

**ASSEMBLY STANDING COMMITTEE
PUBLIC WORKS AND FACILITIES COMMITTEE
THE CITY AND BOROUGH OF JUNEAU, ALASKA**

February 25, 2019 12:00 PM
Assembly Chambers

I. CALL TO ORDER

II. APPROVAL OF MINUTES

- A. February 4, 2019 - Regular Meeting

III. PUBLIC PARTICIPATION on NON-AGENDA ITEMS

IV. ITEMS FOR ACTION

- A. Land Use Code Amendment - Stub Streets and Cul-de-sacs
- B. Bartlett Hospital Rainforest Recovery Center Appropriation
- C. Airport North Terminal LEED Requirement

V. INFORMATION ITEMS

- A. Cruise Ship Shore Power
- B. Meander Way - Mendenhall River
- C. Chair Report on Upcoming Meetings for New JACC

VI. CONTRACTS DIVISION ACTIVITY REPORT

- A. January 29, 2019 - February 19, 2019

VII. ADJOURNMENT

- A. Next Meeting - March 18, 2019 - Assembly Chambers

ADA accommodations available upon request: Please contact the Clerk's office 72 hours prior to any meeting so arrangements can be made to have a sign language interpreter present or an audiotape containing the Assembly's agenda made available. The Clerk's office telephone number is 586-5278, TDD 586-5351, e-mail: city.clerk@juneau.org

**PUBLIC WORKS AND FACILITIES COMMITTEE
February 4, 2019 – REGULAR MEETING
MINUTES**

I. CALL TO ORDER

Meeting was called to order at 12:02 pm.

Members present: Mr. Edwardson, Ms. Triem, Mr. Bryson and Ms. Hale

Staff present: Mr. Vigue, Mr. Smith, Ms. Sowa, Mr. Foster

II. APPROVAL OF MINUTES

Minutes approved with minor edits.

III. PUBLIC PARTICIPATION ON NON-AGENDA ITEMS

None.

IV. ITEMS FOR ACTION

A. Valley Transportation Center Funding Transfer

Lori Sowa provided a project update to the committee members. Ms. Sowa stated that the purpose of the new Valley Transit Center (VTC) was to increase transit ridership to downtown and reduce demand for street parking in the downtown core. Ms. Sowa discussed the proposed construction site, transit access points, and parking for transit riders. Ms. Sowa stated that a property appraisal is complete and after the owners complete the subdivision process, CBJ would then be able to purchase the desired property at fair market value. Ms. Sowa stated that the project is funded by a combination of sales tax and FTA grant funds.

Mr. Edwardson asked about the success of applying for additional FTA grants.

Mr. Vigue stated that since the City has already received a grant the odds are very high that a second FTA grant would be approved.

Mr. Bryson asked about access to the VTC in relation to the Alaska Club, if it goes through Alaska Club property. Ms. Sowa stated that the road would not impact Alaska Club property. Mr. Bryson asked how this facility will increase ridership and what impacts are anticipated to the Nugget Mall, the current valley transfer location? Ms. Sowa stated that the Mendenhall Mall location is closer to the valley population center and that CBJ is considering ridership options (bike lockers, park and ride passes) to promote the incentive to use the transit system by valley residents. Ms. Sowa said that the Nugget Mall would continue to serve as a route stop.

Ms. Triem asked about the CIP funds that would be transferred to the VTC CIP.

Ms. Sowa discussed the list provided in the memo, mentioning that most are left over funds from completed projects.

Mr. Bryson asked about the cost recovery of the transit system.

Mr. Foster stated that it is currently at roughly thirty to forty percent.

Ms. Triem asked for more detail on the Park and Ride option.

Ms. Sowa said that the details are yet to be worked out.

Mr. Edwardson asked about the funding sources for the project.

Ms. Sowa stated that the purchase of the property is planned by using sales tax funds that will serve as the FTA local funding match. The remainder of the project funds is anticipated to be FTA grant funds.

Mr. Edwardson asked what would happen if the grant is not approved.

Mr. Vigue said that the project would then be suspended.

Mr. Bryson motioned to approve recommendation of the transfer of the funds be forwarded to the Assembly.

No objections, motion approved.

B. BRH Pharmacy Cleanroom Appropriation

Mr. Vigue discussed the request to appropriate funds for construction of the Bartlett Regional Hospital (BRH) pharmacy renovation project ahead of the availability of funds, July 1, 2019.

Mr. Vigue said that project funds were initially scheduled for FY20 but due to the compliance requirement, BRH and CBJ need to accelerate the process and add construction funds to the request for design funds in FY19. This modified request for a fully funded CIP appropriation would be heard at the March 4, 2019, Assembly meeting.

Mr. Edwardson asked for the source of the funds.

Mr. Vigue stated the full amount of \$1,300,000 will come from the BRH fund balance.

Discussion ensued.

Ms. Triem moved to recommend the appropriation request to the full Assembly for approval.

No objections, motion approved.

V. Information Items

A. FY20 Capital Improvement Resolution

Mr. Vigue discussed the draft CIP and project descriptions. Mr. Vigue said that the draft CIP list was being made available for review by committee members so there would be time for committee members to ask questions ahead of full Assembly consideration.

Discussion ensued.

B. CONTRACTS DIVISION ACTIVITY REPORT

A. January 10 , 2018 – January 29, 2019

VI. ADJOURNMENT

A. Next Meeting Scheduled for March 18, 2019.

Meeting adjourned at 12:34 pm.



Engineering & Public Works Department

155 South Seward Street

Juneau, Alaska 99801

Phone: 907-586-0800 | Fax: 907-463-2606

DATE: February 21, 2019

TO: Michelle Hale, Chair
Public Works and Facilities Committee

FROM: John Bohan, Chief CIP Engineer and Water Superintendent

SUBJECT: Ordinance 2019-08 - Land Use Code Amendment – Stub Streets and Cul-de-sacs

Ordinance 2019-08 was introduced at the January 28, 2019, Assembly meeting and referred to the PWFC. This ordinance would amend the Land Use Code regarding the standards for temporary cul-de-sacs and stub streets. A temporary cul-de-sac and stub street are used when the street design of a new subdivision ends at an adjoining property that could be developed. Currently, the land use code requires a developer of a subdivision designed with a stub street to construct it or provide a financial guarantee for five years to cover construction of it. This ordinance would remove that five-year financial guarantee requirement and clarify the procedures and standards for when a temporary cul-de-sac and a stub street are required.

The Planning Commission unanimously recommended the ordinance to the Assembly at the December 11, 2018, regular meeting.

Recommendation

Staff recommends the Committee forward Ordinance 2019-08 to the full Assembly for approval.

Presented by: The Manager
Introduced:
Drafted by: R. Palmer III

ORDINANCE OF THE CITY AND BOROUGH OF JUNEAU, ALASKA

Serial No. 2019-08

An Ordinance Amending the Land Use Code Related to Street Standards.

BE IT ENACTED BY THE ASSEMBLY OF THE CITY AND BOROUGH OF JUNEAU, ALASKA:

Section 1. Classification. This ordinance is of a general and permanent nature and shall become a part of the City and Borough of Juneau Municipal Code.

Section 2. Amendment of Section. CBJ 49.35.240 Improvement standards, is amended to read:

49.35.240 Improvement standards.

...

(g) *Cul-de-sacs.*

(1) *Length.* Streets designed to have one end permanently closed shall be no more than 600 feet and not less than 150 feet in length measured from the center of the intersection to the radius point of the turnaround. The director for minor subdivisions, and the commission for major subdivisions, may authorize a longer or shorter cul-de-sac if it is found that the unique characteristics of the site warrant modification to the length.

(2) *Temporary cul-de-sacs.* Temporary cul-de-sacs will be allowed where a street can practically logically be extended in the near future to provide for connecting streets into an adjoining undeveloped land, is located in a right-of-way or in an easement for public access, and if the following are met:

(A) The temporary portions of the cul-de-sac ~~turnaround~~ shall must be shown on easements on the plat rather than as dedicated right-of-way. Such easements shall allow for public access and maintenance as if it were dedicated right-of-way until such time the easements are vacated. The easements shall not contribute towards lot area.

(B) All of the cul-de-sac must be constructed to permanent street construction standards except as noted in (G) below.

(C) The CBJ will record a release of the easements for the temporary portions of the ~~cul-de-sac turnaround~~ at the state recorder's office at Juneau at the time the ~~cul-de-sac turnaround~~ is removed and the street improvements have been extended.

(D) Easement lines for the temporary ~~cul-de-sac turnaround~~ will be considered front property lines for determining building setbacks.

(E) All improvements, including utilities and private driveways, must be designed to accommodate the eventual extension of the street and reversion of the temporary ~~cul-de-sac turnaround~~ to adjoining properties. The construction plans shall demonstrate those improvements connecting through a temporary cul-de-sac will still comply with CBJ standards after the temporary cul-de-sac is removed.

