Placid Planning

CE491/EM465
Capstone

Spring 2021

Mirror Lake
Waterfront Plan (PC:2021-007)

Table of Contents

Executive Summary

This document contains the final designs for the proposed changes in the redevelopment of the waterfront on Mirror Lake. Presented here is the project background as well as the various design options for the redevelopment of the dock, boat launch, retaining wall, fence and overall aesthetics of the site.

Project History and Background

Mirror Lake and the surrounding Adirondack area has long been used for recreation and as a way for the local and tourist communities to experience nature. Care has been taken to preserve the environment in this area through the actions of the Lake Placid/North Elba Development Commission and Comprehensive Plan. In the past, plans have been created to improve the land base amenities of Lake Placid's Peacock Park, yet the waterfront area was not considered. The Development Commission now aims to address the redevelopment plans of the waterfront area for public events, the replacement of the existing and deteriorating dock, a boat launch, and management of the lake's outlet and aquatic environment. The work to be done will expand upon the work done from the previous Peacock Park project. A major component of this project is to "promote environmentally friendly recreational activities" as stated in the Lake Placid/North Elba Comprehensive Plan as well as to "incorporate public art" as stated in the Arts Master Plan. The funding of this project will be provided by grants and local fundraising, so cost is a significant factor that must be considered.

Planning Process

There are a variety of factors to consider during the planning process of renovating and redesigning a lake and the surrounding areas. Placid Planning worked with the Lake Placid Community Development Commission to formulate and design the best options for Mirror Lake. The main objective of this project is to renovate and innovate various aspects of Mirror Lake to improve the experience for both residents and tourists. These changes will ultimately provide a great experience that is truly unique to Mirror Lake, while still maintaining the Adirondacks feel. One of the design factors was to create these improvements while being conscious of the environmental impacts, also while being compliant to COVID-19 guidelines. Placid Planning looks to minimize costs while maximizing quality in order to present designs that are economically feasible, environmentally friendly, and long lasting.

Owners Performance Requirements

The Lake Placid Community Development Commission ultimately wants to revitalize the shoreline of the southern end of Mirror Lake to connect visitors with the scenic landscape and highlight the natural beauty of Lake Placid. All construction should be kept to a minimum to preserve the natural beauty of the area, and should not obstruct the view of the lake and surrounding landscape. Additionally, any construction and design should maintain the cultural and historical aesthetic of the Adirondack region.

Key features required by the Development Commission include two boat launches, one near the park entrance on Mirror Lake Drive and one on the left side of the Toboggan slide. These boat launches should accommodate non-motor vessels and discourage visitors from degrading the shoreline outside the boat

launch areas. Another requirement is the construction of a retaining wall along the shoreline from the Beach House to the Toboggan Run. The retaining wall should prevent shoreline erosion but materials used should not be harmful to the aquatic ecosystem of the lake. Several requirements center around the beach. Access to the swimming area and beach should be closed off at the end of each day with fencing, however the fencing should be removable to accommodate for the Ironman Competition each year. Additionally, the dock in the swimming area needs to be evaluated for environmental degradation and potentially replaced. The foam from the existing dock has shown signs of breaking off into the lake and is a potential environment threat that needs to be assessed. A new dock design should be created in the case that the old dock needs to be removed, however the new dock should not obstruct any access to the swimming area.

In addition to the key features listed above, the Development Commission would like to include park features that both beautify the shoreline and allow for visitors to best experience the area. These features include benches, adirondack chairs, swings, landscaping, and art displays. The Development Commission is partnering with the Arts Council to connect visitors with the natural landscape and an appreciation for the arts.

The Development Commission will incrementally act on the improvements proposed by Placid Planning and therefore multiple concepts can be presented to give the Commission multiple options for future construction and development.

Consensus Master Plan

After conducting the first meeting with the Development Commission to clarify and understand the full scope of what is desired in this project, Placid Planning has pitched many different options per request with recommendations. With many different options available, the Development Commission will be able to pick and choose what to implement during their own timeline. Each design aspect has alternative options with the pros and cons outlined in the discussion of that section so the Development Commission will be able to make an informed decision on what route they choose to take.

Differences From Schematic Design Plan

Placid Planning has implemented various changes for the final schematic design plan.

For the proposed fence on the beach, Placid Planning has included various features to advance the stability and protection of the fence bodies and posts. These features include PVC piping implemented with all of the wooden posts in the wood and wire design, as well as safety caps for the t-posts and vinyl sleeves and caps for the wooden posts. These additional features will increase the aesthetics of the fence as well as provide additional measures to ensure the safety of the pedestrians on the beach.

A pollinator garden has been newly proposed in the final design package at the request of the client. This pollinator garden is proposed to be constructed on the north side of the toboggan chute. Suggested plants for the garden include milkweed, boneset, and nodding onion. Details with the dimensions of the garden and its stone bed wall are shown in Sheet C-14.

Final Design Plan Overview

The schematic design plan presented displays multiple design options for the different land base and waterfront amenities proposed in this document. These designs were created with the intent to increase the Adirondack aesthetic of the area with sustainable materials while also keeping costs low.

Site Analysis

Before any construction plans can develop, the site needs to be analyzed for a variety of different factors including water quality, wildlife, and buildings and roads. Historical impacts as well as municipal and geographical legalities must also be considered in a site analysis. Each of these factors will be discussed in further detail below.

Water Quality

Mirror lake is 50 ha in surface area with a maximum depth of 18m and has 9.5km of shoreline (Laxson). Each year, the Adirondack Watershed Institute conducts a water quality report of Mirror Lake that assesses a variety of criteria, including levels of ions and contaminants, aquatic life, pH, and oxygen levels. The 2019 water quality report displays levels of chloride and sodium that threaten aquatic life in the lake, which can be attributed to runoff containing road salt (2019). High levels of sodium and chloride have been reported in the lake since 2017. Mirror Lake is also classified as oligotrophic, meaning that there are low levels of nutrients, such as nitrogen and phosphorus, to support algae growth. The lake was also reported as having bottom water anoxia due to disrupted spring turnover from climate change (2019). Monitoring and minimizing nutrient levels, especially nitrogen and phosphorus, from coming into the lake will minimize algal blooms, and consequently anoxia. To maintain the oligotrophic status of the Mirror Lake and avoid eutrophication, nutrients such as phosphorus and nitrogen must be contained during all phases of construction to ensure that excess amounts don't persist in the water. Additionally, levels of chloride and sodium must be kept to a minimum during all construction activities.

The pH of the lake was measured as higher than in previous years due to acid deposition (2019). Considering this, all materials used in construction must be tested for acidity prior to entering the construction site.

On November 9th, 2020, an algal bloom consisting of cyanobacteria was reported on the south side of Mirror Lake near the public beach and park (Smith). Although no traces of toxins have been found, cyanobacteria can produce toxins, which produce adverse health effects in people, pets, and wildlife. The algal bloom was thought to be produced by the disrupted spring lake turnover. As a precaution, construction of the dock and boat launch should avoid this area and the lake should be monitored for traces of cyanobacteria prior to construction.

Wildlife

The common loon is found to inhabit Mirror Lake and it is designated as a species of special concern (List). Although it is categorized as a species of special concern, no other regulations from the APA, DEC, or New York State are set to protect the common loon on Mirror Lake. A precautionary measure

that benefits the loon is the ban of gas motor usage (New). The Village of Lake Placid Board should be contacted for any further protection of the iconic Adirondack species.

The following species of fish are found in Mirror Lake: rainbow trout, lake trout, smallmouth bass, yellow perch, brown bullhead, rock bass, and pumpkinseed (Mirror). Currently, none of those species fall under any category of protected species by the APA, DEC, or NY State. The most significant of these species to people trying to recreationally fish are Rainbow Trout and Lake Trout as Mirror Lake has very healthy populations due to them stocking the lake.

No other significant wildlife species is of special concern regarding construction on Mirror Lake. While this is true, any minimization of ecological and habitat alteration or destruction should be of the utmost concern.

There was an invasive species found to exist in Mirror Lake in 2018. The 2018 Water Quality report conducted and transcribed by the Adirondack Watershed Institute found the Gastropod Banded Mystery Snail in Mirror Lake (2019). There was limited data to document it, but it was determined the snail was in high concentrations near the southwestern shore of Mirror Lake.

Buildings and Roads

Property surrounding Mirror Lake consists of lakefront houses. These are both seasonal and year round homes. It is also bordered by commercial and town buildings. There are a variety of restaurants, department stores, and hotels on the western edge of Mirror Lake.

The lake is surrounded by driveways and parking lots. Main Street is host to the commercial buildings and intersects with Route 86.

Due to the amount of nearby roads there is an excess of salt getting into the water from road salt that is used to help make roads less icy. The runoff makes the water saltier than normal and is something that people should be aware of as the lake is not meant to have a high level of salinity. If salinity levels continue to rise over time we could see adverse effects on the types of wildlife that can be seen and their population levels as well due to the high chloride levels found in Mirror Lake.

Legalities

To begin construction of the dock and boat launch, a building permit must be acquired from the Village of Lake Placid Code Enforcement Officer (Village).

Falling in the Adirondack Park boundary, any activity on or around Mirror Lake must follow the Adirondack Park Agency zoning rules and regulations. According to the Adirondack Park Agency's zoning map (Adirondack), Mirror Lake falls under the zoning classification of a hamlet. Therefore, all zoning and building regulations must follow the regulations outlined in the specification for hamlets in the Adirondack Park Agency Land Use guide (APA).

Additionally, the Adirondack Park Agency does not permit the use of gas motors on Mirror Lake, however electric motors, along with man-powered vessels (canoes, kayaks, paddleboards etc) are allowed.

Historical Considerations

Lake Placid is a historical town with much history and culture that needs to be preserved and upheld. Lake Placid has a Historical Preservation Committee whose purpose is to protect, enhance, preserve landmarks and historic districts to promote economic, cultural, educational, and general welfare of the public. Our team will comply with the committee to ensure that the new dock and boat launch fulfill the committee's vision of any project on and around Mirror Lake (*Village of Lake Placid*).

Existing Features

Mirror Lake has a multitude of existing features that help provide a range of both winter activities and summer activities. The largest structure is the toboggan chute on the southwest side of the lake that will be right next to one of our proposed NMB launch locations. Another important feature is the swimming area where an improved dock is necessary. Along the southern tip there's a host of structures including a changing facility, a playground, tennis courts, and a trail that connects everything, all of which need no changes. There's also a retaining wall on the southern shore that needs to be expanded upon and improved. On the north side of the lake there's a kayak launch.

Survey

Placid Planning has conducted extensive research into existing ALTA/ACSM land surveys that have been registered and recorded with the local municipalities, highlighting the properties, public right-of-ways, and land uses of the property of interest and those abutting. Through the use of public geospatial data and LiDAR elevation mapping, the Existing Conditions plan was developed (Sheet C-02) that combines the existing property boundaries, features, topography, aerials, approximate utilities, and demolitions areas. Notable existing features are called out as "To Be Removed" or "To Remain".

Vegetation

The vegetation levels of Mirror Lake are not anything out of the ordinary but there are certain invasive species that have been found that if not properly addressed can start to overtake native vegetation and the ecosystem that relies on those plants would therefore also suffer. There have also been algae blooms that have to be kept in check as well.

There have been at least 5 different invasive species observed in the Mirror Lake ecosystem since 2017, those being the Yellow Iris, Purple Loosestrife, Spiny Waterflea, Eurasian Milfoil, and Curly-Leafed Pondweed. It's recommended to continue monitoring what invasive species are identified as well as all current levels of vegetation to ensure that everything is kept in proper check to maintain a healthy ecosystem.

Due to a few non-native species being present there's a few potential actions that can be taken beyond vegetation monitoring to help remove or at least reduce the amount of vegetation. There's currently a plan in place to educate locals so they can help to identify and subsequently remove the invasive species such as Purple Loosestrife and the Eurasian Milfoil and it is recommended to do that with the other invasive species found as well. A few other potential options that should be considered are mechanical harvesting

and using chemicals to control the plant levels in certain areas to help ensure vegetation levels are kept in a healthy zone.

Water Levels

The maximum depth of Mirror Lake is around 65 feet with an average depth of 14 feet. Water levels have remained fairly consistent throughout the previous years, but if water levels were to rise dramatically there could be an issue with erosion along the shoreline especially where structures are located.

Waterways and Wetlands

The Mirror Lake Watershed extends for approximately 741 acres of which the lake takes up approximately 128 acres. The watershed is 27% developed land, 51% forested, 2% wetlands, and 20% surface water. The lake itself runs about a mile in length with a 2.4 mile long shoreline. It has a maximum depth of 65 ft and an average depth of 14 feet and is 25 ft across at its widest in the middle. There is also an outlet on the Southern tip of the lake in between the swimming dock and the tennis courts. There isn't much wetlands area but because of the extra protections and precautions that are taken with wetlands areas, the location of the wetlands has to be kept in mind when deciding where to build certain structures.

Wind

There's been an average wind speed of 7.2 mph since 2010 with the highest recorded wind speed being 28.9 mph. The wind speed this year has been an average of 6.8 mph which is concurrent with the average wind speed since 2010.

Snow and Ice Build Up

The Adirondack region experiences a large amount of snow and ice throughout the winter months compared to the rest of the state and country. The following figure shows the average snowfall between Essex County and other locations in the United States using data from the American Community Survey from 2010 to 2014. (New York)

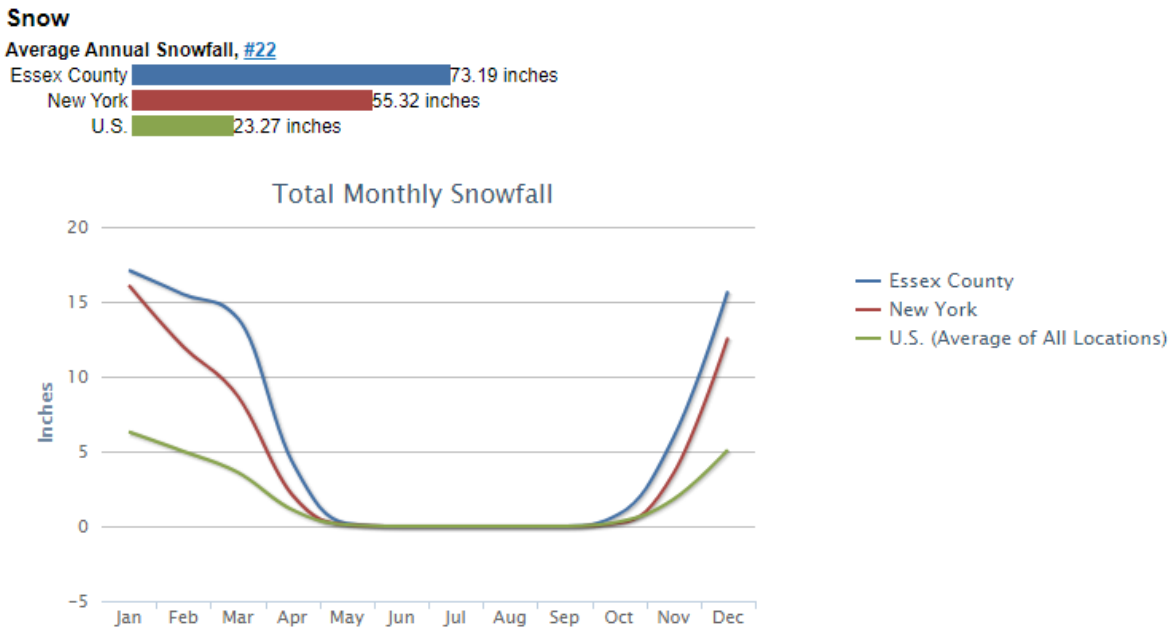

Figure 1: Average Annual Snowfall (in) in Essex County, New York and U.S.

When comparing total monthly snowfall between Essex County and other locations across the country, Essex County receives up to 17 inches of snowfall on average in January, almost 10 inches higher compared to the rest of the U.S. locations averaged together (Figure 1). This is an important factor to consider when designing the structures in the Mirror Lake region.

Final Design Plan

The following sections detail the designed plan regarding Mirror Lake.

Existing Trail Connection

The existing trail that goes around Mirror Lake is important to keep in mind when designing structures to help with ease of access to them.

Boat Launch

The boat launches are a crucial part of the Mirror Lake Waterfront and the need for more capacity is imminent so two designs and locations are detailed below. The intention of the designs are to help with overall capacity for a Non-Motor Boat launch on the South side of the lake and to satisfy ADA requirements as well as to add some artistic value.

The ADA-accessible boat launch will be located on the Southern tip of the lake just east of the tennis courts. The boat launch is dimensioned at 30.3 ft long with a depth of 2.8 ft to have a grade at 7.75% which is just under the 8% required slope by the ADA to be deemed safe. It is also 15 ft wide to ensure enough space for users and has a 7ft path that connects to the original trail system for easy access. The

boat launch location was chosen based on the elevation and grading that exists naturally at Mirror Lake, providing for an ADA accessible grade without the need for major slope and grading redesign (natural slope at chosen location is the only adequate location for ADA compliance) and due to the locations of existing structures (Sheet C-04). Landscaping options around the proposed ADA-accessible Non-Motor Boat launch enhance the natural beauty and appeal of the launch and park. Sheet C-05 identifies the proposed plantings and design of the landscaped area.

The Non-ADA compliant boat launch will be located on the Southern side of the Toboggan Chute. The dimensions are 20ft long by 10 ft wide and a 4ft depth with a 5ft landing and the slope on both ends has about 10-15% grade slope and landings, with tiered landscape-riser step system to the lake (. The launch is again connected to the existing trail system for easy access albeit by a longer path than the ADA-accessible boat launch. The location could also be moved to the other side of the Toboggan Chute as to provide more space between the people launching boats and the swimmers by the swimming dock, but more research and survey work needs to be completed due to the possibility of existing underground utilities in the area (see Sheet C-02 for approximate utility information).

The materials and design for the boat launches were chosen to help keep costs low while providing a quality boat launch that looked aesthetically pleasing and keeping in mind the environmental impacts each has. For example using the crushed gravel in the design is to help prevent erosion and to provide a nice aesthetic. Erosion is one of the biggest problems structures can have over time and using raw materials that help prevent the issue will ultimately help to provide stability for continuous and long lasting use.

BOM: Non-ADA NMB Ramp				
Site Work	Quantity	Unit	Unit Price	Total Price
Mobilization (~5% of Total)	1	LS	-	$100.00
Excavation (10' x 3' x 30')	25	CY	$32.00	$800.00
Crushed Stone	6	CY	$40.00	$240.00
Landscape Timber	20	EA	$15.00	$300.00
Silt Fencing/Drainage Protection	30	LF	$6.00	$180.00
			Total Cost	**$1,620.00**

Figure 2 : BOM and Total Material Cost for Non-ADA approved Boat Launch and Ramp

BOM: ADA-Accessible NMB Ramp				
Site Work	Quatity	Unit	Unit Price	Total Price
Mobilization (~5% of Total)	1	LS	-	$100.00
Excavation (Max. 8% Slope)	30	CY	$32.00	$960.00
Crushed Stone	12	CY	$40.00	$480.00
Landscape Timber	30	EA	$15.00	$450.00
Silt Fencing/Drainage Protection	30	LF	$6.00	$180.00
			Total Cost	**$2,080.00**

Figure 3 : BOM and Total Material Cost for ADA-Accessible Boat Launch and Ramp

Dock

There are two concepts for the dock, one where the decking and railing are salvaged from the original dock. The foam underneath would be safely removed thus only requiring new framing and flotation devices. The other idea replaces the dock completely including the decking and the railing on the dock with the same design as before. As shown in the project proposal in Dock Design 2, the dock would be three, ten foot sections of floating dock to be more environmentally friendly, and includes multiple options for different types of decking. As far as salvaging the already existing materials from the current dock, we assume that the framing and anything underneath the decking will need to be replaced considering the foam degradation and erosion.

The biggest concern with salvaging the existing dock is removing the foam safely from underneath and being able to determine which boards are usable and which ones are not. The price of a new dock would be determined based upon the type of decking chosen, and the price may vary depending on if the client would like to keep the railing, keep the decking, or whatever route they decide to choose as far as what they would like new, and what would they like replaced.

