RANSOM Consulting Engineers and Scientists

112 Corporate Drive, Portsmouth, New Hampshire 03801, Tel 603.436.1490, Fax 603.436.6037

Byfield, Massachusetts ▫ Portland, Maine ▫ Hamilton, New Jersey ▫ Providence, Rhode Island

www.ransomenv.com

Memo

Date:	November 4, 2019
To:	Beth Callahan, Project Manager, Maine Department of Environmental Protection
	Karem Gungor, Environmental Engineer, Maine Department of Environmental Protection
From:	Elizabeth M. Ransom, P.G. Ransom Consulting, Inc.
Subject:	Nordic Aquafarms, Inc., Land-based Aquaculture Facility, Belfast, Maine L-28319-26-A-N, Review Comments
Project No.:	171.05027

This memo provides responses to the Technical Review Memorandum from Karem Gungor to Beth Callahan dated October 3, 2019. For clarity, the entire comment from the technical memorandum has been copied below and italicized. Responses are in regular text, and on the attached plans and figures as referenced below.

1. First Diversion Trench (Sheet CElll): This trench will not be connected to the edge drain/culvert bypass system as shown in the ESC phasing plans. The trench will intercept the surface runoff from approximately 8.5 acres of upgradient area (see south of Subcatchment 9 flow path in Sheet CW-102) which appears to shed into the streams S3, SS, and S6 under the existing/pre-development conditions. The intercepted flow (surface runoff+ groundwater) will be discharged into an easterly plunge pool based on the underdrain invert elevations provided in Sheet CElll. I recommend the following:

A revised Section 14 Erosion and Sedimentation Control (ESC) Plan has been included as **Attachment A**. Revised phasing plans are included as **Attachment B** and revised phasing plans with aerial background imagery are included as **Attachment C**. Drawings and narratives described in the responses below can be located in the respective attachments.

a. Connect the trench underdrain to a bypass culvert or bypass culverts so that the intercepted flow is conveyed southerly and contributes to the baseflow provided for the streams S3, S5, and S6 under the post-development condition,

1a. A new extended bypass drain has been added to the plans during Phase 2A of the project. The Phase 1 outlets will be eliminated, and the new drain system will convey flows around the site to discharge at Streams S3, S5, and S6, as requested.

b. Eliminate the westerly and easterly outfalls of the trench underdrain shown in Sheet CE118. The outfalls may be necessary during the initial phases of the project; but they need to be removed or *deactivated post construction to simulate the pre-development site hydrology to the extent practicable and mitigating the project's hydrologic impact on the jurisdictional streams,*

1b. Elimination of the Phase 1 outlets is shown during Phase 2A of the project and noted on revised sheet CE117.

c. Provide a flat-bottom basin over the diversion trench in lieu of the easterly sloped swale as shown in the grading plans (Sheets CG105 thru CG107). A basin will improve the interception of the upgradient surface runoff by the trench and its conveyance to the streams. The basin can be equipped with catch basins and similar outlet control structures to prevent overflow,

1c. The former swale has been revised to show a flat bottomed basin at this location, as requested. Revised drawings grading plans CG105 to CG107 have been included in **Attachment D**.

d. Clarify how the top of the trench will be permanently stabilized post construction: will it be exposed as shown in Detail ESC-7 in Sheet CE502? The related grading plans (Sheets CG105 thru CG107) do not show any exposed rock surface associated with the diversion trench,

1d. The top of the trench will be stabilized using a sprayed soil/mulch/ seed mix that will be applied over the temporary stone surface at the end of construction. This will provide a stable, vegetated surface to the trench without requiring removal of the riprap stone, and the associated disturbance.

e. Ensure that the phasing and grading plans are consistent on the trench.

As requested, the plans have been made consistent.

2. Second Diversion Trench (Sheet CE112): Since this trench will be below the finished floor elevation of Building 1, will it have a minimum crushed stone reservoir depth of 6 ft as shown in Detail ESC-7 in Sheet CE502? A separate detail drawing for this trench is requested.

During the initial installation, the second diversion trench will be exactly the same as the first, with a crushed stone reservoir to divert groundwater from the surrounding area into the diversion culvert that outlets in a southerly direction to the project limits. The same detail will apply to both trenches (Detail ESC-7 on Sheet CE502). As the excavation and backfill proceeds, the trench will be buried in the backfill section.

3. Bypass Culvert (Sheet CE502): Are perforated pipes necessary for the bypass culverts?

Yes. These culverts are intended to convey surface water from the channels as they are filled during construction. They will also intercept perched groundwater from surrounding areas, as the stream channels currently do. The perforated pipes will allow the bypass culverts to accept groundwater flow approaching from the sides of the channel and will hence continue to operate in a similar manner to the current natural channels.

4. Please provide the approximate length of underdrain network that will drain into the plunge pools shown in Sheet CG102 and CG104 (CG104: the plunge pool will discharge into S3 stream; CG102: westerly plunge pool will discharge into SS stream and easterly plunge pool will discharge into S6 stream). Assuming the underdrain length as a proxy for the flow, demonstrate that the post-development baseflows of the streams S3, S5, and S6 rank similarly with the pre-development flow ranking of the streams obtained from the pre-development hydrologic model results (Subcatchments S2, S3, and S4).

The length of the underdrain network that will drain the site and feed streams S3, S5 and S6 is approximately 12,500 linear feet. The underdrain network is designed to intercept the same contributing area of surface and groundwater flow that currently provides the base flow for these channels. Therefore, we anticipate that the post-development baseflow conditions will be similar to the pre-development condition where the channels remain downstream of the project site.

5. *Building Excavation Dewatering: The applicant has provided a detailed response to my earlier comment (Comment #1 in my previous memo) on the building pad dewatering. Assuming an average (horizontal) hydraulic conductivity of 2.2xlQ-6 cm/s, the applicant estimated that the groundwater seepage into a 200' (W) x400' (L) x15' (D) excavation pit to be 0.02 cfs (Note: the phasing plan limits the "uncovered grubbed area at any given time" to 80,000 sf). The field conditions can significantly deviate from this assumption and result in higher seepage due to the presence of highly conductive layers (see the shallow water levels observed in the soil borings B102, B105, B107, and B110 within Building 1 and 2 footprints). Therefore, a dewatering contingency plan is necessary particularly for the overburden removal operation during which there will be no edge drains in place. What if temporary sediment basins are overwhelmed by the dewatering? Will the sediment basin be decanted into an undisturbed, well vegetated temporary buffer area? If so, the temporary buffer areas that will be used for emergency dewatering need to be shown in the phasing plans.*

It is understood that ground and groundwater conditions may vary significantly from the average assumption quoted in the previous comment response (0.02cfs over an uncovered area of 80,000sf). The 12” Type C edge drains provided have been designed to accommodate significantly higher flows than the assumed average de-watering load. A 12” pipe operating under channel flow conditions, with a slope of 0.4% and an “n” value of 0.012 has a capacity of 2.4cfs, or 120 times the calculated dewatering flow during average ground conditions. In our opinion this offers a satisfactory factor of safety. However, the erosion control plan also includes the use of temporary sumps and pumping to sediment basins to accommodate excess flows in the event of failure of the edge drains. Further back-up will be provided by the temporary use of dirt bags in isolated areas, if and when necessary. While we acknowledge that that groundwater conditions on the site will only be fully understood when the excavation work is underway, we feel that this offers a suitably robust approach to managing the risks associated with dewatering operations at the site.

6. Soil Stockpiles: The applicant has stated that major on-site stockpiling of soils is not anticipated. If the trucks haul the overburden off site and bring the granular borrow in round trips (see page 14- 5 in Appendix 14-A), there will be a need for stockpiling approximately 50,000 cy of granular borrow until the building excavation reaches the subgrade elevation which may take more than two months (see the phasing summary table in Appendix 14-A). The earth movement logistics warrant more discussion and clarification: Is it more likely that the overburden and granular borrow hauling will be done in round trips? Or will the trucks haul in the granular borrow after the overburden removal is complete? The second alternative is preferable since it will minimize the need for soil stockpiling on site.

