



**DEPARTMENT OF
NATURAL RESOURCES**

OLYMPIC REGION
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FORKS, WA 98331

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WWW.DNR.WA.GOV

July 12, 2019

Aaron Claiborne, Operations Project Manager
City of Bainbridge Island Public Works Department
780 Madison Ave. N
Bainbridge Island, WA 98110

Subject: Aquatic Land Lease No. 20-A85592 Dave Ullin Open Water Marina Redesign Plans

Dear Mr. Clairborne:

The Washington Department of Natural Resources (DNR) has received information that the City of Bainbridge Island is proposing to redesign the Dave Ullin Open Water Moorage and Anchorage Area (aka Open Water Marina) located in Eagle Harbor. The Open Water Marina is authorized under Lease 20-A85592 and per Section 7.3 of the lease you are required to notify DNR and receive written approval prior to conducting this type of work.

DNR hereby grants you approval to perform the work described above, provided that:

- The work meets the redesign specifications detailed in the project summary and your project plans as represented in Attachment A, enclosed.
- The work is done in accordance with all associated local, state, and federal permits.
- The work conforms to all other existing terms and conditions of your lease.

If you have any questions regarding this approval, please contact Aquatic Land Manager Solenne Walker-Westcott at 360-732-0034 or solenne.walker@dnr.wa.gov.

Sincerely,

A handwritten signature in blue ink that reads "Dennis Clark". The signature is written in a cursive style.

Dennis Clark, Field Assistant Division Manager
Aquatic Resources Division, Orca-Straits District

Enclosure

c: District File and TRO File 20-A85592

Attachment A

Dave Ullin Open Water Marina Redesign Plans

Aquatic Land Lease No. 20-A85592

Open Water Marina Redesign Approval Letter July 11, 2019

Redesign Plan Summary:

- All current existing mooring buoys and affiliated anchors will be removed. Buoys and midline floats will be inspected and salvaged and reused, if in good condition.
- 16 new mooring buoys with helical anchors and midline floats will be installed to provide for a total number of 16 liveaboard vessels with a maximum length of 60 feet.
- All liveaboard vessels will be on single-point moorage with all vessel swing circles located within the leasehold boundaries.
- Four new mooring buoys will be dedicated to each of the four vessel sizes: ≤ 30 ft, ≤ 40 ft, ≤ 50 ft and ≤ 60 ft lengths.
- New mooring buoys will be labeled with a buoy identification number and a designated vessel length.
- The spacing of new mooring buoys will provide for an approximately 75 ft wide fairway at the southern end of the Open Water Marina for navigation purposes.
- To accommodate this fairway the proposed layout of each of the buoy incorporates a swing radius of 10 percent overlap with the neighboring buoy swing radius. This minor overlap of vessel swing circles accommodates the highest density of mooring vessels within the leasehold and optimizes all adjacent navigation channels.
- City of Bainbridge Island contractor PND Engineers, Inc. provided a technical memorandum stating that a moored vessel collision will be avoided because vessels move and reorient equally with currents, wind, waves, and tidal fluctuations. They also provided the swing radius for each mooring buoy will be approximately 180 percent of the extreme low tide (ELT) swing radius (i.e., ELT is when there will be the most slack in the anchor line).
- If a vessel collision does occur due to the minor swing circle overlap, the City of Bainbridge is required to review and readjust vessel size assignments on mooring buoys to ensure any future collisions could not occur.
- Trespass mooring buoys in Eagle Harbor that have been tagged and notified of unauthorized use prior to and during this planning process will be removed by the City of Bainbridge Island and property handled and disposed of during the in-water construction.

