RICHARDSON BAY REGIONAL AGENCY

STAFF REPORT

For the meeting of May 12, 2022

To: Board of Directors

From: Steve McGrath, Interim Executive Director

Subject: Mooring Field, Gear Selection and Time Limited Use

STAFF RECOMMENDATION:

Receive report and presentation from Consultant GHD on mooring field and mooring gear selection, and after discussion and public comment, select mooring field gear selection per staff recommendation. Adopt Resolution 07-22 affirming this Board's commitment to the temporary nature of the proposed mooring field.

Motion: Approve staff recommendation and select 'helix and elastic' mooring gear for the proposed mooring field. Authorize staff to seek bids for purchase of the gear prior to issuing Invitation for Bids for installation.

Motion: Adopt Resolution 07-22 recognizing the requirement for the installation of a mooring field and affirming the temporary nature of the installation.

SUMMARY:

In August 2021, this Agency entered into a Settlement Agreement (SA) with the Bay Conservation and Development Commission (BCDC). The Agreement detailed a five-year plan for the implementation of the provisions of the Richardson Bay Special Area Plan (1984) with specific regard to anchor-outs and houseboats.

Section 6 of the Agreement states in part:

> **Temporary Use of Moorings.** By December 15, 2022, RBRA **will** (emphasis added) install in its anchoring zone (outside of its Eelgrass Protection Zone) approximately 15 to 20 moorings such as those described in RBRA's Ecologically-based Mooring Feasibility Assessment and Planning Study.

At the meeting of April 14, 2022, this Board heard public testimony, discussed the layout of the mooring field, opted for a smaller configuration of 15 moorings and in response in particular to concerns expressed by members of the Sausalito City Council regarding the potential long-term nature of the installation, adopted a position affirming the temporary nature of the installation.

RBRA's consultant GHD will present to the Board a more detailed look at the mooring field and will discuss the various options for selection of the mooring gear. At one end of the spectrum will be the traditional dead weight and chain; at the other end, helical anchors and an elasticized connection to the vessel. There are hybrid options also.

While cost will certainly be a consideration in the selection of the gear (and this includes cost of installation and potential removal), staff at this point, absent any specific cost estimates, recommends selection of the helical anchor and elastic as the least impactful installation.

Additionally, staff will work with BCDC, consultants and contractors on a phased installation if feasible and if not cost prohibitive. This might be the installation of the 15 moorings in three phases as vessels are identified and ready for relocation on to the moorings.

FISCAL IMPACT: Funds for this project are currently included in the adopted FY 22 budget and the preliminary FY 23 budget.

Attachment: Resolution 07-22 affirming the temporary nature of the mooring field.

