

Draft Final Integrated Interim Response
Feasibility Report and Environmental
Assessment for Actionable Elements

**NEW YORK-NEW JERSEY
HARBOR AND TRIBUTARIES
COASTAL STORM RISK MANAGEMENT
FEASIBILITY STUDY**

**SUBAPPENDIX A-3B
EAST RISER
ACTIONABLE ELEMENT SITE
PERMITS RECEIVED AND
COMPLIANCE**

March 2026

Documents included herein:

1. Department of Army, U.S. Army Corps of Engineers, Regulatory Division Section 404b Permit issued to the New Jersey Department of Environmental Protection.
2. Federal Emergency Management Agency, East Riser, Record of Environmental Consideration.
3. New Jersey Department of Environmental Protection, Land Use Program, Water Quality Certificate
4. U.S. Fish and Wildlife, Endangered Species Act Coordination, updated.
5. U.S. Fish and Wildlife Service, Fish and Wildlife Coordination Act Report Letter and USACE response.

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1. Department of Army, U.S. Army Corps of Engineers, Regulatory Division Section 404b Permit issued to the New Jersey Department of Environmental Protection.
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DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT
JACOB K. JAVITS FEDERAL BUILDING
26 FEDERAL PLAZA
NEW YORK, NEW YORK 10278-0090

Regulatory Branch

September 25, 2025

SUBJECT: Department of the Army Permit Number NAN-2024-00543
by New Jersey Department of Environmental Protection

New Jersey Department of Environmental Protection
Attn: Kunal Patel
44 S. Clinton Avenue, 3rd Floor
Trenton, New Jersey 08625

Dear Mr. Patel:

Enclosed is a Department of the Army permit for your work.

You are required to submit to this office the dates of commencement and completion of your work. Enclosed are two forms for you to use to submit the required dates.

If for any reason, a change in your plans or construction methods is found necessary, please contact us immediately to discuss modification of your permit. Any changes must be approved before they are undertaken.

In order for us to better serve you, please complete our Customer Service Survey located at <http://www.nan.usace.army.mil/Missions/Regulatory/CustomerSurvey.aspx>.

If any questions should arise concerning this matter, please contact Mr. Chris Minck of my staff at (917) 790-8547 or Christopher.W.Minck@usace.army.mil

Sincerely,

MALLERY.CHRISTOPHER.S.1229292230

Digitally signed by
MALLERY.CHRISTOPHER.S.1229292230
Date: 2025.09.25 07:48:05 -04'00'

FOR AND IN BEHALF OF
Stephan A. Ryba
Chief, Regulatory Branch

Enclosures

DEPARTMENT OF THE ARMY PERMIT

Permittee: New Jersey Department of Environmental Protection
44 S. Clinton Avenue
Trenton, New Jersey 08625

Permit Number: NAN-2024-00543

Permit Date: September 25, 2025

Issuing Office: US Army Corps of Engineers, New York District

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer. You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description:

Removal of approximately 61,600 cubic yards of material, including accumulated sediment and soils beneath the channel bed and beyond the channel banks, along 4,150 linear feet of the East Riser Ditch (ERD) channel. Material removal will take place over approximately 2.499 acres of open water and approximately 2.257 acres of adjoining lands within the proposed widened channel banks. The ERD channel will be excavated to a depth of seven feet below Ordinary High Water (OHW) with two feet of allowable over- excavation. The channel bottom will be backfilled with clean gravel totaling approximately 10,048 cubic yards over 3.821 acres. Dredging will be conducted using a track-hoe from the channel bank or a specialized in-water track-hoe with low pressure tracks and floatation capabilities. The dredged/excavated material will be placed in uplands within the project boundary, outside of wetland areas and dewatered with return flow to the waterway. The excavated material will be disposed of at a State-approved upland facility.

In select areas, riprap will be placed along the new channel banks below proposed OHW for scour protection totaling approximately 12,000 cubic yards of riprap over approximately 3.821 acres below the proposed OHW and between approximately 0.935 acres of the proposed banks of the improved channel. Additionally, approximately 544 linear feet of sheet pile wall will also be installed along select areas of the channel. Along the channel, replace and/or modify approximately fifteen (15) stormwater outfalls through the new proposed riprap, bulkhead or headwalls and placement of riprap for scour protection at three (3) headwall/outlet locations. The new and/or modified outfalls range in size from 3-inch to 72-inches in diameter.

Remove the existing culverts at Amor Avenue and West Commercial Avenue and at a railroad bridge crossing and replace with single-span pre-cast bridge crossings. The existing utility lines (water, gas and electric) will also be temporarily removed/relocated and replaced within the new bridge/roadways.

The proposal overall will enhance and/or create approximately 3.821 acres of open waters (an increase of 1.322 acres), create approximately 0.077 acres of emergent wetlands along the channel banks, create approximately 0.019 acres of scrub shrub wetlands, create approximately 0.543 acres of riparian zone and enhance approximately 0.443 acres of riparian zone. These areas will be temporarily disturbed during construction.

All work shall be performed in accordance with the attached dated permit drawings; Special Conditions (A) through (K) listed below, and the New Jersey Department of Environmental Protection Section 401 Water Quality Certificate Number 0200-19-0004.2 LUP220001 which are all hereby made part of this permit.

Project Location:

IN: East Riser Ditch, a tributary of the Hackensack River

AT: Boroughs of Carlstadt and Moonachie, Bergen County, New Jersey

Permit Conditions:

General Conditions:

- 1. Time limit for completing the regulated work authorized herein ends on September 25, 2030. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least two (2) months before the above date is reached.**
- 2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.**
- 3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.**
- 4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.**
- 5. The permittee shall allow representatives from this office to inspect the authorized activities at any time deemed necessary; and shall promptly provide any required written reports, to ensure that authorized activities are being or have been accomplished in accordance with the terms and conditions of this permit.**

Special Conditions:

A. The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

B. The permittee shall utilize Best Management Practices (BMPs) to minimize turbidity during all in-water work activities as well as prevent construction materials, including debris, from entering any waterway to become drift or pollution hazards.

C. The permittee shall utilize Best Management Practices (BMPs) to minimize the release of sediments into the waterway, including the use of an environmental dredge bucket and other BMPs to prevent release of contaminants during dredging activities.

D. The permittee shall avoid in-water activities between March 1 and June 30 of any calendar year to minimize impacts to migrating anadromous fish species.

E. The permittee shall avoid tree cutting or other means of knocking down, bringing down, or trimming trees that contain suitable/potential roosting substrate for bats between April 1 and September 30, of any calendar year.

F. The permittee shall avoid removal or modifications to bridges and/or culverts if they are greater than 23 feet wide and 3 feet in height between May 15 and July 31 of any calendar year to avoid impacts to roosting bats.

G. The permittee shall conduct field surveys of construction areas no more than five days before project activities to locate any nests, eggs, and flightless birds within the project area. If breeding birds are present within the action area, the permittee shall avoid impacts to suitable breeding habitat (trees, wetlands, grasslands, culverts, bridges, etc.) between March 15 and September 15 of any calendar year.

H. The permittee shall provide opportunity for migratory birds to leave the work area prior to work commencing, regardless of the time of year.

I. The permittee shall ensure that any new lighting that is installed into areas where birds may be present, the permittee shall use lighting that reduces adverse effects to migratory birds at night.

J. The permittee shall restore temporarily impacted wetlands or waters of the United States to their pre-construction elevations and re-seed or plant these areas with native vegetation where

appropriate.

K. The permittee shall install appropriate temporary fencing around all on-site wetlands and waters of the United States not authorized herein to be impacted and other sensitive ecological areas during construction periods, to prevent equipment and personnel from entering these areas.

Further Information:

1. **Congressional Authorities:** You have been authorized to undertake the activity described above pursuant to:

(X) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S. Code 403).

(X) Section 404 of the Clean Water Act (33 U.S. Code 1344).

() Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. **Limits of this authorization:**

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. **Limits of Federal Liability:** In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision: This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

- a. You fail to comply with the terms and conditions of this permit.
- b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).
- c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions: General Condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.



(PERMITTEE)

9-24-25

(DATE)

New Jersey Department of Environmental Protection

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

MALLERY.CHRISTOPHER.S.1229292230

Digitally signed by
MALLERY.CHRISTOPHER.S.1229292230
Date: 2025.09.25 07:54:54 -04'00'

(COMMANDER AND DISTRICT ENGINEER)

September 25, 2025

(DATE)

FOR AND IN BEHALF OF
Alexander L. Young
Colonel, U.S. Army
Commander and District Engineer

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below. A copy of the permit signed by the transferee should be sent to this office.

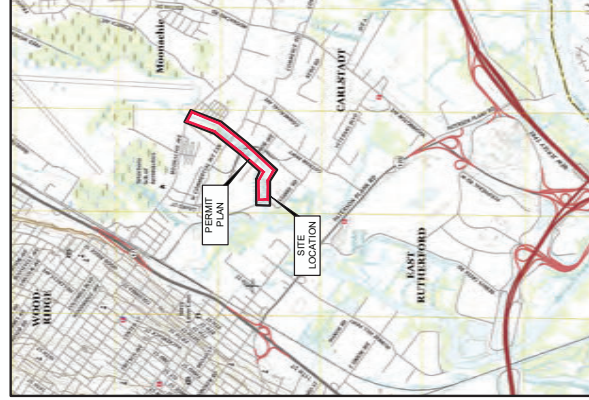
(TRANSFEREE)

(DATE)



NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
REBUILD BY DESIGN MEADOWLANDS PROJECT
 BOROUGH OF CARLSTADT - BOROUGH OF MOONACHIE
 BERGEN COUNTY, NEW JERSEY
 EAST RISER DITCH CHANNEL
 CONTRACT P1131/TC-001

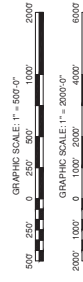
NOVEMBER 2023



VICINITY MAP
SCALE: 1" = 2000'



LOCATION PLAN
SCALE: 1" = 500'



PERMIT PLANS

- 0 PP-000 COVER SHEET, DRAWING INDEX, VICINITY MAP, AND LOCATION PLAN
- 1 PP-001 LEGEND, ABBREVIATIONS AND GENERAL NOTES
- 2 PP-002 SHEET LAYOUT PLAN
- 3 PP-003 EXISTING CONDITIONS PLAN SHEET 1 OF 5
- 4 PP-004 EXISTING CONDITIONS PLAN SHEET 2 OF 5
- 5 PP-005 EXISTING CONDITIONS PLAN SHEET 3 OF 5
- 6 PP-006 EXISTING CONDITIONS PLAN SHEET 4 OF 5
- 7 PP-007 EXISTING CONDITIONS PLAN SHEET 5 OF 5
- 8 PP-008 WETLAND AND RIPARIAN ZONE IMPACT PLAN SHEET 1 OF 5
- 9 PP-009 WETLAND AND RIPARIAN ZONE IMPACT PLAN SHEET 2 OF 5
- 10 PP-010 WETLAND AND RIPARIAN ZONE IMPACT PLAN SHEET 3 OF 5
- 11 PP-011 WETLAND AND RIPARIAN ZONE IMPACT PLAN SHEET 4 OF 5
- 12 PP-012 WETLAND AND RIPARIAN ZONE IMPACT PLAN SHEET 5 OF 5
- 13 PP-013 WETLAND AND RIPARIAN ZONE PROPOSED CONDITIONS PLAN SHEET 1 OF 5
- 14 PP-014 WETLAND AND RIPARIAN ZONE PROPOSED CONDITIONS PLAN SHEET 2 OF 5
- 15 PP-015 WETLAND AND RIPARIAN ZONE PROPOSED CONDITIONS PLAN SHEET 3 OF 5
- 16 PP-016 WETLAND AND RIPARIAN ZONE PROPOSED CONDITIONS PLAN SHEET 4 OF 5
- 17 PP-017 WETLAND AND RIPARIAN ZONE PROPOSED CONDITIONS PLAN SHEET 5 OF 5

PERMIT PLAN DRAWINGS
DRAWING INDEX

AECOM
 AECOM TECHNICAL SERVICES, INC.
 30 Kingsbridge Road
 Florham Park, NJ 07934
 732.984.3200 tel 732.386.0120 fax
 www.aecom.com

SUB-CONSULTANT
 HDR ENGINEERING, INC.
 1 INTERNATIONAL BOULEVARD
 1700 UNIVERSITY CITY CENTER
 MOORESTOWN, NJ 07058-0027
 201.335.9300 tel www.hdrinc.com

ISSUE/REVISION

NO.	DATE	DESCRIPTION
1	2024-08-12	UPDATED PLANS BASED ON INDEP DESP COMMENTS

PROJECT

REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHIE
 BERGEN COUNTY, NEW JERSEY
 EAST RISER DITCH CHANNEL IMPROVEMENTS PROJECT

REGISTRATION

AECOM TECHNICAL SERVICES, INC.
 CERTIFICATE OF REGISTRATION NO. JAE0004270
 STEVEN BUSSO

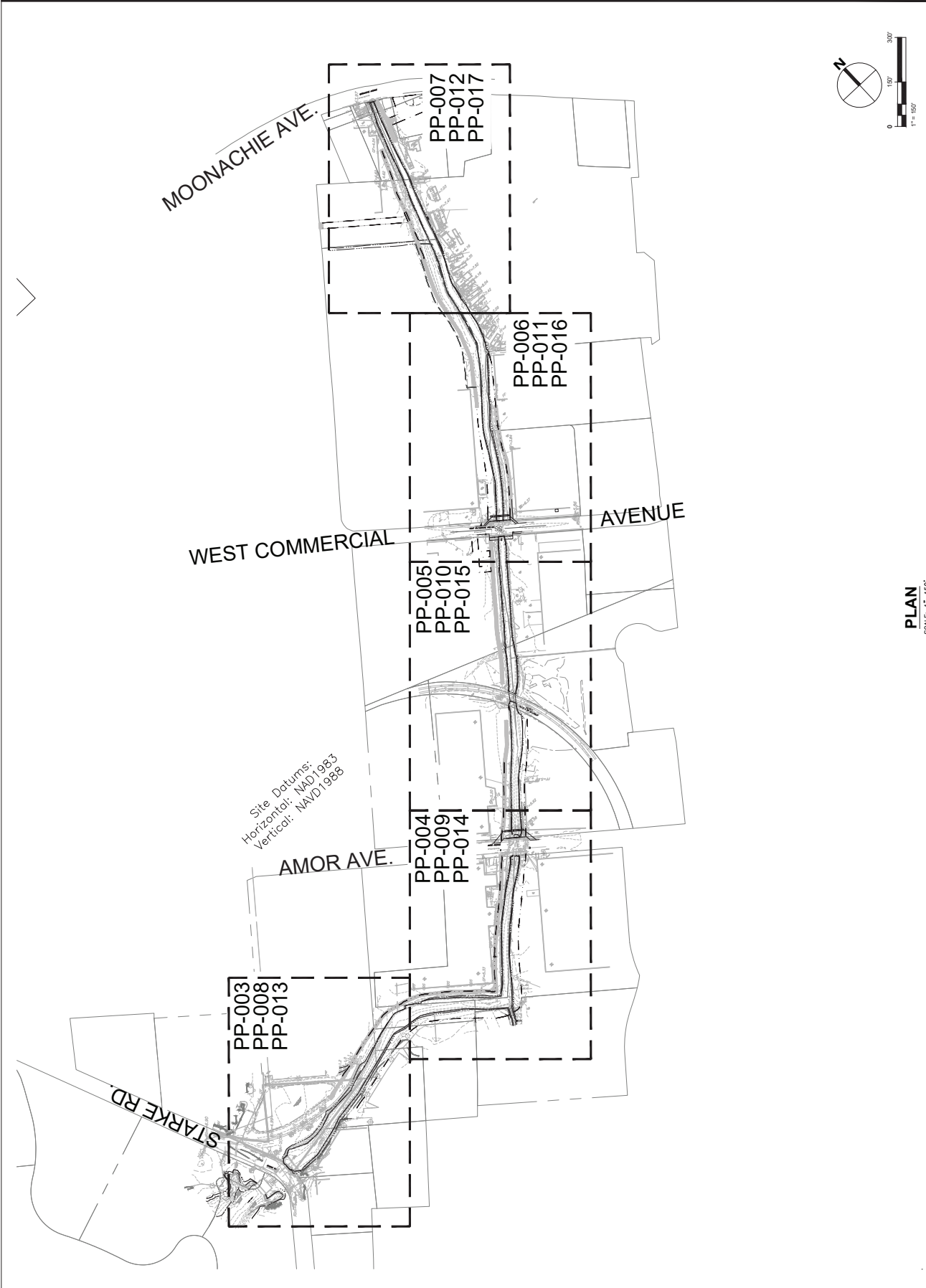
NEW JERSEY PROFESSIONAL ENGINEER
 LICENSE NO. 246E0282100

Designed By: TMAM
 Drawn By: ET
 Proj. Check: SA

PROJECT/TERM CONTRACT NUMBER
 P1131-001

SHEET TITLE
 COVER SHEET, INDEX,
 VICINITY MAP, AND
 LOCATION PLAN

SHEET NUMBER
 PP-000



PLAN
SCALE: 1"=150'

AECOM
 AECOM TECHNICAL SERVICES, INC.
 30 Kingsbridge Road
 Fairfield, NJ 07004
 732.549.3000 tel 732.369.0100 fax
 www.aecom.com

SUB-CONSULTANT
 HDR ENGINEERING, INC.
 1 INTERNATIONAL BOULEVARD
 1000 UNIVERSITY CENTER
 MORRIS PLAZA, NJ 07956-0027
 201.335.9300 tel www.hdrinc.com

ISSUE/REVISION

NO.	DATE	DESCRIPTION
1	2024-08-12	UPDATED PLANS BASED ON INDEP DESP COMMENTS

PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHIE
 BERGEN COUNTY, NEW JERSEY
 EAST RISER DITCH
 CHANNEL IMPROVEMENTS PROJECT

REGISTRATION
 AECOM TECHNICAL SERVICES, INC.
 CERTIFICATE OF AUTHORIZATION NO. JAG0064270
 STEVEN BUISO
 NEW JERSEY PROFESSIONAL ENGINEER
 LICENSE NO. 246E0282100

Designed By: TM/AM
 Drawn By: ET
 Proj. Check: SA

PROJECT/TERM CONTRACT NUMBER
 P1131-001
 SHEET TITLE
 SHEET LAYOUT PLAN

SHEET NUMBER
 PP-002
 PERMIT - ERD CH

PERMIT PLANS



AECOM TECHNICAL SERVICES, INC.
30 Kingsbridge Road
Purchase, NY 10577
732.386.3200 tel 732.386.0120 fax
www.aecom.com

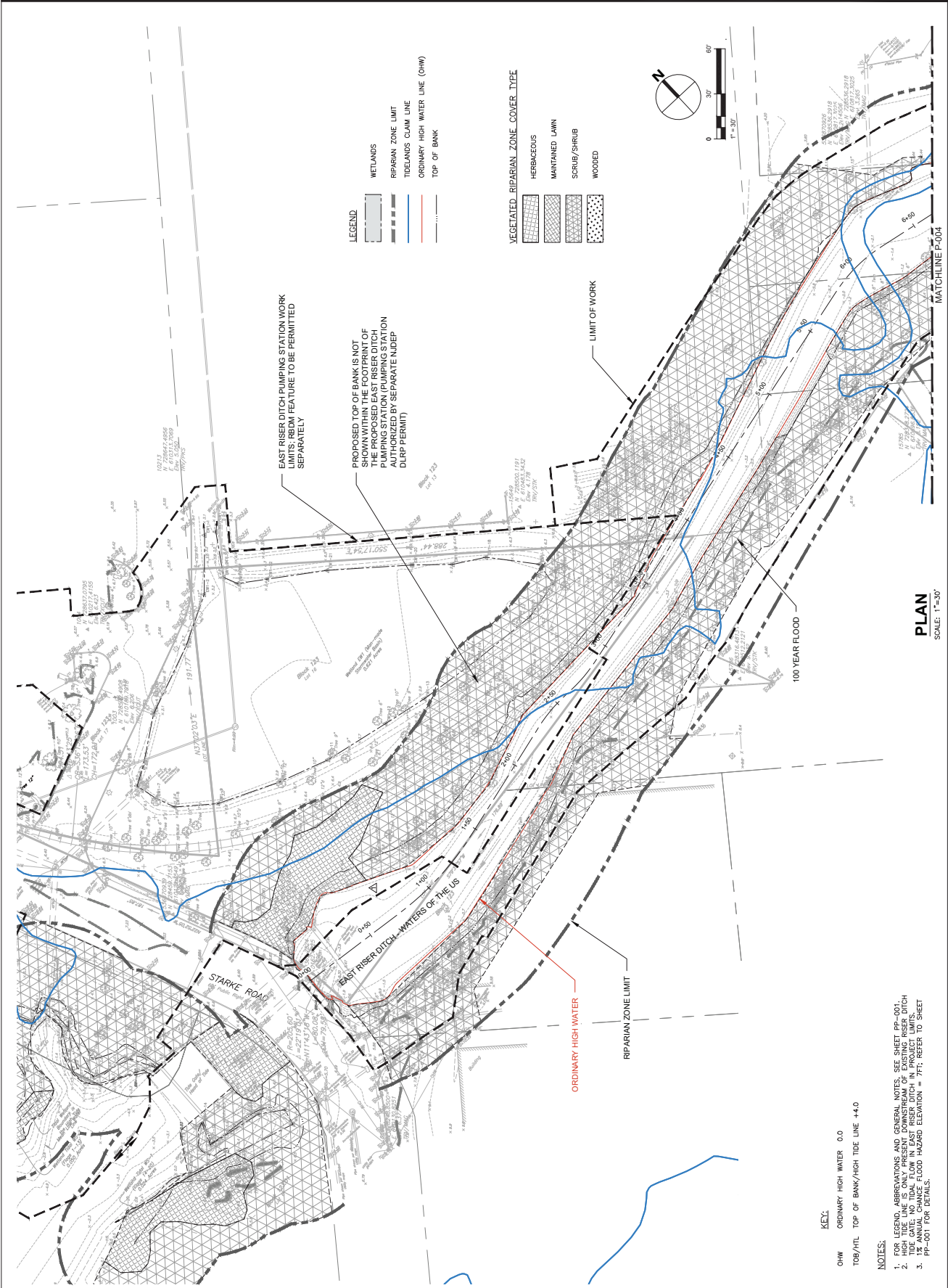
SUB-CONSULTANT
HDR ENGINEERING, INC.
1 INTERNATIONAL BOULEVARD
17500 WOODLAND DRIVE
MAYFAIR, NJ 07054-0207
201.335.9300 tel www.hdrinc.com

ISSUE/REVISION	NO.	DATE	DESCRIPTION

PROJECT
REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHE
BERGEN COUNTY, NEW JERSEY
EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT

REGISTRATION
AECOM TECHNICAL SERVICES, INC.
CERTIFICATE OF REGISTRATION NO. JAG0606270
STEVEN BUSSO
NEW JERSEY PROFESSIONAL ENGINEER
LICENSE NO. 24GE02892100

Designed By: TMAM
Drawn By: ET
Proj. Check: SA
PROJECT/TERM CONTRACT NUMBER
P1131-001
SHEET TITLE
EXISTING CONDITIONS PLAN
SHEET 1 OF 5
SHEET NUMBER
PP-003
PERMIT - ERD PS



LEGEND

- WETLANDS
- RIPIARIAN ZONE LIMIT
- TIDELANDS CLAIM LINE
- ORDINARY HIGH WATER LINE (OHW)
- TOP OF BANK

VEGETATED RIPARIAN ZONE COVER TYPE

- HERBACEOUS
- MAINTAINED LAWN
- SCRUB/SHRUB
- WOODED

EAST RISER DITCH PUMPING STATION WORK LIMITS, RSDM FEATURE TO BE PERMITTED SEPARATELY

PROPOSED TOP OF BANK IS NOT SHOWN WITHIN THE FOOTPRINT OF THE PROPOSED EAST RISER DITCH PUMPING STATION (PUMPING STATION TO BE PERMITTED BY SEPARATE NJDEP DIAP PERMIT)

PLAN
SCALE: 1"=30'

- KEY:**
- OHW ORDINARY HIGH WATER 0.0
 - TOB/HTL TOP OF BANK/HIGH TIDE LINE +4.0
- NOTES:**
- FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE SHEET PP-001.
 - NO TIDAL FLOW IN EAST RISER DITCH IN PROJECT LIMITS.
 - 1% ANNUAL CHANCE FLOOD HAZARD ELEVATION = 7FT; REFER TO SHEET PP-001 FOR DETAILS.

PERMIT PLANS



AECOM TECHNICAL SERVICES, INC.
30 Kingsbridge Road
Purchase, NY 10577
732.593.3200 tel 732.399.0100 fax
www.aecom.com

SUB-CONSULTANT

HDR ENGINEERING, INC.
1 INTERNATIONAL BOULEVARD
10700 COLUMBIAN AVENUE
MUMFORD, NJ 07040-6027
201.335.9300 tel www.hdrinc.com

ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT

REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHE
BERGEN COUNTY, NEW JERSEY
EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT

REGISTRATION

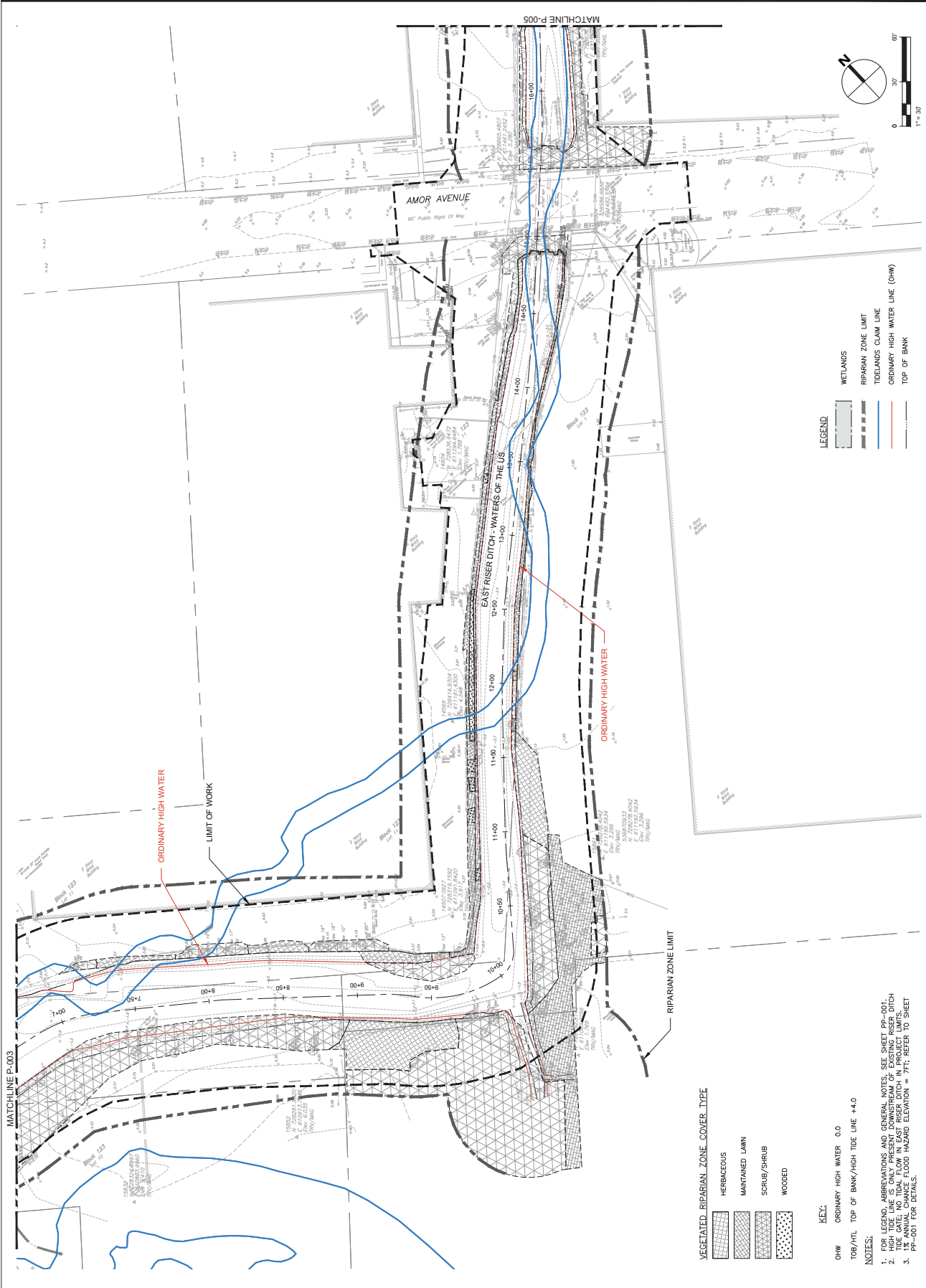
AECOM TECHNICAL SERVICES, INC.
CERTIFICATE OF REGISTRATION NO. JAG0006270
STEVEN BUSSO
NEW JERSEY PROFESSIONAL ENGINEER
LICENSE NO. 24E0292100

Designed By: TMAM
Drawn By: ET
Proj. Check: SA

PROJECT/TERM CONTRACT NUMBER
P1131-001

SHEET TITLE
EXISTING CONDITIONS PLAN
SHEET 2 OF 5

SHEET NUMBER
PP-004
PERMIT - ERD PS



VEGETATED RIPARIAN ZONE COVER TYPE

- HERBACEOUS
- MAINTAINED LAWN
- SCRUB/SHRUB
- WOODED

KEY:

- OHW ORDINARY HIGH WATER 0.0
- TOB/AHL TOP OF BANK/HIGH TIDE LINE 44.0

NOTES:

1. FOR VEGETATION, HERBACEOUS AND SCRUB, NOTES USE SHEET PP-001.
2. HIGH TIDE LINE IS ONLY PRESENT DOWNSTREAM OF EXISTING RISER DITCH.
3. TIDE GATE: TIDAL FLOW IN EAST RISER DITCH IN PROJECT LIMITS.
4. FLOOD PROTECTION: FLOOD HAZARD ELEVATION = 7 FT; REFER TO SHEET PP-001 FOR DETAILS.

PERMIT PLANS



AECOM TECHNICAL SERVICES, INC.
 30 Kingsbridge Road
 Fairfield, NJ 07004
 732.549.3000 tel 732.369.0100 fax
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SUB-CONSULTANT

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 1 INTERNATIONAL BOULEVARD
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 MORRISTOWN, NJ 07960-0027
 201.335.9300 tel www.hdrinc.com

ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT

REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHE
 EAST RISER DITCH
 CHANNEL IMPROVEMENTS PROJECT

REGISTRATION

AECOM TECHNICAL SERVICES, INC.
 CERTIFICATE OF REGISTRATION NO. J460068270
 STEVEN BUSSO

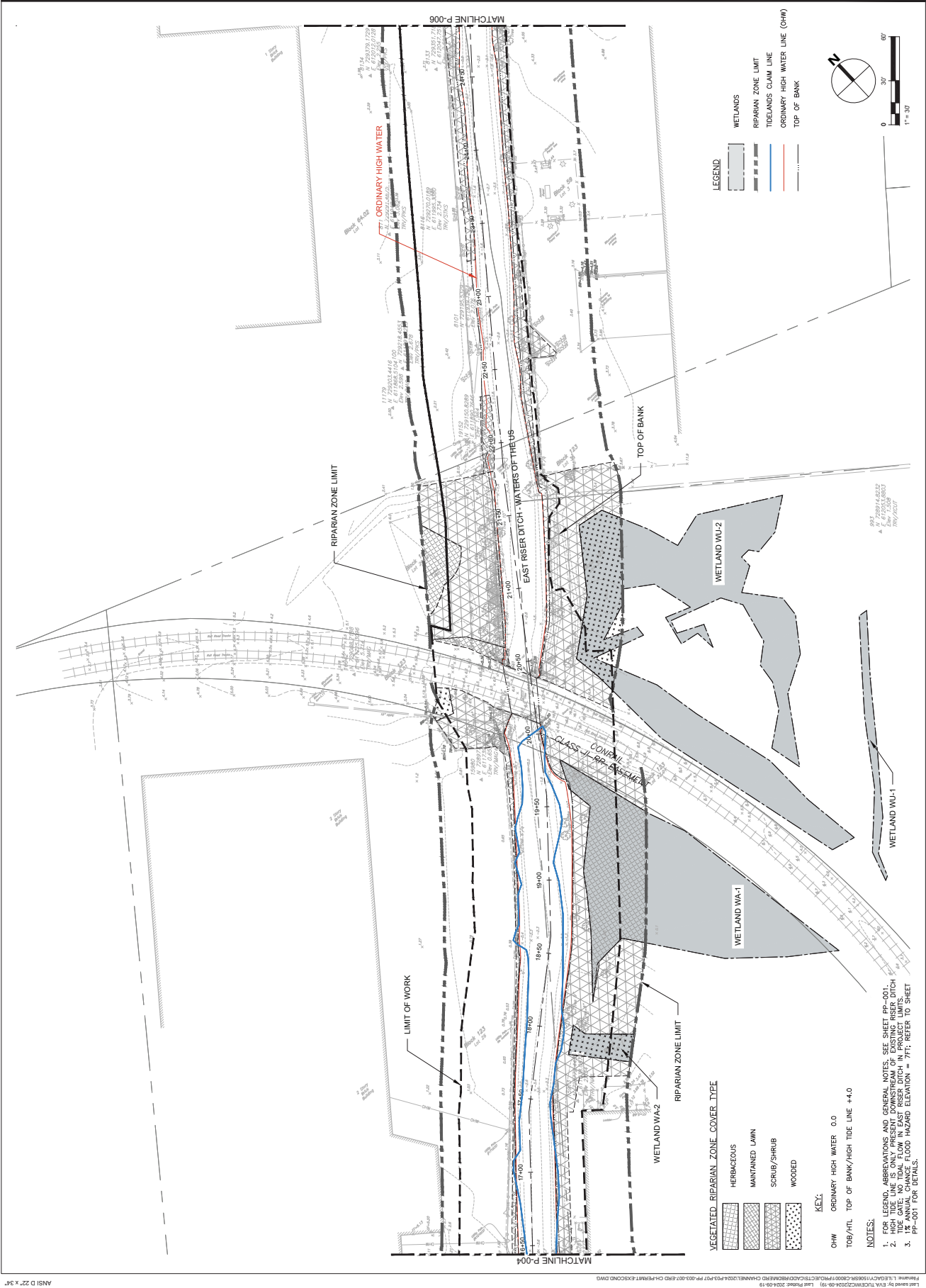
NEW JERSEY PROFESSIONAL ENGINEER
 LICENSE NO. J46E0292100

Designed By: TMAM
 Drawn By: ET
 Proj. Check: SA

PROJECT/TERM CONTRACT NUMBER
 P1131-001

SHEET TITLE
 EXISTING CONDITIONS PLAN
 SHEET 3 OF 5

SHEET NUMBER
PP-005
 PERMIT - ERD PS



VEGETATED RIPARIAN ZONE COVER TYPE

- HERBACEOUS
- MAINTAINED LAWN
- SCRUB/SHRUB
- WOODED

KEY:

- OHW ORDINARY HIGH WATER 0.0
- TOB/HIL TOP OF BANK/HIGH TIDE LINE +4.0

NOTES:

1. FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE SHEET PP-001.
2. TIDE GATE: NO TIDAL FLOW IN EAST RISER DITCH IN PROJECT LIMITS.
3. PR-001 FLOOD HAZARD ELEVATION = 7FT; REFER TO SHEET PP-001 FOR DETAILS.

Revised Cover Sheet

PERMIT PLANS



AECOM TECHNICAL SERVICES, INC.
30 Knightsbridge Road
Parsippany, NJ 07054
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www.aecom.com

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1 INTERNATIONAL BOULEVARD
SUITE 200
MORRISTOWN, NJ 07960-0027
201.335.9300 tel www.hdrinc.com

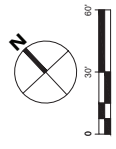
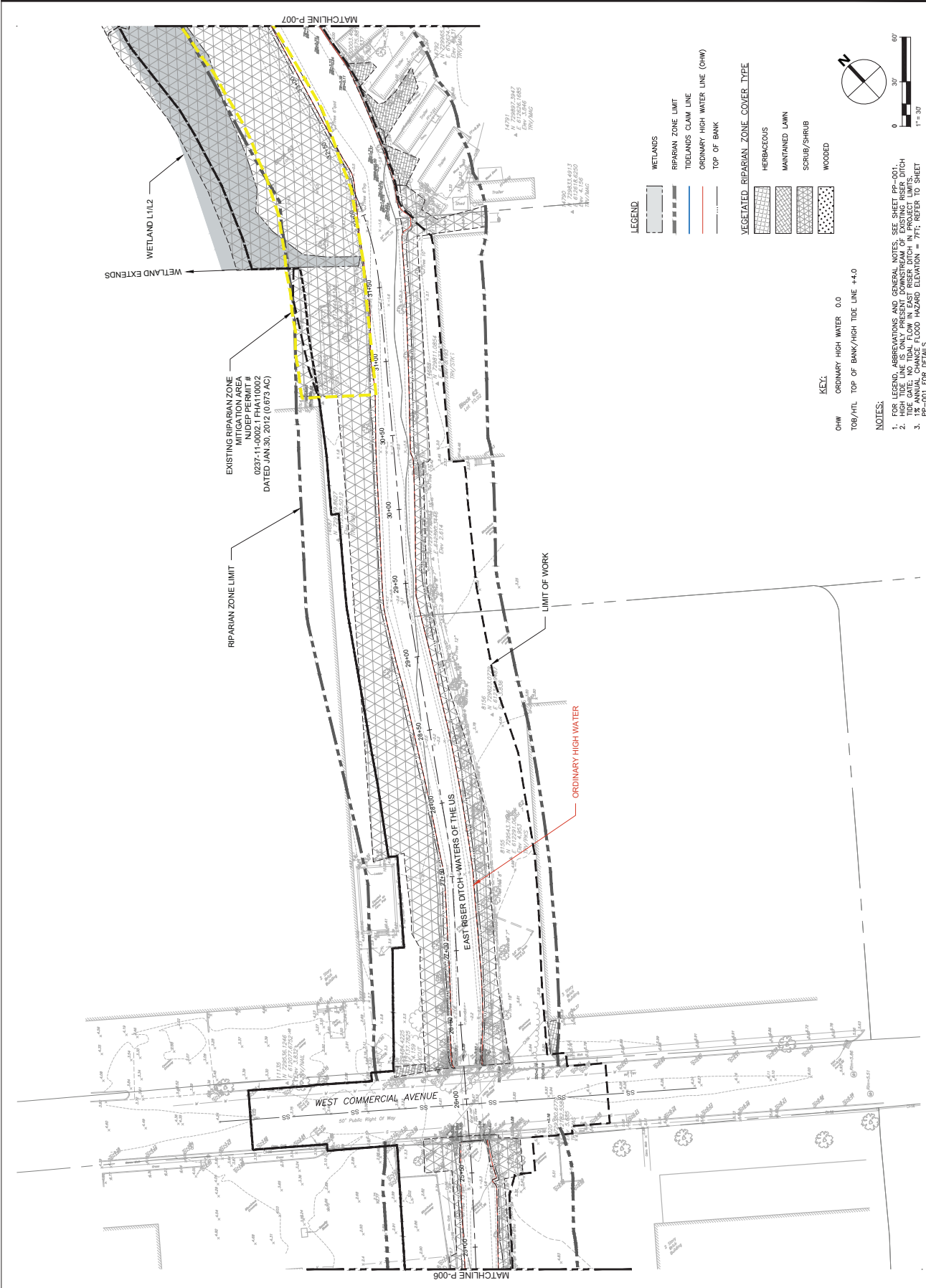
ISSUE/REVISION	DATE	DESCRIPTION

PROJECT
REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHIE
EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT

REGISTRATION
AECOM TECHNICAL SERVICES, INC.
CERTIFICATE OF REGISTRATION NO. JAG0006270
STEVEN BUSSO
NEW JERSEY PROFESSIONAL ENGINEER
LICENSE NO. 246E0282100

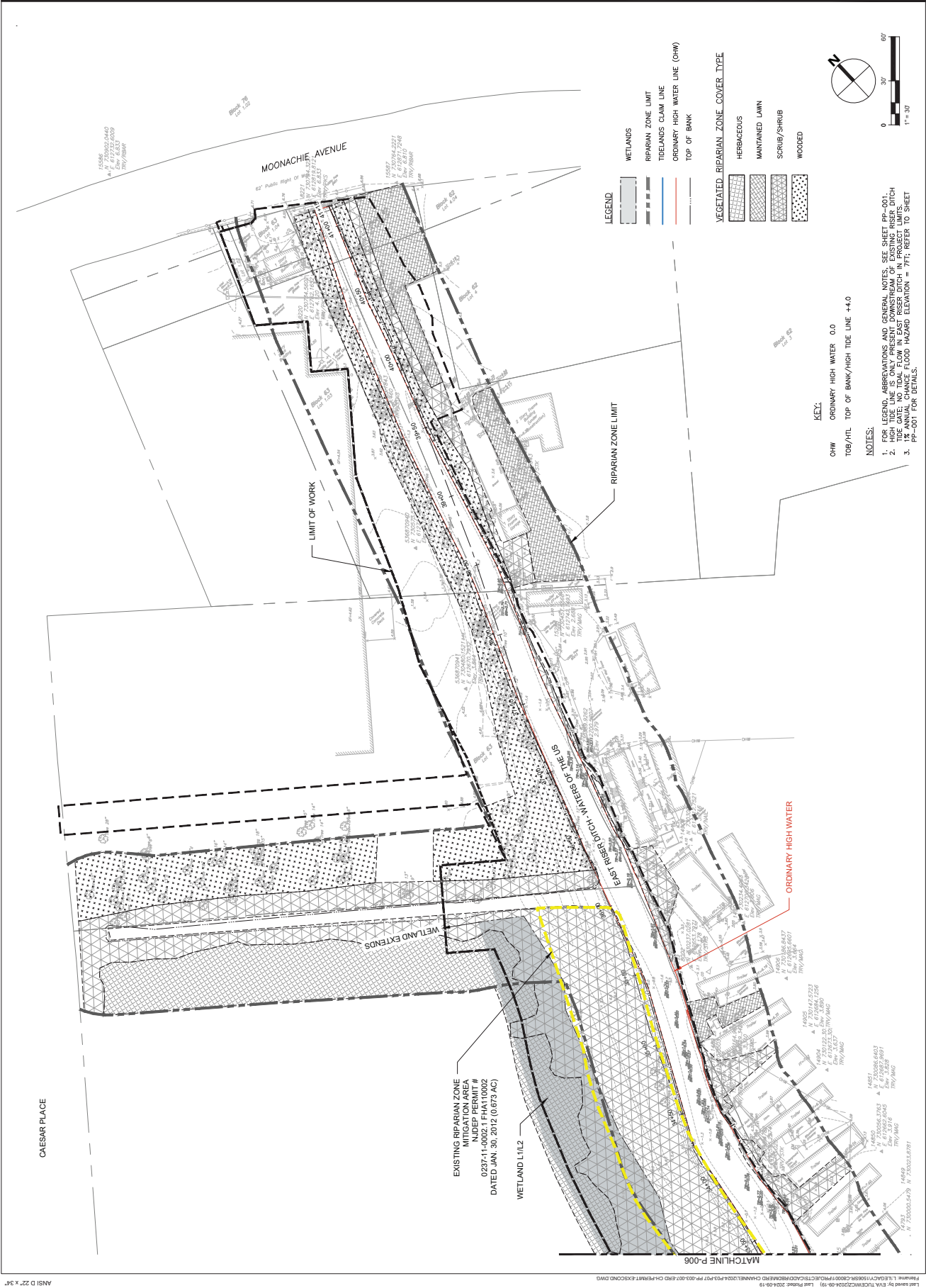
Designed By: TMAM
Drawn By: ET
Proj. Check: SA
PROJECT/TERM CONTRACT NUMBER
P1131-001
SHEET TITLE
EXISTING CONDITIONS PLAN
SHEET 4 OF 5

SHEET NUMBER
PP-006
PERMIT - ERD PS



- KEY:**
OHW ORDINARY HIGH WATER 0.0
TOB/HIL TOP OF BANK/HIGH TIDE LINE +4.0
- NOTES:**
1. FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE SHEET PP-001.
2. HIGH TIDE LINE IS ONLY PRESENT DOWNSTREAM OF EXISTING RISER DITCH.
3. TIDE GATE: NO TIDAL FLOW IN EAST RISER DITCH IN PROJECT LIMITS.
4. EXISTING CHANNEL CENTERLINE ELEVATION = 7.77; REFER TO SHEET PP-001 FOR DETAILS.

PERMIT PLANS



AECOM
 AECOM TECHNICAL SERVICES, INC.
 30 Knightbridge Road
 Princeton, NJ 08542
 732.984.3300 tel 732.399.0120 fax
 www.aecom.com

SUB-CONSULTANT
 HDR ENGINEERING, INC.
 1 INTERNATIONAL BOULEVARD
 SUITE 200
 MANHATTAN, NJ 07042-0207
 201.335.9300 tel www.hdrinc.com

ISSUE/REVISION	DATE	DESCRIPTION

PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHE
 BERGEN COUNTY, NEW JERSEY
**EAST RISER DITCH
 CHANNEL IMPROVEMENTS PROJECT**

REGISTRATION
 AECOM TECHNICAL SERVICES, INC.
 CERTIFICATE OF REGISTRATION NO. J460006270
STEVEN BUSSO
 NEW JERSEY PROFESSIONAL ENGINEER
 LICENSE NO. 246E02821100

Designed By: TM/AM
 Drawn By: ET
 Proj. Check: SA
 PROJECT/TERM CONTRACT NUMBER
 P1131-001

SHEET TITLE
**EXISTING CONDITIONS PLAN
 SHEET 5 OF 5**

SHEET NUMBER
PP-007
 PERMIT - ERD PS

- KEY:**
 OHW ORDINARY HIGH WATER 0.0
 TOP/BATL TOP OF BANK/HIGH TIDE LINE +4.0
- NOTES:**
 1. FOR LEGEND, OBSERVATIONS AND GENERAL NOTES, SEE SHEET PP-001.
 2. HIGH TIDE LINE IS ONLY PRESENT DOWNSTREAM OF EXISTING RISER DITCH.
 3. TIDE GATE: NO TIDAL FLOW IN EAST RISER DITCH IN PROJECT LIMITS.
 4. PERMIT AREA: FLOOD HAZARD ELEVATION = 7.1; REFER TO SHEET PP-001 FOR DETAILS.

PERMIT PLANS



AECOM TECHNICAL SERVICES, INC.
30 Kingsbridge Road
Purchase, NY 10577
732.368.3200 tel 732.368.0120 fax
www.aecom.com

SUB-CONSULTANT
HDR ENGINEERING, INC.
1 INTERNATIONAL BOULEVARD
PO BOX 1000
MAYWOOD, NJ 07066-0100
201.335.9000 tel www.hdrinc.com

ISSUE/REVISION

NO.	DATE	DESCRIPTION
2	2024-08-23	REPARIAN ZONE IMPACT TABLE UPDATED PER DEP COMMENT
1	2024-08-12	UPDATED PLANS BASED ON NJDEP DEP COMMENTS

PROJECT

REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHE
EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT

REGISTRATION

AECOM TECHNICAL SERVICES, INC.
CERTIFICATE OF AUTHORIZATION NO. J460060270
STEVEN BRUSO

NEW JERSEY PROFESSIONAL ENGINEER
LICENSE NO. 246E0282100

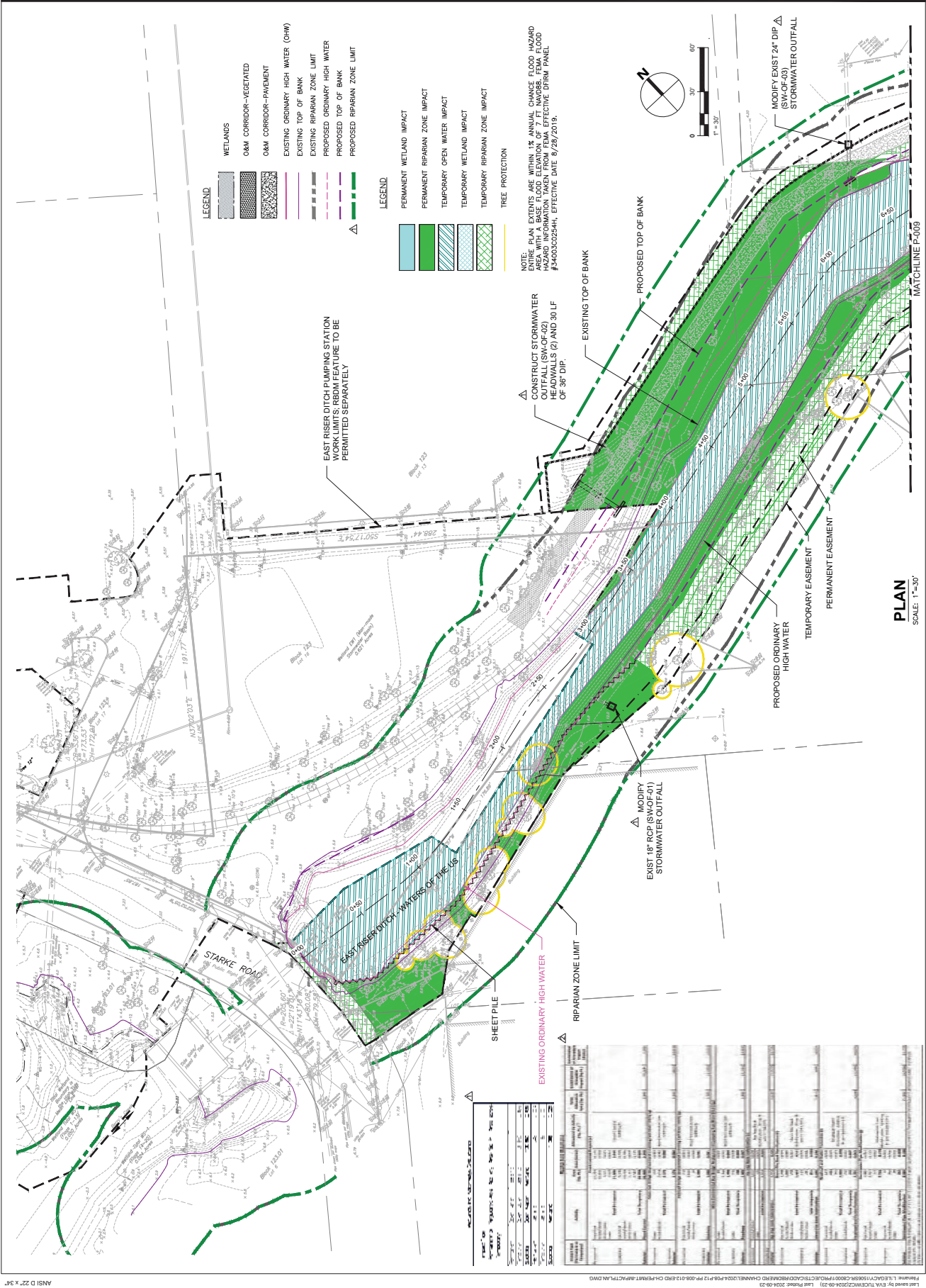
Designed By: TMAM
Drawn By: ET
Proj. Check: SA

PROJECT/TERM CONTRACT NUMBER
P1131-001

SHEET TITLE
WETLAND AND RIPARIAN ZONE IMPACT PLAN

SHEET NUMBER
PP-008

PERMIT - ERD CH



REVISIONS

NO.	DATE	DESCRIPTION	BY	CHKD
1	08/12/24	INITIAL DESIGN	ET	TMAM
2	08/23/24	REVISED PER DEP COMMENTS	ET	TMAM

PROJECT DATA

NO.	DATE	DESCRIPTION	BY	CHKD
1	08/12/24	INITIAL DESIGN	ET	TMAM
2	08/23/24	REVISED PER DEP COMMENTS	ET	TMAM

PERMIT PLANS



AECOM TECHNICAL SERVICES, INC.
 30 Kingsbridge Road
 Parsippany, NJ 07654
 732.593.3000 tel 732.399.0100 fax
 www.aecom.com

SUB-CONSULTANT

HDR ENGINEERING, INC.
 1 INTERNATIONAL BOULEVARD
 SUITE 200
 MORRISTOWN, NJ 07960-0207
 201.335.9300 tel www.hdrinc.com

ISSUE/REVISION

NO.	DATE	DESCRIPTION
1	2024-08-12	UPDATED PLANS BASED ON NUISP DESP COMMENTS

PROJECT

REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHE
 BERGEN COUNTY, NEW JERSEY
 EAST RIVER DITCH
 CHANNEL IMPROVEMENTS PROJECT

REGISTRATION

AECOM TECHNICAL SERVICES, INC.
 CERTIFICATE OF AUTHORIZATION NO. J46006270
 STEVEN BUSSO
 NEW JERSEY PROFESSIONAL ENGINEER
 LICENSE NO. 246E0292100

Designed By: TM/AM
 Drawn By: ET
 Proj. Check: SA

PROJECT TERM CONTRACT NUMBER
 P1131-001

SHEET TITLE
 WETLAND AND RIPARIAN
 ZONE IMPACT PLAN
 SHEET 2 OF 5

PP-009
 PERMIT - ERD CH



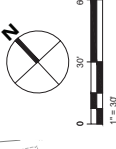
LEGEND

[Green Hatched]	WETLANDS
[Green Hatched]	O&M CORRIDOR-VEGETATED
[Grey Hatched]	O&M CORRIDOR-PAVEMENT
[Pink Line]	EXISTING ORDINARY HIGH WATER (OHW)
[Dashed Line]	EXISTING TOP OF BANK
[Dashed Line]	PROPOSED RIPARIAN ZONE LIMIT
[Dashed Line]	PROPOSED ORDINARY HIGH WATER
[Dashed Line]	PROPOSED TOP OF BANK
[Triangle]	CONSTRUCT STORMWATER OUTFALL (SW-OF-08) TYPE A INLET AND 27 LF OF 8" DIP.

LEGEND

[Blue Hatched]	PERMANENT WETLAND IMPACT
[Green Hatched]	PERMANENT RIPARIAN ZONE IMPACT
[Light Blue Hatched]	TEMPORARY OPEN WATER IMPACT
[Light Green Hatched]	TEMPORARY WETLAND IMPACT
[Light Green Hatched]	TEMPORARY RIPARIAN ZONE IMPACT
[Yellow Line]	TREE PROTECTION

NOTES:
 1. ENTIRE PLAN EXTENTS ARE WITHIN 1% ANNUAL CHANGE FLOOD PLAIN. FLOOD HAZARD INFORMATION TAKEN FROM FEMA EFFECTIVE DIRM PANEL #3400300254H, EFFECTIVE DATE 8/29/2019.
 2. SEE IMPACT TABLES ON SHEET PP-008.



PERMIT PLANS



AECOM TECHNICAL SERVICES, INC.
30 Kingsbridge Road
Purchase, NY 10577
732.593.3000 tel 732.369.0100 fax
www.aecom.com

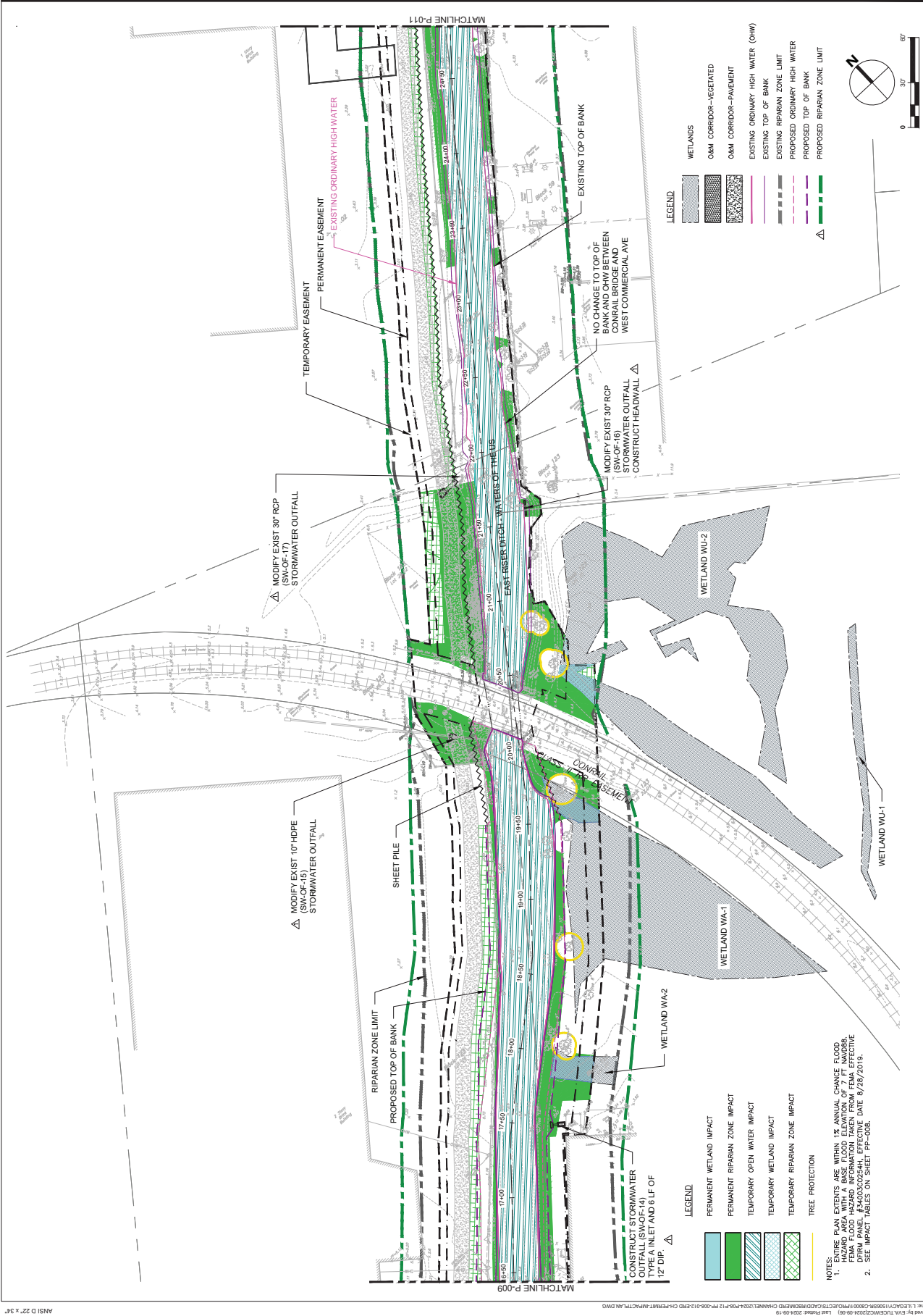
SUB-CONSULTANT
HDR ENGINEERING, INC.
1 INTERNATIONAL BOULEVARD
10700 WOODBRIDGE AVENUE
MUMFORD, NJ 07454-0027
201.335.9300 tel www.hdrinc.com

ISSUE/REVISION	DATE	DESCRIPTION
1	2024-08-12	UPDATED PLANS BASED ON JULY 2024 DESP COMMENTS

PROJECT
REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHIE
BERGEN COUNTY, NEW JERSEY
EAST RISER DITCH CHANNEL IMPROVEMENTS PROJECT

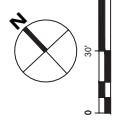
REGISTRATION
AECOM TECHNICAL SERVICES, INC.
CERTIFICATE OF AUTHORIZATION NO. 2400000270
STEVEN BUSSO
NEW JERSEY PROFESSIONAL ENGINEER
LICENSE NO. 24E0292100

Designed By: TMAM
Drawn By: ET
Proj. Check: SA
PROJECT TERM CONTRACT NUMBER: P1131-001
SHEET TITLE: WETLAND AND RIPARIAN ZONE IMPACT PLAN
SHEET NUMBER: PP-010
PERMIT: ERD CH



- LEGEND**
- PERMANENT WETLAND IMPACT
 - PERMANENT RIPARIAN ZONE IMPACT
 - TEMPORARY OPEN WATER IMPACT
 - TEMPORARY WETLAND IMPACT
 - TEMPORARY RIPARIAN ZONE IMPACT
 - TREE PROTECTION

NOTES:
 1. ENTIRE PLAN EXTENTS ARE WITHIN 1% ANNUAL CHANCE FLOOD. FEMA FLOOD HAZARD INFORMATION TAKEN FROM FEMA EFFECTIVE DFRM PANEL #34000020254H, EFFECTIVE DATE 8/28/2019.
 2. SEE IMPACT TABLES ON SHEET PP-006.



PERMIT PLANS



AECOM TECHNICAL SERVICES, INC.
30 Kingsbridge Road
Purchase, NJ 07654
732.943.3200 tel 732.399.0120 fax
www.aecom.com

SUB-CONSULTANT

HDR ENGINEERING, INC.
1 INTERNATIONAL BOULEVARD
SUITE 200
MORRISTOWN, NJ 07960-2027
201.335.9300 tel www.hdrinc.com

ISSUE/REVISION

NO.	DATE	DESCRIPTION
1	2024-08-12	UPDATED PLANS BASED ON NIDEP DSEP COMMENTS

PROJECT

REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHIE
EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT

REGISTRATION

AECOM TECHNICAL SERVICES, INC.
CERTIFICATE OF REGISTRATION NO. JAG0604270
STEVEN BUSSO

NEW JERSEY PROFESSIONAL ENGINEER
LICENSE NO. 246E0292100

Designed By: TMAM
Drawn By: ET
Proj. Check: SA

PROJECT TERM CONTRACT NUMBER
P1131-001

SHEET TITLE
WETLAND AND RIPARIAN ZONE IMPACT PLAN

SHEET 4 OF 5
SHEET NUMBER
PP-011

PERMIT - ERD CH



NOTES:
 1. THESE PLAN EXTENTS ARE WITHIN 1% ANNUAL CHANGE FLOOD HAZURE AREA WITH A BASE FLOOD ELEVATION OF 7 FT NAVD83. FEMA FLOOD HAZARD INFORMATION TAKEN FROM FEMA EFFECTIVE DATE 6/28/2015.
 2. SEE IMPACT TABLES ON SHEET PP-008.

PERMIT PLANS



AECOM TECHNICAL SERVICES, INC.
30 Kingsbridge Road
Fairfield, NJ 07004
732.968.3200 tel 732.398.0120 fax
www.aecom.com

SUB-CONSULTANT
HDR ENGINEERING, INC.
1 INTERNATIONAL BOULEVARD
NEW YORK, NY 10022
MANHATTAN, NY 07495-0027
201.335.9300 tel www.hdrinc.com

ISSUE/REVISION

NO.	DATE	DESCRIPTION
1	2024-08-12	UPDATED PLANS BASED ON JUDGE DESP COMMENTS

PROJECT

REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHIE
BERGEN COUNTY, NEW JERSEY
EAST RISER DITCH CHANNEL IMPROVEMENTS PROJECT

REGISTRATION

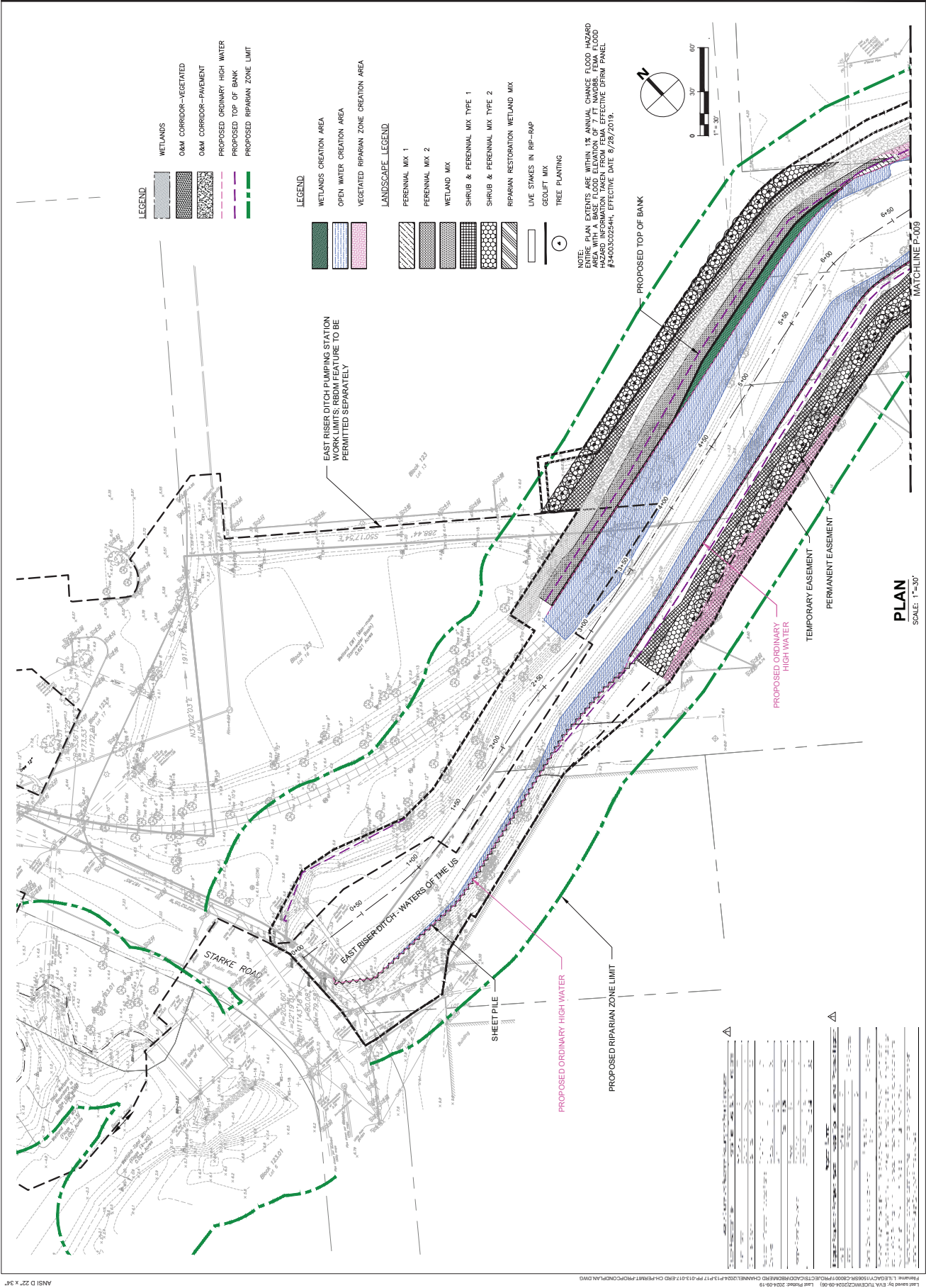
AECOM TECHNICAL SERVICES, INC.
CERTIFICATE OF AUTHORIZATION NO. JAG0608270
STEVEN BUSSO
NEW JERSEY PROFESSIONAL ENGINEER
LICENSE NO. 24E0282100

Designed By: TMAM
Drawn By: ET
Proj. Check: SA

PROJECT/TERM CONTRACT NUMBER
P1131-001

SHEET TITLE
WETLAND AND RIPARIAN ZONE PLAN
FOR PROPOSED CONDITIONS
SHEET 1 OF 5
SHEET NUMBER
PP-013

PERMIT - ERD CH





AECOM TECHNICAL SERVICES, INC.
 30 Knightbridge Road
 Piscataway, NJ 08854
 732.984.3200 tel 732.389.0120 fax
 www.aecom.com

SUB-CONSULTANT

HDR ENGINEERING, INC.
 1 INTERNATIONAL BOULEVARD
 SUITE 200
 MORRISTOWN, NJ 07960-0227
 201.335.9000 tel www.hdrinc.com

ISSUE/REVISION

NO.	DATE	DESCRIPTION
1	2024-08-12	UPDATED PLANS BASED ON INDEP DESP COMMENTS

PROJECT

REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONSTACHE
 BERGEN COUNTY, NEW JERSEY
EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT

REGISTRATION

AECOM TECHNICAL SERVICES, INC.
 CERTIFICATE OF AUTHORIZATION NO. JAC00000270
STEVEN BRUSO

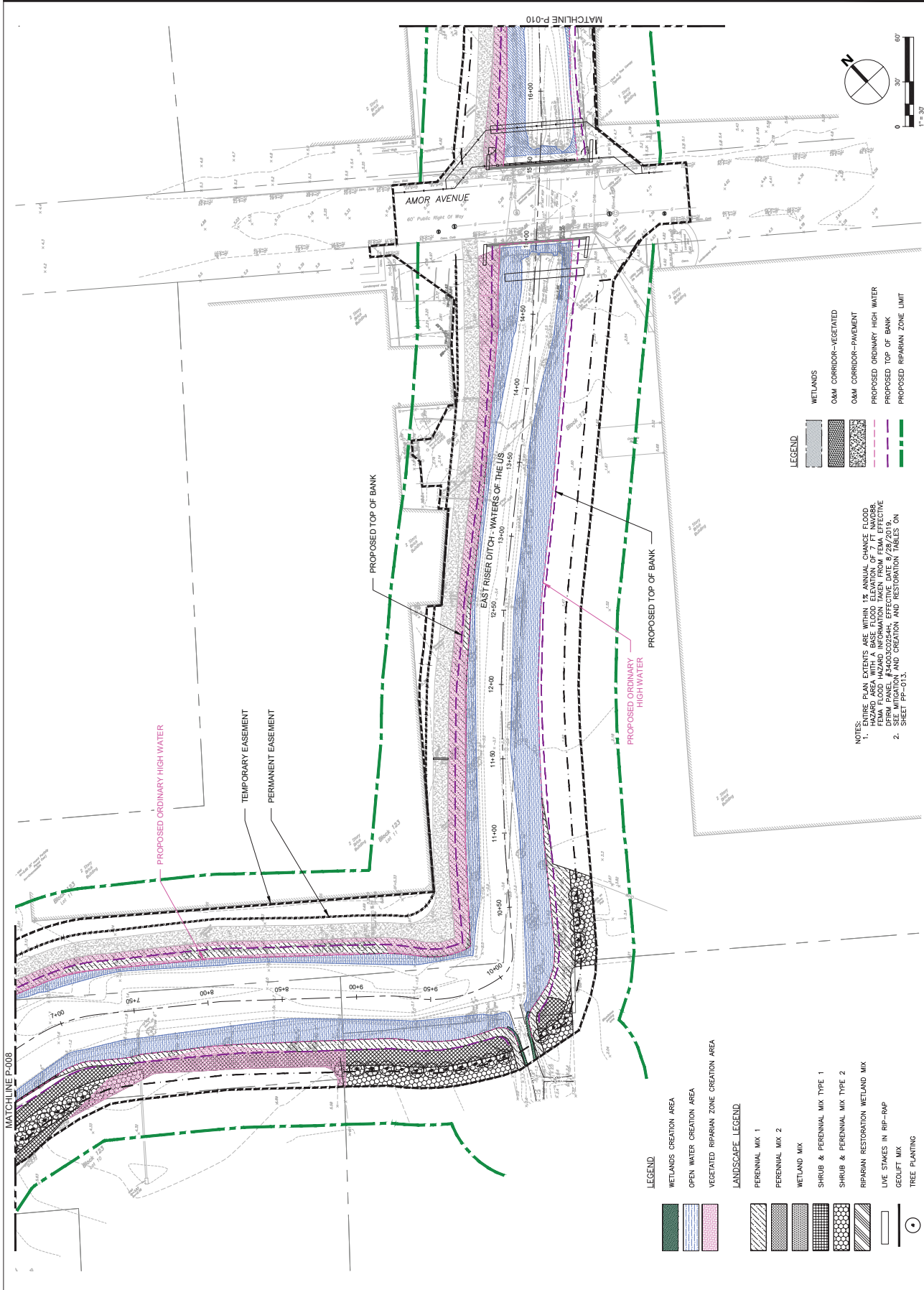
NEW JERSEY PROFESSIONAL ENGINEER
 LICENSE NO. 24E0282100

Designed By: TMAM
 Drawn By: ET
 Proj. Check: SA

PROJECT/TERM CONTRACT NUMBER
 P1131-001

SHEET TITLE
WETLAND AND RIPARIAN ZONE PROPOSED CONDITIONS PLAN
 SHEET 2 OF 5
 SHEET NUMBER

PP-014
 PERMIT - ERD CH



LEGEND

- WETLANDS
- O&M CORRIDOR-VEGETATED
- O&M CORRIDOR-PAVEMENT
- PROPOSED ORDINARY HIGH WATER
- PROPOSED TOP OF BANK
- PROPOSED RIPARIAN ZONE LIMIT

NOTES:
 ENTIRE PLAN EXTENTS ARE WITHIN 1% ANNUAL CHANCE FLOOD PLAIN.
 FEMA FLOOD HAZARD INFORMATION TAKEN FROM FEMA EFFECTIVE DIRM PANEL #340030254H, EFFECTIVE DATE 8/28/2019.
 1. ELEVATIONS AND CROWN AND RESTORATION TABLES ON SHEET PP-013.

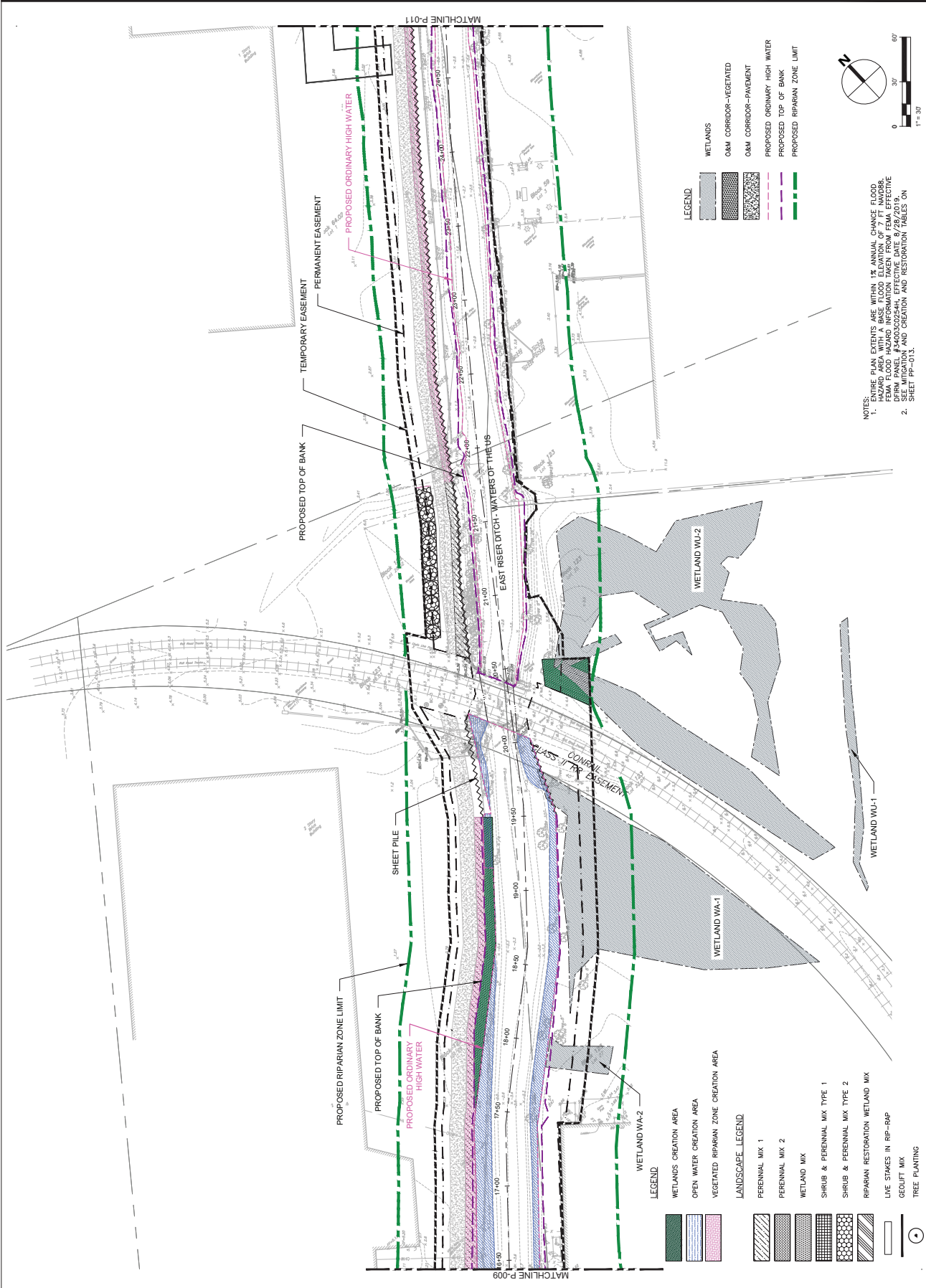
LEGEND

- WETLANDS CREATION AREA
- OPEN WATER CREATION AREA
- VEGETATED RIPARIAN ZONE CREATION AREA

LANDSCAPE LEGEND

- PERENNIAL MIX 1
- PERENNIAL MIX 2
- WETLAND MIX
- SHRUB & PERENNIAL MIX TYPE 1
- SHRUB & PERENNIAL MIX TYPE 2
- RIPARIAN RESTORATION WETLAND MIX
- LIVE STAKES IN RIP-RAP
- GEOTILT MIX
- TREE PLANTING

PERMIT PLANS



ANSI D 27.4 3/4" (Title Block) | L:\24\240543\240543-EMI\240543-EMI.dwg | 2024-09-19 10:58:58 AM | User: JG | Plot Date: 2024-09-19 | Plot Scale: 1"=30'

AECOM
 AECOM TECHNICAL SERVICES, INC.
 30 Knightsbridge Road
 Princeton, NJ 08540
 732.984.3200 ext. 732.388.0120 fax
 www.aecom.com

SUB-CONSULTANT
 HDR ENGINEERING, INC.
 1 INTERNATIONAL BOULEVARD
 SUITE 200
 MORRISTOWN, NJ 07960-0207
 201.335.9300 ext. www.hdrinc.com

ISSUE/REVISION

NO.	DATE	DESCRIPTION
1	2024-08-12	UPDATED PLANS BASED ON INDEP DESP COMMENTS

PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BERGEN COUNTY, NEW JERSEY
EAST RISER DITCH CHANNEL IMPROVEMENTS PROJECT

REGISTRATION
 AECOM TECHNICAL SERVICES, INC.
 CERTIFICATE OF REGISTRATION NO. J460604270
STEVEN BUSSO
 NEW JERSEY PROFESSIONAL ENGINEER
 LICENSE NO. 246E0282100

Designed By: TMAM
 Drawn By: ET
 Proj. Check: SA

PROJECT/TERM CONTRACT NUMBER
 P1131-001

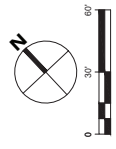
SHEET TITLE
WETLAND AND RIPARIAN ZONE PROPOSED CONDITIONS PLAN
 SHEET 3 OF 5
PP-015
 PERMIT - ERD CH

LEGEND

- WETLANDS
- O&M CORRIDOR-VEGETATED
- O&M CORRIDOR-PAVEMENT
- PROPOSED ORDINARY HIGH WATER
- PROPOSED TOP OF BANK
- PROPOSED RIPARIAN ZONE LIMIT

LANDSCAPE LEGEND

- PERENNIAL MIX 1
- PERENNIAL MIX 2
- WETLAND MIX
- SHRUB & PERENNIAL MIX TYPE 1
- SHRUB & PERENNIAL MIX TYPE 2
- RIPARIAN RESTORATION WETLAND MIX
- LINE STAKES IN RIP-RAP
- GEOLIFT MIX
- TREE PLANTING



NOTES: PLAN EXTENTS ARE WITHIN OF ANIMAL CHANNEL FLOOD HAZARD AREA BASE FLOOD ELEVATION OF 7.7 FT. FEMA FLOOD HAZARD INFORMATION TAKEN FROM FEMA EFFECTIVE FIRM PANEL #400302244H, EFFECTIVE DATE 8/28/2019. SEE PLAN AND CROSSING AND RESTORATION TABLES ON SHEET PP-013.

PERMIT PLANS



AECOM TECHNICAL SERVICES, INC.
30 Kingsbridge Road
Purchase, NY 10577
732.964.3200 fax
www.aecom.com

SUB-CONSULTANT

HR ENGINEERING, INC.
1 INTERNATIONAL BOULEVARD
SUITE 200
MORRISTOWN, NJ 07960-0207
201.335.9300 tel www.hrinc.com

ISSUE/REVISION

NO.	DATE	DESCRIPTION
1	2024-08-12	UPDATED PLANS BASED ON INDEP DESP COMMENTS

PROJECT

REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHIE
BERGEN COUNTY, NEW JERSEY
EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT

REGISTRATION

AECOM TECHNICAL SERVICES, INC.
CERTIFICATE OF REGISTRATION NO. JAG0604270
STEVEN BUSSO

NEW JERSEY PROFESSIONAL ENGINEER
LICENSE NO. 246E0282100

Designed By: TMAM
Drawn By: ET
Proj. Check: SA

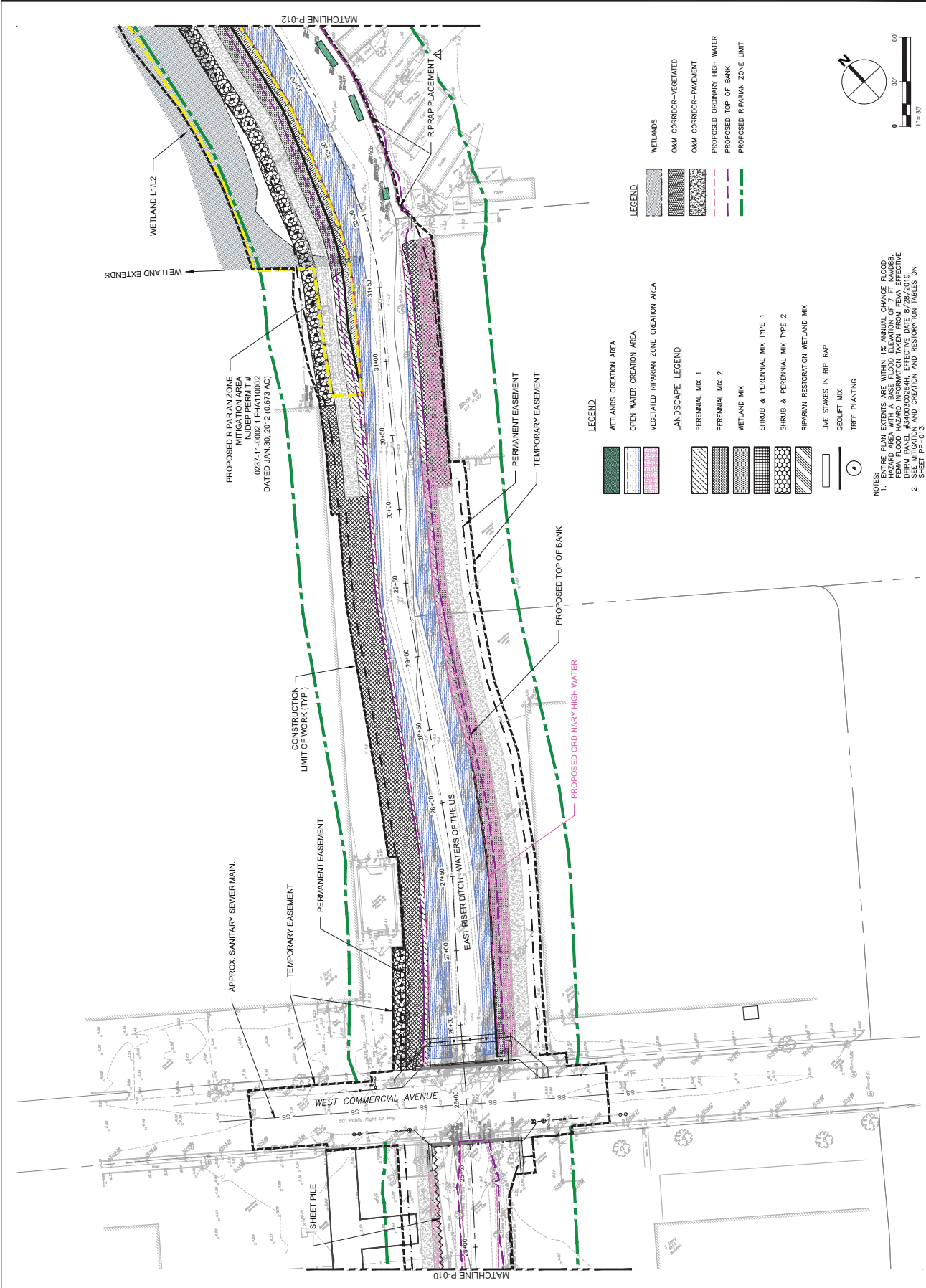
PROJECT TERM CONTRACT NUMBER
P1131-001

SHEET TITLE
WETLAND AND RIPARIAN ZONE PROPOSED CONDITIONS

PLAN
SHEET 4 OF 5

SHEET NUMBER
PP-016

PERMIT - ERD CH



LEGEND

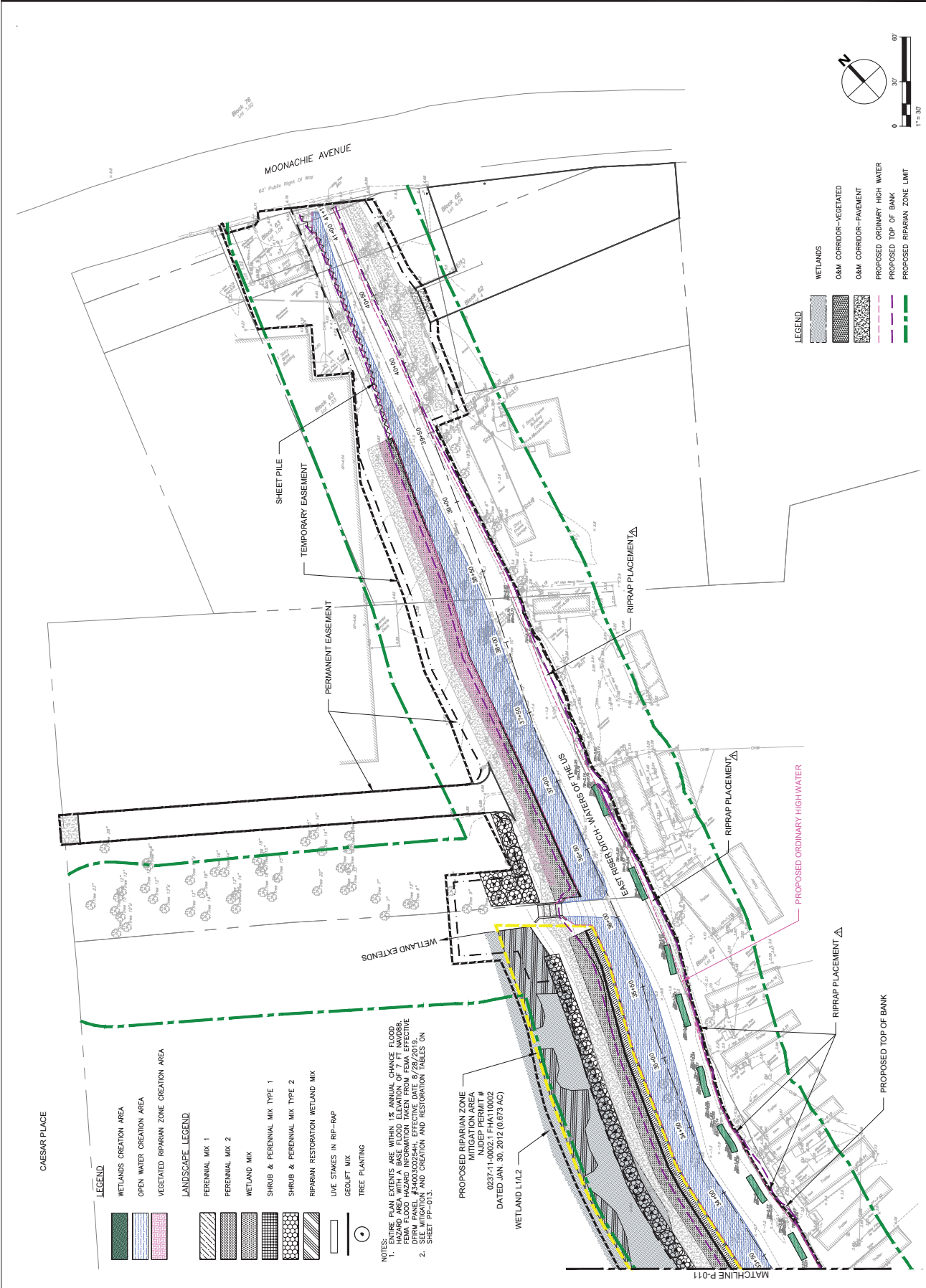
- WETLANDS
 - 0.6M CORRIDOR-VEGETATED
 - 0.6M CORRIDOR-PAVEMENT
- PROPOSED ORDINARY HIGH WATER
- PROPOSED TOP OF BANK
- PROPOSED RIPARIAN ZONE LIMIT

LEGEND

- WETLANDS CREATION AREA
 - OPEN WATER CREATION AREA
 - VEGETATED RIPARIAN ZONE CREATION AREA
- LANDSCAPE LEGEND
 - PERENNIAL MIX 1
 - PERENNIAL MIX 2
 - WETLAND MIX
 - SHRUB & PERENNIAL MIX TYPE 1
 - SHRUB & PERENNIAL MIX TYPE 2
 - RIPARIAN RESTORATION WETLAND MIX
- LIVE STAKES IN RIP-RAP
- GEO-LIFT MIX
- TREE PLANTING

NOTES:
 1. THESE PLAN EXTENDS ARE WITHIN 1% ANNUAL CHANCE FLOOD HAZARD AREA WITH A BASE FLOOD ELEVATION OF 7.7 FT NAVD83.
 2. SEE MITIGATION AND CREATION AND RESTORATION TABLES ON SHEET PP-013.