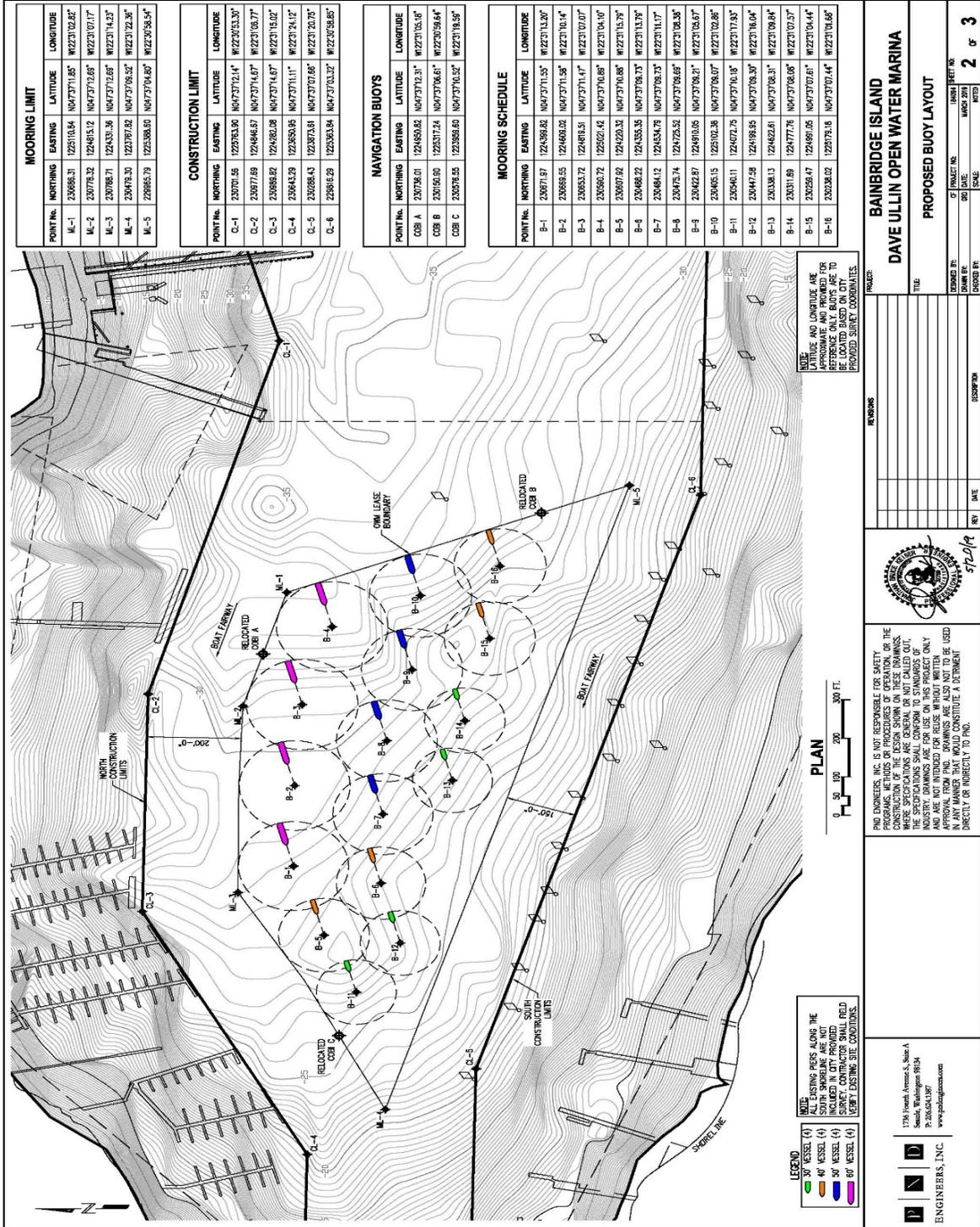
U.S. Coast Private Aids to Navigation (not included in Lease 20-A85592)

- Four existing Private Aids to Navigation (PATONs) authorized by the U.S. Coast Guard will be removed and three of the four PATONs will be re-located and replaced for improved navigation in consultation with the U.S. Coast Guard and placed on the chart and light list for Eagle Harbor on a year-round basis – see www.navcen.uscg.gov/lnm District 13.