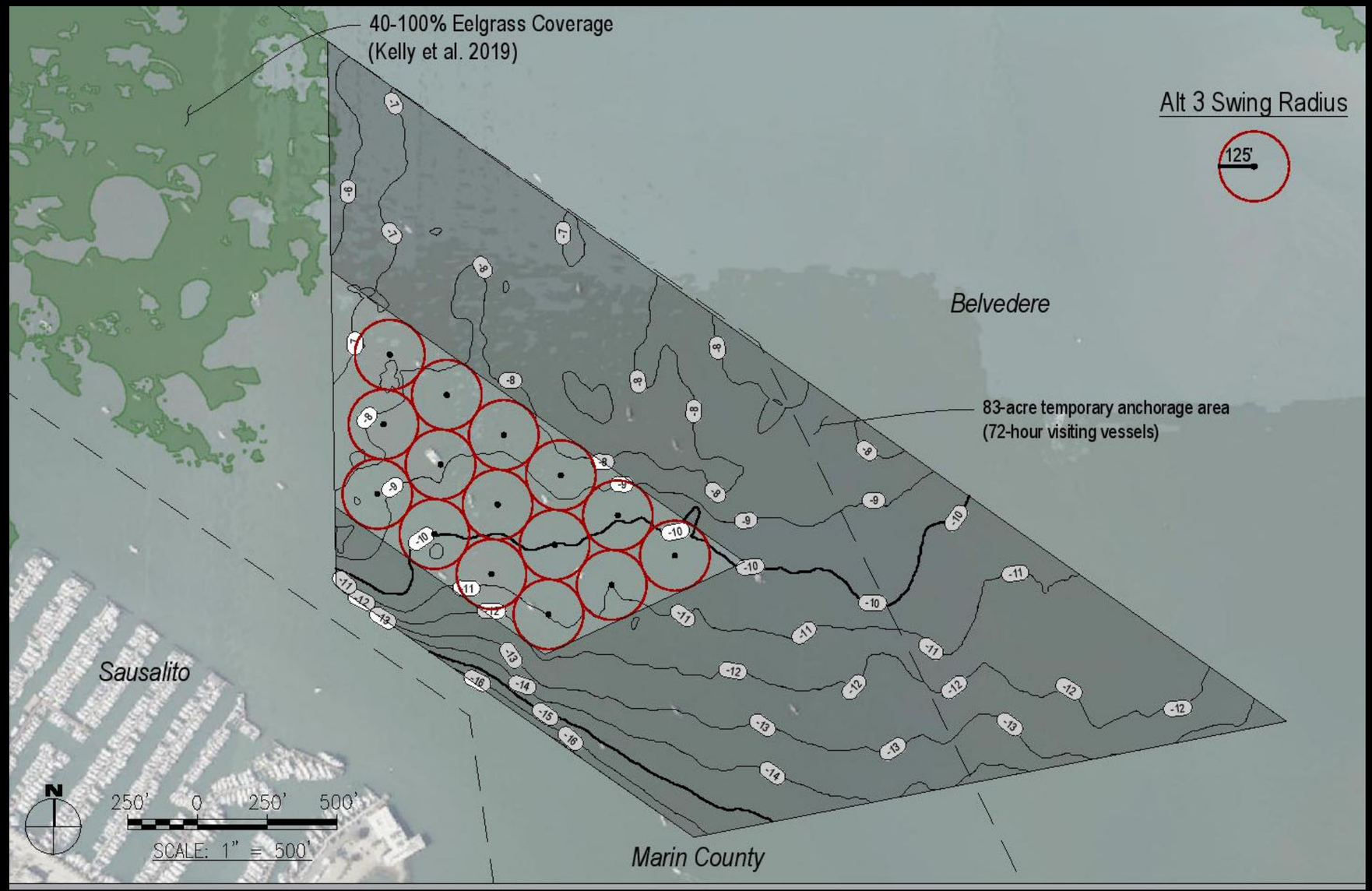
Richardson Bay Mooring Field

Preferred Alternative and Mooring System Analysis

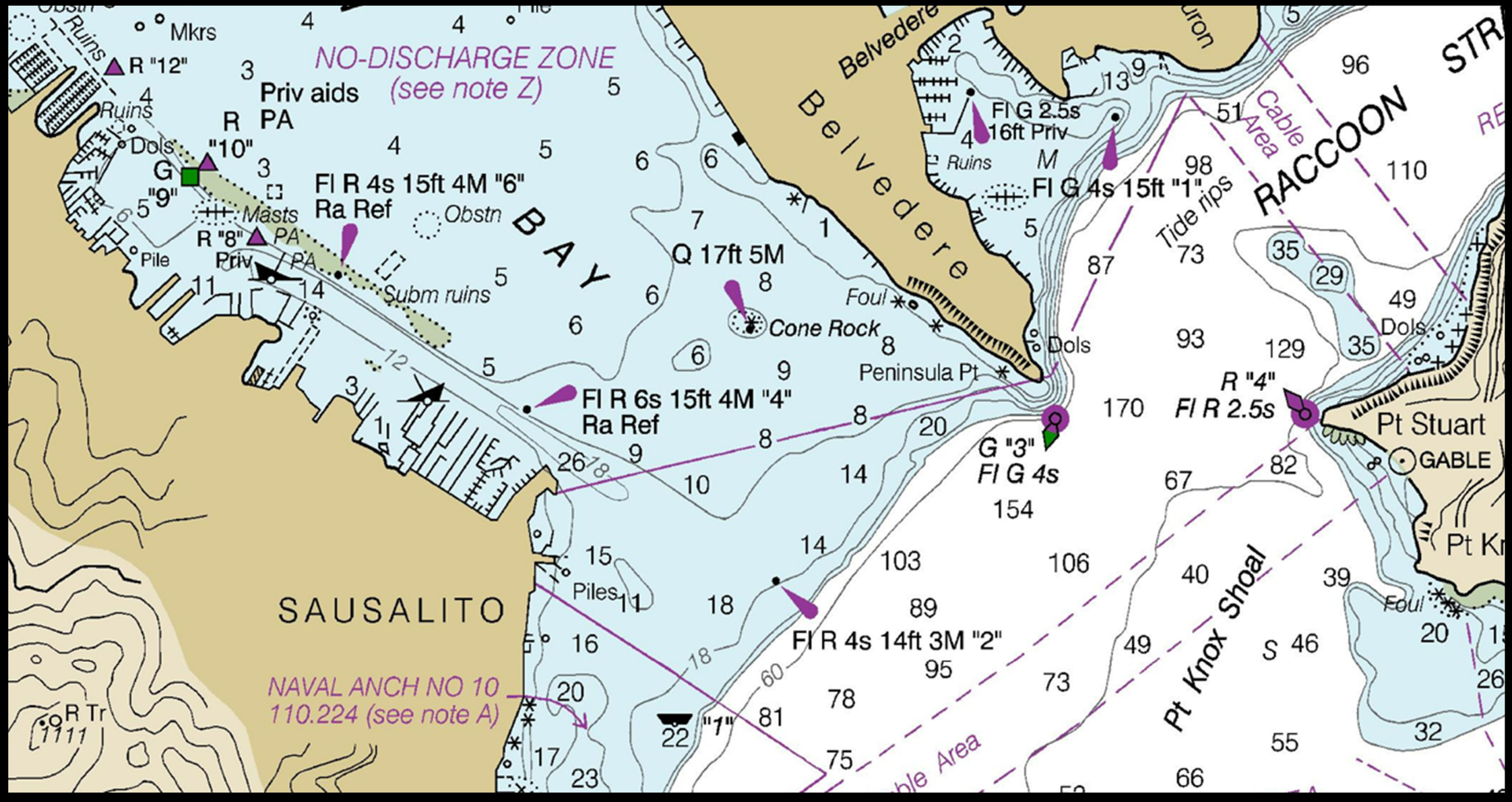
May 12, 2022

→ Preferred Alternative

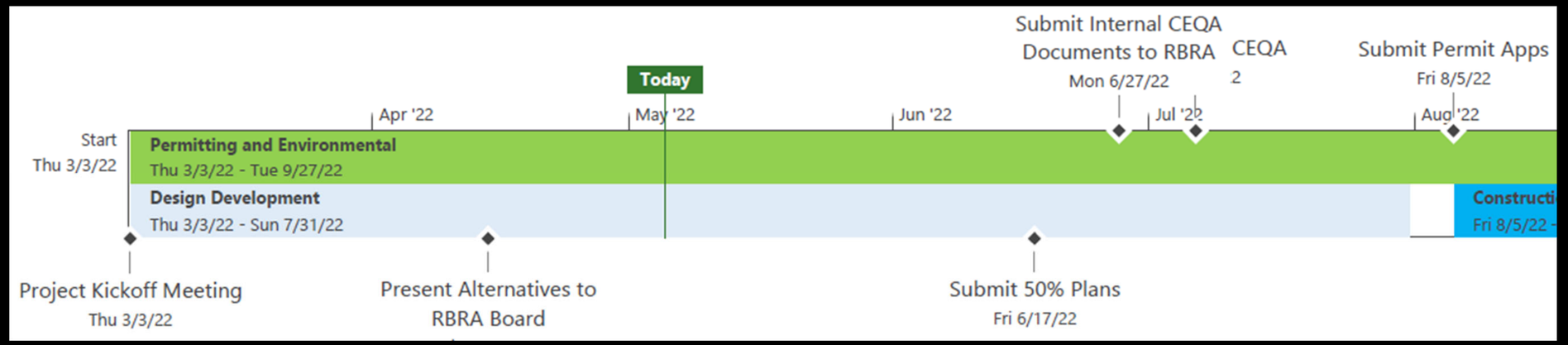
- Hybrid of Alternatives 1 and 3 presented at April 2022 RBRA Meeting
- 15 moorings total (with 125’ radius) and no overlapping of moorings
- No moorings within eelgrass habitat area
- At least 100 foot offset from navigation channel
- All moorings are within Marin County jurisdictional waters

