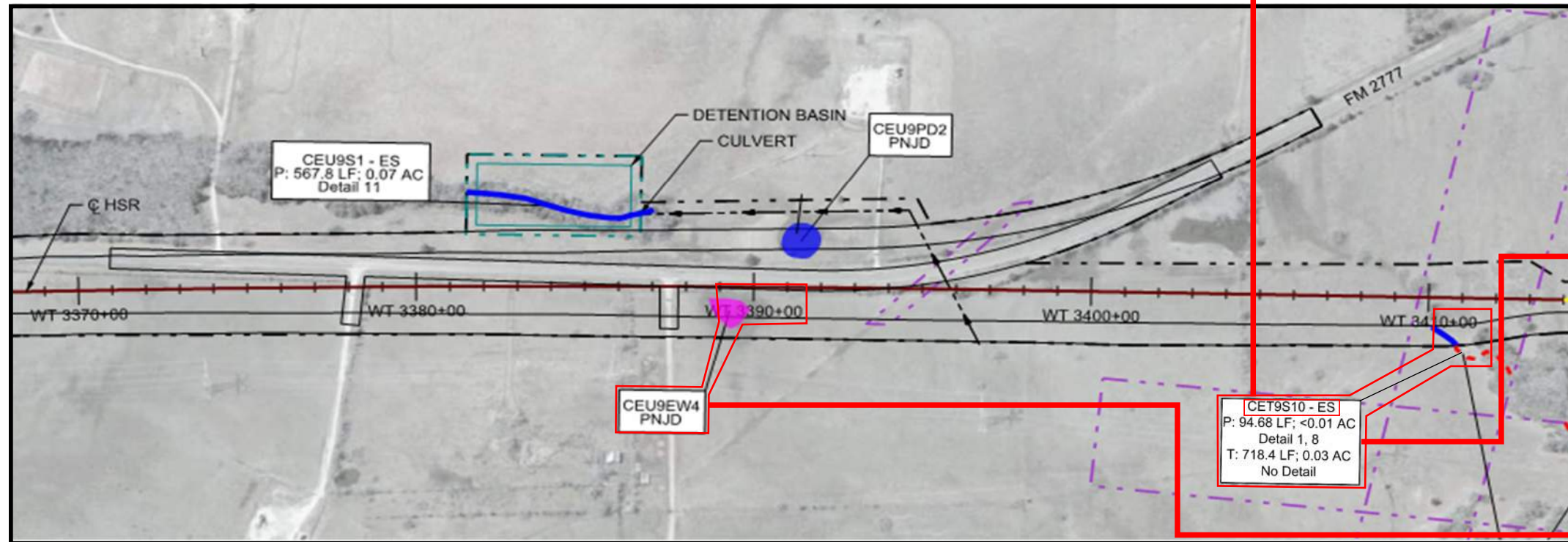
**OVERVIEW:** THESE PLAN SHEETS SHOW WHERE THE PROPOSED RAIL LINE AND ASSOCIATED FACILITIES WILL IMPACT STREAMS, PONDS, AND WETLANDS POTENTIALLY UNDER THE JURISDICTION OF THE U.S. ARMY CORPS OF ENGINEERS. IMPACTS TO POTENTIALLY JURISDICTIONAL FEATURES ARE QUANTIFIED IN THE CALLOUT BOX ASSOCIATED WITH THAT FEATURE. POTENTIALLY NON-JURISDICTIONAL FEATURES ARE NOT QUANTIFIED ON THESE PLANS. SEE EXAMPLE SHEET BELOW.

**HOW TO IDENTIFY IMPACTS AT A SPECIFIC AREA OF INTEREST:**

- USE OVERVIEW MAP TO IDENTIFY THE SEGMENT CLOSEST TO THE AREA OF INTEREST
- USE THE MAP KEY SHEET FOR THAT SEGMENT TO IDENTIFY THE MAP SHEET CONTAINING THE AREA OF INTEREST
- REFER TO THE MAP SHEET AND THE CALLOUTS FOR EACH FEATURE TO DETERMINE IMPACTS FOR AREA OF INTEREST