PERMIT PLANS



AECOM
 AECOM TECHNICAL SERVICES, INC.
 30 Kingsbridge Road
 Newark, NJ 07102
 732.969.3000 tel 732.369.0100 fax
 www.aecom.com

SUB-CONSULTANT
 HDR ENGINEERING, INC.
 1 INTERNATIONAL BOULEVARD
 SUITE 200
 MORRISTOWN, NJ 07960-0027
 201.335.9300 tel www.hdrinc.com

ISSUE/REVISION

NO.	DATE	DESCRIPTION
1	2024-08-12	UPDATED PLANS BASED ON INDEPENDENT DESP COMMENTS

PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHE
 BERGEN COUNTY, NEW JERSEY
 EAST RIVER DITCH
 CHANNEL IMPROVEMENTS PROJECT

REGISTRATION
 AECOM TECHNICAL SERVICES, INC.
 CERTIFICATE OF AUTHORIZATION NO. JAG0604270
STEVEN BUSSO
 NEW JERSEY PROFESSIONAL ENGINEER
 LICENSE NO. 24E02892100

Designed By: TM/AM
 Drawn By: ET
 Proj. Check: SA

PROJECT/TERM CONTRACT NUMBER
 P1131-001

SHEET TITLE
 WETLAND AND RIPARIAN ZONE PROPOSED CONDITIONS PLAN
 SHEET 5 OF 5
 SHEET NUMBER

PP-017
 PERMIT - ERD CH

LEGEND

- WETLANDS CREATION AREA
- OPEN WATER CREATION AREA
- VEGETATED RIPARIAN ZONE CREATION AREA
- LANDSCAPE LEGEND
- PERENNIAL MIX 1
- PERENNIAL MIX 2
- WETLAND MIX
- SHRUB & PERENNIAL MIX TYPE 1
- SHRUB & PERENNIAL MIX TYPE 2
- RIPARIAN RESTORATION WETLAND MIX
- LIVE STAKES IN RIP-RAP
- GEOLIFT MIX
- TREE PLANTING

LEGEND

- WETLANDS
- O&M CORRIDOR-VEGETATED
- O&M CORRIDOR-PAVEMENT
- PROPOSED ORDINARY HIGH WATER
- PROPOSED TOP OF BANK
- PROPOSED RIPARIAN ZONE LIMIT

NOTES:
 1. EXISTING PLAN EXTENTS ARE WITHIN 15' ANNUAL CHANCE FLOOD MITIGATION AREA BASED ON 1% FLOOD ELEVATION. MAJOR FLOOD HAZARD INFORMATION TAKEN FROM FEMA EFFECTIVE OPERATIONAL PANEL #1400-00254H, EFFECTIVE DATE 8/29/2019.
 2. SEE PLAN AND CREATION AND RESTORATION TABLES ON SHEET PP-013.

PROPOSED RIPARIAN ZONE MITIGATION AREA
 0237-11-0002 (FHAI10002)
 DATED JAN. 30, 2012 (0.673 AC)

WETLAND L1/L2

EAST RIVER DITCH - WATERS OF THE US

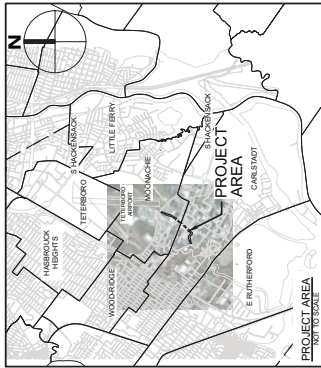
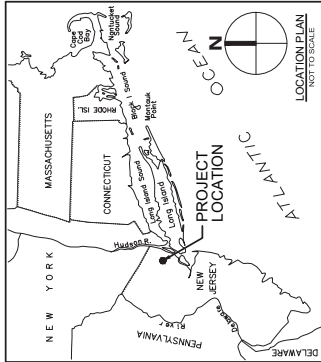
PROPOSED ORDINARY HIGH WATER

PROPOSED TOP OF BANK



NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
REBUILD BY DESIGN MEADOWLANDS PROJECT
 BOROUGH OF CARLSTADT - BOROUGH OF MOONACHIE
 BERGEN COUNTY, NEW JERSEY
 EAST RISER DITCH CHANNEL IMPROVEMENTS
 CONTRACT P1131-03

10 APRIL 2024



**PRELIMINARY NOT FOR
CONSTRUCTION**

**100% Design Drawings
DRAFT**

AECOM
 AECOM TECHNICAL SERVICES, INC.
 30 Kingsbridge Road
 Florham Park, NJ 07934
 732.984.3300 tel 732.399.0120 fax
 www.aecom.com

SUB-CONSULTANT
 HDR ENGINEERING, INC.
 50 TICE BOULEVARD
 WOODCLIFF LAKE, NJ 07077
 201.335.9300 tel www.hdrinc.com

ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHIE
 BERGEN COUNTY, NEW JERSEY
**EAST RISER DITCH
 CHANNEL IMPROVEMENTS PROJECT**

REGISTRATION
 HDR ENGINEERING, INC.
 CERTIFICATE OF AUTHORIZATION NO. 24620610700
MICHAEL VECCHIO
 NEW JERSEY Professional Engineer
 License/Certificate # 246206384900

Designed By:	JCR	03/2024
Drawn By:	LN	03/2024
Proj. Check:	WV	03/2024

PROJECT/TERM CONTRACT NUMBER
 P1131-03
SHEET TITLE
 COVER SHEET,
 LOCATION PLAN AND
 PROJECT AREA
SHEET NUMBER
 G-000



AECOM TECHNICAL SERVICES, INC.
30 Kingsbridge Road
Purchase, NJ 08854
732.261.3200 tel 732.268.0120 fax
www.aecom.com

SUB-CONSULTANT

HR ENGINEERING, INC.
50 TICE BOULEVARD
WOODCLIFF LAKE, NJ 07077
201.335.8300 tel www.hrinc.com

ISSUE/REVISION

IR	DATE	DESCRIPTION

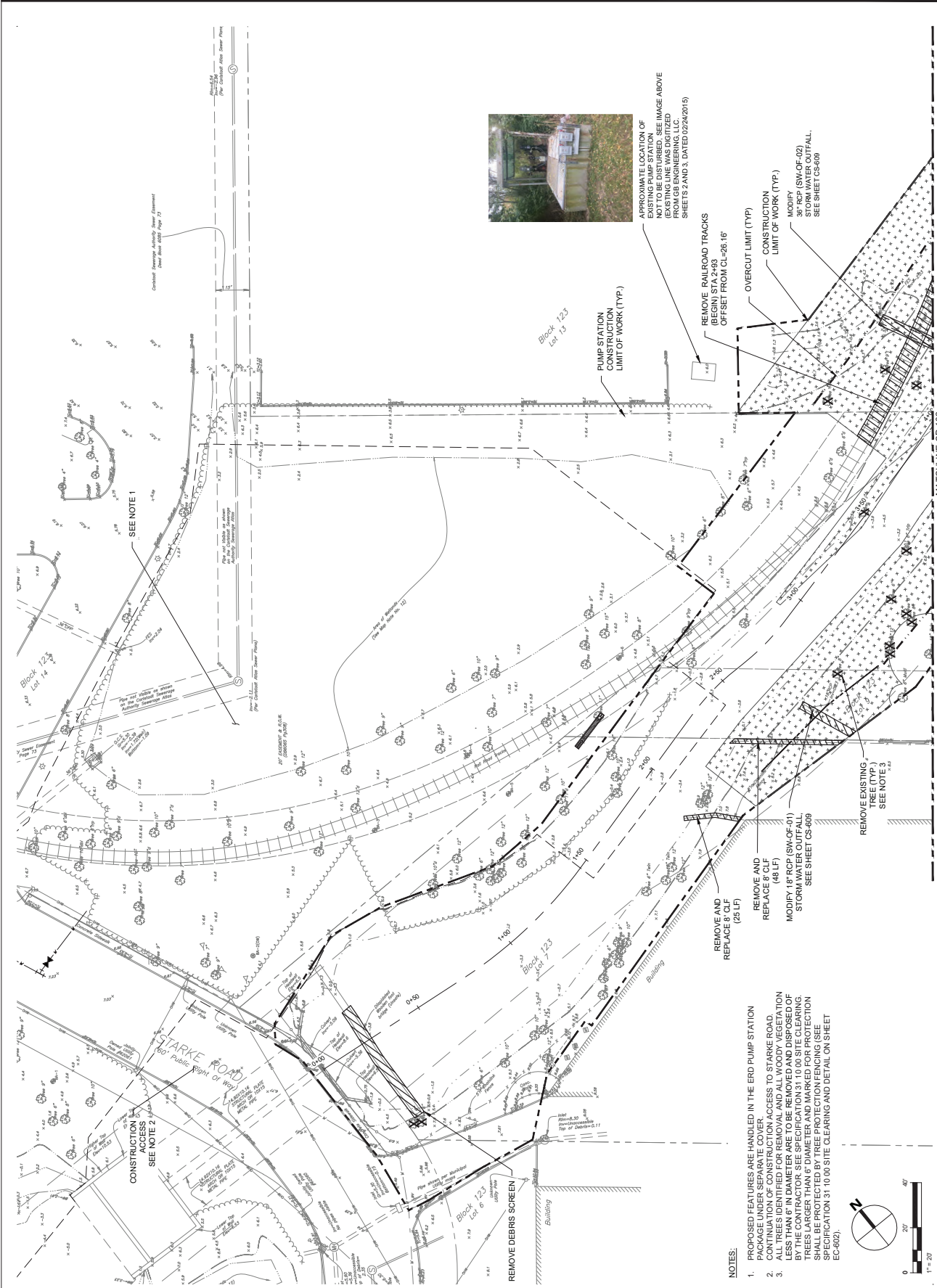
PROJECT

REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHE
BERGEN COUNTY, NEW JERSEY
EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT

REGISTRATION

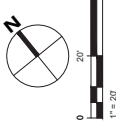
HR ENGINEERING, INC.
CERTIFICATE OF AUTHORIZATION NO. 24652610703
MICHAEL VECCHIO
NEW JERSEY Professional Engineer
License Certificate # 24652610703

Designed By:	JCR	08/2023
Drawn By:	JW	08/2023
Proj. Check:	KF	08/2023
PROJECT TERM CONTRACT NUMBER	P1131403	
SHEET TITLE	DEMOLITION PLAN	
	1 OF 8	
SHEET NUMBER	CD-101	



APPROXIMATE LOCATION OF EXISTING TREES TO BE REMOVED. THIS IMAGE WAS DIGITIZED FROM AN ORIGINAL PHOTOGRAPH TAKEN BY GEORGE FROM GEORGE ENGINEERING, LLC SHEETS 2 AND 3, DATED 02/24/2015

- NOTES:**
- PROPOSED FEATURES ARE HANDLED IN THE ERD PUMP STATION PACKAGE UNDER SEPARATE COVER.
 - CONTINUATION OF CONSTRUCTION ACCESS TO STARKE ROAD.
 - ALL TREES IDENTIFIED FOR REMOVAL AND ALL WOODY VEGETATION TO BE REMOVED AND CLEARING SHALL BE PERFORMED BY THE CONTRACTOR. SEE SPECIFICATION 31.10.00 SITE CLEARING. TREES LARGER THAN 6" DIAMETER AND MARKED FOR PROTECTION SHALL BE PROTECTED BY TREE PROTECTION FENCING (SEE SPECIFICATION 31.10.00 SITE CLEARING AND DETAIL ON SHEET EC-602).



FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW



AECOM TECHNICAL SERVICES, INC.
30 Kingsbridge Road
Purchase, NY 10577
732.368.3300 tel 732.368.0120 fax
www.aecom.com

SUB-CONSULTANT

HDR ENGINEERING, INC.
50 TICE BOULEVARD
WOODCLIFF LAKE, NJ 07077
201.335.8300 tel www.hdrinc.com

ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT

REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHIE
BERGEN COUNTY, NEW JERSEY
EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT

REGISTRATION

HDR ENGINEERING, INC.
CERTIFICATE OF AUTHORIZATION NO. 24632610703
MICHAEL VECCHIO

NEW JERSEY Professional Engineer
License/Certificate # 24632610703

Designed By: JCR 08/2023
Drawn By: JAV 08/2023
Proj. Check: KF 08/2023

PROJECT/TERM CONTRACT NUMBER
P1131403

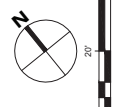
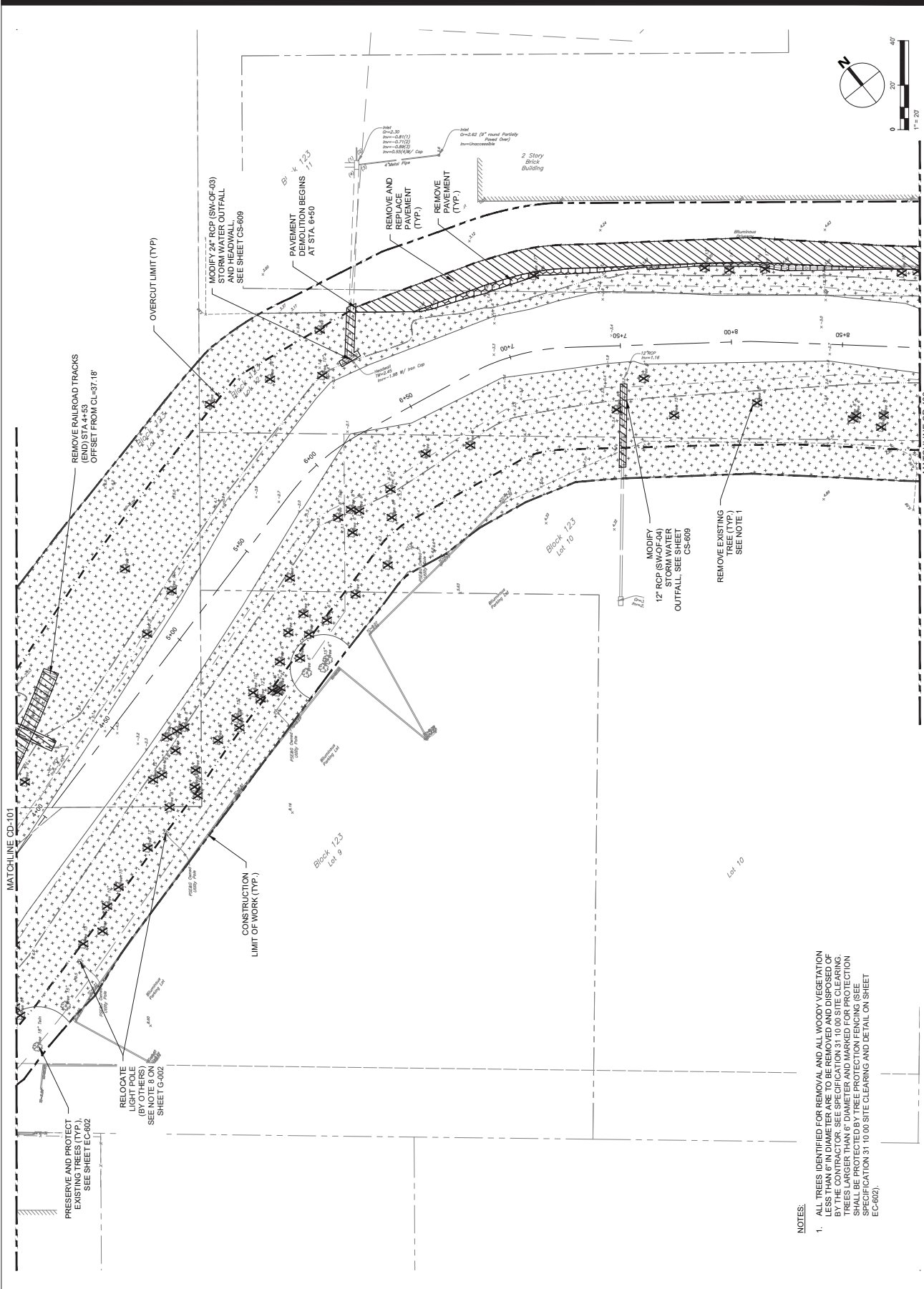
SHEET TITLE

DEMOLITION PLAN
2 OF 8

SHEET NUMBER

CD-102

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW



- NOTES:
- ALL TREES IDENTIFIED FOR REMOVAL AND ALL WOODY VEGETATION LESS THAN 6" IN DIAMETER ARE TO BE REMOVED AND DISPOSED OF BY THE CONTRACTOR. SEE SPECIFICATION 31.10.00 SITE CLEARING. ALL REMOVED TREES SHALL BE CHIPPED ON SITE. ALL REMOVED TREES SHALL BE PROTECTED BY TREE PROTECTION FENCINGS (SEE SPECIFICATION 31.10.00 SITE CLEARING AND DETAIL ON SHEET EC-602).



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WOODCLIFF LAKE, NJ 07077
201.335.6300 tel www.hdrinc.com

ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT

REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHIE
BERGEN COUNTY, NEW JERSEY
EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT

REGISTRATION

HDR ENGINEERING, INC.
CERTIFICATE OF AUTHORIZATION NO. 24628610703
MICHAEL VECCHIO

NEW JERSEY Professional Engineer
License/Certificate # 24628610703

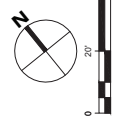
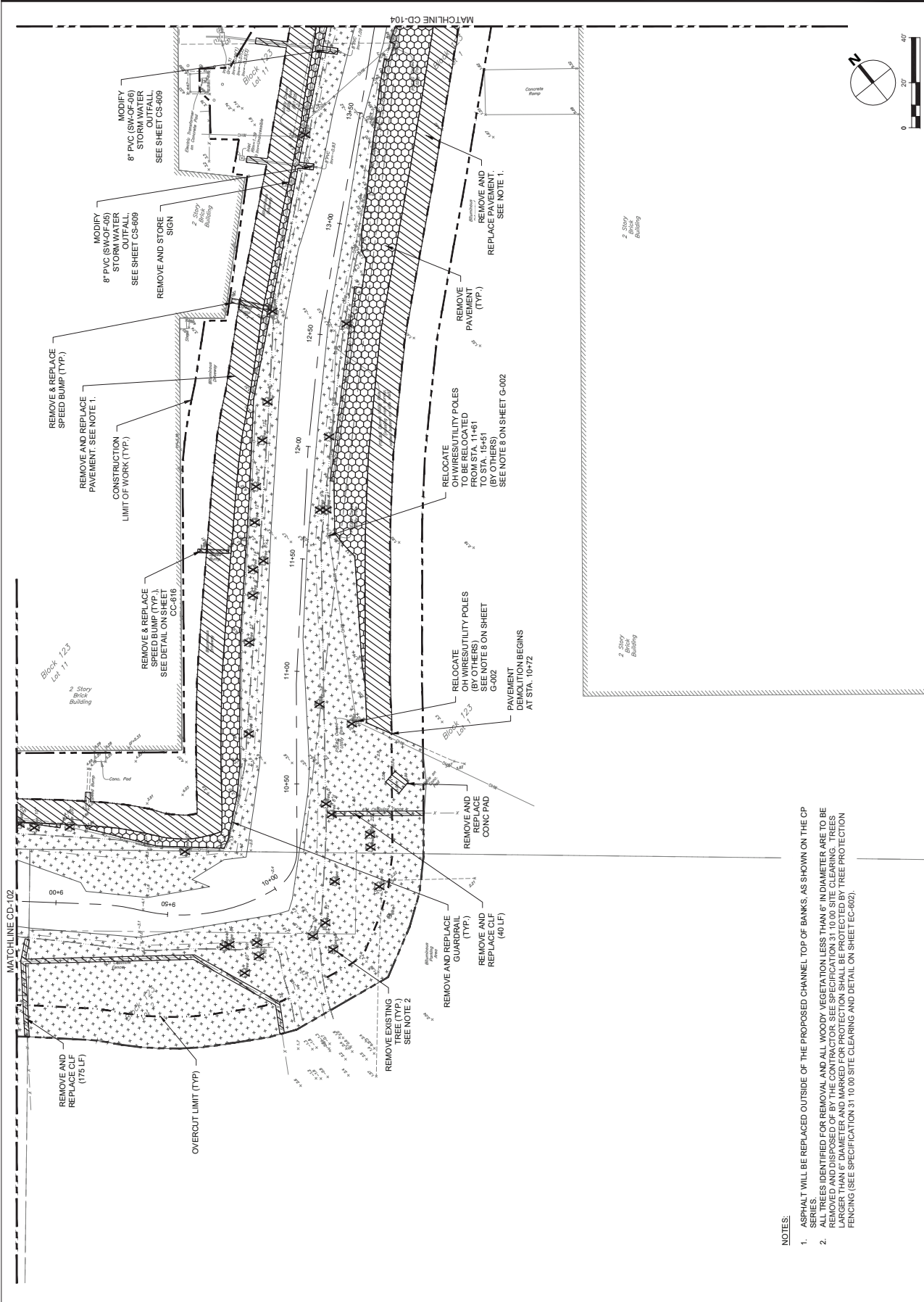
Designed By: JCR 03/2024
Drawn By: LN 03/2024
Proj. Check: NW 03/2024

PROJECT/TERM CONTRACT NUMBER
P1131-03
SHEET TITLE

DEMOLITION PLAN
3 OF 8

SHEET NUMBER

CD-103



- NOTES:**
- ASPHALT WILL BE REPLACED OUTSIDE OF THE PROPOSED CHANNEL TOP OF BANKS, AS SHOWN ON THE CP SERIES.
 - SERIES IDENTIFIED FOR REMOVAL AND ALL WOODY VEGETATION LESS THAN 6\"/>

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW



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50 TICE BOULEVARD
WOODCLIFF LAKE, NJ 07077
201.335.8300 tel www.hdrinc.com

ISSUE/REVISION

Table with columns: NO., DATE, DESCRIPTION

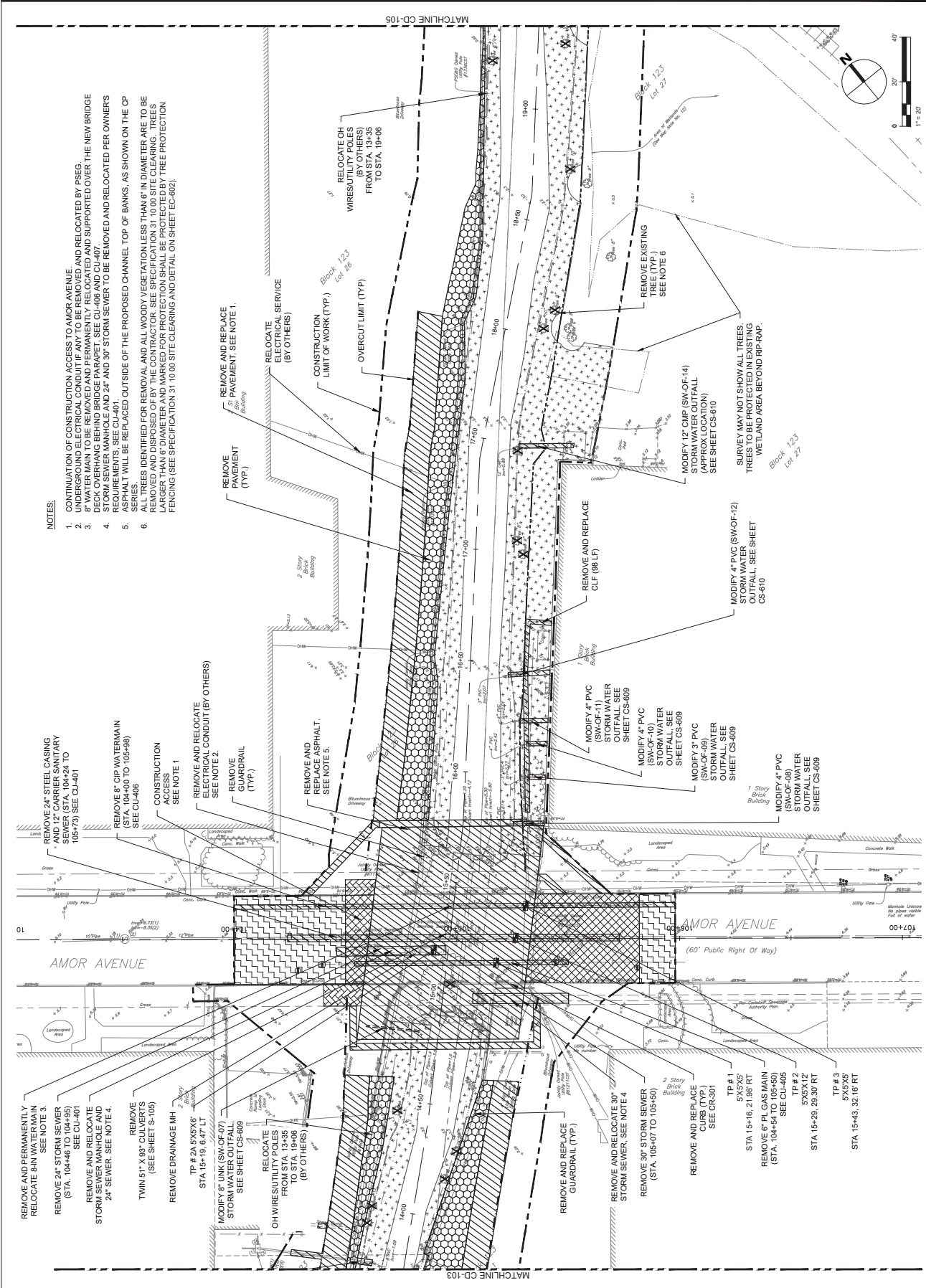
PROJECT

REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHE
EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT

REGISTRATION

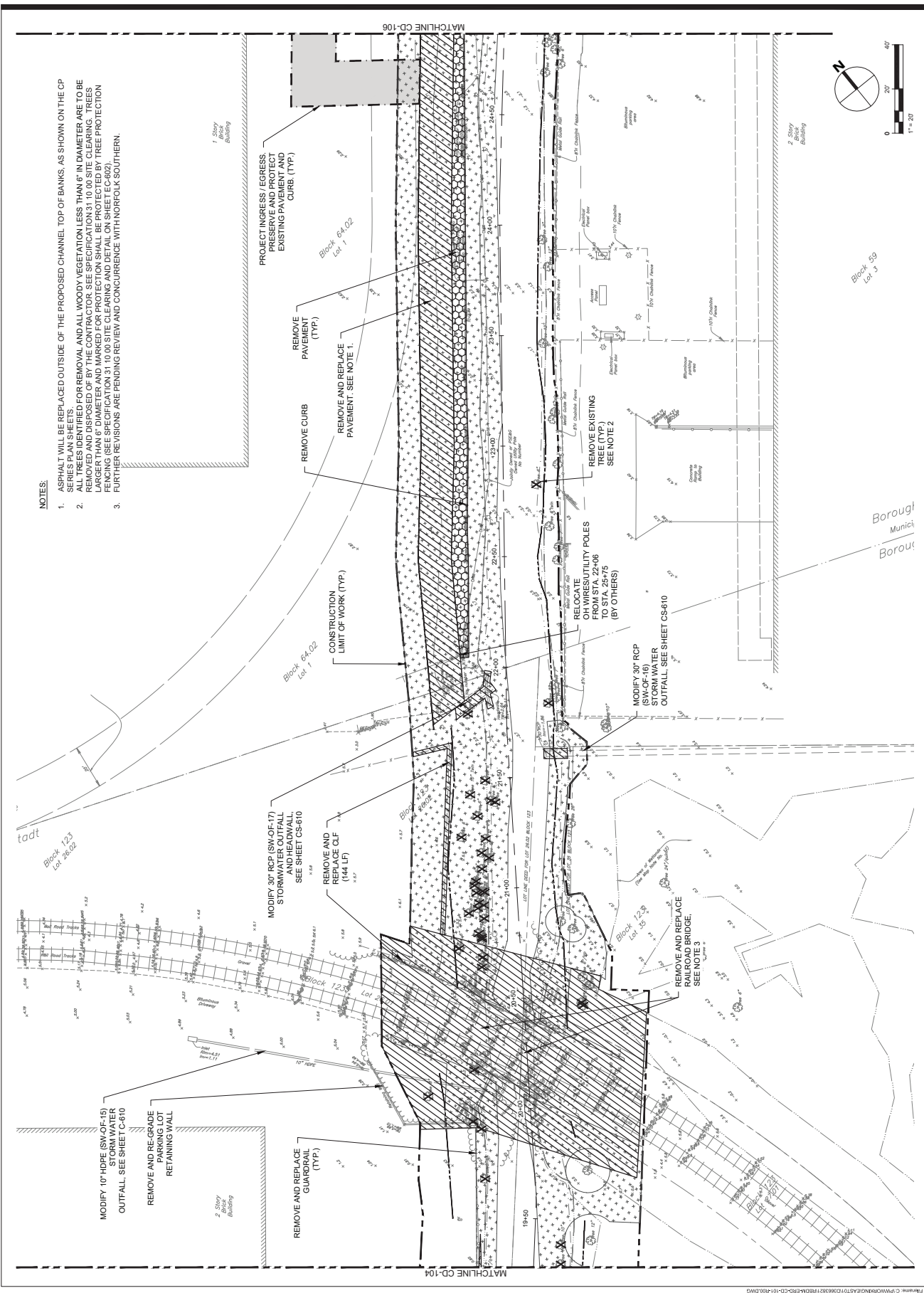
HDR ENGINEERING, INC.
CERTIFICATE OF AUTHORIZATION NO. 246526610700
MICHAEL VECCHIO
NEW JERSEY Professional Engineer
License Certificate # 246526610700

Table with columns: Designed By, Drawn By, Proj. Check, PROJECT/TERM CONTRACT NUMBER, SHEET TITLE, SHEET NUMBER



NOTES:

- 1. CONTINUATION OF CONSTRUCTION ACCESS TO AMOR AVENUE UNDERGROUND ELECTRICAL CONDUIT MAY TO BE REMOVED AND RELOCATED BY PSEG...
2. 8" WATER MAIN TO BE REMOVED AND PERMANENTLY RELOCATED AND SUPPORTED OVER THE NEW BRIDGE DECK OVERHANG BEHIND BRIDGE PARAPET...
3. STORM SEWER MANHOLE AND 24" AND 30" STORM SEWER TO BE REMOVED AND RELOCATED PER OWNER'S REQUIREMENTS...
4. ALL TREES IDENTIFIED FOR REMOVAL AND ALL WOODY VEGETATION LESS THAN 6" IN DIAMETER ARE TO BE REMOVED AND DISPOSED OF BY THE CONTRACTOR...
5. FENCING (SEE SPECIFICATION 31 10 00 SITE CLEARING AND DETAIL ON SHEET CD-602).



- NOTES:**
1. ASPHALT WILL BE REPLACED OUTSIDE OF THE PROPOSED CHANNEL TOP OF BANKS, AS SHOWN ON THE CP SERIES PLAN SHEETS.
 2. TREES TO BE REMOVED FOR REMOVAL AND ALL WOODY VEGETATION LESS THAN 6" IN DIAMETER ARE TO BE REMOVED AND REPLACED BY THE CONTRACTOR. SEE SPECIFICATIONS 31.00.00 SITE PREPARATION, TREES, LARGER THAN 6" DIAMETER AND MARKED FOR PROTECTION SHALL BE PROTECTED BY TREE PROTECTION FENCING (SEE SPECIFICATION 31.00.00 SITE CLEARING AND DETAIL ON SHEET EC-602).
 3. FURTHER REVISIONS ARE PENDING REVIEW AND CONCURRENCE WITH NORFOLK SOUTHERN.



AECOM TECHNICAL SERVICES, INC.
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 732.966.3300 tel 732.388.0120 fax
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 50 TICE BOULEVARD
 WOODCLIFF LAKE, NJ 07877
 201.335.8300 tel www.hdrinc.com

ISSUE/REVISION

NO.	DATE	DESCRIPTION

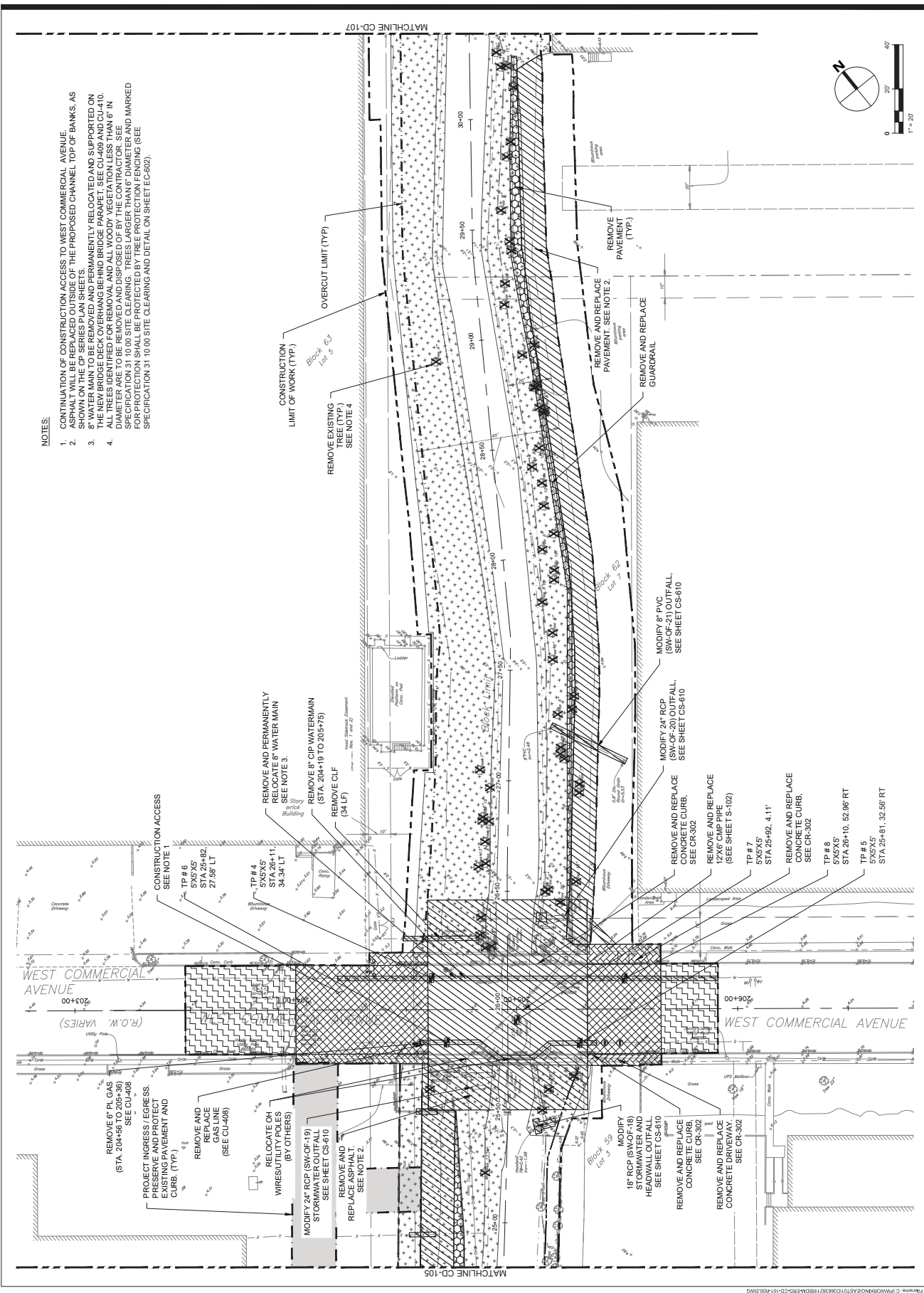
PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHIE
 BERGEN COUNTY, NEW JERSEY
 EAST RISER DITCH
 CHANNEL IMPROVEMENTS PROJECT

REGISTRATION
 HDR ENGINEERING, INC.
 CERTIFICATE OF AUTHORIZATION NO. 24620610703
 MICHAEL VECCHIO
 NEW JERSEY Professional Engineer
 License Certificate # 246GE038480

Designed By:	JCR	03/2024
Drawn By:	LN	03/2024
Proj. Check:	WV	03/2024

PROJECT/TERM CONTRACT NUMBER
 P1131-03
 SHEET TITLE
 DEMOLITION PLAN
 5 OF 8
 SHEET NUMBER
 CD-105

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW



- NOTES:**
1. CONTINUATION OF CONSTRUCTION ACCESS TO WEST COMMERCIAL AVENUE. ASPHALT WILL BE REPLACED OUTSIDE OF THE PROPOSED CHANNEL TOP OF BANKS, AS SHOWN ON THE CP SERIES PLAN SHEETS.
 2. ALL REMOVED AND PERMANENTLY RELOCATED AND SUPPORTED ON THE NEW BRIDGE AND BRIDGE PAVEMENT. SEE CU-408 AND CU-410.
 3. ALL TREES IDENTIFIED FOR REMOVAL AND ALL WOODY VEGETATION LESS THAN 6" IN DIAMETER ARE TO BE REMOVED AND DISPOSED OF BY THE CONTRACTOR. SEE SPECIFICATION 31.10.00 SITE CLEARING. TREES LARGER THAN 6" DIAMETER AND MARKED FOR PROTECTION SHALL BE PROTECTED BY TREE PROTECTION FENCING (SEE SPECIFICATION 31.10.00 SITE CLEARING AND DETAIL ON SHEET E-C-602).

AECOM
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 HDR ENGINEERING, INC.
 50 TICE BOULEVARD
 WOODCLIFF LAKE, NJ 07077
 201.335.8300 tel www.hdrinc.com

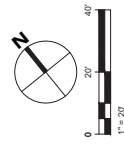
ISSUE/REVISION

NO.	DATE	DESCRIPTION

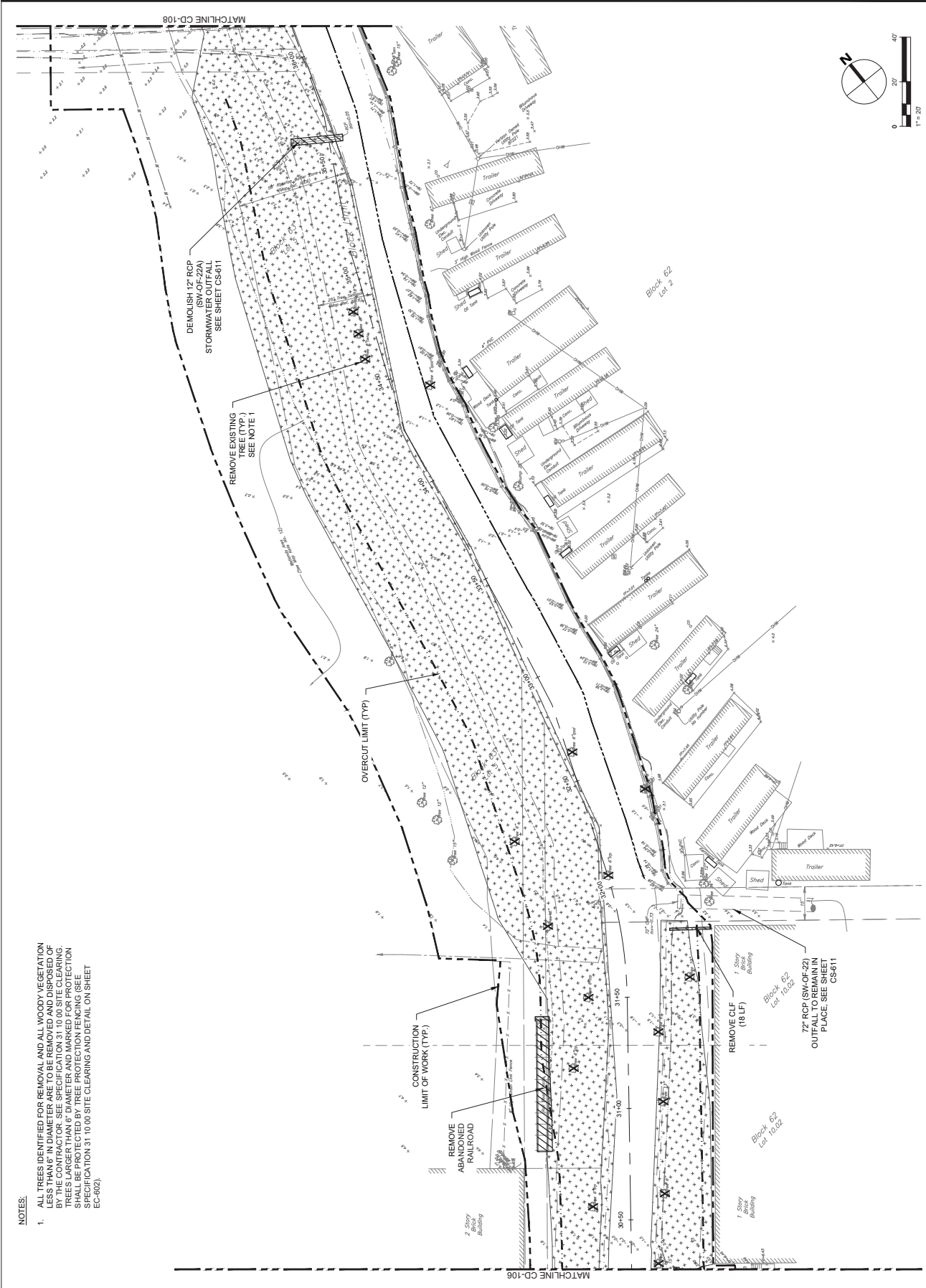
PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MONACHE
 BERGEN COUNTY, NEW JERSEY
**EAST RISER DITCH
 CHANNEL IMPROVEMENTS PROJECT**

REGISTRATION
 HDR ENGINEERING, INC.
 CERTIFICATE OF AUTHORIZATION NO. 24602610700
MICHAEL VECCHIO
 NEW JERSEY Professional Engineer
 License Certificate # 24602610700

Designed By:	JCR	03/2024
Drawn By:	LN	03/2024
Proj. Check:	WV	03/2024
PROJECT/TERM CONTRACT NUMBER	P1131-03	
SHEET TITLE	DEMOLITION PLAN	
	6 OF 8	
SHEET NUMBER	CD-106	



FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW



- NOTES:**
- ALL TREES IDENTIFIED FOR REMOVAL AND ALL WOODY VEGETATION LESS THAN 6" IN DIAMETER ARE TO BE REMOVED AND DISPOSED OF BY THE CONTRACTOR. SEE SPECIFICATION 31.10.00 SITE CLEARING. ALL TREES IDENTIFIED FOR PROTECTION SHALL BE PROTECTED BY TREE PROTECTION FENCING (SEE SPECIFICATION 31.10.00 SITE CLEARING AND DETAIL ON SHEET EC-602).

AECOM
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 HDR ENGINEERING, INC.
 50 TICE BOULEVARD
 WOODCLIFF LAKE, NJ 07077
 201.335.6300 tel www.hdrinc.com

ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHE
 BERGEN COUNTY, NEW JERSEY
**EAST RISER DITCH
 CHANNEL IMPROVEMENTS PROJECT**

REGISTRATION
 HDR ENGINEERING, INC.
 CERTIFICATE OF AUTHORIZATION NO. 24GCB010703
MICHAEL VECCHIO
 NEW JERSEY Professional Engineer
 License Certificate # 24GEC8384800

Designed By: JCR 08/2023
 Drawn By: JW 08/2023
 Proj. Check: KF 08/2023

PROJECT/TERM CONTRACT NUMBER
 P1131-03
SHEET TITLE
 DEMOLITION PLAN
 7 OF 8

SHEET NUMBER
CD-107

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW



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30 Kingsbridge Road
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SUB-CONSULTANT

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201.335.8300 tel www.hdrinc.com

ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT

REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHIE
BERGEN COUNTY, NEW JERSEY
EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT

REGISTRATION

HDR ENGINEERING, INC.
CERTIFICATE OF AUTHORIZATION NO. 24628610780
MICHAEL VECCHIO

NEW JERSEY Professional Engineer
License/Certificate # 24628610780

Designed By:	JCR	03/2024
Drawn By:	LN	03/2024
Proj. Check:	WV	03/2024

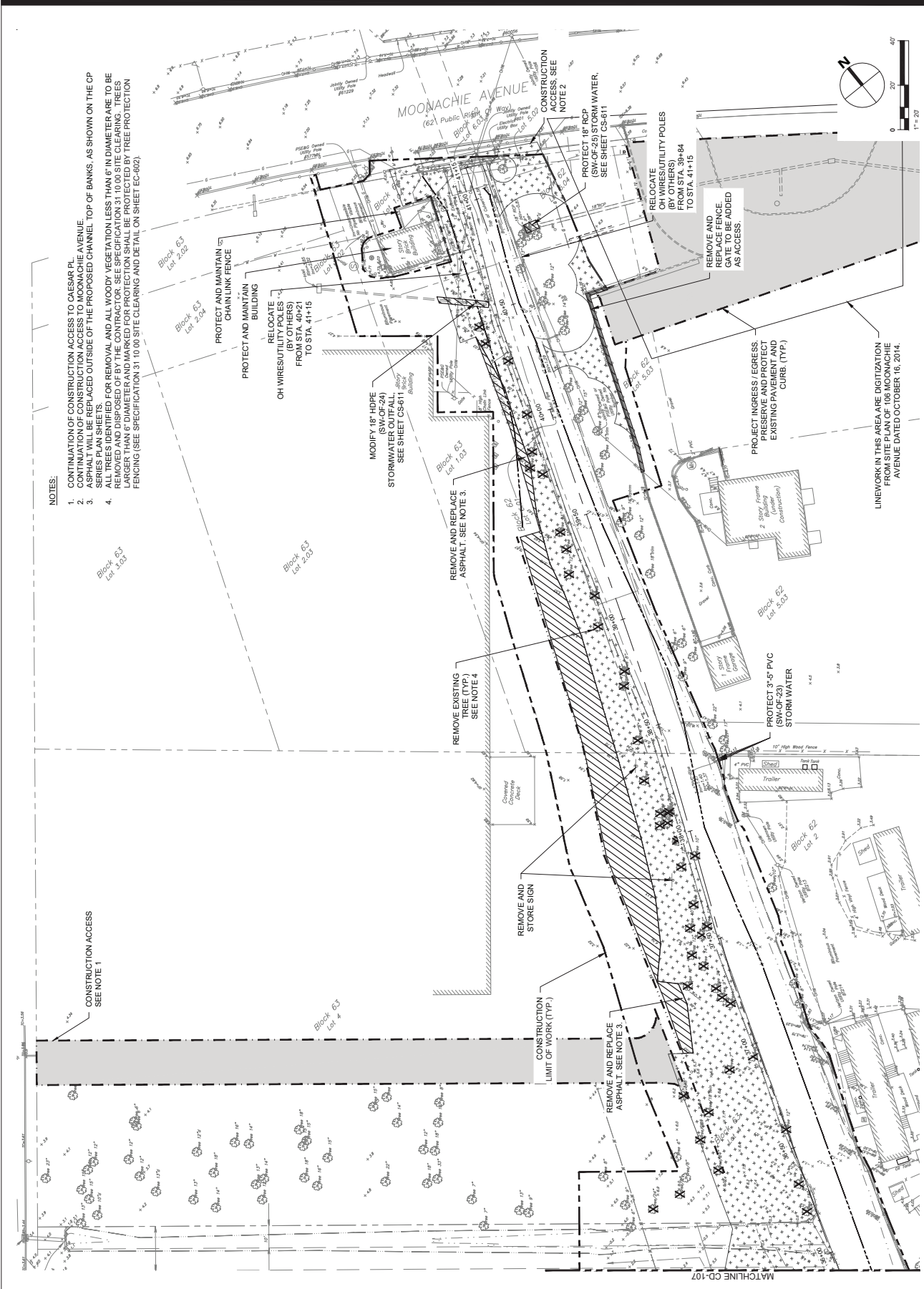
PROJECT TERM CONTRACT NUMBER
P1131-03

SHEET TITLE

DEMOLITION PLAN
8 OF 8

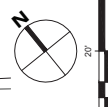
SHEET NUMBER

CD-108



NOTES:

1. CONTINUATION OF CONSTRUCTION ACCESS TO CAESAR PL.
2. CONTINUATION OF CONSTRUCTION ACCESS TO MOONACHIE AVENUE.
3. CHAIN LINK FENCE TO BE PLACED OUTSIDE OF THE PROPOSED CHANNEL TOP OF BANKS, AS SHOWN ON THE CP SERIES PLAN SHEETS.
4. ALL TREES IDENTIFIED FOR REMOVAL AND ALL WOODY VEGETATION LESS THAN 6" IN DIAMETER ARE TO BE REMOVED AND DISPOSED OF BY THE CONTRACTOR. SEE SPECIFICATION 3110.09 SITE CLEARING. TREES LARGER THAN 6" DIAMETER AND MARKED FOR PROTECTION SHALL BE PROTECTED BY TREE PROTECTION FENCING (SEE SPECIFICATION 3110.09 SITE CLEARING AND DETAIL ON SHEET EC-602).



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ISSUE/REVISION

IR	DATE	DESCRIPTION

PROJECT

REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHE
BERGEN COUNTY, NEW JERSEY
EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT

REGISTRATION

HDR ENGINEERING, INC.
CERTIFICATE OF AUTHORIZATION NO. 24652610703
MICHAEL VECCHIO
NEW JERSEY Professional Engineer
License Certificate # 24652610703

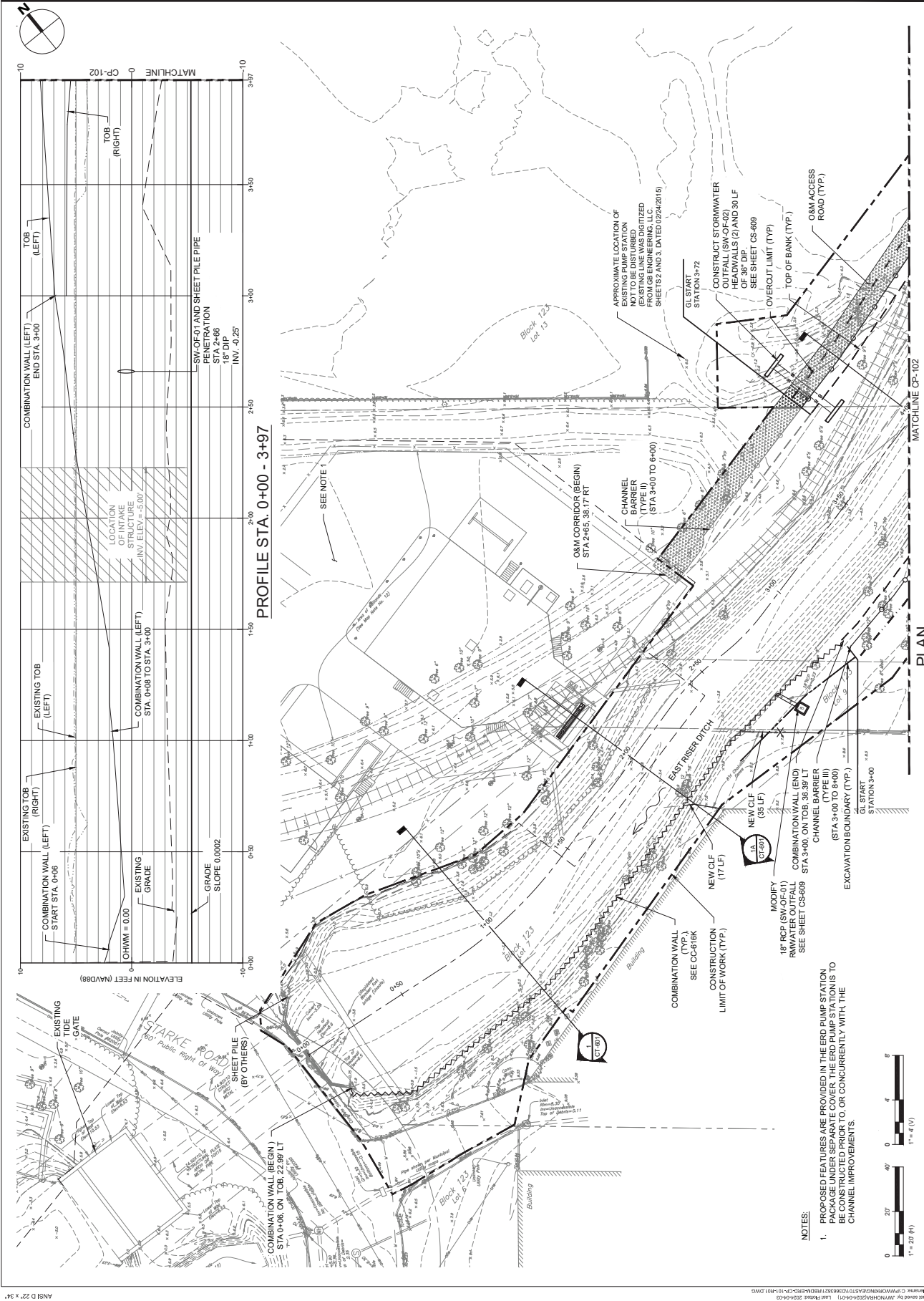
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Proj. Check:	WV	03/2024

PROJECT TERM CONTRACT NUMBER
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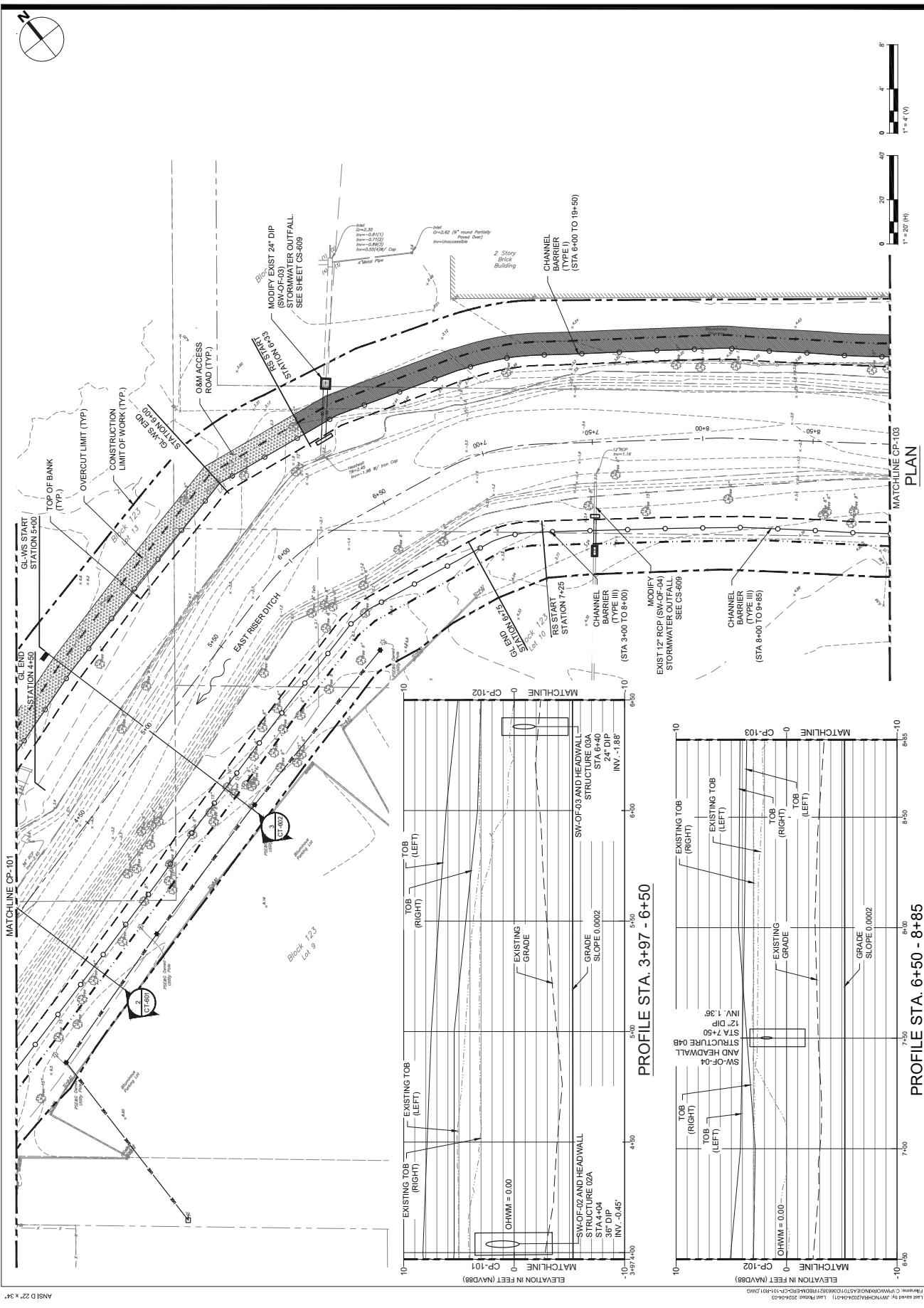
SHEET TITLE
PLAN AND PROFILE

1 OF 8
SHEET NUMBER

CP-101



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 AECOM TECHNICAL SERVICES, INC.
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 201.335.8300 tel www.hdrinc.com

ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHIE
 BERGEN COUNTY, NEW JERSEY
**EAST RIVER DITCH
 CHANNEL IMPROVEMENTS PROJECT**

REGISTRATION
 HDR ENGINEERING, INC.
 CERTIFICATE OF AUTHORIZATION NO. 24652610703
MICHAEL VECCHIO
 NEW JERSEY Professional Engineer
 License Certificate # 24652638480

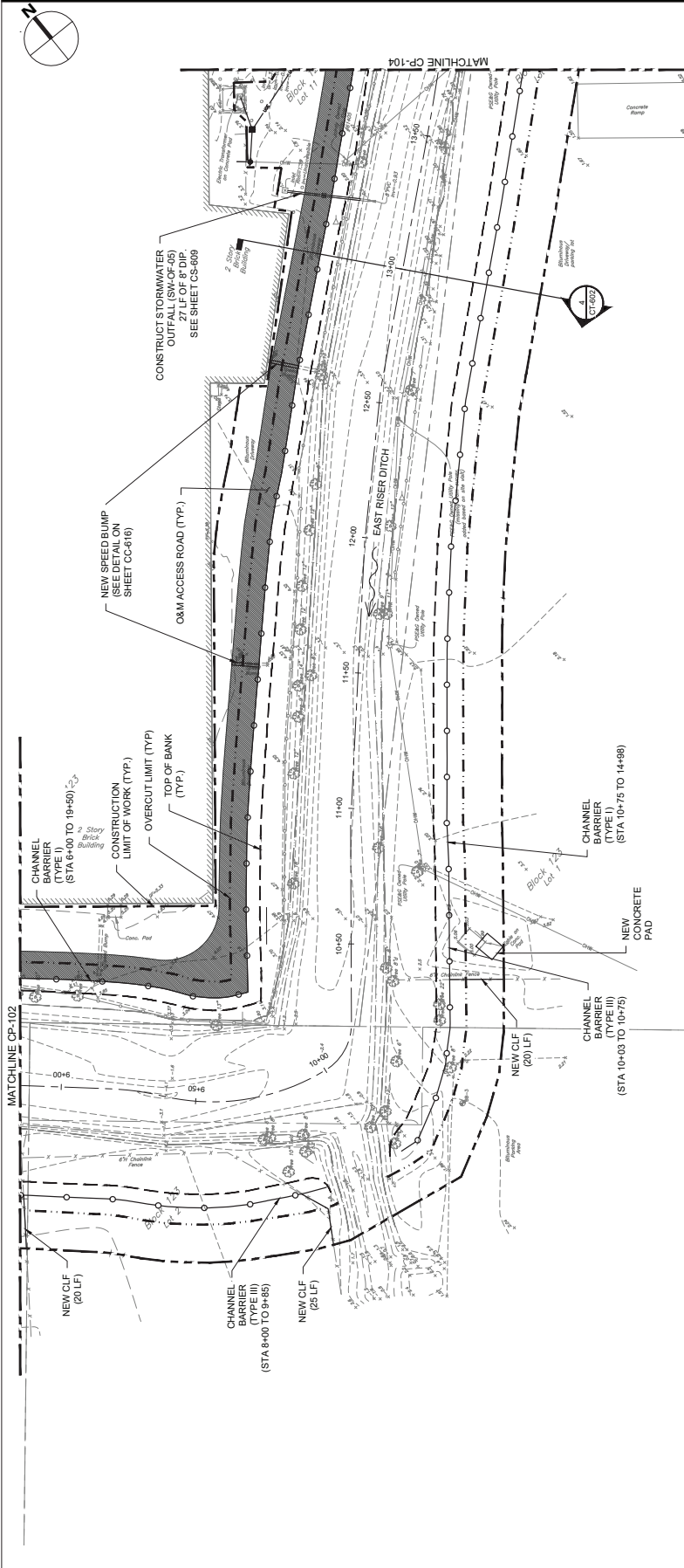
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 Drawn By: LN 03/2024
 Proj. Check: MW 03/2024

PROJECT TERM CONTRACT NUMBER
 P1131-03

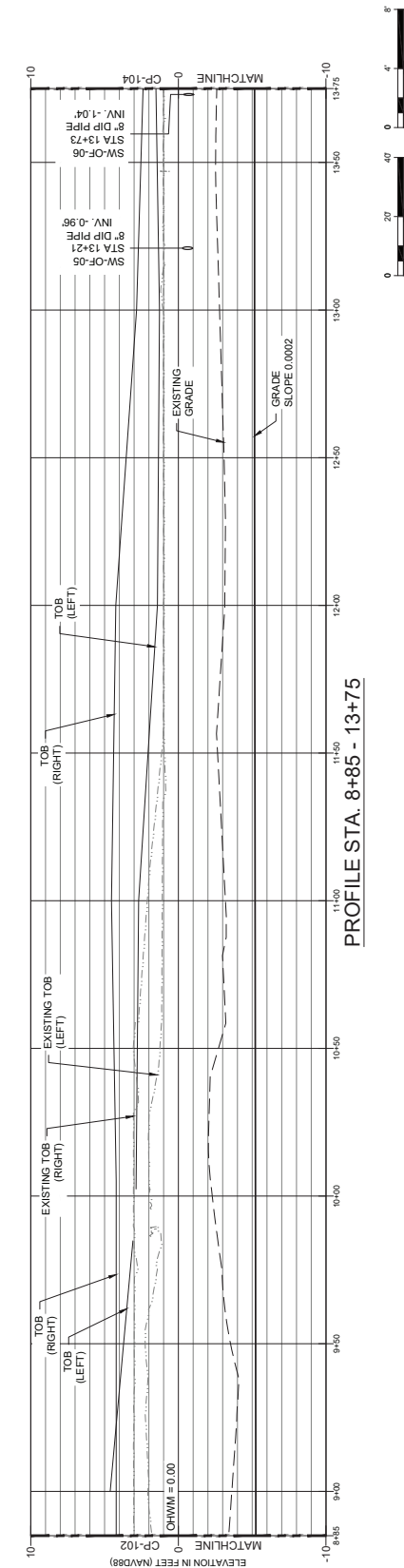
SHEET TITLE
 PLAN AND PROFILE
 2 OF 8

SHEET NUMBER
 CP-102

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW



PLAN



PROFILE STA. 8+85 - 13+75



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ISSUE/REVISION	DATE	DESCRIPTION

PROJECT
REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHE
BERGEN COUNTY, NEW JERSEY
**EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT**

REGISTRATION
HDR ENGINEERING, INC.
CERTIFICATE OF AUTHORIZATION NO. 24652610700
MICHAEL VECCHIO

NEW JERSEY Professional Engineer
License Certificate # 24652610700

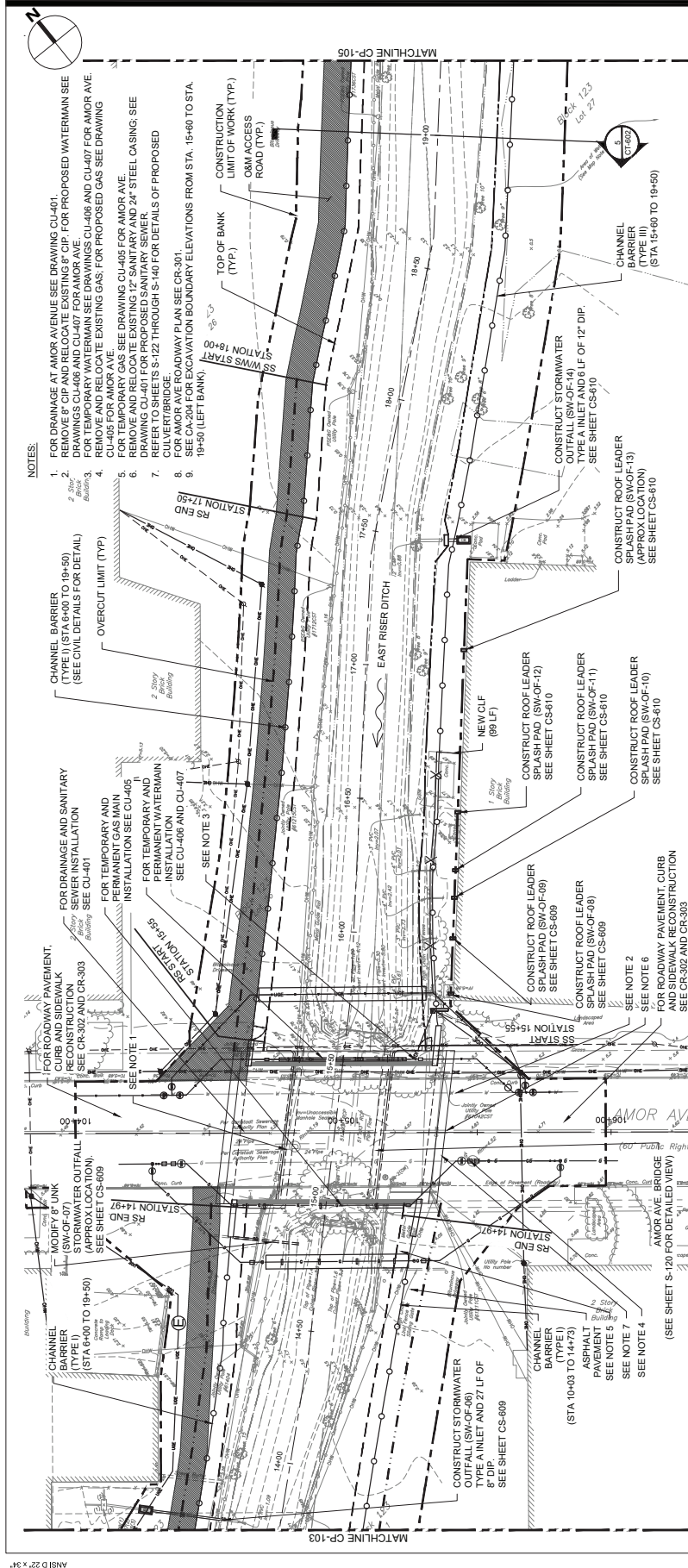
Designed By: JCR 03/2024
Drawn By: LNJ 03/2024
Proj. Check: WJ 03/2024

PROJECT TERM CONTRACT NUMBER
P1131-03

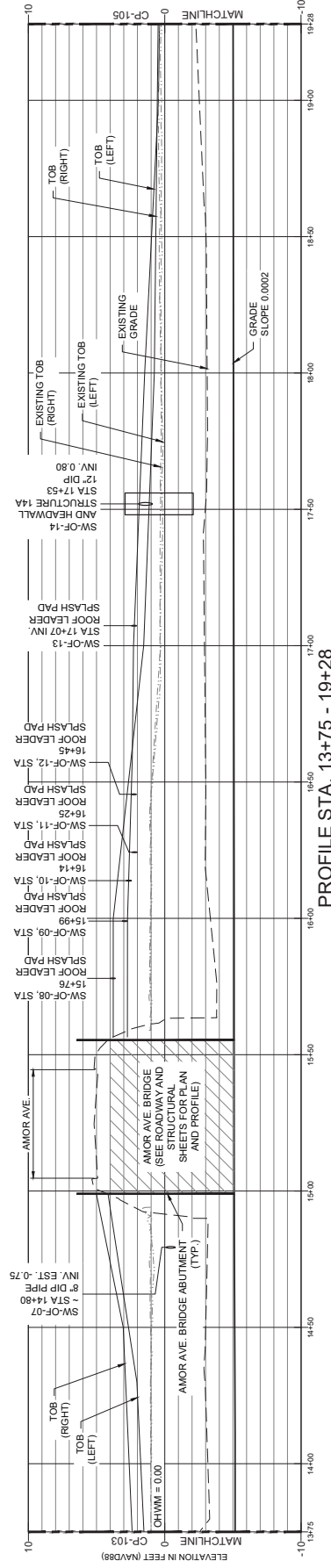
SHEET TITLE
PLAN AND PROFILE
3 OF 8

SHEET NUMBER
CP-103

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW



PLAN



PROFILE STA. 13+75 - 19+28

NOTES:

- FOR DRAINAGE AT AMOR AVENUE SEE DRAWING CU-01.
- REMOVE 8" CIP AND RELOCATE EXISTING 8" CIP. FOR PROPOSED WATERMAIN SEE DRAWINGS CU-406 AND CU-407 FOR AMOR AVE.
- FOR TEMPORARY WATERMAIN SEE DRAWINGS CU-406 AND CU-407 FOR AMOR AVE.
- FOR TEMPORARY GAS SEE DRAWING CU-405 FOR AMOR AVE.
- FOR TEMPORARY GAS SEE DRAWING CU-405 FOR AMOR AVE.
- REMOVE AND RELOCATE EXISTING 12" SANITARY AND 24" STEEL CASING. SEE DRAWING CU-401 FOR PROPOSED SANITARY SEWER.
- CULVERT BRIDGES S-122 THROUGH S-140 FOR DETAILS OF PROPOSED FOR AMOR AVE ROADWAY PLAN SEE CR-301.
- FOR AMOR AVE ROADWAY BOUNDARY ELEVATIONS FROM STA. 15+60 TO STA. 19+50 (LEFT BANK).

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 www.aecom.com

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 50 TICE BOULEVARD
 WOODCLIFF LAKE, NJ 08077
 201.335.8300 tel www.hrinc.com

ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHE
 BERGEN COUNTY, NEW JERSEY
**EAST RISER DITCH
 CHANNEL IMPROVEMENTS PROJECT**

REGISTRATION
HR ENGINEERING, INC.
 CERTIFICATE OF AUTHORIZATION NO. 24652610703
MICHAEL VECCHIO

NEW JERSEY PROFESSIONAL ENGINEER
 LICENSE CERTIFICATE # 24652610703

Designed By:	JGR	03/2024
Drawn By:	LN	03/2024
Proj. Check:	WV	03/2024

PROJECT TERM CONTRACT NUMBER
 P1131-03
 SHEET TITLE
 PLAN AND PROFILE
 4 OF 8

SHEET NUMBER
CP-104



AECOM TECHNICAL SERVICES, INC.
30 Knightbridge Road
Princeton, NJ 08540
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SUB-CONSULTANT

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50 TICE BOULEVARD
WOODCLIFF LAKE, NJ 07077
201.335.8000 tel www.hdrinc.com

ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT

REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHE
BERGEN COUNTY, NEW JERSEY
EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT

REGISTRATION

HDR ENGINEERING, INC.
CERTIFICATE OF AUTHORIZATION NO. 24652610703
MICHAEL VECCHIO

NEW JERSEY Professional Engineer
License Certificate # 24652610703

Designed By: JCR 03/2024
Drawn By: LN 03/2024
Proj. Check: NW 03/2024

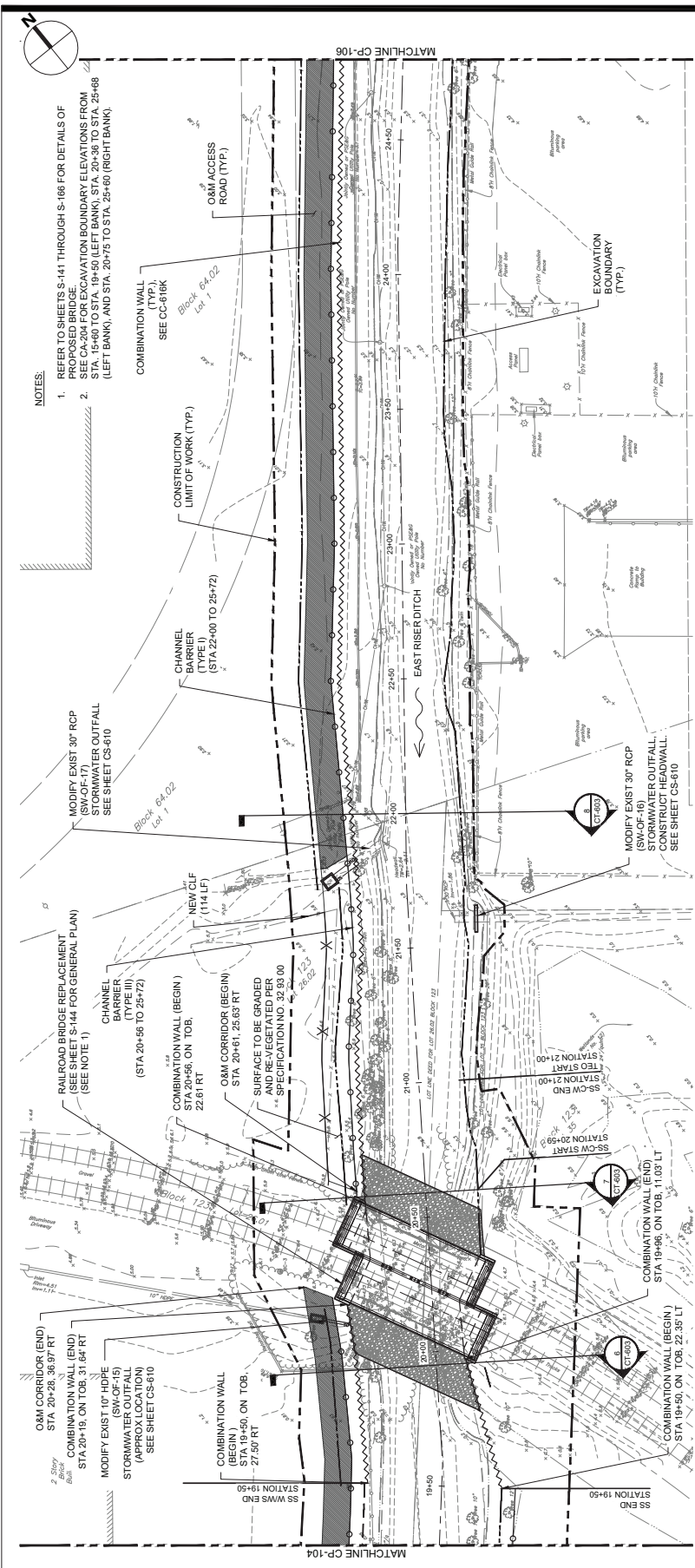
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P1131-033

SHEET TITLE

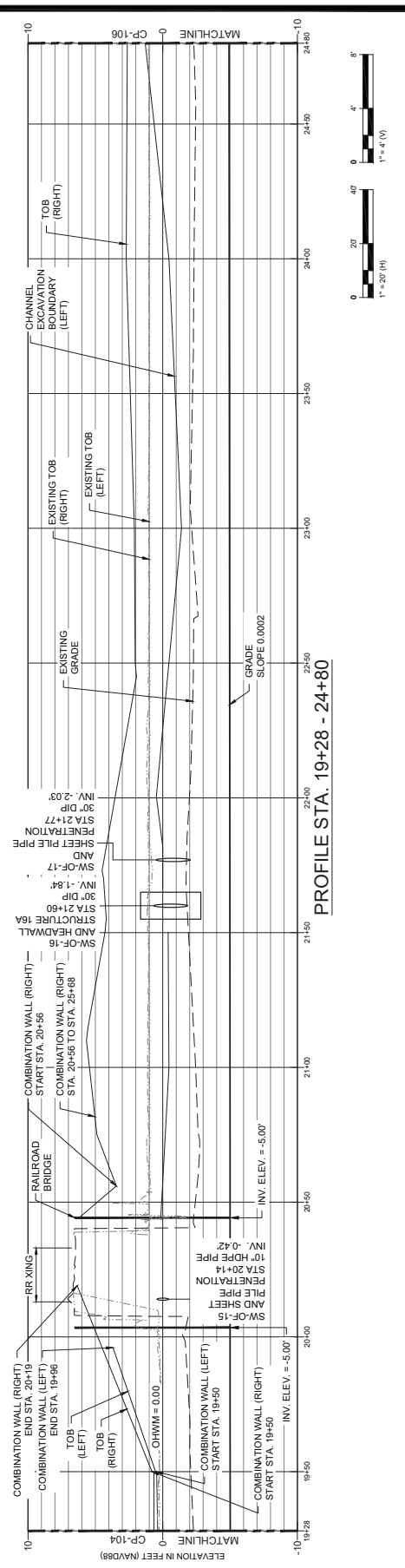
PLAN AND PROFILE
5 OF 8

SHEET NUMBER

CP-105



PLAN



PROFILE STA. 19+28 - 24+80

NOTES

- REFER TO SHEETS S-141 THROUGH S-166 FOR DETAILS OF PROPOSED BRIDGE.
- SEE CP-204 FOR EXCAVATION BOUNDARY ELEVATIONS FROM STA. 19+50 TO STA. 20+75 (LEFT BANK), AND STA. 20+75 TO STA. 25+68 (RIGHT BANK).

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW



HR ENGINEERING, INC.
50 TICE BOULEVARD
WOODCLIFF LAKE, NJ 08077
201.335.8300 tel | www.hrinc.com

ISSUE/REVISION table with columns for IR, DATE, and DESCRIPTION.

PROJECT
REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHE
BERGEN COUNTY, NEW JERSEY
EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT

REGISTRATION
HR ENGINEERING, INC.
CERTIFICATE OF AUTHORIZATION NO. 24652610703
MICHAEL VECCHIO

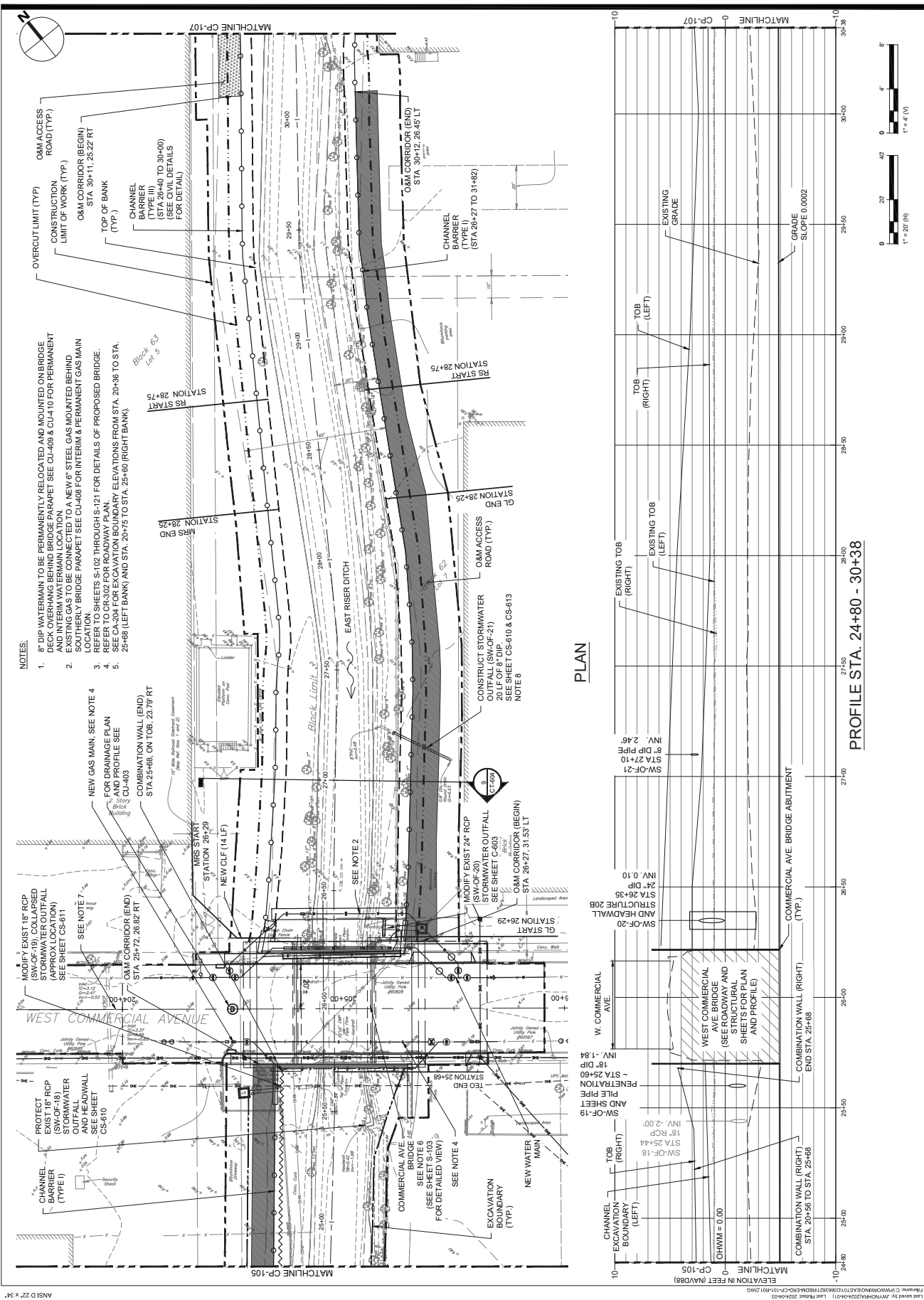
NEW JERSEY Professional Engineer
License Certificate # 24652610703

Designed By: JGR 03/2024
Drawn By: LN 03/2024
Proj. Check: WY 03/2024

PROJECT/TERM CONTRACT NUMBER
P1131-303
SHEET TITLE

PLAN AND PROFILE
6 OF 8

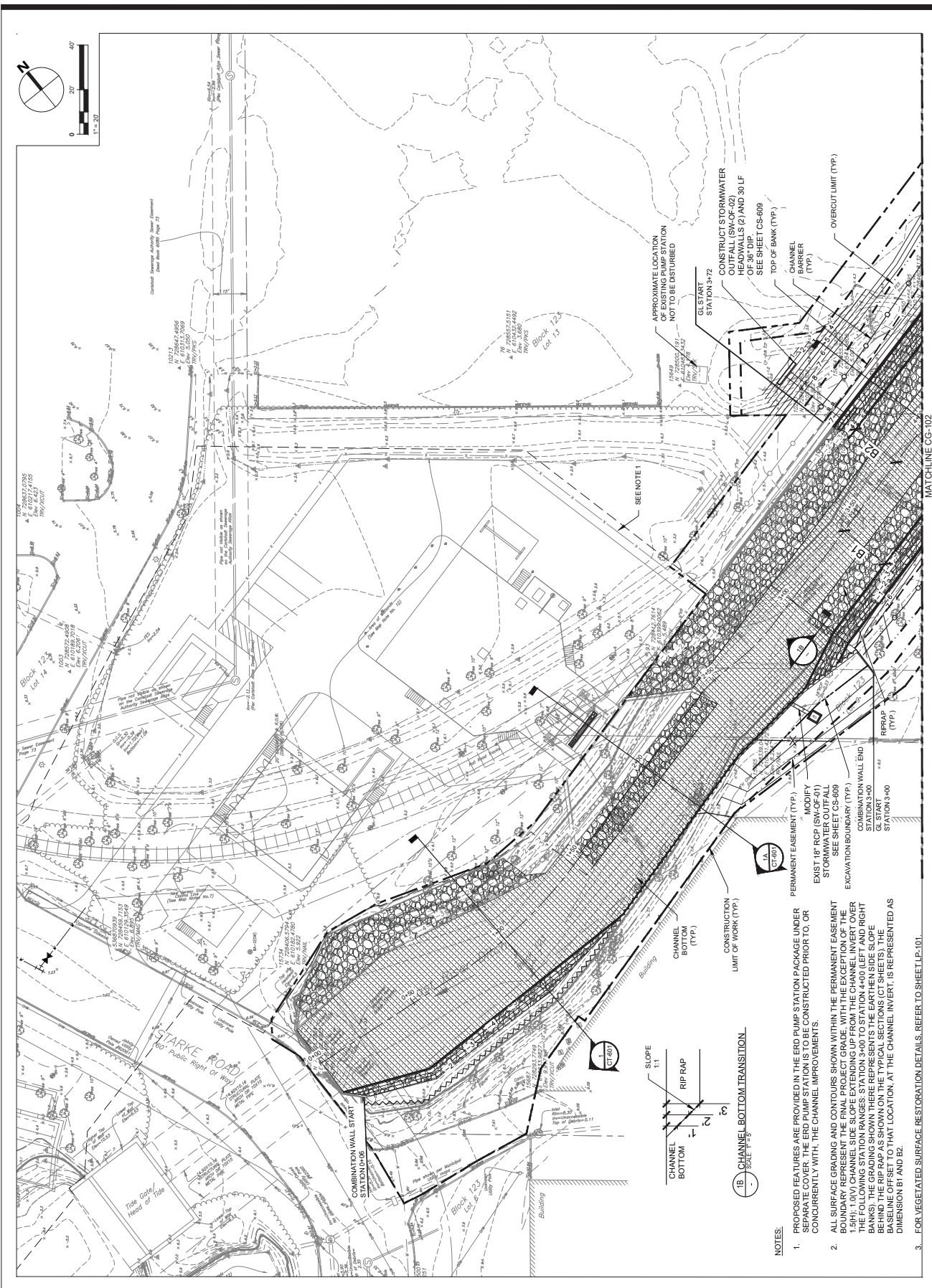
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CP-106



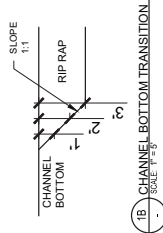
- NOTES:
1. 8" DIP WATERMAIN TO BE PERMANENTLY RELOCATED AND MOUNTED ON BRIDGE DECK OVERHANG BEHIND BRIDGE PARAPET...
2. INTERIM WATERMAIN LOCATION...
3. EXISTING GAS TO BE CONNECTED TO A NEW G. STEEL GAS MOUNTED BEHIND EXISTING BRIDGE PARAPET...
4. REFER TO SHEETS S-102 THROUGH S-121 FOR DETAILS OF PROPOSED BRIDGE.
5. SEE CA-204 FOR EXCAVATION BOUNDARY ELEVATIONS FROM STA. 20+38 TO STA. 25+98 (LEFT BANK) AND STA. 20+75 TO STA. 25+60 (RIGHT BANK).