Note: *Linear Moorage System was removed from the Open Water Marina in 2018.*

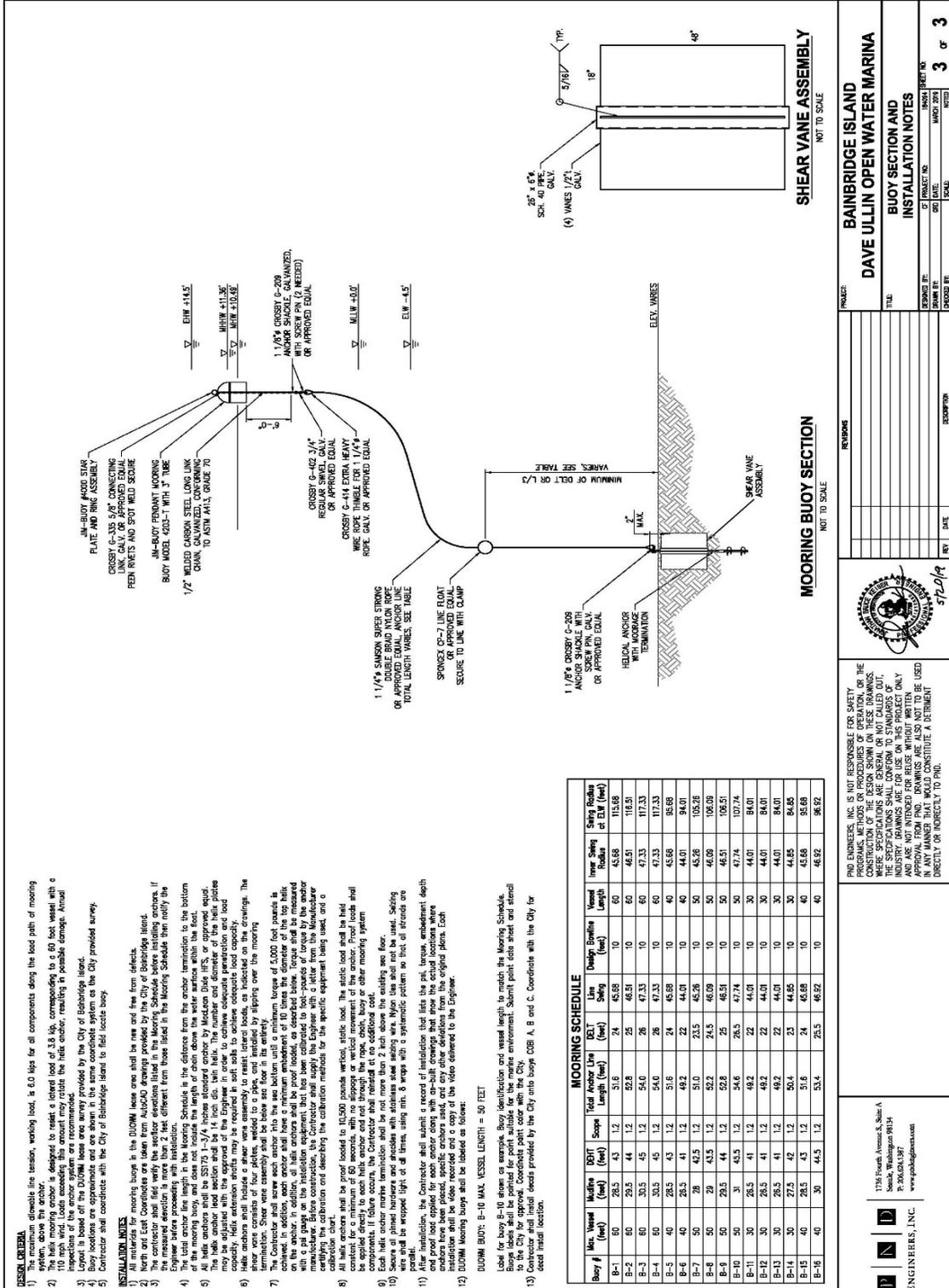
Open Water Marina Redesign Plans received May 20, 2019

Proposed Buoy Layout and Vessel Sizes



Open Water Marina Redesign Plan received May 20, 2019

Buoy Section and Installation Detail



Booy #	Max. Vessel (ft/ft)	Mooring (ft/ft)	Depth (ft)	Scope	Total Mooring Line Length (ft)	DELT (ft)	Line Length (ft)	Design Depth (ft)	Mooring Length (ft)	Time Saving (ft)	Spring Radius at End (ft)
B-1	80	28.5	4.5	1.2	51.6	7.4	43.96	10	60	43.96	113.68
B-2	80	29.5	4.4	1.2	52.8	7.8	46.31	10	60	46.31	116.31
B-3	80	30.5	4.3	1.2	54.0	7.8	47.53	10	60	47.53	117.53
B-4	80	31.5	4.2	1.2	55.0	7.8	47.53	10	60	47.53	117.53
B-5	80	32.5	4.1	1.2	56.0	7.8	47.53	10	60	47.53	117.53
B-6	80	33.5	4.0	1.2	57.0	7.8	47.53	10	60	47.53	117.53
B-7	80	34.5	3.9	1.2	58.0	7.8	47.53	10	60	47.53	117.53
B-8	80	35.5	3.8	1.2	59.0	7.8	47.53	10	60	47.53	117.53
B-9	80	36.5	3.7	1.2	60.0	7.8	47.53	10	60	47.53	117.53
B-10	80	37.5	3.6	1.2	61.0	7.8	47.53	10	60	47.53	117.53
B-11	80	38.5	3.5	1.2	62.0	7.8	47.53	10	60	47.53	117.53
B-12	80	39.5	3.4	1.2	63.0	7.8	47.53	10	60	47.53	117.53
B-13	80	40.5	3.3	1.2	64.0	7.8	47.53	10	60	47.53	117.53
B-14	80	41.5	3.2	1.2	65.0	7.8	47.53	10	60	47.53	117.53
B-15	80	42.5	3.1	1.2	66.0	7.8	47.53	10	60	47.53	117.53
B-16	80	43.5	3.0	1.2	67.0	7.8	47.53	10	60	47.53	117.53