**ABBREVIATIONS**

AC – Acre  
 BMP – Best Management Practices  
 BNSF – Burlington Northern Santa Fe Railway  
 C - Conversion  
 CE – Central State Plane Coordinate System  
 CL – CENTERLINE  
 ES – Ephemeral Stream  
 EW – Emergent Wetland  
 FW – Forested Wetland  
 HSR – High Speed Rail  
 IS – Intermittent Stream  
 LF – Linear feet  
 LOD – Limits of Disturbance  
 MOW – Maintenance of Way  
 NC – North Central State Plane Coordinate System  
 P – Permanent Impact, given in area (acres) or length (linear feet)  
 PD – Pond  
 PNJD – Potentially Non-Jurisdictional Waterbody  
 PS – Perennial Stream  
 ROW – Right of Way  
 SC – South Central State Plane Coordinate System  
 SW – Scrub-Shrub Wetland  
 T – Temporary Impact, given in area (acres) or length (linear feet)  
 UPRR – Union Pacific Railroad  
 WOTUS – Waters of the United States



**WATERBODY ID**

CE	T	9S	10	ES
1	2	3	4	5

① State Plane Coordinate System  
 ② Map grid ID  
 ③ Waterbody Type  
 ④ Index number  
 ⑤ Stream type

**CALLOUT INFORMATION FOR WATERBODY**

①
②
③

① WATERBODY ID  
 ② IMPACT AREA/LENGTH  
 ③ DETAIL DRAWING #

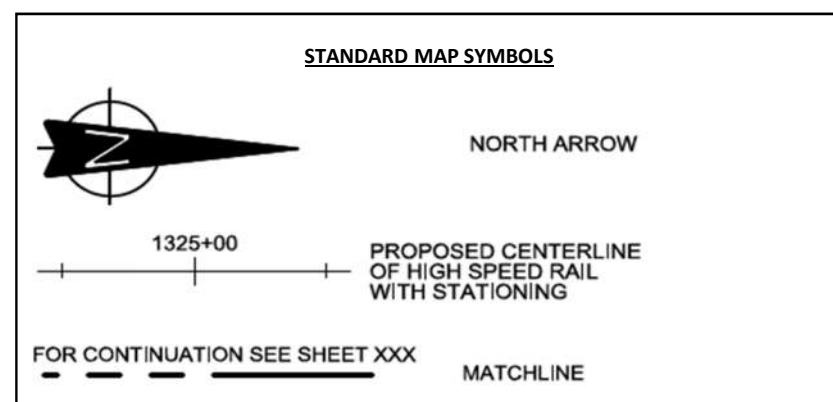
**CALLOUT INFORMATION FOR PNJD WATERBODY**

①
②

① WATERBODY ID  
 ② JURISDICTIONAL STATUS

**LEGEND**

RAIL CONSTRUCTION TYPE	PERMANENT IMPACTS	TEMPORARY IMPACTS	OTHER
CUT	EMERGENT WETLAND	EMERGENT WETLAND	LIMITS OF DISTURBANCE (CONSTRUCTION FOOTPRINT)
EMBANKMENT	FORESTED WETLAND	POND	PERMANENT UTILITIES IMPACTS
RETAIN FILL	POND	STREAMS	TEMPORARY UTILITIES IMPACTS
RETAIN CUT	SCRUB/SHRUB WETLAND	OTHER IMPACTS	ROADWAY IMPACTS
VIADUCT	STREAMS	CONVERSION WETLAND	CULVERT FLOW
			PIER LOCATIONS



**RAIL CONSTRUCTION TYPE**

**CUT:** CUT SECTIONS WILL CONSIST OF EXCAVATING WATERS OF THE U.S. FOLLOWED BY THE PLACEMENT OF RAIL BASE FILL MATERIAL WITHIN THE EXCAVATED AREA.

**EMBANKMENT:** EMBANKMENT SECTIONS WILL CONSIST OF THE PLACEMENT OF EARTHEN, BALLAST, AND OTHER RAIL BASE FILL MATERIAL INTO WATERS OF THE U.S. EACH SIDE OF THE EMBANKMENT WILL HAVE SIDE SLOPES THAT TIE BACK TO NATURAL GROUND FROM THE RAIL BED.

**RETAIN FILL:** RETAINED FILL SECTIONS WILL CONSIST OF THE PLACEMENT OF EARTHEN, BALLAST, OTHER RAIL BASE FILL MATERIAL, AND RETAINING WALLS INTO WATERS OF THE U.S. VERTICAL RETAINING WALLS WILL BE PLACED ON EACH SIDE TO HOLD THE FILL MATERIAL IN PLACE.

**RETAIN CUT:** RETAINED CUT SECTIONS WILL CONSIST OF EXCAVATING WATERS OF THE U.S. FOLLOWED BY THE PLACEMENT OF RAIL BASE FILL MATERIAL WITHIN THE EXCAVATED AREA. THE RAIL BED WILL BE BOUND ON BOTH SIDES BY SOLDIER PILE WALLS WITH TIE BACKS.