- NOTES:
1. MODIFY EXIST 18" RCP STORMWATER OUTFALL (APPROX LOCATION) SEE SHEET CS-611...
2. PROTECT EXIST 18" RCP STORMWATER OUTFALL AND HEADWALL AND SEE SHEET CS-610...
3. NEW GAS MAIN, SEE NOTE 4 FOR DRAINAGE PLAN AND PROFILE SEE CU-403...
4. COMBINATION WALL (END) STA. 25+68, ON TOB, 23.79' RT...
5. CONSTRUCT STORMWATER OUTFALL (SW-OF-21) SEE SHEET CS-610 & CS-613 NOTE 8...
6. EXCAVATION BOUNDARY (TYP.)...
7. NEW WATER MAIN...
8. WEST COMMERCIAL AVE BRIDGE AND STRUCTURAL SHEETS FOR PLAN AND PROFILE...
9. COMBINATION WALL (RIGHT) END STA. 25+68...
10. PENETRATION AND SHEET PILE PIPE...
11. SW-OF-18 18" RCP STA 25+44...
12. SW-OF-18 18" RCP STA 25+60...
13. SW-OF-20 24" DIP STA 26+35 AND HEADWALL STRUCTURE 20B...
14. SW-OF-21 6" DIA PIPE STA 27+10...
15. INV. 2.45...
16. INV. 0.10...
17. INV. -1.84...
18. INV. -2.00...
19. INV. -1.84...
20. INV. -1.84...
21. INV. -1.84...
22. INV. -1.84...
23. INV. -1.84...
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100. INV. -1.84...

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW



- NOTES:**
- PROPOSED FEATURES ARE PROVIDED IN THE ERD PUMP STATION PACKAGE UNDER SEPARATE COVER. THE ERD PUMP STATION IS TO BE CONSTRUCTED PRIOR TO, OR CONCURRENTLY WITH, THE CHANNEL IMPROVEMENTS.
 - ALL SURFACE GRADING AND CONTOURS SHOWN WITHIN THE PERMANENT EASEMENT BOUNDARY REPRESENT THE FINAL PROJECT GRADE. WITH THE EXCEPTION OF THE 1.5(H): 1.0(V) CHANNEL SIDE SLOPE EXTENDING UP FROM THE CHANNEL INVERT OVER THE FOLLOWING STATION RANGES: STATION 4+00 TO STATION 4+00 (LEFT AND RIGHT CHANNEL BANKS) AND STATION 3+00 TO STATION 3+00 (RIGHT CHANNEL BANK). BEHIND THE RIP RAP AS SHOWN ON THE TYPICAL SECTIONS (CT SHEETS), THE BASELINE OFFSET TO THAT LOCATION, AT THE CHANNEL INVERT, IS REPRESENTED AS DIMENSION B1 AND B2.
 - FOR VEGETATED SURFACE RESTORATION DETAILS, REFER TO SHEET LP-101.



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 50 THE BOULEVARD
 WOODCLIFF LAKE, NJ 08077
 201.335.8000 ext. www.hdrinc.com

ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHE
 BERGEN COUNTY, NEW JERSEY
**EAST RISER DITCH
 CHANNEL IMPROVEMENTS PROJECT**

REGISTRATION
 HDR ENGINEERING, INC.
 CERTIFICATE OF AUTHORIZATION NO. 24628610783
MICHAEL VECCHIO

NEW JERSEY Professional Engineer
 License/Certificate # 24628610783

Designed By: JCR 03/2024
 Drawn By: LN 03/2024
 Proj. Check: WV 03/2024

PROJECT/TERM CONTRACT NUMBER
 P1131-03

SHEET TITLE
 GRADING PLAN
 1 OF 8

SHEET NUMBER
 CG-101

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW

AECOM
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ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHE
 BERGEN COUNTY, NEW JERSEY
**EAST RISER DITCH
 CHANNEL IMPROVEMENTS PROJECT**

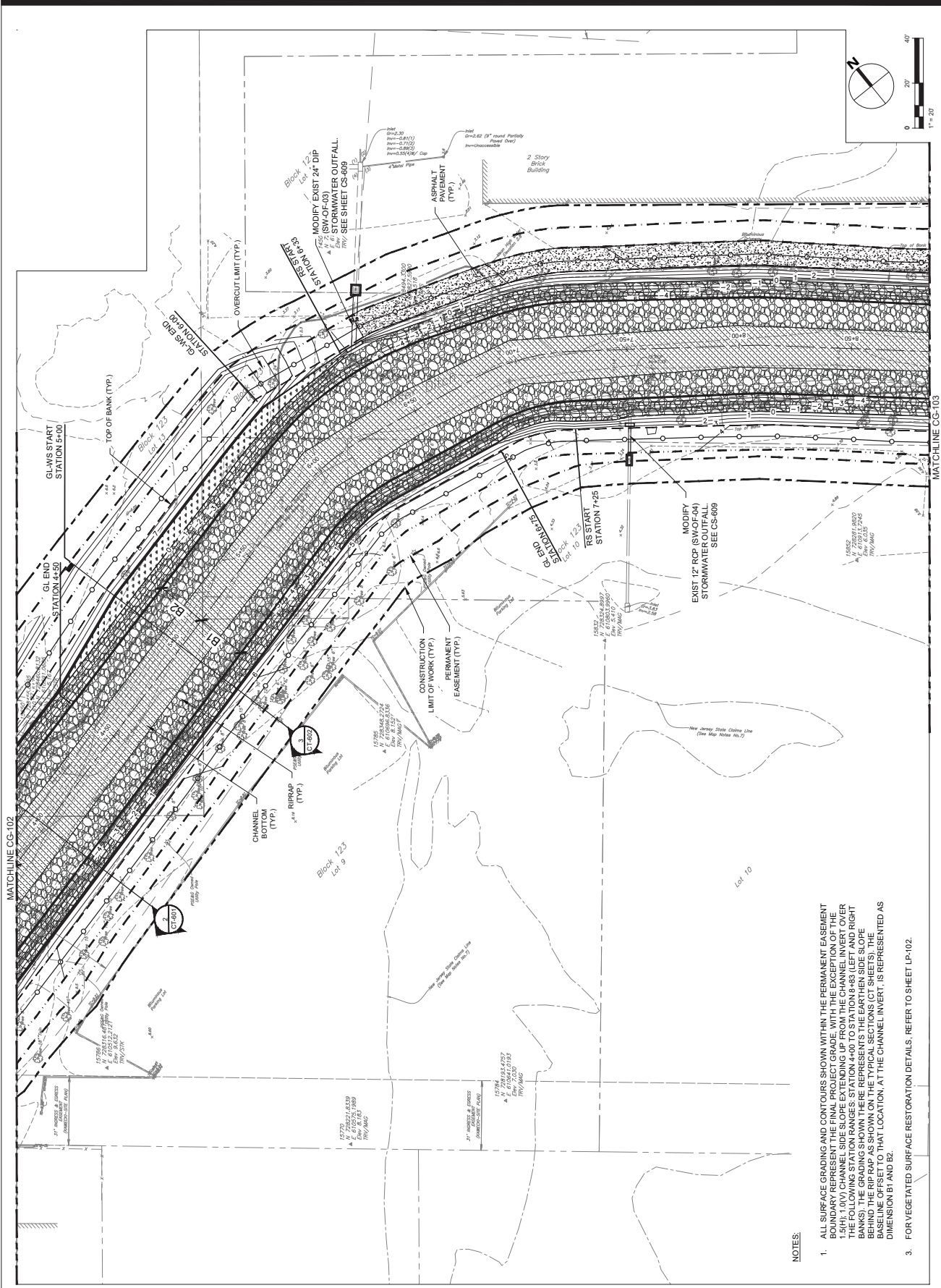
REGISTRATION
 HDR ENGINEERING, INC.
 CERTIFICATE OF AUTHORIZATION NO. 24620610703
MICHAEL VECCHIO
 NEW JERSEY Professional Engineer
 License/Certificate # 24G00394000

Designed By: JCR 08/2023
 Drawn By: EPK 08/2023
 Proj. Check: KF 08/2023

PROJECT/TERM CONTRACT NUMBER
 P1131-03

SHEET TITLE
 GRADING PLAN
 2 OF 8

SHEET NUMBER
 CG-102



- NOTES:**
- ALL SURFACE GRADING AND CONTOURS SHOWN WITHIN THE PERMANENT EASEMENT BEHIND VEGETATED SURFACE RESTORATION DETAILS. REFER TO SHEET LP-102.
 - FOR VEGETATED SURFACE RESTORATION DETAILS, REFER TO SHEET LP-102.

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW

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SUB-CONSULTANT
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ISSUE/REVISION	NO.	DATE	DESCRIPTION

PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHE
 BERGEN COUNTY, NEW JERSEY
**EAST RISER DITCH
 CHANNEL IMPROVEMENTS PROJECT**

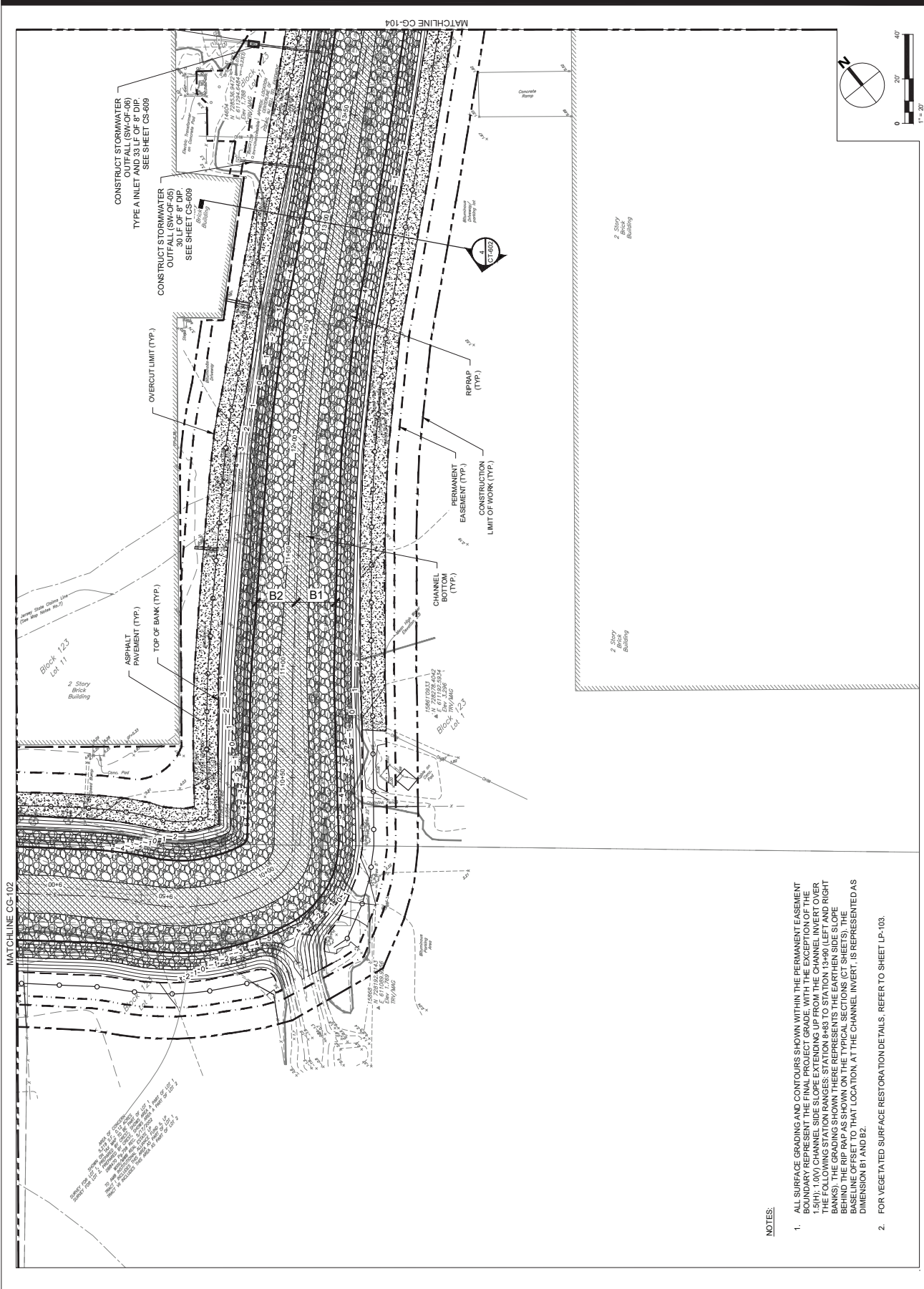
REGISTRATION
 HDR ENGINEERING, INC.
 CORPORATION OF AUTHORIZATION NO. 24628610703
MICHAEL VECCHIO

NEW JERSEY Professional Engineer
 License/Certificate # 24565384600

Designed By: JCR 08/2023
 Drawn By: EPC 08/2023
 Proj. Check: KF 08/2023

PROJECT/TERM CONTRACT NUMBER
 P1131-03
SHEET TITLE
 GRADING PLAN
 3 OF 8

SHEET NUMBER
 CG-103



- NOTES:**
- ALL SURFACE GRADING AND CONTOURS SHOWN WITHIN THE PERMANENT EASEMENT BOUNDARY REPRESENT THE FINAL PROJECT GRADE, WITH THE EXCEPTION OF THE 1.5% 1.0V) CHANNEL SIDE SLOPE EXTENDING UP FROM THE CHANNEL INVERT OVER THE FOLLOWING STATION RANGES: STATION 6+83 TO STATION 13+80 (LEFT AND RIGHT CHANNEL BANKS) AND STATION 13+80 TO STATION 14+00 (RIGHT CHANNEL BANK). THE BASELINE OFFSET TO THAT LOCATION, AT THE CHANNEL INVERT, IS REPRESENTED AS DIMENSION B1 AND B2.
 - FOR VEGETATED SURFACE RESTORATION DETAILS, REFER TO SHEET LP-103.

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW

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ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHE
 EAST RIVER DITCH
 CHANNEL IMPROVEMENTS PROJECT

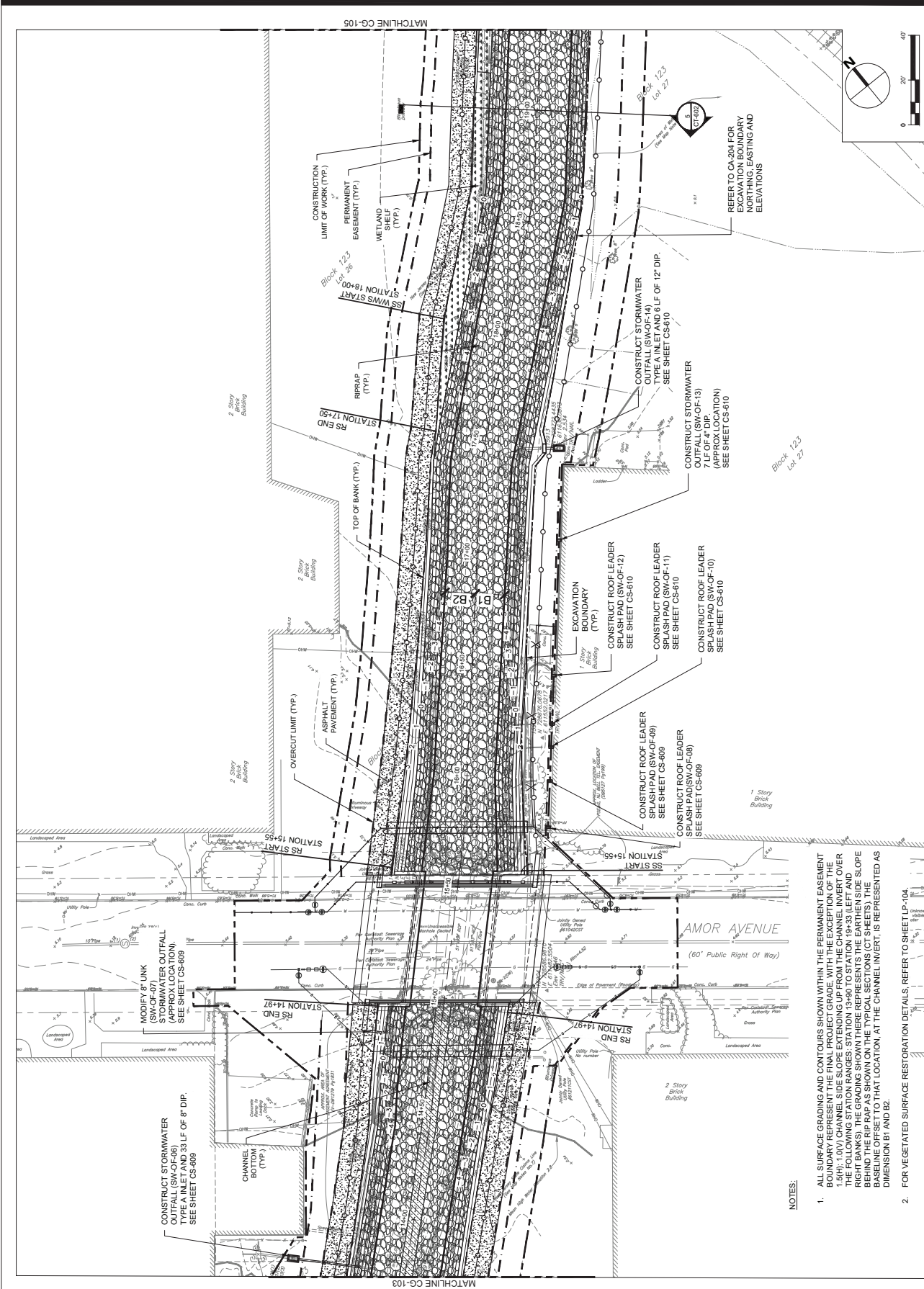
REGISTRATION
 HDR ENGINEERING, INC.
 CERTIFICATE OF AUTHORIZATION NO. 24620610703
MICHAEL VECCHIO
 NEW JERSEY Professional Engineer
 License Certificate # 24G05384800

Designed By: JCR 08/2023
 Drawn By: EPC 08/2023
 Proj. Check: KF 08/2023

PROJECT/TERM CONTRACT NUMBER
 P1131-03

SHEET TITLE
 GRADING PLAN
 4 OF 8

SHEET NUMBER
 CG-104



- NOTES:**
- ALL SURFACE GRADING AND CONTOURS SHOWN WITHIN THE PERMANENT EASEMENT BOUNDARY REPRESENT THE PROJECT GRADING WITH THE EXCEPTION OF THE EXISTING SURFACE GRADE SHOWN IN PINK. THE EXISTING SURFACE GRADE IS COVERED BY THE FOLLOWING STATION RANGES: STATION 13+60 TO STATION 19+33 (LEFT AND RIGHT BANKS). THE GRADING SHOWN THERE REPRESENTS THE EARTHEN SIDE SLOPE BEHIND THE RIP RAP AS SHOWN ON THE TYPICAL SECTIONS (CT SHEETS). THE BASELINE OFFSET TO THAT LOCATION, AT THE CHANNEL INVERT, IS REPRESENTED AS DIMENSION B1 AND B2.
 - FOR VEGETATED SURFACE RESTORATION DETAILS, REFER TO SHEET LP-104.

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW

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ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHE
 BERGEN COUNTY, NEW JERSEY
EAST RISER DITCH CHANNEL IMPROVEMENTS PROJECT

REGISTRATION
 HDR ENGINEERING, INC.
 CERTIFICATE OF AUTHORIZATION NO. 24620610703
MICHAEL VECCHIO

NEW JERSEY Professional Engineer
 License Certificate # 24620610703

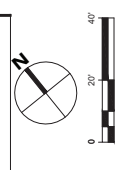
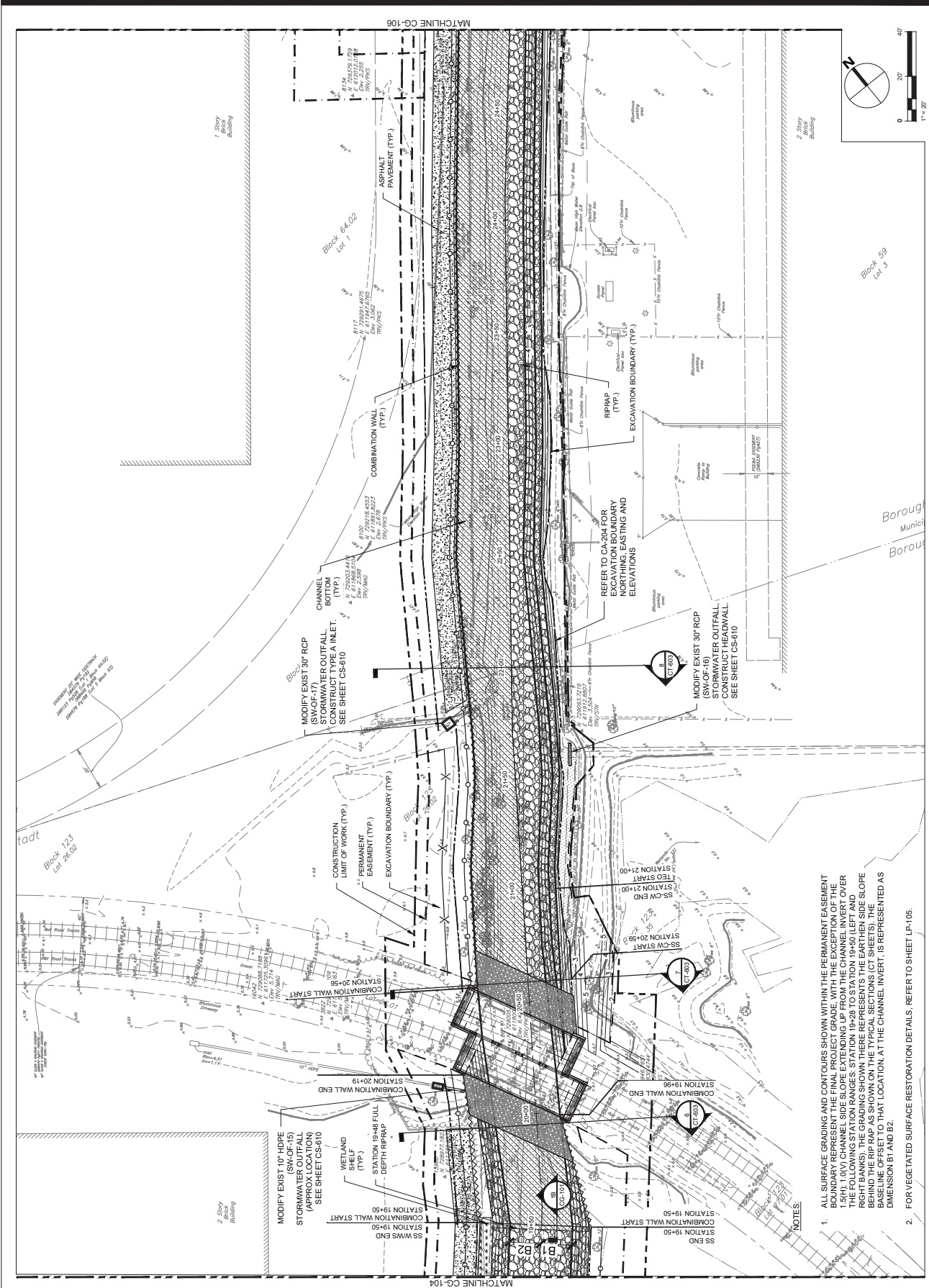
Designed By: JCR 03/2024
 Drawn By: LN 03/2024
 Proj. Check: WV 03/2024

PROJECT/TERM CONTRACT NUMBER
 P1131-03

SHEET TITLE
 GRADING PLAN

5 OF 8

SHEET NUMBER
 CG-105



- NOTES:**
- ALL SURFACE GRADING AND CONTOURS SHOWN WITHIN THE PERMANENT EASEMENT BOUNDARY REPRESENT THE FINAL PROJECT GRADE, WITH THE EXCEPTION OF THE 1.5% (1.0V) CHANNEL SIDE SLOPE EXTENDING UP FROM THE CHANNEL INVERT OVER THE FOLLOWING STATION RANGES: STATION 19+28 TO STATION 19+50 (LEFT AND RIGHT BANKS), STATION 20+00 TO STATION 20+20 (LEFT BANK), AND STATION 20+00 TO STATION 20+20 (RIGHT BANK). THE CHANNEL SIDE SLOPE BEHIND THE RIPRAP AS SHOWN ON THE TYPICAL SECTIONS (CT SHEETS), THE BASELINE OFFSET TO THAT LOCATION, AT THE CHANNEL INVERT, IS REPRESENTED AS DIMENSION B1 AND B2.
 - FOR VEGETATED SURFACE RESTORATION DETAILS, REFER TO SHEET LP-105.

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW



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ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT

REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHE
BERGEN COUNTY, NEW JERSEY
EAST RIVER DITCH
CHANNEL IMPROVEMENTS PROJECT

REGISTRATION

HR ENGINEERING, INC.
CERTIFICATE OF AUTHORIZATION NO. 24620610703
MICHAEL VECCHIO

NEW JERSEY Professional Engineer
License Certificate # 24GED538490

Designed By: JCR 09/2023
Drawn By: EPC 09/2023
Proj. Check: KF 09/2023

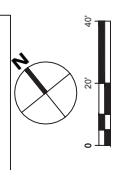
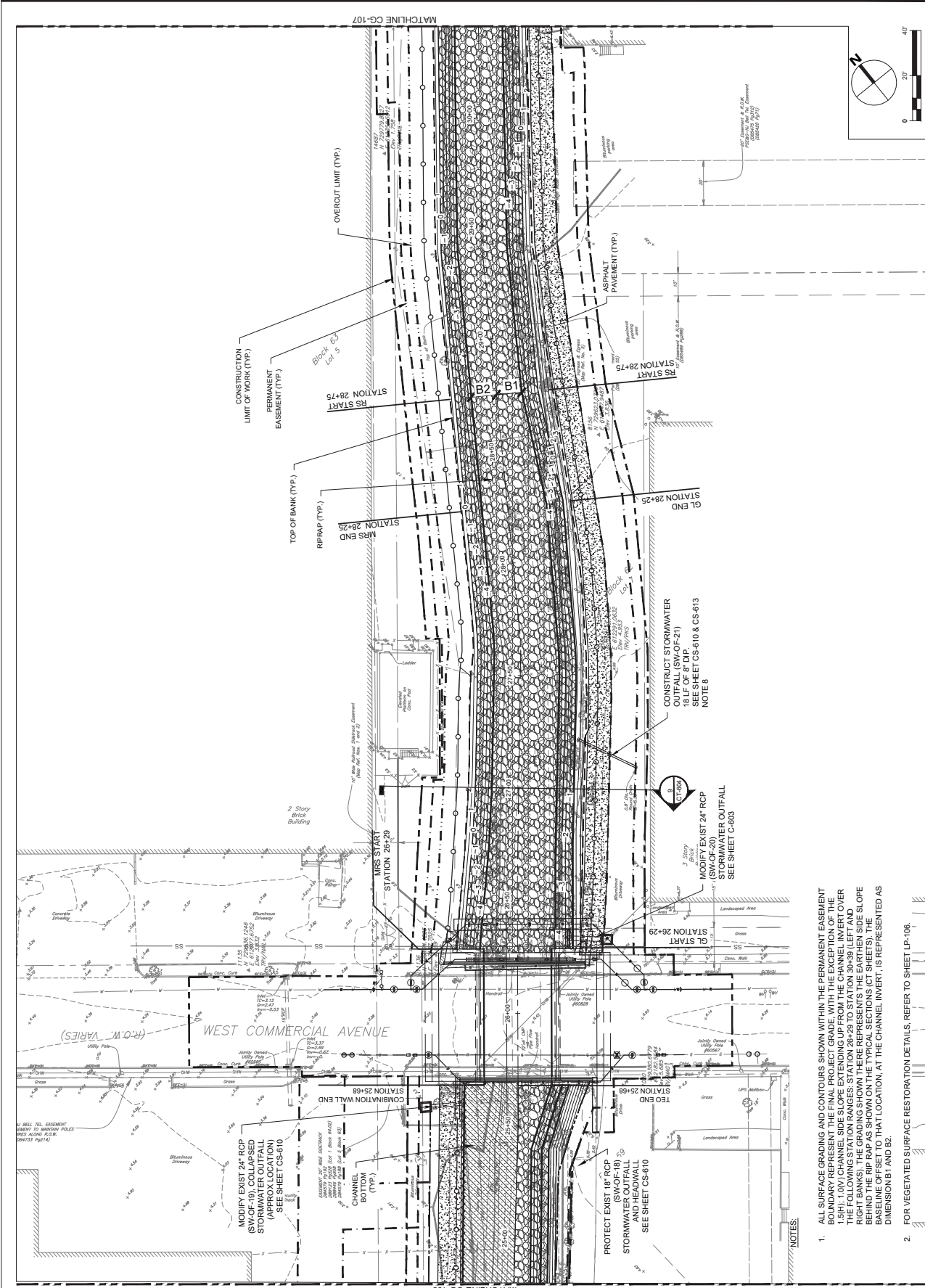
PROJECT/TERM CONTRACT NUMBER
P1131-03

SHEET TITLE

GRADING PLAN
6 OF 8

SHEET NUMBER

CG-106



- NOTES:
- ALL SURFACE GRADING AND CONTOURS SHOWN WITHIN THE PERMANENT EASEMENT BOUNDARY REPRESENT THE FINAL PROJECT GRADE, WITH THE EXCEPTION OF THE 1.5% (1.0V) CHANNEL SIDE SLOPE EXTENDING UP FROM THE CHANNEL INVERT OVER THE FOLLOWING STATION RANGES: STATION 28+29 TO STATION 30+39 (LEFT AND RIGHT BANKS). THE GRADING SHOWN THERE REPRESENTS THE EARLIER SIDE SLOPE BASELINE OFFSET TO THAT LOCATION, AT THE CHANNEL INVERT, IS REPRESENTED AS DIMENSION B1 AND B2.
 - FOR VEGETATED SURFACE RESTORATION DETAILS, REFER TO SHEET LP-106.

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW



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ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT

REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHE
EAST RIVER DITCH
CHANNEL IMPROVEMENTS PROJECT

REGISTRATION

HDR ENGINEERING, INC.
CERTIFICATE OF AUTHORIZATION NO. 34620610703
MICHAEL VECCHIO
NEW JERSEY Professional Engineer
License/Certificate # 24G50338400

Designed By:	JCR	08/2023
Drawn By:	EPC	08/2023
Proj. Check:	KF	08/2023

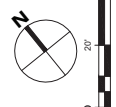
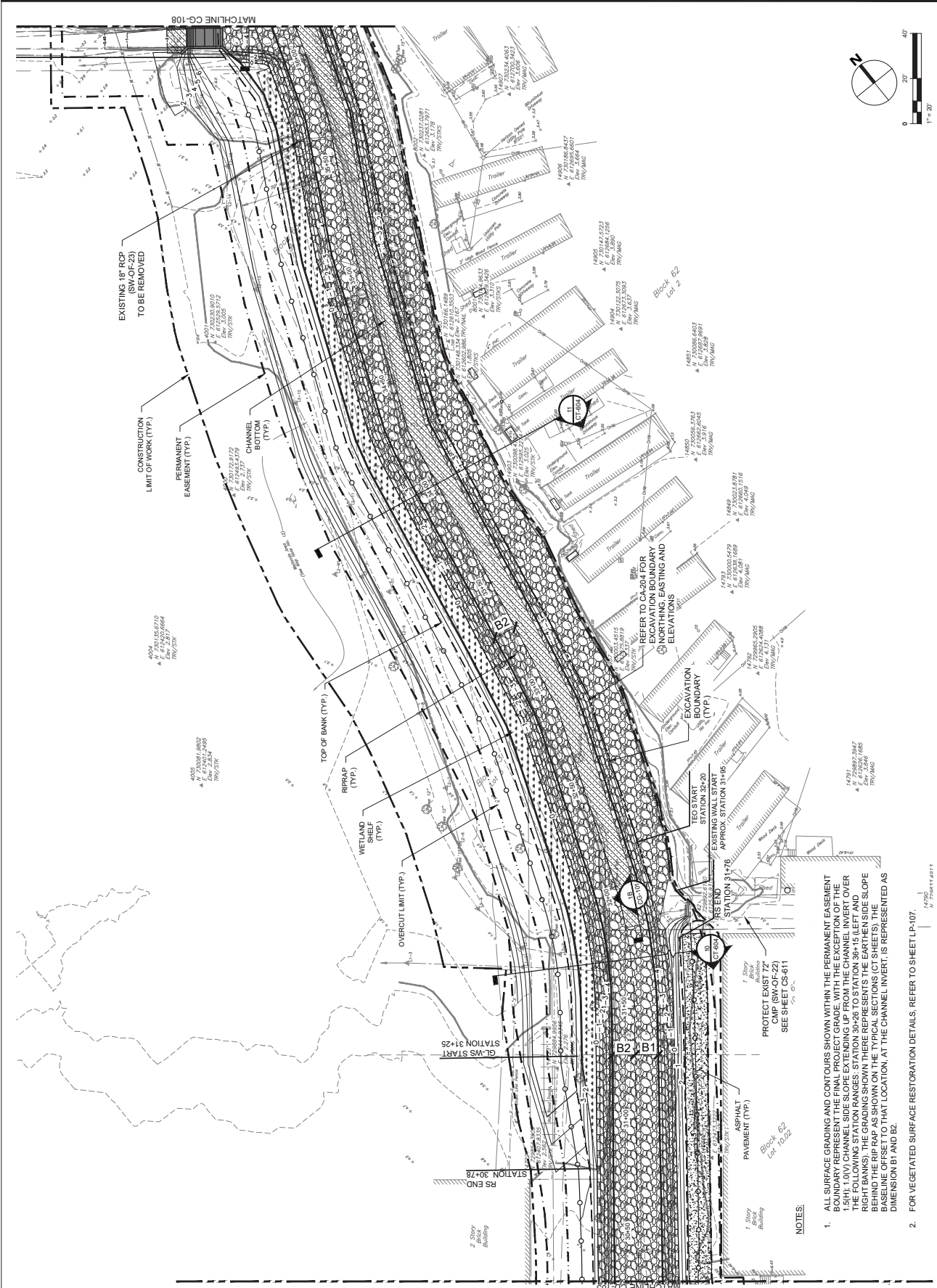
PROJECT/TERM CONTRACT NUMBER
P1131-03

SHEET TITLE

GRADING PLAN
7 OF 8

SHEET NUMBER

CG-107



- NOTES:
1. ALL SURFACE GRADING AND CONTOURS SHOWN WITHIN THE PERMANENT EASEMENT BOUNDARY REPRESENT THE FINAL PROJECT GRADE, WITH THE EXCEPTION OF THE BOUNDARY OF THE EXISTING CHANNEL AND THE EXISTING WALL. THE GRADING ON THE OTHER BANKS (LEFT AND RIGHT BANKS) IS SHOWN FOR INFORMATION ONLY. THE GRADING SHOWN REPRESENTS THE EARTHEN SIDE SLOPE BEHIND THE RIP RAP AS SHOWN ON THE TYPICAL SECTIONS (OT SHEETS). THE BASELINE OFFSET TO THAT LOCATION, AT THE CHANNEL INVERT, IS REPRESENTED AS DIMENSION B1 AND B2.
 2. FOR VEGETATED SURFACE RESTORATION DETAILS, REFER TO SHEET LP-107.

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW



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ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT

REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHIE
BERGEN COUNTY, NEW JERSEY
EAST RIVER DITCH
CHANNEL IMPROVEMENTS PROJECT

REGISTRATION

HDR ENGINEERING, INC.
CERTIFICATE OF AUTHORIZATION NO. 24620610703
MICHAEL VECCHIO

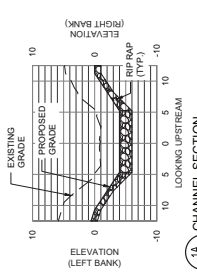
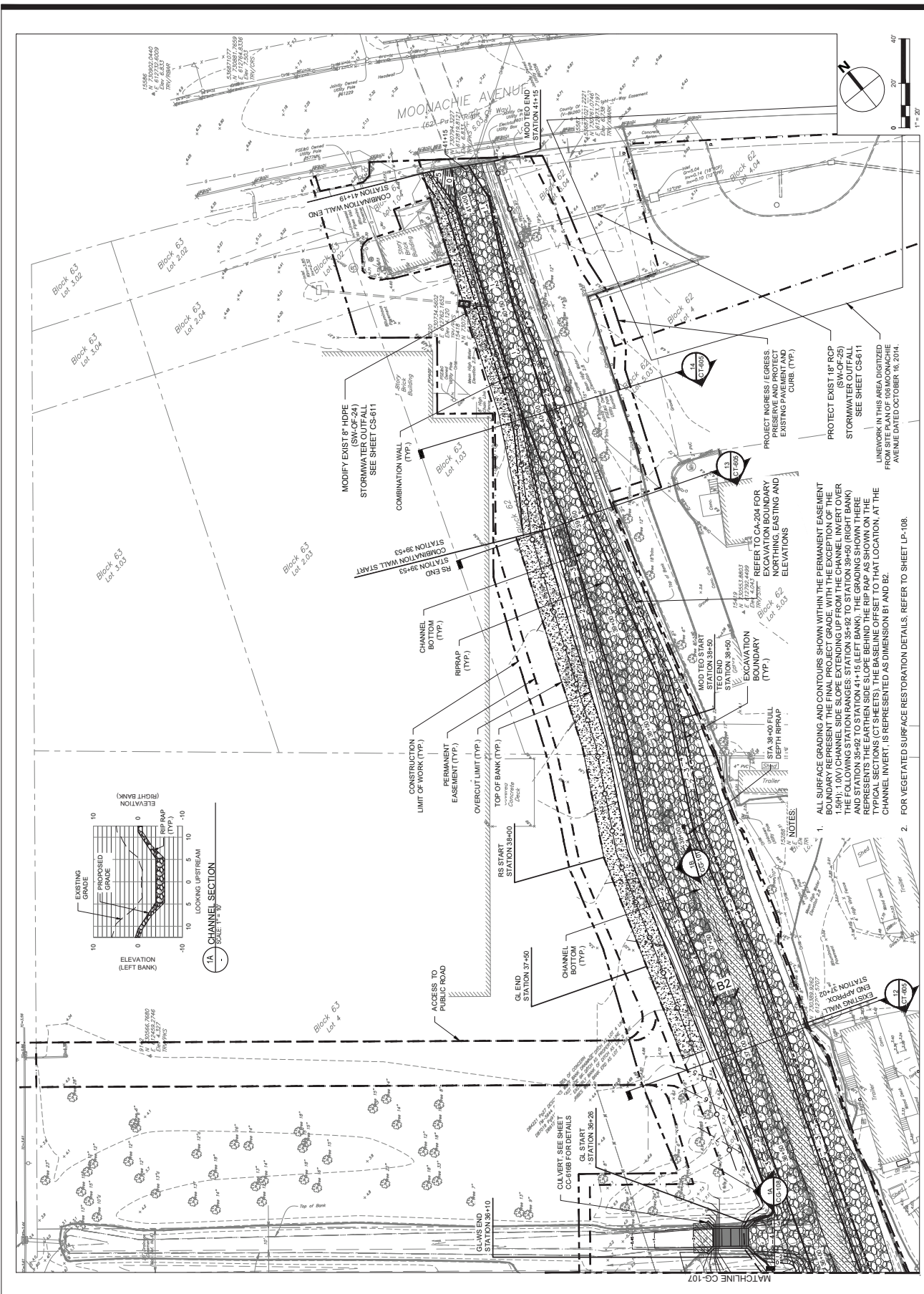
NEW JERSEY Professional Engineer
License Certificate # 24GED334800

Designed By: JCR 03/2024
Drawn By: LN 03/2024
Proj. Check: WV 03/2024

PROJECT TERM CONTRACT NUMBER
P1131-03

SHEET TITLE
GRADING PLAN
8 OF 8

SHEET NUMBER
CG-108



PROJECT ACCESS, EGRESS, PRESERVE AND PROTECT EXISTING PAVEMENT AND CURB. (TYP.)

PROTECT EXIST 18" RCP (SW-OF-25) STORMWATER OUTFALL SEE SHEET CS-611

LINEWORK IN THIS AREA DIGITIZED FROM SITE PLAN OF 106 MOONACHIE AVENUE DATED OCTOBER 18, 2014.

REFER TO CA-204 FOR EXISTING AND PROPOSED NORTHING, EASTING AND ELEVATIONS

MODIFIED START STATION 38+50 TO 38+55

EXCAVATION BOUNDARY (TYP.)

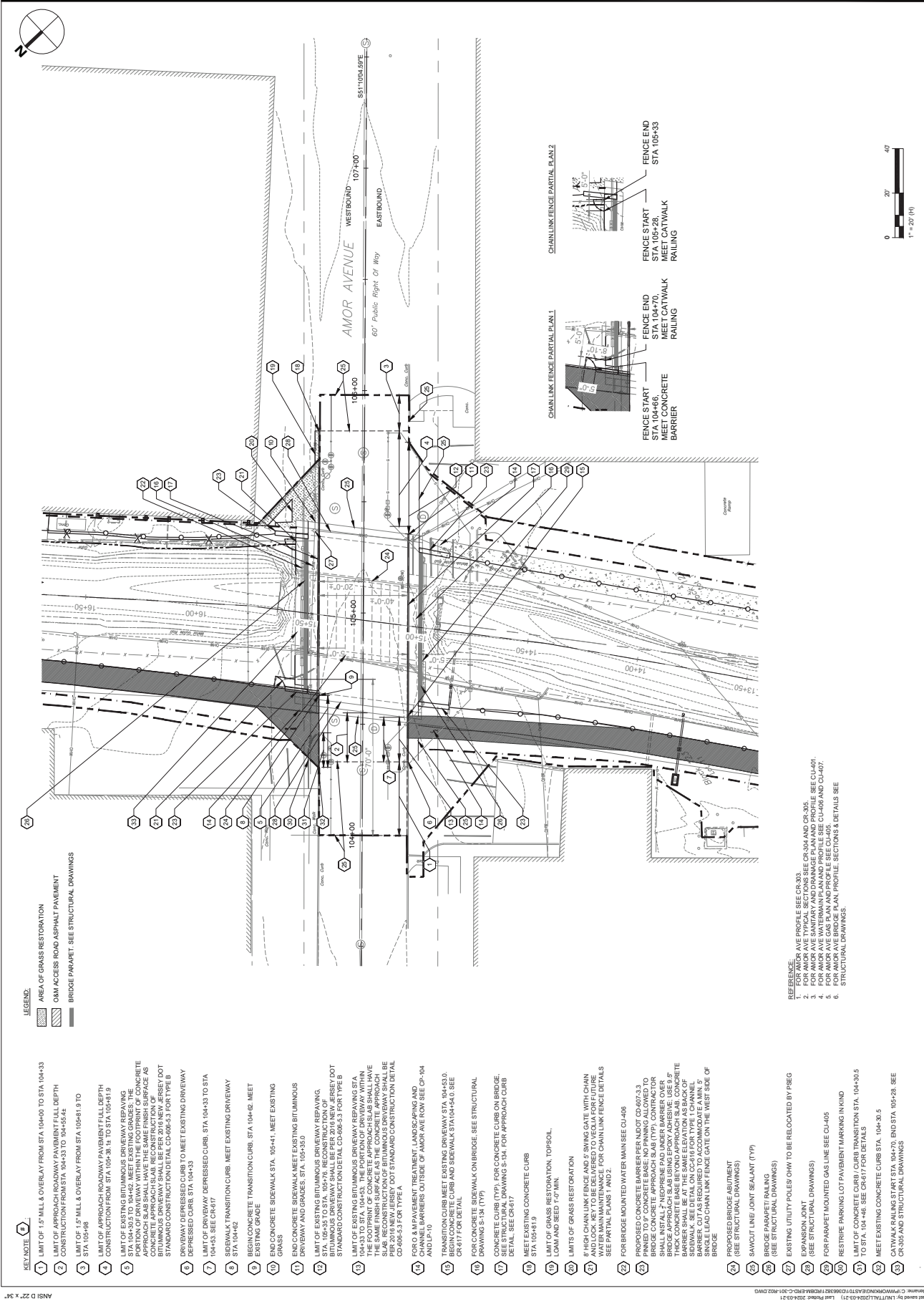
STA 38+00 FULL RIB RIP RAP WITH TRAILER

ALL SURFACE GRADING AND CONTOURS SHOWN WITHIN THE PERMANENT EASEMENT BOUNDARY REPRESENT THE FINAL PROJECT GRADE, WITH THE EXCEPTION OF THE 1.5(H):1(V) CHANNEL SIDE SLOPE EXTENDING UP FROM THE CHANNEL INVERT OVER THE FOLLOWING STATION RANGES: STATION 38+42 TO STATION 38+50 (RIGHT BANK) AND STATION 38+50 TO STATION 38+55 (LEFT BANK). THE BASELINE OFFSET TO THAT LOCATION, AT THE CHANNEL INVERT, IS REPRESENTED AS DIMENSION B1 AND B2.

FOR VEGETATED SURFACE RESTORATION DETAILS, REFER TO SHEET LP-108.

- NOTES:
1. ALL SURFACE GRADING AND CONTOURS SHOWN WITHIN THE PERMANENT EASEMENT BOUNDARY REPRESENT THE FINAL PROJECT GRADE, WITH THE EXCEPTION OF THE 1.5(H):1(V) CHANNEL SIDE SLOPE EXTENDING UP FROM THE CHANNEL INVERT OVER THE FOLLOWING STATION RANGES: STATION 38+42 TO STATION 38+50 (RIGHT BANK) AND STATION 38+50 TO STATION 38+55 (LEFT BANK). THE BASELINE OFFSET TO THAT LOCATION, AT THE CHANNEL INVERT, IS REPRESENTED AS DIMENSION B1 AND B2.
 2. FOR VEGETATED SURFACE RESTORATION DETAILS, REFER TO SHEET LP-108.

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW



LEGEND:
 [Symbol] AREA OF GRASS RESTORATION
 [Symbol] GDM ACCESS ROAD ASPHALT PAVEMENT
 [Symbol] BRIDGE PARAPET. SEE STRUCTURAL DRAWINGS

KEY NOTE 1:
 1. LIMIT OF 1.5" MILL & OVERLAY FROM STA. 104+00 TO STA. 104+33
 2. LIMIT OF APPROACH ROADWAY PAVEMENT FILL DEPTH CONSTRUCTION FROM STA. 104+33 TO 104+55.41
 3. LIMIT OF 1.5" MILL & OVERLAY FROM STA. 105+41.9 TO STA. 105+48
 4. LIMIT OF APPROACH ROADWAY PAVEMENT FILL DEPTH CONSTRUCTION FROM STA. 105+38.15 TO STA. 105+41.9
 5. LIMIT OF EXISTING BITUMINOUS DRIVEWAY REPAVING STA. 104+30.5 TO 104+42. MEET EXISTING GRADES. THE CONCRETE APPROACH SLAB RECONSTRUCTION SHALL HAVE THE SAME FINISH SURFACE AS STANDARD CONSTRUCTION DETAIL CD-6945.3 FORTY TYPE B
 6. DRIVEWAY OVERLIES CURB TO MEET EXISTING DRIVEWAY DEPRESSION CURB STA. 104+33
 7. LIMIT OF DRIVEWAY DEPRESSION CURB STA. 104+33 TO STA. 104+43. SEE CR-417
 8. SIDEWALK TRANSITION CURB. MEET EXISTING DRIVEWAY STA. 104+42
 9. BEGIN CONCRETE TRANSITION CURB STA. 104+42. MEET EXISTING GRADE
 10. END CONCRETE SIDEWALK STA. 104+41. MEET EXISTING GRASS
 11. END CONCRETE SIDEWALK MEET EXISTING BITUMINOUS DRIVEWAY AND GRADES STA. 105+35.0
 12. LIMIT OF EXISTING BITUMINOUS DRIVEWAY REPAVING STA. 105+35 TO STA. 105+75. RECONSTRUCTION OF CONCRETE SLAB RECONSTRUCTION OF BITUMINOUS DRIVEWAY SHALL BE PER 2016 NEW JERSEY DOT STANDARD CONSTRUCTION DETAIL CD-6965.3 ON TYPE A
 13. LIMIT OF EXISTING BITUMINOUS DRIVEWAY REPAVING STA. 104+33 TO STA. 104+53. THE PORTION OF DRIVEWAY WITHIN THE FOOTPRINT OF CONCRETE APPROACH SLAB SHALL HAVE CONCRETE RECONSTRUCTION OF BITUMINOUS DRIVEWAY SHALL BE PER 2016 NEW JERSEY DOT STANDARD CONSTRUCTION DETAIL CD-6965.3 ON TYPE A
 14. FOR O & IMPAVEMENT TREATMENT LANDSCAPING AND AND UP-10 PARAPETS OUTSIDE OF AMOR AVENUE. SEE CP-104 AND UP-10
 15. TRANSITION CURB MEET EXISTING DRIVEWAY STA. 104+53.0. BEGIN CONCRETE CURB AND SIDEWALK STA. 104+54.0. SEE CR-617 FOR DETAIL
 16. FOR CONCRETE SIDEWALK ON BRIDGE. SEE STRUCTURAL DRAWING S-134 (TYP)
 17. CONCRETE CURB (TYP) FOR CONCRETE CURB ON BRIDGE. SEE STRUCTURAL DRAWING S-134 FOR APPROACH CURB DETAIL. SEE CR-417
 18. MEET EXISTING CONCRETE CURB
 19. LIMIT OF GRASS RESTORATION TOP SOIL, LOAM AND SEED 5.0 MIN.
 20. LIMITS OF GRASS RESTORATION
 21. 6" HIGH CHAINLINK FENCE AND 5" SWING GATE WITH CHAIN LINK AND WATER MAIN MAINTENANCE FOR CHAINLINK FENCE DETAILS SEE PARTIAL PLANS 1 AND 2.
 22. FOR BRIDGE MOUNTED WATER MAIN SEE CQ-406
 23. PROPOSED CONCRETE BARRIER PER NJDOT CD-6927.3.3 BRIDGE CONCRETE APPROACH SLAB (TYP) CONTRACTOR BRIDGE APPROACH SLAB USING EPOXY ADHESIVE. USE 9" THICK CONCRETE BASE BENEATH APPROACH SLAB. CONCRETE SIDEWALK. SEE DETAIL ON CC-416 FOR TYPE 1 CHANNEL. SINCE THE GUTTERS ARE REQUIRED TO ACCOMMODATE A WALKWAY, THE GUTTERS SHALL BE SET ON THE WEST SIDE OF BRIDGE
 24. PROPOSED BRIDGE ABUTMENT (SEE STRUCTURAL DRAWINGS)
 25. SAWCUT LINE / JOINT SEALANT (TYP)
 26. BRIDGE PARAPET (TYP) (SEE STRUCTURAL DRAWINGS)
 27. EXISTING UTILITY POLES ORH TO BE RELOCATED BY P&E
 28. EXPANSION JOINT (SEE STRUCTURAL DRAWINGS)
 29. FOR PARAPET MOUNTED GAS LINE SEE CQ-405
 30. RESTRIPE PARKING LOT PAVEMENT MARKING (N/A)
 31. LIMIT OF CONCRETE CURB / CHB TRANSITION STA. 104+30.5 TO STA. 104+46. SEE CR-617 FOR DETAILS
 32. MEET EXISTING CONCRETE CURB STA. 104+30.5
 33. CURB AND SIDEWALK STA. 104+30.5 TO STA. 105+26. SEE CR-305 AND STRUCTURAL DRAWINGS

ANSI Z39.6-2018

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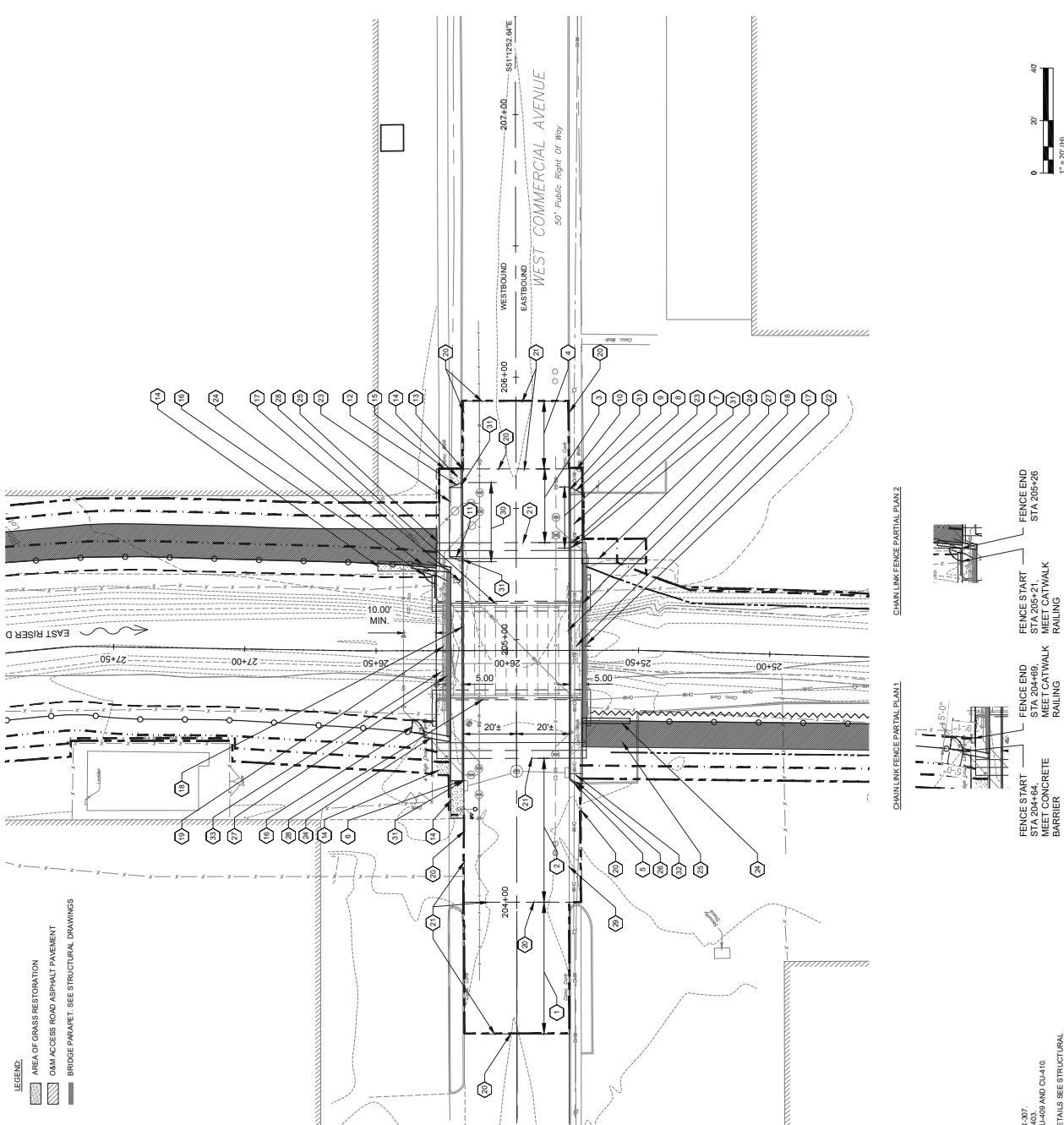
PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHE
 BERGEN COUNTY, NEW JERSEY
**EAST RISER DITCH
 CHANNEL IMPROVEMENTS PROJECT**

REGISTRATION
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 CORPORATION OF AUTHORIZATION NO. 24628610703
ABBIE DARVISH
 NEW JERSEY Professional Engineer
 License Certificate # 24565763300

Designed By:	AD	03/2024
Drawn By:	LN	03/2024
Proj. Check:	MQ	03/2024

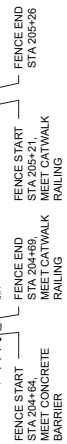
PROJECT/TERM CONTRACT NUMBER
 P1131-03
SHEET TITLE
 AMOR AVE
 ROADWAY PLAN
SHEET NUMBER
 CR-301

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW



- LEGEND:**
- 1. AREA OF GRASS RESTORATION
 - 2. GSI ACCESS ROAD ASPHALT PAVEMENT
 - 3. BRIDGE PARAPET. SEE STRUCTURAL DRAWINGS

- KEY NOTE 42:**
1. LIMIT OF 1.5' APPROACH ROADWAY MILL AND OVERLAY STA 203+50 TO 204+00
 2. LIMIT OF APPROACH ROADWAY PAVEMENT FULL DEPTH CONSTRUCTION FROM STA 204+00 TO STA 204+54.7
 3. LIMIT OF APPROACH ROADWAY PAVEMENT FULL DEPTH CONSTRUCTION FROM STA 205+37.1 TO STA 205+45.3
 4. LIMIT OF 1.5' APPROACH ROADWAY MILL AND OVERLAY STA 205+45.3 TO 205+91
 5. BEGIN SIDEWALK / CONCRETE CURB STA. 204+45.6. MEET EXISTING
 6. BEGIN SIDEWALK / CONCRETE CURB STA. 204+49.50. MEET EXISTING
 7. BEGIN DRIVEWAY / TRANSITION CURB STA. 205-34.5
 8. LIMIT OF REMOVING AND REPLACING EXISTING CONCRETE DRIVEWAY / DEPRESSED AND TRANSITION CURB STA 205+34.5 TO STA 205+45.3. SEE DETAIL ON CR-617
 9. END DRIVEWAY / TRANSITION CURB STA. 205+57
 10. END SIDEWALK / CONCRETE CURB STA. 205+45.3. MEET EXISTING
 11. MEET EXISTING DRIVEWAY GRADE STA. 205+32
 12. END DRIVEWAY TRANSITION CURB STA. 205+40
 13. END CONCRETE CURB STA. 205+45.3. MEET EXISTING CURB RESTORATION BEHIND CONCRETE SIDEWALK / TOP SOIL. LOMA & SEED 1" @ MIN.
 14. MEET EXISTING CONCRETE SIDEWALK STA. 205+45.3
 15. 6" HIGH CHAIN LINK FENCE AND 6" SWING GATE WITH CHAIN & LOCK KEY TO BE DELIVERED TO VEGAL FOR FUTURE WATER MAIN ACCESS AND MAINTENANCE FOR CHAIN LINK FENCE DETAILS SEE PARTIAL PLANS 1 AND 2.
 16. FOR CONCRETE SIDEWALK ON BRIDGE. SEE STRUCTURAL DRAWING S-14. FOR APPROACH CONCRETE SIDEWALK SEE CR-617.
 17. CONCRETE CURB FOR CONCRETE CURB ON BRIDGE. SEE STRUCTURAL DRAWING S-14. FOR APPROACH CURB DETAIL SEE CR-617
 18. SAWCUT LINE
 19. WATER MAIN ON DECK OVERHANG. SEE C11-49
 20. JOINT SEALANT
 21. PROPOSED 6" DIA. BRIDGE PARAPET MOUNTED STEEL GAS. SEE C11-49
 22. DRIVEWAY RAMP 8% MAX. SLOPE RECONSTRUCTION OF DRIVEWAY DEPRESSED AND TRANSITION CURB. SEE DETAIL ON CR-617 FOR DEPRESSED CURB
 23. PROPOSED CONCRETE BARRIER PER NDOT STANDARD DRAWING C0409-5.5 FOR TYPE E. CONTRACTOR SHALL INSTALL 1" NEOPRENE PAD UNDER BARRIER OVER BRIDGE APPROACH SLAB USING EPOXY APPROACH SLAB. CONCRETE BARRIER SHALL BE AT THE SAME ELEVATION AS BACK OF SIDEWALK. CUTS REQUIRED TO ELEVATION AS SHOWN IN DETAIL C11-49. SEE C11-49 FOR GATE ON THE WEST SIDE OF BRIDGE. SEE C2-616 FOR DETAILS FOR CO & PAVEMENT TREATMENT. LANDSCAPING AND CHANNEL BARRIERS OUTSIDE OF WEST COMMERCIAL AVE ROW SEE CP-106 AND LP-106
 24. MIN. 7' RADIUS DEPRESSED CONCRETE CURB
 25. BRIDGE PARAPET / RAILING (SEE STRUCTURAL DRAWINGS)
 26. PROPOSED BRIDGE ABUTMENT (SEE STRUCTURAL SHEET)
 27. GUTTER LINE
 28. LIMIT OF REMOVING AND REPLACING EXISTING CONCRETE DRIVEWAY RAMP / DEPRESSED AND TRANSITION CURB STA. 205+30 TO STA. 205+40. DEPRESSED CURB SHALL BE RECONSTRUCTION OF CONCRETE DRIVEWAY SHALL PER 2016 NEW JERSEY DOT STANDARD CONSTRUCTION DETAIL C0-606-5.3 FOR TYPE E
 29. TRANSITION CURB
 30. ADA CURB RAMP TYPE 5 WITHOUT GRASS BUFFER PER NDOT STANDARD DETAIL C0-606-1
 31. CATWALK RAILING START STA. 204+69. END STA. 204+21. SEE CR-307 AND STRUCTURAL DRAWINGS
- REFERENCE:**
1. FOR WEST COMMERCIAL AVE PROFILE SEE CR-306 AND CR-307
 2. FOR WEST COMMERCIAL AVE DRAINAGE PLAN AND PROFILE SEE C1-403.
 3. FOR WEST COMMERCIAL AVE GAS MAIN AND PROFILE SEE C1-409 AND C1-410
 4. FOR WEST COMMERCIAL AVE GAS MAIN AND PROFILE SEE C1-409 AND C1-410
 5. FOR WEST COMMERCIAL AVE BRIDGE PLAN, PROFILE, SECTIONS & DETAILS SEE STRUCTURAL DRAWINGS.



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ISSUE/REVISION	NO.	DATE	DESCRIPTION

PROJECT
REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHE
BERGEN COUNTY, NEW JERSEY
EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT

REGISTRATION
HDR ENGINEERING, INC.
CERTIFICATE OF AUTHORIZATION NO. 24620610703
ABBIE DARVISH
New Jersey Professional Engineer
License/Certificate # 24620610703

Designed By:	AD	03/2024
Drawn By:	LN	03/2024
Proj. Check:	WQ	03/2024
PROJECT/TERM CONTRACT NUMBER		
P1131-103		
SHEET TITLE		
WEST COMMERCIAL AVE ROADWAY PLAN		
SHEET NUMBER		
CR-302		



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PROJECT

REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
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BERGEN COUNTY, NEW JERSEY
EAST RIVER DITCH
CHANNEL IMPROVEMENTS PROJECT

REGISTRATION

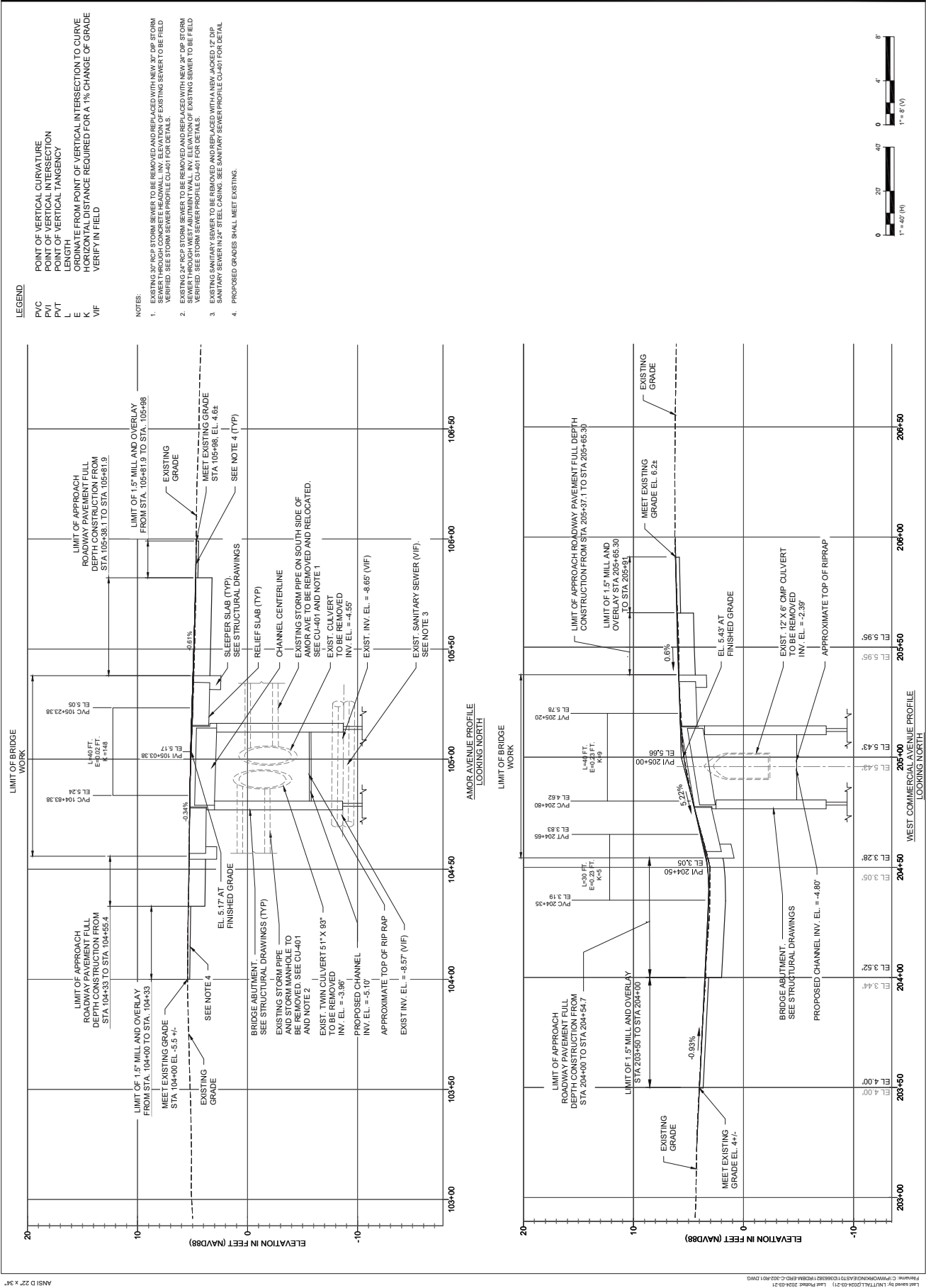
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Designed By: AD 03/2024
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PROJECT/TERM CONTRACT NUMBER
P1131-03

SHEET TITLE
AMOR AVE AND WEST
COMMERCIAL AVE
ROADWAY PROFILE

SHEET NUMBER
CR-303



- LEGEND**
- PVC POINT OF VERTICAL CURVATURE
 - PVI POINT OF VERTICAL INTERSECTION
 - PVT POINT OF VERTICAL TANGENCY
 - E GRADE ELEVATION
 - K HORIZONTAL DISTANCE FROM POINT OF VERTICAL INTERSECTION TO CURVE
 - VIF VERIFY IN FIELD

- NOTES:**
- EXISTING 30" RCP STORM SEWER TO BE REMOVED AND REPLACED WITH NEW 36" DP STORM SEWER THROUGH CONCRETE HEADWALL INV. ELEVATION OF EXISTING SEWER TO BE FIELD VERIFIED. SEE STORM SEWER PROFILE CU-401 FOR DETAILS.
 - EXISTING 12" X 6" CMP STORM SEWER TO BE REMOVED AND REPLACED WITH NEW 36" DP STORM SEWER THROUGH CONCRETE HEADWALL INV. ELEVATION OF EXISTING SEWER TO BE FIELD VERIFIED. SEE STORM SEWER PROFILE CU-401 FOR DETAILS.
 - EXISTING SANITARY SEWER TO BE REMOVED AND REPLACED WITH NEW JACKED 12" DP SANITARY SEWER IN 24" STEEL CASING. SEE SANITARY SEWER PROFILE CU-401 FOR DETAIL.
 - PROPOSED GRADES SHALL MEET EXISTING.



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REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHE
 BERGEN COUNTY, NEW JERSEY
EAST RIVER DITCH
CHANNEL IMPROVEMENTS PROJECT

REGISTRATION

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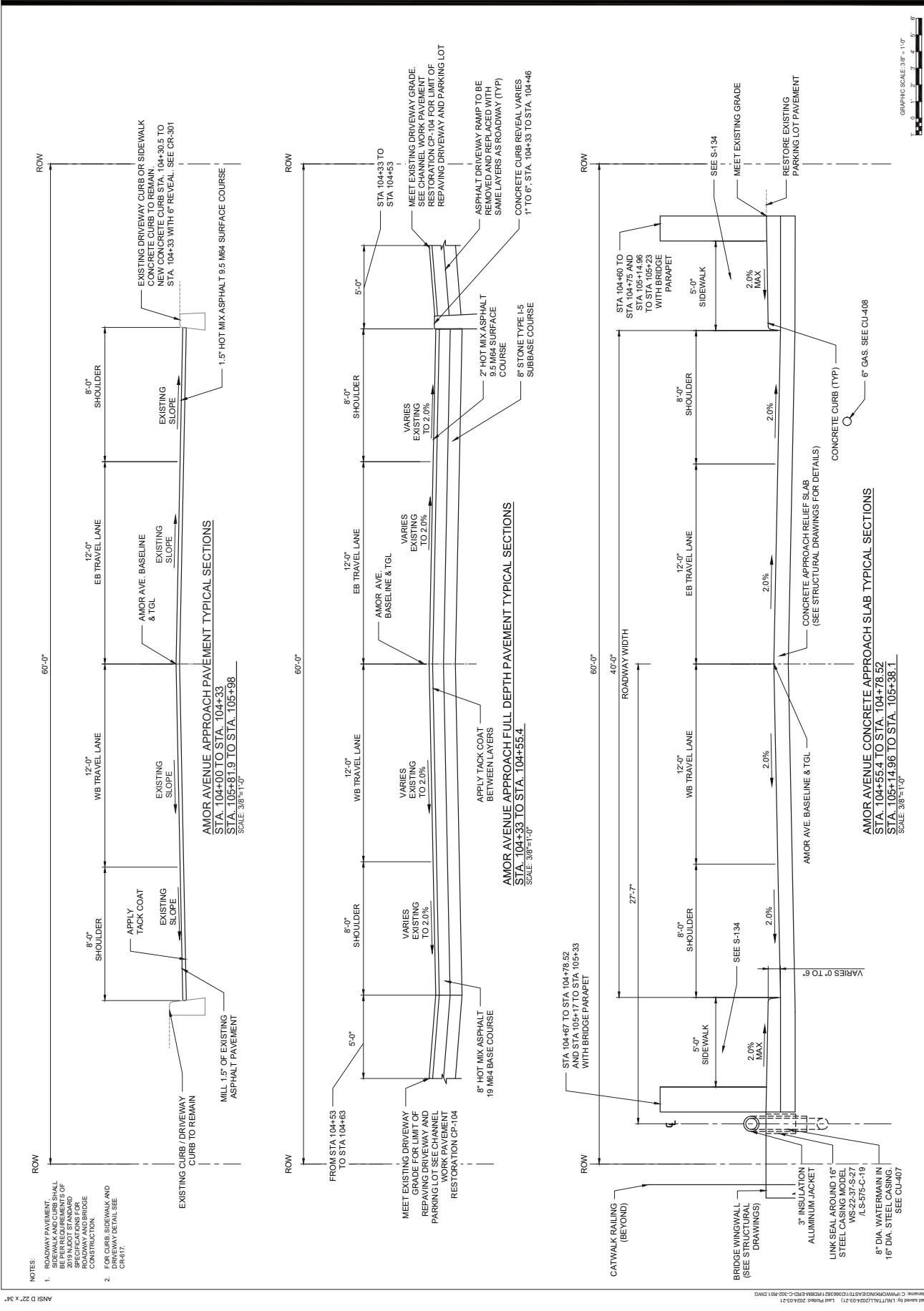
NEW JERSEY Professional Engineer
 License Certificate # 24628610703

Designed By: AD 03/2024
 Drawn By: LN 03/2024
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PROJECT/TERM CONTRACT NUMBER
 P1131-03
 SHEET TITLE
 AMOR AVE

TYPICAL SECTIONS
 SHEET 1 OF 4

CR-304



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ISSUE/REVISION	NO.	DATE	DESCRIPTION

PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHE
 BERGEN COUNTY, NEW JERSEY

**EAST RIVER BRIDGE
 CHANNEL IMPROVEMENTS PROJECT**

REGISTRATION
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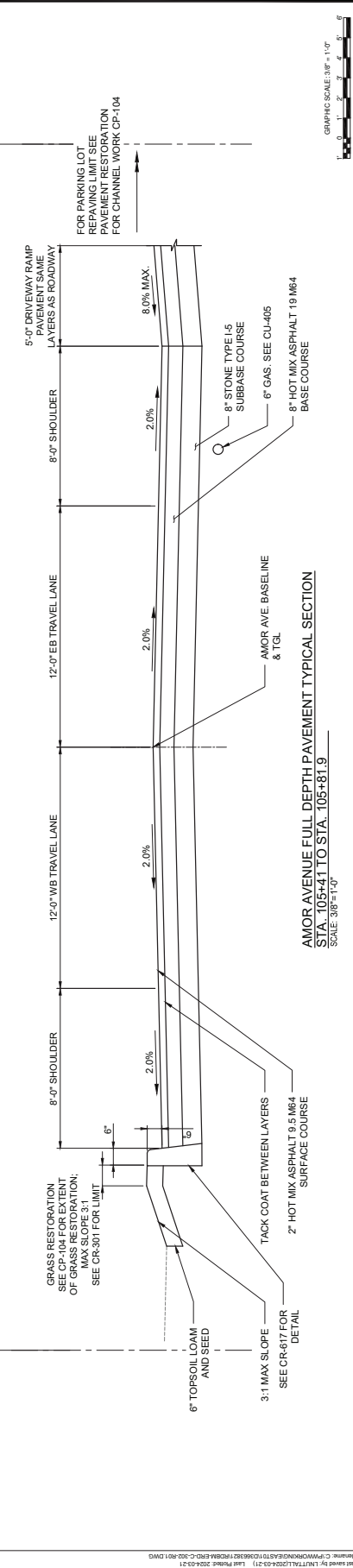
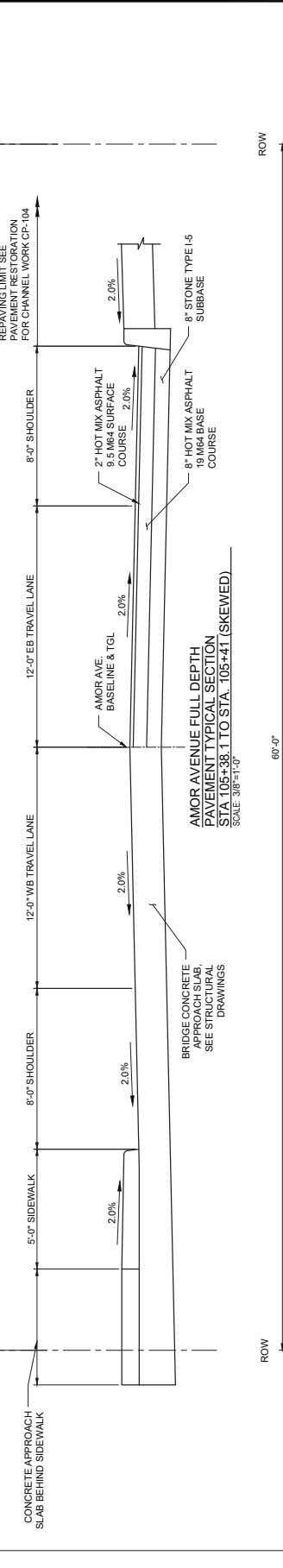
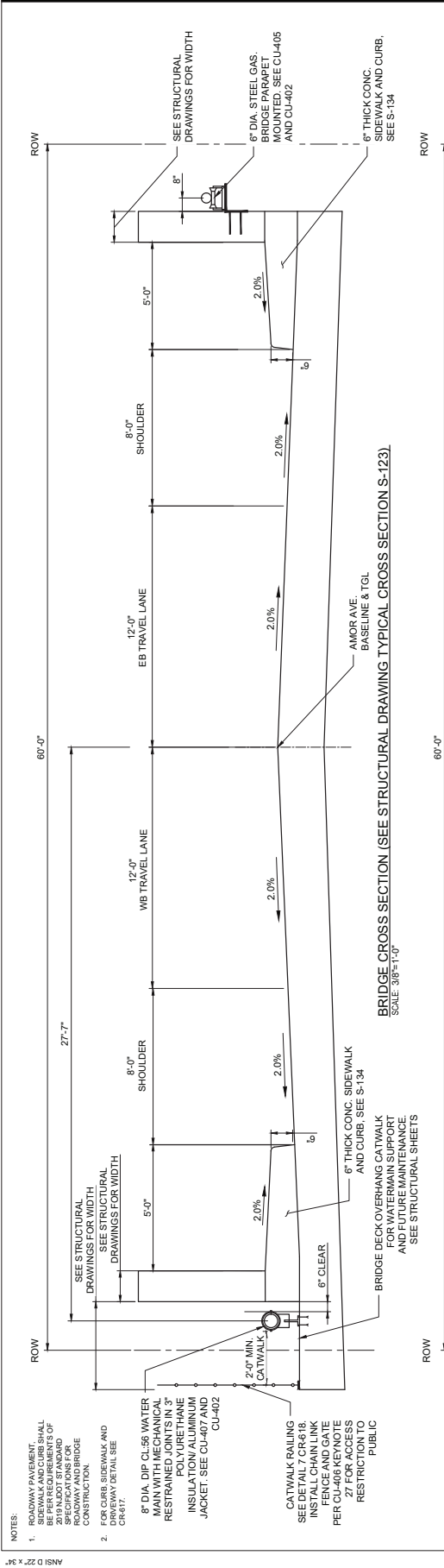
NEW JERSEY Professional Engineer
 License Certificate # 245625763300

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Drawn By:	LN	03/2024
Proj. Check:	MO	03/2024

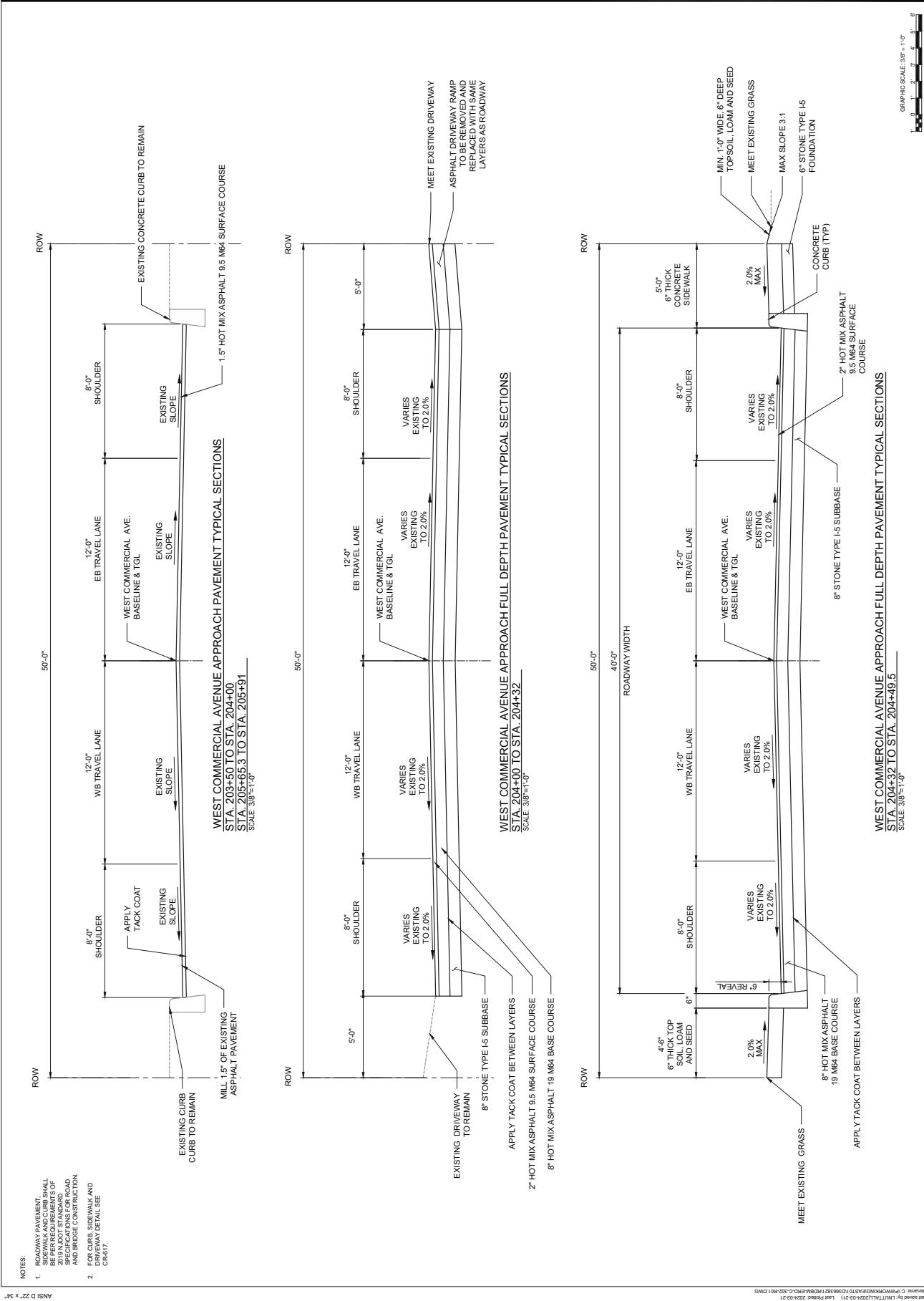
PROJECT TERM CONTRACT NUMBER
 P1131-03

SHEET TITLE
 AMOR AVE
 TYPICAL SECTIONS
 SHEET 2 OF 4

SHEET NUMBER
 CR-305



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- NOTES:
- ROADWAY PAVEMENT SHALL BE PER REQUIREMENTS OF 2019 NJDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND CURB, SIDEWALK AND DRIVEWAY DETAIL SEE CR417.
 - FOR CURB, SIDEWALK AND DRIVEWAY DETAIL SEE CR417.

