

Tena Seeds, PE
Senior Engineer, Uplands Unit
Northwest Region Toxics Cleanup Program
Washington State Department of Ecology
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Date: May 23, 2025
Subject: BNSF Property Boring Logs
Agreed Order No. DE 18042
Facility Site Identification No. 75486194
Cleanup Site Identification No. 14604
Time Oil Bulk Terminal – BNSF Property
Seattle, WA

Dear Ms. Seeds,

On behalf of BNSF Railway Company (BNSF), Arcadis U.S., Inc. (Arcadis) is providing the boring logs for soil borings and monitoring well installation completed at the Time Oil BNSF Property in Seattle, Washington as part of the Remedial Investigation in accordance with the Ecology approved Remedial Investigation Work Plan (RIWP, Arcadis 2023).

Following soft dig clearance, the borings were advanced using sonic drilling technology to the depths noted in the boring logs (Attachment 1). Continuous soil cores were retrieved, screened, sampled and logged during drilling as described in accordance with the RIWP. Following completion, the entire borehole was either sealed using hydrated bentonite to prevent vertical transport between units or the boring was converted to permanent monitoring well.

Monitoring wells were constructed of 2-inch-diameter Schedule 40 polyvinyl chloride (PVC) pipe with 10 to 15 foot screens of 0.010-inch slotted PVC screen, in accordance with the Arcadis TGI – Monitoring Well Installation. Wells were installed to an approximate depth of 15 feet bgs (Perched WBZ) or 35 feet bgs (Shallow WBZ); however, the screen interval and total well depth were determined in the field based on the depth to the water table and soil lithology (Attachment 1).

The enclosed boring logs for SB-BN-01 through SB-BN-11 (Attachment 1) were reviewed by the field geologist and the licensed geologist.

Please contact me or Kyle Haslam with any questions or comments regarding these boring logs.

Ms. Tena Seeds
Washington State Department of Ecology
May 23, 2025

Sincerely,
Arcadis U.S., Inc.



Christopher Shepherd
WA LG # 22004390



Christopher Shepherd

Email: christopher.shepherd@arcadis.com
Direct Line: 602-797-4512

CC. Scott MacDonald, BNSF
Shane DeGross, BNSF
Kyle Haslam, Arcadis
Emily Zikmund, Arcadis

References:

Arcadis 2023. Remedial Investigation Work Plan, Time Oil Bulk Terminal – BNSF Property, Seattle, WA.
Prepared for BNSF Railway Company. June 26.

Attachments: Attachment 1 – Boring Logs for the following:

- SB-BN-01
- SB-BN-02
- SB-BN-03/MW-BN-01
- SB-BN-04/MW-BN-02
- SB-BN-05
- SB-BN-06
- SB-BN-07/MW-BN-03
- SB-BN-08/MW-BN-04
- SB-BN-09
- SB-BN-10/MW-BN-05
- SB-BN-11

Boring/Well No.: SB-BN-01

Soil Boring and Well Construction Log

Sheet: 1 of 1

Client Name: BNSF Railway Company Date Started: 10-31-2023 Logger: Roberto Piemontese
Project Number: 30195976 Date Completed: 11-08-2023 Field Personnel: Elizabeth Scheller
Project Name: BNSF Time Oil RI Total Depth: 20.0 ft bgs Reviewer: Christopher Sheperd, LG

| Depth (feet) | Sample ID | Rec. (%) | PID (ppm) | Blow Counts | USCS Graphic | Description | Construction Details |
|-----------------|----------------------|-------------|--------------|----------------|-----------------|--|----------------------|
| 1 | | | | | | (0.0-2.5 ft) Not logged. | |
| 2 | | | | | | | |
| 3 | SB-BN-01-2.5(110223) | | 64.3 | Air Knife | SM | (2.5-3.0 ft) Silty SAND (0,80,20,0), fine to medium, subround to round; little silt, no plasticity, no dilatancy; poorly sorted; dry to moist; 10BG 6/1 - greenish gray. | |
| 4 | | | | | | (3.0-5.0 ft) Not logged. | |
| 5 | SB-BN-01-5(110223) | | 93.1 | | SM | (5.0-5.5 ft) Silty SAND (0,80,20,0), fine to medium, subround to round; little silt, no plasticity, no dilatancy; poorly sorted; dry to moist; 10BG 6/1 - greenish gray. | |
| 6 | | | | | | (5.5-10.0 ft) CLAY (0,5,0,95), low to medium plasticity; trace very fine sand, subround to round; dry to moist; hard; 10YR 5/1 - gray. | |
| 7 | | 100.0 | | | CL | | |
| 8 | SB-BN-01-7(110823) | | 16.9 | | | | |
| 9 | | | | | | | |
| 10 | SB-BN-01-10(110223) | | 0 | | ML | (10.0-11.0 ft) Sandy SILT (0,30,70,0), no plasticity, no dilatancy; some very fine to fine sand, subround to round; dry to moist; stiff; 10YR 5/1 - gray. | |
| 11 | | | | | | (11.0-13.0 ft) Silty SAND (0,70,30,0), fine to medium, subround to round; some silt, no plasticity, no dilatancy; poorly sorted; dry to moist; 10YR 5/1 - gray. | |
| 12 | | | | | SM | | |
| 13 | SB-BN-01-12(110823) | | 0 | | | | |
| 14 | | | | | | (13.0-17.0 ft) CLAY (0,5,0,95), medium plasticity; trace very fine to fine sand, subround to round; dry to moist; hard; 10YR 5/1 - gray. | |
| 15 | SB-BN-01-15(110223) | 100.0 | 0 | | CL | | |
| 16 | | | | | | | |
| 17 | | | | | | (17.0-19.0 ft) Sandy SILT (0,30,70,0), no plasticity, no dilatancy; some very fine to fine sand, subround to round; dry to moist; stiff; 10YR 5/1 - gray. | |
| 18 | SB-BN-01-17(110823) | | 0 | | ML | | |
| 19 | | | | | | | |
| 20 | SB-BN-01-19(110823) | | 0 | | SW | (19.0-20.0 ft) SAND (0,90,10,0), fine to medium, subround to round; little silt; poorly sorted; dry to moist; 10YR 5/1 - gray. | |
| 21 | | | | | | 20 ft. bgs End of Boring | |
| 22 | | | | | | | |

Hydrated
Bentonite
Chips

Drilling Co.: Cascade Sampling Method: Sonic
Driller: Carlos Anguiano Sampling Length: Continuous
Driller Assistant: Donovan Garretson, Willie Williams ▼ First Encountered Water (ft bgs): NA
Drilling Method: Roto-Sonic ▼ Static Water Level (ft btoc): NA
Drill Rig: Geoprobe Top of Casing Elev: NA
Remarks: _____ Surface Elev: NA
_____ North Coord: NA
_____ East Coord: NA

Notes: Abbreviations: bgs = below ground surface, btoc = beneath top of casing, ft = feet, NA = not applicable, USCS Unified Soil Classification System, PVC = Polyvinyl Chloride. Northing and Easting coordinates are reported in the NAD 83 (2011) system, and the elevation is reported in the NAVD 88 system. Soil percentages are field estimates (%gravel,%sand,%silt,%clay).

Boring/Well No.: SB-BN-02

Soil Boring and Well Construction Log

Sheet: 1 of 1

Client Name: BNSF Railway Company Date Started: 10-31-2023 Logger: Roberto Piemontese
Project Number: 30195976 Date Completed: 11-03-2023 Field Personnel: Elizabeth Scheller
Project Name: BNSF Time Oil RI Total Depth: 20.0 ft bgs Reviewer: Christopher Sheperd, LG

