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December 22, 2015

Mr. Terry Maitland, Chairman
Conservation Commission
Town of Acton
472 Main Street
Acton, MA 01720

RE: Proposed Nagog Pond Water Treatment Plant, Acton, Massachusetts
Notice of Intent – Supplemental Submittal
MassDEP File Number: CE 085-1188

Dear Mr. Maitland:

During the recent Conservation Commission hearing on December 2, 2015 there were several comments and questions from the public regarding the above referenced project. As a result, the applicant (Town of Concord, Public Works, Water/Sewer Division) is proposing several project modifications and clarifications:

1. All activities associated with the proposed solar photovoltaic (PV) system, including clearing of land, have been moved outside the 100 foot wetland buffer. As such, the applicant is retracting its request for waiver as all work associated with the proposed PV system is now outside the jurisdiction of the Conservation Commission.

2. The proposed building has been shifted such that it is no closer to the wetland boundary than the existing building (70 feet). As such, the applicant is retracting its request for a waiver in lieu of the new proposed location which meets the wetland by-law setback requirements.

3. The proposed method of replacing the existing 16-inch intake line to Nagog Pond has been finalized and includes dewatering a section of Nagog Pond. The existing coffer dam which is partially submerged will be reconstituted and amended with the placement of a temporary coffer dam consisting of an impermeable barrier/liner and super sand sacks. Once the temporary coffer dam is in place, the existing Nagog Pond dam outlet structure will be utilized to dewater the lower section of the pond so that replacement of the intake pipe can be accomplished in the dry. The existing 16-inch intake pipe will be removed and the new 16-inch intake pipe installed in the same location within the coffer dam area. All excavation work will be accomplished such that there will be no net increase in soils/sediments removed/added to the pond bottom. All existing sediments/soils will remain and no new soils will be added. During the excavation process sediments will be stockpiled adjacent to the pipe trench and re-used to backfill the pipe.

   The Contractor will be required to maintain several dewatering pumps to transfer water from isolated low spots in the dewatered area. Water will either be pumped to another isolated low spot not affecting the construction zone or pumped to the dam outlet zone for release downstream. Any water which is pumped will be monitored visually for the

transport of solids/sediment. If solids/sediments are detected, then they will be allowed to settle within the dewatering area before being discharged to Nagog Brook.

The remaining section of the intake pipe will be installed using a barge. The HDPE pipe will be fused and the concrete collars installed. The pipe will be filled with air and dragged/floated out to the location to be installed. The pipe will then be filled with water and submerged. Divers will be used to connect the intake screen and attached the intake line to the support tower. The support tower will be deployed using a barge. Locations will be determined using GPS equipment.

The following information is enclosed in support of the proposed project modifications:

- Updated Project Plans (C-5, C-6, C-8, C-9, C-9S)
- Response to Public Comments and Questions
- Nagog Pond Underwater Intake Pipe Inspection Report (April 11, 2012)
- Certified mail receipts and meeting notification letters returned since the December 2, 2015 hearing.

As requested by the Conservation Commission, the revised plan Sheet C-9 includes a table of existing and proposed site features including clearing, pervious, and impervious areas. There are no proposed changes being made to the stormwater and drainage systems previously submitted. Based on the limited site changes proposed, it is anticipated that there will be negligible differences in stormwater management. As indicated by the previous stormwater analysis, it is expected that the peak stormwater discharge rates will be lower compared with existing conditions. An updated Stormwater Report has not been completed, but will be prepared and submitted separately.

If you should have any questions or require additional information, please do not hesitate to contact me at (617) 657-0255. I can also be reached via e-mail at sco@envpartners.com.

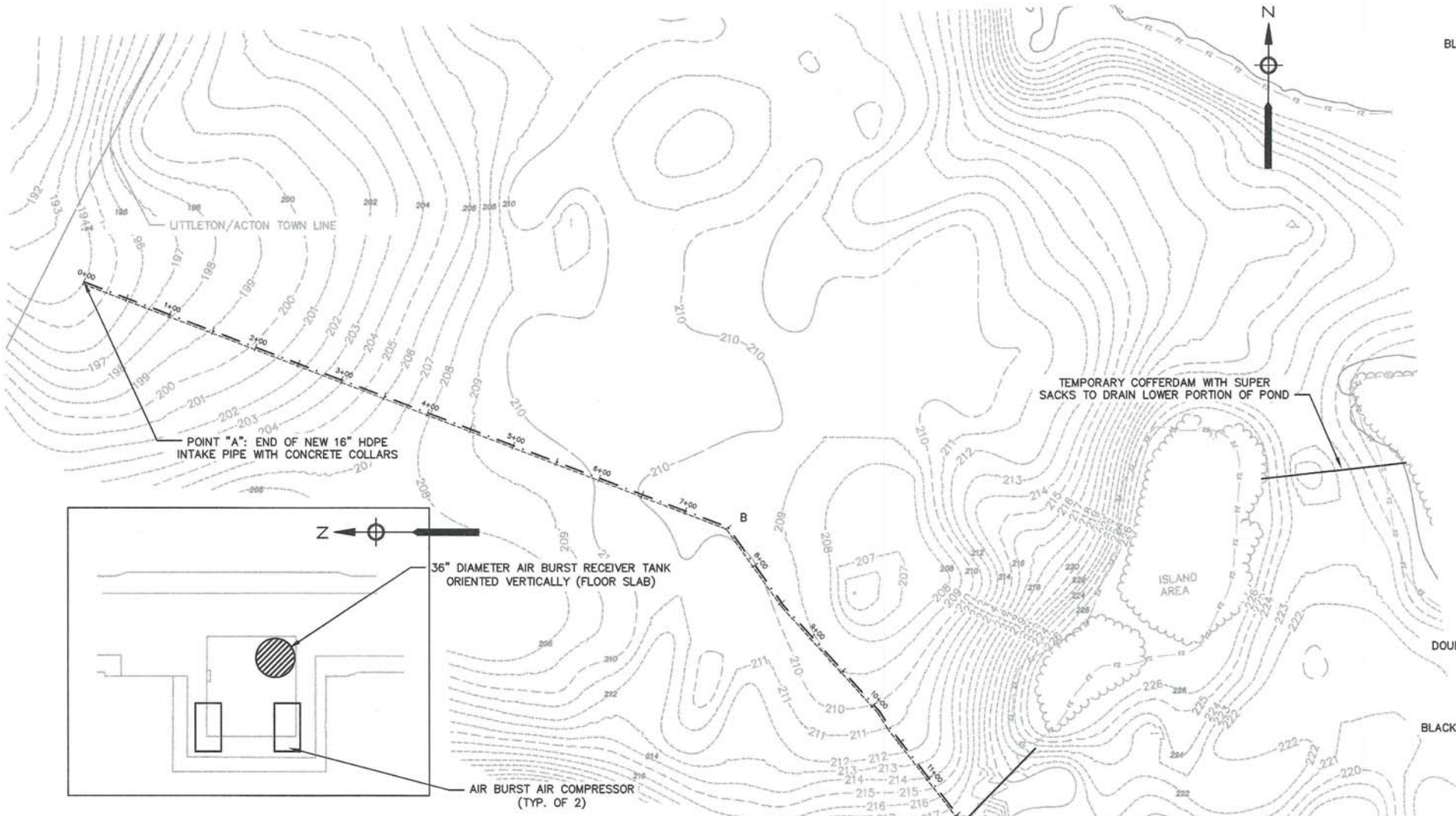
Very Truly Yours,
Environmental Partners Group, Inc.

Stephen C. Olson, P.E.
Sr. Project Manager

Encl:

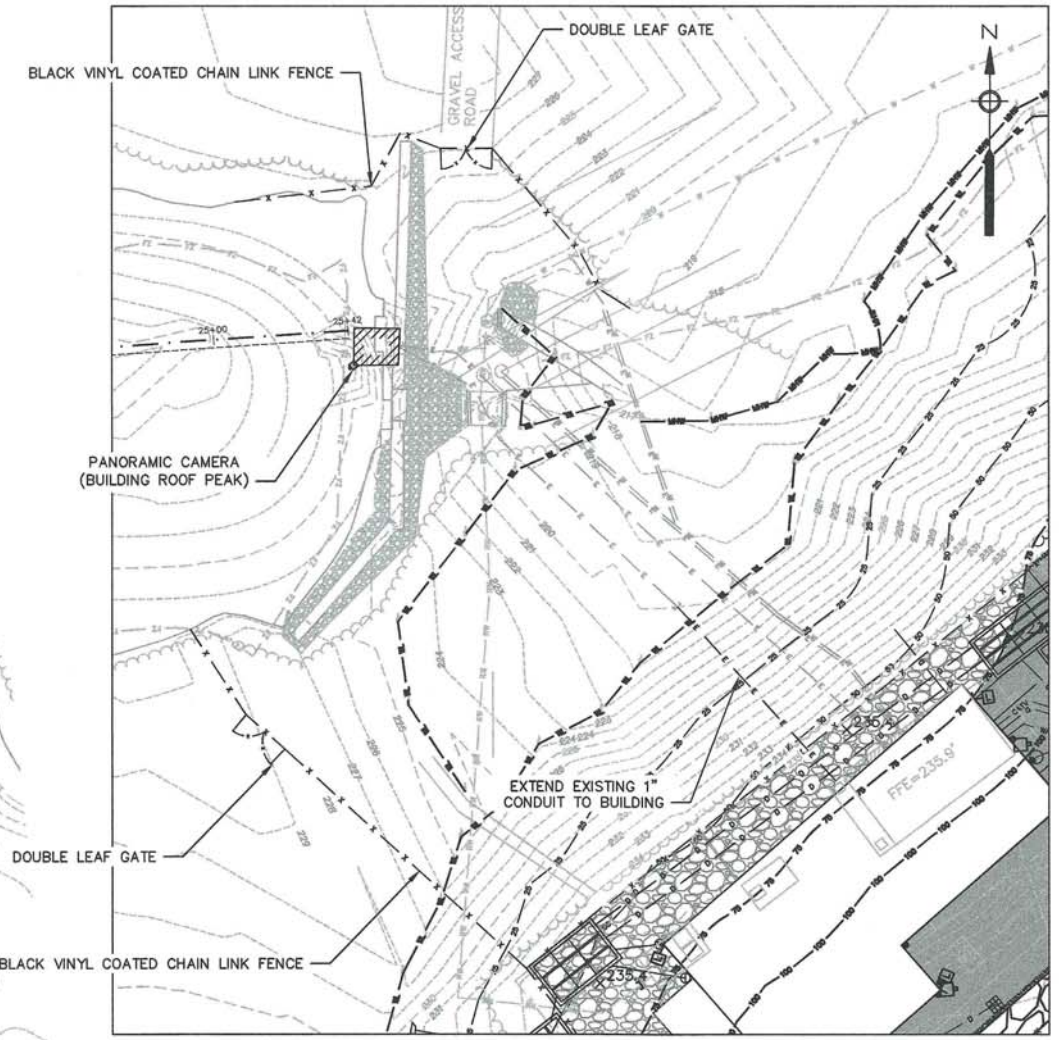
Attachment A - Updated Project Plans (C-5, C-6, C-8, C-9, C-9S)
Attachment B - Response to Public Comments and Questions
Attachment C - Nagog Pond Underwater Intake Pipe Inspection Report (April 11, 2012)
Certified Mailing Receipts and Abutter Notifications Returned

