



SCHEMATIC DESIGN NARRATIVE FOR

MARINE TERMINAL TRAIL & COOPER FIELD CONNECTOR

CITY OF TRENTON
TRENTON, NJ

JMT Project No. 20-02848-001

Submitted to:
BRS, Inc. (Representing the City of Trenton)

May 4, 2022
Revised June 10, 2022

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A. INTRODUCTION

Trenton City is seeking to upgrade and build a trail in Marine Terminal Park along the Delaware River in Trenton City, Mercer County NJ. The proposed trail would provide a new pathway which would serve as a connector between the D&R Canal Trail to the south and the existing trail network which terminates on the northern edge of Marine Terminal Park. The proposed trail would include a shared use facility, lighting improvements, and waterfront improvements within Marine Terminal Park.

In addition, the city is seeking to design and construct the Cooper Field Connector near the intersection of State Highway 29 and S. Warren Street. The Cooper Field Connector trail is located approximately 1 mile north of the Marine Terminal Trail and will connect Cooper Pool at Union Street with Cooper's Riverview and the South Riverwalk Park. In addition to a new trail facility, the Cooper Field Connector will also evaluate signal upgrades and crossing improvements at the intersection of State Highway 29 and S. Warren Street.

The following provides a summary of the schematic design process and plan.

B. EXISTING CONDITIONS

1. MARINE TERMINAL TRAIL AREA

The Marine Terminal Trail portion of the proposed project is located along the banks of the Delaware River, along Lamberton Road, between State Highway 29 and Canal Boulevard. The northern terminus of the project is Marine Terminal Park. The park consists primarily of open space with some wooded areas along the northern edge of the park. Existing elements of the park include a small vehicular parking area, an open lawn area, and an existing boardwalk, which is in disrepair, along the water's edge. The park property is owned and operated by the City of Trenton.

The project area continues south along the eastern banks of the Delaware River within an additional group of City owned properties. The first property includes an existing tenant business, Team Marine Center, and is located at 1501 Lamberton Road. The area identified for the proposed trail is located between the existing boat storage and maintenance building and the river's edge. This area is relatively level and clear and includes a few shade trees close to the water's edge. The next group of properties include two buildings which are leased by a variety of tenants. The proposed project area is located along the western edge of the existing buildings. This area includes an existing bituminous path, which is approximately 4-5 feet wide and in poor conditions. The area is open with vegetation located closer to the water's edge.

Continuing south, the project area goes through the Trenton Public Boat Launch area. This area of the project includes existing pedestrian improvements, including a paved surface and lighting, which could be used as a part of the proposed Marine Terminal Trail. Heavier vegetated areas exist within this property. South of the boat launch, the project area continues through another city owned property with an existing building which

is also leased through the city. Similar to the previous properties like this, the project area is located along the western edge of the building and the existing conditions include a 10-20 foot wide open area with heavier vegetation near the water's edge.

The southern terminus of the project consists of an undeveloped city property which is heavily wooded.

2. COOPER FIELD CONNECTOR AREA

The Cooper Field Connector portion of the project extends from the eastern edge of the Delaware River, near Cooper's Riverview, across State Highway 29 through the Cooper Field property to Cooper Pool and Steamboat Street Playground. West of State Highway 29, the project area includes the access drive and parking area for Cooper's Riverview and other riverfront activities. The Cooper Field property, east of State Highway 29, is an open space with an existing ball field, a small parking area, and trees aligned along an old railroad corridor.

C. MARINE TERMINAL TRAIL

1. DESIGN CRITERIA / TYPICAL SECTION

The trail facility for the Marine Terminal Trail and Cooper Field Connector will be designed to meet all relevant standards and guidelines. This includes AASHTO's Guide for Development of Bicycle Facilities (2012), Department of Justice's ADA Standards for Accessible Design (2010), and all relevant City and State guidelines. The following is summary of the key design criteria requirements.

- **Trail Width** – 10-14 feet
- **Shoulder** – 3-5 feet graded area, maximum slope of 1V:6H
- **Cross Slope** – 2% maximum
 - Not a requirement, but recommend a minimum of 1% cross slope to allow for drainage across the trail
- **Longitudinal Slope** – 5% maximum
- **Minimum Radius** – 60 feet (based on 18 mph design speed)
- **Railing** – required if 1V:3H slope or greater is within 5 feet of the paved trail surface
- **Railing Height** – 42 inches minimum

Based on the above criteria, a typical trail section has been established to include the following characteristics.