| Depth (feet) | Sample ID | Rec. (%) | PID (ppm) | Blow Counts | USCS Graphic | Description | Construction Details |
|--------------|---------------------|----------|-----------|-------------|--------------|--|----------------------|
| 1 | | | | | | (0.0-5.0 ft) Not logged. | |
| 2 | | | | | | | |
| 3 | | | | Air Knife | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | SB-BN-02-5(11023) | | 11.7 | | SM | (5.0-6.0 ft) Silty SAND (0,80,20,0), fine to medium, subround to round; little silt, low plasticity, no dilatancy; poorly sorted; dry to moist; 10YR 5/1 - gray. | |
| 7 | | | | | | (6.0-10.0 ft) CLAY (0,5,0,95), low to medium plasticity; trace very fine sand, subround to round; dry to moist; hard; 10YR 5/1 - gray. | |
| 8 | | | 0 | | CL | | |
| 9 | | | | | | | |
| 10 | SB-BN-02-10(11023) | | 0 | | SW | (10.0-11.0 ft) SAND (0,90,10,0), fine to medium, subround to round; little silt, no plasticity, no dilatancy; poorly sorted; dry to moist; 10YR 5/1 - gray. | |
| 11 | | | | | | (11.0-13.0 ft) Sandy SILT (0,20,80,0), no plasticity, no dilatancy; little very fine to fine sand, subround to round; dry to moist; very stiff; 10YR 5/1 - gray. | |
| 12 | | | | | ML | | |
| 13 | | | 0 | | | | |
| 14 | | | | | ML | (13.0-14.0 ft) SILT and SAND (0,40,60,0), very fine to fine, subround to round, no plasticity, no dilatancy; poorly sorted; dry to moist; very stiff; 10YR 5/1 - gray. | |
| 15 | SB-BN-02-15(110323) | | 0 | | | (14.0-20.0 ft) CLAY (0,5,95,0), medium plasticity; trace very fine to fine sand, subround to round; dry to moist; hard; 10YR 5/1 - gray. | |
| 16 | | | | | | | |
| 17 | | | 0 | | CL | | |
| 18 | | | | | | | |
| 19 | SB-BN-02-19(110323) | | 0 | | | | |
| 20 | | | | | | | |
| 21 | | | | | | 20 ft. bgs End of Boring | |
| 22 | | | | | | | |

Drilling Co.: Cascade Sampling Method: Sonic
Driller: Carlos Anguiano Sampling Length: Continuous
Driller Assistant: Donovan Garretson, Willie Williams ▼ First Encountered Water (ft bgs): NA
Drilling Method: Roto-Sonic ▼ Static Water Level (ft btoc): NA
Drill Rig: Geoprobe Top of Casing Elev: NA
Remarks: _____ Surface Elev: NA
_____ North Coord: NA
_____ East Coord: NA

Notes: Abbreviations: bgs = below ground surface, btoc = beneath top of casing, ft = feet, NA = not applicable, USCS Unified Soil Classification System, PVC = Polyvinyl Chloride. Northing and Easting coordinates are reported in the NAD 83 (2011) system, and the elevation is reported in the NAVD 88 system. Soil percentages are field estimates (%gravel,%sand,%silt,%clay).

Boring/Well No.: SB-BN-03/MW-BN-01

Soil Boring and Well Construction Log

Sheet: 1 of 2

Client Name: BNSF Railway Company Date Started: 10-31-2023 Logger: Roberto Piemontese
Project Number: 30195976 Date Completed: 11-03-2023 Field Personnel: Elizabeth Scheller
Project Name: BNSF Time Oil RI Total Depth: 40.0 ft bgs Reviewer: Christopher Sheperd, LG

| Depth (feet) | Sample ID | Rec. (%) | PID (ppm) | Blow Counts | USCS Graphic | Description | Construction Details |
|-----------------|----------------------|-------------|--------------|----------------|-----------------|--|--|
| 1 | | | | | | (0.0-2.5 ft) Not logged. | |
| 2 | | | | | | | |
| 3 | SB-BN-03-2.5(103123) | | 2.3 | Air Knife | SM | (2.5-3.0 ft) Silty SAND (10,60,30,0), fine to medium, subround to round; some silt, low plasticity, no dilatancy; little gravel, subangular to subround; poorly sorted; dry to moist; 10YR 3/3 - dark brown. | 2-inch diameter Sch. 40 PVC Casing |
| 4 | | | | | | (3.0-5.0 ft) Not logged. | |
| 5 | | | 0 | | | (5.0-8.0 ft) Silty SAND (10,70,20,0), fine to medium, subround to round; little silt; little gravel, subround to round; poorly sorted; dry to moist; 10YR 4/3 - brown. | |
| 6 | | 100.0 | | | SM | | |
| 7 | | | | | | | |
| 8 | | | 0 | | | (8.0-10.0 ft) Sandy SILT (0,30,70,0), no plasticity, no dilatancy; some very fine to fine sand, subround to round; dry to moist; medium stiff; 10YR 5/1 - gray. | |
| 9 | | | | | ML | | |
| 10 | SB-BN-03-10(110223) | | 0 | | | (10.0-12.5 ft) CLAY (0,5,0,95), medium plasticity; trace very fine to fine sand, subround to round; dry to moist; hard; 10YR 5/1 - gray. | 2-inch diameter Sch. 40 PVC well screen 0.01 inch slot |
| 11 | | | | | CL | | |
| 12 | | | 0 | | | (12.5-14.0 ft) Silty SAND (0,80,20,0), fine to medium, subround to round; little silt; poorly sorted; dry to moist; 10YR 5/1 - gray. | |
| 13 | | | | | SM | | |
| 14 | | | | | | (14.0-20.0 ft) SILT and SAND (0,40,60,0), very fine to fine, subround to round, no plasticity, no dilatancy; poorly sorted; dry to moist; very stiff; 10YR 5/1 - gray. | Sch. 40 PVC End Cap |
| 15 | | 100.0 | 0 | | | | |
| 16 | | | | | | | |
| 17 | | | 0 | | ML | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | SB-BN-03-20(110323) | | 0 | | | (20.0-24.5 ft) SAND and SILT (0,60,40,0), very fine to fine, subround to round, no plasticity, no dilatancy; poorly sorted; dry to moist; 10YR 5/2 - grayish brown. | |
| 21 | | 100.0 | | | SM | | |
| 22 | | | | | | | Hydrated Bentonite Chips |

Drilling Co.: Cascade Sampling Method: Sonic
Driller: Carlos Anguiano Sampling Length: Continuous
Driller Assistant: Donovan Garretson, Willie Williams ▼ First Encountered Water (ft bgs): 30.5 ft bgs
Drilling Method: Roto-Sonic ▼ Static Water Level (ft btoc): 11.66 ft btoc (11/27/2023)
Drill Rig: Geoprobe Top of Casing Elev: 58.014 ft
Remarks: Temporary well from 28.0 to 38.0 ft bgs. DTW: 30.5 ft bgs. Well Tag: BNV-208 Surface Elev: 58.25 ft
North Coord: 245415.97
East Coord: 1255853.07

Notes: Abbreviations: bgs = below ground surface, btoc = beneath top of casing, ft = feet, NA = not applicable, USCS Unified Soil Classification System, PVC = Polyvinyl Chloride. Northing and Easting coordinates are reported in the NAD 83 (2011) system, and the elevation is reported in the NAVD 88 system. Soil percentages are field estimates (%gravel,%sand,%silt,%clay).

Boring/Well No.: SB-BN-03/MW-BN-01

Soil Boring and Well Construction Log

Sheet: 2 of 2

Client Name: BNSF Railway Company Date Started: 10-31-2023 Logger: Roberto Piemontese
Project Number: 30195976 Date Completed: 11-03-2023 Field Personnel: Elizabeth Scheller
Project Name: BNSF Time Oil RI Total Depth: 40.0 ft bgs Reviewer: Christopher Sheperd, LG

| Depth (feet) | Sample ID | Rec. (%) | PID (ppm) | Blow Counts | USCS Graphic | Description | Construction Details |
|--------------|---------------------|----------|-----------|-------------|--------------|---|----------------------|
| 23 | | | 0 | | | (20.0-24.5 ft) SAND and SILT (0,60,40,0), very fine to fine, subround to round, no plasticity, no dilatancy; poorly sorted; dry to moist; 10YR 5/2 - grayish brown. | |
| 24 | | | | | SM | | |
| 25 | | | 0 | | | (24.5-30.0 ft) Silty SAND (0,85,15,0), fine to medium, subround to round; little silt; poorly sorted; dry to moist; 10YR 5/2 - grayish brown. | |
| 26 | | 100.0 | | | | | |
| 27 | | | 0 | | | | |
| 28 | | | | | SM | | |
| 29 | | | 0 | | | | |
| 30 | | | | | | | |
| 31 | | | 0 | | | (30.0-38.5 ft) SAND (0,95,5,0), medium to coarse, subround to round; trace silt; poorly sorted; moist to wet; 10YR 5/1 - gray. | |
| 32 | | | | | | | |
| 33 | | | 0 | | | | |
| 34 | | | | | | | |
| 35 | | | | | SW | | |
| 36 | SB-BN-03-35(110323) | 100.0 | 0 | | | | |
| 37 | | | | | | | |
| 38 | | | 0 | | | | |
| 39 | | | | | | | |
| 40 | | | 0 | | ML | (38.5-40.0 ft) SILT (0,10,90,0), no plasticity, no dilatancy; little very fine to fine sand, subround to round; poorly sorted; moist to wet; very stiff; 10YR 5/1 - gray. | |
| 41 | | | | | | 40 ft. bgs End of Boring | |
| 42 | | | | | | | |
| 43 | | | | | | | |
| 44 | | | | | | | |
| 45 | | | | | | | |
| 46 | | | | | | | |
| 47 | | | | | | | |
| 48 | | | | | | | |

Hydrated Bentonite Chips

Notes: Abbreviations: bgs = below ground surface, btoc = beneath top of casing, ft = feet, NA = not applicable, USCS Unified Soil Classification System, PVC = Polyvinyl Chloride. Northing and Easting coordinates are reported in the NAD 83 (2011) system, and the elevation is reported in the NAVD 88 system. Soil percentages are field estimates (%gravel,%sand,%silt,%clay).