CC: Department of Environmental Protection – Central Region
Christopher Whelan, Town Manager
Richard Reine, Public Works Director
Alan Cathcart, Concord Water/Sewer Division, Superintendent
Concord Public Works Commission



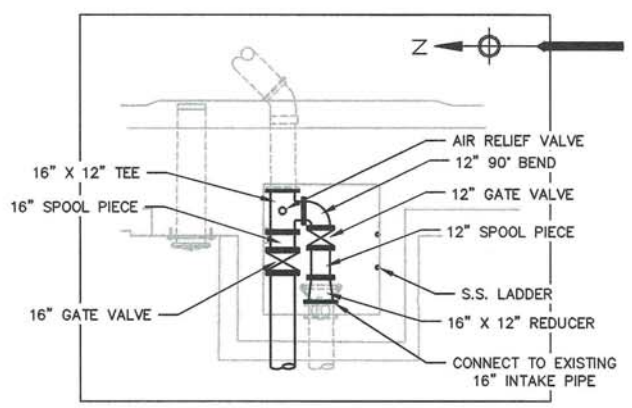
INSET "F": GATE HOUSE IMPROVEMENTS (ABOVE SLAB)

SCALE: NTS



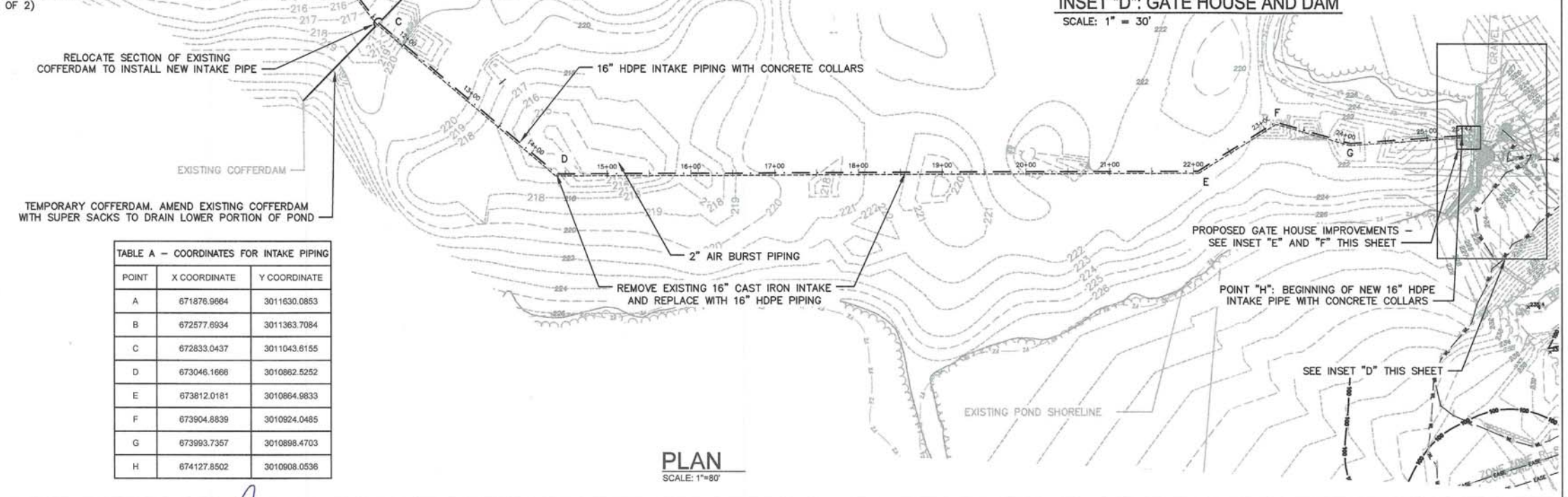
INSET "D": GATE HOUSE AND DAM

SCALE: 1" = 30'



INSET "E": GATE HOUSE IMPROVEMENTS (BELOW SLAB)

SCALE: NTS



PLAN

SCALE: 1"=80'

TABLE A – COORDINATES FOR INTAKE PIPING		
POINT	X COORDINATE	Y COORDINATE
A	671876.9664	3011630.0853
B	672577.6934	3011363.7084
C	672833.0437	3011043.6155
D	673046.1666	3010862.5252
E	673812.0181	3010864.9833
F	673904.8839	3010924.0485
G	673993.7357	3010898.4703
H	674127.8502	3010908.0536

NOTES:

1. POND, GATEHOUSE, AND DAM ARE WITHIN THE 100 YEAR AE FLOOD ZONE AND THE ZONE A 400' BUFFER

Drawing file: I:\Concord.200\200-1501 Nagog Pond VTP Conceptual Design\Permitting\Drawings\NOI\revision drawings\Conceptual Design Revisions.dwg Plot Date: Dec 22,2015-3:52pm

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MARK	DATE	DESCRIPTION
1	12/22/15	NOI HEARING REVISIONS

Scale	1" = 80'
Date	NOVEMBER 2015
Job No.	200-1501
Designed by	ZFK/DNRP
Drawn by	LEU
Checked by	DNRP
Approved by	SCO

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

NAGOG POND WATER TREATMENT PLANT

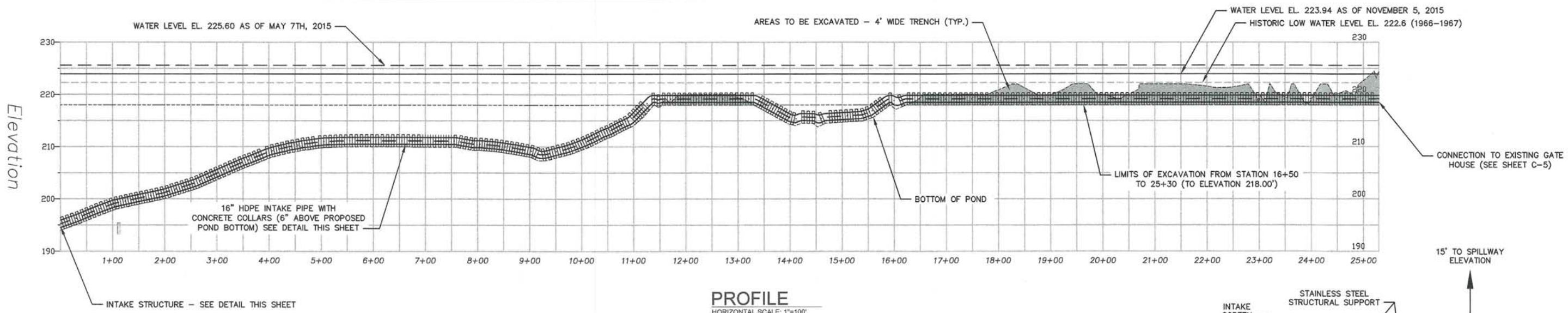
TOWN OF CONCORD, MASSACHUSETTS

INTAKE LAYOUT PLAN

FOR PERMITTING

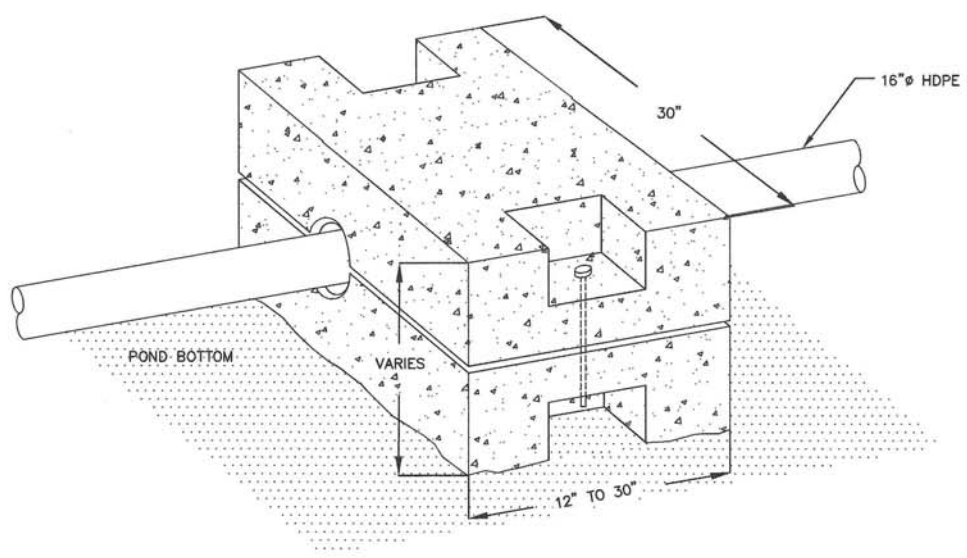
Sheet No.

C-5



PROFILE

HORIZONTAL SCALE: 1"=100'
VERTICAL SCALE: 1"=4'

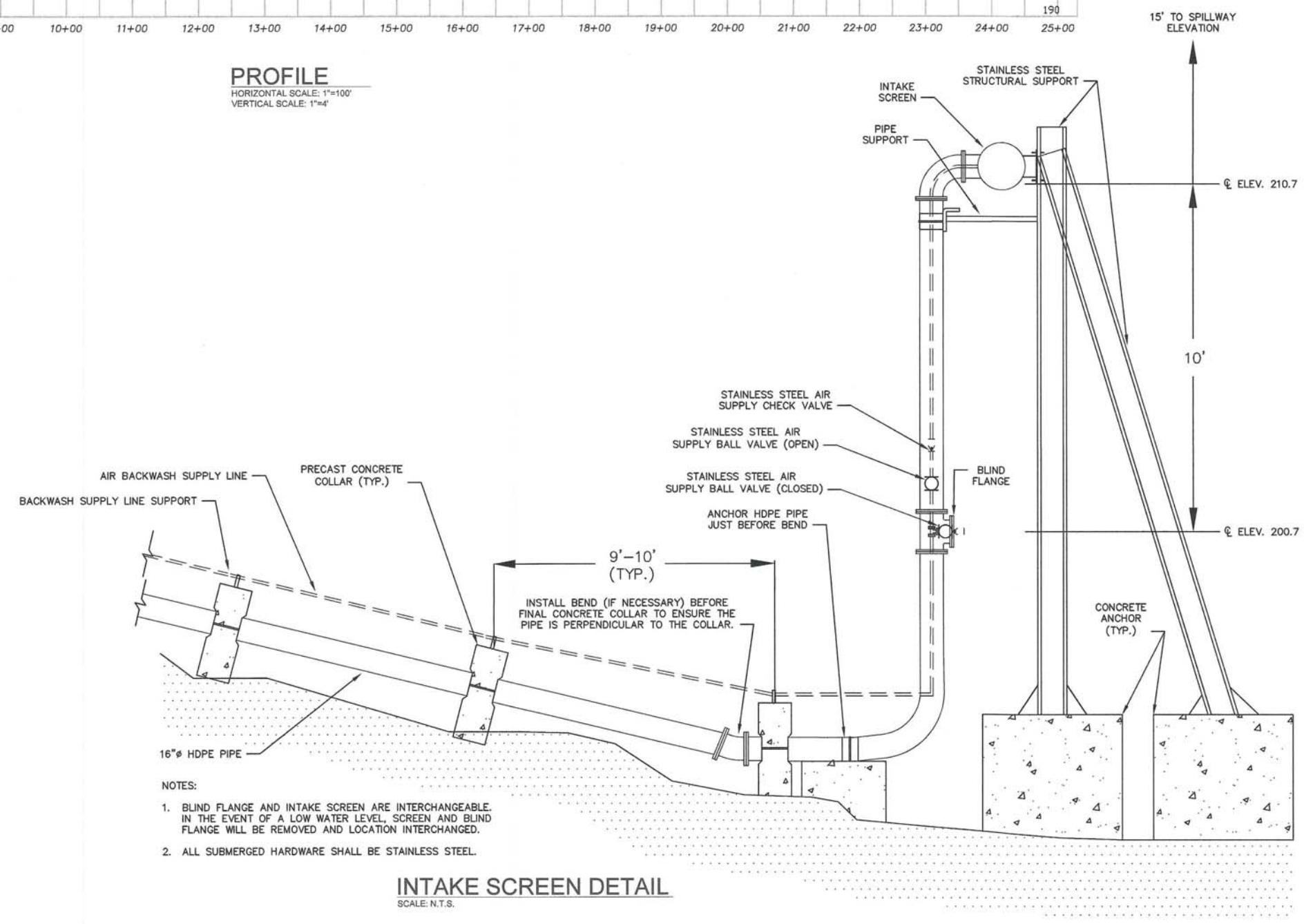


PROPOSED PRECAST CONCRETE COLLAR

SCALE: N.T.S.