- **Trail Width** – 10 feet
- **Shoulder** – 2 feet at 5%, and tie in slope of 1V:6H maximum
- **Cross Slope** – 1.5%

2. CONCEPTUAL DESIGN DEVELOPMENT

The Marine Terminal Trail will tie into the existing public trail at the northern limits of Marine Terminal Park and continue south along the banks of the Delaware River and tie into Lamberton Road approximately 800 feet north of the intersection of Lamberton Road with Canal Boulevard. It is anticipated that an on-street route will be required from the southern trail terminus to meet up with the existing D&R Canal Trail.

Within the park, the trail will be located west of the existing restroom building and parallel the water's edge just east of the existing boardwalk and crane structures. The trail will continue south and be located between the existing buildings and banks of the Delaware River.

Key elements of the proposed trail facility include two "roadway" crossings, pedestrian scale lighting, the need for railing upgrades and new railing, and boardwalk/waterfront improvements within Marine Terminal Park.

During the conceptual design, various alignment alternatives were evaluated, and a preferred alignment was identified and advanced through schematic design. Refer to the attached **Conceptual Alternative Plans** for the alignments considered and the **Schematic Design Plans** for the horizontal and vertical alignments of the preferred trail.

i. Crossings

The proposed trail includes two crossings along the trail alignment. These crossings are not traditional roadway crossings, but the plan is to treat the crossing as such. The first crossing is located within the City-owned property at 1501 Lamberton Road. Within this property, the trail crosses an access drive between the boat storage area and the facilities floating docks, where boats are put into and taken out of the water. This crossing will result in conflict between the trail user and the operators at the boat storage facility during times when boats are put into or taken out of the water. Options were discussed to create a more secure crossing by closing the trail during these operations, but it was determined that this is not necessary. Instead, the plan is to treat the crossing as a typical roadway crossing, requiring the trail user to confirm safe passage before crossing. Continued coordination will be required with the owners of Team Marine Center as the design is progressed and details at this crossing are finalized.

The second crossing is located at the parking area for the public boat launch, where the trail crosses the existing boat launch ramp. Like the crossing at Team Marine Center, this crossing will be treated as a typical roadway crossing, requiring the trail user to confirm safe passage before crossing. This will include proper signage and bollards to protect trail users and keep vehicles from accessing the trail.

ii. Lighting

Pedestrian scale lighting will be included along the proposed trail. Details for the lighting will continue to be developed as the design of the trail progresses. It is anticipated that the proposed lighting will match the existing trail lighting and be based on Public Works standard lighting. Coordination will be required with PSEG and Public Works as the lighting design progresses.

Lighting with the boardwalk/waterfront improvements will also be evaluated. This could include accent lighting of the existing gantry cranes and/or low-level accent lighting throughout the boardwalk area.

iii. Railing

Rail improvements will be required at a few locations along the proposed trail. This includes both refurbished/repaired railing along the water's edge within Marine Terminal Park, as well as two other locations where the trail is within 5 feet of the top of bank leading down to the water's edge of the Delaware River. Details for the railing within the park will be developed to match the existing railing. Railing details at the other locations ideally will match the existing/proposed detail at the park. However, this will be evaluated further and a decision on the final detail of these railings will be determined based on overall project cost.

iv. Boardwalk / Waterfront Improvements

The alignment of the trail is proposed to be located just to the east of the existing boardwalk area within Marine Terminal Park. The conceptual design proposes upgrades to and extension of the existing boardwalk area to create a more formal pedestrian plaza between the trail and the railing overlooking the Delaware River. BRS has been coordinating with SHPO in regard to the existing boardwalk and it has been determined that the boardwalk is not historic and can be replaced.

Further design and development of the boardwalk plaza will be required as the design progressed to preliminary design and ultimately through final design. Design elements, including lighting and site furnishings, will be evaluated as a part of the design process.

v. Other Considerations

In addition to the key elements discussed above, there are a few other considerations which will need to be coordinated as the trail design progresses. One of these considerations is the proximity of and coordination with the living shoreline improvements near the northwest corner of Marine Terminal Park. The physical shoreline improvements will not impact the trail, but tie-in slopes may conflict with the trail. As design detail is established for both projects, this will need to be evaluated further to identify if any modifications to the trail alignment are needed.

A second additional consideration is the inclusion of rest areas along the trail. This will need to be evaluated along with the possibility of dedicating some of the existing parking within the City owned properties to trail users.

3. PERMITTING

Preliminary environmental site investigations were conducted, and no existing wetlands or other areas of environmental concern were identified within the project area. Based on these findings, a General Permit will not be required through DEP. However, the following permits will still be required.

- Water Development Permit

- SWM / E&S Permit (NPDES)

A pre-application meeting will be held with DEP during the early stages of the preliminary engineering phase. Application for these permits will be submitted in conjunction with the completion of the preliminary engineering (60%) plan.