**VIADUCT:** VIADUCT SECTIONS WILL CONSIST OF ELEVATED SECTION OF RAIL SUPPORTED BY PIERS.

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. THOMPSON**

DRAWN BY  
**D. THOMPSON**

CHECKED BY  
**S. BURGESS**

IN CHARGE  
**C. TAYLOR**

DATE  
**OCT. 2017**

DALLAS TO HOUSTON  
 HIGH SPEED RAIL  
 APPLICANT: TCRR  
 SWF-2011-00483  
 SWG-2014-00412

**ARUP**

Arup Texas, Inc.  
 10370 Richmond Ave., Suite 475  
 Houston, Texas 77042 USA  
 Tel (713) 783 2787 Fax (713) 343 1467  
 www.arup.com  
 Texas Registered Engineering Firm: F-1990

**FREESSE & NICHOLS**

2711 North Haskell Ave., Suite 3300  
 Dallas, Texas 75204  
 Tel (214) 217 2200 Fax (214) 217 2201  
 www.freese.com  
 Texas Registered Engineering Firm: F-2144

Client

1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

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**GENERAL ABBREVIATIONS AND LEGEND**

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**MAP LABELS**

**CONSTRUCTION LAYDOWN AREA:** AREAS THAT WILL BE CLEARED FOR THE TEMPORARY STORAGE OF EQUIPMENT AND SUPPLIES. THESE AREAS ARE TYPICALLY COVERED WITH ROCK AND/OR GRAVEL TO ENSURE ACCESSIBILITY AND SAFE MANEUVERABILITY FOR TRANSPORT AND OFF-LOADING OF VEHICLES.

**DETENTION:** THE DEVELOPMENT OF THE PROPOSED RAILWAY INFRASTRUCTURE COULD INCREASE STORMWATER RUNOFF PEAK FLOWS AND TOTAL RUNOFF VOLUMES. AS SUCH, DETENTION MITIGATION WILL BE REQUIRED AND HAS BEEN INCLUDED IN THE LOD TO ENSURE DETENTION MITIGATION CAN BE PROVIDED AS NECESSARY TO MINIMIZE ADVERSE IMPACTS TO DOWNSTREAM RECEIVING STREAMS AND PROPERTIES.

**RAIL SYSTEMS SITES:** AREAS THAT WILL INCLUDE TRACTION POWER SUBSTATION, SIGNALING AND COMMUNICATIONS FACILITIES.

**CULVERT:** CULVERTS BELOW THE HSR WERE SPECIFIED IN A VARIETY OF LOCATIONS WHERE THE ALIGNMENT WILL BE AT-GRADE OR ON EMBANKMENT, PRINCIPALLY AT STREAMS OR WHERE PROPOSED LONGITUDINAL DRAINAGE SWALES WILL NEED TO CROSS THE HSR LINE. TYPICALLY, CULVERTS WILL BE REINFORCED CONCRETE BOXES. FLOW DEPTHS WERE ESTIMATED DURING CONCEPTUAL ENGINEERING TO ESTIMATE CULVERT SIZES AT EACH LOCATION. CULVERTS MAY BE USED IN CONJUNCTION WITH WILDLIFE CROSSINGS.

**MAINTENANCE OF WAY FACILITY:** THE MOW FACILITIES ARE REQUIRED TO STORE AND SERVICE THE EQUIPMENT REQUIRED FOR ROUTINE INSPECTIONS AND MAINTENANCE OF THE SYSTEM.

**TEMPORARY CONSTRUCTION AREA:** ACTIVITIES ASSOCIATED WITH THIS TYPE OF AREA INCLUDE ROW CLEARING AND GRUBBING, TEMPORARY CONSTRUCTION ACCESS, FILLS, AND DEWATERING, STAGING OF CONSTRUCTION EQUIPMENT, AND TEMPORARY EROSION CONTROL BMPs.

**PROPOSED STRADDLE BENT:** WHERE THE VIADUCT WILL CROSS OVER A HIGHWAY OR RAILWAY AT HIGH SKEW, STRADDLE BENTS WILL BE ADOPTED TO SUPPORT THE VIADUCT SECTIONS TO ENSURE THAT THE SUPPORTING FOUNDATIONS LAY OUTSIDE OF THE GIVEN HORIZONTAL CLEARANCE ENVELOPES.

