Leading Light Wind

Attachments to Section 15

Attachment 15.1

Leading Light Wind Operations and Maintenance Plan

Description of forecasted maintenance

[redacted]

Wind turbine (WTG)

All WTG maintenance activities will align to the WTG OEM maintenance recommendations and inspection schedules, which is reflected in the chart above. Annual planned maintenance activities will consist of inspections and maintenance of mechanical, electrical, structural, and safety systems.

[redacted]

Foundations

Foundations will be inspected for corrosion, cracking, and marine growth, both above and underwater, as reflected in the figure.

[redacted]

Offshore cabling

The offshore export cables and inter-array cables will be surveyed periodically to ensure that the minimum burial depth is maintained. However, no maintenance will occur unless burial depth is not

[redacted]

Remediation of scour protection, just as with foundations, will be on an as-needed basis driven by inspection results. Remote monitoring systems will identify areas requiring remediation and maintenance teams will be deployed when necessary.

Offshore substation

Topside planned maintenance of the offshore substation will include safety inspections and testing, coating touch up, and preventative maintenance of cranes, electrical equipment, and auxiliary equipment.

[redacted]

Subsea inspections and required remediation will align to the description found within the Foundations section above.

Onshore cabling and infrastructure

Infrastructure maintenance and inspections will primarily consist of vegetation management, which will be assessed and remediated annually.

[redacted]

Onshore substation

Annual inspections at the onshore substation will include safety inspections and maintenance of

[redacted]

[redacted]

Attachment 15.2

COWI O&M Feasibility and Preliminary Design Study

JULY, 2023
LEADING LIGHT WIND

NEW JERSEY OPERATIONS & MAINTENANCE FACILITY SUPPORT

FEASIBILITY AND PRELIMINARY DESIGN STUDY

COWI

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JULY, 2023
LEADING LIGHT WIND

NEW JERSEY OPERATIONS & MAINTENANCE FACILITY SUPPORT

FEASIBILITY AND PRELIMINARY DESIGN STUDY

PROJECT NO.	DOCUMENT NO.
A240810-007	A240810-007-001

VERSION	DATE OF ISSUE	DESCRIPTION	PREPARED	CHECKED	APPROVED
1.0	July 21, 2023	Report	CHBT/JMNO	BRCO	BRCO

CONTENTS

[redacted]

[redacted]

1 Introduction and Background

Leading Light Wind (LLW) is an American-led offshore wind project being developed by partners Invenergy & energyRe. LLW will bring locally sourced renewable energy to the East Coast. In early 2022, Leading Light Wind acquired lease OSC-A 0542 from The Bureau of Ocean Energy Management (BOEM), with a winning bid of $645 million. The 84,000-acre lease is located 40 miles east of Atlantic City and 80 miles south of Long Island.

Figure 1-1: Leading Light Wind Lease OCS-A 0542

Recently, LLW submitted a bid for the NY3 solicitation, and is planning to submit another bid for the NJ3 solicitation. For each solicitation, preference is given to the developer that will drive economic activity to the corresponding state. For the NY3 solicitation, LLW has proposed an Operations & Maintenance (O&M) facility at the Brooklyn Navy Yard (BNY). For the NJ3 solicitation, LLW plans to submit with our proposal a localized O&M facility in NJ to drive economic development to the state. NJ3 submissions by developers are due on June 23, 2023.

LLW retained COWI Consulting Inc (COWI) to provide Marine Support Services to LLW's NJ3 bid. The scope of services includes three (3) primary tasks:

- Task 1: Feasibility and Down-Select. COWI performed a technical feasibility review of the sites identified by LLW, as identified additional sites. Based on that technical review, COWI

[redacted]

- Task 2: Preliminary Designs. COWI prepared high level conceptual layouts of an O&M base at each of the down selected sites. High resolution versions of the layouts are found in Appendix B. The conceptual designs were intended to identify the major infrastructure improvements necessary to prepare each site to serve as the O&M base. Generally, these improvements consisted of demolition, dredging, ground improvements, marine structures, building and ancillary improvements. COWI also prepared Opinions of Probable Cost and Construction schedules to accompany the conceptual layouts.

- Task 3: Reporting. Works from Tasks 1 and 2 were compiled into this report. Additionally, COWI provided additional information to support the NJ3 bid, including regulatory considerations for the port developments, sustainability recommendations and initial estimates of job creation associated with the ports.

1.1 Version History

Version*	Date	Comment
1.0	July 21, 2023	Version 1.0

1.2 Acronyms and Abbreviations

ASCE	American Society of Civil Engineers
ASTM	American Society of Testing and Materials standards
BFE	Base Flood Elevation (FEMA)
BNY	Brooklyn Navy Yard
CAFRA	(NJDEP) Coastal Area Facility Review Act
CERCLA	US Code Comprehensive Environmental Response, Compensation, and Liability Act
COD	Commercial Operation Date
COWI	COWI Consulting, Inc.
CTV	Crew Transfer Vessel
CY	Cubic Yards
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	United States Environmental Protection Agency
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Signigigant Impact
ft.	feet
ha	Hectare
HazMat	Hazardous Materials
km	Kilometer
LEED	Leadership in Energy and Environmental Design
LLW	Leading Light Wind
m	Meter
MLW	Mean Low Water
MLLW	Mean Lower Low Water
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MW	Megawatt
nm	Nautical Mile
NAVD88	North American Vertical Datum of 1988
NEPA	National Environmental Protection Act
NGVD29	National Geodetic Vertical Datum of 1929
NPDES	National Pollution Discharge Elimination System
NJAC	New Jersey Administrative Code
NJ BPU	New Jersey Board of Public Utilities (administrator of NJ3 OSW bids)
NJ DEP	New Jersey Department of Environmental Protection
NJSA	New Jersey Statutes Annotated

OBC	"Overburdened Community", communities potentially in need of environmental justice as defined by NJ and published by NJ DEP
OCS	Outer Continental Shelf
O&M	Operations and Maintenance
OPPN	(NJDEP) Office of Permitting and Project Navigation
OSW	Offshore Wind
OWF	Offshore Wind Farm
pFIRM	Preliminary Flood Insurance Rate Map
ROD	Record of Decision
SF	Square Feet
SOV	Service Offshore Vessel
SWPPP	Stormwater Pollution Prevention Plan
t	Metric ton
UFC	Unified Facilities Criteria
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
WEA	Wind Energy Area
WEDG	Waterfront Edge Design Guidelines
WTG	Wind Turbine Generator

2 Infrastructure Improvements

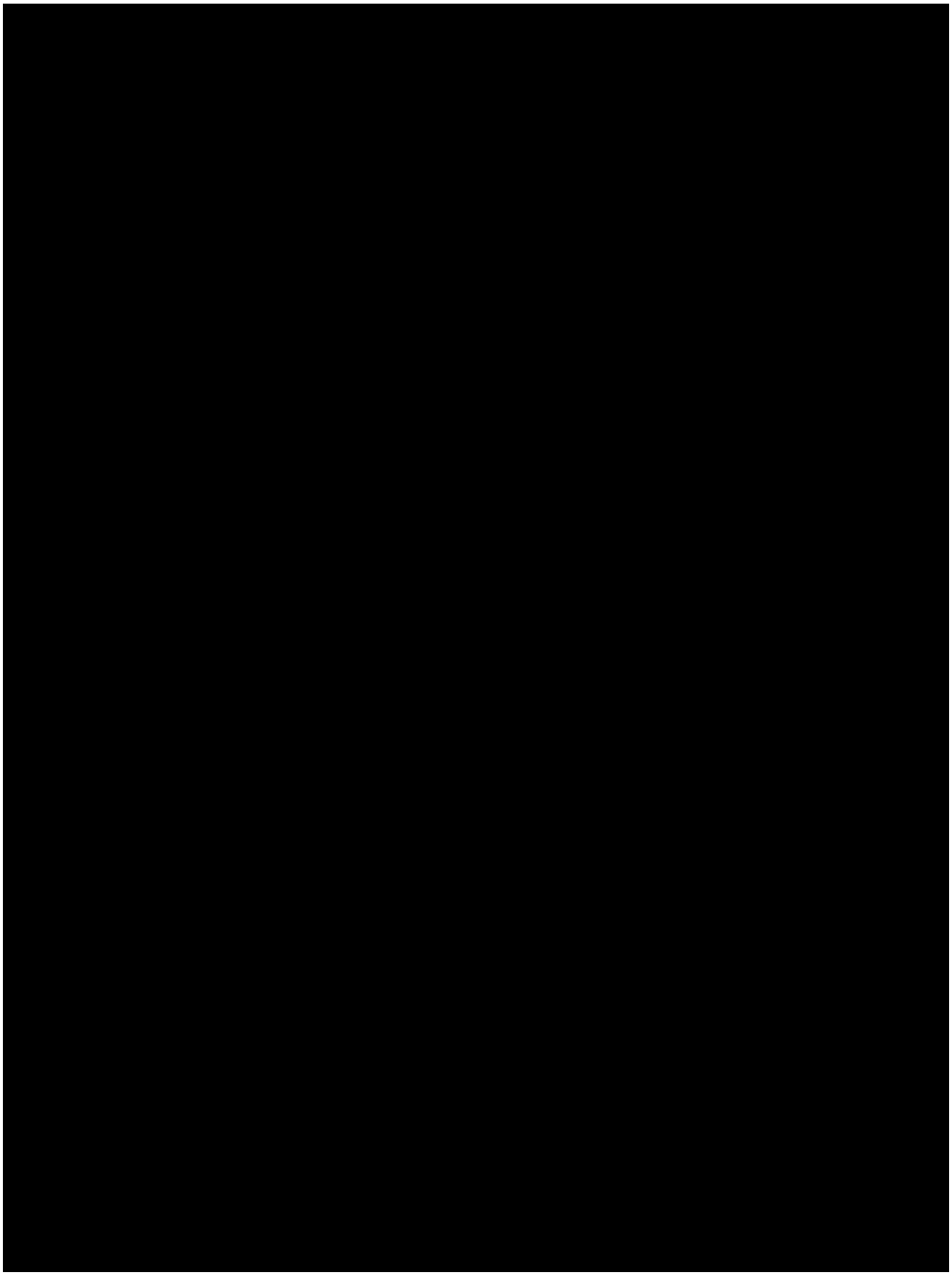
In the following sections, COWI has prepared an analysis of three waterfront facilities and proposed infrastructure investments necessary to develop each facility into an efficiently functioning O&M port. Unless noted otherwise within each facility's specific section, infrastructure improvements are proposed to accommodate the needs defined in 2.1. The general procedure for development of the accompanying Opinion of Probably Cost and development schedule are detailed in sections 2.2 and 2.3, respectively.