D. COOPER FIELD CONNECTOR

1. DESIGN CRITERIA / TYPICAL SECTION

Refer to the design criteria discussion and typical elements for the Marine Terminal Trail portion of the project. The Cooper Field Connector will utilize the same criteria and consist of the same typical section.

2. CONCEPTUAL DESIGN DEVELOPMENT

The Cooper Field Connector trail will link the waterfront property and existing waterfront trail system west of State Highway 29 with the Cooper Pool and Cooper Field site on the east side of State Highway 29. This will include approximately 500 feet of new trail from the intersection, east to Union Street. This portion of the trail will most likely be located within the existing abandoned railroad corridor.

The trail improvements will also include proposed modifications to the existing pedestrian walkway along the access drive to the Old Wharf. The walkway will be widened to provide the 10' wide trail as well as a buffer from the access drive. In coordination with a separate initiative by the County, the parking area adjacent to the access drive will be modified to enhance the pedestrian and bicycle facilities along the access drive.

i. State Highway Crossing

Improvements associated with the crossing of State Highway 29 will primarily be focused on enhancements to the existing pedestrian facilities within the intersection. This includes proposed modifications to the splitter islands and curb returns at the intersection to help reduce the crossing lengths for pedestrians and bicyclists. In addition, the design team will evaluate potential signal modifications to improve safety and timing of the signal.

A pre-application will be conducted with NJDOT to determine if any other intersections improvements should be considered in conjunction with the Cooper Field Connector portion of the project.

3. PERMITTING

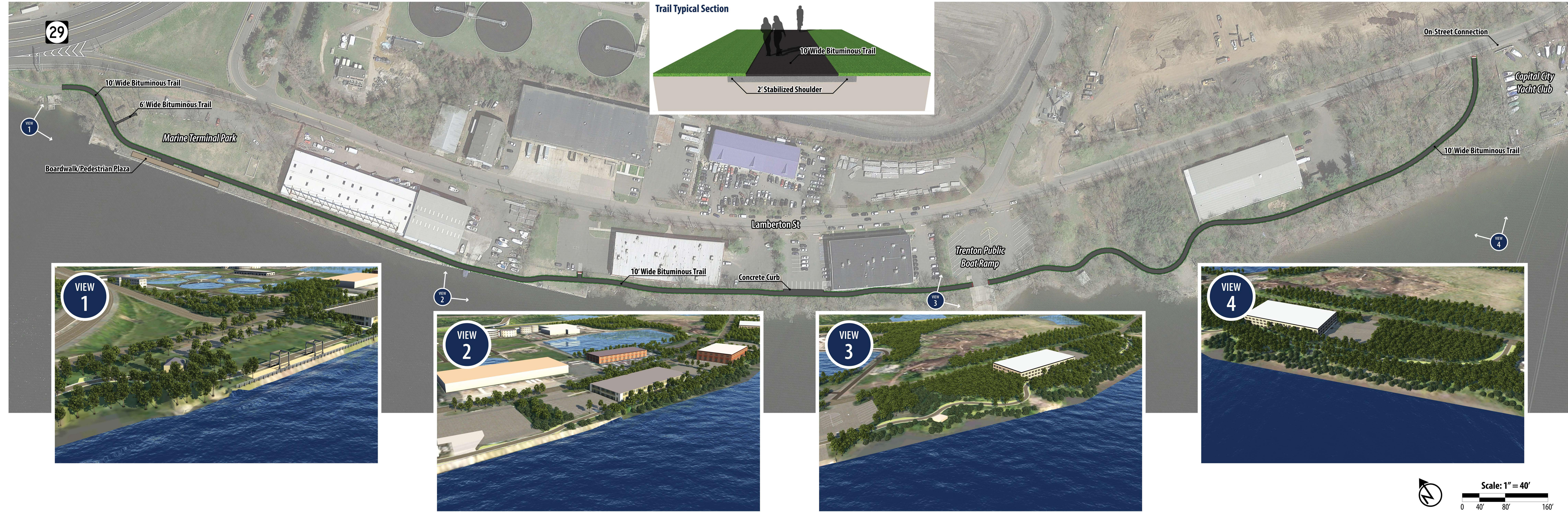
The Cooper Field Connector plans will be submitted as a part of the overall NPDES permit application for both the connector trail as well as the Marine Terminal Trail. In addition to the NPDES permit, a permit will be required from the NJDOT for any improvements associated with the signal and crossing of State Highway 29.

A pre-application meeting will be held with NJDOT during the early stages of the preliminary engineering phase. Application for permit through NJDOT, as well as the NDPES permit will be submitted in conjunction with the completion of the preliminary engineering (60%) plan.

E. COST ANALYSIS


The current construction estimate for the overall project is approximately \$1.4 million. Refer to the attached **Cost Estimate** for more detailed on the anticipated construction costs.