SOIL BORING AND CONSTRUCTION LOG C:\USERS\SLEEPER\ONE DRIVE - ARCADIS\DOCUMENTS\BNSF\TIME OIL\GPJ GINT DATA TEMPLATE.GDT 4/24/25

Boring/Well No.: SB-BN-04/MW-BN-02

Soil Boring and Well Construction Log

Sheet: 1 of 1

Client Name: BNSF Railway Company Date Started: 11-02-2023 Logger: Roberto Piemontese
Project Number: 30195976 Date Completed: 11-08-2023 Field Personnel: Elizabeth Scheller
Project Name: BNSF Time Oil RI Total Depth: 20.0 ft bgs Reviewer: Christopher Sheperd, LG

| Depth (feet) | Sample ID | Rec. (%) | PID (ppm) | Blow Counts | USCS Graphic | Description | Construction Details |
|--------------|----------------------|----------|-----------|-------------|--------------|--|--|
| 1 | | | | | | (0.0-2.5 ft) Not logged. | |
| 2 | | | | | | | |
| 3 | SB-BN-04-2.5(110223) | | 0 | Air Knife | SM | (2.5-3 ft) Silty SAND (0,70,30,0), fine to medium, subround to round; some silt, low plasticity, no dilatancy; poorly sorted; dry to moist; 10YR 3/3 - dark brown. | 2-inch diameter Sch. 40 PVC Casing |
| 4 | | | | | | (3.0-5.0 ft) Not logged. | |
| 5 | SB-BN-04-5(110223) | | 0 | | | (5.0-10.0 ft) Silty SAND (0,70,30,0), fine to medium, subround to round; some silt, no plasticity, no dilatancy; poorly sorted; dry to moist; 10YR 4/3 - brown. | |
| 6 | | | | | | | |
| 7 | | 100.0 | | | SM | | |
| 8 | | | 0 | | | | |
| 9 | | | | | | | |
| 10 | SB-BN-04-10(110823) | | 0 | | | (10.0-18.0 ft) CLAY (0,5,95,0), medium plasticity; trace very fine to fine sand, subround to round; dry to moist; hard; 10YR 5/1 - gray. | 2-inch diameter Sch. 40 PVC well screen 0.01 inch slot |
| 11 | | | | | | | |
| 12 | | | 0 | | | | |
| 13 | | | | | | | |
| 14 | | | | | CL | | |
| 15 | SB-BN-04-15(110823) | 100.0 | 0 | | | | Sch. 40 PVC End Cap |
| 16 | | | | | | | |
| 17 | | | 0 | | | | |
| 18 | | | | | | | |
| 19 | | | | | SM | (18.0-20.0 ft) Silty SAND (0,70,30,0), fine to medium, subround to round; some silt; poorly sorted; dry to moist; 10YR 5/1 - gray. | |
| 20 | | | 0 | | | | Hydrated Bentonite Chips |
| 21 | | | | | | 20 ft. bgs End of Boring | |
| 22 | | | | | | | |

Drilling Co.: Cascade Sampling Method: Sonic
Driller: Carlos Anguiano Sampling Length: Continuous
Driller Assistant: Donovan Garretson, Willie Williams ▼ First Encountered Water (ft bgs): NA
Drilling Method: Roto-Sonic ▼ Static Water Level (ft btoc): 10.75 ft btoc (11/27/2023)
Drill Rig: Geoprobe Top of Casing Elev: 58.597 ft
Remarks: Well Tag: BNV-239 Surface Elev: 58.95 ft
North Coord: 245380.72
East Coord: 1255858.01

Notes: Abbreviations: bgs = below ground surface, btoc = beneath top of casing, ft = feet, NA = not applicable, USCS Unified Soil Classification System, PVC = Polyvinyl Chloride. Northing and Easting coordinates are reported in the NAD 83 (2011) system, and the elevation is reported in the NAVD 88 system. Soil percentages are field estimates (%gravel,%sand,%silt,%clay).

Boring/Well No.: SB-BN-05

Soil Boring and Well Construction Log

Sheet: 1 of 2

Client Name: BNSF Railway Company Date Started: 10-30-2023 Logger: Roberto Piemontese
Project Number: 30195976 Date Completed: 11-07-2023 Field Personnel: Elizabeth Scheller
Project Name: BNSF Time Oil RI Total Depth: 40.0 ft bgs Reviewer: Christopher Sheperd, LG

| Depth (feet) | Sample ID | Rec. (%) | PID (ppm) | Blow Counts | USCS Graphic | Description | Construction Details |
|-----------------|----------------------|-------------|--------------|----------------|-----------------|---|----------------------|
| 1 | | | | | | (0.0-2.5 ft) Not logged. | |
| 2 | | | | | | | |
| 3 | SB-BN-05-2.5(103023) | | 66.9 | Air Knife | SW | (2.5-3.0 ft) SAND and GRAVEL (40,50,10,0), medium to coarse, subround to round; some granules, subangular to subround; little silt, low plasticity, no dilatancy; poorly sorted; dry to moist; 10YR 3/3 - dark brown. | |
| 4 | | | | | | (3.0-5.0 ft) Not logged. | |
| 5 | | | 0 | | | (5.0-14.0 ft) Sandy SILT (0,30,70,0), no plasticity, no dilatancy; some very fine to fine sand, subround to round; poorly sorted; dry to moist; stiff; 10YR 5/1 - gray. NOTE: Brown lens from 8.00 to 8.25 ft bgs. | |
| 6 | | | | | | | |
| 7 | | | | | | | |
| 8 | | 100.0 | | | | | |
| 9 | | | 0.5 | | | | |
| 10 | | | 1.1 | | ML | | |
| 11 | | | 0 | | | | |
| 12 | SB-BN-05-12(110623) | | 0 | | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | 100.0 | 0 | | CL | (14.0-15.0 ft) CLAY (0,5,0,95), medium plasticity; trace very fine sand, subround to round; dry to moist; hard; 10YR 5/1 - gray. | |
| 16 | | | 0 | | ML | (15.0-16.5 ft) SILT and SAND (0,40,60,0), very fine to fine, subround to round, low plasticity, no dilatancy; poorly sorted; dry to moist; medium stiff; 10YR 5/1 - gray. | |
| 17 | | | 0 | | SM | (16.5-18 ft) Silty SAND (0,80,20,0), very fine to fine, subround to round; little silt; poorly sorted; dry to moist; 10YR 5/1 - gray. | |
| 18 | | | 0 | | | | |
| 19 | | | | | | (18.0-24.0 ft) Sandy SILT (0,30,70,0), no plasticity, no dilatancy; some very fine to fine sand, subround to round; dry to moist; medium stiff; 10YR 5/1 - gray. | |
| 20 | SB-BN-05-20(110723) | | 0 | | ML | | |
| 21 | | 100.0 | | | | | |
| 22 | | | | | | | |

Hydrated
Bentonite
Chips

Drilling Co.: Cascade Sampling Method: Sonic
Driller: Carlos Anguiano Sampling Length: Continuous
Driller Assistant: Donovan Garretson, Willie Williams ▼ First Encountered Water (ft bgs): 30 ft bgs
Drilling Method: Roto-Sonic ▼ Static Water Level (ft btoc): NA
Drill Rig: Geoprobe Top of Casing Elev: NA
Remarks: Temporary well from 28.5 to 38.5 ft bgs. DTW: 28.34 Surface Elev: NA
ft bgs. North Coord: NA
East Coord: NA

Notes: Abbreviations: bgs = below ground surface, btoc = beneath top of casing, ft = feet, NA = not applicable, USCS Unified Soil Classification System, PVC = Polyvinyl Chloride. Northing and Easting coordinates are reported in the NAD 83 (2011) system, and the elevation is reported in the NAVD 88 system. Soil percentages are field estimates (%gravel,%sand,%silt,%clay).

