

CMA ENGINEERS, INC. CIVIL | ENVIRONMENTAL | STRUCTURAL

35 Bow Street Portsmouth New Hampshire 03801-3819

P: 603|431|6196 www.cmaengineers.com

September 16, 2020

Bart McDonough, Town Planner Town of Kittery 200 Rogers Road Kittery, Maine 03904

RE: Town of Kittery, Planning Board Services
Site Plan Review #2
Rice Public Library (8 Wentworth Street) Tax Map 4, Lot 88
CMA #591.132

Dear Bart:

CMA Engineers has received the following additional information for the site plan review for the proposed Rice Public Library at 8 Wentworth Street in Kittery, Tax Map 4, Lot 88 (our Assignment #132).

- 1) Site Plan Drawings for Rice Public Library, 8 Wentworth Street, Kittery, Maine 03904, prepared by Sebago Technics of South Portland, ME, revision dated September 10, 2020.
- 2) Revised Final Site Plan Review Application Rice Public Library, 8 Wentworth Street, prepared by Sebago Technics of South Portland, ME (with Lassel Architects and Scott Simons Architects) dated September 10, 2020.
- 3) Revised Stormwater Management Report for Rice Public Library prepared by Sebago Technics of South Portland, ME dated September 2020 (original dated February 2020).

We had previously provided a review letter dated August 19, 2020 of the application materials dated July 2020 for conformance with the Kittery Land Use and Development Code (LUDC) and general engineering practices and offered comments.

The applicant addressed Town of Kittery staff comments, as well as ours and the Kittery TRC comments, in their revised Final Site Plan Review Application noted above.

The revised application materials satisfactorily address the issues raised in our August 19, 2020 review letter.

In addition to our general comments, we specifically note the following:

Article VIII: Surface Drainage

We noted that there had been several changes to July 2020 site plan since the February 2020 design. The February design was the basis of the stormwater management report dated February 2020. The changes in July were not anticipated to significantly alter the conclusions of the February report, but we suggested the stormwater management report be updated. The applicant prepared a revised stormwater management report that is based on the current final design, dated September 2020. That report demonstrates compliance with Kittery's stormwater performance standards.

Article IX. Parking, Loading and Traffic

The design included upper and lower parking lots but there were no specific minimum off-street parking requirements for library use. The design provided 29 parking spaces on-site. The applicant suggested applicable parking demand based on the size of the facility and equivalent full-time employees. We requested that the applicant provide calculations to support the number of parking spaces.

The September final application includes an analysis of typical parking provided at similar facilities and evaluated the proposed conditions. This analysis concludes that 27 parking spaces are appropriate based on the total proposed publicly accessible square footage based on a 1 parking space per 350 square foot public space criterion. (350 sf is a number at the low end of the reported range). Additional parking of 2 spaces for employees was based on a requirement of 1 pace per two full time equivalent employees. This yields 29 parking spaces. We believe this is a reasonable justification of total parking.

The applicant had not provided any handicap accessible spaces and we had suggested that the deign be modified to provide such spaces. The September 2020 design includes one accessible parking space eac in both the upper and lower parking lots. This is favorable.

Should you have any questions, please do not hesitate to call.

Very truly yours,

CMA ENGINEERS, INC.

William A. Straub, P.E. Principal/Project Manager

cc: Stephen Doe, P.E., Sebago Technics





Final Site Plan Review Application

To:
Town of Kittery

For:

Rice Public Library Expansion

8 Wentworth Street

Presented by:

Lassel Architects Scott Simons Architects

Prepared by:
Sebago Technics, Inc.
75 John Roberts Road, Suite 4A
South Portland, Maine 04106

September, 2020



September 10, 2020 18438

Mr. Bart McDonough, Town Planner Town of Kittery 200 Rogers Rd. Kittery, ME 03904

Final Site Plan Review Application Rice Public Library, 8 Wentworth Street

Dear Bart:

On behalf of Rice Public Library (applicant) and in association with Lassel Architects and Scott Simons Architects, I am pleased to submit this Final Site Plan Application for the construction of an addition to the Rice Library and associated site improvements. The Preliminary Site Plan was approved by the Planning Board on August 27th, 2020. This Final Plan is similar to the approved plan with the following minor changes:

- The dumpster has been rotated slightly so it meets the side and rear setbacks.
- A small retaining wall that was previously deleted as part of the value engineering has been added back in to aid in building the stairs in the future.
- Note 15 has been added to the Site Plan which notes the approval for a waiver of Section 16.8.4.13.A Sidewalks along Traip Avenue. This was approved by the Planning Board at their August 27th Planning Board Meeting.

The following are responses to Staff comments from there Plan Review Notes dated August 27th 2020. Staff notes are in *italics* followed by our response in **Bold**.

- A. Site Plan Content
- 1. The Book and Page reference on Map 4 Lot 84 is incorrect. The correct reference should read as follows: 17564 / 144.

The plans reflect the correct deed reference of 17992/618

 It is unclear how the tree and its root system located on the corner of Traip and Wentworth shall be preserved during the re-grading of the site. The Applicant should provide an updated site plan illustrating how this will be accomplished along with other trees slated to be preserved or transplanted.

Site grading in the vicinity of the large tree at the corner of Wentworth and Traip has been limited so as to not disturb the root system. Stormdrains and site utilities have been placed well outside of the area to avoid disturbance to the roots. Grading is limited to minor fills with limited cuts to again minimize disturbances to the root system. A sizable

area around the tree will be loamed and seeded. In addition, the garden area on the north side of the library has received similar treatment in order to save trees. Utilities are routed around this area and site disturbances are minimized to peripheral areas to limit root damage. Construction fencing will be placed around significant tree saves to provide added protection to root systems.

3. It is unclear if there will be enough snow storage capacity located along the eastern edge of the upper parking lot given the type of trees proposed (Thuja plicata—spring grove) and whether or not the Thuja plicata are salt tolerant. The Applicant should confirm the salt tolerance of the proposed vegetation and whether there will be adequate space for current and future snow storage. In addition, the Applicant should comment on the proposed spacing of the spring grove plants.

We have moved some of the snow storage areas away from the arborvitae planting on the north side of the lot. Additional snow storage is shown to the south of the proposed parking area. Thuja plicata has moderate salt tolerance and should not be negatively impacted by the limited salt runoff if may receive. Surface run off is not directed towards the plantings so soils saturation with salts should also be limited. We also anticipate that the use of salt in the parking lot will be limited verses the level of salt used in public streets.

The proposed spacing of the plants is six (6) feet on center which will provide a very effective evergreen screen as the plants mature.

4. The Applicant should also consider locations of future bicycle racks to accommodate multiple modes of transportation.

The existing bike rack at the main entrance to the existing library will be maintained.

- B. PLAN REVIEW NOTES August 27, 2020 8 Wentworth Street M4 L88 Page 3 Preliminary Plan Review ITEM 1
- 5. The Applicant should confirm whether or not the stormwater management plan will need to be revised that reflects the updated plans.

A revised stormwater management plan has been provided.

6. The proposed location of the dumpster on the northeast corner of the upper lot appears to encroach on the side yard setback. The Applicant needs to confirm if this is the case and, if so, propose an alternative location that satisfies the requirement, pursuant to §16.3.2..14.D Standards.

The dumpster has been rotated slightly to meet all setbacks.

7. As stated in the Applicant's narrative dated July, 23, 2020, a revised floor plan will be submitted to the Fire Chief to confirm the location of the mechanical room and its conformance with Fire Code standards. The Applicant should provide to the Board a timeline for that submission and subsequently submit a letter authored by the Fire Chief to the Board confirming the mechanical room's suitability

Attached for Staff and Fire Chief review are floor plans and building elevations.

8. The "Surveyor's Statement" on Sheet 1 of 1 needs endorsement.

This endorsement is included in the attached plan set.