NOTES:

1. FLEXIBLE COUPLINGS OR EXPANSION LOOPS SHALL BE PROVIDED ALONG HDPE PIPE ALIGNMENT.
2. PROVIDE FLEXIBLE CONNECTOR AT HDPE CONNECTION TO INTAKE SCREENS.
3. AIR BURST PIPING SHALL BE SUPPORTED FROM CONCRETE COLLARS.



NOTES:

1. BLIND FLANGE AND INTAKE SCREEN ARE INTERCHANGEABLE. IN THE EVENT OF A LOW WATER LEVEL, SCREEN AND BLIND FLANGE WILL BE REMOVED AND LOCATION INTERCHANGED.
2. ALL SUBMERGED HARDWARE SHALL BE STAINLESS STEEL.

INTAKE SCREEN DETAIL

SCALE: N.T.S.

Drawing file: I:\Concord.200\200-1501 Nagog Pond WTP Conceptual Design\Permitting\Drawings\NOI\revision drawings\Conceptual Design Revisions.dwg Plot Date: Dec 22,2015-3:51pm

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MARK	DATE	DESCRIPTION
1	12/22/15	NOI HEARING REVISIONS

Scale	AS SHOWN
Date	NOVEMBER 2015
Job No.	200-1501
Designed by	ZFK/DNRP
Drawn by	LEU
Checked by	DNRP
Approved by	SCO

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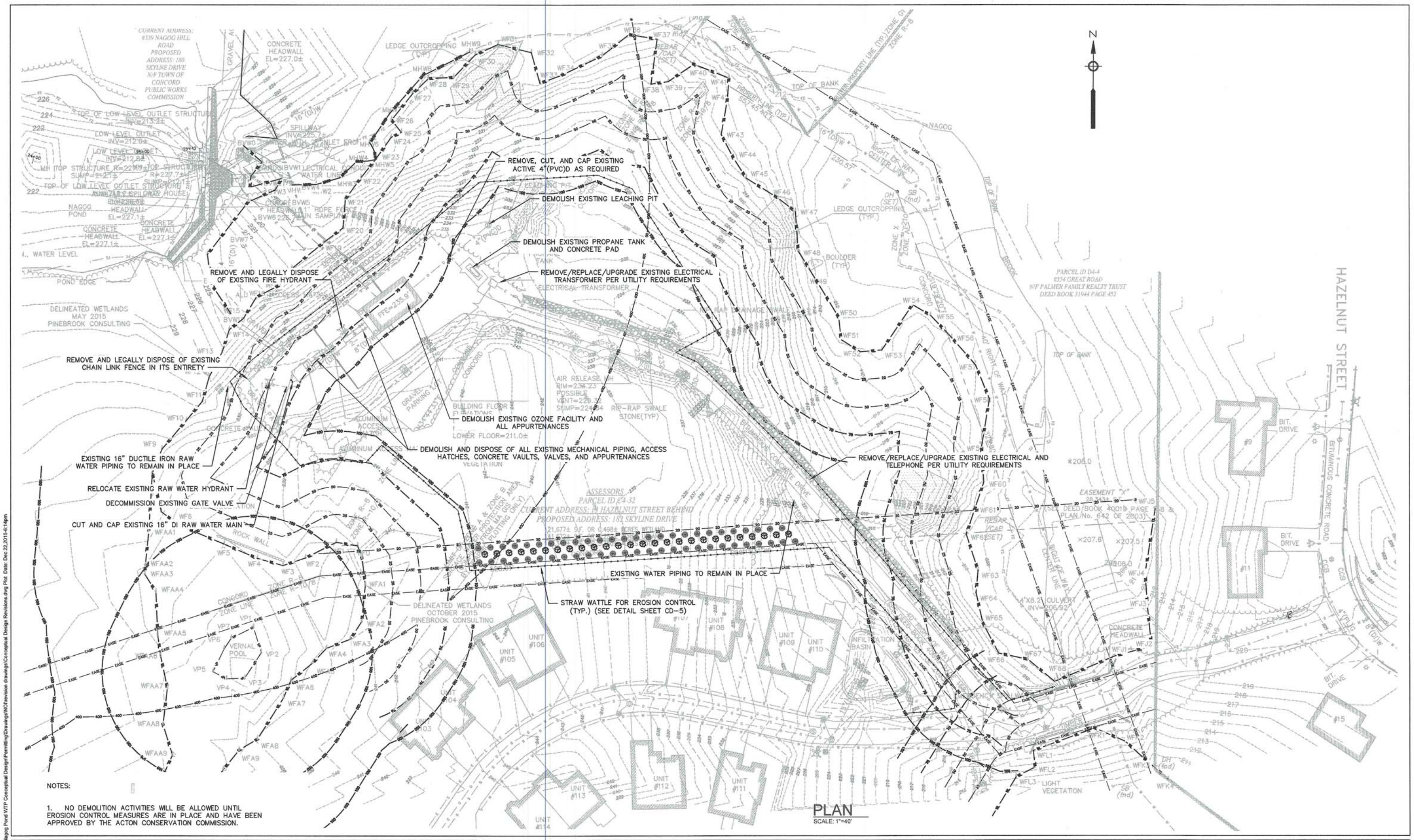
NAGOG POND WATER TREATMENT PLANT
TOWN OF CONCORD, MASSACHUSETTS

INTAKE LAYOUT PROFILE AND DETAILS

FOR PERMITTING

Sheet No.
C-6



NOTES:

1. NO DEMOLITION ACTIVITIES WILL BE ALLOWED UNTIL EROSION CONTROL MEASURES ARE IN PLACE AND HAVE BEEN APPROVED BY THE ACTON CONSERVATION COMMISSION.

PLAN
SCALE: 1"=40'

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MARK	DATE	DESCRIPTION
1	12/22/15	NOI HEARING REVISIONS

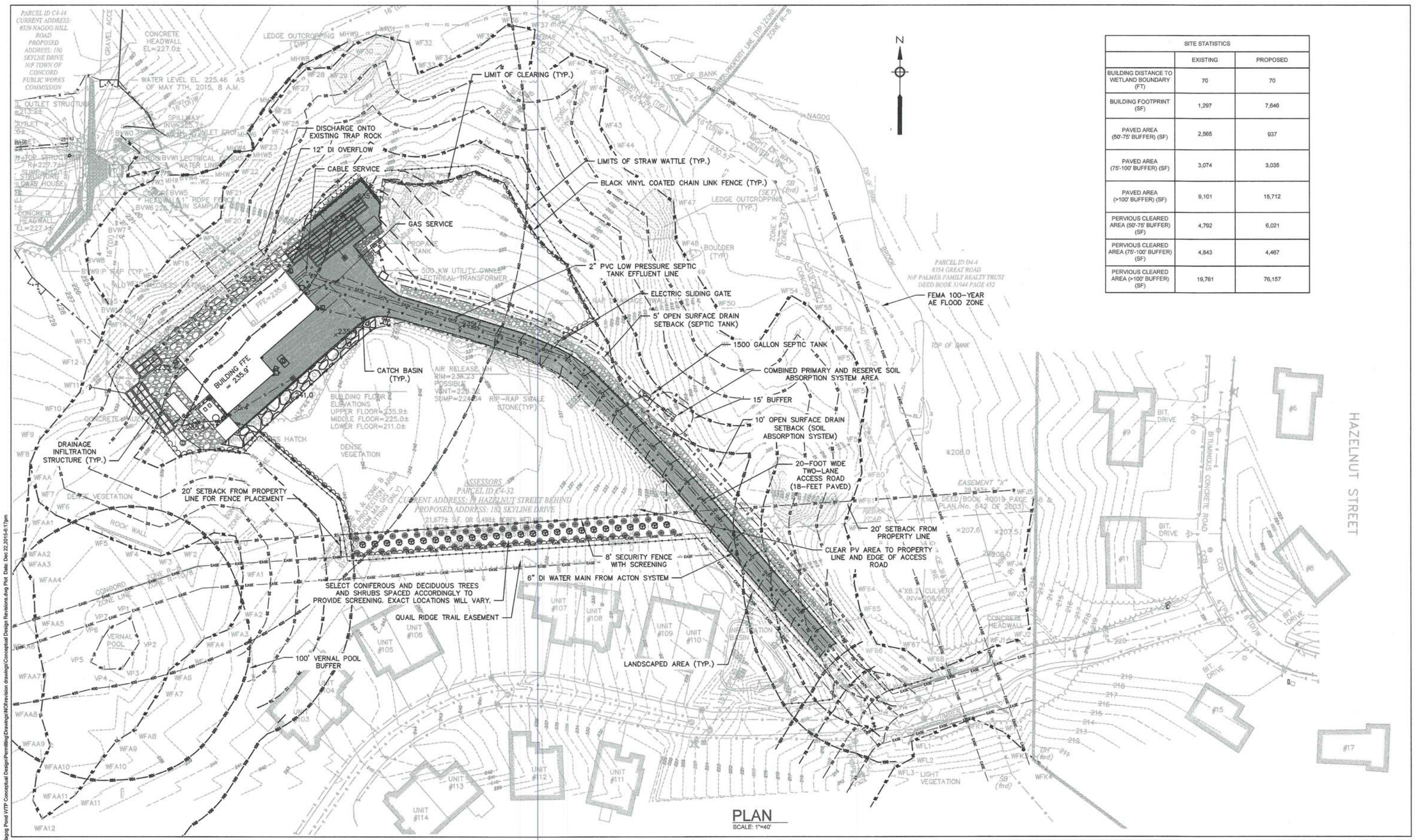
Scale	1" = 40'
Date	NOVEMBER 2015
Job No.	200-1501
Designed by	LEU
Drawn by	LEU
Checked by	DNRP
Approved by	SCO

