

Randlett, Susan A (DEC)

From: Reichardt, Daniel A (DEC)
Sent: Friday, July 27, 2012 2:25 PM
To: Randlett, Susan A (DEC)
Cc: Paul Weisner; Graham Knapp; Allan Paukan; City of Chefnak
Subject: RE: Chefnak Pump House Structural Support for Tank Move

Susan et. al.-

This work does not require plan submittal or approval by the drinking water program. However, prior to procuring the plastic liner for the water tank, please submit information to me that describes the liner material and any certifications that may be in place regarding it's suitability for contact with drinking water. If available, you should use a liner that has been certified as being compliant with NSF/ANSI Standard 61.

-Dan

From: Randlett, Susan A (DEC)
Sent: Friday, July 27, 2012 12:14 PM
To: Reichardt, Daniel A (DEC); Graham Knapp; Allan Paukan; City of Chefnak
Cc: Paul Weisner
Subject: Fwd: Chefnak Pump House Structural Support for Tank Move

Dan, Graham, Allan and David Jimmy,

Please see the plan (two pdfs below) for reinforcing the floor.

Material needs to be bought immediately.

Please send me your comments, or email back by Tuesday that you have no comments.

Susan

269-7614

Begin forwarded message:

From: "Paul Weisner" <p.weisner@ce2engineers.com>
To: "Randlett, Susan A (DEC)" <susan.randlett@alaska.gov>
Subject: Chefnak Pump House Structural Support for Tank Move

Hello, Susan,

Per your request today, here are some preliminary layouts and calculations for laying out steel support beams under the floor to support the relocated 4000 gal water storage tank.

Note that these are quick preliminary calculations and do not include provisions for lateral support, which in this case is easy to obtain. It appears that we will need about 2000 lb of steel at the maximum. We will just put the steel where we need it and will not touch existing beams supporting existing walls. Also enclosed a pic of

existing sagging floor under present tank location. Hope this helps. Call if you have questions.

Regards,

Paul

Paul C. Weisner, P.E.
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PO Box 232946
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Randlett, Susan A (DEC)

From: Paul Weisner [p.weisner@ce2engineers.com]
Sent: Monday, July 23, 2012 8:22 PM
To: Randlett, Susan A (DEC)
Subject: Cheforak Pump House Structural Support for Tank Move
Attachments: 20120723201722325.pdf; 20120723202446762.pdf

Hello, Susan,

Per your request today, here are some preliminary layouts and calculations for laying out steel support beams under the floor to support the relocated 4000 gal water storage tank.

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Regards,

Paul

Paul C. Weisner, P.E.