9. While an erosion control plan is provided by the Applicant there appears a construction sequencing plan has not been furnished. The Applicant should provide a construction sequencing plan to the Board for review and approval.

A project schedule is provided which shows project sequencing.

10. The Applicant appears not to have provided information on construction staging, which should be furnish for review and approval.

A Construction Logistics/Staging plan is included.

- C. Peer Review and TRC Comments
- All proposed granite curbing shall be sloped in order to accommodate the fire trucks.

The plan set includes details for sloped cast-in-place concrete curbing for on-site curbing where a sidewalk does not abut the curbing. Additional details for sloped and vertical granite curbing are provided for curbing within the public Right-of-Way should this be required. This project does not propose curbing within the public ROW with the exception of curb cuts which we propose as sloped cast in place.

- 2. The 6" water lines coming off of Traip Avenue must be verified to be adequate to support the proposed sprinkler system. Applicant should contact the Fire Department to confirm adequacy.
 - It is our understanding that Staff has received confirmation from the Fire Chief of the adequacy of the line.
- 3. Maintenance on the basement floor of the proposed expansion shall be in a location that permits immediate access for fire/rescue staff.
 - Building floorplans are provided. It is our understanding that the Technical Review team will do another review of the plans when submitted for final plan review.
- Determination letter from Maine Historical should be provided prior to commencement of work.

Scott-Simons-Architects and the-Town-Manager has been in communication with Maine Historical throughout the design process and has received a verbal sign off on the project. A request for a determination letter has been requested and will be forwarded upon receipt.

5. Revised elevations need to be provided prior to final approval

Attached are revised building elevations.

6. Prior to construction, the applicant needs to contact the Department of Public Works to review the construction sequencing plans so as to ensure the proposed utilities that intersect the corner of Traip Avenue and Wentworth Street are compatible.

We request that this condition be made a condition of Final Plan Approval

In the Site Plan Review letter from CMA Engineers dated August 19, 2020 there was a request for the applicant to provide calculations as it relates to Article IX. Parking, Loading and Traffic with specific focus on the 29 proposed parking spaces. While we believe we have provided information on the proposed parking plan in previous submissions we offer the following information in support of the 29 spaces. Calculations are also attached:

The town of Kittery has no parking requirement for libraries. In the absence of specific requirements the design team has researched recent library projects and available guidelines. The team has applied a standard of 1 space for every 350 sf of occupied public space and 1 spaces for every 2 full time equivalence employee. While the individual rate of parking space allocation varies from location to location, this is a common approach to establishing library parking requirements. The design teams noted a range of 300 to 1000 public sf per parking space with suburban or rural facilities tending toward the lower numbers, and in-town libraries tending towards the higher end of this spectrum.

Submission Items

In accordance with 16.10.7.2 of the Site Plan Review Application requirements of the Land-Use Code we offer the following plans and supportive documents for your review and consideration of this application.

- 1. Application
- 2. Final Plan set at a scale of 1" = 20' showing location map, zoning information, proposed name of project, name and address of record owner/applicant, assessor's information, standard boundary survey, right of way lines, metes and bounds of lot lines, parcel summary, net development calculations, proposed improvements including: grading, utilities, exterior mechanical units paved areas, building setbacks, plan dimensions, abutting lot owners, vegetation and landscaping, erosion and sedimentation control, and lighting locations with photometrics.
- 3. Architectural floor plans and elevations
- 4. A revised stormwater management plan prepared by a registered professional engineer.
- A Logistics plan showing construction staging area and a project schedule
- 6. Parking Calculations

I trust this submission addresses staff comments and that the final review of this project can continue on the next available Planning Board agenda. If you or Town staff require additional information, please contact me.

Sincerely,

SEBAGO TECHNICS, INC.