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

NAGOG POND WATER TREATMENT PLANT
TOWN OF CONCORD, MASSACHUSETTS
WATER TREATMENT PLANT DEMOLITION AND EROSION CONTROL PLAN

FOR PERMITTING
Sheet No.
C-8

Drawing file: I:\Concord\200\200-1501 Nagog Pond WTP Conceptual Design\Permitting\Drawings\NOI\revision drawings\Conceptual Design Revisions.dwg Plot Date: Dec 22,2015-6:14pm



PLAN
SCALE: 1"=40'

SITE STATISTICS		
	EXISTING	PROPOSED
BUILDING DISTANCE TO WETLAND BOUNDARY (FT)	70	70
BUILDING FOOTPRINT (SF)	1,297	7,646
PAVED AREA (50'-75' BUFFER) (SF)	2,565	937
PAVED AREA (75'-100' BUFFER) (SF)	3,074	3,035
PAVED AREA (>100' BUFFER) (SF)	9,101	15,712
PERVIOUS CLEARED AREA (50'-75' BUFFER) (SF)	4,792	6,021
PERVIOUS CLEARED AREA (75'-100' BUFFER) (SF)	4,843	4,467
PERVIOUS CLEARED AREA (>100' BUFFER) (SF)	19,761	76,157

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MARK	DATE	DESCRIPTION
1	12/22/15	NOI HEARING REVISIONS

Scale	1" = 40'
Date	NOVEMBER 2015
Job No.	200-1501
Designed by	LEU
Drawn by	LEU
Checked by	DNRP
Approved by	SCO

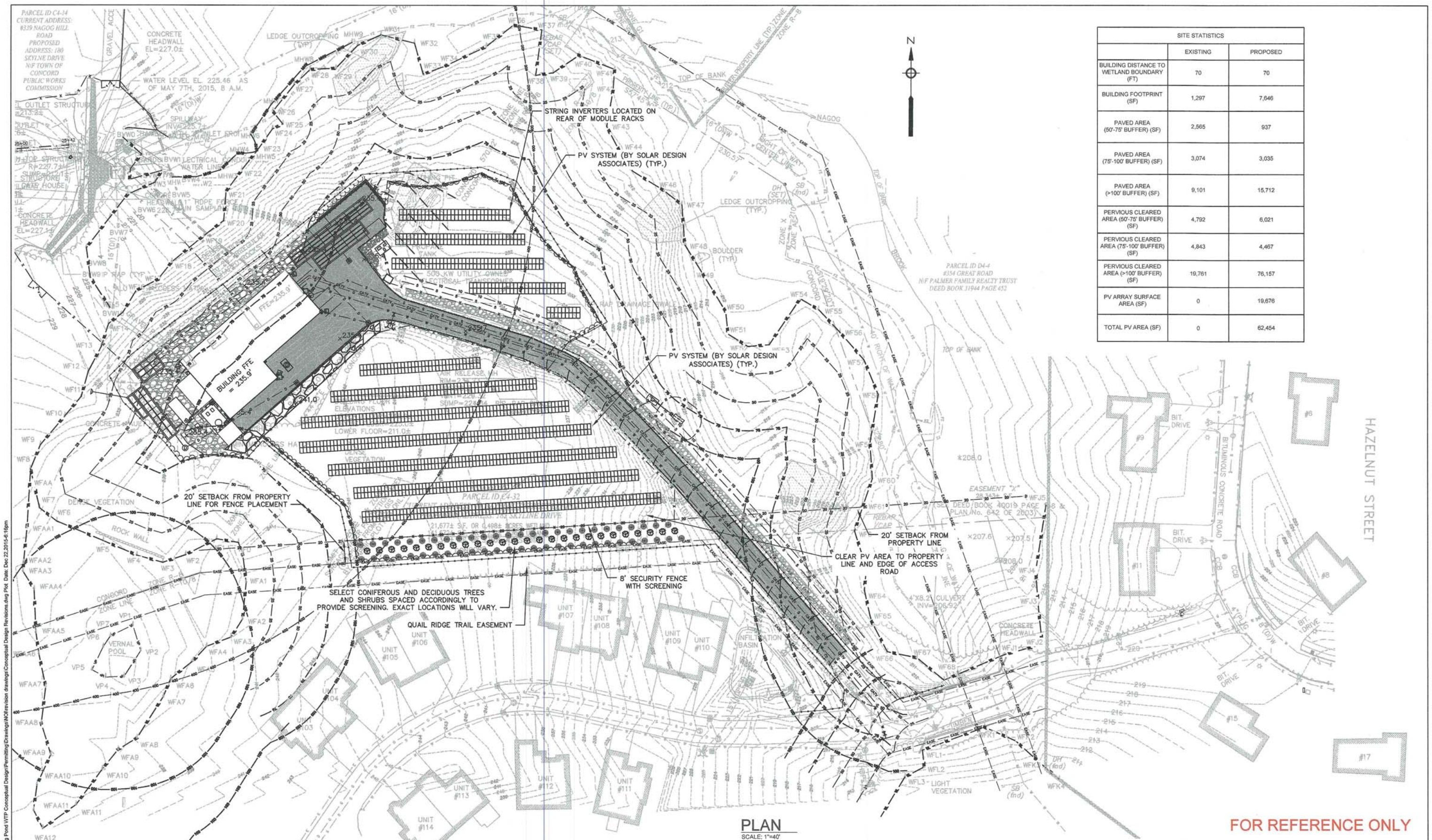
THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

NAGOG POND WATER TREATMENT PLANT
TOWN OF CONCORD, MASSACHUSETTS
WATER TREATMENT PLANT
LAYOUT PLAN - 40 SCALE

FOR PERMITTING
Sheet No.
C-9

Drawing file: I:\Concord,200\200-1501 Nagog Pond WTP Conceptual Design\Permitting\Drawings\NOI\revision drawings\Conceptual Design Revisions.dwg Plot Date: Dec 22,2015-5:17pm

SITE STATISTICS		
	EXISTING	PROPOSED
BUILDING DISTANCE TO WETLAND BOUNDARY (FT)	70	70
BUILDING FOOTPRINT (SF)	1,297	7,646
PAVED AREA (50'-75' BUFFER) (SF)	2,565	937
PAVED AREA (75'-100' BUFFER) (SF)	3,074	3,035
PAVED AREA (>100' BUFFER) (SF)	9,101	15,712
PERVIOUS CLEARED AREA (50'-75' BUFFER) (SF)	4,792	6,021
PERVIOUS CLEARED AREA (75'-100' BUFFER) (SF)	4,843	4,467
PERVIOUS CLEARED AREA (>100' BUFFER) (SF)	19,761	76,157
PV ARRAY SURFACE AREA (SF)	0	19,676
TOTAL PV AREA (SF)	0	62,454



PLAN
SCALE: 1"=40'

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MARK	DATE	DESCRIPTION

Scale	1" = 40'
Date	DECEMBER 2015
Job No.	200-1501
Designed by	LEU
Drawn by	LEU
Checked by	DNRP
Approved by	SCO

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

NAGOG POND WATER TREATMENT PLANT
TOWN OF CONCORD, MASSACHUSETTS
WATER TREATMENT PLANT
SUPPLEMENTAL SOLAR LAYOUT PLAN - 40 SCALE

FOR PERMITTING
Sheet No.
C-9S

Drawing file: I:\Concord\200\200-1501 Nagog Pond WTP Conceptual Design\Permitting\Drawings\NOI\revision drawings\Conceptual Design Revisions.dwg Plot Date: Dec 22,2015-6:16pm

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Meeting Memorandum

TO: Acton Conservation Commission

FROM: Stephen C. Olson, P.E.

CC: Alan Cathcart, Concord Water/Sewer Superintendent
Richard Reine, PWLF, Concord Public Works Director

RE: Proposed Nagog Pond Water Treatment Plant
Response to Comments - NOI Hearing (December 2, 2015)

DATE: December 21, 2015

Responses to written comments heard and submitted in association with the December 2, 2015 meeting of the Acton Conservation Commission regarding the above referenced project:

I. Comments Submitted by Carolyn Kiley (11 Parkland Lane, Acton)

1. The newly proposed building is sited entirely within the 100 foot buffer zone and a variance should not be provided.

Response 1:

The purpose and function of the existing Nagog Pond Ozone Disinfection Facility is the production of drinking water for the Concord Water System, historically this has included 22 residential customers (including several large multi-unit apartment complexes) and 48 commercial customers located in the Town of Acton, providing an average 14 million gallons (MG) of potable drinking water annually directly to Acton customers. This includes the delivery of potable water originating from the Town of Concord groundwater resources when the Nagog Pond facility is off-line.

The closest point of the existing Ozone Disinfection Facility building to the wetland boundary is 70 feet. The existing building, which was approved by the Town of Acton and constructed in 1995, is non-conforming with the Conservation By-Law requiring a 75 foot setback from the wetland boundary for structures. The project applicant has submitted a revised site plan for the proposed Nagog Pond Water Treatment Plant facilities. The revised site plan indicates that the proposed Nagog Pond Water Treatment Plant building is no closer to the wetland boundary than the existing building (70 feet). In addition, all exterior ancillary support facilities (generator, LOX system, ozone contactor) are outside the 75 foot wetland buffer.

In accordance with Section F8.3 of the Acton Wetland Protection By-Law "Pre-existing activities or structures not meeting the setbacks set forth above need not be

discontinued or removed [but shall be deemed to be nonconforming]. No new activity shall be commenced and no new structure shall be located closer to the edge of wetlands or vernal pools than existing non-conforming like activities or structures, but the Commission may permit new activity or structures as close to the edge of wetlands or vernal pools if it finds that such activity or structure will not affect the interests protected by the Bylaw no more adversely than the existing activity or structure.

The function and purpose of the new Nagog Pond Water Treatment Plant is the production of drinking water for the Concord Water System, including its 22 residential customers and 48 commercial customers located in the Town of Acton as detailed above. The proposed facilities are located almost entirely on the existing developed site (cleared pervious and impervious areas), and no new site clearing is proposed within the 75 foot buffer, except for wetland dependent structures. A review of the previously submitted plans and revised site plans clearly indicate that the proposed Nagog Pond Water Treatment Plant fully meets the definition and intent of the setback requirements and by-law exemption criteria.

2. The newly proposed building, much of the expanded driveway including truck turnaround site, and many of the solar panels, are sited within the 400 foot "no build" zone around lakes and ponds. This setback was established under the Massachusetts River Protection Act of 1996.

Response 2:

As previously determined and documented by the Acton Conservation Commission, the site of the existing and proposed Nagog Pond water treatment facilities is not subject to the Rivers Protection Act. The applicant and land owner (Town of Concord) is fully aware of the importance of protecting the resource (Nagog Pond, a Class A surface water source) and has been a conscientious and responsible environmental steward of the surrounding area for over a hundred years. The applicant has a fundamental and vital stake in the quality of water from Nagog Pond as they use it to supply their customers with potable drinking water. The applicant has had a comprehensive and active water resource protection plan in place since 1991. In addition, the applicant received a "2015 Source Protection Award" from the Department of Environmental Protection (MassDEP) in recognition of the applicant's overall regulatory compliance record along with effort and dedication as evidenced in implementing innovative and exemplary water supply protection strategies. The Concord Water & Sewer Superintendent has previously described some of the key components of their watershed protection plan and activities.

