

Levee Zone Interim Action for Cleanup 2006 – As-Built Completion Report

Former Maintenance and Fueling Facility

Skykomish, Washington

FILE 207Q
Volume 2 of 2: Appendices ^J~~A~~ – R

Prepared by:

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RETEC Project Number: BN050-19390-230

Prepared for:

BNSF Railway Company
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July 2, 2007

Appendix J

EDR Modifications

- ▶ Modification 1: Construction of Inner Cofferdam
- ▶ Modification 2: Construction and Monitoring of Cofferdam and Sampling Methods
- ▶ Modification 3: Construction of Shorting and Barrier System
- ▶ Modification 4: Construction of Reinforces Earthwall

Modification 1
Construction of Inner Cofferdam

Engineering Design Report/ Sampling and Analysis Plan MINOR SITE MODIFICATION

Site: Skykomish Levee

Modification Number: 1

Relevant EDR/SAP Section and Page Number:

EDR Section 3.4, page 3-7 and Drawing C-15

Date: July 24, 2006

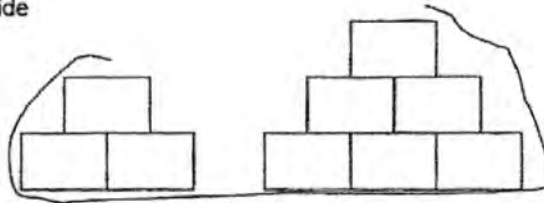
Issue:

Expedite the schedule based on observed conditions on the site. Interior cofferdam height is not required to be the same as the exterior coffer dam height

Recommended Resolution:

For the inner coffer dam use 2 bags on the bottom level and 1 on the 2nd level as shown since river levels are lower downstream.

South/Town Side



North/River Side

Resolution Approved by Ecology:



EXPIRES 12/11/06

Requested by: *M. Byers*
RETEC personnel

Approved by: *Louise Bardy*
Louise Bardy
Site Manager
Department of Ecology

P.E. License No. and Seal

Received Time Jul. 24. 3:01PM

Modification 2
Construction and Monitoring of Cofferdam and
Sampling Methods

Engineering Design Report/ Sampling and Analysis Plan MINOR SITE MODIFICATION

Site: Skykomish Levee Remediation Project

Modification Number: 2

Relevant EDR/SAP Section and Page Number:

- 1) Drawings C-15 and C-16
- 2) SAP Sections 3.3 (page 3-2), 4.3 (page 4-1), SAP Table 7-1 (page 7-1)

Date: August 8, 2006

Issue:

- 1) Turbid water is leaking beneath the cofferdam in parts of cell 2 and cell 3. The water appears to be partially flowing in the river gravels and partially just below the liner of the cofferdam.
- 2) Carrying equipment on stockpiles and environmental and stockpile sampling procedure consistency.

Recommended Resolution:

- 1) Placing imported sand between the coffer dams in cell 3 and part of cell 2 to better seal the FIBC bags and decrease flow below the coffer dam. Sheen can no longer be monitored between the cofferdams in this area since the sand is above the water level between the dams, so sheen is monitored outside of the dams during cofferdam inspections.
- 2) To minimize the amount of equipment necessary to carry on stockpiles for sampling and to keep environmental and stockpile sampling procedures consistent, samples will be collected using gloved hands. Rinseate samples will not be collected while sampling with these procedures as part of the project's quality control because disposable sampling equipment (such as nitrile gloves and resealable plastic bags) are being used instead of stainless steel bowls, spoons, and shovels.

Resolution Approved by Ecology:



Requested by: *Lara Albano*
RETEC personnel

P.E. License No. and Seal

Approved by: *Louise Bardy*
Louise Bardy
Site Manager
Department of Ecology

Instructions for Use

1. Use this form to document and obtain approval for approval for significant changes to the EDR or SAP. Significant changes constitute changes in remedial goals, sampling protocol, schedule, deviations from the Order or any issues that arise that are not resolved by agreement between PLP representatives and Ecology.
2. In the case of significant changes, described above, the form on the other side should be completed. The issue section should include a specific reference to the section of the Order, EDR or document that is in dispute. If the issue requires rapid resolution, the requestor may call Louise Bardy at (425) 649-7209 or her designated representative before completing and FAXing the form.
3. After the form is filled out and signed by the requestor, FAX the completed form to Louise Bardy at 425-649-7098.
4. All completed forms should be copied in duplicate, with one copy remaining with the EDR/SAP and one copy sent to Louise Bardy.

Modification 3
Construction of Shorting and Barrier System

**Engineering Design Report/ Sampling and Analysis Plan
MINOR SITE MODIFICATION**

Site: Skykomish Levee Remediation Project

Modification Number: 3

Relevant EDR/SAP Section and Page Number:

1) Shoring wall

Date: October 5, 2006

Issue:

- 1) Construction of the sheet pile shoring shown in the EDR was not feasible by RETEC and Wilder Construction Company given the field conditions encountered during construction.

Recommended Resolution:

- 1) The attached shoring memorandum outlines the proposed resolution and is considered to be part of the EDR.

Resolution Approved by Ecology:

Requested by: Michael B. Byers

RETEC personnel

Approved by: Louise Bardy

Louise Bardy
Site Manager
Department of Ecology



P.E. License No. and Seal.



206.624.9349 Phone
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www.retec.com

MEMORANDUM

TO: Louise Bardy, Ron Timms cc: Bruce Sheppard, Craig Trueblood, RETEC, Wilder Construction	CLIENT: BNSF
FROM: Merv Coover, Mike Byers	TASK: Skykomish Levee Remediation
DATE: September 19, 2006	RE: Shoring Response to Comments

This memorandum presents updated engineering for the Skykomish shoring and barrier system based on comments received from Ecology by e-mail (30 August, 2006), technical comments from Ecology's consultant (CDM; 23 August, 2006) and subsequent e-mail and phone communications between RETEC and Ecology. This memorandum does not revisit the basis of design or provide specific explanation of construction elements that were addressed in RETEC's 18 August technical memorandum except where changes or modifications were made.

The following attachments form the core of this submittal:

- A. Itemized response to CDM comments
- B. Revised Drawings (Sheets A-E)
- C. Engineering Memorandum from Milbor-Pita & Associates, Inc. (dated 15 September, 2006)
- D. RETEC calculations of puncture safety factors for the synthetic liner.

The shoring and barrier system remains consistent with that previously described in the 18 September technical memorandum albeit with some modifications.

Sheets A and B (Attachment B) are plan views of the shoring/barrier alignment and footprint west and east of 6th Street respectively. Liner only (no shoring) is planned for the backfill slope between stations 0+00 and 2+49. A combination of reinforced earth wall (REW) and liner will be constructed along the foot of the excavation slope from 2+49 to approximately 8+00. (Note: A short section of REW may be required from 0+00 to 0+75 - not shown on drawings - depending on observed conditions). Attachment C contains an engineering analysis of the REW and block system described in the 18 September technical memorandum. The analysis was prepared by Milbor-Pita and Associates, Inc.

Construction of the barrier and shoring system will vary depending on alignment location and the conditions observed at the location of the shoring. Sheets C, D and E present cross-sectional views of system construction anticipated for three alignment intervals. Note that the excavation slope (and backfill slope between 0+00 and 2+49) was adjusted to 1H:1V above the water table and 1.5H:1V below the water table. However, MPA recommendations call for monitoring and control measures beneath the water table where slope stability is difficult to predict.



The liner specification was changed based on material availability, cost and puncture resistance considerations. The alignment interval between 0+00 and 2+49 (i.e., west of the school) may be lined with 60 MIL HDPE. As shown in Attachment D, this material has an adequate puncture safety factor under the anticipated loading conditions and does not need protection in the form of fabric or alternate backfill materials. Alternate liner materials may also be used but require puncture protection using geofabric. For the vertical liner application (i.e., facing the REW), 40 or 60 MIL HDPE or Coolguard HRL 36 MIL are acceptable without a geofabric protection.

Attachment A
Response to CDM Comments
Dated 23 August, 2006

Geotechnical/structural considerations

1. *Design of the reinforced earth wall (REW) by others (as noted on the drawings) needs to include proof of stability of the whole system, i.e. including the segmental modular concrete block wall (2 rows of 2.5' x 2.5' Ultrablocks) beneath the REW (for excavation to EL. 910).*

See attached letter from Milbor-Pita & Associates, Inc. dated 15 September, 2006.

2. *The foundation level of the Ultrablocks needs to be sufficiently stable. If the blocks are to be placed 'in the wet', adequate measures prior to placing the blocks may be required. Those measures include stabilizing loose sands by pushing in crushed stone, replacement of cohesive soils by crushed stone/gravel, etc.*

RETEC agrees that the base material beneath the Ultrablocks needs to be stable and that over-excavation coupled with placement of crushed stone may be required to provide a solid unyielding base for construction of the REW. (Also See attached MPA memorandum dated 18 August 2006).

3. *The CDM Memorandum of 08/02/06 provided structural considerations related to the temporary cut slope in front of the retaining wall which apply to the present design as well. The slope of 1H:1V (bottom part) to 0.75H:1V (upper part) cannot be considered sufficiently stable, which has to be addressed with regard to work safety. Also, without any underpinning of the foundations of the school building, proof of sufficient stability of the building's foundations against overturning needs to be provided. A larger offset (building to slope) than indicated in Drawing A may be required. Installation and monitoring of settlement pins at the building is recommended in conjunction with an emergency response plan, which should include corrective action measures triggered by pre-select action levels.*

Excavation slope stability is discussed in the MPA memorandum. The drawings depict a 1H:1V slope above the water table and 1.5H:1V slope beneath the water table. However, as MPA points out, field observations and control measures will be essential to monitoring and managing slope stability.

Monitoring points have been installed on the school. Data recorded while the excavation adjacent to the school was indicate no effects in the building. Monitoring will continue with installation of the shoring.

4. *Please note that RETEC's memo does include the following inconsistencies that should be corrected or clarified: (1) The referencing of Drawings C and D in the text is incorrect, (2) The title of Drawing C ('Station 0+00 - 3+37') is not*

consistent with the text which states that the presented retaining wall option is proposed for station 2+30 to 3+37.

The drawings (See attached) were revised with respect to the noted inconsistencies.

Environmental considerations

1. *If the contamination zone is considered to be roughly at the level of the groundwater table and its seasonal fluctuations, the liner would need to extend beneath that zone at all those alignment sections, where the contamination does exist or may extend to. We recommend to design the depth of the liner accordingly.*

The liner will be installed only to the depth of excavation as determined by confirmation sampling during removal.

1. *The drawings describe the liner to be COOLGUARD HRL 36 MIL or equivalent. Coolguard is not an HDPE liner, as stated in the text, but is described by its manufacturer EPI as 'terpolymer alloy coating consisting primarily of Elvaloy® and PVC resins'. The manufacturer further states that this blend of resins has been optimized to produce a high performance product which is not susceptible to plasticizer migration. However, we recommend to obtain a statement/confirmation by the manufacturer with regard to the expected durability of the product with regard to the chemicals involved and the planned period of exposure.*

Both Coolguard and HDPE are chemically resistant to site contaminants and are considered suitable for use in this application. Either may be used depending on availability. See attached compatibility information.

2. *RETEC mentions that sections of liner material will 'overlap by at least 3 feet' but RETEC does not include any mentioning of field seaming. Overlapping without field seaming seems to be inconsistent with the design intent of an 'impermeable HDPE liner' as stated earlier. We recommend the use of large panels to minimize the number of seams and we recommend field seaming in accordance with the manufacturer's instructions and recommendations.*

Per discussions with Ecology (see attached e-mail dated 15 September, 2006) the liner sections will be overlapped by 5 feet and not seam-sealed.

3. *In order to function as a recontamination barrier, any damage to the liner during installation and backfilling must be prevented. We recommend those prevention measures to be described as part of the design. Those measures may include*

specific construction methods, specific requirements with regards to backfill materials (limitations of grain size, etc.), and/or the installation of other geofabric as protective layers.

4. *RETEC states that 'BNSF is not proposing a recovery trench design/implementation adjacent to the school at this time'. Please note that contrary to that statement, the drawings C and D refer to the backfill material in front of the retaining walls as 'recovery trench backfill'. However, we assume/recommend that BNSF illustrates to Ecology's comfort that impermeable barrier placement will not result in any unacceptable mounding behind the barrier or lateral contamination migration extending into non-contaminated areas.*

The modified drawings make no reference to LNAPL recovery.

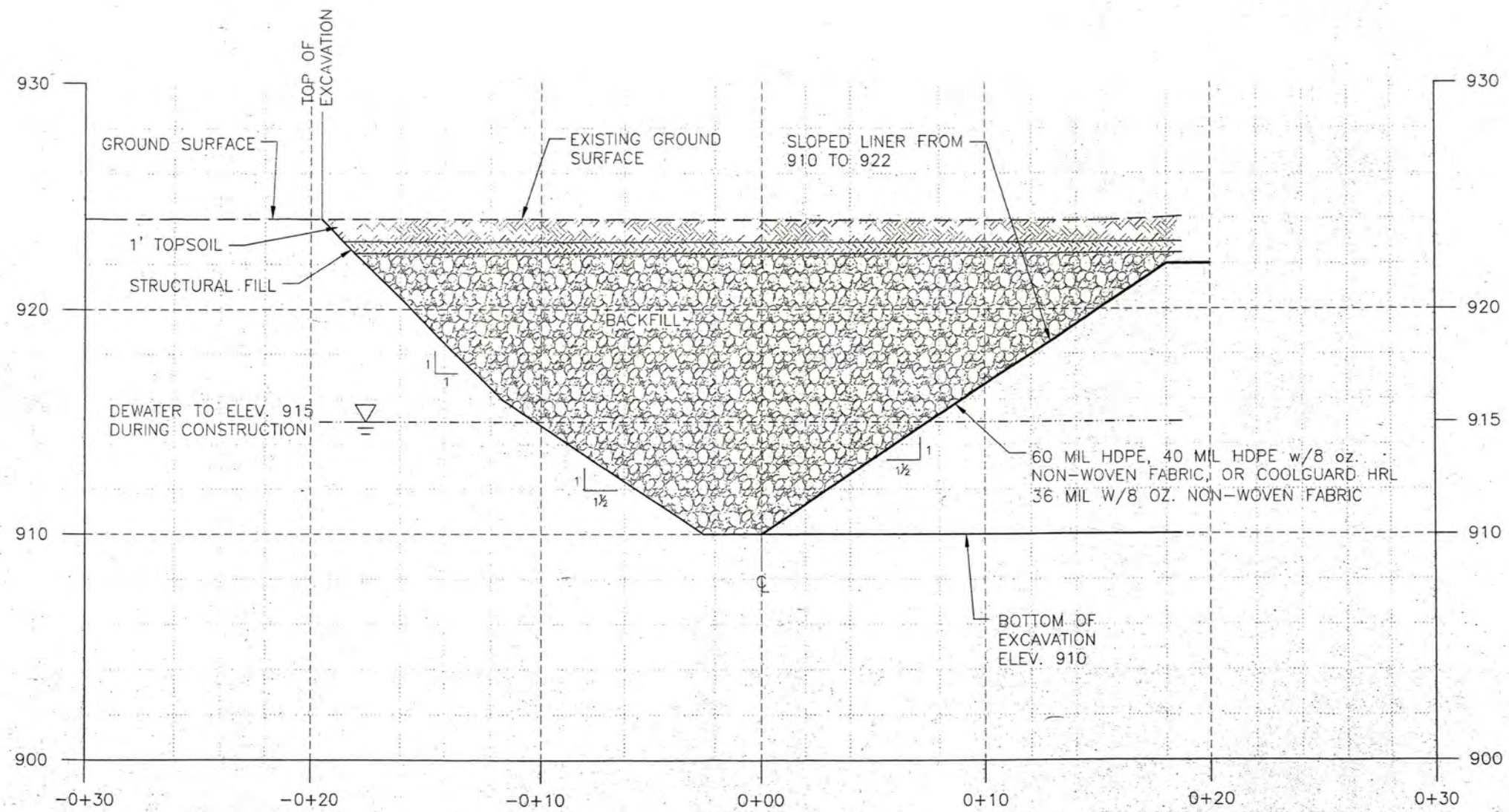
The barrier system is conceptually and functionally equivalent to the sheet-pile shoring system originally approved in the EDR. Therefore, the questions/concerns being addressed here, while valid, were previously factored into the basis of design for the project and are not relevant at this point in the project cycle.

5. *We recommend modeling of the expected groundwater flow and contaminant migration and monitoring wells for verification as well as recovery installations for contingency purposes. Appropriate monitoring measures should be put in place for verification of model assumptions, and a contingency plan should be in place in case the barrier results in revised contamination migration pathways.*

Groundwater modeling was conducted prior to the 2001 installation of the Interim Action Barrier Wall along West River Drive. This modeling was performed by S.S. Papadopolous & Associates and was reported in a Technical Memorandum dated April 30, 2001 (and included in the Interim Action Basis of Design Report for LNAPL Barrier System - Appendix A (RETEC, 2001). The modeling showed that the wall would have a minimal effect on the groundwater table; this was subsequently confirmed by groundwater level monitoring upgradient from the barrier wall. The hydrogeology in the vicinity of the shoring wall is similar to the hydrogeology adjacent to the Interim Action barrier wall and there is no reason to believe that the effects on the groundwater table will be greater.

Given the anticipated short time interval between project phases, BNSF sees no value in additional modeling or monitoring. In essence, the pending phase of cleanup "is" the contingency plan.

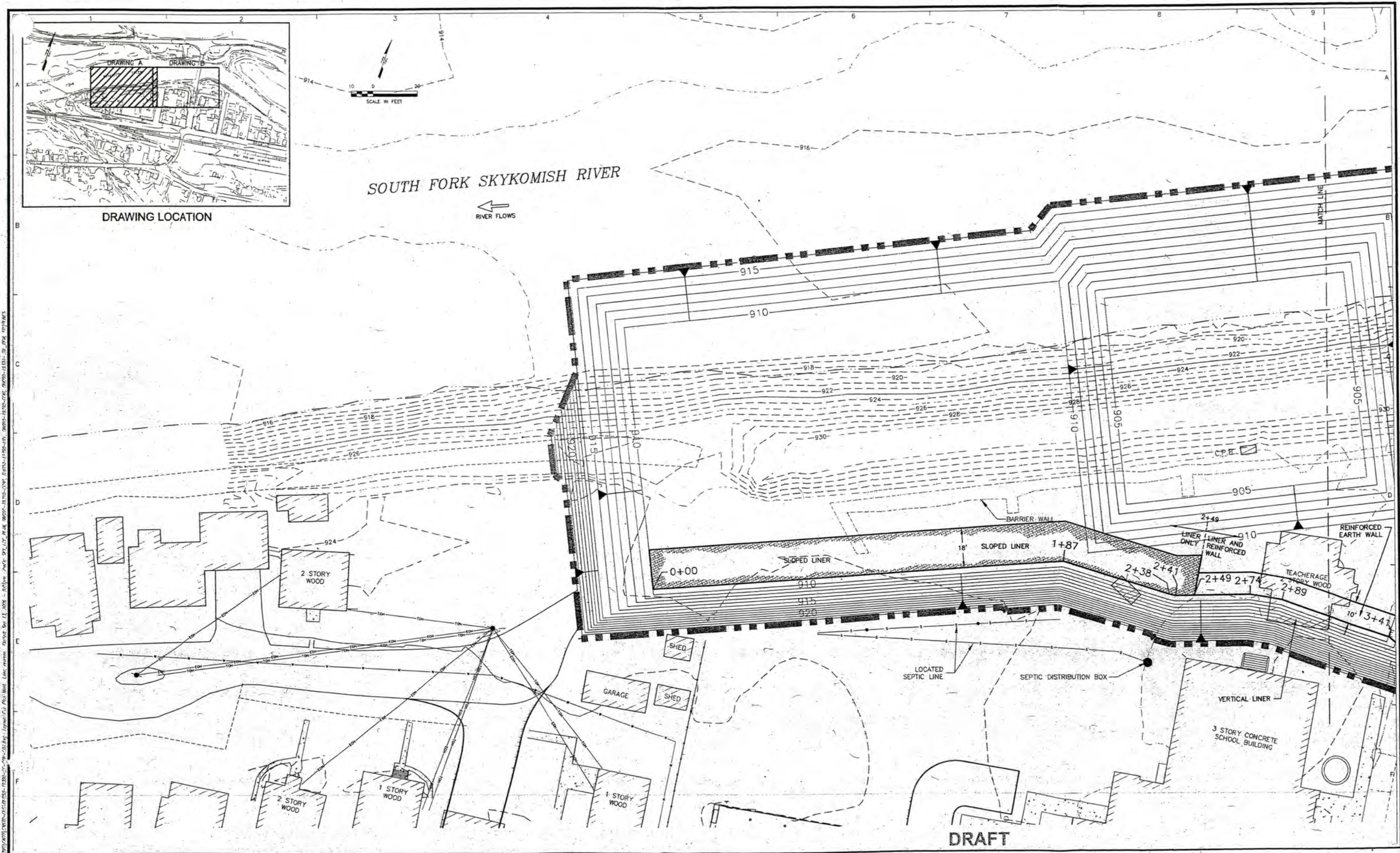
Attachment B
Project Drawings
Sheets A, B, C, D, and E



NOTES:

1. LINER TO BE PLACED ON BACKFILL SLOPE.

DRAFT



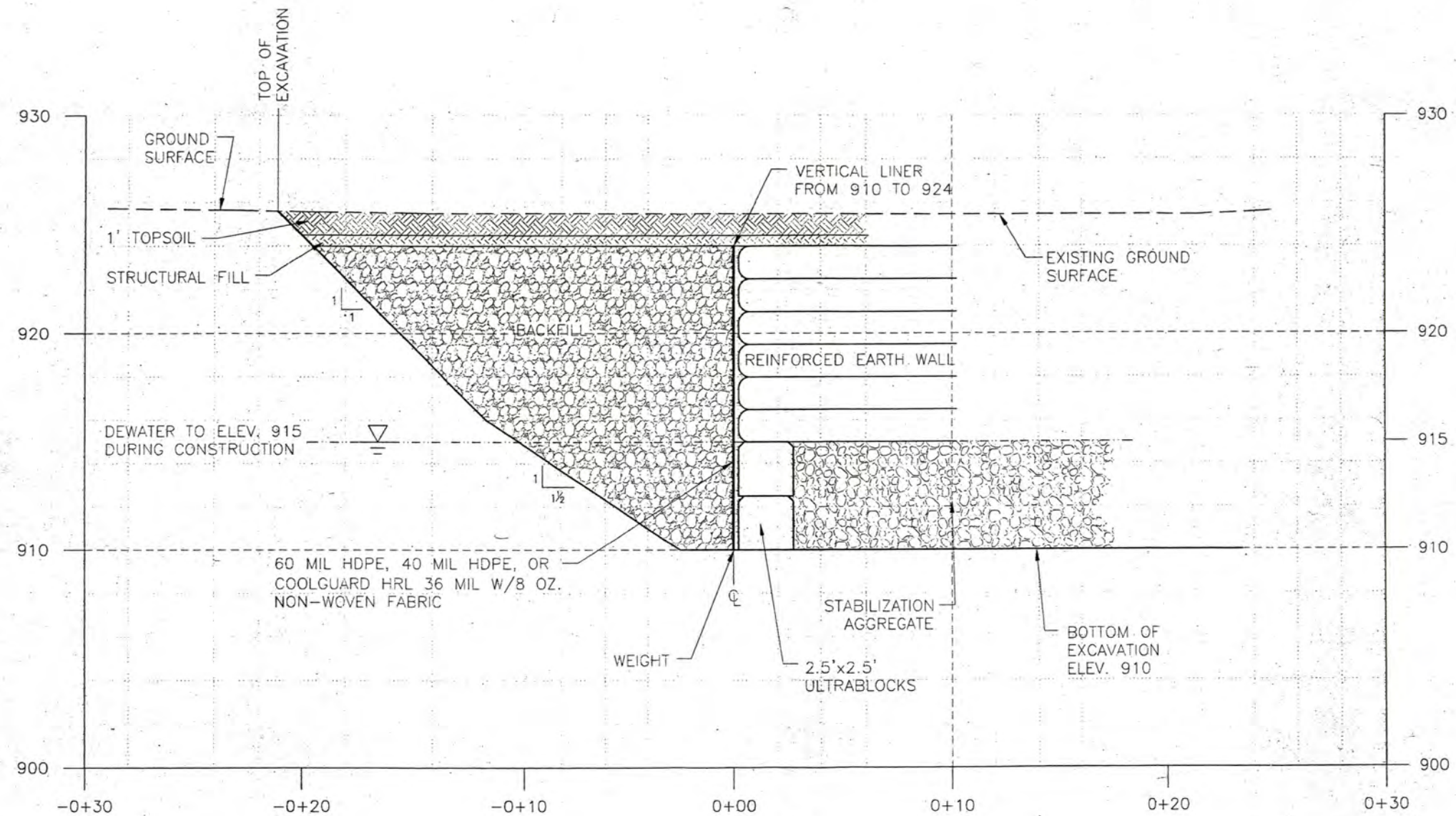
SOUTH FORK SKYKOMISH RIVER



DRAWING LOCATION

DRAFT

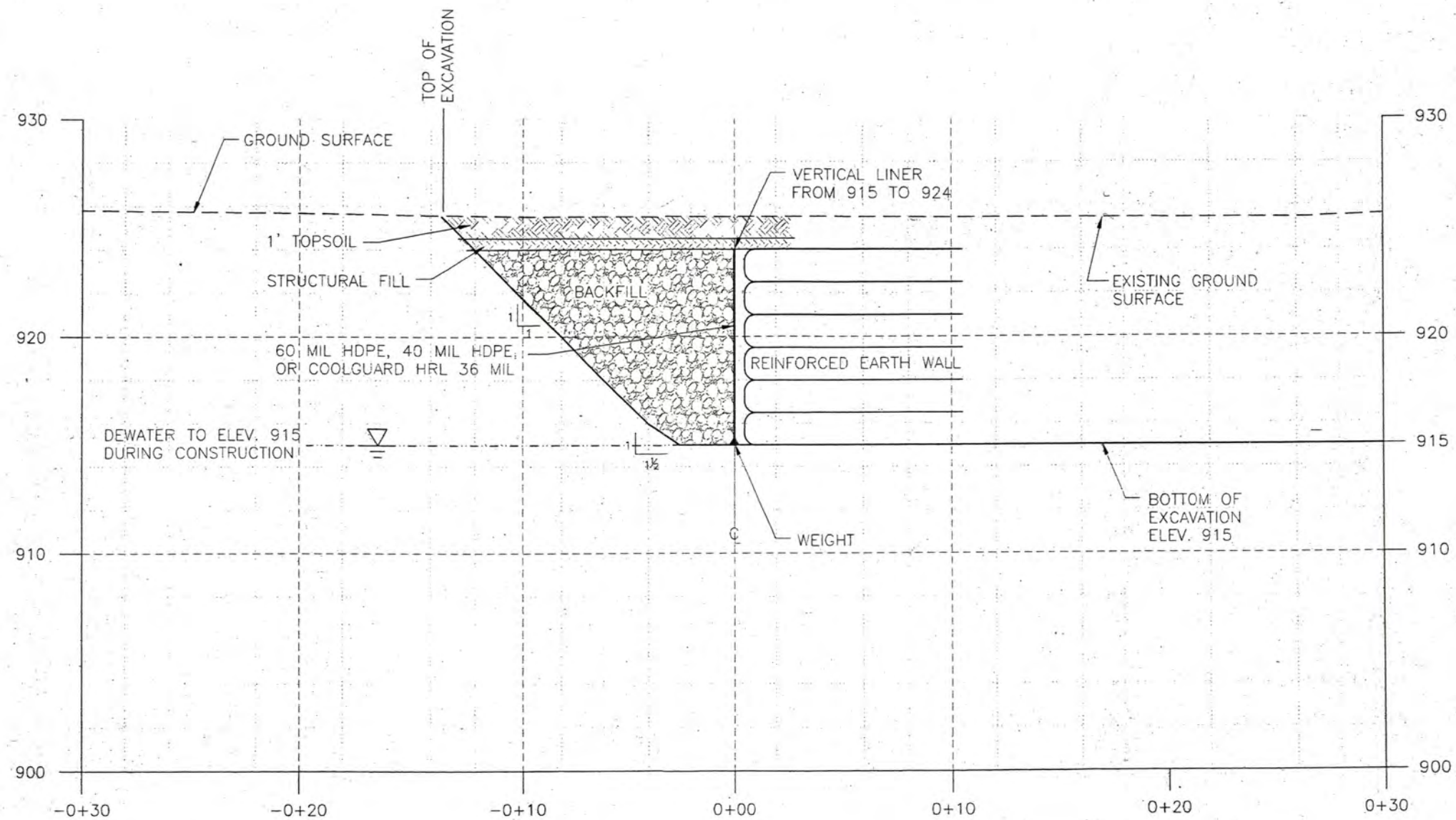




NOTES:

1. DESIGN OF REINFORCED EARTH WALL AND ULTRABLOCK REINFORCEMENT BY OTHERS.
2. REINFORCED EARTH WALL SHALL BE CONSTRUCTED ON A STABLE SUBGRADE ABOVE THE ACHIEVED DEWATERING ELEVATION (ESTIMATED AT 915 FT. MSL).
3. IF EXCAVATION IS BELOW THE ACHIEVED DEWATERING ELEVATION, THEN ULTRABLOCK AND STABILIZATION AGGREGATE WILL BE USED AS NECESSARY TO CONSTRUCT A STABLE SUBGRADE FOR THE REINFORCED EARTH WALL.
4. STABILIZATION AGGREGATE WILL BE USED AS NECESSARY TO CONSTRUCT A STABLE SUBGRADE FOR ULTRABLOCKS.

DRAFT



NOTES:

1. REINFORCED EARTH WALL DESIGNED BY OTHERS.
2. REINFORCED EARTH WALL SHALL BE CONSTRUCTED ON A STABLE SUBGRADE ABOVE THE ACHIEVED DEWATERING ELEVATION (ESTIMATED AT 915 FT. MSL).
3. IF EXCAVATION IS BELOW THE ACHIEVED DEWATERING ELEVATION, THEN STABILIZATION AGGREGATE (WITH OR WITHOUT ULTRABLOCKS) WILL BE USED TO CONSTRUCT A STABLE SUBGRADE FOR THE REINFORCED EARTH WALL.

DRAFT

Attachment C
Milbor-Pita & Associates, Inc.
Memorandum
(15 September, 2006)

15Sep06
#1600

To: Travis Walken & Quinn Golden / Wilder Construction
From: Frank Pita, PE

**RE: Revised Concrete Block / Mechanically Stabilized Earth (MSE) Wall System;
Engineering Considerations & Design; BNSF Skykomish Clean up,
Skykomish, WA.**

Background / General Discussion

Via the internet, a four drawings and a cover memo by RETEC (drawings dated 6Aug06 & 17Aug06 / memo dated 18Aug06 from Merv Coover, Mike Byers & rich Truax) arrived that presented an approach of using an interlocking block wall system at the base and the placing geofabric or geogrid wrapped soil strengthening beginning vertically above the blocks. This was similar to MPA's 28Jul06 submittal and calculations for a block/MSE combination wall, but slightly different. This submittal analyzes the new design proposed by RETEC.

The RETEC proposed interlocking block/MSE approach places the base or bottom of the concrete blocks at the depth needed to below the removed soil contamination. The concrete block/MSE system is constructed generally as follows:

- On the contaminated side of the blocks, a 1H to 1V slope would be cut as the mass excavation takes place. A steeper or flatter slope would be decided in the field as conditions unfold.
- At the toe of this slope, one or two rows of blocks would be placed on level ground so that they are vertical and square.
- The backfill behind the blocks would be stabilization rock, which is a crushed, clean angular gravel with no fines (similar to railroad ballast).
- On top of the blocks, geofabric layers would be built up to the design height. A top soil layer would be placed at top.
- Per the RETEC design, an HDPE fabric wall would be built in front.
- The height of the wall varies depending on conditions.
- The contaminated side of the excavation (where the 1H to 1V slope is cut) would be filled as the wall is built.

MPA's Scope of Work / Case to Analyze

MPA's requested scope of design for this memo is as follows:

- MPA was told that during the next phase of cleanup work, the soil that is contaminated would be excavated up to this vertical combination wall. So the engineering case to analyze is the entire wall exposed for the full vertical height.

- MPA has assumed soil parameters from our observation of the soil conditions and experience on other projects.
- The water table for this analysis shall be four feet higher within the block/MSE side than the excavated side.
- Discuss the cut slope options.

The general options are presented above and the other two scope items follow.

Block Wall Portion

The block wall needs to be placed on level ground that supports the block evenly. The backfill needs to be the stabilization rock that is a clean, angular crushed rock. MPA recommends filling on both sides of the blocks so that compaction equipment of size can operate up close to the blocks. If the blocks are equally balanced on both sides, then the compaction equipment will not cause adverse movement, however, care must be taken since one side will be compacted before the other.

Wrapped wall Portion

If you wrap the face, then use the non woven fabric = Mirafi HP370 or equivalent and wrap it every 18 inches, then the bottom length of each wrap is 0.9 H, like the blocks and the overlap is 4 feet, so if the height is 10' then the total grid per lift is $9' + 1.5' + 4' = 14.5$. This is different from the 28Jul06 submittal because of surcharge and earthquake loading.

Other material can be used like woven fabric (Mirafi 150) or geogrid (Mirgrid 5XT) with a small size opening material only on the face.

Technique & Monitoring Recommendations of the Cut Slopes

At this time, the variability in the subsurface conditions make it difficult to impossible to predict what slope can be achieved that allows workers to place the blocks. However, from MPA's several visits to the site, it appears that a 1H to 1V is achievable above the water table. The slope below the water table is unknown at this time, but if the material is coarse, it may just release the water and not have a stability problem. A test area should be defined for some initial evaluation.

In addition, MPA would recommend the following options be considered:

1. Instability of the cut slopes will occur because of the exiting groundwater from the side or base of the slope. Therefore, because of this condition, Wilder must be ready to place a filter gravel (like stabilization rock or WSDOT shoulder ballast) over the exiting water so that the water passes through but the soil sand and fines are retained.
2. The first cut slopes should be performed where no structures are near. The control of the water, the speed of backfilling to stabilize the area and placement of

blocks etc. must be learned prior to nearing a structure. MPA can assist with this evaluation if you would like.

3. According to WISHA trench regulations, a 1H to 1V slope is allowable in the type of material at the site but worker safety must be kept in mind. No worker should be between the blocks and the cutslope, ever.
4. Cuts should be open for as short a time as possible by backfilling both sides.

Closure

As with every shoring subtask in a project, the Wilder crew and their supervision should keep constant vigil of the system and adjacent structures looking for any movement. MPA should be notified if movement occurs or if conditions are not as predicted (ie: more cut then 15 feet, water table not as expected, and / or material not as in borings and on cross section).

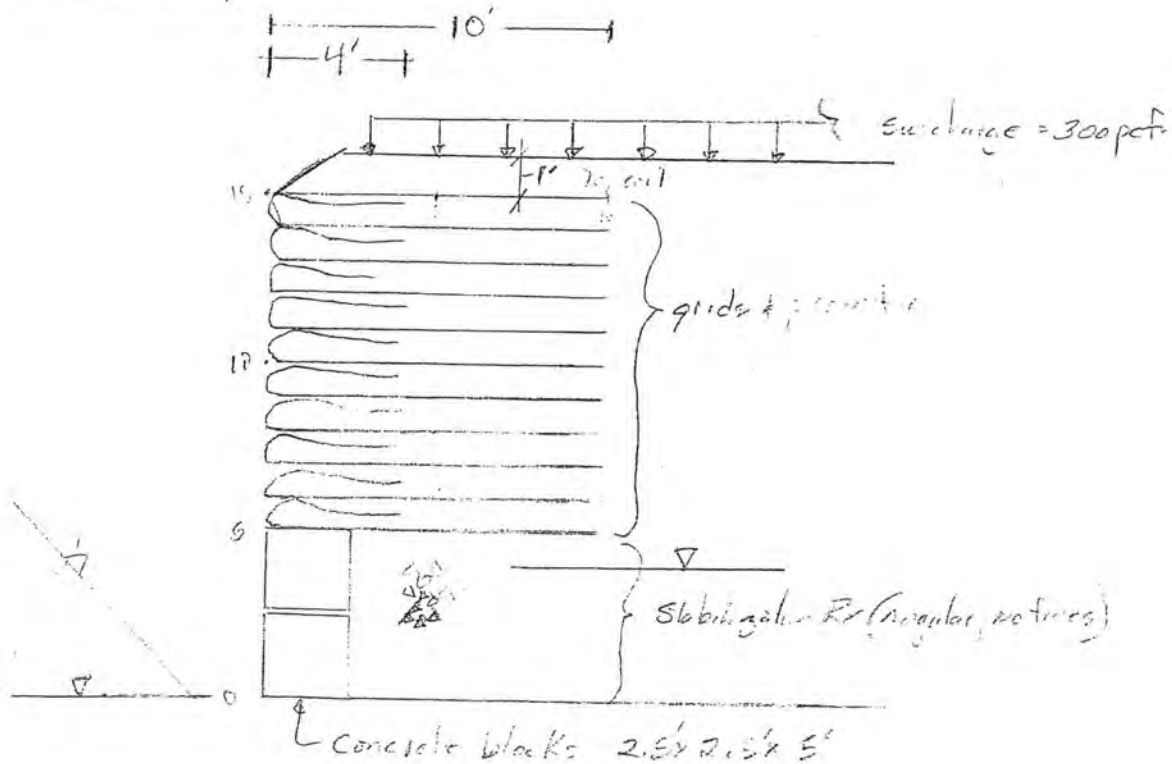
Please contact us with questions. Good luck.....

END

APPENDIX A

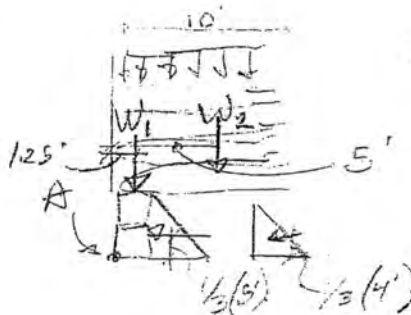
Calculations of Wall Stability

CALCS for block/MSE wall



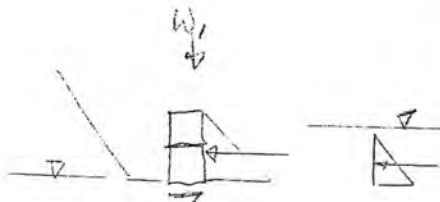
Check ① Overturning

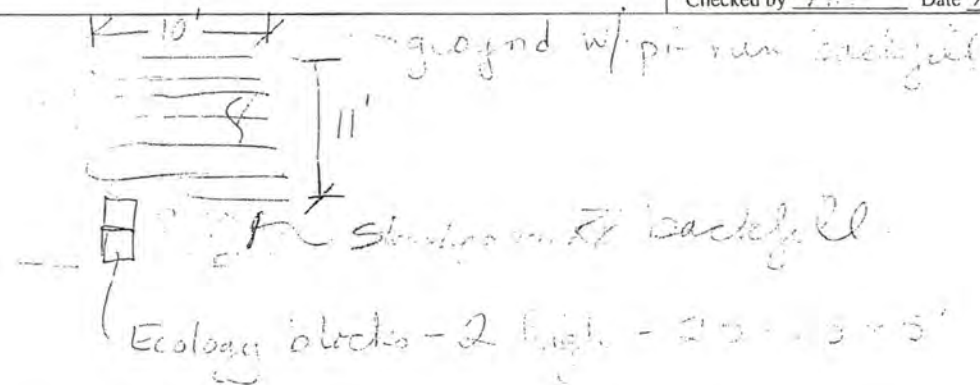
Sum moments about A



Factor
diameter
etc.

②





Evaluate the above construction for
sliding & overturning

Parameters:

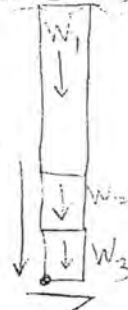
Unit	γ	K_a	coeff of friction
Quarry spalls	125 pcf	0.27	N/A
" pit run	125 pcf	0.3	N/A
" Concrete blocks	150 pcf	N/A	0.5

* Surcharge = 30 pcf

* Concrete = 150 pcf

Evaluate for Overturning

"Load on
base
of
blocks"



$$W_1 = 125 \frac{\text{lb}}{\text{ft}^3} \times 11 \text{ ft} \times 2.5 \text{ ft} \times 1 \text{ ft}$$

$$= 3437.5 \text{ lbs}$$

$$W_2 = 150 \frac{\text{lb}}{\text{ft}^3} \times 2.5' \times 2.5' \times 1 \text{ ft}$$

$$= 937.5 \text{ lbs}$$

$$W_3 = 150 \times 2.5 \times 2.5 \times 1 \text{ ft}$$

$$= 937.5 \text{ lbs}$$

Resisting Force

$$W = W_1 + W_2 + W_3 = 5312.5 \text{ lbs} = 5.3 \text{ kip/ft}$$

ignore surcharge in this area

Overturning Force

P_A = soil + surcharge + hydrostatic

$$P_{\text{soil}} = \frac{1}{2} H^2 \gamma K_a \Rightarrow \frac{1}{2} (0.125 \times 5^2 (0.27)) = 0.42 \text{ k/ft}$$

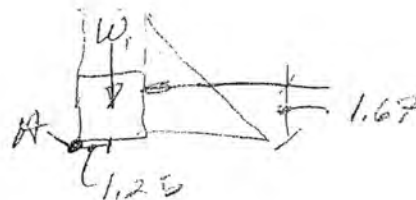
$$P_{\text{hyd}} = \frac{1}{2} H^2 \gamma \Rightarrow \frac{1}{2} (0.0624) 2^2 = 0.5 \text{ k/ft}$$

$$P_{\text{surcharge}} = q \cdot K_a \Rightarrow 0.3 (11' (0.125) + 0.3) = 0.46 \text{ k/ft}$$

300 ft

$$1.78 \text{ k/ft}$$

Sum Moments - A A



$$FS = \frac{\text{Resisting}}{\text{driving}} = \frac{1.25(5.3)}{1.67(1.38)}$$

$$6.6 \text{ ft} - \# \leftrightarrow 2.3 \text{ ft} - \#$$

$$FS = 6.6 / 2.3 = 2.8 \text{ OK against overturning}$$

FS sliding — Coeff friction = 0.5

— Resisting: $5.3(0.5) = 2.65 \text{ pounds/ft}$

— driving: $1.38 = 1.38$

$$FS = 1.92 \text{ OK}$$

Wall is stable

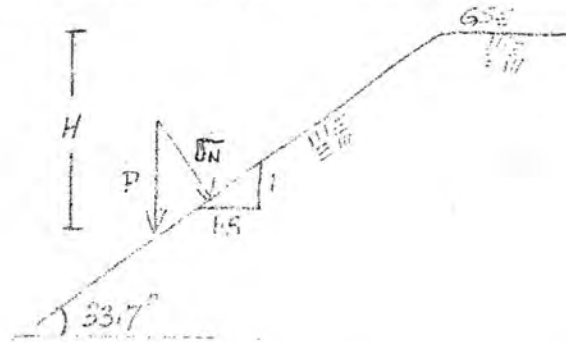


Attachment D
Liner Puncture Calculations

Evaluate Geomembrane Puncture Strength

① Calculate Pressure on the geomembrane

- Case 1: Geomembrane on a 1.5:1 slope.



$P(\text{overburden pressure}) = \gamma H$, $N(\text{pressure normal to geom}) = P \cos(33.7)$

$H_{\text{max}} = 16 \text{ feet}$

$\gamma = 120 \text{ PCF}$ (approximate unit weight for stabilization agg.)

$\sigma_{N \text{ max}} = \frac{120 \times 16 \text{ ft}}{1.5} \cos 33.7 = 1600 \text{ PSF}$, $\sigma_{N \text{ (avg)}} = 800 \text{ PSF}$

- Case 2: Geomembrane in vertical

$P_{\text{max}} = 120 \times 16 = 1920 \text{ PSF}$

$K_0 \approx 0.45$ (At Rest Lateral)

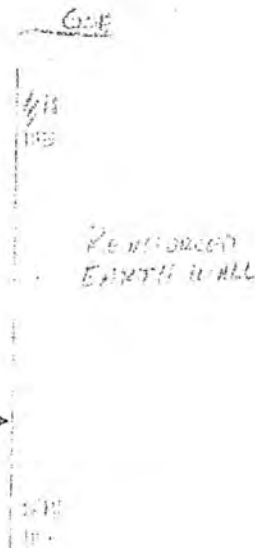
From Lamb & Whitman

$\sigma_{H \text{ max}} = 1920 \times 0.45 = 864 \text{ PSF}$

$\sigma_{H \text{ (avg)}} = 432 \text{ PSF}$

LOADING SUMMARY

	MAX PRESSURE	AVG PRESSURE
Case 1	1600 PSF	800 PSF
Case 2	864 PSF	432 PSF





② Calculate the true Strength of the Geomembrane

For 60mil HDPE Tensile resistance is 90LB by ASTM 4883

For 35mil Geol Guard Tensile resistance is 60LB by ASTM 4883

The formula used to find P_f a geomembrane under stone, loaded by liquid is given by "Analysis of Geomembrane Failure", Giroud, Budy, Twardoch, and Siderman, Geosynthetic International, 1995

$$P_f = \frac{d_{gs} F_p}{d_s^2 d_p}$$

Where:

P_f = Pressure between a geomembrane and a stone when failure (P_f)

F_p = Geomembrane resistance pressure measured in a probe test (N)

d_{gs} = Diameter of the geomembrane stress concentration (mm)

d_p = Diameter of the probe in a laboratory test (mm)

d_s = Diameter of a stone (mm)

$$\text{For 60 mil } F_p = 90\text{LB} \times \frac{4.45\text{Newtons}}{\text{LB}} = 400\text{Newtons}$$

$$\text{For 35 mil } F_p = 60\text{LB} \times \frac{4.45\text{Newtons}}{\text{LB}} = 267\text{Newtons}$$

$$\text{For 60 mil } d_p = 0.8\text{mm (ASTM 4883) Probe diameter}$$

$$\text{For 35 mil } d_p = 1\text{-inch} = 25.4\text{mm}$$

For Stabilization Aggregate:

$$d_s = 25.4\text{mm (Avg) Use 50.8 to Account for Stone on Both Sides of the Geomembrane} = 0.106\text{Meters}$$

$$d_{gs} = 1\text{mm (Conservative Value for Angular Agg.)}$$

$$\text{For 60mil } P_f = \frac{1\text{mm (100N)}}{(0.106\text{m})^2 \cdot 0.8\text{mm}} = 139\text{KPa} = 2,900\text{PSF}$$

$$\text{For 35mil } P_f = \frac{1\text{mm (267N)}}{(0.106\text{m})^2 \cdot 25.4\text{mm}} = 29.2\text{KPa} = 610\text{PSF}$$

Project No. _____ Page 3 of 3
 Client RNSF Date 9/15/16
 Site McCormick By MJS
 Subject Geomembrane Puncture App. _____



(3) Summarize Factors of Safety

$$F_s = P_t / \sigma$$

Geomembrane	Case 1 (Max)	Case 1 (Avg)	Case 2 (Max)	Case 2 (Avg)
60 mil HDPE	$\frac{2900}{1600} = 1.8$	$\frac{2900}{800} = 3.6$	$\frac{2900}{860} = 3.3$	$\frac{2900}{430} = 6.7$
35 mil Cool Guard	$P_t < \sigma$	$P_t < \sigma$	$P_t < \sigma$	$P_t < \sigma$

60 mil HDPE is OK w/o fabric

35 mil Cool Guard will require fabric

Technical Paper by J.P. Giroud, K. Badu-Tweneboah and
K.L. Soderman

THEORETICAL ANALYSIS OF GEOMEMBRANE PUNCTURE

ABSTRACT: A theoretical analysis of the mechanism of geomembrane puncture based on a simple model is presented. The analysis shows that the geomembrane puncture resistance depends on the diameter of the contact area between the geomembrane and the puncturing object, the thickness of the geomembrane, and the tensile characteristics of the geomembrane. An equation is established that makes it possible to express the geomembrane puncture resistance measured in a probe test as a function of the geomembrane characteristics and the diameter of the probe. Predictions made with this equation are found to be consistent with the limited laboratory test data which were reviewed. The analysis is then used to establish a relationship between a geomembrane resistance to puncture measured in a laboratory probe test and the resistance to puncture of a geomembrane subjected to pressure applied by a liquid while resting on a layer of stones of approximately uniform size and shape. A special relationship is presented for the case of rounded stones. The paper also presents relationships between geomembrane resistances to puncture by stones under different sets of conditions characterized by the stone size and shape, and the geomembrane thickness and tensile characteristics. The use of these relationships is illustrated by design examples.

KEYWORDS: Geomembrane, Puncture resistance, Theoretical analysis, Puncture test, Stone.

AUTHORS: J.P. Giroud, Senior Principal, K. Badu-Tweneboah, Project Engineer, and K.L. Soderman, Project Engineer, GeoSyntec Consultants, 621 N.W. 53rd Street, Suite 650, Boca Raton, Florida 33487, USA, Telephone: 1/407-995-0900, Telefax: 1/407-995-0925.

PUBLICATION: *Geosynthetics International* is published by the Industrial Fabrics Association International, 345 Cedar St., Suite 800, St. Paul, Minnesota 55101, USA, Telephone: 1/612-222-2508, Telefax: 1/612-222-8215. *Geosynthetics International* is registered under ISSN 1072-6349.

DATES: Original manuscript received 31 May 1995, accepted 7 July 1995. Discussion open until 1 July 1996.

REFERENCE: Giroud, J.P., Badu-Tweneboah, K. and Soderman, K.L., 1995, "Theoretical Analysis of Geomembrane Puncture", *Geosynthetics International*, Vol. 2, No. 6, pp. 1019-1048.



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HDPE Textured Specifications(GRI-GM13)

PROPERTY	Frequency ¹	TEST METHOD	HT40 mil	HT60 mil	HT80 mil	HT100 mil
Thickness- (nominal) (mils)			40	60	80	100
Thickness- (min. average.) (mils)	per roll	D5994	38	57	76	95
• Lowest individual. of 8 of 10 values			36	54	72	90
• Lowest individual. of 10 values			34	51	68	85
TENSILE PROPERTIES (min. average.)	50,000 SF	D638 Type IV Specimen @ 2 in/min				
• Yield Strength (lb/in)			84	126	168	210
• Break Strength (lb/in)			60	90	120	150
• Break Elongation (%)			12	12	12	12
• Yield Elongation (%)			100	100	100	100
Tear Resistance (min. average.) (lb)	50,000 SF	D1004	28	42	56	70
Puncture Resistance (min. average.) (lb)	50,000 SF	D4833 FTMS 101/Method 2065 ²	60	90	120	150
Carbon Black Content (range) (%)	50,000 SF	D1603/D4218	2.0-3.0	2.0-3.0	2.0-3.0	2.0-3.0
Carbon Black Dispersion	50,000 SF	D5596	Note	Note	Note	Note
Density (min. average.) (g/cc)	Resin Batch	D1505/D792	0.940	0.940	0.940	0.940
Stress Crack Resistance (hr)	Resin Batch	D5397 (App.)	200	200	200	200
Dimensional Stability (max. average.) (%)	Resin Batch	D1204	±2	±2	±2	±2
Seam Properties		D4437				
1. Shear Strength, lb/in			80	120	160	200
2. Peel Strength, lb/in			59 & FTB	88 & FTB	118 & FTB	147 & FTB

¹ = Testing frequencies are rounded to the nearest full roll.

² = FTMS has been replaced with 4833. Value shown for comparison purposes only. Carbon Black Dispersion for 10 different views: all 10 in Categories 1 or 2.

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Coolguard™ liner meets the need for an effective oil resistant material for primary and secondary (long-term) containment of a broad range of chemicals, including both dilute acids and organics.

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Coolguard is dimensionally stable, has excellent UV resistance and does not require earthen cover.

Gauge, Nominal (Mils)	ASTM-D751	45 ±10%
Plies Reinforcing	6.5 Ounce	1
Tongue Tear (LBS Min.)	ASTM-D751 Procedure B	135 x 135 lbs.
Trapezoid Tear (LBS Min.)	ASTM-D1117 Section 14	75 x 75 lbs.
Grab Tensile (LBS Min.)	ASTM-D751 Procedure A	500x450 lbs.
Strip Tensile (LBS Min.)	ASTM-D751 Procedure B	400 x 300 lbs.
Ply Adhesion (LBS Min.)	ASTM-D751	10 lbs.
Hydrostatic Resistance (P.S.I. min.)	ASTM-D751 Procedure A	600 psi
Puncture Resistance (1" Ball)	ASTM-D751	600 lbs.
Low Temperature (Deg. F)	ASTM-D2136	-30° F
Dimensional Stability (% Max)	ASTM-D1204 (1 Hr. @ 212°F)	2% Max.

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Modification 4
Construction of Reinforced Earthwall

**Engineering Design Report/ Sampling and Analysis Plan
MINOR SITE MODIFICATION**

Site: Skykomish Levee

Modification Number: 4

Relevant EDR/SAP Section and Page Number: EDR: 4.4.4 Shoring, p 4-3, Shoring
Memo dated September 19, 2006

Date: October 19, 2006

Issue:

Field conditions did not allow dewatering of the excavation trench to the necessary elevation along the north side of the School. This water prevented ultrablocks from being placed in the trench.

Recommended Resolution:

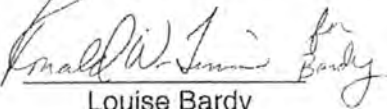
Tremiable concrete was used to provide a base for the reinforced earthwall.

Resolution Approved by Ecology:

Requested by:


RETEC personnel

Approved by:


Louise Bardy
Site Manager
Department of Ecology

See other side for instructions regarding use of this form.

P.E. License No. and Seal



Appendix K

Contractor Submittals

- ▶ Submittal 1 Liners
- ▶ Submittal 2 Aggregate Backfill Information
- ▶ Submittal 3 Alternate Riverbed Fill Information
- ▶ Submittal 4 ATB for Stockpile Area and Roads
- ▶ Submittal 5 Super Sack Certificate of Conformity
- ▶ Submittal 6 MSDSs for Water Treatment Materials
- ▶ Submittal 7 30-Inch Check Valve
- ▶ Submittal 8 Shoring Design
- ▶ Submittal 9 Qualification of Mayes Testing Engineers, Inc.
- ▶ Submittal 10 Riverbed Fill Information
- ▶ Submittal 11 Technical Execution Plan
- ▶ Submittal 12 Riverbed Fill Information
- ▶ Submittal 13 Geotextile Information
- ▶ Submittal 14 Stabilization Aggregate Information
- ▶ Submittal 15 Armor Rock and Sour Zone Material Information
- ▶ Submittal 16 Drainage Structure and Pipe Information
- ▶ Disposal Tickets for Oily Water, Demolition Debris, and Septage
- ▶ Survey Points for Final Grade

Submittal 1
Liners

Letter of Submittal

Wilder Construction Company
1525 E. Marine View Drive
Everett, WA 98201



Project	Skykomish Levee Remediation	Date	5/30/2006
		Submittal Number	1
		Return By	6/1/2006

To: The RETEC Group, Inc.
Mike Byers
Project Manager
1011 SW Klickitat Way
Seattle, WA 98134

From: Wilder Construction Company
Travis Walken
Project Manager
1525 E. Marine View Drive
Everett, WA 98201

Bid Item	Spec Reference	Copies	Submittal Description	Drawing Number
6	Section 02255		PVC Liner	
V	Section 02114		HDPE Liner	

Remarks by
Contractor

Liner submittals

Request for Approval of Material

Contract Skykomish Levee Remediation		FA Number	SR	Date
Section		County		
Contractor		Subcontractor		
Wilder Construction Company		Travis Walken		

For assistance in completing, see Instructions and Example

[illegible]

Approval Action Codes for use by Project Engineer and State Materials Laboratory

1. Conditionally Approved: Acceptance based upon 'Satisfactory' Test Report for samples of materials to be incorporated into project.
2. Conditionally Approved: Submit Mfg. Cert. of Compliance for 'Approval' prior to use of material.
3. Conditionally Approved: Submit Catalog Cuts for 'Approval' prior to use of material.
4. Conditionally Approved: Submit Shop Drawings for 'Approval' prior to fabrication of material.
5. Conditionally Approved: Only 'Approved for Shipment' or 'WSDOT Inspected' material *shall* be used.
6. Conditionally Approved: Submit Materials Certificate of Origin to Project Engineer.
7. Approval Pending: Request Transmitted to State Materials Laboratory for Approval Action.
8. Source Approved:
9. Approval Withheld: Submit samples for preliminary evaluation.
10. Approval Withheld:
- 11.

Remarks.

Project Engineer Distribution

- ☐ Contractor ☐ Region Materials
☐ Region Operations Engineer ☐ State Materials Lab

State Materials Engineer Distribution

- ☐ General File ☐ Signing Inspection
☐ Fabrication Inspection ☐ Other



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Polyvinyl Chloride (PVC) Specification

Property	Test Method	Specified Values				
Thickness Mils (Nominal $\pm$ 5%)	ASTM-D 5199	10	20	30	40	50
Specific Gravity, min	ASTM-D792	1.20	1.20	1.20	1.20	1.20
Minimum Tensile Properties	ASTM-D882	2300	2300	2300	2300	2300
Breaking Factor (pds, in, width)	ASTM-D882	24	48	73	97	121
Elongation at Break (%)	ASTM-D882	250	360	360	400	425
Modulus (force) at 100%						
Elongation pds, in, width (kN/m)	ASTM-D882	10.0 (1.8)	21.0 (3.7)	32.0 (5.6)	40.0 (7.0)	50.0 (8.8)
Tear Resistance, lbs., min (N, min)	ASTM-D1004	2.5 (11)	6 (27)	8 (35)	10 (44)	13 (58)
Low Temperature Degrees C	ASTM-D1790	-23	-26	-29	-29	-29
Dimensional Stability, % Change, Max	ASTM-D1204 (212 Deg F, 15 min)	4.0	4.0	3.0	3.0	3.0
Water Extraction Max % wt loss	ASTM-D3083	0.15	0.15	0.15	0.20	0.20
Volatility Percentage loss, max	ASTM-D1203	1.5	0.90	0.70	0.50	0.50
Resistance to Soil Burial % change, max in original value	ASTM-D3083					
Braking Factor		-5	-5	-5	-5	-5
Elongation, @ Break		-20	-20	-20	-20	-20
Modulus @ 100% Elongation		+20	+20	+20	+20	+20
Hydrostatic Resistance, psi, min.	ASTM-D751	42	68	100	120	150
Factory Seam Requirements	Dielectric Fusion Weld					
Bonded Seam Strength (Factory seam breaking factor, ppi width)	ASTM-D3083	20.0	38.4	58.4	77.6	96
Peel Adhesion, lbs/ in.min.	ASTM-D413	10	12.5	15	15	15
Field Seam Requirements	Bodied Solvent or Wedge Weld					
Bonded Seam	ASTM-D3083	18.7	36.8	55.2	73.6	96

"Celebrating 31 Years of Service 1973 - 2004"

The information and data contained herein are believed to be accurate and reliable. Northwest Linings makes no warranty of any kind and accepts no responsibility for the results obtained through application of this information



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HDPE Textured Specifications

PROPERTY	Frequency ¹	TEST METHOD	HR40 mil	HR60 mil	HR80 mil	HR100 mil
Thickness- (nominal) (mils)			40	60	80	100
Thickness- (min. average.) (mils)	per roll	D1593	38	57	76	95
• Lowest individual.			36	54	72	90
TENSILE PROPERTIES (min. average.)	50,000 SF	D638 Type IV Specimen @ 2 in/min				
• Yield Strength (lb/in)			84	126	168	210
• Break Strength (lb/in)			60	90	120	150
• Break Elongation (%)			12	12	12	12
• Yield Elongation (%)			100	100	100	100
Tear Resistance (min. average.) (lb)	50,000 SF	D1004	28	42	56	70
Puncture Resistance (min. average.) (lb)	50,000 SF	D4833 FTMS 101/Method 2065 ²	60	90	120	150
Carbon Black Content (range) (%)	50,000 SF	D1603/D4218	2.0-3.0	2.0-3.0	2.0-3.0	2.0-3.0
Carbon Black Dispersion	50,000 SF	D5596	Note	Note	Note	Note
Density (min. average.) (g/cc)	Resin Batch	D1505/D792	0.940	0.940	0.940	0.940
Stress Crack Resistance (hr)	Resin Batch	D5397 (App.)	200	200	200	200
Dimensional Stability (max. average.) (%)	Resin Batch	D1204	±2	±2	±2	±2
Seam Properties		D4437				
1. Shear Strength, lb/in			80	120	160	200
2. Peel Strength, lb/in			59 & FTB	88 & FTB	118 & FTB	147 & FTB

1 = Testing frequencies are rounded to the nearest full roll.

2 = FTMS has been replaced with 4833. Value shown for comparison purposes only. Carbon Black Dispersion for 10 different views: all 10 in Categories 1 or 2.

"Celebrating 31 Years of Service 1973 - 2006"

HDPE GEOMEMBRANE

CHEMICAL RESISTANCE

CHEMICAL NAME	Concentration	EXPOSURE TEMPERATURE	
		(73F/23C)	(140F/60C)
ACETIC ACID	50 to 80%	R	R to L
ACETONE	100%	R to L	L
ACIDS, AROMATIC	N/A	R	R
ALCOHOL, BENZYL	N/A	R to L	R
ALCOHOL ETHYL	N/A	R	R to L
ALUM	Sol	R	R
AMMONIA, GAS	100%	R	R
ARSENIC ACID AQUEOUS	Saturated Solution	R	R
BARIUM CHLORIDE	Saturated Solution	R	R
BATTERY ACID	N/A	R	R
BENZENE	PURE	L	L to N
BROMIC ACID	N/A	N	N/A
BUTANE, GAS	100%	R	R
CALCIUM CHLORIDE	Saturated Solution	R	R
CHLORIC ACID	20%	R	N/A
CHLOROBENZENE	N/A	L to N	N
CHROMIC ACID	80%	R	N
CREOSOTE	N/A	R	R
CRUDE OIL	N/A	L	N/A
DIESEL FUEL	N/A	R	L
ETHANOL	40%	R	L
ETHER	N/A	R to L	L
ETHYLBENZENE	PURE	L	N/A
FUEL OIL	N/A	R	L
GAS, NATURAL	N/A	R	N/A
GASOLINE	N/A	R to L	L to N
HEATING OIL	N/A	L	N/A
HEXANE	N/A	R	L
JET FUELS, JP-4&JP-5	N/A	R	N/A

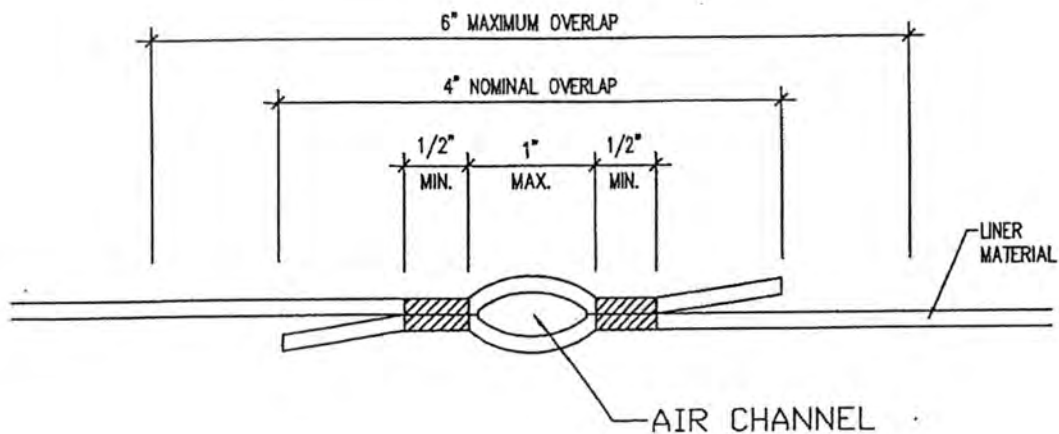
KEROSENE	N/A	L	L to N
MAGNESIUM CHLORIDE	Saturated Solution	R	R
MANGANESE SULPHATE	N/A	R to L	R
METHANE	N/A	R	N/A
METHYL BENZENE	N/A	L	N
MIXED ACIDS, SULFURIC & NITRIC	N/A	N	N/A
NAPHTALENE	N/A	R	L
NITRIC ACID	0-30%	R	R
NITRIC ACID	>70%	L to N	N
PHOSPHORIC ACID	80-100%	R	L
POTASSIUM CHLORIDE, AQUEOUS	ALL	R	R
POTASSIUM NITRATE	Saturated Solution	R	R
PROPANE, GAS	N/A	R	R
PROPYLENE GLYCOL	N/A	R	R
SODIUM ACETATE, AQUEOUS	ALL	R	R
SODIUM CHLORIDE	Saturated Solution	R	R
SODIUM SALTS, AQUEOUS	N/A	R	N/A
STYRENE	N/A	L	N
SULPHURIC ACID	<90%	R	L
TOLUENE	100%	L to N	N
TRICHLOROBENZENE	N/A	N	N
TRICHLOROETHYLENE	PURE	L to N	N
VEGETABLE OILS	N/A	R	R
XYLENE	N/A	L to N	N
ZINC CHLORIDE	Saturated Solution	R	R

R : Resistant

L : Limited Application

N : Non-Resistant

The above data is submitted for informational purposes only. It does not provide any certification for a specific project and/or application. For different chemicals and/or further details, please contact your Sales Representative.



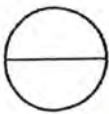
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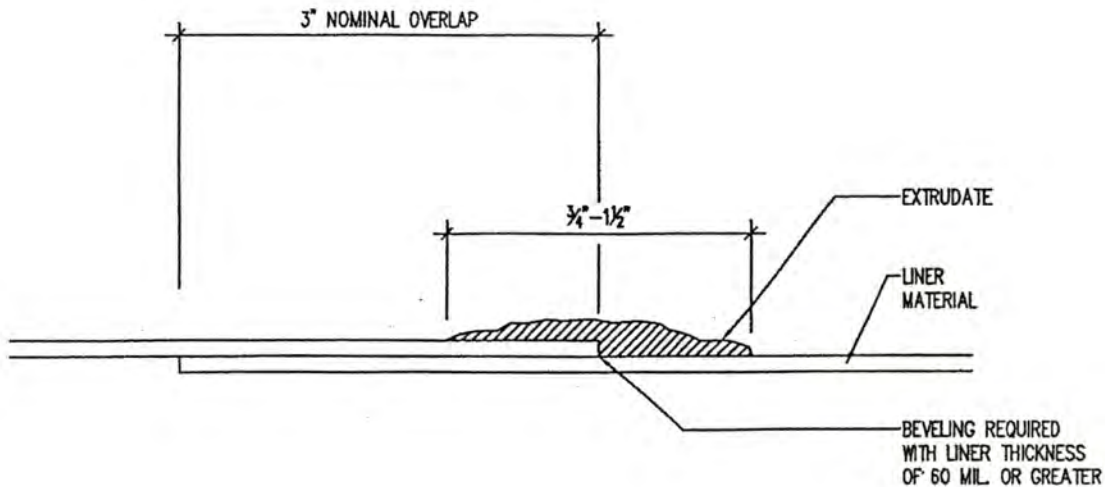
AIR PRESSURE TESTING IS THE PRIMARY METHOD FOR NON DESTRUCTIVE TESTING DOUBLE FUSION WELDING

DOUBLE FUSION WELD

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				JOB NO.	
				DATE:	CHECKED:
				BY:	SCALE:



NOTES:

LINER SHEETS TACK WELDED TOGETHER AT OVERLAP TO FORM TEMPORARY BOND PRIOR TO WELDING

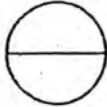
GRINDING NOT TO EXCEED 1/4" PAST 'SQUEEZE-OUT' ON EITHER SIDE. PROPER CARE SHOULD BE TAKEN IN NOT REMOVING TOO MUCH MATERIAL WHEN GRINDING

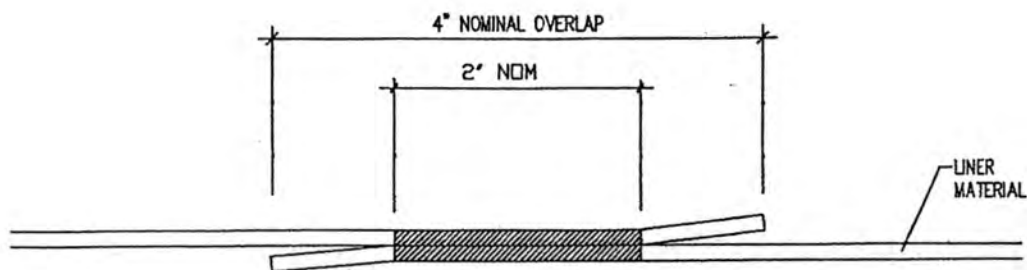
VACUUM TESTING IS THE NONDESTRUCTIVE SEAM TEST METHOD FOR EXTRUSION WELDS

EXTRUSION WELD

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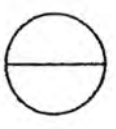
SHEET NO.		NORTHWEST LININGS & GEOTEXTILE PRODUCTS, Inc. www.northwestlinings.com 21000 77TH AVE. SOUTH KENT, WA. 98032 (253) 872-0244 (253) 872-0245 FAX		JOB NAME:			
				JOB NO.			
				DATE:		CHECKED:	
				BY:		SCALE:	



NOTES:

SINGLE TRACK FUSION WELD 2" WIDE SEAM NTS

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				JOB NO.			
				DATE:	1 29 04	CHECKED:	
				BY:		SCALE:	



(206) 624-9349 Phone
(206) 624-2839 Fax
www.retec.com

Letter of Transmittal

TO: Travis Walken, Wilder Construction DATE: June 6, 2006
RE: Response to Submittals 1, 2, and 3 PROJECT NO: BN050-19390

☐ For Approval	☐ Approved as Submitted	☐ Resubmit _____ Copies for Approval
☐ For Your Use	☐ Approved as Noted	☐ Submit _____ Copies for Distribution
☒ As Requested	☒ Returned for Corrections	☐ Return _____ Corrected Prints
☐ For Review & Comment	☐ Other: _____	

Remarks:

Submittal 1-Liner Submittal:

PVC liner should have UV resistance (02255-2.02 B2)- this is not indicated in the product specification.
Are the different seam styles applicable to both types of liners?

Submittal 2- Aggregate Submittal:

Structural fill, base course, and gravel backfill have specified sand equivalent values that are not shown in the submittal. Additionally, CSBC has a specified % fracture that is not shown in the submittal and the gradation analysis does not meet the specification for 3/8" square sieve.

Submittal 3- Alternate Riverbed Fill Material:

Gradation analysis does not meet the specification for the # 4, #40, or #200 size sieve.

Should you have any questions, please feel free to call me.

Sincerely,

The RETEC Group, Inc.

Michael Byers

cc: Sarah Albano, Dennis Metz
RETEC file BN050-19390

Submittal 2
Aggregate Backfill Information



(206) 624-9349 Phone
(206) 624-2839 Fax
www.retec.com

Letter of Transmittal

TO: Travis Walken, Wilder Construction DATE: June 6, 2006
RE: Response to Submittals 1 & 2 PROJECT NO: BN050-19390

☐ For Approval	☐ Approved as Submitted	☐ Resubmit	_____ Copies for Approval
☐ For Your Use	☐ Approved as Noted	☐ Submit	_____ Copies for Distribution
☒ As Requested	☒ Returned for Corrections	☐ Return	_____ Corrected Prints
☐ For Review & Comment	☐ Other:	_____	

Remarks:

Submittal 1-Liner Submittal:

- PVC liner should have UV resistance (02255-2.02 B2)- this is not indicated in the product specification. What thickness of PVC liner is proposed? Submittal is considered incomplete.
- HDPE liner is accepted with no exceptions.

Submittal 2-Aggregate Submittal:

- Structural fill and base course have specified sand equivalent values that are not shown in the submittal. In addition, Structural Fill has chemical testing requirements. Gradations supplied are consistent with the project specifications but submittals are considered incomplete.
- CSBC as base course (02060 2.03) has a specified % fracture that is not shown in the submittal, and the gradation analysis does not meet the specification for 3/8" square sieve. For use as a temporary material above and below the liner however, the material is accepted with no exceptions.
- CSBC as gravel backfill for pipe bedding (02060 2.04) has a specified sand equivalent value that was not provided. The gradation supplied is consistent with the project specifications. Submittal is considered incomplete.

Should you have any questions, please feel free to call me.

Sincerely,

The RETEC Group, Inc.

Michael Byers

cc: Sarah Albano, Dennis Metz
RETEC file BN050-19390

The RETEC Group, Inc.
1011 SW Klickitat Way
Suite 207
Seattle, WA 98134-1162



(206) 624-9349 Phone
(206) 624-2839 Fax
www.retec.com

Letter of Transmittal

TO: Travis Walken, Wilder Construction DATE: June 13, 2006
RE: Revised Response to Submittal 1 PROJECT NO: BN050-19390

☐ For Approval	☐ Approved as Submitted	☐ Resubmit _____ Copies for Approval
☐ For Your Use	☒ Approved as Noted	☐ Submit _____ Copies for Distribution
☒ As Requested	☐ Returned for Corrections	☐ Return _____ Corrected Prints
☐ For Review & Comment	☐ Other: _____	

Remarks:

Revised response to Submittal 1

Submittal No. 1 was rejected due to the apparent lack of UV protection of the material submitted. The material supplier has indicated that the submitted material will be UV resistant for about a year. This material will be accepted as noted with the contractor accepting responsibility for UV damage should it occur within the time frame of the project.

Should you have any questions, please feel free to call me.

Sincerely,

The RETEC Group, Inc.

Michael Byers

cc: Sarah Albano, Dennis Metz
RETEC file BN050-19390

The RETEC Group, Inc.
1011 SW Klickitat Way
Suite 207
Seattle, WA 98134-1162



(206) 624-9349 Phone
(206) 624-2839 Fax
www.retec.com

Letter of Transmittal

TO: Travis Walken, Wilder Construction DATE: August 2, 2006
RE: 2nd Revised Response to Submittal 1 PROJECT NO: BN050-19390

☐ For Approval	☒ Approved as Submitted	☐ Resubmit	_____ Copies for Approval
☐ For Your Use	☐ Approved as Noted	☐ Submit	_____ Copies for Distribution
☒ As Requested	☐ Returned for Corrections	☐ Return	_____ Corrected Prints
☐ For Review & Comment		☐ Other:	_____

Remarks:

Submittal 1- PVC Liner

The submittal for the PVC liner together with the June 6, 2006 e-mail from Paul Gilmore to Quinn Golden meets specifications and is accepted with no exceptions.

Should you have any questions, please feel free to call me.

Sincerely,

The RETEC Group, Inc.

Michael Byers

cc: Sarah Albano, Dennis Metz
RETEC file BN050-19390



RETEC

Letter of Transmittal

TO: Travis Walken, Wilder Construction **DATE:** August 2, 2006

RE: 2nd Revised Response to Submittal 1 **PROJECT NO:** BN050-19390

☐ For Approval ☒ Approved as Submitted ☐ Resubmit _____ Copies for Approval
☐ For Your Use ☐ Approved as Noted ☐ Submit _____ Copies for Distribution
☒ As Requested ☐ Returned for Corrections ☐ Return _____ Corrected Prints
☐ For Review & Comment ☐ Other: _____

Remarks:

Submittal 1- PVC Liner

The submittal for the PVC liner together with the June 6, 2006 e-mail from Paul Gilmore to Quinn Golden meets specifications and is accepted with no exceptions.

Should you have any questions, please feel free to call me.

Sincerely,

The RETEC Group, Inc.

Michael Byers

cc: Sarah Albano, Dennis Metz
RETEC file BN050-19390

Letter of Submittal

Wilder Construction Company
1525 E. Marine View Drive
Everett, WA 98201



Project	Skykomish Levee Remediation	Date	5/30/2006
		Submittal Number	2
		Return By	6/1/2006

To: The RETEC Group, Inc.
Mike Byers
Project Manager
1011 SW Klickitat Way
Seattle, WA 98134

From: Wilder Construction Company
Travis Walken
Project Manager
1525 E. Marine View Drive
Everett, WA 98201

Bid Item	Spec Reference	Copies	Submittal Description	Drawing Number
V	Section 02060		Base Course	
V	Section 02060		Gravel Borrow (Structural Fill)	
V	Section 02060		CSTC (Gravel Backfill for Pipe Zone Bedding)	

**Remarks by
Contractor**

Aggregate Submittals

Request for Approval of Material

For assistance in completing, see Instructions and Example

DOT Form 350-071 EF
Revised 8/04



CSTC
 (GRAVEL BACKFILL FOR)
 PIPE ZONE BEDDING

Gradation Test Report

Plant 1875-NW Aggregate
 Product 1181800-WSDOT Top Course
 Specification WSDOT Top Course



Sample Information

Sample No 1215926422
 Date Sampled 05/18/2006 12:35
 Date Completed 05/18/2006 13:35
 Sampled By Greg Page
 Tested By Greg Page
 Type Production
 Method Stockpile
 Location 1879 Proctor Creek
 Process
 Ledge
 Other

Weather Sunny
 Temp 80
☐ Split Sample Sequence
☐ Resample Code
 Borehole
 Depth Top/Bottom
 Test Note
 From loader-mixed pad

Gradation Results

Unit	Moist Wt	Dry Wt	Wash Wt	Moisture %	Wash Loss %	
g	1977.00	1933.00		2.3		
Sieve	Mass Retained	Cum Mass Retained	Ind % Retained	% Retained	% Passing	Target Specification Comment
3/4" (19)	0.0	0.0	0.0	0.0	100.0	100
1/2" (12.5)	37.0	37.0	1.9	1.9	98.1	100
#4 (4.75)	867.0	904.0	44.9	46.8	53.2	20-80
#40 (0.425)	826.0	1730.0	42.7	89.5	10.5	3-24
#200 (0.075)	138.0	1868.0	7.14	96.64	3.36	0-10
PAN (0)	65.0	1933.0	3.38	100.00	0.00	

aggQC

Rinker Materials

STRUCTURAL FILL
(Gravel Borrow)



Gradation Test Report

Plant 1875-NW Aggregate
Product 1183830-Gravel Borrow
Specification WSDOT Gravel Borrow



Sample Information

Sample No -216004508
Date Sampled 11/18/2005 11:07
Date Completed 11/18/2005 11:07
Sampled By Plant Personnel
Tested By Plant Personnel
Type Production
Method Stockpile
Location 1879 Proctor Creek
Process
Ledge
Other

Weather
Temp
☐ Split Sample Sequence
☐ Resample Code
Borehole
Depth Top/Bottom
Test Note

Gradation Results

Unit	Moist Wt	Dry Wt	Wash Wt	Moisture %	Wash Loss %		
g		2255.70	2217.10		1.7		
Sieve	Mass Retained	Cum Mass Retained	Ind % Retained	% Retained	% Passing	Target Specification	Comment
4" (100)						100-100	
2" (50)	0.0	0.0	0.0	0.0	100.0	75-100	
#4 (4.75)	1100.0	1100.0	48.8	48.8	51.2	50-80	
#40 (0.425)	932.3	2032.3	41.3	90.1	9.9	0-30	
#200 (0.075)	164.4	2196.7	7.29	97.38	2.62	0-7	
PAN (0)	20.4	2217.1	0.90	100.00	0.00		

aggQC

Rinker Materials

CSB C



Gradation Test Report

Plant 1875-NW Aggregate
 Product 1181799-WSDOT Base Course
 Specification WSDOT Base Course



Sample Information

Sample No 193948640
 Date Sampled 02/21/2006 11:05
 Date Completed 02/21/2006 12:05
 Sampled By Greg Page
 Tested By Greg Page
 Type Production
 Method Stockpile
 Location 1879 Proctor Creek
 Process
 Ledge
 Other

Weather Cloudy
 Temp 40
☐ Split Sample Sequence
☐ Resample Code
 Borehole
 Depth Top/Bottom
 Test Note
 From loader-mixed pad

Gradation Results

Unit	Moist Wt	Dry Wt	Wash Wt	Moisture %	Wash Loss %		
g	3516.00	3451.00		1.9			
Slave	Mass Retained	Cum Mass Retained	Ind % Retained	% Retained	% Passing	Target Specification	Comment
1 1/4" (31.5)	0.0	0.0	0.0	0.0	100.0	100-100	
1" (25)	154.0	154.0	4.5	4.5	95.5	80-100	
5/8" (16)	1270.0	1424.0	36.8	41.3	58.7	50-80	
#4 (4.75)	971.0	2395.0	28.1	69.4	30.6	25-45	
#40 (0.425)	837.0	3232.0	24.3	93.7	6.3	3-18	
#200 (0.075)	155.0	3387.0	4.49	98.15	1.85	0-7.5	
PAN (0)	64.0	3451.0	1.85	100.00	0.00		

aggOC

Rinker Materials

TOTAL P.04

05/25/2006 THU 12:01 [TX/RX NO 9636] 004

The RETEC Group, Inc.
1011 SW Klickitat Way
Suite 207
Seattle, WA 98134-1162



(206) 624-9349 Phone
(206) 624-2839 Fax
www.retec.com

Letter of Transmittal

TO: Travis Walken, Wilder Construction DATE: June 6, 2006
RE: Response to Submittals 1, 2, and 3 PROJECT NO: BN050-19390

☐ For Approval	☐ Approved as Submitted	☐ Resubmit	_____ Copies for Approval
☐ For Your Use	☐ Approved as Noted	☐ Submit	_____ Copies for Distribution
☒ As Requested	☒ Returned for Corrections	☐ Return	_____ Corrected Prints
☐ For Review & Comment	☐ Other:		_____

Remarks:

Submittal 1-Liner Submittal:

PVC liner should have UV resistance (02255-2.02 B2)- this is not indicated in the product specification.
Are the different seam styles applicable to both types of liners?

Submittal 2- Aggregate Submittal:

Structural fill, base course, and gravel backfill have specified sand equivalent values that are not shown in the submittal. Additionally, CSBC has a specified % fracture that is not shown in the submittal and the gradation analysis does not meet the specification for 3/8" square sieve.

Submittal 3- Alternate Riverbed Fill Material:

Gradation analysis does not meet the specification for the # 4, #40, or #200 size sieve.

Should you have any questions, please feel free to call me.

Sincerely,

The RETEC Group, Inc.

Michael Byers

cc: Sarah Albano, Dennis Metz
RETEC file BN050-19390

Letter of Submittal

Wilder Construction Company
1525 E. Marine View Drive
Everett, WA 98201



Project	Skykomish Levee Remediation	Date	6/9/2006
		Submittal Number	2a
		Return By	

To: The RETEC Group, Inc.
Mike Byers
Project Manager
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

From: Wilder Construction Company
Travis Walken
Project Manager
1525 E. Marine View Drive
Everett, WA 98201

Bid Item	Spec Reference	Copies	Submittal Description	Drawing Number
V	Section 02060 2.04		CSTC	

**Remarks by
Contractor**

Attached is the requested SE values for Gravel Backfill for Pipe Bedding (CSTC). Also attached is a gradation of CSTC which was approved for use, per RFI No. 3.

Request for Approval of Material

For assistance in completing, see Instructions and Example

[illegible]

Project Engineer	Date	State Materials Engineer	Date
------------------	------	--------------------------	------

1. Conditionally Approved: Acceptance based upon 'Satisfactory' Test Report for samples of materials to be incorporated into project.
2. Conditionally Approved: Submit Mfg. Cert. of Compliance for 'Approval' prior to use of material.
3. Conditionally Approved: Submit Catalog Cuts for 'Approval' prior to use of material.
4. Conditionally Approved: Submit Shop Drawings for 'Approval' prior to fabrication of material.
5. Conditionally Approved: Only 'Approved for Shipment' or 'WSDOT Inspected' material *shall* be used.
6. Conditionally Approved: Submit Materials Certificate of Origin to Project Engineer.
7. Approval Pending: Request Transmitted to State Materials Laboratory for Approval Action.
8. Source Approved:
9. Approval Withheld: Submit samples for preliminary evaluation.
10. Approval Withheld:
- 11.

Remarks:

☐ General File ☐ Signing Inspection
☐ Fabrication Inspection ☐ Other

RINKER MATERIALS - SIEVE ANALYSIS



=====

DATE: 6/7/2006 MAT'L DESCR. Gravel backfill for Pipe Zone Bedding
 SOURCE Proctor Creek, stockpiled in Everett Sampled by: Greg Page
 TESTED BY: Greg/Aaron (Used same sample as Top Course)

=====

WET =	2557	DRY =	2469	WASHED =	2374	Fracture, % **
SIEVE SIZE	CUMULATIVE WT RETAINED	CUMULATIVE % RETAINED	% PASSING	SPEC LOW HIGH		
1-1/2"	0	0.0%	100.0% ✓	100 100		
1"	0	0.0%	100.0% ✓	75 100		
5/8"	50	2.0%	98.0% ✓	50 100		100
#4	1196	48.4%	51.6% ✓	20 80		95
#40	2189	88.7%	11.3% ✓	3 24		
#200	2360	95.6%	4.4% ✓	0 10		
PAN	2374					

MOISTURE = 3.6% WASH LOSS = 3.8% ✓

Sand equivalent = 78

** WSDOT has no spec governing fractures for this product

RINKER MATERIALS - SIEVE ANALYSIS



=====

DATE: 8/7/2006 MAT'L DESCR. W8DOT TOP COURSE
 SOURCE Proctor Creek, stockpiled in Everett Sampled by: Greg Page
 TESTED BY: Greg/Aaron

=====

WET =	2557	DRY =	2469	WASHED =	2374	
SIEVE SIZE	CUMULATIVE WT RETAINED	CUMULATIVE % RETAINED	% PASSING	SPEC LOW HIGH		Fracture, %
3/4"	0	0.0%	100.0%		100	
1/2"	254	10.3%	89.7%	80	100	95
#4	1196	48.4%	51.6%	46	80	95
#40	2189	88.7%	11.3%	8	24	
#200	2380	95.6%	4.4%	0	10	
PAN	2374					

MOISTURE = 3.6% WASH LOSS = 3.8%

Sand equivalent = 78

TOTAL P.03



(206) 624-9349 Phone
(206) 624-2839 Fax
www.retec.com

Letter of Transmittal

TO: Travis Walken, Wilder Construction DATE: July 18, 2006
RE: Response to Submittal 2a PROJECT NO: BN050-19390

☐ For Approval	☒ Approved as Submitted	☐ Resubmit	_____ Copies for Approval
☐ For Your Use	☐ Approved as Noted	☐ Submit	_____ Copies for Distribution
☒ As Requested	☐ Returned for Corrections	☐ Return	_____ Corrected Prints
☐ For Review & Comment		☐ Other:	_____

Remarks:

Submittal 2a- CSTC Gravel Backfill for Pipe Bedding Sand Equivalent

The gravel backfill for pipe bedding sand equivalent submittal meets specifications and is accepted with no exceptions.

Should you have any questions, please feel free to call me.

Sincerely,

The RETEC Group, Inc.

Michael Byers

cc: Sarah Albano, Dennis Metz
RETEC file BN050-19390

Letter of Submittal

Wilder Construction Company
1525 E. Marine View Drive
Everett, WA 98201



Project	Skykomish Levee Remediation	Date	6/14/2006
		Submittal Number	2b
		Return By	

To: The RETEC Group, Inc.
Mike Byers
Project Manager
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

From: Wilder Construction Company
Travis Walken
Project Manager
1525 E. Marine View Drive
Everett, WA 98201

Bid Item	Spec Reference	Copies	Submittal Description	Drawing Number
V	Section 02060-2.01		Structural Fill	
V	Section 02060-2.03		Base Course	

Remarks by
Contractor

Re-submittal of Base Course material which includes the sand equivalent value as well as the % fracture per the engineer's response to Submittal No. 2.

Request for Approval of Material



Quality Test Report

Plant 1875-NW Aggregate
Product 1183930-Gravel Borrow
Specification WSDOT Gravel Borrow



Sample Information

Sample No -1423834300
Date Sampled 06/08/2006 00:00
Date Completed 06/09/2006 00:00
Sampled By Greg Page
Tested By Greg Page
Type Investigative
Method Stockpile
Location 1879 Proctor Creek
Process
Ledge
Other

Weather
Temp
☐ Split Sample Sequence
☐ Resample Code
Borehole
Depth Top/Bottom
Test Note
For Steve Lindjord job

Geosynthetics sieves
1-1/4" = 100%; 1" = 97.8%
ok for geosynthetics

Gradation Results

Unit	Moist Wt	Dry Wt	Wash Wt	Moisture %	Wash Loss %			
g	3183.00	3080.00	2998.00	3.3	2.7			
Sieve	Mass Retained	Cum Mass Retained	Ind % Retained	% Retained	% Passing	Target	Specification	Comment
4" (100)	0.0	0.0	0.0	0.0	100.0		100-100	
2" (50)	0.0	0.0	0.0	0.0	100.0		75-100	
#4 (4.75)	1329.0	1329.0	43.1	43.1	56.9		50-80	
#40 (0.425)	1384.0	2713.0	44.9	88.1	11.9		0-30	
#200 (0.075)	271.0	2984.0	8.80	96.88	3.12		0-7	
PAN (0)	14.0	2998.0	0.45	100.00	0.00			

Other Test Results

Test Name	Date	Result	Unit	Target	Specification	Comment
	Procedure	Lab			Tested By	
SE	06/14/2006 10:30	76			42-100	
					Greg Page	
Total Moisture	06/09/2006 00:00	3.34	%			
		NW Aggregate			Greg Page	

RINKER MATERIALS - SIEVE ANALYSIS



=====

DATE: 6/13/2006 MAT'L DESCR. 1-1/4" Base Course
 SOURCE Proctor Creek, stockpiled in Everett Sampled by: Greg Page
 TESTED BY: Greg/Aaron

=====

WET = 3559 DRY = 3440 WASHED = 3354

SIEVE SIZE	CUMULATIVE WT RETAINED	CUMULATIVE % RETAINED	% PASSING	SPEC		Fracture, %
				LOW	HIGH	
1-1/4"	0	0.0%	100.0%	100	100	
1"	161	4.7%	95.3%	80	100	100
5/8"	1060	30.8%	69.2%	50	80	90
#4	2117	61.5%	38.5%	25	45	80
#40	3128	90.9%	9.1%	3	18	
#200	3344	97.2%	2.8%	0	7.5	
PAN	3354					

MOISTURE = 3.5% WASH LOSS = 2.5%

Sand equivalent = 67

The RETEC Group, Inc.
1011 SW Klickitat Way
Suite 207
Seattle, WA 98134-1162



(206) 624-8349 Phone
(206) 624-2839 Fax
www.retec.com

Letter of Transmittal

TO: Travis Walken, Wilder Construction DATE: June 19, 2006
RE: Response to Submittal 2b PROJECT NO: BN050-19390

☐ For Approval	☒ Approved as Submitted	☐ Resubmit _____ Copies for Approval
☐ For Your Use	☐ Approved as Noted	☐ Submit _____ Copies for Distribution
☒ As Requested	☐ Returned for Corrections	☐ Return _____ Corrected Prints
☐ For Review & Comment	☐ Other: _____	

Remarks:

Submittal 2b- Resubmittal of base course material with sand equivalent value and % fracture

The structural fill and base course material are accepted with no exceptions. The CSTC (gravel backfill for pipe zone bedding) is still considered incomplete since no sand equivalent value has been provided.

Should you have any questions, please feel free to call me.

Sincerely,

The RETEC Group, Inc.

Michael Byers

cc: Sarah Albano, Dennis Metz
RETEC file BN050-19390

Letter of Transmittal

The RETEC Group, Inc.
1011 SW Klickitat Way
Suite 207
Seattle, WA 98134-1162



(206) 624-9349 Phone
(206) 624-2839 Fax
www.retec.com

TO: Travis Walken, Wilder Construction DATE: June 27, 2006
RE: Response to Submittal 2b PROJECT NO: BN050-19390

☐ For Approval	☒ Approved as Submitted	☐ Resubmit	_____ Copies for Approval
☐ For Your Use	☐ Approved as Noted	☐ Submit	_____ Copies for Distribution
☒ As Requested	☐ Returned for Corrections	☐ Return	_____ Corrected Prints
☐ For Review & Comment	☐ Other: _____		

Remarks:

Submittal 2b- Resubmittal of base course material with sand equivalent value and % fracture
The structural fill and base course material are accepted with no exceptions. The CSTC (gravel backfill for pipe zone bedding) is still considered incomplete since no sand equivalent value has been provided.

Should you have any questions, please feel free to call me.

Sincerely,

The RETEC Group, Inc.

Michael Byers

cc: Sarah Albano, Dennis Metz
RETEC file BN050-19390

Letter of Submittal

Wilder Construction Company
1525 E. Marine View Drive
Everett, WA 98201



Project	Skykomish Levee Remediation	Date	6/2/2006
		Submittal Number	3
		Return By	6/15/2006

To: The RETEC Group, Inc.
Mike Byers
Project Manager
1011 SW Klickitat Way
Seattle, WA 98134

From: Wilder Construction Company
Travis Walken
Project Manager
1525 E. Marine View Drive
Everett, WA 98201

Bid Item	Spec Reference	Copies	Submittal Description	Drawing Number
22	Section 02060		Alternate Riverbed Fill	

**Remarks by
Contractor**

Alternate Riverbed Fill Material Submittal

Request for Approval of Material

For assistance in completing, see Instructions and Example

RAM #

Approval Action Codes for use by Project Engineer and State Materials Laboratory

- Remarks:

☐ General File ☐ Signing Inspection
☐ Fabrication Inspection ☐ Other

ALTERNATE RIVERBED FILL

RINKER MATERIALS - SIEVE ANALYSIS



DATE: 5/31/06 MAT'L DESCR. =====> Pit Run - Gravel Borrow sieves
 SOURCE: Proctor Creek SAMPLED BY: =====> Plant personnel
 TESTED BY: Greg Time: 3:15 p.m.

WET = 3391 DRY = 3257 WASHED = 3163

SIEVE SIZE	CUMULATIVE WT RETAINED	CUMULATIVE % RETAINED 3.1%	% PASSING	GRAV B SPEC	FRACTURE, % Test Req'd
------------	------------------------	----------------------------	-----------	-------------	---------------------------

		0.0%	100.0%		
		0.0%	100.0%		
		0.0%	100.0%		
		0.0%	100.0%		
		0.0%	100.0%		
4"	0	0.0%	100.0%	100	100
3"			70-90		
2"	910	27.9%	72.1%	75	100
1-1/4"	910	27.9%	72.1%	100	100 (geosynthetics)
1"	1000	30.7%	69.3%	90	100 (geosynthetics)
#4	2097	64.4%	35.6%	40-70	50 80
#40	2984	91.6%	8.4%	20-50	0 30
#200	3157	98.9%	3.1%	0	0 7
PAN	3163				

Sand Equiv = 42

Submittal 3
Alternate Riverbed Fill Information

The RETEC Group, Inc.
1011 SW Klickitat Way
Suite 207
Seattle, WA 98134-1162



(206) 624-9349 Phone
(206) 624-2839 Fax
www.retec.com

Letter of Transmittal

TO: Travis Walken, Wilder Construction DATE: June 6, 2006
RE: Response to Submittal 3 PROJECT NO: BN050-19390

☐ For Approval	☐ Approved as Submitted	☐ Resubmit	_____ Copies for Approval
☐ For Your Use	☐ Approved as Noted	☐ Submit	_____ Copies for Distribution
☒ As Requested	☒ Returned for Corrections	☐ Return	_____ Corrected Prints
☐ For Review & Comment		☐ Other:	_____

Remarks:

Submittal 3- Alternate Riverbed Fill Material:

Gradation analysis does not meet the specifications for the # 4, #40, or #200 size sieves.

Should you have any questions, please feel free to call me.

Sincerely,

The RETEC Group, Inc.

Michael Byers

cc: Sarah Albano, Dennis Metz
RETEC file BN050-19390

Submittal 4
ATB for Stockpile Area and Roads

Letter of Submittal

Wilder Construction Company
1525 E. Marine View Drive
Everett, WA 98201



Project Skykomish Levee Remediation

Date 6/2/2008

Submittal Number 4

Return By 6/8/2008

To: The RETEC Group, Inc.
Mike Byers
Project Manager
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

From: Wilder Construction Company
Travis Walken
Project Manager
1525 E. Marine View Drive
Everett, WA 98201

WSDOT
2006 Std Specs
11-41-10

Standard
Specification

For
Road Bridge
and
Structure

Bid Item	Spec Reference	Copies	Submittal Description	Drawing Number
V	02745		ATB	

Remarks by
Contractor

ATB for stockpile area and roads



Washington State
Department of Transportation

Request for Approval of Material

Contract Skykomish Levee Remediation		FA Number	SR	Date 6/2/2006
Section		County		
Contractor Wilder Construction Company Travis Walken		Subcontractor		

For assistance in completing, see instructions and Example

For WSDOT Use Only
RAM #

Bid Item No.	Material or Manufacturer's Product/Type	Name and Location of Fabricator, Manufacturer or Pit Number	Specification Reference	PE Appr'l Code	Hdqr. Appr'l Code	File No.
V	ATB	Wilder	02745			

Project Engineer	Date	State Materials Engineer	Date
------------------	------	--------------------------	------

Approval Action Codes for use by Project Engineer and State Materials Laboratory

1. Conditionally Approved: Acceptance based upon 'Satisfactory' Test Report for samples of materials to be incorporated into project.
2. Conditionally Approved: Submit Mfg. Cert. of Compliance for 'Approval' prior to use of material.
3. Conditionally Approved: Submit Catalog Cuts for 'Approval' prior to use of material.
4. Conditionally Approved: Submit Shop Drawings for 'Approval' prior to fabrication of material.
5. Conditionally Approved: Only 'Approved for Shipment' or 'WSDOT Inspected' material shall be used.
6. Conditionally Approved: Submit Materials Certificate of Origin to Project Engineer.
7. Approval Pending: Request Transmitted to State Materials Laboratory for Approval Action.
8. Source Approved:
9. Approval Withheld: Submit samples for preliminary evaluation.
10. Approval Withheld:
- 11.

Remarks:

Project Engineer Distribution

- ☐ Contractor
☐ Region Operations Engineer
☐ Region Materials
☐ State Materials Lab

State Materials Engineer Distribution

- ☐ General File
☐ Fabrication Inspection
☐ Signing Inspection
☐ Other



SNOHOMISH COUNTY BRANCH

May 16, 2003

Source # B-335

Wilder Construction will be using the following gradations to represent our stockpile average and our target values for Asphalt Treated Base (ATB) mix.

	5/8"Chips #8820	3/8"minus #8877	Base Course #8802	Sand #8860	Combined	Specification
Ratio:	16%	16%	55%	13%	100%	ATB
2"	100%	100%	100%	100%	100% ✓	100%
1 1/2"	73%	100%	53.0%	100%	70% ✓	56-100%%
#4	2.0%	67.0%	40.0%	100%	46% ✓	32-72%
#10	1.2%	32.9%	22.6%	93.0%	30% ✓	22-57%
#40	1.0%	14.5%	10.3%	42.0%	14% ✓	8-32%
#200	0.5%	6.9%	6.0%	1.3%	4.6% ✓	2.0-9.0%

The asphalt cement will be PG 64-22 from Chevron at Richmond Beach. The asphalt cement content of the mix will be at 3.5%.

If you have any questions, please feel free to call me 360-220-6711 or if I'm not available call Keith Howard at 360-676-2450.

Sincerely,
Tim Finch

Materials Tester
Wilder Construction Co.

The RETEC Group, Inc.
1011 SW Klickitat Way
Suite 207
Seattle, WA 98134-1162



(206) 624-9349 Phone
(206) 624-2839 Fax
www.retec.com

Letter of Transmittal

TO: Travis Walken, Wilder Construction DATE: July 18, 2006
RE: Response to Submittal 4 PROJECT NO: BN050-19390

☐ For Approval	☒ Approved as Submitted	☐ Resubmit _____ Copies for Approval
☐ For Your Use	☐ Approved as Noted	☐ Submit _____ Copies for Distribution
☒ As Requested	☐ Returned for Corrections	☐ Return _____ Corrected Prints
☐ For Review & Comment	☐ Other: _____	

Remarks:

Submittal 4- Asphalt Treated Base

This asphalt treated base submittal is accepted for use for the stockpile area and roads.

Should you have any questions, please feel free to call me.

Sincerely,

The RETEC Group, Inc.

Michael Byers

cc: Sarah Albano, Dennis Metz
RETEC file BN050-19390

Submittal 5
Super Sack Certificate of Conformity

Letter of Submittal

Wilder Construction Company
1525 E. Marine View Drive
Everett, WA 98201



Project	Skykomish Levee Remediation	Date	6/5/2006
		Submittal Number	5
		Return By	6/7/2006

To: The RETEC Group, Inc.
Mike Byers
Project Manager
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

From: Wilder Construction Company
Travis Walken
Project Manager
1525 E. Marine View Drive
Everett, WA 98201

Bid Item	Spec Reference	Copies	Submittal Description	Drawing Number
6	Section 02255		FIBC	

Remarks by
Contractor

Super Sack Certificate of Conformity

Request for Approval of Material

For assistance in completing, see Instructions and Example

DOT Form 350-071 EF
Revised 8/04

Travis Walken

From: Paul Gilmore [PaulG@NorthWestLinings.com]
 Sent: Monday, June 05, 2006 10:50 AM
 To: Travis Walken
 Subject: FW: Conformity

Here you go

Paul Gilmore
 Project Manager
 Northwest Linings
 Phone: 253-872-0244
 Fax: 253-872-0245
 Cell: 206-465-3376

From: Jules Teffaha [mailto:jules@capro.net]
 Sent: Friday, June 02, 2006 11:03 AM
 To: Paul Gilmore
 Subject: Conformity

Dear Paul:

Please find below the conformity letter on the bag we are going to be providing your client.

CERTIFICATE OF CONFORMITY

DATE: 6/2/06
 CUSTOMER: Northwest Linings
 KIND OF SAMPLE: 32192 LG

FIBC CONFORMITY

Dimensions:	35.43 43.30 90x90x110	Spec 35" x 35" x 42" width
Safe Working Load:	1815 KG 4001	4,000 lbs
Safety Factor Test	5:1	5:1

We hereby certify that the above materials were tested under the stringent guidelines of FIPCO Quality Control Systems. The materials conform to the relevant issued specification, however, this is not a guarantee of performance since the nature of use and handling conditions are beyond our control.

Verified by:

Approved by:

6/5/2006

Ammar Fettoui

Q.A. MANAGER

L. Marar

OPERATIONS MANAGER

Best regards,
Jules J. Teffaha
CAPRO Industries
www.capro.net

6/5/2006

The RETEC Group, Inc.
1011 SW Klickitat Way
Suite 207
Seattle, WA 98134-1162



(206) 624-9349 Phone
(206) 624-2839 Fax
www.retec.com

Letter of Transmittal

TO: Travis Walken, Wilder Construction DATE: June 9, 2006
RE: Response to Submittal 5 PROJECT NO: BN050-19390

☐ For Approval	☒ Approved as Submitted	☐ Resubmit	_____ Copies for Approval
☐ For Your Use	☐ Approved as Noted	☐ Submit	_____ Copies for Distribution
☒ As Requested	☐ Returned for Corrections	☐ Return	_____ Corrected Prints
☐ For Review & Comment		☐ Other:	_____

Remarks:

Submittal 5- FIBC Submittal

FIBC is accepted with no exceptions

Should you have any questions, please feel free to call me.

Sincerely,

The RETEC Group, Inc.

Michael Byers

cc: Sarah Albano, Dennis Metz
RETEC file BN050-19390

Submittal 6
MSDSs for Water Treatment Materials

Letter of Submittal

Wilder Construction Company
1525 E. Marine View Drive
Everett, WA 98201



Project	Skykomish Levee Remediation	Date	6/8/2006
		Submittal Number	6
		Return By	6/12/2006

To: The RETEC Group, Inc.
Mike Byers
Project Manager
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

From: Wilder Construction Company
Travis Walken
Project Manager
1525 E. Marine View Drive
Everett, WA 98201

Bid Item	Spec Reference	Copies	Submittal Description	Drawing Number
10	Section 02505		VitroHue (Glass Media)	
10	Section 02505		VitroClean (Glass Media)	
10	Section 02505		Rubberized booms	
10	Section 02245		Carbon Dioxide, Refrigerated Liquid	
10	Section 02245		Floc Clear (Chitosan)	

Remarks by Contractor

Watertectonics has supplied the MSDS's for each product informing Wilder that this is typical information that is submitted for these products. Liquid CO2 is for pH neutralization, if needed.



Washington State
Department of Transportation

Request for Approval of Material

Contract Skykomish Levee Remediation		FA Number	SR	Date 6/8/2006
Section		County		
Contractor Wilder Construction Company Travis Walken		Subcontractor		

For assistance in completing, see Instructions and Example

For WSDOT Use Only
RAM #

Bid Item No.	Material or Manufacturer's Product/Type	Name and Location of Fabricator, Manufacturer or Pit Number	Specification Reference	PE App'l Code	Hdqtr. App'l Code	File No.
10	VitroHue (Glass Media)	TriViro	Section 02505			
10	VitroClean (Glass Media)	TriViro	Section 02505			
10	Rubberized booms	Haz-Mat Response Technologies, Inc.	Section 02505			
10	Carbon Dioxide, Refrigerated Liquid	Carbonic Systems Incorporated	Section 02245			
10	Floc Clear (Chitosan)	Rocklin Products, Inc.	Section 02245			

Project Engineer	Date	State Materials Engineer	Date
------------------	------	--------------------------	------

Approval Action Codes for use by Project Engineer and State Materials Laboratory

- Conditionally Approved: Acceptance based upon 'Satisfactory' Test Report for samples of materials to be incorporated into project.
- Conditionally Approved: Submit Mfg. Cert. of Compliance for 'Approval' prior to use of material.
- Conditionally Approved: Submit Catalog Cuts for 'Approval' prior to use of material.
- Conditionally Approved: Submit Shop Drawings for 'Approval' prior to fabrication of material.
- Conditionally Approved: Only 'Approved for Shipment' or 'WSDOT Inspected' material shall be used.
- Conditionally Approved: Submit Materials Certificate of Origin to Project Engineer.
- Approval Pending: Request Transmitted to State Materials Laboratory for Approval Action.
- Source Approved:
- Approval Withheld: Submit samples for preliminary evaluation.
- Approval Withheld:
-

Remarks:

Project Engineer Distribution

- ☐ Contractor
☐ Region Operations Engineer
☐ Region Materials
☐ State Materials Lab

State Materials Engineer Distribution

- ☐ General File
☐ Fabrication Inspection
☐ Signing Inspection
☐ Other

Material Safety Data Sheet

VITROHUE®

**Tumbled Glass
and Recycled
Glass Aggregate**

Section I: PRODUCT INFORMATION		
Product Name: VitroHue®	CAS No. 65997-17-3	
Chemical Name: Soda-Lime Silicon Dioxide Glass		
Description: Aggregates, sand and tumbled glass manufactured from recycled glass		
DOT Identification: Not regulated by DOT		
Section II: HAZARDOUS INGREDIENTS		
Glass sand is not classified as a hazardous material by the criteria of the OSHA Hazard Communication Standard, Title 29, Code of Federal Regulations, Section 1910.1200, <i>Hazard Communication</i> .		
Contains no free (or crystalline) silica; all components are amorphous/non-crystalline; chemicals used to produce glass are not available to the environment unless the product is heated above 2,000°F or ground to an extremely fine particle size. Dust normally is a nuisance except caution is to be exercised from exposure to dust generated by grinding stained glass.		
OSHA PEL/TWA limit is 10mg/m ³	ACGIH TLV-TWA limit is 0.05 mg/m ³ (crystalline silica)	
Many stained glass products are made with metal oxides. While the metals are bound up in a glass matrix, grinding to an extremely fine mesh size can liberate some of the metals in the glass. Normal grinding will generally not produce "glass flour or powder" fine enough to liberate any metals. A NIOSH approved dust mask, at a minimum, should be worn during grinding. TriViro recommends the use of a respirator outfitted with a HEPA (High Efficiency Particulate Absolute) filter to provide the greatest measure of personal protection. Good exhaust ventilation is recommended.		
Section III: PHYSICAL DATA		
Boiling Point (°F): Approx. 2500°F	Solubility in Water: Insoluble	Specific Gravity: 2.5
Vapor Pressure: N/A	Evaporation Rate: N/A	% Volatile by Volume: N/A
Vapor Density: N/A	Appearance & Odor: Odorless, transparent or colored particulate	
Section IV: FIRE & EXPLOSION DATA		
Non-flammable and non-hazardous inorganic material		
Section V: REACTIVITY DATA		
Stability: Material is stable	Hazardous Polymerization: Will not occur	
Materials to Avoid: Hydrofluoric Acid	Hazardous Decomposition Products: None	
Section VI: HEALTH HAZARD DATA		
Nuisance Dust (total): 10 mg/m ³ TLV (units) depends upon particle size		
Nuisance Dust (Respirable): 5 mg/m ³ TLV (units) depends upon particle size		
Routes of Entry: Lungs (breathing): Yes	Ingestion: No	Skin: No
Health Hazard (Acute & Chronic): Dust in excess of recommended exposure limits may result in irritation to the respiratory tract.		
Carcinogenicity: NTP Not Listed	IARC Monographs: Not Listed	OSHA Regulation: Not Listed
Signs & Symptoms of Exposure: Eye and respiratory irritation may result if recommended exposure limits are exceeded; product may cut or scratch skin; sneezing, runny eyes and coughing may result from over exposure to glass dust.		
Medical Conditions Generally Aggravated by Exposure: Chronic lung conditions may be aggravated by exposure to high concentrations of dust.		
Emergency & First Aid Procedures: Eyes: Flush thoroughly with water. See a physician if discomfort persists. Respiratory: Remove to fresh air		
Section VII: PRECAUTIONS FOR SAFE HANDLING & USE		
Steps to be taken in case of material spill: Sweep up and discard; avoid excessive dusting		
Waste Disposal Method: Dispose in approved landfill in accordance with federal, state and local regulations.		
Precautions for handling & storing: Spillage may result in slippery conditions. When transferring material, care should be taken to avoid dusting.		
This material is not a SARA Title III reportable substance.		
Section VIII: CONTROL MEASURES		
Respiratory protection: If dust concentrations exceed recommended Permissible Exposure Limits, use NIOSH-approved respirators		
Ventilation: Local exhaust	Protective Gloves: None	
Eye Protection: NIOSH-approved safety glasses or goggles (tight fitting recommended)		
Other Protective Clothing or Equipment: None required.		

Abbreviations:

N/A - Not Applicable
mg/m³ - milligrams per cubic meter
TLV - threshold limit value
NIOSH - National Institute of Safety and Health

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Your Source for Innovative Recycled Glass Products
18420 68th Avenue, Suite 101, Kent, Washington 98032
Toll free 1-888-301-0181; 425-251-8301 fax • www.triviro.com



2.26.04



Material Safety Data Sheet

Section I: PRODUCT INFORMATION				
Product Name: VitroClean®		CAS No. 65997-17-3	Chemical Name: Amorphous Soda-Lime Silicon Dioxide	
Description: Filtration media made from amorphous recycled material		DOT Identification: Not regulated by DOT		
Section II: HAZARDOUS INGREDIENTS				
Glass sand is not classified as a hazardous material by the criteria of the OSHA Hazard Communication Standard, Title 29, Code of Federal Regulations, Section 1910.1200, <i>Hazard Communication</i> .				
Contains no free (or crystalline) silica; all components are amorphous/non-crystalline				
Nuisance Dust concern only				
Section III: PHYSICAL DATA				
Boiling Point (°F): N/A		Solubility in Water: Insoluble	Specific Gravity: 2.5	
Vapor Pressure: N/A		Evaporation Rate: N/A	% Volatile by Volume: N/A	
Vapor Density: N/A		Appearance & Odor: Odorless, transparent or colored particulate		
Section IV: FIRE & EXPLOSION DATA				
Non-flammable and non-hazardous inorganic material			Abbreviations: N/A - Not Applicable mg/m³ - milligrams per cubic meter TLV - threshold limit value NIOSH - National Institute of Safety and Health	
Section V: REACTIVITY DATA				
Stability: Material is stable		Hazardous Polymerization: Will not occur		
Materials to Avoid: Hydrofluoric Acid		Hazardous Decomposition Products: None		
Section VI: HEALTH HAZARD DATA				
Nuisance Dust (total): 10 mg/m³ TLV (units) depends upon particle size				
Nuisance Dust (Respirable): 5 mg/m³ TLV (units) depends upon particle size				
Routes of Entry:		Lungs (breathing): Yes	Ingestion: No	Skin: No
Health Hazard (Acute & Chronic): Dust in excess of recommended exposure limits may result in irritation to the respiratory tract.				
Carcinogenicity: NTP Not Listed		IARC Monographs: Not Listed		OSHA Regulation: Not Listed
Signs & Symptoms of Exposure: Eye and respiratory irritation may result if recommended exposure limits are exceeded.				
Medical Conditions Generally Aggravated by Exposure: Chronic lung conditions may be aggravated by exposure to high concentrations of dust.				
Emergency & First Aid Procedures: Eyes: Flush thoroughly with water. See a physician if discomfort persists. Respiratory: Remove to fresh air				
Section VII: PRECAUTIONS FOR SAFE HANDLING & USE				
Steps to be taken in case of material spill: Sweep up and discard; avoid excessive dusting				
Waste Disposal Method: Dispose in approved landfill in accordance with federal, state and local regulations.				
Precautions for handling & storing: Spillage may result in slippery conditions. When transferring material, care should be taken to avoid dusting.				
This material is not a SARA Title III reportable substance.				
Section VIII: CONTROL MEASURES				
Respiratory protection: If dust concentrations exceed recommended Permissible Exposure Limits, use NIOSH-approved respirators				
Ventilation: Local exhaust		Protective Gloves: None		
Eye Protection: NIOSH-approved safety glasses or goggles (tight fitting recommended)				
Other Protective Clothing or Equipment: None required				

Abbreviations:

N/A - Not Applicable
 mg/m³ - milligrams per cubic meter
 TLV - threshold limit value
 NIOSH - National Institute of Safety and Health

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Your Source for Innovative Recycled Glass Products
 18420 68th Avenue, Suite 101, Kent, Washington 98032
 Toll free 1-888-301-0181; 425-251-8301 fax • www.triviro.com





Rubberizer® Manufacturer
Haz-Mat Response Technologies, Inc.
A revolutionary, low cost solution to land or water borne spills

Toll Free: (800) 542-3036

E-Mail: info@rubberizer.com

Return to Operations/Approvals Page

Material Data Safety Sheet May be used to comply with OSHA's Hazard Communication Standard 29 CFR 1910 1200 Standard Must be consulted for specific requirements		US Department of Labor Occupational Safety and Health Administration (Non-Mandatory Form) Form Approved OMB No. 1218-0072	
Section I			
IDENTITY: Rubberizer® booms, pillows, filter media, mats and particulate		Emergency Phone Number: 1-800-542-3036	
Manufacturer's Name: Haz-Mat Response Technologies, Inc.		Telephone Number for Information: 1-800-542-3036	
Address: 4626 Santa Fe St. San Diego, CA 92109		Date Prepared: January 1, 2003	
		Signature of Preparer: Philip W. Stagg	
Section II - Hazardous Ingredients/Identity Information			
Hazardous Components (Specific Chemical Identity, Common Name(s)) N/A - there are no chemicals present in this product at a concentration of 0.1% or more classified as a carcinogenic by IARC, NYP, or OSHA. This product is not considered a hazardous substance by the EPA.			
Section III - Physical/Chemical Characteristics			
Boiling Point	N/A	Specific Gravity (H2O - 1)	Apparent - 0.40 Real - 0.89
Vapor Pressure	N/A	Melting Point	N/A
Vapor Density	N/A	Evaporation Rate	N/A
Solubility in Water: Insoluble			
Appearance and Odor: White grainy material, mild sweet odor			
Section IV - Fire and Explosion Hazard Data			
Flash Point (Method Used) ASTM D 92 325° Cleveland open cup		Flammable Limits: not yet established	LEL no data
			UEL no data
Extinguishing Media: CO2, water, foam, and dry chemical			
Special Fire Fighting Procedures: Protect against inhalation of combustion products			
Unusual Fire and Explosion Hazards: None known			
Section V - Reactivity Data			
Stability	Unstable	Conditions to Avoid: Ignition sources, excessive heat. Do not allow contact with strong oxidization agents	
	Stable		
Incompatibility (Materials to Avoid): Strong oxidizing agents (i.e. concentrated nitric acid)			
Hazardous Decomposition or Byproducts: Thermal decomposition/combustion may release hydrocarbons, aldehydes, ketones, alcohols, carboxylic acids, carbon monoxide and unidentified organic compounds			

Jun 07 06 09:41a

Water Tectonics

4254242168
858-459-3173

P.9

p2

Page 2 of 2

Hazardous Polymerization	May Occur	Conditions to Avoid: Strong oxidizing agents (i.e. concentrated nitric acid)	
	May Not Occur		
Section VI - Health Hazard Data			
Routes of Entry	Inhalation: Primary	Skin: N/A	Ingestion: is possible
Health Hazards (Acute & Chronic): None that are known			
Carcinogenicity: No	NTP? No	IARC Monographs No	OSHA Regulated No
Signs & Symptoms of Exposure: Respiratory conditions and eye irritation are possible and skin irritation with exposure to any fine or grainy material			
Medical Conditions Generally Aggravated by Exposure: Respiratory conditions and eye irritation are possible and skin irritation as with exposure to any fine or grainy material			
Emergency & First Aid Procedures: Flush affected areas thoroughly with water and consult a physician if irritation persists			
Section VII - Precautions for Safe Handling and Use			
Steps to be Taken in Case Material is Released or Spilled: If material has not been contaminated it may be swept up and returned to its container. If material is contaminated, dispose accordingly.			
Waste Disposal Method: Incinerate or landfill according to government waste disposal regulations (Local, State and Federal)			
Precautions to be Taken in Handling & Storing: Product should be stored away from excess heat and/or ignition source, preferable long term storage should be below 125° F			
Other Precautions: None			
Section VIII - Control Measures			
Respiratory Protection (Specify Type): Dust mask for airborne particulate			
Ventilation:	Local Exhaust: Sufficient		Special: None
	Mechanical (General): None		Other: None
Protective Gloves: Optional		Eye Protection: Goggles for dust protection	
Other Protective Clothing or Equipment: None			
Work/Hygienic Practices: Working procedures should minimize airborne particles.			

Home | How Rubberizer Works | Operations/Approvals | Disposal
Particulate | Booms | Pillows & Spill Kits | Filtration
Contact Us

Rubberizer® Manufacturer
Haz-Mat Response Technologies, Inc.
4626 Santa Fe St
San Diego, CA 92108
Toll Free: (800) 542-3036
Local: (858) 459-3383
Fax: (858) 459-3173
E-Mail: info@rubberizer.com

www.rubberizer.com

<http://www.rubberizer.com/msds.htm>

3/1/2006

**MATERIAL SAFETY DATA SHEET****Carbon Dioxide, Refrigerated Liquid**

Carbonic Systems Incorporated
905 Lackawanna Avenue
Elmira, NY 14901-1571
Telephone: (800) 727-9676

Revision Date: 9/23/96

Emergency Contact: **Chemtel**
Emergency Phone Number : (800) 255-3924

Section # 1 - Identification

Product: **CARBON DIOXIDE,
REFRIGERATED LIQUID**

DOT Number: UN2187

NFPA Number: 200

Synonyms: **CARBONIC ANHYDRIDE
REFRIGERATED LIQUID
G-99**

CAS Number: 124-38-9

Product Code: MSDS CODE G-99

Chemical Family: Carbonate

Chemical Formula: CO₂ Liquefied

Molecular Weight: 44.00

RTECS Number: FF64000000

Hazard Rating:
(NFPA)

Health: 1 Slight
Fire: 0 Negligible
Reactivity: 0 Negligible

Section # 2 - Chemical Components

Component: CARBON DIOXIDE

CAS Number: 124-38-9

ACGIH TLV-TWA: 5,000 ppm

ACGIH TLV-STEL: 30,000 ppm

IDLH: 50,000 ppm

(Simple Asphyxiant)

Percent of Mixture: 99.700 to 99.999

OSHA PEL-TWA: 5,000 ppm

OSHA PEL-STEL: 30,000 ppm

Section # 3 - Physical Data

Boiling Point (sublimation): -109.3°F (-78.5°C)

Melting Point: -69.8°F (-56.6°C) @ 75.1 psia

Vapor Pressure: 856 psia @ 70°F

Vapor Specific Gravity: (Air=1): 1.53 @ 70°F, 1 atm

Liquid Specific Gravity: (Water=1): 1.02

Solubility (H₂O): Very Soluble

Percent Volatiles: 100

Appearance

A colorless liquid at pressures above 860 psia, which liberates a colorless gas at room temperature and pressure.

Odor

Vapor may have slightly pungent odor.

Section # 4 - Fire Fighting & Explosion Data

Flash Point: Not Applicable

Lower Explosive Limit (%): Not Applicable

Upper Explosive Limit (%): Not Applicable

Used as an extinguishing agent for smothering Class B & C fires.

Fire And Explosion Hazards

Electrical Classification: Non-hazardous

Nonflammable refrigerated gas as a liquid.

Use extinguishing media suitable for the combustible materials involved in the fire.

Section # 5 - Exposure & Effects - Inhalation

Routes of Exposure - Inhalation of Vapor

Carbon Dioxide is the most powerful cerebral vasodilator known. Low concentrations (3 to 5 molar % in air) cause increased respiration and headache. 8 to 15% molar concentrations cause nausea and vomiting which may lead to unconsciousness if not moved to open air or given oxygen. Higher concentrations cause rapid circulatory insufficiency leading to coma and death. Chronic, harmful effects from repeated inhalation of low concentrations (3 to 5 molar %) are not known. *Carbon Dioxide is essentially nontoxic. The major hazard is exclusion of an adequate supply of oxygen to the lungs. Maintain oxygen levels above 19.5% at sea level.*

First Aid - Inhalation of Vapors

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO CARBON DIOXIDE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS.

Conscious persons should be assisted to an uncontaminated area to inhale fresh air. Quick removal from the contaminated area is most important. Unconscious persons should be moved to an uncontaminated area and, given artificial resuscitation and supplemental oxygen if they are not breathing. Further treatment should be symptomatic and supportive.

Treat areas exposed to liquid as frostbite.

Section # 5 - Exposure & Effects - Skin

Routes of Exposure - Skin

Contact with refrigerated liquid or cold vapors can cause tissue freezing or frostbite and cryogenic "burns".

First Aid - Skin

For dermal contact or frostbite, flush affected area with large quantities of warm water. **DO NOT USE HOT WATER OR DRY HEAT! DO NOT RUB!** A physician should see the patient promptly if the cryogenic "burn" has resulted in blistering of the dermal surface or in deep tissue freezing.

Section # 5 - Exposure & Effects - Eyes

Routes of Exposure - Eyes

Contact with refrigerated liquid or cold vapors can cause tissue freezing or frostbite and cryogenic "burns" of the eyes.

First Aid - Eyes

Never introduce ointment or oil into the eyes without medical advice! In case of freezing or cryogenic "burns" caused by rapidly evaporating liquid, **DO NOT WASH THE EYES WITH HOT OR EVEN WARM WATER!** Remove victim from the source of contamination. Open eyelids wide to allow liquid to evaporate. Refer the victim to an ophthalmologist for treatment and follow up. If the victim cannot tolerate light, protect the eyes with a light bandage.

Section # 5 - Exposure & Effects - Ingestion

Routes of Exposure - Ingestion

Ingestion is unlikely. Contact with large quantities of liquid or cold vapors may cause tissue freezing and frostbite, similar to that of skin contact.

First Aid - Ingestion

Treat in a similar manner as skin contact. Seek medical attention as soon as possible.

Section # 5 - Miscellaneous Toxicological Information

Carcinogenicity: NTP: No LARC: No OSHA: No

Section # 6 - Reactivity & Polymerization

Stability

Stable

Conditions to Avoid (Stability)

None

Incompatible Materials

Reactive metals (e.g. magnesium and aluminum), hydrides, moist cesium oxide or lithium acetyl may ignite. Mixing with sodium peroxide and reactive metals may explode. Carbonic acid is formed in the presence of water or moisture.

Dry carbon dioxide can be handled in most structural materials. Moist carbon dioxide is corrosive

by its formation of carbonic acid. For these applications, 316, 309 and 310 stainless steels may be used as well as Hastelloy ® A, B, C and Monel ®. Ferrous nickel alloys are slightly susceptible to corrosion. At liquid temperatures, plastics and elastomers may become brittle.

Hazardous Decomposition Products

Carbon monoxide and oxygen when heated above 1700°C.

Hazardous Polymerization

Will not occur.

Section # 7 - Spill, Leak & Disposal Procedures

Steps to be Taken in the Event of Spills, Leaks, or Release

Evacuate all personnel from affected area. Use appropriate protective equipment. Try to stop the flow of liquid by closing valves. If leak is in container or container valve, contact CHEMTel for emergency assistance. Avoid contact with liquid or cold materials. Use insulated gloves and other protective clothing such as face shield and a chemical apron which is resistant to low temperatures to prevent freeze burns and frostbite due to contact with liquid.

NOTE: Gaseous carbon dioxide will displace oxygen thus causing possible oxygen deficient atmosphere in confined areas. Provide adequate ventilation.

Waste Disposal Methods

Do not attempt to dispose of unused quantities. Return in the shipping container PROPERLY LABELED, WITH ANY VALVE OUTLET PLUGS OR CAPS SECURED AND VALVE PROTECTION CAP IN PLACE, to Carbonic Systems for proper disposal.

SARA Hazard Classes:

Acute Health Hazard
Sudden Release of
Pressure Hazard

Section # 8 - Special Protective Measures

Ventilation

Use local exhaust and general ventilation to prevent accumulation of vapor above the exposure limits and to prevent oxygen levels less than 19.5%.

Eye Protection

Safety goggles or glasses for handling the liquid in an open vessel, a face shield should also be worn.

Skin Protection

Use loose fitting insulated gloves to protect against frostbite and cryogenic burns.

Respiratory Protection

Use positive pressure air line with mask or self-contained breathing apparatus for exposures above exposure limits and emergency use. For exposure above the IDHL (50,000 ppm) an additional escape bottle is required.

Other Protection

Safety shoes and insulated foot protection to protect against contact with liquid.

Section # 9 - Special Precautions - Storage & Handling

Storage & Handling Conditions

Use only in well-ventilated areas. Carbon dioxide is heavier than air, it will accumulate in low areas and cause suffocation due to oxygen displacement. Carbon Dioxide, refrigerated liquid, may be delivered into stationary, insulated vessels at the customer's location or may be supplied in portable vacuum-insulated liquid dewar cylinders requiring special handling. Vessels should not be installed in subsurface or closed areas. These stationary vessels may have mechanical refrigeration coils within the vapor space in order to maintain the pressure in the vessel or the temperature of the liquid in the vessel.

Stationary customer site vessels should be operated in accordance with the manufacturer's and Carbonic Systems Instructions. Do not attempt to repair, adjust or in any other way modify the operation of these vessels. If there is a malfunction or other type of operations problem with the vessel, contact Carbonic Systems immediately for assistance.

DO NOT store the liquid in vessels or devices not

designed for vaporizing liquid. Proper pressure relief devices are essential.

Protect dewar cylinders from physical damage. Store in cool, dry, well-ventilated area away from heavily trafficked areas and emergency exits. Do not allow the temperature where the dewar cylinders are stored to exceed 125°F (52°C).

Dewar cylinders should be stored upright. Full and empty dewar cylinders should be segregated. Use "first-in, first-out" inventory system to prevent full dewar cylinders from being stored for excessive periods of time. Valve protection caps must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide or roll dewar cylinders on their sides. Use a suitable hand truck for dewar cylinder movement. Do not heat dewar cylinders by any means to increase the discharge rate of product from the dewar cylinders. Use a check valve or trap in the line to prevent hazardous backflow into the dewar cylinders. Never carry a container of liquefied gas in an enclosed space such as a car trunk, van or station wagon. A leak can result in an explosion, asphyxiation or a toxic exposure.

Section # 10 - Shipping Information

Proper Shipping Name: Carbon Dioxide,
Refrigerated Liquid

Packaging Requirements: 49CFR173.314 (Rail)
49CFR173.315 (Tanker)

Hazard Class: Nonflammable Gas

DOT Identification Number: UN2187

DOT Shipping Label: Nonflammable Gas

1996 Carbonic Systems Incorporated

Section # 11 - Miscellaneous Comments & Reference Documentation

NOTE: This MSDS contains information about both liquid and gaseous carbon dioxide.

Compressed gas cylinders should not be refilled except by qualified producers of compressed gases. Shipments of a compressed gas cylinder which has not been filled by the owner or with his or her (written) consent is in violation of Federal Law (49CFR).

For additional information, consult the Compressed Gas Association (CGA) pamphlets G-6 Carbon Dioxide, G-6.1 std. for Low Pressure Carbon Dioxide Systems at Consumer Sites and G-6.3 Carbon Dioxide Filling and Handling Procedures for Beverage Plants.

Disclaimer of Expressed & Implied Warranties

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for his or her particular purpose(s).

MATERIAL SAFETY DATA SHEET

FLOCCLEAR - BIOPOLYMER

ROCKLIN PRODUCTS, INC. • 4021 ALVIS CT. SUITE #4 • ROCKLIN, CA 95677 • (866) 349-3562

SECTION 1 MATERIAL IDENTIFICATION

CHEMICAL FAMILY: Chitosan
CAS REG. NO.: None-mixture
EMERGENCY PHONE NO.: (866) 349-3562
REVISED DATE: 02/10/05
SUPERCECES: N/A

SECTION 2 HAZARDOUS INGREDIENTS

Acetic Acid, CASRN 64-19-7

SECTION 3 PHYSICAL DATA

Appearance: Amber liquid
pH: 3.0 – 5.0
Specific Gravity: 0.993

SECTION 4 REACTIVITY DATA

Stable: X Unstable:
Hazardous Combustion or Decomposition Products: Oxides of nitrogen and carbon
Incompatibility: Basic compounds may precipitate chitosan; strong oxidants
Hazardous Polymerization: Will not occur

SECTION 5 FIRE AND EXPLOSION DATA

Flash Point (method used): Not Known, non-flammable
Special Fire Fighting Procedures: None
Extinguishing Media: Water or foam

SECTION 6 EMERGENCY AND FIRST AID PROCEDURES

Ingestion: If victim is conscious and alert, give 2-4 cupfuls of milk or water.
Inhalation: Get medical aid immediately. Remove to fresh air immediately. If not breathing, give artificial respiration.
If breathing is difficult, give oxygen.
Skin: Flush skin with plenty of soap and water.
Eye: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids. Get medical aid if irritation persists.

SECTION 7 HEALTH HAZARD INFORMATION

OSHA Permissible Exposure Limit: For acetic acid, 10 ppm
ACGIH Threshold Limit Value: For acetic acid, 10 ppm
Primary Route(s) of Exposure/Entry: Eye, Skin
Acute Effects of Overexposure:
Ingestion: None known
Inhalation: None known
Skin: May cause irritation
Eye: Mildly irritating
Chronic Effects of Overexposure: None known
Listed as Carcinogen or Potential Carcinogen: No

SECTION 8. PROTECTION INFORMATION

Respiratory Protection: Should not be required. Avoid misting.

Ventilation: Should not be required.

Protective Gloves: Rubber gloves recommended

Eye Protection: Safety glasses, goggles recommended

Other Protective Equipment: Eye washing equipment, safety shower recommended

Other Control Measures: None should be needed

SECTION 9. SPILL, LEAK AND DISPOSAL PROCEDURES

In Case of Spill or Leak: Pick up and wash down

Waste Disposal Method: Dispose of in a manner consistent with federal, state, and local regulations.

EPA Registry Number: None

Environmental Toxicity Data: None known. Biodegradable

SECTION 10. SPECIAL PRECAUTIONS

Precautions to be taken in Handling and Storing: Keep container closed.

SECTION 11. REGULATORY INFORMATION

Status on Substance Lists: The concentrations shown are maximum or ceiling levels (weight %) to be used for calculations for regulations. Trade Secrets are indicated by "TS."

FEDERAL EPA

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT OF 1980 (CERCLA):

requires notification of the National Response Center of release of quantities of Hazardous Substances equal to or greater than the reportable quantities (RQ's) in 40 CFR 302.4. Components present in this product are at a level which could require reporting under the statute are:

Substance	CAS No.	Percent
-----------	---------	---------

None

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (SARA) TITLE III: requires emergency planning

based on Threshold Planning Quantities (TPQ's) and release reporting based on Reportable Quantities (RQ's) in 40 CFR 355.

Components in this product at a level which could require reporting under the statute are:

Substance	CAS No.	Percent
-----------	---------	---------

None

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (SARA) TITLE III:, Section 311 and 312, requires reporting to certain authorities of hazardous chemicals under the Occupational Safety and Health Act of 1970 (29 CFR 1910.1200). This product should be considered as having Acute Health Effects.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (SARA) TITLE III requires submission of annual reports of release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). This information must be included in all MSDS's that are copied and distributed for this material. Components present in this product at a level which could require reporting under the statutes are:

Substance	CAS No.	Percent
-----------	---------	---------

None

TOXIC SUBSTANCES CONTROL ACT (TSCA) Status: This product is a mixture and cannot be assigned a CAS number. All components of this product are listed in TSCA inventory.

SECTION 12. SHIPPING REGULATIONS**U.S. DEPARTMENT OF TRANSPORTATION**

Proper Shipping Name (49 CFR 172.101-102): Not Regulated

Hazard Classification (49 CFR 172.101-102): N/A

Labels Required (49 CFR 172.101-102): N/A

Placards Required (49 CFR 172.504): None

Poison Constituent (49 CFR 172.203(k)): No

The above data is based on tests and experience which ROCKLIN PRODUCTS, Inc. (RP) believes reliable and are supplied for informational purposes only. RP DISCLAIMS ANY LIABILITY FOR DAMAGE OR INJURY WHICH RESULTS FROM THE USE OF THE ABOVE DATA AND NOTHING CONTAINED THEREIN SHALL CONSTITUTE A GUARANTEE, WARRANTY (INCLUDING WARRANTY OF MERCHANTABILITY) OR REPRESENTATION (INCLUDING FREEDOM FROM PATENT LIABILITY) BY ITS WITH RESPECT TO THE DATA, THE PRODUCT DESCRIBED, OR THEIR USE FOR ANY SPECIFIC PURPOSE, EVEN IF THAT PURPOSE IS KNOWN TO RP.

The RETEC Group, Inc.
1011 SW Klickitat Way
Suite 207
Seattle, WA 98134-1152



(206) 624-9349 Phone
(206) 624-2839 Fax
www.retec.com

Letter of Transmittal

TO: Travis Walken, Wilder Construction DATE: July 18, 2006
RE: Response to Submittal 6 PROJECT NO: BN050-19390

☐ For Approval	☐ Approved as Submitted	☐ Resubmit _____ Copies for Approval
☐ For Your Use	☒ Approved as Noted	☐ Submit _____ Copies for Distribution
☒ As Requested	☐ Returned for Corrections	☐ Return _____ Corrected Prints
☐ For Review & Comment	☐ Other: _____	

Remarks:

Submittal 6- Material Safety Data Sheets for Water Treatment Facility

The MSDS submittal for VitroHue, VitroClean, Floc Clear, and the rubberized booms meets specifications and is accepted with no exceptions.

Carbon dioxide has not been approved for use on the site for pH neutralization. The use of carbon dioxide for pH neutralization is an accepted method but is not yet needed and therefore not approved to be brought on-site at this time.

Should you have any questions, please feel free to call me.

Sincerely,

The RETEC Group, Inc.

Michael Byers

cc: Sarah Albano, Dennis Metz
RETEC file BN050-19390

Submittal 7
30-Inch Check Valve

Letter of Submittal

Wilder Construction Company
1525 E. Marine View Drive
Everett, WA 98201



Project Skykomish Levee Remediation **Date** 6/12/2006
Submittal Number 7
Return By

To: The RETEC Group, Inc.
Mike Byers
Project Manager
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

From: Wilder Construction Company
Travis Walken
Project Manager
1525 E. Marine View Drive
Everett, WA 98201

Bid Item	Spec Reference	Copies	Submittal Description	Drawing Number
28	Addendum No. 2		30" Check Valve	

**Remarks by
Contractor**

30 inch Tideflex Series 39F InLine Check Valve

Request for Approval of Material

Contract Skykomish Levee Remediation		FA Number	SR	Date 6/12/2006
Section		County		
Contractor Wilder Construction Company Travis Walken		Subcontractor		

For assistance in completing, see Instructions and Example

For WSDOT Use Only
RAM #

[illegible]

Project Engineer	Date	State Materials Engineer	Date
------------------	------	--------------------------	------

Approval Action Codes for use by Project Engineer and State Materials Laboratory

1. Conditionally Approved: Acceptance based upon 'Satisfactory' Test Report for samples of materials to be incorporated into project.
2. Conditionally Approved: Submit Mfg. Cert. of Compliance for 'Approval' prior to use of material.
3. Conditionally Approved: Submit Catalog Cuts for 'Approval' prior to use of material.
4. Conditionally Approved: Submit Shop Drawings for 'Approval' prior to fabrication of material.
5. Conditionally Approved: Only 'Approved for Shipment' or 'WSDOT Inspected' material *shall* be used.
6. Conditionally Approved: Submit Materials Certificate of Origin to Project Engineer.
7. Approval Pending: Request Transmitted to State Materials Laboratory for Approval Action.
8. Source Approved:
9. Approval Withheld: Submit samples for preliminary evaluation.
10. Approval Withheld:
- 11.

Remarks:

Project Engineer Distribution

- ☐ Contractor ☐ Region Materials
☐ Region Operations Engineer ☐ State Materials Lab

State Materials Engineer Distribution

- ☐ General File ☐ Signing Inspection
☐ Fabrication Inspection ☐ Other

Series 39F



Tideflex Series 39F InLine Check Valves

- Features an all-elastomer, maintenance-free design
- No hinges or seals to bind or freeze
- Resists abrasion
- Provides absolute backflow prevention
- Seals on entrapped solids
- Can be mounted in any position
- Eliminates chatter—silent, non-slamming

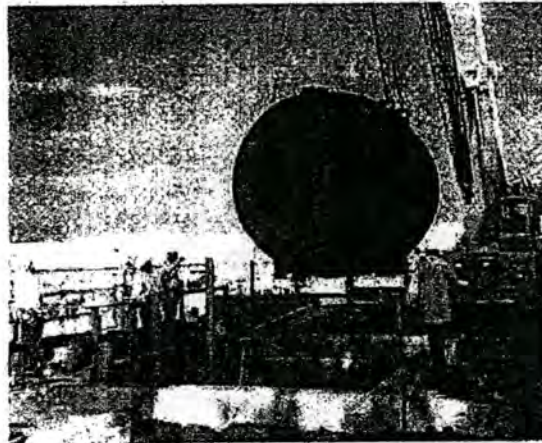
Materials of Construction

- Fabricated Steel body
- ANSI Class 125/150, DIN PN6, PN10, PN16
- Epoxy-coating or rubber-lined body available
- Available Elastomers

The Series 39F Large-Diameter Slurry Check Valve is designed to handle abrasive slurries, sewage, sludge and other difficult services. The valve's operation is silent and non-slamming, just like the smaller Series 39.

At the heart of the Series 39F Check Valve is a fabric-reinforced elastomer check sleeve that provides thru-flow at minimum pressure drop across the valve at all times. Forward pressure opens the valve automatically; reverse pressure seals the valve. The check sleeve even seals around entrapped solids.

This inner rubber check valve minimizes wear and deterioration caused by continuous operation of abrasive slurries. And there are no mechanical parts such as hinges, discs or metal seats that can freeze, corrode or bind valve operation.



The Series 39F In-Line Check Valve is provided with a clean-out ports and flush ports for routine maintenance and cleaning. The valve features a fabricated-steel body, which is available epoxy-coated or rubber-lined. The valve has thru-drilled flange holes; face-to-face dimensions meet ANSI B16.10 specs. When ordering, line pressure and back pressure must be provided as each valve is custom-built to match the flow requirements of the installation.

The Series 39F is available in sizes up to 84".

Series 39F

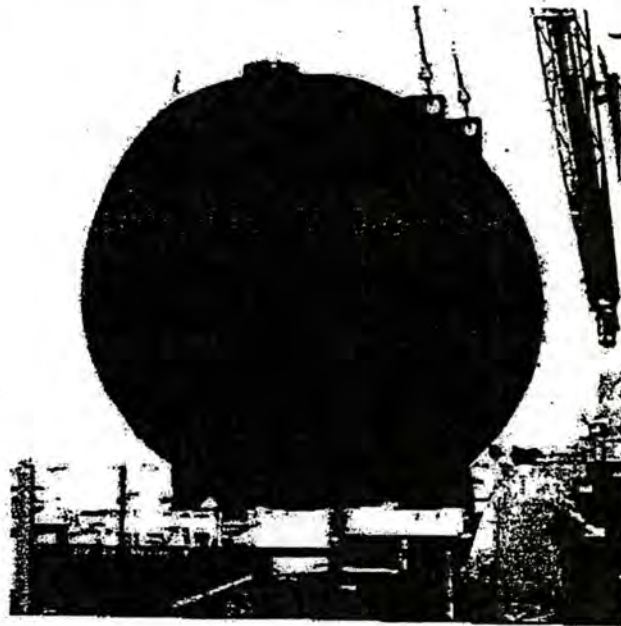
- Features fabricated large-diameter design.
- Provides maintenance-free operation—no hinges to bind or freeze.
- Can be mounted in any position.
- Closes on entrapped solids.

Materials of Construction

- Check sleeves available in pure gum rubber, neoprene, Hypalon[®], buna-N, Viton[®] and EPDM.
- Fabricated steel ASTM A285 grade C or stainless steel 304SS ASTM A240 or 316SS ASTM A240.
- ANSI Class 125/150 flanges, DIN, PN6, PN10, PN16.
- Special coating available.

The Tidelflex[®] Technologies Series 39F Fabricated InLine Check Valve is designed to handle abrasive material, sewage, sludge and other difficult slurries. The heart of the valve is the Tidelflex[®] check sleeve that provides through-flow at minimum pressure drop across the valve at all times. Forward pressure opens the valve automatically; reverse pressure seals the valve. The valve's operation is silent and non-slamming.

The inner rubber check valve minimizes wear and deterioration caused by continuous operation of abrasive slurries. There are no mechanical parts such as hinges, disks or metal seats that can freeze, corrode or bind valve operation.

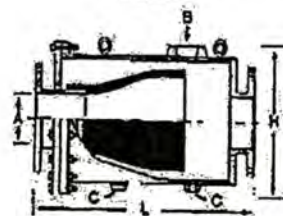
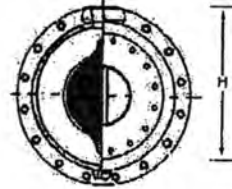


17

The steel-fabricated valve body is designed to provide easy installation or replacement of a standard Tidelflex[®] Check Valve.

The Series 39F Fabricated InLine Check Valve is provided with an inspection port and bottom flush ports.

The valve flanges are drilled for through-bolting; face-to-face dimensions meet ANSI B16.10 specs. When ordering, specify line pressure, backpressure and whether an SST is required.



Dimensions Series 39F Fabricated Body

Valve Size A	Length L	Height H	Clean-Out Plug Dia. B	Flush Port Diameter C	Max. Backpressure (psi)	
					Standard Tidelflex [®]	With Saddle Support
30	80	66	8	1	8	40
36	77	77	6	1	8	35
42	80	90	6	1	5	25
48	90	102	6	1	5	25
54	105	126	6	1	5	20
60	110	126	6	1	5	15
72	125	144	6	1	5	15
84	125	144	6	2	5	15

Numbers indicate maximum dimensions in inches.

Letter of Transmittal

The RETEC Group, Inc.
1011 SW Klickitat Way
Suite 207
Seattle, WA 98134-1162



(206) 624-9349 Phone
(206) 624-2839 Fax
www.retec.com

TO: Travis Walken, Wilder Construction DATE: June 27, 2006
RE: Response to Submittal 7 PROJECT NO: BN050-19390

☐ For Approval	☐ Approved as Submitted	☒ Resubmit _____ Copies for Approval
☐ For Your Use	☒ Approved as Noted	☐ Submit _____ Copies for Distribution
☒ As Requested	☐ Returned for Corrections	☐ Return _____ Corrected Prints
☐ For Review & Comment	☐ Other: _____	

Remarks:

Submittal 7- Check Valve

The check valve submitted meets specifications. Please submit specifications for the valve sleeve material (pure gum rubber, neoprene, Hypalon, buna-N, Vitron, and EPDM) being proposed. This submittal is considered incomplete until the requested material is supplied.

Should you have any questions, please feel free to call me.

Sincerely,

The RETEC Group, Inc.

Michael Byers

cc: Sarah Albano, Dennis Metz
RETEC file BN050-19390

Letter of Submittal

Wilder Construction Company
1525 E. Marine View Drive
Everett, WA 98201



Project	Skykomish Levee Remediation	Date	7/13/2006
		Submittal Number	07a
		Return By	

To: The RETEC Group, Inc.
Mike Byers
Project Manager
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

From: Wilder Construction Company
Travis Walken
Project Manager
1525 E. Marine View Drive
Everett, WA 98201

Bid Item	Spec Reference	Copies	Submittal Description	Drawing Number
28	Addendum No. 2		30" Check Valve	

Remarks by Contractor

Per the manufacturer's recommendation and the requirement of Addendum No. 2, the valve sleeve will be made of neoprene.

The RETEC Group, Inc.
1011 SW Klickitat Way
Suite 207
Seattle, WA 98134-1162



(206) 624-8349 Phone
(206) 624-2839 Fax
www.retec.com

Letter of Transmittal

TO: Travis Walken, Wilder Construction DATE: August 1, 2006
RE: Response to Submittal 7a PROJECT NO: BN050-19390

☐ For Approval	☒ Approved as Submitted	☐ Resubmit _____ Copies for Approval
☐ For Your Use	☐ Approved as Noted	☐ Submit _____ Copies for Distribution
☒ As Requested	☐ Returned for Corrections	☐ Return _____ Corrected Prints
☐ For Review & Comment	☐ Other: _____	

Remarks:

Submittal 7a- Check Valve

The check valve and check valve sleeve submittals meet specifications and are accepted with no exceptions.

Should you have any questions, please feel free to call me.

Sincerely,

The RETEC Group, Inc.

Michael Byers

cc: Sarah Albano, Dennis Metz
RETEC file BN050-19390

Letter of Submittal

Wilder Construction Company
1525 E. Marine View Drive
Everett, WA 98201



Project	Skykomish Levee Remediation	Date	9/11/2006
		Submittal Number	7b
		Return By	

To: The RETEC Group, Inc.
Mike Byers
Project Manager
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

From: Wilder Construction Company
Travis Walken
Project Manager
1525 E. Marine View Drive
Everett, WA 98201

Bid Item	Spec Reference	Copies	Submittal Description	Drawing Number
28	E-mail received on 8/21/2006		32" TF-1 Tideflex Check Valve	

Remarks by Contractor

Revised stormwater check valve with Buna-N sleeve and stainless steel mounting clamps.



**Washington State
Department of Transportation**

Request for Approval of Material

Contract Skykomish Levee Remediation		FA Number	SR	Date 9/11/2006
Section		County		
Contractor Wilder Construction Company Travis Walken		Subcontractor		

For assistance in completing, see Instructions and Example

For WSDOT Use Only

RAM #

Bid Item No.	Material or Manufacturer's Product/Type	Name and Location of Fabricator, Manufacturer or Pit Number	Specification Reference	PE Appr'l Code	Hdqtr. Appr'l Code	File No.
28	32" TF-1 Tidflex Check Valve	Tidflex	E-mail received on 8/21/2006			

Project Engineer	Date	State Materials Engineer	Date
------------------	------	--------------------------	------

Approval Action Codes for use by Project Engineer and State Materials Laboratory

1. Conditionally Approved: Acceptance based upon 'Satisfactory' Test Report for samples of materials to be incorporated into project.
2. Conditionally Approved: Submit Mfg. Cert. of Compliance for 'Approval' prior to use of material.
3. Conditionally Approved: Submit Catalog Cuts for 'Approval' prior to use of material.
4. Conditionally Approved: Submit Shop Drawings for 'Approval' prior to fabrication of material.
5. Conditionally Approved: Only 'Approved for Shipment' or 'WSDOT Inspected' material shall be used.
6. Conditionally Approved: Submit Materials Certificate of Origin to Project Engineer.
7. Approval Pending: Request Transmitted to State Materials Laboratory for Approval Action.
8. Source Approved:
9. Approval Withheld: Submit samples for preliminary evaluation.
10. Approval Withheld:
- 11.

Remarks:

Project Engineer Distribution

- ☐ Contractor ☐ Region Materials
☐ Region Operations Engineer ☐ State Materials Lab

State Materials Engineer Distribution

- ☐ General File ☐ Signing Inspection
☐ Fabrication Inspection ☐ Other

ITEM	QTY.	DESCRIPTION	MAT'L
1	1	CHECK VALVE SLEEVE	BUNA-N
2	2	MOUNTING CLAMPS	304 S/STEEL

NOTES:

- MAXIMUM BACK PRESSURE - 10 FT.
LINE PRESSURE - GRAVITY
- TIDEFLEX IS TO BE MOUNTED WITH THE OUTLET IN THE VERTICAL POSITION
- TIDEFLEX TO FIT ON A 32.0" O.D. PIPE
- BECAUSE OF SAND, ROCK AND OTHER DEBRIS ACCUMULATION BY BACKFLOW OF WATER THE SUGGESTED BOTTOM CLEARANCE SHOULD BE PROVIDED
- CUSTOMER TO SHOW DIRECTION OF PREDOMINANT CURRENT FLOW WITH ARROW IN VIEW 'A-A'. (IF NO CURRENT CUSTOMER TO WRITE NO IN BOX.)

VIEW A-A
NOT TO SCALE

PROPRIETARY NOTICE

THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION OF TIDEFLEX TECHNOLOGIES. IT IS LOANED BY TIDEFLEX TECHNOLOGIES, SUBJECT TO THE CONDITIONS THAT IT AND THE INFORMATION EMBODIED THEREIN SHALL BE USED ONLY FOR RECORD AND REFERENCE PURPOSES. IT SHALL NOT BE USED OR CAUSED TO BE USED IN ANY WAY PREJUDICIAL TO THE INTERESTS OF TIDEFLEX TECHNOLOGIES. IT SHALL NOT BE REPRODUCED OR COPIED IN WHOLE OR PART, OR DISCLOSED TO ANYONE WITHOUT THE DIRECT WRITTEN PERMISSION OF TIDEFLEX TECHNOLOGIES AND SHALL BE RETURNED UPON REQUEST.

CUSTOMER APPROVAL

SIGNED _____ DATE _____

SALES ORDER N°:T06-1877

Tideflex®
Technologies
A Division of Red Valve Company, Inc.

700 N. BELL AVE.
CARNEGIE, PA.
15106
info@tideflex.com

TT PRODUCT: 32" TF-1 TIDEFLEX CHECK VALVE

TT PART N°:TF1-320-APPROVAL

DR. BY: MVH DATE: 9-06-06 CHKD. BY: DATE: REV:

CAD SCALE: FULL

PLOT SCALE: .05

DWG N°:TTS-32773

CUSTOMER: WILDER CONSTRUCTION

ORDER No: E6016

CUSTOMER: WILDER CONSTRUCTION
ORDER No: E6016

The RETEC Group, Inc.
1011 SW Klickitat Way
Suite 207
Seattle, WA 98134-1162



(206) 624-9349 Phone
(206) 624-2839 Fax
www.retec.com

Letter of Transmittal

TO: Travis Walken, Wilder Construction DATE: September 18, 2006
RE: Response to Submittal 7b PROJECT NO: BN050-19390

☐ For Approval	☐ Approved as Submitted	☐ Resubmit	_____ Copies for Approval
☐ For Your Use	☒ Approved as Noted	☐ Submit	_____ Copies for Distribution
☒ As Requested	☐ Returned for Corrections	☐ Return	_____ Corrected Prints
☐ For Review & Comment	☐ Other:	_____	

Remarks:

Submittal 7b- 32" TF-1 Tideflex Check Valve

The revised submittal for the 32" TF-1 Tideflex check valve is accepted as submitted but the contractor must verify the actual outer diameter of the pipe (Note 3).

Should you have any questions, please feel free to call me.

Sincerely,

The RETEC Group, Inc.

Michael Byers

cc: Sarah Albano, Dennis Metz
RETEC file BN050-19390

Submittal 8
Shoring Design

Letter of Submittal

Wilder Construction Company
1525 E. Marine View Drive
Everett, WA 98201



Project	Skykomish Levee Remediation	Date	7/31/2006
		Submittal Number	008a
		Return By	8/7/2006

To: The RETEC Group, Inc.
Mike Byers
Project Manager
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

From: Wilder Construction Company
Travis Walken
Project Manager
1525 E. Marine View Drive
Everett, WA 98201

Bid Item	Spec Reference	Copies	Submittal Description	Drawing Number
4	02260		NA	

**Remarks by
Contractor**

Attached is a temporary shoring design utilizing geotextile and concrete blocks.
Please review and approve.

28Jul06
#1600

To: Travis Walken & Quinn Golden / Wilder Construction
From: Frank Pita, PE

RE: Concrete Block Wall Engineering Considerations & Design, BNSF
Skykomish Clean up, Skykomish, WA.

Background / General Discussion

During a discussion at Wilder's Skykomish office, the approach of using an interlocking block wall system combined with a geofabric wrapped soil strengthening system was proposed as a means to replace the sheetpile alternative. The reason for the change was the very coarse nature of the river deposits and the difficulty of driving sheetpiles into this material. It is well known in the industry that driving sheetpiles into dense gravel is nearly impossible.

The proposed interlocking block approach places the base or bottom of the concrete blocks at the depth needed to remove the contamination. The concrete block system is constructed generally as follows:

- On the contaminated side of the blocks, a 1H to 1V slope would be cut as the mass excavation takes place,
- Then at the toe of this slope, one or two rows of blocks would be placed.
- How these blocks are placed and secured has options, which are as follows:
 - Option #1: the geogrid would be placed between the blocks and an MSE wall would be built to any height desired. Material would be backfilled on the contaminated side of the wall as well, or
 - Option #2: the blocks would only be one or two high and geofabric layers would be built behind the blocks till they reached the top of the blocks. The thickness of each geofabric wrapped lift would be 18 inches. Then at the top of blocks, the geofabric wall would continue upward but no blocks would be in front. The blocks can not be built higher than two high without geogrid in between because of overturning stability. However, an option to this is to backfill on the contaminated side as the blocks are placed so that overturning is not possible.

In the option #1, the blocks are buried till the next phased. In option #2, the blocks are left, removed / reused as the wall construction progresses. The contaminated area is backfilled against the geofabric wrapped layers as they are constructed or after.

Retec, the owner's engineer, prepared a plan and sections of this option, which was emailed to MPA. The sections (sht C-15) show that about 17 feet is the maximum depth with 13 to 15 feet being the depth in the other sections. How the Wilder staff completes this wall up near the top has not been finalized. The options are to:

- Build a vertical block wall to the surface using geogrids to act as supports.
- Use the blocks to aid in the construction of the geofabric wrapped layers at the bottom and then use another form, such as wood, to result in a near vertical wall of wrapped fabric to the surface.
- Or do either one of the above but then slope the upper fill till the entire area is backfilled, so that only 4 to 6 feet of vertical wall is built and then both sides are backfilled so stability is achieved.

MPA's Scope of Work

MPA's requested scope of design is as follows:

- Present the general options for block wall and/or geofabric wrapped fill.
- Have either the block or geofabric wall designed such so that during the next phase of work, the excavation up against it will be stable.
- Design a supporting or monitoring system when the excavation is near an existing to remain structure.

The general options are presented above and the other two scope items follow.

Ultrablock Wall Left in Place

The block wall needs a Miragrid 3XT or equal that is placed between each block layer and it extends back 0.7 of the height, so if 10 feet the grid from BACK OF BLOCKS needs to be 7 feet or total length of grid is about 9.5 feet, more is OK but not less. See the attached copy of Ultrablock design for a level backfill.

If a slope of material is to be placed on top, the grids at the block wall level need to be longer. They need to be 0.9 of the wall height. So if the wall is 10 feet high and 7 feet of sloping material is to be placed on top, the geogrids need to be 9 feet long from the back of the blocks. See attached sketch of grids and blocks.

Wrapped wall w/ or without blocks

If you wrap the face, then use the non woven fabric = Mirafi HP370 or equivalent and wrap it every 18 inches like the attached example. The bottom length is 0.7 H, like the blocks and the overlap is 4 feet, so total is $7' + 1.5' + 4'$ per lift. Please read the example on how an 'L' shaped form was used to get a near vertical wall.

Like the block wall above, if a sloping fill is to be placed above the geofabric wrapped layers, then the geofabric must be 2 feet longer (9 feet). See attached sketch.

Distance or Protection of Structures

A drawing was emailed MPA that shows the footings of the existing school building of Skykomish. The drawing shows that the footings are approximately 5 feet below the ground surface on the north side of the structure. A footing creates a cone of stress that radiates outward from it with side slopes equal to 1H to 1V (see sketch 3 of 3). If the excavation cut slope remains outside this cone, the footing

should remain stable in this type of soil. Obviously, if for some reason, the soil becomes steeper than a 1H to 1V and the footing is undermined because the slope fails do to landsliding, it will NOT remain stable. If that occurs, then underpinning is required.

Technique & Monitoring Recommendations of the Cut Slopes

MPA would recommend the following:

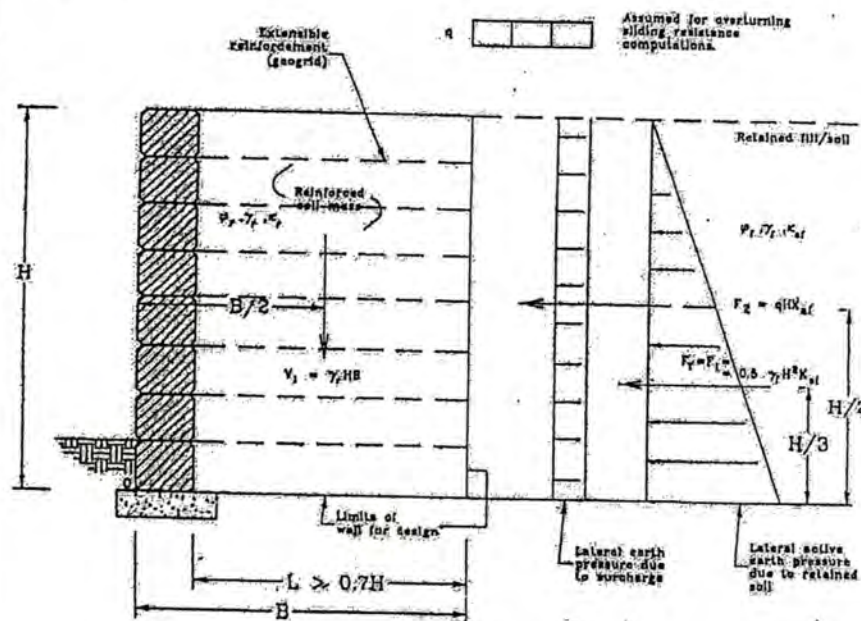
1. Instability of the cut slopes will occur because of the exiting groundwater from the side or base of the slope. Therefore, because of this condition, Wilder must be ready to place a filter gravel (like railroad ballast or WSDOT shoulder ballast) over the exiting water so that the water passes through but the soil sand and fines are retained.
2. The first cut slopes should be performed where no structures are near. The control of the water, the speed of backfilling to stabilize the area and placement of blocks etc. must be learned prior to nearing a structure. MPA can assist with this evaluation if you would like.
3. According to WISHA trench regulations, a 1H to 1V slope is allowable in the type of material at the site but worker safety must be kept in mind. No worker should be between the blocks and the cutslope, ever.
4. Cuts should be open for as short a time as possible.

Closure

As with every shoring subtask in a project, the Wilder crew and their supervision should keep constant vigil of the system and adjacent structures looking for any movement. MPA should be notified if movement occurs or if conditions are not as predicted (ie: more cut then 15 feet, water table not as expected, and / or material not as in borings and on cross section).

Please contact us with questions. Good luck....