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PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHE
 BERGEN COUNTY, NEW JERSEY
**EAST RIVER DITCH
 CHANNEL IMPROVEMENTS PROJECT**

REGISTRATION
 HDR ENGINEERING, INC.
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NEW JERSEY Professional Engineer
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PROJECT TERM CONTRACT NUMBER
 P1131-03

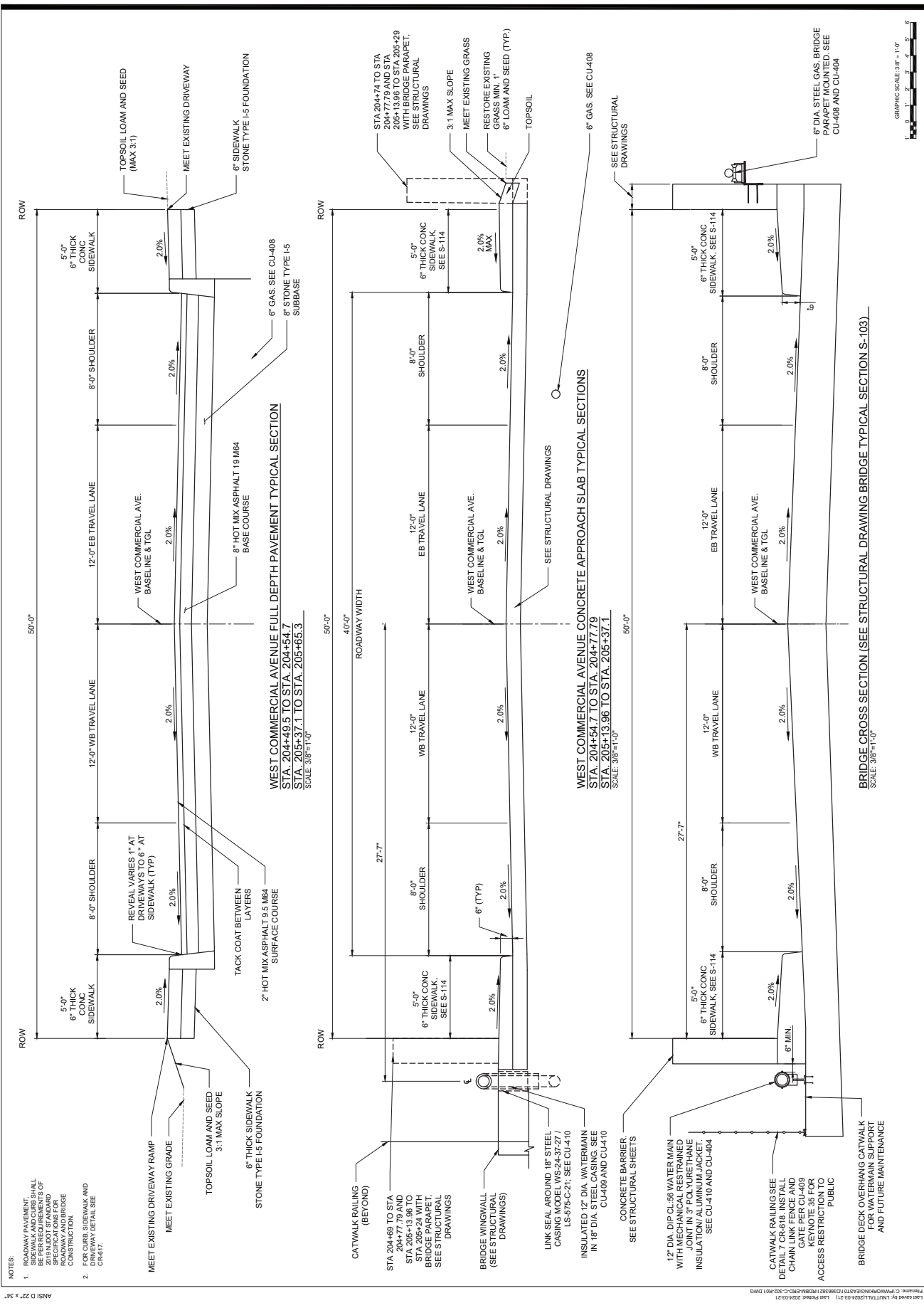
SHEET TITLE
 WEST COMMERCIAL AVE
 TYPICAL SECTIONS
 SHEET 3 OF 4

SHEET NUMBER
 CR-306

Designed By:	AD	03/2024
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GRAPHIC SCALE: 3/8" = 1'-0"

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PROJECT

REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
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BERGEN COUNTY, NEW JERSEY
EAST RIVER BRIDGE
CHANNEL IMPROVEMENTS PROJECT

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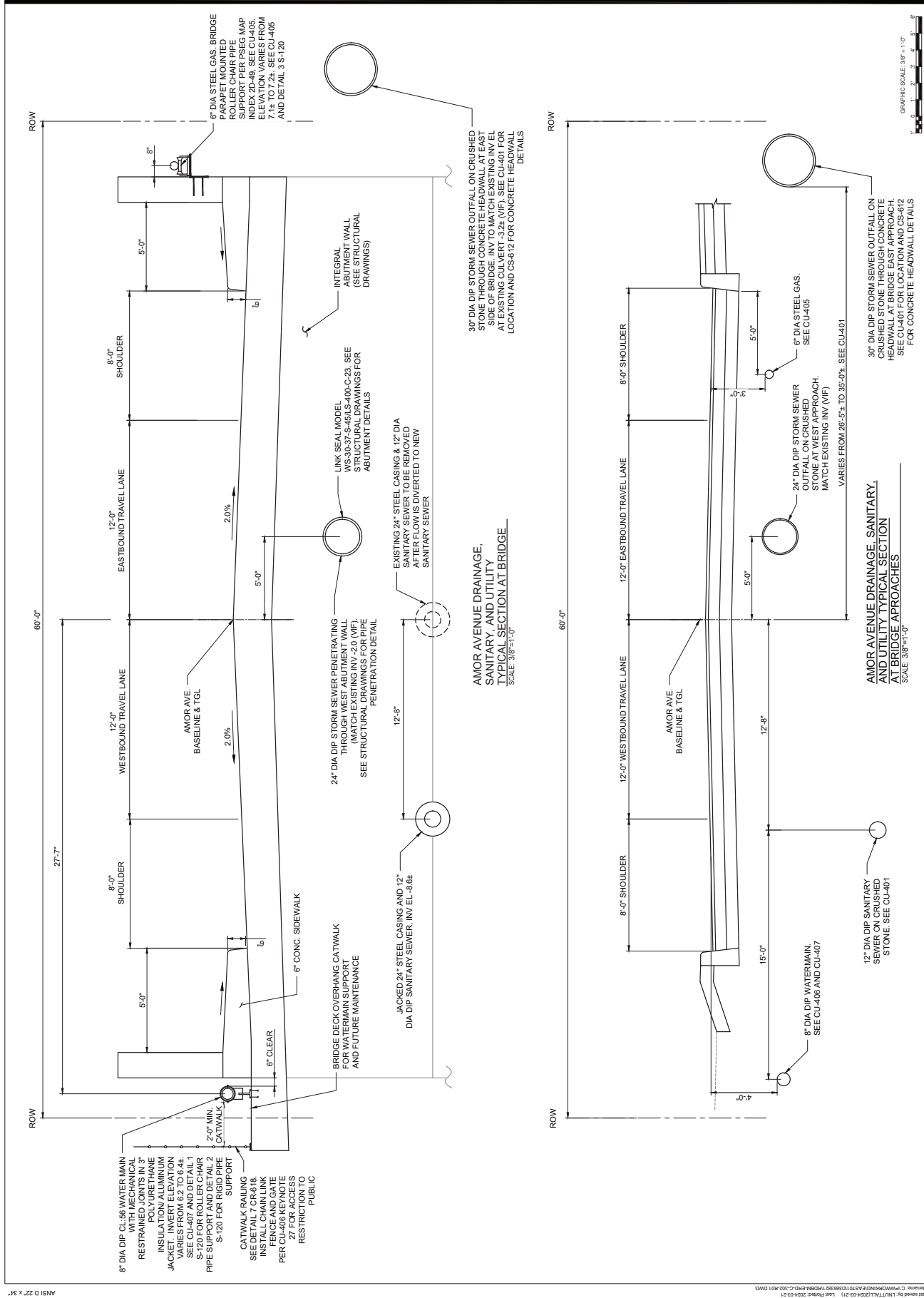
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PROJECT TERM CONTRACT NUMBER
P1131-03
SHEET TITLE

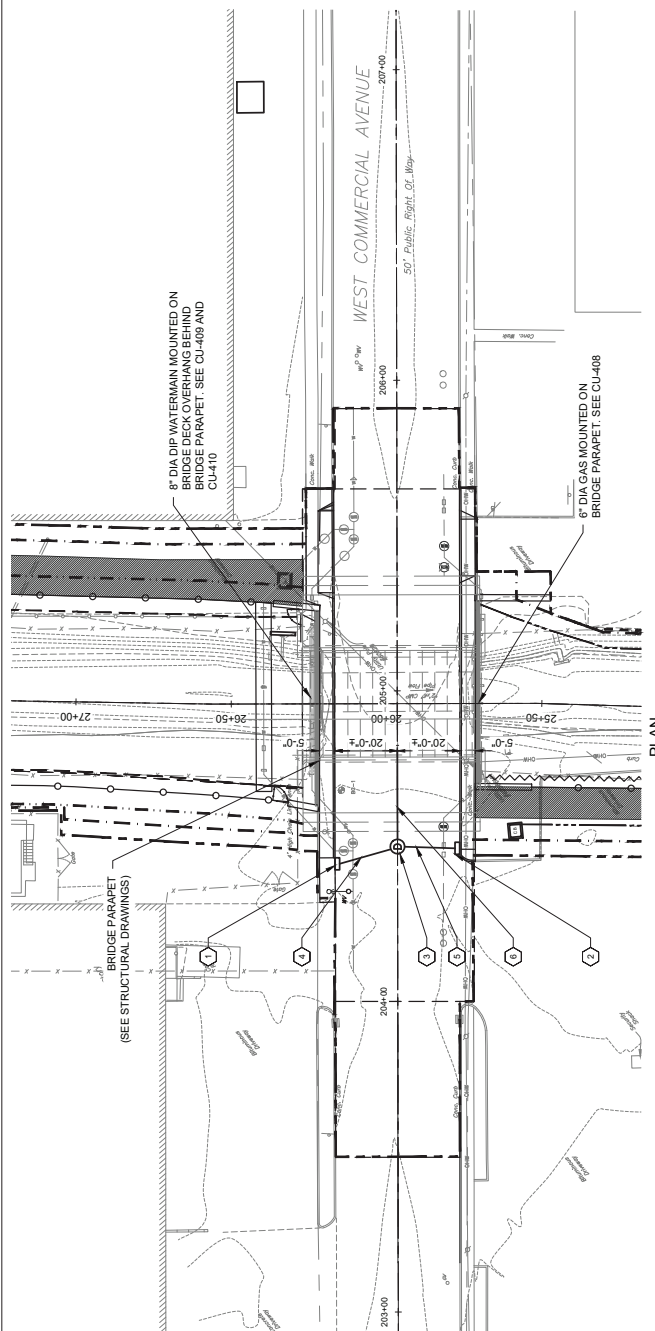
AMOR AVE UTILITY
SECTIONS

SHEET NUMBER

CU-402



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KEY NOTE 4:

- 1. TYPE B MODIFIED JOINT STANDARD INLET TWO CURB PIECE. SEE CS-413 FOR DETAIL. RM EL.3.0. INV EL.0.5.
- 2. TYPE B MODIFIED JOINT STANDARD INLET TWO CURB PIECE. SEE CS-413 FOR DETAIL. RM EL.2.9. INV EL.0.5.
- 3. 4 DIA STORM SEWER MANHOLE RM EL.3.28. SEE CS-415 FOR DETAIL. INV 3.0.2. INV E-1.2.
- 4. 18" LF OF 12" DIA DIP CATCH-BASIN CONNECTION ENCASED IN CONCRETE.
- 5. 17' LF OF 12" DIA DIP CATCH-BASIN CONNECTION ENCASED IN CONCRETE.
- 6. 28' LF OF 12" DIA DIP STORM SEWER ENCASED IN CONCRETE WITH BACKFILL PREVENTER AT THE OUTFALL.
- 7. LINK SEAL MODEL WS-18-37.5-46LS-305-C-28.

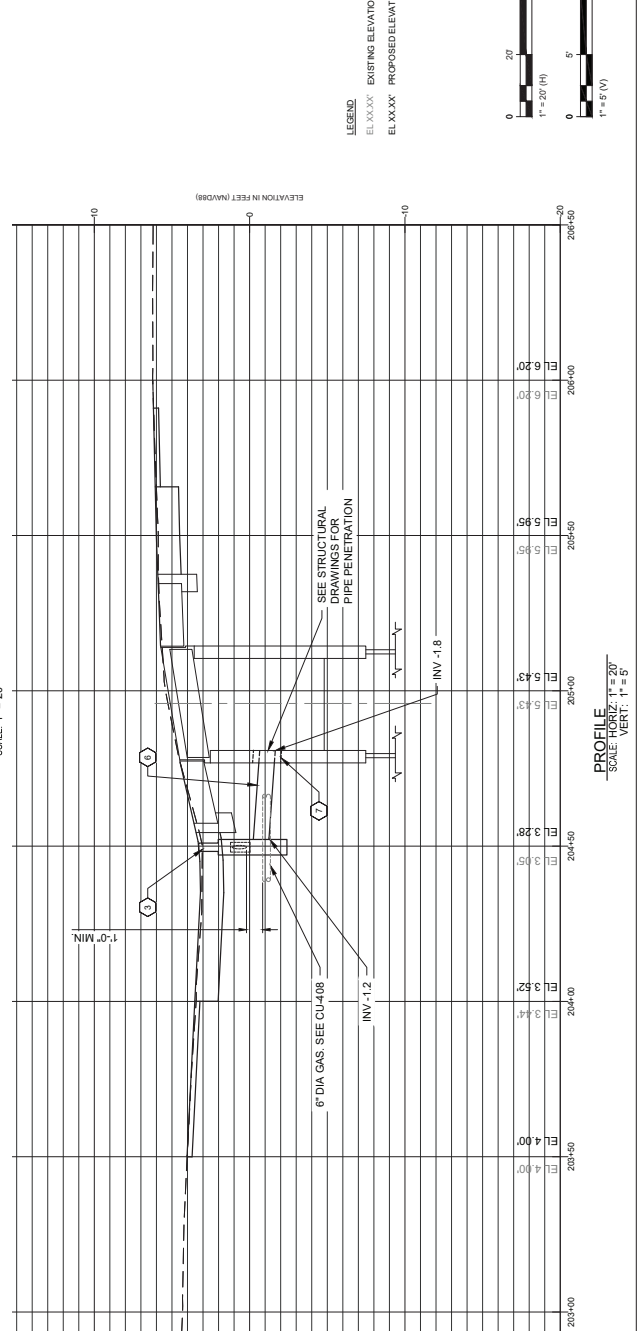
REFERENCE:

- 1. WEST COMMERCIAL AVE WATERMAN PLAN AND PROFILE SEE CU-409 AND CU-410.
- 2. FOR WEST COMMERCIAL AVE BRIDGE PLAN, PROFILE, SECTIONS & APPROACHES SEE CR-302.
- 3. FOR WEST COMMERCIAL AVE ROADWAY PLAN SEE CR-302.
- 4. FOR WEST COMMERCIAL AVE GAS PLAN AND PROFILE SEE CU-408.
- 5. FOR DEMOLITION PLAN FOR WEST COMMERCIAL AVE AND APPROACHES ALONG CHANNEL. SEE CD-106 FOR RESTORATION PLAN.
- 6. FOR DEMOLITION PLAN FOR WEST COMMERCIAL AVE AND APPROACHES TO WEST COMMERCIAL AVE ALONG CHANNEL. SEE CR-106.

NOTE: EXCAVATION AND BACKFILL SHALL COMPLY WITH UDOT STANDARD 11. SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2019.

LEGEND:

- OMM ACCESS ROAD VEGETATION
- OMM ACCESS ROAD ASPHALT PAVEMENT
- BRIDGE PARAPET. SEE STRUCTURAL DRAWINGS



PLAN
SCALE: 1" = 20'

PROFILE
SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'

LEGEND

EL. XXX.XX EXISTING ELEVATION
EL. XXX.XX PROPOSED ELEVATION

0 20' 30'
1" = 20' (H)

0 5' 10'
1" = 5' (V)

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PROJECT
REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHE
BERGEN COUNTY, NEW JERSEY
**EAST RIVER DITCH
CHANNEL IMPROVEMENTS PROJECT**

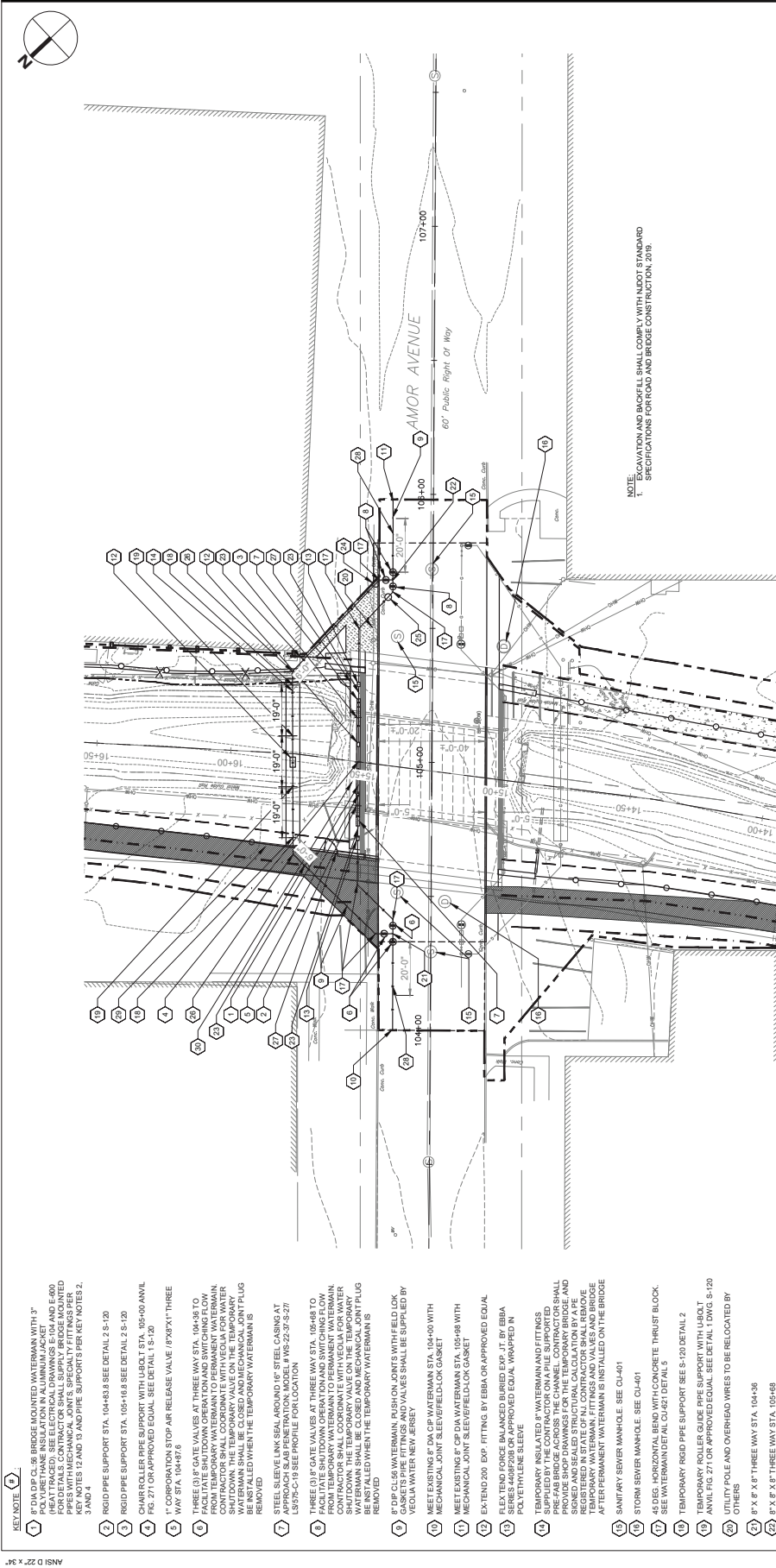
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NEW JERSEY Professional Engineer
License Certificate # 24628610103

Designed By: AD 03/2024
Drawn By: LN 03/2024
Proj. Check: AF 03/2024

PROJECT/TERM CONTRACT NUMBER
P1131-03
SHEET TITLE
WEST COMMERCIAL AVE
DRAINAGE PLAN AND PROFILE
SHEET NUMBER
CU-403

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KEY NOTE

- 8" DIA DFL CL 56 BRIDGE MOUNTED WATERMAIN WITH 3" PEAK TO MEET EXISTING WATERMAIN. SEE DETAIL 2 S-120 FOR DETAILS. CONTRACTOR SHALL SUPPLY BRIDGE MOUNTED WATERMAIN AND 8" DIA CP WATERMAIN. SEE KEY NOTES 2, 3 AND 4.
- RIGID PIPE SUPPORT STA. 104+93.8 SEE DETAIL 2 S-120.
- RIGID PIPE SUPPORT STA. 105+16.8 SEE DETAIL 2 S-120.
- CHAR ROLLER PIPE SUPPORT WITH URBST STA. 105+00 ANYWL FIG. 271 ON APPROVED EQUAL. SEE DETAIL 1 S-120.
- 1" CORPORATION STOP AIR RELEASE VALVE 18"X31" THREE WAY STA. 104+93.8.
- THREE (3) 8" GATE VALVES AT THREE WAY STA. 104+98 TO FACILITATE SHUT DOWN OPERATIONS AND SWITCHING FLOW FROM TEMPORARY WATERMAIN TO PERMANENT WATERMAIN. CONTRACTOR SHALL COORDINATE WITH VEOLIA FOR WATER SHUT DOWN. THE TEMPORARY VALVE ON THE TEMPORARY WATERMAIN SHALL BE CLOSED AND MECHANICAL JOINT PLUG BE INSTALLED WHEN THE TEMPORARY WATERMAIN IS REMOVED.
- SEE KEY NOTE 6 FOR DETAILS OF THE 45 DEG. APPROACH SLOPE PENETRATION MODEL WWS-25-26-27 LS97C-19 SEE PROFILE FOR LOCATION.
- THREE (3) 8" GATE VALVES AT THREE WAY STA. 106+48 TO FACILITATE SHUT DOWN OPERATIONS AND SWITCHING FLOW FROM TEMPORARY WATERMAIN TO PERMANENT WATERMAIN. CONTRACTOR SHALL COORDINATE WITH VEOLIA FOR WATER SHUT DOWN. THE TEMPORARY VALVE ON THE TEMPORARY WATERMAIN SHALL BE CLOSED AND MECHANICAL JOINT PLUG BE INSTALLED WHEN THE TEMPORARY WATERMAIN IS REMOVED.
- 8" DIP CL 56 WATERMAIN PUSH ON JOINT WITH FIELD LOCK GASKETS PIPE FITTINGS AND VALVES SHALL BE SUPPLIED BY VEOLIA WATER NEW JERSEY.
- MEET EXISTING 8" DIA CP WATERMAIN STA. 104+00 WITH MECHANICAL JOINT. SEE FIELD LOCK GASKET.
- MEET EXISTING 8" DIA CP WATERMAIN STA. 105+00 WITH MECHANICAL JOINT. SEE FIELD LOCK GASKET.
- EXTEND 200' EXP. FITTING BY EBBA OR APPROVED EQUAL FLEX TEND FORCE BALANCED BURIED EXP. JT BY EBBA POLYETHYLENE SLEEVE.
- TEMPORARY ASHLAR TEE 8" WATERMAIN AND FITTINGS SUPPLIED BY THE CONTRACTOR ON A PIPE SUPPORT PRE-FAB BRIDGE ACROSS THE CHANNEL. CONTRACTOR SHALL REGISTER IN STATE OF NJ CONTRACTOR SHALL REMOVE AND SEAL ALL STRUCTURAL CALCULATION BY A P.E. AND AFTER PERMANENT WATERMAIN IS INSTALLED ON THE BRIDGE.
- SANITARY SEWER MANHOLE. SEE CU-401.
- STORM SEWER MANHOLE. SEE CU-401.
- 45 DEG. HORIZONTAL BEND WITH CONCRETE THRUST BLOCK. SEE WATERMAIN DETAIL CU-421 DETAILS.
- TEMPORARY RIGID PIPE SUPPORT SEE S-120 DETAIL 2.
- TEMPORARY ROLLER GUIDE PIPE SUPPORT WITH URBST ANYWL FIG. 271 OR APPROVED EQUAL. SEE DETAIL 1 DWG. S-120 OTHERS.
- 8" X 8" X 8" THREE WAY STA. 104+38.
- 8" X 8" X 8" THREE WAY STA. 105+68.
- TWO (2) 45 DEG. VERTICAL BENDS. SEE DWG. CU-407. INSTALL PERMANENT CONCRETE THRUST BLOCK. SEE DETAIL 1 DWG. CU-421. INSTALL THREE (3) ROWS OF 3" REBARS TO STRAIGHT PIPE RUN ON EITHER SIDE OF THE EXPOSED UPPER VERTICAL BEND FITTING. SEE DETAIL URBST DWG. CU-421.
- 8" GATE VALVE FOR CHORINATION OF TEMPORARY WATER MAIN. SEE DETAIL 1, CU-421.
- 8" GATE VALVE FOR CHORINATION OF PERMANENT WATER MAIN. SEE DETAIL 1, CU-421.
- INSTALL THREE (3) ROWS OF 3" REBARS TO STRAIGHT PIPE RUN ON EITHER SIDE OF THE EXPOSED UPPER VERTICAL BEND FITTING. SEE DETAIL 6 NOTE 5 DWG. CU-421.
- 8" HIGH CHAIN LINK FENCE AND 5' WIDE SWING GATE WITH CHAIN AND LOCK. KEY TO BE DELIVERED TO VEOLIA FOR MAINTENANCE FOR LAYOUT OF CHAIN LINK FENCE. SEE CR-301.
- PROVIDE 8' MIN. RESTRAINED LENGTH OF WATERMAIN NOTE: MAIN PRESSURE IS 525 PSI AT THIS LOCATION.
- INSTALL PERMANENT CONCRETE BARRIER AFTER REMOVAL OF TEMPORARY WATERMAIN.
- CATWALK RAILING STA. 104+20, 104+30, 104+38. SEE CU-402 AND STRUCTURAL DRAWINGS.

LEGEND

- AREA OF GRASS RESTORATION
- OAM ACCESS ROAD ASPHALT PAVEMENT
- BRIDGE PARAPET. SEE STRUCTURAL DRAWINGS
- NEW ASPHALT PAVEMENT

NOTE: EXCAVATION AND BACKFILL SHALL COMPLY WITH MDDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2016.

REFERENCES:

- FOR AMOR AVE WATERMAIN PROFILE SEE CU-407.
- FOR AMOR AVE ROADWAY PROFILE SEE CR-301.
- FOR AMOR AVE PROFILE SEE CR-303.
- FOR AMOR AVE SANITARY AND DRAINAGE PLAN AND PROFILE SEE CU-401.
- FOR AMOR AVE SANITARY AND DRAINAGE PLAN AND PROFILE SEE CU-401.
- FOR WATERMAIN AND VALVES SEE CU-402 AND CR-303.
- FOR AMOR AVE BRIDGE PLAN, PROFILE, SECTIONS AND DETAILS SEE CU-407.
- FOR AMOR AVE BRIDGE PLAN, PROFILE, SECTIONS AND DETAILS SEE CU-407.
- FOR AMOR AVE BRIDGE PLAN, PROFILE, SECTIONS AND DETAILS SEE CU-407.
- FOR AMOR AVE BRIDGE PLAN, PROFILE, SECTIONS AND DETAILS SEE CU-407.
- FOR AMOR AVE BRIDGE PLAN, PROFILE, SECTIONS AND DETAILS SEE CU-407.

PROJECT
REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHE
 BERGEN COUNTY, NEW JERSEY
EAST RIVER DITCH
CHANNEL IMPROVEMENTS PROJECT

REGISTRATION
HR ENGINEERING, INC.
 CERTIFICATE OF AUTHORIZATION NO. 24628610700
ABBIE DARVISH
 NEW JERSEY Professional Engineer
 License Certificate # 24628610700

SUB-CONSULTANT
HR ENGINEERING, INC.
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ISSUE/REVISION

IR	DATE	DESCRIPTION

PROJECT TERM CONTRACT NUMBER
 P1131-03

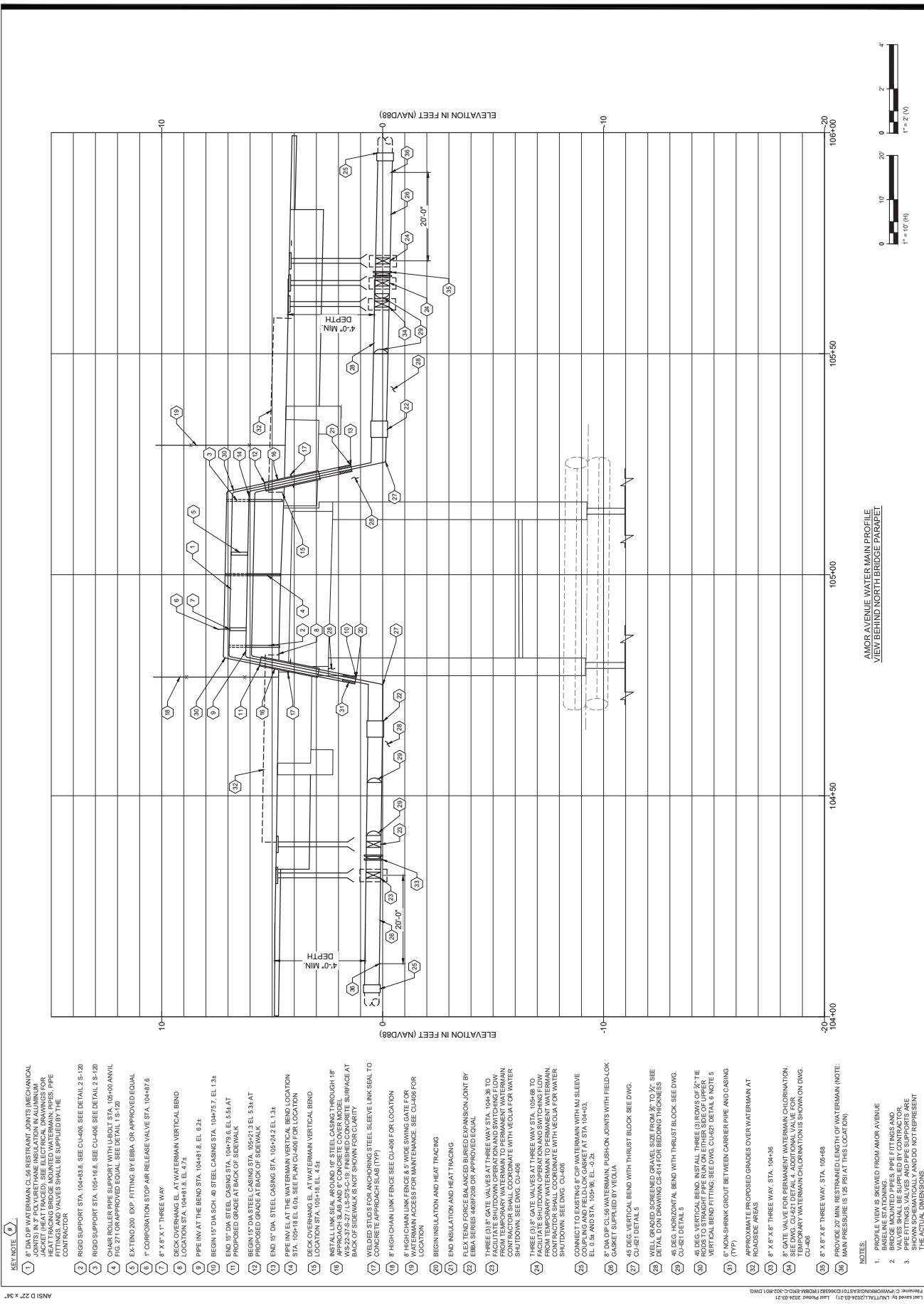
SHEET TITLE
 AMOR AVE
 WATERMAIN PLAN

SHEET NUMBER
 CU-406

Designed By: AD 03/2024
Drawn By: LN 03/2024
Proj. Check: AF 03/2024

Scale: 1" = 40' (H)

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW



- KEY NOTE**
- 8" DIA DP WATERMAN CL-56 RESTRAINT JOINTS (MECHANICAL JOINTS) IN 3" POLYURETHANE INSULATION IN ALUMINUM BRACKET SHALL BE INSTALLED PER USACE DRAWING E-100-100-100. HEAT TRACING BRIDGE MOUNTED WATERMAN PIPES, PIPE FITTINGS, AND VALVES SHALL BE SUPPLIED BY THE CONTRACTOR.
 - RIGID SUPPORT STA. 104+83.3. SEE CU-406. SEE DETAIL 2.5-120.
 - RIGID SUPPORT STA. 105+16.8. SEE CU-406. SEE DETAIL 2.5-120.
 - CHAR ROLLER PIPE SUPPORT WITH U-BOLT STA. 106+00 ANVIL FIG. 771 OR APPROVED EQUAL. SEE DETAIL 1.5-120.
 - EXTEND 200 EXP. FITTING BY EBBA OR APPROVED EQUAL.
 - 1" CORPORATION STOP-AIR RELEASE VALVE STA. 104+87.6
 - 8" X 8" T-THREE WAY
 - DECK OVERHANG EL. AT WATERMAN VERTICAL BEND LOCATION STA. 104+81.8, EL. 4.71.
 - PIPE INV. AT THE BEND STA. 104+81.8, EL. 6.21.
 - BEGIN 15" DIA SCH. 40 STEEL CASING STA. 104+75.7, EL. 1.34
 - END 15" DIA SCH. 40 STEEL CASING STA. 104+75.7, EL. 1.34
 - BEGIN 15" DIA SCH. 40 STEEL CASING STA. 104+75.7, EL. 1.34 AT PROPOSED GRADE AT BACK OF SIDEWALK.
 - BEGIN 15" DIA SCH. 40 STEEL CASING STA. 104+75.7, EL. 1.34 AT PROPOSED GRADE AT BACK OF SIDEWALK.
 - END 15" DIA. STEEL CASING STA. 105+24.2 EL. 1.34.
 - PIPE INV. EL. AT THE WATERMAN VERTICAL BEND LOCATION STA. 105+16.8 EL. 6.03. SEE PLAN CU-406 FOR LOCATION.
 - DECK OVERHANG EL. AT WATERMAN VERTICAL BEND LOCATION STA. 105+16.8, EL. 4.52.
 - INSTALL LINK SEAL AROUND 16" STEEL CASING THROUGH 16" CONCRETE APPROACH SLAB (TYP).
 - WELDED STUDS FOR ANCHORING STEEL SLEEVE LINK SEAL TO CONCRETE APPROACH SLAB (TYP).
 - 8" HIGH CHAIN LINK FENCE SEE CU-406 FOR LOCATION.
 - 8" HIGH CHAIN LINK FENCE 6.5' WIDE SWING GATE FOR WATERMAN ACCESS FOR MAINTENANCE. SEE CU-406 FOR LOCATION.
 - BEGIN INSULATION AND HEAT TRACING
 - END INSULATION AND HEAT TRACING
 - FLEX TEND. FORCE 50 LBS. AND 50 LBS. EXPANSION JOINT BY EBBA SERIES 448F208 OR APPROVED EQUAL.
 - THREE (3) 3/4" GATE VALVES AT THREE WAY STA. 104+28 TO FACILITATE SHUTDOWN OPERATION AND SWITCHING FLOW FROM TEMPORARY WATERMAN TO PERMANENT WATERMAN. SHUTDOWN. SEE DWG. CU-406.
 - THREE (3) 3/4" GATE VALVES AT THREE WAY STA. 104+80 TO FACILITATE SHUTDOWN OPERATION AND SWITCHING FLOW FROM TEMPORARY WATERMAN TO PERMANENT WATERMAN. SHUTDOWN. SEE DWG. CU-406.
 - CONNECT TO EXISTING 8" CP WATERMAN WITH MJ SLEEVE COUPLING AND FIELD-LOCK GASKET AT STA. 104+03.
 - EL. 0.35 AND STA. 105+56, EL. -0.21.
 - 8" DIA DP CL-56 WATERMAN, PUSH-IN JOINTS WITH FIELD-LOCK GASKET SUPPLIED BY YECOLA.
 - 45 DEG. VERTICAL BEND WITH THRUST BLOCK. SEE DWG. CU-461 DETAIL 5.
 - WELL GRADED, SCREENED GRAVEL SIZE FROM 3/4" TO 2"; SEE DETAIL DON DRAINING CS-314 FOR BEDDING THICKNESS.
 - 45 DEG. HORIZONTAL BEND WITH THRUST BLOCK. SEE DWG. CU-461 DETAIL 5.
 - 45 DEG. VERTICAL BEND. INSTALL THREE (3) ROWS OF 3/4" TIE RODS. SEE DWG. CU-461 DETAIL 4. ADDITIONAL VALVE FOR TEMPORARY WATERMAN CHLORINATION IS SHOWN ON DWG. CU-406.
 - 8" X 8" T-THREE WAY. STA. 105+68
 - PROVIDE 20 MIN. RESTRAINED LENGTH OF WATERMAN (NOTE: MAIN PRESSURE IS 125 PSI AT THIS LOCATION).
- NOTES:**
- BASELINE STA. INDICATED.
 - BRIDGE MOUNTED PIPES, PIPE FITTINGS AND PIPE SUPPORTS ARE SHOWN SCHEMATICALLY AND DO NOT REPRESENT THE ACTUAL DIMENSIONS.
 - 8" X 8" T-THREE WAY.

AMOR AVENUE WATER MAIN PROFILE
VIEW BEHIND NORTH BRIDGE PARAPET

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW

DESIGNED BY: AD 03/2024
DRAWN BY: LN 03/2024
PROJECT CHECK: AF 03/2024
PROJECT TERM CONTRACT NUMBER: P1131-03
SHEET TITLE: AMOR AVE WATER MAIN PROFILE
SHEET NUMBER: CU-407

REGISTRATION
HDR ENGINEERING, INC.
CERTIFICATE OF AUTHORIZATION NO. 246526610700
ABBIE DARVISH
NEW JERSEY Professional Engineer
License/Certificate # 246526763300

PROJECT
REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHE
BERGEN COUNTY, NEW JERSEY
EAST RIVER DRILLING
CHANNEL IMPROVEMENTS PROJECT

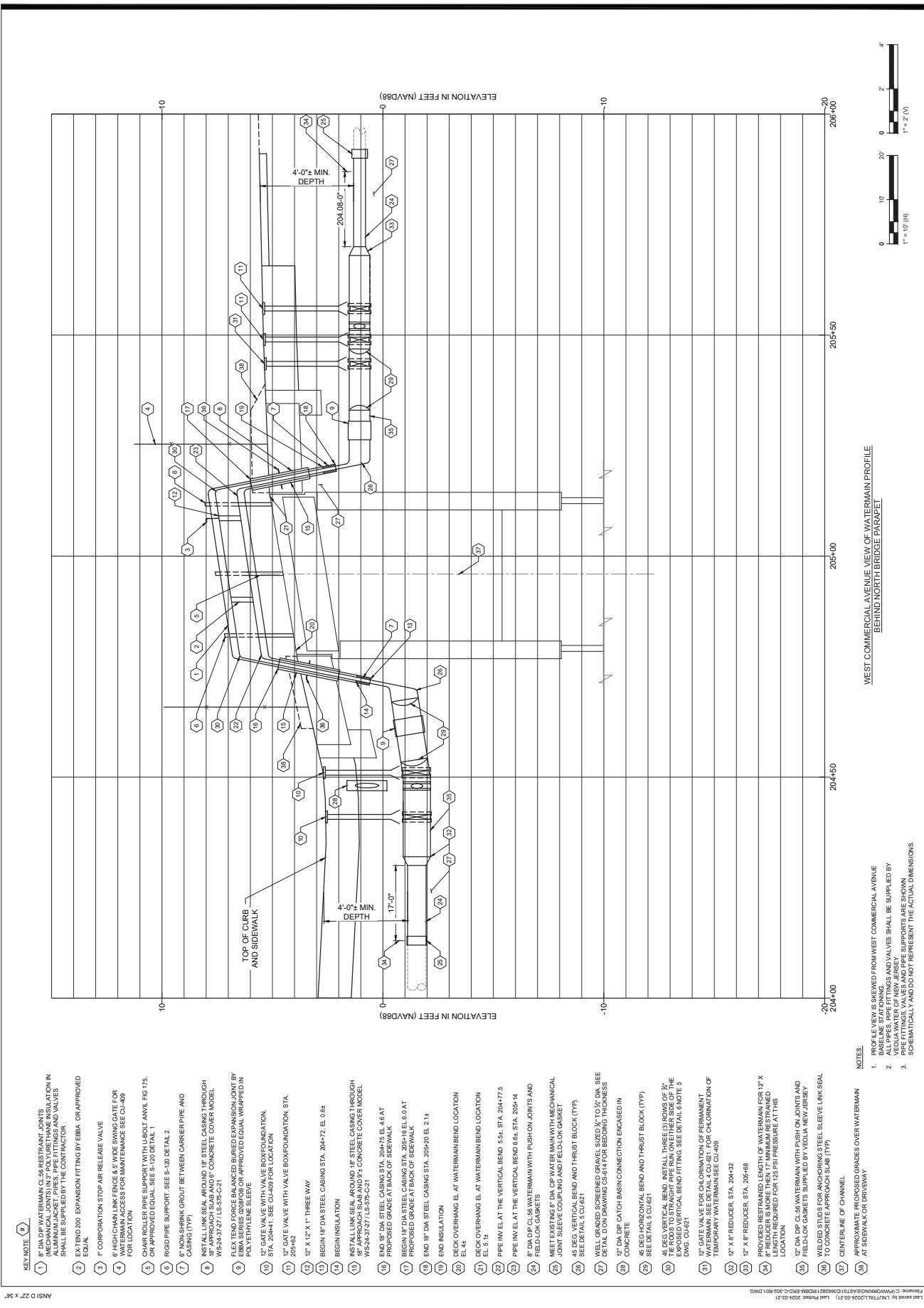
ISSUE/REVISION
TABLE WITH YYY-MM-DD, IR, DATE, DESCRIPTION

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AMSI D 227 X 34

FORMING: C:\PWC\WORK\EA3110123\1211\LEAD_PRR04\EBBA\EBBA-ED-C-302-101.DWG
DATE: 10/23/2024 10:11:11 AM
DRAWN BY: LN
CHECKED BY: AF



ANSI D 22.7 34

KEY NOTE 4

- 1 8" DIA DP WATERMAIN CL58 RESTRAINT JOINTS (MECHANICAL JOINTS) IN 3" POLYURETHANE INSULATION IN APPROACH SAG AND 8" CONCRETE COVER MODEL SHALL BE SUPPLIED BY THE CONTRACTOR.
- 2 EXTEND 200 EXPANSION FITTING BY EBBA, OR APPROVED EQUAL.
- 3 COPPERATION STOP AIR RELEASE VALVE
- 4 HIGH CHAIN LINK FENCE 6.5" WIDE SWING GATE FOR APPROACH SAG AND 8" CONCRETE COVER MODEL FOR LOCATION
- 5 CHAIR ROLLER PIPE SUPPORT WITH ULBOLT ANVIL FIG 17A, OR APPROVED EQUAL SEE S-120 DETAIL 1
- 6 RIGID PIPE SUPPORT SEE S-120 DETAIL 2
- 7 NON-SHANK GROUT BETWEEN CARRIER PIPE AND CASING (TYP)
- 8 NSF ALL LINK SEAL JOINTS, IF STEEL CASING THROUGH APPROACH SAG AND 8" CONCRETE COVER MODEL WS24-3737 / LS-575-C-21
- 9 FLEX TEND FORCE BALANCED BURLED EXPANSION JOINT BY EBBA SERIES 208F03 OR APPROVED EQUAL WRAPPED IN POLYURETHANE SILERTE
- 10 12" GATE VALVE WITH VALVE BOX FOUNDATION, STA. 204+41; SEE CS-459 FOR LOCATION
- 11 12" GATE VALVE WITH VALVE BOX FOUNDATION, STA. 204+46
- 12 12" X 12" X 1" THREE WAY
- 13 BEGIN 18" DIA STEEL CASING STA. 204+72, EL. 0+8
- 14 BEGIN INSULATION
- 15 NSF ALL LINK SEAL JOINTS, IF STEEL CASING THROUGH APPROACH SAG AND 8" CONCRETE COVER MODEL WS24-3737 / LS-575-C-21
- 16 END 18" DIA STEEL CASING STA. 204+75, EL. 4.6 AT PROPOSED GRADE AT BACK OF SIDEWALK
- 17 BEGIN 18" DIA STEEL CASING STA. 205+16 EL. 6.0 AT PROPOSED GRADE AT BACK OF SIDEWALK
- 18 END 18" DIA STEEL CASING STA. 205+20, EL. 2.14
- 19 END INSULATION
- 20 BOX OVERHANG EL. AT WATERMAIN BEND LOCATION EL. 5.14
- 21 BOX OVERHANG EL. AT WATERMAIN BEND LOCATION EL. 5.14
- 22 PIPE INV. EL. AT THE VERTICAL BEND 5.51, STA. 204+77.5
- 23 PIPE INV. EL. AT THE VERTICAL BEND 6.64, STA. 205+14
- 24 8" DIA DP CL58 WATERMAIN WITH PUSH ON JOINTS AND FIELD-LOCK GASKETS
- 25 MEET EXISTING 8" DIA CP WATER MAIN WITH MECHANICAL JOINT SLEEVE COUPLING AND FIELD-LOCK GASKET
- 26 45 DEG. VERTICAL BEND AND THRUST BLOCK (TYP). SEE DETAIL S.CU-621
- 27 WELL GRADED SCREENED GRAVEL SIZED 3/4" TO 1/2" DIA. SEE DETAIL DON DRAWING CS-514 FOR BEDDING THICKNESS
- 28 CONCRETE
- 29 45 DEG HORIZONTAL BEND AND THRUST BLOCK (TYP). SEE DETAIL S.CU-621
- 30 45 DEG VERTICAL BEND. INSTALL THREE (3) ROWS OF 3/4" FIELD-LOCK GASKETS. SEE DETAIL S.CU-621 FOR THE EXPOSED VERTICAL BEND FITTING. SEE DETAIL S.CU-621
- 31 12" GATE VALVE FOR CHLORINATION OF PERMANENT WATERMAIN. SEE DETAIL S.CU-621 FOR CHLORINATION OF TEMPORARY WATERMAIN. SEE CS-459
- 32 12" X 8" REDUCER, STA. 204+32
- 33 12" X 8" REDUCER, STA. 205+38
- 34 PROVIDED RESTRAINED LENGTH OF WATERMAIN FOR 12" X 8" REDUCER IS MORE THEN 17' MINIMUM RESTRAINED LENGTH REQUIRED FOR 125 PSI PRESSURE AT THIS LOCATION
- 35 12" DIA DP WATERMAIN WITH PUSH ON JOINTS AND FIELD-LOCK GASKETS. WRAPPED IN POLYURETHANE SILERTE TO CONCRETE APPROACH SLAB (TYP)
- 36 CENTERLINE OF CHANNEL
- 37 APPROXIMATE PROPOSED GRADES OVER WATERMAIN AT SIDEWALK OR DRIVEWAY

NOTES:

1. PROFILE VIEW IS SKINNED FROM WEST COMMERCIAL AVENUE BASELINE STATIONING.
2. EXPANSION FITTINGS AND VALVES SHALL BE SUPPLIED BY THE CONTRACTOR.
3. PIPE FITTINGS, VALVES AND PIPE SUPPORTS ARE SHOWN SCHEMATICALLY AND DO NOT REPRESENT THE ACTUAL DIMENSIONS.

WEST COMMERCIAL AVENUE VIEW OF WATERMAIN PROFILE BEHIND NORTH BRIDGE PARAPET

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW

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ISSUE/REVISION	DATE	DESCRIPTION

PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHIE
 BERGEN COUNTY, NEW JERSEY
**EAST RIVER DR CH
 CHANNEL IMPROVEMENTS PROJECT**

REGISTRATION
 HDR ENGINEERING, INC.
 CERTIFICATE OF AUTHORIZATION NO. 246526010700
ABBIE DARVISH

NEW JERSEY Professional Engineer
 License/Certificate # 246526010700

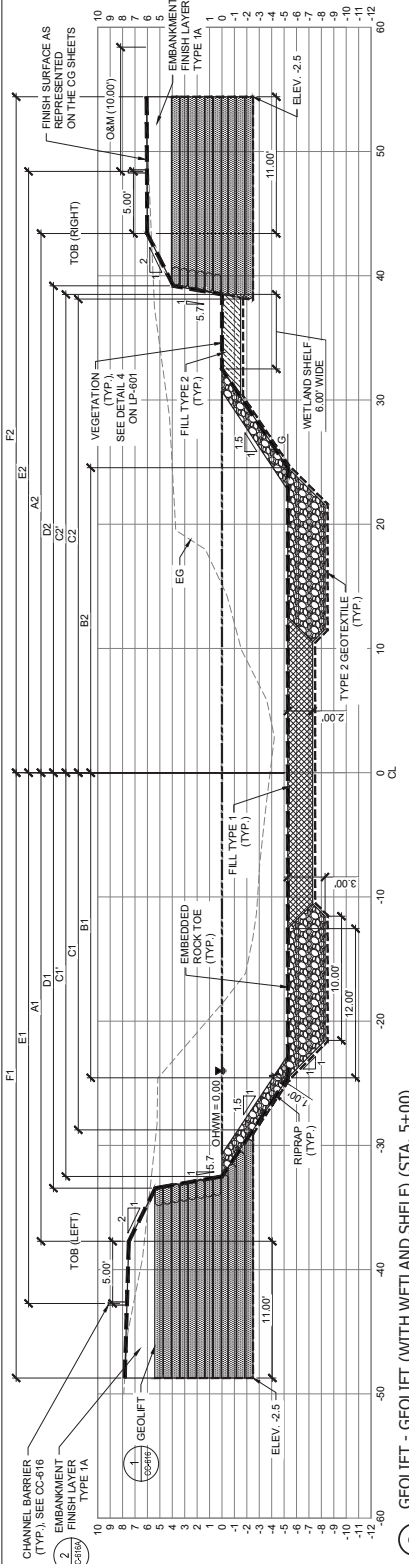
Designed By:	AD	03/2024
Drawn By:	LN	03/2024
Proj. Check:	AF	03/2024

PROJECT/TERM CONTRACT NUMBER
 P1131-03

SHEET TITLE
 WEST COMMERCIAL AVE
 WATERMAIN PROFILE

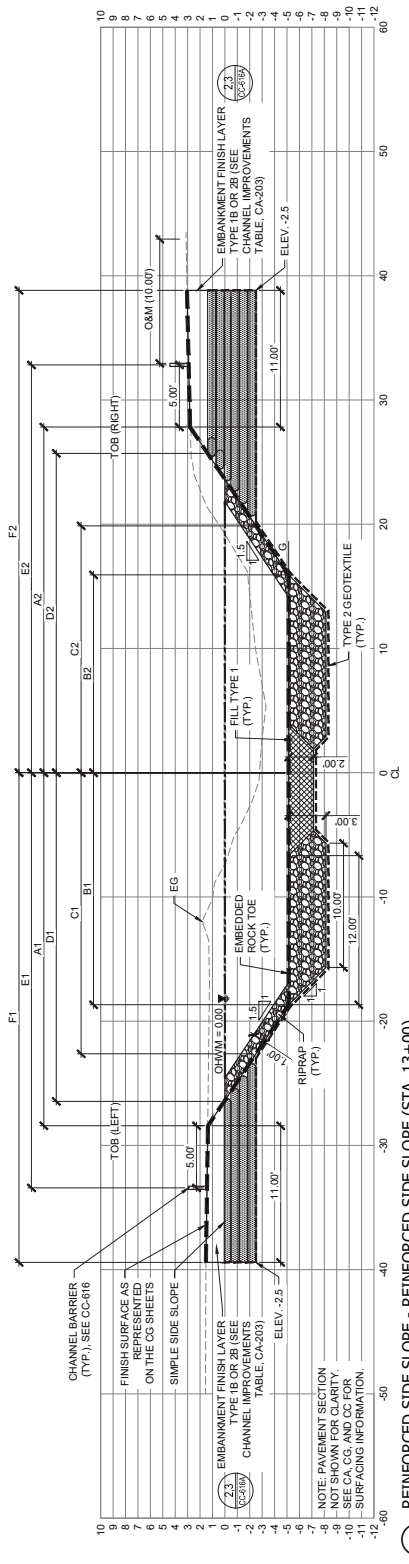
SHEET NUMBER
 CU-410

NOTE: SEE TABLES ON SHEETS CC-609 AND CT-607 FOR DIMENSIONS.



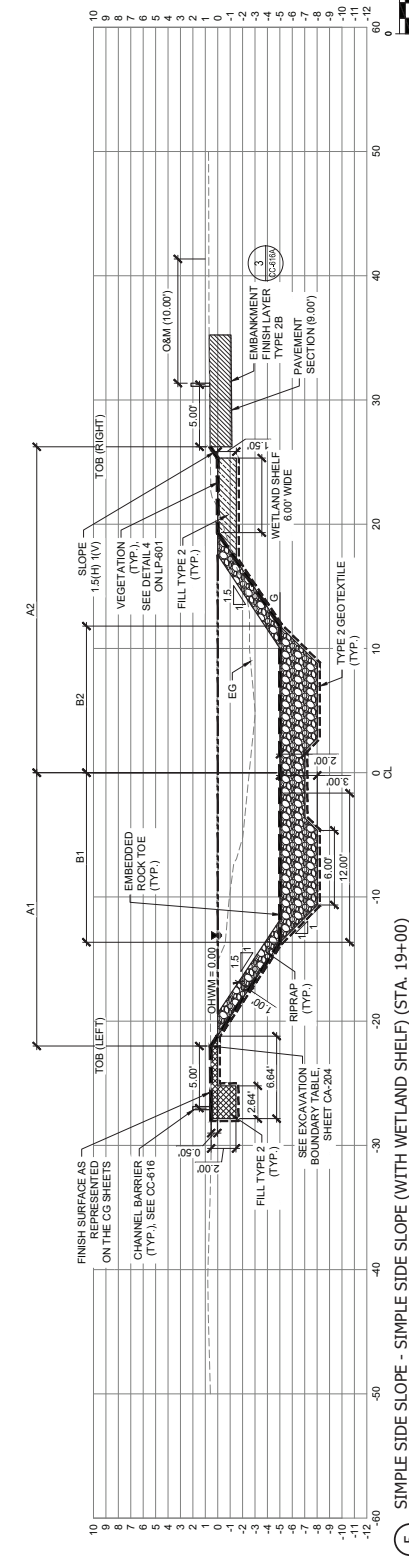
3 GEOLIFT (WITH WETLAND SHELF) (STA. 5+00)

NOTE: SEE TABLES ON SHEETS CC-609 AND CT-607 FOR DIMENSIONS.



4 REINFORCED SIDE SLOPE - REINFORCED SIDE SLOPE (STA. 13+00)

NOTE: SEE TABLES ON SHEETS CC-609 AND CT-607 FOR DIMENSIONS.



5 SIMPLE SIDE SLOPE - SIMPLE SIDE SLOPE (WITH WETLAND SHELF) (STA. 19+00)

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ISSUE/REVISION

IR	DATE	DESCRIPTION

PROJECT
REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHE
EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT

REGISTRATION
HDR ENGINEERING, INC.
CERTIFICATE OF AUTHORIZATION NO. 24628610703
MICHAEL VECCHIO

NEW JERSEY Professional Engineer
License# Certificate # 24628610703

Designed By: JCHM 09/2023
Drawn By: JW 09/2023
Proj. Check: KF 09/2023

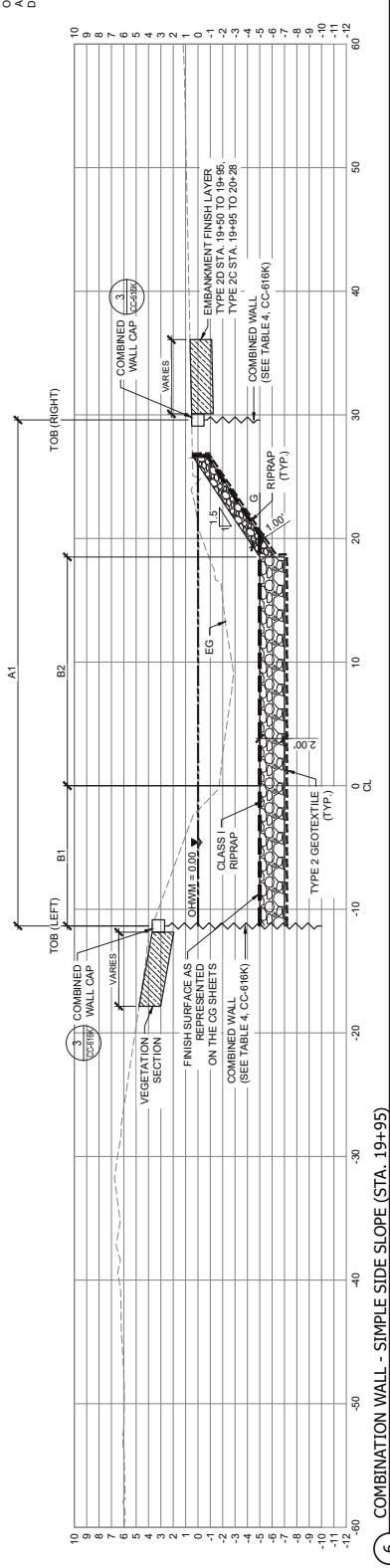
PROJECT/TERM CONTRACT NUMBER
P1131-03

SHEET TITLE
CHANNEL TYPICAL SECTIONS
2 OF 7

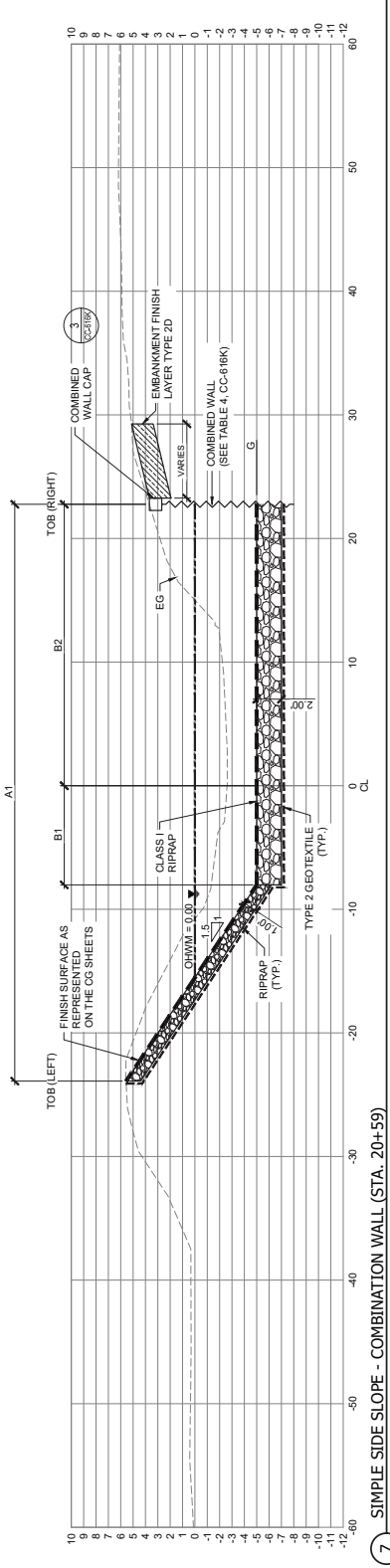
SHEET NUMBER
CT-602

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW

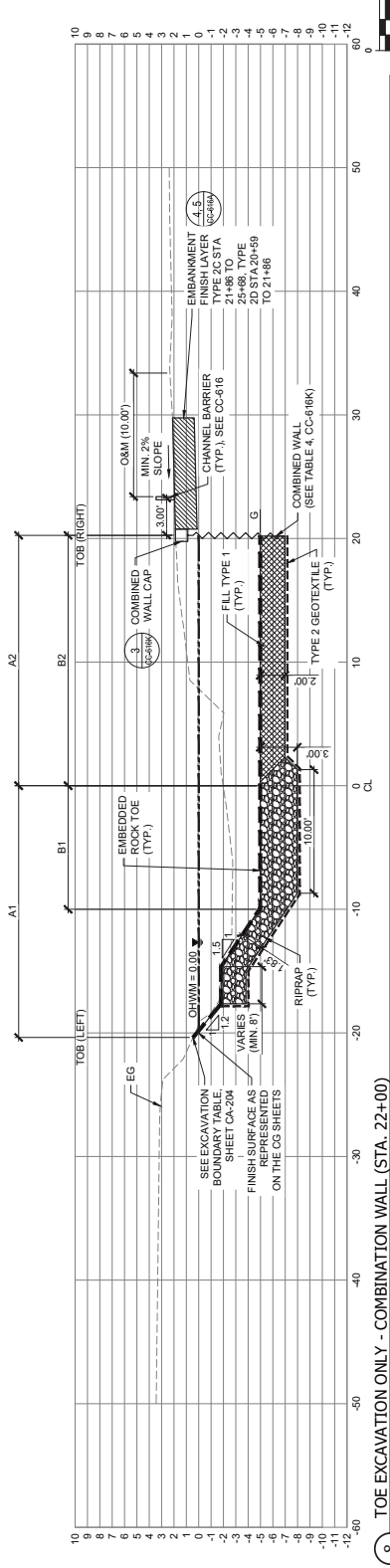
NOTE: SEE TABLES
A1, A2, B1, B2
AND CT-607 FOR
DIMENSIONS.



6 COMBINATION WALL - SIMPLE SIDE SLOPE (STA. 19+95)



7 SIMPLE SIDE SLOPE - COMBINATION WALL (STA. 20+59)



8 TOE EXCAVATION ONLY - COMBINATION WALL (STA. 22+00)



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ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT

REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHE
EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT

REGISTRATION

HDR ENGINEERING, INC.
CERTIFICATE OF AUTHORIZATION NO. 24628610703
MICHAEL VECCHIO

NEW JERSEY Professional Engineer
License/Certificate # 24628610703

Designed By:	JCR	03/2024
Drawn By:	LN	03/2024
Proj. Check:	WV	03/2024

PROJECT/TERM CONTRACT NUMBER
P1131-03

SHEET TITLE
CHANNEL TYPICAL

SECTIONS
3 OF 7

SHEET NUMBER
CT-603

SCALE
1" = 5'

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW

ANSI D 22 x 34

TABLE 1.0: SHEET REVISIONS, Sheet 1A-A

Table with columns: Issue No., Description, Date, and Revision. It lists various engineering changes and revisions to the drawing, including details for 'Sheet C-514 for Cumulative Wall Data' and 'Sheet C-514 for Embankment Wall Data'.



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ISSUE/REVISION table with columns: IR, DATE, DESCRIPTION

PROJECT
REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHIE
BERGEN COUNTY, NEW JERSEY
EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT

REGISTRATION
HDR ENGINEERING, INC.
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MICHAEL VECCHIO

NEW JERSEY Professional Engineer
License/Certificate # 24628610703

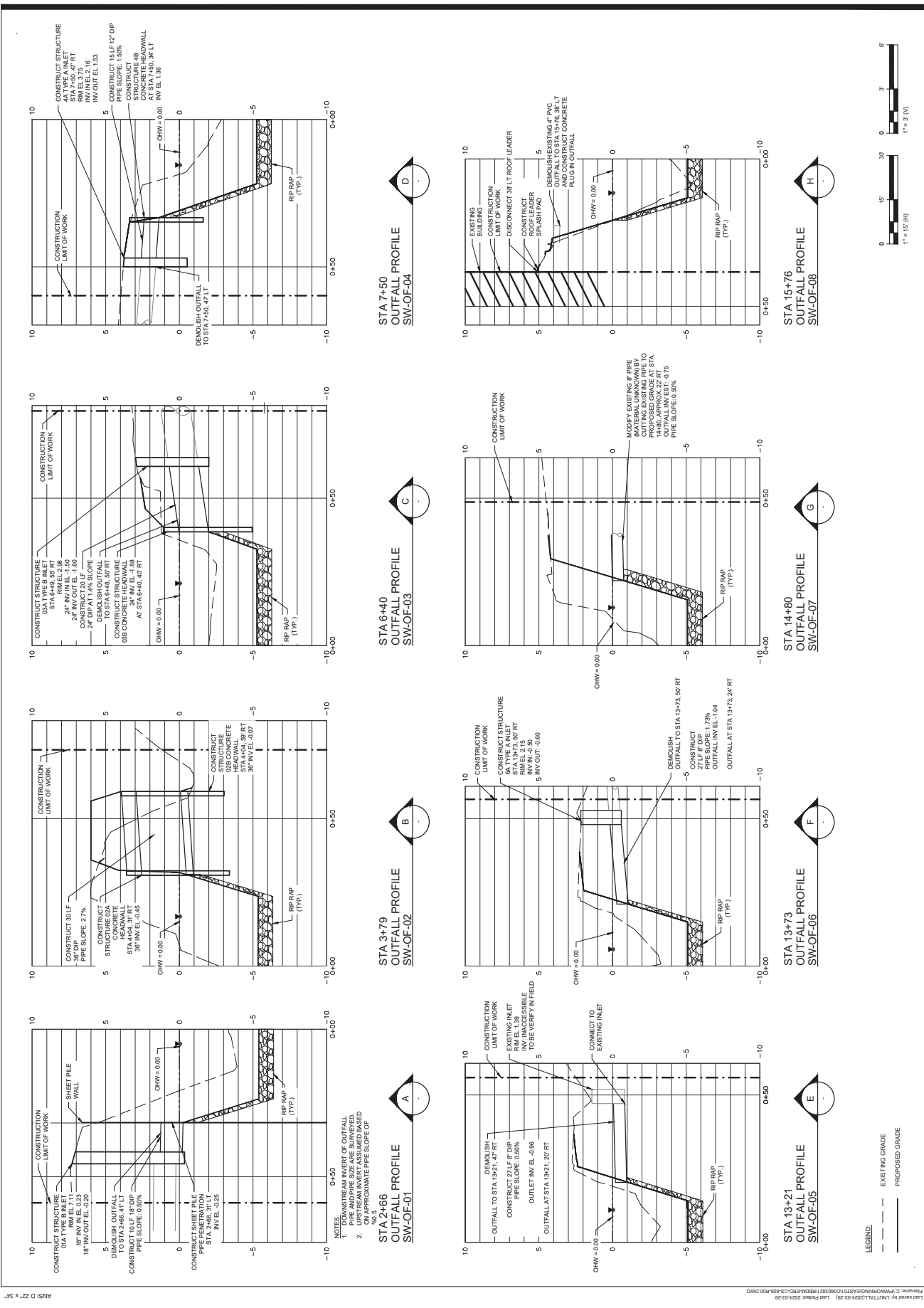
Designed By: JCR 03/02/24
Drawn By: LN 03/02/24
Proj. Check: MW 03/02/24

PROJECT/TERM CONTRACT NUMBER
P1131-403

SHEET TITLE
CHANNEL TYPICAL
SECTIONS
7 OF 7

SHEET NUMBER
CT-607

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW



FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW

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IR	DATE	DESCRIPTION

PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHIE
 BERGEN COUNTY, NEW JERSEY

**EAST RISER DITCH
 CHANNEL IMPROVEMENTS PROJECT**

REGISTRATION
 HDR ENGINEERING, INC.
 CERTIFICATE OF AUTHORIZATION NO. 34620610703
 FRANK VISINGARDI, JR.
 NEW JERSEY PROFESSIONAL ENGINEER
 LICENSE NO. 240E03969590

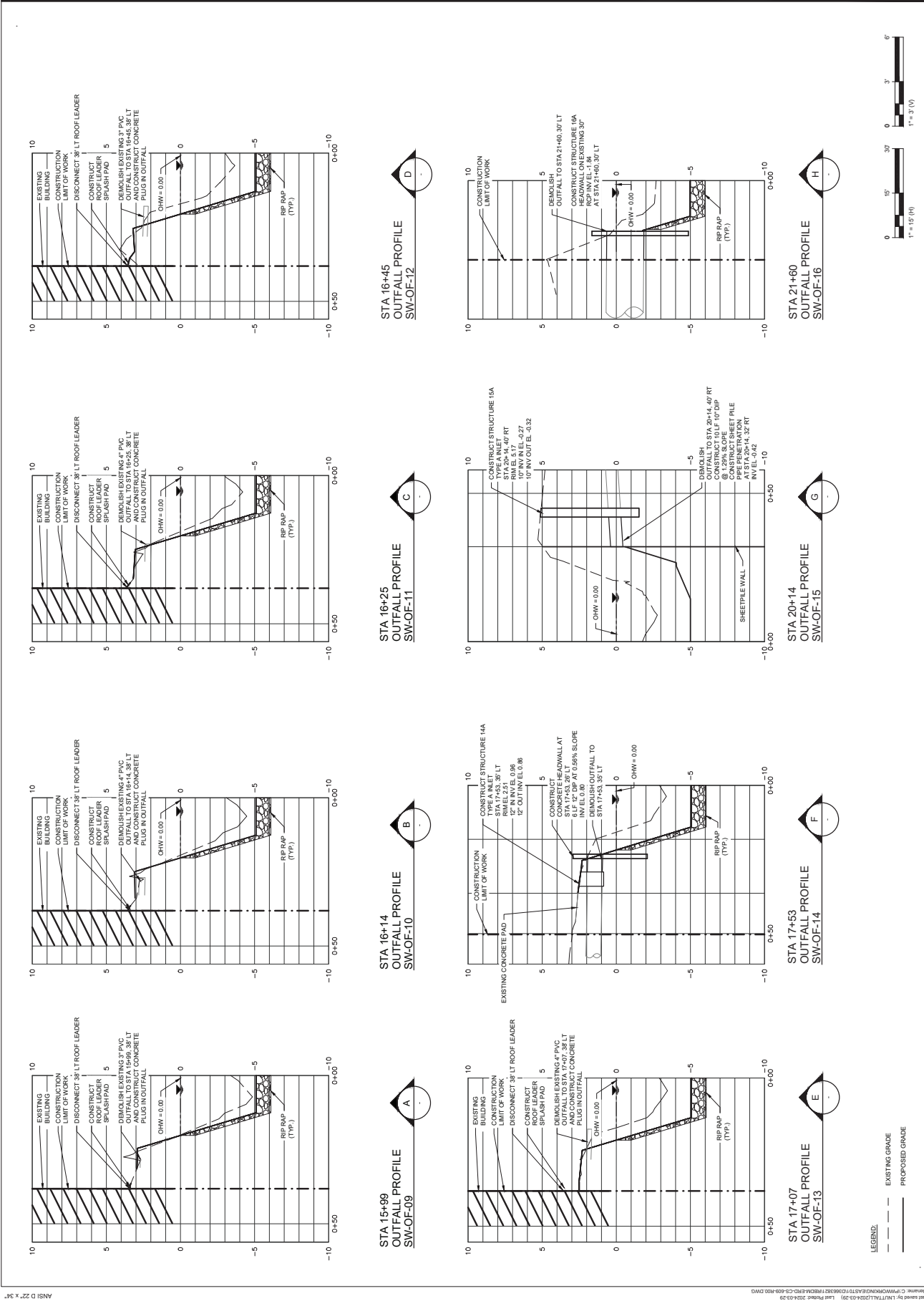
Designed By: JCR 03/2024
 Drawn By: AT 03/2024
 Project Check:

PROJECT TERM CONTRACT NUMBER
 P1131-03

SHEET TITLE
 STORMWATER PROFILES
 1 OF 3

SHEET NUMBER
 CS-609

Scale: 1" = 15' (H)
 Scale: 1" = 3' (V)



LEGEND:
 --- EXISTING GRADE
 --- PROPOSED GRADE



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IR	DATE	DESCRIPTION

PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHE
 BERGEN COUNTY, NEW JERSEY
**EAST RISER DITCH
 CHANNEL IMPROVEMENTS PROJECT**

REGISTRATION
 HDR ENGINEERING, INC.
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FRANK VISIARDI, JR.
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 LICENSE NO. 240633969590

Designed By: JCR 11/2021
 Drawn By: AT 11/2021
 Project Check:
 PROJECT TERM CONTRACT NUMBER
 P1131-03
 SHEET TITLE
 STORMWATER PROFILES
 2 OF 3
 SHEET NUMBER

CS-610

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW



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ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT

REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHE
BERGEN COUNTY, NEW JERSEY
EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT

REGISTRATION

HDR ENGINEERING, INC.
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NEW JERSEY PROFESSIONAL ENGINEER
LICENSE NO. 240623969590

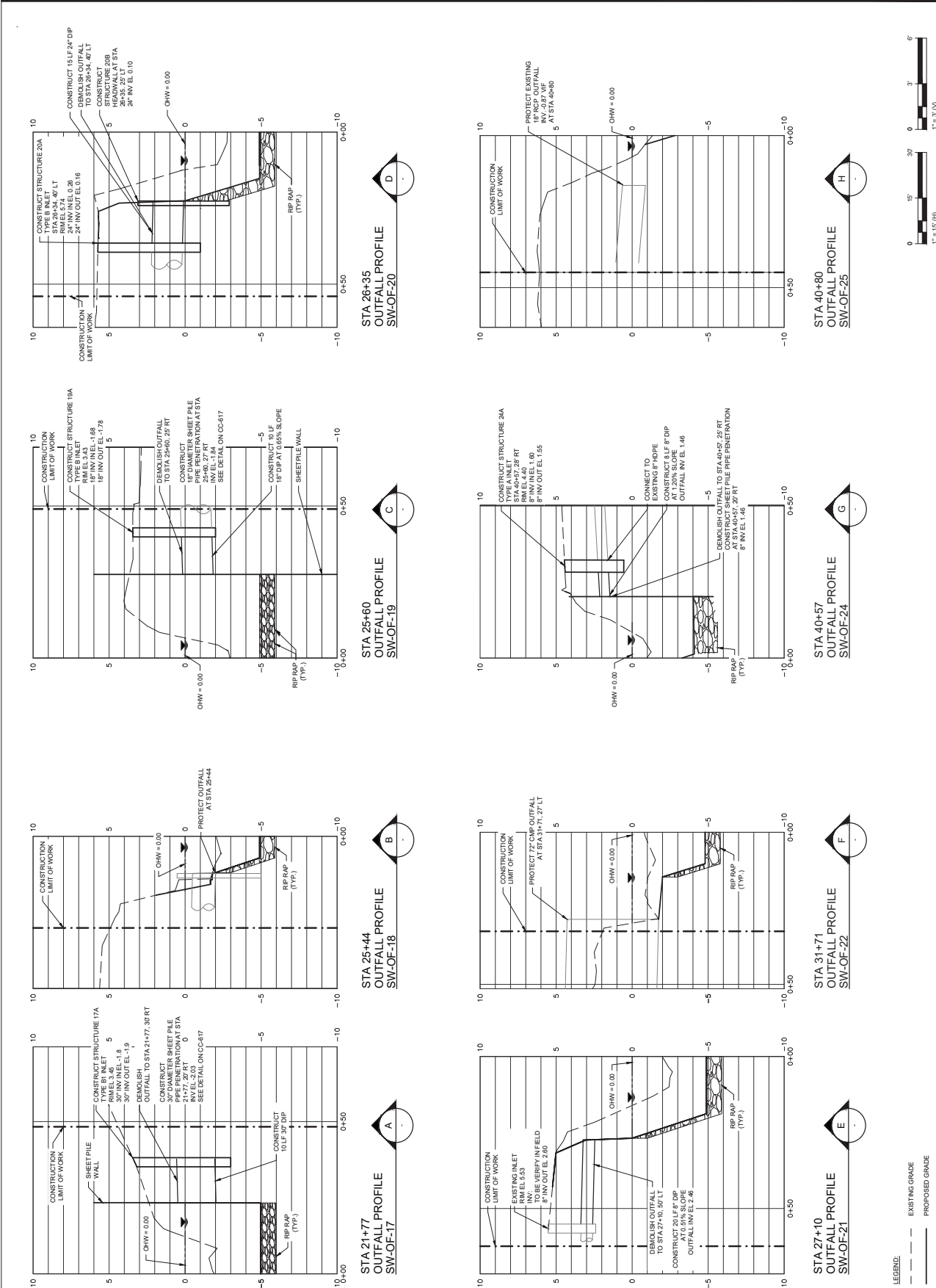
Designed By: JCR 11/2021
Drawn By: AT 11/2021
Proj. Check:

PROJECT TERM CONTRACT NUMBER
P1131-03
SHEET TITLE

STORMWATER PROFILES
3 OF 3

SHEET NUMBER

CS-611



LEGEND:
 --- EXISTING GRADE
 --- PROPOSED GRADE



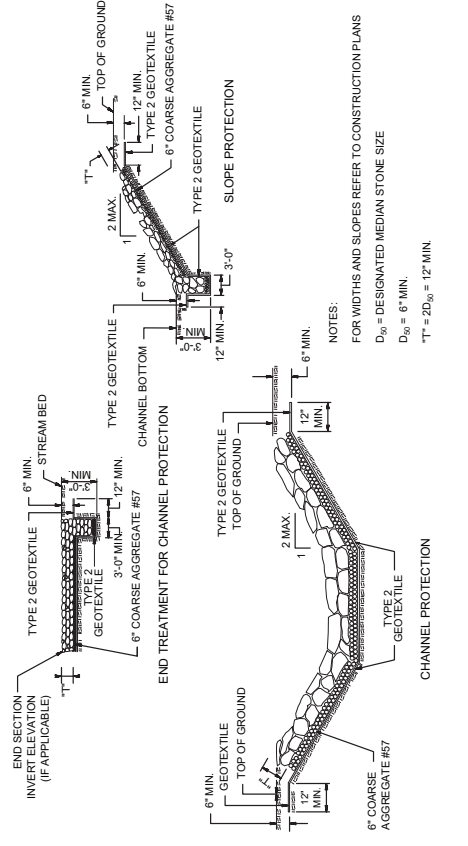
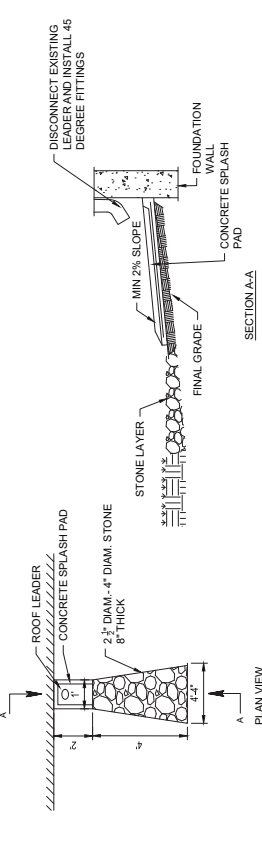
FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW

STORMWATER PIPE SCHEDULE

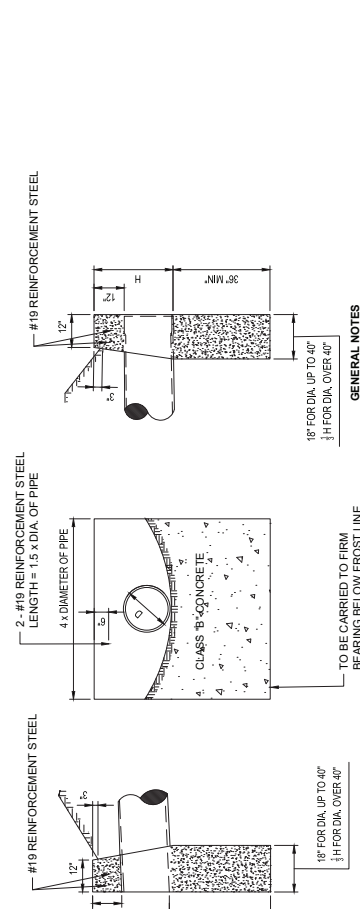
STATION	PIPE SIZE	LENGTH	START DATE	END DATE	STATUS	NOTES
1+00.00	18"	200'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
1+200.00	18"	200'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
1+400.00	18"	200'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
1+600.00	18"	200'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
1+800.00	18"	200'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
2+000.00	18"	200'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
2+200.00	18"	200'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
2+400.00	18"	200'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
2+600.00	18"	200'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
2+800.00	18"	200'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
3+000.00	18"	200'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
3+200.00	18"	200'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
3+400.00	18"	200'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
3+600.00	18"	200'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
3+800.00	18"	200'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
4+000.00	18"	200'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
4+200.00	18"	200'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
4+400.00	18"	200'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
4+600.00	18"	200'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
4+800.00	18"	200'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
5+000.00	18"	200'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
5+200.00	18"	200'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
5+400.00	18"	200'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
5+600.00	18"	200'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
5+800.00	18"	200'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.

STORMWATER STRUCTURE SCHEDULE

STATION	STRUCTURE TYPE	LENGTH	START DATE	END DATE	STATUS	NOTES
1+00.00	CONCRETE HEADWALL	10'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
1+200.00	CONCRETE HEADWALL	10'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
1+400.00	CONCRETE HEADWALL	10'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
1+600.00	CONCRETE HEADWALL	10'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
1+800.00	CONCRETE HEADWALL	10'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
2+000.00	CONCRETE HEADWALL	10'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
2+200.00	CONCRETE HEADWALL	10'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
2+400.00	CONCRETE HEADWALL	10'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
2+600.00	CONCRETE HEADWALL	10'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
2+800.00	CONCRETE HEADWALL	10'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
3+000.00	CONCRETE HEADWALL	10'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
3+200.00	CONCRETE HEADWALL	10'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
3+400.00	CONCRETE HEADWALL	10'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
3+600.00	CONCRETE HEADWALL	10'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
3+800.00	CONCRETE HEADWALL	10'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
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4+200.00	CONCRETE HEADWALL	10'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
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5+600.00	CONCRETE HEADWALL	10'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.
5+800.00	CONCRETE HEADWALL	10'	09/01/25	09/30/25	AS BUILT	CONTRACTOR TO VERIFY ALL DIMENSIONS AND MATERIALS.



A
OUTFALL PROTECTION DETAIL
NOT TO SCALE



- GENERAL NOTES**
- THE FINISHING OF CONCRETE HEADWALLS WILL NOT BE REQUIRED FOR HEADWALLS AT THE BOTTOM OF EMBANKMENTS IN RURAL AREAS
 - ALL EDGES TO BE CHAMFERED 1 INCH
 - FOR ARCH PIPE USE LENGTH OF HEADWALL AS 3H + SPAN. FOR MORE THAN ONE PIPE, SET THE TIME TO MINIMUM OF 10 FEET TO THE CENTERLINE OF THE HEADWALL. THE CENTERLINE OF THE CONTROLLING PIPE.
 - REINFORCEMENT STEEL IS IN METRIC UNITS.

B
CONCRETE HEADWALL DETAIL
NOT TO SCALE

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SUB-CONSULTANT
HDR ENGINEERING, INC.
50 TICE BOULEVARD
WOODCLIFF LAKE, NJ 07077
201.335.8000 tel www.hdrinc.com

ISSUE/REVISION

NO.	DATE	DESCRIPTION

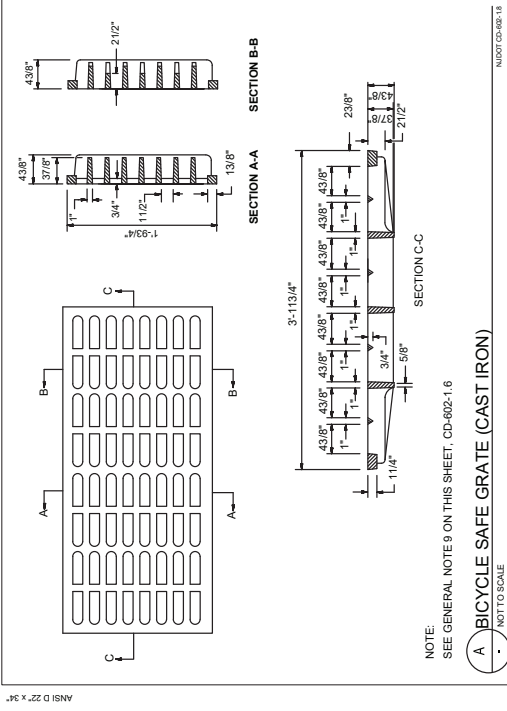
PROJECT
REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHIE
BERGEN COUNTY, NEW JERSEY
**EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT**

REGISTRATION
HDR ENGINEERING, INC.
CERTIFICATE OF AUTHORIZATION NO. 240628610700
FRANK VISINGARDI, JR.