2.1 Basis of Design and General Requirements

The Operations and Maintenance Port will be a critical landside component of supporting offshore operations at Leading Light Wind's offshore wind farm. The port facility must meet a wide range of specifications, and provide for the following:

- a dedicated berthing area (waterside) to accommodate the project's Service and Operations Vessel (SOV) for 24-hour operations,
- a dedicated quayside area (landside) to facilitate personnel transfer and material handling on and off the SOV,
- a warehouse for storing critical spares and supplies for the OWF, as well as provisions and outfit for the SOV,
- an office Space for personnel overseeing OWF and SOV activities,
- parking for project personnel
- fueling mechanism for the SOV (preferred)
- a secure facility for worker safety and a waterfront in compliance with Maritime Security (MARSEC) requirements
- compliance and consideration of New Jersey's Overburdened Communities and environmental justice laws
- compliance and consideration to a clean environment
- Be located in relative proximity to the OWF for ease of transport and quick response time if needed (<100 nm preferred)
- Public access to waterfront and educational opportunities, where possible.

Critical facility parameters have been quantified in the following table.



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2.2 Opinion of Probable Cost Methodology

COWI has prepared an opinion of probable cost (OCP) for key improvements. The OPC analysis has been completed in accordance with AACE International Class 5 estimate guidelines. Class 5 estimates are used for feasibility studies where the current project definition is between 1% and 15% of full project definition with actual costs typically falling within 50% above to as little as 30% below the estimate.

The OPC is based on parametric cost estimating, using the quantity of units to determine the various layout alternatives and the unit costs based on observations of similar waterfront infrastructure improvement projects in the New York Harbor and New Jersey Area within the past 10 years. Cost values are presented in 2026 U.S. Dollars.

The OPCs generally include the following sections:

- Professional Services
  - This feasibility assessment considered professional services as 10% of the sum of capital expenditures including mobilization. This percentage encompasses typical programming, engineering, federal and state permitting, and management of construction site activities.
- Mobilization/Demobilization
  - Mobilization and demobilization generally considers the work and operations required for movement of personnel and equipment to site, as well as setup of required temporary facilities. This feasibility assessment considered contractor mobilization and demobilization at an assumed 10% of the sum of other primary construction activities.

Additional sections are described specific to the improvements at each facility and are described in their own respective sections.

Unless noted otherwise, the following are generally excluded from the OPCs:

- Site Acquisition/Lease Costs
- Large scale environmental remediation (if required)
- Environmental Mitigation and Public Access
- Intermodal Connections

- Outfit of buildings (e.g. furniture, plants, computers, etc..)
- Operation equipment.

Note that COWI has no control over the cost of labor, materials, equipment, or services furnished by others, or over the contractor's methods of determining prices, or over competitive bidding or market conditions. COWI's opinions of probable project cost and construction cost are made on the basis of COWI's judgement as experienced and qualified professional engineers, familiar with the construction industry; but COWI cannot and does not guarantee that proposals, bids or actual project or construction costs will not vary from opinions of probable cost prepared by COWI.

2.3 Schedule Methodology

COWI has prepared the preliminary project schedules for each subject site considering the general design, permitting, mobilization and construction of infrastructure improvements. The schedules are tailored to represent each individual project by major components displayed as a Gantt chart. Overarching key milestones are comparable to the OPC line items and directly relate to proposed improvements on the appended drawings. It should be noted that these schedules are based on design-bid-build construction methodologies and timescales typically observed in the New York Region; it reflects a high-level analysis herein and is subject to change after more detailed engineering analysis. The reports have been developed in accordance with Level 1 analysis in accordance with AACE, International Recommended Practice No. 37R-06.

For ease of comparison, all of the projected schedules have a start date of January 1, 2023. Schedules are subject to change depending on LLW's program, regulatory approvals, contractor availability and other considerations.

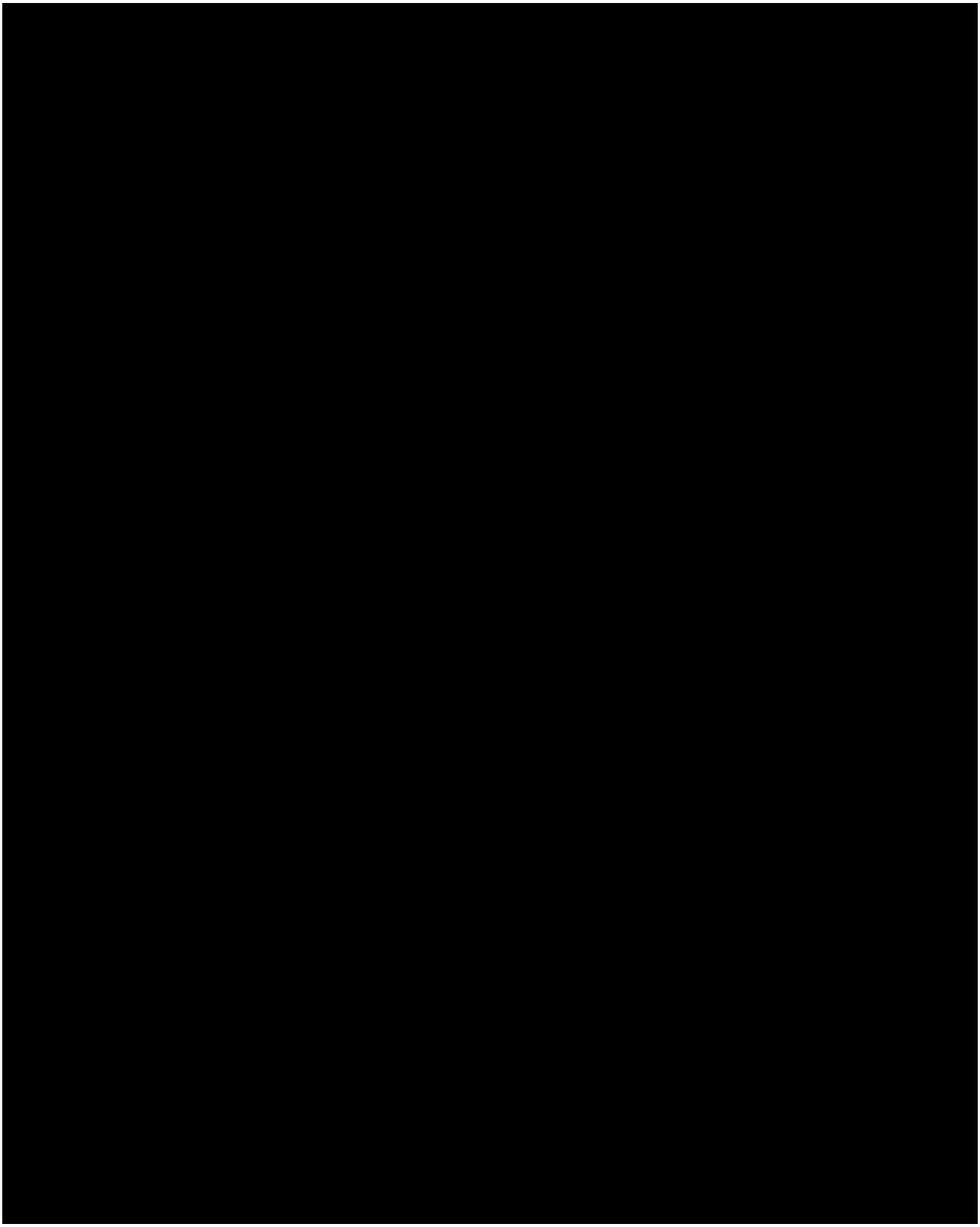
2.4 Job Creation and Economic Development

Investments in the Operations and Maintenance Port will generate many well-paying clean energy jobs for New Jersey workers while simultaneously injecting millions of dollars into New Jersey's economy. COWI maintains a database of port facilities developed to service the offshore wind industry, cataloging key characteristics such as job creation and economic output, which are then analyzed against infrastructure investment (i.e. Capital Expenditures/CAPEX). Relationships are then developed for the various data series (direct jobs, indirect jobs, induced jobs and statewide economic output) for amount invested. Based upon these relationships, COWI then used the opinions of probable cost generated for each scenario to forecast associated jobs and economic development estimates.

3 Regulatory Considerations

3.1 Overview

Development of the O&M base, or any waterfront and operational facility, requires multiple regulatory reviews and approvals on Federal, State and local levels. In general, there is an environmental assessment realm and a permitting realm with which to comply when moving from site planning to construction to an operational port. Here are discussed the first pass of typical considerations for the environmental assessment and permitting elements, with a brief review of operational considerations that may be impacted by existing conditions.



3.2 Anticipated Requirements

[redacted]

3.2.1 Federal & State Environmental Review

[redacted]

3.2.2 Construction Permitting

[redacted]

