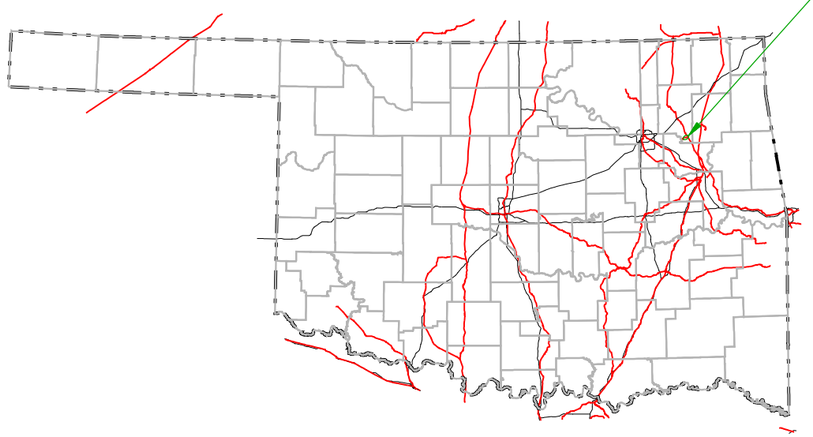
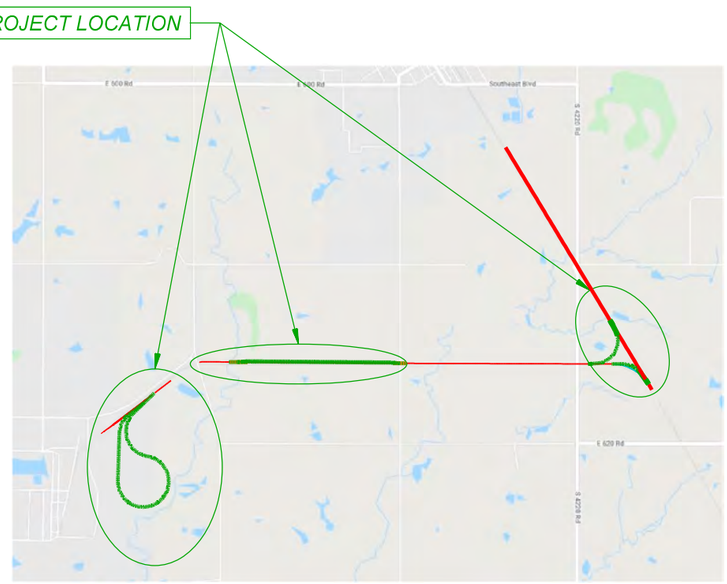
ENGINEERING DESIGN



State of Oklahoma



Project Location Map

TULSA PORTS
BARGE · RAIL · INDUSTRIAL PARK
CATOOSA · INOLA

OWNER: City of Tulsa - Rogers County Port Authority

TranSystems
2400 PERSHING ROAD
SUITE 400
KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

Inola, Rogers County, Oklahoma
Wagoner Subdivision MP 594.76 to MP 595.18
FES# 4070743
Inola Industrial Rail Facility

PRELIMINARY
NOT FOR CONSTRUCTION

100% DESIGN

LAST REVISED
June 01, 2021

Checklist for Industry Track Submittals

Industry Name	Project Location	UPRR FES Number
City of Tulsa - Rogers County Port Authority	Inola, OK	40743

Firm Name	Submitted By	Submittal Date
TranSystems	Jessica Smith	6/1/2021

Checklist Color Codes

- Drawing Required
- Switch
- Signal
- Drainage/Structures
- Roads
- Clearances
- Profiles
- Not Required
- **Do Not Include**

Recent Revisions

Date	Description
2/26/2020	Checklist reformatted, 10% submittal eliminated
3/6/2020	#2) Include on 30% plan and not on Exhibit A

Item	Description of Items to be Shown on Submittals	Railroad Work				Non Railroad Work			No ITA Issued		References & Resources
		DevCon	30% Plans	Const. Plans	Exhibit "A"	DevCon	Const. Plans	Exhibit "A"	DevCon	Const. Plans	
1	CHECKLIST FOR INDUSTRY TRACK SUBMITTALS completed and signed		Y	Y							
2	On a separate sheet on the Construction drawing include a sheet titled "PTC Design" and list GPS coordinates (lat/long) and elevations for the PS of turnouts on UPRR tracks, PS of derail, 13ft clear point, end of UPRR mtc, and all other PS of turnouts and 13ft clear points for a minimum of 1,200 ft. into the industry facility past UPRR mtc sign. (Last sheet of the plan set) Submit .kmz file of project location saved in a zip file and upload to EDS under "PTC-KMZ" titled as "KMZ File"		Y	Y							Submit KMZ File under EDS category "PTC-KMZ" Reference: UPRR PTC Sample Design
3	Aerial Imagery: show in background in monotone (adjust aerial to approx. -50 contrast, 80 brightness)										
4	Show Disclaimer on each sheet (found within UPRR's "General.cel" CADD configuration file)										Section 2.00 of UPRR Industrial Track Specs
5	Future Tracks										Section 2.10 of UPRR Industrial Track Specs
6	Operating Plan		Y	Y							Section 2.10 of UPRR Industrial Track Specs
7	1:100 scale plans, 11"x17" sheets, UPRR border and CADD standards, printed in color using "UPRR_V8i_Pentable.tbl" (found within UPRR's CADD configuration files); submittals shall be a single PDF; dates on all plan sheets shall match; Exhibit "A" must be legible when printed on 8.5"x11" paper		Y	Y							UPRR Example Plans & Exhibits
8	Customer's name, project location (station, county, state), north arrow, scale bar, and timetable direction		Y	Y							
9	List all requested project exemptions using UPRR's Exemption Table; special approval will be required by UPRR; project exemptions shall be on a separate sheet with UPRR border (sheet 2 of the plan set)		Y	Y							Section 1.70 of UPRR Industrial Track Specs UPRR Exemption Table
10	As applicable, label proposed sale or lease of UPRR owned track(s) or portion thereof. Identify with correct linestyle(s)		Y	Y							
11	Label existing tracks (using UPRR ZTS numbers) and proposed tracks with alpha-numeric names (Trk A, Trk B, etc.); if extending existing tracks, label track with existing UPRR ZTS numbers		Y	Y							ZTS numbers to be provided by UPRR
12	UPRR R/W with labeled width and perpendicular distance to adjacent track R/W is established from; note the source for depicted R/W information (ex. UPRR Val Maps)		Y	Y							UPRR Val Maps to be provided by UPRR
13	Label all track lengths, clear lengths, track centers, and 13 ft. clear points for all tracks where cars will be stored; number of cars stored on tracks shall only be labeled on DevCon		Y	Y							
14	DevCon: show all existing and proposed track and signals; for all turnouts and derails include size/type (No. 11, No. 15, etc.), LH or RH, PO or HT; show all existing turnouts within 1,000 ft. of proposed turnouts 30%, Construction, Exhibit "A": in addition to all DevCon requirements, label proposed turnouts and derails with frog type, rail weight, tie material; label type of switch stand and headblock ties; specify EOT devices		Y	Y							Sections 3.20 and 3.30 of UPRR Industrial Track Specs
15	Stationing & MP locations (based on UPRR Val Maps for DevCon and survey information for 30%, Construction, and Exhibit "A") along existing and proposed tracks and at switchpoints for existing and proposed turnouts and derails; provide station equations for switch points of proposed industry track turnouts on UPRR tracks		Y	Y							UPRR Val Maps to be provided by UPRR
16	DevCon: label track alignment degree of curvature; depict cardinal point stationing and locations (PCs and PTs) 30%, Construction, Exhibit "A": in addition to all DevCon requirements, depict geometric curve data		Y	Y							Section 3.00 of UPRR Industrial Track Specs
17	Stationing at "End UPRR Ownership/Maintenance" signs and where proposed tracks cross UPRR R/W		Y	Y							
18	Scope of Work Matrix: using UPRR's Scope of Work Matrix, provide a detailed list of work responsibilities and quantities for UPRR and Contractor; Scope of Work Matrix shall be on a separate sheet(s) with UPRR border (beginning at sheet 3 of the plan set)		Y	Y							UPRR Scope of Work Matrix
19	Rail Weight: all existing and proposed track		Y	Y							Section 4.80 of UPRR Industrial Track Specs
20	Cross-sections at minimum 100 ft. intervals along entire project limits and a minimum 200 ft. beyond proposed turnouts on UPRR tracks; show/label existing ground, proposed subgrade w/ offsets and elevations at grade breaks, track centerlines, T/R elevations, UPRR R/W, easements, walkways, and turnout pads		Y	Y							In addition to cross-sections at 100' intervals, include special sections at roadway crossings, utility crossings, drainage structures, bridge abutments, and other key points
21	End of RR Operations: label location "No RR Operations beyond this point", track stationing, and GPS coordinates (latitude/longitude of the centerline of track), include end of RR operations sign perpendicular to track from GPS coordinates.		N/A	Y							
22	Description of point from which main track stationing was established and location/description of benchmark from which elevations are established; main track stationing from UPRR Val Map shall be marked during survey on field side of rail along the side of proposed construction		Y	Y							UPRR Val Maps, profiles, ZTS or other sources to be provided by UPRR
23	Typical Sections: show/label existing ground, proposed subgrade and subballast, ditches, all dimensions (track centers, offsets, ditch widths/depths, T/R to top of subgrade at track CL, etc.), depths of ballast and subballast, and horizontal/vertical clearances		Y	Y							Section 4.10 of UPRR Industy Track Specs
24	Include location of track grounding details of any track used to load or unload flammable materials			N/A							Section 4.80 of UPRR Industrial Track Specs
25	Location and stationing of landing pads with turnaround area		N/A	N/A							UPRR Std. Dwg. 0309
26	Turnout construction pad location and dimensions (for work performed by UPRR forces)		Y	Y							Sections 1.60 and 4.10 of UPRR Industrial Track Specs
27	Begin new track alignments and stationing at switch points of turnouts where tracks diverge through turnouts; designate alignment stationing at point of switch as Sta. 0+00 on single-ended tracks; track stationing for double-ended tracks starts at Sta. 0+00 at switch point of turnout with the lowest UPRR MP		Y	Y							Section 3.00 of UPRR Industrial Track Specs
28	Within 1,000 ft. of proposed turnouts, show existing UPRR signal lines, masts, houses, cabins, bungalows, and cases, etc.; include dimensions, stationing, and DOT# found on crossing signal enclosures, block plates, and CP's.; provide stationing for existing insulated joints		Y	Y							
29	Show location and stationing of proposed signals and insulated joints		Y	Y							
30	Proposed Industry tracks with required signal circuits must reference the end of each circuit; where mandatory, wood ties, CWR, and insulated materials must be used		Y	Y							
31	Show location of power supply for power operated switches, signals, wayside equipment, and/or overhead lighting		N	Y							Section 2.20 of UPRR Industrial Track Specs
32	All track culverts: stationing of track centerline where culvert crosses track, MP location (UPRR Track), length, size/diameter, type, invert elevations, and any proposed modifications of an existing culvert; note on plans that culverts shall be marked with blue paint on ties over crossing per UPRR Std. Dwg. 0519		Y	Y							Sections 3.40 and 4.30 of UPRR Industrial Track Specs; Submit under EDS category "Structures"
33	All track bridges: stationing at each backwall, MP location (UPRR Track), length, type, and any proposed modifications of an existing bridge		N/A	Y							Sections 1.30, 3.40, 3.70, and 4.30 of UPRR Industrial Track Specs; Submit under EDS category "Structures"
34	All other drainage structures (under roads, surface drains, etc.): location, size, length, and type		Y	Y							
35	Depict direction of existing and proposed runoff with directional flow arrows throughout project area		Y	Y							
36	Drainage Study: submit hydrologic and hydraulic design calculations for all drainage improvements or modifications		Y	Y							Section 3.40 of UPRR Industrial Track Specs; Submit under EDS category "Structures"
37	Submit detailed plans for any proposed bridge or culvert (or modification of an existing) or any proposed under or over track structure		N/A	Y							Sections 3.70 and 3.80 of UPRR Industrial Track Specs; Submit under EDS category "Structures"
38	DevCon: show existing and proposed road crossings within 1,000 ft. of proposed turnouts 30%, Construction, Exhibit "A": in addition to all DevCon requirements, label length, type (public/private), material type, type of warning device, stationing, MP location (UPRR track), road name, and DOT#		Y	Y							Sections 1.40, 3.50, 3.80, and 4.95 of UPRR Industrial Track Specs
39	DevCon: all roads or road modifications affecting traffic crossing UPRR tracks shown on plans; show the station and MP location of the centerline of all roads crossing UPRR tracks 30% and Construction: in addition to all DevCon requirements, label location, width, type of roadway surface material, estimated vehicle crossing counts, and percentage that will be truck traffic		N/A	N/A							
40	Roadway Plans: for all public roadway improvements crossing any tracks (UPRR or industry tracks) and/or all private roads crossing UPRR tracks, include exisitng and proposed profiles, roadway alignment geometry, pavement geometrics, pavement markings, and all warning devices		N	Y							
41	DevCon: existing and proposed buildings adjacent to any track: location, dimensions, doors, docks, ramps, etc., and nearest perpendicular distance to track centerline 30%, Construction, Exhibit "A": in addition to all DevCon requirements, label stationing of start and end points of buildings and docks		N/A	N/A							Section 3.50 of UPRR Industrial Track Specs; Submit under EDS category "Structures"
42	All utilities adjacent to any track (above or below ground): location (include poles if applicable), type of utility, clearances, distance from adjacent track CL, depth from proposed grading, voltage (if electrical), encasement details, and utility ownership information		Y	Y							Sections 1.20, 3.50, 3.60, and 4.90 of UPRR Industrial Track Specs; Submit under EDS category "Structures"
43	Underground Crossings: stationing, distance below B/R, depth from proposed grading, and encasement details		N	Y							
44	Overhead Crossings: stationing (include poles, supports, etc.), horizontal clearance (perpendicular from adjacent track CL), vertical clearance (from top of highest rail), and voltage (if electrical)		N/A	Y							
45	All under and overhead track structures: label size, stationing, and clearances; description of any impaired clearances		N/A	N/A							
46	All car pulling or indexing devices: stationing and clearance		N/A	N/A							
47	All fences and gates: detailed drawings including stationing of any gate crossing, horizontal clearance with gate open, description of gate operation (power vs. hand), description of gate stop		N/A	N/A							Section 4.75 of UPRR Industrial Track Specs
48	Hazardous Materials: label perpendicular distance of track centerlines between hazmat storage/loadout/offload track centerline and nearest UPRR main track centerline, and/or nearest perpendicular distance from stored hazardous materials to any adjacent track centerlines			N/A							Section 3.50 and 4.70 of UPRR Industrial Track Specs
49	Verify state requirements are met; for projects located in California, refer to California PUC General Orders 26-D and 118-A for walkway/clearance requirements			Y							
50	Existing track profile: T/R profile (100 ft. maximum interval) for a minimum 1,000 ft. each direction from proposed turnout(s) along UPRR ML tracks, 200 ft. each direction from proposed turnout(s) on any other track		Y	Y							Section 3.10 of UPRR Industrial Track Specs
51	Proposed track profile: T/R profile of each track at 100 ft. maximum interval, include stationing of vertical curve points (PVC, PVI, PVT), stationing and elevation of switch points, long tie location, length of vertical curve, V/L, special ditch profiles		Y	Y							

Please note: Situations may arise depending on individual project details where signal work is required even though there is no track or railroad work.

Tulsa Port of Catoosa - FES# 40743 - SCOPE OF WORK MATRIX

#	Item/Task	Detailed Description/Comments	Industry			Union Pacific Railroad			QTY EST	U/M	MFG	Drawing #	Track	Station(s)
			Supplied	Assemble	Install	Supply	Assemble	Install						
1	Main Line Ballast		x					x	As Req				ML	13269+58.12 to 13272+17.91 13290+33.71 to 13292+93.50
2	Walkway Ballast	57	x					x	As Req				ML	13292+53.50 / 13269+98.12
3	Walkway Ballast	57	x		x				As Req				A, 111, C, D & E	
4	Other Ballast	4A	x		x				As Req				A, 111, C, D & E	
5	Turnout	#15 RH POTO UP/BN Spring Frog 136#, Wood HB	x	x				x	1	EA		10	ML to A	13292+53.50 / 0+00.00
6	Turnout	#15 LH POTO UP/BN Spring Frog 136#, Wood HB	x	x				x	1	EA		13	ML to 111	13269+98.12 / 0+00.00
7	Turnout (No. 22-E Switch Stand)	#11 LH DTMF UP/BN Spring Frog 115#, Wood HB	x	x	x				1	EA		12	A to 111	18+70.92 / 18+67.68
8	Turnout (No. 22-E Switch Stand)	#9 RH HTTO UP/BN SMSG Frog 115#, WOOD HB	x	x	x				1	EA		22	111 to D	76+61.85 / 0+00.00
9	Turnout (No. 22-E Switch Stand)	#9 LH HTTO UP/BN SMSG Frog 115#, WOOD HB	x	x	x				1	EA		22	D to C	1+33.85 / 0+00.00
10	Turnout (No. 22-E Switch Stand)	#9 RH HTTO UP/BN SMSG Frog 115#, WOOD HB	x	x	x				1	EA		19	D to C	47+77.51 / 46+42.29
11	Turnout (No. 22-E Switch Stand)	#9 LH HTTO UP/BN SMSG Frog 115#, WOOD HB	x	x	x				1	EA		19	111 to D	125+72.39 / 48+13.31
12	Turnout (No. 22-E Switch Stand)	#9 LH HTTO UP/BN SMSG Frog 115#, WOOD HB	x	x	x				1	EA		23	111 to E	153+34.49 / 0+00.00
13	Turnout (No. 22-E Switch Stand)	#9 RH HTTO UP/BN SMSG Frog 115#, WOOD HB	x	x	x				1	EA		23	E	4+04.31 / 87+74.72
14	Turnout (No. 22-E Switch Stand)	#9 RH HTTO UP/BN SMSG Frog 115#, WOOD HB	x	x	x				1	EA		9	111 to F	135+98.80 / 0+00.00
15	Rail & Ties	ISHH 136# CWR, Wood	x	x	x				412	TF		10 - 13	A & 111	
16	Rail & Ties	ISHH 115# CWR, Wood	x	x	x				2,302	TF		All	All	
17	Rail & Ties	ISHH 115# Jtd., Wood	x	x	x				32,139	TF		All	All	
18	Buffer Panels	40' Panel Before Proposed ML Turnout, with 10' Ties and Premium Fasteners	x	x				x	1	EA		10	ML	13292+33.46 to 13292+73.46
19	Buffer Panels	40' Panel After Proposed ML Turnout, with 8'-6" Ties and Premium Fasteners	x	x				x	1	EA		10	ML	13290+13.67 to 13290+53.67
20	Buffer Panels	40' Panel Before Proposed ML Turnout, with 10' Ties and Premium Fasteners	x	x				x	1	EA		13	ML	13269+58.13 to 13269+98.13
21	Buffer Panels	40' Panel After Proposed ML Turnout, with 8'-6" Ties and Premium Fasteners	x	x				x	1	EA		13	ML	13271+77.92 to 13272+17.92
22	Transition Rails	UPRR Field Forces to Verify Location (136 New to 133 Worn)	x					x	8	EA		10 & 13	ML	
23	Transition Rails	UPRR Field Forces to Verify Location (136 New to 115 New)	x					x	4	EA		10 & 13	A & 111	3+86.45 & 3+86.07
24	Insulated Joints Rail Plugs	UPRR Field Forces to Verify Location	x		x				1	PR		10 & 11	ML	13288+44.50 & 13292+98.50
25	Insulated Joints Rail Plugs	UPRR Field Forces to Verify Location	x		x				1	PR		13 & 14	ML	13269+53.13 & 13274+07.12
26	Insulated Joints Rail Plugs	UPRR Field Forces to Verify Location	x		x				1	PR		11	A	4+20.30 & 10+00.00
27	Insulated Joints Rail Plugs	UPRR Field Forces to Verify Location	x		x				1	PR		14	111	4+19.37 & 10+00.00
28	Signal	UPRR Field Forces to Verify Location of Signal Cabins				x	x	x	All					
29	Signal Berms	UPRR Field Forces to Verify Location	x	x	x				3	EA				
30	Commercial Power	UPRR Field Forces to Verify Location (Approx. 200A/240V)	x						1	EA				
31	Field Welds	UPRR Field Forces to Verify Location (for UP use and Install Only)	x					x	As Needed					
32	Turnout Pad	45' x 530'	x	x	x				1	EA		10	ML	13288+03.56 to 13293+33.46
33	Turnout Pad	45' x 530'	x	x	x				1	EA		13	ML	13269+33.13 to 13273+40.13
34	Derail	DSPD LH Power	x	x				x	1	EA		10	A	3+24.45
35	Derail	DSPD RH Power	x	x				x	1	EA		13	111	3+24.07
36	Sign	UP End MTCE	x	x	x				1	EA		10	A	3+86.45
37	Sign	UP End MTCE	x	x	x				1	EA		13	111	3+86.07
38	Culvert	48" x 114' CMP	x	x	x				114	LF		11	A	8+01.35
39	Culvert	30" x 55' CMP	x	x	x				55	LF		14	111	8+16.62
40	Culvert	48" x 54' CMP Extension	x	x	x				54	LF		20	D	34+82.48
41	Culvert	48" x 54' CMP Extension	x	x	x				54	LF		20	D	34+90.23
42	Culvert	48" x 54' CMP Extension	x	x	x				54	LF		20	D	34+97.96
43	Culvert	48" x 71' CMP	x	x	x				71	LF		25	E	31+18.91
44	Culvert	48" x 71' CMP	x	x	x				71	LF		25	E	31+25.09
45	Culvert	48" x 71' CMP	x	x	x				71	LF		25	E	31+31.26

- 100% Plans-

NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TranSystems
2400 PERSHING ROAD
SUITE 400
KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
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UNION PACIFIC

FES #: 40743
DRAWN BY: TAR
CHECKED BY: JLS
DATE: 6/1/2021
SHEET NUMBER: 2 of 94

DOCUMENT TYPE: 30% Development Concept
UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
SHEET TITLE: SCOPE OF WORK MATRIX

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Default
6/1/2021

Tulsa Port of Catoosa - FES# 40743 - SCOPE OF WORK MATRIX

#	Item/Task	Detailed Description/Comments	Industry			Union Pacific Railroad			QTY EST	U/M	MFG	Drawing #	Track	Station(s)
			Supplied	Assemble	Install	Supply	Assemble	Install						
46	Culvert	42" x 72' CMP	x	x	x				72	LF		26	E	43+26.90
47	Culvert	42" x 72' CMP	x	x	x				72	LF		26	E	43+32.86
48	Culvert	42" x 93' CMP	x	x	x				93	LF		27	E	52+21.46
49	Disposal of Rail, Ties, & OTM	Disposal of Rail, Ties, & OTM	x									All	All	
50	Civil Work Per Plans - Complete	Civil Work Per Plans - Complete	x									All	All	
51	Grading Work Per Plans - Complete	Grading Work Per Plans - Complete	x									All	All	
52	Drainage Work Per Plans - Complete	Drainage Work Per Plans - Complete	x									All	All	
53	13.2 kV OH Power Line to be Raised	13.2 kV OH Power Line to be Raised (Min 27' Above Top of Rail)	x									24	E	20+12.55

Notes:

a) Rail to be stacked for UPRR handling and disposal.

b) All material is required to comply with Buy America Standards.

- 100% Plans -

NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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UNION PACIFIC

FES #: 40743
DRAWN BY: TAR
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UNION PACIFIC RAILROAD For Use and Agreement
City of Tulsa - Rogers County Port Authority

LOCATION & DESCRIPTION:
Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18
Trackage to Serve: Tulsa Ports

SHEET TITLE: SCOPE OF WORK MATRIX

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Default
6/1/2021

Tulsa Port of Catoosa - FES# 40743

EXEMPTION TABLE

#	Drawing Type	Category	Standard Drawing #	Description of Exemption	Reason for Exemption	Sheet #	Track	STA
1	100%	Horizontal Curve	Section 3.00 UPRR Ind. Std.	Horizontal curve greater than 7°30' at Wye Track A.	Property acuisition/schedule/future unit train capability.	10 - 12	A	3+60.18 to 16+80.60
2	100%	Vertical Curve	Section 3.10 UPRR Ind. Std.	Vertical curve within limits of Horizontal curve	To Connect Wagoner Sub Mainline to Track 111	10 - 12	A	3+45.00 & 11+40.00
3	100%	Turnout Pad	Exhibit T.O. Pad	Turnout Pad width 45' instead of standard 65'.	To stay within Industry & UP property.	10	A	0+00.00
4	100%	Horizontal Curve	Section 3.00 UPRR Ind. Std.	Horizontal curve greater than 7°30' at Wye Track B.	Property acuisition/schedule/future unit train capability.	13 & 14	111	3+92.83 to 10+33.47
5	100%	Vertical Curve	Section 3.10 UPRR Ind. Std.	Vertical curve within limits of Horizontal curve	To Connect Wagoner Sub Mainline to Track 111	13	111	3+45.00 to 5+45.00
6	100%	Turnout Pad	Exhibit T.O. Pad	Turnout Pad width 45' instead of standard 65'.	To stay within Industry & UP property.	13	111	0+00.00
7	100%	Tangent Distance	0016	No. 9 Turnout less than 300' from Existing Bridge. (100')	Maximize Capacity, Install Handrails and Walkways on Bridge.	19	D	48+13.31
8	100%	Vertical Curve	Section 3.10 UPRR Ind. Std.	Vertical curve within limits of Horizontal curve	To lower Track D to match the 2% cross slope.	19	D	45+65.00 to 46+65.00
9	100%	Tangent Distance	0016	No. 9 Turnout less than 300' from S 4210 Rd crossing. (50.6')	Maximize Capacity	22	D	0+00.00
10	100%	Vertical Curve	Section 3.10 UPRR Ind. Std.	Vertical curve within limits of Horizontal curve	To lower Track D to match the 2% cross slope.	22	D	2+45.00 to 3+45.00
11	100%	Vertical Curve	Section 3.10 UPRR Ind. Std.	Vertical curve within limits of Horizontal curve	To match the Existing Topography	24	E	12+00.00 to 22+00.00
12	100%	Vertical Curve	Section 3.10 UPRR Ind. Std.	Vertical curve within limits of Horizontal curve	To match the Existing Topography	25 to 27	E	30+58.45 to 50+58.45
13	100%	Vertical Curve	Section 3.10 UPRR Ind. Std.	Vertical curve within limits of Horizontal curve	To match the Existing Topography	27 to 28	E	59+16.91 to 69+16.91
14								
15								
16								
17								

Notes:

a) All curves over 7°30' standard maximum to be CWR and use UPRR standard curve blocks every 4th tie.

b)

c)

- 100% Plans -

NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TranSystems
2400 PERSHING ROAD
SUITE 400
KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

UNION PACIFIC

FES #: 40743
DRAWN BY: TAR
CHECKED BY: JLS
DATE: 6/1/2021
SHEET NUMBER: 4 of 94

DOCUMENT TYPE: 30% Development Concept

UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority

LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports

SHEET TITLE: PROJECT EXEMPTIONS

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Default
6/1/2021

PROJECT INDEX

PROJECT DESIGN	DESCRIPTION
1	COVER SHEET WITH VICINITY MAP
4	PROJECT EXEMPTIONS
3	SCOPE OF WORK MATRIX
5	PROJECT INDEX & REVISION SHEET
6	GENERAL NOTES & PROJECT CONTACTS
7	ABBREVIATIONS & LEGEND
8	CONTROL POINTS & GEOMETRY
9	KEY PLAN
10 to 30	TRACK PLAN & PROFILE
31 to 37	TYPICAL SECTIONS
38 to 40	ROAD PLANS
41 to 51	EROSION CONTROL PLANS
52 to 55	CULVERT DETAILS
56 to 90	CROSS SECTIONS
91 to 93	OVERHEAD WIRE LINE CROSS SECTIONS
94	PTC DESIGN

STANDARDS	DESCRIPTION

STRUCTURES DESIGN	DESCRIPTION
S1 to S2	BRIDGE #1 STA. 64.31 TIE REPLACEMENT DETAILS
S1 to S3 & M1	BRIDGE #2 STA. 126+72 TIE REPLCAMENT AND HANDRAIL & WALKWAY DETAILS

PROJECT INDEX (CONTINUED)

MECHANICAL DESIGN	DESCRIPTION

ELECTRICAL DESIGN	DESCRIPTION
1 - 7	SITE ELECTRICAL PLANS

MISCELLANEOUS DESIGN	DESCRIPTION
1 - 10	DTMF SWITCH LOCATION
1 - 12	S. 4200 ROAD (DOT# 974 008U)
1 - 12	S. 4210 ROAD (DOT# 974 007M)
1 - 13	S. 4220 ROAD (DOT# 974 006F)

PROJECT REVISIONS

REV. #	BY	DATE:	SHEET:	DESCRIPTION
1	TAR	4/2/2021	All	Added Access Rds for WYE Turnouts, Added Bridge and Elecatrical Plans, Added Road Xing and DTMF Switch Plans, Added T.O. to Future Industrial Site. Tracks to be Constructed in Future.
2	TAR	5/19/2021	10-14 & 30	Access Rd moved to outside WYE Tracks, Revised Turnout Location to future Industrial site.

- 100% Plans-
NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
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DOCUMENT TYPE: 30% Development Concept
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LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
SHEET TITLE: PROJECT INDEX & REVISION SHEET

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6/1/2021

GENERAL NOTES:

1. All Rail Construction Covered by these Plans shall Conform to all Applicable Standards and Specifications of the Current Union Pacific Railroad (UPRR) Industrial Track Standards, All Standards and Specifications not Covered by UP shall be Current American Railway Engineering and Maintenance-of-Way Association (AREMA), Unless Otherwise Specified.
2. All Workmanship and Materials shall be Subject to the Inspection and Approval of the Union Pacific Railroad.
3. The Utility Locations Shown on these Plans were Obtained by Field Survey and are Approximate only. The Utility Information is not meant to be all Indusive. The Contractor Shall Verify the Location and Depth of all Utilities Prior to Construction to Provide non-Interruption of Service, to Ensure Proper Clearances, and to Avoid Damage thereto.
4. The Contractor Shall also Utilize the Following Toll Free Phone Number Provided by "Oklahoma One-Call System": 811. This Phone Number is Applicable Anywhere within the State of Oklahoma.
5. Prior to Commencement of Work, the Contractor shall Notify all those Utility Companies which have Facilities in the Near Vicinity of the Construction to be Performed.
6. All Excess Material or Material noted for Removal shall be Removed from the site by the Contractor and Disposed of at Locations Acceptable to the Owner and Governing Agencies.
7. All Stationing Along Track is Referenced to the Centerline, Unless Otherwise Specified.
8. Contractor Is Responsible for Obtaining all Permits, Bonds, Insurance, Etc, and Paying all Fees and for Otherwise Complying with all Applicable Regulations Required by the City and the State During Construction.
9. All Items Shown on the Plans not Specifically Covered in the Itemized Proposal will be Considered Fully Compensated Under Other Items In the Proposal (No Direct Pay).
10. The Rail Plan is Based on a Survey by Sisemore. Conditions of the Site at the time of Construction may vary from the Surveyed Conditions. Contractor shall Verify Existing Site Conditions Prior to Beginning Work.
11. Where the New Improvements abut Existing Conditions, The Contractor shall be Responsible for Matching the Elevation of the Existing Conditions Unless Otherwise Specified.
12. The Contractor shall Provide a Secure Site to Protect Vehicles and Pedestrians from Accidental Falls and Harm from the Construction Process.

Track Construction Specifications:

Rail

1. New or Used Rail shall be 115#/136#, Relay Rail as Indicated on Plans. Rail must meet or Exceed AREMA Class 1 Specifications.
2. Relay Wear and Surface Defects shall not Exceed the Following Limits:

Rail Weight	Max. Vert. Wear	Max. Hor. Wear	Corrugation
141	5/16"	1/8"	1/8"
133-136	1/4"	1/8"	1/8"
131-132	3/16"	1/8"	1/8"
119	5/32"	1/16"	1/8"
112-115	1/8"	1/16"	1/8"

Joint Bars

1. Joint Bars or Angle Bars Should be New or Certified Reconditioned to Match the Rail Section Used. They shall be Free of Defects and Foreign Material, with 6 Bolt Holes Conforming to AREMA Specifications.

Track Bolts

1. New or Secondhand, Conforming to AREMA Specifications, Appropriately Sized for the Bolt Holes in the Rail Section and Joint Bars with Length Sufficient for full nut and New Heavy Duty Spring Washers.

Tie Plates

1. Tie Plates shall be New or Secondhand, free of Defects and Foreign Material, Conforming to AREMA Specifications. Plates Shall be Double-Shouldered and no Smaller than two times the Base of Rail. Single-Shouldered Tie Plates Are Not Permitted. Track shall be fully Plated.

Spikes and Spike Patterns

1. Spikes shall be New 5/8" X 6" or 5/8" X 6 1/4" cut Track Spikes. Spiking Patterns shall Conform to the Industrial Spiking Pattern Details.

Rail Anchors

1. Shall be New and Box Anchored Every Other Tie. All Switch Ties will be Completely Box Anchored.

Ties

1. Timber Ties shall be New Creosote Treated Oak or Douglas Fir.
2. All Timber Ties (Except Switch Ties) shall be 7" X 9" X 8'-6" Spaced on 21.25" Centers.
3. All Timber Ties shall be 100% End Plated.
4. Switch Timber Ties shall have a Minimum Cross Section of 7" X 9" and Minimum Lengths to Conform to Applicable Switch Plan.
5. All Ties shall at a Minimum Meet UP Industrial Specifications.

- 100% Plans-

NOT FOR CONSTRUCTION

Track Construction Specifications Continued:

Turnouts

1. #9 Common Standard Turnout to be Installed.
2. #11 Common Standard Turnout to be Installed.
3. #15 Common Standard Turnout to be Installed.

Switch Stands

1. Model 22E Switch Stand with Low Profile Target, with Model SSN 223 Yellow Bow Handle, Along with Model 11TN Adjustable Connecting Rods.

Ballast & Walkway Ballast

1. Ballast shall be Quarried Rock Crushed to AREMA Class 4A Gradation with Fully Fractured Face Per the Below Chart.
2. Walkway shall be AREMA Standard 57 Ballast Per Below Chart. Ballast shall be Placed Per the Walkway Detail Sheet.
3. Both Ballast and Walkway Ballast shall be Free from Loam, Dust, and Other Foreign Particles and shall not have less than 75% Crushed Particles with two or more Fractured Faces.

Size No.	Nominal Size Square Opening	Percent Passing							
		3"	2 1/2"	2"	1 1/2"	1"	3/4"	1/2"	3/8"
4A	3/4" - 2"		100	90-100	60-90	10-35	0-10	0-10	0-3
57	1"				100	95-100		25-60	

General Track Construction:

Timber Ties

1. Ties shall be Uniformly Spaced Center to Center of Tie. Ties shall be Laid at Right Angles to the Rail and at Least one will be Located at the Joint Location as Required in the FRA Track Standards for the Class of Track it is Intended for.
2. When Handling or Spacing Ties, Care shall be Taken not to Damage them with Picks or Hammers. Tie Tongs shall be Used for this Purpose.
3. The Pulling of Spikes, Once Driven, shall be Avoided Insofar as Possible. When Spikes are Pulled, the Holes shall be Immediately Plugged with Creosoted Tie Plugs of the Proper Size to Completely Fill the Hole, or an Approved Form of Plugging Compound shall be Used.
4. Ties Above the Culverts Shall be Marked with Blue Paint.
5. Rail and Tie to be Marked with Yellow Paint at the Clear Points.

Laying Rail

1. Bottom of Rail shall be Cleaned Before Rail is Laid.
2. If Relay Rail is Used, Worn Side of the Rail Should Face the Field Side for New Construction.
3. Rails shall be Unloaded, Stored or Distributed Along the Roadbed in Such a Manner as to Prevent Damage.
4. For Jointed Track, Rails shall be Laid with Minimum 12-Foot Staggered Joint Arrangement.
5. Rails Less Than 15 Feet Long shall not be Used Except for Temporary Closures.
6. As Rail is Laid, All Joints shall be Given a Brush Coat of a Metal Preservative.
7. Rails shall be Laid to Ensure Good Alignment, and Rail Ends Must be Brought Squarely Together Against Expansion Shims Then shall be Bolted.
8. Rails shall be Cut Square and Clean by Means of Rail Saws.
9. Holes for Complete Bolting of Cut Rails shall be Drilled Per Joint Bar Pattern. New Holes shall not be Drilled Between Two Holes Already Drilled.
10. Rail Joints shall be Applied Before Track is Clipped. Joint Bars to be Aligned with Rail in Vertical Position and Bolts Tightened by Starting in the Middle of Joint and Working Toward the Ends.
11. Cutting Rails or Drilling Holes in Cut Rails by Means of Acetylene or Electric Torch will not be Permitted.

Expansion Shims

1. Expansion Shims of Hardwood or Fiber shall be Placed Between the Ends of Adjacent Rails for Jointed Track to Insure Proper Space Allowance for Expansion, as Indicated in the Following Table:

33' Rail 160 Joints Per Mile		39' Rail 135 Joints Per Mile		78' Rail 67 Joints Per Mile	
Rail Temp (F)	Expansion (Inches)	Rail Temp (F)	Expansion (Inches)	Rail Temp (F)	Expansion (Inches)
Below 25	1/4	Below 25	1/4	Below 25	1/2
25-50	1/8	25-50	3/8 Every Other Joint	25-50	3/8
51-75	1/8 Every Other Joint	51-75	1/8	51-75	1/4
76-100	1/8 Every Third Joint	76-100	1/8 Every Other Joint	76-100	1/8
				ABOVE 100	1/8 Every Other Joint

2. A Rail Thermometer shall be Used to Ascertain Temperature of Rail. When Making the Reading, Thermometer shall be Placed on Rail Base on Side Away from the Sun.

Track Bolt Tension

1. The Appropriate Number of Bolts shall be Applied According to the Rail Joint Used. The nuts of all Bolts shall Alternate Uniformly Inside and Outside of Each Joint. Each Bolt shall be Equipped with a Spring Washer of Size Required to fit the Diameter of the Bolts Used.
2. Applied Bolt Tension shall be within Range of 20,000 to 30,000 Pounds Per Bolt for Initial Tightening and within Range of 15,000 to 25,000 Pounds for Subsequent Tightening.
3. Track Bolts Should be Retightened as Required, Preferably 1 To 3 Months After Joint Bars are Applied and at 1-Year Intervals Thereafter. Owner to Reengage Contractor for these Services if Desired.
4. Corrosion Resistant Lubricant Should be Applied to Bolt Threads Prior to Application of nuts. One Lock Washer Conforming to AREMA Specifications shall be Applied on Each Bolt.

General Track Construction Continued:

Gage

1. Gaging shall be Done at Time Rail is Laid.
2. The Right Hand Rail Going Away from the Switch Points or the Outside Rail on Curves shall First be Spiked in Position in its Proper Relation to the Lined End of Ties. The Opposite Rail shall then be Spiked to True Gage (4'-8 1/2"), Measured at Right Angles Between Rails, at a Point 5/8" Below Top of Rail.
3. Curved Track shall be Gauged as Follows:
   A. Lay Track to Standard Gauge on Tangents and Curves of less than 6 Degrees.
   B. Lay Track to Gauge of 4'-8 3/4" on Curves of 6 Degrees or Greater.
4. Gage shall be Checked Every Third Tie.
5. Gage Rods, Gage Plates, Rail Braces, or Inner Guard Rails shall be Used on Curves Where it is Difficult to Maintain Gage.

Spiking

1. Rail shall be held to Gage While Line Spikes are Driven. Rail shall be Properly Seated in Tie Plates with Edge of Rail Base and Field Shoulder of Tie Plate Aligned and in Contact.
2. See Sheet D001 for Spiking Pattern Details.
3. Spikes shall be Staggered so that Outside Spikes shall be on Same Side of Tie and Inside Spikes on Opposite Side of Tie.
4. Rail shall not be Struck with Maul or Heavy Tool when Spiking, Gaging, or Lining.
5. Spikes shall be Started Vertically and Square and be Driven Straight with Full Bearing Against Base of Rail. Straightening with Maul or Spikes Started Crooked will not be Permitted. Spikes Started Crooked shall be Pulled, Holes Plugged and Spikes Redriven.
6. Immediately Following Completion of Track Surfacing, Spikes shall be Settled in Place with Underside of Spike Head Contacting Top of Rail Base with Minimum of Pressure.

Anchoring

1. Rail Anchors Control Longitudinal Rail Movement on Ties from Temperature Variations, Traffic, Grade and Braking. Anchors Should be Applied out-of-face on Each Rail, Directly Across from Each Other on the Same Tie. Use Standard Box Pattern (Every Other Tie).

Ballast

1. Contractor shall Place and Level Ballast Taking Care to Avoid Destroying or Disturbing Grade Stakes.
2. If Ballast is Being Trucked in for a pre Ballast Application or Front End Loader Movements, Attention Should be Given to the Traffic Continually Running Over the Same Route & Wearing the Subballast Section. If this Occurs, the Rail Contractor will need to Bring the Subballast back to its Original Elevation & Condition, Prior to Coving it up with Ballast & Building the Track over it.
3. Surfacing of Track shall be Accomplished by Raising both Rails Uniformly. All Ties that are Pulled Loose shall be Replaced to Proper Position. Ballast shall be Evenly Placed in 3 or 4 Inch Lifts and well Tamped.
4. When Track has Been Raised to within 4 Inches of Final Grade and Properly Compacted, Final Lift shall be Made by Jacking Track up to Exact Elevation Provided by Grade Stakes. The Ballast shall then be Tamped Under the Ties. The Space Extending From 15 Inches Inside Either Rail to the Ends of Ties shall be Thoroughly Tamped. Tie Centers shall be Left Untamped.
5. Final Lift shall be Tamped with Tamping Bars, Tamping Picks or By Approved Tamping Machines. In Making Finishing Lift, the Spot Board and Level Board shall be Used with Care and Track Brought to True Surface and Required Elevation.
6. After Track has Been Brought to True Surface, Elevation And Grade, It shall be Given a Final Lining and Placed to True Alignment.
7. Contractor shall Trim Ballast to Conform to Standard Ballast Section and Dispose of Surplus Ballast as Directed by Engineer.

General Track Grading Construction

Subballast

1. Subballast Materials shall be 100% Crushed Stone Produced from Oversized Quarried Aggregate, Sized by Crushing and Produced from a Naturally Occurring Single Source. Aggregate Retained on a No. 10 Sieve shall Consist of Hard, Durable Particles or Fragments of Stone. The Subballast Material shall have;
   A. No more than Approximately 10% Freeze-Thaw Loss When Tested in Accordance with ASTM C 88-90, Standard Test Method for Soundness of Aggregate by use of Sodium Sulfate (Under 5 Cycles of Freeze-Thaw with Sodium Sulfate Solution).
   B. No more than 50% Loss when Tested In Accordance with ASTM C 131-89, Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
   C. Gradation:

Sieve Size	2"	1"	3/8"	No. 10	No. 40	No. 200
% Passing Size (Optimum)	100	95	67	38	21	5
Permissible Range % Passing	100	90-100	50-84	26-50	12-30	0-5

If the Above Subballast Spec can't be met by a Local Provider, Contractor shall Supply the Subballast Specification of Available Material to Owner & Engineer Prior to Placement, for Approval.

Earthwork

1. The Contractor Shall Employ an Independent Geotechnical Engineering Testing Agency to Verify Soil Properties, Soil Compaction and Subballast Material Properties. The Contractor Shall Allow the Testing Agency to Perform Testing and Re-Testing as Necessary to Verify Compliance with the Project Specifications. Re-Testing Shall be at the Expense of the Contractor.
2. The Top 6" of Organic Topsoil Material, Vegetation, Roots Larger than 1/4", and Soft Soils Shall be Stripped from the Construction Area. Stripping Shall be Monitored by the Geotechnical Engineer to Ensure Unsuitable Materials have been Removed at Varying Depths. The Exposed Subgrade Should be Scarified up to 6" and Proof Rolled. Soft Areas that Develop Ruts shall be Overexcavated and Backfilled with Soil Fill or Crushed Rock.
3. Native Slopes Steeper than 1V:5H should be Benched Prior to Placement of Fill. Benches should be Cut Forizontal and Parallel to Existing Contours. Benches should have a Maximum Vertical Face Height of 4 Feet and a Minimum Face Height of 12 Inches.
4. Fill to be Placed in 8" Loose Lifts and Compacted to Modified Proctor ASTM D 1557 per the Following Table.

Reference	Relative Compaction, %	Moisture Content Variance from Optimum, % Points
Track Substructure		Cohesive Soil with LL>40: 0 to +4
< 3 Feet Below Subgrade	95	Select Cohesive Fill with LL< 40: -1 to +3
> 3 Feet Below Subgrade	90	Granular: -3 to +3

5. A Proof Roll Procedure Observed by a Representative of the Geotechnical Engineer of Record is to be Performed at Subgrade Elevation Prior to Placement of Subballast. no Deflection or Rutting Should be Observed.

PROJECT CONTACTS

CONTACT	PHONE NUMBER	UPRR
		Construction Project Manager
		Construction Field Manager
		Project Design Manager
Shane Bonewell	402-544-4491	Project Design Sr. Project Designer
		Structures Design Sr. Manager
		Structures Design Manager
		Information Technology - Fiber
		Real Estate - Utilities
		Real Estate - Acquisitions

CONTACT	PHONE NUMBER	FIBER

CONTACT	PHONE NUMBER	UTILITIES

CONTACT	PHONE NUMBER	FEDERAL AND LOCAL GOVERMENT AGENCY

PHONE NUMBER	GENERAL
(800) 336-9193	UPRR CALL BEFORE YOU DIG
(888) 258-0808	CALL BEFORE YOU DIG (NATIONAL DIRECTORY)
(888) 877-7267	UPRR Response Management Communications Center (RMCC)

	DATUM
HORIZONTAL	Oklahoma State Plane (North Zone 3501)
VERTICAL	1988 NAVD

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
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SHEET NUMBER 6 of 94	SHEET TITLE: GENERAL NOTES & PROJECT CONTACTS

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6/1/2021

ABBREVIATIONS

MISCELLANEOUS

Ac.	Acres
Ave.	Avenue
Blvd.	Boulevard
Bldg.	Building
BNSF	BNSF Railway
C.Y.	Cubic Yards
Conc.	Concrete
°	Degree (s)
Dia.	Diameter
Dr.	Drive
Dwg.	Drawing
E	East
Elev.	Elevation
Exist.	Existing
'	Foot, Feet or Minute (s)
F.S.	Finished Surface
Horiz.	Horizontal
"	Inch, Inches or Second (s)
Inv.	Invert
Lt.	Left
L	Length
L.F.	Lineal Feet
Max.	Maximum
Min.	Minimum
N	North
NTS	Not to Scale
No.	Number
OH	Overhead
Prop.	Proposed
RR	Railroad
Rwy	Railway
R/W	Right of Way
Rt.	Right
S	South
S.F.	Square Feet
Sta.	Station
Std.	Standard
St.	Street
Twp.	Township
Typ.	Typical
UG	Underground
UPRR	Union Pacific Railroad
V	Velocity
Wt.	Weight
W	West
X-ing	Crossing

SIGNAL

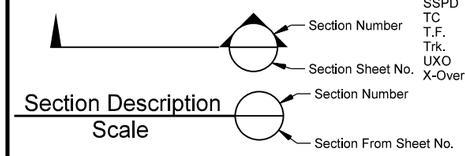
ABS	Automatic Block Signal
ATC	Automatic Train Control
CTC	Centralized Traffic Control
DED	Dragging Equipment Detector
DTC	Direct Traffic Control
ELTO	Electric Lock Turnout
HBD	Hot Box Detector
HTTO	Hand Throw Turnout
HWD	High Wide Dectector
POTO	Power Operated Turnout
TWC	Track Warrant Control
WILD	Wheel Impact Load Dectector

STRUCTURES

Bldg.	Building
Br.	Bridge
CB	Catch Basin
CPT	Concrete Pile Trestle - Ballast Deck
CIP	Cast Iron Pipe
CMP	Corrugated Metal Pipe
CMPA	Corrugated Metal Pipe Arch
CSP	Corrugated Steel Pipe
Culv.	Culvert
DI	Drop Inlet
DPGBD	Deck Plate Girder - Ballast Deck
DPGOD	Deck Plate Girder - Open Deck
EBW	East Backwall
F.L.	Flowline
F.F.	Finished Floor
GIP	Galvanized Iron Pipe
Hdwl	Headwall
NBW	North Backwall
PCB	Prestressed Concrete Box
PSCT	Prestressed Concrete Trestle
RCA	Reinforced Concrete Arch
RCB	Reinforced Concrete Box
RCP	Reinforced Concrete Pipe
SBW	South Backwall
SSP	Smooth Steel Pipe
SPTBD	Steel Pile Trestle - Ballast Deck
SPTOD	Steel Pile Trestle - Open Deck
SPP	Structural Plate Pipe
TPGBD	Through Plate Girder - Ballast Deck
TPGOD	Through Plate Girder - Open Deck
TPTBD	Timber Pile Trestle - Ballast Deck
TPTOD	Timber Pile Trestle - Open Deck
TTBD	Through Truss - Ballast Deck
TTOD	Through Truss - Open Deck
TWB	Treated Wood Box
VCP	Vitrified Clay Pipe
Viad.	Viaduct
WBW	West Backwall
WIP	Wrought Iron Pipe

TRACK

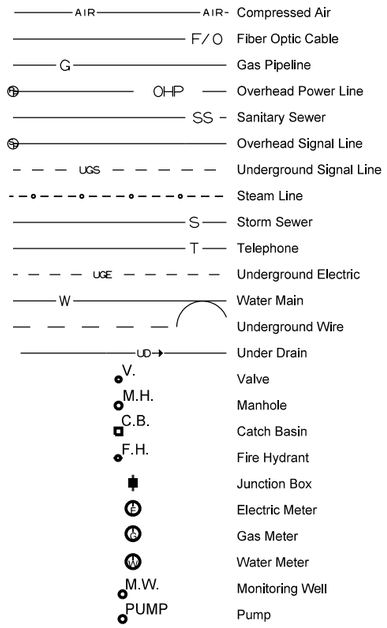
ATR	Above Top of Rail
Align.	Alignment
BBR	Below Base of Rail
Cntrs.	Centers
CWR	Continuous Welded Rail
DSPD	Double Switch Point Derail
EOT	End of Track
HH	Head Hardened
Jtd.	Jointed Rail
LH	Left Hand
ML	Main Line
MM	Mile Marker
MP	Mile Post
NSC	Not Sufficient Clearance
OTM	Other Track Material
PCC	Point of Compound Curve
PC	Point of Curve
PCS	Point of Curve to Spiral
POC	Point on Curve
PF	1/2" Point of Frog
PI	Point of Intersection
PITO	Point of Intersection of Turnout
PS	Point of Spiral
PSC	Point of Spiral to Curve
POS	Point on Spiral
PT	Point of Tangent
POT	Point on Tangent
Pt. Sw.	Point of Switch
PVC	Point of Vertical Curve
PVI	Point of Vertical Intersection
PVT	Point of Vertical Tangent
RH	Right Hand
SH	Second Hand
SSPD	Single Switch Point Derail
TC	Track Centers
T.F.	Track Feet
Trk.	Track
UXO	Universal Cross-Over
X-Over	Cross-Over



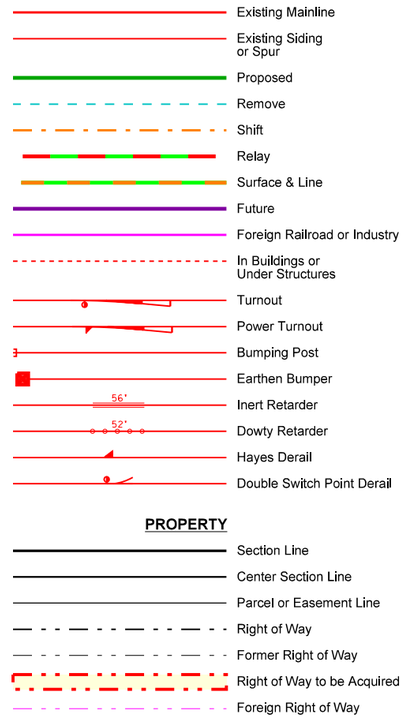
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UTILITIES

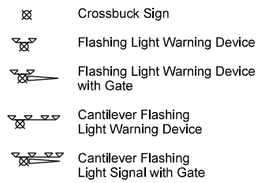


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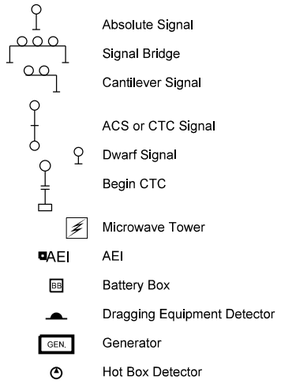


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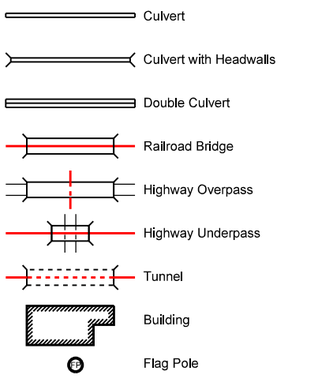
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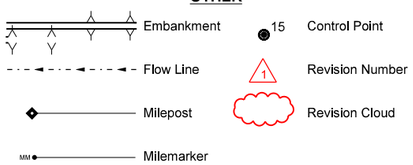
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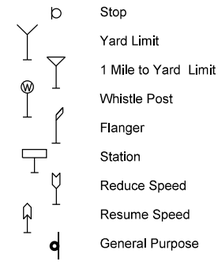
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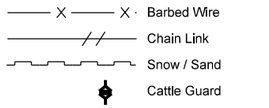
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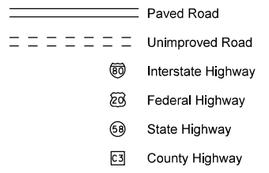
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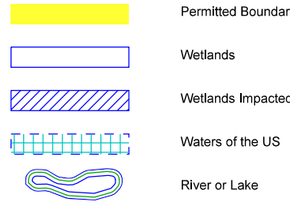
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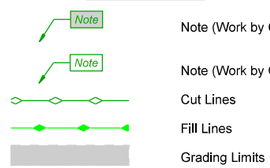
ROADS



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LIGHTING



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FES #:	40743
DRAWN BY:	TAR
CHECKED BY:	JLS
DATE:	6/1/2021
SHEET NUMBER	7 of 94

DOCUMENT TYPE: 30% Development Concept

UNION PACIFIC RAILROAD For Use and Agreement
City of Tulsa - Rogers County Port Authority

LOCATION & DESCRIPTION:
Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18
Trackage to Serve: Tulsa Ports

SHEET TITLE:
ABBREVIATIONS & LEGEND

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CONTROL POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
BM1	419112.25	2697203.27	577.77	CHISELED SQUARE TOP OF CONC.
BM2	416528.78	2695717.09	568.53	CHISELED SQUARE TOP OF CONC.
CP10	417296.43	2694900.89	579.19	3/8" IRON PIN
CP11	419149.66	2697155.70	576.36	3/8" IRON PIN
CP12	413851.79	2694810.57	573.59	3/8" IRON PIN
BM207*	422099.39	2708426.35	598.63	SQURE CUT ON NW CORNER OF CROSSING PAD
BM208*	422396.63	2708223.12	593.41	SQUARE CUT ON SW CORNER HEADWALL
BM217*	425880.20	2706003.25	596.32	CHISLED SQUARE W BASE LIGHT
BM218*	426241.39	2705734.53	596.14	CHISLED SQUARE W BASE LIGHT
CP200	420599.57	2708508.93	612.78	1/2" REBAR
CP201	418503.54	2697512.07	572.72	1/2" REBAR
CP202*	427589.93	2705188.83	598.46	1/2" REBAR
CP203*	422422.09	2708265.17	584.71	3/8" REBAR
CP204*	422383.73	2708212.08	586.38	3/8" REBAR
CP205*	422175.15	2708431.84	587.97	3/8" REBAR
CP206*	422079.71	2708406.65	597.65	3/8" REBAR

*=NOT SHOWN ON PLAN

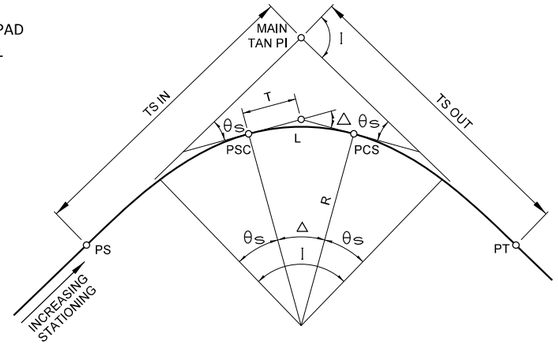


FIGURE A
CIRCULAR CURVES
WITH SPIRAL TRANSITION

I - TOTAL INTERSECTION ANGLE

θs - SPIRAL ANGLE = $\frac{A L^2}{2}$

Δ - CENTRAL ANGLE OF CIRCULAR CURVE = I - 2 θs

Dc - DEGREE OF CURVE

A - RATE OF CHANGE OF DEGREE OF CURVE PER 100-ft. OF LENGTH = $\frac{Dc}{L}$

R - RADIUS OF CIRCULAR CURVE

T - TANGENT LENGTH OF CIRCULAR CURVE = R TAN $\frac{\Delta}{2}$

L - LENGTH OF CIRCULAR CURVE = $\frac{\Delta}{Dc}$ x 100

PS - TANGENT TO SPIRAL

PSC - SPIRAL TO CURVE

PCS - CURVE TO SPIRAL

PT - SPIRAL TO TANGENT

MAIN TAN PI - POINT OF INTERSECTION OF MAIN TANGENTS

(TS IN)
(TS OUT) - TANGENT LENGTH OF COMPLETE CURVE = (R+o) TAN $\frac{I}{2}$ + t

(WHEN SPIRALS OF EQUAL LENGTH ARE USED ON BOTH SIDES OF CIRCULAR CURVE, SEE FIGURE C. FOR o AND t).

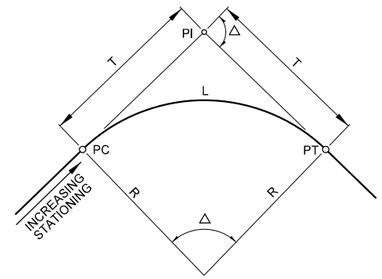


FIGURE B
SIMPLE CIRCULAR CURVE

R = RADIUS OF CIRCULAR CURVE

Δ = CENTRAL ANGLE OF CIRCULAR CURVE

T = R TAN $\frac{\Delta}{2}$

L = $\frac{\Delta}{Dc}$ x 100

Dc = 2 SIN^{-1} (50/R) = DEGREE OF CURVE (CHORD DEFINITION)

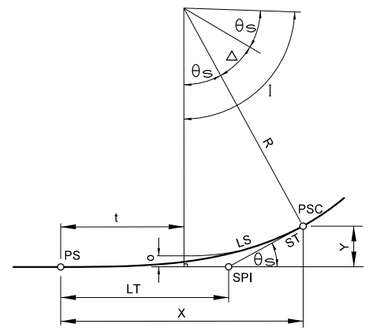


FIGURE C
SPIRAL TRANSITION CURVE

SPIRAL TRANSITION CURVE DATA:
THE SPIRAL USED IS DEFINED BY THE TALBOT SPIRAL.

LS = LENGTH OF SPIRAL (TS TO PSC)

θs = $\frac{A L^2}{2}$

X = $100 L_1 - 0.000762 A^2 L_1^5$

Y = $0.291 A L_1^3 - 0.00000158 A^3 L_1^7$

o = $0.0727 A L_1^3$

t = $50 L_1 - 0.000127 A^2 L_1^5$

ST = $\frac{Y}{SIN\ \theta s}$

LT = X - $\frac{Y}{TAN\ \theta s}$

Dc = 2 SIN^{-1} (50/R) = DEGREE OF CURVE (CHORD DEFINITION)

L_1 - TOTAL NO. OF STATIONS IN SPIRAL

SPI - SPIRAL POINT OF INTERSECTION

NOTE: Dc, θs, Δ, AND I ARE IN DEGREES.
ALL OTHERS DIMENSIONS ARE FEET.

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Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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DRAWN BY: TAR	UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
CHECKED BY: JLS	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	SHEET TITLE: TRACK GEOMETRY & CONTROL POINTS
SHEET NUMBER 8 of 94	

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Default
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Remove 15,551 TF of Track 111
(From Sta. 1+20.74 to Sta. 157+00.14)

Construct 14,916 TF , ISHH
115# CWR, Wood Ties
(From Sta. 1+20.74 to Sta. 157+00.14)

Track 111, Wood,
90# Rail

Install No. 9 LH Turnout

Track F
158' Total Length

Construct Public 32 LF Conc Xing

S 4200 Rd

S 4210 Rd

15 & 19

16 & 20

17 & 21

18 & 22

Match Line A

Track 111, Wood,
112# Rail

CP201

CP11

BM1

90# Rail 112# Rail

Track D
4,429' Total Length
4,340' Clear Length

Track C
4,426' Total Length
4,339' Clear Length

23 & 29

30

Contractor to Reuse Existing Ballast for Access Roads

Sta. 1+41.47 (Trk F)
Install No RR Operations Beyond
this Point Non-Standard Track Sign
N 36° 7' 27.8453"
W 95° 32' 2.7641"

Contractor to Salvage & Stockpile All Existing
Rail Location Per Direction of Engineer

Contractor to Dispose of All Existing Ties

Sta. 150+50.40 (Trk 111)
Install No RR Operations Beyond
this Point Non-Standard Track Sign
N 36° 7' 23.2157"
W 95° 32' 9.9192"

CP10

Track E
8,634' Total Length
8,075' Clear Length

28

24

BM2

25

27

26

UPRR Main Line Wagoner Sub
136#, Wood, 60 MPH

CP200

10

To Inola
& Coffeyville
Timetable North

Track A
1,871' Total Length
1,462' Clear Length

11

12

To Wagoner
& Van Buren
Timetable South

Match Line A

14

13

Track 111, Wood,
112# Rail

S 4220 Rd

Track 111

N

700 0 700 1400

SCALE IN FEET

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Operating Plan - Manifest (Future Unit Capable)

UP to spot cars on Tracks C & D,
Industry to pull cars from Tracks C and D
to facility for loading/unloading.
UP to use Track E to turn the train around for exiting the facility.
All switches to be lined to normal position when not in use.

Rail Weights

Existing UPRR Main Line is 136#.
Existing Track 111 is 112# and 90#.
Proposed Industry tracks are 115#.
Proposed UPRR tracks are 136#.

Project Notes

1. UPRR ROW Established fromVAL Maps & GIS ROW File.
2. Existing Track Stationing Established from VAL Maps.

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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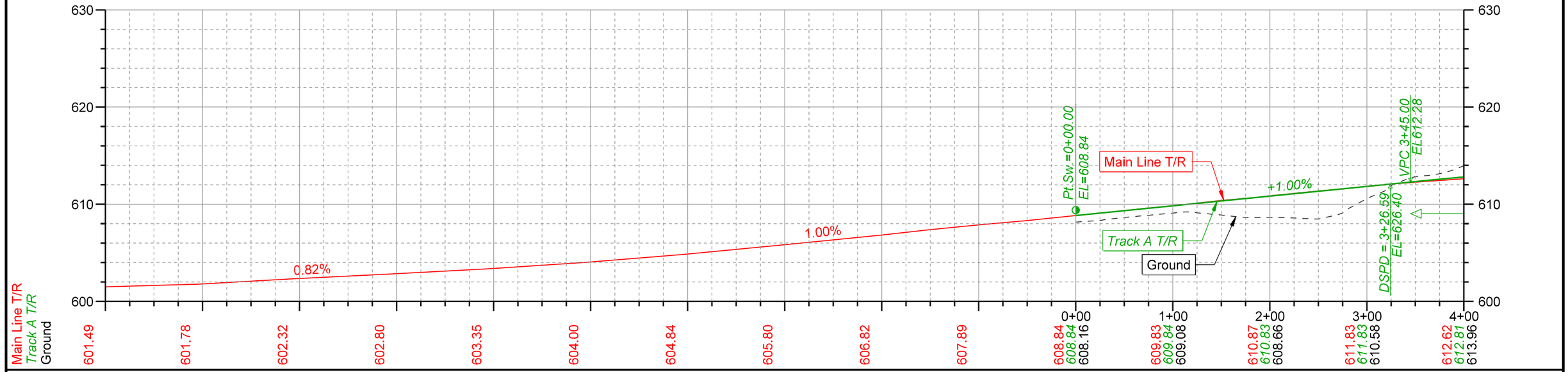
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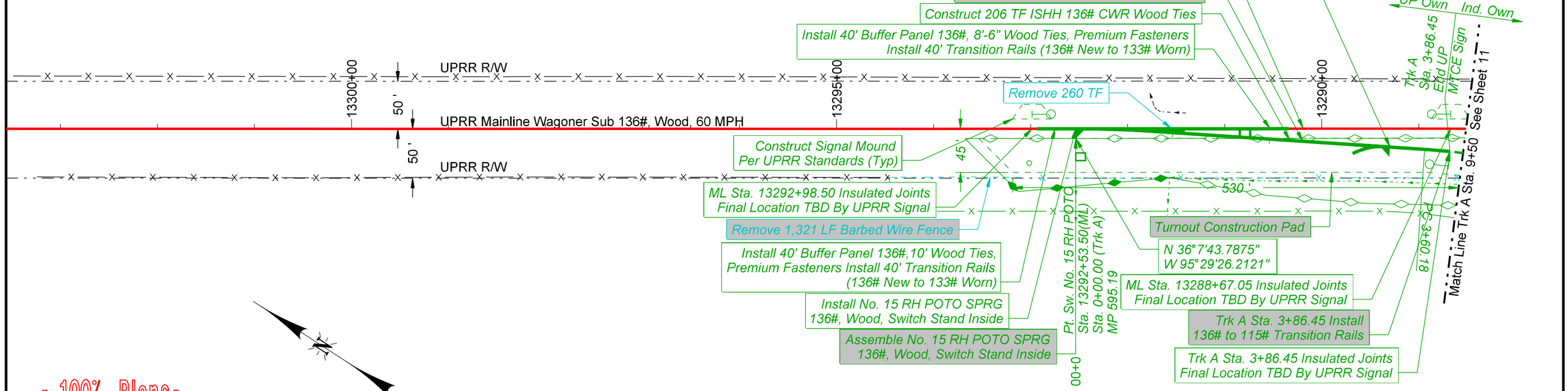
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- Prop. UPRR Track
- Remove UPRR Track
- Shift UPRR Track
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- Prop. Ind. Track
- Remove Ind. Track
- Shift Ind. Track
- Future Ind. Track
- Prop. Leased Ind. Trk
- Ex. Leased Ind. Trk
- No RR Operations
- Right of Way
- Acquire Property
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- Power Turnout
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- Hand Throw Derail
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OH Power Lines
Low Wire EL=652.89
Low Wire EL=653.20
Low Wire EL=652.70

OH Power Lines
Low Wire EL=643.13
Low Wire EL=643.67
Low Wire EL=644.04

630
620
610
600

DSPD = 3+26.59
EL=626.40
VPC 3+45.00
EL612.28
+1.00%
VPI=4+95.00
EL=613.78
+0.53%
VPT 6+45.00
EL614.58
300
V/L=0.24
Summit
Main Line T/R
Ground
Track A T/R
35.76'
VPC 11+40.00
EL617.20
35.83'
35.22'
25.29'
25.79'
26.14'
+0.53%
VPI=14+40.00
EL=618.79
-0.66%
600
V/L=0.20
Summit

4+00 5+00 6+00 7+00 8+00 9+00 10+00 11+00 12+00 13+00 14+00

Main Line T/R
Track A T/R
Ground

612.62 612.81 613.96
613.22 613.64 612.78
613.81 614.32 607.37
614.87 604.80
615.40 600.95
615.93 602.82
616.46 603.13
616.99 603.26
617.48 603.28
617.79 603.44
618.89 617.90 604.44

Trk A Sta. 5+20.88 UPRR R/W

UPRR R/W

UPRR Mainline Wagoner Sub
136#, Wood, 60 MPH

UPRR R/W

Track A Curve 1
Delta = 112°14'07.33"
R=674.69'
D=8°30'00"
L=1,320.42'

Remove 532 LF
Barbed Wire Fence

Install Insulted Joints Location
to be Verified by Signal Design

Install Curve Blocks Every Fourth
Tie for the Length of Curve

Track A 115# Wood 10 MPH

Match Line Trk A Sta. 4+00 See Sheet 10

Trk A Sta. 8+01.35
Install 48" x 114' CMP

Construct 1,361 TF ISHH
115# CWR Wood Ties

Install 1,276 LF
Barbed Wire Fence

5+00

10+00

Trk A Sta. 11+27.42
Trk A Sta. 11+62.73
Trk A Sta. 12+00.09
345kV OH Power Lines

Trk A Sta. 13+27.74
Trk A Sta. 13+53.24
Trk A Sta. 13+79.65
138kV OH Power Lines

Track A 111,115# Wood 10 MPH

Match Line Trk A Sta. 14+00 See Sheet 12

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100 0 100 200
SCALE IN FEET

REV. #	BY	DATE	DESCRIPTION

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No RR Operations
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Hand Throw Derail
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Signal

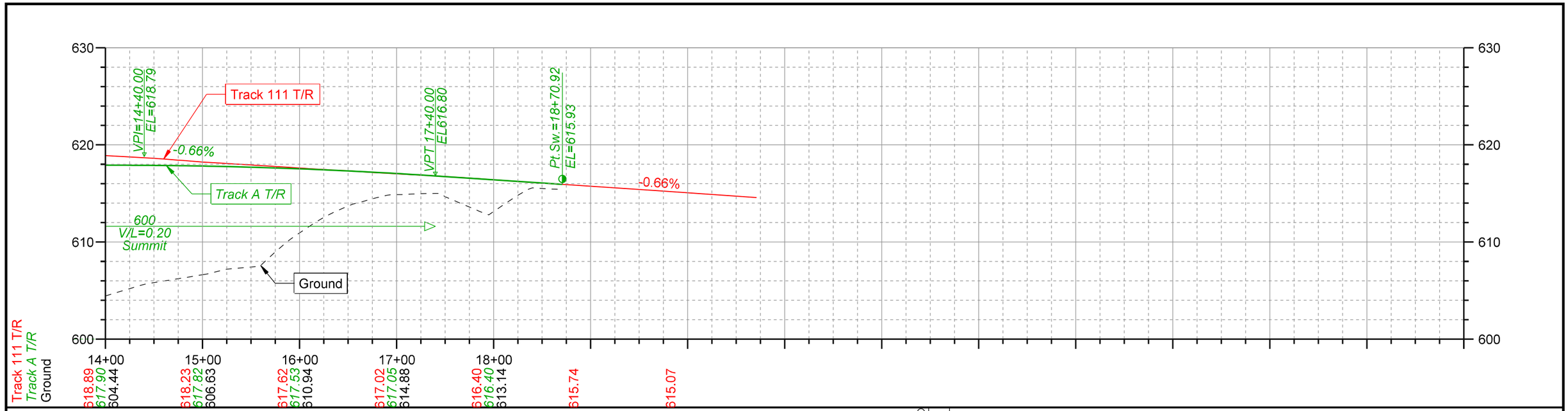
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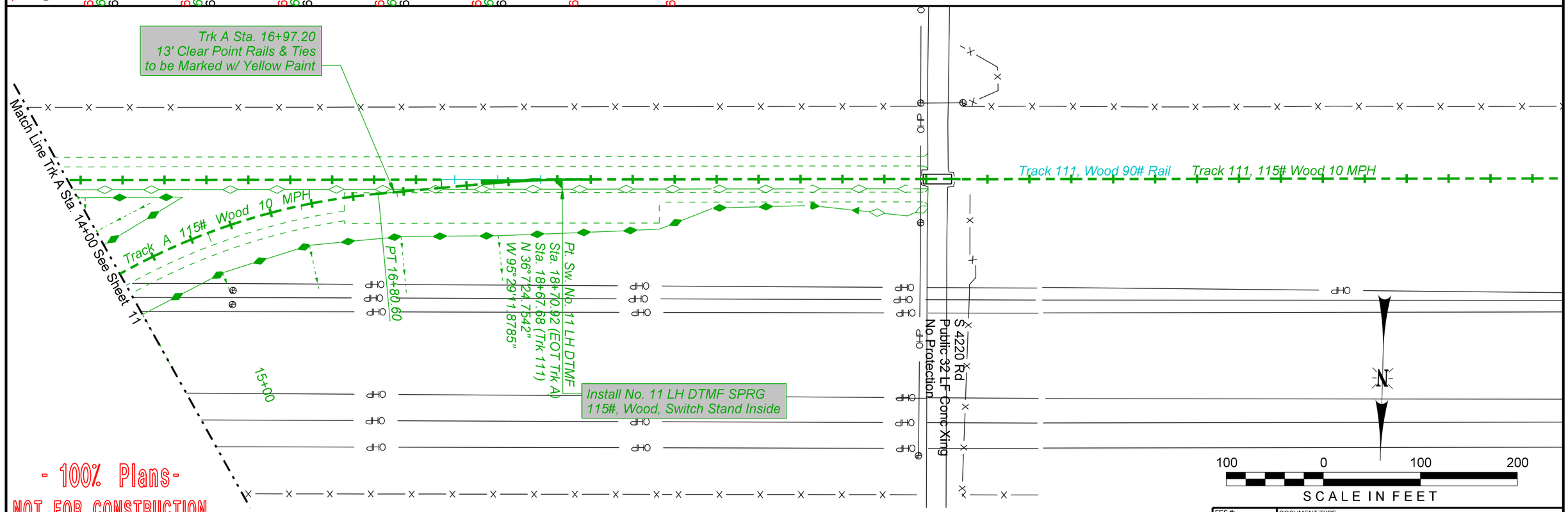
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UNION PACIFIC RAILROAD For Use and Agreement
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SHEET TITLE:
TRACK A PLAN & PROFILE STA. 4+00 TO 14+00

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DATE:	6/1/2021
SHEET NUMBER	12 of 94

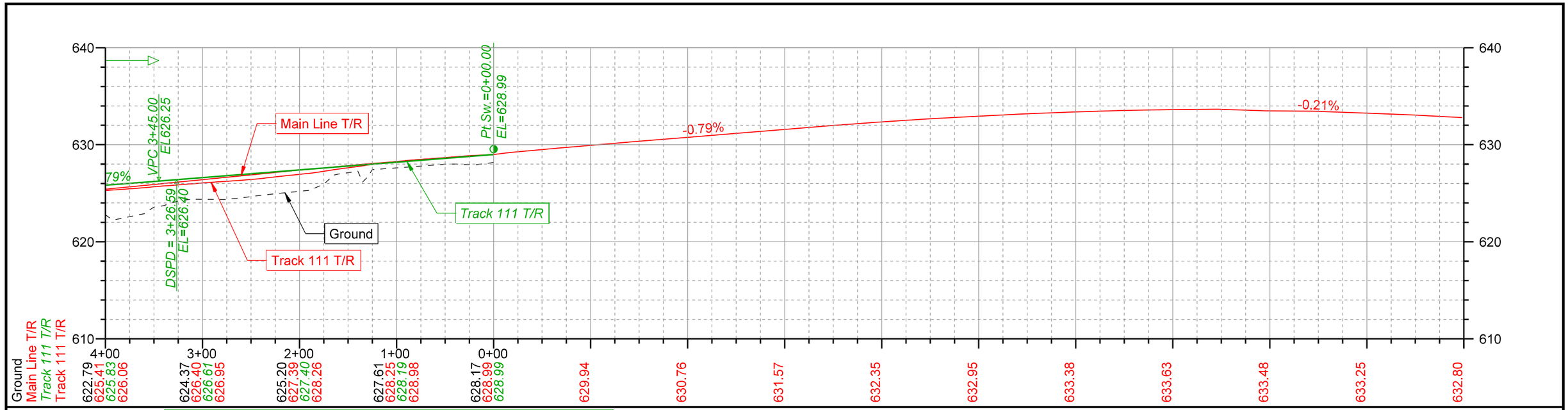
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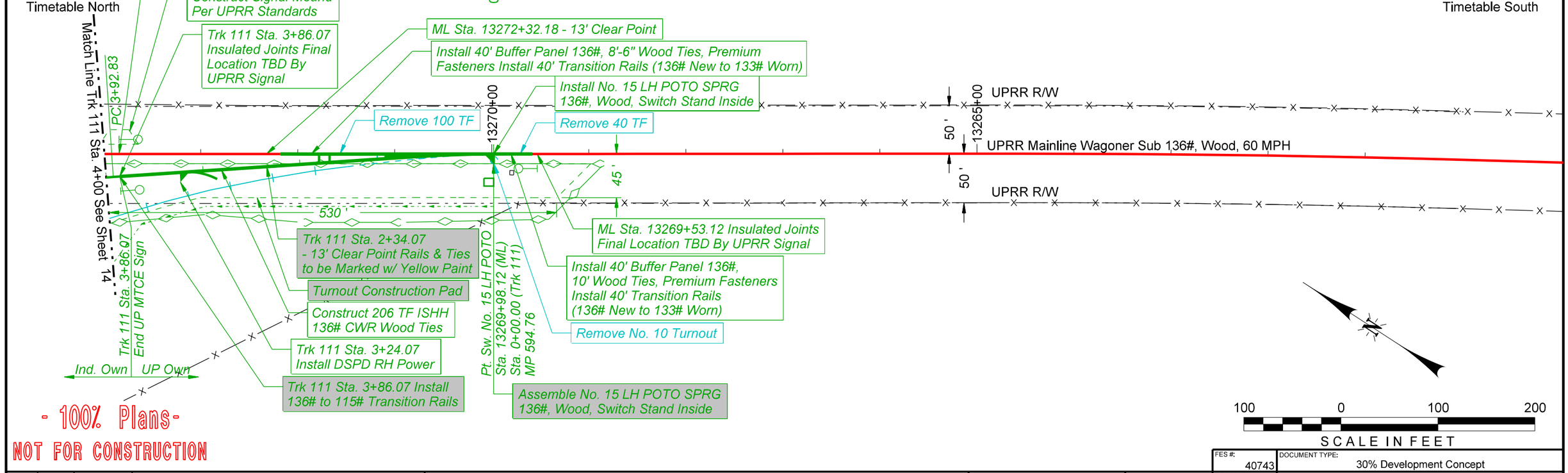
UNION PACIFIC RAILROAD For Use and Agreement
City of Tulsa - Rogers County Port Authority

LOCATION & DESCRIPTION:
Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18
Trackage to Serve: Tulsa Ports

SHEET TITLE:
TRACK A PLAN & PROFILE STA. 14+00 TO 18+70.92

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Default
6/1/2021





- 100% Plans -

NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

Ex. UPR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TranSystems
2400 PERSHING ROAD
SUITE 400
KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

UNION PACIFIC

FES #:	40743
DRAWN BY:	TAR
CHECKED BY:	JLS
DATE:	6/1/2021
SHEET NUMBER	13 of 94

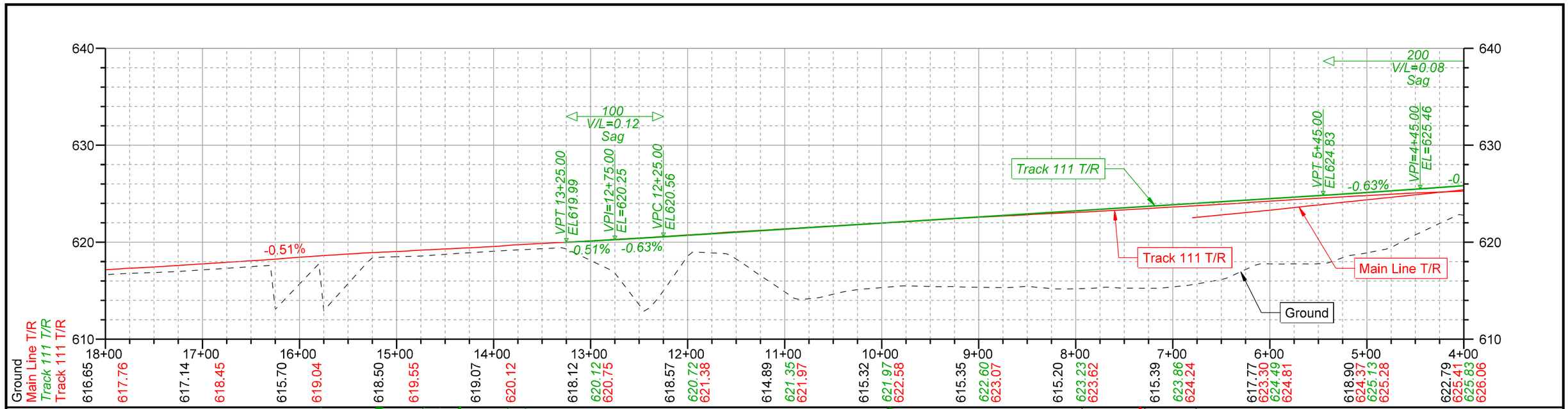
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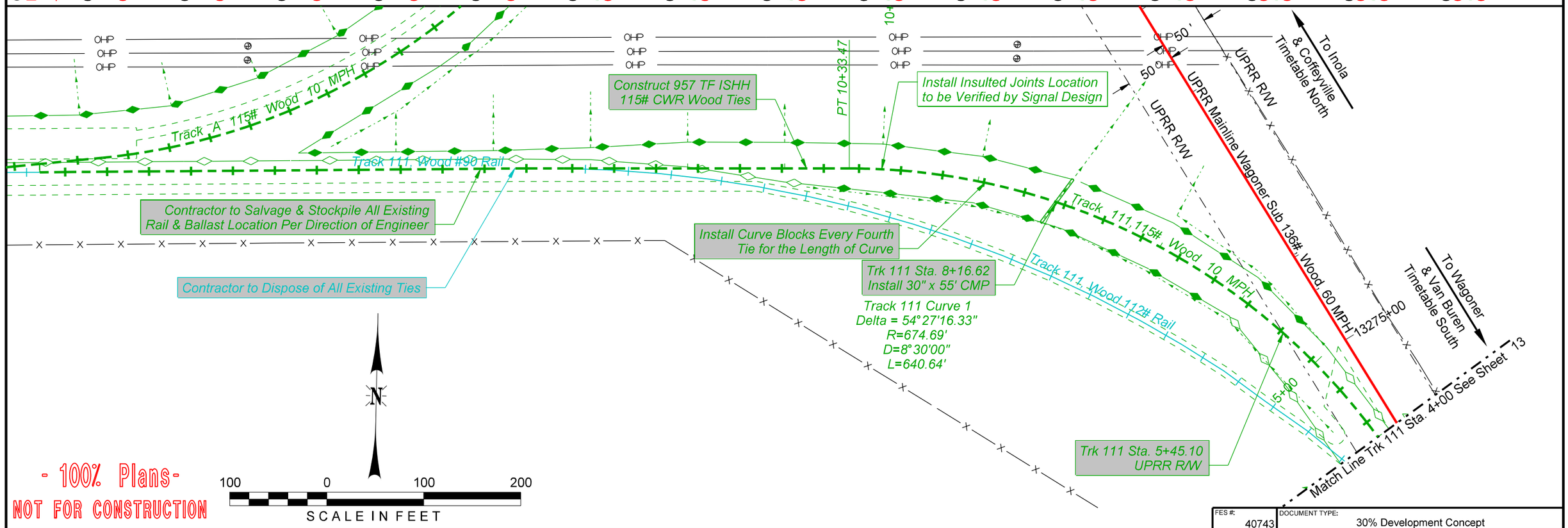
UNION PACIFIC RAILROAD For Use and Agreement
City of Tulsa - Rogers County Port Authority

LOCATION & DESCRIPTION:
Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18
Trackage to Serve: Tulsa Ports

SHEET TITLE:
TRACK 111 PLAN & PROFILE STA. -1+00 TO 9+50

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6/1/2021





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NOT FOR CONSTRUCTION

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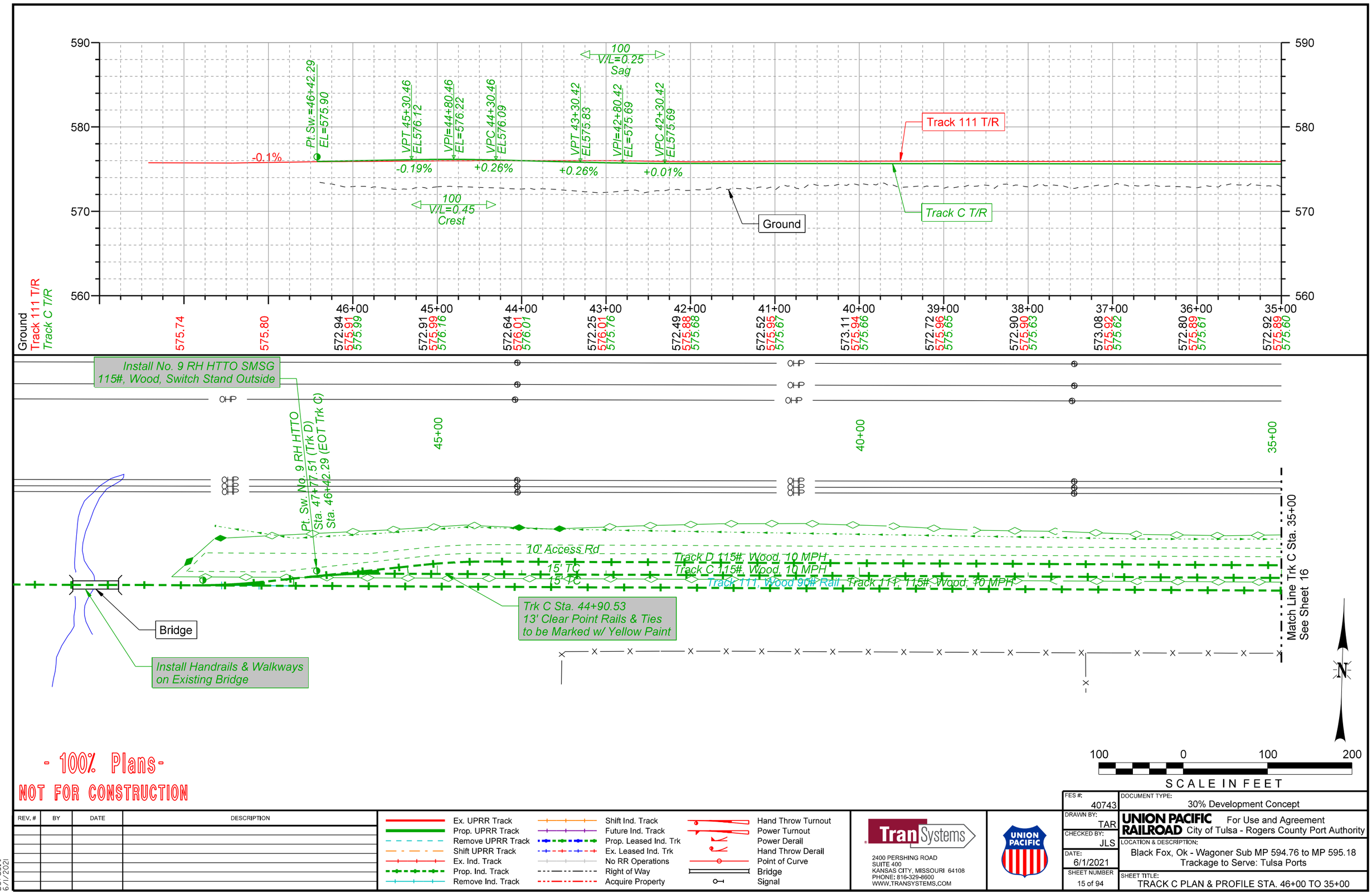
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Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TranSystems
2400 PERSHING ROAD
SUITE 400
KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

UNION PACIFIC

FES #: 40743	DOCUMENT TYPE: 30% Development Concept
DRAWN BY: TAR	UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
CHECKED BY: JLS	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	
SHEET NUMBER 14 of 94	SHEET TITLE: TRACK 111 PLAN & PROFILE STA. -1+00 TO 9+50

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6/1/2021



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NOT FOR CONSTRUCTION

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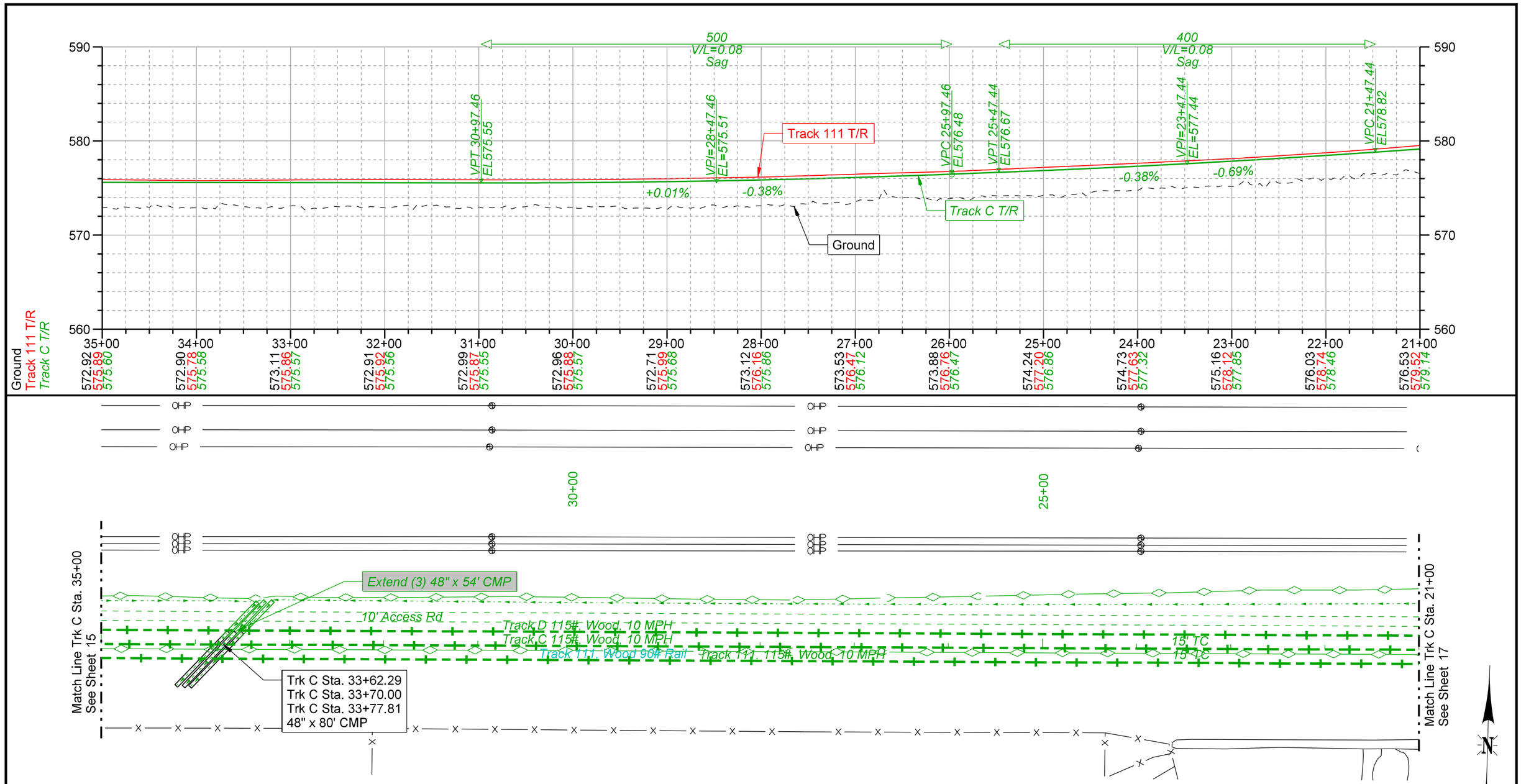
Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TranSystems
2400 PERSHING ROAD
SUITE 400
KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

UNION PACIFIC

FES #: 40743	DOCUMENT TYPE: 30% Development Concept
DRAWN BY: TAR	UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
CHECKED BY: JLS	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	SHEET NUMBER 15 of 94
	SHEET TITLE: TRACK C PLAN & PROFILE STA. 46+00 TO 35+00

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6/1/2021



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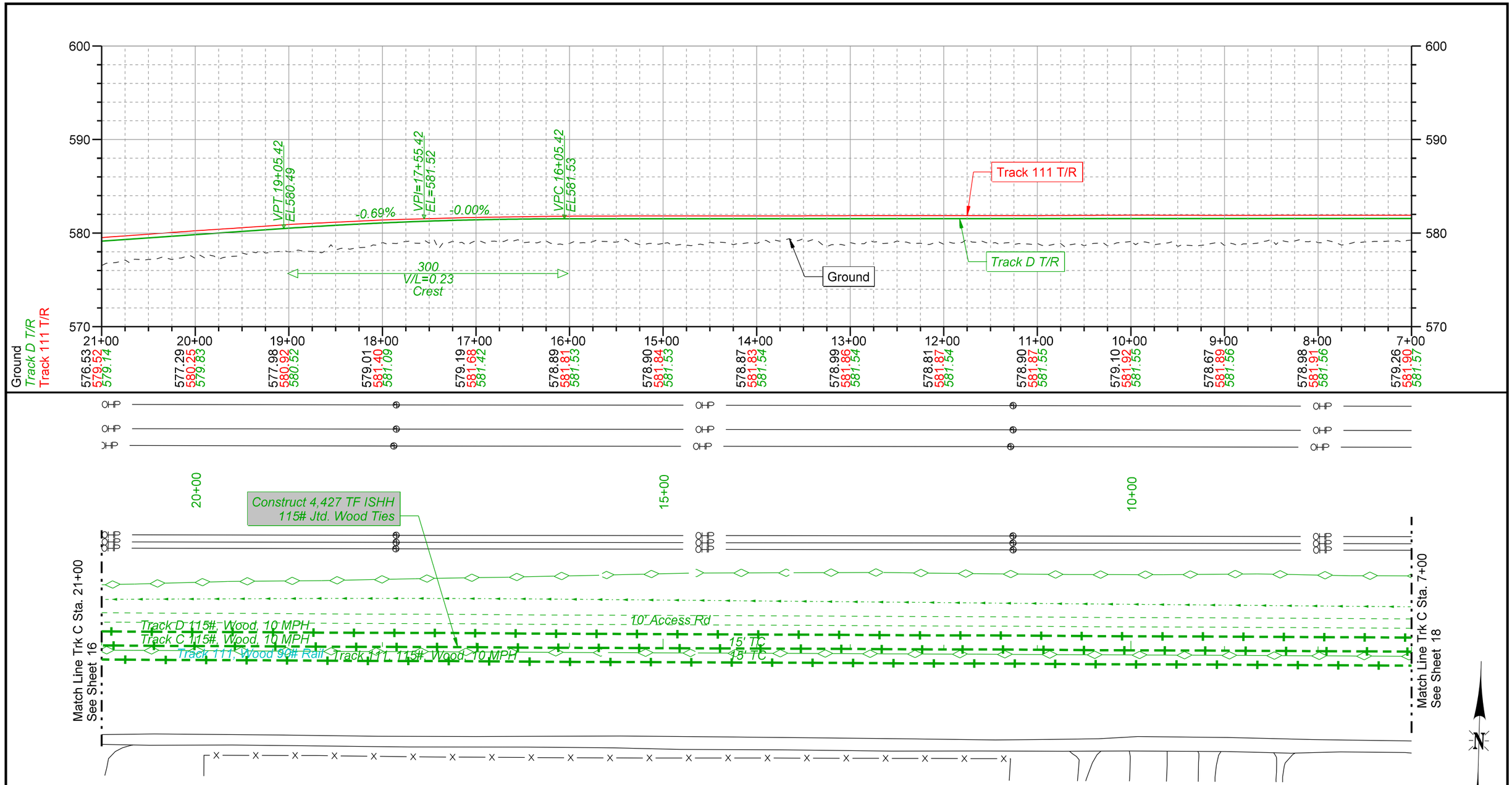
Ex. UPRR Track	Shift Ind. Track	Hand Throw Turnout
Prop. UPRR Track	Future Ind. Track	Power Turnout
Remove UPRR Track	Prop. Leased Ind. Trk	Power Derail
Shift UPRR Track	Ex. Leased Ind. Trk	Hand Throw Derail
Ex. Ind. Track	No RR Operations	Point of Curve
Prop. Ind. Track	Right of Way	Bridge
Remove Ind. Track	Acquire Property	Signal

TranSystems
2400 PERSHING ROAD
SUITE 400
KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

UNION PACIFIC

FES #: 40743	DOCUMENT TYPE: 30% Development Concept
DRAWN BY: TAR	UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
CHECKED BY: JLS	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	
SHEET NUMBER 16 of 94	SHEET TITLE: TRACK C PLAN & PROFILE STA. 35+00 TO 21+00

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Default
6/1/2021



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NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TranSystems
2400 PERSHING ROAD
SUITE 400
KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

UNION PACIFIC

FES #: 40743
DRAWN BY: TAR
CHECKED BY: JLS
DATE: 6/1/2021
SHEET NUMBER: 17 of 94

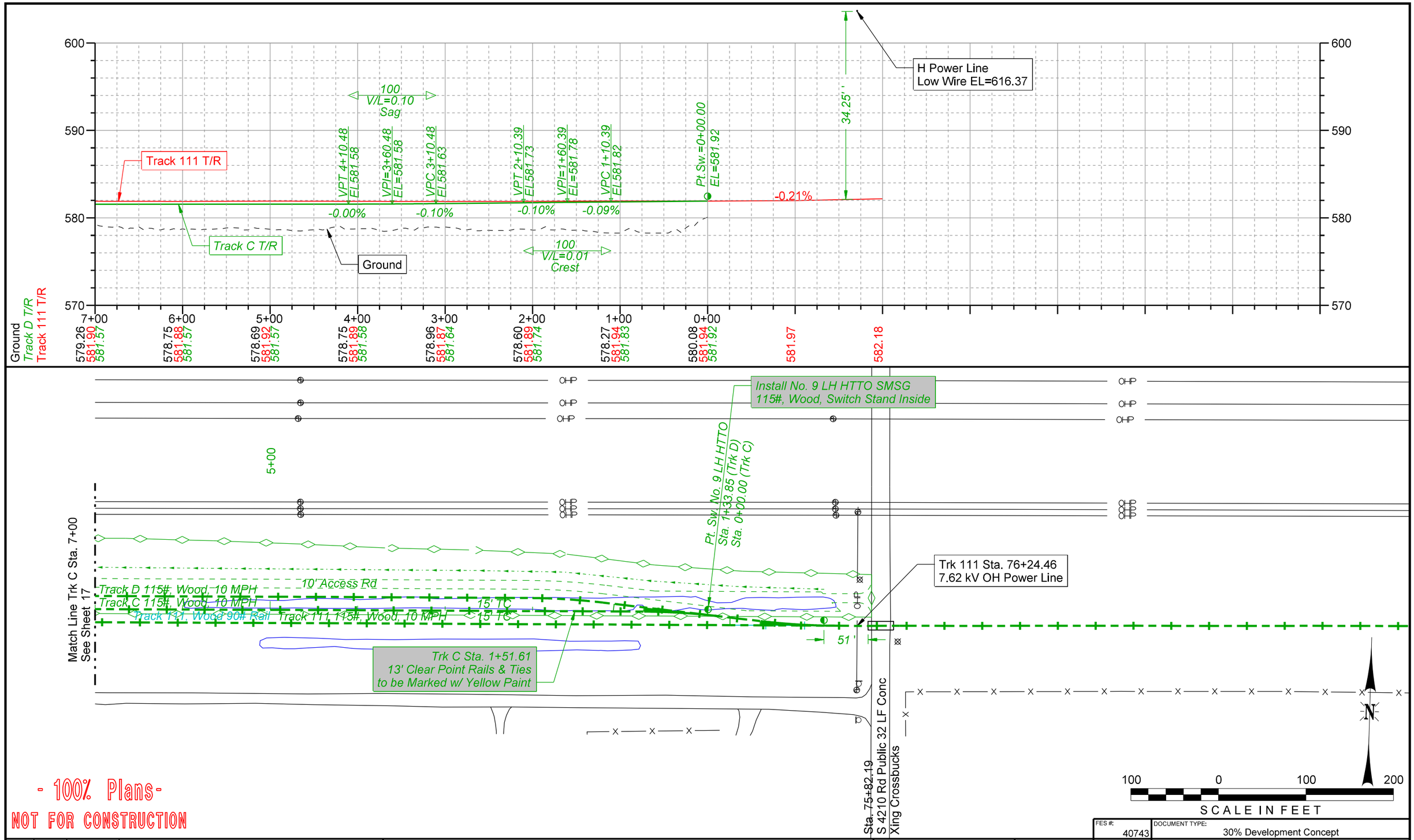
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UNION PACIFIC RAILROAD For Use and Agreement
City of Tulsa - Rogers County Port Authority