Stephen G. Doe, RLA, LEED-AP

Landscape Architect

SGD: llg Enc.

cc: Kendra Amaral, Town Manager

Ryan Kanteres, Scott Simons Architects

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Final Site Plan Review Application and Cover Letter

EXHIBIT 1 Application Form

EXHIBIT 2 Final Plan Set

EXHIBIT 3 Architectural Floor Plans and Elevations

EXHIBIT 4 Stormwater Management Plan

EXHIBIT 5 Logistics Plan

EXHIBIT 6 Parking Calculations

Application Form

AL OF KITTERY AND THE PROPERTY OF THE PROPERTY

TOWN OF KITTERY, MAINE TOWN PLANNING AND DEVELOPMENT DEPARTMENT

200 Rogers Road, Kittery, Maine 03904 PHONE: (207) 475-1323 - FAX: (207) 439-6806 www.kittery.org

APPLICATION: SITE PLAN REVIEW

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WAIVER REQUEST

	Ordinance Section	Describe why this request is being made.
	EXAMPLE 16.32.560 (B)- OFFSTREET PARKING.	***EXAMPLE*** Requesting a waiver of this ordinance since the proposed professional offices have a written agreement with the abutting Church owned property to share parking.
DESCRIPTION	N/A	H/A
DESCRI		

Related Kittery Land Use Code concerning waivers and modifications:

16.10.8.2.5 Conditions or Waivers.

Conditions required by the Planning Board at the final plan review phase must have been met before the final plan may be given final approval unless so specified in the condition or specifically waived, upon written request by the applicant, by formal Planning Board action wherein the character and extent of such waivers which may have been requested are such that they may be waived without jeopardy to the public health, safety and general welfare.

16.7.4.1 Objectives Met. In granting modifications or waivers, the Planning Board must require such conditions as will, in its judgment, substantially meet the objectives of the requirements so waived or modified.

I certify that, to th	e best of my knowledge, t	he information p	rovided in this ap	plication is true and correct and will not deviate from
the plans submitte	ed without notifying the K	ittery Planning De	epartment of any	changes.
Applicant's Signature: Date:		2 A66NT)	Owner's Signature: Date:	