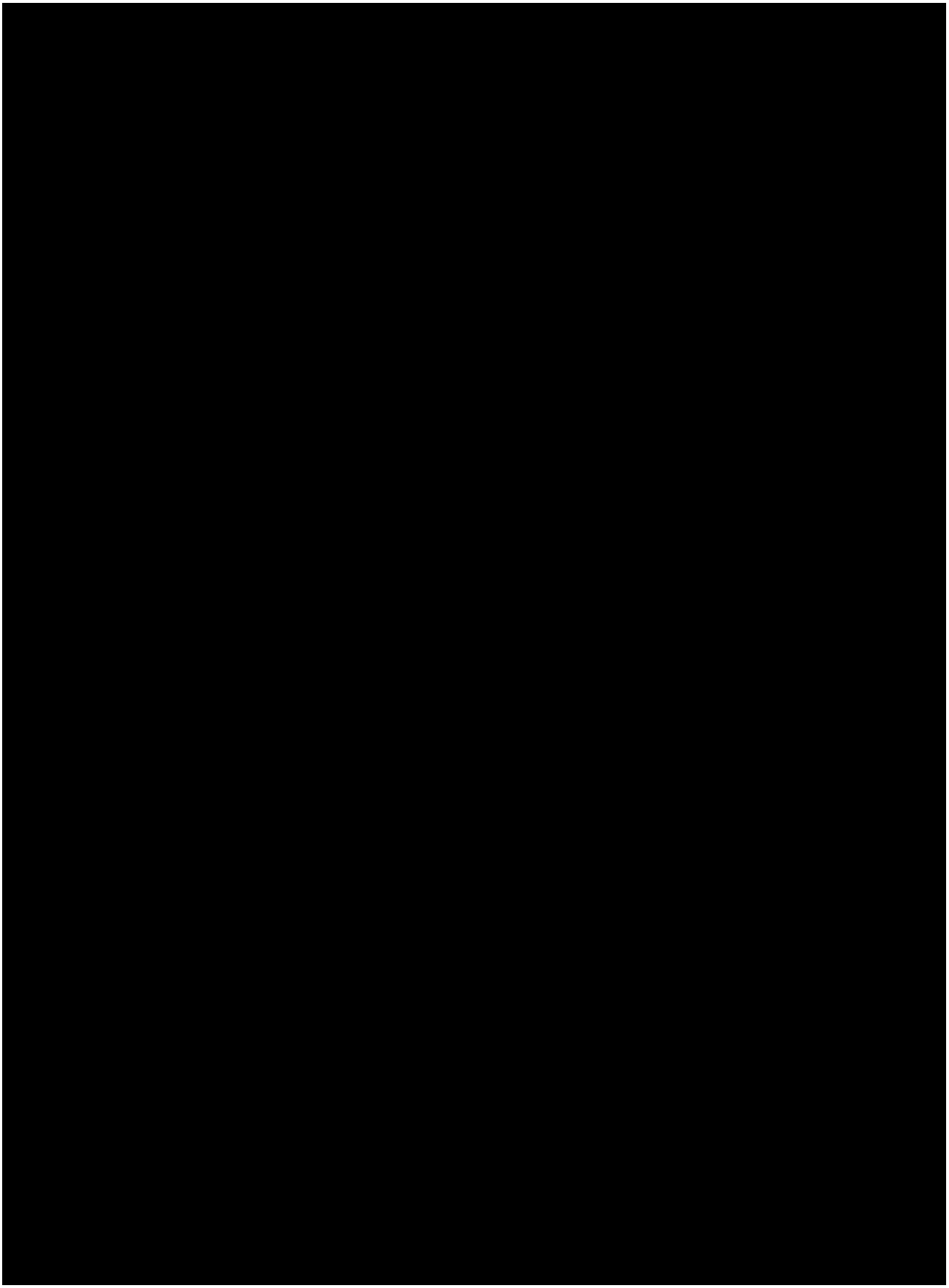
[redacted]

3.2.2.1 State of New Jersey

[redacted]

3.2.2.2 Federal

3.2.2.3 Local Requirements & Others to Consider in Planning



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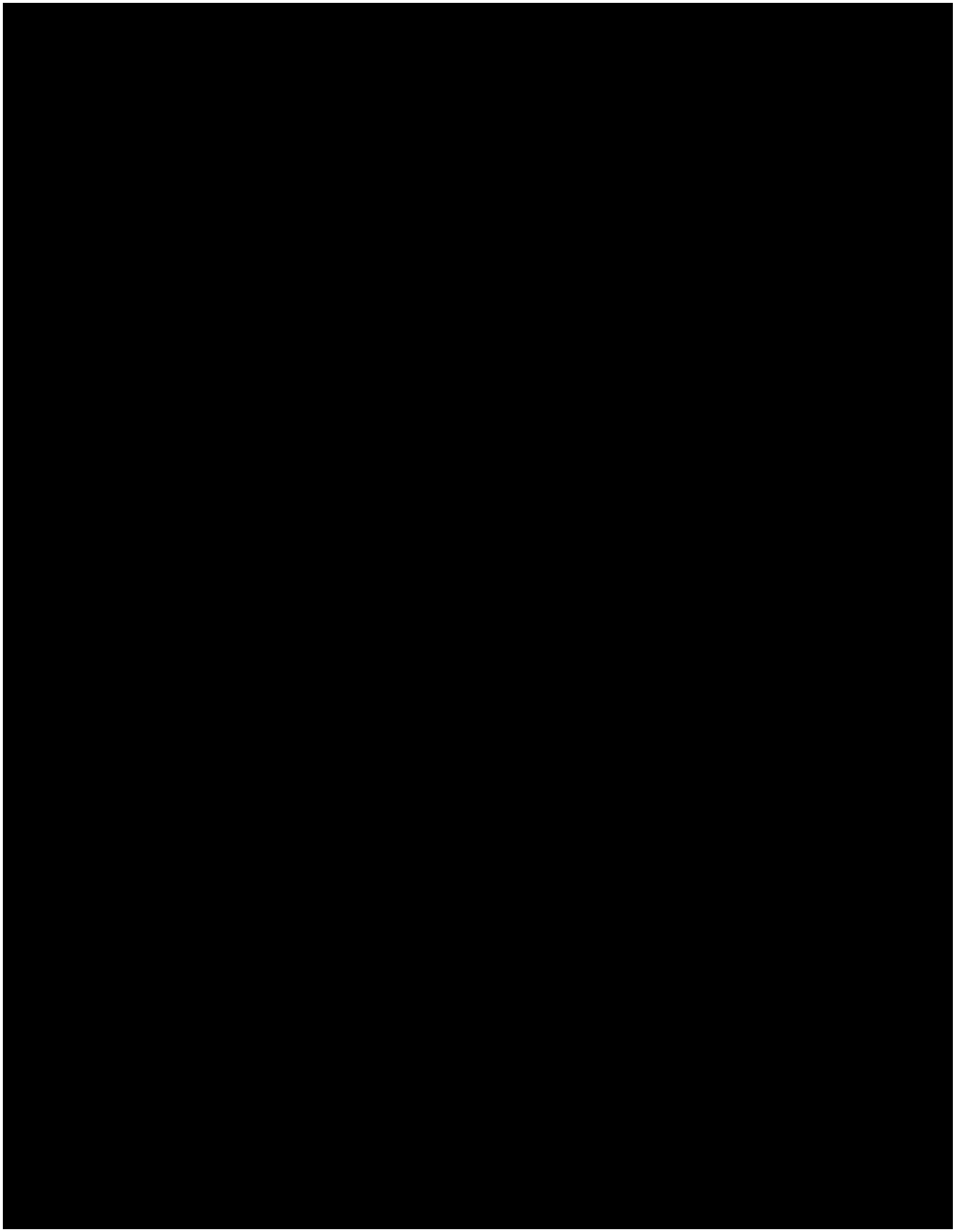
3.2.3 Remediation Considerations Overall in Review and Permitting

[redacted]

3.3 Additional Operational Considerations

[redacted]

3.4 Summary



4 Sustainability Considerations

The port's development can be bolstered by grant funding and its sustainable methods highlighted with certifications like Envision, LEED, WEDG and Green Marine for the development that are further detailed below. These certifications each provide criteria and guidance for how the site design is developed to ensure sustainable function into the future with the surrounding community and the environment. There is significant overlap between these certifications and requirements or opportunities for flood readiness or energy efficient designs at large. These demonstrate best management practices and opportunities to highlight and solidify Leading Light Wind's commitment to sustainability. Many facets of environmental review referenced in section 4, as well as further details related to flood readiness design and stormwater management, foster and ensure an efficient design for this facility by legal requirement. Below the description of these select certifications, a couple other opportunities and resources for engagement are highlighted – that display an effort to go above and beyond the basic legal requirements.

Envision

- Envision, developed and managed by the Institute for Sustainable Infrastructure (ISI), is a rating system and planning tool that helps guide the sustainable development of infrastructure projects. Envision provides a framework for assessing the environmental, social, and economic impacts of infrastructure initiatives, including transportation, water, and energy systems. By evaluating projects across five categories—Quality of Life, Leadership, Resource Allocation, Natural World, and Climate and Risk—the Envision system encourages the incorporation of sustainable practices, such as community engagement, resource efficiency, climate resilience, and ecological stewardship. By using Envision, project stakeholders can effectively measure, improve, and communicate the sustainability performance of their infrastructure projects, ultimately leading to more resilient and environmentally responsible communities.

- Overview - Institute for Sustainable Infrastructure (https://sustainableinfrastructure.org/envision/overview-of-envision/)

- LEED

  - The Leadership in Energy and Environmental Design (LEED) rating system is a widely recognized and globally adopted standard for green buildings. Developed by the U.S. Green Building Council (USGBC), LEED provides a comprehensive framework for assessing the sustainability and environmental performance of buildings. It evaluates various aspects of a project, including energy efficiency, water conservation, materials selection, indoor environmental quality, and sustainable site development. Through a point-based system, LEED awards certifications at different levels—Certified, Silver, Gold, and Platinum—based on the project's adherence to specific sustainability criteria. LEED promotes sustainable design, construction, and operation practices, encouraging the development of environmentally responsible buildings that prioritize resource efficiency, occupant health, and overall environmental stewardship. LEED is the standard for energy efficient and sustainable building designs. It is managed by the United State Green Building Council and is widely known by

architects, developers and the common public alike. With a mission 'to transform how buildings and communities are designed, built and operated, enabling an environmentally and socially responsible, healthy, and prosperous environment that improves the quality of life,' LEED supports buildings that are both more efficient and wholistically considering impacts.\

- Mission and vision | U.S. Green Building Council (usgbc.org) (https://www.usgbc.org/about/mission-vision)

- WEDG

  - The Waterfront Edge Design Guidelines (WEDG), developed by the Waterfront Alliance, provide a comprehensive framework for mitigating coastal flood risks and enhancing waterfront spaces. These guidelines serve as a resource for developers, operators, engineers, planners, and architects seeking to create vibrant and sustainable waterfront developments. The guidelines emphasize the importance of integrating nature, public access, and resiliency measures into design strategies, ensuring that waterfront spaces are inclusive, resilient to climate change impacts, and offer a range of recreational and cultural amenities. WEDG is applicable to ports, terminals, and other working waterfront facilities, as well as public spaces such as parks and esplanades. For working waterfronts, WEDG provides guidance for integrating ecologically-enhanced and low-carbon bulkhead materials, as well as mooring and fendering systems capable of protecting assets from worsening coastal hazards. By promoting responsible development practices, WEDG aims to foster dynamic waterfront environments that both enrich and reduce risks for surrounding communities and provide a model for resilient coastal development.