It is apparent from this comment that the methodology for major earthworks at the site was not adequately explained in our previous texts. It is our intention that backfill operations under the building footprint areas will proceed immediately after subgrade elevation is reached in the initial part of the excavation (i.e. backfill with granular borrow will not be held back until the entire building footprint is prepared- the two month period quoted in the comment). The excavation will commence with installation of the edge drain outlets and the sand covered edge drains. Excavation will then proceed from west to east, with backfill following immediately behind excavation to reduce exposure of native soils and achieve the most rapid possible stabilization of the excavated areas. In this way, the trucks used to export the unsuitable soil will be available to return to the site with granular backfill for placement in the excavation. The area of uncovered soil at the site will be limited to 80,000sf at any given time.

a. Due to its texture and erodibility, on-site overburden stockpiling needs to be clearly restricted in the ESC plan by inserting the following statement where applicable:

"The overburden shall not be stored on site more than two weeks".

6a. The requested statement has been added to the revised narrative. This can be found in Section 14.6.

b. Soil stockpiling areas need to be shown in the phasing plans if the earth hauling will be performed in round trips.

6b. As noted above, based on the earthworks methodology we do not anticipate generating large soil stockpiles, therefore they are not shown on the plans.

7. Please amend the ESC plan with the response, including the table, provided for Comment 8.a in my previous memo.

A revised narrative is provided with the table added, as requested. This can be found in the Sediment Basin Sizing Narrative

8. Please provide a detail of the temporary structure which will divert the peripheral surface runoff away from the building pad excavation.

A diversion detail has been added to Sheet CE505 (Detail ESC-23). The revised Sheet CE505 is included as **Attachment E**.

9. Flocculant Use: The applicant's concern in regard to flocculants' effectiveness for construction site turbidity control in Maine is noted. Success of flocculation largely depends on the flocculant selection and proper application. I recommend a trial run to determine the effectiveness of powder and solid block flocculants for turbidity control during Phase 1B of the project (particularly during the major earthwork/overburden removal stage). Flocculant selection must be based on the lab analyses (e.g., jar testing) performed on at least three representative (i.e., native silty) soil samples. A copy of the lab reports must be submitted to the Department for its review and feedback. The selected flocculants need to be applied per the manufacturer's instructions and in consultation with the Department. If the flocculant use does not result in noticeable improvement in the turbidity control, the applicant may elect not to use flocculants in the subsequent phases of the construction. Please amend the ESC plan accordingly.

The ESC plan has been revised to include trials of flocculants for use in the sediment basins, as requested. References to this can be found in Section 14.7 (12) and the Sediment Basin Sizing Narrative.

10. The post-development subcatchments 23, 25, and 31 discharge into "Belfast Reservoir One" as shown in Sheet CW-104. In order to eliminate the phosphorus export from the developed areas of these subcatchments into the reservoir, please:

a. Delineate the grassed areas within Subcatchments 25 and 31 in Sheets LP102, LP103, and LP104 and provide the following note for the delineated areas:

"These grassed areas shall not be mowed than more than twice a year and maintained as meadow. No phosphorus containing fertilizer shall be used in these areas except for establishing grass cover on bare soil.", The plans have been updated to include the language regarding fertilizer and maintenance. See attached Landscape Plans (**Attachment F**).

b. Revise the stormwater drainageway proposed for Subcatchment 23 and direct the subcatchment's entire runoff into the closed drainage system which ultimately discharges into the coastal wetland from the existing clarifier (PTlO shown in Sheet CW- 104).

The plans have been revised to include a catch basin at the end of a drainage swale to collect runoff and direct to the closed system. See attached plans (**Attachment G**).

11. GSF #lB: The actual surface area of the filter appears to be smaller than 773 sf, which is used in the calculations. Please review.

The grading has been revised to adequately show the revised GSF #1B. The filter surface is calculated to be 802, but 773 was left in the calculations. Refer to the Stormwater Drawings (**Attachment G**).

l2. The surface runoff will mostly sheet flow into the proposed GUSFs. Therefore, the finished grades must be consistent with the treatment areas shown in the figures enclosed with the appendix. Please:

a. Provide more spot elevations and arrows indicating the slope and the flow direction in the grading plans,

b. Please provide the following note in a plan sheet where applicable:

"The contractor shall be instructed by the inspecting engineer to ensure that the as-built drainage areas of the grassed underdrained soil filters will be as shown in the revised figures given in Section 12 Appendix B of the permit application."

See attached plans (**Attachment G**).

13. Figure 2: Subcatchment 1B includes areas westerly from GSF 1B which will not be treated by the filter. Please revise the figure. Also, CB-16 rim elevation needs to be 66.90 ft.

Figure 2 has been revised. See attached (**Attachment G**).

14. Figure 4: CB-17 and CB-18 rim elevation needs to be corrected: both elevations need to be 62.0 ft.

The table for Figure 4 has been revised. See attached (**Attachment G**).

15. Figure 6: Will the purple area be treated by GSF15? If so, the treatment area is approximately 9,000 sf. Based on the calculations provided in Appendix A, the filter basin may not have adequate water quality volume for the proposed treatment area. Please review the design and revise it if necessary. Also, Building #7 north of GSFlS will not have a green roof; however, the treatment tables indicate that it will have green roof? SSF43 was mistakenly labeled as SSF13. Please revise.

The area in purple included a portion of a canopy for Building 7. This canopy will have a green roof, but the roof of the building will not be green. Therefore, this is a partial green roof and the calculations are intended to reflect that. The canopy is represented by a different color to reduce confusion. See attached Figure 6 (**Attachment G**).

16. Sheet CG1O1: The 12" storm drain daylighting into GSF24 at the invert elevation of 39.24 ft (P85 in Appendix B) is not clearly shown in this grading plan.

The pipe run has been revised and the invert is 41.5.

17. Sheet CO-501 & CO-502: Please provide information on the subgrade of each grassed underdrained soil filter, subsurface sand filter, and pervious pavers: will it be granular borrow or native soil? Specifically, placing the subsurface sand filters over the granular borrow may help with infiltrating the treated roof runoff which may help with mitigating the hydrologic impact of the project on the jurisdictional streams.

The details have been revised. Refer to Detail drawings (**Attachment G**)

Subsurface Sand Filters: Comment #18 thru #20.

There is no separate bypass manifold which will convey the inflow into the StormTech SC740 chambers when the isolator row capacity is exceeded, or when the isolator row is clogged with sediment. Since the subsurface sand filters will exclusively treat the roof runoff that will contain significantly less sediment load as compared to other impervious surfaces like driveways or parking areas, the design is acceptable.

No action required

18. Larger scale plan view drawings of the proposed subsurface sand filter systems need to be provided. Isolator rows, distribution manifolds, inlet, outlet control structures and maintenance manholes need to be shown instead of the typical "Pretreatment Row - Plan View" presented in Sheet CQ-502. Also, please have the pretreatment row designs reviewed by the StormTech representatives and provide their approval letter per Condition #9 stated in the Department's approval letter dated 7/29/16:

https://www.maine.gov/dep/land/stormwater/stormwaterbmps/manufactured-svstems/stormtech%20isolator%20row%20august%202016.pdf

Larger scale drawings have been provided. See attached details. The pretreatment row will be reviewed by either the StormTech representatives or the Cultech representatives (as they make an equal product). The letter will be provided to the Department.

19. SSF 36: Please check the "underdrain elevation (F)" and "underdrain from SSF pipe elevation" in "SSF Outlet Manhole" and make sure the underdrain system has positive drainage.

Detail sheets have been revised. See attached plans (**Attachment G**).

20. SSF 36 and SSF 40: Please reduce the inlet control structure weir elevations such that they are equal to "Elevation C + 3 ft" which is the top elevation of the Storm Tech SC740 chambers/isolator rows.

See attached plans (**Attachment G**).

Manmade Pervious Pavers: Comment #21 thru #25.