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Ph (907) 349-1010

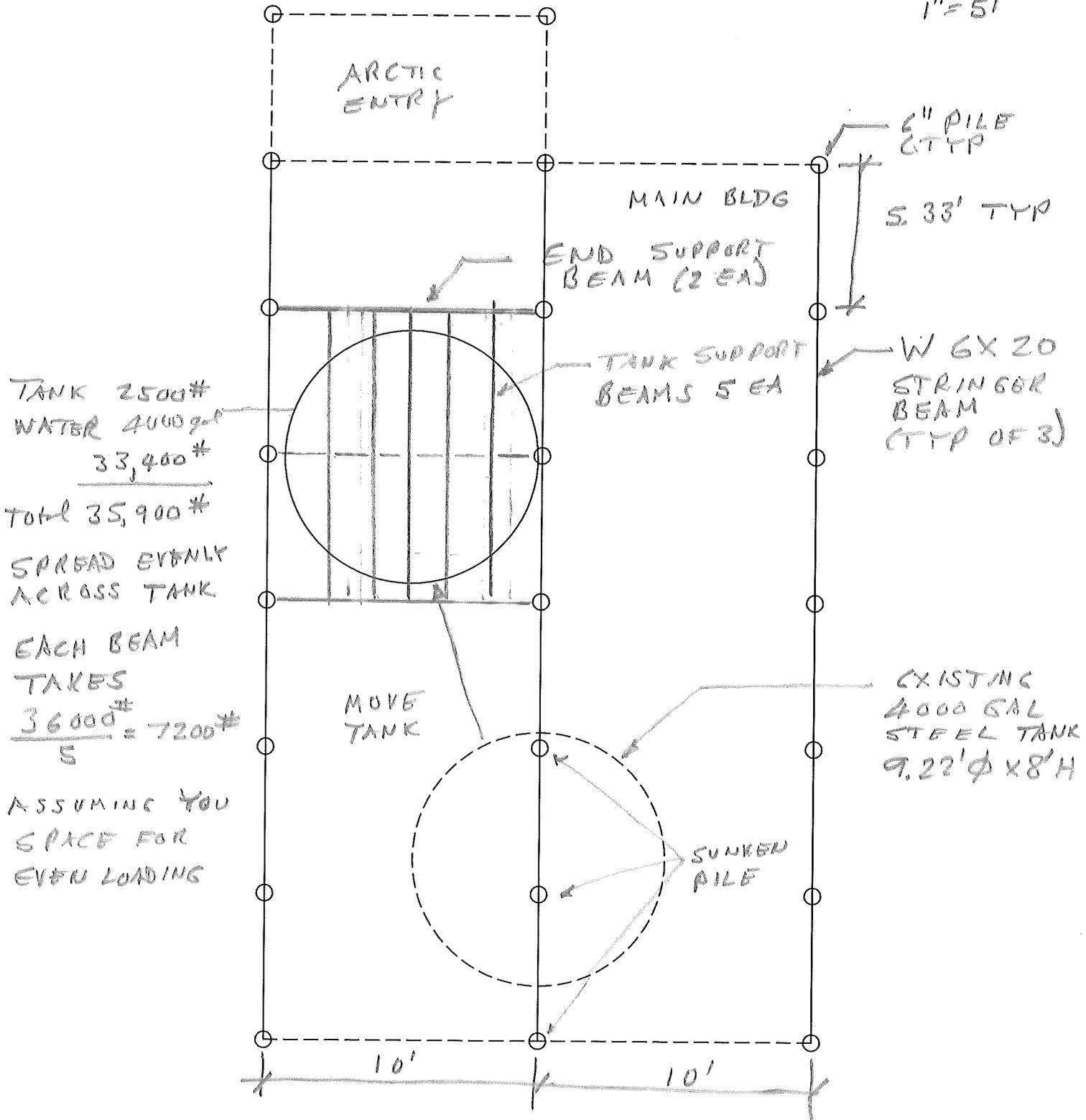
Fax (907) 349-1015

email: p.weisner@ce2engineers.com

QUICK EST CALCS
 PAUL WEINER 7-23-2012

CHEFORNAK PILE
 AND STRINGER BEAM
 PLAN


 1" = 5'



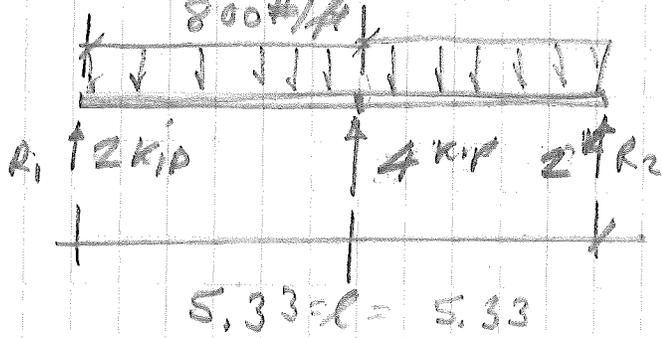
TANK 2500#
 WATER 4000 gal
33,400#
 TOTAL 35,900#
 SPREAD EVENLY
 ACROSS TANK
 EACH BEAM
 TAKES
 $\frac{36000\#}{5} = 7200\#$
 ASSUMING YOU
 SPACE FOR
 EVEN LOADING