LOCATION & DESCRIPTION:
Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18
Trackage to Serve: Tulsa Ports

SHEET TITLE: TRACK C PLAN & PROFILE STA. 21+00 TO 7+00

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Default
6/1/2021



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NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TranSystems
2400 PERSHING ROAD
SUITE 400
KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

UNION PACIFIC

FES #: 40743
DRAWN BY: TAR
CHECKED BY: JLS
DATE: 6/1/2021
SHEET NUMBER: 18 of 94

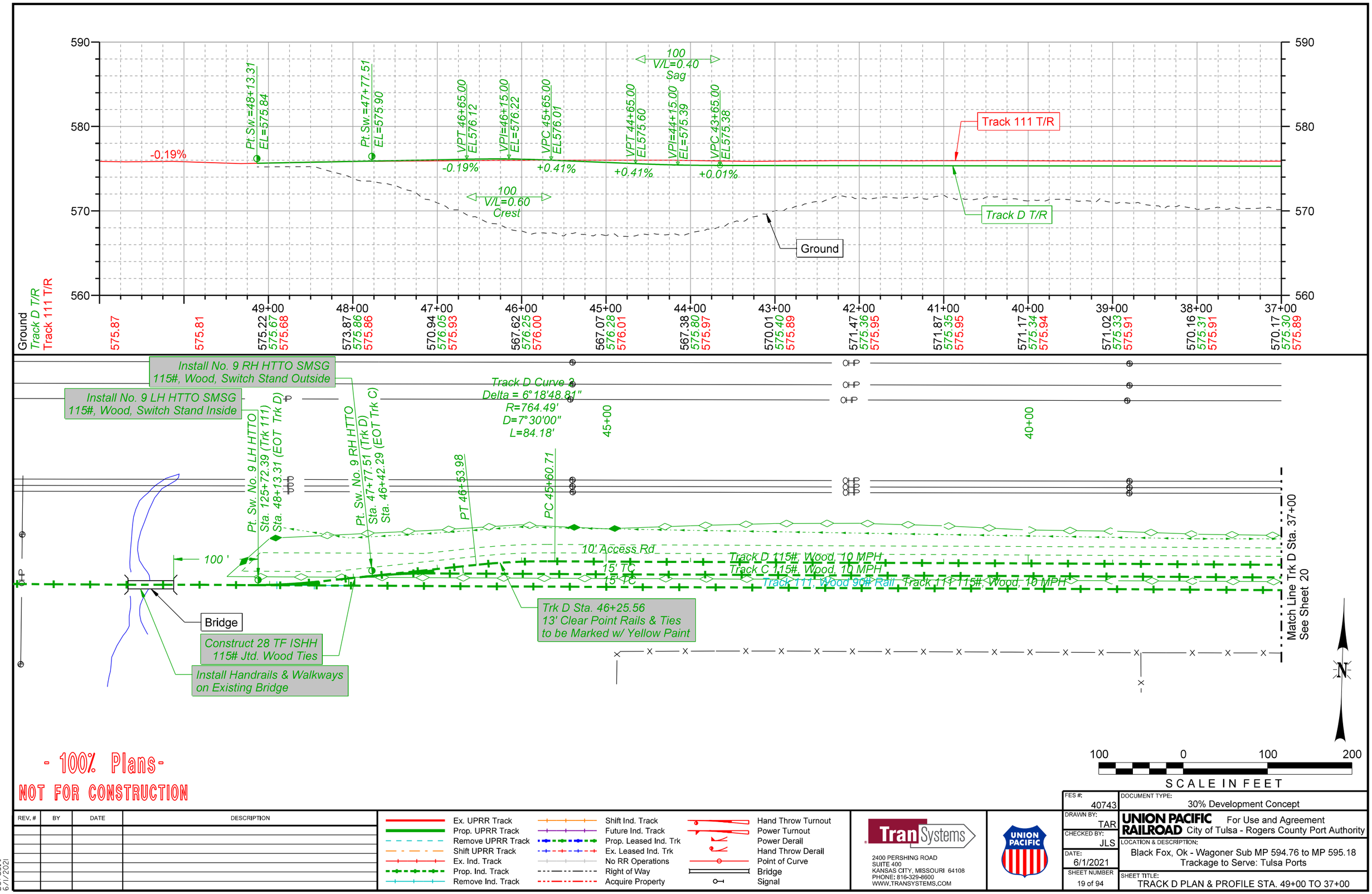
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UNION PACIFIC RAILROAD For Use and Agreement
City of Tulsa - Rogers County Port Authority

LOCATION & DESCRIPTION:
Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18
Trackage to Serve: Tulsa Ports

SHEET TITLE: TRACK C PLAN & PROFILE STA. 7+00 TO 0+00

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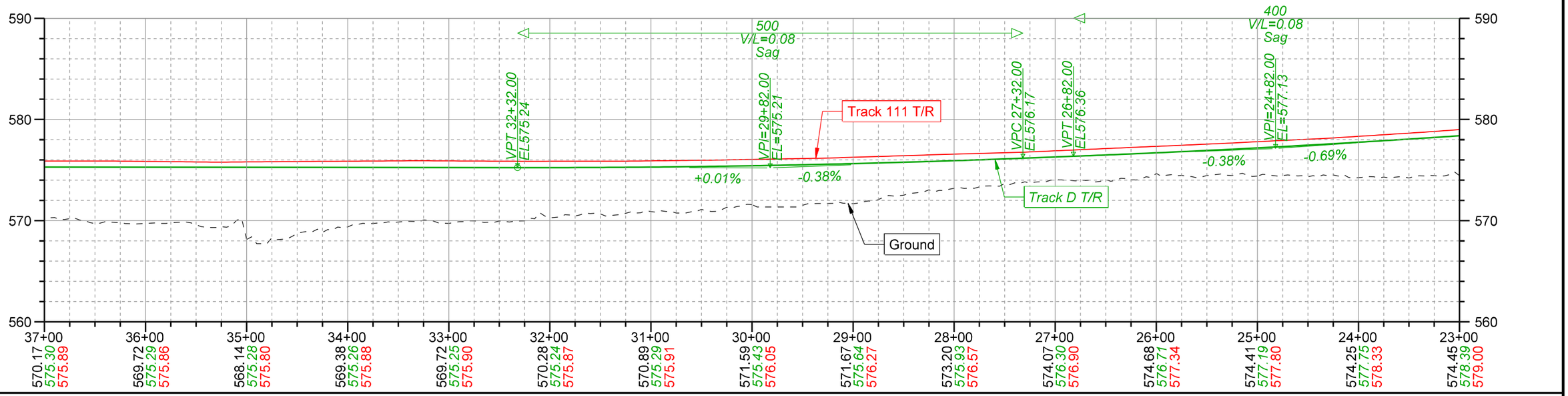
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Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TranSystems
2400 PERSHING ROAD
SUITE 400
KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

UNION PACIFIC

FES #: 40743	DOCUMENT TYPE: 30% Development Concept
DRAWN BY: TAR	UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
CHECKED BY: JLS	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	SHEET NUMBER 19 of 94
	SHEET TITLE: TRACK D PLAN & PROFILE STA. 49+00 TO 37+00

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Default
6/1/2021



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NOT FOR CONSTRUCTION

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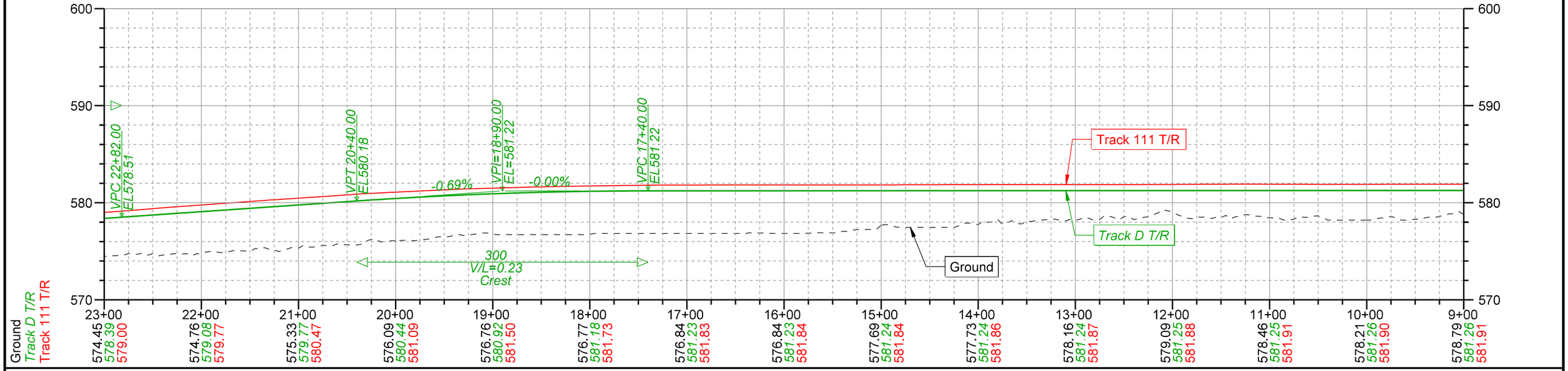
Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

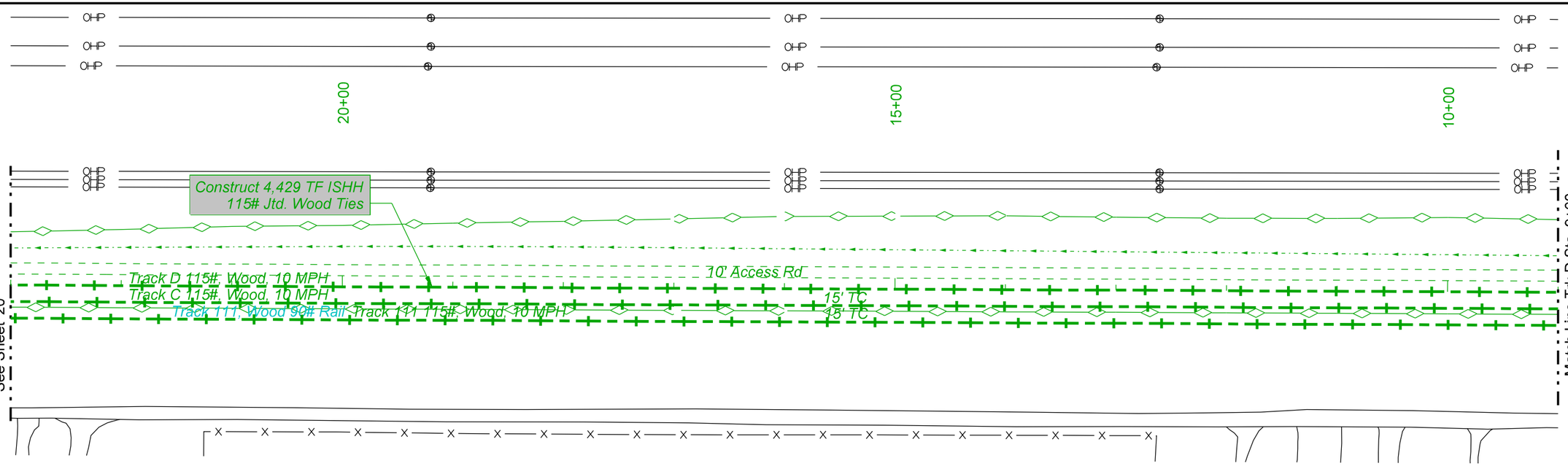
TranSystems
2400 PERSHING ROAD
SUITE 400
KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

UNION PACIFIC

FES #: 40743	DOCUMENT TYPE: 30% Development Concept
DRAWN BY: TAR	UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
CHECKED BY: JLS	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	
SHEET NUMBER 20 of 94	SHEET TITLE: TRACK D PLAN & PROFILE STA. 37+00 TO 23+00

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Default
6/1/2021





100 0 100 200

SCALE IN FEET

- 100% Plans -

NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TranSystems
2400 PERSHING ROAD
SUITE 400
KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

UNION PACIFIC

FES #:	40743
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CHECKED BY:	JLS
DATE:	6/1/2021
SHEET NUMBER	21 of 94

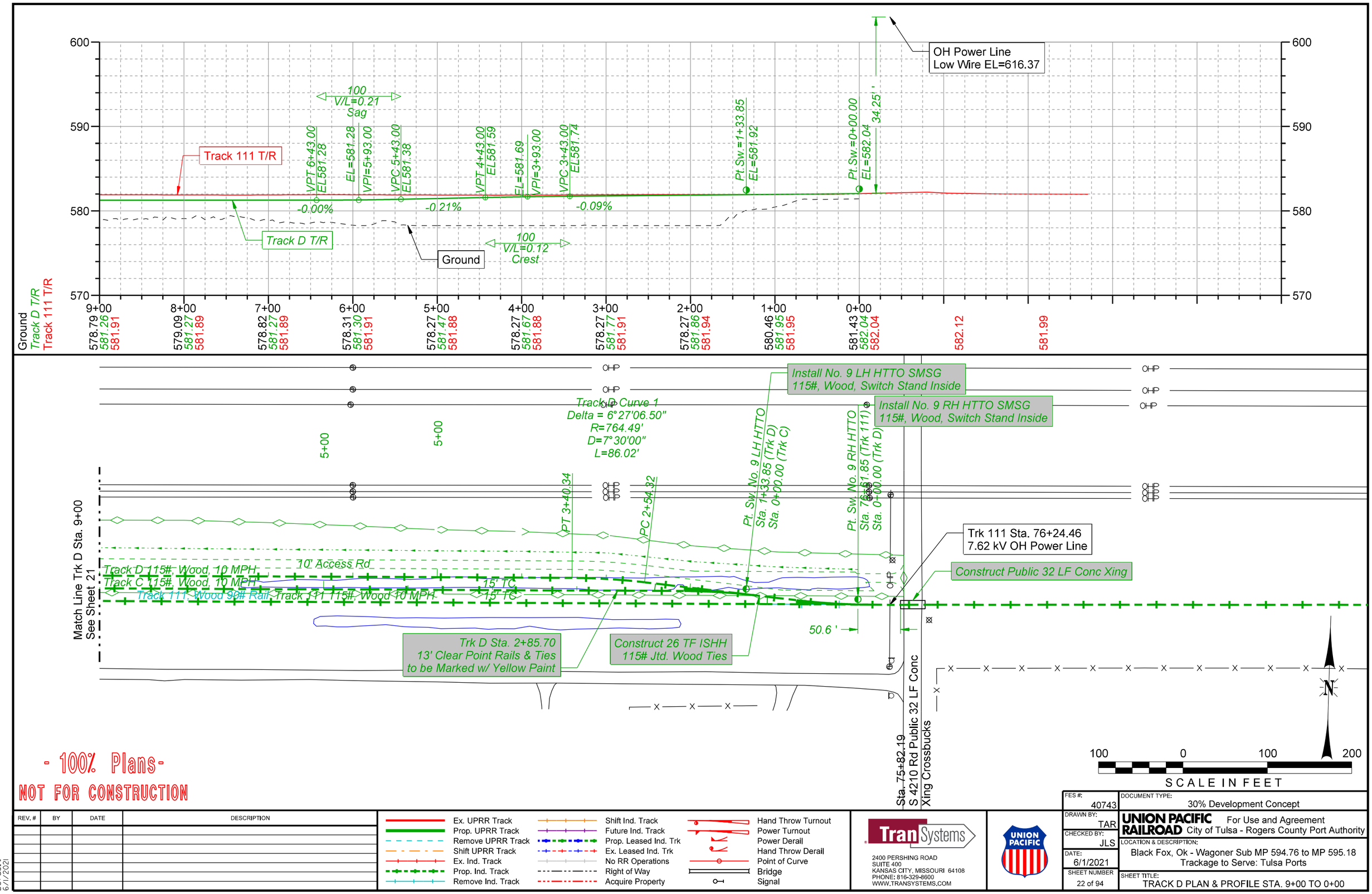
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UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority

LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports

SHEET TITLE: TRACK D PLAN & PROFILE STA. 23+00 TO 9+00

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Default
6/1/2021



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NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

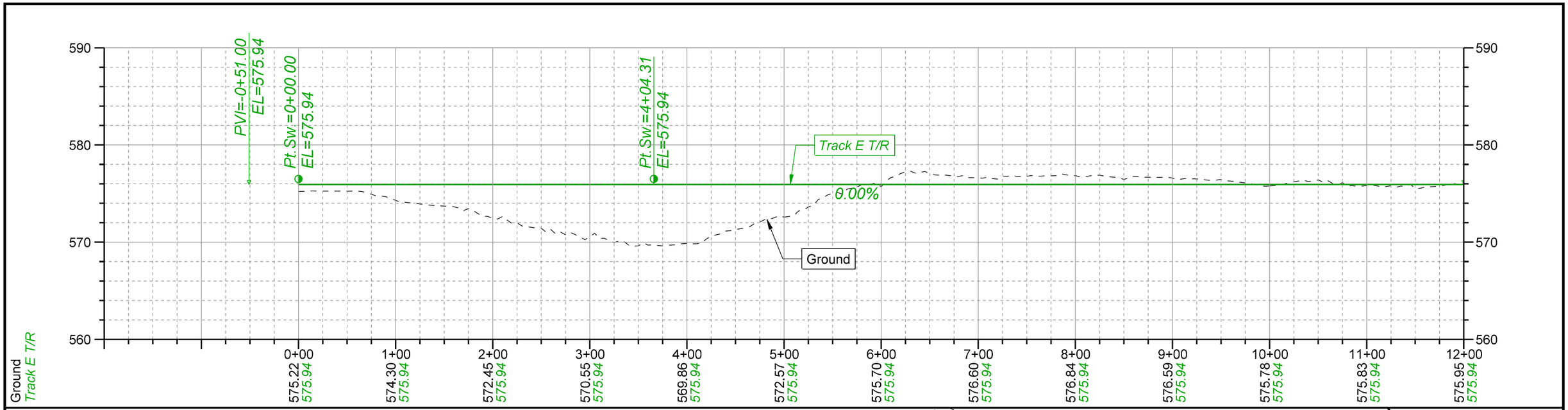
Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

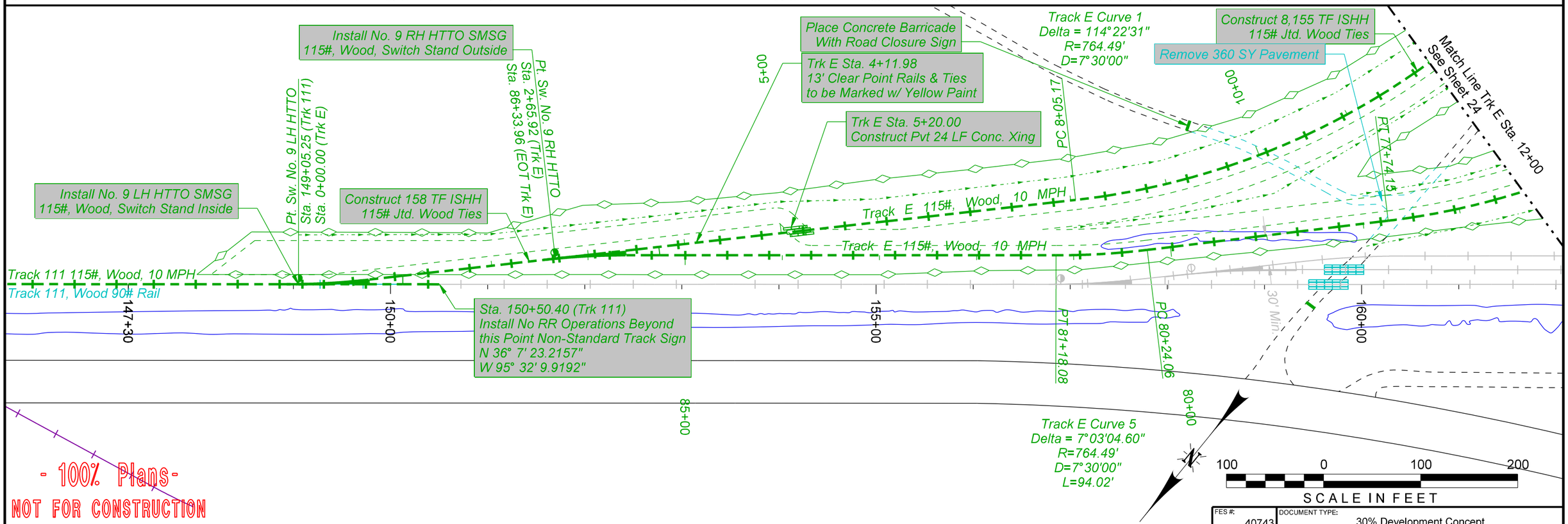
TranSystems
2400 PERSHING ROAD
SUITE 400
KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

UNION PACIFIC

FES #: 40743	DOCUMENT TYPE: 30% Development Concept
DRAWN BY: TAR	UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
CHECKED BY: JLS	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	
SHEET NUMBER 22 of 94	SHEET TITLE: TRACK D PLAN & PROFILE STA. 9+00 TO 0+00

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6/1/2021





- 100% Plans -
NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

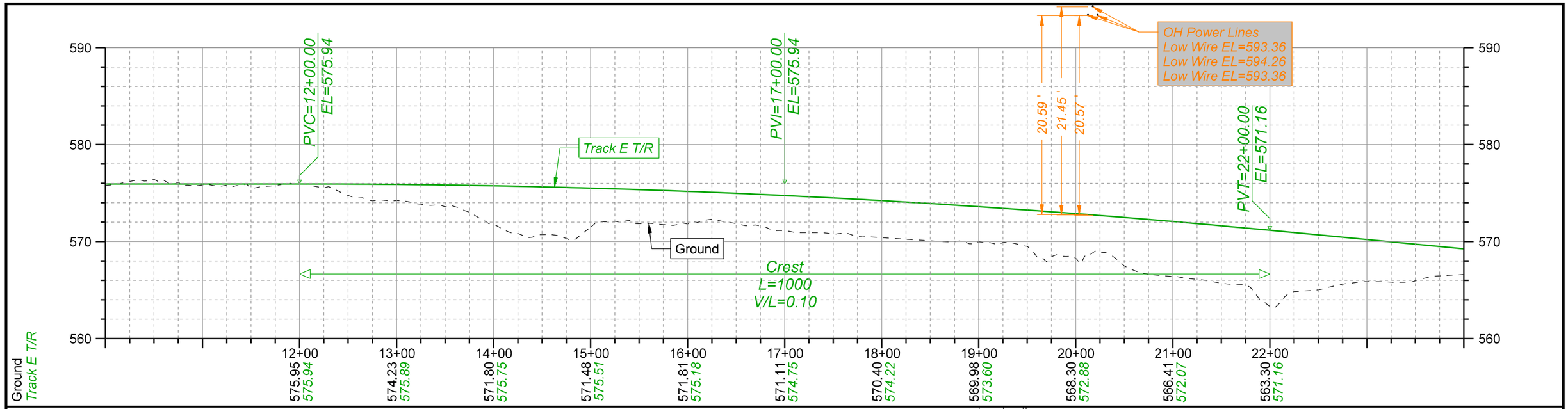
Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

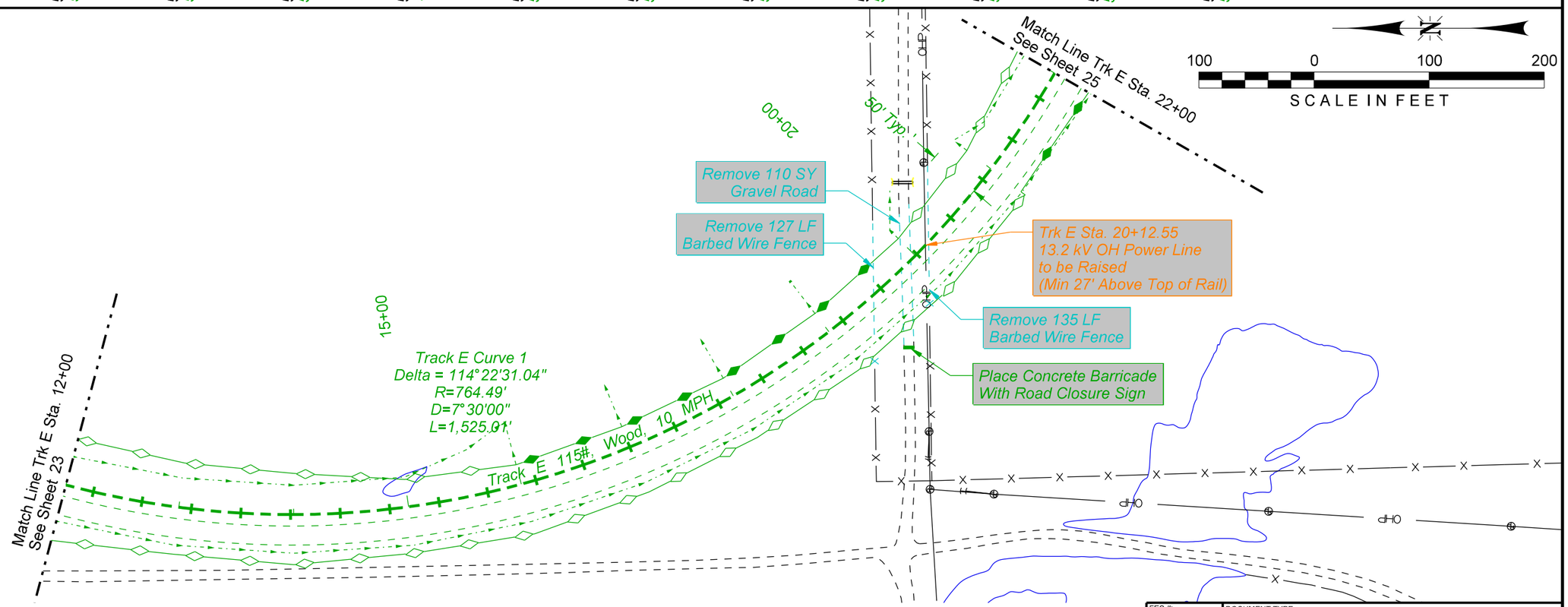
TranSystems
2400 PERSHING ROAD
SUITE 400
KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

UNION PACIFIC

FES #: 40743	DOCUMENT TYPE: 30% Development Concept
DRAWN BY: TAR	UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
CHECKED BY: JLS	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	
SHEET NUMBER 23 of 94	SHEET TITLE: TRACK E PLAN & PROFILE STA. 0+00 TO 12+00

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Default
6/1/2021





- 100% Plans -

NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TranSystems
2400 PERSHING ROAD
SUITE 400
KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
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UNION PACIFIC

FES #:	40743
DRAWN BY:	TAR
CHECKED BY:	JLS
DATE:	6/1/2021
SHEET NUMBER	24 of 94

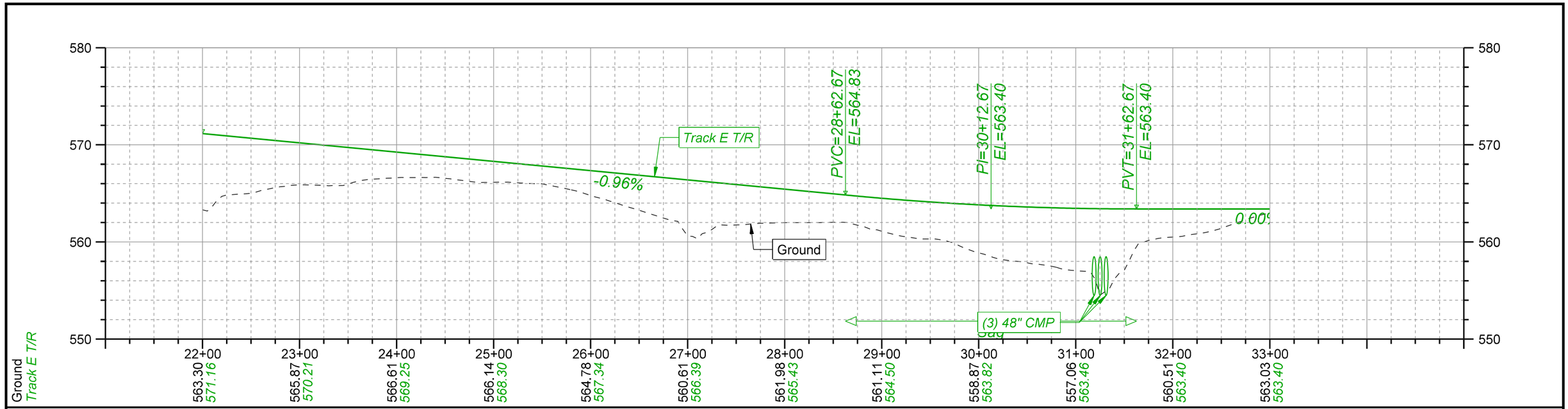
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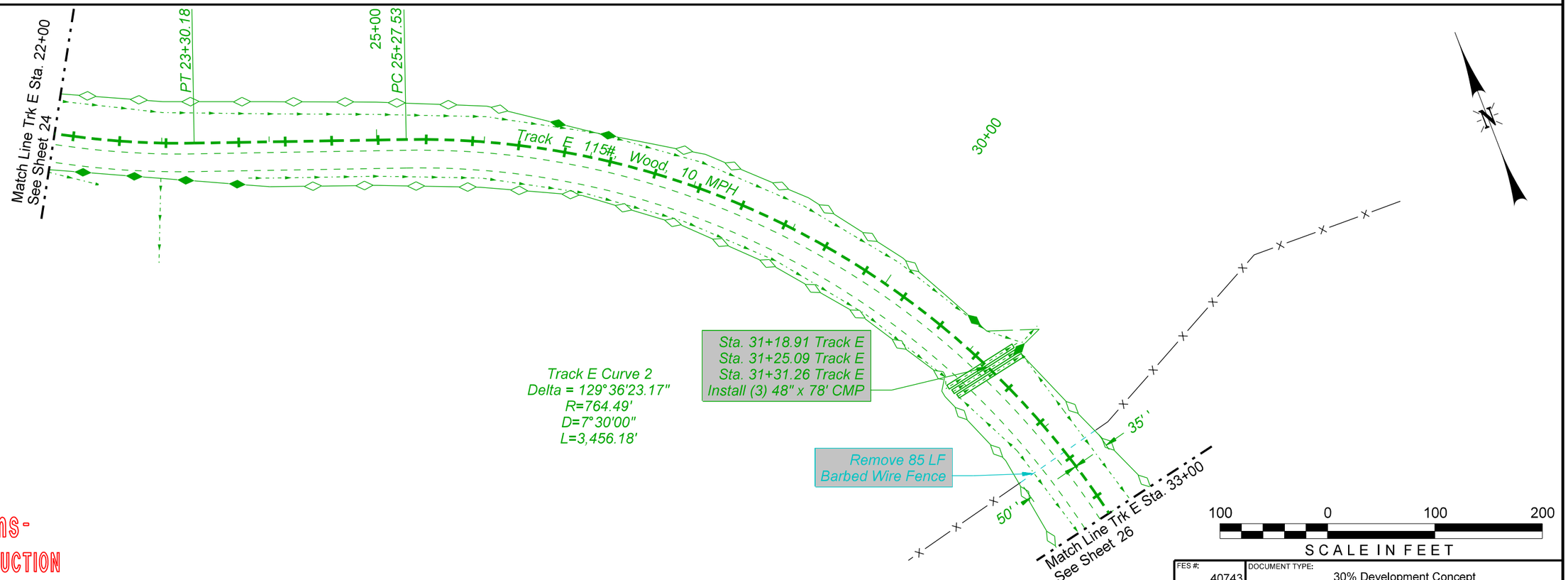
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City of Tulsa - Rogers County Port Authority

LOCATION & DESCRIPTION:
Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18
Trackage to Serve: Tulsa Ports

SHEET TITLE:
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6/1/2021





- 100% Plans -

NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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FES #: 40743
DRAWN BY: TAR
CHECKED BY: JLS
DATE: 6/1/2021
SHEET NUMBER: 25 of 94

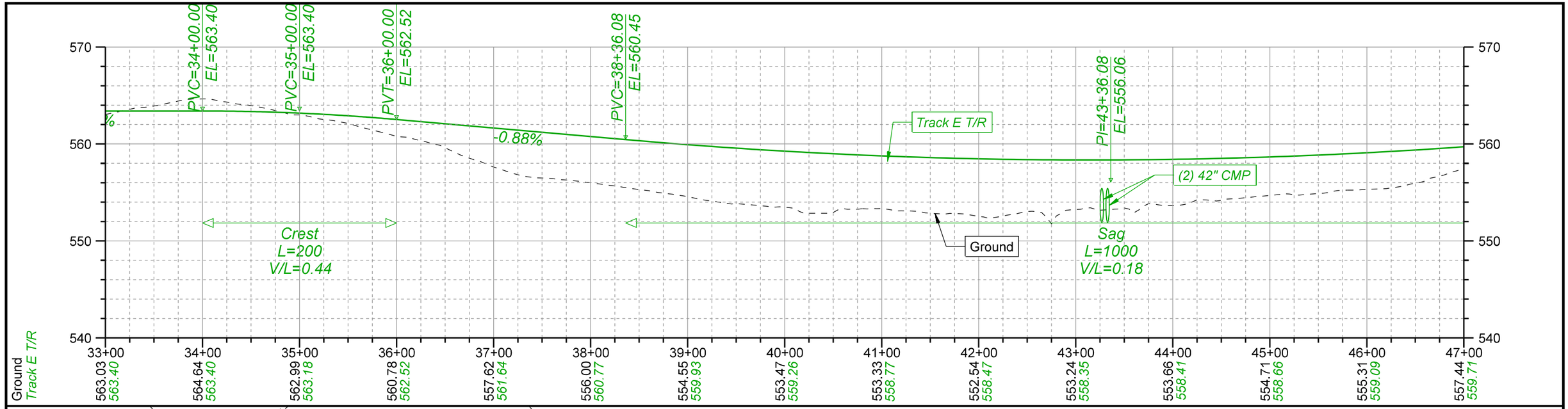
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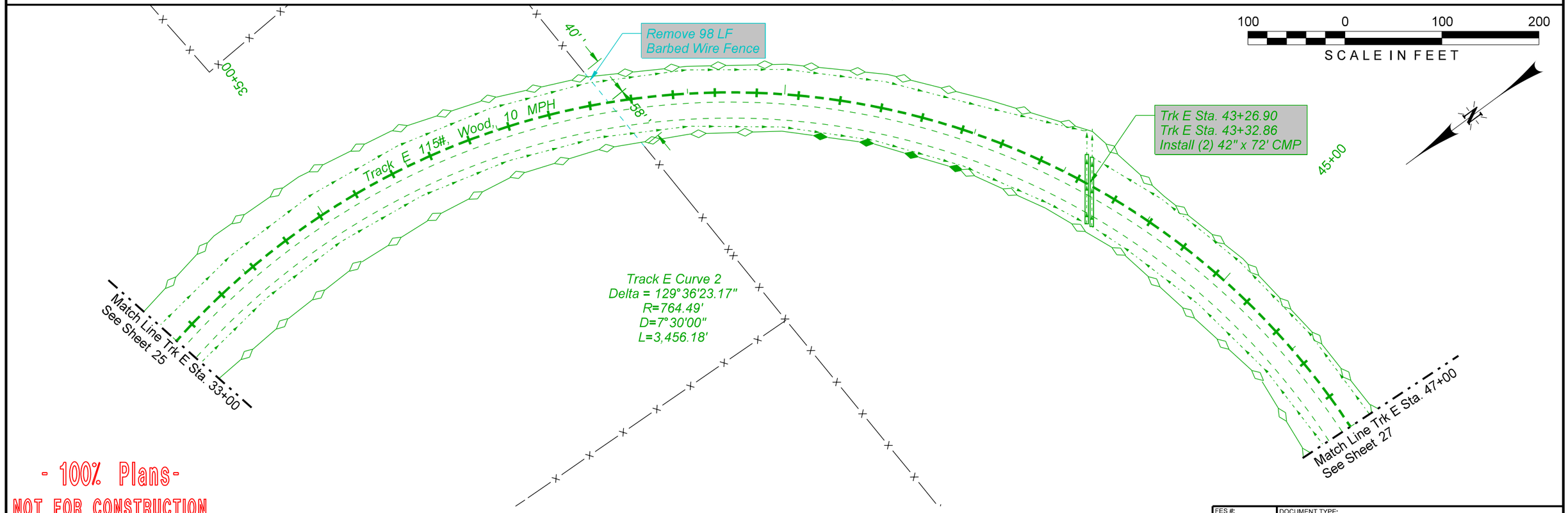
UNION PACIFIC RAILROAD For Use and Agreement
City of Tulsa - Rogers County Port Authority

LOCATION & DESCRIPTION:
Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18
Trackage to Serve: Tulsa Ports

SHEET TITLE: TRACK E PLAN & PROFILE STA. 22+00 TO 33+00

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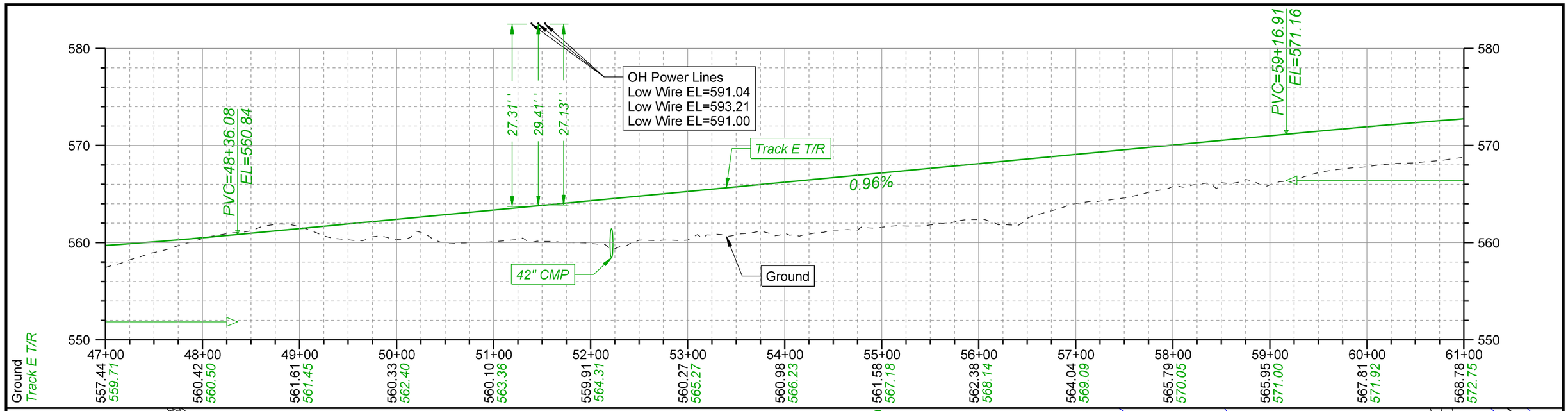
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Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

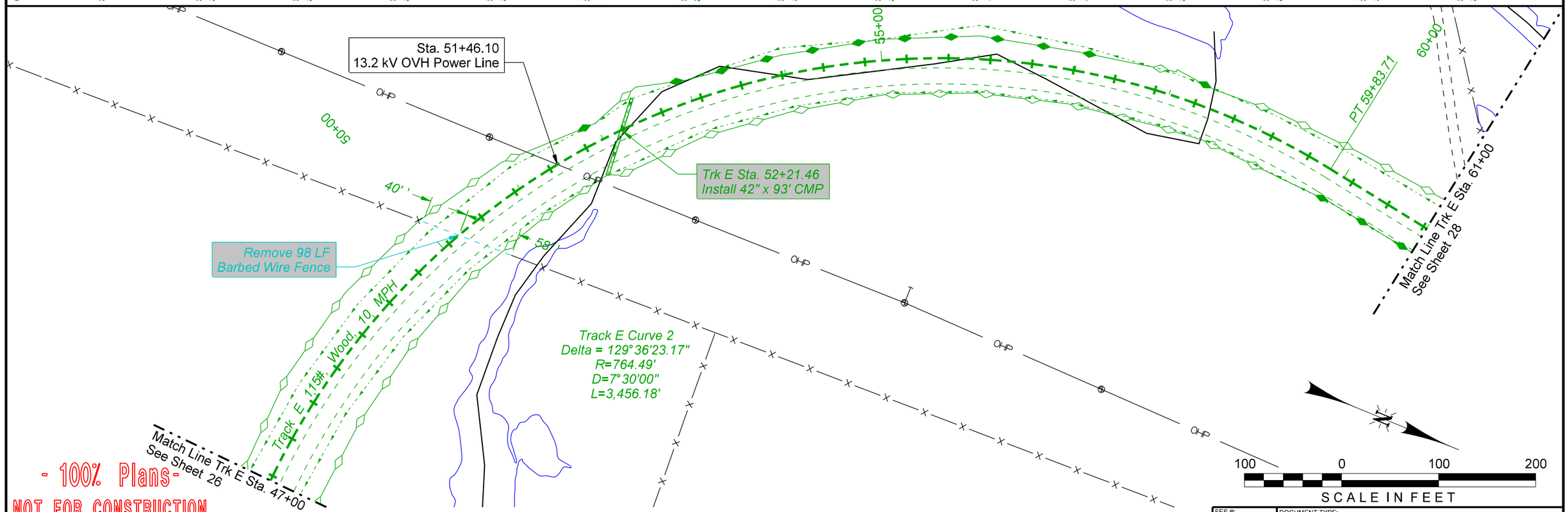
TranSystems
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PHONE: 816-329-8600
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FES #: 40743	DOCUMENT TYPE: 30% Development Concept
DRAWN BY: TAR	UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
CHECKED BY: JLS	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	
SHEET NUMBER 26 of 94	SHEET TITLE: TRACK E PLAN & PROFILE STA. 33+00 TO 47+00

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6/1/2021





- 100% Plans -

NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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FES #: 40743
DRAWN BY: TAR
CHECKED BY: JLS
DATE: 6/1/2021
SHEET NUMBER: 27 of 94

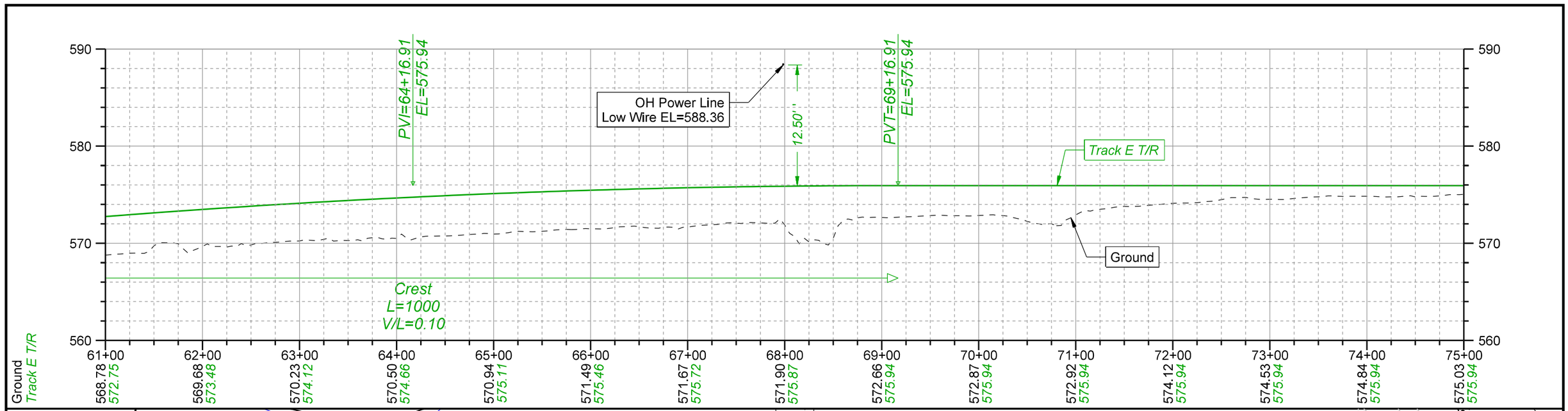
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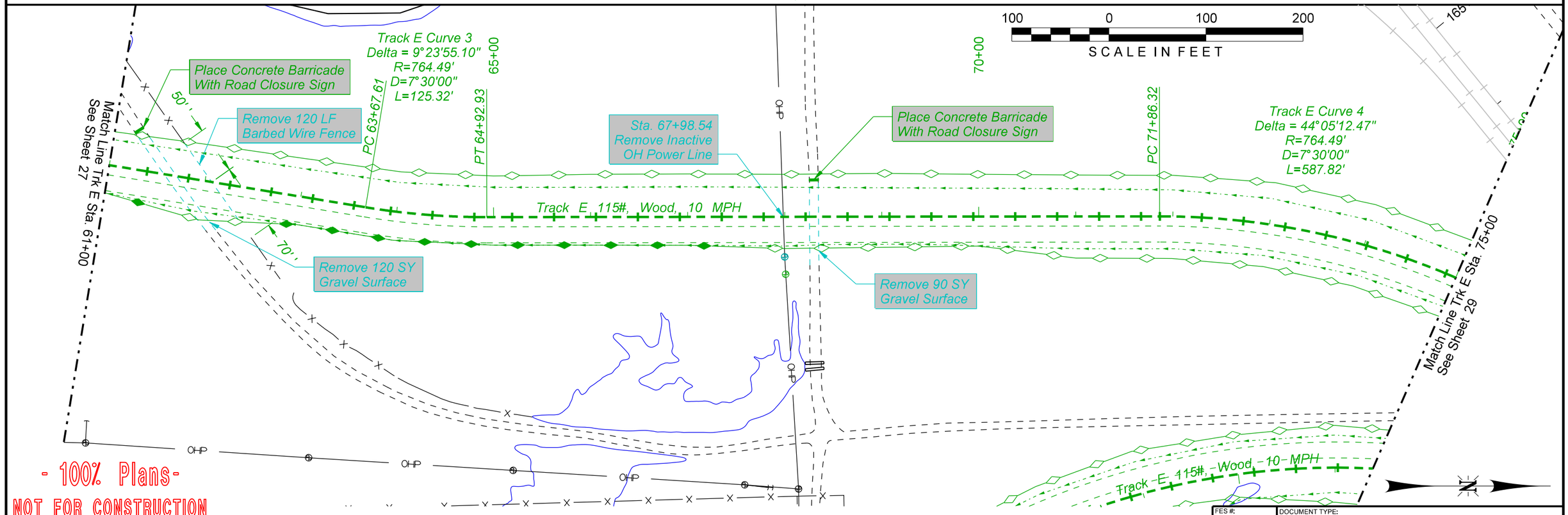
UNION PACIFIC RAILROAD For Use and Agreement
City of Tulsa - Rogers County Port Authority

LOCATION & DESCRIPTION:
Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18
Trackage to Serve: Tulsa Ports

SHEET TITLE: TRACK E PLAN & PROFILE STA. 47+00 TO 61+00

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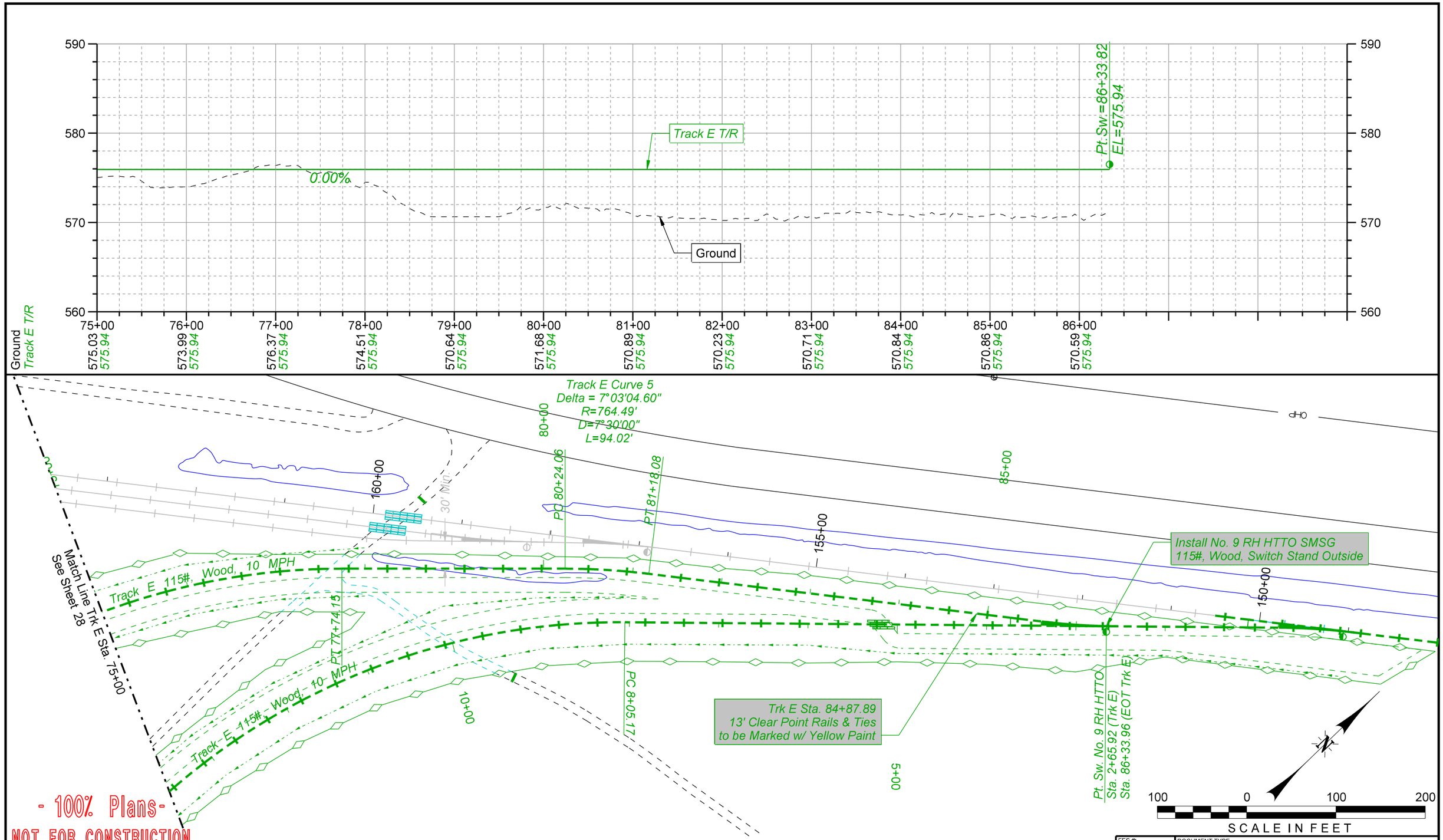
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Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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FES #: 40743	DOCUMENT TYPE: 30% Development Concept
DRAWN BY: TAR	UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
CHECKED BY: JLS	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	
SHEET NUMBER 28 of 94	SHEET TITLE: TRACK E PLAN & PROFILE STA. 61+00 TO 75+00

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Default
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- 100% Plans -
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REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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PHONE: 816-329-8600
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FES #: 40743
DRAWN BY: TAR
CHECKED BY: JLS
DATE: 6/1/2021
SHEET NUMBER: 29 of 94

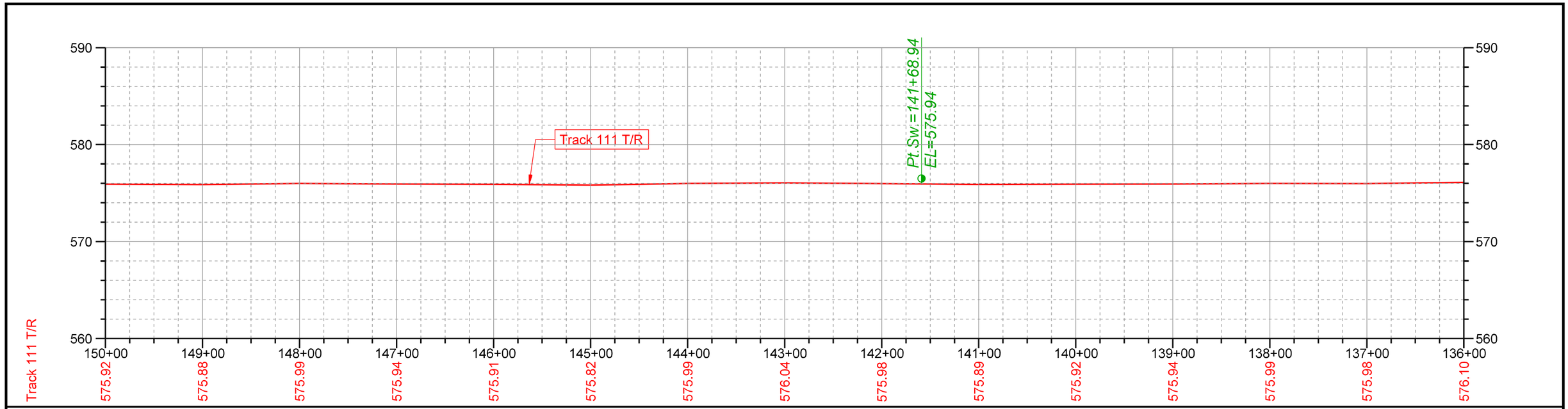
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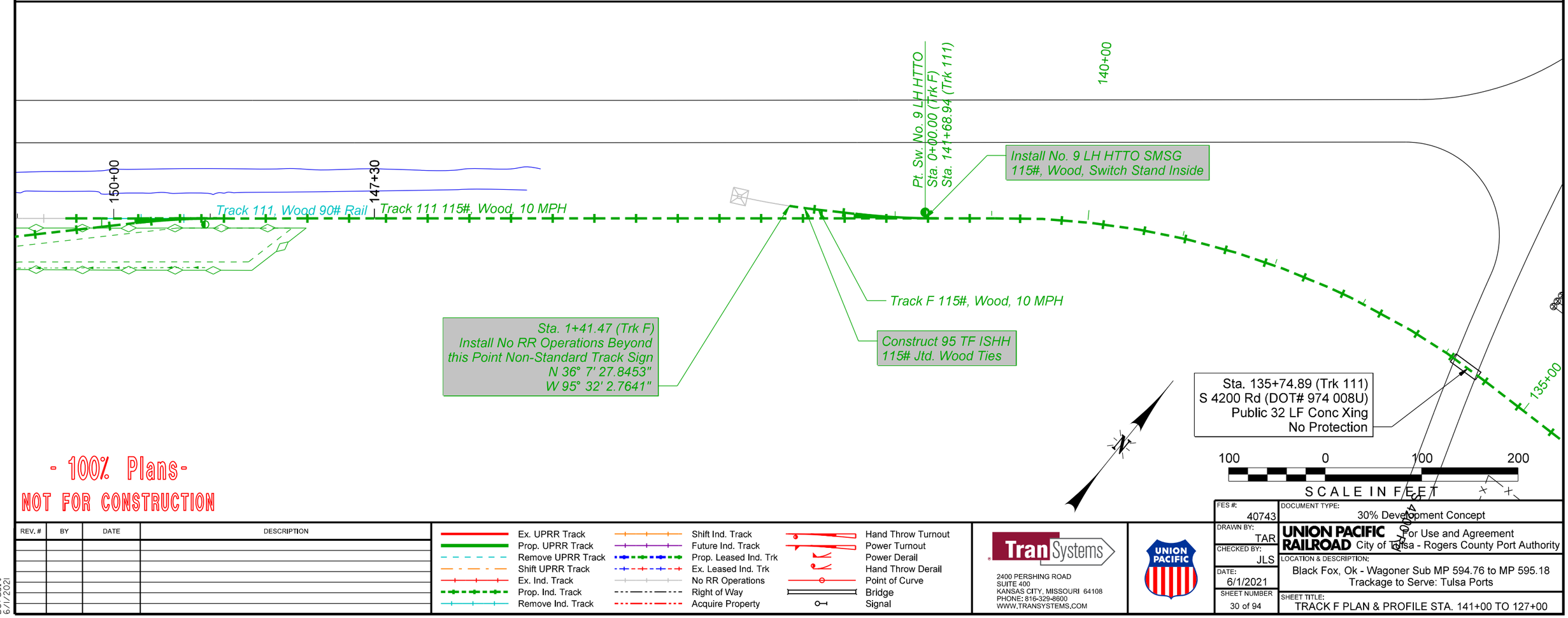
UNION PACIFIC RAILROAD For Use and Agreement
City of Tulsa - Rogers County Port Authority

LOCATION & DESCRIPTION:
Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18
Trackage to Serve: Tulsa Ports

SHEET TITLE: TRACK E PLAN & PROFILE STA. 75+00 TO 86+00

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Default
6/1/2021





- 100% Plans -

NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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FES #: 40743
DRAWN BY: TAR
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DATE: 6/1/2021
SHEET NUMBER: 30 of 94

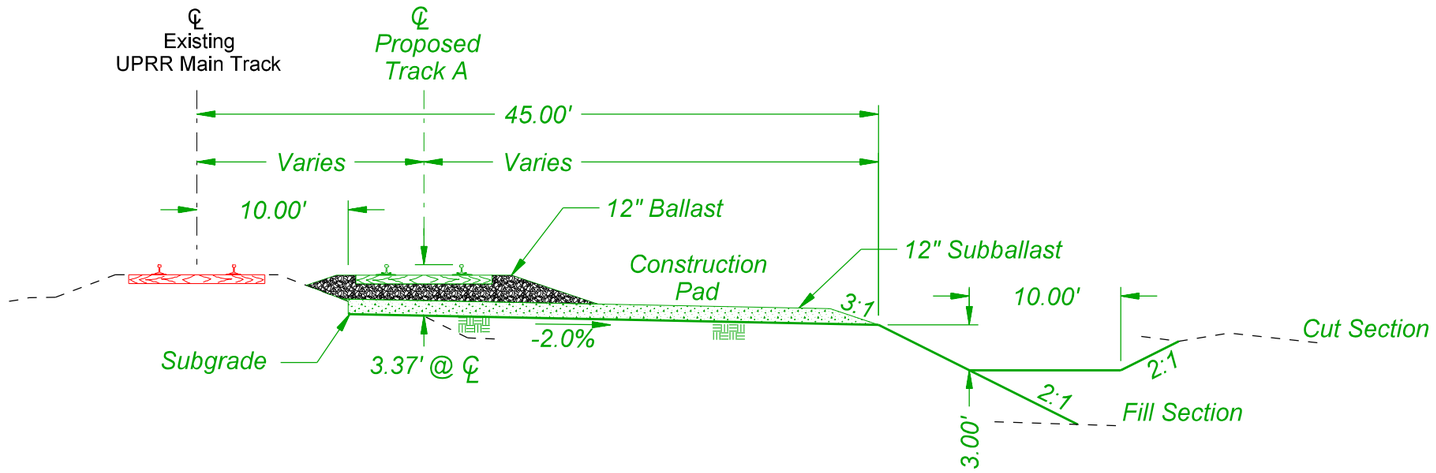
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UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority

LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports

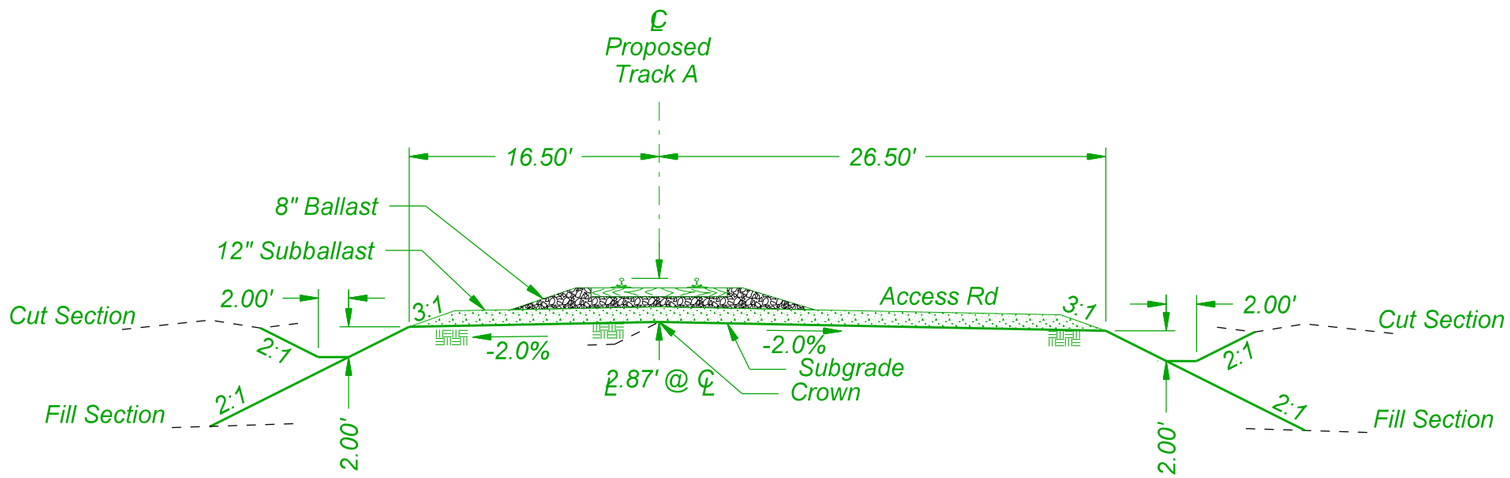
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Default
6/1/2021



TYPICAL SECTION FOR TRACK A

UPRR Mainline Sta. 13292+98.46 to Sta. 13288+27.39



TYPICAL SECTION FOR TRACK A

Sta. 4+10.25 to Sta. 15+92.29

- 100% Plans-

NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track	Shift Ind. Track	Hand Throw Turnout
Prop. UPRR Track	Future Ind. Track	Power Turnout
Remove UPRR Track	Prop. Leased Ind. Trk	Power Derail
Shift UPRR Track	Ex. Leased Ind. Trk	Hand Throw Derail
Ex. Ind. Track	No RR Operations	Point of Curve
Prop. Ind. Track	Right of Way	Bridge
Remove Ind. Track	Acquire Property	Signal

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PHONE: 816-329-8600
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UNION PACIFIC

FES #:	40743
DRAWN BY:	TAR
CHECKED BY:	JLS
DATE:	6/1/2021
SHEET NUMBER	31 of 94

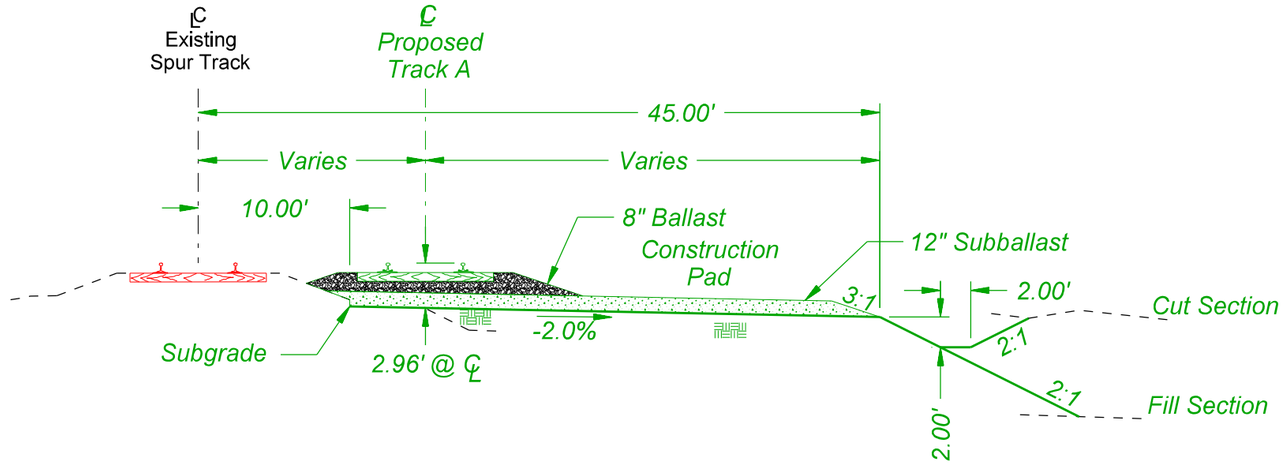
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UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority

LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports

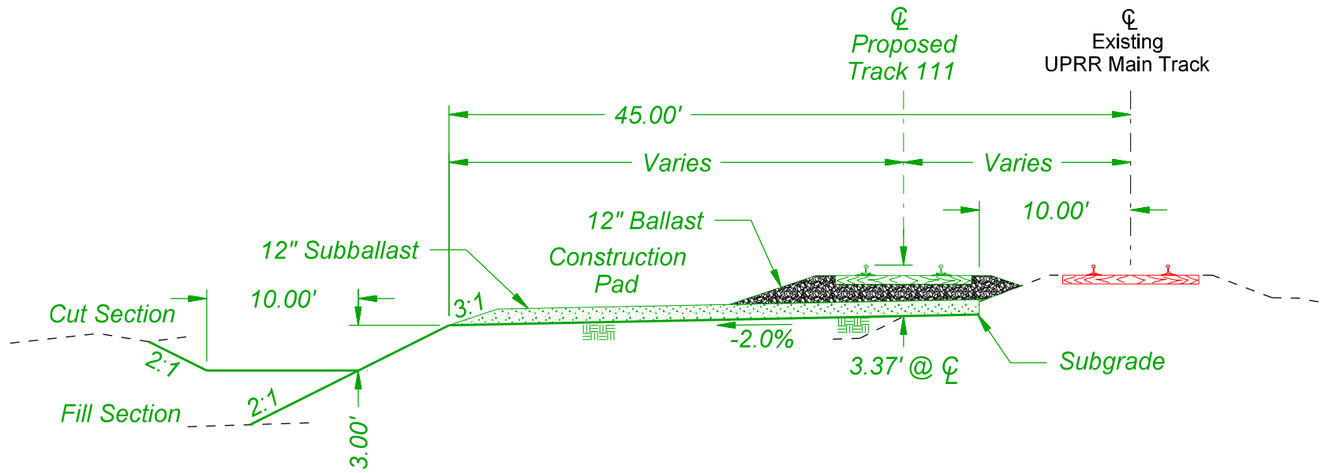
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Default
6/1/2021



TYPICAL SECTION FOR TRACK A

Black Fox Spur Sta. 16+99.00 to Sta. 20+59.96



TYPICAL SECTION FOR TRACK 111

UPRR Mainline Sta. 13274+39.58 to Sta. 13269+33.05

- 100% Plans-
NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

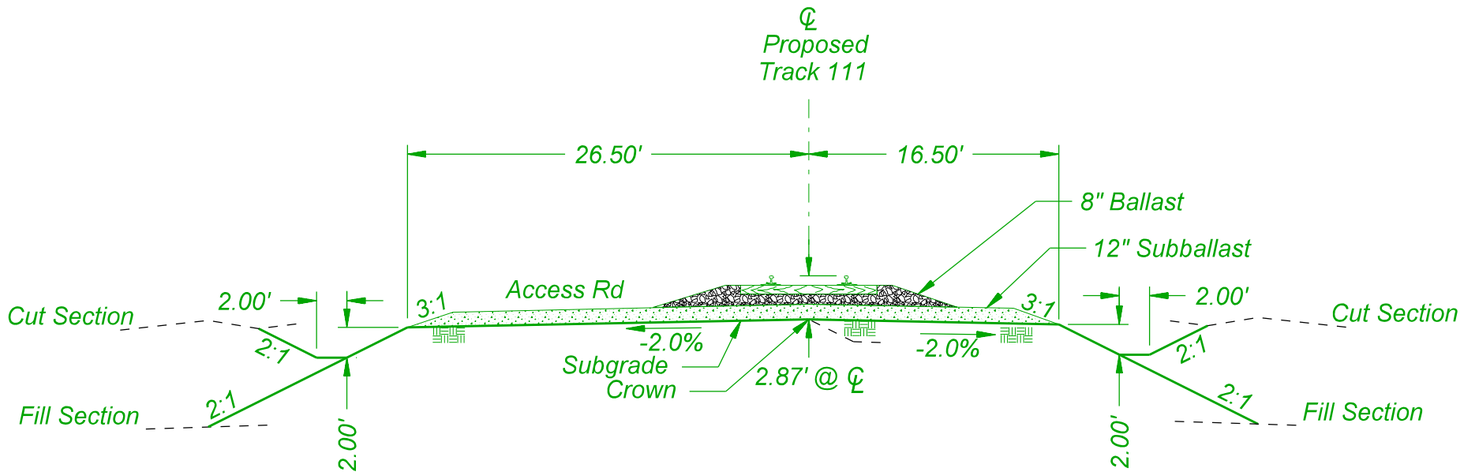
TranSystems
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KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
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FES #: 40743
DRAWN BY: TAR
CHECKED BY: JLS
DATE: 6/1/2021
SHEET NUMBER: 32 of 94

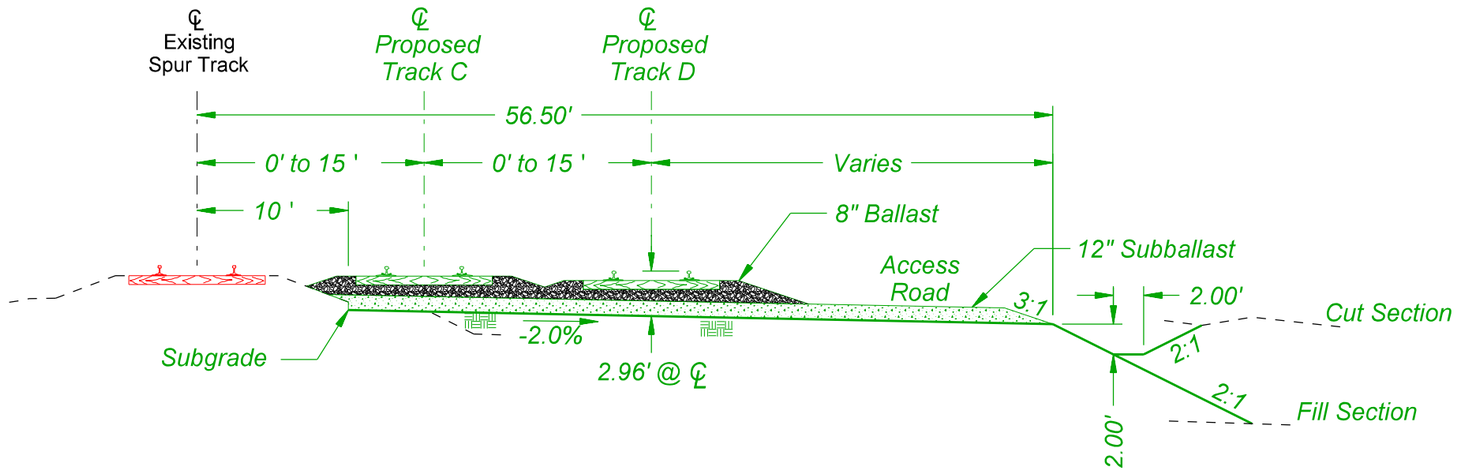
DOCUMENT TYPE: 30% Development Concept
UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
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6/1/2021



TYPICAL SECTION FOR TRACK 111

Sta. 4+44.79 to Sta. 13+70.94



TYPICAL SECTION FOR TRACKS C & D AT 15' T.C.

Sta. 76+61.85 to Sta. 80+00.32
Sta. 122+21.05 to Sta. 125+72.39

- 100% Plans -
NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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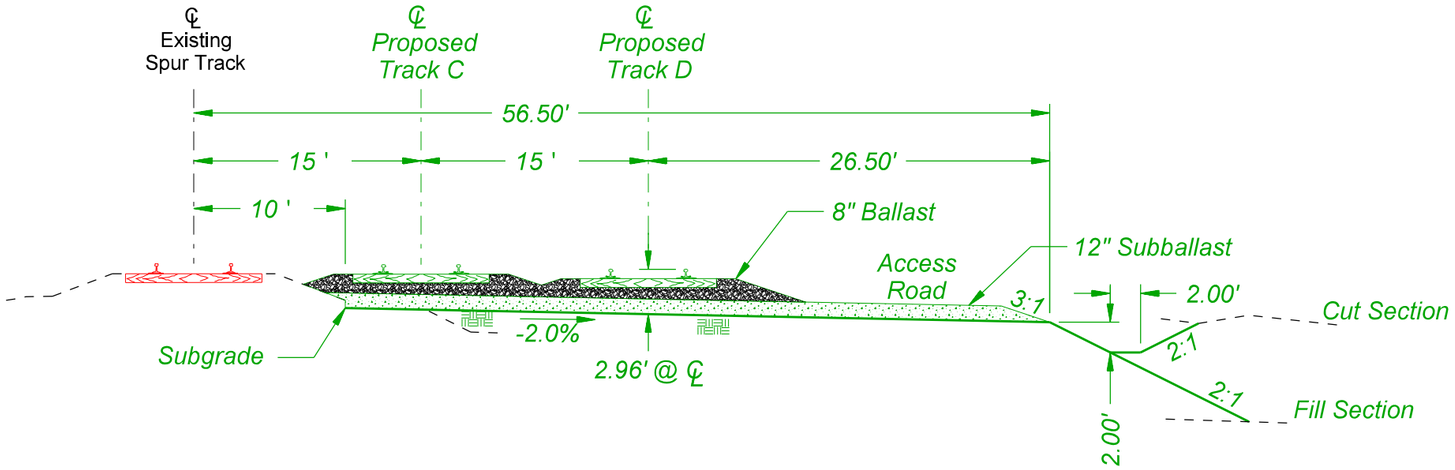
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UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority

LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports

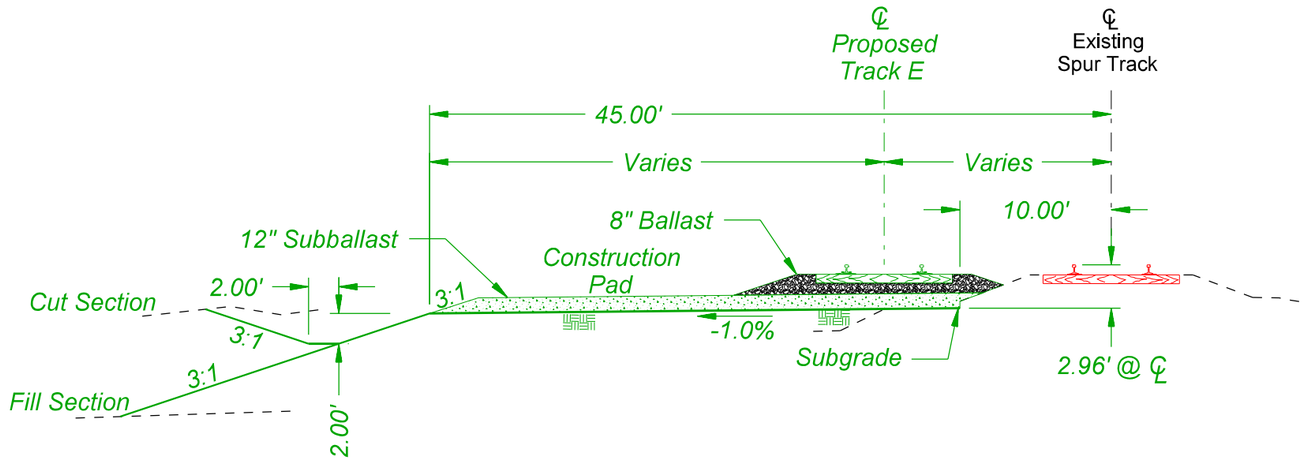
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Default
6/1/2021



TYPICAL SECTION FOR TRACKS C & D AT 15' T.C.

Sta. 80+00.32 to Sta. 122+21.05



TYPICAL SECTION FOR TRACK E

Black Fox Spur Sta. 153+34.50 to Sta. 156+19.96
Track E Sta. 0+00.00 to Sta. 2+88.86

- 100% Plans-
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REV. #	BY	DATE	DESCRIPTION

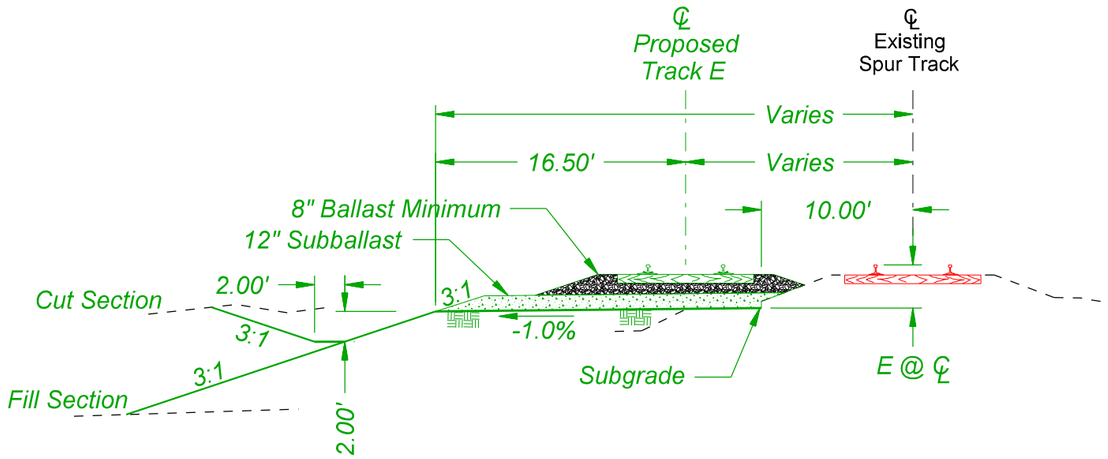
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Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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FES #: 40743	DOCUMENT TYPE: 30% Development Concept
DRAWN BY: TAR	UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
CHECKED BY: JLS	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	
SHEET NUMBER 34 of 94	SHEET TITLE: TYPICAL SECTIONS

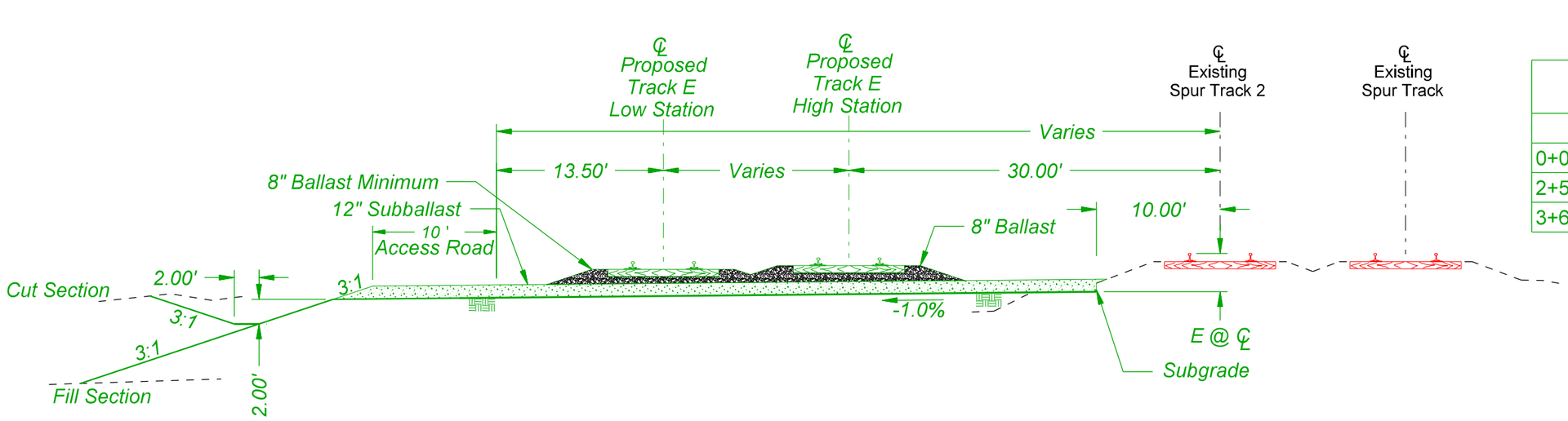
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Default
6/1/2021



PROPOSED TRACK E GRADE DEPTH	
STATION	E
0+00.00 - 2+50.00	-2.96
2+50.00 - 3+60.00	-2.96 to -2.80
3+60.00 - 8+74.10	-2.80 to -1.56

TYPICAL SECTION FOR TRACK E

Sta. 2+88.86 to Sta. 4+77.23



PROPOSED TRACK E GRADE DEPTH	
STATION	E
0+00.00 - 2+50.00	-2.96
2+50.00 - 3+60.00	-2.96 to -2.80
3+60.00 - 8+74.10	-2.80 to -1.56

TYPICAL SECTION FOR TRACK E

Sta. 4+77.86 to Sta. 8+74.10

- 100% Plans -

NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

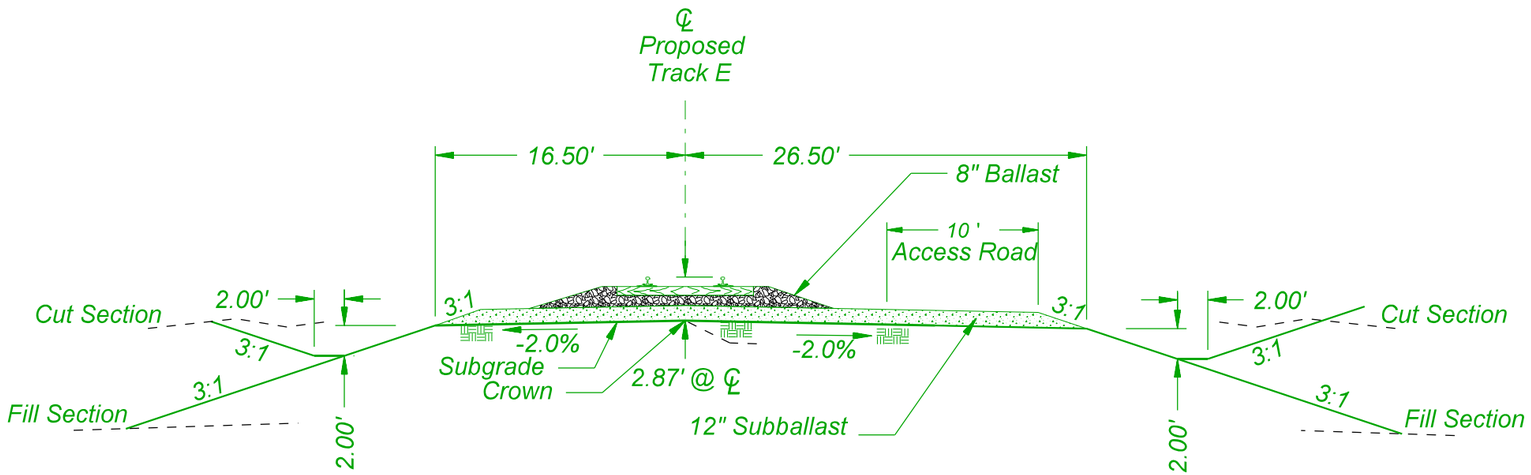
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Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TranSystems
2400 PERSHING ROAD
SUITE 400
KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

UNION PACIFIC

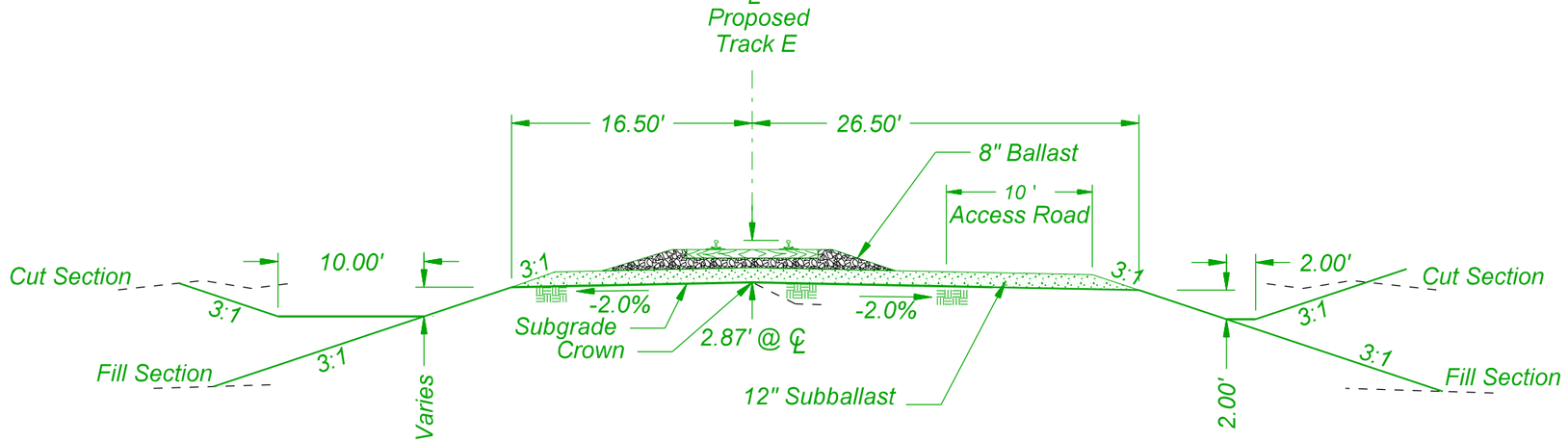
FES #: 40743	DOCUMENT TYPE: 30% Development Concept
DRAWN BY: TAR	UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
CHECKED BY: JLS	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	
SHEET NUMBER 35 of 94	SHEET TITLE: TYPICAL SECTIONS

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Default
6/1/2021



TYPICAL SECTION FOR TRACK E

Sta. 8+74.10 to Sta. 58+00.00
Sta. 75+50.00 to Sta. 80+25.00



TYPICAL SECTION FOR TRACK E

Sta. 58+00.00 to Sta. 75+50.00

- 100% Plans-
NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

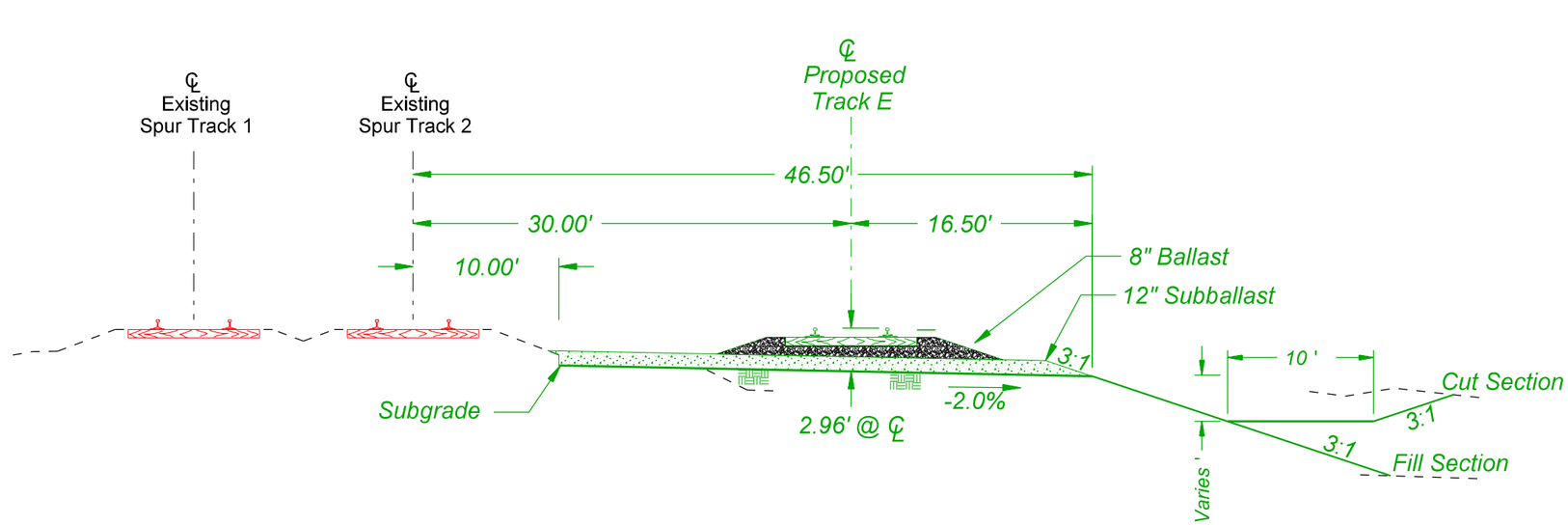
TranSystems
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SUITE 400
KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

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FES #: 40743
DRAWN BY: TAR
CHECKED BY: JLS
DATE: 6/1/2021
SHEET NUMBER: 36 of 94

DOCUMENT TYPE: 30% Development Concept
UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
SHEET TITLE: TYPICAL SECTIONS

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Default
6/1/2021



TYPICAL SECTION FOR TRACK E

Sta. 80+25.00 to Sta. 83+02.20

- 100% Plans-

NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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FES #: 40743
DRAWN BY: TAR
CHECKED BY: JLS
DATE: 6/1/2021
SHEET NUMBER: 37 of 94

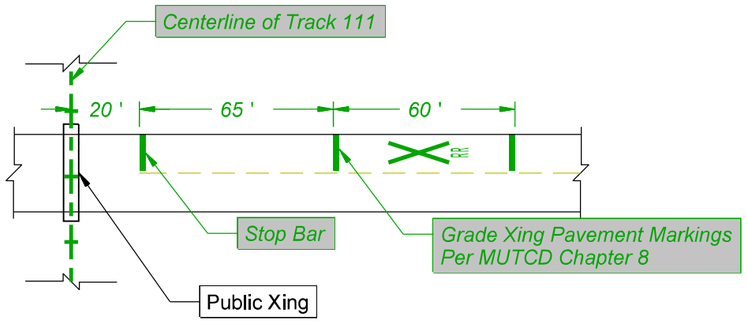
DOCUMENT TYPE: 30% Development Concept

UNION PACIFIC RAILROAD For Use and Agreement
City of Tulsa - Rogers County Port Authority

LOCATION & DESCRIPTION:
Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18
Trackage to Serve: Tulsa Ports

SHEET TITLE: TYPICAL SECTIONS

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Default
6/1/2021



Pavement Marking Detail
Not to Scale

Track 111, 115# Wood [0 MPH]

Grade for 6'x6' Signal Cabin per
Grade Xing Protection Sheets

Sta. 23+30.88
S 4220 Rd (DOT# 974 006F)
Public 32 LF Conc Xing
No Protection

Install Advance Warning Sign
W10-1 Per MUTCD Chapter 8
(565' from Centerline of Track 111)

S 4220 Rd (35 MPH)

Grade Xing Pavement Markings, See Detail

Sta. 23+30.88
S 4220 Rd (DOT# 974 006F)
Public 32 LF Conc Xing
Construct Xing Protection Per
Grade Xing Protection Sheets

Install Advance Warning Sign
W10-1 Per MUTCD Chapter 8
(565' from Centerline of Track 111)

OHP

- 100% Plans -
NOT FOR CONSTRUCTION

N

100 0 100 200
SCALE IN FEET

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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FES #: 40743	DOCUMENT TYPE: 30% Development Concept
DRAWN BY: TAR	UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
CHECKED BY: JLS	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	
SHEET NUMBER 38 of 94	SHEET TITLE: S 4220 ROAD PLAN

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Default
6/1/2021

Track 111, 115# Wood 10 MPH

Centerline of Track 111

20 ' 65 ' 60 '

Stop Bar

Grade Xing Pavement Markings Per MUTCD Chapter 8

Public Xing

Pavement Marking Detail
Not to Scale

Sta. 75+82.19
S 4210 Rd (DOT# 974 007M)
Public 32 LF Conc Xing
Crossbucks

Sta. 75+82.19
S 4210 Rd (DOT# 974 007M)
Public 32 LF Conc Xing
Construct Xing Protection Per
Grade Xing Protection Sheets

Grade Xing Pavement Markings, See Detail

Install Advance Warning Sign
W10-1 Per MUTCD Chapter 8
(775' from Centerline of Track 111)

S 4210 Rd (45 MPH)

Stop Sign

Road Sign

Install Advance Warning Sign
W10-4 Per MUTCD Chapter 8
(100' from Intersection)

Grade for 6'x6' Signal Cabin per
Grade Xing Protection Sheets

E 615 Rd

Track C

Track D

100 0 100 200

SCALE IN FEET

- 100% Plans -

NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track

Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property

Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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DRAWN BY: TAR
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DATE: 6/1/2021
SHEET NUMBER: 39 of 94

DOCUMENT TYPE: 30% Development Concept

UNION PACIFIC RAILROAD For Use and Agreement
City of Tulsa - Rogers County Port Authority

LOCATION & DESCRIPTION:
Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18
Trackage to Serve: Tulsa Ports

SHEET TITLE: S 4210 ROAD PLAN

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Default
6/1/2021

Track 111, 115# Wood 10 MPH

S 4200 Rd (55 MPH)

Private Rd

Install Advance Warning Sign
W10-1 Per MUTCD Chapter 8
(990' from Centerline of Track 111)

Sta. 135+74.89
S 4200 Rd (DOT# 974 008U)
Public 32 LF Conc Xing
Construct Xing Protection Per
Grade Xing Protection Sheets

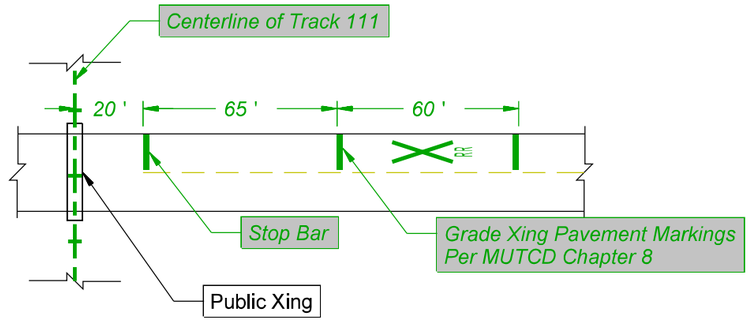
Grade Xing Pavement Markings, See Detail

Sta. 135+74.89
S 4200 Rd (DOT# 974 008U)
Public 32 LF Conc Xing
No Protection

Grade for 6'x6' Signal Cabin per
Grade Xing Protection Sheets

Install Advance Warning Sign
W10-1 Per MUTCD Chapter 8
(990' from Centerline of Track 111)

Install Advance Warning Sign
W10-4 Per MUTCD Chapter 8
(200' from Intersection)



Pavement Marking Detail
Not to Scale

100 0 100 200
SCALE IN FEET

- 100% Plans-
NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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PHONE: 816-329-8600
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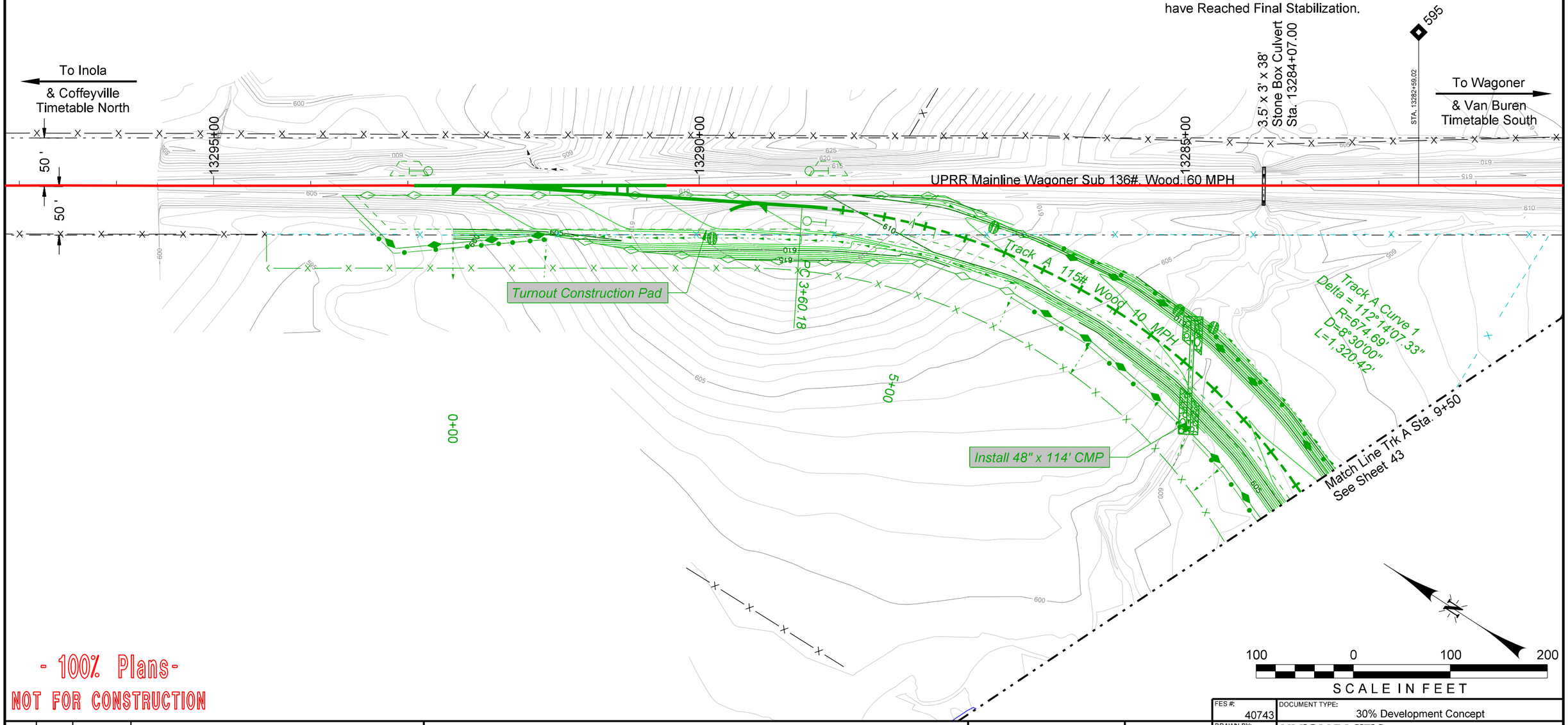
UNION PACIFIC

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DRAWN BY: TAR	UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
CHECKED BY: JLS	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	
SHEET NUMBER 40 of 94	SHEET TITLE: S 4200 ROAD PLAN

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Default
6/1/2021

Notes:

1. Refer to Sheet 5 General Notes for Earthwork Requirements.
2. Proposed Contours within the Track Area are to Top of Subgrade. All Proposed Contours Outside of the Track Area Beginning at Top of Ditch Slope are to Finished Grade.
3. Contractor to Minimize Impacts as Much as Possible Outside the Grading Limit Area. If Contractors need to Impact the adjoining Property in Order to Perform the Work Notice shall be Given Prior to Doing so.
4. Rock Ditch Checks shall be Removed once the Disturbed Areas have Reached Final Stabilization.