NOTATIONS

- H = Design wall height (m or ft)
 q = Continuous surcharge loading (kN/m^2 or ksf)
 $F_1 = F_T$ = Resultant Active lateral earth pressure force (kN/m or k/ft)
 F_2 = Lateral earth pressure force due to continuous surcharge (kN/m or k/ft)
 V_1 = Weight of reinforced soil mass, including facing blocks (kN/m or k/ft)
 B = Total base width of wall, including facing blocks (m or ft)
 ρ = Soil/reinforcement interface friction angle (deg)
 ϕ = Friction angle of foundation soil (deg)

SAFETY FACTOR AGAINST OVERTURNING (MOMENTS ABOUT POINT O):

$$S.F.(O) = \frac{\sum \text{Moments Resisting (Mr)}}{\sum \text{Moments Overturning (Mo)}} = \frac{V_1 (B/2)}{F_1 (H/3) + F_2 (H/2)} \geq 2.0$$

SAFETY FACTOR AGAINST SLIDING:

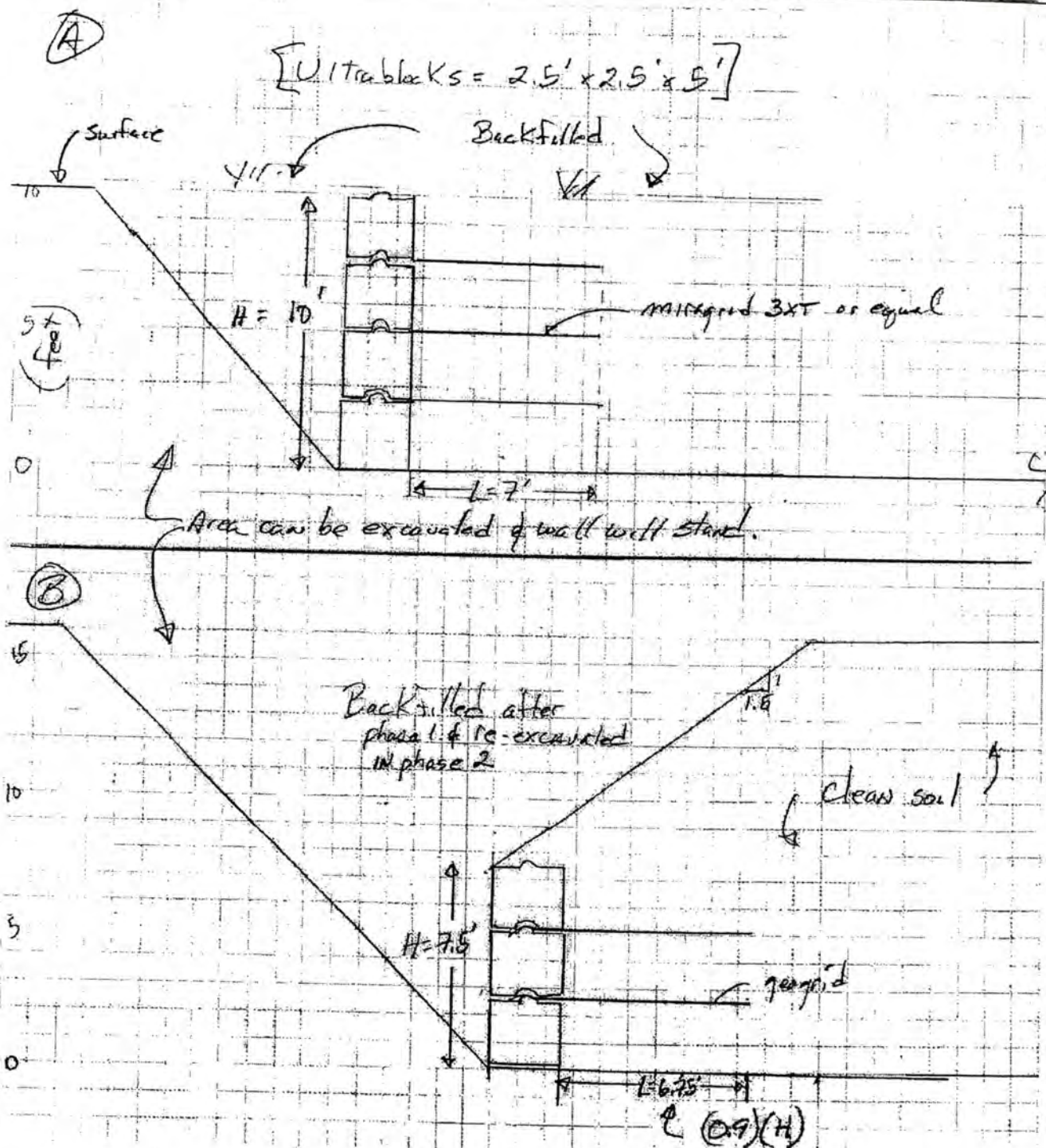
$$S.F.(S) = \frac{\sum \text{Horizontal Resisting Force (s)}}{\sum \text{Horizontal Driving Force (s)}} = \frac{V_1 \tan(\rho + \phi)}{F_1 + F_2}$$

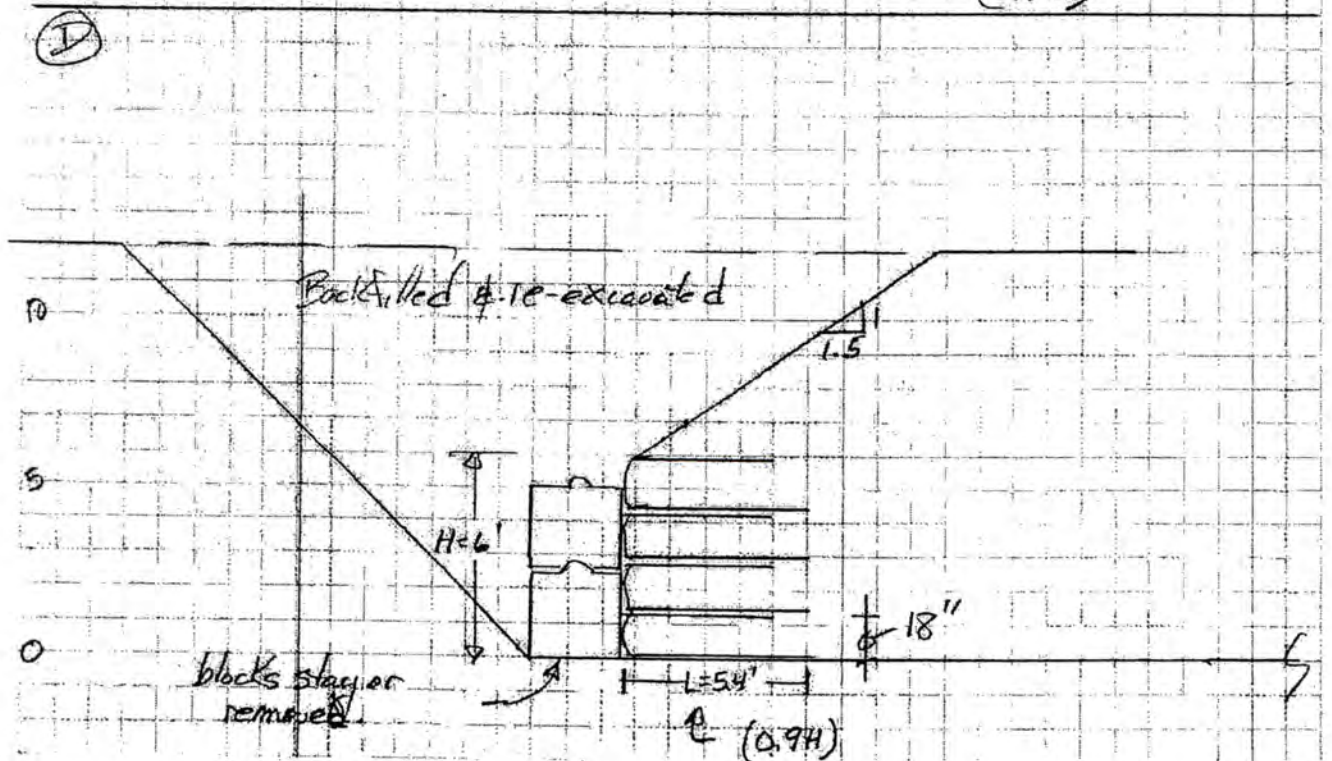
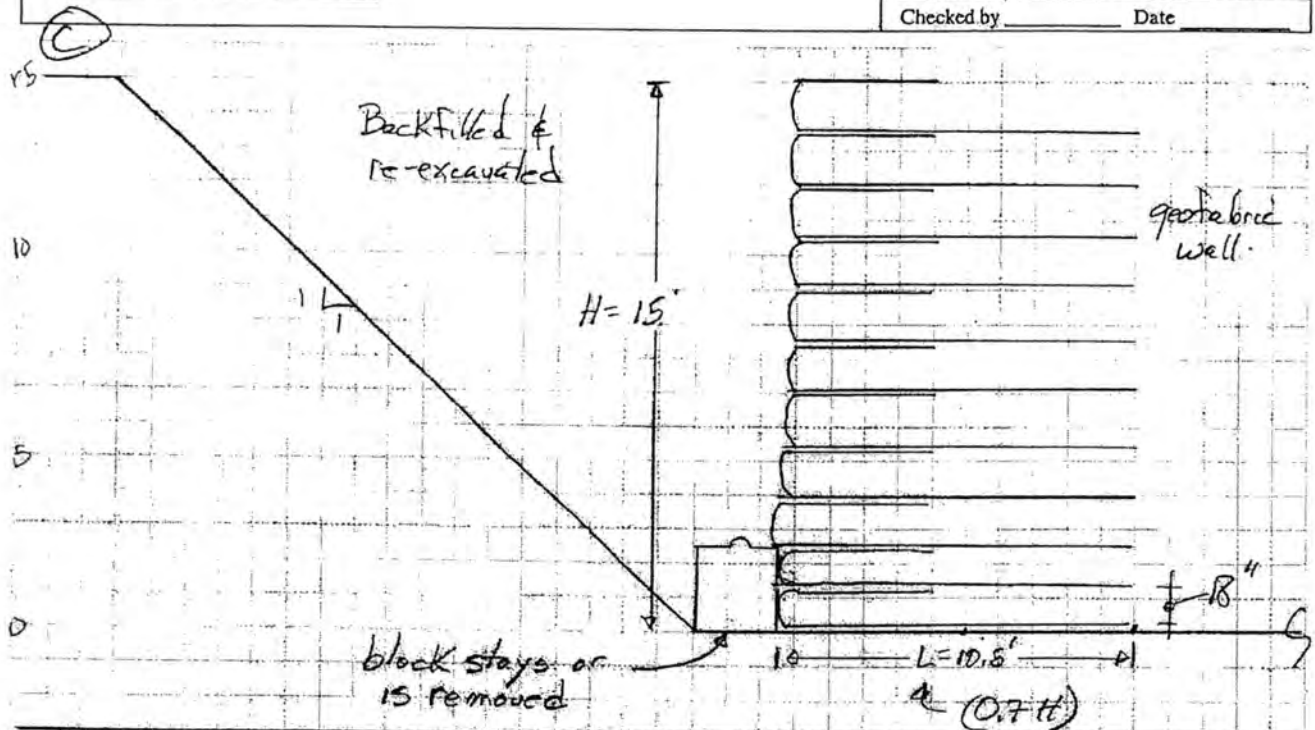
*Whichever is lower

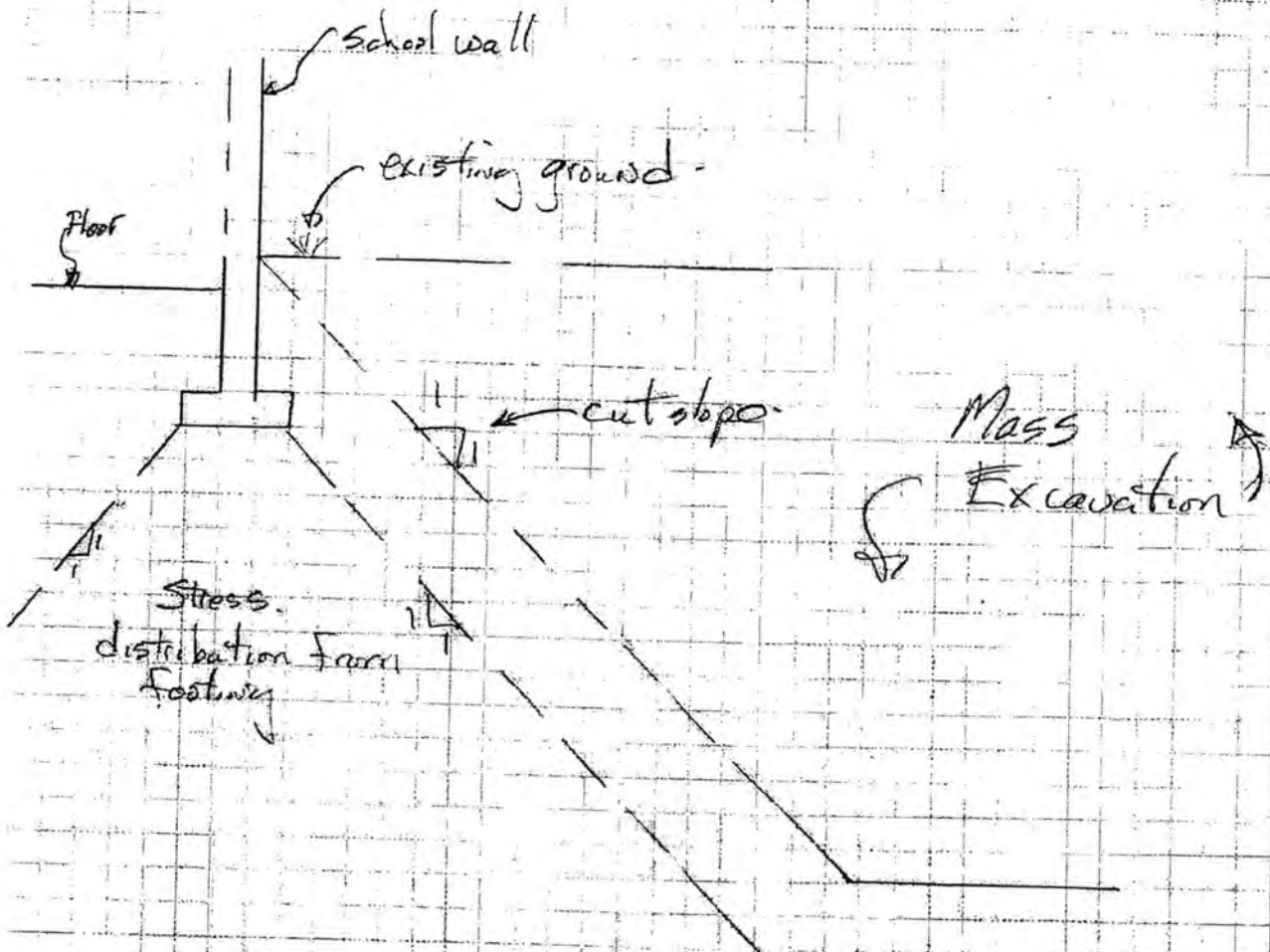
$$\tan \rho = 0.67 \tan \phi$$

CASE I: HORIZONTAL BACKSLOPE INCLUDING TRAFFIC SURCHARGE

Lock-Block™ MSE Wall Design Manual			
EXTERNAL STABILITY - OVERTURNING & SLIDING			
As Shown	4	V97-0140	10/21/97
USER BR	REVDATE	08/21/98	THANE V97_014014







Keep cut slope 'outside' the cone of stress produced by the structure.

If inside the ultimate cone, need underpinning!

application

location

product

Temporary Wrapped Face Walls Columbia, Maryland Mirafi® HP370

THE CHALLENGE

Portions of the proposed Archstone Communities Apartment Complex were partially developed with flexible pavement parking facilities, while a majority of the site laid undeveloped, covered with mature growth trees, heavy underbrush and steep topographic relief. The planned site development indicated significant amounts of mass grading to achieve proposed grades for the building pads for approximately twenty clusters of residential apartments, a club house, swimming pool, two parking structures, numerous retaining walls, flexible pavement entrances and exits and limited at-grade parking. In order to facilitate the mass grading operations and retaining wall construction, temporary wrapped face MSE walls needed to be designed for wall heights of up to 4.6 meters (15 feet).

THE DESIGN

The temporary MSE walls were

designed to utilize Mirafi HP370 woven geotextile as the primary reinforcement. Each layer was designed to incorporate a 0.5 meter (1.5 ft) face height and 1.2-meter (4 ft) wrap-back as well as full design primary reinforcement lengths. Maximum wall heights of up to 4.6 meters (15 ft) were designed to support construction traffic loads for a design life of 1 to 2 years. As a result of design traffic loads and planned site topography, Mirafi HP370 was chosen as the primary geotextile reinforcement.

CONSTRUCTION

Phased construction of the MSE walls began in September 2000 at the higher elevations of the site, then continued across the heart of the site, and was completed near the low end of the site. Construction of each wall began by excavating the existing soil to the required elevations for placement of the first layers of reinforcement. Mirafi HP370 was placed from the back of the excavation, towards the front and

staked to hold the materials in-place. Wooden "L" shaped forms were placed at the outward boundaries of the wall footprints and were used to create the vertical faces of each lift. The primary reinforcement was placed up the back of the "L" brackets, with a flap of geotextile draped over the face for completion of the lift. Once the on-site fill materials were compacted into place over the primary reinforcement lengths, the reinforcement flap was wrapped-back over the top of the soil lift a minimum of 1.2-meters (4 ft). The construction processes were repeated for each lift of each temporary MSE wall until its design height was reached.

JOB OWNER:
Archstone Communities
ENGINEER
CIS Engineering, Inc.
CONTRACTOR:
Accu-Crete, Inc.





Memorandum

To: Louise Bardy (Washington State Department of Ecology)

From: Ulf Gwildis (CDM)

Date: 08/02/06

*Subject: BNSF Skykomish Cleanup
Review of Wilder Submittal No. 008a*

This memorandum provides review comments on submittal no. 008a, dated 07/31/06, submitted by Wilder Construction Company, Everett, WA. The review comments focus on the geotechnical aspects of the proposed construction.

Submittal content

Wilder's geotechnical consultant, Milbor-Pita and Associates (MPA), provides the design of four retaining wall options for an excavation up to 17 ft deep:

- Vertical concrete block wall stabilized by geotextile (Miragrid 3XT or equivalent) with horizontal ground surface on top.
- Vertical concrete block wall stabilized by geotextile (Miragrid 3XT or equivalent) with sloped ground surface on top.
- Vertical MSE wall using the non-woven geotextile Mirafi HP370 or equivalent with horizontal ground surface on top (Note: The design includes max. 2 rows of concrete blocks at the bottom of the MSE wall to be removed or left in place after its construction).
- Vertical MSE wall using the non-woven geotextile Mirafi HP370 or equivalent with sloped ground surface on top (Note: The design includes max. 2 rows of concrete blocks at the bottom of the MSE wall to be removed or left in place after its construction).

Furthermore, MPA discusses the boundary conditions in front of the face of the retaining wall which consist of a temporary slope in mostly sandy, silty, and gravelly soils, an existing building near the crown of the temporary slope, and the groundwater table being above the bottom of the excavation.

Review comments

Retaining wall

- The proposed retaining wall options are considered feasible if the issues listed below are taken into consideration and included in the design and construction.
- Stabilization measures of the foundation level of the retaining walls may be required, especially prior to placing concrete blocks. Those stabilization measures may include dewatering measures, placement of crushed rock or gravel in loose soils, and replacement of unsuitable soils (e.g., soft, clayey/silty soils) with non-cohesive material (sand, gravel).
- Please note that any cohesive (i.e. clayey and/or silty) soils directly beneath the retaining wall will likely cause settlements over an extended period of time after the load is applied.
- Future loads (e.g., re-located homes or other structures) that may have an impact on the retaining wall (when re-excavation during the next project phase will take place) need to be taken into consideration, especially for those options that include a sloped section.
- Although the concrete block wall should be expected to reduce the average hydraulic conductivity along the alignment, neither of the proposed retaining wall options can be considered a barrier to any upstream contaminations. If that aspect of the retaining system needs to be enhanced, adding HDPE liner elements to the wall face might be an option worth considering.

Temporary slope in front of the wall face (cut slope)

- The 1H:1V slope as sketched in the submittal is not sufficiently stable, as acknowledged by MPA on page 3, line 7f. The consequences are outlined as follows.
- We agree with MPA's assessment that no worker should be between the concrete blocks and the cut slope ever. Please note, that MPA states that according to WISHA trench regulations a 1H:1V slope is allowable in the type of material at the site, which would consider the site material 'Type B' per WAC 296-155-66401. In our assessment the site material type and groundwater condition constitutes a 'Type C' condition for which the maximum allowable slope for excavations less than 20 feet deep is 1.5H:1V.
- MPA states that Wilder must be ready to place a filter gravel (like railroad ballast or WSDOT shoulder ballast) over the part of the slope where groundwater exits, so that the water passes through but the soil is retained. We agree with the proposed

procedure and we recommend that the designer provides detailed instructions to the contractor with regard to the geometry and composition of the gravel filter to ensure that the soil fines will be retained. The use of filter fabric may be beneficial if its installation can be carried out in compliance with the work safety requirement mentioned above.

- MPA considers the foundation of the existing school building as sufficiently stable as sketched in the submittal. MPA states that if the slope does become steeper than 1H:1V and the footing is undermined, underpinning (of the foundations) is required. MPA's considerations (as far as they are included in the submittal) do not include verifying sufficient overturning stability of the foundations next to the cut slope. We recommend determining the minimum offset required, based on calculations of the factor of safety against overturning. Also, we recommend placement and monitoring of settlement pins on the building during the time the cut slope does exist. The monitoring program should include action levels which would require immediate corrective action (e.g., backfilling) in case movement of the building is observed.

cc: Susan Penoyar, CDM

18Aug06
#1600

To: Travis Walken & Quinn Golden / Wilder Construction
From: Frank Pita, PE, LHG.

RE: Reply to Comments by CDM to Ecology: Concrete Block Wall Engineering Considerations & Design, BNSF Skykomish Clean up, Skykomish, WA.

Wilder Submittal #008a

Per your request, I have reviewed the CDM memorandum dated 2Aug06 concerning the design / construction of the block wall option. MPA will comment on each item or comment in order beginning on the top of page 2.

Retaining Wall

- MPA agrees with CDM that this type of wall is feasible. MPA will summarize at end of this memo if all the comments can be complied with.
- MPA agrees that if soft pockets are found at foundation level, that they must be over excavated & backfilled to result in a firm non-yielding condition.
- MPA agrees that silts and/or clays will cause settlement if loaded with a heavier load than what was on them prior to excavation, but the borings, such as they were, did not show this to be the case. However, if soft pockets of this material are found at foundation level, they must be over excavated & backfilled to result in a firm non-yielding condition.
- MPA agrees that the load of the structures needs to be taken into account in the wall design. MPA used a general 200 to 250 pounds per square foot surcharge everywhere and we realize that a foundation concentrates the load. MPA recommends that once the location of the wall and the houses are known, that each house be looked at individually and a memo prepared if this approach is approved.
- MPA agrees that the block wall system is not a hydraulic barrier. CDM's idea has merit in that spaces between the blocks would be sealed with a solvent resistance, flexible material that would fill the void. A caulking or mortar would work also.

Temporary slope in front of the wall face (cut slope)

- MPA agrees with CDM in that exiting water on the face of the 1H to 1V slope is unstable, but this condition would also be true for a 1.5H to 1V slope.

- MPA agrees with the comment that if water was exiting the soil the soil then it would be considered type C. Therefore, to stabilize this, MPA would recommend a dewatering system, such as a vacuum system, that lowers the water below the work area but does NOT pull it down far enough to pump the contaminated water.
- MPA, according to a discussion with Wilder's management, will observe the initial excavations and develop a plan at that time to stabilize the slope using the proper filter material. Filter fabric is NOT recommended because it becomes plugged too easily and the 100 mesh size does NOT let enough water through in MPA's experience.
- MPA agrees with these monitoring comments and possible design options. Again, in discussions with Wilder's management, MPA will evaluate the situation when the excavation is not near the school and then a solution of sloping, controlling the water and/or underpinning will be designed.

In summary, it appears that Wilder can comply with the CDM comments by beginning the project in the open field area and then by using the observational method, decide on a plan to stabilize or support the slope.

Closure

As with every shoring subtask in a project, the Wilder crew and their supervision should keep constant vigil of the system and adjacent structures looking for any movement. MPA should be notified if movement occurs or if conditions are not as predicted (ie: more cut than 15 feet, water table not as expected, and / or material not as in borings and on cross section).

Please contact us with questions. Good luck.....

Letter of Submittal

Wilder Construction Company
1525 E. Marine View Drive
Everett, WA 98201



Project	Skykomish Levee Remediation	Date	6/12/2006
		Submittal Number	8
		Return By	

To: The RETEC Group, Inc.
Mike Byers
Project Manager
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

From: Wilder Construction Company
Travis Walken
Project Manager
1525 E. Marine View Drive
Everett, WA 98201

Bid Item	Spec Reference	Copies	Submittal Description	Drawing Number
4	Section 02260		N/A	

**Remarks by
Contractor**

Attached is the proposed sheetpile shoring design. Actual spacing of the helical anchors will be dependent on the load test of test anchors. Test anchors will be installed and loaded prior to construction of the sheetpile shoring.

9Jun06
#1600

To: Travis Walken & Quinn Golden / Wilder Construction
From: Frank Pita, PE

RE: Sheetpile Design Cases based on Discussions w/ Wilder Construction both Before & After Bidding.

During the bidding process, Peter Welch of Wilder contacted me to assist him in the sheetpile configurations needed to accomplish the requirements of the contract documents. His input to me consisted of two conditions as follows:

Condition #1

- 100 LF - 10' vert pile face with 5' surcharge above at 2:1 slope and 3 story school building foundation at the top of the slope.
- 300 LF - same as 1A except without the school building

Condition #2

- 200 LF - 5' vert pile face with 5' surcharge above and no tiebacks
- 100 LF - 5' vert pile face with 8' surcharge above and no tiebacks

Mr. Welch also provided me with the plans, a portion of specifications and 5 boring logs. The difficulty with the boring logs is that only one had blow counts on them, all the others just recorded the density based on the geologist observations in the field. From this data their appears to be a discrepancy in that nearly all the written information calls the sediments loose while the two blow counts would be considered dense. MPA feels that most the sediments are loose to medium but the large cobbles and boulders will give results like they are dense. Therefore, driving of sheetpiles could be difficult in some areas because of the possibility of encountering large or nested cobbles or boulders. Wilder made a decision to use 20 foot long sheets in a cantilever condition where possible and with a tieback in others. This decision was based on the ability of a track excavator being able to dig down and remove obstructions with the 20 foot depth.

To evaluate the two conditions above, MPA performed three analyses, which are attached. The cases are as follows:

1. 10 feet of vertical excavation and tiebacks.
2. 10 feet of vertical excavation and no tiebacks.
3. 5 feet of vertical excavation and no tiebacks.

In all the cases the following input parameters were used:

- Water table at level of excavation floor, therefore dewatering may be necessary.

- The phi angle of the soil is 30 degrees.
- The sheetpiles are AZ18s.
- The factor of safety for design is 2.0.
- A 2H to 1V slope surcharge is present in all conditions, but the school loading is not taken into account because geometry indicates that a footing at some depth below the school would not transmit a load to the sheets. Also, the sheetpile system should not be used to underpin a 3 story structure but another underpinning system should be designed.

The results show the following:

- The 5 foot cut is stable with a 20 foot long cantilever sheetpile.
- The 10 foot cut either requires a tieback near the top to allow a 20 foot long sheetpile to be used or the sheets need to be 35 feet long.
- The program also calculates the loading per foot of wall for the waler and tieback to resist. The load is 3,075 #/lf of wall. This results in a loading of approximately 31 kips/tieback if they are on 10 foot spacing. The waler will have be sized accordingly as well.

During the bidding process, MPA recommended that Wilder pursue helical anchors that could be 'screwed' into the sandy/gravelly soil by their crews. MPA has hand good success with these and it is believed that the larger size anchors should obtain the 31 kips needed if they can be installed to the proper depth. If the distance of embedment is shortened by property line restrictions, then the smaller anchors, at closer spacing, should be workable.

At this time MPA does not know what type of spacing can be achieved at the site. MPA recommends that a day of testing be set up where Wilder, MPA and the helix anchor supplier are present and different lengths, diameters and configurations of anchors can be installed and then pull test them. The supplier has criteria that he recommends for permanent anchors but these could be lessened somewhat since this is a temporary condition. Please contact MPA so that we can have a person on site for the testing. Like Wilder, MPA is busy and we need time to schedule this.

Also, based on discussions at the meeting in your office, the client may want Wilder to remove the helical anchors after the site is partially backfilled. These anchors lend themselves well to this; the same hydraulic motor that 'screws' the anchor in and be reversed to allow removal.

For the next stage of this remediation, Wilder (at the request of the client) may want to install geogrid or fabric wrapping in the backfill so that when in the future the material is excavated from the other side of the sheetpiles, the resulting lateral force trying to bend the sheets over is much reduced. A broad spacing on approximately every 24 inches vertically could be used. The length of the grids should be about the same as the vertical cut anticipated on the other side.

Closure

As with every shoring subtask in a project, the Wilder crew and their supervision should keep constant vigil of the system and adjacent structures looking for any movement. MPA should be notified if movement occurs or if conditions are not as predicted (ie: more cut then 10 feet, water table not at level of excavation or below, and steeper slope above the sheetpiles.

Please contact us so that we can participate in the anchor testing as then finalize our design recommendations. Good luck.....

A handwritten signature in cursive script is written over a circular official stamp. The stamp contains the text "STATE OF WASHINGTON" and "DEPARTMENT OF TRANSPORTATION". Below the signature, there is a small rectangular box containing the number "07".

Client: Wilder Construction / Everett Title: BNSF Skykomish Excavation shoring Designer: F. Pita Page: 2 Date: 6.9.06	Input Data Depth Of Excavation = 10.00 ft Depth Of Active Water = 10.00 ft Water Density = 62.43 pcf Surcharge = 208.8 psf Depth Of Passive Water = 10.00 ft Minimum Fluid Density = 31.82 pcf Slope (active) = 28.0 degrees											
Sheet: Arbed AZ18 Pressure: Coulomb FOS: 2.0 Toe: Free Earth Support Case 1: Pile length = 20 max; 10 foot cut; tieback at top of sheets	Soil Profile											
	Active Side											
Depth (ft)		Soil Name	γ (pcf)	γ' (pcf)	C (psf)	C_a (psf)	ϕ (°)	δ (°)	K_a	K_{ac}	K_p	K_{pc}
0.00		Dense Coarse Sand	115.82	68.73	0.0	0.0	30.0	11.0	0.57	0.00	19.33	0.00
Soil Profile										Passive Side		
Depth (ft)		Soil Name	γ (pcf)	γ' (pcf)	C (psf)	C_a (psf)	ϕ (°)	δ (°)	K_a	K_{ac}	K_p	K_{pc}
0.00		Dense Coarse Sand	115.82	68.73	0.0	0.0	30.0	11.0	0.31	0.00	4.29	0.00
Solution												
Sheet												
Sheet Name		I (in ⁴ /ft)	E (psi)	Z (in ³ /ft)	f (psi)	Maximum Bending Moment (ftlb/ft)	Upstand (ft)	Toe (ft)	Pile Length (ft)			
Arbed AZ18		250.40	3.04E+07	33.50	25000.0	69708.5	0.00	9.17	19.17			
Load Model: Area Distribution												
Supports												
Depth (ft)	Type	Linear Load (lb/ft)										
0.00	Waler	3075.6										
Maxima												
						Maximum	Depth					
Bending Moment						15129.4 ftlb/ft	8.00 ft					
Deflection						0.1 in	8.80 ft					
Pressure						779.2 psf	10.00 ft					
Shear Force						3073.7 lb/ft	0.00 ft					

Milbor-Pita & Associates, Inc.

Woodinville, WA
 Tel: 425 486 6561
 Fax: 425 488 2660
 Email: pita@milbor-pita.com

SPW911, v2.20
© 2001 - 2003, Pile Buck, Inc.
 Email: pilebuck@pilebuck.com
 Web: www.pilebuck.com

Client: Wilder Construction / Everett

Title: BNSF Skykomish Excavation
shoring

Designer: F. Pita

Page: 1

Date: 6.2.06

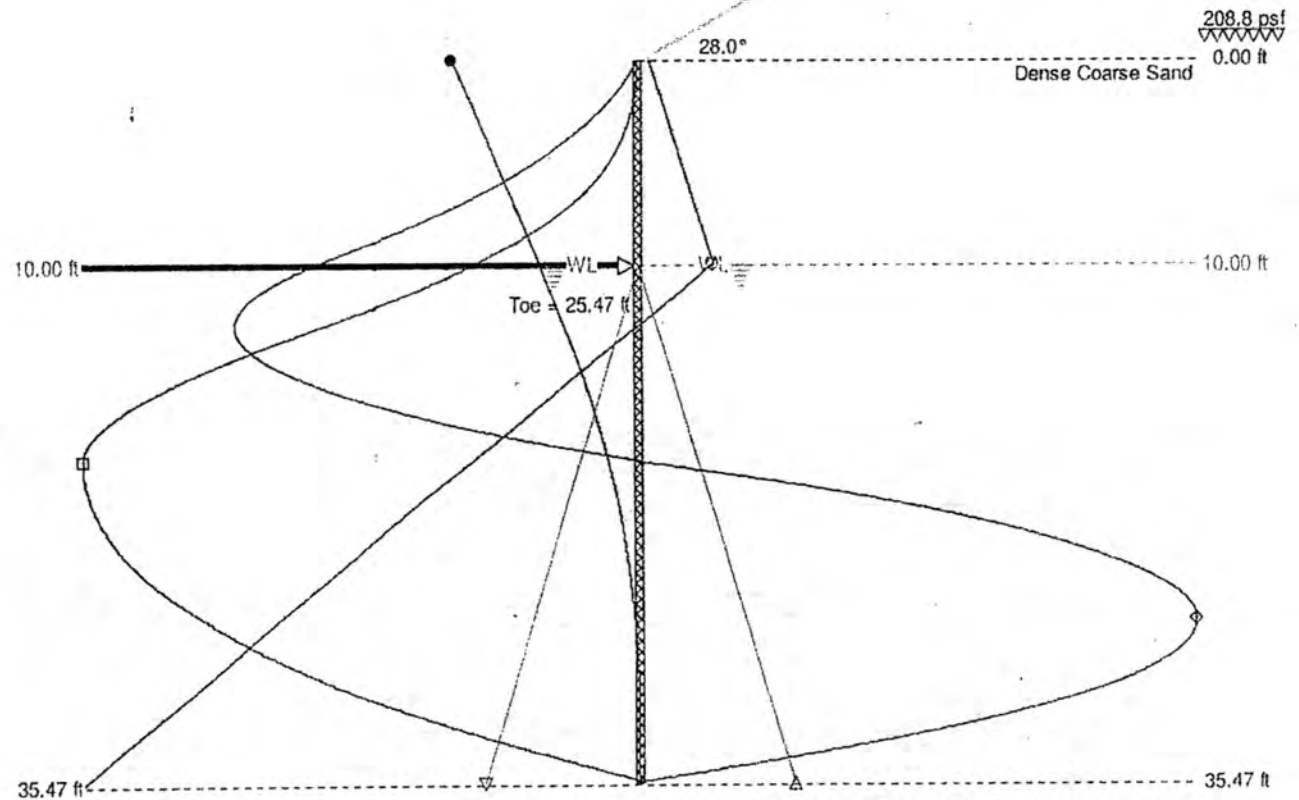
Sheet: Arbed AZ18

Pressure: Coulomb

Toe: Cantilever

	Maximum	d (ft)
○	779.2 psf	10.00
□	58316.8 ftlb/ft	19.71
◇	7846.1 lb/ft	27.57
●	5.2 in	0.00
△	1589.9 psf	35.47
▽	1589.9 psf	35.47

Case 2: Pile length = 30 max; 10 foot cut;
no tiebacks



Milbor-Pita & Associates, Inc.

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SPW911, v2.20

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Email: pilebuck@pilebuck.com
Web: www.pilebuck.com

Client: Wilder Construction / Everett Title: BNSF Skykomish Excavation shoring Designer: F. Pita Page: 2 Date: 6.2.06	<u>Input Data</u> Depth Of Excavation = 10.00 ft Surcharge = 208.8 psf Slope (active) = 28.0 degrees Depth Of Active Water = 10.00 ft Depth Of Passive Water = 10.00 ft Water Density = 62.43 pcf Minimum Fluid Density = 31.82 pcf Soil Profile <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Depth (ft)</th> <th>Soil Name</th> <th>γ (pcf)</th> <th>γ' (pcf)</th> <th>C (psf)</th> <th>C_a (psf)</th> <th>ϕ (°)</th> <th>δ (°)</th> <th>K_a</th> <th>K_{ac}</th> <th>K_p</th> <th>K_{pc}</th> </tr> </thead> <tbody> <tr> <td>0.00</td> <td>Dense Coarse Sand</td> <td>115.82</td> <td>68.73</td> <td>0.0</td> <td>0.0</td> <td>30.0</td> <td>11.0</td> <td>0.57</td> <td>0.00</td> <td>19.33</td> <td>0.00</td> </tr> </tbody> </table> Soil Profile <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Depth (ft)</th> <th>Soil Name</th> <th>γ (pcf)</th> <th>γ' (pcf)</th> <th>C (psf)</th> <th>C_a (psf)</th> <th>ϕ (°)</th> <th>δ (°)</th> <th>K_a</th> <th>K_{ac}</th> <th>K_p</th> <th>K_{pc}</th> </tr> </thead> <tbody> <tr> <td>0.00</td> <td>Dense Coarse Sand</td> <td>115.82</td> <td>68.73</td> <td>0.0</td> <td>0.0</td> <td>30.0</td> <td>11.0</td> <td>0.31</td> <td>0.00</td> <td>4.29</td> <td>0.00</td> </tr> </tbody> </table> <u>Solution</u> Sheet <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Sheet Name</th> <th>I (in⁴/ft)</th> <th>E (psi)</th> <th>Z (in³/ft)</th> <th>I (psi)</th> <th>Maximum Bending Moment (ftlb/ft)</th> <th>Upstand (ft)</th> <th>Toe (ft)</th> <th>Pile Length (ft)</th> </tr> </thead> <tbody> <tr> <td>Arbed AZ18</td> <td>250.40</td> <td>3.04E+07</td> <td>33.50</td> <td>25000.0</td> <td>69708.5</td> <td>0.00</td> <td>25.47</td> <td>35.47</td> </tr> </tbody> </table> Maxima <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Maximum</th> <th>Depth</th> </tr> </thead> <tbody> <tr> <td>Bending Moment</td> <td>58316.8 ftlb/ft</td> <td>19.71 ft</td> </tr> <tr> <td>Deflection</td> <td>5.2 in</td> <td>0.00 ft</td> </tr> <tr> <td>Pressure</td> <td>779.2 psf</td> <td>10.00 ft</td> </tr> <tr> <td>Shear Force</td> <td>7846.1 lb/ft</td> <td>27.57 ft</td> </tr> </tbody> </table>	Depth (ft)	Soil Name	γ (pcf)	γ' (pcf)	C (psf)	C_a (psf)	ϕ (°)	δ (°)	K_a	K_{ac}	K_p	K_{pc}	0.00	Dense Coarse Sand	115.82	68.73	0.0	0.0	30.0	11.0	0.57	0.00	19.33	0.00	Depth (ft)	Soil Name	γ (pcf)	γ' (pcf)	C (psf)	C_a (psf)	ϕ (°)	δ (°)	K_a	K_{ac}	K_p	K_{pc}	0.00	Dense Coarse Sand	115.82	68.73	0.0	0.0	30.0	11.0	0.31	0.00	4.29	0.00	Sheet Name	I (in ⁴ /ft)	E (psi)	Z (in ³ /ft)	I (psi)	Maximum Bending Moment (ftlb/ft)	Upstand (ft)	Toe (ft)	Pile Length (ft)	Arbed AZ18	250.40	3.04E+07	33.50	25000.0	69708.5	0.00	25.47	35.47		Maximum	Depth	Bending Moment	58316.8 ftlb/ft	19.71 ft	Deflection	5.2 in	0.00 ft	Pressure	779.2 psf	10.00 ft	Shear Force	7846.1 lb/ft	27.57 ft
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Milbor-Pita & Associates, Inc.

Woodinville, WA
 Tel: 425 486 6561
 Fax: 425 488 2660
 Email: pita@milbor-pita.com

SPW911, v2.20

 © 2001 - 2003, Pile Buck, Inc.
 Email: pilebuck@pilebuck.com
 Web: www.pilebuck.com

Client: Wilder Construction / Everett

Title: BNSF Skykomish Excavation
shoring

Designer: F. Pita

Page: 1

Date: 6.9.06

Sheet: Arbed AZ18

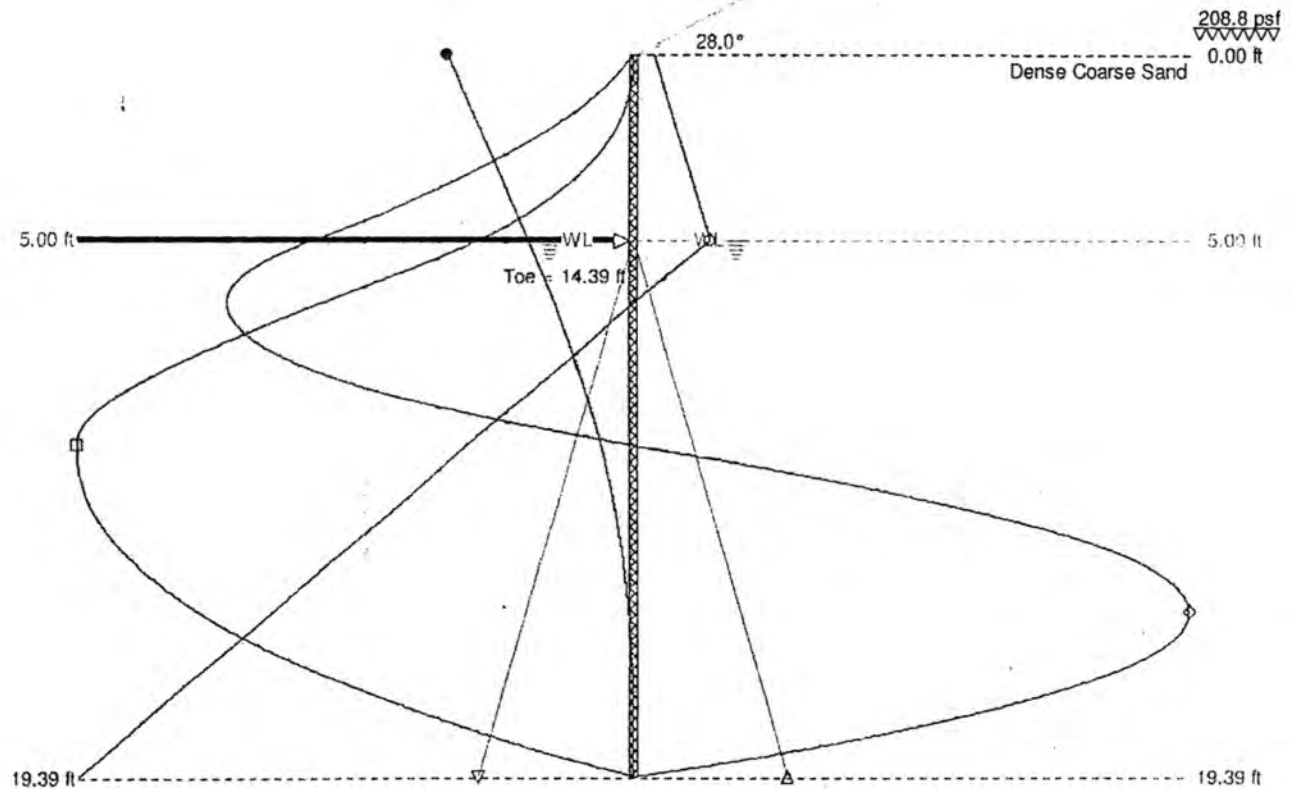
Pressure: Coulomb

FOS: 2.0

Toe: Cantilever

	Maximum	d (ft)
○	449.1 psf	5.00
□	10388.0 ftlb/ft	10.52
◇	2489.3 lb/ft	14.95
●	0.3 in	0.00
△	898.5 psf	19.39
▽	898.5 psf	19.39

Case 3: Pile length = 20 max; 5 foot cut;
no tiebacks



Milbor-Pita & Associates, Inc.

Woodinville, WA
Tel: 425 486 6561
Fax: 425 488 2660
Email: pita@milbor-pita.com

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Email: pilebuck@pilebuck.com
Web: www.pilebuck.com

Client: Wilder Construction / Everett Title: BNSF Skykomish Excavation shoring Designer: F. Pita Page: 2 Date: 6.9.06	Input Data Depth Of Excavation = 5.00 ft Surcharge = 208.8 psf Slope (active) = 28.0 degrees Depth Of Active Water = 5.00 ft Depth Of Passive Water = 5.00 ft Water Density = 62.43 pcf Minimum Fluid Density = 31.82 pcf Soil Profile Active Side <table border="1" style="width: 100%; border-collapse: collapse; font-size: 0.8em;"> <tr> <th>Depth (ft)</th> <th>Soil Name</th> <th>γ (pcf)</th> <th>γ' (pcf)</th> <th>C (psf)</th> <th>C_a (psf)</th> <th>ϕ (°)</th> <th>δ (°)</th> <th>K_a</th> <th>K_{ac}</th> <th>K_p</th> <th>K_{pc}</th> </tr> <tr> <td>0.00</td> <td>Dense Coarse Sand</td> <td>115.82</td> <td>68.73</td> <td>0.0</td> <td>0.0</td> <td>30.0</td> <td>11.0</td> <td>0.57</td> <td>0.00</td> <td>19.33</td> <td>0.00</td> </tr> </table> Soil Profile Passive Side <table border="1" style="width: 100%; border-collapse: collapse; font-size: 0.8em;"> <tr> <th>Depth (ft)</th> <th>Soil Name</th> <th>γ (pcf)</th> <th>γ' (pcf)</th> <th>C (psf)</th> <th>C_a (psf)</th> <th>ϕ (°)</th> <th>δ (°)</th> <th>K_a</th> <th>K_{ac}</th> <th>K_p</th> <th>K_{pc}</th> </tr> <tr> <td>0.00</td> <td>Dense Coarse Sand</td> <td>115.82</td> <td>68.73</td> <td>0.0</td> <td>0.0</td> <td>30.0</td> <td>11.0</td> <td>0.31</td> <td>0.00</td> <td>4.29</td> <td>0.00</td> </tr> </table>	Depth (ft)	Soil Name	γ (pcf)	γ' (pcf)	C (psf)	C_a (psf)	ϕ (°)	δ (°)	K_a	K_{ac}	K_p	K_{pc}	0.00	Dense Coarse Sand	115.82	68.73	0.0	0.0	30.0	11.0	0.57	0.00	19.33	0.00	Depth (ft)	Soil Name	γ (pcf)	γ' (pcf)	C (psf)	C_a (psf)	ϕ (°)	δ (°)	K_a	K_{ac}	K_p	K_{pc}	0.00	Dense Coarse Sand	115.82	68.73	0.0	0.0	30.0	11.0	0.31	0.00	4.29	0.00
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Maxima		
	Maximum	Depth
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Deflection	0.3 in	0.00 ft
Pressure	449.1 psf	5.00 ft
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Milbor-Pita & Associates, Inc.

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 Email: pilebuck@p-pita.com
 Web: www.pilebuck.com

Submittal 9
Qualification of Mayes Testing Engineers, Inc.

Letter of Submittal

Wilder Construction Company
1525 E. Marine View Drive
Everett, WA 98201



Project Skykomish Levee Remediation **Date** 6/16/2006
Submittal Number 9
Return By

To: The RETEC Group, Inc.
Mike Byers
Project Manager
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

From: Wilder Construction Company
Travis Walken
Project Manager
1525 E. Marine View Drive
Everett, WA 98201

Bid Item	Spec Reference	Copies	Submittal Description	Drawing Number
V	Section 02060-1.04D		Geotechnical inspection and testing	

Remarks by Contractor

Per Section 02060-1.04D, attached are the qualifications of Mayes Testing Engineers, Inc., the firm that Wilder is proposing to perform the duties of geotechnical inspection and laboratory testing.



THE AMERICAN
ASSOCIATION
FOR LABORATORY
ACCREDITATION

ACCREDITED LABORATORY

A2LA has accredited

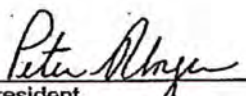
MAYES TESTING ENGINEERS, INC.
Everett, WA

for technical competence in the field of
Construction Materials Testing

The accreditation covers the specific tests and types of tests listed on the agreed scope of accreditation. This laboratory meets the requirements of ISO/IEC 17025 - 1999 "General Requirements for the Competence of Testing and Calibration Laboratories" and any additional program requirements in the identified field of testing.

Presented this 28th day of September 2005.




President
For the Accreditation Council
Certificate Number 1002.01
Valid to October 31, 2007

For the tests or types of tests to which this accreditation applies,
please refer to the laboratory's Construction Materials Scope of Accreditation.

SCOPE OF ACCREDITATION TO ISO/IEC 17025:1999

MAYES TESTING ENGINEERS, INC.
917 134th St. SW Suite A1
Everett, WA 98204
Michael S. Dolder, P.E. Phone: 425 742 9360

Valid To: October 31, 2007

Certificate Number: 1002.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory for:

CONSTRUCTION MATERIALS ENGINEERING

ASTM: E329 (concrete, soils, bituminous, masonry, steel), C1077 (concrete), D3666 (Asphalt),
D3740 (soils)
AASHTO: R-18

CONSTRUCTION MATERIALS TESTING

Concrete:

ASTM: C31* C39* C42 C78 C138* C143* C157 C172* C173*
C192 C231* C617 C1064* C1231*

Aggregates:

ASTM: C29 C40 C88 C117 C127 C128 C131 C136 C566
C702 D75*

Soils:

ASTM: D421 D422 D698 D854 D1140 D1557 D1883 D2216 D2844
D2922* D3017* D4318 D4718

Bituminous:

ASTM: D979* D1188 D1559-89 D2041 D2726 D2950 D3203 D3665 D5361
D5444 D6307 D6926 D6927
AASHTO: T30

Unit Masonry

ASTM: C67 (compression & absorption) C109 (compression) C140 C426 C780
C1019 C1314
UBC: 21-16* 21-17* 21-18*

Steel:

Field*: AWS, AISC-Erection, Visual
AISC-Bolt Torque
AWS-Welding, Visual
Shop*: AWS, AISC-Fabrication
AWS-Welding

Fireproofing:

ASTM: E605
UBC: 7-6*

* Site Tests

(A2LA Cert. No. 1002.01) Revised 06/06/06

Page 1 of 1

Letter of Transmittal

The RETEC Group, Inc.
1011 SW Klickitat Way
Suite 207
Seattle, WA 98134-1162



(206) 624-9349 Phone
(206) 624-2839 Fax
www.retec.com

TO: Travis Walken, Wilder Construction DATE: June 27, 2006
RE: Response to Submittal 9 PROJECT NO: BN050-19390

☐ For Approval	☒ Approved as Submitted	☐ Resubmit _____ Copies for Approval
☐ For Your Use	☐ Approved as Noted	☐ Submit _____ Copies for Distribution
☒ As Requested	☐ Returned for Corrections	☐ Return _____ Corrected Prints
☐ For Review & Comment	☐ Other: _____	

Remarks:

Submittal 9- Geotechnical Inspection and Laboratory

The geotechnical inspection and laboratory submittal meets specifications and is accepted with no exceptions.

Should you have any questions, please feel free to call me.

Sincerely,

The RETEC Group, Inc.

Michael Byers

cc: Sarah Albano, Dennis Metz
RETEC file BN050-19390

Submittal 10
Riverbed Fill Information

Letter of Submittal

Wilder Construction Company
1525 E. Marine View Drive
Everett, WA 98201



Project Skykomish Levee Remediation **Date** 6/26/2006
Submittal Number 10
Return By

To: The RETEC Group, Inc.
Mike Byers
Project Manager
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

From: Wilder Construction Company
Travis Walken
Project Manager
1525 E. Marine View Drive
Everett, WA 98201

Bid Item	Spec Reference	Copies	Submittal Description	Drawing Number
22	Section 02060-2.05		Riverbed Fill	
Okay (see 2100-7-10)				

Remarks by Contractor

Riverbed Fill Material

Request for Approval of Material

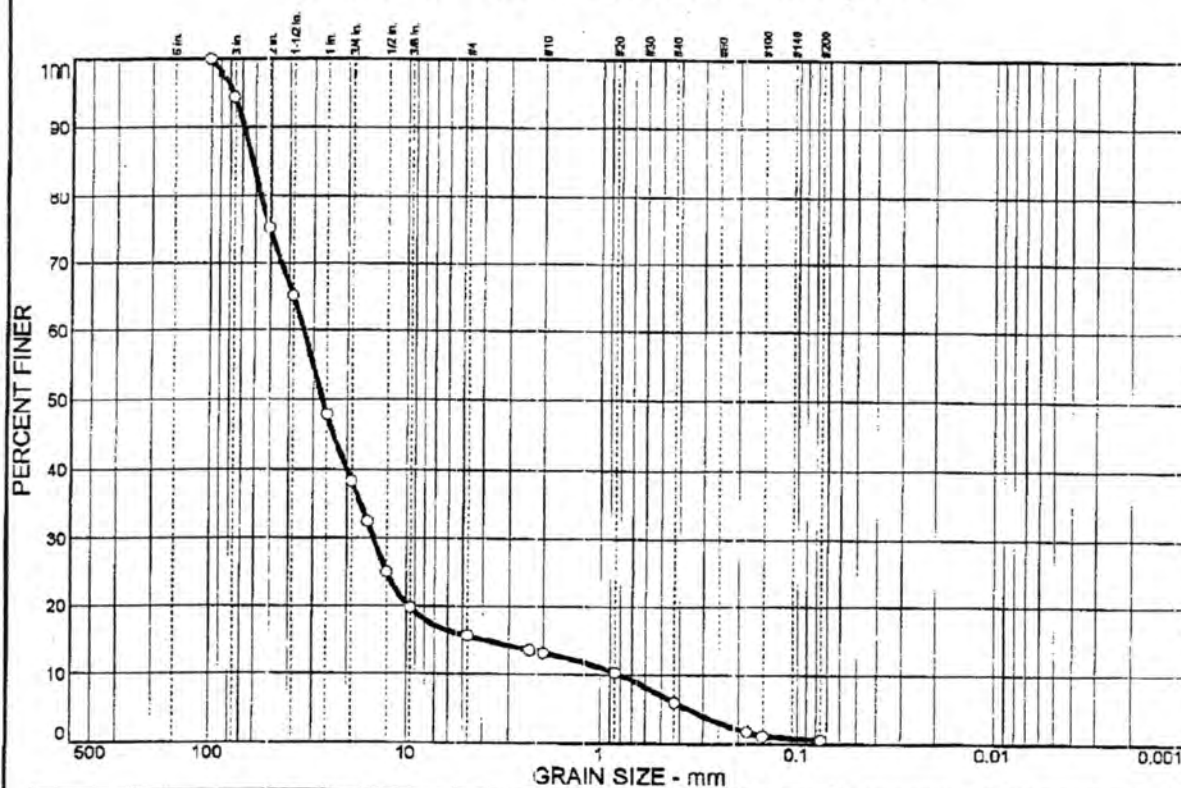
[illegible]

Approval Action Codes for use by Project Engineer and State Materials Laboratory

- Remarks:

☐ General File ☐ Signing Inspection
☐ Fabrication Inspection ☐ Other

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
5.8	56.0	22.6	2.4	7.1	5.5	0.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
4 in.	100.0		
3 in.	94.2		
2 in.	75.2		
1.5 in.	65.1		
1 in.	47.9		
.75 in.	38.2		
.625 in.	32.4		
.5 in.	24.9		
.375 in.	19.7		
#4	15.6		
#8	13.6		
#10	13.2		
#20	10.3		
#40	6.1		
#80	1.8		
#100	1.2		
#200	0.6		

* (no specification provided)

Sample No.: 6416

Location:

Date: 6-26-2006

Elev./Depth:



CASCADE TESTING LABORATORY, INC.
TESTING & INSPECTION / ENGINEERS
18219 N.E. 182TH PLACE
KIRKLAND, WASHINGTON 98034 (206) 823-9500

Client: Scarsella Brothers

Project: Reiter Road Pit

Project No: 0606-52

Technician: Nick Averil

Inspector:

Soil Description

Riverbed Fill Material

Dated 6-21-2006

Atterberg Limits

PL=

LL=

PI=

Coefficients

D₈₅= 62.1D₆₀= 33.6D₅₀= 26.7D₃₀= 14.8D₁₅= 3.90D₁₀= 0.802C_u= 41.85C_c= 8.16

Classification

USCS=

AASHTO=

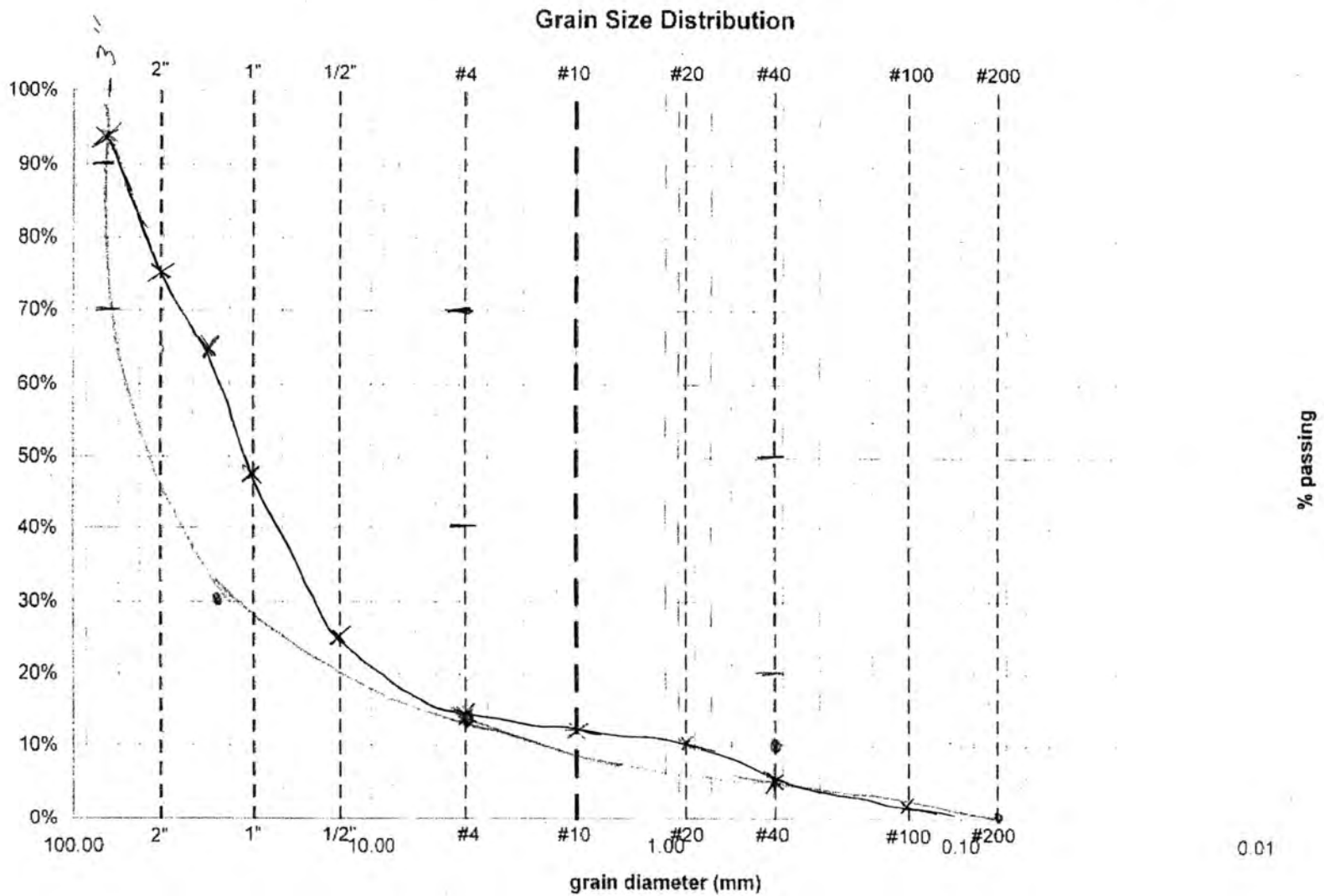
Remarks

F.M.=4.52

RIVERBED FILL MTL BELOW SAND ZONE

6/14/06

PETEL



Submittal 11
Technical Execution Plan

Letter of Submittal

Wilder Construction Company
1525 E. Marine View Drive
Everett, WA 98201



Project	Skykomish Levee Remediation	Date	6/30/2006
		Submittal Number	011
		Return By	7/19/2006

To: The RETEC Group, Inc.
Mike Byers
Project Manager
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

From: Wilder Construction Company
Travis Walken
Project Manager
1525 E. Marine View Drive
Everett, WA 98201

Bld Item	Spec Reference	Copies	Submittal Description	Drawing Number
V			TEP	
Remarks by Contractor Draft Technical Execution Plan				



Technical Execution Plan

(Draft)

for the Skykomish Levee Remediation project

Prepared By:
Wilder Construction Company
Version # 2.0 Updated on 6/30/06

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Section A – Project Coordination

Resume of Project Superintendent(s)

See Attachment A

Identification of Key Personnel

Management personnel for this project are as follows:

Branch Manager:	Joe Spink
Environmental Services Manager:	Karl Yost
General Superintendent:	Steve Chambers
Stockpile Area Superintendent:	Mike Cabe
Grading Superintendent:	Kent Matson
Project Manager:	Travis Walken
Project Engineer:	Heather Crockford
Project Engineer:	Quinn Golden
Health and Safety Officer:	Mark Johnson

Emergency Contact List

Wilder Construction Company		Primary No.	
	Steve Chambers	(425) 870-0002	(425) 754-6724
	Mike Cabe	(425) 315-5737	(425) 508-3240
	Kent Mattson	(425) 315-2056	(425) 508-3241
	Travis Walken	(425) 870-1428	(425) 508-3178
	Heather Crockford	(425) 870-6620	(425) 508-4523
	Quinn Golden	(425) 315-2306	(425) 328-7257
	Mark Johnson	(425) 315-5740	(360) 219-5968
The RETEC Group, Inc.			
	Mike Byers	(206) 660-9945	
	Dennis Metz	(303) 549-9294	
BNSF Railway Company			
	Bruce Sheppard	(206) 625-6035	
Town of Skykomish			
	Chris Yates	(360) 677-2388	
Securitas (24-hour Security)		(360) 348-1269	

Detailed Project Staffing Plan

Forthcoming

- *Staffing levels for each task and phase of work*
- *Any plans for shift work*

List of Major Equipment, Systems and Materials

Equipment:

- Caterpillar 980 Loader
- Caterpillar D5 Dozer
- Blaw-Knox PF-5510 Paver
- John Deere 544 Loader
- Caterpillar 12G Grader
- Vibromax VM116D Single Drum Roller
- John Deere 310 Backhoe
- Ingersoll-Rand DD130 Double Drum Roller
- John Deere 230 Excavator
- Broce Broom RJ300 Mechanical Sweeper
- John Deere 350 Excavator
- End-dump Truck and Trailers
- Side-dump Truck and Trailers
- Putzmeister Telebelt TB105
- Hitachi 350 long-stick Excavator
- Hitachi 120 Excavator
- Frac tanks
- Surge tanks
- Weir tanks
- Backwash holding tanks
- Submersible pumps
- Vacuum pumps
- Sand Filters
- Carbon tanks
- Mechanical Screen
- Rusmar Pneumatic Foam Unit 400/25

Materials:

- Aggregate
 - Crushed Surfacing Top Course
 - Crushed Surfacing Base Course
 - Structural Fill
 - Gravel Backfill for Pipe Bedding
 - Riverbed Fill
 - Stabilization Aggregate

- Drainfield Sand
 - Armor Rock
 - Large Boulders (“Kayak Deflectors”)
- Asphalt Treated Base
- Hot Mix Asphalt Class B
- Catch Basins (Type 1 and 2)
- Storm pipe (12”, 18”, 24” and 30” diameter)
- Class 3000 Concrete
- 40 mil HDPE liner
- 30 mil PVC liner
- Flexible Intermediate Bulk Containers
- Granular Activated Carbon
- Sheet pile
- Douglas Fir or Western Red Cedar logs and root wads
- Chitosan
- Aqua barrier
- Miscellaneous plants
- Topsoil
- Silt Curtain
- Ecology Blocks
- Long Duration Foam

List of Permits and Approvals

Forthcoming

- *Permits and Approvals to be obtained by the Contractor*
 - *Contact names*
 - *Titles*
 - *Phone numbers*

Section B – Progress Schedule

Contractor's Initial Progress Schedule

The baseline schedule (see Attachment B) for the Skykomish Levee Remediation Project is prepared for The RETEC Group, Inc. and The BNSF Railway Company per Section 01325 of the Project General Requirements. Questions regarding this schedule should be directed to Travis Walken, Project Manager, Wilder Construction Company. The software used to produce the baseline schedule is Microsoft Project 2003. Updates will be performed weekly.

All milestones listed in Schedule G of the Specifications are included. Additionally, other important milestones are included such as house relocations and substantial completion.

COFFER DAM INSTALLATION AND REMOVAL

Installation: In order to minimize turbidity and current, a diversion structure and silt curtain will be installed as soon as possible. Then, FIBC's will be filled in place by a telescoping conveyor belt. Wilder's initial plan was to fill and stockpile bags near the river prior to the opening of the fish window. However, Wilder crews have tested filling and placing methods and determined that the bags might not withstand the stress of moving and stacking the bags multiple times. The cofferdam will be built from East to West. As soon as the Eastern cell (River Zone 1) is enclosed by the primary and secondary cofferdam and the interior cofferdams, excavation will begin in River Zone 1.

Relocation and Removal: If possible, interior cofferdam FIBC's will be reused during relocation of interior cofferdams. However, the bags might not be durable enough to withstand the relocation process. If required, new bags and Riverbed Fill will be utilized. As River Zones are excavated the Riverbed Fill material used to fill the FIBC's will be used to backfill the excavation.

SHEETPILE WALL

Wilder will utilize helical anchor tiebacks to reduce sheetpile length. This will minimize obstruction delays. Sheetpile installation cannot begin until house relocation is complete. If the start of sheetpile installation is delayed beyond 6/19/06, it will interfere with cofferdam installation and River Zone 1 work. Therefore, the start of sheetpile installation will be delayed until late July if it does not begin by 6/19/06. This delay will result in out of sequence work and added cost.

EXCAVATION AND BACKFILL ABOVE THE VDL

Excavation above the VDL will begin after the excavation area is prepared for grading by activities such as installation of TESC measures, installation of access road, and relocation of houses. Levee in Zones 1-3 will be removed prior to Uplands Zone 1 excavation. Uplands Zones 2 and 3 will be started following the completion of Zone 1. The soil generated by these activities will be stockpiled on site. If the material is

impacted, it will be hauled to the stockpile area for offsite disposal. If the material is not impacted, it will be used as backfill.

EXCAVATION AND BACKFILL BELOW THE VDL

Immediately following sheetpile installation, Wilder will begin excavation below the VDL working from East to West and South to North. The day to day operation will allow enough time to sample and over excavate as needed.

STOCKPILE AREA OPERATION

Loading of trains with contaminated material will begin following water treatment system set up and stockpile area set up. Per Addendum 1, Wilder assumes all excavated material will be removed from the site by November 15, 2006. In order to meet this milestone, approximately 4,900 tons per week will need to be removed from the site. Screening will be done as requested by RETEC or BNSF representatives.

RESTORATION

Fish window restoration will occur between July 1, 2006 and September 1, 2006.

Retaining wall and View Deck activities near the Levee require further design.

SUMMARY

Due to the fast paced nature of this project, there are many activities whose progress is critical to the project schedule. Generally speaking, the cofferdam installation, river excavation, uplands excavation, and restoration are on the critical path. Additionally, mobilization of the water treatment facility and stockpile area are near critical.

POTENTIAL DELAYS

House Relocation: As of June 13, 2006, the houses have been vacated but not relocated. As discussed previously, if sheetpile installation cannot be installed by June 19, 2006, construction means and methods will be modified to begin excavation prior to sheetpile installation. This will result in inefficient work. Additionally, this could also delay work activities requiring acceleration to subsequent work activities.

Mobilization of the Water Treatment Facility: Set up of the treatment facility is critical to early work. Many critical work activities cannot begin until the facility is operational.

Cofferdam Installation: Installation of the cofferdam presents several unique challenges. For example, Wilder has never installed a cofferdam using FIBC's. In order to minimize the risks associated with unfamiliar construction operations, Wilder has experimented with filling and transportation methods of FIBC's. Another challenge presented by this scope of work is river levels and current. High levels will make installation of the cofferdam difficult if not impossible. Wilder will mitigate this risk to some extent by installing a diversion barrier and silt curtain.

Excavation and Backfill: One of the risks involved with this scope of work is added excavation due to contaminated material below bottom of planned excavation. RETEC has mitigated this risk to some extent by providing one day testing results during July and August. This will minimize the delays caused by extra excavation. Additionally, Wilder will plan its excavation sequence to allow for extra excavation.

VARIATIONS FROM SPECIFICATIONS SECTION 01325

Activity durations are in working days.

Draft invoice and final invoice submittal dates are not included in this schedule. A separate schedule will be prepared.

Table of Estimated Production Rates and Necessary Equipment

Wilder has estimated the following production rates for major activities based on the information provided in the contract documents.

- Removal of the Levee
 - Volume – 3,000 cubic yards
 - Duration – 3 days
 - Equipment:
 - 350 excavator
 - 4 end-dump trucks
- Construction of the cofferdam
 - Total Length – 1,000 feet
 - Durations – 3 weeks
 - Equipment:
 - TB105 Telebelt
 - 350 excavator
 - 450 long-stick excavator
 - 980 Loader
- In-river excavation and backfill
 - Depth – Varies
 - Volume – 15,000 cubic yards
 - Duration – 6 weeks
 - Equipment:
 - 350 excavator
 - 450 long-stick excavator
 - 4 to 5 side-dump trucks
- Uplands excavation above the VDL
 - Depth – 5 feet
 - Volume – 13,000 cubic yards
 - Duration – 2 weeks
 - Equipment:
 - 350 excavator
 - 4 to 5 end-dump trucks

- Upland excavation below the VDL and backfill
 - Depth – Varies
 - Volume – 37,000 cubic yards
 - Duration – 2 months
 - Equipment:
 - 450 long-stick excavator
 - 4 to 5 side-dump trucks
- Upland backfill
 - Depth – Varies
 - Volume – 50,000 cubic yards
 - Duration – 3 months
 - Equipment:
 - 450 long-stick excavator
 - Single-drum roller
- Load out of contaminated materials from the stockpile site
 - Volume – 52,000 cubic yards
 - Duration – 4 months
 - Equipment:
 - 2 – 980 loaders
 - 544 loader

Section C – Construction Facilities and Temporary Controls

Locations, Sizes and Requirements for Utility Services

Forthcoming

Layout of Support Zone and Other Work Zones

Forthcoming

- *To include Support Zone, Decontamination Zone and Secured Zone.*

Odor and Dust Control Plan

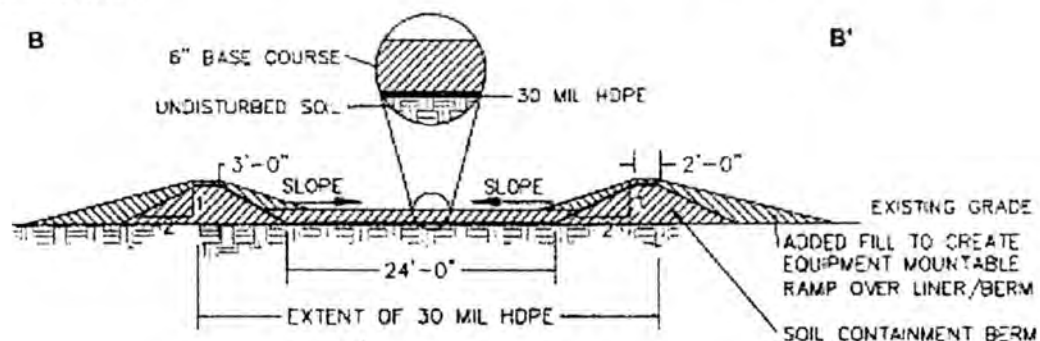
In the event that RETEC or BNSF determines that odor control measures are required, Wilder Construction will mobilize equipment and materials to the site to attempt to control the odor. The material to be used will be Rusmar AC 600 foam and the associated application units, per Section 01580 of the specifications.

Several measures will be employed to help control dust on this project:

- Most of the haul roads within the stockpile site will be paved. This will minimize dust by allowing the trucks and equipment to travel on asphalt rather than on the rocks and dirt that currently exist along the haul roads within the stockpile site.
- A water truck and sweeper will be available as needed to keep travel routes wet and clean of dirt and debris.
- Piles of dirt within the stockpile area will be covered when not in use. This will prevent dust from being blown off of the piles as they wait to be loaded on to the trains.

Proposed Design of Decontamination Stations

Decontamination stations will be constructed per the detail identified in plans, see detail below.



To allow for better collection of the water used in the decontamination area, the 6 inches of base course identified in the detail will be replaced with 3" of base course covered with 3" of hot mix asphalt. The use of asphalt within this area will also provide the added benefit of being a more durable surface that will better resist the wear and adverse effects of heavy equipment and truck traffic.

As needed, pressure washers will be provided at decontamination areas for cleaning of trucks and equipment. Containers for disposal of contaminated PPE will also be provided at each decontamination area.

Description of On-site Construction Water Treatment Plant Installation, Operation and Maintenance

Forthcoming

Traffic and Trucking Plan

The haul routes to be established are those that are presented in the plans (sheet C-11) in combination with those shown on Attachment D (Stockpile Layout Plan). The haul roads within the stockpile area as well as the access road to Old Cascade Highway will be paved to limit dust and noise.

Traffic control signs will be posted along the haul route to notify drivers of truck and equipment traffic. Stop signs will be posted at the west end of the project at two locations along the new access road, see Attachment D. In the event that Wilder and/or RETEC believe that specific activities warrant additional traffic control, laborers will be available to perform flagging duties or to install additional traffic control signage as necessary to establish a safe work area.

The trucks to be used for hauling material from the excavation site to the stockpile site will be equipped with the side-dump type trailers. These trailers provide several benefits; 1) the trailers are completely sealed and have no rear gate for water to leak out of while being transported; 2) the material within the trailer is dumped along the side such that the wheels of the trailer will not get contaminated.

Decontamination Methods and Equipment

PROCEDURES TO PREVENT CONTAMINATION OF CLEAN AREAS

Contaminated materials will be limited to the exclusion zones (excavation and stockpile areas) and the beds of side-dump trailers. During excavation activities contaminated materials will be placed in side-dump trailers using a 350 excavator. In the event that the contaminated materials are wet, a stockpile within the exclusion zone will be established to dewater the material prior to being loaded into the trailers.

Dewatering will allow the material to be loaded into the trailers without spilling and/or dribbling of contaminated water onto the clean haul route.

Hauling of contaminated materials from the excavation area to the stockpile site will be via side-dump trailers. There are several benefits of using these type of trailers; 1) that the trailer beds are completely sealed and will prevent leaking of any contaminated water out of the trailer and on to the haul roads; 2) when dumping the contaminated materials at the stockpile site, the material is dumped along the side of the trailer such that the wheels of the trailer do not track through the contaminated material. Due to these benefits of using side-dump trailers all haul routes, including those inside the exclusion zones will remain free of contaminated materials.

Once the side-dump trailers are loaded and hauled to the stockpile site, the trailers will dump the contaminated materials at the designated dump location. At the dump location, the side-dump trailers will unload the contaminated material over an ecology block wall into the stockpile area, approximately 5 feet below the trailer. The purpose of dumping the material over the wall is for added containment such that contaminated materials are kept off of the clean haul route.

VEHICLE DECONTAMINATION AND INSPECTION PROCEDURES

Once excavation and hauling of contaminated materials begin, all equipment within the exclusion zones will be inspected and decontaminated if necessary, excluding trucks and trailers hauling contaminated materials (see PROCEDURES TO PREVENT CONTAMINATION OF CLEAN AREAS). All exclusion zones will have specific locations at which equipment will be allowed to exit. A single decontamination area will be located near the equipment exit gate of the stockpile area exclusion zone.

Prior to removing equipment from the exclusion zones, each piece of equipment will be inspected for contamination. The inspection will consist of a general visual inspection of the entire piece of equipment, with a more detailed visual inspection of specific areas of the equipment that will be more prone to contamination. These specific areas will include, but are not limited to, tires, wheels, tracks, fenders, bucket, under carriage and axels.

If during the inspection a piece of equipment leaving the excavation area exclusion zone is identified as being contaminated, the equipment will be placed on a trailer and hauled to the decontamination area. Care will be taken to assure that no contaminated materials leave the piece of equipment or trailer during transport.

If a piece of equipment leaving the stockpile area exclusion zone is identified as being contaminated, the equipment will be moved into the decontamination area. No trailer will be needed for this movement since the decontamination area will be directly adjacent to the stockpile area exclusion zone.

At the decontamination area a steam cleaner will be supplied for the decontamination of equipment. Areas that were identified during the inspection as needing to be decontaminated will be steamed cleaned. If the equipment was moved to the decontamination area via trailer, the trailer will also be steam cleaned. Oil adsorbent material will also be available at the decontamination areas in the event that additional effort is needed to remove contaminated material. After the equipment has been cleaned, it will be re-inspected to assure that all contaminants have been removed. If contaminants remain on the equipment, the process of inspection and decontamination will be repeated until the equipment is deemed to be clean. Only upon completion of the decontamination effort will the equipment be allowed to proceed out of the decontamination area.

PROCEDURES FOR COLLECTION, TREATMENT, AND DISPOSAL OR DISCHARGE OF DECONTAMINATION RESIDUALS AND USED PPE

Contaminated water created within the decontamination area will collect in sumps and be pumped into water storage tanks. Once the water levels within the storage tanks reach appropriate levels, the water will be pumped into a transfer vehicle and hauled to the onsite water treatment facility. There the water will be emptied into the water treatment facility, treated and discharged.

All workers leaving the exclusion zones will first enter the decontamination area. Only in the decontamination area will workers be allowed to remove and dispose of used and contaminated PPE. Lined containers will be supplied at each decontamination area for the disposal of PPE. The liner within the containers will be removed on regular basis and then hauled and disposed into the railcars with the other contaminated materials.

Any residuals that remain within the decontamination area will be pressure washed and/or swept into piles and collected. The collected material will then be hauled, stockpiled and disposed of into railcars with the other contaminated materials.

Section D – Site Preparation

Detailed Description of Clearing and Grubbing, Demolition of Surface and Subsurface Structures; Description of Construction Equipment and Methods Associated With These Activities

CLEARING AND GRUBBING

In areas where trees are located, clearing and grubbing activities will begin with a laborer cutting down all of the trees with a chainsaw. Once all of the trees have been cut down, or there are no trees to begin with, a 350 excavator will begin stripping the ground of all vegetation and debris. The resulting “clean” material will then be loaded into truck and trailers and hauled to an off site disposal location.

DEMOLITION OF SURFACE AND SUBSURFACE STRUCTURES

Demolition of surface and subsurface structures includes the removal of house foundations, asphalt roadway, storm drainage, septic tanks and a heating oil tank. All concrete and asphalt structures will be demolished in place using a 350 excavator. All metal structures will be removed from their location and crushed with the 350 excavator. The resulting debris from the structures that lie above the VDL will then be loaded into trucks and hauled to an off site disposal location. Debris from the structures that lie below the VDL will be loaded into sealed side-dump trailers, hauled and dump at the stockpile site and then loaded into railcars.

Provide Spill Response Subcontractor information; Spill Response Procedures

The RETEC Group will be providing the Spill Response Subcontractor information and spill response procedures.

Section E – Excavation

Excavation Support System (Sheet Pile) Design and Construction Methods

Forthcoming

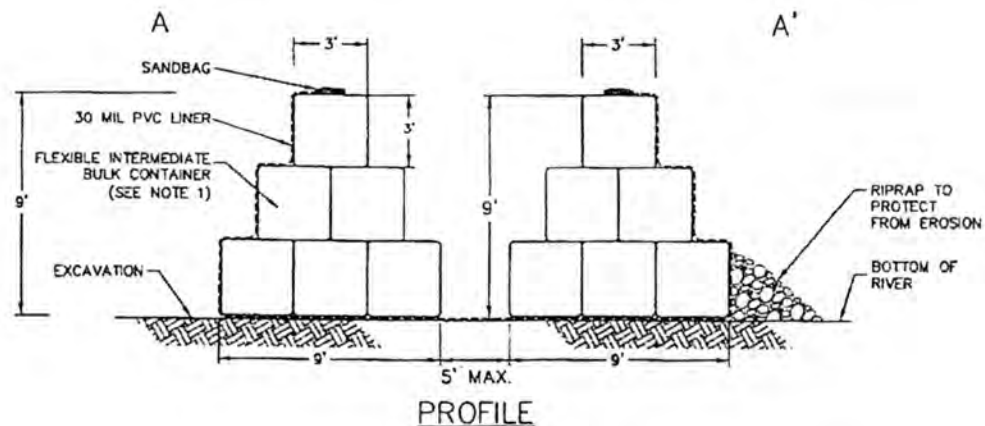
- *Submit shoring design and specification's for Engineer's review and approval*
- *Description of construction equipment and methods associated with support system*

Description of Cofferdam Installation

Prior to construction of the cofferdam a diversion structure and silt curtain will be installed in the river such that the entire cofferdam will be encompassed. The diversion structure will be placed upstream of the cofferdam location and extend approximately 60 feet into the river. The diversion structure will consist of ecology blocks or existing armor material from the levee. The diversion structure will serve several purposes; 1) to divert the river current away from the cofferdam location (which will prevent scour at the base of the cofferdam and allow for better installation of the cofferdam due to not having to fight the river current during installation); 2) will provide an in stream anchor point at the end of the diversion structure for installation of a silt curtain.

The silt curtain will extend from the diversion structure outside the planned location of the cofferdam and will be anchored to the levee downstream of the cofferdam. The purpose of the silt curtain is to further reduce current where the cofferdam will be placed and to contain any sediment that is generated during the cofferdam installation. The diversion structure and silt curtain will be left in place, to provide added silt containment and current diversion, until the coffer dam is fully removed.

The cofferdam will consist of two parallel pyramid shaped structures wrapped with a PVC liner, as shown in the detail below.



Installation of the cofferdam will consist of filling the flexible intermediate bulk containers (FIBC's) in the river and placing them directly on the PVC liner in the final position. See Attachment C for manufacturer's data sheets on the FIBC's. By filling and placing the FIBC's in the river at their designed locations, degradation of the FIBC material will be minimized that would otherwise be caused by filling them at a separate location and moving them into position. To allow for filling in the river, a forklift or excavator will be positioned in the river and will hold the FIBC's in position and a telescoping conveyor belt will convey and drop the Riverbed Fill material into the FIBC's. Once both pyramid structures are installed, the PVC liner will be wrapped over the top and sand bags placed on top of the liner to hold it in place.

Prior to daily activities, the cofferdam will be inspected. The purpose of the daily inspection is to look for any changes in the structure of the cofferdam. If changes are observed that may be detrimental to cofferdams integrity, actions will be taken to repair it such that its purpose and function will not be compromised.

Detailed Description of Excavation Equipment and Methods for Levee Embankment Removal

Levee embankment material will be excavated, loaded into trucks, hauled and shall be stockpiled in the uplands areas (the current location of the houses which are to be moved). To do the work a 350 excavator will be positioned on top of the levee in an east-west direction. Excavation will begin at the east end of the levee, with each bucket of material placed directly in solo trucks waiting along the West River Road. Excavation of the levee material will then gradually work to the west until all of the necessary levee material is removed.

Trucks hauling the levee material will enter the West River Road along 5th Street and head west. Once the trucks are full they will proceed to the uplands area and dump the material in stockpiles. Trucks will then circulate back around to 5th Street, enter West River Road heading west and stop adjacent to the levee excavation occurring at that time. Trucks will circulate and haul material in this manner until all of the levee material has been removed to an elevation level with the West River Road.

Detailed Description of Excavation Means and Methods

UPLANDS EXCAVATION

Excavation activities above the VDL will be performed by a 350 excavator. Material will be loaded by the excavator into trucks and stockpiled on site. Above VDL material will be excavated such that 1 to 1½ feet of clean material will be left in place.

Excavation of the remaining material above the VDL and all of the material below the VDL will be broken up into 3 upland zones that mirror the excavation zones in the river. Excavation will begin in the most easterly corner closest to the river. Excavation of this material will be performed, by a 450 long-stick excavator, in such a

manner that the excavator will always be positioned on the remaining clean material above the VDL, excavating the clean and dirty material in front of the machine (the clean material will be stockpiled on site and the dirty material will be hauled and dumped in the stock pile area). As material is excavated down to the planned elevations, the excavator will move east to west within the zone, always staying on clean material and excavating in front of the machine. Excavated materials will be dumped into trucks, waiting behind the excavator, traveling on clean material. Once excavation has reached the western boundary of the zone, the excavator will be repositioned on the east side of the zone and continue excavation. Excavation will continue in this manner until excavation of all material within the specified zone is complete. Excavation will then begin in the next zone in the same manner.

Upon encountering water in the uplands excavation, sumps will be installed within the excavations of each zone. The sumps will draw down the water level such that the material being excavated will have relatively little free water.

RIVER EXCAVATION

Excavation within the river will begin in the northeast corner of the most easterly zone and move to the west. A 450 long-stick excavator will be positioned as close to the shore line possible such that the limits of the excavation can be reached. Upon excavating the river material, the long-stick excavator will place the material in a pre-dug trench along the bank. Placement of the material in the trench will allow for the material to be dewatered. Once the material has dewatered sufficiently, a 350 excavator will remove the material from the dewatering trench and place it in a side-dump trailer waiting in the uplands area. Excavation activities will proceed east to west and moving away from and out of the river in this manner to a point that backfilling activities are able to re-establish the levee to an elevation above the above the annual high water level.

Excavation Production Rates for Each Week of the Project Schedule

Forthcoming

- *Table of excavation volumes per week for each week of the Project Schedule (rough estimate)*

Proposed Stockpile Locations and Construction

MEANS AND METHODS FOR MANAGING STORMWATER FROM STOCKPILE AREAS

The stockpile areas will be graded and paved with asphalt such that all storm water will flow to properly located sumps. Asphalt berms at the limits of the stockpile site will also be used to assist in containing and directing the storm water to the sumps. The water that accumulates at the sumps will be pumped into storage tanks or ponds and

hauled to the water treatment facility, or will be treated at a smaller water treatment facility within the stock pile area.

After completion of hauling contaminated materials to the stockpile area, Wilder will begin to evaluate the use of the stockpile area and the management of the associated stormwater. If specific stockpile areas are no longer required for staging of material prior to being loaded on to trains, the stormwater from these areas may be isolated, if feasible. These unused areas of the stockpile site would first be decontaminated. Once these areas are deemed "clean areas", structures would be installed to prevent clean stormwater from draining into the contaminated areas of the stockpile site. The resulting clean stormwater would then be collected and disposed of separately from the stormwater created by the contaminated areas.

MEANS AND METHODS FOR MANAGING STORM WATER FROM EXCAVATION AREAS

The excavation areas will be graded such that all storm water will be contained within the excavation. The water that accumulates within the excavation will then be pumped to the water treatment facility. Once at the water treatment facility, the water will be treated and discharged.

Coordination of Excavation, Stockpiling and Loading

Forthcoming

Coordination of Backfilling, Grading and Paving

Forthcoming

Truck Loading Areas and Staging Areas of Incoming Empty Trucks

TRUCK LOADING AREAS

Loading of trucks will occur directly adjacent to the excavation activities occurring at that time within the exclusion zone. The excavation activities will occur in such manner that the trucks will always travel on clean haul routes, including haul routes within the exclusion zones (see PROCEDURES TO PREVENT CONTAMINATION OF CLEAN AREAS). As excavation activities move within the exclusion zone the truck loading areas will move in unison.

STAGING AREAS OF INCOMING EMPTY TRUCKS

It is estimated that four to five trucks will be used for hauling of excavated materials. Trucks waiting to be loaded with material will be staged in-line along the haul routes within the exclusion zone of the excavation area. If back-ups occur such that a line of

trucks extends to the limits of the excavation area exclusion zone, trucks will be staged along the haul road within the stockpile area exclusion zone. If trucks need to be stage in this area, radio communication will be used to coordinate circulation of the trucks. No trucks will be staged on or along roadways open to the public.

Discussion of Railcar Loading Coordination

Wilder will coordinate with the proper BNSF representative regarding the daily pick-up and delivery of railcars. After delivery, railcars will be loaded with contaminated materials from stockpiles or directly from the material dump area.

Loading of the railcars will be performed by Caterpillar 980 loaders with on board scales. The loader will be used to transport the contaminated material from the stock pile sites to the railcars.

Attachment D shows the loading area, stockpile locations and the proposed routes which the loader will be traveling to load the railcars.

Figures Showing Locations of Temporary On-site Haul Roads to Support the Progress of the Excavation Work

See Attachment D.

Section F – Dewatering

Materials and Methods for Dewatering

Forthcoming

Attachment A

Resume of Project Superintendent(s)

STEVEN P. CHAMBERS

Job Title: Project Superintendent
Associated With Wilder Since: 1999
Experience With Other Firms: 16 years

HIGHLIGHTS

- 40-hr OSHA HAZWOPER
- US Army Nuclear, Bio, Chemical Specialist
- CPR, 1st Aid
- GPS-based survey/grade control trained
- Supervisor Training - various

EXPERIENCE AND QUALIFICATIONS

Mr. Chambers has over 7 years of experience in the construction and environmental remediation industry.

Representative Assignments Include:

- 2005, Grading Superintendent, NE 116th Culvert Replacement. \$3,500,000 project of the City of Redmond, WA. Stream culvert, walls, barrier, roadway widening, underground utilities, stream restoration.
- 2005, Grading Superintendent, Lacy Market Place. \$6,500,000 project for a private developer in Lacey, WA. 37-acre commercial site with environmental remediation of DNR Maintenance Facility, 100,000 CY of site grading, demolition of 22 buildings, installed new utilities and roads, with complete surfacing including curb and gutter, sidewalks and paving.
- 2004, Grading Superintendent, Cougar Mountain. \$3,326,672 project for City of Bellevue. This project was designed to improve limited sight distance constraints and increase safety along SE Cougar Mountain Way in Bellevue, WA.
- 2002 - 2003, Grading Superintendent, South 180th Street Grade Separation, City of Tukwila. The owner was the City of Tukwila, although the project was in three municipalities: City of Tukwila, City of Kent and the City of Renton. Constructed a two-track railroad shoofly with approximately 9,000 tons of quarry spalls, 23,000 tons of select borrow, 3,000 tons of common borrow and 6,000 tons of crushed surfacing base course. Performed cement deep soil mixing for groundwater control barrier to relocate three railroad tracks, construct two railroad bridges and a pedestrian bridge, relocate the railroad tracks onto the railroad bridges and construct an underpass all with live train traffic. The project also consisted of 616,000 CY Roadway Excavation, 3100 ton CSBC, 3780 LF Storm Pipe, 1545 SY sidewalk, a pump station and control building, 14220 SF Shotcrete Fascia, 18590 SF PCC Pavement, 13 EA temporary struts, 7 EA permanent struts, 3045 CY pond excavation, 1650 trenched waterline, 849 LF bored casing under railroad tracks, and 760 LF of Sanitary Sewer Pipe. Contract amount \$16 million. Awarded Project of the Year by the American Public Works Association (APWA).
- 2001, Foreman/Health and Safety Officer, Bainbridge Island Landfill Reclamation, Kitsap County Department of Public Works. Reclamation of landfill, excavated and screened approximately 107,000 CY of refuse, site work. Contract amount: \$2,661,000
- 1999 - 2000, Grade Checker/Laborer, WSDOT, N.E. 40th Street Interchange, Redmond, WA. State highway construction project on SR 520 including major storm water upgrades, excavation and grading, concrete structures, electrical facilities, and concrete and asphalt paving. Contract amount over \$12 million.

MICHAEL CABE

Job Title: Project Superintendent
Associated With Wilder Since: 1988
Experience With Other Firms: 17 years

HIGHLIGHTS

- OSHA Trained (40 hr and 8 hr)
- CPR/First Aid (annual)
- OSHA 40-Hour Trained
- U.S. Army Corps of Engineers
Certification for Construction Quality
Management for Contractors
(05/09/03)
- Specialized in detailed earthwork and
intertidal/water course restoration

EXPERIENCE AND QUALIFICATIONS

Mr. Cabe has been with Wilder Construction Company (Wilder) since 1988 serving as equipment operator, foreman and field supervisor at both the crew and project levels, primarily of environmental projects. He has organized personnel and equipment to accomplish a wide variety of projects of all sizes and technical complexities. He is skilled at all site activities associated with heavy civil construction, including site administration, health and safety program implementation, site layout for access control, contamination confinement, and operations protocol for remedial efforts. Prior to working at Wilder, Mike was foreman of road construction and maintaining forest access roads throughout Western Washington including the Olympic and Cascade Mountains under contract to the U.S. Forest Service and the Department of Natural Resources.

- 2005, Project Superintendent, BNSF Hauser Depot Facility Repair/Reconstruction, Rathdrum, ID. Installation and repair of various membrane/liner systems, leak detection, and waste fluid piping and venting systems. Grade construction, paving, and site restoration.
- 2005, Project Superintendent, Suncadia Firing Range Remediation. Lead soil treatment, excavation, transportation, and disposal as Subtitle D waste from former skeet/trap, pistol, and rifle ranges. Shallow excavations, dust control, and haul route corridors maintained throughout project. Total lead in the soil was in excess of 40,000 mg/kg with TCLP lead exceeding 300 mg/l. Over 3000 tons of soil was processed utilizing the MAECTITE® technology rendering all TCLP lead to <5 mg/l. Excavation depth control, and management of reagents facilitated reduction in planned quantity of waste transported and disposed.
- Winters of 2003 and 2004, Project Superintendent, Terminal 25 Contaminated Sediment Barge-to-Rail transloading facility operations. >750,000 tons of sediments offloaded from barges and transloaded to railcar containers. Contaminated water capture, treatment and discharge. Managed and directed all site operations, including barge and rail scheduling coordination and site resource management.
- 2004, Project Superintendent, Fred House Firing Range, State of Utah. Firing range remediation and treatment using the MAECTITE® chemical treatment process. Non-hazardous waste transportation and disposal.
- Project Foreman, General Contractor on \$6.0 million WSDOT I-90 WLSP to 436th Project. Bridge deck repair, concrete panel replacement, new approach slab, and expansion joint modifications.
- 2003, Site Superintendent, Bremerton, WA. Miscellaneous excavation, subgrade reconstruction and asphalt capping at the Keyport Navy Shipyard under an EMAC contract with GeoEngineers, Inc and the U.S. Navy/EFA Northwest.

- 2002, Site Superintendent, Everett, WA. Wetmore Avenue potable water, storm and sanitary sewer replacement. Approximately 20 commercial sites and 17 residential sites were retrofitted with new utilities. Responsibilities were to work closely with residents and owners of businesses to do the plumbing and piping with minimum impact to the public and residents' activities. The mainlines were 24" and side services were a variety of sizes from 3/3" to 6". Night work was encountered and the residential district created a challenging atmosphere. Mr. Cabe dealt with each resident and commercial business owner daily and achieved a positive project for Wilder as well as the residents. All site were reclaimed and restored with contract specified landscaping.
- 2002, Superintendent, Industrial Wastewater Lagoon Improvements, Burlington Northern Railroad, Pasco, Washington. Construction of two lined wastewater evaporation lagoons, lift station, drainage manholes and valve vaults, electrical service and system piping and appurtenances. Work was performed in coordination with continuous and ongoing yard operations.
- 2002, Superintendent, Asotin County Landfill, Asotin County, Washington. Upgrade landfill gas collection and flare system.
- 2001, Superintendent, US Steel Shearwater Sediment and Intertidal Remedial Project, South San Francisco, CA. Upland work performed by Wilder included sediments removal by excavator, dewatering, sediments stabilization for lead and other heavy metals, and water treatment. Dredging and tramping of +/- 11,000 CY of contaminated Baymud covering a 2-acre subtidal area to the sediment screening and stabilization area. Excavation and tramping of +/- 9,000 CY of contaminated Baymud covering a 1.6-acre intertidal area working the tides with low ground pressure enhancement to the sediment screening and stabilization area. Sediment stabilization and treatment with additives rendering the majority of the lead contaminated Baymud California State non-haz for subsequent transport and disposal. Water treatment of sediment generated water over a 3.5-month period. Furnish, install and operate a water treatment system to handle 150 GPM with carbon filters, clarifier, tankage, centrifuge and self-contained power source. Contract Amount in excess of \$7MM.
- 1999 - 2000, General Foreman, SR 520, NE 40th Street Interchange, WSDOT. State highway construction project on SR 520 including major storm water upgrades, excavation and grading, concrete structures, electrical facilities, and concrete and asphalt paving. Contract amount over \$12 million.
- 1999, Demolition Foreman. McCormick and Baxter Creosoting Company ODEQ Remediation, Portland, OR. Prime contractor on \$4.3 million environmental remediation project including a significant demolition scope of work, which included the removal of 1600 CY of concrete slabs, 4,000 LF of process piping, 12,000 LF of railroad track, building demolition and piling.
- January 1999, Project Foreman, Slide repair Burlington Northern Santa Fe Railroad (BNSF). An overhanging scarp approximately 200 feet above the tracks still loomed after a major landslide threatening BNSF trains. Wilder removed the scarp using dynamite working under extremely hazardous conditions without accident.
- June 1998 - August 1998, Project Superintendent. BNSF Hub Yard Air System Installation. Installation of 9 compressed air service points and an air compressor station. Wilder also laid 3000 LF of 4" HDPE pipes. The project was completed without ever jeopardizing BNSF activities or disrupting train scheduling.
- February 1998, Project Superintendent, Abe's Cleaners remediation for the ODEQ. Installation of independent soil vapor extraction (SVE) system which involved a four-well network, included a blower, moisture separator, air filter, and associated valves and appurtenances and a groundwater treatment system (GTS) which included two dual-bag filter units, equalization tank,

Wilder Construction Company

- air stripper, and two granular-activated carbon units to address tetrachloroethylene contamination.
- August 1997 - Jan 1998, Project Superintendent, Short Mountain Storm Cover. Construction of a covered storage lagoon. Project included 4,800 CY Low perm liner (clay), 3,400 LF HDPE leachate delivery forcemain, 1,000 LF concrete anchor wall cover, 129,000 SF 60 mil HDPE, and a 65,000 SF Polypropylene floating cover.
 - April 1997 - October 1997, Foreman, Eagle Harbor Superfund Site remediation project. This project involves an intercept trench installation, tidal barrier wall, soil solidification using a pugmill, sediments dredging, on-site containment, building and pier demolition, and underground tank removal. The tanks removed consisted of 2 ea. 10,000-gallon diesel/bunker units and 1 ea. 2,000-gallon gasoline unit. Approximately 1,000 tons of TPH contaminated soil was hauled and disposed of in a subtitle D landfill. Soils were also impacted with lead and mercury associated with paint and blasting grits utilized in the repair and maintenance of ships during and after World War II.
 - 1997, Project Foreman, Western Processing Superfund Site. Wilder teamed with CH2M HILL to construct a deep well pump and treat system including construction of a water processing facility. All work was completed around an existing shallow well system, which had to remain in operation until a deep well completed system was operational.
 - 1996 - Western Processing Superfund Site Deep Well Pump and Treat System installation. Wilder teamed with CH2M HILL to construct a deep well pump and treat system including construction of a water processing facility. The treatment facility was designed to extract vinyl chloride vapors vented through carbon vessels and a 60' exhaust stack and to settle out heavy metals prior to sanitary sewer release. All work was completed around an existing shallow well system that had to remain in operation until the deep well system was operational. Over a mile of new HDPE conveyance pipe was installed.
 - 1996 - PACCAR Inc Renton NPL Site. Biotreatment and solidification of TPH and heavy metal contaminated soil. Responsibilities included scheduling, budget, cost tracking and client relations.
 - 1996, Project Foreman, GATX Terminal demolition and remediation at their former Port of Seattle Terminal. This project included excavation and off-site thermal desorption of 38,000 cubic yards of TPH contaminated soil.
 - 1995, Project Superintendent, Riverbend Landfill Module 5. This project involved construction of a double lined nine-acre landfill cell complete with leachate system.
 - 1992 - 1995, Project Foreman, PACCAR Renton NPL Site Remediation. Mr. Cabe supervised over a dozen crew members. He was responsible for remediation operations including hot spot excavation, facility demolition, supervising sheetpile operations, stockpiling, placing in biotreatment farms, solidification, and placing soil to planned grades.
 - 1991, Foreman, PACCAR Renton NPL Site Remediation. Mr. Cabe supervised six to fifteen crew members during remediation operations. Site work included excavation of more than 53,000 cubic yards of TPH contaminated soil and installation and operation of an extensive groundwater extraction and treatment system.
 - 1991, Foreman. Supervised a 15-person team to restore residential areas around the new Everett Stadium project. This project included landscaping, retrofitting side service water and utilities. Mr. Cabe handled the public well and finished the project with no complaints or problems from the tenants and owners during this project.

Attachment B

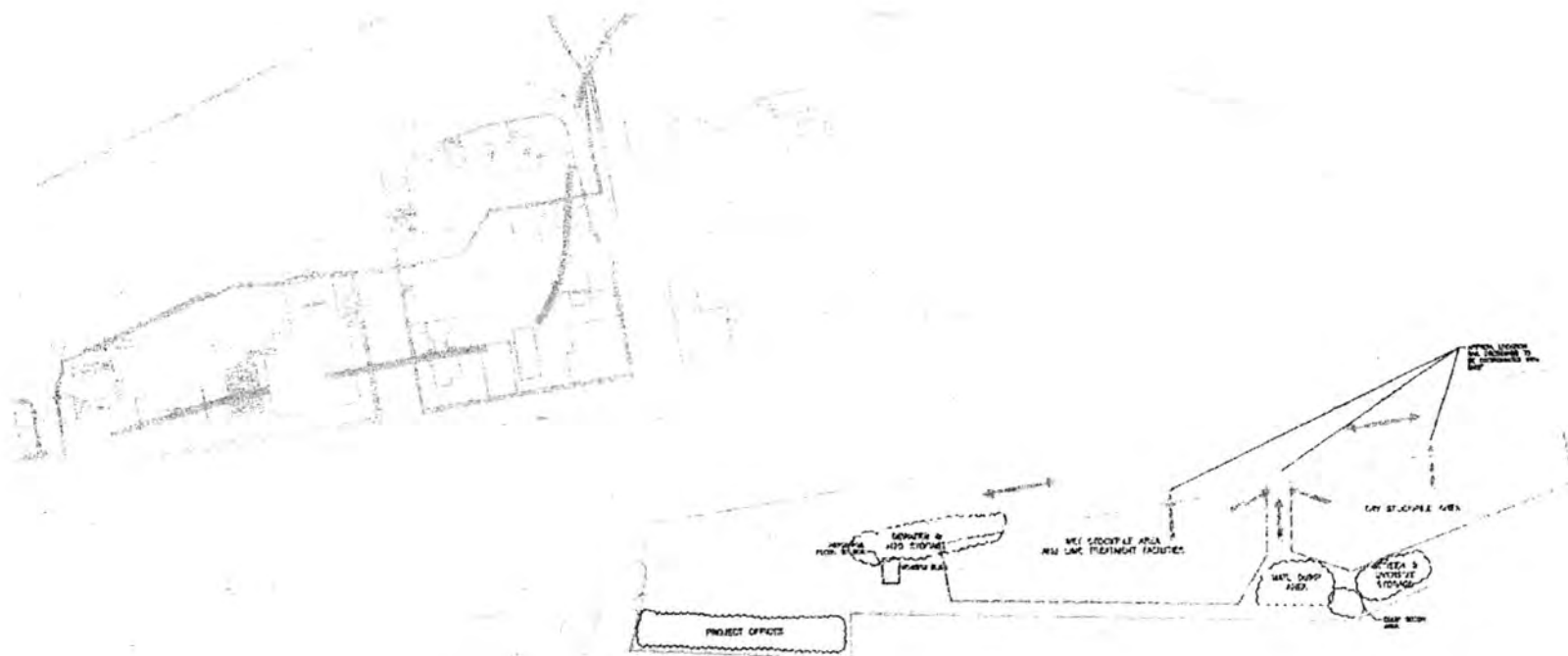
CPM Baseline Schedule

Attachment C

Manufacturer's Data Sheet for the FIBC's
(forthcoming)

Attachment D

On-site Haul Roads

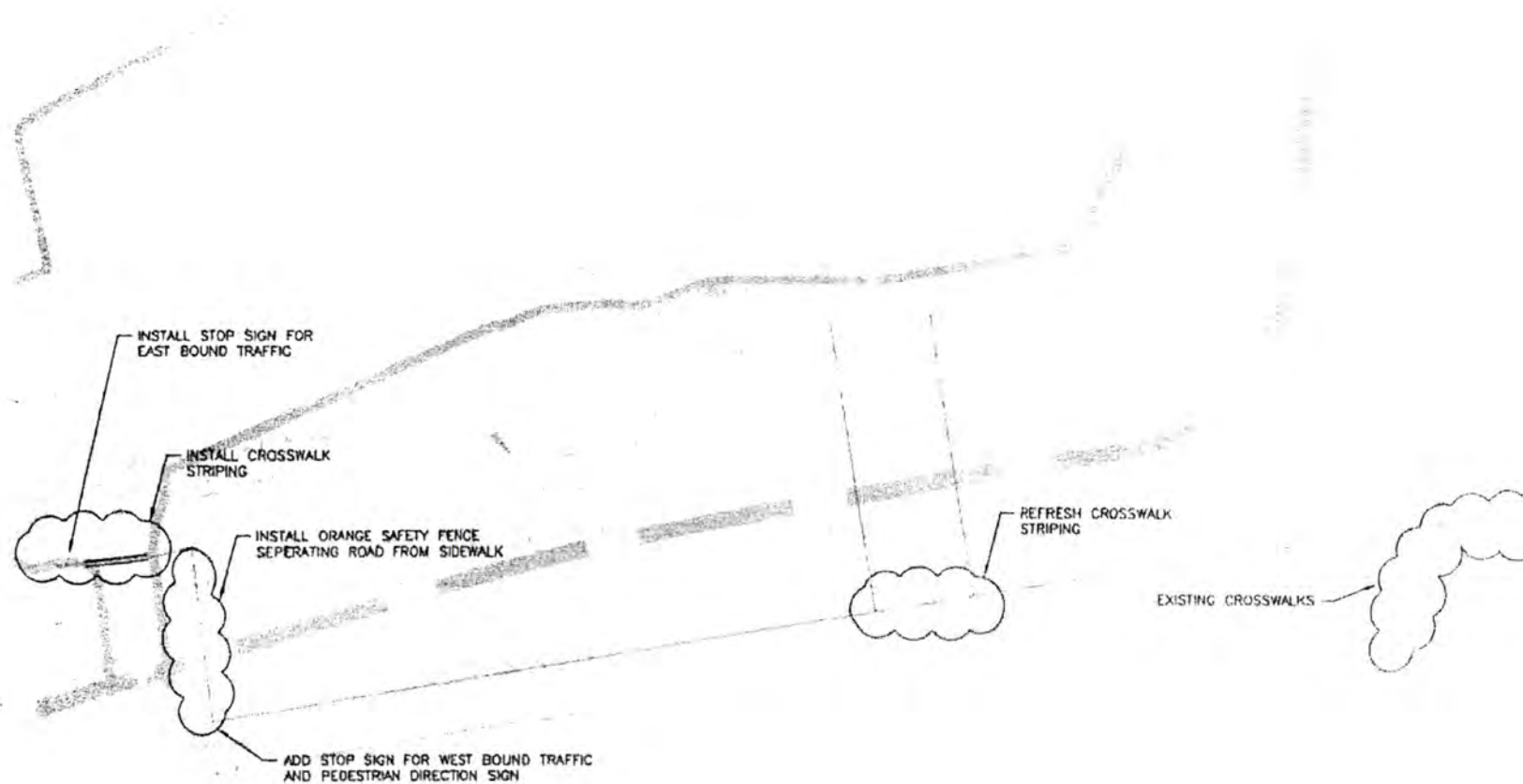


LEGEND

-  TRUCK HAUL ROUTE
-  LOADER HAUL ROUTE
-  TEMP FENCE & GATES
-  STOCKPILE BOUNDARIES
-  STOCKPILE AREA TO RECEIVE LINER

GENERAL NOTES

1. EXISTING FENCE TO BE RELOCATED PER BNSF DIRECTION.
2. EXCLUSION ZONES TO BE CLEARLY DELINIATED BY TEMP FENCE, RELOCATED FENCE, ORANGE SAFETY FENCE, AND SIGNAGE.
3. PORTIONS OF LINER TO BE PAVED PER RFI 3.
4. STOCKPILE AREA FEATURES TO BE FIELD FIT. LOCATIONS SHOWN ARE APPROXIMATE.



LEGEND

TRUCK HAUL ROUTE

PEDESTRIAN ROUTES
NEAR CONSTRUCTION
ZONES

PEDESTRIAN TRAFFIC PLAN

Submittal 12
Riverbed Fill Information

Letter of Submittal

Wilder Construction Company
1525 E. Marine View Drive
Everett, WA 98201



Project Skykomish Levee Remediation **Date** 7/10/2006
Submittal Number 012
Return By

To: The RETEC Group, Inc.
Mike Byers
Project Manager
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

From: Wilder Construction Company
Travis Walken
Project Manager
1525 E. Marine View Drive
Everett, WA 98201

Bid Item	Spec Reference	Copies	Submittal Description	Drawing Number
22	Section 02060.2.05		River Bed Fill Material	

**Remarks by
Contractor**

Material certification for River Bed Fill.



Request for Approval of Material

Contract Skykomish Levee Remediation		FA Number	SR	Date 7/10/2006
Section		County		
Contractor Wilder Construction Company Travis Walken		Subcontractor		

For assistance in completing, see Instructions and Example

For WSDOT Use Only
RAM #

Bid Item No.	Material or Manufacturer's Product/Type	Name and Location of Fabricator, Manufacturer or Pit Number	Specification Reference	PE Appr'l Code	Hdqr. Appr'l Code	File No.
22	River Bed Fill Material	Western Sand and Gravel	Section 02060.2.05			

Project Engineer	Date	State Materials Engineer	Date
------------------	------	--------------------------	------

Approval Action Codes for use by Project Engineer and State Materials Laboratory

1. Conditionally Approved: Acceptance based upon 'Satisfactory' Test Report for samples of materials to be incorporated into project.
2. Conditionally Approved: Submit Mfg. Cert. of Compliance for 'Approval' prior to use of material.
3. Conditionally Approved: Submit Catalog Cuts for 'Approval' prior to use of material.
4. Conditionally Approved: Submit Shop Drawings for 'Approval' prior to fabrication of material.
5. Conditionally Approved: Only 'Approved for Shipment' or 'WSDOT Inspected' material *shall* be used.
6. Conditionally Approved: Submit Materials Certificate of Origin to Project Engineer.
7. Approval Pending: Request Transmitted to State Materials Laboratory for Approval Action.
8. Source Approved:
9. Approval Withheld: Submit samples for preliminary evaluation.
10. Approval Withheld:
- 11.

Remarks:

Project Engineer Distribution

- ☐ Contractor ☐ Region Materials
☐ Region Operations Engineer ☐ State Materials Lab

State Materials Engineer Distribution

- ☐ General File ☐ Signing Inspection
☐ Fabrication Inspection ☐ Other

To: Wilder Construction
ATTN. Quin Golden

RE: Material Chemical content testing.

Dear Quin

Please find the attached chemical results for the material at Western Aggregates Reiter road pit. As you can see we are well within the limits on all metals and chemicals.

As this pit is a Virgin material source we can guarantee that any material shipped from our pit can and will maintain these same standards. However we cannot be held responsible for the material after it has left our facility, or how it is stored and re-handled for lay down.

If you have any questions, or should you require further information please contact myself or one of the owners.

Thank You

Brian Pinelli

Bryan C. Pinelli
Pit Manager Western Sand And Gravel

253-261-8578



8620 Holly Drive Suite 100 Everett, WA 98208 425 358-2600 FAX 425 356-2626 Seattle 206 292-9059

To: Quinn Golden, Project Manger Wilder Construction

RE: Gradiation for River bed fill Material

Dear Quinn

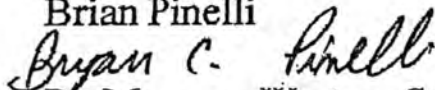
Please find the attached particle size report for the river bed fill material at the Western Sand and Gravel Pit. As we have agreed the material meets with your current specifications as required by the project owners.

We can guarantee that we can maintain the current specifications and quality of rock you are currently receiving through out the life of the project. We cannot guarantee the material after it has left our site for quality, or segregation caused by handling methods or lay down procedures.

If you have any questions or require further information please contact me at any time.

Thank You

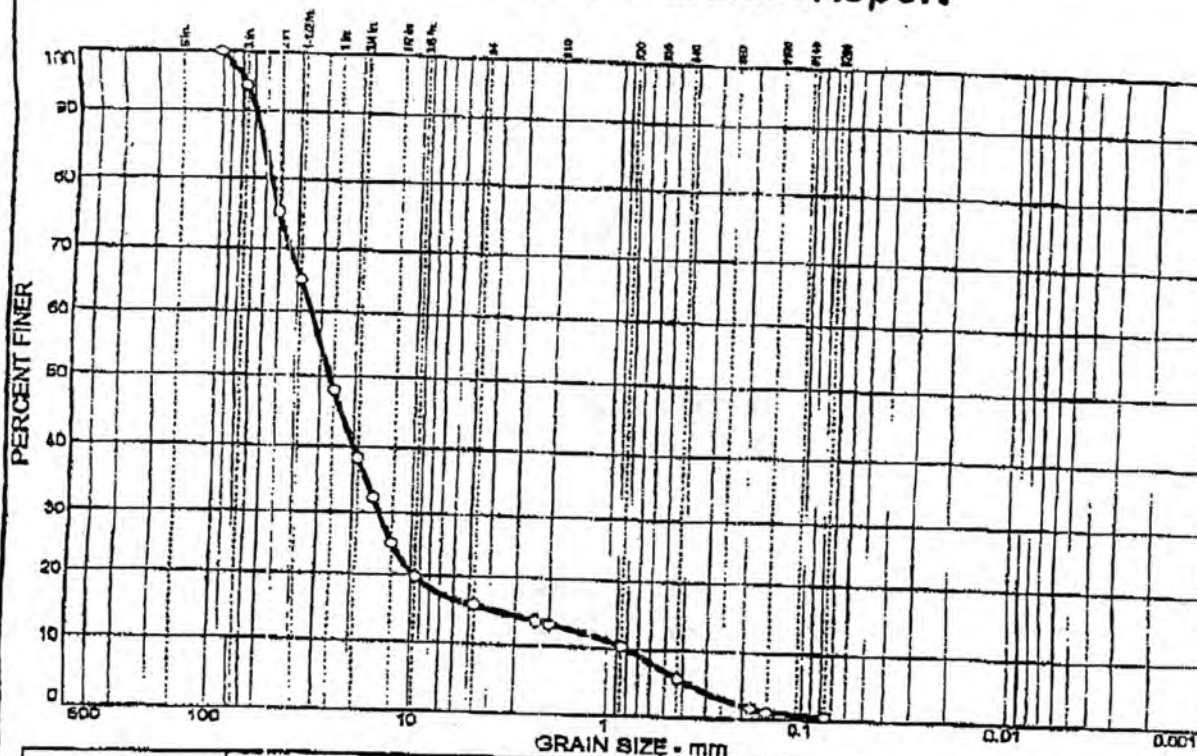
Brian Pinelli



Pit Manager Western Sand and Gravel.

253-261-8578

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
5.8	56.0	22.6	2.4	7.1	5.5	0.6	

SIEVE SIZE	PERCENT FINER	SPEC. PERCENT	PASS? (X=NO)
4 in.	100.0		
3 in.	94.2		
2 in.	75.2		
1.5 in.	65.1		
1 in.	47.9		
.75 in.	38.2		
.625 in.	32.4		
.5 in.	24.9		
.375 in.	19.7		
#4	15.6		
#8	13.6		
#10	13.2		
#20	10.3		
#40	6.1		
#80	1.8		
#100	1.2		
#200	0.6		

(no specification provided)

Soil Description

Riverbed Fill Material
Dated 6-21-2006

PL= Atterberg Limits LL= PI=

Coefficients

D₈₅= 62.1 D₆₀= 33.6 D₅₀= 26.7
D₃₀= 14.8 D₁₅= 3.90 D₁₀= 0.802
C_u= 41.85 C_c= 8.16

USCS= Classification AASHTO=

Remarks

F.M.=4.52

Sample No.: 6416

Location:

Date: 6-26-2006

Elev./Depth:



CASCADe TESTING LABORATORY, INC.
TESTING & INSPECTION / ENGINEERS
18010 N.E. 18TH PLACE
MIRALDA, WASHINGTON 98004
(206) 823-2203

Client: Scarce & Brothers
Project: Reiter Road Pk

Technician: Nick Aver

Project No: 0606-52

Inspector: [Signature]

Letter of Transmittal

The RETEC Group, Inc.
1011 SW Klickitat Way
Suite 207
Seattle, WA 98134-1162



(206) 624-9349 Phone
(206) 624-2839 Fax
www.retec.com

TO: Travis Walken, Wilder Construction DATE: July 18, 2006
RE: Response to Submittal 12 PROJECT NO: BN050-19390

☐ For Approval	☒ Approved as Submitted	☐ Resubmit _____ Copies for Approval
☐ For Your Use	☐ Approved as Noted	☐ Submit _____ Copies for Distribution
☒ As Requested	☐ Returned for Corrections	☐ Return _____ Corrected Prints
☐ For Review & Comment	☐ Other: _____	

Remarks:

Submittal 12- Material Certification for River Bed Fill below scour zone.

The material certification for river bed fill submittal below the scour zone meets specifications and is accepted with no exceptions.

Should you have any questions, please feel free to call me.

Sincerely,

The RETEC Group, Inc.

Michael Byers

cc: Sarah Albano, Dennis Metz
RETEC file BN050-19390

Submittal 13
Geotextile Information

Letter of Submittal

Wilder Construction Company
1525 E. Marine View Drive
Everett, WA 98201



Project	Skykomish Levee Remediation	Date	7/31/2006
		Submittal Number	13
		Return By	8/2/2006

To: The RETEC Group, Inc.
Mike Byers
Project Manager
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

From: Wilder Construction Company
Travis Walken
Project Manager
1525 E. Marine View Drive
Everett, WA 98201

Bid Item	Spec Reference	Copies	Submittal Description	Drawing Number
26	Plan Sheet C-19		Geotextile - PermeaTex 4080	

Remarks by
Contractor

Geotextile for levee construction.



Request for Approval of Material

Contract Skykomish Levee Remediation	FA Number	SR	Date 7/31/2006
Section	County		
Contractor	Subcontractor		
Wilder Construction Company	Travis Walken		

For assistance in completing, see Instructions and Example

[illegible]

Approval Action Codes for use by Project Engineer and State Materials Laboratory

- | | |
|---------------------------|---|
| 1. Conditionally Approved | Acceptance based upon 'Satisfactory' Test Report for samples of materials to be incorporated into project |
| 2. Conditionally Approved | Submit Mfg. Cert. of Compliance for 'Approval' prior to use of material. |
| 3. Conditionally Approved | Submit Catalog Cuts for 'Approval' prior to use of material. |
| 4. Conditionally Approved | Submit Shop Drawings for 'Approval' prior to fabrication of material. |
| 5. Conditionally Approved | Only 'Approved for Shipment' or 'WSDOT Inspected' material <i>shall</i> be used |
| 6. Conditionally Approved | Submit Materials Certificate of Origin to Project Engineer. |
| 7. Approval Pending | Request Transmitted to State Materials Laboratory for Approval Action |
| 8. Source Approved: | |
| 9. Approval Withheld. | Submit samples for preliminary evaluation |
| 10. Approval Withheld: | |
| 11 | |

Remarks.

Project Engineer Distribution

- ☐ Contractor ☐ Region Materials
☐ Region Operations Engineer ☐ State Materials Lab

State Materials Engineer Distribution

- ☐ General File ☐ Signing Inspection
☐ Fabrication Inspection ☐ Other



**NORTHWEST LININGS &
GEOTEXTILE PRODUCTS, Inc.**

"Helping to Protect the Environment"

21000 77th Avenue South

Kent, WA 98032

(253) 872-0244 • (800) 729-6954

FAX: (253) 872-0245

www.northwestlinings.com

PermeaTex™ 4080 Nonwoven Geotextile

PermeaTex™ 4080 consists of nonwoven, polypropylene, needlepunched geotextile products that are recommended for drainage, filtration, separation, and soil reinforcement applications. Specific areas of use are subdrainage under roadways and playing fields, foundations, railway construction, rock buttresses, and slope drains. These geotextile products are resistant to ultraviolet degradation and to biological and chemical environments found in normal soil areas.

PHYSICAL PROPERTY	TEST METHOD	MARV VALUES ENGLISH	MARV VALUES METRIC
Weight (Typical)	ASTM D5261	8 oz/sy	271 g/sm
Grab Tensile	ASTM D4632	205 lbs	0.911 kN
Grab Elongation	ASTM D4632	50 %	50 %
Puncture Strength	ASTM D4833	130 lbs	0.578 kN
Trapezoidal Tear Strength	ASTM D4533	85 lbs	0.378 kN
Mullen Burst	ASTM D3786	400 psi	2756 kPa
A.O.S.	ASTM D4751	80 US Sieve	0.180 mm
Water Permeability	ASTM D4491	0.38 cm/sec	0.38 cm/sec
Water Flow Rate	ASTM D4491	90 gpm/sf	3657 l/min/sm
Water Permittivity	ASTM D4491	1.40 l/sec	1.40 l/sec
U.V. Resistance (500 Hours)	ASTM D4355	70 %	70 %

- Note: *At the time of manufacturing. Abrasion, wetness, handling, storage, and shipping may change these properties.
- Minimum average roll values are based on a 95% confidence level.

PermeaTex™ is a trade name of Northwest Linings and any use of this name without the express written consent of Northwest Linings is strictly prohibited.

The information and data contained herein are believed to be accurate and reliable. Northwest Linings makes no warranty of any kind. Northwest Linings accepts no responsibility or liability for the results obtained through application of this information.

Submittal 14
Stabilization Aggregate Information

Letter of Submittal

Wilder Construction Company
1525 E. Marine View Drive
Everett, WA 98201



Project	Skykomish Levee Remediation	Date	8/3/2006
		Submittal Number	14
		Return By	8/8/2006

To: The RETEC Group, Inc.
Mike Byers
Project Manager
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

From: Wilder Construction Company
Travis Walken
Project Manager
1525 E. Marine View Drive
Everett, WA 98201

Bid Item	Spec Reference	Copies	Submittal Description	Drawing Number
21	Section 02060.2.06		Stabilization Aggregate	

**Remarks by
Contractor**

Stabilization Aggregate material submittal.

Request for Approval of Material

**Washington State
Department of Transportation**



Contract Skykomish Levee Remediation	FA Number	SR	Date	8/3/2006
Section				
County				
Contractor Wilder Construction Company Travis Walken		Subcontractor		

For assistance in completing, see Instructions and Example

21	Bid Item No.	Material or Manufacturer's Product Type	Name and Location of Fabricator, Manufacturer or P/L Number	Further Materials	Section 03080.2.00	PE Appt Code	Hdqt. Appt Code	File No.
----	-----------------	--	--	-------------------	-----------------------	--------------------	-----------------------	-------------

[illegible]

Approval Action Codes for use by Project Engineer and State Materials Laboratory

- | | |
|-----|--|
| 11. | |
| 10. | Approval Withheld:
Submit samples for preliminary evaluation. |
| 9. | Approval Withheld:
Submit samples for preliminary evaluation. |
| 8. | Source Approved: |
| 7. | Approval Pending:
Request Transmitted to State Materials Laboratory for Approval Action. |
| 6. | Conditionally Approved:
Submit Materials Certificate of Origin to Project Engineer. |
| 5. | Conditionally Approved:
Only 'Approved for Shipment' or 'WSDOT Inspected' material shall be used. |
| 4. | Conditionally Approved:
Submit Shop Drawings for 'Approval' prior to fabrication of material. |
| 3. | Conditionally Approved:
Submit Catalog Cuts for 'Approval' prior to use of material. |
| 2. | Conditionally Approved:
Submit Mfg. Cert. of Compliance for 'Approval' prior to use of material. |

Remarks:

--

Project Engineer Distribution

☐ Project Engineer Distribution
☐ Contractor
☐ Region Materials
☐ State Materials Lab
☐ State Materials Engineer Distribution
☐ General File
☐ Fabrication Inspection
☐ Other

RINKER MATERIALS - SIEVE ANALYSIS

Fractures:

- 1) 3/4" = 90%
- 2) #4 = 77%



For Skykomish Levee Remediation Proj

WSDOT spec (2006 ed) = 9-03.9(2)

DATE: 6/19/2006
SOURCE: Proctor Creek
TESTED BY: G. P.

MATL DESCR.
SAMPLED BY:

Stabilization Material
Greg Page
Time: 1:50 p.m.

WET =		3536	DRY =		3446	WASHED =	
SIEVE SIZE	CUMULATIVE WT RETAINED	CUMULATIVE % RETAINED	% PASSING	SPEC LOW	HIGH		
2-1/2"	0	0.0%	100.0%	100	100		
2"	0	0.0%	100.0%	65	100		
3/4"	1220	35.4%	64.6%	40	80		
#4	3352	97.3%	2.7%	0	5		
#100	3399	98.6%	1.4%	0	2		
PAN	3446						

MOISTURE = 2.6%

Aggregate Source Approval Report



Washington State
Department of Transportation

WSDOT MATERIALS LAB

08/03/2006

Aggregate Source Approval Report

Owner: Hos Bros. Construction, Inc.
Leasee: Rinker Materials
Located in: N 1/2 NE 1/4, NE 1/4 NW 1/4 Section 15 T27N R9E

Aggregate Source: PS-D-19
Known as:
County: Snohomish

Remarks:

Pit Run Materials:

Prior to incorporating any of the following into a job, Gradation and Sand Equivalent tests shall be performed to determine if the material does in fact meet specification for the intended use:

Backfill for Rock Wall	Backfill for Sand Drains	Bedding Material for Rigid Pipe
Bedding Material for Thermoplastic Pipe	Blending Sand	Foundation Material for Classes A, B or C
Gravel Backfill for Drains and Drywells	Gravel Backfill for Foundation Class B	Gravel Backfill for Pipe Zone Bedding
Gravel Backfill for Walls	Gravel Borrow	Sand Drainage Blanket
Select or Common Borrow		

No Preliminary Tests are required to be performed by the State Materials Lab

Gravel Base:	Test Date: 05/05/2003	Expiration Date: 05/05/2008
Drainage: Free	R Value: 77	Swell Pressure: 0

Currently approved as a source of aggregate for:

Bank Run Gravel for Trench Bkfl

Gravel Base

Acceptance tests need to be performed as necessary.

Mineral Agg. and Surfacing:	Test Date: 07/13/2005	Expiration Date: 07/13/2010
Absorption:	Apparent Sp. G.: Bulk Sp. G. (SSD): 2.708	Bulk Sp. G.:
Deg: 72	LA: 18	

Currently approved as a source of aggregate for:

ATB

Ballast

BST Crushed Cover Stone

BST Crushed Screenings

Crushed Surfacing Base Course

Crushed Surfacing Key Stone

Crushed Surfacing Top Course

Gravel Backfill for Foundation Class A

HMA Other Courses

HMA Wearing Course

Maintenance Rock

Shoulder Ballast

Acceptance tests need to be performed as necessary.

Portland Cement Concrete Aggregates:	Test Date: 05/05/2003	Expiration Date: 05/05/2008
ASR - 14 Day : 0.08	ASR - One Year: 0.022	CCA Absorption: 0.87
FCA Absorption: 1.73	FCA Organics: 1	CCA Sp.G: 2.694
Mortar Strength:	Petrographic Analysis:	LA: 17

Currently approved for:

Coarse Concrete Aggregates

Fine Concrete Aggregates

Acceptance tests need to be performed as necessary

Riprap and Quarry Spalls:	Test Date: 07/13/2005	Expiration Date:
Absorption:	Apparent Sp. G.: Bulk Sp. G. (SSD): 2.708	Bulk Sp. G.:
Deg: 72	LA: 18	

Letter of Transmittal

The RETEC Group, Inc.
1011 SW Klickitat Way
Suite 207
Seattle, WA 98134-1162



(206) 624-9349 Phone
(206) 624-2839 Fax
www.retec.com

TO: Travis Walken, Wilder Construction DATE: August 11, 2006
RE: Response to Submittal 14 PROJECT NO: BN050-19390

☐ For Approval	☒ Approved as Submitted	☐ Resubmit _____ Copies for Approval
☐ For Your Use	☐ Approved as Noted	☐ Submit _____ Copies for Distribution
☒ As Requested	☐ Returned for Corrections	☐ Return _____ Corrected Prints
☐ For Review & Comment	☐ Other: _____	

Remarks:

Submittal 14- Stabilization Aggregate Material Submittal

The sieve analysis for stabilization aggregate submittal meets specifications and is accepted with no exceptions.

Should you have any questions, please feel free to call me.

Sincerely,

The RETEC Group, Inc.

Michael Byers

cc: Sarah Albano, Dennis Metz
RETEC file BN050-19390

Submittal 15
Armor Rock and Scour Zone Material Information

Letter of Submittal

Wilder Construction Company
1525 E. Marine View Drive
Everett, WA 98201



Project	Skykomish Levee Remediation	Date	8/15/2006
		Submittal Number	15
		Return By	8/15/2006

To: The RETEC Group, Inc.
Mike Byers
Project Manager
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

From: Wilder Construction Company
Travis Walken
Project Manager
1525 E. Marine View Drive
Everett, WA 98201

Bid Item	Spec Reference	Copies	Submittal Description	Drawing Number
22	NA		Scour Zone Riverbed Fill	
23	02400		Armor Rock	

Remarks by
Contractor

Armor Rock and Sour Zone Material. Neither material can be analyzed for gradation due to size. A visual inspection and approval is requested.



Request for Approval of Material

Contract Skykomish Levee Remediation		FA Number	SR	Date	8/15/2006
Section		County			
Contractor		Subcontractor			
Wilder Construction Company Travis Walken					

For assistance in completing, see Instructions and Example

For WSDOT Use Only
RAM #

[illegible]

Project Engineer	Date	State Materials Engineer	Date
------------------	------	--------------------------	------

Approval Action Codes for use by Project Engineer and State Materials Laboratory

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3. Conditionally Approved: Submit Catalog Cuts for 'Approval' prior to use of material.
4. Conditionally Approved: Submit Shop Drawings for 'Approval' prior to fabrication of material.
5. Conditionally Approved: Only 'Approved for Shipment' or 'WSDOT Inspected' material *shall* be used.
6. Conditionally Approved: Submit Materials Certificate of Origin to Project Engineer.
7. Approval Pending: Request Transmitted to State Materials Laboratory for Approval Action.
8. Source Approved:
9. Approval Withheld: Submit samples for preliminary evaluation.
10. Approval Withheld:
- 11.

Remarks:

Project Engineer Distribution

- ☐ Contractor ☐ Region Materials
☐ Region Operations Engineer ☐ State Materials Lab

State Materials Engineer Distribution.

- ☐ General File ☐ Signing Inspection
☐ Fabrication Inspection ☐ Other

The RETEC Group, Inc.
1011 SW Klickitat Way
Suite 207
Seattle, WA 98134-1162



(206) 624-9349 Phone
(206) 624-2839 Fax
www.retec.com

Letter of Transmittal

TO: Travis Walken, Wilder Construction DATE: August 22, 2006
RE: Response to Submittal 15 PROJECT NO: BN050-19390

☐ For Approval	☒ Approved as Submitted	☐ Resubmit	_____ Copies for Approval
☐ For Your Use	☐ Approved as Noted	☐ Submit	_____ Copies for Distribution
☒ As Requested	☐ Returned for Corrections	☐ Return	_____ Corrected Prints
☐ For Review & Comment		☐ Other:	_____

Remarks:

Submittal 15- Armor Rock and Scour Zone Riverbed Fill

As requested in Submittal 15, visual inspections of the armor rock and scour zone riverbed fill material were completed. This armor rock submittal is accepted for placement as armor on the levee and the scour zone riverbed fill material is accepted for placement in the scour zone in the river.

Should you have any questions, please feel free to call me.

Sincerely,

The RETEC Group, Inc.

Michael Byers

cc: Sarah Albano, Dennis Metz
RETEC file BN050-19390

Submittal 16
Drainage Structure and Pipe Information

Letter of Submittal

Wilder Construction Company
1525 E. Marine View Drive
Everett, WA 98201



Project	Skykomish Levee Remediation	Date	8/23/2006
		Submittal Number	16
		Return By	8/30/2006

To: The RETEC Group, Inc.
Mike Byers
Project Manager
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

From: Wilder Construction Company
Travis Walken
Project Manager
1525 E. Marine View Drive
Everett, WA 98201

Bid Item	Spec Reference	Copies	Submittal Description	Drawing Number
28	02635.2.01		Blue Seal corrugated polyethylene pipe - for 12", 18", 24" and 30" pipe diameters	
28	02635.2.02		Manhole steps and ladder	
28	02635.2.01		Type 1L Catch Basin	
28	02635.2.01		Type 1 Catch Basin	
28	02635.2.01		48" Type 2 Catch Basin w/ Knockout Base and Riser	
28	02635.2.01		48" Type 2 Catch Basin w/ Knockouts	
28	02635.2.01		48" Type 2 Catch Basin	
28	02635.2.01		72" Type 2 Catch Basin	
28	02635.2.01		84" Type 2 Catch Basin	

Remarks by Contractor

Drainage structure and pipe submittals. Due to recent changes to the plans and the urgency for installation, the 84" CB has already been ordered.



Washington State
Department of Transportation

Request for Approval of Material

Contract Skykomish Levee Remediation		FA Number	SR	Date 8/23/2006
Section		County		
Contractor Wilder Construction Company Travis Walken		Subcontractor		

For assistance in completing, see Instructions and Example

For WSDOT Use Only
RAM #

Bid Item No.	Material or Manufacturer's Product/Type	Name and Location of Fabricator, Manufacturer or Pit Number	Specification Reference	PE Appr'l Code	Hdqtr. Appr'l Code	File No.
28	Blue Seal corrugated polyethylene pipe - for 12", 18", 24" and 30" pipe diameters	Hancox	02635.2.01			
28	Manhole steps and ladder	Lane	02635.2.02			
28	Type 1L Catch Basin	Granite Precasting and Concrete	02635.2.01			
28	Type 1 Catch Basin	Granite Precasting and Concrete	02635.2.01			
28	48" Type 2 Catch Basin w/ Knockout Base and Riser	Granite Precasting and Concrete	02635.2.01			
28	48" Type 2 Catch Basin w/ Knockouts	Granite Precasting and Concrete	02635.2.01			
28	48" Type 2 Catch Basin	Granite Precasting and Concrete	02635.2.01			
28	72" Type 2 Catch Basin	Granite Precasting and Concrete	02635.2.01			
28	84" Type 2 Catch Basin	Granite Precasting and Concrete	02635.2.01			

Project Engineer	Date	State Materials Engineer	Date
------------------	------	--------------------------	------

Approval Action Codes for use by Project Engineer and State Materials Laboratory

- Conditionally Approved: Acceptance based upon 'Satisfactory' Test Report for samples of materials to be incorporated into project.
- Conditionally Approved: Submit Mfg. Cert. of Compliance for 'Approval' prior to use of material.
- Conditionally Approved: Submit Catalog Cuts for 'Approval' prior to use of material.
- Conditionally Approved: Submit Shop Drawings for 'Approval' prior to fabrication of material.
- Conditionally Approved: Only 'Approved for Shipment' or 'WSDOT Inspected' material shall be used.
- Conditionally Approved: Submit Materials Certificate of Origin to Project Engineer.
- Approval Pending: Request Transmitted to State Materials Laboratory for Approval Action.
- Source Approved:
- Approval Withheld: Submit samples for preliminary evaluation.
- Approval Withheld:
-

Remarks:

Project Engineer Distribution

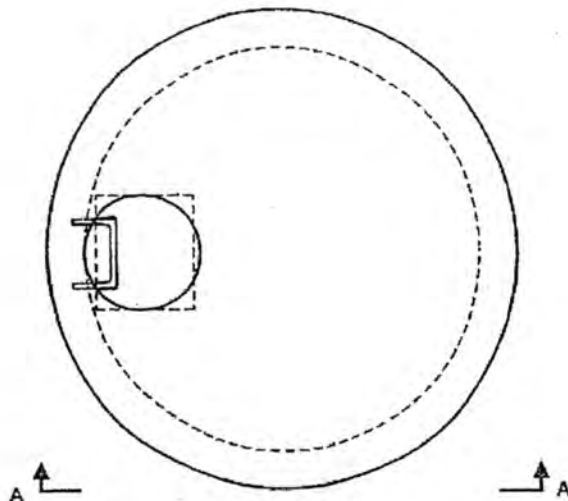
- ☐ Contractor
☐ Region Operations Engineer
☐ Region Materials
☐ State Materials Lab

State Materials Engineer Distribution

- ☐ General File
☐ Fabrication Inspection
☐ Signing Inspection
☐ Other

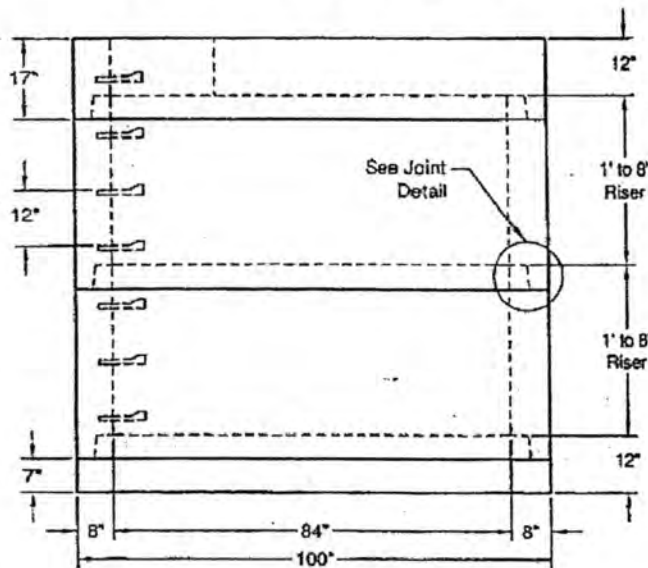
84" Type 2 Catch Basin

Catch Basins Constructed in Accordance with ASTM C-478
 Rubber Gasket Conforms to ASTM C-443
 Polypropylene MH Steps Conform to ASTM C-478

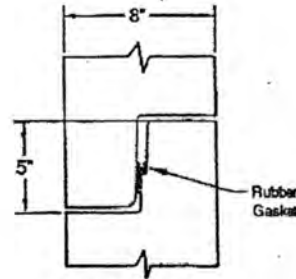


TOP SLAB

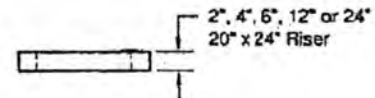
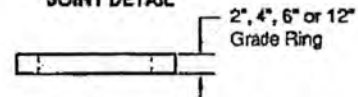
24" Diameter Round or 20" x 24" Rectangular Hole



ELEVATION AA



JOINT DETAIL



WEIGHTS:

TOP SLAB:	8,700 lbs
RISER: 1'-	2,400 lbs
2'-	4,800 lbs
3'-	7,200 lbs
4'-	9,600 lbs
5'-	12,000 lbs
6'-	14,400 lbs
7'-	16,660 lbs
8'-	19,200 lbs
BASE SLAB:	7,540 lbs

CONCRETE:

F_{cm} 4,000 psi @ 28 Days

REINFORCING STEEL:

Welded Wire Fabric: ASTM A 497
 Rebar: ASTM A615 Grade 60
 Riser: 0.21 Sq in./lin ft min.
 Base Slab: 0.37 Sq in./lin ft min.

PIPE PENETRATIONS:

Maximum Hole Size: 72"
 Minimum Distance Hole to Hole: 12"
 Holes Cored to Plan Specifications
 Kor-N-Seal Connectors Available



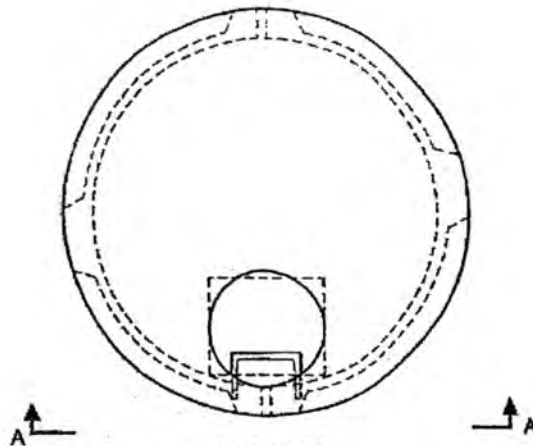
GRANITE

**PRECASTING &
 CONCRETE INC.**

4116 BAKERVIEW SPUR • BELLINGHAM, WA 98225 • (360) 671-2251 • 1-800-808-2251 • FAX: (360) 671-0780

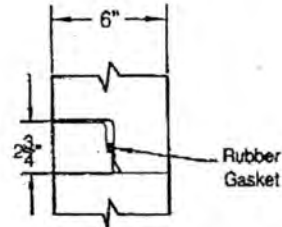
72" Type 2 Catch Basin w/ Knockouts

Meets or Exceeds WSDOT standard plan B-1e
Catch Basins Constructed in Accordance with ASTM C-478
Rubber Gasket Conforms to ASTM C-443
Polypropylene MH Steps Conform to ASTM C-478

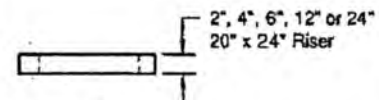
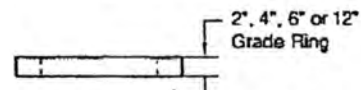


TOP SLAB

24" Diameter Round or 20" x 24" Rectangular Hole



JOINT DETAIL



WEIGHTS:

TOP SLAB: 3,780 lbs

RISER:

1' - 1,500 lbs

2' - 3,000 lbs

3' - 4,500 lbs

4' - 5,880 lbs

5' - 7,760 lbs

6' - 9,100 lbs

7' - 10,680 lbs

8' - 11,960 lbs

HKO RISER:

5' - 5,340 lbs

6' - 6,840 lbs

7' - 8,340 lbs

8' - 9,840 lbs

BASE SLAB: 8' - 4,100 lbs

CONCRETE:

Fc = 4,000 psi @ 28 Days

REINFORCING STEEL:

Welded Wire Fabric: ASTM A 497

Rebar: ASTM A615 Grade 60

Riser: 0.18 Sq in./lin ft min.

Base Slab: 0.35 Sq in./lin ft min.

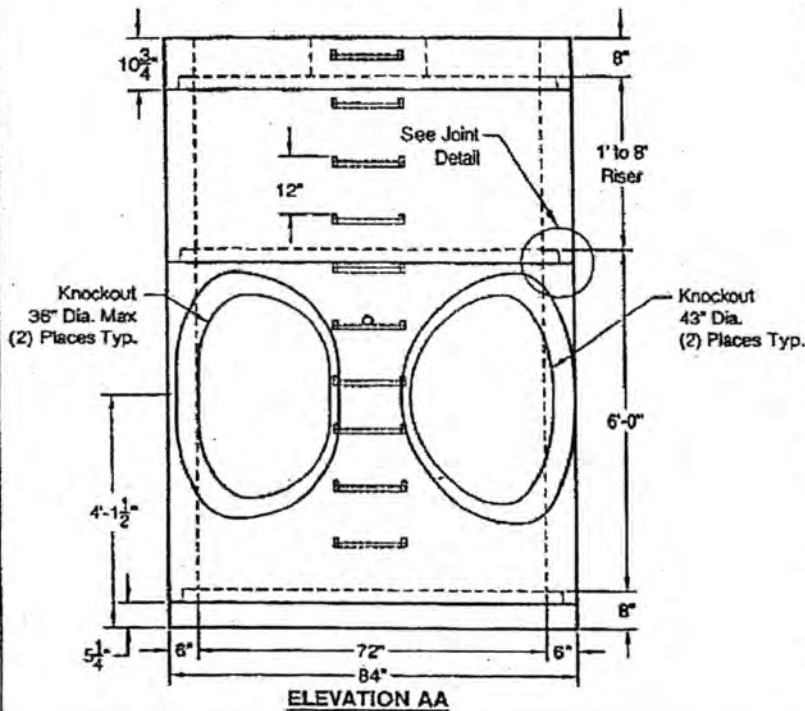
PIPE PENETRATIONS:

Maximum Hole Size: 60"

Minimum Distance Hole to Hole: 12"

Holes Cored to Plan Specifications

Kor-N-Seal Connectors Available



ELEVATION AA



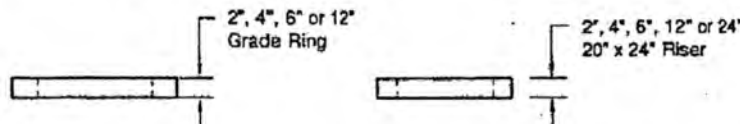
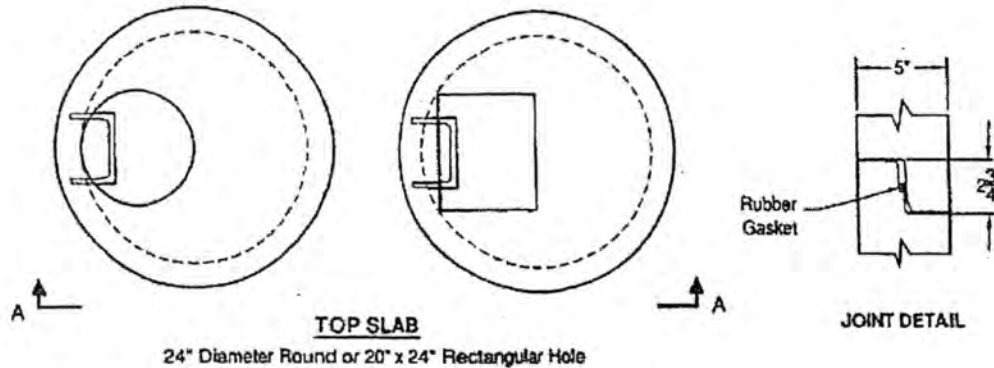
GRANITE

**PRECASTING &
CONCRETE INC.**

4116 BAKERMAN SPUR • BELLINGHAM, WA 98226 • (360) 671-2251 • 1-800-808-2251 • FAX: (360) 671-0780

48" Type 2 Catch Basin

Meets or Exceeds WSDOT standard plan B-1e
Catch Basins Constructed in Accordance with ASTM C-478
Rubber Gasket Conforms to ASTM C-443
Polypropylene MH Steps Conform to ASTM C-478



WEIGHTS:

TOP SLAB:	1,580 lbs
RISER:	1' - 950 lbs
	2' - 1,800 lbs
	3' - 2,700 lbs
	4' - 3,600 lbs
BASE:	2' - 3,200 lbs
	3' - 4,400 lbs
	4' - 4,800 lbs
	5' - 6,300 lbs

CONCRETE:

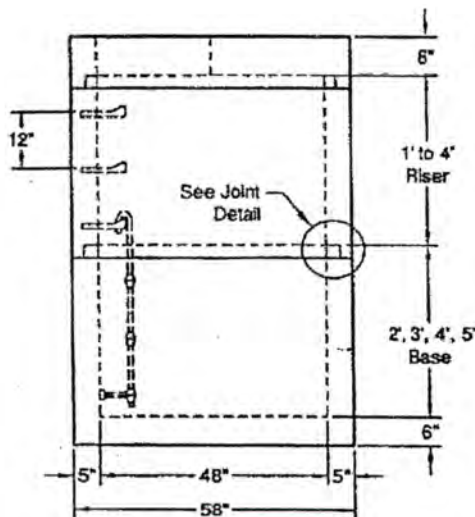
Fc= 4,000 psi @ 28 Days

REINFORCING STEEL:

Welded Wire Fabric: ASTM A 497
Rebar: ASTM A615 Grade 60
Base w/Integral Riser: 0.15 Sq in./lin ft min.
Base Slab: 0.23 Sq in./lin ft min.

PIPE PENETRATIONS:

Maximum Hole Size: 36"
Minimum Distance Hole to Hole: 8"
Holes Cored to Plan Specifications
Kor-N-Seal Connectors Available
Standard Knockouts Available



ELEVATION AA



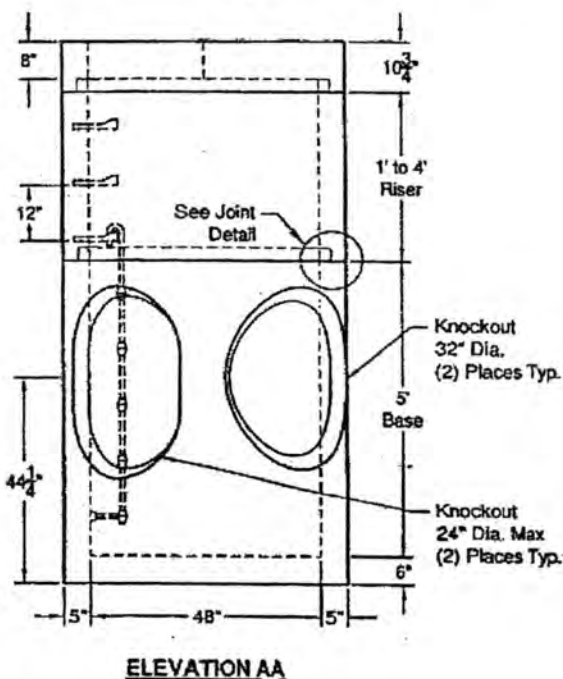
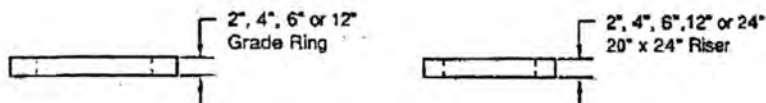
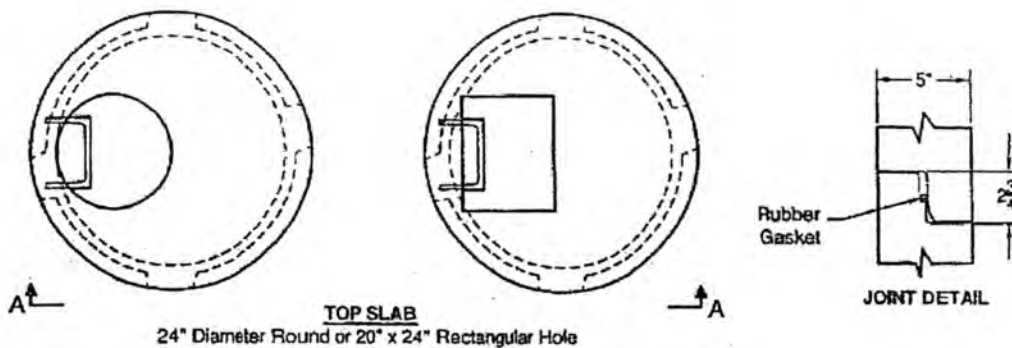
GRANITE

PRECASTING & CONCRETE INC.

4115 BAKERVIEW SPUR • BELLINGHAM, WA 98226 • (360) 671-2251 • 1-800-808-2251 • FAX: (360) 671-0780

48" Type 2 Catch Basin w/ Knockouts

Meets or Exceeds WSDOT standard plan B-1e
Catch Basins Constructed in Accordance with ASTM C-478
Rubber Gasket Conforms to ASTM C-443
Polypropylene MH Steps Conform to ASTM C-478



WEIGHTS:

TOP SLAB:	1,580 lbs
RISER:	1' - 950 lbs
	2' - 1,800 lbs
	3' - 2,700 lbs
	4' - 3,600 lbs
BASE 5' KO:	- 5,000 lbs

CONCRETE:

Fc= 4,000 psi @ 28 Days

REINFORCING STEEL:

Welded Wire Fabric: ASTM A497
Rebar: ASTM A615 Grade 60
Base w/integral Riser:
0.15 Sq in./lin ft min.
Base Slab: 0.23 Sq in./lin ft min.

PIPE PENETRATIONS:

Maximum Hole Size: 36"
Minimum Distance Hole to Hole: 8"



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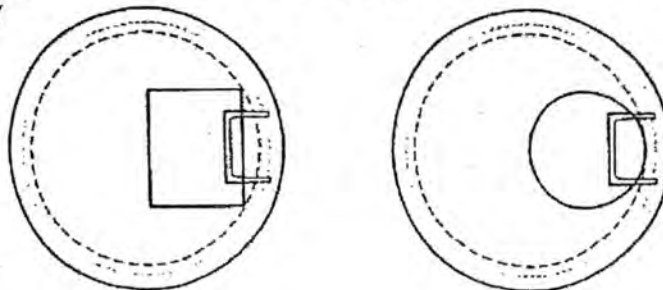
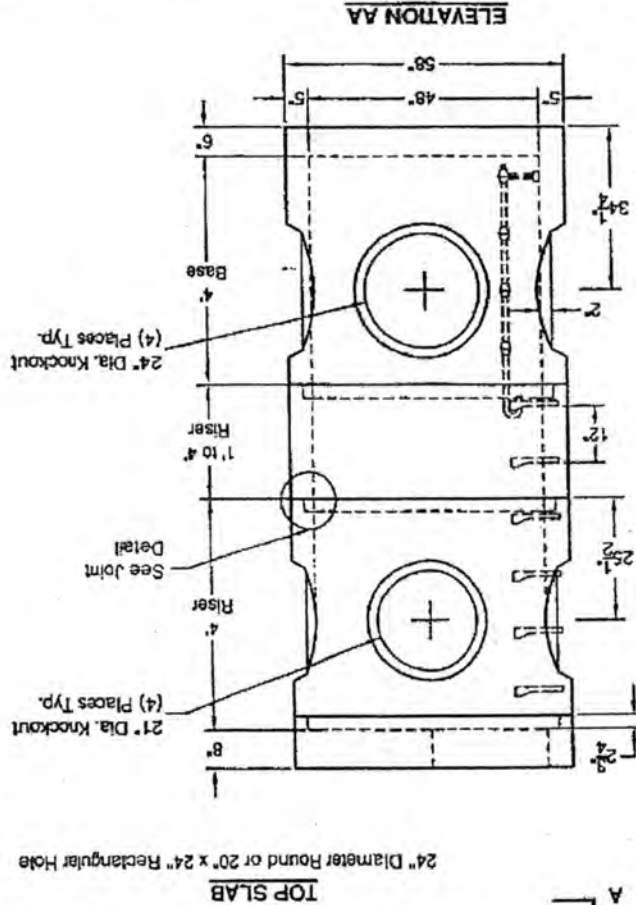
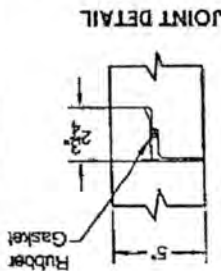
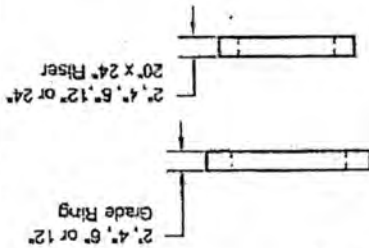


PIPE PENETRATIONS:
Maximum Hole Size: 36"
Minimum Distance Hole to Hole: 8"

Base Slab: 0.23 Sq in./ft min.
0.15 Sq in./ft min.
Base w/Integral Riser:
Rebar: ASTM A615 Grade 60
Welded Wire Fabric: ASTM A497

REINFORCING STEEL:
Fc = 4,000 psi @ 28 Days
CONCRETE:

WEIGHTS:
TOP SLAB: 1,580 lbs
RISER: 4' KO - 3,200 lbs
RISER: 1' - 950 lbs
2' - 1,800 lbs
3' - 2,700 lbs
4' - 3,600 lbs
BASE: 4' HKO - 4,300 lbs

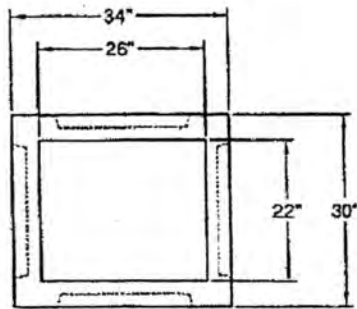


**48" Type 2 Catch Basin
w/Knockout Base and Riser**

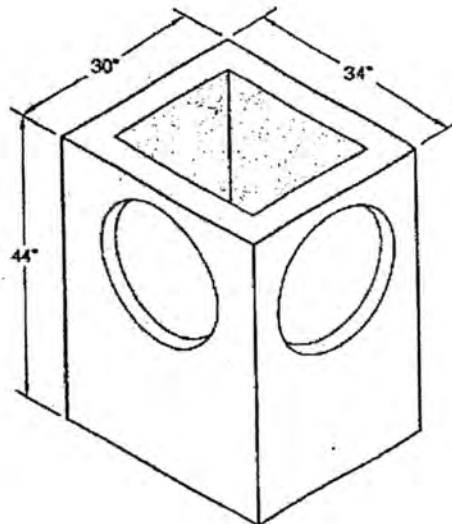
Meets or Exceeds WSDOT standard per B-1e
Catch Basins Constructed in Accordance with ASTM C-478
Rubber Gasket Conforms to ASTM C-443
Polypropylene MH Steps Conform to ASTM C-478

Type 1 Catch Basin

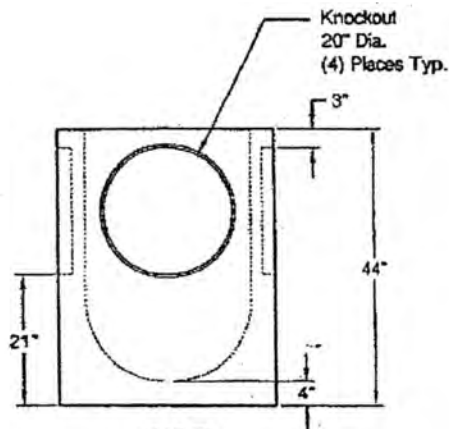
Meets or Exceeds WSDOT Standard Plan B-1
Constructed in Accordance With ASTM C-478



PLAN



ISO VIEW



SIDE

WEIGHTS:

BASE: 1,800 lbs

CONCRETE:

F_c = 4,000 psi @ 28 Days

REINFORCING STEEL:

Welded Wire Fabric: ASTM A 497

0.12 Sq In./lin ft min.

No Wire Fabric in Knockout

PIPE PENETRATIONS:

Standard Knockouts (4)



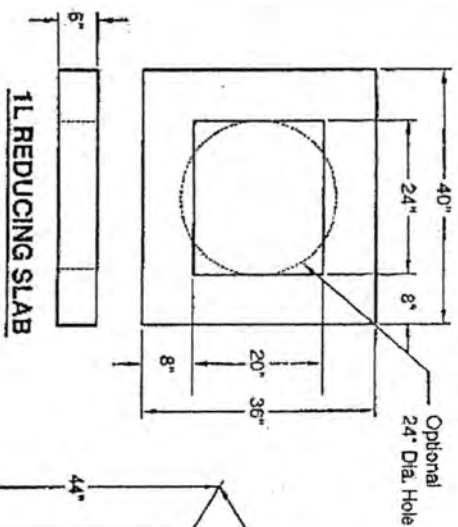
GRANITE

PRECASTING & CONCRETE INC.

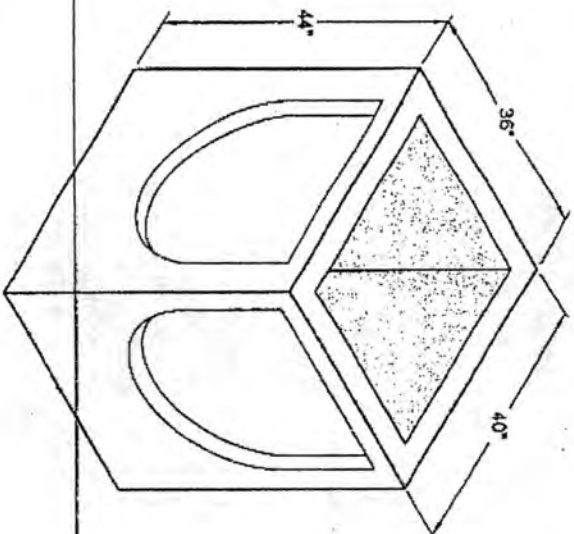
4116 BAKERVIEW SPUR • BELLINGHAM, WA 98226 • (360) 671-2251 • 1-800-808-2251 • FAX: (360) 671-0780

Type 1L Catch Basin

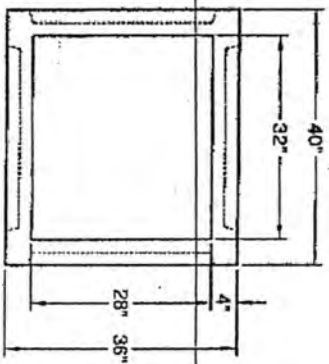
Meets or Exceeds WSDOT Standard Plan B-1a
Constructed in Accordance With ASTM C-478



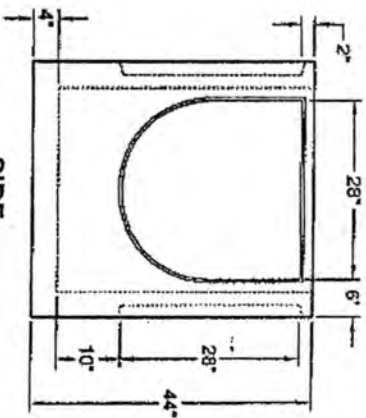
1L REDUCING SLAB



ISO VIEW



PLAN



SIDE

WEIGHTS:

BASE: 2,240 lbs
REDUCING SLAB: 500 lbs

CONCRETE:

F_c ~ 4,000 psi @ 28 Days

REINFORCING STEEL:

Welded Wire Fabric: ASTM A 497
0.12 Sq in./lin ft min.
No Wire Fabric in Knockout

PIPE PENETRATIONS:

Standard Knockouts (4)



GRANITE PRECASTING &
CONCRETE INC.

4116 BACKVIEW SPUR • BELLINGHAM, WA 98226 • (360) 671-2251 • 1-800-898-2251 • FAX: (360) 671-0780

Standard Manhole, Vault, and Catch Basin Certification

As a NPCA certified plant, we certify that all materials manufactured by Granite Precasting & Concrete, Inc. comply with the following and are of domestic origin.

- 1) Manholes and catch basins are constructed in accordance with ASTM C-478 , ASTM C-990.
- 2) Vaults are constructed in accordance with ASTM C-858 and ASTM C-890
- 3) All concrete minimum 4000 P.S.I.
- 4) Precast Trenches are constructed in accordance with ASTM C-858
- 5) Aggregate and sand supplied from Washington State Pit #F-197.
- 6) Welded wire fabric conforms to ASTM A-497.
- 7) All rebar conforms to ASTM A-615.

All materials manufactured by Granite Precasting & Concrete, Inc. conform to WSDOT specifications. Additionally, Granite Precasting & Concrete, Inc. is an approved WSDOT supplier of manholes, catch basins, vaults, 3-sided bridges, and traffic curbs.

Sincerely,

Mark Salisbury
President



**GRANITE PRECASTING &
CONCRETE INC.**

4116 BAKERVIEW SPUR • BELLINGHAM, WA 98226 • (360) 671-2251 • 1-800-808-2251 • FAX: (360) 671-0780



Plant Seattle Cement Type III Low Alkali Date 17-Aug-04
 Production Period July 1, 2004 - August 1, 2004 Certification No. 2004-11

STANDARD REQUIREMENTS
ASTM C - 150

CHEMICAL			PHYSICAL		
Item	Spec. Limit	Test Result	Item	Spec. Limit	Test Result
SiO ₂ (%)	A	20.6	Air content of mortar (volume %)	12.0 max	5.8
Al ₂ O ₃ (%)	A	4.7	Fineness - Air Perm. (m ² /kg)	A	576
Fe ₂ O ₃ (%)	A	3.3	% Passing 325 Mesh	A	97.3
CaO (%)	A	63.8	Autoclave expansion (%)	0.80 max	0.03
MgO (%)	6.0 max	2.2	Compress. strength - Mpa (PSI)	Min:	
SO ₃ (%)	3.5 max	3.2	1 Day	12.0	21.2 (3095)
Loss on Ignition (%)	3.0 max	1.4	3 Days	24.0	33.6 (4890)
Na ₂ O (%)	A	0.24	7 Days	A	40.5 (5895)
K ₂ O (%)	A	0.15	Vicat Time of setting (minutes)		
Insoluble Residue (%)	0.75 max	0.13	Initial	not less than 45	73
Potential compounds (%)			Final	not more than 375	180
C3S	A	57.9			
C2S	A	15.3			
C3A	15.0 max	6.8			
C4AF	A	10.0			
C4AF+2(C3A)	A	23.7			

OPTIONAL REQUIREMENTS
ASTM C - 150

CHEMICAL			PHYSICAL		
Item	Spec. Limit	Test Result	Item	Spec. Limit	Test Result
C3S + C3A (%)	A	64.8	False set (%)	50 min	57
Equivalent alkalis (%)	0.60 max	0.33			

A=not applicable

B= Limit not specified by purchaser.

Test result provided for information only.

