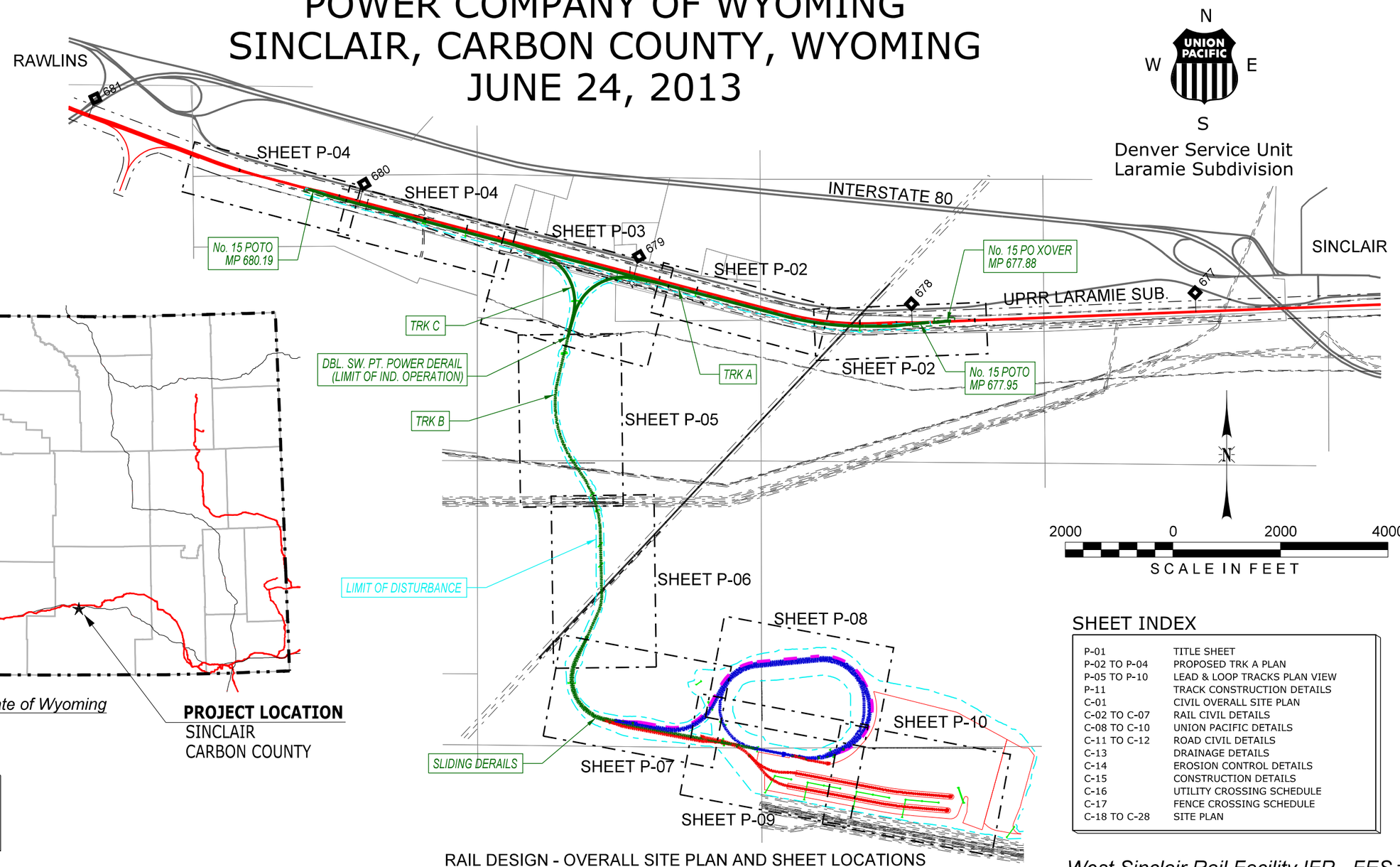
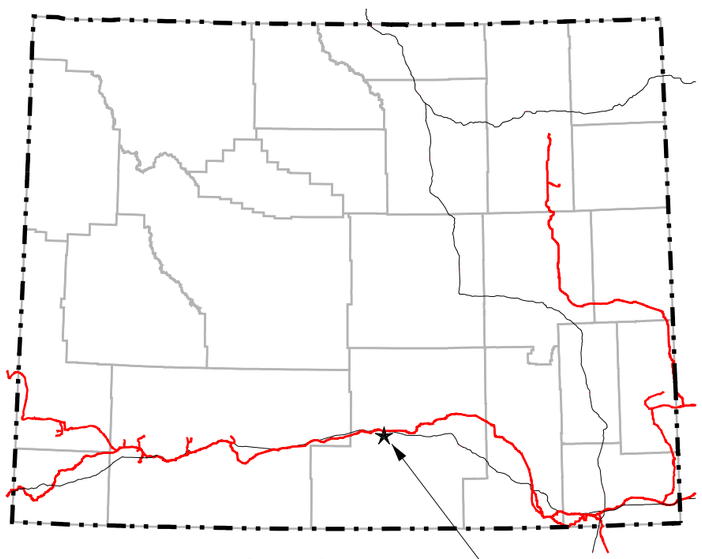
ISSUED FOR PERMIT PLANS

WEST SINCLAIR RAIL FACILITY RAIL/CIVIL DESIGN
POWER COMPANY OF WYOMING
SINCLAIR, CARBON COUNTY, WYOMING
JUNE 24, 2013





BENCHMARKS

STATIONING:
MP 678.77 18" CIP = STA 35839+26.8

ELEVATION:
MH @ STA 35890+03 EL. = 6652.09

SHEET INDEX

P-01	TITLE SHEET
P-02 TO P-04	PROPOSED TRK A PLAN
P-05 TO P-10	LEAD & LOOP TRACKS PLAN VIEW
P-11	TRACK CONSTRUCTION DETAILS
C-01	CIVIL OVERALL SITE PLAN
C-02 TO C-07	RAIL CIVIL DETAILS
C-08 TO C-10	UNION PACIFIC DETAILS
C-11 TO C-12	ROAD CIVIL DETAILS
C-13	DRAINAGE DETAILS
C-14	EROSION CONTROL DETAILS
C-15	CONSTRUCTION DETAILS
C-16	UTILITY CROSSING SCHEDULE
C-17	FENCE CROSSING SCHEDULE
C-18 TO C-28	SITE PLAN

RAIL DESIGN - OVERALL SITE PLAN AND SHEET LOCATIONS

WEST SINCLAIR RAIL FACILITY - ISSUED FOR PERMIT

West Sinclair Rail Facility IFP - FES #22363

PLG
Professional Logistics Group, Inc.

WARNING !
FIBER OPTIC CABLE
ON RAILROAD R-O-W
CALL BEFORE YOU DIG
1-800-336-9193

REV. #	BY	DATE	DESCRIPTION
0	DJG	06/24/13	DRAFT WEST SINCLAIR RAIL FACILITY ISSUED FOR PERMIT PLANS
1	DJG	07/12/13	WEST SINCLAIR RAIL FACILITY ISSUED FOR PERMIT PLANS
2	KAB	08/12/13	WEST SINCLAIR RAIL FACILITY ISSUED FOR PERMIT PLANS

LEGEND:
- EXISTING MAINLINE TRACK
- EXISTING SIDING TRACK
- EXISTING INDUSTRY OWNED TRACK
- PROPOSED RAILROAD OWNED TRACK
- PROPOSED INDUSTRY OWNED TRACK
- UPRR RIGHT OF WAY
- FIBER OPTIC CABLE (F/O)
- PROPERTY BOUNDARY (OTHER)

DRAWN BY: CDS
CHECKED BY: BG
DATE: 6/24/13
SHEET NUMBER: P-01 of

For Use In Agreement With: **UNION PACIFIC RAILROAD** and POWER CO. OF WYOMING

LOCATION & DESCRIPTION:
MILEPOST 677.95, LARAMIE SUBDIVISION
SINCLAIR, CARBON COUNTY, WYOMING
Trackage to Serve: POWER COMPANY OF WYOMING

SHEET TITLE: TITLE SHEET

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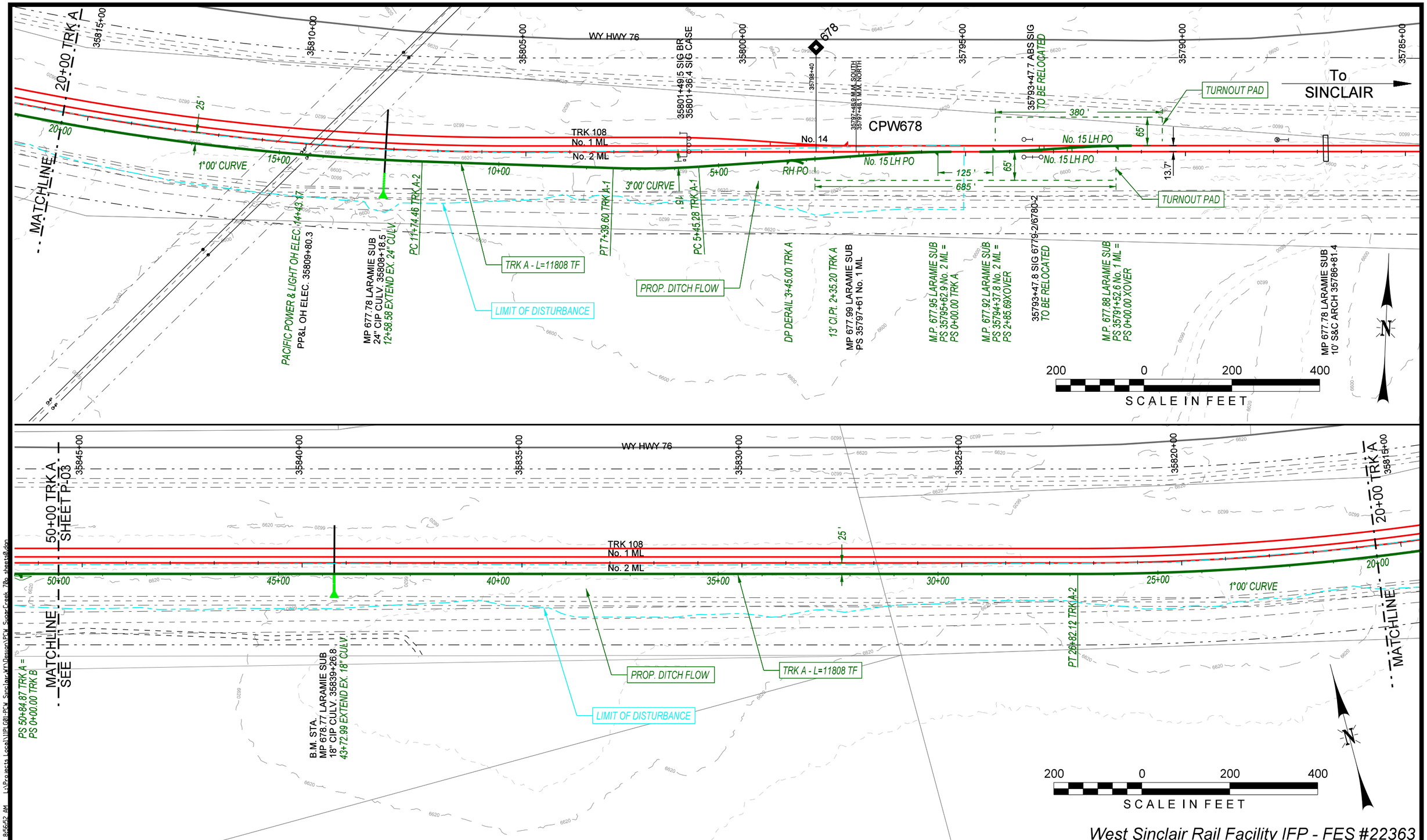

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- PROPOSED INDUSTRY OWNED TRACK
- UPRR RIGHT OF WAY
- FIBER OPTIC CABLE (F/O)
- PROPERTY BOUNDARY (OTHER)

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SHEET NUMBER: P-02 of

UNION PACIFIC

For Use In Agreement With: UNION PACIFIC RAILROAD and POWER CO. OF WYOMING

LOCATION & DESCRIPTION:
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SINCLAIR, CARBON COUNTY, WYOMING
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SHEET TITLE:
PLAN VIEW TRK A - STA 0+00 TO 50+00

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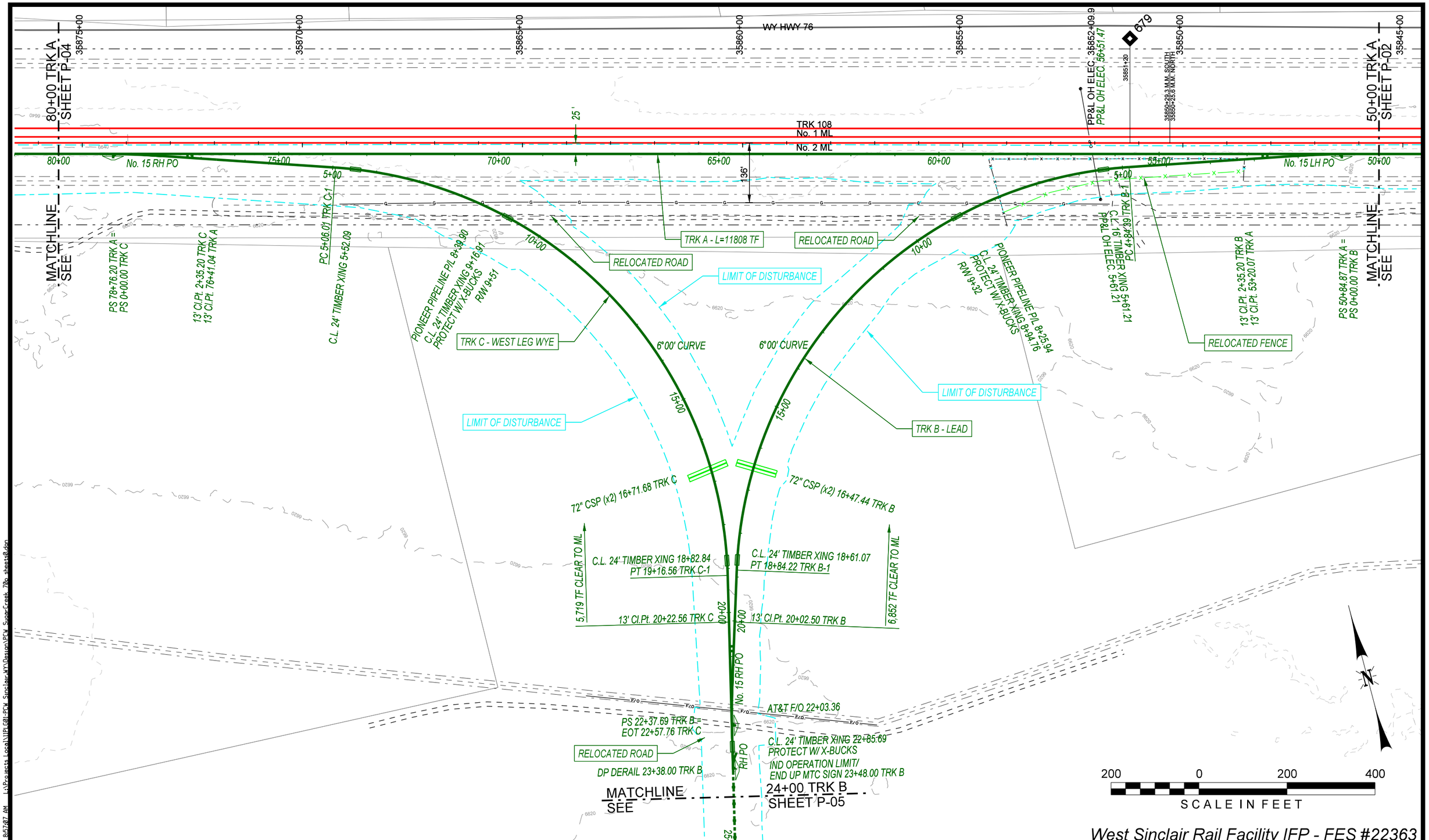

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- UPRR RIGHT OF WAY
- FIBER OPTIC CABLE (F/O)
- PROPERTY BOUNDARY (OTHER)

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CHECKED BY: BG
DATE: 6/24/13
SHEET NUMBER P-03 of

UNION PACIFIC

For Use In Agreement With: UNION PACIFIC RAILROAD and POWER CO. OF WYOMING

LOCATION & DESCRIPTION:
MILEPOST 677.95, LARAMIE SUBDIVISION
SINCLAIR, CARBON COUNTY, WYOMING
Trackage to Serve: POWER COMPANY OF WYOMING

SHEET TITLE:
PLAN VIEW - TRK A STA 50+00 TO 80+00

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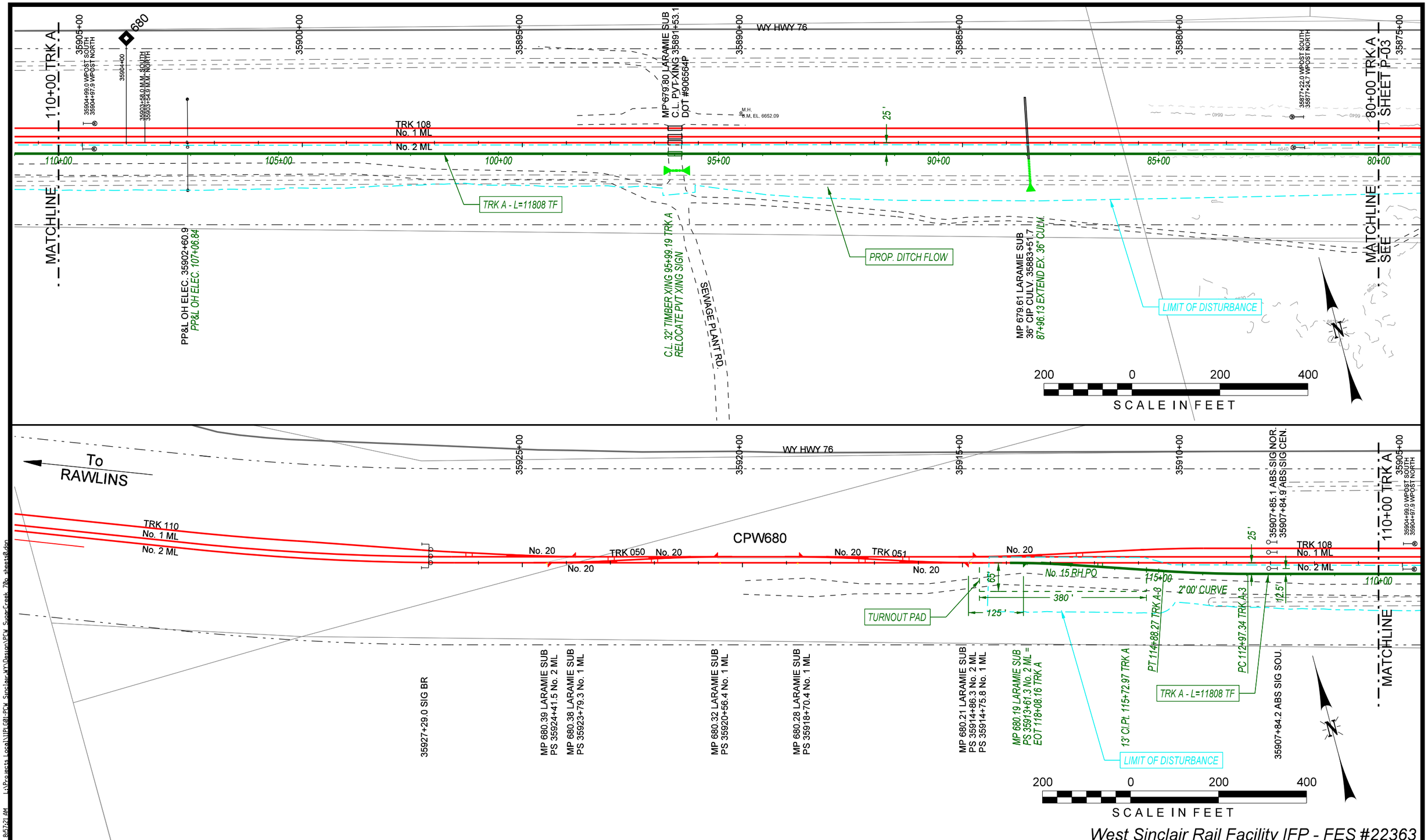

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- FIBER OPTIC CABLE (F/O)
- PROPERTY BOUNDARY (OTHER)

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SHEET NUMBER: P-04 of

UNION PACIFIC

For Use In Agreement With: **UNION PACIFIC RAILROAD** and POWER CO. OF WYOMING

LOCATION & DESCRIPTION:
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SHEET TITLE:
PLAN VIEW - TRK A STA 80+00 TO EOT

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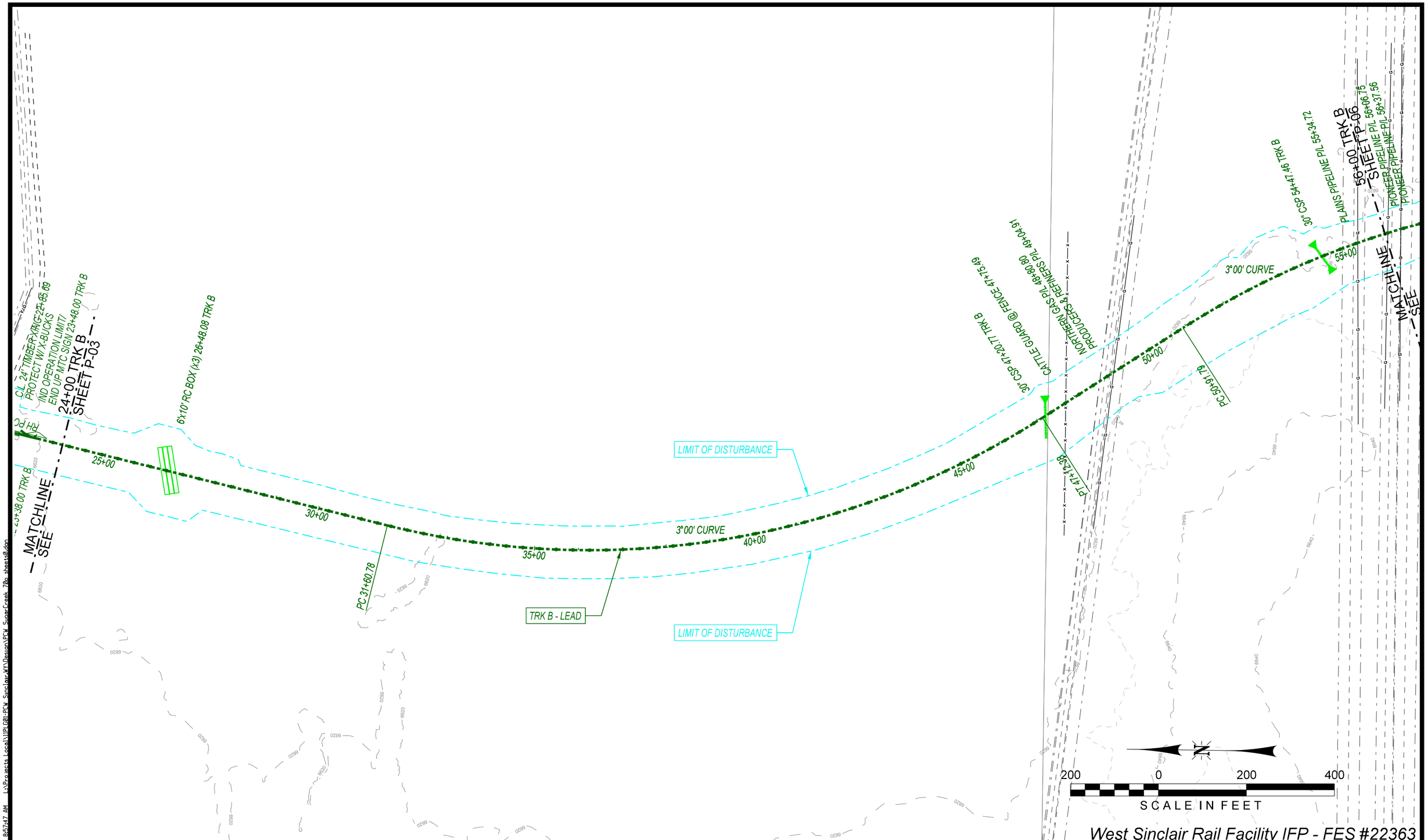

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- FIBER OPTIC CABLE (F/O)
- PROPERTY BOUNDARY (OTHER)

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DATE: 6/24/13
SHEET NUMBER: P-05 of

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For Use In Agreement With: **UNION PACIFIC RAILROAD** and POWER CO. OF WYOMING

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Trackage to Serve: POWER COMPANY OF WYOMING

SHEET TITLE:
PLAN VIEW - TRK B STA 24+00 TO 56+00

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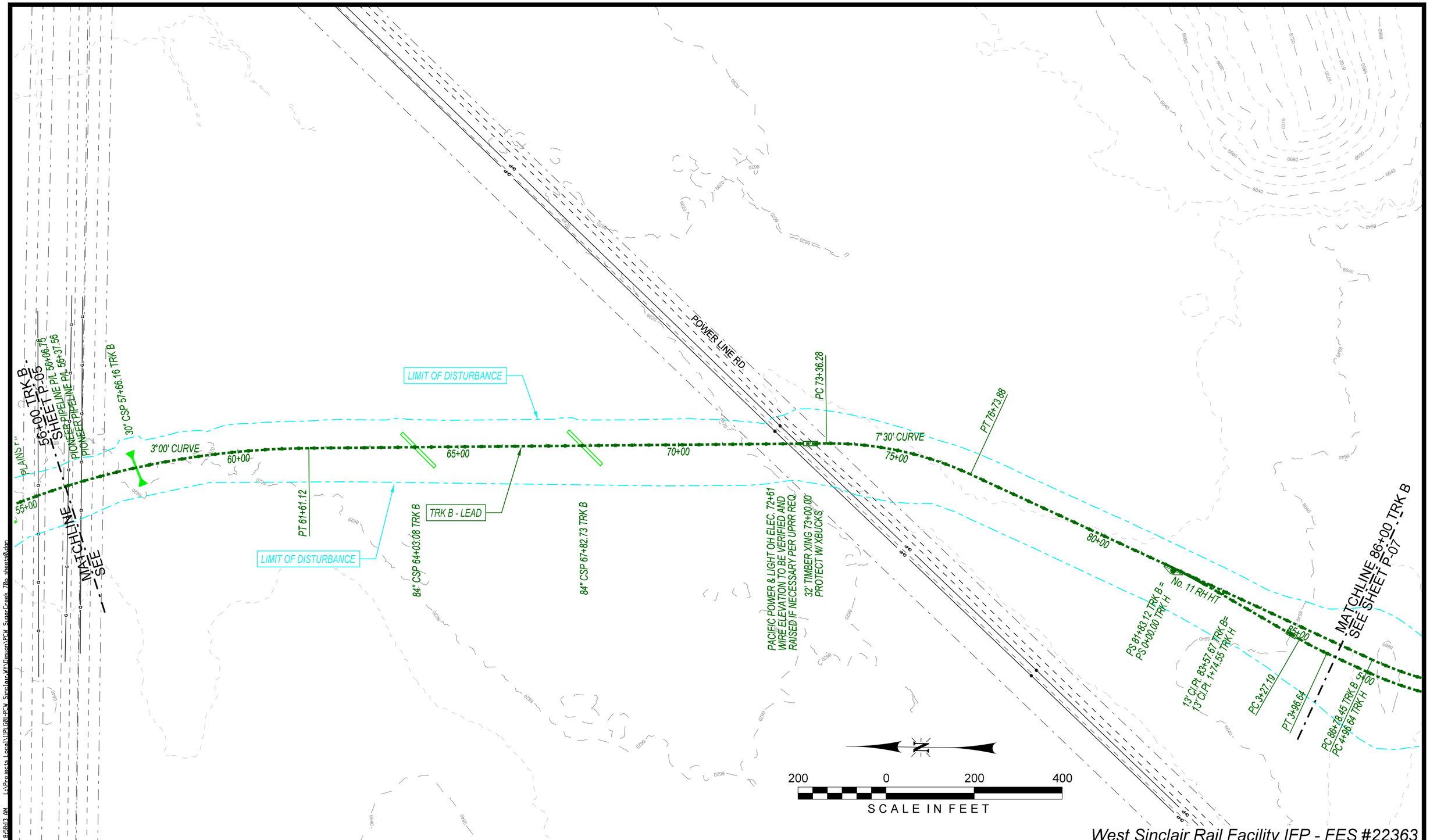

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- PROPERTY BOUNDARY (OTHER)

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DATE: 6/24/13
SHEET NUMBER: P-06 of

UNION PACIFIC

For Use In Agreement With: **UNION PACIFIC RAILROAD** and POWER CO. OF WYOMING

LOCATION & DESCRIPTION:
MILEPOST 677.95, LARAMIE SUBDIVISION
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SHEET TITLE:
PLAN VIEW - TRK B STA 56+00 TO 86+00

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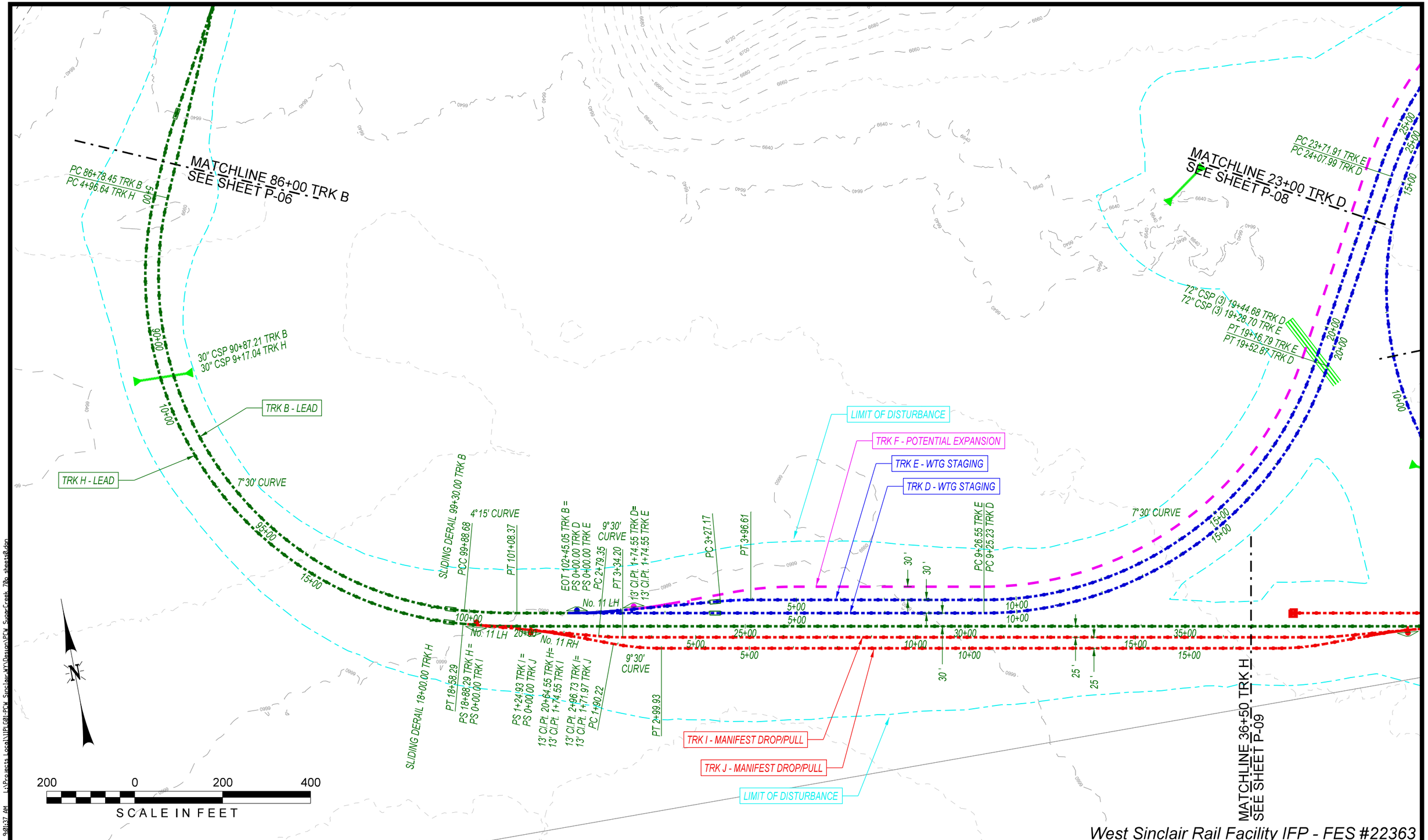