Boring/Well No.: SB-BN-05

Soil Boring and Well Construction Log

Sheet: 2 of 2

Client Name: BNSF Railway Company Date Started: 10-30-2023 Logger: Roberto Piemontese
Project Number: 30195976 Date Completed: 11-07-2023 Field Personnel: Elizabeth Scheller
Project Name: BNSF Time Oil RI Total Depth: 40.0 ft bgs Reviewer: Christopher Sheperd, LG

| Depth (feet) | Sample ID | Rec. (%) | PID (ppm) | Blow Counts | USCS Graphic | Description | Construction Details |
|-----------------|---------------------|-------------|--------------|----------------|-----------------|--|----------------------|
| 23 | | | 0 | | ML | (18.0-24.0 ft) Sandy SILT (0,30,70,0), no plasticity, no dilatancy; some very fine to fine sand, subround to round; dry to moist; medium stiff; 10YR 5/1 - gray. | |
| 24 | | | 0 | | | | |
| 25 | | 100.0 | 0 | | SW | (24.0-28.0 ft) SAND (0,90,10,0), medium, subround to round; little silt; poorly sorted; dry to moist; 10YR 5/2 - grayish brown. | |
| 26 | | | 0 | | | | |
| 27 | | | 0 | | | | |
| 28 | | | 0 | | ML | (28.0-29.5 ft) SILT (0,20,80,0), no plasticity, no dilatancy; little very fine to fine sand, subround to round; dry to moist; stiff; 10YR 5/1 - gray. | |
| 29 | | | 0 | | | | |
| 30 | | | 0 | | | (29.5-38.5 ft) SAND (0,95,5,0), fine to medium, subround to round; trace silt; poorly sorted; dry to moist; 10YR 5/1 - gray. | |
| 31 | | | 0 | | | | |
| 32 | | | 0 | | | | |
| 33 | | | 0 | | | | |
| 34 | | | 0 | | SW | | |
| 35 | SB-BN-05-35(110723) | 100.0 | 0 | | | | |
| 36 | | | 0 | | | | |
| 37 | | | 0 | | | | |
| 38 | | | 0 | | | | |
| 39 | | | 0 | | CL | (38.5-40.0 ft) CLAY (0,5,0,95), medium plasticity; trace very fine sand, subround to round; dry to moist; hard; 10YR 5/1 - gray. | |
| 40 | | | 0 | | | | |

40 ft. bgs End of Boring

Hydrated
Bentonite
Chips

Notes: Abbreviations: bgs = below ground surface, btoc = beneath top of casing, ft = feet, NA = not applicable, USCS Unified Soil Classification System, PVC = Polyvinyl Chloride. Northing and Easting coordinates are reported in the NAD 83 (2011) system, and the elevation is reported in the NAVD 88 system. Soil percentages are field estimates (%gravel,%sand,%silt,%clay).

SOIL BORING AND CONSTRUCTION LOG C:\USERS\SLLEE\PERSONAL\DRIVE - ARCADIS\DOCUMENTS\BNSF\TIME OIL\GPJ GINT DATA TEMPLATE.GDT 4/24/25

Boring/Well No.: SB-BN-06

Soil Boring and Well Construction Log

Sheet: 1 of 2

Client Name: BNSF Railway Company Date Started: 10-30-2023 Logger: Roberto Piemontese
Project Number: 30195976 Date Completed: 11-02-2023 Field Personnel: Elizabeth Scheller
Project Name: BNSF Time Oil RI Total Depth: 40.0 ft bgs Reviewer: Christopher Sheperd, LG

| Depth (feet) | Sample ID | Rec. (%) | PID (ppm) | Blow Counts | USCS Graphic | Description | Construction Details |
|-----------------|----------------------|-------------|--------------|----------------|-----------------|---|----------------------|
| 1 | | | | | | (0.0-2.5 ft) Not logged. | |
| 2 | | | | | | | |
| 3 | SB-BN-06-2.5(103023) | | 9.1 | Air Knife | SM | (2.5-3.0 ft) Silty SAND (20,60,20,0), very fine to medium, subround to round; little granules, subangular to subround; little silt, low plasticity, no dilatancy; poorly sorted; dry to moist; 10YR 3/3 - dark brown. | |
| 4 | | | | | | (3.0-5.0 ft) Not logged. | |
| 5 | | | | | | | |
| 6 | | | 0 | | SW | (5.0-6.0 ft) SAND (0,90,10,0), very fine to medium, subround to round; little silt, no plasticity, no dilatancy; poorly sorted; dry to moist; 10YR 4/3 - brown. | |
| 7 | | | 0 | | SW | (6.0-7.0 ft) SAND (0,90,10,0), fine to medium, subround to round; little silt, no plasticity, no dilatancy; poorly sorted; dry to moist; 10YR 5/1 - gray. | |
| 8 | | 100.0 | | | | (7.0-10.0 ft) Sandy SILT (0,20,80,0), low plasticity, no dilatancy; little very fine to fine sand, subround to round; dry to moist; stiff; 10YR 5/1 - gray. | |
| 9 | | | 0 | | ML | | |
| 10 | SB-BN-06-10(110223) | | 0 | | | (10.0-15.75 ft) CLAY (0,5,0,95), medium plasticity; trace very fine to fine sand, subround to round; dry to moist; hard; 10YR 5/1 - gray. | |
| 11 | | | | | | | |
| 12 | | | | | | | |
| 13 | | | 0 | | CL | | |
| 14 | | | | | | | |
| 15 | | 100.0 | 0 | | | | |
| 16 | | | | | | (15.75-19.0 ft) Silty SAND (0,75,25,0), fine to medium, subround to round; some silt, no plasticity, no dilatancy; poorly sorted; dry to moist; 10YR 5/1 - gray. | |
| 17 | | | 0 | | SM | | |
| 18 | | | | | | | |
| 19 | | | 0 | | | | |
| 20 | SB-BN-06-20(110223) | | 24.5 | | | (19.0-26.3 ft) CLAY (0,5,0,95), medium plasticity; trace very fine sand, subround to round; dry to moist; hard; 10YR 5/1 - gray. | |
| 21 | | 100.0 | | | CL | | |
| 22 | | | | | | | |

Hydrated
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Chips

Drilling Co.: Cascade Sampling Method: Sonic
Driller: Carlos Anguiano Sampling Length: Continuous
Driller Assistant: Donovan Garretson, Willie Williams ▼ First Encountered Water (ft bgs): 30 ft bgs
Drilling Method: Roto-Sonic ▼ Static Water Level (ft btoc): NA
Drill Rig: Geoprobe Top of Casing Elev: NA
Remarks: Temporary well from 28.0 to 38.0 ft bgs. DTW: 29.25 ft bgs. Surface Elev: NA
North Coord: NA
East Coord: NA

Notes: Abbreviations: bgs = below ground surface, btoc = beneath top of casing, ft = feet, NA = not applicable, USCS Unified Soil Classification System, PVC = Polyvinyl Chloride. Northing and Easting coordinates are reported in the NAD 83 (2011) system, and the elevation is reported in the NAVD 88 system. Soil percentages are field estimates (%gravel,%sand,%silt,%clay).