(F) Temporary cul-de-sacs must provide required access and minimum frontage on a publically maintained right-of-way to all lots using the cul-de-sac as access. If the cul-de-sac is not extended to the adjoining property, the maximum length of an unconstructed right-of-way between the temporary cul-de-sac and the adjoining property shall be the minimum lot width for the zoning district. If the right-of-way is located in more than one zoning district, the shortest minimum lot width shall be used. The right-of-way between the constructed temporary cul-de-sac and the adjoining property shall be subject to the stub street requirements of this Title. ~~be extended to as close to the adjoining property boundary as practical. If it is not practical to construct the turnaround portion of the cul-de-sac at this location, then the right of way must be extended beyond the temporary turnaround to the adjoining property line, and the street extension constructed to standard (See Figure 3).~~

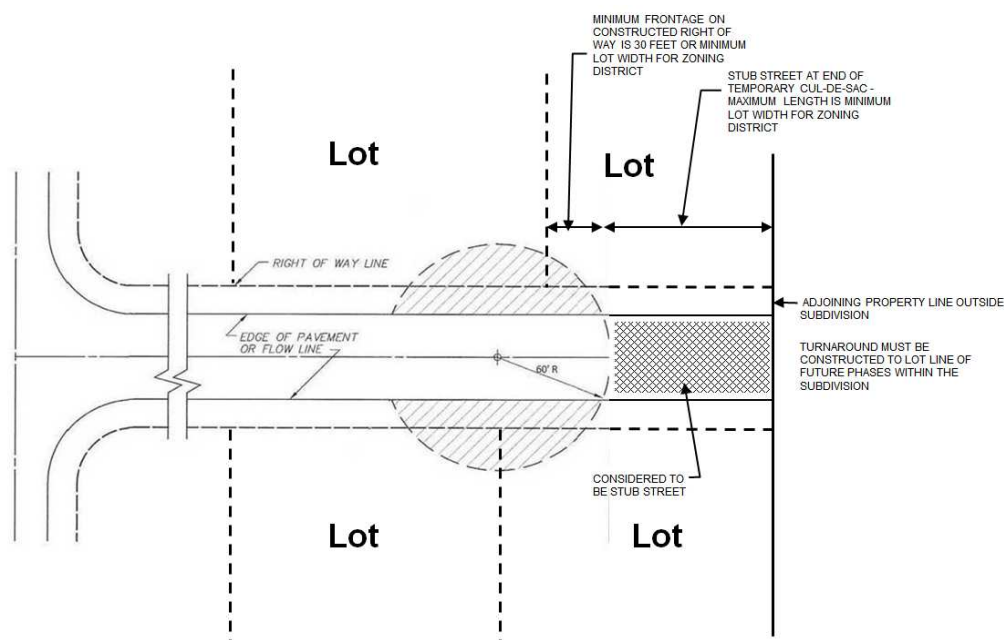


Figure 3 [Instruction for Municode, delete existing figure and insert new figure as depicted above]

(G) The temporary cul-de-sac may be located on property within the subdivision intended for future subdivision phases in conjunction with a platted right-of-way. It may also be located outside the subdivision boundary entirely within an easement. See Figure 4. If the temporary cul-de-sac turnaround is constructed on property outside of the subdivision boundary, then curb, gutter, and sidewalks are not required for the temporary cul-de-sac turnaround.

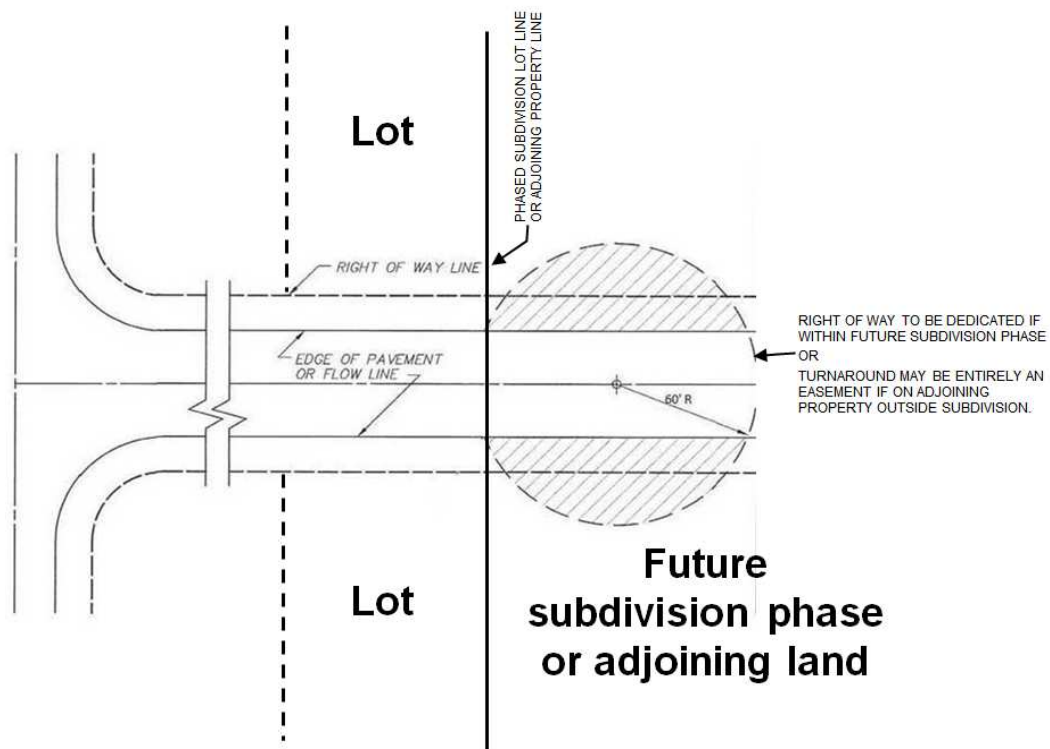


Figure 4

(H) The plat shall include the following note “Temporary cul-de-sac easement shall be vacated upon extension of street unless the director determines all or a

1 ~~portion of the cul-de-sac may remain.” Before final acceptance of all~~
 2 ~~improvements by the CBJ, the developer must provide a financial guarantee to~~
 3 ~~cover the cost of removal of the temporary turnaround and reconstruction of the~~
 4 ~~street. The guarantee must be for a period of five years from the date the plat is~~
 5 ~~recorded. If it is necessary to construct the street to the adjoining property~~
 6 ~~within that five-year period, the developer can complete the reconstruction and~~
 7 ~~extension, or the guarantee may be used by the CBJ for that purpose. If a right-~~
 8 ~~of-way has not been dedicated on the adjoining property for the purpose of~~
 9 ~~connection to the temporary cul-de-sac within this five-year period, the financial~~
 10 ~~guarantee will be released.~~

13 (I) When the developer of adjoining property is required to connect to the
 14 temporary cul-de-sac, the temporary portions of the cul-de-sac shall be removed.
 15 The director, after considering public safety, costs, and recommendations of the
 16 director of engineering and public works department and of the fire marshal,
 17 shall determine if the developer may leave all or part of the temporary portions
 18 of the cul-de-sac. If any temporary cul-de-sac portion is removed, then the
 19 resulting constructed right-of-way shall conform to CBJ standards.~~and the~~
 20 ~~temporary cul-de-sac has not been extended as authorized by this section, then~~
 21 ~~the developer must remove the temporary portions of the turnaround and~~
 22 ~~reconstruct and extend the street to CBJ standards.~~

24 (3) *Hammerhead turnarounds.* Hammerhead turnarounds may be built in lieu of a
 25 temporary cul-de-sac, upon approval by the director of engineering and public works.

...

(i) *Street waivers.* The director, after considering the recommendations of the director of the engineering and public works department and of the fire marshal, may waive the following and no other street improvement requirements:

(1) *Right-of-way relocation.* If a plat is submitted for the purpose of relocating a right-of-way, the director may waive all or some of the construction requirements under the following conditions:

(A) The proposed relocation will improve access to abutting or neighboring property not otherwise adequately served.

(B) The subdivider has provided sufficient engineering information to demonstrate to the director of engineering and public works the feasibility of constructing a public street at the location of the relocated right-of-way.

(C) The relocated right-of-way and the resulting subdivision layout will conform to all the other standards of this chapter.

(D) The improvements required in the new right-of-way will not be less than those in the existing right-of-way.

(E) No additional lots are being platted.

(2) *Stub streets.*

(A) The director for minor subdivisions and the commission for major subdivisions may waive the full construction of a roadway within a right-of-way that is required to provide access to a bordering property, and does not provide required access to any lot within the subdivision. A developer requesting a stub street waiver shall demonstrate in the construction plans that a street can reasonably be constructed to CBJ standards in the right-of-way. The commission

or director may require provision of a roadbed, utility line extensions, or other appropriate improvements (See Figure 54).



Figure 54

(B) Reserved.— In addition, before final acceptance of subdivision improvements, the subdivider must provide a financial guarantee to cover the costs of constructing that part of the roadway improvements waived by the commission or director in subsection (A) of this section. The guarantee must be for a period of five years from the date the plat is recorded. If it is necessary to connect the roadway to adjoining property within that five year period, the subdivider may complete the construction, or the guarantee may be used by the City and Borough for that purpose. If a right-of-way has not been dedicated on the adjoining property that accomplishes the connection to the stub street within this five year period, the financial guarantee will be released.