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CHECKED BY: BG
DATE: 6/24/13
SHEET NUMBER: P-07 of

UNION PACIFIC

For Use In Agreement With: UNION PACIFIC RAILROAD and POWER CO. OF WYOMING

LOCATION & DESCRIPTION:
MILEPOST 677.95, LARAMIE SUBDIVISION
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Trackage to Serve: POWER COMPANY OF WYOMING

SHEET TITLE:
PLAN VIEW - TRK B STA 86+00 TO EOT, WEST LOOP

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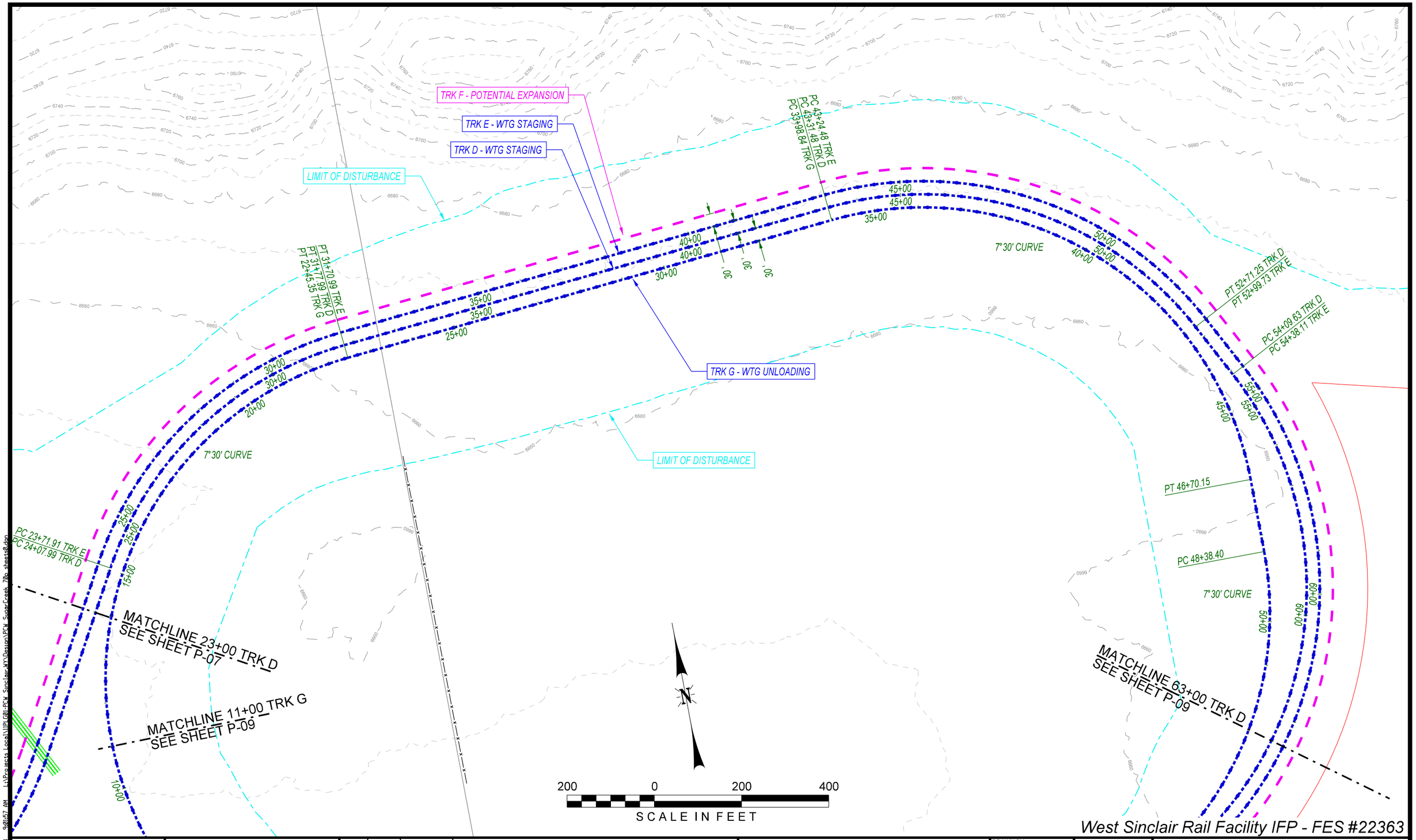

West Sinclair Rail Facility IFP - FES #22363

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DRAWN BY: CDS
CHECKED BY: BG
DATE: 6/24/13
SHEET NUMBER: P-08 of

UNION PACIFIC

For Use In Agreement With: **UNION PACIFIC RAILROAD** and POWER CO. OF WYOMING

LOCATION & DESCRIPTION:
MILEPOST 677.95, LARAMIE SUBDIVISION
SINCLAIR, CARBON COUNTY, WYOMING
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SHEET TITLE: PLAN VIEW - NORTH LOOP

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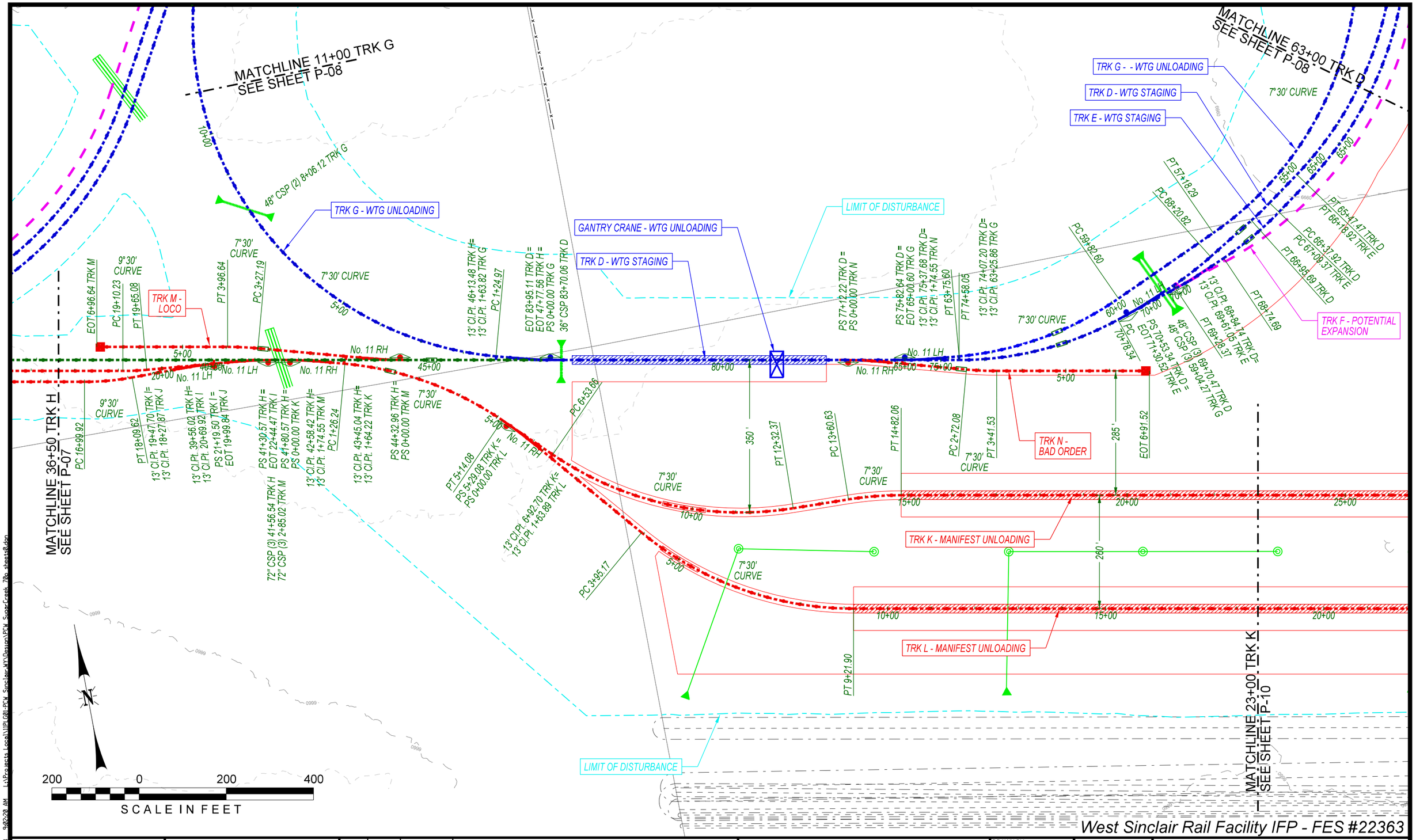

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DRAWN BY: CDS
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SHEET NUMBER: P-09 of

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Trackage to Serve: POWER COMPANY OF WYOMING

SHEET TITLE:
PLAN VIEW - SOUTH LOOP & MANIFEST TRANSLOAD

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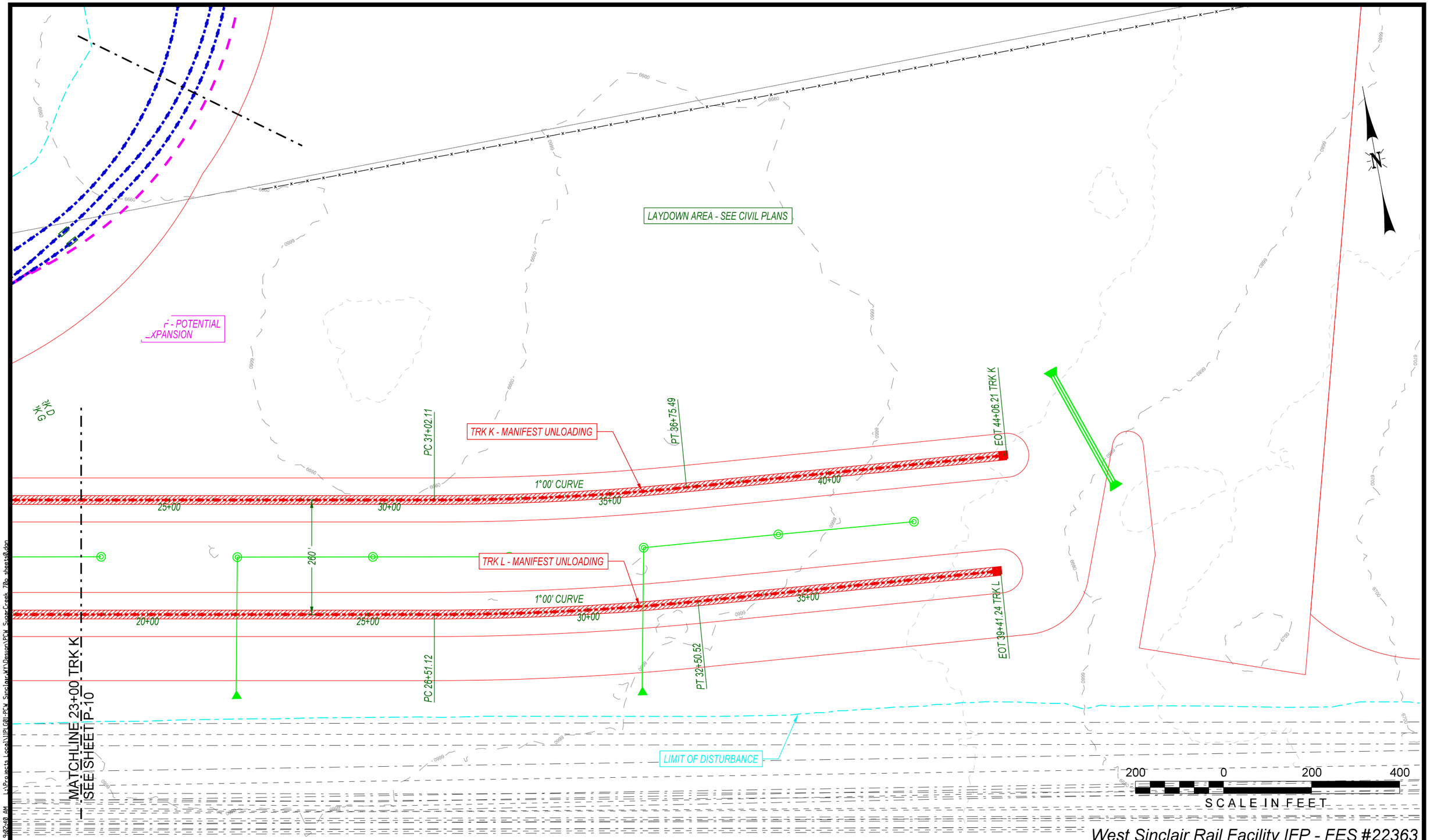

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DRAWN BY: CDS
CHECKED BY: BG
DATE: 6/24/13
SHEET NUMBER: P-10 of

UNION PACIFIC

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MILEPOST 677.95, LARAMIE SUBDIVISION
SINCLAIR, CARBON COUNTY, WYOMING
Trackage to Serve: POWER COMPANY OF WYOMING

SHEET TITLE:
PLAN VIEW - MANIFEST TRANSLOAD

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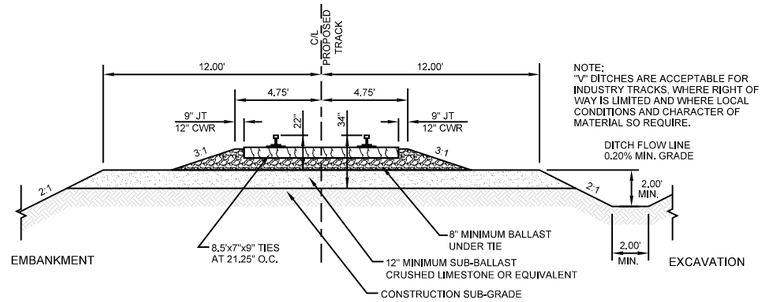
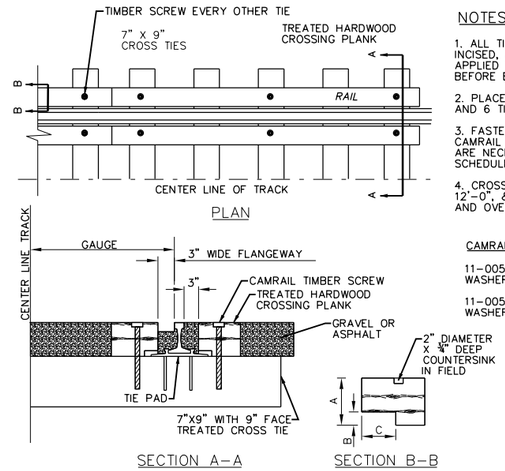


NOTE:
"V" DITCHES ARE ACCEPTABLE FOR INDUSTRY TRACKS, WHERE RIGHT OF WAY IS LIMITED AND WHERE LOCAL CONDITIONS AND CHARACTER OF MATERIAL SO REQUIRE.

DITCH FLOW LINE
0.20% MIN. GRADE

TYPICAL INDUSTRY TRACK CROSS SECTION
N.T.S.



NOTES:

1. ALL TIMBER TO BE HARDWOOD, CUT TO SIZE, INCISED, AND TO HAVE GALVANIZED GANG NAIL PLATES APPLIED TO EACH END OF EACH CROSSING PLANK, BEFORE BEING CREOSOTE TREATED.

2. PLACE TIES PADS ON ALL TIES UNDER CROSSING, AND 6 TIES BEYOND EACH END OF CROSSING.

3. FASTEN CROSSING PLANK TO TIES WITH ⅝" DIAMETER CAMRAIL TIMBER SCREWS, NO PRE-DRILLING OF HOLES ARE NECESSARY IN TIMBERS OR TIES. SEE CROSSING SCHEDULE FOR LENGTHS.

4. CROSSING PLANKS SHALL BE LENGTH OF 8'-0", 12'-0", & 16'-0". FOR TRACK CURVES 5 DEGREES AND OVER, USE 8'-0" LONG CROSSING PLANKS ONLY.

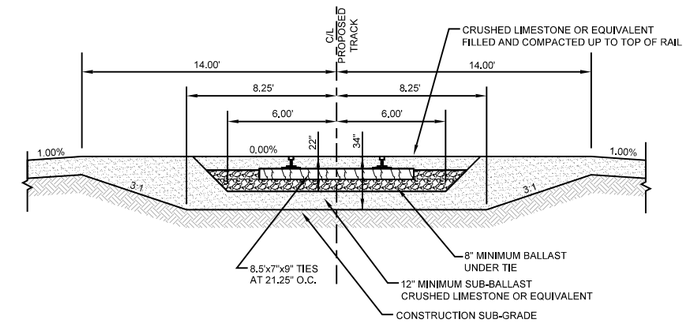
CAMRAIL TIMBER SCREW CATALOGUE NUMBERS:

11-005560: 5X10½" LONG CAMRAIL TORX TRUSS WASHER HEAD TIMBER SCREW

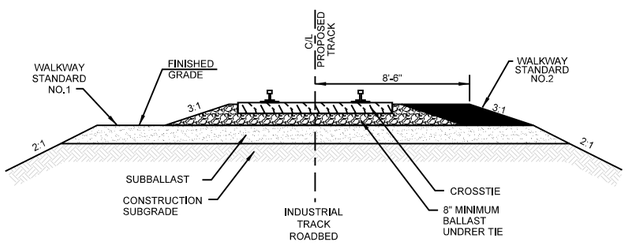
11-005580: 5X12" LONG CAMRAIL TORX TRUSS WASHER HEAD TIMBER SCREW

CROSSING PLANK SCHEDULE		
RAIL SECTION	112 RE 115 RE	131 RE 132 RE 136 RE
DIMENSION "A"	7½"	8¼"
DIMENSION "B"	1⅛"	1¼"
DIMENSION "C"	3"	3½"
SCREW LENGTH	12"	12"

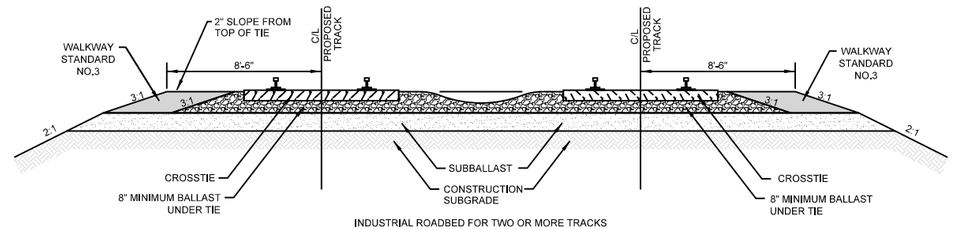
TIMBER CROSSING DETAIL
N.T.S.



EMBEDDED TRACK CROSS SECTION
N.T.S.



WALKWAY STANDARDS NO.1 AND NO.2
N.T.S.



WALKWAY STANDARD NO. 5
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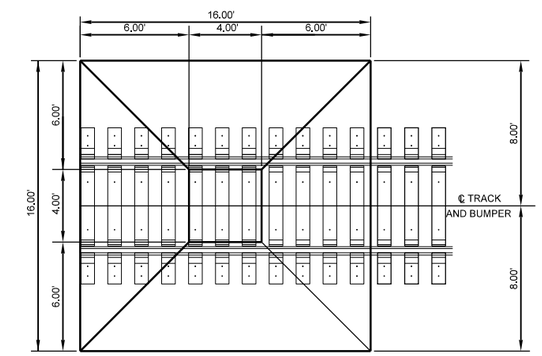
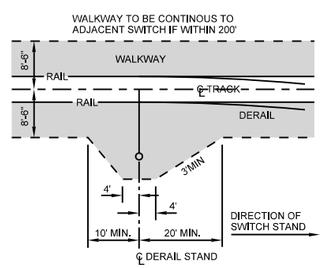
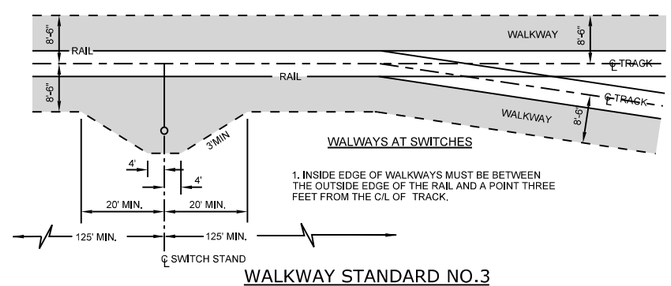




WALKWAY STANDARD NO.4
N.T.S.

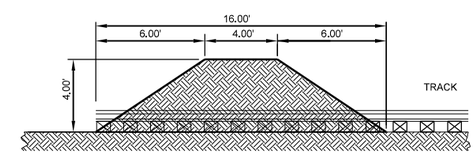


WALWAYS AT SWITCHES

1. INSIDE EDGE OF WALKWAYS MUST BE BETWEEN THE OUTSIDE EDGE OF THE RAIL AND A POINT THREE FEET FROM THE C/L OF TRACK.

WALKWAY STANDARD NO.3
N.T.S.

TYPICAL WALKWAY DETAILS
N.T.S.



EARTHEN BERM FOR END OF TRACK DETAIL
N.T.S.

West Sinclair Rail Facility IFP - FES #22363

PLG
Professional Logistics Group, Inc.

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REV. #	BY	DATE	DESCRIPTION
0	DJG	06/24/13	DRAFT WEST SINCLAIR RAIL FACILITY ISSUED FOR PERMIT PLANS
1	DJG	07/12/13	WEST SINCLAIR RAIL FACILITY ISSUED FOR PERMIT PLANS
2	KAB	08/12/13	WEST SINCLAIR RAIL FACILITY ISSUED FOR PERMIT PLANS

DRAWN BY: CDS
CHECKED BY: BG
DATE: 6/24/13
SHEET NUMBER P-11 of

UNION PACIFIC

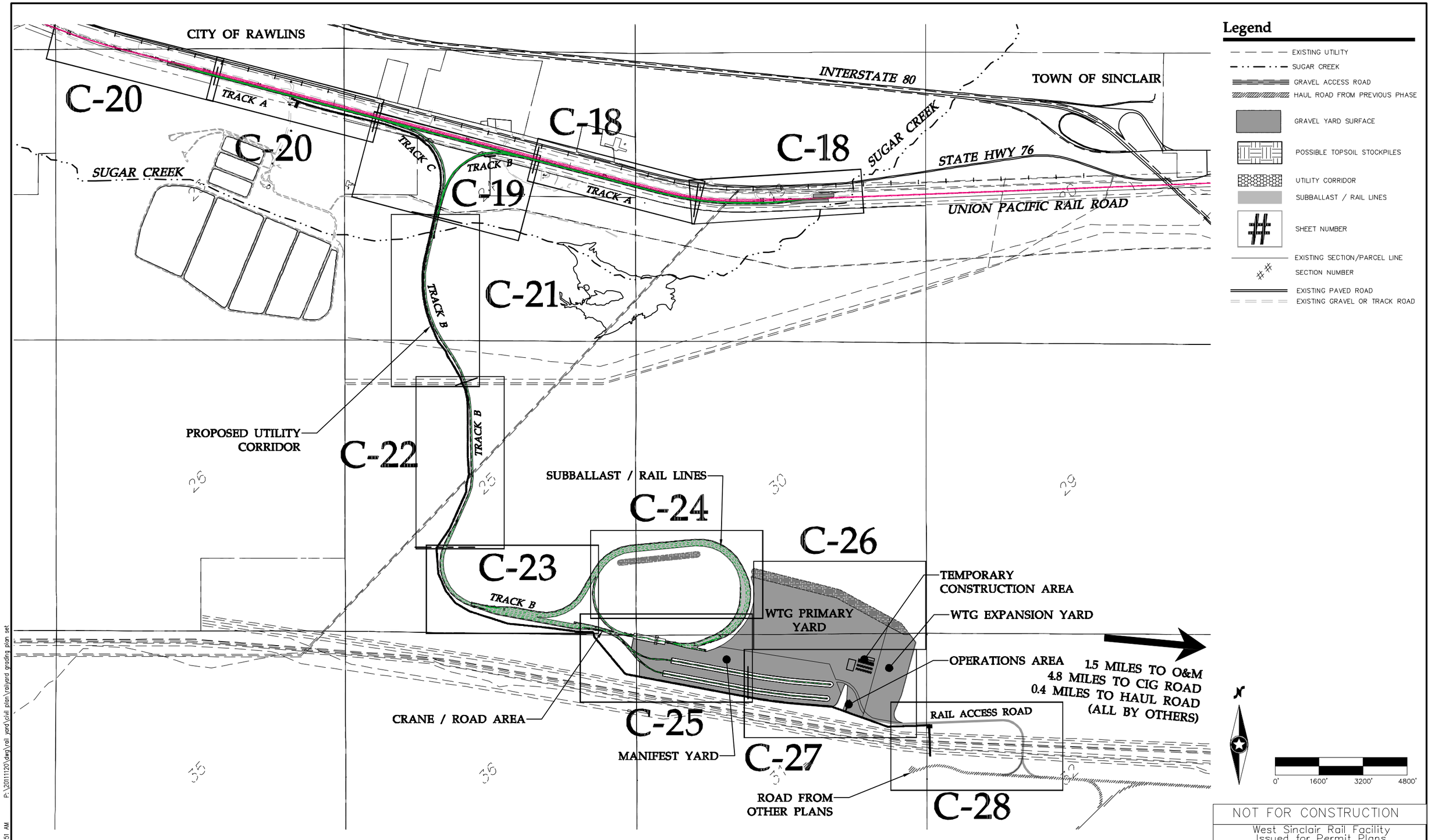
For Use In Agreement With: **UNION PACIFIC RAILROAD** and POWER CO. OF WYOMING

LOCATION & DESCRIPTION:
MILEPOST 677.95, LARAMIE SUBDIVISION
SINCLAIR, CARBON COUNTY, WYOMING
Trackage to Serve: POWER COMPANY OF WYOMING

SHEET TITLE:
TRACK CONSTRUCTION DETAILS

L:\Projects Local\11PLG01-PCW Sinclair,WY\Design\PCW SugarCreek 70p sheets0.dgn

Printed by CDS 8/12/2013 9:06:23 AM L:\Projects Local\11PLG01-PCW Sinclair,WY\Design\PCW SugarCreek 70p sheets0.dgn



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2	KAB	08/12/13	WEST SINCLAIR RAIL FACILITY ISSUED FOR PERMIT PLANS
3	DFK	03/13/14	UPDATED UTILITY CORRIDOR AND TOPSOIL HANDLING INFORMATION

LEGEND:
EXISTING MAINLINE TRACK
EXISTING SIDING TRACK
EXISTING INDUSTRY OWNED TRACK
PROPOSED RAILROAD OWNED TRACK
PROPOSED INDUSTRY OWNED TRACK
UPRR RIGHT OF WAY
FIBER OPTIC CABLE
PROPERTY BOUNDARY (OTHER)

DRAWN BY: DSW
CHECKED BY: RSC
DATE: 6/24/13
SHEET NUMBER: C-01 of 28

UNION PACIFIC

For Use In Agreement With: UNION PACIFIC RAILROAD and POWER CO. OF WYOMING

LOCATION & DESCRIPTION:
MILEPOST 677.95, LARAMIE SUBDIVISION
SINCLAIR, CARBON COUNTY, WYOMING
Trackage to Serve: POWER COMPANY OF WYOMING

SHEET TITLE: Overall Site Plan

201111200AF-RAIL01.dwg

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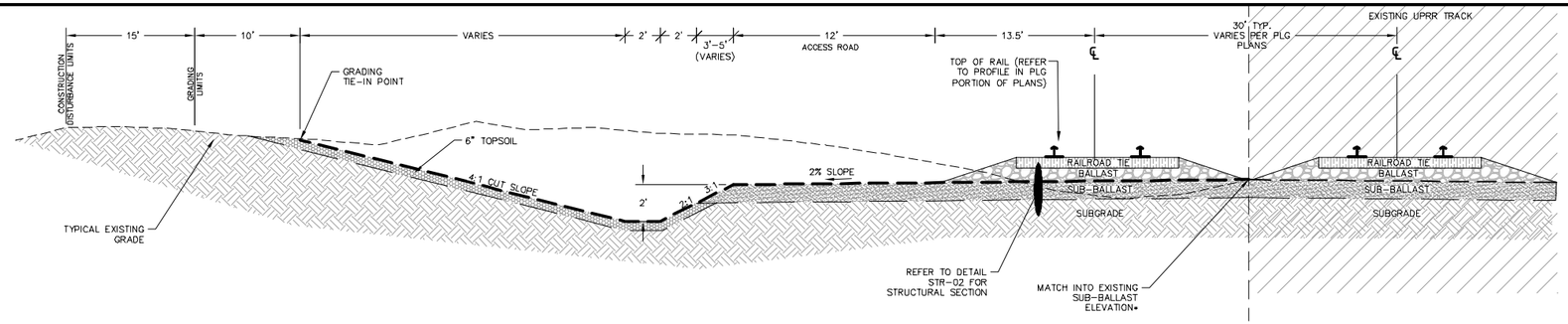
dfkelcher



*PROPOSED RAIL SUBBALLAST HAS BEEN DESIGNED TO BE AT THE EXISTING RAIL SUBBALLAST ELEVATION OR UP TO 6" BELOW. CONTRACTOR TO NOTIFY ENGINEER IF FIELD CONDITIONS ARE DIFFERENT THAN DESIGNED.