- 100% Plans -
NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track	Shift Ind. Track	Hand Throw Turnout
Prop. UPRR Track	Future Ind. Track	Power Turnout
Remove UPRR Track	Prop. Leased Ind. Trk	Power Derail
Shift UPRR Track	Ex. Leased Ind. Trk	Hand Throw Derail
Ex. Ind. Track	No RR Operations	Point of Curve
Prop. Ind. Track	Right of Way	Bridge
Remove Ind. Track	Acquire Property	Signal

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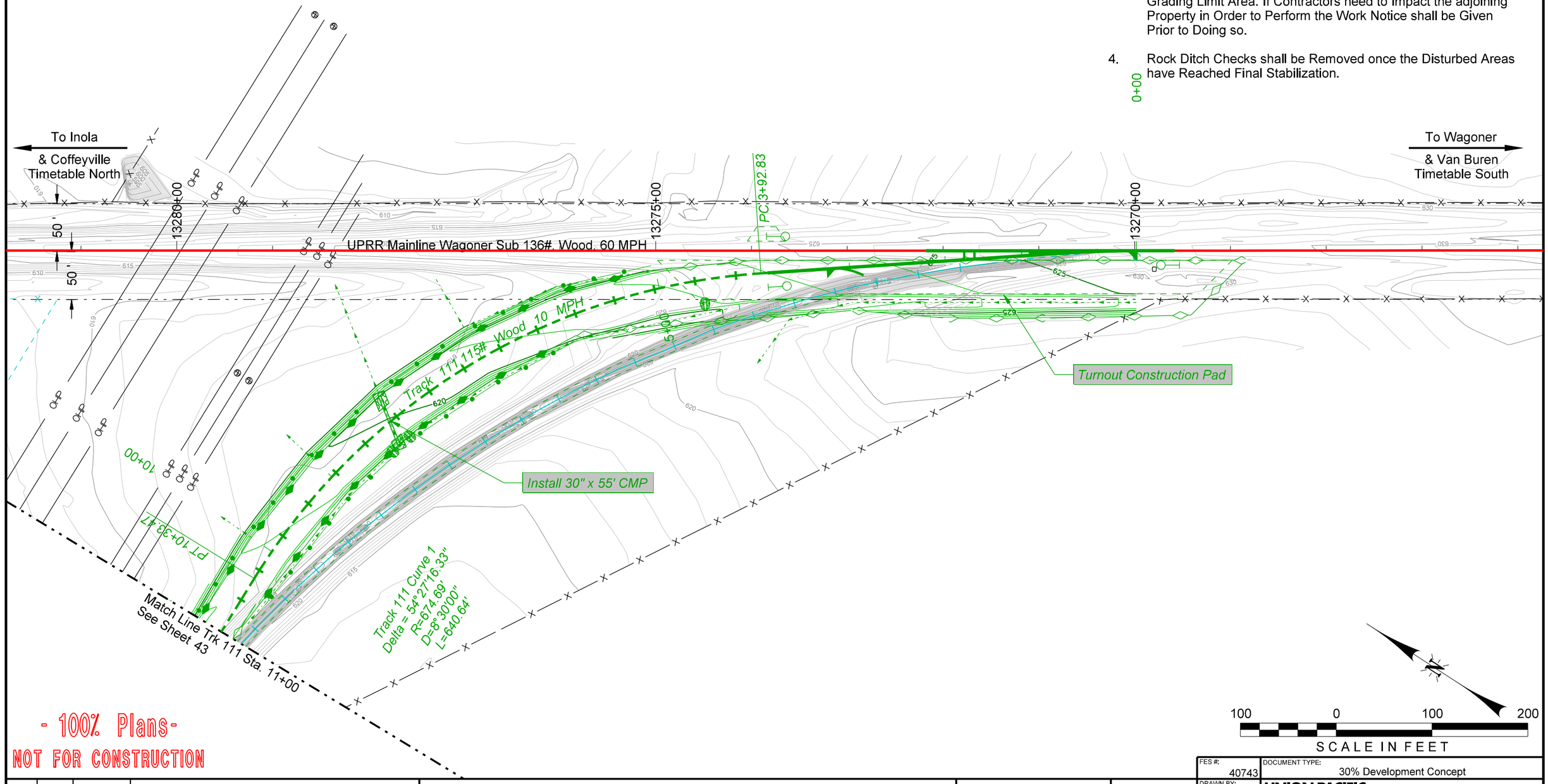
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DRAWN BY: TAR	UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
CHECKED BY: JLS	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	
SHEET NUMBER 41 of 94	SHEET TITLE: EROSION CONTROL PLANS

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6/1/2021

Notes:

1. Refer to Sheet 5 General Notes for Earthwork Requirements.
2. Proposed Contours within the Track Area are to Top of Subgrade. All Proposed Contours Outside of the Track Area Beginning at Top of Ditch Slope are to Finished Grade.
3. Contractor to Minimize Impacts as Much as Possible Outside the Grading Limit Area. If Contractors need to Impact the adjoining Property in Order to Perform the Work Notice shall be Given Prior to Doing so.
4. Rock Ditch Checks shall be Removed once the Disturbed Areas have Reached Final Stabilization.



100 0 100 200

SCALE IN FEET

- 100% Plans -

NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track	Shift Ind. Track	Hand Throw Turnout
Prop. UPRR Track	Future Ind. Track	Power Turnout
Remove UPRR Track	Prop. Leased Ind. Trk	Power Derail
Shift UPRR Track	Ex. Leased Ind. Trk	Hand Throw Derail
Ex. Ind. Track	No RR Operations	Point of Curve
Prop. Ind. Track	Right of Way	Bridge
Remove Ind. Track	Acquire Property	Signal

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DRAWN BY: TAR	UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
CHECKED BY: JLS	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	
SHEET NUMBER 42 of 94	SHEET TITLE: EROSION CONTROL PLANS

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Default
6/1/2021

Sta. 23+16.39
Black Fow Spur - S 4220 Rd
Public 32 LF Conc Xing
No Protection

Match Line Trk A Sta. 9+50
See Sheet 41

Match Line Trk 111 Sta. 11+00
See Sheet 42

Track 111,115# Wood 10 MPH

PT 16+80.60

10+00

15+00

Notes:

1. Refer to Sheet 5 General Notes for Earthwork Requirements.
2. Proposed Contours within the Track Area are to Top of Subgrade. All Proposed Contours Outside of the Track Area Beginning at Top of Ditch Slope are to Finished Grade.
3. Contractor to Minimize Impacts as Much as Possible Outside the Grading Limit Area. If Contractors need to Impact the adjoining Property in Order to Perform the Work Notice shall be Given Prior to Doing so.
4. Rock Ditch Checks shall be Removed once the Disturbed Areas have Reached Final Stabilization.

- 100% Plans-
NOT FOR CONSTRUCTION

N

100 0 100 200
SCALE IN FEET

REV. #	BY	DATE	DESCRIPTION

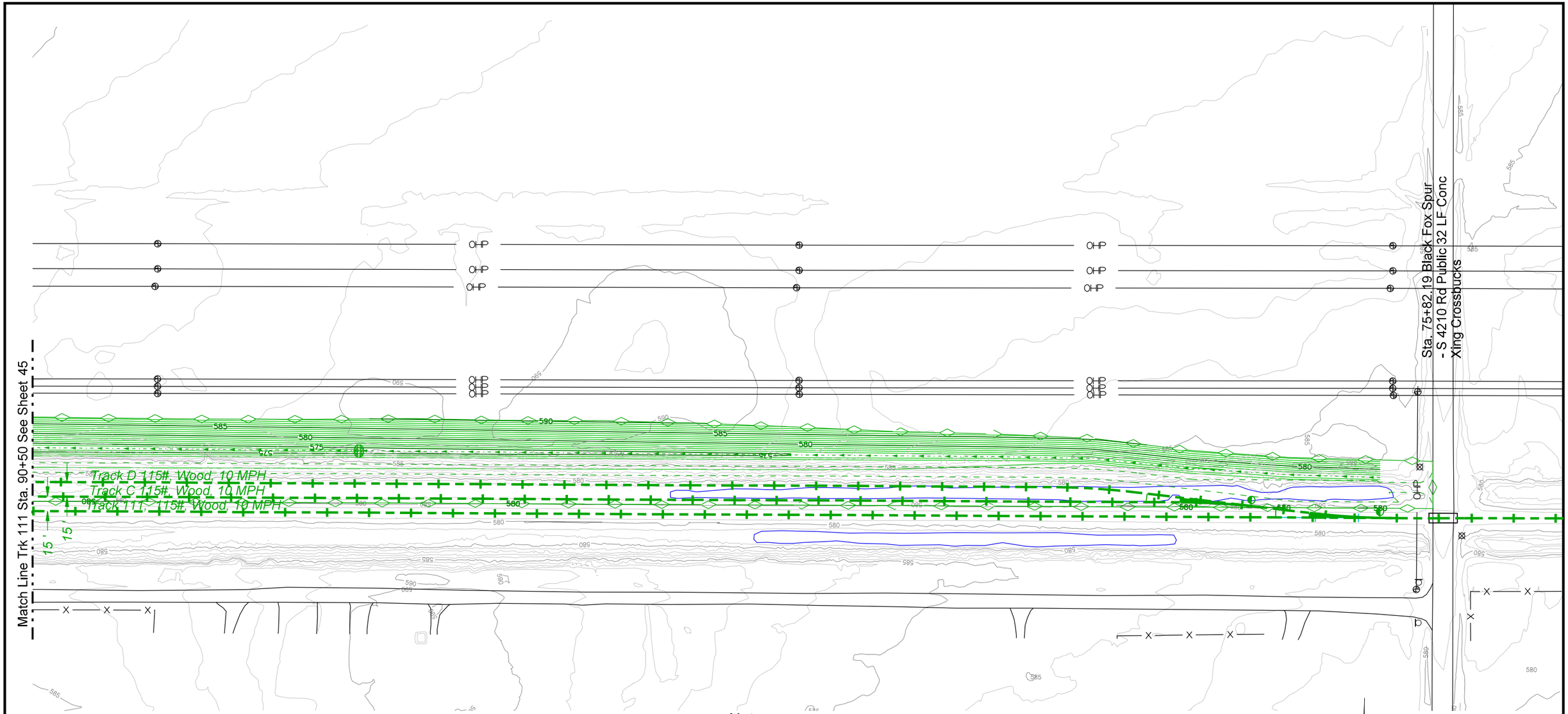
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- Prop. UPRR Track
- Remove UPRR Track
- Shift UPRR Track
- Ex. Ind. Track
- Prop. Ind. Track
- Remove Ind. Track
- Shift Ind. Track
- Future Ind. Track
- Prop. Leased Ind. Trk
- Ex. Leased Ind. Trk
- No RR Operations
- Right of Way
- Acquire Property
- Hand Throw Turnout
- Power Turnout
- Power Derail
- Hand Throw Derail
- Point of Curve
- Bridge
- Signal

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DATE: 6/1/2021	
SHEET NUMBER 43 of 94	SHEET TITLE: EROSION CONTROL PLANS

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6/1/2021



Notes:

1. Refer to Sheet 5 General Notes for Earthwork Requirements.
2. Proposed Contours within the Track Area are to Top of Subgrade. All Proposed Contours Outside of the Track Area Beginning at Top of Ditch Slope are to Finished Grade.
3. Contractor to Minimize Impacts as Much as Possible Outside the Grading Limit Area. If Contractors need to Impact the adjoining Property in Order to Perform the Work Notice shall be Given Prior to Doing so.
4. Rock Ditch Checks shall be Removed once the Disturbed Areas have Reached Final Stabilization.

- 100% Plans-

NOT FOR CONSTRUCTION

N

100 0 100 200

SCALE IN FEET

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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CHECKED BY: JLS	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	
SHEET NUMBER 44 of 94	SHEET TITLE: EROSION CONTROL PLANS

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Default
6/1/2021

Match Line Trk 111 Sta. 106+00 See Sheet 46

Match Line Trk 111 Sta. 90+50 See Sheet 44

Track D 115#, Wood, 10 MPH
Track C 115#, Wood, 10 MPH
Track 111, 115#, Wood, 10 MPH

15'
15'

Notes:

1. Refer to Sheet 5 General Notes for Earthwork Requirements.
2. Proposed Contours within the Track Area are to Top of Subgrade. All Proposed Contours Outside of the Track Area Beginning at Top of Ditch Slope are to Finished Grade.
3. Contractor to Minimize Impacts as Much as Possible Outside the Grading Limit Area. If Contractors need to Impact the adjoining Property in Order to Perform the Work Notice shall be Given Prior to Doing so.
4. Rock Ditch Checks shall be Removed once the Disturbed Areas have Reached Final Stabilization.

N

100 0 100 200

SCALE IN FEET

- 100% Plans-
NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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SUITE 400
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PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

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FES #: 40743	DOCUMENT TYPE: 30% Development Concept
DRAWN BY: TAR	UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
CHECKED BY: JLS	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	
SHEET NUMBER 45 of 94	SHEET TITLE: EROSION CONTROL PLANS

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6/1/2021

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6/1/2021

Match Line Trk 111 Sta. 121+50 See Sheet 47

Match Line Trk 111 Sta. 106+00 See Sheet 45

Extend (3) 48" x 54' CMP

Track D 115#, Wood, 10 MPH
Track C 115#, Wood, 10 MPH
Track 111, 115#, Wood, 10 MPH

15'

15'

Notes:

1. Refer to Sheet 5 General Notes for Earthwork Requirements.
2. Proposed Contours within the Track Area are to Top of Subgrade. All Proposed Contours Outside of the Track Area Beginning at Top of Ditch Slope are to Finished Grade.
3. Contractor to Minimize Impacts as Much as Possible Outside the Grading Limit Area. If Contractors need to Impact the adjoining Property in Order to Perform the Work Notice shall be Given Prior to Doing so.
4. Rock Ditch Checks shall be Removed once the Disturbed Areas have Reached Final Stabilization.

N

100 0 100 200

SCALE IN FEET

- 100% Plans -
NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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PHONE: 816-329-8600
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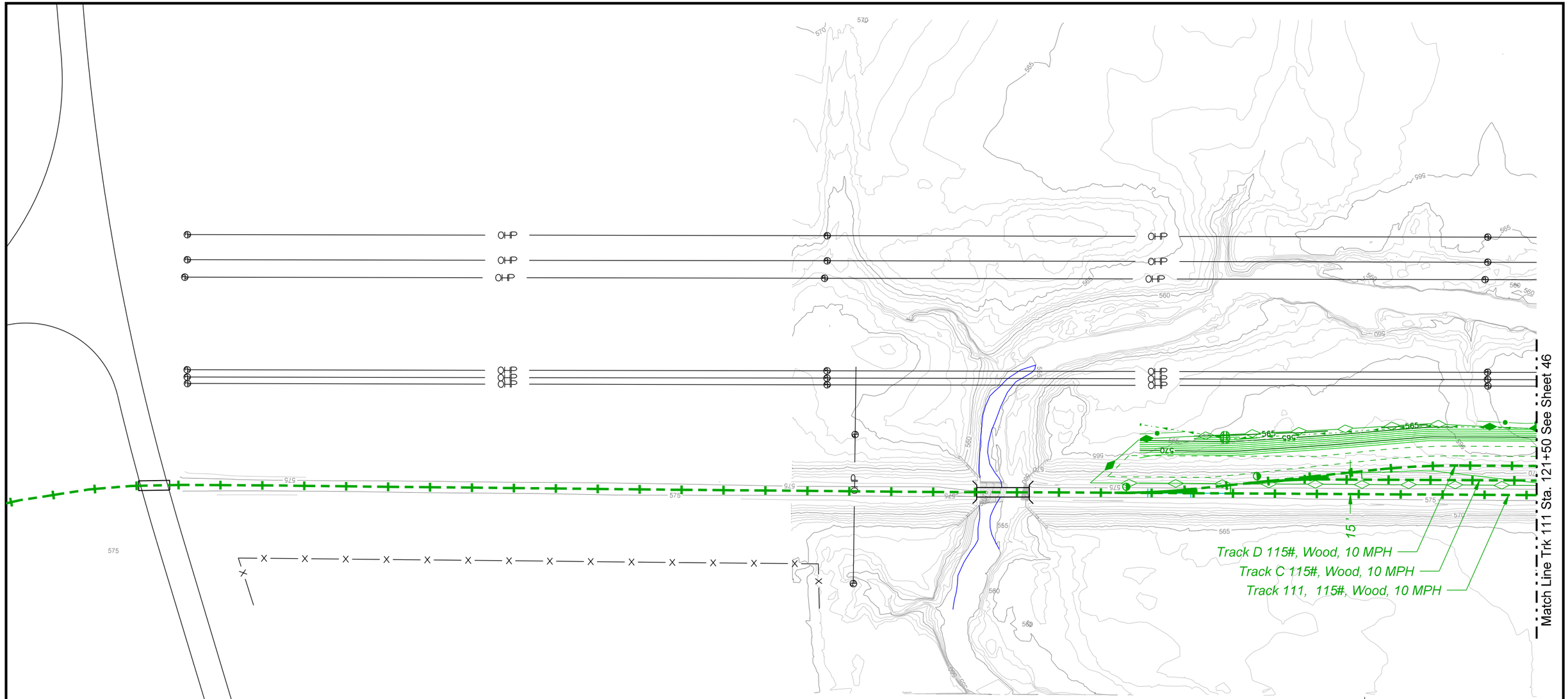
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DRAWN BY: TAR
CHECKED BY: JLS
DATE: 6/1/2021
SHEET NUMBER: 46 of 94

DOCUMENT TYPE: 30% Development Concept

UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority

LOCATION & DESCRIPTION:
Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18
Trackage to Serve: Tulsa Ports

SHEET TITLE:
EROSION CONTROL PLANS



Notes:

1. Refer to Sheet 5 General Notes for Earthwork Requirements.
2. Proposed Contours within the Track Area are to Top of Subgrade. All Proposed Contours Outside of the Track Area Beginning at Top of Ditch Slope are to Finished Grade.
3. Contractor to Minimize Impacts as Much as Possible Outside the Grading Limit Area. If Contractors need to Impact the adjoining Property in Order to Perform the Work Notice shall be Given Prior to Doing so.
4. Rock Ditch Checks shall be Removed once the Disturbed Areas have Reached Final Stabilization.

N

100 0 100 200

SCALE IN FEET

- 100% Plans -
NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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FES #: 40743
DRAWN BY: TAR
CHECKED BY: JLS
DATE: 6/1/2021
SHEET NUMBER: 47 of 94

DOCUMENT TYPE: 30% Development Concept

UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority

LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports

SHEET TITLE: EROSION CONTROL PLANS

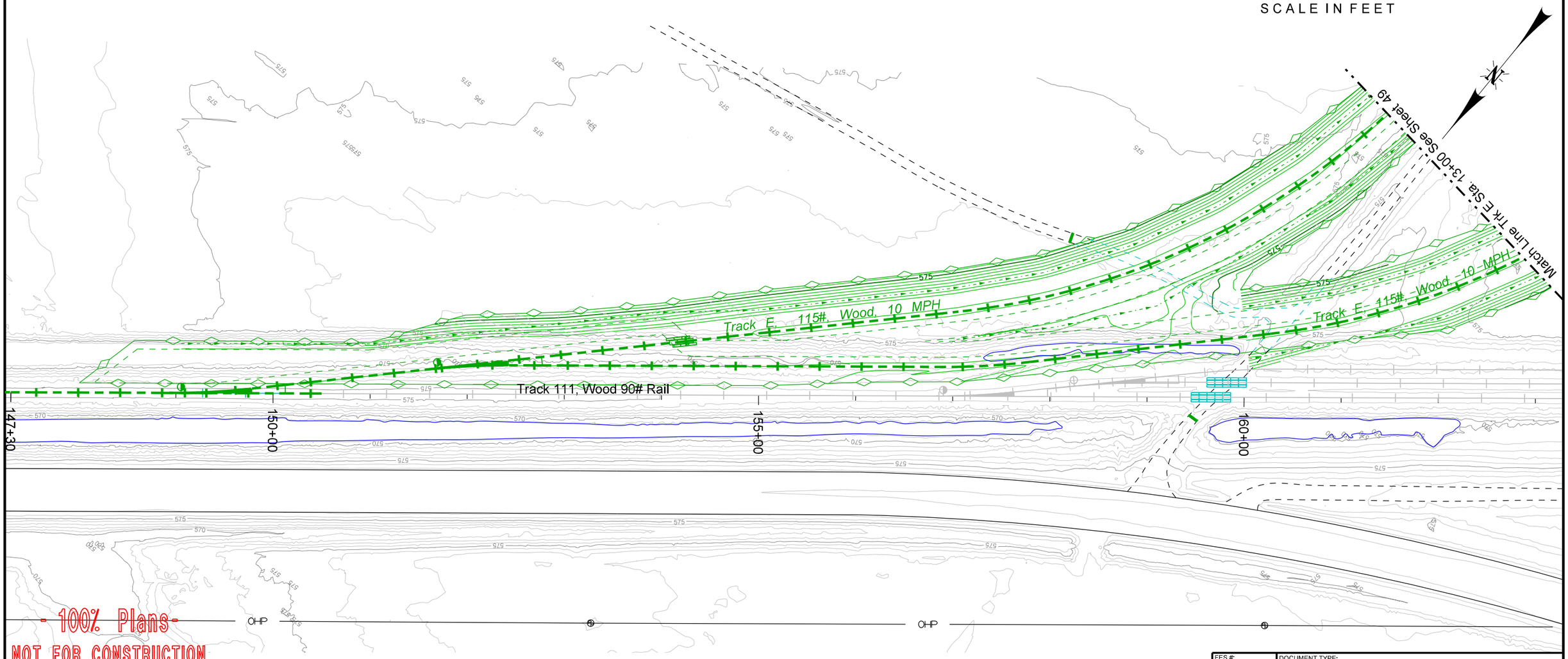
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6/1/2021

Notes:

1. Refer to Sheet 5 General Notes for Earthwork Requirements.
2. Proposed Contours within the Track Area are to Top of Subgrade. All Proposed Contours Outside of the Track Area Beginning at Top of Ditch Slope are to Finished Grade.
3. Contractor to Minimize Impacts as Much as Possible Outside the Grading Limit Area. If Contractors need to Impact the adjoining Property in Order to Perform the Work Notice shall be Given Prior to Doing so.
4. Rock Ditch Checks shall be Removed once the Disturbed Areas have Reached Final Stabilization.

100 0 100 200

SCALE IN FEET



- 100% Plans -

NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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FES #:	40743
DRAWN BY:	TAR
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DATE:	6/1/2021
SHEET NUMBER	48 of 94

DOCUMENT TYPE: 30% Development Concept

UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority

LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports

SHEET TITLE: EROSION CONTROL PLANS

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Default
6/1/2021

Match Line Trk E Sta. 23+00 See Sheet 50

Match Line Trk E Sta. 13+00 See Sheet 48

Match Line Trk E Sta. 60+00 See Sheet 51

Track E, 115#, Wood, 10 MPH

Track E, 115#, Wood, 10 MPH

OHP

Notes:

1. Refer to Sheet 5 General Notes for Earthwork Requirements.
2. Proposed Contours within the Track Area are to Top of Subgrade. All Proposed Contours Outside of the Track Area Beginning at Top of Ditch Slope are to Finished Grade.
3. Contractor to Minimize Impacts as Much as Possible Outside the Grading Limit Area. If Contractors need to Impact the adjoining Property in Order to Perform the Work Notice shall be Given Prior to Doing so.
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100 0 100 200

SCALE IN FEET

- 100% Plans -

NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

- Ex. UPRR Track
- Prop. UPRR Track
- Remove UPRR Track
- Shift UPRR Track
- Ex. Ind. Track
- Prop. Ind. Track
- Remove Ind. Track
- Shift Ind. Track
- Future Ind. Track
- Prop. Leased Ind. Trk
- Ex. Leased Ind. Trk
- No RR Operations
- Right of Way
- Acquire Property
- Hand Throw Turnout
- Power Turnout
- Power Derail
- Hand Throw Derail
- Point of Curve
- Bridge
- Signal

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FES #:	40743
DRAWN BY:	TAR
CHECKED BY:	JLS
DATE:	6/1/2021
SHEET NUMBER	49 of 94

DOCUMENT TYPE: 30% Development Concept

UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority

LOCATION & DESCRIPTION:
Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18
Trackage to Serve: Tulsa Ports

SHEET TITLE:
EROSION CONTROL PLANS

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6/1/2021

Track E, 115#, Wood, 10 MPH

Install (3) 48" x 78' CMP

Match Line Trk E Sta. 23+00 See Sheet 49

Match Line Trk E Sta. 39+00 See Sheet 51

Notes:

1. Refer to Sheet 5 General Notes for Earthwork Requirements.
2. Proposed Contours within the Track Area are to Top of Subgrade. All Proposed Contours Outside of the Track Area Beginning at Top of Ditch Slope are to Finished Grade.
3. Contractor to Minimize Impacts as Much as Possible Outside the Grading Limit Area. If Contractors need to Impact the adjoining Property in Order to Perform the Work Notice shall be Given Prior to Doing so.
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- 100% Plans -
NOT FOR CONSTRUCTION

100 0 100 200
SCALE IN FEET

REV. #	BY	DATE	DESCRIPTION

- Ex. UPRR Track
- Prop. UPRR Track
- Remove UPRR Track
- Shift UPRR Track
- Ex. Ind. Track
- Prop. Ind. Track
- Remove Ind. Track
- Shift Ind. Track
- Future Ind. Track
- Prop. Leased Ind. Trk
- Ex. Leased Ind. Trk
- No RR Operations
- Right of Way
- Acquire Property
- Hand Throw Turnout
- Power Turnout
- Power Derail
- Hand Throw Derail
- Point of Curve
- Bridge
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CHECKED BY:	JLS
DATE:	6/1/2021
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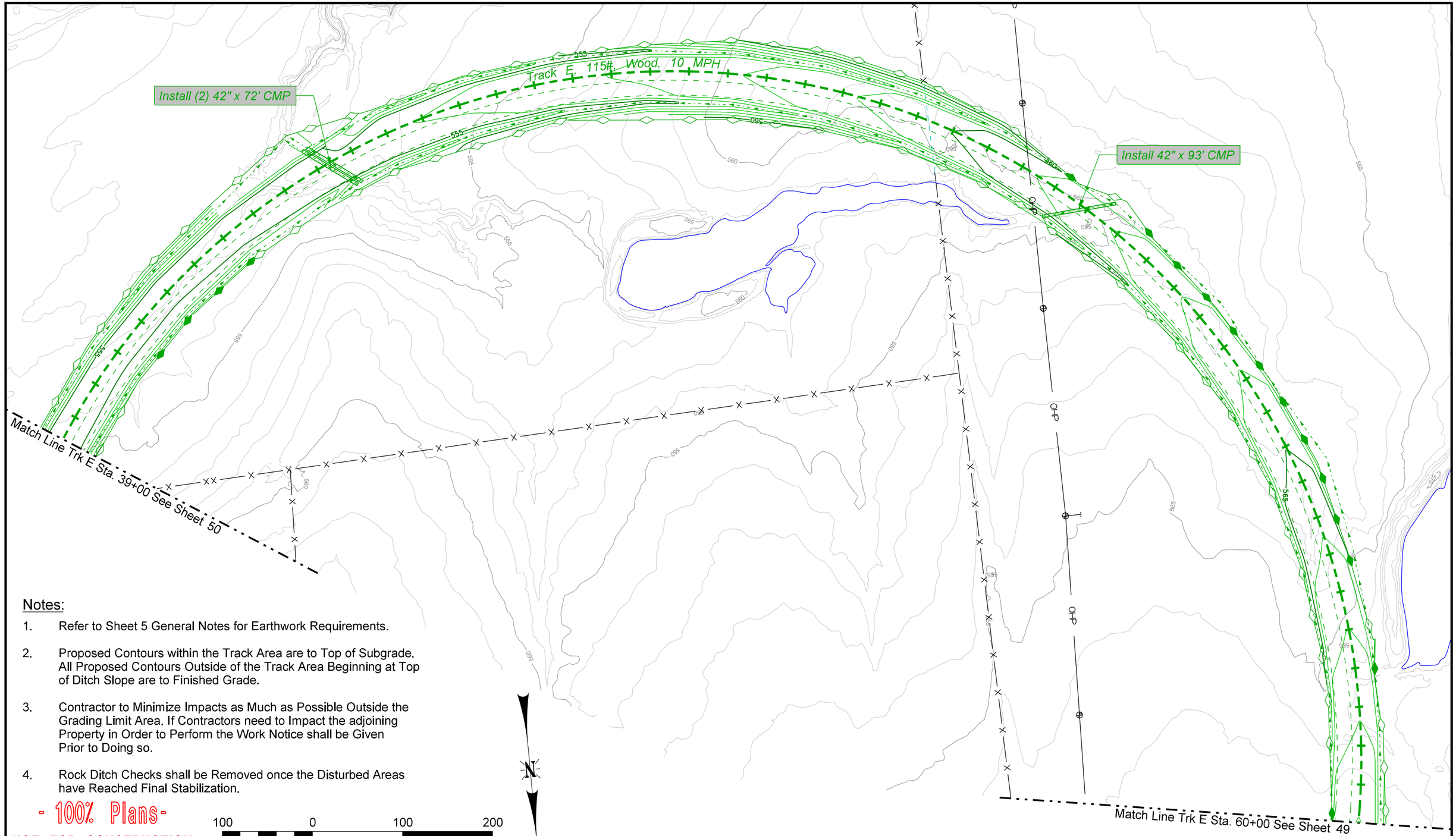
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UNION PACIFIC RAILROAD For Use and Agreement
City of Tulsa - Rogers County Port Authority

LOCATION & DESCRIPTION:
Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18
Trackage to Serve: Tulsa Ports

SHEET TITLE: EROSION CONTROL PLANS

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6/1/2021



Notes:

1. Refer to Sheet 5 General Notes for Earthwork Requirements.
2. Proposed Contours within the Track Area are to Top of Subgrade. All Proposed Contours Outside of the Track Area Beginning at Top of Ditch Slope are to Finished Grade.
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- 100% Plans -
NOT FOR CONSTRUCTION

100 0 100 200
SCALE IN FEET

N

REV. #	BY	DATE	DESCRIPTION

- Ex. UPRR Track
- Prop. UPRR Track
- Remove UPRR Track
- Shift UPRR Track
- Ex. Ind. Track
- Prop. Ind. Track
- Remove Ind. Track
- Shift Ind. Track
- Future Ind. Track
- Prop. Leased Ind. Trk
- Ex. Leased Ind. Trk
- No RR Operations
- Right of Way
- Acquire Property
- Hand Throw Turnout
- Power Turnout
- Power Derail
- Hand Throw Derail
- Point of Curve
- Bridge
- Signal

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SUITE 400
KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
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UNION PACIFIC

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CHECKED BY:	JLS
DATE:	6/1/2021
SHEET NUMBER	51 of 94

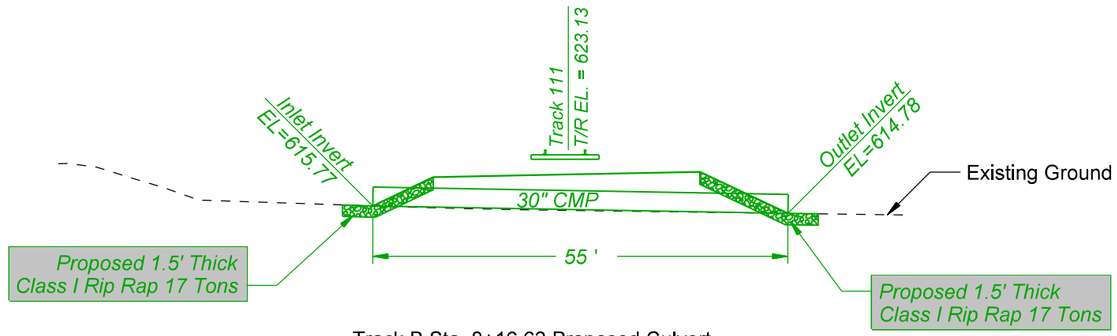
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UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority

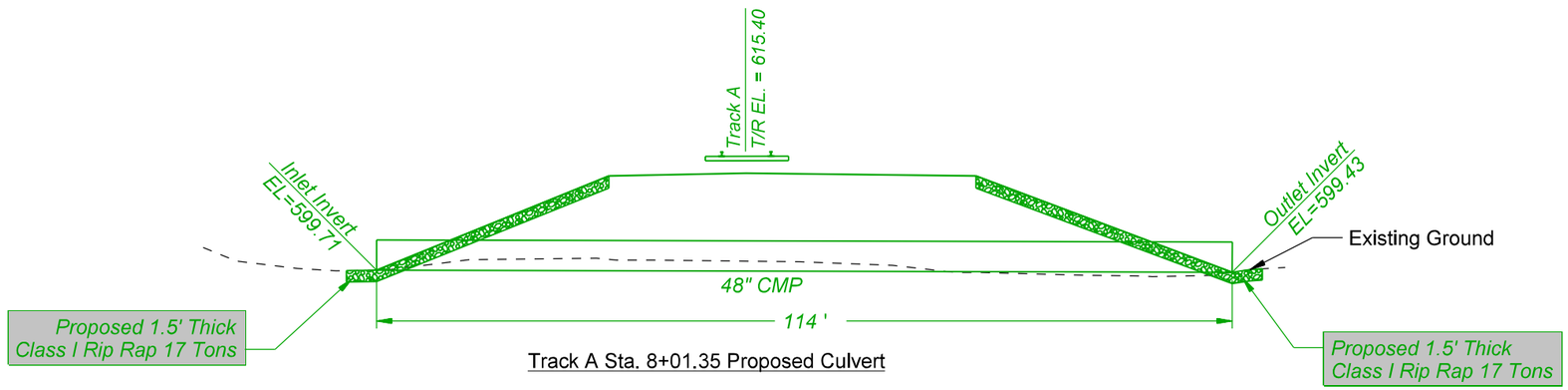
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Default
6/1/2021



Track B Sta. 8+16.62 Proposed Culvert



Track A Sta. 8+01.35 Proposed Culvert

- 100% Plans-

NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
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PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

UNION PACIFIC

FES #: 40743
DRAWN BY: TAR
CHECKED BY: JLS
DATE: 6/1/2021
SHEET NUMBER: 52 of 94

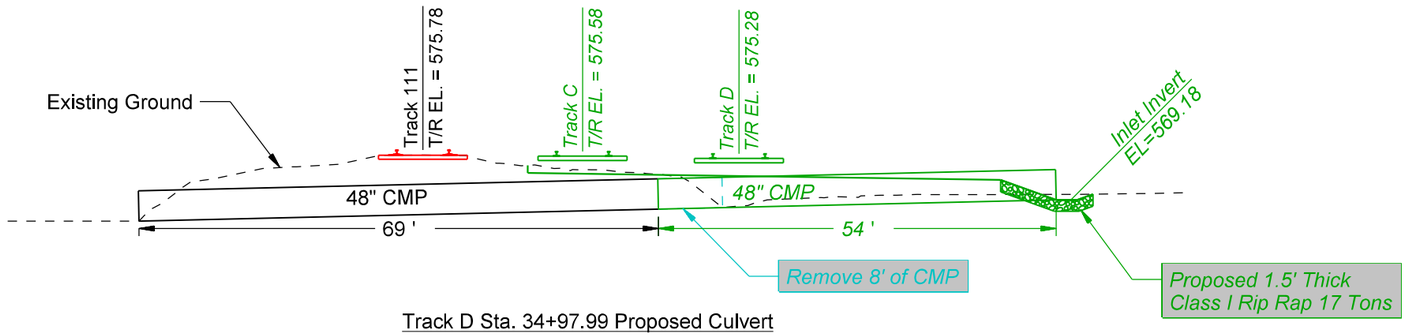
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UNION PACIFIC RAILROAD For Use and Agreement
City of Tulsa - Rogers County Port Authority

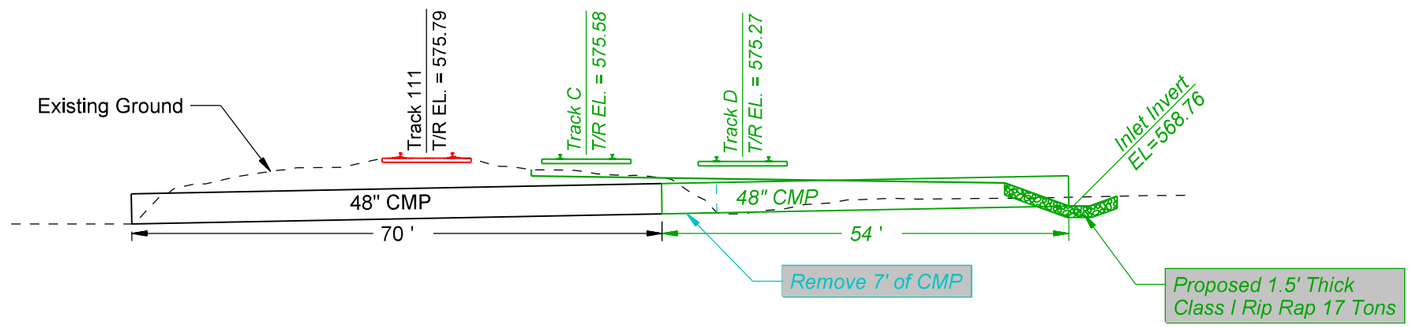
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Trackage to Serve: Tulsa Ports

SHEET TITLE: CULVERT DETAILS

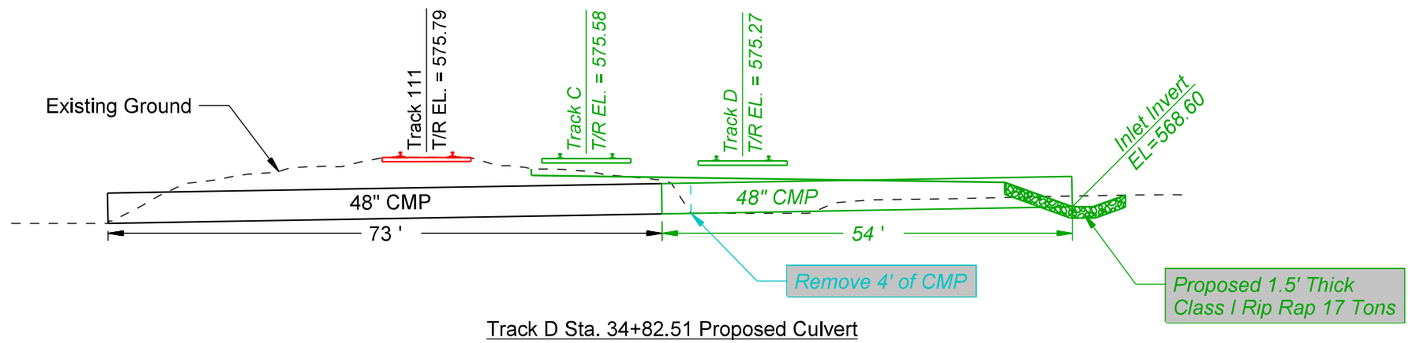
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Default
6/1/2021



Track D Sta. 34+97.99 Proposed Culvert



Track D Sta. 34+90.39 Proposed Culvert



Track D Sta. 34+82.51 Proposed Culvert

- 100% Plans -

NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
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CHECKED BY:	JLS
DATE:	6/1/2021
SHEET NUMBER	53 of 94

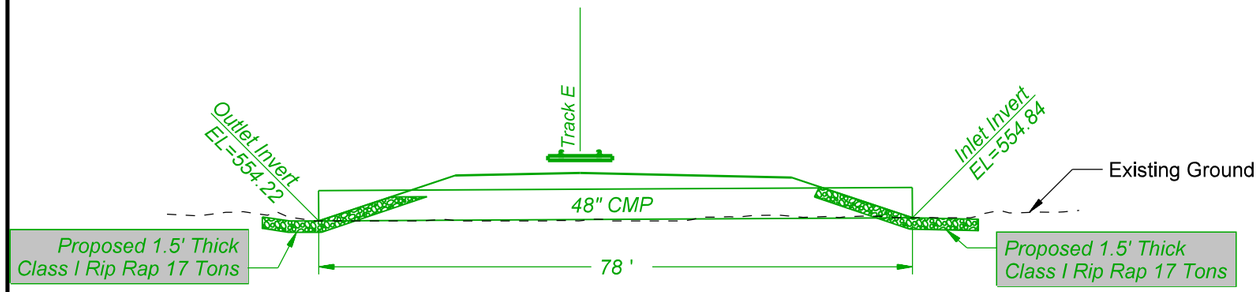
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UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority

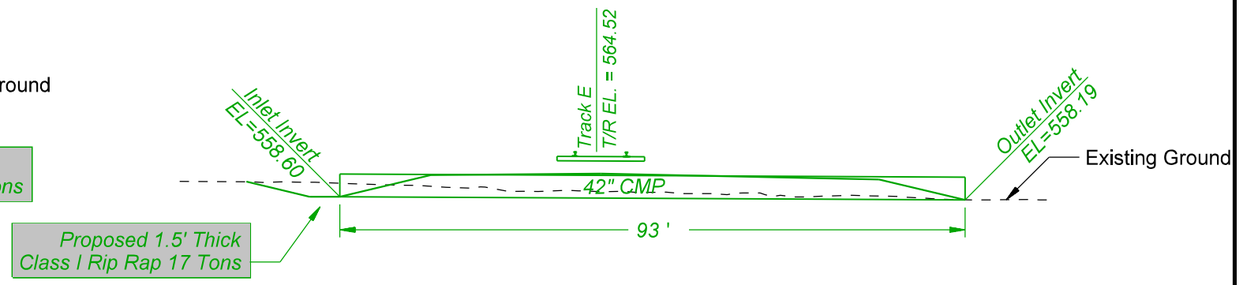
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SHEET TITLE: CULVERT DETAILS

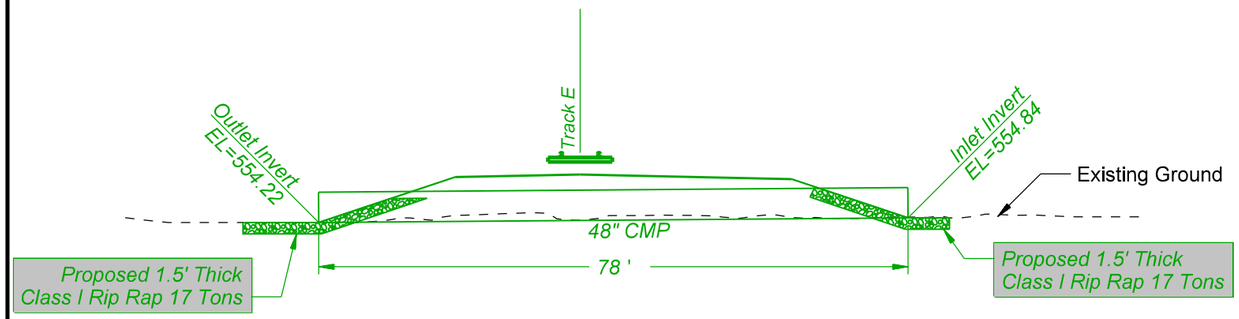
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6/1/2021



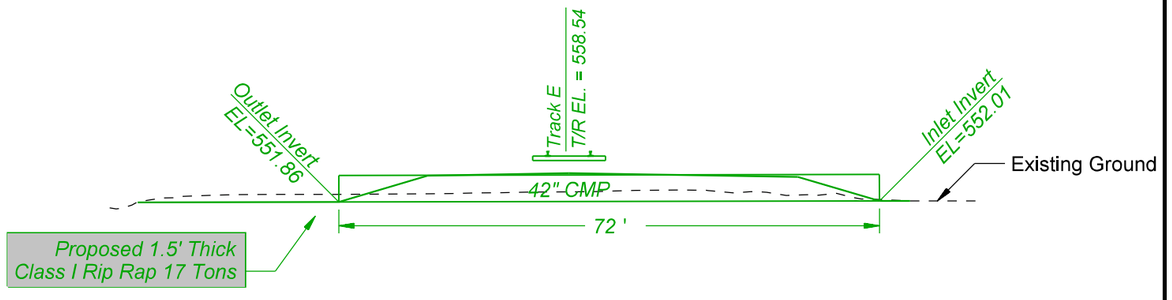
Sta. 31+31.26 Proposed Culvert



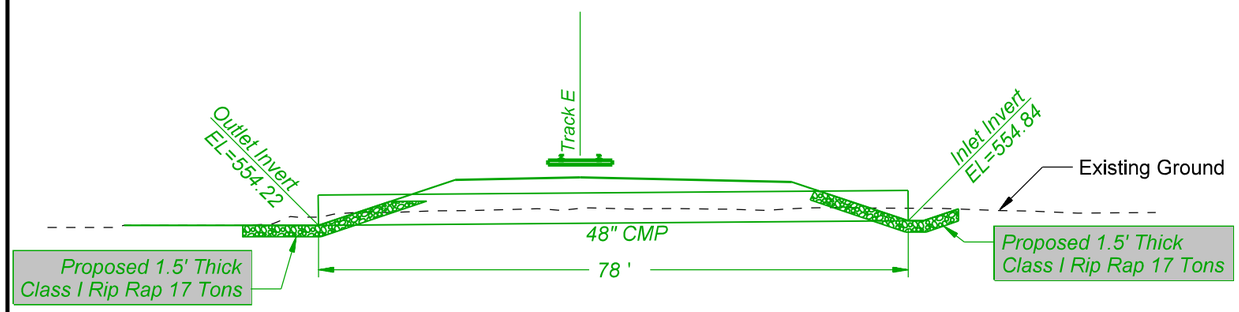
Track E Sta. 52+21.46 Proposed Culvert



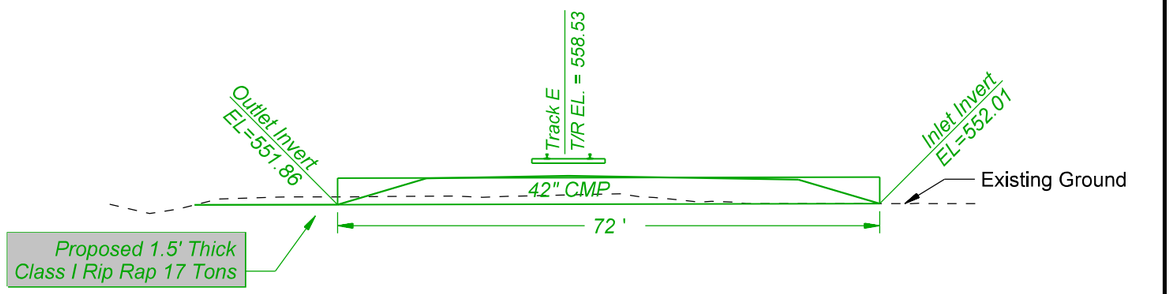
Sta. 31+25.09 Proposed Culvert



Track E Sta. 43+32.82 Proposed Culvert



Sta. 31+18.91 Proposed Culvert



Track E Sta. 43+26.87 Proposed Culvert

- 100% Plans -

NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TranSystems
2400 PERSHING ROAD
SUITE 400
KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
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FES #: 40743
DRAWN BY: TAR
CHECKED BY: JLS
DATE: 6/1/2021
SHEET NUMBER: 54 of 94

DOCUMENT TYPE: 30% Development Concept

UNION PACIFIC RAILROAD For Use and Agreement
City of Tulsa - Rogers County Port Authority

LOCATION & DESCRIPTION:
Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18
Trackage to Serve: Tulsa Ports

SHEET TITLE: CULVERT DETAILS

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6/1/2021

Drainage Area Calculations

Station	Track	Area (ac)	C	Tc (min)	i25 (in/hr)	i50 (in/hr)	i100 (in/hr)	25yr Q (cfs)	50yr Q (cfs)	100yr Q (cfs)	Pipe Size	Invert In	Invert Out	Length (ft)	Slope (%)	25yr WSE elev.	50yr WSE elev.	100yr WSE elev.
8+01.35	Wye	41	0.25	28.1	4.0	4.6	5.9	45.1	56.6	66.6	48"	599.60	598.80	114	0.70%	602.97	603.47	603.91
8+16.62	Wye	2	0.30	5.0	8.8	9.5	10.1	5.8	6.8	7.6	30"	615.77	614.78	55	1.80%	616.94	617.05	617.12
31+31+26	Loop	22.1	0.25	37.3	3.7	4.2	4.8	22.5	27.9	33.2	3 - 48"	554.84	554.22	78	0.79%	556.12	556.27	556.41*
34+90.39	Yard	98.6	0.25	50.6	3.0	3.5	4.0	81.4	103.5	123.3	3 - 48" ext.	568.76	567.40	127 (54' ext.)	1.07%	571.38	571.74	572.04
43+26.86	Loop	65.7	0.25	55.5	2.9	3.4	3.8	52.4	67.0	78.0	2 - 42"	552.01	551.86	72	0.21%	554.71	555.13	555.44
52+21.48	Loop	35.4	0.25	44.2	3.3	3.8	4.4	32.1	40.4	48.7	42"	558.60	558.19	93	0.44%	561.59	562.05	562.53
13284+07	Mainline	31.6	0.25	24.5	4.0	4.6	5.2	34.8	43.6	51.4	3' x 3.5 box	603.00	602.00	38.0	2.63%	605.40	605.82	606.21

*100-year backwater flood elevation from Inola Creek downstream is 558

- 100% Plans-

NOT FOR CONSTRUCTION

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UNION PACIFIC

FES #: 40743
DRAWN BY: TAR
CHECKED BY: JLS
DATE: 6/1/2021
SHEET NUMBER: 55 of 94

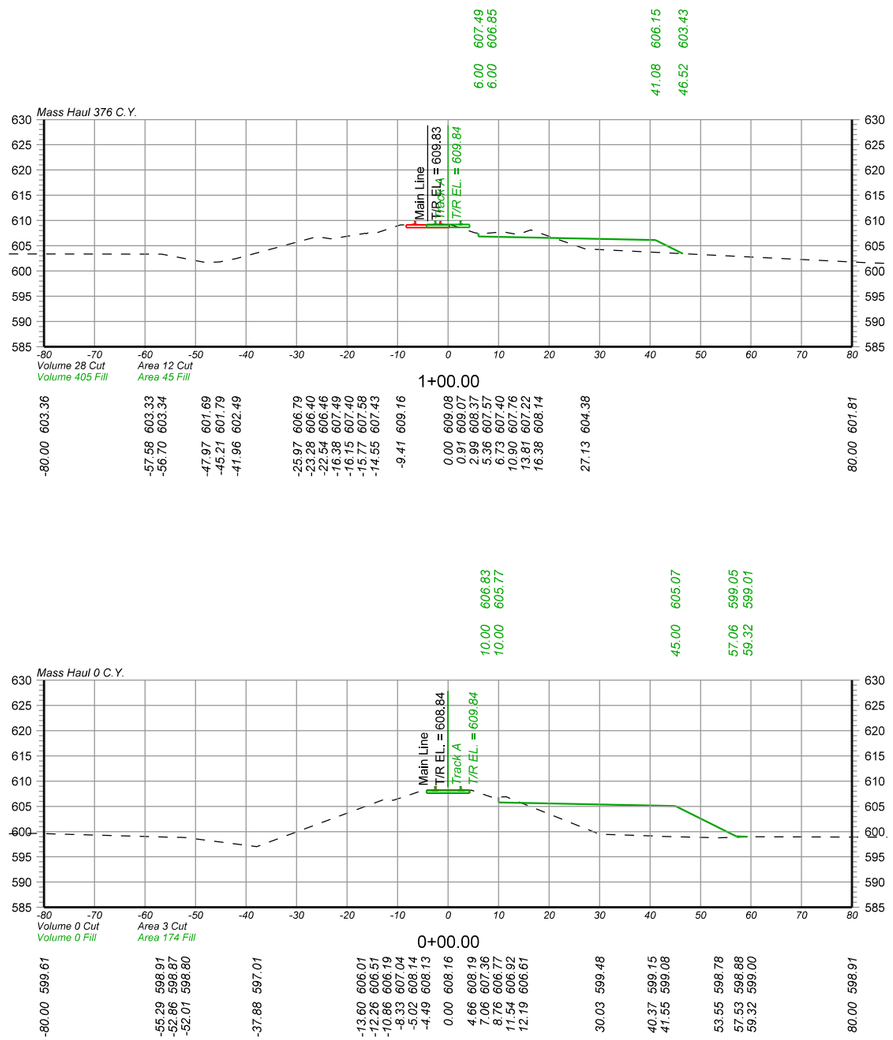
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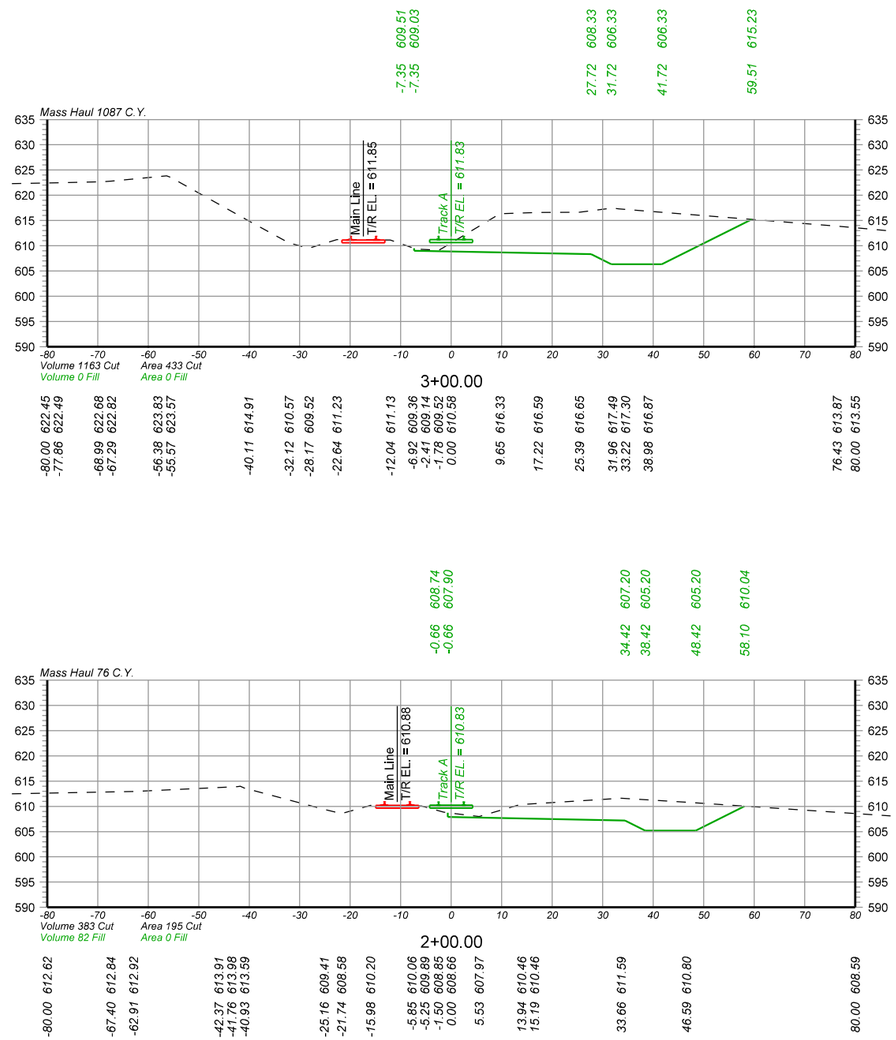
UNION PACIFIC RAILROAD For Use and Agreement
City of Tulsa - Rogers County Port Authority

LOCATION & DESCRIPTION:
Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18
Trackage to Serve: Tulsa Ports

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FES #:	40743
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SHEET NUMBER	56 of 94

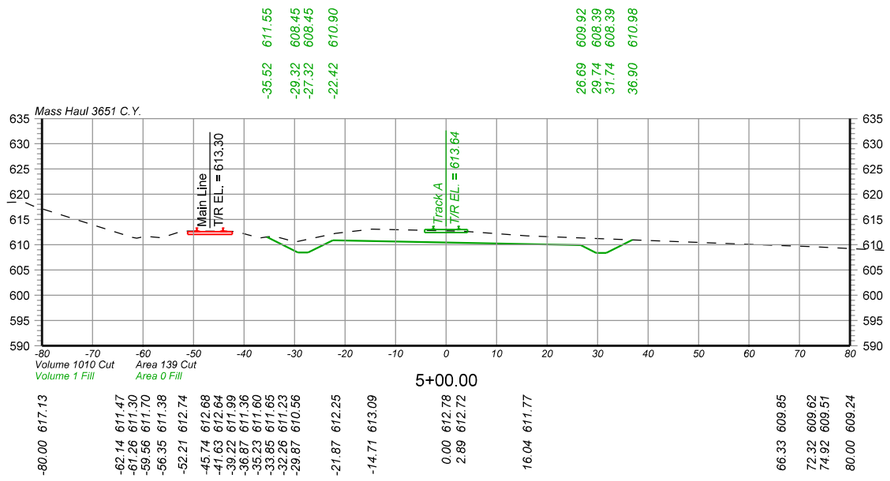
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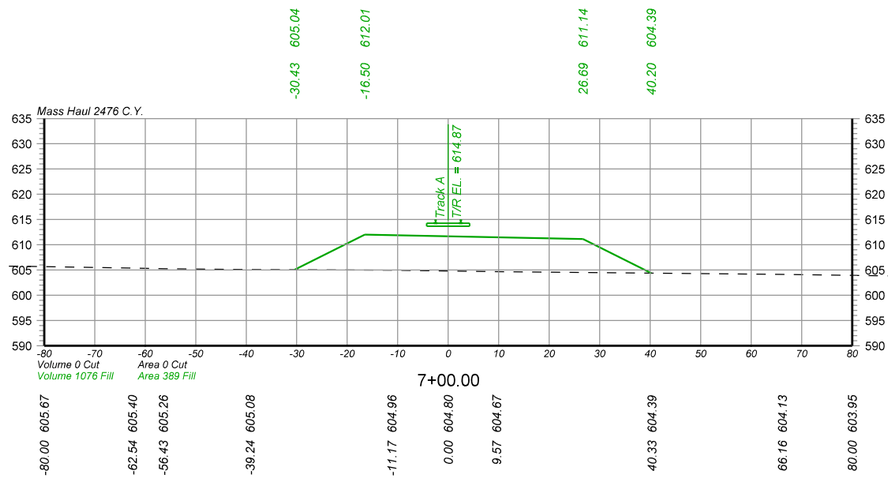
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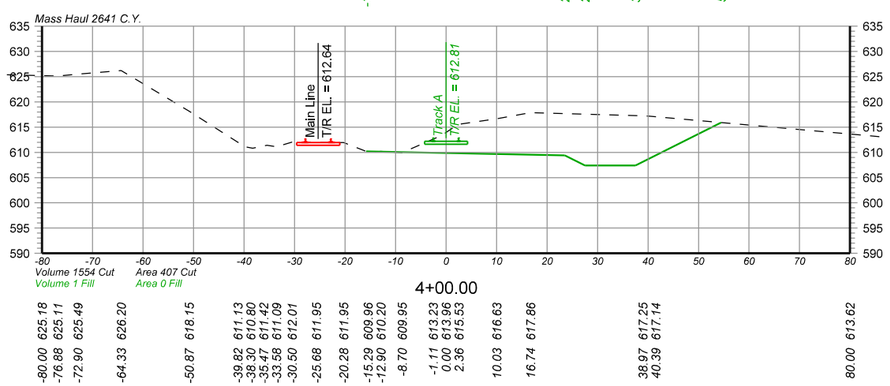
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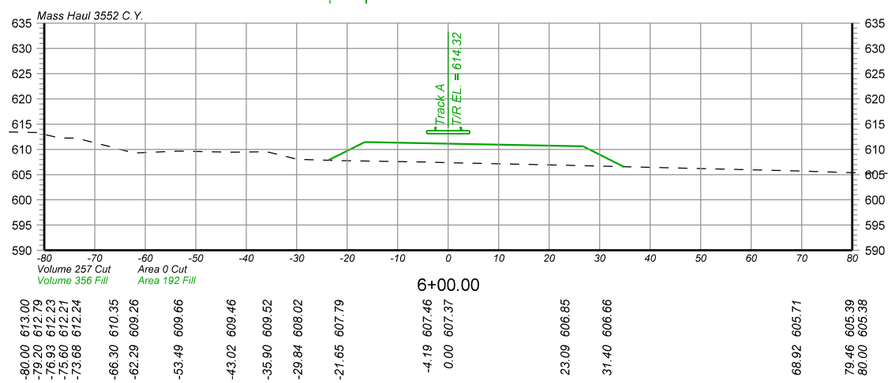
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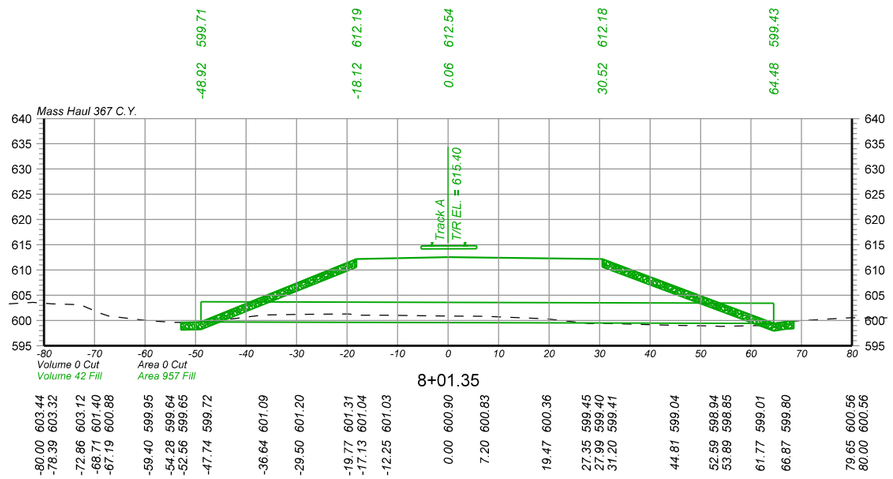
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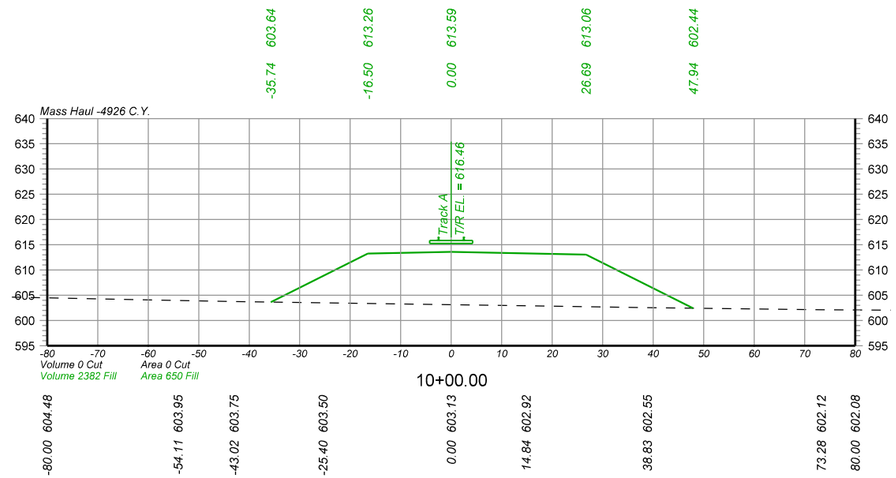
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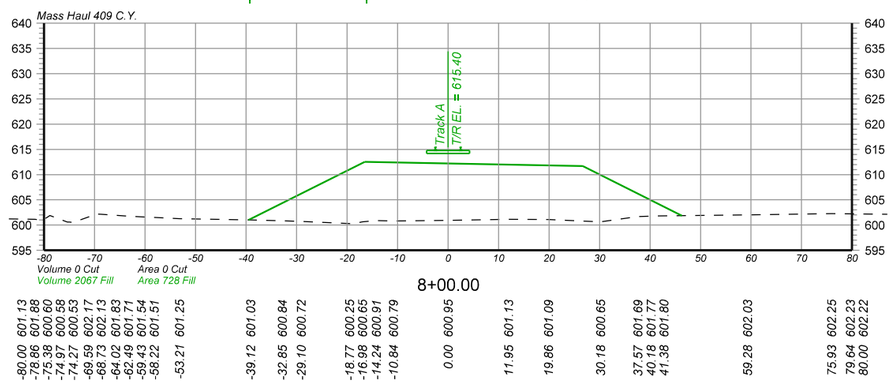
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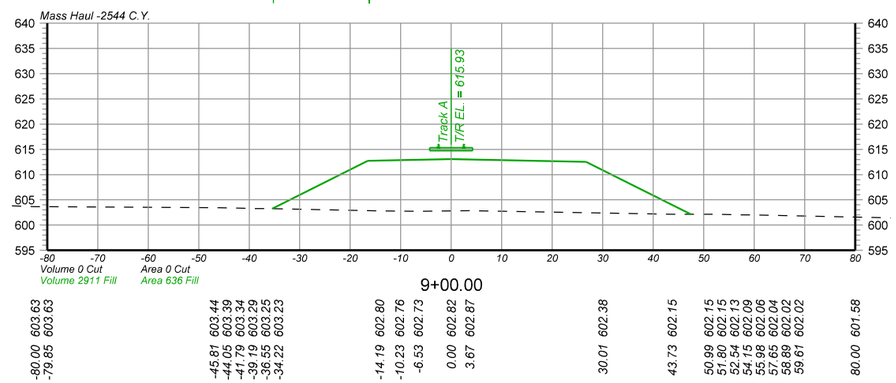
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FES #: 40743
DRAWN BY: TAR
CHECKED BY: JLS
DATE: 6/1/2021
SHEET NUMBER: 58 of 94

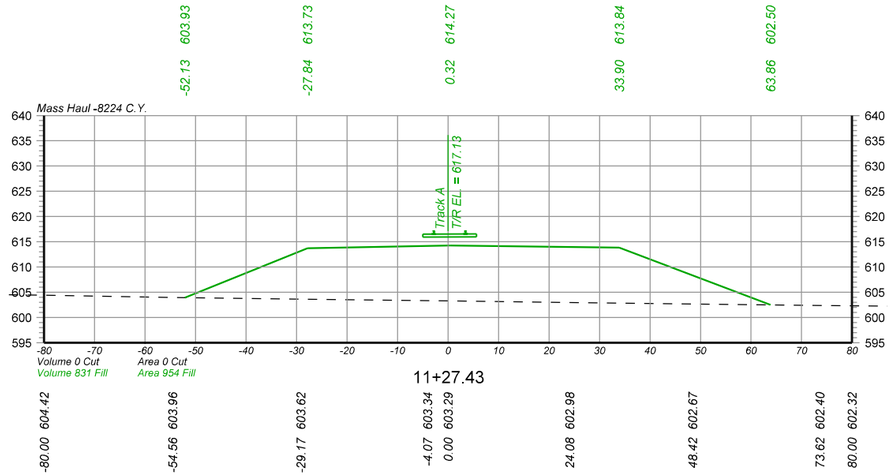
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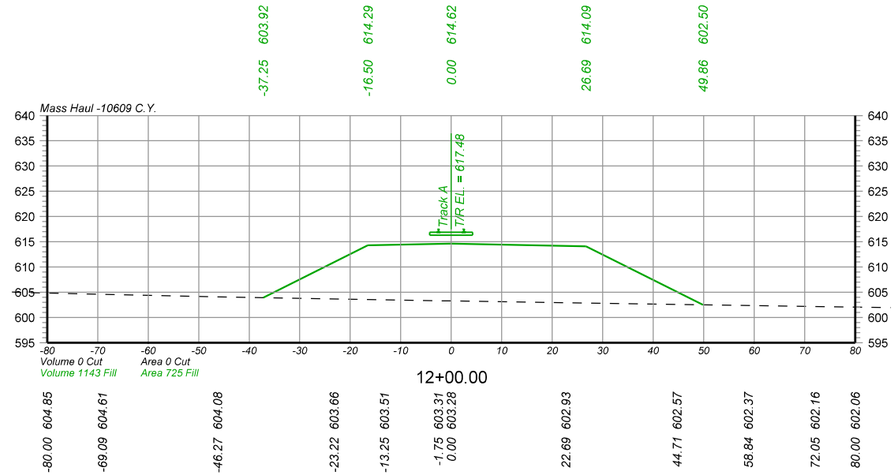
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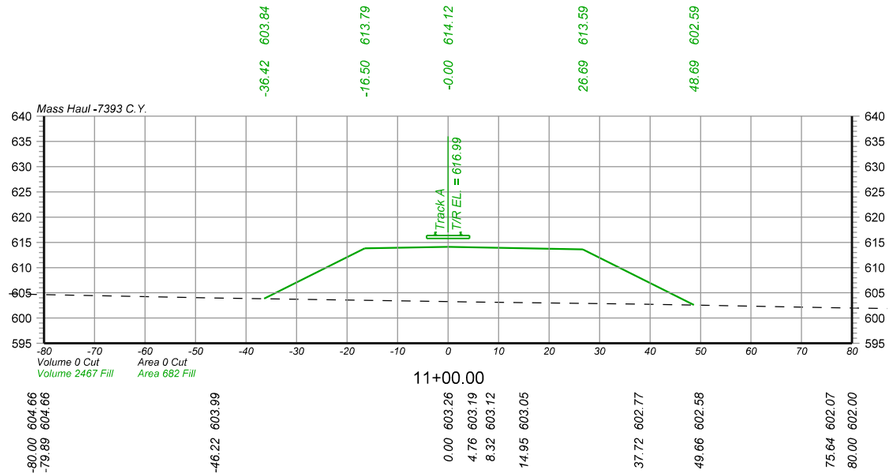
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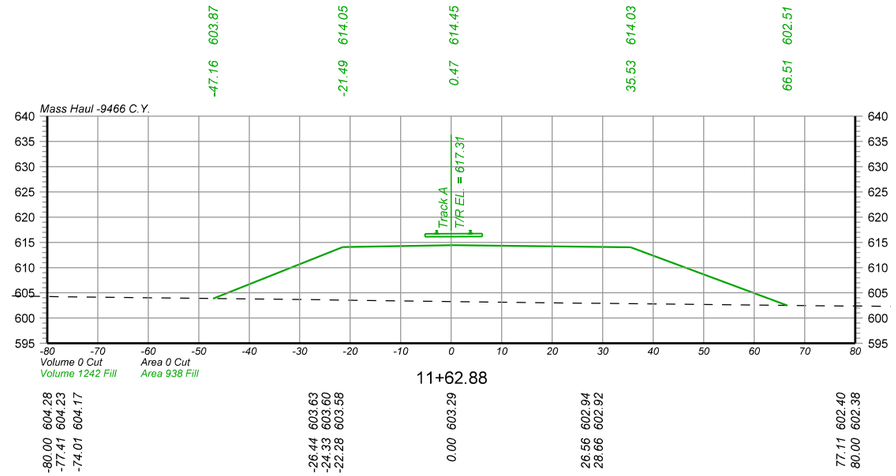
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FES #:	40743
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DATE:	6/1/2021
SHEET NUMBER	59 of 94

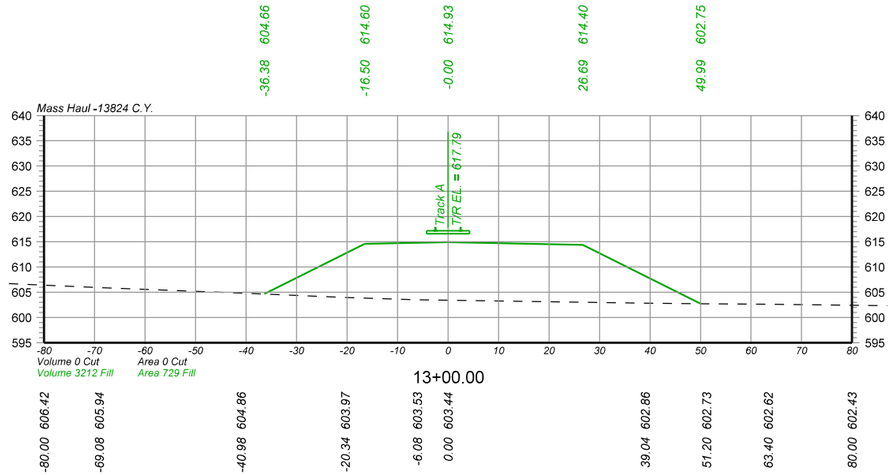
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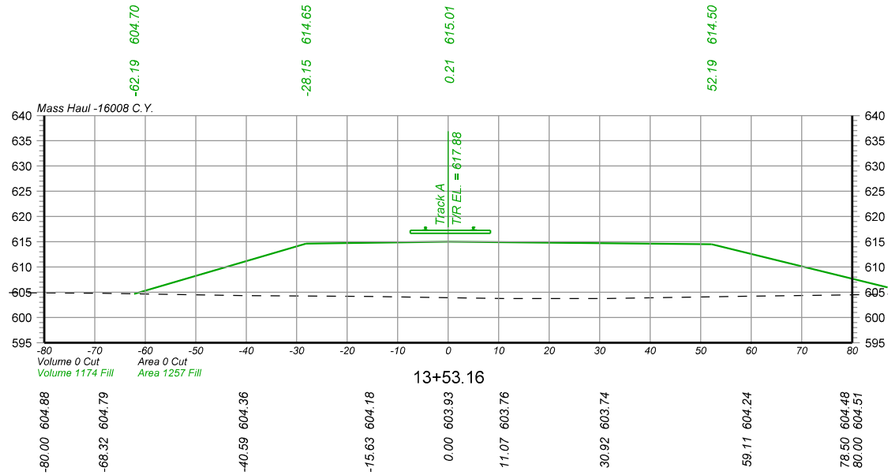
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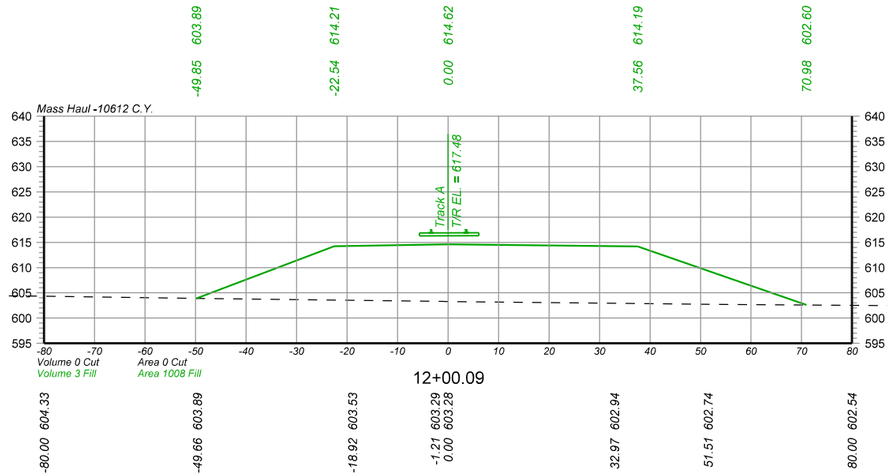
LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports

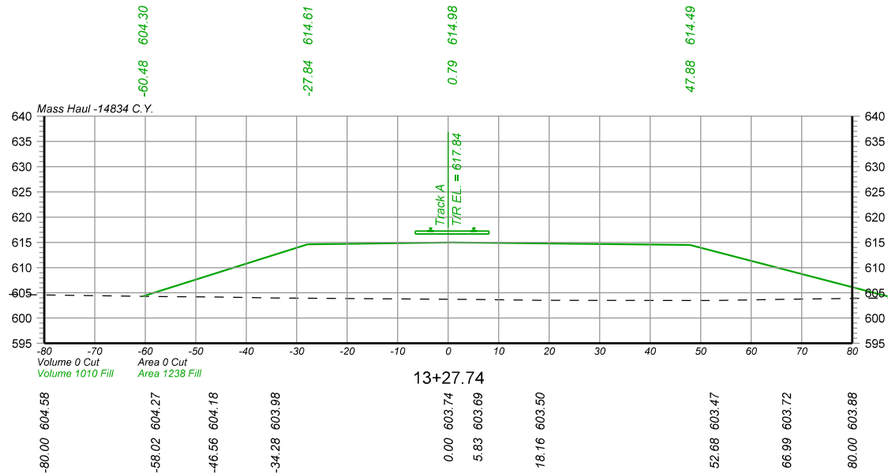
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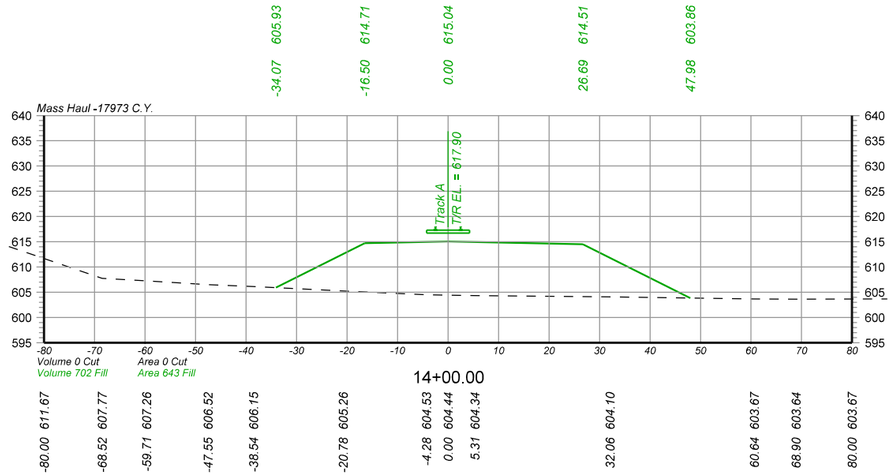
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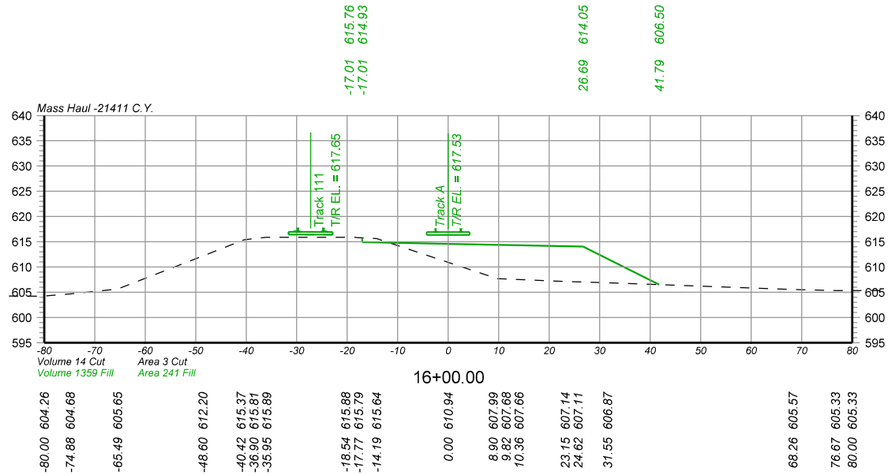
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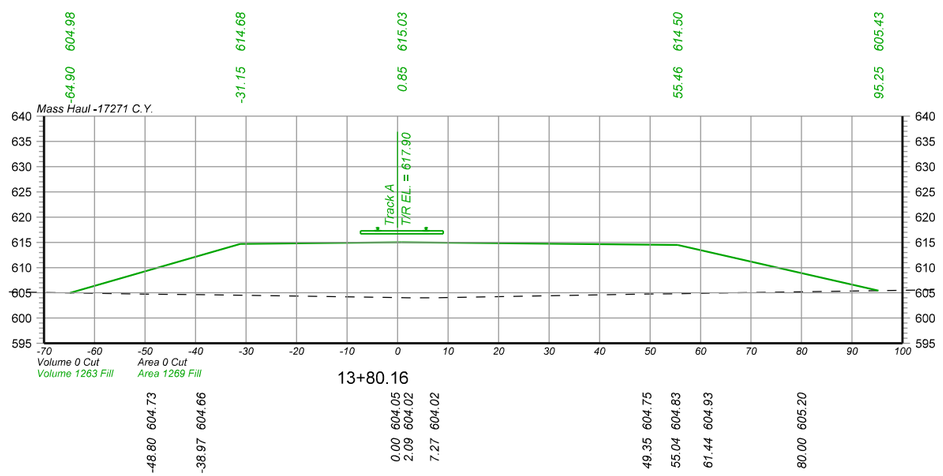
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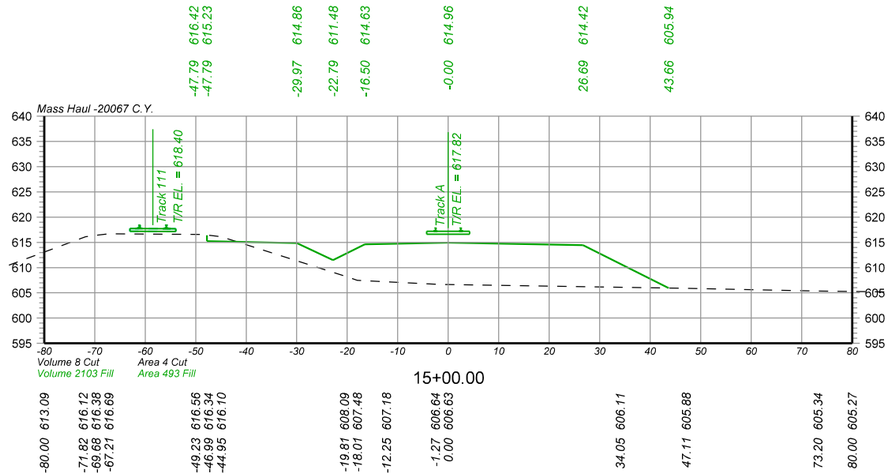
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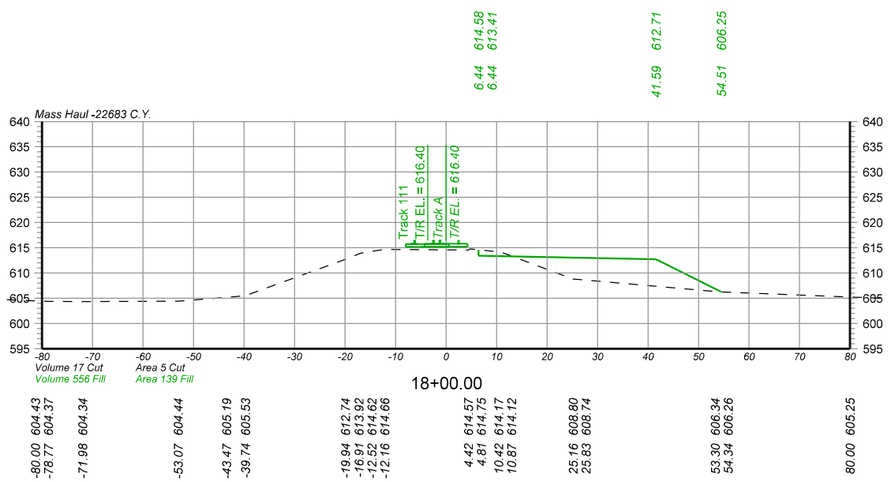
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UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority

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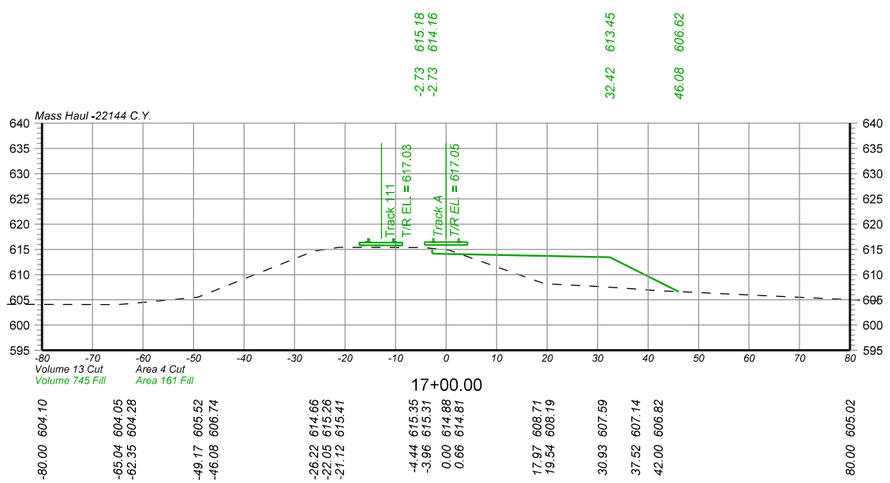


End Area Volume Report Wye Track A

Baseline Station	Station Quantities						
	Cut			Fill			Mass
	Area	Volume	Adjusted	Area	Volume	Adjusted	Ordinate
0+00.00	3	0	0	174	0	0	0
1+00.00	12	28	28	45	405	405	376
2+00.00	195	383	383	0	82	82	76
3+00.00	433	1163	1163	0	0	0	1087
4+00.00	407	1554	1554	0	1	1	2641
5+00.00	139	1010	1010	0	1	1	3651
6+00.00	0	257	257	192	356	356	3552
7+00.00	0	0	0	389	1076	1076	2476
8+00.00	0	0	0	728	2067	2067	409
8+01.35	0	0	0	957	42	42	367
9+00.00	0	0	0	636	2911	2911	-2544
10+00.00	0	0	0	650	2382	2382	-4926
11+00.00	0	0	0	682	2467	2467	-7393
11+27.43	0	0	0	954	831	831	-8224
11+62.88	0	0	0	938	1242	1242	-9466
12+00.00	0	0	0	725	1143	1143	-10609
12+00.09	0	0	0	1008	3	3	-10612
13+00.00	0	0	0	729	3212	3212	-13824
13+27.74	0	0	0	1238	1010	1010	-14834
13+53.16	0	0	0	1257	1174	1174	-16008
13+80.16	0	0	0	1269	1263	1263	-17271
14+00.00	0	0	0	643	702	702	-17973
15+00.00	4	8	8	493	2103	2103	-20067
16+00.00	3	14	14	241	1359	1359	-21411
17+00.00	4	13	13	161	745	745	-22144
18+00.00	5	17	17	139	556	556	-22683
Grand Total:		4447	4447		27133	27133	

Proposed Subgrade Total
Cut: 4,447 CY
Fill: 27,133 CY
Net: -22,686 CY

Clearing & Grubbing: 2.87 AC
Subballast: 2,404 CY
Seeding: 1.44 AC



- 100% Plans -

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REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TranSystems
2400 PERSHING ROAD
SUITE 400
KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

UNION PACIFIC

FES #: 40743
DRAWN BY: TAR
CHECKED BY: JLS
DATE: 6/1/2021
SHEET NUMBER: 62 of 94

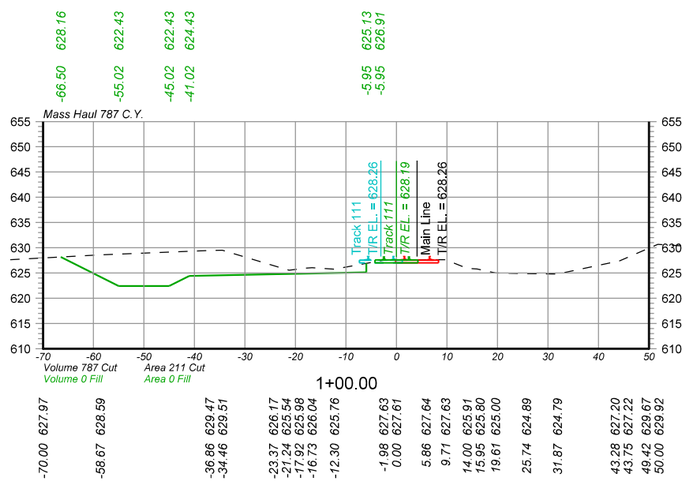
DOCUMENT TYPE: 30% Development Concept

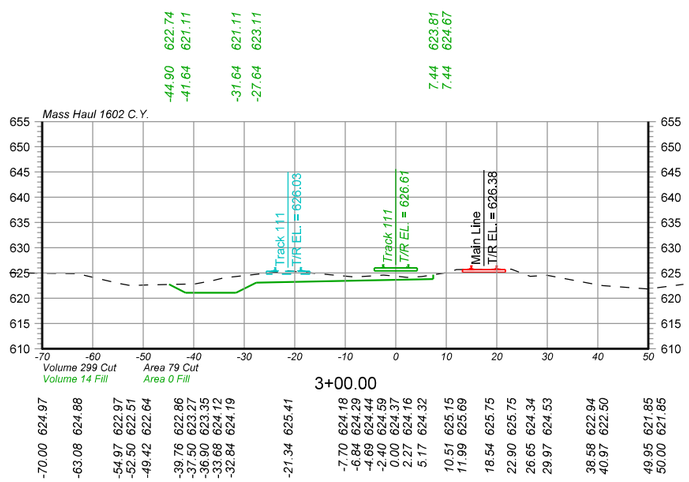
UNION PACIFIC RAILROAD For Use and Agreement
City of Tulsa - Rogers County Port Authority

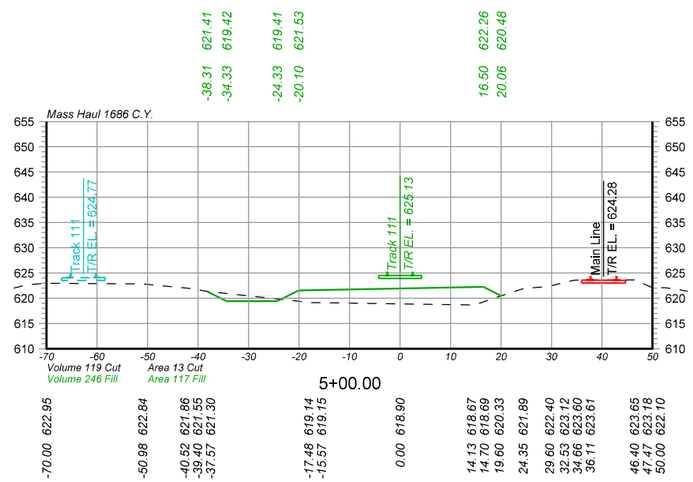
LOCATION & DESCRIPTION:
Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18
Trackage to Serve: Tulsa Ports

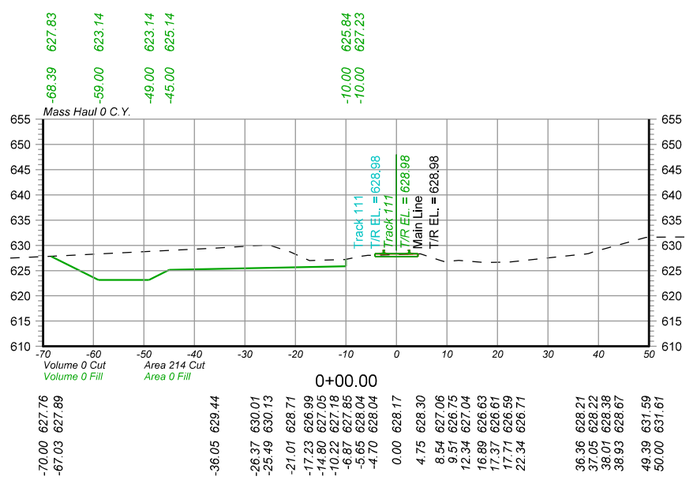
SHEET TITLE: TRACK A CROSS SECTIONS

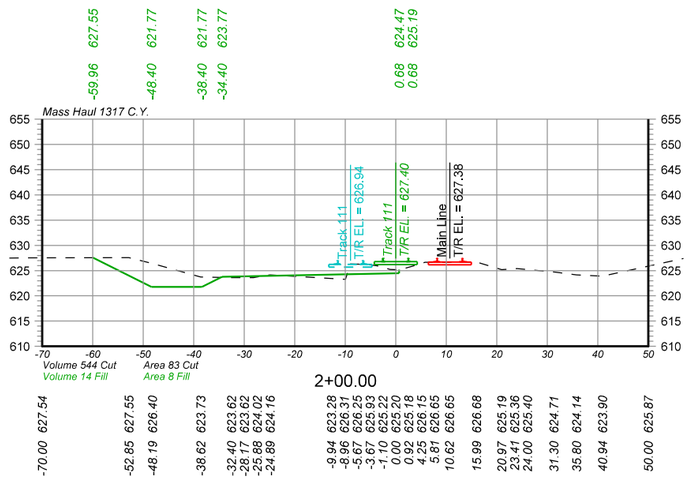
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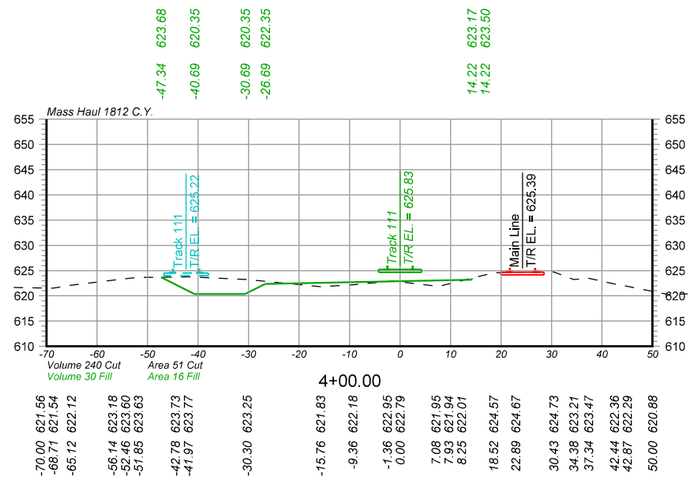












- 100% Plans -

NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

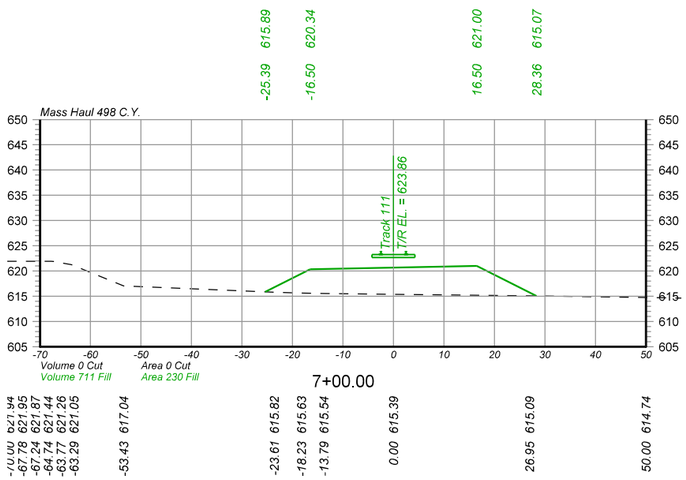
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Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
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No RR Operations
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Hand Throw Turnout
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Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TranSystems
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WWW.TRANSYSTEMS.COM

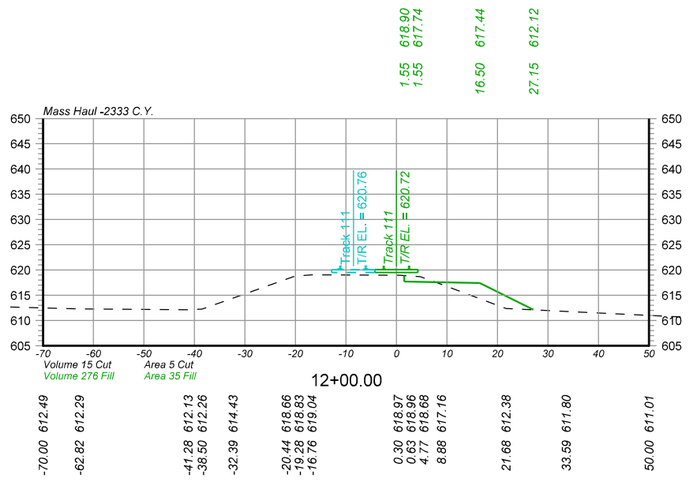
UNION PACIFIC

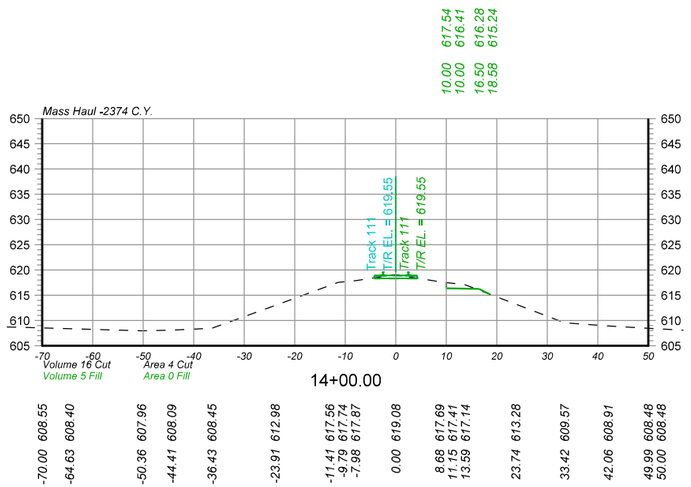
FES #: 40743	DOCUMENT TYPE: 30% Development Concept
DRAWN BY: TAR	UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
CHECKED BY: JLS	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	
SHEET NUMBER 63 of 94	SHEET TITLE: TRACK 111 CROSS SECTIONS

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Default
6/1/2021


Mass Haul 498 C.Y.
Track 111
T/R EL. = 623.86
Volume 0 Cut
Volume 711 Fill
Area 0 Cut
Area 230 Fill
7+00.00

| | | |



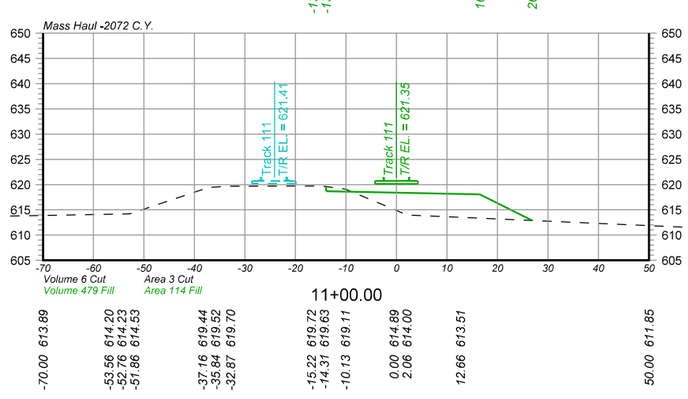


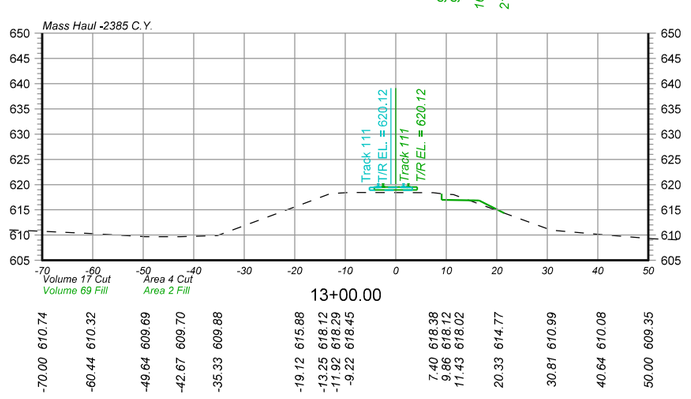
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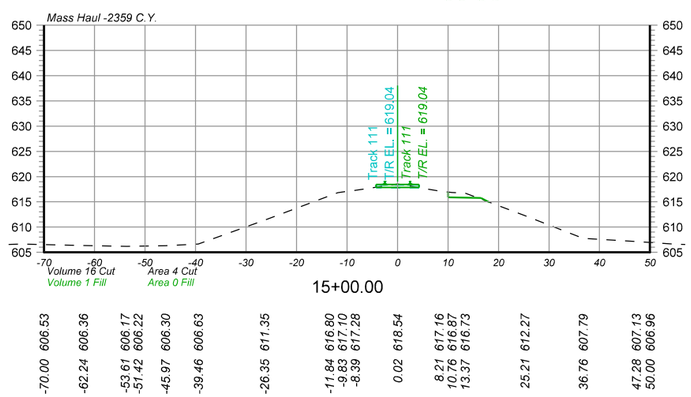
Baseline Station	Station Quantities						
	Cut			Fill			Mass Ordinate
	Area	Volume	Adjusted	Area	Volume	Adjusted	
0+00.00	214	0	0	0	0	0	0
1+00.00	211	787	787	0	0	0	787
2+00.00	83	544	544	8	14	14	1317
3+00.00	79	299	299	0	14	14	1602
4+00.00	51	240	240	16	30	30	1812
5+00.00	13	119	119	117	246	246	1686
6+00.00	0	24	24	154	501	501	1209
7+00.00	0	0	0	230	711	711	498
8+00.00	0	0	0	204	804	804	-306
8+16.62	0	0	0	213	129	129	-435
9+00.00	0	0	0	167	587	587	-1022
10+00.00	0	0	0	145	577	577	-1599
11+00.00	3	6	6	114	479	479	-2072
12+00.00	5	15	15	35	276	276	-2333
13+00.00	4	17	17	2	69	69	-2385
14+00.00	4	16	16	0	5	5	-2374
15+00.00	4	16	16	0	1	1	-2359
Grand Total:		2083	2083		4443	4443	