(C) When the developer subdivider of adjoining property is required to connect to the stub street, and the stub street will not be constructed through

~~subsection (B) of this section~~, then the developer ~~subdivider~~ of the adjoining property will be required to construct the stub street to City and Borough standards at the time.

...

Section 3. Amendment of Section. CBJ 49.80.120, Definitions, is amended to read:

49.80.120 Definitions.

...

Cul-de-sac means a dead-end street that provides for a required vehicle turnaround. ~~the turnaround at the end of a dead end street.~~

...

Section 4. Effective Date. This ordinance shall be effective 30 days after its adoption.

Adopted this _____ day of _____, 2019.

Beth A. Weldon, Mayor

Attest:

Elizabeth J. McEwen, Municipal Clerk

Bartlett Regional Hospital

3260 Hospital Drive, Juneau, Alaska 99801

907.796.8900

www.bartletthospital.org

DATE: February 12, 2019

TO: Mike Vigue, Director
Engineering and Public Works

FROM: Kevin Benson, Chief Financial Officer
Bartlett Regional Hospital

RE: Proposed Bartlett Regional Hospital Rainforest Recovery Center Roof Replacement.

BRH requests an appropriation of an additional \$600,000 for the roof replacement of the entire facility and new furnishings and equipment in conjunction with the Rainforest Recovery Center Detox Addition project. This additional appropriation has been scheduled in the draft FY20 CIP from the BRH Enterprise Fund. It is desired in FY 2019 so that sufficient funding is available to bid and award the construction in FY2019.

I recommend that you forward the following to the full Assembly for approval:

Appropriate an additional \$600,000 from Bartlett Regional Hospital Fund Balance into the existing CIP fund B55-078 to provide a total of \$3,100,000.

Cc: Charles Bill, Chief Executive Officer
Marc Walker, Director of Facilities



City and Borough of Juneau
City & Borough Manager's Office
155 South Seward Street
Juneau, Alaska 99801

Telephone: 586-5240 | Facsimile: 586-5385

DATE: February 18, 2019

TO: Chair Michelle Hale
Assembly Public Works & Facilities Committee

FROM: Rorie Watt
City Manager

RE: Airport North Terminal – LEED Requirement

There has been question as to whether the Airport North Terminal project should be required to obtain the LEED standard. Per 49.35.800, the project is required to obtain LEED Certification unless:

"the Manager, with the consent of the Assembly, after consideration of the recommendation of the Sustainability Commission, determines that it would not be economically feasible to satisfy the prerequisites for LEED Certification in the case of a specific project, that project shall be exempt from the requirement for LEED Certification."

I understand that the Airport feels pinched on their project budget. However, given the Assembly's focus on a **Sustainable Community** in their goal setting this past December, I do not recommend exemption from the certification standard. The Airport may wish to work with JCOS and propose substitute measures, possibly including the encouragement of the use of electric transportation (possibly even in the rental car fleet).

49.35.800 - Sustainable building standards for construction and renovation of buildings.

- (a) *New construction and renovation of existing buildings and facilities by the City and Borough.* The City and Borough shall construct and renovate its public facilities and buildings to sustainable building standards through the use of the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) rating system, and shall be responsible for ensuring that public facilities and buildings meet the requirements as set out in this section and are operated accordingly.
- (1) LEED shall be the quantitative measurement for how well standards are met;
 - (2) All public facilities and buildings utilizing municipal funds and costing over \$5,000,000.00 (either general or bonded), including new private construction for Municipal leasing or renting, shall be designed and constructed in such a fashion as to achieve a minimum level of LEED Certified;
 - (A) The City and Borough Engineering Department shall determine if attainment of specific LEED credits will be required within the credits pursued for LEED Certification. These required credits shall be documented in CBJ policy and shall be reviewed and updated each time a new version of the LEED standard is issued. Such update shall occur within three months of the issuance of a new LEED standard.

- (b) *Application.* The sustainable building standards for municipal buildings and facilities, including but not limited to, the Juneau School District, the Juneau International Airport, and Bartlett Regional Hospital, shall apply to facilities and buildings where the principal use is regularly occupied space, including, but not limited to, buildings occupied for office, retail, classroom, healthcare, or assembly purposes.
 - (1) As used in this section, occupied means a facility or building whose primary purpose is for people to work, assemble, or intend to remain within to perform functions (other than routine maintenance) of the principal use of the building. Industrial facilities, such as maintenance, warehouse, and vehicle storage, are excluded from this section.
- (c) *Exception procedure.* If the Manager, with the consent of the Assembly, after consideration of the recommendation of the Sustainability Commission, determines that it would not be economically feasible to satisfy the prerequisites for LEED Certification in the case of a specific project, that project shall be exempt from the requirement for LEED Certification.
- (d) *Effective date.* This ordinance shall become effective on July 1, 2011. Existing projects with fully executed contracts for design services on the effective date shall be exempt from this ordinance.

(Serial No. 2010-42, §§ 2—4, 1-10-2011, eff. 7-1-2011)



City and Borough of Juneau
City & Borough Manager's Office
155 South Seward Street
Juneau, Alaska 99801

Telephone: 586-5240 | Facsimile: 586-5385

DATE: February 19, 2019

TO: Chair Michelle Hale
Assembly Public Works & Facilities Committee

FROM: Rorie Watt
City Manager

RE: Cruise Ship Shore Power

In the FY20 budget I am recommending the allocation of \$250,000 of passenger fees for the study and analysis of additional shore power infrastructure. However, I do raise caution on the potential complexities of the issues. Developing information on this topic is one of the Assembly's goals for the year (*Assembly Goal 5.C. Investigate what it would take to plug in cruise ships.*).

Below, are a couple of preliminary FAQ's, most of the information was provided by AEL&P.

How many megawatts does a typical ship use?

Ship power usage ranges quite a bit. The Princess ships that are currently served can range from 7.5MW to 11MW while docked. The average Princess loads are higher than the average Holland America ship loads by a few MW. Some of the newer, larger ships would use on the order of 14MW while in port. In 2000 when the shore connection was designed for the South Franklin Dock, the average ship was 5MW.

Currently, how much is shore power as a percentage of system load?

About 15%. But on a warm Saturday morning in July, a large ship might be 25% of the total load. On a cold day in mid-September with Greens Creek connected, a small ship could be less than 10% of the total load. However, because the ships aren't connected all day, their energy consumption overall is not that high. For example, last July, the cruise ships used 1.5 million kWh, the mine used 6 million kWh, residential customers used 8.6 million kWh, and the rest of the customers used 14 million kWh. For 2018 total, the cruise ships used 6 million out of 391 million total kWh, or 1.5% of total kWh sold.

How often do ships plug in at the South Franklin Dock?

AEL&P plans on 105 connections in 2019.

How often is there insufficient power to allow usage of shore power?

The existing Princess contract has priority over Greens Creek, so the only interruptions in recent memory were during maintenance events. In low water years it is possible that we could see an interruption of non-firm customers such as the cruise ships. If the low water year that we are currently experiencing extends into May, it could cause a few ship connections to be dropped.

Is there existing power generation to supply more shore power?

AEL&P generally has enough capacity, but there are significant technical challenges associated with managing the transfer of load. However, energy is different than capacity, and in a normal water

year there wouldn't be enough energy for more ship connections. On a wetter than normal year, there may be enough energy to serve more ships with the existing generation facilities, but of course wetter years can't be reliably predicted.

What about Year Round Loads?

Ships would only use shore power for up to ~130 days, around 8-10 hours a day. Therefore paying for the infrastructure without unduly burdening the other Juneau customers could be challenging.

Hydroelectric projects are typically high capital cost, provide a relatively low power cost, and have a very long life. If the ships were guaranteed to be here 24/7 for 50 years, one could more easily make a business case.

Is shore power possible in other Southeast ports?

The smaller electrical grids in other ports, such as Hoonah or Skagway cannot support ship connections. Because of low water, Ketchikan has been burning diesel this year to generate power for the town. Shore power doesn't appear to be a solution for the overall region.

A study from several years ago is attached. Further work on this topic would begin with this source document.



PREPARED BY:



PORT OF JUNEAU CRUISE SHIP BERTHS

SHORE TIE POWER STUDY FEASIBILITY STUDY REPORT

OCTOBER, 2016

PND No: 152054.01

Introduction

In 2004, a cruise ship electrical shore power facility was installed on the Franklin Dock. This provides power to cruise ships (primarily those operated by Princess Cruises) when they are in port, reducing the emissions of engine fumes into the downtown area. This also reduces the carbon footprint in Juneau by substituting hydro turbine generated electricity in lieu of diesel fired generation.

The new Port of Juneau Cruise Ship Berths are currently under construction. The South Berth was completed in May 2016. The North Berth will be completed in May 2017. This facility is designed with an allowance for future installation of components as required for cruise ship shore power. This report narrates the characteristics of the system and its components.