NOTES:

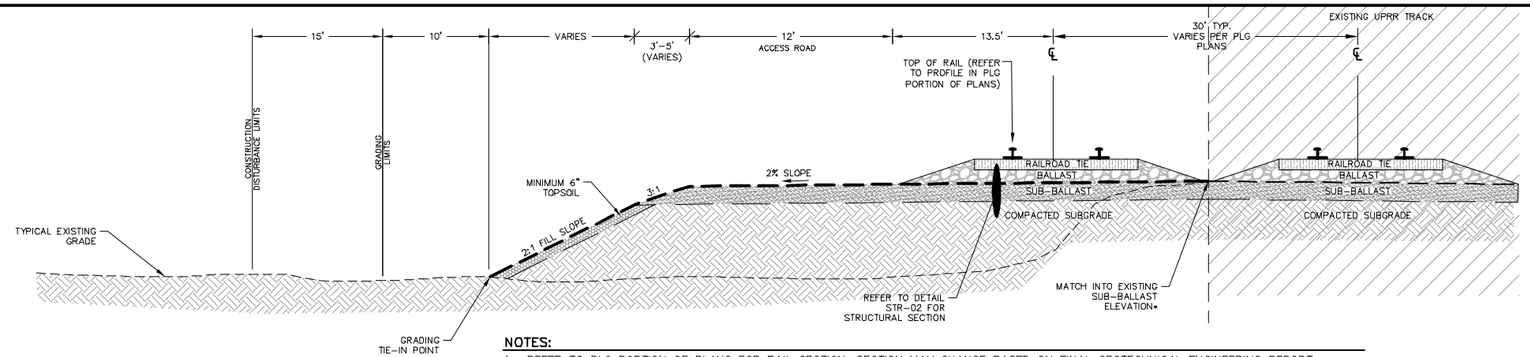
1. REFER TO PLG PORTION OF PLANS FOR RAIL SECTION. SECTION MAY CHANGE BASED ON FINAL GEOTECHNICAL ENGINEERING REPORT.
2. CONSTRUCTION PLANS SHOW TRACK CENTERLINE.
3. CUT SLOPE MAY VARY DUE TO EXISTING UTILITY LINES ADJACENT TO RAIL. REFER TO PLANS FOR EXCEPTIONS.
4. DITCH DEPTH AND SLOPE MAY VARY FROM TYPICAL. MINIMUM DITCH SLOPE 0.2%. ADDITIONAL INFORMATION TO BE PROVIDED WITH FINAL DESIGN
5. SUB-BALLAST SLOPE TYPICALLY 2% DIRECTION OF FLOW VARIES. ADDITIONAL INFORMATION TO BE PROVIDED WITH FINAL DESIGN.
6. ALL DISTURBED GROUND NOT COVERED WITH GRAVEL SHALL BE STABILIZED. REFER TO PLAN AND SWPPP FOR DETAILS.

TYPICAL SECTION NOT DRAWN TO SCALE

RAILROAD OWNED SIDING TYPICAL RAIL CROSS-SECTION – CUT SECTION

LAST REVISED: 02/01/13

RAIL 01



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NOTES:

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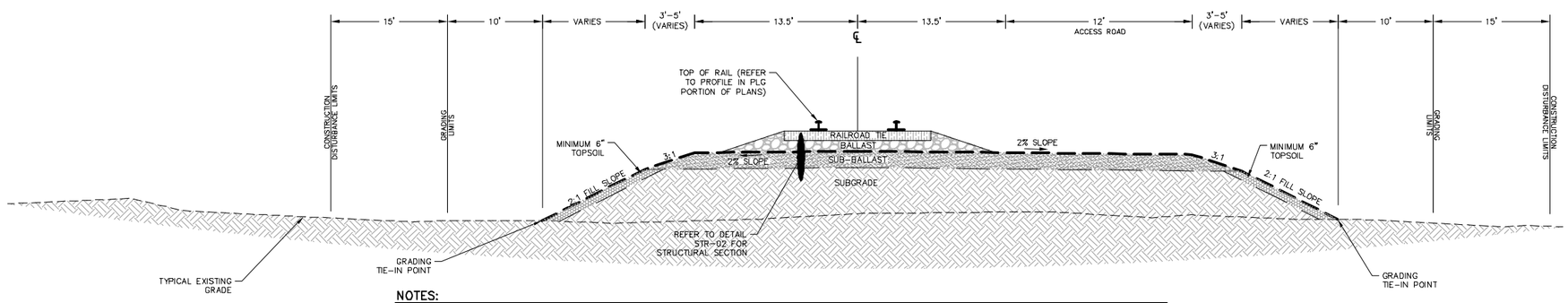
2. CONSTRUCTION PLANS SHOW TRACK CENTERLINE.
3. SUB-BALLAST SLOPE TYPICALLY 2% DIRECTION OF FLOW VARIES. ADDITIONAL INFORMATION TO BE PROVIDED WITH FINAL DESIGN.
4. ALL DISTURBED GROUND NOT COVERED WITH GRAVEL SHALL BE STABILIZED. REFER TO PLAN AND SWPPP FOR DETAILS.
5. IF EXCESS TOPSOIL IS AVAILABLE, ADDITIONAL TOPSOIL CAN BE PLACED ON FILL SLOPES INCREASING THE DEPTH OF TOPSOIL.

TYPICAL SECTION NOT DRAWN TO SCALE

RAILROAD OWNED SIDING TYPICAL RAIL CROSS-SECTION – FILL SECTION

LAST REVISED: 02/01/13

RAIL 02



NOTES:

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TYPICAL SECTION NOT DRAWN TO SCALE

RAILROAD OWNED SINGLE TRACK TYPICAL RAIL CROSS-SECTION – ROAD RIGHT, FILL LEFT, FILL RIGHT

LAST REVISED: 02/01/13

RAIL 03

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kabaje

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2	KAB	08/12/13	WEST SINCLAIR RAIL FACILITY ISSUED FOR PERMIT PLANS

DRAWN BY: DSW
CHECKED BY: RSC
DATE: 6/24/13
SHEET NUMBER: C-02 of 28

UNION PACIFIC

For Use In Agreement With: **UNION PACIFIC RAILROAD** and POWER CO. OF WYOMING

LOCATION & DESCRIPTION:
MILEPOST 677.95, LARAMIE SUBDIVISION
SINCLAIR, CARBON COUNTY, WYOMING
Trackage to Serve: POWER COMPANY OF WYOMING

SHEET TITLE: **Rail Civil Details**

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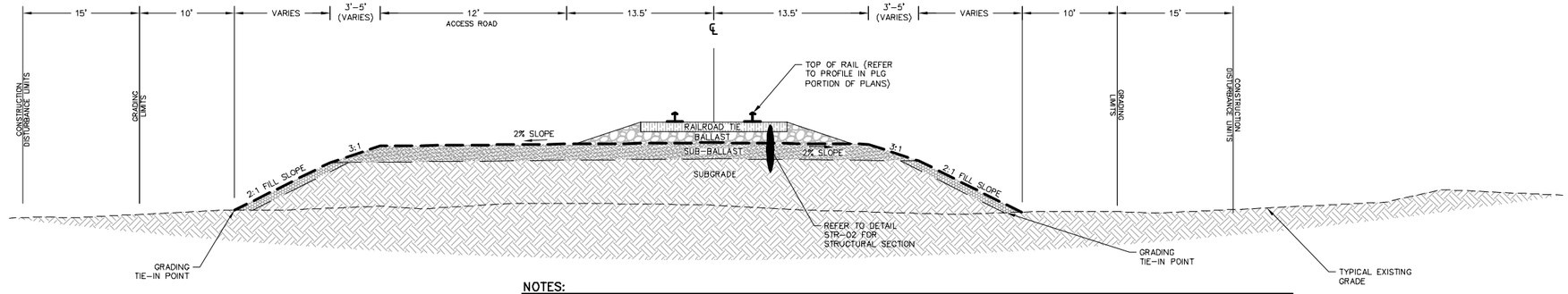

NOTES:

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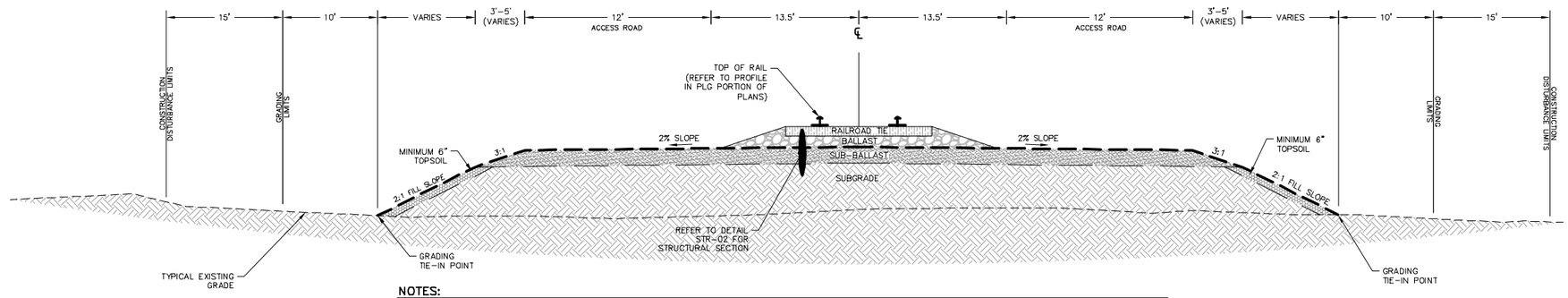
TYPICAL SECTION NOT DRAWN TO SCALE

RAILROAD OWNED SINGLE TRACK TYPICAL RAIL CROSS-SECTION – ROAD LEFT, FILL LEFT, FILL RIGHT

LAST REVISED: 02/01/13

RAIL 04



NOTES:

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TYPICAL SECTION NOT DRAWN TO SCALE

RAILROAD OWNED SINGLE TRACK TYPICAL RAIL CROSS-SECTION – ROAD LEFT, ROAD RIGHT, FILL LEFT, FILL RIGHT

LAST REVISED: 02/01/13

RAIL 05

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DATE: 6/24/13
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For Use In Agreement With: **UNION PACIFIC RAILROAD** and POWER CO. OF WYOMING

LOCATION & DESCRIPTION:
MILEPOST 677.95, LARAMIE SUBDIVISION
SINCLAIR, CARBON COUNTY, WYOMING
Trackage to Serve: POWER COMPANY OF WYOMING

SHEET TITLE: **Rail Civil Details**

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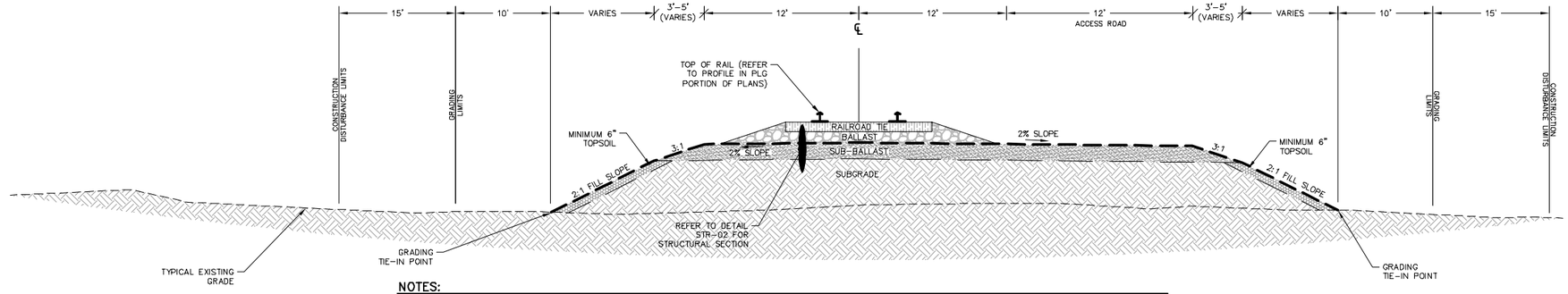
kabrojo



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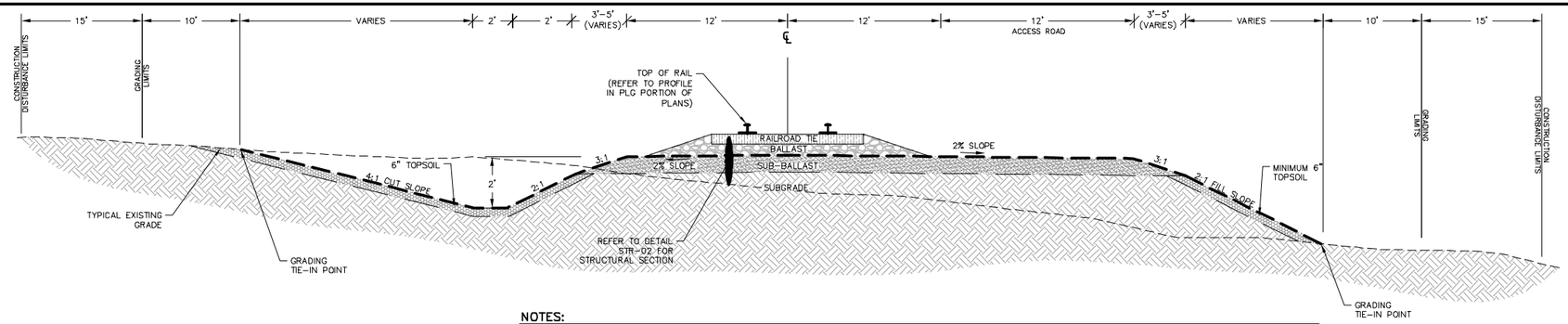
TYPICAL SECTION NOT DRAWN TO SCALE

INDUSTRY OWNED SINGLE TRACK TYPICAL RAIL CROSS-SECTION – ROAD RIGHT, FILL LEFT, FILL RIGHT

LAST REVISED: 02/01/13

RAIL 06



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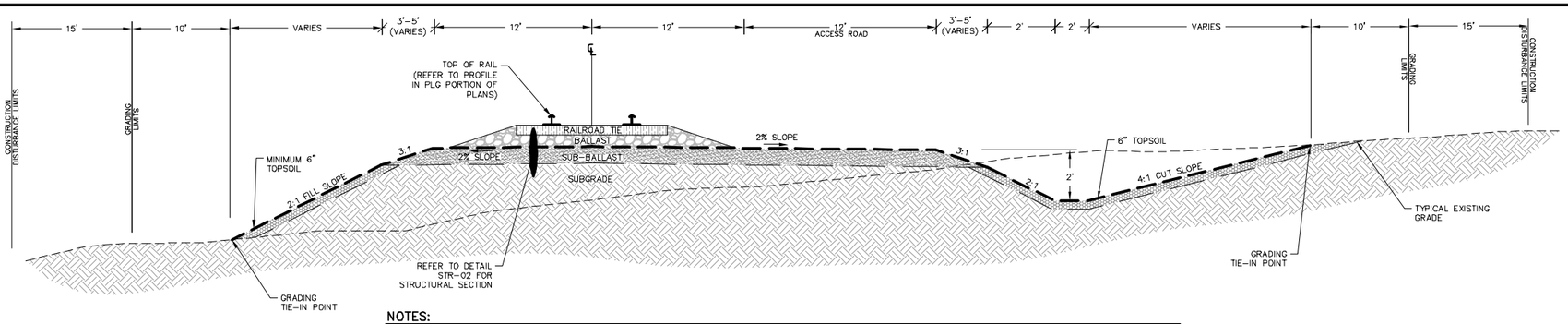
TYPICAL SECTION NOT DRAWN TO SCALE

INDUSTRY OWNED SINGLE TRACK TYPICAL RAIL CROSS-SECTION – ROAD RIGHT, CUT LEFT, FILL RIGHT

LAST REVISED: 02/01/13

RAIL 07



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TYPICAL SECTION NOT DRAWN TO SCALE

INDUSTRY OWNED SINGLE TRACK TYPICAL RAIL CROSS-SECTION – ROAD RIGHT, FILL LEFT, CUT RIGHT

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RAIL 08

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DRAWN BY: DSW
CHECKED BY: RSC
DATE: 6/24/13
SHEET NUMBER: C-04 of 28

For Use In Agreement With: **UNION PACIFIC RAILROAD** and POWER CO. OF WYOMING

LOCATION & DESCRIPTION:
MILEPOST 677.95, LARAMIE SUBDIVISION
SINCLAIR, CARBON COUNTY, WYOMING
Trackage to Serve: POWER COMPANY OF WYOMING

SHEET TITLE: **Rail Civil Details**

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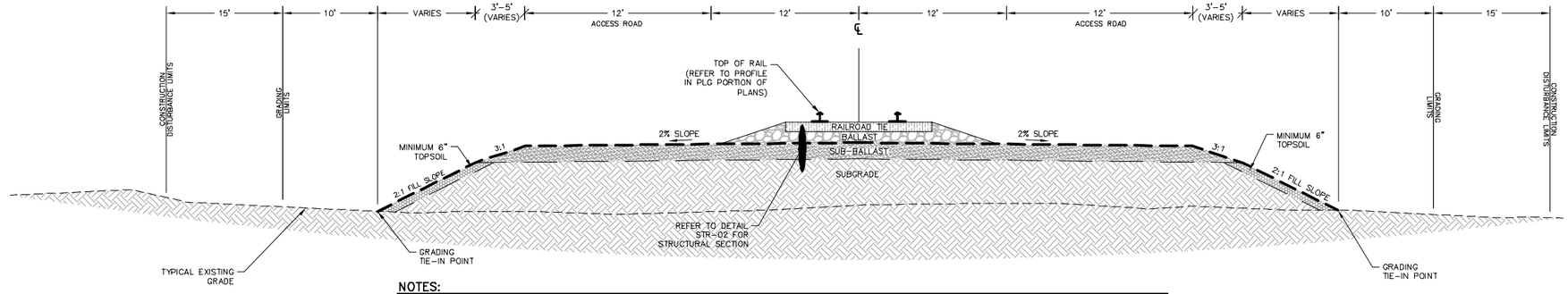
katrojo



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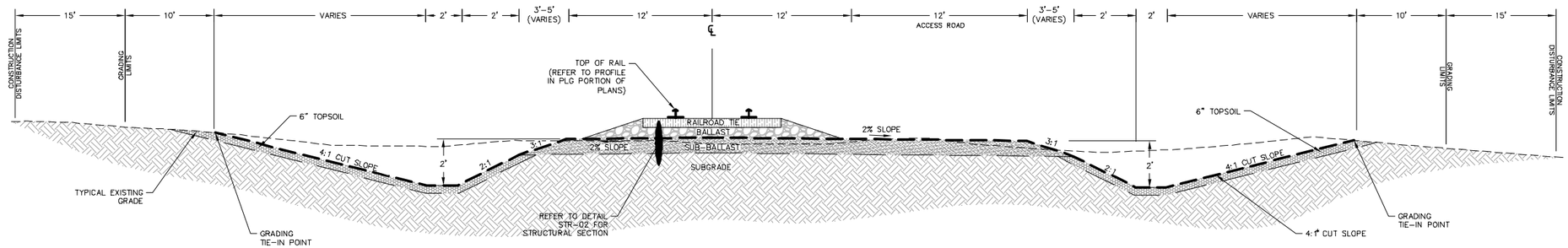
TYPICAL SECTION NOT DRAWN TO SCALE

INDUSTRY OWNED SINGLE TRACK TYPICAL RAIL CROSS-SECTION – ROAD LEFT, ROAD RIGHT, FILL LEFT, FILL RIGHT

LAST REVISED: 02/01/13

RAIL 09



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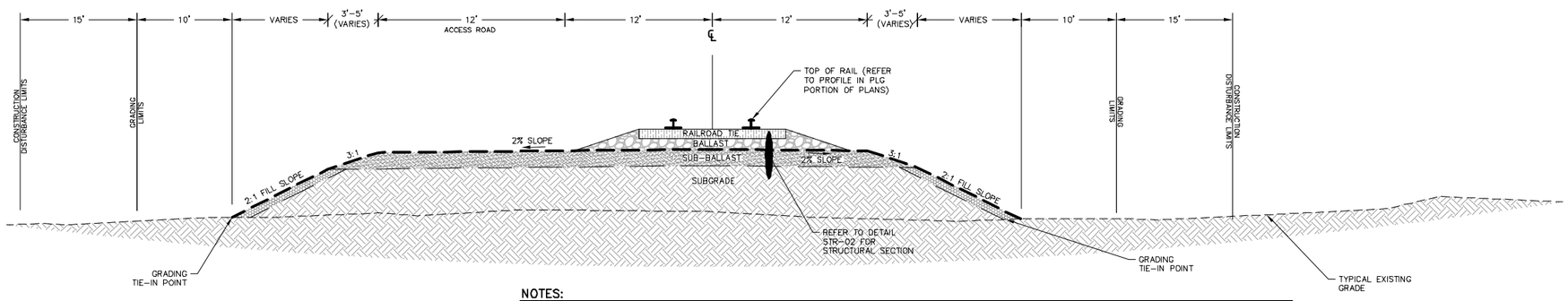
TYPICAL SECTION NOT DRAWN TO SCALE

INDUSTRY OWNED SINGLE TRACK TYPICAL RAIL CROSS-SECTION – ROAD RIGHT, CUT LEFT, CUT RIGHT

LAST REVISED: 02/01/13

RAIL 10



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TYPICAL SECTION NOT DRAWN TO SCALE

INDUSTRY OWNED SINGLE TRACK TYPICAL RAIL CROSS-SECTION – ROAD LEFT, FILL LEFT, FILL RIGHT

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RAIL 11

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DRAWN BY: DSW
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SINCLAIR, CARBON COUNTY, WYOMING
Trackage to Serve: POWER COMPANY OF WYOMING

SHEET TITLE: **Rail Civil Details**

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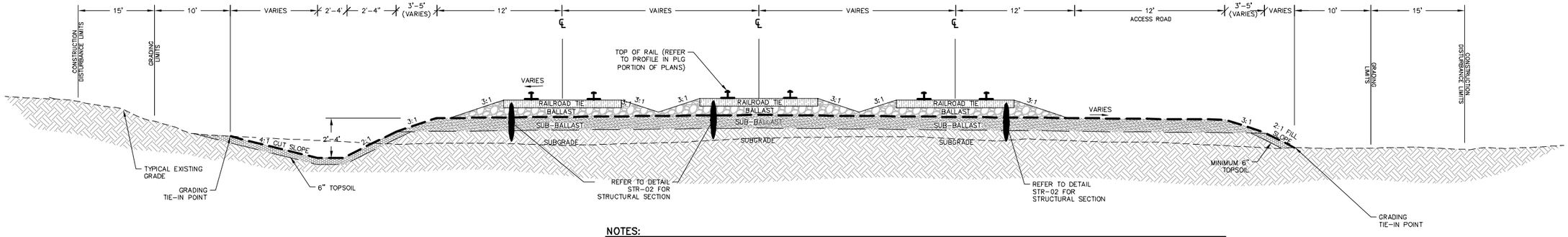


NOTES:

1. NUMBER AND DISTANCE BETWEEN TRACK VARIES THROUGH THE RAIL LOOP.
2. ACCESS ROAD SIDE VARIES. SOME LOCATIONS HAVE ACCESS ROADS ON BOTH SIDES.
3. DITCH DEPTH VARIES.
4. DITCH SIDE VARIES. SOME LOCATIONS REQUIRE DITCHES ON BOTH SIDES.

NOTES:

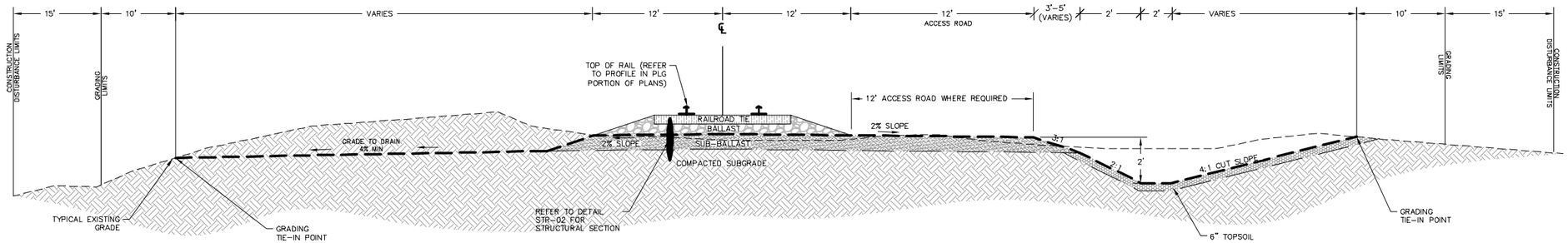
1. REFER TO PLG PORTION OF PLANS FOR RAIL SECTION. SECTION MAY CHANGE BASED ON FINAL GEOTECHNICAL ENGINEERING REPORT.
2. CONSTRUCTION PLANS SHOW TRACK CENTERLINE.
3. SUB-BALLAST SLOPE TYPICALLY 2%. DIRECTION OF FLOW VARIES. ADDITIONAL INFORMATION TO BE PROVIDED WITH FINAL DESIGN.
4. DITCH DEPTH AND SLOPE MAY VARY FROM TYPICAL. MINIMUM DITCH SLOPE 0.2%. ADDITIONAL INFORMATION TO BE PROVIDED WITH FINAL DESIGN
5. ALL DISTURBED GROUND NOT COVERED WITH GRAVEL SHALL BE STABILIZED. REFER TO PLAN AND SWPPP FOR DETAILS.
6. IF EXCESS TOPSOIL IS AVAILABLE, ADDITIONAL TOPSOIL CAN BE PLACED ON FILL SLOPES INCREASING THE DEPTH OF TOPSOIL.

TYPICAL SECTION NOT DRAWN TO SCALE

INDUSTRY OWNED LOOP TRACK MULTIPLE TRACKS TYPICAL RAIL CROSS-SECTION

LAST REVISED: 02/01/13

RAIL 14



NOTES:

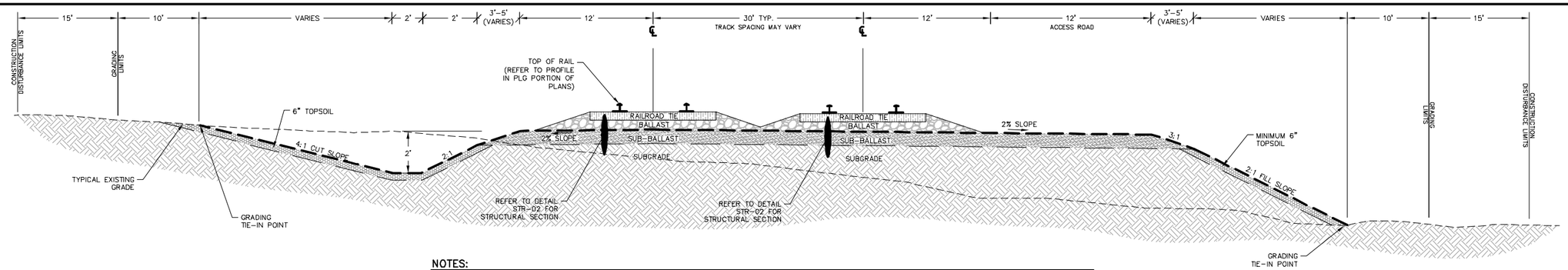
1. REFER TO PLG PORTION OF PLANS FOR RAIL SECTION. SECTION MAY CHANGE BASED ON FINAL GEOTECHNICAL ENGINEERING REPORT.
2. CONSTRUCTION PLANS SHOW TRACK CENTERLINE.
3. SUB-BALLAST SLOPE TYPICALLY 2%. DIRECTION OF FLOW VARIES. ADDITIONAL INFORMATION TO BE PROVIDED WITH FINAL DESIGN
4. DITCH DEPTH AND SLOPE MAY VARY FROM TYPICAL. MINIMUM DITCH SLOPE 0.2%. ADDITIONAL INFORMATION TO BE PROVIDED WITH FINAL DESIGN.
5. ALL DISTURBED GROUND NOT COVERED WITH GRAVEL SHALL BE STABILIZED. REFER TO PLAN AND SWPPP FOR DETAILS.

TYPICAL SECTION NOT DRAWN TO SCALE

INDUSTRY OWNED TYPICAL RAIL CROSS-SECTION – ROAD ON RIGHT, DITCH ON RIGHT, GRADE TO DRAIN ON LEFT

LAST REVISED: 02/08/13

RAIL 16



NOTES:

1. REFER TO PLG PORTION OF PLANS FOR RAIL SECTION. SECTION MAY CHANGE BASED ON FINAL GEOTECHNICAL ENGINEERING REPORT.
2. CONSTRUCTION PLANS SHOW TRACK CENTERLINE.
3. SUB-BALLAST SLOPE TYPICALLY 2%. DIRECTION OF FLOW VARIES. ADDITIONAL INFORMATION TO BE PROVIDED WITH FINAL DESIGN.
4. DITCH DEPTH AND SLOPE MAY VARY FROM TYPICAL. MINIMUM DITCH SLOPE 0.2%. ADDITIONAL INFORMATION TO BE PROVIDED WITH FINAL DESIGN
5. ALL DISTURBED GROUND NOT COVERED WITH GRAVEL SHALL BE STABILIZED. REFER TO PLAN AND SWPPP FOR DETAILS.
6. IF EXCESS TOPSOIL IS AVAILABLE, ADDITIONAL TOPSOIL CAN BE PLACED ON FILL SLOPES INCREASING THE DEPTH OF TOPSOIL.

TYPICAL SECTION NOT DRAWN TO SCALE

INDUSTRY OWNED TYPICAL DOUBLE TRACK RAIL CROSS-SECTION – ROAD RIGHT, CUT LEFT, FILL RIGHT

LAST REVISED: 02/01/13

RAIL 18

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1	DJG	07/12/13	WEST SINCLAIR RAIL FACILITY ISSUED FOR PERMIT PLANS
2	KAB	08/12/13	WEST SINCLAIR RAIL FACILITY ISSUED FOR PERMIT PLANS

DRAWN BY: DSW
CHECKED BY: RSC
DATE: 6/24/13
SHEET NUMBER: C-06 of 28

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LOCATION & DESCRIPTION:
MILEPOST 677.95, LARAMIE SUBDIVISION
SINCLAIR, CARBON COUNTY, WYOMING
Trackage to Serve: POWER COMPANY OF WYOMING

SHEET TITLE: **Rail Civil Details**

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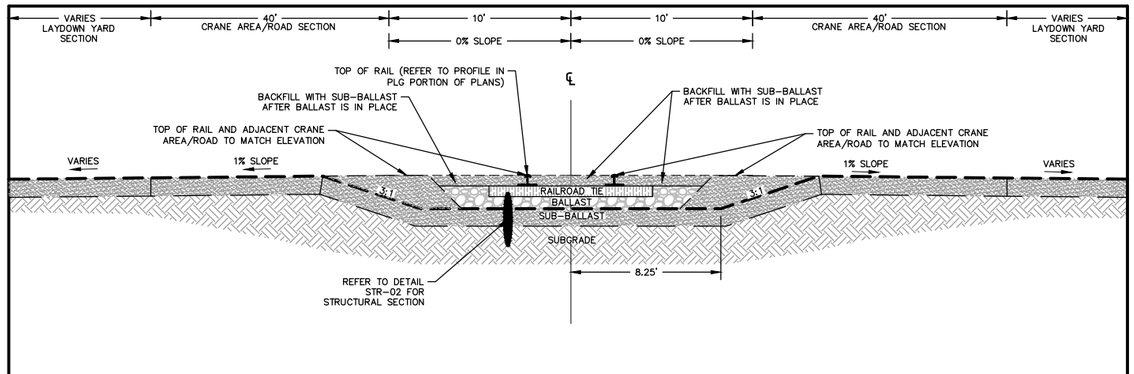
kabaje



NOTES:

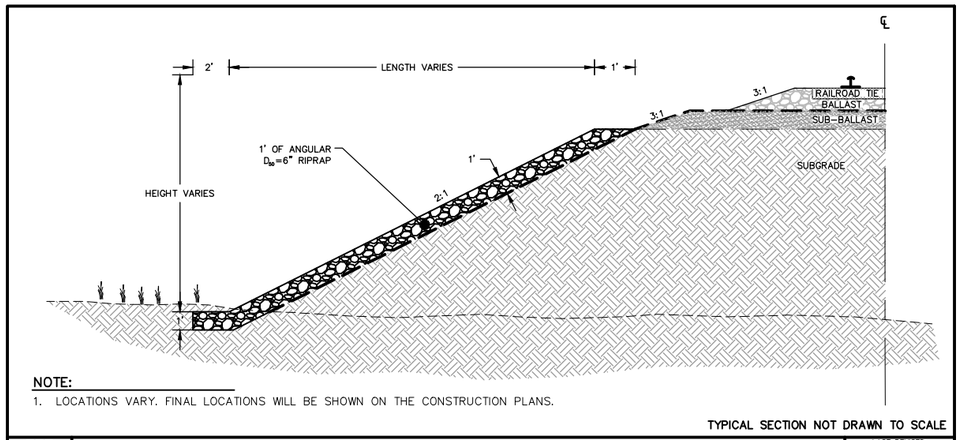
1. LOCATIONS VARY. REFER TO PLAN FOR LOCATIONS WITH CRANE AREA/ROAD OR SUB-BALLAST ADJACENT TO EMBEDDED AREAS.
2. REFER TO PLAN FOR LOCATION OF EMBEDDED TRACK.