  - The Waterfront Alliance — #OurWaterfront (https://wedg.waterfrontalliance.org/)

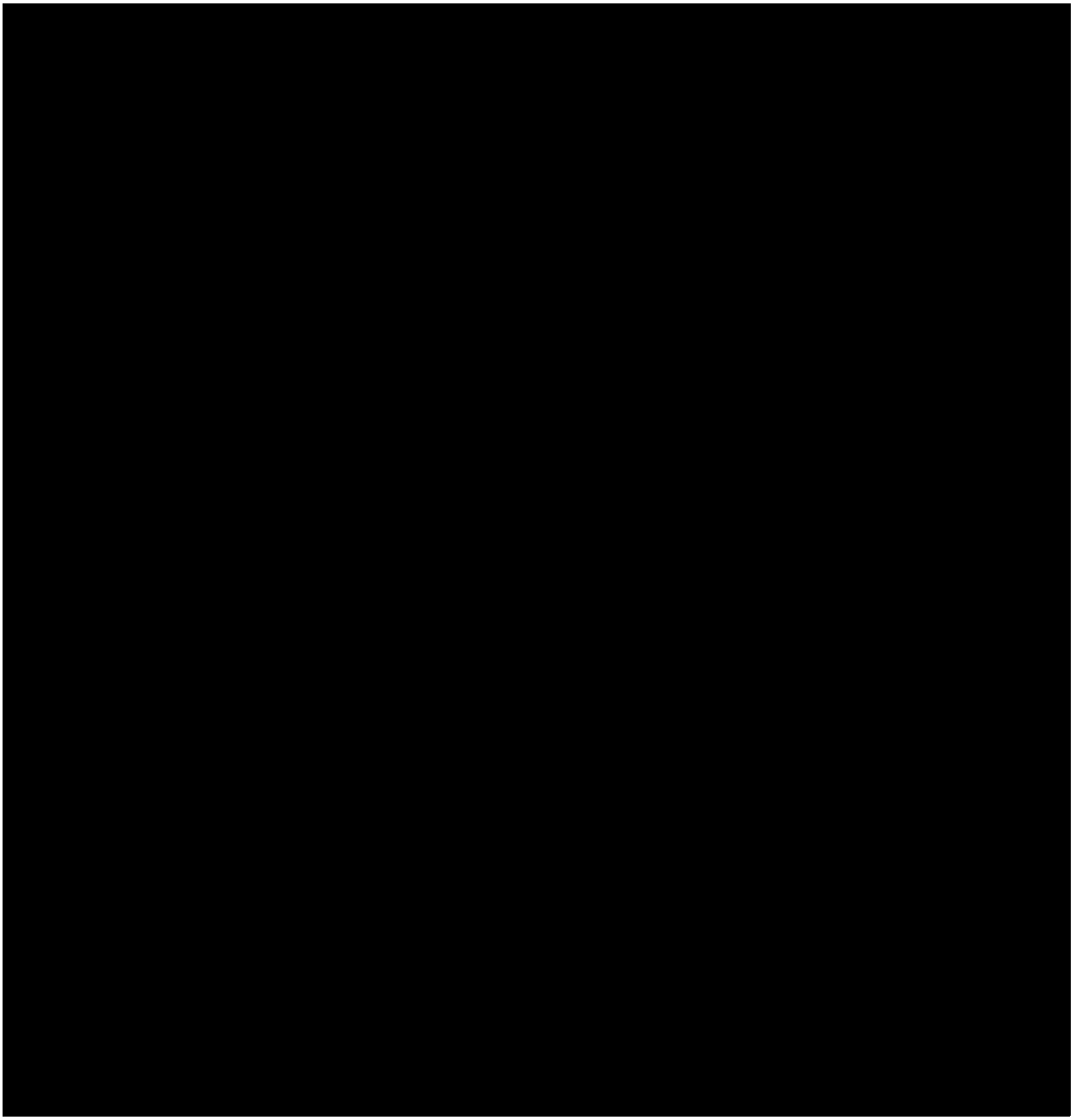
- Green Marine

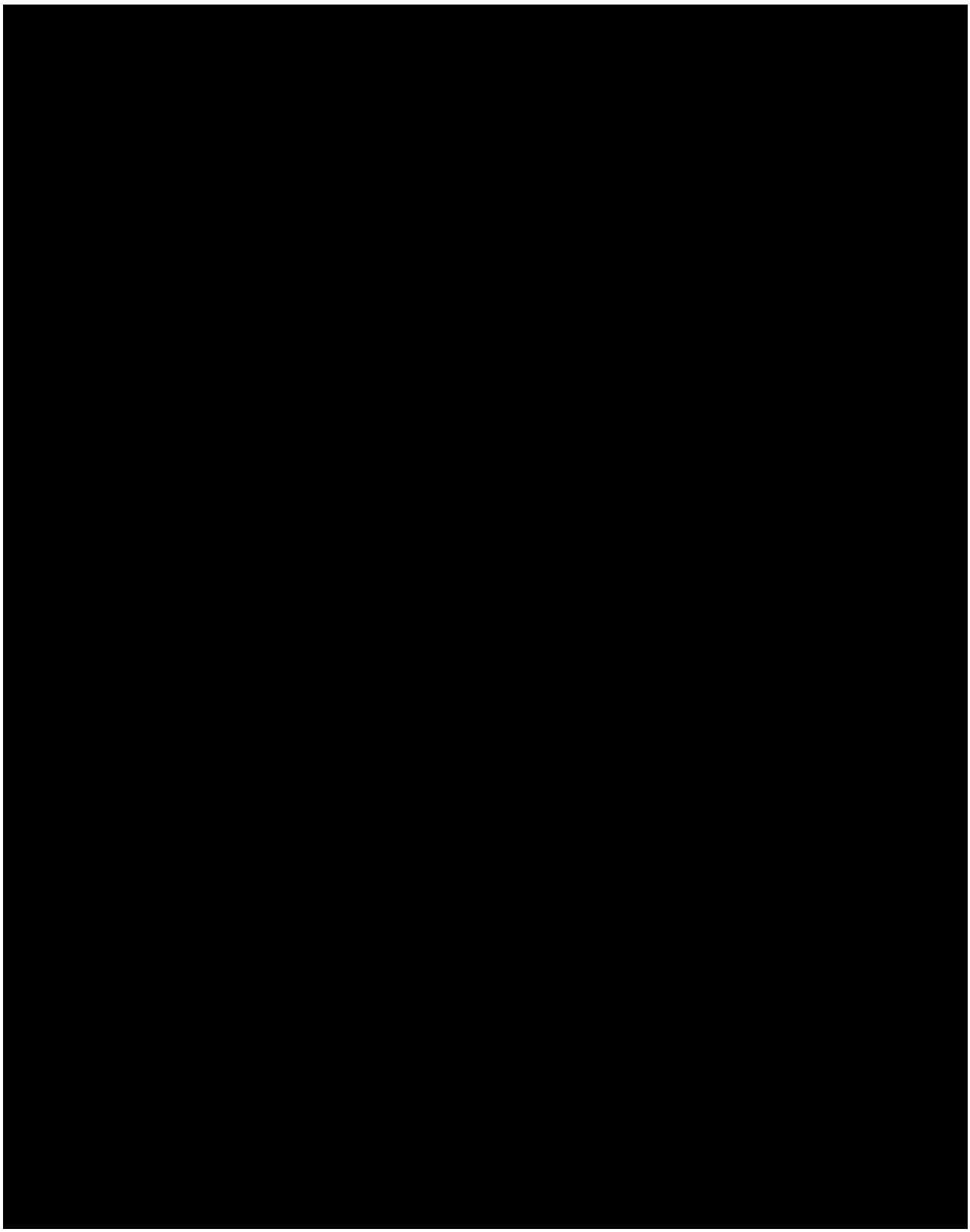
  - Similar to other certifications listed here, Green Marine is a voluntary certification process aimed to encourage the maritime industry to take concrete and measurable efforts towards sustainable operations and existence. Performance indicators are split by type of facility and this is potentially something Leading Light Wind can explore for operations beyond the Operational site in New Jersey: ship owners, ports and seaway, terminals and shipyards are the categories. Elements of air quality, environmental contamination of soil and water, ecosystem characteristics, and various realms of management and community interfacing are all reviewed.

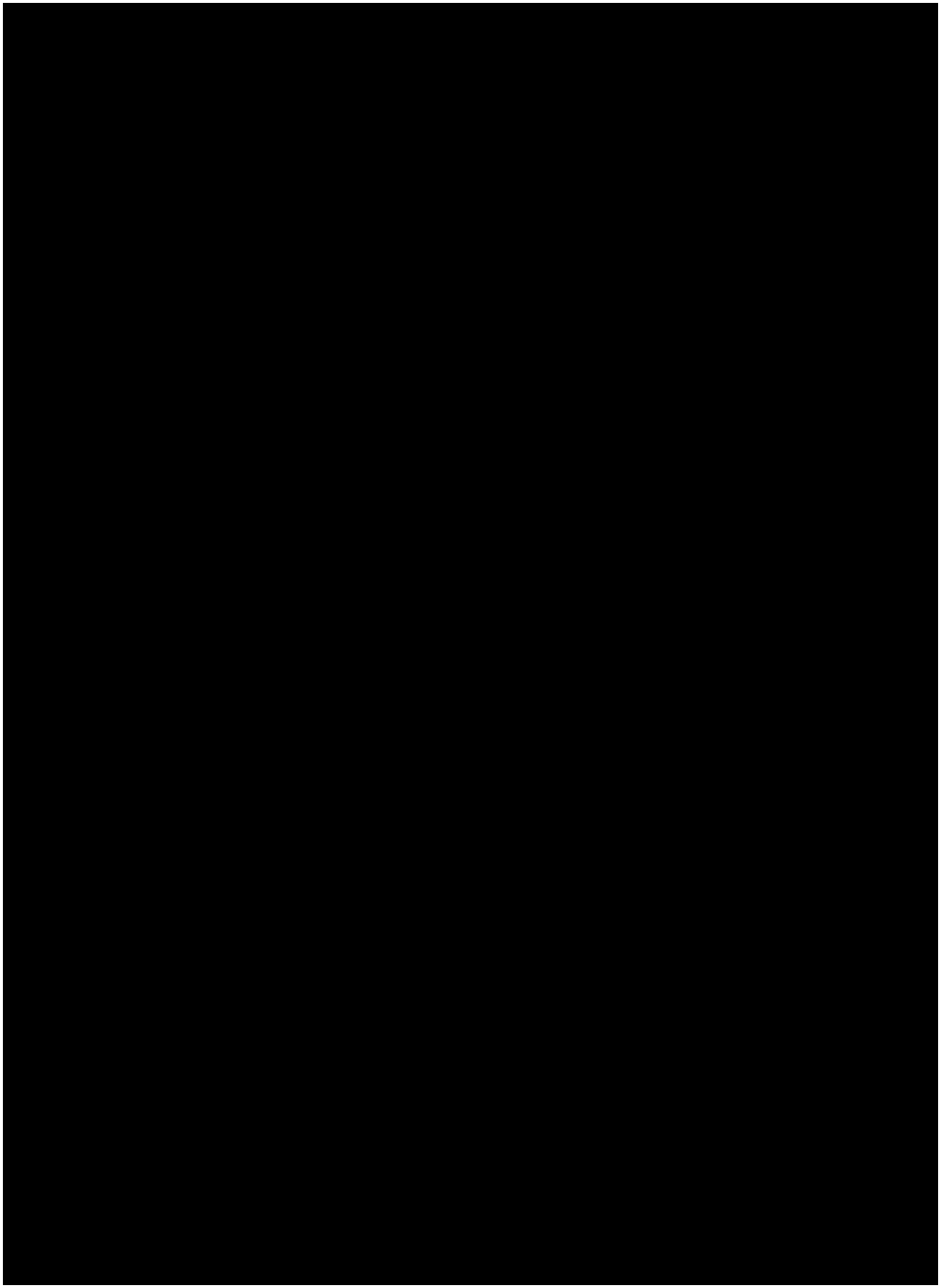
  - About Us | Green Marine (green-marine.org) (https://green-marine.org/about/)