The team that is reviewing and providing the report for this installation includes:

- Carl Uchytel, P.E., CBJ Port Director
- Gary Gillette, AIA, CBJ Port Engineer
- Dick Somerville, P.E., PND, Principal Civil Engineer
- Brandon Ivanowicz, PND, Staff Engineer
- Ben Haight, P.E., Haight & Associates, Inc., Electrical Engineer

This report characterizes a concept design illustrating a probable system configuration and component features. With the initiation of a formal design, the concept will be used as a basis of design upon which detailed analyses, component definition, and final system configuration will be based. The report includes narration of the design along with a site map and marine facility schematics illustrating the probable layout. The report also includes an estimated budget for construction, design and project administration.

Electrical System

The electrical system will be powered from one of the existing 69KV transmission lines between the Thane Substation and the downtown substations. The system is constructed to feed power from this transmission line to the water side facility and will include several components. These are defined in sequence leading from the transmission line to the power connectors for the ships.

AEL&P Substation: A new substation will be located on the hillside southeast of the end of Gastineau Avenue. This site is located adjacent to the two existing 69KV transmission lines. The substation will consist of 69KV switchgear and protective relays, transformer(s), and secondary switches and protective relays. The substation will be adequately sized to power two cruise ships. The transformer(s) will be rated for ships, 15,000 KVA each, producing output voltages of 11.6KV and 6.2KV. All of this substation equipment is located on the ground with security fencing around the perimeter.

15KV feeder to South Franklin Street: The hillside from the substation to South Franklin Street is steep with areas of loose rock and overburden. It is a difficult area to trench. For each ship electrification facility, this portion of the system will include six 6-inch diameter conduits (12 total) installed above ground on structural stands, or potentially installed below ground if found possible. The conduits will include 15KV rated cables for power and fiberoptic cables for instrumentation and control. The conduits will terminate into a new vault at South Franklin Street on the uphill side.

15KV Feeder from South Franklin Street to Shore: Twelve 6-inch conduits are presently installed below grade from the location of the proposed new vault on the uphill side of South Franklin Street to an existing manhole near the shore adjacent to the Mt Roberts Tram. Twelve more conduits extend from this manhole beneath the shore to open under water at approximately -5 feet MLLW. This system of conduits and manholes provide allowance to install cables to power two ships. The existing conduits will be extended into

the new vault as required. The 15KV cables identified earlier will extend to the existing manhole at the shore where they will be terminated to a junction inside the manhole. The fiber optic cable(s) will extend to this same manhole and onto the ship power float.

15KV Submarine Cable to the Power Floats: Cables specifically designed for underwater conditions will be routed from the manhole on shore to the power float. They will be connected to the shore cables on 15KV terminals inside the manhole. The cables will be coiled on the sea bottom below the power float allowing it to move with tidal changes. These cables will be suspended to the float and supported on a structure specifically designed to support their weight. The cables will terminate in a 15KV switch located on the float.

Switchgear: The switchgear on the floats will be enclosed in a cabinet mounted to the float. The cabinet and enclosed equipment will be suitable for the corrosive marine environment. The switch will be used to synchronize and connect the cruise ship to the onshore power grid. The switch will be collaboratively controlled by the ship crew and AEL&P operators. An additional cabinet will enclose protective relays, control equipment, and data communications equipment. The switchgear will be approximately 20ft wide x 8ft deep x 7ft tall.

15KV Feeder to the Ship: Cables typically used in mines will be routed from the switchgear to the ship. The cables are quite flexible and include connectors on the ship's end. The cables will be installed in covered cable trays from the switchgear to a cable positioning device. The cable positioning device will support and move the cables to and from the ship as required to connect and disconnect shore power. This type of system as opposed to a festooning type of system as described below eases cable hand-off and reduces the need for cable attendance typical with tidal changes.

Marine Structures

The shore power system will be supported by a 36'x66' floating dock structure that will be accessed from a 50-ft long aluminum gangway mounted on the south approach dock. The floating dock would be of concrete pontoons or steel pipe construction and will be anchored in place with steel pipe piles and pile frames. The floating dock will offer cruise vessels a consistent level relative to the ships portal providing for improved handoff and retrieval of the shore power cables. The cable positioning device will have an extendable boom capable of providing a 30-ft range of reach and ability to accommodate vessels with varying portal configurations.

Low voltage power will be provided from the switchboard at the shore end of the new approach dock for the cable positioning device and power float lighting. This will involve a separate 480 volt feeder routed along the approach dock and down the gangway to the power float. Power will be distributed from a panel at the end of this feeder.

Options Considered

The system configuration and layout described above is one of several possible. Based on engineering experience and characteristics of the dock, this seems the most appropriate, however; with implementation of design, other options and sub-options should be considered. Options that were discussed while developing this configuration include the following:

- *Feeder route from shore to the floating dock:* As noted above the feeder is described to be routed directly to the sea bottom and then up to the power float. A route following the approach dock and down the transfer bridge to the main floating dock, and then following a structure to the power float is possible. With this route, the cables used will be the flexible mine type described above to allow for movement at both ends of the transfer bridge and on the transfer structure to the power float. This

route is not favored at the South Berth due to the need to allow a portion of the approach trestle to be removable. This configuration will be an option for the North Berth.

- *Feeder Voltage:* AEL&P has presented thoughts using higher voltage service to the shore. With this option, the transformers reducing the voltage to that usable for the cruise ships will be located at the shore. This reduces the substation requirements on the hillside near Gastineau Avenue, and it reduces cable size and subsequent losses between the switchyard on the hillside and the shore. The conduits and manholes presently installed beneath South Franklin Street and the cruise ship uplands will allow for the higher voltage cables. Criteria that have to be addressed with this option will include the type of transformer used and its associated location. Per code and regulation, commonly used oil cooled transformers are not allowed over water. Thus, either the transformers used will have to be air cooled if over water, or space will have to be identified on shore. The air cooled transformers are quite large and will cause visual concerns.
- *Shore-tie Cable Deployment System:* The cable deployment system described above involves a crane style cable positioning device. This has become a preferred method of deployment at most ports along the west coast. Optionally, a festooning type system similar to the one installed at the Franklin Dock is possible. This involves additional stationary marine structures at the dolphins with the festooning system constructed above. It will also involve an extension of the approach dock to the dolphins as required to support the feeder cables. The required switchgear will be mounted to an extension of the approach dock. With this option, a power float is not required. This type of structure is anticipated to be more expensive and the cables require continual attendance while connected to the ship due to tide changes.

Cost of Construction

A budgetary estimate is attached with this report illustrating a probable cost of construction of \$12.9 million based on the configuration illustrated above to facilitate shore power at the South Berth only. Installation costs of a similar configuration at the North Berth would also be similar. This estimate includes direct costs expected for the AEL&P substation, feeders, switchgear and devices all required for this installation. It does not include cost that might be borne by AEL&P to upgrade their infrastructure permitting this additional load to their plant.

Analyses

As stated above, the electrical and marine structure system narrated above defines a probable configuration and layout. Opportunities to enhance this configuration should be explored with the implementation of the design phase. Considerations to be included toward funding, design for cruise ship electrification, and impact to the community should include the following factors:

- *Docking:* Ships typically position their shore connection portals on their port side. Ships fitted to be connected from either side are unknown at this time. The cost to provide this type of configuration is expensive to the ship and captures valuable space. Most of the ships connecting to shore power will dock with their portside to shore, however based on past practice, the ships will dock stern to stern at the North and South Berths. The ship docked to the North Berth will be starboard side to the dock. Thus the scheme described above best facilitates the South Berth where the ship will dock portside to the dock.
- *Connection:* As part of connecting the cruise ships to shore power, they are required to synchronize to the AEL&P grid. This involves careful collaboration between the ship's crew and AEL&P's operators. Each ship has technical and operational characteristics that are specific to the ship.

AEL&P is required to adapt to each ship. Technically, this involves differing power plant characteristics and operating parameters. Operationally, it can involve language or dialect differences. With short duration connections, and more ship connections, AEL&P operators become more involved. This increases costs to AEL&P and challenges the sustainability of system operations to the community.