**BNSF TRACKS:** EXISTING BURLINGTON NORTHERN SANTA FE RAILWAY TRACKS.

**UPRR TRACKS:** EXISTING UNION PACIFIC RAILROAD TRACKS.

**ROAD REALIGNMENT:** THE PROPOSED PROJECT WILL REQUIRE ROAD AND HIGHWAY REALIGNMENTS. SOME OF THE REALIGNMENTS ARE ASSOCIATED WITH GRADE SEPARATIONS, AND SOME ARE REQUIRED DUE TO THE PROPOSED ALIGNMENT.

**DETAILS/NOTES**

DETAIL DRAWINGS ARE INTENDED FOR VISUALIZATION PURPOSES TO DEPICT HOW CONSTRUCTION OF THE RAIL AND ASSOCIATED FACILITIES WILL IMPACT WOTUS. DETAILS ARE NOT INTENDED FOR CONSTRUCTION AND ARE SUBJECT TO CHANGE BY THE DESIGN BUILD CONTRACTOR. TEMPORARY CONSTRUCTION ACTIVITIES DO NOT HAVE A CORRESPONDING DETAIL. UTILITY AND TEMPORARY CONSTRUCTION IMPACTS DO NOT HAVE A CORRESPONDING DETAIL. SEE DESCRIPTIONS BELOW AND REFER TO ATTACHMENT B, FIGURES 17-33 TO REVIEW EACH DETAIL DRAWING.

**DETAIL 1:** APPLIES TO LOCATIONS WHERE A NON-VIADUCT SECTION OF THE RAIL CROSSES A STREAM OR DITCH. FLOWS WILL BE CONVEYED UNDER THE RAIL AND ASSOCIATED ACCESS ROAD VIA BOX CULVERTS. THE CULVERTS WILL BE CONSTRUCTED WITHIN THE STREAM OR DITCH OR THE STREAM WILL BE FILLED IN AND FLOWS REROUTED. FILL MATERIALS WILL INCLUDE CONCRETE, RIP RAP, OR EARTHEN MATERIAL.

**DETAILS 2 AND 3:** APPLIES TO LOCATIONS WHERE A NON-VIADUCT SECTION OF THE RAIL CROSSES AN EXISTING WETLAND OR POND. TO ACCOMMODATE CONSTRUCTION, THE WETLAND OR POND WILL TYPICALLY BE FILLED IN AND THE RAIL WILL BE CONSTRUCTED ON TOP OF THE FILL MATERIAL. FILL MATERIALS INCLUDE BUT ARE NOT LIMITED TO EARTHEN, CONCRETE, RIP RAP, AND RAIL BALLAST MATERIAL.

**DETAIL 4:** APPLIES TO LOCATIONS WHERE A VIADUCT SECTION OF THE RAIL CROSSES A STREAM OR DITCH.

**DETAIL 5:** APPLIES TO LOCATIONS WHERE VIADUCT SECTIONS CROSS A WETLAND. FILL MATERIALS INCLUDE TIGHTLY SEALED CONCRETE FORMS FOR PIER COLUMNS AND FOUNDATIONS WHERE IN WETLANDS.

**DETAIL 6:** APPLIES TO LOCATIONS WHERE A VIADUCT SECTION OF THE RAIL CROSSES A POND.

**DETAIL 7:** APPLIES TO LOCATIONS WHERE A VIADUCT SECTION OF THE RAIL CROSSES OVER A SCRUB-SHRUB OR FORESTED WETLAND. NO PERMANENT FILL MATERIAL WILL BE PLACED IN WETLANDS.

**DETAIL 8:** APPLIES TO LOCATIONS WHERE AN ACCESS ROAD CROSSES A STREAM OR DITCH. ACCESS ROAD CROSSINGS WILL TYPICALLY BE CONSTRUCTED WITH BOX CULVERTS WITHIN THE STREAM OR DITCH OR THE STREAM WILL BE FILLED IN AND FLOWS REROUTED. FILL MATERIALS INCLUDE BUT ARE NOT LIMITED TO CONCRETE, RIP RAP, OR EARTHEN MATERIAL.

**DETAILS 9 AND 10:** APPLIES TO LOCATIONS WHERE AN ACCESS ROAD CROSSES A WETLAND OR POND. TO ACCOMMODATE CONSTRUCTION OF THE ROAD, THE WETLAND OR POND WILL TYPICALLY BE FILLED IN AND THE ACCESS ROAD WILL BE CONSTRUCTED ON TOP OF THE FILL MATERIAL. FILL MATERIALS INCLUDE BUT ARE NOT LIMITED TO CONCRETE, RIP RAP, AND EARTHEN MATERIAL. CULVERTS IN THESE LOCATIONS WILL BE CONSTRUCTED WHEN NECESSARY.