C= Test results for this period not available

We certify that the above described cement, at the time of shipment, meets the chemical and physical requirement of the ASTM C 150 -02.

Signature: Craig A. Pufjan
Craig A. Pufjan

Title: Plant Manager (Acting Chief Chemist)

LANE Polypropylene Manhole Steps

SPECIFICATIONS:

All Lane Poly Steps meet the requirements of ASTM C-478, AASHTO M-199, WISHA and all OSHA specifications. The polypropylene conforms to ASTM D-4101. The 1/2" Grade 60 deformed reinforcing bar meets ASTM-A-615.



LONGEVITY:

Copolymer polypropylene is known for its high impact strength and superior resistance to the corrosive environments found in sewers.

SAFETY:

Lane poly steps have sure footed self-cleaning tread design. Poly steps will not spark so there is no danger of igniting sewer gases.

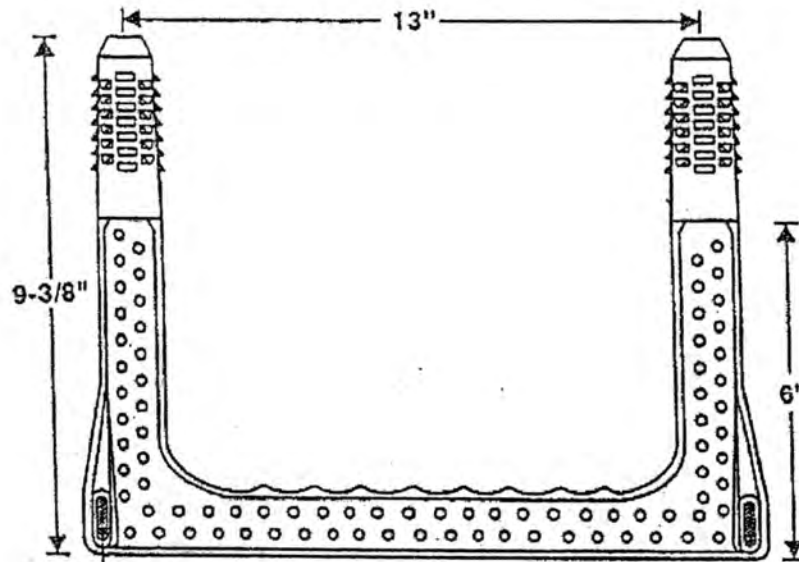
INSTALLATION:

- 1) The step can be cast in place.
- 2) Driven into preformed holes with concrete cured to 3,000 PSI minimum.
- 3) Driven into two parallel 1" diameter holes drilled 13" or 10" on center. 3-1/2" deep.
- 4) Drill two 1-1/8" or 1-1/4" holes. 3-1/2" deep. Apply epoxy in the hole and around the barbs of the step. Push the step into the holes allowing the epoxy to flow out to the square shoulder of the step.

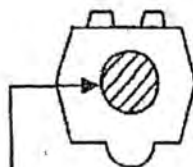
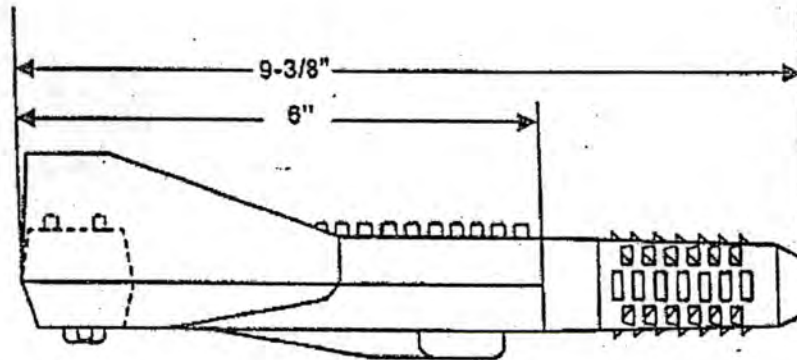
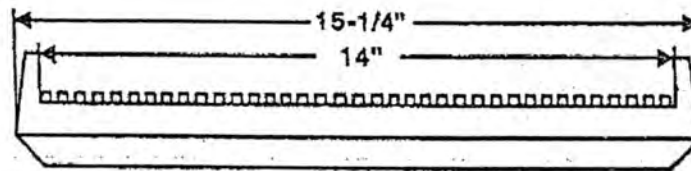
Any of the above methods will resist a pullout force of over 1,500 lbs.

Associate Member Of





3/4" x 1/4"
OVAL REFLECTOR



1/2" Grade 60 Steel
Reinforcing Bar

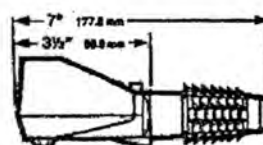
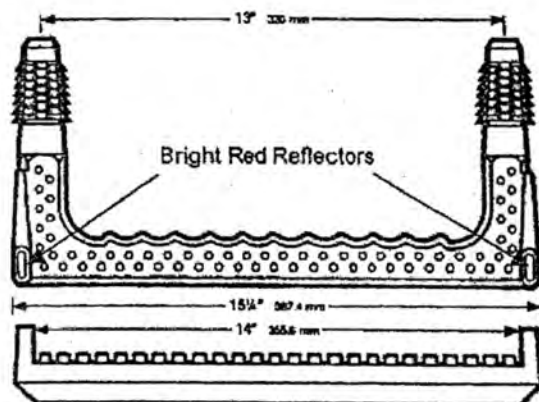
P-14938

LANE INTERNATIONAL
CORPORATION

Phone (503) 684-0077

P.O. Box 925
18067 S.W. Lower Boones Ferry Rd.

HAND HOLD



Hand Hold Step

SPECIFICATIONS

All Lane Poly Steps meet the requirements of ASTM C-478 and AASHTO M-199. The polypropylene conforms to ASTM D-4101. The 1/2" Grade 60 deformed reinforcing bar meets ASTM A-615.



RUNG
1/2" Grade 60 Rebar

LANE POLYPROPYLENE MANHOLE STEPS

LANE INTERNATIONAL
CORPORATION

P.O. Box 925 • 18067 S.W. Lower Boones Ferry Rd. • Tualatin, OR 97062 • 503-684-0077 • 800-666-0076
Fax 503-684-0078 • www.laneinternational.com

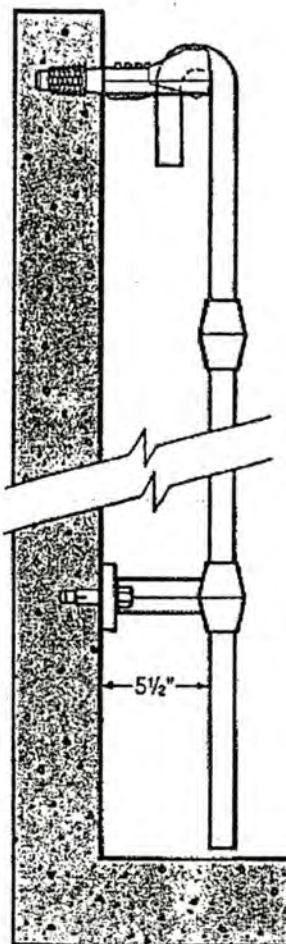
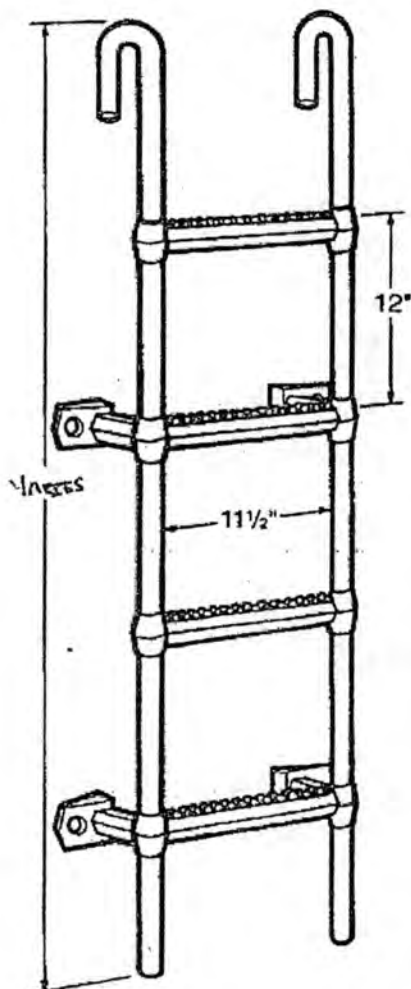


ACTUAL
SIZE

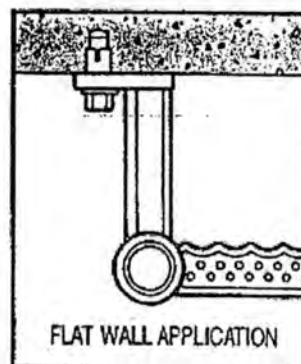
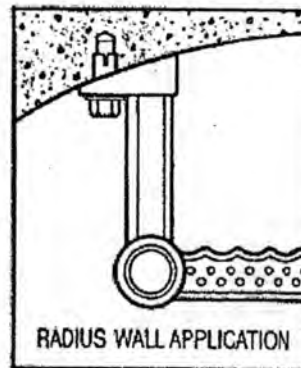


RAIL
 $\frac{5}{16}$ " Grade 60 Round Bar

RUNG
 $\frac{1}{2}$ " Grade 60 Rebar



WALL FASTENING



Ladders to be fastened to
wall with $\frac{1}{2}$ " x $2\frac{3}{4}$ " stud anchors

Polypropylene conforms to
ASTM D-4101. Ladders meet
all ASTM C-497 load
requirements.

POLY LADDER

LINE INTERNATIONAL
CORPORATION

Phone 503/684-0077
Fax 503/684-0078

P.O. Box 925
18067 SW Lower Boones Ferry Rd.
Tualatin, Oregon 97062

1-800-666-0076

Weight Each: 17 lbs.

Mar 31 06 02:36p

Received:

Mar 31 2006 01:22pm

P. 1



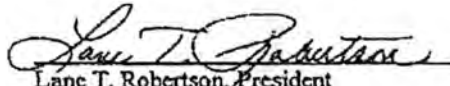
P.O. Box 925 • 18067 S.W. Lower Boones Ferry Road • Tualatin, Oregon 97062 • FAX: (503) 684-0078 • Phone (503) 684-0077

CERTIFICATE OF COMPLIANCE

All of the LANE PLASTIC MANHOLE STEPS made of polypropylene conform to ASTM D4101-82. (The previous standard of ASTM 2146-82 was replaced by D4101-82.) The 1/2" reinforcing rod conforms to ASTM A-615 requirements. They meet and/or exceed ASTM C478-88 paragraph 13.4 and AASHTO M-199 requirements. The LANE PLASTIC MANHOLE STEPS meet and/or exceed the 400 lbs. pullout force and the vertical deflection of 800 lbs. when properly installed.

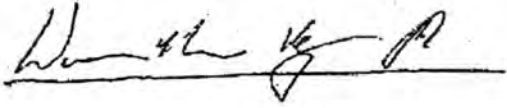
All of the components are of domestic origin and all manufacturing is done in our plant in Tualatin, Oregon. These manhole steps are of U.S. origin.

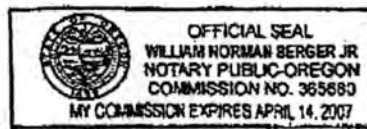
Lane International Corp.


Lane T. Robertson, President
July 9, 2003

State of Oregon
County of Washington

Lane T Robertson signed before me, William
Norman Berger Jr, on July 9th, 2003.







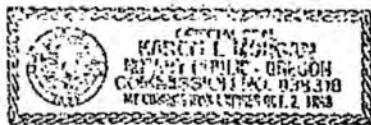
P.O. Box 925 • 18067 S.W. Lower Boones Ferry Road • Tualatin, Oregon 97062 • FAX: (503) 684-0078 • Phone (503) 684-0077

C E R T I F I C A T E O F C O M P L I A N C E

All of the LANE POLYPROPYLENE LADDERS are made of polypropylene that conforms to ASTM D4101-82. (The previous standard of ASTM 2146-82 was replaced by D4101-82.) The 1/2" reinforcing rod conforms to ASTM A-615 requirements. The 9/16" smooth round bar conforms to ASTM A-36 requirements. The ladder meets all ASTM C-497 load requirements.

All of the components are of domestic origin and all manufacturing is done in our plant in Tualatin, Oregon. These ladders are of U.S. origin.

Lane International Corp.

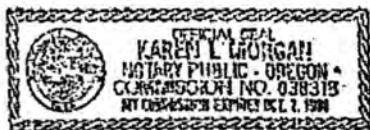


Lane T. Robertson
Lane T. Robertson, President

STATE OF OREGON,

County of Washington } ss. On this 13th day of December, 1994,
before me, the undersigned, a notary public in and for said county and state, personally appeared the within
named * Lane T. Robertson *

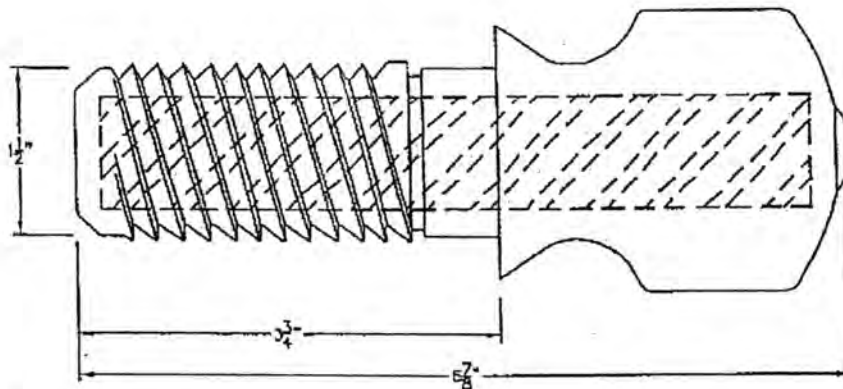
known to me to be the identical individual described in and who executed the within instrument and
acknowledged to me that he executed the same freely and voluntarily.



IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed
my official seal the day and year last above written.

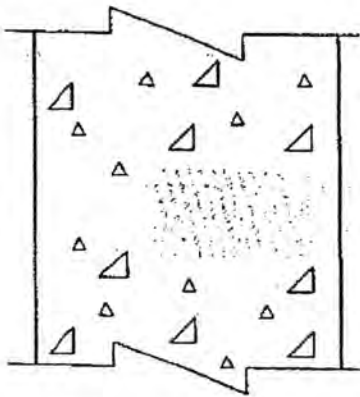
Karen L. Morgan
Notary Public for Oregon.
My commission expires 10-2-98

EZ LIFT PINS



Pin Composition:

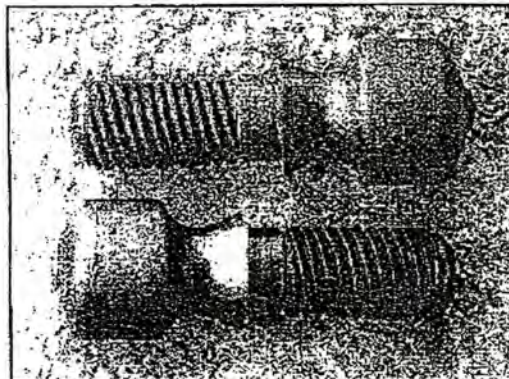
Each pin is injection molded polypropylene around a 1" diameter ASTM A-615 Grade 60 reinforcing bar. The polypropylene material conforms to ASTM D-4101 specifications.



Load Capacity:

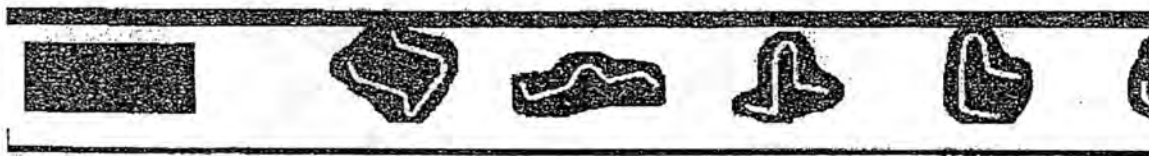
The *working load* limit is 7,500 lbs. per pin*

* Ultimate load is four times the working load.



LANE INTERNATIONAL
CORPORATION

P.O. Box 925 TUALATIN, OR 97062 800-666-0076 Fax: 503-684-0078 LANEINTERNATIONAL.COM



Information

[Products](#)
[About Lane](#)
[Product Literature](#)
[Import Services](#)
[Related Links](#)
[Contact Lane](#)
[Home](#)

Products

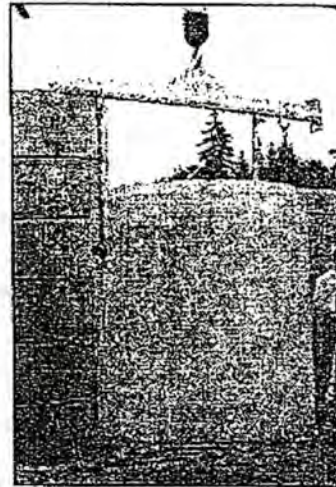
[Polypropylene Steps](#)
[Polypropylene Ladders](#)
[Stainless and Galvanized Steel Steps](#)
[Galvanized Steel Lifting Hooks](#)
[EZ Lift Pins](#)
[Other Products](#)

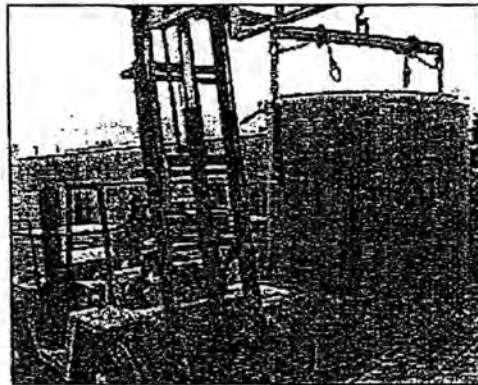
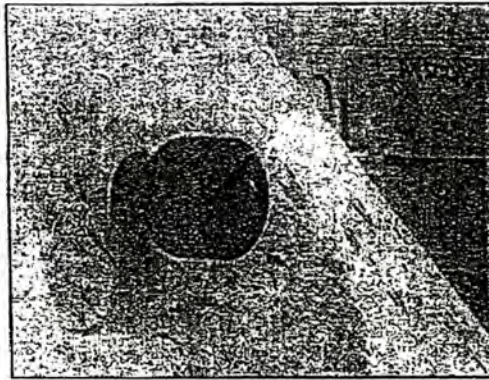


The Safe and Easy Way to Handle Manholes!

Save time, money, and promote safety with this simple method! Use our EZ Lift Pins and watch production soar and costs decrease.

- Each pin is OSHA rated to 7,500 lbs, a 4 to 1 safety factor
- Low cost pins remain in the product
- Helps eliminate leaks through lift holes during vacuum testing
- Ease of handling using a spreader bar with chains, hooks, slings, etc.
- Pins are injection molded using tough copolymer polypropylene conforming to ASTM D-4101
- 1" diameter Grade 60 reinforcing bar conforms to ASTM A-615



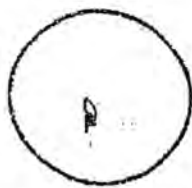


 To find out more download our handy product sheet in Adobe PDF format from our Product Literature page

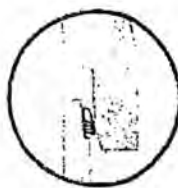
TYLOX SuperSeal

Pre-Lubricated Pipe & Manhole Gaskets

Tomorrow's technology is... The TYLOX SuperSeal pre-lubricated gasket of today. A distinct innovation that becomes the total solution in the joint sealing of concrete pipe, sanitary and storm sewer systems, box culverts, and manhole base and riser sections.



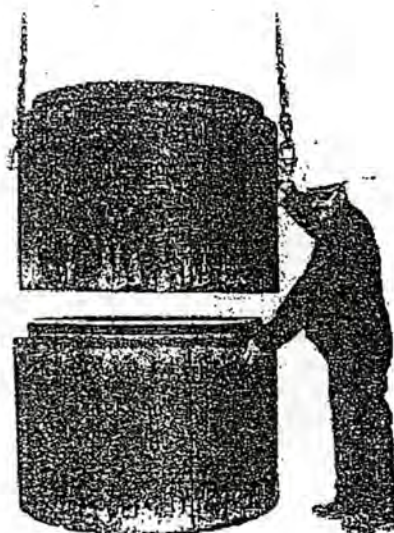
Place the TYLOX SuperSeal around the spigot end of the pipe. The TYLOX SuperSeal should rest firmly against the spigot shoulder.



Centre the spigot in the bell and push pipe home.



The mantle section of the TYLOX SuperSeal rolls over the compression area of the gasket and comes to rest in the small annular space.



Pipe Joint Design

A suitable illustration is provided to the left. Detailed joint drawings to meet your specific requirements are available from Hamilton Kent's engineering department.

Advantages

Unique Design

- Self contained lubricant
- No special handling or packaging
- No threat of lubricant contamination or deterioration
- Saves time and mess of lubricant application
- No equeilization required

Function

The TYLOX SuperSeal gasket has silicone lubricant encapsulated in the tube. During pipe assembly the mantle rolls over the compression area of the gasket resulting in a watertight seal. The mantle section's final resting position is in the small annular space, preventing concrete to concrete contact.

Gasket Sizes

The TYLOX SuperSeal gasket is manufactured for concrete pipe sizes from 250 mm to 3600 mm (10" to 144") in diameter, maintenance holes (manholes) from 900 mm to 3600 mm (36" to 144") in diameter and box culverts of all sizes.

Material Specifications

The TYLOX SuperSeal gasket is manufactured from top quality rubber. All gasket material conforms to or exceeds C.S.A. A-257, A.S.T.M. C-443, and C-361 specifications. Special chemical resistant EPDM, Neoprene, and Nitrile rubber are also available upon request.

Markings

TYLOX SuperSeal: Diameter in metric and Imperial, job number (allowing traceability)

Quality Control

Our state of the art production and laboratory facilities, as well as our staff of competent engineers, chemists, and technicians, work together to ensure the highest quality pipe and maintenance hole (manhole) gaskets available today.

Service

For more than half a century, Hamilton Kent has been the leader in the manufacture of rubber gaskets to the concrete pipe and maintenance hole (manhole) industry in North America. Our complete line of joint sealing products, ongoing research and development programs, and a knowledgeable sales staff, continue to make us number one and second to none within the industry.

HK Hamilton Kent

The Leading Manufacturer of Molded and Extruded Gasket Products

77 Carlingview Drive, Etobicoke, Ontario, Canada M9W 5E6
Tel: (416) 675-7822 (800) 268-8479 Fax: (416) 674-6960
271 Denison West, Toronto, Ontario M5T 1C5



Physical Test Report

Job # : 4-7051
Specification : ASTM-C361
Compound : 245
Die Number : HK-1575

Customer : HK Nevada
Size : 48"
Part Type : 175TSS
Date : 01/13/06

Physical Test	ASTM Test Method	Required	Obtained
Hardness	D2240	35-45	39
Tensile Strength	D412	2300 psi (min)	2405psi
Elongation at Break	D412	425% (min)	668%
Compression Set	D395 (Method B)	20% (max)	18.8%
Tensile Retained (Oven Aged)	D573/D412 (96 hrs @ 70C (158F))	85% (min)	101%
Elongation Retained (Oven Aged)	D573/D412 (96 hrs @ 70C (158F))	80% (min)	100%
Volume Change - Water Immersion	D471	5% (max)	2%
Ozone Resistance	D1149 (72hrs @ 50 ppm)	No Cracks	Pass

Signed :

Olga Mokrou
Quality Supervisor
x 250

Head Office & Canadian Mfg. Plant

U.S. Manufacturing Plant

77 Carlingview Drive, Toronto, Ontario, M9W 5E6 Canada
Phone 416 675 9873 Fax 416 674 6960
871 Deming Way, Sparks, Nevada 89431 U.S.A.
Phone 702 359 7016 Fax 702 359 0873



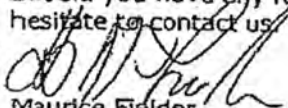
January 1, 2006

To Whom It May Concern

This letter is to certify that:

1. All Tylox® SuperSeal™ Gaskets , manufactured by Hamilton Kent, in Isoprene Rubber, conform to the physical requirements for standard gaskets as detailed in ASTM C361, Section 6.9.1 & 6.9.1.1; ASTM C443 Section 6.1.1; and AASHTO M198
2. All Tylox® SuperSeal™ Gaskets manufactured by Hamilton Kent, in Nitrile Rubber or Neoprene Rubber, conform to the physical requirements for oil- resistant gaskets as detailed in ASTM C361, section 6.9.1 & 6.9.1.2 and ASTM C443 Section 6.1.2
3. All Tylox® SuperSeal™ Gaskets, manufactured by Hamilton Kent, in an Isoprene/EPDM blend, conform to the physical requirements for standard gaskets as detailed in ASTM C443 Section 6.1.1 and "Green book" - Standard Specifications for Public Works Construction Sec. 208.3.
4. All physical properties of All Tylox® SuperSeal™ Gaskets, manufactured by Hamilton Kent are determined in accordance with the test methods outlined in ASTM C361, Section 10.5 and ASTM C443 Section 9.
5. All splices used in All Tylox® SuperSeal™ Gaskets, manufactured by Hamilton Kent, meet the requirements of ASTM C361, Section 10.5.1.2 and ASTM C443, Section 6.2.

Should you have any further questions, or require clarification, please do not hesitate to contact us.


Maurice Fielder
Quality Assurance Manager

77 Carlingview Drive, Toronto, Ontario M9W 5E6 • Tel: (416) 675-9873 • Fax: (416) 674-6960

** TOTAL PAGE.02 **

HANCOR BLUE SEAL® PIPE SPECIFICATIONS

Scope

This specification describes 12- through 60-inch (300 to 1500 mm) Hancor BLUE SEAL® pipe for use in gravity flow applications.

Pipe Requirements

BLUE SEAL® pipe shall have a smooth interior and annular exterior corrugations.

- 12- through 60-inch (300 to 1500 mm) shall meet AASHTO M294, Type S.
- Manning's "n" value for use in design shall be 0.010 to 0.012.

Joint Performance

Pipe shall be joined with the BLUE SEAL® joint meeting the requirements of AASHTO M294.

12- through 60-inch (300 to 1500 mm) shall be watertight according to the requirements of ASTM D3212. Gaskets shall be made of polyisoprene meeting the requirements of ASTM F477 with the addition that the gaskets shall not have any visible cracking when tested according to ASTM D1149 after 72 hour exposure in 50 PPHM ozone at 104°F (40° C). Gaskets shall be installed by the pipe manufacturer and covered with a removable wrap to ensure the gasket is free from debris. 12- through 30-inch (300 to 750 mm) bells shall include a reinforcing rib at the flare O.D. to assure meeting roundness tolerances and enhance proper joint assembly. A joint lubricant available from the manufacturer shall be used on the gasket and bell during assembly.

24- through 60-inch (600 to 1500 mm) diameters shall have a reinforced bell & spigot including a bell tolerance device. The bell tolerance device shall be installed by the manufacture and covered with a protective wrap. The bell tolerance device shall be capable of withstanding 5% strain without evidence of splitting cracking or delamination. The spigot shall include a gasket seat that is reinforced with a closed cell structural foam core capable of maintaining long-term gasket pressure. The closed cell structural foam core must have a free rise density no less than 1.5 lbs/ft³ (24 kg/m³) and compressive strength no less than 20 lbs/in² (320 kg/m²).

Watertight Field Test Performance

To assure watertight field performance verification may be accomplished using ASTM F 1417 or ASTM C 969 test procedures. Appropriate safety precautions must be used when field testing any pipe material.

Fittings

Fittings shall conform to AASHTO M294. Fabricated fittings shall be welded at all accessible interior and exterior junctions.

Material Properties

Virgin material for pipe and fitting production shall be high-density polyethylene conforming with the minimum requirements of cell classification 435400C as defined and described in ASTM D3350-04 (335400C in ASTM D3350-00). The virgin pipe material shall be Hancor Resin 8™, which is a slow crack resistant material evaluated using the notched constant ligament-stress (NCLS) test according to the procedure described in AASHTO M294, Section 9.5. Average NCLS test specimens must exceed 24 hrs. with no test result less than 17 hrs.

Quality Assurance

All corrugated polyethylene pipe meeting or exceeding AASHTO M294 shall only be provided by manufactures having an ISO 9001:2000 central quality lab and a quality control – quality assurance system based on ISO 9001:2000 standards. All AASHTO M294 pipe shall be clearly marked with the Resin 8 mark or logo representing the supplied pipe is manufactured with resins meeting or exceeding the material requirements of AASHTO M294 and having a minimum 50-year tensile strength of not less than 900 psi.

Installation

Installation shall be in accordance with ASTM D2321 and Hancor's published installation guidelines, with the exception that minimum cover in trafficked areas for 12- through 48-inch (300 to 1200 mm) diameters shall be one foot (0.3 m) and for 54- and 60-inch (1350 and 1500 mm) diameters, the minimum cover shall be 1.5 ft. (0.5 m). Contact your local Hancor representative or visit our website at www.hancor.com for a copy of the latest installation guidelines.

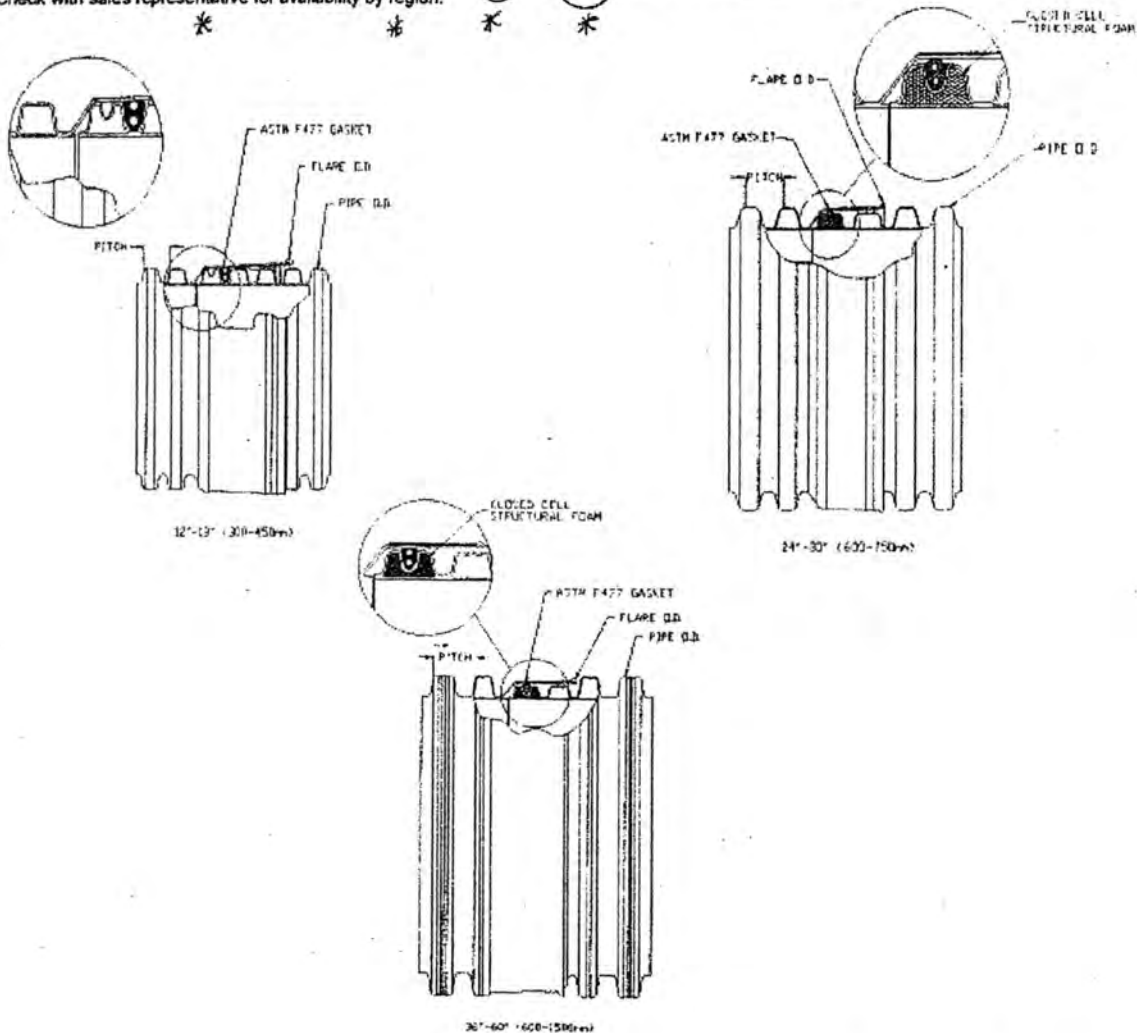
BLUE SEAL® JOINT SYSTEM

(Joint configuration & availability subject to change without notice.)

Pipe Dimensions

	Nominal Diameter, in (mm)									
Pipe I.D. in. (mm)	12 (300)	15 (375)	18 (450)	24 (600)	30 (750)	36 (900)	42 (1050)	48 (1200)	54* (1350)	60 (1500)
Pipe O.D. in. (mm)	14.2 (361)	17.7 (450)	21.5 (546)	28.4 (721)	36.0 (914)	41.4 (1052)	48.0 (1219)	55.0 (1397)	61.0 (1549)	67.3 (1709)
Flare O.D. in. (mm)	15.4 (391)	19.6 (498)	23.9 (607)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pitch in. (mm)	2.0 (51)	2.4 (61)	3.0 (76)	4.0 (102)	4.0 (102)	4.6 (117)	5.8 (147)	5.6 (147)	7.8 (198)	7.8 (198)

*Check with sales representative for availability by region.





(206) 624-9349 Phone
(206) 624-2839 Fax
www.retec.com

Letter of Transmittal

TO: Travis Walken, Wilder Construction DATE: August 23, 2006
RE: Response to Submittal ~~16~~ 16 PROJECT NO: BN050-19390

☐ For Approval	☐ Approved as Submitted	☐ Resubmit _____ Copies for Approval
☐ For Your Use	☒ Approved as Noted	☐ Submit _____ Copies for Distribution
☒ As Requested	☐ Returned for Corrections	☐ Return _____ Corrected Prints
☐ For Review & Comment	☐ Other: _____	

Remarks:

Submittal 16- Drainage Structure and Pipe Submittals

All of the catch basins with the exception of the 72" Type 2 Catch Basin are accepted without exception. For the oil control 72" type 2 catch basin, a deeper sump than shown is needed. We also need clarification regarding the baffle wall connection detailing.

Should you have any questions, please feel free to call me.

Sincerely,

The RETEC Group, Inc.

Michael Byers

cc: Sarah Albano, Dennis Metz
RETEC file BN050-19390

Letter of Submittal

Wilder Construction Company
1525 E. Marine View Drive
Everett, WA 98201



Project	Skykomish Levee Remediation	Date	9/11/2006
		Submittal Number	16a
		Return By	9/12/2006

To: The RETEC Group, Inc.
Mike Byers
Project Manager
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

From: Wilder Construction Company
Travis Walken
Project Manager
1525 E. Marine View Drive
Everett, WA 98201

Bid Item	Spec Reference	Copies	Submittal Description	Drawing Number
28	E-mail received on 9/11/2006		72" Type 2 CB	

Remarks by Contractor

72" Catch basin with oil/water separator (drainage structure No. 3).



Washington State
Department of Transportation

Request for Approval of Material

Contract Skykomish Levee Remediation	FA Number	SR	Date 9/11/2006
Section		County	
Contractor Wilder Construction Company Travis Walken		Subcontractor	

For assistance in completing, see Instructions and Example

For WSDOT Use Only
RAM #

Bid Item No.	Material or Manufacturer's Product/Type	Name and Location of Fabricator, Manufacturer or Pit Number	Specification Reference	PE Appr'l Code	Hdqtr. Appr'l Code	File No.
28	72" Type 2 CB	Granite Precasting & Concrete Inc.	E-mail received on 9/11/2006			

Project Engineer	Date	State Materials Engineer	Date
------------------	------	--------------------------	------

Approval Action Codes for use by Project Engineer and State Materials Laboratory

1. Conditionally Approved: Acceptance based upon 'Satisfactory' Test Report for samples of materials to be incorporated into project.
2. Conditionally Approved: Submit Mfg. Cert. of Compliance for 'Approval' prior to use of material.
3. Conditionally Approved: Submit Catalog Cuts for 'Approval' prior to use of material.
4. Conditionally Approved: Submit Shop Drawings for 'Approval' prior to fabrication of material.
5. Conditionally Approved: Only 'Approved for Shipment' or 'WSDOT Inspected' material shall be used.
6. Conditionally Approved: Submit Materials Certificate of Origin to Project Engineer.
7. Approval Pending: Request Transmitted to State Materials Laboratory for Approval Action.
8. Source Approved:
9. Approval Withheld: Submit samples for preliminary evaluation.
10. Approval Withheld:
- 11.

Remarks:

Project Engineer Distribution

- ☐ Contractor ☐ Region Materials
☐ Region Operations Engineer ☐ State Materials Lab

State Materials Engineer Distribution

- ☐ General File ☐ Signing Inspection
☐ Fabrication Inspection ☐ Other

Structure ID: CB-3

Spec: GENERAL
Type: STORM R UNIT
Size: 72"

Rim: 923.7'
Invert: 918.9'
Floor: 914.202'

Rim to Invert: 4.8'
Overall Height: 10.157'

- 1) .5 - R&C Not Furnished - 24" - 0
- 1) .33' - R Riser - 24" - CR-04X24
- 1) .66 - Top Slab R Unit - 72" - 72TSR
- 1) 3' - Section - 72" - 72X3R
- 1) 5' - Section - 72" - 72X5R
- 1) .66' - Base Slab - 72" - 72BS
- 3) 72" - Rubber Gasket - 72" - 72RG
- 1) 36" - Core - 0
- 1) 28" - Core - 0
- 1) 8 Step Poly - Ladder - L08P

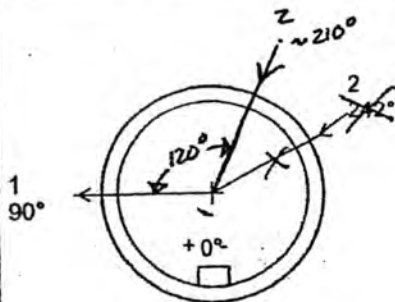
APPROVAL OF DRAWING	
THIS DRAWING IS FORWARDED FOR YOUR APPROVAL. PLEASE CHECK THE DRAWING AND RETURN IT APPROVED OR WITH CHANGES NOTED, IF ANY.	
PRODUCTION WILL NOT START UNTIL APPROVED DRAWINGS ARE RETURNED.	
COMPANY	
SIGNATURE	
DATE	

0lb
160lb
3800lb
4530lb
7550lb
4150lb
0lb
-440lb
-275lb
15lb

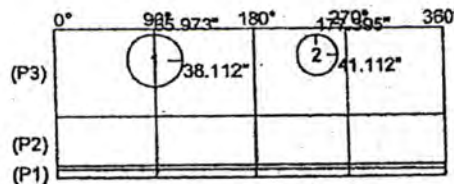
Structure Notes: STRUCTURE NEEDS 2 HOLE TOP SLAB AND BAFFLE WALL.(SEE ATTACHED)NEEDS STEPS AND LADDER.

Structure Total: 19490lb

Position	ID	Elev	Angle	UP (+)	Ref	Hole	Connector	Pipe	Grade
Rim		923.7'							
Reducer									
Invert 1	1	918.9'	90°	38.112"	P3	36"	Core 36"	30" DI /C-900	0%
Invert 2	2	919.4'	242°	41.112"	P3	28"	Core 28"	24" DI /C-900	0%
Invert 3									
Invert 4									
Invert 5									
Invert 6									
Invert 7									
Invert 8									

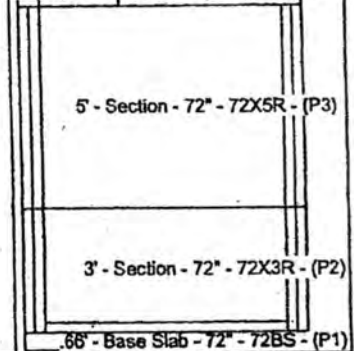


OUTSIDE WALL DIMENSIONS



(P3) - 5' - Section - 72" - 72X5R
(P2) - 3' - Section - 72" - 72X3R
(P1) - .66' - Base Slab - 72" - 72BS

.5 - R&C Not Furnished - 24" - 0 - (P6)
.33' - R Riser - 24" - CR-04X24 - (P5)
.66 - Top Slab R Unit - 72" - 72TSR - (P4)



9/11/2006 2:59:29 PM

Quote ID: 2006080331



GRANITE PRECASTING & CONCRETE INC.

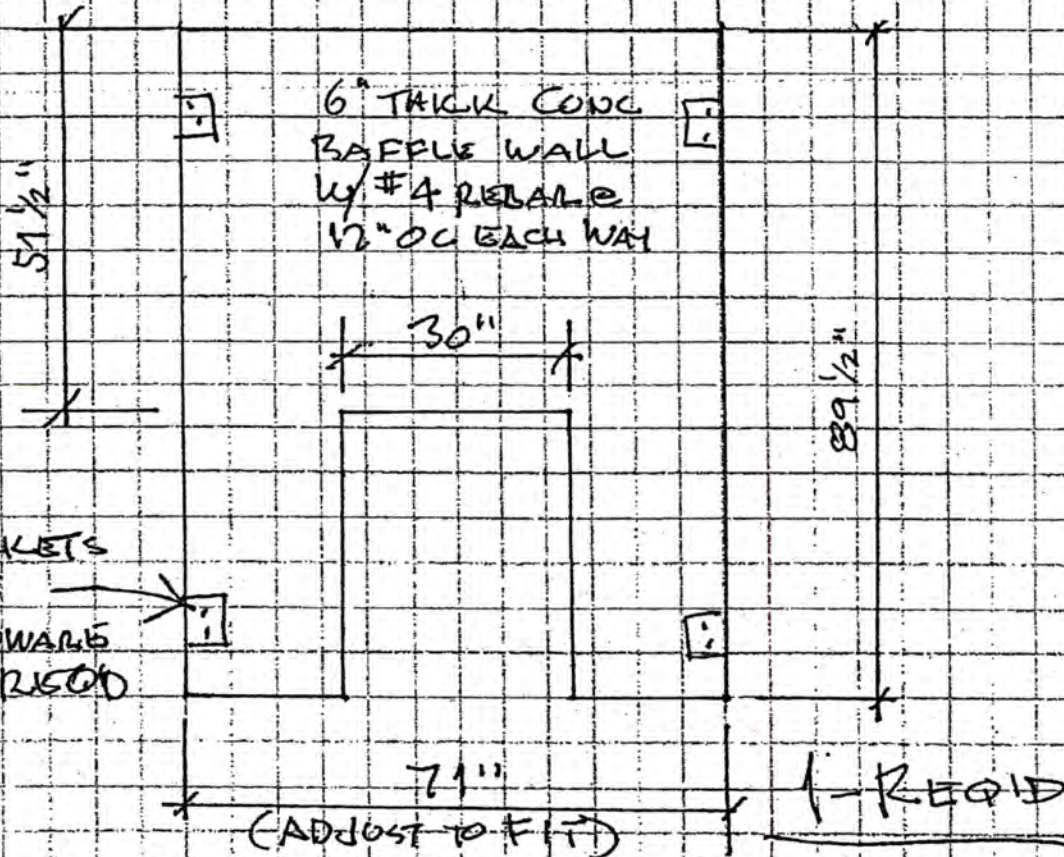
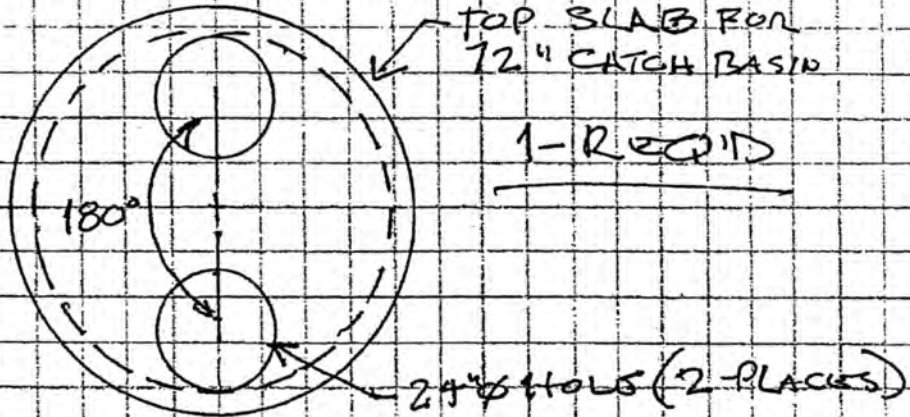
4116 Bakerview Spur Ph: (360) 671-2251
Bellingham, WA 98226 Fax: (360) 671-0780

Project: _____
Sheet No: _____ of _____
Engineer: _____ Date: _____
Drafter: _____ Date: _____

WILDER / SKYKOMISH LEVER REMEDIATION FOR CB-3

APPROVAL OF DRAWING
THIS DRAWING IS FORWARDED TO YOU FOR APPROVAL
PLEASE CHECK THE DRAWING AND RETURN IT APPROVED
OR WITH CHANGES NOTED, IF ANY.
PRODUCTION WILL NOT START UNTIL
APPROVED DRAWINGS ARE RETURNED.

COMPANY
SIGNATURE
DATE



The RETEC Group, Inc.
1011 SW Klickitat Way
Suite 207
Seattle, WA 98134-1162



(206) 624-9349 Phone
(206) 624-2839 Fax
www.retec.com

Letter of Transmittal

TO: Travis Walken, Wilder Construction DATE: September 18, 2006
RE: Response to Submittal 16a PROJECT NO: BN050-19390

☐ For Approval	☐ Approved as Submitted	☐ Resubmit _____ Copies for Approval
☐ For Your Use	☒ Approved as Noted	☐ Submit _____ Copies for Distribution
☒ As Requested	☐ Returned for Corrections	☐ Return _____ Corrected Prints
☐ For Review & Comment	☐ Other: _____	

Remarks:

Submittal 16a- 72" Type 2 CB

The submittal for the 72" Type 2 catch basin is approved with the following caveats as outlined in Sarah Albano's e-mail to Quinn Golden on 9/12/06:

- Regarding the "brackets and hardware as req'd" note, the joints must be grouted or sealant applied as necessary to achieve water tight connection between the baffle wall and catch basin walls from the elevation of the top of baffle opening to the top of baffle wall.
- The baffle wall should be centered between the inlet and outlet pipes.
- Two ladders are required, one on each side of the baffle wall with the two 24" openings centered over them.
- One opening should be a frame and grate in the curbline for drainage, the other opening should have a solid cover.

Should you have any questions, please feel free to call me.

Sincerely,

The RETEC Group, Inc.

Michael Byers

cc: Sarah Albano, Dennis Metz
RETEC file BN050-19390



(206) 624-9349 Phone
(206) 624-2839 Fax
www.retec.com

Letter of Transmittal

TO: Travis Walken, Wilder Construction DATE: June 6, 2006
RE: Health and Safety Plan (HASP) PROJECT NO: BN050-19390

☐ For Approval	☐ Approved as Submitted	☒ Resubmit	_____ Copies for Approval
☐ For Your Use	☐ Approved as Noted	☐ Submit	_____ Copies for Distribution
☐ As Requested	☒ Returned for Corrections	☐ Return	_____ Corrected Prints
☐ For Review & Comment		☐ Other:	_____

Remarks:

Health and Safety Plan

Please address the following items in the Health and Safety Plan (HASP):

- Confined space entry procedures (01150-1.03 A 15)
- Open trench excavation procedures (01150-1.03 A 20, 01150-3.02 A 5&6)
- Procedures near buried utilities including safe dig procedures and hand digging within 24 inches of any known utility lines (01150-1.03 A 6 and 21)
- Rollover cages for heavy equipment (01150-3.02 A1)
- Safety Task Analysis Review or comparable form to allow for field changes in HASP (01150 – 1.03 K, form is attached to Section 01150)
- Number of decontamination and wheel wash stations (02130-1.03 A 1)
- Procedures for disposal of personal PPE (02130- 1.03 A 6)
- Procedures for the collection, treatment, and disposal of all decontamination water and residuals (02130-1.03 A 7)
- Procedures for minimizing generation of waste water (02130-1.03 A 8)
- Please address cofferdam installation in the AHA (i.e. say that installation will be per manufacturer guidelines) and note that all coffer dam inspections will be per 29 CFR 1926 Subpart S Section 802
- Personal air sampling, please include the frequency and locations of the sampling (01150-1.03 A 19)

Please make the following significant edits to the text of the HASP:

- Last sentence of 3.0-Site Location should read "A contaminated material stockpile and processing containment pad will be constructed on the BNSF Skykomish Rail Yard south of the mainline tracks and east of 5th St." Currently it has the stockpile are north of the mainline.
- References to sediments should be to "sediments and soils"
- Section 14.1- Training, there should be at least two persons with current certifications for first aid and CPR training as outlined in Section 16.1
- Fill in the section under 18.0-Emergency Contacts- Project Contacts and Site Address for Responders

Please make the following minor text edits to the HASP:

- Under 6.3-Demolition, 3rd to last sentence, remove "same".

The RETEC Group, Inc.
1011 SW Klickitat Way
Suite 207
Seattle, WA 98134-1162



(206) 624-9349 Phone
(206) 624-2839 Fax
www.retec.com

- Section 8.3.1- Petroleum Products, Diesel Fuel, "Toxicological effects of diesel are expected to resemble those of kerosene, but sometimes **are** more pronounced owing to additives such as sulfurized esters."
- Section 12.3- Air Monitoring, Silica. Last sentence of first paragraph, should be "Air samples will be analyzed at an AIHA accredited laboratory by using NIOSH 7500 method."

Section 16.1 says that medical facility and ambulance service will be contacted prior to the start of the project. Has that been completed?

Should you have any questions, please feel free to call me.

Sincerely,

The RETEC Group, Inc.

Michael Byers

cc: Sarah Albano, Dennis Metz
RETEC file BN050-19390

**Disposal Tickets for Oily Water,
Demolition Debris, and Septage**

STRAIGHT BILL OF LADING - SHORT FORM - Original - Not Negotiable

Carrier's No. 106 24471

(Carrier) NRC SCAC. _____ Carrier's No. _____
RECEIVED, subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and shipper, if applicable, otherwise to the rates, classifications and rules that have been established by the carrier and are available to the shipper, on request, and all applicable state and federal regulations.
at Seattle, WA, date 10/22/06 from SKYtowish
the Property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to delivery at said destination, & on its route, or otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said Property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said Property that every service performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written, herein contained, including the conditions on the back hereof, which are hereby agreed to by the shipper and accepted for himself and his assigns.

(Mail or street address of consignee for purposes of notification only.)
TO: Consignee Taylor way FROM: BNSF
Street PRS. Shipper
Destination Zip Origin Zip

Route: _____

Delivering Carrier NRC Trailer Initial/Number 2055 U.S. DOT Hazmat Reg. Number _____

No. of packages	HM	Description of articles, special marks, and exceptions	Hazard Class	I.D. Number	Packing Group	*Weight (subject to correction)	Class or rate	Labels required (or exemption)	Check column
<u>11</u>		<u>Oil-water material not regulated</u>				<u>2800 gals</u>			
		<u>Do # 184534</u>							

Remit C.O.D. to: Address: _____ City: _____ State: _____ Zip: _____
COD AMT: \$ _____
Charges Advanced \$ _____
Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
C. O. D. FEE: Prepaid ☐ Collect ☐ \$ _____
FREIGHT CHARGES: ☐ Prepaid ☐ Collect

Note: - where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____
NOTE: Liability Limitation for loss or damage to this shipment may be applicable. See 49 U.S.C. 14706(c)(1)(A) and (B). This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.
PLACARDS REQUIRED ☒ PLACARDS SUPPLIED ☒ YES ☐ NO - FURNISHED BY CARRIER
DRIVER'S SIGNATURE: _____

SHIPPER: _____ CARRIER: NRC
PER: _____ DATE: _____ PER: 10/22/06
EMERGENCY RESPONSE TELEPHONE NUMBER: () _____
Permanent post office address of shipper: _____
Monitored at all times the Hazardous Material is in transportation including storage incidental to transportation (§172.6)

Upper's No. _____

(Carrier) NRCES SCAC. _____ Carrier's No. 20541
 RECEIVED, subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and shipper, if applicable, otherwise to the rates, classifications and rules that have been established by the carrier, and are available to the shipper, on request; and all applicable state and federal regulations;
 at Seattle WA, date 10-1-06 from SKY KAMISH WA

the Property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to delivery at said destination, if, on its route, or otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said Property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said Property that every service to be performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written, herein contained, including the conditions on the back hereof, which are hereby agreed to by the shipper and accepted for himself and his assignee.

FROM: Shipper
Street
Origin

10. Consignee **PRS**
Street **Taylorway**
Destination **Tacomd WA** Zip

Route: Hwy 2 I 5 South

Delivering Carrier NACLES

Trailer Initial/
Number 2054U.S. DOT Hazmat
Reg. Number

No. of packages	HM	Description of articles, special marks, and exceptions	Hazard Class	I.D. Number	Packing Group	*Weight (subject to correction)	Class or rate	Labels required (or exemption)	Check column
1TT		(non Regulated Material By DOT.) Oily water PO # 241171				2400	gal		
					PRS				
					Garage Bul	10-2-06			

Zip:

COD **AMT:**

\$

AMT:

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:

The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

Prepaid ☐Collect ☐ \$

Charges Advanced	Charges Paid	Charges Due
1. 100.00	100.00	100.00
2. 100.00	100.00	100.00
3. 100.00	100.00	100.00
4. 100.00	100.00	100.00
5. 100.00	100.00	100.00
6. 100.00	100.00	100.00
7. 100.00	100.00	100.00
8. 100.00	100.00	100.00
9. 100.00	100.00	100.00
10. 100.00	100.00	100.00
11. 100.00	100.00	100.00
12. 100.00	100.00	100.00
13. 100.00	100.00	100.00
14. 100.00	100.00	100.00
15. 100.00	100.00	100.00
16. 100.00	100.00	100.00
17. 100.00	100.00	100.00
18. 100.00	100.00	100.00
19. 100.00	100.00	100.00
20. 100.00	100.00	100.00
21. 100.00	100.00	100.00
22. 100.00	100.00	100.00
23. 100.00	100.00	100.00
24. 100.00	100.00	100.00
25. 100.00	100.00	100.00
26. 100.00	100.00	100.00
27. 100.00	100.00	100.00
28. 100.00	100.00	100.00
29. 100.00	100.00	100.00
30. 100.00	100.00	100.00
31. 100.00	100.00	100.00
32. 100.00	100.00	100.00
33. 100.00	100.00	100.00
34. 100.00	100.00	100.00
35. 100.00	100.00	100.00
36. 100.00	100.00	100.00
37. 100.00	100.00	100.00
38. 100.00	100.00	100.00
39. 100.00	100.00	100.00
40. 100.00	100.00	100.00
41. 100.00	100.00	100.00
42. 100.00	100.00	100.00
43. 100.00	100.00	100.00
44. 100.00	100.00	100.00
45. 100.00	100.00	100.00
46. 100.00	100.00	100.00
47. 100.00	100.00	100.00
48. 100.00	100.00	100.00
49. 100.00	100.00	100.00
50. 100.00	100.00	100.00
51. 100.00	100.00	100.00
52. 100.00	100.00	100.00
53. 100.00	100.00	100.00
54. 100.00	100.00	100.00
55. 100.00	100.00	100.00
56. 100.00	100.00	100.00
57. 100.00	100.00	100.00
58. 100.00	100.00	100.00
59. 100.00	100.00	100.00
60. 100.00	100.00	100.00
61. 100.00	100.00	100.00
62. 100.00	100.00	100.00
63. 100.00	100.00	100.00
64. 100.00	100.00	100.00
65. 100.00	100.00	100.00
66. 100.00	100.00	100.00
67. 100.00	100.00	100.00
68. 100.00	100.00	100.00
69. 100.00	100.00	100.00
70. 100.00	100.00	100.00
71. 100.00	100.00	100.00
72. 100.00	100.00	100.00
73. 100.00	100.00	100.00
74. 100.00	100.00	100.00
75. 100.00	100.00	100.00
76. 100.00	100.00	100.00
77. 100.00	100.00	100.00
78. 100.00	100.00	100.00
79. 100.00	100.00	100.00
80. 100.00	100.00	100.00
81. 100.00	100.00	100.00
82. 100.00	100.00	100.00
83. 100.00	100.00	100.00
84. 100.00	100.00	100.00
85. 100.00	100.00	100.00
86. 100.00	100.00	100.00
87. 100.		

\$

(Signature of consignor)

FREIGHT CHARGES	
1	2
3	4
5	6
7	8
9	10
11	12
13	14
15	16
17	18
19	20
21	22
23	24
25	26
27	28
29	30
31	32
33	34
35	36
37	38
39	40
41	42
43	44
45	46
47	48
49	50
51	52
53	54
55	56
57	58
59	60
61	62
63	64
65	66
67	68
69	70
71	72
73	74
75	76
77	78
79	80
81	82
83	84
85	86
87	88
89	90
91	92
93	94
95	96
97	98
99	100

☐ Prepaid ☐ Collect

Note. – where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.

The agreed or declared value of the property is hereby

specifically stated by the shipper to be not exceeding _____ per _____

NOTE: Liability Limitation for loss or damage in this shipment may be applicable. See 49 U.S.C. 14706(c)(1)(A) and (B).

This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

PLACARDS REQUIRED

**PLACARDS
SUPPLIED**

☐ YES ☐ NO - FURNISHED BY CARRIER
DRIVER'S SIGNATURE:

PER:

DATE: _____

CARRIER: NRC ES

PER: Ken Bristol

EMERGENCY RESPONSE

TELEPHONE NUMBER: _____

DATE: 10-1-06

Permanent post office address of shipper

Monitored at all times the Hazardous Material is in transportation including storage incidental to transportation (§172.6C)

RIGHT BILL OF LADING - SHORT FORM - Original - Not Negotiable

(Carrier) NRC SCAC. SCAC Carrier's No. 1
 RECEIVED, subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and shipper, if applicable, otherwise to the rates, classifications and rules that have been established by the carrier and are available to the shipper, on request, and all applicable state and federal regulations;
 at SKYKOMISH, WA, date 9-25-06 from BNSF
 the Property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to delivery at said destination, if on its route, or otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said Property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said Property that every service to be performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written, herein contained, including the conditions on the back hereof, which are hereby agreed to by the shipper and accepted for himself and his assigns.

(Mail or street address of consignee for purposes of notification only.)
 TO: Consignee PLS
 Street TACOMA, WA Zip
 FROM: Shipper BNSF
 Street SKYKOMISH, WA Zip
 Route:

Delivering Carrier			Trailer Initial/ Number		U.S. DOT Hazmat Reg. Number				
No. of packages	HM	Description of articles, special marks, and exceptions	Hazard Class	I.D. Number	Packing Group	*Weight (subject to correction)	Class or rate	Labels required (or exemption)	Check column
14		oil water (non-regulated material)			2,250	GAL			
		PO# 178797							

Remit C.O.D. to:
 Address:
 City: State: Zip:
 Note: - where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
 The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____
 NOTE: Liability Limitation for loss or damage in this shipment may be applicable. See 49 U.S.C. 14706(c)(1)(A) and (B). This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.
 PLACARDS REQUIRED NO PLACARDS SUPPLIED YES
 C. O. D. FEE: Prepaid ☐ Collect ☐ \$
 FREIGHT CHARGES: ☐ Prepaid ☐ Collect

SHIPPER: BNSF
 PER: C/O David Reason DATE: 9-25-06
 CARRIER: NRC
 PER: Shipment DATE: 9-25-06
 EMERGENCY RESPONSE TELEPHONE NUMBER: (206) 546-7150
 Permanent post office address of shipper: PLS
 Monitored at all times the Hazardous Material is in transportation including storage incidental to transportation (§172.60)

STRAIGHT BILL OF LADING - SHORT FORM - Original - Not Negotiable

(Carrier) NRCES SCAC. _____ Carrier's No. 24171-S.B.
 RECEIVED, subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and shipper, if applicable, otherwise to the rates, classifications and rules that have been established by the carrier and are available to the shipper, on request; and all applicable state and federal regulations.
 at _____, date 9/16/6 from _____

the Property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to delivery at said destination, if on its route, or otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said Property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said Property that every service to be performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written, herein contained, including the conditions on the back hereof, which are hereby agreed to by the shipper and accepted for himself and his assigns.

(Mail or street address of consignee for purposes of notification only.)
TO:
 Consignee PRS 3003 Taylor WAY
 Street TACOMA, WA Zip _____
 Station _____

FROM:
 Shipper BNSF
 Street Skykomish River spill
 Origin Skykomish, WA Zip _____

Route: _____

Delivering Carrier

NRCES 2058 Trailer Initial/Number

U.S. DOT Hazmat Reg. Number

No. of packages	HM	Description of articles, special marks, and exceptions	Hazard Class	I.D. Number	Packing Group	Weight (subject to correction)	Class or rate	Labels required (or exemption)	Check column
<u>1 TT</u>		<u>Oil Water</u>				<u>2,300 Gals</u>			
		<u>This material not not regulated by DOT</u>							
		<u>PO# 173021</u>							

Submit C.O.D. to:
 Address: _____
 City: _____ State: _____ Zip: _____

COD AMT: _____
 \$ _____
 Charges Advanced \$ _____

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
 The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
 (Signature of consignor) _____

C. O. D. FEE:
 Prepaid ☐
 Collect ☐ \$ _____
FREIGHT CHARGES
☐ Prepaid ☐ Collect

See - where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
 as agreed or declared value of the property is hereby officially stated by the shipper to be not exceeding _____ per _____
 DTE: Liability limitation for loss or damage in this shipment may be applicable. See 49 U.S.C. 14706(c)(1)(A) and (B).
 We do hereby certify that the above-named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

PLACARDS REQUIRED

N/A

PLACARDS SUPPLIED

☐ YES ☒ NO - FURNISHED BY CARRIER
 DRIVER'S SIGNATURE: _____

SHIPPER: BNSF
 PER: Daniel Reason DATE: 9-16-06

CARRIER: NRCES
 PER: James Atley DATE: 9/16/6

EMERGENCY RESPONSE
 TELEPHONE NUMBER: () _____

Permanent post office address of shipper

Monitored at all times the Hazardous Material is in transportation including storage incidental to transportation (§172.604)

STRAIGHT BILL OF LADING - SHORT FORM - Original - Not Negotiable

Carrier NRC SCAC _____ Carrier's No. 1
RECEIVED, subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and shipper, if applicable, otherwise to the rates, classifications and rules that have been established by the carrier and are available to the shipper, on request; and all applicable state and federal regulations;
at SKYKOMISH, WA date 9-8-06 from BNSF
the Property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to delivery at said destination, if on its route, or otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said Property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said Property that every service to be performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written, herein contained, including the conditions on the back hereof, which are hereby agreed to by the shipper and accepted for himself and his assigns.

(Mail or street address of consignee for purposes of notification only.)

TO: Consignee IRS FROM: BNSF
Street Shipper
Destination TACOMA, WA Zip 98061 Street Origin SKYKOMISH, WA Zip 98042
Route:

Delivering Carrier NRCTrailer Initial/Number 2055

U.S. DOT Hazmat Reg. Number

No. of packages	HM	Description of articles, special marks, and exceptions	Hazard Class	I.D. Number	Packing Group	*Weight (subject to correction)	Class or rate	Labels required (or exemption)	Check column
<u>14</u>		<u>only water (non-regulated material)</u>			<u>2,100 GAL</u>				
		<u>PO# 175343</u>							

Remit C.O.D. to:

Address:

City:

State:

Zip:

COD AMT:

\$

Charges Advanced

\$

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of consignor)

C. O. D. FEE:

Prepaid ☐Collect ☐ \$

FREIGHT CHARGES

☐ Prepaid ☒ Collect

Note: - where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____

NOTE: Liability Limitation for loss or damage in this shipment may be applicable. See 49 U.S.C. 14706(c)(1)(A) and (B). This is to certify that the above-named material is properly classified, described, packaged, marked and labeled and is in proper condition for transportation according to the applicable regulations of the Department of Transportation.

PLACARDS REQUIRED

NO

PLACARDS SUPPLIED

☐ YES ☒ NO - FURNISHED BY CARRIER
DRIVER'S SIGNATURE:

SHIPPER:

PER: [Signature] DATE: 9-8-06CARRIER: NRCPER: [Signature] DATE: 9-8-06

EMERGENCY RESPONSE

TELEPHONE NUMBER: (206) 546-7100

Permanent post office address of shipper

Monitored at all times the Hazardous Material is in transportation including storage incidental to transportation (§172.604)

STRAIGHT BILL OF LADING - SHORT FORM - Original - Not Negotiable

Shipper's No. _____

(Carrier) NRC

SCAC. _____

Carrier's No. 1

RECEIVED, subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and shipper, if applicable, otherwise to the rates, classifications and rules that have been established by the carrier and are available to the shipper, on request; and all applicable state and federal regulations:

at SKYKOMASH, WAdate 9-6-06from BNSF

The Property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to delivery at said destination, if on its route, or otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said Property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said Property that every service to be performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written, herein contained, including the conditions on the back hereof, which are hereby agreed to by the shipper and accepted for himself and his assigns.

(Mail or street address of consignee for purposes of notification only.)

TO:

Consignee PRS

Street

Destination TACOMA, WA

Zip

FROM: BNSF

Shipper

Street

Origin SKYKOMASH, WA

Zip

Route:

Delivering Carrier NRCTrailer Initial Number 2055

U.S. DOT Hazmat Reg. Number

No. of packages	HM	Description of articles, special marks, and exceptions	Hazard Class	I.D. Number	Packing Group	*Weight (subject to correction)	Class or rate	Labels required (or exemption)	Check column
<u>144</u>		<u>oil water/debris</u>			<u>2100 gal</u>				
		<u>union-regulated material</u>							
		<u>PO# 173024</u>							

Remit C.O.D. to:

Address:

City:

State:

Zip:

COD

AMT:

\$

Charges Advanced

\$

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of consignor)

C. O. D. FEE:

Prepaid ☐Collect ☐

FREIGHT CHARGES

☐ Prepaid ☐ Collect

Note: - where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____

NOTE: Liability limitation for loss or damage in this shipment may be applicable. See 49 U.S.C. 14706(c)(1)(A) and (B).
This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

PLACARDS REQUIRED

NO

PLACARDS SUPPLIED

☐ YES ☒ NO - FURNISHED BY CARRIER
DRIVER'S SIGNATURE:

SHIPPER:

PER:

DATE:

CARRIER: NRCPER: RogersDATE: 9-6-06

EMERGENCY RESPONSE

TELEPHONE NUMBER: (206) 546-7150

Permanent post office address of shipper

Monitored at all times the Hazardous Material is in transportation including storage incidental to transportation (§172.604)

29-BLS-A4 968 (Rev. 11/04)

STRAIGHT BILL OF LADING - SHORT FORM - Original - Not Negotiable

Carrier's No. _____
(Carrier) NRC SCAC. _____ Carrier's No. 24171
RECEIVED, subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and shipper, if applicable, otherwise to the rates, classifications and rules that have been established by the carrier and are available to the shipper, on request; and all applicable state and federal regulations:
at SKYKOMISH, WA, date 8-28-06 from BNSF RAILROAD
The Property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to delivery at said destination, on its route, or otherwise to deliver to another carrier on the route to said destination, it is mutually agreed as to each carrier of all or any of said Property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said Property that every service to be performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written, herein contained, including the conditions on the back hereof, which are hereby agreed to by the shipper and accepted for himself and his assigns.

(Mail or street address of consignee for purposes of notification only.)

TO:
Consignee PRS
Street
Destination TACOMA, WA Zip _____

FROM: SKYKOMISH
Shipper
Street BNSF
Origin Zip _____

Route: _____

Delivering Carrier NRCTrailer Initial/Number 2055

U.S. DOT Hazmat Reg. Number _____

No. of packages	HM	Description of articles, special marks, and exceptions	Hazard Class	I.D. Number	Packing Group	*Weight (subject to correction)	Class or rate	Labels required (or exemption)	Check column
<u>14</u>		<u>oil water</u> <u>(AQUA-REGULATED MATERIAL)</u>			<u>2600 GAL</u>				
		<u>DOT# 173021</u>							

Remit C.O.D. to:

Address:

City: _____ State: _____ Zip: _____

COD AMT: _____

\$ _____

Charges Advanced

\$ _____

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of consignor)

C. O. D. FEE:

Prepaid ☐Collect ☐ \$ _____

FREIGHT CHARGES

☐ Prepaid ☒ Collect

Use: - where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
In agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____

NOTE: Liability limitation for loss or damage in this shipment may be applicable. See 49 U.S.C. 14706(c)(1)(A) and (B).
This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

PLACARDS REQUIRED

NO

PLACARDS SUPPLIED

☐ YES ☒ NO - FURNISHED BY CARRIER
DRIVER'S SIGNATURE: _____

SHIPPER: SKYKOMISH
PER: RKB DATE: _____

CARRIER: NRC
PER: Regina DATE: 8-28-06

EMERGENCY RESPONSE
TELEPHONE NUMBER: (206) 546-7150

Permanent post office address of shipper _____

Marked at all times the Hazardous Material is in transportation including storage incidental to transportation (§172.604)

(Carrier) NRCES
Received subject to the classifications and

Received, subject to the classifications and tariffs in effect on the date of this Bill of Lading:

at Skykomish, date 08-19-06 from Town of skykomish

The property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own road or its own water line, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written, herein contained (as specified in Appendix B to Part 1035) which are hereby agreed to by the shipper and accepted for himself and his assigns.

FROM:

Shipper Wilder Construction

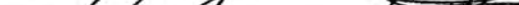
Street NA

Origin ground oil Zip

1. Name of the person	2. Address
-----------------------	------------

U.S. DOT Hazmat Reg. Number

177	NA (Non Regulated Materials)	NA			2100 gal		
	Only Water						

[illegible][illegible][illegible][illegible]

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:

The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

C. O. D. FEE:
Prepaid ☐
Collect ☐ \$

*If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight". Note. — where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property. The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____

Charges Advanced
\$

(Signature of consignor)

FREIGHT CHARGES
☐ Prepaid ☐ Collect

This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

**PLACARDS
REQUIRED**

**PLACARDS
SUPPLIED**

☐ YES ☐ NO - FURNISHED BY CARRIER
DRIVER'S SIGNATURE:

SPECIAL INSTRUCTIONS:

CARRIER: *NRCS*

DATE: 08-19-04

EMERGENCY RESPONSE

TELEPHONE NUMBER: 20

Permanent post office address of shipper

Monitored at all times the Hazardous Material is in transportation including storage incidental to transportation (§172.604).

39

BILL OF LADING
PRODUCT TRANSPORT MANIFEST
MARINE VACUUM SERVICE, INC.

24 HOUR EMERGENCY PHONE NUMBER (206) 762-0240

TRUCK NUMBER 104 DATE 3-27-07

TO
DESTINATION
NAME MARVAC
STREET 1516 S. GRAHAM ST
CITY/STATE Seattle WA

FROM
SHIPPER
NAME WILDER CONST.
STREET HWY 2 MILE # 48
CITY/STATE SKIKOMISH WA

QUANTITY	PROPER SHIPPING NAME	UN (PLACARD) NUMBER
<u>2500</u>	<u>WASTE WATER</u>	<u>NA</u>
<u>(culler)</u>		
	SLUDGE <u>2500</u> (oil 11.0m)	
SHIPPER	DATE	DRIVER <u>V. Sandouet</u> DATE <u>3-27-07</u>

NOTE:

Customer warrants that the waste petroleum products being transferred by the above collector do not contain any contaminants including without limitations, pesticides, chlorinated solvents at concentrations greater than 1000 PPM, any detectible levels of PCBs, or any other material classified as dangerous or hazardous waste by 40 CFR Part 261, Subpart C and D (implementing the Federal Resource Conservation and Recovery Act), or by any equivalent state dangerous or hazardous substance classification programs. Should laboratory tests find this waste not in compliance with 40 CFR Part 261, customer (generator) agrees to pay for all disposal costs incurred.

BILL OF LADING
PRODUCT TRANSPORT MANIFEST
MARINE VACUUM SERVICE, INC.

24 HOUR EMERGENCY PHONE NUMBER (206) 762-0240

TRUCK NUMBER 202 DATE 3/27/07

TO
DESTINATION
NAME M V S
STREET 1516 S. GRAHAM ST
CITY/STATE Seattle WA

FROM
SHIPPER
NAME WILDER CONST.
STREET HWY 2 MILE # 48
CITY/STATE SKIKOMISH WA

QUANTITY	PROPER SHIPPING NAME	UN (PLACARD) NUMBER
<u>4500</u>	<u>WASTE WATER</u>	<u>NA</u>
	SLUDGE	
SHIPPER	DATE	DRIVER <u>TI</u> DATE <u>3/27/07</u>

NOTE:

Customer warrants that the waste petroleum products being transferred by the above collector do not contain any contaminants including without limitations, pesticides, chlorinated solvents at concentrations greater than 1000 PPM, any detectible levels of PCBs, or any other material classified as dangerous or hazardous waste by 40 CFR Part 261, Subpart C and D (implementing the Federal Resource Conservation and Recovery Act), or by any equivalent state dangerous or hazardous substance classification programs. Should laboratory tests find this waste not in compliance with 40 CFR Part 261, customer (generator) agrees to pay for all disposal costs incurred.

BILL OF LADING
PRODUCT TRANSPORT MANIFEST
MARINE VACUUM SERVICE, INC.
24 HOUR EMERGENCY PHONE NUMBER (206) 762-0240
TRUCK NUMBER 101 DATE 3.27.07

TO
DESTINATION
NAME MAR VAC
STREET _____
CITY/STATE SEATTLE, WA

FROM
SHIPPER
NAME WILDER (cust)
STREET _____
CITY/STATE SKY KOMISH, WA

QUANTITY	PROPER SHIPPING NAME	UN (PLACARD) NUMBER
<u>4,500 gal</u>	<u>Slurry</u>	<u>N/A</u>

SHIPPER	SLUDGE	DATE	DRIVER	DATE
<u>Marine Vacuum Service, Inc.</u>			<u>M. Wilder</u>	<u>3.27.07</u>

NOTE:

Customer warrants that the waste petroleum products being transferred by the above collector do not contain any contaminants including without limitations, pesticides, chlorinated solvents at concentrations greater than 1000 PPM, any detectible levels of PCBs, or any other material classified as dangerous or hazardous waste by 40 CFR Part 261, Subpart C and D (implementing the Federal Resource Conservation and Recovery Act), or by any equivalent state dangerous or hazardous substance classification programs. Should laboratory tests find this waste not in compliance with 40 CFR Part 261, customer (generator) agrees to pay for all disposal costs incurred.

BILL OF LADING
PRODUCT TRANSPORT MANIFEST
MARINE VACUUM SERVICE, INC.
24 HOUR EMERGENCY PHONE NUMBER (206) 762-0240
TRUCK NUMBER 101 DATE 3/28/07

TO
DESTINATION
NAME Marine Vacuum Service, Inc.
STREET 4000 1st Ave S
CITY/STATE Seattle, WA

FROM
SHIPPER
NAME WILDER
STREET _____
CITY/STATE SKY KOMISH, WA

QUANTITY	PROPER SHIPPING NAME	UN (PLACARD) NUMBER
<u>4,500 gal</u>	<u>Slurry</u>	<u>N/A</u>

SHIPPER	SLUDGE	DATE	DRIVER	DATE
<u>Marine Vacuum Service, Inc.</u>		<u>3/28/07</u>	<u>10</u>	<u>3/28/07</u>

NOTE:

Customer warrants that the waste petroleum products being transferred by the above collector do not contain any contaminants including without limitations, pesticides, chlorinated solvents at concentrations greater than 1000 PPM, any detectible levels of PCBs, or any other material classified as dangerous or hazardous waste by 40 CFR Part 261, Subpart C and D (implementing the Federal Resource Conservation and Recovery Act), or by any equivalent state dangerous or hazardous substance classification programs. Should laboratory tests find this waste not in compliance with 40 CFR Part 261, customer (generator) agrees to pay for all disposal costs incurred.

BILL OF LADING
PRODUCT TRANSPORT MANIFEST
MARINE VACUUM SERVICE, INC.

24 HOUR EMERGENCY PHONE NUMBER (206) 762-0240

TRUCK NUMBER 202 DATE 3/28/17

TO
DESTINATION
NAME
STREET
CITY/STATE

Marine Vac. Serv.
1514 1st Ave. S.W.
Seattle, WA 98148

FROM
SHIPPER
NAME

STREET

CITY/STATE

WILDER CO

SKYWAY BLVD
WILDER, CO 80554

QUANTITY	PROPER SHIPPING NAME	UN (PLACARD) NUMBER
<u>4800 gal.</u>	<u>LUBRICANT</u>	<u>111</u>

SHIPPER

SLUDGE

DATE

DRIVER

DATE

NOTE:

Customer warrants that the waste petroleum products being transferred by the above collector do not contain any contaminants including without limitations, pesticides, chlorinated solvents at concentrations greater than 1000 PPM, any detectable levels of PCBs, or any other material classified as dangerous or hazardous waste by 40 CFR Part 261, Subpart C and D (implementing the Federal Resource Conservation and Recovery Act), or by any equivalent state dangerous or hazardous substance classification programs. Should laboratory tests find this waste not in compliance with 40 CFR Part 261, customer (generator) agrees to pay for all disposal costs incurred.

RABANCO REGIONAL DISPOSAL
P.O. BOX 338
Roosevelt, WA 99356
(509) 384-5641

014755 - 0010
Clearcreek Contractors, Inc.

Contract: BK-2931

Gross Weight 74,220.00 LB
Tare Weight 45,660.00 LB
Net Weight 28,560.00 LB 14.28 TN

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
14.28	TN	00 E181 CDL 30				
		06/13/06 Inbound - RAIL TICKET DTX56680 Everett Incl. Snohomish County				

0.00 YD

SAFETY MEMOS:

- Hard hats MUST be worn.
- High Visibility vests MUST be worn.
- Passengers MUST remain in vehicle at all times.

SIGNATURE _____

SITE	TICKET	GRID
2	066882	000000
WEIGHMASTER		
JF00020 VICKY R		
DATE IN	TIME IN	
15 June 2006	6:21 am	
DATE OUT	TIME OUT	
15 June 2006	6:21 am	
VEHICLE	ROLL OFF	
7330	TOLU452789	
REFERENCE	ORIGIN	
TOLU452789	Everett	

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

RABANCO REGIONAL DISPOSAL
P.O. BOX 338
Roosevelt, WA 99356
(509) 384-5641

014755 -- 0015
Clearcreek Contractors, Inc.

Contract: BR-11397

1, Gross Weight 83,480.00 LB
Tare Weight 44,640.00 LB
Net Weight 38,840.00 LB 19.42 TN

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
19.42	TN	30 [18] CDL 30 06/09/06 Inbound - RAIL TICKET DTTX25359 Everett Incl. Snohomish County				

0.00 YD

SAFETY MEMOS:

- Hard hats MUST be worn.
- High Visibility vests MUST be worn.
- Passengers MUST remain in vehicle at all times.

SIGNATURE _____

SITE 2	TICKET 054203	GRID 000000
GH00036 GAIL H WEIGHMASTER		
DATE IN 12 June 2006	TIME IN 8:37 am	
DATE OUT 12 June 2006	TIME OUT 8:37 am	
VEHICLE 2363	ROLL OFF RABU480167	
REFERENCE RABU480167	ORIGIN Everett	

NET AMOUNT

TENDERED

CHANGE

CHECK NO.

RABANCO REGIONAL DISPOSAL
P.O. BOX 338
Roosevelt, WA 99356
(509) 384-5641

014755 - 0015
Clearcreek Contractors, Inc.
Clearcreek Contractors, Inc.

Contract: BR-11397

SITE 3	TICKET 065010	GRID 000000
WEIGHMASTER JB00115 JANET B		
DATE IN 14 June 2006	TIME IN 12:05 pm	
DATE OUT 14 June 2006	TIME OUT 4:28 pm	
VEHICLE 375	ROLL OFF RABU480347	
REFERENCE RABU480347	ORIGIN Seattle	

1. Gross Weight 91,480.00 LB
Tare Weight 42,320.00 LB
Net Weight 49,160.00 LB 24.58 TN

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
24.58	TN	30 LB63 CDL 30				
		06/12/06 Inbound - RAIL TICKET DTTX620187 Seattle 20 - 48 Ft				

168884
0.00 YD

SAFETY MEMOS:

- Hard hats MUST be worn.
- High Visibility vests MUST be worn.
- Passengers MUST remain in vehicle at all times.

SIGNATURE _____

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

RABAND REGIONAL DISPOSAL
P.O. BOX 338
Roosevelt, WA 99356
(509) 384-5641

014755 - 0015
Clearcreek Contractors, Inc.

Contract: ER-11397

Gross Weight 91,480.00 LB
Tare Weight 41,300.00 LB
Net Weight 50,180.00 LB 25.09 TN

SITE	TICKET 54900	GRID 0000000
JF00025 JANICE WEIGHMASTER		
DATE IN June 2006	1:05 PM	
DATE OUT June 2006	1:05 PM	
VEHICLE	ROLL OFF RABU480347	
REFERENCE RABU480347	ORIGIN Seattle	

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
25.09	TN	30 [45] CDL 30 06/12/06 Inbound - RAIL TICKET DTTX620187 Seattle 20 - 48 Ft 168804				

0.00 YD

SAFETY MEMOS:

- Hard hats MUST be worn.
 - High Visibility vests MUST be worn.
 - Passengers MUST remain in vehicle at all times.
- SIGNATURE _____

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

☐ FRONTIER SEPTIC SERVICE 334-1093	☒ EVERGREEN SANITATION, INC. 743-1957 337-1957 AAA SEPTIC SERVICE 362-6998 VANS SEPTIC SERVICE 485-7766	☐ SANI-MART SEPTIC SERVICE 353-7524 793-0560 568-0245	☐ SEPTIC SERVICES MAPLE VALLEY SEPTIC SVC. 432-0831 EAST HILL SEPTIC SERVICE 630-5262 ISSAQUAH SEPTIC SERVICE 392-7988 RENTON SEPTIC SERVICE 271-3303 ENUMCLAW SEPTIC SERVICE 825-5425
☐ COASTAL ENVIRONMENTAL 337-3300 485-1000 622-7070 868-0967 888-9318	☐ LYON SEPTIC SERVICE OR EASTSIDE SEPTIC SERVICE 885-1300	☐ A SEPTIC PUMPER 1-800-773-5874 882-9444 335-4943 794-0832 652-0306 745-0954	☐ J.J. JACKSON SEPTIC SVC. 888-4554 947-4622 255-6242
☐ LONG SEPTIC SERVICE 852-0550			

OPERATED BY TANDEM SERVICE CORP., INC.

P.O. BOX 259, LAKE STEVENS, WA 98258

CUSTOMER NAME: Wilder Const. Comp.
ADDRESS: 125 E Marine View Dr
CITY: Everett
PH #1 (425) 551-3100 PH #2 (425) 508-3241

RECEIVED
JUL 25 2006
STATE: WA ZIP: 98201

DATE: 7/12/06
FUTURE SERVICE YRS.

JOB AT: Skykomish

900 GALLON SEPTIC TANK - PUMPING
900 GALLON PUMP CHAMBER - PUMPING
900 GALLONS AT - DISPOSAL FEE

CALLED IN BY:

COMMENTS: Pumped Tanks forAbandonment (Septic Tank & Gray Water Tank)10666664 + 10666665

CHECKED BAFFLES - OK
LEVEL HIGH BACK FLOW
GRAVITY SYSTEM
PUMP SYSTEM

DIGGING
BAFFLE INSTALL
D/F VACUUM
LABOR

MATERIALS
OPER. REPORT

SUB TOTAL

TAX

TOTAL

WORK APPROVED BY: X

TERMS: FULL PAYMENT UPON COMPLETION UNLESS PREVIOUS ARRANGEMENTS HAVE BEEN MADE.

INVOICE NO. 10666666DRIVER Justin / Jim

IT IS THE SOLE RESPONSIBILITY OF THE CUSTOMER TO PROVIDE SUBSTANTIAL ACCESS TO THE SEPTIC SYSTEM COMPONENTS. THE CUSTOMER HEREBY GRANTS PERMISSION TO THE COMPANY, ITS REPRESENTATIVES AND/OR ASSIGNS, TO ACCESS THE DESCRIBED PROPERTY AND GUARANTEES TO HOLD HARMLESS THE COMPANY, ITS REPRESENTATIVES AND/OR ASSIGNS, AGAINST ANY AND ALL DAMAGES TO PROPERTY WHICH INCLUDES, BUT IS NOT LIMITED TO, DRIVEWAYS, UTILITIES, LAWNS, TREES, SHRUBS, AND SEPTIC SYSTEM OR LIFT STATION STRUCTURAL INTEGRITY. A REASONABLE FEE OF \$35.00 WILL BE IMPOSED ON ALL NSF CHECKS. INTEREST RATE ON ANY UNPAID BALANCE WILL BE COMPUTED AT 1 1/2% PER MONTH. CUSTOMER AGREES TO PAY REASONABLE COLLECTION AND ATTORNEY FEES.

☐ FRONTIER SEPTIC SERVICE 334-1093	☒ EVERGREEN SANITATION, INC. 743-1957 337-1957 AAA SEPTIC SERVICE 362-6998 VANS SEPTIC SERVICE 485-7766	☐ SANI-MART SEPTIC SERVICE 353-7524 793-0560 568-0245	☐ SEPTIC SERVICES MAPLE VALLEY SEPTIC SVC. 432-0831 EAST HILL SEPTIC SERVICE 630-5262 ISSAQUAH SEPTIC SERVICE 392-7988 RENTON SEPTIC SERVICE 271-3303 ENUMCLAW SEPTIC SERVICE 825-5425
☐ COASTAL ENVIRONMENTAL 337-3300 485-1000 622-7070 868-0967 888-9318	☐ LYON SEPTIC SERVICE OR EASTSIDE SEPTIC SERVICE 885-1300	☐ A SEPTIC PUMPER 1-800-773-5874 882-9444 335-4943 794-0832 652-0306 745-0954	☐ J.J. JACKSON SEPTIC SVC. 888-4554 947-4622 255-6242
☐ LONG SEPTIC SERVICE 852-0550			

OPERATED BY TANDEM SERVICE CORP., INC.

P.O. BOX 259, LAKE STEVENS, WA 98258

CUSTOMER NAME: Wilder Const. Comp.
ADDRESS: 125 E Marine View Dr
CITY: Everett
PH #1 (425) 551-3100 PH #2 (425) 508-3241

STATE: WA ZIP: 98201

DATE: 7/12/06
FUTURE SERVICE YRS.

JOB AT: Skykomish

261,000 GALLON SEPTIC TANK - PUMPING
1,000 GALLON PUMP CHAMBER - PUMPING
1,000 GALLONS AT - DISPOSAL FEE

CALLED IN BY:

COMMENTS: Pumped Tanks forAbandonment10666666 + 10666664

CHECKED BAFFLES - OK
LEVEL HIGH BACK FLOW
GRAVITY SYSTEM
PUMP SYSTEM

DIGGING
BAFFLE INSTALL
D/F VACUUM
LABOR

MATERIALS
OPER. REPORT

SUB TOTAL

TAX

TOTAL

WORK APPROVED BY: X

TERMS: FULL PAYMENT UPON COMPLETION UNLESS PREVIOUS ARRANGEMENTS HAVE BEEN MADE.

INVOICE NO. 10666665DRIVER Justin / Jim

IT IS THE SOLE RESPONSIBILITY OF THE CUSTOMER TO PROVIDE SUBSTANTIAL ACCESS TO THE SEPTIC SYSTEM COMPONENTS. THE CUSTOMER HEREBY GRANTS PERMISSION TO THE COMPANY, ITS REPRESENTATIVES AND/OR ASSIGNS, TO ACCESS THE DESCRIBED PROPERTY AND GUARANTEES TO HOLD HARMLESS THE COMPANY, ITS REPRESENTATIVES AND/OR ASSIGNS, AGAINST ANY AND ALL DAMAGES TO PROPERTY WHICH INCLUDES, BUT IS NOT LIMITED TO, DRIVEWAYS, UTILITIES, LAWNS, TREES, SHRUBS, AND SEPTIC SYSTEM OR LIFT STATION STRUCTURAL INTEGRITY. A REASONABLE FEE OF \$35.00 WILL BE IMPOSED ON ALL NSF CHECKS. INTEREST RATE ON ANY UNPAID BALANCE WILL BE COMPUTED AT 1 1/2% PER MONTH. CUSTOMER AGREES TO PAY REASONABLE COLLECTION AND ATTORNEY FEES.

☐ FRONTIER SEPTIC SERVICE 334-1093	☒ EVERGREEN SANITATION, INC. 743-1957 337-1957 AAA SEPTIC SERVICE 362-6998 VANS SEPTIC SERVICE 485-7766	☐ SANI-MART SEPTIC SERVICE 353-7524 793-0560 568-0245	☐ SEPTIC SERVICES MAPLE VALLEY SEPTIC SVC. 432-0831 EAST HILL SEPTIC SERVICE 630-5262 ISSAQUAH SEPTIC SERVICE 392-7988 RENTON SEPTIC SERVICE 271-3303 ENUMCLAW SEPTIC SERVICE 825-5425
☐ COASTAL ENVIRONMENTAL 337-3300 485-1000 622-7070 888-0967 888-9318	☐ LYON SEPTIC SERVICE OR EASTSIDE SEPTIC SERVICE 885-1300	☐ A SEPTIC PUMPER 1-800-773-5874 882-9444 335-4943 794-0832 652-0306 745-0954	☐ J.J. JACKSON SEPTIC SVC. 888-4554 947-4622 255-6242

OPERATED BY TANDEM SERVICE CORP., INC. P.O. BOX 259, LAKE STEVENS, WA 98258 *SkyKomisL*

CUSTOMER NAME: *Wilder Const. Comp.* DATE: *7/12/18*

ADDRESS: *125 E MAINE VIEW DR.* FUTURE SERVICE YRS.

CITY: *Everett* STATE: *WA* ZIP: *98201*

PH #1 *(425) 551-3160* PH #2 *(425) 508-3241* 2-*21,000* GALLON SEPTIC TANK

JOB AT: *SkyKomisL*

SERVICE	AMOUNT
PUMPING	
GALLON PUMP CHAMBER - PUMPING	
DISPOSAL FEE	
DIGGING	
BAFFLE INSTALL	
D/F VACUUM	
LABOR	
MATERIALS	
OPER. REPORT	
SUB TOTAL	
TAX	
TOTAL	

1,000 GALLONS AT

CHECKED BAFFLES - OK

LEVEL HIGH BACK FLOW

GRAVITY SYSTEM

PUMP SYSTEM

COMMENTS: *Pumped Tank for Abandonment*

10666666 + 10666665

Po # E6016

Tax # 600-248-329

Subcontract # E6016-507

WORK APPROVED BY:

TERMS: FULL PAYMENT UPON COMPLETION UNLESS PREVIOUS ARRANGEMENTS HAVE BEEN MADE.

INVOICE NO. **10666664**

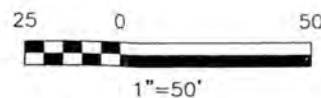
DRIVER *Justin / Jan*

IT IS THE SOLE RESPONSIBILITY OF THE CUSTOMER TO PROVIDE SUBSTANTIAL ACCESS TO THE SEPTIC SYSTEM COMPONENTS. THE CUSTOMER HEREBY GRANTS PERMISSION TO THE COMPANY, ITS REPRESENTATIVES AND/OR ASSIGNS, TO ACCESS THE DESCRIBED PROPERTY AND GUARANTEES TO HOLD HARMLESS THE COMPANY, ITS REPRESENTATIVES AND/OR ASSIGNS, AGAINST ANY AND ALL DAMAGES TO PROPERTY WHICH INCLUDES, BUT IS NOT LIMITED TO, DRIVEWAYS, UTILITIES, LAWNS, TREES, SHRUBS, AND SEPTIC SYSTEM OR LIFT STATION STRUCTURAL INTEGRITY. A REASONABLE FEE OF \$35.00 WILL BE IMPOSED ON ALL NSF CHECKS. INTEREST RATE ON ANY UNPAID BALANCE WILL BE COMPUTED AT 10.2% PER MONTH. CUSTOMER AGREES TO PAY REASONABLE COLLECTION AND ATTORNEY FEES.

File: H:\19390\ANU02-19390-PTS.DWG Layout: FIG User: emarshall Plotted: Jul 02, 2007 - 12:51pm ref's:



ENSR AECOM



COMPLETION REPORT
SKYKOMISH LEVEE REMEDIATION
BN050-19390-230

SURVEYED POINTS FOR
FINAL GRADING PLAN

DATE: 7/2/07

DRWN: E.M./SEA

FIGURE

Appendix L
Property Line Surveys

RETEC SKYKOMISH
 BRH JOB NO. 95280-20
 Date: June 21, 2007

PROPERTY CORNER COORDINATES

Tax Parcel No:	Northing	Easting	Property Corner
780780-0750	259497.18	1510472.75	NE
	259482.25	1510380.96	NW
	259476.50	1510381.90	NW
	259469.16	1510362.83	NW
	259405.02	1510373.26	SW
	259405.02	1510393.00	SW
	259383.55	1510397.01	SW
	259398.48	1510488.80	SE
780780-0707	259469.16	1510362.83	NE
	259427.61	1510262.72	NW
	259388.16	1510269.62	SW
	259405.02	1510373.26	SE
780780-0705, 0706	259408.23	1510393.00	NE
	259388.16	1510269.62	NW
	259338.81	1510277.64	SW
	259358.87	1510401.02	SE
780780-0770	259398.48	1510488.80	NE
	259383.55	1510397.01	NW
	259334.20	1510405.04	SW
	259349.12	1510496.83	SE
780780-0645	259270.36	1510542.06	NE
	259254.31	1510443.35	NW
	259165.48	1510457.80	SW
	259181.53	1510556.50	SE
506080-0005	259383.47	1510209.59	NE
	259367.42	1510110.89	N
	259327.94	1510117.31	N
	259319.91	1510067.96	N
	259326.82	1510066.83	N
	259317.19	1510007.61	N
	259272.33	1509918.66	NW
	259082.82	1509949.48	SW
	259131.77	1510250.52	SE
506080-0060	259272.33	1509918.66	NE
262611-0039, -0043	259218.40	1509879.81	NW

	259075.28	1509903.08	SW
	259082.82	1509949.48	SE
506080-0070	259173.02	1509881.11	NE
	259164.99	1509831.76	NW
	259066.29	1509847.81	SW
	259074.31	1509897.16	SE
506130-0135, 0126	258834.82	1511267.51	NE
	258854.99	1511130.25	NW
	258757.13	1511146.74	SW
	258779.06	1511276.91	SE
Railroad Avenue	259360.98	1511660.11	NE
	259022.63	1509579.34	NW
	259085.71	1509569.08	NW
	259075.73	1509551.34	NW
	259115.74	1509528.84	NW
	259114.92	1509523.81	MW
	258944.16	1509551.57	SW
	259155.42	1510850.78	S
	259171.22	1510848.22	S
	259193.68	1510986.40	S
	259177.89	1510988.96	S
	259288.93	1511671.82	SE
262611-9012	259371.55	1512117.59	NE
	259338.12	1511912.04	N
	259400.31	1511901.93	N
	259360.98	1511660.11	NW
	259288.93	1511671.82	SW
	259361.68	1512119.20	SE

Note:

Washington Coordinate System, NAD 83/91, North Zone



EXHIBIT "A"
UTILITY EASEMENT DESCRIPTION

THAT PORTION OF GOVERNMENT LOT 5, SECTION 26, TOWNSHIP 26 NORTH, RANGE 11 EAST, WILLAMETTE MERIDIAN, DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF LOT 1, BLOCK 1, MALONEY'S FIRST ADDITION TO SKYKOMISH, AS SHOWN ON THAT PLAT THEREOF RECORDED IN VOLUME 11 OF PLATS AT PAGE 93, RECORDS OF KING COUNTY, WASHINGTON;
THENCE SOUTH 80°45'51" WEST ALONG THE NORTH LINE OF SAID LOT 1, A DISTANCE OF 71.61 FEET;
THENCE NORTH 63°56'28" EAST, A DISTANCE OF 15.09 FEET;
THENCE NORTH 67°47'58" EAST, A DISTANCE OF 28.46 FEET TO THE BEGINNING OF A CURVE CONCAVE TO THE SOUTH, HAVING A RADIUS OF 38.10 FEET, AND A CENTRAL ANGLE OF 43°16'51";
THENCE EASTERLY ALONG SAID CURVE AN ARC DISTANCE OF 28.78 FEET TO THE BEGINNING OF A NON-TANGENT CURVE CONCAVE TO THE WEST, HAVING A RADIUS OF 6.60 FEET, A CENTRAL ANGLE OF 56°43'36", AND TO WHICH A RADIAL LINE BEARS NORTH 27°36'52" EAST;
THENCE SOUTHERLY ALONG SAID CURVE AN ARC DISTANCE 6.53 FEET;
THENCE SOUTH 05°39'32" EAST, A DISTANCE OF 0.83 FEET;
THENCE SOUTH 80°45'51" WEST, A DISTANCE OF 0.93 FEET TO THE POINT OF BEGINNING.

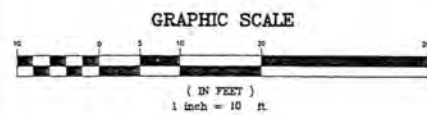
CONTAINING AN AREA OF 545 SQUARE FEET, OR 0.0125 ACRES, MORE OR LESS.

SITUATE IN THE CITY OF SKYKOMISH, KING COUNTY, WASHINGTON.



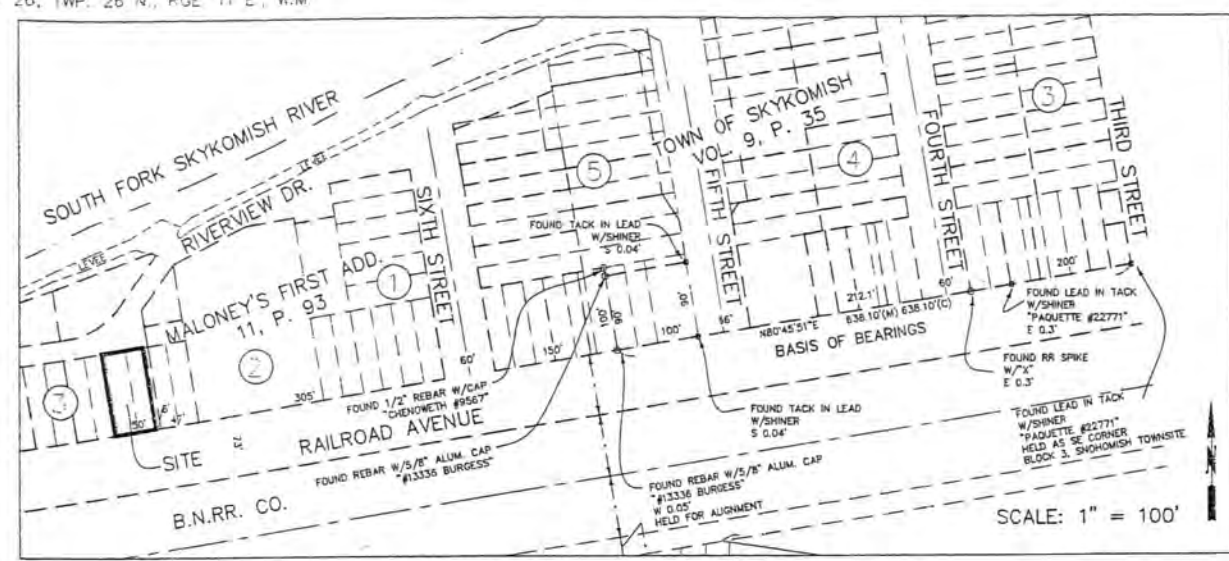
THE RETEC GROUP
SKYKOMISH
JOHANN G. WASSERMANN, P.L.S.
BRH JOB NO. 95280-17
OCTOBER 9, 2006

BUSH, ROED & HITCHINGS, INC.
2009 MINOR AVENUE EAST
SEATTLE, WA 98102
(206) 323-4144



●	SET PROPERTY CORNER REBAR W/CAP LS 31139
	EDGE OF ASPHALTIC CONCRETE
A/C	ASPHALTIC CONCRETE
	BUILDING LINE
	CENTERLINE OF RIGHT-OF-WAY
CC	CONCRETE CURB
CD	CONCRETE DRIVE
or CS	CONCRETE SURFACE
CW	CONCRETE WALL
	CONIFEROUS TREE (SIZE NOTED)
EC	ELECTRICAL CABLE/LINE (OVERHEAD)
	GUY ANCHOR
	UTILITY POLE
OH or O/H	OVERHEAD
E or P	POWER LINE

TELECOMMUNICATIONS/FIBER OPTIC DISCLAIMER:
RECORDS OF UNDERGROUND TELECOMMUNICATIONS AND/OR FIBER OPTIC LINES ARE NOT ALWAYS AVAILABLE TO THE PUBLIC. BRH HAS NOT CONTACTED EACH OF THE MANY COMPANIES, IN THE COURSE OF THIS SURVEY, WHICH COULD HAVE UNDERGROUND LINES WITHIN ADJACENT RIGHTS-OF-WAY. THEREFORE, BRH DOES NOT ACCEPT RESPONSIBILITY FOR THE EXISTENCE OF UNDERGROUND TELECOMMUNICATIONS/FIBER OPTIC LINES WHICH ARE NOT MADE PUBLIC RECORD WITH THE LOCAL JURISDICTION. ALWAYS, CALL 1-800-424-5555 BEFORE CONSTRUCTION.



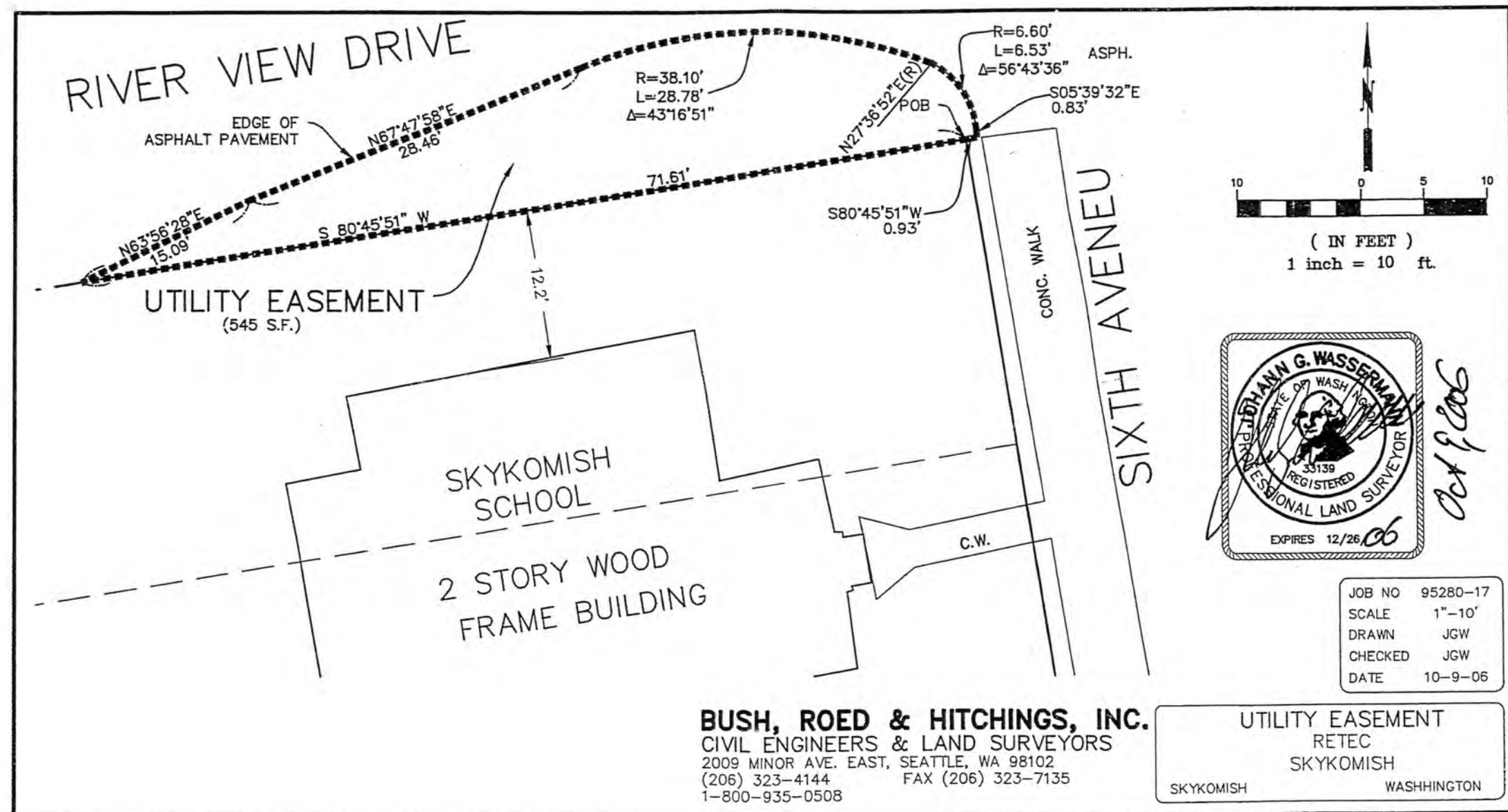
THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/ACLS LATA SURVEYS,* JOINTLY DEVELOPED AND ADOPTED BY ALTA AND NSPS IN 2009, AND INCLUDES ITEMS 1, 2, 3, 4, 5, 6, 7A, 7B1, 7C, 8, 9, 10, 11A, 11B, 13, 14, 16, 17 AND 18 OF TABLE A THEREOF PURSUANT TO THE ACCURACY STANDARDS AS ADOPTED BY ALTA AND NSPS AND IN EFFECT ON THE DATE OF THIS CERTIFICATION. UNDERSIGNED FURTHER CERTIFIES THAT THE POSITIONAL ACCURACY OF THE DATA OBTAINED FROM THE SURVEY REGISTERED IN THE STATE OF WASHINGTON, THE RELATIVE POSITIONAL ACCURACY OF THIS SURVEY DOES NOT EXCEED THAT WHICH IS SPECIFIED THEREIN.

THE ABOVE CERTIFICATE IS BASED UPON WORK PREPARED IN ACCORDANCE WITH GENERALLY ACCEPTED PROFESSIONAL SURVEY PRACTICE. WE MAKE NO OTHER WARRANTY, EITHER EXPRESSED OR IMPLIED.

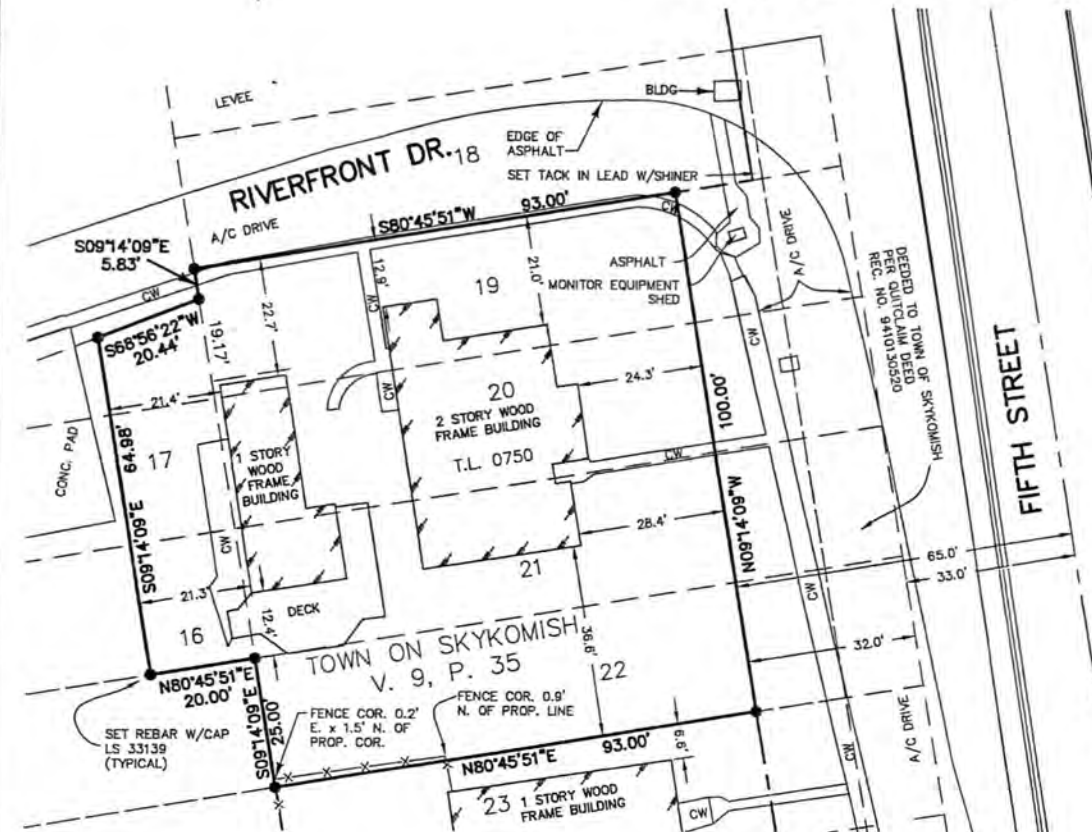


DONALD J. LYDERSON
THE RETEC GROUP, INC.
KYYKOMISH KING COUNTY WASHINGTON

by RHT	checked by JGW
$\epsilon = 10^{-5}$	date 4-3-08
98250.13	



S.W. 1/4 (GOV'T. LOT 5), S.W. 1/4, SEC. 26, TWP. 26 N., RGE. 11 E., W.M.



LEGAL DESCRIPTION
(TAX LOT 780780-0750)
MITCHELL PARCEL (PER WARRANTY DEED REC. NO. 9606240591)

LOTS 19 THROUGH 22, BLOCK 5, TOWN OF SKYKOMISH, ACCORDING TO THE PLAT THEREOF, RECORDED IN VOLUME 9 OF PLATS AT PAGE 35, IN KING COUNTY, WASHINGTON;
AND THE EASTERLY 20 FEET OF THE FOLLOWING:
LOT 16 TOGETHER WITH A PORTION OF LOT 17 AND THE UNNUMBERED TRACT, LYING SOUTHEASTERLY OF A LINE BEGINNING 19.17 FEET NORTHWESTERLY OF THE SOUTHEAST CORNER OF LOT 17 OF THE EASTERLY LINE PRODUCED TO A POINT ON THE WEST LINE OF LOT 17, 18 FEET NORTHWESTERLY OF THE SOUTHWEST CORNER OF SAID LOT 17;

EXCEPT STATE HIGHWAY.

SITUATE IN THE CITY OF SKYKOMISH, KING COUNTY, WASHINGTON.

REFERENCES:

-PLAT OF THE TOWN OF SKYKOMISH, V. 9, P. 35
-PLAT OF MALONEY'S FIRST ADDITION TO THE TOWN OF SKYKOMISH, V. 11, P. 93
-PLAT OF MALONEY'S SECOND ADDITION TO THE TOWN OF SKYKOMISH, V. 26, P. 29
-PLAT OF MALONEY'S THIRD ADDITION TO THE TOWN OF SKYKOMISH, V. 26, P. 30
-PLAT OF MALONEY'S FORTH ADDITION TO THE TOWN OF SKYKOMISH, V. 30, P. 30
-WSDOT SR2 MAP STEVENS PASS AUTO CAMP TO MONEY CREEK PARK
-KING COUNTY ASSESSOR'S MAP SW 26-26-11
-RECORD OF SURVEYS, V.96, P. 139, V. 125, P. 299, V. 130, P. 276, V. 133, P. 245, V. 135, P. 109, V. 150, P. 40, V. 181, P. 245

SURVEY NOTES:

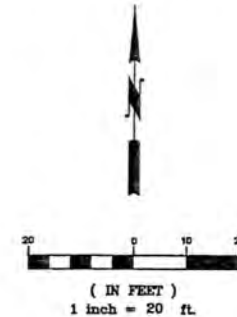
MERIDIAN:
WASHINGTON COORDINATE SYSTEM NAD 83/91, NORTH ZONE

BASIS OF BEARINGS:
FOUND MONUMENTS AT BLOCKS 5 AND 3, TOWN OF SKYKOMISH;
TIES TO SW CORNER AND SOUTH ONE-QUARTER CORNER OF SECTION 26, TOWNSHIP 26 NORTH, RANGE 11 EAST, W.M.

MONUMENTS VISITED:
FEBRUARY AND MARCH 2006

INSTRUMENT:
THIS SURVEY WAS PERFORMED WITH A LEICA TCR 1105 TOTAL STATION, SERIAL NO. 629643.

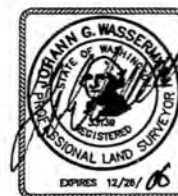
PRECISION:
PRECISION EXCEEDS 1:10,000 GROUND TRAVERSE METHODS AND WERE IN ACCORDANCE WITH WAC 332-130-090.



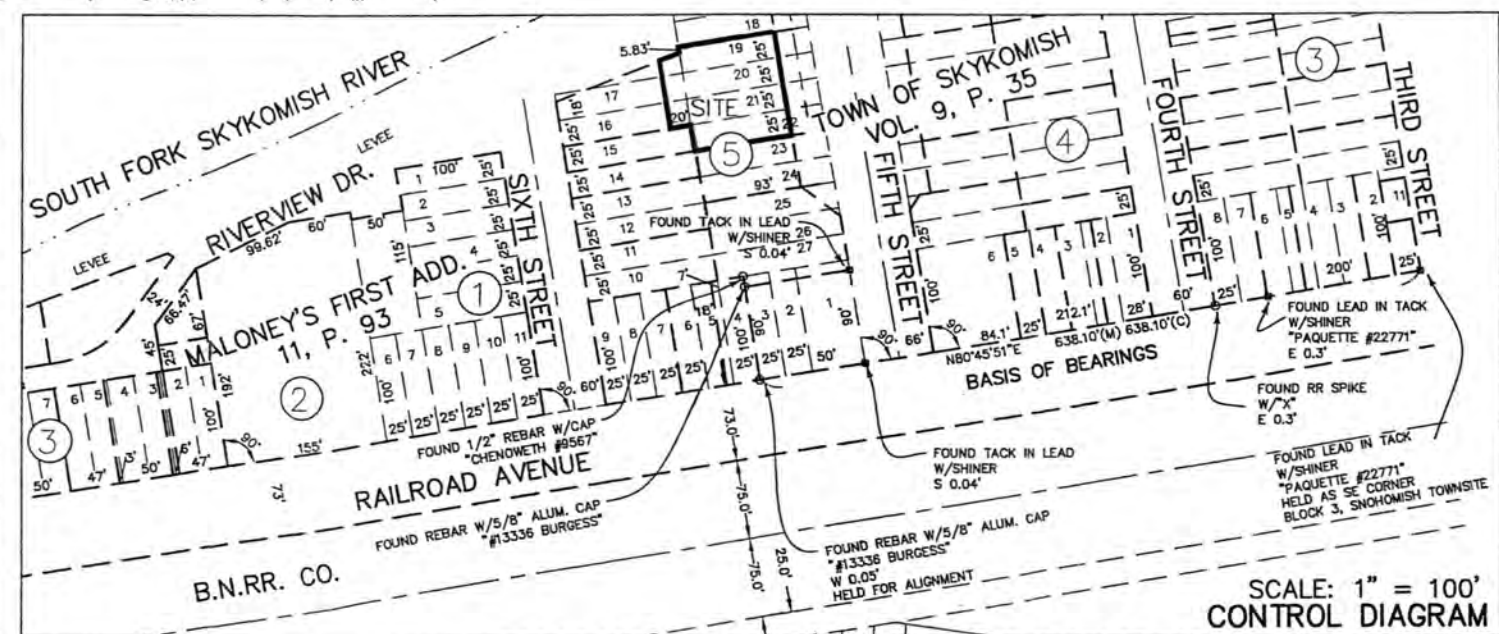
LEGEND

- FOUND REBAR W/ CAP AS DESCRIBED
- FOUND TACK IN LEAD / PK-NAIL
- SET REBAR W/CAP LS 33139
- ✱ SET TACK IN LEAD W/SHINER

A/C ASPHALT
CD CONCRETE DRIVE
CW CONCRETE WALK



Nov 1, 2006



CORRECTION OF RECORD OF SURVEY REC. NO: 20060620900018
(REPLACES ROS REC. NO. 20060620900018)

AUDITOR OR RECORDER'S CERTIFICATE

Filed for record this ___ day of ___, 20__ at ___ M.
in Book ___ of Surveys at page ___ at the request of
BUSH, ROED & HITCHINGS, INC.

COUNTY AUDITOR OR DIVISION OF RECORDS & ELECTIONS

County Auditor or _____ Superintendent of Records

SURVEYOR'S CERTIFICATE

This map correctly represents a survey made by me or
under my direction in conformance with the requirements
of the Survey Recording Act at the request of
THE RETEC GROUP, INC. in MARCH, 2006

Certificate No. 33139



BUSH, ROED & HITCHINGS, INC.
CIVIL ENGINEERS & LAND SURVEYORS

2009 MINOR AVE. EAST (206) 323-4144
SEATTLE, Washington 1-800-935-0508
98102-3513 FAX# (206) 323-7135

RECORD OF SURVEY

THE RETEC GROUP, INC.

SKYKOMISH, KING COUNTY, WASHINGTON

DRAWN BY RHT DATE: 10-31-06 JOB # 95280.12

CHECKED BY JGW SCALE: 1" = 20' SHEET 1 OF 1

SW 1/4 (GOV'T. LOT 5), S.W. 1/4, SEC. 26, TWP. 26 N., RGE. 11 E., W.M.

LEGEND

- FOUND REBAR W/ CAP AS DESCRIBED
- FOUND TACK IN LEAD / PK-NAIL
- SET REBAR W/CAP LS 33139
- ✕ SET TACK IN LEAD W/SHINER

A/C ASPHALT
CD CONCRETE DRIVE
CW CONCRETE WALK

-PLAT OF THE TOWN OF SKYKOMISH, V. 9, P. 35
-PLAT OF MALONEY'S FIRST ADDITION TO THE TOWN OF SKYKOMISH, V. 11, P. 93
-PLAT OF MALONEY'S SECOND ADDITION TO THE TOWN OF SKYKOMISH, V. 26, P. 29
-PLAT OF MALONEY'S THIRD ADDITION TO THE TOWN OF SKYKOMISH, V. 26, P. 30
-PLAT OF MALONEY'S FORTH ADDITION TO THE TOWN OF SKYKOMISH, V. 30, P. 30
-WSDOT SR2 MAP STEVENS PASS AUTO CAMP TO MONEY CREEK PARK
-KING COUNTY ASSESSOR'S MAP SW 26-26-11
-RECORD OF SURVEYS, V.96, P. 139, V. 125, P. 299, V. 130, P. 276, V. 133, P. 245, V. 135, P. 109, V. 150, P. 40, V. 181, P. 245

LEGAL DESCRIPTION

LOTS 3, 4 AND THE EAST 3 FEET OF LOT 5, BLOCK 3, MALONEY'S FIRST ADDITION TO SKYKOMISH, ACCORDING TO THE PLAT RECORDED IN VOLUME 11 OF PLATS, PAGE 93, IN KING COUNTY, WASHINGTON.

EXCEPT THE EAST 3 FEET OF LOT 3.

SURVEY NOTES:

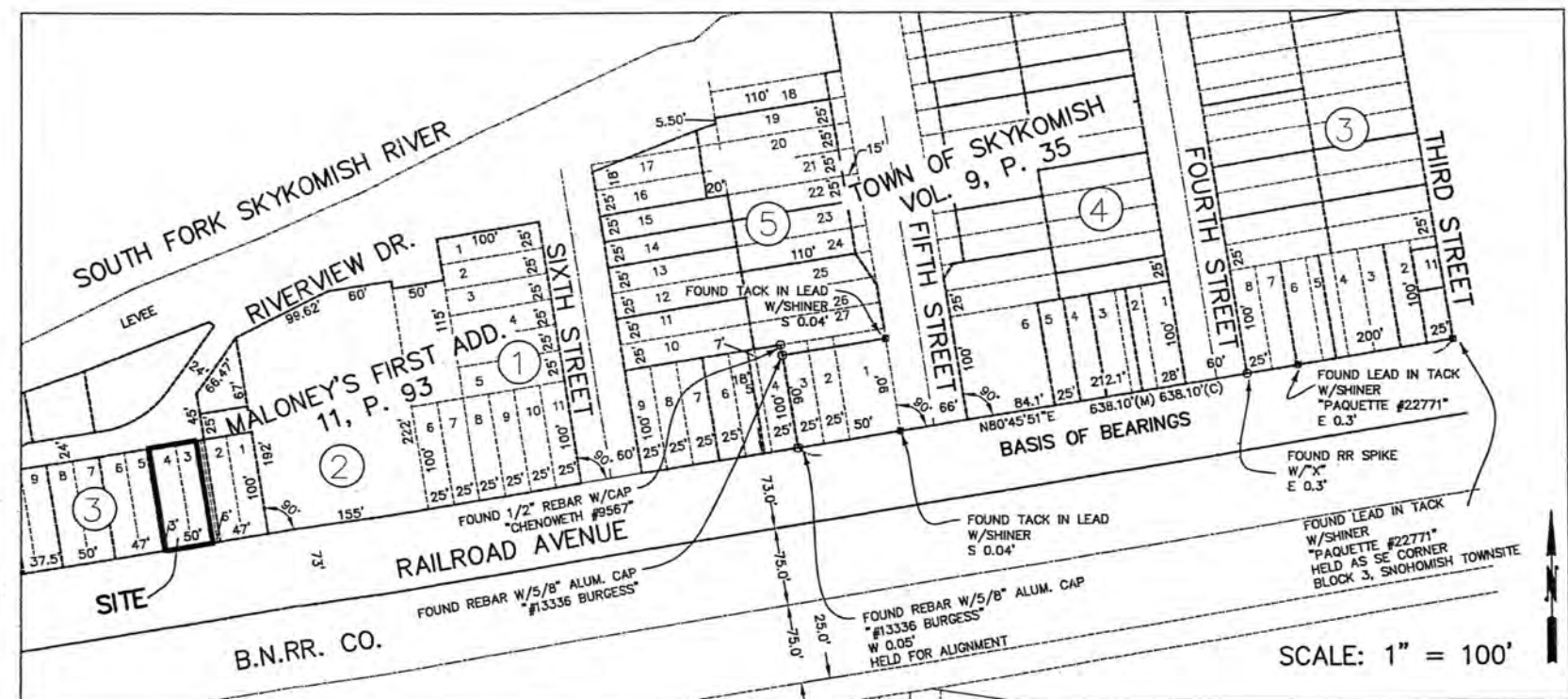
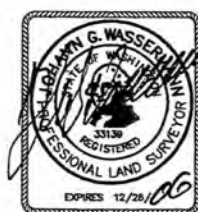
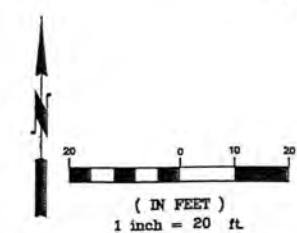
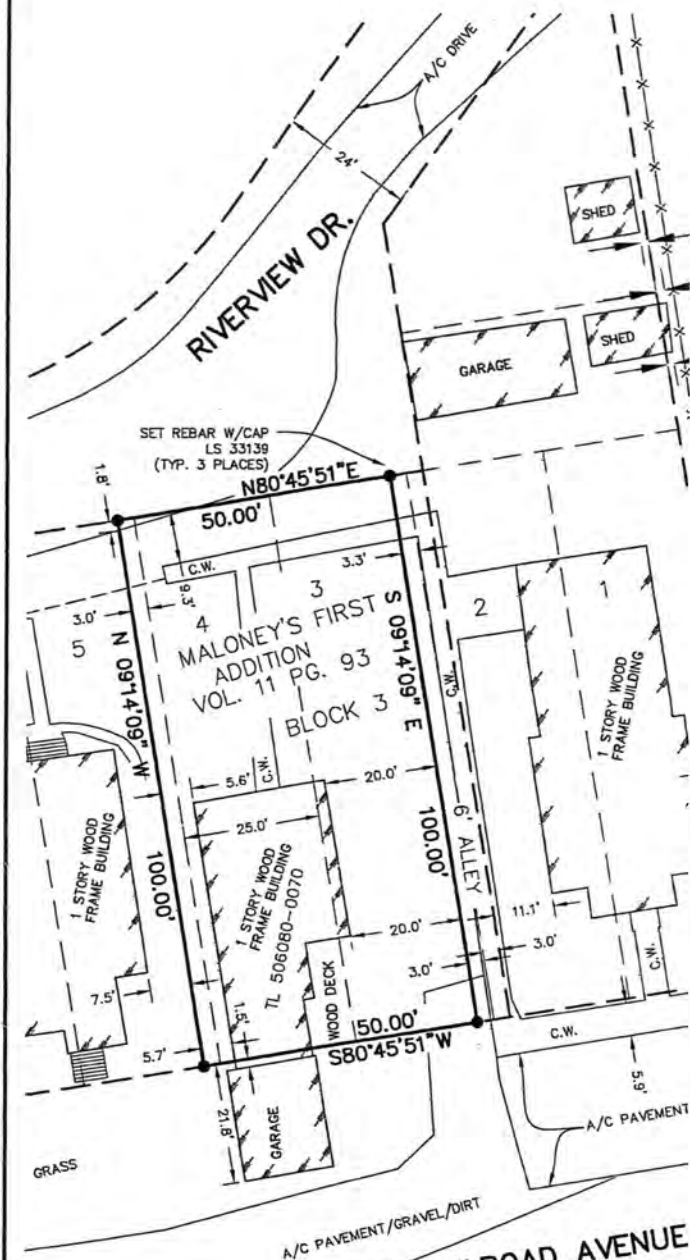
MERIDIAN:
WASHINGTON COORDINATE SYSTEM NAD 83/91, NORTH ZONE

BASIS OF BEARINGS:
FOUND MONUMENTS AT BLOCKS 5 AND 3, TOWN OF SKYKOMISH;
TIES TO SW CORNER AND SOUTH ONE-QUARTER CORNER OF SECTION 26, TOWNSHIP 26 NORTH, RANGE 11 EAST, W.M.

MONUMENTS VISITED:
FEBRUARY AND MARCH 2006

INSTRUMENT:
THIS SURVEY WAS PERFORMED WITH A LEICA TCR 1105 TOTAL STATION, SERIAL NO. 629643.

PRECISION:
PRECISION EXCEEDS 1:10,000 GROUND TRAVERSE METHODS AND WERE IN ACCORDANCE WITH WAC 332-130-090.



CONTROL DIAGRAM

AUDITOR OR RECORDER'S CERTIFICATE

Filed for record this _____ day of _____, 20____ at _____ M.
in Book _____ of Surveys at page _____ at the request of
BUSH, ROED & HITCHINGS, INC.

COUNTY AUDITOR OR DIVISION OF RECORDS & ELECTIONS

County Auditor or _____ Superintendent of Records

SURVEYOR'S CERTIFICATE

This map correctly represents a survey made by me or
under my direction in conformance with the requirements
of the Survey Recording Act at the request of
THE RETEC GROUP, INC. in MARCH, 2006

John G. Wasserman
Certificate No. 33139



BUSH, ROED & HITCHINGS, INC.
CIVIL ENGINEERS & LAND SURVEYORS

2009 MINOR AVE. EAST (206) 323-4144
SEATTLE, WASHINGTON 1-800-635-0508
98102-3513 FAX# (206) 323-7135

RECORD OF SURVEY

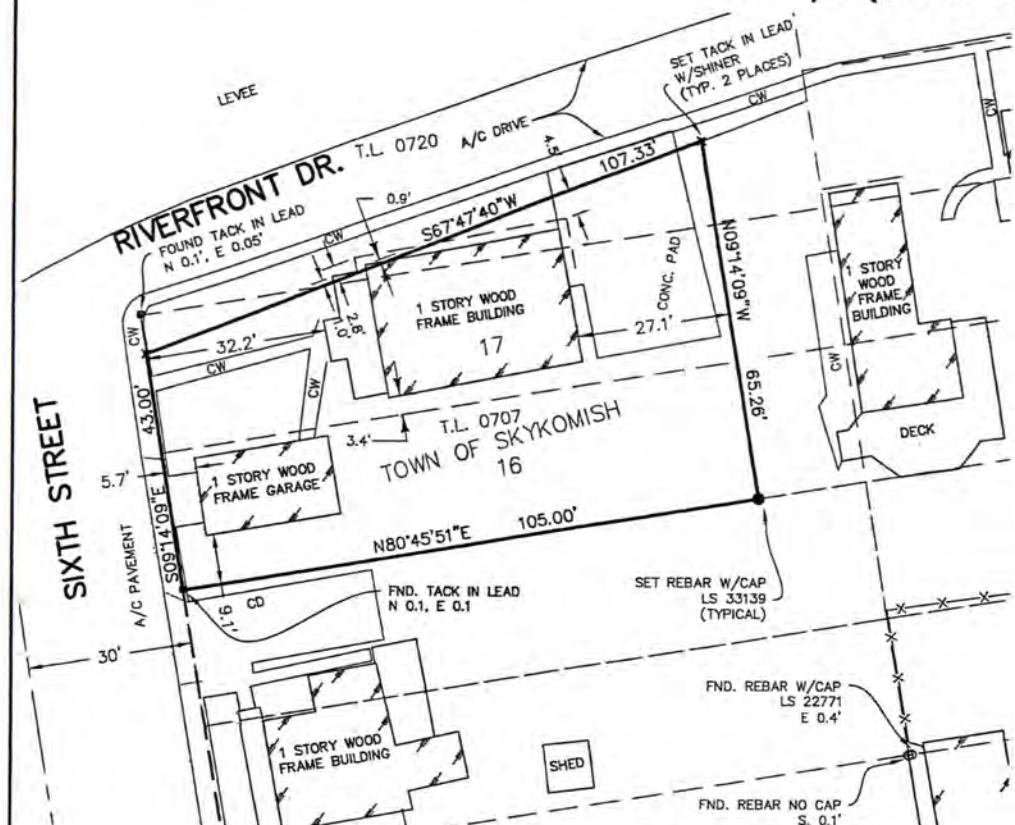
THE RETEC GROUP, INC.

SKYKOMISH, KING COUNTY, WASHINGTON

DRAWN BY RHT DATE: 3-6-06 JOB # 98250.12

CHECKED BY JGW SCALE: 1" = 20' SHEET 1 OF 1

S.W. 1/4 (GOV'T. LOT 5), S.W. 1/4, SEC. 26, TWP. 26 N., RGE. 11 E., W.M.



REFERENCES:

-PLAT OF THE TOWN OF SKYKOMISH, V. 9, P. 35
 -PLAT OF MALONEY'S FIRST ADDITION TO THE TOWN OF SKYKOMISH, V. 11, P. 93
 -PLAT OF MALONEY'S SECOND ADDITION TO THE TOWN OF SKYKOMISH, V. 26, P. 29
 -PLAT OF MALONEY'S THIRD ADDITION TO THE TOWN OF SKYKOMISH, V. 26, P. 30
 -PLAT OF MALONEY'S FORTH ADDITION TO THE TOWN OF SKYKOMISH, V. 30, P. 30
 -WSDOT SR2 MAP STEVENS PASS AUTO CAMP TO MONEY CREEK PARK
 -KING COUNTY ASSESSOR'S MAP SW 26-26-11
 -RECORD OF SURVEYS, V.96, P. 139, V. 125, P. 299, V. 130, P. 276, V. 133, P. 245, V. 135, P. 109, V. 150, P. 40, V. 181, P. 245

LEGAL DESCRIPTION (TAX LOT 780780-0707) MACKNER PARCEL

PORTION OF LOT 16 BLOCK 5, TOWN OF SKYKOMISH, AS SHOWN ON THAT PLAT RECORDED IN VOLUME 9 OF PLATS AT PAGE 35, IN KING COUNTY, WASHINGTON;
 TOGETHER WITH PORTION OF LOT 17 AND UNNUMBERED TRACT, BLOCK 5, TOWN OF SKYKOMISH, AS SHOWN ON THAT PLAT RECORDED IN VOLUME 9 OF PLATS AT PAGE 35, IN KING COUNTY, WASHINGTON, LYING SOUTHERLY OF A LINE BEGINNING 19.17 FEET NORTHERLY OF THE NORTHEAST CORNER OF SAID LOT 17 ON THE NORTHERLY PRODUCTION OF THE EASTERLY LINE OF SAID LOT 17 TO A POINT ON THE WESTERLY LINE OF SAID LOT 17, 18 FEET NORTHERLY OF THE SOUTHWEST CORNER OF SAID LOT 17;

EXCEPT THE EASTERLY 20 FEET THEREOF.

SITUATE IN THE CITY OF SKYKOMISH, KING COUNTY, WASHINGTON.

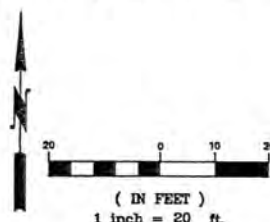
LEGEND

- FOUND REBAR W/ CAP AS DESCRIBED
- FOUND TACK IN LEAD / PK-NAIL
- SET REBAR W/CAP LS 33139
- ✕ SET TACK IN LEAD W/SHINER

A/C ASPHALT
 CD CONCRETE DRIVE
 CW CONCRETE WALK



5/30/06



SURVEY NOTES:

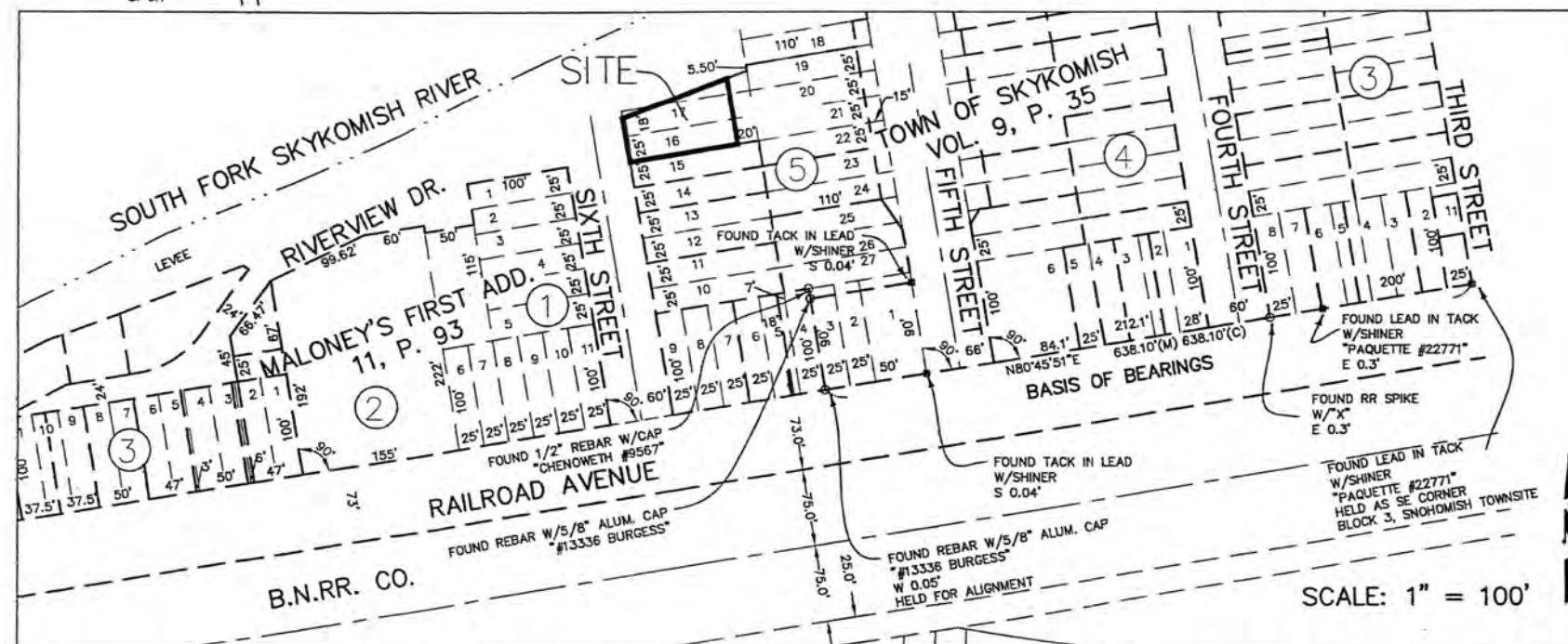
MERIDIAN:
 WASHINGTON COORDINATE SYSTEM NAD 83/91, NORTH ZONE

BASIS OF BEARINGS:
 FOUND MONUMENTS AT BLOCKS 5 AND 3, TOWN OF SKYKOMISH;
 TIES TO SW CORNER AND SOUTH ONE-QUARTER CORNER OF SECTION 26, TOWNSHIP 26 NORTH, RANGE 11 EAST, W.M.

MONUMENTS VISITED:
 FEBRUARY AND MARCH 2006

INSTRUMENT:
 THIS SURVEY WAS PERFORMED WITH A LEICA TCR 1105 TOTAL STATION, SERIAL NO. 629643.

PRECISION:
 PRECISION EXCEEDS 1:10,000 GROUND TRAVERSE METHODS AND WERE IN ACCORDANCE WITH WAC 332-130-090.



CONTROL DIAGRAM

AUDITOR OR RECORDER'S CERTIFICATE

Filed for record this ___ day of ___, 20__ at ___ M.
 in Book ___ of Surveys at page ___ at the request of
 BUSH, ROED & HITCHINGS, INC.

COUNTY AUDITOR OR DIVISION OF RECORDS & ELECTIONS

County Auditor or Superintendent of Records

SURVEYOR'S CERTIFICATE

This map correctly represents a survey made by me or under my direction in conformance with the requirements of the Survey Recording Act at the request of THE RETEC GROUP, INC. in MARCH, 2006

[Signature]
 Certificate No. 33139



BUSH, ROED & HITCHINGS, INC.
 CIVIL ENGINEERS & LAND SURVEYORS

2009 MINOR AVE. EAST (206) 323-4144
 SEATTLE, Washington 1-800-635-0508
 98102-3513 FAX# (206) 323-7135

RECORD OF SURVEY

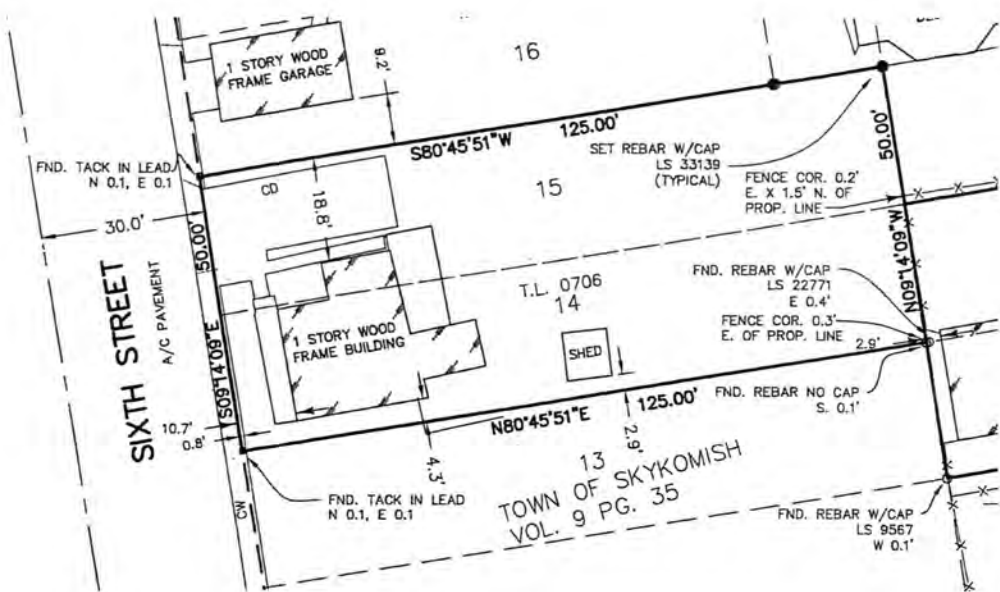
THE RETEC GROUP, INC.

SKYKOMISH, KING COUNTY, WASHINGTON

DRAWN BY RHT DATE: 3-6-06 JOB # 98250.12

CHECKED BY JGW SCALE: 1" = 20' SHEET 1 OF 1

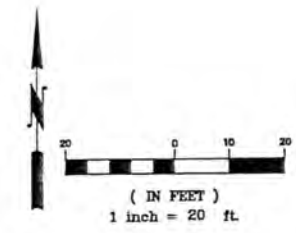
S.W. 1/4 (GOV'T. LOT 5), S.W. 1/4, SEC. 26, TWP. 26 N., RGE. 11 E., W.M.



LEGAL DESCRIPTION
(TAX LOT 780780-0705, -0706)
MOORE PARCEL

LOTS 14 AND 15, BLOCK 5, TOWN OF SKYKOMISH, AS SHOWN ON THAT
PLAT RECORDED IN VOLUME 9 OF PLATS AT PAGE 35, IN KING COUNTY,
WASHINGTON.

SITUATE IN THE CITY OF SKYKOMISH, KING COUNTY, WASHINGTON.



- LEGEND
- FOUND REBAR W/ CAP AS DESCRIBED
 - FOUND TACK IN LEAD / PK-NAIL
 - SET REBAR W/CAP LS 33139
 - ✕ SET TACK IN LEAD W/SHINER
- A/C ASPHALT
CD CONCRETE DRIVE
CW CONCRETE WALK



5/30/06

REFERENCES:

- PLAT OF THE TOWN OF SKYKOMISH, V. 9, P. 35
- PLAT OF MALONEY'S FIRST ADDITION TO THE TOWN OF SKYKOMISH, V. 11, P. 93
- PLAT OF MALONEY'S SECOND ADDITION TO THE TOWN OF SKYKOMISH, V. 26, P. 29
- PLAT OF MALONEY'S THIRD ADDITION TO THE TOWN OF SKYKOMISH, V. 26, P. 30
- PLAT OF MALONEY'S FORTH ADDITION TO THE TOWN OF SKYKOMISH, V. 30, P. 30
- WSDOT SR2 MAP STEVENS PASS AUTO CAMP TO MONEY CREEK PARK
- KING COUNTY ASSESSOR'S MAP SW 26-26-11
- RECORD OF SURVEYS, V.96, P. 139, V. 125, P. 299, V. 130, P. 276, V. 133, P. 245, V. 135, P. 109, V. 150, P. 40, V. 181, P. 245

SURVEY NOTES:

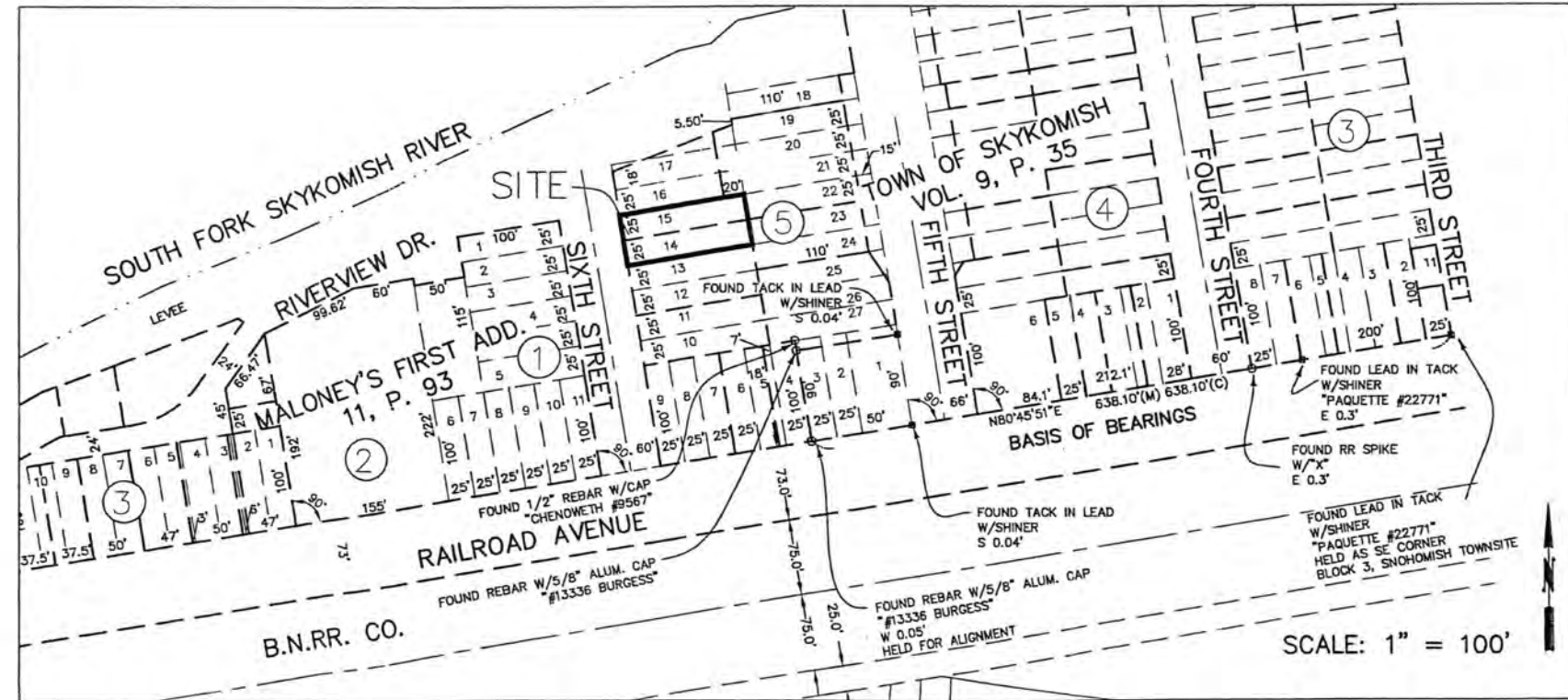
MERIDIAN:
WASHINGTON COORDINATE SYSTEM NAD 83/91, NORTH ZONE

BASIS OF BEARINGS:
FOUND MONUMENTS AT BLOCKS 5 AND 3, TOWN OF SKYKOMISH;
TIES TO SW CORNER AND SOUTH ONE-QUARTER CORNER OF SECTION 26, TOWNSHIP 26 NORTH, RANGE 11 EAST, W.M.

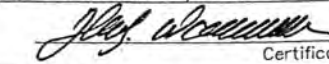
MONUMENTS VISITED:
FEBRUARY AND MARCH 2006

INSTRUMENT:
THIS SURVEY WAS PERFORMED WITH A LEICA TCR 1105 TOTAL STATION, SERIAL NO. 629643.

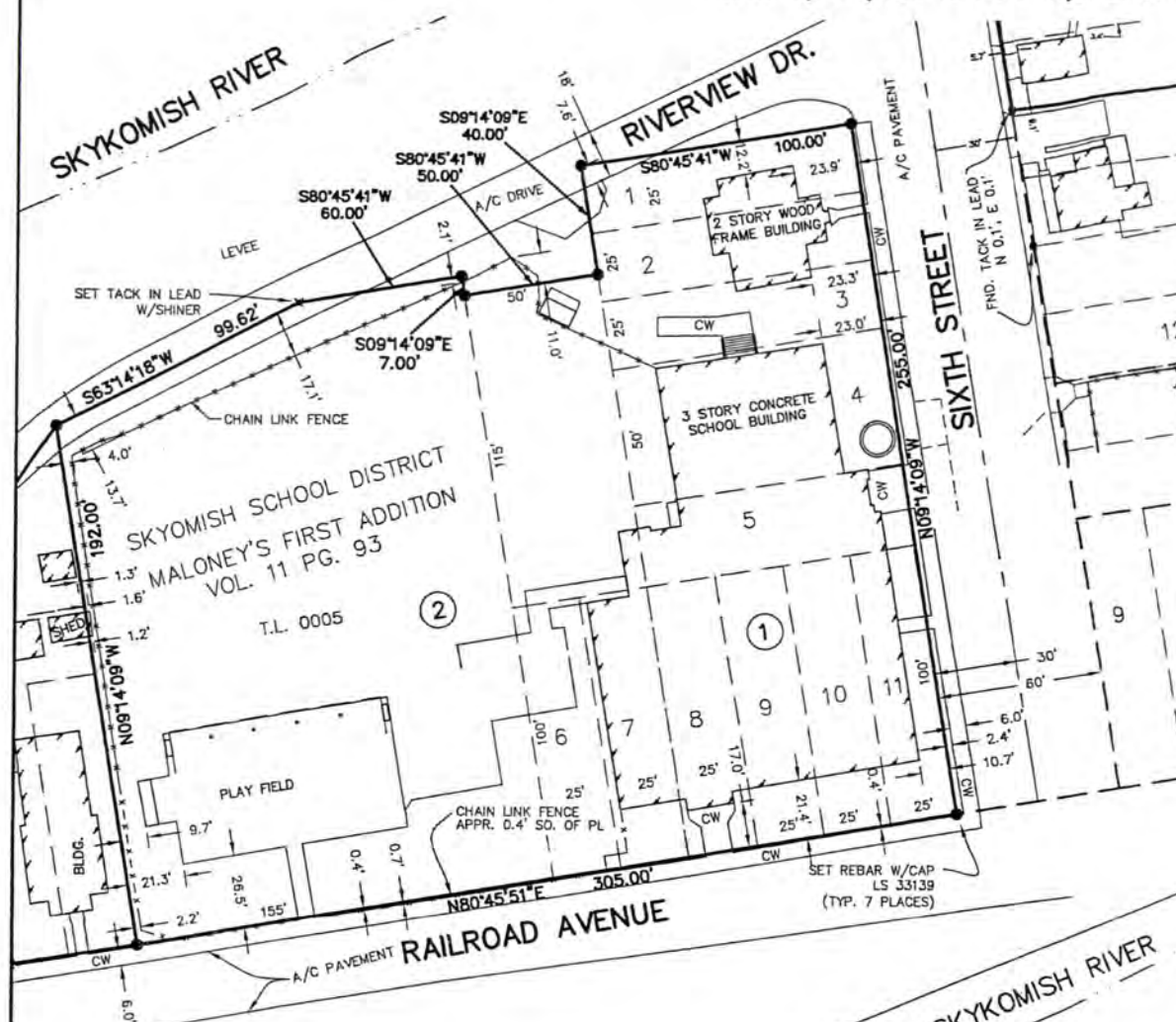
PRECISION:
PRECISION EXCEEDS 1:10,000 GROUND TRAVERSE METHODS AND WERE IN ACCORDANCE WITH WAC 332-130-090.



CONTROL DIAGRAM

AUDITOR OR RECORDER'S CERTIFICATE Filed for record this ____ day of ____, 20__ at ____ M. in Book ____ of Surveys at page ____ at the request of BUSH, ROED & HITCHINGS, INC. COUNTY AUDITOR OR DIVISION OF RECORDS & ELECTIONS County Auditor or _____ Superintendent of Records	SURVEYOR'S CERTIFICATE This map correctly represents a survey made by me or under my direction in conformance with the requirements of the Survey Recording Act at the request of THE RETEC GROUP, INC. in MARCH, 2006  Certificate No. 33139	 BUSH, ROED & HITCHINGS, INC. CIVIL ENGINEERS & LAND SURVEYORS 2009 MINOR AVE. EAST (206) 323-4144 SEATTLE, Washington 1-800-935-0508 98102-3513 FAX# (206) 323-7135	RECORD OF SURVEY THE RETEC GROUP, INC. SKYKOMISH, KING COUNTY, WASHINGTON DRAWN BY RHT DATE: 3-6-06 JOB # 98250.12 CHECKED BY JGW SCALE: 1" = 20' SHEET 1 OF 1

S.W. 1/4 (GOV'T. LOT 5), S.W. 1/4, SEC. 26, TWP. 26 N., RGE. 11 E., W.M.



- LEGEND
- FOUND REBAR W/ CAP AS DESCRIBED
 - FOUND TACK IN LEAD / PK-NAIL
 - SET REBAR W/CAP LS 33139
 - ✕ SET TACK IN LEAD W/SHINER
- A/C ASPHALT
CD CONCRETE DRIVE
CW CONCRETE WALK

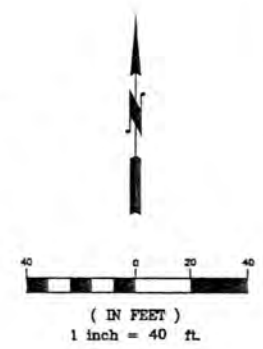
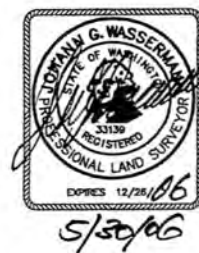
LEGAL DESCRIPTION
(TAX LOT 506080-0005)
SKYKOMISH SCHOOL DISTRICT 404

BLOCK 1 AND 2, MALONEY'S FIRST ADDITION TO SKYKOMISH, AS SHOWN ON THAT PLAT RECORDED IN VOLUME 11 OF PLATS AT PAGE 93, IN KING COUNTY, WASHINGTON;
TOGETHER WITH THAT PORTION OF GOVERNMENT LOT 5, SECTION 26, TOWNSHIP 26 NORTH, RANGE 11 EAST, W.M., DESCRIBED AS FOLLOWS:
BEGINNING AT THE NORTHEAST CORNER OF LOT 7, BLOCK 1, MALONEY'S FIRST ADDITION TO SKYKOMISH;
THENCE WEST 50 FEET;
THENCE NORTH 115 FEET;
THENCE EAST 50 FEET;
THENCE SOUTH TO THE POINT OF BEGINNING.

SITUATE IN THE CITY OF SKYKOMISH, KING COUNTY, WASHINGTON.

REFERENCES:

- PLAT OF THE TOWN OF SKYKOMISH, V. 9, P. 35
- PLAT OF MALONEY'S FIRST ADDITION TO THE TOWN OF SKYKOMISH, V. 11, P. 93
- PLAT OF MALONEY'S SECOND ADDITION TO THE TOWN OF SKYKOMISH, V. 26, P. 29
- PLAT OF MALONEY'S THIRD ADDITION TO THE TOWN OF SKYKOMISH, V. 26, P. 30
- PLAT OF MALONEY'S FORTH ADDITION TO THE TOWN OF SKYKOMISH, V. 30, P. 30
- WSDOT SR2 MAP STEVENS PASS AUTO CAMP TO MONEY CREEK PARK
- KING COUNTY ASSESSOR'S MAP SW 26-26-11
- RECORD OF SURVEYS, V.96, P. 139, V. 125, P. 299, V. 130, P. 276, V. 133, P. 245, V. 135, P. 109, V. 150, P. 40, V. 181, P. 245



SURVEY NOTES:

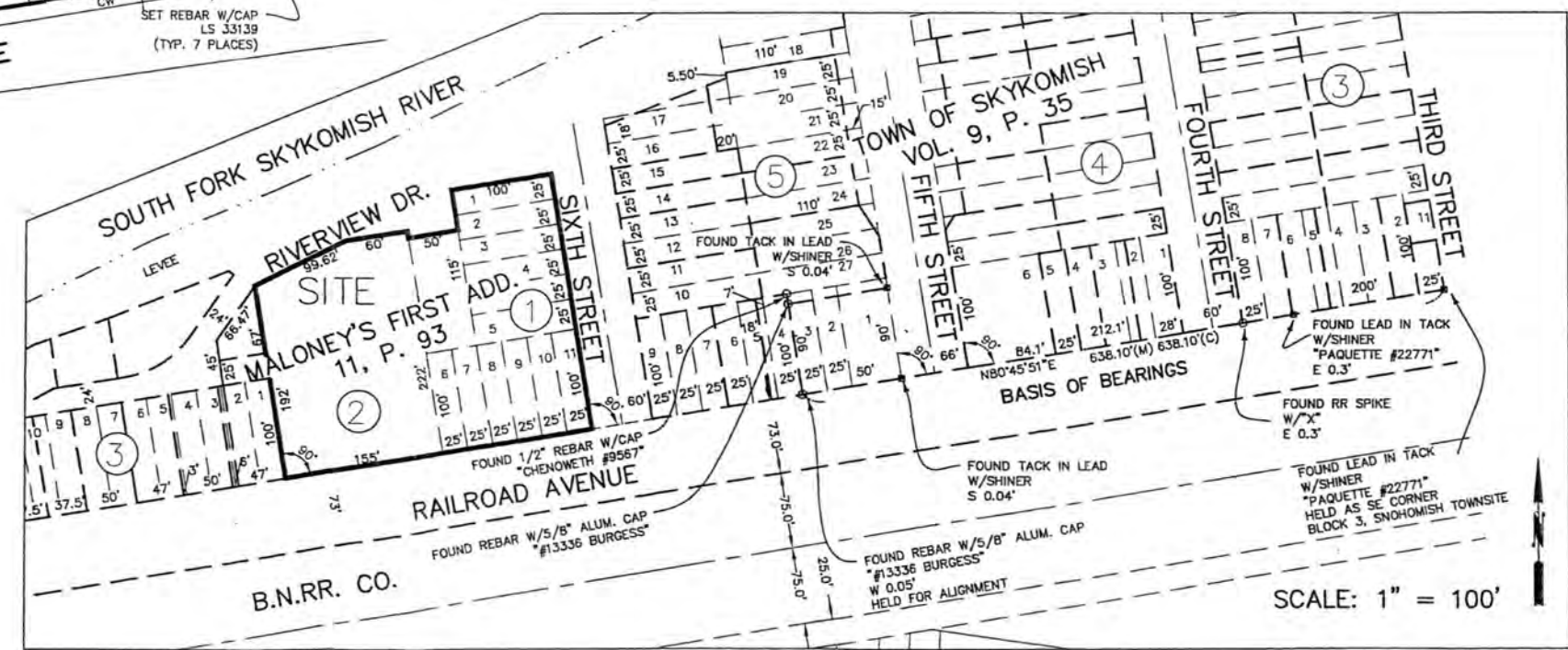
MERIDIAN:
WASHINGTON COORDINATE SYSTEM NAD 83/91, NORTH ZONE

BASIS OF BEARINGS:
FOUND MONUMENTS AT BLOCKS 5 AND 3, TOWN OF SKYKOMISH;
TIES TO SW CORNER AND SOUTH ONE-QUARTER CORNER OF SECTION 26, TOWNSHIP 26 NORTH, RANGE 11 EAST, W.M.

MONUMENTS VISITED:
FEBRUARY AND MARCH 2006

INSTRUMENT:
THIS SURVEY WAS PERFORMED WITH A LEICA TCR 1105 TOTAL STATION, SERIAL NO. 629643.

PRECISION:
PRECISION EXCEEDS 1:10,000 GROUND TRAVERSE METHODS AND WERE IN ACCORDANCE WITH WAC 332-130-090.



CONTROL DIAGRAM

AUDITOR OR RECORDER'S CERTIFICATE

Filed for record this ____ day of ____, 20__ at ____ M.
in Book ____ of Surveys at page ____ at the request of
BUSH, ROED & HITCHINGS, INC.

COUNTY AUDITOR OR DIVISION OF RECORDS & ELECTIONS

County Auditor or Superintendent of Records

SURVEYOR'S CERTIFICATE

This map correctly represents a survey made by me or under my direction in conformance with the requirements of the Survey Recording Act at the request of THE RETEC GROUP, INC. in MARCH, 2006

Thomas G. Wasserman
Certificate No. 33139

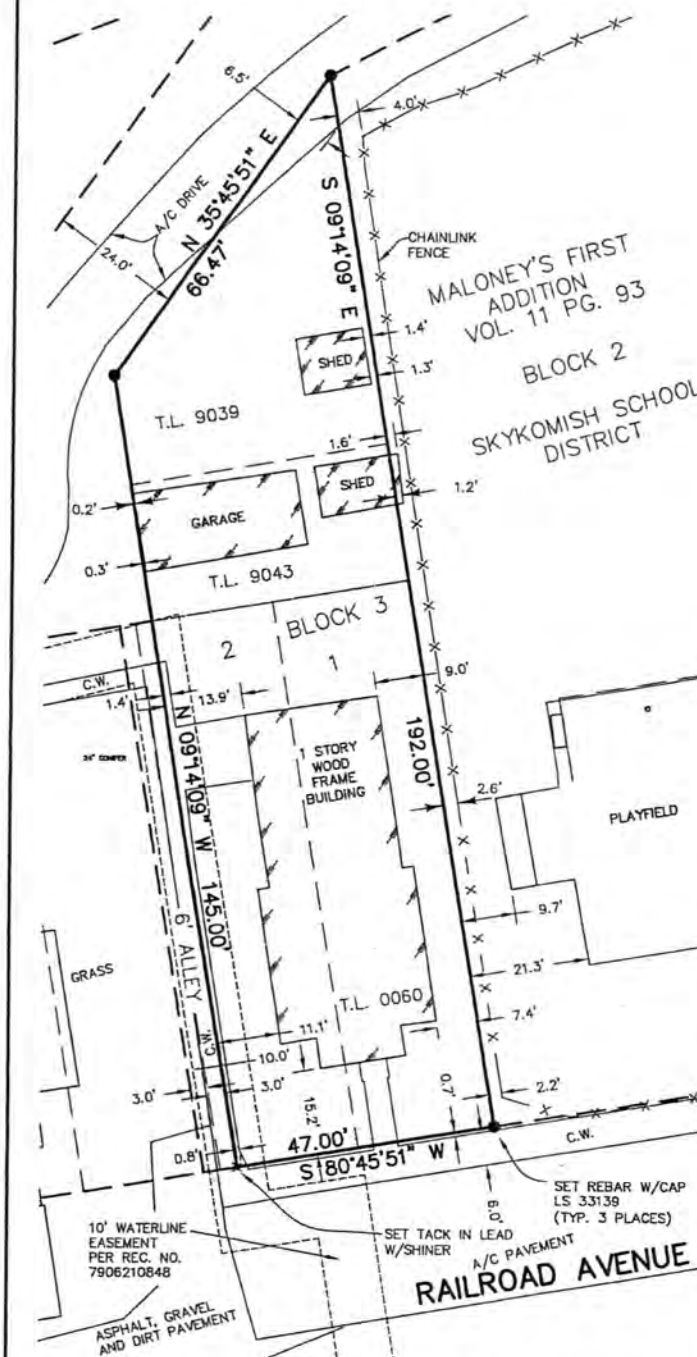
BUSH, ROED & HITCHINGS, INC.
CIVIL ENGINEERS & LAND SURVEYORS

2009 MINOR AVE. EAST (206) 323-4144
SEATTLE, Washington 1-800-935-0508
98102-3513 FAX# (206) 323-7135

RECORD OF SURVEY
THE RETEC GROUP, INC.
SKYKOMISH, KING COUNTY, WASHINGTON

DRAWN BY RHT	DATE: 3-6-06	JOB # 98250.12
CHECKED BY JGW	SCALE: 1" = 40'	SHEET 1 OF 1

S.W. 1/4 (GOV'T. LOT 5), S.W. 1/4, SEC. 26, TWP. 26 N., RGE. 11 E., W.M.