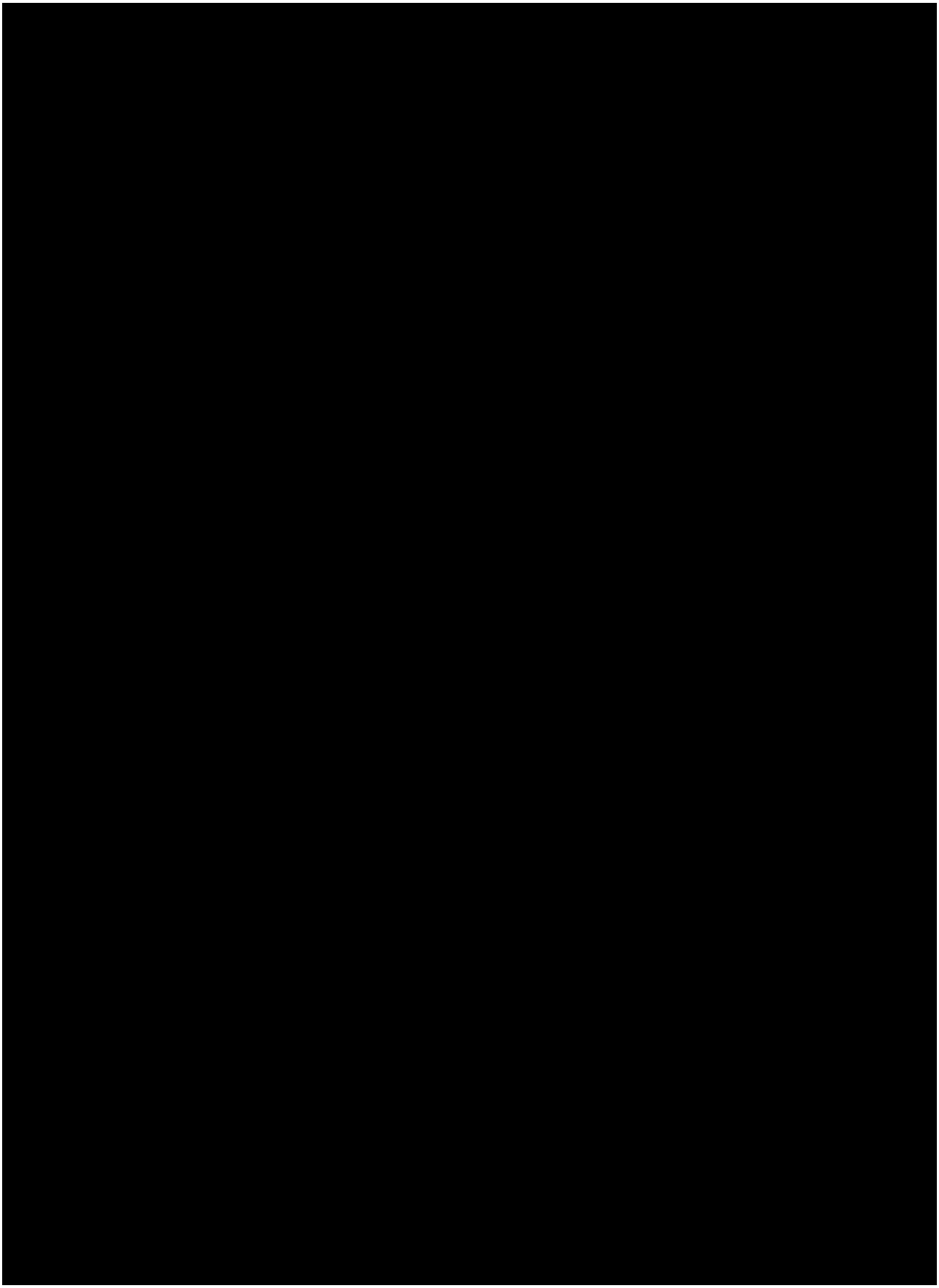
5 New Jersey Economic Development Incentives

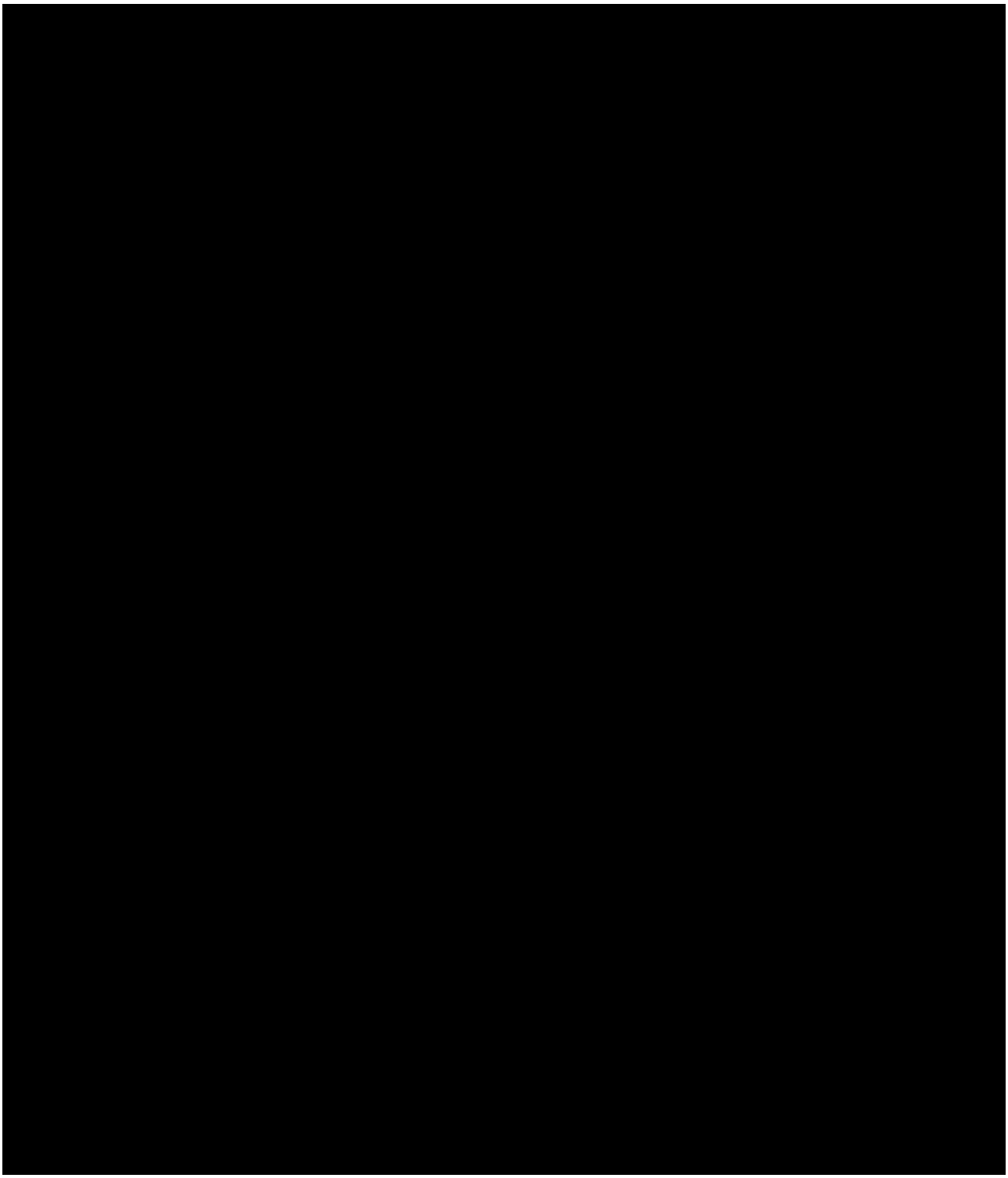
The below table lists a few of the incentives listed by the New Jersey Economic Development Agency (EJEDA) from a high level perspective. Please note that the EJEDA website has great details about each incentive and that each incentive has limitations related to job creation, development investment, longevity of impact for New Jersey and otherwise. This is not an exhaustive exploration of New Jersey incentives and it is encouraged that the Leading Light Wind team investigate support options further by way of New Jersey grants and financing as well as other sources when the port location is finalized. NJEDA incentive links are all are detailed from here: Financing and Incentives – NJEDA (https://www.njeda.gov/financing-and-incentives/).