TYPICAL SECTION NOT DRAWN TO SCALE

TYPICAL RAIL CROSS-SECTION ADJACENT TO LAYDOWN YARD OR CRANE SERVICE ROAD

LAST REVISED: 02/01/13

RAIL 15



NOTE:

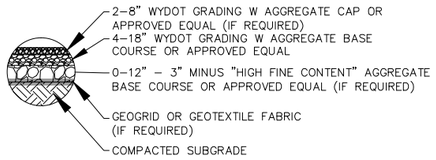
1. LOCATIONS VARY. FINAL LOCATIONS WILL BE SHOWN ON THE CONSTRUCTION PLANS.

TYPICAL SECTION NOT DRAWN TO SCALE

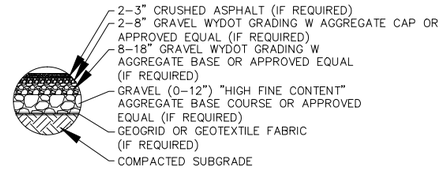
TYPICAL ROCK STABILIZATION OF FILL SLOPES

LAST REVISED: 02/01/13

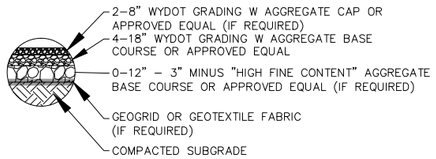
RAIL 17



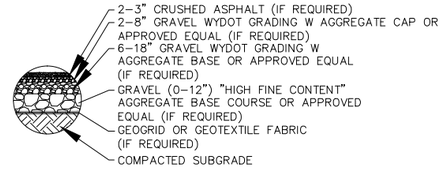
ACCESS ROAD CROSS SECTION



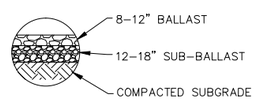
RAIL LAYDOWN YARD-HIGH VOLUME AREA CROSS SECTION



CRANE AREA CROSS SECTION



RAIL LAYDOWN YARD-LOW VOLUME AREA CROSS SECTION



RAIL LINE CROSS SECTION

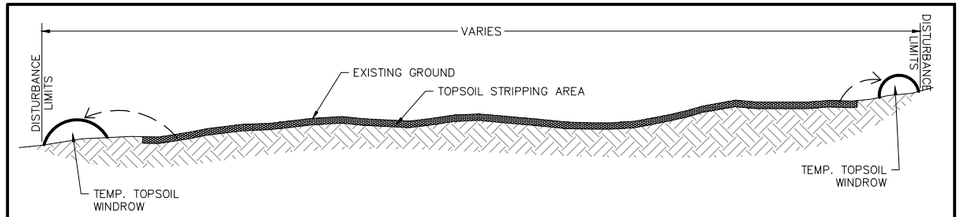
NOTE:

1. CONTRACTOR TO REFER TO PLG PORTION OF THE PLANS FOR ACTUAL RAIL LINE CROSS SECTION. CONTRACTOR TO NOTIFY ENGINEER IF THERE HAS BEEN A DISCREPENCY BETWEEN PLG'S TYPICAL SECTION AND WESTWOOD'S TYPICAL SECTION.
2. ALL SECTIONS PENDING FINAL GEOTECHNICAL REPORT AND COULD CHANGE BASED ON SPECIFIC INFORMATION. SECTIONS WILL BE UPDATED PRIOR TO FINAL PLANS.

TYPICAL STRUCTURAL CROSS SECTIONS

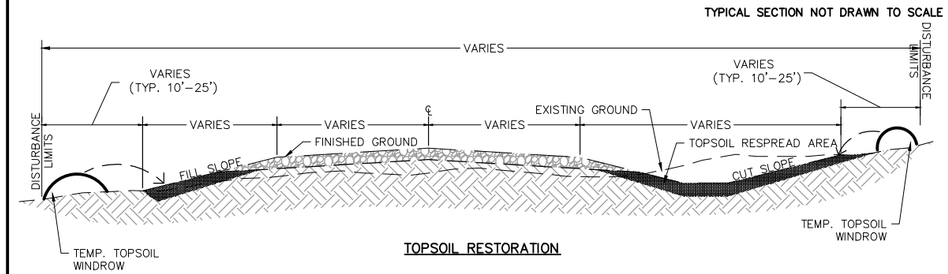
LAST REVISED: 02/01/13

STR-02



TOPSOIL STRIPPING

TYPICAL SECTION NOT DRAWN TO SCALE



TOPSOIL RESTORATION

NOTES:

1. TOPSOIL PLACEMENT FOLLOWING ROAD CONSTRUCTION SHALL BE AT THE SAME DEPTH OR DEEPER THAN ORIGINAL DEPTH DURING TOPSOIL STRIPPING.
2. TOPSOIL SHALL BE PLACED WITHIN THE SAME GENERAL AREA FROM WHICH IT WAS STRIPPED.
3. TOPSOIL WINDROW MAY OCCUR ON ONLY ONE SIDE OF ROAD.

TYPICAL SECTION NOT DRAWN TO SCALE

TYPICAL ROAD CONSTRUCTION TOPSOIL HANDLING

LAST REVISED: 08/01/13

TS06

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REV. #	BY	DATE	DESCRIPTION
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1	DJG	07/12/13	WEST SINCLAIR RAIL FACILITY ISSUED FOR PERMIT PLANS
2	KAB	08/12/13	WEST SINCLAIR RAIL FACILITY ISSUED FOR PERMIT PLANS
3	DFK	03/13/14	UPDATED UTILITY CORRIDOR AND TOPSOIL HANDLING INFORMATION

DRAWN BY: DSW
CHECKED BY: RSC
DATE: 6/24/13
SHEET NUMBER: C-07 of 28

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SINCLAIR, CARBON COUNTY, WYOMING
Trackage to Serve: POWER COMPANY OF WYOMING

SHEET TITLE: **Rail Civil Details**

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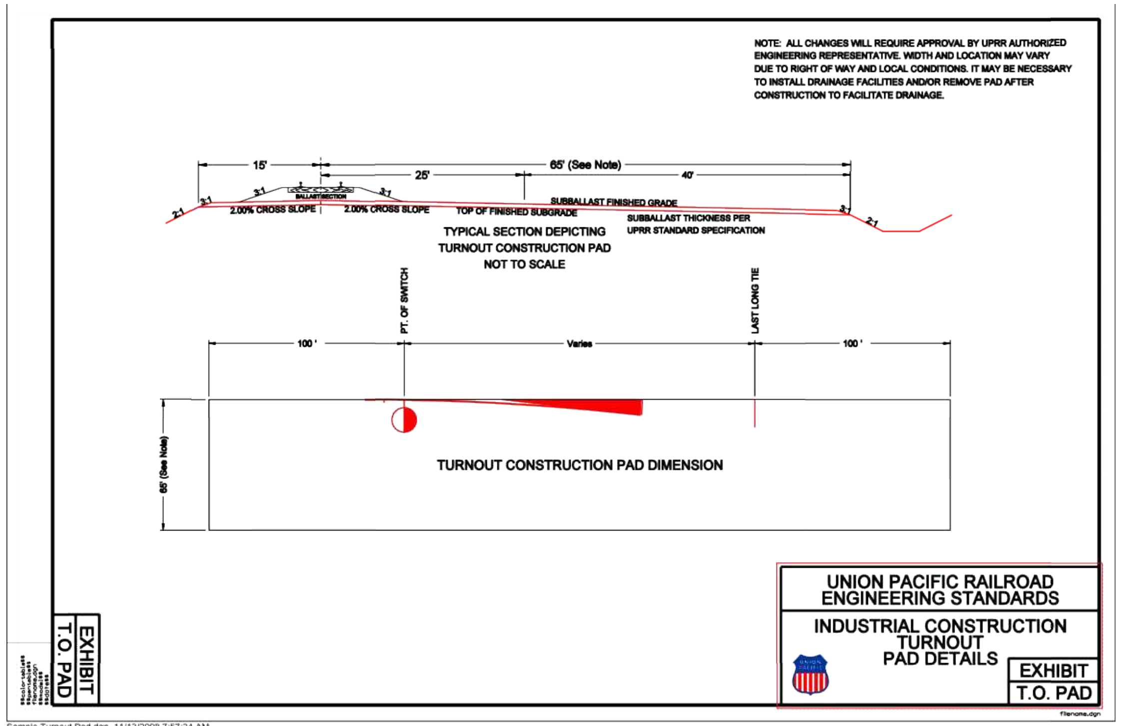
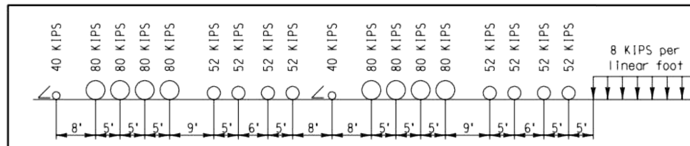
dfkeleher



GUIDELINES FOR TEMPORARY SHORING Published October 25, 2004



COOPER E80 LOAD
SCALE: (NOT TO SCALE)

Vertical pressure q shall be based on a distribution width Ld.
Ld is the length of tie plus H_1.
H_1 is the height from the bottom of tie to the top of shoring.
H_2 is the depth of point being evaluated with the Boussinesq equation.
S is a distance perpendicular from centerline of track to the face of shoring.
D is from top of shoring to one foot below dredge line.
Zp is the minimum embedment depth.
Length of tie is 9 feet
q is the intensity of strip load due to E80 Railroad live load and shall be calculated as follows:

For $H_1 = 0$ Ld = length of tie; therefore, $q = \frac{80,000 \text{ lb}}{(5 \text{ feet})(9 \text{ feet})} = 1,778$ psf

For $H_1 > 0$ Ld = length of tie + H_1; therefore, $q = \frac{80,000 \text{ lb}}{(5 \text{ feet})(Ld)}$

CASE 1: Lateral live load pressure Ps, due to E80 loading for track **parallel** to shoring system is calculated using the Boussinesq Strip Load Equation.

$Ps = \frac{2q}{\pi}(\beta + \sin\beta \sin^2\alpha - \sin\beta \cos^2\alpha)$

The above equation can be simplified into the following equivalent form:

$Ps = \frac{2q}{\pi}[\beta - \sin\beta \cos(2\alpha)]$

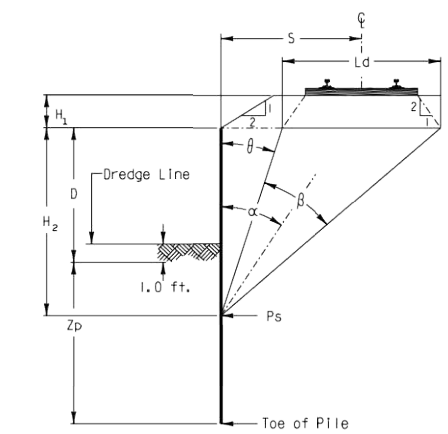
α and β are angles measured in radians, $\alpha = \theta + \frac{\beta}{2}$

CASE 2: Live load pressure due to E80 loading for track at a **right angle** to the shoring system can be calcuated using the following equation.

$Ps = K_A q$

where $K_A = \tan^2(45 - \frac{\phi}{2})$

ϕ is the angle of internal friction in degrees



PLAN
SCALE: (NOT TO SCALE)

REVISIONS		
DATE	LTR.	DESCRIPTION
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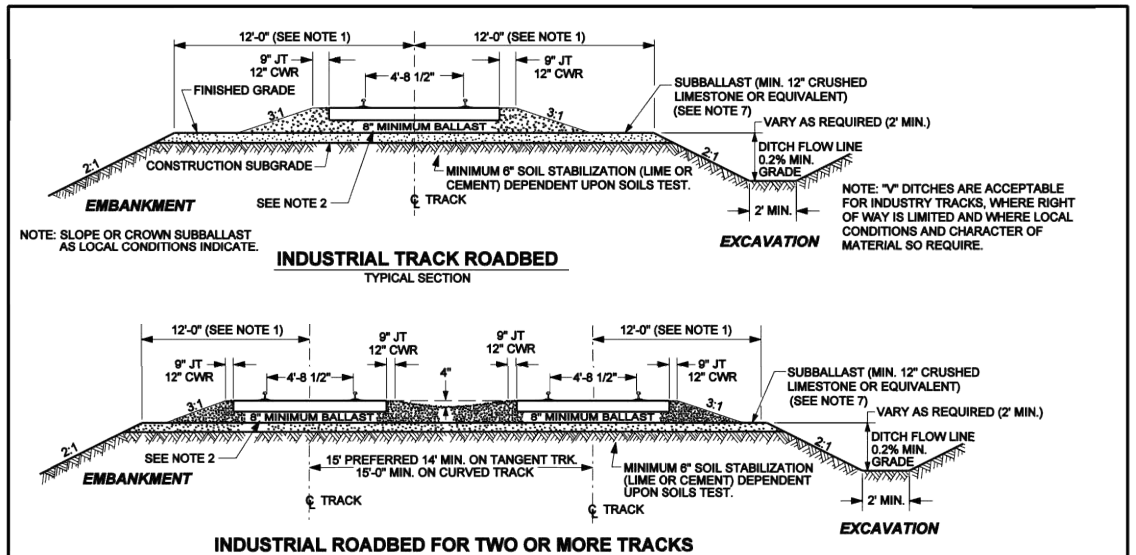
DESIGN BY: PGP | DRAWN BY: JFS | CHECKED BY: AA
APPROVED: K.H. Jennison
BNSF - ASSISTANT DIRECTOR STRUCTURES DESIGN
[signature] 9-1-04
UPRR - MGR SPECIAL PROJECTS STRUCTURES DESIGN

BRIDGE SHORING STANDARDS
LIVE LOAD PRESSURE DUE TO COOPER E80
FILE OWNER: UPRR | DATE:
PLAN NO.: 710001 | SHEET: 1 OF 1
PLOTTED: $$$$DATE$$$ $TIME

Figure 2

8



NOTES:
1. 12' SHOULDER WIDTH STANDARD. 11' SHOULDER MUST BE APPROVED BY CHIEF ENGINEER.
2. IF USING CONCRETE TIES - 10" MINIMUM BALLAST UNDER TIES.
3. PREFERABLY TRACKS WILL NOT BE DEPRESSED BELOW GROUND LEVEL PARTICULARLY IN SNOW AND HIGH RUNOFF TERRITORIES, TRACKS CONSTRUCTED AT OR BELOW GROUND LEVEL MUST HAVE FULL STANDARD ROADBED DITCHES.
4. ALL NECESSARY DRAINAGE FACILITIES TO DIVERT RUNOFF WATER AWAY FROM TRACKS ARE TO BE PROVIDED AS APPROVED BY UNION PACIFIC RAILROAD'S CHIEF ENGINEER OF DESIGN.
5. WALKWAYS WILL BE CONSTRUCTED TO COMPLY WITH STATE REQUIREMENTS.
6. THESE STANDARDS DO NOT APPLY TO ORE AND COAL LINES OR OTHER HEAVILY USED TRACKS.
7. REFER TO EXHIBIT "H" IF LESS THAN 12" OF SUBBALLAST IS TO BE USED.

STD DWG 0003

UNION PACIFIC RAILROAD ENGINEERING STANDARDS
ROADBED SECTION FOR INDUSTRIAL TRACK CONSTRUCTION
ADOPTED: AUG. 31, 2004
REVISED:
FILE NO.: 0003
STD DWG 0003

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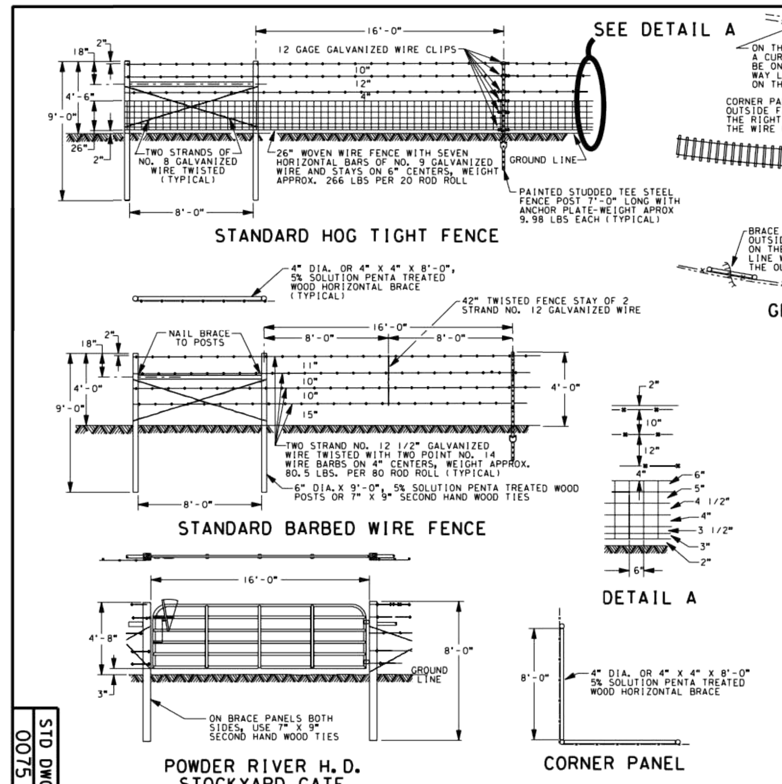

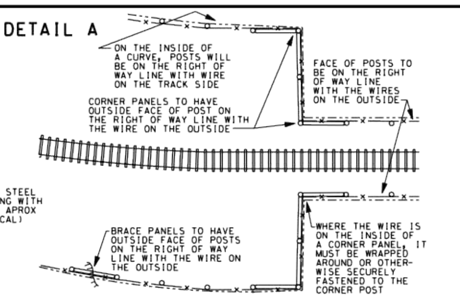

GENERAL ARRANGEMENT

NOTES:
HOG TIGHT FENCE TO BE INSTALLED WHERE REQUESTED BY THE ADJACENT PROPERTY OWNER AND THE OTHER SIDES OF THE ENCLOSURE ARE SIMILARLY PROTECTED.

DIMENSIONS OF WOOD PANEL POST AND BRACES SHALL NOT VARY MORE THAN 1/2" UNDERSIZE OR 1" OVERSIZE IN DIA. OR 3" IN LENGTH.

WHEN SECOND HAND TIES ARE USED FOR PANEL POST, THEY SHALL BE SET TO EXTEND ABOVE THE GROUND LINES AS SHOWN, REGARDLESS OF THEIR LENGTH.

BRACE PANELS TO BE INSTALLED AT ALL GRADE BREAKS, END OF FENCE, EACH SIDE OF GATE OPENINGS AT CATTLE GUARDS AND NOT MORE THAN 500' APART.

GATE SHALL BE 182 LBS., 52" HIGH, 15'-10 3/4" LONG. FRAME TO BE ONE PIECE 1 5/8" DIA. STEEL TUBE, .066" WALL. RAILS TO BE HIGH STRENGTH 16 GAGE S-BEND SHAPE. STAYS TO BE ROLL-FORMED 12 GAGE WELDED IN PAIRS. LATCH DOUBLE PIN 1/2" X 1" STEEL WITH LOCK AND SADDLE HORSE TYPE HANDLE. HINGE TO BE FULL WRAP OMEGA STYLE 1/4" STEEL, BOTTOM IN FIXED POSITION AND TOP WILL ADJUST VERTICALLY 5" BETWEEN RAILS. LATCH PLATE TO BE ONE PIECE 4" X 4". LATCH PIN TO BE 1 1/2" X 1 3/4" AND NOTCH POST TO ACCOMMODATE LATCH PIN. LATCH PIN EXTENDS 3" PAST TUBE.

REF. PREVIOUS U.P. STD PAGE NO. 301A.

UNION PACIFIC RAILROAD ENGINEERING STANDARDS
STANDARD RIGHT OF WAY FENCE
ADOPTED: MAY 14, 1930
REVISED: DEC. 30, 1996
FILE NO.: 0075
STD DWG 0075

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LOCATION & DESCRIPTION:
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SINCLAIR, CARBON COUNTY, WYOMING
Trackage to Serve: POWER COMPANY OF WYOMING
SHEET TITLE: Union Pacific Details

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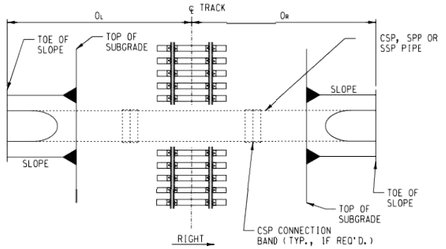
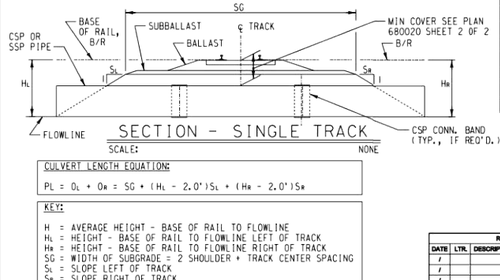


PLAN - SINGLE TRACK

SCALE: NONE



SECTION - SINGLE TRACK

SCALE: NONE

CULVERT LENGTH EQUATION:

$PL = O_L + O_R = SG + (H_L - 2.0')S_L + (H_R - 2.0')S_R$

KEY:

H = AVERAGE HEIGHT - BASE OF RAIL TO FLOWLINE
H_L = HEIGHT - BASE OF RAIL TO FLOWLINE LEFT OF TRACK
H_R = HEIGHT - BASE OF RAIL TO FLOWLINE RIGHT OF TRACK
SG = WIDTH OF SUBGRADE = 2 SHOULDER + TRACK CENTER SPACING
S_L = SLOPE LEFT OF TRACK
S_R = SLOPE RIGHT OF TRACK
PL = PIPE LENGTH
O_L = OFFSET LEFT
O_R = OFFSET RIGHT

Assume SG = 30'

CULVERT PIPE LENGTH (PL) FOR STANDARD CROSS SECTIONS

H - B/R TO FLOWLINE (FT.)	SINGLE TRACK SLOPE			13' TRACK CENTERS SLOPE			20' TRACK CENTERS SLOPE		
	1.5:1	2:1	3:1	1.5:1	2:1	3:1	1.5:1	2:1	3:1
4	36	38	42	50	52	56	58	60	64
5	40	42	48	52	56	62	60	64	70
6	42	46	54	56	60	68	64	68	76
7	46	50	60	58	64	74	66	72	82
8	48	54	66	62	68	80	70	76	88
9	52	58	72	64	72	86	72	80	94
10	54	62	78	68	76	92	76	84	100
11	58	66	84	70	80	98	78	88	106
12	60	70	90	74	84	104	82	92	112
13	64	74	96	76	88	110	84	96	118
14	66	78	102	80	92	116	88	100	124
15	70	82	108	82	96	122	90	104	130
16	72	86	114	86	100	128	94	108	136
17	76	90	120	88	104	134	96	112	142
18	78	94	126	92	108	140	100	116	148
19	82	98	132	94	112	146	102	120	154
20	84	102	138	98	116	152	106	124	160
21	88	106	144	100	120	158	108	128	166
22	90	110	150	104	124	164	112	132	172
23	94	114	156	106	128	170	114	136	178
24	96	118	162	110	132	176	118	140	184
25	100	122	168	112	136	182	120	144	190
26	102	126	174	116	140	188	124	148	196

LENGTHS ARE ROUNDED TO THE NEAREST EVEN NUMBER OF FEET
TABLE ASSUMES 15'-0" SHOULDER FOR SINGLE TRACK AND 13' CENTERS,
15'-6" SHOULDER FOR 20' TRACK CENTERS,
ADD 10' FOR EACH ACESS ROAD,
LENGTHS SHOWN ARE FOR STANDARD CROSS SECTIONS FOR TANGENT TRACK,
ADD 2' TO PIPE LENGTH (TO OUTSIDE OF CURVE) IF SUPER ELEVATION IS 2" OR GREATER.

REVISIONS		
DATE	LTR.	DESCRIPTION
/		
/		
/		
/		
/		
/		

DESIGN BY: CLJ | DRAWN BY: KDM | CHECKED BY: CLJ

APPROVED:

George J. Mayer 4/4/08

UPRR - MGR SPECIAL PROJECTS STRUCTURES DESIGN

BRIDGE STANDARDS

GENERAL NOTES AND DETAILS FOR ROUND STEEL PIPE CULVERTS

FILE OWNER: UPRR | DATE:

PLAN NO.: 680020 | SHEET: 1 OF 2

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FILE NAME: p:\station\dgn\stdPipe culvert\steelpip.dgn

CONSTRUCTION NOTES

GENERAL:

These structures are designed for Cooper E80 live load with impact, and cover as shown in Table 1.

Generally, 30 inch diameter and larger Corrugated Steel Pipe (CSP) is preferred for mainline culverts. Smaller pipes are to be used for local drainage.

Table 1 indicates the minimum required gage thickness for structural stability.

INSTALLATION:

1. Installation of CSP shall conform to the current American Railway Engineering and Maintenance-of-Way Association (AREMA) Manual for Railway Engineering, Chapter 1, Part 4, Culvert lengths are to be based on standard mainline roadbed sections.
2. These standards are for installation in soil with a pH of 5-9 and resistivity ≥ 1,500 ohm-cms. Pipes located in soils outside this range shall have additional corrosion protection as specified by the engineer.
3. Wire or timber strutting used during installation must be removed immediately after installation and backfill are complete.
4. Pipe culverts will generally be joined using 2 foot wide locking corrugated metal connecting bands. The inside of corrugated connecting bands and the outside of pipe culverts to be joined by corrugated connecting bands shall be kept clean and free of all rust, dirt or gravel. The corrugations on the connecting bands and the pipe culvert shall fit snugly as the connecting bands are tightened.
5. Corrugated steel pipe culverts must be placed with the inside circumferential laps pointing downstream.
6. Culverts resting on rock foundation need not be cambered. Unless otherwise specified by the engineer all other CSP culverts shall be cambered in accordance with the following:
   A. Embankments up to 8 feet high (measured base of rail to flowline) require a 1½ inch camber.
   B. Embankments 8 feet to 12 feet high require a 2½ inch camber.
   C. Embankments 12 feet to 18 feet high require a 4 inch camber.

In no case shall the culvert be cambered so high in the center that water will be pocketed at the inlet end of the pipe.

PIPE MATERIAL SPECIFICATIONS, FABRICATION AND TOLERANCE:

1. CSP material shall be in accordance with the current AREMA Manual for Railway Engineering, Chapter 1, Part 4, Section 3.
2. The pipe shall be fabricated, assembled into sections and furnished as follows:

   12", 18", 21", AND 24" DIAMETER ONLY:
   Class I with 2 2/3" x ½" annular corrugations.
   Shape 1, vertical elongation is not required.
   Single riveted longitudinal seams.

   30" DIAMETER AND GREATER:
   Class I with 3" x 1" annular corrugations (30 inch pipes may have 2 2/3" x ½" annular corrugations).
   Shape 2, factory elongated with vertical length 5% greater than the nominal diameter.
   Double riveted seams.

   ALL CSP DIAMETERS:
   Square cut ends.
   Two lifting lugs per preassembled section.
   Lifting hardware for erection and installation.
   Aluminized Type 2 per American Association of State Highway and Transportation Officials (AASHTO) M274 (96 inch diameter pipes shall be galvanized).
3. Permanently attach an identification plate inside the pipe near the end of the segment. The plate is to contain the following information in at least ¼ inch high letters:
   Name of manufacturer and plant location
   Date assembled
   Gage
   Diameter
   Length

   The same information plus the lifting weight shall be stenciled on the outside face of the pipe.
4. The inside diameter of the circular pipe shall not vary more than ½ inch from the nominal diameter when measured on the inside crest of the corrugations for diameters through 48 inches, and ¾ for diameters greater than 48 inches. In no case shall the difference in the diameter of the abutting pipe ends be more than ½ inch.
5. The minimum width of the longitudinal lap is 1½ inches for all pipes with nominal inside diameter of 12 to 21 inches, 2 inches for pipes with nominal inside diameter of 24 inches or 30 inches, and 3 inches for all pipes with nominal inside diameter of 36 inches or greater.
6. Riveted Seams:
   A. All 14 gage pipe shall have at least 5/16 inch diameter rivets. All 12 gage and thicker pipe shall have at least 3/8 inch diameter rivets.
   B. Longitudinal seams shall be riveted with one rivet in each corrugation valley for all pipes 24 inches in diameter and smaller. Longitudinal seams shall be riveted with two rivets in each corrugation valley for all pipes larger than 24 inches. Circumferential seams shall be riveted with a maximum rivet spacing of six inches.
   C. All rivets shall be cold driven in such a manner that the metal shall be drawn tightly together throughout the entire lap. The center of each rivet shall not be closer than two rivet diameters from the edge of the sheet. All rivets shall have full hemispherical heads or heads of a form acceptable to the engineer. They shall be driven in a workmanlike manner to completely fill the hole without bending.
   D. Rivets shall conform to the specifications of ASTM International A31, Grade A and shall be electroplated in accordance with the specifications of ASTM International A164, Type RS.
7. Pipes shall be jointed with locking coupling bands in accordance with the provisions of the AREMA Manual for Railway Engineering Chapter 1, Part 4, Section 4.3.4. Coupling bands shall be of the same base metal and finish as the pipe. Coupling bands shall be 24 inches wide for pipes 30 inch diameter and larger. Smaller pipes may use 7 inch wide bands. Coupling band thickness is shown in Table 1.

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APPROVED:

George J. Mayer 4/4/08

UPRR - MGR SPECIAL PROJECTS STRUCTURES DESIGN

BRIDGE STANDARDS

CONSTRUCTION NOTES AND TABLE FOR CORRUGATED STEEL PIPE CULVERTS

FILE OWNER: UPRR | DATE:

PLAN NO.: 680020 | SHEET: 1 OF 2

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FILE NAME: p:\station\dgn\stdPipe culvert\steelpip.dgn

GENERAL NOTES

CORROSION PROTECTION:

The engineer shall obtain site specific information on corrosiveness of the soil which may require an increase in material thickness or protective coatings based on local experience.

WELL COMPACTED FILL:

Well compacted fill shall be well graded granular soil free of any organic material, stones larger than 1½ inches, frozen lumps, debris or excessive moisture. Fill shall be compacted to 95% of maximum dry density as defined in ASTM International D1557 (Modified Proctor). Fill shall be placed and compacted in layers not to exceed 6 inches. Fill shall be placed simultaneously on both sides of the pipe and between multiple pipes. CLSM may be used in lieu of well compacted fill.

CONTROLLED LOW-STRENGTH MATERIAL (CLSM) FILL:

Controlled Low-Strength Material is a self-compacting, cementitious fill material with an unconfined compressive strength of 50 to 300 psi. The mixture shall consist of water, Portland cement, fly ash, and sound fine or coarse aggregate or both. The mix design shall allow adequate flowability without segregation of aggrates. Hardening time is of prime importance and CLSM should develop 50 psi in about one hour. The maximum layer of thickness for CLSM shall be 3 feet. Additional layers shall not be placed until the CLSM has lost sufficient moisture to be walked on without indenting more than two inches. Pipe spacing may be reduced with CLSM.