Boring/Well No.: SB-BN-06

Soil Boring and Well Construction Log

Sheet: 2 of 2

Client Name: BNSF Railway Company Date Started: 10-30-2023 Logger: Roberto Piemontese
Project Number: 30195976 Date Completed: 11-02-2023 Field Personnel: Elizabeth Scheller
Project Name: BNSF Time Oil RI Total Depth: 40.0 ft bgs Reviewer: Christopher Sheperd, LG

| Depth (feet) | Sample ID | Rec. (%) | PID (ppm) | Blow Counts | USCS Graphic | Description | Construction Details |
|-----------------|---------------------|-------------|--------------|----------------|-----------------|---|----------------------|
| 23 | | | 11.3 | | | (19.0-26.3 ft) CLAY (0,5,0,95), medium plasticity; trace very fine sand, subround to round; dry to moist; hard; 10YR 5/1 - gray. | |
| 24 | | | | | CL | | |
| 25 | | | 5.9 | | | | |
| 26 | | 100.0 | 5 | | | | |
| 27 | | | | | SW | (26.3-26.4 ft) SAND (0,95,5,0), medium, subround to round; trace silt; poorly sorted; dry to moist; 10YR 5/1 - gray. | |
| 28 | | | | | CL | (26.4-28.0 ft) CLAY (0,5,95,0), medium plasticity; trace very fine to fine sand, subround to round; dry to moist; hard; 10YR 5/1 - gray. | |
| 29 | | | 1.4 | | ML | (28.0-29.8 ft) Sandy SILT (0,30,70,0), no plasticity, no dilatancy; some very fine to fine sand, subround to round; moist; very stiff; 10YR 5/1 - gray. | |
| 30 | | | | | | | |
| 31 | | | 0 | | | (29.8-39.0 ft) SAND (0,95,5,0), very fine to medium, subround to round; trace silt, no plasticity, no dilatancy; poorly sorted; moist; 10YR 5/1 - gray. | |
| 32 | | | 0 | | | | |
| 33 | | | 0 | | | | |
| 34 | | | | | SW | | |
| 35 | SB-BN-06-35(110223) | 100.0 | 0 | | | | |
| 36 | | | | | | | |
| 37 | | | 0 | | | | |
| 38 | | | | | | | |
| 39 | | | | | | | |
| 40 | | | 0 | | CL | (39.0-40.0 ft) CLAY (0,5,0,95), medium plasticity; trace very fine sand, subround to round; moist; hard; 10YR 5/1 - gray. | |
| 41 | | | | | | 40 ft. bgs End of Boring | |
| 42 | | | | | | | |
| 43 | | | | | | | |
| 44 | | | | | | | |
| 45 | | | | | | | |
| 46 | | | | | | | |
| 47 | | | | | | | |
| 48 | | | | | | | |

Hydrated
Bentonite
Chips

Notes: Abbreviations: bgs = below ground surface, btoc = beneath top of casing, ft = feet, NA = not applicable, USCS Unified Soil Classification System, PVC = Polyvinyl Chloride. Northing and Easting coordinates are reported in the NAD 83 (2011) system, and the elevation is reported in the NAVD 88 system. Soil percentages are field estimates (%gravel,%sand,%silt,%clay).

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Boring/Well No.: SB-BN-07/MW-BN-03

Soil Boring and Well Construction Log

Sheet: 1 of 2

Client Name: BNSF Railway Company Date Started: 10-30-2023 Logger: Roberto Piemontese
Project Number: 30195976 Date Completed: 11-06-2023 Field Personnel: Elizabeth Scheller
Project Name: BNSF Time Oil RI Total Depth: 40.0 ft bgs Reviewer: Christopher Sheperd, LG

| Depth (feet) | Sample ID | Rec. (%) | PID (ppm) | Blow Counts | USCS Graphic | Description | Construction Details |
|-----------------|----------------------|-------------|--------------|----------------|-----------------|--|----------------------|
| 1 | | | | | | (0.0-2.5 ft) Not logged. | |
| 2 | | | | | | | |
| 3 | SB-BN-07-2.5(103023) | | 0 | Air Knife | ML | (2.5-3.0 ft) Gravelly SILT (30,10,60,0), low plasticity, no dilatancy; some granules, subangular to subround; little very fine to medium sand, subround to round; dry to moist; medium stiff; 10YR 3/3 - dark brown. | |
| 4 | | | | | | (3.0-5.0 ft) Not logged. | |
| 5 | | | 0 | | | | |
| 6 | | | | | SM | (5.0-6.5 ft) Silty SAND (0,70,30,0), very fine to medium, subround to round; some silt, no plasticity, no dilatancy; poorly sorted; dry to moist; 10YR 4/3 - brown. | |
| 7 | | | 0 | | SW | (6.5-7.5 ft) SAND (0,90,10,0), fine to medium, subround to round; little silt, no plasticity, no dilatancy; poorly sorted; dry to moist; 10YR 5/1 - gray. | |
| 8 | | 100.0 | | | | (7.5-10.0 ft) SAND and SILT (0,60,40,0), fine to medium, subround to round; poorly sorted; dry to moist; 10YR 5/1 - gray. | |
| 9 | | | 0 | | SM | | |
| 10 | SB-BN-07-10(110623) | | 0 | | | (10.0-17.0 ft) SILT (0,10,90,0), no plasticity, no dilatancy; little very fine to fine sand; dry to moist; very stiff; 10YR 5/1 - gray. | |
| 11 | | | | | | | |
| 12 | | | 0 | | | | |
| 13 | | | | | ML | | |
| 14 | | | | | | | |
| 15 | | 100.0 | | | | | |
| 16 | | | 0 | | | | |
| 17 | | | | | | (17.0-19.0 ft) Silty SAND (0,70,30,0), fine to medium, subround to round; some silt; poorly sorted; dry to moist; 10YR 5/1 - gray. | |
| 18 | | | 0 | | SM | | |
| 19 | | | | | SW | (19.0-19.5 ft) SAND (0,90,10,0), fine to medium, subround to round; little silt, no plasticity, no dilatancy; poorly sorted; dry to moist; 10YR 5/1 - gray. | |
| 20 | SB-BN-07-20(110623) | | 0 | | CL | (19.5-23.75 ft) CLAY (0,10,0,90), medium plasticity; little very fine to fine sand, subround to round; dry to moist; hard; 10YR 5/1 - gray. | |
| 21 | | 100.0 | | | | | |
| 22 | | | | | | | |

Drilling Co.: Cascade Sampling Method: Sonic
Driller: Carlos Anguiano Sampling Length: Continuous
Driller Assistant: Donovan Garretson, Willie Williams ▼ First Encountered Water (ft bgs): 30 ft bgs
Drilling Method: Roto-Sonic ▼ Static Water Level (ft btoc): 28.5 ft btoc (11/27/2023)
Drill Rig: Geoprobe Top of Casing Elev: 59.454 ft
Remarks: Well Tag: BNV-240 Surface Elev: 59.72 ft
North Coord: 245370.86
East Coord: 1255914.93

Notes: Abbreviations: bgs = below ground surface, btoc = beneath top of casing, ft = feet, NA = not applicable, USCS Unified Soil Classification System, PVC = Polyvinyl Chloride. Northing and Easting coordinates are reported in the NAD 83 (2011) system, and the elevation is reported in the NAVD 88 system. Soil percentages are field estimates (%gravel,%sand,%silt,%clay).

Boring/Well No.: SB-BN-07/MW-BN-03

Soil Boring and Well Construction Log

Sheet: 2 of 2

Client Name: BNSF Railway CompanyDate Started: 10-30-2023Logger: Roberto PiemonteseProject Number: 30195976Date Completed: 11-06-2023Field Personnel: Elizabeth SchellerProject Name: BNSF Time Oil RITotal Depth: 40.0 ft bgsReviewer: Christopher Sheperd, LG

| Depth (feet) | Sample ID | Rec. (%) | PID (ppm) | Blow Counts | USCS Graphic | Description | Construction Details |
|--------------|---------------------|----------|-----------|-------------|--------------|--|----------------------|
| 23 | | | | | CL | (19.5-23.75 ft) CLAY (0,10,0,90), medium plasticity; little very fine to fine sand, subround to round; dry to moist; hard; 10YR 5/1 - gray. | |
| 24 | | | 21.5 | | SW | (23.75-24.25 ft) SAND (0,90,10,0), fine to medium, subround to round; little silt; poorly sorted; dry to moist; 10YR 6/3 - pale brown. | |
| 25 | | | | | CL | (24.25-27.0 ft) CLAY (0,5,0,95), medium plasticity; trace very fine sand, subround to round; dry to moist; hard; 10YR 5/1 - gray. | |
| 26 | | 100.0 | | | | | |
| 27 | | | 0 | | SM | (27.0-27.5 ft) Silty SAND (0,70,30,0), very fine to medium, subround to round; some silt, no plasticity, no dilatancy; poorly sorted; dry to moist; 10YR 5/1 - gray. | |
| 28 | | | | | CL | (27.5-28.5 ft) CLAY (0,5,0,95), medium plasticity; trace very fine to medium sand, subround to round; dry to moist; hard; 10YR 5/1 - gray. | |
| 29 | | | | | ML | (28.5-29.0 ft) Sandy SILT (0,30,70,0), no plasticity, no dilatancy; some very fine to medium sand, subround to round; dry to moist; medium stiff; 10YR 5/1 - gray. | |
| 30 | | | | | | (29.0-38.5 ft) SAND (0,90,10,0), fine to medium, subround to round; little silt, no plasticity, no dilatancy; poorly sorted; moist; 10YR 5/1 - gray. | |
| 31 | | | 0 | | | | |
| 32 | | | | | | | |
| 33 | | | | | | | |
| 34 | | | 0 | | SW | | |
| 35 | SB-BN-07-35(110623) | 100.0 | 0 | | | | |
| 36 | | | | | | | |
| 37 | | | | | | | |
| 38 | | | 0 | | | | |
| 39 | | | 0 | | CL | (38.5-40.0 ft) CLAY (0,5,0,95), medium plasticity; trace very fine to fine sand, subround to round; moist; hard; 10YR 5/1 - gray. | |
| 40 | | | | | | | |
| 41 | | | | | | 40 ft. bgs End of Boring | |
| 42 | | | | | | | |
| 43 | | | | | | | |
| 44 | | | | | | | |
| 45 | | | | | | | |
| 46 | | | | | | | |
| 47 | | | | | | | |
| 48 | | | | | | | |