LEGEND

- FOUND REBAR W/ CAP AS DESCRIBED
- FOUND TACK IN LEAD / PK-NAIL
- SET REBAR W/CAP LS 33139
- ✱ SET TACK IN LEAD W/SHINER

A/C ASPHALT
CD CONCRETE DRIVE
CW CONCRETE WALK

SURVEY NOTES:

MERIDIAN:
WASHINGTON COORDINATE SYSTEM NAD 83/91, NORTH ZONE

BASIS OF BEARINGS:
FOUND MONUMENTS AT BLOCKS 5 AND 3, TOWN OF SKYKOMISH;
TIES TO SW CORNER AND SOUTH ONE-QUARTER CORNER OF SECTION 26, TOWNSHIP 26 NORTH, RANGE 11 EAST, W.M.

MONUMENTS VISITED:
FEBRUARY AND MARCH 2006

INSTRUMENT:
THIS SURVEY WAS PERFORMED WITH A LEICA TCR 1105 TOTAL STATION, SERIAL NO. 629643.

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-WSDOT SR2 MAP STEVENS PASS AUTO CAMP TO MONEY CREEK PARK
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LEGAL DESCRIPTION
(TAX LOTS 506080-0060, 262611-0039, 0043)
SHAWVER PARCEL

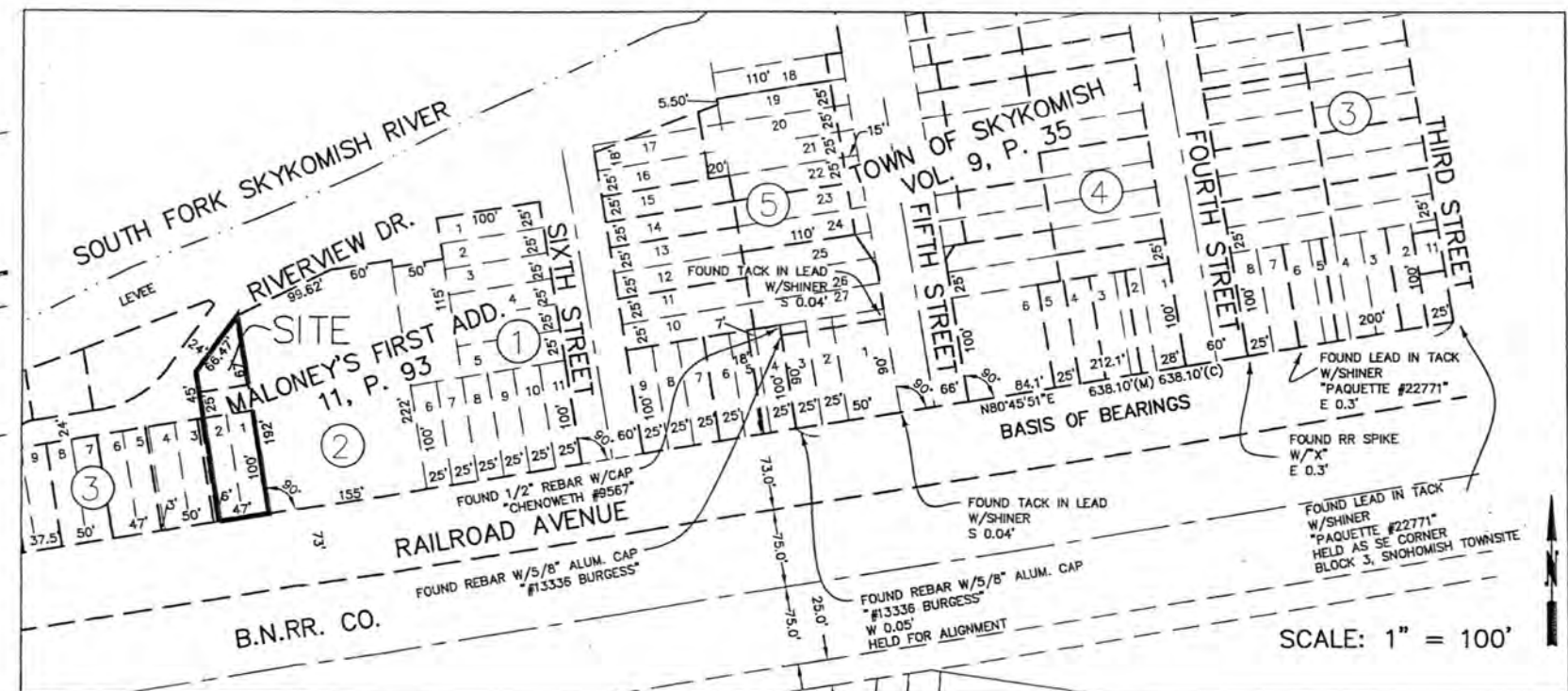
LOTS 1 AND 2, BLOCK 3, MALONEY'S FIRST ADDITION TO SKYKOMISH, AS SHOWN ON THAT PLAT RECORDED IN VOLUME 11 OF PLATS AT PAGE 93, IN KING COUNTY, WASHINGTON;
EXCEPT THE WESTERLY 3 FEET FOR ALLEY;

TOGETHER WITH THAT PORTION OF GOVERNMENT LOT 5, SECTION 26, TOWNSHIP 26 NORTH, RANGE 11 EAST, W.M., DESCRIBED AS FOLLOWS:
BEGINNING NORTH 09°45'00" WEST 25 FEET FROM THE NORTHEAST CORNER OF SAID LOT 1, BLOCK 3, MALONEY'S FIRST ADDITION TO SKYKOMISH;
THENCE SOUTH 80°15'00" WEST 47 FEET;
THENCE NORTH 09°45'00" WEST 20 FEET;
THENCE NORTH 35°15'00" EAST 66.47 FEET;
THENCE SOUTH 09°45'00" EAST 67 FEET TO THE POINT OF BEGINNING;

AND TOGETHER WITH THAT PORTION OF GOVERNMENT LOT 5, SECTION 26, TOWNSHIP 26 NORTH, RANGE 11 EAST, W.M., DESCRIBED AS FOLLOWS:
BEGINNING AT THE NORTHEAST CORNER OF SAID LOT 1, BLOCK 3, MALONEY'S FIRST ADDITION TO SKYKOMISH;
THENCE SOUTH 80°15'00" WEST 47 FEET;
THENCE NORTH 09°45'00" WEST 25 FEET;
THENCE NORTH 80°15'00" EAST 47 FEET;
THENCE SOUTH 09°45'00" EAST 25 FEET TO THE POINT OF BEGINNING;

SITUATE IN THE CITY OF SKYKOMISH, KING COUNTY, WASHINGTON.

BRH JOB NO. 95280.12



CONTROL DIAGRAM

AUDITOR OR RECORDER'S CERTIFICATE

Filed for record this _____ day of _____, 20____ at _____ M.
in Book _____ of Surveys at page _____ at the request of
BUSH, ROED & HITCHINGS, INC.

COUNTY AUDITOR OR DIVISION OF RECORDS & ELECTIONS

County Auditor or _____ Superintendent of Records

SURVEYOR'S CERTIFICATE

This map correctly represents a survey made by me or under my direction in conformance with the requirements of the Survey Recording Act at the request of
THE RETEC GROUP, INC. in MARCH, 2006

John G. Wasserman
Certificate No. 33139



BUSH, ROED & HITCHINGS, INC.
CIVIL ENGINEERS & LAND SURVEYORS

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RECORD OF SURVEY
THE RETEC GROUP, INC.
SKYKOMISH, KING COUNTY, WASHINGTON

DRAWN BY RHT	DATE: 3-6-06	JOB # 98250.12
CHECKED BY JGW	SCALE: 1" = 20'	SHEET 1 OF 1

Appendix M
Turbidity Observation Log Sheets

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Inside Cofferdam	Outside Cofferdam	
7/5/06	0630	ASH	cloudy 55°F	1.63 NTU	1.36 NTU	N/A	N/A	
1	0830	ASH	cloudy 55°F	1.57 NTU	1.43 NTU	N/A	N/A	
	1045	ASH	cloudy 60°F	1.27 NTU	2.14 NTU	N/A	N/A	
	1250	SEA	"	1.16 NTU	3.07 NTU	N/A	N/A	Slight - mod sheen within boom
	1455	SEA	"	1.15	1.20 NTU	N/A	N/A	
	1640	SEA	"	1.13	1.97 NTU	N/A	N/A	
	1730	SEA	"	1.10	1.97	N/A	N/A	
7/6/06	0634	DEM/ASH	cloudy 55°F	1.34	1.63	N/A	N/A	Slight sheen within boom
	1035	ASH/DEM	cloudy 60°F	1.16	1.67	N/A	N/A	
	1430	ASH/DEM	cloudy 60's	1.29	5.61	N/A	N/A	Excavator tracking up/down river
	1430	ASH/DEM	_____	_____	_____	_____	_____	DS sample taken NW corner of WTP
	1845	ASH/DEM	cloudy 60	1.21	1.29	N/A	N/A	
7/7/06	0630	ASH/DEM	mostly cloudy 55°F	1.50	1.62	N/A	N/A	

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Inside Cofferdam	Outside Cofferdam	
7/7/06	1115	ASH/SA	SUNNY 70°F	1.43 NTU	5.52 NTU	N/A	N/A	DWNSTREAM COLLECT 10' FROM SHORE
7/7/06	1545	ASH/DM	Sunny 70°F	1.03	1.76	N/A	N/A	DS Test used inside Turb. Curtain
7/7/06	1530	ASH/DM	Sunny 70°F	—	2.30	—	—	DS Collected w/ 40' & /shore
7/7/06	1700	ASH/DM	SUNNY 75°F	1.14	1.80	N/A	N/A	
7/8/06	0615	DM	Clear 55°F	1.04	1.20	N/A	N/A	
	1130	DM	Clear + warm 75°F	1.16	3.85	N/A	N/A	Installing Collection at 5th St. Bridge
	1405	DM	Clear + warm 80°F	1.02	2.59	N/A	N/A	(SAME AS ABOVE)
	1715	DM	Clear + warm 85°F	1.01	3.56	N/A	N/A	(Same as above)
7/10/06	0630	ASH/DM	Mostly cldy 58°F	1.05	1.13	N/A	N/A	
	1045	ASH/DM	PARTLY CLOUDY 68°F	1.09 3RD ST.	4.49 W. ACCESS RD.	NONE	NONE	CALIBRATION LOCATION 0.02 → 0.03 3RD ST 20 → 19.91
	1440	ASH/DM	Clr → p. cldy 78°F	0.88 3RD ST.	1.68 W. ACCESS	None to very slight	None	
	1845	ASH/DM	OVERCAST 63°F	0.78 3RD ST	2.48 W. ACCESS	NONE	None	
7/11/06	0635	ASH/DM	OVERCAST 60°F	1.06 3RD ST.	0.97 W. ACCESS	None	None	Backgrd.

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Inside Cofferdam	Outside Cofferdam	
7/11/06	0945	AH/SA	PARTLY CLOUDY 70°F	4TH ST 0.78	W. ACCESS RD. 1.58	NONE	NONE	
7/11/06	1440	AH/SA	CLOUDY 67°F	0.59	1.29	SLIGHTLY OILY AT UPSTREAM END	NONE	
7/11/06	1800	SA/AH	PARTLY CLOUDY M-60'S	0.83	1.95	SLIGHTLY OILY @ UPSTREAM	NONE	
7/12/06	0630	AH/DM	CLOUDY 55°F	4TH ST 1.09	W. ACCESS RD. 0.79	NONE	NONE	CALIBRATION 0.02 → 0.04 20.0 → 20.3
7/12/06	1050	AH/DM	CLOUDY 70°F	0.79 4TH ST. Always	W. ACCESS 1.98	NONE	NONE	
7/12/06	1445	SA/AH	RAINY 65°F	0.67 4TH ST. Always	1.97 W. ACCESS RD.	SLIGHT SHEEN @ EAST END WHICH CLINGS TO BANK	NONE	
7/14/06	1837	AH/DM	RAINY 64°F	0.89 4TH ST. Always	1.55 W. ACCESS RD.	SLIGHT SHEEN @ EAST END ALONG BANK	NONE	
7/13/06	2222	AH/DM	Mostly cldy Rainy 60°F	1.30 4TH ST. Always	1.29 W. ACCESS RD.	SLIGHT SHEEN @ EAST END along bank	NONE	
7/13/06	1050	AH/SA	SPRINKLING 60°F	0.91 4TH ST	2.72 W. ACCESS RD.	SLIGHT SHEEN @ EAST END	NONE	CALIBRATION 0.02 → 0.04 20.0 → 20.1
7/13/06	1445	AH/DM	Mostly cldy 63°F	0.99 4TH ST	1.28 W. ACCESS RD.	SLIGHT SHEEN @ EAST END	NONE	
7/13/06	1830	AH/SA	CLOUDY, RAIN 60°F	0.79 4TH ST	2.97 W. ACCESS RD.	NONE	NONE	
7/14/06	0630	AH/DM	MOSTLY CLOUDY 57°F	0.82 4TH ST	1.87 W. ACCESS RD.	NONE	NONE	CALIBRATION 0.02 → 0.04 20.0 → 20.3
	1230	SA/AH	partly sunny 65°F	0.87 4TH ST	4.16 W. ACCESS RD.		NONE	

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Inside Cofferdam	Outside Cofferdam	
7/14/06	1545	AM/DM	Mostly clear Sunny 75°F	0.24 4TH ST	2.11 W. ACCESS PT.	SLIGHT SHEEN ON EAST END	No Sheen	
7/14/06	1735	AM/DM	MISTY CLOUD 75°F	0.65 4TH ST	1.62 W. ACCESS PT	SLIGHT SHEEN @ EAST END	NO SHEEN	
7/15/06	0625	AM/DM	Mostly clear 55°F	1.48 4TH ST	0.94 W. ACCESS PT	SLIGHT SHEEN @ EAST END	No Sheen	
7/15/06	1100	DM/AM	M-CLOUDY Breezy 60°F	0.54 4TH ST	1.28 W. ACCESS PT.	SLIGHT SHEEN @ EAST END	No Sheen	
7/15/06	1524	DM/AM	M. Sunny Breezy 65°F	0.61 4TH ST	2.13 W. ACCESS PT.	SLIGHT SHEEN @ EAST END	No Sheen	
7/15/06	1755	DM/AM	M. Sunny Breezy 70°F	1.26 4TH ST	4.33 W. ACCESS PT.	SLIGHT SHEEN @ EAST END	No Sheen	W. RIVER RD. 100' 150' 100'
7/16/06	0030	AM/DM	MICLOUDY 55°F	0.88 4TH ST	0.65 W. ACCESS PT	SLIGHT SHEEN @ EAST END	NO SHEEN	CALIBRATION 0.02 → 0.01 20.0 → 20.1
7/17/06	1055	AM/DM	M-CLOUDY + Cool 64°F	0.92 4TH ST	4.48 W. ACCESS PT.	SLIGHT SHEEN @ EAST END	No Sheen	
7/17/06	1430	AM/DM	MISTY CLOUD 65°F	0.76 4TH ST	4.81 W. ACCESS PT.	SLIGHT SHEEN @ EAST END	NO SHEEN	
7/17/06	1830	DM/AM	MISTY CLOUD 67°F	0.70 4TH ST	5.37 W. ACCESS PT		No Sheen	
7/18/06	0630	AM/DM	CLOUDY 64°F	0.79 4TH ST	0.64 W. ACCESS PT	SHEEN CONTINUED WITHIN 1300M	NO SHEEN	CALIBRATION 0.02 → 0.01 20.0 → 20.6
"	1115	AM/SA	CLOUDY 64°F	0.57 4TH ST	2.60 W. ACCESS PT	SHEEN @ EAST END AND ALONG EAST BANK	NO SHEEN	
"	1535	SA/AM	ptly cloudy 70°F	0.62 4TH ST	4.09 W. ACCESS PT	product present @ east end	No Sheen	

W. River Rd.

along
bank

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Inside Cofferdam	Outside Cofferdam	
7/18/06	1827	AH/SA	MOSTLY CLEAR SUNNY 70°F	0.77 4TH ST	9.92 W. ACCESS RD.	Product present along east end	NONE	RESAMPLE 10.28
7/19/06	0630	AH/SA	MOSTLY CLEAR SUNNY 67°F	0.79 4TH ST	0.85 W. ACCESS RD.	PRODUCT PRESENT ONLY INSIDE OIL BOOM	NONE	CALIBRATION 0.02 → 0.00 20.0 → 20.3
7/19/06	1025	AH/SA	PARTLY CLOUDY 69°F	0.72 4TH ST	4.66 W. ACCESS RD.	Product present within oil boom	NONE	
7/19/06	1445	AH/DM	MOSTLY CLOUDY 71°F	0.52 4TH ST	1.2 W. ACCESS RD.	"	NONE	
7/19/06	1809	AH/DM	MOSTLY CLEAR 71°F	0.78 4TH ST	3.15 W. ACCESS RD.	"	NONE	
7/20/06	0625	AH/DM	Clear + cool 50°F	0.60 4TH ST.	0.67 W. ACCESS PT.	PRODUCT PRESENT INSIDE OIL BOOM	NONE	CALIBRATION 0.02 → 0.09 20.0 → 20.2
7/20/06	1140	AH/DM	CLEAR, SUNNY 79°F	0.66 4TH ST	1.72 W. ACCESS PT.	PRODUCT PRESENT @ EAST END	NONE	
7/20/06	1500	SA/AH	Clear, Sunny	0.63 4TH ST	1.62 W. ACCESS PT.	"	NONE	
7/20/06	1830	SA/DM	Clear + Sunny 80°F	0.57 4TH ST.	1.40 W. Access Pt.	Product inside oil boom @ East end	NONE	
7/21/06	0630	AH/DM	CLEAR SUNNY 67°F	0.96 4TH ST	0.82 W. ACCESS PT.	"	NONE	Calibration 0.02 → 0.02 20.0 → 20.0
7/21/06	1045	AH/DM	Clear Sunny 75°F	0.64 4TH ST.	2.09 W. Access Pt.	"	NONE	
7/21/06	1430	AH/DM	CLEAR SUNNY 95°F	1.61 4TH ST	4.67 W. ACCESS PT.	Product missing at East End of Cell #1	NONE	
7/21/06	1830	AH/DM	CLEAR SUNNY 96°F	0.56 4TH ST	18.04 W. ACCESS PT.	Product at East end of Cell #1	NONE	

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Inside Cofferdam	Outside Cofferdam	
7/22/06	0620	DM	Mostly cldy 65°F	1.63 4th St.	2.45 W. Access Pt.	Product in Cell #1 @ W. end AB.	None	CAL CHECK 0.02 ⇒ 0.00 20.0 ⇒ 21.0
7/22/06	1050	DM	Mostly cldy 80°F	0.94 4th St.	3.02 W. Access Pt.	Product in Cell #1 @ W. end	None	Alarm + hummer with cold water causes glass bottle to fog.
7/22/06	1450	DM	Mostly cldy 90°F	0.74 4th St.	8.35 W. Access Pt.	Product in Cell #1 along South bank.	None	Crew shut down at 1600 hrs
7/24/06	0630	AH/DM	Clear 67°F	1.33 4TH ST	1.02 W. ACCESS PT	11	NONE	CALIBRATION CHECK 0.02 ⇒ 0.04 20.0 ⇒ 19.52
7/24/06	1050	AH/DM	Clear + warm 80°F	1.06 4th St.	1.76 W. Access Pt.	Product @ East End of Cell #1	None	
7/24/06	1438	AH/DM	Clear 85°F	0.64 4TH ST	0.86 W. Access Pt.	11	None	
7/24/06	1820	SA/DM	Clear 95°F	0.80 4th St.	4.46 W. Access Pt.	Product present throughout Cell #1	None	
7/25/06	0629	AH/DM	Clear 56°F	1.27 4TH ST	2.20 W. ACCESS PT	None	None	CALIBRATION CHECK 0.02 ⇒ 0.01 20.0 ⇒ 20.0
7/25/06	0930	SA/AH	Clear 70°F	1.20 4th St.	4.00 Wend W. River Rd.	product present throughout cell #1 no product between	None	
7/25/06	1435	AH/DM	Clear + breezy 80°F	0.66 4th St.	4.17 W. Access Pt.	11	None	
7/25/06	1833	SA/DM	Clear + breezy 80°F	0.87 4th St.	0.90 W. end W. River Rd.	Product present throughout Cell #1, none between	None	
7/26/06	0630	AH/DM	Clear + sunny 57°F	1.10 4TH ST	1.08 W. ACCESS PT	SLIGHT SHEEN BETWEEN DAMS & EAST END	None	CALIBRATION CHECK 0.02 ⇒ 0.01 20.0 ⇒ 20.1
7/26/06	1105	SA/AH	Clear + sunny 70°F	0.70 4th St.	4.00 Wend W. River Rd.	Slight sheen	None	

AB = Agua Barrica

~70' out into river

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity				Comments
				Upstream	Downstream	Between Cofferdams	Oil Sheen	
7/26/06	1325	AH/DM	Clear + sunny	0.69	4th St.	W Access Pt.	None - oil sheen past pipe from earlier	None
7/26/06	1900	AH/DM	Clear + sunny	0.87	4th St.	W Access Pt.	Residual oil sheen from earlier accident	None
7/27/06	0636	AH/DM	Clear + sunny	0.82	4th + 5th	W Access Pt.	2.40	NO VB
7/27/06	1050	AH/DM	Clear + sunny	0.87	4th St.	W Access Pt.	3.62	None
7/27/06	1455	AH/DM	Clear + sunny	0.65	4th + 5th	W Access Pt.	1.33	NO VB
7/27/06	1830	AH/5th	Clear + sunny	0.50	4th + 5th	W Access Pt.	4.08	None
7/28/06	0730	SA/AH	Overcast	0.67	4th St.	W Access Pt.	1.44 (to) 5th, extra	Cal. by 0.02 → 0.00
7/28/06	1105	SA/AH	Overcast	0.78	4th St.	W Access Pt.	2.19	Cal. by 0.02 → 0.00
7/28/06	1705	SA/DM	Clear + sunny	0.88	4th St.	W Access Pt.	4.19	Cal. by 0.02 → 0.00
7/28/06	1835	SA/DM	Clear + sunny	1.11	4th St.	W Access Pt.	residual sheen from earlier	None
7/29/06	1130	SA/KH	Sunny	0.83	4th St.	W Access Pt.	2.23	None
7/29/06	1530	SA/KH	Sunny	0.64	4th St.	W Access Pt.	3.94	None

Cal. by 0.02 → 0.00
20.0 → 19.94

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity	Oil Sheen	Comments
7/31/06	0635	SA/AT	Cloudy, 55° F	0.76	2.68	SLIGHT SHOWN
7/31/06	1120	SA/AT	Mostly clear, 70° F	0.46	1.16	SLIGHT SHOWN
7/31/06	1520	SA/AT	Mostly clear, 70° F	0.59	3.82	SLIGHT SHOWN
7/31/06	1815	SA/AT	Mostly clear, 72° F	0.48	1.53	SLIGHT SHOWN
8/1/06	0625	AT/DM	Most cloudy, 50° F	0.57	3.61	SLIGHT SHOWN
8/1/06	1055	SA/AT	Mostly cloudy, 60° F	0.63	4.65	SLIGHT SHOWN
8/1/06	1535	SA/AT	Partly cloudy, 68° F	0.58	5.22	SLIGHT SHOWN
8/1/06	1815	SA/AT	Partly cloudy, 68° F	0.44	0.58	SLIGHT SHOWN
8/2/06	0625	SA/DM	Clear, 50° F	0.49	4.13	SLIGHT SHOWN
8/2/06	1055	SA/DM	Mostly clear, 65° F	0.70	4.80	SLIGHT SHOWN
8/2/06	1515	DM/SA	Mostly clear, 65° F	0.36	1.57	SLIGHT SHOWN
8/2/06	1820	SA/DM	Clear + mild, 69° F	0.59	1.67	SLIGHT SHOWN
8/3/06	0620	AT/DM	Clear to partly, 50° F	1.04	4.15	SLIGHT SHOWN

0.02 → 0.02
20.0 → 19.96
CALCULATED @ 11:20
ATUBATED check

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Between Cofferdams	Outside Cofferdams	
8/3/06	1040	AH/DM	CLEAR SUNNY 65°F	0.59 4TH STREET	3.07 W. ACCESS PT.	SLIGHT SHEEN	NONE	
8/3/06	1530	AH/SA	CLEAR SUNNY 70°F	0.73 4TH STREET	2.99 W. ACCESS PT.	"	"	
8/3/06	1900	AH/SA	HAZY CLEAR 70°F	0.62 4TH ST	18.07 W. ACCESS PT.	"	SLIGHT SHEEN in localized area commonly seen	work in 3rd cell to address turbidity
8/3/06	1940	AH/SA	"	/	3.27 W. ACCESS PT.	/	no sheen visible	
8/4/06	0625	AH/DM	clear - p. cloudy cool 54°F	0.98 4TH ST.	0.75 W. ACCESS PT.	slight sheen existing pads in place	NONE	CAL CK 0.02 → 0.00 20.0 → 20.5
"	1115	AH/DM	MOSTLY CLEAR 66°F	0.70 1TH ST.	1.62 W. ACCESS PT.			
8/4/06	1520	SA/AH	clear 74°F	0.47 4TH ST.	1.70 W. ACCESS PT.			
"	1830	AH/DM	CLEAR 74°F	0.65 4TH ST.	1.59 W. ACCESS PT.	SLIGHT SHEEN, PADS IN PLACE	NONE	CALIBRATION CHECK 0.02 → 0.00 20.0 → 20.5
8/5/06	0630	AH/DM	CLEAR 55°F	0.77 4TH ST	1.17 W. ACCESS PT.	YES, PADS IN PLACE TO COLLECT IT. OIL BURNS IN PLACE TOO.	NONE	CALIBRATION CHECK 0.02 → 0.00 20.0 → 20.5
8/5/06	1115	AH/DM	CLEAR 69°F	0.63 4TH ST.	1.46 W. ACCESS PT.	"	NONE	
8/5/06	1430	AH/DM	clear, breezy 77°F	0.51 4TH ST	2.01 W. ACCESS PT.	"	NONE	
8/5/06	1707	AH/DM	CLEAR SUNNY 80°F	0.50 4TH ST	2.03 W. ACCESS PT.	yes - slight sheen - burn pads for control	NONE	PVC Liner pulled up over bags in Cell #1
8/7/06	0620	SA/DM	Clr to p. cloudy cool 52°F	0.68 4TH ST.	0.75 W. ACCESS PT.	slight. padot burns in place	NONE	CAL CK 0.02 → 0.00 CALIBRATE

* Down stream measurement taken 80' from shore 300' down stream ~~from~~ ^{from} project area

placed
diapers
adj. to cells

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream*	Between Cofferdams	Outside Cofferdams	
8/7/06	1115	GA/AH	Clear 65°F	0.82 4TH ST	3.45 W. ACCESS PT.	SLIGHT SHEEN	NONE	NRC TO SPEND SOME TIME TO TO PLACE PADS AND BETWEEN DAMS
8/7/06	1520	AH/DM	Clear 80°F	0.42 4TH ST	2.19 W. ACCESS PT.	SLIGHT SHEEN	NONE	NRC'S EQUIPMENT IN PLACE
"	1840	AH/SA	"	0.39 4TH ST	4.02 W. ACCESS PT.	"	"	
8/8/06	0625	AH/DM	M-CLDY 58°F	1.36 4TH ST	1.96 W. ACCESS PT.	"	"	CAL CK 0.02 → 0.02 20.0 → 19.55
8/8/06	1150	AH/JS	Clear 65°F	0.53 4TH ST	1.43 W. ACCESS PT.	"	"	
8/8/06	1606	AH/KD	Clear 75°F	0.44 4TH ST	1.51 W. ACCESS PT.	"	"	PRIMARY CUTSLOPE BEING REMOVED IN 1ST CELL
8/8/06	1835	SA/DM	M-Cloudy 75°F	0.60 4TH ST	1.34 W. ACCESS PT.	"	"	
8/9/06	0625	AH/DM	Overcast rainy 60°F	0.99 4TH ST	1.90 W. ACCESS PT.	"	"	CALIBRATION CHECK 0.02 → 0.33 20.0 → 19.47
8/9/06	1135	AH/DM	M-Cloudy 65°F	0.82 4TH ST	1.76 W. ACCESS PT.	"	"	
8/9/06	1610	AH/DM	P-CLDY 68°F	0.43 4TH ST	2.36 W. ACCESS PT.	"	"	NRC HAS CLEANED UP AREA BETWEEN DAMS.
8/9/06	1815	AH/KD	P-CLDY 68°F	0.47 4TH ST	1.96 W. ACCESS PT.	slight sheen	slight sheen North of cofferdam	No sheen found downstream
8/10/06	0630	AH/DM	M-CLDY 58°F	0.51 4TH ST	2.18 W. ACCESS PT.	"	SHEEN OUTSIDE IS GONE	CAL CK 0.02 → 0.00 20.0 → 19.89
8/10/06	1030	AA/DM	CLDY 59°F	0.72 4TH ST	2.27 W. ACCESS PT.	"	SLIGHT SHEEN	

* Downstream measurement taken 80' from shore, 300' downstream from project area.

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Between Cofferdams	Outside Cofferdams	
8/10/06	1530	AH/SA	cloudy 61°F	0.58 4th St	3.80 W. Access Pt	SLIGHT SHEEN	LIMITED SLIGHT SHEEN	
8/10/06	1850	SA/AH	cloudy 60°F	0.58 4th St	3.37 W. Access Pt	"	"	
8/11/06	0630	AH/DM	cloudy 53°F	0.69 4th St	4.19 W. Access Pt.	Slight SHEEN	Limited Slight sheen	
8/11/06	1110	AH/DM	Cloudy 56°F	0.57 4th St.	3.98 W. Access Pt.	SLIGHT SHEEN	"	
8/11/06	1435	SA/AH	Sunny 65°F	0.63 4th St.	10.08 W. Access Pt.	Slight sheen	Limited Slight sheen	CONFIRMATION 8.67
8/11/06	1609	SA/AH	Sunny 65°F	0.63 4th St.	10.79 W. Access Pt	SLIGHT SHEEN	LIMITED SLIGHT SHEEN	lower river flow than yesterday.
8/11/06	1800	SA/DM	Sunny 63°F	0.75 4th St.	10.76 W. Access Pt.	Slight sheen	None	
8/12/06	0625	SA/DM	Clear - partly mild 53°F	0.64 4th St.	3.64 W. Access Pt.	Slight sheen	None	
8/12/06	1100	SA/DM	Clear 70°F	0.87 4th St.	11.19 W. Access Pt.	Slight sheen	None	resample to confirm 10.37
8/12/06	1435	SA/DM	Clear + breezy 75°F	1.10 4th St.	5.56 W. Access Pt.	Slight sheen	None	
8/12/06	1650	SA/AB	Clear + breezy 73°F	1.15 4th St.	13.80 W. Access Pt.	Slight sheen	None	resample to confirm 9.20
8/13/06	0925	DM/FO	Clear + mild 65°F	1.15 4th St.	5.22 W. Access Pt	SLIGHT SHEEN	LIMITED SLIGHT SHEEN	
8/14/06	0630	DM/AH	Clear 55°F	0.97 4th St	1.50 W. Access Pt	Slight sheen	None	CONFIRMATION CHECK 0.02 → 0.02 20.0 → 19.56

* Compliance point is 80' North of shore and 300' West of project area

ex con in
cell 2, I
row.

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Between Cofferdams	Outside Cofferdams	
8/14/06	1025	AH/DM	Clear + warm 67°F	0.92 4th St.	3.25 W. Access Pt.	Slight residual sheen	None	
8/14/06	1455	DM/AB	Clear + warm 75°F	0.75 4th St.	11.50 W. Access Pt.	"	None	Crew working on Cell #2 sump removal.
8/14/06	1000	DM/MS	Clear 72°F	0.90 4th St.	5.77 W. Access Pt.	"	None	
8/15/06	0625	AH/DM	Clear 53°F	1.60 4th St.	5.87 W. Access Pt.	"	"	CAL CK 20.0 → 19.78 0.02 → 0.05
8/15/06	1115	MA/DM	Clear 60°F	0.79 4th St.	4.89 W. Access Pt.	"	"	
8/15/06	1430	AH/DM	Clear 70°F	1.73 4th St.	8.85 W. Access Pt.	"	"	
8/15/06	1555	AH/DM	Clear - p-cldy 67°F	—	6.19 W. Access Pt.	"	"	
8/15/06	1735	AH/DM	Cloudy 67°F	0.90 4th St.	5.74 W. Access Pt.	"	"	
8/16/06	0630	AH/DM	Cloudy 50°F	1.09 4th St.	3.03 W. Access Pt.	"	"	CALIBRATION CHECK 0.02 → 0.00 20.0 → 19.56
8/16/06	1130	AH/SA	Cloudy 60°F	0.68 4th St.	6.68 W. Access Pt.	SLIGHT SHEEN	SLIGHT SHEEN	CONFIRMATION 7.95
8/16/06	1855	AH/SA	Cloudy 63°F	0.60 4th St.	5.3 W. Access Pt.	N/A	SLIGHT SHEEN	
8/17/06	0630	AH/SA	Cloudy 55°F	0.99 4th St.	3.37 W. Access Pt.	N/A	Slight Sheen	Calibration check 0.02 → 0.01 20.0 → 19.64
8/17/06	1055	AH/SA	Clear 65°F	0.34 4th St.	4.60 W. Access Pt.	N/A	None	

* Compliance point is 300' down stream from project area and 80' from shore

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Between Cofferdams	Outside Cofferdams	
8/17/06	1255	SA/AH	SUNNY 65°F	0.41 4TH ST	22.3 W. ACCESS PT	N/A	SLIGHT SHEEN	W/ JEANNE TRAN M. BYERS 6.24
8/17/06	1845	AH/KH	CLEAR 60°F	0.74 4TH ST	27.1 W. ACCESS PT	N/A	SLIGHT SHEEN	
8/18/06	0225	AH/KH	clear 50	0.1.69 4TH ST	31.7 W. ACCESS PT	N/A	SLIGHT SHEEN	
8/18/06	1045	AH/MB	CLEAR 65°F	0.56 4TH ST	24.6 W. ACCESS PT	N/A	SLIGHT SHEEN	CONFIRMATION 29.5
8/18/06	1500	KH/AM	clear 70s	2.76 4TH ST	38.9 W. ACCESS PT			
8/18/06	1745	KH/AM	clear 70s	-	30.6 -	N/A	slight sheen	
8/18/06	1840	AH/KH	CLEAR 60°F	0.56 4TH ST	47.4 W. ACCESS PT	N/A	slight sheen	
8/19/06	630	AH/KH	clear 60s	0.72 4TH ST	26.8 W. ACCESS PT	N/A		
8/19/06	1030	AH/KH	CLEAR MID 70s	0.87 4TH ST	48.6 W. ACCESS PT	NA		
8/19/06	1440	AH/KH	clear 70s	0.84 4TH ST	13.3 W. ACCESS PT		slight sheen	
8/19/06	1800	AH/KH	CLEAR 80s	0.44 4TH ST	13.69 W. ACCESS PT			
8/19/06	1635	AH/KH			34.4 W. ACCESS PT			
8/2/06	0630	SA/DM	clear 55°F	0.20 4TH ST	2.70 W. ACCESS PT	N/A	Slight sheen	calibrated check

* Down stream compliance point 300' downstream from project area 2/3 of the way through the plume

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Between Cofferdams	Outside Cofferdams	
8/21/06	1105	SAH/DM	Partly cloudy 65°F	0.43 4th St.	71.5 W. Access Pt	N/A	Slight sheen Q Western end	75' from shore for compliance
8/21/06	1246	SAH/AH	partly cloudy 65°F	/	25.6 W. Access Pt	/	/	80' from shore work stopped @ 1200
8/21/06	1405	AH/DM	M. cloudy 72°F	/	47.9 W. Access Pt	/	/	80' from shore
8/21/06	1405	AH/DM	P. cloudy 75°F	0.27 4TH ST	47.9 W. ACCESS PT	N/A	SLIGHT SHEEN NRC WORKING ON IT.	80' FROM SHORE
8/21/06	1530	AH/SA	M. cloudy 75°F	/	23.0 W. ACCESS PT	/	/	80' FROM SHORE
8/21/06	1700	AH/DM	P. cloudy 76°F	/	11.39 W. ACCESS PT	/	/	11
8/21/06	1800	AH/SA	P. cloudy 76°F	0.37 4TH ST	26.8 W. ACCESS PT	N/A	/	80' from shore
8/21/06	1920	AH/SAH	P. cloudy	/	54.0 W. ACCESS PT.	N/A	SLIGHT SHEEN MODERATE IN PLACES. ALL WITHIN BOOMS	80' FROM SHORE
8/22/06	0625	AH/DM	Clear 52°F	0.34 4th St.	20.6 W. Access Pt.	N/A	/	cal cc 0.02 → 0.00 80' 20.0 → 23.4
8/22/06	0755	AH/DM	clear sunny 53°F	/	13.20 W. ACCESS PT	N/A	SLIGHT SHEEN	
8/22/06	0945	AH/SA	clear sunny 60°F	/	16.12 W. ACCESS PT	/	/	80' FROM SHORE
8/22/06	1110	AH/SA	clear, breezy 60°F	0.37 4th St.	39.1 W. Access Pt	N/A	Slight sheen	80' from shore
8/22/06	1335	AH/KJ	clear sunny 68°F	/	48.5 W. ACCESS PT	N/A	/	80' FROM SHORE

* Down stream compliance point is 300' down stream of project area, 2/3 of the way through the plume of turbid water

small
downs.
sheen
in place
outside

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Between Cofferdams	Outside Cofferdams	
8/22/06	1450	AH/DM	SUNNY BREEZY 65°F	0.23 4TH ST	35.4 W. ACCESS PT	N/A	Slight sheen ↑ turbidity w/c installing trench C#3	80' OUT FROM S HOPE DOWNS TRENCH
8/22/06	1605	AH/DM	Sunny + breezy 65°F	—	34.9 W. Access Pt.	N/A	—	84' out from DS Shoreline
8/22/06	1725	DM/SA	Sunny + breezy 65°F	0.19 4TH ST	23.1 W. Access Pt.	N/A	Slight sheen inside bums	85' from shore. w/c still trenching in C#3
8/22/06	1850	SA/DM	Sunny + 65°F	—	17.27 W. Access Pt.	—	—	75' from shore 1830 hr - Work done for the day
8/23/06	0625	SA/DM	overcast 50°F	0.46 4TH ST	6.46 80' from shore	N/A	limited mod. sheen min bums	Calibration check 0.02 → 0.00 20.10 → 23.7
8/23/06	0725	SA/AP	"	—	7.09 80' from shore	—	—	confirm: 7.33 NTU
8/23/06	0852	SA/DM	"	—	4.63 82' from shore	—	—	Calibrated at 0845 confirm: 4.63 NTU
8/23/06	1300	AH/SA	D. CLOUDY MID 60'S	0.46 4TH ST	10.81 W. ACCESS PT. 82' from shore	N/A	limited slight sheen drops of N/A V. V. V. V.	confirm 13.40 NTU NRC working outside confirm 7.48 NTU
8/23/06	1440	AH/SA	P. Cloudy 60'S	—	9.01 81' from shore	—	—	confirm 7.37
8/23/06	1600	AH/KD	D. CLOUDY 65°F	—	7.17 81' FROM SHORE	—	—	confirm 7.37
8/23/06	1720	AH/KD	D. CLOUDY 65°F	0.25 4TH ST	7.48 81' FROM SHORE	N/A	MODERATE SHEEN @ W. END ALL INSIDE BUMS	confirm 8.08
8/24/06	0620	AH/DM	Cloudy 54°F	0.73 4TH ST	7.34 80' from shore	N/A	Slight sheen within bums; mod turb. in river outside bums	CAL CC 0.02 → 0.00 20.10 → 20.2
8/24/06	0830	AH/DM	"	—	5.53 80' FROM SHORE	N/A	"	confirming 7.16

* Compliance point is 300' down stream of project area,
2/3 of the way through the turbidity plume

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Between Cofferdams	Outside Cofferdams	
8/24/06	1200	AH/DM	Clear-M-Clky 65°F	0.40 3rd St.	—	—	—	100' upstream of 3rd Street
8/24/06	1210	AH/DM	Clear-M-Clky 65°F	0.51 4th St.	8.27 W. Access Pt.	N/A	Slight sheen w. thin booms, turbidity leaking into river	9.55 NTU Verifying 81' from Shore / DS Compl.
8/24/06	1330	AH/KD	P. CLOUDY 65°F	—	8.58 W. ACCESS PT	81' FROM SHORE	—	CONFIRM 6.44
8/24/06	1430	AH/KD	H	—	13.72 W. ACCESS PT	82' FROM SHORE	—	CONFIRM 12.77
8/24/06	1610	AH/KD	M. CLOUDY 65°F	0.27 4TH ST	10.63 W. ACCESS PT	83' N/A	SLIGHT/MODERATE SHEEN @ WEST END	CONFIRM 10.69
8/24/06	1720	AH/KD	N. CLOUDY 61°F	—	12.09 W. ACCESS PT	83' N/A	MODERATE SHEEN AND SLIGHT PROX ALL WITHIN BOOMS	CONFIRM 10.94
8/25/06	0630	AH/DM	M. CLOUDY MID 80s	1.42 4TH ST	4.90 W. ACCESS PT	N/A	Visible sheen outside of Cofferdam boom	Visible sheen at DS Compliance Pt.
8/25/06	1110	AH/DM	M. Sunny warm L-70's	0.73 4th St.	15.26 W. Access Pt 83'	N/A	Slight sheen within booms, turbidity leaking into river	confirm 16.09
8/25/06	1325	AH/KD	CLEAR MID SUNNY 70s	—	29.2 83'	N/A	—	CONFIRM 19.3
8/25/06	1500	AH/KD	CLEAR SUNNY MID 70s	0.36 4TH ST	13.74 83' FROM SHORE	N/A	MODERATE SHEEN OUTSIDE. NRC WORKING ON IT	CONFIRM 14.24
8/25/06	1700	AH/DM	CLEAR SUNNY MID 70s	—	10.80 83' FROM SHORE	N/A	—	CONFIRM 10.39
8/25/06	1915	SA/DM	Clear to P. cloudy 70	0.31 4th St.	6.75 83' from shore	N/A	Mod. sheen within booms	confirm 5.51
8/26/06	0630	SA/DM	Clear 55°F	0.87 South of Deli	3.36 75' from shore	N/A	Unusual sl. to mod sheen w/in booms	0.02 → 0.00 20.0 → 20.1

* Samples collected 300' downstream of coffer dam

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Between Cofferdams	Outside Cofferdams	
8/26/06	1045	SA/DM	Sunny clear 70°F	0.96 Shallow 1.22 Deep 4th St.	3.43 75' from shore	N/A	Mod sheen from New Corner b. dam. w/in booms	
8/26/06	1435	SA/DM	Sunny + warm 80°F	0.37 4th St.	15.99 84' from shore	N/A	—	confirm 18.11
8/26/06	1620	SA/DM	"	—	16.54 84' from shore	—	Visible product inside of booms	NRC to address product.
8/26/06	1735	SA/DM	"	0.74 4th St.	21.9 75' from shore	—	—	confirm 21.5
8/28/06	0630	AH/DM	Clear MID 50's	0.61 4th St.	2.89 80' from shore	N/A	SOME SHEEN C.W. EN CONTAINED WITHIN BOOMS, FROM BOOM SWEEP	CAL CHECK 0.62 → 0.00 26.0 → 27.9.85
8/28/06	1050	AH/DM	Clear 70°F	0.86 4th St.	1.90 77' from shore	N/A	Slight turbidity + sheen within booms	
8/28/06	1445	AH/DM	Clear MID 70's	0.54 4th St.	2.54 80' from shore	N/A	Slight to Mod. turbidity, sheen outside of boom within booms	
8/28/06	1835	SA/DM	Clear L-70's	0.42 4th St.	26.1 84' from shore	N/A	same	27.0 ← Confirm
8/29/06	0625	AH/DM	M-Cloudy + cool L-50's	0.87 4th St.	4.90 75' from shore	N/A	Slight turbidity + slight sheen outside of boom within boom	CAL CK. 0.02 → 0.00 20.0 → 20.1
8/29/06	1100	AH/SA	M-Cloudy MID 50's	0.83 4th St.	3.15 80' from shore	N/A	Slight sheen outside to mid Cofferdam. within boom	slight turbidity outside of boom
8/29/06	1335	AH/DM	M-Cloudy L-60's	0.76 4th St.	2.31 77' from shore	N/A	Slight sheen outside of boom within boom slight turb	
8/29/06	1745	AH/DM	M-Cloudy L-60's	25.8 4th St.	25.8 82' from shore	N/A		confirming 25.7 > 25 NTU
					18.23 Maloney Crk. 3rd off shore	N/A	—	

Work
stopped
@ 1700

* Samples collected 300' Down Stream of project area 2/3 of the way through the phase from South shore

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream*	Between Cofferdams	Outside Cofferdams	
8/29/06	1745	AH/DM	M- Cldy L-60's	—	8.81 1000' DS	—	—	—
8/29/06	1845	AH/DM	M- Cldy L-60's	(0.67 at 1745 hrs)	37.0 81' from Shore	DS Compliance Pt	—	>25 NTU
↓	↓	↓	↓	—	27.4 Maloney Crk 30' from shore	—	—	—
↓	↓	↓	↓	—	10.81 1000' DS	—	—	—
8/30/06	0630	AH/DM	RAINING MID 50's	0.75 4TH ST	4.40 73' DS FROM SHORE	N/A	SLIGHT SHEEN WITHIN BOOMS	CALIBRATION CHECK 0.02 ⇒ 0.00 20.6 ⇒ 20.3
8/30/06	1050	AH/DM	"	0.96 4TH ST	3.5 75' FROM SHORE	N/A	SLIGHTEST SHEEN WITHIN BOOMS. SLIGHT TURBIDITY	
8/30/06	1500	AH/SA	RAINING MID 50's	0.53 4TH ST.	33.7 77' FROM SHORE	N/A	—	CONFIRM 41.5 @ 1520
8/30/06	1530	AH/SA	"	—	18.52 MALONEY	55' FROM SHORE	—	
8/30/06	1550	AH/SA	"	—	10.44 1000' DS	20' FROM SHORE	—	
8/30/06	1645	AH/SA	Partly cloudy, M-50's	—	91.3 73' from shore	—	—	Confirm 87.2
8/30/06	1655	↓	↓	—	55.16 Maloney	33' from shore	—	
8/30/06	1710	↓	↓	—	28.9 1000' from project	15' from shore	—	
8/30/06	1810	SAH/AH	Partly cloudy	—	119 73' FROM SHORE	—	—	CONFIRM @ 1815 119

* Down Stream Compliance point ~ 300' down stream from project area, 1/2 way through plume

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Between Cofferdams	Outside Cofferdams	
8/30/06		AH/SA	MOSTLY CLOUDY MID 50s	—	24.2	MALONEY CRK 40' FROM	SHORE	
8/30/06	1900	"	"	—	18.11	1,000 ft. from project area,	20' from shore	
8/30/06	1904	"	"	—	9.27	1,000 ft. DS 6' from shore	Sl. Sheen @ NW corner of Wilcocks. Turbidity.	
↓	1940	AH/SA	PUCKY MIDS 50's	—	15.9	68' from shore, compliance point.	Plume has remained. confirm 148	appears concern NTU
↓	1945	↓	↓	—	34.9	Maloney Creek 33' from shore		
↓	1955	↓	↓	—	12.05	1,000' Downstream 12' from shore		
8/31/06	0630	AH/DM	Cloudy + cool U-40's	0.79 4th St.	11.20 72' from shore	N/A	Slight sheen visible outside C-dam within hours	CAL CK 0.02 → 0.00 20.0 → 20.1
8/31/06	0800	AH/DM	CLOUDY MID 50s	—	5.52 74' FROM SHORE	—	—	—
8/31/06	1155	AH/DM	MOSTLY CLEAR HIGH 60's	0.69 4th St.	6.74 77' FROM SHORE	N/A	No sheen visible outside Cofferdams	CONFIRM 6.65
8/31/06	1315	AH/DM	Clear + mild U-60's	—	6.73 77' from Shore	—	—	—
8/31/06	1415	AH/DM	Clear L-70's	0.38 4th St.	8.13 75' FROM SHORE	—	Slight sheen	—
8/31/06	1515	AH/DM	Clear L-70's	—	53.2 78' from shore	—	—	—
↓	↓	↓	↓	—	33.8	Maloney Creek 34' from Shore		

* Samples collected 1/2 way through plume when visible

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity	Oil Sheen	Comments
8/31/06	1530	AX/bm	Clear + mild L-70's	18.58	1000' DS of Project Area 20' off shore	
8/31/06	1625	AX/bm	Clear L-70's	74.5	78' from shore	
"	1630	"	"	59.1	35' from shore	Marlowy ckr
"	1635	"	"	20.5	20' from shore	1000' DS
8/31/06	1725	SM/Dm	Clear L-70's	13.5	73' from shore	126 - current
8/31/06	1735	SA/bn	↓	57.0	33' from shore	Marlowy Creek
8/31/06	1740	SM/Dm	↓	13.6	20' from shore	from Project Area
8/31/06	1830	SM/Dm	Clear L-70's	0.51	172	slight toward shore in bottom
8/31/06	1945	SA/bm	↓	49.9	73' from shore	N/A
8/31/06	1857	↓	↓	13.81	8' from shore	1000' DS from Project Area
8/31/06	1935	↑	↑	3.11	15' from shore	2' in between Boom line #1
9/1/06	0630	AX/Dm	Clear High 40's	0.91	74' from shore	CALIBRATION CHECK 0.00 → 0.00 30.0 → 30.3
"	800	AX/bm	Clear High 40's	8.28	74' from shore	300' DS

* Samples collected 1/2 way through plume when visible

1-wing down rotated

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Between Cofferdams	Outside Cofferdams	
9/1/06	0915	SA/DM	Clear L-60's	—	78.6 77' from S. shore			center 78.7 plume ~ 20' wide - narrow
↓	0920	↓	↓	—	34.8 35' from shore	Maloney Creek		
↓	0925	↓	↓	—	10.61 20' from shore	200' Down stream		plume extends 1/2 way across active chan
9/1/06	1010	AH/DM	Clear L-60's	0.80 4TAST	183 80' from Shore			Plume ~ 20' wide
↓	1015	↓	↓	—	109 44' from shore	Maloney Creek		
↓	1020	↓	↓	—	38.6 20' from shore	1000' Down Stream		
9/1/06	1115	SA/DM AH	Clear MID 60's	—	297 76' FROM SHORE	300' DS		
↓	1120	↓	↓	—	139 35' FROM SHORE	C MALONEY CREEK		
↓	1125	↓	↓	—	38.6 20' FROM SHORE	1000' DS		
9/1/06	1215	AH/DM	Clear + mild M-60's	—	189 74' from Shore			
↓	1220	↓	↓	—	68.1 32' from Shore	Maloney Creek		
↓	1225	↓	↓	—	17.8 20' from Shore	1000' DS		
9/1/06	1310	AH/DM	Clear L-70's	0.36 4TAST	101 74' FROM SHORE	300' ASH 915/06 1000' DS		

9/1/06 1320 AH/DM 11 — 28.0 MALONEY CREEK 30' FROM SHORE

9/1/06 1330 AH/DM 11 — 6.52 1000' DS 20' FROM SHORE

* Samples collected 1/2 way through plume when visible

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Between Cofferdams	Outside Cofferdams	
9/1/06	1410	SA/AH/DM	Clear + light breeze L-70's	—	59.2 72' from shore			Turbidity plume narrow to ~15 ft width
↓	↓	↓	↓	—	10.39 30 ft from shore	Maloney Crk.		
↓	↓	↓	↓	—	3.36 20 ft from shore	@ 1000 ft DS		
9/5/06	0625	AH/DM	Clear + cool L-50's	0.68 4th St	2.49 70' from shore	N/A	VERY SLIGHT SHEEN @ WEST END	CALIBRATE MTR
9/5/06	1045	AH/AJ	CLEAR U-60's	1.30 4TH ST	27.0 74' FROM SHORE			CONFIRM 25.0 @ 1105
9/5/06	1210	AH/AJ	"	—	51.8 77' FROM SHORE			CONFIRM 49.5 @ 1215
9/5/06	1315	AH/DM	Clear + mild U-60's	—	78.5 76' From Shore		Very slight sheen outside C-dam within beams	
↓	1320	↓	↓	—	31.9 30' from shore	Maloney Crk.		
↓	1335	↓	↓	—	9.81 20' from shore	1000 DS		
9/5/06	1440	AH/DM	CLEAR M10 70's	0.96 4TH ST	38.3 74' FROM SHORE	300' DS	SLIGHT SHEEN @ WEST END	
↓	1455	↓	↓	—	11.61 35' FROM SHORE	MALONEY CREEK		
↓	1505	↓	↓	—	2.80 20' FROM SHORE	1000' DS		
9/5/06	1555	AH/DM	Clear + mild M-70's	—	24.4 75' From Shore	Compliance Pt		

* Samples collected 1/2 way through plume when visible

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Between Cofferdams	Outside Cofferdams	
9/5/06	1600 ^{4th} 1500	AH/DM	Clear - M-L M-70's	—	9.71 30' from shore	Maloney Crk.		
↓	1605 ^{4th} 1505	↓	↓	—	3.62 20' from shore	1000' DS		
9/5/06	1715	DM/SA	↓	—	2.49 77' from shore	300' DS		
↓	1723	↓	↓	—	92.1 35' from shore	Maloney Creek		
↓	1730	↓	↓	—	25.7 20' from shore	1,000' DS		
↓	1745	↓	↓	—	2.03 20' from shore	NO plume visible just above boom line #1		
9/5/06	1841	DM/SA	clear L-70's	0.63	304 73' from shore	N/A	Slight sheen within booms outside of dam	In waterway - booms - stopped @ 1830 plume is closer to shore
↓	1855	↓	↓	—	101 35' from shore	Maloney Creek		
↓	1900	↓	↓	—	21.8 20' from shore	1,000' DS		
↓	1915	↓	↓	—	7.49 15' from N shore	300' DS just above boom line #1		
9/6/06	0630	AH/DM	CLEAR L-50's	0.64 4TH ST	7.89 74' FROM SHORE	300' DS	Very slight sheen Outside booms within booms	CALIBRATION CHECK 0.02 → 0.66 20.0 → 20.2
9/6/06	0740	AH/DM	Clear M-50's	—	7.37 74' f/shore	—	—	—
9/6/06	0840	AH/DM	Clear M-50's	—	7.30 74' f/shore	—	—	—

* Sample collected 1/2 way through plume when visible

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Between Cofferdams	Outside Cofferdams	
9/6/06	0945	AH/DM	Clear M-60's	—	5.31 74' f/shore	—	—	
9/6/06	1425	AH/MB	Clear M-10's	0.59 4TH ST.	7.08 73' FROM SHORE	N/A	NO VISIBLE SHEEN BUT SLIGHTLY TURBID	
9/6/06	1545	AH/SA	Clear H-70's	—	55.4 74' FROM SHORE	~300' DS from project		
↓	1550	AH/SA	↓	—	21.0 90' FROM SHORE	Maloney Creek		
↓	1627	↓	↓	—	11.46 20' from shore	1,000' Down stream		
↓	1639	↓	↓	—	1.25 12' from shore	~2,500' Downstream	Slight sheen within bays at northern end of dam.	
9/6/06	1745	SA/AH	Clear M-70's	—	12.59 20' from shore	1,000' Downstream		
↓	1750	SA/AH	"	—	75.0 77' FROM SHORE	300' DS		CONFIRM 52.4
↓	1800	SA/AH	"	—	36.4 47' FROM SHORE	MALONEY CREEK		
↓	1815	↓	↓	—	4.25 12' from shore	~2,500' Down stream		
↓	1852	↓	↓	79.4 78' FROM SHORE	0.51 4TH ST.	N/A		CONFIRM 76.0
↓	1900	↓	↓	—	0.39 48' FROM SHORE	MALONEY CREEK		
↓	1916	↓	↓	—	11.14 20' from shore	1000' DS		

1927
* Sample collected 1/2 way through plume when visible.

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Between Conerdams	Outside Conerdams	
9/7/06	0630	AM/DM	Clear + cool u-40's	0.92 4th St.	4.40 72' f / Shore	N/A	Slight sheen outside Conerdams within booms	CAL CK 0.02 $\Rightarrow$ 0.08 20.0 $\Rightarrow$ 20.3
9/7/06	1045	AM/SA	CLEAR MID 60's	1.09 4TH ST	25.9 75' from shore	N/A	LIMITED SLIGHT SHEEN WITHIN BOOMS	
9/7/06	1200	AM/SA	Clear, Sunny	—	16.52 74' from shore	—	—	
9/7/06	1330	AM/AB	CLEAR SUNNY MID 60's	—	39.7 75' FROM SHORE 300' DS	—	—	
9/7/06	1342	AM/AB	"	—	14.75 35' FROM SHORE AT MALONEY CREEK	—	—	
9/7/06	1410	AM/AB	"	—	6.49 20' FROM SHORE 1000' DS	—	—	
9/7/06	1530	AM/DM	SUNNY L-70's	0.60 4TH ST	22.1 74' FROM SHORE 300' DS	—	Very slight sheen within boom	
9/7/06	1710	AM/DM	Sunny L-70's	—	9.10 72' from Shore @ 300' DS	—	—	
9/7/06	1830	AM/DM	SUNNY MID 70's	0.55 4TH ST	5.68 74' FROM SHORE @ 300' DS	—	VERY SLIGHT SHEEN WITHIN BOOM	
9/8/06	0625	AM/DM	Clear + cool u-40's	0.74 4th St.	32.0 75' From Shore @ 300' DS	—	SLIGHT SHEEN AT WEST END WITHIN BOOM	CAL CK 0.02 $\Rightarrow$ 0.08 20.0 $\Rightarrow$ 20.3
9/8/06	0745	AM/DM	Clear + cool L-50's	—	4.06 20' from shore @ 1000 FT DS	—	—	
9/8/06	0800	AM/DM	"	—	24.1 76' FROM SHORE 300' DS	—	—	
"	0805	"	"	—	10.93 MALONEY CREEK 35' FROM SHORE	—	—	

* Sample collected 1/2 way through plume when visible.

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Between Cofferdams	Outside Cofferdams	
9/8/06	0905	AH/DM	Clear L-60's	—	19.95 75' from shore @ 300' DS			
9/8/06	1025	AH/DM	Clear MID 60's	1.2 4TH ST	23.2 76' FROM SHORE 300' DS		VERY SLIGHT SHEEN INSIDE BOOMS	
9/8/06	1150	AH/DM	Clear M.L-60's	—	49.7 75' from shore @ 300' DS			
	1155			—	20.2 35' from shore @ Maloney Crk.			
	1200			—	7.92 20' from shore @ 1000-ft DS			
	1220			—	3.21 12' from shore @ Pool @ Boman Line #1			
	1225			—	2.69 15' from shore @ Rapids US from Boman Line #1			
9/8/06	1315 1435	AH/DM	Clear + brzy M-60's	—	49.7 76' from shore @ 300' DS			
	1320			—	20.3 35' from shore @ Maloney Crk.			
	1325			—	6.36 20' from shore @ 1000-ft DS			
9/8/06	1435	AH/DM	Clear + brzy M-60's	0.64 4TH ST.	54.4 75' from shore @ 300' DS (@ 1500 ft DS)			49.5 Verification
	1445			—	5.50 20' from shore @ 1000 ft DS			
	1505			—	16.91 32' from shore @ Maloney Crk			

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Between Cofferdams	Outside Cofferdams	
9/9/06	0950	SW/DM	P. cloudy u-50's	—	10.67 40' from shore @ Maloney Crk.			
↓	0955	↓	↓	—	3.58 20' from shore @ 1000-FT DS			
9/9/06	1100	SW/DM	M. cloudy u-50's	1.03 4th St	51.0 73' from shore @ 300' DS		Very slight sheen within basin outside c-dam	
↓	1110	SW/DM	↓	—	19.03 40' from shore @ Maloney Crk.			
↓	1120	SW/DM	↓	—	5.96 20' from shore @ 1000-FT DS			
↓	1220	SW/DM	↓	—	30.3 75' from shore @ 300' DS			
↓	1225 1230	SW/DM	↓	—	11.6 40' from shore @ Maloney Crk.			
↓	1230	SW/DM	↓	—	4.01 20' from shore @ 1000' DS			
↓	1340	SW/DM	↓	—	51.2 51.2 74' from shore @ 300' DS			Confirmation 49.8 @ 1344
↓	1350	SW/DM	↓	—	15.4 40' from shore @ Maloney Crk.			
↓	1355	SW/DM	P. sunny u-50's	—	5.11 20' from shore @ 1000' DS			
↓	1500	SW/DM	P.m. cloudy m-50's	0.76 4th St	0.76			
↓	1505	SW/DM	↓	—	88.0 75' from shore @ 300' DS			

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Between Cofferdams	Outside Cofferdams	
9/9/06	1510	SW/DM	m. cloudy m-50's	—	23.0 40' from shore @ Maloney Crk			
9/9/06	1514	↓	↓	—	6.28 20' from shore @ 1000' DS			
9/9/06	1535	SW/DM	↓	—	6.79 15' from shore @ Boomline Pool			
9/9/06	1710	SW/DM	m. cloudy m-50's	—	103.0 70' from shore @ 300' DS			
9/9/06	1715	SW/DM	MIST m. cloudy m-50's	—	41.2 40' from shore @ Maloney Crk			
↓	1720	SW/DM	m. cloudy m-50's	—	10.33 20' from shore @ 1000' DS			
↓	1750	↓	↓	—	2.56 15' from shore @ Boomline Pool			
9/11/06	0630	AH/DM	M. CLEAR MID 40's	0.55 4TH ST	9.29 75' FROM SHORE 300' DS	No visible sheen around c-dam alignment beams		CALIBRATED METER CONFIRM 9.79
9/11/06	0800	AH/DM	CLEAR SUNNY L-30's	—	31.3 75' FROM SHORE 300' DS			CONFIRM 22.9
9/11/06	0955	AH/DM	Clear + Sunny U-50's	—	47.9 77' from shore @ 300' DS			
↓	1000	↓	↓	—	24.2 30' from shore @ Maloney Crk			
↓	1005	↓	↓	—	6.93 20' from shore @ 1000' DS			
9/11/06	1100	AH/DM	clear UPPER 60's	1.00 4TH ST	49.3 77' FROM SHORE 300' DS			

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Between Cofferdams	Outside Cofferdams	
9/11/06	1115	AH/DM	SUNNY H-60S	—	18.85 40' FROM SHORE @ MALONEY CREEK			
↓	1120	↓	"	—	5.77 20' FROM SHORE 1000' DS			
9/11/06	1230	AH	"	—	72.2 75' FROM SHORE 300' DS			CONFIRM 76.8
9/11/06	1240	AH	"	—	36.3 30' FROM SHORE @ MALONEY CREEK			
9/11/06	1340	AH	SUNNY L-70S	—	171 76' FROM SHORE 300' DS			
↓	1345	AH/DM	"	—	63.9 40' FROM SHORE @ MALONEY CREEK			
↓	1350	AH/DM	"	—	14.27 20' FROM SHORE 1000' DS			
9/11/06	1510 1410	AH/DM	Sunny M-70S	0.29 4TH ST	231 75' FROM SHORE @ 300' DS			
↓	1516 1416	↓	↓	—	92.2 30' FROM SHORE @ Maloney CR.			
↓	1520 1420	↓	↓	—	19.35 25' FROM SHORE @ 1000-FT DS			
9/11/06	1555	"	"	—	5.27 2500' DOWNSTREAM, 15' FROM SHORE			
9/11/06	1720	AH/DM	SUNNY H-70S	—	256 76' FROM SHORE 300' DS			
"	1725	"	"	—	98.8 40' FROM SHORE @ MALONEY CREEK			

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Between Cofferdams	Outside Cofferdams	
9/11/06	1730	AH/DM	SUNNY #-70s	—	25.6 20' FROM SHORE 1000' DS			
↓	1745	↓	↓	—	5.76 12' FROM SHORE @ Pool @ 1 st Baseline			
9/11/06	1845	AM/4A	clear M-60's	0.23 4m st	381 76' from shore			25' wide plume along S. Bank
↓	1855	↓	↓	—	123 40' from shore Maloney Creek			
↓	1900	↓	↓	—	32.2 26' from shore 1,000' DS			
↓	1912	↓	↓	—	8.40 15' from shore @ Pool @ 1 st baseline			
9/12/06	0630	AH/DM	Clear + cool U-40's	1.28 4m st	52.1/51.2 76' 1/1st sec	N/A	N/A	CAL CK 0.02 ⇒ 0.06 20.9 ⇒ 20.4 Min 10-15 4-14 20-25 FT wide Turbidity
↓	0720	SA/DM	Clear + cool U-40's	—	42.5 74' 1/1st sec			
↓	0735	↓	↓	—	14.55 50' 1/1st sec @ Maloney Crk.			
↓	0743	↓	↓	—	4.73 20' from shore 1,000' Downstream			
9/12/06	0840	AH/DM	Clear SUNNY 50s	—	32.5 74' FROM SHORE 300' DS			
↓	0845	↓	↓	—	12.66 40' FROM SHORE @ MALONEY CREEK			
↓	0850	↓	↓	—	3.43 25' FROM SHORE 1000' DS			

5-12-0
10-15' DS
20-25' wide
Turbid channel

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Between Cofferdams	Outside Cofferdams	
9/12/06	0953	SA/AH	ply cloudy L-60's	—	25.3 75' from shore	plume ~ 12' wide		
9/12/06	1120	SA/AH	clear M-60's	1.15 4th st	33.9 77' from shore	plume ~ 18' wide		
↓	1132	↓	↓	—	18.31 30' from shore	Maloney Creek Confluence		
↓	1140	↓	↓	—	7.60 20' from shore	1,000' Down stream		
9/12/06	1245	AH/DM	clear L-70's	—	51.1 77' FROM SHORE			CONFIRM
↓	1250	AH/DM	"	—	25.7 40' FROM SHORE @ MALONEY CREEK			
↓	1255	"	"	—	8.08 25' FROM SHORE 1000' DS			
9/12/06	1407	AH/SA	clear MID 70's	—	76.2 74' FROM SHORE	300' DS 20' WIDE PLUME		
↓	1412	↓	↓	—	30.1 50' FROM SHORE @ MALONEY CREEK			
↓	1425	↓	↓	—	10.93 20' FROM SHORE	1000' DS 45' WIDE PLUME		
9/12/06	1540	AH/DM	"	0.23 4th st	69.7 78' FROM SHORE	22' WIDE PLUME		
9/12/06	1555	"	"	—	29.3 40' FROM SHORE @ MALONEY CREEK			
"	1600	"	"	—	9.88 25' FROM SHORE 1000' DS			

* Samples collected 1/2 way through plume
 * coffer dam removal taking place

TURBIDITY OBSERVATION LOG SHEET

N/A

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Between Conduits	Outside Conduits	
9/12/06	1757	AH/DS	SUNNY MID 70S	0.24 4TH ST	94.3 75' FROM SHORE	300' DS		
9/12/06	1759	AH/DFS	"		46.1 35' FROM SHORE @ MALONEY CRK			
9/12/06	1800	AH/DFS	"		14.97 20' FROM SHORE @ 1000' DOWNSTREAM			
9/12/06		AH/DFS	"	0.24	94.3			
9/13/06	0625	AH/SA	PARTLY CLOUDY 4-40'S	0.54 4TH ST	23.10 77' FROM SHORE	16' WIDE		Check cal 0.02 $\Rightarrow$ 70.00 20.0 $\Rightarrow$ 20.2
9/13/06	0810	AH/SA	OVERCAST M 50'S	—	21.3 74' FROM SHORE	14' WIDE		
9/13/06	0935	AH/SA	↓	—	20.4 77' FROM SHORE	18' WIDE		
9/13/06	1055	AH/SA	↓	—	16.36 76' FROM SHORE	18' WIDE		
9/13/06	1215	AH/AJ	CLOUDY MID 50S	0.37 4TH ST	23.6 77' FROM SHORE	300' DS	16' WIDE	
9/13/06	1328	AH/SA	"	—	94.3 77' FROM SHORE	300' DS	18' WIDE PLUME	
↓	1333	↓	↓	—	57.9 35' FROM SHORE @ MALONEY CREEK			
↓	1341	↓	↓	—	14.55 20' FROM SHORE	1000' DS		
9/13/06	1455	AH/SA	CLOUDY MID 50S	0.40 4TH ST	189 77' FROM SHORE	20' WIDE PLUME		

* Samples collected 1/2 way through plume

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Between Gaterdams	Outside Gaterdams	
9/12/06 9/12/06	1512	AH/SA	cloudy MID 50s	✓	95.0 45' FROM SHORE @ MALONEY CREEK			30' WIDE PLUME
"	1527	"	"	✓	27.0 20' FROM SHORE 1000' DS			
"	1602	AH/KD	"	✓	6.59 2500' DS 12' FROM SHORE			
9/12/06 9/12/06	1709	AH/KD	"	✓	345 76' FROM SHORE 20' WIDE PLUME			300' DS
↓	1717	↓	↓	✓	190 30' FROM SHORE 30' WIDE PLUME			
↓	1725	↓	↓	✓	45.9 20' FROM SHORE 1000' DS			
9/13/06	1850	AH/KD	"	040 4TH ST	345 77' FROM SHORE 300' DS			20' WIDE PLUME
9/13/06	1905	AH/KD	"	✓	198 30' FROM SHORE @ MALONEY CREEK			40' WIDE PLUME
9/13/06	1917	AH/KD	"	✓	58.2 5' FROM SHORE 1000' DS			
9/14/06	0630	AH/DM	cloudy E-50s	1.29 4TH ST	10.48 75' FROM SHORE AT COMPLIANCE PT			0.02 @ 0.00 200 @ 20.2 15' Plume width
9/14/06	0815	AH/DM	RAINING L-50s	4TH ST	10.32 78' FROM SHORE 300' DS			15' WIDE PLUME
9/14/06	0930	AH/DM	Overcast. w/lt-rain. 50s	✓	36.2 77' FROM SHORE AT COMPLIANCE PT.			
"	0945	"	"	✓	25.6 35' FROM SHORE 1000' DS AT MALONEY CREEK			

* Sampled 1/2 way through plume

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Between Cofferdams	Outside Cofferdams	
9/14/06	0945	AH/DM	RAINING MID 50s	/	10.5 25' FROM SHORE	1000' DS		
9/14/06	1036	AH/DM	"	1.75 4TH ST	70.8 78' FROM SHORE	20' WIDE PLUME		CONFIRM 68.3
↓	1105	↓	↓	/	49.7 35' FROM SHORE @ MALONEY			
✓	1105	↓	↓	/	17.69 25' FROM SHORE	1000' DS		
9/14/06	1210	AH	"	/	78.2 77' FROM SHORE	300' DS 20' WIDE PLUME		
↓	1235	AH/DM	"	/	37.8 30' FROM SHORE @ MALONEY CREEK			
✓	1235	AH/DM	"	/	12.59 25' FROM SHORE	1000' DS		
9/14/06	1337	AH/DM	"	/	22.4 80' FROM SHORE	25' WIDE PLUME 300' DS		
↓	1355	↓	"	/	24.7 30' FROM SHORE @ MALONEY CREEK			
✓	1400	↓	"	/	88.3 20' FROM SHORE	1000' DS		
9/14/06	1515	AH/DM	"	0.40 4TH ST	29.3 79' FROM SHORE	25' WIDE PLUME		
↓	1545	AH/DM	"	/	23.7 30' FROM SHORE @ MALONEY CREEK			
✓	1600	AH/DM	"	/	54.7 25' FROM SHORE	1000' DS		

* Sampled 1/2 way through plume

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity	Oil Sheen	Comments
9/14/06	1630	At/DN	cloudy mid SWS	/	19.56	2500' Down TREAT 12' FROM SHORE
9/14/06	1810	At/DN	cloudy M-SWS	0.86 4m st.	60.8	71' FROM SHORE 15' WIDE PLUME 300' DS
9/14/06	1830	At/DN	"	/	86.5	30' FROM SHORE @ Maturity
"	"	"	"	/	8.86	25' FROM SHORE 100' DS
9/15/06	0630	"	"	0.42 4m st.	6.28	73' FROM SHORE 300' DS
9/15/06	0805	At/ST	"	/	7.93	75' FROM SHORE 9' WIDE PLUME
9/15/06	0930	At/DN	cloudy mid SWS	/	12.50	76' FROM SHORE 8' WIDE PLUME
9/15/06	102	At/DN	"	0.92 9TH ST	15.22	75' FROM SHORE 12' WIDE PLUME
9/15/06	1240	SA/DN	overcast M-SWS	/	88.4	Wider just finished placing odd 1 boulders 73' from shore 18' wide plume per DFO request
9/15/06	1305	SA/DN	"	/	48.1	40' from shore Maloney Creek - 20' wide
9/15/06	1310	"	"	/	11.62	20' from shore 1.00' DS 30' wide
9/15/06	1325	"	"	/	2.90	under Buoy line #1 - pool 15' from shore
9/15/06	1333	"	"	/	3.35	15' from shore 2.66' DS

* sampled 1/2 way through plume when visible

well
0.0270
20.10 #19

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Between Coff-dams	Outside Coff-dams	
9/15/06	1500	AH/DM	Overcast + raining	✓	40.3 75' FROM SHORE @ Compliance Pt.			15' plume width
↓	1520	↓	↓	✓	99.3 35' FROM SHORE @ MALONEY			
↓	1520	↓	↓	✓	22.6 20' FROM SHORE 1000' DS			
9/15/06	1640	SA/DM	Mc cloudy + cool w. SO's	0.66 4TH ST.	69.3 76' from shore @ Compliance point.			15' plume width
↓	1705	↓	↓	✓	37.4 40' from shore @ Maloney Creek			
↓	1715	↓	↓	✓	8.26 20' from shore @ 1,000' DS			
9/15/06	1722	AH/DM		✓	4.53 2500' DOWNSTREAM - Pool - 15' from shore			
9/15/06	1855	AH/DM	Overcast + cool	0.40 4TH ST.	76.3 75' from shore @ Compliance Pt.			15' plume width
↓	1912	AH/DM	↓	✓	38.7 30' FROM SHORE @ MALONEY CREEK			
↓	1912		↓	✓	9.89 25' FROM SHORE 1000' DS			
9/16/06	0745	AH/DM	cloudy rain L-SDS	0.61 4TH ST.	9.43 75' FROM SHORE 10' WIDE PLUME			CALIBRATION CHECK 0.02 → 0.00 20.0 → 20.4
9/16/06	0845	AH/DM	Overcast. Rain L-SDS	✓	8.82 77' FROM SHORE 12' PLUME WIDTH			
9/16/06	0945	AH/DM	Overcast + Raining MSO's	0.38 4TH ST.	8.15 75' FROM SHORE 15' PLUME WIDTH			

* Sampled 1/2 way through plume

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Between Cofferdams	Outside Cofferdams	
9/16/06 1553	1053	AH/DM	MOSTLY CLOUDY 53°F	/	8.11 76' FROM SHORE 10' WIDE PLUME			
9/16/06	1145	AH/DM	"	0.71 4TH ST	9.25 77' FROM SHORE 10' WIDE PLUME			CHANGED BATTERIES
9/16/06	1207	"	"					
9/16/06	1330	AH/DM	MOSTLY CLOUDY 54°F	/	16.27 76' FROM SHORE 10' WIDE PLUME			
9/16/06	1445	AH/DM	M-CLDY Lt. rain M-50's	0.61 4TH ST.	25.7 75' FROM SHORE 12' WIDE PLUME			CONFIRM 27.5
"	1515	"	"	/	13.32 40' FROM SHORE C. MALONEY CREEK			
"	1520	"	"	/	3.51 35' 25' FROM SHORE 1000' DS			1530 HRS - work SHUT DOWN for weekend.
9/18/06	0750	SA/DM	rainy M-50's	0.50 4TH ST	6.72 76' from shore	NO visible plume -		check: 0.08 → 0.00 20.0 → 20.3
9/18/06	1100	SA/DM	drizzling M-50's	0.85 4TH ST	3.26 77' from shore	20' wide plume		
9/18/06	1515	SA/DM	drizzling M-50's	0.94 4TH ST	143 76' FROM SHORE 20' WIDE PLUME			
↓	1535	SA/DM	overcast M-50's	/	5.13 15' from shore - pool @ Burnline 1			
↓	1805	SA/DM	P. Cloudy L-50's	0.75 4TH ST.	82.3 76' from shore	20' wide		
↓	1825	SA/DM	"	/	4.15 15' from shore			

* Sample collected 1/2 way through plume when visible.

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Between Cofferdams	Outside Cofferdams	
9/19/06	0730	SA/DM	Overcast rainy m. l. l. (2-50's)	1.02 4th st.	9.10 74' from shore, with 10' plume	5' Den	9/19/06	chk CL 0.02 → 0.00 2p.p. → 20.3
9/19/06	1045	SM/DM	ptly cloudy M-50's	0.94 4th st.	0.32 75' from shore, 8' plume			
9/19/06	1515	SA/DM	Overcast L-50's	0.54 4th st.	34.7 75' from shore, 18' plume			
9/19/06	1540	SA/DM	"	/	1.16 15' from shore - by Boom line 1-pool			
9/19/06	1825	SA/DM	Overcast L-50's	0.63 4th st.	81.5 75' from shore, 15' plume			
9/19/06	1845	SM/DM	"	/	2.66 15' from shore by Boom line 1-pool			
9/20/06	0810	SM/DM	Overcast L-50's	0.90 4th st.	14.53 75' from shore, 10' wide plume			Calibrate meter check: 0.02 → 0.02
9/20/06	1020	SM/DM	drizzling L-50's	1.21 4th st.	29.7 74' from shore, 18' wide			
9/20/06	1450	MS/DM	Raining L-50's	2.58 4th st.	25.7 73' from shore, 18' wide			
↓	1510	↓	↓	/	1.53 15' from shore @ 2500 Ft DS Pool.			
9/21/06	1025	DM	Lt-Rain L-50's	0.82 4th st.	11.48 73' from shore, 8' wide plume			1105- Compliance Pt test
9/21/06	1520	DM/KD	Lt-Rain L-50's	2.19 4th st.	31.4 72' from shore, 16' wide plume			River rising
9/21/06	1715	DM/KD	M-cldy M-50's	2.46 4th st.	96.8 67' from shore, 25' wide plume			River still rising

* Sampled 1/2 way through plume

TURBIDITY OBSERVATION LOG SHEET

N/A

Date	Time	Initials	Weather	Turbidity		Oil sheen		Comments
				Upstream	Downstream	Between dams	Outside of dams	
9/22/06	0740	SA/DM	Foggy U-40's	1.77 4th st	9.65 70' out, 5' wide plume	calib. check: 0.02 $\Rightarrow$ 0.00		
9/22/06	1110	SA/DM	ptly cloudy M-50's	0.81 4th st	11.35 70' out, 10' wide plume			
9/22/06	1330	SA/DM	clear M-50's	0.68 4th st	16.00 71' out, 15' wide plume			
9/22/06	1735	SA/NO	clear L-50's	0.66 4th st	20.19 71' out, 15' wide plume			
9/23/06	0812	SA/KO	clear U-40's	0.47 4th st	9.47 73' out, 5' wide plume			calib check 0.02 $\Rightarrow$ 0.00 20.0 $\Rightarrow$ 20.6
9/23/06	1025	SA/KD	clear L-60's	1.09 4th st	22.7 75' out, 18' wide plume			
9/23/06	1230	SA/KD	clear M-60's	0.44 4th st	8.86 73' out, 5' wide plume			
9/23/06	1525	SA/AB	clear U-60's	0.30 4th st	23.4 75' out, 15' wide plume			
9/25/06	0810	SA/AP	clear M-50's	0.69 4th st	7.54 73' out, 5' wide plume			cal check 0.02 $\Rightarrow$ 0.00 20.0 $\Rightarrow$ 19.96
9/25/06	1120	SA/SR	clear U-60's	0.75 4th st	6.93 75' out, 10' wide plume			
9/25/06	1520	SA/SR	clear L-70's	0.52 4th st	12.31 76' out, 15' wide			
9/25/06	1830	SA/AB	clear U-60's	0.58 4th st	13.51 76' out, 15' wide			
9/26/06	0735	SA/DM	M-clear U-40's	0.94 4th st	8.53 75' out, 8' wide plume			CAL CK 0.02 $\Rightarrow$ 0.00 20.0 $\Rightarrow$ 20.5

* Sampled 1/2 way through plume

TURBIDITY OBSERVATION LOG SHEET

N/A

Date	Time	Initials	Weather	Turbidity		Oil Sheen		Comments
				Upstream	Downstream	Between Caissons	Outside Caissons	
9/26/06	1130	SA/DM	Clear M-60's	0.54 4th st	6.29 76' from shore	15' wide plume		
9/26/06	1505	SA/DM	Clear M-70's	0.38 4th st	63.7 77' from shore	18' plume		
9/26/06	1840	DM/SA	Clear M-65	0.65 4th st	24.8 77' from shore	18' wide plume		
9/27/06	0730	SA/DM	Clear U-40's	1.60 4th st	10.70 75' from shore	8' wide plume		Calib check 0.02 → 0.00 20.0 → 20.4
9/27/06	1155	SA/DM	Clear L-70's	0.85 4th st	9.04 77' from shore	8' wide plume		
9/27/06	1510	SA/RT	Clear L-70's	0.30 4th st	40.5 76' from shore	15' wide plume		
9/27/06	1820	SA/DM	Clear 70	0.53 4th st	74.6 73' from shore	18' wide plume		
9/28/06	0740	SA/DM	Clear U-40's	0.70 4th st	12.27 76' from shore	8' wide plume		Calib Check 0.02 → 0.00 20.0 → 19.89
9/28/06	1215	SA/DM	Clear U-60's	0.69 4th st	28.2 76' from shore	15' wide plume		
9/28/06	1440	SA/DM	Clear L-70's	0.46 4th st	99.4 74' from shore	20' wide plume		
9/28/06	1725	SA/DM	Clear L-70's	0.40 4th st	68.0 76' from shore	18' wide plume		1730-WCC shut down
9/29/06	0850	SA/DM	Clear L-50's	0.77 4th st	8.66 76' from shore	6' wide		Calib check 0.02 → 0.00 20.0 → 20.0
9/29/06	1120	SA/DM	Clear U-50's	0.95 4th st	8.98 76' from shore	6' wide		

new vials
for meter

* Calibrated 1/2 way through plume when visible

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		On-Site		Comments
				Upstream	Downstream	Upstream	Downstream	
9/29/06	1450	SA/DM	clear L-70's	0.50 4th st	56.7 source area ~ 30' west of SS outfall			
9/29/06	1625	SA/DM	clear M-70's	0.62 4th st	64.2 source area ~ 15' west of storm sewer			23.6 300' DS from WTP, 75' out, 8' w CALIBRATE MTR
10/2/06	0815	DM	P-clear - P-cloudy cool L-50's	0.54 US Bridge @ 15'	9.74 ~15' west of SS outfall			
10/2/06	1120	DM	P-clear - P-cloudy mild M-50's	0.97 US Bridge @ 15'	9.57 ~15' west of SS outfall			6.20 300' DS f/WTP @ 75'
10/2/06	1445	DM	M-cloudy - P-clear cool M-50's	0.30 US Bridge @ 15'	58.6 ~15' west of SS outfall			22.7 300' DS f/WTP @ 74'
10/2/06	1740	DM	M-cloudy & cool L-50's	0.14 US Bridge @ 15'	100 ~15' west of SS outfall, 8' plume width			
10/3/06	0915	SA/DM	overcast M-40's	0.32 US Bridge @ 15'	6.68 ~15' west of SS outfall, no visible plume			CAL CK 0.02 $\Rightarrow$ 0.00 20.0 $\Rightarrow$ 19.86 19.24
10/3/06	1155	SA	overcast M-50's	1.00 US bridge @ 15'	57.2 ~10' west of SS outfall, 10' wide plume			Compliance pt, 76' out, 10' w
10/3/06	1505	DM	Overcast M-50's	0.63 US Bridge @ 15'	10.15 ~15' west of SS outfall			9.26 300' DS, 73' out, 6' plume
10/3/06	1730	DM	Overcast M-50's	0.30 US Bridge @ 15'	35.1 ~15' W. of SS outfall			31.7 2nd Sample @ SS Outfall - Sampled f/TSS
10/4/06	0850	DM	clear U-40's	0.82 US Bridge @ 15'	7.60 ~15' W. of SS outfall			CAL CK 0.02 $\Rightarrow$ 0.00 20.0 $\Rightarrow$ 19.96
10/4/06	1105	DM	clear M-50's	0.48 US Bridge	159 ~15' W. of SS outfall			Sampled for TSS
10/4/06	1500	DM	Clear + Bzzy U-50's	0.38 US Bridge @ 15'	95.8 ~15' W. of SS outfall			38.9 300' DS, 75' out, 18' plume

* Collected 1/2 way through plume when visible
 US Bridge = upstream of 5th st bridge
 SS Outfall = New Storm Sewer Outfall near WTP

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1. Morphology

TURBIDITY OBSERVATION LOG SHEET

Date	Time	Initials	Weather	Turbidity		On Screen		Comments
				Upstream	Downstream	Upstream	Downstream	
10/10/06	0755	DM	Clear + cold U-30's	0.67 @ 6' @ 15' out	7.10 15' W. of SS Outfall			CALIBRATE NTR 0745 hrs
10/10/06	1300	DM	Clear + mild U-50's	0.49 Bridge @ 15' out	7.00 15' W. of SS Outfall			
10/10/06	1535	DM	Clear + mild L-60's	0.31 Bridge @ 15' out	86.6 15' W. of SS Outfall			28.0 1547 hrs DS 300' f/WTP, 76' out, 12' phone
10/10/06	1735	DM	Clear + cool U-50's	0.42 Bridge @ 15' out	135 15' DS of SS Outfall			46.9 1747 hrs DS 300' f/WTP, 76' out, 12' phone
10/11/06	0800	DM	Clear + cool L-40's	0.54 Bridge @ 15' out	7.10 15' DS of SS Outfall			CAL CK 0.02 $\Rightarrow$ 0.07 20.0 $\Rightarrow$ 19.91
10/11/06	0950	DM	Clear + Cool M-50's	0.48 Bridge @ 15' out	6.95 15' DS of SS Outfall			23.8 1515 hrs
10/11/06	1455	DM	Clear + cool U-50's	0.46 Bridge @ 15' out	66.4 15' DS of SS Outfall			DS 300' f/WTP @ 77' out, 15' phone 12.00 1750 hrs
10/11/06	1720	DM	Clear + cool L-60's	0.34 Bridge @ 15' out	21.5 15' DS of SS Outfall			DS 300' f/WTP @ 78' out 10' phone CAL CK 0.02 $\Rightarrow$ 0.07 20.0 $\Rightarrow$ 20.0
10/12/06	0845	DM	Clear + cold U-30's	0.59 Bridge @ 15' out	6.51 15' DS of SS Outfall			Bridge pH = 6.85 SS Outfall pH = 6.58
10/12/06	1120	DM	Clear + cool U-50's	0.86 Bridge @ 15' out	7.27 15' DS of SS Outfall			
10/12/06	1150	DM	"	—	4.18 DS 300' f/WTP @ 76' out			DS 300' pH = 6.62 @ 10.00

TRANSCRIBED
TO NEW FORMAT

SS Outfall = New Storm Sewer Outfall near WTP
WTP = Water Treatment Plant
DS = Down stream

Nonpoint Source Turbidity Observation Log Sheet

Date	Time	Initials	Weather	Turbidity		Downstream Sampling Point Dist/Turbidity	pH Mtr Calibrated on 10-11-06 by DM with 7.0 + 10.0 buffers Comments
				* Upstream	BMP Performance Sampling Point*		
10/12/06	0845	DM	Clr + cool W-30's	0.59	6.51	—	US pH = 6.80 DS pH = 6.95
"	1120	DM	Clr + cool W-50's	0.86	7.27	DS @ SS Outfall @ ~15' DS	US pH = 6.85 DS pH = 6.58
"	1150	DM	"	—	4.18	DS 300' from WTP @ 76' out	DS 300' pH = 6.62 @ 10.4°C
"	1435	DM	Clr + mild L-60's	0.28	9.26	DS @ SS Outfall @ ~15' DS	US pH = 6.60 @ 10.7°C DS pH = 6.72 @ 10.4°C
"	1445	DM	"	—	4.64	DS 300' from WTP @ 76' out	DS 300' pH = 6.80 @ 11.3°C
"	1715	DM	Clr + mild	0.29	8.59	DS @ SS Outfall @ ~15' DS	US pH = 6.68 @ 11.0°C DS pH = 6.92 @ 9.5°C
"	1735	DM	Clr + mild	—	4.75	DS 300' from WTP @ 75' out	DS 300' pH = 6.99 @ 10.4°C
10/13/06	0805	DM	Clear + cold L-40's	0.32	6.65	DS @ SS Outfall ~15' DS of outfall	US pH = 6.89 @ 7.9°C DS pH = 6.86 @ 8.4°C
"	"	"	"	CALIBRATED		METER Before Readings @ 0805 hrs	
"	1005	DM	Clear + cool W-50's	0.42	6.62	DS @ SS Outfall ~15' DS of outfall	US pH = 6.88 @ 8.3°C DS pH = 7.00 @ 9.3°C
"	1025	DM	"	—	4.04	DS 300' from WTP @ 75' out	DS 300' pH = 7.11 @ 9.1°C
"	1205	SW/DM	Mucous + mild L-60's	0.46	8.54	DS @ SS Outfall 15' DS of outfall	US pH = 7.17 @ 9.4°C DS pH = 7.47 @ 9.6°C
"	1220	SW/DM	"	—	4.01	DS 300' from WTP @ 75' out	DS 300' pH = 7.60 @ 10.4°C

11400 SW

During Upland Construction, Excavation, and Grading:

- ▶ Samples taken 4 times/day afterwards (one background sample and three performance samples)
- ▶ Samples taken at where the non-point source pollution appears to be entering the surface water (the sampling point), as well as a nearby upstream location
- ▶ Downstream samples will be collected twice daily if turbidity at performance sample location exceeds criteria

DS = Downstream

WTP = Water Treatment Plant

SS Outfall = New Storm Sewer Outfall east of WTP

* Up Stream measurement is taken on upstream side of 5th St. Bridge at about 15 ft out from shoreline

Nonpoint Source Turbidity Observation Log Sheet

Date	Time	Initials	Weather	Turbidity		Downstream Sampling Point Dist/Turbidity	Comments
				Upstream	BMP Performance Sampling Point*		
10/13/06	1400	SW	clear, sunny L-60's	0.50	13.02	DS @ SS outlet 15' DS of outfall	
10/16/06	0800	SW	rain ON Lt. now	0.83	7.19	DS @ SS outlet 15' DS of outfall	
10/16/06	1000	SW	lt. rain foggy hielev.	1.27	7.73	DS @ SS outlet 15' DS of outfall	
10/16/06	1000	SW	L-50's	/	4.40	DS 300' from WTP @ 75' out	
10/16/06	1300	SW	intermittent rain, M-50's	0.44	7.67	DS @ SS outlet 15' DS of outfall	
10/16/06	1300	SW	"	/	6.20	DS 300' from WTP @ 75' out	
10/16/06	1600	SW	lt. rain M-50's	0.48	5.58	DS @ SS outlet 15' DS of outfall	
10/17/06	0825	DM	overcast M-50's	0.28	6.25	DS @ SS outlet 15' DS of outfall	CALIBRATE METER
10/17/06	1417	DM	overcast M-50's	0.67	6.85	DS @ SS outlet 15' DS of outfall	
"	1457	"	"	/	3.36	DS 300' from WTP @ 75' out	
"	1455	"	Overcast M-50's	0.54	93.5	DS @ SS outlet 30' DS of outfall	3-4' wide plume at shoreline
"	1520	"	"	/	27.6	DS 300' from WTP @ 72' out	w/ 10' plume width
"	1730	"	overcast L-50's	0.42	443	DS @ SS outlet 30' DS of outfall	4-5' wide plume at shoreline

During Upland Construction, Excavation, and Grading:

- ▶ Samples taken 4 times/day afterwards (one background sample and three performance samples)
- ▶ Samples taken at where the non-point source pollution appears to be entering the surface water (the sampling point), as well as a nearby upstream location
- ▶ Downstream samples will be collected twice daily if turbidity at performance sample location exceeds criteria

* US taken at Bridge @ ~15' out from shore

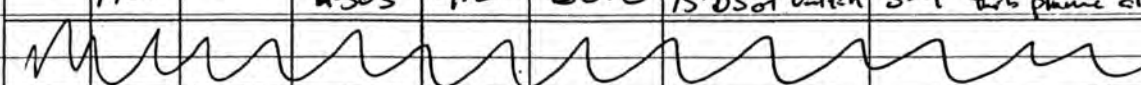
DS = Down Stream

US = Up Stream

WTP = Water Treatment Plant

SS Outfall = New Storm Sewer Outfall located US of WTP

Nonpoint Source Turbidity Observation Log Sheet

Date	Time	Initials	Weather	Turbidity		Downstream Sampling Point Dist/Turbidity	Comments
				X Upstream	BMP Performance Sampling Point*		
10/18/06	0840	DM	Overcast Raining-L-SD's	0.39	11.41	DS SS Outfall 30' DS of Outfall	CAL CK: 0.02 → 0.02 20.0 → 20.1
"	1055	"	"	1.14	420	DS SS Outfall 15' DS of Outfall	5-6' wide turb. plume along shoreline
"	1115	"	"	—	168	DS 300' from WTP, 72' out	15' plume width
"	1510	"	Overcast L-SD's	0.87	93.0	DS SS Outfall 15' DS of Outfall	4-5' wide turb. plume along shoreline
"	1520	"	"	—	42.3	DS 300' from WTP, 72' out	15' plume width
"	1705	"	Overcast Light rain L-SD's	0.69	108	DS SS Outfall 15' DS of Outfall	4-5' wide plume along shoreline
10/19/06	0800	DM	Raining L-SD's	0.66	9.87	DS SS Outfall 15' DS of Outfall	CAL CK: 0.02 → 0.00 20.0 → 20.1
"	0940	"	Raining L-SD's	2.09	41.6	DS SS Outfall 15' DS of Outfall	US @ Bridge + 3' from shoreline 3'-4' turb. plume along shoreline
"	1035	"	"	—	25.8	DS 300' from WTP @ 72' out	10-12' turb. plume
"	1420	"	Rainy M-SD's	0.71	103	DS SS Outfall 15' DS of Outfall	3'-4' turb. plume along shoreline
"	1440	"	"	—	37.8	DS 300' from WTP @ 73' out	12-15' turb. plume
"	1700	"	Overcast M-SD's	4.52	38.6	DS SS Outfall 15' DS of Outfall	3'-4' turb. plume along shoreline
							

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- ▶ Downstream samples will be collected twice daily if turbidity at performance sample location exceeds criteria

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SS Outfall = New Storm Sewer Outfall located US of WTP

* US sample taken at 5th St. Bridge @ 15 ft from shore

Nonpoint Source Turbidity Observation Log Sheet

Date	Time	Initials	Weather	Turbidity		Downstream Sampling Point	Comments
				* Upstream	BMP Performance Sampling Point*		
10/20/06	0940	DM	M-cloudy L-50's	0.72	39.7	DS SS Outfall @ 15' DS d Outfall	CAL CK 0.02 $\Rightarrow$ 0.00 20.00 $\Rightarrow$ 20.1 3'-4' plume at shoreline.
"	1135	DM	M-clear M-50's	0.56	91.9	DS SS Outfall @ 15' DS d Outfall	3'-4' turb plume at shoreline
"	1145	"	"	/	21.2	DS 300' from WTP @ 72' out	10'-12' turb plume
"	1420	DM	M-clear L-50's	0.24	101	DS SS Outfall @ 15' DS d Outfall	3'-4' turb. plume at shoreline
"	1435	"	"	/	23.3	DS 300' from WTP @ 72' out	10'-12' turb. plume
"	1625	"	M-clear L-50's	0.60	7.98	DS SS Outfall @ 15' DS d Outfall	
10/23/06	0835	DM	Clear + cold L-40's	0.55	5.16	DS SS Outfall @ 15' DS d Outfall	CALIBRATE MTR.
"	1110	"	Clear L-40's	0.65	5.35	DS SS Outfall @ 15' DS d Outfall	
"	1400	"	Clear L-50's	0.53	5.09	DS SS Outfall @ 15' DS d Outfall	
"	1630	"	Clear M-50's	0.56	5.78	DS SS Outfall @ 15' DS d Outfall	
10/24/06	0835	DM	Overcast + raining L-40's	0.94	5.12	DS SS Outfall @ 15' DS d Outfall	CAL CK 0.02 $\Rightarrow$ 0.01 20.00 $\Rightarrow$ 19.96
"	1040	"	"	0.87	4.94	DS SS Outfall @ 15' DS d Outfall	
"	1405	"	Raining L-40's	0.90	5.53	DS SS Outfall @ 15' DS d Outfall	

During Upland Construction, Excavation, and Grading:

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- ▶ Downstream samples will be collected twice daily if turbidity at performance sample location exceeds criteria

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* US sample taken at 5th St. Bridge at 15-ft from shore

Nonpoint Source Turbidity Observation Log Sheet

Date	Time	Initials	Weather	Turbidity		Downstream Sampling Point Dist/Turbidity	Comments
				* Upstream	BMP Performance Sampling Point*		
10/24/06	1630	DM	Raining M-40's	1.01	4.91	DS SS outfall @15' DS of outfall	
10/25/06	0915	DM	Mostly cldy M-40's	1.59	5.78	DS SS outfall @15' DS of outfall	CAL CK 0.02 $\Rightarrow$ 0.45 20.0 $\Rightarrow$ 20.4
"	1055	"	P-cldy to P-clear M-40's	2.32	6.15	DS SS outfall @15' DS of outfall	
"	1410	"	M-cldy L-50's	1.59	5.70	DS SS outfall @15' DS of outfall	
"	1630	"	M-cldy M-50's	1.24	5.91	DS SS outfall @15' DS of outfall	
10/26/06	0840	DM	M-cldy M-40's	0.61	5.67	DS SS outfall @15' DS of outfall	CAL CK 0.02 $\Rightarrow$ 0.03 20.0 $\Rightarrow$ 19.98
"	1105	"	M-cldy L-50's	0.76	5.61	DS SS outfall @15' DS of outfall	
"	1415	"	M-cldy M-40's	0.58	5.77	DS SS outfall @15' DS of outfall	
"	1425	"	"	—	3.55	DS 300' from WTP @ 70' out	
"	1640	"	M-cldy	0.60	6.00	DS SS outfall @15' DS of outfall	
"	1650	"	M-cldy	—	3.63	DS 300' from WTP @ 70' out	
10/27/06	0815	DM	Raining L-50's	0.97	5.47	DS SS outfall @15' DS of outfall	CAL CK 0.02 $\Rightarrow$ 0.05 20.0 $\Rightarrow$ 20.1
"	1035	"	Overcast L-50's	0.67	5.59	DS SS outfall @15' DS of outfall	

During Upland Construction, Excavation, and Grading:

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* US sample taken at 5th St. Bridge at 15-ft from shore

Nonpoint Source Turbidity Observation Log Sheet

Date	Time	Initials	Weather	Turbidity		Downstream Sampling Point Dist/Turbidity	Comments
				* Upstream	BMP Performance Sampling Point*		
10/27/06	1400	DM	Overcast m-50's	0.82	4.51	DS SS Outfall @15' DS of Outfall	
"	1620	"	"	0.92	5.60	DS SS Outfall @15' DS of Outfall	
10/31/06	0830	DM	M-Clear M-30's	0.76	7.20	DS SS Outfall @15' DS of Outfall	CALIBRATE MTR
"	1100	"	Clear L-40's	0.59	4.08	DS SS Outfall @15' DS of Outfall	
"	1405	"	Clear U-40's	0.61	4.10	DS SS Outfall @15' DS of Outfall	
"	1600	"	Clear L-40's	0.57	5.15	DS SS Outfall @15' DS of Outfall	
11/3/06	0825	DM	Clear U-20's	1.17	3.65	DS SS Outfall @15' DS of Outfall	CAL CK. 0.02 ⇒ 0.04 20.0 ⇒ 19.96
"	1530	DM	Clear L-40's	0.62	2.98	DS SS Outfall @15' DS of Outfall	
11/1/06	0845	DM	M-Clear U-30's	0.87	3.08	DS SS Outfall @15' DS of Outfall	CAL CK. 0.02 ⇒ 0.02 20.0 ⇒ 19.99
"	1050	DM	M-Clear M-40's	1.10	2.75	DS SS Outfall @15' DS of Outfall	
"	1355	DM	P-Cldy U-40's	0.72	4.81	DS SS Outfall @15' DS of Outfall	
"	1550	DM	P-Cldy U-40's	0.40	3.16	DS SS Outfall @15' DS of Outfall	

During Upland Construction, Excavation, and Grading:

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- ▶ Downstream samples will be collected twice daily if turbidity at performance sample location exceeds criteria

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SS Outfall = New Storm Sewer Outfall located US of WTP.

* US Sample taken at 5th St. Bridge at 15 feet from Shore.

Nonpoint Source Turbidity Observation Log Sheet

Date	Time	Initials	Weather	Turbidity		Downstream Sampling Point Dist/Turbidity	Comments
				* Upstream	BMP Performance Sampling Point*		
11/2/06	0820	DM	Rainy L-40's	0.31	3.61	DS SS outfall @ 15' DS of outfall	CALIBRATE MTR. US Bridge @ 3 ft out from shore
"	1125	"	Overcast M-40's	1.11	4.37	DS SS outfall @ 15' DS of outfall	
"	1330	"	Rainy M-40's	0.62	3.45	DS SS outfall @ 15' DS of outfall	
"	1540	"	Rainy M-40's	0.91	3.21	DS SS outfall @ 15' DS of outfall	
11/3/06	0755	DM	Rainy U-30's	10.29	5.58	DS SS outfall @ 15' DS of outfall	CAL CK 0.02 $\Rightarrow$ 0.02 20.0 $\Rightarrow$ 20.0 River level up 6 inches
11/3/06	1100	DM	Rainy U-40's	15.69	12.53	DS SS outfall @ 15' DS of outfall	US sample collected above the SS outfall east of bridge
11/4/06	1000	DM	Overcast U-40's	152	135	DS at SS outfall @ 15' out	CALIBRATE MTR.
11/9/06	1420	DM	M-cldy M-40's	58.4	59.1	DS at SS outfall @ 15' out	CAL CK 0.02 $\Rightarrow$ 0.02 20.0 $\Rightarrow$ 20.0
11/9/06	1615	DM	M-cldy M-40's	54.0	58.2	DS at SS outfall @ 15' out	
11/10/06	0825	DM	Overcast Rain L-40's	43.8	38.8	DS at SS outfall @ 15' out	CAL CK 0.02 $\Rightarrow$ 0.04 20.0 $\Rightarrow$ 20.1
"	1135	"	"	51.6	51.5	DS at SS outfall @ 15' out	
"	1530	"	Mixed w/ sun	74.5	71.7	DS at SS outfall @ 15' out	
"	1630	"	Rain mixed w/ sun U-30's	80.2	82.6	DS at SS outfall @ 15' out	

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* US Sample taken at 5th St. Bridge at 15-ft from shore, unless otherwise noted.

Nonpoint Source Turbidity Observation Log Sheet

Date	Time	Initials	Weather	Turbidity		Downstream Sampling Point Dist/Turbidity	Comments
				* Upstream	BMP Performance Sampling Point*		
11/13/06	0740	DM	Rainy M-40's	59.8	58.0	DS SS outfall @ 15' out	CAL CK 0.02 ⇒ 0.04 20.0 ⇒ 20.0
"	1505	"	Rainy L-40's	40.3	39.0	DS SS outfall @ 15' out	
"	1600	"	Rainy L-40's	41.4	37.0	DS SS outfall @ 15' out	
11/14/06	0845	DM	Overcast M-30's	24.8	23.1	DS SS outfall @ 15' out	CALIBRATE MTC
"	1225	"	Overcast M-40's	20.7	21.4	DS SS outfall @ 15' out	
"	1430	"	Overcast M-40's	23.5	21.8	DS SS outfall @ 15' out	
"	1630	"	Overcast L-40's	20.8	19.59	DS SS outfall @ 15' out	
11/15/06	0815	DM	Rainy M-30's	22.5	24.6	DS SS outfall @ 15' out	CAL CK 0.02 ⇒ 0.03 20.0 ⇒ 20.3
"	1105	"	Rainy M-40's	31.7	27.5	DS SS outfall @ 15' out	
"	1400	"	Rainy M-40's	54.1	60.0		

During Upland Construction, Excavation, and Grading:

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* US Sample taken at 5th St. Bridge at 15-ft from shore, unless otherwise noted

Appendix N
Agreed Order Extensions



Bruce A. Sheppard
Manager Environmental Remediation

BNSF Railway Company
2454 Occidental Avenue S, Suite 1A
Seattle, WA 98134-1451

Phone (206) 625-6035
Fax (206) 625-8007

August 23, 2006

Louise Bardy, Project Manager
Washington State Department of Ecology
Toxics Cleanup Program
3190 160th Ave. SE
Bellevue, WA 98008

RE: BNSF Railway Company Former Maintenance and Fueling Facility, Skykomish, WA
Endangerment Notification

Dear Louise:

This letter provides notification that BNSF, after consulting with its contractors, has determined it must cease work at the above facility due to potential endangerment to human health or the environment. This notification is provided in accordance with the Section VIII.M. of Agreed Order No. DE 3279 between BNSF Railway Company and the Washington State Department of Ecology.

The RETEC Group, Inc. has completed water quality monitoring in compliance with the substantive requirements of Exhibit H.1. the Agreed Order. Below is a timeline of water quality measurements and actions that were taken at the site on August 19, 2006.

6:30 Turbidity at compliance point = 26.8 NTU, upstream turbidity = 0.72 NTU
7:00 Work begins on site
9:00 Upstream turbidity = 0.87 NTU
Turbidity at compliance point = 39.5 NTU
Sand bag diversion being constructed
10:45 Turbidity at compliance point = 48.6 NTU
All work stopped.
13:30 Decide to place aquabarrier alongside cofferdam at the apparent source of the turbidity.
This involves use of movement of heavy equipment in the apparent turbidity source (to grade the area for aquabarrier placement)
14:30 Turbidity at compliance point = 133 NTU
All work stopped.
Additional turbidity measurements
At Maloney Creek = 50.9 NTU
At 1,800 ft downstream = 12.3 NTU
At 2,100 ft downstream = 12.09 NTU
At 1/2 mile downstream = 9.34 NTU

15:30 Work resumes on aquabarrier without movement of heavy equipment within the cofferdam (grading for aqua barrier was near completion when work was halted).

16:35 Turbidity at compliance point = 34.4 NTU

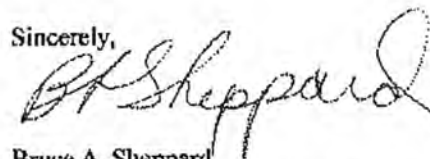
18:05 Turbidity at compliance point = 13.69 NTU

Additional water quality samples were collected at 0630 on Monday August 21, 2006. The concentration at the upstream location was 0.20 NTU and the concentration at the compliance point 70 feet from shore was 2.90 NTU. Samples collected on August 22 and early this morning continue to indicate that in-stream turbidity may not comply with the requirements of Exhibit H.1. of the Agreed order and that the work may be creating an endangerment to human health or the environment. Despite repeated efforts to modify the work to prevent exceedance of the substantive water quality requirements in the Agreed Order BNSF, in consultation with its contactors, has determined that the work must cease today until the Department can provide us with additional guidance and direction.

BNSF has identified two options for Ecology to provide additional guidance and direction. One option is to modify the Water Quality Monitoring Plan required by Exhibit H.1., Section D5 of the Agreed Order. BNSF has been collecting water quality samples at locations as directed by Ecology field staff and will continue to do so but it may be appropriate to collect samples from additional locations across the South Fork of the Skykomish River to more completely assess compliance with substantive water quality requirements in the Agreed Order. Another option is a short-term modification of the 5 NTU water quality criteria for turbidity and/or the 300' mixing zone special condition in accordance WAC 173-201A-410. BNSF believes that the in-water excavation and backfilling can be completed by August 31. Thereafter sediment in the excavation area should be allowed to settle for a week and then the coffer dam can be removed by September 8. We have been advised by the fishery agencies that the "fish window" can be extended for this purpose. A short-term water quality standards modification should extend through September 8.

Please call me at your earliest convenience to discuss this further and let me know if you need any additional documentation.

Sincerely,



Bruce A. Sheppard
Manager Environmental Remediation

cc: Tim Nord
Dave Clark



David C. Clark, P.E.
Director Environmental
Remediation

BNSF Railway Company

920 S.E. Quincy
Topeka, KS 66601-1738
Phone 785-435-2210
Fax 785-435-3333
David.Clark@BNSF.com

August 25, 2006

VIA E-MAIL AND FACSIMILE TO (360) 407-7154

James J. Pendowski, Program Manager
Washington State Department of Ecology
Toxics Cleanup Program
300 Desmond Drive
P.O. Box 47600
Lacey, WA 98504-7600

**RE: BNSF Railway Company Former Maintenance and Fueling Facility, Skykomish, WA
Endangerment Notification**

Dear Jim,

This letter concerns our August 23 notification that BNSF, after consulting with its contractors, has determined it cannot continue with certain types of in-river work at the above facility due to potential endangerment to human health or the environment (copy attached). Although we have had several conversations with Louise, Tim Nord and other members of your staff we have not yet received a response in writing or a satisfactory resolution of BNSF's continuing concerns. The August 23 notification was provided by Bruce Sheppard to Louise Bardy in accordance with the Section VIII.M. of Agreed Order No. DE 3279 between BNSF Railway Company and the Washington State Department of Ecology.

BNSF and its contractors continue to experience turbidity problems in the South Fork of the Skykomish River during certain types of in-river work. On June 26, the Corps of Engineers issued BNSF a Nationwide Permit 38 (*Cleanup of Hazardous and Toxic Waste*) for in-river work associated with the Agreed Order pursuant to Section 404 of the Clean Water Act. In lieu of a Clean Water Act Section 401 water quality certification, Ecology and BNSF negotiated "Substantive Water Quality Requirements" which are attached as Exhibit H.1. to the Agreed Order. A copy of Exhibit H.1. is attached for your reference. The turbidity standard in Exhibit H.1. is 5 NTU when background turbidity is 50 NTU or less, and a 300 foot mixing zone is authorized. This is also consistent with WAC 173-201A-200(1)(e).

Unfortunately, samples collected over the past week indicate that it will not be possible for BNSF to complete the remaining in-water work required by the Agreed Order in full compliance with the requirements of Exhibit H.1. of the Agreed Order. This obviously creates great concern for BNSF and its contractors. We are also very concerned that we may not be able to provide the

Corps with an unconditional "Certificate of Compliance" as required by Nationwide Permit 38. We urgently need guidance from Ecology so that we can complete the work in a timely manner.

In our letter to Ms. Bardy on August 23, BNSF identified two options under which BNSF and its contractors are ready, willing and able to complete in-water work in a timely manner. Both options involve modifying Exhibit H.1. of the Agreed Order. Attached is a proposed modification for your review and approval. As you can see, BNSF is asking Ecology to approve a short-term modification to the water quality standards pursuant to WAC 173-201A-410, while BNSF and its contractors remove the outer coffer dam. Assuming we have a timely response from Ecology, we plan to complete this final phase of in-water work during the first ten days of September. All in-water must cease when the "fish window" closes on September 15. BNSF believes it is critical that we complete all in-water work under a short-term modification of the water quality standards before salmon begin returning to spawn.

I want to assure you that BNSF is committed to completing this project as quickly as possible. I have therefore directed that all work proceed so long as it does not cause or contribute to a violation of the turbidity standards established in the Agreed Order or any term or condition of our Corps permit. At the same time, I have also directed that any work which does not meet the turbidity standard cease and to discontinue such work until we have a clear resolution with Ecology regarding this matter. I trust you received my voice mail message about this subject earlier this afternoon. I would appreciate the chance to speak with you about this.

Sincerely,



David C. Clark, P.E.
Director Environmental Remediation

cc: Tim Nord - Ecology
Louise Bardy - Ecology
Bruce Sheppard - BNSF
Halah Voges - The Retec Group
Craig Trueblood - Preston Gates & Ellis

Exhibit H.1

Substantive Water Quality Requirements

A. No Impairment of Water Quality:

- A1. The South Fork of the Skykomish River is classified as Class AA waters of the state. Turbidity in Class AA waters shall not exceed 5 NTU over background when the background turbidity is 50 NTU or less, or has more than a 10 percent increase in turbidity when the background turbidity is more than 50 NTU.
- A.2 The discharge or release of oil or petroleum hydrocarbons into or on the surface of state waters is prohibited. If a visible oil sheen is observed beyond the limits of the oil boom containment system as described Engineering Design Report- Levee Remedial Action, Former Maintenance and Fueling Facility, Skykomish, Washington prepared by the RETEC Group, dated 03 March 2006 then all appropriate actions to stop, contain, and cleanup the oil shall be taken.

B. Notification

- B1. BNSF shall provide notice to Ecology's Louise Bardy at least 3 days prior to the start of construction. Notification can take place by e-mail to Lbar461@ecy.wa.gov, telephone to (425) 649-7209, fax to (425) 649-7098, or in writing.

C. Upland Construction, Excavation, and Grading

- C1. Cleanup of the upland soils shall be remediated such that the soil and groundwater at the site shall meet the provisions of the Model Toxics Control Act (Chapter 173-340 WAC) before final grading is completed.
- C2. Dewatering water both from upland and in-water excavation shall not be discharged to surface water unless testing indicates that it meets all water quality standards at the point of discharge as authorized by National Pollutant Discharge Elimination System Waste Discharge Permit No. WA-003212-3 issued for this project.
- C3. Wash water containing oils, grease, or other hazardous materials resulting from wash down of equipment or working areas shall be contained for proper disposal or treatment as authorized by National Pollutant Discharge Elimination System Waste Discharge Permit No. WA-003212-3 issued for this project and shall not be directly discharged into state waters or storm drains.
- C4. Fuel hoses, oil drums, oil or fuel transfer valves and fittings, and all other equipment, etc., shall be checked daily for drips or leaks, and shall be maintained and stored properly to prevent spills into state waters. No refueling of equipment shall occur over, or within 50 feet of the river.

- C5. Equipment used for in-water construction prior to or after removal of the cofferdam, as defined in D5, shall be free of external petroleum-based products..
- C6. A qualified Engineer shall be on site to oversee project construction. A qualified ecologist or equivalent shall be on site to oversee riparian planting.
- C7. With seven calendar days of completion of project grading work, all disturbed riparian areas shall be protected from erosion using vegetation or other means.

D. In-water Construction

- D1. This document authorizes a mixing zone of 300 feet as described in WAC 173-201A-110(3) for necessary in-water construction activities that disturb in-place sediments during installation and removal of the cofferdam. No discharges or mixing zone is authorized for release or leakages from within the cofferdam into the Skykomish River once it is installed. During cofferdam installation, BNSF or its contractors shall fully apply all known, available, and reasonable methods of prevention, control, and treatment (AKART).
- D2. Timing Limitations: Excavation of the contaminated sediments and soils within the in-water portion of the project area shall occur tentatively between July 1 and August 31. These dates are subject to change by Washington Department of Fish and Wildlife. A qualified fisheries biologist shall be on site during cofferdam placement, cofferdam removal, and any fish removal activities from the work area. The fisheries biologist will be on-call during the excavation of soil or sediments and subsequent back filling of the excavation. The designated fisheries biologist shall be approved by the Department of Fish and Wildlife Area Habitat Biologist prior to cofferdam placement.
- D3. If at any time as a result of project activities fish are observed in distress, a fish kill occurs, or water quality problems develop (including equipment leaks or spills) operations shall cease and the following agencies shall be contacted: Department of Ecology at (425) 649-7000 and Washington Department of Fish and Wildlife (WDFW) at (360) 534-8233. Work shall not resume until further approval is given by WDFW and the Department of Ecology.
- D4. Fish habitat components and bank protection material shall be installed to the standards required by the US Army Corps of Engineers permit issued for this project and as described in the Engineering Design Report Levee Remedial Action.
- D5. **Water Quality Monitoring:**
An in-water construction Water Quality Monitoring Plan shall be developed and implemented. "In-water construction" is defined as all work below the ordinary high water mark of the South Fork of the Skykomish River during installation of a cofferdam, the removal of contaminated soils and sediments within the confines of a cofferdam, and the removal of the cofferdam. The Water Quality Monitoring Plan shall be submitted to Ecology for review and approval prior to at least 14 days before in-water construction is

scheduled to begin. Ecology may require changes and modifications to the plans. The plan shall include the following minimum requirements:

Sampling during installation and removal of the cofferdam:

- a. Location of samples: Background samples shall be collected upstream or up gradient of the area of activity, and 300 feet downstream or down current from the construction or activity. Performance monitoring samples shall be taken 300ft downstream from the coffer dam.
- b. Number and timing of samples: Background samples will be taken prior to the start of daily in water construction activities. Samples shall be collected a minimum of every two (2) hours throughout the first day of in-water construction activity. Subsequent sampling is dependent on monitoring results, but shall be a minimum of three (3) times per day simultaneous with in-water activity. Sampling shall increase if turbidity exceedances are observed or measured.
- c. Parameters to be sampled: Turbidity shall be sampled for this project.
- d. Equipment: Sampling for turbidity is to be accomplished using a turbidometer properly calibrated according to the operator's manual.
- e. Detection of exceedances: Water quality standards for turbidity in Class AA waters are as follows: turbidity shall not exceed 5 NTU over background turbidity when the background turbidity is 50 NTU or less, or have more than a 10 percent increase in turbidity when the background turbidity is more than 50 NTU. The water quality standard for oil is no visible sheen. If exceedances of these standards are detected, as a result of water quality sampling and monitoring, BNSF Railroad, or its contractors shall immediately take action to stop, contain, and prevent unauthorized discharges or otherwise stop the violation and correct the problem. After such an event, BNSF shall assess the efficacy of the site Best Management Practices (BMPs) and update or improve the BMPs used at the work site in an effort to prevent recurrence of the turbidity.

Sampling during in-water excavation behind the cofferdam:

- a. Location of samples: Background samples shall be collected upstream or up gradient of the area of activity, and 300 feet downstream or down current from the oil containment boom. Performance monitoring samples shall be taken 300ft downstream from the oil containment boom.
- b. Number and timing of samples: Background samples will be taken prior to the start of daily in water construction activities. Samples shall be collected a minimum of three (3) times per day simultaneous with in-water activity. Sampling shall increase if turbidity exceedances are observed or measured.
- c. Parameters to be sampled: Turbidity shall be sampled for this project. Visual observations for an oil sheen between the confines of the two cofferdams and downstream of the oil containment boom shall be conducted at the same time.
- d. Equipment: Sampling for turbidity is to be accomplished using a turbidometer properly calibrated according to the operator's manual.

- e. Detection of exceedances: Water quality standards for turbidity in Class AA waters are as follows: turbidity shall not exceed 5 NTU over background turbidity when the background turbidity is 50 NTU or less, or have more than a 10 percent increase in turbidity when the background turbidity is more than 50 NTU. The water quality standard for oil is no visible sheen. If exceedances of these standards are detected, as a result of water quality sampling and monitoring, BNSF shall immediately take action to stop, contain, and prevent unauthorized discharges or otherwise stop the violation and correct the problem. After such an event, BNSF shall assess the efficacy of the site Best Management Practices (BMPs) and update or improve the BMPs used at the work site in an effort to prevent recurrence of the turbidity or oil exceedance.

D6. Reporting of results:

Results of water quality monitoring shall be submitted to Department of Ecology BNSF SKYKOMISH Project Manager, Toxics Cleanup Program, 3190 – 160th Avenue SE, Bellevue, WA, 98008-5452, fax 425-649-7098 or as directed. If no exceedances are detected, results shall be submitted once a week. If exceedances are detected, results shall be submitted daily and contingency measures and reporting shall be taken as required.

E. Stormwater Management:

- E1. BNSF shall comply with the Stormwater Management Manual for Western Washington, February 2005 and the "Construction Stormwater Pollution Prevention and Sediment and Erosion Control Plan, Engineering Design Report- Levee Remedial Action, Former Maintenance and Fueling Facility, Skykomish, Washington prepared by the RETEC Group, dated 01 March 2006.
- E2. During construction, BNSF shall comply with all stormwater requirements within the National Pollutant Discharge Elimination System Waste Discharge Permit No. WA-003212-3 issued for this project.
- E3. Work in or near waters of the state shall be done so as to minimize turbidity, erosion, and other water quality impacts. Construction stormwater, sediment and erosion control Best Management Practices suitable to prevent exceedances of state water quality standards (e.g., detention and/or infiltration areas, silt fences, etc.), shall be in place before starting clearing, excavating, and grading work at the impact site.

F. Reporting and Monitoring:

- F1. Maintenance and monitoring shall occur as specified in the "Engineering Design Report- Levee Remedial Action, Former Maintenance, and Fueling Facility, Skykomish, Washington prepared by the RETEC Group, dated 01 March 2006
- F2. Installation of the project plantings shall be completed prior to the start of the first growing season (March 1) subsequent to project clearing or grading.

- F3. Project plantings shall be maintained and irrigated as necessary to ensure 80 percent or greater survival at the end of five years.
- F4. Spring and fall inventories for invasive species shall be taken annually for the first five years post-construction.
- F5. Invasive species shall be controlled such that they do not exceed more than 10% total cover at any time.

G. Emergency/Contingency Measures:

G1. In the event the BNSF Railroad or its contractors are unable to comply with any of these conditions due to any cause, they shall:

- Immediately take action to stop, contain, and clean up unauthorized discharges or otherwise stop the violation and correct the problem.
- Notify Ecology of the failure to comply. Spill events shall be reported immediately to Ecology's 24-Hour Spill Response Team at (425) 649-7000, and within 24 hours to Ecology's Louise Bardy at (425) 649-7209.
- Submit a detailed written report to Ecology within five days that describes the nature of the violation, corrective action taken and/or planned, steps to be taken to prevent a recurrence, results of any samples taken, and any other pertinent information.

H. General Conditions:

- H1. For purposes of this document, the term "BNSF" shall mean the BNSF Railway Co. and its agents, assigns, and contractors.
- H2. This document does not exempt and is provisional upon compliance with other statutes and codes administered by federal, state, and local agencies.
- H3. BNSF will be out of compliance with this document if the project is constructed and/or operated in a manner not consistent with the project description contained in the Engineering Design Report- Levee Remedial Action, Former Maintenance, and Fueling Facility, Skykomish, Washington prepared by the RETEC Group, dated 01 March 2006, or the National Pollutant Discharge Elimination System Waste Discharge Permit No. WA-003212-3, or plans otherwise required and approved by Ecology. Additional mitigation measures may be required through other local, state, or federal requirements.
- H4. Copies of this document shall be kept on the job site and readily available for reference by Ecology personnel, the construction superintendent, construction managers and foremen, and state and local government inspectors. To avoid violations or non-compliance with this Order, the applicant shall ensure that project managers, construction superintendents, and other responsible parties have read and understand relevant aspects

of this Order, the NPDES permit, and any subsequent revision or Ecology-approved plans.

- H5. BNSF shall provide to Ecology a signed statement from each project manager and construction superintendent working at the project site that they have read and understand the conditions of the above-referenced documents, plans, and approvals. These statements shall be provided to Ecology no less than seven (7) days before construction begins at the site.
- H6. The applicant shall provide access to the project site by Ecology personnel for site inspections, monitoring, necessary data collection, or to ensure that conditions of this document are being met.
- H7. Nothing in this document waives Ecology's authority to issue additional orders if Ecology determines further actions are necessary to implement the water quality laws of the state. Further, Ecology retains continuing jurisdiction to make modifications hereto through supplemental order, if additional impacts due to project construction or operation are identified (e.g., violations of water quality standards, downstream erosion, etc.), or if additional conditions are necessary to further protect the public health or the environment.

AMENDMENT TO EXHIBIT H.1. OF AGREED ORDER DE-2379

Condition A3. The following short-term modification is hereby authorized pursuant to WAC 173-210A-410. Beginning September 1 through and including September 10, 2006, turbidity in the South Fork of the Skykomish River shall not exceed 50 NTU above background for a period exceeding two (2) hours and shall not exceed 25 NTU above background for a period exceeding four (4) hours. Compliance with this short-term modification shall be determined by averaging the results of samples collected outside the mixing zone established in Condition D1 from four (4) points across one-half (1/2) of the river channel as determined by estimation of the river flow. The reported turbidity for purposes of this Agreed Order is the average of the four (4) readings.



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000
TTY 711 or 800-833-6388 (for the speech or hearing impaired)

August 29, 2006

David C. Clark, P.E.
Director Environmental Remediation
BNSF Railway Company
920 Southeast Quincy Street
Topeka, Kansas 66612-1116

RE: BNSF Railway Company Former Maintenance and Fueling Facility,
Skykomish, WA, Endangerment Notification

Dear Mr. Clark:

Thank you for your letter to Jim Pendowski dated August 25, 2006, regarding turbidity exceedances with in-river work and the potential endangerment to human health and the environment during completion of the Interim Action in the South Fork of the Skykomish River. In your letter you requested a short-term modification to substantive state water quality standards made applicable by Exhibit H.1 of Agreed Order No. 3279, during the dismantling of the cofferdam from August 29 through September 15, 2006. Your letter asserts that in-river work cannot continue until you have assurance from the Washington State Department of Ecology (Ecology) on how to proceed while still being in full compliance with requirements of the order.

Because our primary concern is completing the interim action that has removed significant amounts of contamination from the river and levee, we are willing to grant a short-term modification to the water quality standards pursuant to WAC 173-201A-410, and as outlined below. However, all possible methods to reduce turbidity exceedances and associated impacts must still be taken.

AMENDMENT TO EXHIBIT H.1. OF AGREED ORDER DE-2379

Condition A3. The following short-term modification is hereby authorized pursuant to WAC 173-210A-410.

Short-term Water Quality Modification: Beginning August 29 and lasting through September 15, 2006, turbidity levels from project activity in the South Fork of the Skykomish River will be allowed above the standard only under the following conditions: Turbidity levels shall not exceed 65 NTU above the background turbidity for a period of greater than one (1) hour within a work day, and 50 NTU above the background turbidity for a period of greater than two (2) hours within a work day, and 25 NTU above the



Mr. David C. Clark
August 29, 2006
Page 2

background turbidity for a period of greater than six (6) hours during a work day, at the point of compliance of 300 feet downstream from the project site.

Monitoring Conditions: When the turbidity value is less than 25 NTU over the background turbidity, but greater than 5 NTU above background, BNSF Railway Company shall collect samples each hour 300 feet downstream from the project site. When the turbidity value exceeds 25 NTU over the background turbidity, BNSF Railway Company shall collect samples every forty-five (45) minutes 300 feet downstream from the project site.

Sampling Location: BNSF Railway Company shall collect all samples 300 feet downstream from the project site, within the turbidity plume, at a point located at a distance of half the width of the plume from the edge of the plume.

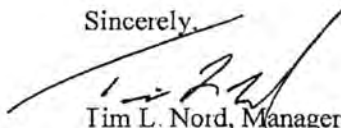
Downstream Monitoring: When the turbidity value exceed 25 NTU over the background turbidity, but greater than 5 NTU above background, BNSF Railway Company shall collect samples approximately 450 feet (the confluence with Maloney Creek), and 1000 feet downstream from the project site, measured from the west side of the cofferdam. These samples shall be collected every forty-five (45) minutes. Samples shall be collected within the turbidity plume, at a point located at a distance of half the width of the plume from the edge of the plume.

We believe this modification addresses your concerns and is appropriate for the site-specific situation. Given the limited scope of this modification, we do not believe this is a substantial change to the Agreed Order. We are willing to meet with the BNSF and its contractors to discuss or further clarify this modification.

If you have any questions or would like to discuss this further, please contact me at (360) 407-7226.

Thank you.

Sincerely,



Tim L. Nord, Manager
Land and Aquatic Lands Cleanup Section

cc: Jim Pendowski, Manager, Toxics Cleanup Program (TCP), Ecology
Louise Bardy, TCP, Northwest Regional Office (NWRO), Ecology
Jeanne Iran, Water Quality Program, NWRO, Ecology
Kristie Carevich, Assistant Attorney General
Bruce Sheppard, BNSF
Craig Trueblood, Preston Gates & Ellis
Halah Voges, The Retec Group



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000
TTY 711 or 800-833-6388 (for the speech or hearing impaired)

September 4, 2006

David C. Clark, P.E.
Director Environmental Remediation
BNSF Railway Company
920 Southeast Quincy Street
Topeka, Kansas 66612-1116

RE: BNSF Railway Company Former Maintenance and Fueling Facility,
Skykomish, WA, Endangerment Notification

Dear Mr. Clark:

On August 29, 2006, the Department of Ecology (Ecology) issued a short-term modification to turbidity standards for completion of the Interim Action in the South Fork of the Skykomish River, pursuant to WAC 173-210A-410. On September 1, 2006 we were informed by Halah Voges and Mike Byers of RETEC that BNSF was unable meet the terms of this modification and that work had stopped at noon. Additionally, I was informed that in-water work not commence again until 7:00 am, September 5, 2006, as work crews took the Labor Day weekend off.

Based on the understanding that all possible measures to control turbidity are being taken by BNSF in the course of backfilling Cells 1, 2, and 3, Ecology is granting a second short-term modification to the water quality standards pursuant to WAC 173-210A-410, and as outlined below:

AMENDMENT TO EXHIBIT H.1. OF AGREED ORDER DE-2379

Condition A3. The following short-term modification is hereby authorized pursuant to WAC 173-210A-410.

- ♦ Temporary Modification to the Turbidity Standards: Beginning September 5 and lasting through September 7, 2006, turbidity in the South Fork of the Skykomish River shall not exceed 65 NTU above the background turbidity for a period of greater than three (3) hours within a work day, and 50 NTU above the background turbidity for a period of greater than four (4) hours within a work day, and 25 NTU above the background turbidity for a period of greater than eight (8) hours during a work day, at



the point of compliance of 300 feet downstream from the project site. All other conditions of the August 29, 2006 amendment apply during this period.

- ♦ Beginning September 8, 2006, the short-term modification granted on August 29, 2006 amendment will be effective.

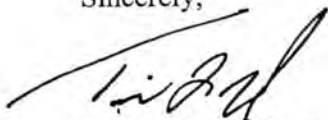
Given the limited scope of this modification, we do not believe this is a substantial change to the Agreed Order.

Please beware that Ecology feels that completing the interim action is vital to abate the serious and ongoing harm to the river from historic oil contamination, and that addressing the larger impact by finishing this cleanup effort outweighs the short term impacts on water quality authorized under this modification. Given the intrusive nature of the interim action and the potential impacts to natural resources by the modifications to water quality standards, Ecology will be consulting with the fisheries agencies to better ascertain if any natural resource damages have occurred by this cleanup.

If you have any questions or would like to discuss this further, please contact me at (360) 407-7226.

Thank you.

Sincerely,



Tim L. Nord, Manager
Land and Aquatic Lands Cleanup Section

cc: Jim Pendowski, Manager, Toxics Cleanup Program (TCP), Ecology
Louise Bardy, TCP, Northwest Regional Office (NWRO), Ecology
Jeanne Tran, Water Quality Program, NWRO, Ecology
Kristie Carevich, Assistant Attorney General
Ron Lavigne, Assistant Attorney General
Bill Mavros, Department of Fish and Wildlife
Bruce Sheppard, BNSF
Craig Trueblood, Preston Gates & Ellis
Halah Voges, The Retec Group

NTU above the background turbidity for a period of five (5) hours within a work day; 50 NTU above the background turbidity for a period of greater than six (6) hours within a work day; and 25 NTU above the background turbidity for a period of greater than eight (8) hours during a work day, at the point of compliance 300 feet downstream from the project site. All other conditions of the August 29, 2006 amendment apply during this period.

- ◆ Beginning September 16, 2006, all three short-term modifications to the Agreed Order DE-2379 will be ineffective and in-river work will no longer be permitted.

Given the limited scope of this modification, Ecology does not believe this is a substantial change to the Agreed Order.

Ecology feels that completing the interim action is vital to abate the serious and ongoing harm to the river from historic oil contamination, and that addressing the larger impact by finishing this cleanup effort outweighs the short term impacts on water quality authorized under this modification. Given the intrusive nature of the interim action and the potential impacts to natural resources by the modifications to water quality standards, Ecology is consulting with the Washington Department of Fish and Wildlife (WDFW) to better ascertain any natural resource damages that have occurred as a result of this cleanup.

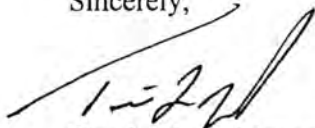
Based on a conference call on September 12, 2006 between Ecology, BNSF, RETEC and WDFW to discuss the turbidity issue, BNSF agreed to develop a mitigation plan to offset the turbidity impacts to natural resources due to turbidity exceedances allowed under this amendment. BNSF has agreed to submit a draft mitigation plan no later than November 15, 2006 (60 days from the completion of the in-river work, below the ordinary high water mark) to WDFW and Ecology for review and approval. The plan will be developed in accordance with Ecology and WDFW guidelines.

This modification is issued in accordance with Chapter 90.48 RCW and under the condition that BNSF submits the draft mitigation plan by November 15, 2006.

If you have any questions or would like to discuss this further, please contact me at (360) 407-7226.

Thank you.

Sincerely,



Tim L. Nord, Manager
Land and Aquatic Lands Cleanup Section

Mr. David C. Clark
September 12, 2006
Page 2

cc: Jim Pendowski, Manager, Toxics Cleanup Program (TCP), Ecology
Louise Bardy, TCP, Northwest Regional Office (NWRO), Ecology
Jeanne Tran, Water Quality Program, NWRO, Ecology
Kristie Carevich, Assistant Attorney General
Ron Lavigne, Assistant Attorney General
Bill Mavros, Department of Fish and Wildlife
Bruce Sheppard, BNSF
Craig Trueblood, Preston Gates & Ellis
Halal Voges, The Retec Group



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Northwest Regional Office • 3190 160th Avenue SE • Bellevue, Washington 98008-5452 • (425) 649-7000

November 22, 2006

Mr. Bruce Sheppard
BNSF Railway Company
2454 Occidental Avenue South, Suite 1A
Seattle, Washington 98134-1451

Dear Mr. Sheppard:

Re: Approval of Extension of Schedule/Minor Modification to Agreed Order DE-2379 (Exhibit E - Schedule)
BNSF Former Maintenance and Fueling Facility, Skykomish, WA

This letter documents Ecology's approval of BNSF Railway Company's (BNSF's) request for an extension of schedule under Section VIII.K of Agreed Order DE-2379 (Order), for work being performed by BNSF under the Order. Your letter of November 14, 2006 requested that certain deadlines in Exhibit E of the Order (Construction Schedule) be extended as follows: (1) that the deadline of December 1, 2006 ("Temporarily relocated homes ready for occupancy") be extended to December 9, 2006; and (2) that the deadline for December 15, 2006 ("Complete moving residents back into houses") be extended to December 23, 2006. You stated that the reason for the extension is due to work delays based on flooding and adverse weather conditions, plus additional time being necessary to respond to resident requests regarding replacement of homes.

Enclosure A outlines the new schedule reflecting these dates. Under Sections VIII.K.3 and VIII.L of the Order, we consider this to be a minor modification to the work already being performed under the Order.

Thank you for all your efforts to move the residents back into their homes before the holidays. If you have any questions, please contact me at 426-649-7209 or lbar461@ecy.wa.gov.

Sincerely,

A handwritten signature in cursive script that reads "Louise Bardy".

Louise Bardy
Toxics Cleanup Program



Mr. Bruce Sheppard
November 22, 2006
Page 2

Enclosure A

cc: Tim Nord/Ron Timm/Dave South/Susan Lee/Jeanne Tran, Ecology
Kristie Carevich, Assistant Attorney General
Halah Voges, The Retec Group
Craig Trueblood, Preston Gates Ellis
Mayor Charlotte Mackner, Town of Skykomish
David Carson, Bell & Ingram
Clint Stanovsky, Town of Skykomish
Michael Moore, Skykomish Environmental Coalition
Daryl Petrarca, ADapt Engineering

ENCLOSURE A

Exhibit E

Construction Schedule

May 15, 2006	Notify Ecology whether all relocation/access agreements signed.
May 15, 2006	Submit revised work plan for Ecology review and approval if all relocation/access agreements have not been obtained.
May 15, 2006	Begin temporarily relocating houses.
September 15, 2006	Work completed to a point and site conditions such that school can start on this date.
December 9, 2006	Temporarily relocated homes ready for occupancy.
December 23, 2006	Complete moving residents back into houses.
December 31, 2006	All material to be sent off-site for disposal has been sent off-site OR a contingency plan, which provides for all material to be sent offsite for disposal by a contingent date of March 30, 2007, has been submitted to Ecology for review and approval.
March 30, 2007	Contingent date by which all material to be sent off-site for disposal has been sent off-site.
March 30, 2007	Submit Draft As-Built Report to Ecology for all work completed prior to December 31, 2006. This report will note work which remains to be completed.
June 30, 2007	All work completed, including infrastructure replacement; all construction equipment demobilized.
July 31, 2007	Submit Draft As-built Report to Ecology for all work completed between January 1, 2007 and June 30, 2007.



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Northwest Regional Office • 3190 160th Avenue SE • Bellevue, Washington 98008-5452 • (425) 649-7000

December 21, 2006

Mr. Bruce Sheppard
BNSF Railway Company
2454 Occidental Avenue South, Suite 1A
Seattle, Washington 98134-1451

Dear Mr. Sheppard:

Re: Approval of Extension of Schedule/Minor Modification to Agreed Order DE-2379 (Exhibit E - Schedule)
BNSF Former Maintenance and Fueling Facility, Skykomish, WA

This letter documents Ecology's approval of BNSF Railway Company's (BNSF's) request for an extension of schedule under Section VIII.K of Agreed Order DE-2379 (Order), for work being performed by BNSF under the Order. Your letters of December 8 and December 18, 2006 requested another extension due to adverse weather and related power outages and road closures. You stated that Potelco would not guarantee to have power connections made by the end of the year. Due to this, you believe the houses would be ready for occupancy by January 6, 2007 and residents moved back by January 12, 2007.

Since the delays were due to circumstances outside of BNSF's control, Ecology believes the schedule extension is reasonable and considers this to be a minor modification to the Agreed Order. Ecology understands that BNSF either has already, or will expeditiously, notify all affected residents of this schedule extension. Ecology expects that BNSF will coordinate in good faith with residents to ensure continued and undisputed access to their properties in order to finish work according to this extended schedule.

Please see the enclosed modified Exhibit E Construction Schedule reflecting the revised dates.

Thank you for all your efforts to move the residents back into their homes as soon as possible. If you have any questions, please contact me at 426-649-7209 or lbar461@ecy.wa.gov.



Mr. Bruce Sheppard
December 21, 2006
Page 2

Sincerely,

A handwritten signature in cursive script that reads "Louise Bardy". The signature is fluid and elegant, with the first name "Louise" and last name "Bardy" clearly distinguishable.

Louise Bardy
Toxics Cleanup Program

Enclosure: 1

cc: Tim Nord/Ron Timm/Dave South/Susan Lee, Ecology
Kristie Carevich, Assistant Attorney General
Halah Voges, The Retec Group
Craig Trueblood, Preston Gates Ellis
Mayor Charlotte Mackner, Town of Skykomish
David Carson, Bell & Ingram
Clint Stanovsky, Town of Skykomish
Michael Moore, Skykomish Environmental Coalition
Daryl Petrarca, ADapt Engineering
Dick and Roberta Mitchell
Allan Bakalian, Hanson Baker Ludlow Drumheller
Bill and Desiree Gould

Exhibit E

Construction Schedule

April 15, 2006	Notify Ecology whether all relocation/access agreements signed
May 1, 2006	Submit revised work plan for Ecology review and approval if all relocation/access agreements have not been obtained
May 15, 2006	Begin temporarily relocating houses
September 15, 2006	Work completed to a point and site conditions such that school can start on this date
January 6, 2007	Temporarily relocated homes ready for occupancy
January 12, 2007	Complete moving residents back into houses
December 31, 2006	All material to be sent off-site for disposal has been sent off-site OR a contingency plan is to be presented to Ecology for review and approval which provides for all material to be sent offsite for disposal by March 30, 2007.
March 30, 2007	All material to be sent off-site for disposal has been sent off-site.
March 30, 2007	Submit Draft As-Built Report to Ecology for all work completed prior to December 31, 2007. This report will note work which remains to be completed.
June 30, 2007	All work completed, including infrastructure replacement; all construction equipment demobilized
July 31, 2007	Submit Draft As-built Report to Ecology for all work completed between January 1, 2007 and June 30, 2007.

Appendix O

**Technical Memorandum – Results of Archaeological
Monitoring, Interim Action for Levee Zone Cleanup in
Skykomish, King County, Washington by NWAA**

TECHNICAL MEMORANDUM

RESULTS OF ARCHAEOLOGICAL MONITORING
INTERIM ACTION FOR LEVEE ZONE CLEANUP IN SKYKOMISH
KING COUNTY, WASHINGTON

Submitted to

The RETEC Group, Inc.
Seattle, Washington

By

Northwest Archaeological Associates, Inc.

March 30, 2007

NWAA Report Number WA 07-008

CONTAINS CONFIDENTIAL INFORMATION – NOT FOR GENERAL DISTRIBUTION

Northwest Archaeological Associates, Inc.
5418 - 20th Avenue NW, Suite 200
Seattle, Washington 98107

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INTRODUCTION

Between July and September, 2006, Northwest Archaeological Associates, Inc. (NWAA) archaeologically monitored an environmental cleanup action in northeastern King County. The project, called the Interim Action for Levee Zone Cleanup (Interim Action), is on the left (south) bank of the South Fork Skykomish River and extends west from the Skykomish Bridge for 700 feet along the river, approximately 135 feet south and upland from the river bank, and extends into the river channel between 10 and 30 feet (Figure 1). The Interim Action is part of a larger site known as the BNSF Former Maintenance and Fueling Facility (the Site) in the east King County town of Skykomish (Figure 2). As outlined in Section 2.1 of the Feasibility Study (RETEC, 2005), railroad operations at the facility since it opened in the late 1890s included refueling and maintaining locomotives and operating an electrical substation for electric locomotives. These activities released contaminants to the rail yard and surrounding environment. BNSF has accepted responsibility for cleaning this historical contamination at the site consistent with the Model Toxic Control Act (MTCA) and the Washington State Environmental Protection Act (SEPA). The BNSF facility is now used for track maintenance and snow removal crews.

During the preparation of the EIS and production of its supporting documents, two cultural resources documents have been produced. The first was a technical report by NWAA that assessed the potential for cultural resources to be affected by proposed remedial actions at the Site (Boswell and Hodges 2005). For this assessment NWAA conducted a review of the relevant literature pertaining to the prehistory, ethnography, ethnohistory and history of the project site and vicinity. Also reviewed were existing base maps, soil surveys, aerial photographs, and project plans to identify areas where additional field investigations may be necessary. The project site was visited to examine areas of proposed ground-disturbing activities and to evaluate the potential for disturbance to archaeological and historic resources. The technical report detailed the methods used to assemble information about the archaeological and historic resources, discussed the results of archival research and field investigations, and presented recommendations regarding the effects the project may have on known and newly discovered cultural resources.

The cultural resources assessment identified areas, including the Interim Action, that had potential to contain historical and pre-contact archaeological materials, and so NWAA also produced an archaeological resources monitoring and discovery plan (NWAA 2006) that outlined procedures and protocols in the event of inadvertent archaeological discoveries during implementation of the action. The monitoring and discovery plan was attached as an appendix to a technical memorandum submitted to The RETEC Group, Inc (NWAA 2006) which summarized the history of the project, the regulatory context within which the project operates, listed the impacts to cultural resources posed by implementation of the proposed action, and described the measures proposed to mitigate those impacts (NWAA 2006). Among the measures proposed and adopted was archaeological monitoring during the Interim Action.

This technical memorandum reports on results of archaeological monitoring activities conducted by NWAA during implementation of the Interim Action. Monitoring methods, field conditions, descriptions of finds, and preliminary classification of the artifacts found during the project are presented below. This memorandum is attached as an appendix to the Interim Action Completion Report.

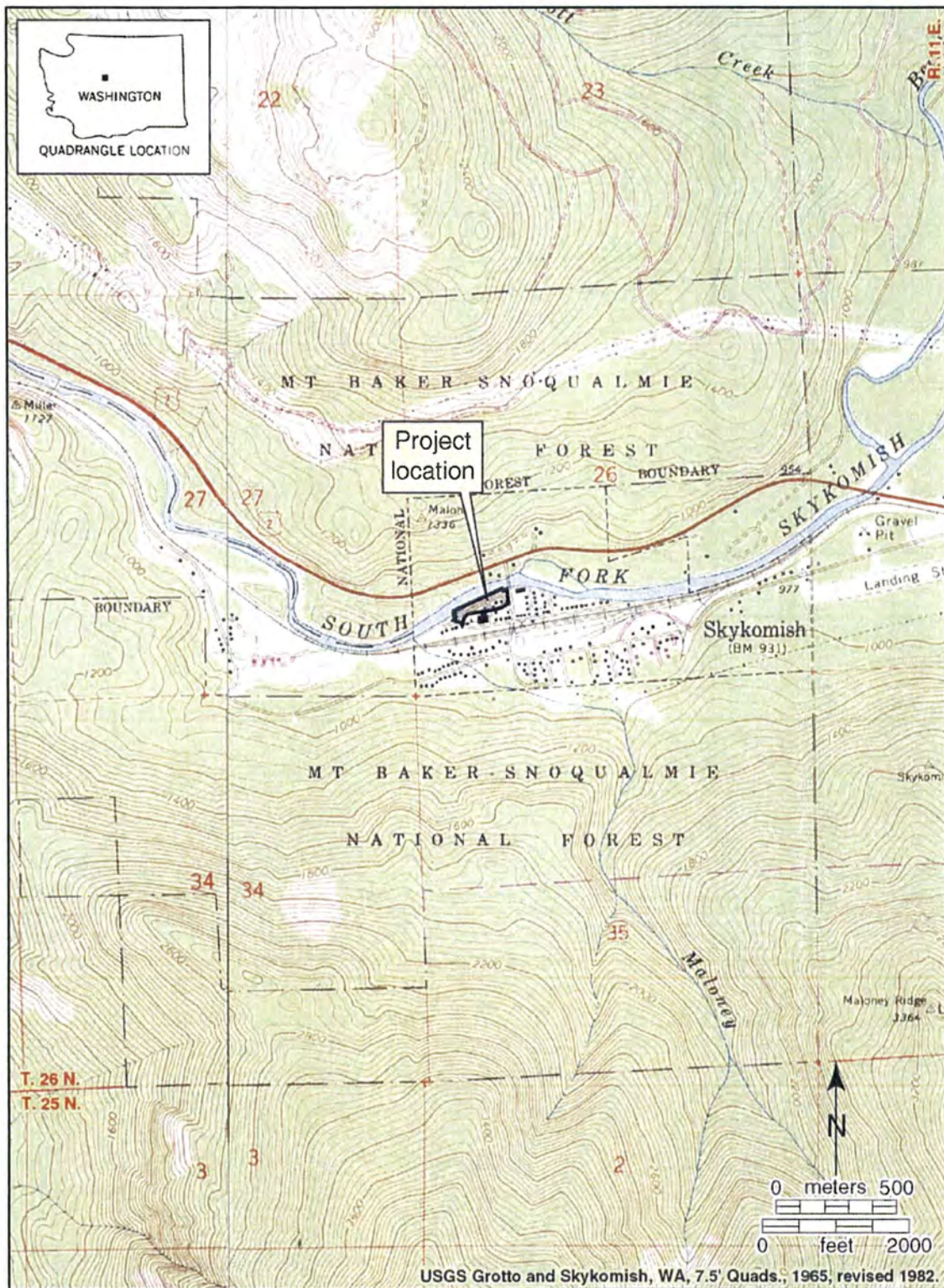


Figure 1. Project location.

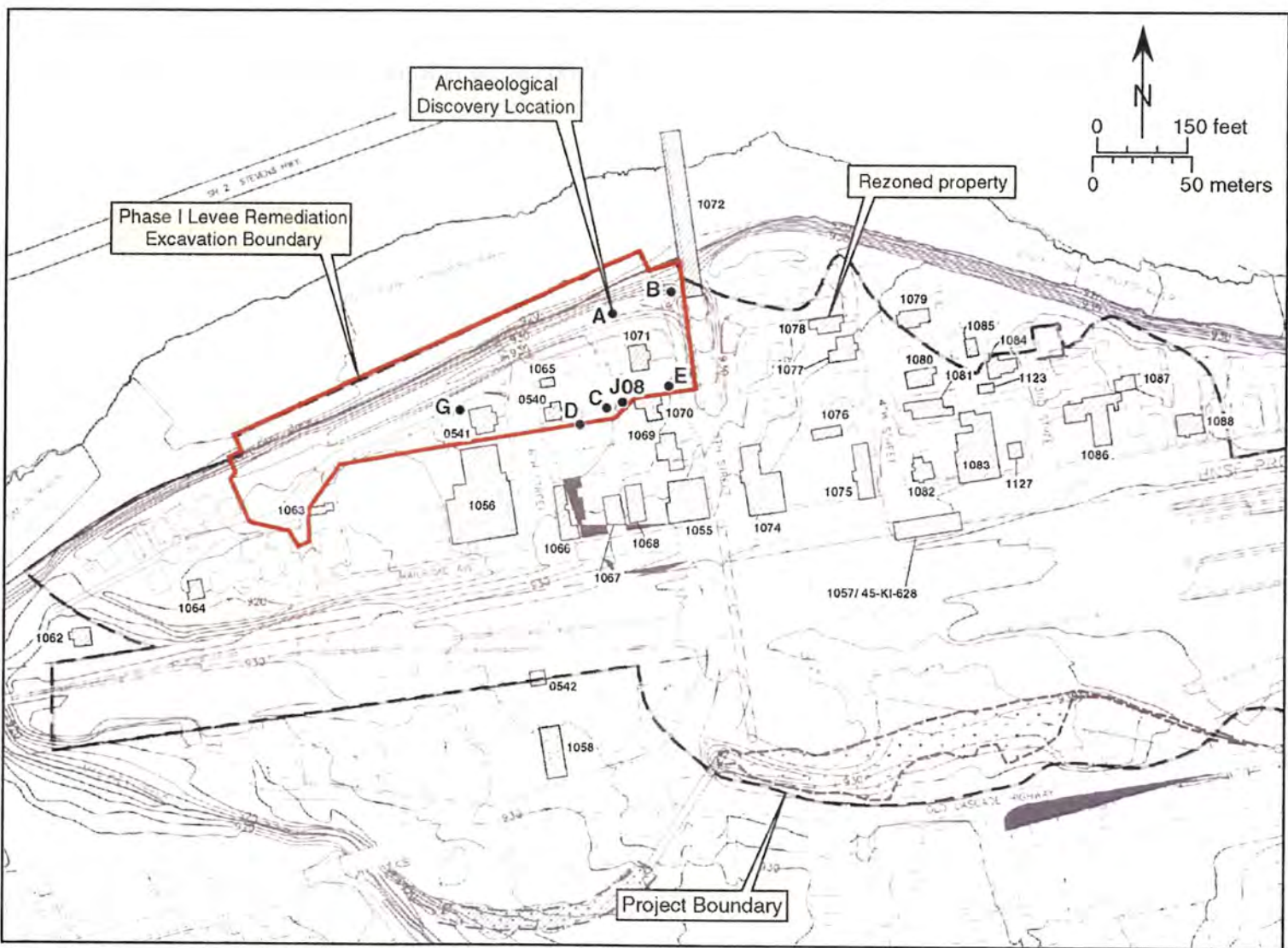


Figure 2. Site map of the interim action for levee zone cleanup.

PROJECT DESCRIPTION

The objective of the Interim Action was to protect the South Fork Skykomish River and its sediment from contaminant discharge, and to remediate residential and public properties by removing existing petroleum contamination underlying these properties. Execution of the cleanup involved the temporary relocation of five residences; excavation of the levee along the South Fork Skykomish River; excavation of underlying soils and sediments along the south bank of the South Fork Skykomish River within approximately 135 feet of the shoreline, including beneath the five residences; reconstruction of the levee; and restoration of natural resources, private property and public infrastructure disturbed by the remedial action. Approximately 70,000 cubic yards of petroleum-contaminated soils and sediment were excavated. After the excavation was completed, the flood control levee was replaced and the land restored to the original grade.

The action is the final cleanup action for the Levee Zone, and is the first phase of a multi-phase cleanup for the entire site that includes the remaining portions of the Site (designated as the Northwest Developed Zone, the Northeast Developed Zone and the Rail Yard Zone, the South Developed Zone and the Former Maloney Creek Channel Zone).

REGULATORY SETTING

Regulations Governing the MTCA Process

The Interim Action was carried out under the authority of Chapter 70.105D RCW, Hazardous Waste Cleanup – Model Toxics Control Act (MTCA), and its implementing regulations, Chapter 173-340 WAC, The Model Toxics Control Act Cleanup Regulations. This statute and its implementing regulations apply to all remedial actions at the Site.

The Interim Action was designed in accordance with the Washington Administration Code (WAC) 173-340, and the Model Toxics Control Act (MTCA) Cleanup Regulations as described in the Engineering Design Report (EDR) (RETEC, 2006). Under MTCA, Ecology developed site-specific cleanup levels and remediation levels which are presented in the FS (RETEC, 2005a).

Applicable or Relevant and Appropriate Requirements

Applicable or relevant regulatory requirements include health and safety regulations, stormwater management, noise and odor control, waste characterization, hauling of excavated materials, zoning and land use, historic preservation, solid waste management, excavation, backfilling, grading, endangered species protection, and air and water quality. These are detailed in Sections 2.2.1 through 2.2.9 of the EDR (RETEC, 2006) and are listed here for reference:

- WAC 296-155: Safety Standards for Construction Work
- 29 Code of Federal Regulations (CFR) 1910.21: Occupational Safety and Health Standards
- Revised Code of Washington (RCW) 70.107; WAC 173-60: Washington Noise Control Act

- WAC 173-303: Dangerous Waste Regulations
- RCW 46: Motor Vehicles
- WAC 173-304: Solid Waste Management
- WAC 173-460 and the Puget Sound Clean Air Agency: Air emissions criteria for the site
- Clean Water Act Sections 401, 402 and 404: Discharge of pollutants to surface water, construction activities within wetlands and waters of the U.S.
- RCW 90.56: Plans, standards, and penalties associated with oil and hazardous substance spill prevention and response.

Permits

The Interim Action was conducted at Ecology's direction under a MTCA Order. In accordance with Ecology Policy 130B (Permit Exemptions for Remedial Actions under MTCA, February 17, 1995), and MTCA (RCW 70.105D.090), work conducted pursuant to a MTCA order is exempt from the procedural requirements of state and local permits, including chapters 70.94, 70.95, 70.105, 75.20 (Hydraulic Permit), 90.48 (Water Quality), and 90.58 (Shorelands) RCW. All local and state substantive requirements must be addressed during remedial design as described in Section 2.3 of the EDR (RETEC, 2006) and a new Agreed Order. Certain federal permits are required for the levee remediation work. Applicable federal permits are detailed in the EDR and include:

- Permit for Discharges of Material into Navigable Waters pursuant to Sections 401 and 404 of the Clean Water Act (33 USC Sections 1341 and 1344), 40 CFR Part 230 [Section 404(b)(1) guidelines], 33 CFR Parts 320 (general policies), 323 and 325 (permit requirements), and 328 (definition of waters of the United States).
- National Pollution Discharge Elimination System (NPDES) permit (Section 402 of the Clean Water Act).

The following local and state permits would ordinarily be required, but the Interim Action was exempt from them if conducted pursuant to a MTCA order issued by Ecology. The substantive requirements that would ordinarily be included in these permits are incorporated into the EDR or the MTCA order, and are listed below:

- Hydraulic Project Approval, including a Joint Aquatic Resource Permit Application (JARPA), from the State Department of Fish and Wildlife
- Town of Skykomish Shoreline Substantial Development Permit
- King County special use permit for septic drainfields
- Water quality protection requirements.

The substantive requirements of the Town of Skykomish Zoning Code, Flood Plain Management Ordinance, Shoreline Master Program and Critical Areas Ordinance were also met. The work also complied with Title 13 of the Code of the King County Board of Health (on-site septic systems).

Federal and State Cultural Resource and Historic Preservation Regulations

1Although the regulations governing implementation of the MTCA do not specifically refer to cultural resources, the act does contain provisions to ensure that projects carried out under auspices of the act conform to applicable laws and regulations regarding resources potentially affected by a clean-up action. Since the proposed project activities include federal and state regulatory jurisdictions that cover proposed shoreline and levee work, BNSF is submitting a Joint Aquatic Resources Permit Application (JARPA), which comes under the purview of the Army Corps of Engineers (ACE). Ecology is overseeing the rest of the project under SEPA.

Because the levee remediation interim action involves issuance of federal permits, that portion of the proposed project qualifies as an undertaking subject to provisions of the National Historic Preservation Act (NHPA), as amended 2000 (P.L. 106-355; 16 U.S.C. 470). The NHPA requires that agencies identify and assess the effects of federally permitted or approved undertakings on historic resources, archaeological sites, and traditional cultural properties (TCPs), and to consult with others to find acceptable ways to avoid or mitigate adverse effects.

The review process, explicated in Section 106 (36 CFR 800) of the NHPA, consists of four steps: identification and evaluation of historic properties, assessment of effects of the undertaking, consultation to resolve adverse effects, and comment by the Advisory Council. Resources protected under Section 106 are those listed, or are eligible for listing, in the National Register of Historic Places (NRHP). Eligible properties must be at least 50 years old, possess integrity of physical characteristics, and meet at least one of four criteria of significance. Historic properties may include archaeological sites, traditional places, buildings, structures, districts, or objects. Regulations implementing Section 106 encourage maximum coordination with the environmental review process required by the National Environmental Protection Act (NEPA) and with other statutes.

To preserve the state's heritage and to provide for protection of cultural resources, public archaeology in the State of Washington is guided by several pieces of legislation. Foremost among these is the Archaeological Sites and Resources Act [RCW 27.53] which prohibits knowingly excavating or disturbing prehistoric and historic archaeological sites on public or private land. The Indian Graves and Records Act [RCW 27.44] prohibits knowingly destroying American Indian graves and provides that inadvertent disturbance through construction or other activity requires reinterment under supervision of the appropriate Indian tribe.

SEPA requires identification of places or objects on or adjacent to the project that are listed or proposed for listing on a historic register and of places or objects on or adjacent to the project that are of archaeological, scientific, or cultural importance. Finally, the act enjoins proponents to devise and apply appropriate mitigation measures for historic or cultural resources.

In sum federal, state, and county acts, regulations, and ordinances covering historic resources applicable to the proposed action include:

- *National Historic Preservation Act Section 106*: Procedures for identification and assessment of effects of federally assisted undertakings on historic properties.
- *36 CFR Part 800*: Regulations governing the protection of historic properties
- *RCW 27.53*: Archaeological Sites and Resources Act.

- *RCW 27.44: Indian Graves and Records Act.*
- *King County Code (KCC) Chapter 20.62: Procedures for designation and protection of historic landmarks.*
- *King County Ordinance 2005-0337: Interlocal agreement with the Town of Skykomish to provide historic landmark designation and protection services.*

In addition, local ordinances and guidelines specified in the town of Skykomish Community Development Plan (1978) and the Comprehensive Plan (1993) relevant to historic resources were also adhered to.

ARCHAEOLOGICAL MONITORING METHODS

Cultural resource monitoring of the Levee Zone Interim Action Cleanup lasted approximately three months beginning on July 11, 2006 and extending through September 27, 2006. NWAA archaeologists Austin Jenkins, Alex Stevenson and Joshua Watrous monitored the excavation of the contaminated soils and were on-call for the duration of the project. The Interim Action was managed by The RETEC Group, Inc., and Wilder Construction Co. was the general contractor. Dennis Metz, the Site Engineer for The RETEC Group Inc., and Sarah Albano (RETEC) were the primary field contacts during the project.

Prior to major excavation activities, several homes which had been built on the contaminated sediments were temporarily relocated to the east end of the town of Skykomish. These houses were inspected and the interior was filmed before being moved. The houses were placed in a fenced and secured area for the duration of the relocation, and electric heaters and dehumidifiers were operated in the houses as weather conditions required. Further details of activities conducted to document and maintain the condition of the houses are provided in the main body of the Interim Action Completion Report (of which this report is an appendix).

In addition, before the old levee could be removed, it was necessary to construct a temporary cofferdam north of the project area in the Skykomish River channel (Figure 3). These activities, and the excavation of some contaminated soils in the northwest quadrant of the project area, took place in early July, 2006, without the presence of an archaeological monitor. NWAA archaeologists arrived on site on July 11, 2006, to observe the removal of contaminated sediments.

The Interim Action Area was divided into excavation grids, and sediment was removed in layers and terraced in order to access and load out sediment between the surface and 15 feet below the surface (fbs), and between 2 and 3 feet below the water table (refer to Interim Action Completion Report). The standard excavation procedure was to excavate a large section (25 feet x 75 feet, or the equivalent of three alphanumeric grids) in terraced steps. First, all three 25-square-foot sections were excavated to approximately 5 to 6 fbs. Then two of the three grid sections were excavated to approximately 6 to 12 fbs to 1 to 2 feet above the water table. Finally, the remaining grid section was excavated to grade elevation below the water table. The Wilder Construction Co. equipment operators proceeded in this fashion, maintaining a terraced configuration, for the duration of the project (Figure 4). The depth excavated below the water table varied depending on the contaminant level in the sediment.



Figure 3. Overview of the western end of the Interim Action showing the coffer dam along the left bank of the South Fork Skykomish River.



Figure 4. Example of the terraced configuration used to excavate contaminated sediments.

The rate of excavation and the construction schedule was contingent upon a variety of factors including inclement weather, amount of soil saturation and viscosity, and material storage and transportation. In spite of the vagaries in scheduling, RETEC and Wilder were able to give NWAA at least 24 hours notice prior to the excavation of sensitive areas requiring archeological monitoring.

BNSF provided Wilder Construction space on the railyard to stockpile the excavated material east of N 5th Street and between the railroad tracks and Old Cascade Hwy. When the spoils stockpiles reached heights of about 25 feet excavations would be halted until the height of the stockpiled excavation spoils was reduced. During heavy rains or when excavations focused on sediments below the water table, excavation was halted for 12 or more hours. In these instances the supersaturated non-viscous sediments were un-stackable and Wilder could neither pile the dirt higher nor haul it away fast enough to keep up with the excavation.

The Interim Action project area was cleaned up under an Agreed Order between the BNSF Railway Company and the Washington Department of Ecology in accordance with the Model Toxics Control Act (MTCA) (WAC 173-340). The site contained elevated concentrations of petroleum hydrocarbons (diesel fuel and Bunker C) and their constituents and lead in shallow soil. Therefore, NWAA monitors without the level of training required by the Occupational Safety and Health Administration (OSHA), as required by the Hazardous Waste Operations and Emergency Response Standard (HAZWOPER) (29CFR 1910.120), were required to observe the excavations with high quality 10 x 50-power binoculars along the perimeter of the project area or from the vantage of the 5th Street bridge across the Skykomish River. The binoculars enabled the archaeological monitors to observe exposed buried surfaces and excavated sediment before it was loaded onto dump trucks.