Proposed Subgrade Total
Cut: 2,083 CY
Fill: 4,443 CY
Net: -2,359 CY

Clearing & Grubbing: 1.49 AC
Subballast: 1,577 CY
Seeding: 0.54 AC







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REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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2400 PERSHING ROAD
SUITE 400
KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

UNION PACIFIC

FES #:	40743
DRAWN BY:	TAR
CHECKED BY:	JLS
DATE:	6/1/2021
SHEET NUMBER	65 of 94

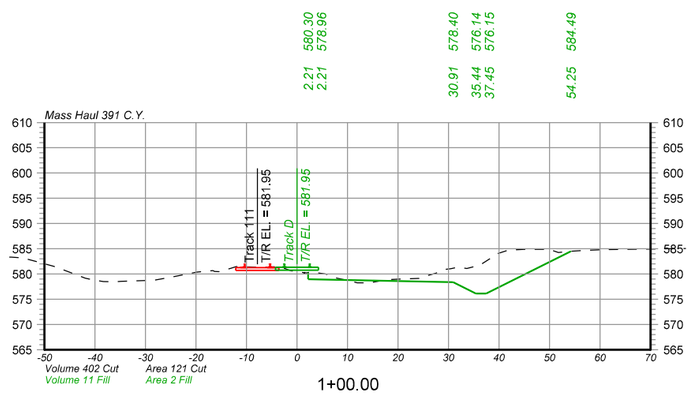
DOCUMENT TYPE: 30% Development Concept

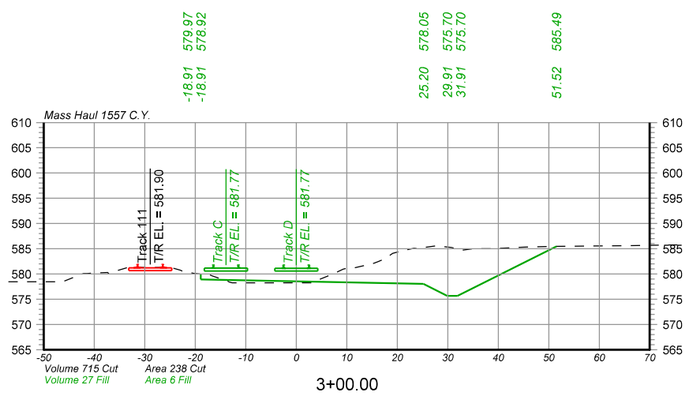
UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority

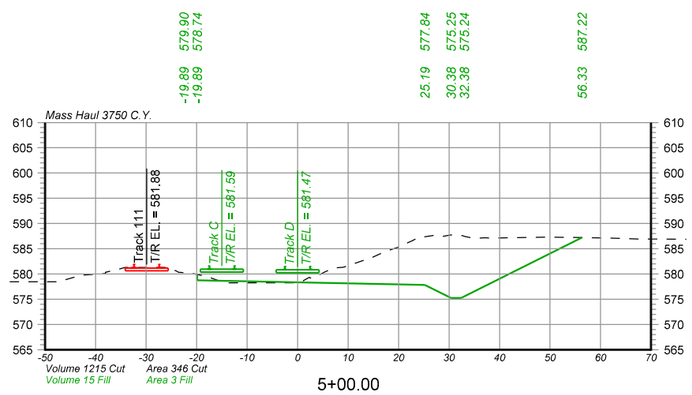
LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports

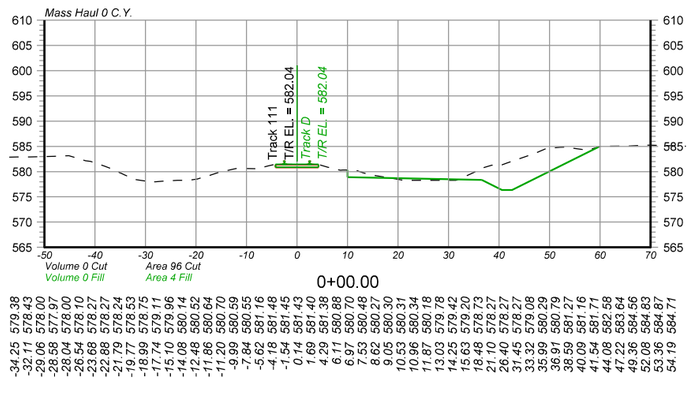
SHEET TITLE: TRACK 111 CROSS SECTIONS

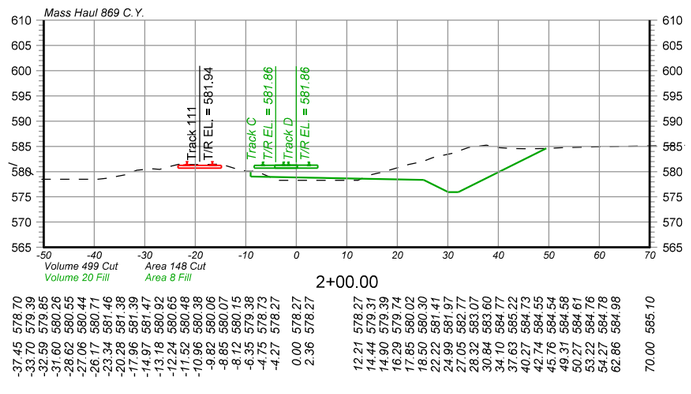
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6/1/2021

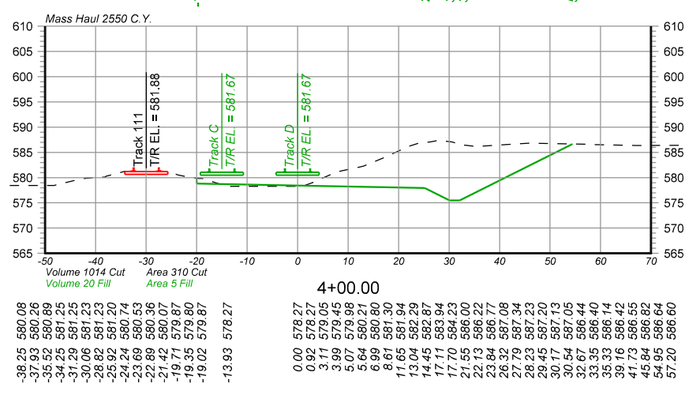












- 100% Plans -

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REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track

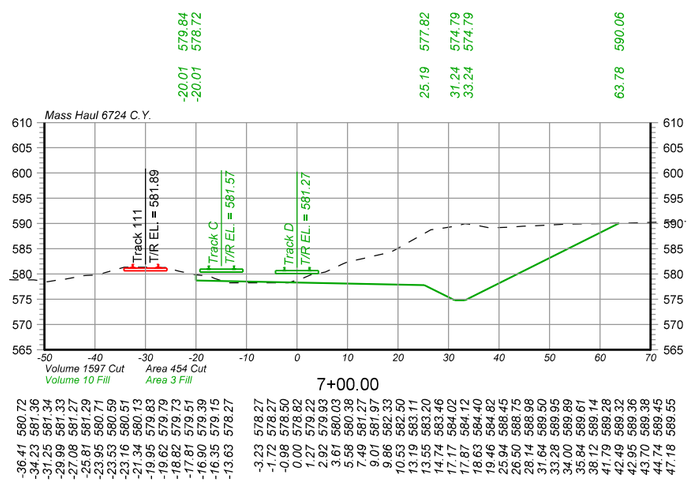
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property

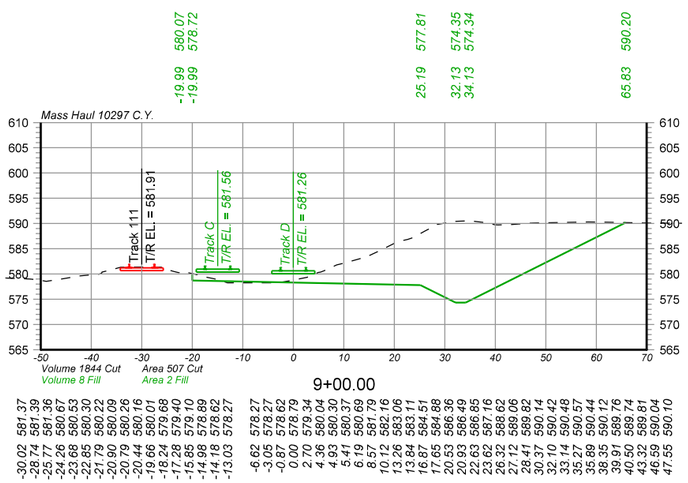
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

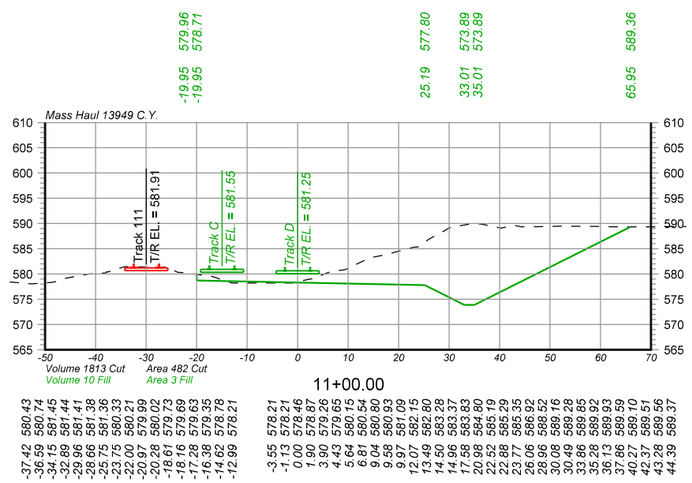
TranSystems
2400 PERSHING ROAD
SUITE 400
KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

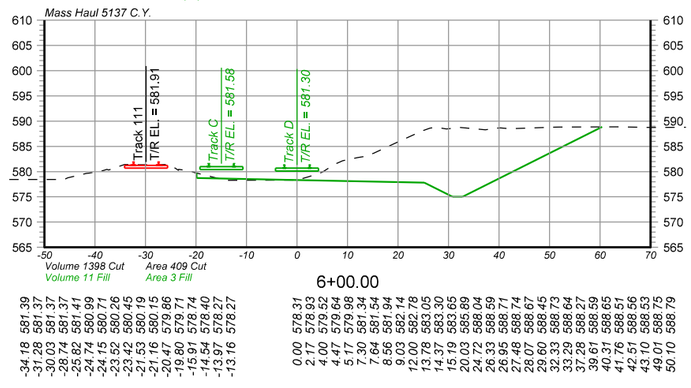
FES #: 40743	DOCUMENT TYPE: 30% Development Concept
DRAWN BY: TAR	UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
CHECKED BY: JLS	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	SHEET NUMBER 66 of 94
	SHEET TITLE: TRACK C & D CROSS SECTIONS

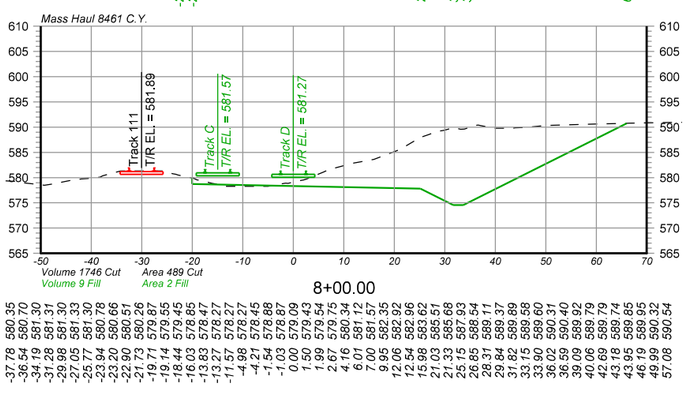
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6/1/2021

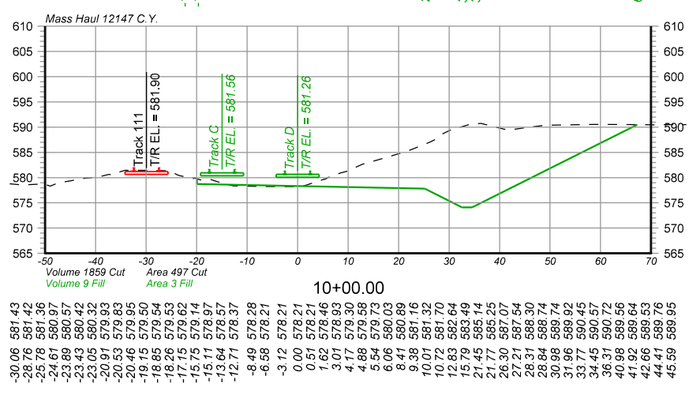












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REV. #	BY	DATE	DESCRIPTION

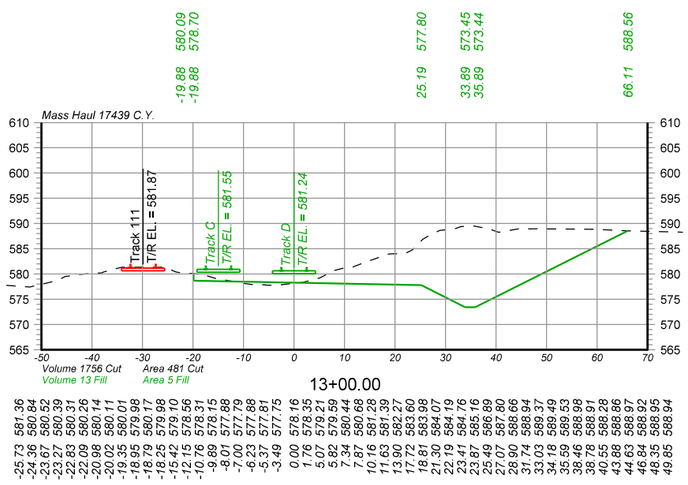
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Prop. UPRR Track
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Ex. Ind. Track
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Remove Ind. Track
Shift Ind. Track
Future Ind. Track
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Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

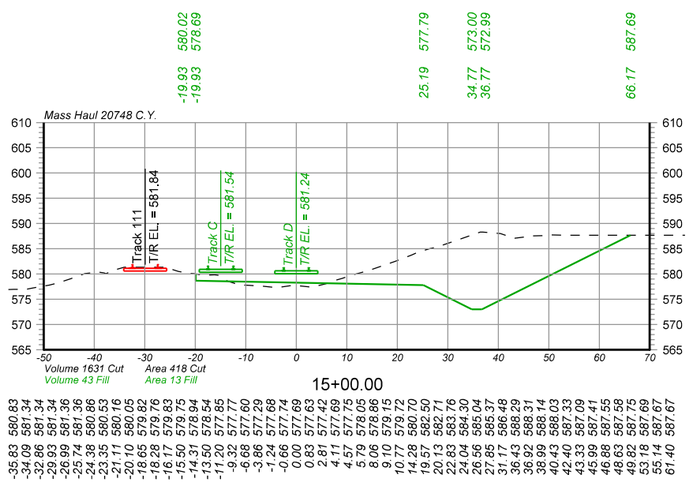
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2400 PERSHING ROAD
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KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

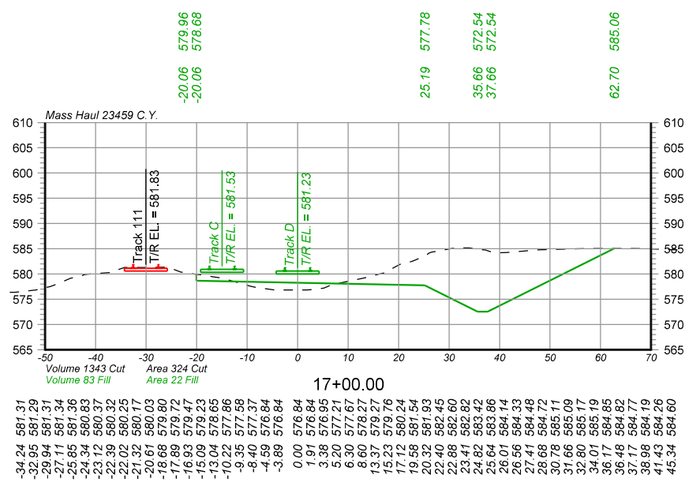
UNION PACIFIC

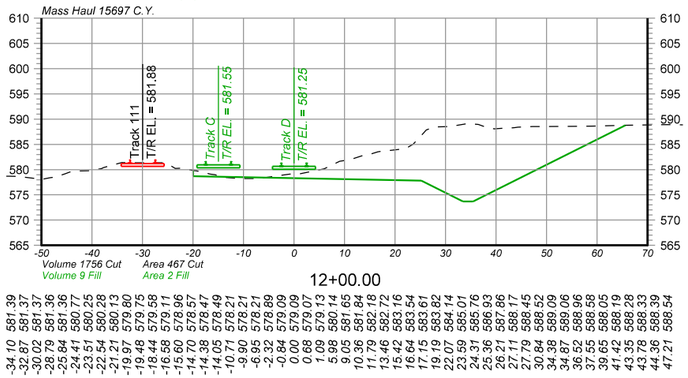
FES #: 40743	DOCUMENT TYPE: 30% Development Concept
DRAWN BY: TAR	UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
CHECKED BY: JLS	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	
SHEET NUMBER 67 of 94	SHEET TITLE: TRACK C & D CROSS SECTIONS

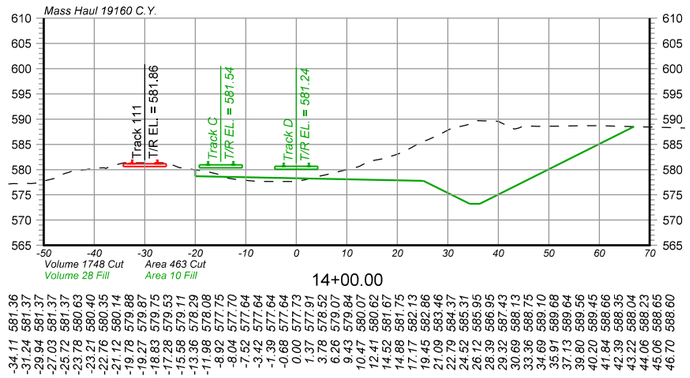
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6/1/2021

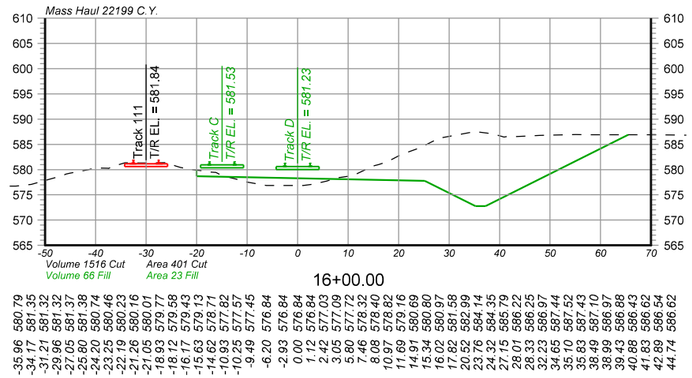












- 100% Plans -

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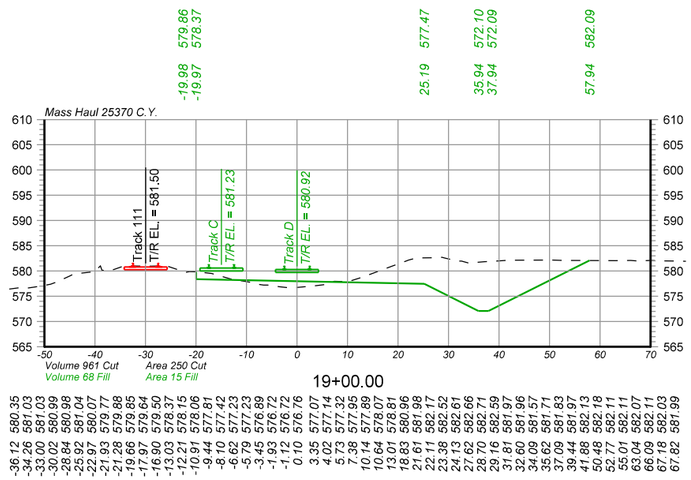
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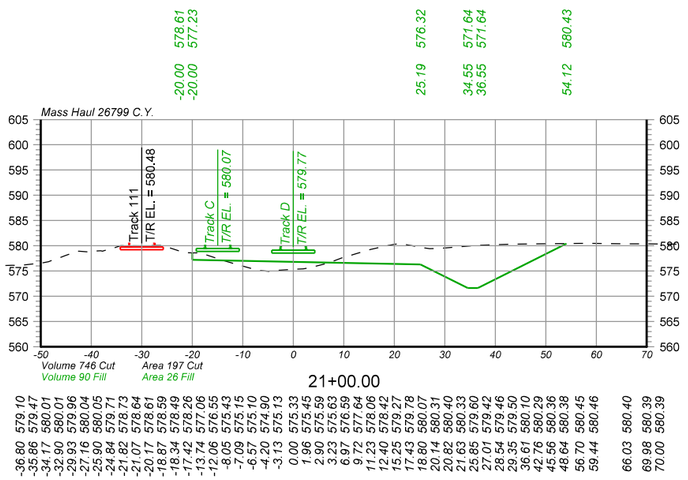
TranSystems
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KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
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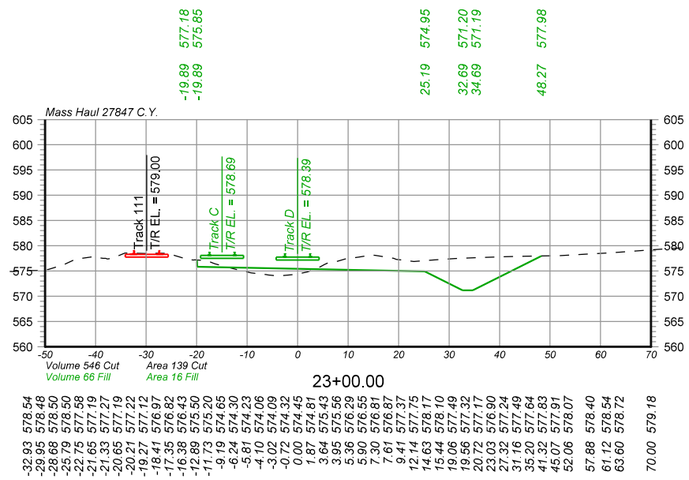
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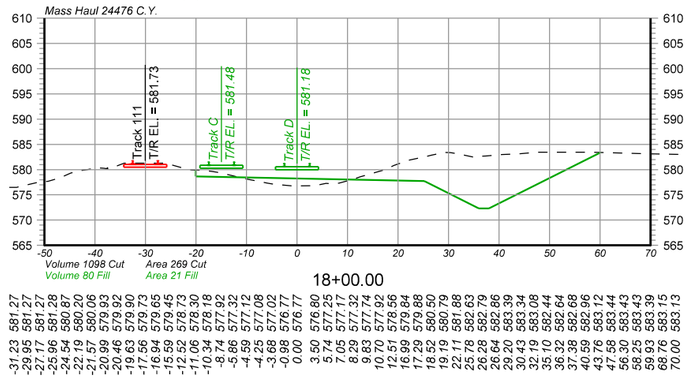
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DRAWN BY: TAR	UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
CHECKED BY: JLS	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	SHEET NUMBER 68 of 94
	SHEET TITLE: TRACK C & D CROSS SECTIONS

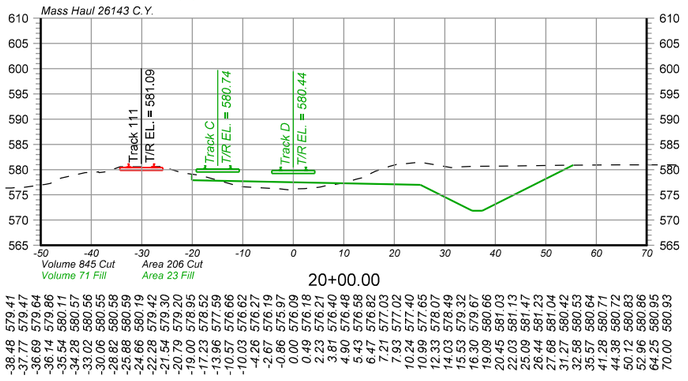
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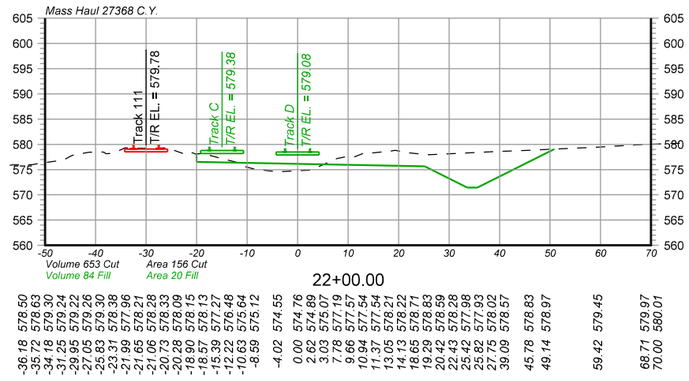












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REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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FES #:	40743
DRAWN BY:	TAR
CHECKED BY:	JLS
DATE:	6/1/2021
SHEET NUMBER	69 of 94

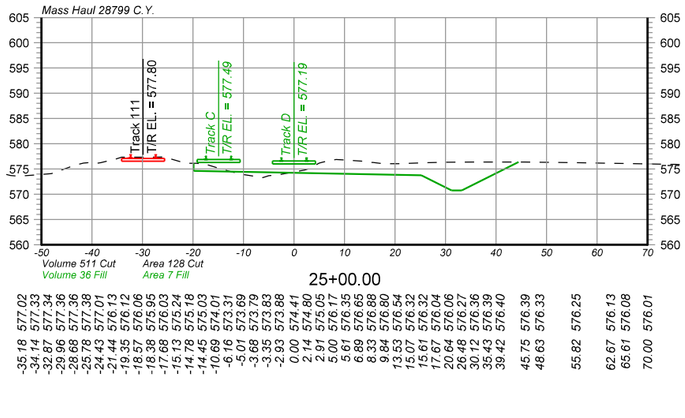
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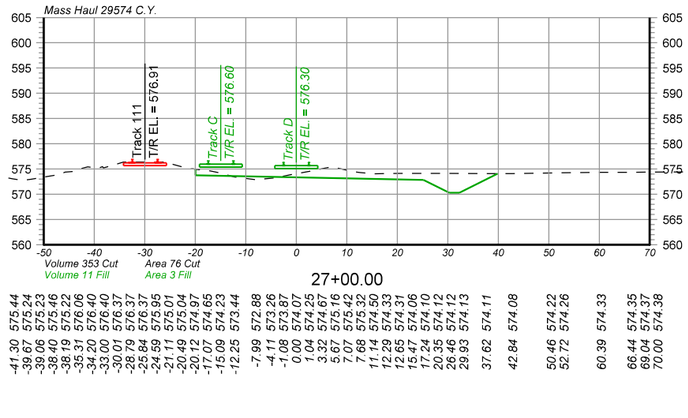
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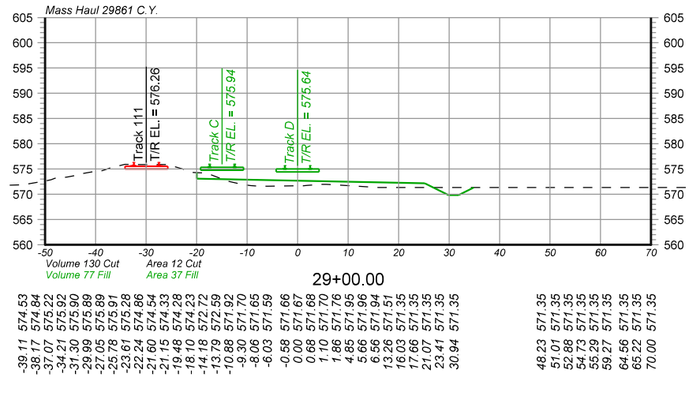
LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports

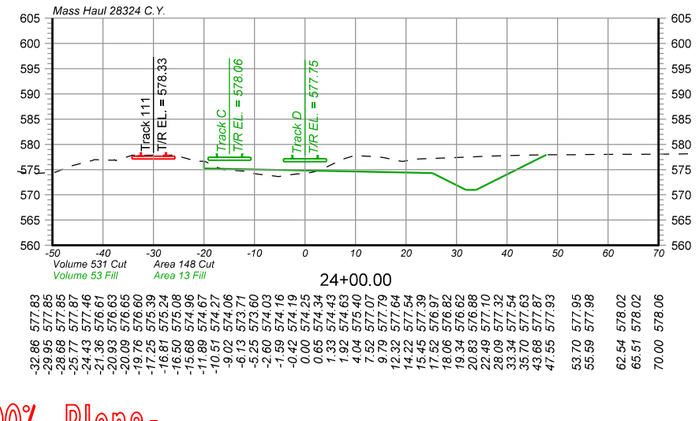
SHEET TITLE: TRACK C & D CROSS SECTIONS

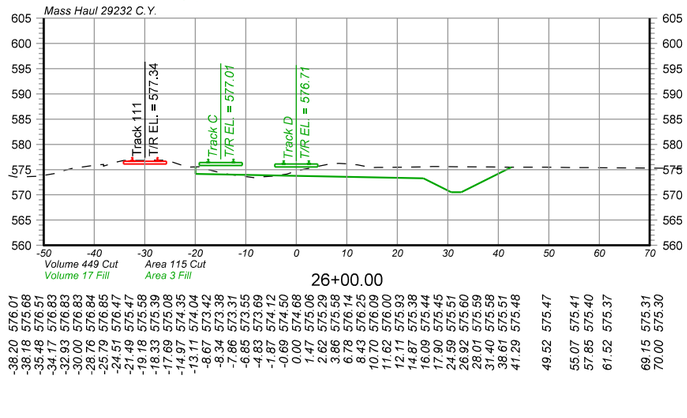
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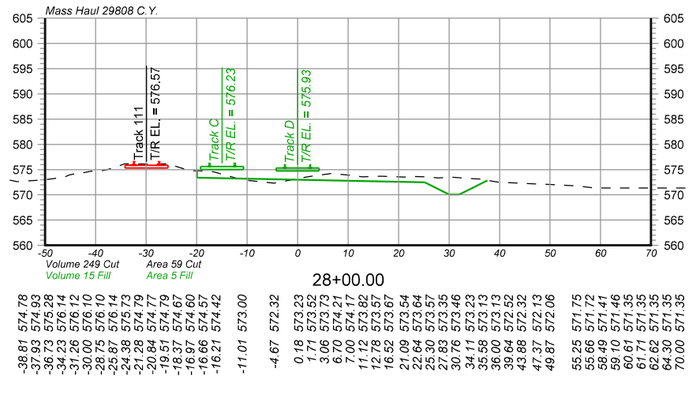












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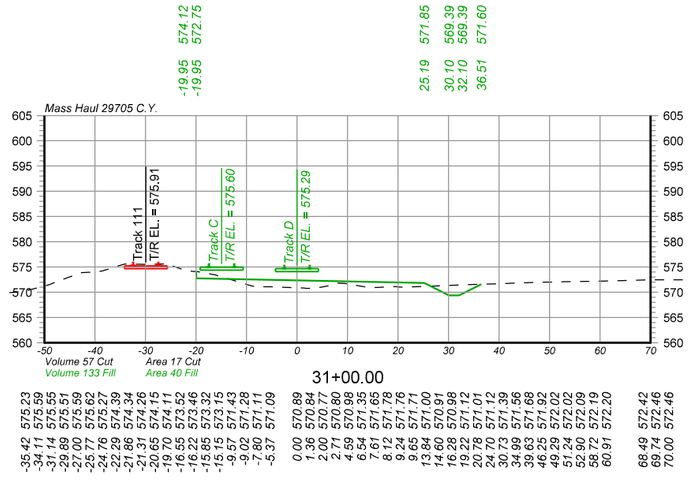
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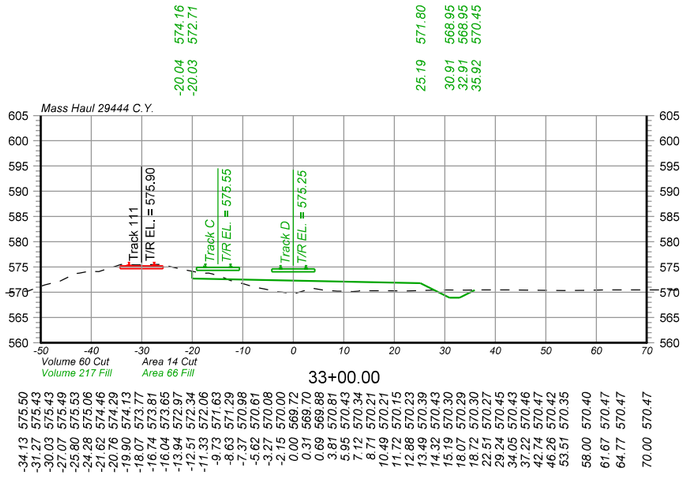
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Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

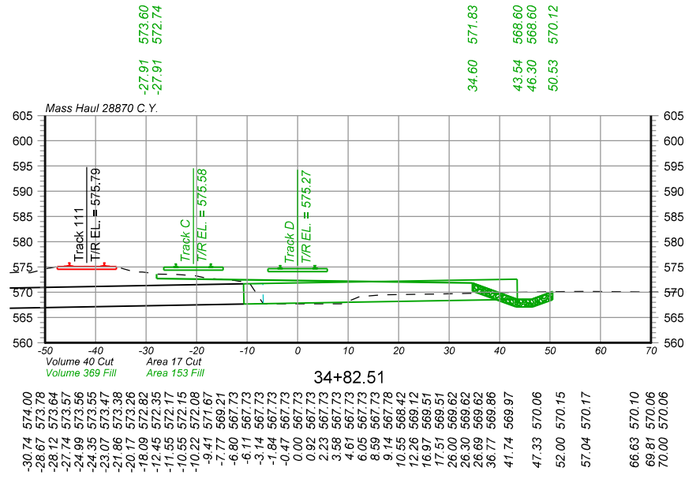
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2400 PERSHING ROAD
SUITE 400
KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

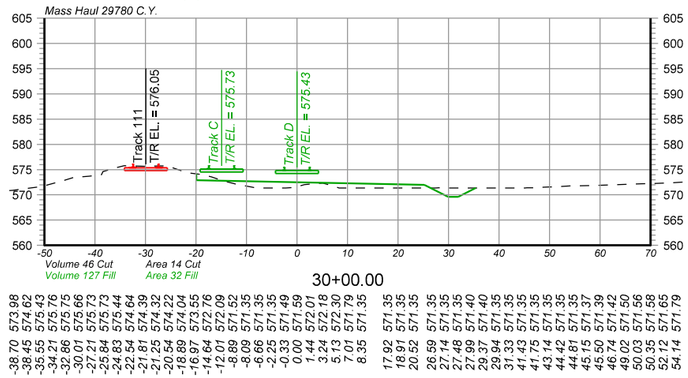
FES #: 40743	DOCUMENT TYPE: 30% Development Concept
DRAWN BY: TAR	UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
CHECKED BY: JLS	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	SHEET NUMBER 70 of 94
	SHEET TITLE: TRACK C & D CROSS SECTIONS

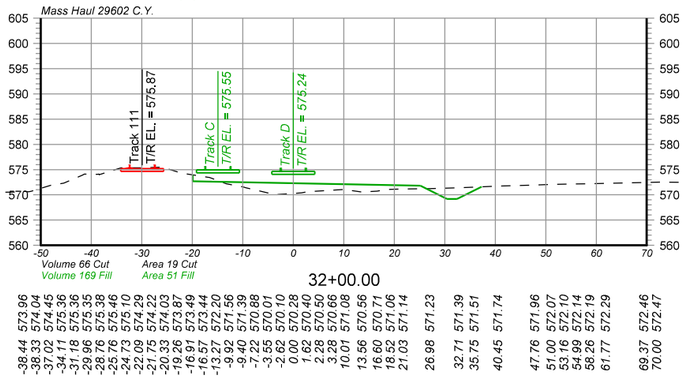
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6/1/2021

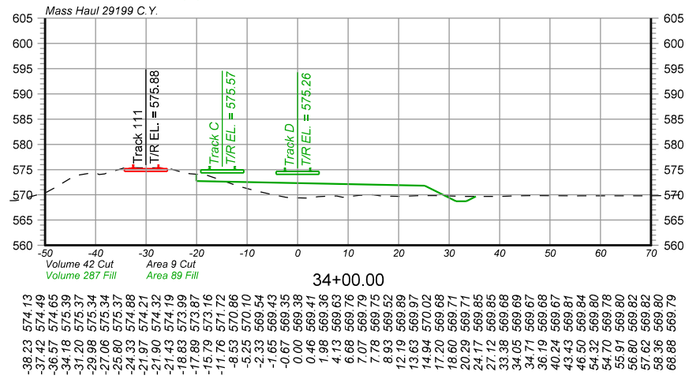












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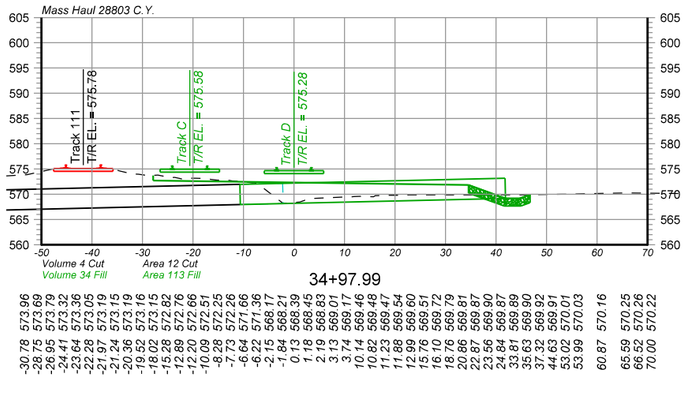
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Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

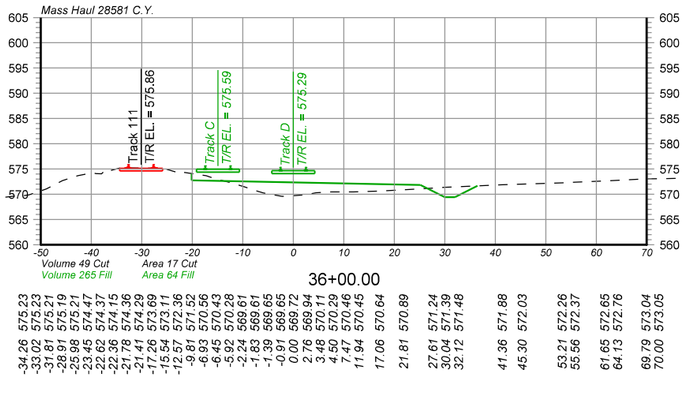
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KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

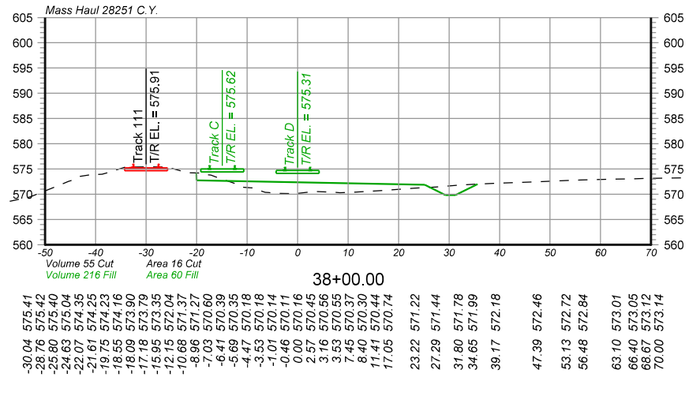
UNION PACIFIC

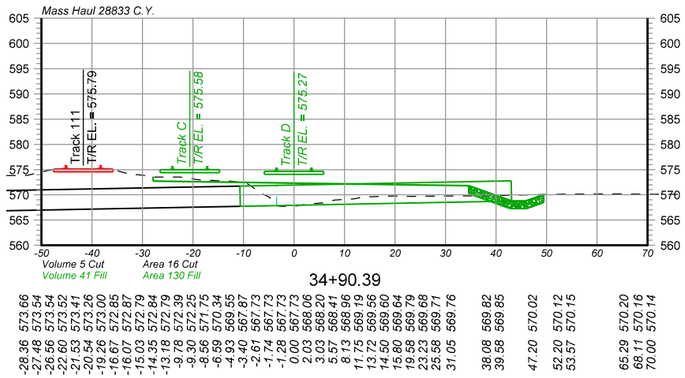
FES #: 40743	DOCUMENT TYPE: 30% Development Concept
DRAWN BY: TAR	UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
CHECKED BY: JLS	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	
SHEET NUMBER 71 of 94	SHEET TITLE: TRACK C & D CROSS SECTIONS

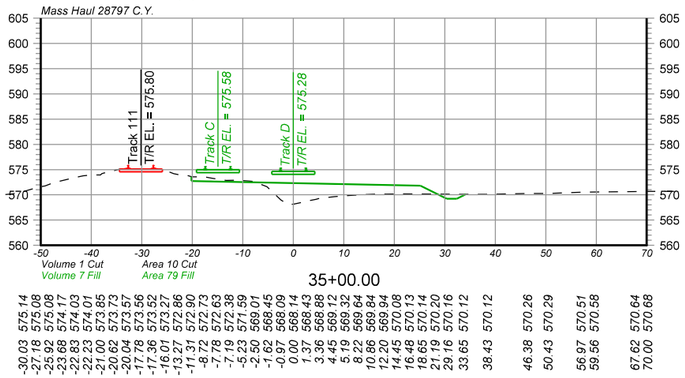
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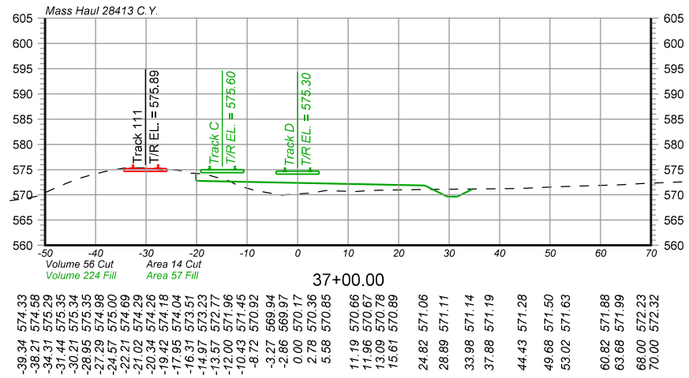












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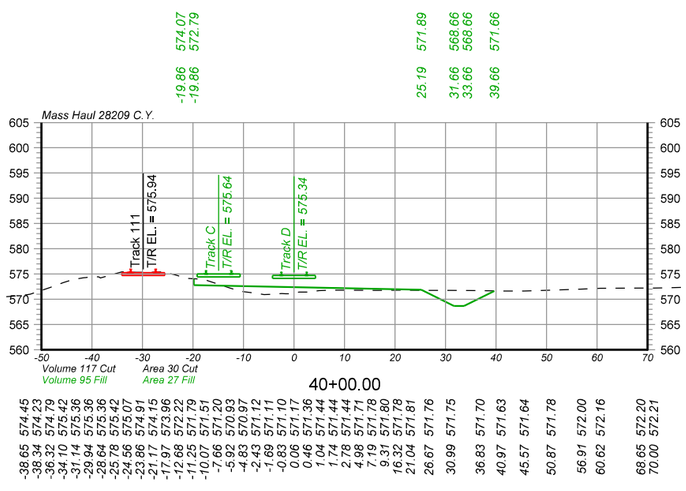
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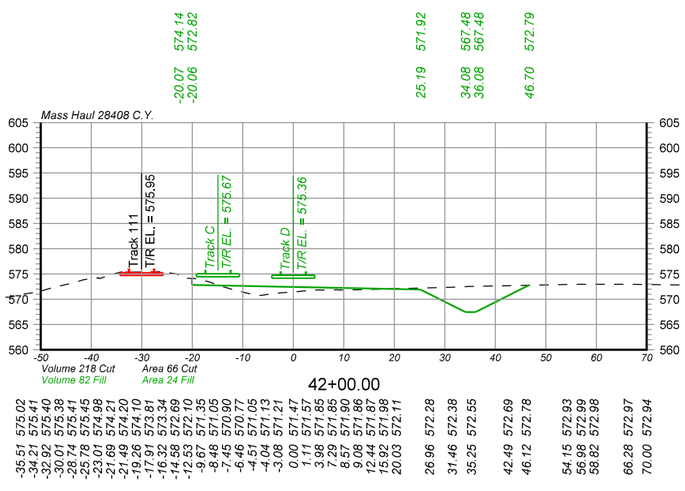
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Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

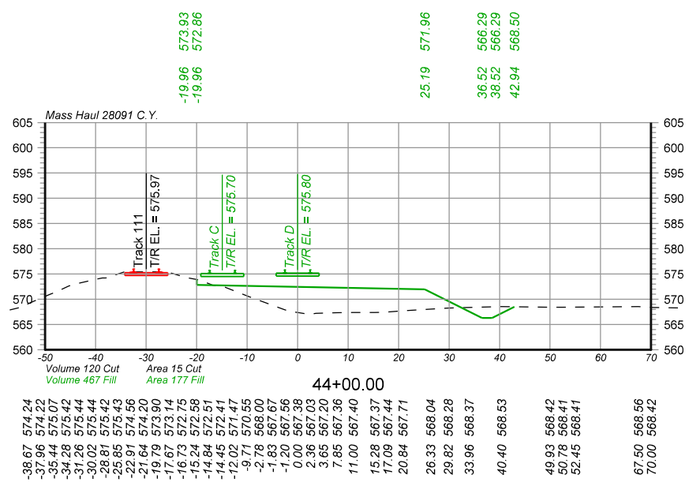
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SUITE 400
KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

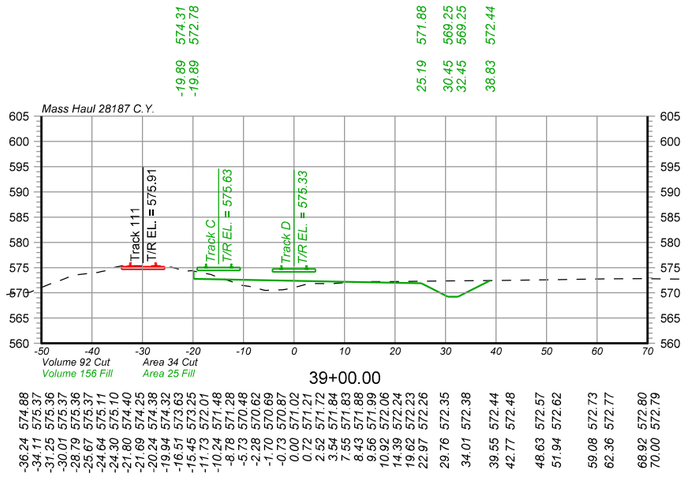
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DRAWN BY: TAR	UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
CHECKED BY: JLS	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	SHEET NUMBER 72 of 94
	SHEET TITLE: TRACK C & D CROSS SECTIONS

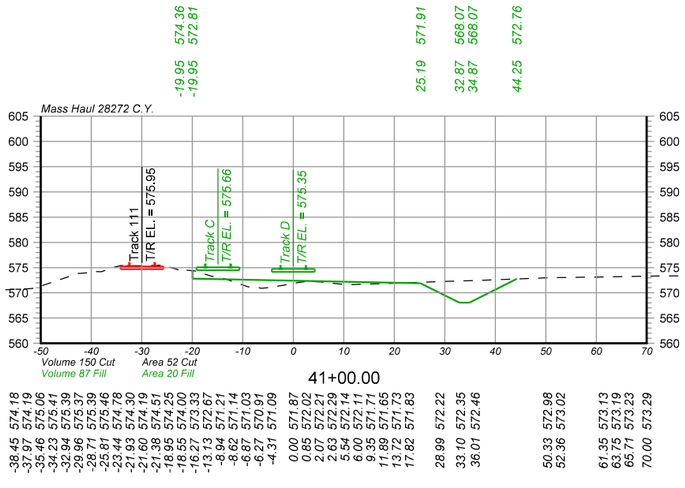
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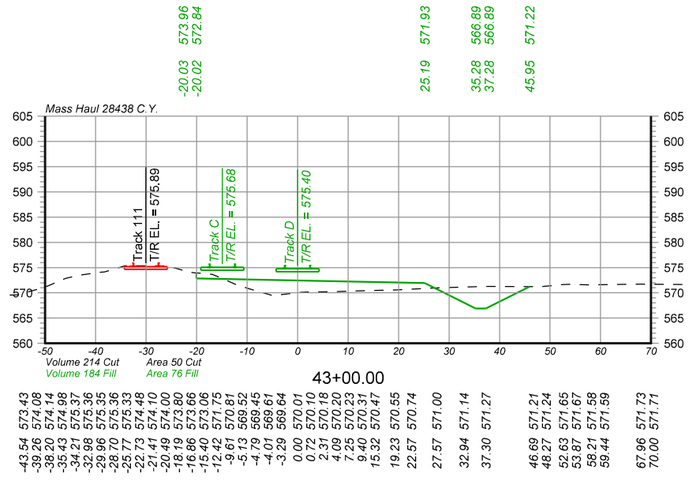












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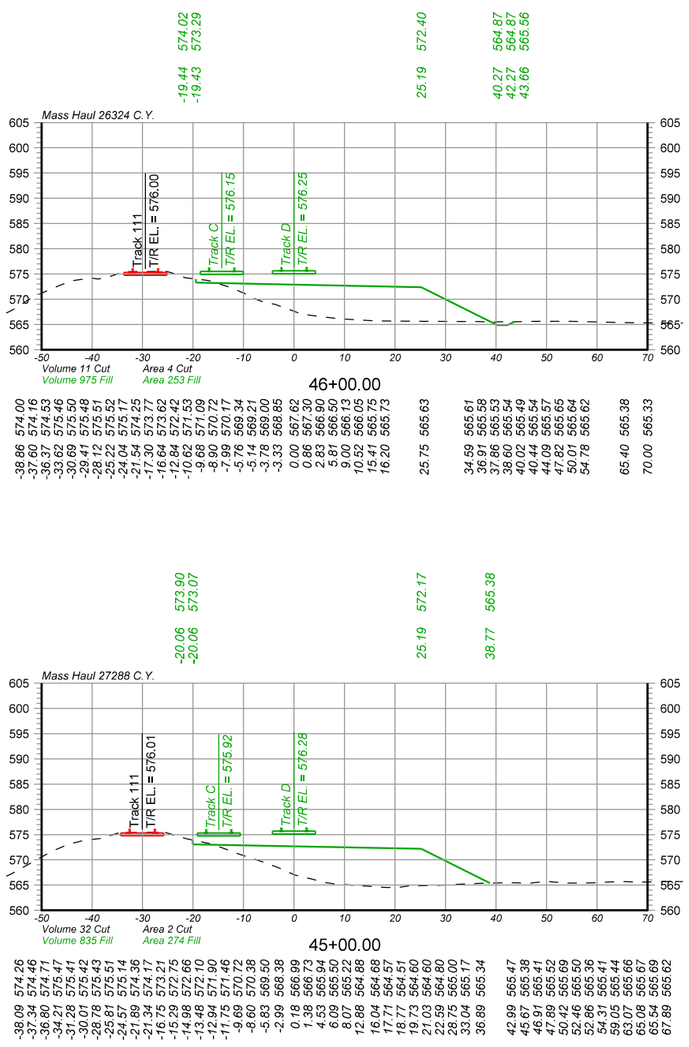
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Prop. Ind. Track
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Shift Ind. Track
Future Ind. Track
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No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
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Point of Curve
Bridge
Signal

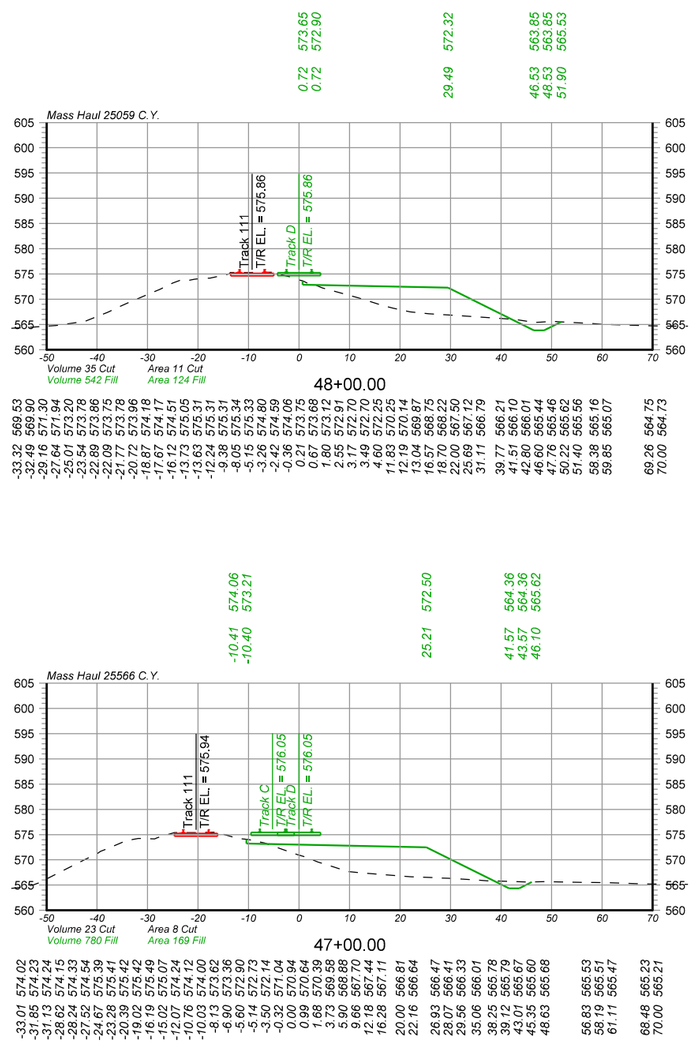
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2400 PERSHING ROAD
SUITE 400
KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

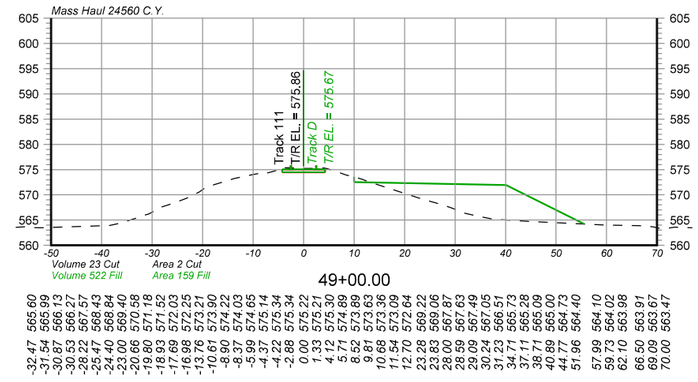
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DRAWN BY: TAR	UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
CHECKED BY: JLS	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	SHEET NUMBER 73 of 94
	SHEET TITLE: TRACK C & D CROSS SECTIONS

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Default
6/1/2021







End Area Volume Report Track C/D

Baseline Station	Station Quantities – Cut – Area	Cut – Volume	Cut – Adjusted	Fill – Area	Fill – Volume	Fill – Adjusted	Mass Ordinate
0+00.00	96	0	0	4	0	0	0
1+00.00	121	402	402	2	11	11	391
2+00.00	148	499	499	8	20	20	869
3+00.00	238	715	715	6	27	27	1557
4+00.00	310	1014	1014	5	20	20	2550
5+00.00	346	1215	1215	3	15	15	3750
6+00.00	409	1398	1398	3	11	11	5137
7+00.00	454	1597	1597	3	10	10	6724
8+00.00	489	1746	1746	2	9	9	8461
9+00.00	507	1844	1844	2	8	8	10297
10+00.00	497	1859	1859	3	9	9	12147
11+00.00	482	1813	1813	3	10	10	13949
12+00.00	467	1756	1756	2	9	9	15697
13+00.00	481	1756	1756	5	13	13	17439
14+00.00	463	1748	1748	10	28	28	19160
15+00.00	418	1631	1631	13	43	43	20748
16+00.00	401	1516	1516	23	66	66	22199
17+00.00	324	1343	1343	22	83	83	23459
18+00.00	269	1098	1098	21	80	80	24476
19+00.00	250	961	961	15	68	68	25370
20+00.00	206	845	845	23	71	71	26143
21+00.00	197	746	746	26	90	90	26799
22+00.00	156	653	653	20	84	84	27368
23+00.00	139	546	546	16	66	66	27847
24+00.00	148	531	531	13	53	53	28324
25+00.00	128	511	511	7	36	36	28799
26+00.00	115	449	449	3	17	17	29232
27+00.00	76	353	353	3	11	11	29574
28+00.00	59	249	249	5	15	15	29808
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36+00.00	17	49	49	64	265	265	28581
37+00.00	14	56	56	57	224	224	28413
38+00.00	16	55	55	60	216	216	28251
39+00.00	34	92	92	25	156	156	28187
40+00.00	30	117	117	27	95	95	28209
41+00.00	52	150	150	20	87	87	28272
42+00.00	66	218	218	24	82	82	28408
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44+00.00	15	120	120	177	467	467	28091
45+00.00	2	32	32	274	835	835	27288
46+00.00	4	11	11	253	975	975	26324
47+00.00	8	23	23	169	780	780	25566
48+00.00	11	35	35	124	542	542	25059
49+00.00	2	23	23	159	522	522	24560
Grand Total		32440	32440		7874	7874	

Proposed Subgrade Total
Cut: 32,440 CY
Fill: 7,874 CY
Net: 24,566 CY

Clearing & Grubbing: 7.63 AC
Subballast: 8,335 CY
Seeding: 3.02 AC

- 100% Plans -

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REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TranSystems
2400 PERSHING ROAD
SUITE 400
KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

UNION PACIFIC

FES #: 40743
DRAWN BY: TAR
CHECKED BY: JLS
DATE: 6/1/2021
SHEET NUMBER: 74 of 94

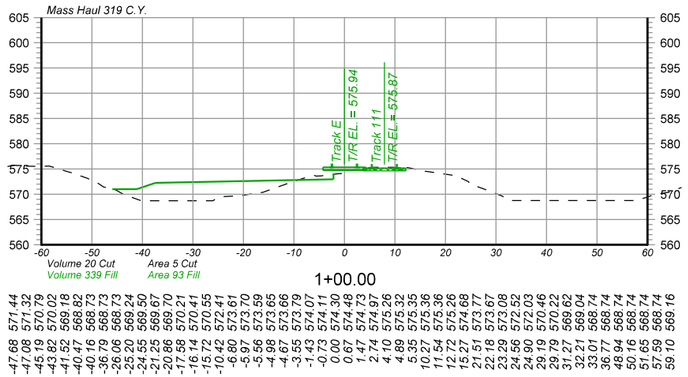
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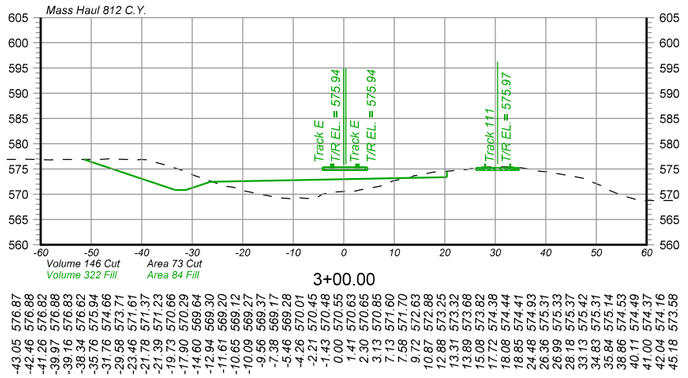
UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority

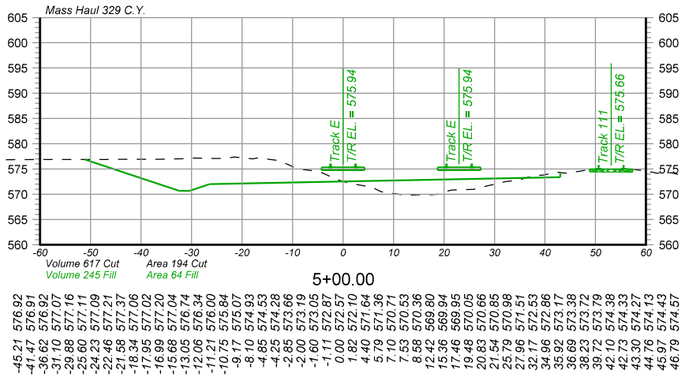
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Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18
Trackage to Serve: Tulsa Ports

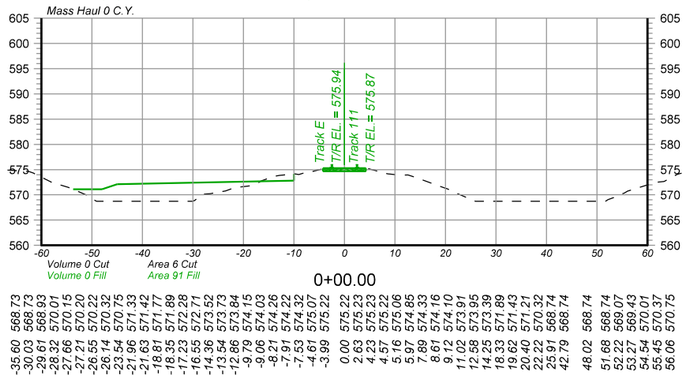
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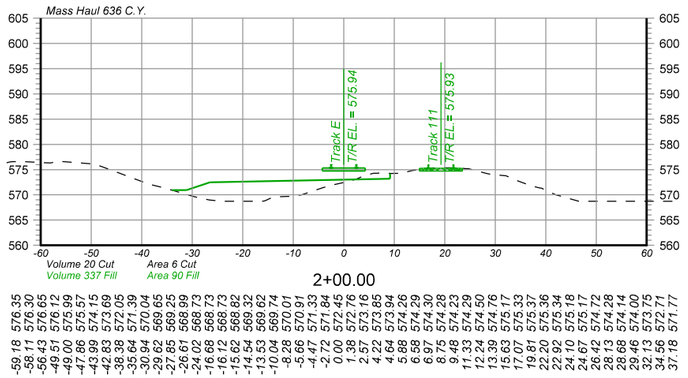
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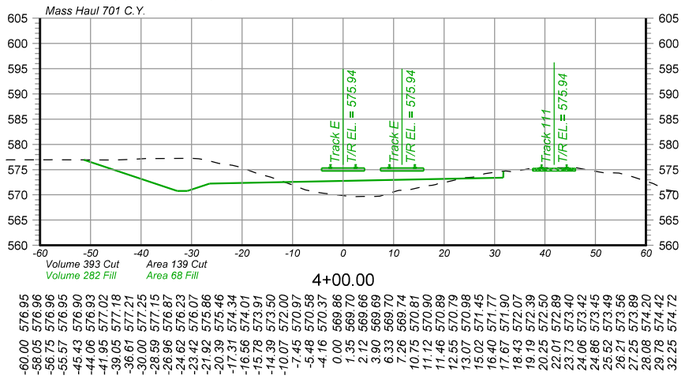












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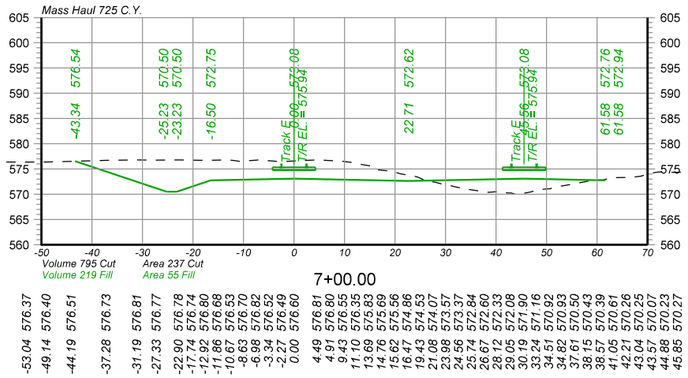
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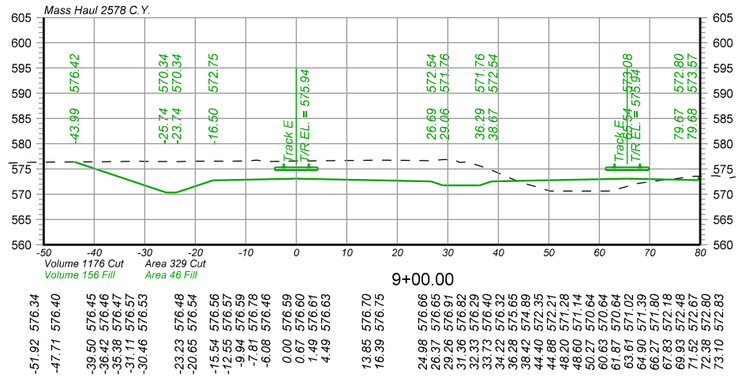
Ex. UPRR Track
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Remove UPRR Track
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Remove Ind. Track
Shift Ind. Track
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No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
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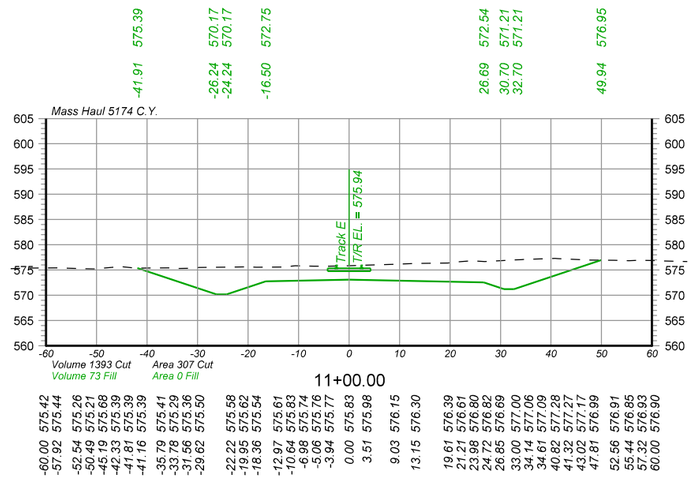
TranSystems
2400 PERSHING ROAD
SUITE 400
KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

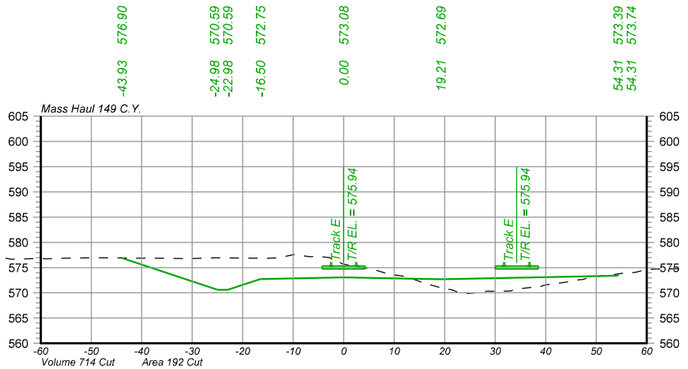
FES #: 40743	DOCUMENT TYPE: 30% Development Concept
DRAWN BY: TAR	UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
CHECKED BY: JLS	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	
SHEET NUMBER 75 of 94	SHEET TITLE: TRACK E CROSS SECTIONS

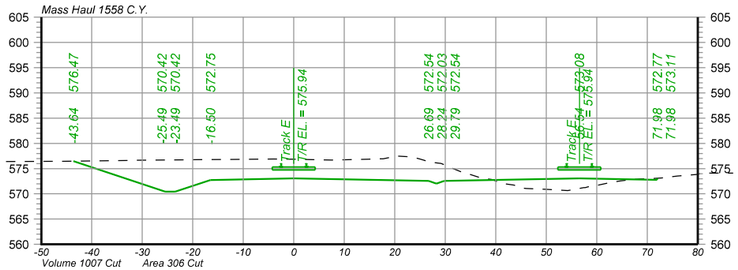
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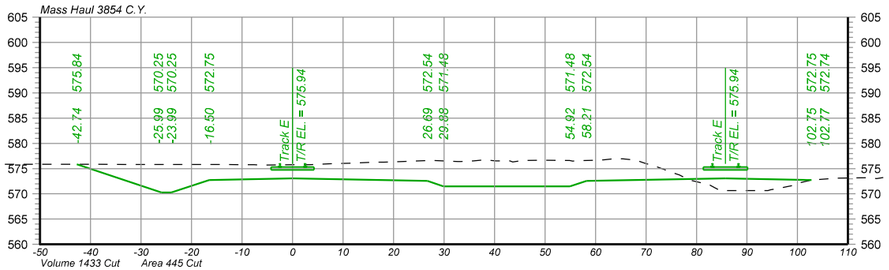












- 100% Plans -

NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

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Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
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UNION PACIFIC

FES #:	40743
DRAWN BY:	TAR
CHECKED BY:	JLS
DATE:	6/1/2021
SHEET NUMBER	76 of 94

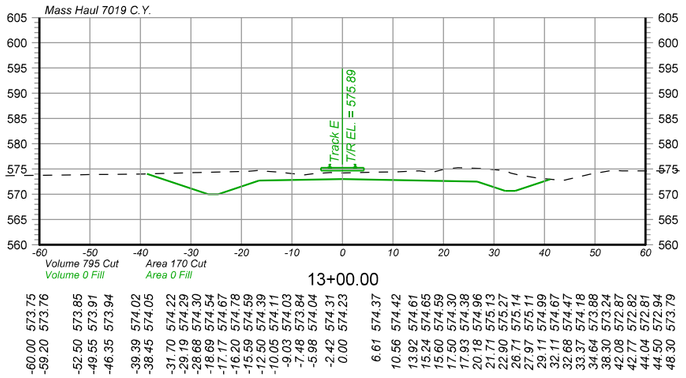
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UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority

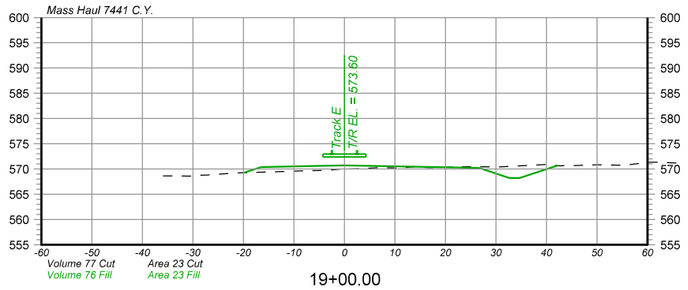
LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports

SHEET TITLE: TRACK E CROSS SECTIONS

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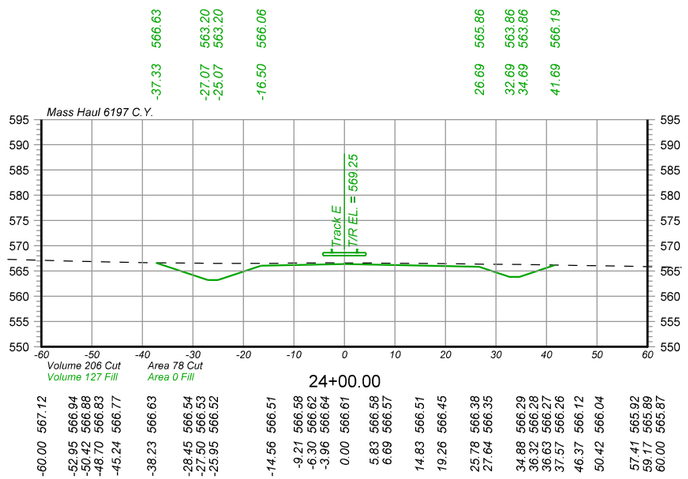

Mass Haul 7019 C.Y.
Track E
T/R EL. = 575.89
Volume 795 Cut
Volume 0 Fill
Area 170 Cut
Area 0 Fill
13+00.00

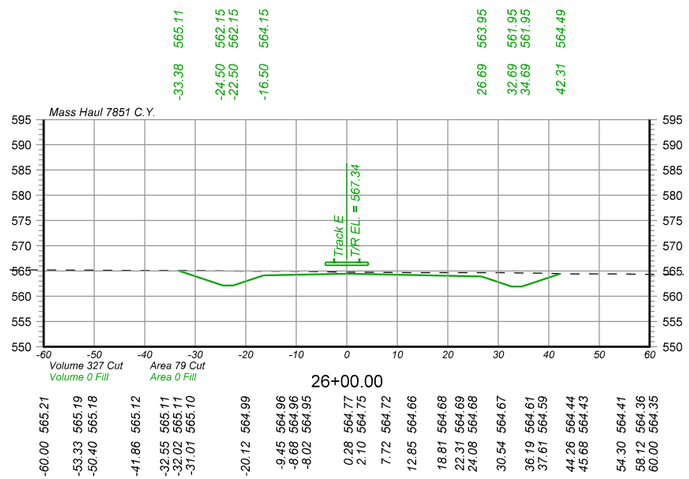
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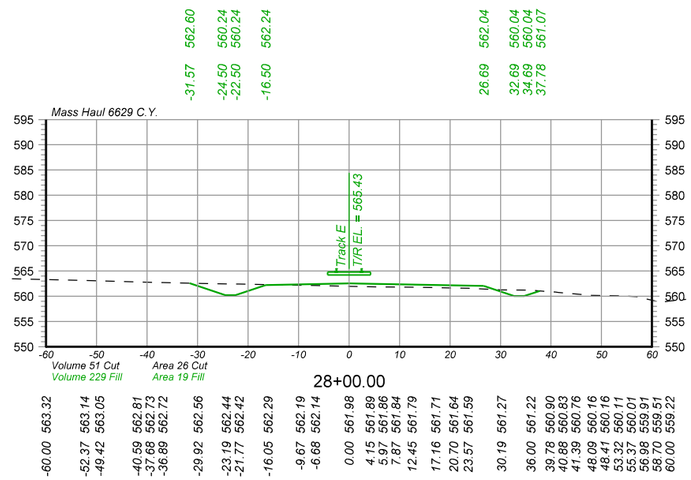

Mass Haul 7441 C.Y.
Track E
T/R EL. = 573.60
Volume 77 Cut
Volume 76 Fill
Area 23 Cut
Area 23 Fill

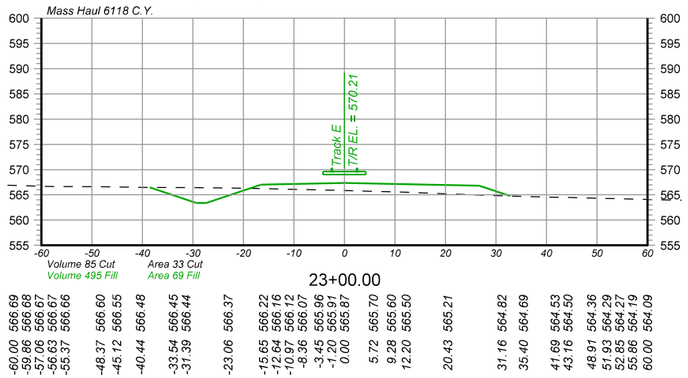
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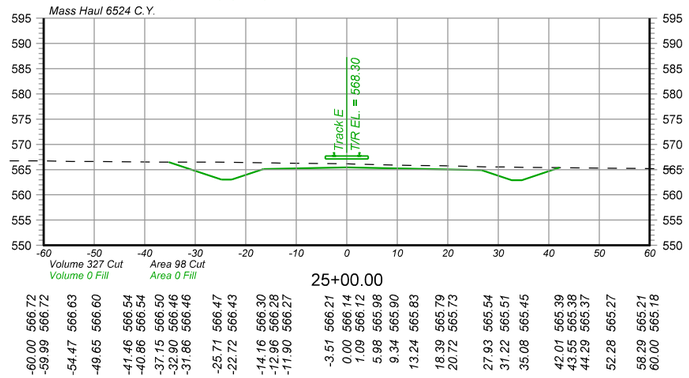
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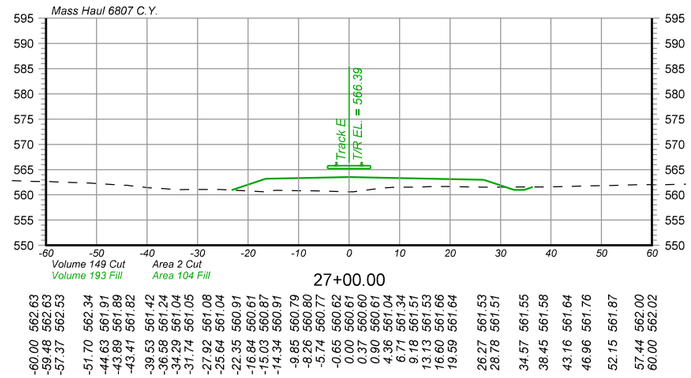












- 100% Plans-

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REV. #	BY	DATE	DESCRIPTION

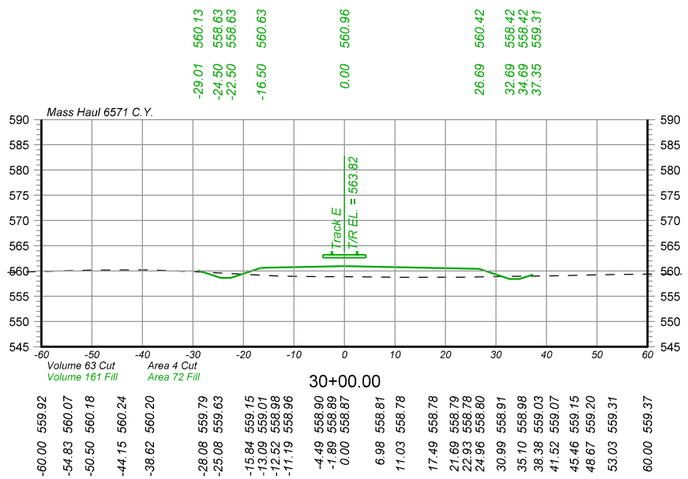
Ex. UPRR Track
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Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
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No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
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Point of Curve
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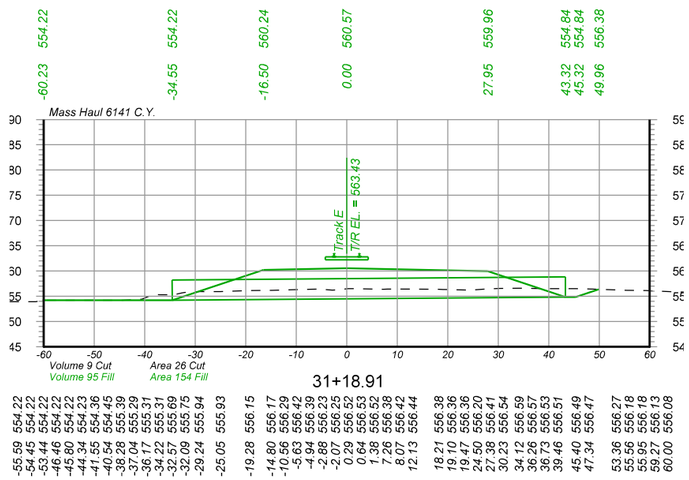
TranSystems
2400 PERSHING ROAD
SUITE 400
KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

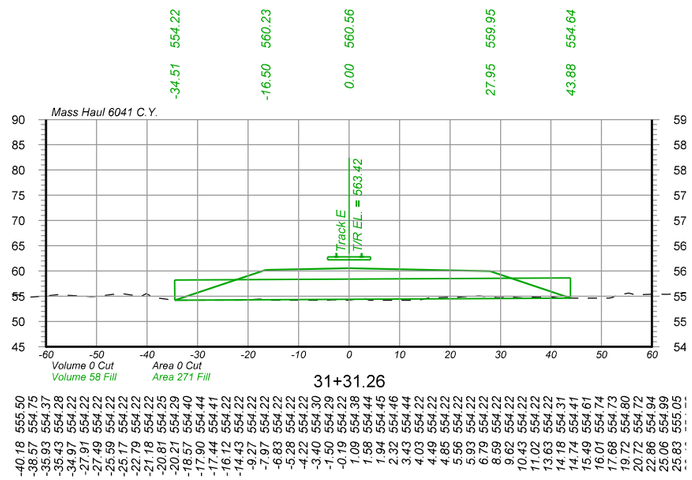
UNION PACIFIC

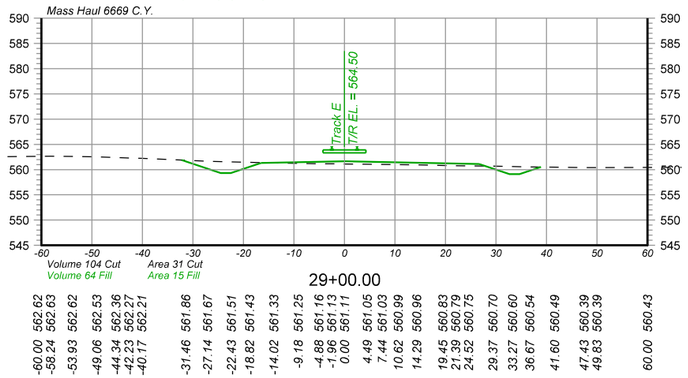
FES #: 40743	DOCUMENT TYPE: 30% Development Concept
DRAWN BY: TAR	UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
CHECKED BY: JLS	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	
SHEET NUMBER 79 of 94	SHEET TITLE: TRACK E CROSS SECTIONS

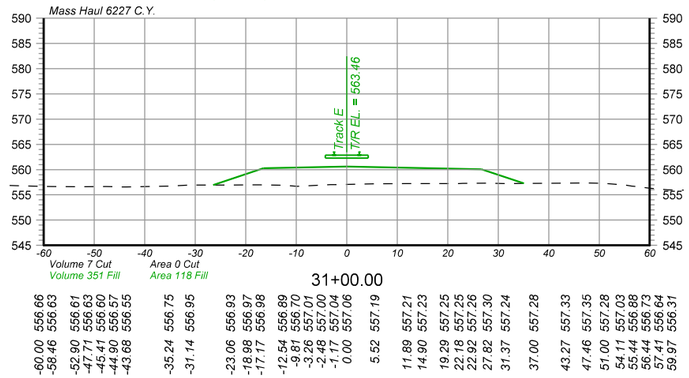
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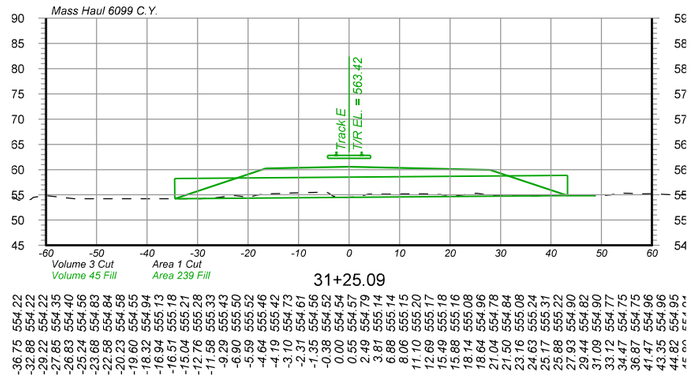












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REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
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PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

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FES #: 40743

DRAWN BY: TAR

CHECKED BY: JLS

DATE: 6/1/2021

SHEET NUMBER: 80 of 94

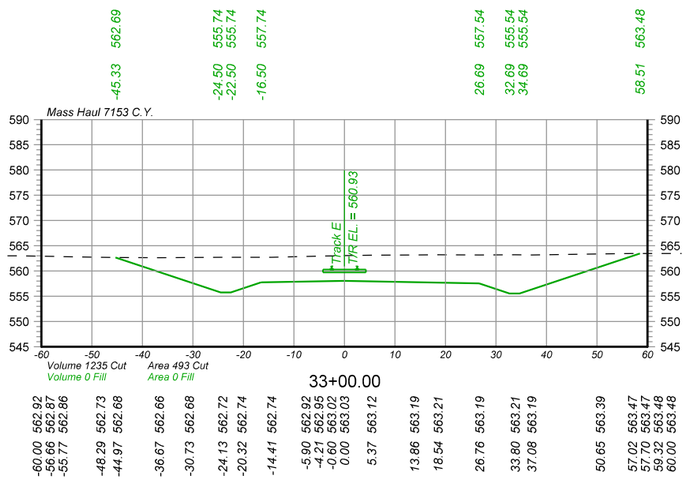
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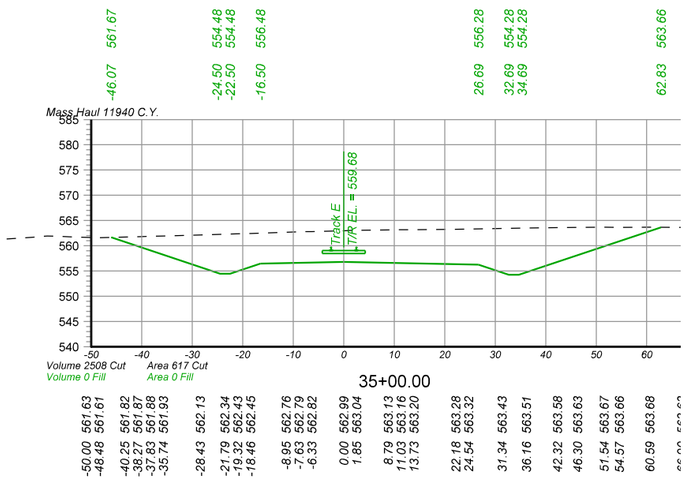
UNION PACIFIC RAILROAD For Use and Agreement
City of Tulsa - Rogers County Port Authority

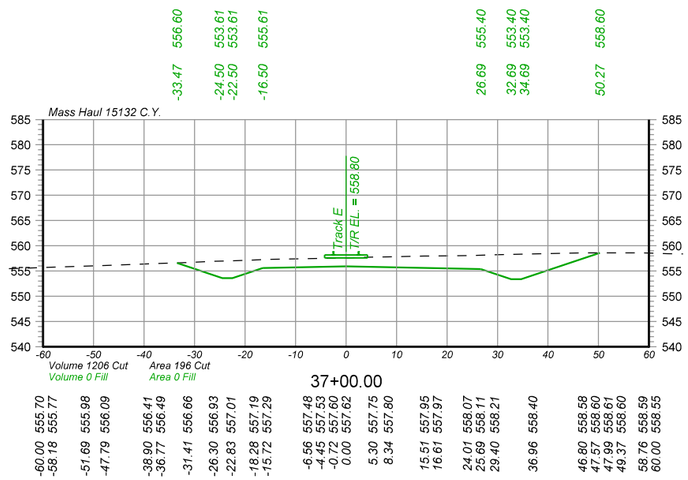
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Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18
Trackage to Serve: Tulsa Ports

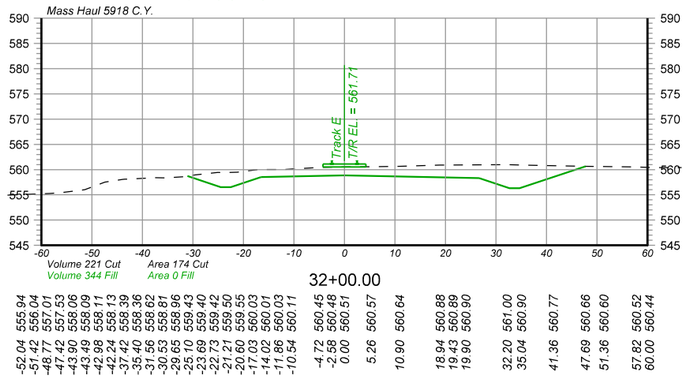
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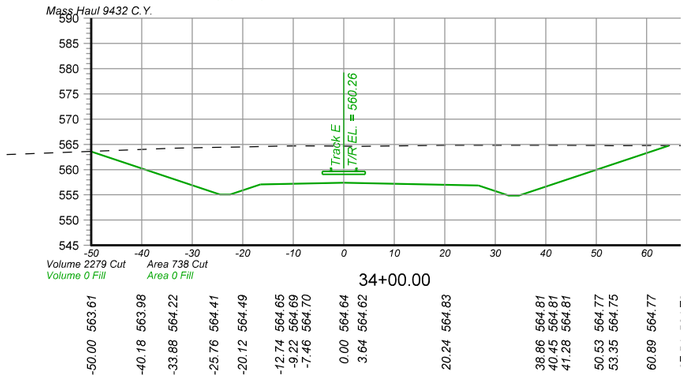
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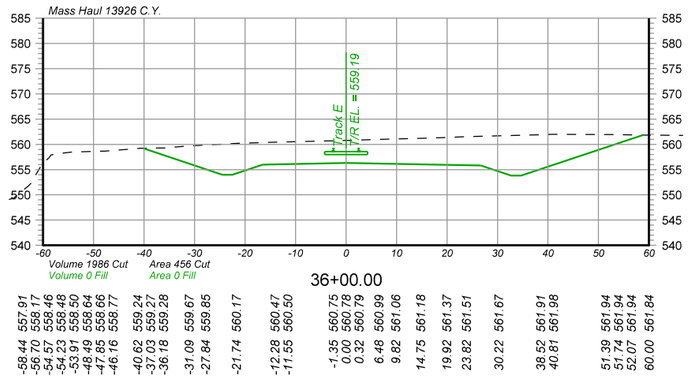












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FES #:	40743
DRAWN BY:	TAR
CHECKED BY:	JLS
DATE:	6/1/2021
SHEET NUMBER	81 of 94

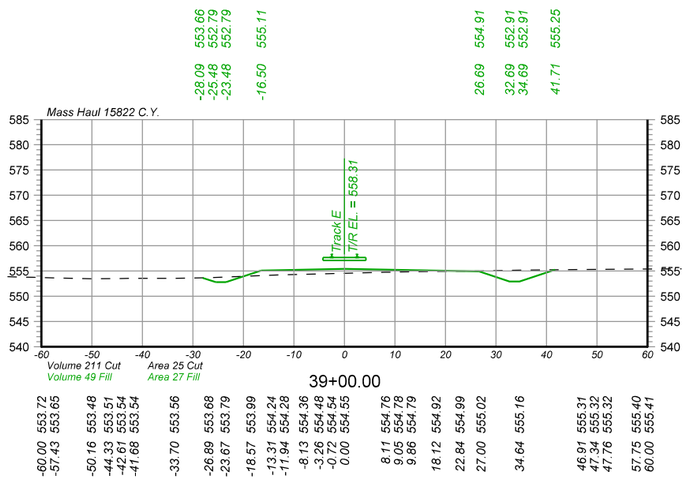
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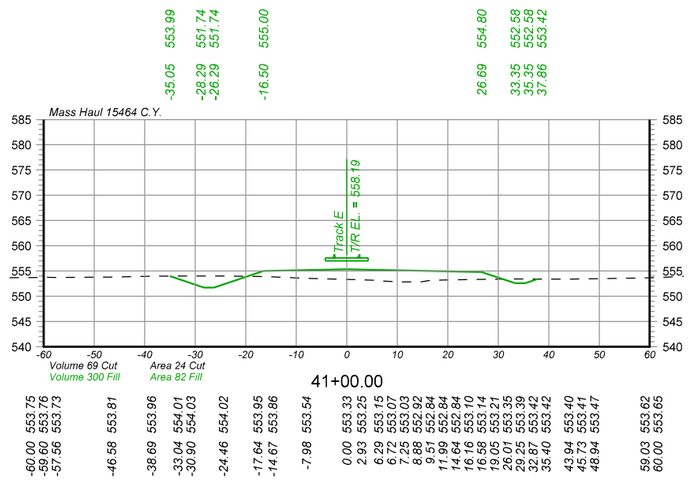
UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority

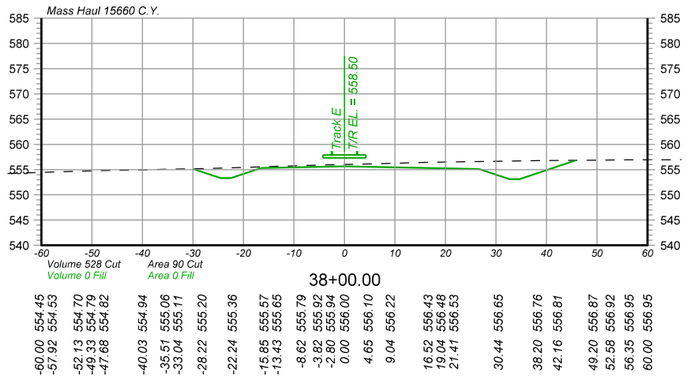
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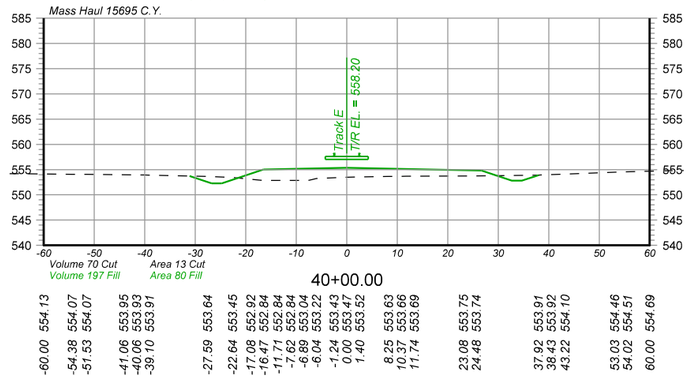
SHEET TITLE: TRACK E CROSS SECTIONS

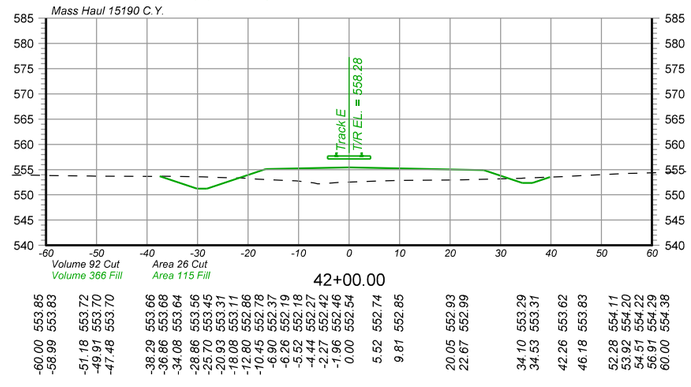
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Default
6/1/2021











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REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TranSystems
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KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
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FES #:	40743
DRAWN BY:	TAR
CHECKED BY:	JLS
DATE:	6/1/2021
SHEET NUMBER	82 of 94

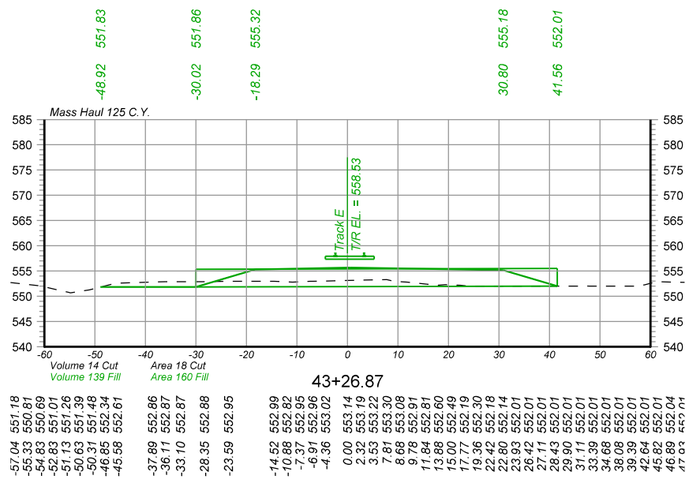
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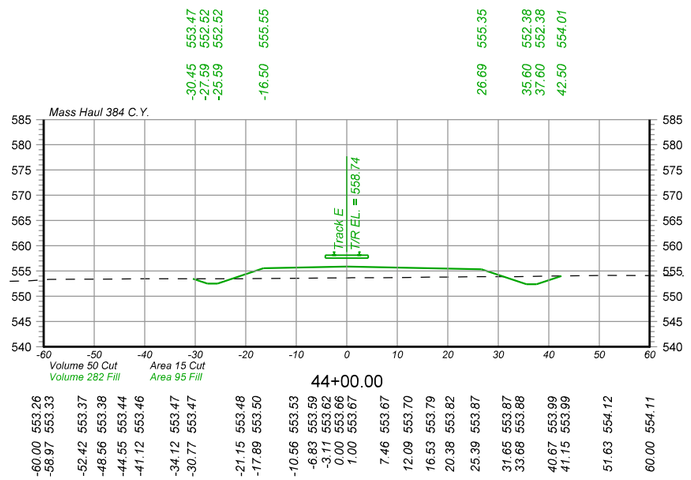
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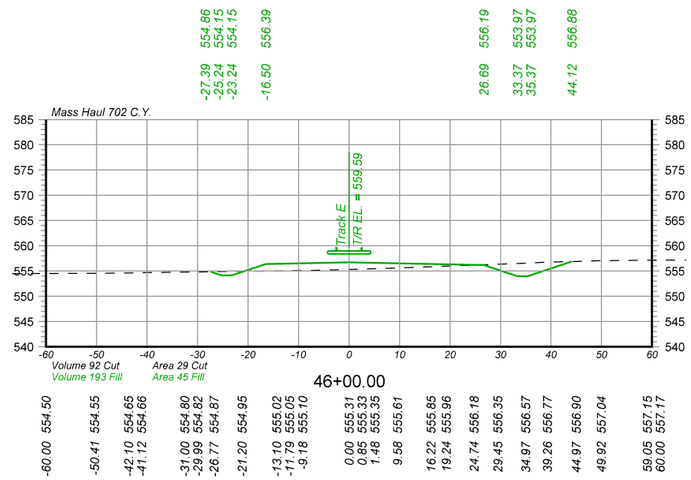
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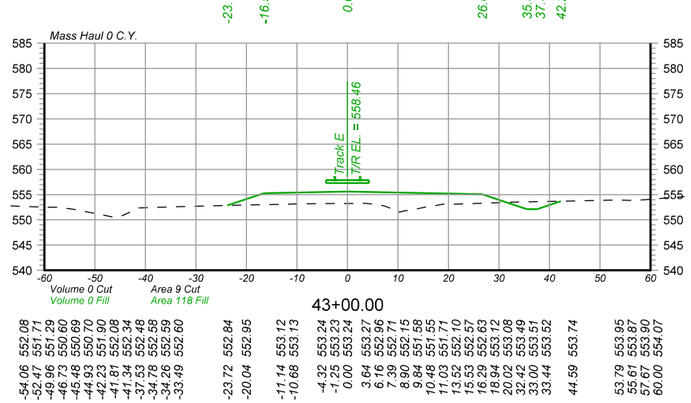
SHEET TITLE: TRACK E CROSS SECTIONS