21. Please revise "Manmade Pervious Pavers-Plan View" detail given in CQ-501 so that run-on flow paths and width of pervious pavers for each of the proposed manmade pervious paver (MPP) strip are clearly presented. A table including the paver width, run-on length of each MPP needs to be presented with the detail drawing.

See attached plans (**Attachment G**).

22. MPP14: The grading proposed in Sheet CG103 does not appear to be consistent with the treatment area shown for MPP14 in Appendix B Figure 5. There appears to be an island between the easterly *impervious pavement and the pervious paver strip; the island will not let the surface runoff shed into the pervious paver strip. The grading needs to be revised and spot elevations need to be provided.*

See attached plans (**Attachment G**).

23. MPP19: Spot elevations and slope directions need to be shown in Sheet CG104 to ensure that the pervious strip can treat entire Subcatchment 19 shown in Appendix B Figure 5.

See attached grading plans (**Attachment D**).

24. MPP22: The surface area measured in Sheet CG102 is approximately 2,800 sf, which is less than the surface area used in Appendix A Sheet #20 (i.e., 3,240 sf).

The area is smaller and the calculations have been revised (**Attachment G**).

25. MPP30: HydroCAD pond (Pond mpp30) (Page 414 & 415 of the revised post-development HydroCAD model outputs) has an R-Tank configuration different from the other manmade pervious paver ponds since the applicant aimed to provide additional storage volume for the 25- yr storm peak flow attenuation. Please provide the plan and profile view drawings of the proposed R-Tank system.

See revised details (**Attachment G**).

Vegetated Roofs: Comments #26 Thru #30.

26. Sheet CO-503: The applicant proposes to use pregrown modular vegetated roof systems (i.e., Firestone Skyscape Vegetative Roof Systems). The "Vegetated Roof Cross-section" detail needs to be revised to reflect the proposed modular system. Also, my understanding is that the applicant proposes to use two different types of modules (Semi-intensive & Intensive; see Appendix A page #38 & page #34) for the proposed vegetated roofs. Types, specifications, and total number of the modules to be used for each individual vegetated roof needs to be presented in a tabular format in this plan sheet.

Please see revised plan sheet (**Attachment G**).

27. Please review the water storage volume figure used in the sizing calculations. As far as I understand, the "estimated module water storage volume" is reported as 0.20 cf/sf for the semi- intensive module and 0.26 cf/sf for the intensive module in the manufacturer's document presented as Sheet 38 in Appendix A. Both semi-intensive and intensive modules have a surface area of 2.08 sf. Therefore, total estimated water storage volume of a semi-intensive module becomes 2.08 sf x 0.20 cf/sf= 0.416 cf and the same figure for an intensive module becomes 2.08 sf x 0.26 cf/sf= 0.541 cf. Please review the sizing calculations and revise the design if necessary.

Please see the revised sizing calculations and design (**Attachment G**).

28. Subcatchment 15 (GSF15 & GR15): The treatment area breakdown needs to be clarified. Is GR15 proposed as a self-treating surface which receives no runoff from other developed areas? Also, will GSF15 treat 3,184 sf of grass/landscaped area or 4,184 sf of grass/landscaped area? Please revise Figures 6 & 7 in Appendix B by clearly delineating the green roof area. Similar clarifications (e.g., callouts, marking) are necessary in Sheet CG107.

Building 7 has a canopy that will use a vegetated roof. It appears on the figures as the same color as Subcatchment 15. This has been revised on Figure 6 as well as CQ107.

29. Subcatchment 28 {GR28): "Table 1: Stormwater Treatment" states that GR28 will treat 1,407 and 2,429 sf of impervious and landscaped area, respectively. It is unclear which building within Subcatchment 28 will have a vegetated roof. Will the existing building redeveloped into a visitor center (Building 10 shown in Sheet CPlOl) which will have GR28? The extent of redevelopment and new development proposed for Subcatchment 28 needs to be clearly stated in the stormwater management plan and appropriate callouts need to be given in the layout and grading plans (Sheets CP101 and CG101).

The vegetated roof is not for a building, but rather a structural canopy that is proposed over an educational fishpond.

30. Subcatchment 33 (GR33): The "Vegetated Roof' table presented in Appendix A (page #34) shows that the "semi-intensive" modules with water storage volume of 0.2 cf/sf will be used for GR33 whereas GR33 sizing calculations presented in Sheet #31 & #33 indicate that the "intensive" modules with water storage volume of 0.26 cf/sf will be used in GR33. Please review Appendix A and make necessary revisions.

The "semi-intensive" modules with water storage volume of 0.2 cf/sf will be used for GR33. Please see the revised sizing calculations (**Attachment G**).

C. Flooding Standard: Comments #31 Thru #34.

31. This comment is related to Comment #1 provided in this memo:

Based on my analysis of the existing elevation contours and drainageways, the area south of the flow path shown within the pre-development Subcatchment 9 appears to drain into the pre- development Subcatchments 2, 3, and 4 (Sheet CW-102). Subcatchments 2, 3, 4, and 9 of the pre- development model need to be revised to reflect this drainage pattern. The post-development model will also need to be revised per Comment #1: the upgradient surface runoff captured by the northerly interceptor needs to be routed to the southerly analysis point of PT5. The flow due to the groundwater intercepted by the underdrain system can be disregarded in the post- development model.

The Pre- and Post- development analysis has been updated to include the recommended routing. See **Attachment G.**

32. Please provide the technical references justifying the curve number value (i.e., 61) selected for the vegetated roofs.

A curve number of 74 was used for routing vegetated roofs as it best fit with >75% grass cover over a HSG C soil.

33. Subsurface Sand Filter Ponds: The post-development model results show that the "secondary outflow" device (i.e., the weirs) in the inlet control structure (ICS) ponds are triggered by the relatively small one-inch storm which results in significant amount of flow bypassing the subsurface sand filter pond. Please review and revise the ICS and subsurface sand filter ponds in the post-development model.

These are designed to treat only the water quality volume (1-inch storm). Larger storms pass over the weir.

34. "Table 6 - Pipe Capacity":

a. What is the rationale behind providing the "energy grade line (EGL)" in the table? The EGL is the sum of velocity head, pressure head, and elevation head. Since the stormwater drains will have open channel flow, it would be more appropriate to use the hydraulic grade line (HGL), which is essentially equal to the elevation head for open channel flow, for the storm drain capacity analysis,

The slope of the EGL was compared to the slope of the pipe to evaluate whether the pipe was passing Q at higher than full flow capacity.

b. 10-yr 24-h peak flows in multiple pipes exceed their full-flow capacity. Please explain why the diameters of these pipes were not increased to increase the full-flow capacity,

While pipes can convey more than full flow capacity, we have increased pipe diameters as requested.

c. "10-yr EGL" values exceed the flood elevations of CB-16, DMH-59, and DMH-23 which indicate potential flooding around these structures for the 10-yr storm. Please address.

The pipe sizes have been upgraded.