If any cultural material was observed, excavation in the area was temporarily halted and a RETEC employee escorted the NWAA archaeologist into the project area to investigate. The NWAA archaeologist would then take a few minutes to thoroughly examine any unearthed cultural material to determine the nature of the discovery and the significance of the find. All discoveries were recorded on standard NWAA monitoring forms and the area of discovery was photographed.

Daily monitoring activities included photographing the various stages of the excavation and recording notes and observations on standard NWAA monitoring forms. Collected artifacts, primarily modern and historic glass bottles, were photographed and later cataloged. The sediments were documented in general terms with the primary focus on the upper Holocene deposits.

RESULTS

Archaeological Resources

All the observed archaeological material was in the upper Holocene sediments which extended to an average depth of approximately 6 feet below ground surface (fbs); the coarser-grained deposits below 6 fbs represent glacial recessional deposits laid down as the continental ice sheet retreated at the end the last glacial advance (Figure 5). The stratigraphic sequence in the project area was consistent and depositional units did not exhibit substantial vertical or lateral variability. The generalized vertical sequence was as follows:

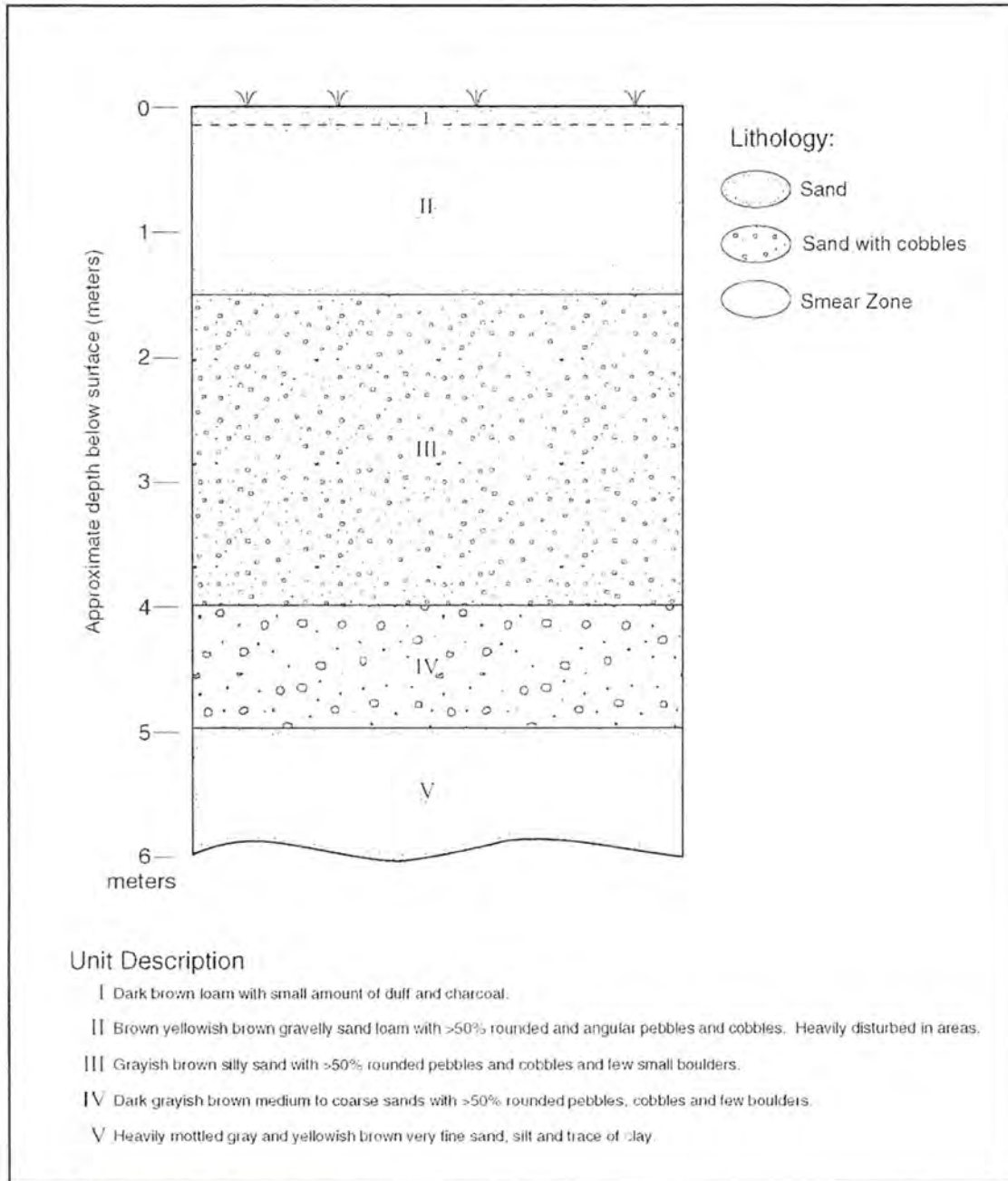


Figure 5. Generalized depositional sequence.

- 0-0.5 fbs (0-15 centimeters below surface (cmbs)): dark brown to brown sandy gravelly loam with a small percentage of sod, duff and charcoal flecks and small charcoal fragments;
- 0.5 to 5 fbs (15 cmbs -150 cmbs): brown or yellowish brown gravelly sand loam with very many pebbles and cobbles;
- 5 to 11-12 fbs (150 – 400 cmbs): grayish brown gravelly silty sand with gravel sizes ranging up to small boulders;
- 12 to 15 fbs (400 - 500 cmbs) was dark grayish brown medium sandy gravel with gravel sizes ranging up to boulders; and
- 15 fbs and greater: gravel-free heavily mottled gray and yellowish brown fine silt and clay.

The area between 10 and 15 fbs was the smear zone, where the water table carried the diesel and Bunker C through the sediments, and is the area where most of the contamination was concentrated.

Archaeological monitoring for the Interim Action was completed on September 27, 2006. There were five discrete areas (Areas A, B, C, D & E) within the project boundaries that contained concentrations of historical artifacts (Figure 2). In all of the discovery areas, the historical archaeological material was shallowly buried below the surface. Analysis of the temporally sensitive artifacts indicate the times of manufacture spanned the early to middle 20th century. (Selected artifacts collected during monitoring are shown in Figure 6; see Appendix A)

None of the five areas exhibited evidence consistent with a privy or a discrete refuse pit. No pre-contact archaeological materials or human remains were encountered in any area of the project.

The following sections describe the context of discovery and the archaeological materials found in the five discovery areas.

Area A - North End of Grid E06

On September 11, 2006, the remnants of a buried wooden retaining wall or bulkhead, and levee were uncovered parallel to the Skykomish river along the east row of the RETEC sampling grid. Rough-cut wood poles about 12 inches in diameter and spaced about 15-20 feet apart had been used as piles with poles laid horizontally against the piles to form the wall (Figure 7). The visible portion of this structure measured approximately 200 feet long and was considered to be a primitive levee or shore protection bulkhead constructed prior to the existing earthen levee. Abutting the south (shoreward) side of the old wooden bulkhead in grid section E06 was a small concentration of historical debris. The scattered cultural debris, dating from about the turn of the century to the 1930's, included fragmented glass bottles, ceramics (Figure 6, a), fragments of a light fixture, and a leather woman=s shoe. These artifacts were not in a discrete pit or pile but were scattered over approximately a 3-foot-square (1 m²) area. Given the fragmented nature of the artifacts and considering their close proximity to the bulkhead or levee, it is probable these objects had been redeposited during the construction and backfilling of either the wooden bulkhead or the earthen levee and were not part of an intact historic midden or privy.



Figure 6. Selected artifacts collected during archaeological monitoring, shown at 50% actual size (i: catalog number, area recovered).



Figure 7. Remains of a buried wooden retaining wall in Area A.

Area B - East End of Grid E02 and F02

On September 14, 2006, a small concentration of glass bottles was exposed along the east margin and around the intersection of grid sections E02 & F02. The bottles were observed when an area about 5 to 7 feet (1.5 to 2.0 m) west of the 5th Street concrete bridge footing was being cut and sloped at a 45° angle. In all, between 10 to 15 bottles in various states of completeness were recovered from an area measuring about 7 square feet (2 m²). Small and unidentifiable or non-diagnostic fragments of bottles or other artifacts were not collected. The collected artifacts included a white milk glass mason jar lid, a Durkee Salad Dressing bottle, an amber-colored pectin bottle (Figure 6, b), 3 beer bottles and 4 clear-glass bottles. Dates of manufacture ranged from the late 1800s to the late 1940s (see Appendix A).

The bottles were found in approximately 1.0 – 1.5 fbs (35-45 cmbs) in yellowish brown gravelly silty sand. Poorly sorted abundant angular and rounded gravels, and cobbles and large angular boulders representing fill associated with the bridge foundation, are mixed throughout the yellow sandy sediments. This area was judged to be highly disturbed due to its proximity to the foundation and footings of the 5th Street Bridge (Figure 8). The bridge was completed in 1939 and the manufacturing dates of the bottles suggest they may have been deposited during the bridge's construction.



Figure 8. Overview of Archaeological Discovery Area B (arrow marks find location).

Areas C and D - Nw Quadrant of Grid K07, Ne Quadrant of Grid K08, Se Quadrant of Grid J08

On September 26, 2006, excavations were extended south to encompass grid sections K08 and K09 and a portion of K10. During excavation of these sections two discrete concentrations of historical debris were uncovered. The larger concentration (Area C) was unearthed around the intersection of grid sections J08, K07 and K08 while the smaller concentration (Area D) was at the intersection of K09 and K10.

Area C

The larger concentration of historic debris was found during excavations 8 to 10 feet (2.5-3 m) west of the gray shingled shed behind House #1070, and close to the intersection of grid sections J08 and K08. During the excavations, a relatively large concentration of historical bottles was uncovered about 1 fbs (20-30 cmbs) under a large blackberry patch covering an area measuring approximately 5 feet (150 cm) in diameter (Figure 9). There was a large pile of grass clippings and plant debris as well as modern garbage within the boundaries of the blackberry patch. In addition to the bottles there were several small white ceramic sherds and a saw-cut left pelvic bone of a deer. It is possible garbage was thrown over the fence into the blackberry patch from the backyard of House #1070 until relatively recently, and that this area has been used as a dump site for some time.

The sediments and surrounding area did not provide evidence to suggest these bottles were deposited in a refuse pit -- the sediment encasing the bottles was not organically-enriched as



Figure 9. Overview of Archaeological Discovery Area C (arrow marks find location).

would be expected in a privy or refuse pit but instead was a homogenous yellowish brown gravelly sand similar to sediments elsewhere underlying in the project area.

More than 20 fragmented and whole bottles were observed and 18 intact bottles were collected. The collected artifacts included several small cobalt-colored Bromer's Seltzer bottles (Figure 6, c), a small white-glass Cudahy Packing Co. jar, a clear-glass Murine Eye Remedy bottle, two clear-glass whiskey bottles (Figure 6, d), a green wine bottle, and several clear-glass condiment bottles. The dates of manufacture of these bottles range from the late 1800s to the 1950s.

Area D

As excavations continued to the south a small amount of historic debris was unearthed from the southeast quadrant of grid section K10 and the southwest quadrant of grid section K09. The amount of historical debris at this location was considerably less than the concentration at Area C, and consisted of 8 fragmented and whole bottles along with several highly fragmented sherds of a white ceramic cup and plate. The debris was between 0.6 and 1.0 fbs (10-30 cmbs) and occupied an area less than three square feet (1 m²) characterized by yellowish brown gravelly sand loam. No dark brown or black organically enriched sediments indicating anthropic enhancement were observed in association with the artifacts. The depth of the deposit and the lack of organic staining indicates the bottles were not buried in a historical privy or midden, but it is possible the original sediments these bottles were deposited in may have been disturbed in the last 50 years by the construction of the surrounding houses. Four glass bottles were collected, and included two brown-glass beer bottles (Figure 6, h) and two clear-glass

condiment bottles. The possible manufacturing dates of the four bottles range from the beginning to the middle of the 20th century.

Area E - South Half of Grid J04

On September 19, 2006, the remains of a decoratively stamped iron stove and its associated burned and fragmented contents were unearthed along the southern margin of the project area in grid J04. The stove, along with ceramic sherds (including stoneware), and glass shards, was unearthed from approximately 1.0 to 1.5 fbs (30-50 cmbs) when the south end of grid J04 was being cut and sloped at a 45° angle. The stove was heavily rusted and appeared to have been broken and the pieces scattered on the ground. The uniform rust patina and rust on the broken edges of the stove parts indicated the stove had been buried in its broken state for some time. Due to the poor state of preservation, the stove was photographed only and the parts were not collected. No other archaeological material was observed in the vicinity of the stove (Figure 10).

Isolated Find, Grid J08

On September 23, 2006, while excavating along the grid J06-J08 transect, a white ceramic light fixture was recovered from a backhoe bucket sample. The light fixture had cloth-insulated wiring and a Bakelite electrical socket that screwed into the light fixture. Bakelite was first manufactured in 1907, indicating that the light socket is at least that old (Wikipedia 2006). Further investigation of the area from which the light fixture had been excavated revealed no additional archaeological materials and it appears the light fixture was an isolated find.



Figure 10. Overview of Archaeological Discovery Area E (arrow marks find location).

Artifact Analysis

The historic materials recovered during the archaeological monitoring were classified by material type and form (Appendix A). The artifacts were then analyzed to identify details of manufacture, function, and chronological significance. Table 1 below summarizes the collected artifacts by material type, and Table 2 lists the chronologically significant artifacts. Manufacturer marks, including manufacturing styles of recovered bottles and markings on one ceramic sherd, indicate the artifacts were manufactured in the early twentieth-century, and most were produced after 1920.

Table 1. Summary of Historic Archaeological Materials by Material Type.

MATERIAL	NUMBER	PERCENT OF ASSEMBLAGE
Ceramics	6	10.17
Glass	50	84.75
Metal	1	1.69
Leather	2	3.39
Total	59	100

Table 2. Dates of Manufacture Derived from Temporally Sensitive Artifacts (by Catalog Number).

CATALOG NO.	QUANTITY	MARK/ COMPANY OR MANUFACTURER	DATES
3	1	Charles Ellis Son & Co., Philadelphia, PA	1871+
4, 5, 6	3	Bromo Seltzer, Baltimore, MD; American Bottle Company, Chicago, IL	1905-1916
9	1	The Murine Eye Remedy Company, Chicago, IL	c1890
12	1	The T.A. Snider Preserve Co., Cincinnati, OH	c1900-1950
13	1	Fairmount Glass Works/ Company, Indiana	1930-1945
15	1	H.J. Heinz Co., Pittsburgh, PA	1904-1946
25	1	E.R. Durkee & Co., New York, NY	1874-1929
26	1	Owens-Illinois Glass Co., Factory 21, Portland, OR	1969
27	1	Owens-Illinois Glass Co., Toledo, OH	1930-1954

Artifacts manufactured from glass ($n = 50$) are the largest category with bottle glass being the most prevalent type. No glass tableware or decorative items were recovered. Most bottles were manufactured using automatic bottle-making machines, which was common for glass vessels manufactured during the twentieth-century. The remainder of the bottles were made using semi-automatic or hand-manufacturing processes, although by the second decade of the twentieth-century, half of American bottles were made with Owens bottle-blowing machines (Miller et. al. 2000). The majority of vessel glass ($n = 24$) is colorless or aqua glass typical of containers holding non-alcoholic products like sauces, sodas, and medicines. Nine vessels were manufactured of brown, green, or olive glass typical used for alcoholic beverages such as wine, champagne, beer, or liquor.

One hand-painted porcelain ceramic sherd (Catalog #40, Figure 6, a) is stamped with a "Made in Germany" mark on its base. Ceramics imported after adoption of the McKinley Tariff Act of 1891 were required to bear the mark of their country of origin and ceramics bearing the phrase "Made in" were imported after a 1921 amendment required these additional words (Godden 1964:11).

A woman's left shoe (Catalog #45) in a style popular during the early twentieth century was also recovered. All parts of this artifact were machine-stitched and the stitches connecting the upper to the sole are characteristic of shoes made using the McKay machine (Anderson 1960:59). The McKay machine was patented in 1864 and was still one of the principal methods of shoe manufacture as late as 1912 (Anderson 1960). The shoe had been resoled and an additional layer of leather nailed to the sole. Once the extra layer had been worn through the shoe had been discarded.

CONCLUSIONS

No pre-contact archaeological materials nor features or human remains were encountered in the project area, and no intact historical archaeological materials were uncovered during excavations. Artifacts collected during the archaeological monitoring have been bagged and cataloged, and will be released to the Skykomish Historical Society upon completion of the project.

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APPENDIX A: Artifact Catalog

Table A-1. Catalog Codes.

OBJ – OBJECT	DES – DESCRIPTION	MAT – TYPE OR COLOR
CER – CERAMICS	ETH – Earthenware	CRK – Crock
	POR – Porcelain	CUP – Cup
	STN – Stoneware	DEC – Decorative
		ELE – Electrical
		SAU – Saucer
		UNK – Unknown Form or Function
GLS – GLASS	AMB – Automatic Manufactured Bottle	AQU – Aqua
	HMB – Hand Manufactured Bottle	BRN – Brown
	JAR – Jar	CLR – Colorless
	JRL – Canning Jar Lid Liner	COB – Cobalt
	LSH – light shade	ELE – Electrical
	VES – Vessel Glass, Unknown Type	GRN – Green
		MLK – Milk Glass
		OTH – Other
		WHT – White
		YEL – Yellow
LEA – LEATHER	FTW – Footware	FTW – Footware
	UNK – Unknown Form or Function	COM – Complete
MTL – METAL	NAI – Nail	WIR – Wire

CAT NO. – Catalog Number

AREA – Discovery Area

NO P – No provenience

NO. – Number of objects

WGT – Weight in grams

Table A-2. Artifact Catalog.

CAT NO.	AREA	OBJ	DES	MAT	NO.	WGT. (g)	DESCRIPTION
1.0	C	GLS	AMB	CLR	1.0	387.7	Complete, single thread sauce finish, suction scar on base
2.0	C	GLS	JAR	CLR	1.0	213.0	Complete, automatic manufacture, decahedral body, condiment jar, "195" on base
3.0	C	GLS	AMB	CLR	1.0	230.3	Complete, hand tooled finish, "CHARLES ELLIS SON & CO PHILA" on shoulder, 1871+ (Fike 1987:58)
4.0	C	GLS	AMB	COB	1.0	37.8	Complete, suction scar on base, "BROMO SELTZER/EMERSON/ DRUG, CO./ BALTIMORE" on body
5.0	C	GLS	AMB	COB	1.0	37.1	Complete, hand tooled finish, "BROMO-SELTZER/ EMERSON/ DRUG CO./ BALTIMORE, MD" on body, "ABCo" on heel, "23" on base, American Bottle Co., Chicago, Illinois (1905-1916); (Toulouse 1971:30)
6.0	C	GLS	AMB	COB	1.0	83.4	Complete, hand tooled finish, "BROMO-SELTZER/ EMERSON/ DRUG CO./ BALTIMORE, MD" on body, "ABCo" on heel, "1261/45" on base, American Bottle Co., Chicago, Illinois (1905-1916); (Toulouse 1971:30)
7.0	C	GLS	HMB	CLR	1.0	89.7	Complete, hand tooled prescription finish, cork in mouth
8.0	C	GLS	HMB	CLR	1.0	156.2	Complete, Flask with cork on mouth, hand tooled finish, "2650" on base
9.0	C	GLS	AMB	CLR	1.0	50.8	Complete, hand tooled prescription finish, "MURINE/ EYE/ REMEDY CO./ CHICAGO, USA" on body, "EE" on base, c1890s (http://www-rohan.sdsu.edu/~histarch/index.html , accessed 12/13/06)
10.0	C	GLS	JRL	MLK	1.0	46.2	Complete, MM "WHITE CROWN/ VACUUM MASON JAR CAP/ PAT- 11-22/1910"
11.0	C	GLS	JAR	MLK	1.0	119.8	Complete, automatic manufacture, "THE CUDAHY PACKING CO., USA" on base
12.0	C	GLS	HMB	CLR	1.0	397.7	Complete, hand tooled, bubbles in glass, single-thread condiment bottle finish, "THE T.A. SNIDER PRESERVE CO./ CINCINNATI, O", "diamond S" on base c1900-1950 (Toulouse 1971:449-450)
13.0	C	GLS	AMB	CLR	1.0	392.6	Complete, single thread finish, "F" on base, Fairmount Glass Works/ Company, Indiana (1889-1968), this mark between 1930 and 1945 (Toulouse 1971:201)
14.0	C	GLS	HMB	CLR	1.0	643.7	Complete, bubbles in glass, hand tooled champaign finish, "128" on base
15.0	C	GLS	AMB	CLR	1.0	441.7	Complete, "H. HEINZ CO./ PATD/ 10" on base, 1904-1946 (Toulouse 1971:237)
16.0	C	GLS	AMB	CLR	1.0	389.9	Complete, wide mouth condiment finish, suction scar and "reverse 5" on base, ghost seams on body
17.0	C	GLS	HMB	GRN	1.0	670.8	Complete, hand blown, champaign finish, kickup with mamelon
18.0	C	GLS	HMB	CLR	1.0	530.6	Complete, Whiskey bottle, Rickett's molded, hand tooled liquor finish, bubbles in glass
19.0	D	GLS	HMB	BRN	1.0	112.3	Complete, hand tooled prescription finish, "T" on base
20.0	D	GLS	AMB	CLR	1.0	391.0	Complete, octagonal, "H.J. HEINZ CO./ PATD/ 59" and suction scar, 1904-1946 (Toulouse 1971:227)
21.0	D	GLS	HMB	CLR	1.0	289.1	Complete, oval base, hand tooled finish, bubbles in glass, condiment bottle
22.0	out of area	GLS	AMB	BRN	1.0	398.0	Complete, "A.B. Co./105" on base, hand tooled crown finish, American Bottle Co., Chicago, Illinois (1905-1916); Toledo, Ohio (1916-1929) (Toulouse 1971:30)
23.0	D	GLS	HMB	BRN	1.0	431.8	Complete, hand tooled finish, bubbles in glass, "N.P.B. Co./2" on base
24.0	B	GLS	AMB	CLR	1.0	263.7	Complete, wide threaded mouth, condiment bottle, suction scar on base, bubbles in glass
25.0	B	GLS	AMB	CLR	1.0	293.7	Complete, double threaded mouth, "E.R. DURKEE & CO/ SALAD DRESSING/ NEW YORK" on body, "BOTTLE PATENTED/ APRIL 17, 1877" with diamond coded date (clockwise) "31/L/R/16", 1874-1929 (Zumwalt 1980:127-129)

Table A-2. Artifact Catalog.

CAT NO.	AREA	OBJ	DES	MAT	NO.	WGT. (g)	DESCRIPTION
26.0	B	GLS	AMB	BRN	1.0	216.5	Complete, beer/ soda bottle, crown cap finish, stippled ring on base, "2625-GX/21 O-I 68 4LL" on heel, Owens-Illinois Glass Company, Portland, Oregon, 1969 (Lockhart 2006:23-24)
27.0	B	GLS	HMB	YEL	1.0	276.4	Complete, yellow/amber, crown finish, "1/2 CUP" on body, "Diamond O-I mark" and suction scar on base, Owens-Illinois Glass Company 1929-1954 (Toulouse 1971:403)
28.0	B	GLS	HMB	BRN	1.0	368.3	Incomplete, suction scar, ghost seams, "7-R" on heel
29.0	B	GLS	AMB	BRN	1.0	391.5	Incomplete, ghost seams, "9-5" on heel
30.0	B	GLS	HMB	CLR	1.0	328.1	Incomplete, bubbles in glass, "360" on base
31.0	B	GLS	AMB	CLR	1.0	366.6	Incomplete, suction scar, ghost seams, "7/S/12" on base, "2" on heel, Sterling Glass Company, Lapel, IN, (1914-1951) (Toulouse 1971:451)
32.0	B	GLS	JRL	MLK	1.0	85.2	Complete, white jar lid
33.0	A	GLS	LSH	OTH	5.0	148.3	Incomplete, fragmented, green on one side, white on the other, light fixture fragments
34.0	A	GLS	AMB	BRN	1.0	132.5	Incomplete, bottle base, suction scar
35.0	A	LEA	UNK	COM	1.0	6.0	Complete, circular piece of leather, gasket
36.0	A	GLS	HMB	CLR	1.0	298.5	Incomplete, bottle base, bubbles in glass, no seam on body, possibly turn paste molded
37.0	A	GLS	VES	CLR	1.0	109.2	Incomplete, bottle neck and finish with cork, hand tooled alcohol finish
38.0	A	GLS	AMB	BRN	1.0	48.1	Incomplete, crown finish
39.0	A	GLS	VES	AQU	1.0	14.2	Incomplete, partial bottle base, "H 10" on base
40.0	A	CER	POR	CUP	1.0	40.2	Incomplete, base of tea cup, "MADE IN GERMANY" on base, hand painted over glaze floral design.
41.0	A	GLS	VES	CLR	1.0	99.2	Incomplete, bottle neck and finish, automatic manufacture
42.0	A	CER	ETH	CUP	1.0	38.3	Incomplete, fragment of whiteware cup
43.0	A	GLS	VES	AQU	1.0	49.6	Incomplete, bottle neck, finish, and partial shoulder, hand tooled finish, possible match to #39
44.0	A	MTL	NAI	WIR	1.0	11.6	wire nail
45.0	A	LEA	FTW	FTW	1.0	310.8	Women's shoe
46.0	E	GLS	VES	AQU	1.0	57.5	Incomplete, bottle base
47.0	E	GLS	JRL	MLK	4.0	17.2	Incomplete, "19" on base
48.0	E	CER	STN	DEC	1.0	11.1	Incomplete, ironstone, blue transfer print under glaze, floral design
49.0	E	CER	STN	CRK	3.0	205.8	Incomplete, brown slip glazed crock
50.0	J08	CER	POR	ELE	1.0	169.4	Complete, light fixture with an electric outlet screwed into the socket. MM "UND. LAB. INSP" & "BEAVER"
51.0	NO P	CER	ETH	UNK	1.0		blue glazed, whiteware
52.0	NO P	CER	POR	DEC	1.0		decal over glaze, polychrome floral design
53.0	NO P	CER	ETH	UNK	1.0		decal over glaze, polychrome floral and geometric design
54.0	NO P	CER	ETH	UNK	1.0		decal over glaze, polychrome floral design
55.0	NO P	CER	ETH	UNK	1.0		decal over glaze, brown floral design
56.0	NO P	CER	POR	SAU	1.0		decal over glaze, polychrome rose design, gold gilding on rim
57.0	NO P	CER	ETH	UNK	1.0		blue transfer print design
58.0	NO P	CER	ETH	UNK	1.0		ironstone, partial makers mark "...PORCELA..."
59.0	NO P	CER	ETH	UNK	1.0		ironstone, "HOMER LAUGHLIN/HOTEL/CHINA" before 1904 (Lehner 1988:245,248)
60.0	NO P	CER	ETH	UNK	1.0		whiteware, blue transfer print chinoiserie design

Table A-2. Artifact Catalog.

CAT NO.	AREA	OBJ	DES	MAT	NO.	WGT. (g)	DESCRIPTION
61.0	G	GLS	UNK	ELE	1.0		Glass telephone insulator, embossed "HEMINGRAY-9/ MADE IN USA", c 1890-1940s (http://www.hemingray.info/database/cd/106.html Accessed 3-29-07)

References Cited:

Fike, Richard E.

1987 *The Bottle Book: A Comprehensive Guide to Historic, Embossed Medicine Bottles.* Peregrine Smith Books, Salt Lake City.

Lehner, Lois

1988 *Lehner's Encyclopedia of U.S. Marks on Pottery, Porcelain, & Clay.* Collector Books, Paducah.

Lockhart, Bill

2006 "Owens-Illinois Glass Company." In *SHA Newsletter: A Quarterly Publication of the Society for Historical Archaeology.* 39(2):22-27.

Toulouse, Julian Harrison

1971 *Bottle Makers and their Marks.* Thomas Nelson, Inc., New York.

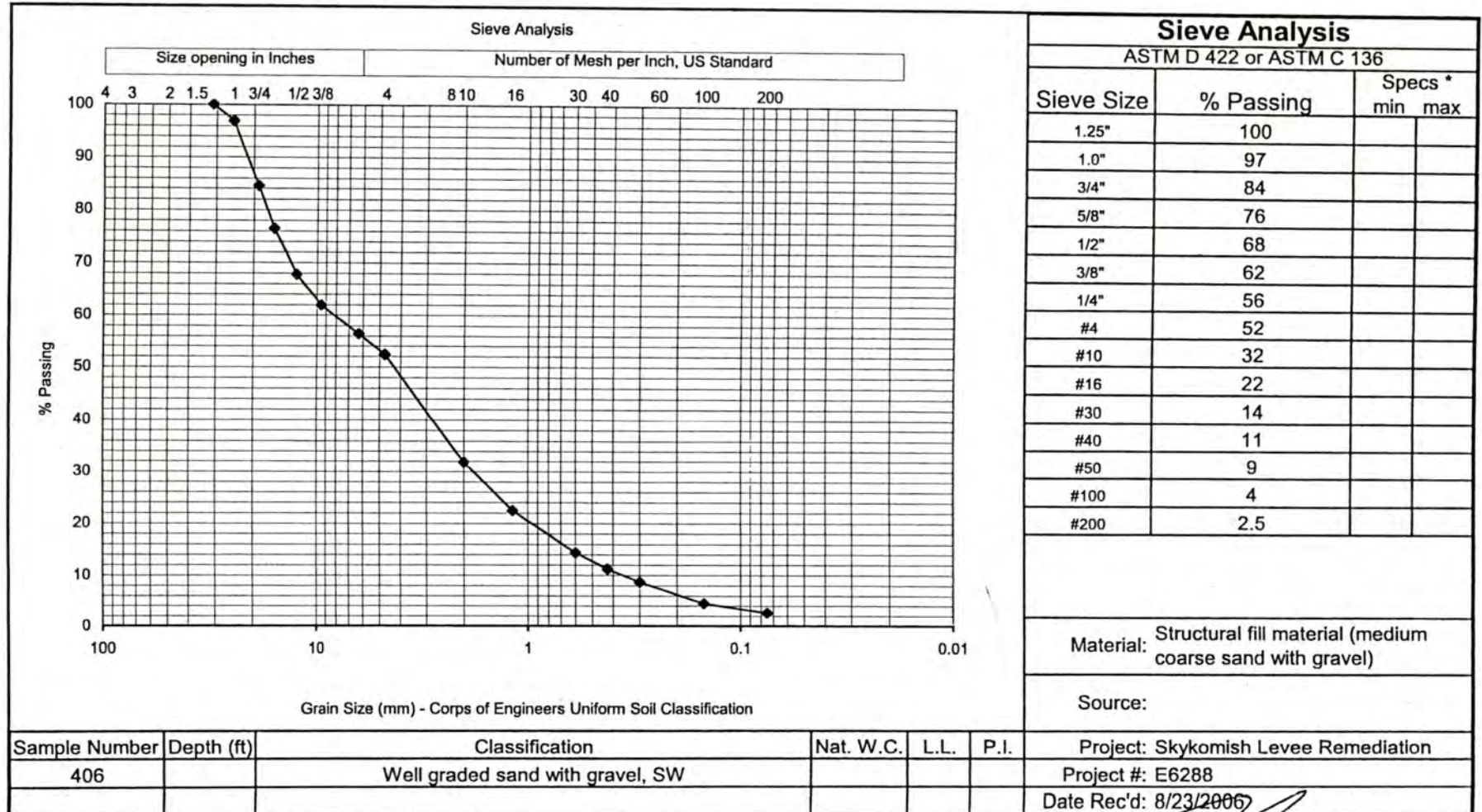
Zumwalt, Betty

1980 *Ketchups, Pickles, Sauces: 19th Century Food in Glass.* Mark West Publishers, Fulton, CA.

Appendix P
Compaction Testing Results

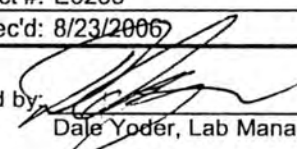
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917-134th St. SW, Suite A1 Ph 425-742-9360
Everett, WA 98204 Fax 425-745-1737



Tested By: Z. Revilla

Date Tested: 8/25/2006

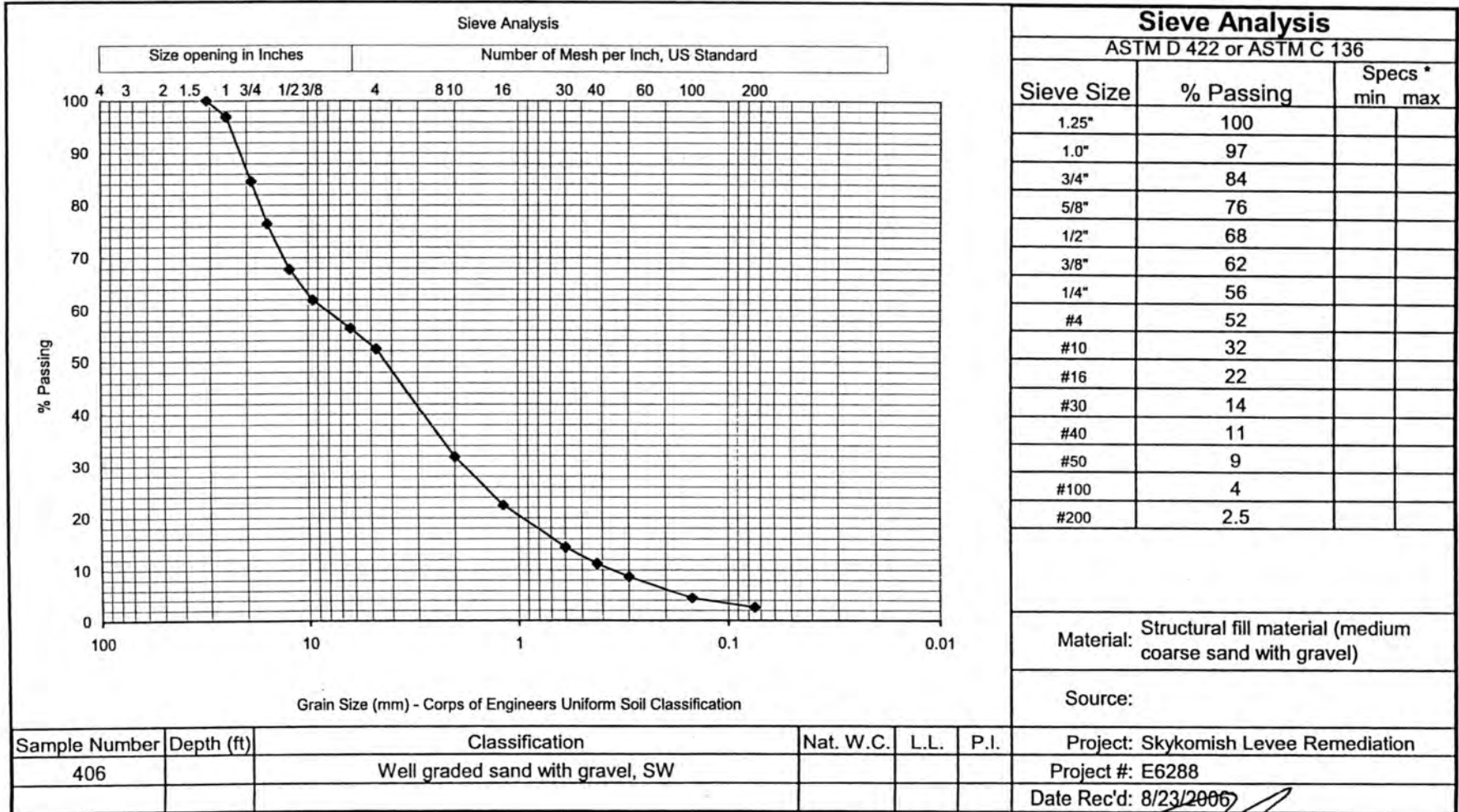
Reviewed by: 
Dale Yoder, Lab Manager

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New proctor and sieve 4069/1/2006

MTE Form #143, Rev 2, 6-02

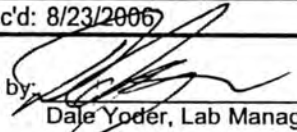
MAYES TESTING ENGINEERS, INC.

917-134th St. SW, Suite A1 Ph 425-742-9360
Everett, WA 98204 Fax 425-745-1737



Tested By: Z. Revilla

Date Tested: 8/25/2006

Reviewed by: 
Dale Yoder, Lab Manager

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New proctor and sieve 406/9/1/2006

MTE Form #143, Rev 2, 6-02

Moisture Density Relationship Test

Client: **Wilder Construction**

Project: **Skykomish Levee Remediation**

Test Method: **ASTM D-1557 Method C / C 127 / D 4718 (if needed)**

Date Tested: **8/25/2006**

Project Number: **E6288**

Lab Number: **406**

Wet Preparation ☐

Mechanical ☒

Dry Preparation ☒

Hand Tamper ☐

Date Received: **8/23/2006**

Source of Sample:

Description of Sample: **Structural fill material (medium coarse sand w/gravel)**

Zero Void line plotted at SpG:

2.65

Max. Density Uncorrected:

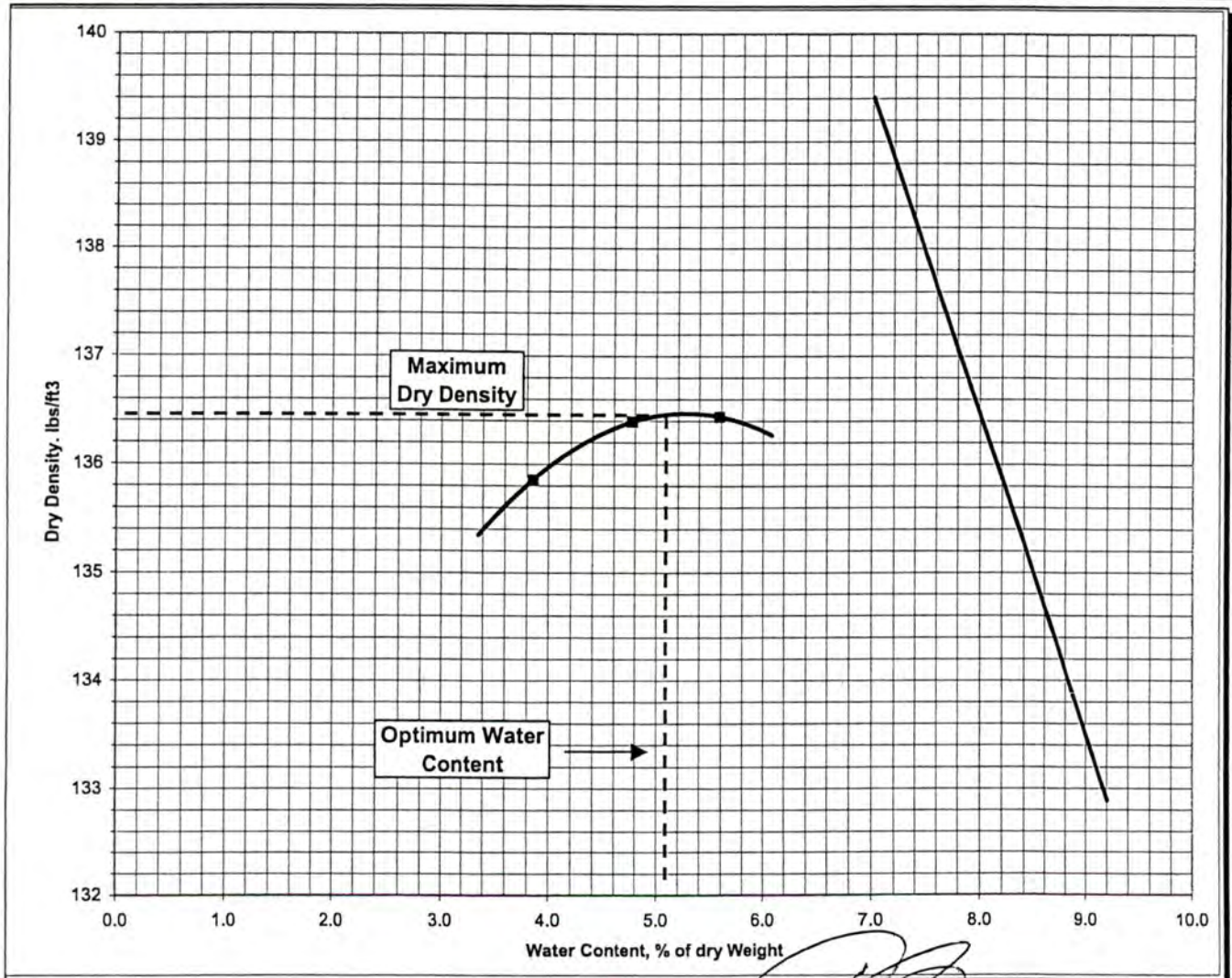
132.1

Test Results

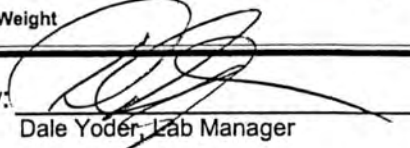
Optimum Water Content %	5.0
Max Dry Density Corr. lbs/ft ³	136.5

Sieve Analysis

Sieve Size	Percent Retained
3/4	16%
3/8	38%
#4	48%



Tested By: **Z. Revilla**

Reviewed By: 

Dale Yoder, Lab Manager

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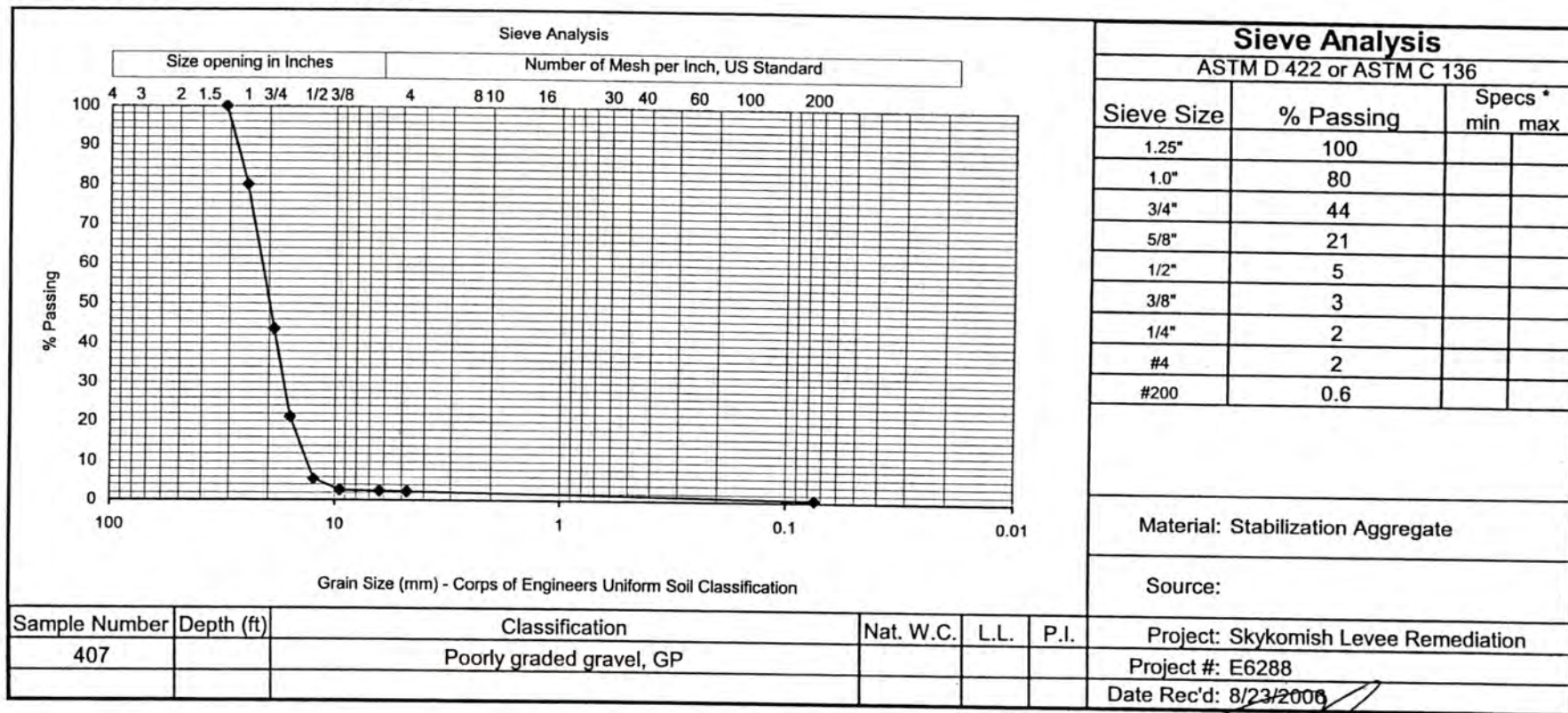
MAYES TESTING ENGINEERS, INC.

917-134th St. SW, Suite A1

Ph 425-742-9360

Everett, WA 98204

Fax 425-745-1737



Tested By: G. Booker

Date Tested: 8/31/2006

Reviewed by: Dale Yoder, Lab Manager

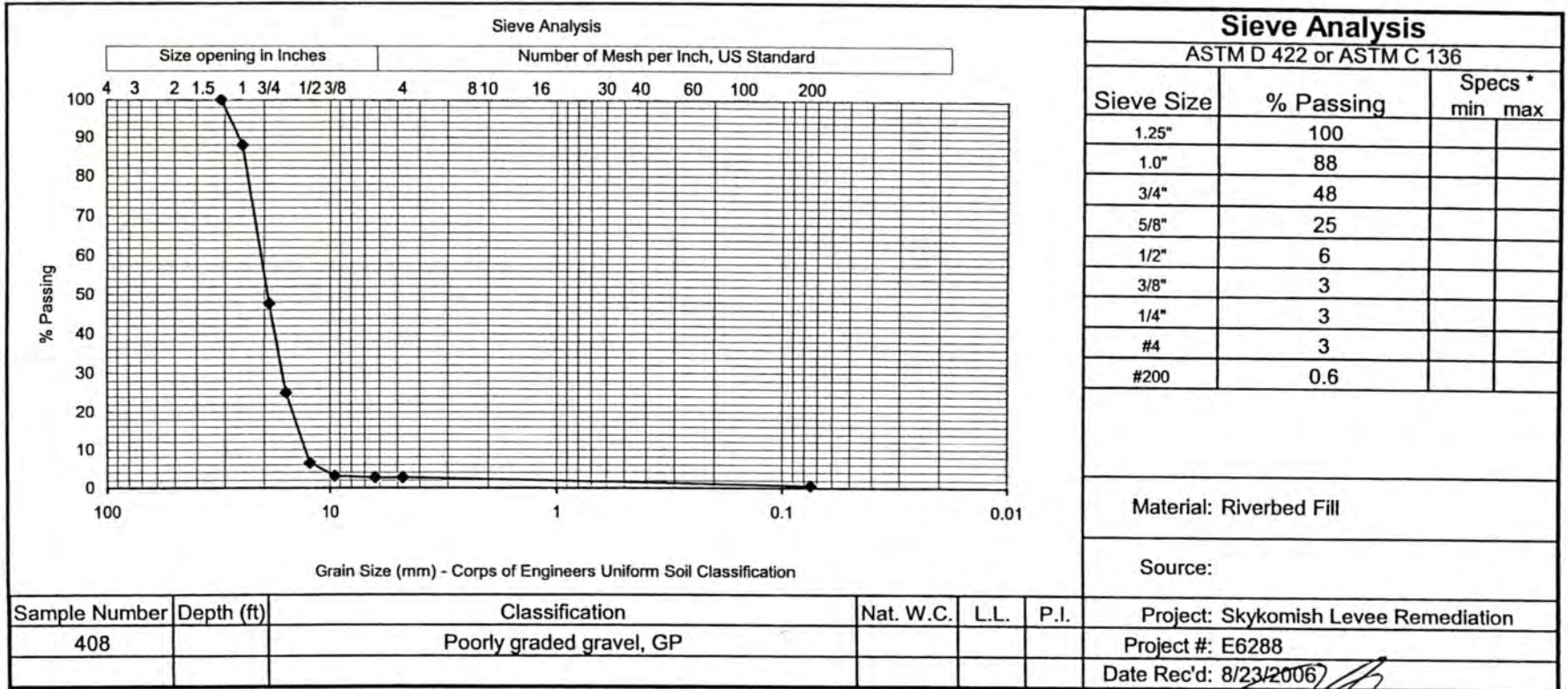
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Sieve4079/1/2006

MTE Form #143, Rev 2, 6-02

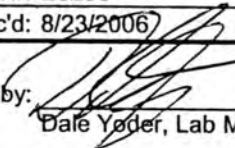
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917-134th St. SW, Suite A1 Ph 425-742-9360
Everett, WA 98204 Fax 425-745-1737



Tested By: G. Booker

Date Tested: 8/31/2006

Reviewed by: 
Date Yoder, Lab Manager

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Everett, WA 98204 Fax 425-745-1737

Moisture Density Relationship TestClient: Wilder ConstructionProject: Skykomish Levee RemediationTest Method: ASTM D-1557 Method C / C 127 / D 4718 (if needed)Date Tested: 8/25/2006Project Number: E6288Lab Number: 406Wet Preparation ☐Mechanical ☒Dry Preparation ☒Hand Tamper ☐Date Received: 8/23/2006

Source of Sample: _____

Description of Sample: Structural fill material (medium coarse sand w/gravel)

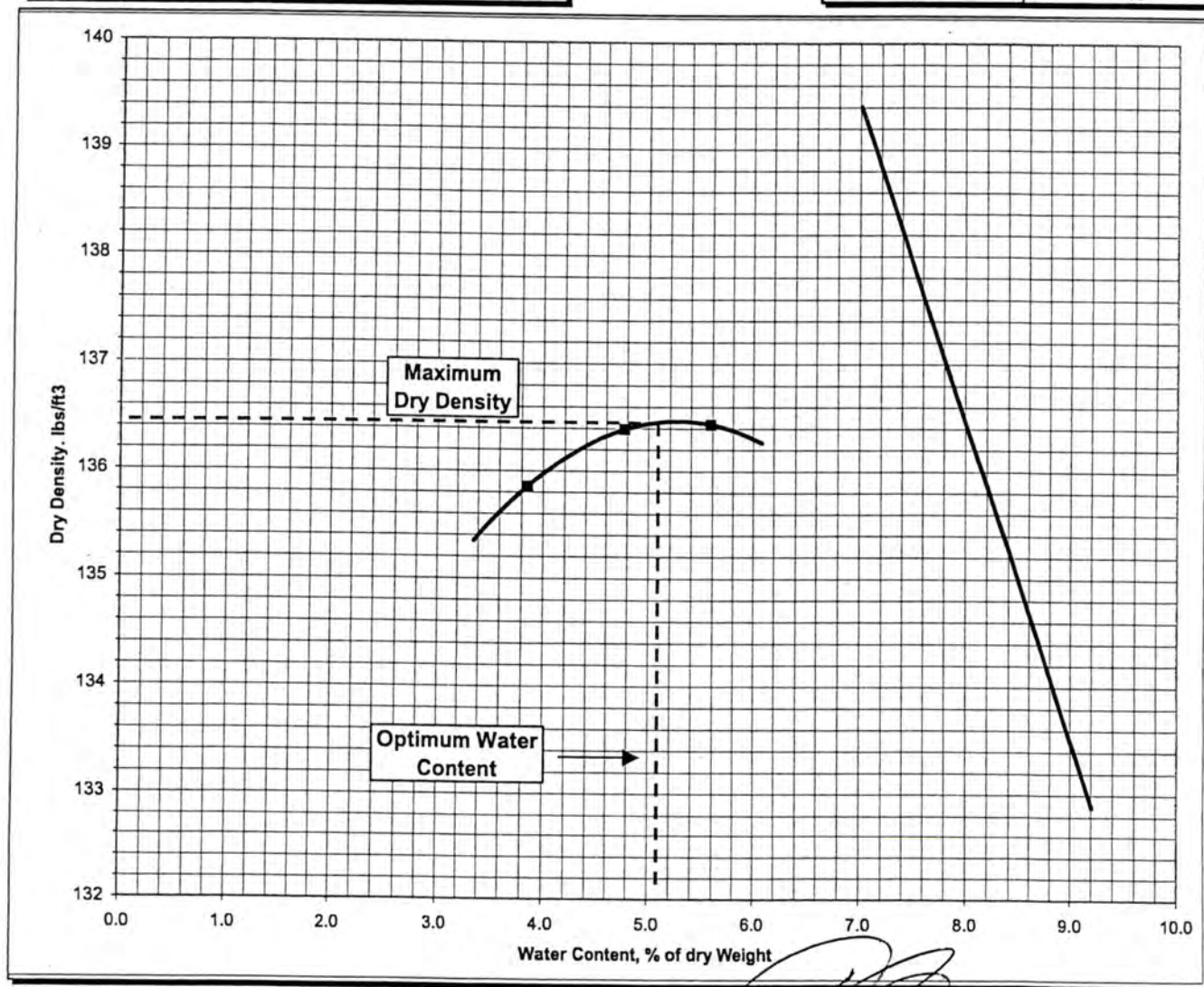
Zero Void line plotted at SpG: 2.65
Max. Density Uncorrected: 132.1

Test Results

Optimum Water Content % 5.0

Max Dry Density Corr. lbs/ft³ 136.5**Sieve Analysis**

Sieve Size	Percent Retained
3/4	16%
3/8	38%
#4	48%

Tested By: Z. Revilla

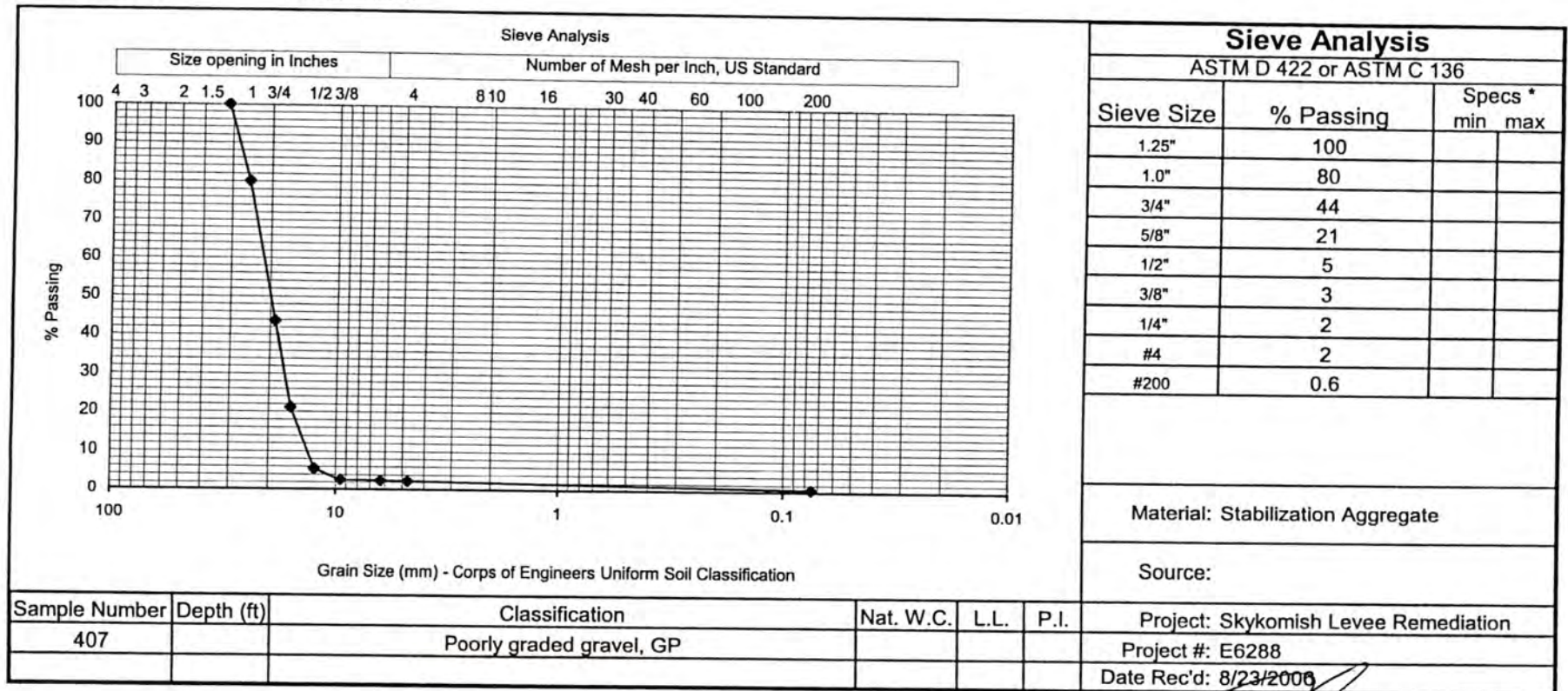
Reviewed By: _____

Dale Yoder, Lab Manager

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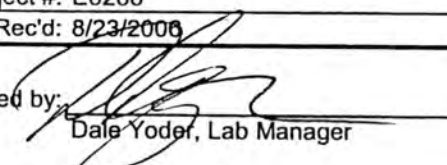
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Everett, WA 98204 Fax 425-745-1737



Tested By: G. Booker

Date Tested: 8/31/2006

Reviewed by: 
Dale Yoder, Lab Manager

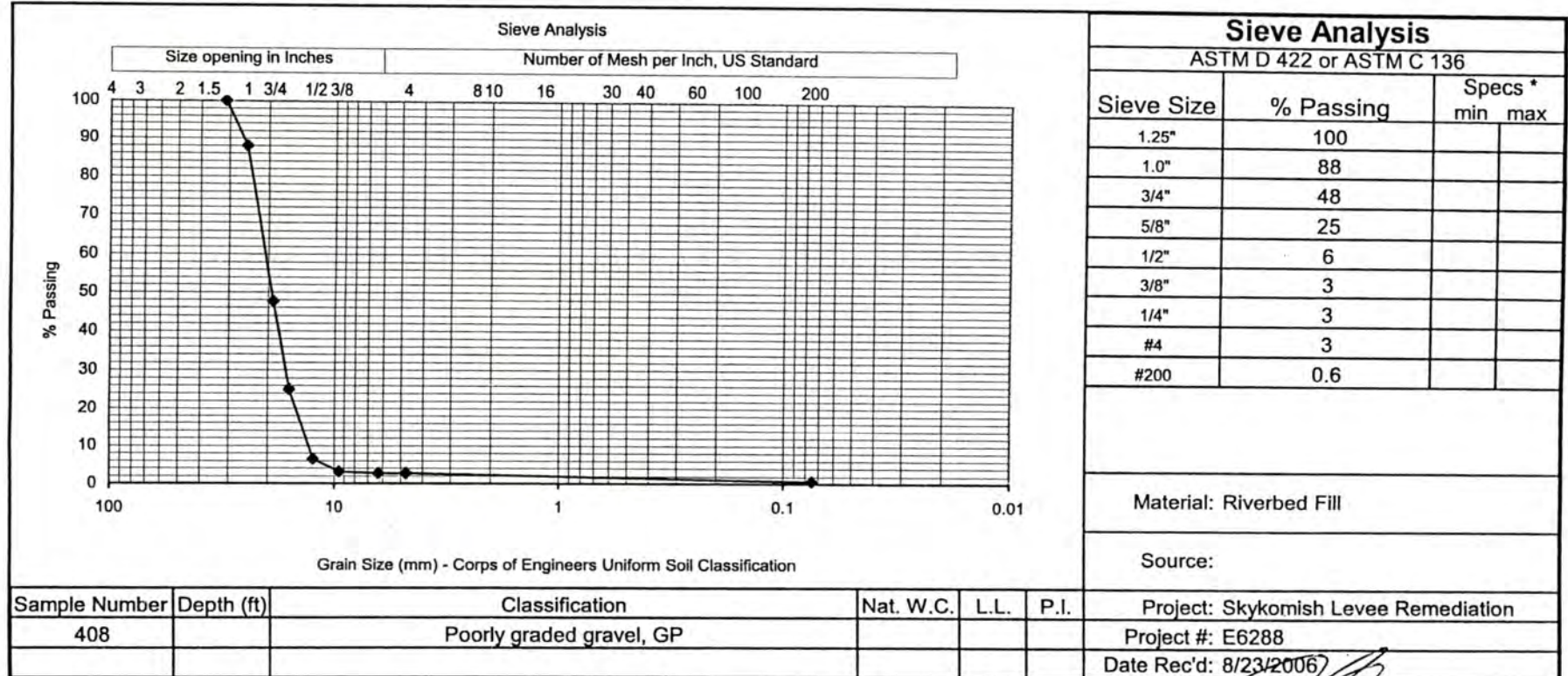
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Sieve4079/1/2006

MTE Form #143, Rev 2, 6-02

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Everett, WA 98204 Fax 425-745-1737



Tested By: G. Booker

Date Tested: 8/31/2006

Reviewed by: [Signature]
Date Yoder, Lab Manager

Information in this report applies only to the actual samples tested and shall not be reproduced except in full, without the approval of Mayes Testing Engineers, Inc.

MAYES TESTING ENGINEERS, INC.

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomosh, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 1

Everett Office
917-134th Street SW
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fax 425.745.1737

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Tacoma, WA 98499
ph 253.584.3720
fax 253.584.3707

Portland Office
7911 NE 33rd Drive
Suite 190
Portland, OR 97211
ph 503.281.7515
fax 503.281.7579

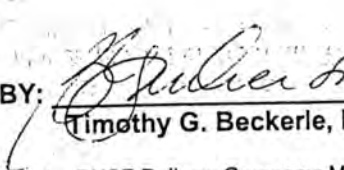
Date: 9/6/06
Weather: Sunny
Inspection: Soils
Sample(s): Coarse sand w/ gravel and 1-1/4" crushed (sieves)

Arrived onsite to perform compaction tests on the medium coarse sand with gravel being backfilled in the levee from 26/27 to 22/23. Ten-inch to 1'-0" lifts were placed with a dozer and rolled with a single-drum vibrating roller. Several passes were made on each lift. Water was added via water truck.

A Proctor of 136.5 @ 5.0% moisture was used. Four lifts were placed in most of the levee (north section), one lift was placed in the rest. Three tests per 100' were taken every lift per specifications. All tests met and exceeded specifications. See attached Field Density Test Report for results.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Brandon Veach

REVIEWED BY: 
Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

917 134th St. SW, Suite A-1
Everett, WA 98204Ph 425.742.9360
Fax 425.745.173710029 S. Tacoma Way, Suite E-2
Tacoma, WA 98299Ph 253.584.3720
Fax 253.584.37077911 NE 33rd Drive, Suite 190
Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579

Project: Skykomish Levee Remediation
 MTE Project #: E6288 Date: 9-6-06
 Permit #:
 Inspector: B Veach
 MTE Nuclear Gauge #: 18

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Wet Density	Field			Soil Type Description
			Maximum Dry Density	OMC %		Dry Density	Moisture Content %	Compaction %	
1	25/26	1st lift +10"	136.5	5.0	138.4	132.3	4.6	97	medium coarse sand w/ gravel
2	24/25	1st lift +10"	136.5	5.0	133.1	126.5	5.2	93	medium coarse sand w/ gravel
3	23/24	1st lift +10"	136.5	5.0	132.9	127.6	4.2	93	medium coarse sand w/ gravel
4	22/23	1st lift +10"	136.5	5.0	138.6	131.2	5.7	96	medium coarse sand w/ gravel
5	26/25	2nd lift +1'8"	136.5	5.0	133.1	126.8	5.0	93	medium coarse sand w/ gravel
6	24/25	2nd lift +1'8"	136.5	5.0	134.4	128.0	5.0	94	medium coarse sand w/ gravel
7	23/24	2nd lift +1'8"	136.5	5.0	135.0	128.1	5.4	94	medium coarse sand w/ gravel
8	23/24	3rd lift +2'6"	136.5	5.0	130.3	124.6	4.5	91	medium coarse sand w/ gravel
9	25/26	3rd lift +2'6"	136.5	5.0	131.5	124.5	5.7	91	medium coarse sand w/ gravel
10	26/27	3rd lift +2'6"	136.5	5.0	129.7	124.8	4.0	91	medium coarse sand w/ gravel
11	25/26	4th lift +3'4"	136.5	5.0	133.0	125.9	5.6	92	medium coarse sand w/ gravel
12	24/25	4th lift +3'4"	136.5	5.0	128.8	124.6	3.4	91	medium coarse sand w/ gravel
13	23/24	4th lift +3'4"	136.5	5.0	129.3	123.3	4.9	90	medium coarse sand w/ gravel

Specification Compaction and Material: 90%

☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: 1- dozer

Type and Number of Compaction units: 1- single drum roller

No. of Passes: several Thickness of lift: 10"

Method of Adding Moisture: water truck

Comments:

☒ In our opinion, fill generally meets specifications as indicated by test numbers:

1-11

☐ In our opinion, fill does **not** meet specifications as indicated by test numbers, and should be removed or reworked:☒ Fill test meets specifications☐ Contractor Advised☐ Full-time observation☒ Part-time observation

Quality Control Sample: Test No.: Dry Density: Moisture %:

MAYES TESTING ENGINEERS, INC.

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomosh, WA
Permit No.:
Bldg Dept.:

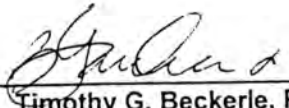
Owner: BNSF Railway Company
Architect: —
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 2

Date: 9/6/06
Weather: Sunny
Inspection: Project Management
Sample(s): 2 Sieve Samples

Arrived on site to discuss soil density testing requirements with Wilder Construction. Also set up MTE inspector, Brandon Veach, who will be on the site full time. Density testing started today on the South end of the levee. Took a sample of structural fill and river bed gravel for a sieve analysis in the lab.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Paul Myers

REVIEWED BY: 
Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Tacoma, WA 98499
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fax 253.584.3707

Portland Office
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Suite 190
Portland, OR 97211
ph 503.281.7515
fax 503.281.7579

MAYES TESTING ENGINEERS, INC.

917-134th St. SW, Suite A1
Everett, WA 98204

Ph 425-742-9360
Fax 425-745-1737

DATE: 9/1/2006

CLIENT: Wilder Construction

PROJECT: Skykomish Levee Remediation

PROJECT # E6288

LAB. # 408

REPORT STATUS:

Original ☐

Amended ☒

SAMPLE DESCRIPTION:

Riverbed Fill

Poorly graded gravel, GP

Date Sample Received: 8/23/2006

TEST RESULTS:

Sieve Analysis (ASTM C136 or D1140)

See attached analysis sheet.

Tested By: G. Booker
Date Tested: 8/31/2006

Reviewed By:

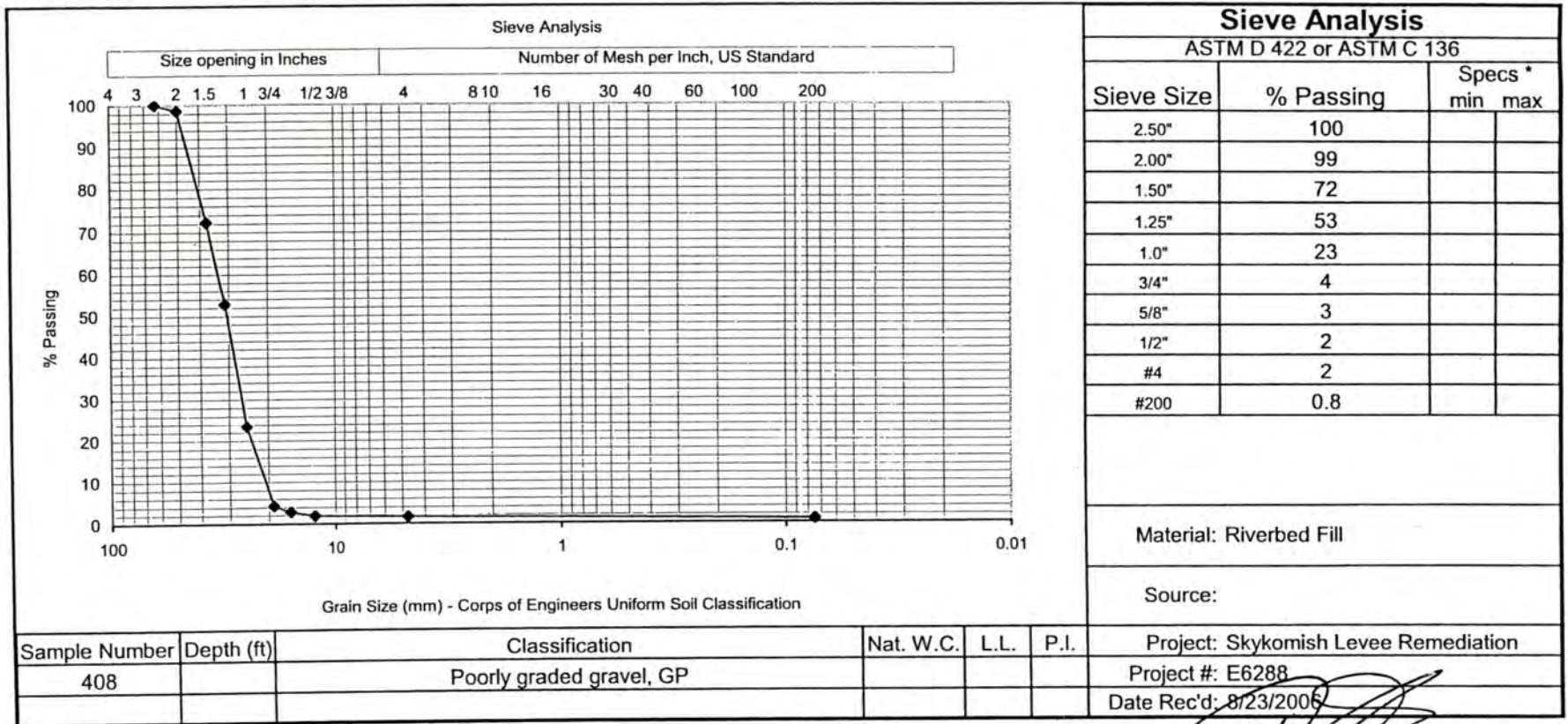
Dale Yoder, Lab Manager

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Sieve408/9/8/2006

MAYES TESTING ENGINEERS, INC.

917-134th St. SW, Suite A1 Ph 425-742-9360
Everett, WA 98204 Fax 425-745-1737



Tested By: G. Booker

Date Tested: 8/31/2006

Reviewed by: Dale Yoder, Lab Manager

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MAYES TESTING ENGINEERS, INC.

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomosh, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 2

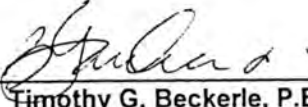
Date: 9/6/06
Weather: Sunny
Inspection: Project Management
Sample(s): 2 Sieve Samples

Arrived on site to discuss soil density testing requirements with Wilder Construction. Also set up MTE inspector, Brandon Veach, who will be on the site full time. Density testing started today on the South end of the levee. Took a sample of structural fill and river bed gravel for a sieve analysis in the lab.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Paul Myers

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Ph 425-742-9360
Fax 425-745-1737

DATE: 9/1/2006

CLIENT: Wilder Construction

PROJECT: Skykomish Levee Remediation

PROJECT # E6288

LAB. # 408

REPORT STATUS:

Original ☐

Amended ☒

SAMPLE DESCRIPTION:

Riverbed Fill

Poorly graded gravel, GP

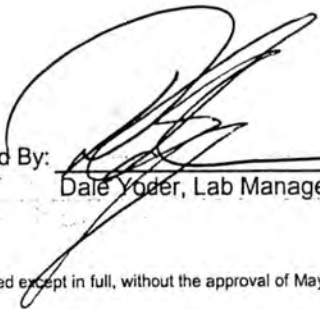
Date Sample Received: 8/23/2006

TEST RESULTS:

Sieve Analysis (ASTM C136 or D1140)

See attached analysis sheet.

Tested By: G. Booker
Date Tested: 8/31/2006

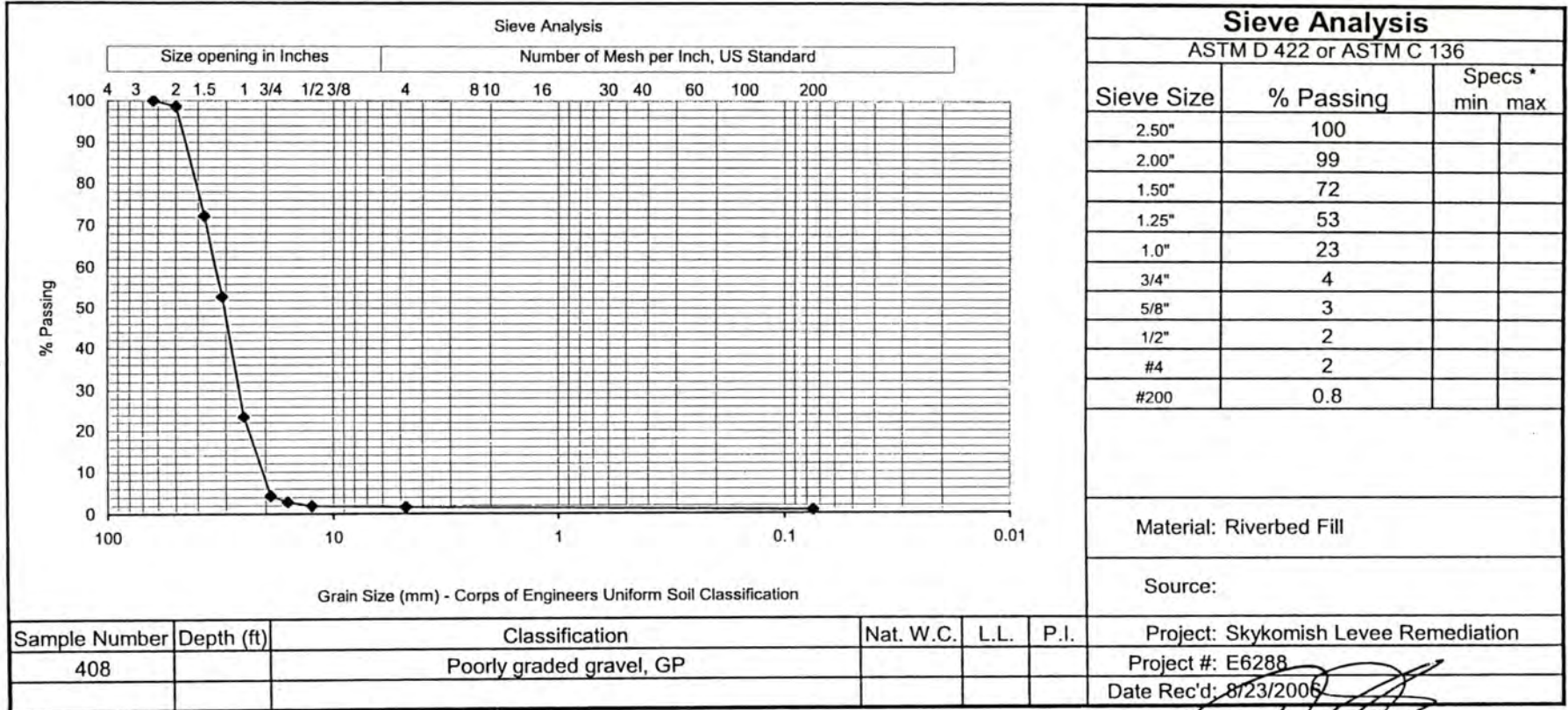
Reviewed By: 
Dale Yoder, Lab Manager

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Sieve408/9/8/2006

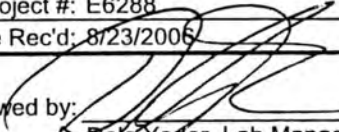
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Everett, WA 98204 Fax 425-745-1737



Tested By: G. Booker

Date Tested: 8/31/2006

Reviewed by: 
Dale Yoder, Lab Manager

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MAYES TESTING ENGINEERS, INC.

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomosh, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 1

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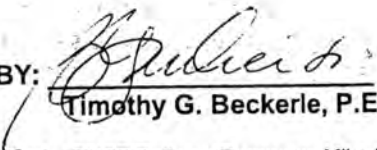
Date: 9/6/06
Weather: Sunny
Inspection: Soils
Sample(s): Coarse sand w/ gravel and 1-1/4" crushed (sieves)

Arrived onsite to perform compaction tests on the medium coarse sand with gravel being backfilled in the levee from 26/27 to 22/23. Ten-inch to 1'-0" lifts were placed with a dozer and rolled with a single-drum vibrating roller. Several passes were made on each lift. Water was added via water truck.

A Proctor of 136.5 @ 5.0% moisture was used. Four lifts were placed in most of the levee (north section), one lift was placed in the rest. Three tests per 100' were taken every lift per specifications. All tests met and exceeded specifications. See attached Field Density Test Report for results.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Brandon Veach

REVIEWED BY: 
Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Project: Skykomish Levee Remediation
 MTE Project #: E6288 Date: 9-6-06
 Permit #:
 Inspector: B Veach
 MTE Nuclear Gauge #: 18

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Wet Density	Field			Soil Type Description
			Maximum Dry Density	OMC %		Dry Density	Moisture Content %	Compaction %	
1	25/26	1st lift +10"	136.5	5.0	138.4	132.3	4.6	97	medium coarse sand w/ gravel
2	24/25	1st lift +10"	136.5	5.0	133.1	126.5	5.2	93	medium coarse sand w/ gravel
3	23/24	1st lift +10"	136.5	5.0	132.9	127.6	4.2	93	medium coarse sand w/ gravel
4	22/23	1st lift +10"	136.5	5.0	138.6	131.2	5.7	96	medium coarse sand w/ gravel
5	26/25	2nd lift +1'8"	136.5	5.0	133.1	126.8	5.0	93	medium coarse sand w/ gravel
6	24/25	2nd lift +1'8"	136.5	5.0	134.4	128.0	5.0	94	medium coarse sand w/ gravel
7	23/24	2nd lift +1'8"	136.5	5.0	135.0	128.1	5.4	94	medium coarse sand w/ gravel
8	23/24	3rd lift +2'6"	136.5	5.0	130.3	124.6	4.5	91	medium coarse sand w/ gravel
9	25/26	3rd lift +2'6"	136.5	5.0	131.5	124.5	5.7	91	medium coarse sand w/ gravel
10	26/27	3rd lift +2'6"	136.5	5.0	129.7	124.8	4.0	91	medium coarse sand w/ gravel
11	25/26	4th lift +3'4"	136.5	5.0	133.0	125.9	5.6	92	medium coarse sand w/ gravel
12	24/25	4th lift +3'4"	136.5	5.0	128.8	124.6	3.4	91	medium coarse sand w/ gravel
13	23/24	4th lift +3'4"	136.5	5.0	129.3	123.3	4.9	90	medium coarse sand w/ gravel

Specification Compaction and Material: 90%

☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: 1- dozer

Type and Number of Compaction units: 1- single drum roller

No. of Passes: several Thickness of lift: 10"

Method of Adding Moisture: water truck

Comments:

☒ In our opinion, fill generally meets specifications as indicated by test numbers: 1-11☐ In our opinion, fill does **not** meet specifications as indicated by test numbers, and should be removed or reworked:☒ Fill test meets specifications☐ Contractor Advised☐ Full-time observation☒ Part-time observation

Quality Control Sample: Test No.: _____ Dry Density: _____ Moisture %: _____

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MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomosh, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 3

Date: 9/7/06
Weather: Sunny
Inspection: Soils
Sample(s):

On site to perform soil density compaction testing on the lifts being placed in the levy. The material used is the structural fill-medium coarse sand with gravel. Soil is being brought in via dump truck and spread into 10"-1'-0" lifts with a dozer. Each lift was rolled several passes with a single drum-vibrating roller.

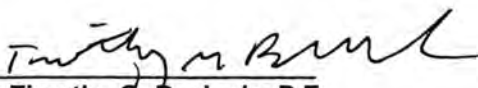
Five lifts were placed between 23/24 and 20/21. Five lifts were placed along the South edge underneath the roadway from 19/20 to 25/26. Two lifts were placed between 23/24 and 25/26.

A proctor of 136.5 at 5.0% moisture was used. Compaction specifications say 90% until the height has reached that of the roadway for areas outside the roadway, 95% after that. 90% until a height of 2'-0" from roadway height for area underneath the roadway, 95% after that. See **attached** field density report.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Brandon Veach

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Page: 1 of 3

Project: Skykomish Levee Remediation

MTE Project #: E6288 Date: 9-7-06

Permit #: _____

Inspector: B Veach

MTE Nuclear Gauge #: 2

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Wet Density	Field			Soil Type Description
			Maximum Dry Density	OMC %		Dry Density	Moisture Content %	Compaction %	
1	20/21	+1'-0"	136.5	5.0	130.0	123.9	5.0	90.8	medium coarse sand w/ gravel
2	21/22	+1'-0"	136.5	5.0	136.0	130.8	4.0	95.9	medium coarse sand w/ gravel
3	19/20	+2'-0"	136.5	5.0	129.5	124.2	4.3	91.0	medium coarse sand w/ gravel
4	21/22	+2'-0"	136.5	5.0	130.4	123.5	5.6	90.5	medium coarse sand w/ gravel
5	20/21	+3'-0"	136.5	5.0	131.1	125.4	4.6	91.9	medium coarse sand w/ gravel
6	21/22	+3'-0"	136.5	5.0	127.8	123.3	3.7	90.3	medium coarse sand w/ gravel
7	23/24	+5'-0"	136.5	5.0	133.6	127.7	4.6	93.5	medium coarse sand w/ gravel
8	24/25	+5'-0"	136.5	5.0	132.7	127.6	4.0	93.5	medium coarse sand w/ gravel
9	25/26	"5'-0"	136.5	5.0	128.0	123.3	3.8	90.3	medium coarse sand w/ gravel
10	21/22 (South edge)	+2'-0"	136.5	5.0	130.7	125.7	4.1	92.1	medium coarse sand w/ gravel
11	22/23 (South edge)	+2'-0"	136.5	5.0	130.8	125.4	4.4	91.9	medium coarse sand w/ gravel
12	23/24 (South edge)	2'-0"	136.5	5.0	131.2	126.1	4.1	92.4	medium coarse sand w/ gravel
13	24/25 (South edge)	2'-0"	136.5	5.0	132.6	127.8	3.8	93.6	medium coarse sand w/ gravel
14	25/26 (South edge)	2'-0"	136.5	5.0	130.4	125.1	4.3	91.7	medium coarse sand w/ gravel
15	20/21	4'-0"	136.5	5.0	131.3	125.9	4.3	92.2	medium coarse sand w/ gravel

Specification Compaction and Material: 90%

☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: 1- dozer

Type and Number of Compaction units: 1- single drum roller

No. of Passes: several Thickness of lift: 10"-1'-0"

Method of Adding Moisture: water truck

Comments:

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does **not** meet specifications as indicated by test numbers, and should be removed or reworked:☒ Fill test meets specifications☐ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample: Test No.: _____ Dry Density: _____ Moisture %: _____

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Page: 2 of 3

Project: Skykomish Levee Remediation
MTE Project #: E6288 Date: 9-7-06
Permit #:
Inspector: B Veach
MTE Nuclear Gauge #: 2

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Wet Density	Field			Soil Type Description
			Maximum Dry Density	OMC %		Dry Density	Moisture Content %	Compaction %	
16	21/22	4'-0"	136.5	5.0	129.3	124.5	3.9	91.2	medium coarse sand w/ gravel
17	22/23	4'-0"	136.5	5.0	128.4	123.4	4.1	90.4	medium coarse sand w/ gravel
18	20/21	5'-0"	136.5	5.0	133.3	130.3	2.3	95.4	medium coarse sand w/ gravel
19	21/22	5'-0"	136.5	5.0	129.0	126.0	2.4	92.3	medium coarse sand w/ gravel
20	22/23	5'-0"	136.5	5.0	126.4	123.8	2.1	90.7	medium coarse sand w/ gravel
21	20/21 (South edge)	3'-0"	136.5	5.0	129.0	123.0	4.8	90.1	medium coarse sand w/ gravel
22	21/22 (South edge)	3'-0"	136.5	5.0	126.4	122.9	2.9	90.0	medium coarse sand w/ gravel
23	22/23 (South edge)	3'-0"	136.5	5.0	127.1	124.0	2.5	90.9	medium coarse sand w/ gravel
24	23/24 (South edge)	3'-0"	136.5	5.0	129.0	125.0	3.2	91.6	medium coarse sand w/ gravel
25	25/26 (South edge)	3'-0"	136.5	5.0	130.7	126.5	3.3	92.7	medium coarse sand w/ gravel
26	20/21 (South edge)	4'-0"	136.5	5.0	129.9	125.9	3.2	92.2	medium coarse sand w/ gravel
27	21/22 (South edge)	4'-0"	136.5	5.0	128.5	124.6	3.1	91.4	medium coarse sand w/ gravel
28	22/23 (South edge)	4'-0"	136.5	5.0	132.3	128.6	2.9	94.2	medium coarse sand w/ gravel
29	23/24 (South edge)	4'-0"	136.5	5.0	128.0	124.0	3.2	90.9	medium coarse sand w/ gravel
30	25/26 (South edge)	4'-0"	136.5	5.0	128.5	125.0	2.8	91.6	medium coarse sand w/ gravel

Specification Compaction and Material: 90%

☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: 1- dozer

Type and Number of Compaction units: 1- single drum roller

No. of Passes: several Thickness of lift: 10"-1'-0"

Method of Adding Moisture: water truck

Comments:

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does **not** meet specifications as indicated by test numbers, and should be removed or reworked:☒ Fill test meets specifications☐ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample: Test No.: _____ Dry Density: _____ Moisture %: _____

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Page: 3 of 3

Project: Skykomish Levee Remediation
MTE Project #: E6288 Date: 9-7-06
Permit #:
Inspector: B Veach
MTE Nuclear Gauge #: 2

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Wet Density	Field			Soil Type Description
			Maximum Dry Density	OMC %		Dry Density	Moisture Content %	Compaction %	
31	20/21 (South edge)	5'-0"	136.5	5.0	132.4	127.9	3.6	93.7	medium coarse sand w/ gravel
32	22/23 (South edge)	5'-0"	136.5	5.0	132.6	127.5	4.0	93.4	medium coarse sand w/ gravel
33	23/24 (South edge)	5'-0"	136.5	5.0	131.2	126.8	3.5	92.9	medium coarse sand w/ gravel
34	24/25 (South edge)	5'-0"	136.5	5.0	132.7	127.7	3.9	93.5	medium coarse sand w/ gravel
35	25/26 (South edge)	5'-0"	136.5	5.0	129.4	126.0	2.6	92.3	medium coarse sand w/ gravel
36	21/22	6'-0"	136.5	5.0	134.5	130.0	3.3	95.3	medium coarse sand w/ gravel
37	22/23	6'-0"	136.5	5.0	134.3	130.8	2.6	95.9	medium coarse sand w/ gravel
38	23/24	6'-0"	136.5	5.0	134.3	130.2	3.1	95.4	medium coarse sand w/ gravel
39	24/25	6'-0"	136.5	5.0	136.2	132.0	3.2	96.7	medium coarse sand w/ gravel
40	25/26	6'-0"	136.5	5.0	138.6	133.4	3.9	97.7	medium coarse sand w/ gravel

Specification Compaction and Material: 90%

☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: 1- dozer

Type and Number of Compaction units: 1- single drum roller

No. of Passes: several Thickness of lift: 10"-1'-0"

Method of Adding Moisture: water truck

Comments:

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does **not** meet specifications as indicated by test numbers, and should be removed or reworked:☒ Fill test meets specifications☐ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample: Test No.: Dry Density: Moisture %:

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MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomosh, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 3

Date: 9/7/06
Weather: Sunny
Inspection: Soils
Sample(s):

On site to perform soil density compaction testing on the lifts being placed in the levy. The material used is the structural fill-medium coarse sand with gravel. Soil is being brought in via dump truck and spread into 10"-1'-0" lifts with a dozer. Each lift was rolled several passes with a single drum-vibrating roller.

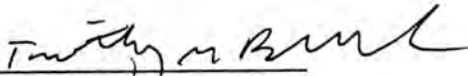
Five lifts were placed between 23/24 and 20/21. Five lifts were placed along the South edge underneath the roadway from 19/20 to 25/26. Two lifts were placed between 23/24 and 25/26.

A proctor of 136.5 at 5.0% moisture was used. Compaction specifications say 90% until the height has reached that of the roadway for areas outside the roadway, 95% after that. 90% until a height of 2'-0" from roadway height for area underneath the roadway, 95% after that. See attached field density report.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Brandon Veach

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Page: 1 of 3

Project: Skykomish Levee Remediation
 MTE Project #: E6288 Date: 9-7-06
 Permit #:
 Inspector: B Veach
 MTE Nuclear Gauge #: 2

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Wet Density	Field			Soil Type Description
			Maximum Dry Density	OMC %		Dry Density	Moisture Content %	Compaction %	
1	20/21	+1'-0"	136.5	5.0	130.0	123.9	5.0	90.8	medium coarse sand w/ gravel
2	21/22	+1'-0"	136.5	5.0	136.0	130.8	4.0	95.9	medium coarse sand w/ gravel
3	19/20	+2'-0"	136.5	5.0	129.5	124.2	4.3	91.0	medium coarse sand w/ gravel
4	21/22	+2'-0"	136.5	5.0	130.4	123.5	5.6	90.5	medium coarse sand w/ gravel
5	20/21	+3'-0"	136.5	5.0	131.1	125.4	4.6	91.9	medium coarse sand w/ gravel
6	21/22	+3'-0"	136.5	5.0	127.8	123.3	3.7	90.3	medium coarse sand w/ gravel
7	23/24	+5'-0"	136.5	5.0	133.6	127.7	4.6	93.5	medium coarse sand w/ gravel
8	24/25	+5'-0"	136.5	5.0	132.7	127.6	4.0	93.5	medium coarse sand w/ gravel
9	25/26	+5'-0"	136.5	5.0	128.0	123.3	3.8	90.3	medium coarse sand w/ gravel
10	21/22 (South edge)	+2'-0"	136.5	5.0	130.7	125.7	4.1	92.1	medium coarse sand w/ gravel
11	22/23 (South edge)	+2'-0"	136.5	5.0	130.8	125.4	4.4	91.9	medium coarse sand w/ gravel
12	23/24 (South edge)	2'-0"	136.5	5.0	131.2	126.1	4.1	92.4	medium coarse sand w/ gravel
13	24/25 (South edge)	2'-0"	136.5	5.0	132.6	127.8	3.8	93.6	medium coarse sand w/ gravel
14	25/26 (South edge)	2'-0"	136.5	5.0	130.4	125.1	4.3	91.7	medium coarse sand w/ gravel
15	20/21	4'-0"	136.5	5.0	131.3	125.9	4.3	92.2	medium coarse sand w/ gravel

Specification Compaction and Material: 90%

☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: 1- dozer

Type and Number of Compaction units: 1- single drum roller

No. of Passes: several Thickness of lift: 10"-1'-0"

Method of Adding Moisture: water truck

Comments:

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does **not** meet specifications as indicated by test numbers, and should be removed or reworked:☒ Fill test meets specifications☐ Contractor Advised☒ Full-time observation ☐ Part-time observation

Quality Control Sample: Test No.: Dry Density: Moisture %:

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Page: 2 of 3

Project: Skykomish Levee Remediation
MTE Project #: E6288 Date: 9-7-06
Permit #: _____
Inspector: B Veach
MTE Nuclear Gauge #: 2

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Wet Density	Field			Soil Type Description
			Maximum Dry Density	OMC %		Dry Density	Moisture Content %	Compaction %	
16	21/22	4'-0"	136.5	5.0	129.3	124.5	3.9	91.2	medium coarse sand w/ gravel
17	22/23	4'-0"	136.5	5.0	128.4	123.4	4.1	90.4	medium coarse sand w/ gravel
18	20/21	5'-0"	136.5	5.0	133.3	130.3	2.3	95.4	medium coarse sand w/ gravel
19	21/22	5'-0"	136.5	5.0	129.0	126.0	2.4	92.3	medium coarse sand w/ gravel
20	22/23	5'-0"	136.5	5.0	126.4	123.8	2.1	90.7	medium coarse sand w/ gravel
21	20/21 (South edge)	3'-0"	136.5	5.0	129.0	123.0	4.8	90.1	medium coarse sand w/ gravel
22	21/22 (South edge)	3'-0"	136.5	5.0	126.4	122.9	2.9	90.0	medium coarse sand w/ gravel
23	22/23 (South edge)	3'-0"	136.5	5.0	127.1	124.0	2.5	90.9	medium coarse sand w/ gravel
24	23/24 (South edge)	3'-0"	136.5	5.0	129.0	125.0	3.2	91.6	medium coarse sand w/ gravel
25	25/26 (South edge)	3'-0"	136.5	5.0	130.7	126.5	3.3	92.7	medium coarse sand w/ gravel
26	20/21 (South edge)	4'-0"	136.5	5.0	129.9	125.9	3.2	92.2	medium coarse sand w/ gravel
27	21/22 (South edge)	4'-0"	136.5	5.0	128.5	124.6	3.1	91.4	medium coarse sand w/ gravel
28	22/23 (South edge)	4'-0"	136.5	5.0	132.3	128.6	2.9	94.2	medium coarse sand w/ gravel
29	23/24 (South edge)	4'-0"	136.5	5.0	128.0	124.0	3.2	90.9	medium coarse sand w/ gravel
30	25/26 (South edge)	4'-0"	136.5	5.0	128.5	125.0	2.8	91.6	medium coarse sand w/ gravel

Specification Compaction and Material: 90%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: 1- dozerType and Number of Compaction units: 1- single drum rollerNo. of Passes: several Thickness of lift: 10"-1'-0"Method of Adding Moisture: water truck

Comments:

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does **not** meet specifications as indicated by test numbers, and should be removed or reworked:☒ Fill test meets specifications☐ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample: Test No.: _____ Dry Density: _____ Moisture %: _____

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 7911 NE 33rd Drive, Suite 190 Ph 503.281.7515
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Page: 3 of 3

Project: Skykomish Levee Remediation
 MTE Project #: E6288 Date: 9-7-06
 Permit #: _____
 Inspector: B Veach
 MTE Nuclear Gauge #: 2

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Wet Density	Field			Soil Type Description
			Maximum Dry Density	OMC %		Dry Density	Moisture Content %	Compaction %	
31	20/21 (South edge)	5'-0"	136.5	5.0	132.4	127.9	3.6	93.7	medium coarse sand w/ gravel
32	22/23 (South edge)	5'-0"	136.5	5.0	132.6	127.5	4.0	93.4	medium coarse sand w/ gravel
33	23/24 (South edge)	5'-0"	136.5	5.0	131.2	126.8	3.5	92.9	medium coarse sand w/ gravel
34	24/25 (South edge)	5'-0"	136.5	5.0	132.7	127.7	3.9	93.5	medium coarse sand w/ gravel
35	25/26 (South edge)	5'-0"	136.5	5.0	129.4	126.0	2.6	92.3	medium coarse sand w/ gravel
36	21/22	6'-0"	136.5	5.0	134.5	130.0	3.3	95.3	medium coarse sand w/ gravel
37	22/23	6'-0"	136.5	5.0	134.3	130.8	2.6	95.9	medium coarse sand w/ gravel
38	23/24	6'-0"	136.5	5.0	134.3	130.2	3.1	95.4	medium coarse sand w/ gravel
39	24/25	6'-0"	136.5	5.0	136.2	132.0	3.2	96.7	medium coarse sand w/ gravel
40	25/26	6'-0"	136.5	5.0	138.6	133.4	3.9	97.7	medium coarse sand w/ gravel

Specification Compaction and Material: 90%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: 1- dozerType and Number of Compaction units: 1- single drum rollerNo. of Passes: several Thickness of lift: 10"-1'-0"Method of Adding Moisture: water truck

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does **not** meet specifications as indicated by test numbers, and should be removed or reworked:☒ Fill test meets specifications☐ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample: Test No.: _____ Dry Density: _____ Moisture %: _____

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Portland, OR 97211
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fax 503.281.7579

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomosh, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 4

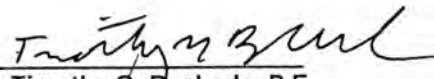
Date: 9/11/06
Weather: Sunny
Inspection: Soils
Sample(s):

Arrived on site to observe earthwork and perform soil density testing on the levy. Stabilization rock was observed being placed in the East end of the levy but testing is unable to be taken because the rock is only being placed to a depth of approximately 3" above the water level. No testing will be needed and observation is not necessary.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Brandon Veach

REVIEWED BY:

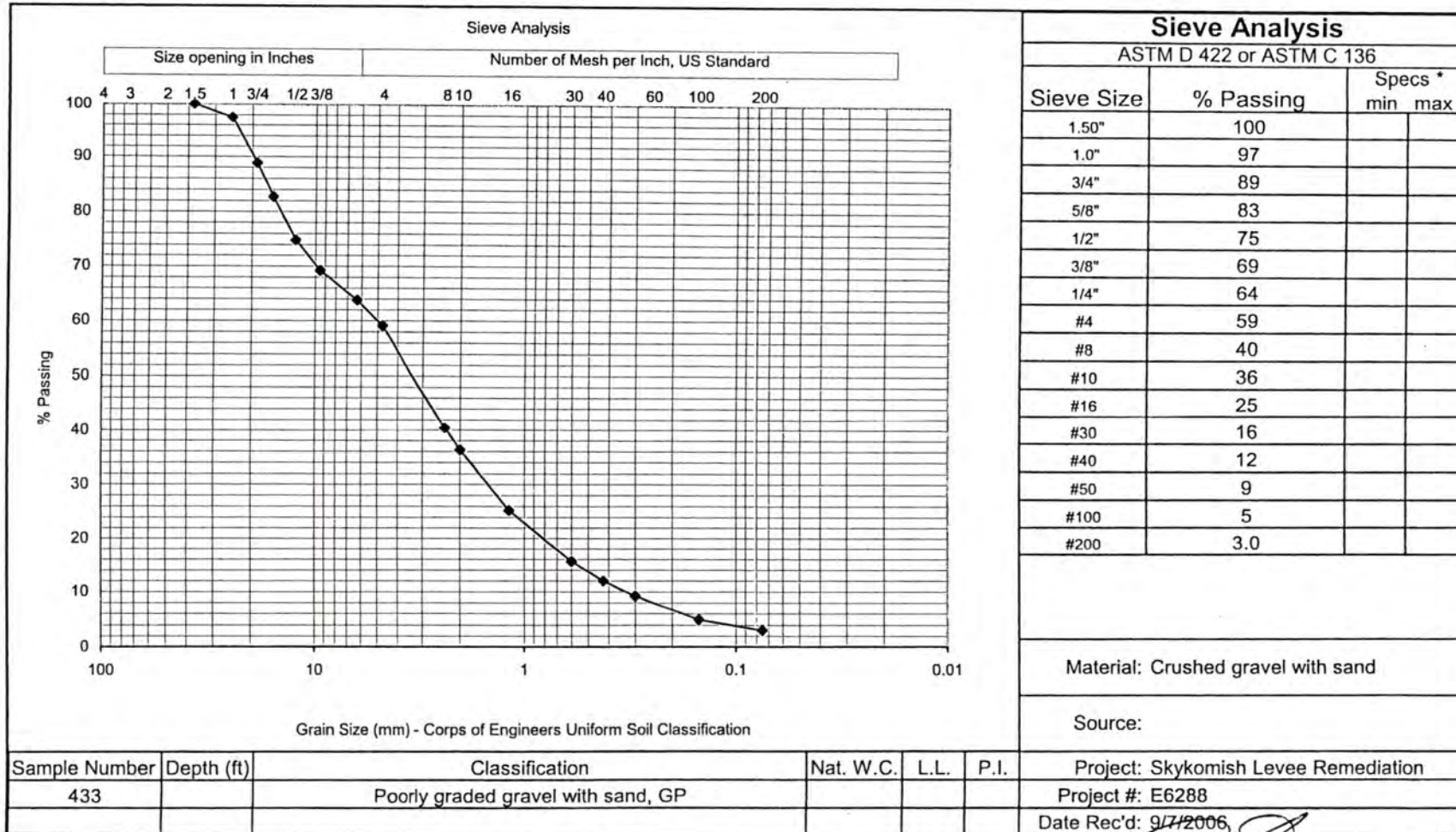

Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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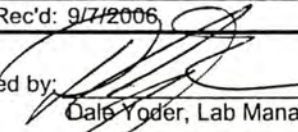
917-134th St. SW, Suite A1
Everett, WA 98204

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Fax 425-745-1737



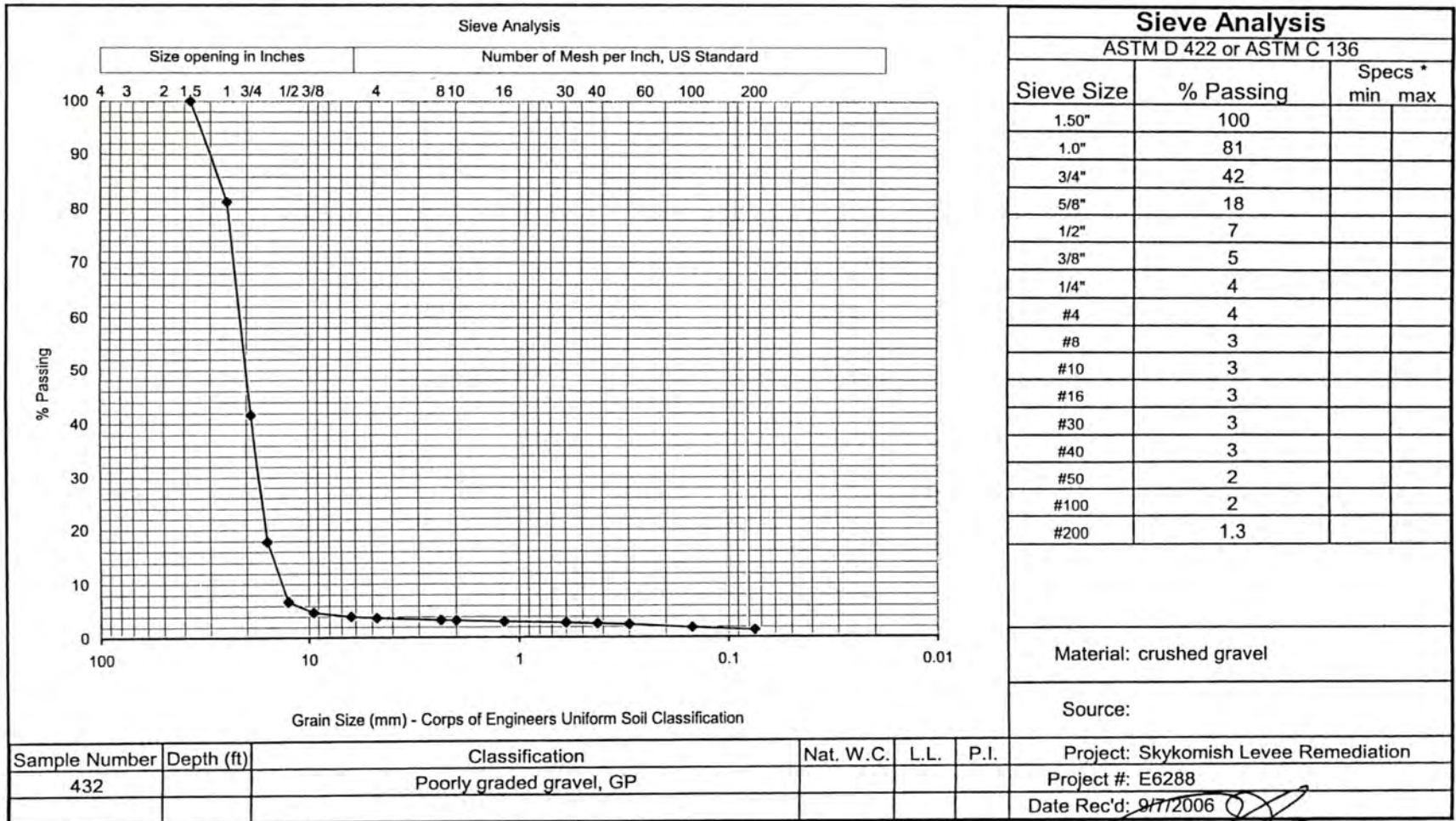
Tested By: G. Booker

Date Tested: 9/7/2006

Reviewed by: 
Dale Yoder, Lab Manager

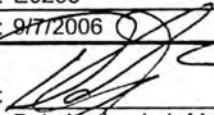
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Tested By: G. Booker

Date Tested: 9/11/2006

Reviewed by: 
Dale Yoder, Lab Manager

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fax 503.281.7579

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomosh, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 4

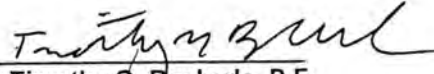
Date: 9/11/06
Weather: Sunny
Inspection: Soils
Sample(s):

Arrived on site to observe earthwork and perform soil density testing on the levy. Stabilization rock was observed being placed in the East end of the levy but testing is unable to be taken because the rock is only being placed to a depth of approximately 3" above the water level. No testing will be needed and observation is not necessary.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Brandon Veach

REVIEWED BY:

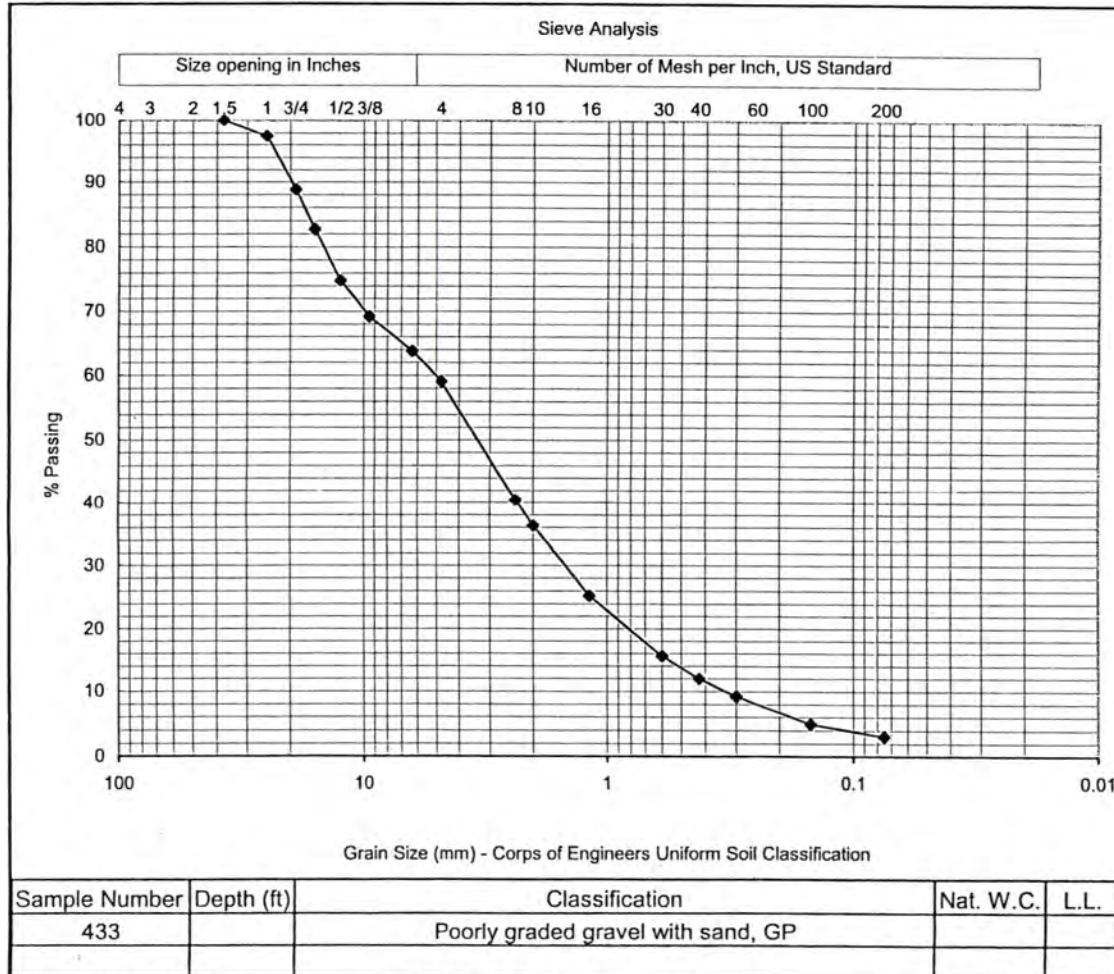

Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Sieve Analysis			
ASTM D 422 or ASTM C 136			
Sieve Size	% Passing	Specs *	
		min	max
1.50"	100		
1.0"	97		
3/4"	89		
5/8"	83		
1/2"	75		
3/8"	69		
1/4"	64		
#4	59		
#8	40		
#10	36		
#16	25		
#30	16		
#40	12		
#50	9		
#100	5		
#200	3.0		
Material: Crushed gravel with sand			
Source:			
Project: Skykomish Levee Remediation			
Project #: E6288			
Date Rec'd: 9/7/2006			

Tested By: G. Booker

Date Tested: 9/7/2006

Reviewed by: Dale Yoder, Lab Manager

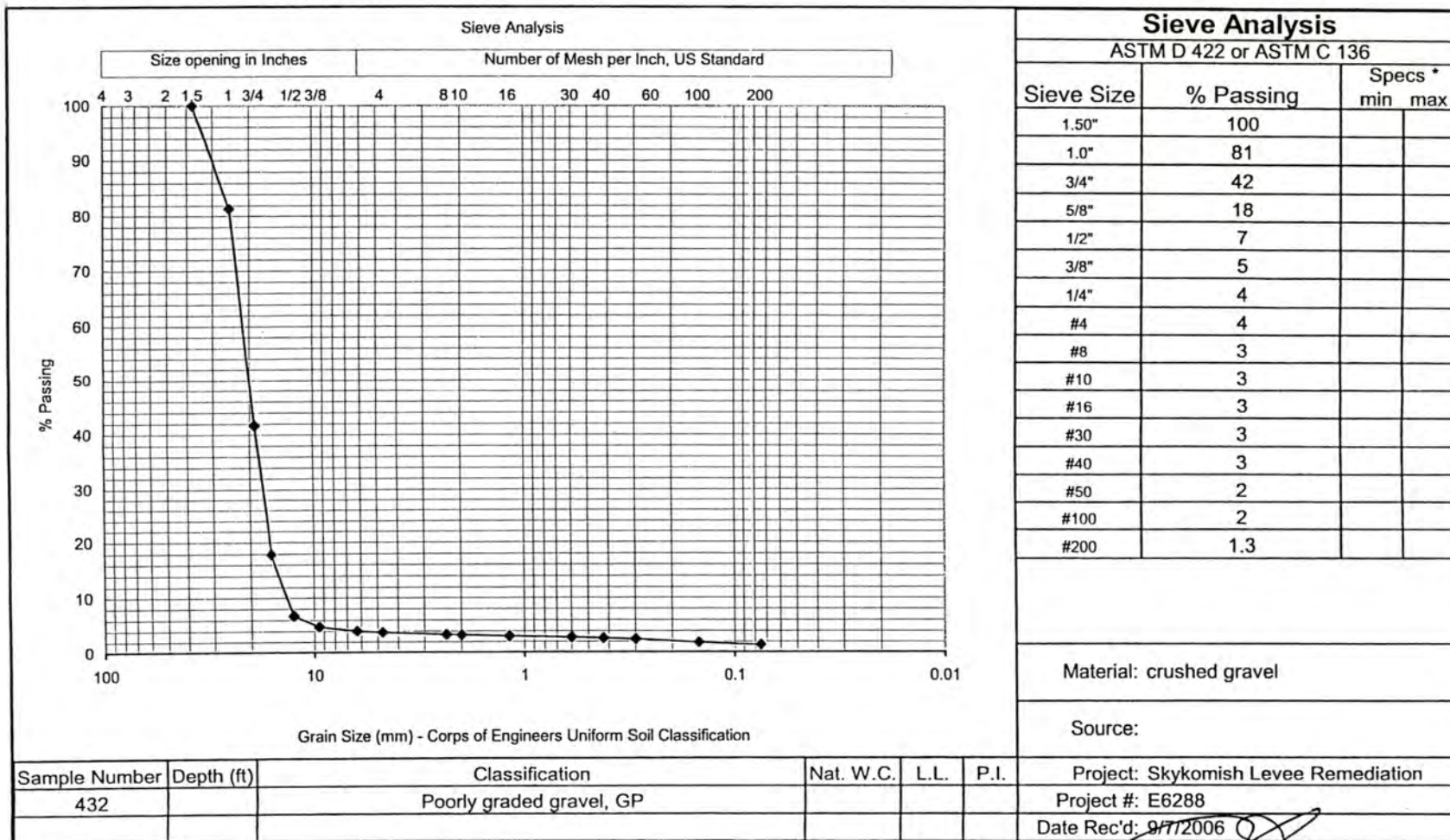
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MAYES TESTING ENGINEERS, INC.

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomosh, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 11

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fax 253.584.3707

Portland Office
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Suite 190
Portland, OR 97211
ph 503.281.7515
fax 503.281.7579

Date: 9/12/06
Weather: Sunny
Inspection: Soils
Sample(s): Sieve/Proctor- med coarse sand w/ gravel; Sieve-1-1/4" crushed rock

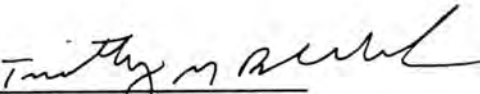
Arrived onsite to perform soil density tests on the medium coarse sand with gravel being backfilled in the levee between 19/20 and 17/18. Soil was placed by truck, spread by dozer, and compacted via several passes with a large vibrating single-drum roller. Two samples were taken for a Proctor and sieves.

Four lifts were placed; three tests were taken per lift. Compaction was met and exceeded using the previous Proctor of 136.5 @ 5.0% moisture. See attached Field Density Test Report for results.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Brandon Veach

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Page: 1 of 1

Project: Skykomish Levee Remediation
 MTE Project #: E6288 Date: 9-12-06
 Permit #:
 Inspector: B Veach
 MTE Nuclear Gauge #: 2

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Wet Density	Field			Soil Type Description
			Maximum Dry Density	OMC %		Dry Density	Moisture Content %	Compaction %	
1	19/20	1'	135.0	7.0	131.7	126.3	4.3	94	med coarse sand w/ gravel
2	18/19	1'	135.0	7.0	131.8	127.2	3.6	94	med coarse sand w/ gravel
3	17/18	1'	135.0	7.0	130.7	124.8	4.7	92	med coarse sand w/ gravel
4	19/20	2'	135.0	7.0	128.8	124.9	3.1	93	med coarse sand w/ gravel
5	18/19	2'	135.0	7.0	129.8	125.7	3.3	93	med coarse sand w/ gravel
6	17/18	2'	135.0	7.0	130.4	125.3	4.1	93	med coarse sand w/ gravel
7	17/18	3'	135.0	7.0	131.5	126.2	4.2	93	med coarse sand w/ gravel
8	18/19	3'	135.0	7.0	132.6	128.7	3.0	95	med coarse sand w/ gravel
9	19/20	3'	135.0	7.0	131.4	126.7	3.7	94	med coarse sand w/ gravel
10	17/18	4'	135.0	7.0	131.8	125.8	4.8	93	med coarse sand w/ gravel
11	18/19	4'	135.0	7.0	131.0	126.0	4.0	93	med coarse sand w/ gravel
12	19/20	4'	135.0	7.0	135.0	129.6	4.2	96	med coarse sand w/ gravel

Specification Compaction and Material: 90%

☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: dozer

Type and Number of Compaction units: single-drum roller

No. of Passes: several Thickness of lift: 1'

Method of Adding Moisture: water truck

Comments:

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does **not** meet specifications as indicated by test numbers, and should be removed or reworked:☒ Fill test meets specifications☐ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample: Test No.: Dry Density: Moisture %:

Moisture Density Relationship TestClient: Wilder ConstructionDate Tested: 9/14/2006Project: Skykomish Levee RemediationProject Number: E6288Test Method: ASTM D-1557 Method C / C 127 / D 4718 (if needed)Lab Number: 440Wet Preparation ☐Mechanical ☒Dry Preparation ☒Hand Tamper ☐Date Received: 9/13/2006Source of Sample: JobsiteDescription of Sample: medium to coarse-grained sand with gravel

Zero Void line plotted at SpG:

2.65

Max. Density Uncorrected:

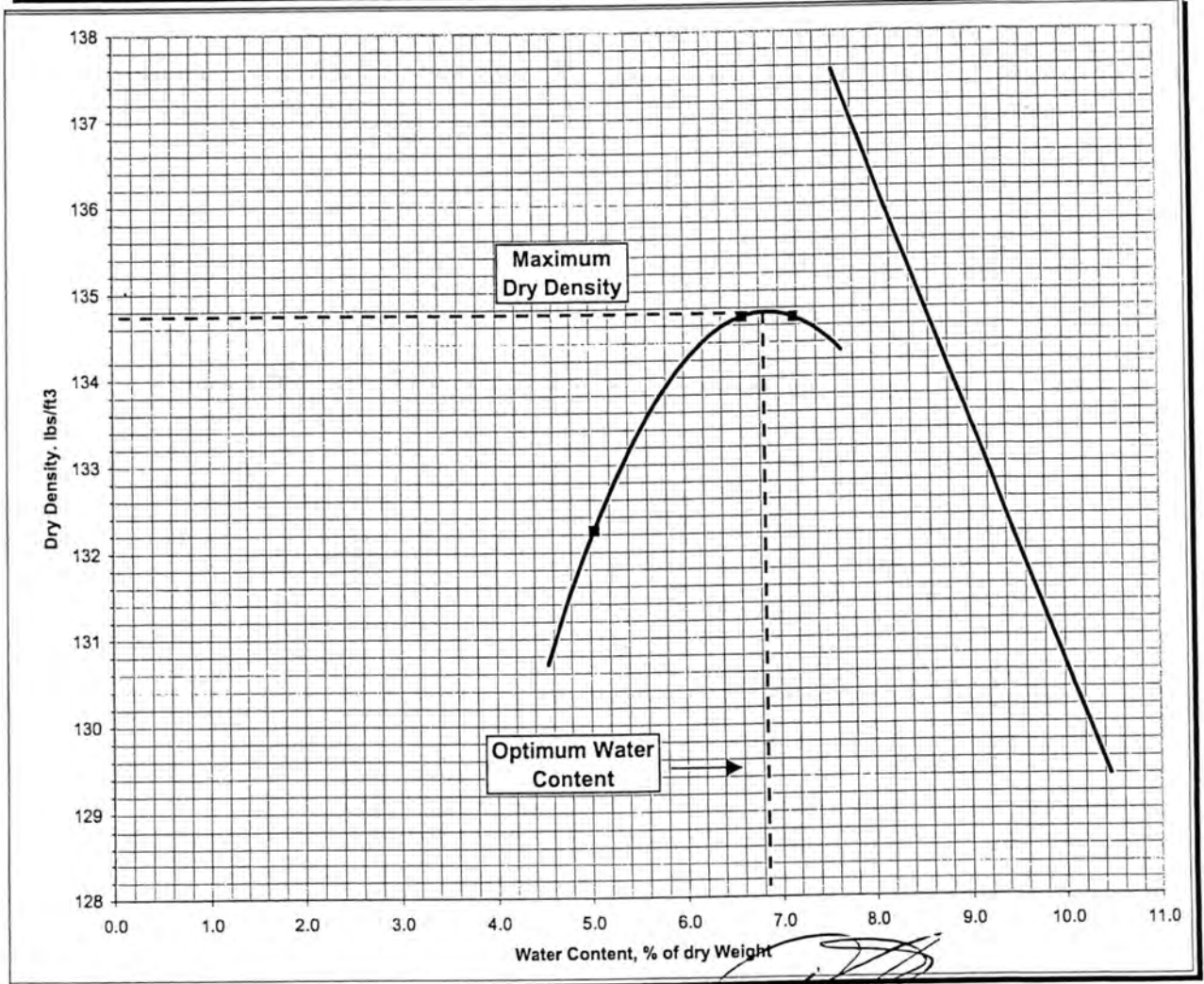
131.8**Test Results**Optimum Water Content % 7.0Max Dry Density Corr. lbs/ft³ 135.0**Sieve Analysis**

Sieve Size Percent Retained

3/4 12%

3/8 32%

#4 40%

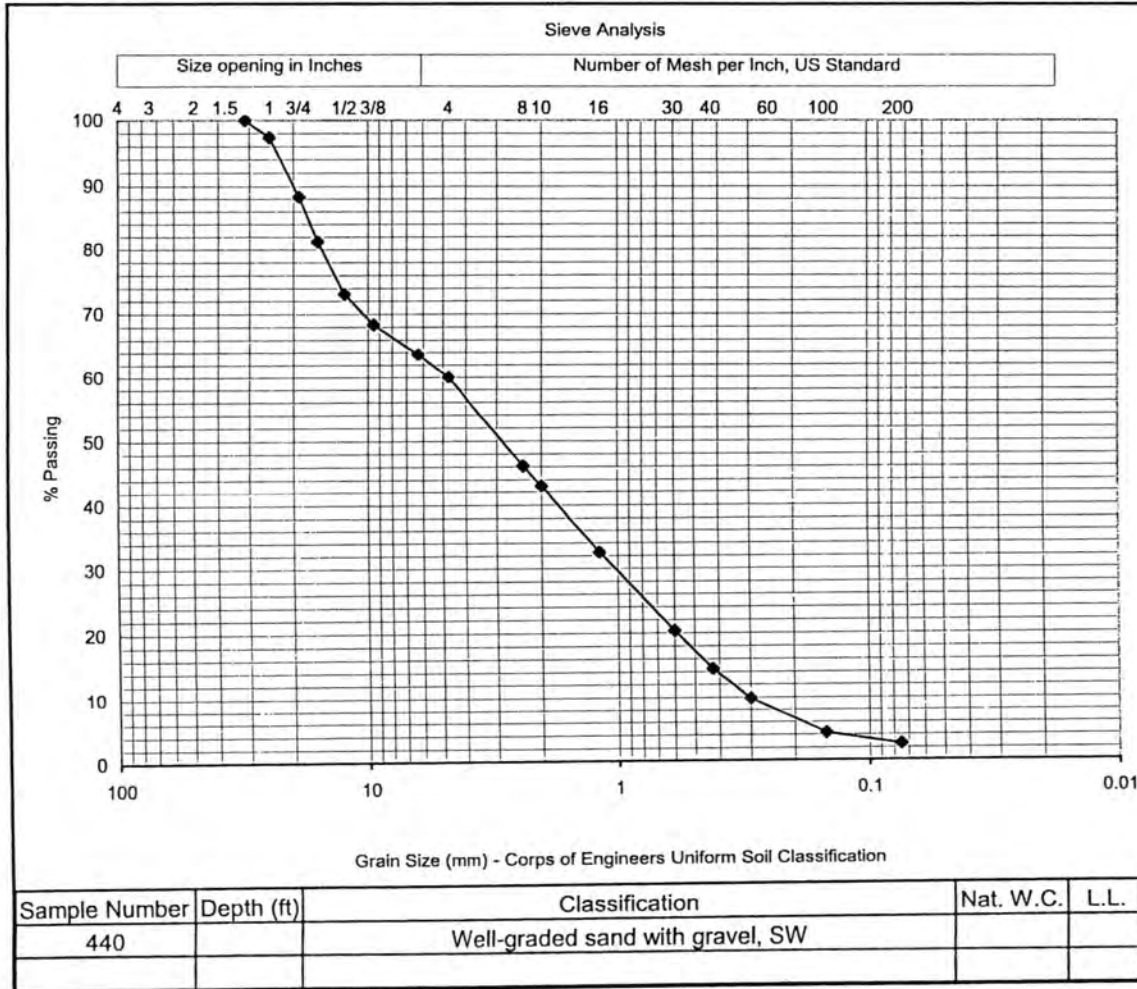
Tested By: G. BookerReviewed By: [Signature]

Dale Yoder, Lab Manager

Information in this report applies only to the actual samples tested and shall not be reproduced except in full, without the approval of Mayes Testing Engineers, Inc.

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Sieve Analysis			
ASTM D 422 or ASTM C 136			
Sieve Size	% Passing	Specs *	
		min	max
1.25"	100		
1.0"	97		
3/4"	88		
5/8"	81		
1/2"	73		
3/8"	68		
1/4"	64		
#4	60		
#8	46		
#10	43		
#16	32		
#30	20		
#40	14		
#50	10		
#100	4		
#200	2.5		
Material: medium to coarse-grained sand with gravel			
Source: Jobsite			
Project: Skykomish Levee Remediation			
Project #: E6288			
Date Rec'd: 9/13/2006			

Tested By: G. Booker

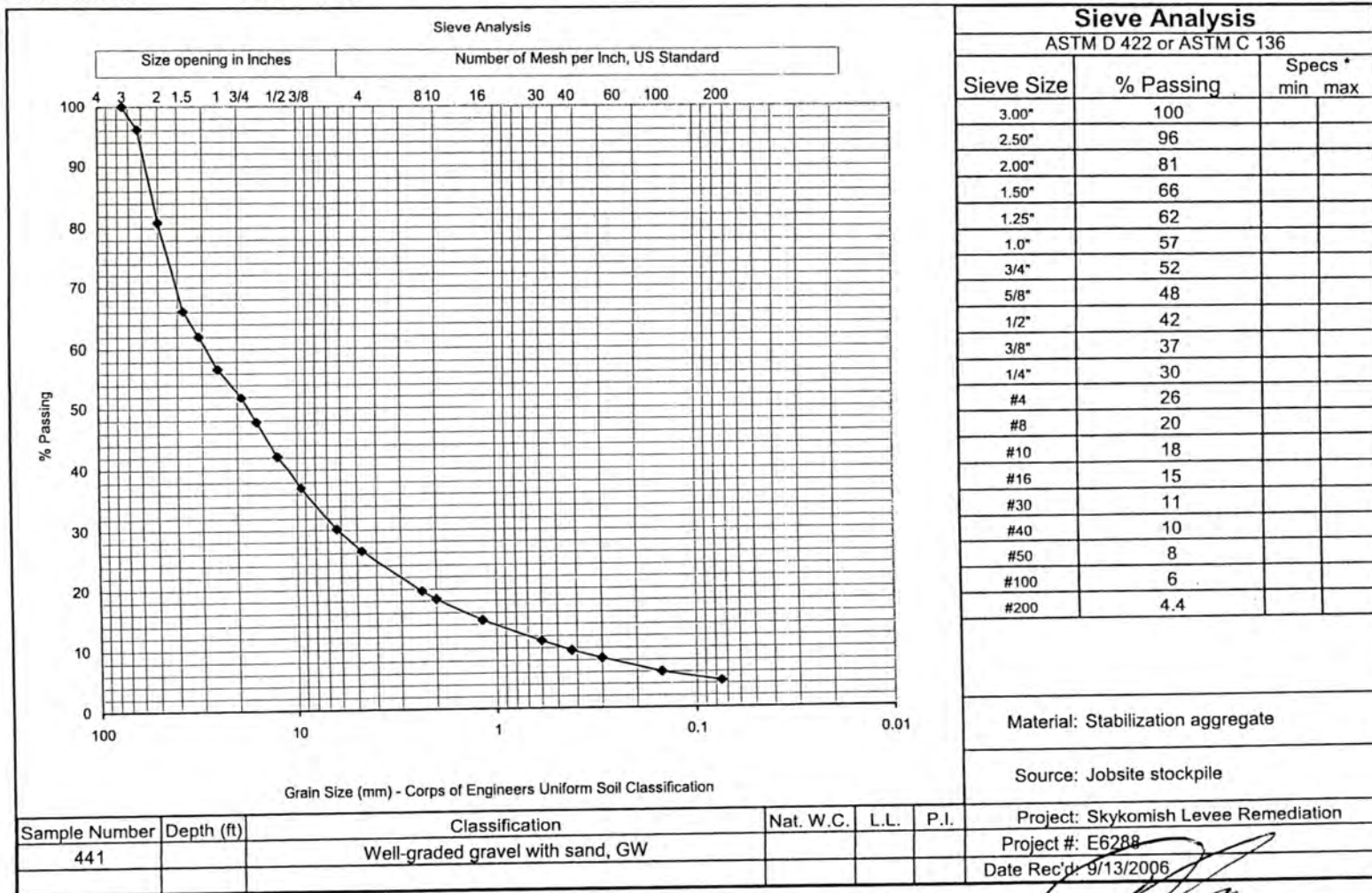
Date Tested: 9/14/2006

Reviewed by: Dale Yoder, Lab Manager

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Portland Office
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ph 503.281.7515
fax 503.281.7579

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomosh, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 11

Date: 9/12/06
Weather: Sunny
Inspection: Soils
Sample(s): Sieve/Proctor- med coarse sand w/ gravel; Sieve-1-1/4" crushed rock

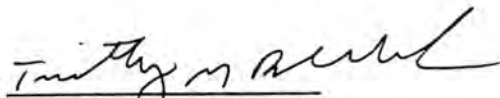
Arrived onsite to perform soil density tests on the medium coarse sand with gravel being backfilled in the levee between 19/20 and 17/18. Soil was placed by truck, spread by dozer, and compacted via several passes with a large vibrating single-drum roller. Two samples were taken for a Proctor and sieves.

Four lifts were placed; three tests were taken per lift. Compaction was met and exceeded using the previous Proctor of 136.5 @ 5.0% moisture. See attached Field Density Test Report for results.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Brandon Veach

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Page: 1 of 1

Project: Skykomish Levee Remediation
MTE Project #: E6288 Date: 9-12-06
Permit #:
Inspector: B Veach
MTE Nuclear Gauge #: 2

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Wet Density	Field			Soil Type Description
			Maximum Dry Density	OMC %		Dry Density	Moisture Content %	Compaction %	
1	19/20	1'	135.0	7.0	131.7	126.3	4.3	94	med coarse sand w/ gravel
2	18/19	1'	135.0	7.0	131.8	127.2	3.6	94	med coarse sand w/ gravel
3	17/18	1'	135.0	7.0	130.7	124.8	4.7	92	med coarse sand w/ gravel
4	19/20	2'	135.0	7.0	128.8	124.9	3.1	93	med coarse sand w/ gravel
5	18/19	2'	135.0	7.0	129.8	125.7	3.3	93	med coarse sand w/ gravel
6	17/18	2'	135.0	7.0	130.4	125.3	4.1	93	med coarse sand w/ gravel
7	17/18	3'	135.0	7.0	131.5	126.2	4.2	93	med coarse sand w/ gravel
8	18/19	3'	135.0	7.0	132.6	128.7	3.0	95	med coarse sand w/ gravel
9	19/20	3'	135.0	7.0	131.4	126.7	3.7	94	med coarse sand w/ gravel
10	17/18	4'	135.0	7.0	131.8	125.8	4.8	93	med coarse sand w/ gravel
11	18/19	4'	135.0	7.0	131.0	126.0	4.0	93	med coarse sand w/ gravel
12	19/20	4'	135.0	7.0	135.0	129.6	4.2	96	med coarse sand w/ gravel

Specification Compaction and Material: 90%

☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: dozer

Type and Number of Compaction units: single-drum roller

No. of Passes: several Thickness of lift: 1'

Method of Adding Moisture: water truck

Comments:

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does **not** meet specifications as indicated by test numbers, and should be removed or reworked:☒ Fill test meets specifications☐ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample: Test No.: Dry Density: Moisture %:

MAYES TESTING ENGINEERS, INC.

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Tacoma Office
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Portland Office
7911 NE 33rd Drive
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Portland, OR 97211
ph 503.281.7515
fax 503.281.7579

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomosh, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 5

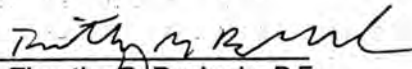
Date: 9/13/06
Weather: Cloudy
Inspection: Soils
Sample(s): Sieve- med coarse sand w/ gravel

Arrived onsite to perform soil density tests on the levee backfill. Soil was placed between markers 19/20 and 16/17. Stabilization aggregate was used to bring the depth up over the level of the water and then the area received the medium coarse sand with gravel. The soil was placed by truck, spread by dozer, and compacted via several passes with a large vibrating single-drum roller. Tests were taken every 8" to 12" of backfill. Water was added via water truck. Tests were taken and compaction specifications were met and exceeded. See attached Field Density Test Report for test locations and results.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Brandon Veach

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Page: 1 of 1

Project: Skykomish Levee Remediation

MTE Project #: E6288 Date: 9-13-06

Permit #: _____

Inspector: B Veach

MTE Nuclear Gauge #: 2

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Wet Density	Field			Soil Type Description
			Maximum Dry Density	OMC %		Dry Density	Moisture Content %	Compaction %	
1	16/17	+4'0"	136.5	5.0	138.2	132.0	4.7	97	medium coarse sand w/ gravel
2	17/18	+4'6"	136.5	5.0	139.1	131.6	5.7	96	medium coarse sand w/ gravel
3	18/19	+5'0"	136.5	5.0	138.1	131.2	5.3	96	medium coarse sand w/ gravel
4	16/17	+4'6"	136.5	5.0	138.6	132.7	4.5	97	medium coarse sand w/ gravel
5	17/18	+5'0"	136.5	5.0	138.5	130.8	5.9	96	medium coarse sand w/ gravel
6	18/19	+5'6"	136.5	5.0	137.6	131.3	4.8	96	medium coarse sand w/ gravel
7	16/17	+5'0"	136.5	5.0	138.6	131.7	5.2	97	medium coarse sand w/ gravel
8	17/18	+5'6"	136.5	5.0	137.8	130.9	5.3	96	medium coarse sand w/ gravel

Specification Compaction and Material: 90%

☒ ASTM D 1557 (Modified Proctor)

☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: dozer

Type and Number of Compaction units: single drum roller

No. of Passes: several Thickness of lift: 6-12"

Method of Adding Moisture: water truck

Comments:

☐ In our opinion, fill generally meets specifications as indicated by test numbers:

☐ In our opinion, fill does **not** meet specifications as indicated by test numbers, and should be removed or reworked:

☒ Fill test meets specifications

☐ Contractor Advised

☒ Full-time observation

☐ Part-time observation

Quality Control Sample: Test No.: _____ Dry Density: _____ Moisture %: _____

MAYES TESTING ENGINEERS, INC.

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomosh, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 5

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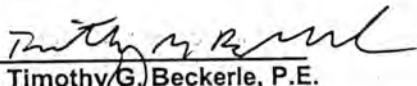
Portland Office
7911 NE 33rd Drive
Suite 190
Portland, OR 97211
ph 503.281.7515
fax 503.281.7579

Date: 9/13/06
Weather: Cloudy
Inspection: Soils
Sample(s): Sieve- med coarse sand w/ gravel

Arrived onsite to perform soil density tests on the levee backfill. Soil was placed between markers 19/20 and 16/17. Stabilization aggregate was used to bring the depth up over the level of the water and then the area received the medium coarse sand with gravel. The soil was placed by truck, spread by dozer, and compacted via several passes with a large vibrating single-drum roller. Tests were taken every 8" to 12" of backfill. Water was added via water truck. Tests were taken and compaction specifications were met and exceeded. See attached Field Density Test Report for test locations and results.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Brandon Veach

REVIEWED BY: 
Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Page: 1 of 1

Project: Skykomish Levee Remediation
MTE Project #: E6288 Date: 9-13-06
Permit #:
Inspector: B Veach
MTE Nuclear Gauge #: 2

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Wet Density	Field			Soil Type Description
			Maximum Dry Density	OMC %		Dry Density	Moisture Content %	Compaction %	
1	16/17	+4'0"	136.5	5.0	138.2	132.0	4.7	97	medium coarse sand w/ gravel
2	17/18	+4'6"	136.5	5.0	139.1	131.6	5.7	96	medium coarse sand w/ gravel
3	18/19	+5'0"	136.5	5.0	138.1	131.2	5.3	96	medium coarse sand w/ gravel
4	16/17	+4'6"	136.5	5.0	138.6	132.7	4.5	97	medium coarse sand w/ gravel
5	17/18	+5'0"	136.5	5.0	138.5	130.8	5.9	96	medium coarse sand w/ gravel
6	18/19	+5'6"	136.5	5.0	137.6	131.3	4.8	96	medium coarse sand w/ gravel
7	16/17	+5'0"	136.5	5.0	138.6	131.7	5.2	97	medium coarse sand w/ gravel
8	17/18	+5'6"	136.5	5.0	137.8	130.9	5.3	96	medium coarse sand w/ gravel

Specification Compaction and Material: 90%

☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: dozer

Type and Number of Compaction units: single drum roller

No. of Passes: several Thickness of lift: 6-12"

Method of Adding Moisture: water truck

Comments:

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does **not** meet specifications as indicated by test numbers, and should be removed or reworked:☒ Fill test meets specifications☐ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample: Test No.: Dry Density: Moisture %:

Moisture Density Relationship TestClient: Wilder ConstructionProject: Skykomish Levee RemediationTest Method: ASTM D-1557 Method C / C 127 / D 4718 (if needed)Date Tested: 9/14/2006Project Number: E6288Lab Number: 440Wet Preparation ☐Mechanical ☒Dry Preparation ☒Hand Tamper ☐Date Received: 9/13/2006Source of Sample: JobsiteDescription of Sample: medium to coarse-grained sand with gravel

Zero Void line plotted at SpG:

2.65

Max. Density Uncorrected:

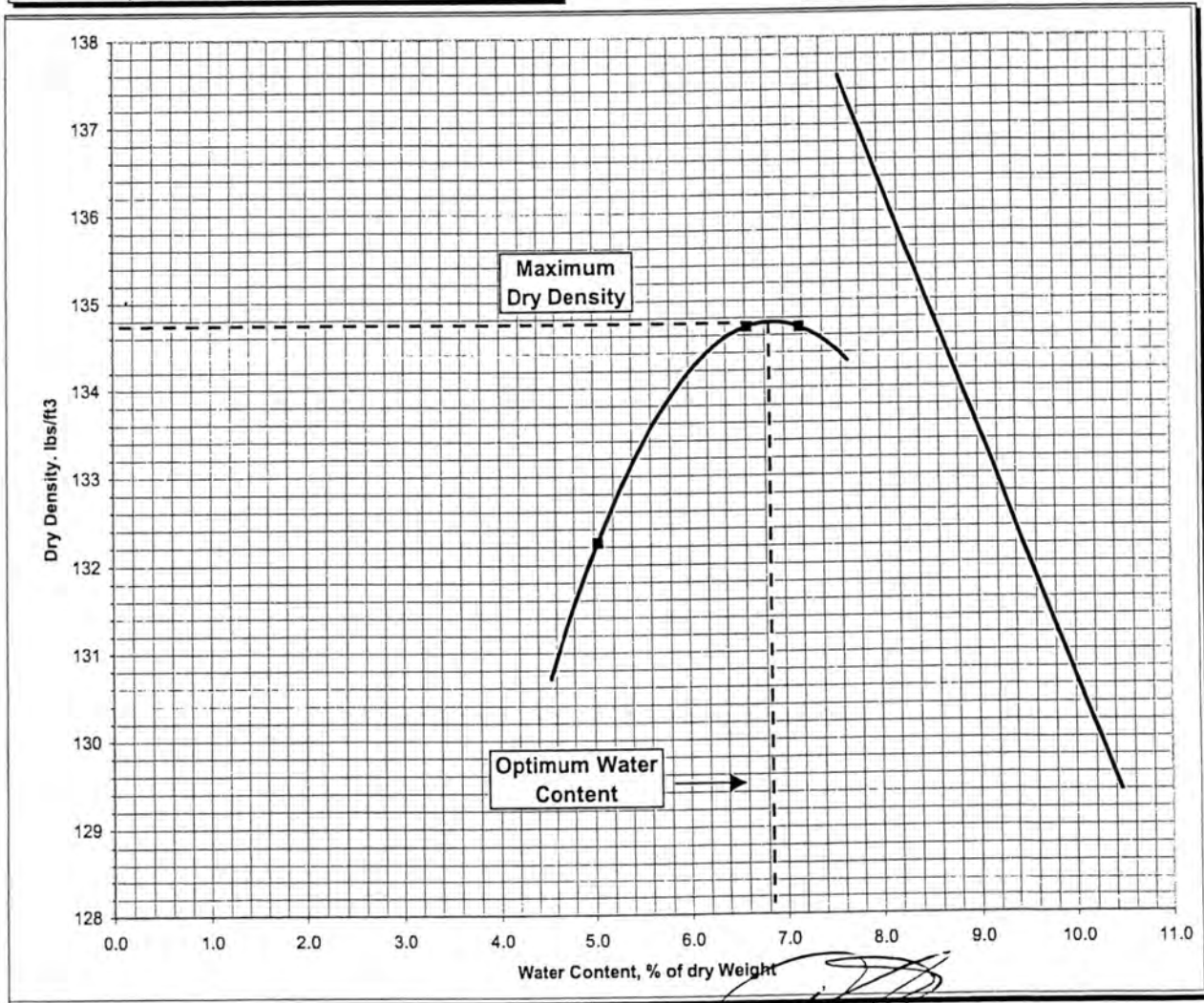
131.8

Test Results

Optimum Water Content %	7.0
Max Dry Density Corr. lbs/ft ³	135.0

Sieve Analysis

Sieve Size	Percent Retained
3/4	12%
3/8	32%
#4	40%

Tested By: G. BookerReviewed By: [Signature]

Dale Yoder, Lab Manager

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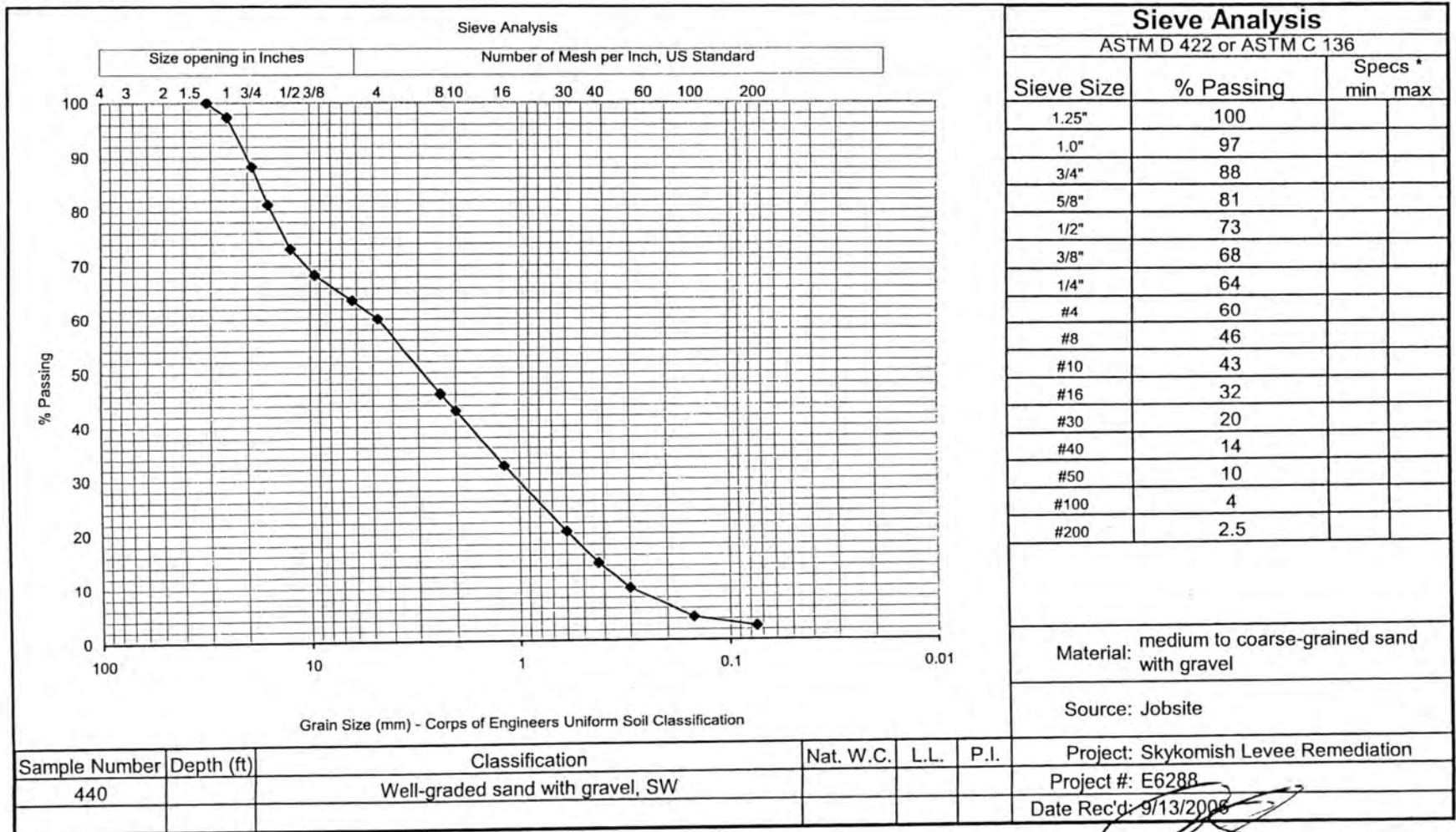
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Everett, WA 98204

Fax 425-745-1737



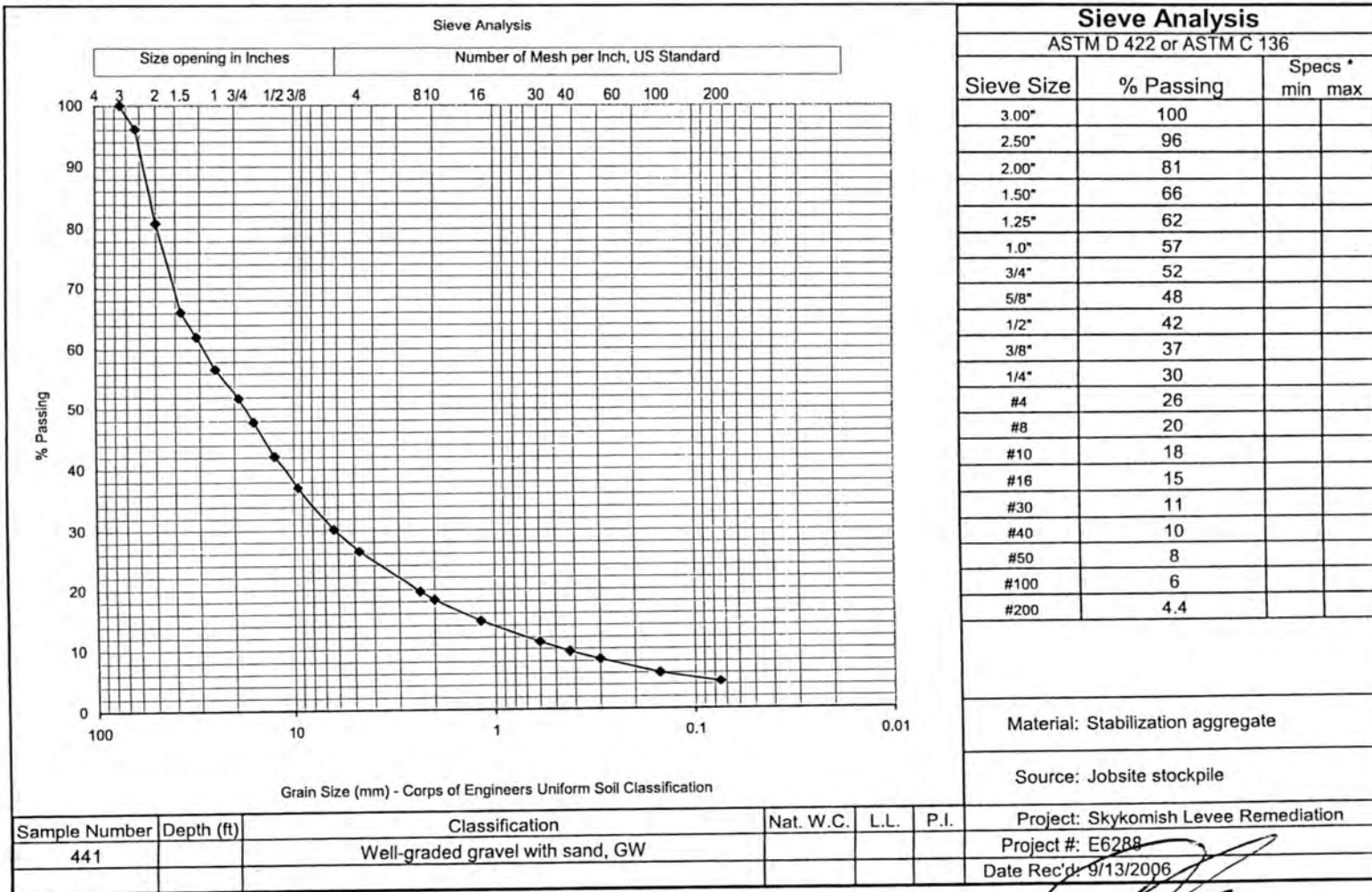
Tested By: G. Booker

Date Tested: 9/14/2006

Reviewed by: Dale Yoder, Lab Manager

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Everett, WA 98204 Fax 425-745-1737



Tested By: G. Booker/Z. Revilla

Date Tested: 9/13/2006

Reviewed by: Dale Yoder, Lab Manager

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MTE Form #143, Rev 2, 6-02

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Portland Office
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ph 503.281.7515
fax 503.281.7579

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomosh, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 6

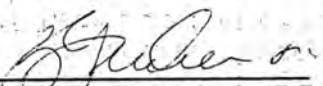
Date: 9/14/06
Weather: Rain
Inspection: Soils
Sample(s): Med. Coarse sand w/ gravel (Proctor/Sieve)
Stabilization rock (Sieve)

Arrived onsite to perform soil density tests on the backfill being placed in the levee. Stabilization aggregate is being used to bring the depth of the backfill above the surface of the water and then the medium coarse sand with gravel takes over. The soil is brought in by truck, spread by a dozer, and compacted with a large vibrating single-drum roller. Lifts are being placed from 25/26 to 13/14. Three tests were taken per 100 feet per lift. The Proctor being used is the previous Proctor of 136.5 at 5.0% moisture until the Proctor is completed on the sample taken today. Test locations and results are found on the attached Field Density Test Report.

Preliminary Inspection

INSPECTOR: Brandon Veach

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Portland, OR 97211Ph 503.281.7515
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Page: 1 of 2

Project: Skykomish Levee Remediation

MTE Project #: E6288 Date: 9-14-06

Permit #:

Inspector: B Veach

MTE Nuclear Gauge #: 2

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Wet Density	Field			Soil Type Description
			Maximum Dry Density	OMC %		Dry Density	Moisture Content %	Compaction %	
1	22/23	+7'	136.5	5.0	137.4	129.9	5.7	95	med. coarse sand w/ gravel
2	23/24	+7'	136.5	5.0	141.3	133.2	6.2	98	med. coarse sand w/ gravel
3	24/25	+7'	136.5	5.0	138.4	131.2	5.5	96	med. coarse sand w/ gravel
4	23/24	+8'	136.5	5.0	138.3	130.6	5.9	96	med. coarse sand w/ gravel
5	24/25	+8'	136.5	5.0	137.8	131.4	4.8	96	med. coarse sand w/ gravel
6	25/26	+8'	136.5	5.0	138.1	129.8	6.4	95	med. coarse sand w/ gravel
7	22/23	+9'	136.5	5.0	138.7	130.6	6.2	96	med. coarse sand w/ gravel
8	24/25	+9'	136.5	5.0	138.8	130.7	6.3	96	med. coarse sand w/ gravel
9	25/26	+9'	136.5	5.0	139.0	131.3	5.9	96	med. coarse sand w/ gravel
10	22/23	+10'	136.5	5.0	139.6	131.7	6.0	97	med. coarse sand w/ gravel
11	23/24	+10'	136.5	5.0	139.2	132.5	5.0	97	med. coarse sand w/ gravel
12	25/26	+10'	136.5	5.0	137.1	131.4	4.3	96	med. coarse sand w/ gravel
13	13/19	+6'	136.5	5.0	138.3	130.6	5.9	96	med. coarse sand w/ gravel
14	20/21	+6'	136.5	5.0	138.8	132.4	4.8	97	med. coarse sand w/ gravel
15	19/20	+7'	136.5	5.0	138.5	131.0	5.6	96	med. coarse sand w/ gravel

Specification Compaction and Material: 90% / 95%

☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: dozer

Type and Number of Compaction units: single-drum roller

No. of Passes: several Thickness of lift: 8-10"

Method of Adding Moisture: water truck

Comments:

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does **not** meet specifications as indicated by test numbers, and should be removed or reworked:☐ Fill test meets specifications☐ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample: Test No.: _____ Dry Density: _____ Moisture %: _____

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Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579

Page: 2 of 2

Project: Skykomish Levee Remediation
 MTE Project #: E6288 Date: 9-14-06
 Permit #:
 Inspector: B Veach
 MTE Nuclear Gauge #: 2

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Wet Density	Field			Soil Type Description
			Maximum Dry Density	OMC %		Dry Density	Moisture Content %	Compaction %	
16	20/21	+7'	136.5	5.0	137.8	129.7	6.2	95	med. coarse sand w/ gravel
17	13/14	+2'	136.5	5.0	131.4	126.0	4.3	92	med. coarse sand w/ gravel
18	14/15	+2'	136.5	5.0	135.5	129.4	4.7	95	med. coarse sand w/ gravel
19	16/17	+3'	136.5	5.0	134.0	127.6	5.0	94	med. coarse sand w/ gravel
20	17/8	+3'	136.5	5.0	136.7	131.3	4.1	96	med. coarse sand w/ gravel
21	13/14	+3'	136.5	5.0	135.9	129.9	4.6	95	med. coarse sand w/ gravel
22	15/16	+3'	136.5	5.0	137.4	130.6	5.2	96	med. coarse sand w/ gravel
23	17/18	+4'	136.5	5.0	136.1	129.9	4.7	95	med. coarse sand w/ gravel
24	16/17	+4'	136.5	5.0	137.1	130.3	5.2	96	med. coarse sand w/ gravel
25	13/14	+4'	136.5	5.0	137.2	130.6	4.9	96	med. coarse sand w/ gravel
26	14/15	+4'	136.5	5.0	137.4	129.5	6.0	95	med. coarse sand w/ gravel
27	15/16	+5'	136.5	5.0	139.6	131.5	6.1	96	med. coarse sand w/ gravel
28	16/17	+5'	136.5	5.0	138.0	130.2	5.9	95	med. coarse sand w/ gravel
29	14/15	+5'	136.5	5.0	137.2	130.6	4.9	96	med. coarse sand w/ gravel
30	13/14	+5'	136.5	5.0	137.8	131.1	5.0	96	med. coarse sand w/ gravel

Specification Compaction and Material: 90% / 95%

☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: dozer

Type and Number of Compaction units: single-drum roller

No. of Passes: several Thickness of lift: 8-10"

Method of Adding Moisture: water truck

Comments:

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does **not** meet specifications as indicated by test numbers, and should be removed or reworked:☐ Fill test meets specifications☐ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample: Test No.: _____ Dry Density: _____ Moisture %: _____

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fax 503.281.7579

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomosh, WA
Permit No.:
Bldg Dept.:

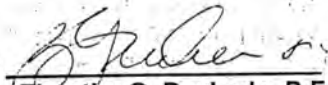
Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 6

Date: 9/14/06
Weather: Rain
Inspection: Soils
Sample(s): Med. Coarse sand w/ gravel (Proctor/Sieve)
Stabilization rock (Sieve)

Arrived onsite to perform soil density tests on the backfill being placed in the levee. Stabilization aggregate is being used to bring the depth of the backfill above the surface of the water and then the medium coarse sand with gravel takes over. The soil is brought in by truck, spread by a dozer, and compacted with a large vibrating single-drum roller. Lifts are being placed from 25/26 to 13/14. Three tests were taken per 100 feet per lift. The Proctor being used is the previous Proctor of 136.5 at 5.0% moisture until the Proctor is completed on the sample taken today. Test locations and results are found on the attached Field Density Test Report.

Preliminary Inspection

INSPECTOR: Brandon Veach

REVIEWED BY: 
Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Page: 1 of 2

Project: Skykomish Levee Remediation
 MTE Project #: E6288 Date: 9-14-06
 Permit #:
 Inspector: B Veach
 MTE Nuclear Gauge #: 2

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Wet Density	Field			Soil Type Description
			Maximum Dry Density	OMC %		Dry Density	Moisture Content %	Compaction %	
1	22/23	+7'	136.5	5.0	137.4	129.9	5.7	95	med. coarse sand w/ gravel
2	23/24	+7'	136.5	5.0	141.3	133.2	6.2	98	med. coarse sand w/ gravel
3	24/25	+7'	136.5	5.0	138.4	131.2	5.5	96	med. coarse sand w/ gravel
4	23/24	+8'	136.5	5.0	138.3	130.6	5.9	96	med. coarse sand w/ gravel
5	24/25	+8'	136.5	5.0	137.8	131.4	4.8	96	med. coarse sand w/ gravel
6	25/26	+8'	136.5	5.0	138.1	129.8	6.4	95	med. coarse sand w/ gravel
7	22/23	+9'	136.5	5.0	138.7	130.6	6.2	96	med. coarse sand w/ gravel
8	24/25	+9'	136.5	5.0	138.8	130.7	6.3	96	med. coarse sand w/ gravel
9	25/26	+9'	136.5	5.0	139.0	131.3	5.9	96	med. coarse sand w/ gravel
10	22/23	+10'	136.5	5.0	139.6	131.7	6.0	97	med. coarse sand w/ gravel
11	23/24	+10'	136.5	5.0	139.2	132.5	5.0	97	med. coarse sand w/ gravel
12	25/26	+10'	136.5	5.0	137.1	131.4	4.3	96	med. coarse sand w/ gravel
13	13/19	+6'	136.5	5.0	138.3	130.6	5.9	96	med. coarse sand w/ gravel
14	20/21	+6'	136.5	5.0	138.8	132.4	4.8	97	med. coarse sand w/ gravel
15	19/20	+7'	136.5	5.0	138.5	131.0	5.6	96	med. coarse sand w/ gravel

Specification Compaction and Material: 90% / 95%

☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: dozer

Type and Number of Compaction units: single-drum roller

No. of Passes: several Thickness of lift: 8-10"

Method of Adding Moisture: water truck

Comments:

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does **not** meet specifications as indicated by test numbers, and should be removed or reworked:☐ Fill test meets specifications☐ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample: Test No.: _____ Dry Density: _____ Moisture %: _____

MAYES TESTING ENGINEERS, INC

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Page: 2 of 2

Project: Skykomish Levee Remediation
MTE Project #: E6288 Date: 9-14-06
Permit #:
Inspector: B Veach
MTE Nuclear Gauge #: 2

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Wet Density	Field			Soil Type Description
			Maximum Dry Density	OMC %		Dry Density	Moisture Content %	Compaction %	
16	20/21	+7'	136.5	5.0	137.8	129.7	6.2	95	med. coarse sand w/ gravel
17	13/14	+2'	136.5	5.0	131.4	126.0	4.3	92	med. coarse sand w/ gravel
18	14/15	+2'	136.5	5.0	135.5	129.4	4.7	95	med. coarse sand w/ gravel
19	16/17	+3'	136.5	5.0	134.0	127.6	5.0	94	med. coarse sand w/ gravel
20	17/8	+3'	136.5	5.0	136.7	131.3	4.1	96	med. coarse sand w/ gravel
21	13/14	+3'	136.5	5.0	135.9	129.9	4.6	95	med. coarse sand w/ gravel
22	15/16	+3'	136.5	5.0	137.4	130.6	5.2	96	med. coarse sand w/ gravel
23	17/18	+4'	136.5	5.0	136.1	129.9	4.7	95	med. coarse sand w/ gravel
24	16/17	+4'	136.5	5.0	137.1	130.3	5.2	96	med. coarse sand w/ gravel
25	13/14	+4'	136.5	5.0	137.2	130.6	4.9	96	med. coarse sand w/ gravel
26	14/15	+4'	136.5	5.0	137.4	129.5	6.0	95	med. coarse sand w/ gravel
27	15/16	+5'	136.5	5.0	139.6	131.5	6.1	96	med. coarse sand w/ gravel
28	16/17	+5'	136.5	5.0	138.0	130.2	5.9	95	med. coarse sand w/ gravel
29	14/15	+5'	136.5	5.0	137.2	130.6	4.9	96	med. coarse sand w/ gravel
30	13/14	+5'	136.5	5.0	137.8	131.1	5.0	96	med. coarse sand w/ gravel

Specification Compaction and Material: 90% / 95%

☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: dozer

Type and Number of Compaction units: single-drum roller

No. of Passes: several Thickness of lift: 8-10"

Method of Adding Moisture: water truck

Comments:

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does **not** meet specifications as indicated by test numbers, and should be removed or reworked:☐ Fill test meets specifications☐ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample: Test No.: Dry Density: Moisture %:

MAYES TESTING ENGINEERS, INC.

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomosh, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 7

Date: 9/15/06
Weather: Sunny
Inspection: Soils
Sample(s): N/A

Arrived onsite to perform soil compaction tests on the backfill being placed in the levee. Soil was placed between 15/16 and 3/4. Stabilization aggregate was placed to bring the depth above the surface of the water, elongating the levee east. Cutting via excavator was being performed on the area between 25/26 and 18/19 to create the slope on the final grade.

Due to the rate of the trucks delivering the soil, lifts were spread thin (specific thickness varied). Tests were taken approximately every 8" to 12" the depth was raised. Refer to attached Field Density Test Report for specific depths, locations and results.