INSTALLATION NOTES

- All materials for mooring buoys in the DUCOM lease area shall be new and free from defects.
- North and East Coordinates are taken from AutoCAD drawings provided by the City of Bainbridge Island.
- Mooring buoys shall be installed in the DUCOM lease area in accordance with the Mooring Schedule. If the measured location is more than 2 feet different from those listed in the Mooring Schedule then notify the Engineer before proceeding with installation.
- The total mooring line length in the Mooring Schedule is the distance from the anchor termination to the bottom of the buoy.
- All helix anchors shall be SST 70-3/4 inches standard anchor by Modcon Disk HRS, or approved equal.
- The helix anchor lead section shall be 14 inch dia. with helix. The number and diameter of the helix plates may be adjusted with the approval of the Engineer in order to achieve adequate penetration and load capacity.
- Helix anchors shall include a shear vane assembly to resist lateral loads, as indicated on the drawings. The shear vane consists of four plates, welded to a plate, and installed by slipping over the mooring.
- The mooring line shall be 1/2 inch dia. 316 stainless steel wire rope.
- In addition, each anchor shall have a minimum embedment of 10 times the diameter of the top helix.
- Each buoy shall be installed in the DUCOM lease area in accordance with the Mooring Schedule.
- Secure all pinned hardware and shackles with stainless steel safety wire. Major lines shall not be used. Safety wire shall be wrapped tight of all lines, using min. 8 wraps with a systematic pattern so that all strands are secured.
- After installation, the Contractor shall submit a record of installation that lists the soil, torque, embedment depth and proof load applied for each anchor along with on-built drawings that show the actual locations where anchors have been placed, specific anchors used, and any other deviations from the original plans. Each drawing shall include a photo of the anchor and the video referred to in the video.
- DUCOM Mooring buoys shall be labeled as follows:

DUCOM BUOY: B-10 MAX. VESSEL LENGTH = 50 FEET

Label for buoy B-10 shown as example. Buoy identification and vessel length to match the Mooring Schedule. Buoy labels shall be painted for port visibility for the marine environment. Shrimp, paint plate afloat and afloat.

1) Contractor shall provide a record of installation that lists the soil, torque, embedment depth and proof load applied for each anchor along with on-built drawings that show the actual locations where anchors have been placed, specific anchors used, and any other deviations from the original plans. Each drawing shall include a photo of the anchor and the video referred to in the video.

12) DUCOM Mooring buoys shall be labeled as follows:

ENGINEERS, INC.

1736 Fourth Avenue S, Suite A
Seattle, Washington 98134
P: 206.461.0197
www.pacificengineers.com

PROJECT

BAINBRIDGE ISLAND
DAVE ULLIN OPEN WATER MARINA

TITLE

BUOY SECTION AND
INSTALLATION NOTES

PROJECT NO. _____
DRAWN BY: _____
CHECKED BY: _____
SCALE: _____
DATE: _____
SHEET NO. **3** OF **3**

REVISIONS

NO.	DATE	DESCRIPTION

PACIFIC ENGINEERS, INC. IS NOT RESPONSIBLE FOR SAFETY OF THE CONSTRUCTION OF THE DESIGN SHOWN ON THESE DRAWINGS WHERE SPECIFICATIONS ARE GENERAL OR NOT CALLED OUT. THE SPECIFICATIONS SHALL CONFORM TO STANDARDS OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE) AND ARE NOT INTENDED FOR REUSE WITHOUT WRITTEN APPROVAL FROM P.E. DRAWINGS ARE ALSO NOT TO BE USED TO SUBSTITUTE A PERMIT.

5/20/19