Notes: Abbreviations: bgs = below ground surface, btoc = beneath top of casing, ft = feet, NA = not applicable, USCS Unified Soil Classification System, PVC = Polyvinyl Chloride. Northing and Easting coordinates are reported in the NAD 83 (2011) system, and the elevation is reported in the NAVD 88 system. Soil percentages are field estimates (%gravel,%sand,%silt,%clay).

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Boring/Well No.: SB-BN-08/MW-BN-04

Soil Boring and Well Construction Log

Sheet: 1 of 2

Client Name: BNSF Railway Company Date Started: 10-30-2023 Logger: Roberto Piemontese
Project Number: 30195976 Date Completed: 11-01-2023 Field Personnel: Elizabeth Scheller
Project Name: BNSF Time Oil RI Total Depth: 40.0 ft bgs Reviewer: Christopher Sheperd, LG

| Depth (feet) | Sample ID | Rec. (%) | PID (ppm) | Blow Counts | USCS Graphic | Description | Construction Details |
|--------------|----------------------|----------|-----------|-------------|--------------|---|--|
| 1 | | | | | | (0.0-2.5 ft) Not logged. | <p>Concrete</p> <p>2-inch diameter Sch. 40 PVC Casing</p> <p>Hydrated Bentonite Chips</p> <p>2-inch diameter Sch. 40 PVC well screen 0.01 inch slot</p> <p>Cemex #2/12 Mesh (12x20) Lapis Lustre Sand</p> <p>Sch. 40 PVC End Cap</p> <p>Hydrated Bentonite Chips</p> |
| 2 | | | | | | | |
| 3 | SB-BN-08-2.5(103023) | | 253 | Air Knife | CL | (2.5-3.0 ft) CLAY (10,0,0,90), low plasticity; little silt; little granules, subangular to subround; dry to moist; soft; 10BG 5/1 - greenish gray. | |
| 4 | | | | | | (3.0-5.0 ft) Not logged. | |
| 5 | | | | | | | |
| 6 | | | 0 | | ML | (5.0-6.5 ft) Sandy SILT (0,30,70,0), no plasticity, no dilatancy; some very fine to fine sand, subround to round; dry to moist; medium stiff; 10YR 4/1 - dark gray. | |
| 7 | | | | | | | |
| 8 | | 100.0 | 0 | | ML | (6.5-8.5 ft) Sandy SILT (0,15,85,0), no plasticity, no dilatancy; little very fine to fine sand, subround to round; dry to moist; stiff; 10YR 4/1 - dark gray. | |
| 9 | | | | | | | |
| 10 | SB-BN-08-10(110123) | | 1.7 | | SW | (8.5-11.0 ft) SAND (0,95,5,0), medium, subround to round; trace silt; poorly sorted; dry to moist; 10YR 5/1 - gray. | |
| 11 | | | 0 | | | | |
| 12 | | | | | | (11.0-19.0 ft) SILT and SAND (0,40,60,0), very fine to fine, no plasticity, no dilatancy; poorly sorted; dry to moist; very stiff; 10YR 5/1 - gray. | |
| 13 | | | 0 | | | | |
| 14 | | | 0 | | | | |
| 15 | | 100.0 | | | ML | | |
| 16 | | | 0 | | | | |
| 17 | | | | | | | |
| 18 | | | 0 | | | | |
| 19 | | | 0 | | | | |
| 20 | | | | | SW | (19.0-19.5 ft) SAND (0,95,5,0), fine to medium, subround to round; trace silt; poorly sorted; dry to moist; 10R 7/1 - light gray. | |
| 21 | Sb-BN-08-20(110123) | | | | ML | (19.5-20.5 ft) Sandy SILT (0,30,70,0), no plasticity, no dilatancy; some very fine sand, subround to round; dry to moist; stiff; 10YR 4/1 - dark gray. | |
| 22 | | 100.0 | | | ML | (20.5-24.5 ft) SILT and SAND (0,40,60,0), very fine to fine, no plasticity, no dilatancy; poorly sorted; dry to moist; stiff; 10YR 5/1 - gray. | |

Drilling Co.: Cascade Sampling Method: Sonic
Driller: Carlos Anguiano Sampling Length: Continuous
Driller Assistant: Donovan Garretson, Willie Williams ▼ First Encountered Water (ft bgs): 30 ft bgs
Drilling Method: Roto-Sonic ▼ Static Water Level (ft btoc): NA
Drill Rig: Geoprobe Top of Casing Elev: 59.551 ft
Remarks: Temporary well from 28.0 to 38.0 ft bgs. DTW: 29.0 ft bgs. Well Tag: BNV-207 Surface Elev: 59.83 ft
North Coord: 245356.53
East Coord: 1255950.27

Notes: Abbreviations: bgs = below ground surface, btoc = beneath top of casing, ft = feet, NA = not applicable, USCS Unified Soil Classification System, PVC = Polyvinyl Chloride. Northing and Easting coordinates are reported in the NAD 83 (2011) system, and the elevation is reported in the NAVD 88 system. Soil percentages are field estimates (%gravel,%sand,%silt,%clay).

Boring/Well No.: SB-BN-08/MW-BN-04

Soil Boring and Well Construction Log

Sheet: 2 of 2

Client Name: BNSF Railway Company Date Started: 10-30-2023 Logger: Roberto Piemontese
Project Number: 30195976 Date Completed: 11-01-2023 Field Personnel: Elizabeth Scheller
Project Name: BNSF Time Oil RI Total Depth: 40.0 ft bgs Reviewer: Christopher Sheperd, LG

| Depth (feet) | Sample ID | Rec. (%) | PID (ppm) | Blow Counts | USCS Graphic | Description | Construction Details |
|-----------------|---------------------|-------------|--------------|----------------|-----------------|--|----------------------|
| 23 | | | | | ML | (20.5-24.5 ft) SILT and SAND (0,40,60,0), very fine to fine, no plasticity, no dilatancy; poorly sorted; dry to moist; stiff; 10YR 5/1 - gray. | |
| 24 | | | 0 | | | | |
| 25 | | 100.0 | | | | (24.5-30.0 ft) Silty SAND (0,80,20,0), fine to medium, subround to round; little silt; poorly sorted; dry to moist; 10YR 5/1 - gray. | |
| 26 | | | 0 | | SM | | |
| 27 | | | | | | | |
| 28 | | | 0 | | | | |
| 29 | | | | | | | |
| 30 | | | | | | | |
| 31 | | | | | | (30.0-38.5 ft) SAND (0,95,5,0), medium, subround to round; trace silt; poorly sorted; wet; 10YR 5/1 - gray. | |
| 32 | | | 0 | | | | |
| 33 | | | | | | | |
| 34 | | | | | SW | | |
| 35 | SB-BN-08-35(110123) | 100.0 | 0 | | | | |
| 36 | | | | | | | |
| 37 | | | | | | | |
| 38 | | | 0 | | | | |
| 39 | | | | | ML | (38.5-40.0 ft) Sandy SILT (0,20,80,0), no plasticity, no dilatancy; little very fine sand, subround to round; dry to moist; hard; 10YR 5/1 - gray. | |
| 40 | | | | | | | |
| 41 | | | | | | 40 ft. bgs End of Boring | |
| 42 | | | | | | | |
| 43 | | | | | | | |
| 44 | | | | | | | |
| 45 | | | | | | | |
| 46 | | | | | | | |
| 47 | | | | | | | |
| 48 | | | | | | | |

Hydrated Bentonite Chips

Notes: Abbreviations: bgs = below ground surface, btoc = beneath top of casing, ft = feet, NA = not applicable, USCS Unified Soil Classification System, PVC = Polyvinyl Chloride. Northing and Easting coordinates are reported in the NAD 83 (2011) system, and the elevation is reported in the NAVD 88 system. Soil percentages are field estimates (%gravel,%sand,%silt,%clay).