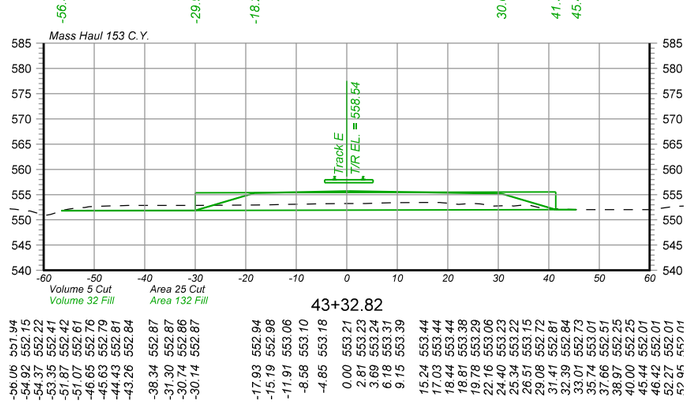
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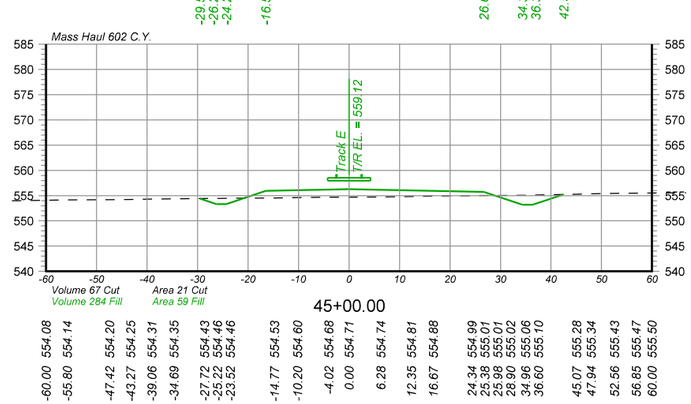












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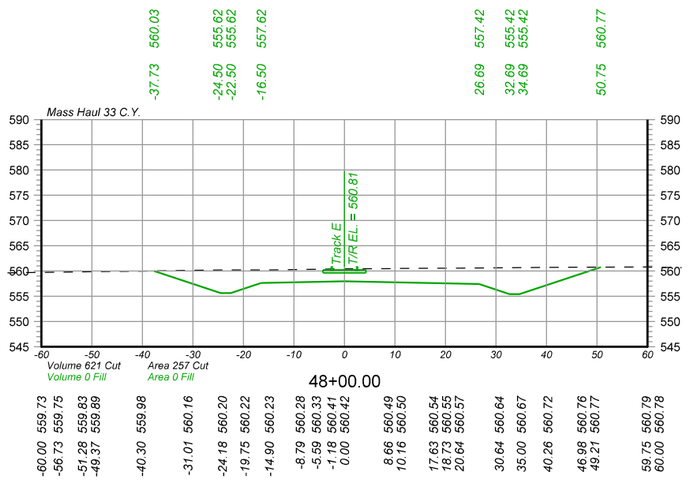
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- Prop. UPRR Track
- Remove UPRR Track
- Shift UPRR Track
- Ex. Ind. Track
- Prop. Ind. Track
- Remove Ind. Track
- Shift Ind. Track
- Future Ind. Track
- Prop. Leased Ind. Trk
- Ex. Leased Ind. Trk
- No RR Operations
- Right of Way
- Acquire Property
- Hand Throw Turnout
- Power Turnout
- Power Derail
- Hand Throw Derail
- Point of Curve
- Bridge
- Signal

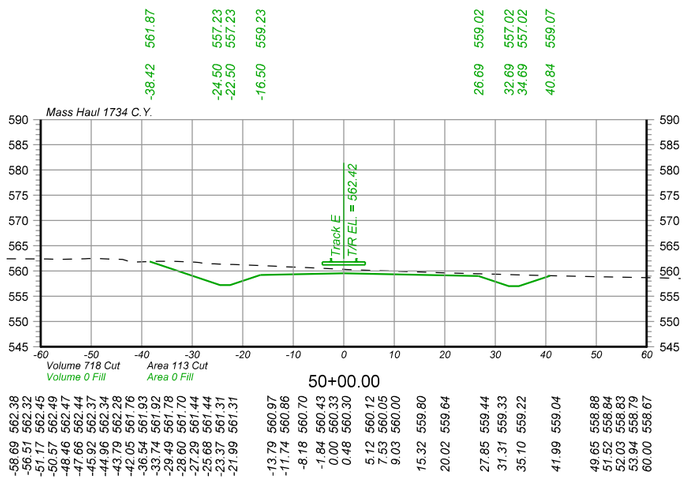
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2400 PERSHING ROAD
SUITE 400
KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

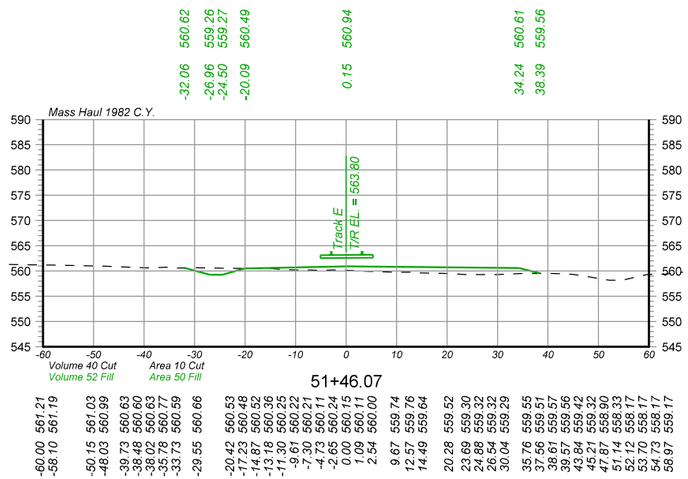
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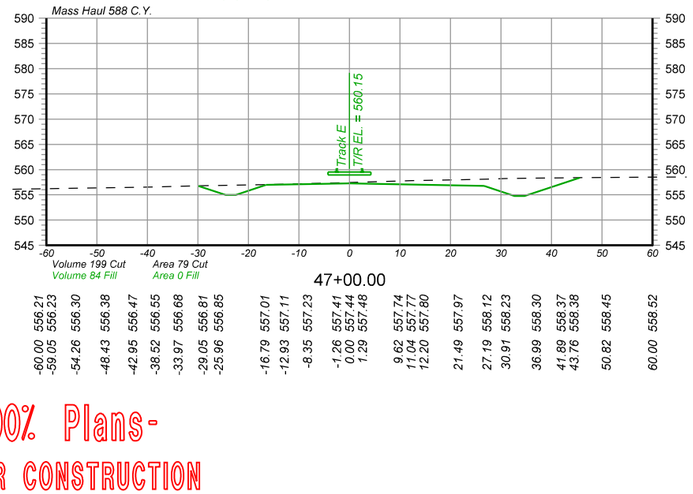
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CHECKED BY: JLS	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	SHEET NUMBER 83 of 94
	SHEET TITLE: TRACK E CROSS SECTIONS

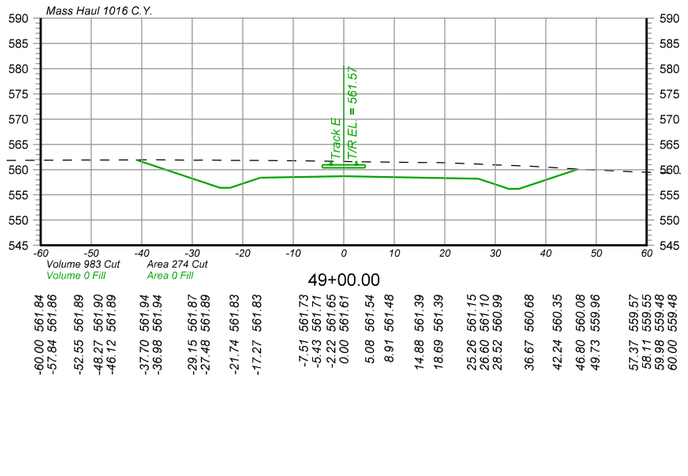
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6/1/2021

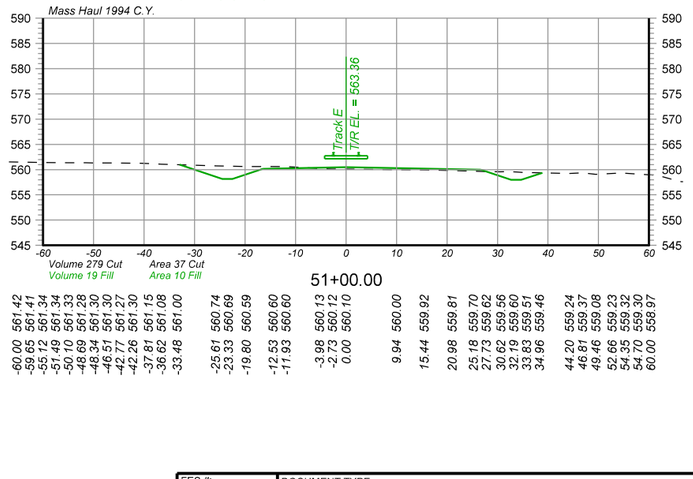












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REV. #	BY	DATE	DESCRIPTION

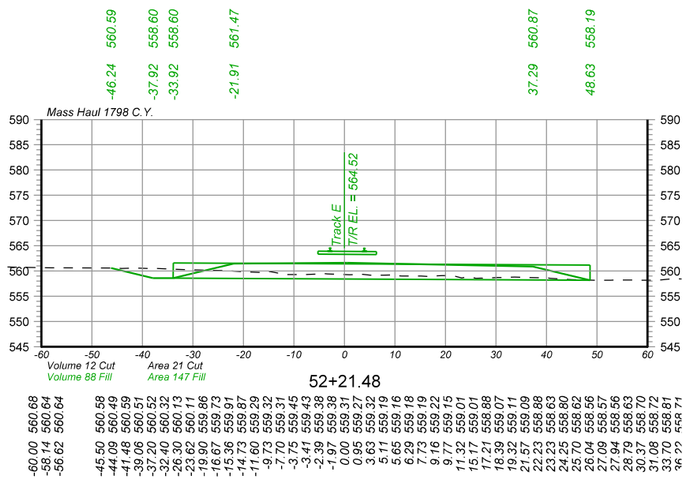
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Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

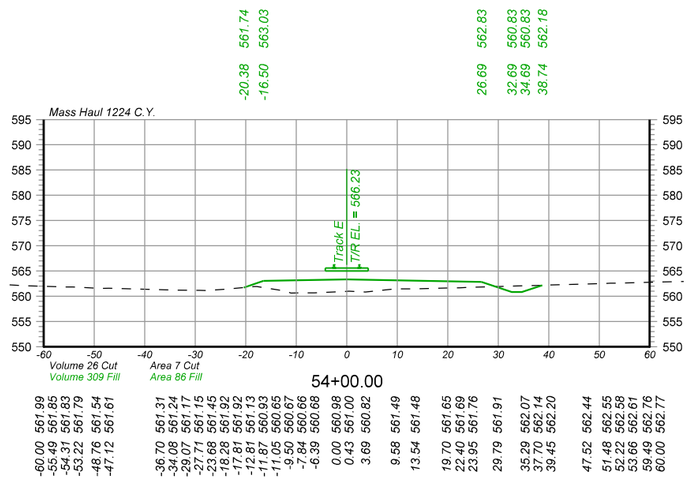
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2400 PERSHING ROAD
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KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

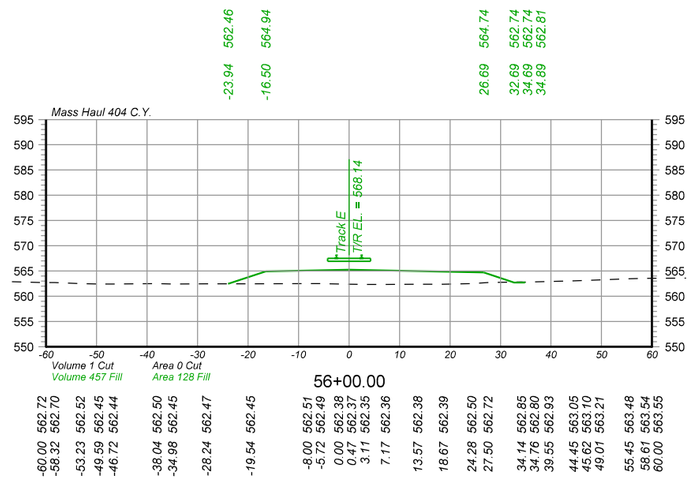
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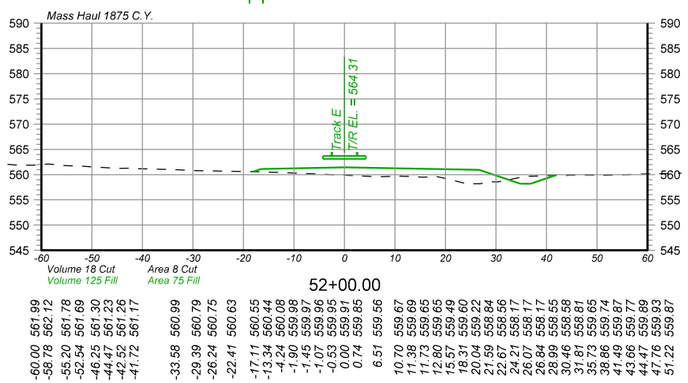
FES #: 40743	DOCUMENT TYPE: 30% Development Concept
DRAWN BY: TAR	UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
CHECKED BY: JLS	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	SHEET NUMBER 84 of 94
	SHEET TITLE: TRACK E CROSS SECTIONS

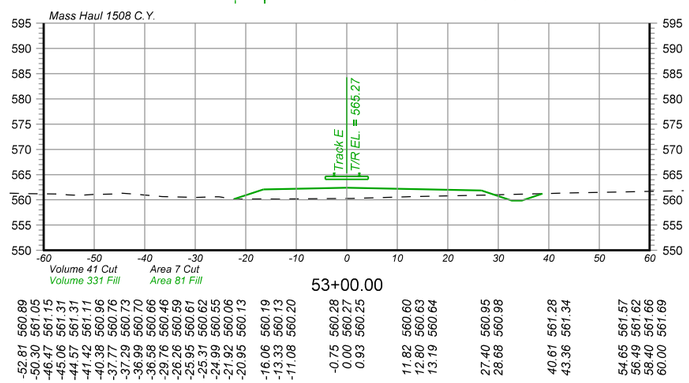
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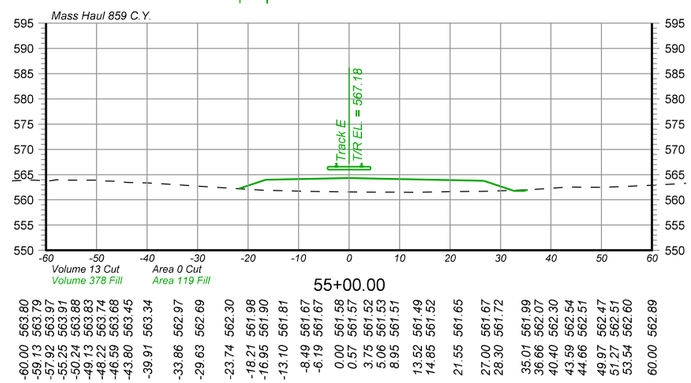












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REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
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Hand Throw Derail
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FES #:	40743
DRAWN BY:	TAR
CHECKED BY:	JLS
DATE:	6/1/2021
SHEET NUMBER	85 of 94

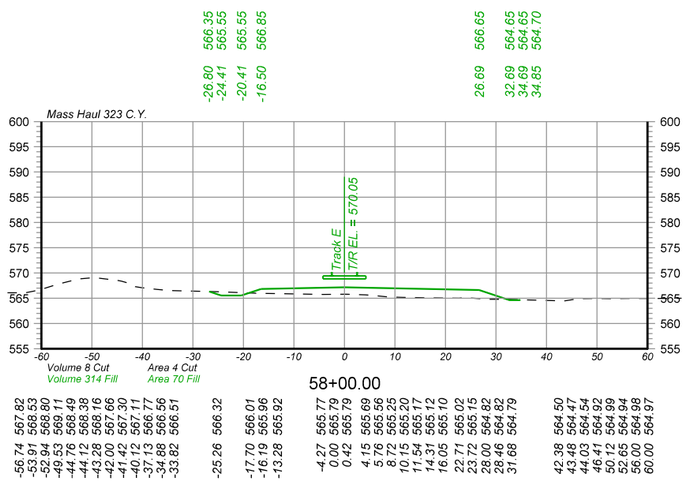
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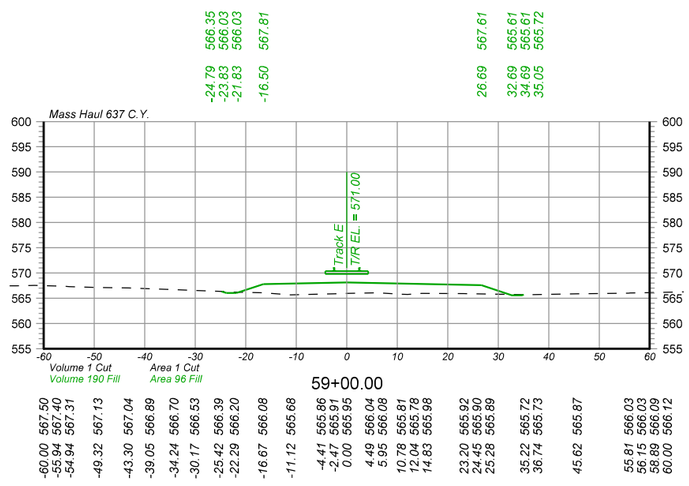
UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority

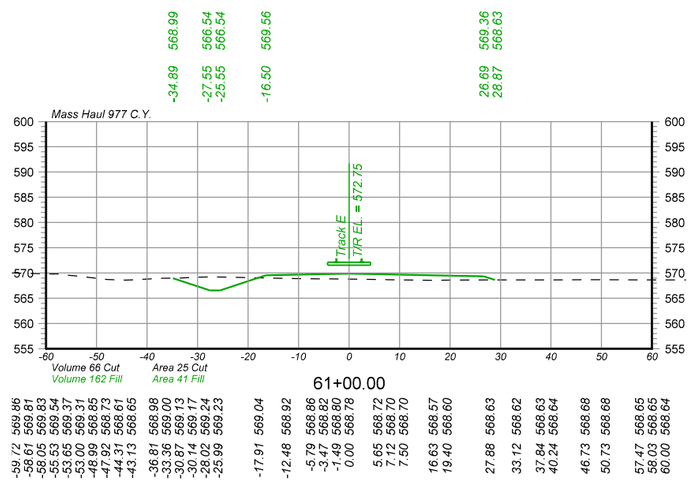
LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports

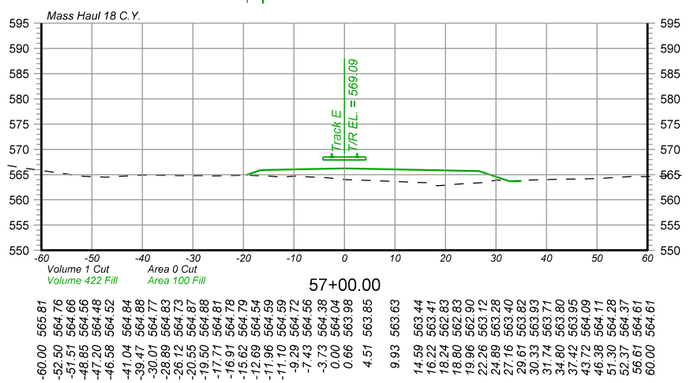
SHEET TITLE: TRACK E CROSS SECTIONS

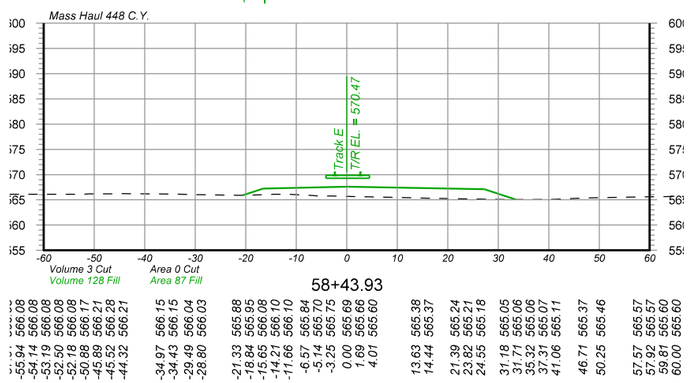
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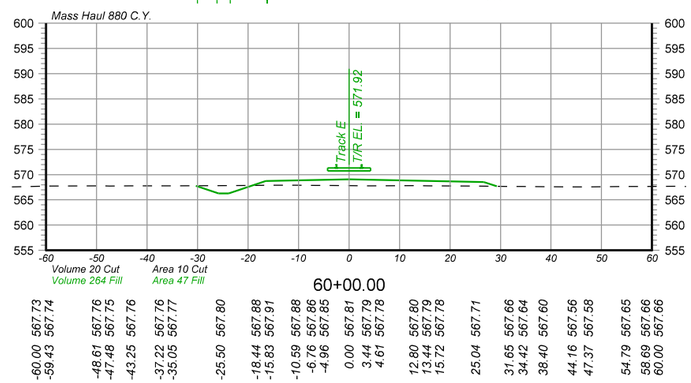












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REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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FES #: 40743
DRAWN BY: TAR
CHECKED BY: JLS
DATE: 6/1/2021
SHEET NUMBER: 86 of 94

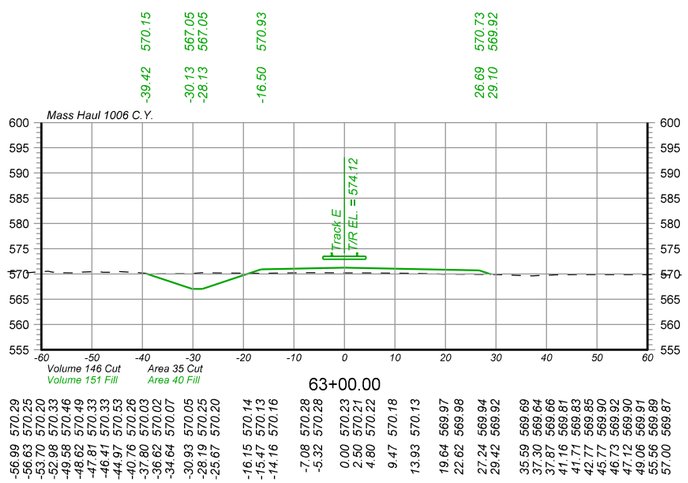
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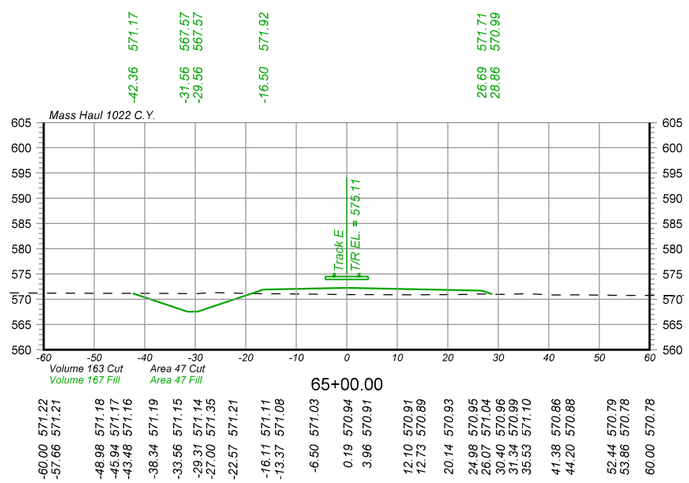
UNION PACIFIC RAILROAD For Use and Agreement
City of Tulsa - Rogers County Port Authority

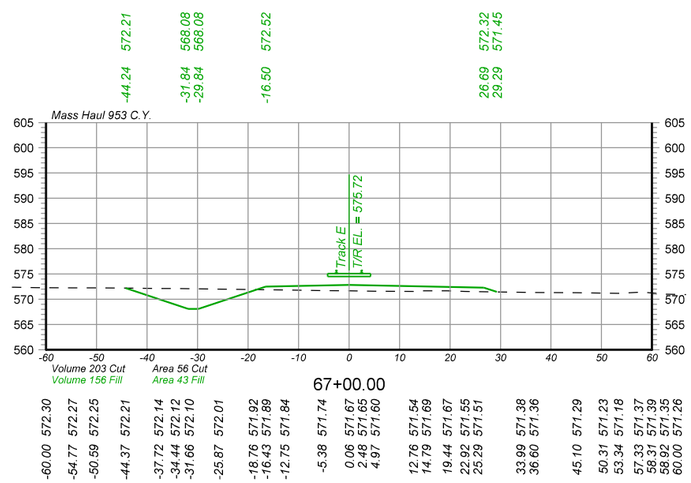
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Trackage to Serve: Tulsa Ports

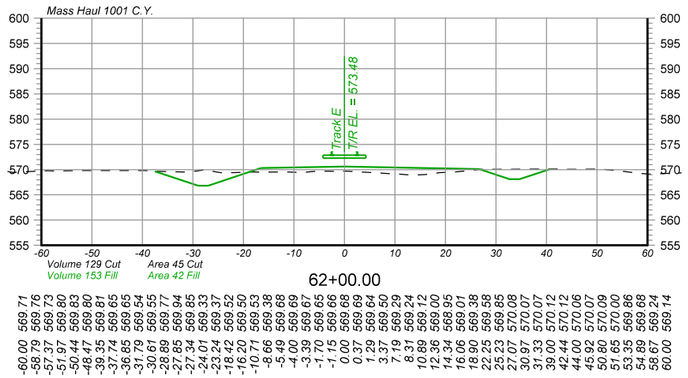
SHEET TITLE: TRACK E CROSS SECTIONS

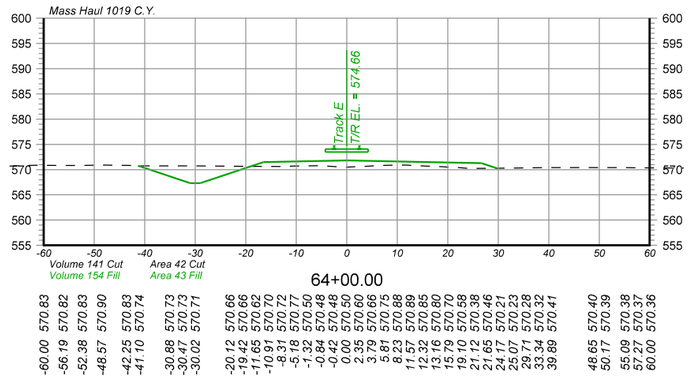
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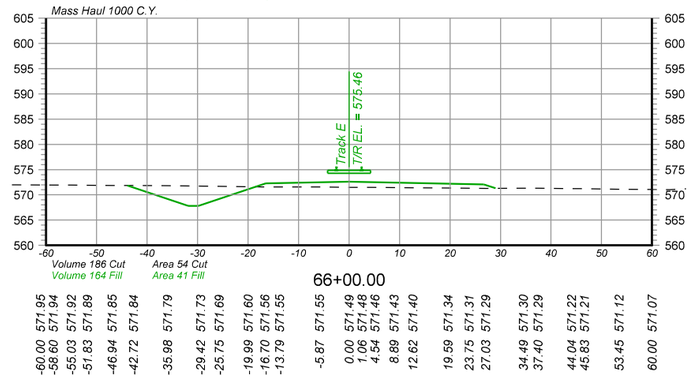












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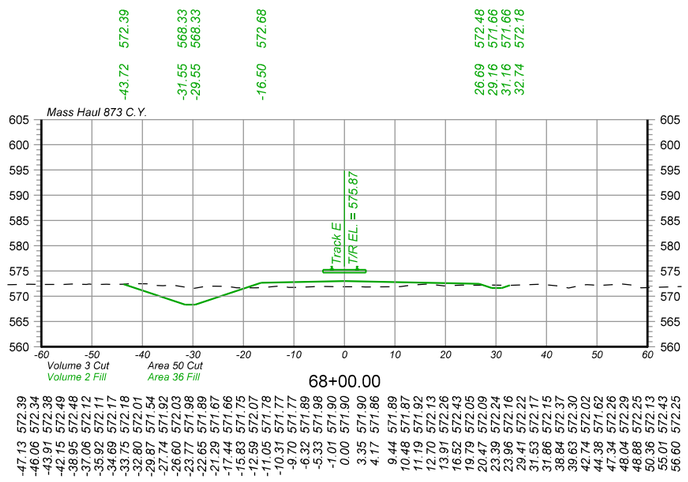
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Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
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Future Ind. Track
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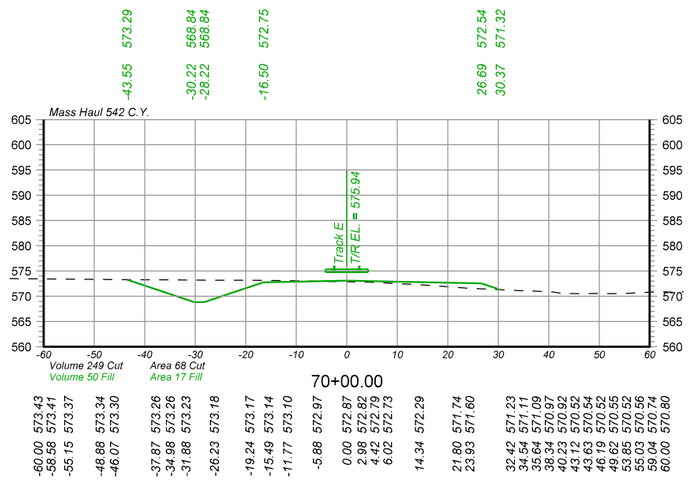
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KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

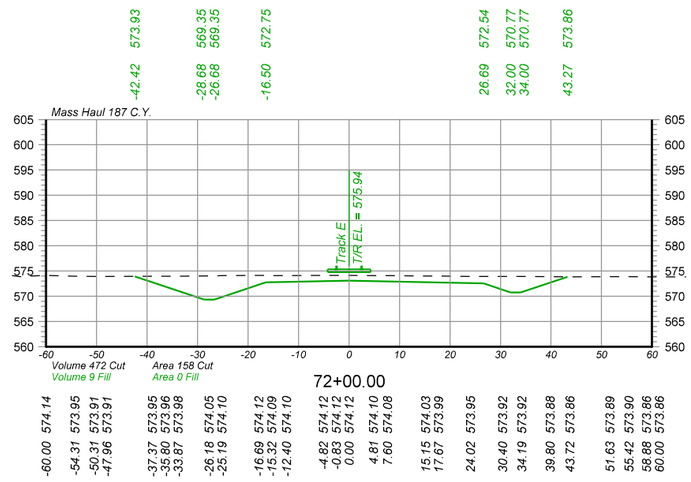
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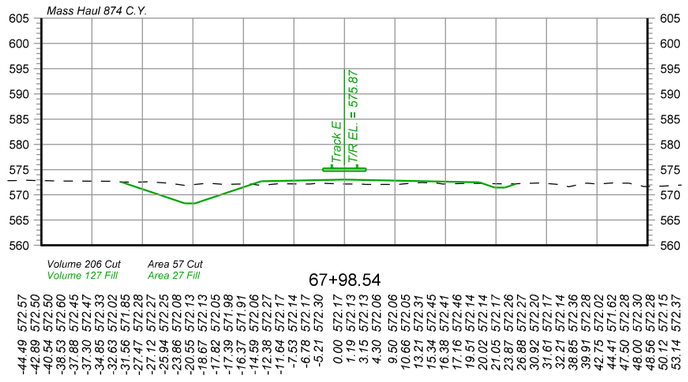
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CHECKED BY: JLS	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	
SHEET NUMBER 87 of 94	SHEET TITLE: TRACK E CROSS SECTIONS

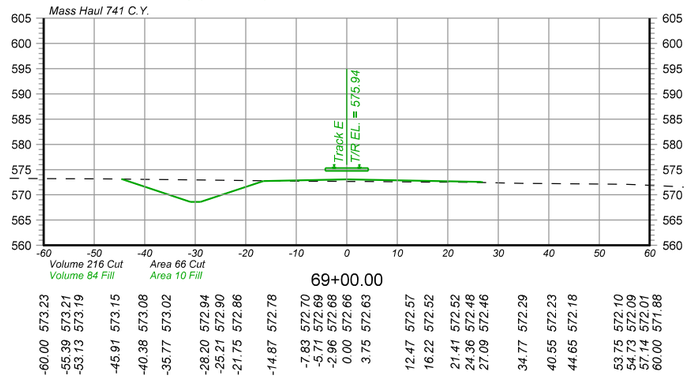
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6/1/2021

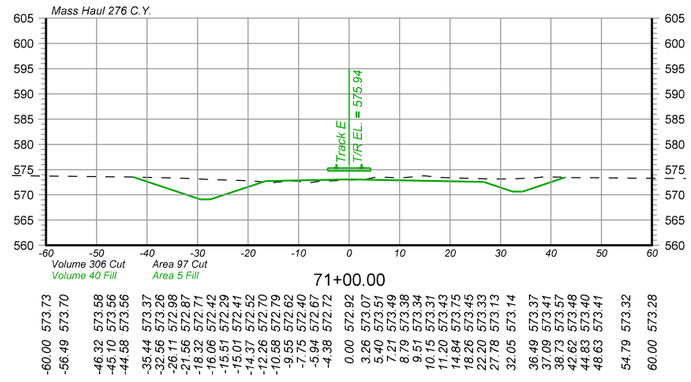












- 100% Plans-

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REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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FES #: 40743
DRAWN BY: TAR
CHECKED BY: JLS
DATE: 6/1/2021
SHEET NUMBER: 88 of 94

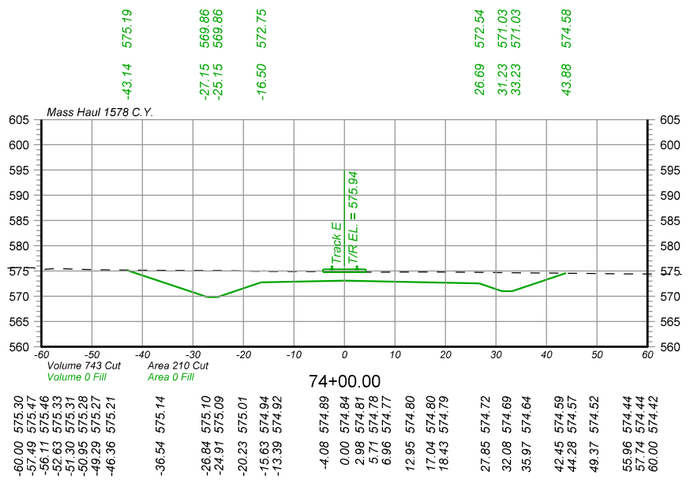
DOCUMENT TYPE: 30% Development Concept

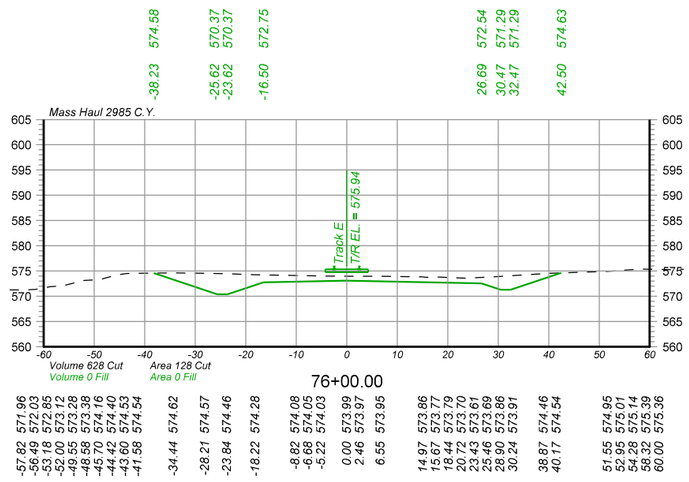
UNION PACIFIC RAILROAD For Use and Agreement
City of Tulsa - Rogers County Port Authority

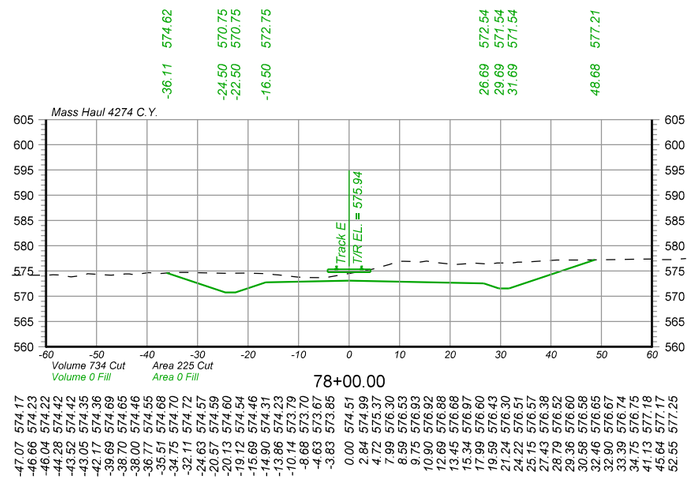
LOCATION & DESCRIPTION:
Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18
Trackage to Serve: Tulsa Ports

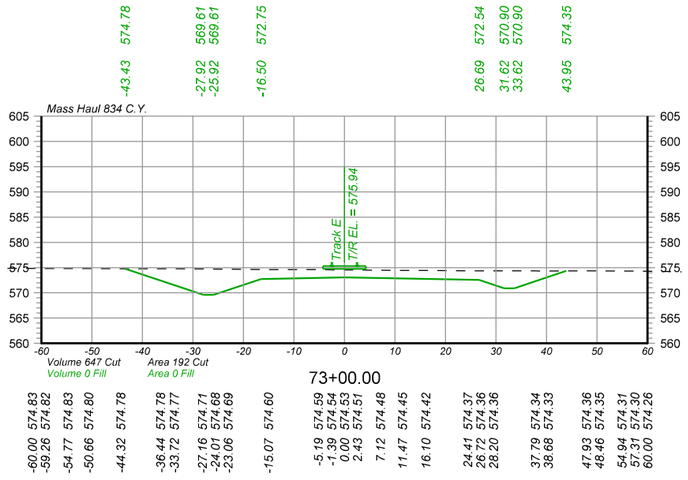
SHEET TITLE: TRACK E CROSS SECTIONS

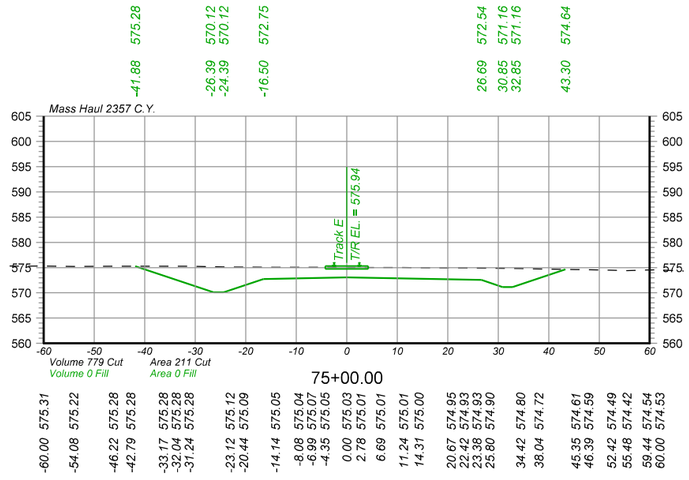
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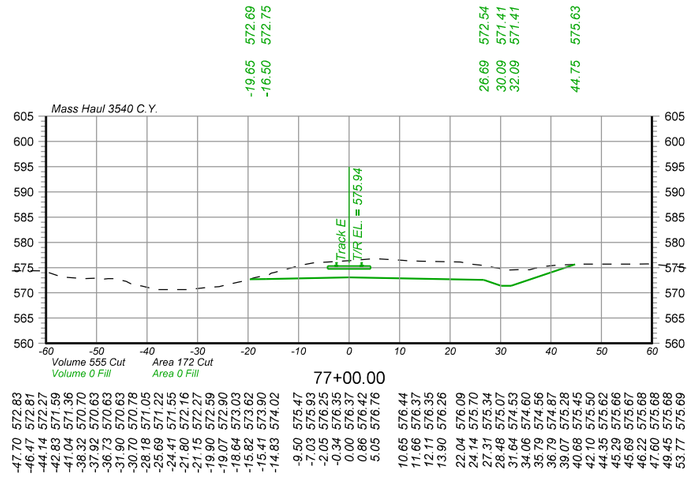












- 100% Plans -

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FES #:	40743
DRAWN BY:	TAR
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DATE:	6/1/2021
SHEET NUMBER	89 of 94

DOCUMENT TYPE: 30% Development Concept

UNION PACIFIC RAILROAD For Use and Agreement
City of Tulsa - Rogers County Port Authority

LOCATION & DESCRIPTION:
Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18
Trackage to Serve: Tulsa Ports

SHEET TITLE: TRACK E CROSS SECTIONS

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Default
6/1/2021

End Area Volume Report Loop Track E

Baseline Station	Station Quantities						
	Cut			Fill			Mass Ordinate
	Area	Volume	Adjusted	Area	Volume	Adjusted	
0+00.00	6	0	0	91	0	0	0
1+00.00	5	20	20	93	339	339	319
2+00.00	6	20	20	90	337	337	636
3+00.00	73	146	146	84	322	322	812
4+00.00	139	393	393	68	282	282	701
5+00.00	194	617	617	64	245	245	329
6+00.00	192	714	714	63	236	236	149
7+00.00	237	795	795	55	219	219	725
8+00.00	306	1007	1007	39	174	174	1558
9+00.00	329	1176	1176	46	156	156	2578
10+00.00	445	1433	1433	39	157	157	3854
11+00.00	307	1393	1393	0	73	73	5174
12+00.00	260	1050	1050	0	0	0	6224
13+00.00	170	795	795	0	0	0	7019
14+00.00	50	406	406	38	71	71	7354
15+00.00	31	150	150	49	161	161	7343
16+00.00	32	117	117	6	101	101	7359
17+00.00	29	114	114	21	50	50	7423
18+00.00	19	89	89	18	72	72	7440
19+00.00	23	77	77	23	76	76	7441
20+00.00	21	81	81	53	141	141	7381
20+12.54	14	8	8	74	29	29	7360
21+00.00	3	28	28	116	308	308	7080
22+00.00	13	31	31	199	583	583	6528
23+00.00	33	85	85	69	495	495	6118
24+00.00	78	206	206	0	127	127	6197
25+00.00	98	327	327	0	0	0	6524
26+00.00	79	327	327	0	0	0	6851
27+00.00	2	149	149	104	193	193	6807
28+00.00	26	51	51	19	229	229	6629
29+00.00	31	104	104	15	64	64	6669
30+00.00	4	63	63	72	161	161	6571
31+00.00	0	7	7	118	351	351	6227
31+18.91	26	9	9	154	95	95	6141
31+25.09	1	3	3	239	45	45	6099
31+31.26	0	0	0	271	58	58	6041
32+00.00	174	221	221	0	344	344	5918
33+00.00	493	1235	1235	0	0	0	7153
34+00.00	738	2279	2279	0	0	0	9432
35+00.00	617	2508	2508	0	0	0	11940
36+00.00	456	1986	1986	0	0	0	13926
37+00.00	196	1206	1206	0	0	0	15132
38+00.00	90	528	528	0	0	0	15660
39+00.00	25	211	211	27	49	49	15822
40+00.00	13	70	70	80	197	197	15695
41+00.00	24	69	69	82	300	300	15464
42+00.00	26	92	92	115	366	366	15190
Grand Total		22396	22396		7206	7206	

End Area Volume Report Loop Track E

Baseline Station	Station Quantities						
	Cut			Fill			Mass Ordinate
	Area	Volume	Adjusted	Area	Volume	Adjusted	
43+00.00	9	0	0	118	0	0	0
43+26.87	18	14	14	160	139	139	125
43+32.82	25	5	5	132	32	32	153
44+00.00	15	50	50	95	282	282	384
45+00.00	21	67	67	59	284	284	602
46+00.00	29	92	92	45	193	193	702
47+00.00	79	199	199	0	84	84	588
48+00.00	257	621	621	0	0	0	33
49+00.00	274	983	983	0	0	0	1016
50+00.00	113	718	718	0	0	0	1734
51+00.00	37	279	279	10	19	19	1994
51+46.07	10	40	40	50	52	52	1982
52+00.00	8	18	18	75	125	125	1875
52+21.48	21	12	12	147	88	88	1798
53+00.00	7	41	41	81	331	331	1508
54+00.00	7	26	26	86	309	309	1224
55+00.00	0	13	13	119	378	378	859
56+00.00	0	1	1	128	457	457	404
57+00.00	0	1	1	100	422	422	18
58+00.00	4	8	8	70	314	314	323
58+43.93	0	3	3	87	128	128	448
59+00.00	1	1	1	96	190	190	637
60+00.00	10	20	20	47	264	264	880
61+00.00	25	66	66	41	162	162	977
62+00.00	45	129	129	42	153	153	1001
63+00.00	35	146	146	40	151	151	1006
64+00.00	42	141	141	43	154	154	1019
65+00.00	47	163	163	47	167	167	1022
66+00.00	54	186	186	41	164	164	1000
67+00.00	56	203	203	43	156	156	953
67+98.54	57	206	206	27	127	127	874
68+00.00	50	3	3	36	2	2	873
69+00.00	66	216	216	10	84	84	741
70+00.00	68	249	249	17	50	50	542
71+00.00	97	306	306	5	40	40	276
72+00.00	158	472	472	0	9	9	187
73+00.00	192	647	647	0	0	0	834
74+00.00	210	743	743	0	0	0	1578
75+00.00	211	779	779	0	0	0	2357
76+00.00	128	628	628	0	0	0	2985
77+00.00	172	555	555	0	0	0	3540
78+00.00	225	734	734	0	0	0	4274
Grand Total		9784	9784		5510	5510	

Grand Total Summary of Quantities
Cut: 71,150 CY
Fill: 52,166 CY
Net: 18,984 CY

Clearing & Grubbing: 25.78 AC
Subballast: 25,539 CY
Seeding: 10.60 AC

Proposed Track E Subgrade Total
Cut: 32,180 CY
Fill: 12,716 CY
Net: 19,464 CY

Clearing & Grubbing: 13.79 AC
Subballast: 13,223 CY
Seeding: 5.60 AC

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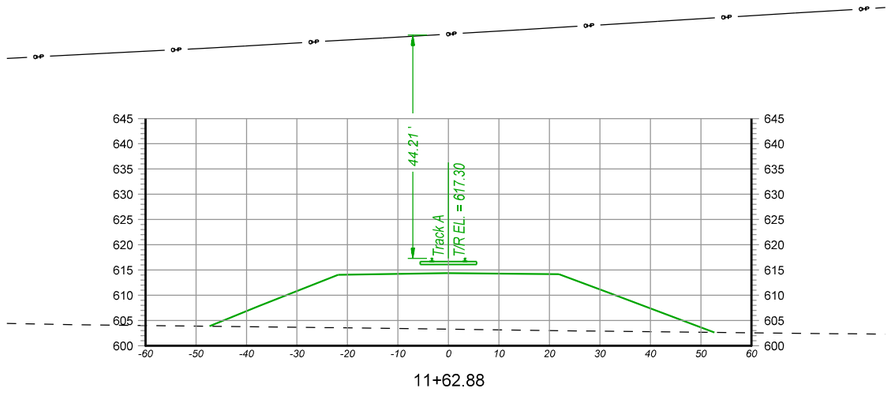
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Hand Throw Turnout
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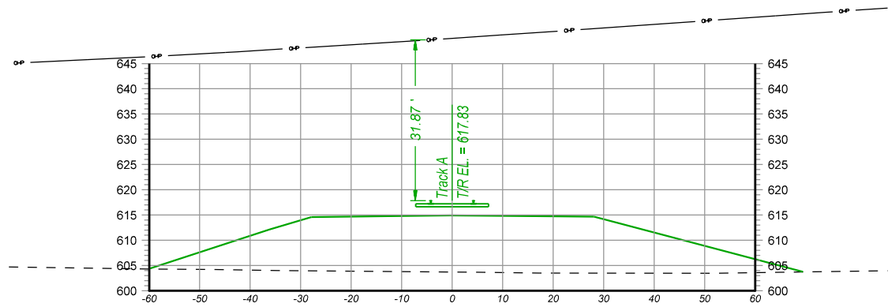
TranSystems
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SUITE 400
KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
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FES #:	40743
DRAWN BY:	TAR
CHECKED BY:	JLS
DATE:	6/1/2021
SHEET NUMBER	x0035 of 94
DOCUMENT TYPE:	30% Development Concept
	UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
LOCATION & DESCRIPTION:	Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
SHEET TITLE:	END AREA VOLUME REPORT

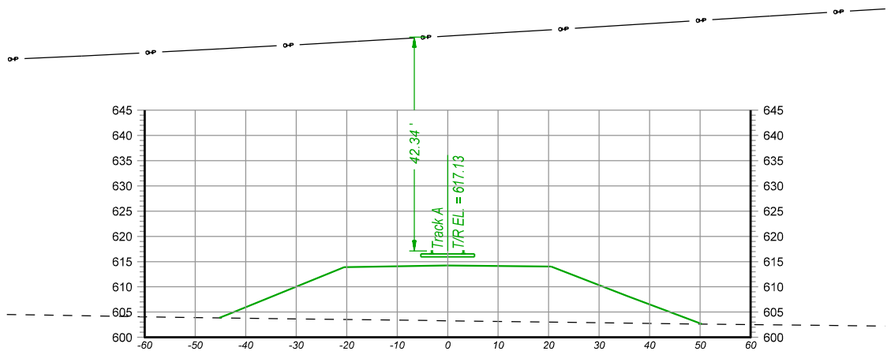
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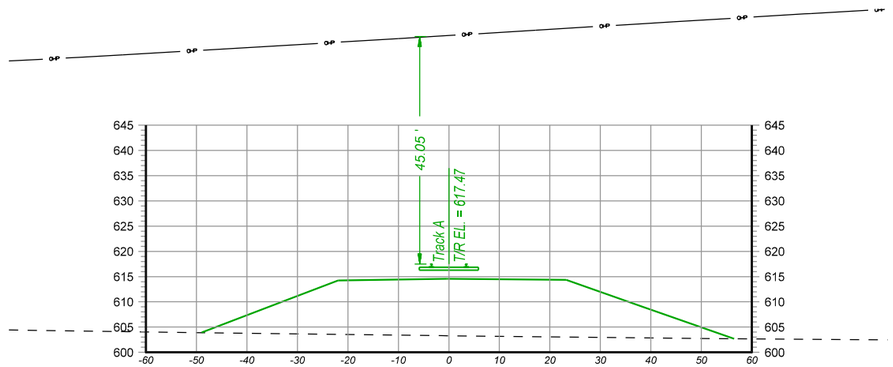
11+62.88



13+27.73



11+27.42



12+00.09

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FES #: 40743
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SHEET NUMBER: 91 of 94

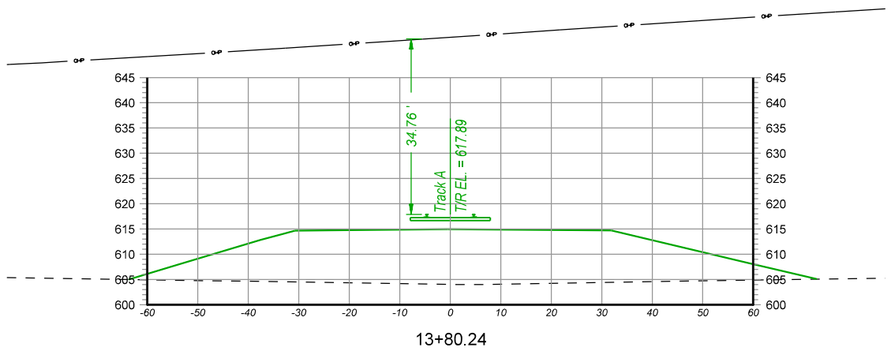
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UNION PACIFIC RAILROAD For Use and Agreement
City of Tulsa - Rogers County Port Authority

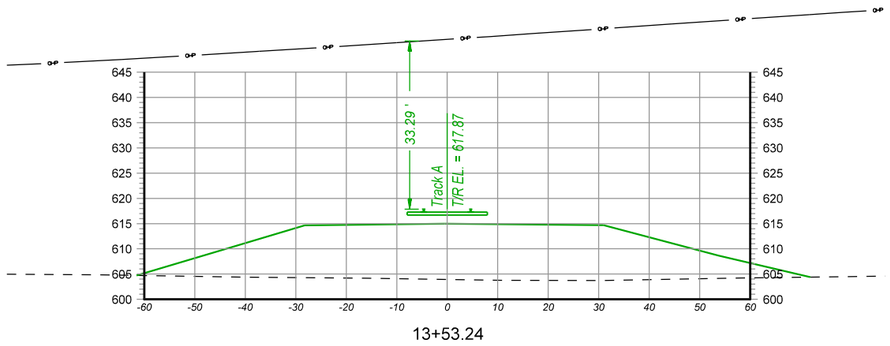
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Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18
Trackage to Serve: Tulsa Ports

SHEET TITLE:
TRACK A UTILITY CROSSING CROSS SECTIONS

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13+80.24



13+53.24

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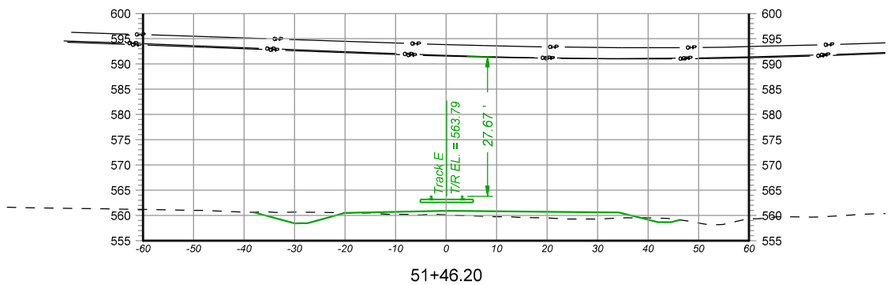
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City of Tulsa - Rogers County Port Authority

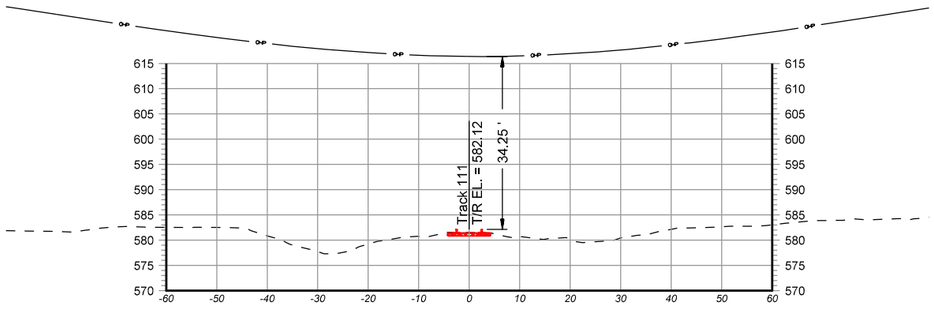
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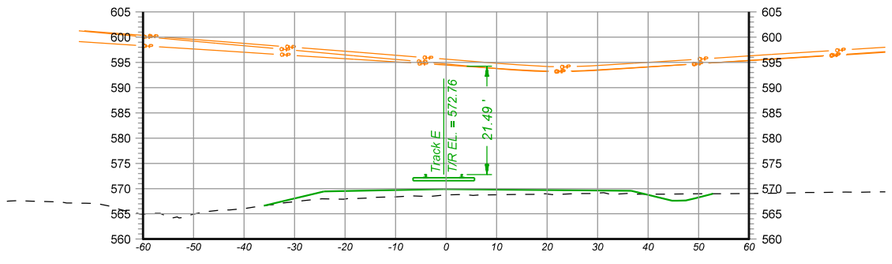
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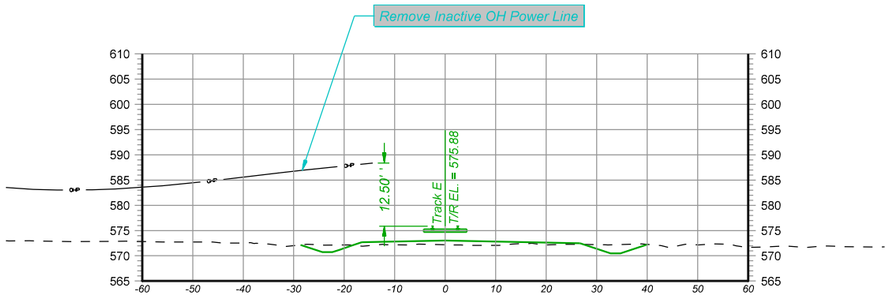
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72+24.46



20+12.56



67+98.52

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SHEET NUMBER: 93 of 94

DOCUMENT TYPE: 30% Development Concept

UNION PACIFIC RAILROAD For Use and Agreement
City of Tulsa - Rogers County Port Authority

LOCATION & DESCRIPTION:
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Trackage to Serve: Tulsa Ports

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Default
6/1/2021

To Inola
& Coffeyville
Timetable North

To Wagoner
& Van Buren
Timetable South

595

UPRR Mainline Wagoner Sub
136#, Wood, 60 MPH

#1 Pt. Sw. No. 15 RH POTO MP 595.18
#2 13' Clear Point
#3 Install DSPD LH Power
#4 End UP MTCE Sign
Proposed Track A
#5 13' Clear Point
Pt. Sw. No. 11 LH DTMF
#6 Track 111 Wood 112# Rail
Track 111 Relay 136# Rail
#7 Pt. Sw. No. 15 LH POTO MP 594.86
#8 13' Clear Point
#9 Install DSPD RH Power
#10 End UP MTCE Sign

Point	Type	Track	Latitude	Longitiude	Elevations
1	Pt. Sw.	A	420490.30	2709474.43	608.91
2	13' Cl. Pt.	A	420286.80	2709590.70	611.32
3	Derail	A	420208.40	2709634.33	612.14
4	End MTCE	A	420164.64	2709658.51	612.55
5	13' Cl. Pt.	A	419177.04	2709126.35	616.45
6	Pt. Sw.	A	419159.13	2708953.65	615.34
7	Pt. Sw.	111	418596.75	2710699.66	628.85
8	13' Cl. Pt.	111	418785.84	2710561.82	626.82
9	Derail	111	418859.98	2710506.48	626.10
10	End MTCE	111	418900.05	2710476.57	625.68

200 0 200 400
SCALE IN FEET

- 100% Plans -
NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TranSystems
2400 PERSHING ROAD
SUITE 400
KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

UNION PACIFIC

FES #: 40743
DRAWN BY: TAR
CHECKED BY: JLS
DATE: 6/1/2021
SHEET NUMBER: 94 of 94

DOCUMENT TYPE: 30% Development Concept

UNION PACIFIC RAILROAD For Use and Agreement
City of Tulsa - Rogers County Port Authority

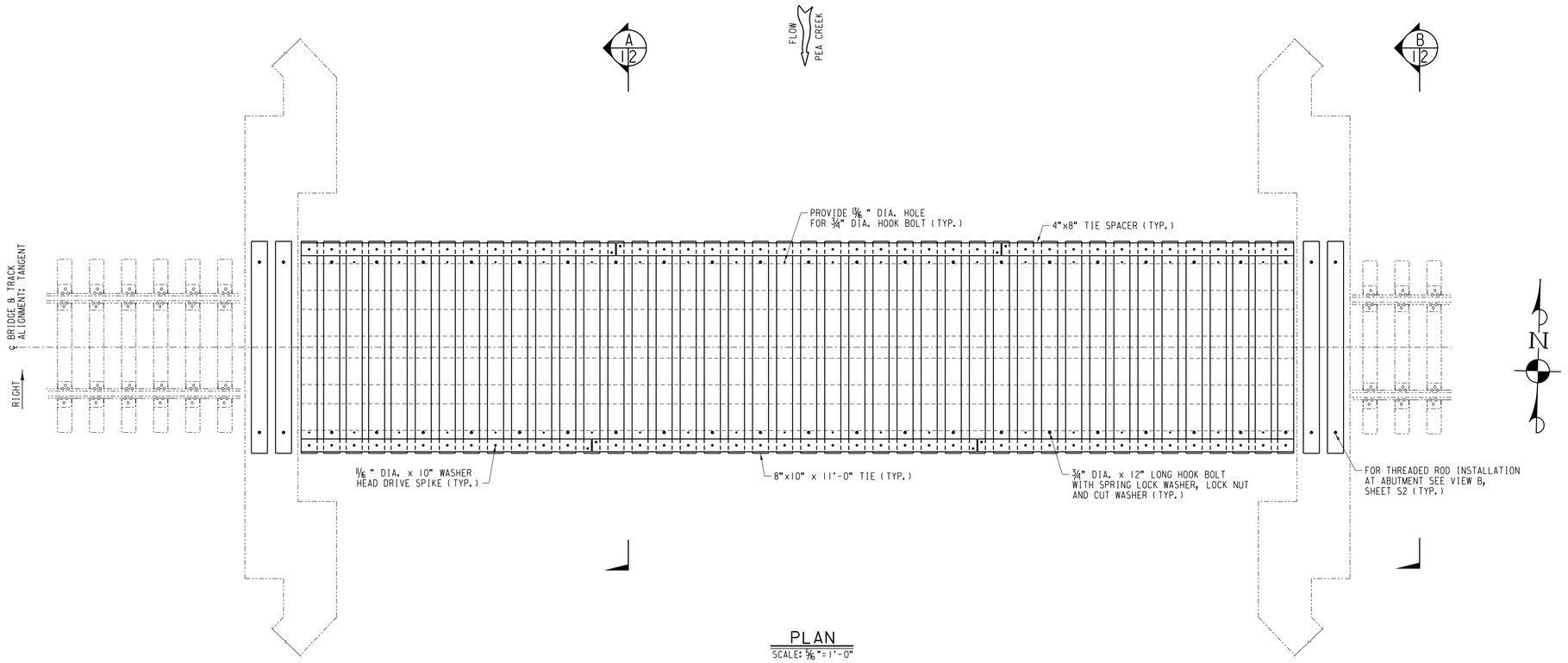
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Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18
Trackage to Serve: Tulsa Ports

SHEET TITLE: PTC DESIGN

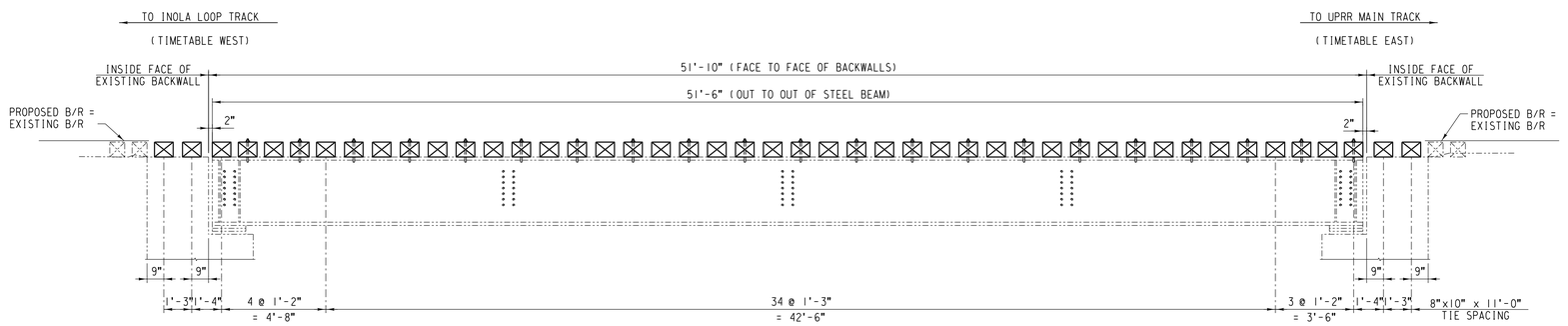
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Default
6/1/2021

BILL OF MATERIAL

REQ'D	UNIT	DESCRIPTION
46	EA.	8"x 10" x 11'-0" BRIDGE TIE
6	EA.	4"x 8" x 20'-0" TIMBER TIE SPACER (FIELD CUT TO FIT)
42	EA.	¾" DIA. x 12" LONG HOOK BOLT WITH SPRING LOCK WASHER, LOCK NUT AND CUT WASHER
88	EA.	11/16" DIA. x 10" WASHER HEAD DRIVE SPIKE
8	EA.	¾" DIA. x 22" ASTM A307 THREADED ROD w/2 HVY. HEX ELASTIC LOCKNUTS (MIL-N-25027) & 2 FLAT CIRCULAR WASHERS (ASTM F436, LUBRICATED), EACH COMPONENT HOT DIP GALV. OR MECHANICALLY ZINC COATED.
2	EA.	RED HEAD EPCON C6+ 30oz EPOXY INJECTION CARTRIDGE, PART NO. C6P-30, USE GUNS D102(M) OR D202(P)
2	EA.	HIGH FLOW MIXING NOZZLE FOR RED HEAD C6P-30 OR A7P-28, PART NO. S75, 5/8" HOLES MIN.



PLAN
SCALE: 3/16"=1'-0"



ELEVATION
SCALE: 3/16"=1'-0"
4"x8" TIE SPACER NOT SHOWN

GENERAL NOTES:

1. All work requirements shown on these drawings and not otherwise detailed shall be accomplished as specified in Project Specifications and most current edition of the American Railway Engineering and Maintenance-of-Way Association (AREMA) Manual for Railway Engineering. In the event of conflicts between specifications, the more restrictive shall apply.
2. Field verify all dimensions prior to start of construction.
3. Bridge ties to be produced from softwood species, West Coast Douglas Fir Select Structural or Southern Pine No. 1 Dense. Ties shall be graded and marked to show conformance to WCLIB, WWPA or SPIB grading rules and standards.
4. Timber to be well seasoned and conditioned. Timber to be pressure treated per specification with creosote-type preservative per AREMA Chapter 30 Part 3.7.2.1.
5. All bridge ties shall have anti-checking devices installed on each end.
6. All bolt holes shall be field drilled. Field drill holes through tie spacer into tie for tie spacer anchorage to tie.
7. Field holes, abrasions, and cuts made in treated timber shall be coated with an approved timber preservative.
8. Additional material incidental to construction not listed in the Bill of Material shall be provided by the Contractor and be subsidiary to other items.

DRAWING SCHEDULE

THIS SET	SHEET NO.	DESCRIPTION
	S1	GENERAL ARRANGEMENT AND BILL OF MATERIAL
	S2	SECTION VIEWS

REF.	NO.	DWG. NO.	SHEET NO.	REV. NO.	DESCRIPTION
	1	5	5 - 93	00	INOLA, ROGERS COUNTY, OKLAHOMA, WAGONER SUBDIVISION MP 594.76 TO MP 595.18, FES=40743, INOLA INDUSTRIAL RAIL FACILITY, 100% DATED 05/19/2021

LETTER SERIES
SHEET NO. CUT ON
SHEET NO. SHOWN ON

SECTION DESIGNATION

POSTCONSTRUCTION COMPLIANCE

Contractor or UPRR Manager in charge of construction to provide to the office of the Director Structures Design as-built drawings confirming that the project was constructed in compliance with the plans and indicating any construction variances.

SIGNED

In Charge of Construction — Date

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
100% — STATUS
5/20/2021 — DATE

TranSystems

APPROVED FOR UNION PACIFIC RAILROAD BY:

CONSULTANT ENGINEER — DATE: / /

PROJECT ID:	WORK ORDER:	C E NUMBER:

LATITUDE: 36.12528°N LONGITUDE: 95.50778°W

DSN/CHK BY: NJS/
DRAWN/CHK BY: CAP/NJS
UPRR ENGINEER:
SHT NO.: S1 of S2

UNION PACIFIC RAILROAD

Office of Director Structures Design

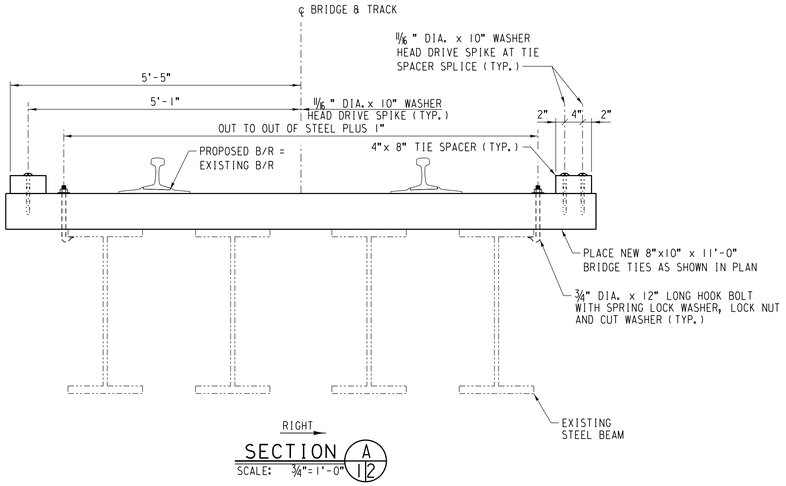
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BRIDGE TIE REPLACEMENT

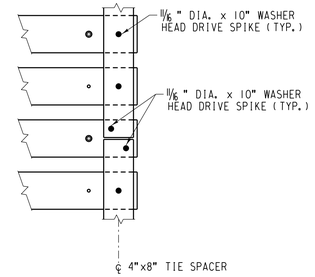
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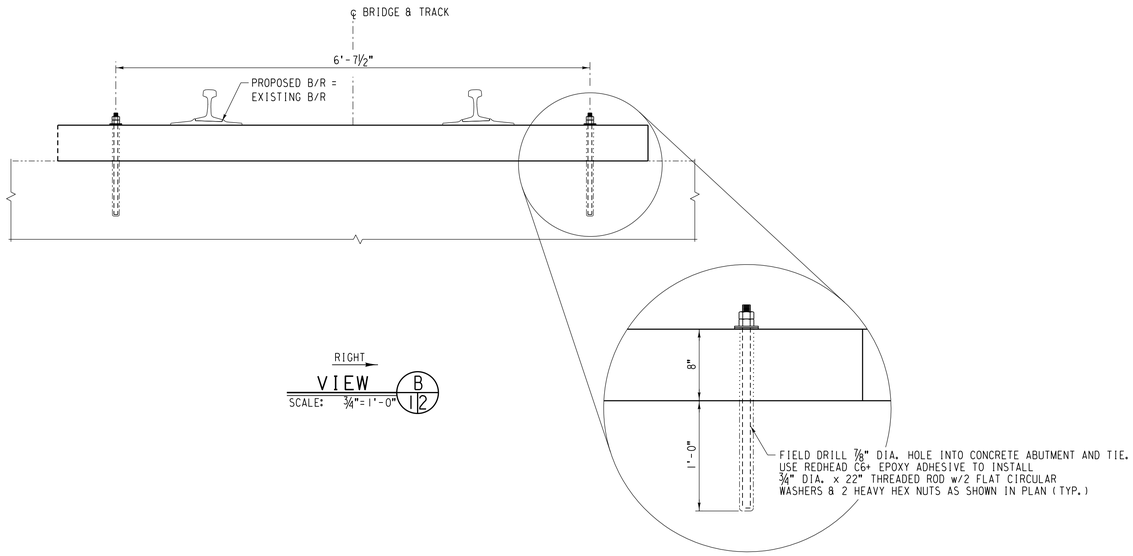
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SECTION A
SCALE: 3/4"=1'-0"
1 | 2



TIE SPACER JOINT DETAIL
SCALE: N.T.S.



VIEW B
SCALE: 3/4"=1'-0"
1 | 2

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
100% STATUS — 5/20/2021 DATE

TranSystems

APPROVED FOR UNION PACIFIC RAILROAD BY:

CONSULTANT ENGINEER — / / DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:

LATITUDE: 36.12528°N LONGITUDE: 95.50778°W

UNION PACIFIC

DSN/CHK BY: NJS/	
DRAWN/CHK BY: CAP/NJS	
UPRR ENGINEER:	
SHT NO.: S2 of S2	

UNION PACIFIC RAILROAD

Office of Director Structures Design

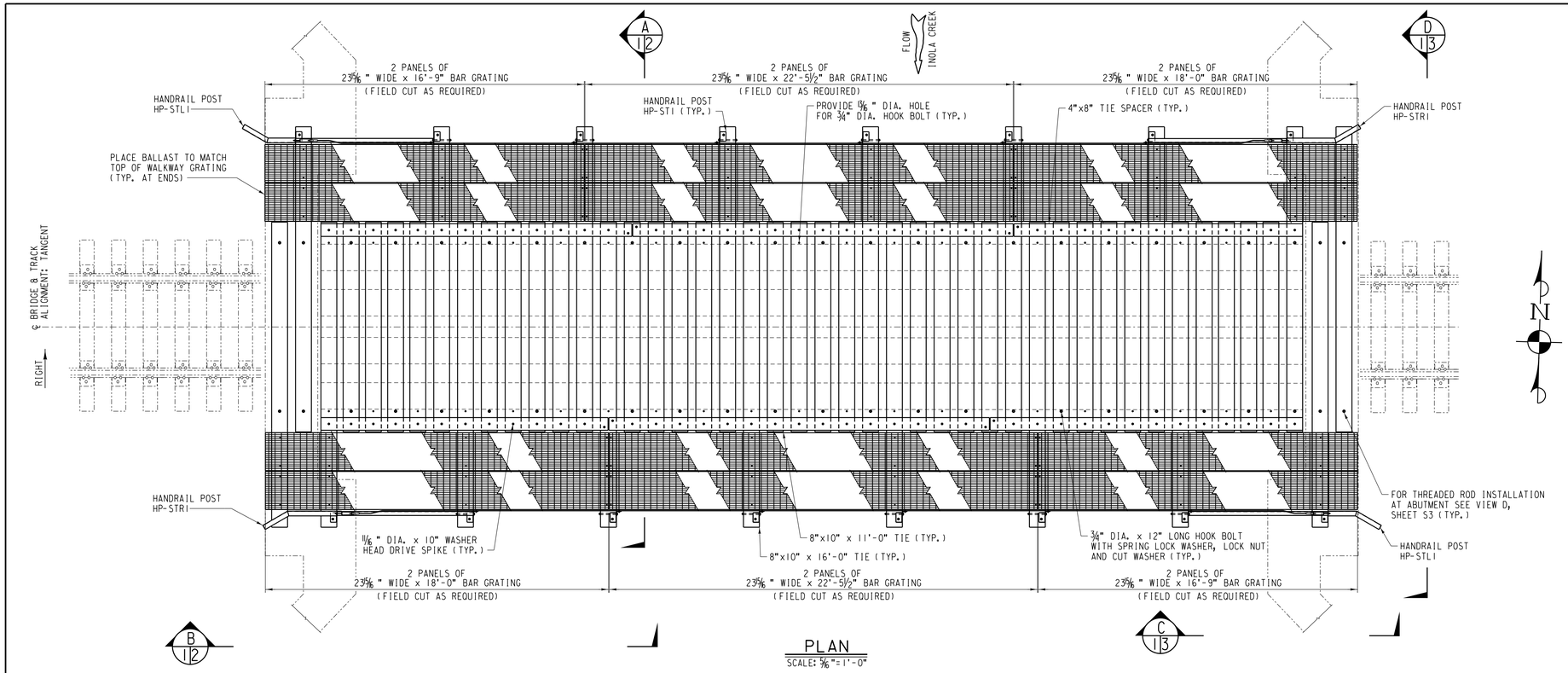
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BRIDGE TIE REPLACEMENT

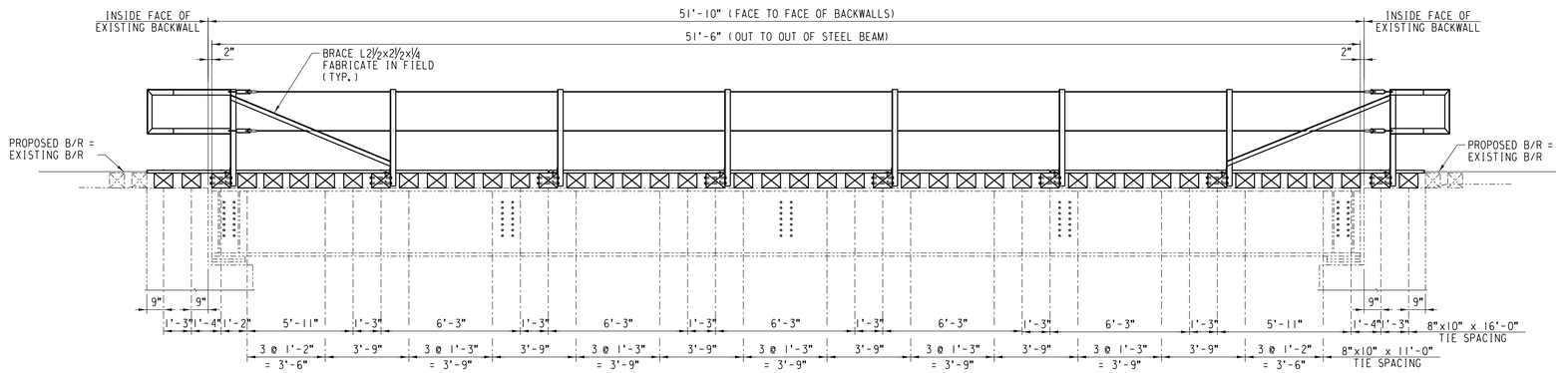
SHEET TITLE: SECTION VIEWS

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PLOTTED: 5/20/2021 8:31:18 AM



PLAN
SCALE: 5/16"=1'-0"



ELEVATION
SCALE: 5/16"=1'-0"
4"x8" TIE SPACER NOT SHOWN

BILL OF MATERIAL

REQ'D	UNIT	DESCRIPTION
18	EA.	8"x 10" x 16'-0" BRIDGE TIE
28	EA.	8"x 10" x 11'-0" BRIDGE TIE
6	EA.	4"x 8" x 20'-0" TIMBER TIE SPACER (FIELD CUT TO FIT)
4	EA.	WELDFORGED TYPE W/B STEEL WALKWAY GRATING (1¾" x 3/16" SERRATED BAR) 23⅝" WIDE x 16'-9" LONG (GALV.)
4	EA.	WELDFORGED TYPE W/B STEEL WALKWAY GRATING (1¾" x 3/16" SERRATED BAR) 23⅝" WIDE x 22'-5½" LONG (GALV.)
4	EA.	WELDFORGED TYPE W/B STEEL WALKWAY GRATING (1¾" x 3/16" SERRATED BAR) 23⅝" WIDE x 18'-0" LONG (GALV.)
12	EA.	HANDRAIL POST HP-STI (GALV.) (PER NOTES AND DETAILS, SHEET M1)
2	EA.	HANDRAIL POST HP-STR1 (GALV.) (PER NOTES AND DETAILS, SHEET M1)
2	EA.	HANDRAIL POST HP-STL1 (GALV.) (PER NOTES AND DETAILS, SHEET M1)
4	EA.	BRACE L2½x2½x¼ x 9'-0" (GALV.) (PER NOTES, SHEET M1)
16	EA.	½" DIA. x 4" LAG SCREW (ANSI/ASME B18.2.1) (ZINC PLATED)
16	EA.	FLAT CIRCULAR WASHER FOR ½" DIA BOLT (ASTM F436) (ZINC PLATED)
42	EA.	¾" DIA. x 12" LONG HOOK BOLT WITH SPRING LOCK WASHER, LOCK NUT AND CUT WASHER
84	EA.	11/16" DIA. x 10" WASHER HEAD DRIVE SPIKE
32	EA.	¾" DIA. x 12" ASTM A307 HVY. HEX BOLT w/ HVY. HEX ELASTIC LOCKNUT (MIL-N-25027) & FLAT CIRCULAR WASHER (ASTM F436, LUBRICATED), EACH COMPONENT HOT DIP GALV. OR MECHANICALLY ZINC COATED.
88	EA.	5/8" DIA. x 6" DOME HEAD SPIKE (ASTM A307) (GALV.)
8	EA.	¾" DIA. x 22" ASTM A307 THREADED ROD w/2 HVY. HEX ELASTIC LOCKNUTS (MIL-N-25027) & 2 FLAT CIRCULAR WASHERS (ASTM F436, LUBRICATED), EACH COMPONENT HOT DIP GALV. OR MECHANICALLY ZINC COATED.
220	LIN. FT.	3/8" NOMINAL DIAMETER WIRE ROPE, 7 WIRE, GALVANIZED STEEL STRAND, SIEMENS MARTINS GRADE, A-COATING (4 - 55' LENGTHS)
8	EA.	3/8" EYE TYPE STRANDVISE CABLE GRIP CARTRIDGE
24	EA.	GALV. MALLEABLE IRON U-BOLT w/2 ELASTIC LOCKNUTS (MIL-N-25027) ZINC PLATED, FOR 3/8" DIA. WIRE ROPE
8	EA.	½" DIA. EYEBOLT, 2" LONG SHANK WITH 1" I.D. EYE, PLAIN PATTERN, GALV., DROP FORGED STEEL (A489), WITH ZINC PLATED HEX NUT (A563) & ZINC PLATED FLAT CIRCULAR WASHER (F436)
2	EA.	RED HEAD EPCON C6+ 30oz EPOXY INJECTION CARTRIDGE, PART NO. C6P-30, USE GUNS D102(M) OR D202(P)
2	EA.	HIGH FLOW MIXING NOZZLE FOR RED HEAD C6P-30 OR A7P-28, PART NO. S75, 5/8" HOLES MIN.
1	LOT	ZRC COLD GALVANIZING COMPOUND OR APPROVED ALTERNATE

EST. WT. OF STEEL WALKWAY GRATING = 5,730 LB.
EST. WT. OF MISCELLANEOUS STEEL
(NOT INCL. BOLTS, NUTS, CLIPS AND WIRE ROPE) = 715 LB.

GENERAL NOTES:

1. All work requirements shown on these drawings and not otherwise detailed shall be accomplished as specified in Project Specifications and most current edition of the American Railway Engineering and Maintenance-of-Way Association (AREMA) Manual for Railway Engineering. In the event of conflicts between specifications, the more restrictive shall apply.
2. Field verify all dimensions prior to start of construction.
3. Bridge ties to be produced from softwood species, West Coast Douglas Fir Select Structural or Southern Pine No. 1 Dense. Ties shall be graded and marked to show conformance to WCLIB, WWPA or SPIB grading rules and standards.
4. Timber to be well seasoned and conditioned. Timber to be pressure treated per specification with creosote-type per AREMA Chapter 30 Part 3.7.2.1.
5. All bridge ties shall have anti-checking devices installed on each end.
6. All bolt holes shall be field drilled. Field drill holes through tie spacer into tie for tie spacer anchorage to tie.
7. Field holes, abrasions, and cuts made in treated timber shall be coated with an approved timber preservative.
8. Walkway grating shall be type W/B as manufactured by IKG Borden with 1¾"x3/16" bearing bars (galvanized).
9. Additional material incidental to construction not listed in the Bill of Material shall be provided by the Contractor and be subsidiary to other items.

FIELD WELDING:

1. All field welding shall be with the SMAW or FCAW process, unless noted otherwise, welding electrodes must be E7018 for SMAW of E71T-8,5 for FCAW.
2. All welding per AWS D1.5, Bridge Welding Code.
3. Welders must possess valid certification.

DRAWING SCHEDULE

THIS SET

SHEET NO.	DESCRIPTION
S1	GENERAL ARRANGEMENT AND BILL OF MATERIAL
S2	SECTION VIEWS (1 OF 2)
S3	SECTION VIEWS (2 OF 2)
M1	MISCELLANEOUS STEEL DETAILS

REF.

NO.	DWG. NO.	SHEET NO.	REV. NO.	DESCRIPTION
1	5	5 - 93	-	INOLA, ROGERS COUNTY, OKLAHOMA, WAGONER SUBDIVISION MP 594.76 TO MP 595.18, FES#40743, INOLA INDUSTRIAL RAIL FACILITY, 100% DATED 05/19/2021

LETTER SERIES
SHEET NO. CUT ON — SHEET NO. SHOWN ON

SECTION DESIGNATION

POSTCONSTRUCTION COMPLIANCE

Contractor or UPRR Manager in charge of construction to provide to the office of the Director Structures Design as-built drawings confirming that the project was constructed in compliance with the plans and indicating any construction variances.

SIGNED

In Charge of Construction — Date

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
100% — STATUS
5/20/2021 — DATE

TranSystems

APPROVED FOR UNION PACIFIC RAILROAD BY:

CONSULTANT ENGINEER — DATE / /

PROJECT ID:	WORK ORDER:	C E NUMBER:

LATITUDE: 36.12520°N LONGITUDE: 95.52883°W

DSN/CHK BY:	NJS/
DRAWN/CHK BY:	CAP/NJS
UPRR ENGINEER:	
SHT NO.:	S1 of S3

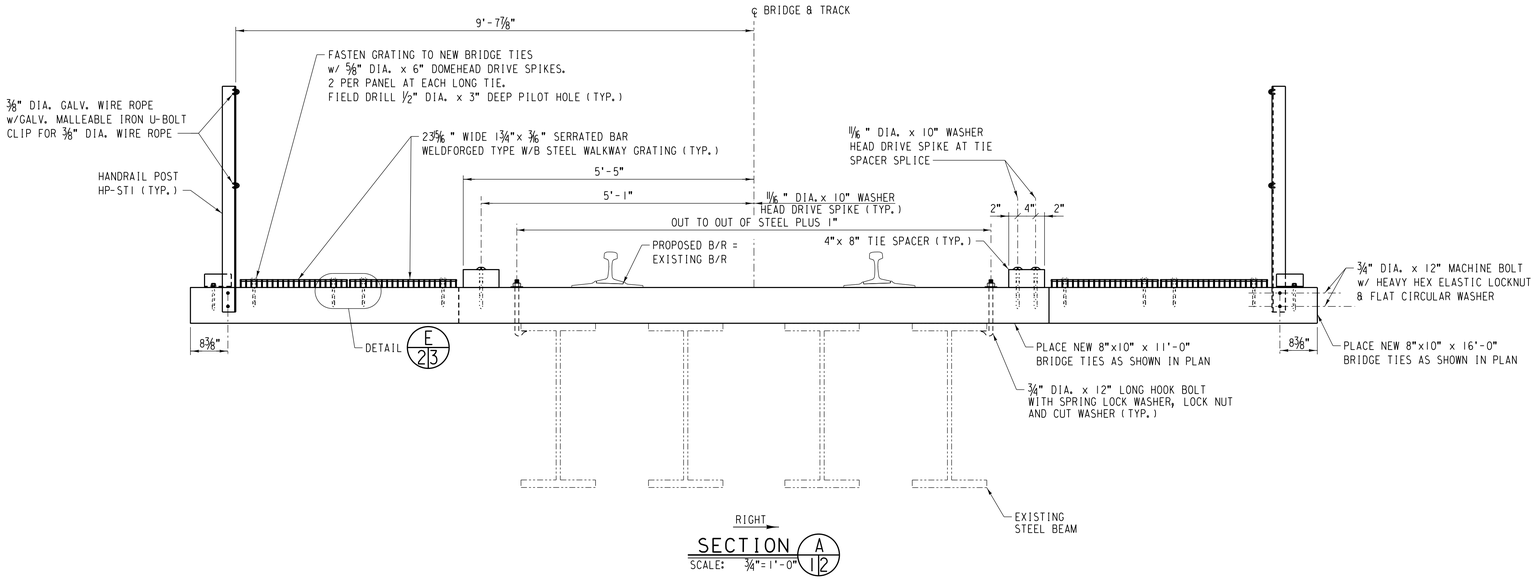
UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION: BRIDGE #2 STA. 126+72, BLACK FOX INDUSTRIAL LEAD
BRIDGE TIE REPLACEMENT AND HANDRAIL AND WALKWAY ADDITION

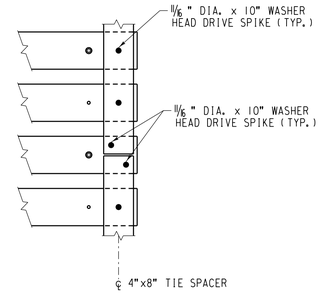
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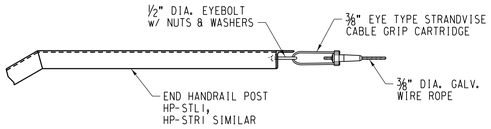
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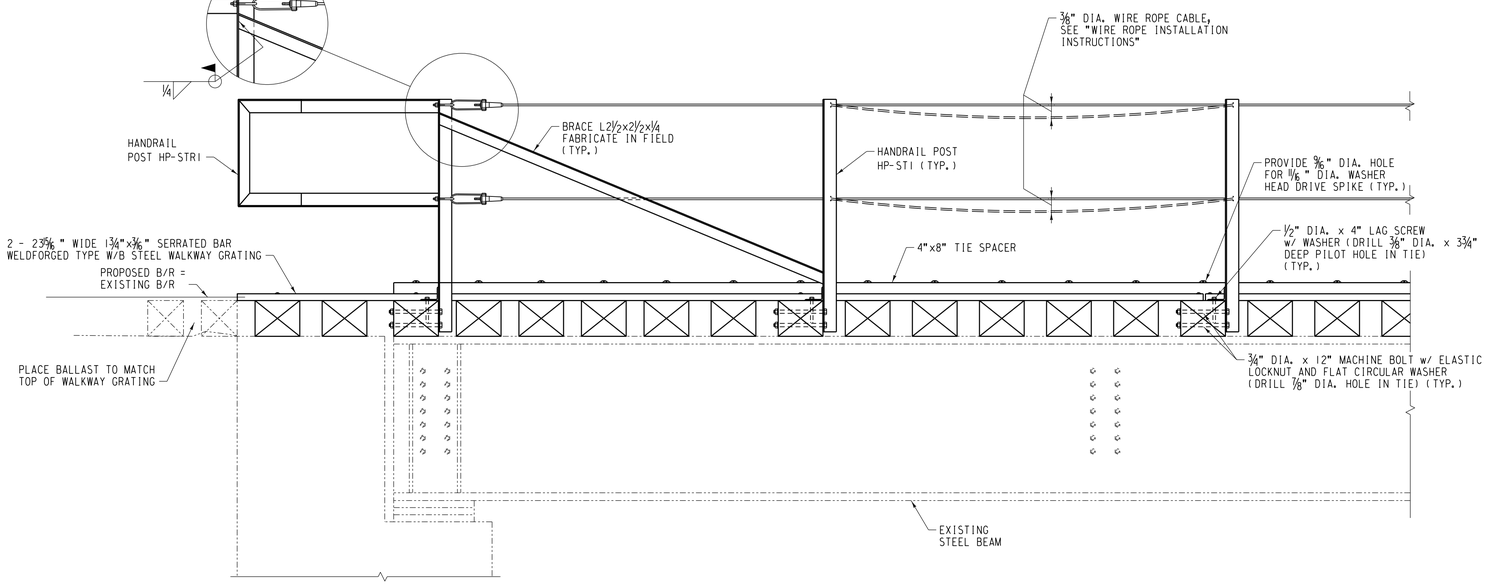
SECTION A 1/2
SCALE: ¾"=1'-0"



TIE SPACER JOINT DETAIL
SCALE: N.T.S.



WIRE ROPE END CONNECTION DETAIL
SCALE: 1"=1'-0"



VIEW B 1/2
SCALE: ¾"=1'-0"

WIRE ROPE INSTALLATION INSTRUCTIONS:

1. THREAD WIRE ROPE THROUGH ALL CLIPS AND STRANDVISES AND SEAT RETAINING WEDGES ON ONE END HANDRAIL POST.
2. AFTER INSTALLING BRACES, STRETCH WIRE ROPE, HANG A MINIMUM OF 10 LB. ON CABLE BETWEEN TWO POSTS AND REMOVE ALL SAG TO A MAXIMUM OF 2 INCHES.
3. SEAT RETAINING WEDGES AT REMAINING END HANDRAIL POST.
4. TIGHTEN EYEBOLTS AT END HANDRAIL POSTS.
5. REMOVE WEIGHTS.
6. TIGHTEN CLIPS AT INTERMEDIATE POSTS.

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
100% STATUS
5/20/2021 DATE

TranSystems

APPROVED FOR UNION PACIFIC RAILROAD BY:

CONSULTANT ENGINEER / / DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:

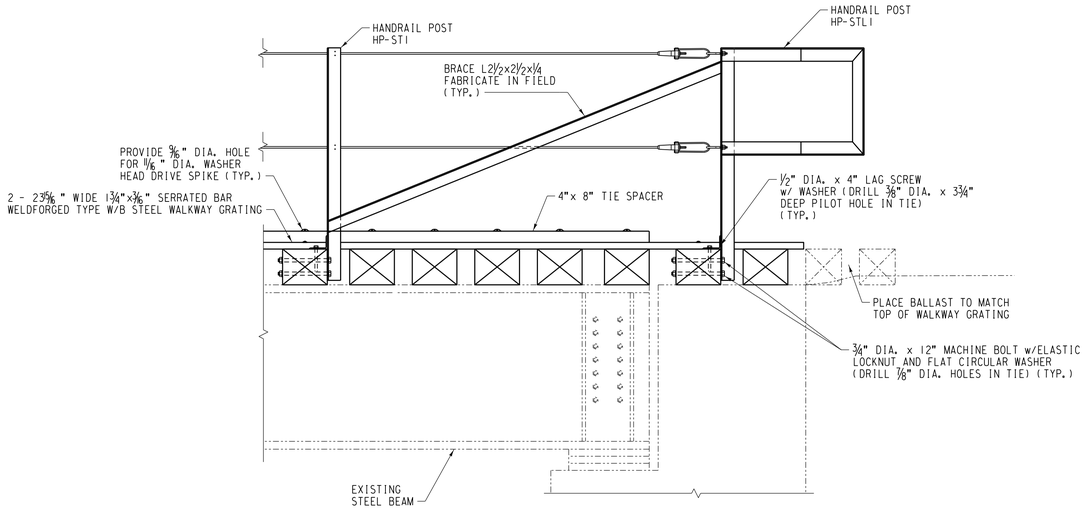
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UNION PACIFIC

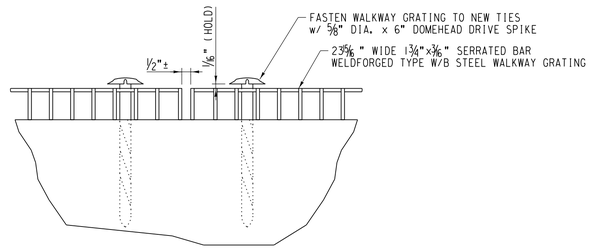
DSN/CHK BY: NJS/	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: CAP/NJS	Office of Director Structures Design
UPRR ENGINEER:	LOCATION & DESCRIPTION: BRIDGE #2 STA. 126+72, BLACK FOX INDUSTRIAL LEAD BRIDGE TIE REPLACEMENT AND HANDRAIL AND WALKWAY ADDITION
SHT NO.: S2 of S3	SHEET TITLE: SECTION VIEWS (1 OF 2)

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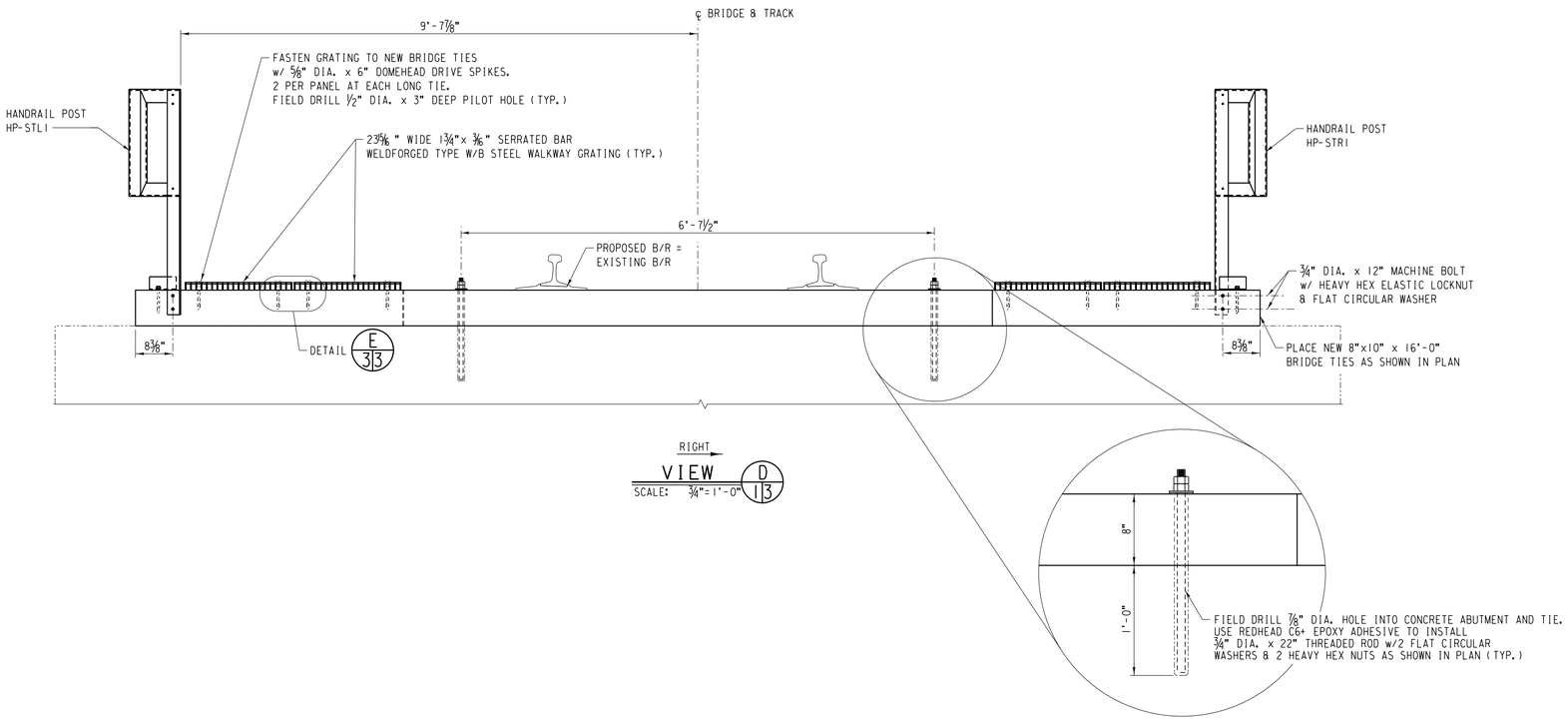
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VIEW C
SCALE: ¾"=1'-0" 1|3



DETAIL E 2|3 E 3|3
SCALE: NONE



RIGHT
VIEW D
SCALE: ¾"=1'-0" 1|3

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
100% STATUS — 5/20/2021 DATE

TranSystems

APPROVED FOR UNION PACIFIC RAILROAD BY:

CONSULTANT ENGINEER — / / DATE

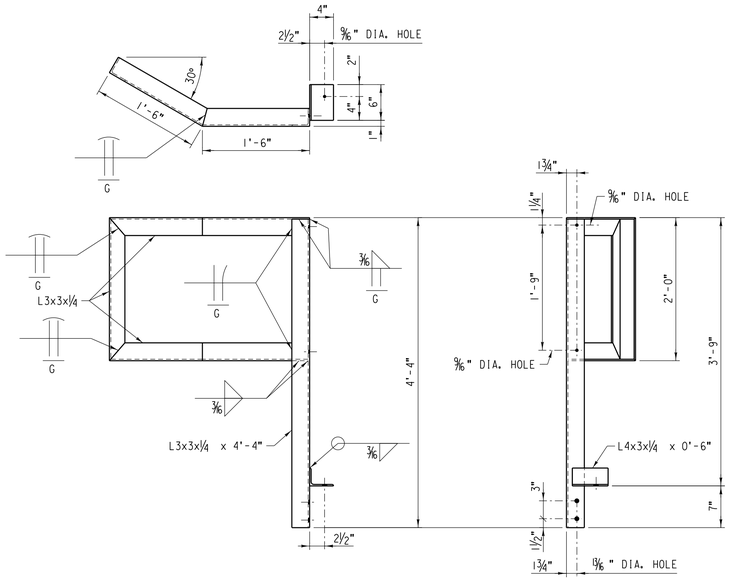
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DSN/CHK BY: NJS/	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: CAP/NJS	Office of Director Structures Design
UPRR ENGINEER:	LOCATION & DESCRIPTION: BRIDGE #2 STA. 126+72, BLACK FOX INDUSTRIAL LEAD BRIDGE TIE REPLACEMENT AND HANDRAIL AND WALKWAY ADDITION
SHT NO.: S3 of S3	SHEET TITLE: SECTION VIEWS (2 OF 2)

FILE NAME: pw:\\hqpwint01.w.e.transystems.com:transystemscorp.pw\Documents\Projects_2019\KC101\101190319\Bridge\Sheets\Bridge 2 - Inola Creek

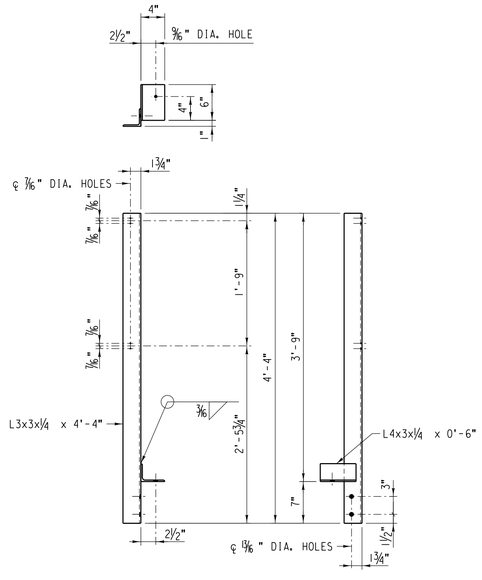
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HANDRAIL POST HP-STL1

SCALE: 1"=1'-0"

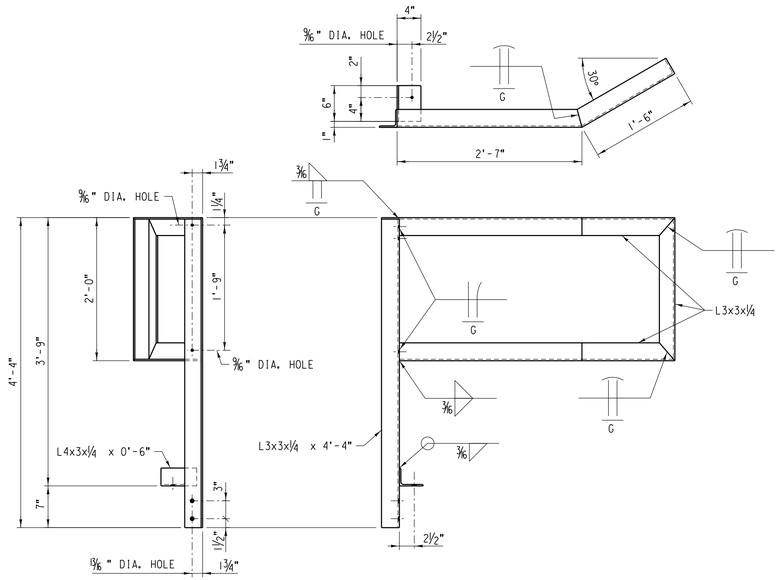
EST. WT. = 63.3 LB.
GALVANIZE AFTER FABRICATION



HANDRAIL POST HP-ST1

SCALE: 1"=1'-0"

EST. WT. = 24.1 LB.
GALVANIZE AFTER FABRICATION



HANDRAIL POST HP-STR1

SCALE: 1"=1'-0"

EST. WT. = 74.0 LB.
GALVANIZE AFTER FABRICATION

MISCELLANEOUS STEEL NOTES:

1. Materials, fabrication, workmanship and erection per the current AREMA Manual for Railway Engineering, Chapter 15, Steel Structures.