- Opportunity to Deliver:* AEL&P currently connects and furnishes energy to approximately 60% of the vessel stops with shore power capability. Shore power is only available from the Franklin Dock. The remaining 40% of the shore power capable ships in port cannot receive energy from shore. The ships not receiving power are either docked at the other berths, or are anchored offshore in the harbor, or their longevity in port is brief, or they do not have an agreement to use the Franklin Dock. The Franklin Dock primarily serves Princess Cruise ships and the other cruise ship lines occupy the other berths. Of the remaining ships, some will dock at the South Berth, some at the North Berth, and some at the AJ Dock. All of the present shore power capable ships are fitted for connections on the port side. Thus, the North Berth does not facilitate shore power connection. Considering these factors, the opportunity to connect shore power capable ships is limited to something less than the remaining 40%. It appears that optimally, half of that number (20%) can be connected. Admittedly, this addresses connection opportunities only; it does not address the quantity of energy transferred to the ships.
- Opportunity to Connect:* The time to connect and disconnect the ship to shore power is typically 1 to 1.5 hours each way. For a ship in port for 8 hours, approximately 5 hours are fully connected to shore power. Many of the ships are in port for less time. It is often not feasible to connect and disconnect with the limited time available.
- Hydro Capacity:* AEL&P reports that they occasionally have adequate capacity to deliver energy to more cruise ships. Their capacity for such is dependent on weather and water storage in the hydroplant dam impoundment. With a typical winter, snow melt supports good water storage in the summer when the energy is required. With the recent El Nino effects, the atmospheric temperatures are greater resulting in increased rainfall in the winter and summer. This supports water storage year-round. AEL&P also reports that they have the ability to construct additional generation facilities at Dorothy Lake and Sheep Creek which will ensure adequate capacity. Juneau Hydro Power also plans to develop Sweetheart Lake for additional capacity.
- Transmission Line Capacity:* AEL&P operates and maintains a high voltage transmission line from Snettisham Hydroplant to Thane and two lower voltage lines from Thane into downtown Juneau. The loads on these lines are typically light during the summer, thus they have capacity for the additional load to deliver energy to the cruise ships.
- Ranking of Customers Receiving “Interruptible” Energy:* AEL&P delivers “interruptible” energy to select customers based on its availability from their hydro generation sources. “Interruptible” energy is available to customers who have other sources of energy available to complete their energy requirements. In that the cruise ships typically generate their electricity using onboard generators, AEL&P is not obligated to provide additional fuel based standby generation at their Lemon Creek site. Thus, AEL&P offers energy to these customers at a reduced rate. AEL&P offers this rate to customers in a hierarchical fashion to those who obtained this rate first. Currently, customers with “dual fuel” heating systems have highest priority for interruptible energy. Those subsequently gaining similar agreements include Greens Creek Mine and the shore power facility at the Franklin Dock. New customers obtaining this service have a lower priority, and they receive this energy only

if excess energy is available after the other customers are receiving theirs. When water resources are low, the new shore power facility is not likely to receive energy.

Conclusion

A configuration of the electrical system and the corresponding marine structural facility are described above. This described configuration is a probable one to meet the requirements for cruise ship electrification. It is intended only to illustrate features of a possible configuration that will meet the objectives. As additionally identified, there are other options available which may be considered. The design process should more carefully evaluate the presented configuration along with the options presented and any other options yet to be determined.

The facility described includes connection to the AEL&P transmission lines on Gastineau Avenue, a substation with feeder protection and voltage transformers, switchgear, and feeders to the ship portal. The configuration of the facility is based on application of submarine cables to a floating dock supporting a cable deployment system.

\$12.9 million should be budgeted for the construction, engineering, and administration to install a facility for the South Berth. An additional \$12.9 million should be budgeted to complete the same for the North Berth. These costs are itemized in the separately included estimate. Maintenance costs are not identified with this report, but they will primarily include the cable positioning device, the submarine cables, and the switchgear. Maintenance of the floating dock, gangway, and other ancillary features will be typical to all of the floating docks in Juneau. The operational costs are primarily those required to connect and disconnect the shore-tie cables and for the energy delivered.

There is no other known floating cable deployment system on the west coast. All of the known systems are located at stationary elevations on shore. Installing such a system on a floating dock reduces the constant manipulation of cables as required by the greater tidal changes that are experienced in Southeast Alaska. Development of this system will require additional engineering to address the associated risk.

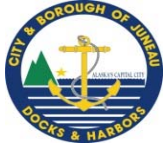
At this time, the amount of energy that can be delivered from a facility at the South Berth is not specifically known. It is anticipated that it will provide some deliveries, but it might not be as much as half of the remaining possible connection opportunities. The economic advantage of the sales of this much energy versus the cost of installation are not evaluated with this report.

With this report, it is determined that a system can be constructed within the framework of the new marine structures serving the cruise ships. The structures and equipment can be constructed without major alterations to the newly constructed facilities.

AEL&P has not committed to providing energy to another dock. They presently maintain commitments to other non-firm loads with those customers having a higher priority to receive energy first. In the past, they have experienced seasons with inadequate water storage to generate energy for all of their non-firm loads, including the cruise ships. In order to ensure adequate capacity, the construction of additional hydro power generation facilities is required. To gain a reasonable return on investment, they need to see a requirement to support other new customers or customers with increased loads. They currently do not have an adequate demand to support such an investment.

The revenue from the sale of energy to cruise ships goes to AEL&P. The City & Borough of Juneau only receives the sales tax benefit of these sales. This revenue is small compared to the cost of construction of additional cruise ship electrification facilities. The rate of return on investment is therefore not considered reasonable for a public agency.

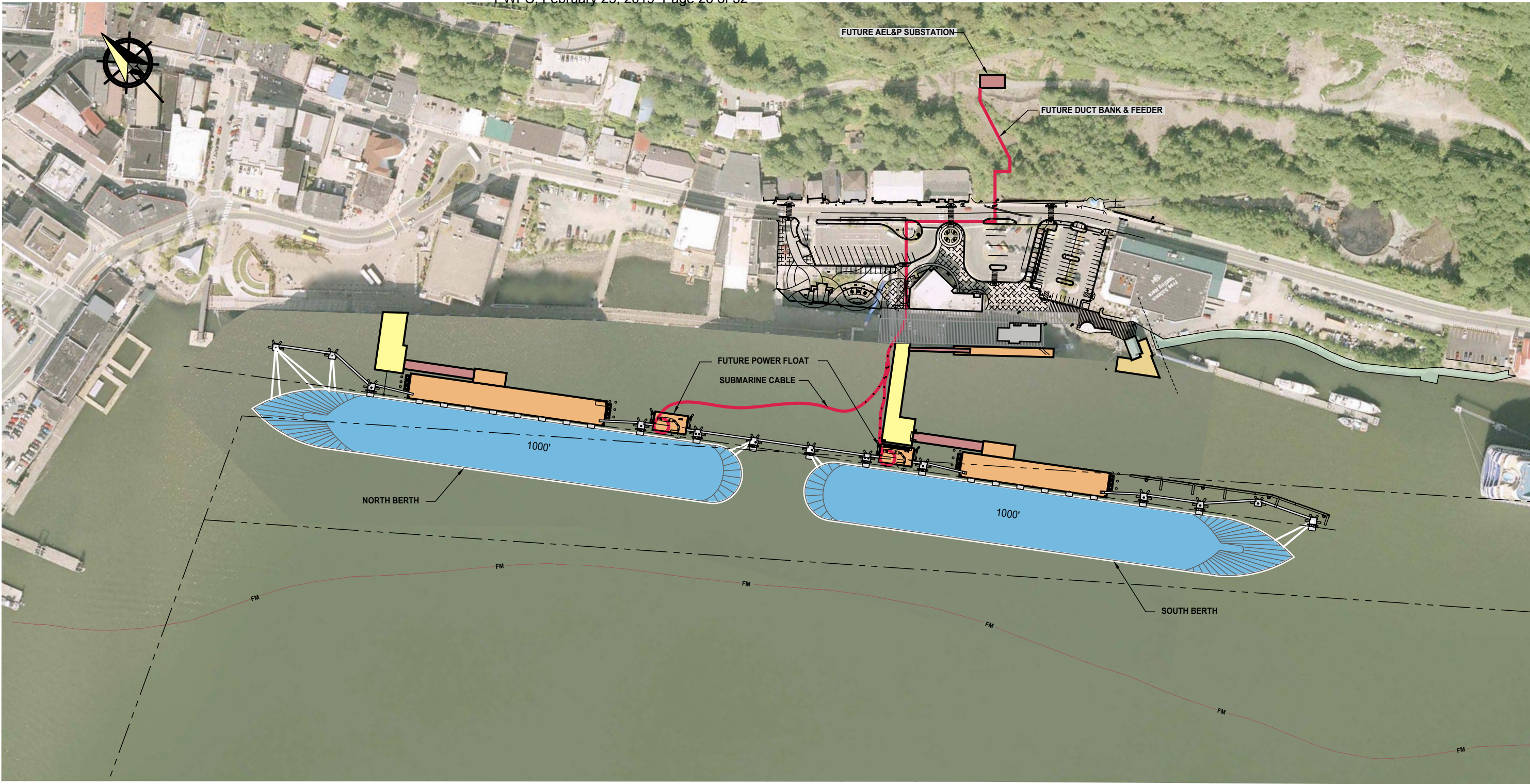
Attachments: *Budget Level Engineer's Estimate, POJ Cruise Ship Berths Shore Tie Power Study Concept Plans*



**PORT OF JUNEAU CRUISE SHIP BERTHS
SHORE TIE POWER STUDY
BUDGET LEVEL ESTIMATE - SOUTH BERTH
Prepared by: PND ENGINEERS, INC.
October 17, 2016**