It is also worth noting that the construction and operation of drinking water treatment and ancillary facilities are allowable and permittable activities within the Zone A of Class A surface water supplies. The DEP is also supportive of the Commonwealth's energy goals to expand solar photovoltaic (PV) systems and has developed a policy (DEP Policy 2011-1) to assist public water systems with siting PV systems within

their Zone I for groundwater supplies (400 feet) and Zone A for surface water supplies.

3. Concord incorrectly describes the purpose of the new building to be exactly the same as the old building to comply within section 3.3 of your wetlands rules and regulations, but this is incorrect. The new building is a SIGNIFICANT EXPANSION OF THE PURPOSE OF THE OLD BUILDING.

Response 3:

As described in our response to comment #1, the entire purpose and function of both the existing and proposed water treatment facilities is entirely for the treatment and production of public drinking water, to meet state and federal drinking water standards, and supply the Concord water system (which includes the aforementioned customers in Acton). There are many different physical and chemical water treatment processes. The applicant completed extensive pilot scale treatability testing in 2013 and 2014 to determine the most advantageous water treatment systems for the consistent production of high quality water to meet existing and future proposed drinking water standards. These systems require more space than the existing treatment facilities. A revised site plan has been prepared and submitted which indicates that the new water treatment facilities are no closer to the wetland boundary than the existing water treatment facilities, and therefore the facility meets the wetland by-law setback requirements. As such, the previous request for a waiver of the wetland boundary setback requirements for the Water Treatment Plant building has been rescinded.

4. Many of the solar panels (more than 50% in my layman's estimation) are proposed to be located within the 100 foot buffer zone.

Response 4:

A new site plan has been prepared and submitted to the Conservation Commission. There are no PV facilities or activities (including site clearing) being proposed within 100 feet of a wetland boundary or a vernal pool. Therefore, the PV component of this project is outside the jurisdiction of the Conservation Commission and no approval from the Conservation Commission for the proposed PV facilities associated with this project is being sought.

5. Clear-Cutting of Trees well beyond the specific area where the solar panels are located will be required.

Response 5:

Refer to our response to comment #4. As shown on the revised site plan(s), there is no proposed tree clearing within the 100 foot wetland buffer or vernal pool buffer associated with the PV area. In addition, there is no proposed clearing within the 75 ft wetland buffer, except for wetland dependent structures (groundwater infiltration

galley and outfall). There is no proposed tree clearing on land not owned by the applicant.

6. The expansion of the driveway from a one-lane road, to include a new truck turn-around and larger footprint because of a larger parking area around the building and space for outbuildings and tanks, means that the site will have significantly more impervious surface than presently exists.

Response 6:

The Acton Fire Department requested that the existing paved access road be increased from a width of 12 feet to 20 feet. In an effort to minimize the amount of impervious surface area, the applicant requested that the paved width be reduced from 20 feet to 18 feet, and include 1 foot wide gravel edges. The Fire Department agreed to this concept. If the Fire Department and other Acton Town Boards and Departments are agreeable, the applicant is hereby requesting that the paved access road width be further reduced to 14 feet, with 3 foot gravel shoulders on each side.

The paved area around the Water Treatment Plant building has been minimized for parking and vehicle deliveries. Access behind and around the building requested by the Acton Fire Department is proposed to be gravel (pervious). Despite the increase in impervious surface area, as described in the Stormwater Report, all of the stormwater standards are being met, and the proposed drainage and infiltration systems result in an improvement over existing conditions regarding the attenuation of runoff and peak discharge rates.

Regarding site protection, please refer to previous comment responses. In addition, as noted previously, site topography makes it physically impossible for runoff from the site to enter Nagog Pond. Also, as previously mentioned, and described in the Stormwater Report, the designed stormwater system meets the water quality requirements. Secondary containment is provided for the storage and delivery of all hazardous chemicals.

7. Your Rules have a provision discussing "Cumulative Adverse Effects."

Response 7:

After a careful review of the Notice of Intent application, the revised project plans, and the information presented herein, it is clear that the overall cumulative impact of this project, taken as a whole, is **not detrimental** to the sensitive environmental ecosystem that encompasses this project. In fact, this proposed project demonstrates that environmental impacts are sufficiently mitigated or improved, and the general public is benefited. This proposed project builds upon the more than 100 years of demonstrated responsible environmental stewardship of the applicant with relation to Nagog Pond, the Nagog Pond watershed, and this site.

8. Perennial vs. Intermittent Stream: We understand that this Commission previously ruled on the status of the stream that runs behind the proposed solar panels as an intermittent stream.

Response 8:

Please refer to our response to comment #2, and others.

9. Request for a hearing continuance and obtaining an independent Peer Review of the technical aspects of the project using an outside consultant.

Response 9:

Based on the revised plans and the reduction of the project scope applicable to the Conservation Commission and Acton Wetland Protection By-laws, Concord believes the redesign as proposed substantially narrows the Town of Concord's request relative to jurisdictional, technical, and environmental questions requiring the Commission's review.

II. Comments Submitted by Barry Elkin (57 Skyline Drive, Acton).

1. I am here to speak about the wetlands related issues associated with this proposed project. The relevant interests that you, the Commission, are charged with protecting are public water supplies, flood control (i.e., the dam associated with this site), protection of wildlife habitat, groundwater supplies, storm damage prevention, and prevention of pollution.

Response 1:

No response – appears to be a statement.

2. I remain concerned that much of the woodland surrounding this project will be removed. In order for the solar panels to receive sunlight, they must have a clear view of the sun. That means that many trees will be cut beyond the solar panel footprint. Clear-cutting of trees impacts the environment and will have a detrimental impact on the values that you, the Commission, are required to protect.

Response 2:

As indicated in the revised plans, the solar PV portion of the proposed project is all outside the 100 foot wetland buffer, including tree clearing. Therefore, the applicant is no longer seeking approval from the Acton Conservation Commission for the construction of the PV system associated with this proposed project.

3. Engineering drawings indicate construction to be within 400' of Nagog Pond. No work should be allowed that is contrary to state law.

Response 3:

The applicant is not aware of any State law which prohibits the construction of a public drinking water treatment plant within 400 feet of a surface water. Please refer to Response #2 associated with comments from Carolyn Kiley.

4. Wildlife habitat will be effectively destroyed through this project. Habitat presently exists around the pond perimeter, where the proposed building expansion exists, and where the proposed solar panels are to be installed, as well as where the additional trees that will need to be cut are located. This is a fragile ecosystem and clear-cutting and building will destroy wildlife habitat.

Response 4:

There is no work being proposed around the perimeter of Nagog Pond associated with this project. The new building is being located on land that is either currently paved or has already been cleared. There is currently no discernable wildlife habitat located where the new building is proposed. Approximately 57,800 square feet (1.3 acres) of upland (land outside the 100 foot wetland buffer) is proposed to be cleared for the solar PV system. This upland represents a very small of the 89 Acres of land presently owned and preserved around the Nagog Pond watershed that is owned by Concord. This upland area is located outside the jurisdiction of the Acton Conservation Commission. For comparison purposes, in order to develop the 153 unit Quail Ridge Residential Development, over 40 acres of woodland were cleared, and in some locations right up to the edge of the common property line shared with the applicant.

Concord selected this area for PV after having commissioning two consultants with proven expertise in solar facility development to fully investigate potential locations for siting of PV arrays within the 89 acres of land it presently owns and protected around the Nagog Pond watershed. It was determined that the development of these otherwise pristine lands would have a far greater impact on local flora and fauna compared with placing the PV system in close proximity to the proposed Water Treatment Facility.

5. I am concerned that there will be an impact on the water quality of the public water supply through this project. Increased runoff will be allowed to go into the pond because there is less natural vegetation to protect the pond from pollution and runoff.

Response 5:

As stated previously, no runoff from the site can enter Nagog Pond. .

6. I am concerned with the dam and flood control when you cut so many trees and build so many structures on a previously natural site.

Response 6:

The applicant made considerable investment into the repair and upgrade of the dam structure and overflow channels in 2012. This included removal of a small number of trees that posed a hazard to this structure. All proposed tree removal associated with this project is downstream of the existing dam.

7. I am concerned that the solar array won't be able to work without extensive clear-cutting of neighboring trees outside of the proposed plan before you. The solar panels must receive sunlight to be effective. I am opposed to clear-cutting to benefit these panels.

Response 7:

Please refer to our response to comment #4, and others.

8. I am opposed to Acton waving any setback requirements, and other provisions of its Wetlands Bylaw and Rules and Regulations, in order to accommodate this project. I don't believe that the applicant has demonstrated the necessary legal reasoning to qualify for waivers. And waivers will only harm the environment.

Response 8:

Based on concerns raised during the recent Conservation Commission meeting on December 2, 2105, the applicant has revised its plans and is no longer seeking any waivers from the Acton wetland protection by-laws. All proposed activities are allowed under the Acton wetland protection by-laws and we are only seeking approval and an order of conditions for those portions of the project under the Conservation Commission jurisdiction.

9. Since solar panels are not required to run this project, I believe that there are other, more non-intrusive ways to operate any plant at this site. Solar is not a necessity, and is in fact detrimental to the site because of the impact on the wetlands and the fact that they will mostly be built within the wetlands buffer zone.

Response 9:

Please refer to prior responses. The applicant completed an extensive study of renewable energy alternatives for this project. The use of solar PV was found to be the most effective, and it is a benefit to the general public.

10. I am concerned with the traffic necessary to construct and operate this facility on an ongoing basis, and especially concerned with the hazardous waste and other materials that could flow from the trucks into the wetlands and surrounding environment.

Response 10:

There are no hazardous wastes being generated as part of this proposed project.

11. I also am concerned with the noise that this project will generate, and its impact on the wildlife and wildlife habitat.

Response 11:

For comparison purposes, the noise generated during the construction of this project will be far less than the applicant endured during the extensive bedrock blasting completed in 2013 and 2014 to construct the Quail Ridge residential area. There will be no discernible increase in noise associated with the operation of the new facilities compared with the existing facilities.

12. Finally, I am concerned that there is no public benefit to Acton from this project. Concord gains a water supply, while we receive a net loss – we lose protection of the pond's bank, we lose protection of the stream, we lose significant and well-established vegetation in the 100-foot buffer zone, and we lose the benefits of beautiful trees and protected open space.

Response 12:

Nagog Pond has been an active water supply for the Town of Concord since 1909. The public benefits to the Town of Acton have been identified previously – renewable energy and potable water for consumption and fire protection. There is no work proposed along the pond bank, and so there is no loss. There is no work being proposed that will negatively impact the stream (Nagog Brook). There is limited clearing proposed within the 100 foot buffer. The protected open space referred to above is private property. Concord will continue to protect the shoreline and its property in accordance with longstanding obligations and commitments. The applicant will continue to serve as an environmental steward of this watershed, working with both Acton and Littleton to maintain and improve upon the protection of this valuable resource.

III. Comments Submitted by Paul Scopa (19 Ryder Path, Acton)

1. It becomes apparent that the town on Concord is planning on significantly expanding their water treatment plant at Nagog Pond, and to install a solar panel array at the end of Skyline Drive adjacent to what Quail Ridge Residents refer to as Phase 2.