2. Material shall conform to the following requirements:

Rolled Shapes & Plates	ASTM A36
Pipe	ASTM A53 Gr. B
Bolts	ASTM A307 Gr. A
Elastic Locknut	MIL-DTL-32258
Steel Washer	ASTM F436

3. Grating panels and fasteners shall conform to the following requirements:

Grating Fasteners:

Saddle Clips	F-10 Galvanized Saddle Clips
Socket Cap Screws	SAE J429, Gr. 8, Zinc Coated
Elastic Locknut	MIL-DTL-32258
Steel Washer	ASTM F436
Nylon Washer	Nylon G16

Grating Panels:
Material shall comply with NAAMM Standard MBG 531-17
Size = W-19-4 (1¾ x ⅜ Serrated) Steel Galvanized.

4. Welding requirements:

   A. All welding shall be with the SAW, SMAW, or FCAW process.
   B. All welding per AWS D1.1, Structural Welding Code.
   C. Welders shall possess valid qualifications, including a Procedure Qualification Report (POR) and Weld Procedure Specification (WPS) for each weld type to be performed as well as documentation verifying that they have performed the specific weld(s) within the prior six months.

5. Miscellaneous steel shall be plain unless noted otherwise.

6. Pieces or assemblies designated as galvanized shall be galvanized after fabrication in accordance with ASTM A123. After galvanizing, all elements shall be free of fins, abrasions, rough or sharp edges, and other surface defects.

7. Bolts and nuts to be zinc plated in accordance with ASTM A153 unless noted otherwise.

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
100% STATUS
5/20/2021 DATE

TranSystems

APPROVED FOR UNION PACIFIC RAILROAD BY:

CONSULTANT ENGINEER / / DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:

LATITUDE: 36.12520°N LONGITUDE: 95.52883°W

DSN/CHK BY:	NJS/
DRAWN/CHK BY:	CAP/NJS
UPRR ENGINEER:	
SHT NO.:	M1 of M1

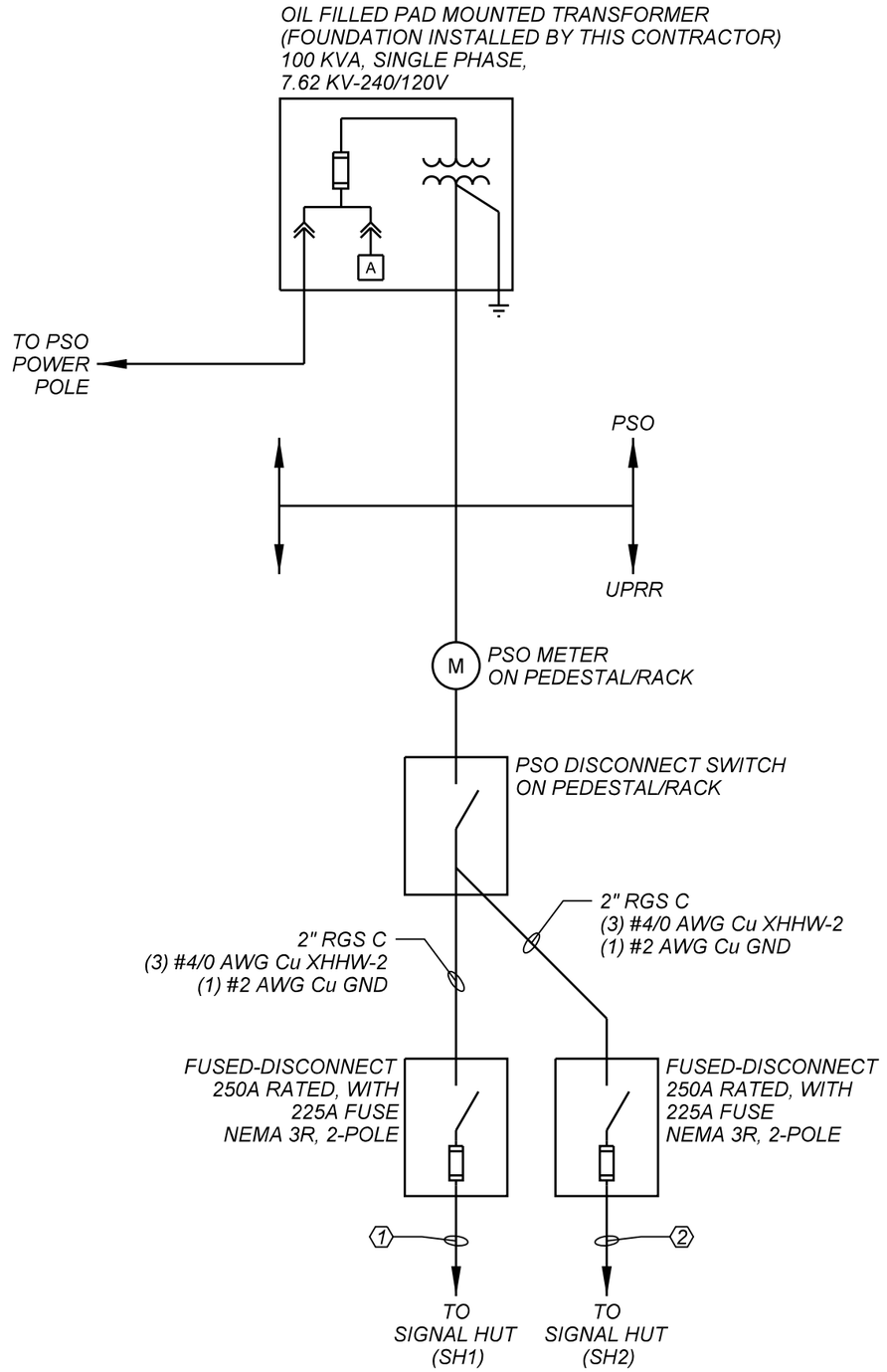
UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION: BRIDGE #2 STA. 126+72, BLACK FOX INDUSTRIAL LEAD
BRIDGE TIE REPLACEMENT AND
HANDRAIL AND WALKWAY ADDITION

SHEET TITLE: MISCELLANEOUS STEEL DETAILS

FILE NAME: pw:\\hqpwint01.a-e.transyscorp.com:transyscorp.pw\Documents\Projects\2019\KC1201\1011950319\Bridge\Sheets\Bridge 2 - Inola Creek

PLOTTED: 5/20/2021 8:37:54 AM



PRIMARY SCHEMATIC DESIGN KEYNOTES:

1. (1) 4" C
   (3) 350 KCMIL Cu XHHW-2
   (1) #2 AWG Cu GND
   (1) 4" C
   (3) 350 KCMIL Cu XHHW-2
   (1) #2 AWG Cu GND
   (1) 4" C SPARE
2. (1) 4" C
   (3) 500 KCMIL Cu XHHW-2
   (1) #1/0 AWG Cu GND
   (1) 4" C
   (3) 500 KCMIL Cu XHHW-2
   (1) #1/0 AWG Cu GND
   (1) 4" C SPARE

LEGEND:

A	ELBOW ARRESTOR
	FUSE
M	METER
PSO	PUBLIC SERVICE COMPANY

- 100% Plans-
NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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UNION PACIFIC

FES #:	40743
DRAWN BY:	CWD
CHECKED BY:	MRR
DATE:	6/1/2021
SHEET NUMBER	eu010of 94

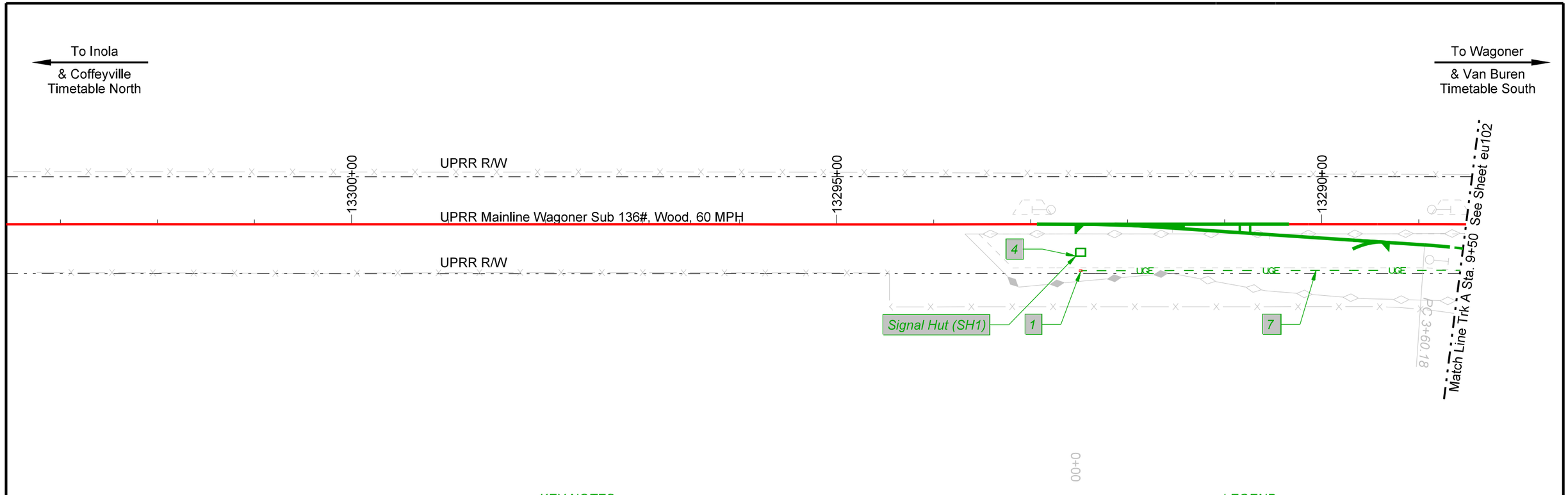
DOCUMENT TYPE: 30% Development Concept

UNION PACIFIC RAILROAD For Use and Agreement
City of Tulsa - Rogers County Port Authority

LOCATION & DESCRIPTION:
Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18
Trackage to Serve: Tulsa Ports

SHEET TITLE: ONE-LINE DIAGRAM

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6/1/2021



KEY NOTES:

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1. *Precast Concrete Power Handhole, PHH, Shall be 24"Wx36"Lx36"D Inside Dimensions. Label Lid "UPRR ELECTRIC". Handholes Shall be AASHTO HS-20 Rated with Open Bottom.*
2. *100 KVA, 7.62KV-240/120V, Single Phase Transformer Pad See Detail On Sheet eu501*
3. *Meter Stand, Coordinate Installation, Inspection With Power Company (PUBLIC SERVICE COMPANY OF OKLAHOMA) See Detail On Sheet eu501*
4. *Signal Hut (SH#), 240/120V, 200 AMP Service.*
5. *Equipment Rack With Two (2) 250 AMP Rated 2-Pole Fused-Disconnects with 225 AMP Fuses.*
6. *Power Pole*
   36°07'31.39" N
   95°29'29.06" W
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   (1) #2 AWG Cu GND
   (1) 4" C
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   (1) 4" C SPARE
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   (1) #1/0 AWG Cu GND
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GENERAL NOTES:

1. *Non-Corrosive Pull Rope shall be Installed in all Underground Conduit.*
2. *Buried Conduit and Ductbanks shall have a 6 In. Wide Detectable Warning Tape 1 Foot Above the Conduit or Encasing Concrete.*
3. *Underground Ductbank shall Utilize Long Sweep Rigid Galv. Steel Conduit Elbows.*
4. *Cable Lubricant shall be Applied to Cable Pulls in Underground Ductbanks. Polywater or Equal.*
5. *Electrical Conductor Splices and Terminations below grade are not Permitted.*
6. *Concrete Encased Ductbank Shall be Buried A Minimum of 3'-0".*
7. *Cable Reducer Should Be Used If Applicable.*
8. *Ductbank Shall Be Buried an Minimum of 60" Below Top Of Rail.*

LEGEND:

- *Pad Mounted Transformer Pad*
- *Power Pole (Povided And Installed By PSO)*
- E — *Power Handhole*
- M — *Meter Stand*
- *Equipment Rack*
- UGE — *Concrete Encased Conduits*
- PSO — *Public Service Company (Power Supplier)*

- 100% Plans -
NOT FOR CONSTRUCTION

100 0 100 200
SCALE IN FEET

REV. #	BY	DATE	DESCRIPTION

- Ex. UPRR Track
- Prop. UPRR Track
- Remove UPRR Track
- Shift UPRR Track
- Ex. Ind. Track
- Prop. Ind. Track
- Remove Ind. Track
- Shift Ind. Track
- Future Ind. Track
- Prop. Leased Ind. Trk
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- Acquire Property
- Hand Throw Turnout
- Power Turnout
- Power Derail
- Hand Throw Derail
- Point of Curve
- Bridge
- Signal

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UNION PACIFIC

FES #:	40743
DRAWN BY:	CWD
CHECKED BY:	MRR
DATE:	6/1/2021
SHEET NUMBER	eu101 of 94

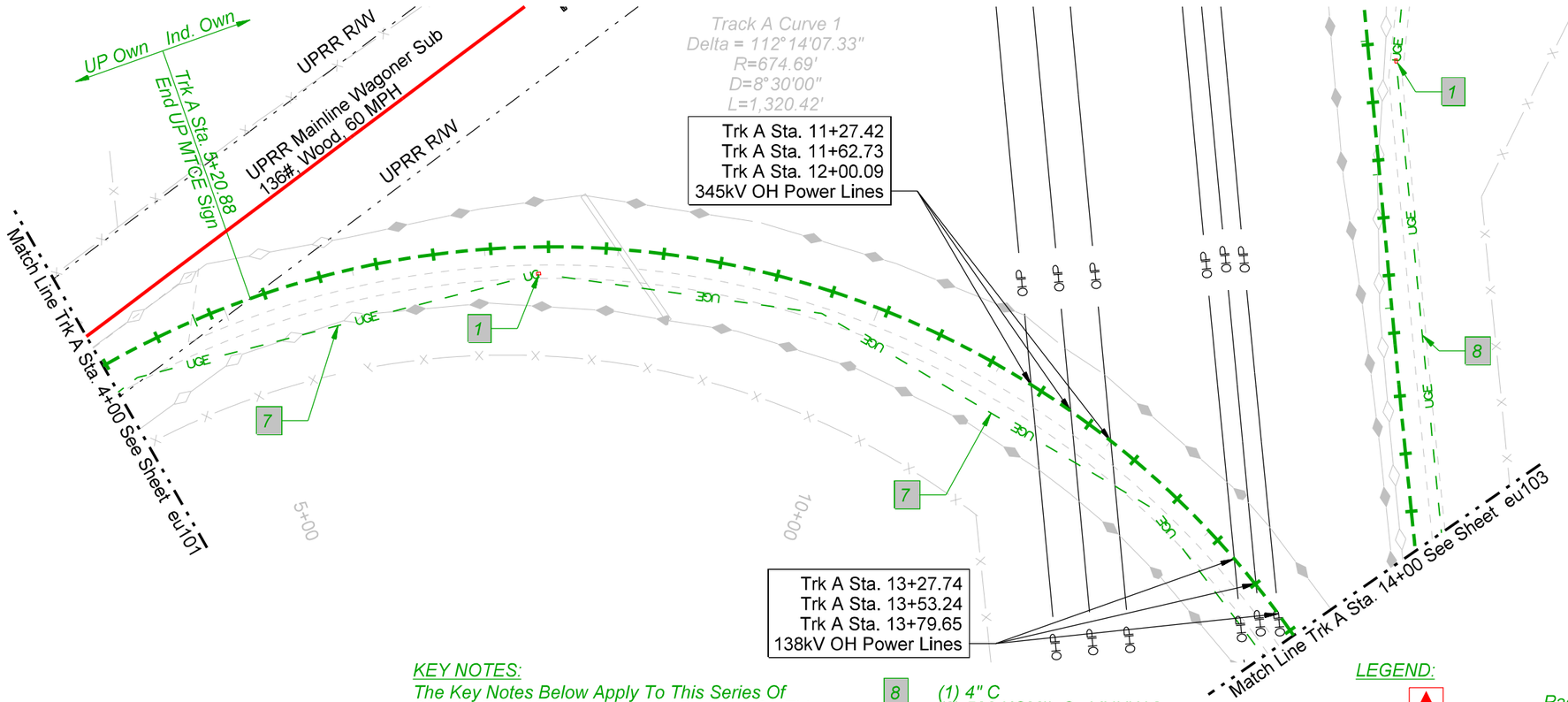
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UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority

LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports

SHEET TITLE: SITE ELECTRICAL PLAN STA. 0+00 TO 4+00

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6/1/2021



KEY NOTES:

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4. *Signal Hut (SH#), 240/120V, 200 AMP Service.*
5. *Equipment Rack With Two (2) 250 AMP Rated 2-Pole Fused-Disconnects with 225 AMP Fuses.*
6. *Power Pole*
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7. *(1) 4" C*
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GENERAL NOTES:

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2. *Buried Conduit and Ductbanks shall have a 6 In. Wide Detectable Warning Tape 1 Foot Above the Conduit or Encasing Concrete.*
3. *Underground Ductbank shall Utilize Long Sweep Rigid Galv. Steel Conduit Elbows.*
4. *Cable Lubricant shall be Applied to Cable Pulls in Underground Ductbanks. Polywater or Equal.*
5. *Electrical Conductor Splices and Terminations below grade are not Permitted.*
6. *Concrete Encased Ductbank Shall be Buried A Minimum of 3'-0".*
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8. *Ductbank Shall Be Buried an Minimum of 60" Below Top Of Rail.*

LEGEND:

- *Pad Mounted Transformer Pad*
- *Power Pole (Povided And Installed By PSO)*
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- *Equipment Rack*
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- PSO — *Public Service Company (Power Supplier)*

- 100% Plans -
NOT FOR CONSTRUCTION

100 0 100 200
SCALE IN FEET

REV. #	BY	DATE	DESCRIPTION

- Ex. UPRR Track
- Prop. UPRR Track
- Remove UPRR Track
- Shift UPRR Track
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- Prop. Ind. Track
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- Acquire Property
- Hand Throw Turnout
- Power Turnout
- Power Derail
- Hand Throw Derail
- Point of Curve
- Bridge
- Signal

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UNION PACIFIC

FES #:	40743
DRAWN BY:	CWD
CHECKED BY:	MRR
DATE:	6/1/2021
SHEET NUMBER	eu102 of 94

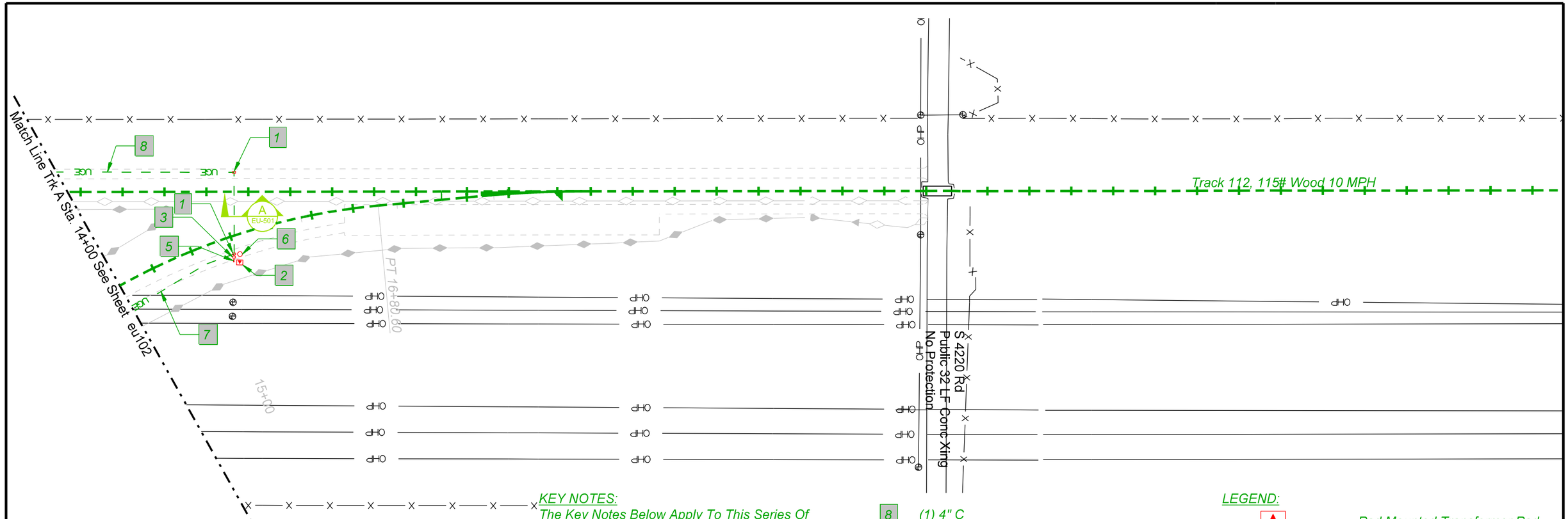
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UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority

LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports

SHEET TITLE: SITE ELECTRICAL PLAN STA. 4+00 TO 14+00

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6/1/2021



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LEGEND:

▲	*Pad Mounted Transformer Pad*
○	*Power Pole (Povided And Installed By PSO)*
E	*Power Handhole*
M	*Meter Stand*
	Equipment Rack
— UGE — —	*Concrete Encased Conduits*
PSO	*Public Service Company (Power Supplier)*

N

100 0 100 200

SCALE IN FEET

- 100% Plans -

NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

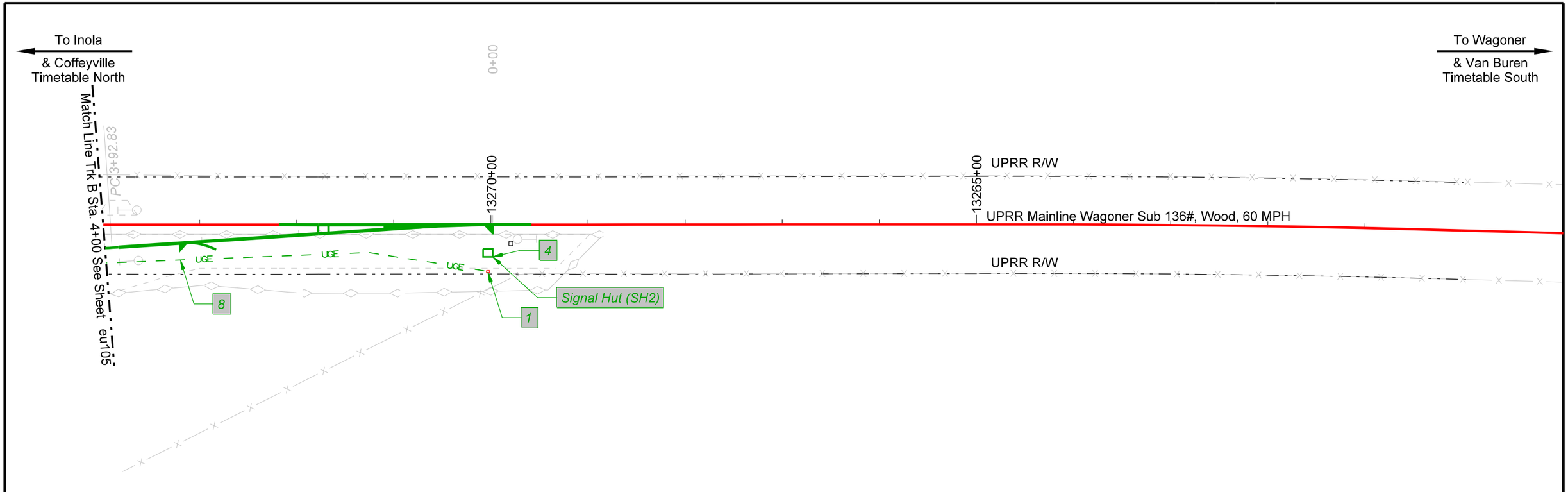
Ex. UPRR Track	Shift Ind. Track	Hand Throw Turnout
Prop. UPRR Track	Future Ind. Track	Power Turnout
Remove UPRR Track	Prop. Leased Ind. Trk	Power Derail
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Ex. Ind. Track	No RR Operations	Point of Curve
Prop. Ind. Track	Right of Way	Bridge
Remove Ind. Track	Acquire Property	Signal

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FES #: 40743	DOCUMENT TYPE: 30% Development Concept
DRAWN BY: CWD	UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
CHECKED BY: MRR	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	SHEET NUMBER eu103 of 94
	SHEET TITLE: SITE ELECTRICAL PLAN STA. 14+00 TO 18+70.92

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6/1/2021



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- E — Power Handhole
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- 100% Plans -
NOT FOR CONSTRUCTION

100 0 100 200
SCALE IN FEET

REV. #	BY	DATE	DESCRIPTION

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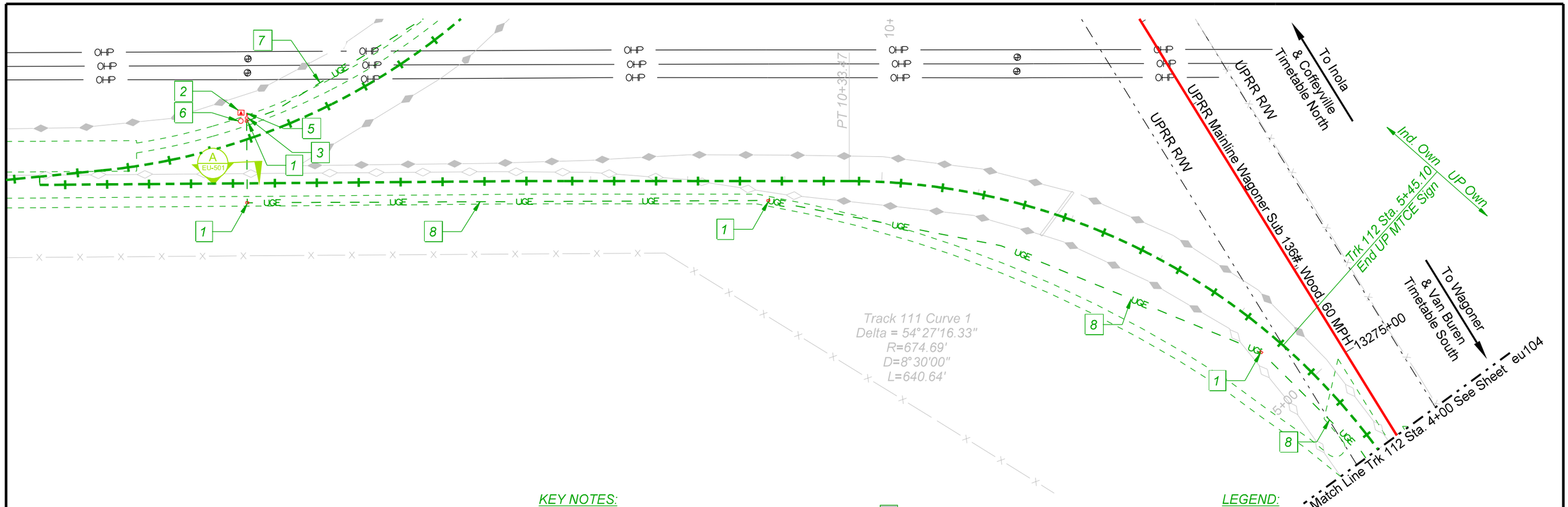
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UNION PACIFIC

FES #: 40743
DRAWN BY: CWD
CHECKED BY: MRR
DATE: 6/1/2021
SHEET NUMBER: eu104of 94

DOCUMENT TYPE: 30% Development Concept
UNION PACIFIC RAILROAD For Use and Agreement City of Tulsa - Rogers County Port Authority
LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
SHEET TITLE: SITE ELECTRICAL PLAN STA. -1+00 TO 9+50

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Default
6/1/2021



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PSO	Public Service Company (Power Supplier)

N

100 0 100 200

SCALE IN FEET

- 100% Plans -
NOT FOR CONSTRUCTION

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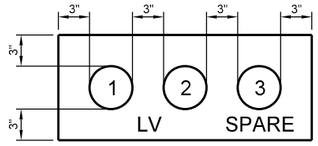
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Ex. Ind. Track	No RR Operations		Point of Curve
Prop. Ind. Track	Right of Way		Bridge
Remove Ind. Track	Acquire Property		Signal

TranSystems
2400 PERSHING ROAD
SUITE 400
KANSAS CITY, MISSOURI 64108
PHONE: 816-329-8600
WWW.TRANSYSTEMS.COM

UNION PACIFIC

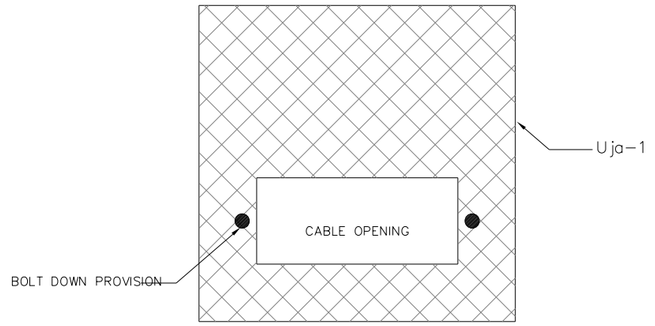
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CHECKED BY: MRR	LOCATION & DESCRIPTION: Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
DATE: 6/1/2021	
SHEET NUMBER eu105 of 94	SHEET TITLE: SITE ELECTRICAL PLAN STA. -1+00 TO 9+50

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6/1/2021



1. 4" C 120V
2. 4" C 120V
3. 4" C SPARE

A DUCTBANK SECTION DETAIL
NO SCALE:



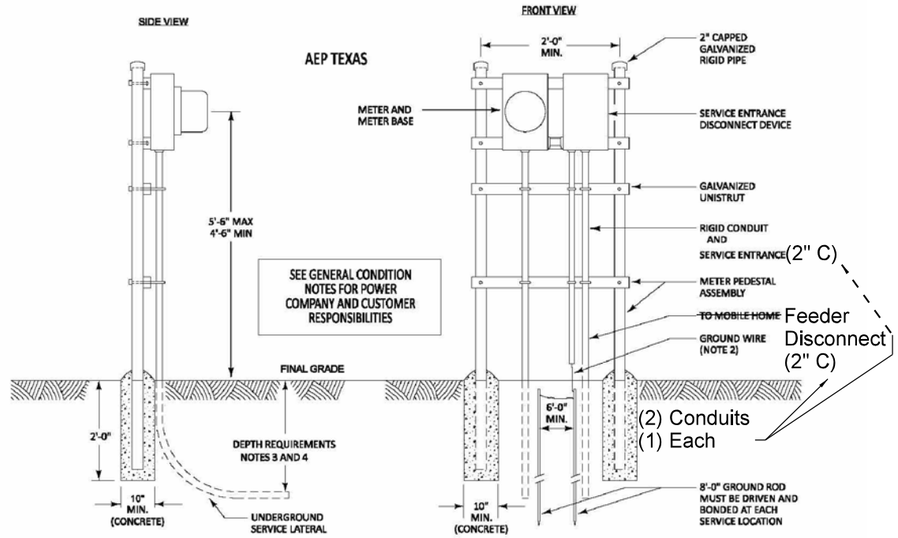
NOTES:

1. PAD ASSEMBLIES INCLUDE SITE PREPARATION, BEDDING AND DRAINAGE.
2. EQUIPMENT SHALL BE SECURED TO PAD IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.
3. CABLE OPENING AND PAD DIMENSIONS SHALL BE AS REQUIRED.

UNIT DESIGNATION:

UM1-5C CONCRETE
~~UM1-5NC~~ ~~NON-CONCRETE~~

	PAD ASSEMBLIES	
	2000	UM1-5C UM1-5NC



(Mobile Home Not Applicable)

GENERAL CONDITION NOTES:

THE POWER COMPANY WILL BE RESPONSIBLE FOR:

(a) SPECIFYING THE METER PEDESTAL LOCATION. NOTE: THE NATIONAL ELECTRICAL CODE (NEC) RECOMMENDS THAT THE SERVICE EQUIPMENT BE "IN SIGHT FROM" AND WITHIN 30'-0" OF THE MOBILE HOME.
(b) INSTALLING AND REMOVING THE METER.
(c) PROVIDING AND INSTALLING THE UNDERGROUND SERVICE LATERAL CONDUCTORS.

THE CUSTOMER WILL BE RESPONSIBLE FOR:

(a) PROVIDING AND INSTALLING THE METER PEDESTAL.
(b) PROVIDING AND INSTALLING THE METER BASE.
(c) PROVIDING AN ADEQUATE GROUND TO THE SERVICE EQUIPMENT DISCONNECT DEVICE. GROUND IN ACCORDANCE WITH ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE (NEC).
(d) SECURELY INSTALLING THE METER PEDESTAL AS SHOWN.
(e) SECURELY MOUNTING THE METER BASE IN A LEVEL AND PLUMB POSITION. METER MUST FACE STREET OR ACCESS WALKWAY.
(f) PROVIDING AND INSTALLING THE SERVICE EQUIPMENT DISCONNECT DEVICE.
(g) PROVIDING SERVICE ENTRANCE CONDUCTORS OF SUFFICIENT AMPACITY TO SERVE THE CONNECTED LOAD ACCORDING TO THE CURRENT NEC.

GENERAL CONSTRUCTION NOTES:

1. ~~"THIS INSTALLATION IS ALSO FOR MOBILE HOMES IN PARKS."~~ Not Used
2. CUSTOMER IS TO SIZE GROUND WIRE ACCORDING TO NEC REQUIREMENTS.
3. BURIAL DEPTH IS THE DISTANCE BETWEEN FINAL GRADE AND THE TOP OF THE BURIED CABLE OR CONDUIT. THE POWER COMPANY (AEP) SHALL SPECIFY THE REQUIRED BURIAL DEPTH PER OPERATING COMPANY AS PRESCRIBED IN THE PROCEEDING LIST:

APCO	= REQUIRES A BURIAL DEPTH OF 30"
KYPCO	= REQUIRES A BURIAL DEPTH OF 30"
I & M	= REQUIRES A BURIAL DEPTH OF 30"
OHIO	= REQUIRES A BURIAL DEPTH OF 30"
TEXAS	= REQUIRES A BURIAL DEPTH OF 36"
PSO	= REQUIRES A BURIAL DEPTH OF 36'
SWEPCO	= REQUIRES A BURIAL DEPTH OF 36"

AND/OR CONFORM TO ANY OR ALL AUTHORITY HAVING JURISDICTION. THE POWER COMPANY (AEP) HAS PRESCRIBED THE BURIAL DEPTH SHALL NOT BE LESS THAN STATED DEPTH ON THE PRECEDING LIST UNLESS IMPOSSIBLE TO BE ACHIEVED OR IS SUPERSEDED BY LOCAL AUTHORITY HAVING JURISDICTION. IF THE DEPTH IS IMPOSSIBLE TO ACHIEVED AEP'S VERIFICATION WILL BE NEEDED. HOWEVER, NOT TO BE LESS THAN WHAT IS STATED IN THE NATIONAL ELECTRICAL CODE'S ARTICLES AND TABLES: ARTICLE 300: 300.3(B) (1), 300.3 (C) (1) (2), TABLE 300.5, AND TABLE 300.50

4. BURIAL DEPTH TO COMPLY WITH LOCAL CODES. 2'-0" MIN. IS CONSIDERED ADEQUATE BY ARTICLE 300-5 OF THE NEC. A GROUNDING AS WELL AS A GROUNDED CONDUCTOR MUST EXTEND BETWEEN THE MOBILE HOME AND ITS ADJACENT SERVICE EQUIPMENT. NEITHER THE FRAME OF THE MOBILE HOME NOR THE FRAME OF ANY DISTRIBUTION PANEL OR APPLIANCE MAY BE CONNECTED TO THE NEUTRAL (GROUNDED) CONDUCTOR IN THE MOBILE HOME. THE GROUNDING AND GROUNDED CONDUCTORS ARE BONDED TOGETHER ONLY ON THE SUPPLY SIDE OF THE SERVICE DISCONNECT DEVICE. REFER TO ARTICLE 550 OF THE NEC - GROUNDING.

SINGLE ~~MOBILE HOME~~ UNDERGROUND SERVICE
(ALTERNATE METER PEDESTAL)
FIGURE 9A

MAY 27, 2020

FIG. 9A Note:
Contractor To Provide And Install, Coordinate With Public Service Company (PSO).

- 100% Plans-
NOT FOR CONSTRUCTION

REV. #	BY	DATE	DESCRIPTION

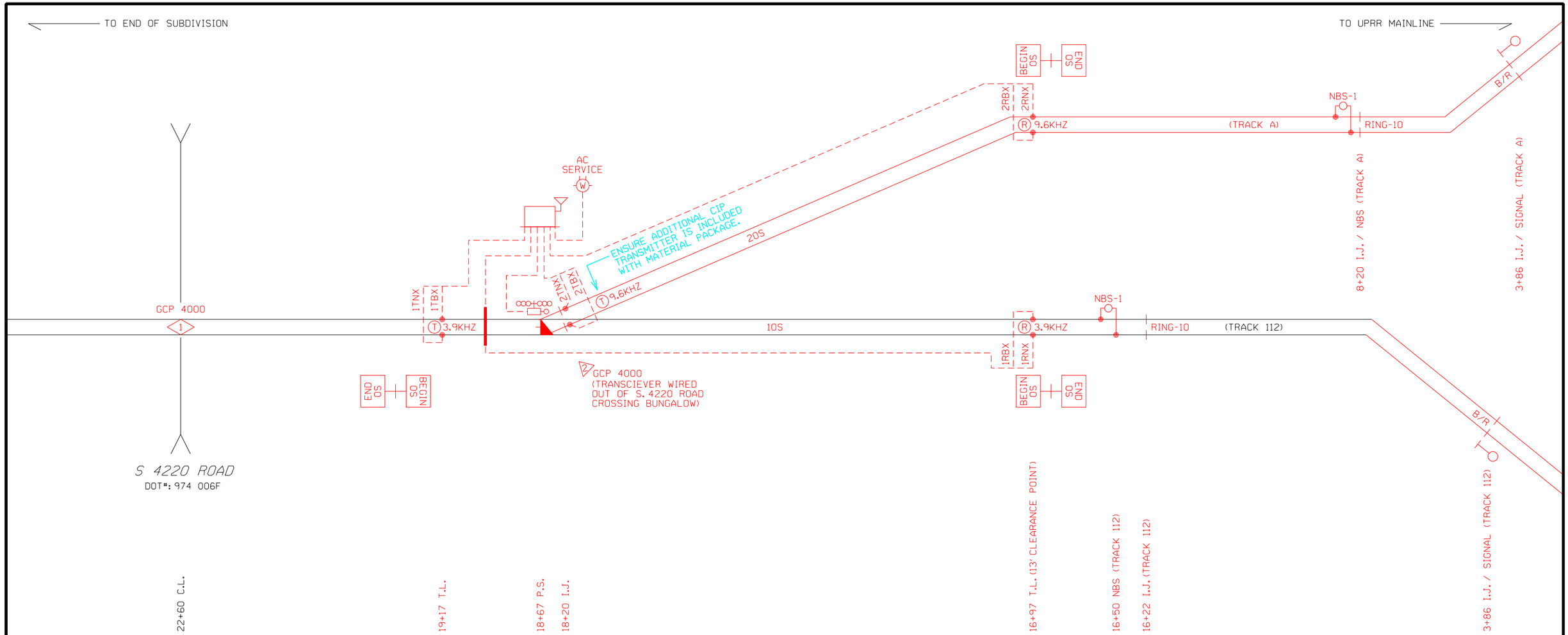
Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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UNION PACIFIC

FES #:	40743
DOCUMENT TYPE:	30% Development Concept
DRAWN BY:	CWD
CHECKED BY:	MRR
DATE:	6/1/2021
SHEET NUMBER	eu501of 94
UNION PACIFIC RAILROAD	For Use and Agreement City of Tulsa - Rogers County Port Authority
LOCATION & DESCRIPTION:	Black Fox, Ok - Wagoner Sub MP 594.76 to MP 595.18 Trackage to Serve: Tulsa Ports
SHEET TITLE:	SITE ELECTRICAL DETAILS

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Default
6/1/2021



CABLE TABULATION

CASE TO TS-4500 SWITCH MACHINE - 4C#10 AWG
- 12C#14 AWG
CASE TO 1TBX & 1TNX - 2C#6 TW. PAIR
CASE TO 1RBX & 1RNX - 2C#6 TW. PAIR
CASE TO 2TBX & 2TNX - 2C#6 TW. PAIR ⟵ ENSURE ADDITIONAL TRACK CABLE IS INCLUDED WITH MATERIAL PACKAGE.
CASE TO 2RBX & 2RNX - 2C#6 TW. PAIR
CASE TO AC SERVICE - 3C#6 AWG

LEGEND

- CONDUIT - MIN 36" DEEP
- UNDERGROUND CABLE - MIN 36" DEEP
- DTMF SWITCH MACHINE (VOSSLOH P/N: TS-4500-LP)
- ELECTRONICS CASE W/ANTENNA (VOSSLOH P/N: MYA21001A-01)

NOTES:

1. FACING POINT TRACK CONNECTIONS TO BE MOUNTED 50' FROM SWITCH POINT. TRAILING POINT CONNECTIONS TO BE MOUTNED AT CLEARANCE POINT OR GREATER THAN THE DISTANCE BETWEEN AXLES OF THE LONGEST RAIL CAR.
2. RED, YELLOW & GREEN LED LIGHTS FOR SWITCH POINT INDICATION ONLY.
3. OS TO BE IDENTIFIED BY "BEGIN OS" & "END OS" SIGNS PLACED 15'-25' BEYOND TRACK LEADS.

NOTE TO CONSTRUCTION FOREMAN:

ANY DEVIATION FROM THE DESIGN PRINTS, PROGRESS RAIL ENGINEERING SHOULD BE CONTACTED PRIOR TO ANY CHANGES COMMENCING.

PROVIDE FOLLOWING UPON INSTALLATION:

CONSTRUCTION FOREMAN: _____

IN-SERVICE DATE: _____

RED = IN BLUE = NOTE

REV. #	BY	DATE	DESCRIPTION

- Ex. UPRR Track
- Prop. UPRR Track
- Remove UPRR Track
- Shift UPRR Track
- Ex. Ind. Track
- Prop. Ind. Track
- Remove Ind. Track
- Shift Ind. Track
- Future Ind. Track
- Prop. Leased Ind. Trk
- Ex. Leased Ind. Trk
- No RR Operations
- Right of Way
- Acquire Property
- Hand Throw Turnout
- Power Turnout
- Power Derail
- Hand Throw Derail
- Point of Curve
- Bridge
- Signal

TULSA PORTS BARGE · RAIL · INDUSTRIAL PARK CATOOSA-INOLA

TranSystems

UNION PACIFIC

DRAWN BY:	PRS
CHECKED BY:	JMW
DATE:	6/3/2021
SHEET NUMBER	01 OF 10

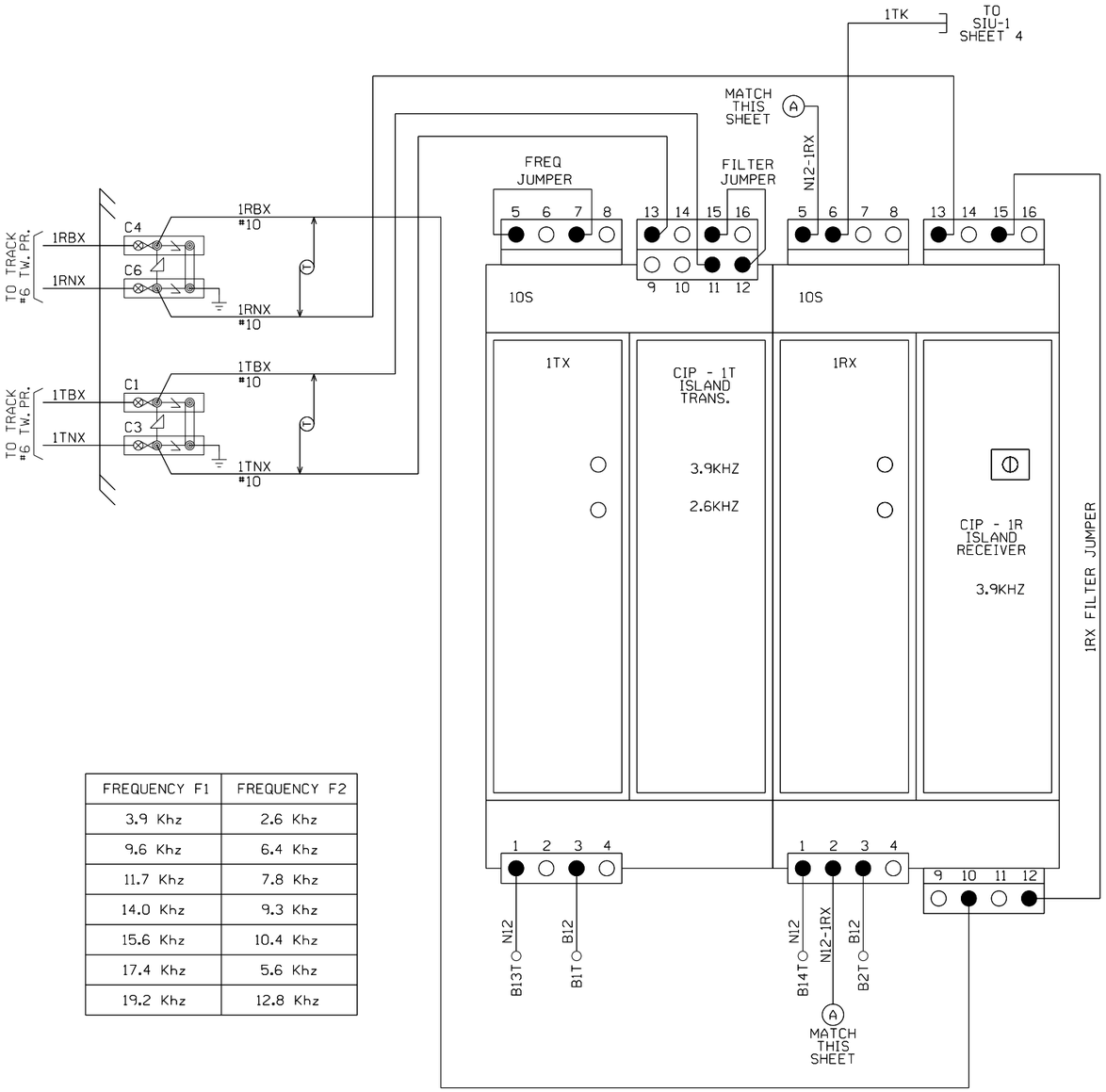
UNION PACIFIC RAILROAD — For Use and Agreement with: Tulsa Port of Catoosa

LOCATION & DESCRIPTION: Proposed #11 DTMF Switch Machine
Inola, Rogers County, OK - Black Fox Power Sub MP 0.350

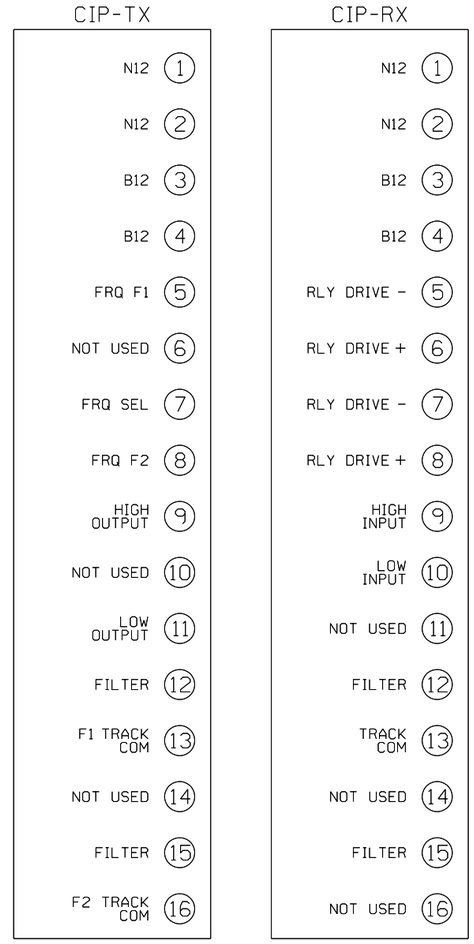
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SHEET TITLE: LAYOUT PLAN

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$$model$$
6/3/2021



FREQUENCY F1	FREQUENCY F2
3.9 Khz	2.6 Khz
9.6 Khz	6.4 Khz
11.7 Khz	7.8 Khz
14.0 Khz	9.3 Khz
15.6 Khz	10.4 Khz
17.4 Khz	5.6 Khz
19.2 Khz	12.8 Khz



NOTES:

1. ALL WIRE THIS SHEET NO. 18 A.W.G. FLEX UNLESS OTHERWISE NOTED.
2. ⓣ = TWISTED WIRE 2 TURNS PER FOOT.

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TULSA PORTS BARGE · RAIL · INDUSTRIAL PARK CATOOSA-INOLA

TranSystems

UNION PACIFIC

DRAWN BY: PRS
CHECKED BY: JMW
DATE: 2/19/2021
SHEET NUMBER: 02 OF 10

UNION PACIFIC RAILROAD

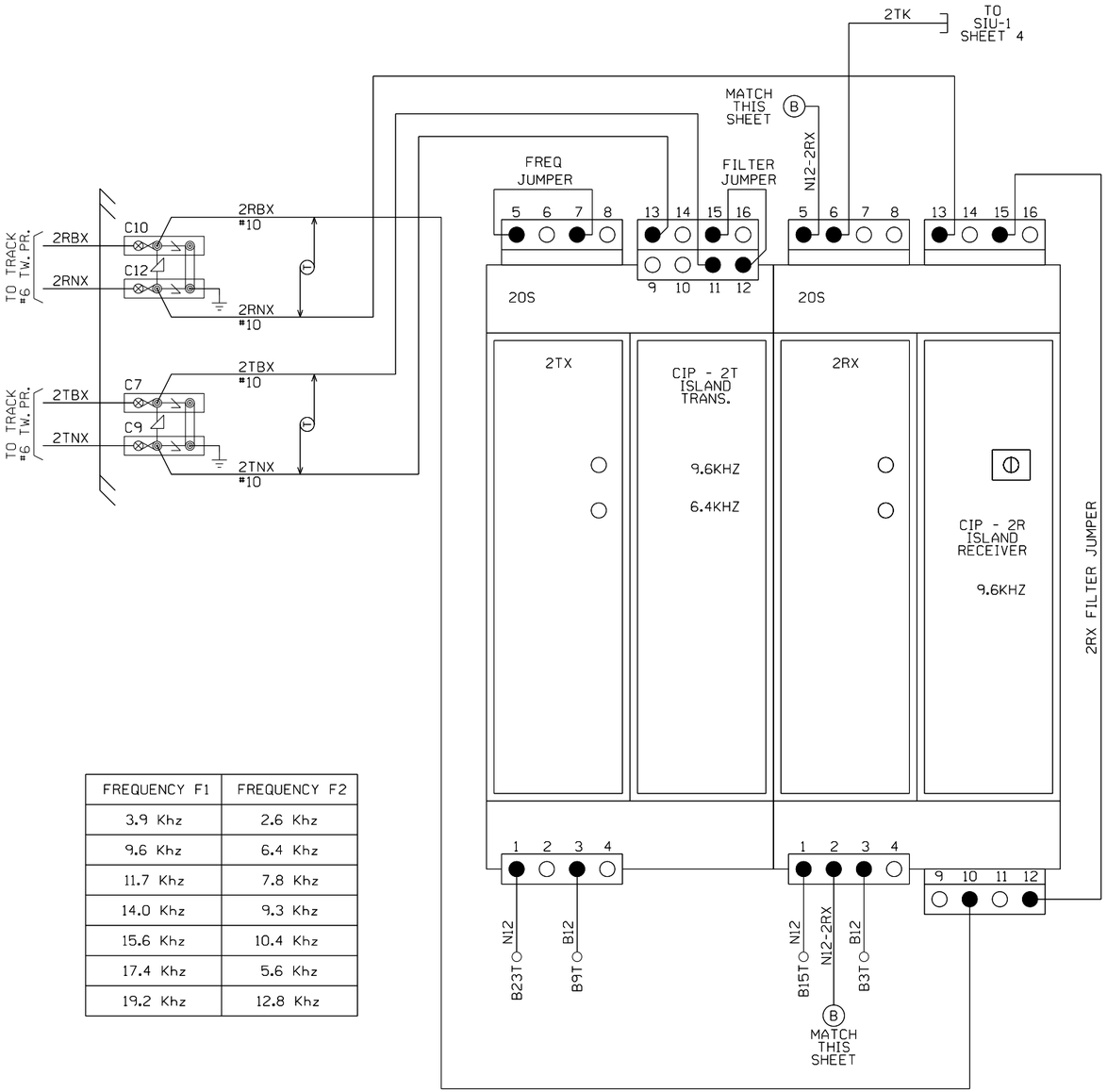
For Use and Agreement with: Tulsa Port of Catoosa

LOCATION & DESCRIPTION: Proposed #11 DTMF Switch Machine
Inola, Rogers County, OK - Black Fox Power Sub MP 0.350

FES #: 40743

SHEET TITLE: 1OS TRACK CIRCUITS

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$$model$$
2/19/2021



FREQUENCY F1	FREQUENCY F2
3.9 Khz	2.6 Khz
9.6 Khz	6.4 Khz
11.7 Khz	7.8 Khz
14.0 Khz	9.3 Khz
15.6 Khz	10.4 Khz
17.4 Khz	5.6 Khz
19.2 Khz	12.8 Khz

CIP-TX

N12	1
N12	2
B12	3
B12	4
FRQ F1	5
NOT USED	6
FRQ SEL	7
FRQ F2	8
HIGH OUTPUT	9
NOT USED	10
LOW OUTPUT	11
FILTER	12
F1 TRACK COM	13
NOT USED	14
FILTER	15
F2 TRACK COM	16

CIP-RX

N12	1
N12	2
B12	3
B12	4
RLY DRIVE -	5
RLY DRIVE +	6
RLY DRIVE -	7
RLY DRIVE +	8
HIGH INPUT	9
LOW INPUT	10
NOT USED	11
FILTER	12
TRACK COM	13
NOT USED	14
FILTER	15
NOT USED	16

NOTES:
1. ALL WIRE THIS SHEET NO. 18 A.W.G. FLEX UNLESS OTHERWISE NOTED.
2. ⓣ = TWISTED WIRE 2 TURNS PER FOOT.

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TULSA PORTS BARGE · RAIL · INDUSTRIAL PARK CATOOSA-INOLA

TranSystems

UNION PACIFIC

DRAWN BY: PRS
CHECKED BY: JMW
DATE: 2/19/2021
SHEET NUMBER: 03 OF 10

UNION PACIFIC RAILROAD

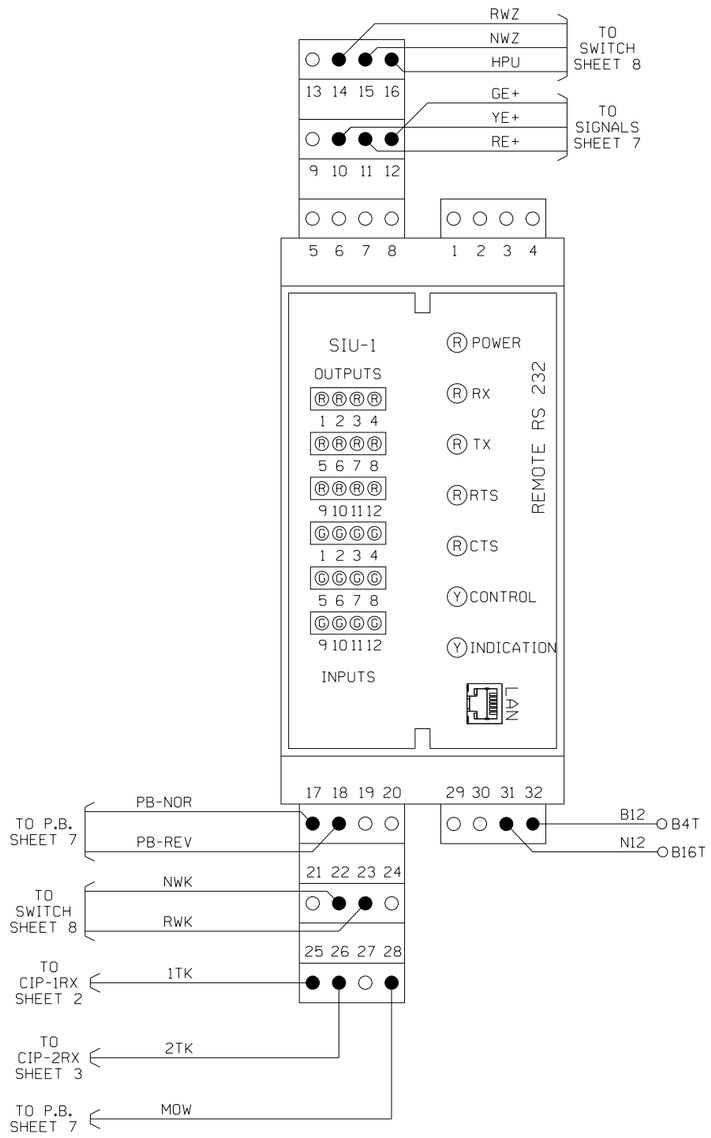
For Use and Agreement with: Tulsa Port of Catoosa

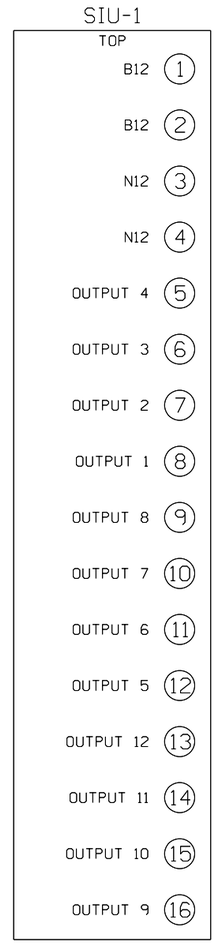
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Proposed #11 DTMF Switch Machine
Inola, Rogers County, OK - Black Fox Power Sub MP 0.350

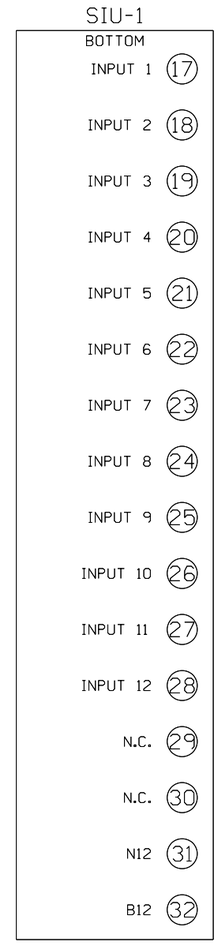
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$$model$$
2/19/2021







NOTES:

1. ALL WIRE THIS SHEET NO. 18 A.W.G. FLEX UNLESS OTHERWISE NOTED.

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TULSA PORTS BARGE · RAIL · INDUSTRIAL PARK CATOOSA · INOLA

TranSystems

UNION PACIFIC

DRAWN BY: PRS
CHECKED BY: JMW
DATE: 2/19/2021
SHEET NUMBER: 04 OF 10

UNION PACIFIC RAILROAD

For Use and Agreement with: Tulsa Port of Catoosa

LOCATION & DESCRIPTION:
Proposed #11 DTMF Switch Machine
Inola, Rogers County, OK - Black Fox Power Sub MP 0.350

FES #: 40743

SHEET TITLE: SIU-1 CONTROLLER

Color table:
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$$model$$
2/19/2021

INPUTS

NORMAL PB: NORMALLY OPEN
REVERSE PB: NORMALLY OPEN
TOGGLE PB: NORMALLY OPEN
NORMAL DTMF: NORMALLY OPEN
REVERSE DTMF: NORMALLY OPEN

PRESSURE LIMIT:
NORMALLY OPEN
SLOW DOWN (MS): 0
SLOW UP (MS): 0

NWK:
NORMALLY OPEN
SLOW DOWN (MS): 0
SLOW UP (MS): 100

RWK:
NORMALLY OPEN
SLOW DOWN (MS): 0
SLOW UP (MS): 100

MOW DISABLE:
NORMALLY CLOSED
SLOW DOWN (MS): 0
SLOW UP (MS): 0

TRACK 1:
NORMALLY CLOSED
LOS (MS): 0
PULSED

TRACK 2:
NORMALLY CLOSED
LOS (MS): 0
PULSED

TRACK 3:
NORMALLY OPEN
LOS (MS): 0
PULSED

OUTPUTS

NORMAL AUDIO: ENABLED
REVERSE AUDIO: ENABLED
GAP AUDIO: ENABLED
MOTOR: ENABLED
GREEN: CONTINUOUS CORRESPONDENCE
RED: GAP + OCCUPANCY
YELLOW: CONTINUOUS CORRESPONDENCE
MOW/BLUE: STEADY
AUX 1: ENABLED

FUNCTIONS

TIME LOCK:
ENABLED
DELAY (S): 180

AUTO RETURN:
DISABLED
DELAY (MS): 0

AUTO RESTORE:
DISABLED
DELAY (MS): 0

OVERLOAD:
DELAY (MS): 3000

SITE INFORMATION

KEYUP CODE: ???
?? = NORMAL
?? = REVERSE
RADIO FREQUENCY XXX.XXX MHZ

TO BE PROVIDED BY VOSSLOH & RAILROAD.

NOTE:
DEVICE PROGRAMMING BY VOSSLOH & TO BE PROVIDED WITH MATERIAL.

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TULSA PORTS BARGE · RAIL · INDUSTRIAL PARK CATOOSA · INOLA

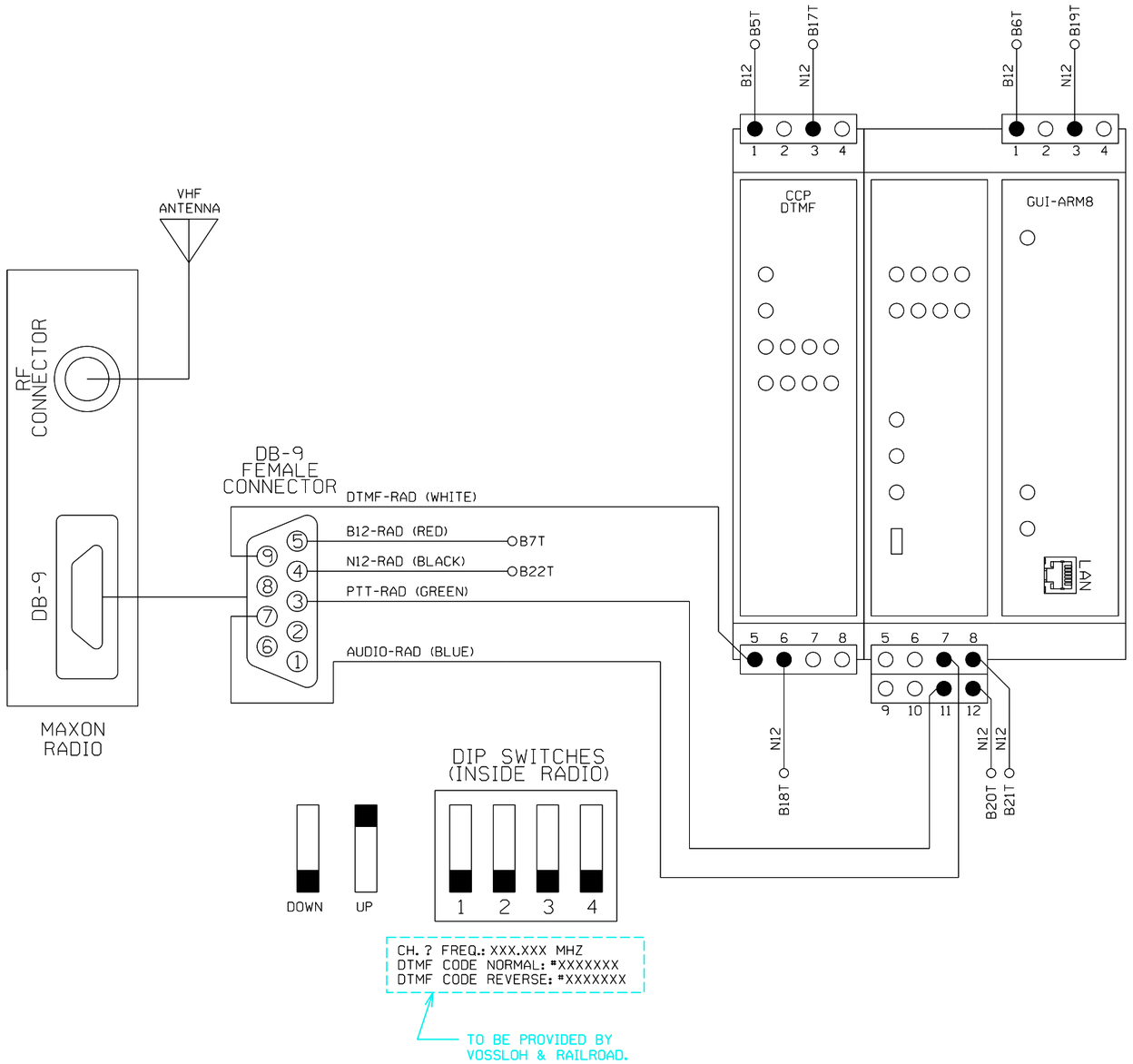
TranSystems

UNION PACIFIC

DRAWN BY: PRS
CHECKED BY: JMW
DATE: 2/19/2021
SHEET NUMBER: 05 OF 10

UNION PACIFIC RAILROAD
For Use and Agreement with: Tulsa Port of Catoosa
LOCATION & DESCRIPTION: Proposed #11 DTMF Switch Machine
Inola, Rogers County, OK - Black Fox Power Sub MP 0.350
FES #: 40743
SHEET TITLE: SIU-1 CONFIGURATION

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$$model$$
2/19/2021



CCP-DTMF

B12	1
B12	2
N12	3
N12	4
AUDIO IN +	5
AUDIO IN -	6
NOT USED	7
NOT USED	8

SETTINGS

MODULE ID = 1
PATTERN 1 = TRIG NORMAL
PATTERN 2 = TRIG REVERSE

GUI-ARM8

B12	1
B12	2
N12	3
N12	4
AUDIO 10K OHM	5
AUDIO 5K OHM	6
AUDIO 600 OHM	7
AUDIO COMMON	8
NOT USED	9
NOT USED	10
PTT +	11
PTT -	12

SETTINGS

MODULE ID = 2
RECORDING 1 = NORMAL POSITION
RECORDING 2 = REVERSE POSITION
RECORDING 3 = OUT OF CORRESPONDENCE

NOTES:

1. ALL WIRE THIS SHEET NO. 18 A.W.G. FLEX UNLESS OTHERWISE NOTED.

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TULSA PORTS
BARGE · RAIL · INDUSTRIAL PARK
CATOOSA · INOLA

TranSystems

UNION PACIFIC

DRAWN BY:	PRS
CHECKED BY:	JMW
DATE:	2/19/2021
SHEET NUMBER	06 OF 10

UNION PACIFIC RAILROAD

For Use and Agreement with:
Tulsa Port of Catoosa

LOCATION & DESCRIPTION:
Proposed #11 DTMF Switch Machine
Inola, Rogers County, OK - Black Fox Power Sub MP 0.350

FES #: 40743

SHEET TITLE: DTMF & AUDIO CIRCUITS

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2/19/2021

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$$model$$
2/19/2021

CONTROL CASE

CONTROL CASE PUSH BUTTON

B8T — B12

NORMAL

PB-NOR

2 1

REVERSE

PB-REV

2 1

M.O.W. ENABLE

MOW

2

1

DISABLE

TO SIU-1 SHEET 4

SWITCH MACHINE

LOCATED INSIDE TS-4500

SWITCH POINT INDICATOR LEDS

GRN GRN

YEL YEL

RED RED

LOCAL SWPPI JUNCTION BOX

T

L1 L2 L3 L4 L5 L6 L7 L8 L9 L10 L11 L12

B

GE+	T	B30	B	GE+	GE+
YE+	T	B31	B	YE+	YE+
RE+	T	B32	B	RE+	RE+

GE+	T	SW6 SW7	B	GE+	GE+
YE+	T	SW8 SW9	B	YE+	YE+
RE+	T	SW10 SW11	B	RE+	RE+

N12-POST — LED-

SWITCH CONTROL WIRES ON SHT.8 ALSO IN THIS CABLE → 12C#14

NOTES:

1. ALL WIRE THIS SHEET NO. 18 A.W.G. FLEX UNLESS OTHERWISE NOTED.

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track

Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property

Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TULSA PORTS BARGE · RAIL · INDUSTRIAL PARK CATOOSA · INOLA

TranSystems

UNION PACIFIC

DRAWN BY:	PRS
CHECKED BY:	JMW
DATE:	2/19/2021
SHEET NUMBER	07 OF 10

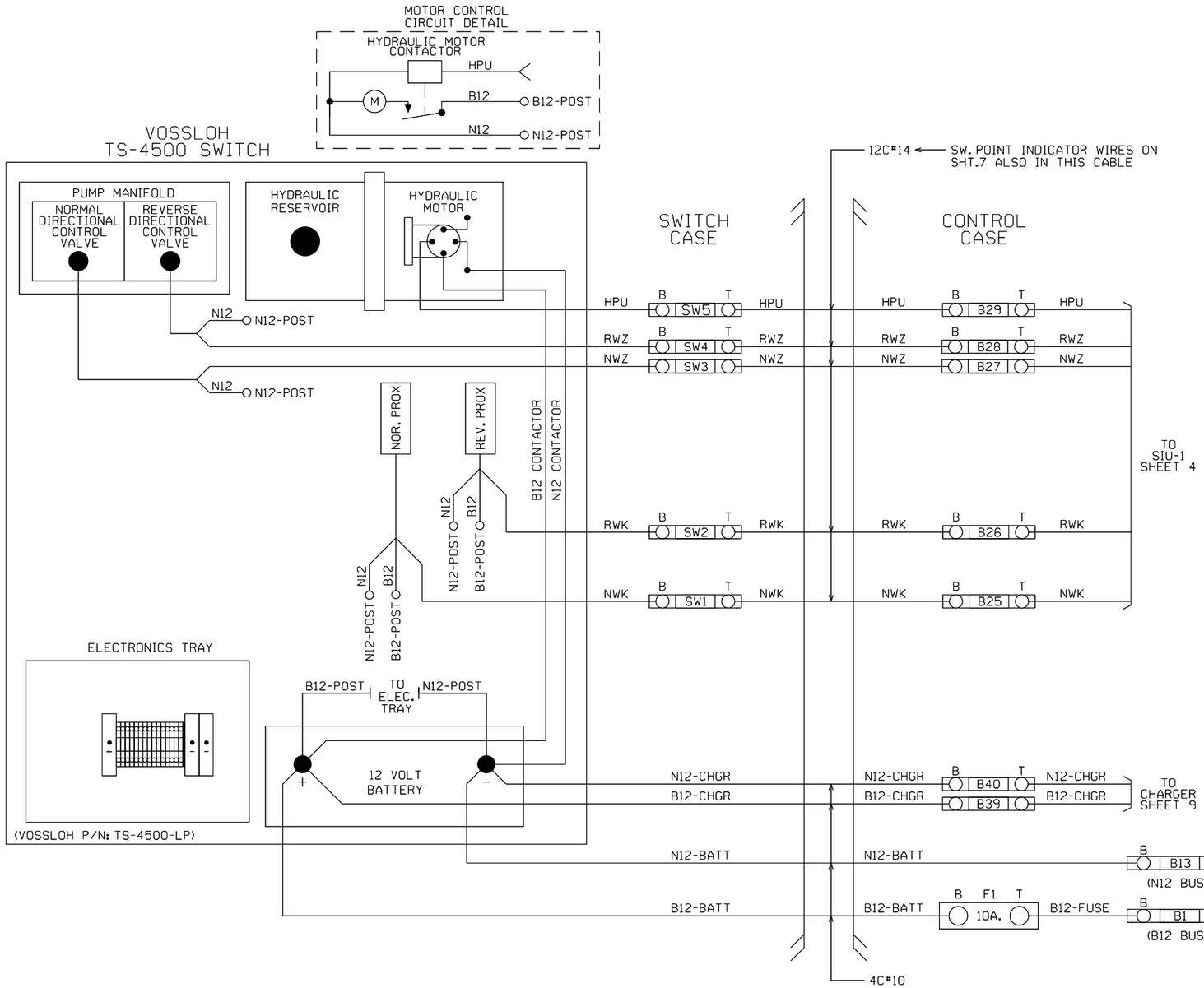
UNION PACIFIC RAILROAD

For Use and Agreement with: Tulsa Port of Catoosa

LOCATION & DESCRIPTION:
Proposed #11 DTMF Switch Machine
Inola, Rogers County, OK - Black Fox Power Sub MP 0.350

FES #: 40743

SHEET TITLE: PB & SWITCH POINT INDICATOR CIRCUITS



NOTES:

1. ALL WIRE THIS SHEET NO. 18 A.W.G. FLEX UNLESS OTHERWISE NOTED.

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TULSA PORTS BARGE · RAIL · INDUSTRIAL PARK CATOOSA-INOLA

TranSystems

UNION PACIFIC

DRAWN BY:	PRS
CHECKED BY:	JMW
DATE:	2/19/2021
SHEET NUMBER	08 OF 10

UNION PACIFIC RAILROAD

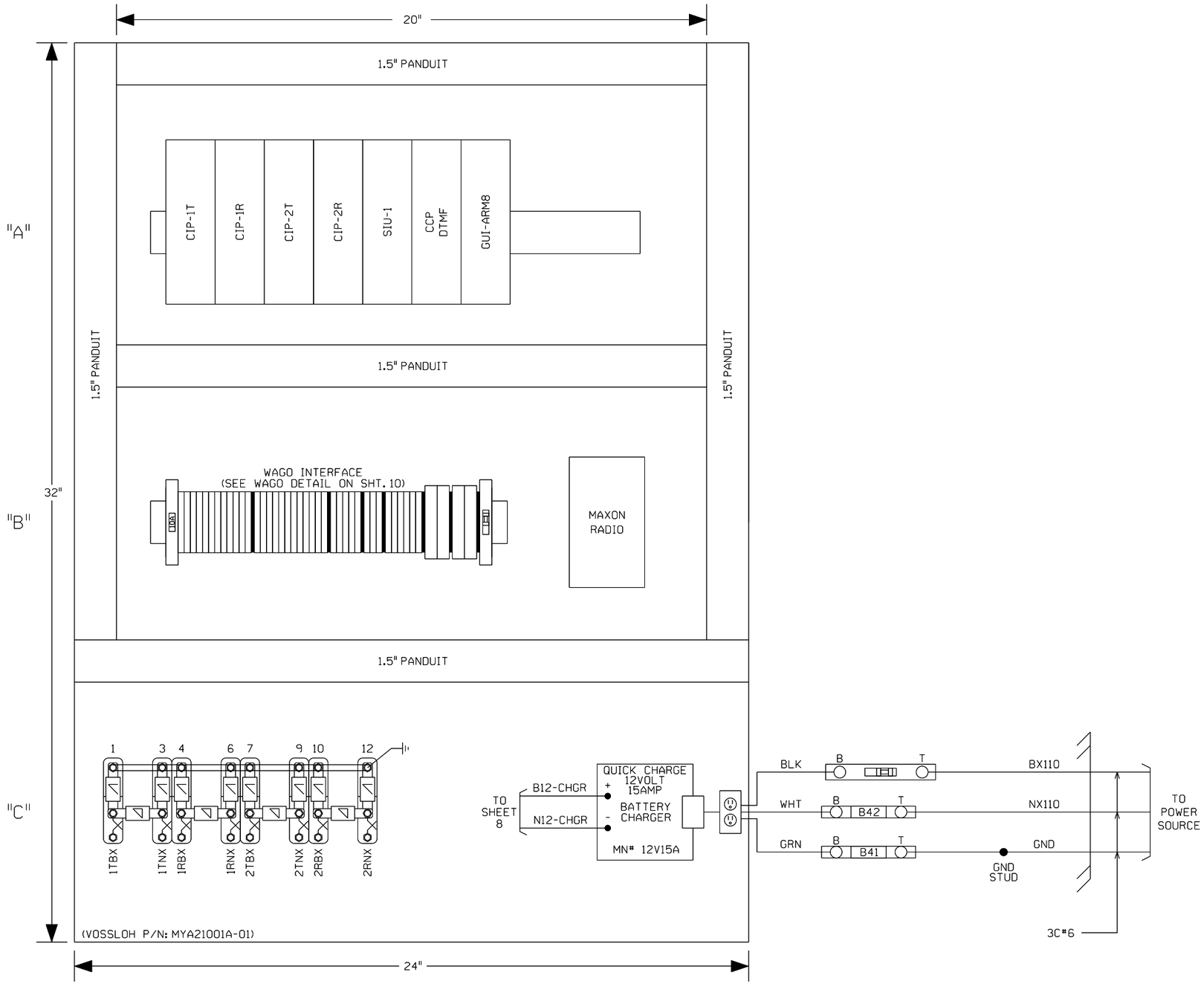
For Use and Agreement with: Tulsa Port of Catoosa

LOCATION & DESCRIPTION:
Proposed #11 DTMF Switch Machine
Inola, Rogers County, OK - Black Fox Power Sub MP 0.350

FES #: 40743

SHEET TITLE: SWITCH MACHINE CIRCUITS

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$$model$$
2/19/2021



SCALE

0" 5" 10"

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TULSA PORTS BARGE · RAIL · INDUSTRIAL PARK CATOOSA · INOLA

TranSystems

UNION PACIFIC

DRAWN BY:	PRS
CHECKED BY:	JMW
DATE:	2/19/2021
SHEET NUMBER	09 OF 10

UNION PACIFIC RAILROAD

For Use and Agreement with: Tulsa Port of Catoosa

LOCATION & DESCRIPTION:
Proposed #11 DTMF Switch Machine
Inola, Rogers County, OK - Black Fox Power Sub MP 0.350

FES #: 40743

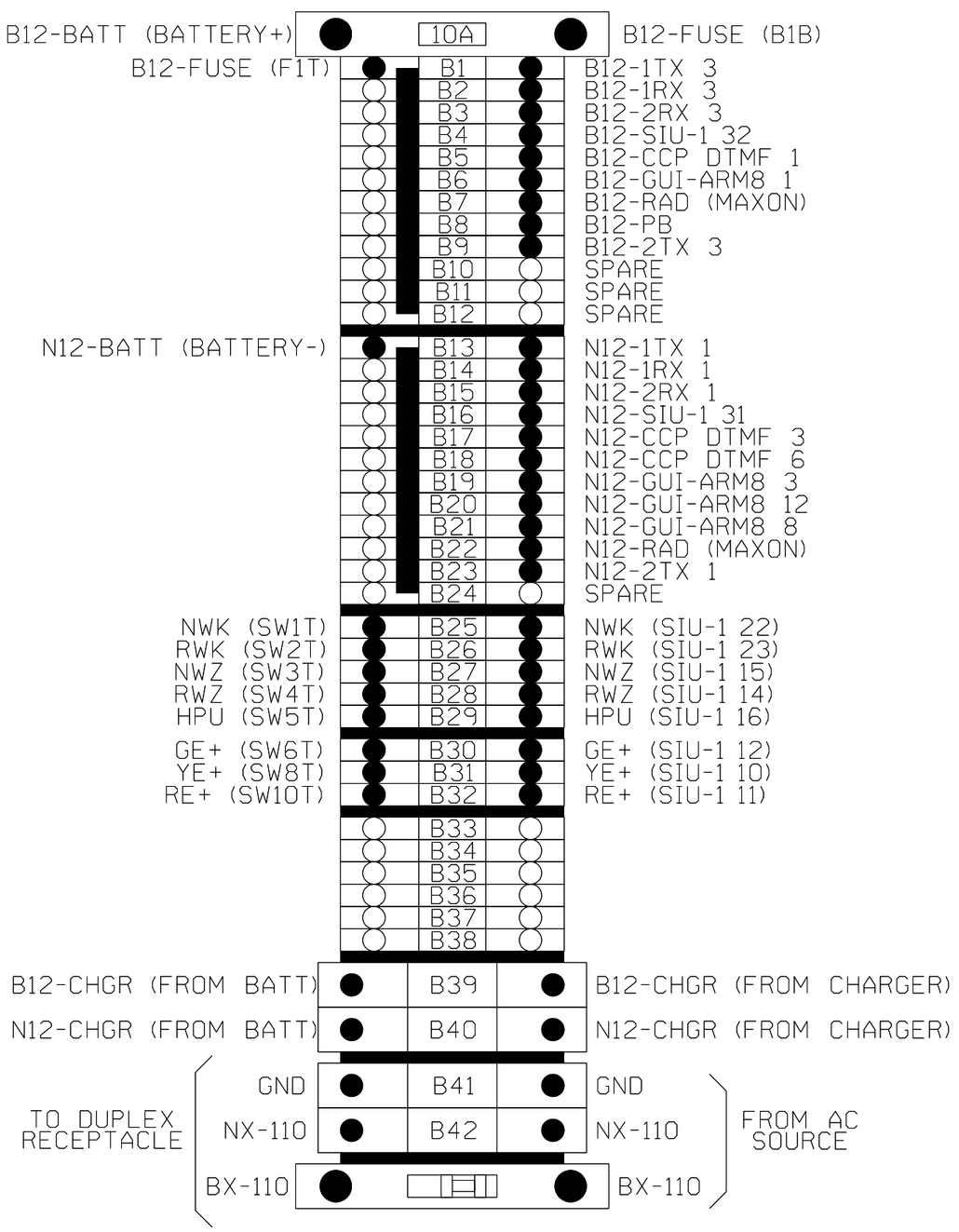
SHEET TITLE: CASE PLACEMENT PLAN

Color table:
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$$model$$
2/19/2021

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$$model$$
2/19/2021

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal



TULSA PORTS
BRIDGE TO INTERNATIONAL TRADE
CATOOSA, OKLAHOMA

TranSystems

UNION PACIFIC

DRAWN BY:	PRS
CHECKED BY:	JMW
DATE:	2/19/2021
SHEET NUMBER	10 OF 10

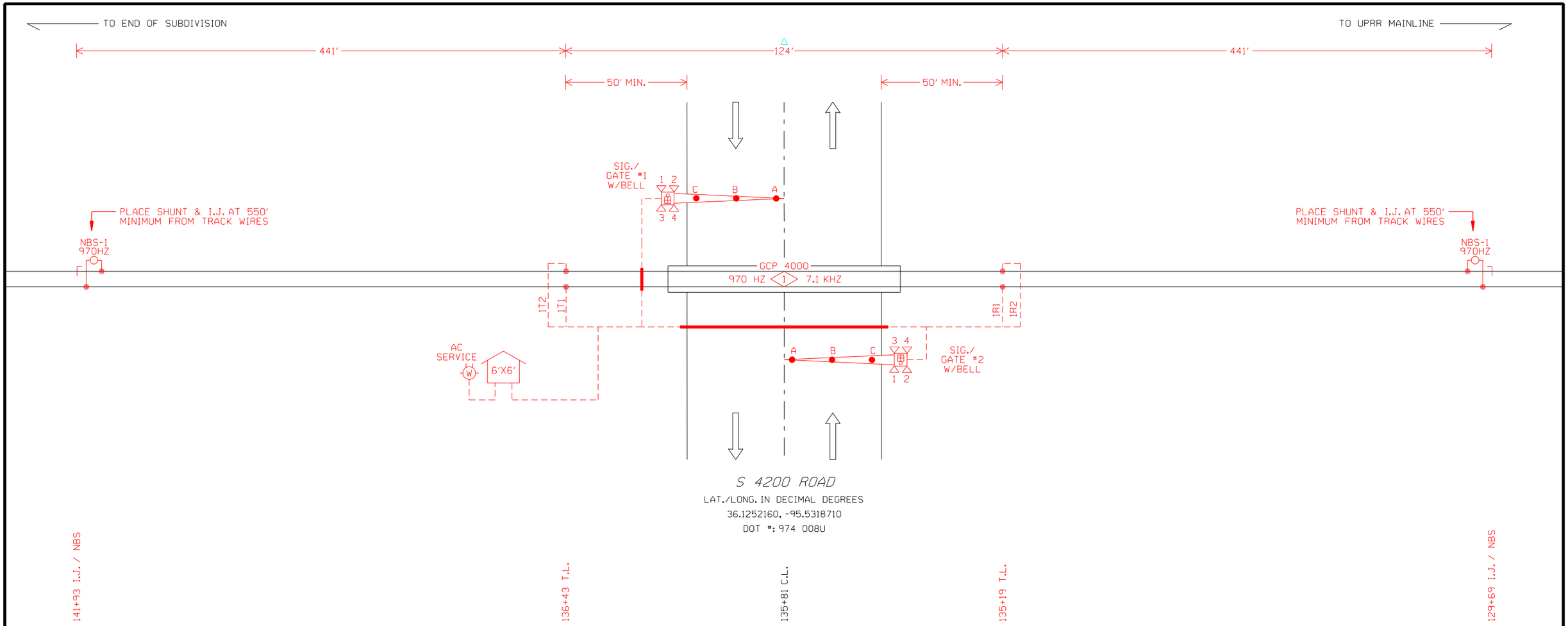
UNION PACIFIC RAILROAD

For Use and Agreement with:
Tulsa Port of Catoosa

LOCATION & DESCRIPTION:
Proposed #11 DTMF Switch Machine
Inola, Rogers County, OK - Black Fox Power Sub MP 0.350

FES #: 40743

SHEET TITLE:
WAGO INTERFACE DETAIL



APPROACH DISTANCE CALCULATION

	TRACK 1
MINIMUM CROSSING WARNING TIME	20 SEC
TIME FOR CROSSING CLEARANCE DISTANCE >35'	+ 0 SEC
TRAFFIC PRE-EMPTION TIME	+ 0 SEC
TOTAL CALCULATED DESIGN WARNING TIME	20 SEC
EQUIPMENT RESPONSE TIME	+ 5 SEC
BUFFER TIME	+ 5 SEC
TOTAL WARNING TIME FOR APPROACH DISTANCE CALCULATION	30 SEC
CALCULATED AT MAXIMUM TRAIN SPEED	X 10 MPH
RATIO OF FEET PER SECOND TO MILES PER HOUR	X 1.467
APPROACH LENGTH (ROUNDED UP TO THE NEXT FOOT)	441 FEET

CABLE TABULATION

HOUSE TO SIGNAL/GATE #1 - 7C#6 AWG
- 7C#14 AWG
HOUSE TO SIGNAL/GATE #2 - 7C#6 AWG
- 7C#14 AWG
HOUSE TO 1T1 & 1T2 - 2C#6 TW. PAIR
HOUSE TO 1R1 & 1R2 - 2C#6 TW. PAIR
HOUSE TO AC SERVICE - 3C#6 AWG

LEGEND

CONDUIT - MIN 36" DEEP
UNDERGROUND CABLE - MIN 36" DEEP

NOTES:

1. ALL DIMENSIONS ARE APPROXIMATE AND MAY VARY DUE TO ACTUAL FIELD CONDITIONS.
2. ALL FLASHING LIGHT SIGNALS AND GATE LIGHTS TO BE LIGHT EMITTING DIODE (LED) ASSEMBLIES.

△ = FIELD VERIFY MEASUREMENT !

NOTE TO CONSTRUCTION FOREMAN:

ANY DEVIATION FROM THE DESIGN PRINTS, PROGRESS RAIL ENGINEERING SHOULD BE CONTACTED PRIOR TO ANY CHANGES COMMENCING.

PROVIDE FOLLOWING UPON INSTALLATION:

CONSTRUCTION FOREMAN: _____

IN-SERVICE DATE: _____

RED = IN BLUE = NOTE

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
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Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TULSA PORTS BARGE · RAIL · INDUSTRIAL PARK CATOOSA-INOLA

TranSystems

UNION PACIFIC

DRAWN BY: PRS
CHECKED BY: JMW
DATE: 2/12/2021
SHEET NUMBER: 01 OF 12

UNION PACIFIC RAILROAD

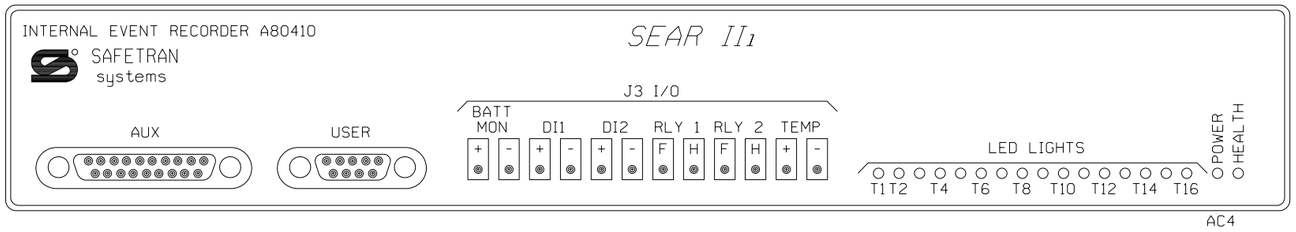
For Use and Agreement with: Tulsa Port of Catoosa

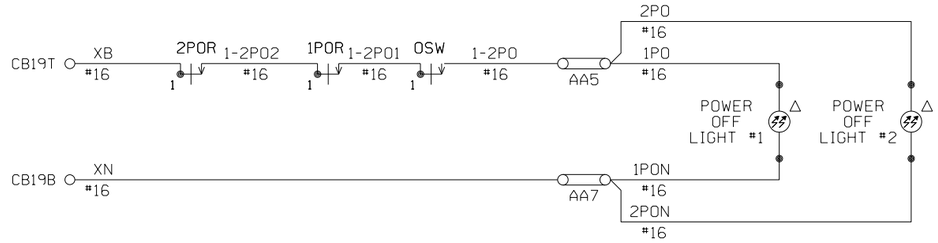
LOCATION & DESCRIPTION: Proposed S 4200 Road Grade Crossing Warning Devices Inola, Rogers County, OK - Black Fox Power Sub MP 2.510

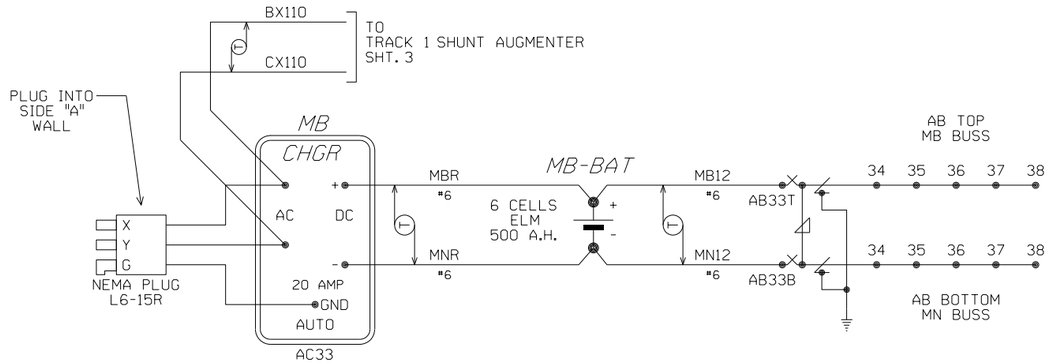
FES #: 40743

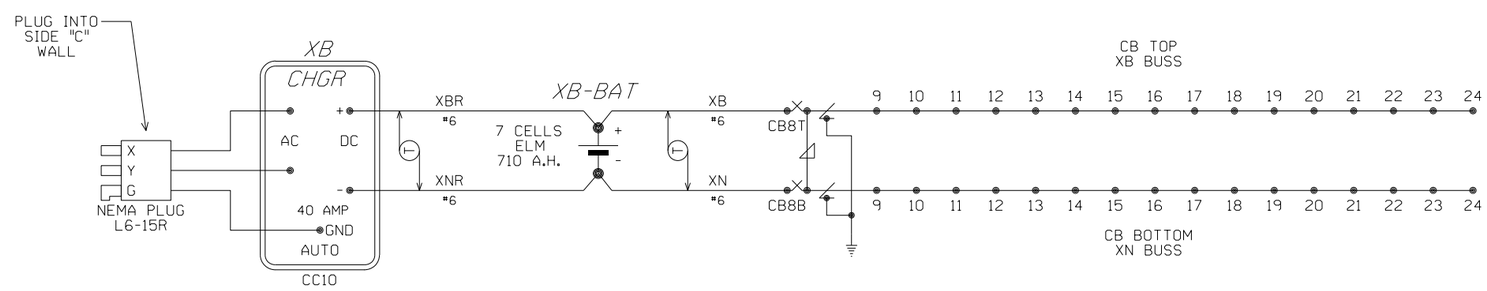
SHEET TITLE: LAYOUT PLAN

Color table:
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$$model$$
2/12/2021









NOTES:

1. ALL WIRE THIS SHEET NO. 10 A.W.G. FLEX UNLESS OTHERWISE NOTED.
2. Δ = LED LIGHT 8 TO 16 VDC (P/N: LC2-002-WR-LA)
3. ⟨T⟩ = TWISTED WIRE 2 TURNS PER FOOT.

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TULSA PORTS
BARGE · RAIL · INDUSTRIAL PARK
CATOOSA · INOLA

TranSystems

UNION PACIFIC

DRAWN BY: PRS
CHECKED BY: JMW
DATE: 2/12/2021
SHEET NUMBER: 02 OF 12

UNION PACIFIC RAILROAD
For Use and Agreement with: Tulsa Port of Catoosa

LOCATION & DESCRIPTION:
Proposed S 4200 Road Grade Crossing Warning Devices
Inola, Rogers County, OK - Black Fox Power Sub MP 2.510

FES #: 40743

SHEET TITLE: BATTERY CIRCUITS

Color table:
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$$model$$
2/12/2021

STANDARD INVENSYS RAIL GCP FREQUENCY (Hz)	MAXIMUM TRANSMIT LEAD LENGTH IN FEET
86	100 FEET
114	125 FEET
156	150 FEET
211	200 FEET
285-970	250 FEET

NOTE:
THE TRANSMITTER LEADS ARE TO BE CONNECTED ON THE SIDE OF THE CROSSING NEAREST THE INSTRUMENT BUNGALOW. THE TRANSMITTER LEADS MUST BE AS SHORT AS POSSIBLE AND NOT EXCEED THE LENGTHS SPECIFIED IN THE TABLE SHOWN.

TO TRACK
#6 TW. PR.

1T2 1T1 1R2 1R1

SURGE PANEL -1
SAFETRAN 80026-01

BATTERY
GND
8 7 6 5 4 3 2 1
T2 T1 R2 R1 - +

BE5
MB #6 AB37T
MN #6 AB37B

1C2 1T2 1T1 1C1 1R2 1R1 #14

CB24T XB #16 — SEPR 25 — AND 1XR ENA #16

CB18T XB #16 — 2POR 8 — 1-2POK1 #16 — 1POR 8 — 1-2POK #16

GCP 4000

CPU
LONTALK PROTOCOL
DIAG PORT
MB
MB
MN
MN
B
N
MAINT. CALL
FLASH SYNC.
80403

TRACK 1
OUT 1.1
OUT 1.2
IN 1.1
IN 1.2
CB24B XN #16
RCV1
RCV2
CHK1
CHK2
XMT1
XMT2
80418

TRACK 2
OUT 2.1
OUT 2.2
IN 2.1
IN 2.2
SP 2.1 (POK)
CB23B XN #16
RCV1
RCV2
CHK1
CHK2
XMT1
XMT2
80418

1R1 1R2 1C1-1 1C2-1 1T1 1T2

AC4

2 AC LINE — AVAILABLE / IN USE
15 DC BATT — AVAILABLE / IN USE

GENESIS
t-Rx7100
RAIL SHUNT AUGMENTER
OUTPUT 7.1V - 6.8A
P/N 08034-2000

TO MB-RECTIFIER SEE SHT.2
BX110
CX110
AB38T MB
AB38B MN

SEPR A62-277
3A 3B 3C 3D 3E
1E
SEP1 #16
NSEP1 #16

BX	1	110 VAC
CX	2	
POS	3	12 DC
NEG	4	
AUXAC	5	AUX AC OUTPUT
AUXRET	6	AUX AC RETURN
SYSCHK+	7	SYSTEM CK OUT(+)
SYSCHK-	8	SYSTEM CK OUT(-)
T1A	9	T1 GCP/HXP/MS/MD
T1B	10	T1 TK OUT(+)
T2A	11	T2 GCP/HXP/MS/MD
T2B	12	T2 TK OUT(-)

1C1-1 #14
1C1
1C2-1 #14
1C2

AA32

NOTES:
1. ALL WIRE THIS SHEET NO. 10 A.W.G. FLEX UNLESS OTHERWISE NOTED.
2. (T) DENOTES TWISTED WIRE PAIR.