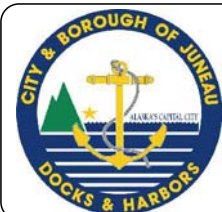
Item	Item Description	Units	Quantity	Unit Cost	Amount
1505.1	Mobilization	LS	All Req'd	10%	\$824,660
2702.1	Construction Surveying	LS	All Req'd	\$75,000	\$75,000
2894.1	50-ft Aluminum Gangway	LS	All Req'd	\$60,000	\$60,000
2895.1	Floating Dock, 36'x66'	SF	2,376	\$350	\$831,600
2896.1	Furnish 36-Inch dia. Steel Pipe Pile	LF	1,200	\$250	\$300,000
2896.2	Install 36 -Inch dia. Steel Pipe Vertical Pile	EA	4	\$15,000	\$60,000
2896.3	Install 36 -Inch dia. Steel Pipe Batter Pile	EA	2	\$20,000	\$40,000
2896.4	Furnish and Install Pile Frames	LS	All Req'd	\$200,000	\$200,000
2897.1	Cantilevered Approach Dock Extension	LS	All Req'd	\$100,000	\$100,000
2899.1	Supply and Install Pile Anodes	LS	All Req'd	\$40,000	\$40,000
5120.1	Electrical Support Assemblies	LS	All Req'd	\$40,000	\$40,000
11000.1	Cable Positioning Device w/ Extendable Boom	LS	All Req'd	\$250,000	\$250,000
16000.1	Electrical Substation	LS	All Req'd	\$825,000	\$825,000
16000.2	Feeder to Shore	LS	All Req'd	\$3,500,000	\$3,500,000
16000.3	Submarine Cable & Support Structure	LS	All Req'd	\$1,550,000	\$1,550,000
16000.4	Power on Float	LS	All Req'd	\$375,000	\$375,000
ESTIMATED CONSTRUCTION COST					\$9,071,260
CONTINGENCY (20%)					\$1,814,252
PERMIT APPLICATIONS					\$20,000
FINAL DESIGN & CONTRACT DOCUMENTS (10%)					\$1,088,551
CONTRACT ADMINISTRATION & CONSTRUCTION INSPECTION (8%)					\$870,841
TOTAL RECOMMENDED PROJECT BUDGET					\$12,864,904

Note: This estimate provides costs for South Berth shore power only. North Berth shore power costs anticipated to be similar.



OVERALL SITE PLAN

CONCEPT



REVISIONS					
REV.	DATE	DESCRIPTION	DWN.	CKD.	APP.

P

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D

ENGINEERS, INC.

9360 Glacier Highway, Ste. 100
Juneau, Alaska 99801
Phone: 907-586-2093
Fax: 907-586-2099
www.pndengineers.com

DESIGN: PJD CHECKED: JLD
DRAWN: PJD APPROVED: CRS

SCALE: SCALE IN FEET
0 100 200 FT.

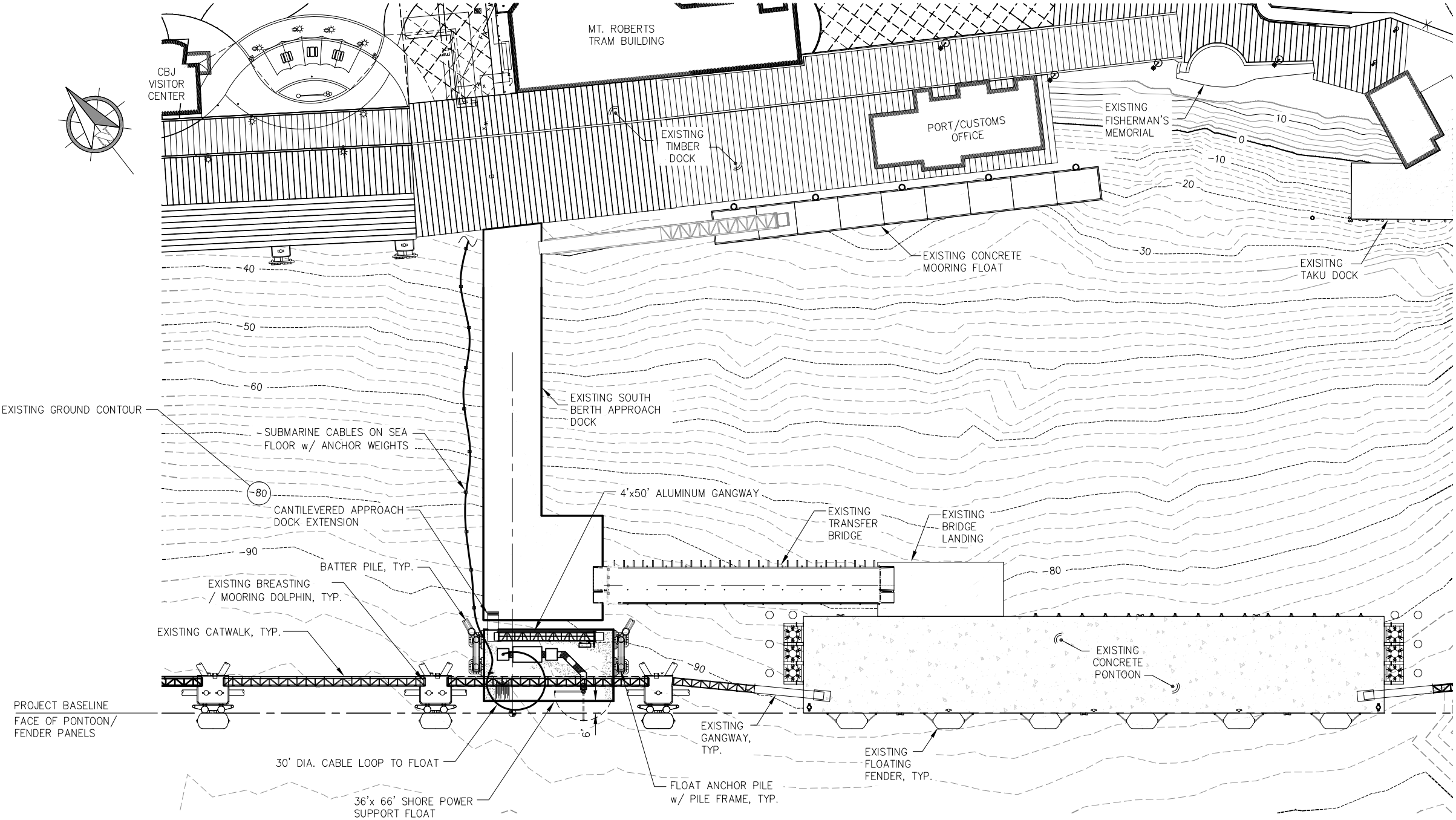
DATE: 10/19/16

PORT OF JUNEAU CRUISE SHIP BERTHS
SHORE TIE POWER STUDY
CONTRACT NO. XX-XXXX

SHEET TITLE:
OVERALL SITE PLAN

PND PROJECT NO.: 152054

1



OVERALL SITE PLAN

NOTE: NORTH BERTH INSTALLATION SIMILAR.

CONCEPT



REVISIONS					
REV.	DATE	DESCRIPTION	DWN.	CKD.	APP.

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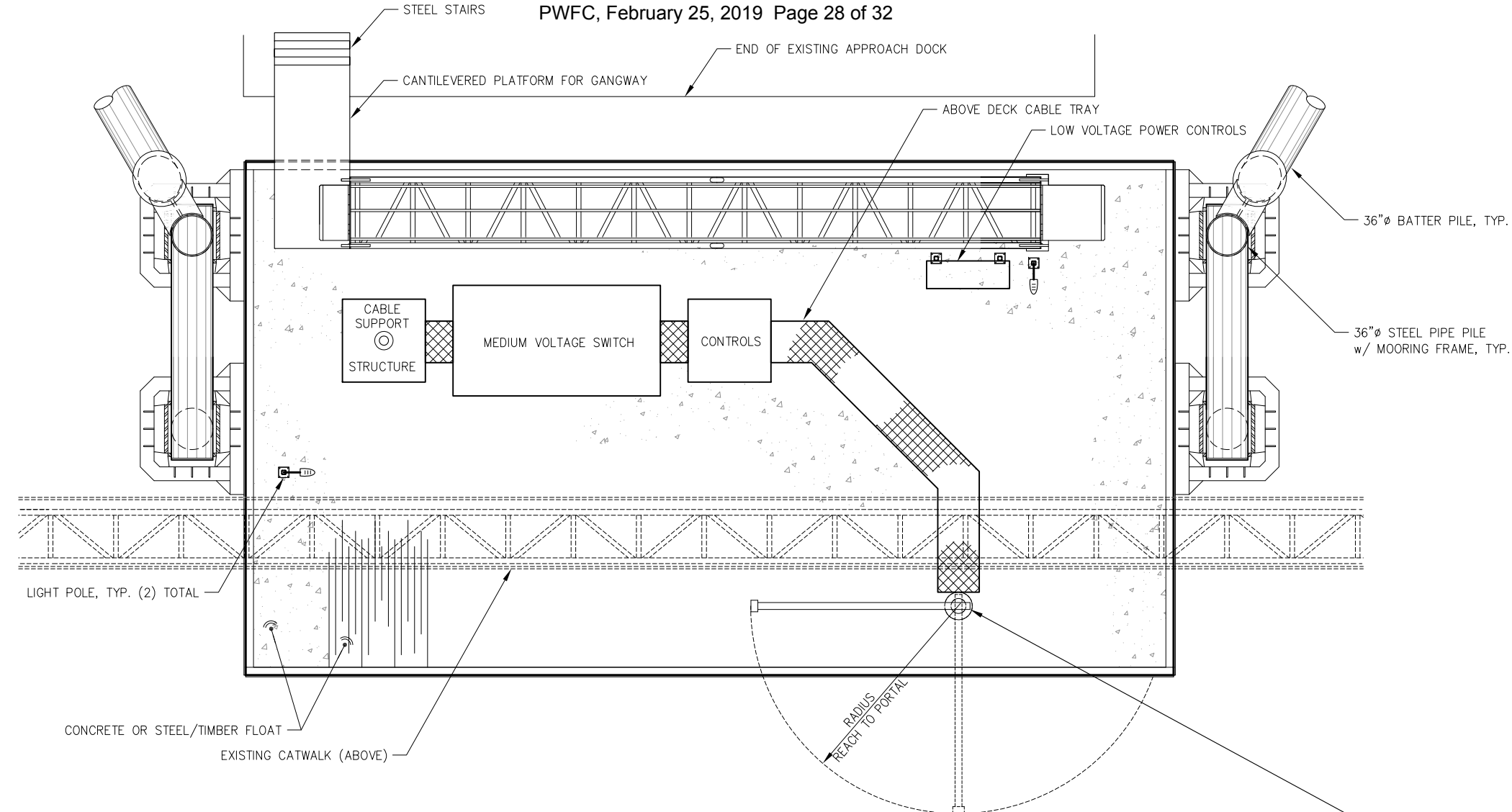
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DATE: 10/19/16