Preliminary Inspection

INSPECTOR: Brandon Veach

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Page: 1 of 2

Project: Skykomish Levee Renovation
 MTE Project #: E6288 Date: 9-15-06
 Permit #:
 Inspector: B Veach
 MTE Nuclear Gauge #: 2

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Wet Density	Field			Soil Type Description
			Maximum Dry Density	OMC %		Dry Density	Moisture Content %	Compaction %	
1	11/12	+3'	136.5	5.0	143.5	134.4	6.8	99	med coarse sand w/ gravel
2	9/10	+3'	136.5	5.0	141.0	134.1	5.2	98	med coarse sand w/ gravel
3	8/9	+3'	136.5	5.0	141.5	133.1	6.3	98	med coarse sand w/ gravel
4	8/9	+4'	136.5	5.0	138.5	131.2	5.6	96	med coarse sand w/ gravel
5	9/10	+4'	136.5	5.0	138.5	130.8	5.9	96	med coarse sand w/ gravel
6	11/12	+4'	136.5	5.0	138.6	131.7	5.2	97	med coarse sand w/ gravel
7	12/13	+4'6"	136.5	5.0	137.8	130.9	5.3	96	med coarse sand w/ gravel
8	13/14	+5'	136.5	5.0	138.3	131.2	5.5	96	med coarse sand w/ gravel
9	15/16	+5'	136.5	5.0	141.0	133.3	6.1	97	med coarse sand w/ gravel
10	14/15	+5'6"	136.5	5.0	138.5	132.0	4.8	97	med coarse sand w/ gravel
11	13/4	+5'6"	136.5	5.0	138.0	131.5	4.9	96	med coarse sand w/ gravel
12	12/13	+5'6"	136.5	5.0	141.9	134.4	5.7	98	med coarse sand w/ gravel
13	10/11	+4'6"	136.5	5.0	141.1	133.1	6.0	98	med coarse sand w/ gravel
14	9/10	+4'6"	136.5	5.0	138.5	132.0	4.8	97	med coarse sand w/ gravel
15	8/9	+4'6"	136.5	5.0	138.6	131.7	5.2	97	med coarse sand w/ gravel

Specification Compaction and Material: 90% / 95%

☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: 1- dozer

Type and Number of Compaction units: 1- roller

No. of Passes: several Thickness of lift:

Method of Adding Moisture: water truck

Comments:

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does **not** meet specifications as indicated by test numbers, and should be removed or reworked:☒ Fill test meets specifications☐ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample: Test No.: Dry Density: Moisture %:

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Portland, OR 97211 Fax 503.281.7519

Project: Skykomish Levee Renovation
MTE Project #: E6288 Date: 9-15-06
Permit #: _____
Inspector: B Veach
MTE Nuclear Gauge #: 2

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

[illegible]

Specification Compaction and Material: 90% / 95%

- ☒ ASTM D 1557 (Modified Proctor)
☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: 1- dozer

Type and Number of Compaction units: 1- roller

No. of Passes: several Thickness of lift:

Method of Adding Moisture: water truck

Comments:

- ☐ In our opinion, fill generally meets specifications as indicated by test numbers:

- ☐ In our opinion, fill does **not** meet specifications as indicated by test numbers, and should be removed or reworked:

- ☒ Fill test meets specifications

- ☐
- Contractor Advised

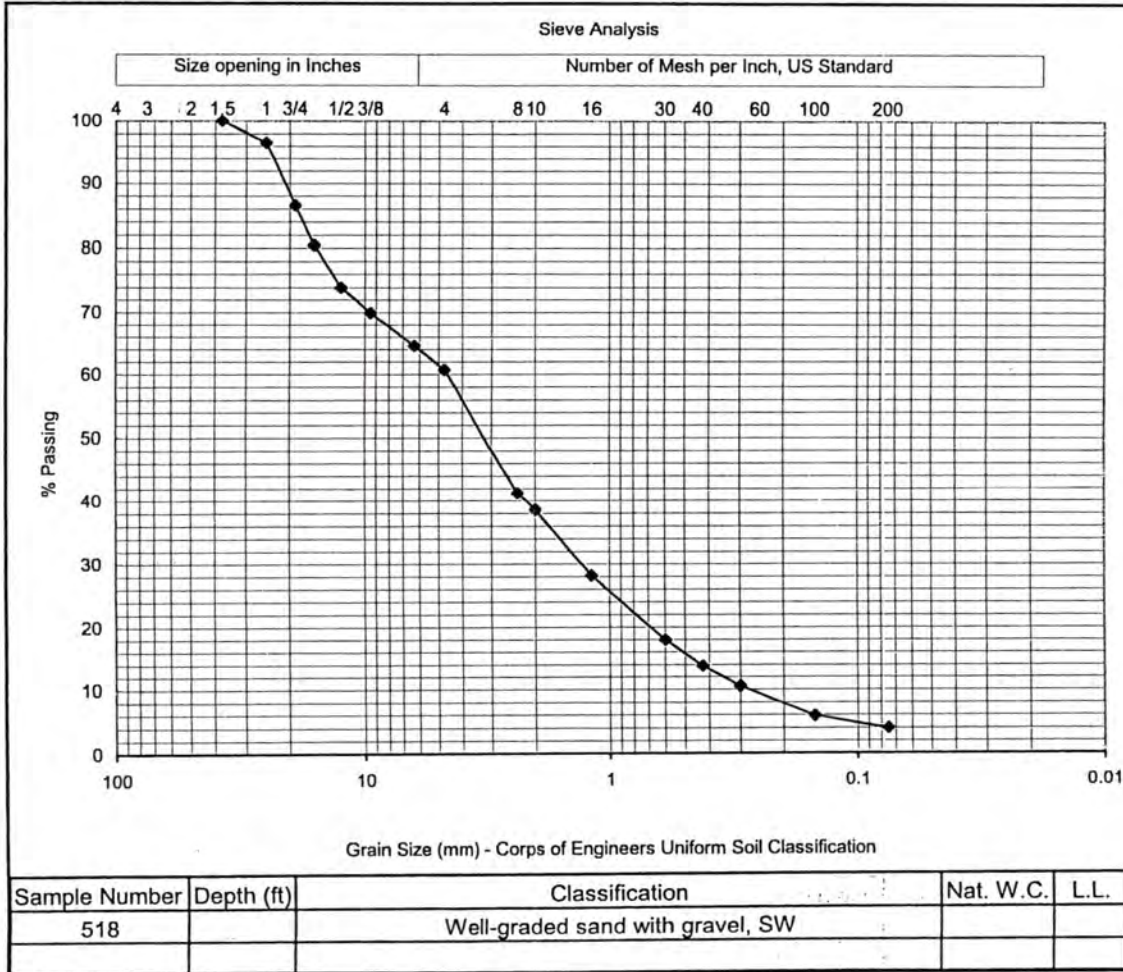
- ☒
- Full-time observation

- ☐
- Part-time observation

Quality Control Sample: Test No.: _____ Dry Density: _____ Moisture %: _____

MAYES TESTING ENGINEERS, INC.

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Sieve Analysis			
ASTM D 422 or ASTM C 136			
Sieve Size	% Passing	Specs *	
		min	max
1.50"	100		
1.0"	96		
3/4"	86		
5/8"	80		
1/2"	74		
3/8"	70		
1/4"	64		
#4	61		
#8	41		
#10	38		
#16	28		
#30	18		
#40	14		
#50	10		
#100	6		
#200	3.9		
Material: Brown coarse sand with gravel			
Source: Import			
Project: Skykomish Levee Remediation			
Project #: E6288			
Date Rec'd: 10/4/2006			

Tested By: G. Booker

Date Tested: 10/5/2006

Reviewed by:

Dale Yoder, Lab Manager

Information in this report applies only to the actual samples tested and shall not be reproduced except in full, without the approval of Mayes Testing Engineers, Inc.

Sieve51810/10/2006

MTE Form #143, Rev 2, 6-02

MAYES TESTING ENGINEERS, INC.

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomosh, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 8

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fax 253.584.3707

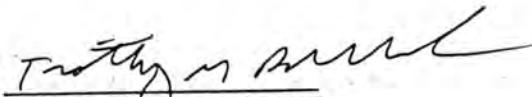
Portland Office
7911 NE 33rd Drive
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ph 503.281.7515
fax 503.281.7579

Date: 9/16/06
Weather: Cloudy/Some rain
Inspection: Soils
Sample(s): N/A

Onsite to perform compaction tests on the area between 8/9 and 0/1 being backfilled in the levee, with the medium coarse sand with gravel. Soil was placed by truck, spread by dozer, and compacted via roller. Tests were taken on the first lift, until the gauge stopped performing during testing of the second. Contractor was advised to continue using same practices that have been producing good results. See attached Field Density Test Report for test locations and results.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Brandon Veach

REVIEWED BY: 
Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Fax 253.584.37077911 NE 33rd Drive, Suite 190
Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579

Page: 1 of 1

Project: Skykomish Levee Renovation
 MTE Project #: E6288 Date: 9-16-06
 Permit #:
 Inspector: B Veatch
 MTE Nuclear Gauge #: 2

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Wet Density	Field			Soil Type Description
			Maximum Dry Density	OMC %		Dry Density	Moisture Content %	Compaction %	
1	1/2	+2'	136.5	5.0	138.4	130.1	6.4	95	med coarse sand w/ gravel
2	2/3	+2'	136.5	5.0	139.7	131.6	6.2	96	med coarse sand w/ gravel
3	3/4	+4'	136.5	5.0	140.0	131.9	6.2	97	med coarse sand w/ gravel
4	5/6	+4'	136.5	5.0	140.4	132.7	5.8	97	med coarse sand w/ gravel
5	6/7	+4'	136.5	5.0	138.8	130.2	6.6	95	med coarse sand w/ gravel
6	7/8	+4'	136.5	5.0	140.0	131.4	6.5	96	med coarse sand w/ gravel
7	0/1	+3'	136.5	5.0	142.1	134.5	5.7	99	med coarse sand w/ gravel
8	1/2	+3'	136.5	5.0	140.8	133.5	5.5	98	med coarse sand w/ gravel

Specification Compaction and Material: 90%

☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: dozer

Type and Number of Compaction units: roller

No. of Passes: several Thickness of lift: 1'

Method of Adding Moisture: water truck

Comments:

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does **not** meet specifications as indicated by test numbers, and should be removed or reworked:☒ Fill test meets specifications☐ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample: Test No.: Dry Density: Moisture %:

MAYES TESTING ENGINEERS, INC.

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Portland Office
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ph 503.281.7515
fax 503.281.7579

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomosh, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 8

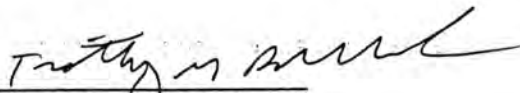
Date: 9/16/06
Weather: Cloudy/Some rain
Inspection: Soils
Sample(s): N/A

Onsite to perform compaction tests on the area between 8/9 and 0/1 being backfilled in the levee, with the medium coarse sand with gravel. Soil was placed by truck, spread by dozer, and compacted via roller. Tests were taken on the first lift, until the gauge stopped performing during testing of the second. Contractor was advised to continue using same practices that have been producing good results. See attached Field Density Test Report for test locations and results.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Brandon Veach

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Page: 1 of 1

Project: Skykomish Levee Renovation

MTE Project #: E6288 Date: 9-16-06

Permit #:

Inspector: B Veach

MTE Nuclear Gauge #: 2

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Wet Density	Field			Soil Type Description
			Maximum Dry Density	OMC %		Dry Density	Moisture Content %	Compaction %	
1	1/2	+2'	136.5	5.0	138.4	130.1	6.4	95	med coarse sand w/ gravel
2	2/3	+2'	136.5	5.0	139.7	131.6	6.2	96	med coarse sand w/ gravel
3	3/4	+4'	136.5	5.0	140.0	131.9	6.2	97	med coarse sand w/ gravel
4	5/6	+4'	136.5	5.0	140.4	132.7	5.8	97	med coarse sand w/ gravel
5	6/7	+4'	136.5	5.0	138.8	130.2	6.6	95	med coarse sand w/ gravel
6	7/8	+4'	136.5	5.0	140.0	131.4	6.5	96	med coarse sand w/ gravel
7	0/1	+3'	136.5	5.0	142.1	134.5	5.7	99	med coarse sand w/ gravel
8	1/2	+3'	136.5	5.0	140.8	133.5	5.5	98	med coarse sand w/ gravel

Specification Compaction and Material: 90%

☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: dozer

Type and Number of Compaction units: roller

No. of Passes: several Thickness of lift: 1'

Method of Adding Moisture: water truck

Comments:

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does **not** meet specifications as indicated by test numbers, and should be removed or reworked:☒ Fill test meets specifications☐ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample: Test No.: Dry Density: Moisture %:

MAYES TESTING ENGINEERS, INC.

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomosh, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 9

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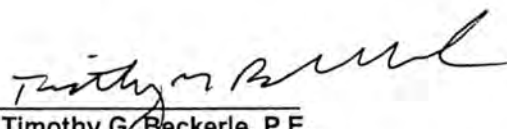
Date: 9/18/06
Weather: Rain/Sun
Inspection: Soils
Sample(s): Med. Coarse sand w/ gravel & stabilization aggregate

Arrived onsite to perform soil compaction testing on the backfill being placed in the levee. Tests were taken on the top of the area backfilled Saturday, after the nuclear densometer failed to work.

The area between 19/20 and 12/13 was all brought up to 9'+ along the north edge. Soil was placed by truck, spread by dozer, and compacted via single-drum roller. See attached Field Density Test Report for locations and test results.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Brandon Veach

REVIEWED BY: 
Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Page: 1 of 2

Project: Skykomish Levee Remediation
MTE Project #: E6288 Date: 9-18-06
Permit #:
Inspector: B Veach
MTE Nuclear Gauge #: 6

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Wet Density	Field			Soil Type Description
			Maximum Dry Density	OMC %		Dry Density	Moisture Content %	Compaction %	
1	14/15	6'	136.5	5.0	137.0	131.5	4.2	96	medium coarse sand w/ gravel
2	13/14	6'	136.5	5.0	136.7	130.6	4.7	96	medium coarse sand w/ gravel
3	12/13	6'	136.5	5.0	137.3	131.3	4.6	96	medium coarse sand w/ gravel
4	10/11	6'	136.5	5.0	138.5	131.8	5.0	97	medium coarse sand w/ gravel
5	9/10	6'	136.5	5.0	136.8	129.9	5.2	95	medium coarse sand w/ gravel
6	8/9	6'	136.5	5.0	136.9	130.5	4.8	96	medium coarse sand w/ gravel
7	6/7	6'	136.5	5.0	140.6	132.6	6.0	97	medium coarse sand w/ gravel
8	5/6	6'	136.5	5.0	138.6	130.9	5.8	96	medium coarse sand w/ gravel
9	4/5	6'	136.5	5.0	138.0	130.3	5.9	96	medium coarse sand w/ gravel
10	3/4	6'	136.5	5.0	138.8	131.1	5.9	96	medium coarse sand w/ gravel
11	2/3	6'	136.5	5.0	140.2	132.9	5.6	97	medium coarse sand w/ gravel
12	1/2	6'	136.5	5.0	137.5	129.7	5.9	95	medium coarse sand w/ gravel
13	18/19	9'	136.5	5.0	137.8	129.9	6.0	95	medium coarse sand w/ gravel
14	17/18	8'	136.5	5.0	138.0	129.9	6.2	95	medium coarse sand w/ gravel
15	16/17	8'	136.5	5.0	137.5	130.0	5.8	95	medium coarse sand w/ gravel

Specification Compaction and Material: 95%

☒ ASTM D 1557 (Modified Proctor)

☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: dozer

Type and Number of Compaction units: roller

No. of Passes: several Thickness of lift: 8-10"

Method of Adding Moisture:

Comments:

☐ In our opinion, fill generally meets specifications as indicated by test numbers:

☐ In our opinion, fill does **not** meet specifications as indicated by test numbers, and should be removed or reworked:

☒ Fill test meets specifications

☐ Contractor Advised

☒ Full-time observation

☐ Part-time observation

Quality Control Sample: Test No.: Dry Density: Moisture %:

MAYES TESTING ENGINEERS, INC.

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomosh, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 9

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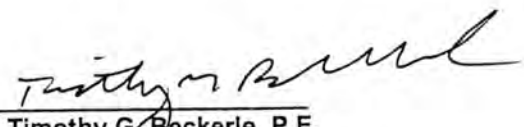
Date: 9/18/06
Weather: Rain/Sun
Inspection: Soils
Sample(s): Med. Coarse sand w/ gravel & stabilization aggregate

Arrived onsite to perform soil compaction testing on the backfill being placed in the levee. Tests were taken on the top of the area backfilled Saturday, after the nuclear densometer failed to work.

The area between 19/20 and 12/13 was all brought up to 9'+ along the north edge. Soil was placed by truck, spread by dozer, and compacted via single-drum roller. See attached Field Density Test Report for locations and test results.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Brandon Veach

REVIEWED BY: 
Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

MAYES TESTING ENGINEERS, INC

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Tacoma, WA 98299 Fax 253.584.3707

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Page: 1 of 2

Project: Skykomish Levee Remediation
MTE Project #: E6288 Date: 9-18-06
Permit #:
Inspector: B Veach
MTE Nuclear Gauge #: 6

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Wet Density	Field			Soil Type Description
			Maximum Dry Density	OMC %		Dry Density	Moisture Content %	Compaction %	
1	14/15	6'	136.5	5.0	137.0	131.5	4.2	96	medium coarse sand w/ gravel
2	13/14	6'	136.5	5.0	136.7	130.6	4.7	96	medium coarse sand w/ gravel
3	12/13	6'	136.5	5.0	137.3	131.3	4.6	96	medium coarse sand w/ gravel
4	10/11	6'	136.5	5.0	138.5	131.8	5.0	97	medium coarse sand w/ gravel
5	9/10	6'	136.5	5.0	136.8	129.9	5.2	95	medium coarse sand w/ gravel
6	8/9	6'	136.5	5.0	136.9	130.5	4.8	96	medium coarse sand w/ gravel
7	6/7	6'	136.5	5.0	140.6	132.6	6.0	97	medium coarse sand w/ gravel
8	5/6	6'	136.5	5.0	138.6	130.9	5.8	96	medium coarse sand w/ gravel
9	4/5	6'	136.5	5.0	138.0	130.3	5.9	96	medium coarse sand w/ gravel
10	3/4	6'	136.5	5.0	138.8	131.1	5.9	96	medium coarse sand w/ gravel
11	2/3	6'	136.5	5.0	140.2	132.9	5.6	97	medium coarse sand w/ gravel
12	1/2	6'	136.5	5.0	137.5	129.7	5.9	95	medium coarse sand w/ gravel
13	18/19	9'	136.5	5.0	137.8	129.9	6.0	95	medium coarse sand w/ gravel
14	17/18	8'	136.5	5.0	138.0	129.9	6.2	95	medium coarse sand w/ gravel
15	16/17	8'	136.5	5.0	137.5	130.0	5.8	95	medium coarse sand w/ gravel

Specification Compaction and Material: 95%

☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: dozer

Type and Number of Compaction units: roller

No. of Passes: several Thickness of lift: 8-10"

Method of Adding Moisture:

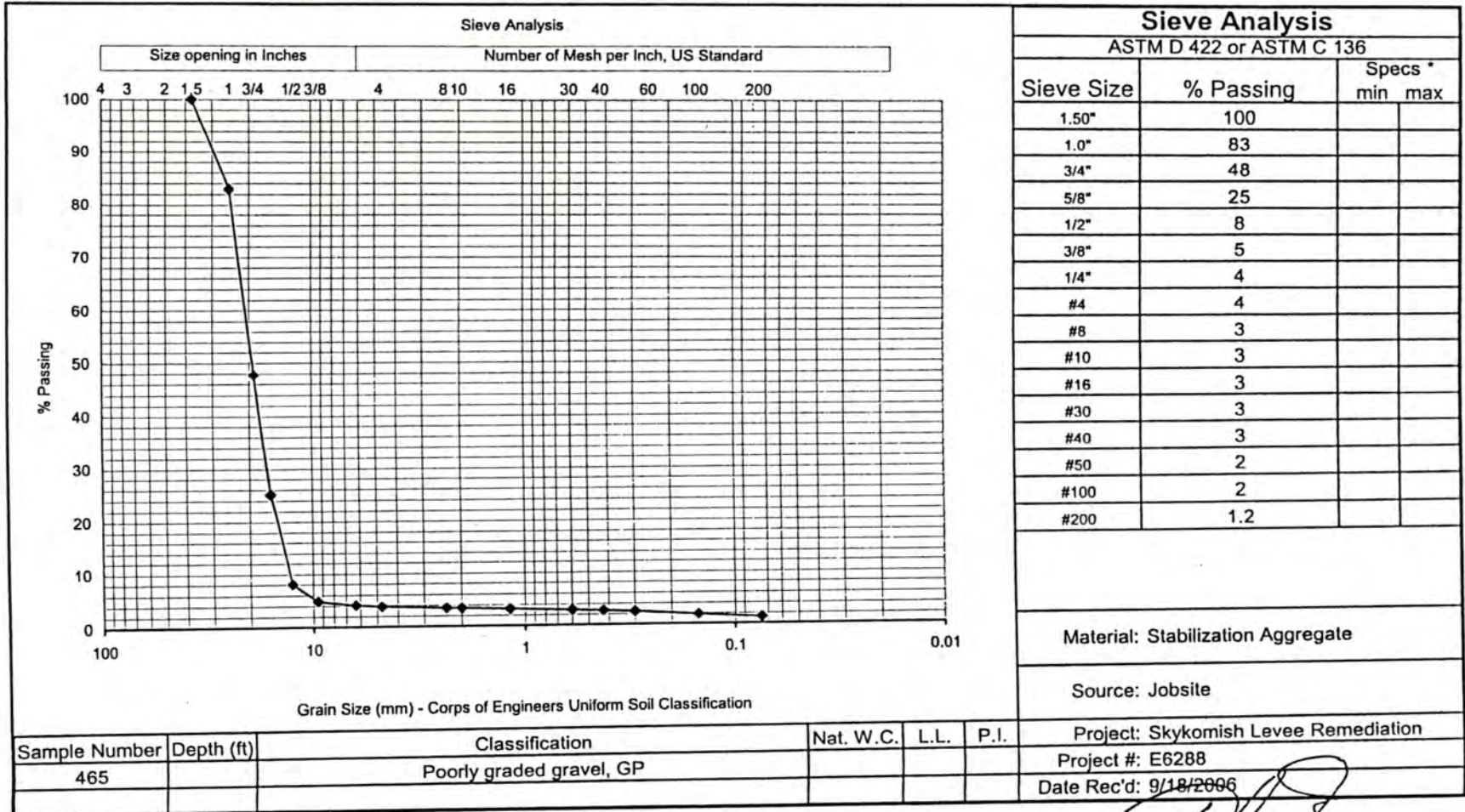
Comments:

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does **not** meet specifications as indicated by test numbers, and should be removed or reworked:☒ Fill test meets specifications☐ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample: Test No.: Dry Density: Moisture %:

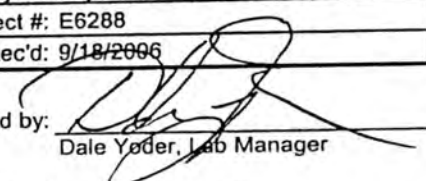
MAYES TESTING ENGINEERS, INC.

917-134th St. SW, Suite A1 Ph 425-742-9360
Everett, WA 98204 Fax 425-745-1737



Tested By: G. Booker

Date Tested: 9/25/2006

Reviewed by: 
Dale Yoder, Lab Manager

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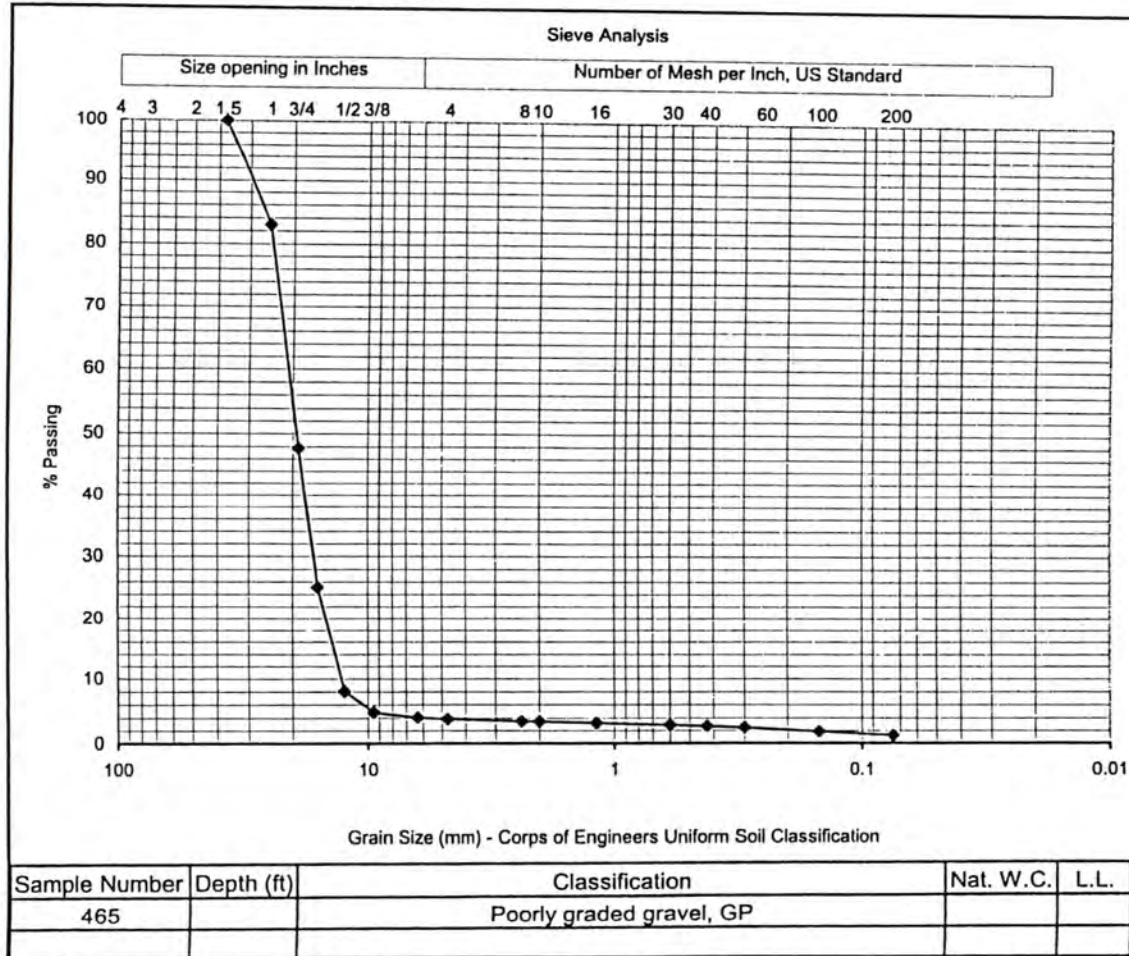
Sieve4659/27/2006

MTE Form #143, Rev 2, 6-02

MAYES TESTING ENGINEERS, INC.

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Sieve Analysis			
ASTM D 422 or ASTM C 136			
Sieve Size	% Passing	Specs *	
		min	max
1.50"	100		
1.0"	83		
3/4"	48		
5/8"	25		
1/2"	8		
3/8"	5		
1/4"	4		
#4	4		
#8	3		
#10	3		
#16	3		
#30	3		
#40	3		
#50	2		
#100	2		
#200	1.2		
Material: Stabilization Aggregate			
Source: Jobsite			
Project: Skykomish Levee Remediation			
Project #: E6288			
Date Rec'd: 9/18/2006			

Tested By: G. Booker

Date Tested: 9/25/2006

Reviewed by:

Dale Yoder, Lab Manager

Information in this report applies only to the actual samples tested and shall not be reproduced except in full, without the approval of Mayes Testing Engineers, Inc.

Sieve4659/27/2006

MTE Form #143, Rev 2, 6-02

MAYES TESTING ENGINEERS, INC.

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 25

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fax 253.584.3707

Portland Office
7911 NE 33rd Drive
Suite 190
Portland, OR 97211
ph 503.281.7515
fax 503.281.7579

Date: 9/19/06
Weather: Cloudy/Rain
Inspection: Soils
Sample(s): None

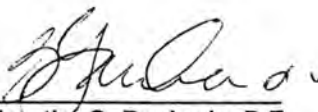
Arrived onsite to perform soil compaction tests on the backfill being placed in the levee. The soil used was the structural fill material (medium coarse sand with gravel), which was placed on top of the stabilization aggregate, which is used to bring the height above the surface of the water.

The north edge of the levee was brought up to 9'-0" between 3/4 and 15/16. The south side of the levee was brought up to 4'-0" between 10/11 and 14/15, and up to 3'-0" between 10/11 and 5/6. Tests were taken and compaction was met. See attached field density test report for specific locations and results.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Brandon Veach

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Page 1 of 2Project: Skykomish Levee RemediationMTE Project # : E6288 Date: 9/19/06

Permit #: _____

Inspector: B VeachMTE Nuclear Gauge #: 16

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	4/5	9'	136.5	5.0	138.1	129.7	6.5	95.1	medium coarse sand w/ gravel
2	5/6	9'	136.5	5.0	138.3	129.6	6.7	95.0	medium coarse sand w/ gravel
3	6/7	9'	136.5	5.0	140.3	129.6	8.2	95.0	medium coarse sand w/ gravel
4	8/9	9'	136.5	5.0	141.0	130.2	8.3	95.4	medium coarse sand w/ gravel
5	10/11	9'	136.5	5.0	139.8	130.0	7.6	95.2	medium coarse sand w/ gravel
6	11/12	9'	136.5	5.0	140.3	130.5	7.5	95.6	medium coarse sand w/ gravel
7	12/13	9'	136.5	5.0	140.2	130.1	7.8	95.3	medium coarse sand w/ gravel
8	13/14	9'	136.5	5.0	140.6	129.9	8.2	95.2	medium coarse sand w/ gravel
9	14/15	9'	136.5	5.0	138.5	129.6	6.9	95.0	medium coarse sand w/ gravel
10	12/13	2'	136.5	5.0	134.2	124.9	7.5	91.5	medium coarse sand w/ gravel
11	11/12	2'	136.5	5.0	135.5	126.4	7.2	92.6	medium coarse sand w/ gravel
12	10/11	2'	136.5	5.0	133.3	125.3	6.4	91.8	medium coarse sand w/ gravel
13	9/10	2'	136.5	5.0	133.6	127.3	4.9	93.2	medium coarse sand w/ gravel

Specification Compaction and Material : 90% / 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: several Thickness of lift: 8-10"Method of Adding Moisture: water truck

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☐ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Fax 253.584.37077911 NE 33rd Drive, Suite 190
Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579**FIELD DENSITY TEST REPORT**
ASTM D 2922 / D 3017Page 2 of 2Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 9/19/06

Permit #: _____

Inspector: B VeachMTE Nuclear Gauge #: 16

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
14	8/9	2'	136.5	5.0	132.7	125.6	5.7	92.0	medium coarse sand w/ gravel
15	8/9	3'	136.5	5.0	132.4	125.8	5.2	92.1	medium coarse sand w/ gravel
16	9/10	3'	136.5	5.0		124.1	8.0	90.9	medium coarse sand w/ gravel
17	10/11	3'	136.5	5.0		125.5	8.2	91.9	medium coarse sand w/ gravel
18	11/12	3'	136.5	5.0	135.2	125.8	7.5	92.1	medium coarse sand w/ gravel
19	12/13	3'	136.5	5.0	134.5	125.5	7.2	91.9	medium coarse sand w/ gravel
20	13/14	3'	136.5	5.0	133.0	124.3	7.0	91.1	medium coarse sand w/ gravel
21	14/15	4'	136.5	5.0	145.2	136.2	6.6	99.8	medium coarse sand w/ gravel
22	13/14	4'	136.5	5.0	140.1	132.7	5.6	97.2	medium coarse sand w/ gravel
23	12/13	4'	136.5	5.0	139.6	132.4	5.4	97.0	medium coarse sand w/ gravel
24	10/11	4'	136.5	5.0	138.9	132.4	4.9	97.0	medium coarse sand w/ gravel
25	6/7	3'	136.5	5.0	135.7	128.6	5.5	94.2	medium coarse sand w/ gravel
26	5/6	3'	136.5	5.0	132.5	126.1	5.1	92.4	medium coarse sand w/ gravel

Specification Compaction and Material : 90% / 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: several Thickness of lift: 8-10"Method of Adding Moisture: water truck

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☐ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

MAYES TESTING ENGINEERS, INC.

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fax 253.584.3707

Portland Office
7911 NE 33rd Drive
Suite 190
Portland, OR 97211
ph 503.281.7515
fax 503.281.7579

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 12

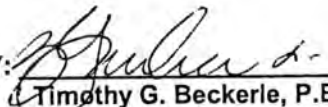
Date: 9/20/06
Weather: Rain
Inspection: Soils
Sample(s):

Arrived onsite to perform soil compaction testing on the backfill placed in the levee. The structural fill-medium coarse sand with gravel was used. Stabilization aggregate was placed to bring the height above the surface of the water.

The middle area between 15/16 and 4/5 was brought up to 8 ft., the north edge between 19/20 and 25/26 was brought up to 10 ft., and the south edge between 19/20 and 24/25 was brought up to 6 ft. Several passes were made on each lift with a large vibrating single-drum roller, as well as being driven over repeatedly with loaded trucks. Compaction was met. See attached Field Density Test Report for locations and results.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Brandon Veach

REVIEWED BY: 
Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579Page 1 of 2Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 9/20/06

Permit #: _____

Inspector: B VeachMTE Nuclear Gauge #: 16**FIELD DENSITY TEST REPORT**
ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	4/5	9'	136.5	5.0	138.1	129.7	6.5	95.1	medium coarse sand w/ gravel
2	5/6	9'	136.5	5.0	138.3	129.6	6.7	95.0	medium coarse sand w/ gravel
3	6/7	9'	136.5	5.0	140.3	129.6	8.2	95.0	medium coarse sand w/ gravel
4	8/9	9'	136.5	5.0	141.0	130.2	8.3	95.4	medium coarse sand w/ gravel
5	10/11	9'	136.5	5.0	139.8	130.0	7.6	95.2	medium coarse sand w/ gravel
6	11/12	9'	136.5	5.0	140.3	130.5	7.5	95.6	medium coarse sand w/ gravel
7	12/13	9'	136.5	5.0	140.2	130.1	7.8	95.3	medium coarse sand w/ gravel
8	13/14	9'	136.5	5.0	140.6	129.9	8.2	95.2	medium coarse sand w/ gravel
9	14/15	9'	136.5	5.0	138.5	129.6	6.9	95.0	medium coarse sand w/ gravel
10	12/13	2'	136.5	5.0	134.2	124.9	7.5	91.5	medium coarse sand w/ gravel
11	11/12	2'	136.5	5.0	135.5	126.4	7.2	92.6	medium coarse sand w/ gravel
12	10/11	2'	136.5	5.0	133.3	125.3	6.4	91.8	medium coarse sand w/ gravel

Specification Compaction and Material : 90% / 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: dozerType and Number of Compaction units: rollerNumber of Passes: several Thickness of lift: 8-12"Method of Adding Moisture: water truck

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☐ Contractor Advised _____☐ Full-time observation☒ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Fax 503.281.7579**FIELD DENSITY TEST REPORT**
ASTM D 2922 / D 3017Page 2 of 2Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 9/20/06

Permit #: _____

Inspector: B VeachMTE Nuclear Gauge #: 16

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
13	9/10	2'	136.5	5.0	133.6	127.3	4.9	93.2	medium coarse sand w/ gravel
14	8/9	2'	136.5	5.0	132.7	125.6	5.7	92.0	medium coarse sand w/ gravel
15	8/9	3'	136.5	5.0	132.4	125.8	5.2	92.1	medium coarse sand w/ gravel
16	9/10	3'	136.5	5.0	134.1	124.1	8.0	90.9	medium coarse sand w/ gravel
17	10/11	3'	136.5	5.0	135.8	125.5	8.2	91.9	medium coarse sand w/ gravel
18	11/12	3'	136.5	5.0	135.2	125.8	7.5	92.1	medium coarse sand w/ gravel
19	12/13	3'	136.5	5.0	134.5	125.5	7.2	91.9	medium coarse sand w/ gravel
20	13/14	3'	136.5	5.0	133.0	124.3	7.0	91.1	medium coarse sand w/ gravel
21	14/15	4'	136.5	5.0	145.2	136.2	6.6	99.8	medium coarse sand w/ gravel
22	13/14	4'	136.5	5.0	140.1	132.7	5.6	97.2	medium coarse sand w/ gravel

Specification Compaction and Material: 90% / 95%

- ☒ ASTM D 1557 (Modified Proctor)
☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: dozerType and Number of Compaction units: rollerNumber of Passes: several Thickness of lift: 8-12"Method of Adding Moisture: water truck

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☐ Contractor Advised☐ Full-time observation☒ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

MAYES TESTING ENGINEERS, INC.

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fax 253.584.3707

Portland Office
7911 NE 33rd Drive
Suite 190
Portland, OR 97211
ph 503.281.7515
fax 503.281.7579

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: –
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 12

Date: 9/20/06
Weather: Rain
Inspection: Soils
Sample(s):

Arrived onsite to perform soil compaction testing on the backfill placed in the levee. The structural fill-medium coarse sand with gravel was used. Stabilization aggregate was placed to bring the height above the surface of the water.

The middle area between 15/16 and 4/5 was brought up to 8 ft., the north edge between 19/20 and 25/26 was brought up to 10 ft., and the south edge between 19/20 and 24/25 was brought up to 6 ft. Several passes were made on each lift with a large vibrating single-drum roller, as well as being driven over repeatedly with loaded trucks. Compaction was met. See attached Field Density Test Report for locations and results.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Brandon Veach

REVIEWED BY: 
Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579Page 1 of 2Project: Skykomish Levee RemediationMTE Project # : E6288 Date: 9/20/06

Permit #:

Inspector: B VeachMTE Nuclear Gauge #: 16**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	4/5	9'	136.5	5.0	138.1	129.7	6.5	95.1	medium coarse sand w/ gravel
2	5/6	9'	136.5	5.0	138.3	129.6	6.7	95.0	medium coarse sand w/ gravel
3	6/7	9'	136.5	5.0	140.3	129.6	8.2	95.0	medium coarse sand w/ gravel
4	8/9	9'	136.5	5.0	141.0	130.2	8.3	95.4	medium coarse sand w/ gravel
5	10/11	9'	136.5	5.0	139.8	130.0	7.6	95.2	medium coarse sand w/ gravel
6	11/12	9'	136.5	5.0	140.3	130.5	7.5	95.6	medium coarse sand w/ gravel
7	12/13	9'	136.5	5.0	140.2	130.1	7.8	95.3	medium coarse sand w/ gravel
8	13/14	9'	136.5	5.0	140.6	129.9	8.2	95.2	medium coarse sand w/ gravel
9	14/15	9'	136.5	5.0	138.5	129.6	6.9	95.0	medium coarse sand w/ gravel
10	12/13	2'	136.5	5.0	134.2	124.9	7.5	91.5	medium coarse sand w/ gravel
11	11/12	2'	136.5	5.0	135.5	126.4	7.2	92.6	medium coarse sand w/ gravel
12	10/11	2'	136.5	5.0	133.3	125.3	6.4	91.8	medium coarse sand w/ gravel

Specification Compaction and Material : 90% / 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: dozerType and Number of Compaction units: rollerNumber of Passes: several Thickness of lift: 8-12"Method of Adding Moisture: water truck

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☐ Contractor Advised☐ Full-time observation☒ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Tacoma, WA 98499Ph 253.584.3720
Fax 253.584.37077911 NE 33rd Drive, Suite 190
Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579**FIELD DENSITY TEST REPORT**
ASTM D 2922 / D 3017Page 2 of 2Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 9/20/06

Permit #: _____

Inspector: B VeachMTE Nuclear Gauge #: 16

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
13	9/10	2'	136.5	5.0	133.6	127.3	4.9	93.2	medium coarse sand w/ gravel
14	8/9	2'	136.5	5.0	132.7	125.6	5.7	92.0	medium coarse sand w/ gravel
15	8/9	3'	136.5	5.0	132.4	125.8	5.2	92.1	medium coarse sand w/ gravel
16	9/10	3'	136.5	5.0	134.1	124.1	8.0	90.9	medium coarse sand w/ gravel
17	10/11	3'	136.5	5.0	135.8	125.5	8.2	91.9	medium coarse sand w/ gravel
18	11/12	3'	136.5	5.0	135.2	125.8	7.5	92.1	medium coarse sand w/ gravel
19	12/13	3'	136.5	5.0	134.5	125.5	7.2	91.9	medium coarse sand w/ gravel
20	13/14	3'	136.5	5.0	133.0	124.3	7.0	91.1	medium coarse sand w/ gravel
21	14/15	4'	136.5	5.0	145.2	136.2	6.6	99.8	medium coarse sand w/ gravel
22	13/14	4'	136.5	5.0	140.1	132.7	5.6	97.2	medium coarse sand w/ gravel

Specification Compaction and Material : 90% / 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: dozerType and Number of Compaction units: rollerNumber of Passes: several Thickness of lift: 8-12"Method of Adding Moisture: water truck

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☐ Contractor Advised☐ Full-time observation☒ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

MAYES TESTING ENGINEERS, INC.

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 13

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fax 253.584.3707

Portland Office
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Suite 190
Portland, OR 97211
ph 503.281.7515
fax 503.281.7579

Date: 9/22/06
Weather: Sunny
Inspection: Soils
Sample(s): Structural fill (sieve, Proctor), stabilization rock (sieve)

Arrived onsite to perform compaction tests on the backfill being placed in the levee. Soil used was the structural fill-medium coarse sand with gravel. Soil was placed by dump truck, spread by dozer and rolled with a vibrating single-drum roller.

The area between 14/15 and 9/10 was brought up to a depth of 6 ft. At 2/3 an entrance road was made for trucks to have a better route. The road was brought up to 4 ft. The entrance was brought up, but due to the steep slope, testing was unable to be performed. Loaded trucks were observed being driven over area; it showed to be firm and unyielding. The area between 2/3 and 6/7 was brought up to 8 ft.

Tests were taken and specifications were met. See attached Field Density Test Report for specific locations, depths and results.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Brandon Veach

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579**FIELD DENSITY TEST REPORT**
ASTM D 2922 / D 3017Page 1 of 2Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 9/22/06

Permit #: _____

Inspector: B VeachMTE Nuclear Gauge #: 14

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	14/15	6'	136.5	5.0	136.3	131.3	3.8	96.2	medium coarse sand w/ gravel
2	13/14	6'	136.5	5.0	137.1	131.6	4.2	96.4	medium coarse sand w/ gravel
3	12/13	6'	136.5	5.0	135.9	130.6	4.0	95.7	medium coarse sand w/ gravel
4	10/11	6'	136.5	5.0	138.5	132.7	4.4	97.2	medium coarse sand w/ gravel
5	9/10	6'	136.5	5.0	137.0	131.9	3.9	96.6	medium coarse sand w/ gravel
6	2/3	7'	136.5	5.0	137.1	131.4	4.3	96.3	medium coarse sand w/ gravel
7	3/4	7'	136.5	5.0	138.4	133.1	4.0	97.5	medium coarse sand w/ gravel
8	4/5	7'	136.5	5.0	137.3	132.4	3.7	97.0	medium coarse sand w/ gravel
9	6/7	7'	136.5	5.0	137.5	132.7	3.6	97.2	medium coarse sand w/ gravel
10	6/7	8'	136.5	5.0	136.4	131.4	3.8	96.3	medium coarse sand w/ gravel
11	5/6	8'	136.5	5.0	134.8	130.1	3.6	95.3	medium coarse sand w/ gravel
12	4/5	8'	136.5	5.0	135.4	130.2	4.0	95.4	medium coarse sand w/ gravel

Specification Compaction and Material : 90% / 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: dozerType and Number of Compaction units: rollerNumber of Passes: several Thickness of lift: 8-12"

Method of Adding Moisture: _____

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☐ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Fax 503.281.7579**FIELD DENSITY TEST REPORT**
ASTM D 2922 / D 3017Page 2 of 2Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 9/22/06

Permit #: _____

Inspector: B VeachMTE Nuclear Gauge #: 14

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
13	2/3	8'	136.5	5.0	135.5	130.1	4.2	95.3	medium brown sand w/ gravel
14	3 (entrance road)	3'	136.5	5.0	136.6	131.4	3.9	96.3	medium brown sand w/ gravel
15	3 (entrance road)	3'	136.5	5.0	137.4	132.4	3.8	97.0	medium brown sand w/ gravel
16	3 (entrance road)	4'	136.5	5.0	137.3	132.5	3.6	97.1	medium brown sand w/ gravel
17	3 (entrance road)	4'	136.5	5.0	137.0	132.3	3.6	96.9	medium brown sand w/ gravel

Specification Compaction and Material : 90% / 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: dozerType and Number of Compaction units: rollerNumber of Passes: several Thickness of lift: 8-12"

Method of Adding Moisture: _____

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☐ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Portland Office
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Portland, OR 97211
ph 503.281.7515
fax 503.281.7579

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 14

Date: 9/25/06
Weather: Sunny
Inspection: Soils
Sample(s):

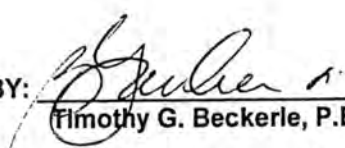
Arrived onsite to perform soil compaction tests on the backfill placed in the levee. The levee was raised to a depth of 11 ft. between 2/3 and 6/7. Tests were taken on each lift, three per lift, per plans.

The area between F/G and I/J was extended from 3/4 to 5/6. One lift was placed and three tests were taken. Material used was a medium coarse sand with gravel. Stabilization aggregate was placed by bringing the depth to above the surface of the water. See attached Field Density Test Report for specific test locations and results.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Brandon Veach

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579Page 1 of 1Project: Skykomish Levee RemediationMTE Project # : E6288 Date: 9/25/06

Permit #: _____

Inspector: B VeachMTE Nuclear Gauge #: 14**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	2/3	9'	136.5	5.0	135.3	129.8	3.8	95.1	medium coarse sand w/ gravel
2	4/5	9'	136.5	5.0	136.2	130.1	4.2	95.3	medium coarse sand w/ gravel
3	6/7	9'	136.5	5.0	135.8	130.0	4.0	95.2	medium coarse sand w/ gravel
4	2/3	10'	136.5	5.0	135.4	130.2	3.7	95.4	medium coarse sand w/ gravel
5	3/4	10'	136.5	5.0	135.9	130.0	4.1	95.2	medium coarse sand w/ gravel
6	6/7	10'	136.5	5.0	137.8	132.0	4.0	96.0	medium coarse sand w/ gravel
7	6/7	11'	136.5	5.0	137.8	131.7	4.1	95.8	medium coarse sand w/ gravel
8	5/6	11'	136.5	5.0	135.2	129.7	3.8	95.0	medium coarse sand w/ gravel
9	3/4	11'	136.5	5.0	136.0	130.1	4.1	95.3	medium coarse sand w/ gravel
10	4/5 I/J	2'	136.5	5.0	131.5	123.9	6.1	90.8	medium coarse sand w/ gravel
11	4/5 G/H	2'	136.5	5.0	129.8	123.7	4.8	90.6	medium coarse sand w/ gravel
12	4/5 H/I	2'	136.5	5.0	129.9	124.3	4.5	91.1	medium coarse sand w/ gravel

Specification Compaction and Material : 90% / 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: dozerType and Number of Compaction units: rollerNumber of Passes: several Thickness of lift: 12"

Method of Adding Moisture: _____

Comments: _____

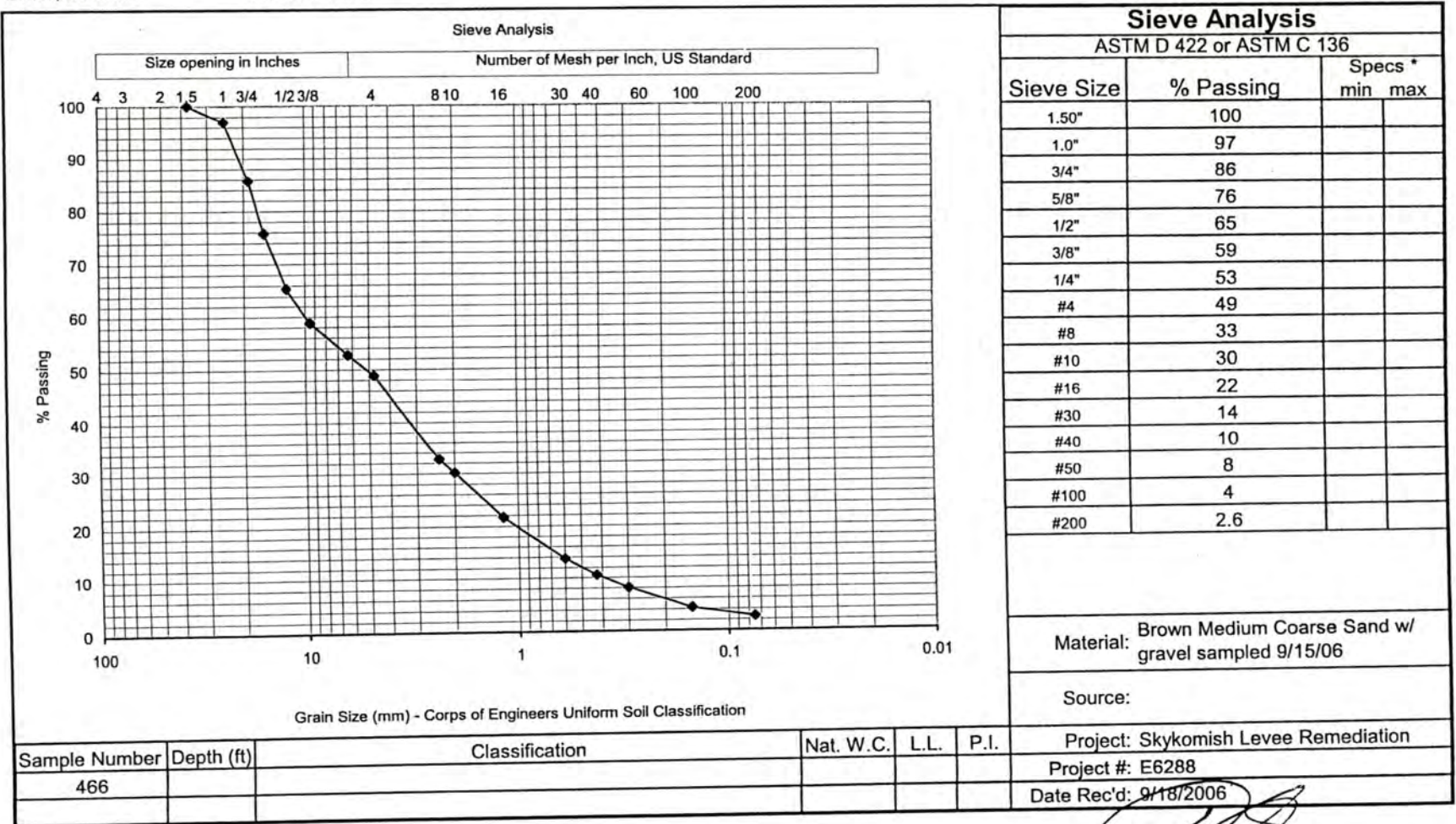
☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☐ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

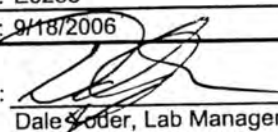
MAYES TESTING ENGINEERS, INC.

917-134th St. SW, Suite A1 Ph 425-742-9360
Everett, WA 98204 Fax 425-745-1737



Tested By: Guy Booker

Date Tested: 9/21/2006

Reviewed by: 
Dale Loder, Lab Manager

Information in this report applies only to the actual samples tested and shall not be reproduced except in full, without the approval of Mayes Testing Engineers, Inc.

Sieve4669/28/2006

MTE Form #143, Rev 2, 6-02

Moisture Density Relationship TestClient: Wilder ConstructionProject: Skykomish Levee RemediationTest Method: ASTM D-1557 Method C / C 127 / D 4718 (if needed)Date Tested: 9/27/2006Project Number: E6288Lab Number: 485Wet Preparation ☐
Dry Preparation ☒Mechanical ☒
Hand Tamper ☐Date Received: 9/26/2006

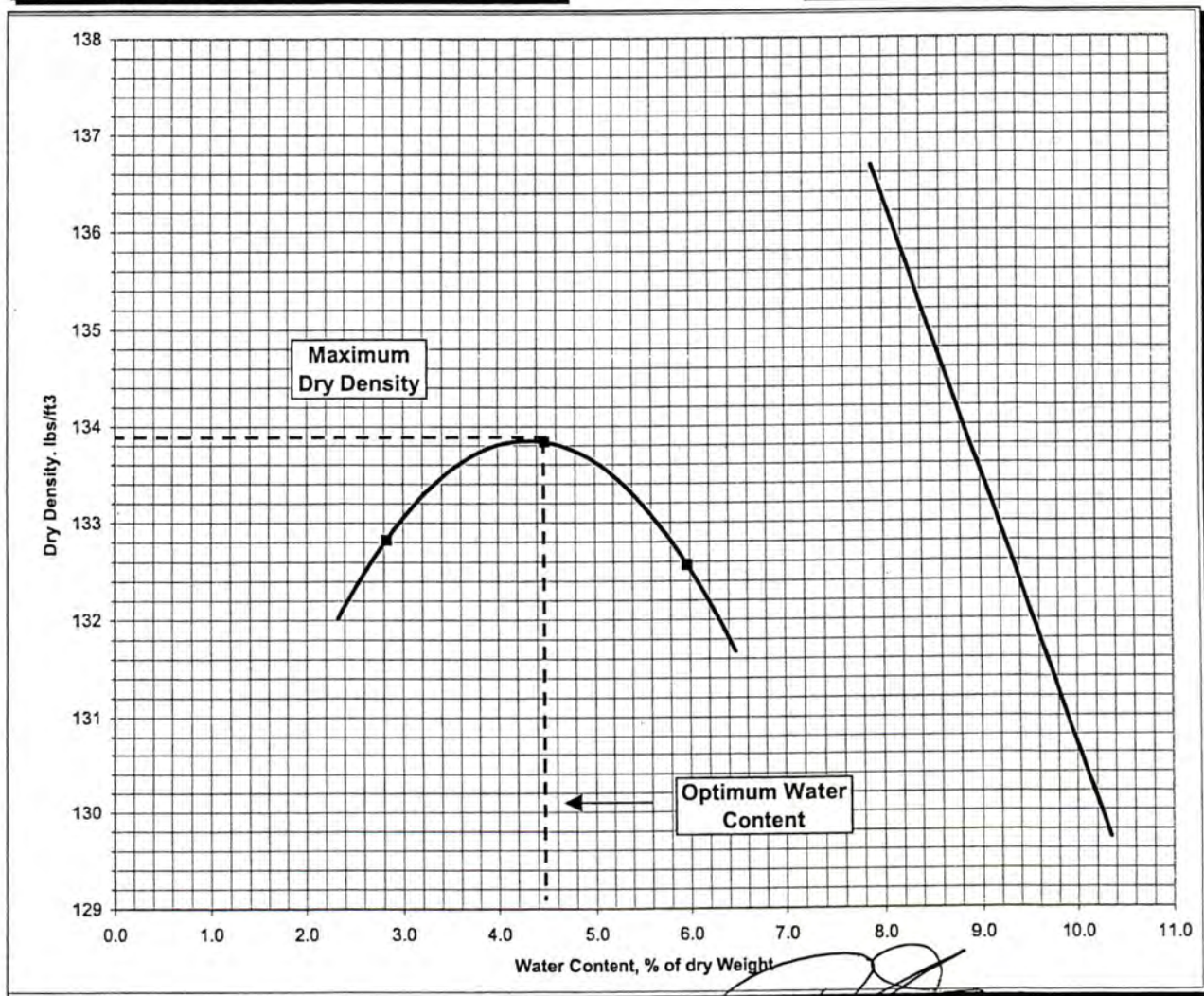
Source of Sample: _____

Description of Sample: Brown Coarse Sand w/ gravelZero Void line plotted at SpG: 2.65
Max. Density Uncorrected: 130.8**Test Results**

Optimum Water Content %	4.5
Max Dry Density Corr. lbs/ft ³	134.0

Sieve Analysis

Sieve Size	Percent Retained
3/4	12%
3/8	31%
#4	41%

Tested By: Guy Booker

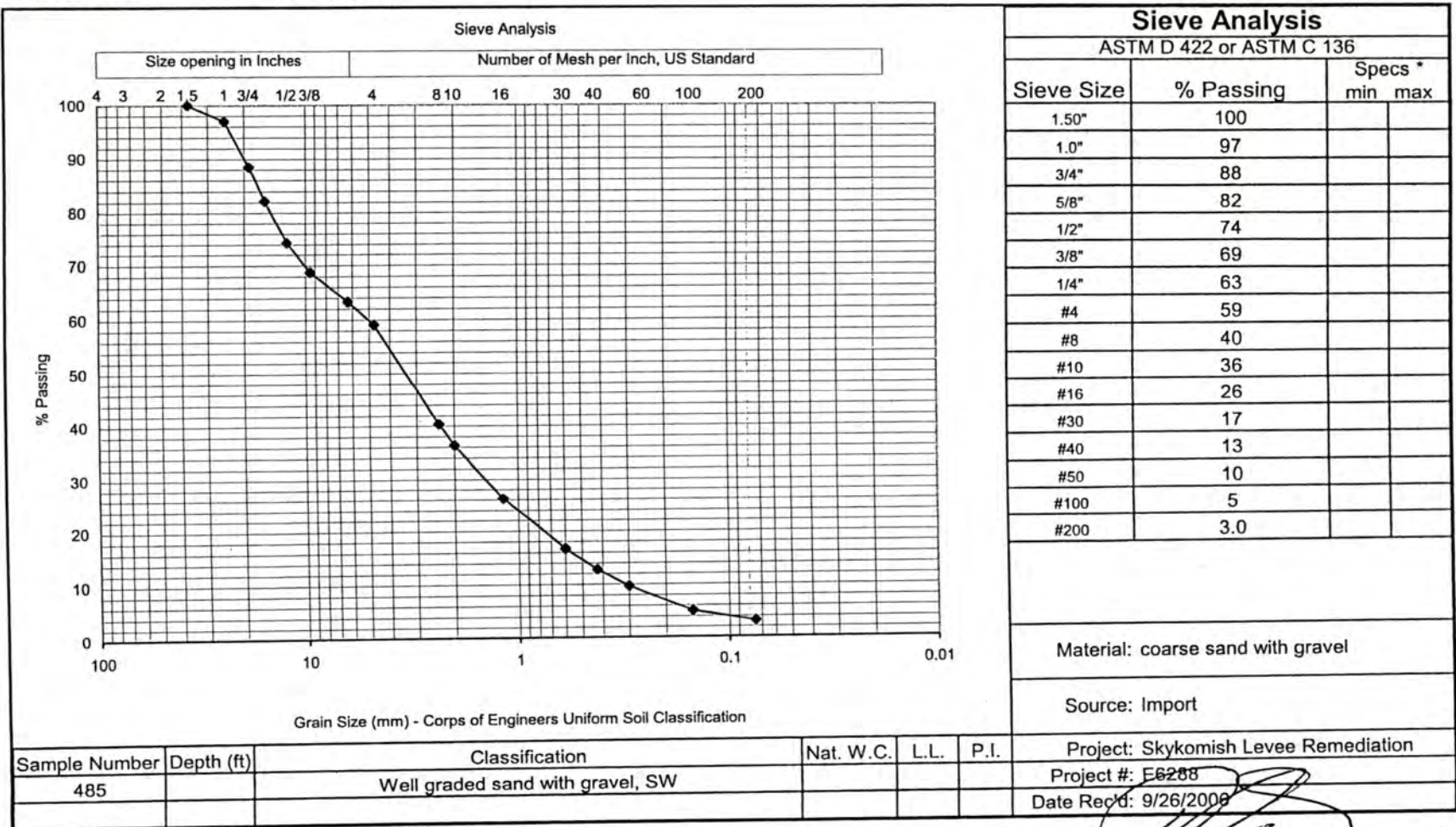
Reviewed By: _____

Date Yoder, Lab Manager

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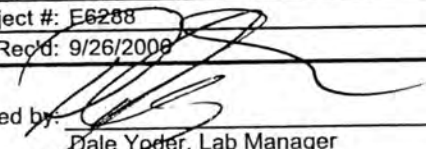
MAYES TESTING ENGINEERS, INC.

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Everett, WA 98204 Fax 425-745-1737



Tested By: G. Booker

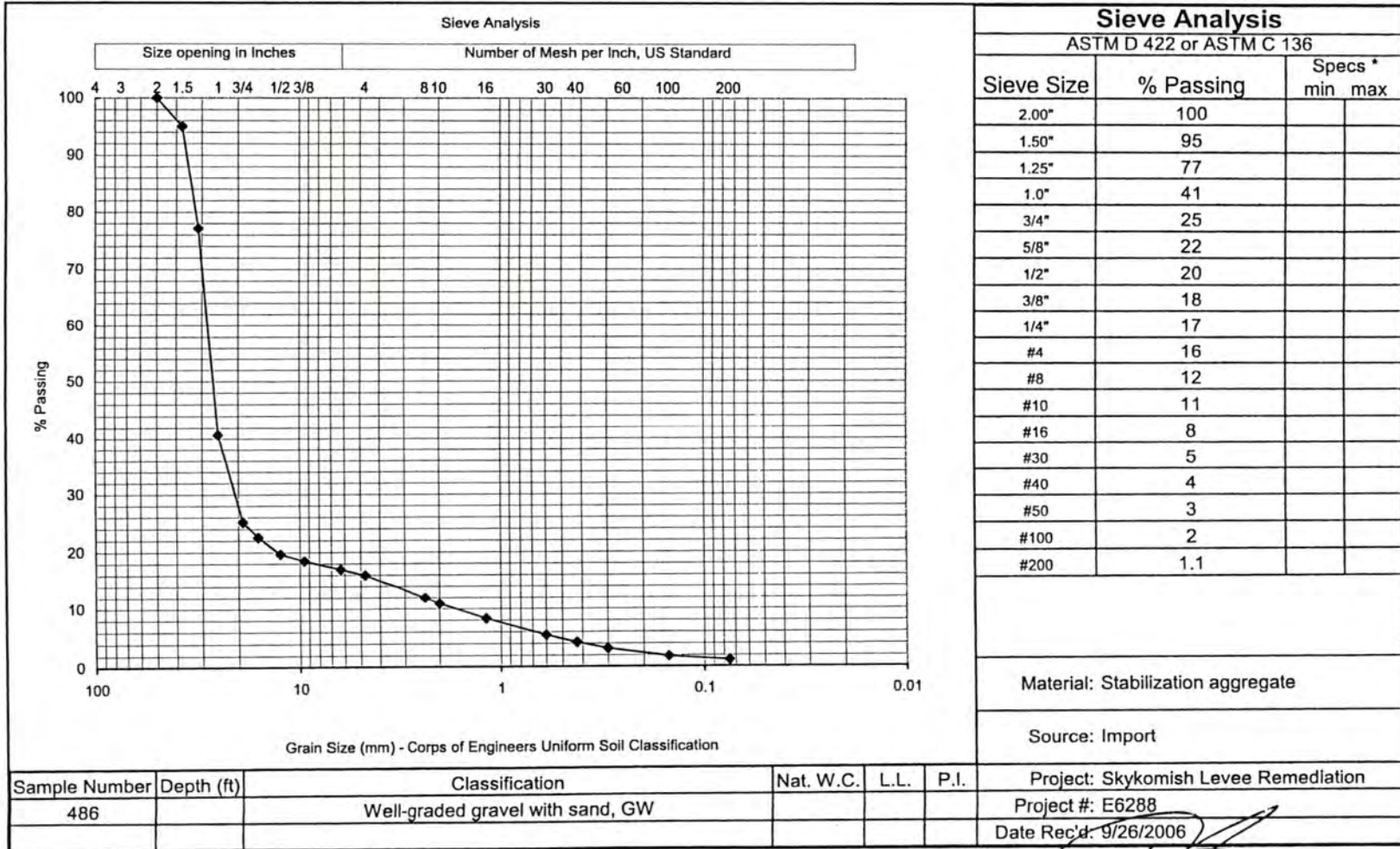
Date Tested: 9/27/2006

Reviewed by: 
Dale Yoder, Lab Manager

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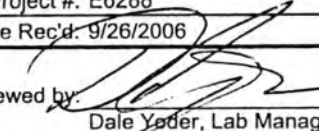
MAYES TESTING ENGINEERS, INC.

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Everett, WA 98204 Fax 425-745-1737



Tested By: G. Booker

Date Tested: 9/27/2006

Reviewed by: 
Dale Yoder, Lab Manager

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Sieve48610/2/2006

MTE Form #143, Rev 2, 6-02

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Portland Office
7911 NE 33rd Drive
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Portland, OR 97211
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fax 503.281.7579

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomosh, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: –
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 10

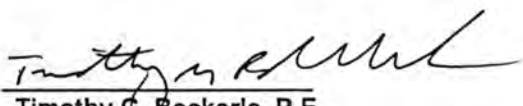
Date: 9/21/06
Weather: Showers
Inspection: Soils
Sample(s): None

Observed Wilder Construction place 12" lifts of pit-run sand with gravel along levee, south side of river. Each lift was compacted by several passes with a smooth drum vibrating roller. Performed in-place density tests to verify 95% compaction per plans. Tests were done on each lift at every 30-40'. Information from tests can be found on attached Field Density Test Report.

Stabilization rock was placed in east end of levee into contaminated water. Large boulders were placed at south edge of river below bridge. Stabilization rock was also placed at edge of roadway, north of school corner.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY: 
Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Page: 1 of 5

Project: Skykomish Levee Remediation
 MTE Project #: E6288 Date: 9-21-06
 Permit #: _____
 Inspector: C Pratt
 MTE Nuclear Gauge #: 20

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Wet Density	Field			Soil Type Description
			Maximum Dry Density	OMC %		Dry Density	Moisture Content %	Compaction %	
1	levee S of river, 30' S at 11/12	4' above	136.0	5.0	138.2	130.4	6.0	96	coarse sand w/ gravel
2	levee S of river, 30' S at 12/13	4' above	136.0	5.0	137.4	129.5	6.1	95	coarse sand w/ gravel
3	levee S of river, 30' S at 13/14	4' above	136.0	5.0	135.7	128.9	5.3	95	coarse sand w/ gravel
4	levee S of river, 30' S at 14/15	4' above	136.0	5.0	136.7	129.6	5.5	95	coarse sand w/ gravel
5	levee S of river, 30' S at 15/16	4' above	136.0	5.0	139.2	131.8	5.6	97	coarse sand w/ gravel
6	levee S of river, 10' S at 7/8	9' above	136.0	5.0	137.3	129.4	6.1	95	coarse sand w/ gravel
7	levee S of river, 10' S at 8/9	9' above	136.0	5.0	136.2	129.7	5.0	95	coarse sand w/ gravel
8	levee S of river, 10' S at 9/10	9' above	136.0	5.0	135.8	128.5	5.7	95	coarse sand w/ gravel
9	levee S of river, 10' S at 10/11	9' above	136.0	5.0	136.3	129.4	5.3	95	coarse sand w/ gravel
10	levee S of river, 10' S at 11/12	9' above	136.0	5.0	136.3	129.7	5.1	95	coarse sand w/ gravel
11	levee S of river, 10' S at 12/13	9' above	136.0	5.0	136.0	130.0	4.7	96	coarse sand w/ gravel
12	levee S of river, 10' S at 13/14	9' above	136.0	5.0	136.4	130.8	4.3	96	coarse sand w/ gravel
13	levee S of river, 10' S at 14/15	9' above	136.0	5.0	138.5	132.8	4.3	98	coarse sand w/ gravel
14	levee S of river, 10' S at 15/16	9' above	136.0	5.0	134.6	129.2	4.2	95	coarse sand w/ gravel
15	levee S of river, 10' S at 23/24	9' above	136.0	5.0	137.4	131.5	4.5	97	coarse sand w/ gravel

Specification Compaction and Material: 95%

☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: dozer

Type and Number of Compaction units: roller

No. of Passes: several Thickness of lift: 10-12"

Method of Adding Moisture: none

Comments:

☒ In our opinion, fill generally meets specifications as indicated by test numbers:

all

☐ In our opinion, fill does **not** meet specifications as indicated by test numbers, and should be removed or reworked:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample: Test No.: _____ Dry Density: _____ Moisture %: _____

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Page: 2 of 5

Project: Skykomish Levee Remediation
 MTE Project #: E6288 Date: 9-21-06
 Permit #:
 Inspector: C Pratt
 MTE Nuclear Gauge #: 20

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory			Field			Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
16	levee S of river, 10' S at 22/23	9' above	136.0	5.0	136.8	130.6	4.7	96	coarse sand w/ gravel
17	levee S of river, 10' S at 21/22	9' above	136.0	5.0	137.3	130.5	5.2	96	coarse sand w/ gravel
18	levee S of river, 10' S at 20/21	9' above	136.0	5.0	134.1	128.3	4.5	95	coarse sand w/ gravel
19	levee S of river, 10' S at 19/20	9' above	136.0	5.0	140.9	132.0	6.7	97	coarse sand w/ gravel
20	levee S of river, 10' S at 18/19	9' above	136.0	5.0	137.0	129.9	5.5	96	coarse sand w/ gravel
21	levee S of river, 30' S at 15/16	5' above	136.0	5.0	135.4	129.4	4.6	95	coarse sand w/ gravel
22	levee S of river, 30' S at 14/15	5' above	136.0	5.0	136.1	128.8	5.6	95	coarse sand w/ gravel
23	levee S of river, 30' S at 13/14	5' above	136.0	5.0	136.8	131.3	4.2	97	coarse sand w/ gravel
24	levee S of river, 30' S at 12/13	5' above	136.0	5.0	135.5	129.9	4.3	95	coarse sand w/ gravel
25	levee S of river, 30' S at 11/12	5' above	136.0	5.0	135.7	130.7	3.8	96	coarse sand w/ gravel
26	levee S of river, 30' S at 10/11	5' above	136.0	5.0	136.8	130.9	4.6	96	coarse sand w/ gravel
27	levee S of river, 10' S at 7/8	10' above	136.0	5.0	136.1	129.7	5.0	95	coarse sand w/ gravel
28	levee S of river, 10' S at 8/9	10' above	136.0	5.0	139.0	132.2	6.0	97	coarse sand w/ gravel
29	levee S of river, 10" S at 9/10	10' above	136.0	5.0	138.9	132.0	5.3	96	coarse sand w/ gravel
30	levee S of river, 10' S at 11/12	10' above	136.0	5.0	135.6	129.5	4.7	95	coarse sand w/ gravel

Specification Compaction and Material: 95%

- ☒ ASTM D 1557 (Modified Proctor)
☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: dozer

Type and Number of Compaction units: roller

No. of Passes: several Thickness of lift: 10-12"

Method of Adding Moisture: none

Comments:

☒ In our opinion, fill generally meets specifications as indicated by test numbers:

all

☐ In our opinion, fill does **not** meet specifications as indicated by test numbers, and should be removed or reworked:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample: Test No.: Dry Density: Moisture %:

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Page: 3 of 5

Project: Skykomish Levee Remediation
MTE Project #: E6288 Date: 9-21-06
Permit #:
Inspector: C Pratt
MTE Nuclear Gauge #: 20

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Wet Density	Field			Soil Type Description
			Maximum Dry Density	OMC %		Dry Density	Moisture Content %	Compaction %	
31	levee S of river, 10' S at 12/13	10' above	136.0	5.0	139.6	133.8	4.3	98	coarse sand w/ gravel
32	levee S of river, 10' S at 13/14	10' above	136.0	5.0	138.6	132.3	4.7	97	coarse sand w/ gravel
33	levee S of river, 10' S at 14/15	10' above	136.0	5.0	135.4	128.7	5.2	95	coarse sand w/ gravel
34	levee S of river, 30' S at 9/10	6' above	136.0	5.0	137.4	131.0	4.9	96	coarse sand w/ gravel
35	levee S of river, 30' S at 10/11	6' above	136.0	5.0	135.7	130.1	4.3	96	coarse sand w/ gravel
36	levee S of river, 30' S at 11/12	6' above	136.0	5.0	136.2	131.0	4.0	96	coarse sand w/ gravel
37	levee S of river, 30' S at 12/113	6' above	136.0	5.0	138.6	133.2	4.1	98	coarse sand w/ gravel
38	levee S of river, 30' S at 13/14	6' above	136.0	5.0	137.7	131.3	4.9	97	coarse sand w/ gravel
39	levee S of river, 30' S at 14/15	6' above	136.0	5.0	137.6	131.0	5.0	96	coarse sand w/ gravel
40	levee S of river, 30' S at 15/16	6' above	136.0	5.0	134.7	129.0	4.4	95	coarse sand w/ gravel
41	levee S of river, 10' S at 7/8	11' above	136.0	5.0	138.7	132.4	4.7	97	coarse sand w/ gravel
42	levee S of river, 10' S at 8/9	11' above	136.0	5.0	136.5	130.2	4.8	96	coarse sand w/ gravel
43	levee S of river, 10' S at 10/11	11' above	136.0	5.0	138.7	132.6	4.6	97	coarse sand w/ gravel
44	levee S of river, 10' S at 11/12	11' above	136.0	5.0	135.9	128.5	5.8	95	coarse sand w/ gravel
45	levee S of river, 10' S at 13/14	11' above	136.0	5.0	135.9	131.0	3.7	96	coarse sand w/ gravel

Specification Compaction and Material: 95%

☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: dozer

Type and Number of Compaction units: roller

No. of Passes: several Thickness of lift: 10-12"

Method of Adding Moisture: none

Comments:

☒ In our opinion, fill generally meets specifications as indicated by test numbers:

all

☐ In our opinion, fill does **not** meet specifications as indicated by test numbers, and should be removed or reworked:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation ☐ Part-time observation

Quality Control Sample: Test No.: _____ Dry Density: _____ Moisture %: _____

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FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Page: 4 of 5

Project: Skykomish Levee Remediation
MTE Project #: E6288 Date: 9-21-06
Permit #:
Inspector: C Pratt
MTE Nuclear Gauge #: 20

Test #	Location	Depth or Elevation (feet)	Laboratory		Wet Density	Field			Soil Type Description
			Maximum Dry Density	OMC %		Dry Density	Moisture Content %	Compaction %	
46	levee S of river, 10' S at 14/15	11' above	136.0	5.0	138.9	132.9	4.5	98	coarse sand w/ gravel
47	levee S of river, 30' S at 10/11	7' above	136.0	5.0	137.1	131.0	4.7	96	coarse sand w/ gravel
48	levee S of river, 30' S at 11/12	7' above	136.0	5.0	134.9	129.4	4.2	95	coarse sand w/ gravel
49	levee S of river, 30' S at 12/13	7' above	136.0	5.0	136.1	130.8	4.1	96	coarse sand w/ gravel
50	levee S of river, 30' S at 13/14	7' above	136.0	5.0	135.3	128.5	5.3	95	coarse sand w/ gravel
51	levee S of river, 30' S at 14/15	7' above	136.0	5.0	139.0	131.9	5.4	97	coarse sand w/ gravel
52	levee S of river, 30' S at 15/16	7' above	136.0	5.0	135.0	129.8	4.0	96	coarse sand w/ gravel
53	levee S of river, 10' S at 6/7	10' above	136.0	5.0	138.0	131.4	5.0	97	coarse sand w/ gravel
54	levee S of river, 10' S at 8/9	11' above	136.0	5.0	134.5	128.9	4.3	95	coarse sand w/ gravel
55	levee S of river, 10' S at 9/10	11' above	136.0	5.0	136.7	130.9	4.5	96	coarse sand w/ gravel
56	levee S of river, 10' S at 10/11	11' above	136.0	5.0	137.8	132.2	4.2	97	coarse sand w/ gravel
57	levee S of river, 10' S at 11/12	11' above	136.0	5.0	136.6	130.5	4.7	96	coarse sand w/ gravel
58	levee S of river, 10' S at 12/13	11' above	136.0	5.0	139.4	132.5	5.2	97	coarse sand w/ gravel
59	levee S of river, 10' S at 13/14	11' above	136.0	5.0	135.4	129.5	4.5	95	coarse sand w/ gravel
60	50' of river, grid 3/4, 1st lift	1' above	136.0	5.0	136.4	129.8	5.0	96	coarse sand w/ gravel

Specification Compaction and Material: 95%

- ☒ ASTM D 1557 (Modified Proctor)
☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: dozer

Type and Number of Compaction units: roller

No. of Passes: several Thickness of lift: 10-12"

Method of Adding Moisture: none

Comments:

☒ In our opinion, fill generally meets specifications as indicated by test numbers:
all

☐ In our opinion, fill does **not** meet specifications as indicated by test numbers,
and should be removed or reworked:

☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample: Test No.: _____ Dry Density: _____ Moisture %: _____

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Page: 5 of 5

Project: Skykomish Levee Remediation
 MTE Project #: E6288 Date: 9-21-06
 Permit #:
 Inspector: C Pratt
 MTE Nuclear Gauge #: 20

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Wet Density	Field			Soil Type Description
			Maximum Dry Density	OMC %		Dry Density	Moisture Content %	Compaction %	
61	25' of river, grid 3/4, 1st lift	1' above	136.0	5.0	137.9	131.6	4.8	97	coarse sand w/ gravel
62	levee S of river, 30' S at 15/16	7.5' above	136.0	5.0	136.3	129.8	5.0	95	coarse sand w/ gravel
63	levee S of river, 30' S at 14/15	7.5' above	136.0	5.0	137.7	131.3	4.8	97	coarse sand w/ gravel
64	levee S of river, 30' S at 13/14	7.5' above	136.0	5.0	136.9	131.6	4.0	97	coarse sand w/ gravel
65	levee S of river, 30' S at 12/13	7.5' above	136.0	5.0	134.8	129.4	4.2	95	coarse sand w/ gravel
66	levee S of river, 30' S at 11/12	7.5' above	136.0	5.0	137.7	132.3	4.1	97	coarse sand w/ gravel
67	levee S of river, 10' S at 9/10	11.5' above	136.0	5.0	138.2	131.2	5.4	96	coarse sand w/ gravel
68	levee S of river, 10' S at 10/11	11.5' above	136.0	5.0	137.7	131.1	5.0	96	coarse sand w/ gravel
69	levee S of river, 10' S at 11/12	11.5' above	136.0	5.0	135.4	130.0	4.2	95	coarse sand w/ gravel
70	levee S of river, 10' S at 12/13	11.5' above	136.0	5.0	135.6	129.4	4.8	95	coarse sand w/ gravel

Specification Compaction and Material: 95%

☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: dozer

Type and Number of Compaction units: roller

No. of Passes: several Thickness of lift: 10-12"

Method of Adding Moisture: none

Comments:

☒ In our opinion, fill generally meets specifications as indicated by test numbers:
all☐ In our opinion, fill does **not** meet specifications as indicated by test numbers,
and should be removed or reworked:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample: Test No.: Dry Density: Moisture %:

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MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomosh, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: –
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 10

Date: 9/21/06
Weather: Showers
Inspection: Soils
Sample(s): None

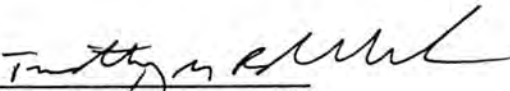
Observed Wilder Construction place 12" lifts of pit-run sand with gravel along levee, south side of river. Each lift was compacted by several passes with a smooth drum vibrating roller. Performed in-place density tests to verify 95% compaction per plans. Tests were done on each lift at every 30-40'. Information from tests can be found on attached Field Density Test Report.

Stabilization rock was placed in east end of levee into contaminated water. Large boulders were placed at south edge of river below bridge. Stabilization rock was also placed at edge of roadway, north of school corner.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Project: Skykomish Levee Remediation
 MTE Project #: E6288 Date: 9-21-06
 Permit #:
 Inspector: C Pratt
 MTE Nuclear Gauge #: 20

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Wet Density	Field			Soil Type Description
			Maximum Dry Density	OMC %		Dry Density	Moisture Content %	Compaction %	
1	levee S of river, 30' S at 11/12	4' above	136.0	5.0	138.2	130.4	6.0	96	coarse sand w/ gravel
2	levee S of river, 30' S at 12/13	4' above	136.0	5.0	137.4	129.5	6.1	95	coarse sand w/ gravel
3	levee S of river, 30' S at 13/14	4' above	136.0	5.0	135.7	128.9	5.3	95	coarse sand w/ gravel
4	levee S of river, 30' S at 14/15	4' above	136.0	5.0	136.7	129.6	5.5	95	coarse sand w/ gravel
5	levee S of river, 30' S at 15/16	4' above	136.0	5.0	139.2	131.8	5.6	97	coarse sand w/ gravel
6	levee S of river, 10' S at 7/8	9' above	136.0	5.0	137.3	129.4	6.1	95	coarse sand w/ gravel
7	levee S of river, 10' S at 8/9	9' above	136.0	5.0	136.2	129.7	5.0	95	coarse sand w/ gravel
8	levee S of river, 10' S at 9/10	9' above	136.0	5.0	135.8	128.5	5.7	95	coarse sand w/ gravel
9	levee S of river, 10' S at 10/11	9' above	136.0	5.0	136.3	129.4	5.3	95	coarse sand w/ gravel
10	levee S of river, 10' S at 11/12	9' above	136.0	5.0	136.3	129.7	5.1	95	coarse sand w/ gravel
11	levee S of river, 10' S at 12/13	9' above	136.0	5.0	136.0	130.0	4.7	96	coarse sand w/ gravel
12	levee S of river, 10' S at 13/14	9' above	136.0	5.0	136.4	130.8	4.3	96	coarse sand w/ gravel
13	levee S of river, 10' S at 14/15	9' above	136.0	5.0	138.5	132.8	4.3	98	coarse sand w/ gravel
14	levee S of river, 10' S at 15/16	9' above	136.0	5.0	134.6	129.2	4.2	95	coarse sand w/ gravel
15	levee S of river, 10' S at 23/24	9' above	136.0	5.0	137.4	131.5	4.5	97	coarse sand w/ gravel

Specification Compaction and Material: 95%

☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: dozer

Type and Number of Compaction units: roller

No. of Passes: several Thickness of lift: 10-12"

Method of Adding Moisture: none

Comments:

☒ In our opinion, fill generally meets specifications as indicated by test numbers:
all☐ In our opinion, fill does **not** meet specifications as indicated by test numbers,
and should be removed or reworked:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation ☐ Part-time observation

Quality Control Sample: Test No.: _____ Dry Density: _____ Moisture %: _____

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Page: 2 of 5

Project: Skykomish Levee Remediation
 MTE Project #: E6288 Date: 9-21-06
 Permit #:
 Inspector: C Pratt
 MTE Nuclear Gauge #: 20

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Wet Density	Field			Soil Type Description
			Maximum Dry Density	OMC %		Dry Density	Moisture Content %	Compaction %	
16	levee S of river, 10' S at 22/23	9' above	136.0	5.0	136.8	130.6	4.7	96	coarse sand w/ gravel
17	levee S of river, 10' S at 21/22	9' above	136.0	5.0	137.3	130.5	5.2	96	coarse sand w/ gravel
18	levee S of river, 10' S at 20/21	9' above	136.0	5.0	134.1	128.3	4.5	95	coarse sand w/ gravel
19	levee S of river, 10' S at 19/20	9' above	136.0	5.0	140.9	132.0	6.7	97	coarse sand w/ gravel
20	levee S of river, 10' S at 18/19	9' above	136.0	5.0	137.0	129.9	5.5	96	coarse sand w/ gravel
21	levee S of river, 30' S at 15/16	5' above	136.0	5.0	135.4	129.4	4.6	95	coarse sand w/ gravel
22	levee S of river, 30' S at 14/15	5' above	136.0	5.0	136.1	128.8	5.6	95	coarse sand w/ gravel
23	levee S of river, 30' S at 13/14	5' above	136.0	5.0	136.8	131.3	4.2	97	coarse sand w/ gravel
24	levee S of river, 30' S at 12/13	5' above	136.0	5.0	135.5	129.9	4.3	95	coarse sand w/ gravel
25	levee S of river, 30' S at 11/12	5' above	136.0	5.0	135.7	130.7	3.8	96	coarse sand w/ gravel
26	levee S of river, 30' S at 10/11	5' above	136.0	5.0	136.8	130.9	4.6	96	coarse sand w/ gravel
27	levee S of river, 10' S at 7/8	10' above	136.0	5.0	136.1	129.7	5.0	95	coarse sand w/ gravel
28	levee S of river, 10' S at 8/9	10' above	136.0	5.0	139.0	132.2	6.0	97	coarse sand w/ gravel
29	levee S of river, 10" S at 9/10	10' above	136.0	5.0	138.9	132.0	5.3	96	coarse sand w/ gravel
30	levee S of river, 10' S at 11/12	10' above	136.0	5.0	135.6	129.5	4.7	95	coarse sand w/ gravel

Specification Compaction and Material: 95%

- ☒ ASTM D 1557 (Modified Proctor)
☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: dozer

Type and Number of Compaction units: roller

No. of Passes: several Thickness of lift: 10-12"

Method of Adding Moisture: none

Comments:

☒ In our opinion, fill generally meets specifications as indicated by test numbers:
 all

☐ In our opinion, fill does **not** meet specifications as indicated by test numbers,
 and should be removed or reworked:

☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample: Test No.: _____ Dry Density: _____ Moisture %: _____

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Page: 3 of 5

Project: Skykomish Levee Remediation
 MTE Project #: E6288 Date: 9-21-06
 Permit #:
 Inspector: C Pratt
 MTE Nuclear Gauge #: 20

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Wet Density	Field			Soil Type Description
			Maximum Dry Density	OMC %		Dry Density	Moisture Content %	Compaction %	
31	levee S of river, 10' S at 12/13	10' above	136.0	5.0	139.6	133.8	4.3	98	coarse sand w/ gravel
32	levee S of river, 10' S at 13/14	10' above	136.0	5.0	138.6	132.3	4.7	97	coarse sand w/ gravel
33	levee S of river, 10' S at 14/15	10' above	136.0	5.0	135.4	128.7	5.2	95	coarse sand w/ gravel
34	levee S of river, 30' S at 9/10	6' above	136.0	5.0	137.4	131.0	4.9	96	coarse sand w/ gravel
35	levee S of river, 30' S at 10/11	6' above	136.0	5.0	135.7	130.1	4.3	96	coarse sand w/ gravel
36	levee S of river, 30' S at 11/12	6' above	136.0	5.0	136.2	131.0	4.0	96	coarse sand w/ gravel
37	levee S of river, 30' S at 12/13	6' above	136.0	5.0	138.6	133.2	4.1	98	coarse sand w/ gravel
38	levee S of river, 30' S at 13/14	6' above	136.0	5.0	137.7	131.3	4.9	97	coarse sand w/ gravel
39	levee S of river, 30' S at 14/15	6' above	136.0	5.0	137.6	131.0	5.0	96	coarse sand w/ gravel
40	levee S of river, 30' S at 15/16	6' above	136.0	5.0	134.7	129.0	4.4	95	coarse sand w/ gravel
41	levee S of river, 10' S at 7/8	11' above	136.0	5.0	138.7	132.4	4.7	97	coarse sand w/ gravel
42	levee S of river, 10' S at 8/9	11' above	136.0	5.0	136.5	130.2	4.8	96	coarse sand w/ gravel
43	levee S of river, 10' S at 10/11	11' above	136.0	5.0	138.7	132.6	4.6	97	coarse sand w/ gravel
44	levee S of river, 10' S at 11/12	11' above	136.0	5.0	135.9	128.5	5.8	95	coarse sand w/ gravel
45	levee S of river, 10' S at 13/14	11' above	136.0	5.0	135.9	131.0	3.7	96	coarse sand w/ gravel

Specification Compaction and Material: 95%

☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: dozer

Type and Number of Compaction units: roller

No. of Passes: several Thickness of lift: 10-12"

Method of Adding Moisture: none

Comments:

☒ In our opinion, fill generally meets specifications as indicated by test numbers:

all

☐ In our opinion, fill does **not** meet specifications as indicated by test numbers, and should be removed or reworked:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample: Test No.: Dry Density: Moisture %:

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Fax 253.584.37077911 NE 33rd Drive, Suite 190
Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579

Page: 4 of 5

Project: Skykomish Levee Remediation

MTE Project #: E6288 Date: 9-21-06

Permit #:

Inspector: C Pratt

MTE Nuclear Gauge #: 20

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Wet Density	Field			Soil Type Description
			Maximum Dry Density	OMC %		Dry Density	Moisture Content %	Compaction %	
46	levee S of river, 10' S at 14/15	11' above	136.0	5.0	138.9	132.9	4.5	98	coarse sand w/ gravel
47	levee S of river, 30' S at 10/11	7' above	136.0	5.0	137.1	131.0	4.7	96	coarse sand w/ gravel
48	levee S of river, 30' S at 11/12	7' above	136.0	5.0	134.9	129.4	4.2	95	coarse sand w/ gravel
49	levee S of river, 30' S at 12/13	7' above	136.0	5.0	136.1	130.8	4.1	96	coarse sand w/ gravel
50	levee S of river, 30' S at 13/14	7' above	136.0	5.0	135.3	128.5	5.3	95	coarse sand w/ gravel
51	levee S of river, 30' S at 14/15	7' above	136.0	5.0	139.0	131.9	5.4	97	coarse sand w/ gravel
52	levee S of river, 30' S at 15/16	7' above	136.0	5.0	135.0	129.8	4.0	96	coarse sand w/ gravel
53	levee S of river, 10' S at 6/7	10' above	136.0	5.0	138.0	131.4	5.0	97	coarse sand w/ gravel
54	levee S of river, 10' S at 8/9	11' above	136.0	5.0	134.5	128.9	4.3	95	coarse sand w/ gravel
55	levee S of river, 10' S at 9/10	11' above	136.0	5.0	136.7	130.9	4.5	96	coarse sand w/ gravel
56	levee S of river, 10' S at 10/11	11' above	136.0	5.0	137.8	132.2	4.2	97	coarse sand w/ gravel
57	levee S of river, 10' S at 11/12	11' above	136.0	5.0	136.6	130.5	4.7	96	coarse sand w/ gravel
58	levee S of river, 10' S at 12/13	11' above	136.0	5.0	139.4	132.5	5.2	97	coarse sand w/ gravel
59	levee S of river, 10' S at 13/14	11' above	136.0	5.0	135.4	129.5	4.5	95	coarse sand w/ gravel
60	50' of river, grid 3/4, 1st lift	1' above	136.0	5.0	136.4	129.8	5.0	96	coarse sand w/ gravel

Specification Compaction and Material: 95%

☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: dozer

Type and Number of Compaction units: roller

No. of Passes: several Thickness of lift: 10-12"

Method of Adding Moisture: none

Comments:

☒ In our opinion, fill generally meets specifications as indicated by test numbers: all☐ In our opinion, fill does **not** meet specifications as indicated by test numbers, and should be removed or reworked:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample: Test No.: Dry Density: Moisture %:

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Page: 5 of 5

Project: Skykomish Levee Remediation
 MTE Project #: E6288 Date: 9-21-06
 Permit #:
 Inspector: C Pratt
 MTE Nuclear Gauge #: 20

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Wet Density	Field			Soil Type Description
			Maximum Dry Density	OMC %		Dry Density	Moisture Content %	Compaction %	
61	25' of river, grid 3/4, 1st lift	1' above	136.0	5.0	137.9	131.6	4.8	97	coarse sand w/ gravel
62	levee S of river, 30' S at 15/16	7.5' above	136.0	5.0	136.3	129.8	5.0	95	coarse sand w/ gravel
63	levee S of river, 30' S at 14/15	7.5' above	136.0	5.0	137.7	131.3	4.8	97	coarse sand w/ gravel
64	levee S of river, 30' S at 13/14	7.5' above	136.0	5.0	136.9	131.6	4.0	97	coarse sand w/ gravel
65	levee S of river, 30' S at 12/13	7.5' above	136.0	5.0	134.8	129.4	4.2	95	coarse sand w/ gravel
66	levee S of river, 30' S at 11/12	7.5' above	136.0	5.0	137.7	132.3	4.1	97	coarse sand w/ gravel
67	levee S of river, 10' S at 9/10	11.5' above	136.0	5.0	138.2	131.2	5.4	96	coarse sand w/ gravel
68	levee S of river, 10' S at 10/11	11.5' above	136.0	5.0	137.7	131.1	5.0	96	coarse sand w/ gravel
69	levee S of river, 10' S at 11/12	11.5' above	136.0	5.0	135.4	130.0	4.2	95	coarse sand w/ gravel
70	levee S of river, 10' S at 12/13	11.5' above	136.0	5.0	135.6	129.4	4.8	95	coarse sand w/ gravel

Specification Compaction and Material: 95%

☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: dozer

Type and Number of Compaction units: roller

No. of Passes: several Thickness of lift: 10-12"

Method of Adding Moisture: none

Comments:

☒ In our opinion, fill generally meets specifications as indicated by test numbers:
all☐ In our opinion, fill does **not** meet specifications as indicated by test numbers, and should be removed or reworked:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample: Test No.: _____ Dry Density: _____ Moisture %: _____

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Portland Office
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Portland, OR 97211
ph 503.281.7515
fax 503.281.7579

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 13

Date: 9/22/06
Weather: Sunny
Inspection: Soils
Sample(s): Structural fill (sieve, Proctor), stabilization rock (sieve)

Arrived onsite to perform compaction tests on the backfill being placed in the levee. Soil used was the structural fill-medium coarse sand with gravel. Soil was placed by dump truck, spread by dozer and rolled with a vibrating single-drum roller.

The area between 14/15 and 9/10 was brought up to a depth of 6 ft. At 2/3 an entrance road was made for trucks to have a better route. The road was brought up to 4 ft. The entrance was brought up, but due to the steep slope, testing was unable to be performed. Loaded trucks were observed being driven over area; it showed to be firm and unyielding. The area between 2/3 and 6/7 was brought up to 8 ft.

Tests were taken and specifications were met. See attached Field Density Test Report for specific locations, depths and results.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Brandon Veach

REVIEWED BY: 
Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579Page 1 of 2Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 9/22/06

Permit #: _____

Inspector: B VeachMTE Nuclear Gauge #: 14**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	14/15	6'	136.5	5.0	136.3	131.3	3.8	96.2	medium coarse sand w/ gravel
2	13/14	6'	136.5	5.0	137.1	131.6	4.2	96.4	medium coarse sand w/ gravel
3	12/13	6'	136.5	5.0	135.9	130.6	4.0	95.7	medium coarse sand w/ gravel
4	10/11	6'	136.5	5.0	138.5	132.7	4.4	97.2	medium coarse sand w/ gravel
5	9/10	6'	136.5	5.0	137.0	131.9	3.9	96.6	medium coarse sand w/ gravel
6	2/3	7'	136.5	5.0	137.1	131.4	4.3	96.3	medium coarse sand w/ gravel
7	3/4	7'	136.5	5.0	138.4	133.1	4.0	97.5	medium coarse sand w/ gravel
8	4/5	7'	136.5	5.0	137.3	132.4	3.7	97.0	medium coarse sand w/ gravel
9	6/7	7'	136.5	5.0	137.5	132.7	3.6	97.2	medium coarse sand w/ gravel
10	6/7	8'	136.5	5.0	136.4	131.4	3.8	96.3	medium coarse sand w/ gravel
11	5/6	8'	136.5	5.0	134.8	130.1	3.6	95.3	medium coarse sand w/ gravel
12	4/5	8'	136.5	5.0	135.4	130.2	4.0	95.4	medium coarse sand w/ gravel

Specification Compaction and Material : 90% / 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: dozerType and Number of Compaction units: rollerNumber of Passes: several Thickness of lift: 8-12"

Method of Adding Moisture: _____

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☐ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Fax 503.281.7579**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Page 2 of 2Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 9/22/06

Permit #: _____

Inspector: B VeachMTE Nuclear Gauge #: 14

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
13	2/3	8'	136.5	5.0	135.5	130.1	4.2	95.3	medium brown sand w/ gravel
14	3 (entrance road)	3'	136.5	5.0	136.6	131.4	3.9	96.3	medium brown sand w/ gravel
15	3 (entrance road)	3'	136.5	5.0	137.4	132.4	3.8	97.0	medium brown sand w/ gravel
16	3 (entrance road)	4'	136.5	5.0	137.3	132.5	3.6	97.1	medium brown sand w/ gravel
17	3 (entrance road)	4'	136.5	5.0	137.0	132.3	3.6	96.9	medium brown sand w/ gravel

Specification Compaction and Material : 90% / 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: dozerType and Number of Compaction units: rollerNumber of Passes: several Thickness of lift: 8-12"

Method of Adding Moisture: _____

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☐ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Portland Office
7911 NE 33rd Drive
Suite 190
Portland, OR 97211
ph 503.281.7515
fax 503.281.7579

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 14

Date: 9/25/06
Weather: Sunny
Inspection: Soils
Sample(s):

Arrived onsite to perform soil compaction tests on the backfill placed in the levee. The levee was raised to a depth of 11 ft. between 2/3 and 6/7. Tests were taken on each lift, three per lift, per plans.

The area between F/G and I/J was extended from 3/4 to 5/6. One lift was placed and three tests were taken. Material used was a medium coarse sand with gravel. Stabilization aggregate was placed by bringing the depth to above the surface of the water. See attached Field Density Test Report for specific test locations and results.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Brandon Veach

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Fax 253.584.37077911 NE 33rd Drive, Suite 190
Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Page 1 of 1Project: Skykomish Levee RemediationMTE Project # : E6288 Date: 9/25/06

Permit #: _____

Inspector: B VeachMTE Nuclear Gauge #: 14

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	2/3	9'	136.5	5.0	135.3	129.8	3.8	95.1	medium coarse sand w/ gravel
2	4/5	9'	136.5	5.0	136.2	130.1	4.2	95.3	medium coarse sand w/ gravel
3	6/7	9'	136.5	5.0	135.8	130.0	4.0	95.2	medium coarse sand w/ gravel
4	2/3	10'	136.5	5.0	135.4	130.2	3.7	95.4	medium coarse sand w/ gravel
5	3/4	10'	136.5	5.0	135.9	130.0	4.1	95.2	medium coarse sand w/ gravel
6	6/7	10'	136.5	5.0	137.8	132.0	4.0	96.0	medium coarse sand w/ gravel
7	6/7	11'	136.5	5.0	137.8	131.7	4.1	95.8	medium coarse sand w/ gravel
8	5/6	11'	136.5	5.0	135.2	129.7	3.8	95.0	medium coarse sand w/ gravel
9	3/4	11'	136.5	5.0	136.0	130.1	4.1	95.3	medium coarse sand w/ gravel
10	4/5 I/J	2'	136.5	5.0	131.5	123.9	6.1	90.8	medium coarse sand w/ gravel
11	4/5 G/H	2'	136.5	5.0	129.8	123.7	4.8	90.6	medium coarse sand w/ gravel
12	4/5 H/I	2'	136.5	5.0	129.9	124.3	4.5	91.1	medium coarse sand w/ gravel

Specification Compaction and Material : 90% / 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: dozerType and Number of Compaction units: rollerNumber of Passes: several Thickness of lift: 12"

Method of Adding Moisture: _____

Comments: _____

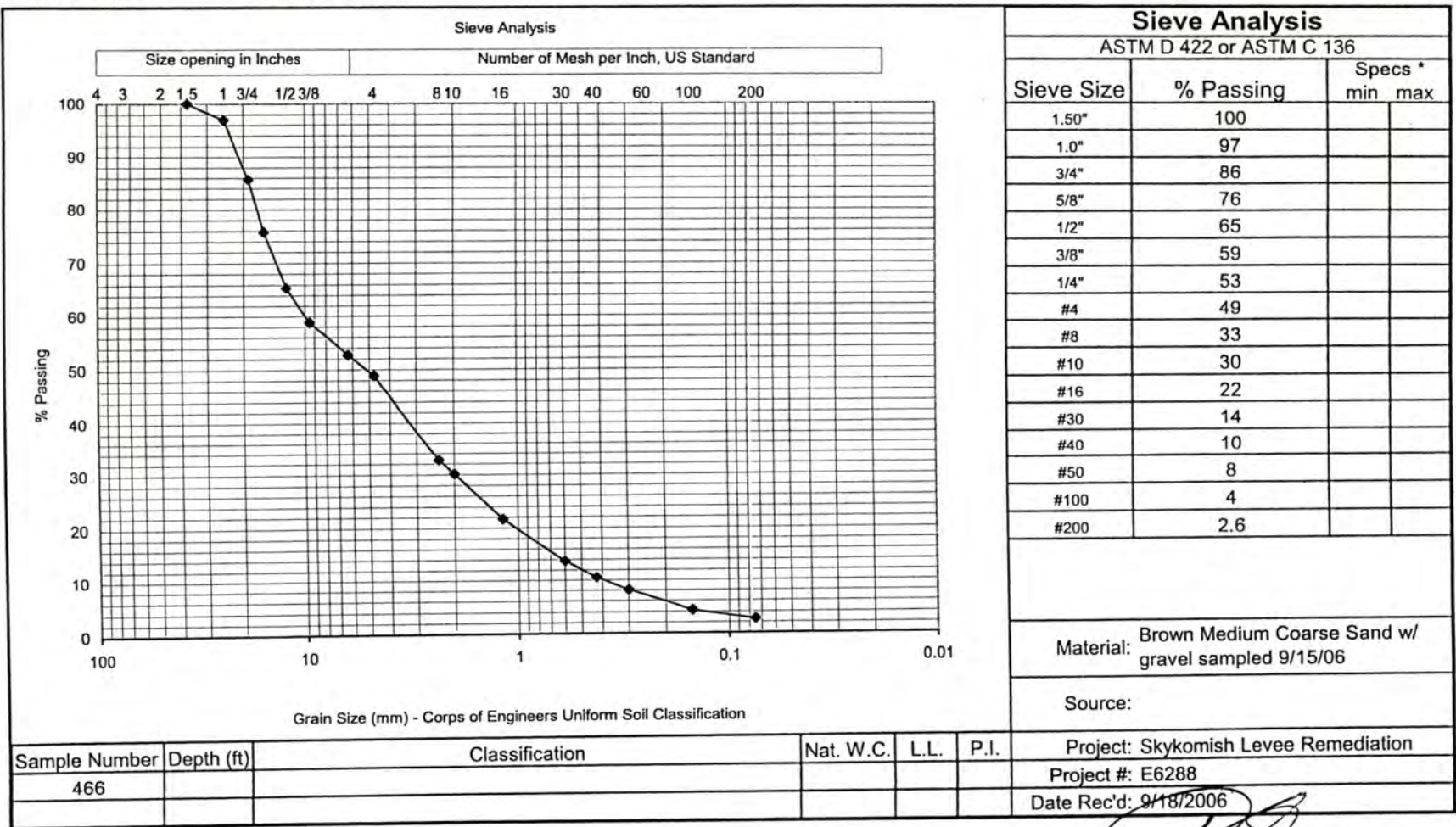
☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☐ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

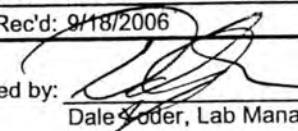
MAYES TESTING ENGINEERS, INC.

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Everett, WA 98204 Fax 425-745-1737



Tested By: Guy Booker

Date Tested: 9/21/2006

Reviewed by: 
Dale Yoder, Lab Manager

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Moisture Density Relationship TestClient: Wilder ConstructionProject: Skykomish Levee RemediationTest Method: ASTM D-1557 Method C / C 127 / D 4718 (if needed)Date Tested: 9/27/2006Project Number: E6288Lab Number: 485Wet Preparation ☐ Mechanical ☒
Dry Preparation ☒ Hand Tamper ☐Date Received: 9/26/2006

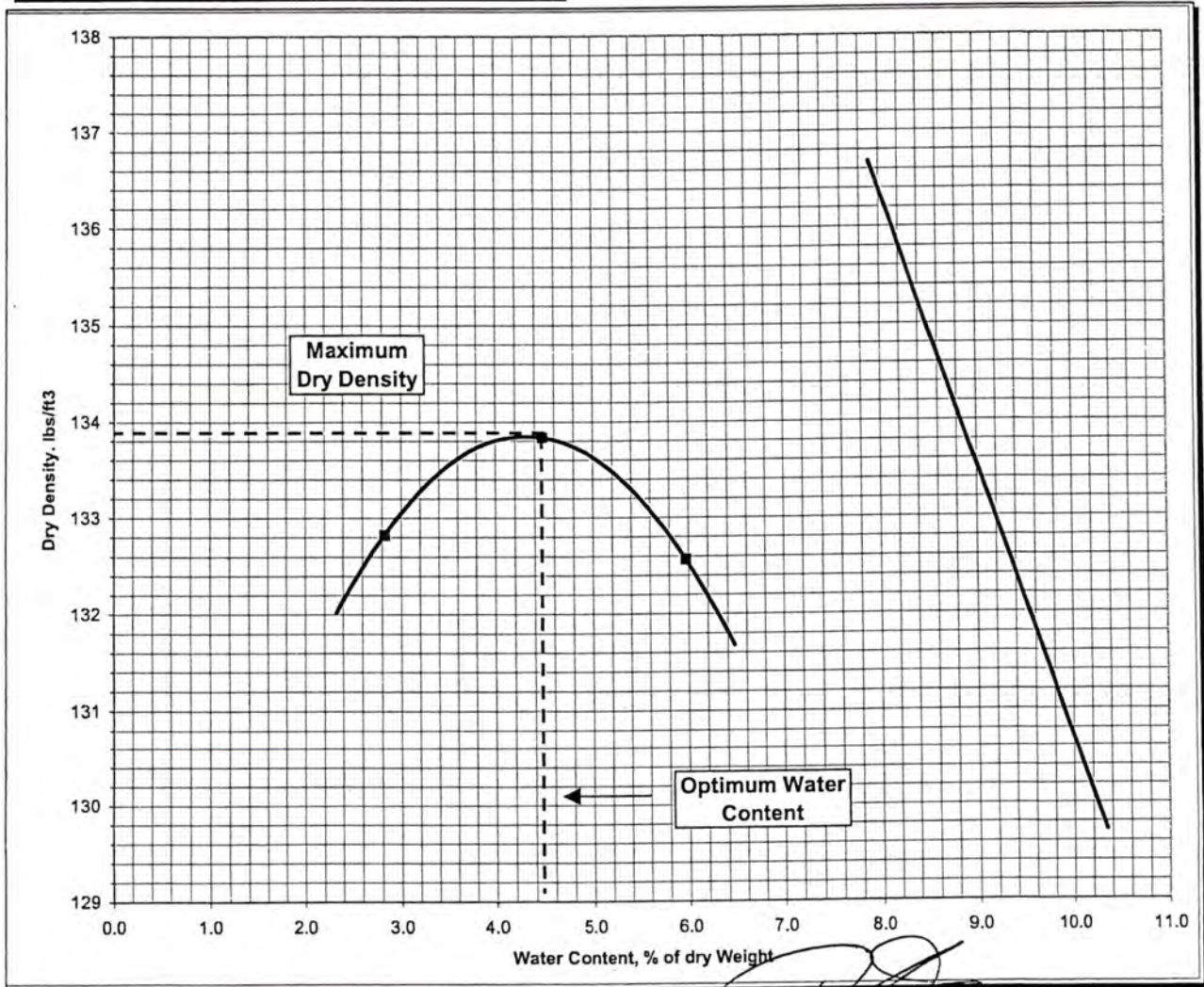
Source of Sample: _____

Description of Sample: Brown Coarse Sand w/ gravelZero Void line plotted at SpG: 2.65
Max. Density Uncorrected: 130.8**Test Results**

Optimum Water Content %	4.5
Max Dry Density Corr. lbs/ft ³	134.0

Sieve Analysis

Sieve Size	Percent Retained
3/4	12%
3/8	31%
#4	41%

Tested By: Guy Booker

Reviewed By: _____

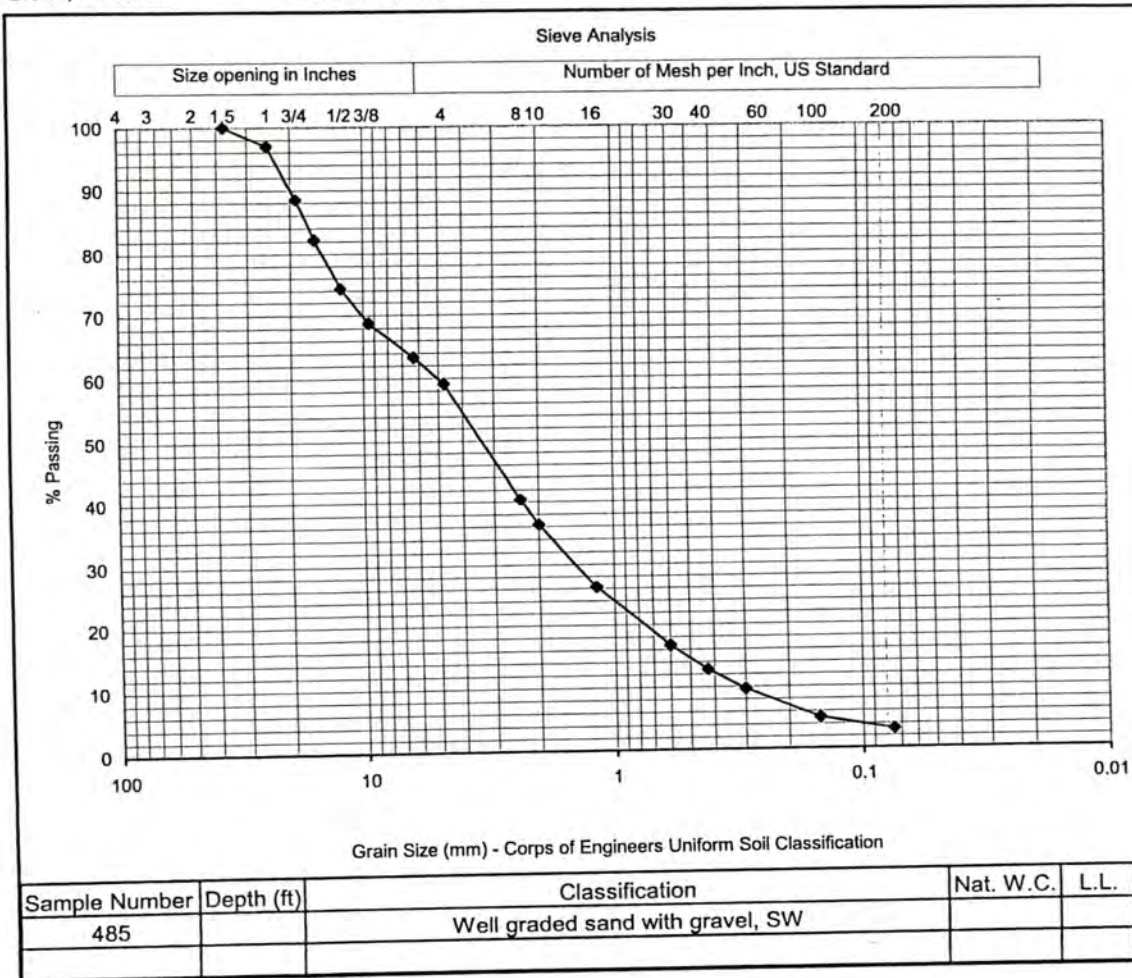
Date Yoder, Lab Manager

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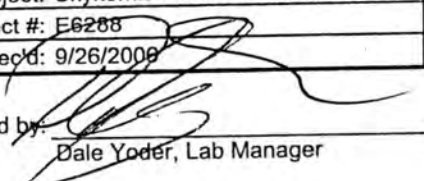
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Sieve Analysis			
ASTM D 422 or ASTM C 136			
Sieve Size	% Passing	Specs *	
		min	max
1.50"	100		
1.0"	97		
3/4"	88		
5/8"	82		
1/2"	74		
3/8"	69		
1/4"	63		
#4	59		
#8	40		
#10	36		
#16	26		
#30	17		
#40	13		
#50	10		
#100	5		
#200	3.0		
Material: coarse sand with gravel			
Source: Import			
Project: Skykomish Levee Remediation			
Project #: E6288			
Date Rec'd: 9/26/2006			

Tested By: G. Booker

Date Tested: 9/27/2006

Reviewed by: 
Dale Yoder, Lab Manager

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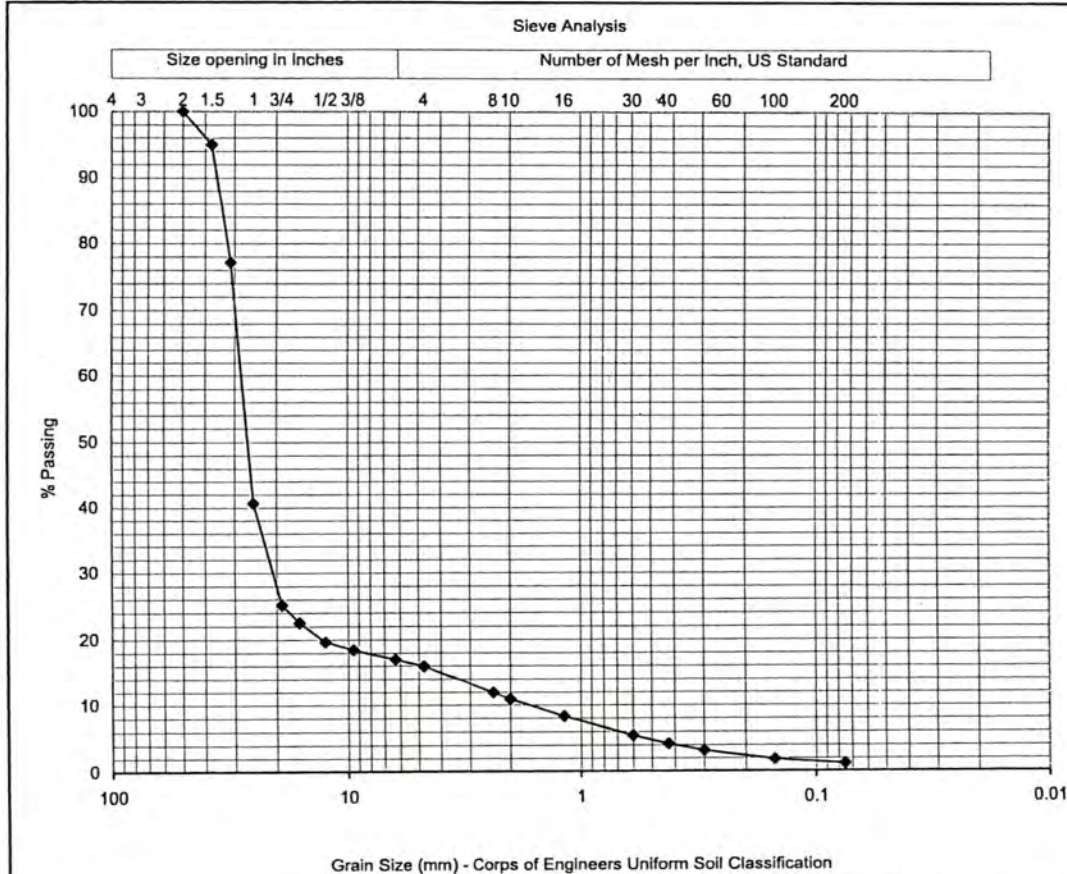
Sieve48510/2/2006

MTE Form #143, Rev 2, 6-02

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Ph 425-742-9360
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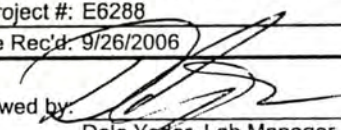


Sieve Analysis			
ASTM D 422 or ASTM C 136			
Sieve Size	% Passing	Specs *	
		min	max
2.00"	100		
1.50"	95		
1.25"	77		
1.0"	41		
3/4"	25		
5/8"	22		
1/2"	20		
3/8"	18		
1/4"	17		
#4	16		
#8	12		
#10	11		
#16	8		
#30	5		
#40	4		
#50	3		
#100	2		
#200	1.1		
Material: Stabilization aggregate			
Source: Import			
Project: Skykomish Levee Remediation			
Project #: E6288			
Date Rec'd: 9/26/2006			

Sample Number	Depth (ft)	Classification	Nat. W.C.	L.L.	P.I.
486		Well-graded gravel with sand, GW			

Tested By: G. Booker

Date Tested: 9/27/2006

Reviewed by: 
Dale Yoder, Lab Manager

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Sieve48610/2/2006

MTE Form #143, Rev 2, 6-02

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Portland, OR 97211
ph 503.281.7515
fax 503.281.7579

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 15

Date: 9/26/06
Weather: Sun
Inspection: Soils
Sample(s): 1 sample bag rock, 1 bag structural fill

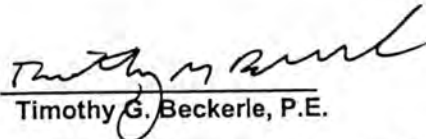
Observed Wilder Construction perform earthwork procedures at the fill area between 2/3-4/5 and F/G-I/J. 10" to 12" lifts of coarse sand with gravel were placed by dozer. Each lift was compacted by 3-4 passes from a smooth drum roller. Performed in-place density tests to verify 95% compaction per plans. Wilder also placed stabilization rock at area between F/G-I/J up to 1' above water line.

Obtained and delivered to Everett lab sample bags of stabilization rock and structural fill for sieve and analysis. Coarse sand with gravel structural fill material will also be tested for ASTM: D-1557 Proctor.

Transported nuclear gauge to and from jobsite to lab.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY: 
Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

MAYES TESTING ENGINEERS, INC917 134th St. SW, Suite A-1
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Fax 253.584.3707Ph 503.281.7515
Fax 503.281.7579Page 1 of 2Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 9/26/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	levee fill, south of river at 4/5, G/H	7' up	136.0	5.0	136.7	130.8	4.4	96	coarse sand w/ gravel
2	levee fill, south of river at 4/5, H/I	7' up	136.0	5.0	136.6	130.0	5.1	96	coarse sand w/ gravel
3	levee fill, south of river at 4/5, I/J.5	7' up	136.0	5.0	136.7	131.3	4.1	97	coarse sand w/ gravel
4	levee fill, south of river at 3/4, G/H	7' up	136.0	5.0	137.9	132.9	3.8	98	coarse sand w/ gravel
5	levee fill, south of river at 4/5, F/H	8' up	136.0	5.0	138.4	131.3	5.4	97	coarse sand w/ gravel
6	levee fill, south of river at 3/4, F/G	8' up	136.0	5.0	135.8	128.7	5.5	95	coarse sand w/ gravel
7	levee fill, south of river at 4/5, G/H	8' up	136.0	5.0	137.3	130.9	4.8	96	coarse sand w/ gravel
8	levee fill, south of river at 3/4, I/J	8' up	136.0	5.0	135.2	129.5	4.3	95	coarse sand w/ gravel
9	levee fill, south of river at 3/4, G/H	8' up	136.0	5.0	139.1	132.1	5.2	97	coarse sand w/ gravel
10	levee fill, south of river at 3/4, G/H	2' up	136.0	5.0	136.3	129.7	5.1	95	coarse sand w/ gravel
11	levee fill, south of river at 3/4, G/H	2' up	136.0	5.0	135.8	130.5	4.1	96	coarse sand w/ gravel
12	fill south of river on levee at H/I, 5/6	2' up	136.0	5.0	134.8	129.2	4.2	95	coarse sand w/ gravel

Specification Compaction and Material : 95%

- ☐ ASTM D 1557 (Modified Proctor)
☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: dozer
 Type and Number of Compaction units: roller

Number of Passes: 4-Mar Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Page 2 of 2Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 9/26/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
13	fill south of river on levee at I/J, 5/6	2' up	136.5	5.0	134.2	128.6	4.3	95	coarse sand w/ gravel
14	fill south of river on levee at F/G, 5/6.5	3' up	136.5	5.0	137.3	131.0	4.8	96	coarse sand w/ gravel
15	fill south of river on levee at G/H, 5/6.3	3' up	136.5	5.0	136.1	130.6	4.1	96	coarse sand w/ gravel
16	fill south of river on levee at H/I, 5/6	3' up	136.5	5.0	135.3	130.2	3.9	96	coarse sand w/ gravel
17	fill south of river on levee at I/J, 5/6	3' up	136.5	5.0	135.7	130.6	3.8	96	coarse sand w/ gravel
18	fill south of river on levee at F/G, 5/6.1	4' up	136.5	5.0	134.4	128.7	4.3	95	coarse sand w/ gravel
19	fill south of river on levee at G/H, 5/6.3	4' up	136.5	5.0	136.1	130.0	4.7	96	coarse sand w/ gravel
20	fill south of river on levee at H/I, 5/6	4' up	136.5	5.0	134.6	128.7	4.8	95	coarse sand w/ gravel
21	fill south of river on levee at I/J, 5/6	4' up	136.5	5.0	133.9	128.7	4.0	95	coarse sand w/ gravel

Specification Compaction and Material: 95%

- ☐ ASTM D 1557 (Modified Proctor)
☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: dozer
Type and Number of Compaction units: roller

Number of Passes: 4-Mar Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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fax 253.584.3707

Portland Office
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Suite 190
Portland, OR 97211
ph 503.281.7515
fax 503.281.7579

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 15

Date: 9/26/06
Weather: Sun
Inspection: Soils
Sample(s): 1 sample bag rock, 1 bag structural fill

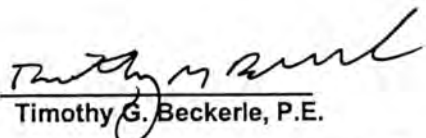
Observed Wilder Construction perform earthwork procedures at the fill area between 2/3-4/5 and F/G-I/J. 10" to 12" lifts of coarse sand with gravel were placed by dozer. Each lift was compacted by 3-4 passes from a smooth drum roller. Performed in-place density tests to verify 95% compaction per plans. Wilder also placed stabilization rock at area between F/G-I/J up to 1' above water line.

Obtained and delivered to Everett lab sample bags of stabilization rock and structural fill for sieve and analysis. Coarse sand with gravel structural fill material will also be tested for ASTM: D-1557 Proctor.

Transported nuclear gauge to and from jobsite to lab.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY: 
Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Page 1 of 2Project: Skykomish Levee RemediationMTE Project # : E6288 Date: 9/26/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	levee fill, south of river at 4/5, G/H	7' up	136.0	5.0	136.7	130.8	4.4	96	coarse sand w/ gravel
2	levee fill, south of river at 4/5, H/I	7' up	136.0	5.0	136.6	130.0	5.1	96	coarse sand w/ gravel
3	levee fill, south of river at 4/5, I/J.5	7' up	136.0	5.0	136.7	131.3	4.1	97	coarse sand w/ gravel
4	levee fill, south of river at 3/4, G/H	7' up	136.0	5.0	137.9	132.9	3.8	98	coarse sand w/ gravel
5	levee fill, south of river at 4/5, F/H	8' up	136.0	5.0	138.4	131.3	5.4	97	coarse sand w/ gravel
6	levee fill, south of river at 3/4, F/G	8' up	136.0	5.0	135.8	128.7	5.5	95	coarse sand w/ gravel
7	levee fill, south of river at 4/5, G/H	8' up	136.0	5.0	137.3	130.9	4.8	96	coarse sand w/ gravel
8	levee fill, south of river at 3/4, I/J	8' up	136.0	5.0	135.2	129.5	4.3	95	coarse sand w/ gravel
9	levee fill, south of river at 3/4, G/H	8' up	136.0	5.0	139.1	132.1	5.2	97	coarse sand w/ gravel
10	levee fill, south of river at 3/4, G/H	2' up	136.0	5.0	136.3	129.7	5.1	95	coarse sand w/ gravel
11	levee fill, south of river at 3/4, G/H	2' up	136.0	5.0	135.8	130.5	4.1	96	coarse sand w/ gravel
12	fill south of river on levee at H/I, 5/6	2' up	136.0	5.0	134.8	129.2	4.2	95	coarse sand w/ gravel

Specification Compaction and Material : 95%☐ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: dozerType and Number of Compaction units: rollerNumber of Passes: 4-Mar Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Page 2 of 2Project: Skykomish Levee RemediationMTE Project # : E6288 Date: 9/26/06

Permit # : _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
13	fill south of river on levee at I/J, 5/6	2' up	136.5	5.0	134.2	128.6	4.3	95	coarse sand w/ gravel
14	fill south of river on levee at F/G, 5/6.5	3' up	136.5	5.0	137.3	131.0	4.8	96	coarse sand w/ gravel
15	fill south of river on levee at G/H, 5/6.3	3' up	136.5	5.0	136.1	130.6	4.1	96	coarse sand w/ gravel
16	fill south of river on levee at H/I, 5/6	3' up	136.5	5.0	135.3	130.2	3.9	96	coarse sand w/ gravel
17	fill south of river on levee at I/J, 5/6	3' up	136.5	5.0	135.7	130.6	3.8	96	coarse sand w/ gravel
18	fill south of river on levee at F/G, 5/6.1	4' up	136.5	5.0	134.4	128.7	4.3	95	coarse sand w/ gravel
19	fill south of river on levee at G/H, 5/6.3	4' up	136.5	5.0	136.1	130.0	4.7	96	coarse sand w/ gravel
20	fill south of river on levee at H/I, 5/6	4' up	136.5	5.0	134.6	128.7	4.8	95	coarse sand w/ gravel
21	fill south of river on levee at I/J, 5/6	4' up	136.5	5.0	133.9	128.7	4.0	95	coarse sand w/ gravel

Specification Compaction and Material : 95%☐ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: dozerType and Number of Compaction units: rollerNumber of Passes: 4-Mar Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

MAYES TESTING ENGINEERS, INC.

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 16

Date: 9/27/06
Weather: Sun
Inspection: Soils
Sample(s): 1 bag of Structural fill, 1 bag of rock

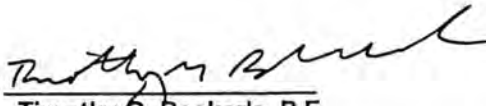
Observed Wilder Construction perform earthwork procedures at the fill area from F/G to I/J and ¾ to 6/7. 10" to 12" lifts of structural coarse sand with gravel were spread by dozer over stabilization rock. Each lift was compacted by 3-4 passes with the vibrating smooth drum roller. Performed in-place density tests to verify 95% compaction per plans. Stabilization rock was placed over are G/H to I/J, 6/7 to 9/10 above water level.

Obtained and delivered sample bags of stabilization rock and structural fill to Everett lab for sieve analysis.

Transported nuclear gauge to and from jobsite.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY: 
Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Fax 503.281.7579**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Page 1 of 3Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 9/27/06

Permit #: _____

Inspector: C. PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	Fill south of river in levee at F/G, 5/6	5'	136.0	5.0%	135.4	130.1	4.0%	96%	Coarse Sand w/Gravel
2	Fill south of river in levee at G/H, 5/6	5'	136.0	5.0%	134.8	129.0	4.4%	95%	Coarse Sand w/Gravel
3	Fill south of river in levee at H/I, 5/6	5'	136.0	5.0%	136.4	130.5	4.5%	96%	Coarse Sand w/Gravel
4	Fill south of river in levee at I/J, 5/6	5'	136.0	5.0%	137.3	132.0	3.9%	97%	Coarse Sand w/Gravel
5	Fill south of river in levee at F/G, 4/5	6'	136.0	5.0%	136.5	129.9	5.0%	96%	Coarse Sand w/Gravel
6	Fill south of river in levee at G/H, 4/5	6'	136.0	5.0%	137.0	130.8	4.7%	96%	Coarse Sand w/Gravel
7	Fill south of river in levee at H/I, 4/5	6'	136.0	5.0%	136.8	130.8	4.5%	96%	Coarse Sand w/Gravel
8	Fill south of river in levee at I/J, 4/5	6'	136.0	5.0%	139.8	133.1	4.9%	98%	Coarse Sand w/Gravel
9	Fill south of river in levee at I/J, 3/4	6'	136.0	5.0%	136.2	130.1	4.6%	96%	Coarse Sand w/Gravel
10	Fill south of river in levee at H/I, 3/4	6'	136.0	5.0%	137.2	131.2	4.5%	96%	Coarse Sand w/Gravel
11	Fill south of river in levee at G/H, 3/4	6'	136.0	5.0%	135.7	130.3	4.1%	96%	Coarse Sand w/Gravel

Specification Compaction and Material : 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10"-12"Method of Adding Moisture: None

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Fax 503.281.7579**FIELD DENSITY TEST REPORT**
ASTM D 2922 / D 3017Page 2 of 3Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 9/27/06

Permit #: _____

Inspector: C. PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
12	Fill south of river in levee at F/G, 3/4	6'	136.0	5.0%	136.7	130.6	4.6%	96%	Coarse Sand w/Gravel
13	Fill south of river in levee at G/H, 6/7	2'	136.0	5.0%	139.7	133.1	4.6%	98%	Coarse Sand w/Gravel
14	Fill south of river in levee at H/I, 6/7	2'	136.0	5.0%	135.5	128.7	5.3%	95%	Coarse Sand w/Gravel
15	Fill south of river in levee at G/H, 7/8	2'	136.0	5.0%	137.2	130.2	5.4%	96%	Coarse Sand w/Gravel
16	Fill south of river in levee at H/I, 7/8	2'	136.0	5.0%	134.2	129.0	3.9%	95%	Coarse Sand w/Gravel
17	Fill south of river in levee at G/H, 8/9	2'	136.0	5.0%	136.8	129.8	52.3%	95%	Coarse Sand w/Gravel
18	Fill south of river in levee at G/H, 9/10	2'	136.0	5.0%	141.4	134.2	5.4%	98%	Coarse Sand w/Gravel
19	Fill south of river in levee at H/I, 8/9	2'	136.0	5.0%	138.8	128.8	7.7%	95%	Coarse Sand w/Gravel
20	Fill south of river in levee at I/J, 7/8	2'	136.0	5.0%	138.2	129.8	6.1%	96%	Coarse Sand w/Gravel
21	Fill south of river in levee at H/I, 6/7	2'	136.0	5.0%	134.8	129.2	4.2%	95%	Coarse Sand w/Gravel
22	Fill south of river in levee at G/H, 9/10	3'	136.0	5.0%	136.8	128.5	4.9%	95%	Coarse Sand w/Gravel

Specification Compaction and Material : 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10"-12"Method of Adding Moisture: None

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Fax 503.281.7579Page 3 of 3Project: Skykomish Levee RemediationMTE Project # : E6288 Date: 9/27/06

Permit #: _____

Inspector: C. PrattMTE Nuclear Gauge #: 6**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
23	Fill south of river in levee at G/H, 8/9	3'	136.0	5.0%	137.1	131.2	4.5%	96%	Coarse Sand w/Gravel
24	Fill south of river in levee at G/H, 7/8	3'	136.0	5.0%	137.3	131.9	4.0%	97%	Coarse Sand w/Gravel
25	Fill south of river in levee at G/H, 6/7	3'	136.0	5.0%	138.6	133.2	4.0%	98%	Coarse Sand w/Gravel
26	Fill south of river in levee at H/I, 8/9	3'	136.0	5.0%	134.9	129.0	4.5%	95%	Coarse Sand w/Gravel
27	Fill south of river in levee at H/I, 7/8	3'	136.0	5.0%	134.0	128.9	3.9%	95%	Coarse Sand w/Gravel
28	Fill south of river in levee at H/I, 6/7	3'	136.0	5.0%	137.0	130.9	4.6%	96%	Coarse Sand w/Gravel
29	Fill south of river in levee at I/J, 8/9	3'	136.0	5.0%	134.7	129.3	4.2%	95%	Coarse Sand w/Gravel
30	Fill south of river in levee at I/J, 7/8	3'	136.0	5.0%	135.4	129.4	4.6%	95%	Coarse Sand w/Gravel
31	Fill south of river in levee at I/J, 6/7	3'	136.0	5.0%	136.8	130.9	4.4%	96%	Coarse Sand w/Gravel
32	Fill south of river in levee at G/H, 9/10	3'	136.0	5.0%	136.1	129.2	5.3%	95%	Coarse Sand w/Gravel
33	Fill south of river in levee at G/H, 8/9	3'	136.0	5.0%	137.3	131.7	4.2%	97%	Coarse Sand w/Gravel

Specification Compaction and Material : 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10"-12"Method of Adding Moisture: None

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

MAYES TESTING ENGINEERS, INC.

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 17

Date: 9/28/06
Weather: Sun
Inspection: Soils
Sample(s): N/A

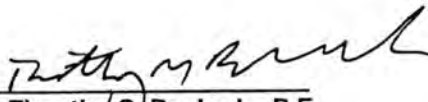
Observed Wilder Construction perform earthwork procedures at levee fill south of river at H/I to I/J, 6/7 to 8/9, and at G/H grid 20' wide from 16/17 to 26/27. No structural fill nor stabilization rock was delivered to jobsite. Fill for G/H line was excavated from bank along F/G line. Compaction was achieved by 3-4 passes by a smooth drum roller with vibration. Performed in-place density tests to verify 95% compaction. Test results can be found on the field density report sheets.

Transported nuclear gauge to and from jobsite.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Page 1 of 2Project: Skykomish Levee RemediationMTE Project # : E6288 Date: 9/28/06

Permit #: _____

Inspector: C. PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	Levee fill south of river at H/I, 6/7	4'	135.0	7.0%	134.9	129.7	4.9%	96%	Coarse Sand w/Gravel
2	Levee fill south of river at H/I, 7/8	4'	135.0	7.0%	135.5	130.8	3.6%	97%	Coarse Sand w/Gravel
3	Levee fill south of river at H/I, 8/9	4'	135.0	7.0%	136.0	130.3	4.3%	97%	Coarse Sand w/Gravel
4	Levee fill south of river at I/J, 6/7	4'	135.0	7.0%	133.4	129.5	3.0%	96%	Coarse Sand w/Gravel
5	Levee fill south of river at I/J, 7/8	4'	135.0	7.0%	133.0	128.8	3.2%	95%	Coarse Sand w/Gravel
6	Levee fill south of river at I/J, 8/9	4'	135.0	7.0%	138.2	132.7	4.1%	98%	Coarse Sand w/Gravel
7	Levee fill south of river at G/H, 16/17	at grade	135.0	7.0%	134.0	128.4	4.3%	95%	Coarse Sand w/Gravel
8	Levee fill south of river at G/H, 17/18	at grade	135.0	7.0%	136.4	131.8	3.2%	98%	Coarse Sand w/Gravel
9	Levee fill south of river at G/H, 18/19	at grade	135.0	7.0%	139.4	134.3	3.8%	99%	Coarse Sand w/Gravel
10	Levee fill south of river at G/H, 19/20	at grade	135.0	7.0%	134.4	128.9	4.3%	95%	Coarse Sand w/Gravel
11	Levee fill south of river at G/H, 20/21	at grade	135.0	7.0%	133.0	127.8	4.0%	95%	Coarse Sand w/Gravel

Specification Compaction and Material : 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10"-12"Method of Adding Moisture: None

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers: _____☐ In our opinion, fill does not meet specifications as indicated by test numbers: _____☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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FIELD DENSITY TEST REPORT
ASTM D 2922 / D 3017Page 2 of 2Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 9/28/06

Permit #: _____

Inspector: C. PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
12	Levee fill south of river at G/H, 7/8	4'	135.0	7.0%	135.6	130.5	3.9%	96%	Coarse Sand w/Gravel
13	Levee fill south of river at G/H, 6/7	4'	135.0	7.0%	139.0	133.8	3.9%	98%	Coarse Sand w/Gravel
14	Levee fill south of river at G/H, 21/22	at grade	135.0	7.0%	138.0	133.4	3.4%	98%	Coarse Sand w/Gravel
15	Levee fill south of river at G/H, 22/23	at grade	135.0	7.0%	138.5	134.0	3.3%	99%	Coarse Sand w/Gravel
16	Levee fill south of river at G/H, 23/24	at grade	135.0	7.0%	135.3	130.1	3.9%	96%	Coarse Sand w/Gravel
17	Levee fill south of river at G/H, 24/25	at grade	135.0	7.0%	135.3	130.1	3.8%	96%	Coarse Sand w/Gravel
18	Levee fill south of river at G/H, 25/26	at grade	135.0	7.0%	138.5	133.8	3.5%	99%	Coarse Sand w/Gravel
19	Levee fill south of river at G/H, 26/27	at grade	135.0	7.0%	138.6	133.3	4.0%	98%	Coarse Sand w/Gravel

Specification Compaction and Material : 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10"-12"Method of Adding Moisture: None

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

MAYES TESTING ENGINEERS, INC.

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 16

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fax 253.584.3707

Portland Office
7911 NE 33rd Drive
Suite 190
Portland, OR 97211
ph 503.281.7515
fax 503.281.7579

Date: 9/27/06
Weather: Sun
Inspection: Soils
Sample(s): 1 bag of Structural fill, 1 bag of rock

Observed Wilder Construction perform earthwork procedures at the fill area from F/G to I/J and ¾ to 6/7. 10" to 12" lifts of structural coarse sand with gravel were spread by dozer over stabilization rock. Each lift was compacted by 3-4 passes with the vibrating smooth drum roller. Performed in-place density tests to verify 95% compaction per plans. Stabilization rock was placed over are G/H to I/J, 6/7 to 9/10 above water level.

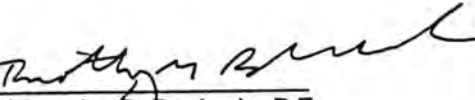
Obtained and delivered sample bags of stabilization rock and structural fill to Everett lab for sieve analysis.

Transported nuclear gauge to and from jobsite.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579Page 1 of 3Project: Skykomish Levee RemediationMTE Project # : E6288 Date: 9/27/06

Permit #: _____

Inspector: C. PrattMTE Nuclear Gauge #: 6**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	Fill south of river in levee at F/G, 5/6	5'	136.0	5.0%	135.4	130.1	4.0%	96%	Coarse Sand w/Gravel
2	Fill south of river in levee at G/H, 5/6	5'	136.0	5.0%	134.8	129.0	4.4%	95%	Coarse Sand w/Gravel
3	Fill south of river in levee at H/I, 5/6	5'	136.0	5.0%	136.4	130.5	4.5%	96%	Coarse Sand w/Gravel
4	Fill south of river in levee at I/J, 5/6	5'	136.0	5.0%	137.3	132.0	3.9%	97%	Coarse Sand w/Gravel
5	Fill south of river in levee at F/G, 4/5	6'	136.0	5.0%	136.5	129.9	5.0%	96%	Coarse Sand w/Gravel
6	Fill south of river in levee at G/H, 4/5	6'	136.0	5.0%	137.0	130.8	4.7%	96%	Coarse Sand w/Gravel
7	Fill south of river in levee at H/I, 4/5	6'	136.0	5.0%	136.8	130.8	4.5%	96%	Coarse Sand w/Gravel
8	Fill south of river in levee at I/J, 4/5	6'	136.0	5.0%	139.8	133.1	4.9%	98%	Coarse Sand w/Gravel
9	Fill south of river in levee at I/J, 3/4	6'	136.0	5.0%	136.2	130.1	4.6%	96%	Coarse Sand w/Gravel
10	Fill south of river in levee at H/I, 3/4	6'	136.0	5.0%	137.2	131.2	4.5%	96%	Coarse Sand w/Gravel
11	Fill south of river in levee at G/H, 3/4	6'	136.0	5.0%	135.7	130.3	4.1%	96%	Coarse Sand w/Gravel

Specification Compaction and Material : 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10"-12"Method of Adding Moisture: None

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Fax 503.281.7579**FIELD DENSITY TEST REPORT**
ASTM D 2922 / D 3017Page 2 of 3

Project: Skykomish Levee Remediation

MTE Project #: E6288 Date: 9/27/06

Permit #: _____

Inspector: C. PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
12	Fill south of river in levee at F/G, 3/4	6'	136.0	5.0%	136.7	130.6	4.6%	96%	Coarse Sand w/Gravel
13	Fill south of river in levee at G/H, 6/7	2'	136.0	5.0%	139.7	133.1	4.6%	98%	Coarse Sand w/Gravel
14	Fill south of river in levee at H/I, 6/7	2'	136.0	5.0%	135.5	128.7	5.3%	95%	Coarse Sand w/Gravel
15	Fill south of river in levee at G/H, 7/8	2'	136.0	5.0%	137.2	130.2	5.4%	96%	Coarse Sand w/Gravel
16	Fill south of river in levee at H/I, 7/8	2'	136.0	5.0%	134.2	129.0	3.9%	95%	Coarse Sand w/Gravel
17	Fill south of river in levee at G/H, 8/9	2'	136.0	5.0%	136.8	129.8	52.3%	95%	Coarse Sand w/Gravel
18	Fill south of river in levee at G/H, 9/10	2'	136.0	5.0%	141.4	134.2	5.4%	98%	Coarse Sand w/Gravel
19	Fill south of river in levee at H/I, 8/9	2'	136.0	5.0%	138.8	128.8	7.7%	95%	Coarse Sand w/Gravel
20	Fill south of river in levee at I/J, 7/8	2'	136.0	5.0%	138.2	129.8	6.1%	96%	Coarse Sand w/Gravel
21	Fill south of river in levee at H/I, 6/7	2'	136.0	5.0%	134.8	129.2	4.2%	95%	Coarse Sand w/Gravel
22	Fill south of river in levee at G/H, 9/10	3'	136.0	5.0%	136.8	128.5	4.9%	95%	Coarse Sand w/Gravel

Specification Compaction and Material : 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10"-12"Method of Adding Moisture: None

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579Page 3 of 3Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 9/27/06

Permit #: _____

Inspector: C. PrattMTE Nuclear Gauge #: 6**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
23	Fill south of river in levee at G/H, 8/9	3'	136.0	5.0%	137.1	131.2	4.5%	96%	Coarse Sand w/Gravel
24	Fill south of river in levee at G/H, 7/8	3'	136.0	5.0%	137.3	131.9	4.0%	97%	Coarse Sand w/Gravel
25	Fill south of river in levee at G/H, 6/7	3'	136.0	5.0%	138.6	133.2	4.0%	98%	Coarse Sand w/Gravel
26	Fill south of river in levee at H/I, 8/9	3'	136.0	5.0%	134.9	129.0	4.5%	95%	Coarse Sand w/Gravel
27	Fill south of river in levee at H/I, 7/8	3'	136.0	5.0%	134.0	128.9	3.9%	95%	Coarse Sand w/Gravel
28	Fill south of river in levee at H/I, 6/7	3'	136.0	5.0%	137.0	130.9	4.6%	96%	Coarse Sand w/Gravel
29	Fill south of river in levee at I/J, 8/9	3'	136.0	5.0%	134.7	129.3	4.2%	95%	Coarse Sand w/Gravel
30	Fill south of river in levee at I/J, 7/8	3'	136.0	5.0%	135.4	129.4	4.6%	95%	Coarse Sand w/Gravel
31	Fill south of river in levee at I/J, 6/7	3'	136.0	5.0%	136.8	130.9	4.4%	96%	Coarse Sand w/Gravel
32	Fill south of river in levee at G/H, 9/10	3'	136.0	5.0%	136.1	129.2	5.3%	95%	Coarse Sand w/Gravel
33	Fill south of river in levee at G/H, 8/9	3'	136.0	5.0%	137.3	131.7	4.2%	97%	Coarse Sand w/Gravel

Specification Compaction and Material : 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10"-12"Method of Adding Moisture: None

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

MAYES TESTING ENGINEERS, INC.

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 17

Date: 9/28/06
Weather: Sun
Inspection: Soils
Sample(s): N/A

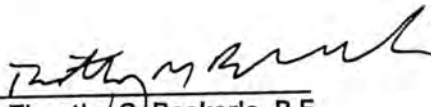
Observed Wilder Construction perform earthwork procedures at levee fill south of river at H/I to I/J, 6/7 to 8/9, and at G/H grid 20' wide from 16/17 to 26/27. No structural fill nor stabilization rock was delivered to jobsite. Fill for G/H line was excavated from bank along F/G line. Compaction was achieved by 3-4 passes by a smooth drum roller with vibration. Performed in-place density tests to verify 95% compaction. Test results can be found on the field density report sheets.

Transported nuclear gauge to and from jobsite.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Fax 503.281.7579Page 1 of 2Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 9/28/06

Permit #: _____

Inspector: C. PrattMTE Nuclear Gauge #: 6**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	Levee fill south of river at H/I, 6/7	4'	135.0	7.0%	134.9	129.7	4.9%	96%	Coarse Sand w/Gravel
2	Levee fill south of river at H/I, 7/8	4'	135.0	7.0%	135.5	130.8	3.6%	97%	Coarse Sand w/Gravel
3	Levee fill south of river at H/I, 8/9	4'	135.0	7.0%	136.0	130.3	4.3%	97%	Coarse Sand w/Gravel
4	Levee fill south of river at I/J, 6/7	4'	135.0	7.0%	133.4	129.5	3.0%	96%	Coarse Sand w/Gravel
5	Levee fill south of river at I/J, 7/8	4'	135.0	7.0%	133.0	128.8	3.2%	95%	Coarse Sand w/Gravel
6	Levee fill south of river at I/J, 8/9	4'	135.0	7.0%	138.2	132.7	4.1%	98%	Coarse Sand w/Gravel
7	Levee fill south of river at G/H, 16/17	at grade	135.0	7.0%	134.0	128.4	4.3%	95%	Coarse Sand w/Gravel
8	Levee fill south of river at G/H, 17/18	at grade	135.0	7.0%	136.4	131.8	3.2%	98%	Coarse Sand w/Gravel
9	Levee fill south of river at G/H, 18/19	at grade	135.0	7.0%	139.4	134.3	3.8%	99%	Coarse Sand w/Gravel
10	Levee fill south of river at G/H, 19/20	at grade	135.0	7.0%	134.4	128.9	4.3%	95%	Coarse Sand w/Gravel
11	Levee fill south of river at G/H, 20/21	at grade	135.0	7.0%	133.0	127.8	4.0%	95%	Coarse Sand w/Gravel

Specification Compaction and Material : 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10"-12"Method of Adding Moisture: None

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Page 2 of 2Project: Skykomish Levee RemediationMTE Project # : E6288 Date: 9/28/06

Permit #: _____

Inspector: C. PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
12	Levee fill south of river at G/H, 7/8	4'	135.0	7.0%	135.6	130.5	3.9%	96%	Coarse Sand w/Gravel
13	Levee fill south of river at G/H, 6/7	4'	135.0	7.0%	139.0	133.8	3.9%	98%	Coarse Sand w/Gravel
14	Levee fill south of river at G/H, 21/22	at grade	135.0	7.0%	138.0	133.4	3.4%	98%	Coarse Sand w/Gravel
15	Levee fill south of river at G/H, 22/23	at grade	135.0	7.0%	138.5	134.0	3.3%	99%	Coarse Sand w/Gravel
16	Levee fill south of river at G/H, 23/24	at grade	135.0	7.0%	135.3	130.1	3.9%	96%	Coarse Sand w/Gravel
17	Levee fill south of river at G/H, 24/25	at grade	135.0	7.0%	135.3	130.1	3.8%	96%	Coarse Sand w/Gravel
18	Levee fill south of river at G/H, 25/26	at grade	135.0	7.0%	138.5	133.8	3.5%	99%	Coarse Sand w/Gravel
19	Levee fill south of river at G/H, 26/27	at grade	135.0	7.0%	138.6	133.3	4.0%	98%	Coarse Sand w/Gravel

Specification Compaction and Material : 95%

- ☒ ASTM D 1557 (Modified Proctor)
☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10"-12"Method of Adding Moisture: None

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

MAYES TESTING ENGINEERS, INC.

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 19

Date: 09/29/06
Weather: Sun
Inspection: Soils
Sample(s): 1 bag rock, 1 bag sand with gravel

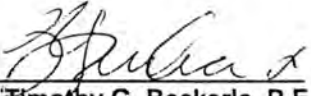
Observed Wilder Construction Co. perform earthwork procedures at south side of levee at fill zone G/H to K/L, 9/10 to 10/11. Ten-inch to twelve-inch lifts of coarse sand with gravel were spread over stabilization rock per plans. Stabilization rock was placed above water line. Performed in-place density tests to verify 95% compaction. For further information, please see the attached Field Density Test Report.

Obtained 1 bag of stabilization rock and 1 bag of coarse sand with gravel and delivered to the Everett lab for sieve analysis.

Transported nuclear gauge to and from jobsite.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY: 
Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Page 1 of 2

Project: Skykomish Levee Remediation
MTE Project #: E6288 Date: 9/29/06
Permit #: _____
Inspector: C. Pratt
MTE Nuclear Gauge #: 6

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	Levee fill south at J/K, 9/10	2'	134.0	4.5%	138.2	132.4	4.3%	98%	Coarse Sand w/Gravel
2	Levee fill south at I/J, 10/11	2'	134.0	4.5%	133.3	128.6	3.6%	96%	Coarse Sand w/Gravel
3	Levee fill south at G/H, 10/11	2'	134.0	4.5%	135.8	130.9	3.7%	98%	Coarse Sand w/Gravel
4	Levee fill south at G/H, 9/10	2'	134.0	4.5%	132.1	127.7	3.4%	95%	Coarse Sand w/Gravel
5	Levee fill south at I/J, 9/10	2'	134.0	4.5%	134.7	130.0	3.5%	97%	Coarse Sand w/Gravel
6	Levee fill south at J/K, 9/10	2'	134.0	4.5%	136.4	129.9	5.0%	97%	Coarse Sand w/Gravel
7	Levee fill south at J/K, 10/11	2'	134.0	4.5%	136.2	130.8	4.4%	98%	Coarse Sand w/Gravel
8	Levee fill south at K/L, 10/11	2'	134.0	4.5%	137.1	131.1	4.5%	97%	Coarse Sand w/Gravel
9	Levee fill south at K/L, 9/10	2'	134.0	4.5%	133.7	127.4	4.9%	95%	Coarse Sand w/Gravel
10	Levee fill south at G/H, 10/11	3'	134.0	4.5%	133.3	129.0	3.2%	96%	Coarse Sand w/Gravel
11	Levee fill south at H/I, 10/11	3'	134.0	4.5%	136.6	133.0	2.7%	99%	Coarse Sand w/Gravel
12	Levee fill south at I/J, 10/11	3'	134.0	4.5%	133.8	129.0	3.6%	96%	Coarse Sand w/Gravel

Specification Compaction and Material : 95%

- ☒ ASTM D 1557 (Modified Proctor)
☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10"-12"Method of Adding Moisture: None

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Fax 503.281.7579**FIELD DENSITY TEST REPORT**
ASTM D 2922 / D 3017Page 2 of 2Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 9/29/06

Permit #: _____

Inspector: C. PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
13	Levee fill south at J/K, 10/11	3'	134.0	4.5%	136.3	131.4	3.7%	98%	Coarse Sand w/Gravel
14	Levee fill south at H/I, 9/10	3'	134.0	4.5%	132.8	128.1	3.6%	96%	Coarse Sand w/Gravel
15	Levee fill south at I/J, 9/10	3'	134.0	4.5%	135.8	130.0	4.4%	97%	Coarse Sand w/Gravel
16	Levee fill south at J/K, 9/10	3'	134.0	4.5%	133.3	128.5	3.6%	96%	Coarse Sand w/Gravel

Specification Compaction and Material : 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10"-12"Method of Adding Moisture: None

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 19

Date: 09/29/06
Weather: Sun
Inspection: Soils
Sample(s): 1 bag rock, 1 bag sand with gravel

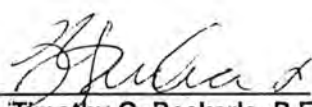
Observed Wilder Construction Co. perform earthwork procedures at south side of levee at fill zone G/H to K/L, 9/10 to 10/11. Ten-inch to twelve-inch lifts of coarse sand with gravel were spread over stabilization rock per plans. Stabilization rock was placed above water line. Performed in-place density tests to verify 95% compaction. For further information, please see the attached Field Density Test Report.

Obtained 1 bag of stabilization rock and 1 bag of coarse sand with gravel and delivered to the Everett lab for sieve analysis.

Transported nuclear gauge to and from jobsite.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY: 
Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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ASTM D 2922 / D 3017

Page 1 of 2Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 9/29/06

Permit #: _____

Inspector: C. PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	Levee fill south at J/K, 9/10	2'	134.0	4.5%	138.2	132.4	4.3%	98%	Coarse Sand w/Gravel
2	Levee fill south at I/J, 10/11	2'	134.0	4.5%	133.3	128.6	3.6%	96%	Coarse Sand w/Gravel
3	Levee fill south at G/H, 10/11	2'	134.0	4.5%	135.8	130.9	3.7%	98%	Coarse Sand w/Gravel
4	Levee fill south at G/H, 9/10	2'	134.0	4.5%	132.1	127.7	3.4%	95%	Coarse Sand w/Gravel
5	Levee fill south at I/J, 9/10	2'	134.0	4.5%	134.7	130.0	3.5%	97%	Coarse Sand w/Gravel
6	Levee fill south at J/K, 9/10	2'	134.0	4.5%	136.4	129.9	5.0%	97%	Coarse Sand w/Gravel
7	Levee fill south at J/K, 10/11	2'	134.0	4.5%	136.2	130.8	4.4%	98%	Coarse Sand w/Gravel
8	Levee fill south at K/L, 10/11	2'	134.0	4.5%	137.1	131.1	4.5%	97%	Coarse Sand w/Gravel
9	Levee fill south at K/L, 9/10	2'	134.0	4.5%	133.7	127.4	4.9%	95%	Coarse Sand w/Gravel
10	Levee fill south at G/H, 10/11	3'	134.0	4.5%	133.3	129.0	3.2%	96%	Coarse Sand w/Gravel
11	Levee fill south at H/I, 10/11	3'	134.0	4.5%	136.6	133.0	2.7%	99%	Coarse Sand w/Gravel
12	Levee fill south at I/J, 10/11	3'	134.0	4.5%	133.8	129.0	3.6%	96%	Coarse Sand w/Gravel

Specification Compaction and Material : 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10"-12"Method of Adding Moisture: None

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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FIELD DENSITY TEST REPORT
ASTM D 2922 / D 3017Page 2 of 2

Project: Skykomish Levee Remediation
MTE Project #: E6288 Date: 9/29/06
Permit #: _____
Inspector: C. Pratt
MTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
13	Levee fill south at J/K, 10/11	3'	134.0	4.5%	136.3	131.4	3.7%	98%	Coarse Sand w/Gravel
14	Levee fill south at H/I, 9/10	3'	134.0	4.5%	132.8	128.1	3.6%	96%	Coarse Sand w/Gravel
15	Levee fill south at I/J, 9/10	3'	134.0	4.5%	135.8	130.0	4.4%	97%	Coarse Sand w/Gravel
16	Levee fill south at J/K, 9/10	3'	134.0	4.5%	133.3	128.5	3.6%	96%	Coarse Sand w/Gravel

Specification Compaction and Material : 95%
☒ ASTM D 1557 (Modified Proctor)
☐ ASTM D 698 (Standard Proctor)
Type and Number of earth moving units: Dozer
Type and Number of Compaction units: Roller
Number of Passes: 3-4 Thickness of lift: 10"-12"
Method of Adding Moisture: None
Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers: _____
☐ In our opinion, fill does not meet specifications as indicated by test numbers: _____
☒ Fill test meets specifications
☒ Contractor Advised
☒ Full-time observation
☐ Part-time observation
Quality Control Sample:
Test No. : _____ Dry Density: _____ Moisture%: _____

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MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 18

Date: 10/2/06
Weather: Sun
Inspection: Soils
Sample(s): N/A

Arrived onsite and met with Quinn (Wilder), who notified me that no structural fill will be placed today.

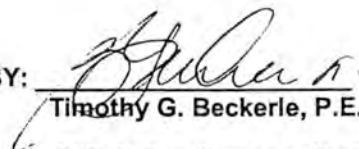
Performed a site walk and observed continuation of ecology block wall installation along 3/4 line. No backfill was placed along west of wall over stabilization rock as of yet.

Transported nuclear gauge to and from jobsite.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 18

Date: 10/2/06
Weather: Sun
Inspection: Soils
Sample(s): N/A

Arrived onsite and met with Quinn (Wilder), who notified me that no structural fill will be placed today.

Performed a site walk and observed continuation of ecology block wall installation along 3/4 line. No backfill was placed along west of wall over stabilization rock as of yet.

Transported nuclear gauge to and from jobsite.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

MAYES TESTING ENGINEERS, INC.

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 20

Date: 10/03/06
Weather: Mostly Cloudy
Inspection: Soils
Sample(s): 1 bag stabilization rock, 1 bag structural fill

Arrived at Everett lab and contacted Quinn (Wilder) regarding need for testing at jobsite. Remained on standby for 1 hour; was notified that testing will not be needed until around noon. Obtained lab reports for sieve tests and delivered them to Quinn.

Observed Wilder Construction Co. perform earthwork procedures at levee fill between G/H to J/K, 9/10 to 11/12, continuing to roadway by school building corner. Stabilization rock and riverbed rock were placed in water for the structural fill base. No structural fill placed in area.

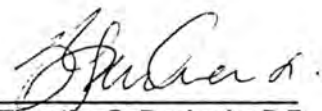
A lift of coarse sand with gravel was spread and compacted over filter fabric along 2/3 line from F/G to I/J on top of stabilization rock and ecology blocks. Performed in-place density tests to verify 95% compaction of the 12" lift. For further information, please see the attached Field Density Test Report. Delivered a bag of rock and a bag of fill to the Everett lab for sieve testing.

Transported nuclear gauge to and from jobsite.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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ASTM D 2922 / D 3017

Page 1 of 1Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 10/3/06

Permit #: _____

Inspector: C. PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	Pillow wall along 2/3 line at F/G	1st lift	134.0	4.5%	135.0	130.9	3.1%	98%	Coarse Sand w/Gravel
2	Pillow wall along 2/3 line at G/H	1st lift	134.0	4.5%	132.8	128.9	2.7%	96%	Coarse Sand w/Gravel
3	Pillow wall along 2/3 line at H/I	1st lift	134.0	4.5%	131.1	127.8	2.5%	95%	Coarse Sand w/Gravel
4	Pillow wall along 2/3 line at I/J	1st lift	134.0	4.5%	134.7	130.9	2.8%	98%	Coarse Sand w/Gravel

Specification Compaction and Material : 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: front-end loaderType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10"-12"Method of Adding Moisture: None

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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7911 NE 33rd Drive
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ph 503.281.7515
fax 503.281.7579

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 20

Date: 10/03/06
Weather: Mostly Cloudy
Inspection: Soils
Sample(s): 1 bag stabilization rock, 1 bag structural fill

Arrived at Everett lab and contacted Quinn (Wilder) regarding need for testing at jobsite. Remained on standby for 1 hour; was notified that testing will not be needed until around noon. Obtained lab reports for sieve tests and delivered them to Quinn.

Observed Wilder Construction Co. perform earthwork procedures at levee fill between G/H to J/K, 9/10 to 11/12, continuing to roadway by school building corner. Stabilization rock and riverbed rock were placed in water for the structural fill base. No structural fill placed in area.

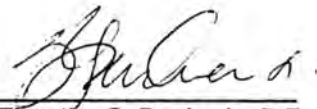
A lift of coarse sand with gravel was spread and compacted over filter fabric along 2/3 line from F/G to I/J on top of stabilization rock and ecology blocks. Performed in-place density tests to verify 95% compaction of the 12" lift. For further information, please see the attached Field Density Test Report. Delivered a bag of rock and a bag of fill to the Everett lab for sieve testing.

Transported nuclear gauge to and from jobsite.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

MAYES TESTING ENGINEERS, INC917 134th St. SW, Suite A-1
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Tacoma, WA 98499Ph 253.584.3720
Fax 253.584.37077911 NE 33rd Drive, Suite 190
Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Page 1 of 1Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 10/3/06

Permit #: _____

Inspector: C. PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	Pillow wall along 2/3 line at F/G	1st lift	134.0	4.5%	135.0	130.9	3.1%	98%	Coarse Sand w/Gravel
2	Pillow wall along 2/3 line at G/H	1st lift	134.0	4.5%	132.8	128.9	2.7%	96%	Coarse Sand w/Gravel
3	Pillow wall along 2/3 line at H/I	1st lift	134.0	4.5%	131.1	127.8	2.5%	95%	Coarse Sand w/Gravel
4	Pillow wall along 2/3 line at I/J	1st lift	134.0	4.5%	134.7	130.9	2.8%	98%	Coarse Sand w/Gravel

Specification Compaction and Material : 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: front-end loaderType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10"-12"Method of Adding Moisture: None

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 21

Date: 10/04/06
Weather: Sunny
Inspection: Soils
Sample(s): 1 bag rock

Observed Wilder Construction Co. perform earthwork procedures at pillow retaining wall along 2/3 line and fill above water level in area G/H to J/K, 9/10 to 12/13, also to roadway at 14/15.

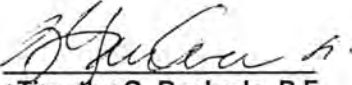
Stabilization rock was placed in water at locations mentioned above. Rock was above water level in this entire area. Obtained a bag of rock and delivered it the Everett lab for sieve analysis tests.

Pillow retaining wall continued along 2/3 line and along J/K line from 2/3 to 7/8 and along 8/9 line. Ecology blocks were placed on designated grade in water then filled around with mixtures of riverbed rock and structural fill material. Lifts of structural fill wrapped in filter fabric were placed and compacted in 10"-12" lifts. Performed in-place density tests to verify 95% compaction for each lift. For further information, please see the attached Field Density Test Report.