MARINE TERMINAL TRAIL

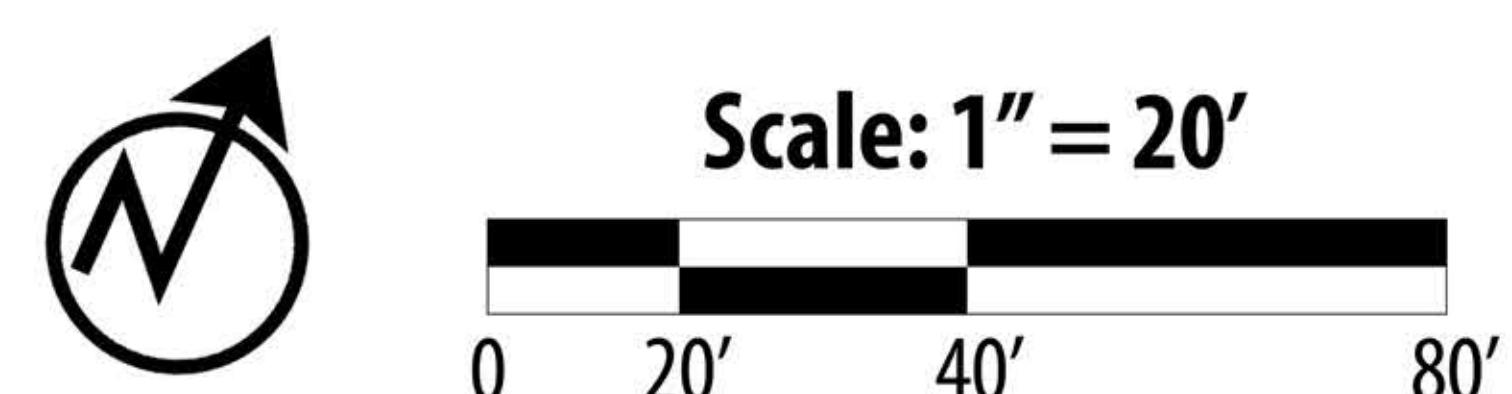
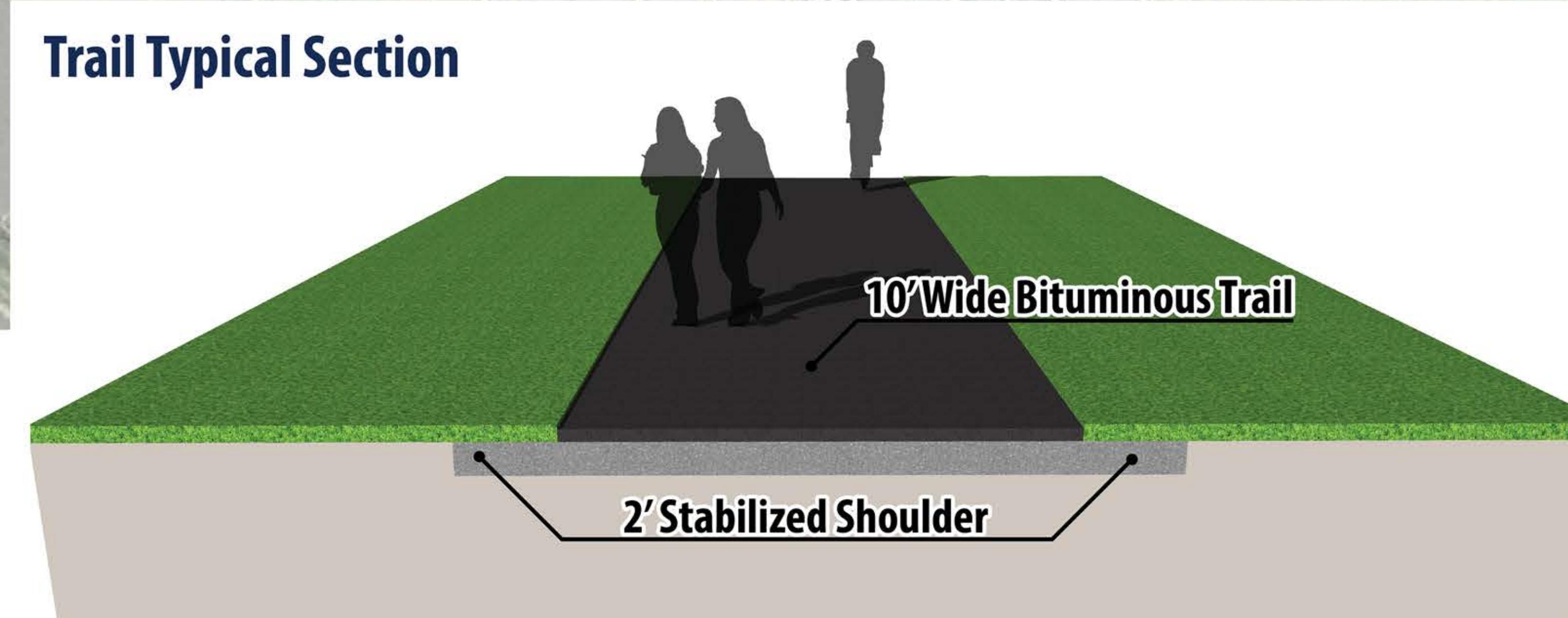