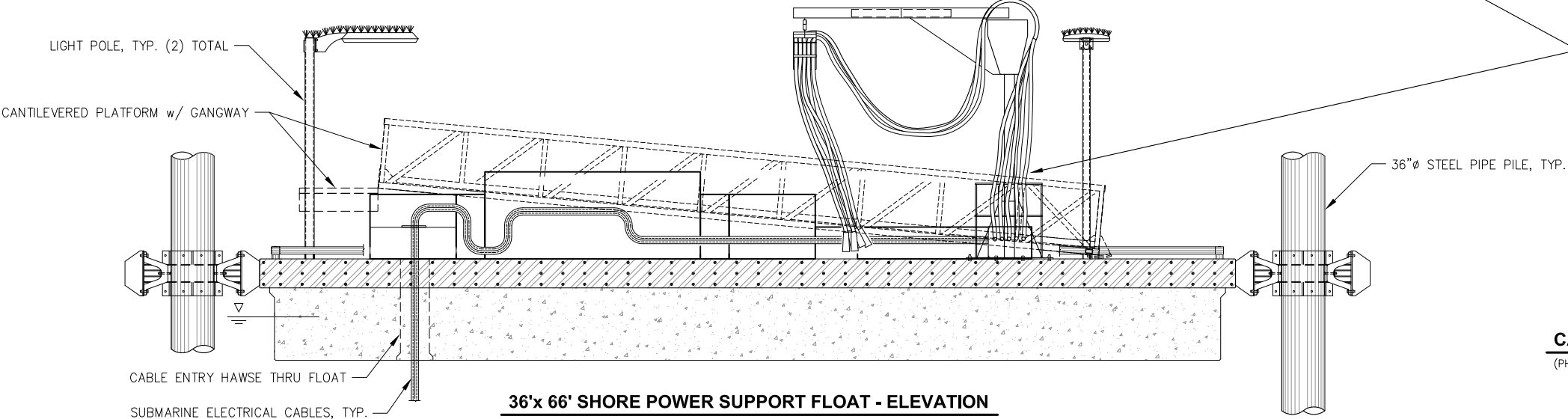
**PORT OF JUNEAU CRUISE SHIP BERTHS
SHORE TIE POWER STUDY
CONTRACT NO. XX-XXXX**

SHEET TITLE:
OVERALL SITE PLAN - SOUTH BERTH

PND PROJECT NO.: 152054



36'x 66' SHORE POWER SUPPORT FLOAT - PLAN



36'x 66' SHORE POWER SUPPORT FLOAT - ELEVATION



CABLE POSITIONING DEVICE w/ 15' EXTENDABLE BOOM
(PHOTO USED WITH PERMISSION FROM COCHRAN MARINE.)

CONCEPT



REVISIONS					
REV.	DATE	DESCRIPTION	DWN.	CKD.	APP.

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DESIGN: BMI CHECKED: JLD SCALE:
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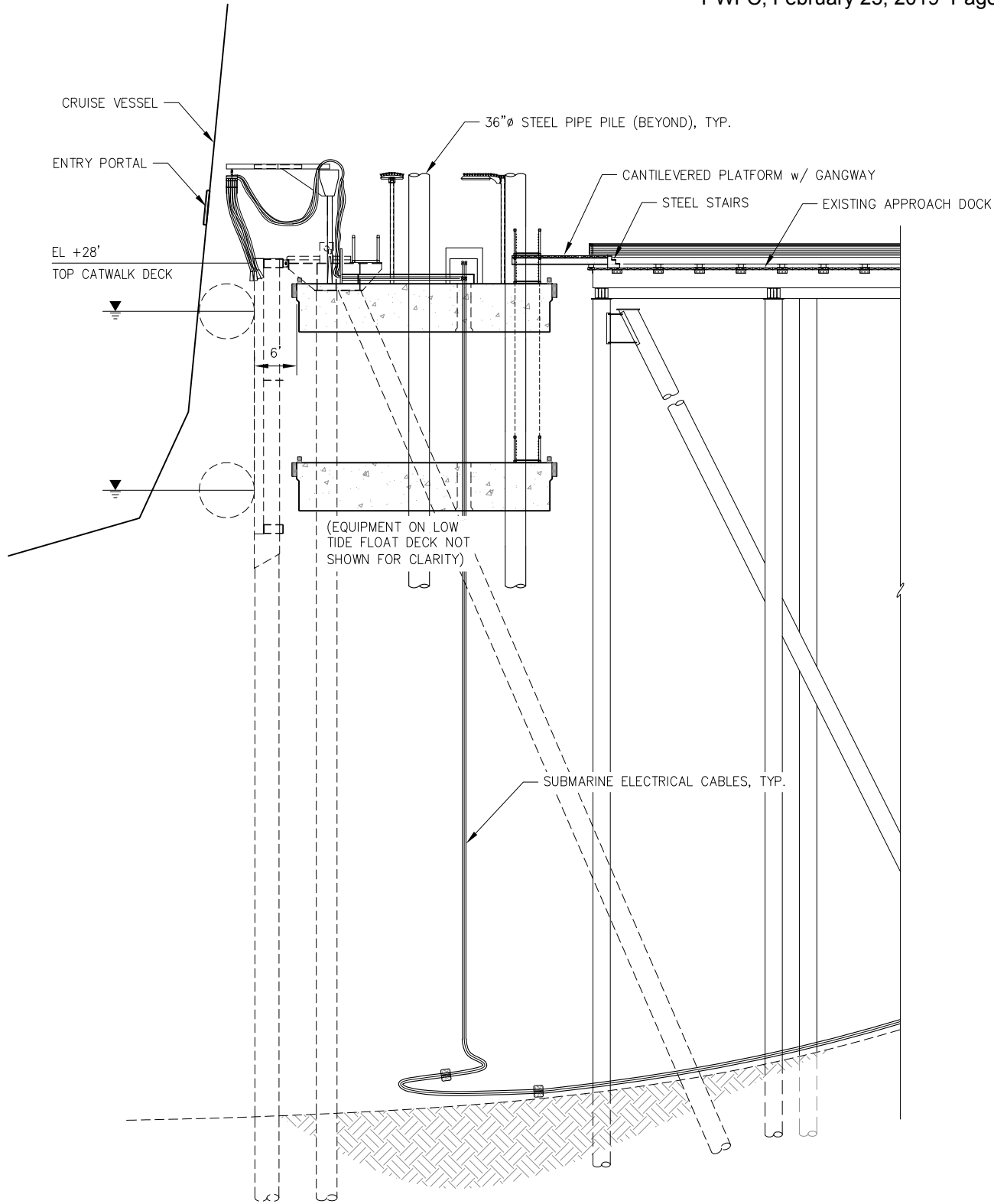
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PORT OF JUNEAU CRUISE SHIP BERTHS
SHORE TIE POWER STUDY
CONTRACT NO. XX-XXXX