Response 1:

In 2003, prior to Phase I or Phase 2 of the Quail Ridge Residential Development, prior to the development of the former Quail Ridge Country Club and 18-hole golf course, the Town of Concord and the former owner of this large "undeveloped" parcel agreed to a mutually beneficial land-swap. The land swap included a small

(3.7 Acres) parcel of Concord owned land that had been obtained in 1932 for the expressed purpose of constructing and maintaining a water filtration plant. This parcel was entirely encompassed within this significantly larger undeveloped parcel of land, which was eventually sold and developed as Quail Ridge Residential Development. At the time, it was well understood that Concord was planning to construct a federally compliant water treatment (filtration) facility. It was also understood that the owner of the larger parcel wished to maximize the development potential of this large undeveloped parcel of land. The land obtained by Concord bordered the private parcel but was contiguous to the land it owned and housed an existing treatment facility.

As planned, the proposed Nagog Pond Water Treatment Plant is larger than the existing facility due to the extent of the treatment equipment required. As previously described in our responses to Carolyn Kiley, the proposed Nagog Pond Water Treatment Plant will continue to be used for the same purpose as the existing facility, the production of public drinking water. Reference should be made here to the Acton Water District water treatment facility which underwent similar permitting and approval. The proposed PV system is an accessory use to the primary facility, and provides a benefit to the general public. A review of the revised project plan(s) indicates that all aspects of the PV system are outside the 100 foot wetland buffer.

2. According to the "Environmental Partners Technical Memorandum," the project's engineering firm, submitted to the Town of Acton, the existing structure of 1,291 square feet will be increased to a net floor space of 9,338 square feet. The total lot size for this proposed structure will increase from 17,374 square feet, to 47,526 square feet.

Response 2:

Please refer to the revised Sheet C-9 for an update on the site and facility area statistics.

3. Additionally, according to the Memorandum, "the solar field will include an area of approximately 68,743 square feet for the installation of 17,768 square feet of photovoltaic arrays (PV)."

Response 3:

Please refer to Sheet C-9S for an update of the PV area and PV panel surface area.

4. The "Application for Special Permit" states "The proposed water treatment plant will store several hazardous chemicals for the treatment of potable drinking water including the following: potassium hydroxide - 1,200 gallons; potassium permanganate - 100 pounds, polyaluminum chloride - 800 gallons; sodium hypochlorite - 300 gallons; sodium fluoride - 300 pounds; calcium thiosulfate - 20 gallons; zinc metaphosphate - 190 pounds." The Permit goes on to say "All chemicals

will be stored in designated areas that include secondary containment in accordance with DEP Requirements." I am not a chemist, and I certainly don't understand the full significance of these chemicals, but I am hoping this topic will be discussed at the upcoming meeting so we can learn more about them.

Response 4:

All chemicals noted are used in conventional water treatment processes, including those employed by the Acton Water District. If requested by the Conservation Commission, a representative from Environmental Partners Group, Inc. would be happy to review and discuss the use of each chemical at the Conservation hearing.

5. And finally, I would like to remind all of us that synonyms for the word *hazardous* include: risky, dangerous, unsafe, perilous, precarious, and fraught with danger.

Response 5:

With respect to chemicals for the treatment of drinking water, the term hazardous is a technical and regulatory term used to classify chemicals. The USEPA and OSHA have a very specific and detailed classification methodology to describe and categorize chemicals to protect the public health and the environment. The general public has benefited from the treatment of drinking water, using “hazardous chemicals”, for over a hundred years to reduce the risk of waterborne diseases. The use of chlorine alone, even though it is classified as “hazardous”, is credited with reducing the outbreak of waterborne diseases for hundreds of millions of people.

NAGOG POND DAM
ACTON, MASSACHUSETTS

UNDERWATER INSPECTION
OF THE
RAW WATER INTAKE SUPPLY LINE

APRIL 11, 2012

Inspection conducted for
PARE CORPORATION
10 LINCOLN STREET, SUITE 103
FOXBORO, MA 02035

Inspection conducted by
INNER TECH MARINE SERVICES LLC
PO BOX 91234
WARWICK, RI 02889

LOCATION OF INSPECTION: Nagog Pond Dam, Acton, Massachusetts, via the cul-de-sac at the end of Breezy Point road, Acton MA.

DATE OF INSPECTION: April 11, 2012

SCOPE OF WORK: Visual underwater inspection of the alignment of the raw water intake pipeline extending approximately 1400 ft from the gatehouse

PERSONEL PRESENT
Inner Tech
Stephen Antoniou- Inspector
Richard Callen- STB. Diver, boat tender
Anthony Carroll, Tender
Pare Corporation
Ryan McCoy
Town of Concord
Various personnel

DIVE STATION: Access to the dam site was via a dirt road through a private residence access at the Breezy Point Road cul-de-sac. Diving equipment for the inspection was trailered on site and set up aboard a skiff provided by the Town of Concord. SCUBA tanks were used to breathing air ,in the relatively shallow water, via an umbilical down to the divers helmet. Two way communications to the diver was maintained at all times. Dry suits provided cold water protection as the skiff was not large enough for a hot water system. The tender rowed the skiff following the diver's air bubbles; the resident engineer was aboard with a GPS device to track the position of the pipeline and deficiencies.

STRUCTURE HISTORY AND GENERAL OBSERVATIONS: The dam was constructed and the pipeline placed during the early 1900's. The pipeline consists what is assumed to be a lead and oakum sealed, bell and spigot, cast iron pipe sections, 16 inches in diameter. The flexible joints allowed the pipeline to follow some contour in the pond bottom and provided a means to change direction within the range of the joint.

GATEHOUSE TO APPROXIMATELY 1000 LF OUT.

The general alignment of the pipeline was followed by swimming a trench cut in stone for the first approximately 200-300lf. The pipeline was covered with silt and not visible in the trench. Some effort was made to hand dig through the silt and uncover the pipeline. The silt proved to be too deep to be uncovered practically for the work scope of this project. At approximately 200lf out (engineer to confirm), a short section of pipeline was visible along with an adjacent open ended section (see photograph No. 1). This is believed to be a secondary outlet controlled by a gate in the gatehouse or an as-built means to drain the pond during construction. Within the trench, the top sections of 4-5 inch diameter wooden posts could be seen on either side of the pipeline path. These posts may have been used to align the pipeline within the trench. At approximately 400lf to approximately 1000lf, the trench and much of the pipeline was not visible. The alignment was followed by swimming post to post (See figure 1 for cross section and detail).

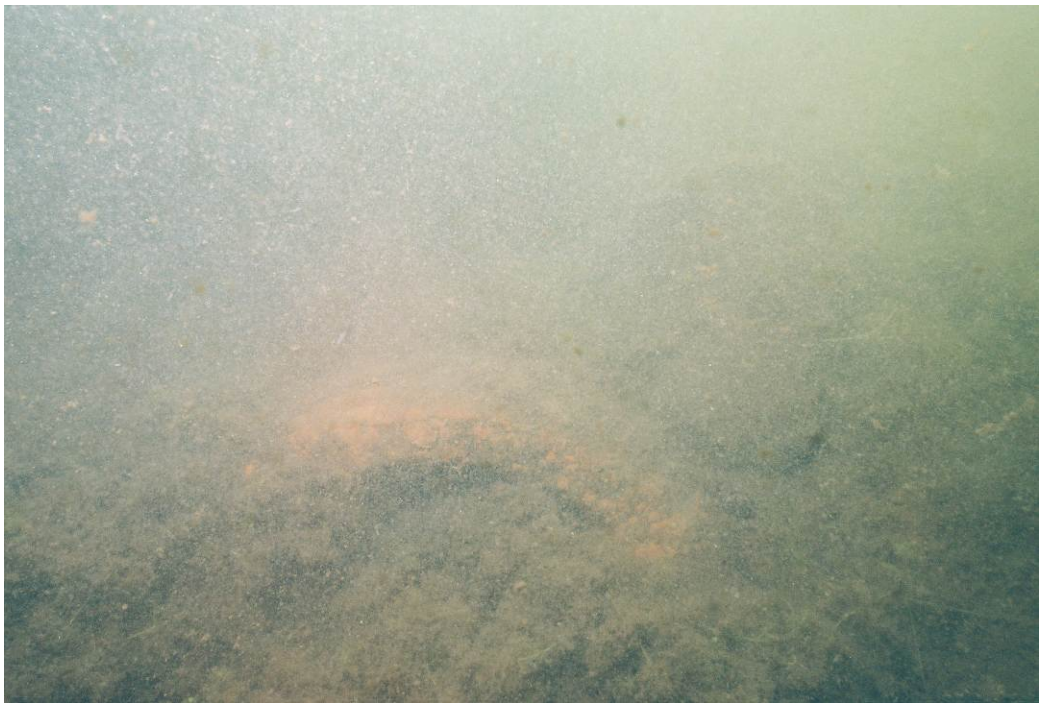
APPROXIMATELY 100LF OUT TO PIPELINE END
(1400LF OUT)

This section of pipeline was generally visible and covers an area from and adjacent to the island (situated at the center of the pond) to the end. The pipeline protrudes out of a bank of sand and rock which extends from the Island to the Easterly shore. The pipeline appears heavily rusted but intact and without observable cracks or broken sections. The pipeline is supported off the bottom of the pond by previously described wooden posts topped with cross timbers and bottom wedges holding the pipe on center. The posts and timbers appear heavily weathered and grainy with reduced X section from deterioration. The height of the wooden pipe supports varies with the elevation off the bottom. Discussion with the Town engineer detailed a previous inspection in which some settling of the pipe supports was noted. This could not be determined during this inspection effort because the as-built elevation of the pipeline was not known. The pipeline joints do not appear to have rotated or moved recently and the pipeline is currently bearing on all wooden pipe supports. Generally, the pipeline passes over a deeper area from the bank, into a shallower area for 50 to 100 lf, changes direction or elevation and back into a deeper area to the end. During this direction or elevation change, the greatest pipe joint angle was noted, the joint appeared intact and without leakage. (note photograph following)

The pipeline terminates at a bell end which has a greatly reduced inner diameter (approximately 12 inches) from rust and deterioration (Note photographs following). Directly in front of the end of the pipe is a concrete or stone block pad laid on a wooden platform. The blocks were covered with a layer of soft silt approximately ½ to 1 inch deep. The blocks appear flat and intact but irregular in shape and very weathered (Note following photographs and figure 3).