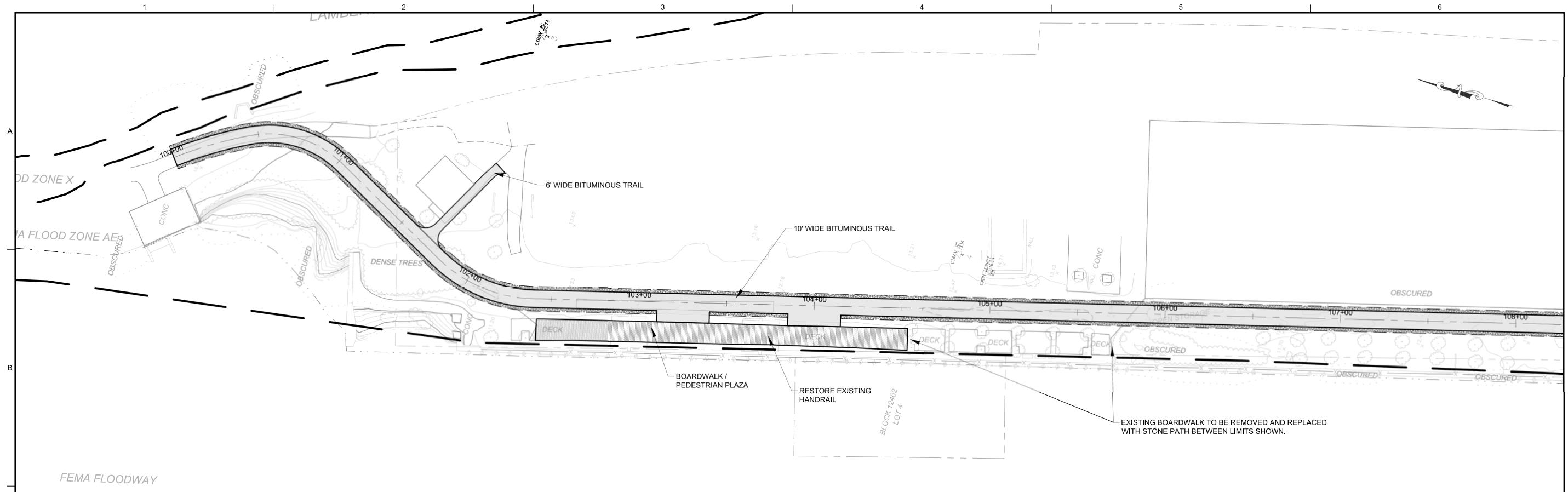
Scale: 1 = 4'
0 4' 8' 16' 20'

COOPER FIELD CONNECTOR



Trail Typical Section





0 ST. CHARLES WAY, SUITE 200 | YORK, PA 17402
P: (717) 741-1600 | F: (717) 741-9100 | www.jmt.com

AL:

EPARED FOR:
**CITY OF
TRENTON**
319 EAST STATE STREET
TRENTON, NEW JERSEY
08608

EDITIONS

JECT:
**MARINE TERMINAL
TRAIL AND COOPER
FIELD CONNECTOR**

JECT LOCATION:
1501 LAMBERTON ROAD
TRENTON, NEW JERSEY,
08611

PROJECT NUMBER:

20-0248-001

DATE: 06/09/2022 SCALE: 1" = XX'

AN SET:

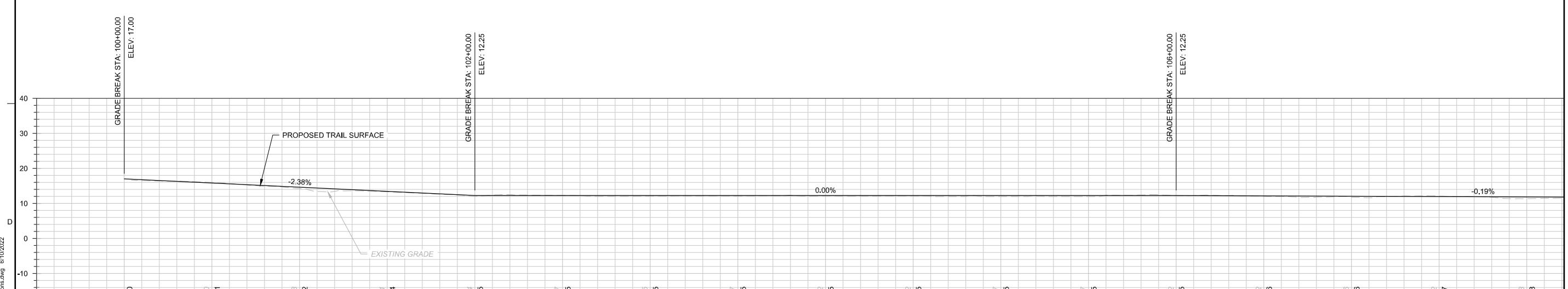
CONCEPT PLAN

DRAWING TITLE:

TRAIL PLAN AND

PROFILE

C-101



TRAIL PROFILE - STA 100+00 TO STA 108+00

HOR. SCALE: 1" =
VERT. SCALE: 1" =



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319 EAST STATE STREET
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08608

REVISIONS

PROJECT:
**MARINE TERMINAL
TRAIL AND COOPER
FIELD CONNECTOR**

PROJECT LOCATION:
1501 LAMBERTON ROAD
TRENTON, NEW JERSEY,
08611

PROJECT NUMBER:

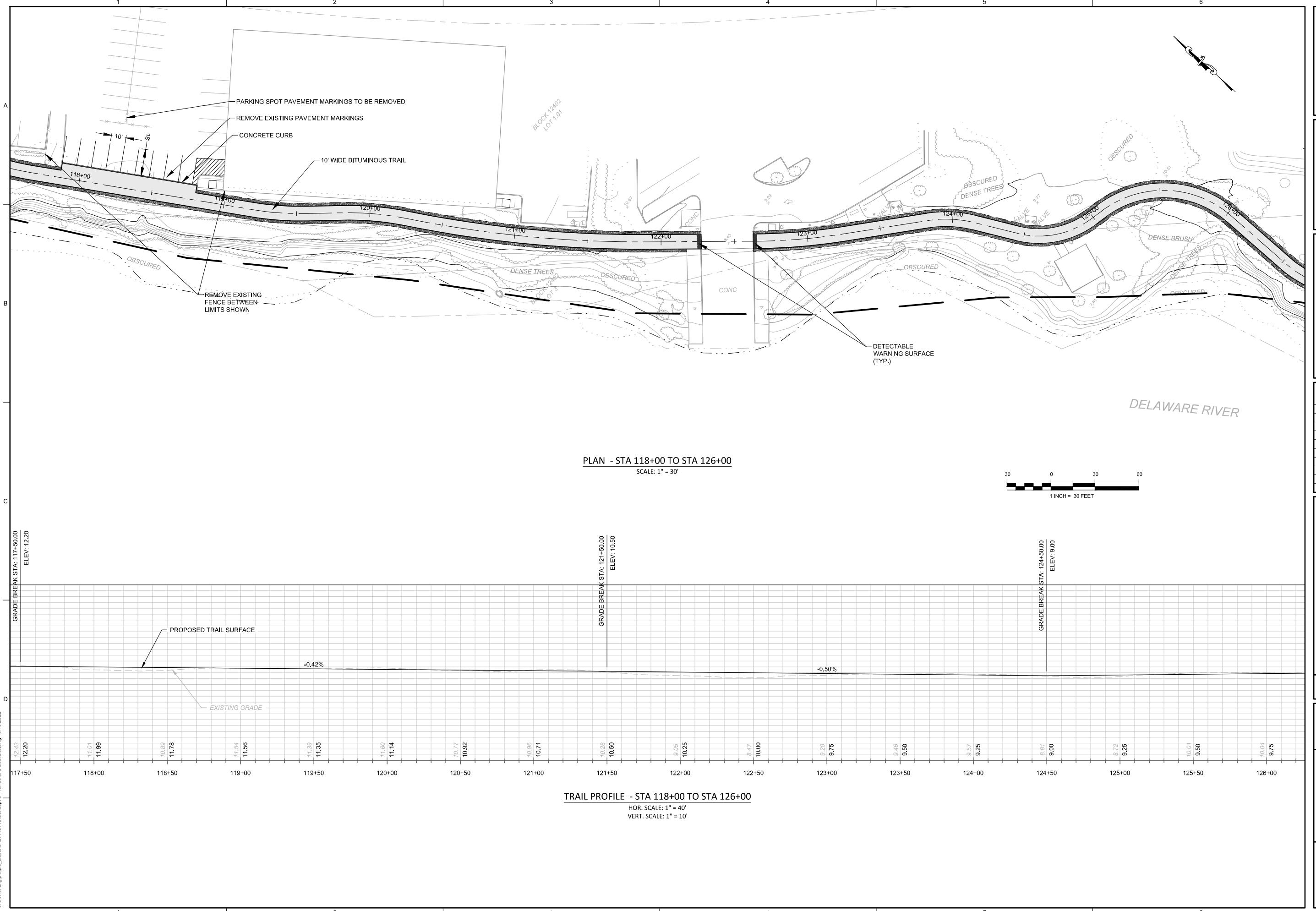
DATE: 06/09/2022

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DRAWING TITLE:

TRAIL PLAN AND IMPLEMENTATION

C-102



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608

VISIONS

ECT:
ARINE TERMINAL
RAIL AND COOPER
FIELD CONNECTOR

ECT LOCATION:
101 LAMBERTON ROAD
MONTON, NEW JERSEY,
611

JECT NUMBER:

09/2023

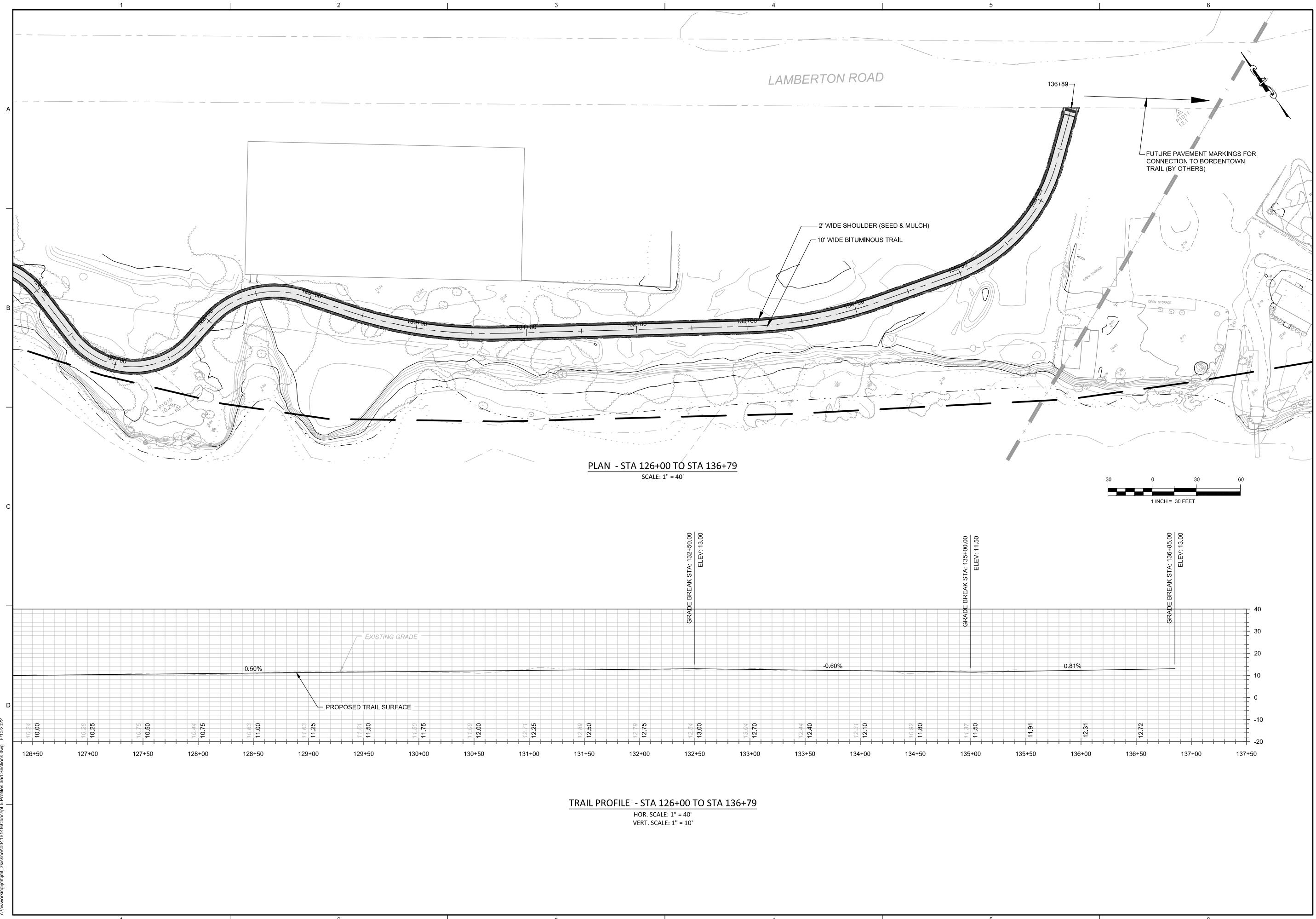
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TING TITLE:

TRAIL PLAN AND

STYLING NUMBER:

C-103



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08608

JECT:
MARINE TERMINAL
TRAIL AND COOPER
FIELD CONNECTOR

PROJECT LOCATION:
1501 LAMBERTON ROAD
TRENTON, NEW JERSEY,
08611

JECT NUMBER:

DATE: 06/09/2022 SCALE: 1" = X

AN SET:

CONCEPT PLAN

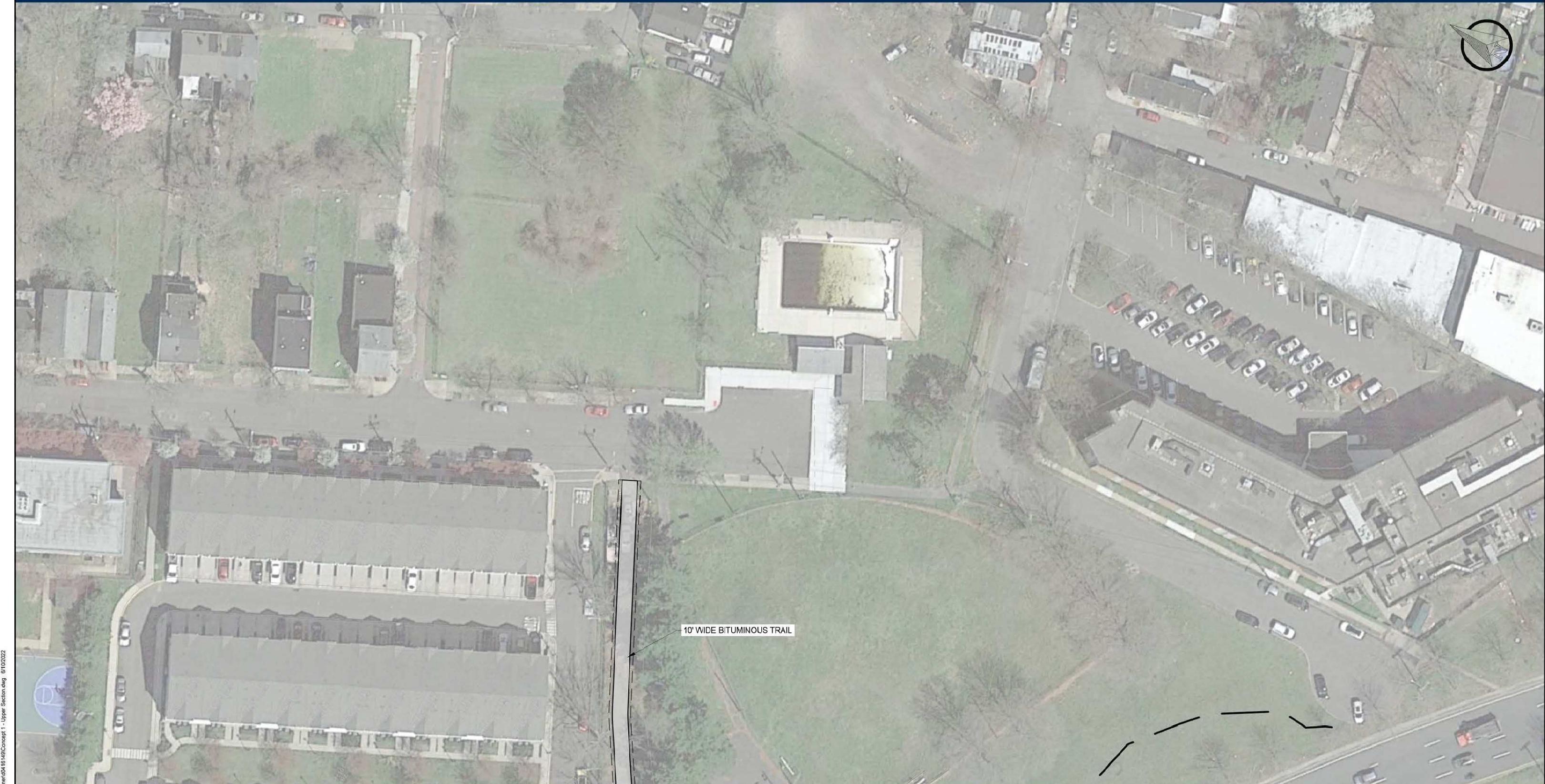
TRAIL PLATE PROPS

DRAWING NUMBER:

C-1

Marine Terminal Trail

Trenton, NJ



30 0 30 60
1 INCH = 30 FEET

Marine Terminal Trail

Trenton, NJ



Marine Terminal Trail

Trenton, NJ



30 0 30 60
1 INCH = 30 FEET