BOM: Decking			
Material	Quantity	Price Per Unit	Total Cost
Pool Ladder	1	$250	$250
Boat Cleats	3	$1.50	$4.50
Framing	-	-	$695.52
Floating Devices	-	-	$738.72
Ground Stakes 8'	2	$55.95	$111.90
Ground Stakes 6'	2	$47.95	$95.90
Ground Stakes 12'	2	$84.95	$169.90
Plastic Boat Temp Dock	1		
Railing	-	-	$113.10
Decking Screws	1	$206.72	$206.72
6" Hex Nuts and Bolts	50	$5.44	$272.00
Total Cost Based on Decking Choice			
Thruflow Decking	-	-	**$ 4,199.32**
Pressure Treated Pine Decking	-	-	**$ 3,307.35**
Trex Decking	-	-	**$ 3,841.95**

Figure 4 : BOM for Dock

Figure 4 shows the cost estimates based on building a new dock completely with all new materials. Costs can be subtracted depending on client preference.

Fencing

To meet the requests of the clients, Placid Planning has proposed a new design for the Mirror Lake beach fence.

This design has the new fence stretching from the end of the outlet on Mirror Lake to the outside edge of the boat dock. Near the outlet of the lake and in front of the beach house, gates will be installed to control the flow of pedestrians in and out of the beach area. An expandable, 4’ x 4’ accordion safety gate will be placed between two, 4” x 4” x 8’ wooden posts. These posts will be placed 4’ into the ground, inside a 5” PVC pipe. Sheet C-12 displays a plastic fencing option, as well as the final fencing option Placid Planning settled on.

The final proposed fence design consists of a more permanent placement. This option consists of a 4’ tall, wooden slat fence connected with 14 gauge twisted wire strands. Permanent pressure treated posts will be installed between the wooden fence panels. These posts will also be placed 8’ apart, and set 4’ into the ground. These posts will be installed inside a 5” PVC pipe , the same as the piping used for the gate system. Vinyl sleeves and caps will be placed on all wooden posts in this fence system. The resultant bill of materials for this design option was created (Figure 5).

BOM: Wood and Wire Fence				
Material	Unit Price	Quantity	Total Price	Supplier Contact Info:
Wood Posts	$15.57	42	$653.94	HomeDepot
W&W Fencing	$75.85	6	$455.10	Tiger Supplies
Gate Materials	$330.00	2	$660.00	Uline.com
PVC Piping 5''	$7.44	42	$312.48	FlexPVC.com
Fence Post Sleeves	$17.16	42	$720.72	Lowes
Fence Post Caps	$1.12	42	$47.04	pennfence.com
			Total Cost:	**$3,077.22**

Figure 5 : BOM for the Wood and Wire Fence

The entire proposed design of the beach fence on Mirror Lake consists of parts and materials that make the installation and removal process of the fence simple and convenient. This is an important aspect of this fence design, as the fence will need to be removed during the winter months and installed during the summer months for the safety of the pedestrians on the beach. The fence will also have to be configured to support the athletes in the Lake Placid Ironman transitioning from the waterfront to Parkside Drive.

Retaining Wall

The existing retaining walls along Mirror Lakes shores are in need of repair to help limit the amount of shore erosion which is occurring.

There are two existing retaining walls, one of which spans along the north edge of the lake. It starts at the toboggan chute and goes approximately 218 feet towards the beach. The other retaining wall is located on the south edge. There is existing material here, although there will be no removal of it, and instead additions will be made for total coverage of the shore line. This shore line ranges approximately 274 feet from the outlet, next to the beach, to Mirror Lake drive. The siting for the retaining wall can be viewed on the Site Plan Sheet C-03.

The proposed modifications can be implemented after approval for the permit to install riprap has been granted by the Department of Environmental Conservation. The modifications in consideration are to reinforce the riprap on the southern wall, and implement riprap at the base of the northern wall. This will occur with non-grouted riprap. Based on research, the suggested dimensions of the riprap are a width of 5 ft and depth of 12 inches. The dimensions will also consider the steepness of the slopes for both retention walls and will help determine the thickness of riprap installed. The client would also like there to be an underlayment fabric below the riprap to help prevent further soil erosion. The installation of the fabric at the base layer will also prevent weeds from growing through. The riprap will cover the fabric so it is not plainly visible.

Within the limits of the north wall, a break needs to occur to accommodate for pipes entering into the water. It has been determined there will be a break in the riprap to leave the area surrounding the pipes unfilled.

The reinforcement of the existing retaining walls are to improve the aesthetics along the beach, as well as help to prevent more shore erosion, while still abiding by DEC regulations.

Rentention Wall Cost Estimate					
Non-Grouted (North)			**Non-Grouted (South)**		
Per sq yard					
$35-$50			*Per sq yard*		
	$376.95	Low	$35-$50	$479.85	Low
	$538.50	High		$685.50	High
Installation per hour (Not included)			*Installation per hour (Not included)*		
$45-$75			$45-$75		
Length * Width * Depth (ft)			Length * Width * Depth (ft)		
191 * 5 * 1 = 35.37 cubic yds (10.77 sq yard)			274 * 5 * 1 = 50.74 cubic yds (13.71 sq yard)		
		Total: $377-$539			**Total: $480-$686**

Figure 6 : BOM of the Retaining Walls

Park Aesthetics

A key part of the design process on the Mirror Lake shoreline is creating an aesthetically pleasing environment with amenities available for visitors to enjoy. The first proposed idea is placing bench swings and chairs in the area between the Toboggan Run and the beach. By placing bench swings and chairs in this area it will allow for people to gather and relax the view of the lake, while not being at the beach.

For the Adirondacks chairs it is important to note that we will not be using a wooden chair as that is not as resistant to the weather compared to a polystyrene material that this chair has. Other benefits of this choice include: reduced splintering, rot-resistance, paint chipping, stains, cracks, chips, and rust. These factors make this chair incredibly weather resistant and the perfect choice as an outdoor chair (see chair details Sheet C-13). Additionally, Adirondack chairs fit the aesthetic of the region. Adirondack chairs will also be used in the fire pit design below.

For the bench swings (Sheet C-09) we chose a similar material that is extremely durable and resistant to the weather wear and tear. For this swing a polywood material was chosen; polywood is made from HDPE, short for high density polyethylene. The company that was selected for this product recycles the material from old milk jugs, detergent containers, bottle caps, etc. This material also includes UV-inhibited pigment systems to preserve the pigment. Both the materials chosen for the chairs and the swings have an easy clean up process of just soap and water when needed.

Next, there are two proposed ideas of recreational activities for the extra space. One is a Gaga ball pit, this is a ball pit that is shaped like an octagon (Sheet C-11). This ball pit will allow for games to take place inside and the rules are very simple and easy to learn. Having a Gaga ball pit will attract people to the area for this recreational activity. The pit can be easily set up and broken down by using pins that secure hinges on the wood panels. The materials are all readily available at Walmart and Lowes, boards would need to be sawed from 8 x 6 feet to 8 x 3 feet.

Park Aesthetics Cost Estimate

BOM: Bench Swings

Material	Dimensions	Quantity	Cost Per Unit	Total Cost	Supplier
Bench	-	1	$176.00	$190.08	Home Depot
Footers	To our Drawing	2	$200.00	$432.00	Home Depot
Roofing Shingles	Covers 33 sq ft	2	$32.00	$69.12	Home Depot
Roof Slabs	2 x10 x 12	4	$31.98	$138.15	Home Depot
Beam	2" x 12" x 12'	2	$37.61	$81.24	Home Depot
Support Columns	2" x 6" x 8'	2	$12.17	$26.29	Home Depot
Roof Support	2' x 3' x 8'	3	$4.75	$15.39	Home Depot
			Total Cost:	**$952.27**	

BOM: Fire Pit

Material	Dimensions	Quantity/Dimensions	Unit Cost	Total Cost	Supplier
Crushed Stone Area	3 cubic yards	-	-	$298	Home Depot
Stone Fire Pit Wall	-	1	$300.00	$300.00	Home Depot
Adirondack Chairs	-	8	$239.00	$2,064.96	Home Depot
Landscape Fabric	3 cubic yards	1 roll	$64.00	$64.00	Home Depot
Portland Cement Foundation	3 cubic yards	180 bags (60 lb)	$6	$1,080	Home Depot
#4 Rebar	2x2 pieces	4	$3	$12	Home Depot
			Total Cost:	**$3,819**	

BOM: Gagaball pit

Material	Unit price	Quantity	Total price	Supplier
Ball	$4.88	1	$4.88	Walmart
Boards	$10.57	4	$42.28	Lowes
Hinge kit	$3.27	8	$26.16	Lowes
			Total Cost:	**$73.32**

Total Park Aesthetic BOM

Material	Cost	
Fire Pit	$3,819.00	
Gaga pit	$73.32	
Art Kiosk	$3,400.00	TimberHomes
Bench Swings	$7,292.32	
Total:	**$14,585.00**	

Figure 7 : BOM for Park Aesthetics

The following idea is a fire pit. A fire pit is always an attraction at every park and lake. By having a fire pit it will allow people to gather in outdoor settings to cook, spend quality time with one another, and enjoy the beautiful view of Mirror Lake. The area will have crushed stone around it with a stone firewall and chairs seated around it (Sheet C-13).

These features will ensure that the beauty of the area will be maintained and enhance the visitors overall experience.

Arts Alliance

The Development Commission Committee is now partnering with the Lake Placid Arts Alliance Committee whose goal is to promote art and arts experiences in creative ways. Placid Planning is working with them to integrate these goals into the area of Mirror Lake. Currently, Placid Planning proposes a kiosk that will display local artists and have information about arts related events. This kiosk will be placed distanced from the current kiosk that has information about the water of Mirror Lake to disperse any kind of crowds that could occur. Placid Planning looks to work closely with this committee to finalize more ideas about how to best integrate arts into the area.

Figure 8: Example of kiosk for displaying art

Signage

Signage is an important part of a park and maintaining a clean and healthy ecosystem. To help combat some of the issues faced by Mirror Lake signage can be used to educate people on how to better help. For example signage can be used to describe and show a photo of an invasive plant that if people know how to spot can better stop the spread of it and help keep a healthy ecosystem. Another example is to put signs up making the public aware of the dangers of over-salting roads and how affected Mirror Lake and the wildlife is by it, especially the fishery.

Stormwater Management

Stormwater is one of the main threats to Mirror Lake as it has the potential to bring with it road salt, invasive plants and animals, and could cause low dissolved oxygen levels at the bottom of the lake. Additionally, runoff from construction materials can increase the turbidity of the water, decreasing the amount of light that is able to reach lower depths of the lake. Nutrient levels, particularly nitrogen and phosphorus, could also increase if the surrounding area is using fertilizers and nutrient-containing

construction materials. Increased nutrient levels could lead to algal blooms and decreased oxygen levels. Interestingly, stormwater runoff affects the bottom of the lake the most as the salt and dissolved oxygen levels down there are directly impacted by it. As a result of the road salt runoff the salinity levels increase dramatically and is one of the reasons that Mirror Lake was found to have higher salt levels than 97% of the other Adirondack lakes surveyed and has also been found to have salt laden water at the bottom of the lake as a direct result of the stormwater runoff. Low dissolved oxygen levels can decimate a healthy cold-water fishery like Mirror Lake is known for with its successful Lake Trout and Rainbow Trout stocks.

Mirror Lake Events and Attractions

Mirror Lake is known for recreational activities in both the summer and winter seasons and also helps host the Lake Placid IRONMAN competition. In the winter months there's a lot of activities possible from the Toboggan Chute to ice skating and even dog sledding across the lake. While in the summer months there's plenty of other activities such as fishing, taking a walk or jog, and swimming. The fishery at Mirror Lake is very healthy and is known for great rainbow trout fishing as well as some large lake trout deep at the bottom of the lake. Since the IRONMAN swim portion of the competition is held at Mirror Lake there's swimlanes set up throughout the summer for competitors to practice.

ADA Compliance

Placid Planning is focused on designing and creating amenities for both Lake Placid's Peacock Park and Mirror Lake's waterfront that are innovative and accessible to all. This was considered in the design of the non-motorized boat (NMB) launch addition for the beach. As shown in schematic Sheet C-04, one proposed design option for the NMB launch is a landside ADA-accessible ramp that stretches from the existing trail system to the waterfront. This ramp would be set at approximately 7.75% grade to comply with the current ADA accessibility standards. Placid Planning is committed to improving accessibility near the waterfront when developing and improving these amenities.

Project Cost Estimate

The individual material costs for the various design options of the waterfront amenities can be seen in the appendix. The individual material costs for the boat launch, dock, fencing and retaining wall were all considered in the estimate of the project cost.

Life Cycle Cost Versus First Cost Analysis

The initial cost will be the majority of the cost involved with this project. There will however be annual costs such as maintenance, wildlife monitoring, and water quality monitoring. The overall annual cost will fluctuate depending on the variability of wildlife and weathering effects on structures but shouldn't ever rise to an exorbitant amount. There will also be a large cost once the life cycle of the structures are completed and need to be replaced decades down the line.

Construction Schedule

The Lake Placid Community Development Commission has stated their intent to implement the proposed design over time. Therefore, individual construction schedules have been created for each aspect of the final design. These construction timelines can be seen in the appendix.

Risk Analysis Matrix

Placid Planning's current risk analysis outlines the main risks associated with the project at this point in time. Current risks in the project include approving decisions for the various design options in a timely manner.

Construction of any structure around the shoreline of Mirror Lake poses a risk to the water quality. Any construction debris that is not handled properly could end up as runoff in the lake. Depending on the composition of the construction materials, runoff could have adverse impacts on the water quality such as increased turbidity, increased nutrient levels, increased salinity, and lower oxygen levels. These changes to the water quality could lead to eutrophication and mortality of aquatic life.

These risks could potentially delay project deliverables and incur more costs. The risk analysis matrix can be found in the appendix.

Envision Scorecard

Envision is a sustainability rating system and best practice resource that uses a scorecard to evaluate how well sustainability practices are being incorporated into the design and construction of infrastructure projects (Envision). The scorecard considers the entire lifecycle of a project, starting with design and construction and ending with the maintenance and demolition. Using the Envision scorecard, the Mirror Lake Waterfront plan project category ratings (from highest to lowest) were found to be: quality of life, leadership, natural world, resource allocation, and emissions. See Appendix for the project's completed Envision scorecard and rating.

Site Utility Routing Diagram

All existing utilities and utility connections are to be protected and preserved throughout the project stakeout, construction, and inspection processes. The scope of this project does not propose to impact any of the utility lines or establish any new connections. Approximate locations of existing utility features can be seen in the Existing Conditions Plan, Sheet C-02.

Regulations and Permitting

State permitting

State permitting will be required for the retaining wall from the Department of Environmental Conservation (DEC). This is to protect the shoreline against vegetation and habitat degradation. The

implementation of improper retaining wall material can destroy natural vegetation and reduce habitat area for shoreline species. Retaining walls also impact the rate of erosion. Mirror Lake is looking to reduce the amount of erosion via the retaining wall, but if the wall is constructed incorrectly then it could cause an increase in erosion (Shoreline).

With regards to fire permits for the proposed fire permit, NY State and the DEC do not require specific permits. According to APA specifications, fires are allowed in the Hamlet of Lake Placid. The Village of Lake Placid can choose how they would like to regulate the use of the fire pit.

No additional permits need to be obtained for the new dock and boat launch since they are existing structures. The original State permits can be used for these improvements.

APA Permitting

Falling in the Adirondack Park boundary, any activity on or around Mirror Lake must follow the Adirondack Park Agency zoning rules and regulations. According to the Adirondack Park Agency's zoning map (*Adirondack),* Mirror Lake falls under the zoning classification of a hamlet. Therefore, all zoning and building regulations must follow the regulations outlined in the specification for hamlets in the Adirondack Park Agency Land Use guide(*APA)*.

City permitting

To begin construction of the dock and boat launch, a building permit must be acquired from the Village of Lake Placid Code Enforcement Officer (Village).

Design Specifications

Any design proposals are to be submitted and reviewed by the Lake Placid Community Development Commission.

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Appendices

Cost Analysis

Bill of Materials Breakdown					
Rentention Wall Cost Estimate					
Non-Grouted (North)			Non-Grouted (South)		
Per sq yard					
$35-$50			*Per sq yard*		
	$376.95	Low	$35-$50	$479.85	Low
	$538.50	High		$685.50	High
Installation per hour (Not included)			*Installation per hour (Not included)*		
$45-$75			$45-$75		
Length * Width * Depth (ft)			Length * Width * Depth (ft)		
191 * 5 * 1 = 35.37 cubic yds (10.77 sq yard)			274 * 5 * 1 = 50.74 cubic yds (13.71 sq yard)		
		Total: $377-$539			Total: $480-$686
Grouted (North)			Grouted (South)		
Per sq yard			*Per sq yard*		
$45-$60	$484.65	Low	$45-$60	$616.95	Low
	$646.20	High		$822.60	High
Installation per hour (Not included)			*Installation per hour (Not included)*		
$45-$75			$45-$75		
Length * Width * Depth (ft)			Length * Width * Depth (ft)		
191 * 5 * 1 =35.37 cubic yds (10.77sq yard)			274 * 5 * 1 = 50.74 cubic yds (13.71 sq yard)		
		Total: $485-$646			Total: $617-$823

Park Aesthetics Cost Estimate

BOM: Bench Swings

Material	Dimensions	Quantity	Cost Per Unit	Total Cost	Supplier
Bench	-	1	$176.00	$190.08	Home Depot
Footers	To our Drawing	2	$200.00	$432.00	Home Depot
Roofing Shingles	Covers 33 sq ft	2	$32.00	$69.12	Home Depot
Roof Slabs	2 x10 x 12	4	$31.98	$138.15	Home Depot
Beam	2" x 12" x 12'	2	$37.61	$81.24	Home Depot
Support Columns	2" x 6" x 8'	2	$12.17	$26.29	Home Depot
Roof Support	2' x 3' x 8'	3	$4.75	$15.39	Home Depot
			Total Cost:	**$952.27**	

BOM: Fire Pit

Material	Dimensions	Quantity/Dimensions	Unit Cost	Total Cost	Supplier
Crushed Stone Area	3 cubic yards	-	-	$298	Home Depot
Stone Fire Pit Wall	-	1	$300.00	$300.00	Home Depot
Adirondack Chairs	-	8	$239.00	$2,064.96	Home Depot
Landscape Fabric	3 cubic yards	1 roll	$64.00	$64.00	Home Depot
Portland Cement Foundation	3 cubic yards	180 bags (60 lb)	$6	$1,080	Home Depot
#4 Rebar	2x2 pieces	4	$3	$12	Home Depot
			Total Cost:	**$3,819**	

BOM: Gagaball pit

Material	Unit price	Quantity	Total price	Supplier
Ball	$4.88	1	$4.88	Walmart
Boards	$10.57	4	$42.28	Lowes
Hinge kit	$3.27	8	$26.16	Lowes
			Total Cost:	**$73.32**

Total Park Aesthetic BOM

Material	Cost	
Fire Pit	$3,819.00	
Gaga pit	$73.32	
Art Kiosk	$3,400.00	TimberHomes
Bench Swings	$7,292.32	
Total:	**$14,585.00**	

Fencing Cost Estimates

BOM: Plastic Fence

Material	Unit Price	Quantity	Total Price	Supplier Contact Info:
Wood Posts	$15.57	4	$62.28	HomeDepot
Studded T-Posts	$4.29	38	$163.02	Tractor Supply
Plastic Fencing	$50.00	3	$150.00	Uline.com
Gate Materials	$330.00	2	$660.00	Uline.com
PVC Piping 5''	$7.44	4	$29.76	FlexPVC.com
Fence Post Sleeves	$17.16	4	$68.64	pennfence.com
Fence Post Caps	$1.12	4	$4.48	pennfence.com
T-Posts Safety Cap	$0.44	38	$16.72	premier1supplies
			Total Cost:	**$1,247.29**