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Boring/Well No.: SB-BN-09

Soil Boring and Well Construction Log

Sheet: 1 of 1

Client Name: BNSF Railway Company Date Started: 11-02-2023 Logger: Roberto Piemontese
Project Number: 30195976 Date Completed: 11-03-2023 Field Personnel: Elizabeth Scheller
Project Name: BNSF Time Oil RI Total Depth: 20.0 ft bgs Reviewer: Christopher Sheperd, LG

| Depth (feet) | Sample ID | Rec. (%) | PID (ppm) | Blow Counts | USCS Graphic | Description | Construction Details |
|-----------------|----------------------|-------------|--------------|----------------|-----------------|--|----------------------|
| 1 | | | | | | (0.0-2.5 ft) Not logged. | |
| 2 | | | | | | | |
| 3 | SB-BN-09-2.5(110223) | | 0 | Air Knife | CL | (2.5-3 ft) Sandy CLAY (0,15,0,85), low plasticity; little very fine sand; dry to moist; very stiff; 10YR 5/1 - gray. | |
| 4 | | | | | | (3.0-5.0 ft) Not logged. | |
| 5 | | | | | | | |
| 6 | SB-BN-09-5(110223) | | 0 | | | (5-12 ft) CLAY (0,10,0,90), low to medium plasticity; little very fine sand; dry to moist; hard; 10YR 4/1 - dark gray. | |
| 7 | | | | | | | |
| 8 | | 100.0 | 0 | | | | |
| 9 | | | 0 | | CL | | |
| 10 | SB-BN-09-10(110323) | | | | | | |
| 11 | | | 0 | | | | |
| 12 | | | | | ML | (12.0-12.5 ft) Sandy SILT (0,30,70,0), no plasticity, no dilatancy; some very fine to fine sand, subround to round; dry to moist; stiff; 10YR 4/1 - dark gray. | |
| 13 | | | 0 | | CL | (12.5-13.0 ft) CLAY (0,10,0,90), low to medium plasticity; little very fine sand; dry to moist; hard; 10YR 4/1 - dark gray. | |
| 14 | | | | | ML | (13.0-14.0 ft) Sandy SILT (0,30,70,0), no plasticity, no dilatancy; some very fine to fine sand, subround to round; dry to moist; stiff; 10YR 4/1 - dark gray. | |
| 15 | SB-BN-09-15(110323) | 100.0 | 0 | | CL | (14.0-17.0 ft) CLAY (0,10,0,90), low to medium plasticity; little very fine sand; dry to moist; hard; 10YR 4/1 - dark gray. | |
| 16 | | | | | | | |
| 17 | | | 0 | | ML | (17.0-18.0 ft) SILT and SAND (0,40,60,0), very fine to fine, subround to round, no plasticity, no dilatancy; poorly sorted; dry to moist; stiff; 10YR 4/1 - dark gray. | |
| 18 | | | | | | | |
| 19 | | | 0 | | SW | (18.0-20.0 ft) SAND (0,90,10,0), fine to medium, subround to round; little silt; poorly sorted; dry to moist; 10YR 5/1 - gray. | |
| 20 | | | | | | | |
| 21 | | | | | | 20 ft. bgs End of Boring | |
| 22 | | | | | | | |

Hydrated
Bentonite
Chips

Drilling Co.: Cascade Sampling Method: Sonic
Driller: Carlos Anguiano Sampling Length: Continuous
Driller Assistant: Donovan Garretson, Willie Williams ▼ First Encountered Water (ft bgs): NA
Drilling Method: Roto-Sonic ▼ Static Water Level (ft btoc): NA
Drill Rig: Geoprobe Top of Casing Elev: NA
Remarks: Temporary well from 10.0 to 20.0 ft bgs. Dry well. Surface Elev: NA
North Coord: NA
East Coord: NA

Notes: Abbreviations: bgs = below ground surface, btoc = beneath top of casing, ft = feet, NA = not applicable, USCS Unified Soil Classification System, PVC = Polyvinyl Chloride. Northing and Easting coordinates are reported in the NAD 83 (2011) system, and the elevation is reported in the NAVD 88 system. Soil percentages are field estimates (%gravel,%sand,%silt,%clay).

Boring/Well No.: SB-BN-10/MW-BN-05

Soil Boring and Well Construction Log

Sheet: 1 of 2

Client Name: BNSF Railway Company Date Started: 10-30-2023 Logger: Roberto Piemontese
Project Number: 30195976 Date Completed: 11-07-2023 Field Personnel: Elizabeth Scheller
Project Name: BNSF Time Oil RI Total Depth: 40.0 ft bgs Reviewer: Christopher Sheperd, LG

| Depth (feet) | Sample ID | Rec. (%) | PID (ppm) | Blow Counts | USCS Graphic | Description | Construction Details |
|--------------|----------------------|----------|-----------|-------------|--------------|--|--|
| 1 | | | | | | (0.0-2.5 ft) Not logged. | <p>2-inch diameter Sch. 40 PVC Casing</p> <p>Concrete</p> <p>Hydrated Bentonite Chips</p> <p>2-inch diameter Sch. 40 PVC well screen 0.01 inch slot</p> <p>Cemex #2/12 Mesh (12x20) Lapis Lustre Sand</p> <p>Sch. 40 PVC End Cap</p> <p>Hydrated Bentonite Chips</p> |
| 2 | | | | | | | |
| 3 | SB-BN-10-2.5(103023) | | 15.1 | Air Knife | SM | (2.5-3.0 ft) SAND and SILT with gravel (10,50,40,0), medium, subround to round, low plasticity; little granules, subround to round; poorly sorted; dry to moist; 10YR 4/3 - brown. | |
| 4 | | | | | | (3.0-5.0 ft) Not logged. | |
| 5 | | | 0 | | | | |
| 6 | SB-BN-10-5(110723) | | | | CL | (5.0-7.0 ft) Silty CLAY (0,10,15,75), medium plasticity; little silt; little fine sand; dry to moist; hard; 10YR 5/3 - brown. | |
| 7 | | 100.0 | 55.5 | | SW | (7.0-8.0 ft) SAND (0,90,10,0), fine to medium, subround to round; little silt; poorly sorted; dry to moist; 10YR 5/1 - gray. | |
| 8 | | | | | | | |
| 9 | | | 977 | | CL | (8.0-10.0 ft) Sandy CLAY (0,20,0,80), medium plasticity; little very fine to fine sand, subround to round; dry to moist; medium stiff; 10YR 5/3 - brown. | |
| 10 | SB-BN-10-10(110723) | | 0 | | | | |
| 11 | | | | | ML | (10.0-13.0 ft) SILT and SAND (0,40,60,0), very fine to fine, subround to round, no plasticity, no dilatancy; poorly sorted; dry to moist; stiff; 10YR 5/1 - gray. | |
| 12 | | | | | | | |
| 13 | SB-BN-10-12(110723) | | | | | | |
| 14 | | | | | | (13.0-15.0 ft) No Recovery. | |
| 15 | | 80.0 | 0 | | | | |
| 16 | | | | | CL | (15.0-18.0 ft) CLAY (0,10,0,90), medium plasticity; little very fine to fine sand, subround to round; dry to moist; hard; 10YR 5/1 - gray. | |
| 17 | | | 0 | | | | |
| 18 | | | | | | | |
| 19 | | | 16.8 | | SW | (18.0-19.8 ft) SAND (0,90,10,0), fine to medium, subround to round; little silt, no plasticity, no dilatancy; poorly sorted; dry to moist; 10YR 5/1 - gray. | |
| 20 | SB-BN-10-20(110723) | | 0 | | CLZ SM | (19.8-20.0 ft) CLAY (0,10,0,90), medium plasticity; little very fine to fine sand, subround to round; dry to moist; very stiff; 10YR 5/1 - gray. | |
| 21 | | 100.0 | | | ML | (20.0-20.5 ft) Silty SAND (0,70,30,0), fine to medium, subround to round; some silt, no plasticity, no dilatancy; poorly sorted; dry to moist; 10YR 5/1 - gray. | |
| 22 | | | | | SM | | |

Drilling Co.: Cascade Sampling Method: Sonic
Driller: Carlos Anguiano Sampling Length: Continuous
Driller Assistant: Donovan Garretson, Willie Williams ▼ First Encountered Water (ft bgs): 28.5 ft bgs
Drilling Method: Roto-Sonic ▼ Static Water Level (ft btoc): NA
Drill Rig: Geoprobe Top of Casing Elev: 59.555 ft
Remarks: Temporary well from 27.0 to 37.0 ft bgs. DTW: 30.5 ft bgs. Well Tag: BNV-241 Surface Elev: 59.85 ft
North Coord: 245337.31
East Coord: 1255978.78

Notes: Abbreviations: bgs = below ground surface, btoc = beneath top of casing, ft = feet, NA = not applicable, USCS Unified Soil Classification System, PVC = Polyvinyl Chloride. Northing and Easting coordinates are reported in the NAD 83 (2011) system, and the elevation is reported in the NAVD 88 system. Soil percentages are field estimates (%gravel,%sand,%silt,%clay).