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track

Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property

Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TULSA PORTS
BARGE · RAIL · INDUSTRIAL PARK
CATOOSA · INOLA

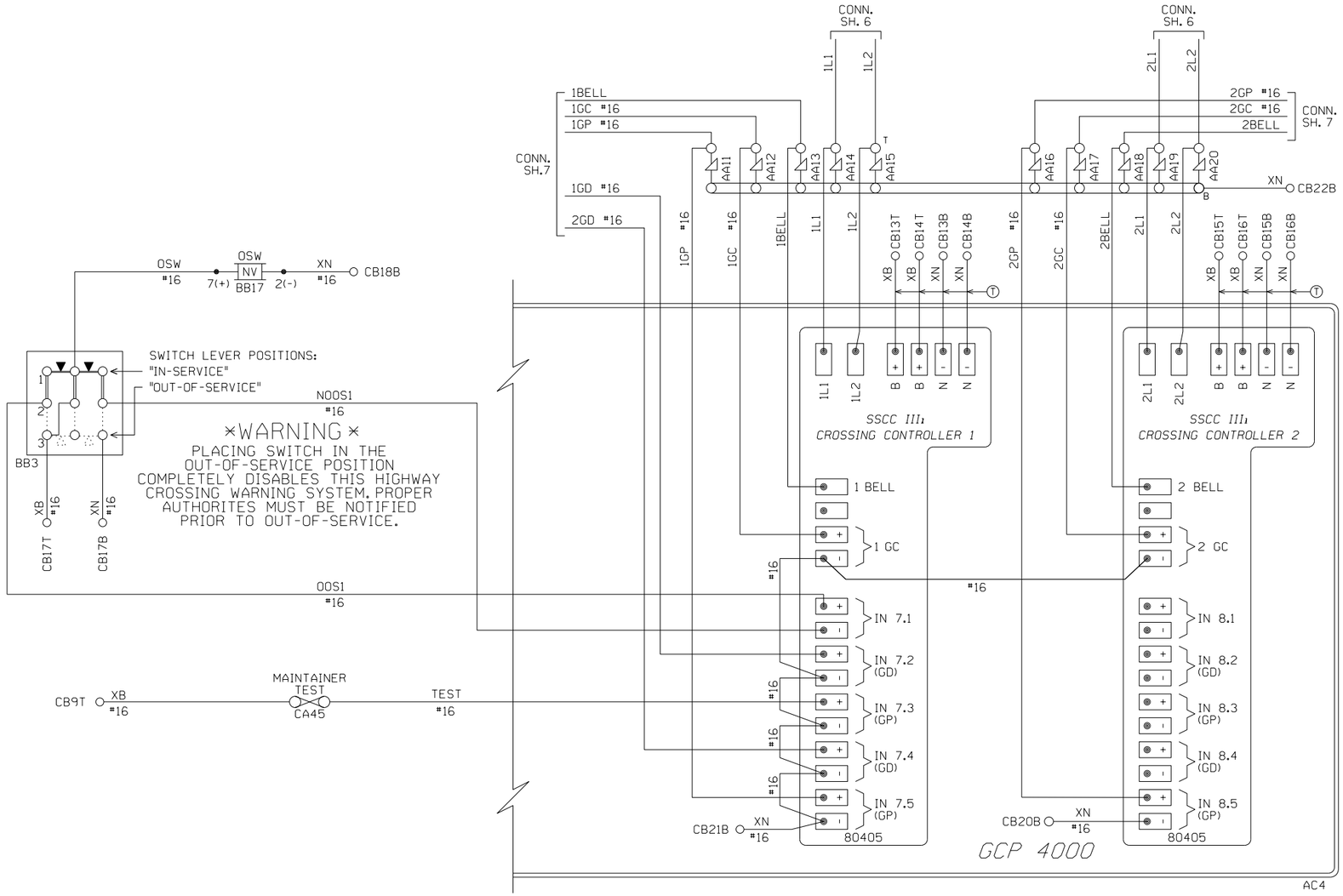
TranSystems

UNION PACIFIC

DRAWN BY: PRS
CHECKED BY: JMW
DATE: 2/12/2021
SHEET NUMBER: 03 OF 12

UNION PACIFIC RAILROAD
For Use and Agreement with: Tulsa Port of Catoosa
LOCATION & DESCRIPTION:
Proposed S 4200 Road Grade Crossing Warning Devices
Inola, Rogers County, OK - Black Fox Power Sub MP 2.510
FES #: 40743
SHEET TITLE: GCP 4000 CIRCUIT PLAN

Color table:
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$$model$$
2/12/2021



NOTES:

1. ALL WIRE THIS SHEET NO. 10 A.W.G. FLEX UNLESS OTHERWISE NOTED.
2. (T) DENOTES TWISTED WIRE PAIR.

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
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Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TULSA PORTS BARGE · RAIL · INDUSTRIAL PARK CATOOSA · INOLA

TranSystems

UNION PACIFIC

DRAWN BY: PRS
CHECKED BY: JMW
DATE: 2/12/2021
SHEET NUMBER: 04 OF 12

UNION PACIFIC RAILROAD

For Use and Agreement with: Tulsa Port of Catoosa

LOCATION & DESCRIPTION: Proposed S 4200 Road Grade Crossing Warning Devices Inola, Rogers County, OK - Black Fox Power Sub MP 2.510

FES #: 40743

SHEET TITLE: GCP 4000 CIRCUIT PLAN

Color table:
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$$model$$
2/12/2021

Program Report

Location and SIN

DOT Number: 974008U
Milepost Number: 2.510
Site Name: S 4200 ROAD

SIN: 762010010016

MCF and Template Selection

MCF Name: GCP-T6X-02-8.mcf
MCF Revision: 028
MCFCRC: 2D89077E

Template = 1A:6 Trk B1 (OCCN)

Check Numbers

Office Check Number: 77078F22
Config. Check Number: 5E7D70A6
(Based on MCF Revision 028)

Comments

Program

BASIC: module configuration
Chassis Type = Dual Two Track (OCCN)
Track 1/PSO 1 Slot = Track (OCCN)
Track 2/RIO 1 Slot = Not Used (OCCN)
SSCC-1 Slot = SSCC31 (OCCN)
SSCC-2 Slot = SSCC31 (OCCN)
SEAR Used = Yes (OCCN)

BASIC: MS/GCP operation
Track 1: MS/GCP Operation = Yes (OCCN)

BASIC: island operation
Track 1: Island Used = Internal (OCCN)

BASIC: preemption
Preempt Logic = No (OCCN)

BASIC: radio Dax links
Radio DAX link A Used = No (OCCN)
Radio DAX link B Used = No (OCCN)

BASIC: Vital Comms links
Vital Comms link 1 Used = No (OCCN)
Vital Comms link 2 Used = No (OCCN)

PREDICTORS: track 1
Track 1: Prime Used = Yes (OCCN)
Track 1: Dax A Used = No (OCCN)
Track 1: Dax B Used = No (OCCN)
Track 1: Dax C Used = No (OCCN)
Track 1: Dax D Used = No (OCCN)
Track 1: Dax E Used = No (OCCN)
Track 1: Dax F Used = No (OCCN)
Track 1: Dax G Used = No (OCCN)

GCP: track 1
Track 1: GCP Freq Category = Standard (Field)
Track 1: GCP Frequency = 970 Hz (OCCN,TCN)
Track 1: Approach Distance = 550 ft (OCCN,TCN)
Track 1: Uni/Bi/Sim-Bidirnl = Bidirnl (OCCN,TCN)
Track 1: GCP Transmit Level = Medium (Field,TCN)
Track 1: Island Connection = Isl 1 (OCCN)
Track 1: Directionally Wired = No (OCCN)
Track 1: Island Distance = 124 ft (Field,TCN)
Track 1: Computed Distance = 9999 ft (Field,TCN)
Track 1: Linearization Steps = 100 (Field,TCN)

GCP: track 1 enhanced det
Track 1: Inbound PS Sensitivity = High (Field)
Track 1: Speed Limiting Used = Yes (Field)
Track 1: Outbound False Act Lvl = Normal (Field)
Track 1: Outbound PS Timer = 20 sec (Field)
Track 1: Trailing Switch Logic = On (Field)
Track 1: Post Joint Detn Time = 15 sec (OCCN)
Track 1: Adv Appr Predn = No (OCCN)
Track 1: Cancel Pickup Delay = This Isl (OCCN)

GCP: track 1 BIDAX RX
Track 1: BIDAX To RX Appr = Not Used (OCCN)

GCP: track 1 BIDAX TX
Track 1: BIDAX To TX Appr = Not Used (OCCN)

GCP: track 1 prime
Track 1: Prime Warning Time = 25 sec (OCCN)
Track 1: Prime Offset Distance = 0 ft (OCCN)
Track 1: Switch MS EZ Level = 10 (OCCN)
Track 1: Prime MS/GCP Mode = Pred (OCCN)
Track 1: Prime Pickup Delay = 15 sec (OCCN)
Track 1: Prime UAX = Not Used (OCCN)

GCP: track 1 pos start
Track 1: Positive Start = Off (OCCN)
Track 1: Sudden Shnt Det Used = No (OCCN)
Track 1: Low EZ Detection Used = No (OCCN)

GCP: track 1 MS Control
Track 1: MS/GCP Ctrl IP Used = No (OCCN)
Track 1: MS Sensitivity Level = 0 (Field)
Track 1: Compensation Level = 1300 (Field,TCN)
Track 1: Warn Time-Ballast Comp = High (Field,TCN)
Track 1: Low EX Adjustment = 39 (Field)
Track 1: Bidirn Dax Passthru = No (OCCN)
Track 1: False Act on Train Stop = No (Field)
Track 1: EX Limiting Used = Yes (Field)
Track 1: EZ Correction Used = Yes (Field)

ISLAND: track 1
Track 1: Isl Frequency = 7.1 kHz (OCCN)
Track 1: Pickup Delay (2s +) = 2 sec (OCCN)
Track 1: Isl Enable IP Used = No (OCCN)

AND: track Anding
AND 1 XR Used = Yes (OCCN)
AND 2 Used = No (OCCN)
AND 3 Used = No (OCCN)
AND 4 Used = No (OCCN)
AND 5 Used = No (OCCN)
AND 6 Used = No (OCCN)
AND 7 Used = No (OCCN)
AND 8 Used = No (OCCN)

AND: AND 1 XR
AND 1 XR Track 1 = Prime (OCCN)
AND 1 Enable Used = Yes (OCCN)
And 1 Enable Pickup = 5 sec (OCCN)
AND 1 Enable Drop = 0 sec (OCCN)
AND 1 Wrap Used = No (OCCN)

ADVANCED: MS restart
MS/GCP Restart Used = No (OCCN)

ADVANCED: out of service
OOS Control = OOS IPs (OCCN)

ADVANCED: out of service 2
T1 OOS Control = OOS Input 1 (OCCN)
T1 OOS Controls = GCP and Island (OCCN)

ADVANCED: track wrap circuits
Wrap LOS Timer = 5 sec (OCCN)
Track 1 Wrap Used = No (OCCN)

ADVANCED: trk 1 overrides
Track 1: All Predictors Override Used = No (OCCN)

ADVANCED: OR logic
OR 1 Used = No (OCCN)
OR 2 Used = No (OCCN)
OR 3 Used = No (OCCN)
OR 4 Used = No (OCCN)

ADVANCED: internal I/O 1
Pass Thrus = No (OCCN)
Int.1 Sets = Not Used (OCCN)
Int.1 Set by = Not Used (OCCN)
Int.2 Sets = Not Used (OCCN)
Int.2 Set by = Not Used (OCCN)
Int.3 Sets = Not Used (OCCN)
Int.3 Set by = Not Used (OCCN)
Int.4 Sets = Not Used (OCCN)
Int.4 Set by = Not Used (OCCN)

ADVANCED: internal I/O 2
Int.5 Sets = Not Used (OCCN)
Int.5 Set by = Not Used (OCCN)
Int.6 Sets = Not Used (OCCN)
Int.6 Set by = Not Used (OCCN)
Int.7 Sets = Not Used (OCCN)
Int.7 Set by = Not Used (OCCN)
Int.8 Sets = Not Used (OCCN)
Int.8 Set by = Not Used (OCCN)

ADVANCED: internal I/O 3
Int.9 Sets = Not Used (OCCN)
Int.9 Set by = Not Used (OCCN)
Int.10 Sets = Not Used (OCCN)
Int.10 Set by = Not Used (OCCN)
Int.11 Sets = Not Used (OCCN)
Int.11 Set by = Not Used (OCCN)
Int.12 Sets = Not Used (OCCN)
Int.12 Set by = Not Used (OCCN)

ADVANCED: internal I/O 4
Int.13 Sets = Not Used (OCCN)
Int.13 Set by = Not Used (OCCN)
Int.14 Sets = Not Used (OCCN)
Int.14 Set by = Not Used (OCCN)
Int.15 Sets = Not Used (OCCN)
Int.15 Set by = Not Used (OCCN)
Int.16 Sets = Not Used (OCCN)
Int.16 Set by = Not Used (OCCN)

ADVANCED: site options
Daylight Savings = On (Field)
Units = Standard (OCCN)
Maint Call Rpt IP Used = No (OCCN)
Emergency Activate IP = No (OCCN)
EZ/EX Logging = Change (Field)
EZ/EX Point Change = 3 (Field)

SSCC
Gates Used = Yes (OCCN)
SSCC1+2 GPs Coupled = Yes (OCCN)
Min Activation = 0 sec (OCCN)
Rmt Activation Cancel = 2 min (OCCN)
Bell On Gate Rising = Yes (OCCN)
Mute Bell On Gate Down = No (OCCN)
SSCCIV Controller Used = No (OCCN)

SSCC: 1
SSCC-1 Activation = AND 1 XR (OCCN)
SSCC-1 Gate Delay = 4 sec (OCCN)
SSCC-1 Number of GPs = 1 (OCCN)
SSCC-1 Number of GDs = 2 (OCCN)
SSCC 1: Flash Rate = 50 (OCCN)
SSCC 1: Low Battery Detection = No (Field)
SSCC 1: Flash Sync = master (OCCN)
SSCC 1: Invert Gate Output = No (OCCN)
SSCC 1: Lamp Neutral Test = Off (OCCN)
Aux-1 Xng Ctrl Used = No (OCCN)

SSCC: 2
SSCC-2 Activation = AND 1 XR (OCCN)
SSCC-2 Gate Delay = 4 sec (OCCN)
SSCC-2 Number of GPs = 1 (OCCN)
SSCC-2 Number of GDs = 0 (OCCN)
SSCC 2: Flash Rate = 50 (OCCN)
SSCC 2: Low Battery Detection = No (Field)
SSCC 2: Flash Sync = slave (OCCN)
SSCC 2: Invert Gate Output = No (OCCN)
SSCC 2: Lamp Neutral Test = Off (OCCN)
Aux-2 Xng Ctrl Used = No (OCCN)

OUTPUT: assignment page 1
OUT 1.1 = Not Used (OCCN)
OUT 1.2 = Not Used (OCCN)

INPUT: assignment page 1
IN 1.1 = AND 1 XR Enable (OCCN)
IN 1.2 = Not Used (OCCN)

IO: assignment SSCC
OUT GC 1 = Gate Output 1 (OCCN)
OUT GC 2 = Gate Output 2 (OCCN)
IN 7.1 = Out Of Service IP 1 (OCCN)
IN 7.2 = GD 1.1 (OCCN)
IN 7.3 = AND 1 XR Enable (OCCN)
IN 7.4 = GD 1.2 (OCCN)
IN 7.5 = GP 1.1 (OCCN)
IN 8.1 = Not Used (OCCN)
IN 8.2 = Not Used (OCCN)
IN 8.3 = Not Used (OCCN)
IN 8.4 = Not Used (OCCN)
IN 8.5 = GP 2.1 (OCCN)

SEAR
SEAR Subnode = 99 (OCCN)
DI 1 = Not Used (OCCN)
DI 2 = Not Used (OCCN)
Rly 1 = Not Used (OCCN)
Rly 2 = Not Used (OCCN)

SEAR: inputs
SP 2.1 = POK 1 (OCCN)
SP 3.1 = Not Used (OCCN)
SP 4.1 = Not Used (OCCN)
SP 5.1 = Not Used (OCCN)
SP 6.1 = Not Used (OCCN)

SEAR: slot 1-4 inputs
IN 1.2 = Not Used (OCCN)
IN 2.1 = Not Used (OCCN)
IN 2.2 = Not Used (OCCN)
IN 3.1 = Not Used (OCCN)
IN 3.2 = Not Used (OCCN)
IN 4.1 = Not Used (OCCN)
IN 4.2 = Not Used (OCCN)

SEAR: inputs slot 5
IN 5.1 = Not Used (OCCN)
IN 5.2 = Not Used (OCCN)

SEAR: inputs slot 6
IN 6.1 = Not Used (OCCN)
IN 6.2 = Not Used (OCCN)

SEAR: slot 7-8 inputs
IN 8.1 = Not Used (OCCN)
IN 8.2 = Not Used (OCCN)
IN 8.3 = Not Used (OCCN)
IN 8.4 = Not Used (OCCN)

SITE: programming
Radio Subnode = 1 (Field)
Field Password = Off (OCCN)
Low Battery Enabled = Off (Field)

Configuration Package File

Filename: TPC974008U.pac

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TULSA PORTS
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CATOOSA · INOLA

TranSystems

UNION PACIFIC

DRAWN BY: PRS
CHECKED BY: JMW
DATE: 2/12/2021
SHEET NUMBER: 05 OF 12

UNION PACIFIC RAILROAD

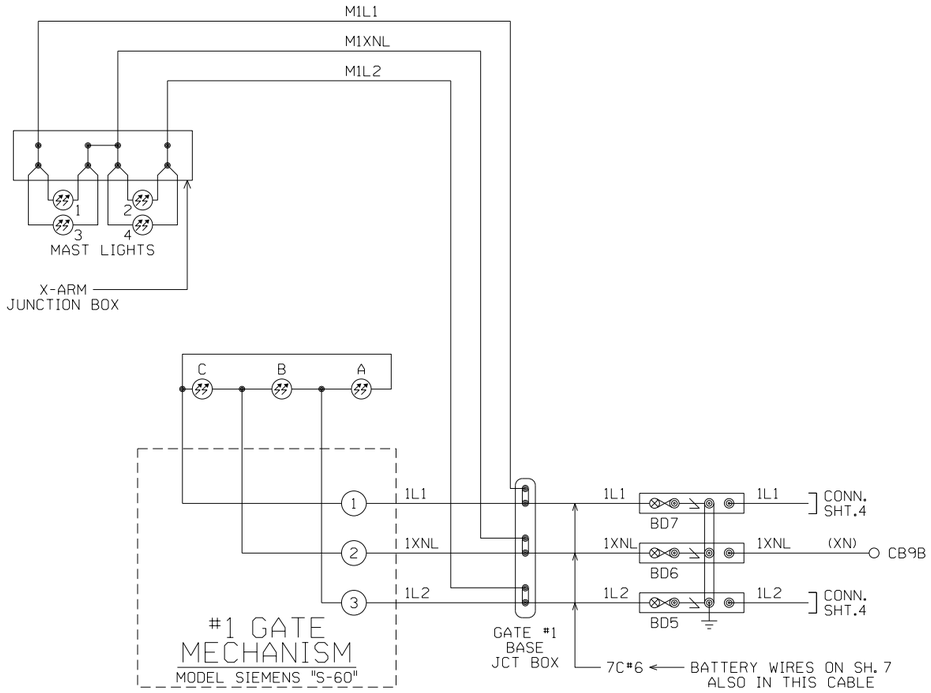
For Use and Agreement with:
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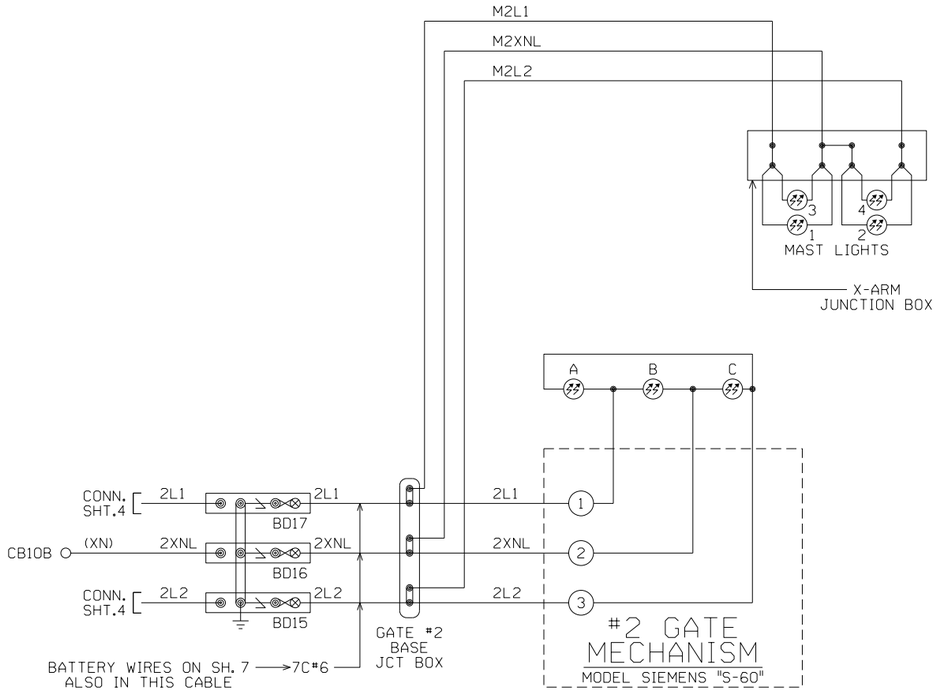
LOCATION & DESCRIPTION:
Proposed S 4200 Road Grade Crossing Warning Devices
Inola, Rogers County, OK - Black Fox Power Sub MP 2.510

FES #: 40743

SHEET TITLE: GCP 4000 PROGRAMMING

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$$model$$
2/12/2021





NOTES:

1. ALL WIRE THIS SHEET #10 A.W.G. FLEX UNLESS OTHERWISE NOTED.

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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UNION PACIFIC

DRAWN BY: PRS
CHECKED BY: JMW
DATE: 2/12/2021
SHEET NUMBER: 06 OF 12

UNION PACIFIC RAILROAD

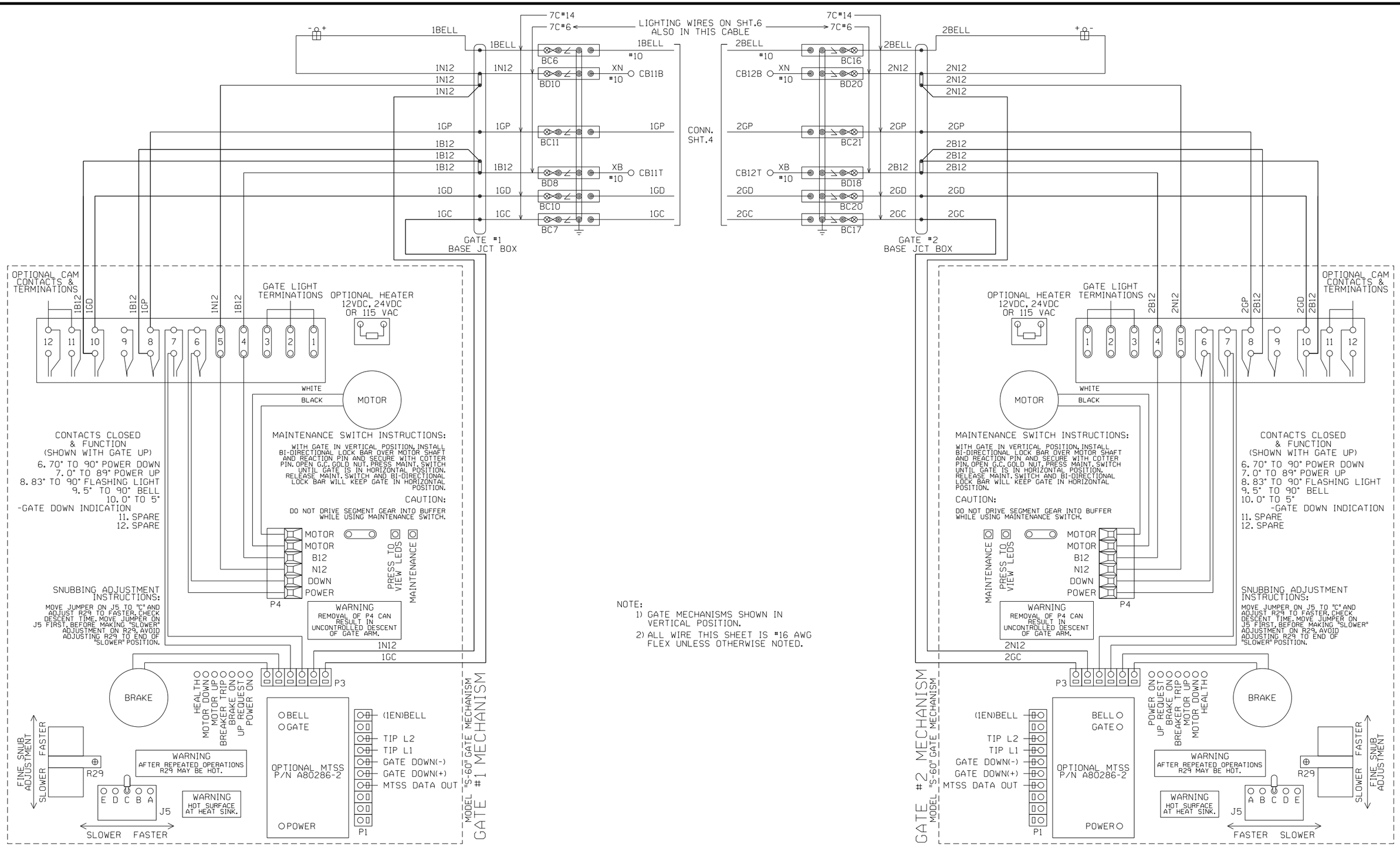
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Tulsa Port of Catoosa

LOCATION & DESCRIPTION:
Proposed S 4200 Road Grade Crossing Warning Devices
Inola, Rogers County, OK - Black Fox Power Sub MP 2.510

FES #: 40743

SHEET TITLE: FLASHER CIRCUIT PLAN

Color table:
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$$model$$
2/12/2021



REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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DRAWN BY:	PRS
CHECKED BY:	JMW
DATE:	2/12/2021
SHEET NUMBER	07 OF 12

UNION PACIFIC RAILROAD

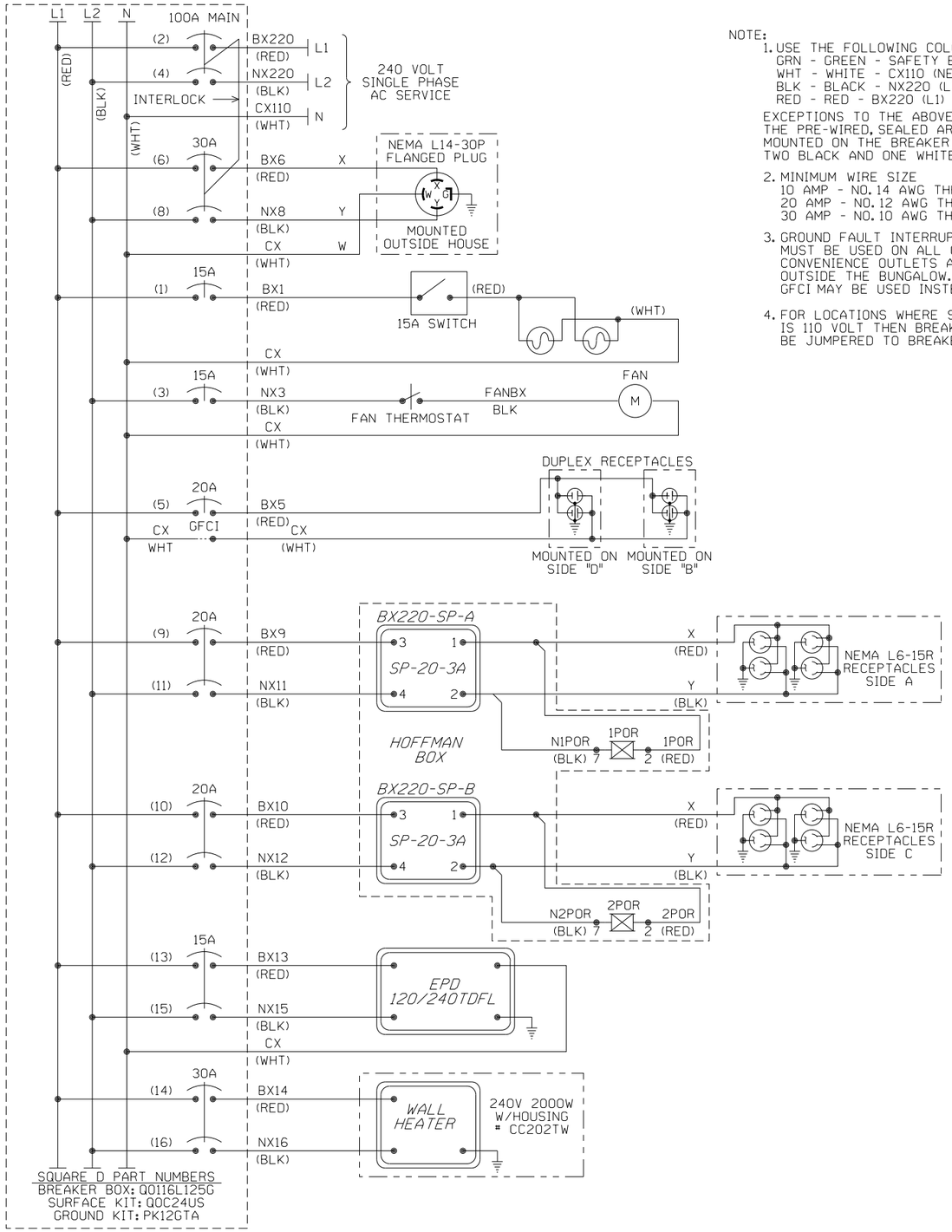
For Use and Agreement with:
Tulsa Port of Catoosa

LOCATION & DESCRIPTION:
Proposed S 4200 Road Grade Crossing Warning Devices
Inola, Rogers County, OK - Black Fox Power Sub MP 2.510

FES #: 40743

SHEET TITLE: GATES 1 & 2 CIRCUIT PLAN

Color table:
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$$model$$
2/12/2021



NOTE:

1. USE THE FOLLOWING COLOR CODE:
   GRN - GREEN - SAFETY EQUIPMENT GROUND
   WHT - WHITE - CX110 (NEUTRAL)
   BLK - BLACK - NX220 (L2)
   RED - RED - BX220 (L1)

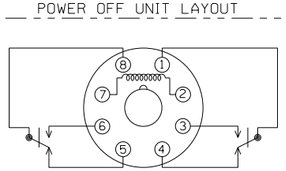
   EXCEPTIONS TO THE ABOVE COLOR CODE ARE THE PRE-WIRED, SEALED ARRESTOR UNITS MOUNTED ON THE BREAKER BOX WHICH HAVE TWO BLACK AND ONE WHITE WIRE EACH.

2. MINIMUM WIRE SIZE
   10 AMP - NO. 14 AWG THHN OR THWN SOLID
   20 AMP - NO. 12 AWG THHN OR THWN SOLID
   30 AMP - NO. 10 AWG THHN OR THWN SOLID

3. GROUND FAULT INTERRUPT (GFCI) MUST BE USED ON ALL CIRCUITS SERVING CONVENIENCE OUTLETS AND ANY EQUIPMENT OUTSIDE THE BUNGALOW. RECEPTACLE MOUNTED GFCI MAY BE USED INSTEAD OF BREAKER TYPE.

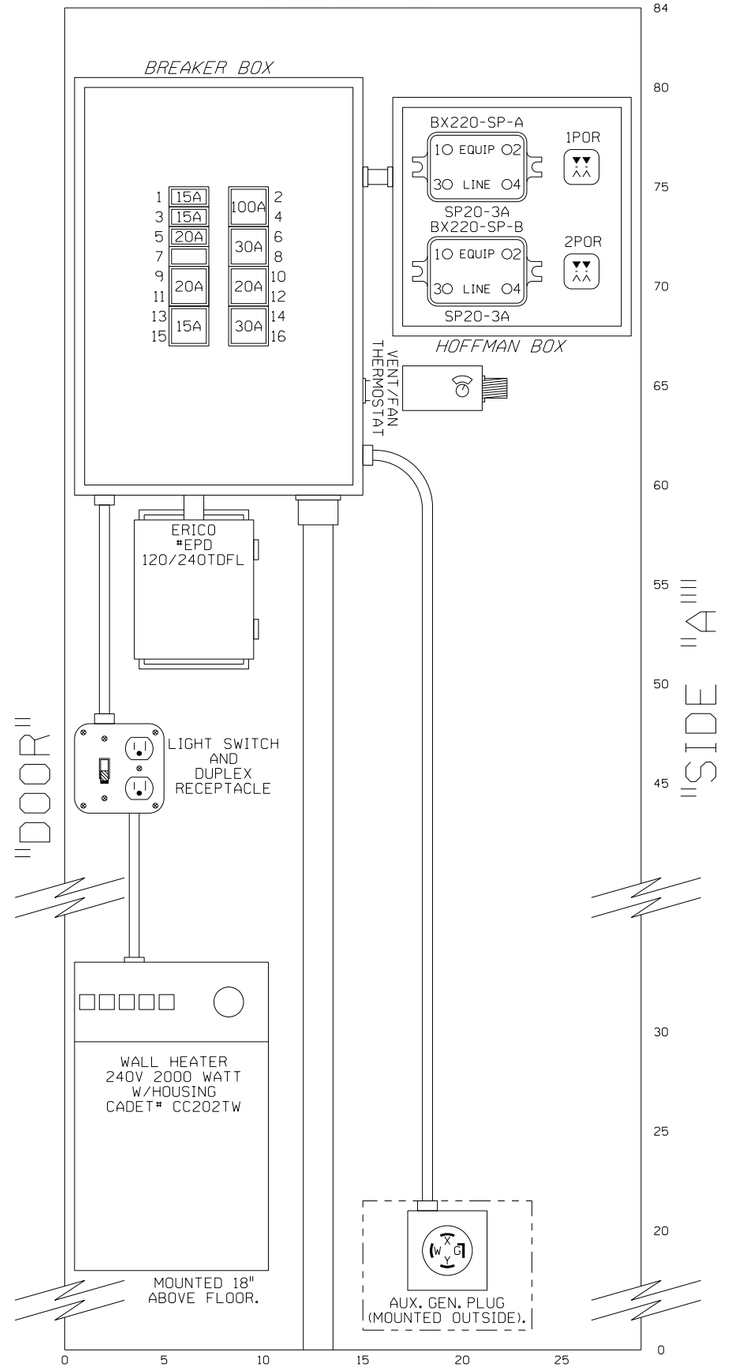
4. FOR LOCATIONS WHERE SERVICE PROVIDED IS 110 VOLT THEN BREAKER 2 SHOULD BE JUMPERED TO BREAKER 4.

POWER OFF UNIT LAYOUT



RELAY 1EGY4
TO BE USED FOR POR RELAYS.
OPERATING VOLTAGE = 240 VAC

CONTACT CONFIGURATION
DAYTON



REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track	Shift Ind. Track	Hand Throw Turnout
Prop. UPRR Track	Future Ind. Track	Power Turnout
Remove UPRR Track	Prop. Leased Ind. Trk	Power Derail
Shift UPRR Track	Ex. Leased Ind. Trk	Hand Throw Derail
Ex. Ind. Track	No RR Operations	Point of Curve
Prop. Ind. Track	Right of Way	Bridge
Remove Ind. Track	Acquire Property	Signal

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UNION PACIFIC

DRAWN BY:	PRS
CHECKED BY:	JMW
DATE:	2/12/2021
SHEET NUMBER	08 OF 12

UNION PACIFIC RAILROAD

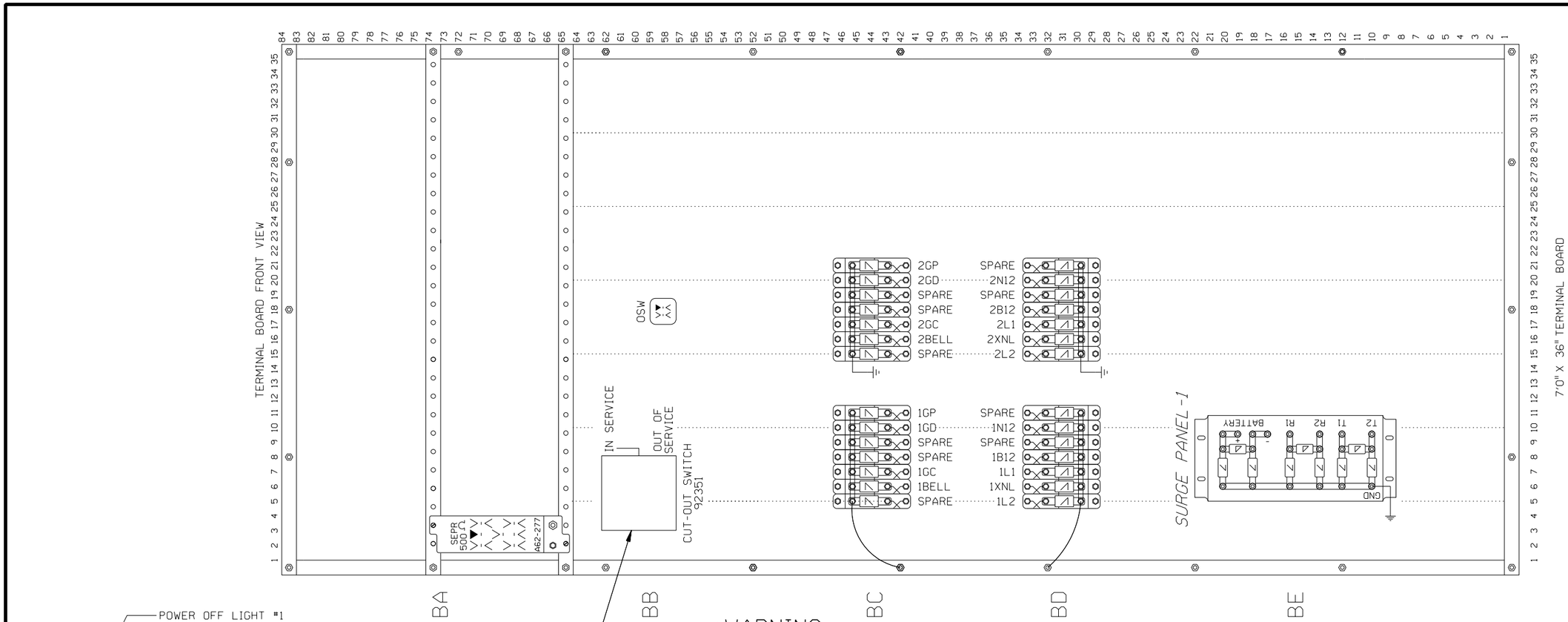
For Use and Agreement with:
Tulsa Port of Catoosa

LOCATION & DESCRIPTION:
Proposed S 4200 Road Grade Crossing Warning Devices
Inola, Rogers County, OK - Black Fox Power Sub MP 2.510

FES #: 40743

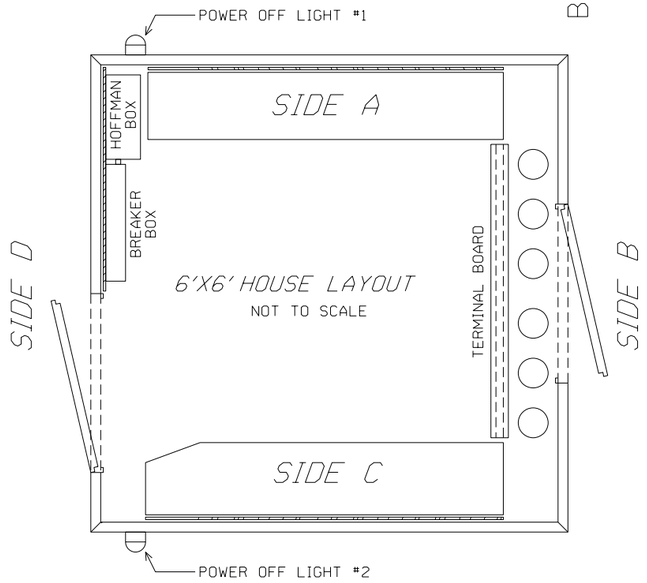
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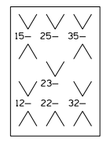
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$$model$$
2/12/2021



WARNING

PLACING SWITCH IN THE OUT-OF-SERVICE POSITION COMPLETELY DISABLES THIS HIGHWAY CROSSING WARNING SYSTEM. PROPER AUTHORITIES MUST BE NOTIFIED PRIOR TO OUT-OF-SERVICE.



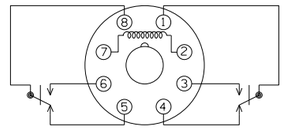


A62-277

RELAY CROSS REFERENCE

ALSTOM	SIEMENS
A62-277	400004

OUT OF SERVICE SWITCH RELAY LAYOUT



RELAY MKS2P DC12
TO BE USED FOR OSW RELAY.
OPERATING VOLTAGE = 12 VDC

CONTACT CONFIGURATION
OMRON MK-S SERIES

▼ = CONTACT USED

▽ = CONTACT NOT USED

SIDE "B"

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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UNION PACIFIC

DRAWN BY: PRS
CHECKED BY: JMW
DATE: 2/12/2021
SHEET NUMBER: 09 OF 12

UNION PACIFIC RAILROAD

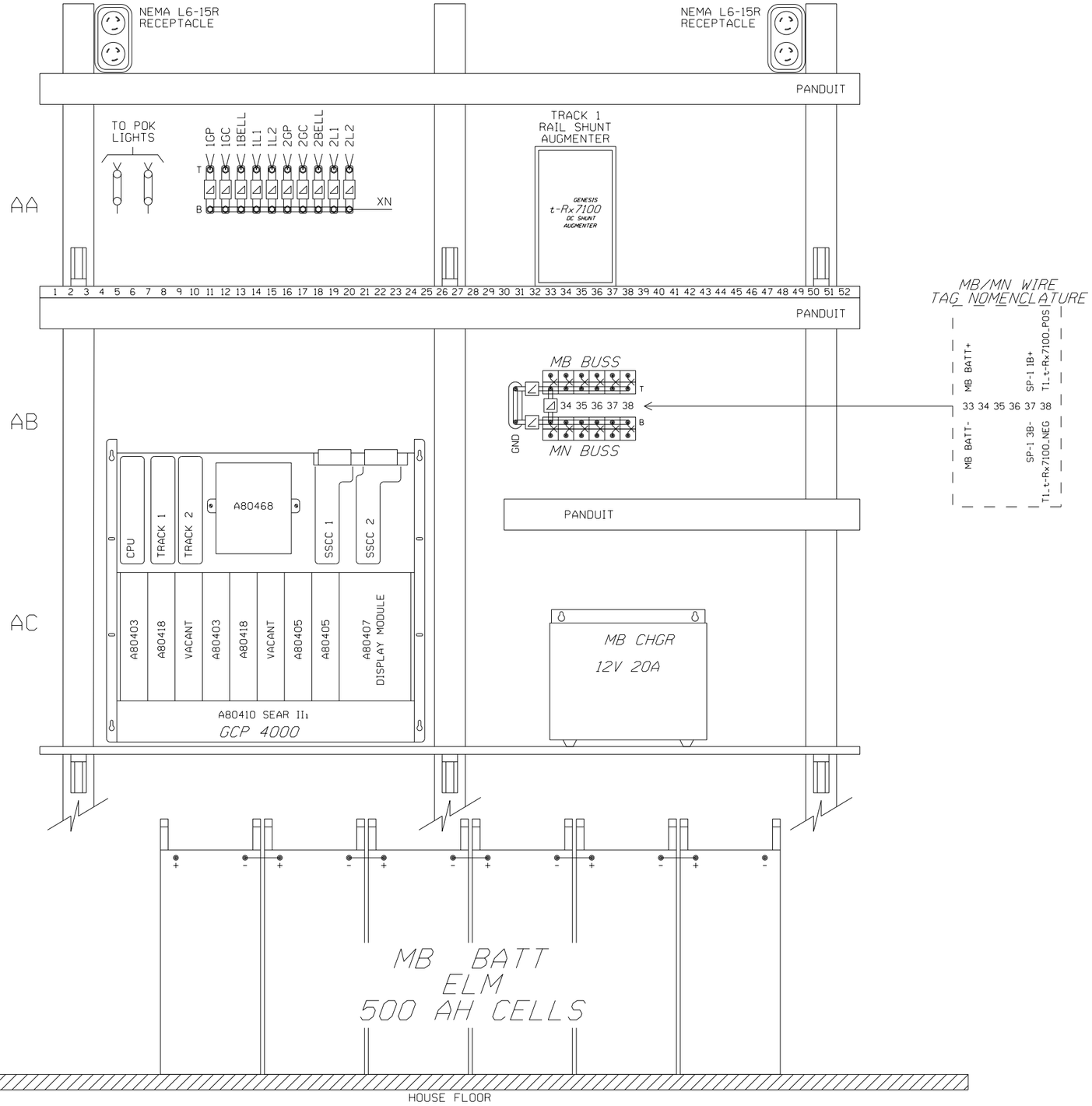
For Use and Agreement with:
Tulsa Port of Catoosa

LOCATION & DESCRIPTION:
Proposed S 4200 Road Grade Crossing Warning Devices
Inola, Rogers County, OK - Black Fox Power Sub MP 2.510

FES #: 40743

SHEET TITLE: TERMINAL BOARD LAYOUT

Color table:
Pen table: C:\ProgramData\PRS Settings\TranSystems_Utilities\Pen Tables\Power-Draft\Pentable.tbl
G:\01-Shortline Railroads\04-Design Projects\34P001735.2020-08-TranSystems-Port of Catoosa\cadd files\$$model$$
2/12/2021



REV. #	BY	DATE	DESCRIPTION

- Ex. UPRR Track
- Prop. UPRR Track
- Remove UPRR Track
- Shift UPRR Track
- Ex. Ind. Track
- Prop. Ind. Track
- Remove Ind. Track
- Shift Ind. Track
- Future Ind. Track
- Prop. Leased Ind. Trk
- Ex. Leased Ind. Trk
- No RR Operations
- Right of Way
- Acquire Property
- Hand Throw Turnout
- Power Turnout
- Power Derail
- Hand Throw Derail
- Point of Curve
- Bridge
- Signal

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UNION PACIFIC

DRAWN BY: PRS
CHECKED BY: JMW
DATE: 2/12/2021
SHEET NUMBER: 10 OF 12

UNION PACIFIC RAILROAD

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LOCATION & DESCRIPTION:
Proposed S 4200 Road Grade Crossing Warning Devices
Inola, Rogers County, OK - Black Fox Power Sub MP 2.510

FES #: 40743

SHEET TITLE: SIDE "A" LAYOUT

Color table:
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$$model$$
2/12/2021

NEMA L6-15R RECEPTACLE

NEMA L6-15R RECEPTACLE

PANDUIT

CA

MAINTAINER TEST

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

PANDUIT

XB/XN WIRE TAG NOMENCLATURE

XB BATT-	BD6	BD16	BD10	BD20	1-SSCCIIn (-)	1-SSCCIIn (-)	2-SSCCIIn (-)	2-SSCCIIn (-)	CUT-OUT3 (-)	OSW_2 (-)	AA7	IN 8.5 (-)	IN 7.5 (-)	AA20B	SP 2.1 (-)	IN 1.1 (-)	XB BATT+	CA45	BD8	BD18	1-SSCCIIn (+)	1-SSCCIIn (+)	2-SSCCIIn (+)	2-SSCCIIn (+)	CUT-OUT3 (+)	2POR_8	2POR_1	SEPR_25
8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24												

XB BUSS

T

9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

B

GND

XN BUSS

CB

PANDUIT

XB CHGR
12V 40A

CC

XB BATT
ELM
710 AH CELLS

SIDE "C"

HOUSE FLOOR

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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UNION PACIFIC

DRAWN BY: PRS
CHECKED BY: JMW
DATE: 2/12/2021
SHEET NUMBER: 11 OF 12

UNION PACIFIC RAILROAD

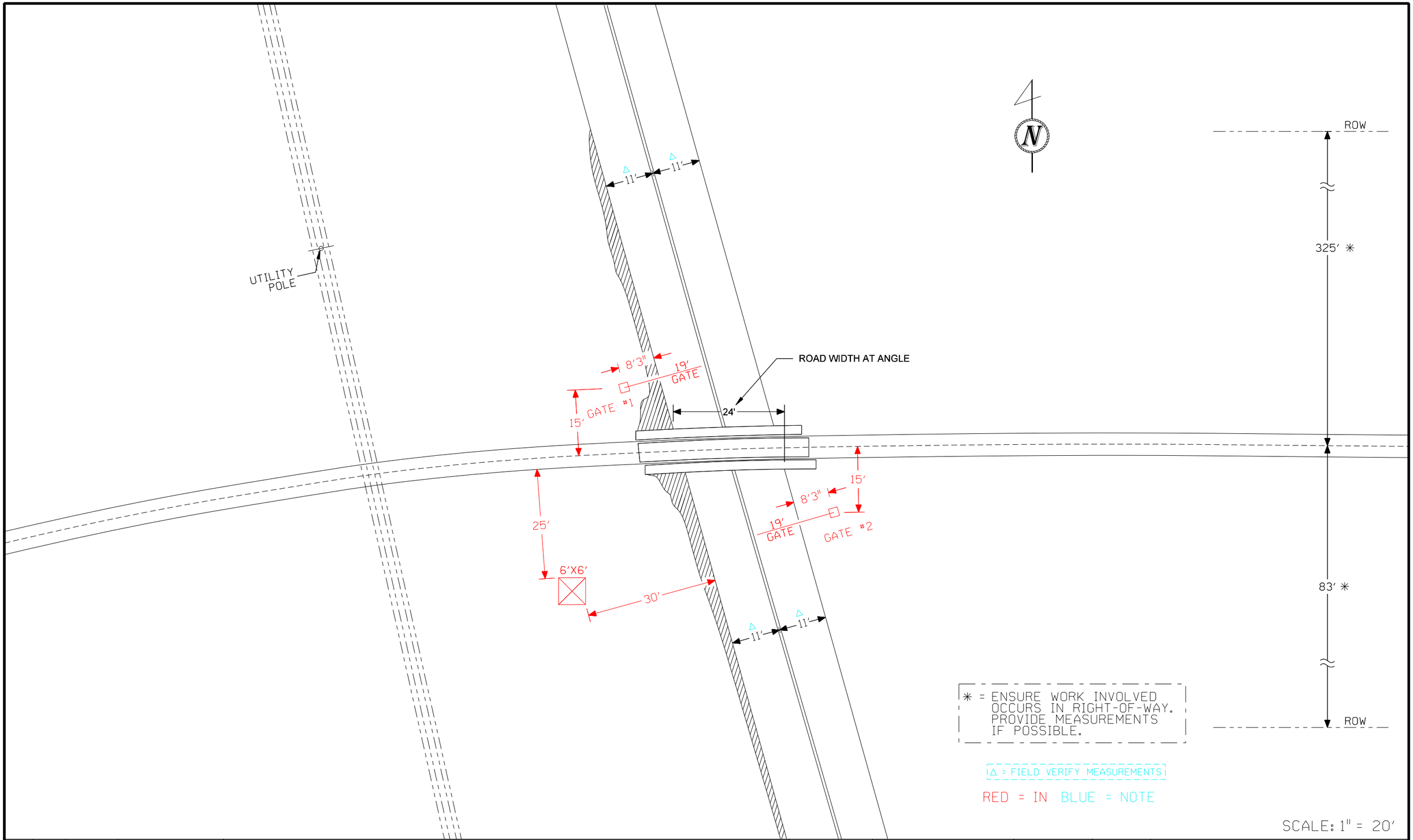
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Tulsa Port of Catoosa

LOCATION & DESCRIPTION:
Proposed S 4200 Road Grade Crossing Warning Devices
Inola, Rogers County, OK - Black Fox Power Sub MP 2.510

FES #: 40743

SHEET TITLE: SIDE "C" LAYOUT

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$$model$$
2/12/2021



REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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UNION PACIFIC

DRAWN BY: PRS
CHECKED BY: JMW
DATE: 2/12/2021
SHEET NUMBER: 12 OF 12

UNION PACIFIC RAILROAD

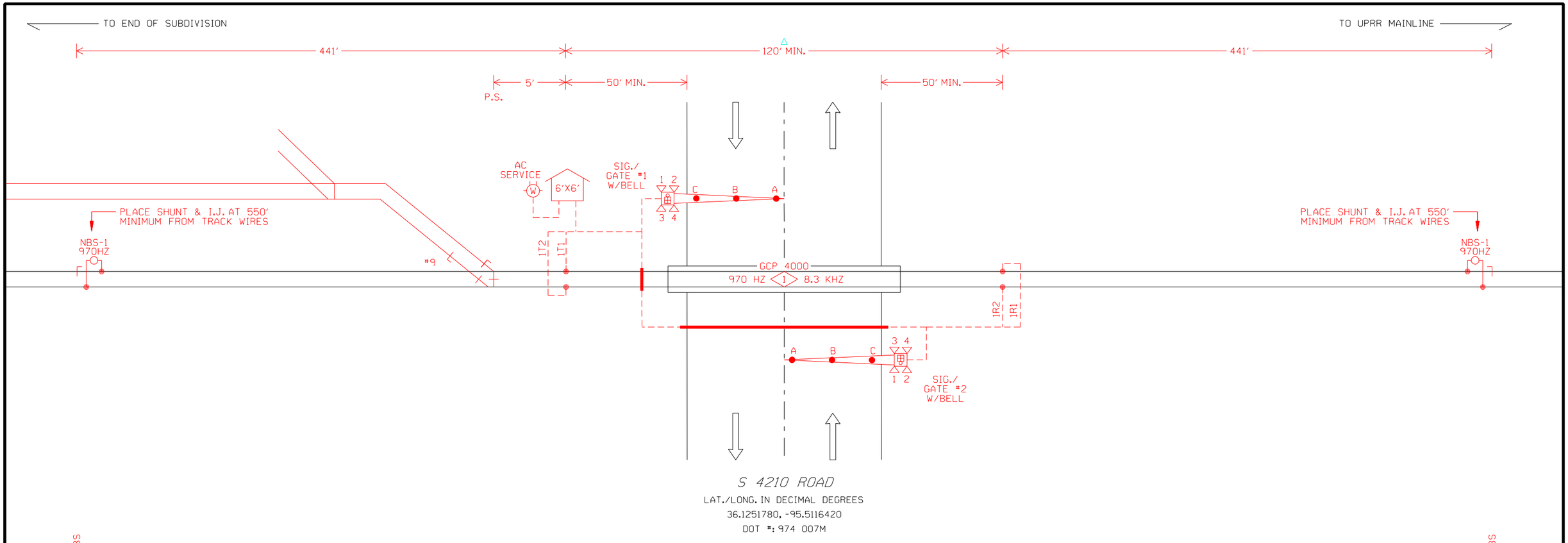
For Use and Agreement with: Tulsa Port of Catoosa

LOCATION & DESCRIPTION:
Proposed S 4200 Road Grade Crossing Warning Devices
Inola, Rogers County, OK - Black Fox Power Sub MP 2.510

FES #: 40743

SHEET TITLE: FOUNDATION LAYOUT

Color table:
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$$model$$
2/12/2021



APPROACH DISTANCE CALCULATION

	TRACK 1
MINIMUM CROSSING WARNING TIME	20 SEC
TIME FOR CROSSING CLEARANCE DISTANCE >35'	+ 0 SEC
TRAFFIC PRE-EMPTION TIME	+ 0 SEC
TOTAL CALCULATED DESIGN WARNING TIME	20 SEC
EQUIPMENT RESPONSE TIME	+ 5 SEC
BUFFER TIME	+ 5 SEC
TOTAL WARNING TIME FOR APPROACH DISTANCE CALCULATION	30 SEC
CALCULATED AT MAXIMUM TRAIN SPEED	X 10 MPH
RATIO OF FEET PER SECOND TO MILES PER HOUR	X 1.467
APPROACH LENGTH (ROUNDED UP TO THE NEXT FOOT)	441 FEET

CABLE TABULATION

HOUSE TO SIGNAL/GATE #1 - 7C#6 AWG
- 7C#14 AWG
HOUSE TO SIGNAL/GATE #2 - 7C#6 AWG
- 7C#14 AWG
HOUSE TO 1T1 & 1T2 - 2C#6 TW. PAIR
HOUSE TO 1R1 & 1R2 - 2C#6 TW. PAIR
HOUSE TO AC SERVICE - 3C#6 AWG

LEGEND

CONDUIT - MIN 36" DEEP
UNDERGROUND CABLE - MIN 36" DEEP

NOTES:

1. ALL DIMENSIONS ARE APPROXIMATE AND MAY VARY DUE TO ACTUAL FIELD CONDITIONS.
2. ALL FLASHING LIGHT SIGNALS AND GATE LIGHTS TO BE LIGHT EMITTING DIODE (LED) ASSEMBLIES.
3. SWITCH INSULATION PACKAGE NEEDED FOR CROSSING CIRCUITS.

△ = FIELD VERIFY MEASUREMENT !

NOTE TO CONSTRUCTION FOREMAN:

ANY DEVIATION FROM THE DESIGN PRINTS, PROGRESS RAIL ENGINEERING SHOULD BE CONTACTED PRIOR TO ANY CHANGES COMMENCING.

PROVIDE FOLLOWING UPON INSTALLATION:

CONSTRUCTION FOREMAN: _____

IN-SERVICE DATE: _____

RED = IN BLUE = NOTE

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TULSA PORTS BARGE · RAIL · INDUSTRIAL PARK CATOOSA-INOLA

TranSystems

UNION PACIFIC

DRAWN BY: PRS
CHECKED BY: JMW
DATE: 2/12/2021
SHEET NUMBER: 01 OF 12

UNION PACIFIC RAILROAD

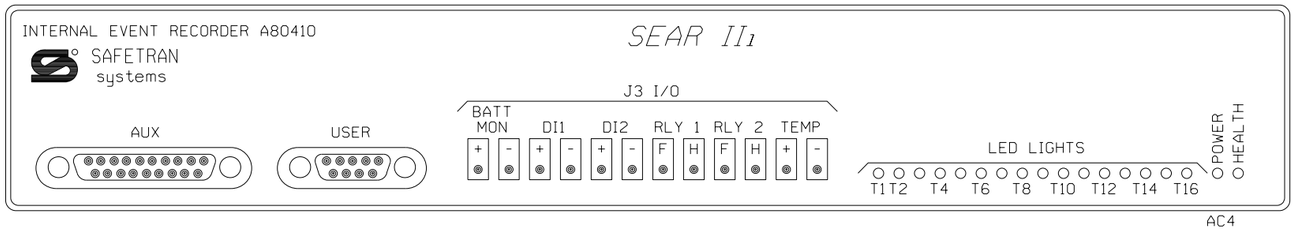
For Use and Agreement with: Tulsa Port of Catoosa

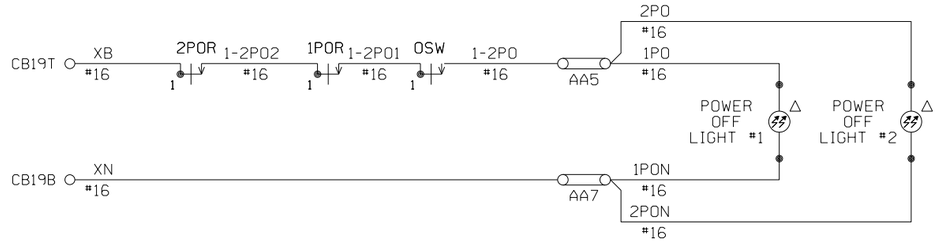
LOCATION & DESCRIPTION: Proposed S 4210 Road Grade Crossing Warning Devices Inola, Rogers County, OK - Black Fox Power Sub MP 1.400

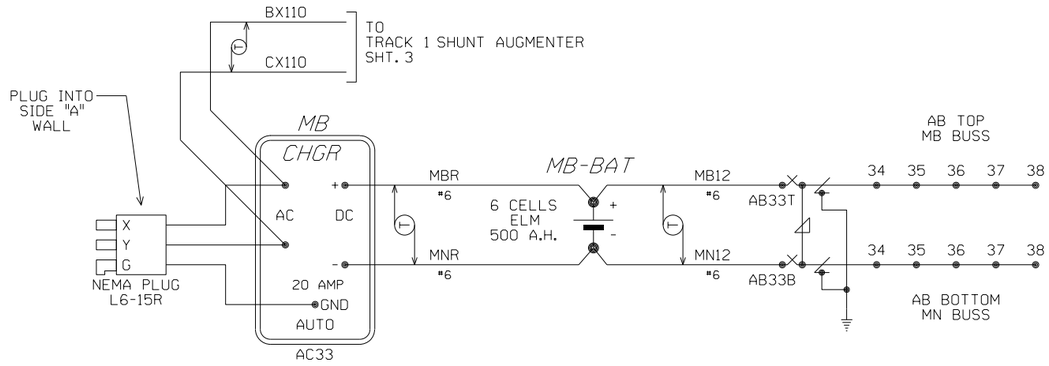
FES #: 40743

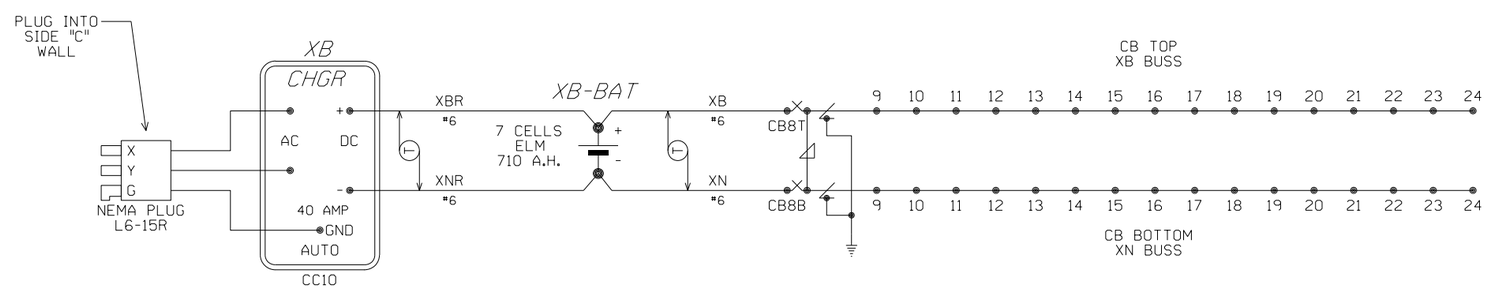
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$$model$$
2/12/2021









NOTES:

1. ALL WIRE THIS SHEET NO. 10 A.W.G. FLEX UNLESS OTHERWISE NOTED.
2. Δ = LED LIGHT 8 TO 16 VDC (P/N: LC2-002-WR-LA)
3. ⟨T⟩ = TWISTED WIRE 2 TURNS PER FOOT.

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TULSA PORTS
BARGE · RAIL · INDUSTRIAL PARK
CATOOSA · INOLA

TranSystems

UNION PACIFIC

DRAWN BY: PRS
CHECKED BY: JMW
DATE: 2/12/2021
SHEET NUMBER: 02 OF 12

UNION PACIFIC RAILROAD
For Use and Agreement with: Tulsa Port of Catoosa
LOCATION & DESCRIPTION: Proposed S 4210 Road Grade Crossing Warning Devices Inola, Rogers County, OK - Black Fox Power Sub MP 1.400
FES #: 40743
SHEET TITLE: BATTERY CIRCUITS

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$$model$$
2/12/2021

STANDARD INVENSYS RAIL GCP FREQUENCY (Hz)	MAXIMUM TRANSMIT LEAD LENGTH IN FEET
86	100 FEET
114	125 FEET
156	150 FEET
211	200 FEET
285-970	250 FEET

NOTE:
THE TRANSMITTER LEADS ARE TO BE CONNECTED ON THE SIDE OF THE CROSSING NEAREST THE INSTRUMENT BUNGALOW. THE TRANSMITTER LEADS MUST BE AS SHORT AS POSSIBLE AND NOT EXCEED THE LENGTHS SPECIFIED IN THE TABLE SHOWN.

TO TRACK
#6 TW. PR.

SURGE PANEL -1
SAFETRAN 80026-01

BATTERY
GND
8 T2 7 T1 6 R2 5 R1 4 3 - 2 1 +

1T2 1T1 1R2 1R1 (#14)
BE5
MB #6 AB37T
MN #6 AB37B
1C2 1T2 1T1 1C1 1R2 1R1 (#14)

CB24T XB #16 — SEPR 25 — AND 1XR ENA #16
CB18T XB #16 — 2POR 8 — 1-2POK1 #16 — 1POR 8 — 1-2POK #16

GCP 4000

CPU
LONTALK PROTOCOL
DIAG PORT
MB
MB
MN
MN
B
N
MAINT. CALL
FLASH SYNC.
80403

TRACK 1
OUT 1.1
OUT 1.2
IN 1.1
IN 1.2
CB24B XN #16
RCV1
RCV2
CHK1
CHK2
XMT1
XMT2
80418

TRACK 2
OUT 2.1
OUT 2.2
IN 2.1
IN 2.2
SP 2.1 (POK)
CB23B XN #16
RCV1
RCV2
CHK1
CHK2
XMT1
XMT2
80418

1R1 1R2 1C1-1 1C2-1 1T1 1T2

AC4

AA32
2 AC LINE — AVAILABLE / IN USE
15 DC BATT — AVAILABLE / IN USE

GENESIS
t-Rx7100
RAIL SHUNT AUGMENTER
OUTPUT 7.1V - 6.8A
P/N 08034-2000

TO MB-RECTIFIER SEE SHT.2
BX110 — BX 1 — 110 VAC
CX110 — CX 2
MB AB38T — POS 3 — 12 DC
MN AB38B — NEG 4
AUXAC 5 — AUX AC OUTPUT
AUXRET 6 — AUX AC RETURN
SEPR A62-277 (3A 3B 3C 3D 1E 3E)
SEP1 #16 — SYSCHK+ 7 — SYSTEM CK OUT(+)
NSEP1 #16 — SYSCHK- 8 — SYSTEM CK OUT(-)
1C1-1 #14 / 1C1 — T1A 9 — T1 GCP/HXP/MS/MD
T1B 10 — T1 TK OUT(+)
1C2-1 #14 / 1C2 — T2A 11 — T2 GCP/HXP/MS/MD
T2B 12 — T2 TK OUT(-)

NOTES:
1. ALL WIRE THIS SHEET NO. 10 A.W.G. FLEX UNLESS OTHERWISE NOTED.
2. (T) DENOTES TWISTED WIRE PAIR.

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
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Ex. Leased Ind. Trk
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Power Turnout
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Hand Throw Derail
Point of Curve
Bridge
Signal

TULSA PORTS — BARGE · RAIL · INDUSTRIAL PARK — CATOOSA · INOLA

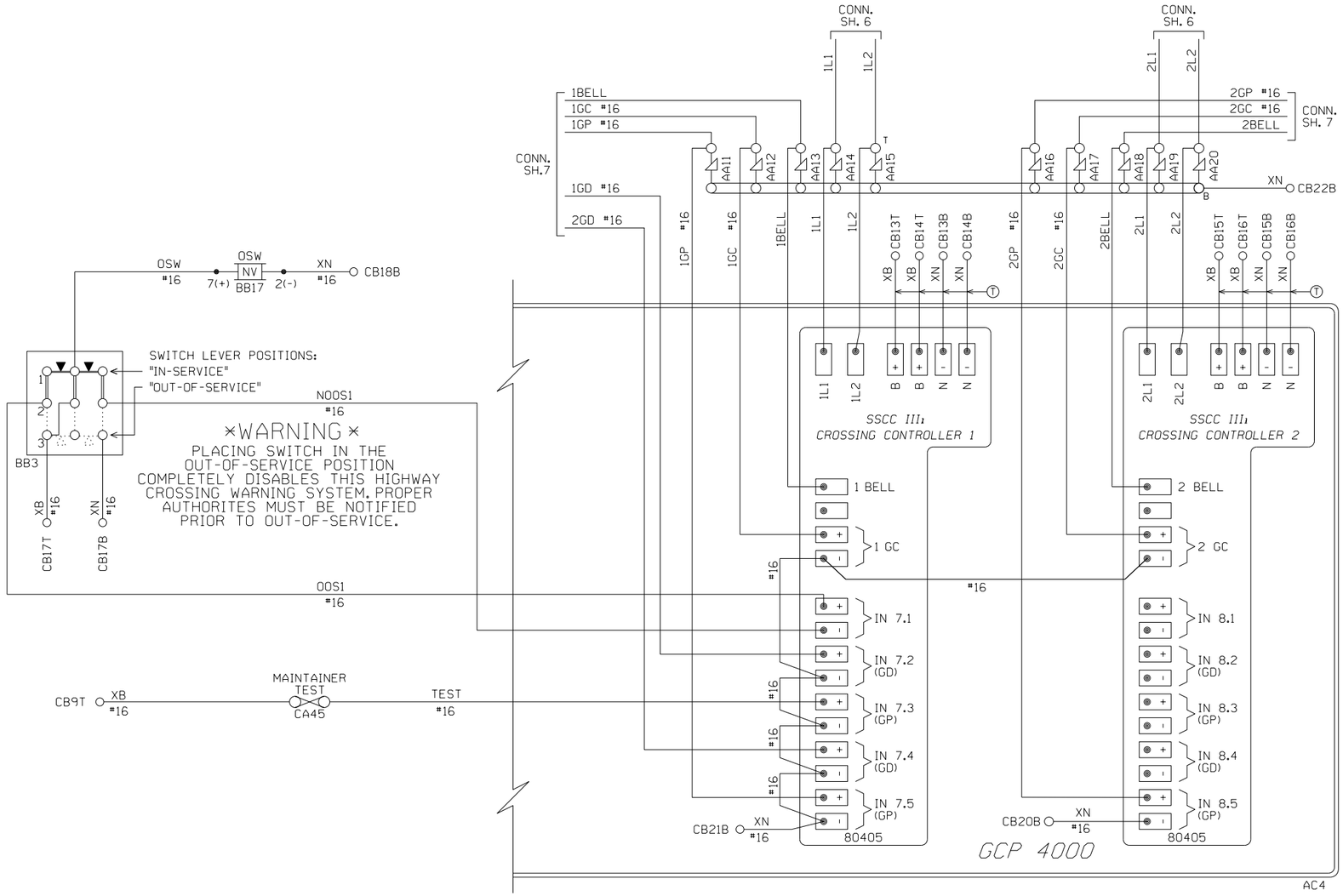
TranSystems

UNION PACIFIC

DRAWN BY: PRS
CHECKED BY: JMW
DATE: 2/12/2021
SHEET NUMBER: 03 OF 12

UNION PACIFIC RAILROAD
For Use and Agreement with: Tulsa Port of Catoosa
LOCATION & DESCRIPTION: Proposed S 4210 Road Grade Crossing Warning Devices Inola, Rogers County, OK - Black Fox Power Sub MP 1.400
FES #: 40743
SHEET TITLE: GCP 4000 CIRCUIT PLAN

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$$model$$
2/12/2021



NOTES:

1. ALL WIRE THIS SHEET NO. 10 A.W.G. FLEX UNLESS OTHERWISE NOTED.
2. (T) DENOTES TWISTED WIRE PAIR.

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
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Shift UPRR Track
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Point of Curve
Bridge
Signal

TULSA PORTS BARGE · RAIL · INDUSTRIAL PARK CATOOSA-INOLA

TranSystems

UNION PACIFIC

DRAWN BY:	PRS
CHECKED BY:	JMW
DATE:	2/12/2021
SHEET NUMBER	04 OF 12

UNION PACIFIC RAILROAD

For Use and Agreement with: Tulsa Port of Catoosa

LOCATION & DESCRIPTION: Proposed S 4210 Road Grade Crossing Warning Devices Inola, Rogers County, OK - Black Fox Power Sub MP 1.400

FES #: 40743

SHEET TITLE: GCP 4000 CIRCUIT PLAN

Color table:
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$$model$$
2/12/2021

Program Report

Location and SIN

DOT Number: 974007M
Milepost Number: 1.400
Site Name: S 4210 ROAD

SIN: 762010010016

MCF and Template Selection

MCF Name: GCP-T6X-02-8.mcf
MCF Revision: 028
MCFCRC: 2D89077E

Template = 1A:6 Trk B1 (OCCN)

Check Numbers

Office Check Number: 789AC8EF
Config. Check Number: 2CBA5CF8
(Based on MCF Revision 028)

Comments

Program

BASIC: module configuration
Chassis Type = Dual Two Track (OCCN)
Track 1/PSO 1 Slot = Track (OCCN)
Track 2/RIO 1 Slot = Not Used (OCCN)
SSCC-1 Slot = SSCC31 (OCCN)
SSCC-2 Slot = SSCC31 (OCCN)
SEAR Used = Yes (OCCN)

BASIC: MS/GCP operation
Track 1:MS/GCP Operation = Yes (OCCN)

BASIC: island operation
Track 1:Island Used = Internal (OCCN)

BASIC: preemption
Preempt Logic = No (OCCN)

BASIC: radio Dax links
Radio DAX link A Used = No (OCCN)
Radio DAX link B Used = No (OCCN)

BASIC: Vital Comms links
Vital Comms link 1 Used = No (OCCN)
Vital Comms link 2 Used = No (OCCN)

PREDICTORS: track 1
Track 1:Prime Used = Yes (OCCN)
Track 1:Dax A Used = No (OCCN)
Track 1:Dax B Used = No (OCCN)
Track 1:Dax C Used = No (OCCN)
Track 1:Dax D Used = No (OCCN)
Track 1:Dax E Used = No (OCCN)
Track 1:Dax F Used = No (OCCN)
Track 1:Dax G Used = No (OCCN)

GCP: track 1
Track 1:GCP Freq Category = Standard (Field)
Track 1:GCP Frequency = 970 Hz (OCCN,TCN)
Track 1:Approach Distance = 550 ft (OCCN,TCN)
Track 1:Uni/Bi/Sim-Bidirnl = Bidirnl (OCCN,TCN)
Track 1:GCP Transmit Level = Medium (Field,TCN)
Track 1:Island Connection = Isl 1 (OCCN)
Track 1:Directionally Wired = No (OCCN)
Track 1:Island Distance = 120 ft (Field,TCN)
Track 1:Computed Distance = 9999 ft (Field,TCN)
Track 1:Linearization Steps = 100 (Field,TCN)

GCP: track 1 enhanced det
Track 1:Inbound PS Sensitivity = High (Field)
Track 1:Speed Limiting Used = Yes (Field)
Track 1:Outbound False Act Lvl = Normal (Field)
Track 1:Outbound PS Timer = 20 sec (Field)
Track 1:Trailing Switch Logic = On (Field)
Track 1:Post Joint Detn Time = 15 sec (OCCN)
Track 1:Adv Appr Predn = No (OCCN)
Track 1:Cancel Pickup Delay = This Isl (OCCN)

GCP: track 1 BIDAX RX
Track 1:BIDAX To RX Appr = Not Used (OCCN)

GCP: track 1 BIDAX TX
Track 1:BIDAX To TX Appr = Not Used (OCCN)

GCP: track 1 prime
Track 1:Prime Warning Time = 25 sec (OCCN)
Track 1:Prime Offset Distance = 0 ft (OCCN)
Track 1:Switch MS EZ Level = 10 (OCCN)
Track 1:Prime MS/GCP Mode = Pred (OCCN)
Track 1:Prime Pickup Delay = 15 sec (OCCN)
Track 1:Prime UAX = Not Used (OCCN)

GCP: track 1 pos start
Track 1:Positive Start = Off (OCCN)
Track 1:Sudden Shnt Det Used = No (OCCN)
Track 1:Low EZ Detection Used = No (OCCN)

GCP: track 1 MS Control
Track 1:MS/GCP Ctrl IP Used = No (OCCN)
Track 1:MS Sensitivity Level = 0 (Field)
Track 1:Compensation Level = 1300 (Field,TCN)
Track 1:Warn Time-Ballast Comp = High (Field,TCN)
Track 1:Low EX Adjustment = 39 (Field)
Track 1:Bidirn Dax Passthru = No (OCCN)
Track 1:False Act on Train Stop = No (Field)
Track 1:EX Limiting Used = Yes (Field)
Track 1:EZ Correction Used = Yes (Field)

ISLAND: track 1
Track 1:Isl Frequency = 8.3 kHz (OCCN)
Track 1:Pickup Delay (2s +) = 2 sec (OCCN)
Track 1:Isl Enable IP Used = No (OCCN)

AND: track Anding
AND 1 XR Used = Yes (OCCN)
AND 2 Used = No (OCCN)
AND 3 Used = No (OCCN)
AND 4 Used = No (OCCN)
AND 5 Used = No (OCCN)
AND 6 Used = No (OCCN)
AND 7 Used = No (OCCN)
AND 8 Used = No (OCCN)

AND: AND 1 XR
AND 1 XR Track 1 = Prime (OCCN)
AND 1 Enable Used = Yes (OCCN)
And 1 Enable Pickup = 5 sec (OCCN)
AND 1 Enable Drop = 0 sec (OCCN)
AND 1 Wrap Used = No (OCCN)

ADVANCED: MS restart
MS/GCP Restart Used = No (OCCN)

ADVANCED: out of service
OOS Control = OOS IPs (OCCN)

ADVANCED: out of service 2
T1 OOS Control = OOS Input 1 (OCCN)
T1 OOS Controls = GCP and Island (OCCN)

ADVANCED: track wrap circuits
Wrap LOS Timer = 5 sec (OCCN)
Track 1 Wrap Used = No (OCCN)

ADVANCED: trk 1 overrides
Track 1:All Predictors Override Used = No (OCCN)

ADVANCED: OR logic
OR 1 Used = No (OCCN)
OR 2 Used = No (OCCN)
OR 3 Used = No (OCCN)
OR 4 Used = No (OCCN)

ADVANCED: internal I/O 1
Pass Thrus = No (OCCN)
Int.1 Sets = Not Used (OCCN)
Int.1 Set by = Not Used (OCCN)
Int.2 Sets = Not Used (OCCN)
Int.2 Set by = Not Used (OCCN)
Int.3 Sets = Not Used (OCCN)
Int.3 Set by = Not Used (OCCN)
Int.4 Sets = Not Used (OCCN)
Int.4 Set by = Not Used (OCCN)

ADVANCED: internal I/O 2
Int.5 Sets = Not Used (OCCN)
Int.5 Set by = Not Used (OCCN)
Int.6 Sets = Not Used (OCCN)
Int.6 Set by = Not Used (OCCN)
Int.7 Sets = Not Used (OCCN)
Int.7 Set by = Not Used (OCCN)
Int.8 Sets = Not Used (OCCN)
Int.8 Set by = Not Used (OCCN)

ADVANCED: internal I/O 3
Int.9 Sets = Not Used (OCCN)
Int.9 Set by = Not Used (OCCN)
Int.10 Sets = Not Used (OCCN)
Int.10 Set by = Not Used (OCCN)
Int.11 Sets = Not Used (OCCN)
Int.11 Set by = Not Used (OCCN)
Int.12 Sets = Not Used (OCCN)
Int.12 Set by = Not Used (OCCN)

ADVANCED: internal I/O 4
Int.13 Sets = Not Used (OCCN)
Int.13 Set by = Not Used (OCCN)
Int.14 Sets = Not Used (OCCN)
Int.14 Set by = Not Used (OCCN)
Int.15 Sets = Not Used (OCCN)
Int.15 Set by = Not Used (OCCN)
Int.16 Sets = Not Used (OCCN)
Int.16 Set by = Not Used (OCCN)

ADVANCED: site options
Daylight Savings = On (Field)
Units = Standard (OCCN)
Maint Call Rpt IP Used = No (OCCN)
Emergency Activate IP = No (OCCN)
EZ/EX Logging = Change (Field)
EZ/EX Point Change = 3 (Field)

SSCC
Gates Used = Yes (OCCN)
SSCC1+2 GPs Coupled = Yes (OCCN)
Min Activation = 0 sec (OCCN)
Rmt Activation Cancel = 2 min (OCCN)
Bell On Gate Rising = Yes (OCCN)
Mute Bell On Gate Down = No (OCCN)
SSCCIV Controller Used = No (OCCN)

SSCC: 1
SSCC-1 Activation = AND 1 XR (OCCN)
SSCC-1 Gate Delay = 4 sec (OCCN)
SSCC-1 Number of GPs = 1 (OCCN)
SSCC-1 Number of GDs = 2 (OCCN)
SSCC 1:Flash Rate = 50 (OCCN)
SSCC 1:Low Battery Detection = No (Field)
SSCC 1:Flash Sync = master (OCCN)
SSCC 1:Invert Gate Output = No (OCCN)
SSCC 1:Lamp Neutral Test = Off (OCCN)
Aux-1 Xng Ctrl Used = No (OCCN)

SSCC: 2
SSCC-2 Activation = AND 1 XR (OCCN)
SSCC-2 Gate Delay = 4 sec (OCCN)
SSCC-2 Number of GPs = 1 (OCCN)
SSCC-2 Number of GDs = 0 (OCCN)
SSCC 2:Flash Rate = 50 (OCCN)
SSCC 2:Low Battery Detection = No (Field)
SSCC 2:Flash Sync = slave (OCCN)
SSCC 2:Invert Gate Output = No (OCCN)
SSCC 2:Lamp Neutral Test = Off (OCCN)
Aux-2 Xng Ctrl Used = No (OCCN)

OUTPUT: assignment page 1
OUT 1.1 = Not Used (OCCN)
OUT 1.2 = Not Used (OCCN)

INPUT: assignment page 1
IN 1.1 = AND 1 XR Enable (OCCN)
IN 1.2 = Not Used (OCCN)

IO: assignment SSCC
OUT GC 1 = Gate Output 1 (OCCN)
OUT GC 2 = Gate Output 2 (OCCN)
IN 7.1 = Out Of Service IP 1 (OCCN)
IN 7.2 = GD 1.1 (OCCN)
IN 7.3 = AND 1 XR Enable (OCCN)
IN 7.4 = GD 1.2 (OCCN)
IN 7.5 = GP 1.1 (OCCN)
IN 8.1 = Not Used (OCCN)
IN 8.2 = Not Used (OCCN)
IN 8.3 = Not Used (OCCN)
IN 8.4 = Not Used (OCCN)
IN 8.5 = GP 2.1 (OCCN)

SEAR
SEAR Subnode = 99 (OCCN)
DI 1 = Not Used (OCCN)
DI 2 = Not Used (OCCN)
Rly 1 = Not Used (OCCN)
Rly 2 = Not Used (OCCN)

SEAR: inputs
SP 2.1 = POK 1 (OCCN)
SP 3.1 = Not Used (OCCN)
SP 4.1 = Not Used (OCCN)
SP 5.1 = Not Used (OCCN)
SP 6.1 = Not Used (OCCN)

SEAR: slot 1-4 inputs
IN 1.2 = Not Used (OCCN)
IN 2.1 = Not Used (OCCN)
IN 2.2 = Not Used (OCCN)
IN 3.1 = Not Used (OCCN)
IN 3.2 = Not Used (OCCN)
IN 4.1 = Not Used (OCCN)
IN 4.2 = Not Used (OCCN)

SEAR: inputs slot 5
IN 5.1 = Not Used (OCCN)
IN 5.2 = Not Used (OCCN)

SEAR: inputs slot 6
IN 6.1 = Not Used (OCCN)
IN 6.2 = Not Used (OCCN)

SEAR: slot 7-8 inputs
IN 8.1 = Not Used (OCCN)
IN 8.2 = Not Used (OCCN)
IN 8.3 = Not Used (OCCN)
IN 8.4 = Not Used (OCCN)

SITE: programming
Radio Subnode = 1 (Field)
Field Password = Off (OCCN)
Low Battery Enabled = Off (Field)

Configuration Package File

Filename: TPC974007M.pac

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TULSA PORTS
BARGE · RAIL · INDUSTRIAL PARK
CATOOSA · INOLA

TranSystems

UNION PACIFIC

DRAWN BY: PRS
CHECKED BY: JMW
DATE: 2/12/2021
SHEET NUMBER: 05 OF 12

UNION PACIFIC RAILROAD

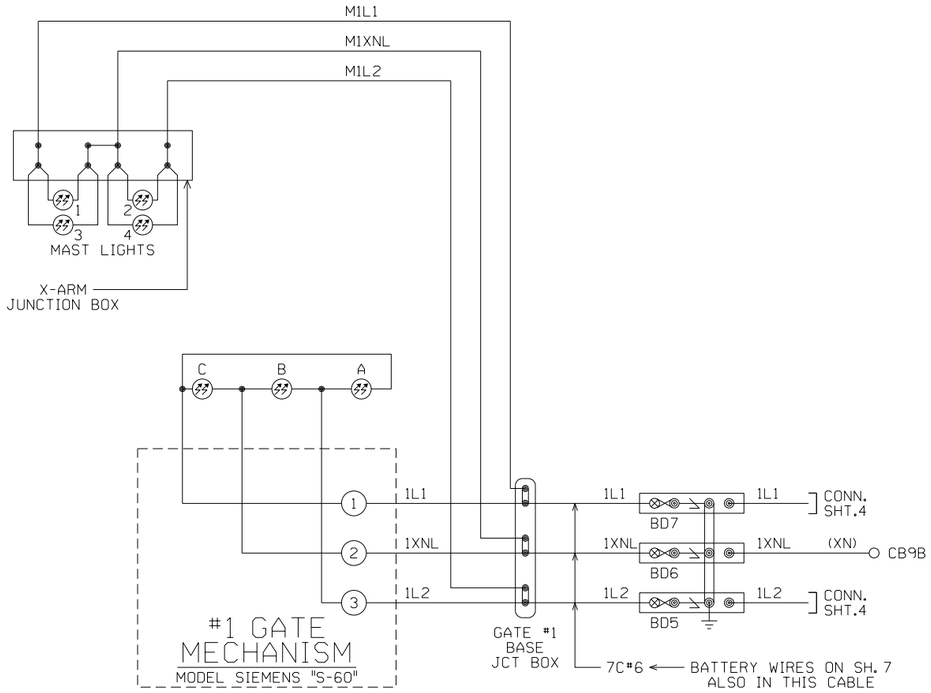
For Use and Agreement with:
Tulsa Port of Catoosa

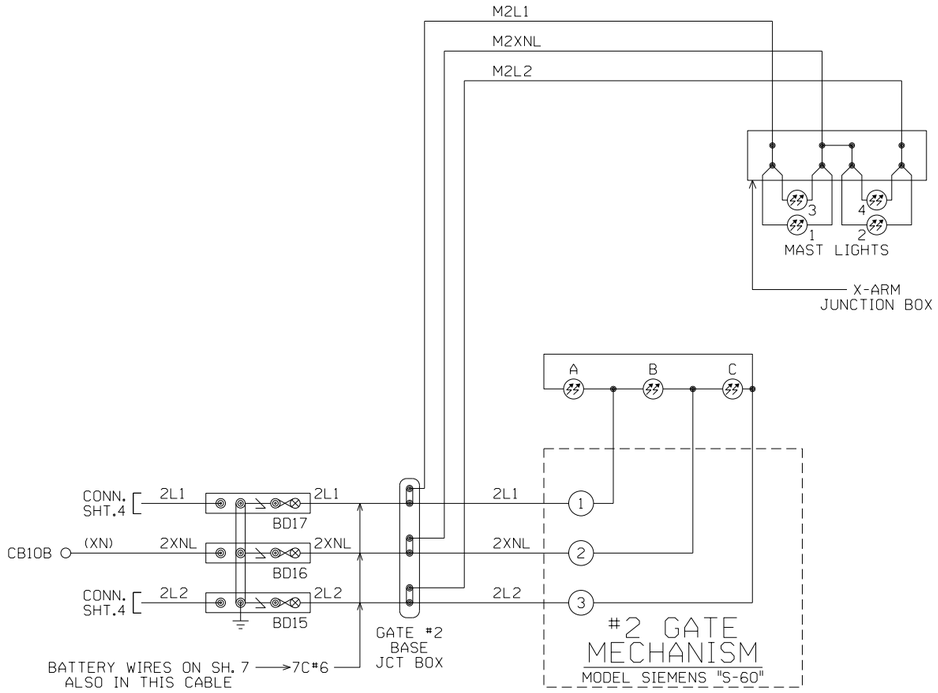
LOCATION & DESCRIPTION:
Proposed S 4210 Road Grade Crossing Warning Devices
Inola, Rogers County, OK - Black Fox Power Sub MP 1.400

FES #: 40743

SHEET TITLE: GCP 4000 PROGRAMMING

Color table:
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$$model$$
2/12/2021





NOTES:

1. ALL WIRE THIS SHEET #10 A.W.G. FLEX UNLESS OTHERWISE NOTED.

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track	Shift Ind. Track	Hand Throw Turnout
Prop. UPRR Track	Future Ind. Track	Power Turnout
Remove UPRR Track	Prop. Leased Ind. Trk	Power Derail
Shift UPRR Track	Ex. Leased Ind. Trk	Hand Throw Derail
Ex. Ind. Track	No RR Operations	Point of Curve
Prop. Ind. Track	Right of Way	Bridge
Remove Ind. Track	Acquire Property	Signal

TULSA PORTS
BARGE · RAIL · INDUSTRIAL PARK
CATOOSA · INOLA

TranSystems

UNION PACIFIC

DRAWN BY: PRS
CHECKED BY: JMW
DATE: 2/12/2021
SHEET NUMBER: 06 OF 12

UNION PACIFIC RAILROAD

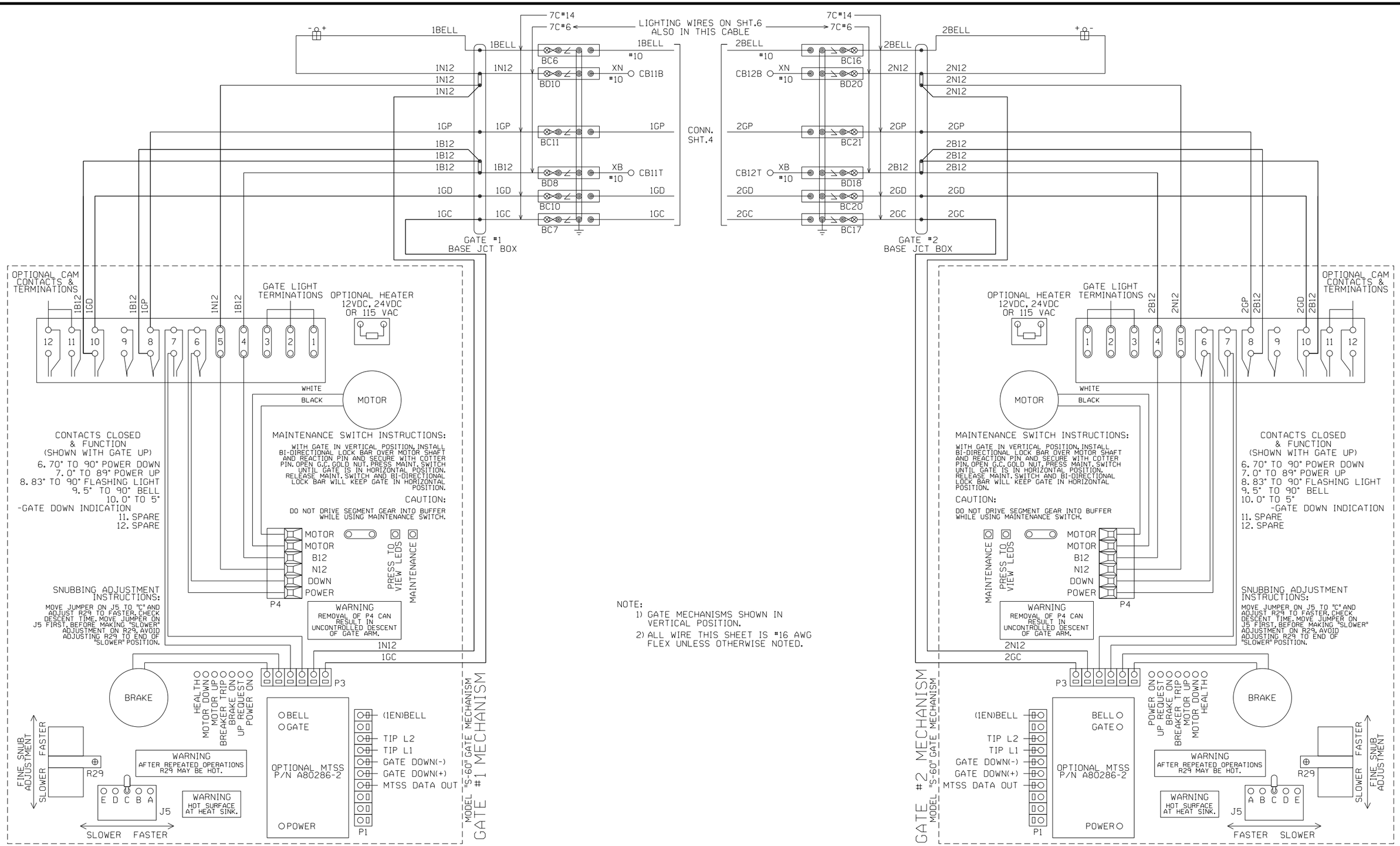
For Use and Agreement with:
Tulsa Port of Catoosa

LOCATION & DESCRIPTION:
Proposed S 4210 Road Grade Crossing Warning Devices
Inola, Rogers County, OK - Black Fox Power Sub MP 1.400

FES #: 40743

SHEET TITLE: FLASHER CIRCUIT PLAN

Color table:
Pen table: C:\ProgramData\PRS Settings\TranSystems_Utilities\Pen Tables\PowerDraft\Pentable.tbl
G:\01-Shortline Railroads\04-Design Projects\34P001735_2020-08-TranSystems-Port of Catoosa\cadd files\circuit plans\S.4210 Road\TPC974007M_06.dgn
$$model$$
2/12/2021



NOTE:

1) GATE MECHANISMS SHOWN IN VERTICAL POSITION.
2) ALL WIRE THIS SHEET IS #16 AWG FLEX UNLESS OTHERWISE NOTED.

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TULSA PORTS
BARGE · RAIL · INDUSTRIAL PARK
CATOOSA · INOLA

TranSystems

UNION PACIFIC

DRAWN BY:	PRS
CHECKED BY:	JMW
DATE:	2/12/2021
SHEET NUMBER	07 OF 12

UNION PACIFIC RAILROAD

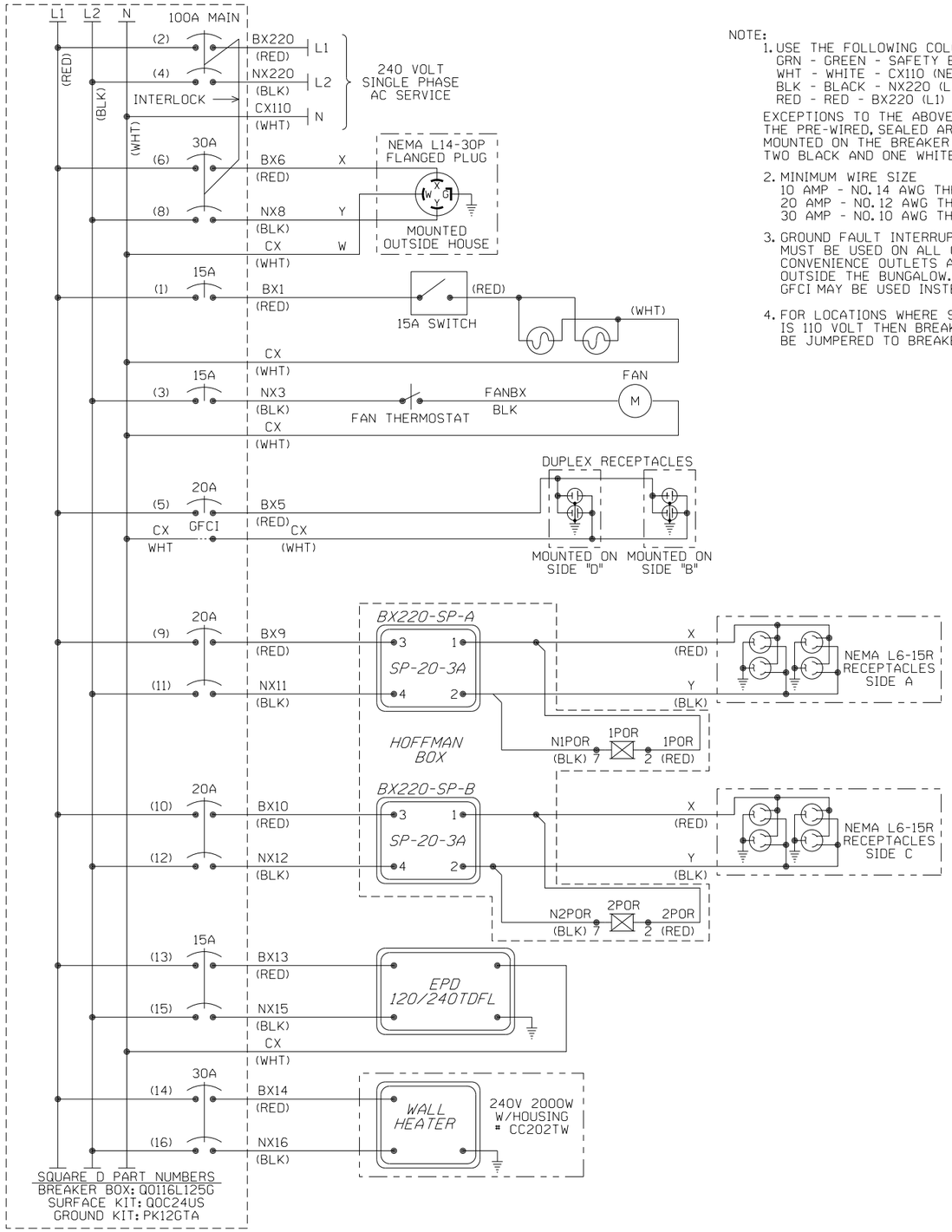
For Use and Agreement with:
Tulsa Port of Catoosa

LOCATION & DESCRIPTION:
Proposed S 4210 Road Grade Crossing Warning Devices
Inola, Rogers County, OK - Black Fox Power Sub MP 1.400

FES #: 40743

SHEET TITLE: GATES 1 & 2 CIRCUIT PLAN

Color table:
Pen table: C:\ProgramData\PRS Settings\TranSystems_Utilities\Pen Tables\PowerDraft\Pentable.tbl
G:\01-Shortline Railroads\04-Design Projects\34P001735_2020-08-TranSystems-Port of Catoosa\cadd files\circuit plans\S.4210 Road\TPC974007M_07.dgn
$$model$$
2/12/2021



NOTE:

1. USE THE FOLLOWING COLOR CODE:
   GRN - GREEN - SAFETY EQUIPMENT GROUND
   WHT - WHITE - CX110 (NEUTRAL)
   BLK - BLACK - NX220 (L2)
   RED - RED - BX220 (L1)

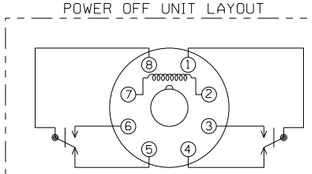
   EXCEPTIONS TO THE ABOVE COLOR CODE ARE THE PRE-WIRED, SEALED ARRESTOR UNITS MOUNTED ON THE BREAKER BOX WHICH HAVE TWO BLACK AND ONE WHITE WIRE EACH.