ATTACHMENT A

Revised Soil Erosion and Sedimentation Control Plan

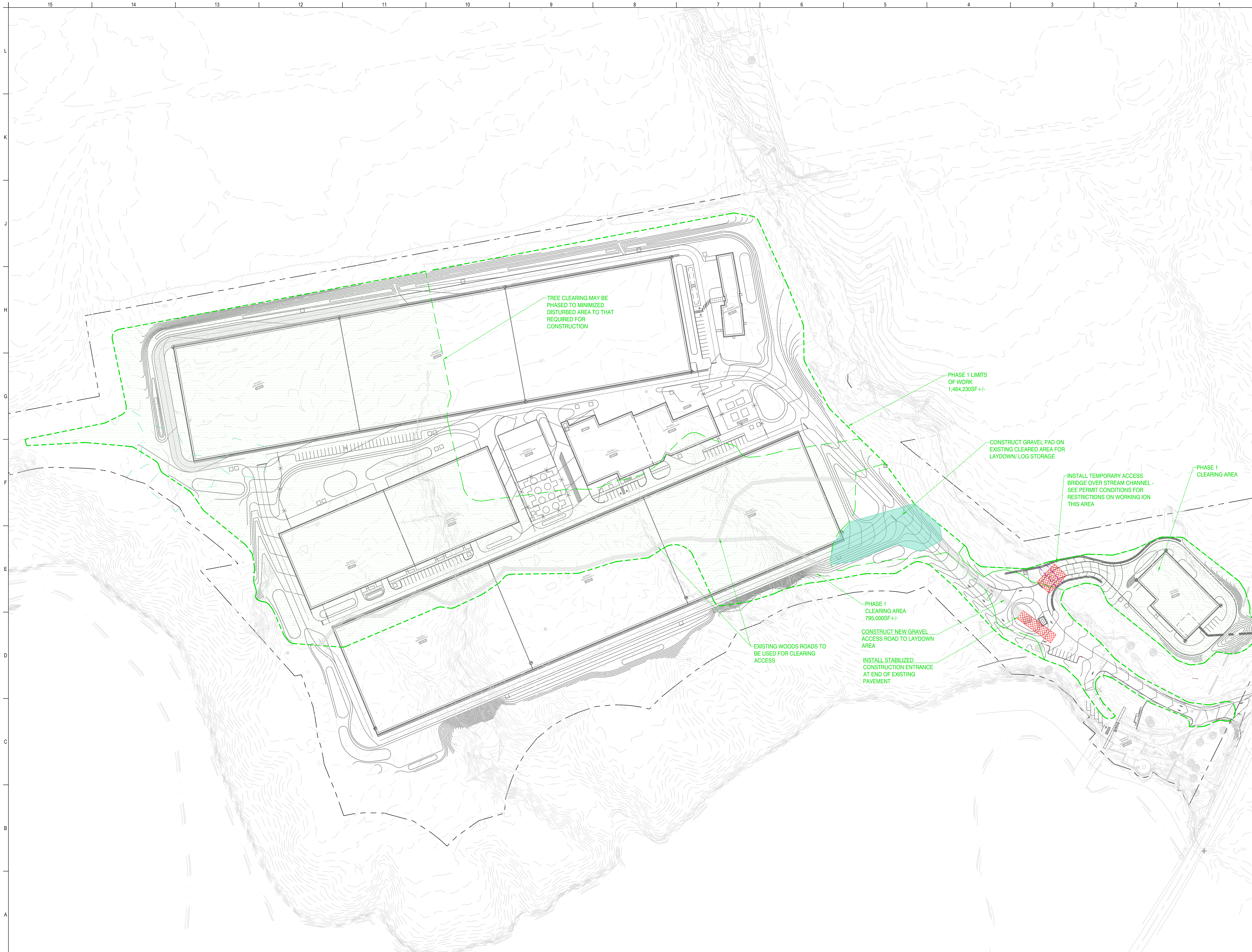
Nordic Aquafarms, Inc., Land-based Aquaculture Facility, Belfast, Maine
L-28319-26-A-N, Review Comments

Ransom Consulting, Inc.
Project 171.05027.008

ATTACHMENT B

Revised Soil Erosion and Sediment Control Phasing Plans

Nordic Aquafarms, Inc., Land-based Aquaculture Facility, Belfast, Maine
L-28319-26-A-N, Review Comments



REV	DESCRIPTION	DATE
2	PER MDEP REVIEW COMMENTS	10-25-19
1	PER MDEP REVIEW COMMENTS	7-18-19
0	ISSUED FOR PERMIT	5-14-19

ISSUED FOR PERMIT
5-14-19
CURRENT ISSUE STATUS:

TRUE NORTH

TRUE NORTH:

STATE OF MAINE
ANDREW O. JOHNSTON
NO. 9994
10/25/19
LICENSED
PROFESSIONAL ENGINEER

SMRT Architects and Engineers
1.877.700.7678
www.smrtinc.com
ARCHITECTURE | ENGINEERING | PLANNING | INTERIORS | ENERGY
SMRT

RANSOM Consulting Engineers and Scientists
Ransom Consulting Engineers and Scientists
400 Commercial Street, Suite 400
Portland, Maine 04101

NORDIC AQUAFARMS
285 NORTHPORT AVENUE

BELFAST, MAINE

SOIL EROSION & SEDIMENT CONTROL PHASING PLAN -1 PHASE 1 SITE CLEARING

SHEET TITLE:

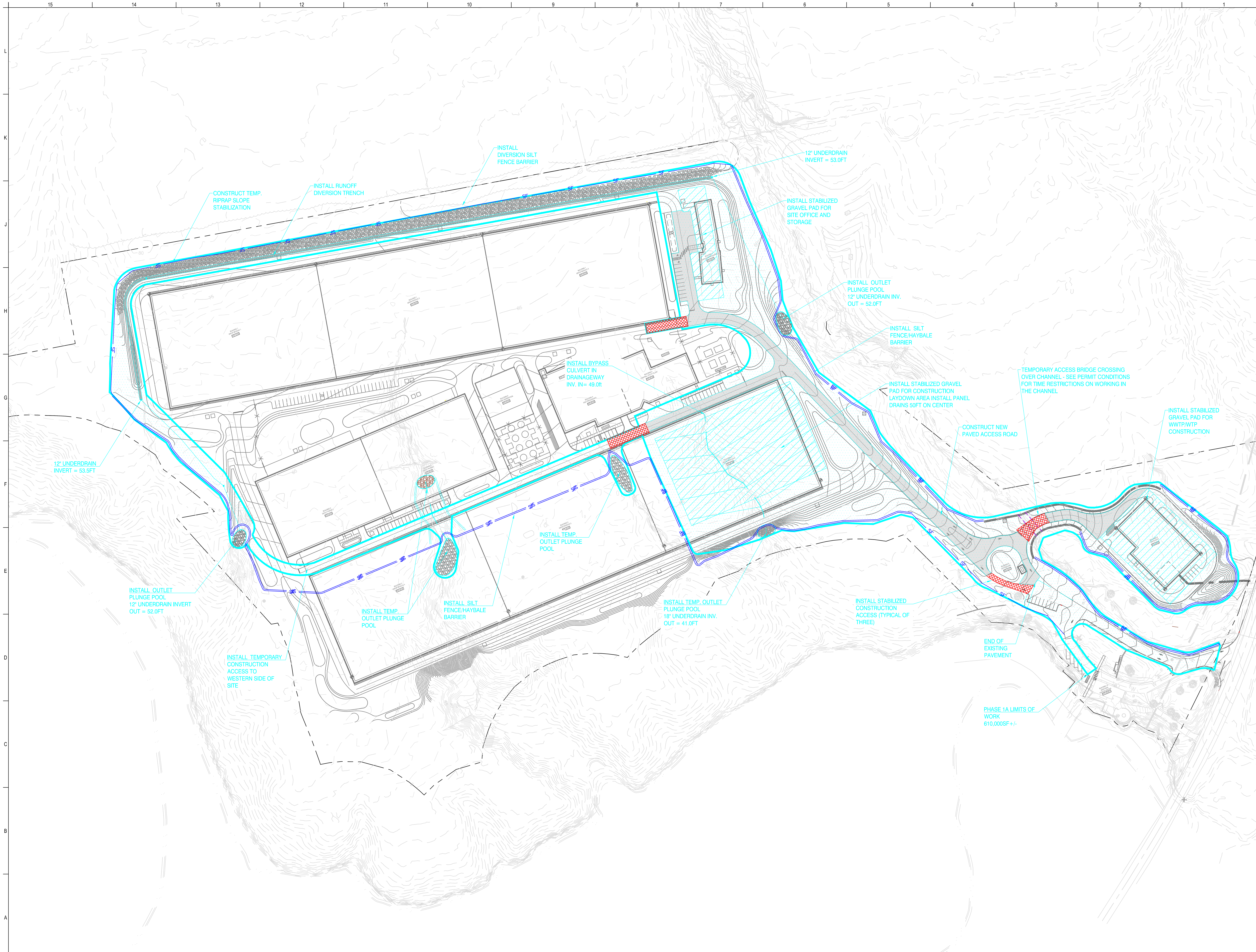
0 50' 100' 200' 300'

SCALE: AS SHOWN

PROJECT MANAGER:	ADB	PROJECT NO:	18076
A/E OF RECORD:			
JOB CAPTAIN:	SP	CE110	
DRAWN BY:	AJ		
SMRT FILE:	CE110-18076	SHEET No.	