PIPE BEDDING:

Pipe bedding shall be granular material such as aggregates ordinarily specified and used in the construction of highway base and subbase. These aggregates include crushed stone, natural or crushed gravel, natural or manufactured sands, crushed slag or a homogeneous mixture of these materials. Pipe bedding shall be compacted to 95% of maximum dry density as defined in ASTM International D1557 (Modified Proctor). Recommended gradation is as follows:

SCREEN SIZE	% PASSING (BY WEIGHT)
1 inch	100
½ inch	60-90
⅜ inch	20-40
No. 4	10-20
No. 200	less than 5%

Union Pacific sealant ballast, item no. 562-5428, may be used.

FIBER OPTIC CABLE:

Contact the Union Pacific "Call Before You Dig" number 90 days (no less than 60 days) prior to the proposed construction start date. Prior to construction, confirm that all necessary relocations have been completed. The CBYD number is: 1-800-336-9193.

RIPRAP:

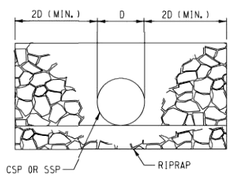
Class of riprap shall be specified by the engineer. Riprap shall be placed in such a manner as to avoid segregation of various sizes of rock, and distributed so that there will be no large accumulation of either the larger or smaller sizes of stone. Individual rocks shall be placed in tight contact with one another in such a way to produce the least amount of void spaces. Riprap shall be solid, unfractured rock or concrete, bulky in shape with sharp angular edges.

Individual rocks shall vary as shown:

RIPRAP CLASS	AVERAGE WEIGHT PER STONE (LBS.)	DIMENSION (INCHES)	ITEM NO.	UNIT OF MEASURE	LAYER THICKNESS	TYPICAL VELOCITIES
I	50 to 200	9 to 14	562-2764	Ton	1'-6"	6 - 8 fps
II	200 to 1,000	14 to 24	562-3430	Ton	2'-0"	8 - 12 fps
III	1,000 to 4,000	24 to 38	562-4096	Ton	3'-0"	> 12 fps
IV	> 4,000	> 38	562-4762	Ton	4'-0"	SPECIAL CASES

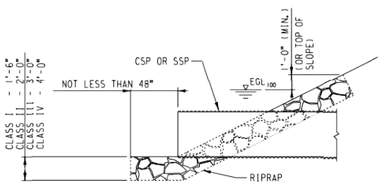
The entire mass of riprap shall well distributed within the limits specified. However, the following allowances shall be acceptable to produce the required riprap protection:

Riprap Class I - No allowances are permitted
Riprap Class II - 15% of Riprap Class I,
Riprap Class III - 15% of Riprap Class I and 15% of Riprap Class II,
Riprap Class IV - 15% of Riprap Class I, 15% of Riprap Class II, and 15% of Riprap Class III.



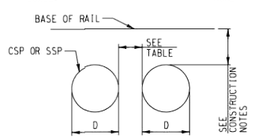
RIPRAP - ELEVATION

SCALE: NONE



RIPRAP - SECTION

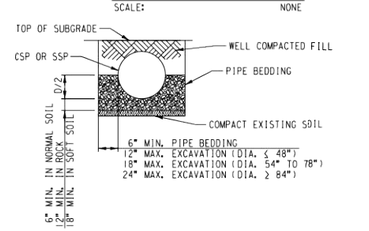
SCALE: NONE



MINIMUM PIPE SPACING AND COVER

SCALE: NONE

SPACING CHART	
PIPE DIAMETER	MIN. SPACING BETWEEN PIPES
12" to 24"	12"
24" to 96"	D/2
96" OR MORE	48"



EXCAVATION AND FILL LIMITS

SCALE: NONE

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APPROVED:

George J. Mayer 4/4/08

UPRR - MGR SPECIAL PROJECTS STRUCTURES DESIGN

BRIDGE STANDARDS

GENERAL NOTES AND DETAILS FOR ROUND STEEL PIPE CULVERTS

FILE OWNER: UPRR | DATE:

PLAN NO.: 680020 | SHEET: 2 OF 2

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FILE NAME: p:\station\dgn\stdPipe culvert\steelpip.dgn

CONSTRUCTION NOTES

GENERAL:

These structures are designed for Cooper E80 Live Load with Impact, and cover as shown in Table 1.

Table 1 indicates the minimum required thickness.

INSTALLATION:

Installation of Smooth Steel Pipe (SSP) shall conform to the current American Railway Engineering and Maintenance-of-Way Association (AREMA) Manual for Railway Engineering, Chapter 1, Part 4, Culvert lengths are to be based on standard mainline roadbed sections.

JACKING:

Where indicated, pipe to be bored and jacked into place. Bore hole diameter shall be essentially the same as the outside diameter of the pipe. If voids should develop or if the bored hole diameter is greater than the outside diameter of the pipe by more than 1 inch, notify the Office of AVP Engineering Design. Boring operations shall not be stopped if such a stoppage would be detrimental to the railroad. A survey crew shall continually monitor the elevation and alignment of the railroad track(s) above during the jacking procedures. If track movement or loss of ballast exceeds ½ inch during jacking or boring operations, all work must stop and the Railroad notified. The Railroad may take any action necessary to ensure safe passage of trains. The contractor must immediately submit a corrective plan of action to the Railroad for review and aproval. The Railroad must review and approve the proposed repair proceedure. The finished repair must be inspected by the Railroad before the track can be placed back into service, and the construction proceed.

BORED AND JACKED TOLERANCE:

The permitted tolerance of a true line is +/- 2". Adjustment to the line and level should be gradual to ensure that the pipe manufacture's stated angular deflection is not exceeded at any joint.

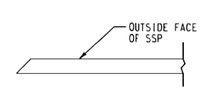
FIELD WELDING:

Welders must posses valid certification.

MATERIALS:

Pipe shall be in accordance with ASTM International A139. Pipe to be Grade B and steel shall have a minimum yield strength of 35 ksi. A hydrostatic test is not required.

Smooth steel pipe shall have a welded straight longitudinal seam. The ends of each section of pipe shall be square cut. One end shall be suitably beveled for field welding sections together.

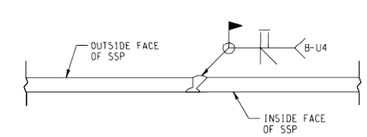


PIPE END BEVEL DETAIL

TABLE 1 - ROUND SMOOTH STEEL PIPE (SSP)

OUTSIDE PIPE DIAMETER	THICKNESS (IN.)	WEIGHT (LB./FT.)	COVER * MIN. (FT.)	COVER * MAX. (FT.)	20'-0" LENGTH STORE ITEM NUMBERS	20'-0" LENGTH WEIGHT (LB.)
12"	⅜	24	1'-6"	18'-0"	-	480
18"	¼	48	1'-6"	18'-0"	-	960
21"	5/16	69	1'-6"	18'-0"	-	1,380
24"	5/16	80	1'-6"	18'-0"	-	1,600
30"	⅜	119	1'-6"	18'-0"	-	2,380
36"	½	190	1'-6"	18'-0"	510-3285	3,800
42"	½	222	1'-6"	18'-0"		4,440
48"	5/8	317	1'-6"	18'-0"	510-3293	6,340
60"	¾	475	1'-6"	18'-0"	-	9,500
72"	⅞	666	1'-6"	18'-0"	-	13,320
84"	1	888	1'-6"	18'-0"	-	17,760
96"	1¼	1,267	1'-6"	18'-0"	-	25,340

* COVER TO BE MEASURED FROM BASE OF RAIL TO TOP OF PIPE



PIPE END WELD DETAIL

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APPROVED:

George J. Mayer 4/4/08

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BRIDGE STANDARDS

CONSTRUCTION NOTES AND TABLE FOR SMOOTH STEEL PIPE CULVERTS

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2	KAB	08/12/13	WEST SINCLAIR RAIL FACILITY ISSUED FOR PERMIT PLANS

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DATE: 6/24/13
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LOCATION & DESCRIPTION:
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SINCLAIR, CARBON COUNTY, WYOMING
Trackage to Serve: POWER COMPANY OF WYOMING

SHEET TITLE: Union Pacific Details

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TABLE 1 - ROUND CORRUGATED STEEL PIPE (CSP)

INSIDE PIPE DIAMETER	GAGE	THICKNESS (IN.)	WEIGHT (LB./FT.)	COVER * MIN. (FT.)	COVER * MAX. (FT.)	10'-0" LENGTH ITEM NO.	10'-0" LENGTH WEIGHT (LB.)	12'-0" LENGTH ITEM NO.	12'-0" LENGTH WEIGHT (LB.)	14'-0" LENGTH ITEM NO.	14'-0" LENGTH WEIGHT (LB.)	16'-0" LENGTH ITEM NO.	16'-0" LENGTH WEIGHT (LB.)	18'-0" LENGTH ITEM NO.	18'-0" LENGTH WEIGHT (LB.)	20'-0" LENGTH ITEM NO.	20'-0" LENGTH WEIGHT (LB.)	22'-0" LENGTH ITEM NO.	22'-0" LENGTH WEIGHT (LB.)	24'-0" LENGTH ITEM NO.	24'-0" LENGTH WEIGHT (LB.)	CONNECTING BANDS ITEM NO.	CONNECTING BANDS GAGE
12"	14	0.079	12	1'-6"	18'-0"	510-2975	120	510-2976	144	-	168	-	192	-	216	510-2977	240	-	264	510-2978	288	-	16
18"	14	0.079	18	1'-6"	18'-0"	510-2979	180	510-2980	216	-	252	-	288	-	324	510-2981	360	-	396	510-2982	432	-	16
21"	14	0.079	21	1'-6"	18'-0"	510-2983	210	510-2984	252	-	294	-	336	-	378	510-2985	420	-	462	510-2986	504	-	16
24"	14	0.079	24	1'-6"	18'-0"	510-2987	240	510-2988	288	-	336	-	384	-	432	510-2989	480	-	528	510-2990	576	510-3123	16
30"	14	0.079	30	1'-6"	18'-0"	-	300	-	360	510-3045	420	510-3046	480	510-3047	540	510-3048	600	510-3049	660	510-0345	720	510-3124	16
36"	14	0.079	41	2'-6"	18'-0"	-	410	-	492	510-3055	574	510-3065	656	510-3066	738	510-3067	820	510-3068	902	510-3069	984	510-3130	16
42"	14	0.079	47	2'-6"	18'-0"	-	470	-	564	510-3073	658	510-3074	752	510-3075	846	510-3077	940	510-3078	1,034	510-3079	1,128	510-3132	16
48"	12	0.109	74	2'-6"	18'-0"	-	740	-	888	510-3081	1,036	510-3082	1,184	510-3083	1,332	510-3084	1,480	510-3085	1,628	510-3086	1,776	510-3138	14
60"	12	0.109	92	2'-6"	18'-0"	-	920	-	1,104	510-3087	1,288	510-3088	1,472	510-3089	1,656	510-3091	1,840	510-3092	2,024	510-3093	2,208	510-3150	14
72"	10	0.138	140	3'-6"	18'-0"	-	1,400	-	1,680	510-3100	1,960	510-3101	2,240	510-3102	2,520	510-3103	2,800	510-3104	3,080	510-3105	3,360	510-3158	12
84"	10	0.138	164	3'-6"	18'-0"	-	1,640	-	1,968	510-3114	2,296	510-3115	2,624	510-3110	2,952	510-3117	3,280	510-3118	3,608	510-3113	3,936	510-3176	12
96"	8	0.168	228	3'-6"	18'-0"	-	2,280	-	2,736	510-3181	3,192	510-3182	3,648	510-3183	4,104	510-3184	4,560	510-3185	5,016	510-3186	5,472	510-3188	10

* COVER TO BE MEASURED FROM BASE OF RAIL TO TOP OF PIPE

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DESIGN BY: CLJ | DRAWN BY: KDM | CHECKED BY: CLJ
APPROVED: George J. Meyn 4/4/08
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BRIDGE STANDARDS

CONSTRUCTION NOTES AND TABLE FOR CORRUGATED STEEL PIPE CULVERTS

FILE OWNER: UPRR | DATE: | PLAN NO.: 680020 | SHEET: 2 OF 2

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CONSTRUCTION NOTES

GENERAL:

These structures are designed for Cooper E80 Live Load with impact, and cover as shown in Table 1.

Table 1 indicates the minimum required thickness for structura stability based on the assumptions listed below. The required gage thickness for structural steel plate pipe includes an allowance for corrosion.

DESIGN ASSUMPTIONS:

Backfill Unit Weight = 120 pcf.
Factors of Safety: Seam Strength = 3, Wall Area = 2, Buckling = 2
Minimum Yield Point: Steel = 33 ksi.
Modulus of Elasticity: Steel = 29,000 ksi.
Minimum Tensil Strength: Steel = 45 ksi

INSTALLATION:

1. Installation of SPP shall conform to the current American Railway Engineering and Maintenance-of-Way Association (AREMA) Manual for Railway Engineering, Chapter 1, Part 4. Culvert lengths are to be based on standard mainline roadbed sections.
2. These standards are for installation in soil with a pH of 5-9 and resistivity ≥ 1,500 ohm-cm. Pipes located in soils outside this range shall have additional corrosion protection as specified by the engineer.
3. Wire or timber strutting used during installation must be removed immediately after installation and backfill are complete.
4. Structural plate pipe culverts must be placed with the inside circumferential laps pointing downstream.
5. Culverts resting on rock foundation need not be cambered. Unless otherwise specified by the engineer all other SPP culverts shall be cambered in accordance with the following:
   A. Embankments up to 8 feet high (measured base of rail to flowline) require a 1½ inch camber.
   B. Embankments 8 feet to 12 feet high require a 2½ inch camber.
   C. Embankments 12 feet to 24 feet high require a 4 inch camber.
   D. Embankments 24 feet to 36 feet high require a 6 inch camber.

In no case shall the culvert be cambered so high in the center that water will be pocketed at the inlet end of the pipe.

MATERIALS:

1. SPP material and connecting material shall be in accordance with the current AREMA Manual for Railway Engineering, Chapter 1, Part 4, Section 6.
2. The pipe shall be fabricated, assembled into sections and furnished as follows:
   6" x 2" annular corrugations.
   5% vertical elongation.
   A minimum of 4 steel bolts per foot
3. Permanently attach an identification plate inside the pipe near the end of each pipe run. The plate is to contain the following information in at least ¼ inch high letters:
   Name of manufacturer and plant location
   Date manufacturered
   Gage
   Diameter
   Length

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STRUCTURAL PLATE PIPE - STEEL GAGE TABLE FOR E-80 LOADS

DIA. (IN.)	HEIGHT OF COVER (FT.) - BASE OF RAIL TO TOP OF PIPE: 3½-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75
60	10	10	10	10	10	10	10	10	10	8	8	8	8	7	7
66	10	10	10	10	10	10	10	10	8	8	8	8	7	7	7
72	10	10	10	10	10	10	10	8	8	8	8	7	7	7	5
78	10	10	10	10	10	10	10	8	8	8	7	7	7	5	5
84	10	10	10	10	10	10	8	8	8	7	7	7	5	5	3
90	8	10	10	10	10	10	8	8	8	7	7	5	5	3	3
96	8	10	10	10	10	8	8	8	7	7	7	5	3	3	1
102	8	10	10	10	10	8	8	8	7	7	5	5	3	1	1
108	8	10	10	10	8	8	8	7	7	5	5	3	1	1	
114	8	8	10	10	8	8	8	7	7	5	3	3	1	1	
120	8	8	10	10	8	8	7	7	5	5	3	1	1		
126	7	8	10	8	8	8	7	7	5	3	3	1			
132	7	8	10	8	8	8	7	7	5	3	1	1			
138	7	8	10	8	8	7	7	5	3	3	1				
144	7	8	8	8	8	7	7	5	3	1	1				
150	7	8	8	8	8	7	7	3	3	1					
156	7	8	8	8	7	7	5	3	1	1					
162	5	7	8	8	7	7	5	3	1						
168	5	7	8	8	7	5	3	3	1						
174	5	7	8	7	7	5	3	1	1						
180	5	7	8	7	7	5	3	1							
186	3	7	8	7	7	5	3	1							
192	3	7	8	7	7	3	3	1							
198	3	7	8	7	5	3	1								
204	1	5	7	7	5	3	1								
210	1	5	7	7	3	1									
216		3	7	5	3	1									
222		3	7	5	3	1									
228		3	5	3	1										
234		1	5	3	1										
240		1	3	1											

REVISIONS		
DATE	LTR.	DESCRIPTION
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DESIGN BY: CLJ | DRAWN BY: CLJ | CHECKED BY: CLJ
APPROVED: George J. Meyn 4/4/08
UPRR - MGR SPECIAL PROJECTS STRUCTURES DESIGN

BRIDGE STANDARDS

CONSTRUCTION NOTES AND TABLE FOR STRUCTURAL PLATE PIPE CULVERTS

FILE OWNER: UPRR | DATE: | PLAN NO.: 680030 | SHEET: 1 OF 1

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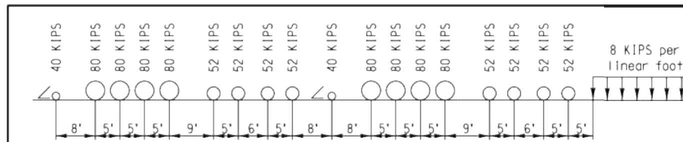


COOPER E80 LOAD

SCALE: (NOT TO SCALE)

Vertical pressure q shall be based on a distribution width Ld.
Ld is the length of tie plus H_1.
H_1 is the height from the bottom of tie to the top of shoring.
H_2 is the depth of point being evaluated with the Boussinesq equation.
S is a distance perpendicular from centerline of track to the face of shoring.
D is from top of shoring to one foot below dredge line.
Zp is the minimum embedment depth.
Length of tie is 9 feet
q is the intensity of strip load due to E80 Railroad live load and shall be calculated as follows:

For $H_1 = 0$ Ld = length of tie; therefore, $q = \frac{80{,}000 \text{ lb}}{(5 \text{ feet})(9 \text{ feet})} = 1{,}778$ psf

For $H_1 > 0$ Ld = length of tie + H_1; therefore, $q = \frac{80{,}000 \text{ lb}}{(5 \text{ feet})(Ld)}$

CASE 1: Lateral live load pressure Ps, due to E80 loading for track **parallel** to shoring system is calculated using the Boussinesq Strip Load Equation.

$$Ps = \frac{2q}{\pi}(\beta + \sin\beta \sin^2\alpha - \sin\beta\cos^2\alpha)$$

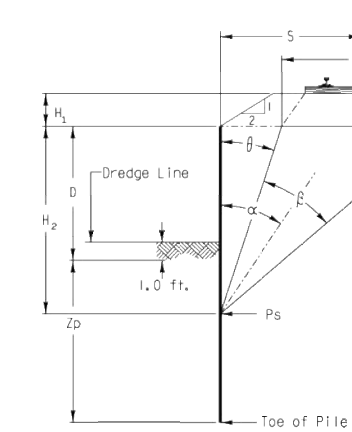
The above equation can be simplified into the following equivalent form:

$$Ps = \frac{2q}{\pi}[\beta - \sin\beta\cos(2\alpha)]$$

α and β are angles measured in radians, $\alpha = \theta + \frac{\beta}{2}$

CASE 2: Live load pressure due to E80 loading for track at a **right angle** to the shoring system can be calcuated using the following equction.

$Ps = K_A q$
where $K_A = \tan^2(45 - \frac{\phi}{2})$
ϕ is the angle of internal friction in degrees



PLAN

SCALE: (NOT TO SCALE)

REVISIONS		
DATE	LTR.	DESCRIPTION
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DESIGN BY: PGP | DRAWN BY: JFS | CHECKED BY: AA
APPROVED: K.H. Jennison
BNSF - ASSISTANT DIRECTOR STRUCTURES DESIGN
George J. Meyn 9-1-04
UPRR - MGR SPECIAL PROJECTS STRUCTURES DESIGN

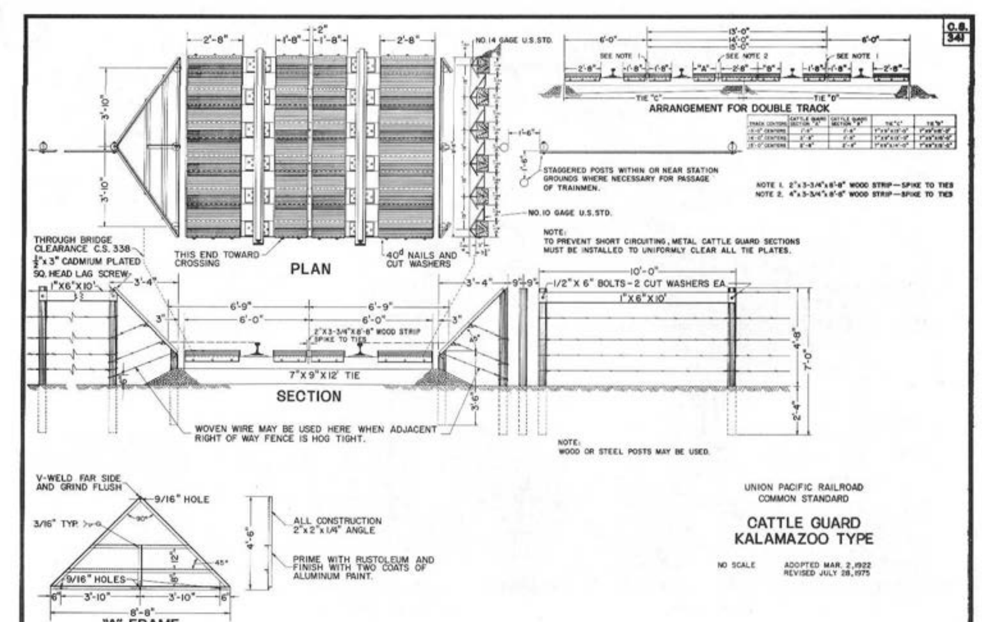
BRIDGE SHORING STANDARDS

LIVE LOAD PRESSURE DUE TO COOPER E80

FILE OWNER: UPRR | DATE: | PLAN NO.: 710001 | SHEET: 1 OF 1

PLOTTED: $$$$DATE$$$$ $TIME

Figure 2



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1	DJG	07/12/13	WEST SINCLAIR RAIL FACILITY ISSUED FOR PERMIT PLANS
2	KAB	08/12/13	WEST SINCLAIR RAIL FACILITY ISSUED FOR PERMIT PLANS
3	DFK	03/13/14	UPDATED UTILITY CORRIDOR AND TOPSOIL HANDLING INFORMATION

DRAWN BY: DSW
CHECKED BY: RSC
DATE: 6/24/13
SHEET NUMBER: C-10 of 28

For Use In Agreement With: **UNION PACIFIC RAILROAD** and POWER CO. OF WYOMING

LOCATION & DESCRIPTION:
MILEPOST 677.95, LARAMIE SUBDIVISION
SINCLAIR, CARBON COUNTY, WYOMING
Trackage to Serve: POWER COMPANY OF WYOMING

SHEET TITLE: **Union Pacific Details**

20111120DTF-RAIL01.dwg

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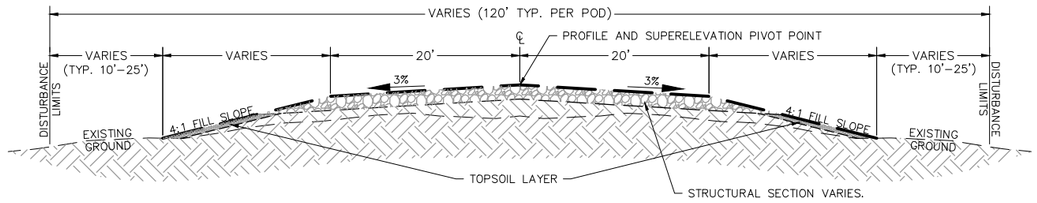


NOTES:

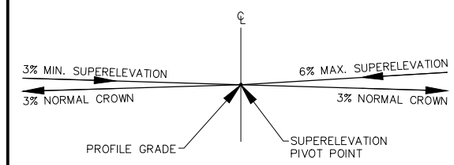
1. TYPICAL SECTION DESIGNED FOR A 40 MPH ROAD.
2. SLOPES SHOWN ARE IN HORIZONTAL TO VERTICAL (H:V) FORMAT.
3. ALL DISTURBED GROUND NOT COVERED WITH GRAVEL SHALL BE STABILIZED. SLOPES SHOWN ARE TYPICAL. SOME ROAD LOCATIONS MAY REQUIRE VARIATIONS IN THE SLOPE
4. IF EXCESS TOPSOIL IS AVAILABLE, ADDITIONAL TOPSOIL CAN BE PLACED ON FILL SLOPES INCREASING THE DEPTH OF TOPSOIL.

TYPICAL SECTION NOT DRAWN TO SCALE

40' WIDE RAIL ACCESS ROAD TYPICAL SECTION – FILL LEFT, FILL RIGHT

LAST REVISED: 03/06/13

RD01–A



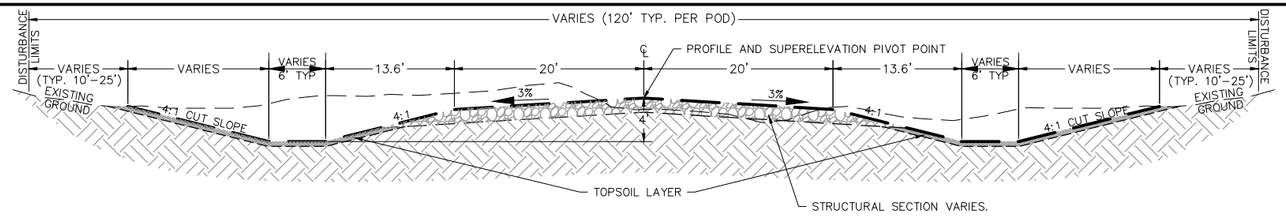
NOTES:

1. APPLIES TO 40MPH DESIGN SPEED ROADS ONLY.

METHOD OF SUPERELEVATION ON CURVES

LAST REVISED: 01/21/13

RD02



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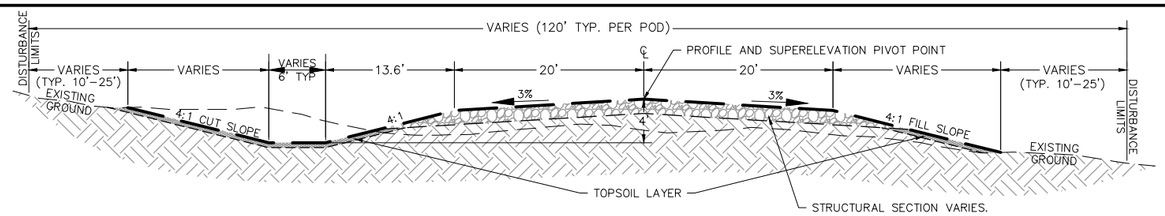
TYPICAL SECTION NOT DRAWN TO SCALE

40' WIDE RAIL ACCESS ROAD TYPICAL SECTION – CUT LEFT, CUT RIGHT

LAST REVISED: 03/06/13

RD01–B



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TYPICAL SECTION NOT DRAWN TO SCALE

40' WIDE RAIL ACCESS ROAD TYPICAL SECTION – CUT LEFT, FILL RIGHT

LAST REVISED: 03/06/13

RD01–C

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3	DFK	03/13/14	UPDATED UTILITY CORRIDOR AND TOPSOIL HANDLING INFORMATION

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CHECKED BY: RSC
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SHEET TITLE: **Road Civil Details**

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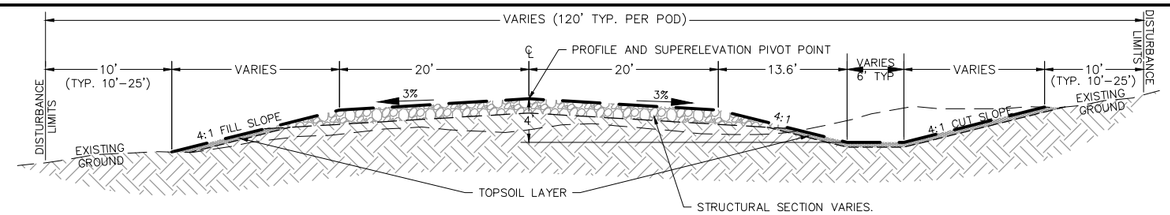
dfkeleher



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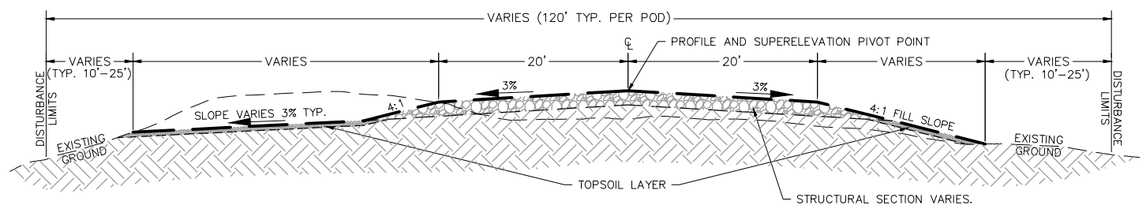
TYPICAL SECTION NOT DRAWN TO SCALE

40' WIDE RAIL ACCESS ROAD TYPICAL SECTION – FILL LEFT, CUT RIGHT

LAST REVISED: 03/06/13

RD01–D



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TYPICAL SECTION NOT DRAWN TO SCALE

40' WIDE RAIL ACCESS ROAD TYPICAL SECTION – DRAIN CUT EDGE

LAST REVISED: 03/06/13

RD01–E

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SHEET TITLE: **Road Civil Details**

20111120DTF–RAIL01.dwg

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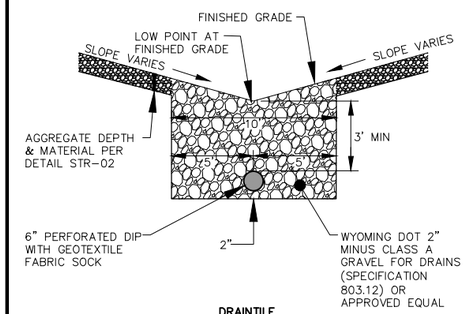


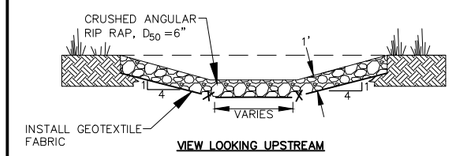
DRAINTILE

NOTES:

1. LOCATIONS VARY. FINAL LOCATIONS WILL BE SHOWN ON THE CONSTRUCTION PLANS.

NOT TO SCALE

Westwood	DRAINTILE	LAST REVISED: 02/07/13 GD20

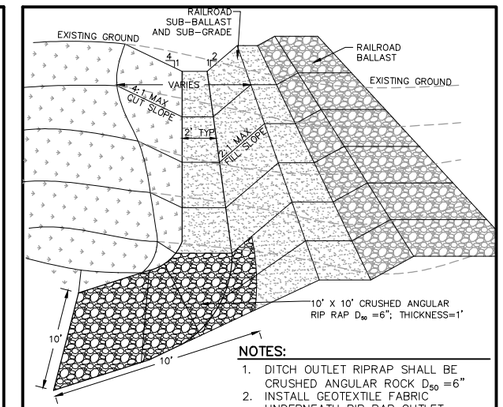


VIEW LOOKING UPSTREAM

NOTES:

1. RIPRAP USED FOR ROCK CHANNELS SHALL BE CRUSHED ANGULAR MATERIAL

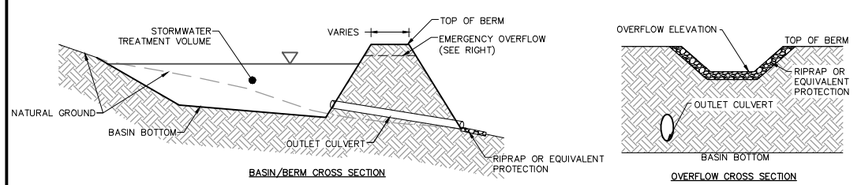
Westwood	ROCK LINED CHANNEL	LAST REVISED: 01/31/13 GD19



NOTES:

1. DITCH OUTLET RIPRAP SHALL BE CRUSHED ANGULAR ROCK D_{50} =6"
2. INSTALL GEOTEXTILE FABRIC UNDERNEATH RIP RAP OUTLET
3. OUTLET SIZE SHALL BE 10' X 10' X 0.75'

Westwood	RIP RAP DITCH OUTLET	LAST REVISED: 01/31/13 GD25



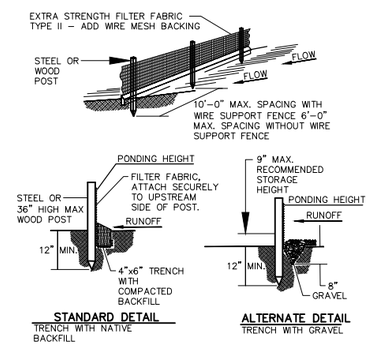
BASIN/BERM CROSS SECTION

OVERFLOW CROSS SECTION

NOTES:

1. BASINS MAY BE CONSTRUCTED USING NATURAL DEPRESSIONS, EXCAVATED DEPRESSIONS, DAM EMBANKMENTS, OR A COMBINATION OF TECHNIQUES.
2. BASIN GRADING, SIZE, SHAPE, AND DIMENSIONS WILL VARY.