BOM: Wood and Wire Fence

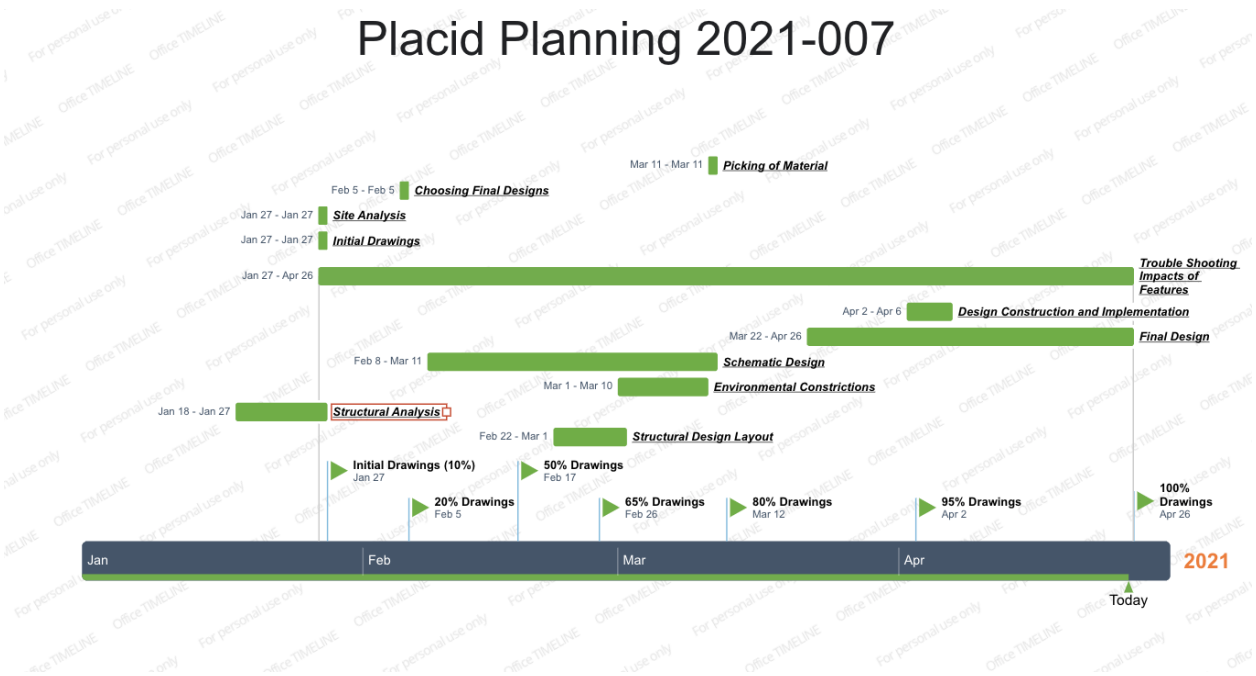
Material	Unit Price	Quantity	Total Price	Supplier Contact Info:
Wood Posts	$15.57	42	$653.94	HomeDepot
W&W Fencing	$75.85	6	$455.10	Tiger Supplies
Gate Materials	$330.00	2	$660.00	Uline.com
PVC Piping 5''	$7.44	42	$312.48	FlexPVC.com
Fence Post Sleeves	$17.16	42	$720.72	pennfence.com
Fence Post Caps	$1.12	42	$47.04	pennfence.com
			Total Cost:	**$3,077.22**

Dock Cost Estimates							
Cost Breakdown for Decking							
Assume 5 ft width*		Footage Per Design			Total Cost per Design		
Material	Cost per unit	Design 1	Design 2	Design 3	Design 1	Design 2	Design 3
ThruFlow Aluminum	$41.00	$50.00	$30.00	70	**$2,050.00**	**$1,230.00**	**$2,870.00**
Pressure Treated Pine	$13.47	$50.00	$30.00	70	**$673.50**	**$404.10**	**$942.90**
Trex Recycled Material	$29.97	$50.00	$30.00	70	**$1,498.50**	**$899.10**	**$2,097.90**
Cost Breakdown for Framing							
2" x 10" x 10'	Board Quantity	Price	**Total Cost**				
Design 1	40	$28.98	**$1,159.20**				
Design 2	24	$28.98	**$695.52**				
Design 3	56	$28.98	**$1,622.88**				
Cost Breakdown for Floating Devices							
24" x 36" x 12"	Float Quantity	Cost per Float	**Total Cost**				
Design 1	20	$57.00	**$1,231.20**				
Design 2	12	$57.00	**$738.72**				
Design 3	28	$57.00	**$1,723.68**				
Cost Breakdown for railing							
		Quantity	Cost Per Unit	**Total Cost**			
	Design 1	10	$13.47	**$134.70**			
	Design 2	6	$13.47	**$80.82**			
Rails (10')	Design 3	10	$13.47	**$134.70**			
	Design 1	5	$5.38	**$26.90**			
	Design 2	6	$5.38	**$32.28**			
Posts (4')	Design 3	5	$5.38	**$26.90**			

BOM: Decking			
Material	Quantity	Price Per Unit	Total Cost
Pool Ladder	1	$250	$250
Boat Cleats	3	$1.50	$4.50
Framing	-	-	$695.52
Floating Devices	-	-	$738.72
Ground Stakes 8'	2	$55.95	$111.90
Ground Stakes 6'	2	$47.95	$95.90
Ground Stakes 12'	2	$84.95	$169.90
Plastic Boat Temp Dock	1		
Railing	-	-	$113.10
Decking Screws	1	$206.72	$206.72
6" Hex Nuts and Bolts	50	$5.44	$272.00
Total Cost Based on Decking Choice			
Thruflow Decking	-	-	**$ 4,199.32**
Pressure Treated Pine Decking	-	-	**$ 3,307.35**
Trex Decking	-	-	**$ 3,841.95**

Boat Launch Cost Estimates				
BOM: Non-ADA NMB Ramp				
Site Work	Quantity	Unit	Unit Price	Total Price
Mobilization (~5% of Total)	1	LS	-	$100.00
Excavation (10' x 3' x 30')	25	CY	$32.00	$800.00
Crushed Stone	6	CY	$40.00	$240.00
Landscape Timber	20	EA	$15.00	$300.00
Silt Fencing/Drainage Protection	30	LF	$6.00	$180.00
			Total Cost	**$1,620.00**
BOM: ADA-Accessible NMB Ramp				
Site Work	Quatity	Unit	Unit Price	Total Price
Mobilization (~5% of Total)	1	LS	-	$100.00
Excavation (Max. 8% Slope)	30	CY	$32.00	$960.00
Crushed Stone	12	CY	$40.00	$480.00
Landscape Timber	30	EA	$15.00	$450.00
Silt Fencing/Drainage Protection	30	LF	$6.00	$180.00
			Total Cost	**$2,080.00**

Project Schedule



Construction Schedule

Park Aesthetic			
Project	**Time for Completion**	**Cost**	**Notes**
Swinging Bench	2 weeks total	$953/chair	Rounded time up
Site Prep and Excavation	1 day		
Set Forms and Pour Concrete Foundations	1 day		
Cure Concrete to Half Strength	7 days		Can continue building bench and frame while concrete cures, but should not apply full weight right away
Assemble bench and swing frame	1 day		
Set frame and build roof	1 day		Only 55 sq ft of roof, so should be able to lay all the shingles in one day
Adirondack Chair	1 day for placement	$239/chair	
Fire Pit	**1 week total**	$3,820	
Clear Area	1 day		
Apply crushed stone	1 day		
cement foundation	4 days		
construct fire pit wall	1 day		
Gaga Ball pit	**3 days total**	$80	
Clear Area	1 day		
Construct panels	2 days		
Kiosk assembly	1 day total	$3,400	
Pollinator Garden	**3 days**	$2,614.65	
Clear area and apply soil	1 day		
Set stone wall	1 day		
Plant plants	1 day		

Waterfront Area			
Project	**Time for Completion**	**Cost**	**Notes**
Fence	2 days	W&W Fence: $3077.22	Cost of raw materials
Drill holes into beach	1 day		
Install fence posts and body	1 day	$1500-$3000	Labor cost for complete fence installation depending on contractor
Dock	5 days	$1000-$1400	Cost of raw materials
Dock removal	1 day		
Reinforce framing	2 days		Salvaging existing materials
Apply foam replacement	1 day		Labor cost contingent on contractor
Boat Launch	**121-123 days**	Non-ADA: $5,340.00 ADA Accessible: $2,827.00 Total: $8,167.00	Cost is dependent on type of stone pathway used and total excavation time
Excavation	2-3 days		
Apply Crushed Stone	1 day		
Construct Timber Portion of Launch	100 - 120 days		
Lay Stone Pathway	1 day - 4 days		
Retaining Wall	16 days	Non Grouted Rip Rap	Approx. 2 weeks after contact with the contractor has been made
South Wall (approx. 274 ft)		$840-1286	
Excavation/Repair	2 days		
Installation of Fabric	1 days		
Lay Rip Rap down	5 days		
North Wall (approx. 218 ft)		$737-1139	
Excavation/Repair	2 days		
Installation of Fabric	1 day		
Lay Rip Rap down	5 days		

SITE DEVELOPMENT PLANS

FOR

PROPOSED REDEVELOPMENT OF:

MIRROR LAKE WATERFRONT AT ROBERT J. PEACOCK PARK

LOCATION OF SITE:

31 PARKSIDE DRIVE
VILLAGE OF LAKE PLACID
TOWN OF NORTH ELBA
ESSEX COUNTY, NEW YORK

TAX MAP: 42.191-3-4.000

LOCATION MAP

SCALE: 1" = 1,000'
PLAN REFERENCE: USGS LAKE PLACID QUADRANGLE

AREA MAP

SCALE: 1" = 100'

PREPARED BY:

PLACID PLANNING

SHEET TITLE	SHEET NUMBER
COVER SHEET	C-01 OF 14
EXISTING CONDITONS	C-02 OF 14
SITE PLAN	C-03 OF 14
ADA NMB LAUNCH	C-04 OF 14
ADA NMB LAUNCH LANDSCAPE PLAN	C-05 OF 14
NON-ADA NMB LAUNCH	C-06 OF 14
FLOATING DOCK	C-07 OF 14
FLOATING DOCK PILINGS	C-08 OF 14
COVERED SWING BENCH	C-09 OF 14
COVERED SWING BENCH RENDERING	C-10 OF 14
GAGA BALL PIT	C-11 OF 14
FENCING	C-12 OF 14
FIRE PIT & SEATING	C-13 OF 14
POLLINATOR GARDEN	C-14 OF 14

Designed 04/20
Drawn OMH
Checked

MIRROR LAKE WATERFRONT PLAN
FINAL DESIGN
31 PARKSIDE DRIVE LAKE PLACID, NEW YORK

Approved Date
Title Job Class

PLACID PLANNING
8 CLARKSON AVENUE, POTSDAM, NY 13699

PLACID PLANNING

REVISIONS
Date Description Approved

File No.
2021-007.2.DWG

Drawing No.
2021-007

Sheet C-01 of 14

LEGEND

- PROPERTY BOUNDARY
- TRAIL SYSTEM
- UNDERGROUND UTILITY — UG —
- OVERHEAD UTILITY — OH —

MIRROR LAKE
APPROX. ELEV. = 1,856'

ABUTTING PROPERTY
N/F LANDS OF PLACID GOLD LLC
654 MIRROR LAKE DRIVE
TAX MAP: 42.176-2-25.000

MIRROR LAKE DRIVE

EXIST. SWIMMING DOCK
(TO BE REMOVED)

APPROX.
LOCATION OF
OUTDOOR
LIGHTING (TYP.)

EXIST. TENNIS COURTS
(TO REMAIN).

APPROX.
PROPERTY
LINE (TYP.)

EXIST. PUBLIC BEACH
(TO REMAIN)

EXIST. CONC. RETAINING
WALL (TO BE REPAIRED)

EXIST. 10' SECTION OF
CONC. RETAINING WALL
(TO BE REMOVED)

EXIST. CONC. RETAINING
WALL (TO BE REPAIRED)

EXIST. TRAIL SYSTEM
(TO REMAIN)

EXIST. LAKE OUTLET
(TO BE REDESIGNED
AND PROTECTED)

APPROX. LOCATION
OF UG UTILITIES

EXIST. CHANGING
FACILITY
APPROX. 4,450 SF
(TO REMAIN)

EXIST. PLAYGROUND
(TO REMAIN)

EXIST. TOBOGGAN
CHUTE (TO REMAIN)

PARKSIDE DRIVE

APPROX. LOCATION
OF OH UTILITIES (TYP.)

PARKSIDE DRIVE

APPROX.
PROPERTY
LINE (TYP.)

ABUTTING PROPERTY
N/F LANDS OF ADK COMMUNITY CHURCH
2583 MAIN STREET
TAX MAP: 42.191-3-3.000

EXISTING CONDITIONS

SCALE: 1" = 30'

0 60 120 Feet

Designed 04/20
Drawn OMH
Checked

MIRROR LAKE WATERFRONT PLAN
FINAL DESIGN
LAKE PLACID, NEW YORK
31 PARKSIDE DRIVE

Approved Date
Title Job Class

PLACID PLANNING
8 CLARKSON AVENUE, POTSDAM, NY 13699

PLACID PLANNING

REVISIONS

Date	Description	Approved

File No.
2021-007.2.DWG

Drawing No.
2021-007

Sheet C-02 of 14

LEGEND

- PROPERTY BOUNDARY
- TRAIL SYSTEM
- UNDERGROUND UTILITY — UG
- OVERHEAD UTILITY — OH

MIRROR LAKE
APPROX. ELEV. = 1,856'

MIRROR LAKE DRIVE

PARKSIDE DRIVE

PARKSIDE DRIVE

LIMIT OF PROP. RIPRAP

LIMIT OF PROP. RIPRAP

PROP. LOOSE RIPRAP TO PROTECT EXIST. SHORELINE. APPROX. 274 LF.

PROP. CONNECTION BETWEEN NMB LAUNCH & EXIST. TRAIL SYSTEM

PROP. ADA ACCESSIBLE NMB LAUNCH AT 8% SLOPE (SEE DETAIL C-04)

PROP. LOCATION OF FLOATING SWIMMING DOCK (SEE DETAIL C-07)

PROP. LOCATION OF STONE FIRE PIT AND SEATING AREA (SEE DETAIL C-13).

PROP. LOCATION OF PORTABLE GAGA BALL PIT (OPT. 1)

PROP. COVERED BENCH SWING (SEE DETAIL C-09).

PROP. BEACH FENCING (272 LF) WITH PERMANENT IN-GROUND POSTS AND TEMPORARY PANELS (SEE DETAIL C-12).

LIMIT OF PROP. FENCING & RIPRAP

PROP. COVERED BENCH SWING (SEE DETAIL C-09).

PROP. LOOSE RIPRAP TO PROTECT EXIST. CONC. RETAINING WALL. APPROX. 218 LF.

LIMIT OF PROP. RIPRAP

LIMIT OF PROP. RIPRAP

LIMIT OF PROP. RIPRAP

LIMIT OF PROP. FENCING

PROP. CONNECTION BETWEEN NMB LAUNCH & EXIST. TRAIL SYSTEM

PROP. NON-ADA NMB LAUNCH WITH STEPS (SEE DETAIL C-06).

PROP. LOCATION OF PORTABLE GAGA BALL PIT (OPT. 2)

PROP. POLLINATOR PLANT GARDEN (SEE DETAIL C-14).

SITE PLAN
SCALE: 1" = 30'

0 60 120 Feet

Designed 04/20
Drawn OMH
Checked

MIRROR LAKE WATERFRONT PLAN
FINAL DESIGN
LAKE PLACID, NEW YORK
31 PARKSIDE DRIVE

Approved Date
Title Job Class

PLACID PLANNING
8 CLARKSON AVENUE, POTSDAM, NY 13699

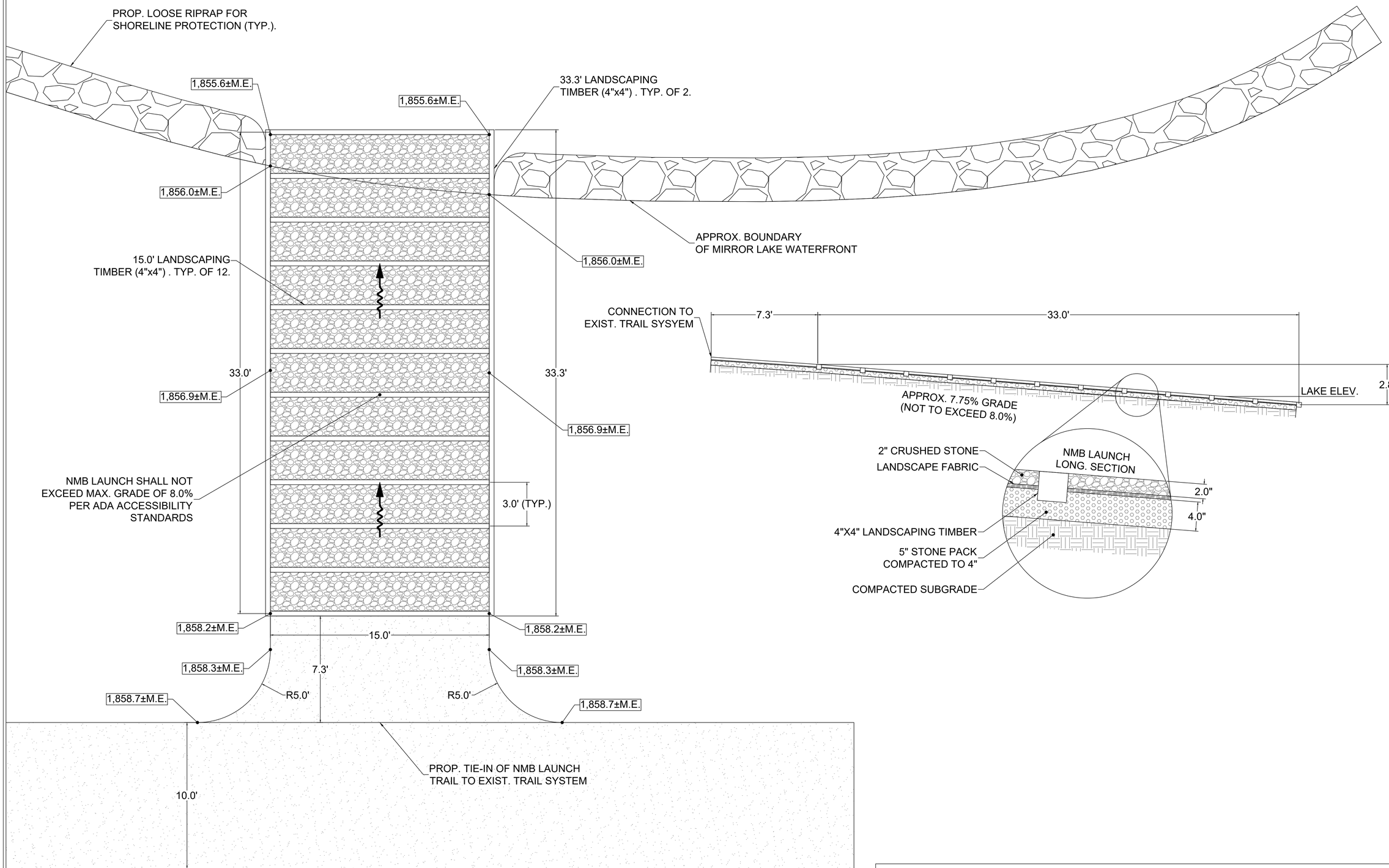
PLACID PLANNING

REVISIONS
Date | Description | Approved

File No. 2021-007.2.DWG

Drawing No. 2021-007

Sheet C-03 of 14



ADA NMB LAUNCH

SCALE: 1" = 3'