COMPLETED BY OFFICE STAFF

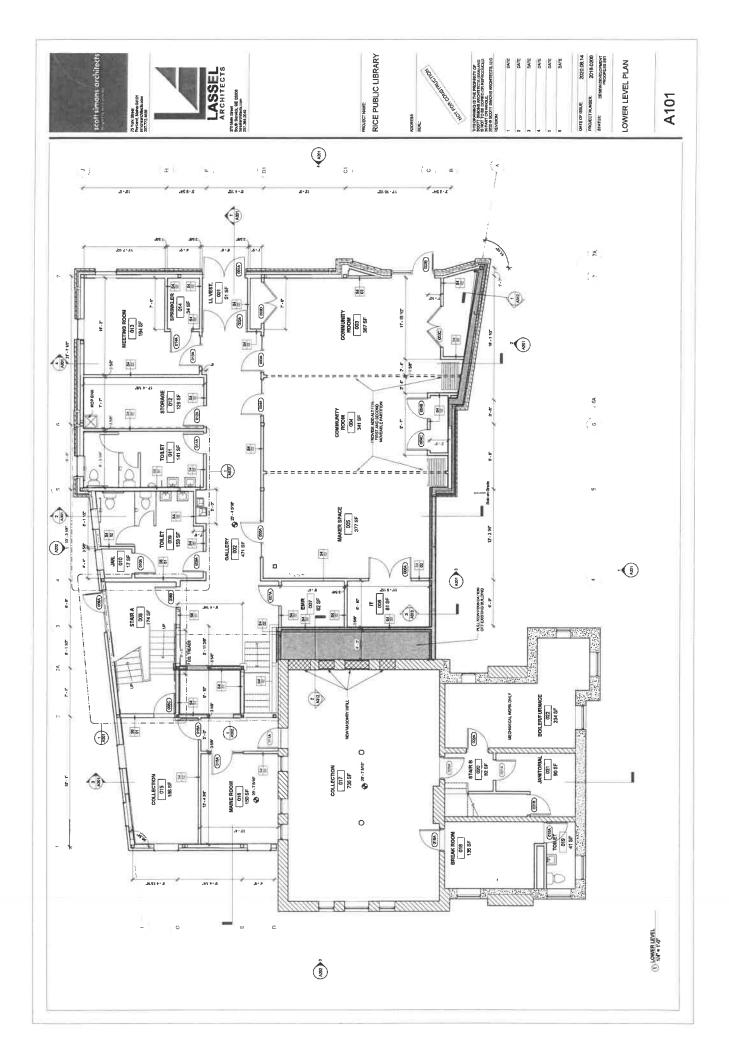
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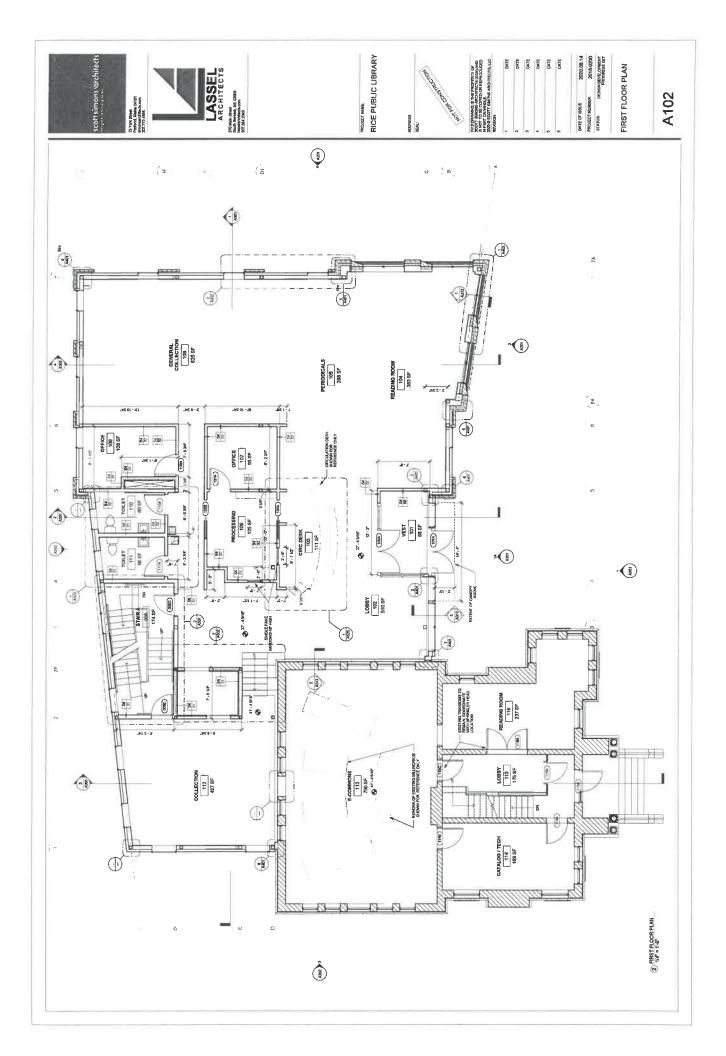
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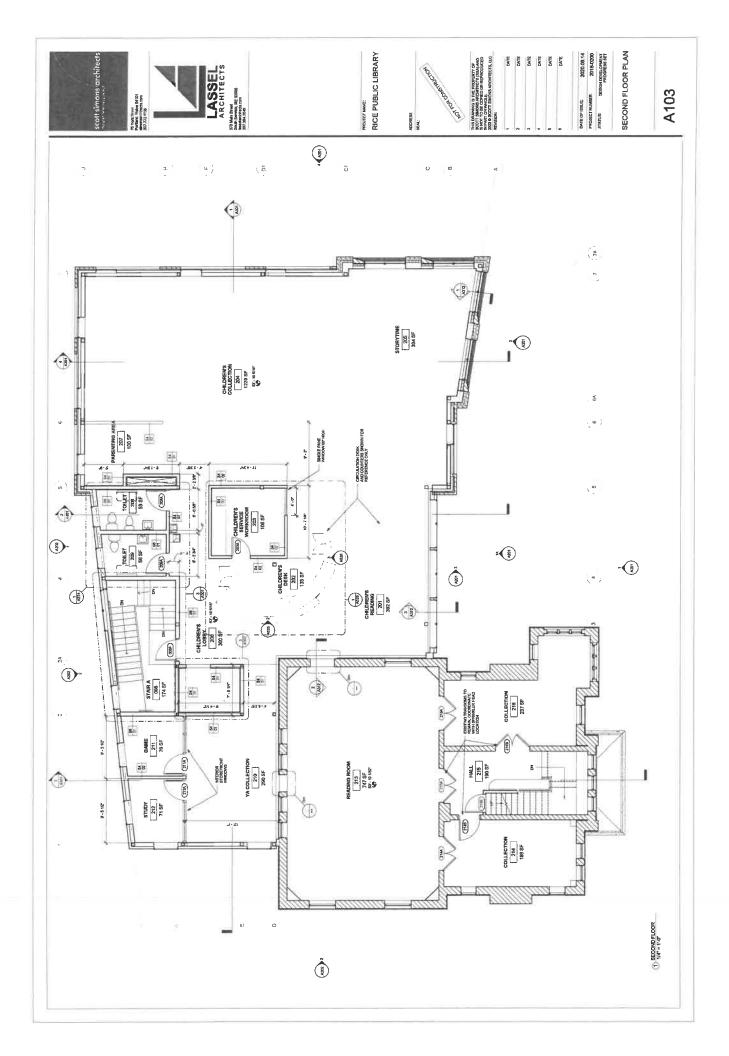
Final Plan Set