Boring/Well No.: SB-BN-10/MW-BN-05

Soil Boring and Well Construction Log

Sheet: 2 of 2

Client Name: BNSF Railway CompanyDate Started: 10-30-2023Logger: Roberto PiemonteseProject Number: 30195976Date Completed: 11-07-2023Field Personnel: Elizabeth SchellerProject Name: BNSF Time Oil RITotal Depth: 40.0 ft bgsReviewer: Christopher Sheperd, LG

| Depth (feet) | Sample ID | Rec. (%) | PID (ppm) | Blow Counts | USCS Graphic | Description | Construction Details |
|-----------------|---------------------|-------------|--------------|----------------|-----------------|--|----------------------|
| 23 | SB-BN-10-22(110723) | | | | | (20.5-21.0 ft) Sandy SILT (0,30,70,0), no plasticity, no dilatancy; some very fine to fine sand, subround to round; poorly sorted; dry to moist; stiff; 10YR 5/1 - gray. | |
| 24 | | | 0 | | SM | (21.0-25.0 ft) SAND and SILT (0,60,40,0), very fine to medium, subround to round, no plasticity, no dilatancy; poorly sorted; dry to moist; 10YR 5/1 - gray. | |
| 25 | | | | | | | |
| 26 | | 100.0 | | | | (25.0-38.0 ft) SAND (0,90,10,0), fine to medium, subround to round; little silt, no plasticity, no dilatancy; poorly sorted; dry to moist; 10YR 5/1 - gray. | |
| 27 | | | 0 | | | | |
| 28 | | | | | | | |
| 29 | | | 0 | | | | |
| 30 | | | | | | | |
| 31 | | | 0 | | | | |
| 32 | | | | | SW | | |
| 33 | | | | | | | |
| 34 | SB-BN-10-33(110723) | | | | | | |
| 35 | SB-BN-10-35(110723) | 100.0 | 0 | | | | |
| 36 | | | | | | | |
| 37 | | | | | | | |
| 38 | | | 0 | | | | |
| 39 | | | | | CL | (38.0-40.0 ft) CLAY (0,10,0,90), medium plasticity; little very fine to fine sand, subround to round; dry to moist; very stiff; 10YR 5/1 - gray. | |
| 40 | | | | | | | |
| 41 | | | | | | 40 ft. bgs End of Boring | |
| 42 | | | | | | | |
| 43 | | | | | | | |
| 44 | | | | | | | |
| 45 | | | | | | | |
| 46 | | | | | | | |
| 47 | | | | | | | |
| 48 | | | | | | | |

Hydrated Bentonite Chips

Notes: Abbreviations: bgs = below ground surface, btoc = beneath top of casing, ft = feet, NA = not applicable, USCS Unified Soil Classification System, PVC = Polyvinyl Chloride. Northing and Easting coordinates are reported in the NAD 83 (2011) system, and the elevation is reported in the NAVD 88 system. Soil percentages are field estimates (%gravel,%sand,%silt,%clay).

SOIL BORING AND CONSTRUCTION LOG C:\USERS\SLLEE\PERSONAL\DRIVE - ARCADIS\DOCUMENTS\BNSF\TIME OIL\GPJ GINT DATA TEMPLATE.GDT 4/24/25

Boring/Well No.: SB-BN-11

Soil Boring and Well Construction Log

Sheet: 1 of 1

Client Name: BNSF Railway Company Date Started: 10-30-2023 Logger: Roberto Piemontese
Project Number: 30195976 Date Completed: 11-01-2023 Field Personnel: Elizabeth Scheller
Project Name: BNSF Time Oil RI Total Depth: 20.0 ft bgs Reviewer: Christopher Sheperd, LG

| Depth (feet) | Sample ID | Rec. (%) | PID (ppm) | Blow Counts | USCS Graphic | Description | Construction Details |
|-----------------|----------------------|-------------|--------------|----------------|-----------------|---|----------------------|
| 1 | | | | | | (0.0-2.5 ft) Not logged. | |
| 2 | | | | | | | |
| 3 | SB-BN-11-2.5(103023) | | 143 | Air Knife | CL | (2.5-3 ft) Sandy CLAY (0,15,0,85), medium plasticity; little silt; dry to moist; medium stiff; 10BG 5/1 - greenish gray. | |
| 4 | | | | | | (3.0-5.0 ft) Not logged. | |
| 5 | SB-BN-11-5(103023) | | 28.1 | | CL | (5.0-5.5 ft) Silty CLAY (0,10,15,75), medium plasticity; little silt; little fine sand; dry to moist; medium stiff; 10BG 5/1 - greenish gray. | |
| 6 | | | | | CL | (5.5-6.5 ft) CLAY (0,10,0,90), low plasticity; little very fine sand, subround to round; dry to moist; very stiff; 10YR 4/3 - brown. | |
| 7 | | | | | | (6.5-9.0 ft) CLAY (0,10,0,90), low to medium plasticity; little very fine sand; dry to moist; stiff; 10R 7/1 - light gray. | |
| 8 | | 100.0 | | | CL | | |
| 9 | | | 399.1 | | SM | (9.0-10.0 ft) Silty SAND (0,80,20,0), fine to medium, subround to round; little silt; poorly sorted; dry to moist; 10R 7/1 - light gray. | |
| 10 | SB-BN-11-10(110123) | | 3.5 | | | (10.0-17.5 ft) Sandy SILT (0,20,80,0), low plasticity, no dilatancy; little very fine to fine sand; dry to moist; very stiff; 10R 7/1 - light gray. | |
| 11 | | | | | | | |
| 12 | | | | | | | |
| 13 | | | 4.7 | | | | |
| 14 | | | 3.5 | | ML | | |
| 15 | SB-BN-11-15(110123) | 100.0 | 0 | | | | |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | 0 | 0.1 | | SW | (17.5-19.0 ft) SAND (0,95,5,0), fine to medium, subround to round; trace silt; poorly sorted; dry to moist; 10R 7/1 - light gray. | |
| 19 | | | | | | | |
| 20 | | 0 | | | ML | (19-20 ft) Sandy SILT (0,30,70,0), no plasticity, no dilatancy; some very fine to fine sand; dry to moist; very stiff; 10R 7/1 - light gray. | |
| 21 | | | | | | 20 ft. bgs End of Boring | |
| 22 | | | | | | | |

Hydrated
Bentonite
Chips

Drilling Co.: Cascade Sampling Method: Sonic
Driller: Carlos Anguiano Sampling Length: Continuous
Driller Assistant: Donovan Garretson, Willie Williams ▼ First Encountered Water (ft bgs): NA
Drilling Method: Roto-Sonic ▼ Static Water Level (ft btoc): NA
Drill Rig: Geoprobe Top of Casing Elev: NA
Remarks: Temporary well from 5.0 to 15.0 ft bgs. Dry well. Surface Elev: NA
North Coord: NA
East Coord: NA

Notes: Abbreviations: bgs = below ground surface, btoc = beneath top of casing, ft = feet, NA = not applicable, USCS Unified Soil Classification System, PVC = Polyvinyl Chloride. Northing and Easting coordinates are reported in the NAD 83 (2011) system, and the elevation is reported in the NAVD 88 system. Soil percentages are field estimates (%gravel,%sand,%silt,%clay).