**DETAILS 11, 12, AND 13:** APPLIES TO LOCATIONS WHERE A DETENTION BASIN OVERLAPS WITH A STREAM, WETLAND, OR POND. GRADING OF THE DETENTION BASIN WILL RESULT IN FILL TO BE PLACED IN THE WOTUS. FILL MATERIALS INCLUDE BUT ARE NOT LIMITED TO CONCRETE, RIP RAP, AND EARTHEN MATERIALS.

**DETAILS 14 AND 15:** PERMANENT FILL IN STREAMS AND WETLANDS TO INSTALL FOOTINGS FOR STRUCTURES AND BUILDING FOUNDATIONS ASSOCIATED WITH FACILITIES. NOT FULLY DESIGNED OR CONFIGURED BY THE CONTRACTOR.

**DETAIL 16:** PERMANENT FILL IN PONDS TO INSTALL FOOTINGS FOR STRUCTURES AND BUILDING FOUNDATIONS ASSOCIATED WITH FACILITIES. NOT FULLY DESIGNED OR CONFIGURED BY THE CONTRACTOR.

**DETAIL 17:** APPLIES TO LOCATIONS WHERE AN EXISTING STREAM WOULD BE CHANNELIZED BY FILLING AND REPLACING THE EXISTING STREAM WITH A TRAPEZOIDAL CHANNEL WITHIN THE LOD.

**IMPACTS**

**PERMANENT IMPACT:** PRE-CONSTRUCTION CONTOURS WILL NOT BE RESTORED DUE TO THE PLACEMENT OF PERMANENT FILL MATERIAL.

**TEMPORARY IMPACT:** CONSTRUCTION IMPACTS WILL TEMPORARILY ALTER PRE-CONSTRUCTION CONTOURS; HOWEVER, CONTOURS WILL BE RESTORED AND ALL TEMPORARY FILLS WILL BE REMOVED IN THEIR ENTIRETY AFTER CONSTRUCTION ACTIVITIES ARE COMPLETED.

**CONVERSION WETLAND:** CONVERSION WETLANDS WILL OCCUR WHERE VIADUCT, TEMPORARY CONSTRUCTION, AND UTILITIES LOD WILL PASS OVER SCRUB-SHRUB AND FORESTED WETLANDS. NO FILL WILL OCCUR IN THE WETLAND, BUT THE WETLAND WILL BE CONVERTED TO EMERGENT WETLANDS DURING CONSTRUCTION. IN THE CASE OF VIADUCT, THESE AREAS WILL BE SUBJECT TO VEGETATION MAINTENANCE FOLLOWING COMPLETION OF CONSTRUCTION.

**OTHER**

**LIMITS OF DISTURBANCE:** THE LOD REPRESENTS THE OUTERMOST PHYSICAL LIMITS OF DISTURBANCE FOR THE LOCATION OF THE PROJECT INCLUDING ALL RELATED WORKS, INFRASTRUCTURE AND SYSTEMS AND RELATED ROADWAYS, GRADING, DRAINAGE WORKS AND TEMPORARY CONSTRUCTION ACCESS EASEMENTS AND STAGING AREAS, ROAD AND UTILITY RELOCATION.

**ROADWAY IMPACTS:** LOD ASSOCIATED WITH THE CONSTRUCTION OF ACCESS ROADS, ROADWAY REALIGNMENTS, AND ROAD REMOVAL.

**PIER LOCATIONS:** THE SPACING OF VIADUCT SECTIONS AND PLACEMENT OF INDIVIDUAL PIERS WILL BE SET TO MINIMIZE AND AVOID IMPACTS TO WOTUS, WHERE PRACTICABLE. PIERS WILL HAVE A TYPICAL SPACING OF 120 FEET AND WILL BE OFFSET A MINIMUM OF 15 FEET FROM PIER FACE TO ORDINARY HIGH WATER MARK, WHERE PRACTICABLE.

**UTILITY IMPACTS:** TEMPORARY IMPACTS ASSOCIATED WITH THE RELOCATION/MODIFICATION OF ALL TYPES OF EXISTING UTILITIES.

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CHECKED BY <b>S. BURGESS</b>
IN CHARGE <b>C. TAYLOR</b>
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DALLAS TO HOUSTON  
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