Transported nuclear gauge to and from jobsite.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY: 
Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Fax 253.584.37077911 NE 33rd Drive, Suite 190
Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579Page 1 of 2Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 10/4/06

Permit #:

Inspector: C. PrattMTE Nuclear Gauge #: 6**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	Pillow wall along 2/3 line at F/G	2'	134.0	4.5%	134.4	129.5	3.7%	97%	Coarse Sand w/Gravel
2	Pillow wall along 2/3 line at G/H	2'	134.0	4.5%	136.3	131.2	3.9%	98%	Coarse Sand w/Gravel
3	Pillow wall along 2/3 line at H/I	2'	134.0	4.5%	136.2	132.0	3.1%	98%	Coarse Sand w/Gravel
4	Pillow wall along 2/3 line at I/J	2'	134.0	4.5%	134.2	130.0	3.2%	97%	Coarse Sand w/Gravel
5	Pillow wall along 2/3 line at F/G	3'	134.0	4.5%	133.0	129.2	2.9%	96%	Coarse Sand w/Gravel
6	Pillow wall along 2/3 line at G/H	3'	134.0	4.5%	133.0	128.6	3.3%	96%	Coarse Sand w/Gravel
7	Pillow wall along 2/3 line at H/I	3'	134.0	4.5%	135.6	130.5	3.8%	97%	Coarse Sand w/Gravel
8	Pillow wall along 2/3 line at I/J	3'	134.0	4.5%	137.5	132.6	3.7%	98%	Coarse Sand w/Gravel
9	Pillow wall along 2/3 line at F/G	4'	134.0	4.5%	132.9	129.0	3.0%	96%	Coarse Sand w/Gravel
10	Pillow wall along 2/3 line at G/H	4'	134.0	4.5%	133.0	128.4	3.5%	96%	Coarse Sand w/Gravel
11	Pillow wall along 2/3 line at H/I	4'	134.0	4.5%	136.9	132.8	3.0%	99%	Coarse Sand w/Gravel

Specification Compaction and Material : 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: dozer, front-end loaderType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10"-12"Method of Adding Moisture: None

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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FIELD DENSITY TEST REPORT
ASTM D 2922 / D 3017Page 2 of 2

Project: Skykomish Levee Remediation
MTE Project # : E6288 Date: 10/4/06
Permit #: _____
Inspector: C. Pratt
MTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
12	Pillow wall along 2/3 line at I/J	4'	134.0	4.5%	135.0	130.9	3.1%	97%	Coarse Sand w/Gravel
13	Pillow wall along 2/3 line at F/G	5'	134.0	4.5%	135.5	132.1	2.5%	98%	Coarse Sand w/Gravel
14	Pillow wall along 2/3 line at G/H	5'	134.0	4.5%	135.0	130.8	3.1%	98%	Coarse Sand w/Gravel
15	Pillow wall along 2/3 line at H/I	5'	134.0	4.5%	137.9	134.2	2.8%	99%	Coarse Sand w/Gravel
16	Pillow wall along 2/3 line at F/G	6'	134.0	4.5%	133.4	129.0	3.3%	96%	Coarse Sand w/Gravel
17	Pillow wall along 2/3 line at G/H	6'	134.0	4.5%	135.6	131.6	3.0%	98%	Coarse Sand w/Gravel
18	Pillow wall along 2/3 line at H/I	6'	134.0	4.5%	133.0	127.8	4.0%	95%	Coarse Sand w/Gravel

Specification Compaction and Material : 95%
☒ ASTM D 1557 (Modified Proctor)
☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: dozer, front-end loader
Type and Number of Compaction units: Roller

Number of Passes: 3-4 Thickness of lift: 10"-12"
Method of Adding Moisture: None
Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:

☐ In our opinion, fill does not meet specifications as indicated by test numbers:

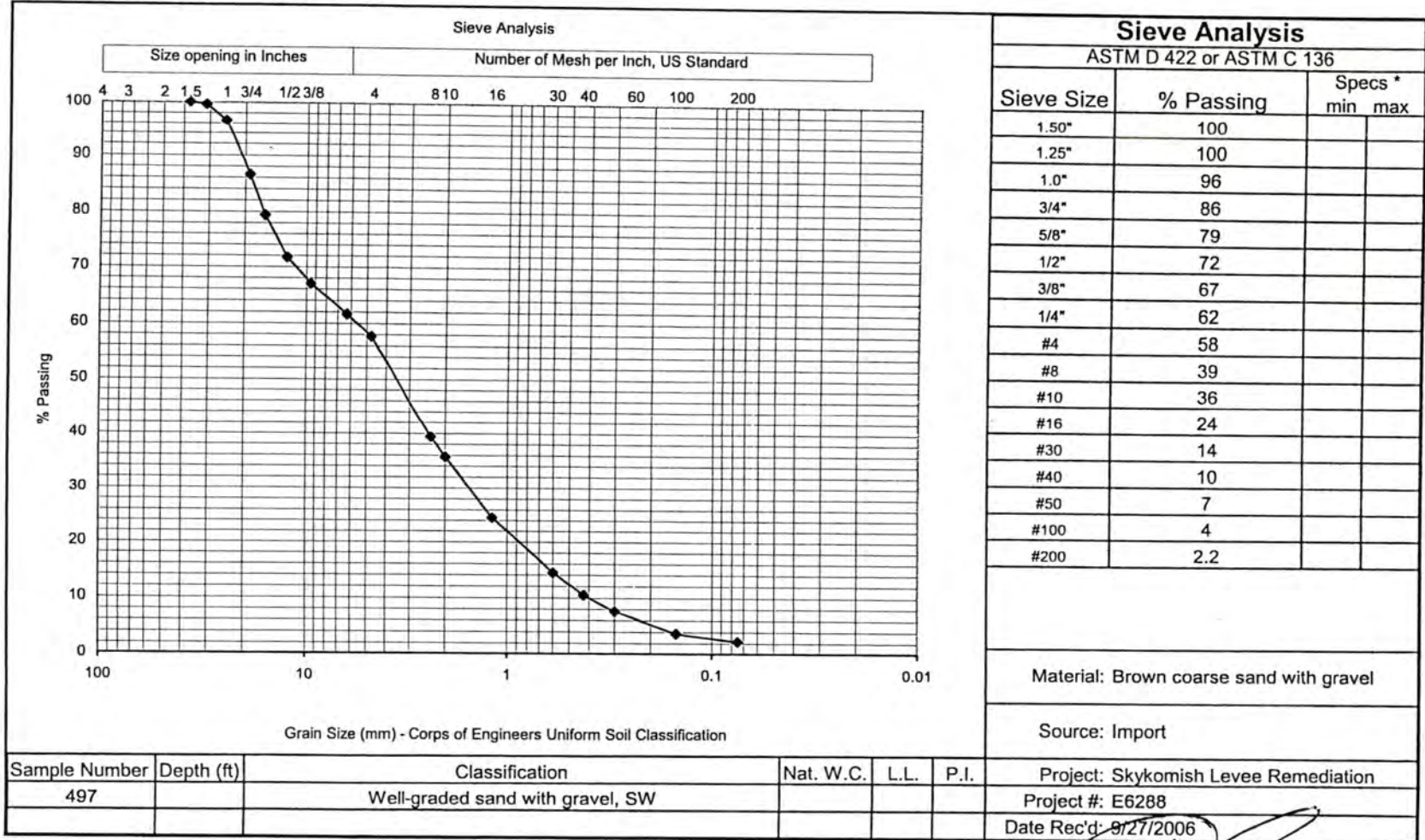
- ☒ Fill test meets specifications
☒ Contractor Advised
☒ Full-time observation
☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

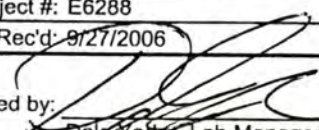
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917-134th St. SW, Suite A1 Ph 425-742-9360
Everett, WA 98204 Fax 425-745-1737



Tested By: Z. Revilla

Date Tested: 10/3/2006

Reviewed by: 
Dale Yoder, Lab Manager

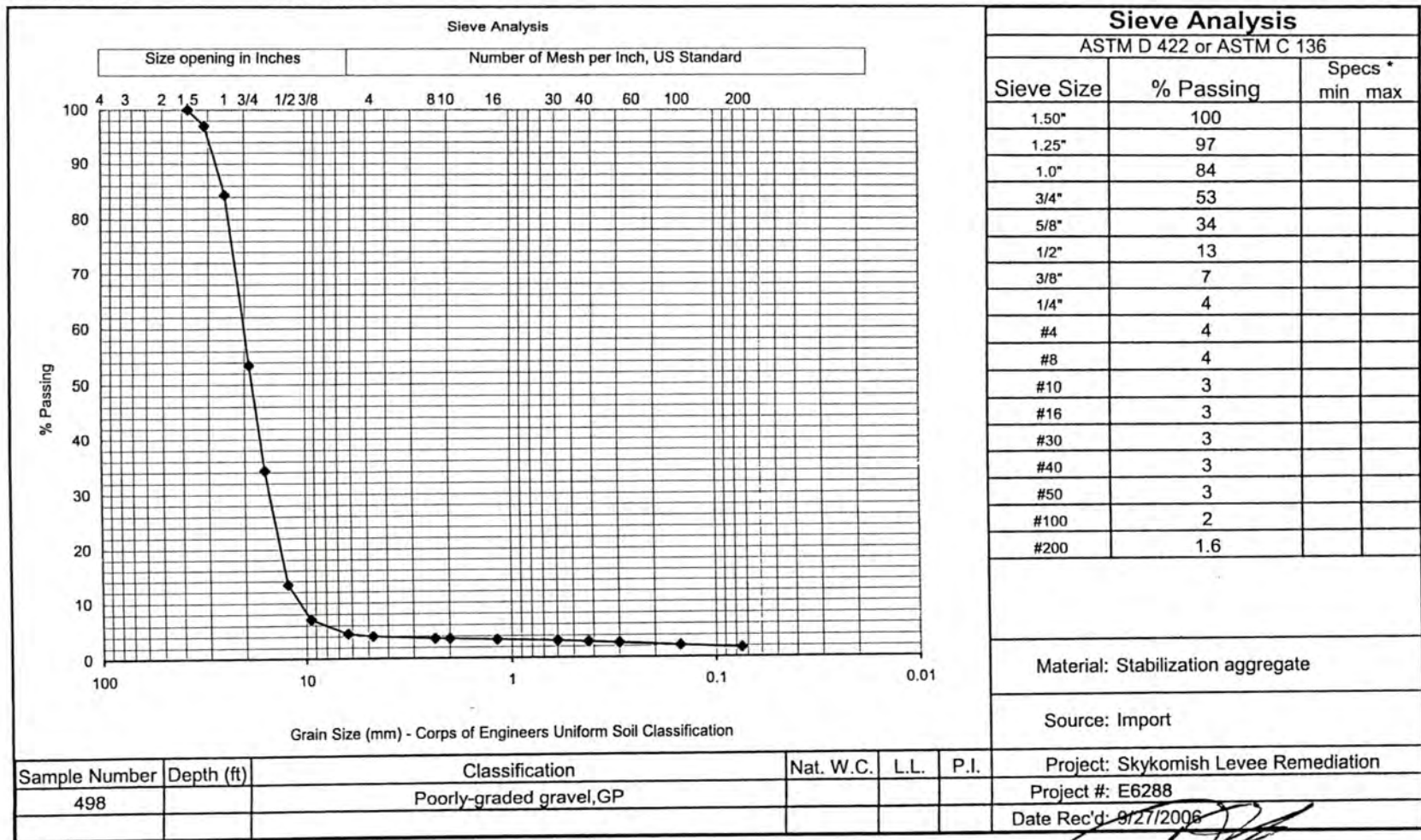
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New proctor and sieve 497 10/5/2006

MTE Form #143, Rev 2, 6-02

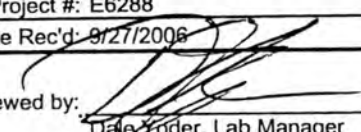
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Everett, WA 98204 Fax 425-745-1737



Tested By: G. Booker/Z. Revilla

Date Tested: 10/5/2006

Reviewed by: 
Date Yoder, Lab Manager

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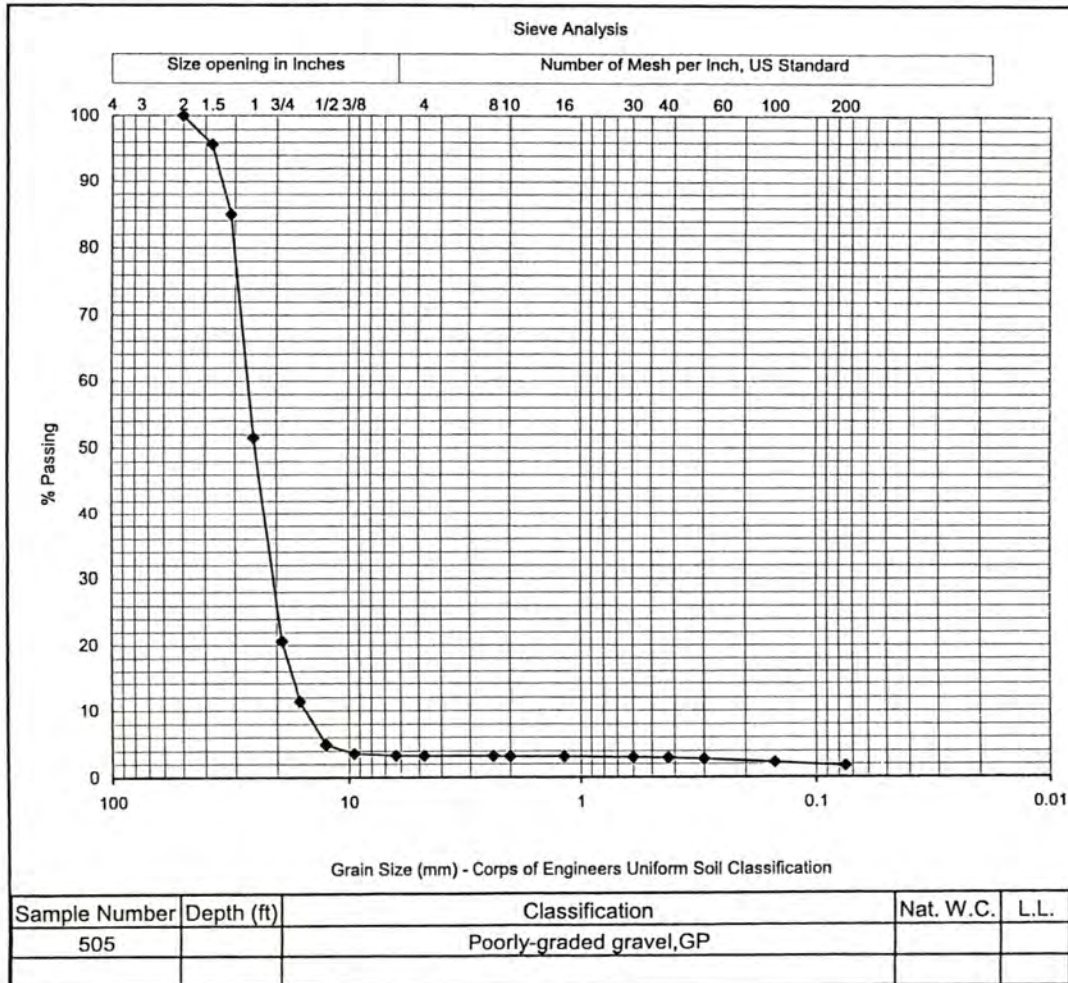
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Sieve Analysis			
ASTM D 422 or ASTM C 136			
Sieve Size	% Passing	Specs *	
		min	max
2.00"	100		
1.50"	96		
1.25"	85		
1.0"	51		
3/4"	21		
5/8"	11		
1/2"	5		
3/8"	4		
1/4"	3		
#4	3		
#8	3		
#10	3		
#16	3		
#30	3		
#40	3		
#50	3		
#100	2		
#200	1.6		
Material: Stabilization aggregate			
Source: Import			
Project: Skykomish Levee Remediation			
Project #: E6288			
Date Rec'd: 9/29/2006			

Tested By: G. Booker and Z. Revilla

Date Tested: 10/5/2006

Reviewed by:

Dale Yoder, Lab Manager

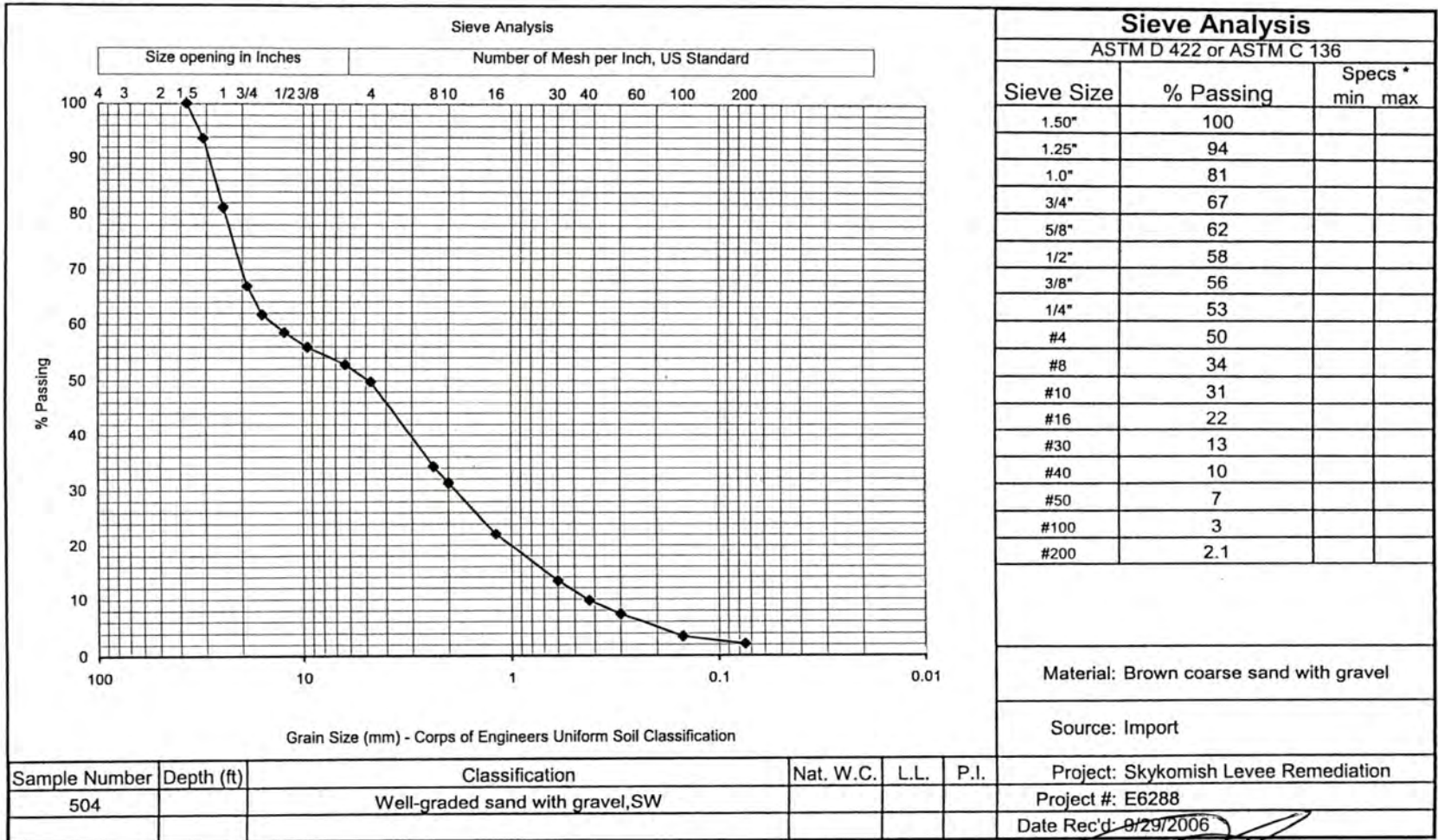
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Sieve50510/5/2006

MTE Form #143, Rev 2, 6-02

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Everett, WA 98204 Fax 425-745-1737



Tested By: G. Booker

Date Tested: 10/4/2006

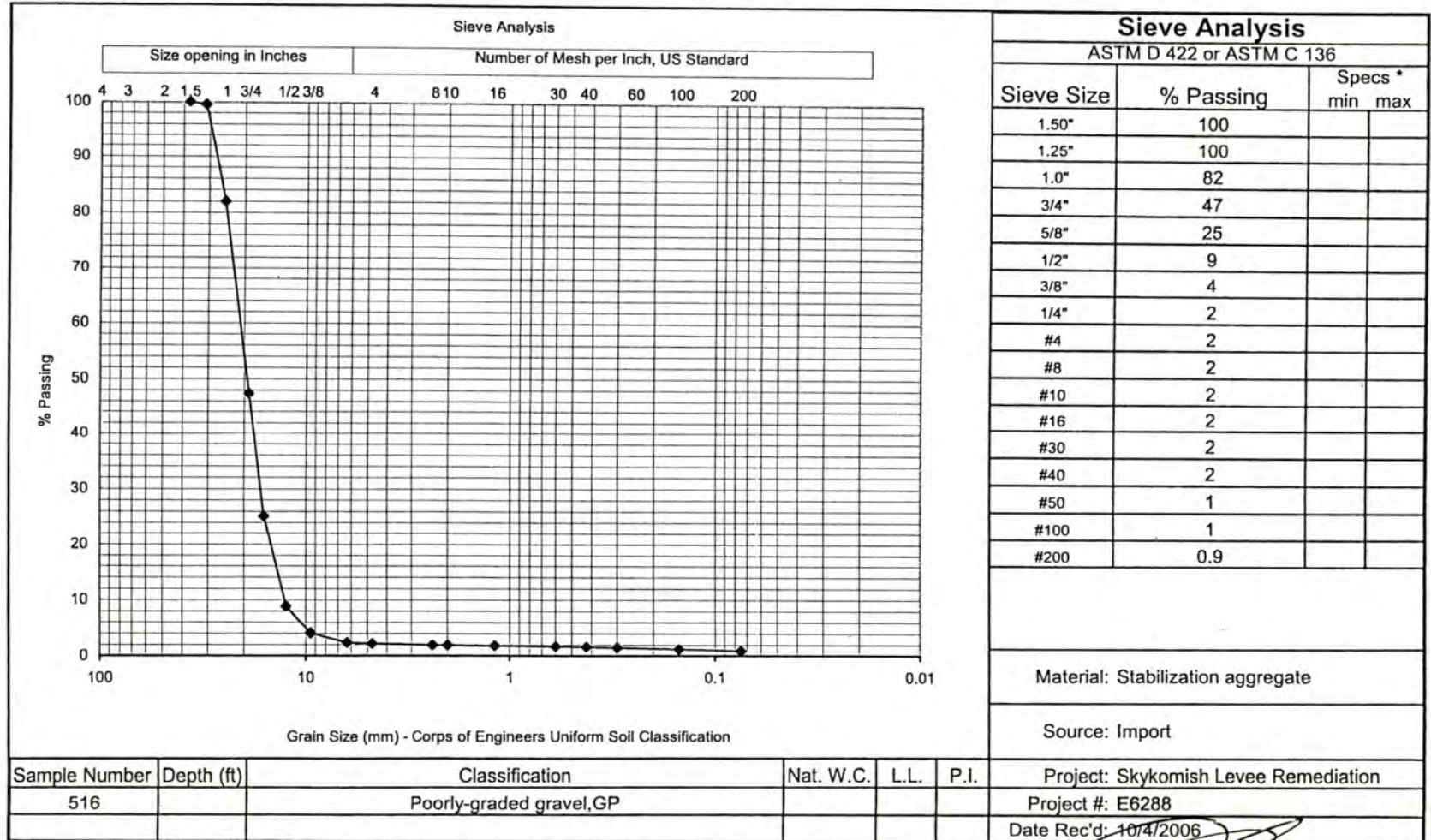
Reviewed by: Dale Yoder, Lab Manager

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Tested By: G. Booker

Date Tested: 10/9/2006

Reviewed by: Dale Yoder, Lab Manager

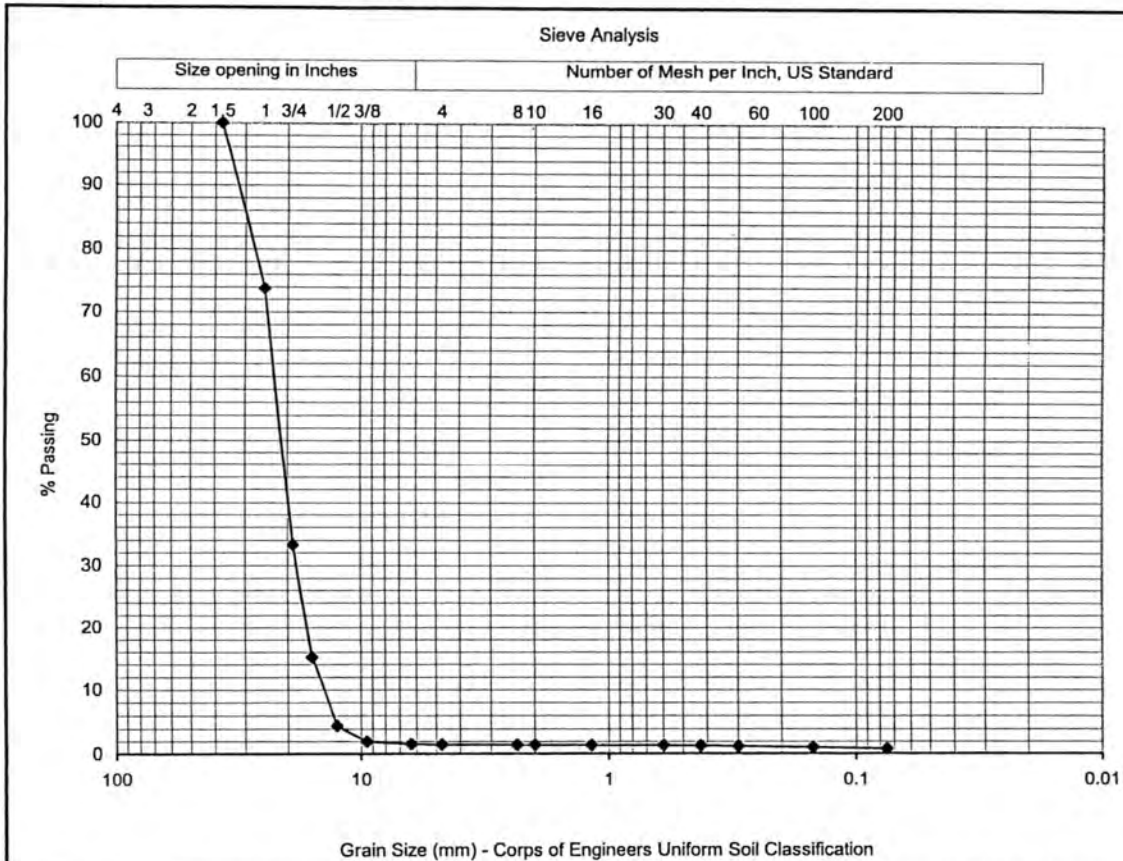
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Sieve51610/9/2006

MTE Form #143, Rev 2, 6-02

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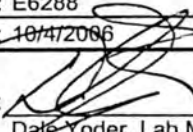


Sieve Analysis			
ASTM D 422 or ASTM C 136			
Sieve Size	% Passing	Specs *	
		min	max
1.50"	100		
1.0"	74		
3/4"	33		
5/8"	15		
1/2"	4		
3/8"	2		
1/4"	1		
#4	1		
#8	1		
#10	1		
#16	1		
#30	1		
#40	1		
#50	1		
#100	1		
#200	0.7		
Material: Stabilization aggregate			
Source: Import			
Project: Skykomish Levee Remediation			
Project #: E6288			
Date Rec'd: 10/4/2006			

Sample Number	Depth (ft)	Classification	Nat. W.C.	L.L.	P.I.
517		Poorly-graded gravel, GP			

Tested By: G. Booker

Date Tested: 10/9/2006

Reviewed by: 
Dale Yoder, Lab Manager

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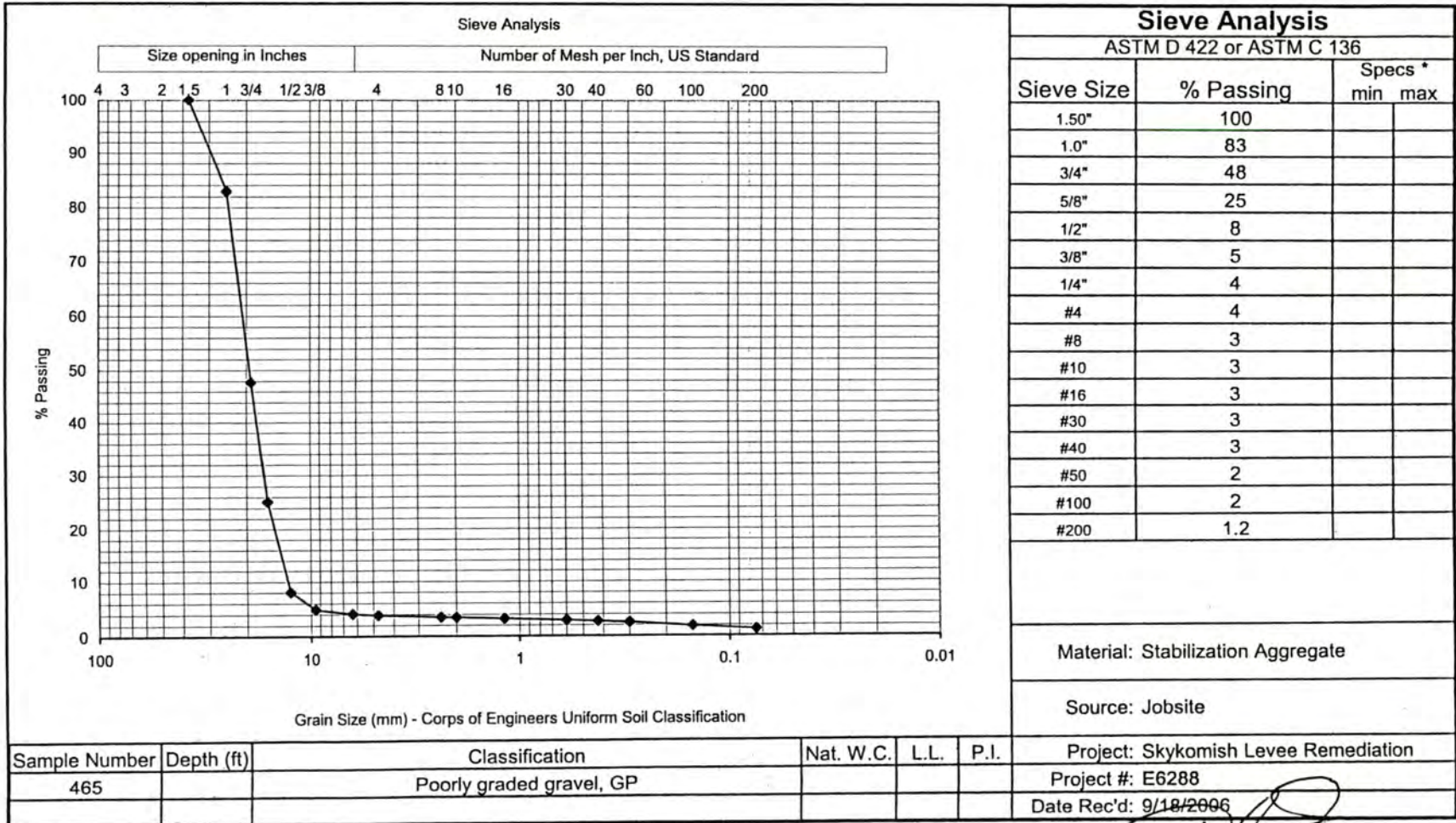
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Ph 425-742-9360

Everett, WA 98204

Fax 425-745-1737



Tested By: G. Booker

Date Tested: 9/25/2006

Reviewed by:

Dale Yoder, Lab Manager

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Sieve4659/27/2006

MTE Form #143, Rev 2, 6-02

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Portland, OR 97211
ph 503.281.7515
fax 503.281.7579

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 21

Date: 10/04/06
Weather: Sunny
Inspection: Soils
Sample(s): 1 bag rock

Observed Wilder Construction Co. perform earthwork procedures at pillow retaining wall along 2/3 line and fill above water level in area G/H to J/K, 9/10 to 12/13, also to roadway at 14/15.

Stabilization rock was placed in water at locations mentioned above. Rock was above water level in this entire area. Obtained a bag of rock and delivered it the Everett lab for sieve analysis tests.

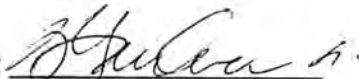
Pillow retaining wall continued along 2/3 line and along J/K line from 2/3 to 7/8 and along 8/9 line. Ecology blocks were placed on designated grade in water then filled around with mixtures of riverbed rock and structural fill material. Lifts of structural fill wrapped in filter fabric were placed and compacted in 10"-12" lifts. Performed in-place density tests to verify 95% compaction for each lift. For further information, please see the attached Field Density Test Report.

Transported nuclear gauge to and from jobsite.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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FIELD DENSITY TEST REPORT
ASTM D 2922 / D 3017Page 1 of 2

Project: Skykomish Levee Remediation
MTE Project #: E6288 Date: 10/4/06
Permit #: _____
Inspector: C. Pratt
MTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	Pillow wall along 2/3 line at F/G	2'	134.0	4.5%	134.4	129.5	3.7%	97%	Coarse Sand w/Gravel
2	Pillow wall along 2/3 line at G/H	2'	134.0	4.5%	136.3	131.2	3.9%	98%	Coarse Sand w/Gravel
3	Pillow wall along 2/3 line at H/I	2'	134.0	4.5%	136.2	132.0	3.1%	98%	Coarse Sand w/Gravel
4	Pillow wall along 2/3 line at I/J	2'	134.0	4.5%	134.2	130.0	3.2%	97%	Coarse Sand w/Gravel
5	Pillow wall along 2/3 line at F/G	3'	134.0	4.5%	133.0	129.2	2.9%	96%	Coarse Sand w/Gravel
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7	Pillow wall along 2/3 line at H/I	3'	134.0	4.5%	135.6	130.5	3.8%	97%	Coarse Sand w/Gravel
8	Pillow wall along 2/3 line at I/J	3'	134.0	4.5%	137.5	132.6	3.7%	98%	Coarse Sand w/Gravel
9	Pillow wall along 2/3 line at F/G	4'	134.0	4.5%	132.9	129.0	3.0%	96%	Coarse Sand w/Gravel
10	Pillow wall along 2/3 line at G/H	4'	134.0	4.5%	133.0	128.4	3.5%	96%	Coarse Sand w/Gravel
11	Pillow wall along 2/3 line at H/I	4'	134.0	4.5%	136.9	132.8	3.0%	99%	Coarse Sand w/Gravel

Specification Compaction and Material : 95%

- ☒ ASTM D 1557 (Modified Proctor)
☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: dozer, front-end loaderType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10"-12"Method of Adding Moisture: None

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Fax 253.584.37077911 NE 33rd Drive, Suite 190
Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579**FIELD DENSITY TEST REPORT**
ASTM D 2922 / D 3017Page 2 of 2Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 10/4/06

Permit #: _____

Inspector: C. PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
12	Pillow wall along 2/3 line at I/J	4'	134.0	4.5%	135.0	130.9	3.1%	97%	Coarse Sand w/Gravel
13	Pillow wall along 2/3 line at F/G	5'	134.0	4.5%	135.5	132.1	2.5%	98%	Coarse Sand w/Gravel
14	Pillow wall along 2/3 line at G/H	5'	134.0	4.5%	135.0	130.8	3.1%	98%	Coarse Sand w/Gravel
15	Pillow wall along 2/3 line at H/I	5'	134.0	4.5%	137.9	134.2	2.8%	99%	Coarse Sand w/Gravel
16	Pillow wall along 2/3 line at F/G	6'	134.0	4.5%	133.4	129.0	3.3%	96%	Coarse Sand w/Gravel
17	Pillow wall along 2/3 line at G/H	6'	134.0	4.5%	135.6	131.6	3.0%	98%	Coarse Sand w/Gravel
18	Pillow wall along 2/3 line at H/I	6'	134.0	4.5%	133.0	127.8	4.0%	95%	Coarse Sand w/Gravel

Specification Compaction and Material : 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: dozer, front-end loaderType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10"-12"Method of Adding Moisture: None

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers: _____☐ In our opinion, fill does not meet specifications as indicated by test numbers: _____☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

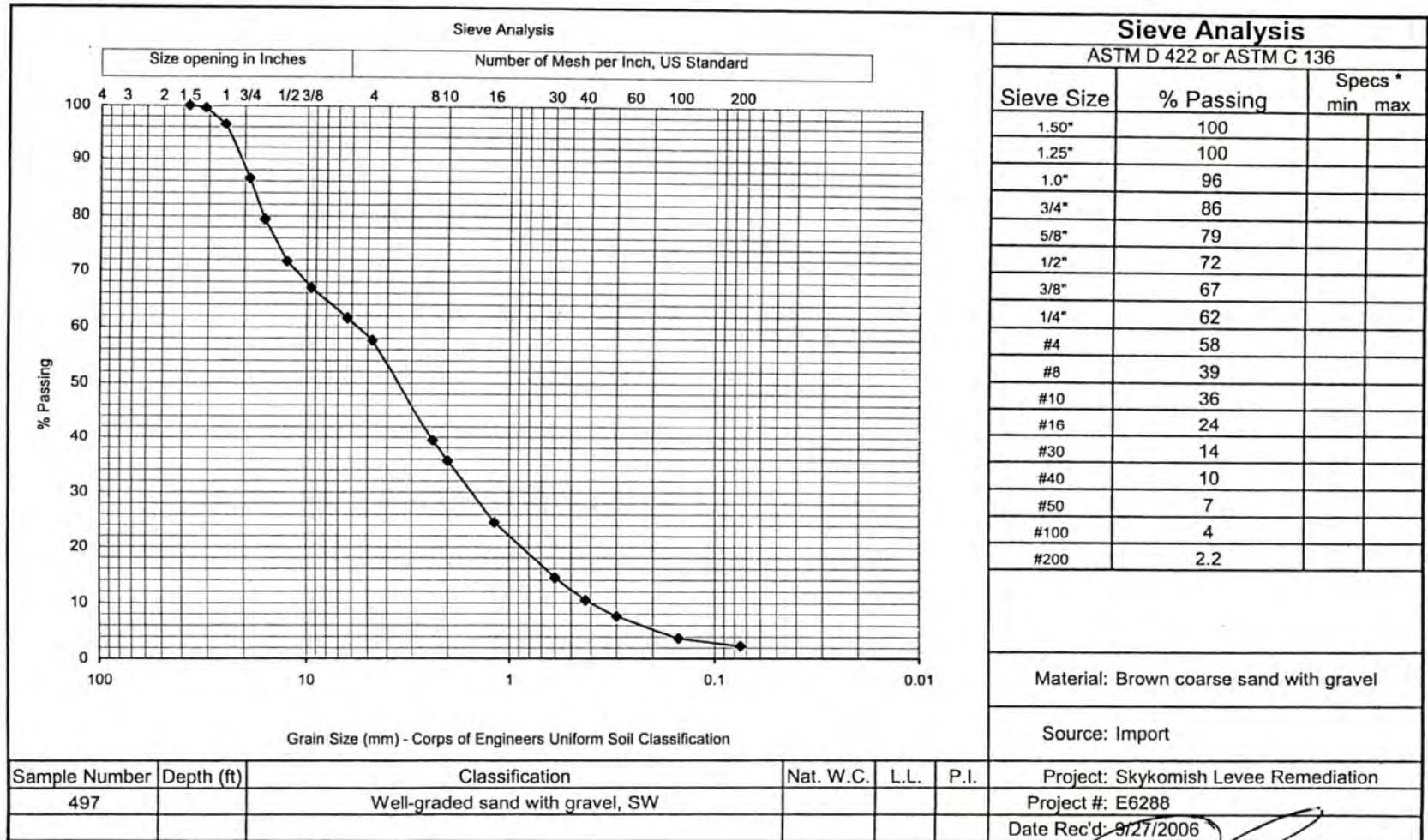
Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

MAYES TESTING ENGINEERS, INC.

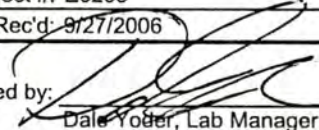
917-134th St. SW, Suite A1
Everett, WA 98204

Ph 425-742-9360
Fax 425-745-1737



Tested By: Z. Revilla

Date Tested: 10/3/2006

Reviewed by: 
Dale Yoder, Lab Manager

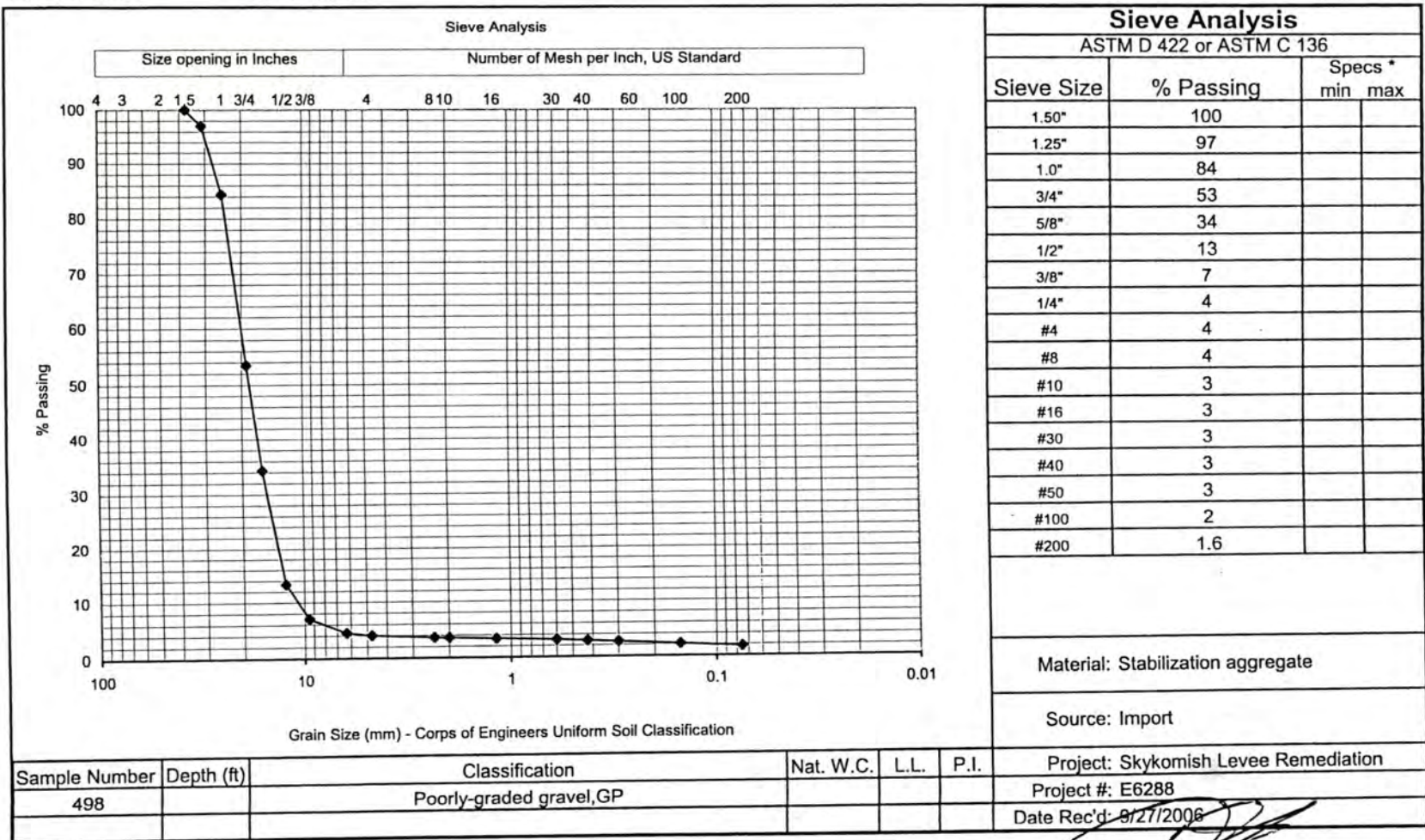
Information in this report applies only to the actual samples tested and shall not be reproduced except in full, without the approval of Mayes Testing Engineers, Inc.

New proctor and sieve 497 10/5/2006

MTE Form #143, Rev 2, 6-02

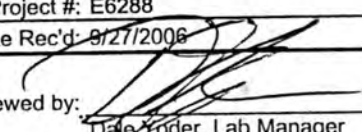
MAYES TESTING ENGINEERS, INC.

917-134th St. SW, Suite A1 Ph 425-742-9360
Everett, WA 98204 Fax 425-745-1737



Tested By: G. Booker/Z. Revilla

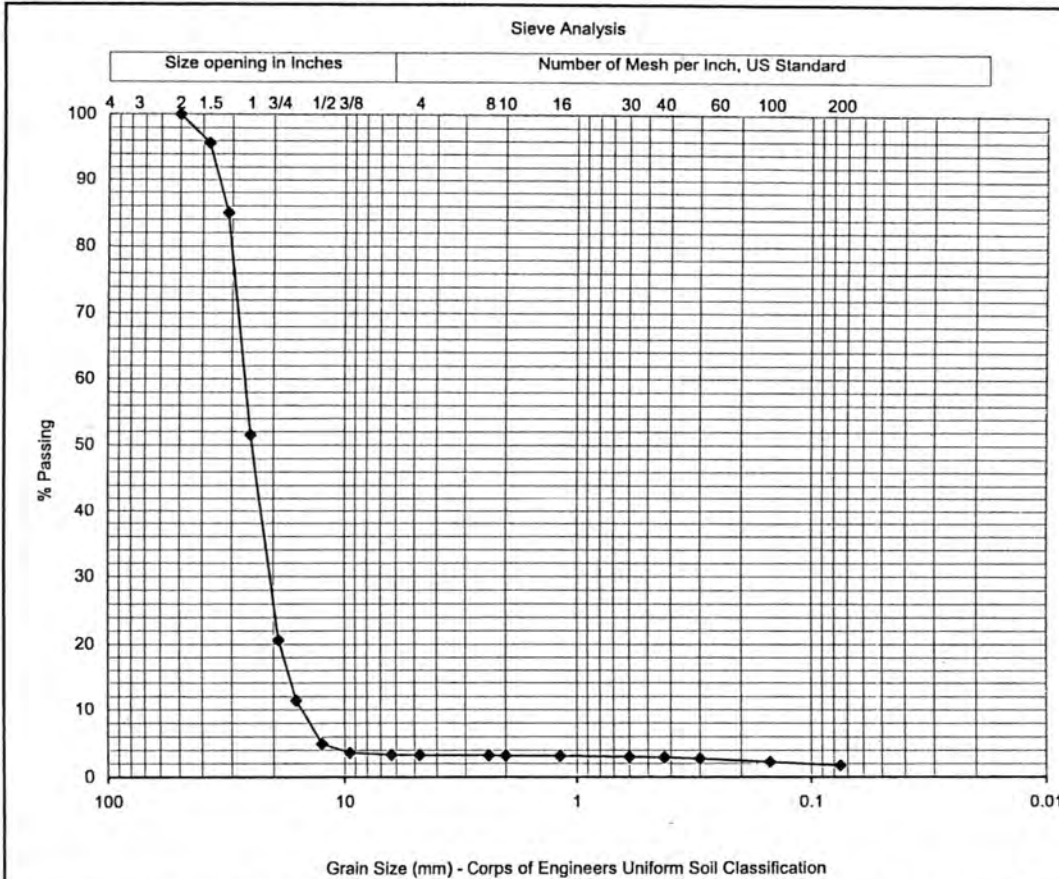
Date Tested: 10/5/2006

Reviewed by: 
Dale Yoder, Lab Manager

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Sieve Analysis			
ASTM D 422 or ASTM C 136			
Sieve Size	% Passing	Specs *	
		min	max
2.00"	100		
1.50"	96		
1.25"	85		
1.0"	51		
3/4"	21		
5/8"	11		
1/2"	5		
3/8"	4		
1/4"	3		
#4	3		
#8	3		
#10	3		
#16	3		
#30	3		
#40	3		
#50	3		
#100	2		
#200	1.6		

Material: Stabilization aggregate			
Source: Import			
Project: Skykomish Levee Remediation			
Project #: E6288			
Date Rec'd: 9/20/2006			

Sample Number	Depth (ft)	Classification	Nat. W.C.	L.L.	P.I.
505		Poorly-graded gravel, GP			

Tested By: G. Booker and Z. Revilla

Date Tested: 10/5/2006

Reviewed by:

Dale Yoder, Lab Manager

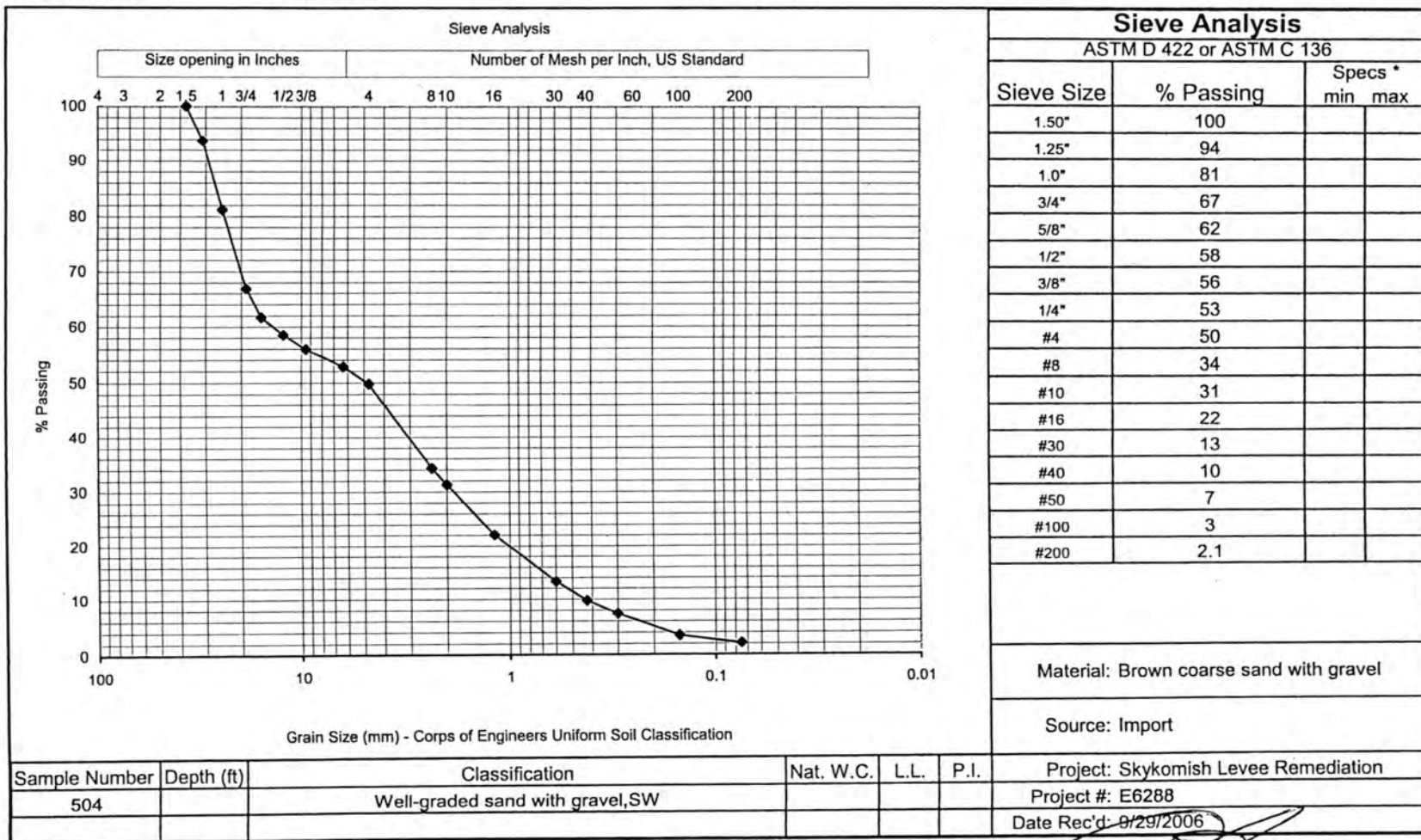
Information in this report applies only to the actual samples tested and shall not be reproduced except in full, without the approval of Mayes Testing Engineers, Inc.

Sieve50510/5/2006

MTE Form #143, Rev 2, 6-02

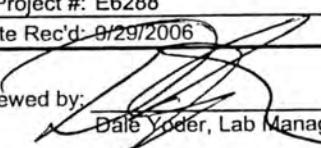
MAYES TESTING ENGINEERS, INC.

917-134th St. SW, Suite A1 Ph 425-742-9360
Everett, WA 98204 Fax 425-745-1737



Tested By: G. Booker

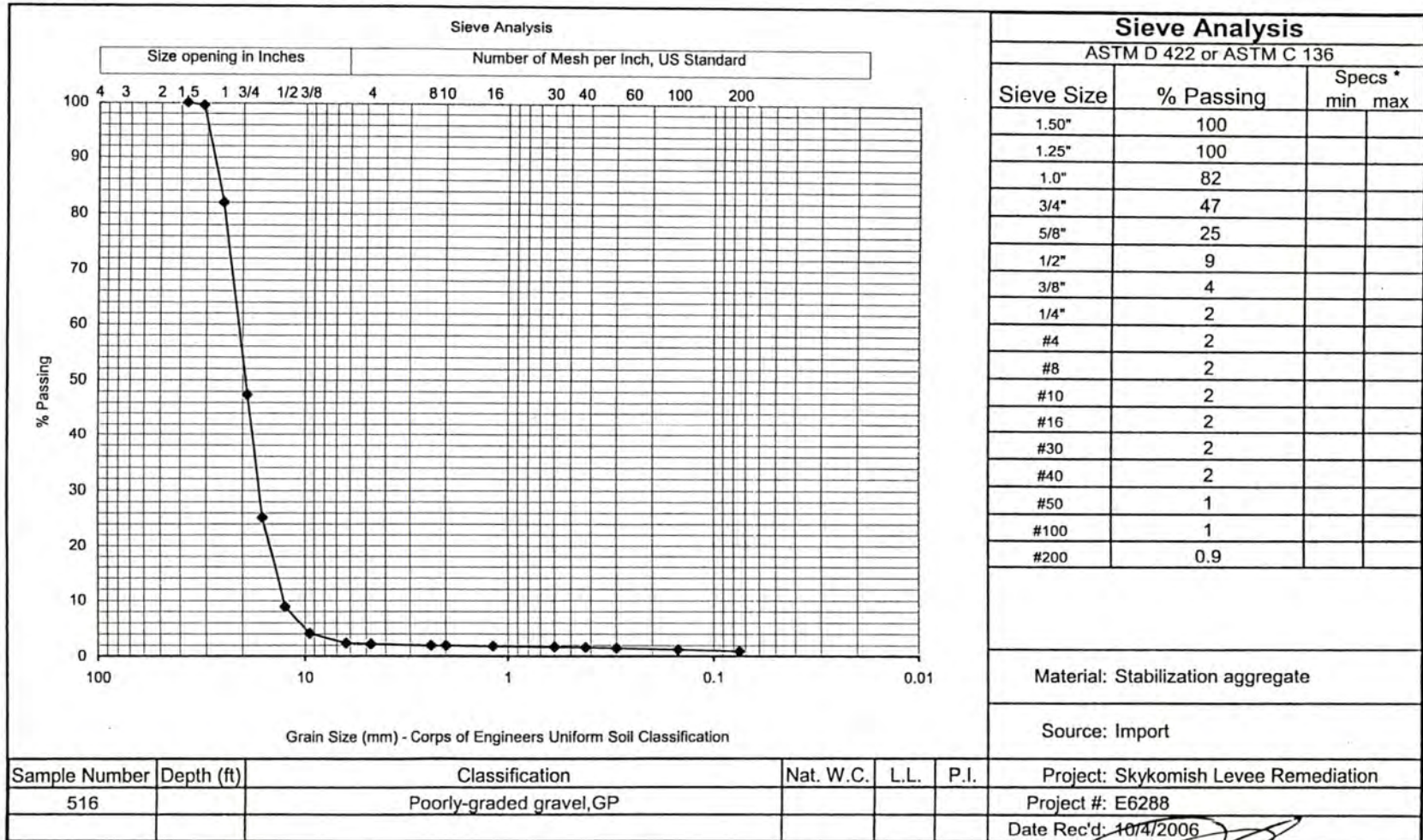
Date Tested: 10/4/2006

Reviewed by: 
Dale Yoder, Lab Manager

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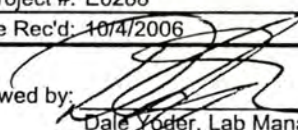
MAYES TESTING ENGINEERS, INC.

917-134th St. SW, Suite A1 Ph 425-742-9360
Everett, WA 98204 Fax 425-745-1737



Tested By: G. Booker

Date Tested: 10/9/2006

Reviewed by: 
Dale Yoder, Lab Manager

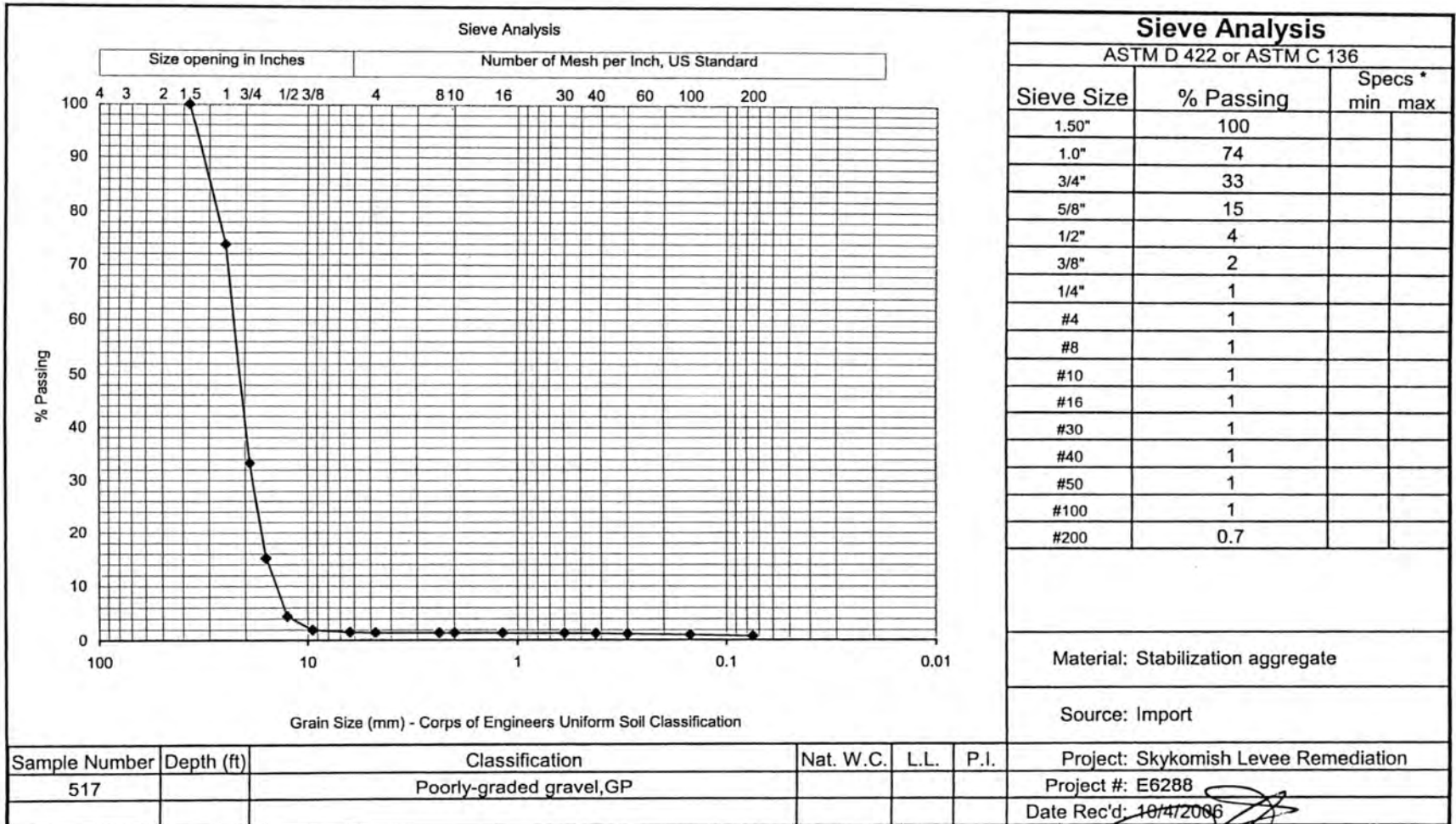
Information in this report applies only to the actual samples tested and shall not be reproduced except in full, without the approval of Mayes Testing Engineers, Inc.

Sieve51610/9/2006

MTE Form #143, Rev 2, 6-02

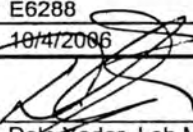
MAYES TESTING ENGINEERS, INC.

917-134th St. SW, Suite A1 Ph 425-742-9360
Everett, WA 98204 Fax 425-745-1737



Tested By: G. Booker

Date Tested: 10/9/2006

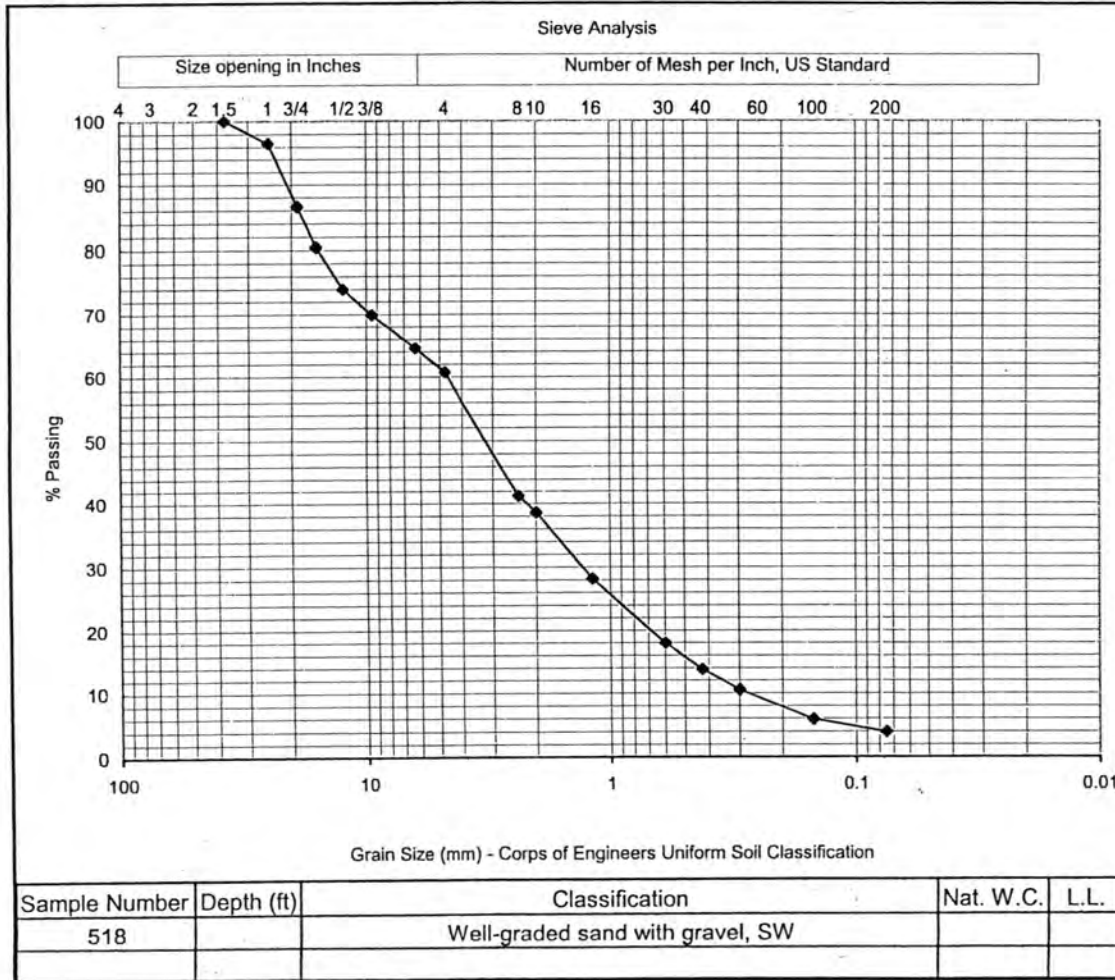
Reviewed by: 
Date Yoder, Lab Manager

Information in this report applies only to the actual samples tested and shall not be reproduced except in full, without the approval of Mayes Testing Engineers, Inc.

MAYES TESTING ENGINEERS, INC.

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Fax 425-745-1737



Sieve Analysis			
ASTM D 422 or ASTM C 136			
Sieve Size	% Passing	Specs *	
		min	max
1.50"	100		
1.0"	96		
3/4"	86		
5/8"	80		
1/2"	74		
3/8"	70		
1/4"	64		
#4	61		
#8	41		
#10	38		
#16	28		
#30	18		
#40	14		
#50	10		
#100	6		
#200	3.9		
Material: Brown coarse sand with gravel			
Source: Import			
Project: Skykomish Levee Remediation			
Project #: E6288			
Date Rec'd: 10/4/2006			

Tested By: G. Booker

Date Tested: 10/5/2006

Reviewed by:

Dale Yoder, Lab Manager

Information in this report applies only to the actual samples tested and shall not be reproduced except in full, without the approval of Mayes Testing Engineers, Inc.

Sieve51810/10/2006

MTE Form #143, Rev 2, 6-02

MAYES TESTING ENGINEERS, INC.

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 22

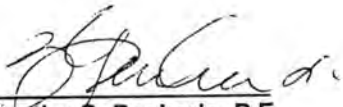
Date: 10/5/06
Weather: Part sun
Inspection: Soils
Sample(s): None

Observed Wilder Construction crew perform earthwork procedures at the pillow walls from 2/3 line/F/G to J/K, J/K line/2/3 to 7/8, 8/9 line/J/K to L/M, L/M line/8/9 to 12/13. Pillow wall consisted of ecology blocks placed in excavated trench into water level with riverbed rock and structural fill placed on both sides. Pillow lifts began with 18" thick compacted fill material, surrounded by filter fabric at outside edge. Performed in-place density tests on 10" to 12" lifts to verify 95% compaction. Backfill material was stockpiles of excavated soil from ecology block work. Areas of low moisture content were wet by water truck. Information from tests can be found on the attached Field Density Test Report.

Transported nuclear gauge to and from jobsite.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY: 
Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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fax 253.584.3707

Portland Office
7911 NE 33rd Drive
Suite 190
Portland, OR 97211
ph 503.281.7515
fax 503.281.7579

MAYES TESTING ENGINEERS, INC917 134th St. SW, Suite A-1
Everett, WA 9820410029 S. Tacoma Way, Suite E-2
Tacoma, WA 984997911 NE 33rd Drive, Suite 190
Portland, OR 97211Ph 425.742.9360
Fax 425.745.1737Ph 253.584.3720
Fax 253.584.3707Ph 503.281.7515
Fax 503.281.7579**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Page 1 of 3Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 10/5/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	Pillow wall fill along J/K line at 3/4	1' up	134.0	4.5	136.2	131.3	3.6	98	coarse sand w/ gravel
2	" 4/5	1' dn	134.0	4.5	133.8	129.4	3.4	97	coarse sand w/ gravel
3	" 3/4	2' up	134.0	4.5	132.7	129.0	2.9	96	coarse sand w/ gravel
4	" 4/5	2' dn	134.0	4.5	135.4	131.1	3.3	98	coarse sand w/ gravel
5	" 4/5	3' up	134.0	4.5	136.6	132.0	3.5	99	coarse sand w/ gravel
6	" 3/4	3' dn	134.0	4.5	134.9	130.3	3.5	97	coarse sand w/ gravel
7	" 4/5	4' up	134.0	4.5	132.9	128.4	3.4	96	coarse sand w/ gravel
8	" 3/4	4' dn	134.0	4.5	134.7	130.4	3.3	97	coarse sand w/ gravel
9	" 2/3 line, I/J	4' up	134.0	4.5	134.8	130.2	3.4	97	coarse sand w/ gravel
10	"		134.0	4.5	137.2	133.4	2.8	99	coarse sand w/ gravel
11	"		134.0	4.5	132.2	127.8	3.4	95	coarse sand w/ gravel
12	"	5' up	134.0	4.5	131.6	127.1	3.5	95	coarse sand w/ gravel
13	"	6' up	134.0	4.5	134.9	130.8	3.1	98	coarse sand w/ gravel

Specification Compaction and Material : 95%☐ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: F-E Loader / DozerType and Number of Compaction units: RollerNumber of Passes: 4-Mar Thickness of lift: 10-12"Method of Adding Moisture: water truck after test #23

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Tacoma, WA 98499
Ph 253.584.3720
Fax 253.584.3707

7911 NE 33rd Drive, Suite 190
Portland, OR 97211
Ph 503.281.7515
Fax 503.281.7579

Page 2 of 3Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 10/5/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
14	Pillow wall fill at 2/3 line, J/K	6' up	134.0	4.5	134.8	130.6	3.2	97	coarse sand w/ gravel
15	" J/K, 3/4	6' up	134.0	4.5	133.5	129.0	3.5	96	coarse sand w/ gravel
16	" 2/3, H/I	6' up	134.0	4.5	137.1	132.8	3.2	99	coarse sand w/ gravel
17	" J/K, 5/6	1' up	134.0	4.5	136.9	133.3	2.6	99	coarse sand w/ gravel
18	" J/K, 6/7	1' up	134.0	4.5	135.8	130.5	4.1	96	coarse sand w/ gravel
19	" J/K, 7/8	1' up	134.0	4.5	135.8	132.0	2.8	98	coarse sand w/ gravel
20	" J/K, 8/9	1' up	134.0	4.5	133.3	129.0	3.2	96	coarse sand w/ gravel
21	" J/K, 6/7	2' up	134.0	4.5	136.4	132.6	2.9	99	coarse sand w/ gravel
22	" J/K, 7/8	2' up	134.0	4.5	136.2	132.6	2.7	98	coarse sand w/ gravel
23	" J/K, 8/9	2' up	134.0	4.5	136.1	130.7	3.4	98	coarse sand w/ gravel
24	" J/K, 4/5	3' up	134.0	4.5	137.3	131.3	4.5	98	coarse sand w/ gravel
25	" J/K, 5/6	3' up	134.0	4.5	137.1	131.6	4.1	98	coarse sand w/ gravel
26	" J/K, 6/7	3' up	134.0	4.5	129.3	133.6	4.2	99	coarse sand w/ gravel

Specification Compaction and Material : 95%☐ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: F-E Loader / DozerType and Number of Compaction units: RollerNumber of Passes: 4-Mar Thickness of lift: 10-12"Method of Adding Moisture: water truck after test #23

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Tacoma, WA 98499Ph 253.584.3720
Fax 253.584.37077911 NE 33rd Drive, Suite 190
Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579Page 3 of 3Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 10/5/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
27	Pillow wall fill at J/K line, 4/5	4' up	134.0	4.5	136.9	133.4	2.6	99	coarse sand w/ gravel
28	" 5/6	4' up	134.0	4.5	132.8	128.9	3.0	96	coarse sand w/ gravel
29	" 6/7	4' up	134.0	4.5	136.8	132.0	3.6	98	coarse sand w/ gravel
30	" 5/6	5' up	134.0	4.5	133.0	129.2	2.9	96	coarse sand w/ gravel
31	" 6/7	5' up	134.0	4.5	134.3	130.1	3.2	97	coarse sand w/ gravel
32	" 7/8	5' up	134.0	4.5	131.5	126.9	3.6	95	coarse sand w/ gravel

Specification Compaction and Material : 95%☐ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: F-E Loader / DozerType and Number of Compaction units: RollerNumber of Passes: 4-Mar Thickness of lift: 10-12"Method of Adding Moisture: water truck after test #23

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

MAYES TESTING ENGINEERS, INC.

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: —
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 22

Everett Office
917-134th Street SW
Suite A-1
Everett, WA 98204
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fax 425.745.1737

Tacoma Office
10029 S. Tacoma Way
Suite E-2
Tacoma, WA 98499
ph 253.584.3720
fax 253.584.3707

Portland Office
7911 NE 33rd Drive
Suite 190
Portland, OR 97211
ph 503.281.7515
fax 503.281.7579

Date: 10/5/06
Weather: Part sun
Inspection: Soils
Sample(s): None

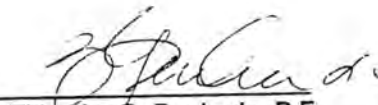
Observed Wilder Construction crew perform earthwork procedures at the pillow walls from 2/3 line/F/G to J/K, J/K line/2/3 to 7/8, 8/9 line/J/K to L/M, L/M line/8/9 to 12/13. Pillow wall consisted of ecology blocks placed in excavated trench into water level with riverbed rock and structural fill placed on both sides. Pillow lifts began with 18" thick compacted fill material, surrounded by filter fabric at outside edge. Performed in-place density tests on 10" to 12" lifts to verify 95% compaction. Backfill material was stockpiles of excavated soil from ecology block work. Areas of low moisture content were wet by water truck. Information from tests can be found on the attached Field Density Test Report.

Transported nuclear gauge to and from jobsite.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

MAYES TESTING ENGINEERS, INC917 134th St. SW, Suite A-1
Everett, WA 9820410029 S. Tacoma Way, Suite E-2
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Fax 253.584.3707Ph 503.281.7515
Fax 503.281.7579Page 1 of 3Project: Skykomish Levee RemediationMTE Project # : E6288 Date: 10/5/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	Pillow wall fill along J/K line at 3/4	1' up	134.0	4.5	136.2	131.3	3.6	98	coarse sand w/ gravel
2	" 4/5	1' dn	134.0	4.5	133.8	129.4	3.4	97	coarse sand w/ gravel
3	" 3/4	2' up	134.0	4.5	132.7	129.0	2.9	96	coarse sand w/ gravel
4	" 4/5	2' dn	134.0	4.5	135.4	131.1	3.3	98	coarse sand w/ gravel
5	" 4/5	3' up	134.0	4.5	136.6	132.0	3.5	99	coarse sand w/ gravel
6	" 3/4	3' dn	134.0	4.5	134.9	130.3	3.5	97	coarse sand w/ gravel
7	" 4/5	4' up	134.0	4.5	132.9	128.4	3.4	96	coarse sand w/ gravel
8	" 3/4	4' dn	134.0	4.5	134.7	130.4	3.3	97	coarse sand w/ gravel
9	" 2/3 line, I/J	4' up	134.0	4.5	134.8	130.2	3.4	97	coarse sand w/ gravel
10	"		134.0	4.5	137.2	133.4	2.8	99	coarse sand w/ gravel
11	"		134.0	4.5	132.2	127.8	3.4	95	coarse sand w/ gravel
12	"	5' up	134.0	4.5	131.6	127.1	3.5	95	coarse sand w/ gravel
13	"	6' up	134.0	4.5	134.9	130.8	3.1	98	coarse sand w/ gravel

Specification Compaction and Material : 95%☐ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: F-E Loader / DozerType and Number of Compaction units: RollerNumber of Passes: 4-Mar Thickness of lift: 10-12"Method of Adding Moisture: water truck after test #23

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

MAYES TESTING ENGINEERS, INC.917 134th St. SW, Suite A-1
Everett, WA 98204Ph 425.742.9360
Fax 425.745.173710029 S. Tacoma Way, Suite E-2
Tacoma, WA 98499Ph 253.584.3720
Fax 253.584.37077911 NE 33rd Drive, Suite 190
Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Page 2 of 3Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 10/5/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
14	Pillow wall fill at 2/3 line, J/K	6' up	134.0	4.5	134.8	130.6	3.2	97	coarse sand w/ gravel
15	" J/K, 3/4	6' up	134.0	4.5	133.5	129.0	3.5	96	coarse sand w/ gravel
16	" 2/3, H/I	6' up	134.0	4.5	137.1	132.8	3.2	99	coarse sand w/ gravel
17	" J/K, 5/6	1' up	134.0	4.5	136.9	133.3	2.6	99	coarse sand w/ gravel
18	" J/K, 6/7	1' up	134.0	4.5	135.8	130.5	4.1	96	coarse sand w/ gravel
19	" J/K, 7/8	1' up	134.0	4.5	135.8	132.0	2.8	98	coarse sand w/ gravel
20	" J/K, 8/9	1' up	134.0	4.5	133.3	129.0	3.2	96	coarse sand w/ gravel
21	" J/K, 6/7	2' up	134.0	4.5	136.4	132.6	2.9	99	coarse sand w/ gravel
22	" J/K, 7/8	2' up	134.0	4.5	136.2	132.6	2.7	98	coarse sand w/ gravel
23	" J/K, 8/9	2' up	134.0	4.5	136.1	130.7	3.4	98	coarse sand w/ gravel
24	" J/K, 4/5	3' up	134.0	4.5	137.3	131.3	4.5	98	coarse sand w/ gravel
25	" J/K, 5/6	3' up	134.0	4.5	137.1	131.6	4.1	98	coarse sand w/ gravel
26	" J/K, 6/7	3' up	134.0	4.5	129.3	133.6	4.2	99	coarse sand w/ gravel

Specification Compaction and Material : 95%

- ☐ ASTM D 1557 (Modified Proctor)
☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: F-E Loader / DozerType and Number of Compaction units: RollerNumber of Passes: 4-Mar Thickness of lift: 10-12"Method of Adding Moisture: water truck after test #23

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Fax 253.584.37077911 NE 33rd Drive, Suite 190
Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579Page 3 of 3Project: Skykomish Levee RemediationMTE Project # : E6288 Date: 10/5/06

Permit #:

Inspector: C PrattMTE Nuclear Gauge #: 6**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
27	Pillow wall fill at J/K line, 4/5	4' up	134.0	4.5	136.9	133.4	2.6	99	coarse sand w/ gravel
28	" 5/6	4' up	134.0	4.5	132.8	128.9	3.0	96	coarse sand w/ gravel
29	" 6/7	4' up	134.0	4.5	136.8	132.0	3.6	98	coarse sand w/ gravel
30	" 5/6	5' up	134.0	4.5	133.0	129.2	2.9	96	coarse sand w/ gravel
31	" 6/7	5' up	134.0	4.5	134.3	130.1	3.2	97	coarse sand w/ gravel
32	" 7/8	5' up	134.0	4.5	131.5	126.9	3.6	95	coarse sand w/ gravel

Specification Compaction and Material : 95%☐ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: F-E Loader / DozerType and Number of Compaction units: RollerNumber of Passes: 4-Mar Thickness of lift: 10-12"Method of Adding Moisture: water truck after test #23

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

MAYES TESTING ENGINEERS, INC.

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fax 253.584.3707

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ph 503.281.7515
fax 503.281.7579

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 23

Date: 10/6/06
Weather: Showers
Inspection: Soils
Sample(s): (1) bag coarse sand w/ gravel

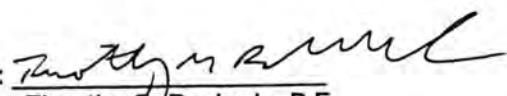
Observed Wilder Construction perform earthwork procedures at pillow wall along 2/3 line, I/J line, 9 line, and J/K line along the levee fill between 9/10-12/13 from G/H to I/J. Ten to 12" lifts of coarse sand with gravel were placed and compacted at levee fill south of levee berm. Fill material was transported by dump trucks, spread by dozer, then compacted by a vibratory drum roller. Performed in-place density tests to verify 95% compaction. Pillow wall lifts were surrounded by filter fabric. Test information can be found on attached Field Density Test Report.

Obtained and delivered to the Everett lab a sample of coarse sand with gravel for ASTM: D-1557 Proctor test.

Transported nuclear gauge to and from Lab.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY: 
Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579Page 1 of 4Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 10/6/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	Structural levee fill @ 3/4 line, H/I	7' up	134.0	4.5	131.3	127.3	3.1	95	coarse sand w/ gravel
2	Structural levee fill @ 3/4 line, G/H	7' up	134.0	4.5	134.6	130.5	3.1	97	coarse sand w/ gravel
3	Structural levee fill @ 3/4 line, F/G	7' up	134.0	4.5	134.5	131.7	2.1	98	coarse sand w/ gravel
4	Structural levee fill @ 3/4 line, I/J	8' up	134.0	4.5	134.5	130.3	3.2	97	coarse sand w/ gravel
5	Structural levee fill @ 3/4 line, H/I	8' up	134.0	4.5	133.5	129.6	3.0	97	coarse sand w/ gravel
6	Structural levee fill @ 3/4 line, G/H	8' up	134.0	4.5	135.2	130.9	3.2	98	coarse sand w/ gravel
7	Pillow wall fill @ J/K line, 6/7	6' up	134.0	4.5	132.0	128.9	2.9	96	coarse sand w/ gravel
8	Pillow wall fill @ J/K line, 7/8	6' up	134.0	4.5	131.4	126.8	3.6	95	coarse sand w/ gravel
9	Levee fill @ H/I, 11/12	4' up	134.0	4.5	131.5	126.8	3.7	95	coarse sand w/ gravel
10	Levee fill @ H/I, 12/13	4' up	134.0	4.5	131.8	127.4	3.4	95	coarse sand w/ gravel
11	Levee fill @ H/I, 13/14	4' up	134.0	4.5	135.5	131.8	2.8	98	coarse sand w/ gravel
12	Levee fill @ I/J, 11/12	3' up	134.0	4.5	131.4	127.4	3.1	95	coarse sand w/ gravel

Specification Compaction and Material : 95%☐ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: Dozer, F-E LoaderType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Fax 425.745.1737Ph 253.584.3720
Fax 253.584.3707Ph 503.281.7515
Fax 503.281.7579**FIELD DENSITY TEST REPORT**
ASTM D 2922 / D 3017Page 2 of 4Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 10/6/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
13	Levee fill @ G/H, 9/10	3' up	134.0	4.5	132.1	127.8	3.3	95	coarse sand w/ gravel
14	Levee fill @ G/H, 8/9	3' up	134.0	4.5	131.0	126.7	3.3	95	coarse sand w/ gravel
15	Levee fill @ H/I, 10/11	4'	134.0	4.5	131.4	127.2	3.3	95	coarse sand w/ gravel
16	Levee fill @ H/I, 11/12	4'	134.0	4.5	133.8	129.2	3.5	96	coarse sand w/ gravel
17	Levee fill @ G/H, 10/11	4'	134.0	4.5	134.0	129.8	3.2	97	coarse sand w/ gravel
18	Levee fill @ G/H, 11/12	4'	134.0	4.5	134.7	129.6	3.0	97	coarse sand w/ gravel
19	Levee fill @ H/I, 12/13	4'	134.0	4.5	132.3	127.8	3.5	95	coarse sand w/ gravel
20	Levee fill @ H/I, 13/14	4'	134.0	4.5	132.8	129.0	2.9	96	coarse sand w/ gravel
21	Levee fill @ H/I, 11/12	5'	134.0	4.5	136.2	132.3	2.9	98	coarse sand w/ gravel
22	Levee fill @ 8/9, G/H	3'	134.0	4.5	133.6	128.7	3.7	96	coarse sand w/ gravel
23	Levee fill @ G/H, 12/13	5' up	134.0	4.5	134.4	129.8	3.5	97	coarse sand w/ gravel
24	Levee fill @ F/G, 9/10	5' up	134.0	4.5	131.7	126.6	4.0	95	coarse sand w/ gravel

Specification Compaction and Material : 95%

- ☐ ASTM D 1557 (Modified Proctor)
☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: Dozer, F-E LoaderType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Fax 253.584.37077911 NE 33rd Drive, Suite 190
Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579**FIELD DENSITY TEST REPORT**
ASTM D 2922 / D 3017Page 3 of 4Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 10/6/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
25	Levee fill @ G/H, 9/10	5' up	134.0	4.5	133.6	129.5	3.1	97	coarse sand w/ gravel
26	Levee fill @ F/H, 10/11	6'	134.0	4.5	135.9	131.3	3.5	98	coarse sand w/ gravel
27	Levee fill @ G/H, 10/11	6'	134.0	4.5	131.3	127.2	3.2	95	coarse sand w/ gravel
28	Pillow wall fill @ 9 line, J/K	1'	134.0	4.5	136.2	132.7	2.6	99	coarse sand w/ gr & rvbed rk
29	Pillow wall fill @ 9 line, K/L	1'	134.0	4.5	136.3	132.6	2.7	99	coarse sand w/ gr & rvbed rk
30	Pillow wall fill @ 10 line, K/L	1'	134.0	4.5	137.3	133.1	3.1	99	coarse sand w/ gr & rvbed rk
31	Pillow wall fill @ 9 line, J/K	2' up	134.0	4.5	131.6	127.8	3.6	95	coarse sand w/ gravel
32	Pillow wall fill @ 9 line, K/L	2' up	134.0	4.5	134.9	130.8	3.1	98	coarse sand w/ gravel
33	Pillow wall fill @ 9/10, J/K	2' up	134.0	4.5	134.0	129.1	3.7	96	coarse sand w/ gravel
34	Pillow wall fill @ 10/11, J/K	3' up	134.0	4.5	135.7	131.1	3.4	98	coarse sand w/ gravel
35	Pillow wall fill @ 9/10, J/K	4' up	134.0	4.5	136.8	132.0	3.6	98	coarse sand w/ gravel
36	Levee fill @ 10/11, J/K	4' up	134.0	4.5	135.3	139.3	4.6	97	coarse sand w/ gravel

Specification Compaction and Material : 95%☐ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: Dozer, F-E LoaderType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers: _____☐ In our opinion, fill does not meet specifications as indicated by test numbers: _____☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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7911 NE 33rd Drive, Suite 190 Portland, OR 97211	Ph 503.281.7515 Fax 503.281.7579

Project: Skykomish Levee Remediation

MTE Project # : E6288 Date: 10/6/06

Permit #: _____

Inspector: C Pratt

MTE Nuclear Gauge #: 6

ASTM D 2922 / D 3017

Specification Compaction and Material :		95%
☐	ASTM D 1557 (Modified Proctor)	
☐	ASTM D 698 (Standard Proctor)	
Type and Number of earth moving units:		Dozer, F-E Loader
Type and Number of Compaction units:		Roller
Number of Passes: 3-4		Thickness of lift: 10-12"
Method of Adding Moisture:		none
Comments:		

- ☐ In our opinion, fill generally meets specifications as indicated by test numbers:

- ☐ In our opinion, fill does not meet specifications as indicated by test numbers:

- ☒ Fill test meets specifications
☒ Contractor Advised
☒ Full-time observation
☐ Part-time observation

Quality Control Sample:

Test No. : Dry Density: Moisture%: _____

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Portland, OR 97211
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fax 503.281.7579

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 23

Date: 10/6/06
Weather: Showers
Inspection: Soils
Sample(s): (1) bag coarse sand w/ gravel

Observed Wilder Construction perform earthwork procedures at pillow wall along 2/3 line, I/J line, 9 line, and J/K line along the levee fill between 9/10-12/13 from G/H to I/J. Ten to 12" lifts of coarse sand with gravel were placed and compacted at levee fill south of levee berm. Fill material was transported by dump trucks, spread by dozer, then compacted by a vibratory drum roller. Performed in-place density tests to verify 95% compaction. Pillow wall lifts were surrounded by filter fabric. Test information can be found on attached Field Density Test Report.

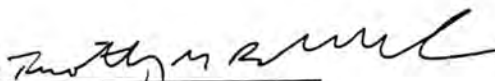
Obtained and delivered to the Everett lab a sample of coarse sand with gravel for ASTM: D-1557 Proctor test.

Transported nuclear gauge to and from Lab.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Tacoma, WA 98499Ph 253.584.3720
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Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Page 1 of 4Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 10/6/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	Structural levee fill @ 3/4 line, H/I	7' up	134.0	4.5	131.3	127.3	3.1	95	coarse sand w/ gravel
2	Structural levee fill @ 3/4 line, G/H	7' up	134.0	4.5	134.6	130.5	3.1	97	coarse sand w/ gravel
3	Structural levee fill @ 3/4 line, F/G	7' up	134.0	4.5	134.5	131.7	2.1	98	coarse sand w/ gravel
4	Structural levee fill @ 3/4 line, I/J	8' up	134.0	4.5	134.5	130.3	3.2	97	coarse sand w/ gravel
5	Structural levee fill @ 3/4 line, H/I	8' up	134.0	4.5	133.5	129.6	3.0	97	coarse sand w/ gravel
6	Structural levee fill @ 3/4 line, G/H	8' up	134.0	4.5	135.2	130.9	3.2	98	coarse sand w/ gravel
7	Pillow wall fill @ J/K line, 6/7	6' up	134.0	4.5	132.0	128.9	2.9	96	coarse sand w/ gravel
8	Pillow wall fill @ J/K line, 7/8	6' up	134.0	4.5	131.4	126.8	3.6	95	coarse sand w/ gravel
9	Levee fill @ H/I, 11/12	4' up	134.0	4.5	131.5	126.8	3.7	95	coarse sand w/ gravel
10	Levee fill @ H/I, 12/13	4' up	134.0	4.5	131.8	127.4	3.4	95	coarse sand w/ gravel
11	Levee fill @ H/I, 13/14	4' up	134.0	4.5	135.5	131.8	2.8	98	coarse sand w/ gravel
12	Levee fill @ I/J, 11/12	3' up	134.0	4.5	131.4	127.4	3.1	95	coarse sand w/ gravel

Specification Compaction and Material : 95%☐ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: Dozer, F-E LoaderType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Page 2 of 4Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 10/6/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
13	Levee fill @ G/H, 9/10	3' up	134.0	4.5	132.1	127.8	3.3	95	coarse sand w/ gravel
14	Levee fill @ G/H, 8/9	3' up	134.0	4.5	131.0	126.7	3.3	95	coarse sand w/ gravel
15	Levee fill @ H/I, 10/11	4'	134.0	4.5	131.4	127.2	3.3	95	coarse sand w/ gravel
16	Levee fill @ H/I, 11/12	4'	134.0	4.5	133.8	129.2	3.5	96	coarse sand w/ gravel
17	Levee fill @ G/H, 10/11	4'	134.0	4.5	134.0	129.8	3.2	97	coarse sand w/ gravel
18	Levee fill @ G/H, 11/12	4'	134.0	4.5	134.7	129.6	3.0	97	coarse sand w/ gravel
19	Levee fill @ H/I, 12/13	4'	134.0	4.5	132.3	127.8	3.5	95	coarse sand w/ gravel
20	Levee fill @ H/I, 13/14	4'	134.0	4.5	132.8	129.0	2.9	96	coarse sand w/ gravel
21	Levee fill @ H/I, 11/12	5'	134.0	4.5	136.2	132.3	2.9	98	coarse sand w/ gravel
22	Levee fill @ 8/9, G/H	3'	134.0	4.5	133.6	128.7	3.7	96	coarse sand w/ gravel
23	Levee fill @ G/H, 12/13	5' up	134.0	4.5	134.4	129.8	3.5	97	coarse sand w/ gravel
24	Levee fill @ F/G, 9/10	5' up	134.0	4.5	131.7	126.6	4.0	95	coarse sand w/ gravel

Specification Compaction and Material : 95%

- ☐ ASTM D 1557 (Modified Proctor)
☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: Dozer, F-E LoaderType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

MAYES TESTING ENGINEERS, INC917 134th St. SW, Suite A-1
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Fax 425.745.173710029 S. Tacoma Way, Suite E-2
Tacoma, WA 98499Ph 253.584.3720
Fax 253.584.37077911 NE 33rd Drive, Suite 190
Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579Page 3 of 4Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 10/6/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
25	Levee fill @ G/H, 9/10	5' up	134.0	4.5	133.6	129.5	3.1	97	coarse sand w/ gravel
26	Levee fill @ F/H, 10/11	6'	134.0	4.5	135.9	131.3	3.5	98	coarse sand w/ gravel
27	Levee fill @ G/H, 10/11	6'	134.0	4.5	131.3	127.2	3.2	95	coarse sand w/ gravel
28	Pillow wall fill @ 9 line, J/K	1'	134.0	4.5	136.2	132.7	2.6	99	coarse sand w/ gr & rvbed rk
29	Pillow wall fill @ 9 line, K/L	1'	134.0	4.5	136.3	132.6	2.7	99	coarse sand w/ gr & rvbed rk
30	Pillow wall fill @ 10 line, K/L	1'	134.0	4.5	137.3	133.1	3.1	99	coarse sand w/ gr & rvbed rk
31	Pillow wall fill @ 9 line, J/K	2' up	134.0	4.5	131.6	127.8	3.6	95	coarse sand w/ gravel
32	Pillow wall fill @ 9 line, K/L	2' up	134.0	4.5	134.9	130.8	3.1	98	coarse sand w/ gravel
33	Pillow wall fill @ 9/10, J/K	2' up	134.0	4.5	134.0	129.1	3.7	96	coarse sand w/ gravel
34	Pillow wall fill @ 10/11, J/K	3' up	134.0	4.5	135.7	131.1	3.4	98	coarse sand w/ gravel
35	Pillow wall fill @ 9/10, J/K	4' up	134.0	4.5	136.8	132.0	3.6	98	coarse sand w/ gravel
36	Levee fill @ 10/11, J/K	4' up	134.0	4.5	135.3	139.3	4.6	97	coarse sand w/ gravel

Specification Compaction and Material : 95%☐ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: Dozer, F-E LoaderType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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MTE Nuclear Gauge #: 6[illegible]

Comments: _____

Test No. : _____ Dry Density: _____ Moisture%: _____

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fax 253.584.3707

Portland Office
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Suite 190
Portland, OR 97211
ph 503.281.7515
fax 503.281.7579

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 24

Date: 10/9/06
Weather: Sunny
Inspection: Soils
Sample(s): (1) bag coarse sand w/ gravel

Observed Wilder Construction perform earthwork procedures at levee fill and pillow wall fill from F/G to I/J, 3/4 to 12/13. Ten to 12" lifts of coarse sand with gravel were placed and compacted in areas mentioned above. Filter fabric was surrounding lifts along pillow wall lines per plans. performed in-place density tests to verify 95% compaction. Test information can be found on attached Field Density Test Report.

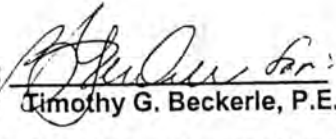
Obtained sample bag of coarse sand with gravel and delivered to Everett Lab for sieve analysis testing.

Transport nuclear gauge to and from jobsite.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579Page 1 of 5Project: Skykomish Levee RemediationMTE Project # : E6288 Date: 10/9/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	Levee fill @ 9/10, G/H	7' up	134.0	4.5	137.3	133.0	3.2	99	coarse sand w/ gravel
2	Levee fill @ 9/10, H/I	7' up	134.0	4.5	132.2	127.4	3.7	95	coarse sand w/ gravel
3	Levee fill @ 10/11, G/H	7' up	134.0	4.5	136.6	131.9	3.6	98	coarse sand w/ gravel
4	Levee fill @ 10/11, H/I	7' up	134.0	4.5	132.3	127.5	3.7	95	coarse sand w/ gravel
5	Pillow wall @ 10/11, I/J	6' up	134.0	4.5	134.2	128.5	4.3	96	coarse sand w/ gravel
6	Pillow wall @ 9 line, J/K	6' up	134.0	4.5	134.6	129.7	3.7	97	coarse sand w/ gravel
7	Levee fill @ 9 line, I/J	7' up	134.0	4.5	132.3	127.6	3.6	95	coarse sand w/ gravel
8	Levee fill @ 11/12, I/J	7' up	134.0	4.5	134.1	128.4	4.4	96	coarse sand w/ gravel
9	Levee fill @ 11/12, H/I	7' up	134.0	4.5	137.5	133.2	3.2	99	coarse sand w/ gravel
10	Pillow wall @ 9 line, I/J	7' up	134.0	4.5	136.0	130.9	3.8	97	coarse sand w/ gravel
11	Pillow wall @ 9 line, H/I	7' up	134.0	4.5	136.8	132.5	3.2	98	coarse sand w/ gravel
12	Levee fill @ 10/11, I/J	7' up	134.0	4.5	131.8	126.8	4.0	95	coarse sand w/ gravel

Specification Compaction and Material : 95%☐ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579**FIELD DENSITY TEST REPORT**
ASTM D 2922 / D 3017Page 2 of 5Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 10/9/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
13	Levee fill @ 10/11, H/I	7' up	134.0	4.5	134.3	129.3	3.8	97	coarse sand w/ gravel
14	Levee fill @ 11/12, H/I	7' up	134.0	4.5	134.0	129.3	3.6	97	coarse sand w/ gravel
15	Levee fill @ 11/12, G/H	7' up	134.0	4.5	138.3	132.2	4.5	98	coarse sand w/ gravel
16	Levee fill @ 12/113, G/H	8' up	134.0	4.5	133.2	128.3	3.8	96	coarse sand w/ gravel
17	Levee fill @ 11/12, G/H	8' up	134.0	4.5	135.8	131.6	3.1	98	coarse sand w/ gravel
18	Levee fill @ 10/11, G/H	8' up	134.0	4.5	136.1	130.3	4.4	97	coarse sand w/ gravel
19	Levee fill @ 3/4, H/I	7' up	134.0	4.5	133.8	129.2	3.5	96	coarse sand w/ gravel
20	Levee fill @ 3/4, G/H	7' up	134.0	4.5	135.8	129.0	2.9	96	coarse sand w/ gravel
21	Levee fill @ 4/5, F/G	7' up	134.0	4.5	134.7	131.7	3.1	98	coarse sand w/ gravel
22	Levee fill @ 5/6, F/G	7' up	134.0	4.5	133.3	130.4	3.2	97	coarse sand w/ gravel
23	Levee fill @ 6/7, F/G	7' up	134.0	4.5	133.3	128.3	3.8	96	coarse sand w/ gravel
24	Levee fill @ 12/13, H/I	7' up	134.0	4.5	132.8	128.2	3.5	96	coarse sand w/ gravel

Specification Compaction and Material: 95%☐ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579Page 3 of 5Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 10/9/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
25	Levee fill @ 12/13, I/J	7' up	134.0	4.5	133.9	129.6	3.3	97	coarse sand w/ gravel
26	Levee fill @ 4/5, G/H	8' up	134.0	4.5	134.3	129.8	3.4	97	coarse sand w/ gravel
27	Levee fill @ 5/6, G/H	8' up	134.0	4.5	133.3	127.9	4.1	96	coarse sand w/ gravel
28	Levee fill @ 6/7, G/H	8' up	134.0	4.5	135.0	130.6	3.3	97	coarse sand w/ gravel
29	Pillow wall fill @ 11/12, J/K	1' up	134.0	4.5	133.8	129.3	3.4	97	coarse sand w/ gravel
30	Pillow wall fill @ 12/13, J/K	1' up	134.0	4.5	136.1	130.9	3.9	98	coarse sand w/ gravel
31	Pillow wall fill @ 11/12, J/K	2' up	134.0	4.5	134.6	130.5	3.1	97	coarse sand w/ gravel
32	Pillow wall fill @ 12/13, J/K	2' up	134.0	4.5	137.4	132.1	3.9	98	coarse sand w/ gravel
33	Levee fill @ 4/5, I/J	7'	134.0	4.5	133.2	127.6	4.3	95	coarse sand w/ gravel
34	Levee fill @ 4/5, H/I	7' up	134.0	4.5	134.4	129.8	3.5	97	coarse sand w/ gravel
35	Levee fill @ 4/5, G/H	7' up	134.0	4.5	132.4	127.4	3.9	95	coarse sand w/ gravel
36	Pillow wall fill @ 11/12, J/K	3' up	134.0	4.5	136.8	132.7	3.0	99	coarse sand w/ gravel

Specification Compaction and Material : 95%☐ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Page 4 of 5Project: Skykomish Levee RemediationMTE Project # : E6288 Date: 10/9/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
37	Pillow wall fill @ 12/13, J/K	3' up	134.0	4.5	136.4	131.7	3.5	98	coarse sand w/ gravel
38	Levee fill @ 11/12, I/J	4' up	134.0	4.5	136.5	132.5	3.0	99	coarse sand w/ gravel
39	Levee fill @ 12/13, I/J	4' up	134.0	4.5	133.6	129.5	3.1	97	coarse sand w/ gravel
40	Levee fill @ 7/8, I/J	7' up	134.0	4.5	135.1	130.0	3.9	97	coarse sand w/ gravel
41	Levee fill @ 6/7, I/J	7' up	134.0	4.5	134.3	129.2	3.9	96	coarse sand w/ gravel
42	Levee fill @ 5/6, I/J	7' up	134.0	4.5	134.6	130.3	3.2	97	coarse sand w/ gravel
43	Levee fill @ 7/8, H/I	7' up	134.0	4.5	135.3	131.1	3.2	98	coarse sand w/ gravel
44	Levee fill @ 6/7, H/I	7' up	134.0	4.5	133.1	128.9	3.2	96	coarse sand w/ gravel
45	Levee fill @ H/I, 5/6	7' up	134.0	4.5	133.1	127.8	4.1	95	coarse sand w/ gravel
46	Levee fill @ J/K, 10/11	4' up	134.0	4.5	135.4	131.8	2.6	98	coarse sand w/ gravel
47	Levee fill @ J/K, 11/12	4' up	134.0	4.5	136.4	131.8	3.4	90	coarse sand w/ gravel
48	Levee fill @ J/K, 12/13	4' up	134.0	4.5	133.5	128.8	3.6	96	coarse sand w/ gravel

Specification Compaction and Material : 95%

- ☐ ASTM D 1557 (Modified Proctor)
☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Fax 503.281.7579Page 5 of 5Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 10/9/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
49	Pillow wall fill @ J/K, 10/11	5' up	134.0	4.5	132.3	132.0	3.2	98	coarse sand w/ gravel
50	Pillow wall fill @ J/K, 11/12	5' up	134.0	4.5	133.5	129.6	3.0	97	coarse sand w/ gravel
51	Pillow wall fill @ I/J, 7/8	7' up	134.0	4.5	132.2	127.8	3.4	95	coarse sand w/ gravel
52	Pillow wall fill @ I/J, 6/7	7' up	134.0	4.5	134.1	129.7	3.3	97	coarse sand w/ gravel
53	Pillow wall fill @ I/J, 5/6	7' up	134.0	4.5	133.4	128.5	3.8	96	coarse sand w/ gravel
54	Pillow wall fill @ I/J, 9	7' up	134.0	4.5	131.8	127.4	3.4	95	coarse sand w/ gravel
55	Pillow wall fill @ J/K, 9	7' up	134.0	4.5	132.8	128.3	3.4	96	coarse sand w/ gravel
56	Levee fill @ 9/10, I/J	7'	134.0	4.5	137.3	133.0	3.2	99	coarse sand w/ gravel
57	Pillow wall fill @ 10/11, J/K	6' up	134.0	4.5	135.5	131.6	2.9	98	coarse sand w/ gravel
58	Pillow wall fill @ 11/12, J/K	6' up	134.0	4.5	131.1	127.5	2.8	95	coarse sand w/ gravel
59	Levee fill @ 10/11, I/J	6' up	134.0	4.5	135.0	131.5	2.8	98	coarse sand w/ gravel
60	Levee fill @ 11/12, F/J	6' up	134.0	4.5	137.9	133.2	3.5	99	coarse sand w/ gravel

Specification Compaction and Material : 95%☐ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

Moisture Density Relationship TestClient: Wilder ConstructionProject: Skykomish Levee RemediationTest Method: ASTM D-1557 Method C / C 127 / D 4718 (if needed)Date Tested: 10/9/2006Project Number: E6288Lab Number: 524Wet Preparation ☐Mechanical ☒Dry Preparation ☒Hand Tamper ☐Date Received: 10/9/2006Source of Sample: ImportDescription of Sample: Brown coarse sand with gravel

Zero Void line plotted at SpG:

2.65

Max. Density Uncorrected:

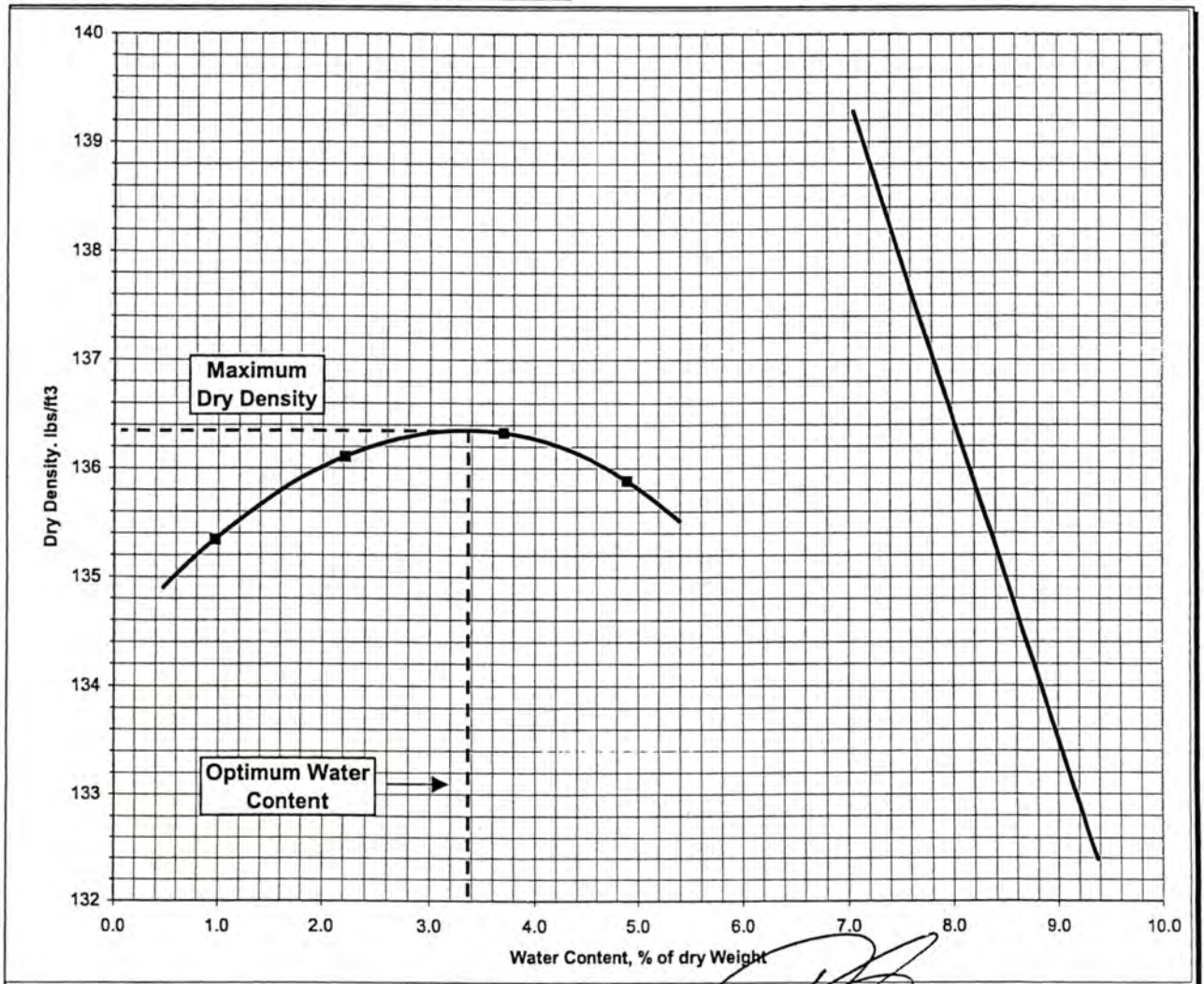
127.0

Test Results

Optimum Water Content % 3.5

Max Dry Density Corr. lbs/ft³ 136.5**Sieve Analysis**

Sieve Size	Percent Retained
3/4	31%
3/8	39%
#4	45%

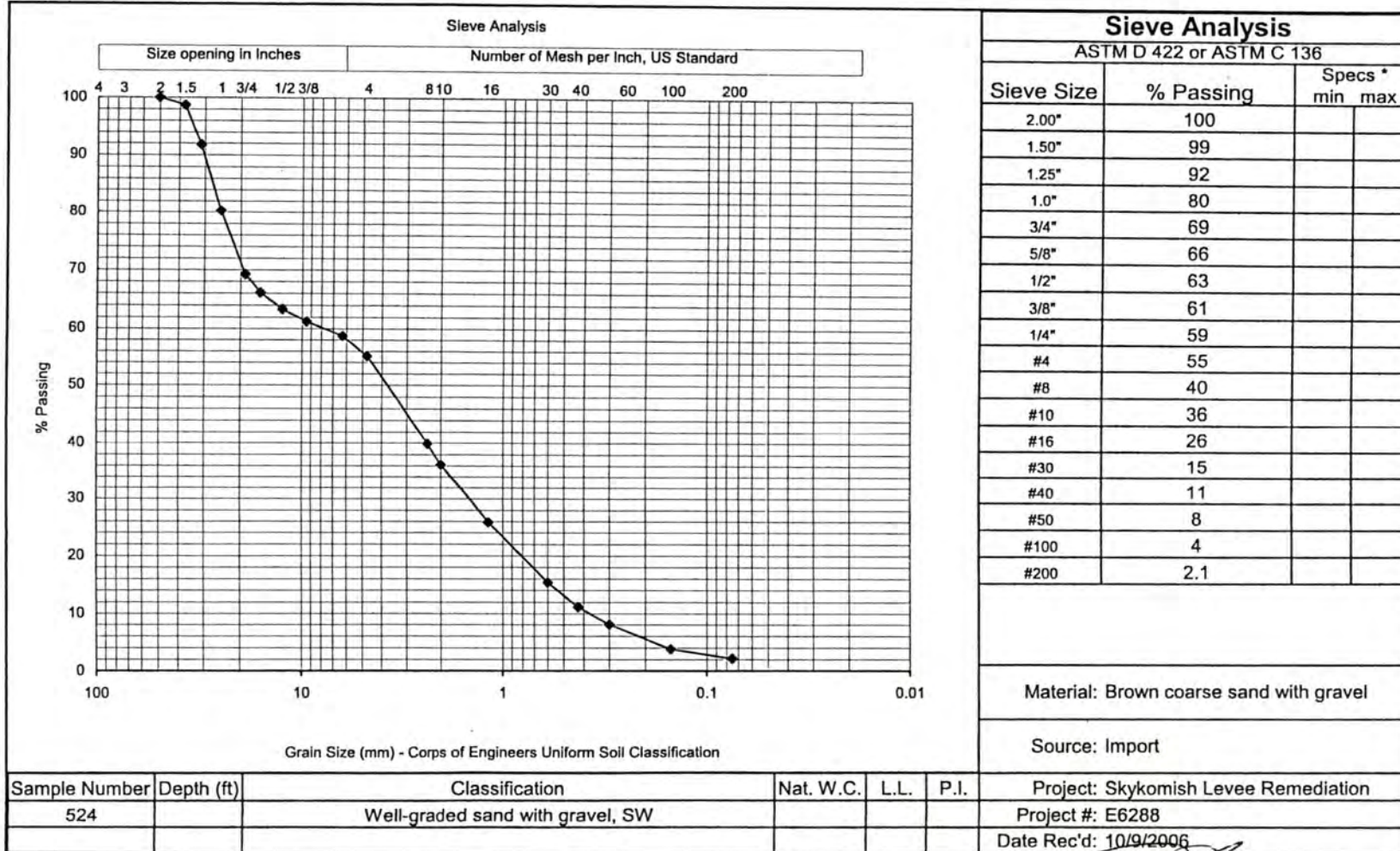
Tested By: G. BookerReviewed By: [Signature]

Dale Yoder, Lab Manager

Information in this report applies only to the actual samples tested and shall not be reproduced except in full, without the approval of Mayes Testing Engineers, Inc.

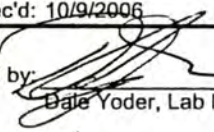
MAYES TESTING ENGINEERS, INC.

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Everett, WA 98204 Fax 425-745-1737



Tested By: G. Booker

Date Tested: 10/9/2006

Reviewed by: 
Dale Yoder, Lab Manager

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New proctor and sieve52410/11/2006

MTE Form #143, Rev 2, 6-02

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Moisture Density Relationship Test

Client: Wilder Construction

Project: Skykomish Levee Remediation

Test Method: ASTM D-1557 Method C / C 127 / D 4718 (if needed)

Date Tested: 10/9/2006

Project Number: E6288

Lab Number: 524

Wet Preparation ☐ Mechanical ☒
 Dry Preparation ☒ Hand Tamper ☐

Date Received: 10/9/2006

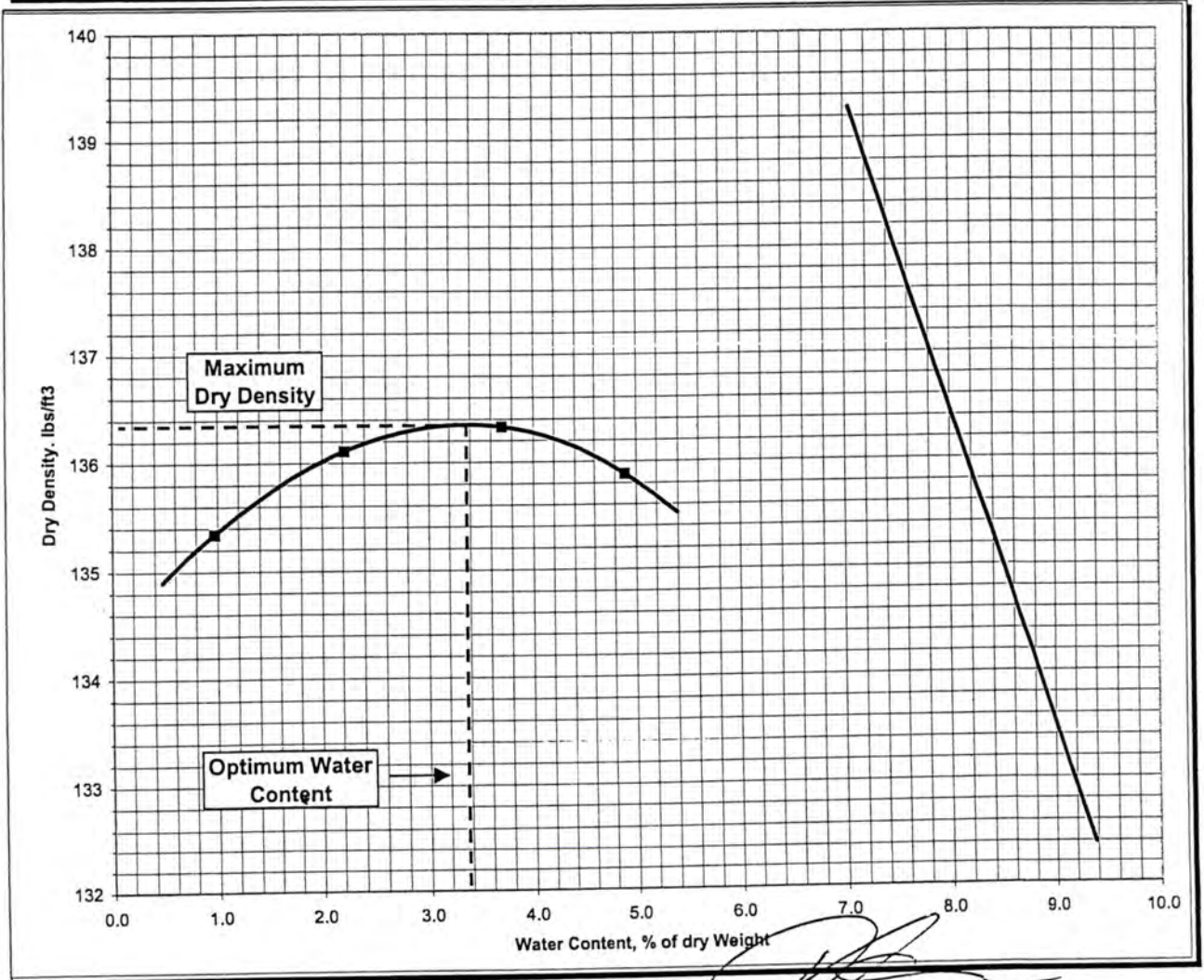
Source of Sample: Import

Description of Sample: Brown coarse sand with gravel

Test Results	
Optimum Water Content %	3.5
Max Dry Density Corr. lbs/ft ³	136.5

Sieve Analysis	
Sieve Size	Percent Retained
3/4	31%
3/8	39%
#4	45%

Zero Void line plotted at SpG: 2.65
 Max. Density Uncorrected: 127.0



Tested By: G. Booker

Reviewed By: [Signature]

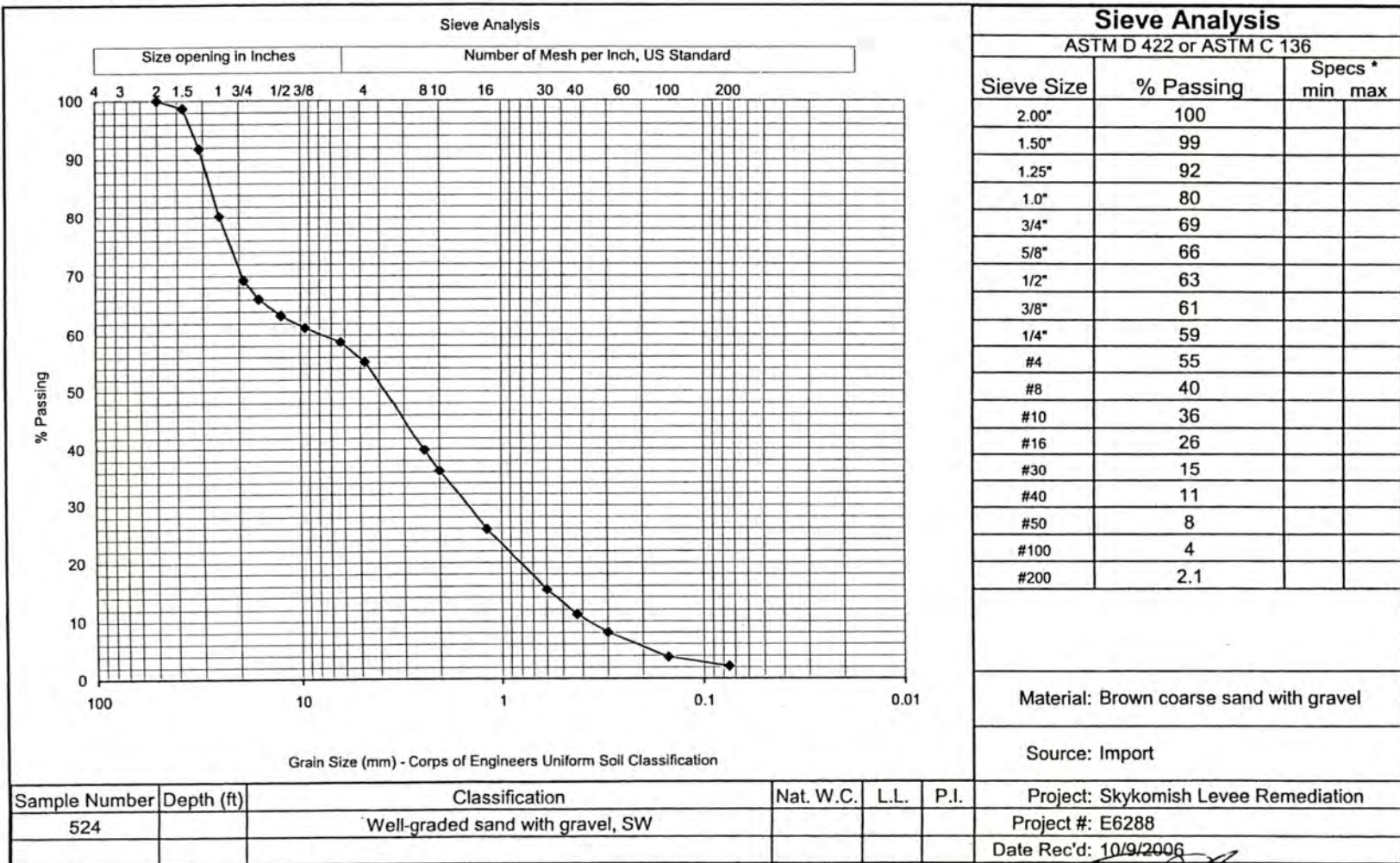
Dale Yoder, Lab Manager

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Tested By: G. Booker

Date Tested: 10/9/2006

Reviewed by: Dale Yoder, Lab Manager

Information in this report applies only to the actual samples tested and shall not be reproduced except in full, without the approval of Mayes Testing Engineers, Inc.

New proctor and sieve 524 10/11/2006

MTE Form #143, Rev 2, 6-02

MAYES TESTING ENGINEERS, INC.

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 25

Date: 9/19/06
Weather: Cloudy/Rain
Inspection: Soils
Sample(s): None

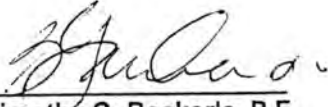
Arrived onsite to perform soil compaction tests on the backfill being placed in the levee. The soil used was the structural fill material (medium coarse sand with gravel), which was placed on top of the stabilization aggregate, which is used to bring the height above the surface of the water.

The north edge of the levee was brought up to 9'-0" between 3/4 and 15/16. The south side of the levee was brought up to 4'-0" between 10/11 and 14/15, and up to 3'-0" between 10/11 and 5/6. Tests were taken and compaction was met. See attached field density test report for specific locations and results.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Brandon Veach

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 9/19/06

Permit #: _____

Inspector: B VeachMTE Nuclear Gauge #: 16**FIELD DENSITY TEST REPORT**
ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	4/5	9'	136.5	5.0	138.1	129.7	6.5	95.1	medium coarse sand w/ gravel
2	5/6	9'	136.5	5.0	138.3	129.6	6.7	95.0	medium coarse sand w/ gravel
3	6/7	9'	136.5	5.0	140.3	129.6	8.2	95.0	medium coarse sand w/ gravel
4	8/9	9'	136.5	5.0	141.0	130.2	8.3	95.4	medium coarse sand w/ gravel
5	10/11	9'	136.5	5.0	139.8	130.0	7.6	95.2	medium coarse sand w/ gravel
6	11/12	9'	136.5	5.0	140.3	130.5	7.5	95.6	medium coarse sand w/ gravel
7	12/13	9'	136.5	5.0	140.2	130.1	7.8	95.3	medium coarse sand w/ gravel
8	13/14	9'	136.5	5.0	140.6	129.9	8.2	95.2	medium coarse sand w/ gravel
9	14/15	9'	136.5	5.0	138.5	129.6	6.9	95.0	medium coarse sand w/ gravel
10	12/13	2'	136.5	5.0	134.2	124.9	7.5	91.5	medium coarse sand w/ gravel
11	11/12	2'	136.5	5.0	135.5	126.4	7.2	92.6	medium coarse sand w/ gravel
12	10/11	2'	136.5	5.0	133.3	125.3	6.4	91.8	medium coarse sand w/ gravel
13	9/10	2'	136.5	5.0	133.6	127.3	4.9	93.2	medium coarse sand w/ gravel

Specification Compaction and Material : 90% / 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: several Thickness of lift: 8-10"Method of Adding Moisture: water truck

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☐ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Page 2 of 2Project: Skykomish Levee RemediationMTE Project # : E6288 Date: 9/19/06

Permit #: _____

Inspector: B VeachMTE Nuclear Gauge #: 16

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
14	8/9	2'	136.5	5.0	132.7	125.6	5.7	92.0	medium coarse sand w/ gravel
15	8/9	3'	136.5	5.0	132.4	125.8	5.2	92.1	medium coarse sand w/ gravel
16	9/10	3'	136.5	5.0		124.1	8.0	90.9	medium coarse sand w/ gravel
17	10/11	3'	136.5	5.0		125.5	8.2	91.9	medium coarse sand w/ gravel
18	11/12	3'	136.5	5.0	135.2	125.8	7.5	92.1	medium coarse sand w/ gravel
19	12/13	3'	136.5	5.0	134.5	125.5	7.2	91.9	medium coarse sand w/ gravel
20	13/14	3'	136.5	5.0	133.0	124.3	7.0	91.1	medium coarse sand w/ gravel
21	14/15	4'	136.5	5.0	145.2	136.2	6.6	99.8	medium coarse sand w/ gravel
22	13/14	4'	136.5	5.0	140.1	132.7	5.6	97.2	medium coarse sand w/ gravel
23	12/13	4'	136.5	5.0	139.6	132.4	5.4	97.0	medium coarse sand w/ gravel
24	10/11	4'	136.5	5.0	138.9	132.4	4.9	97.0	medium coarse sand w/ gravel
25	6/7	3'	136.5	5.0	135.7	128.6	5.5	94.2	medium coarse sand w/ gravel
26	5/6	3'	136.5	5.0	132.5	126.1	5.1	92.4	medium coarse sand w/ gravel

Specification Compaction and Material : 90% / 95%

- ☒ ASTM D 1557 (Modified Proctor)
☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: several Thickness of lift: 8-10"Method of Adding Moisture: water truck

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☐ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

MAYES TESTING ENGINEERS, INC.

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 26

Date: 10/10/06
Weather: Sun
Inspection: Soils
Sample(s): 1 bag – coarse sand with gravel

Observed Wilder Construction perform earthwork procedures at levee fill and pillow wall between G/H to J/K, 3/4 to 12/13. 10" to 12" lifts of coarse sand with gravel were placed and compacted across fill area. Performed in-place density tests to verify 95% compaction. Areas of low compaction and low moisture content were wet by water truck and recompacted to achieve 95%. Tests information can be found on attached field density test report.

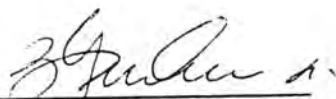
Obtained and delivered to Everett Lab a sample bag of sand with gravel for sieve analysis.

Transported nuclear gauge to and from jobsite.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Fax 503.281.7579**FIELD DENSITY TEST REPORT**
ASTM D 2922 / D 3017Page 1 of 4Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 10/10/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	Levee fill at 3/4, G/H	8' up	134.0	4.5	137.1	132.4	3.4	98	coarse sand w/ gravel
2	Levee fill at 4/5, G/H	8' up	134.0	4.5	135.1	130.6	3.4	98	coarse sand w/ gravel
3	Levee fill at 5/6, G/H	8' up	134.0	4.5	131.9	128.2	2.8	96	coarse sand w/ gravel
4	Levee fill at 6/7, G/H	8' up	134.0	4.5	131.3	126.9	3.4	95	coarse sand w/ gravel
5	Levee fill at 4/5, H/I	8' up	134.0	4.5	134.8	130.8	3.0	98	coarse sand w/ gravel
6	Levee fill at 2/3, H/I	8' up	134.0	4.5	135.8	131.0	3.6	98	coarse sand w/ gravel
7	Levee fill at 3/4, H/I	8' up	134.0	4.5	134.7	130.7	3.0	97	coarse sand w/ gravel
8	Levee fill at 3/4, I/J	8' up	134.0	4.5	133.3	129.3	3.1	96	coarse sand w/ gravel
9	Levee fill at 4/5, I/J	8' up	134.0	4.5	134.9	129.8	3.9	97	coarse sand w/ gravel
10	Levee fill at 5/6, I/J	8' up	134.0	4.5	130.8	126.7	3.1	95	coarse sand w/ gravel
11	Levee fill at 6/7, I/J	8' up	134.0	4.5	133.3	127.9	4.1	96	coarse sand w/ gravel
12	Leve fill at 6/7, G/H	9'	134.0	4.5	136.3	129.0	5.6	96	coarse sand w/ gravel

Specification Compaction and Material : 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Page 2 of 4Project: Skykomish Levee RemediationMTE Project # : E6288 Date: 10/10/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
13	Levee fill at 7/8, G/H	9'	134.0	4.5	136.2	129.5	5.2	97	coarse sand w/ gravel
14	Levee fill at 8/9, G/H	9'	134.0	4.5	137.8	130.7	5.4	98	coarse sand w/ gravel
15	Levee fill at 9/10, G/H	9'	134.0	4.5	136.4	130.2	4.8	97	coarse sand w/ gravel
16	Levee fill at 11/12, H/I	7'	134.0	4.5	138.2	131.8	4.8	98	coarse sand w/ gravel
17	Levee fill at 10/11, H/I	7'	134.0	4.5	132.7	126.7	4.7	95	coarse sand w/ gravel
18	Levee fill at 11/12, I/J	7'	134.0	4.5	137.3	132.2	3.8	99	coarse sand w/ gravel
19	Levee fill at 10/11, I/J	7'	134.0	4.5	138.8	134.2	3.4	99	coarse sand w/ gravel
20	Levee fill at 11/10, J/K	7'	134.0	4.5	135.7	131.7	3.0	98	coarse sand w/ gravel
21	Levee fill at 10/11, J/K	7'	134.0	4.5	136.2	132.1	3.1	98	coarse sand w/ gravel
22	Levee fill at 3/4, I/J	9'	134.0	4.5	134.8	130.4	3.3	97	coarse sand w/ gravel
23	Levee fill at 4/5, I/J	9'	134.0	4.5	134.9	129.9	3.8	97	coarse sand w/ gravel
24	Levee fill at 5/6, I/J	9'	134.0	4.5	134.8	129.9	3.7	97	coarse sand w/ gravel

Specification Compaction and Material : 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Fax 503.281.7579Page 3 of 4Project: Skykomish Levee RemediationMTE Project # : E6288 Date: 10/10/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
25	Levee fill at 6/7, I/J	9'	134.0	4.5	132.2	127.9	3.3	95	coarse sand w/ gravel
26	Levee fill at 6/7, I/J	10' up	134.0	4.5	131.4	127.3	3.2	95	coarse sand w/ gravel
27	Levee fill at 5/6, I/J	10' up	134.0	4.5	132.6	127.9	3.6	95	coarse sand w/ gravel
28	Levee fill at 4/5, I/J	10' up	134.0	4.5	134.1	129.6	3.4	97	coarse sand w/ gravel
29	Levee fill at 9/10, H/I	8' up	134.0	4.5	136.6	131.8	3.6	98	coarse sand w/ gravel
30	Levee fill at 10/11, H/I	8' up	134.0	4.5	134.7	130.1	3.5	97	coarse sand w/ gravel
31	Levee fill at 9/10, I/J	8' up	134.0	4.5	130.7	126.7	3.1	95	coarse sand w/ gravel
32	Levee fill at 10/11, I/J	8' up	134.0	4.5	133.6	127.7	4.9	95	coarse sand w/ gravel
33	Pillow wall fill at 9/10, J/K	8' up	134.0	4.5	133.8	130.3	2.7	97	coarse sand w/ gravel
34	Levee fill at 10/11, J/K	8' up	134.0	4.5	136.8	129.6	5.5	97	coarse sand w/ gravel
35	Levee fill at 11/12, J/K	8' up	134.0	4.5	132.4	127.8	3.5	95	coarse sand w/ gravel
36	Levee fill at 11/12, I/J	8' up	134.0	4.5	132.9	128.3	3.6	96	coarse sand w/ gravel

Specification Compaction and Material : 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Page 4 of 4Project: Skykomish Levee RemediationMTE Project # : E6288 Date: 10/10/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
37	Levee fill at 11/12, H/I	8' up	134.0	4.5	133.3	128.5	3.7	96	coarse sand w/ gravel
38	Pillow wall fill at 9-line, J/K	9' up	134.0	4.5	137.1	129.0	6.2		coarse sand w/ gravel
39	Pillow wall fill at 9-line, I/J	9' up	134.0	4.5	135.4	128.2	5.6		coarse sand w/ gravel
40	Levee fill at 9/10, J/K	10' up	134.0	4.5	135.6	130.5	3.9		coarse sand w/ gravel
41	Levee fill at 10/11, J/K	10' up	134.0	4.5	138.1	131.6	4.9		coarse sand w/ gravel
42	Levee fill at 9/10, H/I	10' up	134.0	4.5	133.8	128.4	4.2		coarse sand w/ gravel
43	Levee fill at 10/11, H/I	10' up	134.0	4.5	134.0	128.9	3.9		coarse sand w/ gravel

Specification Compaction and Material : 95%

- ☒ ASTM D 1557 (Modified Proctor)
☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

MAYES TESTING ENGINEERS, INC.

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 27

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fax 503.281.7579

Date: 10/11/06
Weather: Sun
Inspection: Soils
Sample(s): 1 bag – sand with gravel

Observed Wilder Construction perform earthwork procedures at the levee fill up to grade at F/G to J/K, 2/3 to 11/12. 10" to 12" lifts of coarse sand with gravel were placed and spread by dozer over area south of river. Compaction was achieved by 3-4 passes by a vibrating smooth drum roller. Performed in-place density tests to verify 95% compaction. Test information can be found on the field density test report.

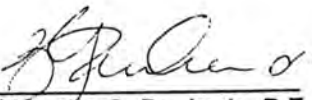
Obtained a bag sample of coarse sand with gravel and delivered to Everett Lab for sieve analysis testing.

Transported nuclear gauge to and from jobsite.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Fax 503.281.7579**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Page 1 of 2Project: Skykomish Levee RemediationMTE Project # : E6288 Date: 10/11/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	Levee fill at 7/8, H/I	9' up	134.0	4.5	132.4	128.2	3.2	96	coarse sand w/ gravel
2	Levee fill at 6/7, H/I	9' up	134.0	4.5	137.0	132.3	3.5	98	coarse sand w/ gravel
3	Levee fill at 6/7, G/H	9' up	134.0	4.5	131.3	126.6	3.6	95	coarse sand w/ gravel
4	Levee fill at 5/6, G/H	9' up	134.0	4.5	135.8	131.7	3.1	98	coarse sand w/ gravel
5	Levee fill at 5/6, H/I	9' up	134.0	4.5	134.5	130.1	3.3	97	coarse sand w/ gravel
6	Levee fill at 7/8, G/H	9' up	134.0	4.5	134.1	129.9	3.2	97	coarse sand w/ gravel
7	Levee fill at 11/12, G/H	9' up	134.0	4.5	131.6	127.9	2.9	95	coarse sand w/ gravel
8	Levee fill at 10/11, G/H	9' up	134.0	4.5	133.4	128.2	4.0	96	coarse sand w/ gravel
9	Levee fill at 10/11, H/I	9' up	134.0	4.5	132.1	128.1	3.1	96	coarse sand w/ gravel
10	Levee fill at 11/12, H/I	9' up	134.0	4.5	132.8	128.6	3.2	96	coarse sand w/ gravel
11	Levee fill at 12/13, H/I	9' up	134.0	4.5	134.6	130.4	3.3	97	coarse sand w/ gravel
12	Levee fill at 12/13, I/J	9'	134.0	4.5	135.2	130.3	3.7	97	coarse sand w/ gravel

Specification Compaction and Material : 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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FIELD DENSITY TEST REPORT
ASTM D 2922 / D 3017Page 2 of 2

Project: Skykomish Levee Remediation
MTE Project #: E6288 Date: 10/11/06
Permit #: _____
Inspector: C Pratt
MTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
13	Levee fill at 10/11, I/J	9'	134.0	4.5	134.7	130.3	3.4	97	coarse sand w/ gravel
14	Levee fill at 11/12, I/J	9'	134.0	4.5	134.6	130.0	3.4	97	coarse sand w/ gravel
15	Levee fill at 2/3, F/G	at grade	134.0	4.5	135.7	131.7	3.0	98	coarse sand w/ gravel
16	Levee fill at 2/3, G/H	at grade	134.0	4.5	134.3	130.0	3.3	97	coarse sand w/ gravel
17	Levee fill at 3/4, G/H	at grade	134.0	4.5	138.9	133.9	3.6	99	coarse sand w/ gravel
18	Levee fill at 5/6, G/H	at grade	134.0	4.5	133.8	128.4	4.2	96	coarse sand w/ gravel
19	Levee fill at 4/5, G/H	at grade	134.0	4.5	134.5	128.2	4.9	96	coarse sand w/ gravel
20	Levee fill at 6/7, G/H	at grade	134.0	4.5	135.5	129.4	4.6	97	coarse sand w/ gravel
21	Levee fill at 7/8, G/H	at grade	134.0	4.5	135.6	130.0	4.3	97	coarse sand w/ gravel
22	Levee fill at 8/9, G/H	at grade	134.0	4.5	134.7	129.9	4.2	97	coarse sand w/ gravel

Specification Compaction and Material : 95%
☒ ASTM D 1557 (Modified Proctor)
☐ ASTM D 698 (Standard Proctor)
Type and Number of earth moving units: Dozer
Type and Number of Compaction units: Roller
Number of Passes: 3-4 Thickness of lift: 10-12"
Method of Adding Moisture: none
Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:

☐ In our opinion, fill does not meet specifications as indicated by test numbers:

☒ Fill test meets specifications

☒ Contractor Advised

☒ Full-time observation

☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

MAYES TESTING ENGINEERS, INC.

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 28

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fax 503.281.7579

Date: 10/12/06
Weather: Sun
Inspection: Soils
Sample(s): 1 bag – sand with gravel

Observed Wilder Construction perform earthwork procedures at the levee fill area from F/G to J/K, 2/3 to 11/12. 10" to 12" lifts of coarse sand with gravel were placed by dump trucks and spread by dozer. Compaction was achieved by multiple passes by the vibrating drum roller. Performed in-place density tests to verify 95% compaction. Test information can be found on attached field density test report.

Obtained a sample bag of sand with gravel and delivered to Everett Lab for sieve analysis.

Transported nuclear gauge to and from jobsite.

One lift of pillow retaining wall was placed along I/J line from 8/9 to 11/12. Filter fabric was surrounding the lift per plans.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Fax 503.281.7579Page 1 of 3Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 10/12/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6**FIELD DENSITY TEST REPORT**
ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	Levee fill at 9/10, F/G	at grade	134.0	4.5	134.6	129.2	4.1	96	coarse sand w/ gravel
2	Levee fill at 2/3, F/G	at grade	134.0	4.5	136.1	131.9	3.2	98	coarse sand w/ gravel
3	Levee fill at 3/4, F/G	at grade	134.0	4.5	134.6	130.3	3.2	97	coarse sand w/ gravel
4	Levee fill at 4/5, F/G	at grade	134.0	4.5	133.8	129.1	3.6	96	coarse sand w/ gravel
5	Levee fill at 5/6, F/G	at grade	134.0	4.5	131.9	126.7	4.0	95	coarse sand w/ gravel
6	Levee fill at 6/7, F/G	at grade	134.0	4.5	134.0	129.7	3.2	97	coarse sand w/ gravel
7	Levee fill at 7/8, F/G	at grade	134.0	4.5	135.3	131.4	2.9	98	coarse sand w/ gravel
8	Levee fill at 8/9, F/G	at grade	134.0	4.5	134.3	129.5	3.6	96	coarse sand w/ gravel
9	Levee fill at 9/10, F/G	at grade	134.0	4.5	136.1	130.1	3.6	97	coarse sand w/ gravel
10	Levee fill at 3/4, H/I	at grade	134.0	4.5	134.9	130.1	3.6	97	coarse sand w/ gravel
11	Levee fill at 4/5, H/I	at grade	134.1	4.6	135.9	128.7	5.5	96	coarse sand w/ gravel
12	Levee fill at 5/6, H/I	at grade	134.2	4.7	134.3	127.6	5.2	95	coarse sand w/ gravel

Specification Compaction and Material : 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: water truck at tests 12-16

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

Page 2 of 3

Project: Skykomish Levee Remediation

MTE Project #: E6288 Date: 10/12/06

Permit #: _____

Inspector: C Pratt

MTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
13	Levee fill at 6/7, H/I	at grade	134.0	4.5	138.0	129.7	6.3	97	coarse sand w/ gravel
14	Levee fill at 7/8, H/I	at grade	134.0	4.5	136.7	128.0	6.7	96	coarse sand w/ gravel
15	Levee fill at 8/9, H/I	at grade	134.0	4.5	141.5	132.2	7.0	98	coarse sand w/ gravel
16	Levee fill at 9/10, H/I	at grade	134.0	4.5	137.8	128.0	7.6	96	coarse sand w/ gravel
17	Levee fill at 10/11, H/I	at grade	134.0	4.5	133.2	128.5	3.6	96	coarse sand w/ gravel
18	Levee fill at 9/10, I/J	10' up	134.0	4.5	131.7	127.0	3.6	95	coarse sand w/ gravel
19	Levee fill at 10/11, I/J	10' up	134.0	4.5	131.9	127.5	3.4	95	coarse sand w/ gravel
20	Pillow wall fill at 9/10, I/J		134.0	4.5	131.5	126.7	3.7	95	coarse sand w/ gravel
21	Pillow wall fill at 10/11, I/J		134.0	4.5	134.0	130.1	2.9	97	coarse sand w/ gravel
22	Pillow wall fill at 11/12, I/J		134.0	4.5	135.6	130.9	3.5	98	coarse sand w/ gravel
23	Levee fill at 8/9, H/I	at grade 10' up	134.0	4.5	137.5	131.1	4.8	98	coarse sand w/ gravel
24	Levee fill at 9/10, H/I	at grade 10' up	134.0	4.5	133.0	128.1	3.8	96	coarse sand w/ gravel

Specification Compaction and Material : 95%

☒ ASTM D 1557 (Modified Proctor)

☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: Dozer

Type and Number of Compaction units: Roller

Number of Passes: 3-4 Thickness of lift: 10-12"

Method of Adding Moisture: water truck at tests 12-16

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:

☐ In our opinion, fill does not meet specifications as indicated by test numbers:

☒ Fill test meets specifications

☒ Contractor Advised

☒ Full-time observation

☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Fax 503.281.7579**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Page 3 of 3Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 10/12/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
25	Levee fill at 10/11, H/I	at grade 10' up	134.0	4.5	136.7	131.6	3.8	98	coarse sand w/ gravel
26	Levee fill at 11/12, H/I	at grade 10' up	134.0	4.5	132.2	126.9	4.1	95	coarse sand w/ gravel
27	Levee fill at 9/10, I/J	10' up	134.0	4.5	131.9	127.6	3.4	95	coarse sand w/ gravel
28	Levee fill at 10/11, I/J	10' up	134.0	4.5	131.3	126.8	3.5	95	coarse sand w/ gravel
29	Levee fill at 11/12, I/J	10' up	134.0	4.5	134.5	130.2	3.2	97	coarse sand w/ gravel
30	Levee fill at 9/10, I/J	at grade	134.0	4.5	133.2	128.1	4.0	96	coarse sand w/ gravel
31	Levee fill at 10/11, I/J	at grade	134.0	4.5	131.8	128.4	2.6	96	coarse sand w/ gravel
32	Levee fill at 11/12, H/I	at grade	134.0	4.5	138.7	132.3	4.8	98	coarse sand w/ gravel
33	Levee fill at 11/12, H/I	at grade	134.0	4.5	137.5	131.0	4.9	98	coarse sand w/ gravel

Specification Compaction and Material : 95%

- ☒ ASTM D 1557 (Modified Proctor)
☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: water truck at tests 12-16

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

MAYES TESTING ENGINEERS, INC.

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 24

Date: 10/9/06
Weather: Sunny
Inspection: Soils
Sample(s): (1) bag coarse sand w/ gravel

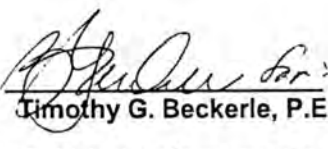
Observed Wilder Construction perform earthwork procedures at levee fill and pillow wall fill from F/G to I/J, 3/4 to 12/13. Ten to 12" lifts of coarse sand with gravel were placed and compacted in areas mentioned above. Filter fabric was surrounding lifts along pillow wall lines per plans. performed in-place density tests to verify 95% compaction. Test information can be found on attached Field Density Test Report.

Obtained sample bag of coarse sand with gravel and delivered to Everett Lab for sieve analysis testing.

Transport nuclear gauge to and from jobsite.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY: 
Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Fax 503.281.7579**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Page 1 of 5Project: Skykomish Levee RemediationMTE Project # : E6288 Date: 10/9/06

Permit #:

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	Levee fill @ 9/10, G/H	7' up	134.0	4.5	137.3	133.0	3.2	99	coarse sand w/ gravel
2	Levee fill @ 9/10, H/I	7' up	134.0	4.5	132.2	127.4	3.7	95	coarse sand w/ gravel
3	Levee fill @ 10/11, G/H	7' up	134.0	4.5	136.6	131.9	3.6	98	coarse sand w/ gravel
4	Levee fill @ 10/11, H/I	7' up	134.0	4.5	132.3	127.5	3.7	95	coarse sand w/ gravel
5	Pillow wall @ 10/11, I/J	6' up	134.0	4.5	134.2	128.5	4.3	96	coarse sand w/ gravel
6	Pillow wall @ 9 line, J/K	6' up	134.0	4.5	134.6	129.7	3.7	97	coarse sand w/ gravel
7	Levee fill @ 9 line, I/J	7' up	134.0	4.5	132.3	127.6	3.6	95	coarse sand w/ gravel
8	Levee fill @ 11/12, I/J	7' up	134.0	4.5	134.1	128.4	4.4	96	coarse sand w/ gravel
9	Levee fill @ 11/12, H/I	7' up	134.0	4.5	137.5	133.2	3.2	99	coarse sand w/ gravel
10	Pillow wall @ 9 line, I/J	7' up	134.0	4.5	136.0	130.9	3.8	97	coarse sand w/ gravel
11	Pillow wall @ 9 line, H/I	7' up	134.0	4.5	136.8	132.5	3.2	98	coarse sand w/ gravel
12	Levee fill @ 10/11, I/J	7' up	134.0	4.5	131.8	126.8	4.0	95	coarse sand w/ gravel

Specification Compaction and Material : 95%☐ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Fax 503.281.7579**FIELD DENSITY TEST REPORT**
ASTM D 2922 / D 3017Page 2 of 5Project: Skykomish Levee RemediationMTE Project # : E6288 Date: 10/9/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
13	Levee fill @ 10/11, H/I	7' up	134.0	4.5	134.3	129.3	3.8	97	coarse sand w/ gravel
14	Levee fill @ 11/12, H/I	7' up	134.0	4.5	134.0	129.3	3.6	97	coarse sand w/ gravel
15	Levee fill @ 11/12, G/H	7' up	134.0	4.5	138.3	132.2	4.5	98	coarse sand w/ gravel
16	Levee fill @ 12/113, G/H	8' up	134.0	4.5	133.2	128.3	3.8	96	coarse sand w/ gravel
17	Levee fill @ 11/12, G/H	8' up	134.0	4.5	135.8	131.6	3.1	98	coarse sand w/ gravel
18	Levee fill @ 10/11, G/H	8' up	134.0	4.5	136.1	130.3	4.4	97	coarse sand w/ gravel
19	Levee fill @ 3/4, H/I	7' up	134.0	4.5	133.8	129.2	3.5	96	coarse sand w/ gravel
20	Levee fill @ 3/4, G/H	7' up	134.0	4.5	135.8	129.0	2.9	96	coarse sand w/ gravel
21	Levee fill @ 4/5, F/G	7' up	134.0	4.5	134.7	131.7	3.1	98	coarse sand w/ gravel
22	Levee fill @ 5/6, F/G	7' up	134.0	4.5	133.3	130.4	3.2	97	coarse sand w/ gravel
23	Levee fill @ 6/7, F/G	7' up	134.0	4.5	133.3	128.3	3.8	96	coarse sand w/ gravel
24	Levee fill @ 12/13, H/I	7' up	134.0	4.5	132.8	128.2	3.5	96	coarse sand w/ gravel

Specification Compaction and Material : 95%

- ☐ ASTM D 1557 (Modified Proctor)
☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Fax 503.281.7579**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Page 3 of 5Project: Skykomish Levee RemediationMTE Project # : E6288 Date: 10/9/06

Permit #:

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
25	Levee fill @ 12/13, I/J	7' up	134.0	4.5	133.9	129.6	3.3	97	coarse sand w/ gravel
26	Levee fill @ 4/5, G/H	8' up	134.0	4.5	134.3	129.8	3.4	97	coarse sand w/ gravel
27	Levee fill @ 5/6, G/H	8' up	134.0	4.5	133.3	127.9	4.1	96	coarse sand w/ gravel
28	Levee fill @ 6/7, G/H	8' up	134.0	4.5	135.0	130.6	3.3	97	coarse sand w/ gravel
29	Pillow wall fill @ 11/12, J/K	1' up	134.0	4.5	133.8	129.3	3.4	97	coarse sand w/ gravel
30	Pillow wall fill @ 12/13, J/K	1' up	134.0	4.5	136.1	130.9	3.9	98	coarse sand w/ gravel
31	Pillow wall fill @ 11/12, J/K	2' up	134.0	4.5	134.6	130.5	3.1	97	coarse sand w/ gravel
32	Pillow wall fill @ 12/13, J/K	2' up	134.0	4.5	137.4	132.1	3.9	98	coarse sand w/ gravel
33	Levee fill @ 4/5, I/J	7'	134.0	4.5	133.2	127.6	4.3	95	coarse sand w/ gravel
34	Levee fill @ 4/5, H/I	7' up	134.0	4.5	134.4	129.8	3.5	97	coarse sand w/ gravel
35	Levee fill @ 4/5, G/H	7' up	134.0	4.5	132.4	127.4	3.9	95	coarse sand w/ gravel
36	Pillow wall fill @ 11/12, J/K	3' up	134.0	4.5	136.8	132.7	3.0	99	coarse sand w/ gravel

Specification Compaction and Material : 95%☐ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579**FIELD DENSITY TEST REPORT**
ASTM D 2922 / D 3017Page 4 of 5Project: Skykomish Levee RemediationMTE Project # : E6288 Date: 10/9/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
37	Pillow wall fill @ 12/13, J/K	3' up	134.0	4.5	136.4	131.7	3.5	98	coarse sand w/ gravel
38	Levee fill @ 11/12, I/J	4' up	134.0	4.5	136.5	132.5	3.0	99	coarse sand w/ gravel
39	Levee fill @ 12/13, I/J	4' up	134.0	4.5	133.6	129.5	3.1	97	coarse sand w/ gravel
40	Levee fill @ 7/8, I/J	7' up	134.0	4.5	135.1	130.0	3.9	97	coarse sand w/ gravel
41	Levee fill @ 6/7, I/J	7' up	134.0	4.5	134.3	129.2	3.9	96	coarse sand w/ gravel
42	Levee fill @ 5/6, I/J	7' up	134.0	4.5	134.6	130.3	3.2	97	coarse sand w/ gravel
43	Levee fill @ 7/8, H/I	7' up	134.0	4.5	135.3	131.1	3.2	98	coarse sand w/ gravel
44	Levee fill @ 6/7, H/I	7' up	134.0	4.5	133.1	128.9	3.2	96	coarse sand w/ gravel
45	Levee fill @ H/I, 5/6	7' up	134.0	4.5	133.1	127.8	4.1	95	coarse sand w/ gravel
46	Levee fill @ J/K, 10/11	4' up	134.0	4.5	135.4	131.8	2.6	98	coarse sand w/ gravel
47	Levee fill @ J/K, 11/12	4' up	134.0	4.5	136.4	131.8	3.4	90	coarse sand w/ gravel
48	Levee fill @ J/K, 12/13	4' up	134.0	4.5	133.5	128.8	3.6	96	coarse sand w/ gravel

Specification Compaction and Material : 95%

- ☐ ASTM D 1557 (Modified Proctor)
☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Fax 503.281.7579**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Page 5 of 5Project: Skykomish Levee RemediationMTE Project # : E6288 Date: 10/9/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
49	Pillow wall fill @ J/K, 10/11	5' up	134.0	4.5	132.3	132.0	3.2	98	coarse sand w/ gravel
50	Pillow wall fill @ J/K, 11/12	5' up	134.0	4.5	133.5	129.6	3.0	97	coarse sand w/ gravel
51	Pillow wall fill @ I/J, 7/8	7' up	134.0	4.5	132.2	127.8	3.4	95	coarse sand w/ gravel
52	Pillow wall fill @ I/J, 6/7	7' up	134.0	4.5	134.1	129.7	3.3	97	coarse sand w/ gravel
53	Pillow wall fill @ I/J, 5/6	7' up	134.0	4.5	133.4	128.5	3.8	96	coarse sand w/ gravel
54	Pillow wall fill @ I/J, 9	7' up	134.0	4.5	131.8	127.4	3.4	95	coarse sand w/ gravel
55	Pillow wall fill @ J/K, 9	7' up	134.0	4.5	132.8	128.3	3.4	96	coarse sand w/ gravel
56	Levee fill @ 9/10, I/J	7'	134.0	4.5	137.3	133.0	3.2	99	coarse sand w/ gravel
57	Pillow wall fill @ 10/11, J/K	6' up	134.0	4.5	135.5	131.6	2.9	98	coarse sand w/ gravel
58	Pillow wall fill @ 11/12, J/K	6' up	134.0	4.5	131.1	127.5	2.8	95	coarse sand w/ gravel
59	Levee fill @ 10/11, I/J	6' up	134.0	4.5	135.0	131.5	2.8	98	coarse sand w/ gravel
60	Levee fill @ 11/12, F/J	6' up	134.0	4.5	137.9	133.2	3.5	99	coarse sand w/ gravel

Specification Compaction and Material : 95%☐ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Portland Office
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MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 26

Date: 10/10/06
Weather: Sun
Inspection: Soils
Sample(s): 1 bag – coarse sand with gravel

Observed Wilder Construction perform earthwork procedures at levee fill and pillow wall between G/H to J/K, 3/4 to 12/13. 10" to 12" lifts of coarse sand with gravel were placed and compacted across fill area. Performed in-place density tests to verify 95% compaction. Areas of low compaction and low moisture content were wet by water truck and recompact to achieve 95%. Tests information can be found on attached field density test report.

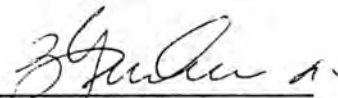
Obtained and delivered to Everett Lab a sample bag of sand with gravel for sieve analysis.

Transported nuclear gauge to and from jobsite.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Fax 503.281.7579Page 1 of 4Project: Skykomish Levee RemediationMTE Project # : E6288 Date: 10/10/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	Levee fill at 3/4, G/H	8' up	134.0	4.5	137.1	132.4	3.4	98	coarse sand w/ gravel
2	Levee fill at 4/5, G/H	8' up	134.0	4.5	135.1	130.6	3.4	98	coarse sand w/ gravel
3	Levee fill at 5/6, G/H	8' up	134.0	4.5	131.9	128.2	2.8	96	coarse sand w/ gravel
4	Levee fill at 6/7, G/H	8' up	134.0	4.5	131.3	126.9	3.4	95	coarse sand w/ gravel
5	Levee fill at 4/5, H/I	8' up	134.0	4.5	134.8	130.8	3.0	98	coarse sand w/ gravel
6	Levee fill at 2/3, H/I	8' up	134.0	4.5	135.8	131.0	3.6	98	coarse sand w/ gravel
7	Levee fill at 3/4, H/I	8' up	134.0	4.5	134.7	130.7	3.0	97	coarse sand w/ gravel
8	Levee fill at 3/4, I/J	8' up	134.0	4.5	133.3	129.3	3.1	96	coarse sand w/ gravel
9	Levee fill at 4/5, I/J	8' up	134.0	4.5	134.9	129.8	3.9	97	coarse sand w/ gravel
10	Levee fill at 5/6, I/J	8' up	134.0	4.5	130.8	126.7	3.1	95	coarse sand w/ gravel
11	Levee fill at 6/7, I/J	8' up	134.0	4.5	133.3	127.9	4.1	96	coarse sand w/ gravel
12	Leve fill at 6/7, G/H	9'	134.0	4.5	136.3	129.0	5.6	96	coarse sand w/ gravel

Specification Compaction and Material : 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Fax 503.281.7579**FIELD DENSITY TEST REPORT**
ASTM D 2922 / D 3017Page 2 of 4Project: Skykomish Levee RemediationMTE Project # : E6288 Date: 10/10/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
13	Levee fill at 7/8, G/H	9'	134.0	4.5	136.2	129.5	5.2	97	coarse sand w/ gravel
14	Levee fill at 8/9, G/H	9'	134.0	4.5	137.8	130.7	5.4	98	coarse sand w/ gravel
15	Levee fill at 9/10, G/H	9'	134.0	4.5	136.4	130.2	4.8	97	coarse sand w/ gravel
16	Levee fill at 11/12, H/I	7'	134.0	4.5	138.2	131.8	4.8	98	coarse sand w/ gravel
17	Levee fill at 10/11, H/I	7'	134.0	4.5	132.7	126.7	4.7	95	coarse sand w/ gravel
18	Levee fill at 11/12, I/J	7'	134.0	4.5	137.3	132.2	3.8	99	coarse sand w/ gravel
19	Levee fill at 10/11, I/J	7'	134.0	4.5	138.8	134.2	3.4	99	coarse sand w/ gravel
20	Levee fill at 11/10, J/K	7'	134.0	4.5	135.7	131.7	3.0	98	coarse sand w/ gravel
21	Levee fill at 10/11, J/K	7'	134.0	4.5	136.2	132.1	3.1	98	coarse sand w/ gravel
22	Levee fill at 3/4, I/J	9'	134.0	4.5	134.8	130.4	3.3	97	coarse sand w/ gravel
23	Levee fill at 4/5, I/J	9'	134.0	4.5	134.9	129.9	3.8	97	coarse sand w/ gravel
24	Levee fill at 5/6, I/J	9'	134.0	4.5	134.8	129.9	3.7	97	coarse sand w/ gravel

Specification Compaction and Material : 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Fax 503.281.7579**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Page 3 of 4Project: Skykomish Levee RemediationMTE Project # : E6288 Date: 10/10/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
25	Levee fill at 6/7, I/J	9'	134.0	4.5	132.2	127.9	3.3	95	coarse sand w/ gravel
26	Levee fill at 6/7, I/J	10' up	134.0	4.5	131.4	127.3	3.2	95	coarse sand w/ gravel
27	Levee fill at 5/6, I/J	10' up	134.0	4.5	132.6	127.9	3.6	95	coarse sand w/ gravel
28	Levee fill at 4/5, I/J	10' up	134.0	4.5	134.1	129.6	3.4	97	coarse sand w/ gravel
29	Levee fill at 9/10, H/I	8' up	134.0	4.5	136.6	131.8	3.6	98	coarse sand w/ gravel
30	Levee fill at 10/11, H/I	8' up	134.0	4.5	134.7	130.1	3.5	97	coarse sand w/ gravel
31	Levee fill at 9/10, I/J	8' up	134.0	4.5	130.7	126.7	3.1	95	coarse sand w/ gravel
32	Levee fill at 10/11, I/J	8' up	134.0	4.5	133.6	127.7	4.9	95	coarse sand w/ gravel
33	Pillow wall fill at 9/10, J/K	8' up	134.0	4.5	133.8	130.3	2.7	97	coarse sand w/ gravel
34	Levee fill at 10/11, J/K	8' up	134.0	4.5	136.8	129.6	5.5	97	coarse sand w/ gravel
35	Levee fill at 11/12, J/K	8' up	134.0	4.5	132.4	127.8	3.5	95	coarse sand w/ gravel
36	Levee fill at 11/12, I/J	8' up	134.0	4.5	132.9	128.3	3.6	96	coarse sand w/ gravel

Specification Compaction and Material : 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Fax 503.281.7579**FIELD DENSITY TEST REPORT**
ASTM D 2922 / D 3017Page 4 of 4Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 10/10/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
37	Levee fill at 11/12, H/I	8' up	134.0	4.5	133.3	128.5	3.7	96	coarse sand w/ gravel
38	Pillow wall fill at 9-line, J/K	9' up	134.0	4.5	137.1	129.0	6.2		coarse sand w/ gravel
39	Pillow wall fill at 9-line, I/J	9' up	134.0	4.5	135.4	128.2	5.6		coarse sand w/ gravel
40	Levee fill at 9/10, J/K	10' up	134.0	4.5	135.6	130.5	3.9		coarse sand w/ gravel
41	Levee fill at 10/11, J/K	10' up	134.0	4.5	138.1	131.6	4.9		coarse sand w/ gravel
42	Levee fill at 9/10, H/I	10' up	134.0	4.5	133.8	128.4	4.2		coarse sand w/ gravel
43	Levee fill at 10/11, H/I	10' up	134.0	4.5	134.0	128.9	3.9		coarse sand w/ gravel

Specification Compaction and Material : 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 27

Date: 10/11/06
Weather: Sun
Inspection: Soils
Sample(s): 1 bag – sand with gravel

Observed Wilder Construction perform earthwork procedures at the levee fill up to grade at F/G to J/K, 2/3 to 11/12. 10" to 12" lifts of coarse sand with gravel were placed and spread by dozer over area south of river. Compaction was achieved by 3-4 passes by a vibrating smooth drum roller. Performed in-place density tests to verify 95% compaction. Test information can be found on the field density test report.

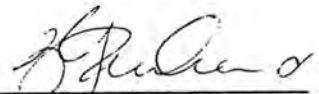
Obtained a bag sample of coarse sand with gravel and delivered to Everett Lab for sieve analysis testing.

Transported nuclear gauge to and from jobsite.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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ASTM D 2922 / D 3017

Page 1 of 2Project: Skykomish Levee RemediationMTE Project # : E6288 Date: 10/11/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	Levee fill at 7/8, H/I	9' up	134.0	4.5	132.4	128.2	3.2	96	coarse sand w/ gravel
2	Levee fill at 6/7, H/I	9' up	134.0	4.5	137.0	132.3	3.5	98	coarse sand w/ gravel
3	Levee fill at 6/7, G/H	9' up	134.0	4.5	131.3	126.6	3.6	95	coarse sand w/ gravel
4	Levee fill at 5/6, G/H	9' up	134.0	4.5	135.8	131.7	3.1	98	coarse sand w/ gravel
5	Levee fill at 5/6, H/I	9' up	134.0	4.5	134.5	130.1	3.3	97	coarse sand w/ gravel
6	Levee fill at 7/8, G/H	9' up	134.0	4.5	134.1	129.9	3.2	97	coarse sand w/ gravel
7	Levee fill at 11/12, G/H	9' up	134.0	4.5	131.6	127.9	2.9	95	coarse sand w/ gravel
8	Levee fill at 10/11, G/H	9' up	134.0	4.5	133.4	128.2	4.0	96	coarse sand w/ gravel
9	Levee fill at 10/11, H/I	9' up	134.0	4.5	132.1	128.1	3.1	96	coarse sand w/ gravel
10	Levee fill at 11/12, H/I	9' up	134.0	4.5	132.8	128.6	3.2	96	coarse sand w/ gravel
11	Levee fill at 12/13, H/I	9' up	134.0	4.5	134.6	130.4	3.3	97	coarse sand w/ gravel
12	Levee fill at 12/13, I/J	9'	134.0	4.5	135.2	130.3	3.7	97	coarse sand w/ gravel

Specification Compaction and Material : 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Tacoma, WA 98499Ph 253.584.3720
Fax 253.584.37077911 NE 33rd Drive, Suite 190
Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579**FIELD DENSITY TEST REPORT**
ASTM D 2922 / D 3017Page 2 of 2

Project: Skykomish Levee Remediation

MTE Project # : E6288 Date: 10/11/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
13	Levee fill at 10/11, I/J	9'	134.0	4.5	134.7	130.3	3.4	97	coarse sand w/ gravel
14	Levee fill at 11/12, I/J	9'	134.0	4.5	134.6	130.0	3.4	97	coarse sand w/ gravel
15	Levee fill at 2/3, F/G	at grade	134.0	4.5	135.7	131.7	3.0	98	coarse sand w/ gravel
16	Levee fill at 2/3, G/H	at grade	134.0	4.5	134.3	130.0	3.3	97	coarse sand w/ gravel
17	Levee fill at 3/4, G/H	at grade	134.0	4.5	138.9	133.9	3.6	99	coarse sand w/ gravel
18	Levee fill at 5/6, G/H	at grade	134.0	4.5	133.8	128.4	4.2	96	coarse sand w/ gravel
19	Levee fill at 4/5, G/H	at grade	134.0	4.5	134.5	128.2	4.9	96	coarse sand w/ gravel
20	Levee fill at 6/7, G/H	at grade	134.0	4.5	135.5	129.4	4.6	97	coarse sand w/ gravel
21	Levee fill at 7/8, G/H	at grade	134.0	4.5	135.6	130.0	4.3	97	coarse sand w/ gravel
22	Levee fill at 8/9, G/H	at grade	134.0	4.5	134.7	129.9	4.2	97	coarse sand w/ gravel

Specification Compaction and Material : 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

MAYES TESTING ENGINEERS, INC.

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 28

Everett Office
917-134th Street SW
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fax 425.745.1737

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ph 253.584.3720
fax 253.584.3707

Portland Office
7911 NE 33rd Drive
Suite 190
Portland, OR 97211
ph 503.281.7515
fax 503.281.7579

Date: 10/12/06
Weather: Sun
Inspection: Soils
Sample(s): 1 bag – sand with gravel

Observed Wilder Construction perform earthwork procedures at the levee fill area from F/G to J/K, 2/3 to 11/12. 10" to 12" lifts of coarse sand with gravel were placed by dump trucks and spread by dozer. Compaction was achieved by multiple passes by the vibrating drum roller. Performed in-place density tests to verify 95% compaction. Test information can be found on attached field density test report.

Obtained a sample bag of sand with gravel and delivered to Everett Lab for sieve analysis.

Transported nuclear gauge to and from jobsite.