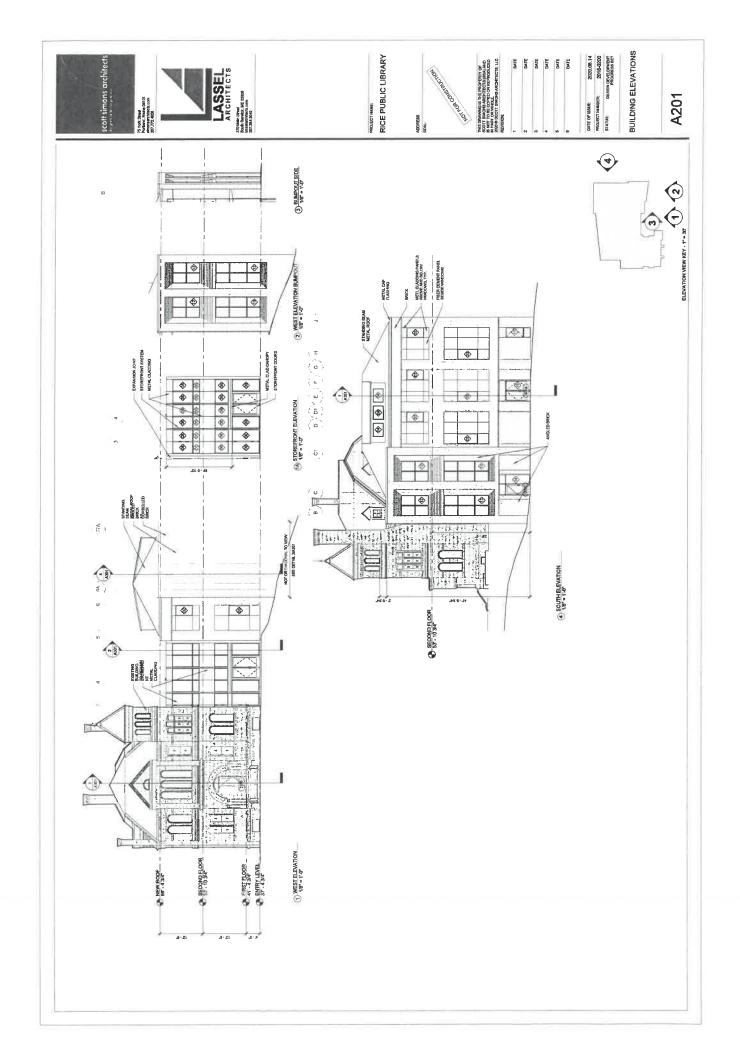
Architectural Floor Plans and Elevations