Westwood	TYPICAL SEDIMENT BASIN	LAST REVISED: 08/13/13 GD42



STANDARD DETAIL
TRENCH WITH NATIVE BACKFILL

ALTERNATE DETAIL
TRENCH WITH GRAVEL

NOTE:

1. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.
2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
3. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.

Westwood	WIRE-BACKED SILT FENCE	LAST REVISED: 03/03/08 GD02

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SHEET TITLE: **Drainage Details**

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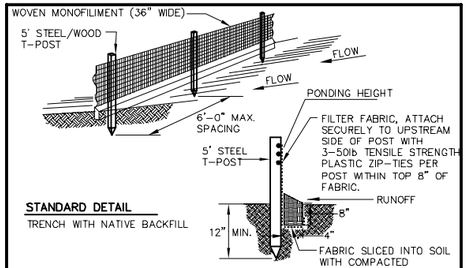


STANDARD DETAIL

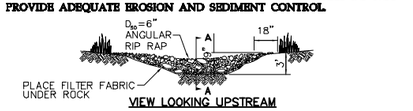
TRENCH WITH NATIVE BACKFILL

NOTE:

1. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN ACCUMULATED TO 1/3 THE HEIGHT OF THE FABRIC OR MORE.
2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
3. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
4. ALL ENDS OF THE SILT FENCE SHALL BE WRAPPED UPSLOPE SO THE ELEVATION OF THE BOTTOM OF FABRIC IS HIGHER THAN "PONDING HEIGHT".

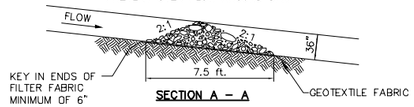
	SILT FENCE	LAST REVISED: 11/24/08 GD03

ROCK CHECK SHALL BE USED WHERE NEEDED AS A FILTER MEDIA, OR WHERE EROSION CONTROL BLANKETS AND/OR FIBER ROLLS DO NOT PROVIDE ADEQUATE EROSION AND SEDIMENT CONTROL.



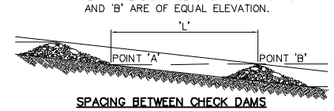
VIEW LOOKING UPSTREAM

KEY STONE INTO THE DITCH BANKS AND EXTEND IT BEYOND THE ABUTMENTS A MINIMUM OF 18" TO PREVENT OVER FLOW AROUND DAM.



SECTION A – A

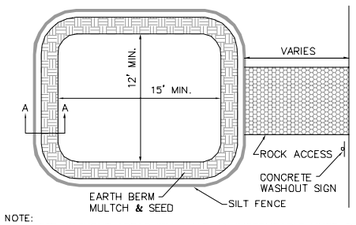
'L' = THE DISTANCE SUCH THAT POINTS 'A' AND 'B' ARE OF EQUAL ELEVATION.



SPACING BETWEEN CHECK DAMS

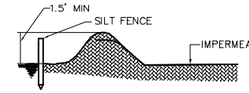
	TEMPORARY ROCK CHECK DAM	LAST REVISED: 03/03/08 GD18

AN APPROVED ALTERNATE MAY BE USED

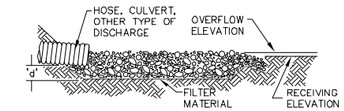


NOTE:
CONCRETE WASHOUT AREAS WILL HAVE AN IMPERMEABLE LINER TO PREVENT CONCRETE WASHOUT WATER FROM INFILTRATING/CONTACTING WITH SOIL. IMPERMEABLE LINER INCLUDES 10 MIL POLYLINER OR COMPACTED CLAY LINER. WASHOUT SYSTEMS CAN BE USED AS ALTERNATE WASHOUT AREAS.

SECTION A–A

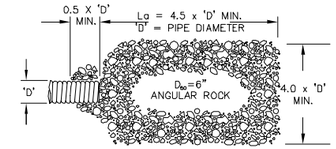


	CONCRETE WASHOUT AREA	LAST REVISED: 11/24/08 GD08



THICKNESS ('d') = 1.5 x MAX. ROCK DIAMETER – 6" MIN.

SECTION

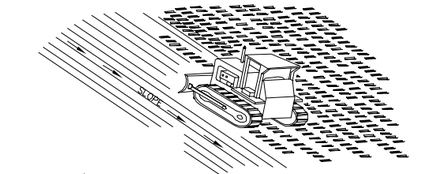


PLAN

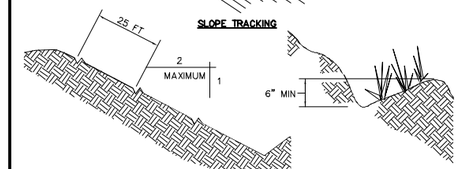
NOTE:

1. 'La' = LENGTH OF APRON. DISTANCE 'La' SHALL BE OF SUFFICIENT LENGTH TO DISSIPATE ENERGY.
2. APRON SHALL BE SET AT A ZERO GRADE AND ALIGNED STRAIGHT.
3. FILTER MATERIAL SHALL BE FILTER FABRIC OR 6" THICK MINIMUM GRADED GRAVEL LAYER.

	ENERGY DISSIPATOR	LAST REVISED: 01/29/13 ED01



SLOPE TRACKING

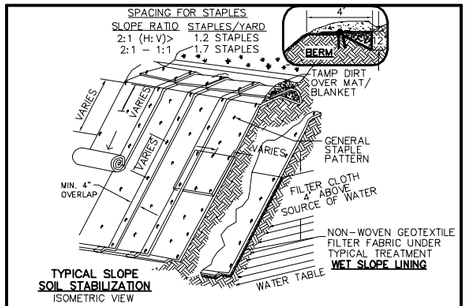


TEMPORARY CONTOUR FURROWS

NOTE:

1. GROOVES WILL CATCH SEED, FERTILIZER, MULCH, RAINFALL AND DECREASE RUNOFF RATE.
2. USE SLOPE TRACKING FOR SLOPES 4:1 AND 50 FEET LONG OR STEEPER/LONGER.
3. USE TEMPORARY CONTOUR FURROWS FOR SLOPES 3:1 AND 75 FEET LOND OR STEEPER/LONGER.

	SURFACE ROUGHENING FOR ALL SLOPES GREATER THAN 4:1	LAST REVISED: 03/03/08 GD09



TYPICAL SLOPE SOIL STABILIZATION

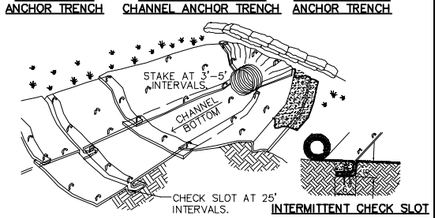
ISOMETRIC VIEW

NOTE:

1. REFER TO THE PROJECT SWPPP FOR IMPLEMENTATION REQUIREMENTS.
2. MATS/BLANKETS SHOULD BE INSTALLED VERTICALLY DOWNSLOPE.
3. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICK AND GRASS.
4. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.
5. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL.
6. DO NOT STRETCH.
7. BLANKET TYPE AND WEIGHT MUST BE CHOOSEN BASED ON SITE CONDITIONS AND MANUFACTURERS RECOMMENDATIONS.
8. STAPLE LENGTHS SHALL CONFORM TO MANUFACTURERS RECOMMENDATIONS.

	TEMPORARY EROSION BLANKETS TURF REINFORCEMENT MATS FOR SLOPES	LAST REVISED: 11/24/08 GD21

LONGITUDINAL ANCHOR TRENCH | **TERMINAL SLOPE AND CHANNEL ANCHOR TRENCH** | **INITIAL CHANNEL ANCHOR TRENCH**

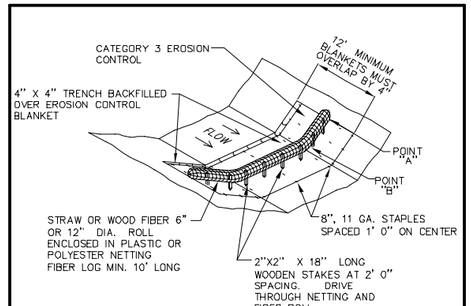


INTERMITTENT CHECK SLOT

NOTE:

1. REFER TO THE PROJECT SWPPP FOR IMPLEMENTATION REQUIREMENTS.
2. CHECK SLOTS TO BE CONSTRUCTED PER MANUFACTURERS SPECIFICATIONS.
3. STAKING OR STAPLING LAYOUT PER MANUFACTURERS SPECIFICATIONS.
4. MINIMUM OF 3.5 STAPLES/YARD.
5. BLANKET TYPE AND WEIGHT MUST BE CHOOSEN BASED ON SITE CONDITIONS AND MANUFACTURERS RECOMMENDATIONS.
6. STAPLE LENGTHS SHALL CONFORM TO MANUFACTURERS RECOMMENDATIONS.
7. EROSION CONTROL BLANKETS SHALL EXTEND TO THE EDGE OF THE DISTURBANCE LIMITS.

	TEMPORARY EROSION BLANKETS TURF REINFORCEMENT MATS FOR CHANNELS	LAST REVISED: 03/03/08 GD22

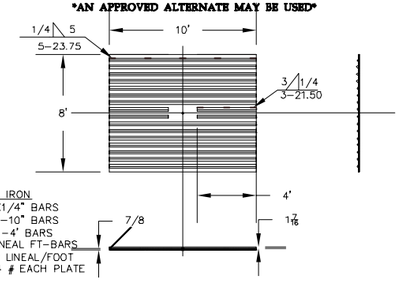


NOTE:

1. REFER TO THE PROJECT SWPPP FOR IMPLEMENTATION REQUIREMENTS.
2. POINT "A" MUST BE HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.
3. TYPE OF MATERIAL FOR EROSION CONTROL BLANKET IS SUBJECT TO FIELD CONDITIONS AND MANUFACTURERS RECOMMENDATION.

	TEMPORARY FIBER LOG BLANKET SYSTEM (DITCH APPLICATION)	LAST REVISED: 03/03/08 GD23

AN APPROVED ALTERNATE MAY BE USED



ANGLE IRON
2"X2"X1/4" BARS
12 EA.–10" BARS
4 EA. –4' BARS
136 LINEAL FT–BARS
3.19 # LINEAL/FOOT
433.84 # EACH PLATE

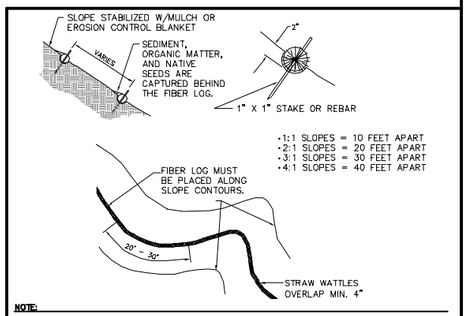
Nut
1ea.–Plate Center
1# Each Plate

Plate
8'X10'X7/8"
80 Sq.Ft.
35.73 # Sq.Ft.
2858.8 # each plate

Wire
5/64 Innershield NR–311
8#–Each Plate

Total Weight
Plate= 2858.8
Angle Iron= 433.84
Wire= 8.0
Nut= 1
3301.64 Total Pounds Per Plate

	C–S RUMBLE TRACK	LAST REVISED: 01/29/13 CS01



NOTE:

1. FIBER LOG ARE TUBES MADE FROM STRAW BOUND W/ PLASTIC NETTING. THEY ARE APPROX. 8" DIA. AND 15 FT. LONG.
2. FIBER LOG TRAP SEDIMENT AND REDUCE SHEET & RILL EROSION BY REDUCING SLOPE LENGTH, INCREASING INFILTRATION RATES AND BY PRODUCING A FAVORABLE ENVIRONMENT FOR SEED ESTABLISHMENT.
3. FIBER LOG INSTALLATION REQUIRES THE PLACEMENT AND SECURE STAKING OF THE FIBER LOG IN A TRENCH, 2" DEEP, DUG ON CONTOUR. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND FIBER LOG.

	TEMPORARY FIBER LOG SLOPE BREAK	LAST REVISED: 01/31/13 GD20

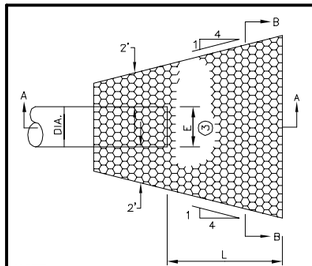
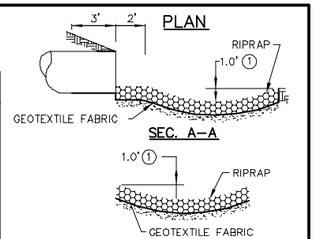


TABLE OF QUANITIES
RIPRAP AT OUTLETS

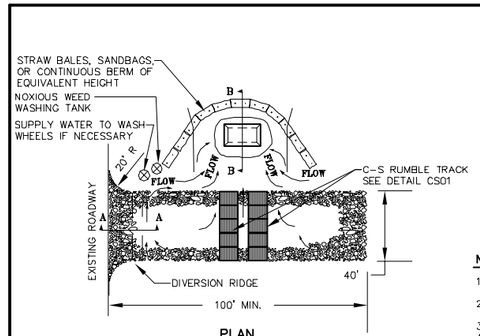
Dia. Round Pipe (in.)	L (Ft.)	CLASS II d_{50}=6" 12" Depth Riprap (Cu. Yd.)	CLASS II d_{50}=6" 6" Depth Granular Filter (Cu. Yd.)	CLASS III d_{50}=9" 18" Depth Riprap (Cu. Yd.)	CLASS III d_{50}=9" 9" Depth Granular Filter (Cu. Yd.)	CLASS IV d_{50}=12" 24" Depth Riprap (Cu. Yd.)	CLASS IV d_{50}=12" 12" Depth Granular Filter (Cu. Yd.)
12	8	2.8	1.4	4.1	2.1	5.5	2.8
15	8	2.9	1.5	4.4	2.2	5.8	2.9
18	10	3.9	2.0	5.9	3.0	7.8	3.9
21	10	4.2	2.1	6.3	3.2	8.4	4.2
24	12	5.5	2.8	8.3	4.2	11.0	5.5
27	12	5.8	2.9	8.7	4.4	11.6	5.8
30	14	7.3	3.7	10.9	5.5	14.5	7.3
36	16	9.2	4.6	13.8	6.9	18.3	9.2
42	18	10.9	5.5	16.3	8.2	21.7	10.9
48	20	12.9	6.5	19.4	9.7	25.8	12.9

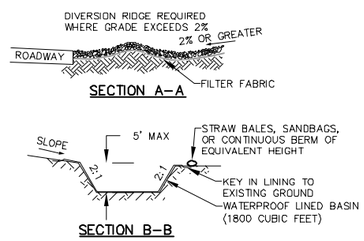


NOTE:

1. FOR PIPES GREATER OR EQUAL TO 30", USE 1.5'.
2. THE CONTRACTOR SHALL PLACE RIP RAP, PULVERIZED TOPSOIL, SEED AND WOODFIBER BLANKET IMMEDIATELY AFTER PIPE IS INSTALLED, EXTEND AREA TO MATCH UNDISTURBED SOIL.
3. DIMENSION "E" EQUALS INSIDE WIDTH OF PIPE.
4. RIP RAP SHALL BE CLASS 3 SIZE UNLESS OTHERWISE NOTED ON PLANS.
5. RIP RAP SHALL BE INSTALLED AT ALL CULVERTS INSTALLED DURING CONSTRUCTION.
6. REFER TO STANDARD UNION PACIFIC DETAIL FOR RIP RAP AT CULVERTS ON RAIL LINE.

	RIP RAP OUTLETS	LAST REVISED: 08/11/11 ST02





NOTE:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT OFF THE JOB SITE.
2. REPAIR AND CLEANOUTS MAY BE REQUIRED TO THE RUMBLE TRACK AND BASIN.
3. WHEELS SHALL BE CLEANED PRIOR TO EXITING THE JOB SITE.
4. WHEN WASHING IS REQUIRED, WASHING SHALL DRAIN INTO SEDIMENT TRAP / BASIN.

	ROCK CONSTRUCTION ENTRANCE / TRUCK CLEAN OUT / RUMBLE TRACK	LAST REVISED: 01/29/13 GD05–A

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REV. #	BY	DATE	DESCRIPTION
0	DJG	06/24/13	DRAFT WEST SINCLAIR RAIL FACILITY ISSUED FOR PERMIT PLANS
1	DJG	07/12/13	WEST SINCLAIR RAIL FACILITY ISSUED FOR PERMIT PLANS
2	KAB	08/12/13	WEST SINCLAIR RAIL FACILITY ISSUED FOR PERMIT PLANS

DRAWN BY: DSW
CHECKED BY: RSC
DATE: 6/24/13
SHEET NUMBER: C-14 of 28

For Use In Agreement With: UNION PACIFIC RAILROAD and POWER CO. OF WYOMING

LOCATION & DESCRIPTION:
MILEPOST 677.95, LARAMIE SUBDIVISION
SINCLAIR, CARBON COUNTY, WYOMING
Trackage to Serve: POWER COMPANY OF WYOMING

SHEET TITLE: **Erosion Control Details**

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Table 1

West Sinclair Rail Facility Utility Crossing Schedule

Owner or Operator	Crossing Number	Crossing Detail		Proposed Improvement Name	Proposed Improvement Description	Utility Type	Utility Line Name	Utility Contact		Coordinate HPGN (HARN) Wyoming State Planes, East Central Zone, US Foot		Landowner	Notes
		Detail	Page					Name	Phone	X	Y		
Oneok NGL Pipeline, L.P.	2501	DETAIL		Rail Access Road		Liquified Petroleum Gas		Unknown	1-800-666-9041	1367207	783125	BLM	
Kinder Morgan (Rockies Express, LLC.)	2502	DETAIL		Rail Access Road		Natural Gas	Rockies Express Pipeline	Unknown	1-877-436-2253	1367208	783171	BLM	
Wyoming Interstate Gas	2503	DETAIL		Rail Access Road		Natural Gas		Unknown	1-877-712-2288	1367213	783283	BLM	
Southern Star	2504	DETAIL		Rail Access Road		Natural Gas	Central Gas Pipeline	Unknown	1-800-324-9696	1367217	783374	BLM	
Colorado Interstate Gas	2505	DETAIL		Rail Access Road		Natural Gas		Unknown	1-877-712-2288	1367219	783444	BLM	
Colorado Interstate Gas	2506	DETAIL		Rail Access Road		Natural Gas		Unknown	1-877-712-2288	1367220	783493	BLM	
Mountain Gas Resources, Inc	2507	DETAIL		Rail Access Road		Liquid Natural Gas		Unknown	307-382-4562	1367217	783530	BLM	
Pioneer Pipeline Company	2508	DETAIL		Track B		Petroleum		Unknown	1-800-231-2551	1357119	789924	Union Pacific Land Resources	
Pioneer Pipeline Company	2509	DETAIL		Track B		Petroleum		Unknown	1-800-231-2551	1357111	789951	Union Pacific Land Resources	
Plains Pipeline, L.P.	2510	DETAIL		Track B		Petroleum		Unknown	1-866-800-7677	1357089	790016	Union Pacific Land Resources	
Source Gas	2511	DETAIL		Track B		Natural Gas		Unknown	1-866-477-1190	1356787	790568	Union Pacific Land Resources	
Unknown	2512	DETAIL		Track B		Unknown		Unknown		1356773	790589	Union Pacific Land Resources	Source PLG GIS Info
NuStar Logistics L.P	2513	DETAIL		Track C		Petroleum		Unknown	1-800-481-0038	1356369	794411	Union Pacific Railroad Company	
Unknown	2514	DETAIL		Track C		Petroleum		Unknown		1356250	794492	Union Pacific Railroad Company	Source PLG GIS Info
NuStar Logistics L.P	2515	DETAIL		Track B		Petroleum		Unknown	1-800-481-0038	1357512	794121	Union Pacific Railroad Company	
Unknown	2516	DETAIL		Track B		Petroleum		Unknown		1357628	794130	Union Pacific Railroad Company	Source PLG GIS Info
AT&T	3501	DETAIL		Rail Access Road		Fiber Optic Line		Unknown	1-800-849-2476	1367210	783221	BLM	
E.C.I. (ENRON)	3502	DETAIL		Rail Access Road		Fiber Optic Line		Unknown	1-800-267-7028	1367211	783237	BLM	
WilTel	3503	DETAIL		Rail Access Road		Fiber Optic Line		Unknown	1-800-248-0133	1367216	783352	BLM	
WilTel	3504	DETAIL		Rail Access Road		Fiber Optic Line		Unknown	1-800-248-0133	1367217	783387	BLM	
AT&T	3505	DETAIL		Track B		Fiber Optic Line		Unknown	1-800-348-1030	1356632	793143	TOTCO	
AT&T	3506	DETAIL		Track B		Fiber Optic Line		Unknown	1-800-348-1030	1356633	793148	TOTCO	
	4501	DETAIL		Track A		Unkown		Unknown		1361035	793303	Union Pacific Land Rescources	
	4502	DETAIL		Track B		Water Line		Unknown		1357734	794125	Union Pacific Land Rescources	
	4503	DETAIL		Track B		Water Line		Unknown		1357401	794098	Union Pacific Land Rescources	
	4504	DETAIL		Track B		Water Line		Unknown		1356442	794347	Union Pacific Land Rescources	
	4505	DETAIL		Track C		Water Line		Unknown		1356081	794567	Union Pacific Land Rescources	
Rocky Mountain Power (PacifiCorp)	5501	DETAIL		Track B		Transmission Line	DJ to Rock Springs 230Kv Line	Unknown		1357228	788303	Union Pacific Land Resources	3-Wire Crossing
Rocky Mountain Power (PacifiCorp)	5502	DETAIL		Track A		Transmission Line	DJ to Rock Springs 230Kv Line	Unknown		1361846	793221	Union Pacific Railroad Company	3-Wire Crossing

Notes:

1. UTILITY CROSSING LOCATIONS BASED ON INFORMATION PROVIDED BY PCW AND SUPPLEMENTED BY GIS INFORMATION. ADDITIONAL CROSSINGS MAY EXIST AND LOCATIONS MAY VARY.
2. CONTRACTOR TO CALL ONE CALL WYOMING AT 811 OR 1-800-849-2476 PRIOR TO DIGGING

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CHECKED BY: RSC
DATE: 6/24/13
SHEET NUMBER: C-15 of 28

UNION PACIFIC

For Use In Agreement With: UNION PACIFIC RAILROAD and POWER CO. OF WYOMING

LOCATION & DESCRIPTION:
MILEPOST 677.95, LARAMIE SUBDIVISION
SINCLAIR, CARBON COUNTY, WYOMING
Trackage to Serve: POWER COMPANY OF WYOMING

SHEET TITLE: Utility Crossing Schedule

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Table 2

Fence Crossing, Cattle Guard Schedule

Crossing Number	Road Segment Name	Station	Proposed Improvement Description	Crossing Detail		Landowner 1	Landowner 2 (If applicable)	Notes	Coordinate (FT) HPGN (HARN) Wyoming State Plane, East Central Zone, US	
				Detail	Page				X	Y
8001						TOTCO	BLM		1365250.04	785358.48
8002						BLM			1360200.17	787133.02
8003						State Board Lands	TOTCO		1360216.73	784519.42
8004						State Board Lands	Union Pacific Land Resources		1359310.21	785390.45
8005						Union Pacific Land Rescources	TOTCO		1356714.87	790670.27
8006						Union Pacific Land Rescources			1357644.13	794069.59
8007						Union Pacific Land Rescources			1356118.54	794466.29

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CHECKED BY: RSC
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SHEET NUMBER: C-16 of 28

UNION PACIFIC

For Use In Agreement With: UNION PACIFIC RAILROAD and POWER CO. OF WYOMING

LOCATION & DESCRIPTION:
MILEPOST 677.95, LARAMIE SUBDIVISION
SINCLAIR, CARBON COUNTY, WYOMING
Trackage to Serve: POWER COMPANY OF WYOMING

SHEET TITLE: Fence Crossing Schedule

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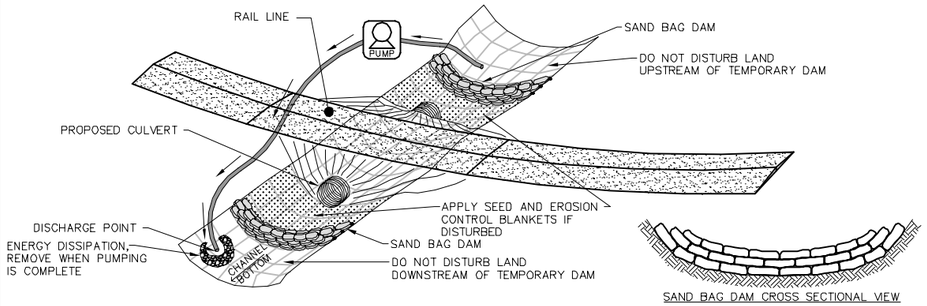
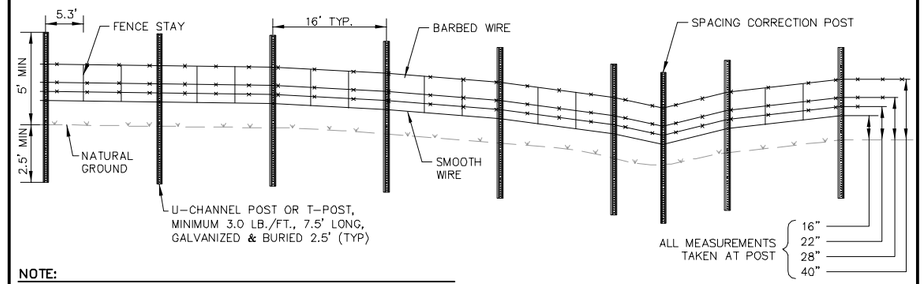


SAND BAG DAM CROSS SECTIONAL VIEW

NOTE:

1. CULVERT INSTALLATION SHALL CONFORM WITH MANUFACTURERS RECOMMENDATION FOR INSTALLATION.
2. MINIMIZE DISTURBANCE TO THE STREAM/DITCH DURING CULVERT INSTALLATION/REMOVAL.
3. INSTALLATION OF TEMPORARY DRY STREAM/CONVEYANCE CROSSINGS SHALL BE COMPLETED DURING FORECASTED DRY PERIODS, THAT ENSURES ADEQUATE TIME FOR EROSION AND SEDIMENT CONTROL BMP INSTALLATION.
4. IF INSTALLATION IS NEEDED IN A PERPETUAL WET STREAM/CONVEYANCE, A TEMPORARY DAM SHALL BE CONSTRUCTED WITH SAND BAGS STARTING AT THE UPSTREAM END TO ALLOW THE WORK AREA TO BE "DRY." A PUMP SHALL BE USED TO CONVEY WATER AROUND TEMPORARY DAM. THE PUMPED WATER WILL BE DISCHARGED DOWN STREAM OF THE WORK AREA USING ENERGY DISSIPATION AT THE DISCHARGE LOCATION TO PREVENT ANY SCOUR. THE RATE OF THE PUMP MUST MATCH EXISTING FLOW RATES/VOLUMES AND MUST NOT REMAIN OVERNIGHT. ALL CROSSING ACTIVITY INCLUDING RESTORATION MUST BE DONE WITHIN THE SAME WORK DAY.
5. UPON COMPLETION, RIP RAP AND RESTORE TO ORIGINAL CONDITION. INSTALL SEED AND EROSION CONTROL BLANKET, ADEQUATE FOR FLOW CONDITIONS, ON ALL DISTURBED SLOPES GREATER THAN 3:1, WHERE ANY FLOWS ARE CONCENTRATED AND WITHIN THE DITCHES WETTED PERIMETER.

TEMPORARY SAND BAG DAM WITH WATER BYPASS PUMP — LAST REVISED: 01/23/13 — RD17

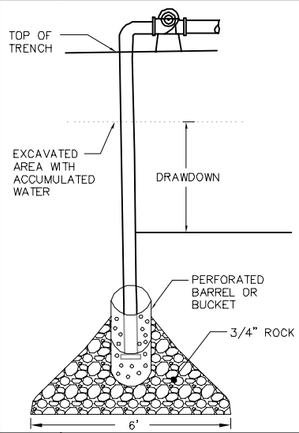


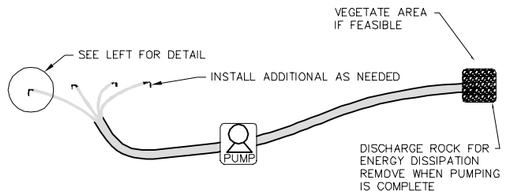
NOTE:

1. ALL FENCES SHALL BE TIED BACK TO MAINTAIN TENSION ON EXISTING FENCE PRIOR TO CUTTING OF THE EXISTING FENCE
2. BARBED WIRE SHALL MATCH EXISTING 4, 5 OR 6 WIRE FENCE.
3. REFER TO STANDARD UNION PACIFIC DETAIL FOR FENCE MODIFICATIONS ALONG U.P.R.R. ROW.
4. DISTANCE FROM GROUND LEVEL TO BOTTOM WIRE CAN VARY FROM 16–20" BETWEEN FENCE POSTS. EXTRA FENCE POSTS SHOULD BE USED TO MAINTAIN THE CORRECT SPACING.
5. ALL WIRES CONNECT TO METAL FENCE POSTS WITH WIRE CLIPS OR WOODEN FENCE POSTS WITH METAL STAPLES.
6. ALL WIRES MUST BE STRETCHED AND ATTACHED TO APPROPRIATE SUPPORT STRUCTURES.
7. BOTTOM WIRE IS ALWAYS SMOOTH – NO BARBS.