One lift of pillow retaining wall was placed along I/J line from 8/9 to 11/12. Filter fabric was surrounding the lift per plans.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY: 
Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Page 1 of 3Project: Skykomish Levee RemediationMTE Project # : E6288 Date: 10/12/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	Levee fill at 9/10, F/G	at grade	134.0	4.5	134.6	129.2	4.1	96	coarse sand w/ gravel
2	Levee fill at 2/3, F/G	at grade	134.0	4.5	136.1	131.9	3.2	98	coarse sand w/ gravel
3	Levee fill at 3/4, F/G	at grade	134.0	4.5	134.6	130.3	3.2	97	coarse sand w/ gravel
4	Levee fill at 4/5, F/G	at grade	134.0	4.5	133.8	129.1	3.6	96	coarse sand w/ gravel
5	Levee fill at 5/6, F/G	at grade	134.0	4.5	131.9	126.7	4.0	95	coarse sand w/ gravel
6	Levee fill at 6/7, F/G	at grade	134.0	4.5	134.0	129.7	3.2	97	coarse sand w/ gravel
7	Levee fill at 7/8, F/G	at grade	134.0	4.5	135.3	131.4	2.9	98	coarse sand w/ gravel
8	Levee fill at 8/9, F/G	at grade	134.0	4.5	134.3	129.5	3.6	96	coarse sand w/ gravel
9	Levee fill at 9/10, F/G	at grade	134.0	4.5	136.1	130.1	3.6	97	coarse sand w/ gravel
10	Levee fill at 3/4, H/I	at grade	134.0	4.5	134.9	130.1	3.6	97	coarse sand w/ gravel
11	Levee fill at 4/5, H/I	at grade	134.1	4.6	135.9	128.7	5.5	96	coarse sand w/ gravel
12	Levee fill at 5/6, H/I	at grade	134.2	4.7	134.3	127.6	5.2	95	coarse sand w/ gravel

Specification Compaction and Material : 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: water truck at tests 12-16

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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FIELD DENSITY TEST REPORT
ASTM D 2922 / D 3017Page 2 of 3

Project: Skykomish Levee Remediation
MTE Project # : E6288 Date: 10/12/06
Permit #: _____
Inspector: C Pratt
MTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
13	Levee fill at 6/7, H/I	at grade	134.0	4.5	138.0	129.7	6.3	97	coarse sand w/ gravel
14	Levee fill at 7/8, H/I	at grade	134.0	4.5	136.7	128.0	6.7	96	coarse sand w/ gravel
15	Levee fill at 8/9, H/I	at grade	134.0	4.5	141.5	132.2	7.0	98	coarse sand w/ gravel
16	Levee fill at 9/10, H/I	at grade	134.0	4.5	137.8	128.0	7.6	96	coarse sand w/ gravel
17	Levee fill at 10/11, H/I	at grade	134.0	4.5	133.2	128.5	3.6	96	coarse sand w/ gravel
18	Levee fill at 9/10, I/J	10' up	134.0	4.5	131.7	127.0	3.6	95	coarse sand w/ gravel
19	Levee fill at 10/11, I/J	10' up	134.0	4.5	131.9	127.5	3.4	95	coarse sand w/ gravel
20	Pillow wall fill at 9/10, I/J		134.0	4.5	131.5	126.7	3.7	95	coarse sand w/ gravel
21	Pillow wall fill at 10/11, I/J		134.0	4.5	134.0	130.1	2.9	97	coarse sand w/ gravel
22	Pillow wall fill at 11/12, I/J		134.0	4.5	135.6	130.9	3.5	98	coarse sand w/ gravel
23	Levee fill at 8/9, H/I	at grade 10' up	134.0	4.5	137.5	131.1	4.8	98	coarse sand w/ gravel
24	Levee fill at 9/10, H/I	at grade 10' up	134.0	4.5	133.0	128.1	3.8	96	coarse sand w/ gravel

Specification Compaction and Material : 95%

- ☒ ASTM D 1557 (Modified Proctor)
☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: Dozer
Type and Number of Compaction units: Roller

Number of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: water truck at tests 12-16

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:

- ☒ Fill test meets specifications
☒ Contractor Advised
☒ Full-time observation
☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579**FIELD DENSITY TEST REPORT**
ASTM D 2922 / D 3017Page 3 of 3Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 10/12/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
25	Levee fill at 10/11, H/I	at grade 10' up	134.0	4.5	136.7	131.6	3.8	98	coarse sand w/ gravel
26	Levee fill at 11/12, H/I	at grade 10' up	134.0	4.5	132.2	126.9	4.1	95	coarse sand w/ gravel
27	Levee fill at 9/10, I/J	10' up	134.0	4.5	131.9	127.6	3.4	95	coarse sand w/ gravel
28	Levee fill at 10/11, I/J	10' up	134.0	4.5	131.3	126.8	3.5	95	coarse sand w/ gravel
29	Levee fill at 11/12, I/J	10' up	134.0	4.5	134.5	130.2	3.2	97	coarse sand w/ gravel
30	Levee fill at 9/10, I/J	at grade	134.0	4.5	133.2	128.1	4.0	96	coarse sand w/ gravel
31	Levee fill at 10/11, I/J	at grade	134.0	4.5	131.8	128.4	2.6	96	coarse sand w/ gravel
32	Levee fill at 11/12, H/I	at grade	134.0	4.5	138.7	132.3	4.8	98	coarse sand w/ gravel
33	Levee fill at 11/12, H/I	at grade	134.0	4.5	137.5	131.0	4.9	98	coarse sand w/ gravel

Specification Compaction and Material : 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: RollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: water truck at tests 12-16

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Portland Office
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Suite 190
Portland, OR 97211
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fax 503.281.7579

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 29

Date: 10/18/06
Weather: Showers
Inspection: Soils
Sample(s): (1) bag sand w/ gravel

Observed Wilder Construction perform earthwork procedures at levee fill between J/K to H/I, 11/12 to 15/16. Ten to 12" lifts of coarse sand with gravel were spread by dozer then compacted by several passes by a vibrating smooth drum roller. Performed in-place density tests to verify 95% compaction. Test information can be found on attached field density test report.

Obtained a sample bag of sand with gravel and delivered by Everett lab for sieve analysis.

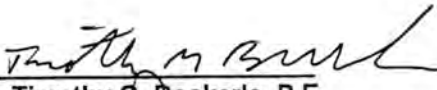
Transported nuclear gauge to and from jobsite.

Fill was placed just south of pillow wall along 11/12 to 141/15 at K-line. 10-12" lifts were compacted to 95% required.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Fax 253.584.37077911 NE 33rd Drive, Suite 190
Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579Page 1 of 2Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 10/18/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	Levee fill at 13/14, H/I	2' blw gr	134.0	4.5	137.0	131.4	4.3	98	coarse sand w/ gravel
2	Levee fill at 14/15, H/I	2' blw gr	134.0	4.5	136.1	130.3	4.4	97	coarse sand w/ gravel
3	Pillow wall fill at 13/14, J/K	2' blw gr	134.0	4.5	133.6	127.7	4.5	95	coarse sand w/ gravel
4	Pillow wall fill at 12/13, J/K	2' blw gr	134.0	4.5	135.3	130.1	3.7	97	coarse sand w/ gravel
5	Pillow wall fill at 12/13, J/K	1' blw	134.0	4.5	134.6	128.4	4.8	96	coarse sand w/ gravel
6	Pillow wall fill at 14/15, J/K	1' blw	134.0	4.5	138.7	132.9	4.4	99	coarse sand w/ gravel
7	Levee fill at 12/13, H/I	1' blw	134.0	4.5	136.9	130.6	4.8	97	coarse sand w/ gravel
8	Levee fill at 13/14, H/I	1' blw	134.0	4.5	136.8	130.8	4.5	97	coarse sand w/ gravel
9	Levee fill at 14/15, H/I	1' blw	134.0	4.5	136.4	129.3	5.4	96	coarse sand w/ gravel
10	Levee fill at 13/14, H/I	at gr	134.0	4.5	133.9	128.8	3.9	96	coarse sand w/ gravel
11	Levee fill at 14/15, H/I	at gr	134.0	4.5	134.0	129.2	3.6	96	coarse sand w/ gravel

Specification Compaction and Material : 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: Roller / Ho-PacNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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FIELD DENSITY TEST REPORT
ASTM D 2922 / D 3017Page 2 of 2

Project: Skykomish Levee Remediation
MTE Project #: E6288 Date: 10/18/06
Permit #: _____
Inspector: C Pratt
MTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
12	wall subgrade along F-line at 19/20	at grade	134.0	4.5	128.7	123.0	4.6	92	coarse sand w/ gravel
13	wall subgrade along F-line at 20/21	at grade	134.0	4.5	132.0	127.5	3.5	95	coarse sand w/ gravel
14	wall subgrade along F-line at 21/22	at grade	134.0	4.5	133.8	129.0	3.7	96	coarse sand w/ gravel
15	wall subgrade along F-line at 22/23	at grade	134.0	4.5	133.5	129.0	3.4	96	coarse sand w/ gravel
16	wall subgrade along F-line at 23/24	at grade	134.0	4.5	132.9	127.2	4.4	95	coarse sand w/ gravel
17	wall subgrade along F-line at 24/25	at grade	134.0	4.5	134.0	128.3	4.4	96	coarse sand w/ gravel
18	wall subgrade along F-line at 25/26	at grade	134.0	4.5	134.9	129.3	4.3	97	coarse sand w/ gravel
19	fill south of pillow wall at K-line, 12/13	3' blw	134.0	4.5	133.3	127.5	4.5	95	coarse sand w/ gravel
20	fill south of pillow wall at K-line, 1/143	3' blw	134.0	4.5	135.7	129.3	4.9	97	coarse sand w/ gravel
21	fill south of pillow wall at K-line, 13/14	1' blw	134.0	4.5	132.8	127.4	4.2	95	coarse sand w/ gravel
22	fill south of pillow wall at K-line, 14/15	1' blw	134.0	4.5	137.6	131.7	4.4	98	coarse sand w/ gravel

Specification Compaction and Material : 95%

- ☒ ASTM D 1557 (Modified Proctor)
☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: Dozer
Type and Number of Compaction units: Roller / Ho-Pac

Number of Passes: 3-4 Thickness of lift: 10-12"
Method of Adding Moisture: none
Comments: _____

☒ In our opinion, fill generally meets specifications as indicated by test numbers:13-22☒ In our opinion, fill does not meet specifications as indicated by test numbers:12, area will be excavated later and reworked☐ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

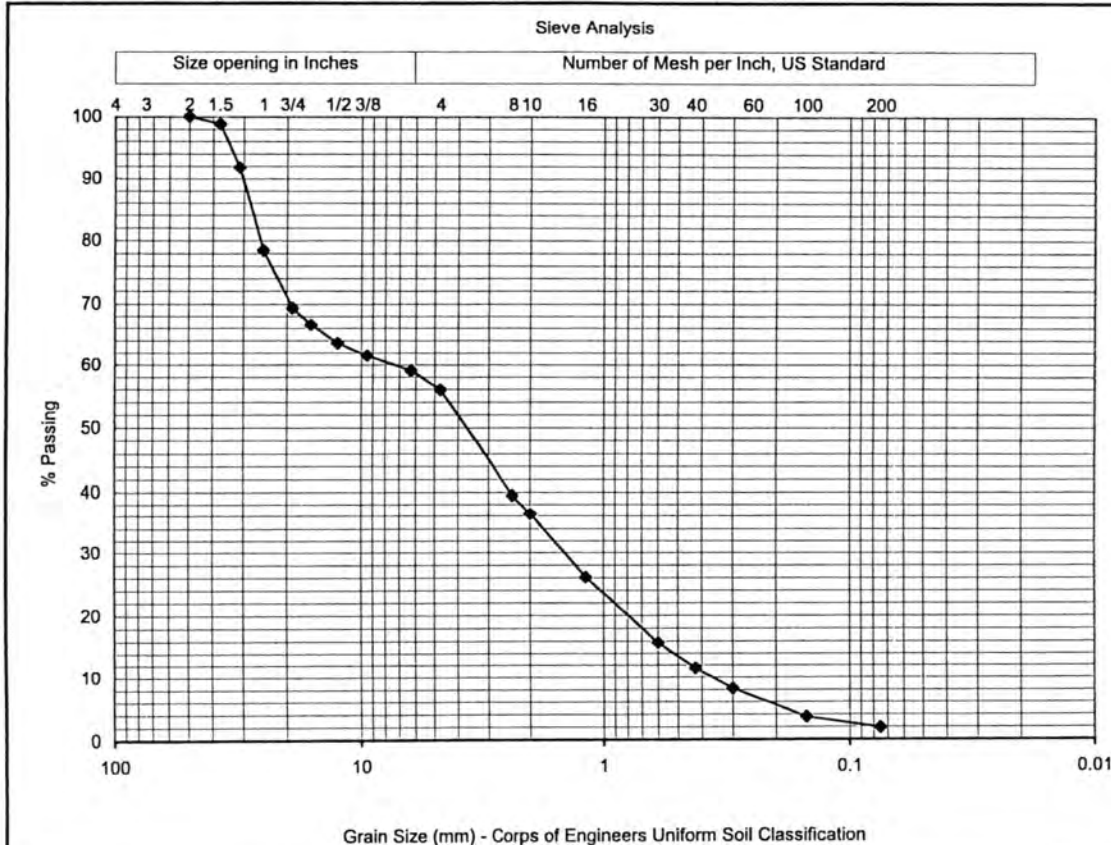
Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Everett, WA 98204

Ph 425-742-9360
Fax 425-745-1737



Sieve Analysis			
ASTM D 422 or ASTM C 136			
Sieve Size	% Passing	Specs *	
		min	max
2.00"	100		
1.50"	99		
1.25"	92		
1.0"	78		
3/4"	69		
5/8"	67		
1/2"	64		
3/8"	61		
1/4"	59		
#4	56		
#8	39		
#10	36		
#16	26		
#30	16		
#40	11		
#50	8		
#100	4		
#200	1.8		

Material: Gray coarse sand with gravel			
Source: Import			
Client: Wilder Construction			
Project: Skykomish Levee Remediation			
Project #: E6288			
Date Rec'd: 10/10/2006			

Sample Number	Depth (ft)	Classification	Nat. W.C.	L.L.	P.I.
540		Well-graded sand with gravel, SW			

Tested By: G. Booker

Date Tested: 10/12/2006

Reviewed by:

[Signature]
Date Yoder, Lab Manager

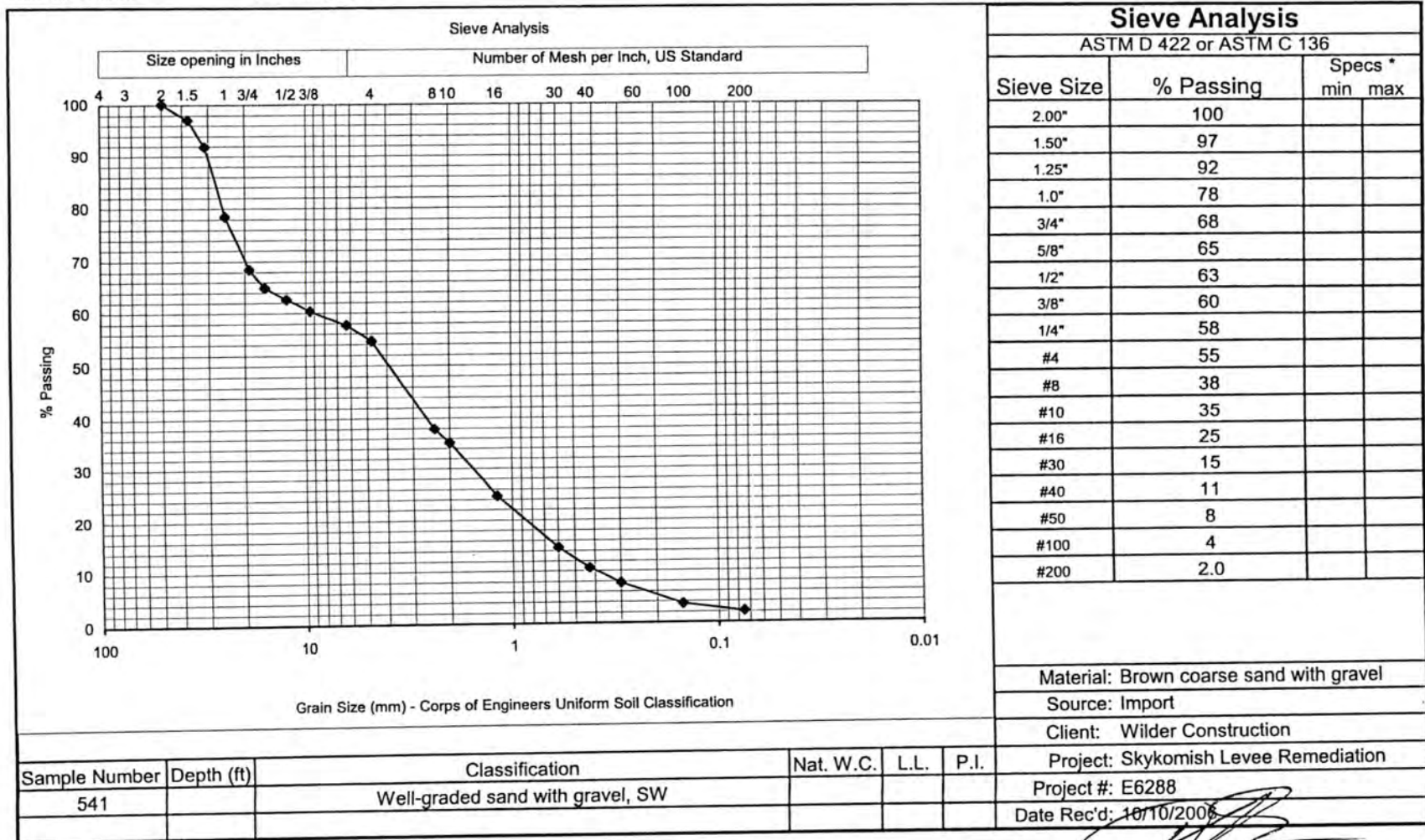
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Sieve54010/20/2006

MTE Form #143, Rev 2, 6-02

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Everett, WA 98204 Fax 425-745-1737



Tested By: G. Booker

Date Tested: 10/12/2006

Reviewed by:
Date Yoder, Lab Manager

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Sieve54110/20/2006

MTE Form #143, Rev 2, 6-02

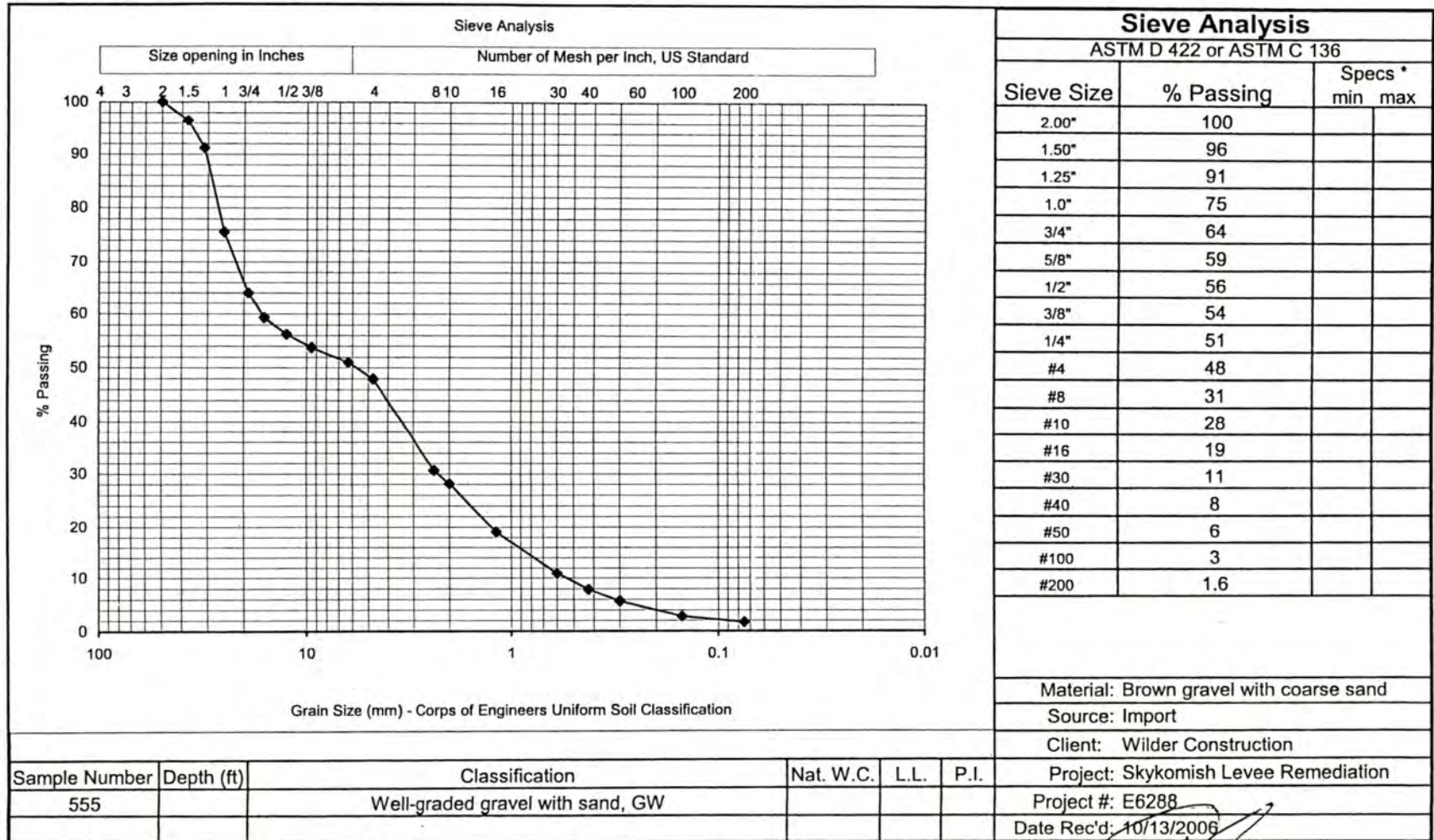
MAYES TESTING ENGINEERS, INC.

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Ph 425-742-9360

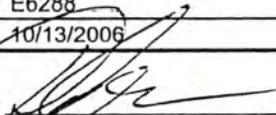
Everett, WA 98204

Fax 425-745-1737



Tested By: G. Booker

Date Tested: 10/17/2006

Reviewed by: 
Dale Yoder, Lab Manager

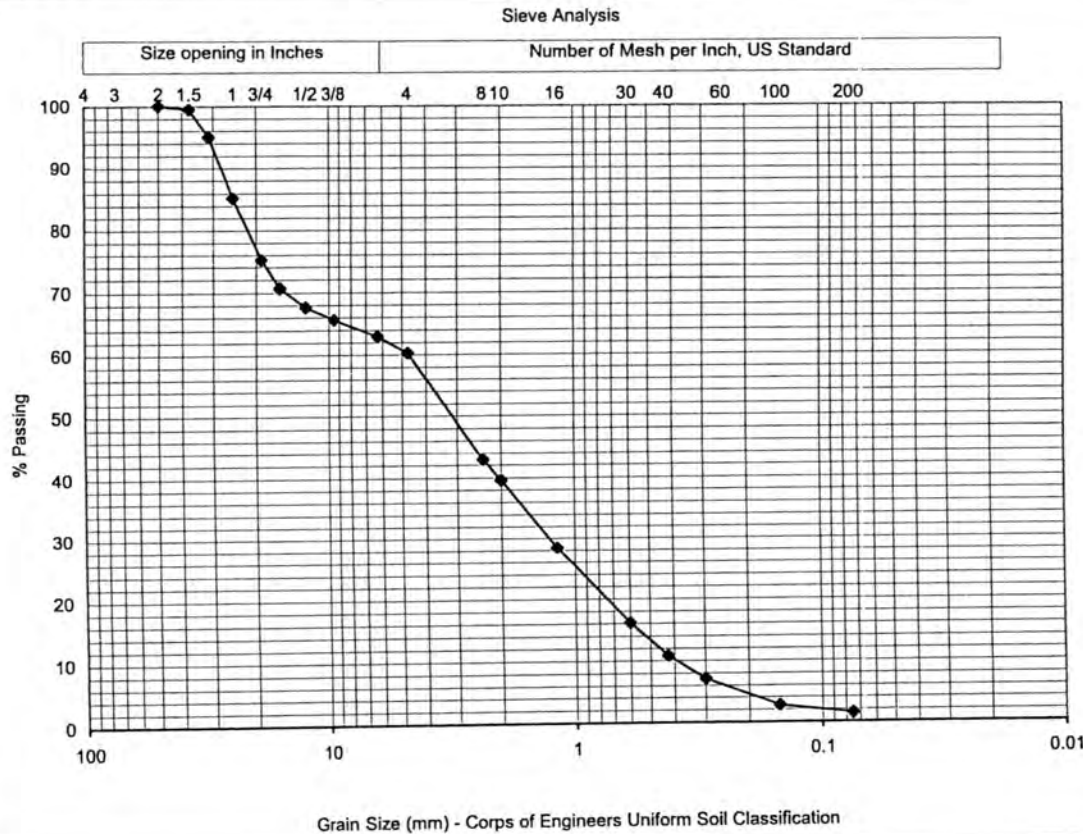
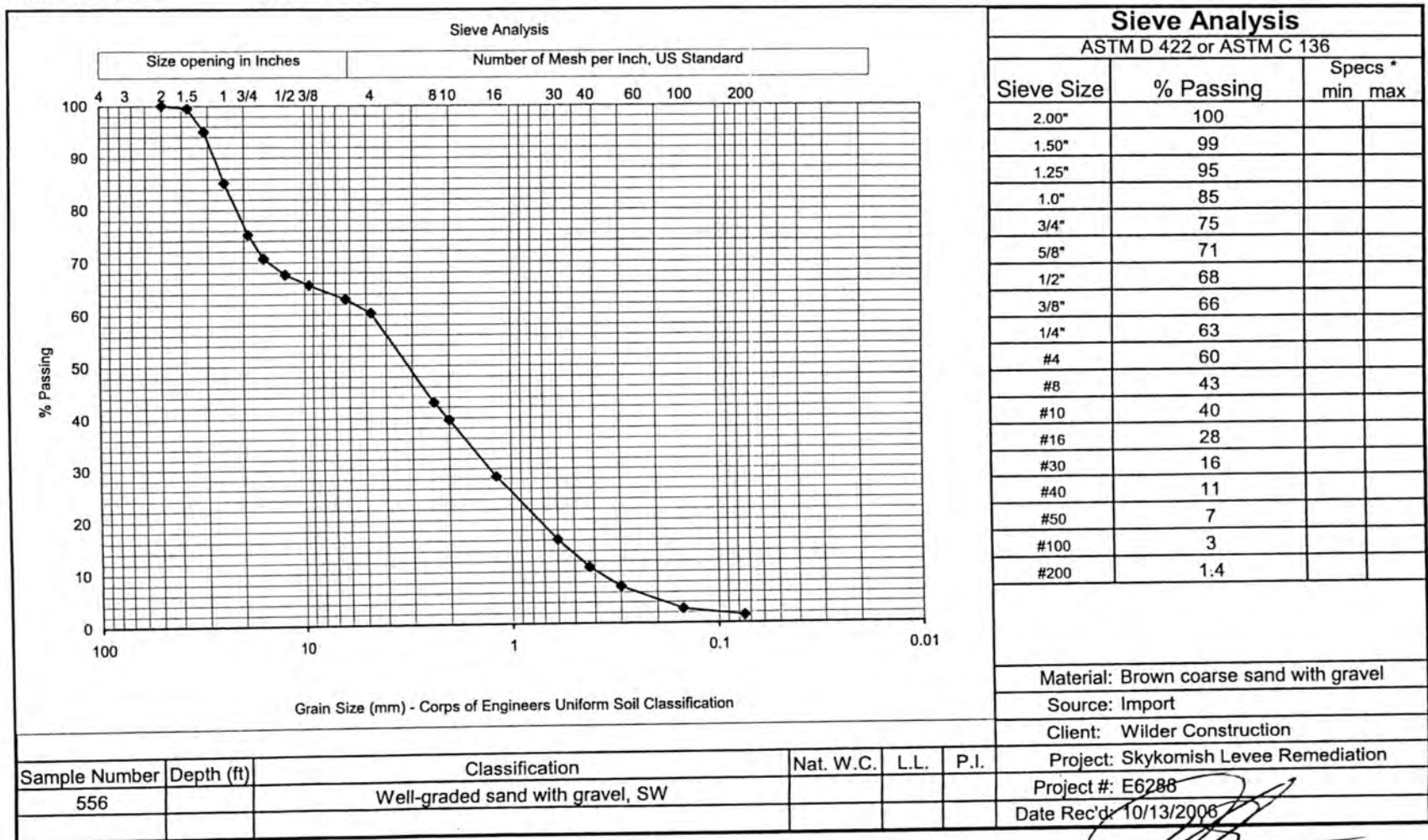
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Sieve55510/20/2006

MTE Form #143, Rev 2, 6-02

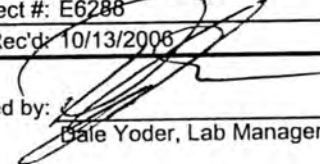
MAYES TESTING ENGINEERS, INC.

917-134th St. SW, Suite A1 Ph 425-742-9360
Everett, WA 98204 Fax 425-745-1737



Tested By: G. Booker

Date Tested: 10/17/2006

Reviewed by: 
Dale Yoder, Lab Manager

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Sieve55610/20/2006

MTE Form #143, Rev 2, 6-02

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ph 253.584.3720
fax 253.584.3707

Portland Office
7911 NE 33rd Drive
Suite 190
Portland, OR 97211
ph 503.281.7515
fax 503.281.7579

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 29

Date: 10/18/06
Weather: Showers
Inspection: Soils
Sample(s): (1) bag sand w/ gravel

Observed Wilder Construction perform earthwork procedures at levee fill between J/K to H/I, 11/12 to 15/16. Ten to 12" lifts of coarse sand with gravel were spread by dozer then compacted by several passes by a vibrating smooth drum roller. Performed in-place density tests to verify 95% compaction. Test information can be found on attached field density test report.

Obtained a sample bag of sand with gravel and delivered by Everett lab for sieve analysis.

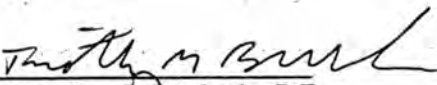
Transported nuclear gauge to and from jobsite.

Fill was placed just south of pillow wall along 11/12 to 141/15 at K-line. 10-12" lifts were compacted to 95% required.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Fax 253.584.37077911 NE 33rd Drive, Suite 190
Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Page 1 of 2Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 10/18/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	Levee fill at 13/14, H/I	2' blw gr	134.0	4.5	137.0	131.4	4.3	98	coarse sand w/ gravel
2	Levee fill at 14/15, H/I	2' blw gr	134.0	4.5	136.1	130.3	4.4	97	coarse sand w/ gravel
3	Pillow wall fill at 13/14, J/K	2' blw gr	134.0	4.5	133.6	127.7	4.5	95	coarse sand w/ gravel
4	Pillow wall fill at 12/13, J/K	2' blw gr	134.0	4.5	135.3	130.1	3.7	97	coarse sand w/ gravel
5	Pillow wall fill at 12/13, J/K	1' blw	134.0	4.5	134.6	128.4	4.8	96	coarse sand w/ gravel
6	Pillow wall fill at 14/15, J/K	1' blw	134.0	4.5	138.7	132.9	4.4	99	coarse sand w/ gravel
7	Levee fill at 12/13, H/I	1' blw	134.0	4.5	136.9	130.6	4.8	97	coarse sand w/ gravel
8	Levee fill at 13/14, H/I	1' blw	134.0	4.5	136.8	130.8	4.5	97	coarse sand w/ gravel
9	Levee fill at 14/15, H/I	1' blw	134.0	4.5	136.4	129.3	5.4	96	coarse sand w/ gravel
10	Levee fill at 13/14, H/I	at gr	134.0	4.5	133.9	128.8	3.9	96	coarse sand w/ gravel
11	Levee fill at 14/15, H/I	at gr	134.0	4.5	134.0	129.2	3.6	96	coarse sand w/ gravel

Specification Compaction and Material : 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: Roller / Ho-PacNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Page 2 of 2Project: Skykomish Levee RemediationMTE Project # : E6288 Date: 10/18/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
12	wall subgrade along F-line at 19/20	at grade	134.0	4.5	128.7	123.0	4.6	92	coarse sand w/ gravel
13	wall subgrade along F-line at 20/21	at grade	134.0	4.5	132.0	127.5	3.5	95	coarse sand w/ gravel
14	wall subgrade along F-line at 21/22	at grade	134.0	4.5	133.8	129.0	3.7	96	coarse sand w/ gravel
15	wall subgrade along F-line at 22/23	at grade	134.0	4.5	133.5	129.0	3.4	96	coarse sand w/ gravel
16	wall subgrade along F-line at 23/24	at grade	134.0	4.5	132.9	127.2	4.4	95	coarse sand w/ gravel
17	wall subgrade along F-line at 24/25	at grade	134.0	4.5	134.0	128.3	4.4	96	coarse sand w/ gravel
18	wall subgrade along F-line at 25/26	at grade	134.0	4.5	134.9	129.3	4.3	97	coarse sand w/ gravel
19	fill south of pillow wall at K-line, 12/13	3' blw	134.0	4.5	133.3	127.5	4.5	95	coarse sand w/ gravel
20	fill south of pillow wall at K-line, 1/143	3' blw	134.0	4.5	135.7	129.3	4.9	97	coarse sand w/ gravel
21	fill south of pillow wall at K-line, 13/14	1' blw	134.0	4.5	132.8	127.4	4.2	95	coarse sand w/ gravel
22	fill south of pillow wall at K-line, 14/15	1' blw	134.0	4.5	137.6	131.7	4.4	98	coarse sand w/ gravel

Specification Compaction and Material : 95%☒ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: DozerType and Number of Compaction units: Roller / Ho-PacNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

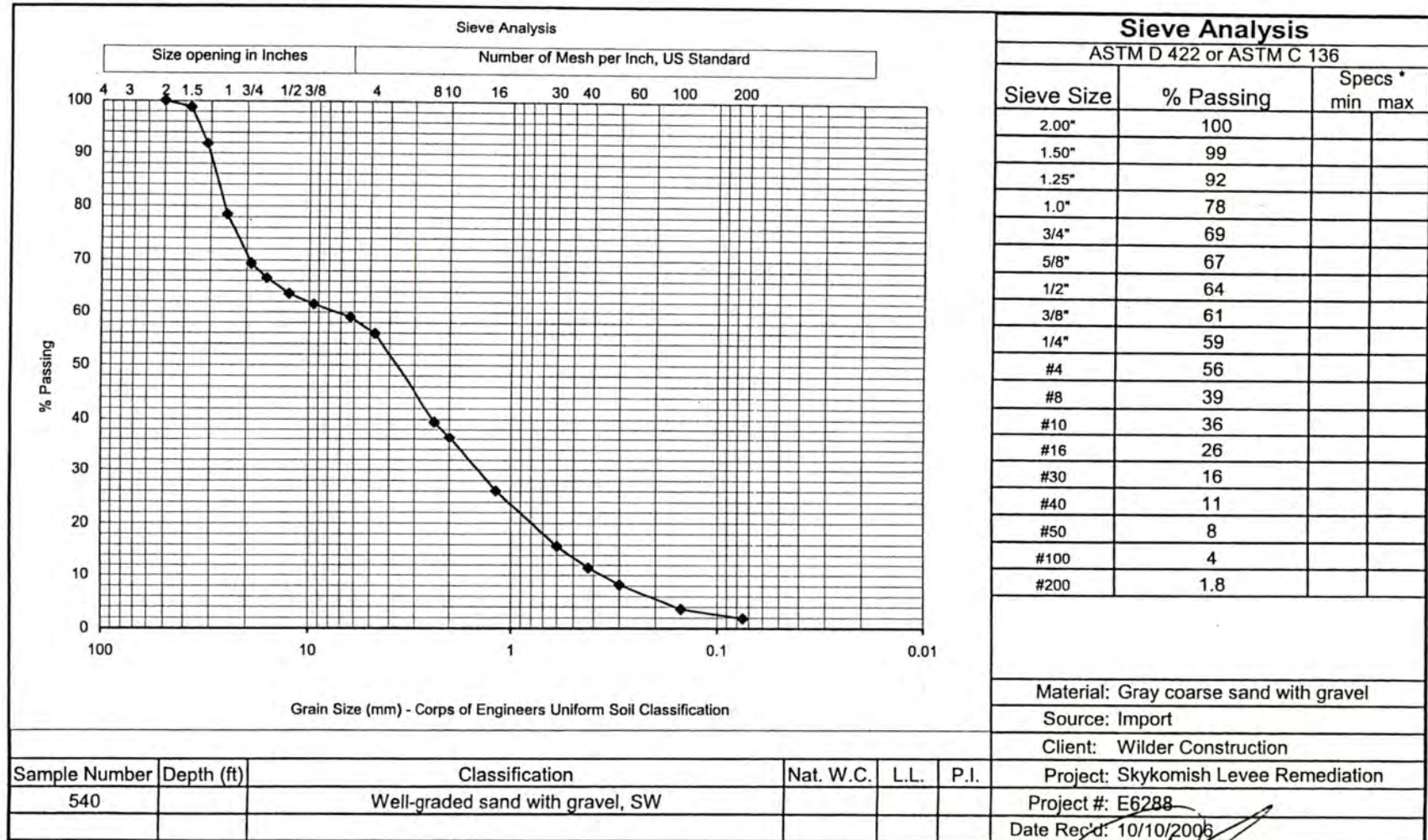
☒ In our opinion, fill generally meets specifications as indicated by test numbers:13-22☒ In our opinion, fill does not meet specifications as indicated by test numbers:12, area will be excavated later and reworked☐ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Everett, WA 98204 Fax 425-745-1737



Tested By: G. Booker

Date Tested: 10/12/2006

Reviewed by: Date Yoder, Lab Manager

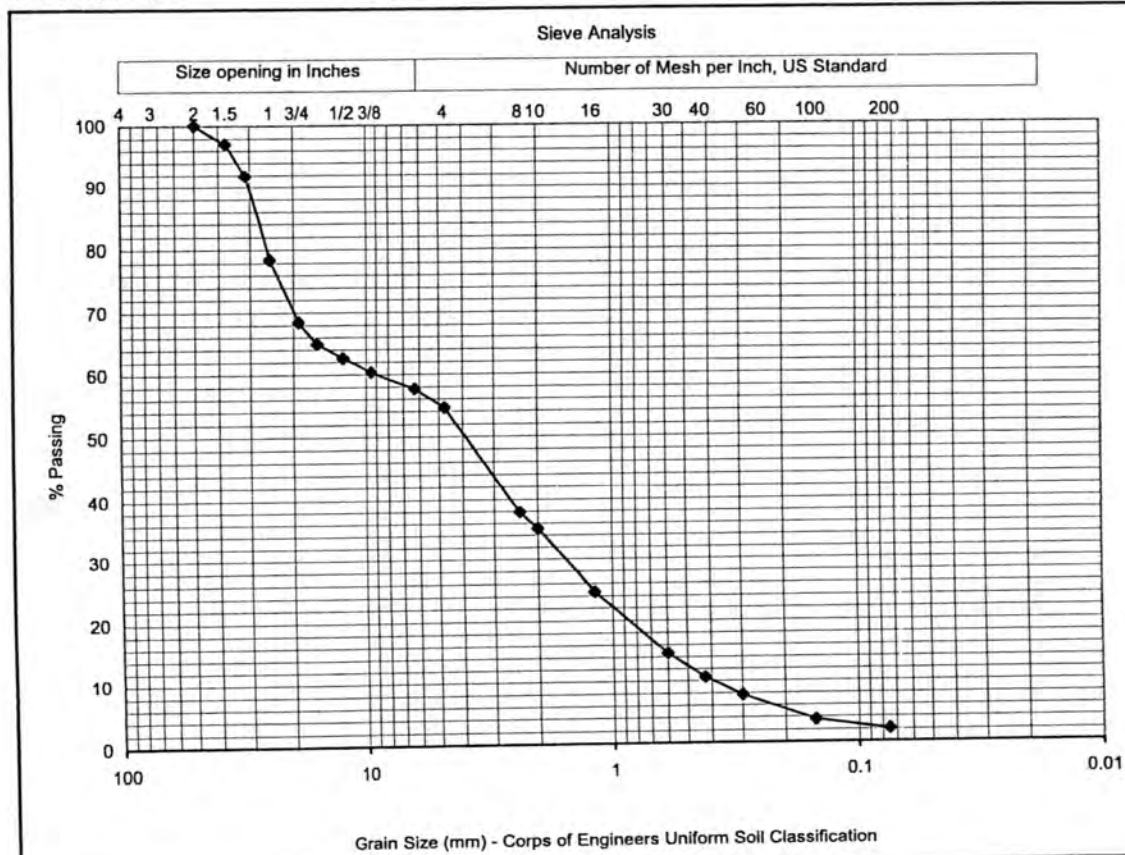
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Sieve54010/20/2006

MTE Form #143, Rev 2, 6-02

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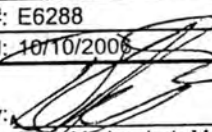


Sample Number	Depth (ft)	Classification	Nat. W.C.	L.L.	P.I.
541		Well-graded sand with gravel, SW			

Sieve Analysis			
ASTM D 422 or ASTM C 136			
Sieve Size	% Passing	Specs *	
		min	max
2.00"	100		
1.50"	97		
1.25"	92		
1.0"	78		
3/4"	68		
5/8"	65		
1/2"	63		
3/8"	60		
1/4"	58		
#4	55		
#8	38		
#10	35		
#16	25		
#30	15		
#40	11		
#50	8		
#100	4		
#200	2.0		
Material: Brown coarse sand with gravel			
Source: Import			
Client: Wilder Construction			
Project: Skykomish Levee Remediation			
Project #: E6288			
Date Rec'd: 10/10/2006			

Tested By: G. Booker

Date Tested: 10/12/2006

Reviewed by: 
Date Yoder, Lab Manager

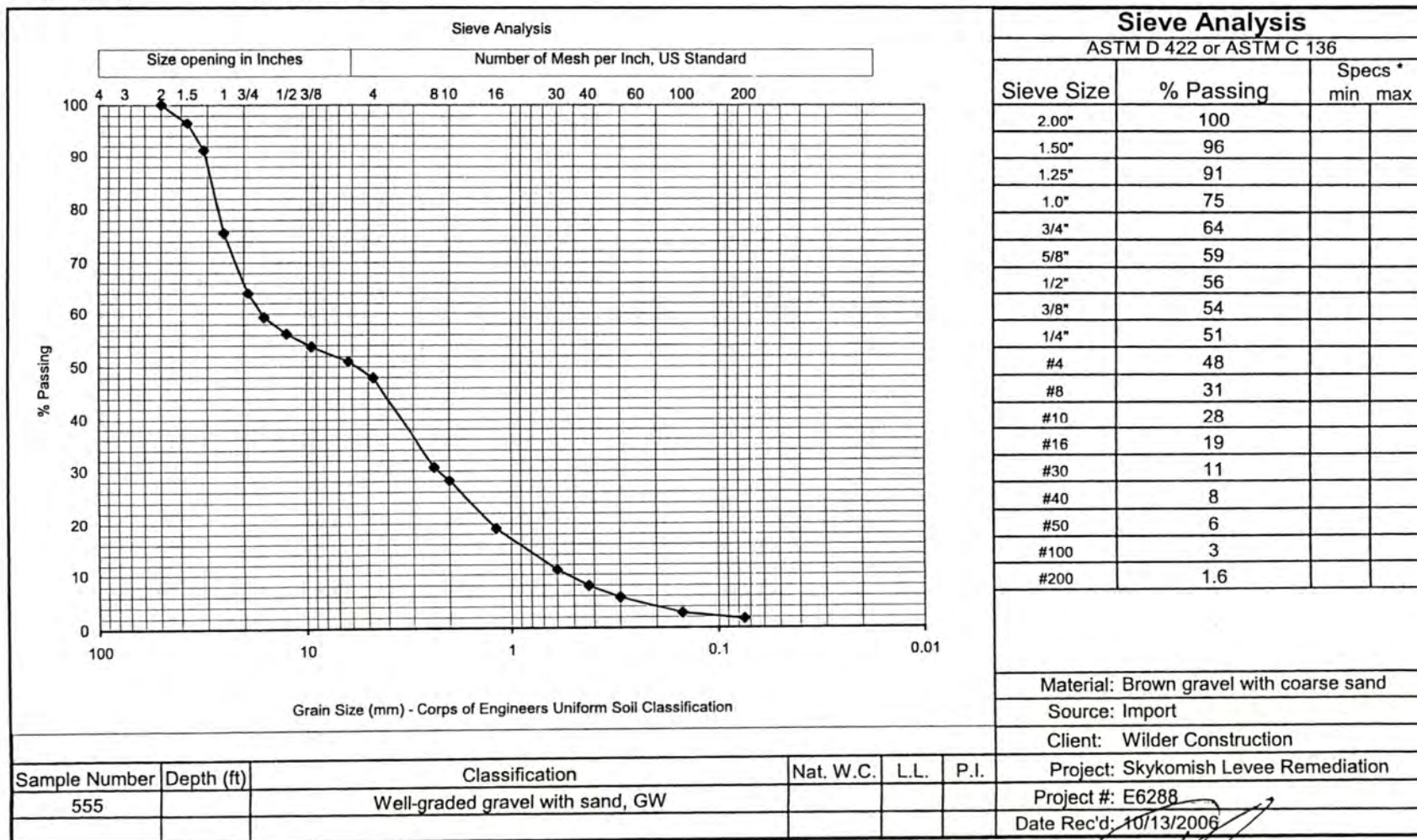
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Sieve54110/20/2006

MTE Form #143, Rev 2, 6-02

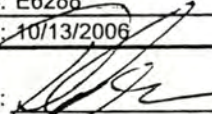
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Everett, WA 98204 Fax 425-745-1737



Tested By: G. Booker

Date Tested: 10/17/2006

Reviewed by: 
Dale Yoder, Lab Manager

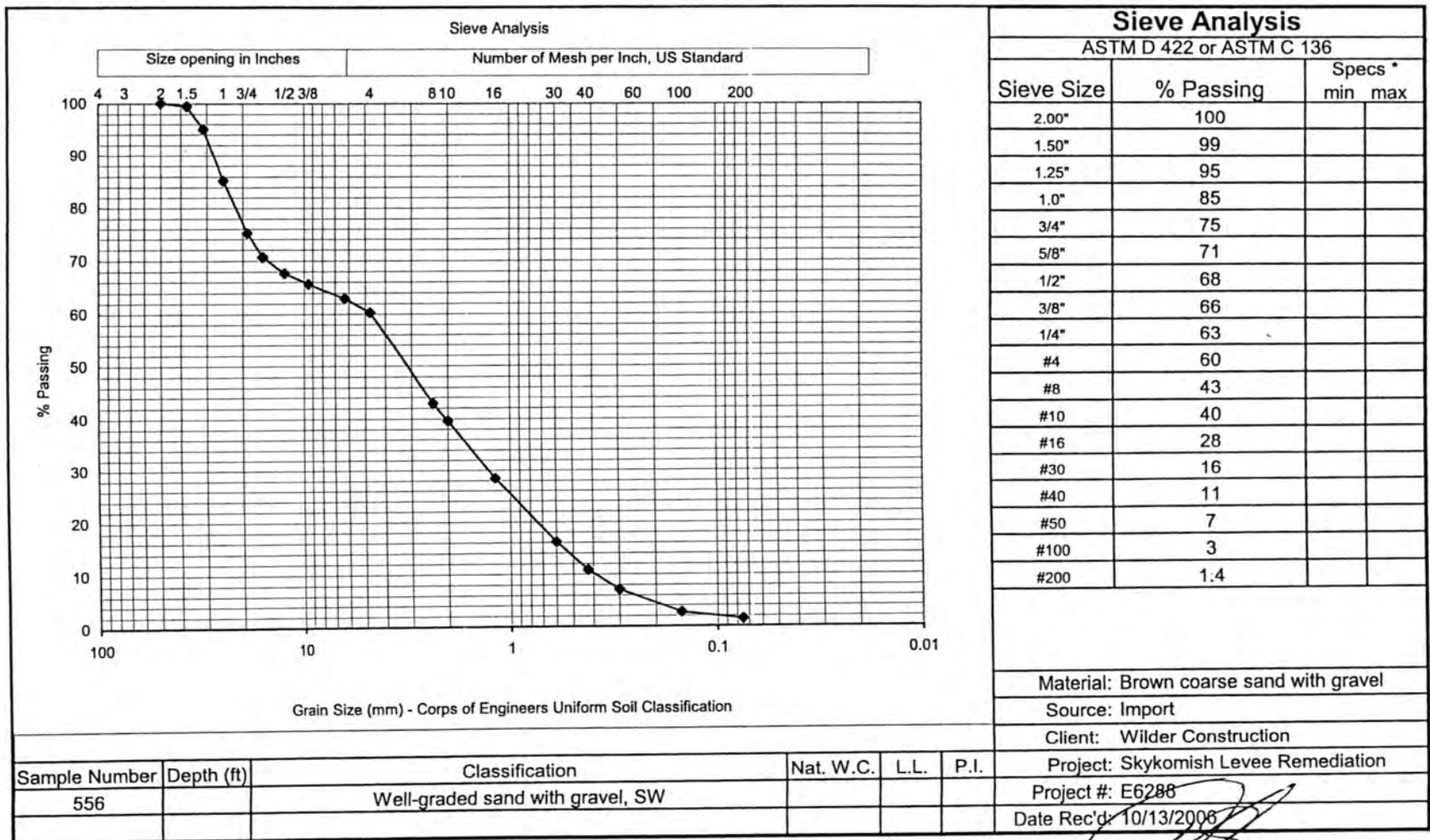
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Sieve55510/20/2006

MTE Form #143, Rev 2, 6-02

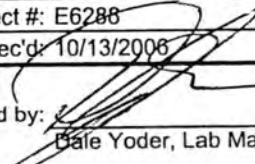
MAYES TESTING ENGINEERS, INC.

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Everett, WA 98204 Fax 425-745-1737



Tested By: G. Booker

Date Tested: 10/17/2006

Reviewed by: 
Dale Yoder, Lab Manager

Information in this report applies only to the actual samples tested and shall not be reproduced except in full, without the approval of Mayes Testing Engineers, Inc.

Sieve55610/20/2006

MTE Form #143, Rev 2, 6-02

MAYES TESTING ENGINEERS, INC.

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 30

Date: 10/20/06
Weather: Part sun
Inspection: Soils
Sample(s): bag samples of rock and sand w/ gravel

Observed Wilder Construction perform earthwork procedures at levee fill between J/K-H/I, 14/15-24/25. Stabilization rock was spread up to water level, then structural coarse sand with gravel was placed in 12" lift with compaction by roller. Performed in-place density tests to verify 95% compaction. Test information can be found on the attached field density test report.

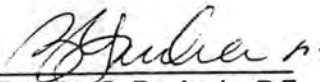
Obtained one bag samples of stabilization rock and structural fill, and delivered to MTE Everett lab for sieve analysis.

Transported nuclear gauge to and from jobsite.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Fax 503.281.7579**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Page 1 of 2Project: Skykomish Levee RemediationMTE Project # : E6288 Date: 10/20/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	Levee fill at 14/15, J/K	5' up	134.0	4.5	134.9	129.1	4.4	96	coarse sand w/ gravel
2	Levee fill at 15/16, J/K	5' up	134.0	4.5	136.2	130.9	4.0	98	coarse sand w/ gravel
3	Levee fill at 16/17, J/K	5' up	134.0	4.5	135.7	129.9	4.5	97	coarse sand w/ gravel
4	Levee fill at 17/18, J/K	5' up	134.0	4.5	132.7	126.7	4.7	95	coarse sand w/ gravel
5	Levee fill at 15/16, H/I	5' up	134.0	4.5	136.4	131.7	3.5	98	coarse sand w/ gravel
6	Levee fill at 16/17, H/I	5' up	134.0	4.5	133.6	129.5	3.1	97	coarse sand w/ gravel
7	Levee fill at 18/19, J/K	1' up	134.0	4.5	135.1	129.5	4.3	97	coarse sand w/ gravel
8	Levee fill at 19/20, J/K	1' up	134.0	4.5	135.7	130.5	3.9	97	coarse sand w/ gravel
9	Levee fill at 17/18, J/K	6' up	134.0	4.5	135.9	130.5	4.2	97	coarse sand w/ gravel
10	Levee fill at 16/17, J/K	6' up	134.0	4.5	135.0	129.2	4.4	96	coarse sand w/ gravel
11	Levee fill at 15/16, J/K	6' up	134.0	4.5	134.2	129.2	4.0	96	coarse sand w/ gravel

Specification Compaction and Material : 95%☐ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: dozerType and Number of Compaction units: rollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers: _____☐ In our opinion, fill does not meet specifications as indicated by test numbers: _____☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Fax 253.584.37077911 NE 33rd Drive, Suite 190
Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Page 2 of 2Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 10/20/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
12	Levee fill at 16/17, I/J	6' up	134.0	4.5	134.6	129.2	4.2	96	sand w/ gravel
13	Levee fill at 17/18, I/J	6' up	134.0	4.5	136.7	131.4	4.0	98	sand w/ gravel
14	Levee fill at 19/20, J/K	2' up	134.0	4.5	134.6	129.1	4.3	96	sand w/ gravel
15	Levee fill at 20/21, J/K	2' up	134.0	4.5	132.2	127.6	3.6	95	sand w/ gravel
16	Levee fill at 16/17, H/I	6' up	134.0	4.5	133.9	129.2	3.6	96	sand w/ gravel
17	Levee fill at 17/18, H/I	6' up	134.0	4.5	134.7	129.5	4.0	97	sand w/ gravel

Specification Compaction and Material : 95%☐ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: dozerType and Number of Compaction units: rollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

MAYES TESTING ENGINEERS, INC.

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 31

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fax 253.584.3707

Portland Office
7911 NE 33rd Drive
Suite 190
Portland, OR 97211
ph 503.281.7515
fax 503.281.7579

Date: 10/23/06
Weather: Sun
Inspection: Soils
Sample(s): (1) bag sand w/ gravel

Observed Wilder Construction perform earthwork procedures at southwest section of levee fill between J-K, 19/20-26/27. Ten to 12" lifts of structural sand with gravel were spread by dozer and compacted by vibrating roller.

Performed in-place density tests to verify 95% compaction. Test information can be found on attached field density test reports.

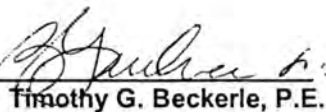
Obtained a sample bag of coarse sand with gravel and delivered to MTE Everett lab for sieve analysis.

Transported gauge to and from jobsite.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Fax 503.281.7579**FIELD DENSITY TEST REPORT**
ASTM D 2922 / D 3017Page 1 of 3Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 10/23/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	levee fill at I/J, 21/22	2' up	134.0	4.5	133.7	127.4	4.9	95	coarse sand w/ gravel
2	levee fill at I/J, 22/23	2' up	134.0	4.5	136.4	129.9	5.0	97	coarse sand w/ gravel
3	levee fill at I/J, 23/24	2' up	134.0	4.5	133.3	128.6	3.6	96	coarse sand w/ gravel
4	levee fill at I/J, 24/25	2' up	134.0	4.5	134.5	128.7	4.5	96	coarse sand w/ gravel
5	levee fill at I/J, 25/26	2' up	134.0	4.5	130.4	125.5	3.9	94	coarse sand w/ gravel
6	levee fill at I/J, 26/27	2' up	134.0	4.5	129.7	124.9	3.8	93	coarse sand w/ gravel
7	levee fill at I/J, 23/24	3' up	134.0	4.5	137.9	132.7	3.8	99	coarse sand w/ gravel
8	levee fill at I/J, 24/25	3' up	134.0	4.5	136.3	131.5	3.7	98	coarse sand w/ gravel
9	levee fill at I/J, 25/26	3' up	134.0	4.5	134.0	128.2	4.5	96	coarse sand w/ gravel
10	levee fill at I/J, 26/27	3' up	134.0	4.5	133.0	128.4	3.5	96	coarse sand w/ gravel
11	levee fill at I/J, 22/23	3' up	134.0	4.5	133.1	127.8	3.2	96	coarse sand w/ gravel

Specification Compaction and Material : 95%☐ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: dozerType and Number of Compaction units: rollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: water truck

Comments: _____

☒ In our opinion, fill generally meets specifications as indicated by test numbers:1-4, 7-11☒ In our opinion, fill does not meet specifications as indicated by test numbers:5, 6 approved per Quinn, since 90% req'd along school property.☐ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

MAYES TESTING ENGINEERS, INC917 134th St. SW, Suite A-1
Everett, WA 98204Ph 425.742.9360
Fax 425.745.173710029 S. Tacoma Way, Suite E-2
Tacoma, WA 98499Ph 253.584.3720
Fax 253.584.37077911 NE 33rd Drive, Suite 190
Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Page 2 of 3Project: Skykomish Levee RemediationMTE Project # : E6288 Date: 10/23/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
12	levee fill at J/K, 20/21	4' up	134.0	4.5	135.5	131.1	3.3	98	coarse sand w/ gravel
13	levee fill at J/K, 21/22	4' up	134.0	4.5	135.2	130.7	3.4	97	coarse sand w/ gravel
14	levee fill at J/K, 22/23	4' up	134.0	4.5	135.4	130.5	3.7	97	coarse sand w/ gravel
15	levee fill at J/K, 23/24	4' up	134.0	4.5	134.3	129.5	3.6	96	coarse sand w/ gravel
16	levee fill at J/K, 24/25	4' up	134.0	4.5	136.2	130.5	4.3	97	coarse sand w/ gravel
17	levee fill at J/K, 25/26	4' up	134.0	4.5	132.6	127.1	4.2	95	coarse sand w/ gravel
18	levee fill at J/K, 19/20	5' up	134.0	4.5	134.3	129.4	3.7	97	coarse sand w/ gravel
19	levee fill at J/K, 20/21	5' up	134.0	4.5	133.2	127.9	4.1	96	coarse sand w/ gravel
20	levee fill at J/K, 21/22	5' up	134.0	4.5	132.6	127.6	3.9	95	coarse sand w/ gravel
21	levee fill at J/K, 22/23	5' up	134.0	4.5	134.1	129.5	3.5	97	coarse sand w/ gravel
22	levee fill at J/K, 23/24	5' up	134.0	4.5	133.1	128.2	3.8	97	coarse sand w/ gravel

Specification Compaction and Material : 95%☐ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: dozerType and Number of Compaction units: rollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: water truck

Comments: _____

☒ In our opinion, fill generally meets specifications as indicated by test numbers: 1-4, 7-11☒ In our opinion, fill does not meet specifications as indicated by test numbers: 5, 6 approved per Quinn, since 90% req'd along school property.☐ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Fax 253.584.37077911 NE 33rd Drive, Suite 190
Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Page 3 of 3Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 10/23/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
23	levee fill at J/K, 24/25	5' up	134.0	4.5	134.1	129.5	3.6	97	coarse sand w/ gravel
24	levee fill at J/K, 25/26	5' up	134.0	4.5	133.0	127.9	4.0	96	coarse sand w/ gravel

Specification Compaction and Material : 95%☐ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: dozerType and Number of Compaction units: rollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: water truck

Comments: _____

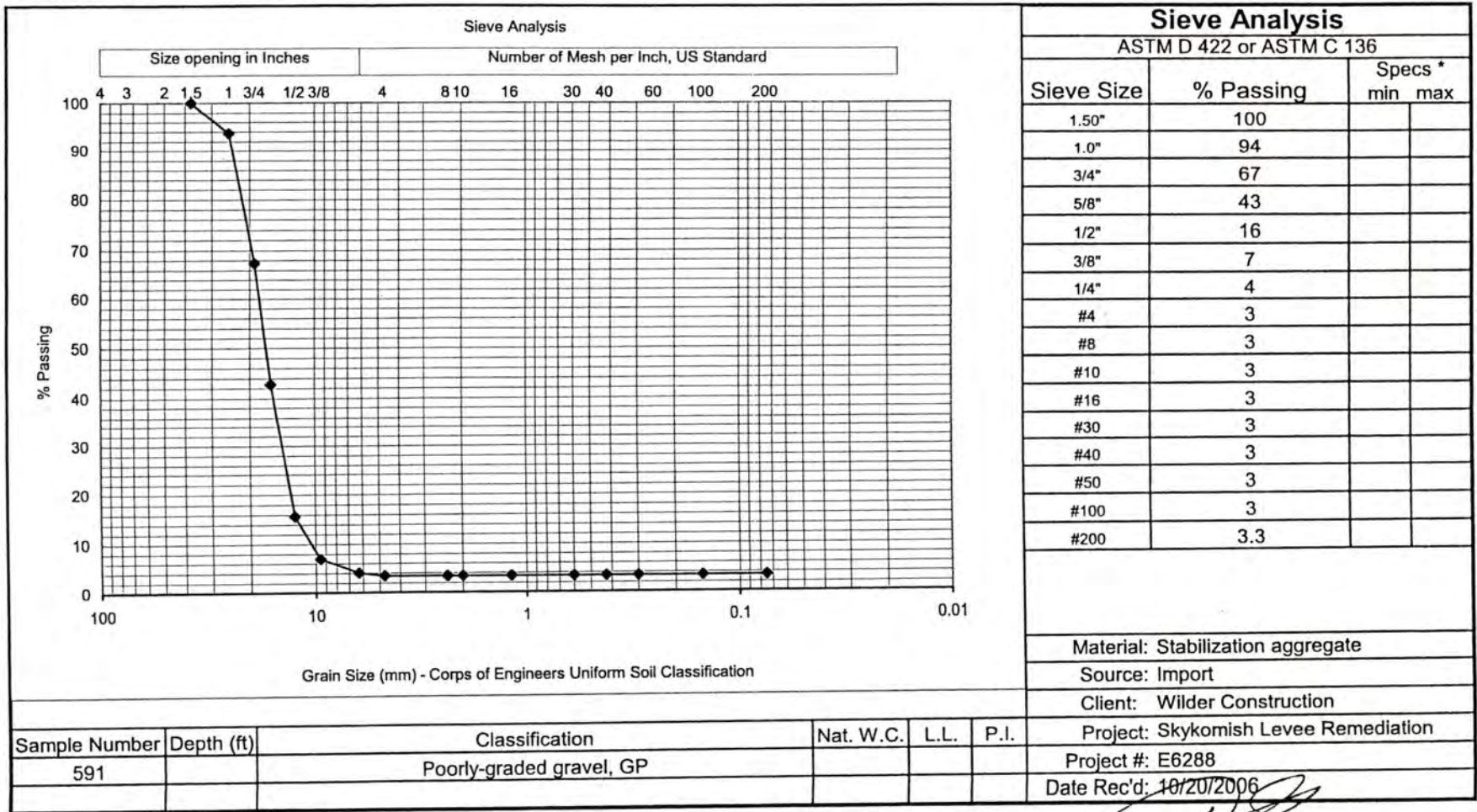
☒ In our opinion, fill generally meets specifications as indicated by test numbers:1-4, 7-11☒ In our opinion, fill does not meet specifications as indicated by test numbers:5, 6 approved per Quinn, since 90% req'd along school property.☐ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

MAYES TESTING ENGINEERS, INC.

917-134th St. SW, Suite A1 Ph 425-742-9360
Everett, WA 98204 Fax 425-745-1737



Tested By: G. Booker

Date Tested: 10/23/2006

Reviewed by: Dale Yoder, Lab Manager

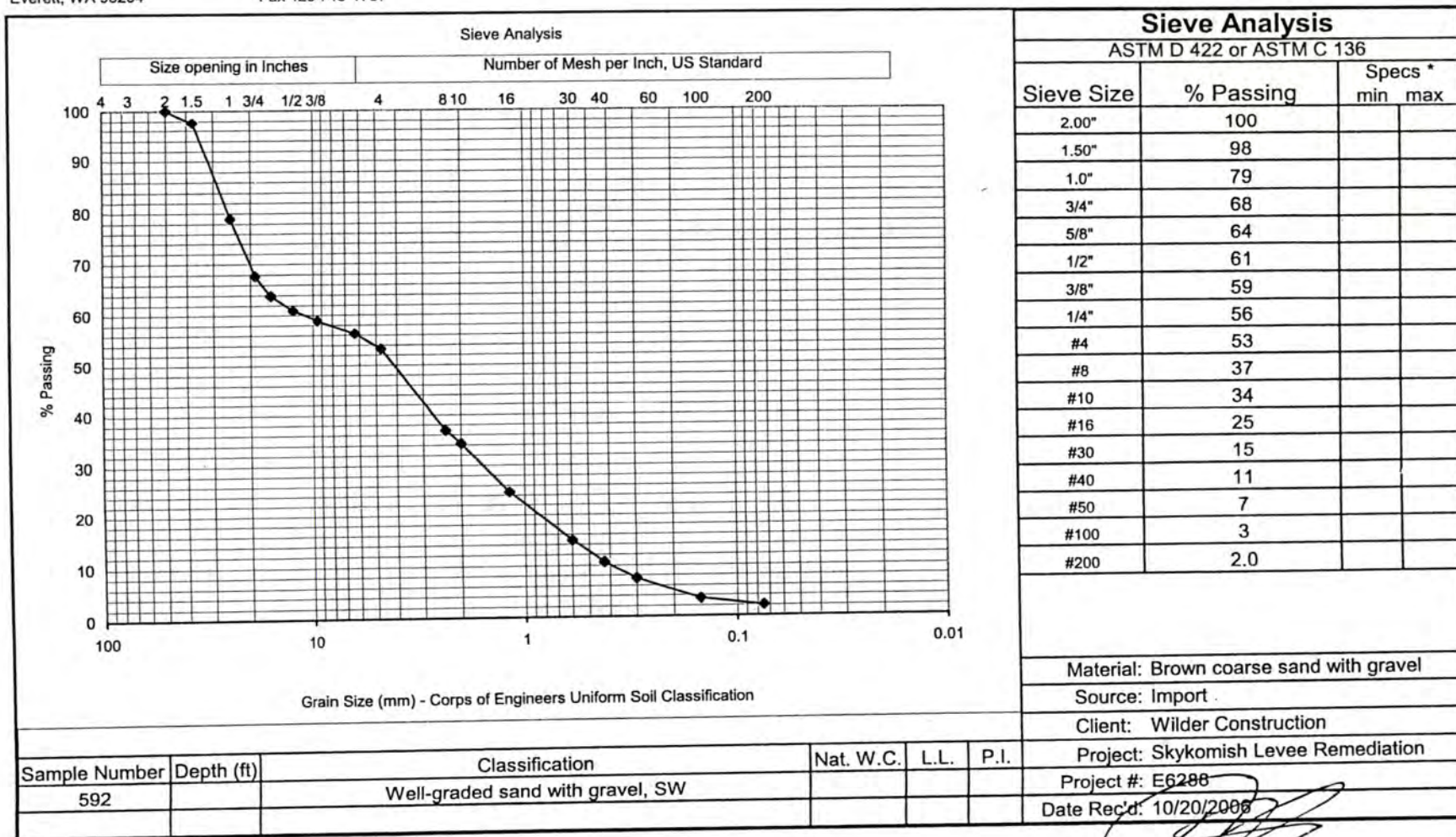
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Sieve59110/26/2006

MTE Form #143, Rev 2, 6-02

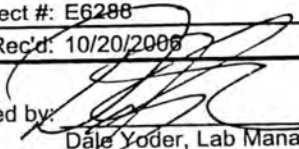
MAYES TESTING ENGINEERS, INC.

917-134th St. SW, Suite A1 Ph 425-742-9360
Everett, WA 98204 Fax 425-745-1737



Tested By: G. Booker

Date Tested: 10/23/2006

Reviewed by: 
Dale Yoder, Lab Manager

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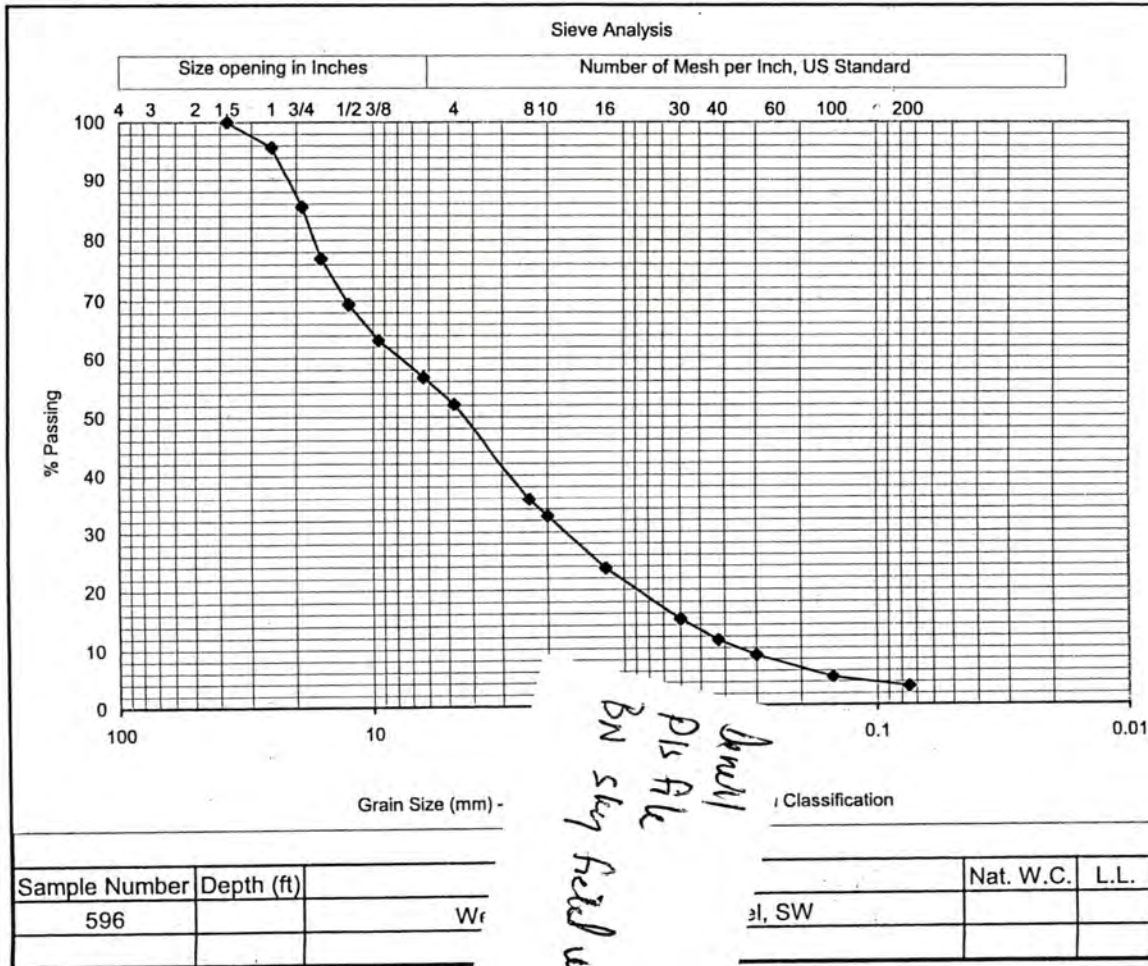
Sieve59210/26/2006

MTE Form #143, Rev 2, 6-02

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Ph 425-742-9360
Fax 425-745-1737



Sieve Analysis			
ASTM D 422 or ASTM C 136			
Sieve Size	% Passing	Specs *	
		min	max
1.50"	100		
1.0"	96		
3/4"	85		
5/8"	77		
1/2"	69		
3/8"	63		
1/4"	57		
#4	52		
#8	36		
#10	33		
#16	24		
#30	15		
#40	11		
#50	9		
#100	5		
#200	3.1		
Material: Gray sand with gravel			
Source:			
Client: Wilder Construction			
Project: Skykomish Levee Remediation			
Project #: E6288			
Date Rec'd: 10/23/2006			

Tested By: G. Booker

dated: 10/27/2006

Reviewed by: Dale Yoder, Lab Manager

Information in this report applies only to the actual samples tested and shall not be reproduced except in full, without the approval of Mayes Testing Engineers, Inc.

Sieve59610/31/2006

MTE Form #143, Rev 2, 6-02

MAYES TESTING ENGINEERS, INC.

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 30

Everett Office
917-134th Street SW
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fax 425.745.1737

Tacoma Office
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Suite E-2
Tacoma, WA 98499
ph 253.584.3720
fax 253.584.3707

Portland Office
7911 NE 33rd Drive
Suite 190
Portland, OR 97211
ph 503.281.7515
fax 503.281.7579

Date: 10/20/06
Weather: Part sun
Inspection: Soils
Sample(s): bag samples of rock and sand w/ gravel

Observed Wilder Construction perform earthwork procedures at levee fill between J/K-H/I, 14/15-24/25. Stabilization rock was spread up to water level, then structural coarse sand with gravel was placed in 12" lift with compaction by roller. Performed in-place density tests to verify 95% compaction. Test information can be found on the attached field density test report.

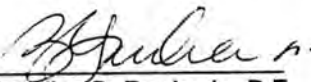
Obtained one bag samples of stabilization rock and structural fill, and delivered to MTE Everett lab for sieve analysis.

Transported nuclear gauge to and from jobsite.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

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Fax 253.584.37077911 NE 33rd Drive, Suite 190
Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579Page 1 of 2Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 10/20/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6**FIELD DENSITY TEST REPORT**
ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	Levee fill at 14/15, J/K	5' up	134.0	4.5	134.9	129.1	4.4	96	coarse sand w/ gravel
2	Levee fill at 15/16, J/K	5' up	134.0	4.5	136.2	130.9	4.0	98	coarse sand w/ gravel
3	Levee fill at 16/17, J/K	5' up	134.0	4.5	135.7	129.9	4.5	97	coarse sand w/ gravel
4	Levee fill at 17/18, J/K	5' up	134.0	4.5	132.7	126.7	4.7	95	coarse sand w/ gravel
5	Levee fill at 15/16, H/I	5' up	134.0	4.5	136.4	131.7	3.5	98	coarse sand w/ gravel
6	Levee fill at 16/17, H/I	5' up	134.0	4.5	133.6	129.5	3.1	97	coarse sand w/ gravel
7	Levee fill at 18/19, J/K	1' up	134.0	4.5	135.1	129.5	4.3	97	coarse sand w/ gravel
8	Levee fill at 19/20, J/K	1' up	134.0	4.5	135.7	130.5	3.9	97	coarse sand w/ gravel
9	Levee fill at 17/18, J/K	6' up	134.0	4.5	135.9	130.5	4.2	97	coarse sand w/ gravel
10	Levee fill at 16/17, J/K	6' up	134.0	4.5	135.0	129.2	4.4	96	coarse sand w/ gravel
11	Levee fill at 15/16, J/K	6' up	134.0	4.5	134.2	129.2	4.0	96	coarse sand w/ gravel

Specification Compaction and Material: 95%

- ☐ ASTM D 1557 (Modified Proctor)
☐ ASTM D 698 (Standard Proctor)

Type and Number of earth moving units: dozerType and Number of Compaction units: rollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Tacoma, WA 98499Ph 253.584.3720
Fax 253.584.37077911 NE 33rd Drive, Suite 190
Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Page 2 of 2Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 10/20/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
12	Levee fill at 16/17, I/J	6' up	134.0	4.5	134.6	129.2	4.2	96	sand w/ gravel
13	Levee fill at 17/18, I/J	6' up	134.0	4.5	136.7	131.4	4.0	98	sand w/ gravel
14	Levee fill at 19/20, J/K	2' up	134.0	4.5	134.6	129.1	4.3	96	sand w/ gravel
15	Levee fill at 20/21, J/K	2' up	134.0	4.5	132.2	127.6	3.6	95	sand w/ gravel
16	Levee fill at 16/17, H/I	6' up	134.0	4.5	133.9	129.2	3.6	96	sand w/ gravel
17	Levee fill at 17/18, H/I	6' up	134.0	4.5	134.7	129.5	4.0	97	sand w/ gravel

Specification Compaction and Material : 95%☐ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: dozerType and Number of Compaction units: rollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: none

Comments: _____

☐ In our opinion, fill generally meets specifications as indicated by test numbers:☐ In our opinion, fill does not meet specifications as indicated by test numbers:☒ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

MAYES TESTING ENGINEERS, INC.

MTE No.: E6288
Project: SKYKOMISH LEVEE REMEDIATION
Address: 101 – 5th Street, Skykomish, WA
Permit No.:
Bldg Dept.:

Owner: BNSF Railway Company
Architect: --
Engineer: The Retec Group, Inc.
Contractor: Wilder Construction Company
Page 31

Everett Office
917-134th Street SW
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Everett, WA 98204
ph 425.742.9360
fax 425.745.1737

Tacoma Office
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Suite E-2
Tacoma, WA 98499
ph 253.584.3720
fax 253.584.3707

Portland Office
7911 NE 33rd Drive
Suite 190
Portland, OR 97211
ph 503.281.7515
fax 503.281.7579

Date: 10/23/06
Weather: Sun
Inspection: Soils
Sample(s): (1) bag sand w/ gravel

Observed Wilder Construction perform earthwork procedures at southwest section of levee fill between J-K, 19/20-26/27. Ten to 12" lifts of structural sand with gravel were spread by dozer and compacted by vibrating roller.

Performed in-place density tests to verify 95% compaction. Test information can be found on attached field density test reports.

Obtained a sample bag of coarse sand with gravel and delivered to MTE Everett lab for sieve analysis.

Transported gauge to and from jobsite.

To the best of our knowledge, items inspected this date are in accordance with approved plans and specifications.

INSPECTOR: Chris Pratt

REVIEWED BY:


Timothy G. Beckerle, P.E.

cc: Bruce Sheppard – BNSF Railway Company; Mike Byers – The Retec Group, Inc.; Quinn Golden – Wilder Construction Company

MAYES TESTING ENGINEERS, INC917 134th St. SW, Suite A-1
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Tacoma, WA 98499Ph 253.584.3720
Fax 253.584.37077911 NE 33rd Drive, Suite 190
Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579**FIELD DENSITY TEST REPORT**
ASTM D 2922 / D 3017Page 1 of 3Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 10/23/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
1	levee fill at I/J, 21/22	2' up	134.0	4.5	133.7	127.4	4.9	95	coarse sand w/ gravel
2	levee fill at I/J, 22/23	2' up	134.0	4.5	136.4	129.9	5.0	97	coarse sand w/ gravel
3	levee fill at I/J, 23/24	2' up	134.0	4.5	133.3	128.6	3.6	96	coarse sand w/ gravel
4	levee fill at I/J, 24/25	2' up	134.0	4.5	134.5	128.7	4.5	96	coarse sand w/ gravel
5	levee fill at I/J, 25/26	2' up	134.0	4.5	130.4	125.5	3.9	94	coarse sand w/ gravel
6	levee fill at I/J, 26/27	2' up	134.0	4.5	129.7	124.9	3.8	93	coarse sand w/ gravel
7	levee fill at I/J, 23/24	3' up	134.0	4.5	137.9	132.7	3.8	99	coarse sand w/ gravel
8	levee fill at I/J, 24/25	3' up	134.0	4.5	136.3	131.5	3.7	98	coarse sand w/ gravel
9	levee fill at I/J, 25/26	3' up	134.0	4.5	134.0	128.2	4.5	96	coarse sand w/ gravel
10	levee fill at I/J, 26/27	3' up	134.0	4.5	133.0	128.4	3.5	96	coarse sand w/ gravel
11	levee fill at I/J, 22/23	3' up	134.0	4.5	133.1	127.8	3.2	96	coarse sand w/ gravel

Specification Compaction and Material : 95%☐ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: dozerType and Number of Compaction units: rollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: water truck

Comments: _____

☒ In our opinion, fill generally meets specifications as indicated by test numbers:1-4, 7-11☒ In our opinion, fill does not meet specifications as indicated by test numbers:5, 6 approved per Quinn, since 90% req'd along school property.☐ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

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Fax 253.584.37077911 NE 33rd Drive, Suite 190
Portland, OR 97211Ph 503.281.7515
Fax 503.281.7579Page 2 of 3Project: Skykomish Levee RemediationMTE Project #: E6288 Date: 10/23/06

Permit #: _____

Inspector: C PrattMTE Nuclear Gauge #: 6**FIELD DENSITY TEST REPORT**

ASTM D 2922 / D 3017

Test #	Location	Depth or Elevation (feet)	Laboratory		Field				Soil Type Description
			Maximum Dry Density	OMC %	Wet Density	Dry Density	Moisture Content %	Compaction %	
12	levee fill at J/K, 20/21	4' up	134.0	4.5	135.5	131.1	3.3	98	coarse sand w/ gravel
13	levee fill at J/K, 21/22	4' up	134.0	4.5	135.2	130.7	3.4	97	coarse sand w/ gravel
14	levee fill at J/K, 22/23	4' up	134.0	4.5	135.4	130.5	3.7	97	coarse sand w/ gravel
15	levee fill at J/K, 23/24	4' up	134.0	4.5	134.3	129.5	3.6	96	coarse sand w/ gravel
16	levee fill at J/K, 24/25	4' up	134.0	4.5	136.2	130.5	4.3	97	coarse sand w/ gravel
17	levee fill at J/K, 25/26	4' up	134.0	4.5	132.6	127.1	4.2	95	coarse sand w/ gravel
18	levee fill at J/K, 19/20	5' up	134.0	4.5	134.3	129.4	3.7	97	coarse sand w/ gravel
19	levee fill at J/K, 20/21	5' up	134.0	4.5	133.2	127.9	4.1	96	coarse sand w/ gravel
20	levee fill at J/K, 21/22	5' up	134.0	4.5	132.6	127.6	3.9	95	coarse sand w/ gravel
21	levee fill at J/K, 22/23	5' up	134.0	4.5	134.1	129.5	3.5	97	coarse sand w/ gravel
22	levee fill at J/K, 23/24	5' up	134.0	4.5	133.1	128.2	3.8	97	coarse sand w/ gravel

Specification Compaction and Material: 95%☐ ASTM D 1557 (Modified Proctor)☐ ASTM D 698 (Standard Proctor)Type and Number of earth moving units: dozerType and Number of Compaction units: rollerNumber of Passes: 3-4 Thickness of lift: 10-12"Method of Adding Moisture: water truck

Comments: _____

☒ In our opinion, fill generally meets specifications as indicated by test numbers:1-4, 7-11☒ In our opinion, fill does not meet specifications as indicated by test numbers:5, 6 approved per Quinn, since 90% req'd along school property.☐ Fill test meets specifications☒ Contractor Advised☒ Full-time observation☐ Part-time observation

Quality Control Sample:

Test No. : _____ Dry Density: _____ Moisture%: _____

917 134th St. SW, Suite A-1 Everett, WA 98204	Ph 425.742.9360 Fax 425.745.1737
10029 S. Tacoma Way, Suite E-2 Tacoma, WA 98499	Ph 253.584.3720 Fax 253.584.3707
7911 NE 33rd Drive, Suite 190 Portland, OR 97211	Ph 503.281.7515 Fax 503.281.7579

Project: Skykomish Levee Remediation
MTE Project #: E6288 Date: 10/23/06
Permit #: _____
Inspector: C Pratt
MTE Nuclear Gauge #: 6

FIELD DENSITY TEST REPORT

ASTM D 2922 / D 3017

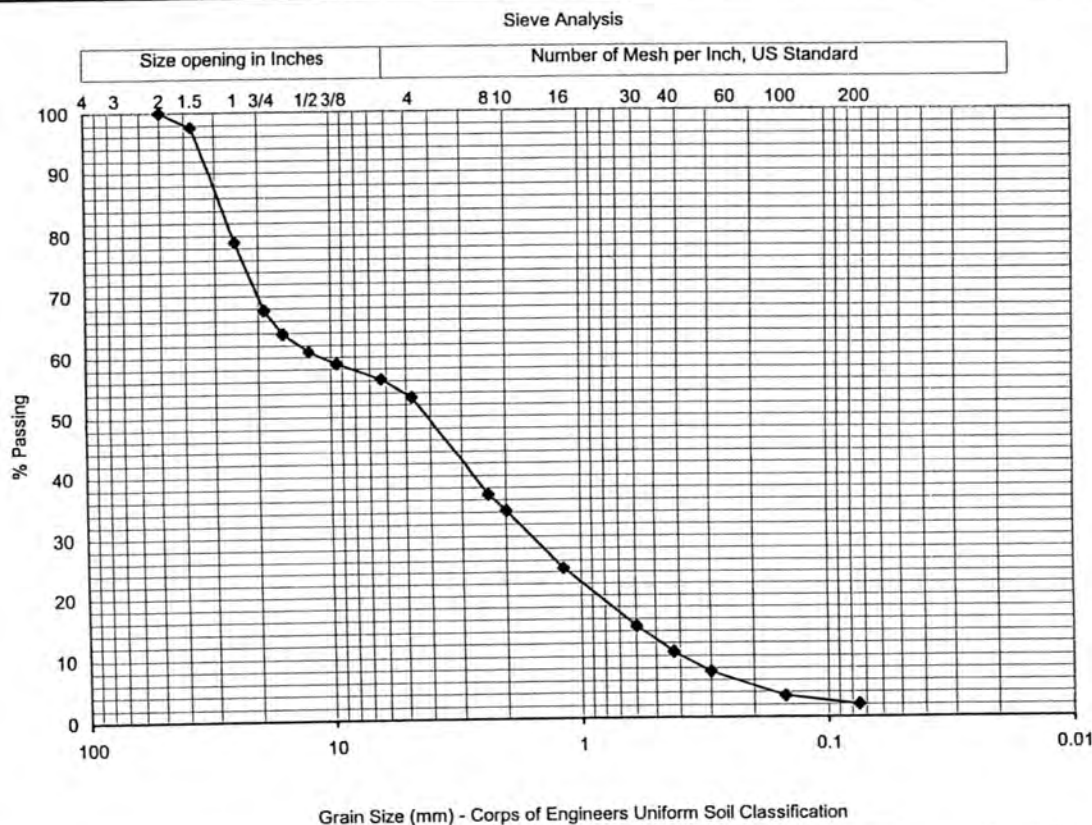
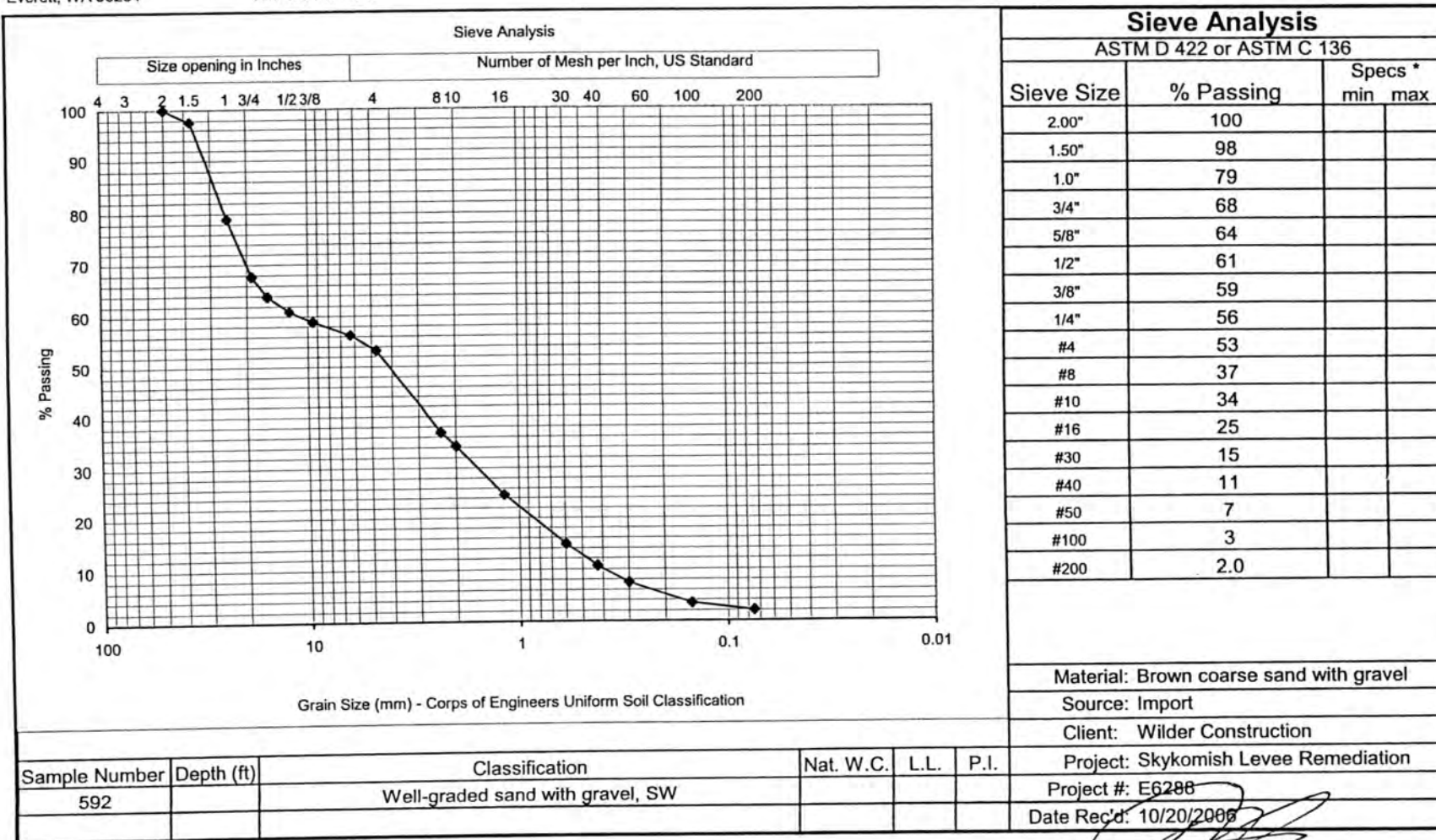
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Number of Passes: 3-4 Thickness of lift: 10-12"
Method of Adding Moisture: water truck
Comments: _____

- ☒ In our opinion, fill generally meets specifications as indicated by test numbers:
1-4, 7-11
-
- ☒ In our opinion, fill does not meet specifications as indicated by test numbers:
5, 6 approved per Quinn, since 90% req'd along school property.
-
- ☐ Fill test meets specifications
- ☒ Contractor Advised
-
- ☒ Full-time observation
- ☐ Part-time observation
- Quality Control Sample:
- | Test No. : | Dry Density: | Moisture%: |
|------------|--------------|------------|
| | | |

MAYES TESTING ENGINEERS, INC.

917-134th St. SW, Suite A1 Ph 425-742-9360
Everett, WA 98204 Fax 425-745-1737



Tested By: G. Booker

Date Tested: 10/23/2006

Reviewed by: Dale Yoder, Lab Manager

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MAYES TESTING ENGINEERS, INC.

December 19, 2006

Wilder Construction Company
1525 E. Marine View Drive
Everett, WA 98201

Attn.: Quinn Golden

Re: Skykomish Levee Remediation
101 5th Street
Skykomish, WA
MTE Project No. E6288

FINAL LETTER

Everett Office
917-134th Street SW
Suite A-1
Everett, WA 98204
ph 425.742.9360
fax 425.745.1737

Tacoma Office
10029 S. Tacoma Way
Suite E-2
Tacoma, WA 98499
ph 253.584.3720
fax 253.584.3707

Portland Office
7911 NE 33rd Drive
Suite 190
Portland, OR 97211
ph 503.281.7515
fax 503.281.7579

Gentlemen,

This is to inform you that registered special inspections have been completed for this project as per our reports, copies of which have been sent to you.

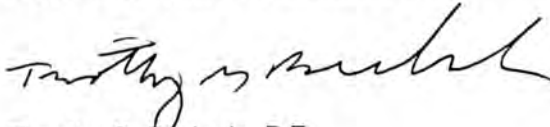
Special inspection was provided for:

Soils Compaction

To the best of our knowledge, all work inspected was either performed in accordance with, or corrected to conform to, approved drawings, or engineer approved changes.

We trust that this provides you with the information which you require. Should you have any questions give us a call.

Sincerely,
MAYES TESTING ENGINEERS, INC.



Timothy G. Beckerle, P.E.
Branch Manager

cc: Bruce Sheppard – BNSF Railway Company
Mike Byers – The Retec Group, Inc.

MAYES TESTING ENGINEERS, INC.

December 19, 2006

Wilder Construction Company
1525 E. Marine View Drive
Everett, WA 98201

Attn.: Quinn Golden

Re: Skykomish Levee Remediation
101 5th Street
Skykomish, WA
MTE Project No. E6288

FINAL LETTER

Gentlemen,

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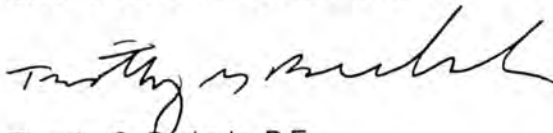
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Soils Compaction

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Sincerely,
MAYES TESTING ENGINEERS, INC.



Timothy G. Beckerle, P.E.
Branch Manager

cc: Bruce Sheppard – BNSF Railway Company
Mike Byers – The Retec Group, Inc.

File BNOB-19390-220
Field Docs.

Everett Office
917-134th Street SW
Suite A-1
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Appendix Q
Validation Report for Soil Sampling

February 28, 2007

Organic and Inorganic Data Verification Report

Skykomish Levee Soil Sampling 3rd Quarter 2006

Prepared for:

**Steve Howard
Project Manager
The RETEC Group, Inc.
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134-1162**

Prepared by:

**Leslie Hill
Environmental Scientist
The RETEC Group, Inc.
2409 Research Blvd., Suite 106
Fort Collins, CO 80526**

RETEC Project No.: BN050-19390-220

Overview

The samples analyzed for the Skykomish Levee soil sampling events in August 2006 are listed in the Table of Samples Analyzed (pages 2-8). Data verification was performed on one soil sample.

The samples were analyzed by Test America Analytical Testing Corporation of Bothell, WA. The validated analyses were Semivolatile Petroleum Products by NWTPH-Dx Method, TCLP Metals Arsenic and Lead by EPA Method 6010B, Polychlorinated Biphenyls by EPA Method 8082, and Dry Weight by Method BSOPSPL003R08.

The RETEC Analytical Data Verification Checklist is presented as pages 4-7. Data were evaluated based on validation criteria set forth in the *USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Superfund Organic Methods Data Review*, document number USEPA-540-R-04-009, January 2005, and *USEPA CLP National Functional Guidelines for Inorganic Data Review*, document number EPA540/R-04/004 of October 2004 as they applied to the reported methodology.

The following data components were reviewed during the data verification procedure:

Submitted Deliverables
Case Narratives
Chain-of-Custody form(s) and sample integrity
Sample results, reporting limits, dilution factors
Holding times
Method blank results
LCS/LCSD (blank spike) results
MS/MSD (matrix spike) results
Laboratory duplicate results
Organic surrogate recoveries
Electronic data deliverables (EDDs)

Data Verification Qualifiers Assigned During this Review

U – evaluated to be undetected at the reported concentration; result is considered to be a false positive

Assigned qualifiers are detailed in the RETEC Analytical Data Verification Checklist and are summarized in the Table of Qualified Analytical Results (page 3).

Overall Data Assessment

Precision, accuracy, method compliance, and completeness of the data set have been determined to be acceptable. All of the data are suitable for their intended use with the qualifications noted.

Table of Samples Analyzed
Skykomish Levee Soil Sampling
August 2006
Test America Analytical Testing Corporation, Bothell, WA

Matrix	Sample ID	Sample Date	SDG
Soil	SKY-RR-PROF-083006	08/30/2006	BPH0755

Table of Qualified Analytical Results
Skykomish Levee Soil Sampling
August 2006
Test America Analytical Testing Corporation, Bothell, WA

Sample ID	Method	Analyte	Concentration	Qualifier	Reason Code
SKY-RR-PROF-083006	As TCLP ICP 6010B	Arsenic	0.115 mg/l	U	MB
	Pb TCLP ICP 6010B	Lead	0.113 mg/l	U	MB

U – Evaluated to be undetected at the reported concentration; result is considered to be a false positive.

ANALYTICAL DATA VERIFICATION CHECKLIST

Project Name: Skykomish Levee	Laboratory: Test America Analytical Testing Corporation, Bothell, WA				
Project Reference:	Sample Matrix: Soil				
RETEC Project: BN050-19390-220	Sample Start Date: 08/30/2006				
Verified By/Date Verified: Leslie Hill 02/28/2007	Sample End Date: 08/30/2006				
Samples Analyzed: Refer to the Table of Samples Analyzed (page 2).					
Parameters Verified: Semivolatile Petroleum Products by NWTPH-Dx Method, TCLP Metals Arsenic and Lead by EPA Method 6010B, Polychlorinated Biphenyls by EPA Method 8082, and Dry Weight by Method BSOPSPL003R08.					
Laboratory SDG: BPH0755					
PRECISION, ACCURACY, METHOD COMPLIANCE, AND COMPLETENESS ASSESSMENT					
Precision:	X	Acceptable	Unacceptable	LH	Initials
Comments: Precision is the measure of variability of individual sample measurements. Field precision could not be determined as field duplicate samples were not collected. Laboratory precision was determined by examination of laboratory duplicate results. Evaluation of laboratory duplicates for precision was done using the Relative Percent Difference (RPD). The RPD is defined as the difference between two duplicate samples divided by the mean and expressed as a percent. Laboratory RPD limits referenced EPA published QC limits. No data require qualification based on laboratory duplicate RPDs, and overall laboratory precision is acceptable. Precision measurements are reviewed in items 17, 20, and 21.					
Accuracy:	X	Acceptable	Unacceptable	LH	Initials
Comments: Field accuracy, a measure of the sampling bias, could not be determined as no trip blank, field blank, or equipment rinse blank samples were collected. Laboratory accuracy is a measure of the system bias, and was measured by evaluating laboratory control sample/laboratory control sample duplicate (LCS/LCSD), matrix spike/matrix spike duplicate (MS/MSD), and organic system monitoring compounds (surrogate) percent recoveries (%Rs). LCS/LCSD %Rs, which demonstrated the overall performance of the analysis, were compared to EPA published QC limits. MS/MSD %Rs, which provided information on sample matrix interferences, were compared to EPA published QC limits or laboratory control charted limits. System monitoring compound or surrogate recoveries, which measured system performance and efficiency during organic analysis, were compared to EPA published QC limits. No data require qualification based on laboratory accuracy measurements, and overall laboratory accuracy is acceptable. Accuracy measurements are reviewed in items 12, 14, 15, and 16.					
Method Compliance:	X	Acceptable	Unacceptable	LH	Initials
Comments: Method compliance was determined by evaluating sample integrity, holding time, and laboratory blanks against method specified requirements, while applying EPA data validation guidelines. Although some data require qualification based on laboratory blanks, overall method compliance is acceptable based on the supplied data. Method compliance measurements are reviewed in items 4, 8, 11, 13, 18, 19, 20, and 22.					
Completeness:	X	Acceptable	Unacceptable	LH	Initials
Comments: Completeness is the overall ratio of the number of samples planned versus the number of samples with valid analyses. Completeness goals are set at 90-100%. Determination of completeness included a review of chain of custody records, laboratory analytical methods and detection limits, laboratory case narratives, and project requirements. Completeness also included 100% review of the laboratory sample data results, QC summary reports, and electronic data deliverables (EDDs). All of the data received from the laboratory are useable with qualification. Completeness of the data is calculated to be 100% and is acceptable.					

ANALYTICAL DATA VERIFICATION CHECKLIST

VERIFICATION CRITERIA CHECK						
Data verification flags used in this review: U – evaluated to be undetected at the reported concentration; result is considered to be a false positive The following comments requiring qualification are in bold type. The other comments are of interest, but qualification of the samples was not necessary. Refer to the Table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 3).						
1. Did the laboratory identify any non-conformances related to the analytical results?	X	Yes	X	No	LH	Initials
Comments: There was no case narrative associated with this data.						
2. Were sample Chain-of-Custody forms complete?	X	Yes		No	LH	Initials
Comments: COC records from field to laboratory were complete, and custody was maintained as evidenced by field and laboratory personnel signatures, dates, and times of receipt.						
3. Were all the analyses requested for the samples on the COCs completed by the laboratory?	X	Yes		No	LH	Initials
Comments: All requested analyses were completed.						
4. Were samples received in good condition and at the appropriate temperature?	NA	Yes	NA	No	LH	Initials
Comments: The laboratory did not note the sample temperature at the time of receipt.						
5. Were the requested analytical methods in compliance with WP/QAPP, permit, or COC?	X	Yes		No	LH	Initials
Comments: Reported methods and target analyte lists were in compliance with COC records.						
6. Were detection limits in accordance with WP/QAPP, permit, or method?	X	Yes		No	LH	Initials
Comments: Reported detection limits are achievable by the quoted methods.						
7. Do the laboratory reports include only those constituents requested to be reported for a specific analytical method?	X	Yes		No	LH	Initials
Comments: Only the requested target analytes were reported.						
8. Were sample holding times met?	X	Yes		No	LH	Initials
Comments: Extraction and analytical holding times were met for all samples and analyses.						
9. Were correct concentration units reported?	X	Yes		No	LH	Initials
Comments: Correct concentration units were reported.						
10. Were the reporting requirements for flagged data met?	X	Yes		No	LH	Initials
Comments: Data verification qualifiers override any assigned laboratory flags.						

ANALYTICAL DATA VERIFICATION CHECKLIST

11. Were laboratory blank samples free of target analyte contamination?	Yes	X	No	LH	Initials
Comments: All laboratory blanks were free of target analyte contamination, with the following exceptions. 6010B: In the method blank extracted on 09/05/2006 the laboratory reported arsenic at 0.0530 mg/L and lead at 0.0240 mg/L. As these analytes were detected at less than ten times the blank amounts in associated sample SKY-RR-PROF-083006, they were qualified as U to indicate that they were evaluated to be undetected at the reported concentrations and that the results are considered to be false positives. Refer to the Table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 3).					
12. Were trip blank, field blank, and/or equipment rinse blank samples free of target analyte contamination?	NA	Yes	NA	No	LH
Comments: There were no trip blank, field blank, or equipment rinse blank samples associated with this sample set. Field accuracy could not be evaluated.					
13. Were instrument calibrations within method or data verification control limits?	NA	Yes	NA	No	LH
Comments: Instrument calibration information is not required for this level of data review and was not evaluated as part of this data verification.					
14. Were surrogate recoveries within control limits?	X	Yes		No	LH
Comments: Surrogate percent recoveries (%Rs) for organic analyses were within data verification QC criteria for all samples.					
15. Were laboratory control sample recoveries within control limits?	X	Yes		No	LH
Comments: LCS and LCSD (blank spike) recoveries were within data verification or laboratory control-chart QC limits for all target analytes.					
16. Were matrix spike recoveries within control limits?	X	Yes		No	LH
Comments: Project specific MS and MSD recoveries for target analytes were within data verification QC limits. MS and MSD spike recoveries for non-project samples were not considered since matrix similarity to project samples could not be guaranteed.					
17. Were duplicate RPDs and/or serial dilution %Ds within control limits?	X	Yes		No	LH
Comments: Laboratory RPDs for target analytes in LCS/LCSD and project-specific MS/MSD samples were within data verification control limits. Serial dilution information is not required for this level of data review and was not evaluated as part of this data verification.					
18. Were organic system performance criteria met?	NA	Yes	NA	No	LH
Comments: System performance data is not required for this level of data review and was not evaluated as part of this data verification.					
19. Were internal standards within method criteria for GC/MS sample analyses?	NA	Yes	NA	No	LH
Comments: Internal standard information is not required for this level of data review and was not evaluated as part of this data verification.					

ANALYTICAL DATA VERIFICATION CHECKLIST

20. Were inorganic system performance criteria met?	NA	Yes	NA	No	LH	Initials
Comments: System performance data is not required for this level of data review and was not evaluated as part of this data verification.						
21. Were blind field duplicates collected? If so, discuss the precision (RPD) of the results.		Yes	X	No	LH	Initials
Comments: There were no field duplicate samples associated with this sample set. Field precision could not be evaluated.						
22. Were qualitative criteria for organic target analyte identification met?	X	Yes		No	LH	Initials
Comments: Trained laboratory personnel reviewed retention times and chromatography in accordance with the laboratory's internal QA/QC program. Laboratory personnel did not note any data outliers.						
23. Were 100% of the EDD concentrations and reporting limits compared to the hardcopy data reports?	X	Yes		No	LH	Initials
Comments: There were no discrepancies between the EDD concentrations and reporting limits and the hardcopy data reports.						
24. General Comments: Data were evaluated based on verification criteria set forth in the <i>USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Superfund Organic Methods Data Review</i>, document number USEPA-540-R-04-009, January 2005, and <i>USEPA CLP National Functional Guidelines for Inorganic Data Review</i>, document number EPA540/R-04/004 of October 2004 as they applied to the reported methodology. Refer to the Table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (page 3).						

February 28, 2007

Organic and Inorganic Data Verification Report

Skykomish Levee Soil Sampling 3rd and 4th Quarters 2006

Prepared for:

**Steve Howard
Project Manager
The RETEC Group, Inc.
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134-1162**

Prepared by:

**Leslie Hill
Environmental Scientist
The RETEC Group, Inc.
2409 Research Blvd., Suite 106
Fort Collins, CO 80526**

RETEC Project No.: BN050-19390-220

Overview

The samples analyzed for the Skykomish Levee soil sampling events in July through October 2006 are listed in the Table of Samples Analyzed (pages 2-8). Data verification was performed on 308 soil samples.

The samples were analyzed by Test America Analytical Testing Corporation in an on-site mobile laboratory. The validated analyses were Percent Solids by NCA SOP and Diesel and Heavy Range Hydrocarbons by NWTPH-Dx Method.

The RETEC Analytical Data Verification Checklist is presented as pages 13-18. Data were evaluated based on validation criteria set forth in the *USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Superfund Organic Methods Data Review*, document number USEPA-540-R-04-009, January 2005, and *USEPA CLP National Functional Guidelines for Inorganic Data Review*, document number EPA540/R-04/004 of October 2004 as they applied to the reported methodology.

The following data components were reviewed during the data verification procedure:

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Method blank results
LCS/LCSD (blank spike) results
MS/MSD (matrix spike) results
Laboratory duplicate results
Organic surrogate recoveries
Electronic data deliverables (EDDs)

Data Verification Qualifiers Assigned During this Review

J – estimated concentration

Assigned qualifiers are detailed in the RETEC Analytical Data Verification Checklist and are summarized in the Table of Qualified Analytical Results (pages 9-12).

Overall Data Assessment

Precision, accuracy, method compliance, and completeness of the data set have been determined to be acceptable. All of the data are suitable for their intended use with the qualifications noted.

**Table of Samples Analyzed
Skykomish Levee Soil Sampling
July-October 2006
Test America Analytical Testing Corporation On-Site Mobile Lab**

Matrix	Sample ID	Sample Date	SDG
Soil	SKY-STOCK-AM	07/17/2006	ZPG0001
Soil	SKY-brn	07/21/2006	ZPG0004
Soil	SKY-gray	07/21/2006	ZPG0004
Soil	Sky-SED-A02	07/24/2006	ZPG0005
Soil	Sky-SED-B02	07/24/2006	ZPG0005
Soil	Sky-SED-A03	07/25/2006	ZPG0006
Soil	Sky-SED-A04	07/25/2006	ZPG0006
Soil	Sky-SED-A05	07/25/2006	ZPG0006
Soil	Sky-SED-A06	07/25/2006	ZPG0006
Soil	Sky-SED-B03	07/25/2006	ZPG0006
Soil	Sky-SED-B04	07/25/2006	ZPG0006
Soil	Sky-SED-B05	07/25/2006	ZPG0006
Soil	Sky-SED-B06	07/25/2006	ZPG0006
Soil	Sky-SED-B07	07/25/2006	ZPG0006
Soil	Sky-SED-B08	07/25/2006	ZPG0006
Soil	Sky-SED-B09	07/25/2006	ZPG0006
Soil	Sky-SED-B10	07/25/2006	ZPG0006
Soil	Sky-SED-C05	07/25/2006	ZPG0006
Soil	Sky-SED-C07	07/25/2006	ZPG0006
Soil	Sky-SED-C08	07/25/2006	ZPG0006
Soil	Sky-SED-C09	07/25/2006	ZPG0006
Soil	Sky-SED-C10	07/25/2006	ZPG0006
Soil	Sky-SED-B07A	07/26/2006	ZPG0007
Soil	Sky-SED-C08A	07/26/2006	ZPG0007
Soil	Sky-SED-B06A	07/27/2006	ZPG0008
Soil	Sky-SED-B07B	07/27/2006	ZPG0008
Soil	Sky-SED-C01	07/27/2006	ZPG0008
Soil	Sky-SED-C02	07/27/2006	ZPG0008
Soil	Sky-SED-C03	07/27/2006	ZPG0008
Soil	Sky-SED-C04	07/27/2006	ZPG0008
Soil	Sky-SED-C05A	07/27/2006	ZPG0008
Soil	Sky-SED-C06	07/27/2006	ZPG0008
Soil	Sky-SED-C07A	07/27/2006	ZPG0008
Soil	Sky-SED-C08B	07/27/2006	ZPG0008
Soil	Sky-SED-C09A	07/27/2006	ZPG0008
Soil	Sky-SED-C09B	07/27/2006	ZPG0008
Soil	Sky-SED-D01	07/27/2006	ZPG0008
Soil	Sky-SED-D02	07/27/2006	ZPG0008
Soil	Sky-SED-Z01	07/27/2006	ZPG0008
Soil	Sky-SED-B07C	07/28/2006	ZPG0009
Soil	SKY-PRO-D01A	07/29/2006	ZPG0010
Soil	SKY-PRO-D03	07/29/2006	ZPG0010
Soil	SKY-PRO-D04	07/29/2006	ZPG0010
Soil	SKY-PRO-Z02	07/28/2006	ZPG0010
Soil	Sky-Soil-E01	07/29/2006	ZPG0010
Soil	Sky-Soil-E02	07/29/2006	ZPG0010
Soil	Sky-Soil-E03	07/29/2006	ZPG0010

Table of Samples Analyzed
Skykomish Levee Soil Sampling
July-October 2006
Test America Analytical Testing Corporation On-Site Mobile Lab

Matrix	Sample ID	Sample Date	SDG
Soil	SKY-PRO-D01B	07/31/2006	ZPG0011
Soil	SKY-PRO-D05	07/31/2006	ZPG0011
Soil	SKY-PRO-D06	07/31/2006	ZPG0011
Soil	SKY-PRO-D07	07/31/2006	ZPG0011
Soil	SKY-PRO-D08	07/31/2006	ZPG0011
Soil	SKY-PRO-D09	07/31/2006	ZPG0011
Soil	SKY-PRO-Z03	07/31/2006	ZPG0011
Soil	SKY-PRO-D10	08/01/2006	ZPH0001
Soil	Sky-SED-A11	08/01/2006	ZPH0001
Soil	Sky-SED-A13	08/01/2006	ZPH0001
Soil	Sky-SED-A14	08/01/2006	ZPH0001
Soil	Sky-SED-A15	08/01/2006	ZPH0001
Soil	Sky-SED-A16	08/01/2006	ZPH0001
Soil	Sky-SED-A17	08/01/2006	ZPH0001
Soil	Sky-SED-A18	08/01/2006	ZPH0001
Soil	Sky-SED-A19	08/01/2006	ZPH0001
Soil	Sky-SED-A20	08/01/2006	ZPH0001
Soil	Sky-SED-C10A	08/01/2006	ZPH0001
Soil	Sky-SED-Z04	08/01/2006	ZPH0001
Soil	Sky-SED-B/C 8/9	08/04/2006	ZPH0002
Soil	Sky-SED-B12	08/04/2006	ZPH0002
Soil	Sky-SED-B13	08/04/2006	ZPH0002
Soil	Sky-SED-B14	08/04/2006	ZPH0002
Soil	Sky-SED-B15	08/04/2006	ZPH0002
Soil	Sky-SED-B16	08/04/2006	ZPH0002
Soil	Sky-SED-B17	08/04/2006	ZPH0002
Soil	Sky-SED-B18	08/04/2006	ZPH0002
Soil	SKY-SED-B19	08/05/2006	ZPH0003
Soil	SKY-SED-B20	08/05/2006	ZPH0003
Soil	SKY-SED-B21	08/05/2006	ZPH0003
Soil	SKY-SED-C13	08/05/2006	ZPH0003
Soil	SKY-SED-C14	08/04/2006	ZPH0003
Soil	VDL-PRO-B13	08/05/2006	ZPH0003
Soil	VDL-PRO-C11	08/04/2006	ZPH0003
Soil	VDL-PRO-C12	08/05/2006	ZPH0003
Soil	VDL-PRO-C13	08/05/2006	ZPH0003
Soil	VDL-PRO-C14	08/05/2006	ZPH0003
Soil	VDL-PRO-D11	08/04/2006	ZPH0003
Soil	VDL-PRO-D12	08/04/2006	ZPH0003
Soil	Sky-SED-C15	08/07/2006	ZPH0004
Soil	SKY-RAMP-EAST	08/08/2006	ZPH0005
Soil	SKY-SED-C16	08/08/2006	ZPH0005
Soil	SKY-SED-C17	08/08/2006	ZPH0005
Soil	SKY-SED-C18	08/08/2006	ZPH0005
Soil	SKY-SED-C19	08/09/2006	ZPH0006
Soil	SKY-SED-C20	08/09/2006	ZPH0006
Soil	SKY-SED-C21	08/09/2006	ZPH0006

Table of Samples Analyzed
Skykomish Levee Soil Sampling
July-October 2006
Test America Analytical Testing Corporation On-Site Mobile Lab

Matrix	Sample ID	Sample Date	SDG
Soil	SKY-SED-B11	08/10/2006	ZPH0007
Soil	SKY-SED-C11	08/10/2006	ZPH0007
Soil	City Yard Crush	08/11/2006	ZPH0008
Soil	SKY-PRO-D11	08/11/2006	ZPH0008
Soil	SKY-PRO-D12	08/11/2006	ZPH0008
Soil	SKY-PRO-D13	08/11/2006	ZPH0008
Soil	SKY-PRO-D14	08/11/2006	ZPH0008
Soil	SKY-PRO-D15	08/11/2006	ZPH0008
Soil	SKY-PRO-D16	08/11/2006	ZPH0008
Soil	City Yard Crush-2	08/12/2006	ZPH0009
Soil	SKY-PRO-D17	08/12/2006	ZPH0009
Soil	SKY-PRO-D18	08/12/2006	ZPH0009
Soil	SKY-PRO-D19	08/12/2006	ZPH0009
Soil	SKY-PRO-D20	08/12/2006	ZPH0009
Soil	SKY-SED-C19A	08/12/2006	ZPH0009
Soil	SKY-SED-A24	08/14/2006	ZPH0010
Soil	SKY-SED-B24	08/14/2006	ZPH0010
Soil	SKY-SED-B25	08/14/2006	ZPH0010
Soil	SKY-SED-B26	08/14/2006	ZPH0010
Soil	SKY-SED-B27	08/14/2006	ZPH0010
Soil	SKY-SED-B28	08/14/2006	ZPH0010
Soil	SKY-SED-C12	08/15/2006	ZPH0011
Soil	SKY-SED-C24	08/15/2006	ZPH0011
Soil	SKY-SED-C25	08/15/2006	ZPH0011
Soil	SKY-SED-C26	08/15/2006	ZPH0011
Soil	SKY-SED-C27	08/15/2006	ZPH0011
Soil	SKY-SED-C28	08/15/2006	ZPH0011
Soil	SKY-PRO-D17A	08/16/2006	ZPH0012
Soil	SKY-PRO-D20A	08/16/2006	ZPH0012
Soil	SKY-PRO-D25	08/16/2006	ZPH0012
Soil	SKY-PRO-D26	08/16/2006	ZPH0012
Soil	SKY-PRO-D27	08/16/2006	ZPH0012
Soil	SKY-PRO-D28	08/16/2006	ZPH0012
Soil	SKY-PRO-Z05	08/16/2006	ZPH0012
Soil	SKY-PRO-D29	08/17/2006	ZPH0013
Soil	SKY-SED-B01	08/17/2006	ZPH0013
Soil	SKY-SOIL-E26	08/17/2006	ZPH0013
Soil	SKY-SOIL-E27	08/17/2006	ZPH0013
Soil	SKY-SOIL-E28	08/17/2006	ZPH0013
Soil	SKY-SOIL-E29	08/17/2006	ZPH0013
Soil	SKY-PRO-D00	08/18/2006	ZPH0014
Soil	SKY-PRO-D24	08/18/2006	ZPH0014
Soil	SKY-SED-C00	08/18/2006	ZPH0014
Soil	SKY-SED-C19B	08/18/2006	ZPH0014
Soil	SKY-SED-B22	08/19/2006	ZPH0015
Soil	SKY-SED-B23	08/19/2006	ZPH0015

Table of Samples Analyzed
Skykomish Levee Soil Sampling
July-October 2006
Test America Analytical Testing Corporation On-Site Mobile Lab

Matrix	Sample ID	Sample Date	SDG
Soil	SKY-PRO-D21	08/21/2006	ZPH0016
Soil	SKY-PRO-D22	08/21/2006	ZPH0016
Soil	SKY-PRO-D23	08/21/2006	ZPH0016
Soil	SKY-PRO-Z06	08/21/2006	ZPH0016
Soil	SKY-SED-A22	08/21/2006	ZPH0016
Soil	SKY-SED-C21A	08/21/2006	ZPH0016
Soil	SKY-SED-C22	08/21/2006	ZPH0016
Soil	SKY-SED-C23	08/21/2006	ZPH0016
Soil	SKY-SOIL-E24	08/21/2006	ZPH0016
Soil	SKY-SOIL-E20	08/22/2006	ZPH0017
Soil	SKY-SOIL-E21	08/22/2006	ZPH0017
Soil	SKY-SOIL-Z07	08/22/2006	ZPH0017
Soil	SKY-SOIL-E22	08/23/2006	ZPH0018
Soil	SKY-SOIL-E23	08/23/2006	ZPH0018
Soil	SKY-SOIL-E25	08/23/2006	ZPH0018
Soil	SKY-SOIL-F/G28-915	08/25/2006	ZPH0019
Soil	SKY-SOIL-F27	08/25/2006	ZPH0019
Soil	SKY-SOIL-F28	08/25/2006	ZPH0019
Soil	SKY-SOIL-G27	08/25/2006	ZPH0019
Soil	SKY-SOIL-G28	08/25/2006	ZPH0019
Soil	SKY-SOIL-G28-919	08/25/2006	ZPH0019
Soil	SKY-SOIL-G29	08/25/2006	ZPH0019
Soil	SKY-SOIL-F26	08/26/2006	ZPH0020
Soil	SKY-SOIL-G26	08/26/2006	ZPH0020
Soil	SKY-SOIL-F24	08/28/2006	ZPH0021
Soil	SKY-SOIL-F25	08/28/2006	ZPH0021
Soil	SKY-SOIL-G24	08/28/2006	ZPH0021
Soil	SKY-SOIL-G25	08/28/2006	ZPH0021
Soil	SKY-SOIL-F21	08/29/2006	ZPH0022
Soil	SKY-SOIL-F22	08/29/2006	ZPH0022
Soil	SKY-SOIL-F23	08/29/2006	ZPH0022
Soil	SKY-SOIL-G21	08/29/2006	ZPH0022
Soil	SKY-SOIL-G22	08/29/2006	ZPH0022
Soil	SKY-SOIL-G23	08/29/2006	ZPH0022
Soil	SKY-SOIL-F20	08/31/2006	ZPH0023
Soil	SKY-SOIL-G20	08/31/2006	ZPH0023
Soil	SKY-SOIL-E19	09/01/2006	ZPI0001
Soil	SKY-SOIL-F19	09/01/2006	ZPI0001
Soil	SKY-SOIL-G19	09/01/2006	ZPI0001
Soil	SKY-SOIL-H19	09/01/2006	ZPI0001
Soil	SKY-SOIL-E18	09/05/2006	ZPI0002
Soil	SKY-SOIL-F18	09/05/2006	ZPI0002
Soil	SKY-SOIL-G18	09/05/2006	ZPI0002
Soil	SKY-SOIL-H17	09/05/2006	ZPI0002
Soil	SKY-SOIL-H18	09/05/2006	ZPI0002

Table of Samples Analyzed
Skykomish Levee Soil Sampling
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Matrix	Sample ID	Sample Date	SDG
Soil	SKY-SOIL-E17	09/06/2006	ZPI0003
Soil	SKY-SOIL-F17	09/06/2006	ZPI0003
Soil	SKY-SOIL-G17	09/06/2006	ZPI0003
Soil	SKY-SOIL-Z08	09/06/2006	ZPI0003
Soil	SKY-SOIL-E16	09/07/2006	ZPI0004
Soil	SKY-SOIL-F16	09/07/2006	ZPI0004
Soil	SKY-SOIL-G16	09/07/2006	ZPI0004
Soil	SKY-SOIL-H16	09/07/2006	ZPI0004
Soil	SKY-SOIL-E15	09/08/2006	ZPI0005
Soil	SKY-SOIL-F15	09/08/2006	ZPI0005
Soil	SKY-SOIL-G15	09/08/2006	ZPI0005
Soil	SKY-SOIL-H14	09/08/2006	ZPI0005
Soil	SKY-SOIL-H15	09/08/2006	ZPI0005
Soil	SKY-SOIL-I14	09/08/2006	ZPI0005
Soil	SKY-SOIL-I15	09/08/2006	ZPI0005
Soil	SKY-SOIL-E14	09/09/2006	ZPI0006
Soil	SKY-SOIL-F14	09/09/2006	ZPI0006
Soil	SKY-SOIL-G14	09/09/2006	ZPI0006
Soil	SKY-SOIL-E10	09/11/2006	ZPI0007
Soil	SKY-SOIL-E11	09/11/2006	ZPI0007
Soil	SKY-SOIL-E12	09/11/2006	ZPI0007
Soil	SKY-SOIL-E13	09/11/2006	ZPI0007
Soil	SKY-SOIL-F10	09/11/2006	ZPI0007
Soil	SKY-SOIL-F11	09/11/2006	ZPI0007
Soil	SKY-SOIL-F12	09/11/2006	ZPI0007
Soil	SKY-SOIL-F13	09/11/2006	ZPI0007
Soil	SKY-SOIL-E13A	09/12/2006	ZPI0008
Soil	SKY-SOIL-E9	09/12/2006	ZPI0008
Soil	SKY-SOIL-F13A	09/12/2006	ZPI0008
Soil	SKY-SOIL-F9	09/12/2006	ZPI0008
Soil	SKY-VDL-U3	09/12/2006	ZPI0008
Soil	SKY-VDL-U4	09/12/2006	ZPI0008
Soil	SKY-VDL-U6	09/12/2006	ZPI0008
Soil	SKY-VDL-U7	09/12/2006	ZPI0008
Soil	SKY-VDL-U8	09/12/2006	ZPI0008
Soil	SKY-SOIL-E5	09/13/2006	ZPI0009
Soil	SKY-SOIL-E6	09/13/2006	ZPI0009
Soil	SKY-SOIL-E7	09/13/2006	ZPI0009
Soil	SKY-SOIL-E8	09/13/2006	ZPI0009
Soil	SKY-SOIL-F5	09/13/2006	ZPI0009
Soil	SKY-SOIL-F6	09/13/2006	ZPI0009
Soil	SKY-SOIL-F7	09/13/2006	ZPI0009
Soil	SKY-SOIL-F8	09/13/2006	ZPI0009
Soil	SKY-SOIL-E4	09/14/2006	ZPI0010
Soil	SKY-SOIL-F1	09/14/2006	ZPI0010
Soil	SKY-SOIL-F2	09/14/2006	ZPI0010
Soil	SKY-SOIL-F3	09/14/2006	ZPI0010
Soil	SKY-SOIL-F4	09/14/2006	ZPI0010

Table of Samples Analyzed
Skykomish Levee Soil Sampling
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Matrix	Sample ID	Sample Date	SDG
Soil	SKY-SOIL-F2A	09/15/2006	ZPI0011
Soil	SKY-SOIL-G11	09/15/2006	ZPI0011
Soil	SKY-SOIL-G12	09/15/2006	ZPI0011
Soil	SKY-SOIL-G13	09/15/2006	ZPI0011
Soil	SKY-SOIL-G10	09/18/2006	ZPI0012
Soil	SKY-SOIL-G8	09/18/2006	ZPI0012
Soil	SKY-SOIL-G9	09/18/2006	ZPI0012
Soil	SKY-SOIL-G2	09/19/2006	ZPI0013
Soil	SKY-SOIL-G2A	09/19/2006	ZPI0013
Soil	SKY-SOIL-G3	09/19/2006	ZPI0013
Soil	SKY-SOIL-G3A	09/19/2006	ZPI0013
Soil	SKY-SOIL-H2	09/19/2006	ZPI0013
Soil	SKY-SOIL-H3	09/19/2006	ZPI0013
Soil	SKY-SOIL-H3A	09/19/2006	ZPI0013
Soil	SKY-SOIL-I3	09/19/2006	ZPI0013
Soil	SKY-SOIL-I3A	09/19/2006	ZPI0013
Soil	SKY-SOIL-G4	09/20/2006	ZPI0014
Soil	SKY-SOIL-G4A	09/20/2006	ZPI0014
Soil	SKY-SOIL-H4	09/20/2006	ZPI0014
Soil	SKY-SOIL-H4A	09/20/2006	ZPI0014
Soil	SKY-SOIL-I2	09/20/2006	ZPI0014
Soil	SKY-SOIL-I4	09/20/2006	ZPI0014
Soil	SKY-SOIL-I4A	09/20/2006	ZPI0014
Soil	SKY-SOIL-J3	09/20/2006	ZPI0014
Soil	SKY-SOIL-J3A	09/20/2006	ZPI0014
Soil	SKY-SOIL-J4	09/20/2006	ZPI0014
Soil	SKY-SOIL-J4A	09/20/2006	ZPI0014
Soil	SKY-SOIL-G5	09/23/2006	ZPI0015
Soil	SKY-SOIL-G5A	09/23/2006	ZPI0015
Soil	SKY-SOIL-H5	09/23/2006	ZPI0015
Soil	SKY-SOIL-H5A	09/23/2006	ZPI0015
Soil	SKY-SOIL-I5	09/23/2006	ZPI0015
Soil	SKY-SOIL-I5A	09/23/2006	ZPI0015
Soil	SKY-SOIL-SHAW1	09/22/2006	ZPI0015
Soil	SKY-SOIL-Z10	09/23/2006	ZPI0015
Soil	SKY-SOIL-G6	09/25/2006	ZPI0016
Soil	SKY-SOIL-G6A	09/25/2006	ZPI0016
Soil	SKY-SOIL-H6	09/25/2006	ZPI0016
Soil	SKY-SOIL-H6A	09/25/2006	ZPI0016
Soil	SKY-SOIL-I6	09/25/2006	ZPI0016
Soil	SKY-SOIL-I6A	09/25/2006	ZPI0016
Soil	SKY-SOIL-Z09	09/25/2006	ZPI0016

Table of Samples Analyzed
Skykomish Levee Soil Sampling
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Matrix	Sample ID	Sample Date	SDG
Soil	SKY-SOIL-G7	09/26/2006	ZPI0017
Soil	SKY-SOIL-G7A	09/26/2006	ZPI0017
Soil	SKY-SOIL-H7	09/26/2006	ZPI0017
Soil	SKY-SOIL-H8	09/26/2006	ZPI0017
Soil	SKY-SOIL-H8A	09/26/2006	ZPI0017
Soil	SKY-SOIL-H9	09/26/2006	ZPI0017
Soil	SKY-SOIL-H9A	09/26/2006	ZPI0017
Soil	SKY-SOIL-I7	09/26/2006	ZPI0017
Soil	SKY-SOIL-I8	09/26/2006	ZPI0017
Soil	SKY-SOIL-I9	09/26/2006	ZPI0017
Soil	SKY-SOIL-Z11	09/26/2006	ZPI0017
Soil	SKY-SOIL-Z12	09/26/2006	ZPI0017
Soil	SKY-SOIL-H10	09/27/2006	ZPI0018
Soil	SKY-SOIL-I10	09/27/2006	ZPI0018
Soil	SKY-SOIL-J8	09/27/2006	ZPI0018
Soil	SKY-SOIL-J9	09/27/2006	ZPI0018
Soil	SKY-SOIL-K9	09/27/2006	ZPI0018
Soil	SKY-SOIL-Z13	09/27/2006	ZPI0018
Soil	SKY-SOIL-H11	09/28/2006	ZPI0019
Soil	SKY-SOIL-H12	09/28/2006	ZPI0019
Soil	SKY-SOIL-I11	09/28/2006	ZPI0019
Soil	SKY-SOIL-J10	09/28/2006	ZPI0019
Soil	SKY-SOIL-J10A	09/28/2006	ZPI0019
Soil	SKY-SOIL-J11	09/28/2006	ZPI0019
Soil	SKY-SOIL-J11A	09/28/2006	ZPI0019
Soil	SKY-SOIL-Z14	09/28/2006	ZPI0019
Soil	SKY-SOIL-H13	09/29/2006	ZPI0020
Soil	SKY-SOIL-H13A	09/29/2006	ZPI0020
Soil	SKY-SOIL-I12	09/29/2006	ZPI0020
Soil	SKY-SOIL-I12A	09/29/2006	ZPI0020
Soil	SKY-SOIL-J12	09/29/2006	ZPI0020
Soil	SKY-SOIL-Z15	09/29/2006	ZPI0020
Soil	SKY-SOIL-I13	10/02/2006	ZPJ0001

**Table of Qualified Analytical Results
S Skykomish Levee Soil Sampling
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Sample ID	Date Sampled	SDG	Method	Analyte	Concentration	Qualifier	Reason Code
SKY-STOCK-AM	07/17/2006	ZPG0001	NWTPH-Dx	Heavy Oil Range Hydrocarbons	136 mg/kg	J	MS
Sky-SED-B06	07/25/2006	ZPG0006	NWTPH-Dx	Diesel Range Hydrocarbons	56.1 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	90.1 mg/kg	J	CHR
Sky-SED-B07	07/25/2006	ZPG0006	NWTPH-Dx	Diesel Range Hydrocarbons	9150 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	9600 mg/kg	J	CHR
Sky-SED-C05	07/25/2006	ZPG0006	NWTPH-Dx	Diesel Range Hydrocarbons	734 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	859 mg/kg	J	CHR
Sky-SED-C07	07/25/2006	ZPG0006	NWTPH-Dx	Diesel Range Hydrocarbons	1270 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	1760 mg/kg	J	CHR
Sky-SED-C08	07/25/2006	ZPG0006	NWTPH-Dx	Diesel Range Hydrocarbons	2470 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	3180 mg/kg	J	CHR
Sky-SED-C09	07/25/2006	ZPG0006	NWTPH-Dx	Diesel Range Hydrocarbons	3160 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	4070 mg/kg	J	CHR
Sky-SED-C10	07/25/2006	ZPG0006	NWTPH-Dx	Diesel Range Hydrocarbons	4100 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	5750 mg/kg	J	CHR
Sky-SED-B07B	07/27/2006	ZPG0008	NWTPH-Dx	Diesel Range Hydrocarbons	142 mg/kg	J	CHR
Sky-SED-C04	07/27/2006	ZPG0008	NWTPH-Dx	Diesel Range Hydrocarbons	14.2 mg/kg	J	CHR
Sky-SED-D01	07/27/2006	ZPG0008	NWTPH-Dx	Diesel Range Hydrocarbons	14.9 mg/kg	J	CHR
SKY-PRO-D01A	07/29/2006	ZPG0010	NWTPH-Dx	Diesel Range Hydrocarbons	1830 mg/kg	J	CHR
VDL-PRO-C11	08/04/2006	ZPH0003	NWTPH-Dx	Diesel Range Hydrocarbons	1730 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	7920 mg/kg	J	CHR
VDL-PRO-C13	08/05/2006	ZPH0003	NWTPH-Dx	Diesel Range Hydrocarbons	37.1 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	163 mg/kg	J	CHR
VDL-PRO-D11	08/04/2006	ZPH0003	NWTPH-Dx	Diesel Range Hydrocarbons	41.7 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	239 mg/kg	J	CHR
VDL-PRO-D12	08/04/2006	ZPH0003	NWTPH-Dx	Diesel Range Hydrocarbons	168 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	1030 mg/kg	J	CHR
SKY-RAMP-EAST	08/08/2006	ZPH0005	NWTPH-Dx	Diesel Range Hydrocarbons	143 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	158 mg/kg	J	CHR
SKY-SED-C19	08/09/2006	ZPH0006	NWTPH-Dx	Diesel Range Hydrocarbons	51.1 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	73.6 mg/kg	J	CHR
SKY-SED-C21	08/09/2006	ZPH0006	NWTPH-Dx	Diesel Range Hydrocarbons	28.4 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	51.6 mg/kg	J	CHR
City Yard Crush	8/11/2006	ZPH0008	NWTPH-Dx	Heavy Oil Range Hydrocarbons	212 mg/kg	J	CHR
			NWTPH-Dx	Diesel Range Hydrocarbons	89.7 mg/kg	J	CHR
SKY-PRO-D15	8/11/2006	ZPH0008	NWTPH-Dx	Heavy Oil Range Hydrocarbons	34.3 mg/kg	J	CHR
			NWTPH-Dx	Diesel Range Hydrocarbons	28 mg/kg	J	CHR
City Yard Crush-2	08/12/2006	ZPH0009	NWTPH-Dx	Diesel Range Hydrocarbons	16.6 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	39 mg/kg	J	CHR
SKY-PRO-D17	08/12/2006	ZPH0009	NWTPH-Dx	Diesel Range Hydrocarbons	2090 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	2570 mg/kg	J	CHR
SKY-PRO-D20	08/12/2006	ZPH0009	NWTPH-Dx	Diesel Range Hydrocarbons	466 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	599 mg/kg	J	CHR
SKY-SED-C19A	08/12/2006	ZPH0009	NWTPH-Dx	Diesel Range Hydrocarbons	539 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	1010 mg/kg	J	CHR

**Table of Qualified Analytical Results
S Skykomish Levee Soil Sampling
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Sample ID	Date Sampled	SDG	Method	Analyte	Concentration	Qualifier	Reason Code
SKY-SED-C24	08/15/2006	ZPH0011	NWTPH-Dx	Heavy Oil Range Hydrocarbons	13.3 mg/kg	J	CHR
SKY-PRO-D17A	08/16/2006	ZPH0012	NWTPH-Dx	Diesel Range Hydrocarbons	524 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	675 mg/kg	J	CHR
SKY-PRO-D20A	08/16/2006	ZPH0012	NWTPH-Dx	Diesel Range Hydrocarbons	300 mg/kg	J	CHR/MS
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	361 mg/kg	J	CHR
SKY-SOIL-E29	08/17/2006	ZPH0013	NWTPH-Dx	Diesel Range Hydrocarbons	149 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	725 mg/kg	J	CHR
SKY-SED-C00	08/18/2006	ZPH0014	NWTPH-Dx	Diesel Range Hydrocarbons	214 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	352 mg/kg	J	CHR
SKY-SED-C19B	08/18/2006	ZPH0014	NWTPH-Dx	Diesel Range Hydrocarbons	155 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	193 mg/kg	J	CHR
SKY-SOIL-E20	08/22/2006	ZPH0017	NWTPH-Dx	Diesel Range Hydrocarbons	557 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	799 mg/kg	J	CHR
SKY-SOIL-Z07	08/22/2006	ZPH0017	NWTPH-Dx	Diesel Range Hydrocarbons	608 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	675 mg/kg	J	CHR
SKY-SOIL-F/G28-915	08/25/2006	ZPH0019	NWTPH-Dx	Diesel Range Hydrocarbons	865 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	847 mg/kg	J	CHR
SKY-SOIL-F28	08/25/2006	ZPH0019	NWTPH-Dx	Diesel Range Hydrocarbons	41.8 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	64.1 mg/kg	J	CHR
SKY-SOIL-F26	08/26/2006	ZPH0020	NWTPH-Dx	Diesel Range Hydrocarbons	49.3 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	77.5 mg/kg	J	CHR
SKY-SOIL-G26	08/26/2006	ZPH0020	NWTPH-Dx	Diesel Range Hydrocarbons	62.7 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	79 mg/kg	J	CHR
SKY-SOIL-G24	08/28/2006	ZPH0021	NWTPH-Dx	Diesel Range Hydrocarbons	22.1 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	24.7 mg/kg	J	CHR
SKY-SOIL-F17	09/06/2006	ZPI0003	NWTPH-Dx	Diesel Range Hydrocarbons	43.9 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	53.6 mg/kg	J	CHR
SKY-SOIL-F15	09/08/2006	ZPI0005	NWTPH-Dx	Diesel Range Hydrocarbons	16.7 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	24.9 mg/kg	J	CHR
SKY-SOIL-E10	09/11/2006	ZPI0007	NWTPH-Dx	Diesel Range Hydrocarbons	63.5 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	77.9 mg/kg	J	CHR
SKY-SOIL-E11	09/11/2006	ZPI0007	NWTPH-Dx	Diesel Range Hydrocarbons	18.9 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	17.3 mg/kg	J	CHR
SKY-SOIL-F11	09/11/2006	ZPI0007	NWTPH-Dx	Diesel Range Hydrocarbons	364 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	397 mg/kg	J	CHR
SKY-VDL-U3	09/12/2006	ZPI0008	NWTPH-Dx	Diesel Range Hydrocarbons	14.3 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	64.1 mg/kg	J	CHR
SKY-VDL-U4	09/12/2006	ZPI0008	NWTPH-Dx	Diesel Range Hydrocarbons	17.7 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	97.6 mg/kg	J	CHR
SKY-VDL-U6	09/12/2006	ZPI0008	NWTPH-Dx	Diesel Range Hydrocarbons	14.4 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	69.9 mg/kg	J	CHR
SKY-VDL-U7	09/12/2006	ZPI0008	NWTPH-Dx	Diesel Range Hydrocarbons	1190 mg/kg	J	CHR
	09/12/2006	ZPI0008	NWTPH-Dx	Heavy Oil Range Hydrocarbons	4250 mg/kg	J	CHR
SKY-VDL-U8	09/12/2006	ZPI0008	NWTPH-Dx	Diesel Range Hydrocarbons	682 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	2780 mg/kg	J	CHR

**Table of Qualified Analytical Results
S Skykomish Levee Soil Sampling
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Sample ID	Date Sampled	SDG	Method	Analyte	Concentration	Qualifier	Reason Code
SKY-SOIL-E4	09/14/2006	ZPI0010	NWTPH-Dx	Diesel Range Hydrocarbons	28.4 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	35.9 mg/kg	J	CHR
SKY-SOIL-F2	09/14/2006	ZPI0010	NWTPH-Dx	Diesel Range Hydrocarbons	679 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	648 mg/kg	J	CHR
SKY-SOIL-F3	09/14/2006	ZPI0010	NWTPH-Dx	Diesel Range Hydrocarbons	92.9 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	123 mg/kg	J	CHR
SKY-SOIL-F2A	09/15/2006	ZPI0011	NWTPH-Dx	Diesel Range Hydrocarbons	122 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	126 mg/kg	J	CHR
SKY-SOIL-G12	09/15/2006	ZPI0011	NWTPH-Dx	Diesel Range Hydrocarbons	54.4 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	75.1 mg/kg	J	CHR
SKY-SOIL-G13	09/15/2006	ZPI0011	NWTPH-Dx	Diesel Range Hydrocarbons	12.6 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	12.7 mg/kg	J	CHR
SKY-SOIL-G2	09/19/2006	ZPI0013	NWTPH-Dx	Diesel Range Hydrocarbons	23 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	58 mg/kg	J	CHR
SKY-SOIL-G2A	09/19/2006	ZPI0013	NWTPH-Dx	Diesel Range Hydrocarbons	303 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	376 mg/kg	J	CHR
SKY-SOIL-H2	09/19/2006	ZPI0013	NWTPH-Dx	Diesel Range Hydrocarbons	122 mg/kg	J	CHR
SKY-SOIL-H3	09/19/2006	ZPI0013	NWTPH-Dx	Diesel Range Hydrocarbons	12.3 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	16.2 mg/kg	J	CHR
SKY-SOIL-H3A	09/19/2006	ZPI0013	NWTPH-Dx	Diesel Range Hydrocarbons	12.6 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	15.6 mg/kg	J	CHR
SKY-SOIL-I2	09/20/2006	ZPI0014	NWTPH-Dx	Diesel Range Hydrocarbons	599 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	2480 mg/kg	J	CHR
SKY-SOIL-SHAW1	09/22/2006	ZPI0015	NWTPH-Dx	Diesel Range Hydrocarbons	6440 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	7600 mg/kg	J	CHR
SKY-SOIL-I9	09/26/2006	ZPI0017	NWTPH-Dx	Diesel Range Hydrocarbons	18.9 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	23.6 mg/kg	J	CHR
SKY-SOIL-H10	09/27/2006	ZPI0018	NWTPH-Dx	Diesel Range Hydrocarbons	260 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	299 mg/kg	J	CHR
SKY-SOIL-J9	09/27/2006	ZPI0018	NWTPH-Dx	Diesel Range Hydrocarbons	620 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	955 mg/kg	J	CHR
SKY-SOIL-H11	09/28/2006	ZPI0019	NWTPH-Dx	Diesel Range Hydrocarbons	74 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	105 mg/kg	J	CHR
SKY-SOIL-H12	09/28/2006	ZPI0019	NWTPH-Dx	Diesel Range Hydrocarbons	21.7 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	29 mg/kg	J	CHR
SKY-SOIL-Z14	09/28/2006	ZPI0019	NWTPH-Dx	Diesel Range Hydrocarbons	61.4 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	85.5 mg/kg	J	CHR
SKY-SOIL-H13	09/29/2006	ZPI0020	NWTPH-Dx	Diesel Range Hydrocarbons	9.71 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	17.5 mg/kg	J	CHR
SKY-SOIL-H13A	09/29/2006	ZPI0020	NWTPH-Dx	Diesel Range Hydrocarbons	18.9 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	25.5 mg/kg	J	CHR
SKY-SOIL-I12	09/29/2006	ZPI0020	NWTPH-Dx	Diesel Range Hydrocarbons	90.8 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	118 mg/kg	J	CHR
SKY-SOIL-I12A	09/29/2006	ZPI0020	NWTPH-Dx	Diesel Range Hydrocarbons	255 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	349 mg/kg	J	CHR

**Table of Qualified Analytical Results
S Skykomish Levee Soil Sampling
July-October 2006
Test America Analytical Testing Corporation On-Site Mobile Lab**

Sample ID	Date Sampled	SDG	Method	Analyte	Concentration	Qualifier	Reason Code
SKY-SOIL-J12	09/29/2006	ZPI0020	NWTPH-Dx	Diesel Range Hydrocarbons	17.6 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	22.6 mg/kg	J	CHR
SKY-SOIL-Z15	09/29/2006	ZPI0020	NWTPH-Dx	Diesel Range Hydrocarbons	15.1 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	20.4 mg/kg	J	CHR
SKY-SOIL-I13	10/02/2006	ZPJ0001	NWTPH-Dx	Diesel Range Hydrocarbons	19 mg/kg	J	CHR
			NWTPH-Dx	Heavy Oil Range Hydrocarbons	24.6 mg/kg	J	CHR

Qualifiers:

J – Estimated concentration.

Reason Codes:

CHR – The chromatographic pattern is not consistent with the standard used.

MS – Matrix spike recovery outside limits.

ANALYTICAL DATA VERIFICATION CHECKLIST

Project Name: Skykomish Levee	Laboratory: Test America Analytical Testing Corporation On-Site Mobile Laboratory				
Project Reference:	Sample Matrix: Soil				
RETEC Project: BN050-19390-220	Sample Start Date: 07/17/2006				
Verified By/Date Verified: Leslie Hill 02/28/2007	Sample End Date: 10/02/2006				
Samples Analyzed: Refer to the Table of Samples Analyzed (pages 2-8).					
Parameters Verified: Percent Solids by NCA SOP and Diesel and Heavy Range Hydrocarbons by NWTPH-Dx Method.					
Laboratory SDGs: ZPG0001, ZPG0004, ZPG0005, ZPG0006, ZPG0007, ZPG0008, ZPG0009, ZPG0010, ZPG0011, ZPH0001, ZPH0002, ZPH0003, ZPH0004, ZPH0005, ZPH0006, ZPH0007, ZPH0008, ZPH0009, ZPH0010, ZPH0011, ZPH0012, ZPH0013, ZPH0014, ZPH0015, ZPH0016, ZPH0017, ZPH0018, ZPH0019, ZPH0020, ZPH0021, ZPH0022, ZPH0023, ZPI0001, ZPI0002, ZPI0003, ZPI0004, ZPI0005, ZPI0006, ZPI0007, ZPI0008, ZPI0009, ZPI0010, ZPI0011, ZPI0012, ZPI0013, ZPI0014, ZPI0015, ZPI0016, ZPI0017, ZPI0018, ZPI0019, ZPI0020, and ZPJ0001.					
PRECISION, ACCURACY, METHOD COMPLIANCE, AND COMPLETENESS ASSESSMENT					
Precision:	X	Acceptable		Unacceptable	LH Initials
Comments: Precision is the measure of variability of individual sample measurements. Field precision could not be determined as field duplicate samples were not collected. Laboratory precision was determined by examination of laboratory duplicate results. Evaluation of laboratory duplicates for precision was done using the Relative Percent Difference (RPD). The RPD is defined as the difference between two duplicate samples divided by the mean and expressed as a percent. Laboratory RPD limits referenced EPA published QC limits. No data require qualification based on laboratory duplicate RPDs, and overall laboratory precision is acceptable. Precision measurements are reviewed in items 17, 20, and 21.					
Accuracy:	X	Acceptable		Unacceptable	LH Initials
Comments: Field accuracy, a measure of the sampling bias, could not be determined as no trip blank, field blank, or equipment rinse blank samples were collected. Laboratory accuracy is a measure of the system bias, and was measured by evaluating laboratory control sample/laboratory control sample duplicate (LCS/LCSD), matrix spike/matrix spike duplicate (MS/MSD), and organic system monitoring compounds (surrogate) percent recoveries (%Rs). LCS/LCSD %Rs, which demonstrated the overall performance of the analysis, were compared to EPA published QC limits. MS/MSD %Rs, which provided information on sample matrix interferences, were compared to EPA published QC limits or laboratory control charted limits. System monitoring compound or surrogate recoveries, which measured system performance and efficiency during organic analysis, were compared to EPA published QC limits. Although some data require qualification based on MS %Rs, overall laboratory accuracy is acceptable. Accuracy measurements are reviewed in items 12, 14, 15, and 16.					
Method Compliance:	X	Acceptable		Unacceptable	LH Initials
Comments: Method compliance was determined by evaluating sample integrity, holding time, and laboratory blanks against method specified requirements, while applying EPA data validation guidelines. Although some data require qualification based on chromatographic matches, overall method compliance is acceptable based on the supplied data. Method compliance measurements are reviewed in items 4, 8, 11, 13, 18, 19, 20, and 22.					
Completeness:	X	Acceptable		Unacceptable	LH Initials
Comments: Completeness is the overall ratio of the number of samples planned versus the number of samples with valid analyses. Completeness goals are set at 90-100%. Determination of completeness included a review of chain of custody records, laboratory analytical methods and detection limits, laboratory case narratives, and project requirements. Completeness also included 100% review of the laboratory sample data results, QC summary reports, and electronic data deliverables (EDDs). All of the data received from the laboratory are useable with qualification. Completeness of the data is calculated to be 100% and is acceptable.					

ANALYTICAL DATA VERIFICATION CHECKLIST

VERIFICATION CRITERIA CHECK						
Data verification flags used in this review: J – estimated concentration The following comments requiring qualification are in bold type. The other comments are of interest, but qualification of the samples was not necessary. Refer to the Table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (pages 9-12).						
1. Did the laboratory identify any non-conformances related to the analytical results?	X	Yes		No	LH	Initials
Laboratory comments: ZPI0014: The continuing calibration verification (CCV) was above acceptance criteria for the initial analysis of these samples. Since this indicates possible high bias in the sample results, samples that were ND are not affected and are qualified with J-06. Samples SKY-SOIL-J3A and SKY-SOIL-I2 had detections in the first analysis and, therefore, were re-analyzed with a passing CCV. These are not qualified with J-06. Data qualification, if any, related to the laboratory observations are discussed in the following sections.						
2. Were sample Chain-of-Custody forms complete?	X	Yes		No	LH	Initials
Comments: COC records from field to laboratory were complete, with the exceptions noted below, and custody was maintained as evidenced by field and laboratory personnel signatures, dates, and times of receipt. ZPH0003: Sample SKY-SED-C14 had a date sampled of 08/05/2006 on the COC but was logged in by the laboratory with a date sampled of 08/04/2006. ZPH0020: Sample SKY-SOIL-F26 had a time sampled of 15:10 on the COC but was logged in by the laboratory with a time sampled of 15:25.						
3. Were all the analyses requested for the samples on the COCs completed by the laboratory?	X	Yes		No	LH	Initials
Comments: All requested analyses were completed.						
4. Were samples received in good condition and at the appropriate temperature?	NA	Yes	NA	No	LH	Initials
Comments: The samples were hand delivered to the mobile laboratory and the temperature of the samples at the time of receipt was not taken. Please note that the samples were taken to the mobile laboratory on the day they were sampled and within a few hours of sampling.						
5. Were the requested analytical methods in compliance with WP/QAPP, permit, or COC?	X	Yes		No	LH	Initials
Comments: Reported methods and target analyte lists were in compliance with COC records.						
6. Were detection limits in accordance with WP/QAPP, permit, or method?	X	Yes		No	LH	Initials
Comments: Reported detection limits are achievable by the quoted methods.						
7. Do the laboratory reports include only those constituents requested to be reported for a specific analytical method?	X	Yes		No	LH	Initials
Comments: Only the requested target analytes were reported.						
8. Were sample holding times met?	X	Yes		No	LH	Initials
Comments: Extraction and analytical holding times were met for all samples and analyses.						

ANALYTICAL DATA VERIFICATION CHECKLIST

9. Were correct concentration units reported?	X	Yes		No	LH	Initials
Comments: Correct concentration units were reported.						
10. Were the reporting requirements for flagged data met?	X	Yes		No	LH	Initials
Comments: Data verification qualifiers override any assigned laboratory flags.						
11. Were laboratory blank samples free of target analyte contamination?	X	Yes		No	LH	Initials
Comments: All laboratory blanks were free of target analyte contamination.						
12. Were trip blank, field blank, and/or equipment rinse blank samples free of target analyte contamination?	NA	Yes	NA	No	LH	Initials
Comments: There were no trip blank, field blank, or equipment rinse blank samples associated with this sample set. Field accuracy could not be evaluated.						
13. Were instrument calibrations within method or data verification control limits?	NA	Yes	NA	No	LH	Initials
Comments: Instrument calibration information is not required for this level of data review and was not evaluated as part of this data verification.						
14. Were surrogate recoveries within control limits?	X	Yes		No	LH	Initials
Comments: Surrogate percent recoveries (%Rs) for organic analyses were within data verification QC criteria for all samples.						
15. Were laboratory control sample recoveries within control limits?	X	Yes		No	LH	Initials
Comments: LCS and LCSD (blank spike) recoveries were within data verification or laboratory control-chart QC limits for all target analytes.						
16. Were matrix spike recoveries within control limits?		Yes	X	No	LH	Initials
Comments: Project specific MS and MSD recoveries for target analytes were within data verification QC limits, except as noted below. MS and MSD spike recoveries for non-project samples were not considered since matrix similarity to project samples could not be guaranteed. ZPG0001: NWTPH-Dx: In sample SKY-STOCK-AM MS the recovery of heavy oil range hydrocarbons was outside laboratory QC limits of 50-150% at 47.7%. Heavy oil range hydrocarbons was qualified as J in this sample to indicate an estimated concentration. ZPH0012: NWTPH-Dx: In sample SKY-PRO-D20A MS the recovery of diesel range hydrocarbons was outside laboratory QC limits of 50-150% at 14.3%. Diesel range hydrocarbons was qualified as J in this sample to indicate an estimated concentration. Refer to the Table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (pages 9-12).						
17. Were duplicate RPDs and/or serial dilution %Ds within control limits?	X	Yes		No	LH	Initials
Comments: Laboratory RPDs for target analytes in LCS/LCSD and project-specific MS/MSD samples were within data verification control limits. Serial dilution information is not required for any of the analyses requested for this data set.						

ANALYTICAL DATA VERIFICATION CHECKLIST

18. Were organic system performance criteria met?	NA	Yes	NA	No	LH	Initials
Comments: System performance data is not required for this level of data review and was not evaluated as part of this data verification.						
19. Were internal standards within method criteria for GC/MS sample analyses?	NA	Yes	NA	No	LH	Initials
Comments: Internal standard information is not required for this level of data review and was not evaluated as part of this data verification.						
20. Were inorganic system performance criteria met?	NA	Yes	NA	No	LH	Initials
Comments: System performance data is not required for this level of data review and was not evaluated as part of this data verification.						
21. Were blind field duplicates collected? If so, discuss the precision (RPD) of the results.		Yes	X	No	LH	Initials
Comments: There were no field duplicate samples associated with this sample set. Field precision could not be evaluated.						
22. Were qualitative criteria for organic target analyte identification met?		Yes	X	No	LH	Initials
Comments: Trained laboratory personnel reviewed retention times and chromatography in accordance with the laboratory's internal QA/QC program. Laboratory personnel noted the following data outliers. ZPG0006: <u>NWTPH-Dx</u>: Diesel range hydrocarbons and heavy oil range hydrocarbons were noted by the laboratory as being a complex mixture of diesel range and heavy oil range organics in samples SKY-SED-A06, SKY-SED-B07, SKY-SED-C07, SKY-SED-C08, SKY-SED-C09, SKY-SED-C10, and SKY-SED-C05. These analytes were qualified as J to indicate estimated concentrations in these samples. ZPG0008: <u>NWTPH-Dx</u>: Diesel range hydrocarbons in samples SKY-SED-B07B, SKY-SED-C04, and SKY-SED-D01 were noted by the laboratory as being a complex mixture of diesel range and heavy oil range organics. These analytes were qualified as J to indicate estimated concentrations in these samples. ZPH0003: <u>NWTPH-Dx</u>: Diesel range hydrocarbons and heavy oil range hydrocarbons were noted by the laboratory as being a complex mixture of diesel range and heavy oil range organics in samples VDL-PRO-C11, VDL-PRO-D12, VDL-PRO-D11, and VDL-PRO-C13. These analytes were qualified as J to indicate estimated concentrations in these samples. ZPH0005: <u>NWTPH-Dx</u>: Diesel range hydrocarbons and heavy oil range hydrocarbons were noted by the laboratory as being a complex mixture of diesel range and heavy oil range organics in sample SKY-RAMP-EAST. These analytes were qualified as J to indicate estimated concentrations in this sample. ZPH0006: <u>NWTPH-Dx</u>: Diesel range hydrocarbons and heavy oil range hydrocarbons were noted by the laboratory as being a complex mixture of diesel range and heavy oil range organics in samples SKY-SED-C19 and SKY-SED-C21. These analytes were qualified as J to indicate estimated concentrations in these samples. ZPH0008: <u>NWTPH-Dx</u>: Diesel range hydrocarbons and heavy oil range hydrocarbons were noted by the laboratory as being a complex mixture of diesel range and heavy oil range organics in samples SKY-PRO-D15 and City Yard Crush. These analytes were qualified as J to indicate estimated concentrations in these samples. ZPH0009: <u>NWTPH-Dx</u>: Diesel range hydrocarbons and heavy oil range hydrocarbons were noted by the laboratory as being a complex mixture of diesel range and heavy oil range organics in samples SKY-PRO-D17, City Yard Crush-2, SKY-SED-C19A, and SKY-PRO-D20. These analytes were qualified as J to indicate estimated concentrations in these samples. (continued on the next page)						

ANALYTICAL DATA VERIFICATION CHECKLIST

Comments (continued): ZPH0011: NWTPH-Dx: Heavy oil range hydrocarbons was noted by the laboratory as having non-petroleum peaks or an elution pattern that suggests the presence of biogenic interference in sample SKY-SED-C24. This analyte was qualified as J to indicate an estimated concentration in this sample.

ZPH0012: NWTPH-Dx: Diesel range hydrocarbons and heavy oil range hydrocarbons were noted by the laboratory as being a complex mixture of diesel range and heavy oil range organics in samples SKY-PRO-D17A and SKY-PRO-D20A. These analytes were qualified as J to indicate estimated concentrations in these samples.

ZPH0013: NWTPH-Dx: Diesel range hydrocarbons and heavy oil range hydrocarbons were noted by the laboratory as being a complex mixture of diesel range and heavy oil range organics in sample SKY-SOIL-E29. These analytes were qualified as J to indicate estimated concentrations in this sample.

ZPH0014: NWTPH-Dx: Diesel range hydrocarbons and heavy oil range hydrocarbons were noted by the laboratory as being a complex mixture of diesel range and heavy oil range organics in samples SKY-SED-C00 and SKY-SED-C19B. These analytes were qualified as J to indicate estimated concentrations in these samples.

ZPH0017: NWTPH-Dx: Diesel range hydrocarbons and heavy oil range hydrocarbons were noted by the laboratory as being a complex mixture of diesel range and heavy oil range organics in samples SKY-SOIL-Z07 and SKY-SOIL-E20. These analytes were qualified as J to indicate estimated concentrations in these samples.

ZPH0019: NWTPH-Dx: Diesel range hydrocarbons and heavy oil range hydrocarbons were noted by the laboratory as being a complex mixture of diesel range and heavy oil range organics in samples SKY-SOIL-F28 and SKY-SOIL-F/G28-915. These analytes were qualified as J to indicate estimated concentrations in these samples.

ZPH0020: NWTPH-Dx: Diesel range hydrocarbons and heavy oil range hydrocarbons were noted by the laboratory as being a complex mixture of diesel range and heavy oil range organics in samples SKY-SOIL-G26 and SKY-SOIL-F26. These analytes were qualified as J to indicate estimated concentrations in these samples.

ZPH0021: NWTPH-Dx: Diesel range hydrocarbons and heavy oil range hydrocarbons were noted by the laboratory as being a complex mixture of diesel range and heavy oil range organics in sample SKY-SOIL-G24. These analytes were qualified as J to indicate estimated concentrations in this sample.

ZPI0003: NWTPH-Dx: Diesel range hydrocarbons and heavy oil range hydrocarbons were noted by the laboratory as being a complex mixture of diesel range and heavy oil range organics in sample SKY-SOIL-F17. These analytes were qualified as J to indicate estimated concentrations in this sample.

ZPI0005: NWTPH-Dx: Diesel range hydrocarbons and heavy oil range hydrocarbons were noted by the laboratory as being a complex mixture of diesel range and heavy oil range organics in sample SKY-SOIL-F15. These analytes were qualified as J to indicate estimated concentrations in this sample.

ZPI0007: NWTPH-Dx: Diesel range hydrocarbons and heavy oil range hydrocarbons were noted by the laboratory as being a complex mixture of diesel range and heavy oil range organics in samples SKY-SOIL-E11, SKY-SOIL-F11, and SKY-SOIL-E10. These analytes were qualified as J to indicate estimated concentrations in these samples.

ZPI0008: NWTPH-Dx: Diesel range hydrocarbons and heavy oil range hydrocarbons were noted by the laboratory as being a complex mixture of diesel range and heavy oil range organics in samples SKY-VDL-U3, SKY-VDL-U4, SKY-VDL-U6, SKY-VDL-U7, and SKY-VDL-U8. These analytes were qualified as J to indicate estimated concentrations in these samples.

ZPI0010: NWTPH-Dx: Diesel range hydrocarbons and heavy oil range hydrocarbons were noted by the laboratory as being a complex mixture of diesel range and heavy oil range organics in samples SKY-SOIL-E4, SKY-SOIL-F3, and SKY-SOIL-F2. These analytes were qualified as J to indicate estimated concentrations in these samples.

(continued on the next page)

ANALYTICAL DATA VERIFICATION CHECKLIST

Comments (continued): ZPI0011: **NWTPH-Dx**: Diesel range hydrocarbons and heavy oil range hydrocarbons were noted by the laboratory as being a complex mixture of diesel range and heavy oil range organics in samples SKY-SOIL-G13, SKY-SOIL-G12, and SKY-SOIL-F2A. These analytes were qualified as J to indicate estimated concentrations in these samples.

ZPI0013: **NWTPH-Dx**: Diesel range hydrocarbons and heavy oil range hydrocarbons were noted by the laboratory as being a complex mixture of diesel range and heavy oil range organics in samples SKY-SOIL-G2, SKY-SOIL-G2A, SKY-SOIL-H3, and SKY-SOIL-H3A. Diesel range hydrocarbons was noted by the laboratory as appearing to be due to overlap of heavy/oil range hydrocarbons in sample SKY-SOIL-H2. These analytes were qualified as J to indicate estimated concentrations in these samples.

ZPI0014: **NWTPH-Dx**: Diesel range hydrocarbons and heavy oil range hydrocarbons were noted by the laboratory as being a complex mixture of diesel range and heavy oil range organics in sample SKY-SOIL-I2. These analytes were qualified as J to indicate estimated concentrations in this sample.

ZPI0015: **NWTPH-Dx**: Diesel range hydrocarbons and heavy oil range hydrocarbons were noted by the laboratory as being a complex mixture of diesel range and heavy oil range organics in sample SKY-SOIL-SHAW1. These analytes were qualified as J to indicate estimated concentrations in this sample.

ZPI0017: **NWTPH-Dx**: Diesel range hydrocarbons and heavy oil range hydrocarbons were noted by the laboratory as being a complex mixture of diesel range and heavy oil range organics in sample SKY-SOIL-I9. These analytes were qualified as J to indicate estimated concentrations in this sample.

ZPI0018: **NWTPH-Dx**: Diesel range hydrocarbons and heavy oil range hydrocarbons were noted by the laboratory as being a complex mixture of diesel range and heavy oil range organics in samples SKY-SOIL-J9 and SKY-SOIL-H10. These analytes were qualified as J to indicate estimated concentrations in these samples.

ZPI0019: **NWTPH-Dx**: Diesel range hydrocarbons and heavy oil range hydrocarbons were noted by the laboratory as being a complex mixture of diesel range and heavy oil range organics in samples SKY-SOIL-H11, SKY-SOIL-Z14, and SKY-SOIL-H12. These analytes were qualified as J to indicate estimated concentrations in these samples.

ZPI0020: **NWTPH-Dx**: Diesel range hydrocarbons and heavy oil range hydrocarbons were noted by the laboratory as being a complex mixture of diesel range and heavy oil range organics in samples SKY-SOIL-I12, SKY-SOIL-I12A, SKY-SOIL-J12, SKY-SOIL-H13, SKY-SOIL-Z15, and SKY-SOIL-H13A. These analytes were qualified as J to indicate estimated concentrations in these samples.

ZPJ0001: **NWTPH-Dx**: Diesel range hydrocarbons and heavy oil range hydrocarbons were noted by the laboratory as being a complex mixture of diesel range and heavy oil range organics in sample SKY-SOIL-I13. These analytes were qualified as J to indicate estimated concentrations in this sample.

Refer to the Table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (pages 9-12).

23. Were 100% of the EDD concentrations and reporting limits compared to the hardcopy data reports?	X	Yes		No	LH	Initials
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Comments: There were no discrepancies between the EDD concentrations and reporting limits and the hardcopy data reports.

24. General Comments: Data were evaluated based on verification criteria set forth in the *USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Superfund Organic Methods Data Review*, document number USEPA-540-R-04-009, January 2005, and *USEPA CLP National Functional Guidelines for Inorganic Data Review*, document number EPA540/R-04/004 of October 2004 as they applied to the reported methodology. Field duplicate RPD control limits were taken from the USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, February 1988, upheld in DRAFT 1993.

Refer to the Table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (pages 9-12).

Appendix R
November 2006 Flood Designation

DEPARTMENT OF ECOLOGY
Northwest Regional Office

April 10, 2007

TO: Louise Bardy
Toxics Cleanup Program

FROM: Charles L. Steele 
Floodplain Management Specialist

SUBJECT: November 2006 Flood on Skykomish River

The November 2006 flood on the Skykomish River was the flood of record for the Skykomish. The discharge measured at the gage at Gold Bar (Gage #12134500) peaked at 113,000 cfs at 9:30 p.m. on November 6. The published 50-year discharge at this location is 107,000 cfs and the 100-year discharge is 124,000 cfs. The November 2006 discharge was between the 50- and 100-year flood discharges, and has been measured on the frequency curve by Snohomish County Surface Water Management Engineer Vaughn Collins as about a 70-year flood.

The previous flood of record on the Skykomish at this gage was the November 25, 1990 flood, which had a discharge of 102,000 cfs, less than a 50-year flood. Prior to that, the November 11, 1990 flood had a discharge of 86,800 cfs and the October 2003 flood had a discharge of 86,500 cfs, both being about 15-year floods. The November 1995 flood had a discharge of 74,000 cfs and was about a 10-year flood. Thus, as can be seen in these numbers, the November 2006 flood was the flood of record on the Skykomish.