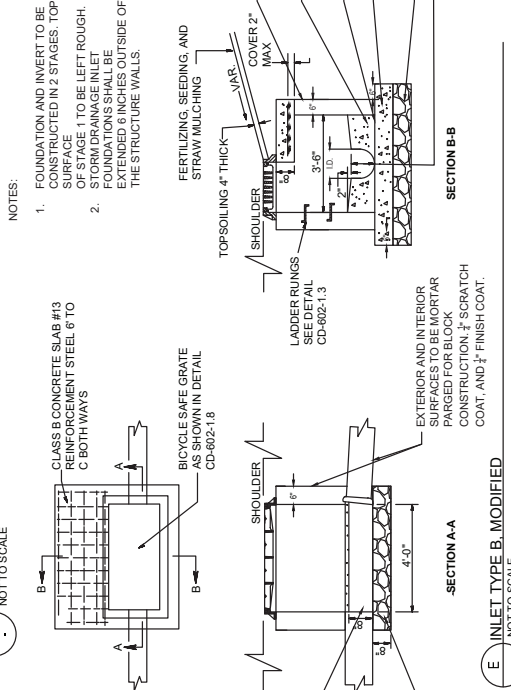
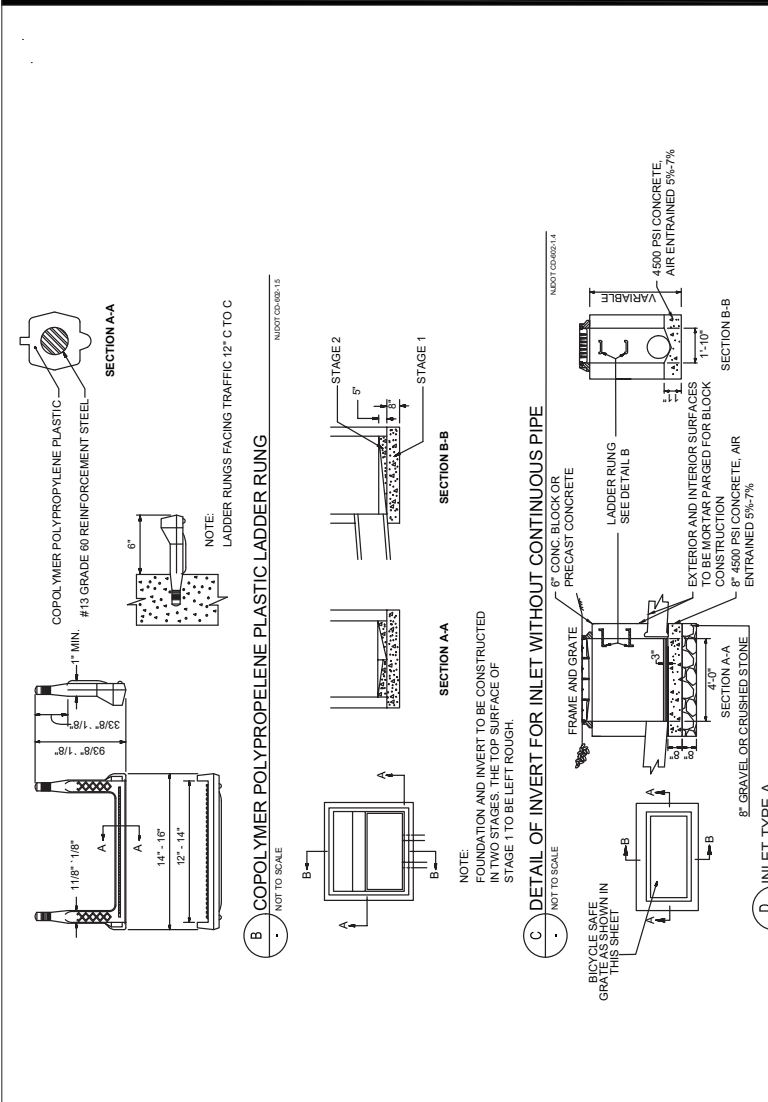
NEW JERSEY PROFESSIONAL ENGINEER
LICENSE NO. 240628610700

Designed By:	FV	03/2024
Drawn By:	AT	03/2024
Proj. Check:		

PROJECT/TERM CONTRACT NUMBER	P1131-03
SHEET TITLE	STORMWATER OUTFALL DETAILS - 1 OF 4
SHEET NUMBER	CS-612



- GENERAL NOTES:**
- INLETS MAY BE CONSTRUCTED OF BRICK, CONCRETE, CONCRETE BLOCK, OR PRECAST CONCRETE. WALLS TO BE 12 INCHES THICK IF BRICK AND 8 INCHES THICK IF CONCRETE. CONCRETE, CONCRETE BLOCK, OR PRECAST CONCRETE INLET FOUNDATIONS AND INVERTS TO BE CLASS B CONCRETE.
 - CORRELLING OF INLET WALLS WILL BE PERMITTED AT THE RATE OF 1/2 INCH PER 8 INCHES OF HEIGHT; MAXIMUM CORRELLS 6 INCHES PER WALL.
 - EXCEPT FOR INLETS TYPE A AND C, FOUNDATIONS AND INVERTS TO BE CONSTRUCTED IN TWO STAGES, AND THE BOTTOM OF THE FOOTINGS TO BE 8 INCHES BELOW THE OUTER WALL OF THE LOWEST PIPE IN THE INLET.
 - WHEN THE DEPTH OF AN INLET THAT IS NOT PRECAST EXCEEDS 10 FEET AS MEASURED FROM TOP OF GRADE TO INVERT WALLS BELOW A DEPTH OF 8 FEET TO BE 12 INCHES THICK AND THE DEPTH OF FOUNDATION NOT TO BE INCREASED.
 - PLACE INLET FOUNDATIONS WHICH ARE PRECAST ON A 6 INCH THICK BED OF COMPACTED COARSE AGGREGATE #57 EXTEND THE COARSE AGGREGATE 6 INCHES BEYOND THE HORIZONTAL LIMITS OF THE INLET FOUNDATION.
 - ADJUST CASTINGS FOR PRECAST INLETS TO GRADE WITH COURSES OF BRICK, AS REQUIRED, 12 INCHES MAXIMUM.
 - WHEN THE DEPTH OF A PRECAST INLET EXCEEDS 10 FEET AS MEASURED FROM TOP OF GRADE TO INVERT THE FOUNDATIONS TO BE INCREASED TO 12 INCHES, WHEN ROCK IS ENCOUNTERED, THE DEPTH OF THE FOUNDATION IS NOT TO BE INCREASED.
 - MINIMUM WALL REINFORCEMENT FOR PRECAST INLETS
TYPES A, B, C, E, D-1, D-2, AND B MODIFIED:
DEPTH BELOW TOP OF GRADE: WALL THK.
HORIZONTAL REINF. VERTICAL REINF.
#13 @ 10" C.C. 6"
#13 @ 8" C.C. 6"
#13 @ 10" C.C. 6"
#13 @ 8" C.C. 6"
#13 @ 10" C.C. 6"
#13 @ 8" C.C. 6"
REINFORCING SHOWN FOR PRECAST INLETS IS THE MINIMUM RESPONSIBILITY OF THE CONTRACTOR.
 - DEPTH BELOW TOP OF GRADE: ALTERNATE REINFORCEMENT
#3 @ 6" Wires spaced at 3" to run horizontal in all cases.
#3 @ 6" Wires spaced at 15" to 15" 0" to 10" 0"
#3 @ 6" Wires spaced at 15" to 200"
#3 @ 6" Wires spaced at 15" horizontal.
 - DIMENSIONS, WEIGHTS, AND OTHER CRITERIA SHOWN ON THESE DETAILS ARE FOR CLASS 35B CAST IRON.
 - REINFORCEMENT STEEL IS IN METRIC UNITS.



- NOTES:**
- FOUNDATION AND INVERT TO BE CONSTRUCTED IN 2 STAGES. TOP OF STAGE 1 TO BE LEFT ROUGH.
 - STORM DRAINAGE INLET FOUNDATIONS SHALL BE EXTENDED 6 INCHES OUTSIDE OF THE STRUCTURE WALLS.

AECOM
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SUB-CONSULTANT
HOR ENGINEERING, INC.
50 TICE BOULEVARD
WOODCLIFF LAKE, NJ 07077
201.335.8000 tel www.horinc.com

ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT
REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHE
BERGEN COUNTY, NEW JERSEY
**EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT**

REGISTRATION
HOR ENGINEERING, INC.
CERTIFICATE OF AUTHORIZATION NO. 24620610703
FRANK VISINGARDI, JR.
NEW JERSEY PROFESSIONAL ENGINEER
LICENSE NO. 242623969590

Designed By: PV 110021
Drawn By: AT 110021
Proj. Check: AT 110021

PROJECT TERM CONTRACT NUMBER
P1131-03

SHEET TITLE
STORMWATER OUTFALL
DETAILS - 2 OF 4

SHEET NUMBER
CS-613



AECOM TECHNICAL SERVICES, INC.
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WOODCLIFF LAKE, NJ 07077
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ISSUE/REVISION	NO.	DATE	DESCRIPTION

PROJECT
REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHE
BERGEN COUNTY, NEW JERSEY
**EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT**

REGISTRATION
HDR ENGINEERING, INC.
CERTIFICATE OF AUTHORIZATION NO. 24620610703
FRANK VISINGARDI, JR.

NEW JERSEY PROFESSIONAL ENGINEER
LICENSE NO. 240E03969590

Designed By: FV 11/2021
Drawn By: AT 11/2021
Proj. Check: _____

PROJECT TERM CONTRACT NUMBER
P1131-03

SHEET TITLE

STORMWATER OUTFALL
DETAILS - 4 OF 4

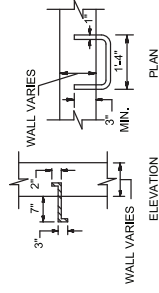
SHEET NUMBER

CS-615



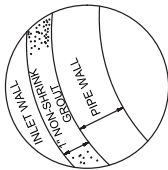
NOTE:
JOINT TO BE GROUTED WITH MORTAR
BY CONTRACTOR

B RISER JOINT FOR PRECAST INLETS
NOT TO SCALE



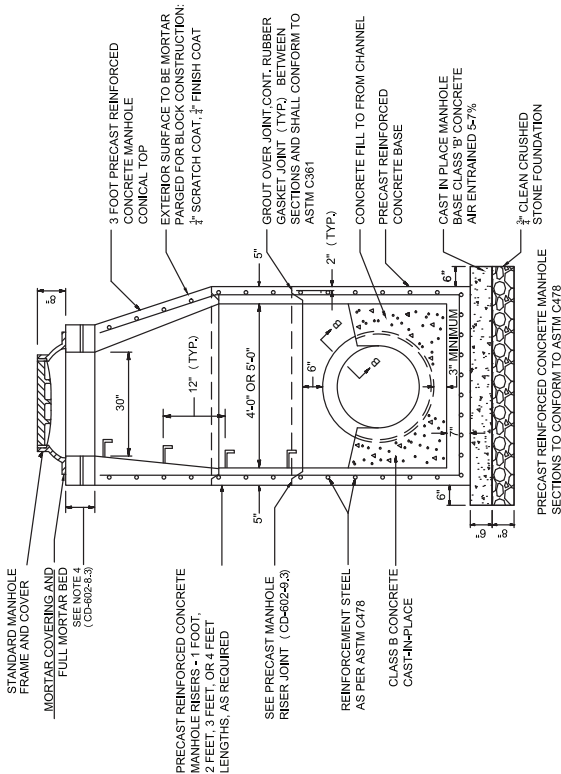
NOTE:
LADDER RUNGS FACING TRAFFIC 12" C TO C

C LADDER RUNG
NOT TO SCALE



GENERAL NOTE
1. DETAIL APPLIES TO MANHOLES AND INLETS.

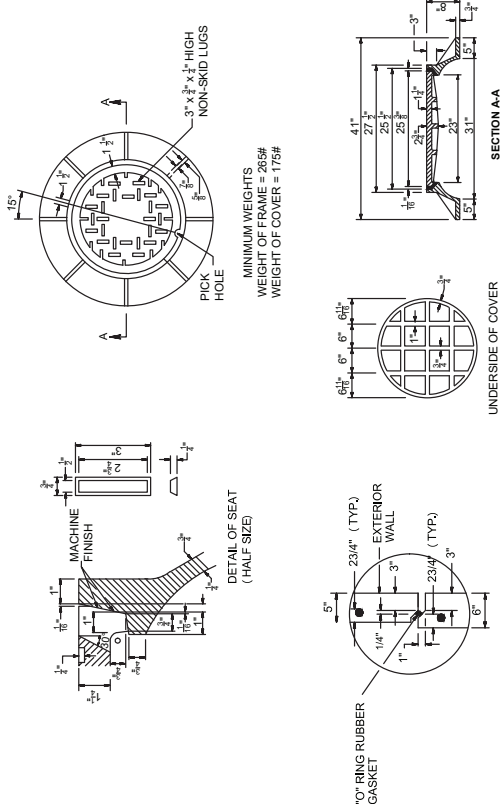
A CONNECTION OF PIPE AND INLET FOR PRECAST INLET
NOT TO SCALE



D MANHOLE PRECAST CONCRETE
NOT TO SCALE

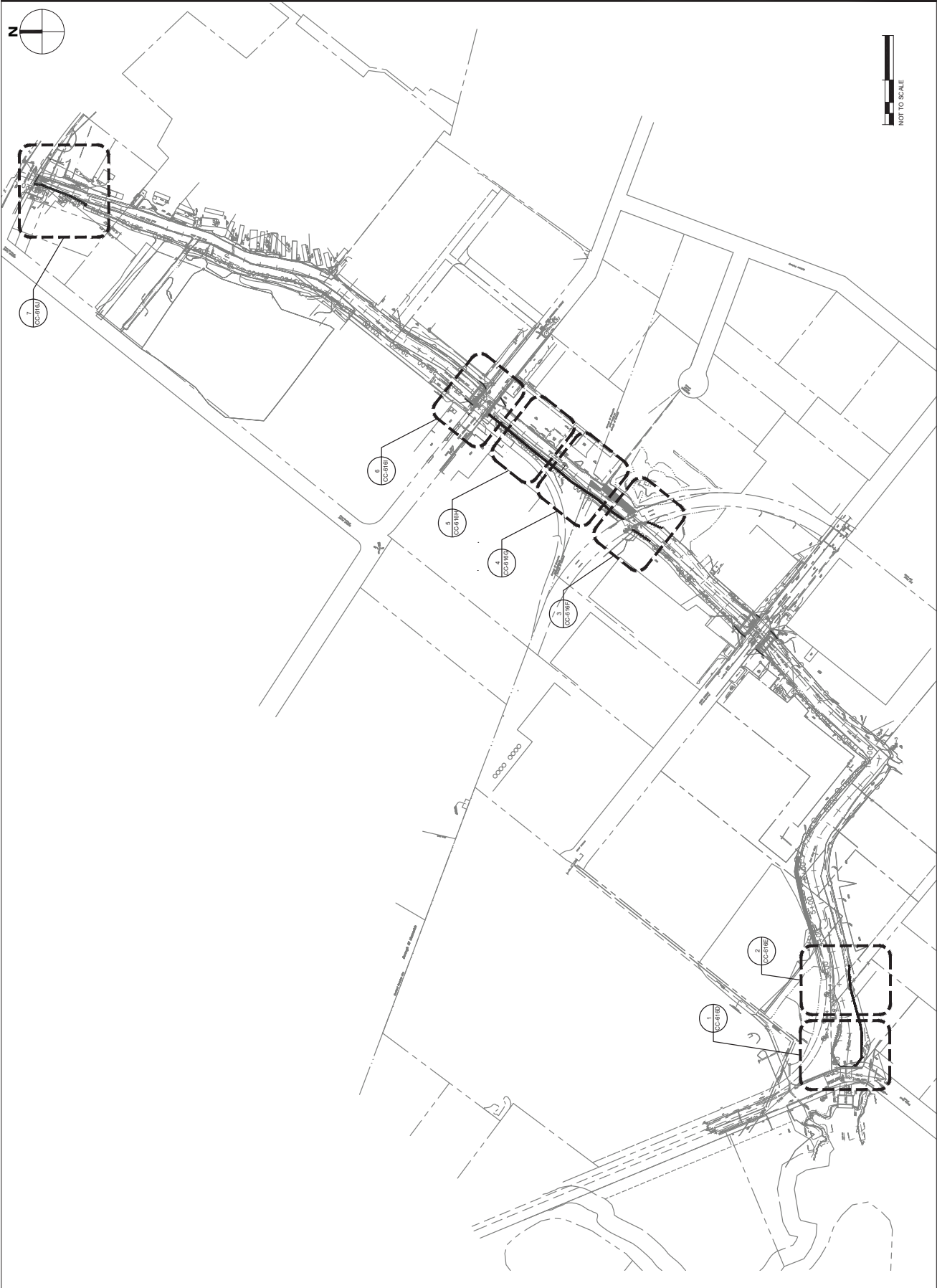
GENERAL NOTES:

1. ALL CASTINGS OF PRECAST MANHOLES TO GRADE WITH COURSES OF BRICK OR CONCRETE BLOCK, AS REQUIRED. 12 INCHES MAXIMUM.
2. WHEN THE DEPTH OF A MANHOLE EXCEEDS 10 FEET, AS MEASURED FROM TOP OF COVER TO INVERT, THE WALLS OF BRICK, CONCRETE OR CONCRETE BLOCK BELOW A DEPTH OF 8 FEET TO BE 12 INCHES THICK. THE OVERALL HORIZONTAL DIMENSIONS TO BE INCREASED 12 INCHES AND THE DEPTH OF THE FOUNDATION INCREASED TO 12 INCHES. WHEN ROCK IS ENCOUNTERED, THE HORIZONTAL DIMENSIONS AND DEPTH OF THE FOUNDATION IS NOT TO BE INCREASED. THE THICKNESS OF PRECAST CONCRETE MANHOLE WALLS DOES NOT HAVE TO BE INCREASED IF THE DEPTH OF THE MANHOLE EXCEEDS 10 FEET.
3. ADJUST CASTINGS OF PRECAST MANHOLES TO GRADE WITH COURSES OF BRICK OR CONCRETE BLOCK, AS REQUIRED. 12 INCHES MAXIMUM.
4. AS AN ALTERNATE TO THE STANDARD MANHOLE FRAME AND COVER, A 39 INCH DIAMETER FRAME WITH 4 INCH FLANGE MAY BE FURNISHED WITH ALL OTHER DIMENSIONS AND WEIGHTS REMAINING THE SAME.
5. BRICK OR CONCRETE BLOCKS TO BE CONSTRUCTED THE INVERT IN TWO STAGES.
6. AS AN ALTERNATIVE, COPOLYMER-POLYPROPYLENE PLASTIC LADDER RUNGS MAY BE FURNISHED IN PRECAST MANHOLES AND INLETS.



NOTE:
SEE GENERAL
NOTE 9, CD-602-16

E MANHOLE CASTING
NOT TO SCALE



AECOM
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 WOODCLIFF LAKE, NJ 07077
 201.335.8000 tel www.hdrinc.com

ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHE
 BERGEN COUNTY, NEW JERSEY
**EAST RISER DITCH
 CHANNEL IMPROVEMENTS PROJECT**

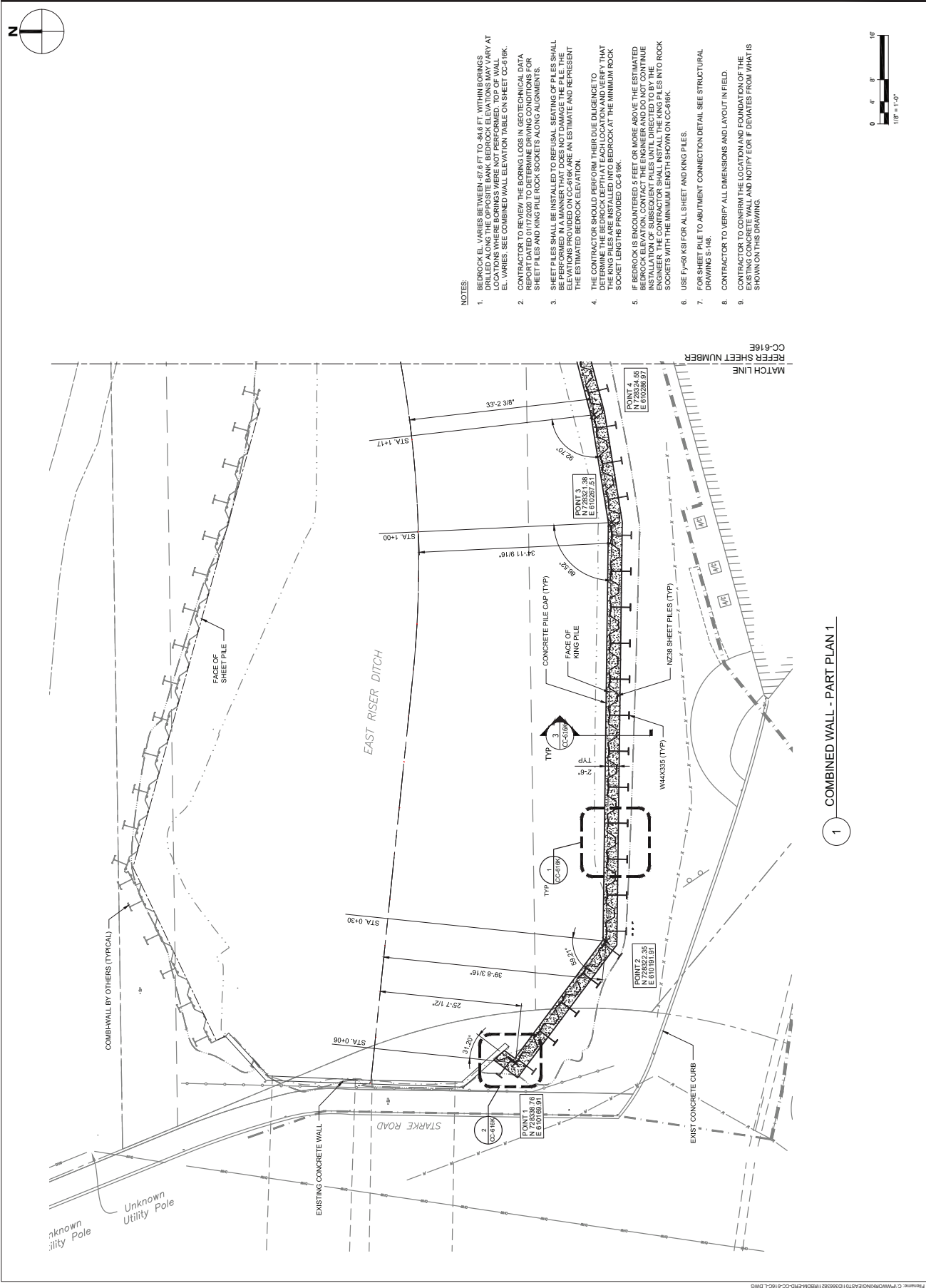
REGISTRATION
 HDR ENGINEERING, INC.
 CERTIFICATE OF AUTHORIZATION NO. 240628610700
JESSE R. JAECKEL
 NEW JERSEY PROFESSIONAL ENGINEER
 LICENSE NO. 24J0E05168200

Designed By: MP 04/2024
 Drawn By: AA 04/2024
 Proj. Check: JJ 04/2024
PROJECT/TERM CONTRACT NUMBER
 P1131-03
SHEET TITLE
 OVERALL
 COMBINED WALL PLAN
SHEET NUMBER
 CC-616C

OVERALL
 COMBINED WALL PLAN
 SHEET NUMBER
CC-616C

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW

ANSI D 27.3-34



AECOM
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SUB-CONSULTANT
 HDR ENGINEERING, INC.
 50 TICE BOULEVARD
 WOODCLIFF LAKE, NJ 07977
 201.335.9300 tel www.hdrinc.com

ISSUE/REVISION	NO.	DATE	DESCRIPTION

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EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT

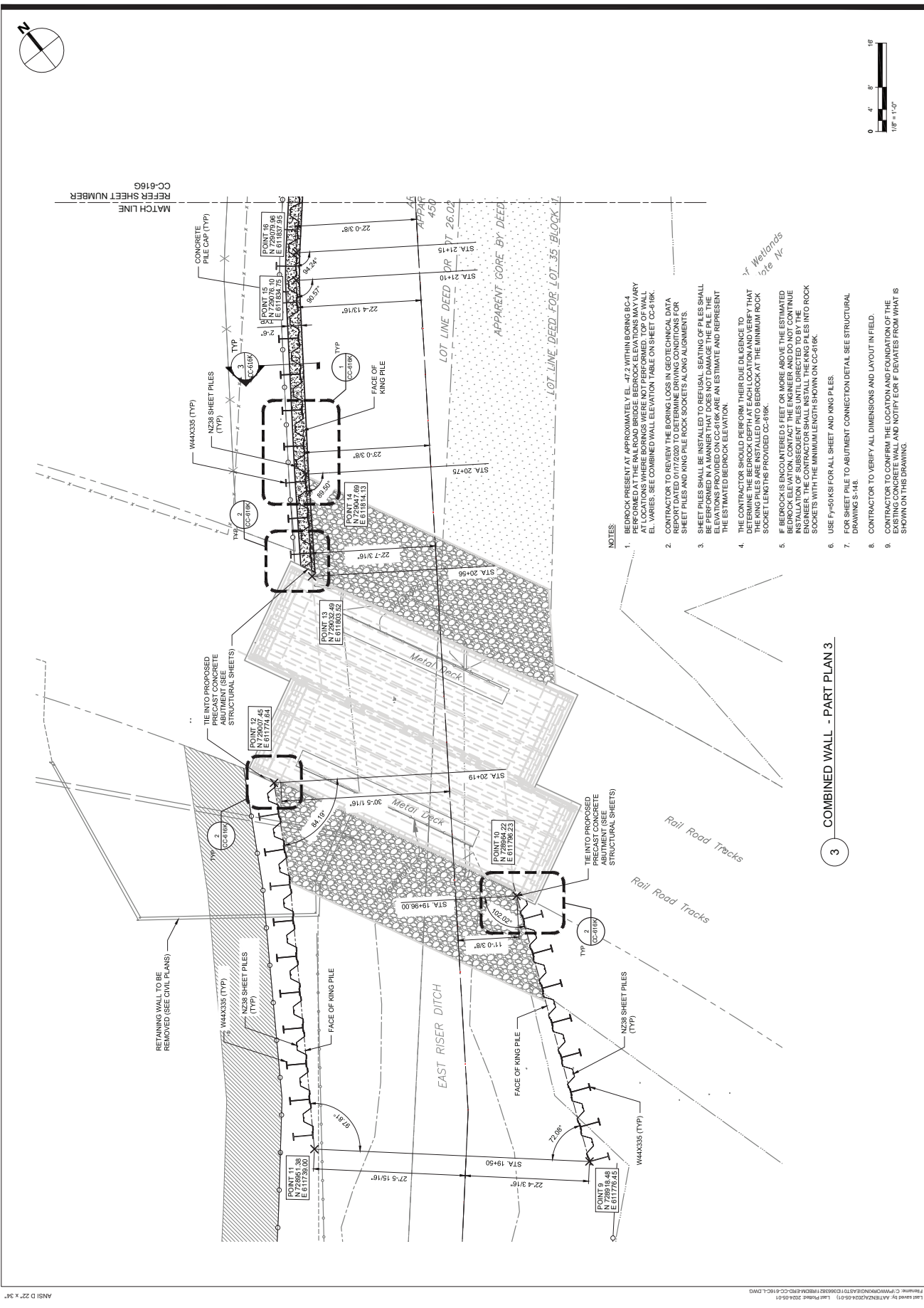
REGISTRATION
 HDR ENGINEERING, INC.
 CERTIFICATE OF AUTHORIZATION NO. 240628610703
JESSE R. JAECKEL
 NEW JERSEY PROFESSIONAL ENGINEER
 LICENSE NO. 2406285169200

Designed By:	MP	04/2024
Drawn By:	AA	04/2024
Proj. Check:	JJ	04/2024

PROJECT/TERM CONTRACT NUMBER
 P1131-03
 SHEET TITLE
 COMBINED WALL
 - PART PLAN 1
 SHEET NUMBER
 CC-616D

- NOTES:**
1. BEDROCK EL. VARIES BETWEEN 50.6 FT TO 56.4 FT WITHIN ORAINS. BEDROCK EL. VARIATION SHOULD BE DETERMINED AT ALL LOCATIONS WHERE BORINGS WERE NOT PERFORMED. TOP OF WALL EL. VARIES. SEE COMBINED WALL ELEVATION TABLE ON SHEET CC-616K.
 2. CONTRACTOR TO REVIEW THE BORING LOGS IN GEOTECHNICAL DATA REPORT DATED 01/17/2020 TO DETERMINE DRIVING CONDITIONS FOR SHEET PILES AND KING PILE ROCK SOCKETS ALONG ALIGNMENTS.
 3. SHEET PILES SHALL BE INSTALLED TO REFUSAL. SEATING OF PILES SHALL BE PERFORMED IN A MANNER THAT DOES NOT DAMAGE THE PILE. THE CONTRACTOR SHALL PROVIDE AN ESTIMATE AND REPRESENT THE ESTIMATED BEDROCK ELEVATION.
 4. THE CONTRACTOR SHOULD PERFORM THEIR DUE DILIGENCE TO DETERMINE THE LOCATION AND DEPTH OF BEDROCK. THE KING PILES ARE INSTALLED INTO BEDROCK AT THE MINIMUM ROCK SOCKET LENGTHS PROVIDED CC-616K.
 5. IF BEDROCK IS ENCOUNTERED 5 FEET OR MORE ABOVE THE ESTIMATED BEDROCK ELEVATION, CONTACT THE ENGINEER AND DO NOT CONTINUE INSTALLATION OF SUBSEQUENT PILES UNTIL DIRECTED TO BY THE ENGINEER. THE MINIMUM LENGTH SHOWN ON CC-616K.
 6. USE Fy=60 KSI FOR ALL SHEET AND KING PILES.
 7. FOR SHEET PILE TO ABUTMENT CONNECTION DETAIL SEE STRUCTURAL DRAWING S-148.
 8. CONTRACTOR TO VERIFY ALL DIMENSIONS AND LAYOUT IN FIELD.
 9. CONTRACTOR TO CONFIRM THE LOCATION AND FOUNDATION OF THE EXISTING CONCRETE WALL AND NOTIFY EOR IF DEVIATES FROM WHAT IS SHOWN ON THIS DRAWING.

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW



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**EAST RISER DITCH
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REGISTRATION
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 CERTIFICATE OF AUTHORIZATION NO. 24628610703
JESSE R. JAECKEL
 NEW JERSEY PROFESSIONAL ENGINEER
 LICENSE NO. 242625168200

Designed By: MP 04/2024
 Drawn By: AA 04/2024
 Proj. Check: JJ 04/2024

PROJECT/TERM CONTRACT NUMBER
 P1131-03

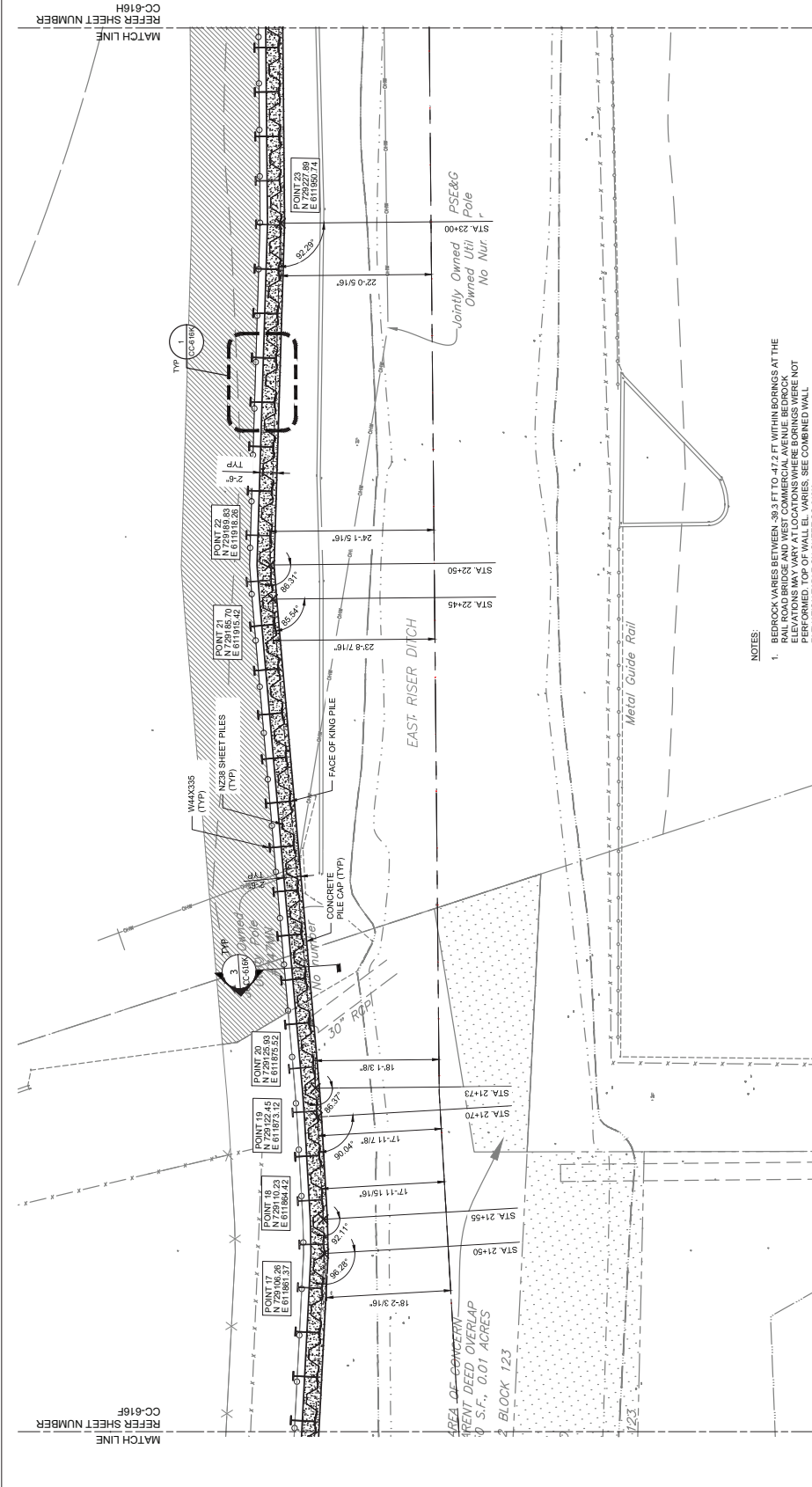
SHEET TITLE
**COMBINED WALL
 - PART PLAN 3**

SHEET NUMBER
CC-616G

- NOTES**
1. BEDROCK PRESENT AT APPROXIMATELY EL. -22' WITHIN BORING BC4-1. BEDROCK ELEVATION VARIATION AT LOCATIONS WHERE BORINGS WERE NOT PERFORMED, TOP OF WALL EL. VARIES. SEE COMBINED WALL ELEVATION TABLE ON SHEET CC-616K.
 2. CONTRACTOR TO REVIEW THE BORING LOGS IN GEOTECHNICAL DATA REPORT DATED 01/17/2020 TO DETERMINE DRIVING CONDITIONS FOR SHEET PILES AND KING PILE ROCK SOCKETS ALONG ALIGNMENTS.
 3. SHEET PILES SHALL BE INSTALLED TO REFUSAL. SEATING OF PILES SHALL BE PERFORMED IN A MANNER THAT DOES NOT DAMAGE THE PILE. THE CONTRACTOR SHALL REPORT ANY REFUSALS TO THE ENGINEER AND REPRESENT THE ESTIMATED BEDROCK ELEVATION.
 4. THE CONTRACTOR SHOULD PERFORM THEIR DUE DILIGENCE TO DETERMINE THE LOCATION AND ELEVATION OF THE MINIMUM ROCK SOCKET LENGTHS PROVIDED CC-616K.
 5. IF BEDROCK IS ENCOUNTERED 5 FEET OR MORE ABOVE THE ESTIMATED BEDROCK ELEVATION, CONTACT THE ENGINEER AND DO NOT CONTINUE INSTALLATION OF SUBSEQUENT PILES UNTIL DIRECTED TO BY THE ENGINEER. THE CONTRACTOR SHALL REPORT ANY REFUSALS INTO ROCK SOCKETS WITH THE MINIMUM LENGTH SHOWN ON CC-616K.
 6. USE Fy=60KSI FOR ALL SHEET AND KING PILES.
 7. FOR SHEET PILE TO ABUTMENT CONNECTION DETAIL SEE STRUCTURAL DRAWING S-18.
 8. CONTRACTOR TO VERIFY ALL DIMENSIONS AND LAYOUT IN FIELD.
 9. CONTRACTOR TO CONFIRM THE LOCATION AND ELEVATION OF THE EXISTING CONCRETE WALL, AND NOTIFY ENGINEER OF ANY DEVIATIONS FROM WHAT IS SHOWN ON THIS DRAWING.

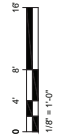
3 COMBINED WALL - PART PLAN 3

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW



- NOTES:
1. BEDROCK VARIES BETWEEN 3.5 FEET TO 27.7 FEET WITH SPICES AT THE BAL ROAD BRIDGE AND WEST COMMERCIAL AVENUE. BEDROCK ELEVATIONS MAY VARY AT LOCATIONS WHERE BORINGS WERE NOT PERFORMED. TOP OF WALLEL VARIES. SEE COMBINED WALL ELEVATION TABLE ON SHEET CC-616K.
 2. CONTRACTOR TO REVIEW THE BORING LOGS IN GEOTECHNICAL DATA FOR ANY UNUSUAL FINDINGS AND PROVIDE WRITTEN COMMENTS FOR SHEET PILES AND KING PILE ROCK SOCKET SPACING ALIGNMENTS.
 3. SHEET PILES SHALL BE INSTALLED TO REFUSAL. SEATING OF PILES SHALL BE VERIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE THE ELEVATIONS PROVIDED ON CC-616K ARE AN ESTIMATE AND REPRESENT THE ESTIMATED BEDROCK ELEVATION.
 4. THE CONTRACTOR SHOULD PERFORM THEIR DUE DILIGENCE TO DETERMINE THE BEDROCK DEPTH AT EACH LOCATION AND VERIFY THAT THE KING PILES ARE INSTALLED INTO BEDROCK AT THE MINIMUM ROCK SOCKET LENGTHS PROVIDED CC-616K.
 5. IF BEDROCK IS ENCOUNTERED 5 FEET OR MORE ABOVE THE ESTIMATED BEDROCK DEPTH, THE CONTRACTOR SHALL NOTIFY THE USACE AND THE ENGINEER. THE CONTRACTOR SHALL INSTALL THE KING PILES INTO ROCK SOCKETS WITH THE MINIMUM LENGTH SHOWN ON CC-616K.
 6. USE F_y = 60 KSI FOR ALL SHEET AND KING PILES.
 7. FOR SHEET PILE TO ABUTMENT CONNECTION DETAIL SEE STRUCTURAL DRAWING S-148.
 8. CONTRACTOR TO VERIFY ALL DIMENSIONS AND LAYOUT IN FIELD.
 9. CONTRACTOR TO CONFIRM THE LOCATION AND FOUNDATION OF THE EXISTING CONCRETE WALL AND NOTIFY EOR IF DEVIATES FROM WHAT IS SHOWN ON THIS DRAWING.

4 COMBINED WALL - PART PLAN 4



MATCH LINE
REFER SHEET NUMBER
CC-616F

MATCH LINE
REFER SHEET NUMBER
CC-616H

AECOM
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SUB-CONSULTANT
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50 TICE BOULEVARD
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ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT
REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHE
EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT

REGISTRATION
HDR ENGINEERING, INC.
CERTIFICATE OF AUTHORIZATION NO. 24062610703
JESSE R. JAECKEL

NEW JERSEY PROFESSIONAL ENGINEER
LICENSE NO. 24062610703

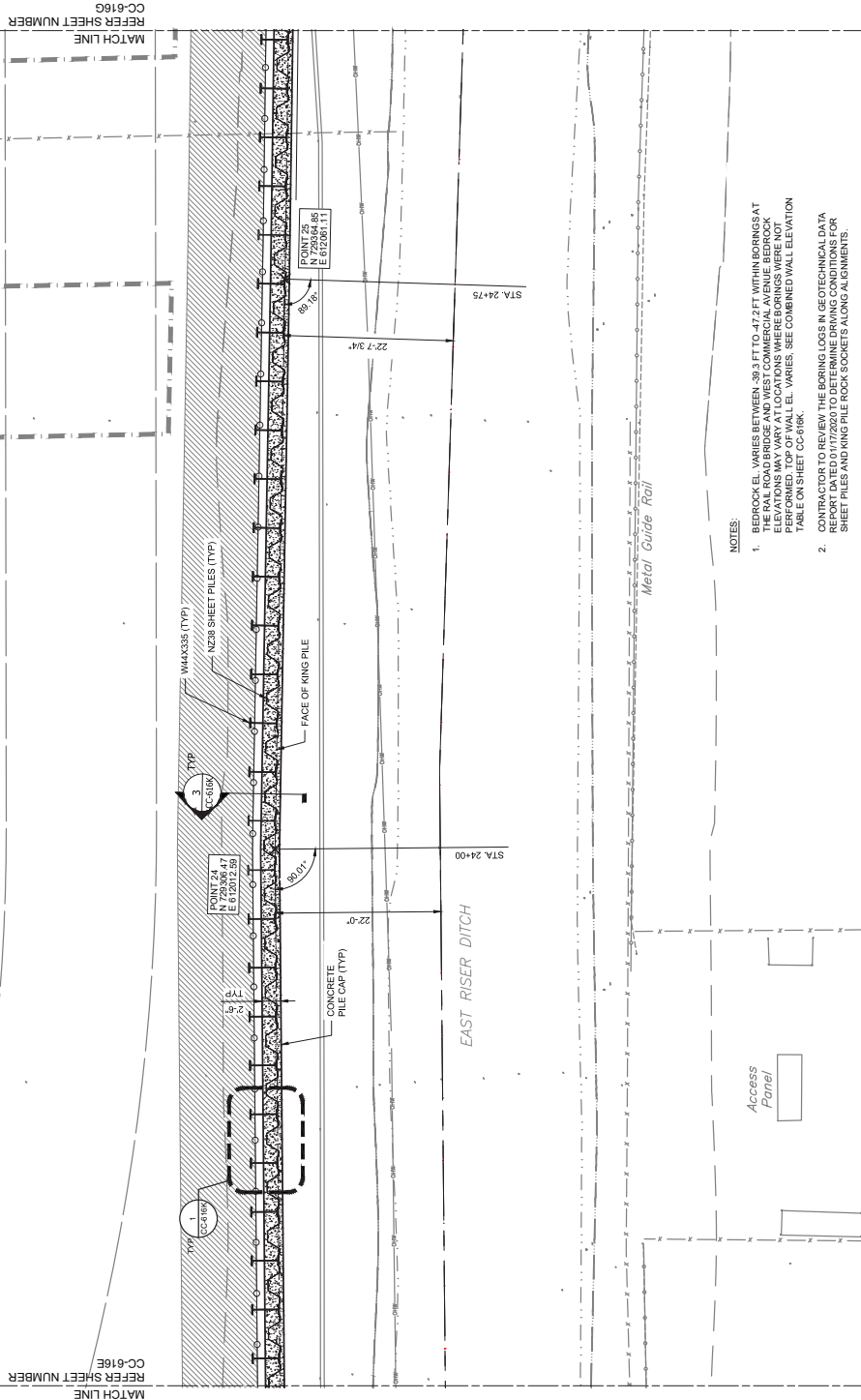
Designed By: MP 04/2024
Drawn By: AA 04/2024
Proj. Check: JJ 04/2024

PROJECT/TITLE CONTRACT NUMBER
P1131-03
SHEET TITLE

COMBINED WALL
- PART PLAN 4
SHEET NUMBER

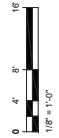
CC-616G

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW



5 COMBINED WALL - PART PLAN 5

- NOTES:**
- BEDROCK EL. VARIES BETWEEN -39.3 FT TO -47.2 FT WITHIN BORINGS AT THE RAIL ROAD BRIDGE AND WEST COMMERCIAL AVENUE. BEDROCK ELEVATION IS TO BE DETERMINED BY THE CONTRACTOR. TOP OF WALL EL. VARIES. SEE COMBINED WALL ELEVATION TABLE ON SHEET CC-616K.
 - CONTRACTOR TO REVIEW THE BORING LOGS IN GEOTECHNICAL DATA REPORT DATED 01/17/2020 TO DETERMINE DRIVING CONDITIONS FOR SHEET PILES AND KING PILE ROCK SOCKETS ALONG ALIGNMENTS.
 - SHEET PILES SHALL BE INSTALLED TO REFUSAL. SEATING OF PILES SHALL BE PERFORMED IN A MANNER THAT DOES NOT DAMAGE THE PILE. THE CONTRACTOR SHALL PROVIDE A BENTHOS AREA ESTIMATE AND REPRESENT THE ESTIMATED BEDROCK ELEVATION.
 - THE CONTRACTOR SHOULD PERFORM THEIR DUE DILIGENCE TO DETERMINE THE LOCATION AND ELEVATION OF THE EXISTING KING PILES TO BE INSTALLED INTO BEDROCK AT THE MINIMUM ROCK SOCKET LENGTHS PROVIDED CC-616K.
 - IF BEDROCK IS ENCOUNTERED 5 FEET OR MORE ABOVE THE ESTIMATED BEDROCK ELEVATION, CONTACT THE ENGINEER AND DO NOT CONTINUE INSTALLATION OF SUBSEQUENT PILES UNTIL DIRECTED TO BY THE ENGINEER. THE MINIMUM LENGTH OF KING PILES INTO ROCK SHALL BE THE MINIMUM LENGTH SHOWN ON CC-616K.
 - USE F_y = 50 KSI FOR ALL SHEET AND KING PILES.
 - FOR SHEET PILE TO ABUTMENT CONNECTION DETAIL SEE STRUCTURAL DRAWING S-148.
 - CONTRACTOR TO VERIFY ALL DIMENSIONS AND LAYOUT IN FIELD.
 - CONTRACTOR TO CONFIRM THE LOCATION AND ELEVATION OF THE EXISTING CONCRETE WALL AND NOTIFY EOR IF DEVIATES FROM WHAT IS SHOWN ON THIS DRAWING.



AECOM
 AECOM TECHNICAL SERVICES, INC.
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SUB-CONSULTANT
 HDR ENGINEERING, INC.
 50 TICE BOULEVARD
 WOODCLIFF LAKE, NJ 07077
 201.335.8000 tel www.hdrinc.com

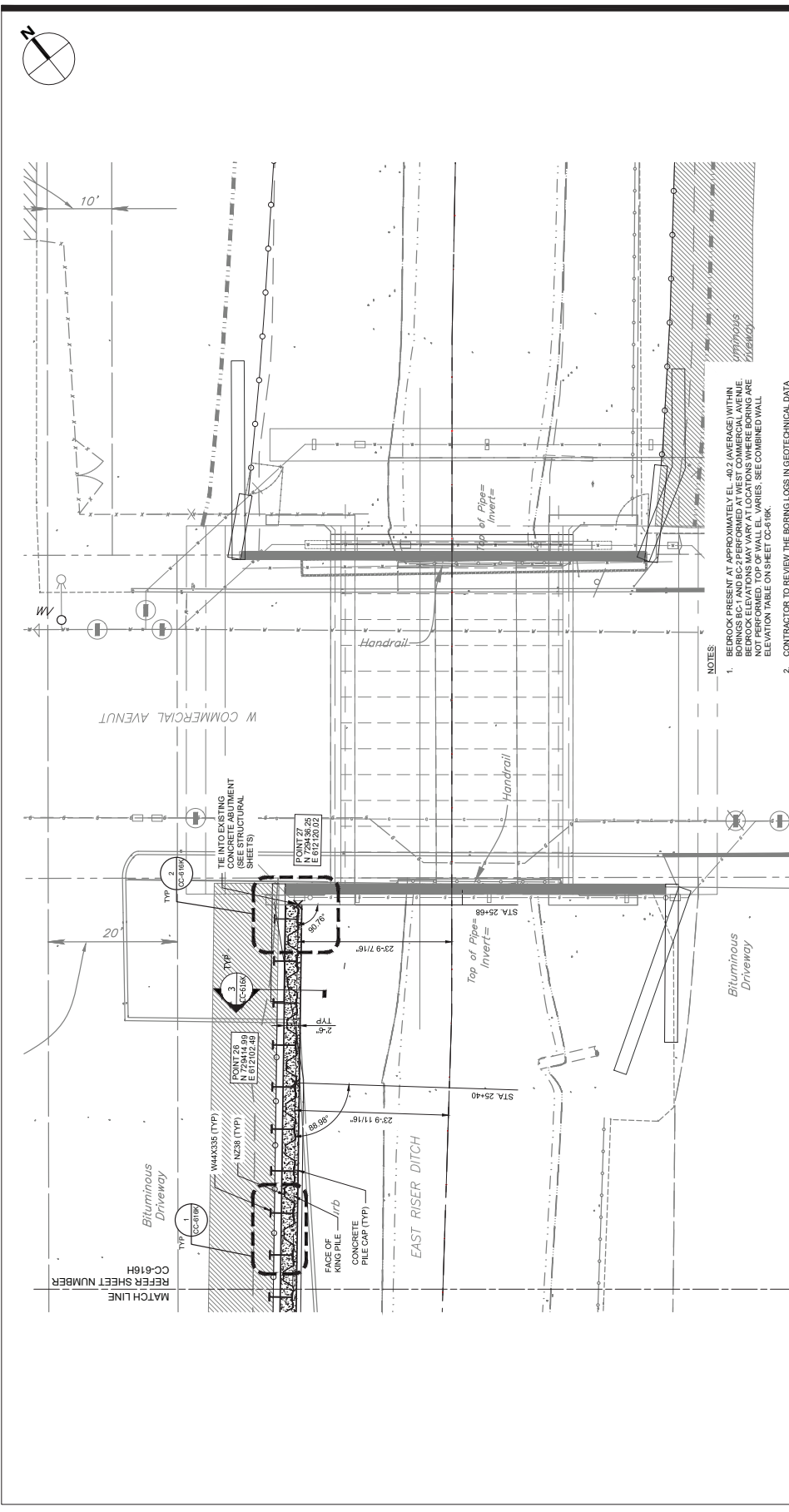
ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHE
 BERGEN COUNTY, NEW JERSEY
**EAST RISER DITCH
 CHANNEL IMPROVEMENTS PROJECT**

REGISTRATION
 HDR ENGINEERING, INC.
 CERTIFICATE OF AUTHORIZATION NO. 24628610700
JESSE R. JAECKEL
 NEW JERSEY PROFESSIONAL ENGINEER
 LICENSE NO. 240E05168200

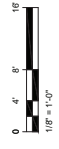
Designed By:	MP	04/2024
Drawn By:	AA	04/2024
Proj. Check:	JJ	04/2024
PROJECT/TERM CONTRACT NUMBER	P1131-03	
SHEET TITLE	COMBINED WALL - PART PLAN 5	
SHEET NUMBER	CC-616H	



NOTES:

1. BEDROCK PRESENT AT APPROXIMATELY EL. -40.2 (AVERAGE) WITHIN BORINGS B-C1 AND B-C2 PERFORMED AT WEST COMMERCIAL AVENUE. BEDROCK ELEVATIONS MAY VARY AT LOCATIONS WHERE BORINGS ARE NOT SHOWN. SEE ELEVATION TABLE ON SHEET CC-618K.
2. CONTRACTOR TO REVIEW THE BORING LOGS IN GEOTECHNICAL DATA REPORT TO DETERMINE THE STRIKE AND DIP OF BEDROCK. VERIFY THE LOCATION AND DEPTH OF BEDROCK AT THE MINIMUM ROCK SOCKET LENGTHS PROVIDED ON SHEET CC-618K.
3. SHEET PILES SHALL BE INSTALLED TO REFUSAL. SEATING OF PILES SHALL BE PERFORMED IN A MANNER THAT DOES NOT DAMAGE THE PILE. THE ELEVATIONS PROVIDED ON CC-618K ARE AN ESTIMATE AND REPRESENT THE ESTIMATED BEDROCK ELEVATION.
4. THE CONTRACTOR SHOULD PERFORM THEIR DUE DILIGENCE TO DETERMINE THE BEDROCK DEPTH AT EACH LOCATION AND VERIFY THAT THE MINIMUM BEDROCK DEPTH AT THE MINIMUM ROCK SOCKET LENGTHS PROVIDED ON SHEET CC-618K.
5. IF BORINGS DISCLOSED A FEET OR MORE ABOVE THE ESTIMATED BEDROCK ELEVATION, CONTACT THE ENGINEER AND DO NOT CONTINUE INSTALLATION OF SUBSEQUENT PILES UNTIL DIRECTED TO BY THE ENGINEER. THE CONTRACTOR SHALL INSTALL THE KING PILES INTO ROCK SOCKETS WITH THE MINIMUM LENGTH SHOWN ON CC-618K.
6. USE F_y = 50 KSI FOR ALL SHEET PILING AND KING PILES.
7. FOR SHEET PILE TO ABUTMENT CONNECTION DETAIL, SEE STRUCTURAL DRAWING S-148.
8. CONTRACTOR TO VERIFY ALL DIMENSIONS AND LAYOUT IN FIELD.
9. CONTRACTOR TO CONFIRM THE LOCATION AND FOUNDATION OF THE EXISTING CONCRETE WALL AND NOTIFY EOR IF DEVIATES FROM WHAT IS SHOWN ON THIS DRAWING.

6 COMBINED WALL - PART PLAN 6



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 HDR ENGINEERING, INC.
 50 TICE BOULEVARD
 WOODCLIFF LAKE, NJ 07077
 201.335.8000 ext. www.hdrinc.com

ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHIE
 BOROUGH OF MOONACHIE
 EAST RISER DITCH
 CHANNEL IMPROVEMENTS PROJECT

REGISTRATION
 HDR ENGINEERING, INC.
 CERTIFICATE OF AUTHORIZATION NO. 240628610700
JESSE R. JAECKEL

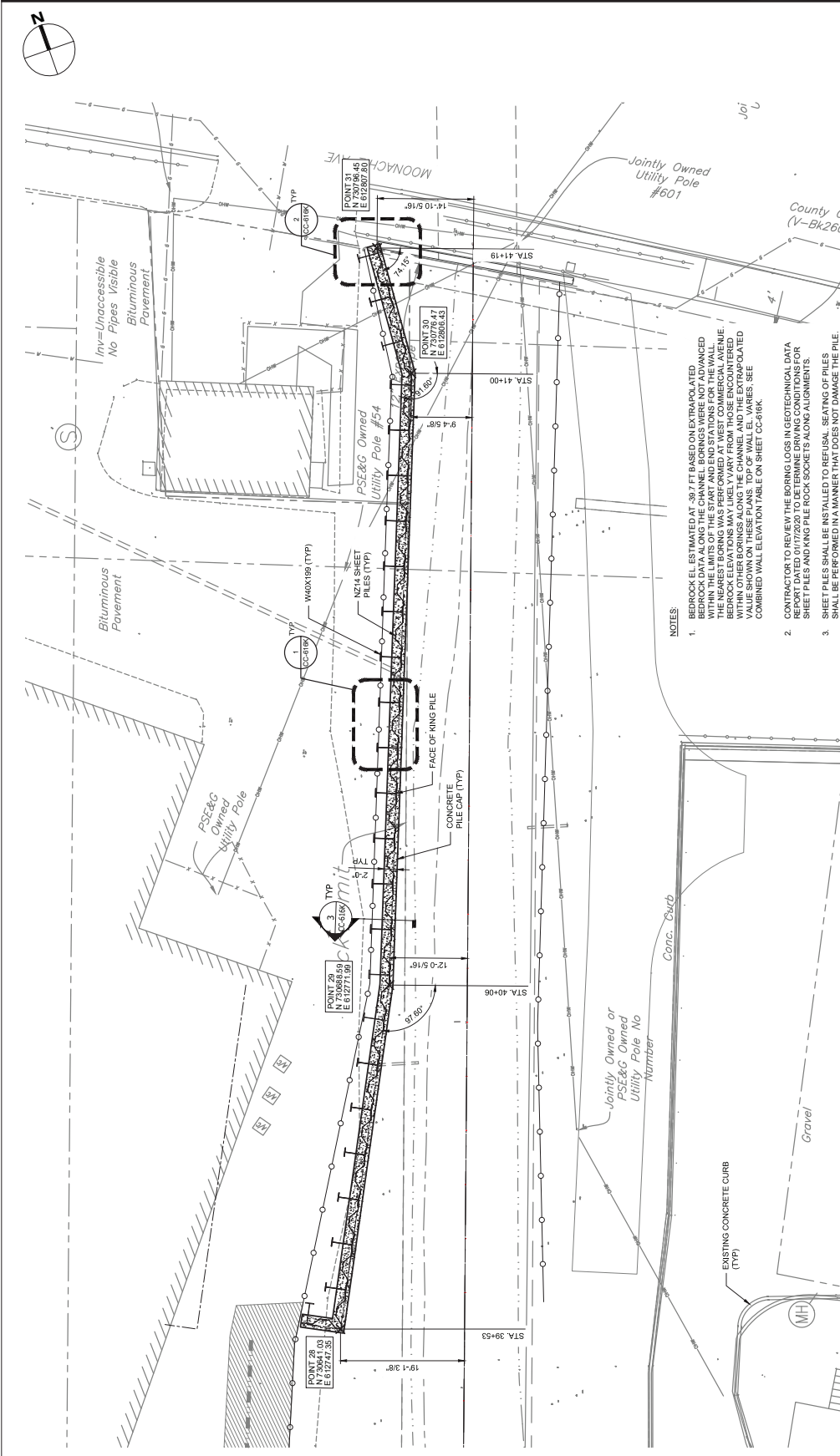
NEW JERSEY PROFESSIONAL ENGINEER
 LICENSE NO. 240628610700

Designed By:	MP	04/2024
Drawn By:	AA	04/2024
Proj. Check:	JJ	04/2024

PROJECT/TERM CONTRACT NUMBER
 P131-03
 SHEET TITLE

COMBINED WALL
 - PART PLAN 6
 SHEET NUMBER

CC-616I



- NOTES:**
1. BEDROCK EL ESTIMATED AT -39.7 FEET BASED ON EXTRAPOLATED BEDROCK DATA ALONG THE CHANNEL BORINGS WERE NOT ADVANCED WITHIN THE LIMITS OF THE START AND END STATIONS FOR THE WALL. THE BEDROCK ELEVATIONS MAY VARY FROM THOSE ENCOUNTERED WITHIN OTHER BORINGS ALONG THE CHANNEL AND THE EXTRAPOLATED (X) VALUES FOR THESE PILES ARE AN ESTIMATE AND REPRESENT THE ESTIMATED BEDROCK ELEVATION.
 2. CONTRACTOR TO REVIEW THE BORING LOGS IN GEOTECHNICAL DATA REPORT DATED 01/17/2020 TO DETERMINE DRIVING CONDITIONS FOR SHEET PILES AND KING PILE ROCK SOCKETS ALONG ALIGNMENTS.
 3. SHEET PILES SHALL BE INSTALLED TO REFUSAL. SEATING OF PILES SHALL BE PERFORMED IN A MANNER THAT DOES NOT DAMAGE THE PILE. THE ELEVATIONS PROVIDED ON CC-616J ARE AN ESTIMATE AND REPRESENT THE ESTIMATED BEDROCK ELEVATION.
 4. THE CONTRACTOR SHOULD PERFORM THEIR DUE DILIGENCE TO DETERMINE THE LOCATION OF ALL UTILITY POLES ALONG THE WALL. THE KING PILES ARE INSTALLED INTO BEDROCK AT THE MINIMUM ROCK SOCKET LENGTHS PROVIDED CC-616K.
 5. IF BEDROCK IS ENCOUNTERED 5 FEET OR MORE ABOVE THE ESTIMATED BEDROCK ELEVATION, CONTACT THE ENGINEER AND DO NOT CONTINUE INSTALLATION OF SUBSEQUENT PILES UNTIL DIRECTED TO BY THE ENGINEER. THE CONTRACTOR SHALL VERIFY THE MINIMUM LENGTHS INTO ROCK SOCKETS WITH THE MINIMUM LENGTH SHOWN ON CC-616K.
 6. USE Fy=50 KSI FOR ALL SHEET AND KING PILES.
 7. FOR SHEET PILE TO ABUTMENT CONNECTION DETAIL SEE STRUCTURAL DRAWING S-148.
 8. CONTRACTOR TO VERIFY ALL DIMENSIONS AND LAYOUT IN FIELD.
 9. CONTRACTOR TO CONFIRM THE LOCATION AND FOUNDATION OF THE EXISTING UTILITY POLES AND NOTIFY EMMIF DEVIATES FROM WHAT IS SHOWN ON THIS DRAWING.

7 COMBINED WALL - PART PLAN 7

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SUB-CONSULTANT
 HDR ENGINEERING, INC.
 50 TICE BOULEVARD
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IR	DATE	DESCRIPTION

PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACH
 BERGEN COUNTY, NEW JERSEY
**EAST RISER DITCH
 CHANNEL IMPROVEMENTS PROJECT**

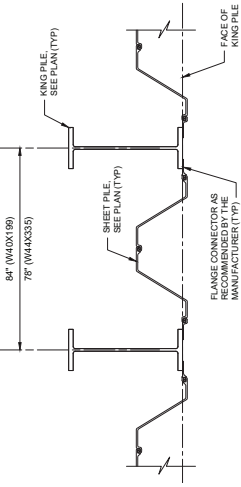
REGISTRATION
 HDR ENGINEERING, INC.
 CERTIFICATE OF AUTHORIZATION NO. 24628610703
JESSE R. JAECKEL
 NEW JERSEY PROFESSIONAL ENGINEER
 LICENSE NO. 242625189200

Designed By: MP 04/2024
 Drawn By: AA 04/2024
 Proj. Check: JJ 04/2024

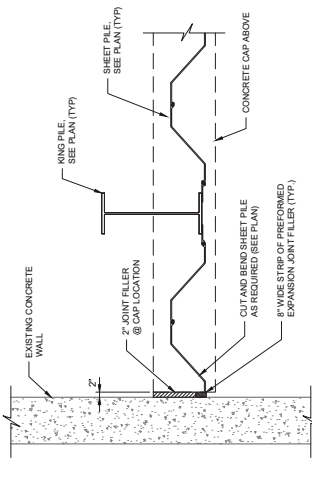
PROJECT TERM CONTRACT NUMBER
 P1131-03

SHEET TITLE
 COMBINED WALL
 - PART PLAN 7

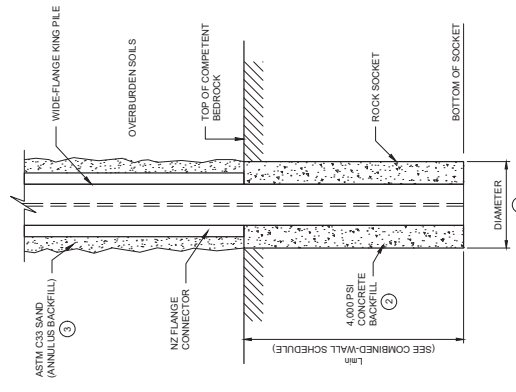
SHEET NUMBER
 CC-616J



1 TYPICAL COMBINED WALL SECTION - PLAN VIEW
SCALE: 1/2" = 1'-0"



2 EXISTING WALL CONNECTION - PLAN VIEW
SCALE: 1/2" = 1'-0"



- 1 MIN. ROCK SOCKET DIAMETER SHALL PROVIDE SUFFICIENT SPACE FOR CONCRETE WORKABILITY AND PLACEMENT.
- 2 CONCRETE BACKFILL SHALL BE USED ONLY FOR THE ROCK SOCKET. SEE COMBINATION WALL ELEVATION TABLE FOR MINIMUM LENGTHS OF CONCRETE BACKFILL REQUIRED.
- 3 ASTM C33 SAND SHALL BE AS ANNULUS BACKFILL EXTENDING TO THE CONCRETE ROCK SOCKET TO THE GROUND SURFACE.

3 KING PILE ROCK SOCKET SECTION - DETAIL
SCALE: 1/2" = 1'-0"

Combined Wall Elevation Table

Reach	Point #	Station	Northing	Easting	Grav. Elev. (ft)	Time of Initial Drive (hr)	Time of Day	Sliver Pile King Pile	Sheet Pile King Pile	Estimated Tip Elev. (ft)	Minimum Rock Socket Length for King Pile (ft)	Minimum Rock Socket Length for Sheet Pile (ft)	Change Length for King Pile (ft)	Type of Fringe Layer	Disturbance From Edge of Fringe Layer (ft)
Reach 1 Left Bank STA 1+00 STA 1+50	Point 1	0+00	726330.70	810180.91	2.09	0.09	2:08							NA	NA
	Point 2	0+30	726322.95	810191.91	0.84	-0.80	0:54							NA	NA
	Point 3	1+00	726321.38	810207.51	1.68	0.18	1:08							NA	NA
	Point 4	1+17	726324.95	810208.97	2.00	0.00	2:00							NA	NA
	Point 5	1+17	726331.96	810213.88	2.00	0.00	2:00	NA	W44X335	-78.4	40.4			NA	NA
Reach 2 Left Bank STA 1+50 STA 2+00	Point 6	1+50	726336.87	810214.08	0.14	-0.14	6:14							NA	NA
	Point 7	2+00	726346.87	810214.08	0.14	-0.14	6:14							NA	NA
	Point 8	3+00	726356.28	810212.24	0.80	0.44	8:30							NA	NA
	Point 9	3+45	726319.48	811776.45	0.03	-0.87	0:03							NA	NA
	Point 10	3+46	726364.22	811786.23	3.89	2.19	3:08							NA	NA
Reach 3 Right Bank STA 2+00 STA 2+40	Point 11	3+46	726361.38	811789.00	0.80	-0.70	0:80							NA	NA
	Point 12	2+19	726307.45	811776.54	0.35	-0.65	6:35							NA	NA
	Point 13	2+04	726332.49	811803.52	3.44	1.94	3:44							NA	NA
	Point 14	2+04	726347.69	811814.13	4.60	3.38	4:00							NA	NA
	Point 15	2+14	726376.10	811834.75	5.66	4.15	5:00							NA	NA
Reach 4 Right Bank STA 2+40 STA 2+80	Point 16	2+14	726376.10	811834.75	5.66	4.15	5:00							NA	NA
	Point 17	2+14	726376.10	811834.75	5.66	4.15	5:00							NA	NA
	Point 18	2+14	726376.10	811834.75	5.66	4.15	5:00							NA	NA
	Point 19	2+14	726376.10	811834.75	5.66	4.15	5:00							NA	NA
	Point 20	2+14	726376.10	811834.75	5.66	4.15	5:00							NA	NA
Reach 5 Right Bank STA 2+80 STA 3+20	Point 21	2+42	726315.70	811915.42	1.84	0.44	1:84							NA	NA
	Point 22	2+42	726315.70	811915.42	1.84	0.44	1:84							NA	NA
	Point 23	2+42	726322.69	811950.74	2.54	0.54	2:04							NA	NA
	Point 24	2+42	726336.47	812013.59	2.71	1.21	2:71							NA	NA
	Point 25	2+42	726344.85	812011.11	2.63	1.13	2:63							NA	NA
Reach 6 Right Bank STA 3+20 STA 3+60	Point 26	2+42	726344.85	812011.11	2.63	1.13	2:63							NA	NA
	Point 27	2+42	726344.85	812011.11	2.63	1.13	2:63							NA	NA
	Point 28	2+42	726344.85	812011.11	2.63	1.13	2:63							NA	NA
	Point 29	2+42	726344.85	812011.11	2.63	1.13	2:63							NA	NA
	Point 30	2+42	726344.85	812011.11	2.63	1.13	2:63							NA	NA
Reach 7 Right Bank STA 3+60 STA 4+00	Point 31	3+20	726344.85	812011.11	2.63	1.13	2:63							NA	NA
	Point 32	3+20	726344.85	812011.11	2.63	1.13	2:63							NA	NA
	Point 33	3+20	726344.85	812011.11	2.63	1.13	2:63							NA	NA
	Point 34	3+20	726344.85	812011.11	2.63	1.13	2:63							NA	NA
	Point 35	3+20	726344.85	812011.11	2.63	1.13	2:63							NA	NA
Reach 8 Right Bank STA 4+00 STA 4+40	Point 36	4+00	726376.47	812004.43	2.27	0.77	2:27							NA	NA
	Point 37	4+00	726376.47	812004.43	2.27	0.77	2:27							NA	NA
	Point 38	4+15	726376.47	812007.80	0.81	5.31	6:81							NA	NA
	Point 39	4+15	726376.47	812007.80	0.81	5.31	6:81							NA	NA
	Point 40	4+15	726376.47	812007.80	0.81	5.31	6:81							NA	NA

4 STEEL W-BEAM/NZ SHEET PILE COMBINED WALL
SCALE: NOT TO SCALE



NOTES:
1) Top of cap elevation is a function of the grade elevation.
2) Vertical datum: NAVD83
3) If elevations are in meters and may change based on the actual subsurface conditions along wall reach. This is especially important for reaches 1 and 4 where all preliminary screen pile areas shall be installed to the top of competent bedrock. King piles shall be installed with rock sockets with the minimum lengths shown above. The length of the king pile rock socket shall be less than the values shown in this table to ensure proper fit and function of the rock socket.
4) Screen pile areas shall be installed along reach 1 to ensure proximity to structure.
5) Reach 1 elevations shall be used for performance of screen pile installation.
6) Reach 2 elevations shall be used for performance of screen pile installation.

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HOR ENGINEERING, INC.
50 TICE BOULEVARD
WOODCLIFF LAKE, NJ 07077
201.335.8000 tel www.horinc.com

PROJECT
REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHE
BERGEN COUNTY, NEW JERSEY
**EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT**

REGISTRATION
HOR ENGINEERING, INC.
CERTIFICATE OF ADOPTION NO. 24620610100
JESSE R. JAECKEL

DESIGNED BY: MP 04/2024
DRAWN BY: AA 04/2024
PROJ. CHECK: JJ 04/2024

PROJECT/TERM CONTRACT NUMBER
P1131-03
SHEET TITLE
COMBINED WALL
- DETAILS AND SCHEDULE
SHEET NUMBER
CC-616K

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW

83 OF 108

AECOM
 AECOM TECHNICAL SERVICES, INC.
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SUB-CONSULTANT
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 WOODCLIFF LAKE, NJ 07077
 201.335.5000 tel www.hdrinc.com

ISSUE/REVISION	DATE	DESCRIPTION

PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHE
 BERGEN COUNTY, NEW JERSEY
**EAST RISER DITCH
 CHANNEL IMPROVEMENTS PROJECT**

REGISTRATION
 HDR ENGINEERING, INC.
 CERTIFICATE OF AUTHORIZATION NO. 24628610703
JESSE R. JAECKEL

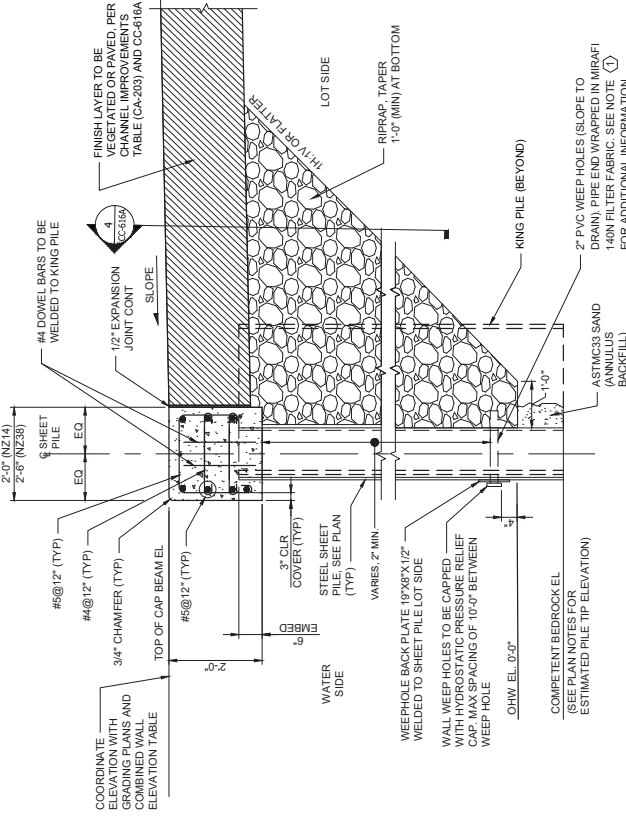
NEW JERSEY PROFESSIONAL ENGINEER
 LICENSE NO. 240E05169200

Designed By: MP 04/2024
 Drawn By: AA 04/2024
 Proj. Check: JJ 04/2024

PROJECT/TERM CONTRACT NUMBER
 P1131-03
 SHEET TITLE

COMBINED WALL
 - DETAILS
 SHEET NUMBER

CC-616L

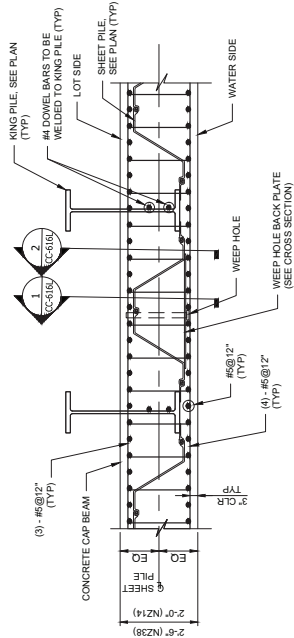


CROSS SECTION VIEW

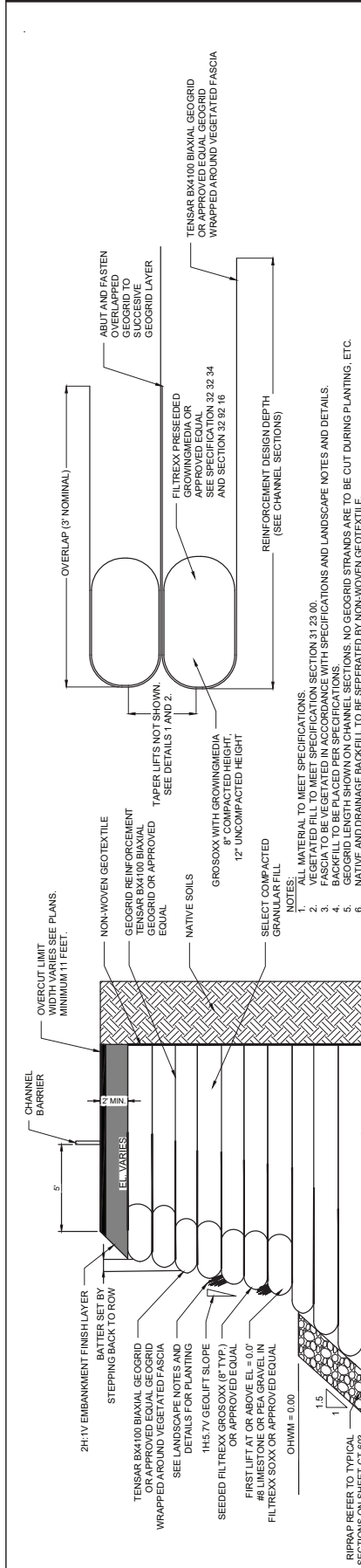
- ① FREE DRAINING GRANULAR FILL MATERIAL CONSISTING OF CLEAN, NON PLASTIC, 1/2" TO 3/4" DRAIN ROCK WITH LESS THAN 10% FINER THAN THE NO. 200 SIEVE SIZE.

1 COMBINED WALL AND CAP DETAIL
 SCALE: NOT TO SCALE

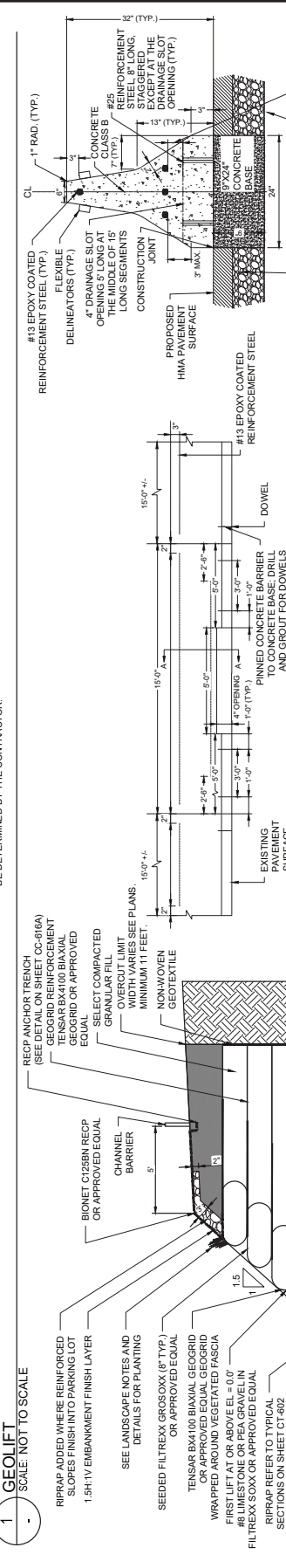
- NOTES:
- CONCRETE PILE CAP TO BE INSTALLED AFTER INITIAL SETTLEMENT OF THE SHEET PILE OCCURS.
 - PROVIDE EXPANSION JOINT AT CONCRETE CAP AT MAXIMUM 20' OC.



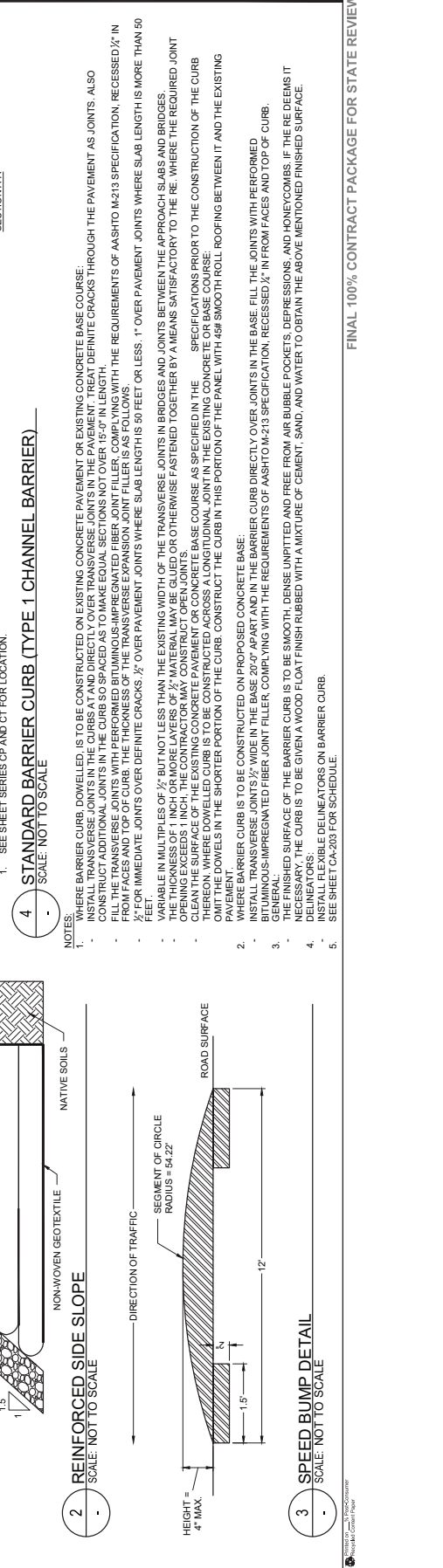
PLAN VIEW



1. ALL MATERIAL TO MEET SPECIFICATIONS.
2. VEGETATED FILL TO MEET SPECIFICATION SECTION 31.25.00.
3. REINFORCEMENT STRANDS WITH SPECIFICATIONS AND LANDSCAPE NOTES AND DETAILS.
4. BACKFILL TO BE REPLACED PER SPECIFICATIONS.
5. GEGRID LENGTH SHOWN ON CHANNEL SECTIONS. NO GEGRID STRANDS ARE TO BE CUT DURING PLANTING, ETC.
6. NATIVE AND DRAINAGE BACKFILL TO BE SEPARATED BY NON-WOVEN GEOTEXTILE.
7. LIFT THICKNESS IS 8" WITH THE EXCEPTION OF THE TOP LIFT THAT HAS A VARIABLE THICKNESS. PER THE SCHEDULE OF LIFTS (SEE IS: CT-686 AND CT-607).
8. NATIVE SOILS TO BE MAINTAINED TO BRPAP WHERE INDICATED ON PLANS.
9. ALL REINFORCED LIFTS, WHETHER A GEOLIFT OR REINFORCED SLOPE, ARE INSTALLED STRATING AT ELEVATION -2.5 FT. WITH THE EXCEPTION OF THOSE INSTALLED BETWEEN STA. 285+27 AND STA 31+80 O N THE LEFT BANK.
10. THOSE LIFTS BEGIN AT ELEVATION -1.8 FT.
11. GEOTEXTILE BENEATH RIP RAP NOT SHOWN. SEE CT SHEETS.
12. BRPAP AND GEOTEXTILE REPRESENTS THE FINAL CONDITION. TEMPORARY EXCAVATION LOG SHOWING BEYOND THE LIMITS OF OVERCUT WILL BE REQUIRED FOR INSTALLATION AND SHOULD BE DETERMINED BY THE CONTRACTOR.



1. WHERE BARRIER CURB, DOWELLED, IS TO BE CONSTRUCTED ON EXISTING CONCRETE PAVEMENT OR EXISTING CONCRETE BASE COURSE.
2. INSTALL TRANSVERSE JOINTS IN THE CURBS AT 10' AND DIRECTLY OVER TRANSVERSE JOINTS IN THE PAVEMENT. TREAT DEFINITE CRACKS THROUGH THE PAVEMENT AS JOINTS. ALSO CONSTRUCT ADDITIONAL JOINTS IN THE CURB SO SPACED AS TO MAKE EQUAL SECTIONS NOT OVER 15'-0" IN LENGTH.
3. FILL THE TRANSVERSE JOINTS WITH PERFORMED BITUMINOUS-IMPREGNATED FIBER JOINT FILLER, COMPLYING WITH THE REQUIREMENTS OF AASHTO M-213 SPECIFICATION. RECESSED 1/2" IN FROM FACES AND TOP OF CURB. THE THICKNESS OF THE TRANSVERSE EXPANSION JOINT FILLER IS AS FOLLOWS:
- 1/2" FOR IMMEDIATE JOINTS OVER DEFINITE CRACKS.
 - 1/2" OVER PAVEMENT JOINTS WHERE SLAB LENGTH IS 50 FEET OR LESS.
 - 1" OVER PAVEMENT JOINTS WHERE SLAB LENGTH IS MORE THAN 50 FEET.
4. VARIABLE IN MULTIPLES OF 1/2" BUT NOT LESS THAN THE EXISTING WIDTH OF THE TRANSVERSE JOINTS IN BRIDGES AND JOINTS BETWEEN THE APPROACH SLABS AND BRIDGES. THE THICKNESS OF 1" OR MORE LAYERS OF 1/2" MATERIAL MAY BE GLUED OR OTHERWISE FASTENED TOGETHER BY A MEANS SATISFACTORY TO THE RE. WHERE THE REQUIRED JOINT OPENING EXCEEDS 1 INCH, THE CONTRACTOR MAY CONSTRUCT OPEN JOINTS.
5. CLEAN THE SURFACE OF THE EXISTING CONCRETE PAVEMENT OR CONCRETE BASE COURSE AS SPECIFIED IN THE REQUIREMENTS OF THE CURB. SPECIFICATIONS PRIOR TO THE CONSTRUCTION OF THE CURB AND THE PAVEMENT SHALL BE OBTAINED FROM THE CONTRACTOR. THE CONTRACTOR SHALL OBTAIN THE DOWELS IN THE SHORTER PORTION OF THE CURB. CONSTRUCT THE CURB IN THIS PORTION OF THE PANEL WITH 45# SMOOTH ROLL ROOFING BETWEEN IT AND THE EXISTING PAVEMENT.
6. WHERE BARRIER CURB IS TO BE CONSTRUCTED ON PROPOSED CONCRETE BASE:
- INSTALL TRANSVERSE JOINTS 1/2" WIDE IN THE BASE 20'-0" APART AND IN THE BARRIER CURB DIRECTLY OVER JOINTS IN THE BASE. FILL THE JOINTS WITH PERFORMED BITUMINOUS-IMPREGNATED FIBER JOINT FILLER, COMPLYING WITH THE REQUIREMENTS OF AASHTO M-213 SPECIFICATION. RECESSED 1/2" IN FROM FACES AND TOP OF CURB.
 - THE FINISHED SURFACE OF THE BARRIER CURB IS TO BE SMOOTH, DENSE UNPITTED AND FREE FROM AIR BUBBLE POCKETS, DEPRESSIONS, AND HONEYCOMBS. IF THE REDEMS IT NECESSARY, THE CURB IS TO BE GIVEN A WOOD FLOAT FINISH RUBBED WITH A MIXTURE OF CEMENT, SAND, AND WATER TO OBTAIN THE ABOVE MENTIONED FINISHED SURFACE.
 - DELIMITORS:
 - INSTALL FLEXIBLE DELIMITORS ON BARRIER CURB.
 - SEE SHEET CA-203 FOR SCHEDULE.



1. BRPAP ADDED WHERE REINFORCED SLOPES FINISH INTO PARKING LOT.
2. 1.5H:1V EMBANKMENT FINISH LAYER.
3. SEE LANDSCAPE NOTES AND DETAILS FOR PLANTING.
4. SEEDED FILITREX GROSSOXX (8" TYP.) OR APPROVED EQUAL.
5. TENSAR BX4100 BIAXIAL GEGRID OR APPROVED EQUAL GEGRID WRAPPED AROUND VEGETATED FASCIA.
6. FIRST LIFT AT OR ABOVE EL = 0.0'.
7. FIRST LIFT AT OR ABOVE EL = 0.0'.
8. #8 LIMESTONE OR PEA GRAVEL IN FILITREX SOXX OR APPROVED EQUAL.
9. BRPAP REFER TO TYPICAL SECTIONS ON SHEET CT-682.
10. OHMM = 0.00.
11. NON-WOVEN GEOTEXTILE.
12. NATIVE SOILS.
13. OVERCUT LIMIT WIDTH VARIES SEE PLANS. MINIMUM 11 FEET.
14. SELECT COMPACTED GRANULAR FILL.
15. NON-WOVEN GEOTEXTILE.
16. RECP ANCHOR TRENCH (SEE DETAIL ON SHEET CC-616A).
17. GEGRID REINFORCEMENT TENSAR BX4100 BIAXIAL GEGRID OR APPROVED EQUAL.
18. CHANNEL C128BN RECP OR APPROVED EQUAL.
19. CHANNEL BARRIER.
20. OVERCUT LIMIT WIDTH VARIES SEE PLANS. MINIMUM 11 FEET.
21. NON-WOVEN GEOTEXTILE.