Designed 04/20
Drawn OMH
Checked

MIRROR LAKE WATERFRONT PLAN
FINAL DESIGN
LAKE PLACID, NEW YORK
31 PARKSIDE DRIVE

Approved
Date
Title
Job Class

PLACID PLANNING
8 CLARKSON AVENUE, POTSDAM, NY 13699

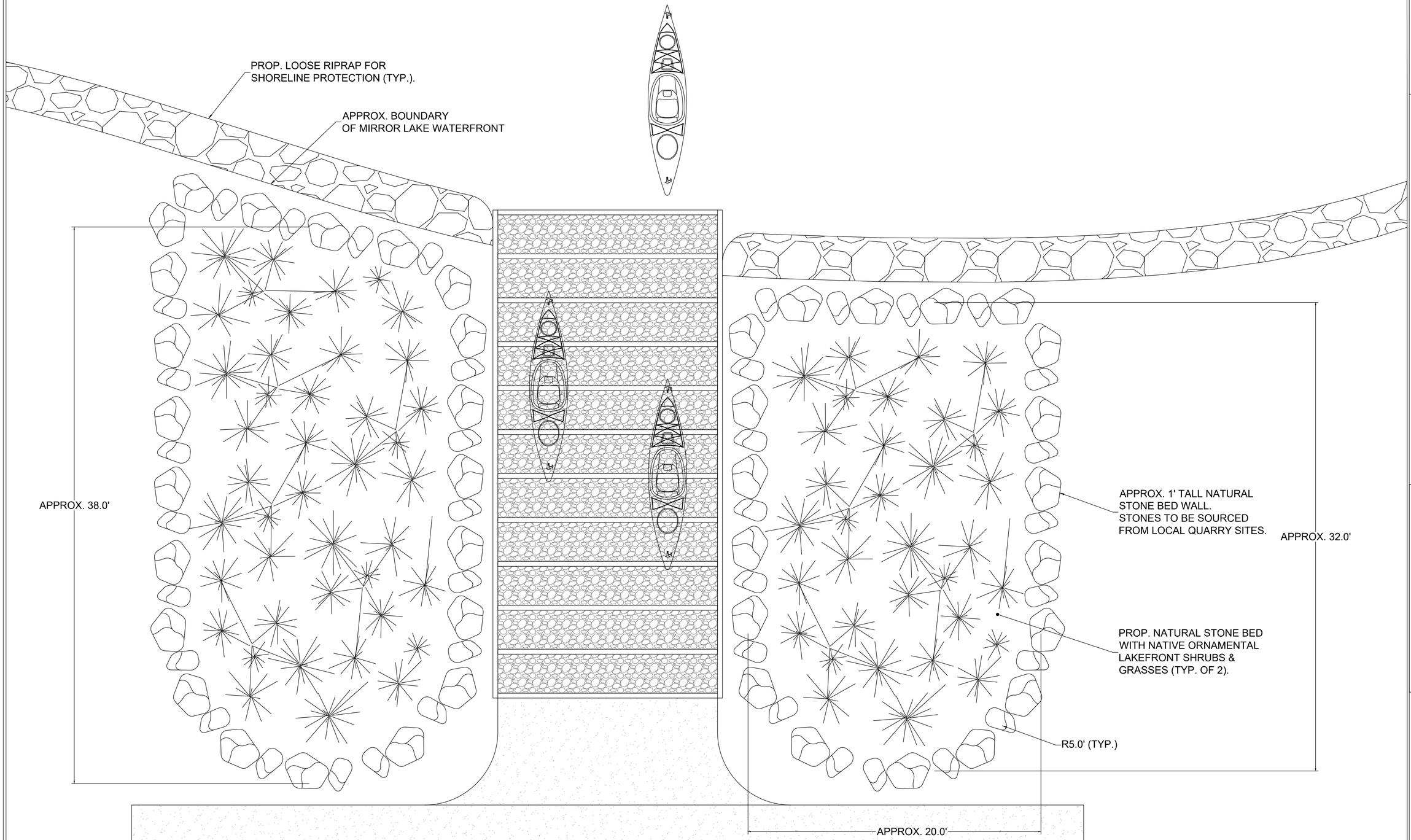
PLACID PLANNING

REVISIONS
Description
Date
Approved

File No. 2021-007.2.DWG

Drawing No. 2021-007

Sheet C-04 of 14



ADA NMB LAUNCH LANDSCAPING PLAN

SCALE: 1" = 3'

MIRROR LAKE WATERFRONT PLAN
FINAL DESIGN
31 PARKSIDE DRIVE LAKE PLACID, NEW YORK

Designed 04/20
Drawn OMH
Checked

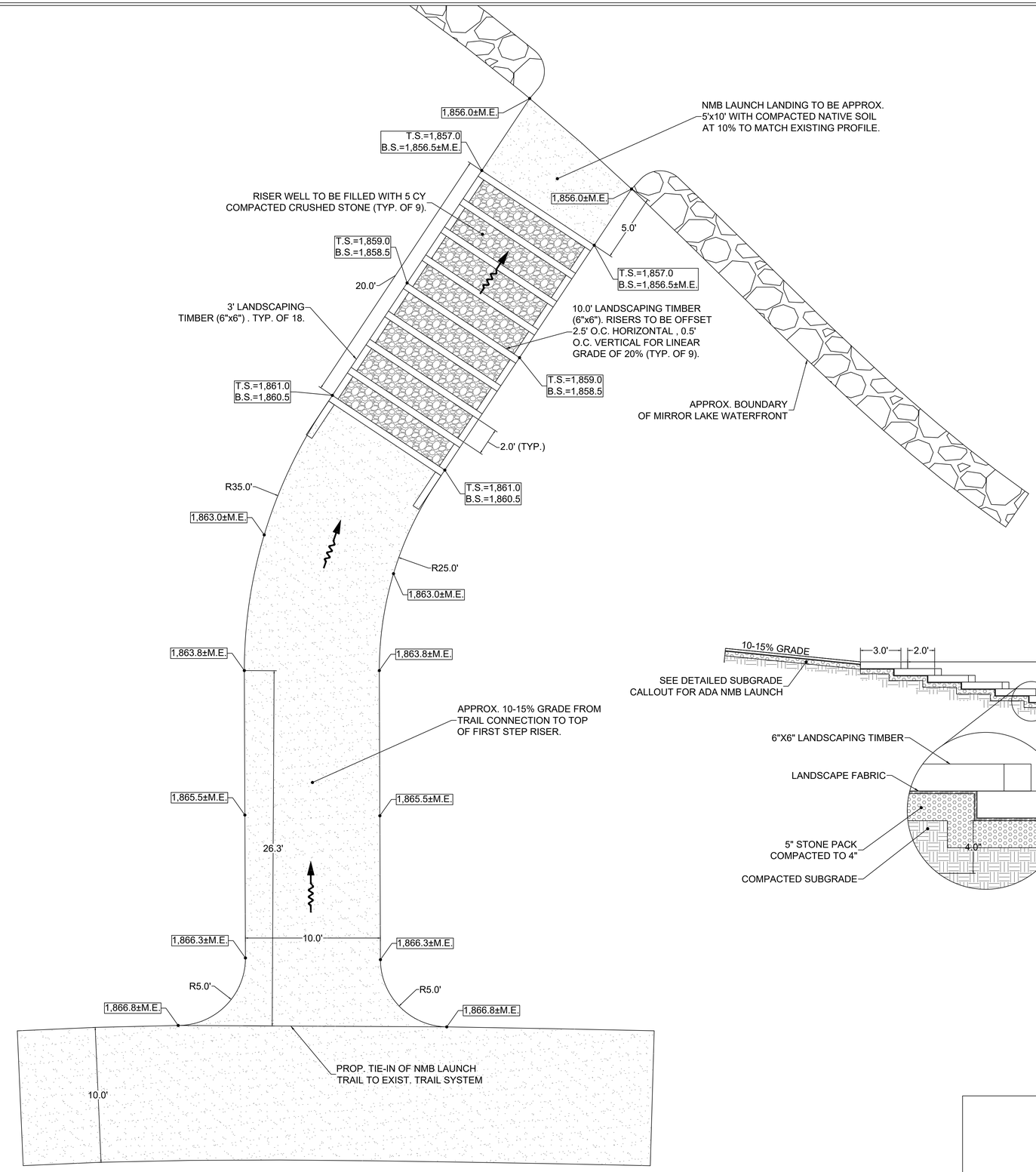
Approved ____ Date ____
Title ____ Job Class ____

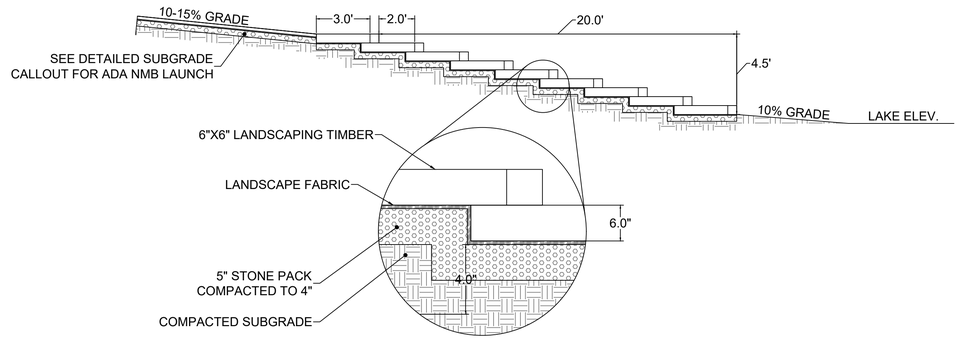
PLACID PLANNING
8 CLARKSON AVENUE, POTSDAM, NY 13699

PLACID PLANNING

REVISIONS
Description | Date | Approved

File No. 2021-007.2.DWG
Drawing No. 2021-007
Sheet C-05 of 14





NON-ADA NMB LAUNCH

SCALE: 1" = 4'

MIRROR LAKE WATERFRONT PLAN
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31 PARKSIDE DRIVE

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8 CLARKSON AVENUE, POTSDAM, NY 13699

REVISIONS

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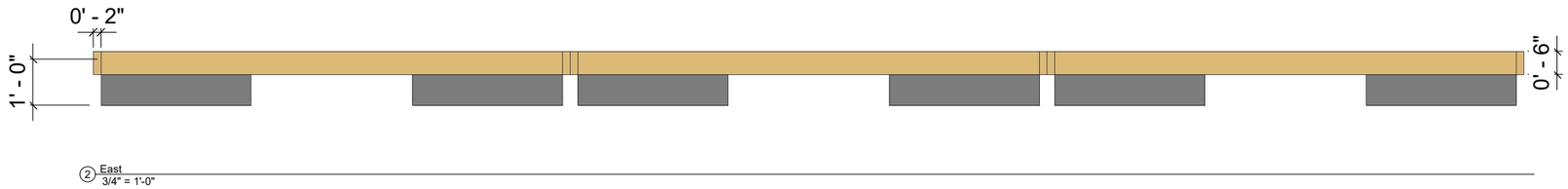
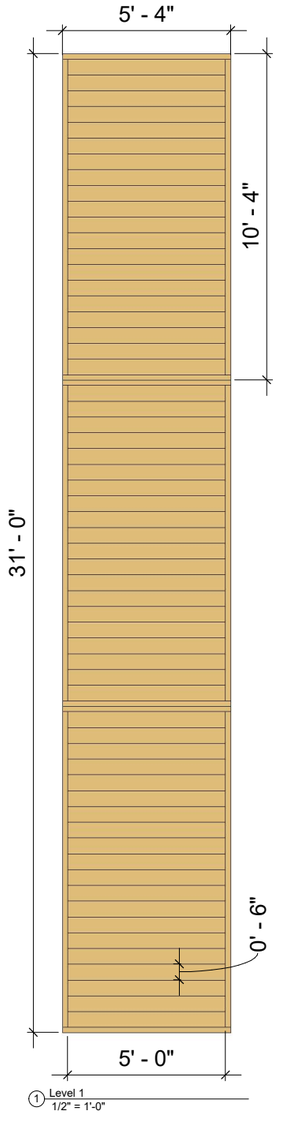
Drawing No. 2021–007

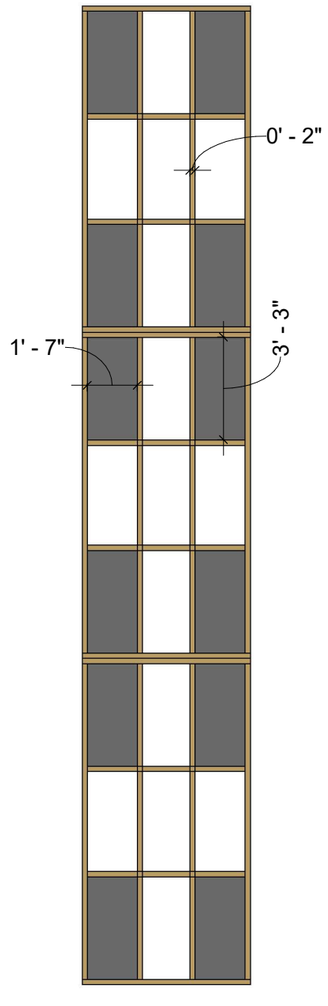
Sheet C-06 of 14



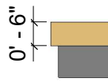
② East
3/4" = 1'-0"



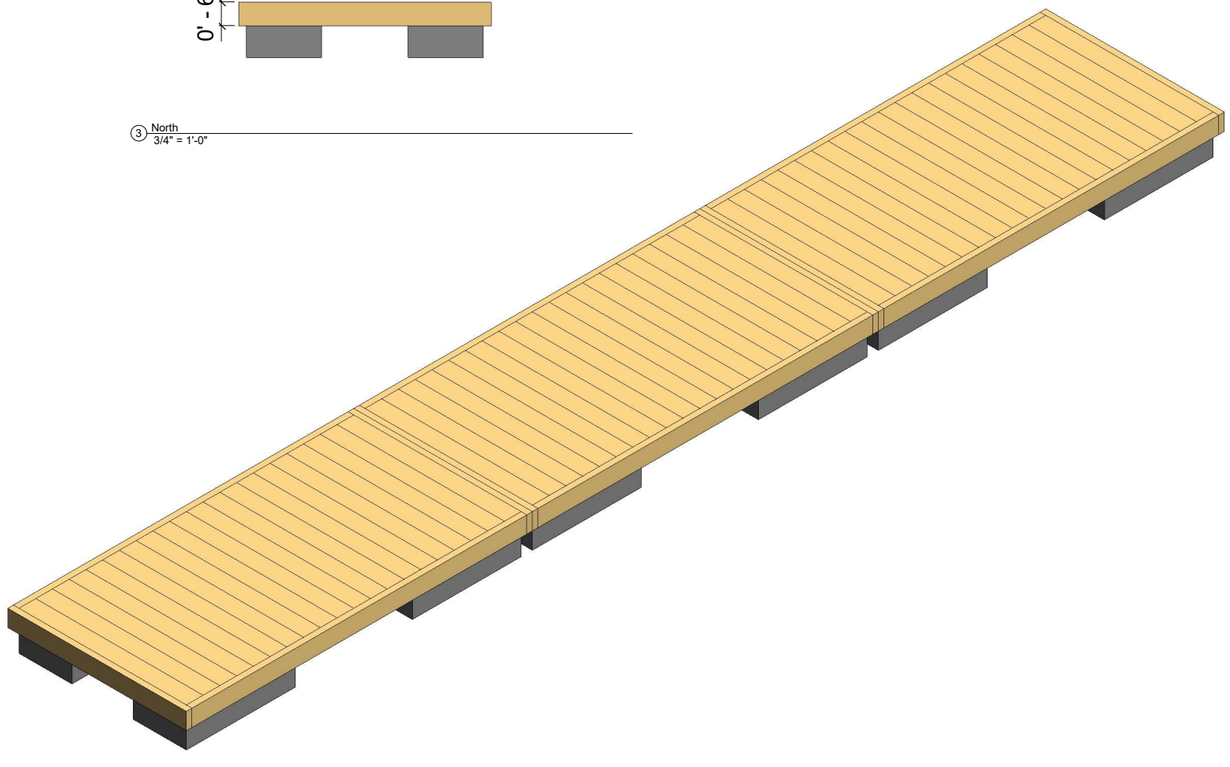
① Level 1
1/2" = 1'-0"



⑤ Under Deck
1/2" = 1'-0"



③ North
3/4" = 1'-0"



④ {3D}

FLOATING DOCK

SCALE: AS NOTED

Designed	04/23/21
Drawn	ERL
Checked	
Approved	Date
Title	Job Class

MIRROR LAKE WATERFRONT PLAN
SCHEMATIC DESIGN
LAKE PLACID, NEW YORK
31 PARKSIDE DRIVE

PLACID PLANNING
8 CLARKSON AVENUE, POTSDAM, NY 13699

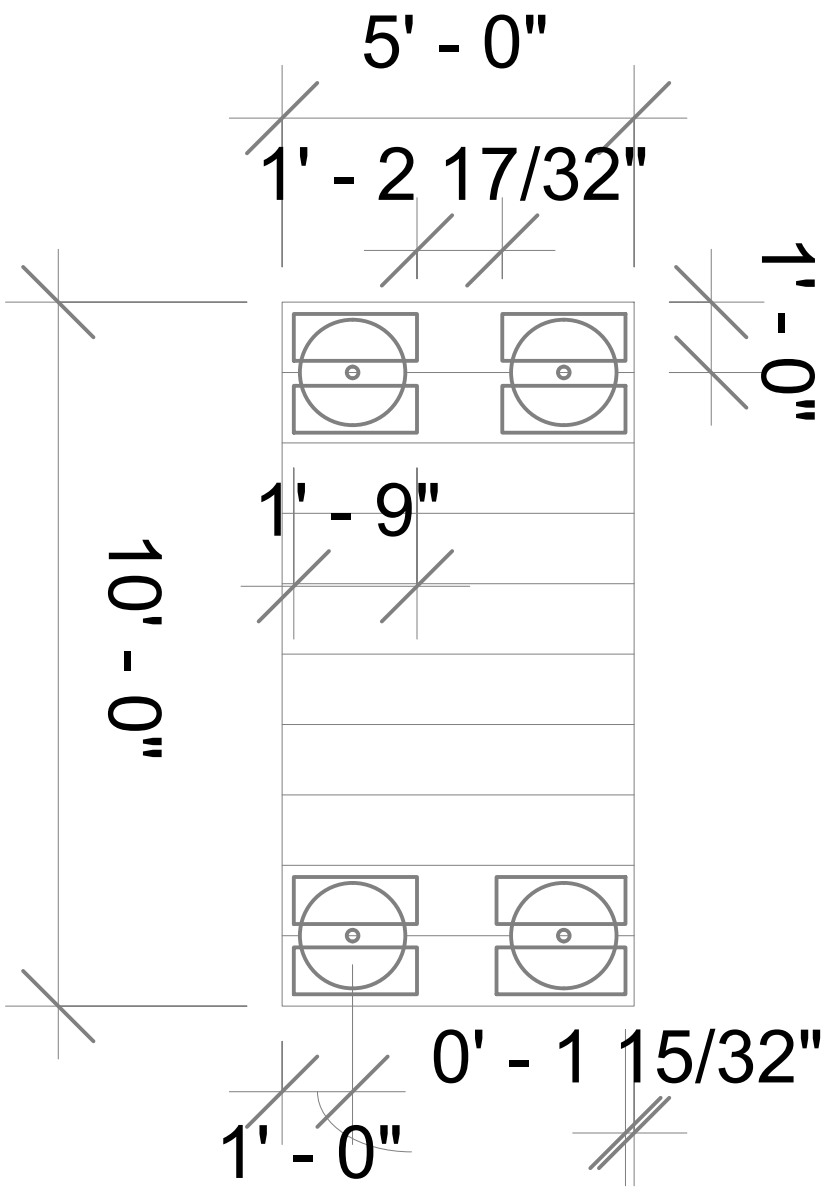
PLACID PLANNING

REVISIONS		
Date	Description	Approved

File No.
2021-007.2.DWG

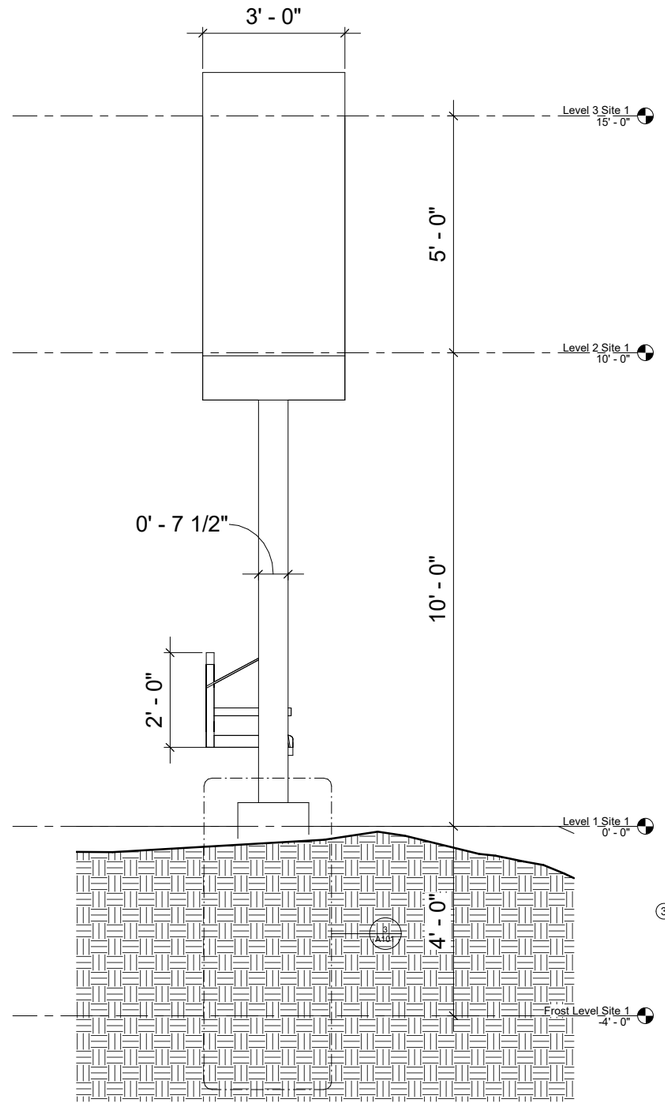
Drawing No.
2021-007

Sheet C-07 of 14

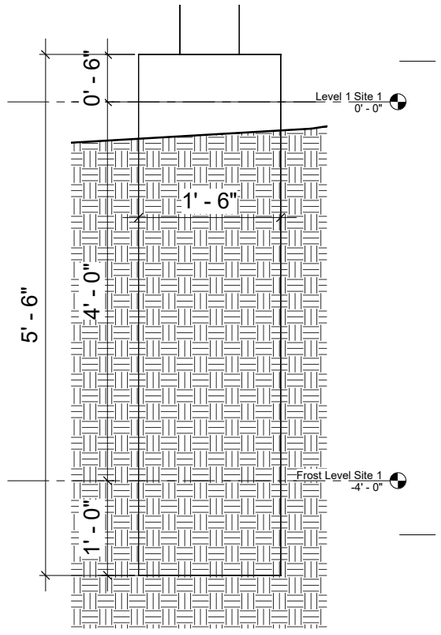


Sheet C08 of 14	Drawing No. 2021-004	File No. deck understructure	REVISIONS Date / Description / Approved	PLACID PLANNING	MIRROR LAKE WATERFRONT PLAN FINAL DESIGN 31 PARKSIDE DRIVE — LAKE PLACID, NEW YORK PLACID PLANNING 8 CLARKSON AVENUE, POTSDAM, NY 13699