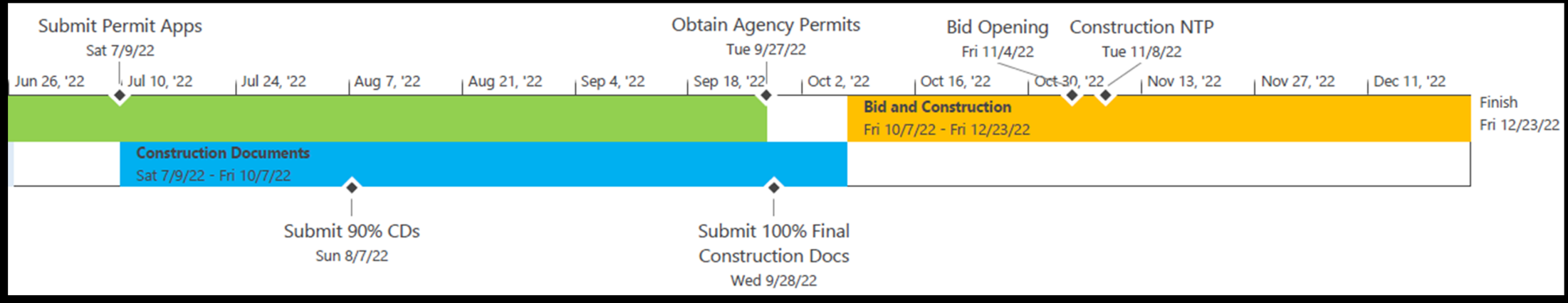


→ Preferred Alternative



→ Project Schedule

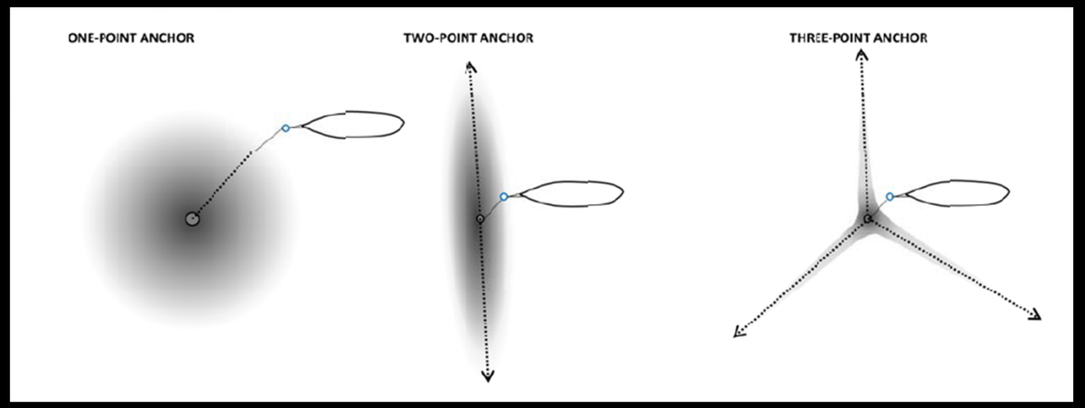




- Permitting/environmental efforts critical path for project
- Mooring installation before end of the year

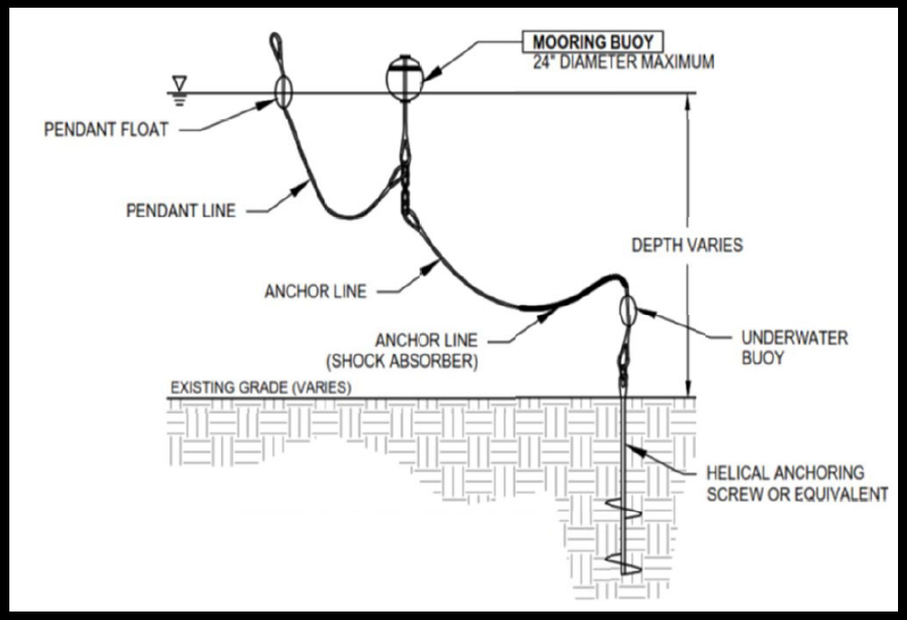
→ Mooring System Development

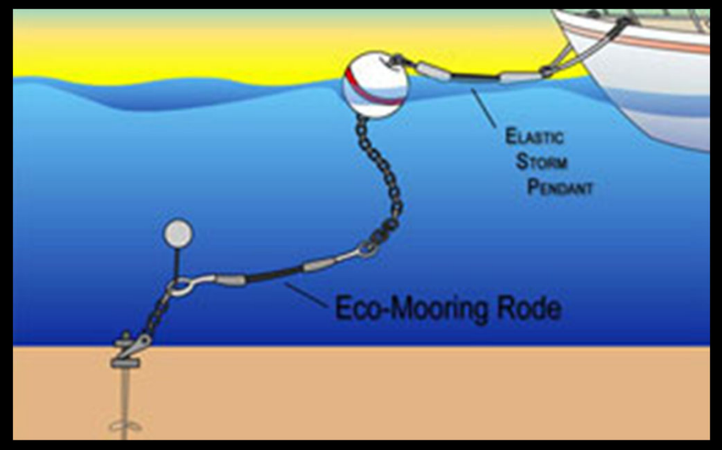
"Conventional"



"Conservation"