SUMMARY OF OBSERVATION

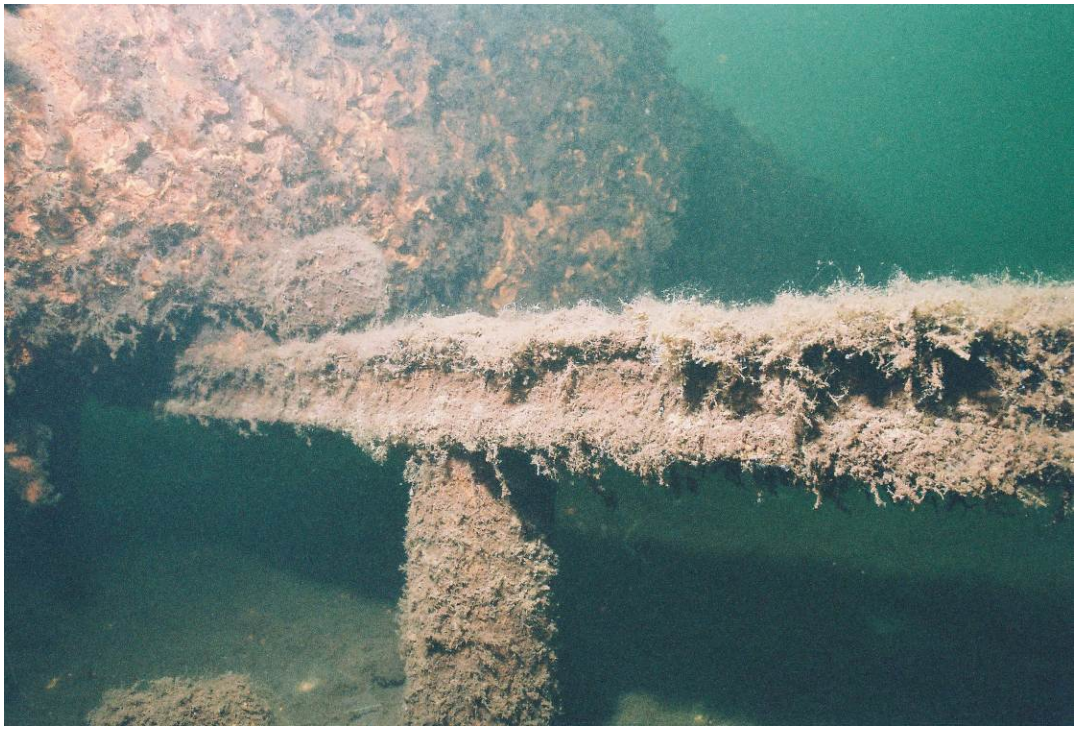
The pipeline is typically covered with silt until the final 400 lf which is exposed. The pipeline is generally intact but heavily rusted with reduced inside diameter. The wooden pipe supports are intact but are very deteriorated. A deteriorated scour pad exists at the end of the pipe. The pad is covered with a light layer of silt.



Photograph showing adjacent open pipe approximately 200LF. From the gatehouse

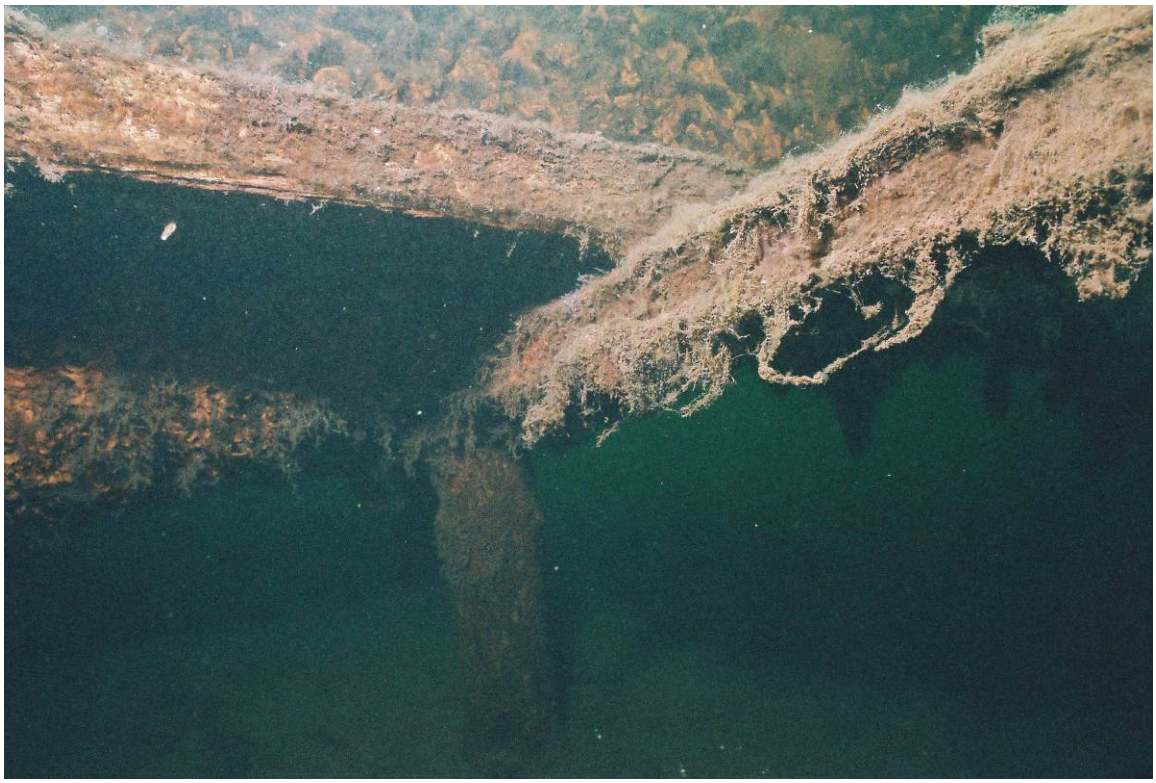
Photograph showing typical exposed pipe joint

Photograph showing pipeline resting on wooden support

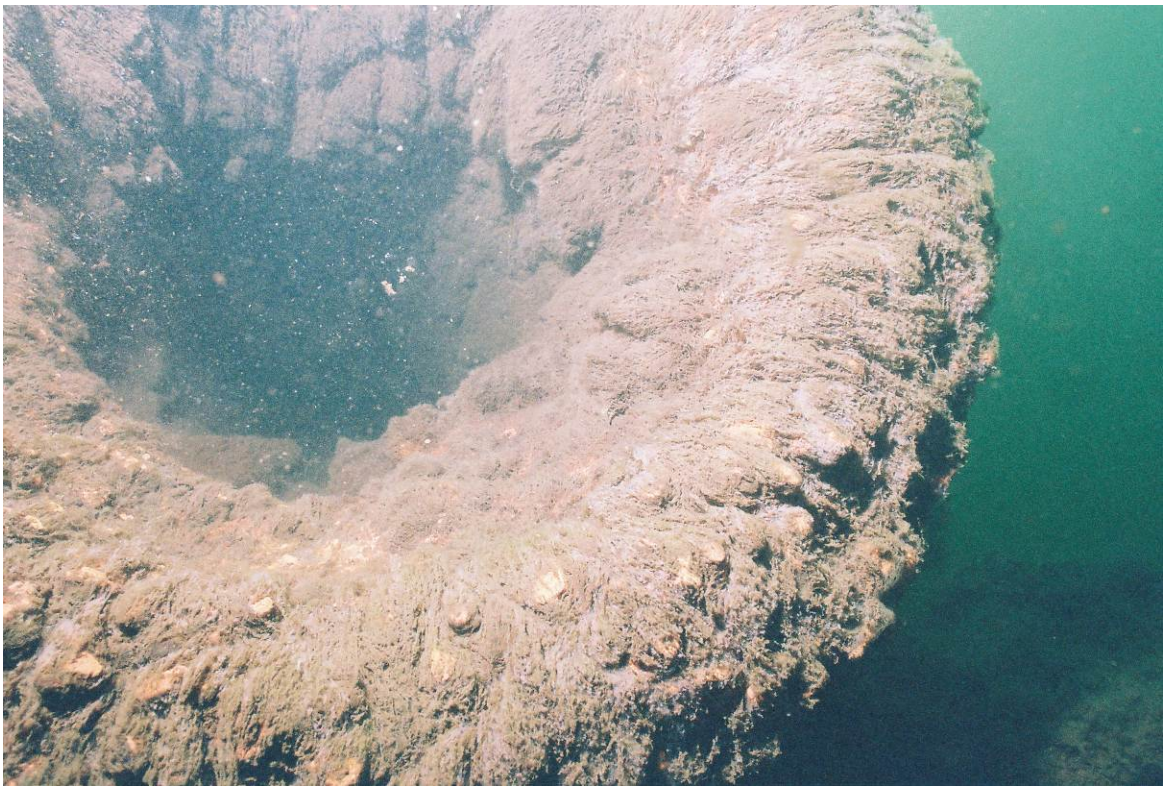


Photograph showing pipeline resting on wooden support, pipeline changing Elevation into deeper area showing more extreme joint angle

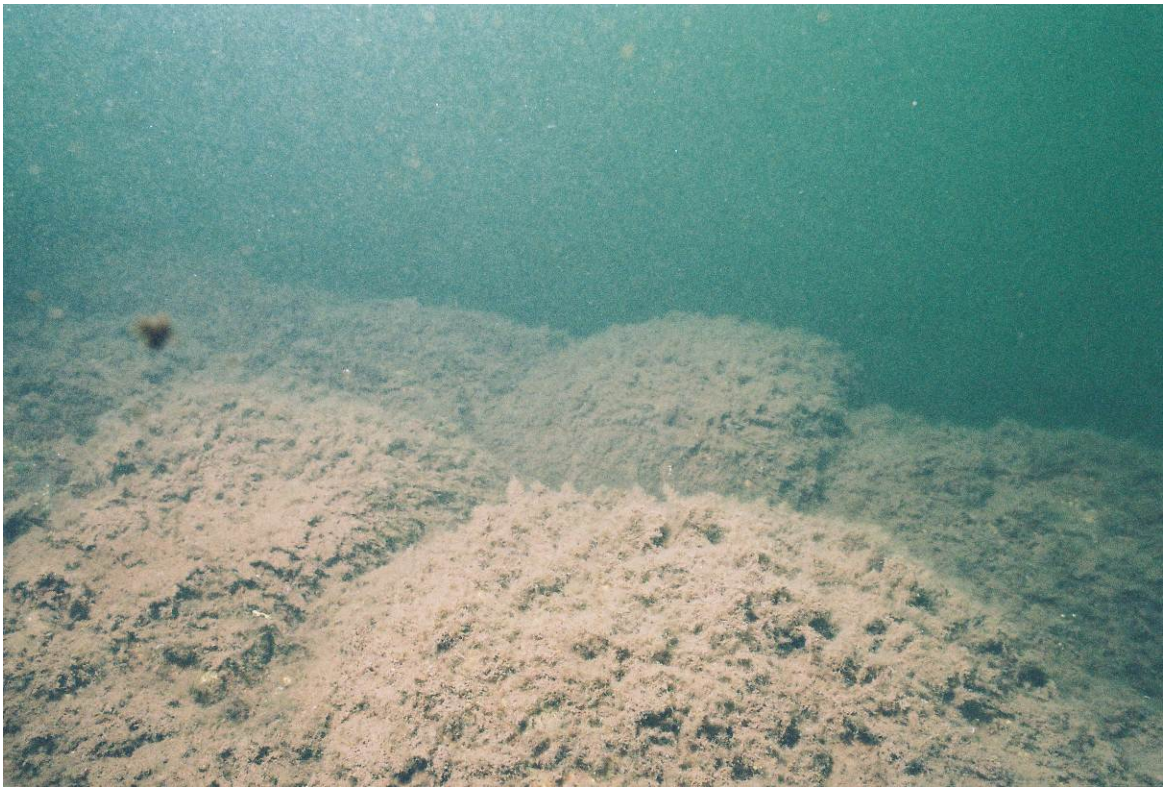
Photograph showing top of posts visible in area where pipe is covered with silt