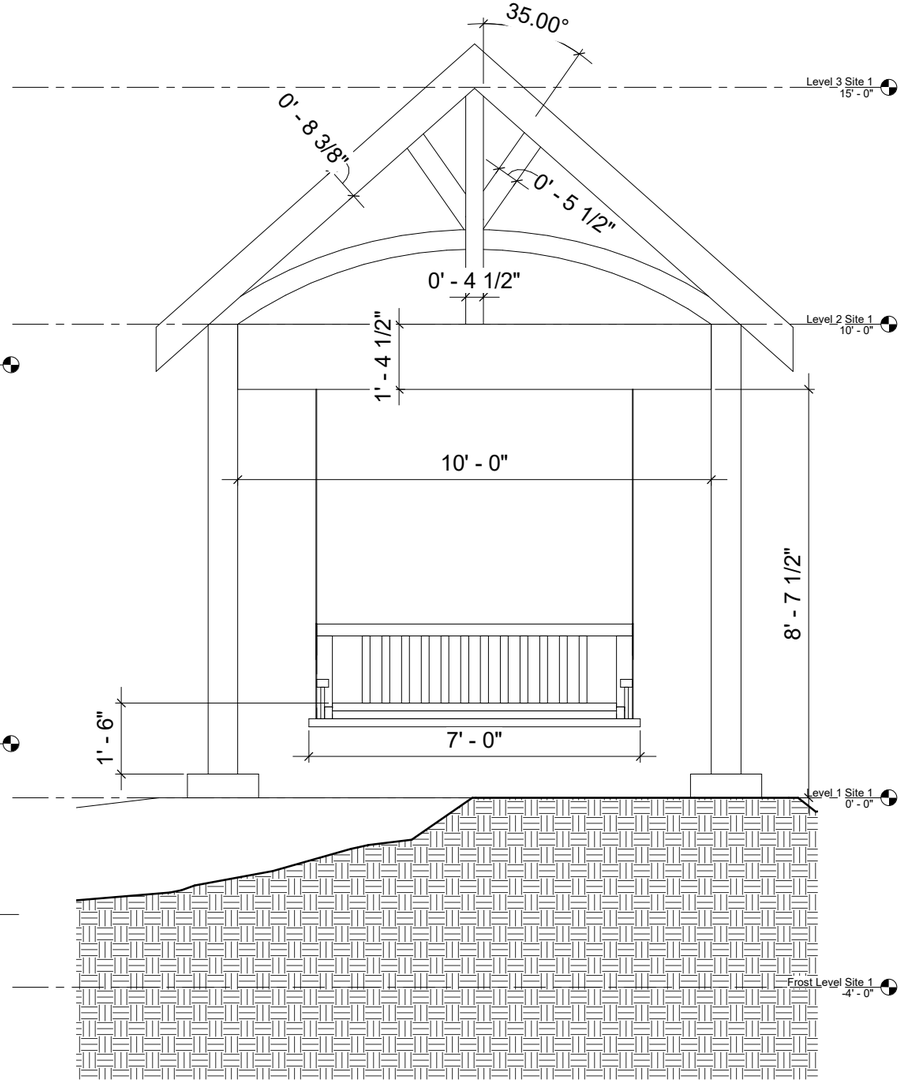
Designed 03/14/21
Drawn Jonathan Novak
Checked
Approved ____ Date ____
Title ____ Job Class ____



1 Side Elevation of Swing Bench
3/4" = 1'-0"



3 Swing Bench Footer Callout
1 1/2" = 1'-0"



2 Front Elevation of Swing Bench
3/4" = 1'-0"

COVERED SWING BENCH

SCALE: AS NOTED

Designed	04/23/21
Drawn	ERL
Checked	
Approved	Date
Title	Job Class

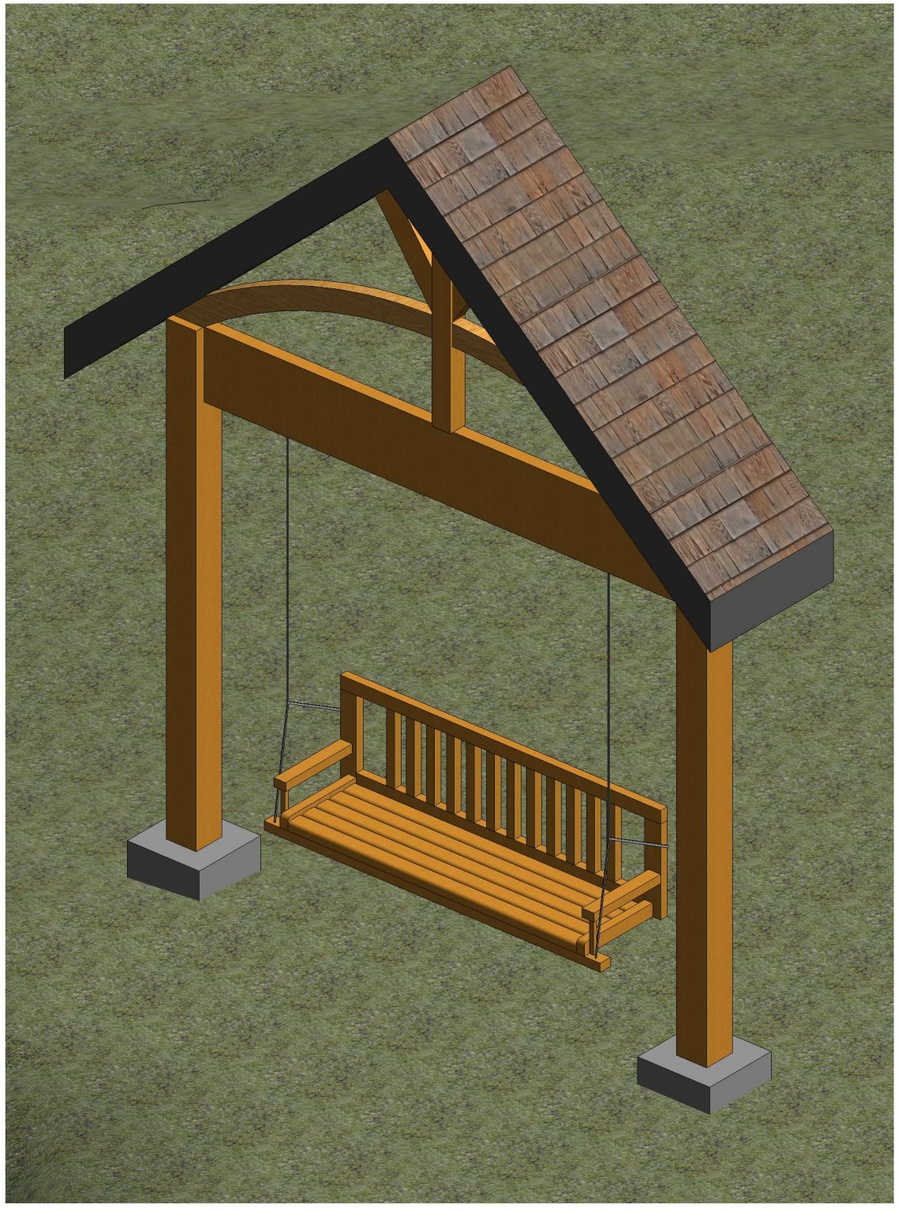
MIRROR LAKE WATERFRONT PLAN
SCHEMATIC DESIGN
31 PARKSIDE DRIVE LAKE PLACID, NEW YORK

PLACID PLANNING
8 CLARKSON AVENUE, POTSDAM, NY 13699

PLACID PLANNING

REVISIONS			
Date	Description	Approved	

File No. 2021-007.2.DWG
Drawing No. 2021-007
Sheet C-09 of 14



1 {3D}

NOTES:
1. ROOF SHINGLES SPECIFIED AS CEDAR WOOD

COVERED SWING BENCH RENDERING

NOT TO SCALE

MIRROR LAKE WATERFRONT PLAN
SCHEMATIC DESIGN
31 PARKSIDE DRIVE LAKE PLACID, NEW YORK

PLACID PLANNING
8 CLARKSON AVENUE, POTSDAM, NY 13699

Designed 04/23/21
Drawn ERL
Checked
Approved
Date
Title
Job Class

PLACID PLANNING

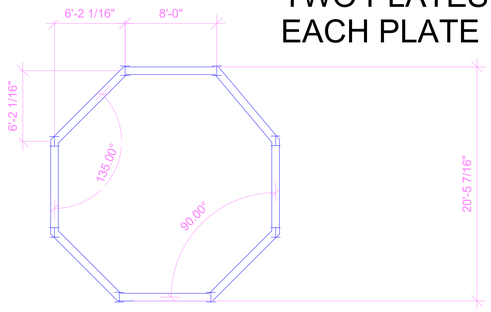
REVISIONS
Date | Description | Approved

File No. 2021-007.2.DWG
Drawing No. 2021-007
Sheet C-10 of 14

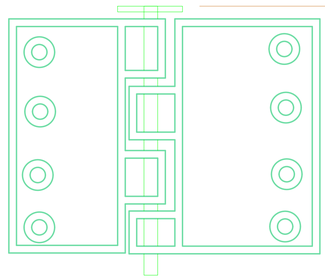
I-BEAMS REPRESENT HINGE PLATES, SHOWN BELOW

TWO PLATES ATTACHED PER CORNER SET 1FT AND 2FT OFF OF THE GROUND, EACH PLATE IS SECURED WITH 4 BOLTS PER SIDE

TOP VIEW



HINGE PLATE, CIRCLES ARE SCREWS

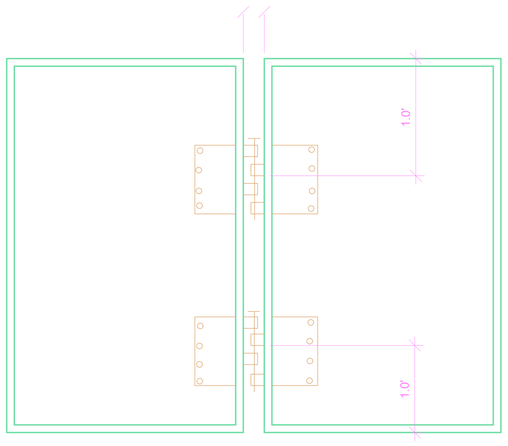


GREEN LINES REPRESENT SECURING BOLT, CAN BE REMOVED TO BREAK DOWN THE WALLS

WALLS ARE PLYWOOD WITH A THICKNESS OF 1 INCH, HEIGHT OF 3 FT, WIDTH OF 8FT

THICKNESS CAN BE ALTERED BASED OFF OF STRUCTURE PERMANENCE, ALL SUMMER MEANS THICKER WALLS, BROKEN DOWN DAILY 3/4 INCH

SPACE LARGER THAN ACTUAL FOR DETAIL PURPOSES



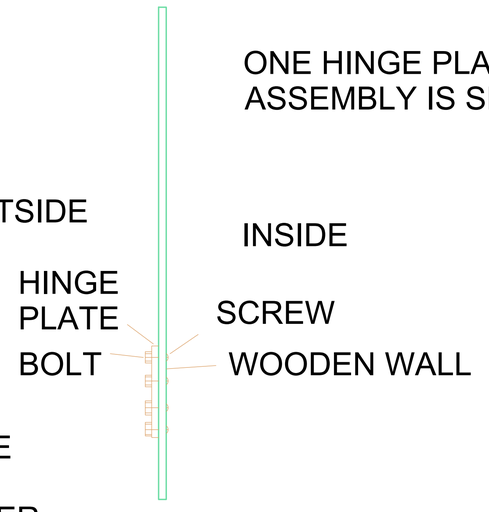
MATERIALS; 8 3X8 PLYWOOD PANELS THICKNESS TBD, 16 HINGE PLATE SETS, 16 SECURING BOLTS, 128 SCREWS

SIDE VIEW OF TWO WALLS, NOT DRAWN TO SCALE

SECURING BOLTS CAN BE REMOVED TO BREAK DOWN THE WALLS

SCREWS FOR THE WALL PLATE SHOULD BE DRILLED FROM THE INSIDE OF THE PIT WITH THE PLATE ON THE OUTSIDE OF THE WALLS, A SECURING NUT CAN BE ATTACHED AND THE LEFTOVER SCREW CAN BE SAWED OFF TO PREVENT SNAGS AND SCRAPES

ALTERNATE SIDE VIEW



ONE HINGE PLATE ASSEMBLY IS SHOWN

GAGA BALL PIT

SCALE: N.T.S.

Designed 02/21
Drawn JN
Checked

MIRROR LAKE WATERFRONT PLAN
FINAL DESIGN
31 PARKSIDE DRIVE LAKE PLACID, NEW YORK

Approved Date
Title Job Class

PLACID PLANNING
8 CLARKSON AVENUE, POTSDAM, NY 13699

PLACID PLANNING

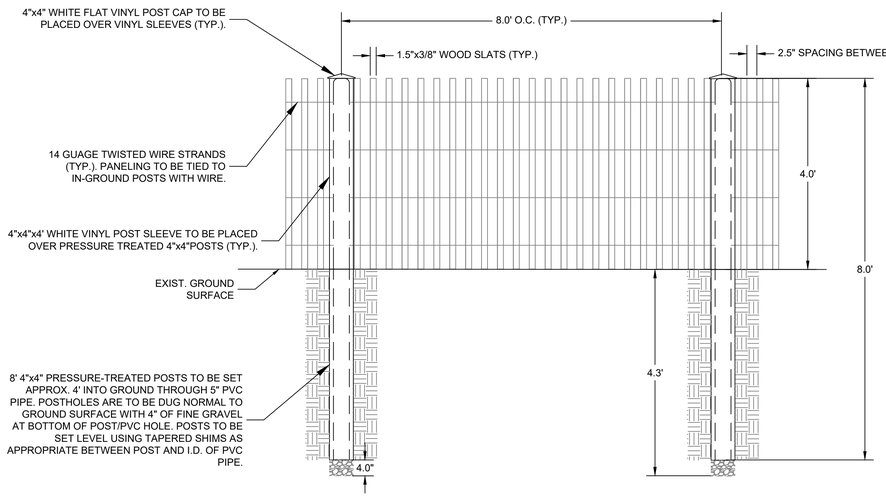
REVISIONS
Description Approved
Date

File No. 2021-007.2.DWG

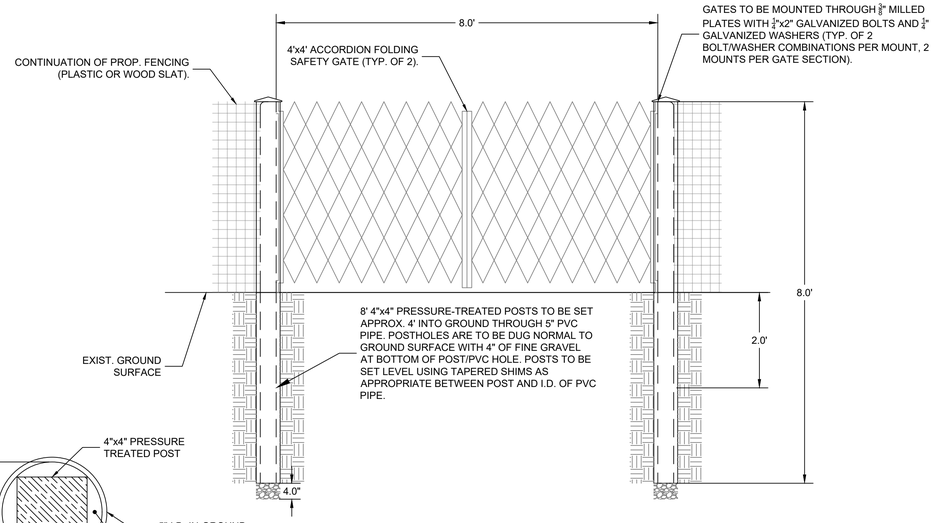
Drawing No. 2021-007

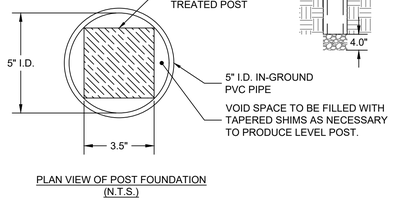
Sheet C-11 of 14

SAND FENCING WOODEN POST OPTION



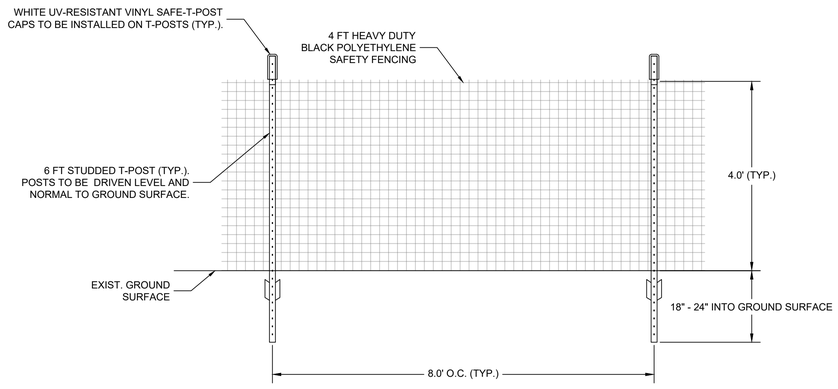
FENCE GATE





PLAN VIEW OF POST FOUNDATION
(N.T.S.)