- "Conventional" anchor/chain mooring
  - One-, two-, and three-point anchors
- "Conservation" elastic mooring
  - Various manufacturers: Seaflex, Eco-mooring, and StormSoft





→ Mooring System Development

Mooring Design Parameters (125’ Radius Mooring)

Maximum Water depth = 20 feet at Extreme High Water

Conventional Mooring

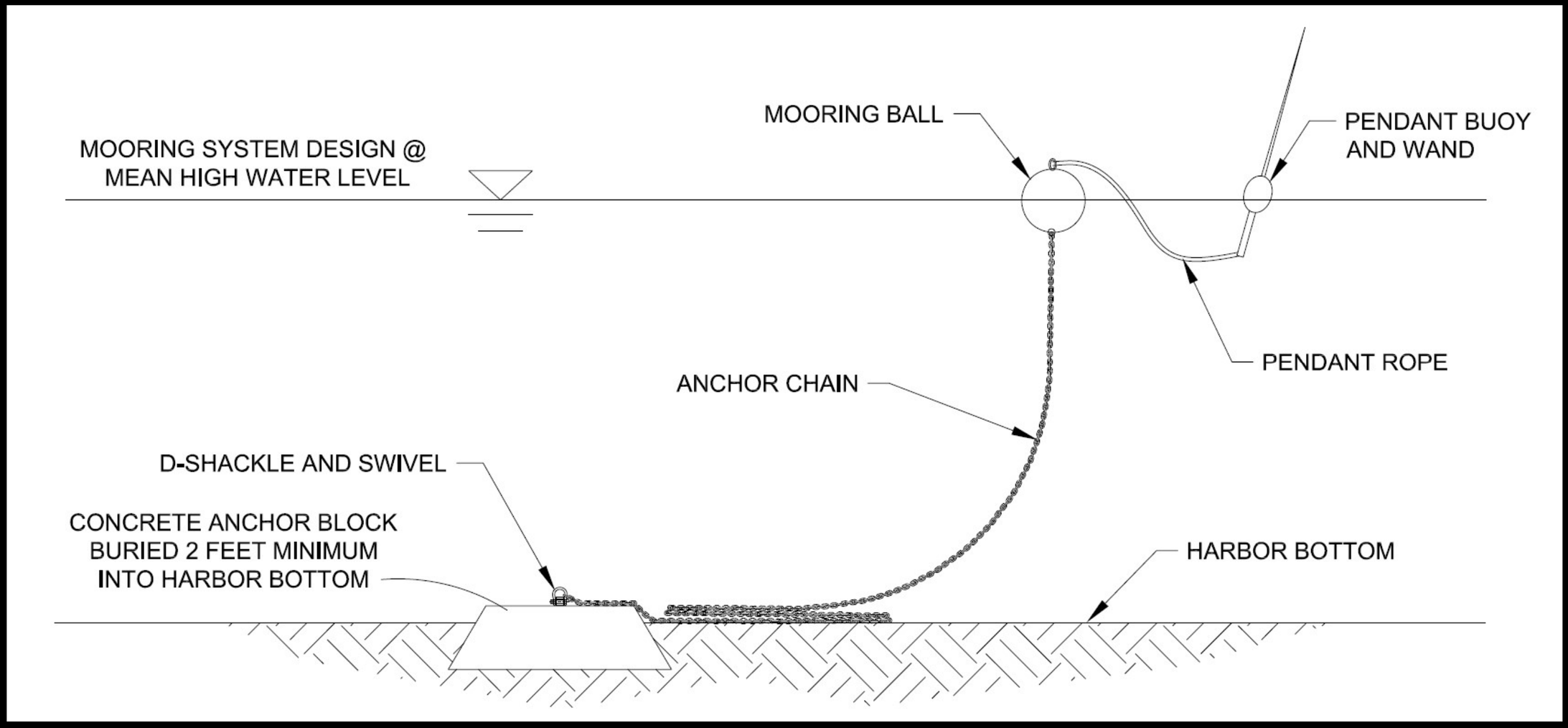
- Scope: ~3:1 (Range 2.5H:1V to 4H:1V)
- Pendant Length: 10 feet
- Maximum boat length: 50 feet
- 10’ Buffer within mooring circle varies depending on vessel size

Conservation Mooring

- Scope: ~1.5:1 (Range 1H:1V to 2H:1V)
- Pendant Length: 10 feet
- Maximum boat length: 50 feet
- ~35 foot buffer within mooring circle for 50 foot vessel, varies for smaller vessels depending on size

→ Mooring System Development

Conventional Mooring - Traditional (Anchor Block w/ Chain Rode)