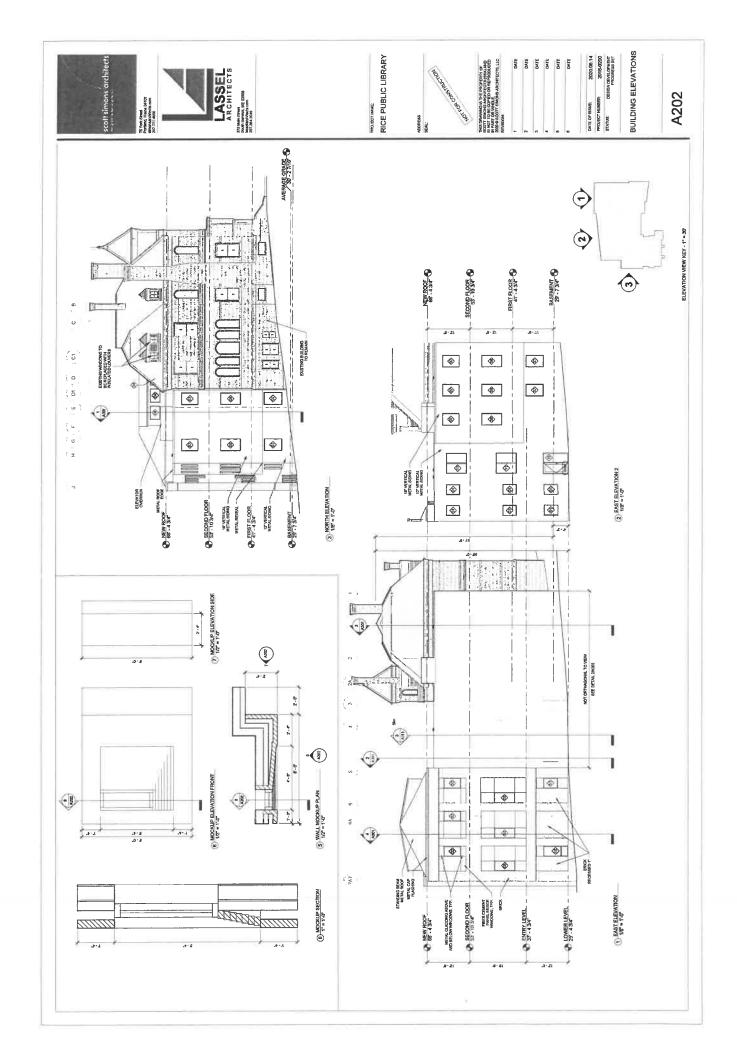












Stormwater Management Plan



STORMWATER MANAGEMENT REPORT

For

RICE PUBLIC LIBRARY KITTERY, MAINE

Prepared for

Rice Public Library 8 Wentworth Street Kittery, Maine 03904

February, 2020

Revised: September, 2020

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Appendix 1B: Hydrologic Modeling – Proposed Conditions (HydroCAD) Summary

Appendix 2: Inspection, Maintenance and Housekeeping Plan

Appendix 3: Subsurface Investigations

Appendix 4: Stormwater Management Plans

STORMWATER MANAGEMENT REPORT RICE PUBLIC LIBRARY KITTERY, MAINE

I. Introduction

This Stormwater Management Plan Report has been prepared to present analyses performed to address the potential impacts associated with the project due to proposed modification in stormwater runoff characteristics and land cover changes. The stormwater management controls that are outlined in this report have been designed to suit the proposed development and to comply with applicable regulatory requirements.