DRAWING NOT TO SCALE

PERMANENT FENCE — LAST REVISED: 04/09/13 — FN03

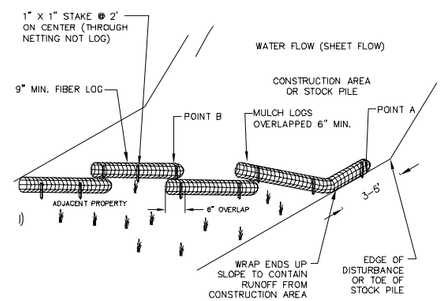




NOTE:

1. A DEWATERING BAG MAY BE SUBSTITUTED FOR DISCHARGE ROCK FOR ENERGY DISSIPATION.
2. DEWATERING DISCHARGE SHALL BE MONITORED FOR ANY EROSIVE CONDITIONS. IF EROSION OCCURS, THE AREA SHALL BE STABILIZED IN ACCORDANCE WITH THE SWPPP. DEWATERING MAY RESUME FOLLOWING STABILIZATION.
3. DEWATERING DISCHANGE SHALL BE MONITORED FOR TURBID CONDITIONS. ADDITIONAL BMP'S PRIOR TO PUMP MY BE NEEDED IF WATER IS TURBID.

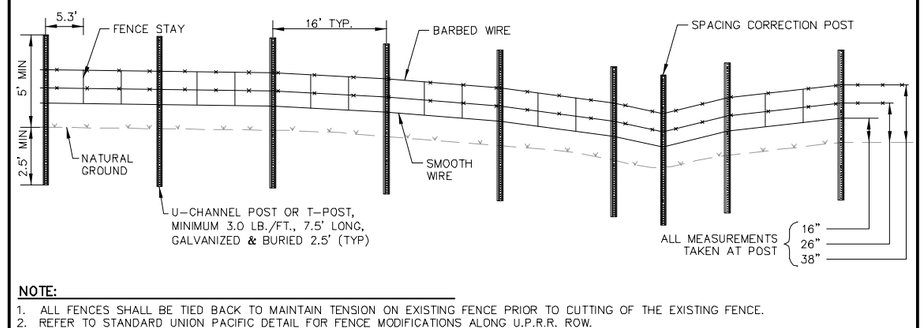
TYPICAL DEWATERING OPERATION — LAST REVISED: 05/06/11 — GD31



NOTES:

1. TO BE USED FOR PERIMETER CONTROL AT CONSTRUCTION AREA LIMIT WITHIN SMALL WATERSHEDS.
2. POINT "A" MUST BE A MINIMUM OF 6 INCHES HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE FIBER LOG AND NOT AROUND THE ENDS.
3. TRENCH LOG 2" IF 100% CONTACT WITH SOIL NOT IS ACHIEVABLE

TEMPORARY PERIMETER SEDIMENT CONTROL FIBER LOG — LAST REVISED: 01/31/13 — GD24



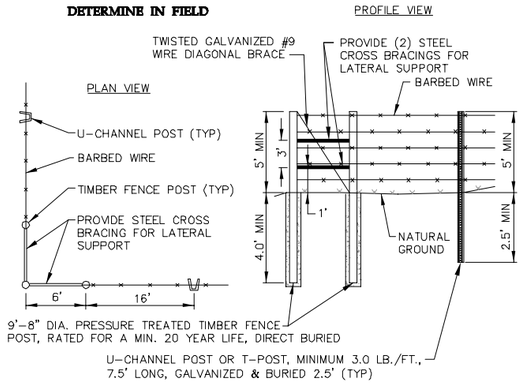
NOTE:

1. ALL FENCES SHALL BE TIED BACK TO MAINTAIN TENSION ON EXISTING FENCE PRIOR TO CUTTING OF THE EXISTING FENCE.
2. REFER TO STANDARD UNION PACIFIC DETAIL FOR FENCE MODIFICATIONS ALONG U.P.R.R. ROW.
3. DISTANCE FROM GROUND LEVEL TO BOTTOM WIRE CAN VARY FROM 16–20" BETWEEN FENCE POSTS. EXTRA FENCE POSTS SHOULD BE USED TO MAINTAIN THE CORRECT SPACING.
4. ALL WIRES CONNECT TO METAL FENCE POSTS WITH WIRE CLIPS OR WOODEN FENCE POSTS WITH METAL STAPLES.
5. ALL WIRES MUST BE STRETCHED AND ATTACHED TO APPROPRIATE SUPPORT STRUCTURES.
6. BOTTOM WIRE IS ALWAYS SMOOTH – NO BARBS.

DRAWING NOT TO SCALE

3 WIRE TEMPORARY FENCE — LAST REVISED: 04/09/13 — FN04

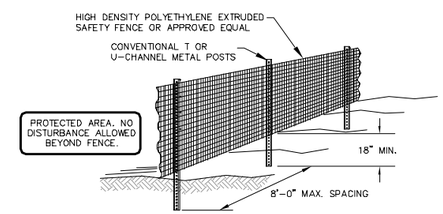
DETERMINE IN FIELD



NOTE:

1. ALL DIRECT BURIED POSTS SHALL BE BACKFILLED WITH TWO BAGS OF UNMIXED, NO WATER ADDED, QUICKRETE®, OR APPROVED EQUAL, FOLLOWED BY NATIVE SOIL.
2. REFER TO STANDARD UNION PACIFIC DETAIL FOR FENCE MODIFICATIONS ALONG U.P.R.R. ROW.

PERMANENT FENCE CORNER POST — LAST REVISED: 05/14/08 — FN01



NOTE:

1. CONTRACTOR TO INSTALL SAFETY FENCE AROUND PROTECTED AREAS PRIOR TO CONSTRUCTION ACTIVITIES IN THE VICINITY.
2. CONTRACTOR MAY USE APPROVED ALTERNATE PRODUCTS AND CONSTRUCTION PRACTICES AS LONG AS THE INTENT AND EFFECTIVENESS OF THE FENCE IS MAINTAINED. VERIFY ALL CHANGES WITH THE ENGINEER.
3. SEE PLANS FOR LOCATIONS.

SAFETY FENCE — LAST REVISED: 01/23/13 — FN05

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REV. #	BY	DATE	DESCRIPTION
0	DJG	06/24/13	DRAFT WEST SINCLAIR RAIL FACILITY ISSUED FOR PERMIT PLANS
1	DJG	07/12/13	WEST SINCLAIR RAIL FACILITY ISSUED FOR PERMIT PLANS
2	KAB	08/12/13	WEST SINCLAIR RAIL FACILITY ISSUED FOR PERMIT PLANS

DRAWN BY: DSW
CHECKED BY: RSC
DATE: 6/24/13
SHEET NUMBER: C-17 of 28

For Use In Agreement With: UNION PACIFIC RAILROAD and POWER CO. OF WYOMING

LOCATION & DESCRIPTION:
MILEPOST 677.95, LARAMIE SUBDIVISION
SINCLAIR, CARBON COUNTY, WYOMING
Trackage to Serve: POWER COMPANY OF WYOMING

SHEET TITLE: **Construction Details**

20111120DTF-RAIL01.dwg

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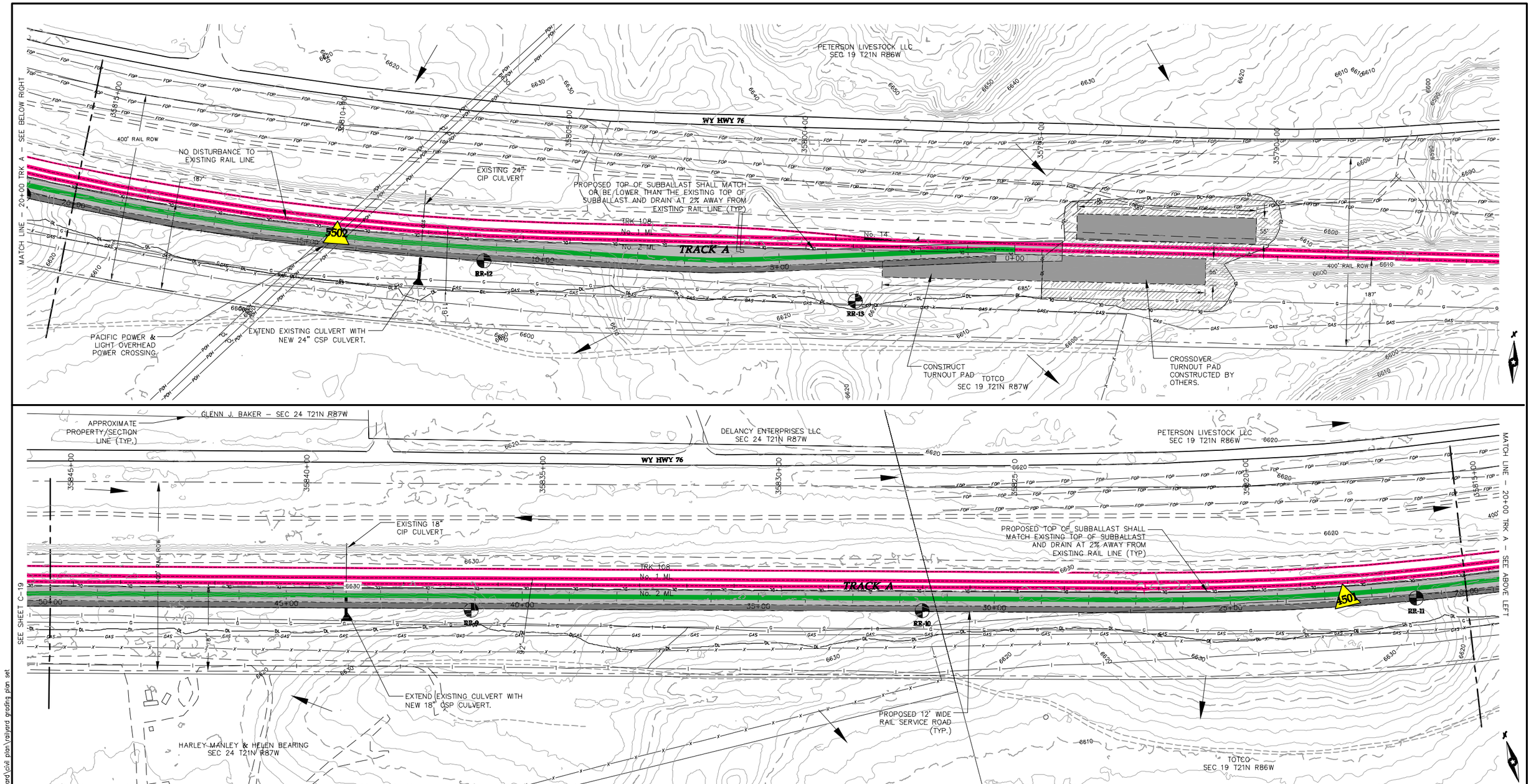
8/12/2013 10:23 AM
kabaje



Legend

- EXISTING CONTOURS
- MATCH LINE
- RAIL RIGHT OF WAY
- EXISTING OVERHEAD TELEPHONE
- EXISTING PIPELINE FROM PLG
- EXISTING PIPELINE FROM PCW
- EXISTING FIBER OPTIC
- EXISTING CULVERT
- EXISTING DRAINAGE CHANNEL
- EXISTING GRAVEL ROAD
- EXISTING DIRT ROAD/TRAIL
- EXISTING OVERHEAD POWER
- EXISTING WATER LINE
- PROPOSED PERM. FENCE
- PROPOSED TEMP. FENCE
- EXISTING FENCE
- PROPOSED DITCH
- PROPOSED CULVERT
- DISTURBANCE LIMITS
- PROPOSED RAIL LINE
- PROPOSED SERVICE ROAD
- FLOW ARROW
- GRAVEL YARD SURFACE
- CRANE ROW AREA
- CONSTRUCTION TURNOUT
- PROPOSED UTILITY CORRIDOR
- EXISTING DELINEATED WETLAND
- SOIL BORING LOCATION & NUMBER
- TOPSOIL STOCKPILE AREA
- PROPOSED UTILITY CROSSING
- PROPOSED FENCE CROSSING

GENERAL NOTES:

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3. REFER TO PROJECT SWPPP FOR RESTORATION OF ALL DISTURBED AREAS. THE CONTRACTOR SHALL STAY WITHIN THE DISTURBANCE LIMITS SHOWN ON THE PLANS UNLESS WRITTEN APPROVAL IS PROVIDED BY OWNER.

0' 200' 400'

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1	DJG	07/12/13	WEST SINCLAIR RAIL FACILITY ISSUED FOR PERMIT PLANS
2	KAB	08/12/13	WEST SINCLAIR RAIL FACILITY ISSUED FOR PERMIT PLANS

LEGEND:
- EXISTING MAINLINE TRACK
- EXISTING SIDING TRACK
- EXISTING INDUSTRY OWNED TRACK
- PROPOSED RAILROAD OWNED TRACK
- PROPOSED INDUSTRY OWNED TRACK
- UPRR RIGHT OF WAY
- FIBER OPTIC CABLE
- PROPERTY BOUNDARY (OTHER)

DRAWN BY: DSW
CHECKED BY: RSC
DATE: 6/24/13
SHEET NUMBER: C-18 of 28

For Use In Agreement With: UNION PACIFIC RAILROAD and POWER CO. OF WYOMING

LOCATION & DESCRIPTION:
MILEPOST 677.95, LARAMIE SUBDIVISION
SINCLAIR, CARBON COUNTY, WYOMING
Trackage to Serve: POWER COMPANY OF WYOMING

SHEET TITLE: Site Plan

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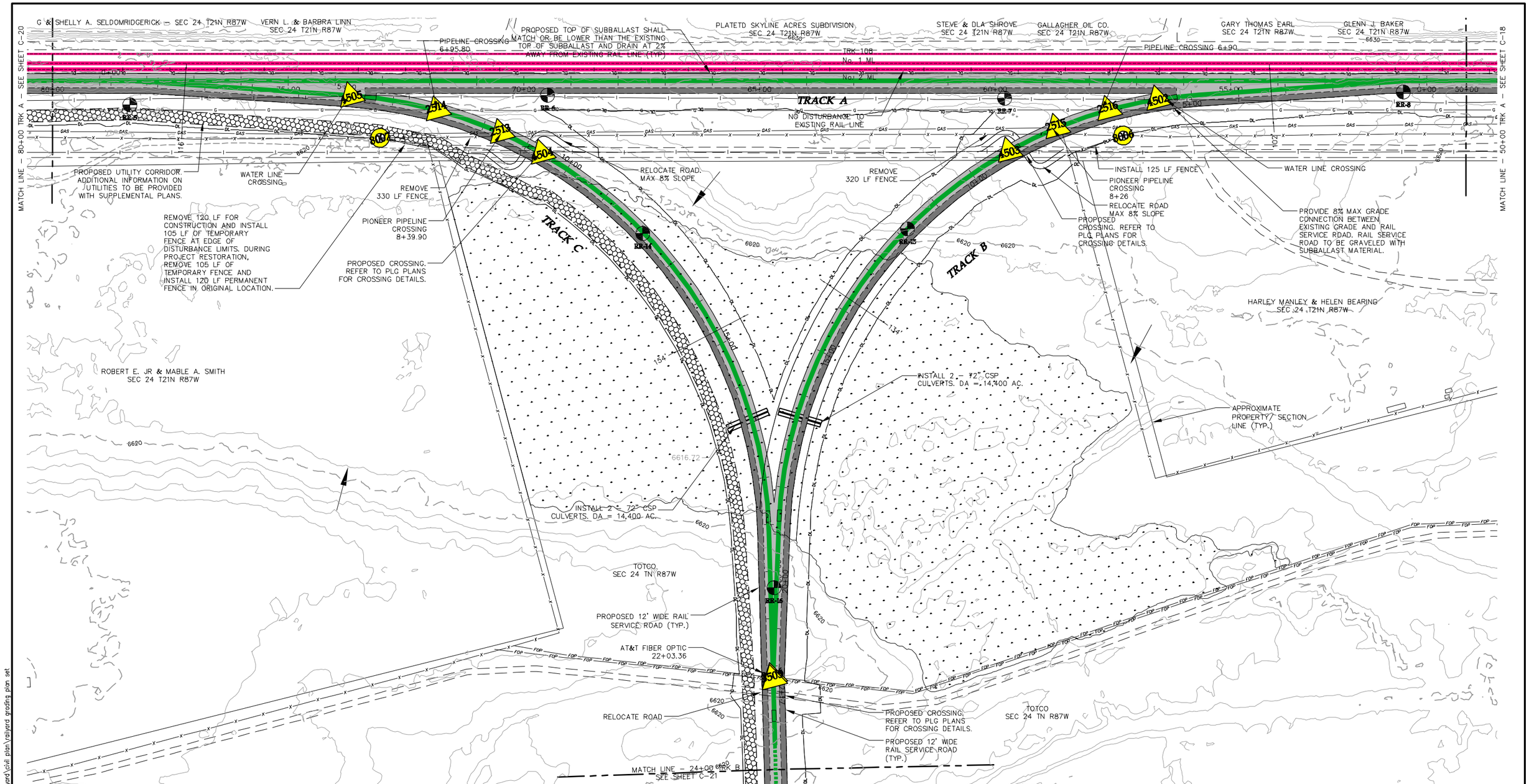
20111120SPF-RAIL01.dwg



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LEGEND:
EXISTING MAINLINE TRACK
EXISTING SIDING TRACK
EXISTING INDUSTRY OWNED TRACK
PROPOSED RAILROAD OWNED TRACK
PROPOSED INDUSTRY OWNED TRACK
UPRR RIGHT OF WAY
FIBER OPTIC CABLE
PROPERTY BOUNDARY (OTHER)

DRAWN BY: DSW
CHECKED BY: RSC
DATE: 6/24/13
SHEET NUMBER: C-19 of 28

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LOCATION & DESCRIPTION:
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Trackage to Serve: POWER COMPANY OF WYOMING

SHEET TITLE: Site Plan

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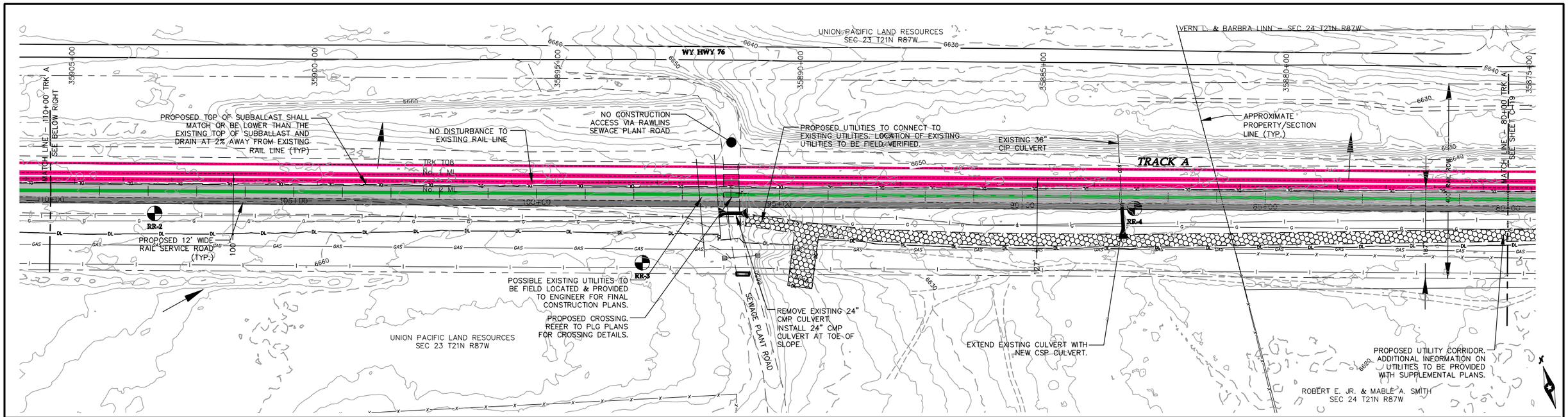

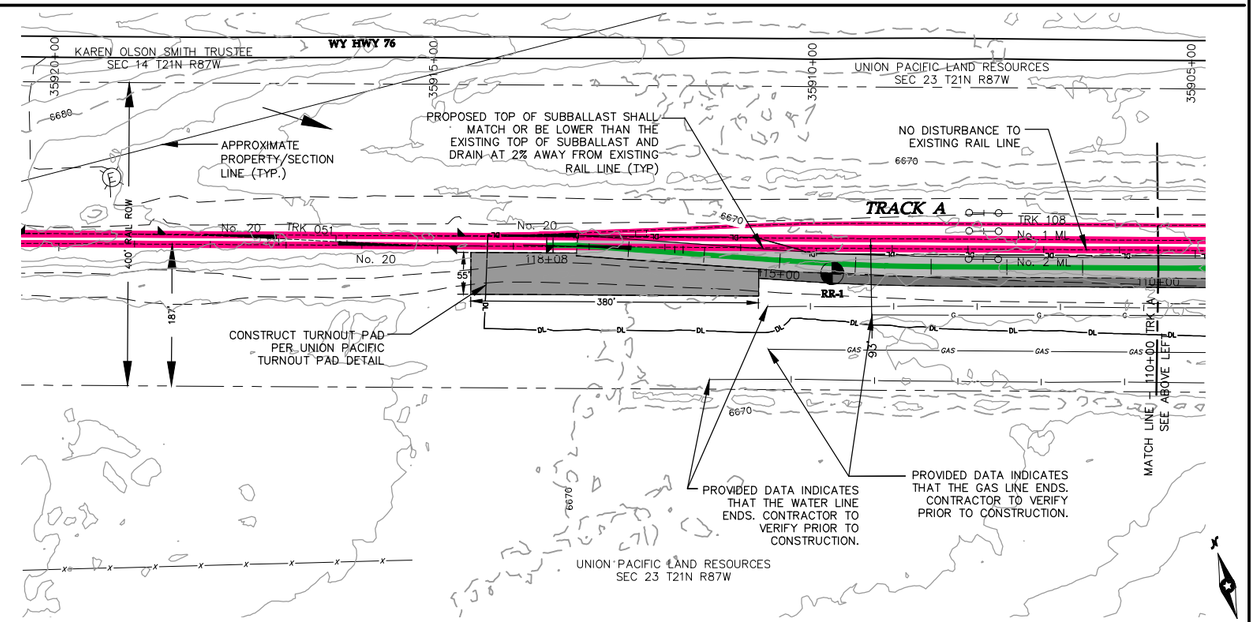

Legend

- EXISTING CONTOURS (6700)
- MATCH LINE
- RAIL RIGHT OF WAY
- EXISTING OVERHEAD TELEPHONE (TOH)
- EXISTING WATER LINE (WAT)
- EXISTING PIPELINE (GAS)
- EXISTING FIBER OPTIC (FOP)
- EXISTING CULVERT (STO)
- EXISTING DRAINAGE CHANNEL
- EXISTING GRAVEL ROAD
- EXISTING DIRT ROAD/TRAIL
- EXISTING OVERHEAD POWER (POH)
- EXISTING WATER LINE
- PROPOSED PERM. FENCE
- PROPOSED TEMP. FENCE
- EXISTING FENCE
- PROPOSED DITCH
- PROPOSED CULVERT
- DISTURBANCE LIMITS (DL)
- PROPOSED RAIL LINE
- PROPOSED SERVICE ROAD
- FLOW ARROW
- GRAVEL YARD SURFACE
- CRANE ROW AREA
- CONSTRUCTION TURNOUT
- PROPOSED UTILITY CORRIDOR
- EXISTING DELINEATED WETLAND
- SOIL BORING LOCATION & NUMBER (RR-XX)
- TOPSOIL STOCKPILE AREA
- PROPOSED UTILITY CROSSING
- PROPOSED FENCE CROSSING

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2	KAB	08/12/13	WEST SINCLAIR RAIL FACILITY ISSUED FOR PERMIT PLANS
3	DFK	03/13/14	UPDATED UTILITY CORRIDOR AND TOPSOIL HANDLING INFORMATION

LEGEND:
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- PROPERTY BOUNDARY (OTHER)

DRAWN BY: DSW
CHECKED BY: RSC
DATE: 6/24/13
SHEET NUMBER: C-20 of 28

For Use In Agreement With: UNION PACIFIC RAILROAD and POWER CO. OF WYOMING

LOCATION & DESCRIPTION:
MILEPOST 677.95, LARAMIE SUBDIVISION
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Trackage to Serve: POWER COMPANY OF WYOMING

SHEET TITLE: Site Plan

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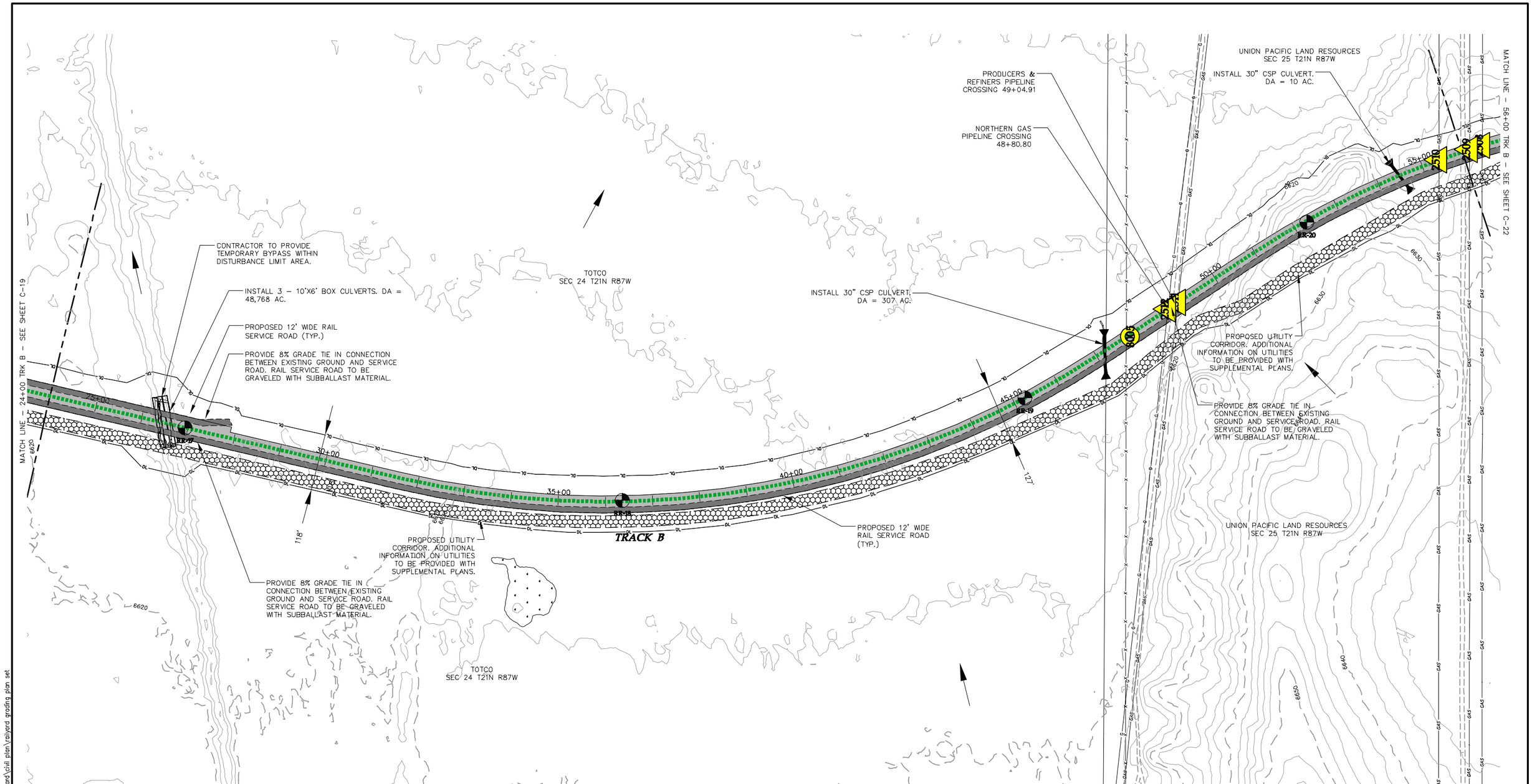
dkelleher



Legend

- EXISTING CONTOURS
- MATCH LINE
- RAIL RIGHT OF WAY
- EXISTING OVERHEAD TELEPHONE
- EXISTING PIPELINE FROM PLG
- EXISTING PIPELINE FROM PCW
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- PROPOSED INDUSTRY OWNED TRACK
- UPRR RIGHT OF WAY
- FIBER OPTIC CABLE
- PROPERTY BOUNDARY (OTHER)

DRAWN BY: DSW
CHECKED BY: RSC
DATE: 6/24/13
SHEET NUMBER: C-21 of 28

For Use In Agreement With: UNION PACIFIC RAILROAD and POWER CO. OF WYOMING

LOCATION & DESCRIPTION:
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Trackage to Serve: POWER COMPANY OF WYOMING

SHEET TITLE: Site Plan

20111120SPF-RAIL01.dwg

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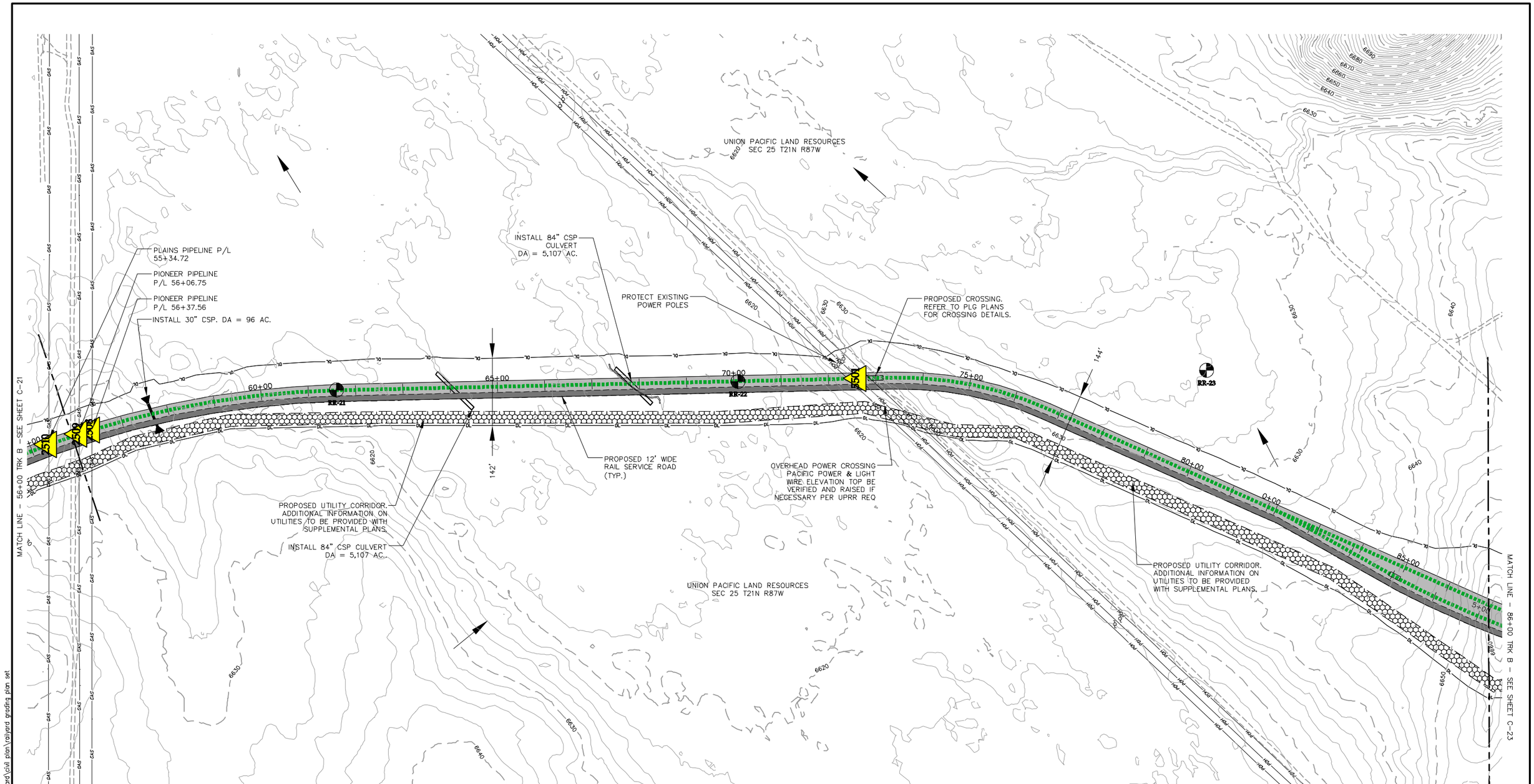