NOT FOR CONSTRUCTION

24x36



REV	DESCRIPTION	DATE
2	PER MDEP REVIEW COMMENTS	10-25-19
1	PER MDEP REVIEW COMMENTS	7-18-19
0	ISSUED FOR PERMIT	5-14-19

ISSUED FOR PERMIT
5-14-19
CURRENT ISSUE STATUS:

TRUE NORTH
TRUE NORTH:

STATE OF MAINE
ANDREW O. JOHNSTON
NO. 9994
10/25/19
LICENSED
PROFESSIONAL ENGINEER

SMRT Architects and Engineers
144 Fore Street
Portland, Maine 04104
1.877.700.7678
www.smrtinc.com
ARCHITECTURE | ENGINEERING | PLANNING | INTERIORS | ENERGY
SMRT

RANSOM Consulting Engineers and Scientists
Ransom Consulting Engineers and Scientists
400 Commercial Street, Suite 400
Portland, Maine 04101

NORDIC AQUAFARMS
285 NORTHPORT AVENUE

BELFAST, MAINE

SOIL EROSION & SEDIMENT CONTROL PHASING PLAN -2 PHASE 1A

SHEET TITLE:

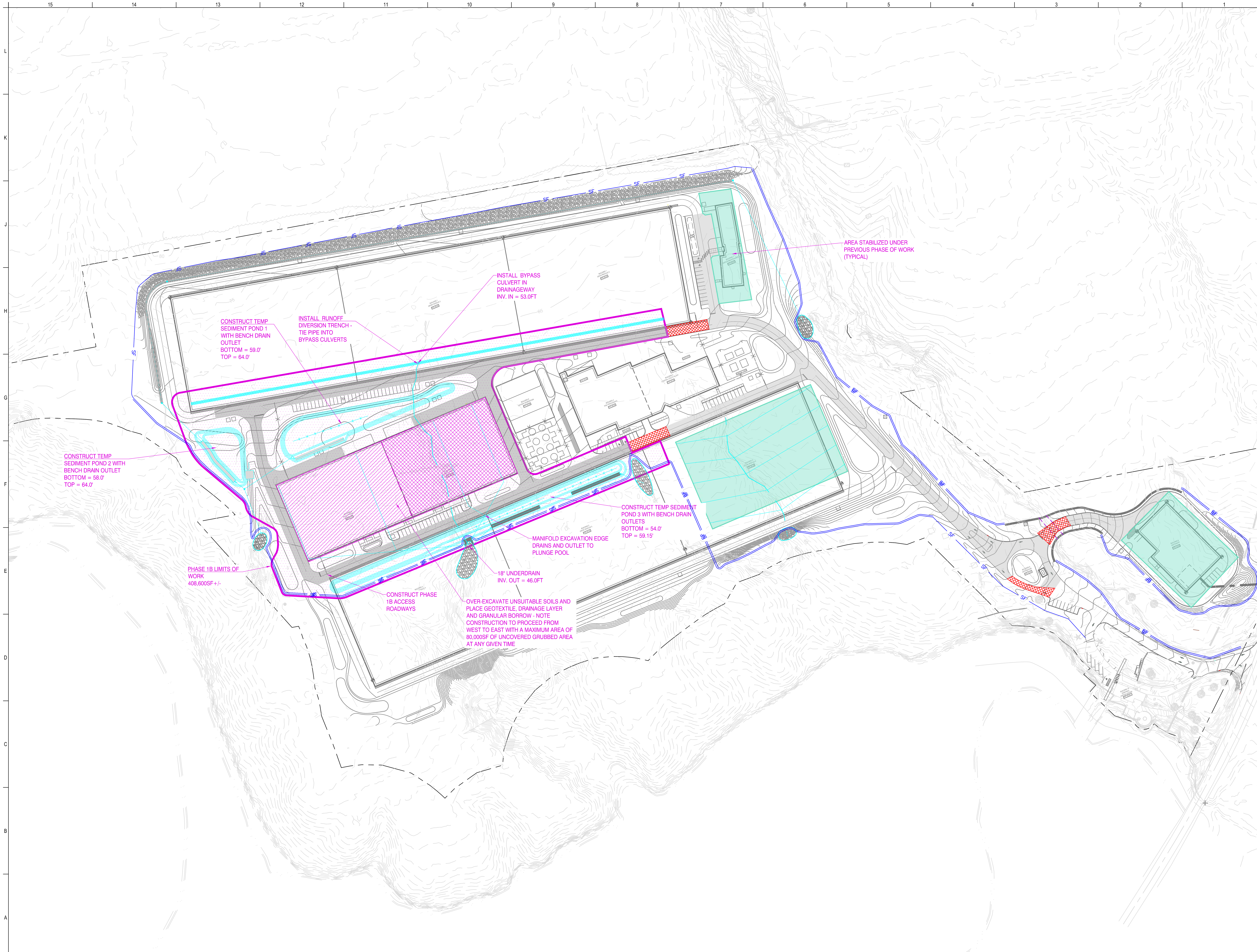
0 50' 100' 200' 300'

SCALE: AS SHOWN

PROJECT MANAGER:	ADB	PROJECT NO:	18076
A/E OF RECORD:			
JOB CAPTAIN:	SP	CE111	
DRAWN BY:	AJ		
SMRT FILE:	CE111-18076	SHEET No.	

NOT FOR CONSTRUCTION

24x36



REV	DESCRIPTION	DATE
2	PER MDEP REVIEW COMMENTS	10-25-19
1	PER MDEP REVIEW COMMENTS	7-18-19
0	ISSUED FOR PERMIT	5-14-19

ISSUED FOR PERMIT
5-14-19
CURRENT ISSUE STATUS:

TRUE NORTH:

STATE OF MAINE ANDREW D. JOHNSTON NO. 9994 10/25/19 LICENSED PROFESSIONAL ENGINEER

SMRT Architects and Engineers
144 Fore Street
Portland, Maine 04104
1.877.700.7678
www.smrtinc.com
ARCHITECTURE | ENGINEERING | PLANNING | INTERIORS | ENERGY

RANSOM Consulting Engineers and Scientists
Ransom Consulting Engineers and Scientists
400 Commercial Street, Suite 400
Portland, Maine 04101

NORDIC AQUAFARMS
285 NORTHPORT AVENUE

BELFAST, MAINE

SOIL EROSION & SEDIMENT CONTROL PHASING PLAN -3 PHASE 1B

SHEET TITLE:

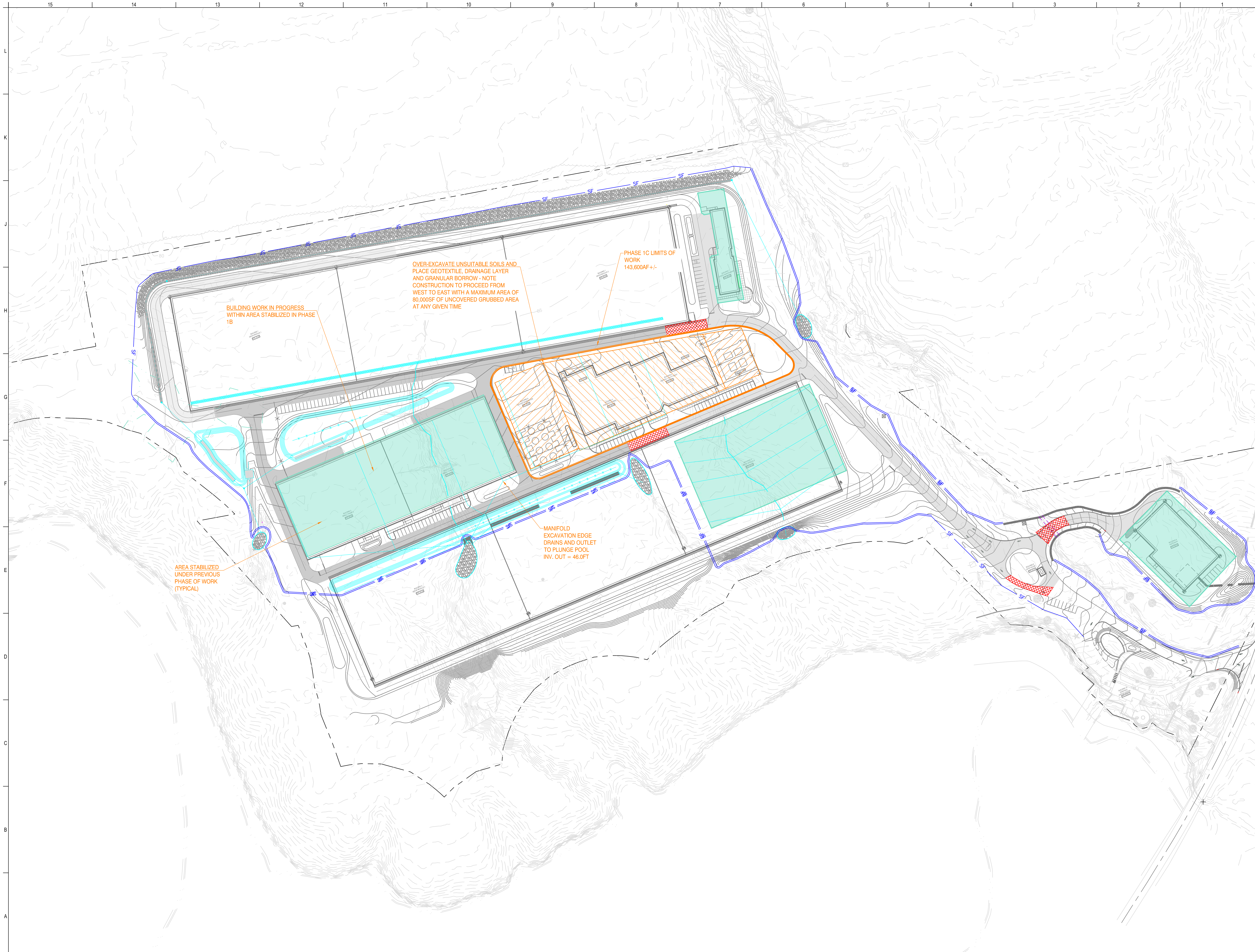
0 50' 100' 200' 300'

SCALE: AS SHOWN

PROJECT MANAGER: ADB	PROJECT NO: 18076
A/E OF RECORD:	
JOB CAPTAIN: SP	CE112
DRAWN BY: AJ	
SMRT FILE: CE112-18076	SHEET No.

NOT FOR CONSTRUCTION

24x36



REV	DESCRIPTION	DATE
0	NRPA-PRINT FOR NAF REVIEW	4-29-19

NRPA-PRINT FOR NAF REVIEW
4-29-19
CURRENT ISSUE STATUS:

TRUE NORTH:

STATE OF MAINE
ANDREW D. JOHNSTON
NO. 9994
4/10/19
LICENSED PROFESSIONAL ENGINEER

SMRT Architects and Engineers
144 Fore Street
Portland, Maine 04104
1.877.700.7678
www.smrtinc.com
ARCHITECTURE | ENGINEERING | PLANNING | INTERIORS | ENERGY

RANSOM Consulting Engineers and Scientists
Ransom Consulting Engineers and Scientists
400 Commercial Street, Suite 400
Portland, Maine 04101

NORDIC AQUAFARMS
285 NORTHPORT AVENUE

BELFAST, MAINE

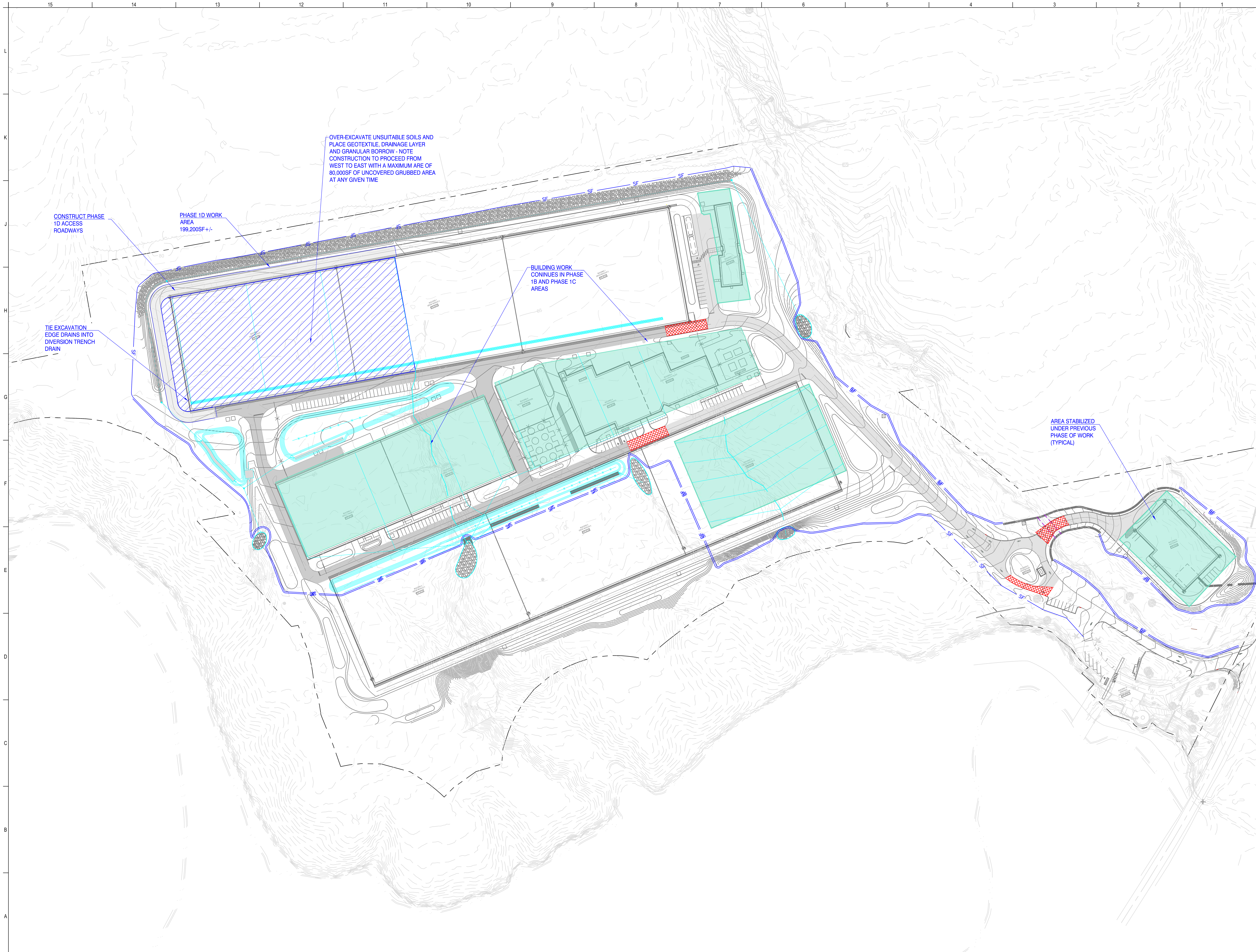
SOIL EROSION & SEDIMENT CONTROL PHASING PLAN -4 PHASE 1C
SHEET TITLE:

0 50' 100' 200' 300'
SCALE: AS SHOWN

PROJECT MANAGER:	ADB	PROJECT NO:	18076
A/E OF RECORD:			
JOB CAPTAIN:	SP	CE113	
DRAWN BY:	AJ		
SMRT FILE:	CE113-18076	SHEET No.	