Photograph showing pipeline support arrangement near end of pipeline



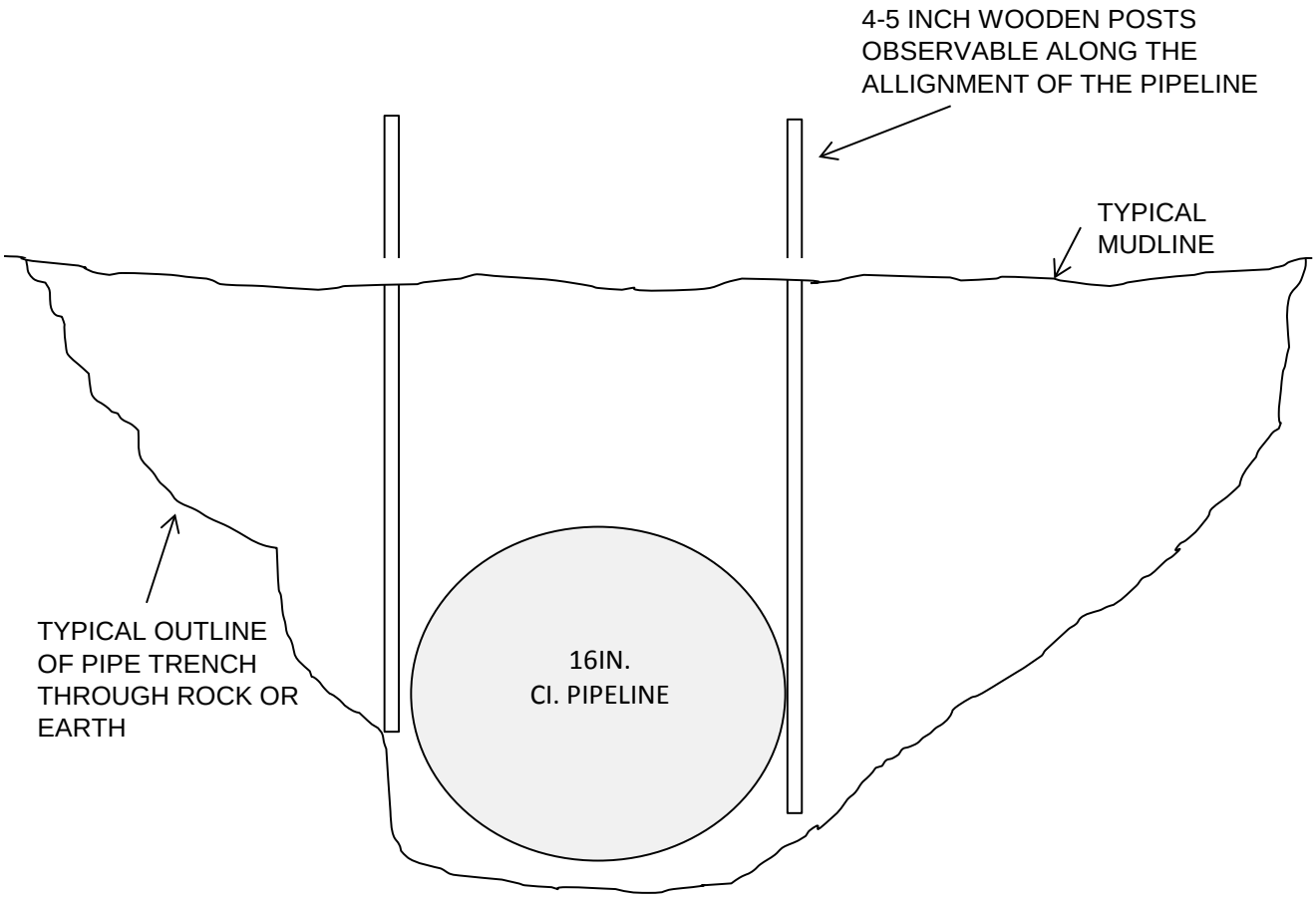
Photograph showing inside end of pipeline with reduced diameter



Photograph showing scour pad blocks at end of pipeline

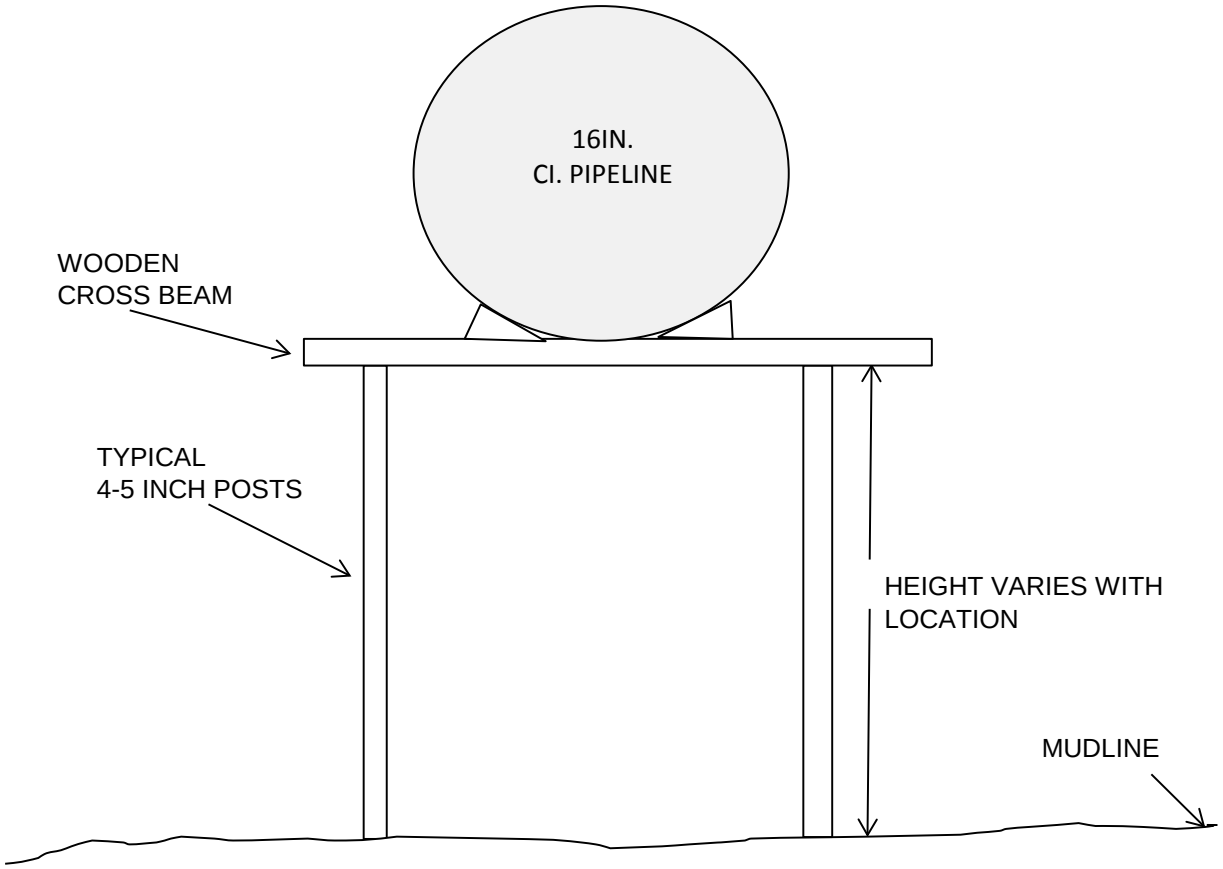
north

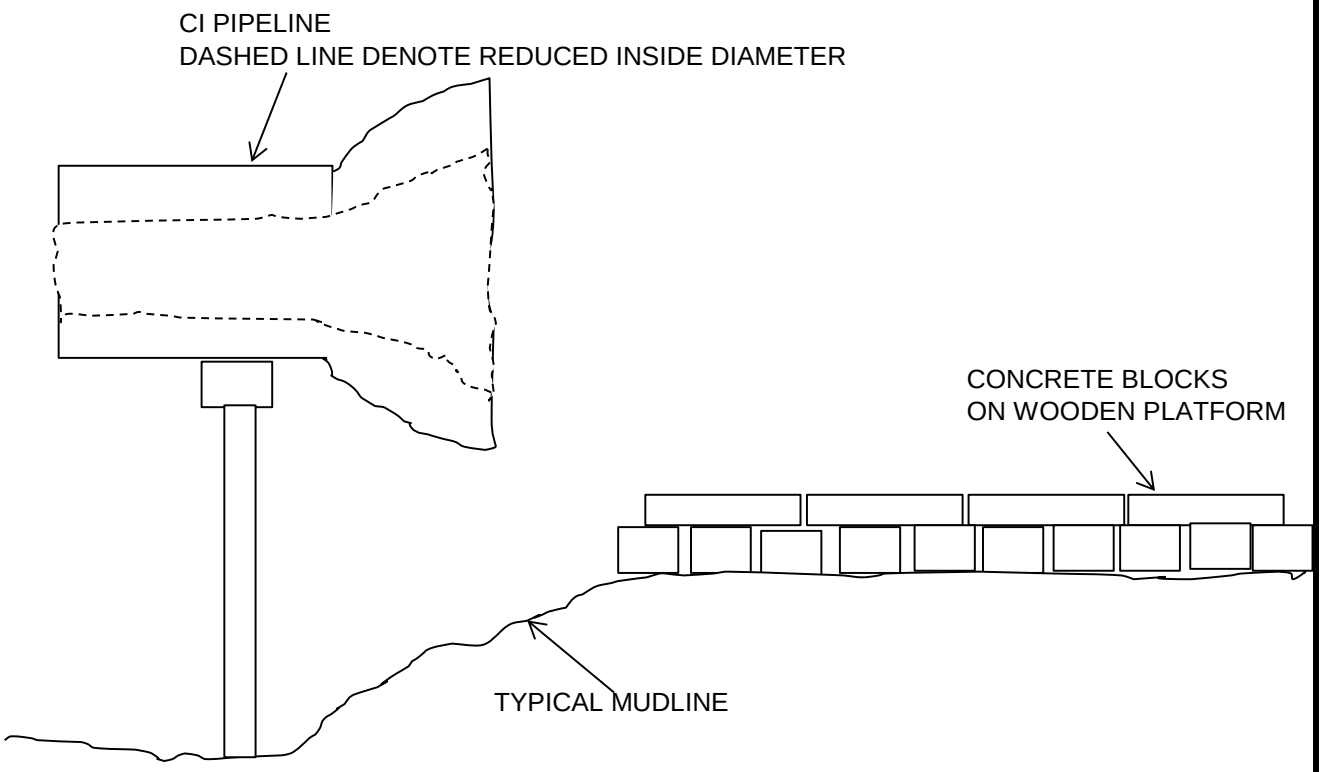
NAGOG POND
FIGURE 1
DETAIL OF POSTS VISIBLE
VISIBLE ALONG ALIGNMENT OF PIPELINE
CROSS SECTION



north

NAGOG POND DAM
INTAKE PIPELINE CROSS-SECTION
FIGURE 2
PIPELINE SUPPORT DETAIL



north

NAGOG POND DAM
X SECTION OF END OF
INTAKE PIPELINE
FIGURE 3