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 50 TICE BOULEVARD
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ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHE
 BERGEN COUNTY, NEW JERSEY
**EAST RISER DITCH
 CHANNEL IMPROVEMENTS PROJECT**

REGISTRATION
 HR ENGINEERING, INC.
 CERTIFICATE OF AUTHORIZATION NO. 246026610703
MICHAEL VECCHIO
 NEW JERSEY Professional Engineer
 License Certificate # 246026610703

Designed By:	JGJ	03/2024
Drawn By:	LN	03/2024
Proj. Check:	WV	03/2024

PROJECT/TERM CONTRACT NUMBER	P113-103
SHEET TITLE	

CIVIL DETAILS
SHEET NUMBER
CC-616

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW

85 OF 108



SUB-CONSULTANT
 HDR ENGINEERING, INC.
 50 TICE BOULEVARD
 WOODCLIFF LAKE, NJ 07677
 201.335.8300 tel. www.hdrinc.com

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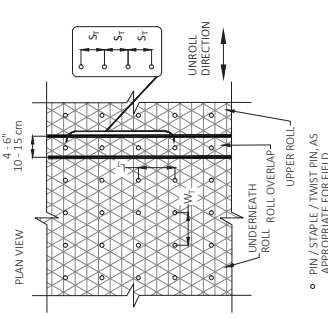
NO.	DATE	DESCRIPTION

PROJECT
REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHE
 BERGEN COUNTY, NEW JERSEY
EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT

REGISTRATION
HDR ENGINEERING, INC.
 CORPORATION OF AUTHORIZATION NO. 24628610780
MICHAEL VECCHIO
 NEW JERSEY Professional Engineer
 License Certificate # 246286384800

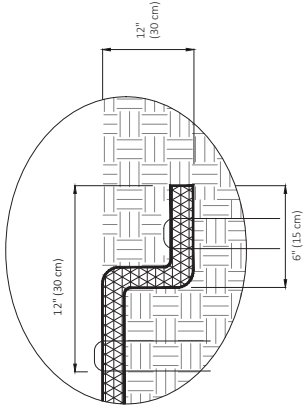
Designed By: JCR 03/2024
 Drawn By: LN 03/2024
 Proj. Check: NW 03/2024
 PROJECT TERM CONTRACT NUMBER
 P1131403
 SHEET TITLE

CIVIL DETAILS
 SHEET NUMBER
CC-616A



1A STAPLE PATTERN GUIDE
 SCALE: NOT TO SCALE

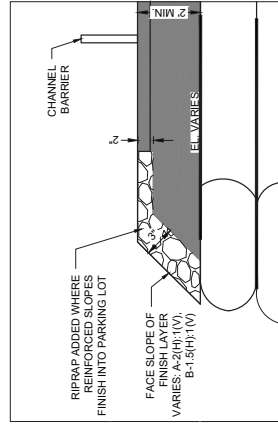
DIMENSION	SLOPE PATTERN
WT	E
LT	20" (50 CM)
ST	20" (50 CM)
NOMINAL FREQUENCY	18" (45 CM)
REQUIRED FASTENER	3.8 / SY
	STAPLES #8 GAUGE STEEL, MINIMUM LENGTH 6"



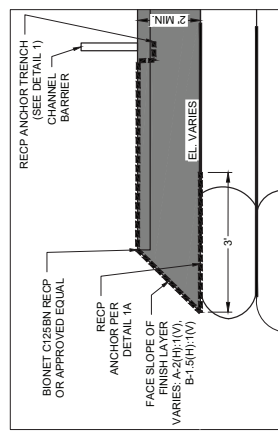
1 ROLLED EROSION CONTROL PRODUCT (RECP)
 SCALE: NOT TO SCALE

TABLE 1: FINISH LAYER EROSION CONTROL SCHEDULE

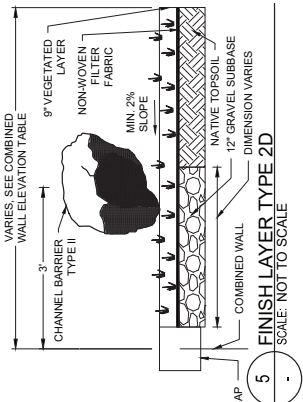
FINISH LAYER TYPE	BANK UPGRADE TYPE	DETAIL	NOTE
1A (VEGETATED FILL)	GEOLIFT	2	RECP SLOPE AT 2(H):1(V)
1B (VEGETATED FILL)	REINFORCED SLOPE	2	RECP SLOPE AT 2(H):1(V)
2A (PAVEMENT)	GEOLIFT	3	RIP RAP SLOPE AT 2(H):1(V)
2B (PAVEMENT)	REINFORCED SLOPE	3	RIP RAP SLOPE AT 1.5(H):1(V)
2C (COMBINED WALL)	PAVEMENT	4	21" THICK LAYER
2D (COMBINED WALL)	VEGETATION	5	21" THICK LAYER



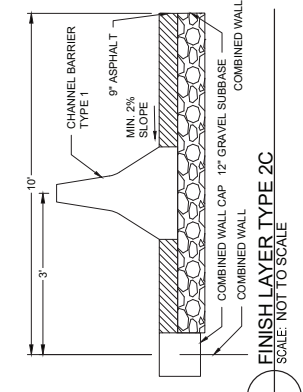
3 EROSION CONTROL FOR PAVEMENT
FINISH LAYER (TYPE 2A AND 2B)
 SCALE: NOT TO SCALE



2 EROSION CONTROL FOR VEGETATED FILL
FINISH LAYER (TYPE 1A AND 1B)
 SCALE: NOT TO SCALE



5 FINISH LAYER TYPE 2D
 SCALE: NOT TO SCALE



4 FINISH LAYER TYPE 2C
 SCALE: NOT TO SCALE

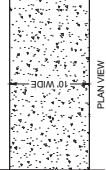
FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW

ANSI D 22 x 34"

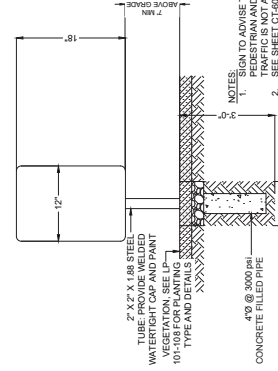


- 1 BOULDER (TYPE 2 CHANNEL BARRIER)**
SCALE: NOT TO SCALE
- NOTES:
- MATERIAL TO BE USED IS LIMESTONE
 - MINIMUM DIAMETER OF BOLLERS TO BE 12" TO 20"
 - ROCK SIZE TO BE 2' X 2' BY Z
 - BOLLER SPACING TO BE 25'
 - SEE SHEET TO HIGH FOR SCHEDULE

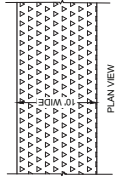
- 2 O&M CORRIDOR (PAVEMENT)**
SCALE: NOT TO SCALE



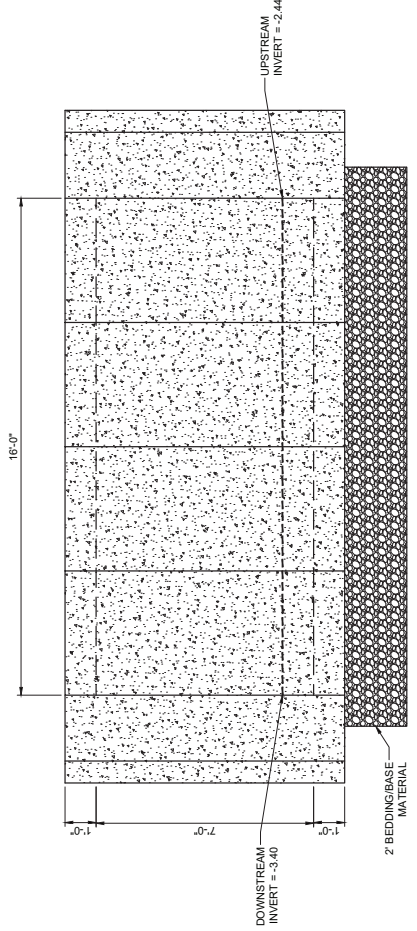
- NOTES:
- USE A 3" RMA WEARING COURSE 5.5 MMA & 6.5" RMA 19 MMA
 - ALLOWING FOR AVERAGE DAILY PASSAGE OF 20 TO 200 TRUCKS.
 - REFER TO CP SHEETS SERIES.



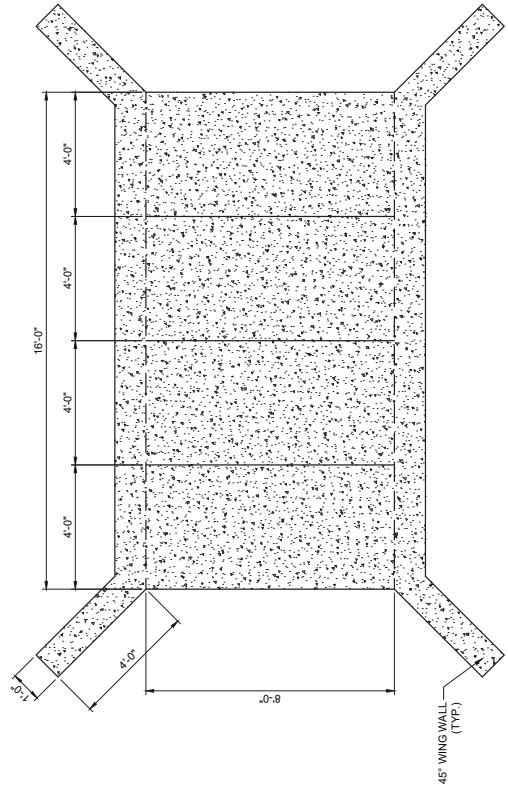
- 3 STANDARD SIGN (TYPE 3 CHANNEL BARRIER)**
SCALE: NOT TO SCALE
- NOTES:
- REFER TO LP-108 FOR TYPE AND DETAILS
 - TRAFFIC IS NOT ALLOWED. SEE SHEET CT-604 FOR SCHEDULE



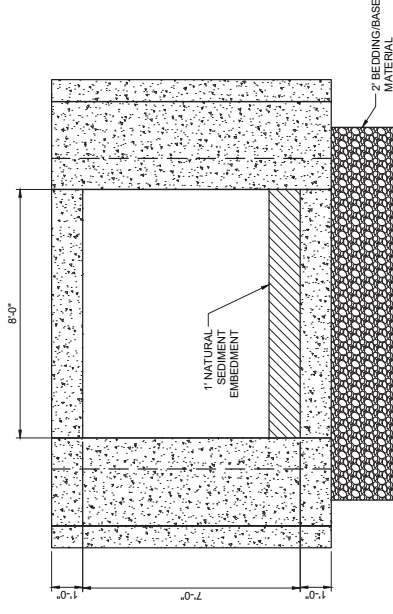
- 4 O&M CORRIDOR (VEGETATION)**
SCALE: NOT TO SCALE
- NOTES:
- USE MATS PRIOR TO VEHICULAR ACCESS.
 - REFER TO SHEET CT-604 FOR DETAILS AND LP-101 TO LP-108 FOR LOCATION.



- B SIDE VIEW**
SCALE: 1/2" = 1'-0"



- C PLAN VIEW**
SCALE: 1/2" = 1'-0"



- A FRONT VIEW**
SCALE: 1/2" = 1'-0"

- NOTES:
- SEE SHEET CC-616 FOR O&M PAVED CORRIDOR DETAILS
 - THE FINISH ELEVATION OF THE RIPRAP SHOULD MEET THE FINISH LAYER OF THE NATURAL SEDIMENT MATERIAL ON THE DOWNSTREAM SIDE OF THE CULVERT. SEE CC-108 FOR THICKNESS AND EXTENTS OF RIPRAP.

- 5 BOX CULVERT**
SCALE: 1/2" = 1'-0"

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50 TICE BOULEVARD
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ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT
REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHE
BERGEN COUNTY, NEW JERSEY
**EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT**

REGISTRATION
HDR ENGINEERING, INC.
CERTIFICATE OF AUTHORIZATION NO. 246528610700
MICHAEL VECCHIO
NEW JERSEY Professional Engineer
License Certificate # 24652864800

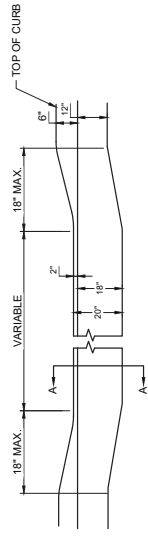
Designed By: JCR 08/2023
Drawn By: JW 08/2023
Proj. Check: KF 08/2023

PROJECT/TERM CONTRACT NUMBER
P1131-03
SHEET TITLE

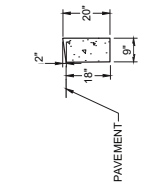
CIVIL DETAILS
SHEET NUMBER

CC-616B

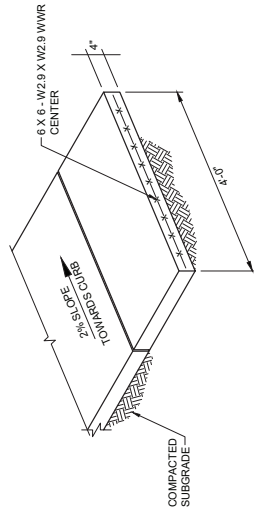
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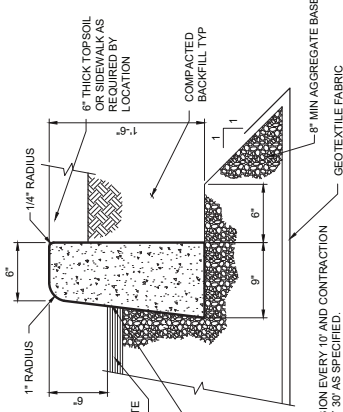
1. DEPRESSED CURB DETAIL AT DRIVEWAYS
SCALE: NOT TO SCALE



SECTION A-A



2. CONCRETE SIDEWALK DETAIL
SCALE: NOT TO SCALE



3. CONCRETE VERTICAL CURB
SCALE: NOT TO SCALE

- NOTES:
- DEPRESSED CURBS SHALL NOT BE USED WITHIN BRIDGE CONCRETE APPROACH SLAB.
 - RECONSTRUCTION OF BITUMINOUS PAVEMENT SHALL BE PER 2016 NEW JERSEY DOT STANDARD CONSTRUCTION DETAIL CD-606-5.3 TYPE A OR B. SEE PLAN FOR LOCATION.
 - RECONSTRUCTION OF CONCRETE DRIVEWAY SHALL BE PER 2016 NEW JERSEY DOT STANDARD CONSTRUCTION DETAIL CD-606-5.5 TYPE E. SEE PLAN FOR LOCATION.

- NOTES:
- SHOULD CONFLICT ARISE BETWEEN NJDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION 2019 AND THE NOTES AND DETAILS PROVIDED HEREIN, THE NOTES AND DETAILS PROVIDED SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION SHALL GOVERN.

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ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT
REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHE
BERGEN COUNTY, NEW JERSEY
**EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT**

REGISTRATION
HDR ENGINEERING, INC.
CERTIFICATE OF REGISTRATION NO. 24632610703
ABBIE DARVISH
NEW JERSEY Professional Engineer
Certificate No. 24632610703
License # 24632610703

Designed By:	AD	07/2023
Drawn By:	LN	07/2023
Proj. Check:	MQ	08/2023

PROJECT/TERM CONTRACT NUMBER
P1131-03

SHEET TITLE
ROADWAY
DETAILS
1 OF 2
SHEET NUMBER

CR-617



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SUB-CONSULTANT

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WOODCLIFF LAKE, NJ 07077
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ISSUE/REVISION

Table with 2 columns: I/R, DATE, DESCRIPTION

PROJECT

REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHE
BERGEN COUNTY, NEW JERSEY
EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT

REGISTRATION

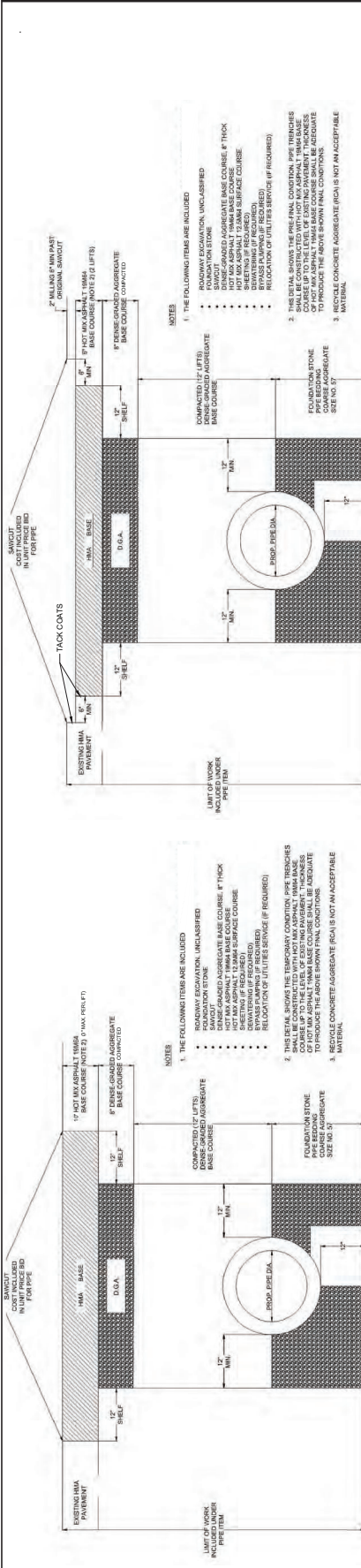
HDR ENGINEERING, INC.
CERTIFICATE OF REGISTRATION NO. 246536010700
ABBE DARVISH
NEW JERSEY Professional Engineer
License Certificate # 2465676330

Table with 2 columns: Designed By, Drawn By, Proj. Check, Date

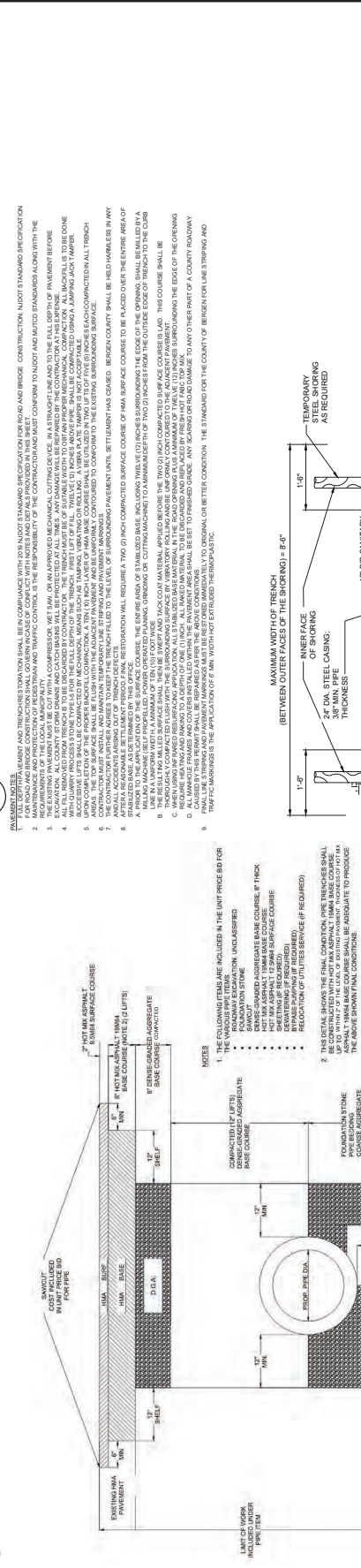
PROJECT TERM CONTRACT NUMBER
P1131-03

SHEET TITLE
UTILITY
DETAILS

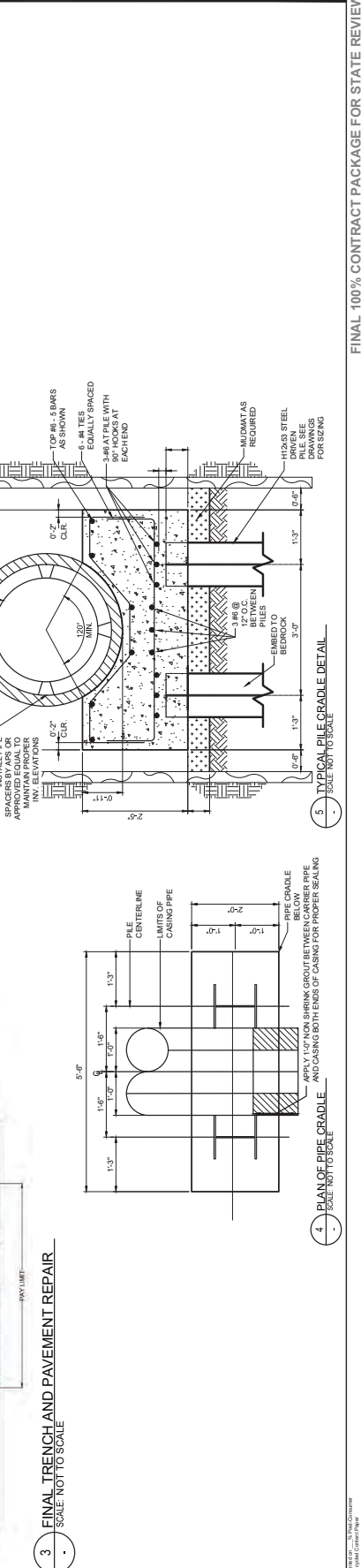
SHEET NUMBER
CU-618



1. TEMPORARY TRENCH AND PAVEMENT REPAIR
SCALE: NOT TO SCALE



2. MILLING FOR FINAL PAVEMENT REPAIR
SCALE: NOT TO SCALE



3. FINAL TRENCH AND PAVEMENT REPAIR
SCALE: NOT TO SCALE

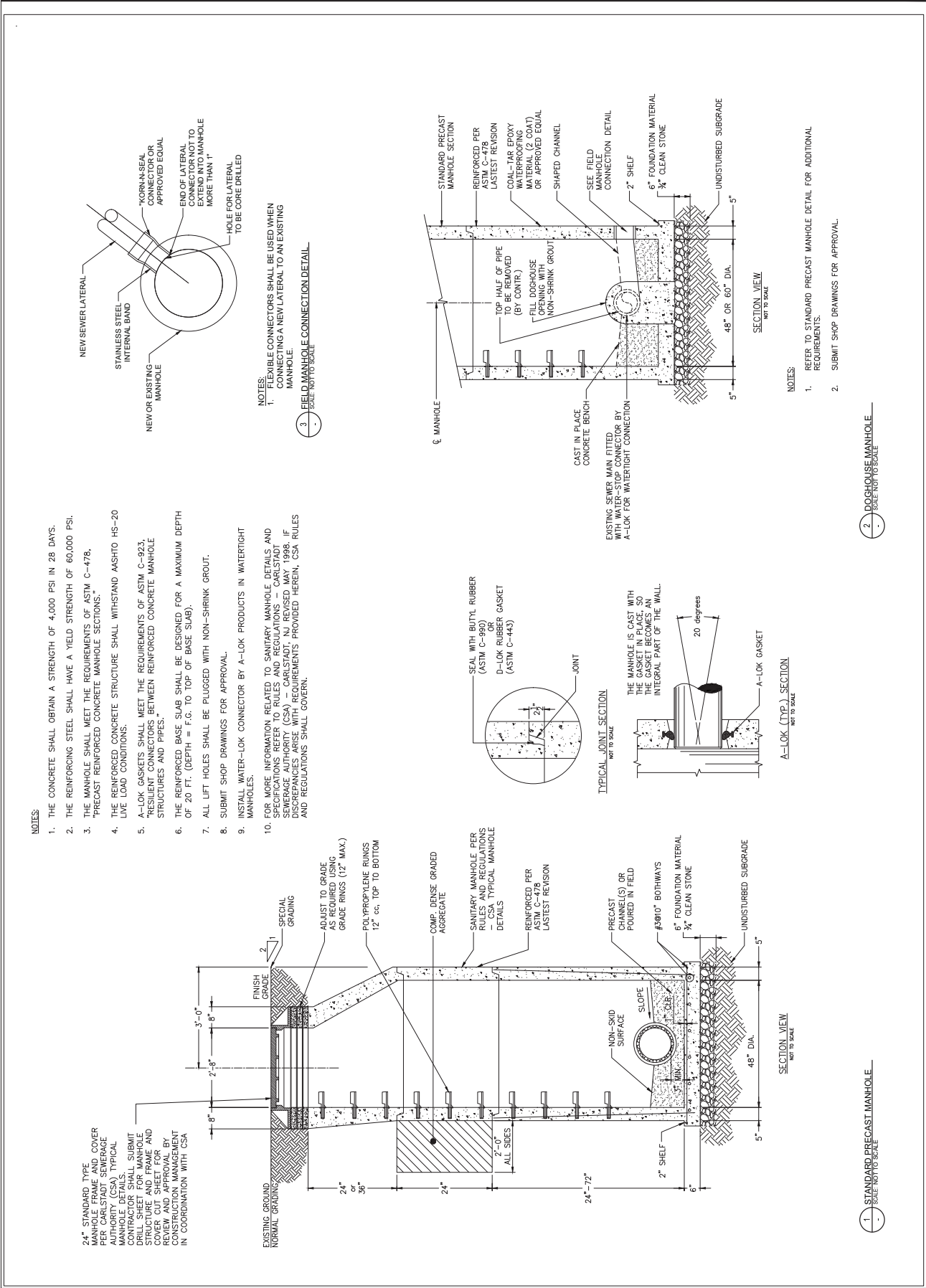


4. PLAN OF PIPE CRADLE
SCALE: NOT TO SCALE



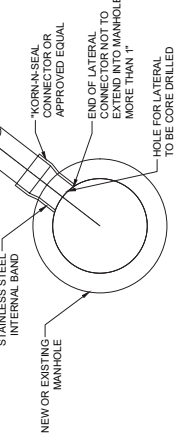
5. TYPICAL PILE CRADLE DETAIL
SCALE: NOT TO SCALE

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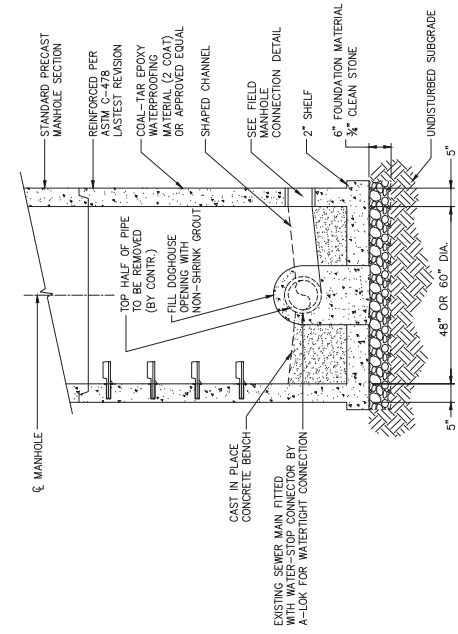


- NOTES:**
1. THE CONCRETE SHALL OBTAIN A STRENGTH OF 4,000 PSI IN 28 DAYS.
 2. THE REINFORCING STEEL SHALL HAVE A YIELD STRENGTH OF 60,000 PSI.
 3. THE MANHOLE SHALL MEET THE REQUIREMENTS OF ASTM C-478, "PRECAST REINFORCED CONCRETE MANHOLE SECTIONS."
 4. THE REINFORCED CONCRETE STRUCTURE SHALL WITHSTAND ASHTO HS-20 LIVE LOAD CONDITIONS.
 5. A-LOK GASKETS SHALL MEET THE REQUIREMENTS OF ASTM C-923, "RESIDENT CONNECTORS BETWEEN REINFORCED CONCRETE MANHOLE STRUCTURES AND PIPES."
 6. THE REINFORCED BASE SLAB SHALL BE DESIGNED FOR A MAXIMUM DEPTH OF 20 FT. (DEPTH = F.O. TO TOP OF BASE SLAB).
 7. ALL LIFT HOLES SHALL BE PLUGGED WITH NON-SHRINK GROUT.
 8. SUBMIT SHOP DRAWINGS FOR APPROVAL.
 9. INSTALL WATER-LOK CONNECTOR BY A-LOK PRODUCTS IN WATERTIGHT MANHOLES.
 10. FOR MORE INFORMATION RELATED TO SANITARY MANHOLE DETAILS AND SPECIFICATIONS REFER TO RULES AND REGULATIONS - CARLSTADT MANHOLE CONNECTION DETAIL (1996). IF ANY DISCREPANCIES ARISE WITH REQUIREMENTS PROVIDED HEREIN, CSA RULES AND REGULATIONS SHALL GOVERN.

24" STANDARD TYPE MANHOLE FRAME AND COVER PER CARLSTADT TYPICAL MANHOLE DETAILS. CONTRACTOR SHALL SUBMIT DRILL SHEET FOR MANHOLE COVER CUT SHEET FOR REVIEW AND APPROVAL BY CONSTRUCTION MANAGEMENT IN COORDINATION WITH CSA



- NOTES:**
1. FLEXIBLE CONNECTORS SHALL BE USED WHEN CONNECTING A NEW LATERAL TO AN EXISTING MANHOLE.
 2. FIELD MANHOLE CONNECTION DETAIL. SCALE NOT TO SCALE.



- NOTES:**
1. REFER TO STANDARD PRECAST MANHOLE DETAIL FOR ADDITIONAL REQUIREMENTS.
 2. SUBMIT SHOP DRAWINGS FOR APPROVAL.

2. DOGHOUSE MANHOLE. SCALE NOT TO SCALE.

1. STANDARD PRECAST MANHOLE. SCALE NOT TO SCALE.

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ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHE
 BERGEN COUNTY, NEW JERSEY
MANHOLE CONNECTIONS AND CHANNEL IMPROVEMENTS PROJECT

REGISTRATION
 HDR ENGINEERING, INC.
 CERTIFICATE OF REGISTRATION NO. 246326610700
ABBE DARVISH

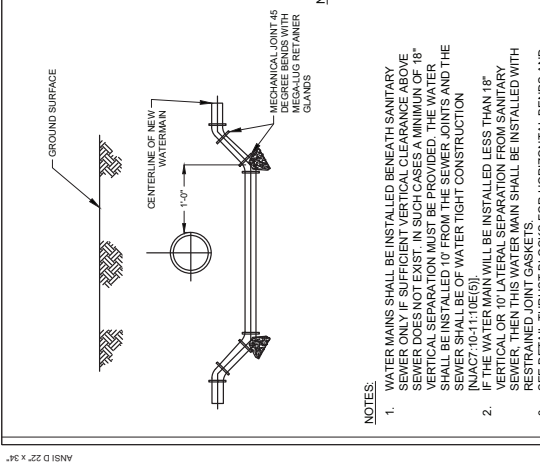
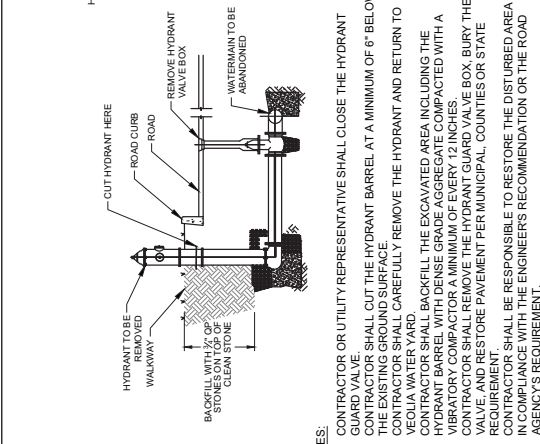
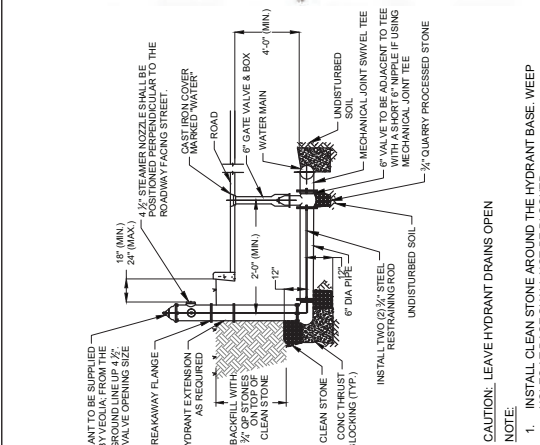
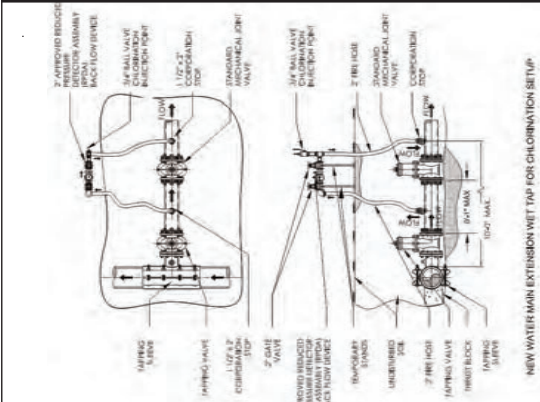
NEW JERSEY Professional Engineer
 License/Certificate # 246326610700

Designed By:	AD	09/2023
Drawn By:	LN	09/2023
Proj. Check:		

PROJECT/TERM CONTRACT NUMBER
 P1131-03

SHEET TITLE
 SANITARY SEWER
 DETAILS

SHEET NUMBER
 CU-619

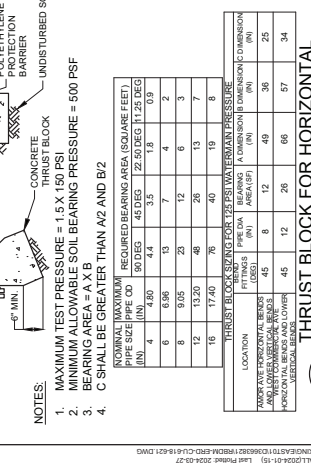
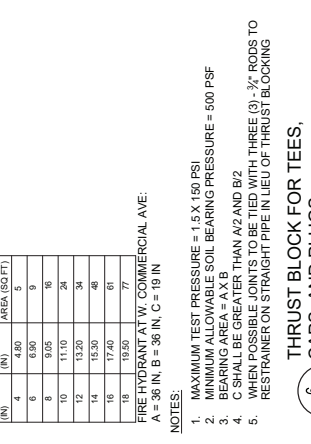
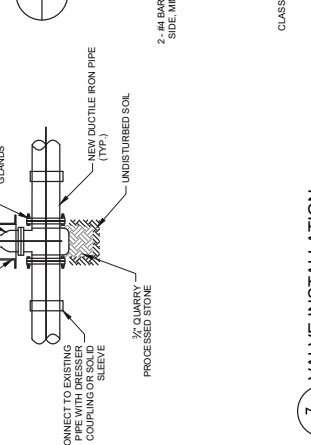
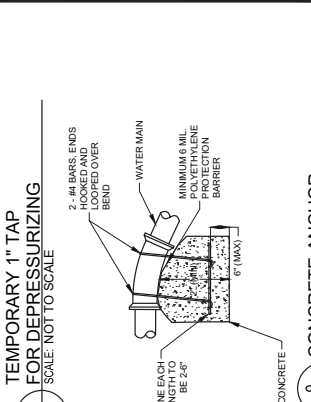
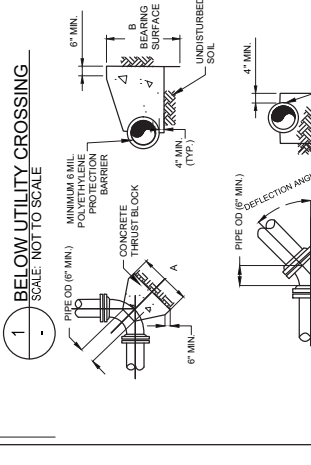
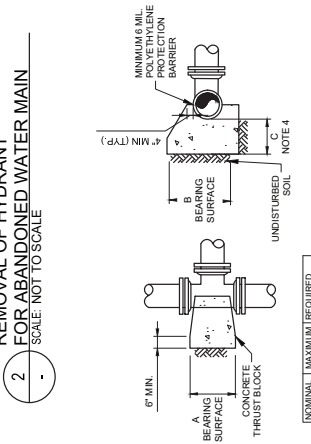
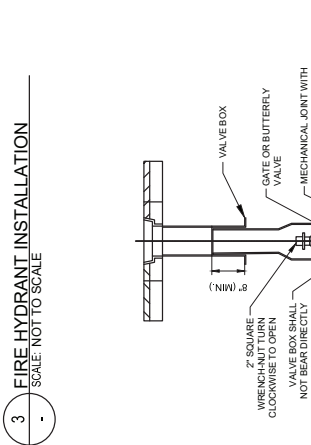
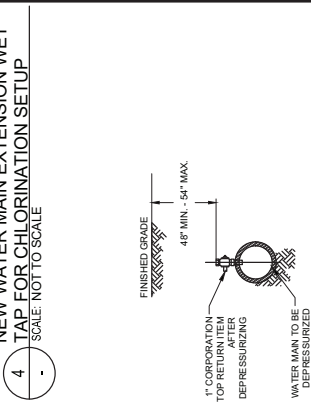


NEW WATER MAIN EXTENSION WET TAP FOR CHLORINATION SETUP
SCALE: NOT TO SCALE

FIRE HYDRANT INSTALLATION
SCALE: NOT TO SCALE

REMOVAL OF HYDRANT FOR ABANDONED WATER MAIN
SCALE: NOT TO SCALE

BELOW UTILITY CROSSING
SCALE: NOT TO SCALE



- NOTES:**
- CONTRACTOR OR UTILITY REPRESENTATIVE SHALL CLOSE THE HYDRANT GUARD VALVE.
 - CONTRACTOR SHALL CUT THE HYDRANT BARREL AT A MINIMUM OF 6" BELOW THE GUARD VALVE.
 - CONTRACTOR SHALL CAREFULLY REMOVE THE HYDRANT AND RETURN TO VEQUA WATER YARD.
 - CONTRACTOR SHALL BACKFILL THE EXCAVATED AREA INCLUDING THE HYDRANT BARREL WITH DENSE GRADE AGGREGATE COMPACTED WITH A VIBRATORY COMPACTOR TO A MINIMUM OF EVERY 12 INCHES.
 - CONTRACTOR SHALL REMOVE THE HYDRANT GUARD VALVE BOX. BURY THE VALVE AND RESTORE PAVEMENT PER MUNICIPAL, COUNTIES OR STATE AGENCY REQUIREMENT.
 - CONTRACTOR SHALL BE RESPONSIBLE TO RESTORE THE DISTURBED AREA IN COMPLIANCE WITH THE ENGINEER'S RECOMMENDATION OR THE ROAD AGENCY'S REQUIREMENT.
 - THIS DETAIL ONLY APPLIES WHEN THE HYDRANT TO BE REMOVED IS CONNECTED TO A WATER MAIN TO BE ABANDONED.

- NOTES:**
- HYDRANT TO BE SUPPLIED BY VEQUA FROM THE GROUND LINE UP 4 1/2' VALVE OPENING SIDE.
 - 1 1/2" STEAMER NOZZLE SHALL BE POSITIONED PERPENDICULAR TO THE ROADWAY FACING STREET.
 - CAST IRON COVER MARKED "ROAD".
 - 6" GATE VALVE & BOX.
 - WATER MAIN.
 - 4'-0" (MIN.)
 - UNDISTURBED MECHANICAL JOINT SWIVEL TEE.
 - 6" VALVE TO BE ADJACENT TO TEE WITH AS SHORT A NIPPLE AS POSSIBLE.
 - MECHANICAL JOINT TEE.
 - 3/4" QUARRY PROCESSED STONE.
 - UNDISTURBED SOIL.
 - INSTALL TWO (2) 3/4" STEEL RESTRAINING RODS.
 - CONC THRUST BLOCKING (TYP.).
 - HYDRANT EXTENSION AS REQUIRED.
 - BREAKAWAY FLANGE.
 - 18" (MIN.) 24" (MAX.)
 - BACKFILL WITH 3/4" OF STONES ON TOP OF CLEAN STONE.
 - 2'-0" (MIN.)
 - 1'-0"
 - 6" DIA PIPE.
 - UNDISTURBED SOIL.

- NOTES:**
- MAXIMUM TEST PRESSURE = 1.5 X 150 PSI.
 - MINIMUM ALLOWABLE SOIL BEARING PRESSURE = 500 PSF.
 - BEARING AREA = A X B.
 - C SHALL BE GREATER THAN A/2 AND B/2.
 - C SHALL BE GREATER THAN A/4 AND B/4. THREE (3) 3/4" RODS TO RESTRAINER ON STRAIGHT PIPE IN LIEU OF THRUST BLOCKING.

- NOTES:**
- WATER MAINS SHALL BE INSTALLED BENEATH SANITARY SEWER ONLY IF SUFFICIENT VERTICAL CLEARANCE ABOVE SEWER DOES NOT EXIST. IN SUCH CASES A MINIMUM OF 18" VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN THE WATER MAIN AND THE SANITARY SEWER.
 - IF THE WATER MAIN WILL BE INSTALLED LESS THAN 18" VERTICAL OR 10' LATERAL SEPARATION FROM SANITARY SEWER, THEN THIS WATER MAIN SHALL BE INSTALLED WITH RESTRAINED JOINT GASKETS. MINIMUM SPACING FOR HORIZONTAL BENDS AND LOWER VERTICAL BENDS.

- NOTES:**
- MAXIMUM TEST PRESSURE = 1.5 X 150 PSI.
 - MINIMUM ALLOWABLE SOIL BEARING PRESSURE = 500 PSF.
 - BEARING AREA = A X B.
 - C SHALL BE GREATER THAN A/2 AND B/2.

PIPE SIZE (PIPE OD) (IN.)	MINIMUM REQUIRED BEARING AREA (SQ FT)	MINIMUM REQUIRED BEARING AREA (SQ FT) PER 10' LENGTH	MINIMUM REQUIRED BEARING AREA (SQ FT) PER 10' LENGTH
4	4.80	4.4	15.0
6	6.96	6.4	22.5
8	9.95	9.1	31.5
10	11.10	10.2	36.0
12	13.20	12.2	42.0
14	15.30	14.2	48.0
16	17.40	16.2	54.0
18	19.50	18.2	60.0
20	21.60	20.2	66.0
24	27.72	25.2	81.0

- NOTES:**
- INSTALL CLEAN STONE AROUND THE HYDRANT BASE. WEEP HOLES AT BASE SHALL NOT BE BLOCKED.

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- NOTES:**
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 - MINIMUM ALLOWABLE SOIL BEARING PRESSURE = 500 PSF.
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- NOTES:**
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 - MINIMUM ALLOWABLE SOIL BEARING PRESSURE = 500 PSF.
 - BEARING AREA = A X B.
 - C SHALL BE GREATER THAN A/2 AND B/2.

- NOTES:**
- MAXIMUM TEST PRESSURE = 1.5 X 150 PSI.
 - MINIMUM ALLOWABLE SOIL BEARING PRESSURE = 500 PSF.
 - BEARING AREA = A X B.
 - C SHALL BE GREATER THAN A/2 AND B/2.

PIPE SIZE (PIPE OD) (IN.)	MINIMUM REQUIRED BEARING AREA (SQ FT)	MINIMUM REQUIRED BEARING AREA (SQ FT) PER 10' LENGTH	MINIMUM REQUIRED BEARING AREA (SQ FT) PER 10' LENGTH
4	4.80	4.4	15.0
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16	17.40	16.2	54.0
18	19.50	18.2	60.0
20	21.60	20.2	66.0
24	27.72	25.2	81.0

AECOM
AECOM TECHNICAL SERVICES, INC.
30 Knightbridge Road
Princeton, NJ 08542
732.598.3000 tel 732.388.0100 fax
www.aecom.com

SUB-CONSULTANT
HDR ENGINEERING, INC.
50 TICE BOULEVARD
WOODCLIFF LAKE, NJ 08077
201.335.9300 tel www.hdrinc.com

ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT
REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHIE
BERGEN COUNTY, NEW JERSEY
**EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT**

REGISTRATION
HDR ENGINEERING, INC.
CERTIFICATE OF AUTHORIZATION NO. 24628610703
ABBE DARVISH

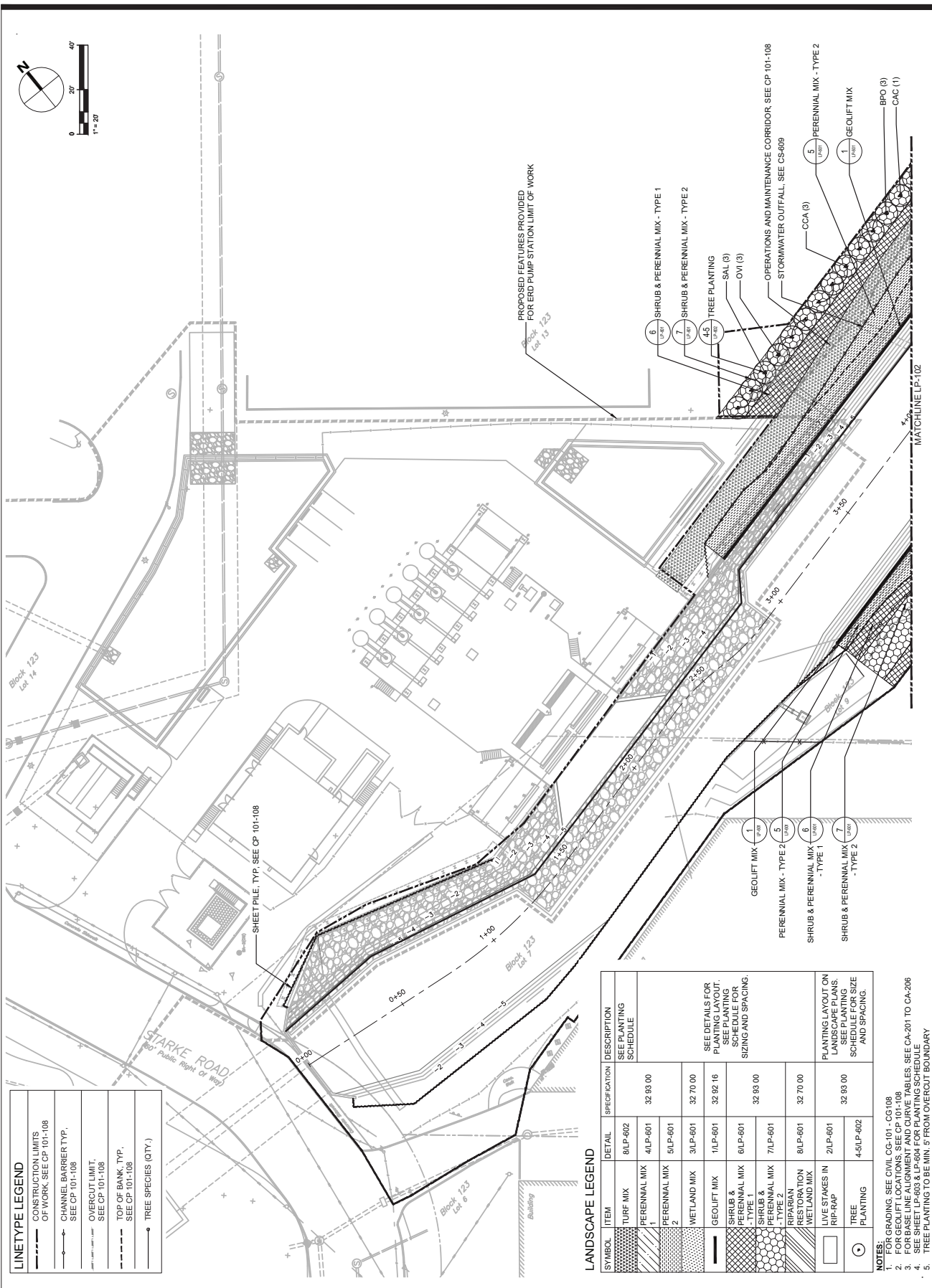
NEW JERSEY Professional Engineer
License/Certificate # 24628610703

Designed By: AD 07/2023
Drawn By: UN 07/2023
Proj. Check: AF 08/2023

PROJECT TERM CONTRACT NUMBER
P1131-03

SHEET TITLE
WATERMAIN
DETAILS
2 OF 2

SHEET NUMBER
CU-621



LINETYPE LEGEND

---	CONSTRUCTION LIMITS OF WORK. SEE CP 101-108
---	CHANNEL BARRIER TYP. SEE CP 101-108
---	OVERCUT LIMIT. SEE CP 101-108
---	TOP OF BANK, TYP. SEE CP 101-108
---	TREE SPECIES (QTY.)

LANDSCAPE LEGEND

SYMBOL	ITEM	DETAIL	SPECIFICATION	DESCRIPTION
[Pattern]	TURF MIX	8LP-602	32 99 00	SEE PLANTING SCHEDULE
[Pattern]	PERENNIAL MIX	4LP-601		
[Pattern]	PERENNIAL MIX	5LP-601		
[Pattern]	WETLAND MIX	3LP-601	32 70 00	SEE DETAILS FOR PLANTING LAYOUT. SEE PLANTING SCHEDULE FOR SIZING AND SPACING.
[Pattern]	GEOLOFT MIX	1LP-601	32 92 16	
[Pattern]	SHRUB & PERENNIAL MIX - TYPE 1	6LP-601	32 99 00	
[Pattern]	SHRUB & PERENNIAL MIX - TYPE 2	7LP-601	32 70 00	
[Pattern]	RESTORATION	8LP-601	32 99 00	
[Pattern]	WETLAND MIX	2LP-601	32 99 00	PLANTING LAYOUT ON LANDSCAPE PLANS. SEE PLANTING SCHEDULE FOR SIZE AND SPACING.
[Pattern]	LIVE STAKES IN RIP-RAP	4-5LP-602		
[Pattern]	TREE PLANTING			

- NOTES:**
- FOR GRADING, SEE CIVIL CG-101 - CG108
 - FOR GEOLOFT LOCATIONS, SEE CP 101-108
 - FOR BASE LINE ALIGNMENT AND CURVE TABLES, SEE CA-201 TO CA-206
 - FOR TREE PLANTING, SEE TREE SCHEDULE
 - TREE PLANTING TO BE MIN. 5' FROM OVERCUT BOUNDARY

AECOM
 AECOM TECHNICAL SERVICES, INC.
 30 Kingsbridge Road
 Piscataway, NJ 08854
 732.984.3300 tel
 732.988.0120 fax
 www.aecom.com

SUB-CONSULTANT
 HDR ENGINEERING, INC.
 50 TICE BOULEVARD
 WOODCLIFF LAKE, NJ 07077
 201.335.9000 tel
 www.hdrinc.com

ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHE
 BERGEN COUNTY, NEW JERSEY
EAST RISER DITCH CHANNEL IMPROVEMENTS PROJECT

REGISTRATION
 AECOM TECHNICAL SERVICES, INC.
 CERTIFICATE OF AUTHORIZATION NO. 330000000
STEVEN BIUSO
 NEW JERSEY PROFESSIONAL ENGINEER
 LICENSE NO. P486282100

Designed By: AH
 Drawn By: GS
 Proj. Check: HE
 PROJECT TERM CONTRACT NUMBER
 P1131-03
SHEET TITLE
 LANDSCAPE PLANTING
 LAYOUT PLAN 1 OF 8
SHEET NUMBER
 LP-101

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW



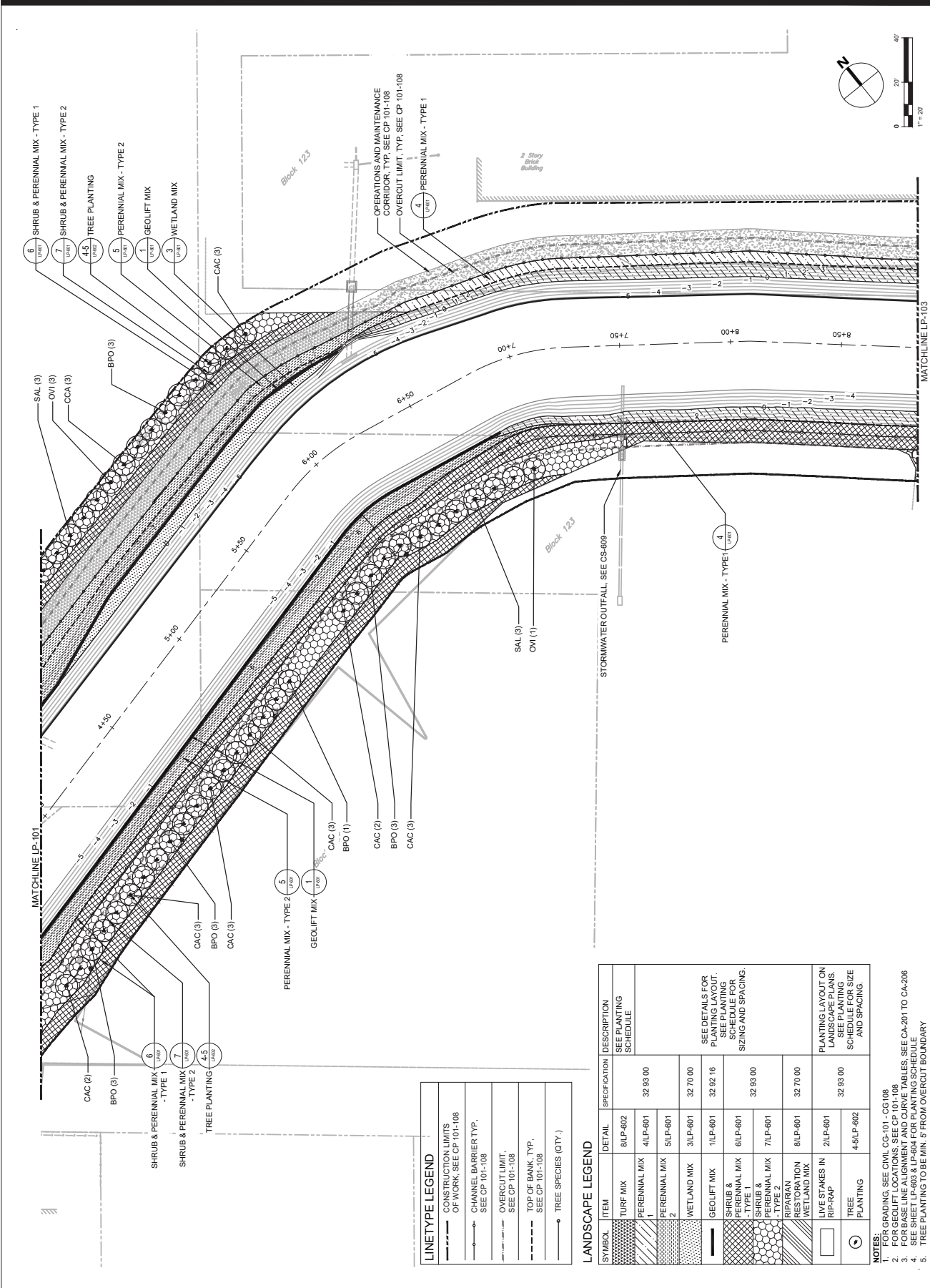
SUB-CONSULTANT
 HDR ENGINEERING, INC.
 50 TICE BOULEVARD
 SUITE 200
 WOODCLIFF LAKE, NJ 07077
 201.335.9300 tel www.hdrinc.com

ISSUE/REVISION	NO.	DATE	DESCRIPTION

PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHE
 EAST RIVER DITCH
 CHANNEL IMPROVEMENTS PROJECT

REGISTRATION
 AECOM TECHNICAL SERVICES, INC.
 CERTIFICATE OF AUTHORIZATION NO. 3A00000000
STEVEN BIUSO
 NEW JERSEY PROFESSIONAL ENGINEER
 LICENSE NO. PASE0382190

Designed By: AH
 Drawn By: GS
 Proj. Check: HE
 PROJECT TERM CONTRACT NUMBER
 P1131-03
 SHEET TITLE
 LANDSCAPE PLANTING
 LANDSCAPE PLAN 2 OF 8
 SHEET NUMBER
 LP-102



LINE TYPE LEGEND

---	CONSTRUCTION LIMITS OF WORK, SEE CP 101-108
---	CHANNEL BARRIER TYP. SEE CP 101-108
---	OVERCUT LIMIT, SEE CP 101-108
---	TOP OF BANK, TYP. SEE CP 101-108
---	TREE SPECIES (QTY.)

LANDSCAPE LEGEND

SYMBOL	ITEM	DETAIL	SPECIFICATION	DESCRIPTION
[Pattern]	TURF MIX	8LP-602	32 93 00	SEE PLANTING SCHEDULE
[Pattern]	PERENNIAL MIX	4LP-601	32 93 00	SEE DETAILS FOR PLANTING LAYOUT, SEE PLANTING SCHEDULE FOR SIZING AND SPACING.
[Pattern]	PERENNIAL MIX	5LP-601	32 93 00	
[Pattern]	WETLAND MIX	3LP-601	32 70 00	SEE DETAILS FOR PLANTING LAYOUT, SEE PLANTING SCHEDULE FOR SIZING AND SPACING.
[Pattern]	GEO-LIFT MIX	1LP-601	32 92 15	
[Pattern]	SHRUB & PERENNIAL MIX - TYPE 1	6LP-601	32 93 00	SEE PLANTING LAYOUT ON LANDSCAPE PLANS, SEE PLANTING SCHEDULE FOR SIZE AND SPACING.
[Pattern]	SHRUB & PERENNIAL MIX - TYPE 2	7LP-601	32 70 00	
[Pattern]	RESTORATION WETLAND MIX	8LP-601	32 93 00	
[Pattern]	LIVE STAKES IN RIP-RAP	2LP-601	32 93 00	
[Pattern]	TREE PLANTING	4-5LP-602	32 93 00	

- NOTES:**
- FOR GRADING, SEE CIVIL CG-101 - CG108
 - FOR GEO-LIFT LOCATIONS, SEE CP 101-108
 - FOR BASE LINE ALIGNMENT AND CURVE TABLES, SEE CA-201 TO CA-206
 - FOR TREE SPECIES AND SIZING, SEE TREE SPECIES SCHEDULE
 - TREE PLANTING TO BE MIN. 5' FROM OVERCUT BOUNDARY

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW



AECOM TECHNICAL SERVICES, INC.
30 Kingsbridge Road
Princeton, NJ 08542
732.248.3200 tel 732.389.0120 fax
www.aecom.com

SUB-CONSULTANT
HDR ENGINEERING, INC.
50 TICE BOULEVARD
WOODCLIFF LAKE, NJ 07077
201.335.8000 tel www.hdrinc.com

ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT

REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHE
BERGEN COUNTY, NEW JERSEY
**EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT**

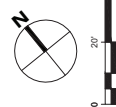
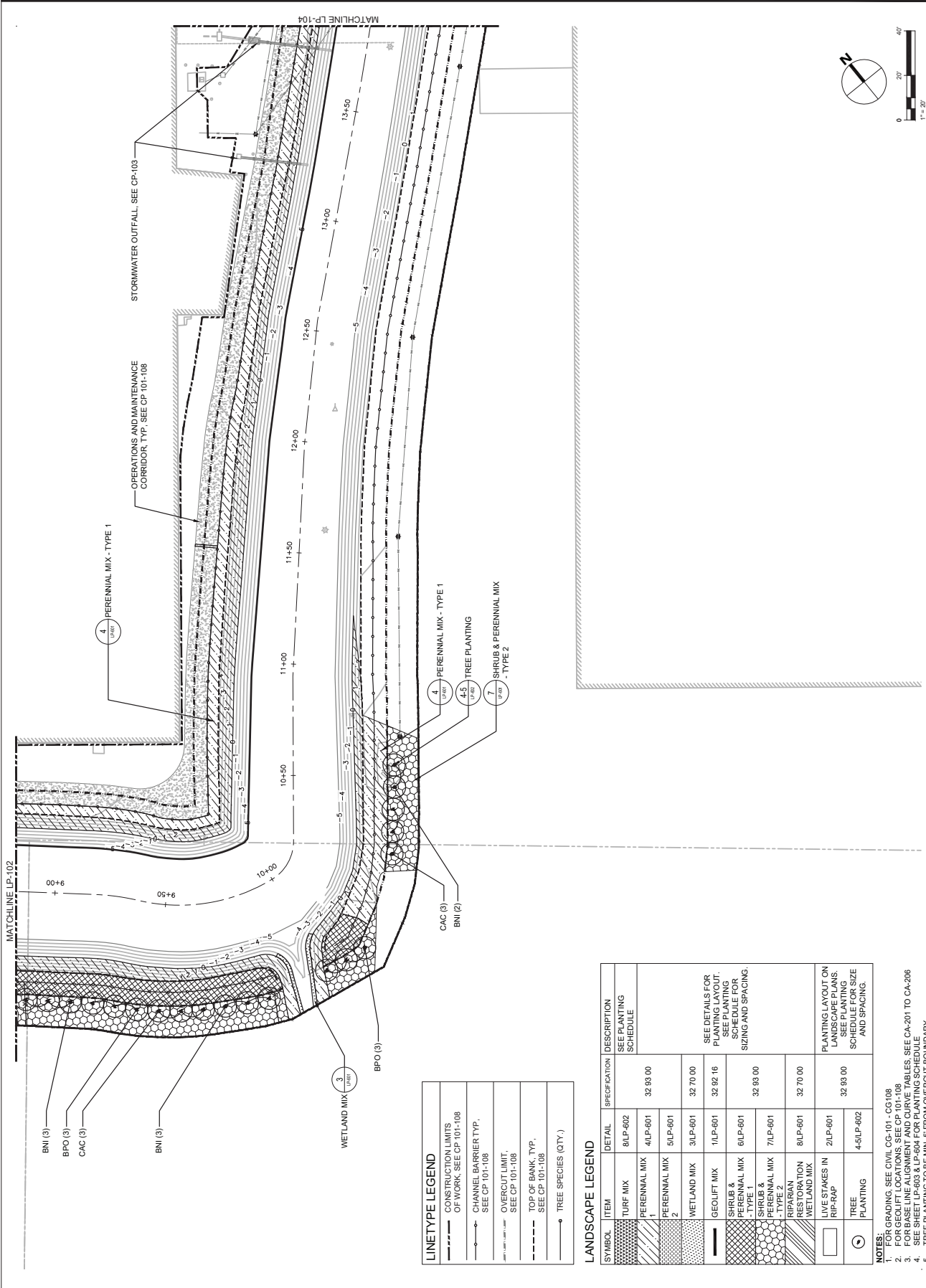
REGISTRATION

AECOM TECHNICAL SERVICES, INC.
CERTIFICATE OF AUTHORIZATION NO. 324000008
STEVEN BIUSO

NEW JERSEY PROFESSIONAL ENGINEER
LICENSE NO. PASE0382190

Designed By: AH
Drawn By: GS
Proj. Check: HE

PROJECT/TERM CONTRACT NUMBER
P1131-03
SHEET TITLE
LANDSCAPE PLANNING
LAYOUT PLAN 3 OF 8
SHEET NUMBER
LP-103



LINETYPE LEGEND

---	CONSTRUCTION LIMITS OF WORK, SEE CP 101-108
- - -	CHANNEL BARRIER TYP. SEE CP 101-108
---	OVERCUT LIMIT SEE CP 101-108
---	TOP OF BANK, TYP. SEE CP 101-108
○	TREE SPECIES (QTY.)

LANDSCAPE LEGEND

SYMBOL	ITEM	DETAIL	SPECIFICATION	DESCRIPTION
[Pattern]	TURF MIX	80LP-602	32 99 00	SEE PLANTING SCHEDULE
[Pattern]	PERENNIAL MIX	41LP-601	32 99 00	SEE DETAILS FOR PLANTING LAYOUT. SEE PLANTING SCHEDULE FOR SIZING AND SPACING.
[Pattern]	PERENNIAL MIX	51LP-601	32 70 00	
[Pattern]	WETLAND MIX	31LP-601	32 92 16	
[Pattern]	GEOLIFT MIX	11LP-601	32 92 16	SEE PLANTING SCHEDULE FOR SIZING AND SPACING.
[Pattern]	SHRUB & PERENNIAL MIX - TYPE 1	61LP-601	32 92 00	
[Pattern]	SHRUB & PERENNIAL MIX - TYPE 2	71LP-601	32 70 00	PLANTING LAYOUT ON LANDSCAPE PLANS. SEE PLANTING SCHEDULE FOR SIZE AND SPACING.
[Pattern]	RESTORATION WETLAND MIX	80LP-601	32 99 00	
[Pattern]	LIVE STAKES IN RIP-RAP	21LP-601	32 99 00	PLANTING LAYOUT ON LANDSCAPE PLANS. SEE PLANTING SCHEDULE FOR SIZE AND SPACING.
[Pattern]	TREE PLANTING	4-51LP-602	32 99 00	

- NOTES:**
- FOR GRADING, SEE CIVIL CG-101 - CG108
 - FOR GEOLIFT LOCATIONS, SEE CP 101-108
 - FOR BASE LINE ALIGNMENT AND CURVE TABLES, SEE CA-201 TO CA-206
 - FOR TREE PLANTING SCHEDULE, SEE CP 101-108
 - TREE PLANTING TO BE MIN. 5' FROM OVERCUT BOUNDARY

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW



AECOM TECHNICAL SERVICES, INC.
 30 Knightsbridge Road
 Princeton, NJ 08540
 732.964.3200 tel 732.369.0120 fax
 www.aecom.com

SUB-CONSULTANT
 HDR ENGINEERING, INC.
 50 TICE BOULEVARD
 WOODCLIFF LAKE, NJ 07077
 201.335.9300 tel www.hdrinc.com

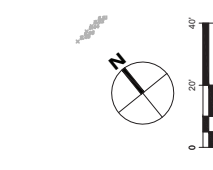
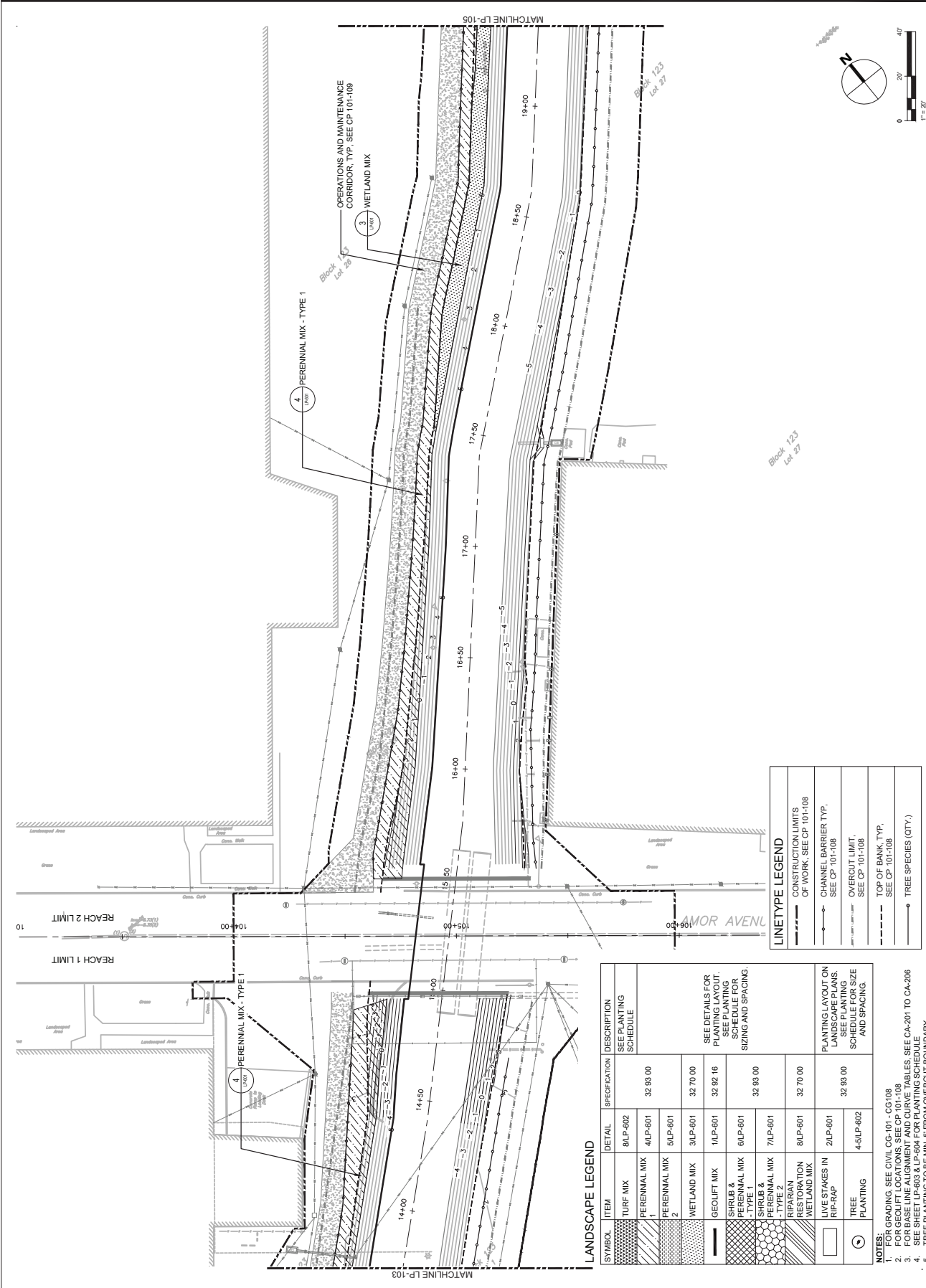
ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHE
 EAST RIVER DITCH
 CHANNEL IMPROVEMENTS PROJECT

REGISTRATION
 AECOM TECHNICAL SERVICES, INC.
 CERTIFICATE OF AUTHORIZATION NO. 3A00000000
 STEVEN BIUSO
 NEW JERSEY PROFESSIONAL ENGINEER
 LICENSE NO. P486082100

Designed By: AH
 Drawn By: GS
 Proj. Check: HE
 PROJECT/TERM CONTRACT NUMBER
 P1131-03
 SHEET TITLE
 LANDSCAPE PLANTING
 LAYOUT PLAN 4 OF 8
 SHEET NUMBER
 LP-104



LANDSCAPE LEGEND

SYMBOL	ITEM	DETAIL	SPECIFICATION	DESCRIPTION
[Pattern]	TURF MIX	8LP-602		SEE PLANTING SCHEDULE
[Pattern]	PERENNIAL MIX	4LP-601	32 99 00	
[Pattern]	PERENNIAL MIX	5LP-601		
[Pattern]	WETLAND MIX	3LP-601	32 70 00	
[Pattern]	GEOLIFT MIX	1LP-601	32 92 16	
[Pattern]	SHRUB & PERENNIAL MIX - TYPE 1	6LP-601	32 92 00	SEE DETAILS FOR PLANTING LAYOUT. SEE PLANTING SCHEDULE FOR SIZING AND SPACING.
[Pattern]	SHRUB & PERENNIAL MIX - TYPE 2	7LP-601		
[Pattern]	RESTORATION WETLAND MIX	8LP-601	32 70 00	
[Pattern]	LIVE STAKES IN RIP-RAP	2LP-601	32 99 00	PLANTING LAYOUT ON LANDSCAPE PLANS. SEE PLANTING SCHEDULE FOR SIZE AND SPACING.
[Symbol]	TREE PLANTING	4-5LP-602		

LINE TYPE LEGEND

[Line Style]	CONSTRUCTION LIMITS OF WORK. SEE CP 101-108
[Line Style]	CHANNEL BARRIER TYP. SEE CP 101-108
[Line Style]	OVERCUT LIMIT. SEE CP 101-108
[Line Style]	TOP OF BANK TYP. SEE CP 101-108
[Symbol]	TREE SPECIES (QTY.)

- NOTES:**
- FOR GRADING, SEE CIVIL CG-101 - CG108
 - FOR GEOLIFT LOCATIONS, SEE CP 101-108
 - FOR BASE LINE ALIGNMENT AND CURVE TABLES, SEE CA-201 TO CA-206
 - FOR TREE PLANTING SCHEDULES, SEE CP 101-108
 - TREE PLANTING TO BE MIN. 5' FROM OVERCUT BOUNDARY

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW



SUB-CONSULTANT
 HDR ENGINEERING, INC.
 50 TICE BOULEVARD
 WOODCLIFF LAKE, NJ 07077
 201.335.8000 tel www.hdrinc.com

ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHE
 BERGEN COUNTY, NEW JERSEY
EAST RISER DITCH
 CHANNEL IMPROVEMENTS PROJECT

REGISTRATION
 AECOM TECHNICAL SERVICES, INC.
 CERTIFICATE OF AUTHORIZATION NO. 32A0000008
STEVEN BIJSD
 NEW JERSEY PROFESSIONAL ENGINEER
 LICENSE NO. P486032100

Designed By: AH
 Drawn By: GS
 Proj. Check: HE
 PROJECT/TERM CONTRACT NUMBER
 P1131-03
 SHEET TITLE
 LANDSCAPE PLANTING
 LAYOUT PLAN OF 8
 SHEET NUMBER
 LP-105

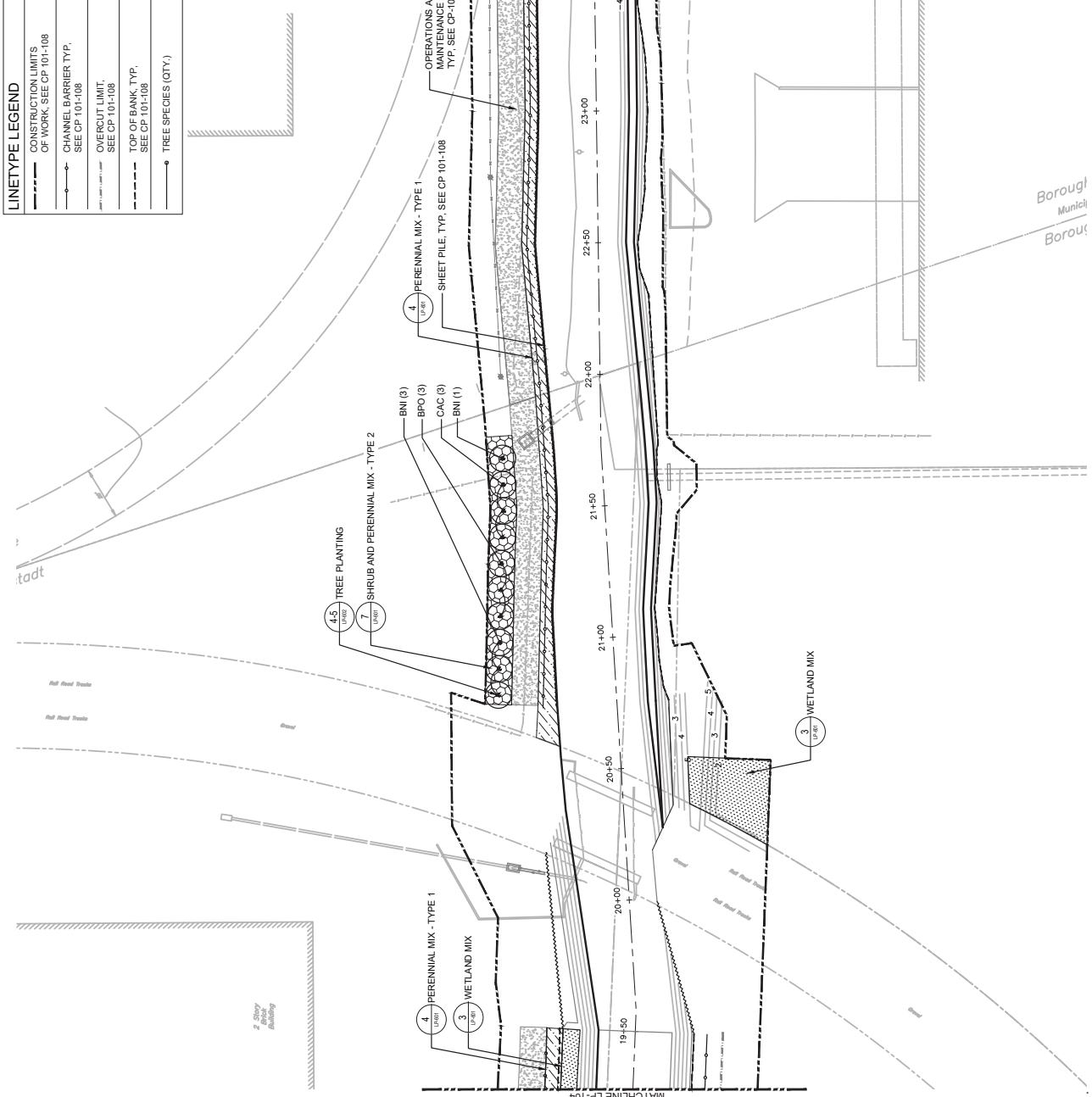
LANDSCAPE LEGEND

SYMBOL	ITEM	DETAIL	SPECIFICATION	DESCRIPTION
[Symbol]	TURF MIX	8/LP-602	32 93 00	SEE PLANTING SCHEDULE
[Symbol]	PERENNIAL MIX 1	4/LP-601	32 93 00	SEE DETAILS FOR PLANTING LAYOUT, SCHEDULE FOR SIZING AND SPACING.
[Symbol]	PERENNIAL MIX 2	5/LP-601	32 70 00	SEE DETAILS FOR PLANTING LAYOUT, SCHEDULE FOR SIZING AND SPACING.
[Symbol]	WETLAND MIX	3/LP-601	32 92 16	SEE DETAILS FOR PLANTING LAYOUT, SCHEDULE FOR SIZING AND SPACING.
[Symbol]	GEOLIFT MIX	1/LP-601	32 93 00	SEE DETAILS FOR PLANTING LAYOUT, SCHEDULE FOR SIZING AND SPACING.
[Symbol]	SHRUB & PERENNIAL MIX - TYPE 1	6/LP-601	32 70 00	SEE DETAILS FOR PLANTING LAYOUT, SCHEDULE FOR SIZING AND SPACING.
[Symbol]	SHRUB & PERENNIAL MIX - TYPE 2	7/LP-601	32 93 00	SEE DETAILS FOR PLANTING LAYOUT, SCHEDULE FOR SIZING AND SPACING.
[Symbol]	RIPARIAN RESTORATION WETLAND MIX	8/LP-601	32 70 00	SEE DETAILS FOR PLANTING LAYOUT, SCHEDULE FOR SIZING AND SPACING.
[Symbol]	LIVE STAKES IN RIP-RAP	2/LP-601	32 93 00	SEE DETAILS FOR PLANTING LAYOUT, SCHEDULE FOR SIZING AND SPACING.
[Symbol]	TREE PLANTING	4-5/LP-602	32 93 00	SEE DETAILS FOR PLANTING LAYOUT, SCHEDULE FOR SIZING AND SPACING.

LINE/TYPE LEGEND

[Symbol]	CONSTRUCTION LIMITS OF WORK, SEE CP 101-108
[Symbol]	CHANNEL BARRIER TYP., SEE CP 101-108
[Symbol]	OVERCUT LIMIT, SEE CP 101-108
[Symbol]	TOP OF BANK TYP., SEE CP 101-108
[Symbol]	TREE SPECIES (QTY.)

- NOTES:**
- FOR GRADING, SEE CIVIL CG-101 - CG-108
 - SEE SHEET LP-104 FOR CHANNEL ALIGNMENT
 - FOR BASE LINE ALIGNMENT AND CURVE TABLES, SEE CA-201 TO CA-206
 - SEE SHEET LP-603 & LP-604 FOR PLANTING SCHEDULE
 - TREE PLANTING TO BE MIN. 5' FROM OVERCUT BOUNDARY



FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW

AECOM
 AECOM TECHNICAL SERVICES, INC.
 30 Knightsbridge Road
 Princeton, NJ 08542
 732.964.3200 ext. 732.369.0120 fax
 www.aecom.com

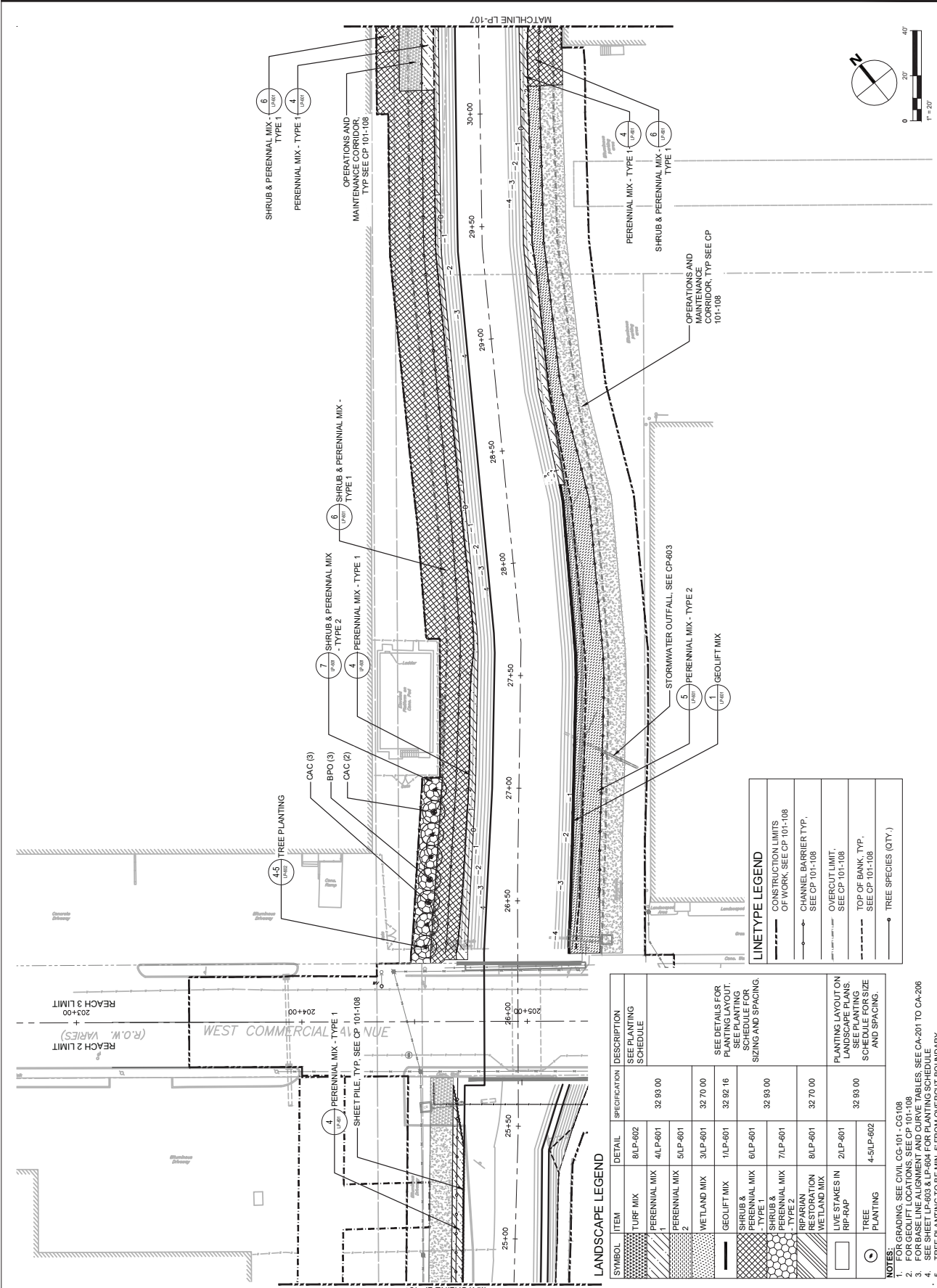
SUB-CONSULTANT
 HDR ENGINEERING, INC.
 50 TICE BOULEVARD
 WOODCLIFF LAKE, NJ 07077
 201.335.9000 ext. www.hdrinc.com

ISSUE/REVISION	DATE	DESCRIPTION

PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHE
 BERGEN COUNTY, NEW JERSEY
EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT

REGISTRATION
 AECOM TECHNICAL SERVICES, INC.
 CERTIFICATE OF AUTHORIZATION NO. 3A00000000
STEVEN BIUSO
 NEW JERSEY PROFESSIONAL ENGINEER
 LICENSE NO. P482632100

Designed By: AH
 Drawn By: GS
 Proj. Check: HE
 PROJECT TERM CONTRACT NUMBER
 P1131-03
 SHEET TITLE
LANDSCAPE PLANTING
 LAYOUT PLAN 6 OF 8
 SHEET NUMBER
LP-106

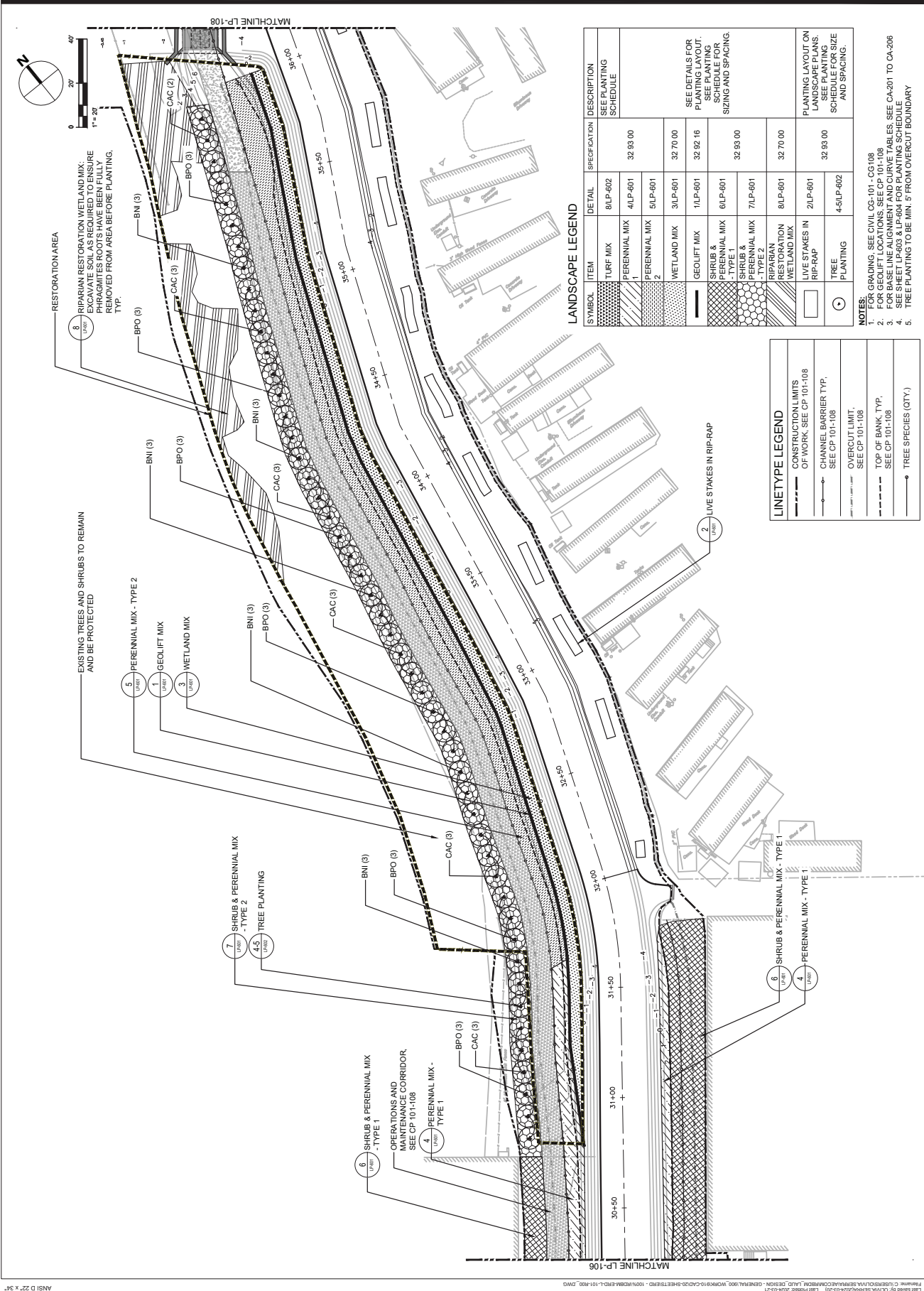


LANDSCAPE LEGEND

SYMBOL	ITEM	DETAIL	SPECIFICATION	DESCRIPTION
[Pattern]	TURF MIX	8LP-602		SEE PLANTING SCHEDULE
[Pattern]	PERENNIAL MIX 1	4LP-601	32 93 00	
[Pattern]	PERENNIAL MIX 2	5LP-601		
[Pattern]	WETLAND MIX	3LP-601	32 70 00	SEE DETAILS FOR PLANTING LAYOUT, SEE PLANTING SCHEDULE FOR SIZING AND SPACING.
[Pattern]	SHRUB & PERENNIAL MIX - TYPE 1	1LP-601	32 92 16	
[Pattern]	SHRUB & PERENNIAL MIX - TYPE 2	6LP-601	32 93 00	
[Pattern]	RIPIARIAN WETLAND MIX	7LP-601		
[Pattern]	LIVE STAKES IN RIP-RAP	8LP-601	32 70 00	PLANTING LAYOUT ON LAYOUT SHEETS, SEE PLANTING SCHEDULE FOR SIZE AND SPACING.
[Symbol]	TREE PLANTING	4-5LP-602	32 93 00	

- NOTES:**
- FOR GRADING, SEE CIVIL CG-101 - CG108
 - FOR GEOLIFT LOCATIONS, SEE CP-101-108
 - FOR BASE LINE ALIGNMENT AND CURVE TABLES, SEE CA-261 TO CA-266
 - FOR TREE SPECIES, SEE TREE SPECIES SCHEDULE
 - TREE PLANTING TO BE MIN. 5' FROM OVERCUT BOUNDARY

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW



LANDSCAPE LEGEND

SYMBOL	ITEM	SPECIFICATION	DESCRIPTION
[Symbol]	TURF MIX	8/UP-602	SEE PLANTING SCHEDULE
[Symbol]	PERENNIAL MIX 1	4/UP-601	32 93 00
[Symbol]	PERENNIAL MIX 2	5/UP-601	
[Symbol]	WETLAND MIX	3/UP-601	32 70 00
[Symbol]	GEOLIFT MIX	1/UP-601	32 92 16
[Symbol]	SHRUB & PERENNIAL MIX TYPE 1	6/UP-601	32 93 00
[Symbol]	SHRUB & PERENNIAL MIX TYPE 2	7/UP-601	
[Symbol]	RESTORATION WETLAND MIX	8/UP-601	32 70 00
[Symbol]	LIVE STAKES IN RIP-RAP	2/UP-601	PLANTING LAYOUT ON LANDSCAPE PLANS. SEE PLANTING SCHEDULE FOR SIZE AND SPACING.
[Symbol]	TREE PLANTING	4-5/UP-602	32 93 00

NOTES:

- FOR GRADING, SEE CIVIL CG-101 - CG108
- FOR GEOLIFT LOCATIONS, SEE CP 101-108
- FOR BASE LINE ALIGNMENT AND CURVE TABLES, SEE CA-201 TO CA-206
- SEE SHEET LP-603 & LP-604 FOR PLANTING SCHEDULE
- TREE PLANTING TO BE MIN. 5' FROM OVERTOP BOUNDARY

LINE TYPE LEGEND

[Symbol]	CONSTRUCTION LIMITS OF WORK; SEE CP 101-108
[Symbol]	CHANNEL BARRIER TYP. SEE CP 101-108
[Symbol]	OVERTOP LIMIT; SEE CP 101-108
[Symbol]	TOP OF BANK, TYP. SEE CP 101-108
[Symbol]	TREE SPECIES (QTY.)