NOT FOR CONSTRUCTION

24x36



REV	DESCRIPTION	DATE
2	PER MDEP REVIEW COMMENTS	10-25-19
1	PER MDEP REVIEW COMMENTS	7-18-19
0	ISSUED FOR PERMIT	5-14-19

ISSUED FOR PERMIT
5-14-19
CURRENT ISSUE STATUS:

TRUE NORTH

TRUE NORTH:

STATE OF MAINE
ANDREW Q. JOHNSTON
NO. 9994
10/25/19
LICENSED
PROFESSIONAL ENGINEER

SMRT Architects and Engineers
144 Fore Street
Portland, Maine 04104
1.877.700.7678
www.smrtinc.com
ARCHITECTURE | ENGINEERING | PLANNING | INTERIORS | ENERGY

SMRT

RANSOM Consulting Engineers and Scientists
Ransom Consulting Engineers and Scientists
400 Commercial Street, Suite 400
Portland, Maine 04101

NORDIC AQUAFARMS
285 NORTHPORT AVENUE

BELFAST, MAINE

SOIL EROSION & SEDIMENT CONTROL PHASING PLAN -5 PHASE 1D

SHEET TITLE:

0 50' 100' 200' 300'

SCALE: AS SHOWN

PROJECT MANAGER:	ADB	PROJECT NO:	18076
A/E OF RECORD:			
JOB CAPTAIN:	SP	CE114	
DRAWN BY:	AJ		
SMRT FILE:	CE114-18076	SHEET No.	

NOT FOR CONSTRUCTION

24x36

REV	DESCRIPTION	DATE
2	PER MDEP REVIEW COMMENTS	10-25-19
1	PER MDEP REVIEW COMMENTS	7-18-19
0	ISSUED FOR PERMIT	5-14-19

ISSUED FOR PERMIT
5-14-19
CURRENT ISSUE STATUS:

TRUE NORTH

TRUE NORTH:

STATE OF MAINE
ANDREW Q. JOHNSTON
NO. 9994
10/25/19
LICENSED
PROFESSIONAL ENGINEER

SMRT Architects and Engineers
144 Fore Street
Portland, Maine 04104
1.877.700.7678
www.smrtinc.com
ARCHITECTURE | ENGINEERING | PLANNING | INTERIORS | ENERGY
SMRT

RANSOM Consulting Engineers and Scientists
Ransom Consulting Engineers and Scientists
400 Commercial Street, Suite 400
Portland, Maine 04101

NORDIC AQUAFARMS
285 NORTHPORT AVENUE

BELFAST, MAINE

SOIL EROSION & SEDIMENT CONTROL PHASING PLAN -6 PHASE 1E

SHEET TITLE:

0 50' 100' 200' 300'

SCALE: AS SHOWN

PROJECT MANAGER:	ADB	PROJECT NO:	18076
A/E OF RECORD:			
JOB CAPTAIN:	SP	CE115	
DRAWN BY:	AJ		
SMRT FILE:	CE115-18076	SHEET No.	

NOT FOR CONSTRUCTION

REV	DESCRIPTION	DATE
2	PER MDEP REVIEW COMMENTS	10-25-19
1	PER MDEP REVIEW COMMENTS	7-18-19
0	ISSUED FOR PERMIT	5-14-19

ISSUED FOR PERMIT
5-14-19
CURRENT ISSUE STATUS:

TRUE NORTH:

STATE OF MAINE
ANDREW Q. JOHNSTON
NO. 9994
10/25/19
LICENSED
PROFESSIONAL ENGINEER

SMRT Architects and Engineers
1.877.700.7678
www.smrtinc.com
ARCHITECTURE | ENGINEERING | PLANNING | INTERIORS | ENERGY

RANSOM Consulting Engineers and Scientists
Ransom Consulting Engineers and Scientists
400 Commercial Street, Suite 400
Portland, Maine 04101

NORDIC AQUAFARMS
285 NORTHPORT AVENUE
BELFAST, MAINE

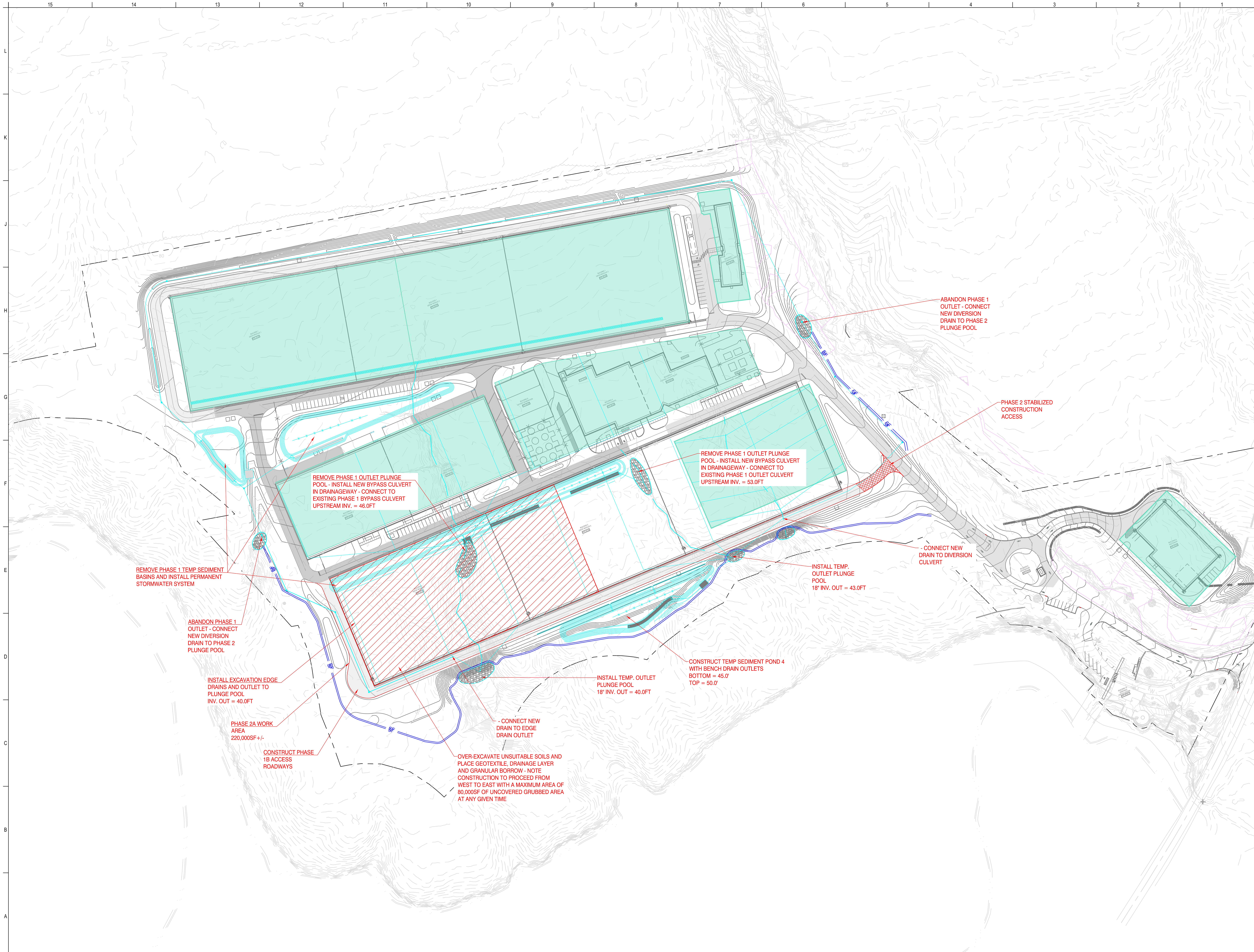
SOIL EROSION & SEDIMENT CONTROL PHASING PLAN -7
PHASE 2 SITE CLEARING
SHEET TITLE:

0 50' 100' 200' 300'
SCALE: AS SHOWN

PROJECT MANAGER:	ADB	PROJECT NO:	18076
A/E OF RECORD:			
JOB CAPTAIN:	SP		
DRAWN BY:	AJ	CE116	
SMRT FILE:	CE516-18076	SHEET No.	