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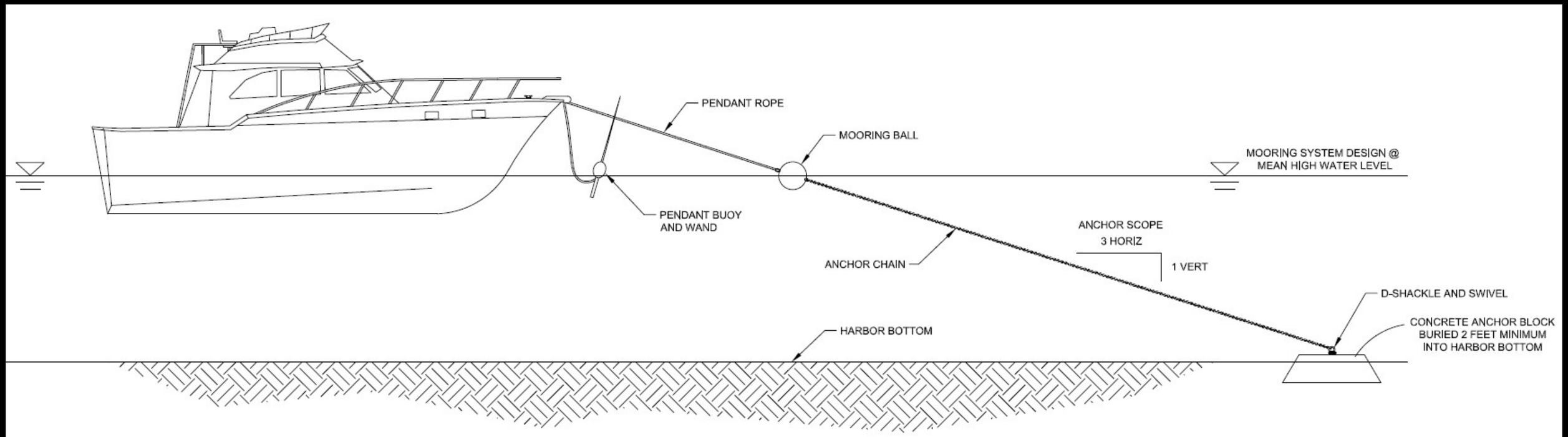
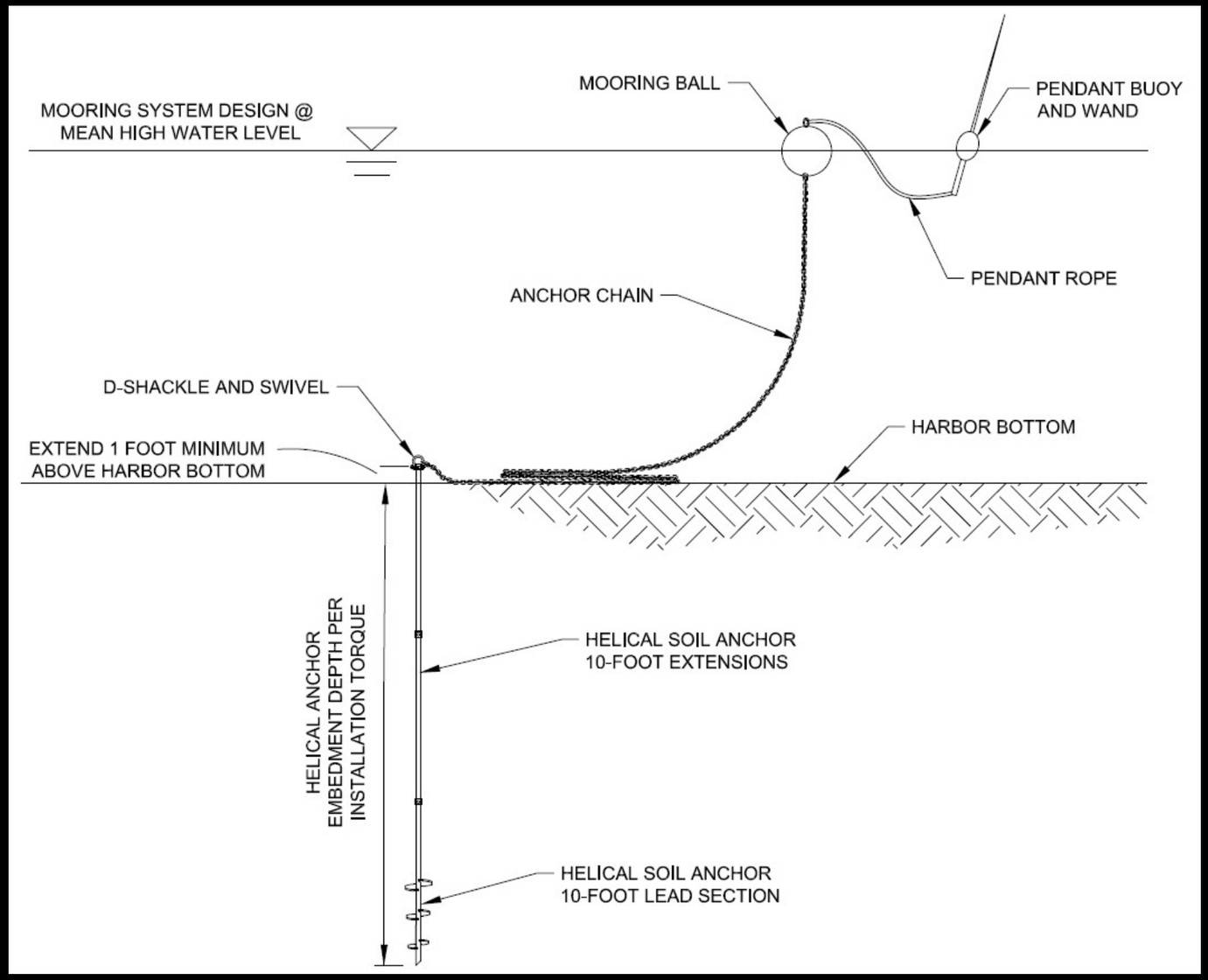


- Mooring Scope: ~3:1 (Range 2.5H:1V to 4H:1V)
- Pendant Length: 10 feet
- Max boat length: 50 feet

→ Mooring System Development

Conventional Mooring – Hybrid (Helical Anchor w/ Chain Rode)