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ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BERGEN COUNTY, NEW JERSEY
EAST RISER DITCH CHANNEL IMPROVEMENTS PROJECT

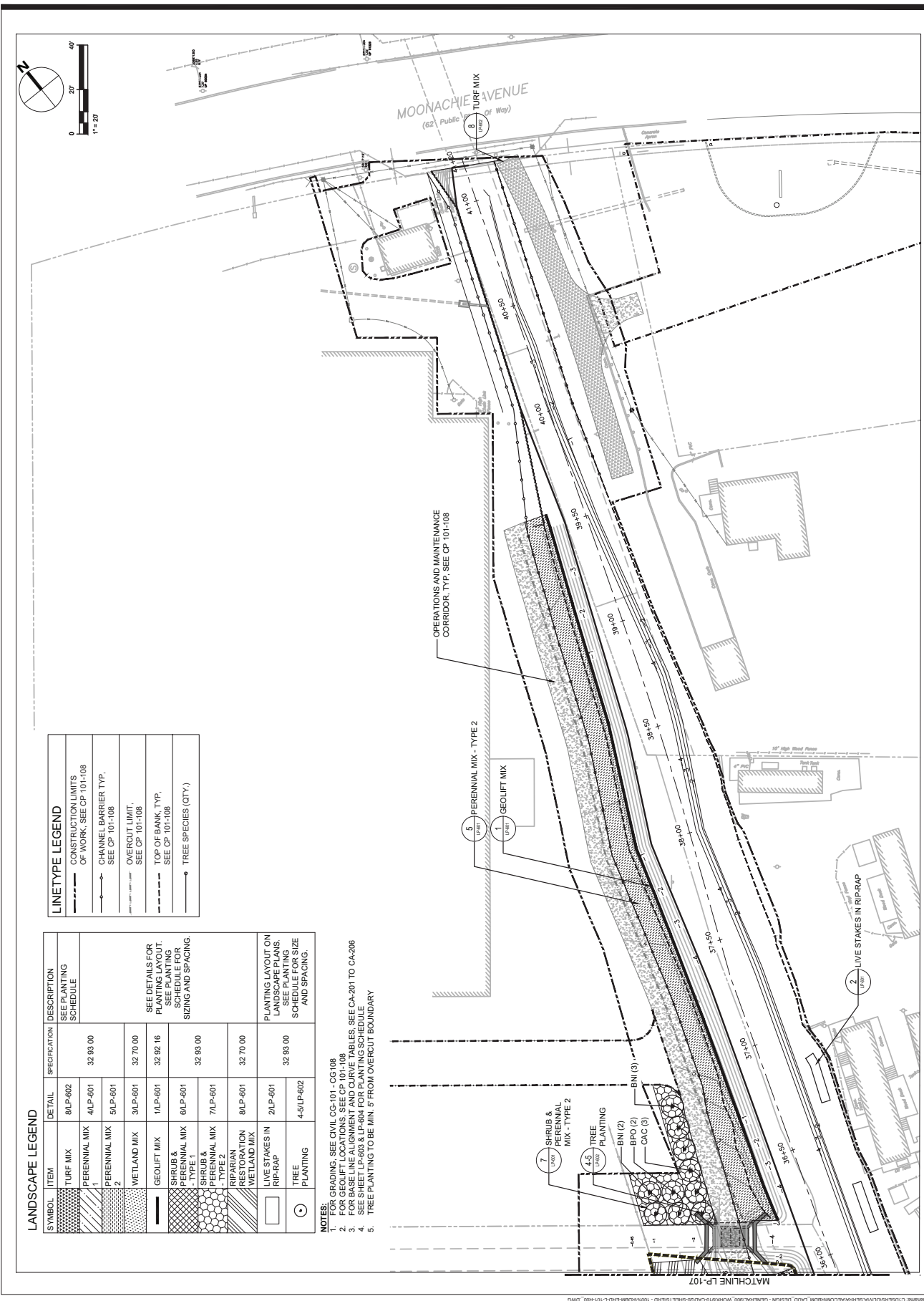
REGISTRATION
 AECOM TECHNICAL SERVICES, INC.
 CERTIFICATE OF AUTHORIZATION NO. 3A00000000
STEVEN BIUSO
 NEW JERSEY PROFESSIONAL ENGINEER
 LICENSE NO. P4860B02100

Designed By: AH
 Drawn By: GS
 Proj. Check: HE

PROJECT TERM CONTRACT NUMBER
 P1131-03

SHEET TITLE
 LANDSCAPE PLANTING
 LAYOUT PLAN 7 OF 8

SHEET NUMBER
 LP-107



LANDSCAPE LEGEND

SYMBOL	ITEM	DETAIL	SPECIFICATION	DESCRIPTION
[Pattern]	TURF MIX	8/LP-602	32 83 00	SEE PLANTING SCHEDULE
[Pattern]	PERENNIAL MIX 1	4/LP-601	32 83 00	SEE PLANTING SCHEDULE
[Pattern]	PERENNIAL MIX 2	5/LP-601	32 70 00	SEE DETAILS FOR PLANTING SCHEDULE FOR SIZING AND SPACING.
[Pattern]	WETLAND MIX	3/LP-601	32 82 16	SEE DETAILS FOR PLANTING SCHEDULE FOR SIZING AND SPACING.
[Pattern]	GEOLIFT MIX	1/LP-601	32 82 16	SEE DETAILS FOR PLANTING SCHEDULE FOR SIZING AND SPACING.
[Pattern]	SHRUB & PERENNIAL MIX	6/LP-601	32 83 00	SEE DETAILS FOR PLANTING SCHEDULE FOR SIZING AND SPACING.
[Pattern]	SHRUB & PERENNIAL MIX - TYPE 2	7/LP-601	32 83 00	SEE DETAILS FOR PLANTING SCHEDULE FOR SIZING AND SPACING.
[Pattern]	RIPARIAN RESTORATION WETLAND MIX	8/LP-601	32 70 00	SEE DETAILS FOR PLANTING SCHEDULE FOR SIZING AND SPACING.
[Pattern]	LIVE STAKES IN RIP-RAP	2/LP-601	32 83 00	SEE DETAILS FOR PLANTING SCHEDULE FOR SIZING AND SPACING.
[Pattern]	TREE PLANTING	4-5/LP-602	32 83 00	SEE DETAILS FOR PLANTING SCHEDULE FOR SIZING AND SPACING.

LINE TYPE LEGEND

[Dashed Line]	CONSTRUCTION LIMITS OF WORK, SEE CP 101-108
[Dashed Line]	CHANNEL BARRIER TYP. SEE CP 101-108
[Dashed Line]	OVERCUT LIMIT, SEE CP 101-108
[Dashed Line]	TOP OF BANK TYP. SEE CP 101-108
[Dashed Line]	TREE SPECIES (QTY.)

- NOTES:**
- FOR GRADING, SEE CIVIL CG-101-CG108
 - SEE SHEET LP-107 FOR CHANNEL IMPROVEMENTS
 - FOR BASE LINE ALIGNMENT AND CURVE TABLES, SEE CA-201 TO CA-206
 - SEE SHEET LP-603 & LP-604 FOR PLANTING SCHEDULE
 - TREE PLANTING TO BE MIN. 5' FROM OVERCUT BOUNDARY

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 50 TICE BOULEVARD
 WOODCLIFF LAKE, NJ 07077
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ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT
 REHABIL BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHE
 BERGEN COUNTY, NEW JERSEY
EAST RISER DITCH CHANNEL IMPROVEMENTS PROJECT

REGISTRATION
 AECOM TECHNICAL SERVICES, INC.
 CERTIFICATE OF AUTHORIZATION NO. 324000008
STEVEN BIUSO
 NEW JERSEY PROFESSIONAL ENGINEER
 LICENSE NO. PASE0362190

Designed By: AH
 Drawn By: GS
 Proj. Check: HE
 PROJECT/TERM CONTRACT NUMBER
 P1131-03
 SHEET TITLE
LANDSCAPE PLANNING
 LAYOUT PLAN 8 OF 8
 SHEET NUMBER
LP-108

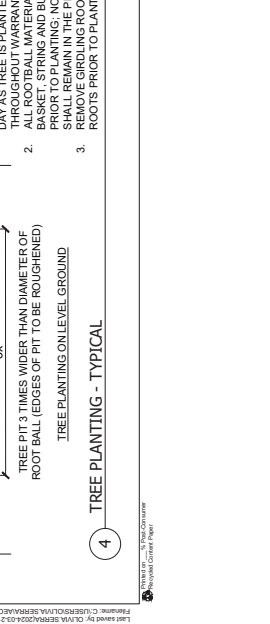
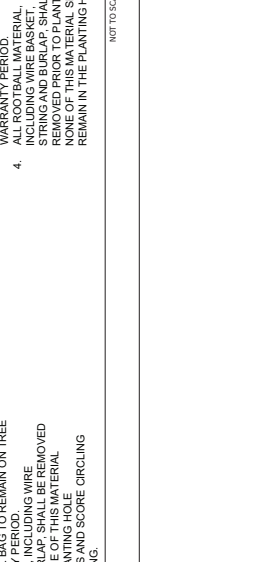
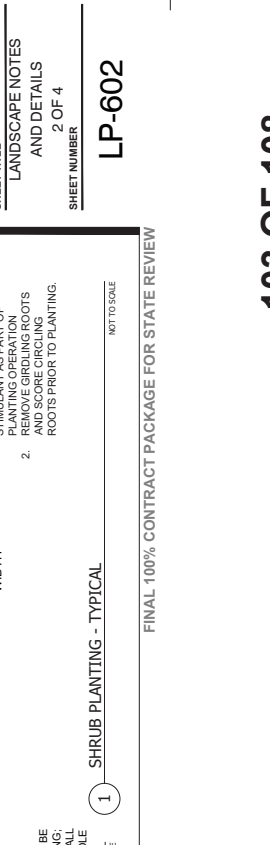
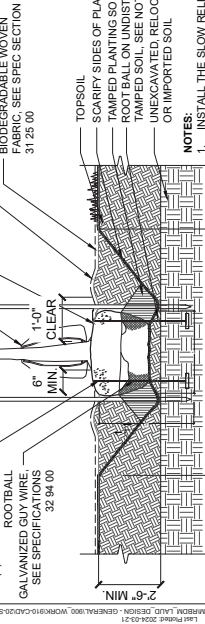
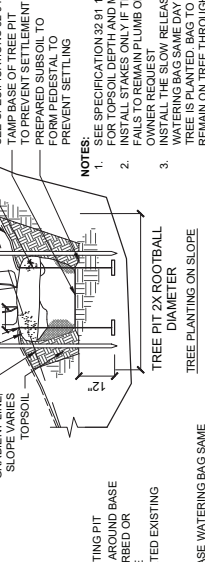
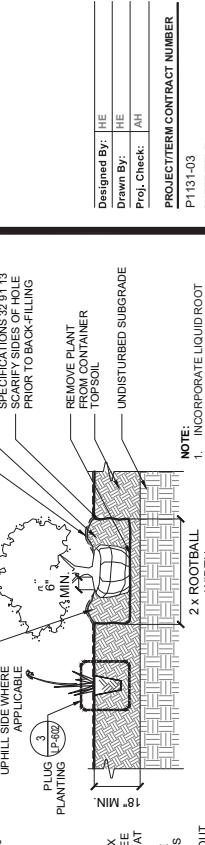
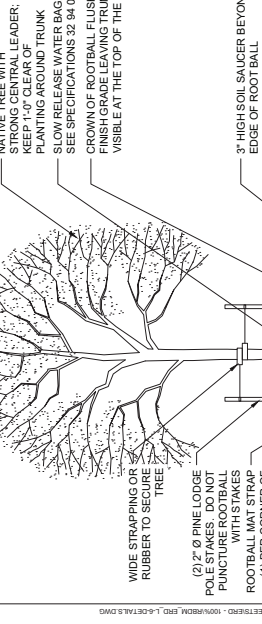
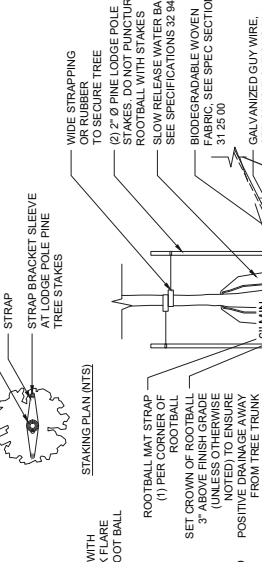
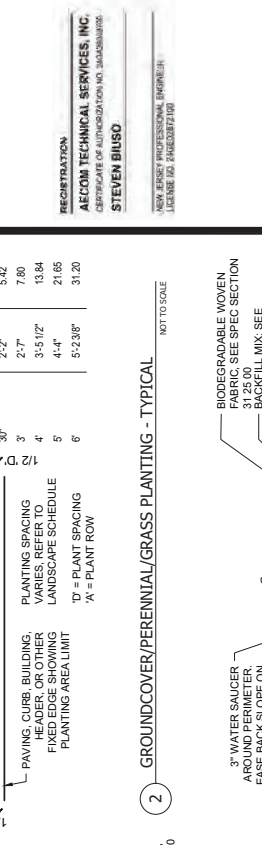
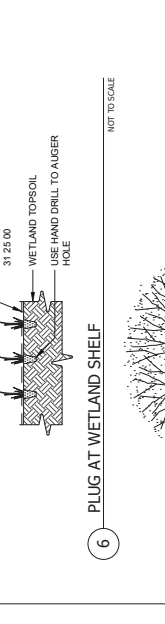
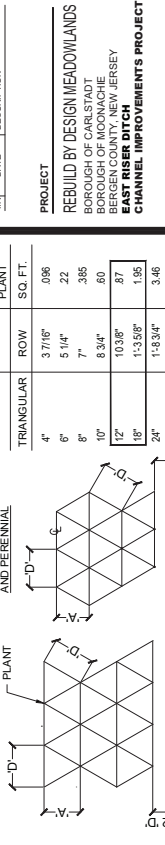
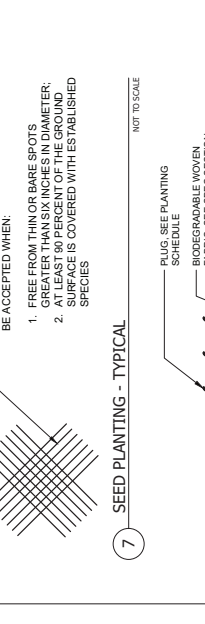
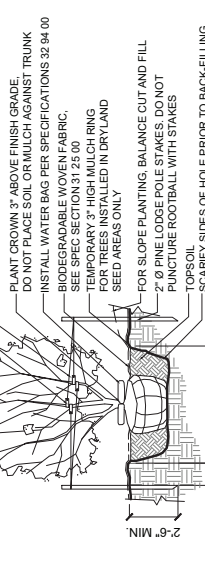
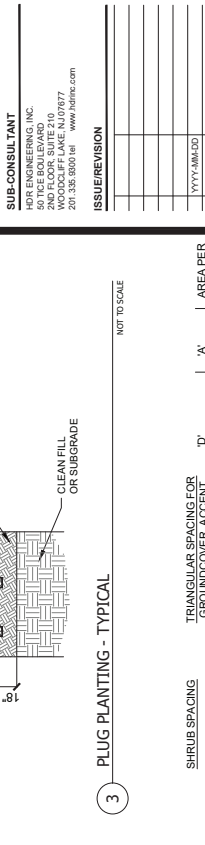
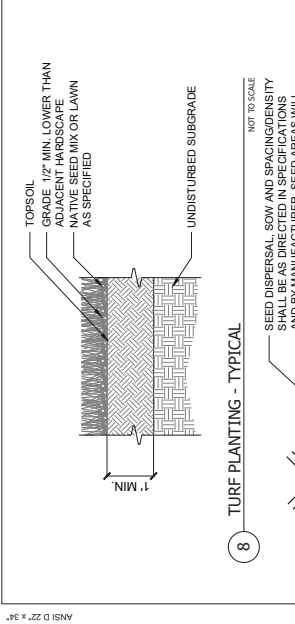
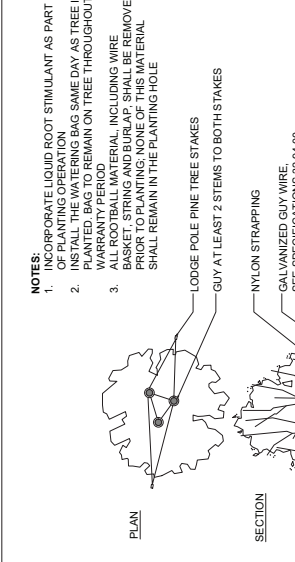
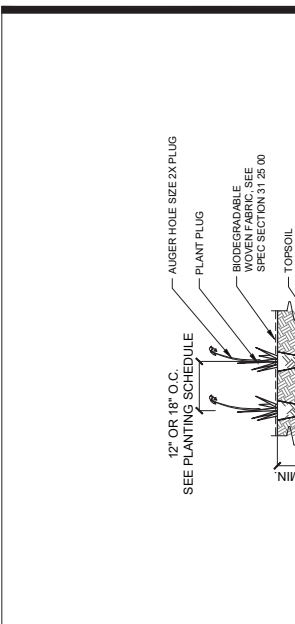
FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW

AECOM
 AECOM TECHNICAL SERVICES, INC.
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SUB-CONSULTANT
 HDR ENGINEERING, INC.
 50 TICE BOULEVARD
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 201.335.9300 tel www.hdrinc.com

ISSUE/REVISION

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ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHE
 BERGEN COUNTY, NEW JERSEY

**EAST RISER DITCH
 CHANNEL IMPROVEMENTS PROJECT**

REGISTRATION
 AECOM TECHNICAL SERVICES, INC.
 CERTIFICATE OF AUTHORIZATION NO. 330000088
STEVEN BIUSO
 NEW JERSEY PROFESSIONAL ENGINEER
 LICENSE NO. P480282190

AREA PER PLANT

'A'	ROW	SQ. FT.
4"	3'7/16"	106
6"	5'1/4"	22
8"	7"	385
10"	8'3/4"	80
12"	10'3/8"	87
18"	11'5/8"	1,95
24"	11'3/4"	3,46
30"	2'-2"	5,42
3'	2'-7"	7,80
4'	3'-5'1/2"	13,84
5'	4'-4"	21,65
6'	5'-2'3/8"	31,20

TRIANGLULAR SPACING FOR GROUND COVER ACCENT AND PERENNIAL

SHRUB SPACING

PLANTING SPACING VARIES, REFER TO LANDSCAPE SCHEDULE

FIXED EDGE SHOWING PLANTING AREA LIMIT

'A' = PLANT ROW

'R' = PLANT ROW

NOTES:

- INCORPORATE LIQUID ROOT STIMULANT AS PART OF PLANTING OPERATION.
- INSTALL THE WATERING BAG SAME DAY AS TREE IS PLANTED. BAG TO REMAIN ON TREE THROUGHOUT WARRANTY PERIOD.
- ALL ROOTBALL MATERIAL, INCLUDING WIRE MESH, SHALL BE REMOVED PRIOR TO PLANTING. NONE OF THIS MATERIAL SHALL REMAIN IN THE PLANTING HOLE.
- LODGE POLE PINE TREE STAKES GUY AT LEAST 2 STEMS TO BOTH STAKES.
- NYLON STRAPPING GALVANIZED GUY WIRE SEE SPECIFICATIONS 32 94 00 PLANT CROWN 3" ABOVE FINISH GRADE. DO NOT PLACE SOIL OR MULCH AGAINST TRUNK.
- INSTALL WATER BAG PER SPECIFICATIONS 32 94 00 BIODEGRADABLE WOVEN FABRIC, SEE SPEC. SECTION 31 25 00 TEMPORARY 3" HIGH MULCH RING FOR TREES INSTALLED IN DRY LAND SEED AREAS ONLY.
- FOR SLOPE PLANTING, BALANCE CUT AND FILL.
- 2" Ø PINE LODGE POLE STAKES. DO NOT PUNCTURE ROOTBALL WITH STAKES.
- TOPSOIL SCARIFY SIDES OF HOLE PRIOR TO BACK-FILLING.
- REMOVE PLANT CONTAINER TOP SOIL.
- UNDISTURBED SUBGRADE.
- INCORPORATE LIQUID ROOT STIMULANT AS PART OF PLANTING OPERATION.
- REMOVE GIRDLING ROOTS AND SCORE CIRCULING ROOTS PRIOR TO PLANTING.

LANDSCAPE PLANTING NOTES

- DO NOT FULLY PROCEED WITH PLANTING OPERATIONS AS DESIGNED WHEN IT IS OBVIOUS THAT UNKNOWN OBSTRUCTIONS AND/OR GRADE DIFFERENCES EXIST THAT MAY NOT HAVE BEEN KNOWN DURING THE DESIGN PROCESS. SUCH CONDITIONS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT IN WRITING. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ALL NECESSARY REVISIONS DUE TO FAILURE TO GIVE SUCH NOTIFICATION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COORDINATION WITH SUBCONTRACTORS AS REQUIRED TO ACCOMPLISH PLANTING OPERATIONS.
- REFER TO THE SPECIFICATIONS FOR PLANTING REQUIREMENTS, MATERIALS AND EXECUTION.
- ALL TREES SHALL BE TAGGED BY THE LANDSCAPE ARCHITECT AT A NURSERY SELECTED BY THE CONTRACTOR OR AT THE DISCRETION OF THE LANDSCAPE ARCHITECT.
- FINAL LOCATION OF ALL PLANT MATERIALS SHALL BE SUBJECT TO THE APPROVAL BY THE LANDSCAPE ARCHITECT PRIOR TO DIGGING ANY HOLES. CONTRACTOR IS TO DO THE FOLLOWING BEFORE BEGINNING PLANTING OPERATIONS:
 - SHRUBS - LAY OUT THE ACTUAL CONTAINERS ON-SITE BEFORE DIGGING HOLES.
 - TREES - CHALK OR STAKE THE LOCATIONS BEFORE DIGGING HOLES. ANY TREE PLANTED WITHOUT ITS FINAL LOCATION APPROVED BY THE LANDSCAPE ARCHITECT MAY BE REQUESTED TO BE RELOCATED AT THE SOLE EXPENSE OF THE CONTRACTOR.
 - CONTAINER POIS - PLACE ALL PLANTS (STILL IN ORIGINAL CONTAINERS).
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO FURNISH PLANT MATERIAL FREE OF PESTS OR DISEASES. PRE-SELECTED OR LANDSCAPE ARCHITECT SPECIFIED PLANT MATERIAL MUST BE INSPECTED BY THE CONTRACTOR AND CERTIFIED PEST AND DISEASE FREE. IT IS THE CONTRACTOR'S OBLIGATION TO WARRANT ALL PLANT MATERIAL FOR THE SPECIFICATIONS.
- GROUNDCOVERS AND SHRUBS ARE TO BE TRIANGULARLY SPACED UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
- ALL TREES WITHIN A SPECIES SHALL HAVE MATCHING FORM, UNLESS NOTED OTHERWISE ON THE PLANTING PLAN.
- REFER TO DRAWINGS FOR SPECIFIC TREE STAKING AND GUYING REQUIREMENTS.
- REMOVE ALL PLASTIC TAGS, CONTAINERS AND SYNTHETIC MATERIAL FROM PLANTS PRIOR TO PLANTING.
- SPACING TO BE 18" O.C. IN ALL AREAS EXCEPT GEOLIFT PLANTING. SPACING IN GEOLIFT PLANTING TO BE 12" O.C.

PLANTING SCHEDULE

PLANT CODE	GENUS	SPECIES	COMMON NAME	MIN. SIZE	MIN. SPACING	REACH 1: QTY.(EA)	REACH 2: QTY.(EA)	REACH 3: QTY.(EA)	WETLAND STATUS	NOTES
UNDERSTORY TREE										
BNI	BETULA	NIGRA	RIVER BIRCH	3" CAL	8' O.C.	8	4	20	B&B	FACW
BPO	BETULA	POPULIFOLIA	GRAY BIRCH	3" CAL	10' O.C.	22	3	23	B&B	FACW
CAC	CARPINUS	CANADENSIS	AMERICAN HOP HORN	3" CAL	8' O.C.	26	3	25	B&B	FAC
CC	CERCIS	EASTERN	REDBUD	3" CAL	10' O.C.	6			B&B	FACU
OVI	OSTRYA	VIRGINIANA	IRONWOOD	3" CAL	10' O.C.	7			B&B	FACU
SAL	SAXIFRAGA	ALBIDUM	SASSAPARA	3" CAL	10' O.C.	9			B&B	FACU
SHRUB										
CLETHRA	ALNIFOLIA	SUMMERSERVE	ET	5 GAL.	4' O.C.	61	2	59	CONTAINER	FAC
CAM	CORNUS	AMOMUM	SILKY DOGWOOD	5 GAL.	4' O.C.	25	3	16	CONTAINER	FACW
COC	CEPHALANTHU	OCCIDENTALIS	COMMON BUSH	5 GAL.	4' O.C.	196	6	183	CONTAINER	OBL
RPE	RHOIXDENDR	PERICLYMENOIDES	PINK AZALEA	5 GAL.	4' O.C.	75	3	66	CONTAINER	FAC
RVI	RHOIXDENDR	VISCOSUM	SWAMP ON	5 GAL.	4' O.C.	97	3	90	CONTAINER	FACW
SAL	SHIRAZEA	ALBAYAR	MEADOWSW	5 GAL.	4' O.C.	158	2	161	CONTAINER	FACW
PLUS										
ADI	ASTER	DIVARICATUS	WHITE WOOD ASTER	FLAT	18" O.C.	405		746	10 cubic inch per plug	UPL
AIN	ASCLEPIAS	INCARNATA	SWAMP MILKWEED	FLAT	18" O.C.	836	478	419	10 cubic inch per plug	OBL
ATU	ASCLEPIAS	TUBEROSA	MILKWEED	FLAT	18" O.C.	405		746	10 cubic inch per plug	UPL
BAR	BIDENS	ARISTOSA	BUR MARIPOSA	FLAT	18" O.C.	836	478	419	10 cubic inch per plug	FACW
EPA	ELEOCHARIS	PARVULA	DWARF SPARGAN	FLAT	18" O.C.	71	125	195	10 cubic inch per plug	OBL
EPE	EUPATORIUM	PEROLIATUM	BONESET	FLAT	SEE NOTE 11	1774	791	502	10 cubic inch per plug	FACW
EPU	EUTROCHIUM	PURPUREUM	SWEET-SCENTED JOE-PYE W	FLAT	SEE NOTE 11	2792	102	3188	10 cubic inch per plug	FAC
HDE	HELIANTHUS	DECAPETALUS	FOREST SUNFLOWER	FLAT	18" O.C.	1247	46	1424	10 cubic inch per plug	FACU
ICA	IMPATIENS	CAFFENSIS	JEWELWEED	FLAT	SEE NOTE 11	1873	1071	989	10 cubic inch per plug	FACW
JEF	JUNCUS	EFFUSUS	SOFT RUSH	FLAT	18" O.C.	71	125	195	10 cubic inch per plug	OBL
JTE	JUNCUS	TENUIS	POVERTY RUSH	FLAT	18" O.C.	2448	444	1580	10 cubic inch per plug	FAC
MFI	MONARDA	FISTULOSA	WILD BERGAMOT	FLAT	SEE NOTE 11	3885	203	3878	10 cubic inch per plug	FACU
PBI	POLYGONATUM	BIFLORUM	SOLOMON'S SEAL	FLAT	18" O.C.	3038	404	746	10 cubic inch per plug	FACU
PHY	POLYGONUM	HYDROPPER	MARSH HOP TREED	FLAT	18" O.C.	71	125	195	10 cubic inch per plug	OBL
PPU	PILEA	PUMILA	CANADIAN CLEARWEED	FLAT	SEE NOTE 11	1774	791	503	10 cubic inch per plug	FACW
RTR	RUDBECKIA	TRILOBIA	THIN-LEAF CONIFLOWER	FLAT	SEE NOTE 11	1914	32	2314	10 cubic inch per plug	FACU
SPA	SOLIDAGO	PATULA	ROUNDLEAF GOLDENROD	FLAT	SEE NOTE 11	160	280	437	10 cubic inch per plug	OBL
SSE	SOLIDAGO	SEMPERVIRENS	SEASIDE GOLDENROD	FLAT	SEE NOTE 11	3517	844	2506	10 cubic inch per plug	FACW
VHA	VERBENA	HASTATA	BLUE VERVAIN	FLAT	SEE NOTE 11	3600	893	203	10 cubic inch per plug	FACW

1 PLANTING SCHEDULE NOT TO SCALE

LANDSCAPE PLANTING NOTES

- DO NOT FULLY PROCEED WITH PLANTING OPERATIONS AS DESIGNED WHEN IT IS OBVIOUS THAT UNKNOWN OBSTRUCTIONS AND/OR GRADE DIFFERENCES EXIST THAT MAY NOT HAVE BEEN KNOWN DURING THE DESIGN PROCESS. SUCH CONDITIONS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT IN WRITING. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ALL NECESSARY REVISIONS DUE TO FAILURE TO GIVE SUCH NOTIFICATION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COORDINATION WITH SUBCONTRACTORS AS REQUIRED TO ACCOMPLISH PLANTING OPERATIONS.
- REFER TO THE SPECIFICATIONS FOR PLANTING REQUIREMENTS, MATERIALS AND EXECUTION.
- ALL TREES SHALL BE TAGGED BY THE LANDSCAPE ARCHITECT AT A NURSERY SELECTED BY THE CONTRACTOR OR AT THE DISCRETION OF THE LANDSCAPE ARCHITECT.
- FINAL LOCATION OF ALL PLANT MATERIALS SHALL BE SUBJECT TO THE APPROVAL BY THE LANDSCAPE ARCHITECT PRIOR TO DIGGING ANY HOLES. CONTRACTOR IS TO DO THE FOLLOWING BEFORE BEGINNING PLANTING OPERATIONS:
 - SHRUBS - LAY OUT THE ACTUAL CONTAINERS ON-SITE BEFORE DIGGING HOLES.
 - TREES - CHALK OR STAKE THE LOCATIONS BEFORE DIGGING HOLES. ANY TREE PLANTED WITHOUT ITS FINAL LOCATION APPROVED BY THE LANDSCAPE ARCHITECT MAY BE REQUESTED TO BE RELOCATED AT THE SOLE EXPENSE OF THE CONTRACTOR.
 - CONTAINER POIS - PLACE ALL PLANTS (STILL IN ORIGINAL CONTAINERS).
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO FURNISH PLANT MATERIAL FREE OF PESTS OR DISEASES. PRE-SELECTED OR LANDSCAPE ARCHITECT SPECIFIED PLANT MATERIAL MUST BE INSPECTED BY THE CONTRACTOR AND CERTIFIED PEST AND DISEASE FREE. IT IS THE CONTRACTOR'S OBLIGATION TO WARRANT ALL PLANT MATERIAL FOR THE SPECIFICATIONS.
- GROUNDCOVERS AND SHRUBS ARE TO BE TRIANGULARLY SPACED UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
- ALL TREES WITHIN A SPECIES SHALL HAVE MATCHING FORM, UNLESS NOTED OTHERWISE ON THE PLANTING PLAN.
- REFER TO DRAWINGS FOR SPECIFIC TREE STAKING AND GUYING REQUIREMENTS.
- REMOVE ALL PLASTIC TAGS, CONTAINERS AND SYNTHETIC MATERIAL FROM PLANTS PRIOR TO PLANTING.
- SPACING TO BE 18" O.C. IN ALL AREAS EXCEPT GEOLIFT PLANTING. SPACING IN GEOLIFT PLANTING TO BE 12" O.C.

RIPARIAN RESTORATION WETLAND MIX PLANTING SCHEDULE

PLANT CODE	GENUS	SPECIES	COMMON NAME	MIN. SIZE	MIN. SPACING	REACH 1: QTY.(EA)	REACH 2: QTY.(EA)	REACH 3: QTY.(EA)	WETLAND STATUS	NOTES
CANOPY TREE										
LST	LIQUIDAMBAR	STRYACIFLUA	SWEET GUM	2" CAL	8' O.C.		9	9	B&B	FAC
NSY	ACER	RUBRUM	RED MAPLE	2" CAL	10' O.C.		9	9	B&B	FAC
OPA	QUERCUS	PHellos	WILLOW OAK	2" CAL	10' O.C.		9	9	B&B	FACW
UNDERSTORY TREE										
BNI	BETULA	NIGRA	RIVER BIRCH	2" CAL	8' O.C.		15		B&B	FACW
SHRUB										
CAL	CLETHRA	ALNIFOLIA	SUMMERSERVE ET	5 GAL.	4' O.C.			20	CONTAINER	FAC
CSE	CORNUS	SERKEA	RED TWIG DOGWOOD	5 GAL.	4' O.C.			20	CONTAINER	FACW
SRI	SALIX	DICOLOR	PUSSY WILLOW	5 GAL.	4' O.C.			20	CONTAINER	FACW

2 RIPARIAN RESTORATION WETLAND MIX PLANTING SCHEDULE NOT TO SCALE

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 AECOM TECHNICAL SERVICES, INC.
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 Princeton, NJ 08540
 732.943.3200 tel 732.368.0120 fax
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SUB-CONSULTANT
 HDR ENGINEERING, INC.
 50 TICE BOULEVARD
 WOODCLIFF LAKE, NJ 07077
 201.335.8000 tel www.hdrinc.com

ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHE
 BERGEN COUNTY, NEW JERSEY
**EAST RISER DITCH
 CHANNEL IMPROVEMENTS PROJECT**

REGISTRATION
 AECOM TECHNICAL SERVICES, INC.
 CERTIFICATE OF AUTHORIZATION NO. 33A0000008
STEVEN BIUSO

NEW JERSEY PROFESSIONAL ENGINEER
 LICENSE NO. P48628P2100

Designed By: HE
 Drawn By: HE
 Proj. Check: AH

PROJECT TERM CONTRACT NUMBER
 P1131-03

SHEET TITLE
 LANDSCAPE NOTES
 AND DETAILS
 3 OF 4

SHEET NUMBER
 LP-603

GEOLIFT UPLAND DRY SEED MIX NOTES	BOTANICAL NAME	COMMON NAME	WETLAND STATUS	PERCENTAGE
GEOLIFT UPLAND DRY SEED MIX NOTES P131-03 P131-03	ASTER NOVAE-ANGIAE	NEW ENGLAND ASTER	FACW	22.00%
	HELOPSIS HELIANTHOIDES	OX-EYE SUNFLOWER	FACU	35.00%
	PENSTEMON DIGITALIS	TALL WHITE BEARSTONGUE	FAC	22.00%
	PICNANTHEMUM TENUIFOLIUM	NARROWLEAF MOUNTAINMINT	FAC	5.00%
	SOLIDAGO JUNCEA	EARLY GOLDENROD	UPL	6.00%
	SOLIDAGO NEMORALIS	GRAY GOLDENROD	UPL	10.00%
	REACH 1 total 2335 sqf			
	REACH 2 total 0 sqf			
	REACH 3 total 2134 sqf			

1. APPLY AT 0.65 LB PER 1,000 SF.

2 GEOLIFT PERENNIAL SEED MIXTURE SCHEDULE

SEED MIXTURE SCHEDULE	BOTANICAL NAME	COMMON NAME	WETLAND STATUS	PERCENTAGE
SEED MIX A	RUDBECKIA HIRTA	BLACK-EYED SUSAN	FACU	32.0%
	ZIZIA AUREA	GOLDEN ALEXANDER	FAC	30.0%
	ASCLEPIAS TUBEROSA	BUTTERFLY MILKWEED	UPL	20.0%
	SENNA HEBEICARPA	WILD SENNA	FACW	5.0%
	SOLIDAGO JUNCEA	EARLY GOLDENROD	UPL	4.0%
	SOLIDAGO NEMORALIS	NARROWLEAF MOUNTAINMINT	FAC	3.0%
	HELIANTHUS ANGIUSTIFOLIUS	GRAY GOLDENROD	UPL	3.0%
	HELIANTHUS ANGIUSTIFOLIUS	SWAMP (NARROWLEAF) SUNFLOWER	FACW	2.0%
	REACH 1 total 682 sqf			
	REACH 2 total 0 sqf			
REACH 3 total 712 sqf				
SEED MIX B	ECHINACEA PURPUREA	PURPLE CONEFLOWER	UPL	19.2%
	RUDBECKIA HIRTA	BLACK-EYED SUSAN	FACU	16.5%
	HELOPSIS HELIANTHOIDES	OX-EYE SUNFLOWER	FACU	11.0%
	LIATRIS SPICATA	TALL WHITE BEARSTONGUE	FAC	11.0%
	AGROSTIS PERENNANS	MARSH BLAZING STAR	FAC	5.5%
	ASCLEPIAS TUBEROSA	AUTUMN BENTGRASS	FACU	2.7%
	ASCLEPIAS TUBEROSA	BUTTERFLY MILKWEED	FACU	2.7%
	ASCLEPIAS TUBEROSA	REGLEAF ASTER	UPL	2.7%
	ASCLEPIAS TUBEROSA	ZIZIAG ASTER	UPL	2.7%
	ASCLEPIAS TUBEROSA	BLUE FALSE INDIGO	FACU	2.7%
SEED MIX C	PICNANTHEMUM TENUIFOLIUM	NARROWLEAF MOUNTAINMINT	FAC	2.7%
	SOLIDAGO JUNCEA	EARLY GOLDENROD	UPL	2.7%
	SOLIDAGO JUNCEA	GRAY GOLDENROD	FACU	2.7%
	SOLIDAGO JUNCEA	TRIDACTYLIS	FACU	2.7%
	SOLIDAGO JUNCEA	GOLDEN ALEXANDER	FACU	2.7%
	SOLIDAGO JUNCEA	THIMBLEWEED	FACU	2.7%
	SOLIDAGO JUNCEA	SMOOTH BLUE ASTER	UPL	2.7%
	SOLIDAGO JUNCEA	WILD BERGAMOT	FACU	2.7%
	SOLIDAGO JUNCEA	EARLY GOLDENROD	FACU	1.1%
	SOLIDAGO JUNCEA	YELLOW FALSE INDIGO	UPL	0.3%
SEED MIX D	PICNANTHEMUM TENUIFOLIUM	NARROWLEAF MOUNTAINMINT	FAC	0.5%
	VERONICA STRIATA	HARRY BARTONONGUE	UPL	0.5%
	VERONICA STRIATA	CULVER'S ROOT	FAC	0.3%
	REACH 1 total 533 sqf			
	REACH 2 total 0 sqf			
	REACH 3 total 350 sqf			

1 PERENNIAL SEED MIXTURE SCHEDULE

NOT TO SCALE

GEOLIFT WET PERENNIAL SEED MIX <= 1 EL	BOTANICAL NAME	COMMON NAME	WETLAND STATUS	PERCENTAGE
GEOLIFT WET PERENNIAL SEED MIX <= 1 EL	ASPLEPHAS INCARNATA	SWAMP MILKWEED	OBL	20.00%
	ASTER NOVAE-ANGIAE	NEW ENGLAND ASTER	FACW	15.00%
	EUPATORIUM FISTULOSUM	JOE PYE WEED	FACW	4.00%
	EUPATORIUM MACULATUM	SPOTTED JOE PYE WEED	OBL	2.80%
	EUPATORIUM PEROLIATUM	BONSET	FACW	2.40%
	HELENIUM AUTUMNALE	COMMON SNEEZEWEED	FACW	5.00%
	JUNCUS EFFUSUS	SOFT RUSH	OBL	10.00%
	JUNCUS EFFUSUS	GREAT BLUE LOBELIA	FACW	6.20%
	JUNCUS EFFUSUS	ROUNDLEAF GOLDENROD	OBL	0.80%
	JUNCUS EFFUSUS	SQUARE STRIMMED MONKEYFLOWER	OBL	0.30%
SUB-CONSULTANT	VERBENA HASTATA	BLUE VERVAIN	FACW	5.00%
	VERBENA HASTATA	NEW YORK IRONWEED	FACW	20.00%
	REACH 1 total 716 sqf			
	REACH 2 total 0 sqf			
	REACH 3 total 1057 sqf			

1. APPLY AT 0.7 LB PER 1,000 SF.

NOT TO SCALE

SEED MIX C	BOTANICAL NAME	COMMON NAME	WETLAND STATUS	PERCENTAGE
SEED MIX C	VERBENA HASTATA	BLUE VERVAIN	FACW	24.2%
	JUNCUS EFFUSUS	SOFT RUSH	OBL	18.2%
	ALUSMA SUBCORDATA	MUD PLANTAIN	OBL	12.1%
	ASPLEPHAS INCARNATA	SWAMP MILKWEED	OBL	12.1%
	ASCLEPIAS INCARNATA	FEAT TOPPED WHITE ASTER	UPL	6.1%
	EUPATORIUM PEROLIATUM	BONSET	FACW	6.1%
	IRIS VERSICOLOR	BLUE FLAG	OBL	6.1%
	CHELODE GLABRA	TURTLEHEAD	OBL	3.0%
	EUPATORIUM FISTULOSUM	JOE PYE WEED	FACW	3.0%
	HELENIUM AUTUMNALE	COMMON SNEEZEWEED	FACW	3.0%
SEED MIX D	LOBELIA SP. HILITICA	GREAT BLUE LOBELIA	FACW	3.0%
	PENTHORUM SEDOIDES	DITCH STONEROP	OBL	3.0%
	REACH 1 total 1490 sqf			
	REACH 2 total 688 sqf			
	REACH 3 total 437 sqf			

SEED MIX D	BOTANICAL NAME	COMMON NAME	WETLAND STATUS	PERCENTAGE
SEED MIX D	ZIZIA AUREA	GOLDEN ALEXANDER	FAC	38.7%
	VERBENA HASTATA	BLUE VERVAIN	FACW	13.1%
	JUNCUS EFFUSUS	SOFT RUSH	OBL	9.8%
	RUDBECKIA HIRTA	BLACK-EYED SUSAN	FACU	8.8%
	HELOPSIS HELIANTHOIDES	OX-EYE SUNFLOWER	FACU	6.6%
	ASCLEPIAS INCARNATA	SWAMP MILKWEED	OBL	3.3%
	ASTER NOVAE-ANGIAE	NEW ENGLAND ASTER	FACW	2.3%
	ASTER UMBELLATUS	FEAT TOPPED WHITE ASTER	UPL	2.3%
	EUPATORIUM PEROLIATUM	BONSET	FACW	2.3%
	AGROSTIS PERENNANS	AUTUMN BENTGRASS	FACU	1.6%
SUB-CONSULTANT	HELENIUM AUTUMNALE	COMMON SNEEZEWEED	FACW	1.6%
	MONARDA FISTULOSA	WILD BERGAMOT	FACU	1.6%
	VERONICA NOVBORACENSIS	NEW YORK IRONWEED	FACW	1.6%
	PICNANTHEMUM TENUIFOLIUM	NARROWLEAF MOUNTAINMINT	FAC	1.3%
	SOLIDAGO JUNCEA	ROUNDLEAF GOLDENROD	OBL	1.3%
	EUPATORIUM FISTULOSUM	JOE PYE WEED	FACW	1.0%
	LOBELIA SP. HILITICA	GREAT BLUE LOBELIA	FACW	1.0%
	ASTER PUNICEUS	PURPLESTEM ASTER	UPL	0.7%
	REACH 1 total 788 sqf			
	REACH 2 total 0 sqf			
REACH 3 total 1451 sqf				

NOT TO SCALE



AECOM TECHNICAL SERVICES, INC.
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SUB-CONSULTANT
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50 TICE BOULEVARD
WOODCLIFF LAKE, NJ 07077
201.335.9300 tel www.hdrinc.com

ISSUE/REVISION	DATE	DESCRIPTION

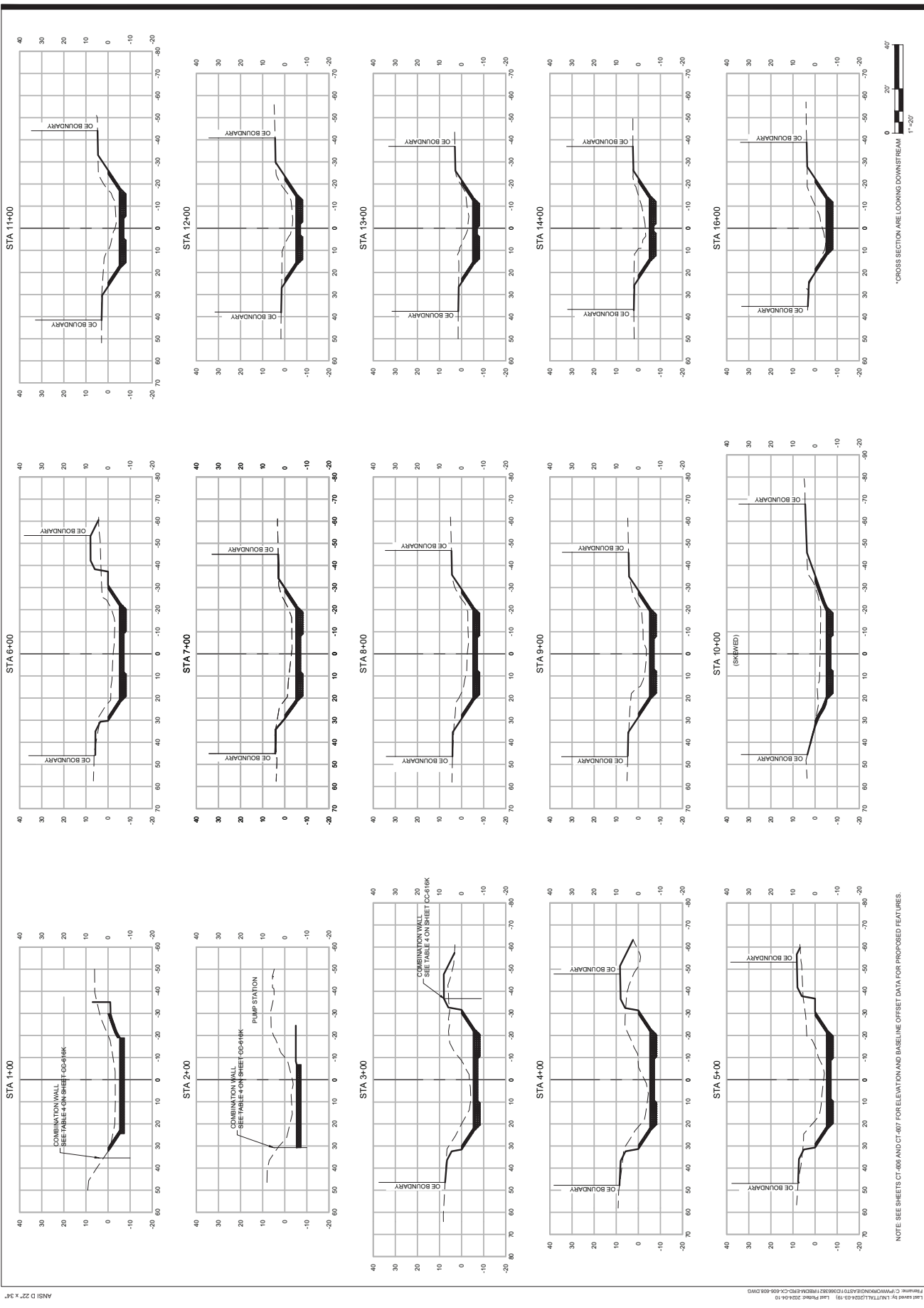
PROJECT
REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHIE
BERGEN COUNTY, NEW JERSEY
EAST RISER DITCH
CHANNEL IMPROVEMENTS PROJECT

REGISTRATION
AECOM TECHNICAL SERVICES, INC.
CERTIFICATE OF AUTHORIZATION NO. 3A000008
STEVEN BIUSO

NEW JERSEY PROFESSIONAL ENGINEER
LICENSE NO. 248026216

Designed By: HE
Drawn By: HE
Proj. Check: AH

PROJECT TERM CONTRACT NUMBER
P131-03
SHEET TITLE
LANDSCAPE NOTES
AND DETAILS
4 OF 4
SHEET NUMBER
LP-604



NOTE: SEE SHEETS CT-605 AND CT-607 FOR ELEVATION AND BASELINE OFFSET DATA FOR PROPOSED FEATURES.

*CROSS SECTION ARE LOOKING DOWNSTREAM



AECOM TECHNICAL SERVICES, INC.
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SUB-CONSULTANT
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 50 TICE BOULEVARD
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ISSUE/REVISION

NO.	DATE	DESCRIPTION

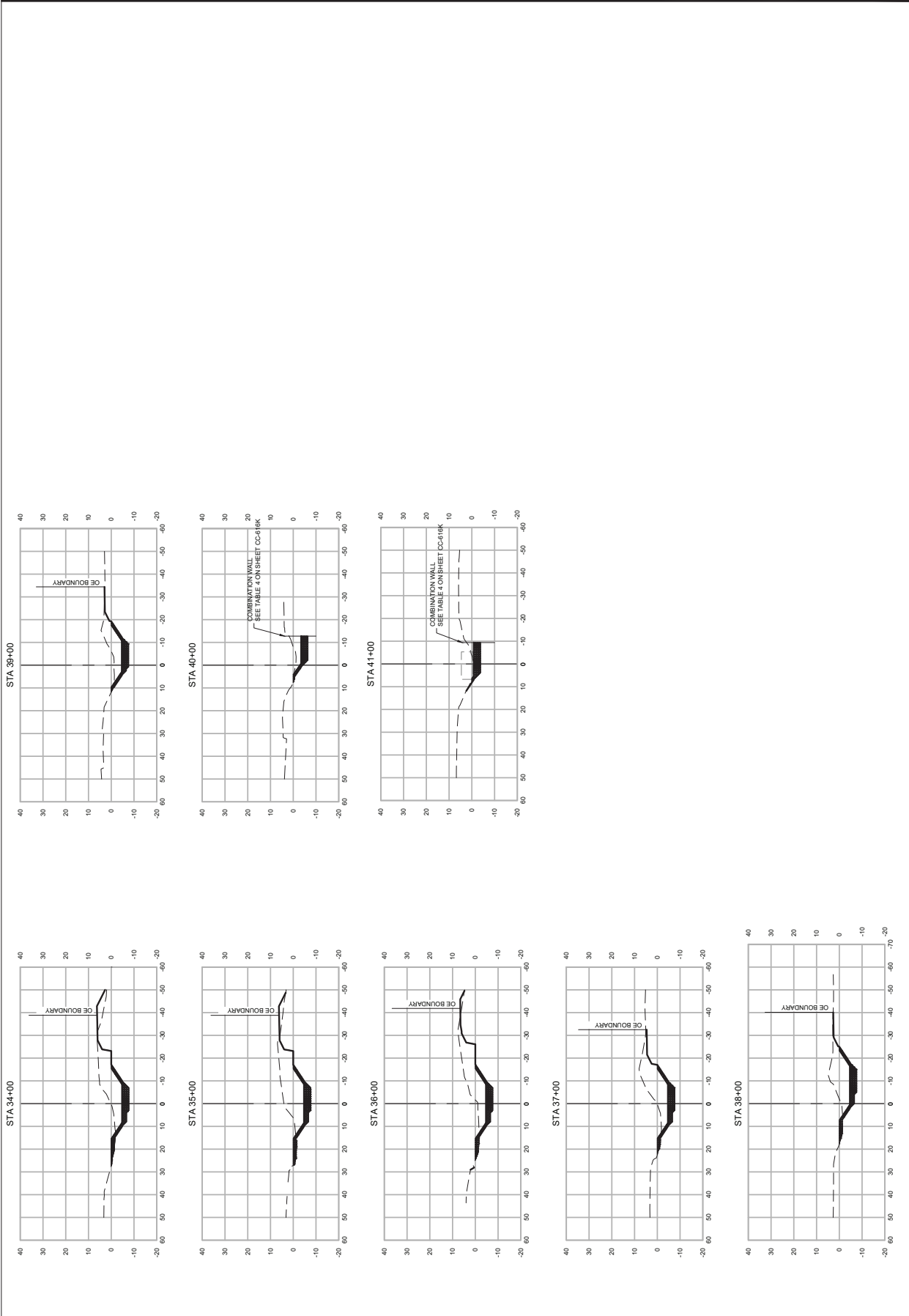
PROJECT
 REBUILD BY DESIGN MEADOWLANDS
 BOROUGH OF CARLSTADT
 BOROUGH OF MOONACHIE
 BERGEN COUNTY, NEW JERSEY
**EAST RIVER DITCH
 CHANNEL IMPROVEMENTS PROJECT**

REGISTRATION
 HDR ENGINEERING, INC.
 CERTIFICATE OF AUTHORIZATION NO. 24628610703
MICHAEL VECCHIO
 NEW JERSEY Professional Engineer
 License Certificate # 24628610703

Designed By: JCR 09/2023
 Drawn By: JT 09/2023
 Proj. Check: KF 09/2023
PROJECT/TERM CONTRACT NUMBER
 P131-03
SHEET TITLE
 CHANNEL SECTIONS
 (1 OF 3)

SHEET NUMBER
 CX-606

FINAL 100% CONTRACT PACKAGE FOR STATE REVIEW



NOTE: SEE SHEETS CT-605 AND CT-607 FOR ELEVATION AND BASELINE OFFSET DATA FOR PROPOSED FEATURES.

*CROSS SECTION ARE LOOKING DOWNSTREAM
1" = 20'

AECOM
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ISSUE/REVISION

IR	DATE	DESCRIPTION

PROJECT
REBUILD BY DESIGN MEADOWLANDS
BOROUGH OF CARLSTADT
BOROUGH OF MOONACHIE
BERGEN COUNTY, NEW JERSEY
**EAST RIVER DITCH
CHANNEL IMPROVEMENTS PROJECT**

REGISTRATION
HDR ENGINEERING, INC.
CERTIFICATE OF AUTHORIZATION NO. 24652610703
MICHAEL VECCHIO
NEW JERSEY Professional Engineer
License/Certificate # 24652610703

Designed By: JCR 08/2023
Drawn By: JT 08/2023
Proj. Check: KF 08/2023
PROJECT/TERM CONTRACT NUMBER
P1131-03
SHEET TITLE
CHANNEL SECTIONS
(3 OF 3)

SHEET NUMBER
CX-608



**STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATERSHED & LAND MANAGEMENT**
Mail Code 501-02A, P.O. Box 420, Trenton, New Jersey 08625-0420
Telephone: (609) 777-0454 or Fax: (609) 777-3656
www.nj.gov/dep/landuse



PERMIT

<p>In accordance with the laws and regulations of the State of New Jersey, the Department of Environmental Protection hereby grants this permit to perform the activities described below. This permit is revocable with due cause and is subject to the terms, conditions, and limitations listed below and on the attached pages. For the purpose of this document, “permit” means “approval, certification, registration, authorization, waiver, etc.” Violation of any term, condition, or limitation of this permit is a violation of the implementing rules and may subject the permittee to enforcement action.</p>		Approval Date September 25, 2024
		Expiration Date September 24, 2029
Permit Number(s): 0200-19-0004.4 LUP240001	Type of Approval(s): Flood Hazard Area Verification - Method 2 Flood Hazard Area Individual Permit Meadowlands District Water Quality Certificate	Governing Rule(s): N.J.A.C. 7:13-1.1(b) N.J.A.C. 7:7-1.1(a)
Permittee: NJDEP Division of Resilience Engineering & Construction c/o Kunal Patel 44 S. Clinton Ave, 3rd Floor Mail Code 44-03, PO Box 420 Trenton, NJ 08625	Site Location: Blocks & Lots: [123, 1] [123, 2] [123, 6] [123, 7] [123, 9] [123, 10] [123, 11] [123, 12] [123, 13] [123, 14] [123, 16] [123, 17] [123, 26] [123, 26.01] [123, 26.02] [123, 27] [123, 27.01] [123, 35] [123, 36] Carlstadt Borough, Bergen County Blocks & Lots: [59, 3] [62, 2] [62, 5.02] [62, 5.03] [62, 5.04] [62, 6.01] [62, 6.03] [62, 7] [62, 10.02] [63, 1.02] [63, 1.03] [63, 1.04] [63, 4] [63, 5] [64.02, 1] Moonachie Borough, Bergen County	
Description of Authorized Activities: <p>This document verifies that the tidal flood hazard area elevation associated with Berry’s Creek within the project area is 8.0’ NAVD’88 (flood zone AE). This document also verifies the limit of riparian zone within the project area as shown on the approved drawings. In addition, this permit authorizes the modifications and improvements to East Riser Ditch (ERD), including removal of accumulated sediment, stabilization of the channel using appropriate bio-engineering and structural stabilization measures, replacement of three restricted stream crossings and construction of an Operation & Maintenance corridor along ERD, in association with a flood control project, on the parcels referenced above, as shown on the approved plans. This project is one of the elements of the overall Rebuild by Design – Meadowlands (RBDM) Project.</p> <p>This approval includes a Water Quality Certification (WQC).</p> <p><i>The Department has determined that the herein approved activities meet the requirements of the FHACA rules. This approval does not obviate the local Floodplain Administrator's responsibility to ensure all development occurring within their community's Special Flood Hazard Area is compliant with the local Flood Damage Prevention Ordinance, and minimum NFIP standards, regardless of any state-issued permits. FEMA requires communities to review and permit all proposed construction or other development within their SFHA in order to participate in the NFIP.</i></p>		
Prepared by: Ashleigh Windawi	Received and/or Recorded by County Clerk:	
<p>If the permittee undertakes any regulated activity, project, or development authorized under this permit, such action shall constitute the permittee’s acceptance of the permit in its entirety as well as the permittee’s agreement to abide by the requirements of the permit and all conditions therein.</p>		
This permit is not valid unless authorizing signature appears on the last page.		

STATEMENT OF AUTHORIZED IMPACTS:

The authorized activities allow for the permittee to undertake impacts to regulated areas as described below. Additional impacts to regulated areas without prior Department approval shall constitute a violation of the rules under which this document is issued and may subject the permittee and/or property owner to enforcement action, pursuant to N.J.A.C. 7:13-2.18.

Riparian Zone Vegetation	Area of riparian zone (Acres)
Permanent Disturbed	2.163
Temporary Disturbed	0.658

Water Quality Certificate	Wetlands (Acres)	State Open Waters (Acres)
Permanent Disturbed	0.024	0
Temporary Disturbed	0.001	2.499

PRE-CONSTRUCTION CONDITIONS:

1. Prior to site preparation or construction, the permittee shall obtain a formal release of the conservation easement required for Block 63, Lot 5 in Moonachie under the previously issued Flood Hazard Area Individual Permit No. 0237-11-0002.1 FHA110002.
2. Prior to site preparation or construction, the permittee shall obtain all necessary approvals from the Department’s Bureau of Tidelands Management.
3. Prior to site preparation or construction, the permittee shall obtain written consent and/or approved easements from all owners of property listed in this permit.
4. Prior to site preparation or construction, the permittee shall obtain written authorization from all affected property owners acknowledging and approving the extension of regulated riparian zone on their property.
5. Prior to the commencement of site clearing, grading, or construction onsite, the permittee shall install a sediment barrier at the limits of disturbance authorized herein, which is sufficient to prevent the sedimentation of the remaining riparian zone, wetlands, and regulated water, and shall serve as a physical barrier protecting these areas from encroachment by construction vehicles or other soil-disturbing activities. All sediment barriers and soil erosion control measures shall be kept in place and maintained throughout the duration of construction, until such time that the site is stabilized.
6. Prior to construction, all the trees which are NOT to be removed as shown on the referenced plan shall be marked and protective construction fence must be placed around each tree for the duration of construction until the site is stabilized.

SPECIAL CONDITIONS:

1. The Department has determined that the required riparian zone adjacent to the regulated waters affected by the project is 50 feet from the top of the bank. Any additional disturbance to the riparian

zone shall be considered a violation of the Flood Hazard Area Control Act Rules (FHACAR) unless a permit is obtained, prior to the start of the disturbance, from the Department.

2. In order to protect the general fish population within Riser Ditch and its tributaries, no grading, excavation, or construction activities is permitted within the watercourse onsite from **May 1 through July 31** of each calendar year. In addition, any activity within the riparian zone of this watercourse or tributaries which would introduce sediment into said stream or which could cause more than a minimum increase in the natural level of turbidity is also prohibited anytime, but especially during this period. The Department reserves the right to require additional soil conservation measures if it becomes evident that additional soil conservation measures are required to protect State regulated resources or to suspend all regulated activities on-site should it be determined that the applicant has not taken proper precautions to ensure continuous compliance with this condition.
3. All riparian zone vegetation that is temporarily cleared, cut, and/or removed to conduct a regulated activity, access an area where regulated activities will be conducted, or otherwise accommodate a regulated activity shall be replanted immediately after completion of the regulated activity, unless prevented by seasonal weather, in which case the vegetation shall be replanted as soon as conditions permit. The vegetation to be replanted shall:
 - a. Consist of vegetation of equal or greater ecological function and value as the vegetation that was cleared, cut, or removed. For example, herbaceous vegetation may be replaced with the same type of vegetation or with trees, but the trees in forested areas must be replaced with trees of equal or greater density and ecological function and value;
 - b. Consist of native, non-invasive vegetation, except in an actively disturbed area. In an actively disturbed area, the vegetation may be replaced with the same type of vegetation that was cleared, cut, or removed, or with another kind of vegetation typical of an actively disturbed area. For example, lawn grass may be replaced with garden plants or agricultural crops; and

In cases where replanting would interfere with continued access to or maintenance of a structure that is required by Federal, State, or local law, the vegetation replanted shall meet the requirements to the extent feasible.

4. Any dewatering must include properly sized temporary sediment basins or other filtering methods to reduce turbidity. The stream area to receive return water discharged from dewatering areas must be encompassed by turbidity barrier.
5. Any and all precautions must be taken to prevent raw concrete [e.g. abutments/footings] from coming in contact with the waters of the tributary; raw concrete is toxic to aquatic biota.
6. The permittee shall ensure that a low-flow channel is maintained throughout and after construction, and that no restriction of flow occurs as a result of the project. To reestablish low-flow aquatic passage, riprap material shall be carefully embedded into the channel substrate to mimic the original physical characteristics of the channel and any void spaces shall be filled with native channel substrate.
7. Activities shall not impair surface water flow into or out of any wetland area.
8. Any new, reconstructed, enlarged, or elevated structure within a flood hazard area shall be secured to resist flotation, collapse, and displacement due to hydrostatic and hydrodynamic forces from floodwaters.

9. Construction equipment cannot be stored, staged or driven within any channel, freshwater wetland or transition area, unless expressly approved by this permit and/or described on the approved plans.
10. All sediment barriers and other soil erosion control measures shall be installed prior to commencing any clearing, grading or construction onsite, and shall be maintained in proper working condition throughout the entire duration of the project.
11. For the purposes of this permit, the Department has determined this project did not require the use of any structural best management practices (BMP) to demonstrate compliance with the Stormwater Management rules at N.J.A.C. 7:8. Therefore, the Department did not review any proposed BMP for consistency with the design criteria referenced within the New Jersey Stormwater Best Management Practices Manual.
12. After all in-channel activities are completed, native stream bed material must be replaced within the channel. This material must be contoured to mimic the original physical characteristics of the channel (such as its shape, width, slope, thalweg, meander, and ratio of shallow areas to deep areas,) in order to provide low-flow aquatic passage throughout the entire disturbed area.
13. The riprap proposed within the channel must be carefully imbedded into the channel substrate and contoured to mimic the original physical characteristics of the channel (such as its shape, slope, thalweg and meander) in order to provide low-flow aquatic passage throughout the entire disturbed area. Furthermore, any void spaces within the riprap must be filled with native substrate from the channel.
14. De-watering of cofferdams must include properly sized temporary sediment basins or other filtering methods to reduce turbidity. The stream area to receive return water discharged from cofferdams must be encompassed by a turbidity barrier. The turbidity barrier must be located parallel to the stream banks and anchored to the shoreline to maintain freeflow of the stream center. In order to avoid obstruction of stream flows or fish passage, turbidity barriers must not be placed across the entire stream channel.
15. Construction may only occur while the stream area is dry or in a de-watered condition. No work may be performed where the stream channel is wet.
16. The sections of watercourse to be cleaned under this permit shall be accessed only in the areas specifically shown on the approved drawing(s). The maximum limit of bank disturbance shown shall be observed and no additional disturbance to the channel is authorized.
17. Within 90 calendar days of the date of this letter, the applicant shall submit the following information to the clerk of each county in which the site is located, and shall send proof to the Department that this information is recorded on the deed of each lot referenced in the verification:
 - a. The Department file number for the verification;
 - b. The approval and expiration dates of the verification;
 - c. The flood hazard area design flood elevation, or range of elevations if variable, approved under the verification;
 - d. The width and location of the any riparian zone approved under the verification; and

- e. The following statement: “All or a portion of this site lies in a flood hazard area. Certain activities in flood hazard areas are regulated by the New Jersey Department of Environmental Protection and some activities may be prohibited on this site or may first require a permit. Contact the Division of Land Use Regulation at (609) 777-0454 for more information prior to construction on site.”

Failure to have this information recorded in the deed of each lot and/or to submit proof of recording to the Department constitutes a violation of the Flood Hazard Area Control Act rules and may result in suspension or termination of the verification and/or subject the applicant to enforcement action pursuant to N.J.A.C. 7:13-24.

WATER QUALITY CERTIFICATE MITIGATION CONDITIONS:

1. In order to protect the quality of the waters of the State of New Jersey, the permittee shall mitigate for the permanent disturbance of **0.024 acres of scrub/shrub wetlands** through an on-site or off-site creation, restoration or enhancement project or with the purchase of credits from a mitigation bank serving the appropriate watershed management area in accordance with the mitigation hierarchy. The permittee shall mitigate for the temporary disturbance of **0.001 acres of scrub/shrub wetlands and 2.499 acres of State open waters** through an onsite restoration project. (N.J.A.C. 7:7A-11 et seq)
2. **At least 90 days prior to the initiation of regulated activities authorized by this permit**, the permittee shall submit a mitigation proposal to the Division of Watershed Protection and Restoration (Division) for review and approval. Activities authorized by this permit shall not begin until the permittee has obtained written approval of a mitigation plan from the Department (N.J.A.C. 7:7A-11.6(a)).
3. **All mitigation for permanent disturbance shall be conducted prior to or concurrent with the construction of the approved project** (N.J.A.C. 7:7A-11.3(a)). Concurrent means that at any given time, the mitigation must track at the same or greater percentage of completion as the project as a whole. All mitigation for temporary disturbances shall be conducted immediately following completion of the activity that cause the disturbance and shall be continued to completion within six months after the end of the activity that caused the disturbance.
4. If the permittee fails to perform mitigation within the applicable time period the acreage of mitigation required shall be increased by 20 percent each year after the date mitigation was to begin (N.J.A.C. 7:7A-11.3(c)).
5. If the permittee is considering obtaining land to satisfy a mitigation requirement, the Department strongly recommends that the permittee obtain the Division’s conceptual review and approval of any land being considered as a potential mitigation area.
6. If the permittee is purchasing credits from a mitigation bank to satisfy a mitigation requirement, prior to the initiation of regulated activities authorized by this permit, the permittee shall submit proof of purchase for 0.024 mitigation credits from an approved wetland mitigation bank to the attention of the Mitigation Unit Supervisor, NJDEP, Division of Watershed Protection and Restoration at Mail Code 501-02A, P.O. Box 420, Trenton, NJ 08625-0420.

At this time, the following bank(s) are approved to serve the project area; additional banks may be approved at any time, so please contact the Mitigation unit for the most up to date service area information if you would like additional options.

MRI3 Mitigation Bank – Contact Mark Renna, Evergreen Environmental, LLC. Phone: (201) 644-7302 or (973) 356-7164. Email: mrenna@evergreenenv.com.

7. If the permittee is considering conducting a creation, restoration or enhancement project, the following conditions shall apply:
 - a. **Prior to the initiation of regulated activities** authorized by this permit the permittee shall submit a final design of the mitigation project for approval and include all of the items listed on the checklist entitled Checklist for Completeness: Creation, Restoration or Enhancement for a Freshwater Wetland Mitigation Proposal located at <https://dep.nj.gov/wlm/forms/>.
 - b. **For mitigation areas associated with permanent disturbance: Prior to the completion of the mitigation project**, the permittee shall complete, sign and file with the County Clerk (the Registrar of Deeds and Mortgages in some counties), a conservation restriction that meets the requirements of N.J.A.C. 7:7A-12.1. The conservation restriction shall include the wetland and required transition area and conform to the format and content of the Wetlands Mitigation Area model conservation restriction that is available at: <https://dep.nj.gov/wlm/forms/> . The applicant is required to include a metes and bounds description shown on a map. Within 180 days of the issuance of the mitigation approval, the recorded conservation restriction shall be provided to the Mitigation Unit, NJDEP Division of Watershed Protection and Restoration for verification. (N.J.A.C. 7:7A-12.1 et. seq.)
 - c. The permittee shall notify the Mitigation Unit at the Division of Watershed Protection and Restoration in writing **at least 30 days prior to the start of construction of the wetland mitigation project** to arrange an on-site pre-construction meeting among the permittee, the contractor, the consultant and the Division.
 - d. To ensure the intent of the mitigation design and its predicted wetland hydrology is realized in the landscape, the mitigation designer shall be present on-site during all critical stages of mitigation construction and during the restoration of any temporarily impacted areas. Critical stages of construction include but are not limited to herbicide applications, earthmoving activities, planting, and inspections.
 - e. The permittee shall be responsible for ensuring that best management practices are used throughout construction to control the spread and colonization of highly invasive plants. Specifically, all equipment, especially tracks and tires, must be thoroughly cleaned every time equipment or vehicles move from an area containing invasive plants or from off-site to the mitigation area. In addition, soil containing root fragments and above-ground vegetative material from invasive plants shall be carefully managed during earthmoving activities and disposed of at a suitable off-site location rather than mulched and reused or stockpiled elsewhere on the site. For information on the specific species that are considered to be invasive, please see the [NJDEP Mitigation Technical Manual](#).
 - f. If changes to the mitigation design are necessary to ensure success of the project as a result of on-site conditions, the mitigation designer shall immediately notify the Division in writing and submit an alternative plan which achieves the proposed wetland conditions. The Division shall review the plan in accordance with N.J.A.C. 7:7A-11.7. Any modifications to the plan that are reviewed and

approved by the Division must be shown on a signed and sealed revised plan. The As-Built plans required as a part of the Construction Completion Report may serve as the signed and sealed revised plan required to be submitted as part of the construction modification process described above if time constraints warrant such action and have been approved by the Division in writing.

- g. **Within 30 days of final grading of the mitigation site and prior to planting**, the permittee shall notify the Mitigation Unit at the Division of Watershed Protection and Restoration in writing to arrange a post-grading construction meeting among the permittee, contractor, consultant and the Division.
- h. **Within 30 days following the final planting of the mitigation project**, the permittee shall submit a Construction Completion Report to the Division detailing as-built conditions (see below) and any changes to the approved mitigation plan that were made during construction (N.J.A.C. 7:7A-11.12). The Construction Completion Report shall contain, at a minimum, the following information:
 - i. A completed Wetland Mitigation Project Completion of Construction Form. This form is located at <https://dep.nj.gov/wlm/forms/> and certifies that the mitigation project has been constructed as designed and that the proposed area of wetland creation, restoration or enhancement has been accomplished;
 - ii. As-Built plans which depict final grade elevations at one-foot contours and include a table of the species and quantities of vegetation that were planted including any grasses that may have been used for soil stabilization purposes; and
 - iii. Photos of the constructed wetland mitigation project with a photo location map as well as the GPS waypoints in NJ state plane coordinates NAD 1983.
- j. **Within 30 days following final planting of the mitigation project**, the permittee shall post the mitigation area with permanent signs which identify the site as a wetland mitigation project and that all-terrain vehicle use, motorbike use, mowing, dumping, draining, cutting and/or removal of plant materials is prohibited and that violators shall be prosecuted and fined to the fullest extent under the law. The signs must also state the name of the permittee, a contact name and phone number, and the Department's permit number.
- k. The permittee shall monitor **all freshwater wetland and transition area projects** for a minimum of 5 years, unless otherwise stipulated within the approved mitigation proposal, beginning the first full growing season after the mitigation project has been completed. The permittee shall submit monitoring reports to the Division of Watershed Protection and Restoration no later than December 31st of each full monitoring year (N.J.A.C. 7:7A-11.12(g)). All monitoring reports must include the standard items identified in the checklist entitled, "Wetland Mitigation Monitoring Project Checklist", which can be found at <https://dep.nj.gov/wlm/forms/>.
- l. Once the required monitoring period has expired and the permittee has submitted the final monitoring report, the Division will make the finding that the mitigation project is either a success or a failure. This mitigation project will be considered successful if the permittee demonstrates all of the following:
 - i. That the goals of the wetland mitigation project, including acreage and the required transition area, as stated in the approved wetland mitigation proposal and the permit have been satisfied. The permittee shall submit a field wetland delineation of the wetland

mitigation project based on the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (1989) which shows the exact acreage of State open waters, emergent, scrub/shrub and/or forested wetlands in the mitigation area;

- ii. The site has an 85 percent survival and 85 percent area coverage of the mitigation plantings or target hydrophytes, which are species native to the area and similar to ones identified on the mitigation planting plan. All plant species in the mitigation area must be healthy and thriving and all trees must be at least five feet in height;
 - iii. The site has less than 10 percent coverage by invasive or noxious species.
 - iv. The site contains hydric soils or there is evidence of reduction occurring in the soil; and,
 - v. The proposed hydrologic regime as specified in the mitigation proposal has been satisfied.
- m. The permittee is responsible for assuming all liability for any corrective work necessary to meet the success criteria established above (N.J.A.C. 7:7A-11.12(i)). The Division will notify the permittee in writing if the mitigation project is considered to be a failure. Within 30 days of notification, the permittee shall submit a revised mitigation plan to meet the success criteria identified above for Division review and approval. The financial surety, if required, will not be released by the Division until such time that the permittee satisfies the success criteria as stipulated above.

RIPARIAN ZONE MITIGATION CONDITIONS:

1. The permittee shall mitigate for the permanent disturbance of **0.466 acres of forested, 0.974 acres of scrub/shrub, and 0.139 acres of herbaceous** riparian zone vegetation through an on-site or off-site creation, restoration, enhancement, or preservation project or with the purchase of credits from a mitigation bank serving the appropriate watershed management area. The permittee shall mitigate for the temporary disturbance of **0.214 acres of forested, 0.260 acres of scrub/shrub, and 0.165 acres of herbaceous** riparian zone vegetation through an onsite restoration project.
2. **At least 90 days prior to the initiation of regulated activities authorized by this permit**, the permittee shall submit a mitigation proposal to the Division of Watershed Protection and Restoration (Division) for review and approval. Activities authorized by this permit shall not begin until the permittee has obtained written approval of a mitigation plan from the Department.
3. **All mitigation for permanent disturbance shall be conducted prior to or concurrent with the construction of the approved project.** Concurrent means that at any given time, the mitigation must track at the same or greater percentage of completion as the project as a whole. All mitigation for temporary disturbances shall be conducted immediately following completion of the activity that cause the disturbance and shall be continued to completion within six months after the end of the activity that caused the disturbance.
4. If the permittee is purchasing credits from a mitigation bank to satisfy a mitigation requirement, prior to the initiation of regulated activities authorized by this permit, the permittee shall submit proof of purchase for 1.579 mitigation credits from an approved riparian mitigation bank to the attention of the Mitigation Unit Supervisor, NJDEP, Division of Watershed Protection and Restoration at Mail Code 501-02A, P.O. Box 420, Trenton, NJ 08625-0420.

At this time, the following bank(s) are approved to serve the project area; additional banks may be approved at any time, so please contact the Mitigation unit for the most up to date service area information if you would like additional options.

Oradell Reservoir Mitigation Bank – Contact Doug Lashley, GreenVest. Phone: (410) 987-5500. Email: Doug@greenvestus.com; or Brian Cramer, GreenVest. Phone: (732) 902-6644. Email: Brian@greenvestus.com.

5. If the permittee is considering conducting a creation, restoration or enhancement project, the following conditions shall apply:

For mitigation areas associated with permanent disturbance: Prior to the initiation of regulated activities authorized by this permit, the permittee shall sign a Department approved conservation restriction to protect the mitigation area from future development that would remove the vegetation planted. (N.J.A.C. 7:13-13.2(g)). The conservation restriction shall conform to the format and content of the rules at N.J.A.C. 7:13-14 and the Riparian Zone Mitigation Area model located at [Deed Restriction: Riparian Zone Compensation \(nj.gov\)](#). The restriction shall be included on the deed and recorded in the office of the County Clerk (the Registrar of Deeds and Mortgages in some counties) in the county wherein the lands of the mitigation project are located. A metes and bounds description shown on a map must be included within the recorded conservation restriction. Within 10 days of filing the conservation restriction, the permittee must send a copy of the conservation restriction to the attention of the Mitigation Unit Supervisor, NJDEP, Division of Watershed Protection and Restoration at Mail Code 501-02A, P.O. Box 420, Trenton, NJ 08625-0420.

6. The permittee shall monitor the riparian project for at least 5 years beginning the year after the riparian zone mitigation project has been completed (N.J.A.C. 7:13-13.12(c)). **The permittee shall submit monitoring reports to the Division of Watershed Protection and Restoration, no later than December 31st of each full monitoring year.**
 - a. All monitoring reports except the final one should include the requirements and goals of the mitigation proposal and a detailed explanation of the ways in which the mitigation has or has not achieved progress toward those goals. If mitigation has not achieved progress, the report shall also include a list of corrective actions to be implemented and a timeline for completion.
 - b. The final monitoring report must include documentation and data demonstrating that:
 - i. The goals of the riparian zone mitigation as stated in the approved riparian zone mitigation proposal and the permit conditions have been satisfied.
 - ii. At least 85 percent of the mitigation plantings have survived and that at least 85 percent of the mitigation area is established with native species similar to ones identified on the mitigation planting plan. All plant species in the mitigation area must be healthy and thriving. All trees must be at least 5 feet in height; and
 - iii. The site is less than 10 percent occupied by invasive or noxious species; and
 - iv. The conservation restriction for the mitigation site has been executed and recorded.
7. If the riparian mitigation project does not meet the success criteria established above the project shall be considered a failure and the permittee shall submit a revised riparian mitigation plan. The revised

plan shall be submitted within 60 days of receipt of notification from the Division indicating the riparian mitigation project was a failure.

8. If the Division determines that the riparian zone mitigation project is not constructed in conformance with the approved plan, the permittee will be notified in writing by the Department and will have 60 days to submit a proposal to indicate how the project will be corrected.
9. For preservation projects, the application shall provide documentation showing that the proposed preservation area will fully compensate in accordance with N.J.A.C. 7:13-13.13 for the loss of functions and values caused by the disturbance.

STANDARD CONDITIONS:

1. The issuance of a permit shall in no way expose the State of New Jersey or the Department to liability for the sufficiency or correctness of the design of any construction or structure(s). Neither the State nor the Department shall, in any way, be liable for any loss of life or property that may occur by virtue of the activity or project conducted as authorized under a permit.
2. The issuance of a permit does not convey any property rights or any exclusive privilege.
3. The permittee shall obtain all applicable Federal, State, and local approvals prior to commencement of regulated activities authorized under a permit.
4. A permittee conducting an activity involving soil disturbance, the creation of drainage structures, or changes in natural contours shall obtain any required approvals from the Soil Conservation District or designee having jurisdiction over the site.
5. The permittee shall take all reasonable steps to prevent, minimize, or correct any adverse impact on the environment resulting from activities conducted pursuant to the permit, or from noncompliance with the permit.
6. The permittee shall immediately inform the Department of any unanticipated adverse effects on the environment not described in the application or in the conditions of the permit. The Department may, upon discovery of such unanticipated adverse effects, and upon the failure of the permittee to submit a report thereon, notify the permittee of its intent to suspend the permit.
7. The permittee shall immediately inform the Department by telephone at (877) 927-6337 (WARN DEP hotline) of any noncompliance that may endanger public health, safety, and welfare, or the environment. The permittee shall inform the Watershed & Land Management by telephone at (609) 777-0454 of any other noncompliance within two working days of the time the permittee becomes aware of the noncompliance, and in writing within five working days of the time the permittee becomes aware of the noncompliance. Such notice shall not, however, serve as a defense to enforcement action if the project is found to be in violation of this chapter. The written notice shall include:
 - i. A description of the noncompliance and its cause;
 - ii. The period of noncompliance, including exact dates and times;
 - iii. If the noncompliance has not been corrected, the anticipated length of time it is expected to continue; and

- iv. The steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.
8. Any noncompliance with a permit constitutes a violation of this chapter and is grounds for enforcement action, as well as, in the appropriate case, suspension and/or termination of the permit.
 9. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the authorized activity in order to maintain compliance with the conditions of the permit.
 10. The permittee shall employ appropriate measures to minimize noise where necessary during construction, as specified in N.J.S.A. 13:1G-1 et seq. and N.J.A.C. 7:29.
 11. The issuance of a permit does not relinquish the State's tidelands ownership or claim to any portion of the subject property or adjacent properties.
 12. The issuance of a permit does not relinquish public rights to access and use tidal waterways and their shores.
 13. The permittee shall allow an authorized representative of the Department, upon the presentation of credentials, to:
 - i. Enter upon the permittee's premises where a regulated activity, project, or development is located or conducted, or where records must be kept under the conditions of the permit;
 - ii. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit;
 - iii. Inspect, at reasonable times, any facilities, equipment, practices, or operations regulated or required under the permit. Failure to allow reasonable access under this paragraph shall be considered a violation of this chapter and subject the permittee to enforcement action; and
 - iv. Sample or monitor at reasonable times, for the purposes of assuring compliance or as otherwise authorized by the Federal Act, by the Freshwater Wetlands Protection Act, or by any rule or order issued pursuant thereto, any substances or parameters at any location.
 14. The permittee shall not cause or allow any unreasonable interference with the free flow of a regulated water by placing or dumping any materials, equipment, debris or structures within or adjacent to the channel while the regulated activity, project, or development is being undertaken. Upon completion of the regulated activity, project, or development, the permittee shall remove and dispose of in a lawful manner all excess materials, debris, equipment, and silt fences and other temporary soil erosion and sediment control devices from all regulated areas.
 15. The permittee and its contractors and subcontractors shall comply with all conditions, site plans, and supporting documents approved by the permit.
 16. All conditions, site plans, and supporting documents approved by a permit shall remain in full force and effect, so long as the regulated activity, project, or development, or any portion thereof, is in existence, unless the permit is modified pursuant to the rules governing the herein approved permits.