EXISTING
 4000 GAL
 STEEL TANK
 9.22' ϕ X 8'H

QUICK CALC OF SUPPORT BEAMS UNDER TANK

4000#/5ft 5 way

800#/ft



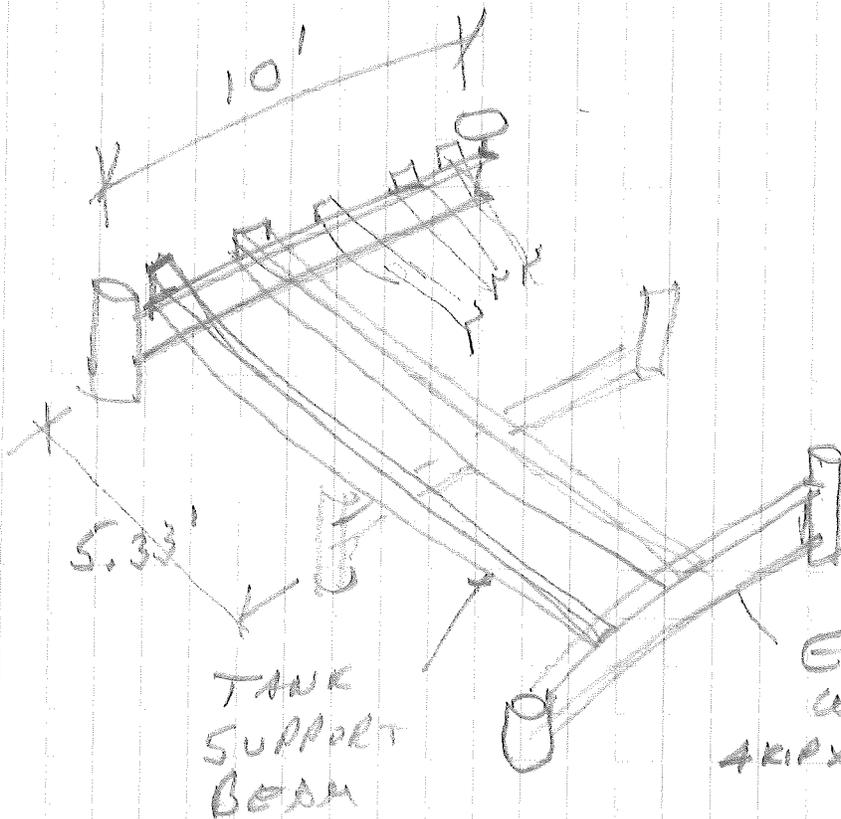
$$M_{MAX} = \frac{wL^2}{8} = \frac{800 \times 5.33^2}{8}$$

$$= 2841 \text{ lb-ft}$$

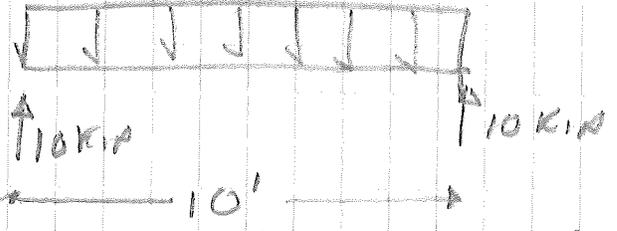
$$= 2.84 \text{ kip-ft}$$

FROM AISC Manual W6 x 20 a bit overkill BUT Moment Table

6" WIDE FLANGE WILL HELP SPREAD LOAD ON PANELS



END BEAM (TOP OF 3)
WORST CASE MIDDLE ONE
 $4 \text{ KIP} \times 5 = 20 \text{ KIP}$ $20 \text{ KIP} / 10' = 2 \text{ K/ft}$
 $2000 \text{ #/ft} \Rightarrow 10 \times 2000 = 20 \text{ K Load}$



$$M_{MAX} = \frac{wl^2}{8} = \frac{2000 \times 10^2}{8} = 25 \text{ KIP-ft}$$

A bit over but W8 x 20 WILL DO WELL FOR ALL 3 BEAMS

Total weight for steel beams.

5 x 11' x 20# Tank Beams = 1100#

3 x 10' x 20# End & center Beams = 600#

Connecter steel

100#

Total Steel

1800#