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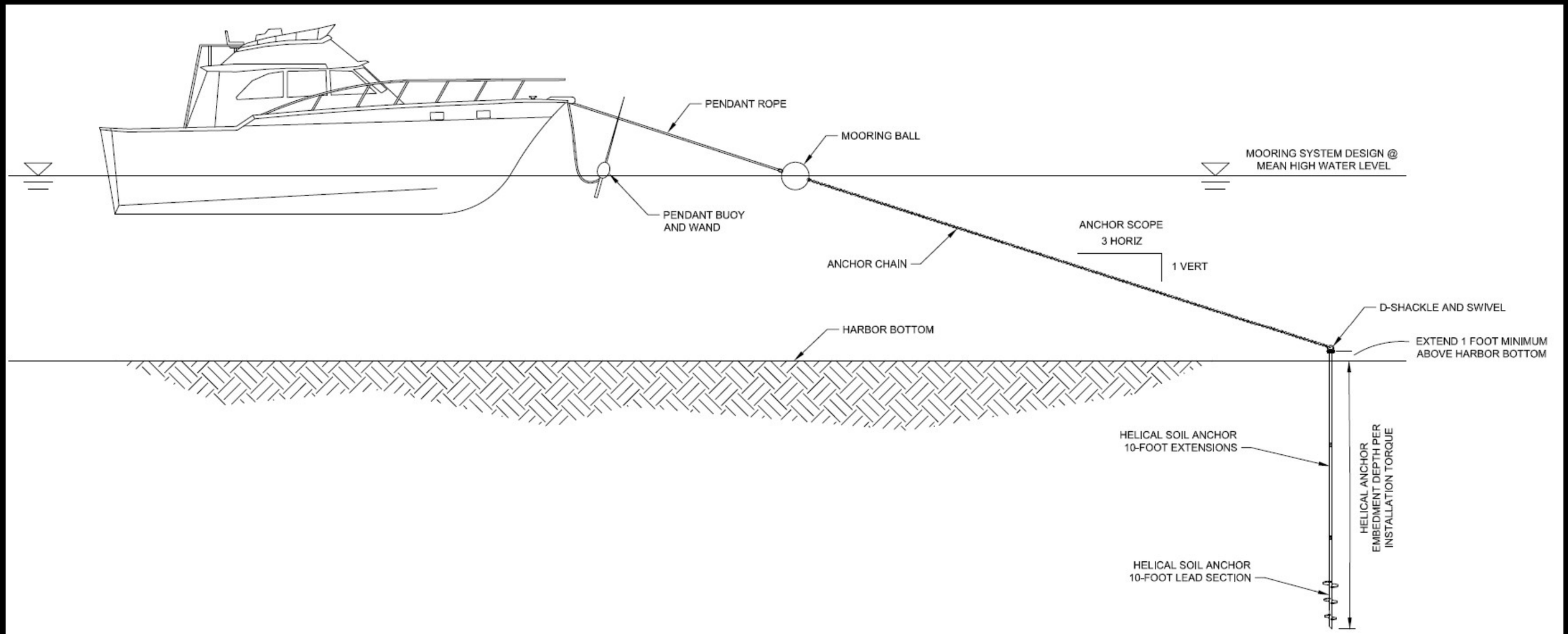
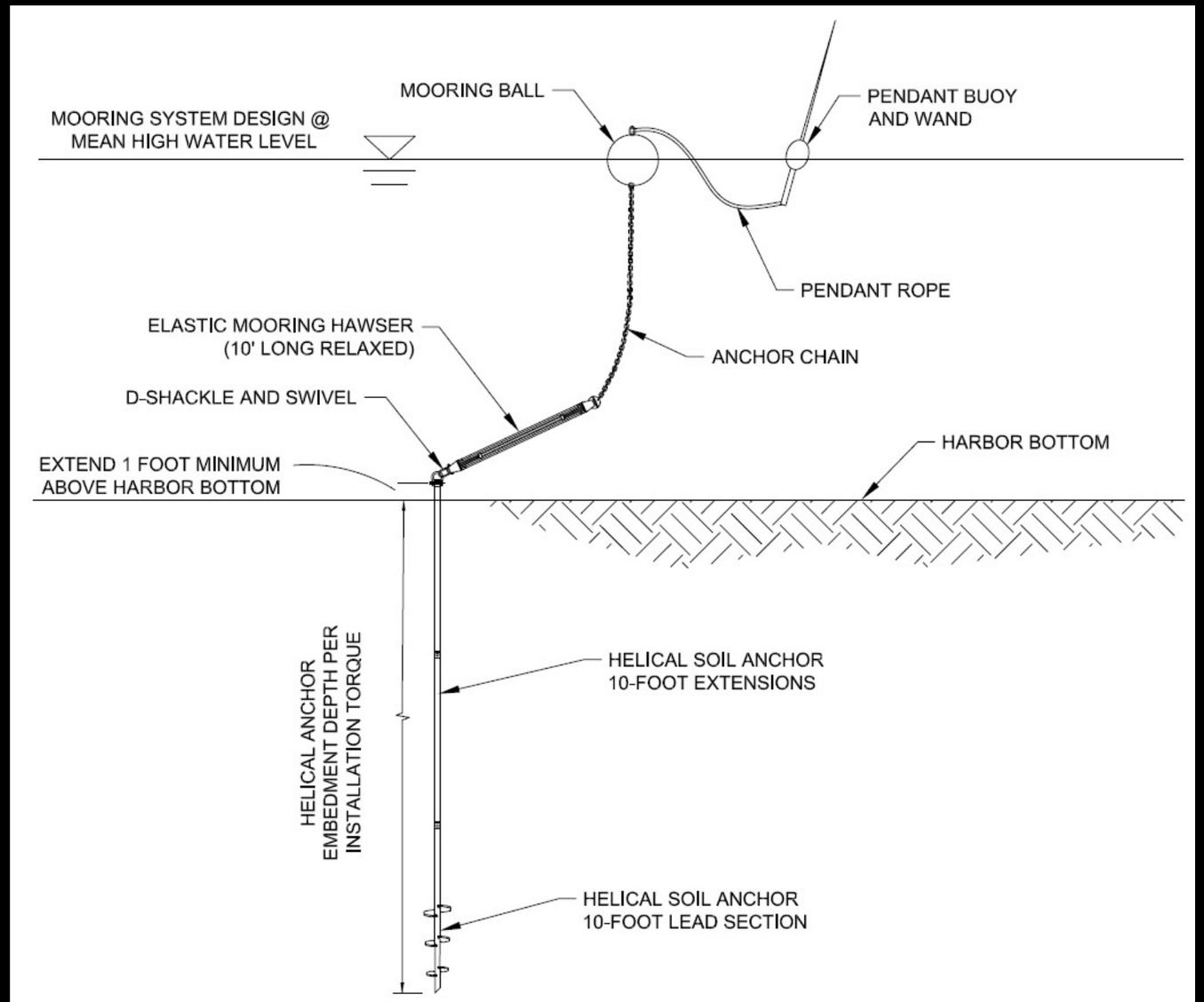
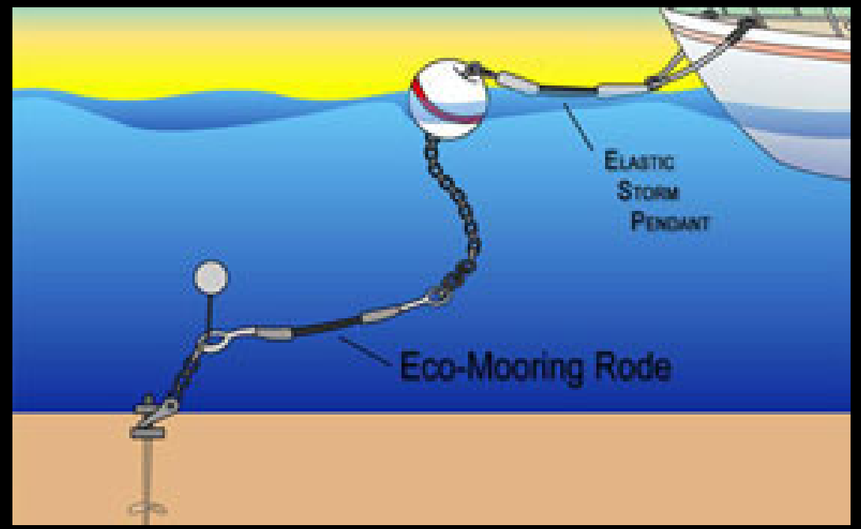