PLASTIC FENCING T-POST OPTION



FENCING OPTIONS

SCALE: 1' = 1.5"

Designed 04/20
Drawn OH
Checked

MIRROR LAKE WATERFRONT PLAN
FINAL DESIGN
LAKE PLACID, NEW YORK
31 PARKSIDE DRIVE

Approved ____ Date ____
Title ____ Job Class ____

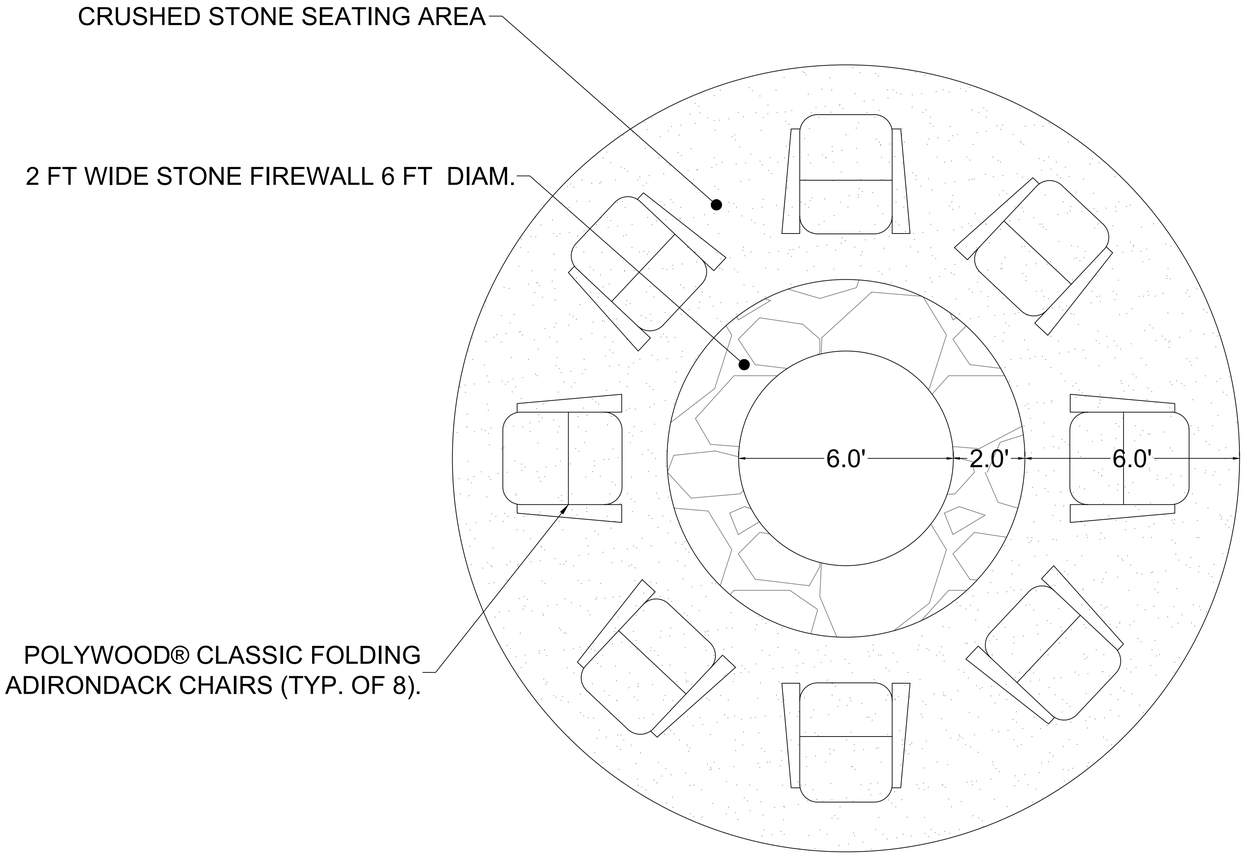
PLACID PLANNING
8 CLARKSON AVENUE, POTSDAM, NY 13699

REVISIONS
Description
Date
Approved

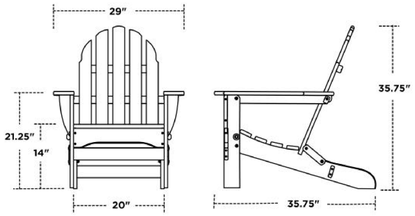
File No.
2021-007.2.DWG

Drawing No.
2021-007

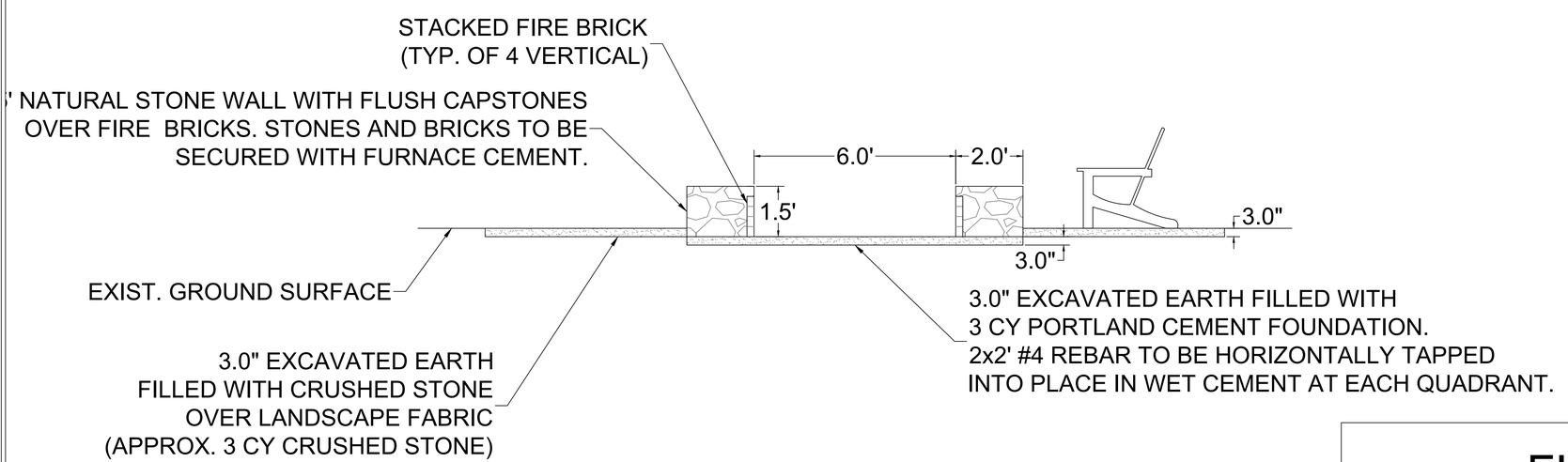
Sheet C-12 of 14



FIRE PIT AND SEATING AREA PLAN VIEW



POLYWOOD® CLASSIC FOLDING
ADIRONDACK CHAIRS (N.T.S.)



FIRE PIT AND SEATING AREA SECTION VIEW

FIRE PIT & SEATING

SCALE: 1" = 2'

MIRROR LAKE WATERFRONT PLAN
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31 PARKSIDE DRIVE LAKE PLACID, NEW YORK

Designed 04/20
Drawn OH
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Job Class

PLACID PLANNING
8 CLARKSON AVENUE, POTSDAM, NY 13699

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REVISIONS
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File No. 2021-007.2.DWG
Drawing No. 2021-007
Sheet C-13 of 14

ABUTTING PROPERTY
N/F LANDS OF ADK COMMUNITY CHURCH
2583 MAIN STREET
TAX MAP: 42.191-3-3.000

APPROX. BOUNDARY
OF MIRROR LAKE WATERFRONT

APPROX. LOCATION OF UNDERGROUND
UTILITIES (TO BE PROTECTED).

APPROX. 35.0'

APPROX. 22.5'

APPROX. PROPERTY
LINE

APPROX. 14.0'

APPROX. 1' TALL NATURAL
STONE BED WALL.
STONES TO BE SOURCED
FROM LOCAL QUARRY SITES.

APPROX. 55.5' WITH R = 50.0'

EXIST. TOBOGGAN CHUTE

PROP. NATURAL STONE BED WITH NATIVE
FLOWERING PLANT GARDEN FOR THE ADIRONDACK
POLLINATOR PROJECT. PROP. PLANTINGS INCLUDE
SWAMP MILKWEED (ASLEPIAS INCARNATA), BONESET
(EUPATORIUM PERFOLIATUM), AND NODDING ONION
(ALLIUM CERNUUM).

POLLINATOR GARDEN

SCALE: 1" = 4'

Designed 04/20
Drawn OMH
Checked

MIRROR LAKE WATERFRONT PLAN
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LAKE PLACID, NEW YORK
31 PARKSIDE DRIVE

PLACID PLANNING
8 CLARKSON AVENUE, POTSDAM, NY 13699

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File No.
2021-007.2.DWG

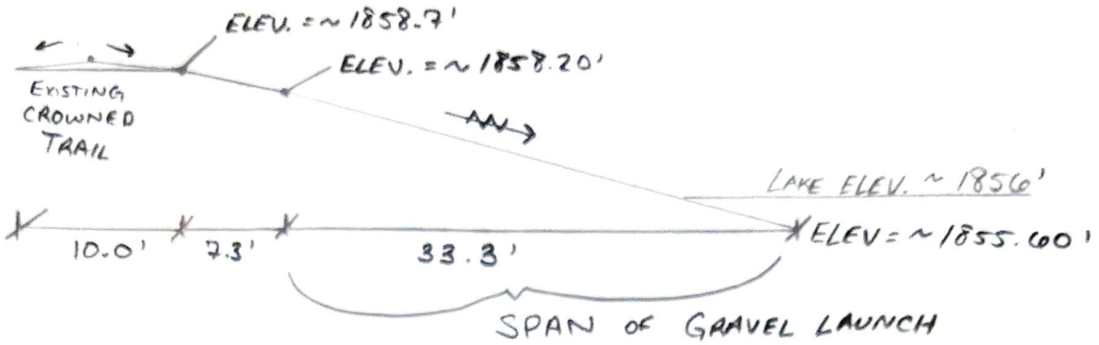
Drawing No.
2021-007

Sheet C-14 of 14

ADA NMB LAUNCH DESIGN
CALCULATIONS

MIRROR LAKE WATERFRONT PLAN
2021-007 : PLACID PLANNING

04/20/2021



* ALL GRADES ARE APPROXIMATE UNTIL REVIEW BY PROFESSIONAL LAND SURVEYOR

* GRADES TO MATCH EXISTING (±M.E.) OF SPOT ELEVATIONS TO SURROUNDING LAND

=> SUFFICIENT FOR ADA GRADE? => MAX. = 8.0% RUNNING SLOPE

=> 7.3' TRAIL EXTENSION

RISE: 1858.7' - 1858.2' = $\frac{0.5'}{7.3'}$ => 0.0685 · 100% => 6.85% ✓
RUN: 7.3'

=> 33.3' LAUNCH
↳ BUILT TO 0.4' BELOW LAKE

RISE: 1858.20' - 1855.60 = $\frac{2.6'}{33.3'}$ => 0.0781 · 100% => 7.81% ✓
RUN: 33.3'

=> FOLLOWING CONTOURS, ANALYSIS SHOWS SELECTED LOCATION IS THE ONLY SUITABLE AREA FOR ≤ 8.0% ADA NMB LAUNCH W/OUT CUT/FILL

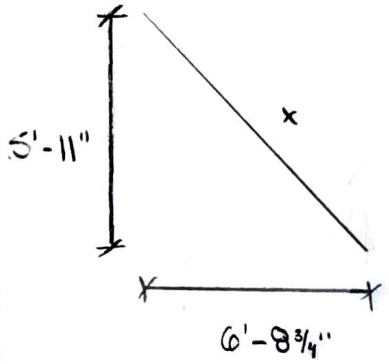
=> WIDTH = 15.0' : SUFFICIENT FOR ADA ACCESSIBILITY & 16.0' MOTOR BOAT W/ TRAILER LENGTH

DESIGNED: Owen McAffee

Covered Bench Swing:

Loads:

Snow Load → Assume 1.5' depth w/ $\rho = 55 lb/ft^3$



→ Roof Length = x

$x = \sqrt{(71in)^2 + (80.75in)^2} = 107.52in \approx 8' - 11\frac{1}{2}"$

Measured in Revit: $x = 9'$

Roof Width = 3'-0"

Roof Area = (L × W) × 2 ← 2 halves of roof
= (9ft × 3ft) × 2

[Roof Area = $54ft^2$]

Snow load: $(54ft^2) \times (1.5ft) \times (55 lb/ft^3) =$ [4455 lbs = S]

Dead Load → 16 in wood shingles (when wet) density = $3.2 lb/ft^2$
½" Gypsum Roof Board density = $2.0 lb/ft^2$
15/32" Plywood Roof Sheathing density = $1.4 lb/ft^2$
Ice and Water Shield density = $0.29 lb/ft^2$

Roof density = $6.89 lb/ft^2 \approx 7 lb/ft^2$

Dead load: $(7 lb/ft^2)(54ft^2) =$ [378 lb = d]

LRFD Design Loads - #3 (load combination)
↳ 1.2D + 1.6(Lr or S or R) + L

$1.2D + 1.6S = 1.2(378 lb) + 1.6(4455 lb)$

[Load = 7581.6 lb ≈ 7582 lb]

Designed: Elizabeth Lyle

Foundations:

Max Load = 7582 lbs.

Max Load on 1 Foundation = $\frac{7582 lb}{2}$ = 3791 lbs.

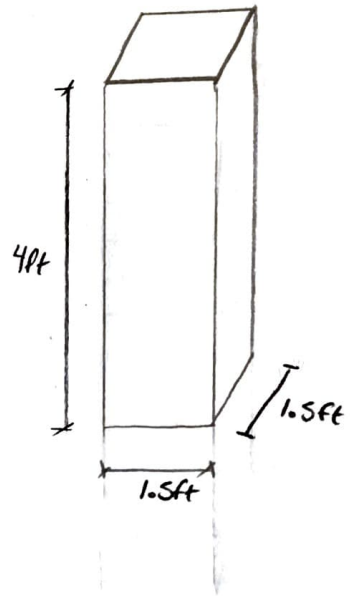
Soil in Area is MhC → Fine Sandy Loam

* assume q_{all} = 2000 psf

$A = (1.5ft)(4ft) = 6ft^2$

$Q_{Allow} = q_{all} \times A = 2000\ psf \times 6ft^2$

$Q_{Allow} = 12000$ lbs



$\rho_{concrete} = 150$ pcf ; $V_{concrete} = (1.5ft)(1.5ft)(4ft) = 9ft^3$

$W_{concrete} = \rho V = (150\ pcf)(9ft^3) = 1350$ lbs

$Q_{ult} = W_c + L_{max} = 1350$ lbs + 3791 lbs.

$Q_{ult} = 5141$ lbs

$FS = \frac{Q_{All}}{Q_{ult}} = \frac{12000 lbs}{5141 lbs} = 2.3 > 2$ ✓

↑ Wanted SF = 2 (greater is okay)

Summary: Roof Load Total = 7582 lbs

Load Distributed to 2 foundations (3791 lb per foundation)

Assumed soil bearing capacity of 2000 psf because Sandy Loam

Square 1.5' x 1.5' Foundation 4' Deep

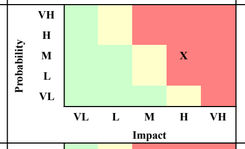
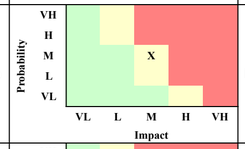
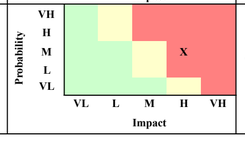
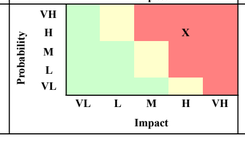
$Q_{Allowable}$ = 12000 lbs

Q_{ult} = 5141 lbs (1 Foundation)

FS = 2.3 (good!)

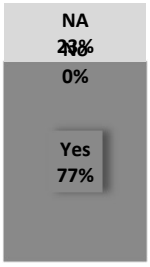
Designed: Elijah Lynch

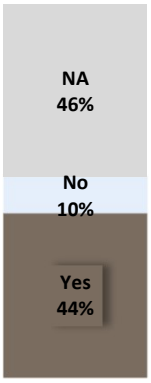
Risk Management Register for Project 2021-007 Mirror Lake Waterfront Plan

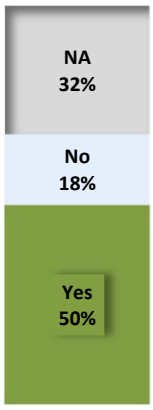
Risk Identification									Qualitative Risk Assessment			Order of Magnitude	Risk Response Plan		Mitigated Qualitative Risk Assessment			Monitoring and Control		
#	RMP No.	Status	Risk Category	Risk Event	Cause	Effect	Threat or Opportunity	Primary Objective	Probability	Impact	Risk Matrix	Worst/Best Case Impact (in $, time, scope/quality, longevity)	Response Strategy	Response Actions	Probability	Impact	Mitigated Risk Matrix	Responsibile Entity	Interval or Milestone Check	Status: Date and Review Comments
1			External	Approval and decision processes cause delays	Not in full agreement about design decisions	Project Delayed	Threat	Time	Medium	High		Project delayed until decisions are approved	Transfer	Develop multiple design options so all factors are considered and choices can be made efficiently	Medium	Medium		Project Manager	Weekly	
2			Environment	Water quality degradation in Mirror Lake	Buildig materials entering lake during construction	pH levels change, salinity changes, turbidity increases, increased nutrient levels, possible toxicity to aquatic life	Threat	Quality	Low/Medium	High		Water quality decreased in Mirror Lake	Avoid	Building materials chosen carefully, minimize runoff during construction	High	High		Designers for each design component, construction overseers	Daily	

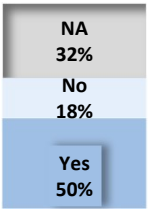
Envision Rating System
Self-Assessment Checklist
For Public Comment Only - Not for Project Use

				Y	N	NA		
1	QUALITY OF LIFE	PURPOSE	QL1.1 Improve community quality of life	3	0	0		3 of 3
2			QL1.2 Stimulate sustainable growth and development	3	1	0		3 of 4
3			QL1.3 Develop local skills and capabilities	3	0	0		3 of 3
4		COMMUNITY	QL2.1 Enhance public health and safety	3	0	0		3 of 3
5			QL2.2 Minimize noise and vibration	0	0	1		0 of 0
6			QL2.3 Minimize light pollution	0	0	1		0 of 0
7			QL2.4 Improve community mobility and access	1	2	0		1 of 3
8			QL2.5 Encourage alternative modes of transportation	1	1	0		1 of 2
9			QL2.6 Improve site accessibility, safety and wayfinding	2	0	0		2 of 2
10		WELLBEING	QL3.1 Preserve historic and cultural resources	3	0	0		3 of 3
11			QL3.2 Preserve views and local character	3	0	0		3 of 3
12			QL3.3 Enhance public space	3	0	0		3 of 3
			TOTAL	**25**	**4**	**2**		25 of 29
13	LEADERSHIP	COLLABORATION	LD1.1 Provide effective leadership and commitment	3	0	0		3 of 3
14			LD1.2 Establish a sustainability management system	3	0	1		3 of 3
15			LD1.3 Foster collaboration and teamwork	1	0	2		1 of 1
16			LD1.4 Provide for stakeholder involvement	3	0	0		3 of 3
17		MANAGEMENT	LD2.1 Pursue by-product synergy opportunities	1	0	0		1 of 1
18			LD2.2 Improve infrastructure integration	2	0	1		2 of 2
19		PLANNING	LD3.1 Plan for long-term monitoring and maintenance	2	0	0		2 of 2
20			LD3.2 Address conflicting regulations and policies	2	0	0		2 of 2
21			LD3.3 Extend useful life	0	0	1		0 of 0
			TOTAL	**17**	**0**	**5**		17 of 17
22	RESOURCE ALLOCATION	MATERIALS	RA1.1 Reduce Net Embodied Energy	0	0	2		0 of 0
23			RA1.2 Support Sustainable Procurement Practices	3	0	0		3 of 3
24			RA1.3 Use Recycled Materials	3	0	0		3 of 3
25			RA1.4 Use Regional Materials	3	0	0		3 of 3
26			RA1.5 Divert Waste from Landfills	3	0	0		3 of 3
27			RA1.6 Reduce Excavated Materials Taken off Site	0	0	3		0 of 0
28			RA1.7 Provide for Deconstruction and Recycling	2	1	0		2 of 3
29		ENERGY	RA2.1 Reduce energy consumption	0	0	3		0 of 0
30			RA2.2 Use renewable energy	0	0	2		0 of 0
31			RA2.3 Commission and monitor energy systems	0	0	3		0 of 0
32		WATER	RA3.1 Protect fresh water availability	2	1	2		2 of 3
33			RA3.2 Reduce potable water consumption	0	0	4		0 of 0
34			RA3.3 Monitor water systems	2	2	0		2 of 4
			TOTAL	**18**	**4**	**19**		18 of 22
35	NATURAL WORLD	SITING	NW1.1 Preserve prime habitat	3	3	0		3 of 6
36			NW1.2 Protect wetlands and surface water	3	2	0		3 of 5
37			NW1.3 Preserve prime farmland	0	0	1		0 of 0
38			NW1.4 Avoid adverse geology	0	0	3		0 of 0
39			NW1.5 Preserve floodplain functions	2	0	4		2 of 2
40			NW1.6 Avoid unsuitable development on steep slopes	0	0	2		0 of 0
41			NW1.7 Preserve greenfields	2	0	0		2 of 2
42		LAND & WATER	NW2.1 Manage stormwater	2	1	0		2 of 3
43			NW2.2 Reduce pesticide and fertilizer impacts	3	0	2		3 of 3
44			NW2.3 Prevent surface and groundwater contamination	2	1	0		2 of 3
45		BIODIVERSITY	NW3.1 Preserve species biodiversity	3	1	0		3 of 4
46			NW3.2 Control invasive species	2	1	0		2 of 3
47			NW3.3 Restore disturbed soils	0	0	2		0 of 0
48			NW3.4 Maintain wetland and surface water functions	3	0	2		3 of 3
			TOTAL	**25**	**9**	**16**		25 of 34
49	CLIMATE	EMISSION	CR1.1 Reduce greenhouse gas emissions	0	0	2		0 of 0
50			CR1.2 Reduce air pollutant emissions	0	0	2		0 of 0
51		RESILIENCE	CR2.1 Assess climate threat	0	0	1		0 of 0
52			CR2.2 Avoid traps and vulnerabilities	0	0	2		0 of 0
53			CR2.3 Prepare for long-term adaptability	2	0	0		2 of 2
54			CR2.4 Prepare for short-term hazards	2	0	0		2 of 2
55			CR2.5 Manage heat islands effects	0	0	1		0 of 0









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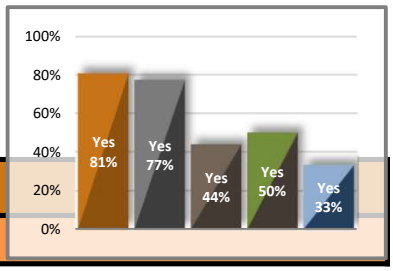


Quality of Life

1. Purpose

QL 1.1 Improve Community Quality of Life

Intent: Improve the net quality of life of all communities affected by the project and mitigate negative impacts to communities.