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EXISTING INDUSTRY OWNED TRACK
PROPOSED RAILROAD OWNED TRACK
PROPOSED INDUSTRY OWNED TRACK
UPRR RIGHT OF WAY
FIBER OPTIC CABLE
PROPERTY BOUNDARY (OTHER)

DRAWN BY: DSW
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DATE: 6/24/13
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UNION PACIFIC

For Use In Agreement With: **UNION PACIFIC RAILROAD** and POWER CO. OF WYOMING

LOCATION & DESCRIPTION:
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Trackage to Serve: POWER COMPANY OF WYOMING

SHEET TITLE: **Site Plan**

20111120SPF-RAIL01.dwg

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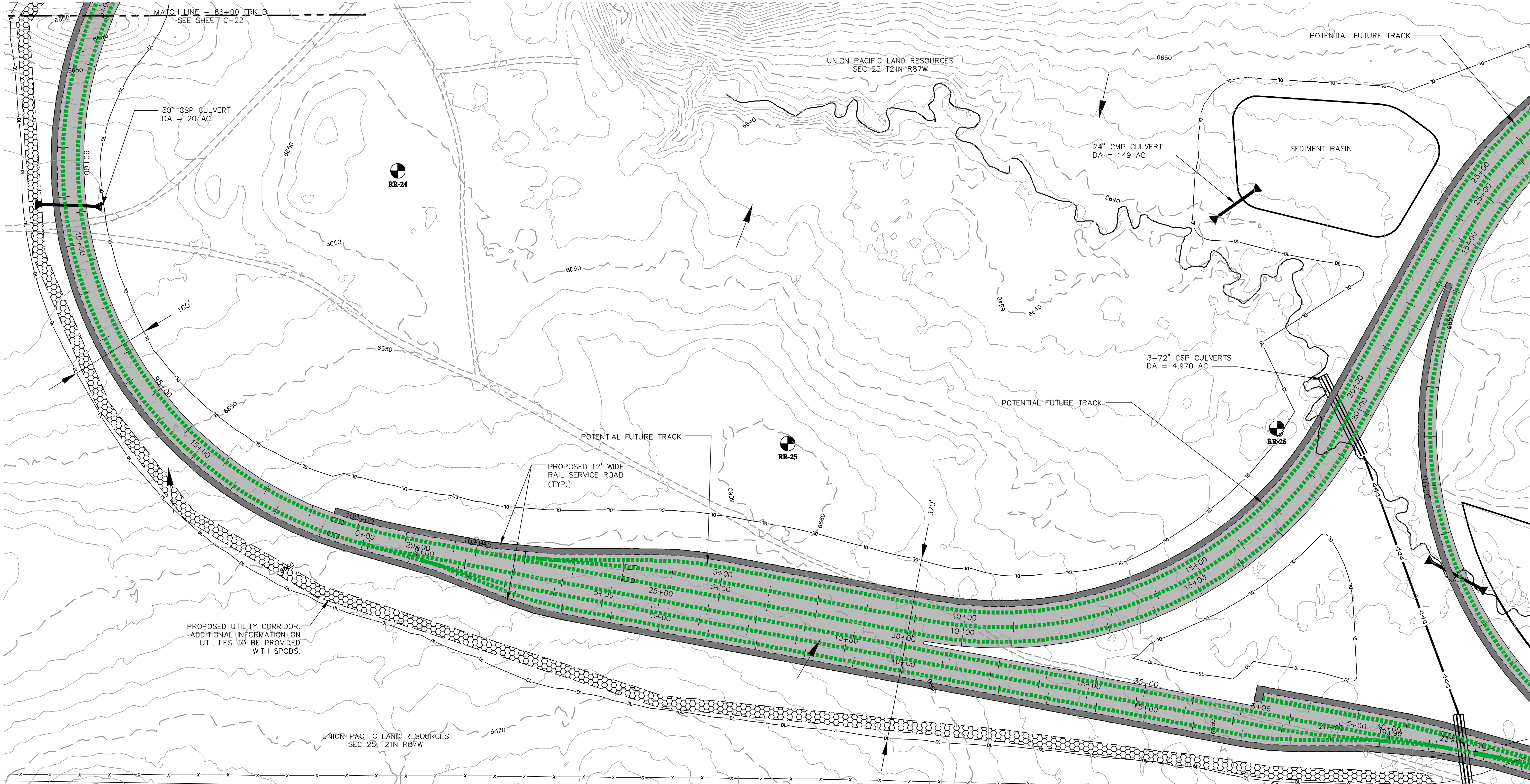

Legend

Symbol	Description
6700	EXISTING CONTOURS
	MATCH LINE
	RAIL RIGHT OF WAY
TOH	EXISTING OVERHEAD TELEPHONE
G	EXISTING PIPELINE FROM PLG
GAS	EXISTING PIPELINE FROM PCW
FOP	EXISTING FIBER OPTIC
STO	EXISTING CULVERT
	EXISTING DRAINAGE CHANNEL
	EXISTING GRAVEL ROAD
	EXISTING DIRT ROAD/TRAIL
POH	EXISTING OVERHEAD POWER
I	EXISTING WATER LINE
X	PROPOSED PERM. FENCE
	PROPOSED TEMP. FENCE
X	EXISTING FENCE
	PROPOSED DITCH
	PROPOSED CULVERT
DL	DISTURBANCE LIMITS
	PROPOSED RAIL LINE
	PROPOSED SERVICE ROAD
	FLOW ARROW
	GRAVEL YARD SURFACE
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	PROPOSED UTILITY CORRIDOR
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- PROPERTY BOUNDARY (OTHER)

DRAWN BY: DSW
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DATE: 6/24/13
SHEET NUMBER: C-23 of 28

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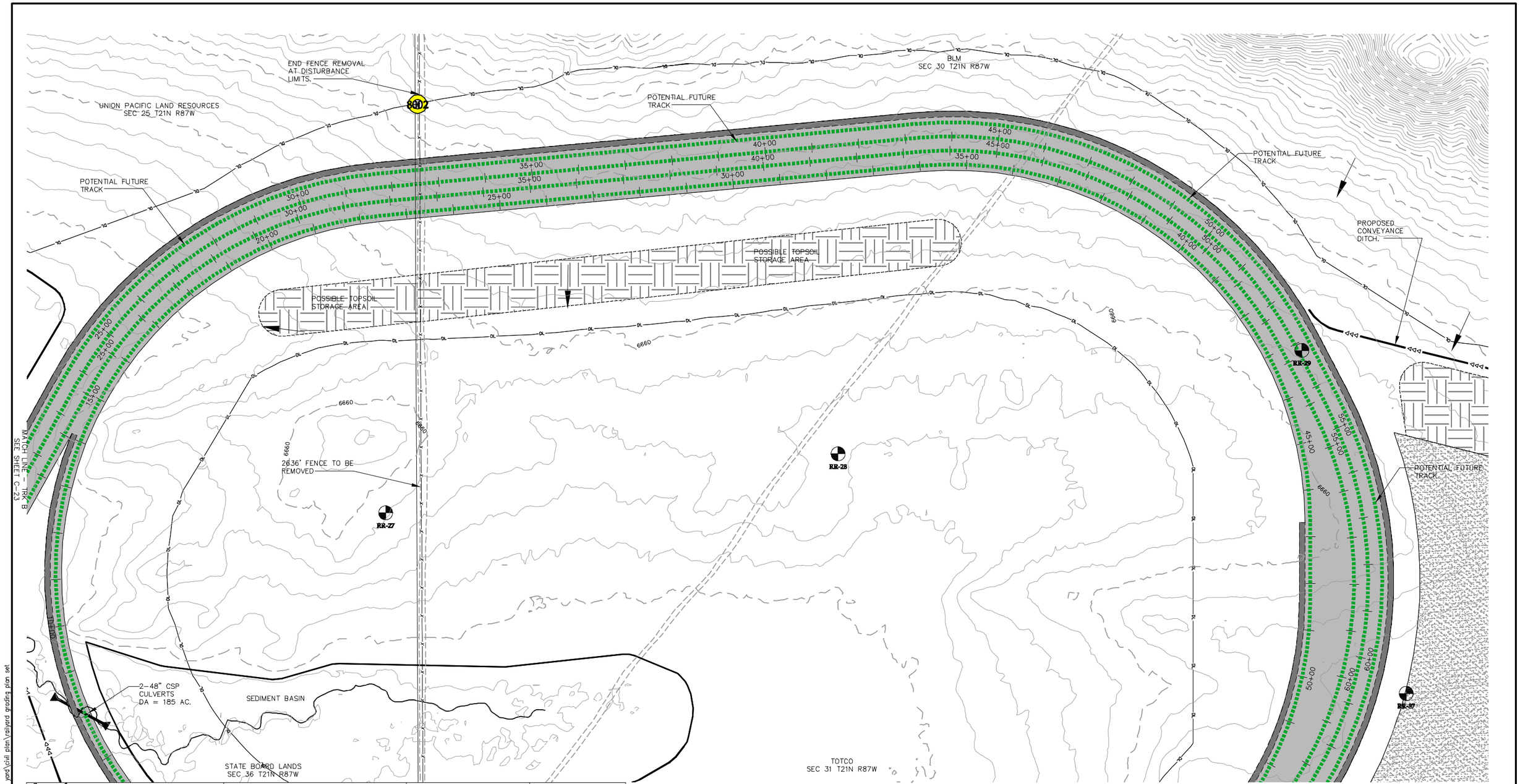

Legend

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- MATCH LINE
- RAIL RIGHT OF WAY
- EXISTING OVERHEAD TELEPHONE
- EXISTING PIPELINE FROM PLG
- EXISTING PIPELINE FROM PCW
- EXISTING FIBER OPTIC
- EXISTING CULVERT
- EXISTING DRAINAGE CHANNEL
- EXISTING GRAVEL ROAD
- EXISTING DIRT ROAD/TRAIL
- EXISTING OVERHEAD POWER
- EXISTING WATER LINE
- PROPOSED PERM. FENCE
- PROPOSED TEMP. FENCE
- EXISTING FENCE
- PROPOSED DITCH
- PROPOSED CULVERT
- DISTURBANCE LIMITS
- PROPOSED RAIL LINE
- PROPOSED SERVICE ROAD
- FLOW ARROW
- GRAVEL YARD SURFACE
- CRANE ROW AREA
- CONSTRUCTION TURNOUT
- PROPOSED UTILITY CORRIDOR
- EXISTING DELINEATED WETLAND
- SOIL BORING LOCATION & NUMBER
- TOPSOIL STOCKPILE AREA
- PROPOSED UTILITY CROSSING
- PROPOSED FENCE CROSSING

GENERAL NOTES:

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0' 200' 400'

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West Sinclair Rail Facility
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Westwood Professional Services, Inc.
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www.westwoodps.com

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ON RAILROAD R-O-W

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1-800-336-9193

REV. #	BY	DATE	DESCRIPTION
0	DJG	06/24/13	DRAFT WEST SINCLAIR RAIL FACILITY ISSUED FOR PERMIT PLANS
1	DJG	07/12/13	WEST SINCLAIR RAIL FACILITY ISSUED FOR PERMIT PLANS
2	KAB	08/12/13	WEST SINCLAIR RAIL FACILITY ISSUED FOR PERMIT PLANS

LEGEND:
- EXISTING MAINLINE TRACK
- EXISTING SIDING TRACK
- EXISTING INDUSTRY OWNED TRACK
- PROPOSED RAILROAD OWNED TRACK
- PROPOSED INDUSTRY OWNED TRACK
- UPRR RIGHT OF WAY
- FIBER OPTIC CABLE
- PROPERTY BOUNDARY (OTHER)

DRAWN BY: DSW
CHECKED BY: RSC
DATE: 6/24/13
SHEET NUMBER: C-24 of 28

For Use In Agreement With: **UNION PACIFIC RAILROAD** and POWER CO. OF WYOMING

LOCATION & DESCRIPTION:
MILEPOST 677.95, LARAMIE SUBDIVISION
SINCLAIR, CARBON COUNTY, WYOMING
Trackage to Serve: POWER COMPANY OF WYOMING

SHEET TITLE: **Site Plan**

20111120SPF-RAIL01.dwg

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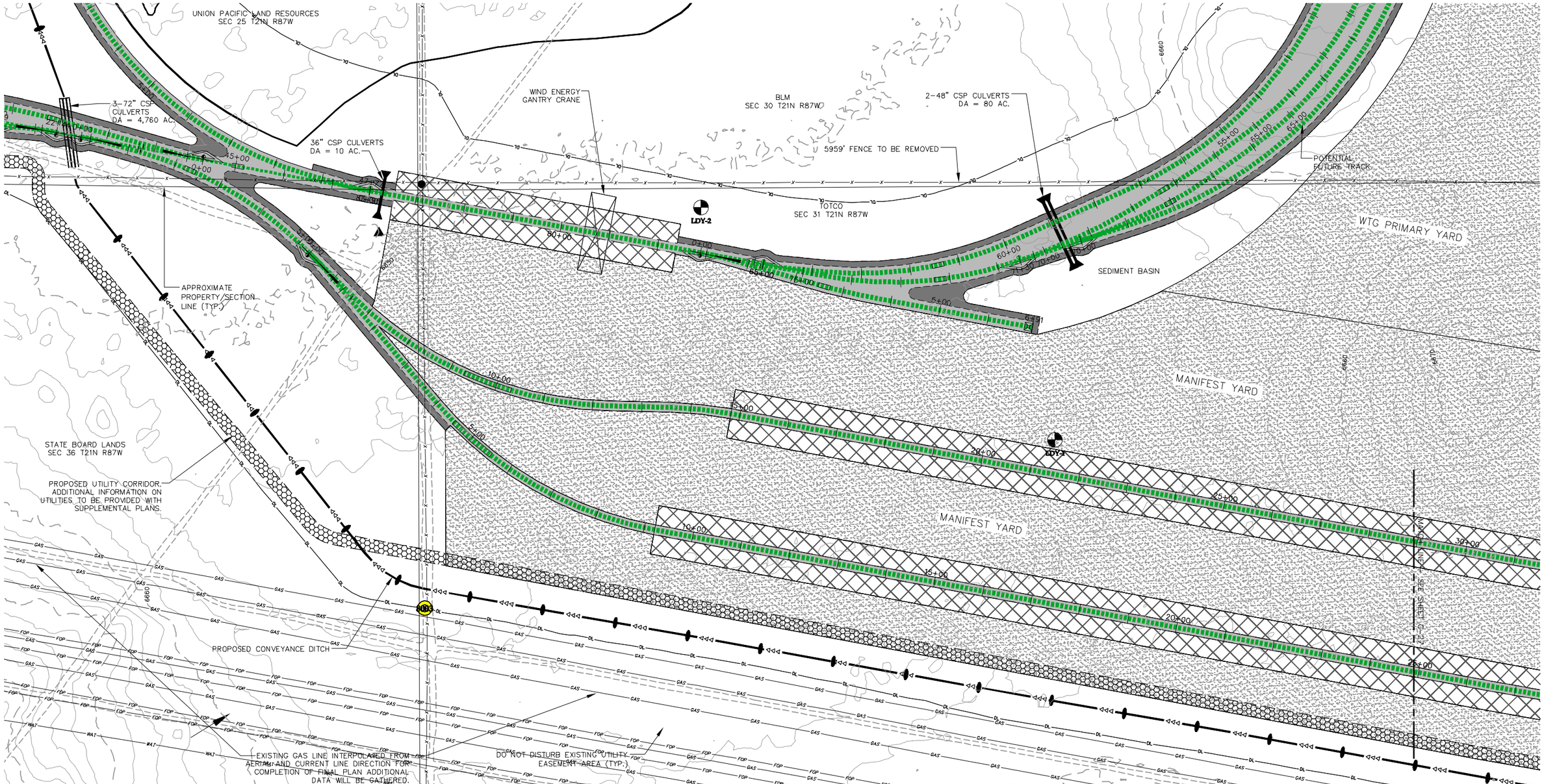

Legend

- 6700 EXISTING CONTOURS
- MATCH LINE
- RAIL RIGHT OF WAY
- TOH EXISTING OVERHEAD TELEPHONE
- WAT EXISTING WATER LINE
- GAS EXISTING PIPELINE
- FOP EXISTING FIBER OPTIC
- STO EXISTING CULVERT
- EXISTING DRAINAGE CHANNEL
- EXISTING GRAVEL ROAD
- EXISTING DIRT ROAD/TRAIL
- POH EXISTING OVERHEAD POWER
- EXISTING WATER LINE
- PROPOSED PERM. FENCE
- PROPOSED TEMP. FENCE
- EXISTING FENCE
- PROPOSED DITCH
- PROPOSED CULVERT
- DL DISTURBANCE LIMITS
- PROPOSED RAIL LINE
- PROPOSED SERVICE ROAD
- FLOW ARROW
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- CRANE ROW AREA
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- RR-XX
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3	DFK	03/13/14	UPDATED UTILITY CORRIDOR AND TOPSOIL HANDLING INFORMATION

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- UPRR RIGHT OF WAY
- FIBER OPTIC CABLE
- PROPERTY BOUNDARY (OTHER)

DRAWN BY: DSW
CHECKED BY: RSC
DATE: 6/24/13
SHEET NUMBER: C-25 of 28

For Use In Agreement With: **UNION PACIFIC RAILROAD** and POWER CO. OF WYOMING

LOCATION & DESCRIPTION:
MILEPOST 677.95, LARAMIE SUBDIVISION
SINCLAIR, CARBON COUNTY, WYOMING
Trackage to Serve: POWER COMPANY OF WYOMING

SHEET TITLE: **Site Plan**

20111120SPF-RAIL01.dwg

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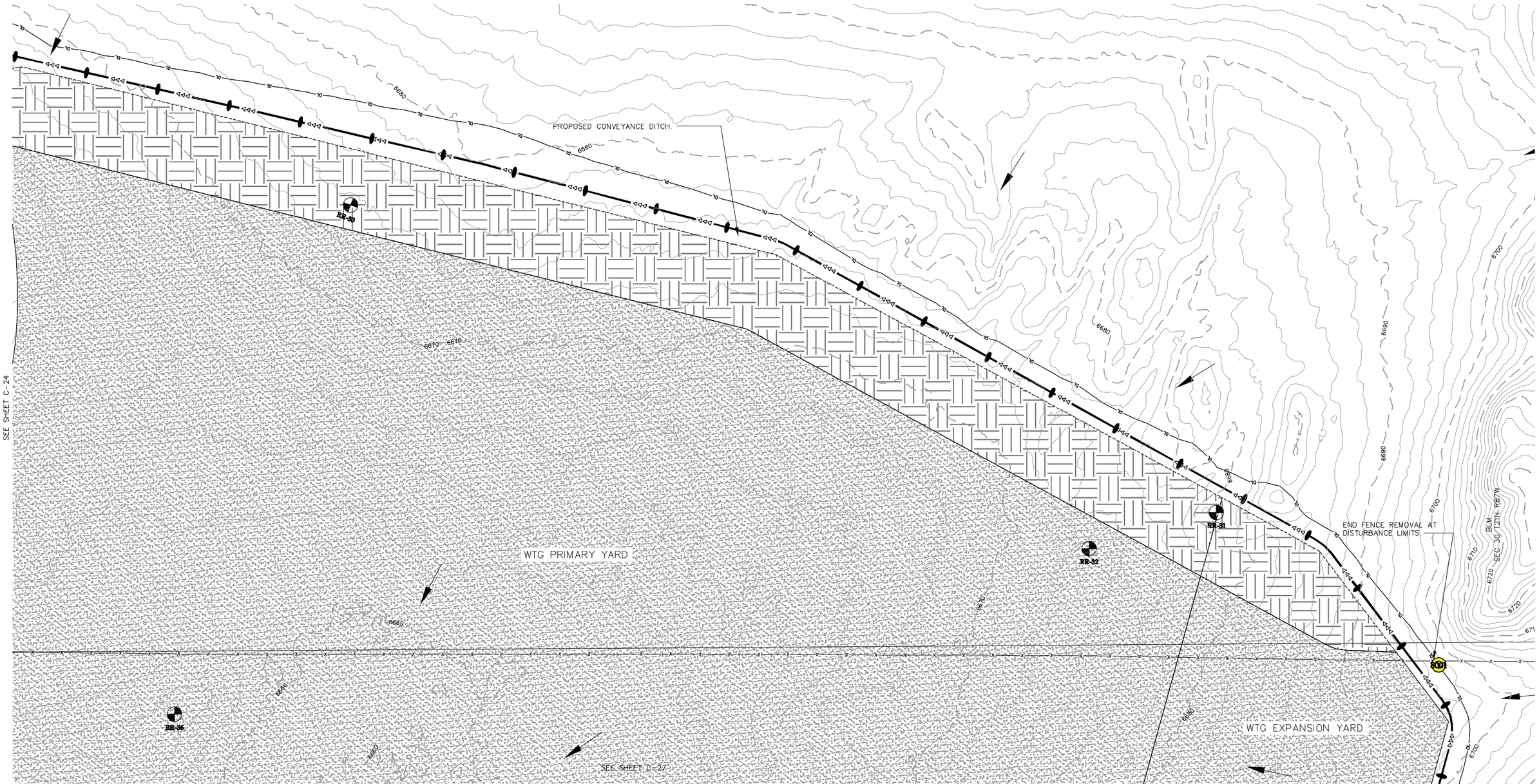

Legend

- 6700 — EXISTING CONTOURS
- MATCH LINE
- RAIL RIGHT OF WAY
- TOH — EXISTING OVERHEAD TELEPHONE
- WAT — EXISTING WATER LINE
- GAS — EXISTING PIPELINE
- FOP — EXISTING FIBER OPTIC
- STD — EXISTING CULVERT
- EXISTING DRAINAGE CHANNEL
- EXISTING GRAVEL ROAD
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- PROPERTY BOUNDARY (OTHER)

DRAWN BY: DSW
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DATE: 6/24/13
SHEET NUMBER: C-26 of 28

For Use In Agreement With: UNION PACIFIC RAILROAD and POWER CO. OF WYOMING

LOCATION & DESCRIPTION:
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SINCLAIR, CARBON COUNTY, WYOMING
Trackage to Serve: POWER COMPANY OF WYOMING

SHEET TITLE: Site Plan

20111120SPF-RAIL01.dwg

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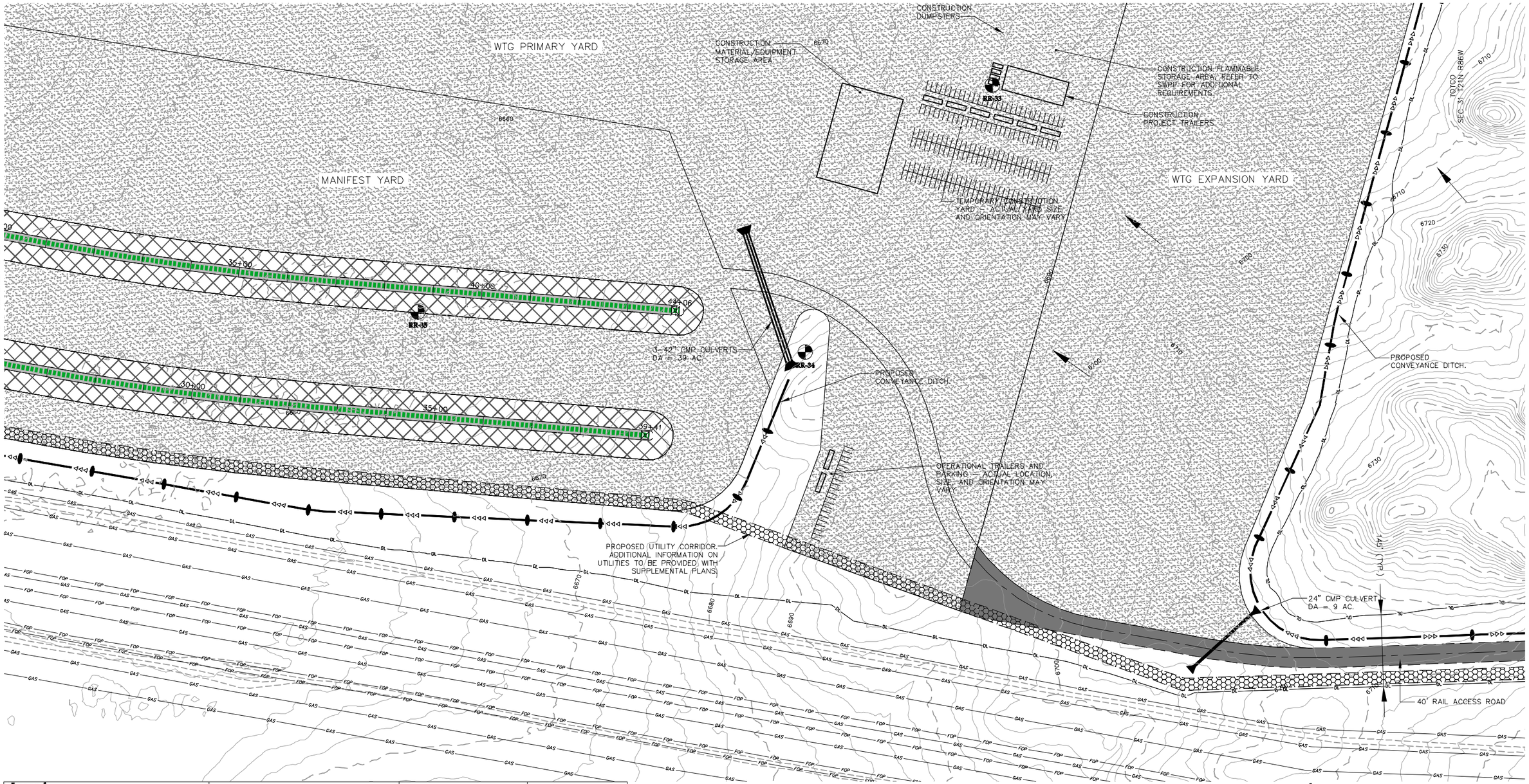

Legend

6700 EXISTING CONTOURS	EXISTING WATER LINE	GRAVEL YARD SURFACE	TOPSOIL STOCKPILE AREA
MATCH LINE	PROPOSED PERM. FENCE	CRANE ROW AREA	PROPOSED UTILITY CROSSING
RAIL RIGHT OF WAY	PROPOSED TEMP. FENCE	CONSTRUCTION TURNOUT	PROPOSED FENCE CROSSING
TOH EXISTING OVERHEAD TELEPHONE	EXISTING FENCE	PROPOSED UTILITY CORRIDOR	
WAT EXISTING WATER LINE	PROPOSED DITCH	EXISTING DELINEATED WETLAND	
GAS EXISTING PIPELINE	PROPOSED CULVERT	SOIL BORING LOCATION & RR-XX NUMBER	
FOP EXISTING FIBER OPTIC	DISTURBANCE LIMITS		
STD EXISTING CULVERT	PROPOSED RAIL LINE		
EXISTING DRAINAGE CHANNEL	PROPOSED SERVICE ROAD		
EXISTING GRAVEL ROAD	FLOW ARROW		
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POH EXISTING OVERHEAD POWER			

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SHEET TITLE: Site Plan

20111120SPF-RAIL01.dwg

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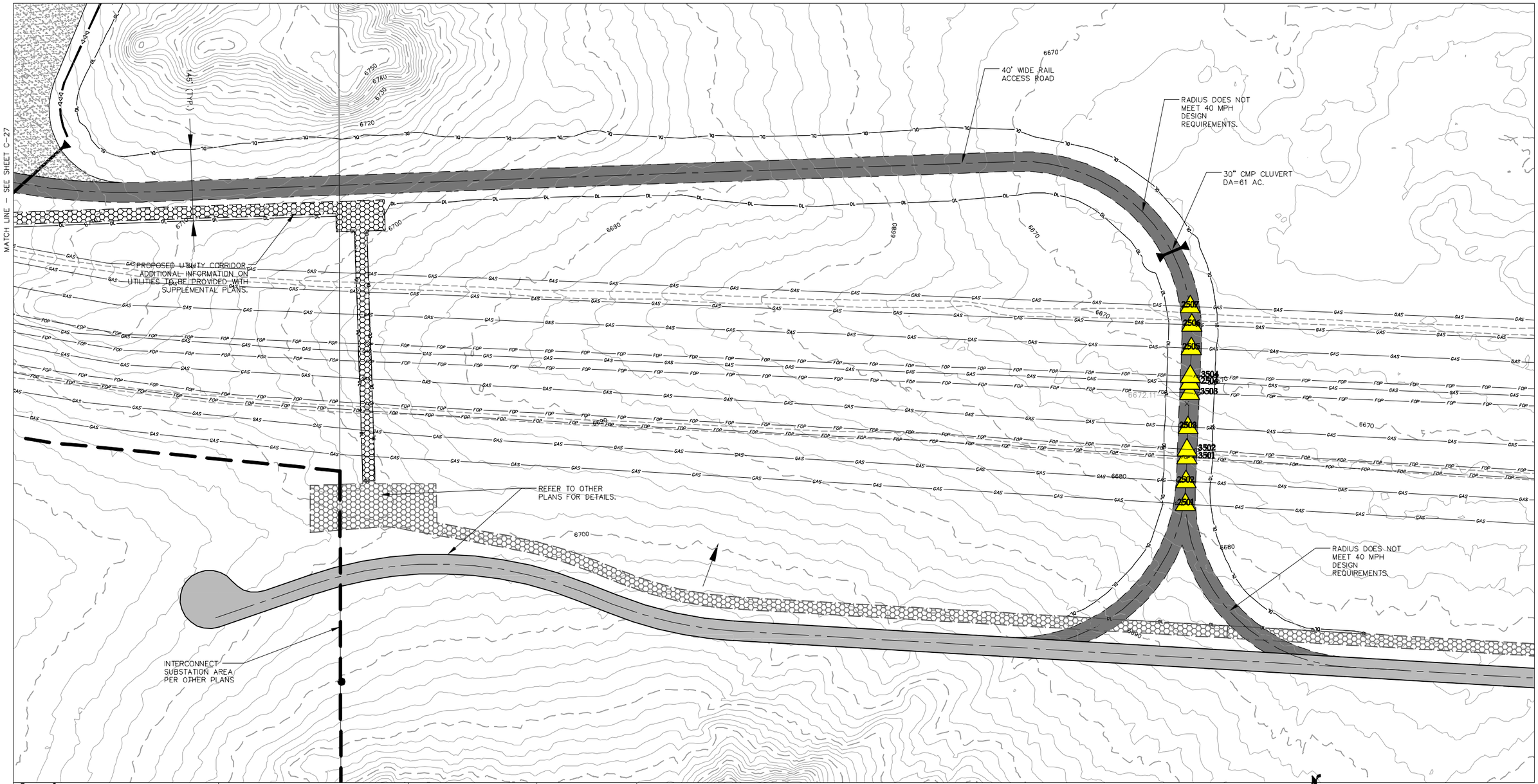

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Westwood

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UNION PACIFIC

For Use In Agreement With: UNION PACIFIC RAILROAD and POWER CO. OF WYOMING

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20111120SPF-RAIL01.dwg

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