→ Mooring System Development

Conservation Mooring – Traditional (Helical Anchor w/ Elastic Rode)





- Mooring Scope: ~1.5:1 (Range 1H:1V to 2H:1V)
- Pendant Length: 10 feet
- Maximum boat length: 50 feet

→ Mooring System Development

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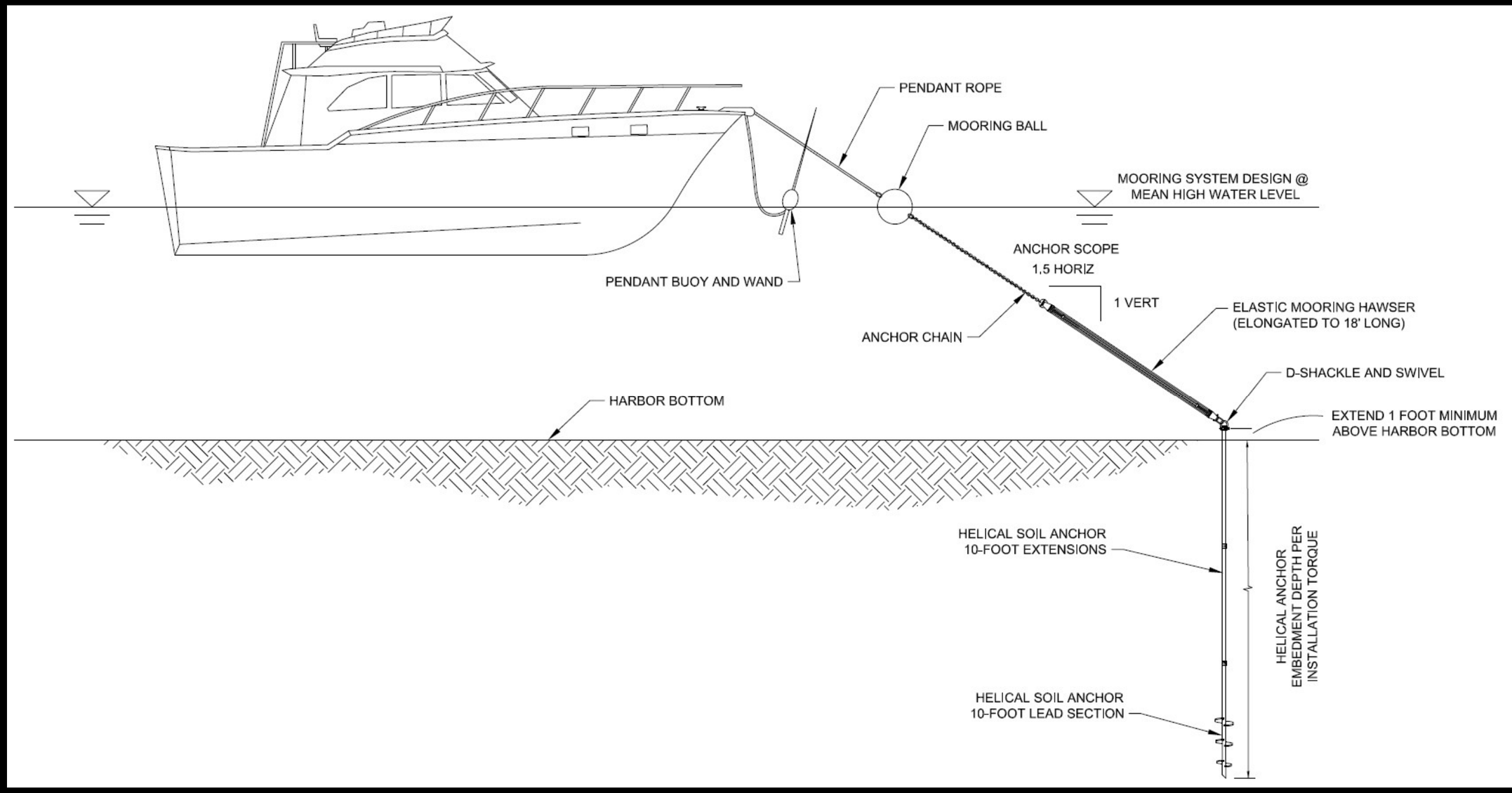