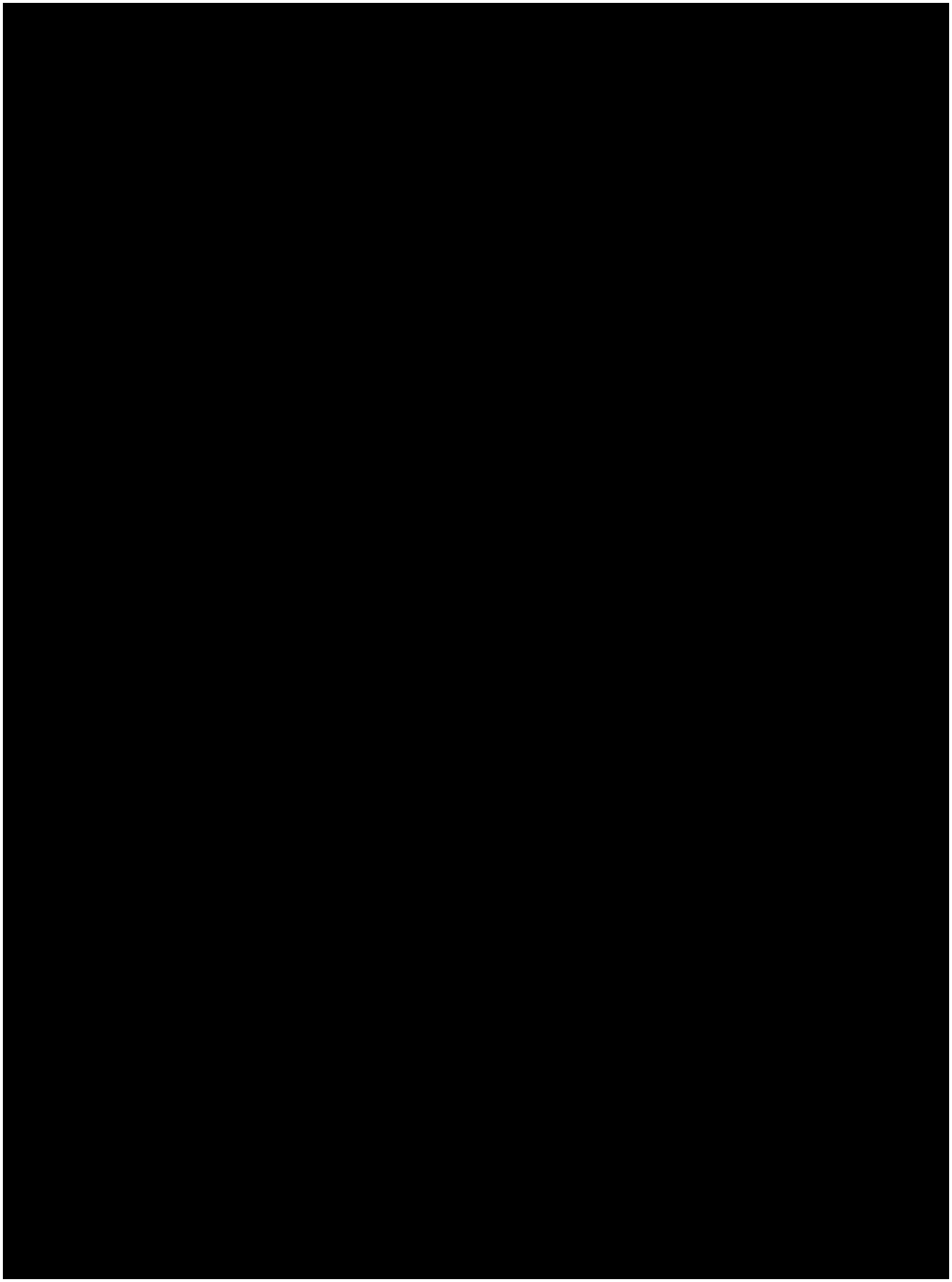


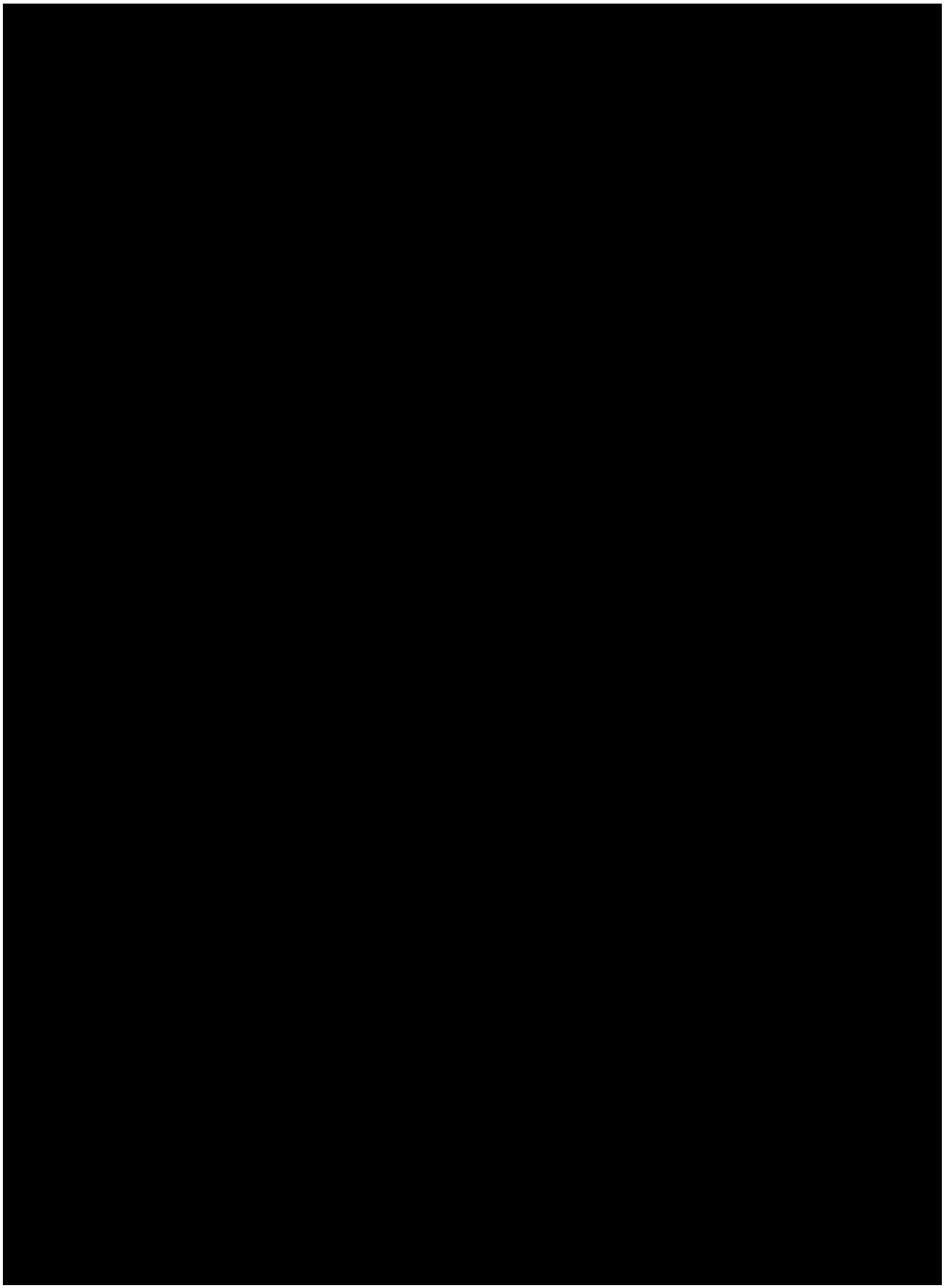


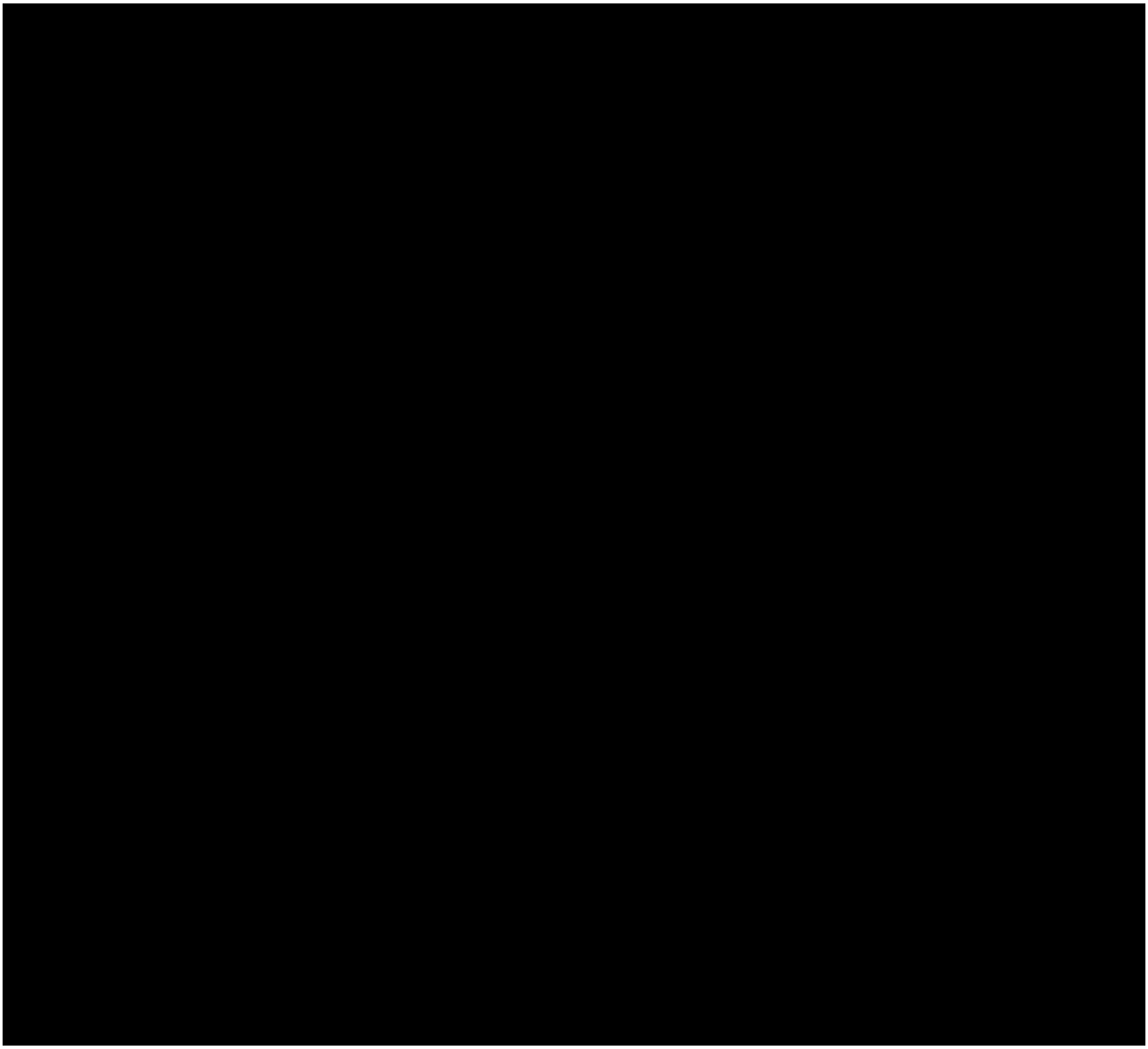


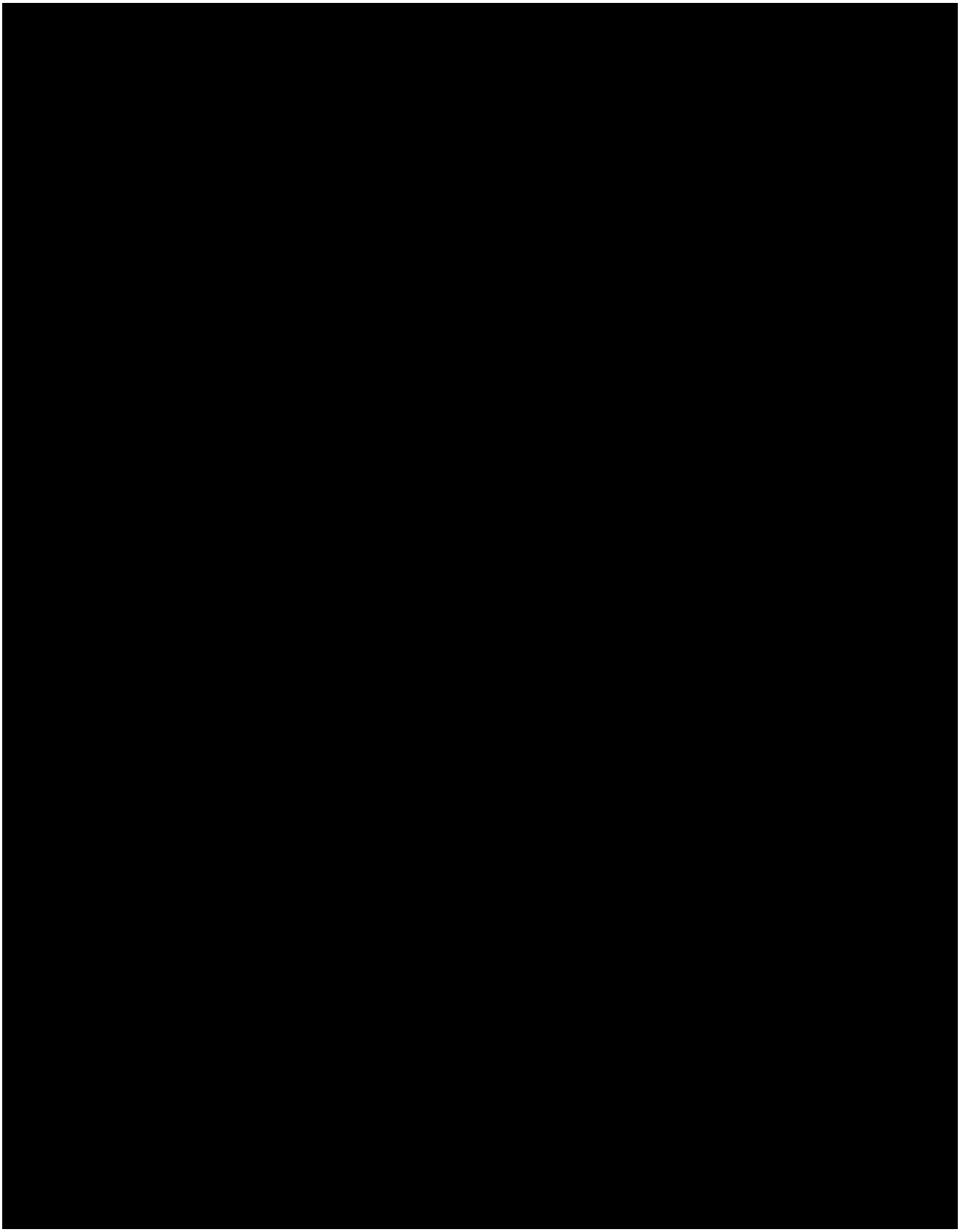


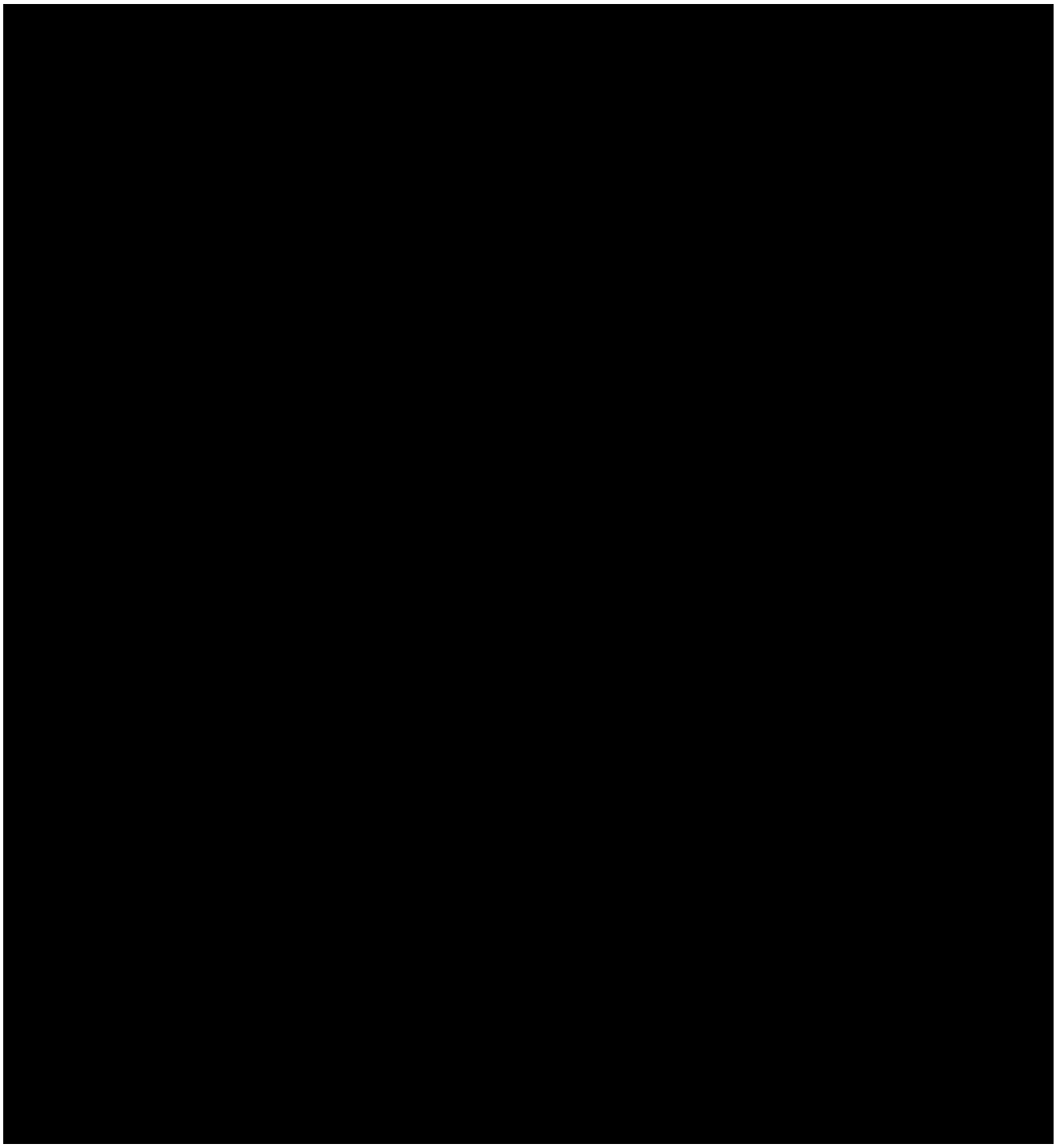


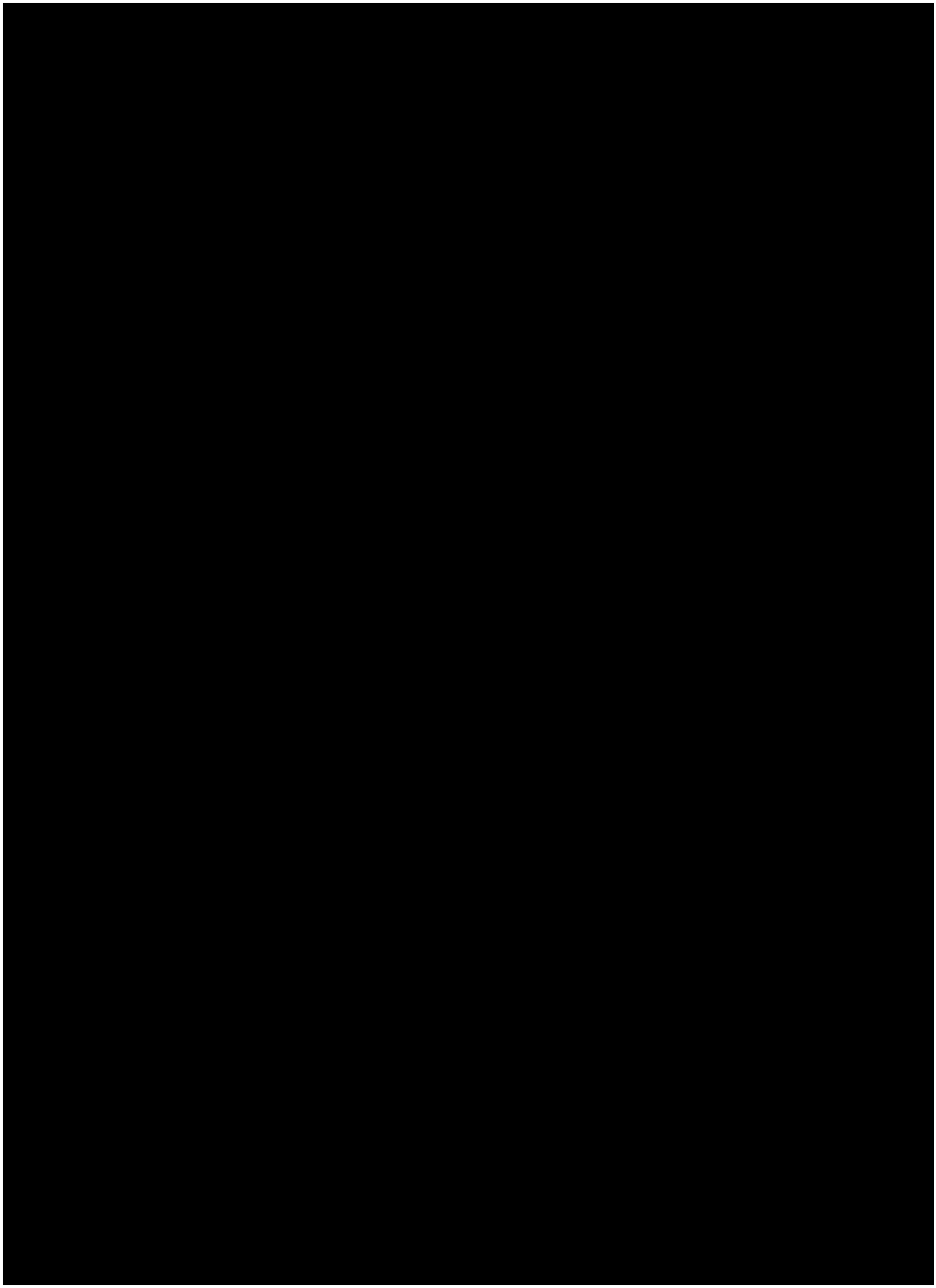


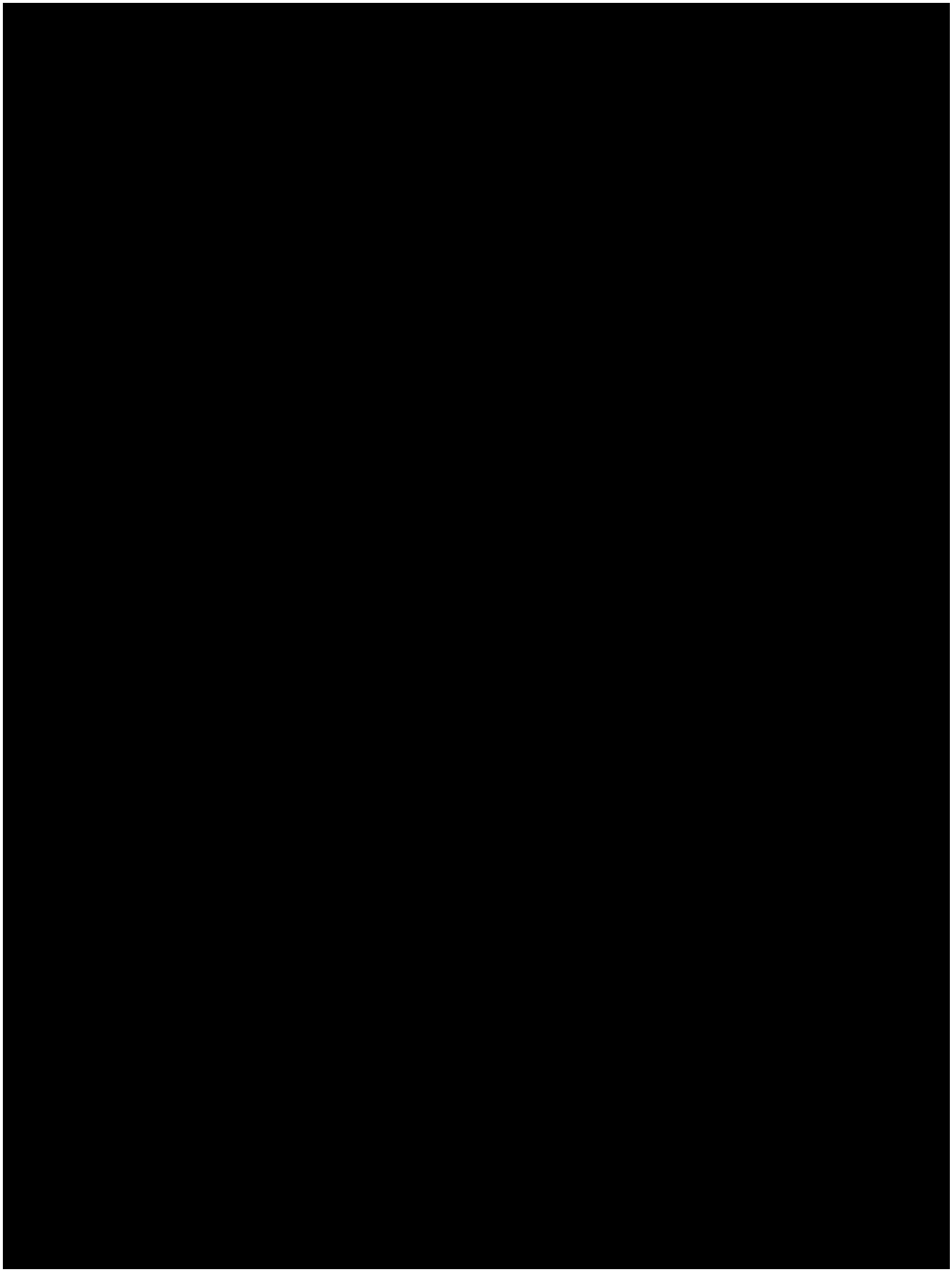












Appendix A O&M Port Facility Identification & Facility

COWI

Leading Light Wind

Marine Support
O&M Port Facility Identification & Feasibility

Version 3.0

July 6, 2023

Operations & Maintenance Facility Requirements

Leading Light Wind