17. The permittee shall perform any mitigation required under the permit in accordance with the rules governing the herein approved permits.
18. If any condition or permit is determined to be legally unenforceable, modifications and additional conditions may be imposed by the Department as necessary to protect public health, safety, and welfare, or the environment.
19. Any permit condition that does not establish a specific timeframe within which the condition must be satisfied (for example, prior to commencement of construction) shall be satisfied within six months of the effective date of the permit.
20. A copy of the permit and all approved site plans and supporting documents shall be maintained at the site at all times and made available to Department representatives or their designated agents immediately upon request.
21. The permittee shall provide monitoring results to the Department at the intervals specified in the permit.
22. A permit shall be transferred to another person only in accordance with the rules governing the herein approved permits.
23. A permit can be modified, suspended, or terminated by the Department for cause.
24. The submittal of a request to modify a permit by the permittee, or a notification of planned changes or anticipated noncompliance, does not stay any condition of a permit.
25. Where the permittee becomes aware that it failed to submit any relevant facts in an application, or submitted incorrect information in an application or in any report to the Department, it shall promptly submit such facts or information.
26. The permittee shall submit email notification to the Bureau of Coastal & Land Use Compliance & Enforcement at CLU_tomsriver@dep.nj.gov at least 3 days prior to commencement of site preparation and/or regulated activities, whichever comes first. The notification shall include proof of completion of all pre-construction conditions, including proof of recording of permits, approved plans and/or conservation easements, if required. The permittee shall allow an authorized Bureau representative on the site to inspect to ensure compliance with this permit.
27. The permittee shall record the permit, including all conditions listed therein, with the Office of the County Clerk (the Registrar of Deeds and Mortgages, if applicable) of each county in which the site is located. The permit shall be recorded within 30 calendar days of receipt by the permittee, unless the permit authorizes activities within two or more counties, in which case the permit shall be recorded within 90 calendar days of receipt. Upon completion of all recording, a copy of the recorded permit shall be forwarded to Watershed & Land Management through the DEP Online service. The uploaded documents will go directly into the Department's database, and staff will be notified that information has been received. The service can be found at: <https://dep.nj.gov/wlm/eservices/lrp-eservices/>.

APPROVED PLAN(S):

The drawings hereby approved consist of fifteen (15) sheets, among them, ten (10) sheets were prepared by Steven Biuso, P.E. of AECOM Technical Services, Inc., undated, and entitled:

“REBUILD BY DESIGN MEADOWLANDS, BOROUGH OF CARLSTADT, BOROUGH OF MOONACHIE, BERGEN COUNTY, NEW JERSEY, EAST RISER DITCH CHANNEL IMPROVEMENTS PROJECT”:

“EXISTING CONDITIONS PLAN, SHEETS 1 - 5 OF 5”, Sheet Numbers PP-003 through PP-007, unrevised, and

“WETLAND AND RIPARIAN ZONE IMPACT PLAN, SHEET 1 of 5”, Sheet Number PP-008, last revised September 23, 2024, and

“WETLAND AND RIPARIAN ZONE IMPACT PLAN, SHEETS 2 THROUGH 5”, Sheet Numbers PP-009 through PP-012, last revised September 5, 2024.

and five (5) sheets were prepared by Michael Vecchio of HDR Engineering, Inc., dated September 2023, unless otherwise noted, unrevised and entitled:

“REBUILD BY DESIGN MEADOWLANDS, BOROUGH OF CARLSTADT, BOROUGH OF MOONACHIE, BERGEN COUNTY, NEW JERSEY, EAST RISER DITCH CHANNEL IMPROVEMENTS PROJECT”:

“CHANNEL TYPICAL SECTIONS 1 OF 7”, Sheet Number CT-601, dated March 2024,

“CHANNEL TYPICAL SECTIONS 2 OF 7”, Sheet Number CT-602,

“CHANNEL TYPICAL SECTIONS 3 OF 7”, Sheet Number CT-603, dated March 2024,

“CHANNEL TYPICAL SECTIONS 4 OF 7”, Sheet Number CT-604,

“CHANNEL TYPICAL SECTIONS 5 OF 7”, Sheet Number CT-605.

APPEAL OF DECISION:

Any person who is aggrieved by this decision may submit an adjudicatory hearing request within 30 calendar days after public notice of the decision is published in the DEP Bulletin (available at <https://dep.nj.gov/bulletin/>). If a person submits the hearing request after this time, the Department shall deny the request. The hearing request must include a completed copy of the Administrative Hearing Request Checklist (available at <https://dep.nj.gov/wlm/forms/>). A person requesting an adjudicatory hearing shall submit the original hearing request to: NJDEP Office of Administrative Hearings and Dispute Resolution, Attention: Adjudicatory Hearing Requests, Mail Code 401-07A, P.O. Box 420, 401 East State Street, 7th Floor, Trenton, NJ 08625-0420. Additionally, a copy of the hearing request shall be submitted to the Director of Watershed & Land Management at the address listed on page one of this permit. In addition to your hearing request, you may file a request with the Office of Dispute Resolution to engage in alternative dispute resolution. Please see www.nj.gov/dep/odr for more information on this process.

If you need clarification on any section of this permit or conditions, please contact Watershed & Land Management's Technical Support Call Center at (609) 777-0454.

Approved By:



Digitally signed by Ryan
Anderson
Date: 2024.09.25
14:50:33-04'00'

Ryan J. Anderson, Manager
Watershed & Land Management

c: Municipal Clerk, Carlstadt & Moonachie Borough
Municipal Construction Official, Carlstadt & Moonachie Borough
Agent (original) – Kim McEvoy, NJDEP

18:28:27

RECORD OF ENVIRONMENTAL CONSIDERATION (REC)

Project EMN-2020-BR-056-0002

Title: BRIC FY2020 New Jersey Meadowlands East Riser Ditch Pumping Station and Channel Improvements

NEPA DETERMINATION

Non Compliant Flag: No **EA Draft Date:** 01/19/2022 **EA Final Date:** 02/22/2023
EA Public Notice Date: 12/14/2022 **EA Fonsi** 02/28/2023 **Level:** EA
EIS Notice of Intent **EIS ROD Date:**

Comment The New Jersey Department of Environmental Protection (NJDEP) (Subrecipient). New Jersey Meadowlands East Riser Ditch Pumping Station and Channel Improvements. Located approximately 4,150 linear feet along the East Riser Ditch starting at Moonachie Avenue (40.838868, -74.063774) in Moonachie, continuing south toward the proposed pump station (40.832407, -74.073967) at Starke Road in Carlstadt, Bergen County NJ. 0 % Complete (Total Estimated Project Cost: \$61,295,870.00.)

The SOW consists of the following:

1. Widening and deepening of the ERD channel from Moonachie Avenue downstream to the tide gate located at the confluence of the ERD channel and Berry's Creek. Improvements also include bank stabilization, which would occur using a combination of mechanically stabilized earth lifts (geolifts) and riprap placed along the channel banks, and revegetation of approximately 9.5 acres of channel banks and adjacent riparian areas.
2. Construction of a pump station complex that would be located adjacent to the existing tide gate to the northeast and east of Starke Road. The pump station would pump water from the ERD channel into Berry's Creek when the water surface elevation in the creek prevents the channel from draining through the existing tide gate. It would be constructed to accommodate a 100-year storm event.
3. Three existing undersized road culvert crossings at West Commercial Avenue, Armor Avenue, and at a railroad crossing would be removed and replaced with larger capacity structures. The West Commercial Avenue culvert would be replaced with two 10-foot by 7-foot concrete box, pile-supported culverts, embedded 2 feet below the final channel grade; the Armor Avenue culvert would be replaced with two 12 foot by 5 foot concrete box, pile-supported culverts, embedded 2 feet below the final channel grade. The railroad bridge would be removed and replaced with a 25-foot single-span bridge.
4. Construction of a 10-foot wide access road along the entire reach of the ERD channel to facilitate future operations and maintenance of the channel improvements.

A Finding of No Significant Impact (FONSI) was determined on February 28, 2023, for the New Jersey Meadowlands East Riser Ditch Pumping Station and Channel Improvements, Bergen County New Jersey. In accordance with the National Environmental Policy Act (NEPA), FEMA regulations (44 CFR, Part 10) for environmental considerations, and Executive Orders addressing Floodplains (EO 11988), Wetlands (EO 11990) and Environmental Justice (EO 12898), it is found that the proposed action will have no significant impact on the human environment. As a result, the FONSI, and Environmental Impact State will not be prepared and the proposed project may proceed once the following conditions listed in the NEPA, EO and other Environmental Laws are herein followed. The Subgrantee shall submit copies of all permits to the Grantee/FEMA at or prior to the final closeout of the public assistance grant.

FEMA posted an electronic version of the EA to the websites below for reference:
<https://www.fema.gov/emergencymanagers/practitioners/environmental-historic/nepa/environmental-assessment-new-jersey> and
<https://dep.nj.gov/floodresilience/rebuild-by-design-meadowlands-documents-resources/>.

The Subrecipient made a hard copy of the EA available for public review at: NJDEP Bureau of Climate Resilience Design & Engineering, 3rd Floor, 33 South Clinton Avenue, Trenton, NJ 08625.

See the Attached FONSI. Any substantive change to the approved scope of work will require re-evaluation by FEMA for compliance with NEPA and other laws and executive orders.

- elanger - 03/23/2023 19:24:10 GMT

****Comment clarification**** project area runs 4,150 linear feet between the stated points, and the finding of no significant impact (FONSI) was determined after the completion of a FEMA Environmental Assessment (EA). - dconrad2 - 03/27/2023 21:25:30 GMT

RECORD OF ENVIRONMENTAL CONSIDERATION (REC)

Project EMN-2020-BR-056-0002

Title: BRIC FY2020 New Jersey Meadowlands East Riser Ditch Pumping Station and Channel Improvements

EXTRAORDINARY

Extraordinary Circumstance Code

Description

Selected ?

No Extraordinary Circumstances were selected

ENVIRONMENTAL LAW / EXECUTIVE ORDER

Environmental Law/
Executive Order

Status

Description

Comment

Clean Air Act (CAA)

Completed

Project is located in a non-attainment area

Project is designated as a moderate nonattainment area for 8-hour ozone and a maintenance area for carbon monoxide. All other criteria pollutants (sulfur dioxide, PMs.5, PM10, nitrogen dioxide and lead) are in attainment for Bergen County. Temporary construction activities and the periodic use of diesel-powered emergency generators would not exceed the annual de minimis levels for criteria pollutants under general conformity. Therefore, impacts would be negligible, and no further action is required. - elanger - 03/23/2023 17:49:33 GMT
In addition, the project does not require a conformity determination and coordination with the NJDEP is not required. - elanger - 03/23/2023 20:16:39 GMT

Completed

Coordination required with applicable state administering agency - Review concluded

Coastal Barrier Resources Act (CBRA)

Completed

Project is not on or connected to CBRA Unit or otherwise protected area - Review concluded

Clean Water Act (CWA)

Completed

Project would affect waters, including wetlands, of the U.S.

CWA: Project may affect waters of the U.S. and permits may be required. The Subrecipient is responsible for coordinating with and obtaining any required Section 404 permits from the United States Army Corps of Engineers (USACE), Section 401 permits from the New Jersey Department of Environmental Protection (NJDEP), and a National Pollution Discharge Elimination System (NPDES) permit from the Environmental Protection Agency (EPA) prior to initiating work. The Subrecipient shall comply with all conditions and pre-construction notification requirements. All coordination pertaining to these activities and compliance must be documented and maintained in the permanent project files. See project conditions. - elanger - 03/23/2023 17:43:53 GMT

Completed

Project may require Section 404/401 or Section 9/10 (Rivers and Harbors Act) permit, including qualification under

RECORD OF ENVIRONMENTAL CONSIDERATION (REC)

Project EMN-2020-BR-056-0002

Title: BRIC FY2020 New Jersey Meadowlands East Riser Ditch Pumping Station and Channel Improvements

Environmental Law/ Executive Order	Status	Description	Comment
		Nationwide Permits - Review concluded	
Coastal Zone Management Act (CZMA)	Completed	Project is located in a coastal zone area and/or affects the coastal zone	CWA: Project may affect waters of the U.S. and permits may be required. The Subrecipient is responsible for coordinating with and obtaining any required Section 404 permits from the United States Army Corps of Engineers (USACE), Section 401 permits from the New Jersey Department of Environmental Protection (NJDEP), and a National Pollution Discharge Elimination System (NPDES) permit from the Environmental Protection Agency (EPA) prior to initiating work. The Subrecipient shall comply with all conditions and pre-construction notification requirements. All coordination pertaining to these activities and compliance must be documented and maintained in the permanent project files. See project conditions. - elanger - 03/23/2023 17:44:16 GMT Copy Error Above: Please see Comments or CZMA: The proposed activity is located within a special coastal zone area called the New Jersey Hackensack Meadowland District (NJHMD). The construction of the proposed action would have negligible effect on coastal resources as long as all mitigation measures identified in Section 4.18.4 of the RBDM EIS are followed. The post construction proposed action is consistent with, and advance of, the flood hazard goals of the CZMP by reducing flood risk in the project area. Prior to construction, the Subrecipient would need to coordinate with the NJDEP Division of Land Use Regulation to acquire applicable permits for work within the NJHMD and comply with permit conditions. - elanger - 03/23/2023 17:47:04 GMT
	Completed	State administering agency requires consistency review - Review concluded	
Executive Order 11988 - Floodplains	Completed	Located in floodplain or effects on floodplain/flood levels	EO 11988: The project action is located in Flood ZONE AE (EL 7) per FIRM Panel Number 340003C0254H effective date 8/29/2019. The proposed action is to reduce the level and duration of flood events that endanger life and property. Potential impacts to the floodplain and wetland may occur during construction to which a Site-specific Soil Erosion and Sediment Control plan will be implemented. Eight-step checklist attached. - elanger - 03/23/2023 17:56:26 GMT

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Project EMN-2020-BR-056-0002

Title: BRIC FY2020 New Jersey Meadowlands East Riser Ditch Pumping Station and Channel Improvements

Environmental Law/ Executive Order	Status	Description	Comment
	Completed	Beneficial Effect on Floodplain Occupancy/Values - Review concluded	
Executive Order 11990 - Wetlands	Completed	Located in wetlands or effects on wetlands	EO 11990: The proposed activity will impact 0.88 acres of wetlands temporarily during construction and 0.37 acres of freshwater emergent wetlands will be permanently impacted with fill material for the ERD pump construction and installation. As a result, a Section 404 permit from the US Army Corps of Engineers and Section 401 permits from NJDEP are required for the direct impacts to wetlands. For temporary conditions, the action would require dewatering, and dredging of the ERD for construction activities. These activities may increase turbidity in adjacent wetlands; however, wetland impacts would be restored with the revegetation of disturbed areas with native plant species to stabilize soil and prevent erosion. Additionally, the Subrecipient will be required to provide wetland mitigation for the permanent impact on 0.37 acres of wetlands (resulting from the fill to construct the ERD pump) in compliance with the Clean Water Act and any required USACE permit conditions. - elanger - 03/23/2023 17:59:31 GMT**Comment clarification** previous statement on wetland mitigation incorrect; subrecipient may be required provide wetland mitigation for the impact on 0.37 acres of wetland. - dconrad2 - 03/27/2023 21:35:32 GMT
	Completed	Possible adverse effect associated with constructing in or near wetland	
	Completed	8 Step Process Complete - documentation attached - Review concluded	
Executive Order 12898 - Environmental Justice for Low Income and Minority Populations	Completed	Low income or minority population in or near project area	EO 12898: The population within 0.5 miles of the project contains environmental justice minority and low-income populations. During the construction phase, the proposed action is likely to have short-term adverse effects based on the increased noise and reduced air-quality that would impact adjacent mobile home parks. Public outreach was made, and a HUD required Public Safety Plan was developed for the construction phase. Long-term impacts of the proposed action would reduce flooding, with a beneficial effect to environmental justice populations - elanger - 03/23/2023 18:02:14 GMT

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Environmental Law/ Executive Order	Status	Description	Comment
	Completed	No disproportionately high and adverse impact on low income or minority population - Review concluded	
Endangered Species Act (ESA)	Completed	No listed species and/or designated critical habitat present in areas affected directly or indirectly by the federal action - Review concluded	According to the USFWS Information for Planning and Consultation (IPaC) tool (accessed on May 5, 2022) and available at https://ipac.ecosphere.fws.gov/ , and the findings of the biological surveys conducted in the project area (NJDEP 2018b), there are no listed species. - elanger - 03/23/2023 17:38:20 GMT
Farmland Protection Policy Act (FPPA)	Completed	Project does not affect designated prime or unique farmland - Review concluded	
Fish and Wildlife Coordination Act (FWCA)	Not Applicable	Project does not affect, control, or modify a waterway/body of water - Review concluded	
Migratory Bird Treaty Act (MBTA)	Completed	Project located within a flyway zone	MBTA: The proposed project location contains habitat that supports migratory birds; however, FEMA has determined that the Proposed Action would have a minor impact on these species through the implementation of BMPs as outlined in the RBDM EIS. Construction BMPs identified in the RBDM EIS would include scheduling vegetation removal and disturbance outside of the nesting season. Where construction timing cannot be altered to avoid the breeding and nesting season, preconstruction surveys for nesting activity would be conducted by qualified avian biologists, and no-disturbance buffers would be instituted around active nests (NJDEP 2018b). In addition, areas where vegetation is removed would be revegetated with native plant species following construction. - elanger - 03/23/2023 17:50:37 GMT
	Completed	Project does not have potential to take migratory birds - Review concluded	
Magnuson-Stevens Fishery Conservation and Management Act (MSA)	Completed	Project located in or near Essential Fish Habitat	The proposed project location is adjacent to designated EFH known as Berry's Creek; however the existing tidal gate connecting the ERD to Berry's Creek prevents movement of species into the ERD and, therefore, the ERD is not designated EFH. The proposed project will consist of installing a pump station near the connection of Berry's Creek and the ERD; however, there will be no direct impact to Berry's Creek post construction. To minimize potential impacts during construction, a project specific SWPPP will

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Title: BRIC FY2020 New Jersey Meadowlands East Riser Ditch Pumping Station and Channel Improvements

Environmental Law/ Executive Order	Status	Description	Comment
			be implemented. - elanger - 03/23/2023 17:51:34 GMT**Comment clarification** previous statement on SWPPP incorrect; subrecipient may be required to implement a project specific SWPPP. - dconrad2 - 03/27/2023 21:38:55 GMT
	Completed	Project does not adversely affect Essential Fish Habitat - Review concluded	
National Historic Preservation Act (NHPA)	Completed	Standard Section 106 review	NHPA: The project scope of work and Area of Potential Effects (APE) were previously reviewed and consulted on in 2016-2018 by the U.S. Department of Housing and Urban Development (HUD) as part of the Rebuild by Design Meadowlands (RBDM) Flood Reduction Project Environmental Impact Statement (EIS). The NJHPO concurred with the project's associated Phase IA Archaeological Survey report recommendations and Historic Structures Survey report determination of No Adverse Effect to Historic Properties in June 2018 (RBDM EIS, Appendices A and E). The EIS required a Phase IB archaeological survey for the proposed Caesar Place Park at 10 Caesar Place, which is no longer a part of the East Riser Ditch project. However, work associated with channel improvements along the East Riser Ditch and proposed new walkways to the north and south of 10 Caesar Place may infringe upon portions of the Caesar Place Park APE, as defined in the Phase IA Archaeological Survey report. FEMA will condition for the Phase IB Archaeological Survey in areas where the East Riser Ditch project will infringe upon 10 Caesar Place (see conditions) and conduct continuing consultation with the NJHPO, Tribal Nations, and interested parties once the Phase IB Archaeological Survey is completed. The Stockbridge-Munsee Mohican Tribe, Eastern Shawnee Tribe of Oklahoma, Delaware Nation, and Shawnee Tribe were invited to participate in Section 106 consultation and responded that they do not have concerns regarding the proposed project but requested that they be notified should any artifacts be discovered. FEMA accepts the prior project coordination conducted on behalf of HUD. - twilso88 - 03/23/2023 17:03:17 GMT
	Completed	Historic Buildings and Structures	
	Completed	Building or structure 50 years or older or listed on the National Register in the project area and activity not exempt	

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Project EMN-2020-BR-056-0002

Title: BRIC FY2020 New Jersey Meadowlands East Riser Ditch Pumping Station and Channel Improvements

Environmental Law/ Executive Order	Status	Description	Comment
		from review	
	Completed	Determination of Historic Properties Affected (FEMA finding/SHPO/THPO concurrence attached)	
	Completed	No Adverse Effect Determination (FEMA finding/SHPO/THPO concurrence attached) - Review concluded	
	Completed	Archeological Resources	
	Completed	Project affects undisturbed ground	
	Completed	Project area has potential for presence of archeological resources	
	Completed	Determination of no historic properties affected (FEMA finding/SHPO/THPO concurrence attached) - Review concluded	
Wild and Scenic Rivers Act (WSR)	Completed	Project is not along and does not affect Wild and Scenic River - Review concluded	

CONDITIONS

Special Conditions required on implementation of Projects:

Subrecipient may be required to provide wetland mitigation for this permanent impact on wetlands in compliance with the CWA and any required USACE permit conditions.

Source of condition: Executive Order 11990 - Wetlands

Monitoring Required: No

*. Subrecipient is to obtain an NPDES General Permit for Stormwater Discharges from Construction Activity/SWPPP from EPA and comply with all permit conditions.

*. Prior to construction, the Subrecipient must obtain any required CWA Section 404 and 401 permits from the USACE and New Jersey Department of Environmental Protection and comply with permit conditions.

Source of condition: Clean Water Act (CWA)

Monitoring Required: No

Prior to the initiation of any site alteration or construction-related activities, a Phase IB Archaeological Survey (and if needed Phase II or Phase III archaeological survey, as appropriate) must be conducted in the area(s) where the East Riser Ditch project actions will infringe upon the proposed Caesar Place Park at 10 Caesar Place. The survey report shall be provided to FEMA for continuing consultation with the NJHPO, Tribal Nations, and interested parties to complete Section 106 of the NHPA.

Source of condition: National Historic Preservation Act (NHPA)

Monitoring Required: No

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*. For additional state and local conditions please refer to the FONSI.

Source of condition: NEPA Determination

Monitoring Required: No

*. The Subrecipient is to coordinate with the NJDEP Division of Land Use Regulation to acquire applicable permits for work within the NJHMD and comply with permit conditions.

Source of condition: NEPA Determination

Monitoring Required: No

*. Subrecipient is to follow all conditions laid out in the September 2019 RBDM Record of Decision (NJDEP 2018b).

Source of condition: NEPA Determination

Monitoring Required: No

Standard Conditions:

Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.

This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize federal funding.

If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.



STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATERSHED & LAND MANAGEMENT
 Mail Code 501-02A, P.O. Box 420, Trenton, New Jersey 08625-0420
 Telephone: (609) 777-0454 or Fax: (609) 777-3656
 www.nj.gov/dep/landuse



PERMIT

<p>In accordance with the laws and regulations of the State of New Jersey, the Department of Environmental Protection hereby grants this permit to perform the activities described below. This permit is revocable with due cause and is subject to the terms, conditions, and limitations listed below and on the attached pages. For the purpose of this document, “permit” means “approval, certification, registration, authorization, waiver, etc.” Violation of any term, condition, or limitation of this permit is a violation of the implementing rules and may subject the permittee to enforcement action.</p>		Approval Date September 25, 2024
		Expiration Date September 24, 2029
Permit Number(s): 0200-19-0004.4 LUP240001	Type of Approval(s): Flood Hazard Area Verification - Method 2 Flood Hazard Area Individual Permit Meadowlands District Water Quality Certificate	Governing Rule(s): N.J.A.C. 7:13-1.1(b) N.J.A.C. 7:7-1.1(a)
Permittee: NJDEP Division of Resilience Engineering & Construction c/o Kunal Patel 44 S. Clinton Ave, 3rd Floor Mail Code 44-03, PO Box 420 Trenton, NJ 08625	Site Location: Blocks & Lots: [123, 1] [123, 2] [123, 6] [123, 7] [123, 9] [123, 10] [123, 11] [123, 12] [123, 13] [123, 14] [123, 16] [123, 17] [123, 26] [123, 26.01] [123, 26.02] [123, 27] [123, 27.01] [123, 35] [123, 36] Carlstadt Borough, Bergen County Blocks & Lots: [59, 3] [62, 2] [62, 5.02] [62, 5.03] [62, 5.04] [62, 6.01] [62, 6.03] [62, 7] [62, 10.02] [63, 1.02] [63, 1.03] [63, 1.04] [63, 4] [63, 5] [64.02, 1] Moonachie Borough, Bergen County	
<p>Description of Authorized Activities:</p> <p>This document verifies that the tidal flood hazard area elevation associated with Berry’s Creek within the project area is 8.0’ NAVD’88 (flood zone AE). This document also verifies the limit of riparian zone within the project area as shown on the approved drawings. In addition, this permit authorizes the modifications and improvements to East Riser Ditch (ERD), including removal of accumulated sediment, stabilization of the channel using appropriate bio-engineering and structural stabilization measures, replacement of three restricted stream crossings and construction of an Operation & Maintenance corridor along ERD, in association with a flood control project, on the parcels referenced above, as shown on the approved plans. This project is one of the elements of the overall Rebuild by Design – Meadowlands (RBDM) Project.</p> <p>This approval includes a Water Quality Certification (WQC).</p> <p><i>The Department has determined that the herein approved activities meet the requirements of the FHACA rules. This approval does not obviate the local Floodplain Administrator's responsibility to ensure all development occurring within their community's Special Flood Hazard Area is compliant with the local Flood Damage Prevention Ordinance, and minimum NFIP standards, regardless of any state-issued permits. FEMA requires communities to review and permit all proposed construction or other development within their SFHA in order to participate in the NFIP.</i></p>		
Prepared by: Ashleigh Windawi	Received and/or Recorded by County Clerk:	
<p>If the permittee undertakes any regulated activity, project, or development authorized under this permit, such action shall constitute the permittee’s acceptance of the permit in its entirety as well as the permittee’s agreement to abide by the requirements of the permit and all conditions therein.</p>		
<p>This permit is not valid unless authorizing signature appears on the last page.</p>		

STATEMENT OF AUTHORIZED IMPACTS:

The authorized activities allow for the permittee to undertake impacts to regulated areas as described below. Additional impacts to regulated areas without prior Department approval shall constitute a violation of the rules under which this document is issued and may subject the permittee and/or property owner to enforcement action, pursuant to N.J.A.C. 7:13-2.18.

Riparian Zone Vegetation	Area of riparian zone (Acres)
Permanent Disturbed	2.163
Temporary Disturbed	0.658

Water Quality Certificate	Wetlands (Acres)	State Open Waters (Acres)
Permanent Disturbed	0.024	0
Temporary Disturbed	0.001	2.499

PRE-CONSTRUCTION CONDITIONS:

1. Prior to site preparation or construction, the permittee shall obtain a formal release of the conservation easement required for Block 63, Lot 5 in Moonachie under the previously issued Flood Hazard Area Individual Permit No. 0237-11-0002.1 FHA110002.
2. Prior to site preparation or construction, the permittee shall obtain all necessary approvals from the Department’s Bureau of Tidelands Management.
3. Prior to site preparation or construction, the permittee shall obtain written consent and/or approved easements from all owners of property listed in this permit.
4. Prior to site preparation or construction, the permittee shall obtain written authorization from all affected property owners acknowledging and approving the extension of regulated riparian zone on their property.
5. Prior to the commencement of site clearing, grading, or construction onsite, the permittee shall install a sediment barrier at the limits of disturbance authorized herein, which is sufficient to prevent the sedimentation of the remaining riparian zone, wetlands, and regulated water, and shall serve as a physical barrier protecting these areas from encroachment by construction vehicles or other soil-disturbing activities. All sediment barriers and soil erosion control measures shall be kept in place and maintained throughout the duration of construction, until such time that the site is stabilized.
6. Prior to construction, all the trees which are NOT to be removed as shown on the referenced plan shall be marked and protective construction fence must be placed around each tree for the duration of construction until the site is stabilized.

SPECIAL CONDITIONS:

1. The Department has determined that the required riparian zone adjacent to the regulated waters affected by the project is 50 feet from the top of the bank. Any additional disturbance to the riparian

zone shall be considered a violation of the Flood Hazard Area Control Act Rules (FHACAR) unless a permit is obtained, prior to the start of the disturbance, from the Department.

2. In order to protect the general fish population within Riser Ditch and its tributaries, no grading, excavation, or construction activities is permitted within the watercourse onsite from **May 1 through July 31** of each calendar year. In addition, any activity within the riparian zone of this watercourse or tributaries which would introduce sediment into said stream or which could cause more than a minimum increase in the natural level of turbidity is also prohibited anytime, but especially during this period. The Department reserves the right to require additional soil conservation measures if it becomes evident that additional soil conservation measures are required to protect State regulated resources or to suspend all regulated activities on-site should it be determined that the applicant has not taken proper precautions to ensure continuous compliance with this condition.
3. All riparian zone vegetation that is temporarily cleared, cut, and/or removed to conduct a regulated activity, access an area where regulated activities will be conducted, or otherwise accommodate a regulated activity shall be replanted immediately after completion of the regulated activity, unless prevented by seasonal weather, in which case the vegetation shall be replanted as soon as conditions permit. The vegetation to be replanted shall:
 - a. Consist of vegetation of equal or greater ecological function and value as the vegetation that was cleared, cut, or removed. For example, herbaceous vegetation may be replaced with the same type of vegetation or with trees, but the trees in forested areas must be replaced with trees of equal or greater density and ecological function and value;
 - b. Consist of native, non-invasive vegetation, except in an actively disturbed area. In an actively disturbed area, the vegetation may be replaced with the same type of vegetation that was cleared, cut, or removed, or with another kind of vegetation typical of an actively disturbed area. For example, lawn grass may be replaced with garden plants or agricultural crops; and

In cases where replanting would interfere with continued access to or maintenance of a structure that is required by Federal, State, or local law, the vegetation replanted shall meet the requirements to the extent feasible.

4. Any dewatering must include properly sized temporary sediment basins or other filtering methods to reduce turbidity. The stream area to receive return water discharged from dewatering areas must be encompassed by turbidity barrier.
5. Any and all precautions must be taken to prevent raw concrete [e.g. abutments/footings] from coming in contact with the waters of the tributary; raw concrete is toxic to aquatic biota.
6. The permittee shall ensure that a low-flow channel is maintained throughout and after construction, and that no restriction of flow occurs as a result of the project. To reestablish low-flow aquatic passage, riprap material shall be carefully embedded into the channel substrate to mimic the original physical characteristics of the channel and any void spaces shall be filled with native channel substrate.
7. Activities shall not impair surface water flow into or out of any wetland area.
8. Any new, reconstructed, enlarged, or elevated structure within a flood hazard area shall be secured to resist flotation, collapse, and displacement due to hydrostatic and hydrodynamic forces from floodwaters.

9. Construction equipment cannot be stored, staged or driven within any channel, freshwater wetland or transition area, unless expressly approved by this permit and/or described on the approved plans.
10. All sediment barriers and other soil erosion control measures shall be installed prior to commencing any clearing, grading or construction onsite, and shall be maintained in proper working condition throughout the entire duration of the project.
11. For the purposes of this permit, the Department has determined this project did not require the use of any structural best management practices (BMP) to demonstrate compliance with the Stormwater Management rules at N.J.A.C. 7:8. Therefore, the Department did not review any proposed BMP for consistency with the design criteria referenced within the New Jersey Stormwater Best Management Practices Manual.
12. After all in-channel activities are completed, native stream bed material must be replaced within the channel. This material must be contoured to mimic the original physical characteristics of the channel (such as its shape, width, slope, thalweg, meander, and ratio of shallow areas to deep areas,) in order to provide low-flow aquatic passage throughout the entire disturbed area.
13. The riprap proposed within the channel must be carefully imbedded into the channel substrate and contoured to mimic the original physical characteristics of the channel (such as its shape, slope, thalweg and meander) in order to provide low-flow aquatic passage throughout the entire disturbed area. Furthermore, any void spaces within the riprap must be filled with native substrate from the channel.
14. De-watering of cofferdams must include properly sized temporary sediment basins or other filtering methods to reduce turbidity. The stream area to receive return water discharged from cofferdams must be encompassed by a turbidity barrier. The turbidity barrier must be located parallel to the stream banks and anchored to the shoreline to maintain freeflow of the stream center. In order to avoid obstruction of stream flows or fish passage, turbidity barriers must not be placed across the entire stream channel.
15. Construction may only occur while the stream area is dry or in a de-watered condition. No work may be performed where the stream channel is wet.
16. The sections of watercourse to be cleaned under this permit shall be accessed only in the areas specifically shown on the approved drawing(s). The maximum limit of bank disturbance shown shall be observed and no additional disturbance to the channel is authorized.
17. Within 90 calendar days of the date of this letter, the applicant shall submit the following information to the clerk of each county in which the site is located, and shall send proof to the Department that this information is recorded on the deed of each lot referenced in the verification:
 - a. The Department file number for the verification;
 - b. The approval and expiration dates of the verification;
 - c. The flood hazard area design flood elevation, or range of elevations if variable, approved under the verification;
 - d. The width and location of the any riparian zone approved under the verification; and

- e. The following statement: “All or a portion of this site lies in a flood hazard area. Certain activities in flood hazard areas are regulated by the New Jersey Department of Environmental Protection and some activities may be prohibited on this site or may first require a permit. Contact the Division of Land Use Regulation at (609) 777-0454 for more information prior to construction on site.”

Failure to have this information recorded in the deed of each lot and/or to submit proof of recording to the Department constitutes a violation of the Flood Hazard Area Control Act rules and may result in suspension or termination of the verification and/or subject the applicant to enforcement action pursuant to N.J.A.C. 7:13-24.

WATER QUALITY CERTIFICATE MITIGATION CONDITIONS:

1. In order to protect the quality of the waters of the State of New Jersey, the permittee shall mitigate for the permanent disturbance of **0.024 acres of scrub/shrub wetlands** through an on-site or off-site creation, restoration or enhancement project or with the purchase of credits from a mitigation bank serving the appropriate watershed management area in accordance with the mitigation hierarchy. The permittee shall mitigate for the temporary disturbance of **0.001 acres of scrub/shrub wetlands and 2.499 acres of State open waters** through an onsite restoration project. (N.J.A.C. 7:7A-11 et seq)
2. **At least 90 days prior to the initiation of regulated activities authorized by this permit**, the permittee shall submit a mitigation proposal to the Division of Watershed Protection and Restoration (Division) for review and approval. Activities authorized by this permit shall not begin until the permittee has obtained written approval of a mitigation plan from the Department (N.J.A.C. 7:7A-11.6(a)).
3. **All mitigation for permanent disturbance shall be conducted prior to or concurrent with the construction of the approved project** (N.J.A.C. 7:7A-11.3(a)). Concurrent means that at any given time, the mitigation must track at the same or greater percentage of completion as the project as a whole. All mitigation for temporary disturbances shall be conducted immediately following completion of the activity that cause the disturbance and shall be continued to completion within six months after the end of the activity that caused the disturbance.
4. If the permittee fails to perform mitigation within the applicable time period the acreage of mitigation required shall be increased by 20 percent each year after the date mitigation was to begin (N.J.A.C. 7:7A-11.3(c)).
5. If the permittee is considering obtaining land to satisfy a mitigation requirement, the Department strongly recommends that the permittee obtain the Division’s conceptual review and approval of any land being considered as a potential mitigation area.
6. If the permittee is purchasing credits from a mitigation bank to satisfy a mitigation requirement, prior to the initiation of regulated activities authorized by this permit, the permittee shall submit proof of purchase for 0.024 mitigation credits from an approved wetland mitigation bank to the attention of the Mitigation Unit Supervisor, NJDEP, Division of Watershed Protection and Restoration at Mail Code 501-02A, P.O. Box 420, Trenton, NJ 08625-0420.

At this time, the following bank(s) are approved to serve the project area; additional banks may be approved at any time, so please contact the Mitigation unit for the most up to date service area information if you would like additional options.

MRI3 Mitigation Bank – Contact Mark Renna, Evergreen Environmental, LLC. Phone: (201) 644-7302 or (973) 356-7164. Email: mrenna@evergreenenv.com.

7. If the permittee is considering conducting a creation, restoration or enhancement project, the following conditions shall apply:
 - a. **Prior to the initiation of regulated activities** authorized by this permit the permittee shall submit a final design of the mitigation project for approval and include all of the items listed on the checklist entitled Checklist for Completeness: Creation, Restoration or Enhancement for a Freshwater Wetland Mitigation Proposal located at <https://dep.nj.gov/wlm/forms/>.
 - b. **For mitigation areas associated with permanent disturbance: Prior to the completion of the mitigation project**, the permittee shall complete, sign and file with the County Clerk (the Registrar of Deeds and Mortgages in some counties), a conservation restriction that meets the requirements of N.J.A.C. 7:7A-12.1. The conservation restriction shall include the wetland and required transition area and conform to the format and content of the Wetlands Mitigation Area model conservation restriction that is available at: <https://dep.nj.gov/wlm/forms/> . The applicant is required to include a metes and bounds description shown on a map. Within 180 days of the issuance of the mitigation approval, the recorded conservation restriction shall be provided to the Mitigation Unit, NJDEP Division of Watershed Protection and Restoration for verification. (N.J.A.C. 7:7A-12.1 et. seq.)
 - c. The permittee shall notify the Mitigation Unit at the Division of Watershed Protection and Restoration in writing **at least 30 days prior to the start of construction of the wetland mitigation project** to arrange an on-site pre-construction meeting among the permittee, the contractor, the consultant and the Division.
 - d. To ensure the intent of the mitigation design and its predicted wetland hydrology is realized in the landscape, the mitigation designer shall be present on-site during all critical stages of mitigation construction and during the restoration of any temporarily impacted areas. Critical stages of construction include but are not limited to herbicide applications, earthmoving activities, planting, and inspections.
 - e. The permittee shall be responsible for ensuring that best management practices are used throughout construction to control the spread and colonization of highly invasive plants. Specifically, all equipment, especially tracks and tires, must be thoroughly cleaned every time equipment or vehicles move from an area containing invasive plants or from off-site to the mitigation area. In addition, soil containing root fragments and above-ground vegetative material from invasive plants shall be carefully managed during earthmoving activities and disposed of at a suitable off-site location rather than mulched and reused or stockpiled elsewhere on the site. For information on the specific species that are considered to be invasive, please see the [NJDEP Mitigation Technical Manual](#).
 - f. If changes to the mitigation design are necessary to ensure success of the project as a result of on-site conditions, the mitigation designer shall immediately notify the Division in writing and submit an alternative plan which achieves the proposed wetland conditions. The Division shall review the plan in accordance with N.J.A.C. 7:7A-11.7. Any modifications to the plan that are reviewed and

approved by the Division must be shown on a signed and sealed revised plan. The As-Built plans required as a part of the Construction Completion Report may serve as the signed and sealed revised plan required to be submitted as part of the construction modification process described above if time constraints warrant such action and have been approved by the Division in writing.

- g. **Within 30 days of final grading of the mitigation site and prior to planting**, the permittee shall notify the Mitigation Unit at the Division of Watershed Protection and Restoration in writing to arrange a post-grading construction meeting among the permittee, contractor, consultant and the Division.
- h. **Within 30 days following the final planting of the mitigation project**, the permittee shall submit a Construction Completion Report to the Division detailing as-built conditions (see below) and any changes to the approved mitigation plan that were made during construction (N.J.A.C. 7:7A-11.12). The Construction Completion Report shall contain, at a minimum, the following information:
 - i. A completed Wetland Mitigation Project Completion of Construction Form. This form is located at <https://dep.nj.gov/wlm/forms/> and certifies that the mitigation project has been constructed as designed and that the proposed area of wetland creation, restoration or enhancement has been accomplished;
 - ii. As-Built plans which depict final grade elevations at one-foot contours and include a table of the species and quantities of vegetation that were planted including any grasses that may have been used for soil stabilization purposes; and
 - iii. Photos of the constructed wetland mitigation project with a photo location map as well as the GPS waypoints in NJ state plane coordinates NAD 1983.
- j. **Within 30 days following final planting of the mitigation project**, the permittee shall post the mitigation area with permanent signs which identify the site as a wetland mitigation project and that all-terrain vehicle use, motorbike use, mowing, dumping, draining, cutting and/or removal of plant materials is prohibited and that violators shall be prosecuted and fined to the fullest extent under the law. The signs must also state the name of the permittee, a contact name and phone number, and the Department's permit number.
- k. The permittee shall monitor **all freshwater wetland and transition area projects** for a minimum of 5 years, unless otherwise stipulated within the approved mitigation proposal, beginning the first full growing season after the mitigation project has been completed. The permittee shall submit monitoring reports to the Division of Watershed Protection and Restoration no later than December 31st of each full monitoring year (N.J.A.C. 7:7A-11.12(g)). All monitoring reports must include the standard items identified in the checklist entitled, "Wetland Mitigation Monitoring Project Checklist", which can be found at <https://dep.nj.gov/wlm/forms/>.
- l. Once the required monitoring period has expired and the permittee has submitted the final monitoring report, the Division will make the finding that the mitigation project is either a success or a failure. This mitigation project will be considered successful if the permittee demonstrates all of the following:
 - i. That the goals of the wetland mitigation project, including acreage and the required transition area, as stated in the approved wetland mitigation proposal and the permit have been satisfied. The permittee shall submit a field wetland delineation of the wetland

mitigation project based on the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (1989) which shows the exact acreage of State open waters, emergent, scrub/shrub and/or forested wetlands in the mitigation area;

- ii. The site has an 85 percent survival and 85 percent area coverage of the mitigation plantings or target hydrophytes, which are species native to the area and similar to ones identified on the mitigation planting plan. All plant species in the mitigation area must be healthy and thriving and all trees must be at least five feet in height;
 - iii. The site has less than 10 percent coverage by invasive or noxious species.
 - iv. The site contains hydric soils or there is evidence of reduction occurring in the soil; and,
 - v. The proposed hydrologic regime as specified in the mitigation proposal has been satisfied.
- m. The permittee is responsible for assuming all liability for any corrective work necessary to meet the success criteria established above (N.J.A.C. 7:7A-11.12(i)). The Division will notify the permittee in writing if the mitigation project is considered to be a failure. Within 30 days of notification, the permittee shall submit a revised mitigation plan to meet the success criteria identified above for Division review and approval. The financial surety, if required, will not be released by the Division until such time that the permittee satisfies the success criteria as stipulated above.

RIPARIAN ZONE MITIGATION CONDITIONS:

1. The permittee shall mitigate for the permanent disturbance of **0.466 acres of forested, 0.974 acres of scrub/shrub, and 0.139 acres of herbaceous** riparian zone vegetation through an on-site or off-site creation, restoration, enhancement, or preservation project or with the purchase of credits from a mitigation bank serving the appropriate watershed management area. The permittee shall mitigate for the temporary disturbance of **0.214 acres of forested, 0.260 acres of scrub/shrub, and 0.165 acres of herbaceous** riparian zone vegetation through an onsite restoration project.
2. **At least 90 days prior to the initiation of regulated activities authorized by this permit**, the permittee shall submit a mitigation proposal to the Division of Watershed Protection and Restoration (Division) for review and approval. Activities authorized by this permit shall not begin until the permittee has obtained written approval of a mitigation plan from the Department.
3. **All mitigation for permanent disturbance shall be conducted prior to or concurrent with the construction of the approved project.** Concurrent means that at any given time, the mitigation must track at the same or greater percentage of completion as the project as a whole. All mitigation for temporary disturbances shall be conducted immediately following completion of the activity that cause the disturbance and shall be continued to completion within six months after the end of the activity that caused the disturbance.
4. If the permittee is purchasing credits from a mitigation bank to satisfy a mitigation requirement, prior to the initiation of regulated activities authorized by this permit, the permittee shall submit proof of purchase for 1.579 mitigation credits from an approved riparian mitigation bank to the attention of the Mitigation Unit Supervisor, NJDEP, Division of Watershed Protection and Restoration at Mail Code 501-02A, P.O. Box 420, Trenton, NJ 08625-0420.

At this time, the following bank(s) are approved to serve the project area; additional banks may be approved at any time, so please contact the Mitigation unit for the most up to date service area information if you would like additional options.

Oradell Reservoir Mitigation Bank – Contact Doug Lashley, GreenVest. Phone: (410) 987-5500. Email: Doug@greenvestus.com; or Brian Cramer, GreenVest. Phone: (732) 902-6644. Email: Brian@greenvestus.com.

5. If the permittee is considering conducting a creation, restoration or enhancement project, the following conditions shall apply:

For mitigation areas associated with permanent disturbance: Prior to the initiation of regulated activities authorized by this permit, the permittee shall sign a Department approved conservation restriction to protect the mitigation area from future development that would remove the vegetation planted. (N.J.A.C. 7:13-13.2(g)). The conservation restriction shall conform to the format and content of the rules at N.J.A.C. 7:13-14 and the Riparian Zone Mitigation Area model located at [Deed Restriction: Riparian Zone Compensation \(nj.gov\)](#). The restriction shall be included on the deed and recorded in the office of the County Clerk (the Registrar of Deeds and Mortgages in some counties) in the county wherein the lands of the mitigation project are located. A metes and bounds description shown on a map must be included within the recorded conservation restriction. Within 10 days of filing the conservation restriction, the permittee must send a copy of the conservation restriction to the attention of the Mitigation Unit Supervisor, NJDEP, Division of Watershed Protection and Restoration at Mail Code 501-02A, P.O. Box 420, Trenton, NJ 08625-0420.

6. The permittee shall monitor the riparian project for at least 5 years beginning the year after the riparian zone mitigation project has been completed (N.J.A.C. 7:13-13.12(c)). **The permittee shall submit monitoring reports to the Division of Watershed Protection and Restoration, no later than December 31st of each full monitoring year.**
 - a. All monitoring reports except the final one should include the requirements and goals of the mitigation proposal and a detailed explanation of the ways in which the mitigation has or has not achieved progress toward those goals. If mitigation has not achieved progress, the report shall also include a list of corrective actions to be implemented and a timeline for completion.
 - b. The final monitoring report must include documentation and data demonstrating that:
 - i. The goals of the riparian zone mitigation as stated in the approved riparian zone mitigation proposal and the permit conditions have been satisfied.
 - ii. At least 85 percent of the mitigation plantings have survived and that at least 85 percent of the mitigation area is established with native species similar to ones identified on the mitigation planting plan. All plant species in the mitigation area must be healthy and thriving. All trees must be at least 5 feet in height; and
 - iii. The site is less than 10 percent occupied by invasive or noxious species; and
 - iv. The conservation restriction for the mitigation site has been executed and recorded.
7. If the riparian mitigation project does not meet the success criteria established above the project shall be considered a failure and the permittee shall submit a revised riparian mitigation plan. The revised

plan shall be submitted within 60 days of receipt of notification from the Division indicating the riparian mitigation project was a failure.

8. If the Division determines that the riparian zone mitigation project is not constructed in conformance with the approved plan, the permittee will be notified in writing by the Department and will have 60 days to submit a proposal to indicate how the project will be corrected.
9. For preservation projects, the application shall provide documentation showing that the proposed preservation area will fully compensate in accordance with N.J.A.C. 7:13-13.13 for the loss of functions and values caused by the disturbance.

STANDARD CONDITIONS:

1. The issuance of a permit shall in no way expose the State of New Jersey or the Department to liability for the sufficiency or correctness of the design of any construction or structure(s). Neither the State nor the Department shall, in any way, be liable for any loss of life or property that may occur by virtue of the activity or project conducted as authorized under a permit.
2. The issuance of a permit does not convey any property rights or any exclusive privilege.
3. The permittee shall obtain all applicable Federal, State, and local approvals prior to commencement of regulated activities authorized under a permit.
4. A permittee conducting an activity involving soil disturbance, the creation of drainage structures, or changes in natural contours shall obtain any required approvals from the Soil Conservation District or designee having jurisdiction over the site.
5. The permittee shall take all reasonable steps to prevent, minimize, or correct any adverse impact on the environment resulting from activities conducted pursuant to the permit, or from noncompliance with the permit.
6. The permittee shall immediately inform the Department of any unanticipated adverse effects on the environment not described in the application or in the conditions of the permit. The Department may, upon discovery of such unanticipated adverse effects, and upon the failure of the permittee to submit a report thereon, notify the permittee of its intent to suspend the permit.
7. The permittee shall immediately inform the Department by telephone at (877) 927-6337 (WARN DEP hotline) of any noncompliance that may endanger public health, safety, and welfare, or the environment. The permittee shall inform the Watershed & Land Management by telephone at (609) 777-0454 of any other noncompliance within two working days of the time the permittee becomes aware of the noncompliance, and in writing within five working days of the time the permittee becomes aware of the noncompliance. Such notice shall not, however, serve as a defense to enforcement action if the project is found to be in violation of this chapter. The written notice shall include:
 - i. A description of the noncompliance and its cause;
 - ii. The period of noncompliance, including exact dates and times;
 - iii. If the noncompliance has not been corrected, the anticipated length of time it is expected to continue; and

- iv. The steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.
8. Any noncompliance with a permit constitutes a violation of this chapter and is grounds for enforcement action, as well as, in the appropriate case, suspension and/or termination of the permit.
9. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the authorized activity in order to maintain compliance with the conditions of the permit.
10. The permittee shall employ appropriate measures to minimize noise where necessary during construction, as specified in N.J.S.A. 13:1G-1 et seq. and N.J.A.C. 7:29.
11. The issuance of a permit does not relinquish the State's tidelands ownership or claim to any portion of the subject property or adjacent properties.
12. The issuance of a permit does not relinquish public rights to access and use tidal waterways and their shores.
13. The permittee shall allow an authorized representative of the Department, upon the presentation of credentials, to:
 - i. Enter upon the permittee's premises where a regulated activity, project, or development is located or conducted, or where records must be kept under the conditions of the permit;
 - ii. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit;
 - iii. Inspect, at reasonable times, any facilities, equipment, practices, or operations regulated or required under the permit. Failure to allow reasonable access under this paragraph shall be considered a violation of this chapter and subject the permittee to enforcement action; and
 - iv. Sample or monitor at reasonable times, for the purposes of assuring compliance or as otherwise authorized by the Federal Act, by the Freshwater Wetlands Protection Act, or by any rule or order issued pursuant thereto, any substances or parameters at any location.
14. The permittee shall not cause or allow any unreasonable interference with the free flow of a regulated water by placing or dumping any materials, equipment, debris or structures within or adjacent to the channel while the regulated activity, project, or development is being undertaken. Upon completion of the regulated activity, project, or development, the permittee shall remove and dispose of in a lawful manner all excess materials, debris, equipment, and silt fences and other temporary soil erosion and sediment control devices from all regulated areas.
15. The permittee and its contractors and subcontractors shall comply with all conditions, site plans, and supporting documents approved by the permit.
16. All conditions, site plans, and supporting documents approved by a permit shall remain in full force and effect, so long as the regulated activity, project, or development, or any portion thereof, is in existence, unless the permit is modified pursuant to the rules governing the herein approved permits.

17. The permittee shall perform any mitigation required under the permit in accordance with the rules governing the herein approved permits.
18. If any condition or permit is determined to be legally unenforceable, modifications and additional conditions may be imposed by the Department as necessary to protect public health, safety, and welfare, or the environment.
19. Any permit condition that does not establish a specific timeframe within which the condition must be satisfied (for example, prior to commencement of construction) shall be satisfied within six months of the effective date of the permit.
20. A copy of the permit and all approved site plans and supporting documents shall be maintained at the site at all times and made available to Department representatives or their designated agents immediately upon request.
21. The permittee shall provide monitoring results to the Department at the intervals specified in the permit.
22. A permit shall be transferred to another person only in accordance with the rules governing the herein approved permits.
23. A permit can be modified, suspended, or terminated by the Department for cause.
24. The submittal of a request to modify a permit by the permittee, or a notification of planned changes or anticipated noncompliance, does not stay any condition of a permit.
25. Where the permittee becomes aware that it failed to submit any relevant facts in an application, or submitted incorrect information in an application or in any report to the Department, it shall promptly submit such facts or information.
26. The permittee shall submit email notification to the Bureau of Coastal & Land Use Compliance & Enforcement at CLU_tomsriver@dep.nj.gov at least 3 days prior to commencement of site preparation and/or regulated activities, whichever comes first. The notification shall include proof of completion of all pre-construction conditions, including proof of recording of permits, approved plans and/or conservation easements, if required. The permittee shall allow an authorized Bureau representative on the site to inspect to ensure compliance with this permit.
27. The permittee shall record the permit, including all conditions listed therein, with the Office of the County Clerk (the Registrar of Deeds and Mortgages, if applicable) of each county in which the site is located. The permit shall be recorded within 30 calendar days of receipt by the permittee, unless the permit authorizes activities within two or more counties, in which case the permit shall be recorded within 90 calendar days of receipt. Upon completion of all recording, a copy of the recorded permit shall be forwarded to Watershed & Land Management through the DEP Online service. The uploaded documents will go directly into the Department's database, and staff will be notified that information has been received. The service can be found at: <https://dep.nj.gov/wlm/eservices/lrp-eservices/>.

APPROVED PLAN(S):

The drawings hereby approved consist of fifteen (15) sheets, among them, ten (10) sheets were prepared by Steven Biuso, P.E. of AECOM Technical Services, Inc., undated, and entitled:

“REBUILD BY DESIGN MEADOWLANDS, BOROUGH OF CARLSTADT, BOROUGH OF MOONACHIE, BERGEN COUNTY, NEW JERSEY, EAST RISER DITCH CHANNEL IMPROVEMENTS PROJECT”:

“EXISTING CONDITIONS PLAN, SHEETS 1 - 5 OF 5”, Sheet Numbers PP-003 through PP-007, unrevised, and

“WETLAND AND RIPARIAN ZONE IMPACT PLAN, SHEET 1 of 5”, Sheet Number PP-008, last revised September 23, 2024, and

“WETLAND AND RIPARIAN ZONE IMPACT PLAN, SHEETS 2 THROUGH 5”, Sheet Numbers PP-009 through PP-012, last revised September 5, 2024.

and five (5) sheets were prepared by Michael Vecchio of HDR Engineering, Inc., dated September 2023, unless otherwise noted, unrevised and entitled:

“REBUILD BY DESIGN MEADOWLANDS, BOROUGH OF CARLSTADT, BOROUGH OF MOONACHIE, BERGEN COUNTY, NEW JERSEY, EAST RISER DITCH CHANNEL IMPROVEMENTS PROJECT”:

“CHANNEL TYPICAL SECTIONS 1 OF 7”, Sheet Number CT-601, dated March 2024,

“CHANNEL TYPICAL SECTIONS 2 OF 7”, Sheet Number CT-602,

“CHANNEL TYPICAL SECTIONS 3 OF 7”, Sheet Number CT-603, dated March 2024,

“CHANNEL TYPICAL SECTIONS 4 OF 7”, Sheet Number CT-604,

“CHANNEL TYPICAL SECTIONS 5 OF 7”, Sheet Number CT-605.

APPEAL OF DECISION:

Any person who is aggrieved by this decision may submit an adjudicatory hearing request within 30 calendar days after public notice of the decision is published in the DEP Bulletin (available at <https://dep.nj.gov/bulletin/>). If a person submits the hearing request after this time, the Department shall deny the request. The hearing request must include a completed copy of the Administrative Hearing Request Checklist (available at <https://dep.nj.gov/wlm/forms/>). A person requesting an adjudicatory hearing shall submit the original hearing request to: NJDEP Office of Administrative Hearings and Dispute Resolution, Attention: Adjudicatory Hearing Requests, Mail Code 401-07A, P.O. Box 420, 401 East State Street, 7th Floor, Trenton, NJ 08625-0420. Additionally, a copy of the hearing request shall be submitted to the Director of Watershed & Land Management at the address listed on page one of this permit. In addition to your hearing request, you may file a request with the Office of Dispute Resolution to engage in alternative dispute resolution. Please see www.nj.gov/dep/odr for more information on this process.

If you need clarification on any section of this permit or conditions, please contact Watershed & Land Management's Technical Support Call Center at (609) 777-0454.

Approved By:



Digitally signed by Ryan
Anderson
Date: 2024.09.25
14:50:33-04'00'

Ryan J. Anderson, Manager
Watershed & Land Management

c: Municipal Clerk, Carlstadt & Moonachie Borough
Municipal Construction Official, Carlstadt & Moonachie Borough
Agent (original) – Kim McEvoy, NJDEP



United States Department of the Interior



FISH AND WILDLIFE SERVICE
New Jersey Ecological Services Field Office
4 E. Jimmie Leeds Road, Suite 4
Galloway, NJ 8205
Phone: (609) 646-9310

In Reply Refer To:
Project Code: 2026-0037844
Project Name: East Riser

01/17/2026 17:46:47 UTC

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

If the enclosed list indicates that any listed species may be present in your action area, please visit the New Jersey Field Office Project Review Guide web page as the next step in evaluating potential project impacts: <http://www.fws.gov/northeast/njfieldoffice/Endangered/consultation.html>

On the New Jersey Field Office consultation web page you will find:

- habitat descriptions, survey protocols, and recommended best management practices for listed species;
- recommended procedures for submitting information to this office; and
- links to other Federal and State agencies, the Section 7 Consultation Handbook, the Service's wind energy guidelines, communication tower recommendations, the National Bald Eagle Management Guidelines, and other resources and recommendations for protecting wildlife resources.

The enclosed list may change as new information about listed species becomes available. As per Federal regulations at 50 CFR 402.12(e), the enclosed list is only valid for 90 days. Please return to the IPaC website at regular intervals during project planning and implementation to obtain an updated species list. When using IPaC, be careful about drawing the boundary of your Project Location. Remember that your action area under the ESA is not limited to just the footprint of the project. The action area also includes all areas that may be indirectly affected through impacts

such as noise, visual disturbance, erosion, sedimentation, hydrologic change, chemical exposure, reduced availability or access to food resources, barriers to movement, increased human intrusions or access, and all areas affected by reasonably foreseeable future that would not occur without ("but for") the project that is currently being proposed.

We appreciate your concern for threatened and endangered species. The Service encourages Federal and non-Federal project proponents to consider listed, proposed, and candidate species early in the planning process. Feel free to contact this office if you would like more information or assistance evaluating potential project impacts to federally listed species or other wildlife resources. Please include the project code in the header of this letter with any correspondence about your project.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New Jersey Ecological Services Field Office
4 E. Jimmie Leeds Road, Suite 4
Galloway, NJ 8205
(609) 646-9310

PROJECT SUMMARY

Project Code: 2026-0037844

Project Name: East Riser

Project Type: Flooding

Project Description: Flood control for channel modifications, three culvert replacements, and a railroad bridge replacement on East Riser Ditch Channel in Carlstadt and Moonachie, New Jersey. Channel modifications more specifically include widening and deepening of the East Riser Ditch Channel, bank stabilization, and replanting of vegetation. channel modifications, three culvert replacements, and a railroad bridge replacement on East Riser Ditch Channel in Carlstadt and Moonachie, New Jersey. Channel modifications more specifically include widening and deepening of the East Riser Ditch Channel, bank stabilization, and replanting of vegetation.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@40.8362166,-74.06549634564122,14z>



Counties: Bergen County, New Jersey

ENDANGERED SPECIES ACT SPECIES

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Tricolored Bat <i>Perimyotis subflavus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515 General project design guidelines: https://ipac.ecosphere.fws.gov/project/5WDZZBE4SRDZFHKJBEIM7MCKBY/documents/generated/10545.pdf	Proposed Endangered

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> There is proposed critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743 General project design guidelines: https://ipac.ecosphere.fws.gov/project/5WDZZBE4SRDZFHKJBEIM7MCKBY/documents/generated/10545.pdf	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act ² and the Migratory Bird Treaty Act (MBTA) ¹. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

1. The [Bald and Golden Eagle Protection Act](#) of 1940.

2. The [Migratory Birds Treaty Act](#) of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are Bald Eagles and/or Golden Eagles in your [project](#) area.

Measures for Proactively Minimizing Eagle Impacts

For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the [National Bald Eagle Management Guidelines](#). You may employ the timing and activity-specific distance recommendations in this document when designing your project/activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to [Bald Eagle Nesting and Sensitivity to Human Activity](#).

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional [Migratory Bird Office](#) or [Ecological Services Field Office](#).

If disturbance or take of eagles cannot be avoided, an [incidental take permit](#) may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the [Do I Need A Permit Tool](#). For assistance making this determination for golden eagles, please consult with the appropriate Regional [Migratory Bird Office](#) or [Ecological Services Field Office](#).

Ensure Your Eagle List is Accurate and Complete

If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the [Supplemental Information on Migratory Birds and Eagles](#), to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "[Supplemental Information on Migratory Birds and Eagles](#)", specifically the FAQ section titled "Proper

Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)

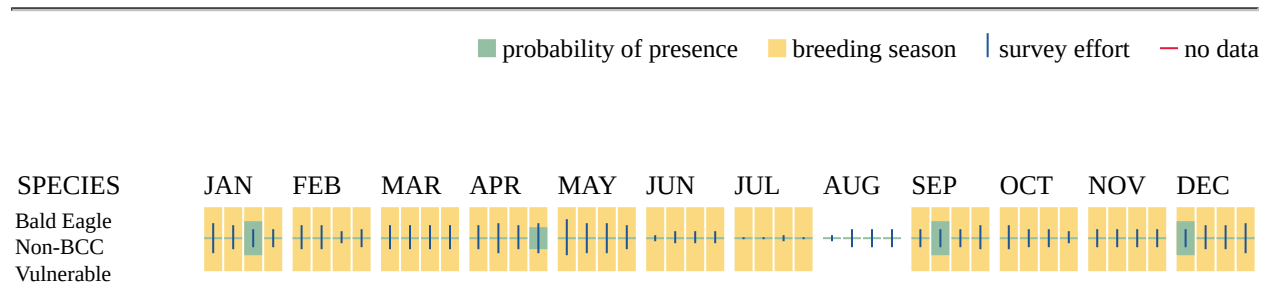
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)

Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (—)

A week is marked as having no data if there were no survey events for that week.



Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide avoidance and minimization measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

MIGRATORY BIRDS

The Migratory Bird Treaty Act (MBTA) ¹ prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31
Black-billed Cuckoo <i>Coccyzus erythrophthalmus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Chimney Swift <i>Chaetura pelagica</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9406	Breeds Mar 15 to Aug 25
Prairie Warbler <i>Setophaga discolor</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9513	Breeds May 1 to Jul 31
Red-headed Woodpecker <i>Melanerpes erythrocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9398	Breeds May 10 to Sep 10
Rusty Blackbird <i>Euphagus carolinus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9478	Breeds elsewhere
Wood Thrush <i>Hylocichla mustelina</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9431	Breeds May 10 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read ["Supplemental Information on Migratory Birds and Eagles"](#), specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)

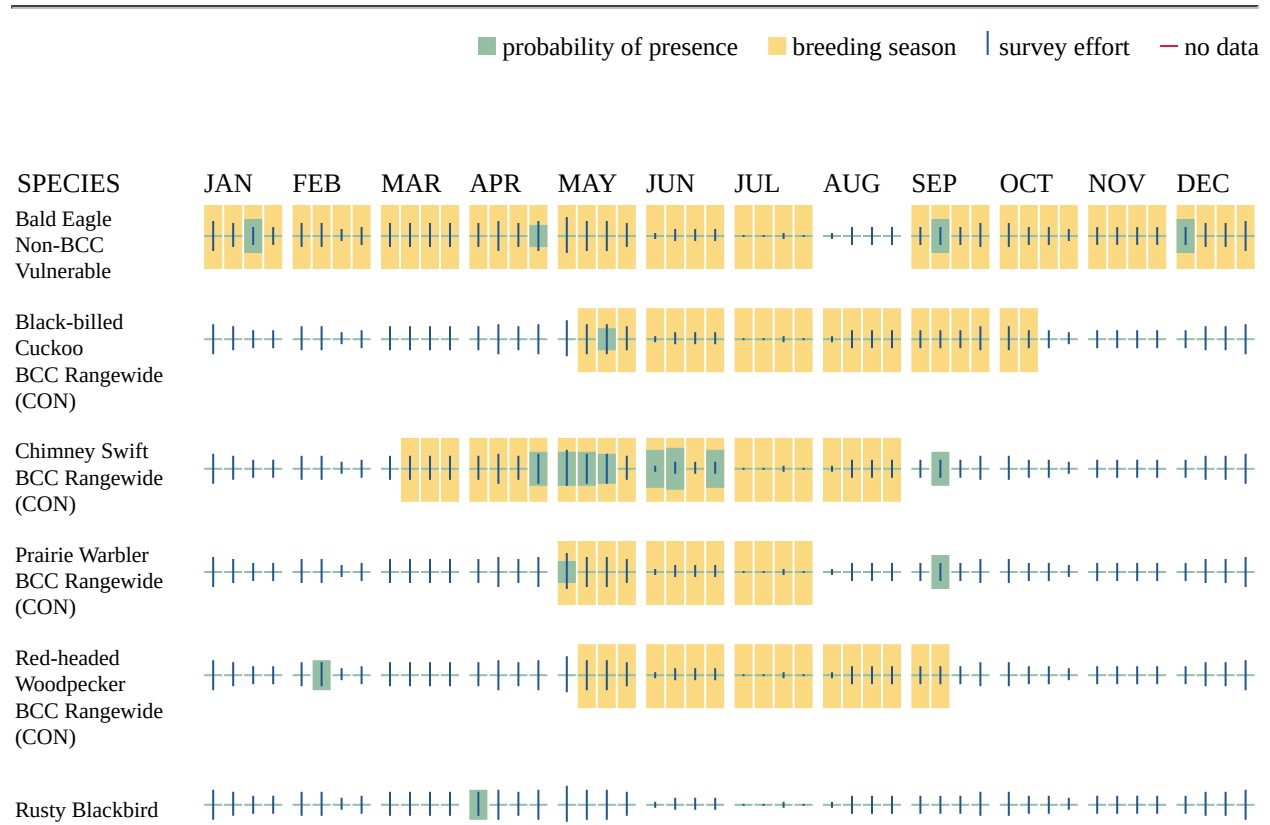
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)

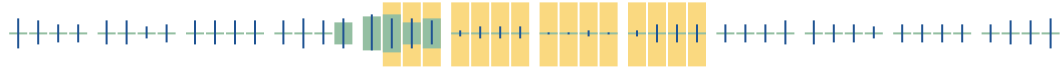
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (-)

A week is marked as having no data if there were no survey events for that week.



BCC - BCR

Wood Thrush
BCC Rangewide
(CON)

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

WETLANDS

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

WETLAND INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED. PLEASE VISIT [HTTPS://WWW.FWS.GOV/WETLANDS/DATA/MAPPER.HTML](https://www.fws.gov/wetlands/data/mapper.html) OR CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION.

IPAC USER CONTACT INFORMATION

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United States Department of the Interior



FISH AND WILDLIFE SERVICE

New Jersey Field Office
4 East Jimmie Leeds Road, Suite 4
Galloway, New Jersey 08205
(609) 646-9310

In Reply Refer To:
2022-0087179

March 2, 2026

Peter Wepler, Chief
Environmental Analysis Branch
Planning Division, New York District
U.S. Army Corps of Engineers
26 Federal Plaza
New York, New York 10278-0090

Dear Mr. Wepler:

This letter has been prepared at the request of the U.S. Army Corps of Engineers (Corps) to fulfill the requirements of Section 2(b) of the Fish and Wildlife Coordination Act (48 Stat. 401; 16 U.S.C. 661 *et seq.*) (FWCA). It provides the U.S. Fish and Wildlife Service's (Service) comments on biological resources and related issues associated with the Corps' *New York–New Jersey Harbor and Tributaries Coastal Storm Risk Management Feasibility Study* (Study). The FWCA ensures that fish and wildlife conservation is given equal consideration during the development of the Corps' Study. The Study Area encompasses nine planning regions: Capital District Region, Mid-Hudson Region, Lower Hudson/East River Region, Hackensack/Passaic Region, Upper Bay/Arthur Kill Region, Lower Bay Region, Raritan Region, Jamaica Bay Region, and Long Island Sound Region. The Tentatively Selected Plan originally identified three actionable elements: East Riser, New Jersey; Harlem River, New York; and Oakwood Beach, New York. However, the Corps' Recommended Plan includes only the East Riser actionable element, located in the Boroughs of Carlstadt and Moonachie in Bergen County, New Jersey. The East Riser actionable element proposes modifications to the East Riser ditch (including widening and deepening), bank stabilization, replacement of two bridge culverts, replacement of a railroad bridge and associated culvert, and revegetation along the watercourse corridor.

The Service works closely with the Corps on projects authorized under the Water Resources Development Act (110 Stat. 3658 *et seq.*; 33 U.S.C. 2201 *et seq.*), pursuant to the FWCA, the Endangered Species Act, and other applicable authorities. Under the FWCA, the Corps and the Service coordinate throughout project planning to conserve, protect, and enhance fish, wildlife, plants, and their habitats. The Service previously reviewed the Study and provided a FWCA Planning Aid Report (PAR) to the Corps in 2023 (Service 2023). Since then, the scope of the Study has changed significantly. The 2023 PAR addressed fish and wildlife resources, key

concerns, and recommendations for the entire Study Area, as well as the previously proposed Tentatively Selected Plan. The comments in this letter fulfill the requirements of Section 2(b) of the FWCA for only the Corps' Recommended Plan, which now includes only the East Riser actionable element.

AUTHORITIES

The following comments are provided primarily pursuant to the FWCA. Additional authorities informing these comments include the Bald and Golden Eagle Protection Act (54 Stat. 250, as amended, 16 U.S.C. 668a-d) (BGEPA); the Clean Water Act of 1977 (86 Stat. 816, 33 U.S.C. 1344 *et seq.*); the Endangered Species Act (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*); the Migratory Bird Treaty Act of 1918 (40 Stat. 755, as amended; 16 U.S.C. Section 703-712) (MBTA); and Executive Order (EO) 13186, Responsibilities of Federal Agencies to Protect Migratory Birds (January 10, 2001; 66 FR 3853). These comments were also developed in accordance with the Service's Mitigation Policy (available at: <https://www.fws.gov/policy-library/A1501fw2>).

The Service previously provided comments in a Department of Interior (DOI) letter dated August 22, 2025, submitted to the Corps during review the Study's Draft Integrated Interim Response Feasibility Report and Environmental Assessment. For additional comments under other Service authorities not discussed in detail below, please refer to that 2025 letter.

COORDINATION HISTORY

The Service and Corps have coordinated on the Study for several years. A summary of that consultation history is provided below (most recent first):

- February 2026: The Corps informed the Service that the Oakwood Beach actionable element would not be included in the Recommended Plan. The Corps noted that Oakwood Beach may still be advanced under other implementation pathways and that they still want a FWCA evaluation from the Service for that element. The Service and the Corps agreed that a FWCA Planning Aid Letter is the appropriate pathway for evaluating the Oakwood Beach actionable element. The Service and Corps also agreed that a Service letter would best satisfy FWCA Section 2(b) requirements for the Corps' Recommended Plan, which now includes only the East Riser actionable element.
- January 2026 to July 2025: The Corps and the Service developed and agreed upon a scope of work for transfer funding to prepare a FWCA Section 2(b) Report. The scope of work was originally based on the Tentatively Selected Plan in the Corps' 2025 Draft Integrated Interim Response Feasibility Report and Environmental Assessment, which included the East Riser Ditch, Harlem River, and Oakwood Beach actionable elements. The Corps later clarified that the Harlem River element would be deferred to a future legislative cycle pending available funding. The scope of work was subsequently revised to remove the Harlem River element, leaving only the East Riser and Oakwood Beach actionable elements.

- August and September 2025: The DOI's Office of Environmental Policy and Compliance submitted comments reviewing the Corps' 2025 Draft Integrated Interim Response Feasibility Report and Environmental Assessment. The comments included a review from the Service.
- July 2025: The Corps released the Study's Draft Integrated Interim Response Feasibility Report and Environmental Assessment, which incorporated substantial revisions from the 2023 Draft Integrated Report and Tier 1 Environmental Impact Statement. The most significant change was that the Tentatively Selected Plan only included three actionable elements: East Riser (New Jersey), Harlem River (New York), and Oakwood Beach (New York).
- March 2023: The Service submitted a FWCA Planning Aid Report to the Corps for the 2022 Draft Integrated Feasibility Report and Tier 1 Environmental Impact Statement.
- March 2023: The DOI's Office of Environmental Policy and Compliance submitted comments reviewing the Corps' 2022 Draft Integrated Feasibility Report and Tier 1 Environmental Impact Statement. The comments included a review from the Service.
- October 2022: The Corps released a notice of availability for the Study's Draft Integrated Feasibility Report and Tier 1 Environmental Impact Statement.
- September 2022 to November 2018: In September 2022, the Service submitted scoping comments in response to the Corps' notice of intent to prepare a Draft Tiered Environmental Impact Statement for the Study. The notice of intent was the third released for the Study and followed the second notice of intent, published in January 2020, which was withdrawn after the Study was postponed for Fiscal Years 2020 and 2021. The Service also provided scoping comments on the Corps' initial notice of intent in November 2018.

FISH AND WILDLIFE COORDINATION ACT

The East Riser actionable element is located within the Boroughs of Carlstadt and Moonachie in Bergen County, New Jersey. Figure 1 illustrates the boundaries of this area and the measures proposed by the Corps. The element encompasses East Riser Ditch and the adjacent uplands extending from Moonachie Avenue to Starke Road. East Riser Ditch originates northeast of the actionable element and flows southwest through the area before joining Berry's Creek. The actionable element terminates at Starke Road, near the tide gate located at the ditch's confluence with Berry's Creek. As a result of the tide gate, East Riser Ditch functions as a non-tidal watercourse. The East Riser Ditch corridor includes riparian zones with trees and other vegetation, palustrine emergent wetlands, and areas of heavy development. Land use within the surrounding landscape consists of transportation infrastructure, commercial and industrial properties, a mobile home park, and patches of wooded and herbaceous riparian ecosystems. Due to the region's long history of development and pollution, the watercourse and adjacent areas may have been exposed to contaminants. Notably, the Berry's Creek portion of the Environmental Protection Agency's designated Ventron/Velsicol Superfund National Priority

birds of conservation concern that may occur in the action area, including breeding season dates and links to resources that can help identify stressors and inform conservation measures. Please also be aware that the MBTA provides protections for more migratory birds than this list will provide.

- b. As possible, avoid project activities within the areas identified in section “a” during periods when nests, eggs, and chicks may be present (generally March 15 through September 15, depending on species). This measure will help avoid or minimize adverse impacts.
- c. Pre-construction site inspection: If project activities must occur during the time of year restriction and areas described above, the Service recommends that a person(s) knowledgeable and capable of bird identification visually inspects the identified areas for the presence of nests, eggs, and chicks no more than five days prior to project activities commencing.
- d. If nests, eggs, and chicks are present, the Service recommends avoiding work that could harm them (such as the wounding, killing, trapping, capturing, or collecting of migratory birds, their nests or eggs). This measure will also help to ensure compliance with the MBTA. Destruction of inactive nests (contains no eggs or chicks and is no longer being used by birds for breeding) is not prohibited under the MBTA, provided that no possession occurs during the destruction. If future activities cannot avoid actions that harm birds or will include unavoidable actions prohibited by the MBTA, the Corps should contact the Service for further information on how to proceed.
- e. Year-round, if native migratory birds are present within active or proposed work areas, they should be given an opportunity to leave the site before work begins.

Bald eagles (*Haliaeetus leucocephalus*) may forage along Berry’s Creek, which is located adjacent to and west of the actionable area. Bald eagles are also protected by the BGEPA and impacts from the proposed project may require the Corps to apply for a permit from the Service if nesting is ever observed within 660 feet of the proposed activities. For future reference, please review the Service’s website (<https://www.fws.gov/story/do-i-need-eagle-take-permit>) to determine if a bald eagle permit may be needed and any necessary next steps. The Service’s Northeast Bald Eagle Project Screening Form may also be helpful for reviewing the project (available at: <https://www.fws.gov/media/northeast-bald-eagle-project-screening-form>). Information about bald eagles in New Jersey can be found at: <https://conservewildlifenj.org/?species=haliaeetus-leucocephalus>. Please be aware that the BGEPA is a Federal law implemented by the Service and is separate from state protections.

2. Mammals

In 2024 and 2023, the ESA proposed endangered tricolored bat (*Perimyotis subflavus*)

and other bat species were acoustically detected within approximately 0.4 mile of the action area. To ensure the conservation of these species within the East Riser actionable element, the Service recommends the following:

- a. Whenever possible, avoid the cutting or other means of knocking down, bringing down or trimming of trees from April 1 to September 30.
- b. To avoid impacting roosting bats, avoid removing or modifying the following structures between April 1 to September 30, where feasible:
 - Bridges
 - Culverts greater than or equal to 23 feet in length and 3 feet in height.

Alternatively, the Corps may conduct emergence surveys or visibly inspect these structures for bats prior to construction. The Service can provide additional guidance if this approach is pursued.

- c. To avoid potential impacts from lights:
 - Ensure that any new permanent lighting proposed within or adjacent to wooded areas uses only downward-facing, full cut-off lens lights.
 - During construction, avoid directing temporary lighting toward surrounding wooded areas or other potential roosting habitats.

3. Multiple Species

- a. To protect resources such as wetlands and watercourses from turbidity, erosion, and sedimentation generated during construction, implement appropriate erosion and sediment control measures and prepare plans as necessary (New Jersey Department of Agriculture Accessed 2026).
- b. During construction, implement strict standards for the storage, transport, and handling of hazardous materials and other potential pollutants within or near fish and wildlife resources (*e.g.*, wetlands, watercourses, vegetated or wooded areas). These materials should be stored, to the extent practicable, outside the floodplain and in locations where exposure to watercourses cannot occur. Use secondary containment structures around chemical and fuel storage tanks and around equipment that may leak contaminants.
- c. Implement an invasive species management plan that includes measures to prevent the introduction, colonization, or recolonization of invasive species throughout the life of the project. Examples of measures to apply during construction may include:
 - Ensuring that materials used on site (*e.g.*, soil, sand, gravel, rock) are free of invasive species (including seeds) prior to placement.

- Ensuring that all vehicles, machinery, equipment, technical gear, and personal protective equipment are clean and free of invasive species before use, especially in sensitive areas such as wetlands or riparian zones.
- Using only native plant species for replanting. Recommended plants that are beneficial to multiple species can be found at the following sites: <https://xerces.org/publications/plant-lists/monarch-nectar-plants-mid-atlantic> or <https://www.fws.gov/media/recommended-native-new-jersey-plants-pollinators> or <https://npsnj.org/>.
- Monitoring project areas and promptly treating any new invasive species occurrences.

For the proposed revegetation along the watercourse corridor, long term monitoring will help ensure that invasive species do not become established. Similar to wetland mitigation standards applied to Corps regulatory permittees, the Service recommends the monitoring plan lasts at least five years and that any replanted areas are less than 10 percent occupied by invasive or noxious species each year. If invasive species exceed 10 percent cover in any monitoring year, the area should be actively managed (*e.g.*, physical removal or treatment) and replanted with native species to support long-term ecological health.

- d. Contaminants testing and avoidance: Contaminants may be resuspended or otherwise exposed to fish and wildlife within the Study Area due to the proposed measures. As such, measures should be taken to ensure that exposure is avoided and minimized. Recommended measures include:
- Avoiding and minimizing the resuspension, redistribution, or exposure of sediments potentially containing toxic contaminants by using erosion and sediment controls (*e.g.*, turbidity barriers) and appropriate construction techniques or equipment.
 - Ensuring that possibly contaminated sediments that are removed from project sites (*e.g.*, during any possible required excavation operation) are tested for contaminants before being placed elsewhere.
 - Removing materials with contaminant concentrations that are harmful to fish and wildlife and placing them in an area where fish and wildlife cannot or are unlikely to be exposed to them.
 - Testing materials intended for placement (*e.g.*, during bank stabilization) to ensure they are clean and free of contaminants, or sourcing materials from locations known to be uncontaminated.

The New Jersey Department of Environmental Protection (NJDEP) provides ecological screening criteria that is helpful for determining acceptable contaminant levels: <https://dep.nj.gov/srp/guidance/eco-screening/>.

- e. For activities that alter East Riser Ditch, incorporate enhancements that benefit aquatic organism habitat. These may include stabilizing streambanks affected by erosion and sedimentation; reconnecting the channel to historic or existing

floodplains to improve ecological function; and reestablishing native riparian and wetland plant communities.

SERVICE CONCLUSIONS

This letter outlines the Service’s recommended best management practices, planning considerations, and mitigation measures that can help reduce impacts to fish and wildlife. With appropriate incorporation and consideration of these recommendations, the Service does not oppose the Corps’ proposed Recommended Plan.

This letter fulfills the Corps’ coordination requirements under Section 2(b) of the FWCA for coordination with the Service. Additional coordination with the NJDEP and, potentially, the National Oceanic and Atmospheric Administration–Fisheries (NOAA-Fisheries) will also be necessary to fully meet FWCA requirements. The Service appreciates the opportunity to provide these comments. For further assistance or questions, please contact Michael Ciappi at michael_ciappi@fws.gov.

Sincerely,

**ERIC
SCHRADING**

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Eric Schrading
Field Supervisor

cc:

Ross Conover, USFWS
Steve Papa, USFWS
Hugh O’Connor, USFWS
Ian Drew, USFWS
Andrew Raddant, DOI
Jessie Murray, NOAA-Fisheries
Karen Greene, NOAA-Fisheries
Kelly Davis, NJDEP
Cheryl Alkemeyer, USACE
Carissa Scarpa, USACE
Diana Gomez, USACE

REFERENCES

[Corps] U.S. Army Corps of Engineers. 2025. Draft Integrated Interim Response Feasibility Report and Environmental Assessment for Actionable Elements, New York-New Jersey Harbor and Tributaries Coastal Storm Risk Management Feasibility Study. U.S. Army Corps of Engineers, New York District, New York, NY.

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[Service] U.S. Fish and Wildlife Service. 2023. Fish and Wildlife Coordination Act Planning Aid Report for the U.S. Army Corps of Engineers New York-New Jersey Harbor and Tributaries Coastal Storm Risk Management Feasibility Study. Prepared for the U.S. Army Corps of Engineers New York District. U.S. Fish and Wildlife Service, Long Island Field Office, New Jersey Field Office.



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT
JACOB K. JAVITS FEDERAL BUILDING
26 FEDERAL PLAZA
NEW YORK NEW YORK 10278-0090

Environmental Analysis Branch

March 6, 2026

Eric Schradling, Field Supervisor
Fish and Wildlife Service
New Jersey Field Office
4 East Jimmie Leeds Road, Suite 4
Galloway, New Jersey 08205

Reference: 2022-0087179

Dear Mr. Schradling:

Thank you for your review and providing comments on the Draft New York-New Jersey Harbor and Tributaries Coastal Storm Risk Management Integrated Feasibility and Environmental Assessment, in accordance with Section 2(b) of the Fish and Wildlife Coordination Act (48 Stat. 401; 16 U.S.C. 661 *et seq.*) (FWCA). The U.S. Army Corps of Engineers (USACE), New York District (District) received the U.S. Fish and Wildlife Service (Service) letter that satisfies the coordination requirements under Section 2(b) of the FWCA for the District's coordination with the Service, and concurs with the recommendations set forth as follows:

1. Birds

The District concurs with the recommendations. A pre-construction site inspection will be performed by a person(s) knowledgeable and capable of bird identification, within and no more than five (5) days prior to project activities commencing. As possible, project activities will be avoided within the areas identified during periods when nests, eggs, and chicks may be present (generally March 15 through September 15, depending on species). Avoidance of harm will be implemented. The District will continue to coordinate with the Service as needed throughout the project activities.

Furthermore, should bald eagle nesting be observed within 660 feet of the proposed activities, the District will coordinate with the Service on the need for a permit, in addition to state required actions.

2. Mammals

The District concurs with the recommendations as follows: avoidance of impacts to the proposed endangered tricolored bat (*Perimyotis subflavus*) and other bat species will be implemented through the avoidance of tree felling from April 1 to September 30, whenever possible. Avoidance of impacts to roosting bats, modifications to structures such as the proposed bridges and culverts greater than or equal to 23 feet in length and 3 feet in height will be avoided from May 15 to July 31 with further coordination with the Service for any work between April 1 to September 30, where feasible. Construction lighting will prioritize

downward-facing, full cut-off lens lights. Temporary lighting will be staged to avoid direct light to the wooded areas or other potential roosting habitats to minimize impacts.

3. Multiple Species

The District concurs with the recommendations. Appropriate erosion and sediment control measures will be implemented to reduce impacts to nearby wetlands and watercourses. Strict standards for storage, transport, and handling of hazardous materials and other potential pollutants associated with construction equipment (e.g. diesel fuel oil, grease, hydraulic fluids), near fish and wildlife resources and secondary containment will be utilized.

An invasive species management plan will be implemented to manage and control the introduction of invasive species. Long term monitoring of areas revegetated with native plant species will be monitored and maintained for invasive species via physical removal or treatment for no less than five (5) years following construction.

A subsurface investigation will be performed during the Preconstruction, Engineering, and Design Phase of the project to identify and characterize the existing condition of soils and sediments within the project area. Soils and sediment requiring removal (e.g., channel modifications excess material) will be disposed of at an offsite State-approved facility (e.g., upland landfill). Minimization of resuspension of potential contaminants within soils and sediments will be accomplished through implementation of best management practices (e.g. turbidity curtains, environmental dredge bucket, anadromous fish window restrictions). Should soil be required for import to the site, it will be tested for contaminants prior to import and confirmed to comply with Federal and State regulations.

The channel modifications will include the stabilization of streambanks from erosion and sedimentation, maintain connection to Berry's Creek through the existing tidal gate structure, and re-establish native riparian and wetland plant communities onsite, per USACE policy.

If you would like to discuss this matter further, please contact Cheryl R. Alkemeyer (917) 790-8723; cheryl.r.alkemeyer@usace.army.mil.

Sincerely,

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Peter M. Wepler
Chief, Environmental Analysis Branch

cc:

Ross Conover, USFWS
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Andrew Raddant, DOI

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