Metric: Measures taken to assess community needs and improve quality of life while minimizing negative impacts.

Assessment Questions:	Yes	No	N/A	
Are the relevant community needs, goals and issues being addressed in the project?	◉	○	○	?
Are the potentially negative impacts of the project on the host and nearby communities been reduced or eliminated?	◉	○	○	?
Has the project design received broad community endorsement, including community leaders and stakeholder groups?	◉	○	○	?
Total	3	of	3	

QL 1.2 Stimulate Sustainable Growth and Development

Intent: Support and stimulate sustainable growth and development, including improvements in job growth, capacity building, productivity, business attractiveness and livability.

Metric: Assessment of the project's impact on the community's sustainable economic growth and development.

Assessment Questions:	Yes	No	N/A	
Will the project contribute significantly to local employment?	○	◉	○	?
Will the project make a significant increase in local productivity?	◉	○	○	?
Will the project make the community more attractive to people and businesses?	◉	○	○	?
Total	2	of	3	

QL 1.3 Develop Local Skills and Capabilities

Intent: Expand the knowledge, skills and capacity of the community workforce to improve their ability to grow and develop.

Metric: The extent to which the project will improve local employment levels, skills mix and capabilities.

Assessment Questions:	Yes	No	N/A	
Does the project team intend to hire and train a substantial number of local workers?	◉	○	○	?

Does the project team intend to use a substantial number of local suppliers and specialty firms?	◉	○	○	?
Will the project, through local employment, subcontracting and education programs, make a substantial improvement in local capacity and competitiveness?	◉	○	○	?
Total 3 of 3				

2. Wellbeing

QL 2.1 Enhance Public Health and Safety

Intent: Take into account the health and safety implications of using new materials, technologies or methodologies above and beyond meeting regulatory requirements.

Metric: Efforts to exceed normal health and safety requirements, taking into account additional risks in the application of new technologies, materials and methodologies.

Assessment Questions:	**Yes**	**No**	**N/A**	
Does the owner and the project team intend to identify, assess and institute new standards to address additional risks and exposures created by the application of new technologies, materials, equipment and/or methodologies?	◉	○	○	?
Total 1 of 1				

QL 2.2 Minimize Noise and Vibration

Intent: Minimize noise and vibration generated during construction and in the operation of the completed project to maintain and improve community livability.

Metric: The extent to which noise and vibration will be reduced during construction and operation.

Assessment Questions:	**Yes**	**No**	**N/A**	
Will the project reduce noise and vibration to levels substantially below local permissable levels during construction and operation?	○	○	◉	?
Total 0 of 0				

QL 2.3 Minimize Light Pollution

Intent: Prevent excessive glare, light at night, and light directed skyward to conserve energy and reduce obtrusive lighting and excessive glare.

Metric: Lighting meets minimum standards for safety but does not spill over into areas beyond site boundaries, nor does it create obtrusive and disruptive glare.

Assessment Questions:	**Yes**	**No**	**N/A**	
Will the project be designed to reduce excessive lighting, prevent light spillage and preserve/restore the night sky?	○	○	◉	?
Total 0 of 0				

QL 2.4 Improve Community Mobility and Access

Intent: Locate, design and construct the project in a way that eases traffic congestion, improves mobility and access, does not promote urban sprawl, and otherwise improves community livability.

Metric: Extent to which the project improves access and walkability, reductions in commute times, traverse times to existing facilities and transportation. Improved user safety considering all modes, e.g., personal vehicle, commercial vehicle, transit and bike/pedestrian.

Assessment Questions:	Yes	No	N/A	
Will the project provide good, safe access to adjacent facilities, amenities and transportation hubs?	◉	○	○	?
Will the project design take into consideration the expected traffic flows and volumes in and around the project site to improve overall mobility and efficiency?	○	◉	○	?
Has the project team coordinated the design with other infrastructure assets to reduce traffic congestion, and improve walkability and livability?	○	◉	○	?
Total	1	of	3	

QL 2.5 Encourage Alternative Modes of Transportation

Intent: Improve accessibility to non-motorized transportation and public transit. Promote alternative transportation and reduce congestion.

Metric: The degree to which the project has increased walkability, use of public transit, non-motorized transit.

Assessment Questions:	Yes	No	N/A	
Will the project be within walking distance of accessible multi-modal transportation?	○	◉	○	?
Through its design, will the project encourage the use of transit and/or non-motorized transportation?	◉	○	○	?
Total	1	of	2	

QL 2.6 Improve Accessibility, Safety and Wayfinding

Intent: Improve user accessibility, safety, and wayfinding of the site and surrounding areas.

Metric: Clarity, simplicity, readability and broad-population reliability in wayfinding, user benefit and safety.

Assessment Questions:	Yes	No	N/A	
Will the project contain the appropriate signage for safety and wayfinding in and around the constructed works?	◉	○	○	?
Will the project address safety and accessibility in and around the constructed works for users and emergency personnel?	◉	○	○	?
Will the project extend accessibility and intuitive signage to protect nearby sensitive sites or neighborhoods?	◉	○	○	?
Total	3	of	3	

3. Community

QL 3.1 Preserve Historic and Cultural Resources

Intent: Preserve or restore significant historical and cultural sites and related resources to preserve and enhance community cultural resources.

Metric: Summary of steps taken to identify, preserve or restore cultural resources.

Assessment Questions:	Yes	No	N/A	
Will the project minimize negative impacts on historic and cultural resources?	◉	○	○	?
Will the project be designed so that it fully preserves and/or restores historic/cultural resources on or near the project site?	◉	○	○	?
Total	2	of	2	

QL 3.2 Preserve Views and Local Character

Intent: Design the project in a way that maintains the local character of the community and does not have negative impacts on community views.

Metric: Thoroughness of efforts to identify important community views and aspects of local landscape, including communities, and incorporate them into the project design.

Assessment Questions:	Yes	No	N/A	
Will the project be designed in a way that preserves views and local character?	◉	○	○	?
Will the project be designed to improve local character, views or the natural landscape through preservation and/or restorative actions?	◉	○	○	?
Total	2	of	2	

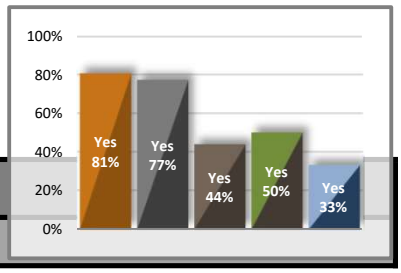
QL 3.3 Enhance Public Space

Intent: Improve existing public space including parks, plazas, recreational facilities, or wildlife refuges to enhance community livability.

Metric: Plans and commitments to preserve, conserve, enhance and/or restore the defining elements of the public space.

Assessment Questions:	Yes	No	N/A	
Will the project make meaningful enhancements to public space?	◉	○	○	?
Will the project result in a substantial restoration to public space?	◉	○	○	?
Total	2	of	2	

CONTINUE ON TO THE LEADERSHIP CATEGORY →



Leadership

1. Collaboration

LD1.1 Provide Effective Leadership and Commitment

Intent: Provide effective leadership and commitment to achieve project sustainability goals.

Metric: Demonstration of meaningful commitment of the project owner and the project team to the principles of sustainability and sustainable performance improvement.

Assessment Questions:	Yes	No	N/A	
Has the project team issued public statements stating their commitment to sustainability?	◉	○	○	?
Is the project team's commitment to sustainability backed up by examples of actions taken or to be taken?	◉	○	○	?
Does these commitments and actions demonstrate sufficiently that sustainability is a core value of the project team?	◉	○	○	?
Total	3	of	3	

LD 1.2 Establish a Sustainability Management System

Intent: Create a project management system that can manage the scope, scale and complexity of a project seeking to improve sustainable performance.

Metric: The organizational policies, authorities, mechanisms and business processes that have been put in place and the judgment that they are sufficient for the scope, scale and complexity of the project.

Assessment Questions:	Yes	No	N/A	
Does the project team intend to establish a sound, workable sustainability management system that meets the requirements of the project?	○	○	◉	?
Total	0	of	0	

LD 1.3 Foster Collaboration and Teamwork

Intent: Eliminate conflicting design elements, and optimize system by using integrated design and delivery methodologies and collaborative processes.

Metric: The extent of collaboration within the project team and the degree to which project delivery processes incorporate whole systems design and delivery approaches.

Assessment Questions:	Yes	No	N/A	
Are the project owner and the project team intending to take a systems view of the project, considering the performance relationship of this project to other community infrastructure elements?	○	○	◉	?
Will the project owner and the project team establish a collaborative relationship on the project to achieve higher levels of sustainable performance?	◉	○	○	?
Will the project owner and the project team institute a whole systems design and delivery process with the objective of maximizing sustainable performance?	○	○	◉	?

Total	1 of 1

LD 1.4 Provide for Stakeholder Involvement

Intent: Establish sound and meaningful programs for stakeholder identification, engagement and involvement in project decision making.

Metric: The extent to which project stakeholders are identified and engaged in project decision making. Satisfaction of stakeholders and decision makers in the involvement process.

Assessment Questions:	**Yes**	**No**	**N/A**	
Will key stakeholders in the project be identified and lines of communication established?	◉	○	○	?
Does the project team plan to engage with stakeholders and solicit stakeholder feedback?	◉	○	○	?
Will the project team establish a strong stakeholder involvement process designed to involve the public meaningfully in project decision-making?	◉	○	○	?
Total	3 of 3			

2. Management

LD 2.1 Pursue By-Product Synergy Opportunities

Intent: Reduce waste, improve project performance and reduce project costs by identifying and pursuing opportunities to use unwanted by-products or discarded materials and resources from nearby operations.

Metric: The extent to which the project team identified project materials needs, sought out nearby facilities with by-product resources that could meet those needs and capture synergy opportunities.

Assessment Questions:	**Yes**	**No**	**N/A**	
Will the project team establish a program to locate, assess and make use of unwanted by-products and materials on the project?	◉	○	○	?
Total	1 of 1			

LD 2.2 Improve Infrastructure Integration

Intent: Design the project to take into account the operational relationships among other elements of community infrastructure which results in an overall improvement in infrastructure efficiency and effectiveness.

Metric: The extent to which the design of the delivered works integrates with existing and planned community infrastructure, and results in a net improvement in efficiency and effectiveness.

Assessment Questions:	**Yes**	**No**	**N/A**	
Will the project team seek to optimize sustainable performance at the infrastructure component level?	◉	○	○	?
Will the project team seek to optimize sustainable performance by designing the project as an integrated system?	○	○	◉	?
Will the project be planned and designed so that its operation and functions are fully integrated with all infrastructure elements in the community?	◉	○	○	?
Total	2 of 2			

3. Planning

LD 3.1 Plan For Long-term Maintenance and Monitoring

Intent: Put in place plans and sufficient resources to ensure as far as practical that ecological protection, mitigation and enhancement measures are incorporated in the project and can be carried out.

Metric: Comprehensiveness and detail of long-term monitoring and maintenance plans, and commitment of resources to fund the activities.

Assessment Questions:	**Yes**	**No**	**N/A**	
Will the project have a plan for long term monitoring and maintenance?	◉	○	○	?
Will that plan be sufficiently comprehensive, covering all aspects of long-term monitoring and maintenance?	◉	○	○	?
Total	2	of	2	

LD 3.2 Address Conflicting Regulations and Policies

Intent: Work with officials to Identify and address laws, standards, regulations or policies that may unintentionally create barriers to implementing sustainable infrastructure.

Metric: Efforts to identify and change laws, standards, regulations and/or policies that may unintentionally run counter to sustainability goals, objectives and practices.

Assessment Questions:	**Yes**	**No**	**N/A**	
Will an assessment of applicable regulations, policies and standards be done, identifying those that may run counter to project sustainable performance goals, objectives and targets?	◉	○	○	?
Do the owner and the project team intend to approach decision-makers to resolve conflicts?	◉	○	○	?
Total	2	of	2	

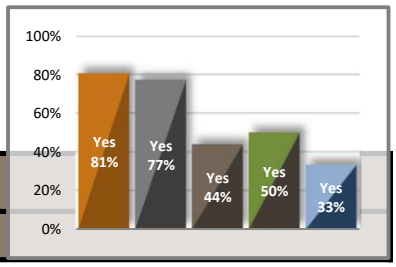
LD 3.3 Extend Useful Life

Intent: Meet energy needs through renewable energy sources.

Metric: Extent to which renewable energy resources are incorporated into the design, construction and operation.

Assessment Questions:	**Yes**	**No**	**N/A**	
Will the project be designed in ways that extend substantially the useful life of the project?	○	○	◉	?
Total	0	of	0	

CONTINUE ON TO THE RESOURCE ALLOCATION CATEGORY →



Resource Allocation

1. Materials

RA1.1 Reduce Net Embodied Energy

Intent: Conserve energy by reducing the net embodied energy of project materials over the project life.

Metric: Percentage reduction in net embodied energy from a life cycle energy assessment.

Assessment Questions:	Yes	No	N/A	
Does the project team plan to conduct an assessment of the embodied energy of key materials over the project life?	○	○	◉	?
Will the project achieve a significant reduction in net embodied energy over the life of the project?	○	○	◉	?
Total	0	of	0	

RA 1.2 Support Sustainable Procurement Practice

Intent: Obtain materials and equipment from manufacturers and suppliers who implement sustainable practices.

Metric: Percentage of materials sourced from manufacturers who meet sustainable practices requirements.

Assessment Questions:	Yes	No	N/A	
Will the project team establish a preference for using manufacturers, suppliers and service companies that have strong sustainable policies and practices?	◉	○	○	?
Will the project team establish a sound and viable sustainable procurement program?	◉	○	○	?
Does the project team intend to source a significant proportion of project materials, equipment, supplies and services from these companies?	◉	○	○	?
Total	3	of	3	

RA 1.3 Use Recycled Materials

Intent: Reduce the use of virgin materials and avoid sending useful materials to landfills by specifying reused materials, including structures, and material with recycled content.

Metric: Percentage of project materials that are reused or recycled.

Assessment Questions:	Yes	No	N/A	
Will the project team consider the appropriate reuse of existing structures and materials and incorporated them into the project?	◉	○	○	?
Will the project team specify that a significant amount of materials with recycled content be used on the project?	◉	○	○	?
Total	2	of	2	

RA 1.4 Use Regional Materials

Intent: Minimize transportation costs and impacts and retain regional benefits through specifying local sources.

Metric: Percentage of project materials by type and weight or volume sourced within the required distance.

Assessment Questions:	Yes	No	N/A	
Will the project team work to identify local/regional sources of materials?	◉	○	○	?
Does the project utilize a significant amount of locally sourced materials?	◉	○	○	?
Total	2	of	2	

RA 1.5 Divert Waste from Landfills

Intent: Reduce waste, and divert waste streams away from disposal to recycling and reuse.

Metric: Percentage of total waste diverted from disposal.

Assessment Questions:	Yes	No	N/A	
Will the project team identify potential recycling and reuse destinations for construction and demolition waste generated on site?	◉	○	○	?
Will the project team develop an operations waste management plan to decrease and divert project waste from landfills and incinerators during construction and operation?	◉	○	○	?
Will the project divert a significant amount of project waste from landfills?	◉	○	○	?
Total	3	of	3	

RA 1.6 Reduce Excavated Materials Taken Off Site

Intent: Minimize the movement of soils and other excavated materials off site to reduce transportation and environmental impacts.

Metric: Percentage of excavated material retained on site.

Assessment Questions:	Yes	No	N/A	
Will the project be designed to balance cut and fill to reduce the amount of excavated material taken off site?	○	○	◉	?
When necessary, will the project team taken steps to identify local sources/receivers of excavated material?	○	○	◉	?
Will the project reuse a significant amount of suitable excavated material onsite?	○	○	◉	?
Total	0	of	0	

RA 1.7 Provide for Deconstruction and Recycling

Intent: Encourage future recycling, up-cycling, and reuse by designing for ease and efficiency in project disassembly or deconstruction at the end of its useful life.

Metric: Percentage of components that can be easily separated for disassembly or deconstruction.

Assessment Questions:	Yes	No	N/A	
Will the project team assess whether materials specified can be easily recycled or reused after the useful life of the project has ended?	◉	○	○	?
Will the project be designed so that a significant amount of project materials be easily separated for recycling or readily reused at the end of the project's useful life?	◉	○	○	?

Will the project team incorporate methods for increasing the likelihood of materials recycling when the project is operating?	○	◉	○	?
Total 2 of 3				

2. Energy

RA 2.1 Reduce Energy Consumption

Intent: Conserve energy by reducing overall operation and maintenance energy consumption throughout the project life cycle.

Metric: Percentage of reductions achieved.

Assessment Questions:	**Yes**	**No**	**N/A**	
Will the project team conduct reviews to identify options for reducing energy consumption during operations and maintenance of the constructed works?	○	○	◉	?
Will the project team conducted feasibility studies and cost analyses to determine the most effective methods for energy reduction and incorporated them into the design?	○	○	◉	?
Is the project expected to achieve significant reductions in energy consumption?	○	○	◉	?
Total 0 of 0				

RA 2.2 Use Renewable Energy

Intent: Meet energy needs through renewable energy sources.

Metric: Extent to which renewable energy resources are incorporated into the design, construction and operation.

Assessment Questions:	**Yes**	**No**	**N/A**	
Will the owner and project team identify and analyze options to meet operational energy needs through renewable energy?	○	○	◉	?
Will the project meet a significant amount of its energy needs through renewable energy?	○	○	◉	?
Total 0 of 0				

RA 2.3 Commission and Monitor Energy Systems

Intent: Ensure efficient functioning and extend useful life by specifying the commissioning and monitoring of the performance of energy systems.

Metric: Third party commissioning of electrical/mechanical systems and documentation of system monitoring equipment in the design.