NJ Ports Evaluation Requirements

Overview:

Utilizing the NJ OSW Strategic Plan, satellite imagery, real estate websites and nautical charts, over 40 port/waterfront properties across the state of NJ were identified and evaluated for marshalling, manufacturing and O&M activities.

Requirements:

Operations & Maintenance

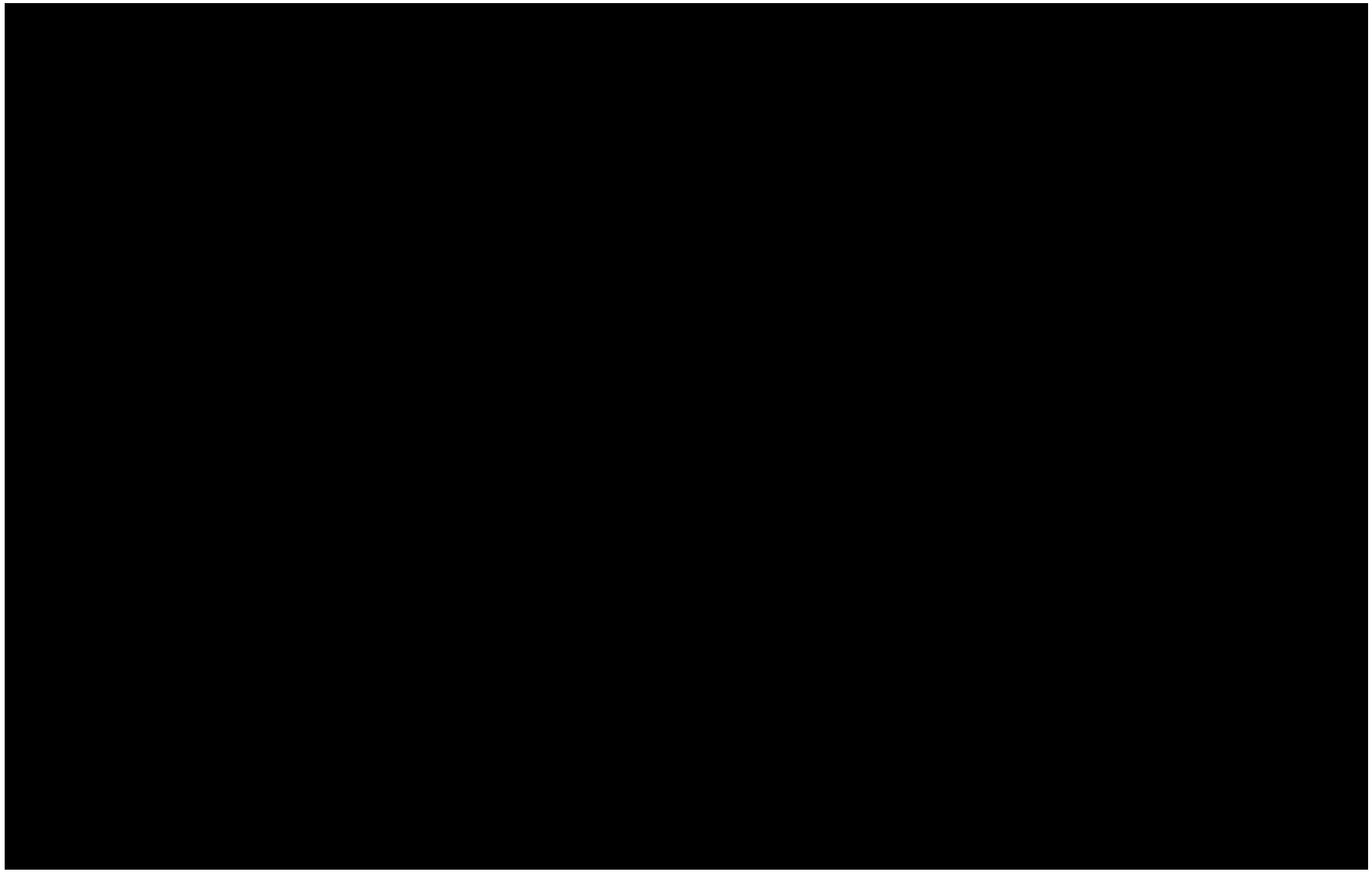
- Waterfront Access
- 3+ acres Upland
- Water Draft (+25ft) and Navigational Channel Access
- Proximity to offshore lease area (100nm)
- Quay Length of +350ft
- Warehouse (20k sqft.) & Office Buildings (10k sqft.)
- Access to Utilities
- Availability for future development / manufacturing
- Proximity to Overburden Communities
- Brownfields
- Workforce Development / Innovation
- Safe harboring

NJ Ports Evaluation Requirements

O&M – Facility Recommendations

Leading Light Wind

Facility Recommendations



O&M – Potential Facilities

Leading Light Wind

Attachment 15.3

Letters of Intent and Support

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Attachment 15.4

Proof of Insurance

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