NOT FOR CONSTRUCTION

24x36



REV	DESCRIPTION	DATE
2	PER MDEP REVIEW COMMENTS	10-25-19
1	PER MDEP REVIEW COMMENTS	7-18-19
0	ISSUED FOR PERMIT	5-14-19

ISSUED FOR PERMIT
5-14-19
CURRENT ISSUE STATUS:

TRUE NORTH

TRUE NORTH:

STATE OF MAINE
ANDREW D. JOHNSTON
NO. 9994
10/25/19
LICENSED
PROFESSIONAL ENGINEER

SMRT Architects and Engineers
144 Fore Street
Portland, Maine 04104
1.877.700.7678
www.smrtinc.com
ARCHITECTURE | ENGINEERING | PLANNING | INTERIORS | ENERGY

RANSOM Consulting Engineers and Scientists
Ransom Consulting Engineers and Scientists
400 Commercial Street, Suite 400
Portland, Maine 04101

NORDIC AQUAFARMS
285 NORTHPORT AVENUE

BELFAST, MAINE

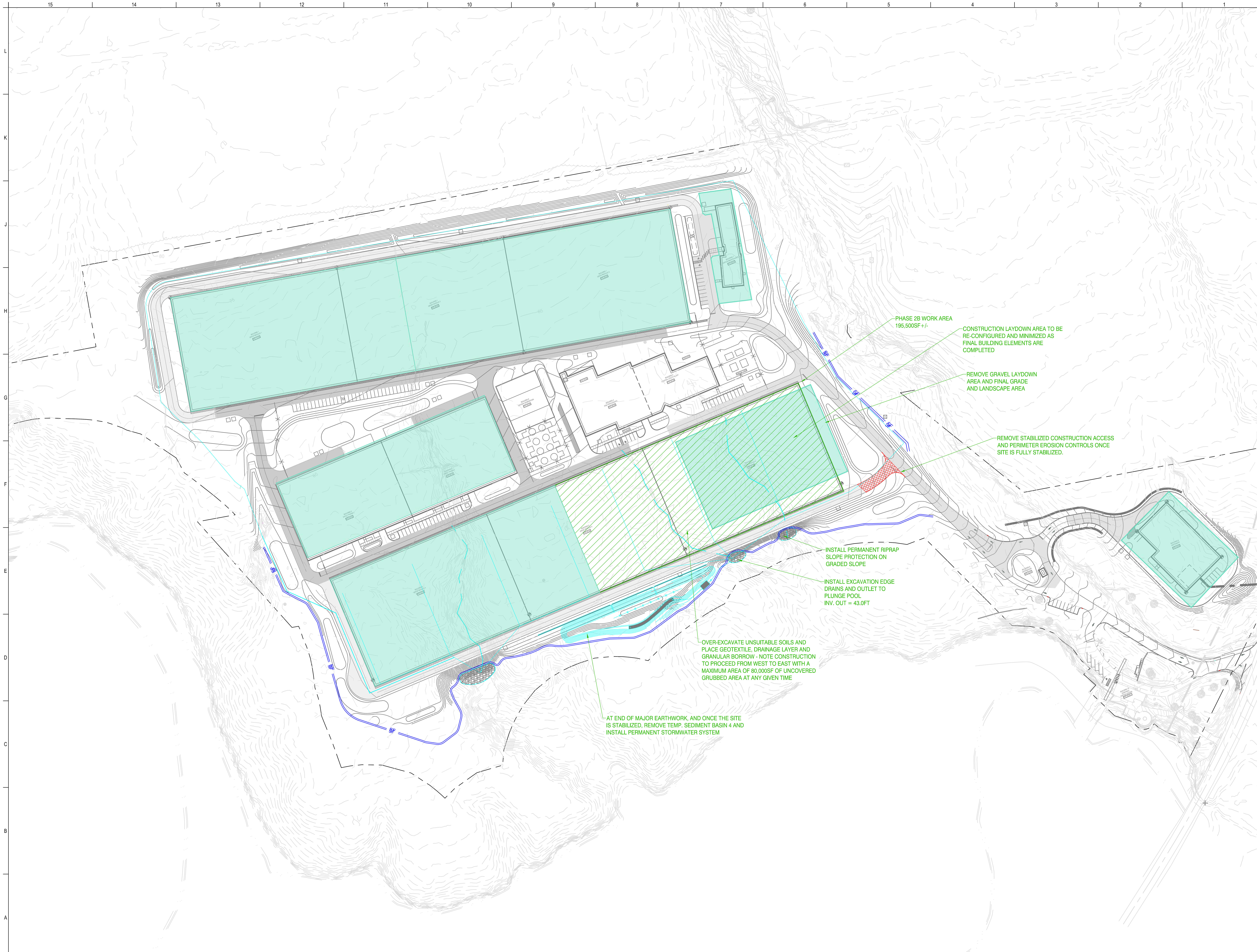
SOIL EROSION & SEDIMENT CONTROL PHASING PLAN -8
PHASE 2A
SHEET TITLE:

0 50' 100' 200' 300'

SCALE: AS SHOWN

PROJECT MANAGER:	ADB	PROJECT NO:	18076
A/E OF RECORD:			
JOB CAPTAIN:	SP	CE117	
DRAWN BY:	AJ		
SMRT FILE:	CE117-18076	SHEET No.	

NOT FOR CONSTRUCTION
24x36



REV	DESCRIPTION	DATE
2	PER MDEP REVIEW COMMENTS	10-25-19
1	PER MDEP REVIEW COMMENTS	7-18-19
0	ISSUED FOR PERMIT	5-14-19

ISSUED FOR PERMIT
5-14-19
CURRENT ISSUE STATUS:

TRUE NORTH
TRUE NORTH:

STATE OF MAINE
ANDREW O. JOHNSTON
NO. 9994
10/25/19
LICENSED
PROFESSIONAL ENGINEER

SMRT Architects and Engineers
144 Fore Street
Portland, Maine 04104
1.877.700.7678
www.smrtinc.com
ARCHITECTURE | ENGINEERING | PLANNING | INTERIORS | ENERGY
SMRT

RANSOM Consulting Engineers and Scientists
Ransom Consulting Engineers and Scientists
400 Commercial Street, Suite 400
Portland, Maine 04101

NORDIC AQUAFARMS
285 NORTHPORT AVENUE

BELFAST, MAINE

SOIL EROSION & SEDIMENT CONTROL PHASING PLAN -9 PHASE 2B

SHEET TITLE:

0 50' 100' 200' 300'

SCALE: AS SHOWN

PROJECT MANAGER:	ADB	PROJECT NO:	18076
A/E OF RECORD:			
JOB CAPTAIN:	SP	CE118	
DRAWN BY:	AJ		
SMRT FILE:	CE118-18076	SHEET No.	

NOT FOR CONSTRUCTION

24x36

ATTACHMENT C

Revised Soil Erosion and Sediment Control Phasing Plans with Aerial Imagery

Nordic Aquafarms, Inc., Land-based Aquaculture Facility, Belfast, Maine
L-28319-26-A-N, Review Comments

ATTACHMENT D

Revised Grading Plans CG-105 to CG-107

Nordic Aquafarms, Inc., Land-based Aquaculture Facility, Belfast, Maine
L-28319-26-A-N, Review Comments

ATTACHMENT E

Revised Detail Drawing CE505

Nordic Aquafarms, Inc., Land-based Aquaculture Facility, Belfast, Maine
L-28319-26-A-N, Review Comments

Ransom Consulting, Inc.
Project 171.05027.008

ATTACHMENT F

Revised Landscaping Plans LP102 to LP106

Nordic Aquafarms, Inc., Land-based Aquaculture Facility, Belfast, Maine
L-28319-26-A-N, Review Comments

ATTACHMENT G

Updated Stormwater Drawings, Narrative, and Calculations

Nordic Aquafarms, Inc., Land-based Aquaculture Facility, Belfast, Maine
L-28319-26-A-N, Review Comments

Ransom Consulting, Inc.
Project 171.05027.008