Assessment Questions:	**Yes**	**No**	**N/A**	
Does the owner and project team intend to conduct an independent commissioning of the project's energy and mechanical systems?	○	○	◉	?
Will the project team assemble the necessary information needed to train operations and maintenance workers in a way that facilitates proper training and operations?	○	○	◉	?
Will the design incorporate advanced monitoring systems, such as energy sub-meters, to enable more efficient operations?	○	○	◉	?
Total 0 of 0				

3. Water

RA 3.1 Protect Fresh Water Availability

Intent: Reduce the negative net impact on fresh water availability, quantity and quality.

Metric: The extent to which the project uses fresh water resources without replenishing those resources at its source.

Assessment Questions:	Yes	No	N/A	
Will the project team assess project water requirements?	◉	○	○	?
Does the project team plan to onduct a comprehensive assessment of the project's long-term impacts on water availability?	◉	○	○	?
Will the project only access water that can be replenished in both quantity and quality?	○	○	◉	?
Will the project consider the impacts of fresh water withdrawal on receiving waters?	◉	○	○	?
Will the project discharge into receiving waters meet quality and quantity requirements for high value aquatic species?	○	○	◉	?
Will the project achieve a net-zero impact on water supply quantity and quality?	◉	○	○	?
Will the project restore the quantity and quality of fresh water surface and groundwater supplies to an undeveloped native ecosystem condition?	○	◉	○	?
Total	4	of	5	

RA 3.2 Reduce Potable Water Consumption

Intent: Reduce overall potable water consumption and encourage the use of greywater, recycled water, and stormwater to meet water needs.

Metric: Percentage of water reduction.

Assessment Questions:	Yes	No	N/A	
Will the project team conduct planning or design reviews to identify potable water reduction strategies?	○	○	◉	?
Will the project team conduct feasibility and cost analysis to determine the most effective methods for potable water reduction and incorporated them into the design?	○	○	◉	?
Will the project achieve a substantial reduction in potable water consumption?	○	○	◉	?
Will the project result in a net positive generation of water, and water up-cycling, as a result of on-site purification or treatment?	○	○	◉	?
Total	0	of	0	

RA 3.3 Monitor Water Systems

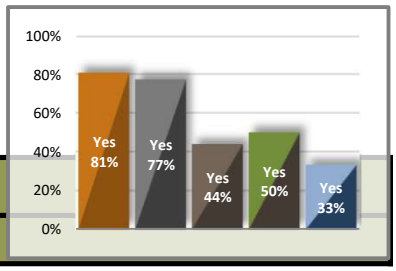
Intent: Implement programs to monitor water systems performance during operations and their impacts on receiving waters.

Metric: Documentation of system in the design

Assessment Questions:	Yes	No	N/A	
Will the owner and project team conduct an independent commissioning/monitoring of the project's water systems in order to validate the design objectives?	◉	○	○	?

Will the project design incorporate the means to monitor water performance during operations?	○	◉	○	?
Will the project integrate long-term operations and impact monitoring to mitigate negative impacts and improve efficiency?	◉	○	○	?
Will specific strategies be put in place to utilize monitoring and leak detection in order for the project to be more responsive to changing operating conditions?	○	◉	○	?
Total	2	of	4	

CONTINUE ON TO THE NATURAL WORLD CATEGORY →



Natural World

1. Siting

NW 1.1 Preserve Prime Habitat

Intent: Avoid placing the project – and the site compound/temporary works – on land that has been identified as of high ecological value or as having species of high value.

Metric: Avoidance of high ecological value sites and establishment of protective buffer zones.

Assessment Questions:	Yes	No	N/A	
Will the project team take steps to identify and document areas of prime habitat near or on the site?	◉	○	○	?
Will the project avoid development on land that is judged to be prime habitat?	◉	○	○	?
Will the project establish a minimum 300 ft. natural buffer zone around all areas deemed prime habitat?	○	◉	○	?
Will the project significantly increase the area of prime habitat through habitat restoration?	○	◉	○	?
Will the project improve habitat connectivity by linking habitats?	○	◉	○	?
Total	2	of	5	

NW 1.2 Protect Wetlands and Surface Water

Intent: Protect, buffer, enhance and restore areas designated as wetlands, shorelines, and waterbodies by providing natural buffer zones, vegetation and soil protection zones.

Metric: Size of natural buffer zone established around all wetlands, shorelines, and waterbodies.

Assessment Questions:	Yes	No	N/A	
Will the project avoid development on wetlands, shorelines, and waterbodies?	○	◉	○	?
Will the project maintain soil protection zones (VSPV) around all wetlands, shorelines, and waterbodies?	○	◉	○	?
Will the project restore degraded existing buffer zones to a natural state?	◉	○	○	?
Total	1	of	3	

NW 1.3 Preserve Prime Farmland

Intent: Identify and protect soils designated as prime farmland, unique farmland, or farmland of statewide importance.

Metric: Percentage of prime farmland avoided during development.

Assessment Questions:	Yes	No	N/A	
Will this project avoid development on land designated as prime farmland.	○	○	◉	?

Total	0 of 0

NW 1.4 Avoid Adverse Geology

Intent: Avoid development in adverse geologic formations and safeguard aquifers to reduce natural hazards risk and preserve high quality groundwater resources.

Metric: Degree to which natural hazards and sensitive aquifers are avoided and geologic functions maintained.

Assessment Questions:	Yes	No	N/A	
Will the project team identify and address the impacts of sensitive or adverse geology?	○	○	◉	?
Will the project be designed to reduce the risk of damage to sensitive geology?	○	○	◉	?
Will the project be designed to reduce the risk of damage from adverse geology?	○	○	◉	?
Total	0 of 0			

NW 1.5 Preserve Floodplain Functions

Intent: Preserve floodplain functions by limiting development and development impacts to maintain water management capacities and capabilities.

Metric: Efforts to avoid floodplains or maintain predevelopment floodplain functions.

Assessment Questions:	Yes	No	N/A	
Will the project avoid or limit development within the design frequency floodplain?	○	○	◉	?
Will the project maintain pre-development floodplain infiltration and water quality?	○	○	◉	?
Will the project design incorporate a flood emergency operations and/or evacuation plan?	◉	○	○	?
Will the project maintain or enhance riparian and aquatic habitat, including aquatic habitat connectivity?	◉	○	○	?
Will the project maintain sediment transport?	○	○	◉	?
Does the project team intend to modify or remove infrastructure subject to frequent damage by floods?	○	○	◉	?
Total	2 of 2			

NW 1.6 Avoid Unsuitable Development on Steep Slopes

Intent: Protect steep slopes and hillsides from inappropriate and unsuitable development in order to avoid exposures and risks from erosion and landslides, and other natural hazards.

Metric: The degree to which development on steep slopes is avoided, or to which erosion control and other measures are used to protect the constructed works as well as other downslope structures.

Assessment Questions:	Yes	No	N/A	
Will the project team use best management practices to manage erosion and prevent landslides?	○	○	◉	?

Will the project team minimize or avoid all development on or disruption to steep slopes?	○	○	◉	?
Total 0 of 0				

NW 1.7 Preserve Greenfields

Intent: Conserve undeveloped land by locating projects on previously developed greyfield sites and/or sites classified as brownfields.

Metric: Percentage of site that is a greyfield or the use and cleanup of a site classified as a brownfield.

Assessment Questions:	**Yes**	**No**	**N/A**	
Will the project team consider how the project can conserve undeveloped land?	◉	○	○	?
Will a significant amount of the project development be located on previously developed sites, that is, sites classified as greyfields or brownfields?	◉	○	○	?
Total 2 of 2				

2. Land and Water

NW 2.1 Manage Stormwater

Intent: Minimize the impact of infrastructure on stormwater runoff quantity and quality.

Metric: Infiltration and evapotranspiration capacity of the site and return to pre-development capacities.

Assessment Questions:	**Yes**	**No**	**N/A**	
Will the project be designed to reduce storm runoff to pre-development conditions?	◉	○	○	?
Will the project be designed to significantly improve water storage capacity?	○	◉	○	?
Total 1 of 2				

NW 2.2 Reduce Pesticides and Fertilizer Impacts

Intent: Reduce non-point source pollution by reducing the quantity, toxicity, bioavailability and persistence of pesticides and fertilizers, or by eliminating the need for the use of these materials.

Metric: Efforts made to reduce the quantity, toxicity, bioavailability and persistence of pesticides and fertilizers used on site, including the selection of plant species and the use of integrated pest management techniques.

Assessment Questions:	**Yes**	**No**	**N/A**	
Will operational policies be put in place to control and reduce the application of fertilizers and pesticides?	○	○	◉	?
Will the project include runoff controls to minimize contamination of ground and surface water?	◉	○	○	?
Will the project team select landscaping plants to minimize the need for fertilizer or pesticides?	◉	○	○	?
Will the project team select fertilizers and pesticides appropriate for site conditions with low-toxicity, persistence, and bioavailability?	○	○	◉	?
Will the project designed to eliminate the need for pesticides or fertilizers?	◉	○	○	?
Total 3 of 3				

NW 2.3 Prevent Surface + Groundwater Contamination

Intent: Preserve fresh water resources by incorporating measures to prevent pollutants from contaminating surface and groundwater and monitor impacts over operations.

Metric: Designs, plans and programs instituted to prevent and monitor surface and groundwater contamination.

Assessment Questions:	Yes	No	N/A	
Will the project team conduct or aquire hydrologic delineation studies?	○	◉	○	?
Will spill and leak prevention and response plans and design be incorporated into the design?	○	○	◉	?
Will the project design reduce or eliminate potentially polluting substances from the project?	◉	○	○	?
Will the project team seek to reduce future contamination by cleaning up areas of contamination and instituting land use controls to limit the introduction of future contamination sources?	◉	○	○	?
Total	2	of	3	

3. Biodiversity

NW 3.1 Preserve Species Biodiversity

Intent: Protect biodiversity by preserving and restoring species and habitats.

Metric: Degree of habitat protection.

Assessment Questions:	Yes	No	N/A	
Will the project team identify existing habitats on and near the project site?	◉	○	○	?
Will the project protect existing habitats?	◉	○	○	?
Will the project increase the quality or quantity of existing habitat?	○	◉	○	?
Will the project preserve, or improve, wildlife movement corridors?	◉	○	○	?
Total	3	of	4	

NW 3.2 Control Invasive Species

Intent: Use appropriate non-invasive species and control or eliminate existing invasive species.

Metric: Degree to which invasive species have been reduced or eliminated.

Assessment Questions:	Yes	No	N/A	
Will the project team specify locally appropriate and non-invasive plants on the site?	◉	○	○	?
Will the project team implement a comprehensive management plan to identify, control, and/or eliminate, invasive species?	◉	○	○	?
Will the project team implement a comprehensive management plan to prevent or mitigate the future encroachment of invasive species?	○	◉	○	?
Total	2	of	3	

NW 3.3 Restore Disturbed Soils

Intent: Restore soils disturbed during construction and previous development to bring back ecological and hydrological functions.

Metric: Percentage of disturbed soils restored.

Assessment Questions:	**Yes**	**No**	**N/A**	
Will the project restore 100% of soils disturbed during construciton?	○	○	◉	?
Will the project restore 100% of soils disturbed by previous development?	○	○	◉	?
Total	0	of	0	

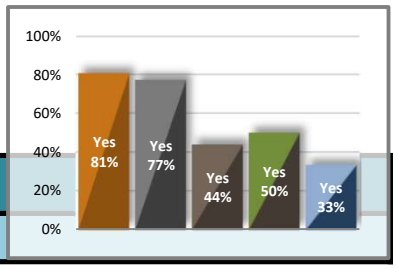
NW 3.4 Maintain Wetland & Surface Water Functions

Intent: Maintain and restore the ecosystem functions of streams, wetlands, waterbodies and their riparian areas.

Metric: Number of functions maintained and restored.

Assessment Questions:	**Yes**	**No**	**N/A**	
Will the project maintain or enhance hydrologic connetion?	○	○	◉	?
Will the project maintain or enhance water quality?	◉	○	○	?
Will the project maintain or enhance habitat?	◉	○	○	?
Will the project maintain or restore sediment transport?	○	○	◉	?
Will wetlands and surface water be maintained or restored so as to have a fully functioning aquatic and riparian ecosystem?	◉	○	○	?
Total	3	of	3	

CONTINUE ON TO THE CLIMATE AND RISK CATEGORY →



Climate and Risk

1. Emissions

CR1.1 Reduce Greenhouse Gas Emissions

Intent: Conduct a comprehensive life-cycle carbon analysis and use this assessment to reduce the anticipated amount of net greenhouse gas emissions during the life cycle of the project, reducing project contribution to climate change.

Metric: Life-cycle net carbon dioxide equivalent (CO_2e) emissions.

Assessment Questions:	Yes	No	N/A	
Will a life-cycle carbon assessment be conducted on the project?	○	○	◉	?
Based on that assessment, will the project be designed in a way that substantially reduces carbon emissions?	○	○	◉	?
Total	0	of	0	

CR 1.2 Reduce Air Pollutant Emissions

Intent: Reduce the emission of six criteria pollutants; particulate matter (including dust), ground level ozone, carbon monoxide, sulfur oxides, nitrogen oxides, lead, and noxious odors.

Metric: Measurements of air pollutants as compared to standards used.

Assessment Questions:	Yes	No	N/A	
Will the project be designed in a way that substantially reduces dust and odors on the site?	○	○	◉	?
Will the project be designed in a way that substantially exceeds the National Ambient Air Quality Standards (NAAQS) for the six criteria pollutants?	○	○	◉	?
Total	0	of	0	

2. Resilience

CR 2.1 Assess Climate Threat

Intent: Develop a comprehensive Climate Impact Assessment and Adaptation Plan.

Metric: Summary of steps taken to prepare for climate variation and natural hazards.

Assessment Questions:	Yes	No	N/A	
Will the project team develop a Climate Impact Assessment and Adaptation Plan?	○	○	◉	?
Total	0	of	0	

CR 2.2 Avoid Traps and Vulnerabilities

Intent: Avoid traps and vulnerabilities that could create high, long-term costs and risks for the affected communities.

Metric: The extent of the assessment of potential long-term traps, vulnerabilities and risks due to long-term changes such as climate change and the degree to which these were addressed in the project design and in community design criteria.

Assessment Questions:	Yes	No	N/A	
Will a comprehensive review be conducted to identify the potential risks and vulnerabilities that would be created or made worse by the project?	○	○	◉	?
Is there an intent by the owner or the project team to alter the design to reduce or eliminate these risks and vulnerabilities?	○	○	◉	?
Total	0	of	0	

CR 2.3 Prepare for Long-Term Climate Adaptability

Intent: Prepare infrastructure systems to be resilient to the consequences of long-term climate change, perform adequately under altered climate conditions, or adapt to other long-term change scenarios.

Metric: The degree to which the project has been designed for long-term resilience and adaptation.

Assessment Questions:	Yes	No	N/A	
Will the project be designed to accommodate a changing operating environment throughout the project life cycle?	◉	○	○	?
Total	1	of	1	

CR 2.4 Prepare for Short-Term Hazards

Intent: Increase resilience and long-term recovery prospects of the project and site from natural and man-made short-term hazards.

Metric: Steps taken to improve protection measures beyond existing regulations.

Assessment Questions:	Yes	No	N/A	
Will a hazard analysis be conducted covering the likely natural and man-made hazards in the project area area?	◉	○	○	?
Will the project be designed so that is it is able to recover quickly and cost-effectively from short-term hazard events?	◉	○	○	?
Total	2	of	2	

CR 2.5 Manage Heat Island Effects

Intent: Minimize surfaces with a high solar reflectance index (SRI) to reduce localized heat accumulation and manage microclimates.

Metric: Percentage of site area that meets SRI Criteria.

Assessment Questions:	Yes	No	N/A	
Will the project be designed to reduce heat island effects by reducing the percentage of low solar reflectance index (SRI) surfaces?	○	○	◉	?
Total	0	of	0	

	Total #?s	Question Answers							Total Response for Credit			
		#1	#2	#3	#4	#5	#6	#7	Yes	No	NA	Total
QL1.1 Improve community quality of life	3	1	1	1					3	0	0	3
QL1.2 Stimulate sustainable growth and development	3	2	1	1					2	1	0	3
QL1.3 Develop local skills and capabilities	3	1	1	1					3	0	0	3
QL2.1 Enhance public health and safety	1	1							1	0	0	1
QL2.2 Minimize noise and vibration	1	4							0	0	1	0
QL2.3 Minimize light pollution	1	4							0	0	1	0
QL2.4 Improve community mobility and access	3	1	2	2					1	2	0	3
QL2.5 Encourage alternative modes of transportation	2	2	1						1	1	0	2
QL2.6 Improve site accessibility, safety and wayfinding	3	1	1	1					3	0	0	3
QL3.1 Preserve historic and cultural resources	2	1	1						2	0	0	2
QL3.2 Preserve views and local character	2	1	1						2	0	0	2
QL3.3 Enhance public space	2	1	1						2	0	0	2
LD1.1 Provide effective leadership and commitment	3	1	1	1					3	0	0	3
LD1.2 Establish a sustainability management system	1	5							0	0	1	0
LD1.3 Foster collaboration and teamwork	3	5	1	5					1	0	2	1
LD1.4 Provide for stakeholder involvement	3	1	1	1					3	0	0	3
LD2.1 Pursue by-product synergy opportunities	1	1							1	0	0	1
LD2.2 Improve infrastructure integration	3	1	5	1					2	0	1	2
LD3.1 Plan for long-term monitoring and maintenance	2	1	1						2	0	0	2
LD3.2 Address conflicting regulations and policies	2	1	1						2	0	0	2
LD3.3 Extend useful life	1	5							0	0	1	0
RA1.1 Reduce net embodied energy	2	3	3						0	0	2	0
RA1.2 Support sustainable procurement practices	3	1	1	1					3	0	0	3
RA1.3 Use recycled materials	2	1	1						2	0	0	2
RA1.4 Use regional materials	2	1	1						2	0	0	2
RA1.5 Divert waste from landfills	3	1	1	1					3	0	0	3
RA1.6 Reduce excavated materials taken off site	3	3	3	3					0	0	3	0
RA1.7 Provide for deconstruction and recycling	3	1	1	2					2	1	0	3
RA2.1 Reduce energy consumption	3	3	3	3					0	0	3	0
RA2.2 Use renewable energy	2	3	3						0	0	2	0
RA2.3 Commission and monitor energy systems	3	3	3	3					0	0	3	0
RA3.1 Protect fresh water availability	7	1	1	3	1	3	1	2	4	1	2	5
RA3.2 Reduce potable water consumption	4	3	3	3	3				0	0	4	0
RA3.3 Monitor water systems	4	1	2	1	2				2	2	0	4
NW1.1 Preserve prime habitat	5	1	1	2	2	2			2	3	0	5
NW1.2 Protect wetlands and surface water	3	2	2	1					1	2	0	3
NW1.3 Preserve prime farmland	1	3							0	0	1	0
NW1.4 Avoid adverse geology	3	3	3	3					0	0	3	0
NW1.5 Preserve floodplain functions	6	3	3	1	1	3	3		2	0	4	2
NW1.6 Avoid unsuitable development on steep slopes	2	3	3						0	0	2	0
NW1.7 Preserve greenfields	2	1	1						2	0	0	2
NW2.1 Manage stormwater	2	1	2						1	1	0	2
NW2.2 Reduce pesticide and fertilizer impacts	5	3	1	1	3	1			3	0	2	3
NW2.3 Prevent surface and groundwater contamination	3	2	3	1	1				2	1	0	3
NW3.1 Preserve species biodiversity	4	1	1	2	1				3	1	0	4
NW3.2 Control invasive species	3	1	1	2					2	1	0	3
NW3.3 Restore disturbed soils	2	3	3						0	0	2	0
NW3.4 Maintain wetland and surface water functions	5	3	1	1	3	1			3	0	2	3
CR1.1 Reduce greenhouse gas emissions	2	3	3						0	0	2	0
CR1.2 Reduce air pollutant emissions	2	3	3						0	0	2	0
CR2.1 Assess climate threat	1	3							0	0	1	0
CR2.2 Avoid traps and vulnerabilities	2	3	3						0	0	2	0
CR2.3 Prepare for long-term adaptability	1	1							1	0	0	1
CR2.4 Prepare for short-term hazards	2	1	1						2	0	0	2
CR2.5 Manage heat islands effects	1	3							0	0	1	0