2. MINIMUM WIRE SIZE
   10 AMP - NO. 14 AWG THHN OR THWN SOLID
   20 AMP - NO. 12 AWG THHN OR THWN SOLID
   30 AMP - NO. 10 AWG THHN OR THWN SOLID

3. GROUND FAULT INTERRUPT (GFCI) MUST BE USED ON ALL CIRCUITS SERVING CONVENIENCE OUTLETS AND ANY EQUIPMENT OUTSIDE THE BUNGALOW. RECEPTACLE MOUNTED GFCI MAY BE USED INSTEAD OF BREAKER TYPE.

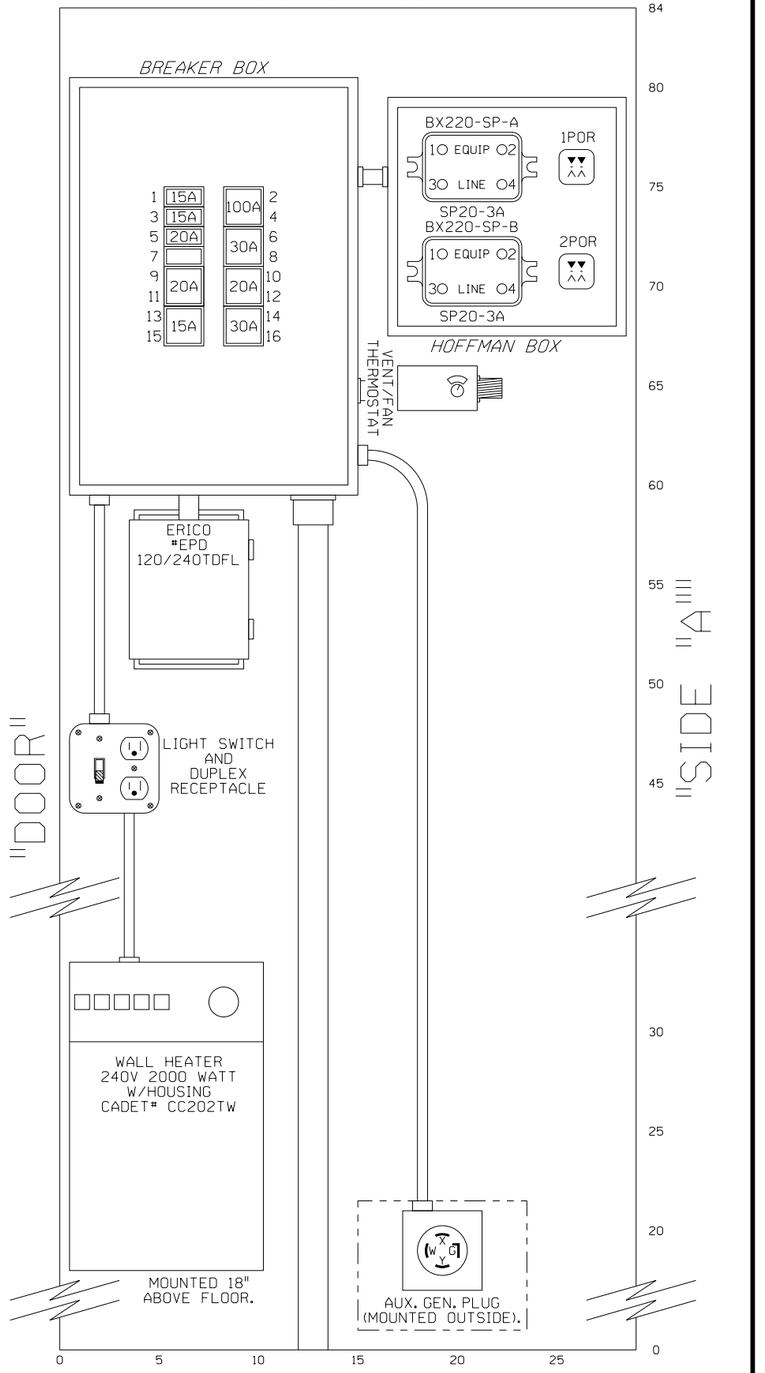
4. FOR LOCATIONS WHERE SERVICE PROVIDED IS 110 VOLT THEN BREAKER 2 SHOULD BE JUMPERED TO BREAKER 4.

POWER OFF UNIT LAYOUT



RELAY 1EGY4
TO BE USED FOR POR RELAYS.
OPERATING VOLTAGE = 240 VAC

CONTACT CONFIGURATION
DAYTON



REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TULSA PORTS
BARGE · RAIL · INDUSTRIAL PARK
CATOOSA · INOLA

TranSystems

UNION PACIFIC

DRAWN BY: PRS
CHECKED BY: JMW
DATE: 2/12/2021
SHEET NUMBER: 08 OF 12

UNION PACIFIC RAILROAD

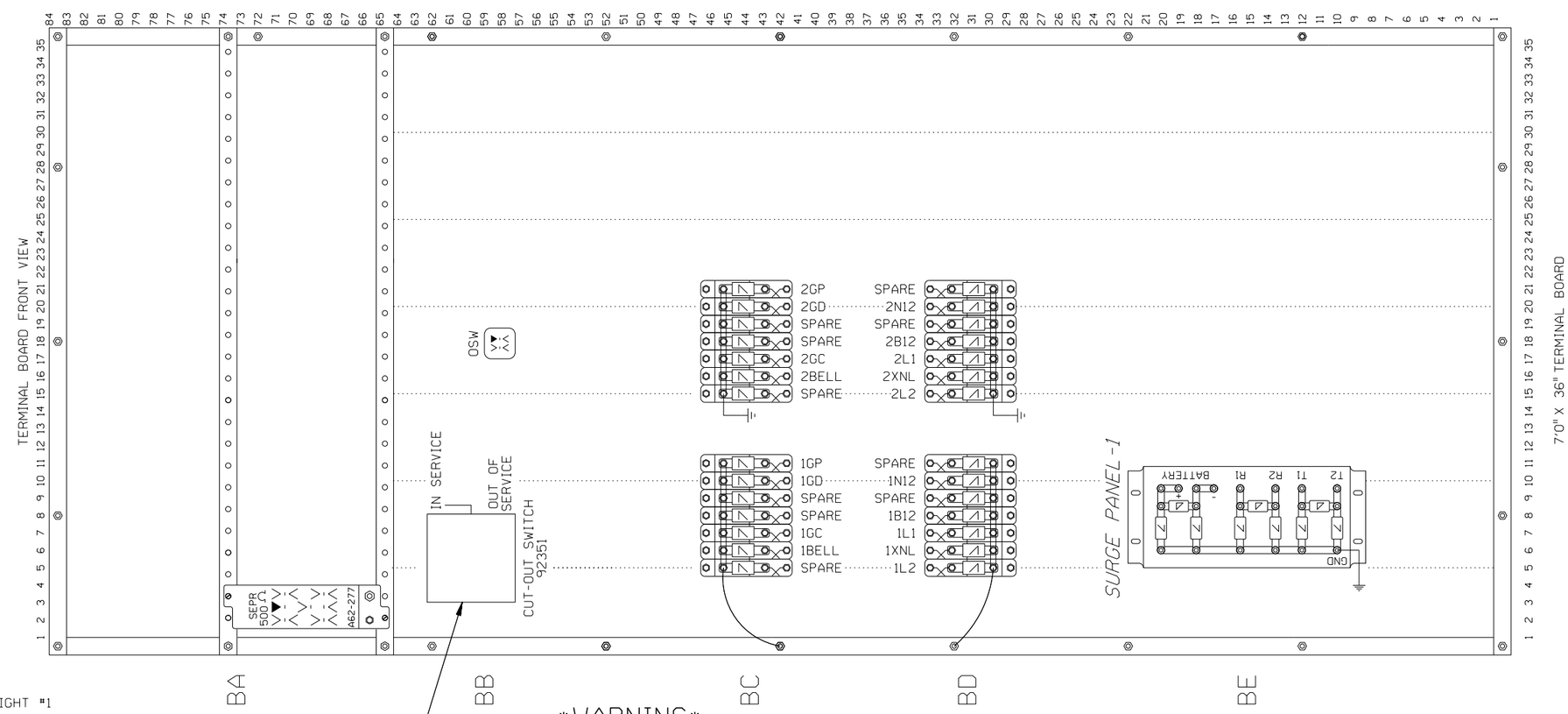
For Use and Agreement with:
Tulsa Port of Catoosa

LOCATION & DESCRIPTION:
Proposed S 4210 Road Grade Crossing Warning Devices
Inola, Rogers County, OK - Black Fox Power Sub MP 1.400

FES #: 40743

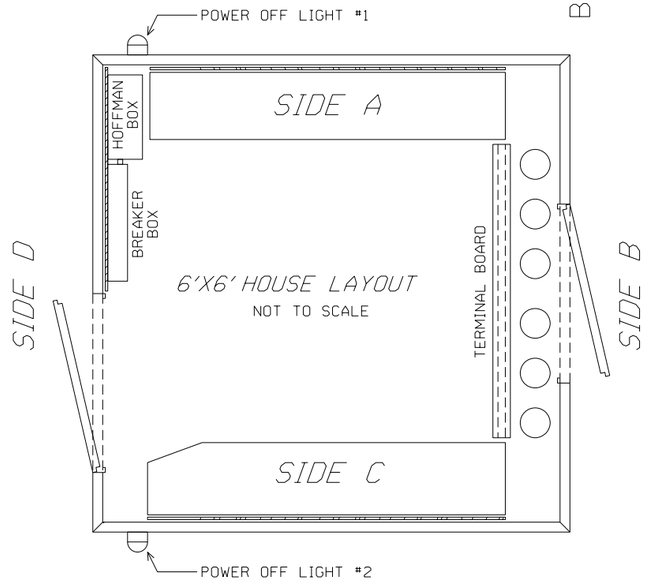
SHEET TITLE: POWER DISTRIBUTION

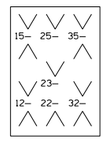
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G:\01-Shortline Railroads\04-Design Projects\34P001735.2020-08-TranSystems-Port of Catoosa\cadd files\circuit plans\S.4210 Road\TPC974007M_08.dgn
$$model$$
2/12/2021



WARNING

PLACING SWITCH IN THE OUT-OF-SERVICE POSITION COMPLETELY DISABLES THIS HIGHWAY CROSSING WARNING SYSTEM. PROPER AUTHORITIES MUST BE NOTIFIED PRIOR TO OUT-OF-SERVICE.



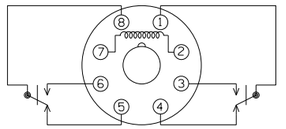


A62-277

RELAY CROSS REFERENCE

ALSTOM	SIEMENS
A62-277	400004

OUT OF SERVICE SWITCH RELAY LAYOUT



RELAY MKS2P DC12
TO BE USED FOR OSW RELAY.
OPERATING VOLTAGE = 12 VDC

CONTACT CONFIGURATION
OMRON MK-S SERIES

▼ = CONTACT USED

▽ = CONTACT NOT USED

SIDE "B"

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TULSA PORTS
BARGE · RAIL · INDUSTRIAL PARK
CATOOSA · INOLA

TranSystems

UNION PACIFIC

DRAWN BY: PRS
CHECKED BY: JMW
DATE: 2/12/2021
SHEET NUMBER: 09 OF 12

UNION PACIFIC RAILROAD

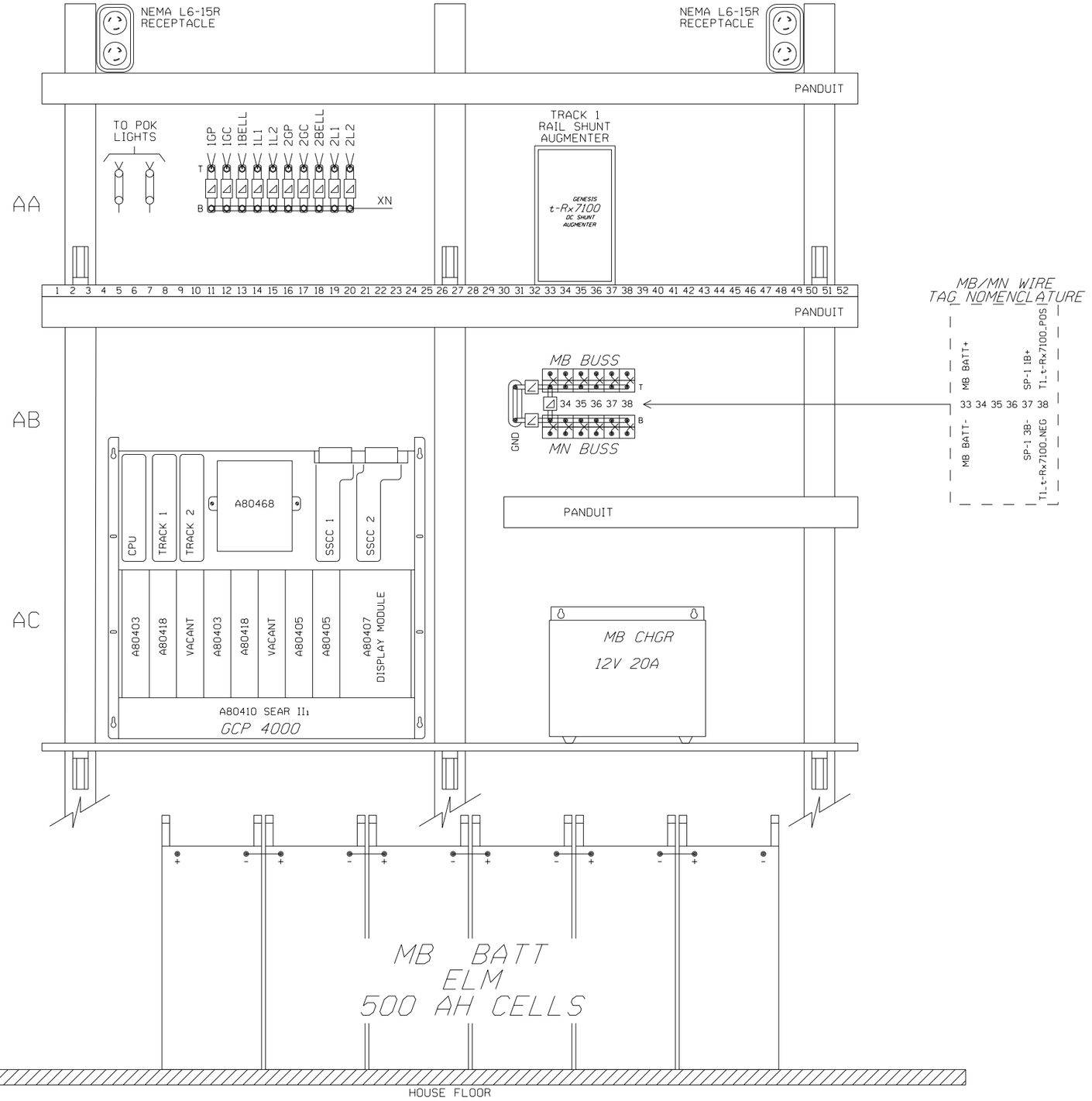
For Use and Agreement with:
Tulsa Port of Catoosa

LOCATION & DESCRIPTION:
Proposed S 4210 Road Grade Crossing Warning Devices
Inola, Rogers County, OK - Black Fox Power Sub MP 1.400

FES #: 40743

SHEET TITLE: TERMINAL BOARD LAYOUT

Color table:
Pen table: C:\ProgramData\PRS Settings\TranSystems_Utilities\Pen Tables\Power-Draft\Pentable.tbl
G:\01-Shortline Railroads\04-Design Projects\34P001735.2020-08-TranSystems-Port of Catoosa\cadd files\
$$model$$
2/12/2021



REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TULSA PORTS
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CATOOSA-INOLA

TranSystems

UNION PACIFIC

DRAWN BY: PRS
CHECKED BY: JMW
DATE: 2/12/2021
SHEET NUMBER: 10 OF 12

UNION PACIFIC RAILROAD

For Use and Agreement with:
Tulsa Port of Catoosa

LOCATION & DESCRIPTION:
Proposed S 4210 Road Grade Crossing Warning Devices
Inola, Rogers County, OK - Black Fox Power Sub MP 1.400

FES #: 40743

SHEET TITLE: SIDE "A" LAYOUT

Color table:
Pen table: C:\ProgramData\PRS Settings\TranSystems_Utilities\Pen Tables\PowerDraft\Pentable.tbl
G:\01-Shortline Railroads\04-Design Projects\34P001735_2020-08-TranSystems-Port of Catoosa\cadd files\circuit plans\S_4210 Road\TPC974007M_10.dgn
$$model$$
2/12/2021

NEMA L6-15R RECEPTACLE

NEMA L6-15R RECEPTACLE

PANDUIT

CA

MAINTAINER TEST

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

PANDUIT

XB/XN WIRE TAG NOMENCLATURE

XB BATT-	BD6	BD16	BD10	BD20	1-SSCCIII$_1$ (-)	1-SSCCIII$_1$ (-)	2-SSCCIII$_1$ (-)	2-SSCCIII$_1$ (-)	CUT-OUT3 (-)	OSW_2 (-)	IN 8.5 (-)	IN 7.5 (-)		SP 2.1 (-)	IN 1.1 (-)									
8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24								
XB BATT+	CA45		BD8	BD18	1-SSCCIII$_1$ (+)	1-SSCCIII$_1$ (+)	2-SSCCIII$_1$ (+)	2-SSCCIII$_1$ (+)	CUT-OUT3 (+)	2POR_8	2POR_1					SEPR_25								

XB BUSS

9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

T

B

GND

XN BUSS

CB

PANDUIT

XB CHGR
12V 40A

CC

XB BATT
ELM
710 AH CELLS

HOUSE FLOOR

SIDE "C"

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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UNION PACIFIC

DRAWN BY: PRS
CHECKED BY: JMW
DATE: 2/12/2021
SHEET NUMBER: 11 OF 12

UNION PACIFIC RAILROAD

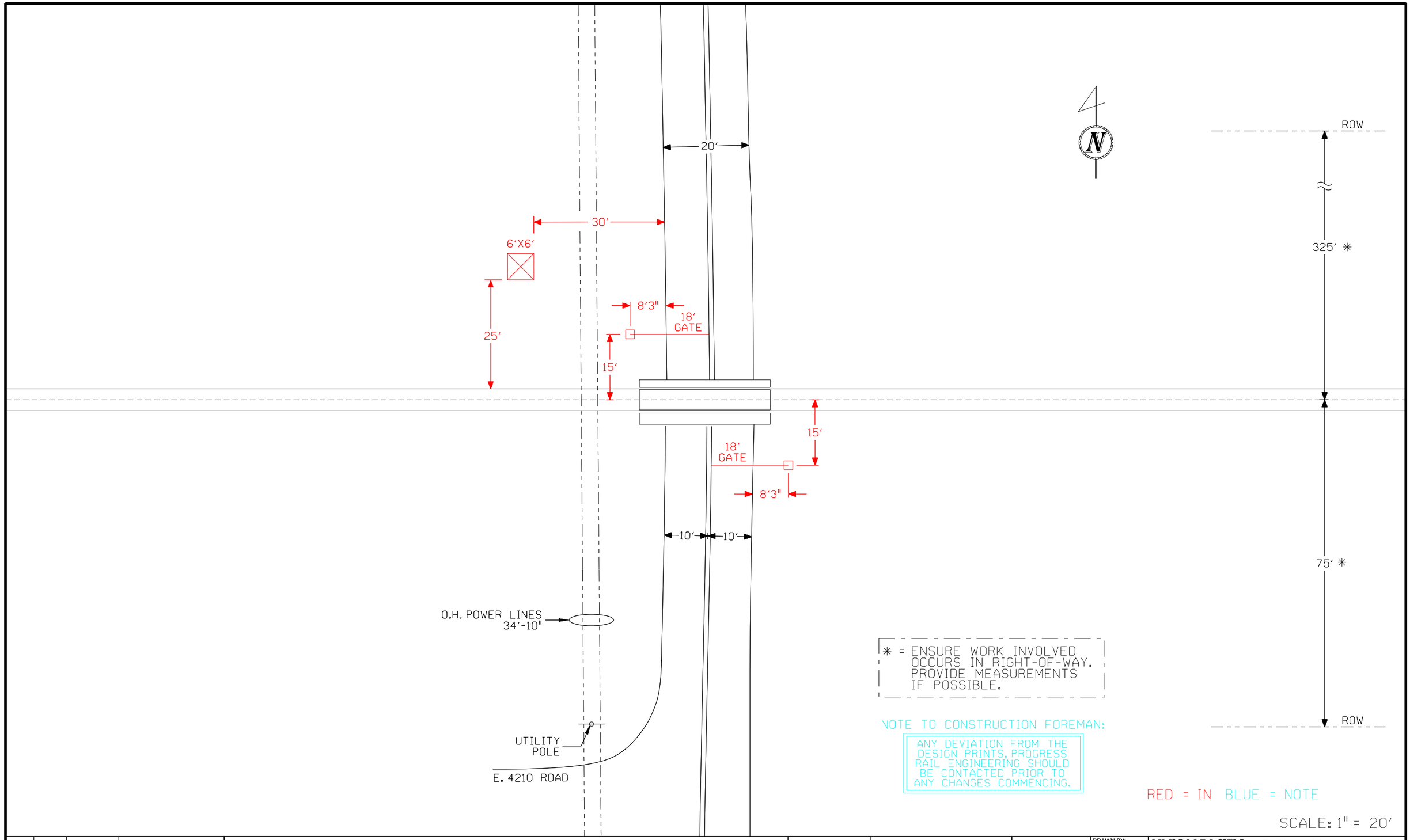
For Use and Agreement with:
Tulsa Port of Catoosa

LOCATION & DESCRIPTION:
Proposed S 4210 Road Grade Crossing Warning Devices
Inola, Rogers County, OK - Black Fox Power Sub MP 1.400

FES #: 40743

SHEET TITLE: SIDE "C" LAYOUT

Color table:
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$$model$$
2/12/2021



REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TULSA PORTS
BARGE · RAIL · INDUSTRIAL PARK
CATOOSA · INOLA

TranSystems

UNION PACIFIC

DRAWN BY: PRS
CHECKED BY: JMW
DATE: 2/12/2021
SHEET NUMBER: 12 OF 12

UNION PACIFIC RAILROAD

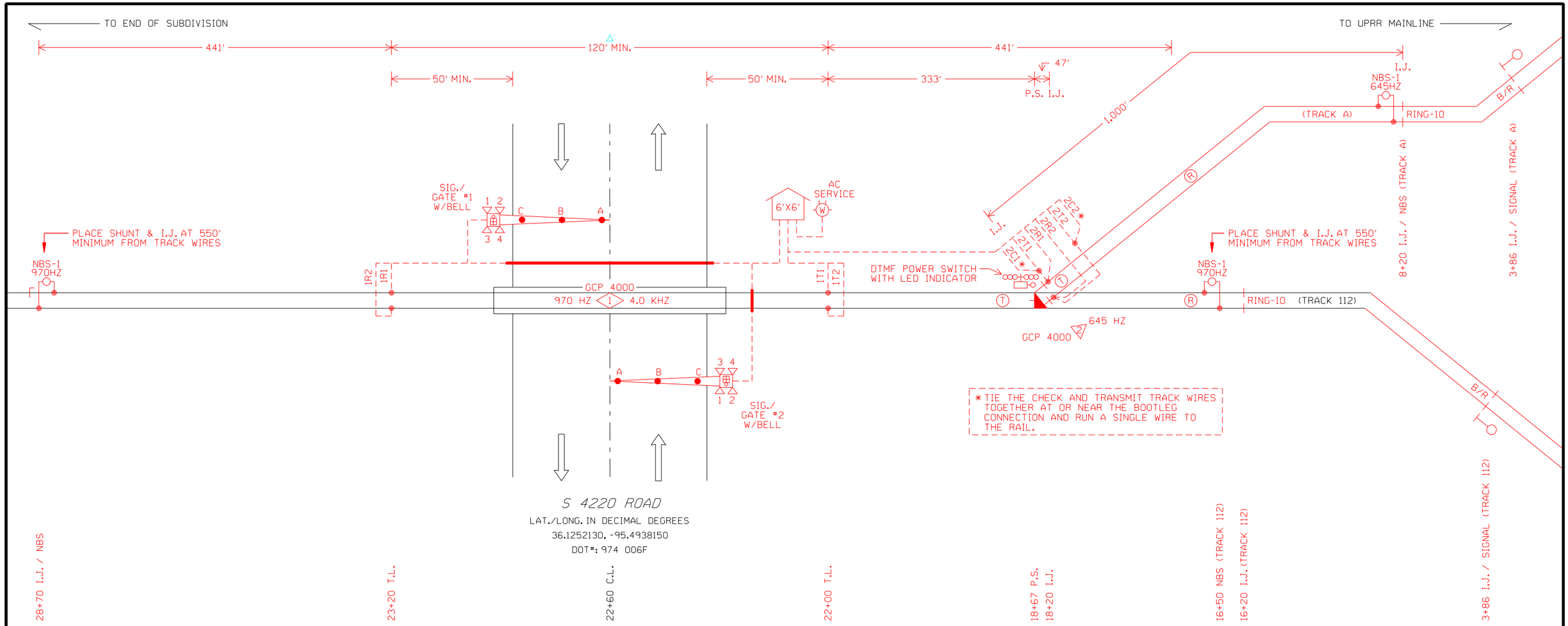
For Use and Agreement with: Tulsa Port of Catoosa

LOCATION & DESCRIPTION:
Proposed S 4210 Road Grade Crossing Warning Devices
Inola, Rogers County, OK - Black Fox Power Sub MP 1.400

FES #: 40743

SHEET TITLE: FOUNDATION LAYOUT

Color table:
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$$model$$
2/12/2021



APPROACH DISTANCE CALCULATION

	TRACK 1	TRACK 2
MINIMUM CROSSING WARNING TIME	20 SEC	20 SEC
TIME FOR CROSSING CLEARANCE DISTANCE >35'	+ 0 SEC	+ 0 SEC
TRAFFIC PRE-EMPTION TIME	+ 0 SEC	+ 0 SEC
TOTAL CALCULATED DESIGN WARNING TIME	20 SEC	20 SEC
EQUIPMENT RESPONSE TIME	+ 5 SEC	+ 5 SEC
BUFFER TIME	+ 5 SEC	+ 5 SEC
TOTAL WARNING TIME FOR APPROACH DISTANCE CALCULATION	30 SEC	30 SEC
CALCULATED AT MAXIMUM TRAIN SPEED	X 10 MPH	X 10 MPH
RATIO OF FEET PER SECOND TO MILES PER HOUR	X 1.467	X 1.467
APPROACH LENGTH (ROUNDED UP TO THE NEXT FOOT)	441 FEET	441 FEET

CABLE TABULATION

HOUSE TO SIGNAL/GATE #1 - 7C#6 AWG
- 7C#14 AWG
HOUSE TO SIGNAL/GATE #2 - 7C#6 AWG
- 7C#14 AWG
HOUSE TO 1T1 & 1T2 - 2C#6 TW. PAIR
HOUSE TO 1R1 & 1R2 - 2C#6 TW. PAIR
HOUSE TO 2T1 & 2T2 - 2C#6 TW. PAIR
HOUSE TO 2R1 & 2R2 - 2C#6 TW. PAIR
HOUSE TO 2C1 & 2C2 - 2C#6 TW. PAIR
HOUSE TO AC SERVICE - 3C#6 AWG

LEGEND

CONDUIT - MIN 36" DEEP
UNDERGROUND CABLE - MIN 36" DEEP

NOTES:

1. ALL DIMENSIONS ARE APPROXIMATE AND MAY VARY DUE TO ACTUAL FIELD CONDITIONS.
2. ALL FLASHING LIGHT SIGNALS AND GATE LIGHTS TO BE LIGHT EMITTING DIODE (LED) ASSEMBLIES.
3. SWITCH INSULATION PACKAGE NEEDED FOR CROSSING CIRCUITS.

Δ = FIELD VERIFY MEASUREMENT

NOTE TO CONSTRUCTION FOREMAN:

ANY DEVIATION FROM THE DESIGN PRINTS, PROGRESS RAIL ENGINEERING SHOULD BE CONTACTED PRIOR TO ANY CHANGES COMMENCING.

PROVIDE FOLLOWING UPON INSTALLATION:

CONSTRUCTION FOREMAN: _____

IN-SERVICE DATE: _____

RED = IN BLUE = NOTE

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TULSA PORTS BARGE · RAIL · INDUSTRIAL PARK CATOOSA · INOLA

TranSystems

UNION PACIFIC

DRAWN BY:	PRS
CHECKED BY:	JMW
DATE:	6/3/2021
SHEET NUMBER	01 OF 13

UNION PACIFIC RAILROAD

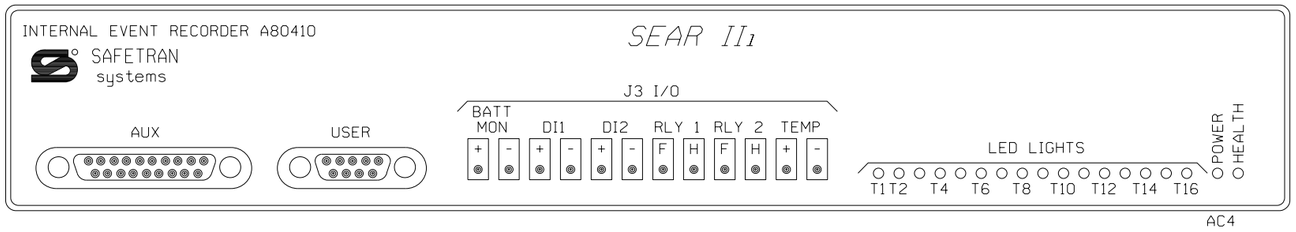
For Use and Agreement with: Tulsa Port of Catoosa

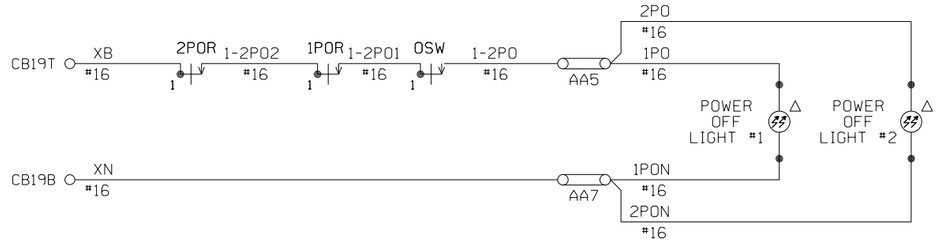
LOCATION & DESCRIPTION: Proposed S 4220 Road Grade Crossing Warning Devices Inola, Rogers County, OK - Black Fox Power Sub MP 0.423

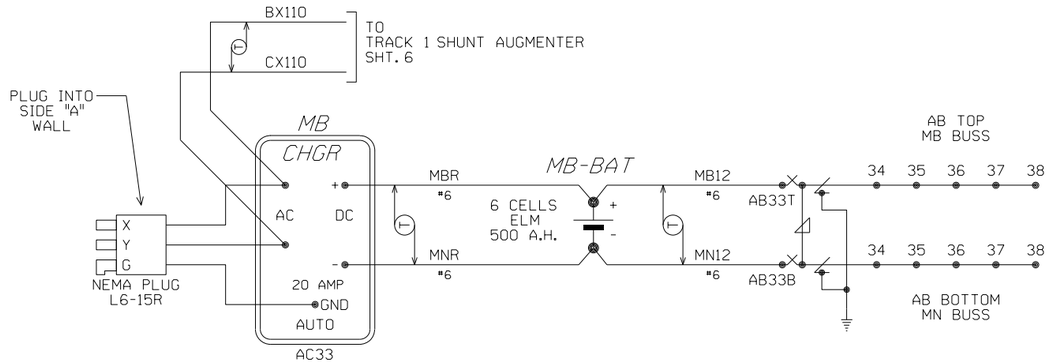
FES #: 40743

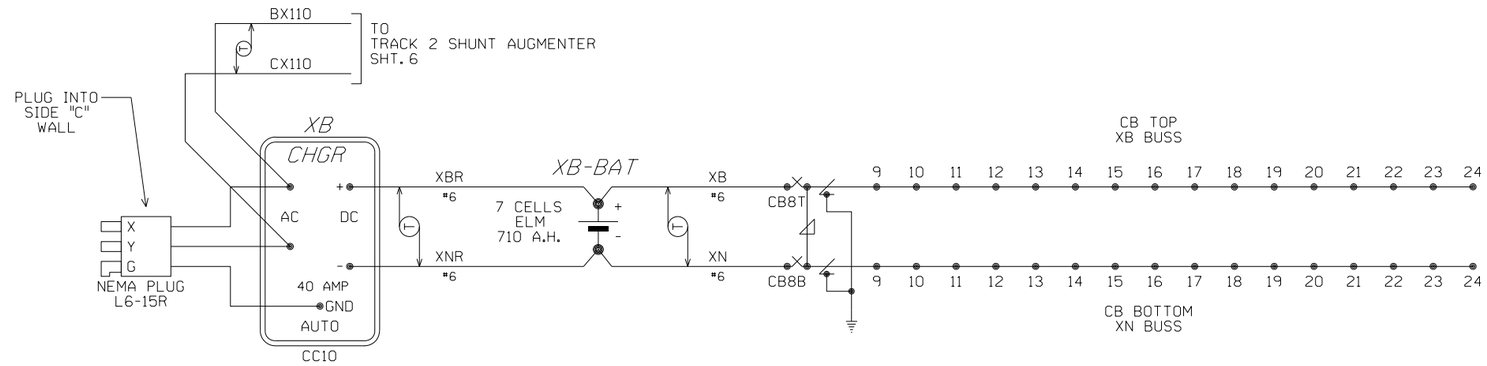
SHEET TITLE: LAYOUT PLAN

Color table:
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$$model$$
6/3/2021









NOTES:

1. ALL WIRE THIS SHEET NO. 10 A.W.G. FLEX UNLESS OTHERWISE NOTED.
2. Δ = LED LIGHT 8 TO 16 VDC (P/N: LC2-002-WR-LA)
3. ⟲T⟳ = TWISTED WIRE 2 TURNS PER FOOT.

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TULSA PORTS
BARGE · RAIL · INDUSTRIAL PARK
CATOOSA · INOLA

TranSystems

UNION PACIFIC

DRAWN BY: PRS
CHECKED BY: JMW
DATE: 2/19/2021
SHEET NUMBER: 02 OF 13

UNION PACIFIC RAILROAD

For Use and Agreement with:
Tulsa Port of Catoosa

LOCATION & DESCRIPTION:
Proposed S 4220 Road Grade Crossing Warning Devices
Inola, Rogers County, OK - Black Fox Power Sub MP 0.423

FES #: 40743

SHEET TITLE: BATTERY CIRCUITS

Color table:
Pen table:C:\ProgramData\PRS Settings\TranSystems_Utilities\Pen Tables\PowerDraft\Pentable.tbl
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$$model$$
2/19/2021

STANDARD INVENSYS RAIL GCP FREQUENCY (Hz)	MAXIMUM TRANSMIT LEAD LENGTH IN FEET
86	100 FEET
114	125 FEET
156	150 FEET
211	200 FEET
285-970	250 FEET

NOTE:
THE TRANSMITTER LEADS ARE TO BE CONNECTED ON THE SIDE OF THE CROSSING NEAREST THE INSTRUMENT BUNGALOW. THE TRANSMITTER LEADS MUST BE AS SHORT AS POSSIBLE AND NOT EXCEED THE LENGTHS SPECIFIED IN THE TABLE SHOWN.

TO TRACK #6 TW. PR.

SURGE PANEL-3
SIEMENS 80026-22
2C2 2C1
GND
2 C2 1 C1
BE27

SURGE PANEL-2
SIEMENS 80026-01
2T2 2T1 2R2 2R1
GND BATTERY
8 T2 7 T1 6 R2 5 R1 4 3 - 2 1 +
BE15

SURGE PANEL-1
SIEMENS 80026-01
1T2 1T1 1R2 1R1
GND BATTERY
8 T2 7 T1 6 R2 5 R1 4 3 - 2 1 +
BE3

FROM TRACK 2 SHUNT AUGMENTOR SHT. 6

FROM TRACK 1 SHUNT AUGMENTOR SHT. 6

#14 wires: 2C2, 2C1, 2T2, 2T1, 2R2, 2R1, 1C2, 1T2, 1T1, 1C1, 1R2, 1R1

MB #6 ○ AB36T
MN #6 ○ AB36B

CB24T ○ XB #16 — 25 — 1SEPR AND 1XR ENA1 #16 — 25 — 2SEPR AND 1XR ENA #16

1-2POK #16 — 8 — 1POR #16 — 8 — 1-2POK #16 — 2POR #16 — XB #16 ○ CB18T

GCP 4000

CPU
LONTALK PROTOCOL
DIAG PORT
MB
MB
MN
MN
B
N
MAINT. CALL
FLASH SYNC.
80403

TRACK 1
CB24B ○ XN #16
OUT 1.1
OUT 1.2
IN 1.1
IN 1.2
RCV1
RCV2
CHK1
CHK2
XMT1
XMT2
80418

TRACK 2
CB23B ○ XN #16
OUT 2.1
OUT 2.2
IN 2.1
IN 2.2
SP 2.1 (POK)
RCV1
RCV2
CHK1
CHK2
XMT1
XMT2
80418

AC4

1R1 1R2 1C1-1 1C2-1 1T1 1T2

2R1 2R2 2C1-1 2C2-1 2T1 2T2

TO TRACK 1 SHUNT AUGMENTOR SHT. 6

TO TRACK 2 SHUNT AUGMENTOR SHT. 6

NOTES:
1. ALL WIRE THIS SHEET NO. 10 A.W.G. FLEX UNLESS OTHERWISE NOTED.
2. (T) DENOTES TWISTED WIRE PAIR.

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TULSA PORTS BARGE · RAIL · INDUSTRIAL PARK CATOOSA-INOLA

TranSystems

UNION PACIFIC

DRAWN BY: PRS
CHECKED BY: JMW
DATE: 2/19/2021
SHEET NUMBER: 03 OF 13

UNION PACIFIC RAILROAD

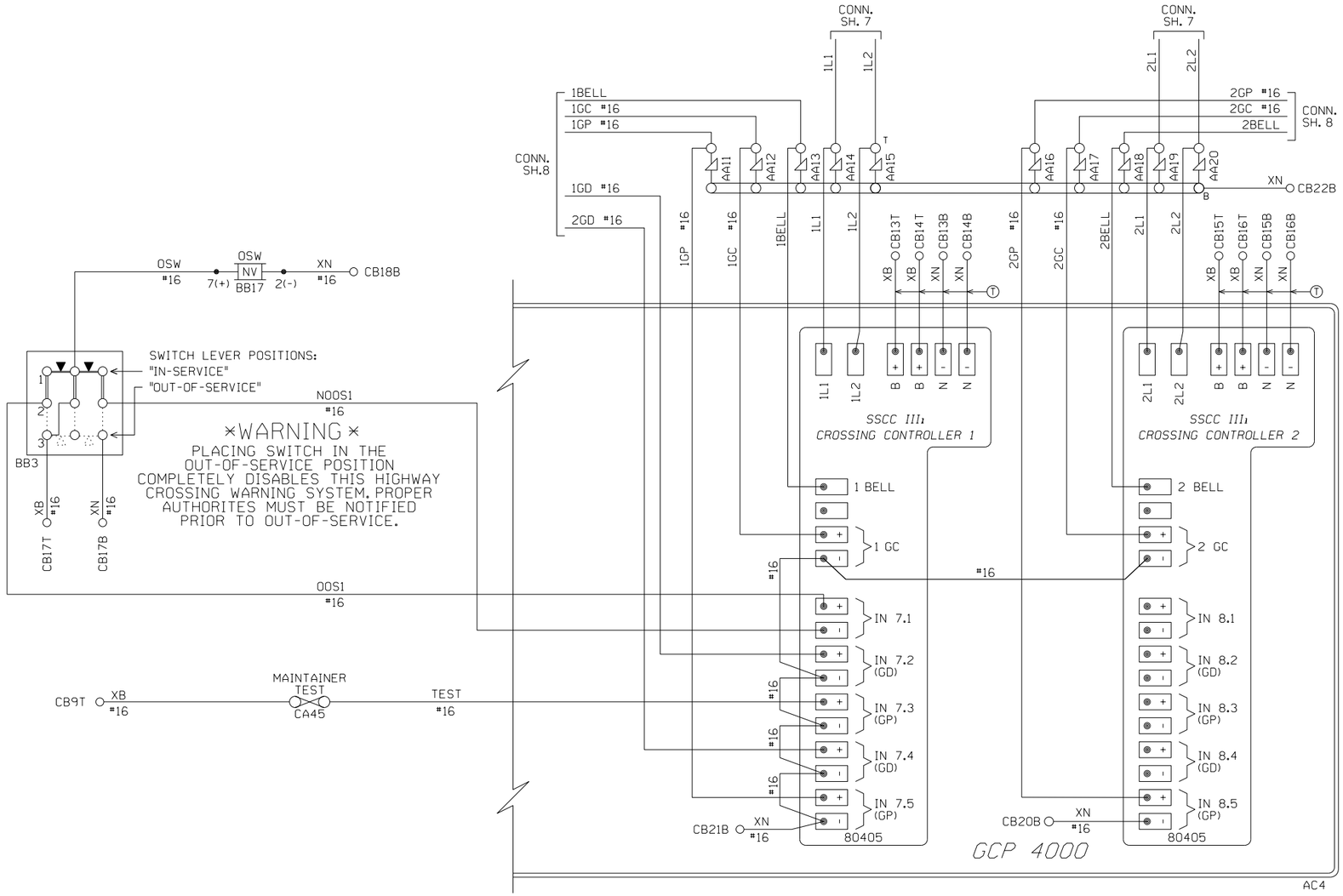
For Use and Agreement with: Tulsa Port of Catoosa

LOCATION & DESCRIPTION:
Proposed S 4220 Road Grade Crossing Warning Devices
Inola, Rogers County, OK - Black Fox Power Sub MP 0.423

FES #: 40743

SHEET TITLE: GCP 4000 CIRCUIT PLAN

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$$model$$
2/19/2021



NOTES:

1. ALL WIRE THIS SHEET NO. 10 A.W.G. FLEX UNLESS OTHERWISE NOTED.
2. (T) DENOTES TWISTED WIRE PAIR.

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
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TULSA PORTS BARGE · RAIL · INDUSTRIAL PARK CATOOSA · INOLA

TranSystems

UNION PACIFIC

DRAWN BY: PRS
CHECKED BY: JMW
DATE: 2/19/2021
SHEET NUMBER: 04 OF 13

UNION PACIFIC RAILROAD

For Use and Agreement with: Tulsa Port of Catoosa

LOCATION & DESCRIPTION: Proposed S 4220 Road Grade Crossing Warning Devices Inola, Rogers County, OK - Black Fox Power Sub MP 0.423

FES #: 40743

SHEET TITLE: GCP 4000 CIRCUIT PLAN

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$$model$$
2/19/2021

Program Report

Location and SIN

DOT Number: 974006F
Milepost Number: 0.423
Site Name: S 4220 ROAD

SIN: 762010010016

MCF and Template Selection

MCF Name: GCP-T6X-02-1.mcf
MCF Revision: 021
MCFCRC: 6076E435

Template = 2A:4 B1, 2 Rem

Check Numbers

Office Check No. (DT 4.6.0): 4F11FD01
Office Check Number: 4F11FD01
Config. Check Number: 09B9BAEF
(Based on MCF Revision 021)

Program

BASIC: module configuration
Track 1 Slot = Track
Track 2/RIO 1 Slot = Track
Track 3 Slot = Not Used
Track 4 Slot = Not Used
Track 5/RIO 2 Slot = Not Used
Track 6/RIO 3 Slot = Not Used
SSCC-1 Slot = SSCC31
SSCC-2 Slot = SSCC31
SEAR Used = Yes

BASIC: MS/GCP operation
Track 1 : MS/GCP Operation = Yes
Track 2 : MS/GCP Operation = Yes

BASIC: island operation
Track 1 : Island Used = Internal
Track 2 : Island Used = No

BASIC: preemption
Preempt Logic = No

BASIC: radio Dax links
Radio DAX link A Used = No
Radio DAX link B Used = No

BASIC: Vital Comms links
Vital Comms link 1 Used = No
Vital Comms link 2 Used = No

PREDICTORS: track 1
Track 1 : Prime Used = Yes
Track 1 : Dax A Used = No
Track 1 : Dax B Used = No
Track 1 : Dax C Used = No
Track 1 : Dax D Used = No
Track 1 : Dax E Used = No
Track 1 : Dax F Used = No
Track 1 : Dax G Used = No

PREDICTORS: track 2
Track 2 : Prime Used = Yes
Track 2 : Dax A Used = No
Track 2 : Dax B Used = No
Track 2 : Dax C Used = No
Track 2 : Dax D Used = No
Track 2 : Dax E Used = No
Track 2 : Dax F Used = No
Track 2 : Dax G Used = No

GCP: track 1
Track 1 : GCP Freq Category = Standard
Track 1 : GCP Frequency = 970 Hz
Track 1 : Approach Distance = 550 ft
Track 1 : Uni/Bi/Sim-Bidirnl = Bidirnl
Track 1 : GCP Transmit Level = Medium
Track 1 : Island Connection = Isl 1
Track 1 : Island Distance = 120 ft
Track 1 : Computed Distance = 9999 ft
Track 1 : Linearization Steps = 100

GCP: track 1 enhanced det
Track 1 : Inbound PS Sensitivity = High
Track 1 : Speed Limiting Used = Yes
Track 1 : Outbound False Act Lvl = Normal
Track 1 : Outbound PS Timer = 20 sec
Track 1 : Trailing Switch Logic = On
Track 1 : Post Joint Detn Time = 15 sec
Track 1 : Adv Appr Predn = No
Track 1 : Cancel Pickup Delay = This Isl

GCP: track 1 prime
Track 1 : Prime Warning Time = 25 sec
Track 1 : Prime Offset Distance = 0 ft
Track 1 : Switch MS EZ Level = 10
Track 1 : Prime MS/GCP Mode = Pred
Track 1 : Prime Pickup Delay = 15 sec
Track 1 : Prime UAX = Not Used

GCP: track 1 pos start
Track 1 : Positive Start = Off
Track 1 : Sudden Shnt Det Used = No
Track 1 : Low EZ Detection Used = No

GCP: track 1 MS Control
Track 1 : MS/GCP Ctrl IP Used = No
Track 1 : MS Sensitivity Level = 0
Track 1 : Compensation Level = 1300
Track 1 : Warn Time-Ballast Comp = High
Track 1 : Low EX Adjustment = 39
Track 1 : Bidirn Dax Passthru = No
Track 1 : False Act on Train Stop = No
Track 1 : EX Limiting Used = Yes
Track 1 : EZ Correction Used = Yes

GCP: track 2
Track 2 : GCP Freq Category = Standard
Track 2 : GCP Frequency = 645 Hz
Track 2 : Approach Distance = 1000 ft
Track 2 : Uni/Bi/Sim-Bidirnl = Unidirnl
Track 2 : GCP Transmit Level = Medium
Track 2 : Island Connection = No Islands
Track 2 : Island Distance = 0 ft
Track 2 : Computed Distance = 9999 ft
Track 2 : Linearization Steps = 100

GCP: track 2 enhanced det
Track 2 : Inbound PS Sensitivity = High
Track 2 : Speed Limiting Used = Yes
Track 2 : Outbound False Act Lvl = Normal
Track 2 : Outbound PS Timer = 20 sec
Track 2 : Trailing Switch Logic = On
Track 2 : Post Joint Detn Time = 15 sec
Track 2 : Adv Appr Predn = No
Track 2 : Cancel Pickup Delay = This Isl

GCP: track 2 prime
Track 2 : Prime Warning Time = 25 sec
Track 2 : Prime Offset Distance = 373 ft
Track 2 : Switch MS EZ Level = 0
Track 2 : Pickup Delay Mode = Auto
Track 2 : Prime MS/GCP Mode = Pred
Track 2 : Prime Pickup Delay = 15 sec
Track 2 : Prime UAX = Not Used

GCP: track 2 pos start
Track 2 : Positive Start = Off
Track 2 : Sudden Shnt Det Used = No
Track 2 : Low EZ Detection Used = No

GCP: track 2 MS Control
Track 2 : MS/GCP Ctrl IP Used = No
Track 2 : MS Sensitivity Level = 0
Track 2 : Compensation Level = 1300
Track 2 : Warn Time-Ballast Comp = Low
Track 2 : Low EX Adjustment = 39
Track 2 : Bidirn Dax Passthru = No
Track 2 : False Act on Train Stop = No
Track 2 : EX Limiting Used = Yes
Track 2 : EZ Correction Used = Yes

ISLAND: track 1
Track 1 : Isl Frequency = 4.0 kHz
Track 1 : Pickup Delay (2s +) = 2 sec
Track 1 : Isl Enable IP Used = No

AND: track Anding
AND 1 XR Used = Yes
AND 2 Used = No
AND 3 Used = No
AND 4 Used = No
AND 5 Used = No
AND 6 Used = No
AND 7 Used = No
AND 8 Used = No

AND: AND 1 XR
AND 1 XR Track 1 = Prime
AND 1 XR Track 2 = Prime
AND 1 Enable Used = Yes
And 1 Enable Pickup = 5 sec
AND 1 Enable Drop = 0 sec
AND 1 Wrap Used = No

ADVANCED: MS restart
MS/GCP Restart Used = No

ADVANCED: out of service
OOS Control = OOS IPs

ADVANCED: out of service 2
T1 OOS Control = OOS Input 1
T2 OOS Control = OOS Input 1
T1 OOS Controls = GCP and Island
T2 OOS Controls = GCP Only

ADVANCED: track wrap circuits
Wrap LOS Timer = 5 sec
Track 1 Wrap Used = No
Track 2 Wrap Used = No

ADVANCED: trk 1 overrides
Track 1 : All Predictors Override Used = No

ADVANCED: trk 2 overrides
Track 2 : All Predictors Override Used = No

ADVANCED: OR logic
OR 1 Used = No
OR 2 Used = No
OR 3 Used = No
OR 4 Used = No

ADVANCED: internal I/O 1
Pass Thrus = No
Int.1 Sets = Not Used
Int.1 Set by = Not Used
Int.2 Sets = Not Used
Int.2 Set by = Not Used
Int.3 Sets = Not Used
Int.3 Set by = Not Used
Int.4 Sets = Not Used
Int.4 Set by = Not Used

ADVANCED: internal I/O 2
Int.5 Sets = Not Used
Int.5 Set by = Not Used
Int.6 Sets = Not Used
Int.6 Set by = Not Used
Int.7 Sets = Not Used
Int.7 Set by = Not Used
Int.8 Sets = Not Used
Int.8 Set by = Not Used

ADVANCED: internal I/O 3
Int.9 Sets = Not Used
Int.9 Set by = Not Used
Int.10 Sets = Not Used
Int.10 Set by = Not Used
Int.11 Sets = Not Used
Int.11 Set by = Not Used
Int.12 Sets = Not Used
Int.12 Set by = Not Used

ADVANCED: internal I/O 4
Int.13 Sets = Not Used
Int.13 Set by = Not Used
Int.14 Sets = Not Used
Int.14 Set by = Not Used
Int.15 Sets = Not Used
Int.15 Set by = Not Used
Int.16 Sets = Not Used
Int.16 Set by = Not Used

ADVANCED: site options
Daylight Savings = On
Units = Standard
Maint Call Rpt IP Used = No
Emergency Activate IP = No
EZ/EX Logging = Change
EZ/EX Point Change = 3

SSCC
Gates Used = Yes
SSCC1+2 GPs Coupled = Yes
Min Activation = 0 sec
Rmt Activation Cancel = 2 min
Bell On Gate Rising = Yes
Mute Bell On Gate Down = No
SSCCIV Controller Used = No

SSCC: 1
SSCC-1 Activation = AND 1 XR
SSCC-1 Gate Delay = 4 sec
SSCC-1 Number of GPs = 1
SSCC-1 Number of GDs = 2
SSCC 1 : Flash Rate = 50
SSCC 1 : Low Battery Detection = No
SSCC 1 : Flash Sync = master
SSCC 1 : Invert Gate Output = No
SSCC 1 : Lamp Neutral Test = Off
Aux-1 Xng Ctrl Used = No

SSCC: 2
SSCC-2 Activation = AND 1 XR
SSCC-2 Gate Delay = 4 sec
SSCC-2 Number of GPs = 1
SSCC-2 Number of GDs = 0
SSCC 2 : Flash Rate = 50
SSCC 2 : Low Battery Detection = No
SSCC 2 : Flash Sync = slave
SSCC 2 : Invert Gate Output = No
SSCC 2 : Lamp Neutral Test = Off
Aux-2 Xng Ctrl Used = No

OUTPUT: assignment page 1
OUT 1.1 = Not Used
OUT 1.2 = Not Used
OUT 2.1 = Not Used
OUT 2.2 = Not Used

INPUT: assignment page 1
IN 1.1 = AND 1 XR Enable
IN 1.2 = Not Used
IN 2.1 = Not Used
IN 2.2 = Not Used

IO: assignment SSCC
OUT GC 1 = Gate Output 1
OUT GC 2 = Gate Output 2
IN 7.1 = Out Of Service IP 1
IN 7.2 = GD 1.1
IN 7.3 = AND 1 XR Enable
IN 7.4 = GD 1.2
IN 7.5 = GP 1.1
IN 8.1 = Not Used
IN 8.2 = Not Used
IN 8.3 = Not Used
IN 8.4 = Not Used
IN 8.5 = GP 2.1

SEAR
SEAR Subnode = 99
DI 1 = Not Used
DI 2 = Not Used
Rly 1 = Not Used
Rly 2 = Not Used

SEAR: inputs
SP 2.1 = POK 1
SP 3.1 = Not Used
SP 4.1 = Not Used
SP 5.1 = Not Used
SP 6.1 = Not Used

SEAR: slot 1-4 inputs
IN 1.2 = Not Used
IN 2.1 = Not Used
IN 2.2 = Not Used
IN 3.1 = Not Used
IN 3.2 = Not Used
IN 4.1 = Not Used
IN 4.2 = Not Used

SEAR: inputs slot 5
IN 5.1 = Not Used
IN 5.2 = Not Used

SEAR: inputs slot 6
IN 6.1 = Not Used
IN 6.2 = Not Used

SEAR: slot 7-8 inputs
IN 8.1 = Not Used
IN 8.2 = Not Used
IN 8.3 = Not Used
IN 8.4 = Not Used

SITE: programming
Radio Subnode = 1
Field Password = Off
Low Battery Enabled = Off

Configuration Package File

Filename: TPC974006F.pac

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TULSA PORTS
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CATOOSA · INOLA

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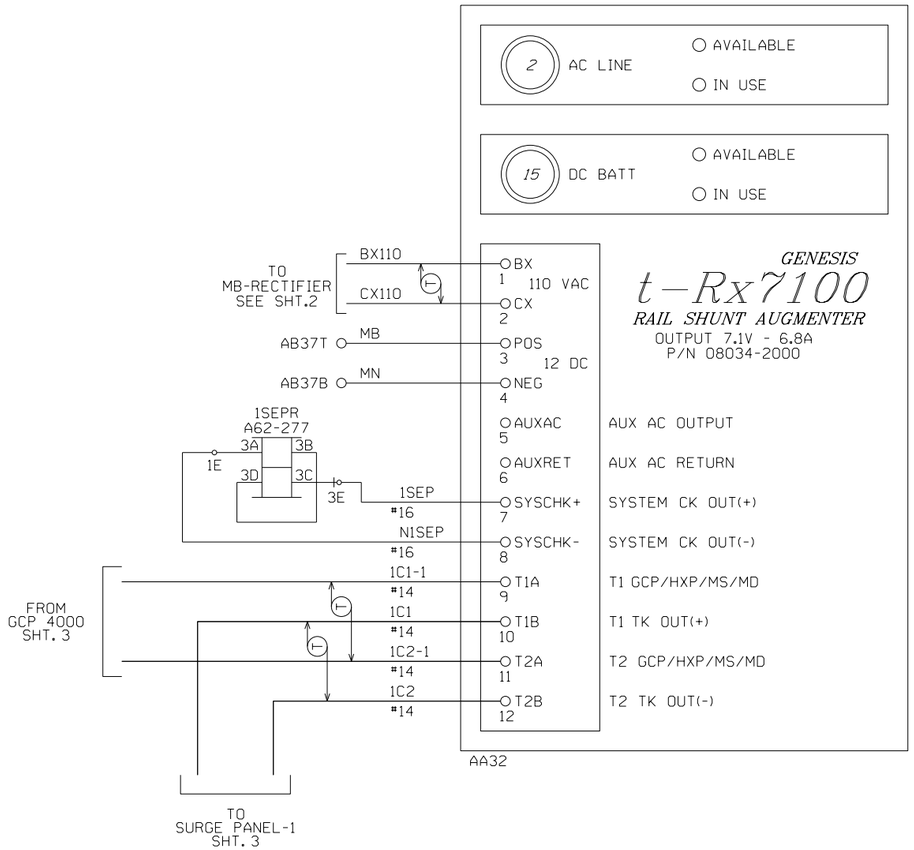
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SHEET NUMBER: 05 OF 13

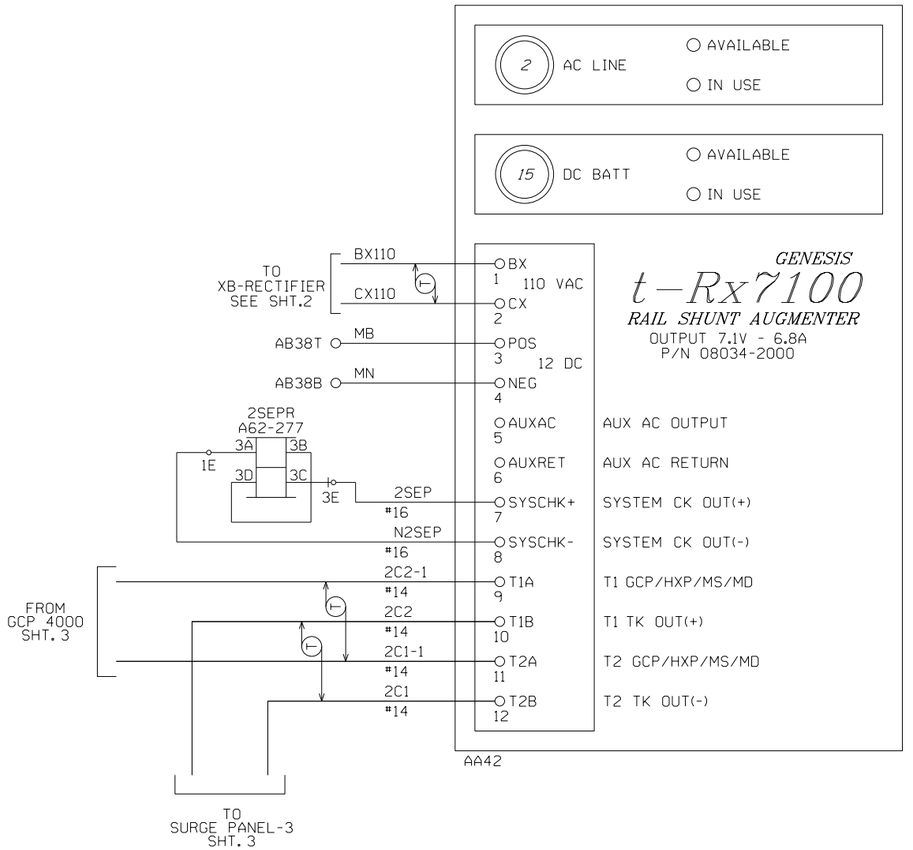
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For Use and Agreement with: Tulsa Port of Catoosa
LOCATION & DESCRIPTION:
Proposed S 4220 Road Grade Crossing Warning Devices
Inola, Rogers County, OK - Black Fox Power Sub MP 0.423
FES #: 40743
SHEET TITLE: GCP 4000 PROGRAMMING

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$$model$$
2/19/2021

TRACK 1
RAIL SHUNT AUGMENTER



TRACK 2
RAIL SHUNT AUGMENTER



NOTES:
1. ALL WIRING #10 UNLESS OTHERWISE NOTED.
2. ① = TWISTED WIRE 2 TURNS PER FOOT.

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
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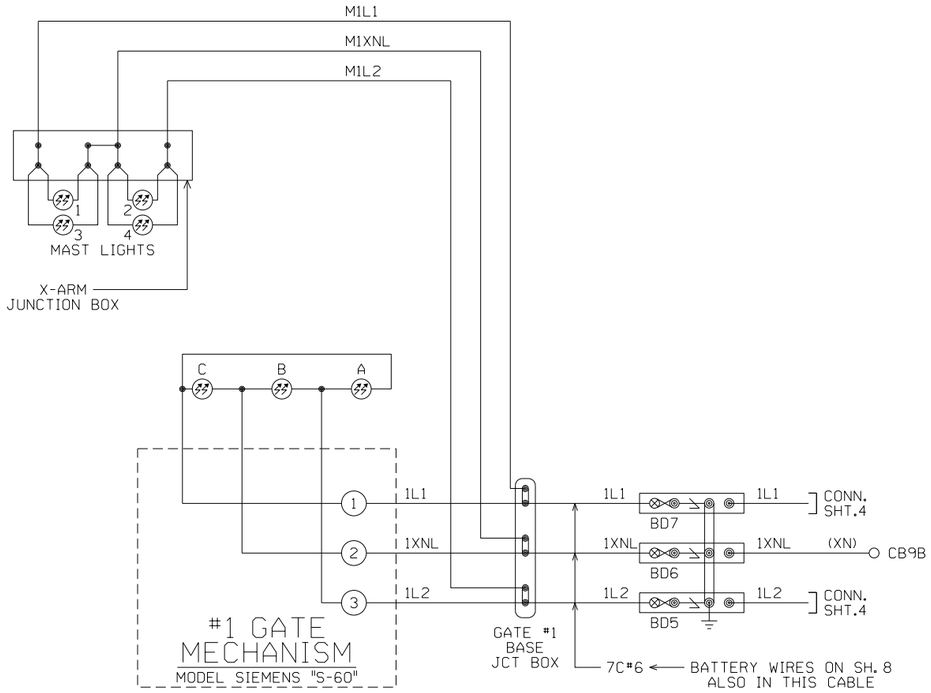
TranSystems

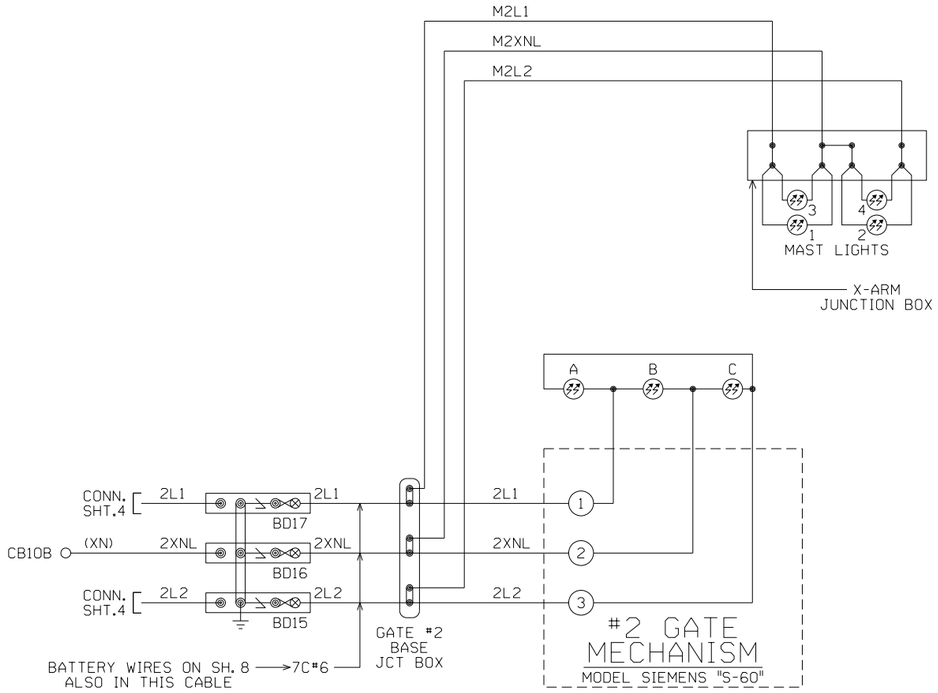
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DATE: 2/19/2021
SHEET NUMBER: 06 OF 13

UNION PACIFIC RAILROAD
For Use and Agreement with: Tulsa Port of Catoosa
LOCATION & DESCRIPTION:
Proposed S 4220 Road Grade Crossing Warning Devices
Inola, Rogers County, OK - Black Fox Power Sub MP 0.423
FES #: 40743
SHEET TITLE: SHUNT ENHANCER CIRCUITS

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$$model$$
2/19/2021





NOTES:

1. ALL WIRE THIS SHEET #10 A.W.G. FLEX UNLESS OTHERWISE NOTED.

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
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Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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DRAWN BY: PRS
CHECKED BY: JMW
DATE: 2/19/2021
SHEET NUMBER: 07 OF 13

UNION PACIFIC RAILROAD

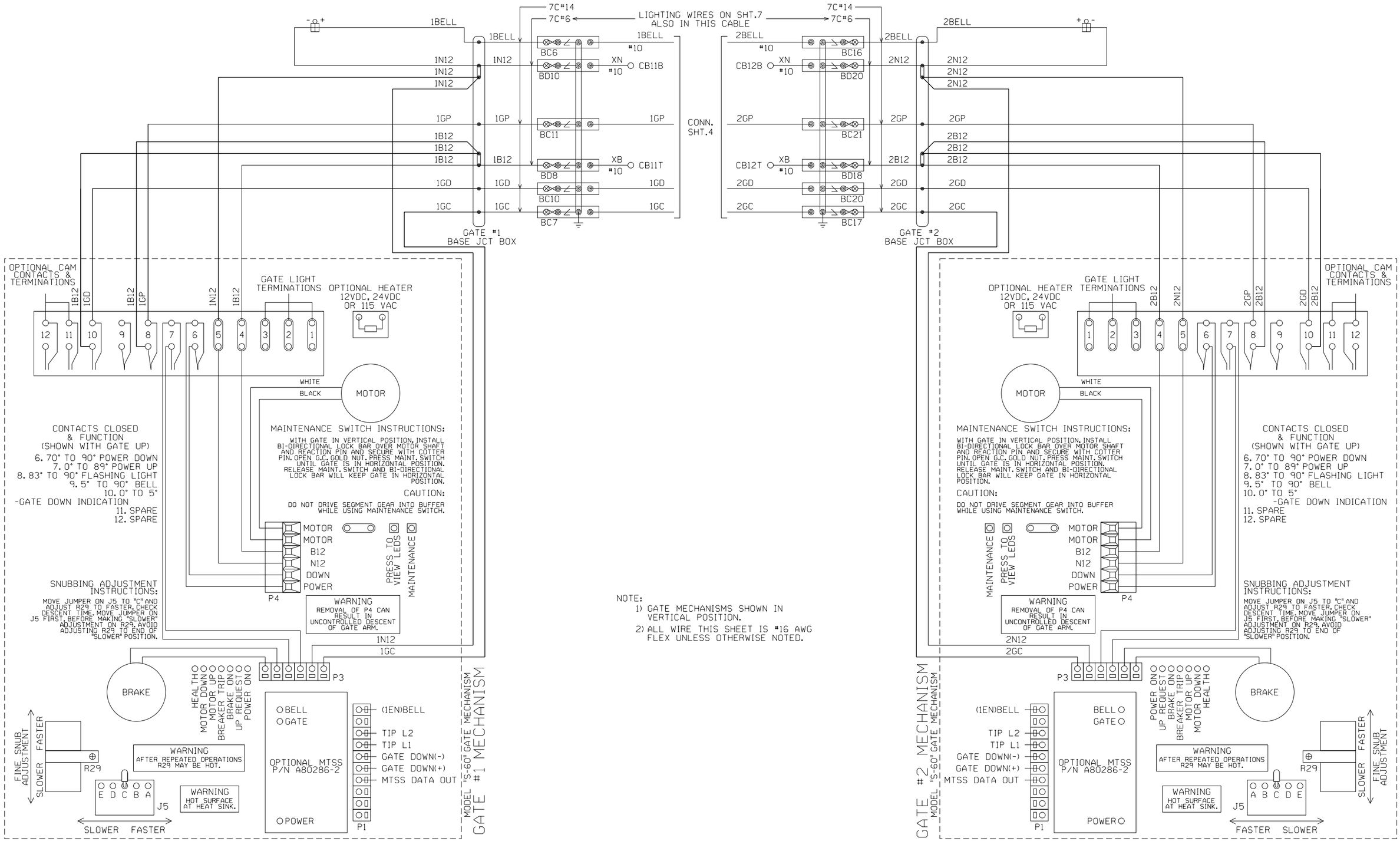
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LOCATION & DESCRIPTION:
Proposed S 4220 Road Grade Crossing Warning Devices
Inola, Rogers County, OK - Black Fox Power Sub MP 0.423

FES #: 40743

SHEET TITLE: FLASHER CIRCUIT PLAN

Color table:
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$$model$$
2/19/2021



NOTE:
1) GATE MECHANISMS SHOWN IN VERTICAL POSITION.
2) ALL WIRE THIS SHEET IS #16 AWG FLEX UNLESS OTHERWISE NOTED.

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
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Power Turnout
Power Derail
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Bridge
Signal

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UNION PACIFIC

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DATE:	2/19/2021
SHEET NUMBER	08 OF 13

UNION PACIFIC RAILROAD

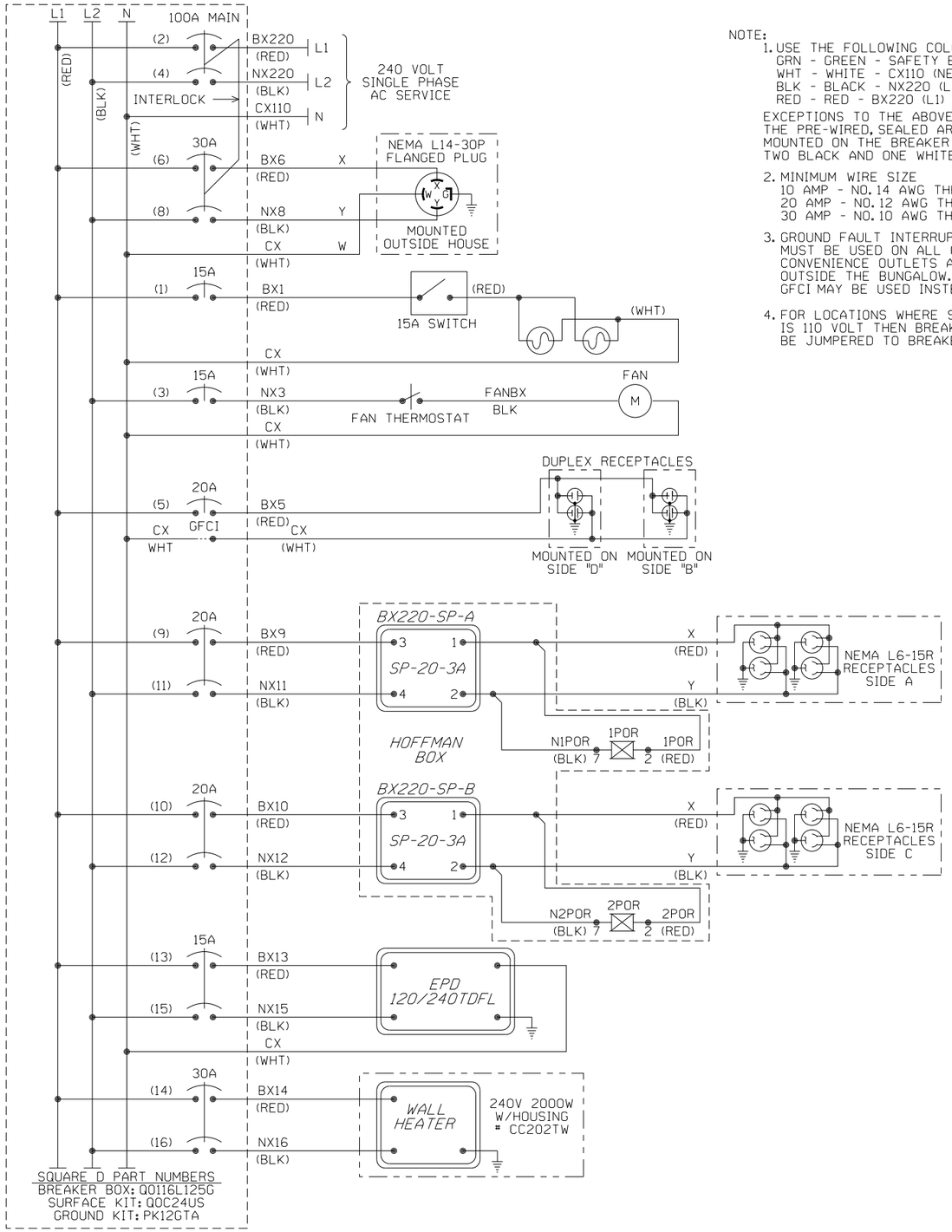
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LOCATION & DESCRIPTION:
Proposed S 4220 Road Grade Crossing Warning Devices
Inola, Rogers County, OK - Black Fox Power Sub MP 0.423

FES #: 40743

SHEET TITLE: GATES 1 & 2 CIRCUIT PLAN

Color table:
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$$model$$
2/19/2021



NOTE:

1. USE THE FOLLOWING COLOR CODE:
   GRN - GREEN - SAFETY EQUIPMENT GROUND
   WHT - WHITE - CX110 (NEUTRAL)
   BLK - BLACK - NX220 (L2)
   RED - RED - BX220 (L1)

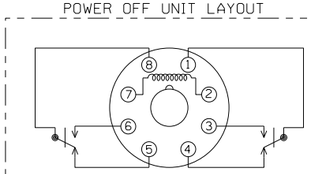
   EXCEPTIONS TO THE ABOVE COLOR CODE ARE THE PRE-WIRED, SEALED ARRESTOR UNITS MOUNTED ON THE BREAKER BOX WHICH HAVE TWO BLACK AND ONE WHITE WIRE EACH.

2. MINIMUM WIRE SIZE
   10 AMP - NO. 14 AWG THHN OR THWN SOLID
   20 AMP - NO. 12 AWG THHN OR THWN SOLID
   30 AMP - NO. 10 AWG THHN OR THWN SOLID

3. GROUND FAULT INTERRUPT (GFCI) MUST BE USED ON ALL CIRCUITS SERVING CONVENIENCE OUTLETS AND ANY EQUIPMENT OUTSIDE THE BUNGALOW. RECEPTACLE MOUNTED GFCI MAY BE USED INSTEAD OF BREAKER TYPE.

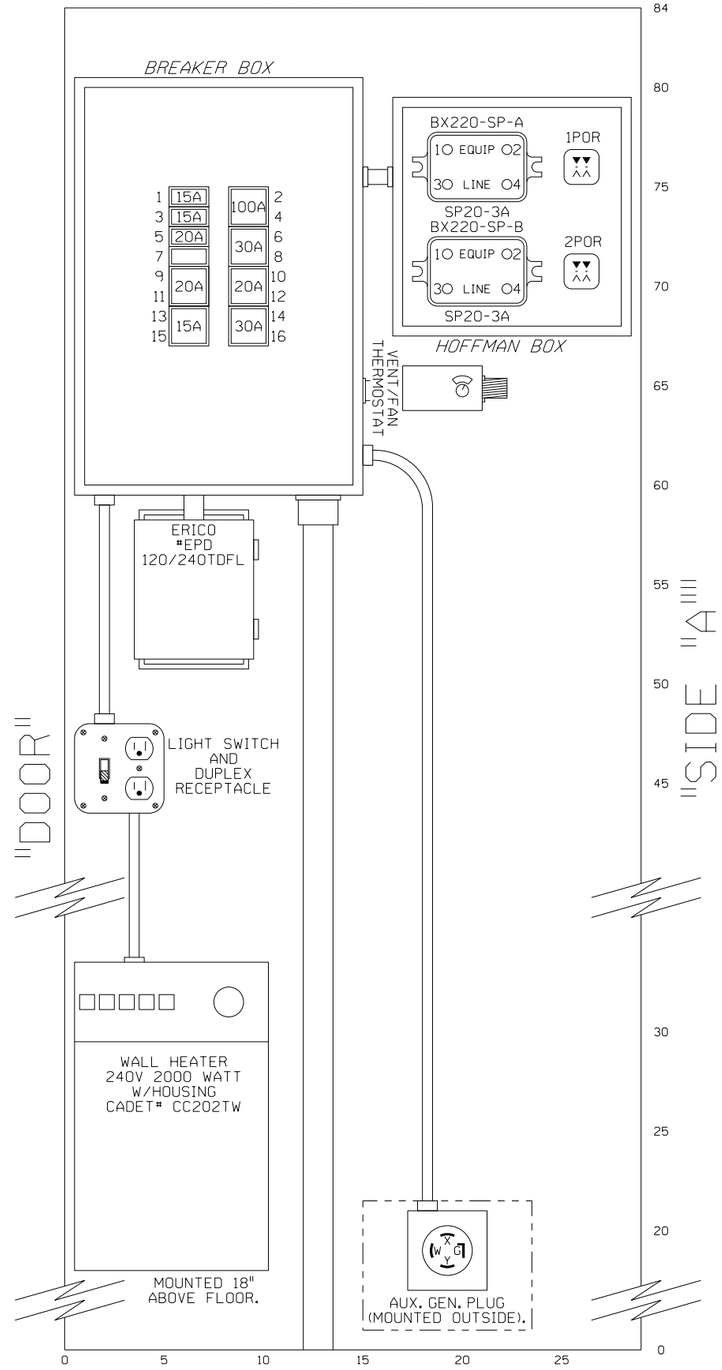
4. FOR LOCATIONS WHERE SERVICE PROVIDED IS 110 VOLT THEN BREAKER 2 SHOULD BE JUMPERED TO BREAKER 4.

POWER OFF UNIT LAYOUT



RELAY 1EGY4
TO BE USED FOR POR RELAYS.
OPERATING VOLTAGE = 240 VAC

CONTACT CONFIGURATION
DAYTON



REV. #	BY	DATE	DESCRIPTION

- Ex. UPRR Track
- Prop. UPRR Track
- Remove UPRR Track
- Shift UPRR Track
- Ex. Ind. Track
- Prop. Ind. Track
- Remove Ind. Track
- Shift Ind. Track
- Future Ind. Track
- Prop. Leased Ind. Trk
- Ex. Leased Ind. Trk
- No RR Operations
- Right of Way
- Acquire Property
- Hand Throw Turnout
- Power Turnout
- Power Derail
- Hand Throw Derail
- Point of Curve
- Bridge
- Signal

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UNION PACIFIC

DRAWN BY:	PRS
CHECKED BY:	JMW
DATE:	2/19/2021
SHEET NUMBER	09 OF 13

UNION PACIFIC RAILROAD

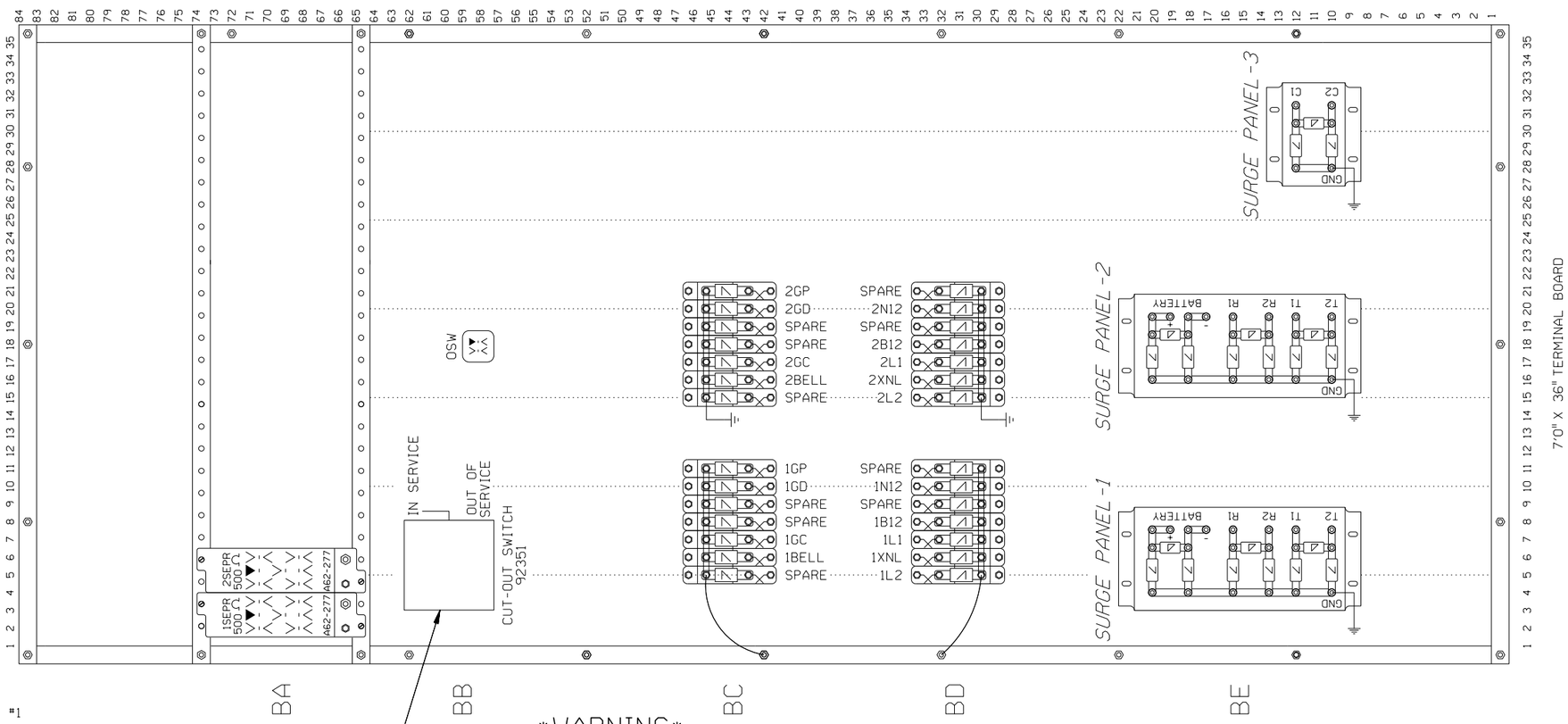
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Inola, Rogers County, OK - Black Fox Power Sub MP 0.423

FES #: 40743

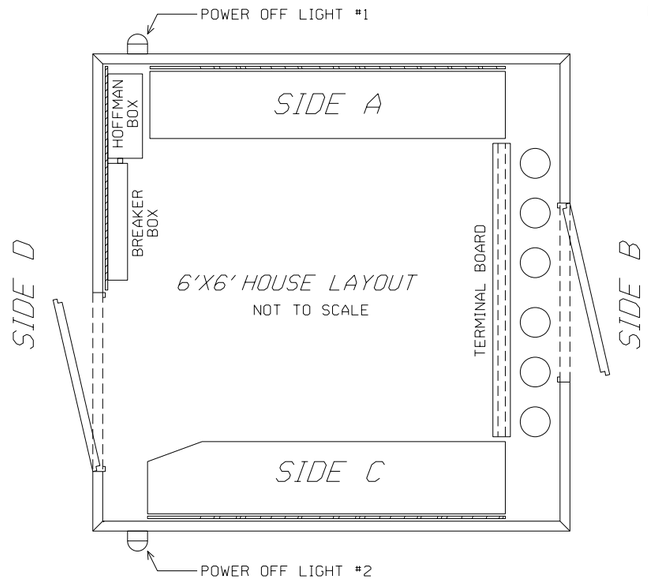
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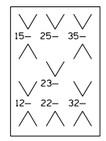
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$$model$$
2/19/2021



WARNING

PLACING SWITCH IN THE OUT-OF-SERVICE POSITION COMPLETELY DISABLES THIS HIGHWAY CROSSING WARNING SYSTEM. PROPER AUTHORITIES MUST BE NOTIFIED PRIOR TO OUT-OF-SERVICE.



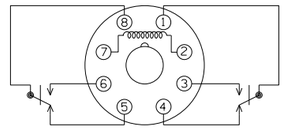


A62-277

RELAY CROSS REFERENCE

ALSTOM	SIEMENS
A62-277	400004

OUT OF SERVICE SWITCH RELAY LAYOUT



RELAY MKS2P DC12
TO BE USED FOR OSW RELAY.
OPERATING VOLTAGE = 12 VDC

CONTACT CONFIGURATION
OMRON MK-S SERIES

▼ = CONTACT USED

▽ = CONTACT NOT USED

SIDE "B"

REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track

Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property

Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TULSA PORTS
BARGE · RAIL · INDUSTRIAL PARK
CATOOSA · INOLA

TranSystems

UNION PACIFIC

DRAWN BY: PRS
CHECKED BY: JMW
DATE: 2/19/2021
SHEET NUMBER: 10 OF 13

UNION PACIFIC RAILROAD

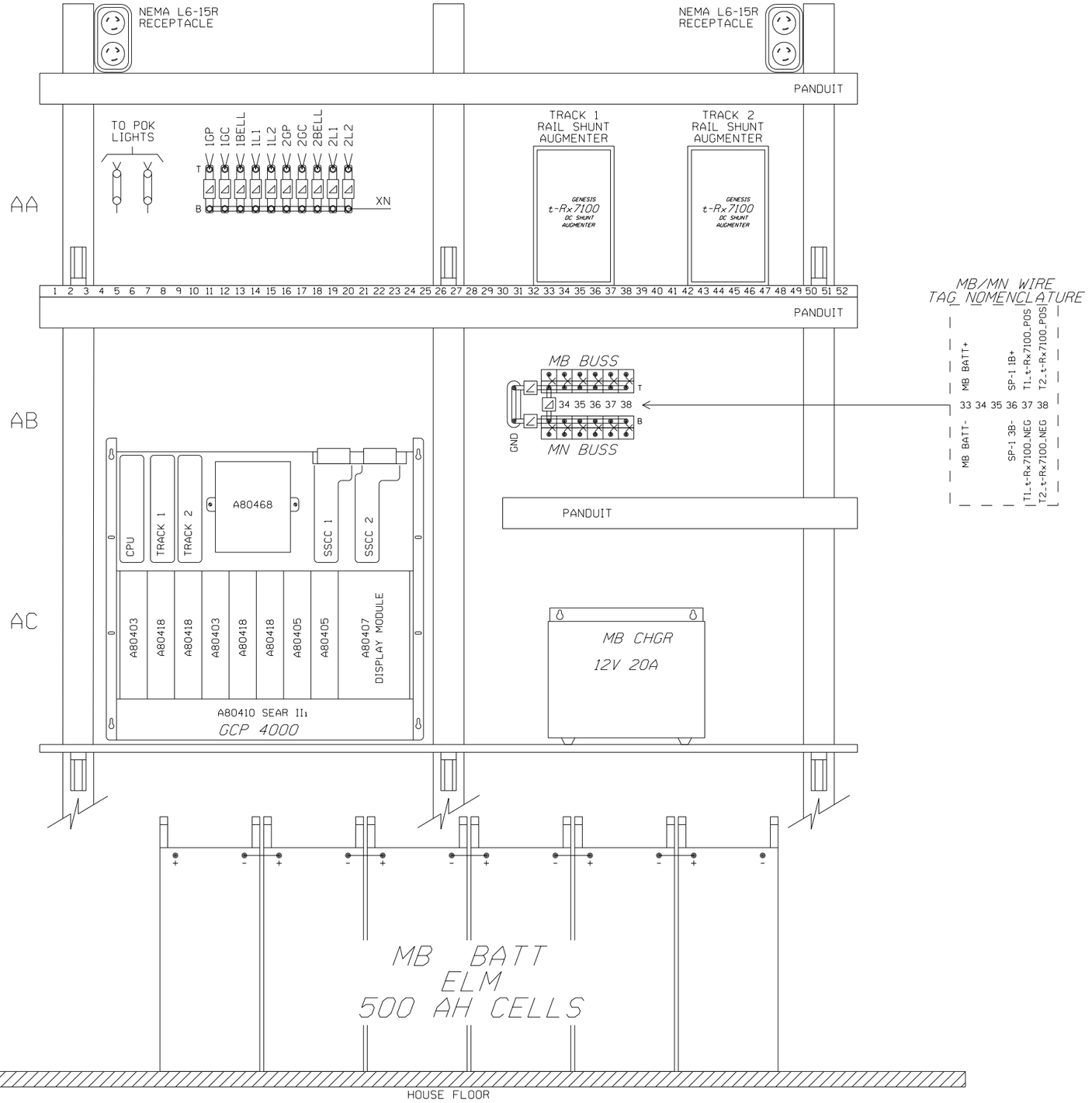
For Use and Agreement with:
Tulsa Port of Catoosa

LOCATION & DESCRIPTION:
Proposed S 4220 Road Grade Crossing Warning Devices
Inola, Rogers County, OK - Black Fox Power Sub MP 0.423

FES #: 40743

SHEET TITLE: TERMINAL BOARD LAYOUT

Color table:
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$$model$$
2/19/2021



REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

TULSA PORTS
BARGE · RAIL · INDUSTRIAL PARK
CATOOSA-INOLA

TranSystems

UNION PACIFIC

DRAWN BY: PRS
CHECKED BY: JMW
DATE: 2/19/2021
SHEET NUMBER: 11 OF 13

UNION PACIFIC RAILROAD

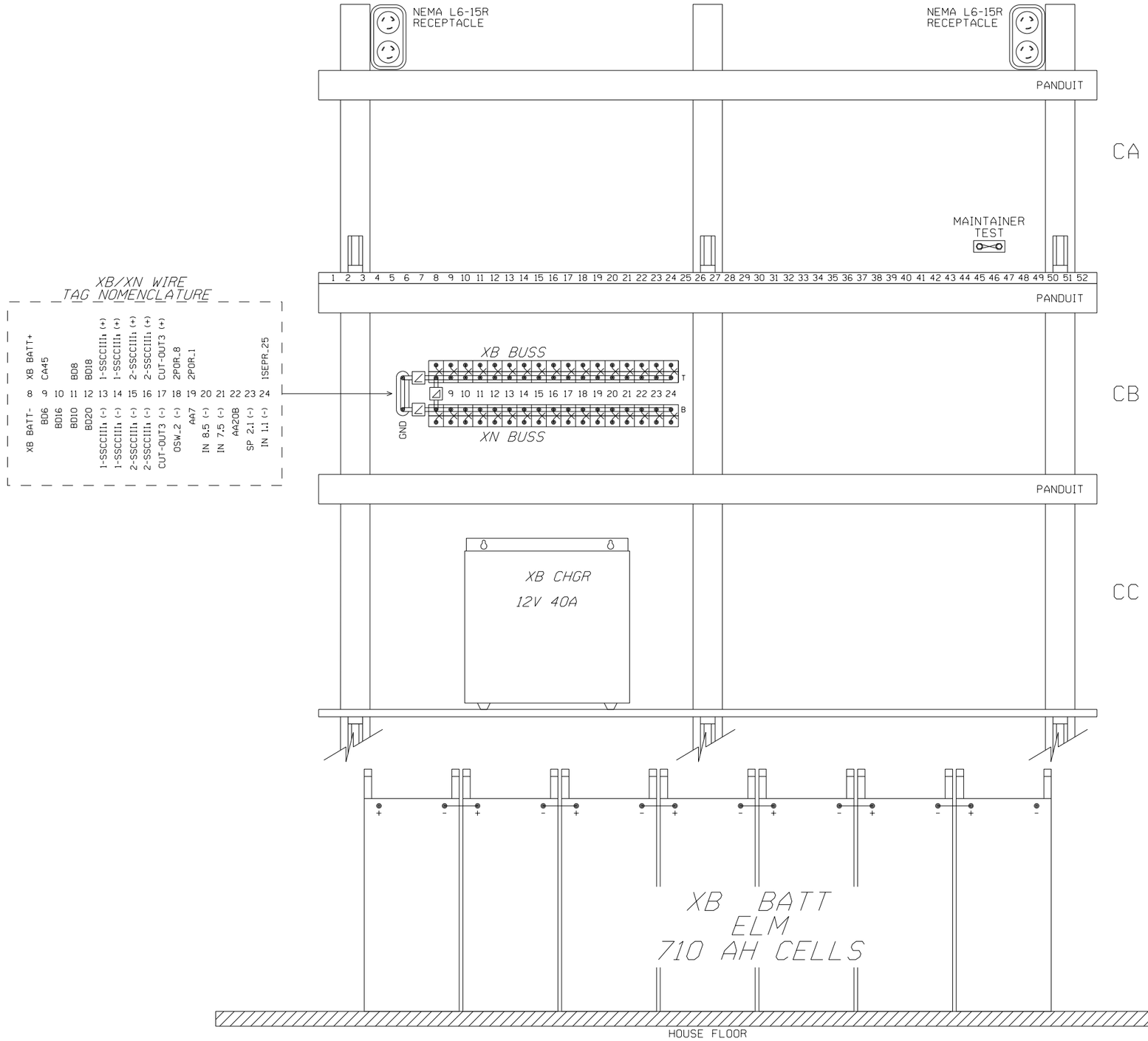
For Use and Agreement with:
Tulsa Port of Catoosa

LOCATION & DESCRIPTION:
Proposed S 4220 Road Grade Crossing Warning Devices
Inola, Rogers County, OK - Black Fox Power Sub MP 0.423

FES #: 40743

SHEET TITLE: SIDE "A" LAYOUT

Color table:
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$$model$$
2/19/2021



REV. #	BY	DATE	DESCRIPTION

Ex. UPRR Track
Prop. UPRR Track
Remove UPRR Track
Shift UPRR Track
Ex. Ind. Track
Prop. Ind. Track
Remove Ind. Track
Shift Ind. Track
Future Ind. Track
Prop. Leased Ind. Trk
Ex. Leased Ind. Trk
No RR Operations
Right of Way
Acquire Property
Hand Throw Turnout
Power Turnout
Power Derail
Hand Throw Derail
Point of Curve
Bridge
Signal

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CATOOSA · INOLA

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UNION PACIFIC

DRAWN BY: PRS
CHECKED BY: JMW
DATE: 2/19/2021
SHEET NUMBER: 12 OF 13

UNION PACIFIC RAILROAD

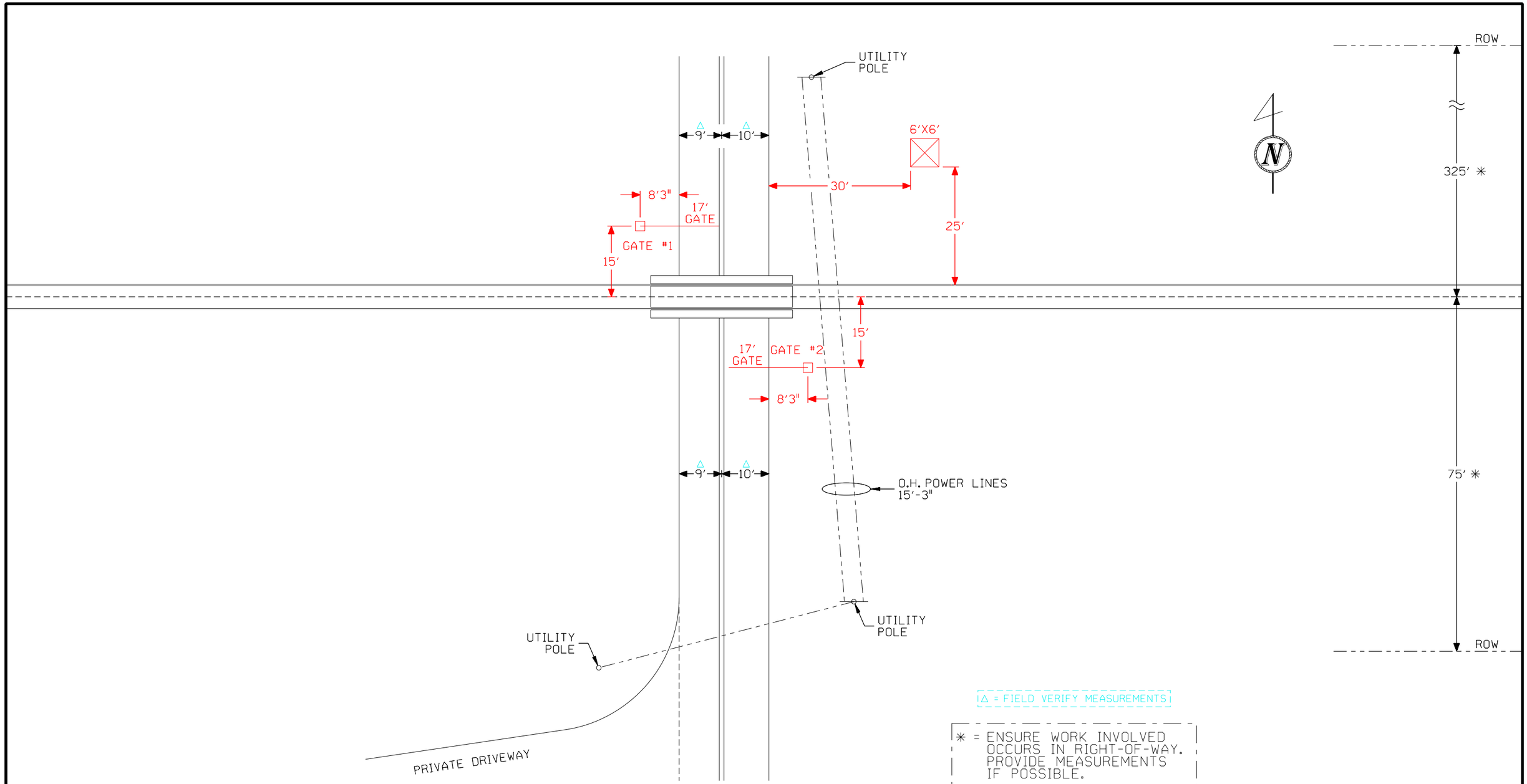
For Use and Agreement with:
Tulsa Port of Catoosa

LOCATION & DESCRIPTION:
Proposed S 4220 Road Grade Crossing Warning Devices
Inola, Rogers County, OK - Black Fox Power Sub MP 0.423

FES #: 40743

SHEET TITLE: SIDE "C" LAYOUT

Color table:
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$$model$$
2/19/2021



△ = FIELD VERIFY MEASUREMENTS

✳ = ENSURE WORK INVOLVED OCCURS IN RIGHT-OF-WAY. PROVIDE MEASUREMENTS IF POSSIBLE.

NOTE TO CONSTRUCTION FOREMAN:

ANY DEVIATION FROM THE DESIGN PRINTS, PROGRESS RAIL ENGINEERING SHOULD BE CONTACTED PRIOR TO ANY CHANGES COMMENCING.

RED = IN BLUE = NOTE

SCALE: 1" = 20′

REV. #	BY	DATE	DESCRIPTION

- Ex. UPRR Track
- Prop. UPRR Track
- Remove UPRR Track
- Shift UPRR Track
- Ex. Ind. Track
- Prop. Ind. Track
- Remove Ind. Track
- Shift Ind. Track
- Future Ind. Track
- Prop. Leased Ind. Trk
- Ex. Leased Ind. Trk
- No RR Operations
- Right of Way
- Acquire Property
- Hand Throw Turnout
- Power Turnout
- Power Derail
- Hand Throw Derail
- Point of Curve
- Bridge
- Signal

TULSA PORTS BARGE · RAIL · INDUSTRIAL PARK CATOOSA-INOLA

TranSystems

UNION PACIFIC

DRAWN BY: PRS
CHECKED BY: JMW
DATE: 2/19/2021
SHEET NUMBER: 13 OF 13

UNION PACIFIC RAILROAD

For Use and Agreement with: Tulsa Port of Catoosa

LOCATION & DESCRIPTION: Proposed S 4220 Road Grade Crossing Warning Devices Inola, Rogers County, OK - Black Fox Power Sub MP 0.423

FES #: 40743

SHEET TITLE: FOUNDATION LAYOUT

Color table:
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2/19/2021