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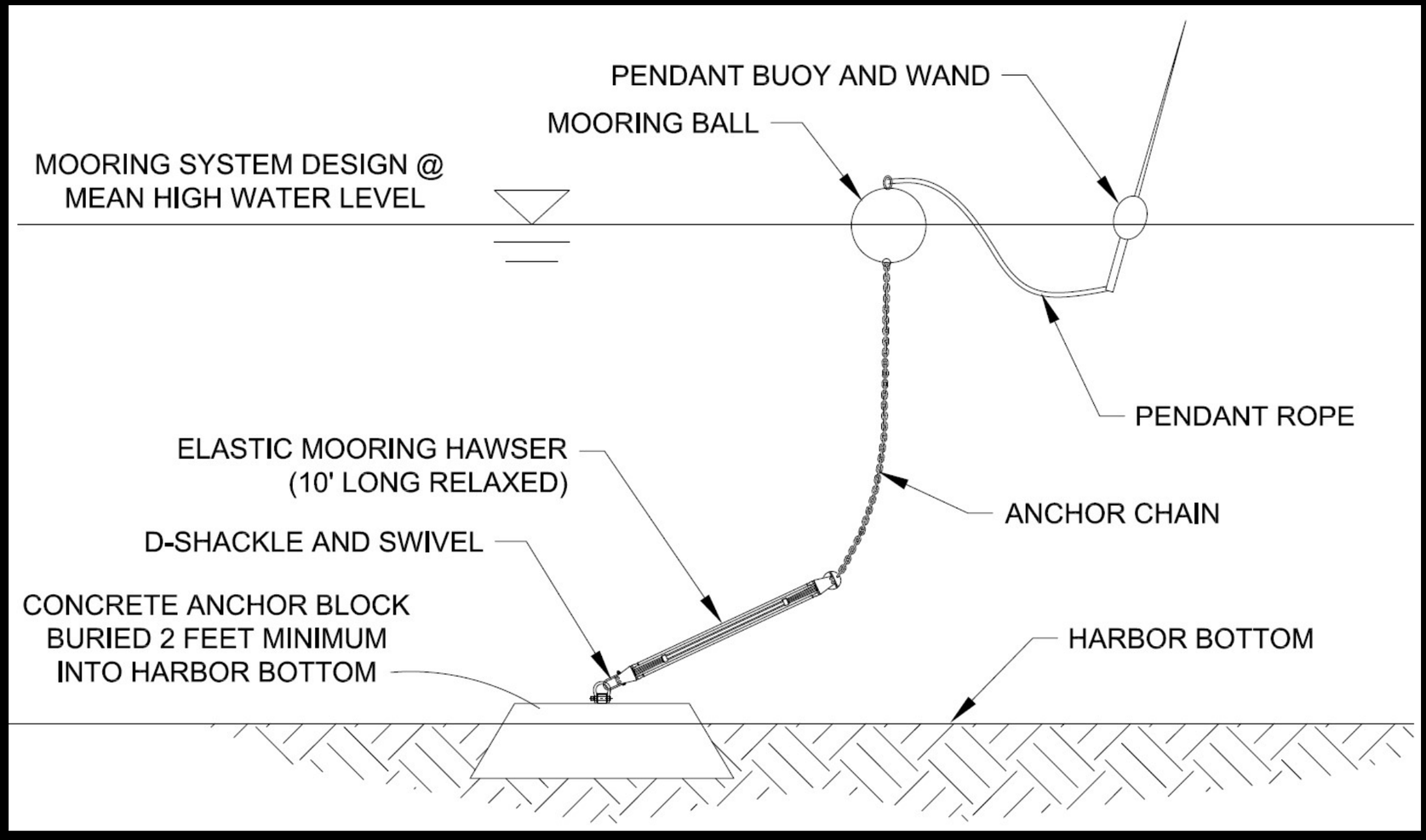

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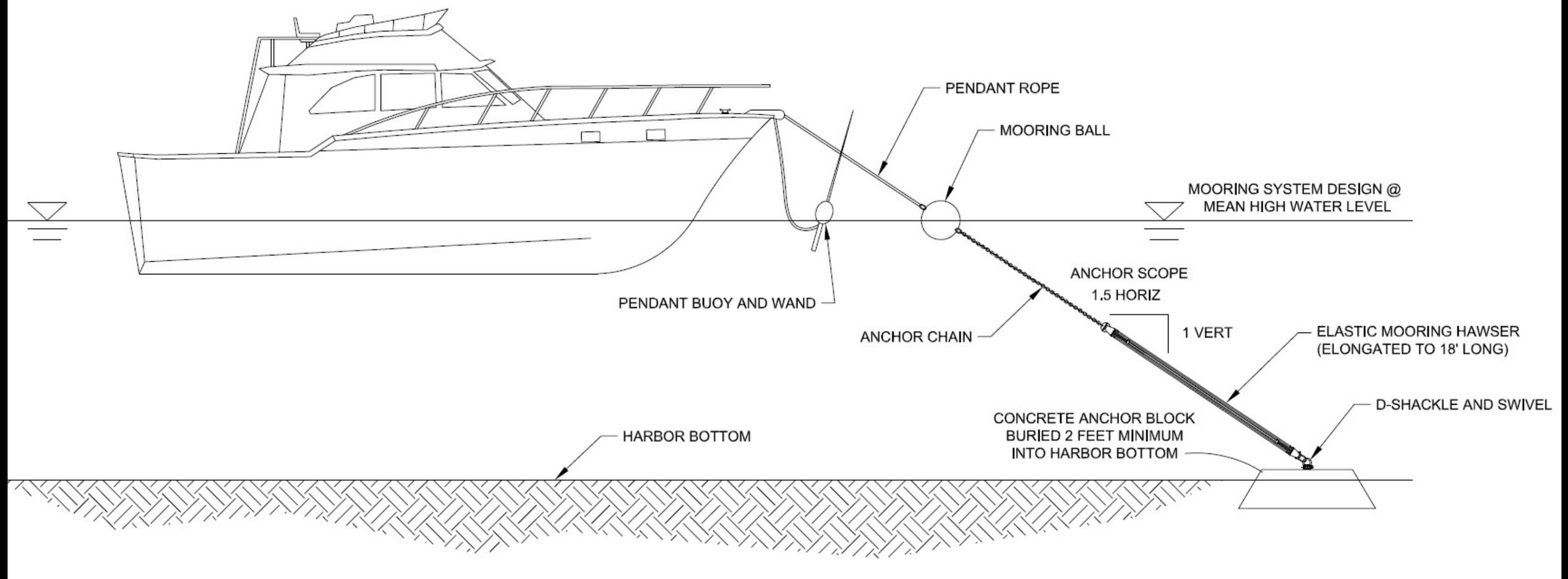

→ Mooring System Development

Mooring System – Cost / Benefit Matrix

Type of Mooring System	Impact on Bottom	Holding Ability	Cost per Mooring
Conventional Mooring Block Anchor w/ Chain	Chain dragging and anchor block on harbor bottom	Concrete block may drag / requires pull test	Range $2,000 - $3,500 each mooring (total $30k to $52.5k)
Conventional (Hybrid) Helical Anchor w/ Chain	Chain dragging on harbor bottom	Holding capacity directly related to installation torque	Range $2,500 - $4,000 each mooring (total $37.5k to $60k)
Conservation Mooring Helical Anchor w/ Elastic	Minimal footprint on harbor bottom	Holding capacity directly related to installation torque	Range $4,500 - $6,500 each mooring (total $67.5k to $97.5k)
Conservation (Hybrid) Block Anchor w/ Elastic	Anchor block on harbor bottom	Concrete block may drag / requires pull test	Range $4,000 - $6,000 each mooring (total $60k to $90k)

- All moorings assume mooring ball, rope pendant, buoy and wand, max boat length of 50 feet

→Next Steps

- Develop and Submit Internal Draft IS / MND / CEQA Documents
- Develop and Submit Various Agency Permit Applications / Notifications