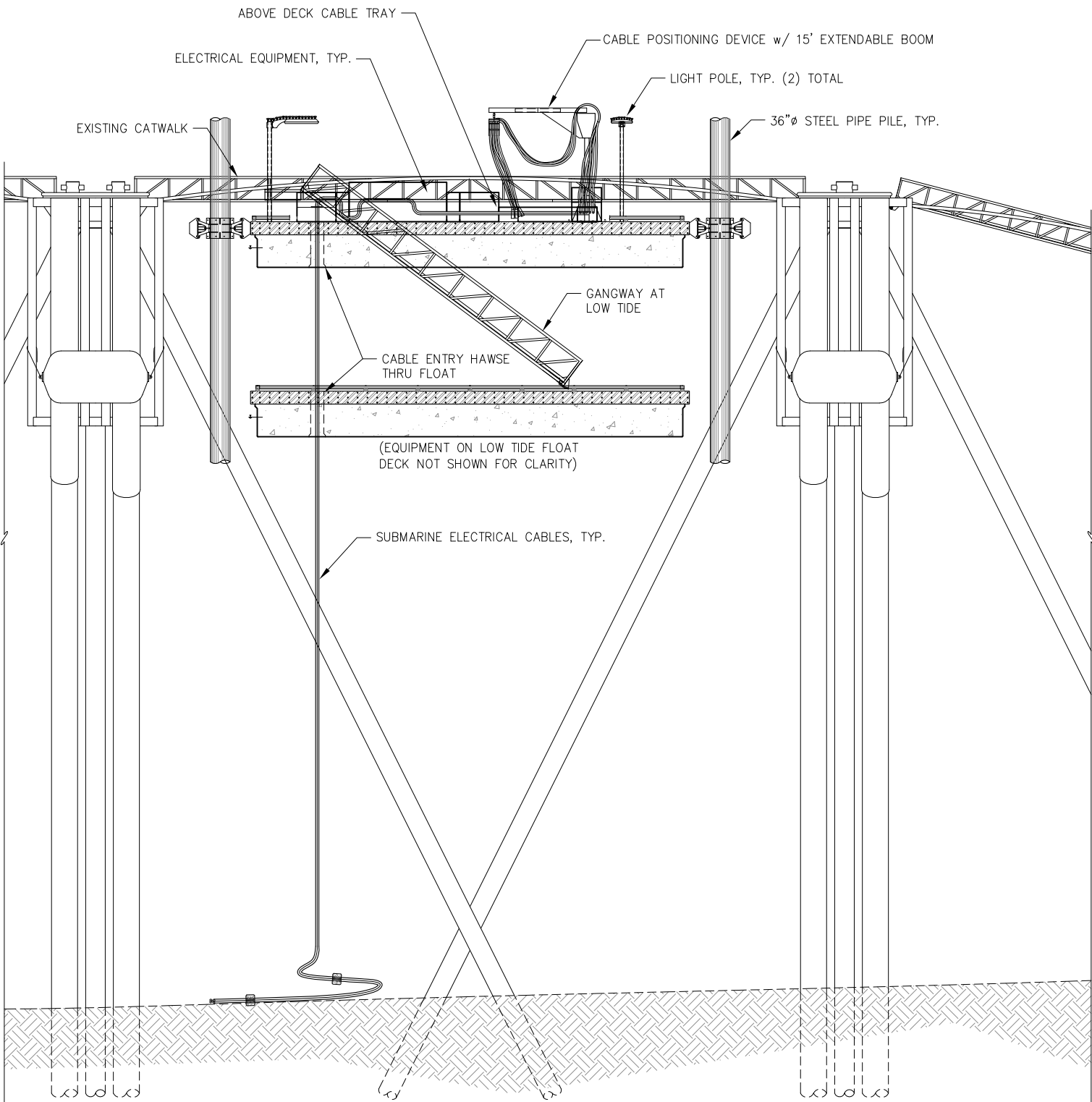
SHEET TITLE:
SHORE POWER SUPPORT FLOAT
PLAN AND ELEVATION

PND PROJECT NO.: 152054

3



1 TYPICAL SECTION



ELEVATION

CONCEPT



REVISIONS					
REV.	DATE	DESCRIPTION	DWN.	CKD.	APP.

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Fax: 907-586-2099
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DESIGN: BMI
DRAWN: WRB

CHECKED: JLD
APPROVED: CRS

SCALE:

DATE: 10/19/16

**PORT OF JUNEAU CRUISE SHIP BERTHS
SHORE TIE POWER STUDY
CONTRACT NO. XX-XXXX**

SHEET TITLE:
SITE ELEVATIONS

PND PROJECT NO.: 152054

4



(907) 586-0757
Jill.Maclean@juneau.org
www.juneau.org/CDD
155 S. Seward Street • Juneau, AK 99801

February 21, 2019

MEMO

From: Jill Maclean, AICP, Director *Jill Maclean*
Community Development Department

To: Michelle Hale, Chair
Public Works & Facilities Committee

RE: Mendenhall River – Bank Stabilization Application(s) Update

The purpose of this memo is to update the Public Works & Facilities Committee (PWFC) on recent easement applications submitted to the Alaska Department of Natural Resources (DNR), on which the CBJ was provided an opportunity to comment. These applications were submitted by property owners located along the Mendenhall River seeking to stabilize the riverbank.

Background

As you may be aware, under the terms of Juneau's participation in the National Flood Insurance Program, the CBJ is required to implement regulations and standards that ensure compliance with FEMA's requirements. In order to meet FEMA's requirements, the CBJ adopted language into Title 49 Chapter 70 Specified Area Provisions Article IV Flood Hazard Areas. Specific to the bank stabilization projects, section 49.70.400(f)(2) states:

Encroachments, including fill, new construction, substantial improvements, and other development, except subdivisions, within a floodway is prohibited unless an engineer licensed in the State of Alaska submits a hydrologic and hydraulic analyses to the director indicating that the encroachment would not result in any increase in flood levels during the occurrence of the base flood discharge. The hydrologic and hydraulic analyses shall be performed in accordance with standard engineering practice acceptable by the Federal Emergency Management Agency.

The Community Development Department (CDD) is charged with implementing Article IV under the terms of the borough's participation in the National Flood Insurance Program. If we do not enforce the floodplain ordinance, we are at risk of being put under probation or suspension by FEMA. Probation would result in notification to all property owners within the floodplain (not just those floodplains located along the Mendenhall River but all floodplains located throughout the borough) that we are out of compliance with the program, and there could be a \$50 per property increase in flood insurance

Public Works & Facilities Committee

February 21, 2019

Page 2 of 2

rates. Suspension would mean that CBJ could not receive federal disaster funds, homeowners could not get flood insurance, and federally-backed loans could not be issued for homes purchased or built within the floodplain.

Bank Stabilization Project Applications

There are at least six (6) bank stabilization projects currently undergoing review by DNR, and these projects also require permitting from the Army Corps of Engineers and Alaska Department of Fish and Game. The applications are for riverfront land owned either in part or in its entirety by DNR, and the applicants (adjacent property owners) may own a portion of the land along the meander line. At least two of these developments have very large amounts of fill and seem to be reclaiming property previously lost to erosion, while others seek to preserve existing banks. Below are CBJ's comments for these applications, as coordinated through CDD:

Thank you for the notice and for the opportunity to comment. The property owner is legally responsible for complying with CBJ's floodplain ordinance, CBJ 49.70.400. Code requirements include, but are not limited to, CBJ 49.70.400(f)(2) and (3) regarding encroachments within a floodway. These code sections may be found at the following link: <https://beta.juneau.org/law-department>.

Thus, we have made DNR aware that the responsibility of ensuring project compliance with FEMA regulations, which the CBJ is required by FEMA to enforce, is their responsibility as the landowner and/or issuer of the easements to be located on their lands. Subsequent to CBJ's comments, it is our understanding that DNR has notified the applicants (adjacent property owners) that the burden of compliance with FEMA regulations will be the applicants' should they wish to pursue their bank stabilization projects.



MEMORANDUM

TO: Mike Vigue
Engineering & Public Works Director

FROM: Greg Smith
Contract Administrator

Date: February 20, 2019,

SUBJECT: Contracts Division Activity
January 29, 2019, to February 19, 2019

Current Bids – Construction Projects >\$50,000

BE19-112	DT Street Improvements Phase 3A	3 bids received. Apparent low, Arete, \$550,763. In progress.
BE19-190	2019 Area Wide Paving	Estimate \$650,000. Bids due 3/7/19.
BE19-134	Columbia Blvd & Poplar Ave Reconstruction	Estimate \$2,047,000. Bids due 3/5/19.
DH -050	Cruise Ship Security Checkpoint	Bid postponed to accommodate summer cruise schedule. Bids due 6/12/19
BE19-165	Birch Lane Reconstruction	Estimate \$775,736. 5 bids received. Arete Construction low bidder, \$619,432. Award in progress.

Current RFP's – Services

RFP E19-198	Design for BRH Pharmacy Cleanroom Renovation	Proposals due 2/19/19. One proposal received.
RFP E19-168	Birch Lane CA&I	Proposals due 1/30/19. 2 Proposers. Under review.

MR E17-166 – Term Contract for Professional Services. This solicitation is open for a three-year period. Consultants continue to submit proposals. Contracts are in progress and underway.

Key for Abbreviations and Acronyms

A	Amendment to PA or Professional Services Contract
CA	Contract Administration
CO	Change Order to construction contract or RFQ
MR	Modification Request – for exceptions to competitive procurement procedures
NTE	Not-to-exceed
NTP	Notice to Proceed
PA	Project Agreement - to either term contracts or utility agreements
RFP	Request for Proposals, solicitation for professional services
RFQ	Request for Quotes (for construction projects <\$50,000)
RSA	Reimbursable Services Agreement
SA	Supplemental Agreement