II. Existing Conditions

The project site consists of developed land located at 8 Wentworth Street in downtown Kittery. The site is approximately 0.8 acres in total consisting of the existing Rice Public Library building, gravel parking on the south end of the lot and paved parking on the north end. The site is bounded by Wentworth Street to the west and Traip Avenue on the southern and eastern sides of the site. The surrounding properties located on Traip Avenue consist of residential units while the buildings located on Wentworth Street are primarily for commercial use.

Slopes on the site range from approximately 3% across the paved parking lot to 45% in the landscape area between the southwestern corner of the library and the gravel lot. The majority of the site consists of slopes of 9-10% across the gravel parking lot south of the library and the surrounding landscaped areas.

The site is tributary to a system of storm sewers which outlet into the Piscataqua River. The river is not listed in Chapter 502 of the Maine Department of Environmental Protection (MDEP) regulations on *Direct Watersheds of Lakes Most at Risk From New Development, and Urban Impaired Streams*.

The proposed development area of the site is not located in an identified flood zone per the FEMA Flood Insurance Rate Map for the Kittery Community Panel 728, revised April 14, 2017.

III. Soils

Soil characteristics were obtained from the Class D: Medium Intensity Soil Survey completed by the United States Department of Agriculture Natural Resources Conservation Service Custom Web Soil Survey. The Hydrologic Groups (HSG) of the soils are classified by Technical Release TR-55 of the Soil Conservation Service as follows:

Soil Map Symbol	Soil Name	Slope (%)	HSG
Ur	Urban Land	0-8	D

Hydrologic Soil Group boundaries are delineated on the Watershed Map. A copy of the Class D Medium Intensity Soil Survey is included as Appendix 3.

IV. Proposed Site Improvements

The proposed development will consist of an approximately 3,660 square-feet addition to the existing Rice Public Library. The existing gravel parking lot on site will be transformed into a paved parking area with a new driveway entrance. The existing paved parking lot in the northern most area of the site will be redesigned as part of the project. Other site improvements include the redesign of pedestrian walkways on site as well as various landscape features.

V. Existing Conditions Model

The existing conditions watershed plan consists of one subcatchment labeled 1.0S in the HydroCAD model. One location was identified as the Study Point (SP) for comparing peak runoff rates for the site.

SP1 represents the drainage structure located south of the southeasterly corner of the site within Traip Avenue. Subcatchment 1.0S contributes runoff to this study point with an overall runoff area of approximately 0.84 acres. Runoff from the site enters a catch basin (1.0P) at the southeast corner of the site and then flows to SP1 via a corrugated metal pipe. SP1 and the associated drainage area are tributary to the Piscataqua River.

VI. Proposed Conditions Model

The proposed conditions watershed area consists of the same overall area as the existing conditions plan, however, the existing conditions subcatchment has been broken into smaller subcatchments as a result of the proposed development.

Post-development subcatchment 1.1S represents the southern half of the analyzed watershed. Runoff from this subcatchment area primarily consists of roof collection and paved parking, along with landscaped area. Subcatchment 1.2S represents the northern half of the watershed which is a majority landscaped area and more paved parking. All drainage in the proposed conditions flow to the existing municipal storm sewers located within Traip Avenue, represented by SP1, via a proposed catch basin and pipe network.

VII. Stormwater Management

Basic Standard - Chapter 500, Section 4(B)

The project will not disturb more than one (1) acre of land area, where MDEP Basic Standards apply, requiring that grading or other construction activities on the site do not impede or otherwise alter drainage ways to have an unreasonable adverse impact. However, we have avoided adverse impacts by providing an Erosion & Sedimentation Control Plan, and an Inspection, Maintenance and Housekeeping Plan (Appendix 2) to be implemented during construction and post-construction stabilization of the site. These construction requirements have been developed following Best Management Practice guidelines, latest edition.

Flooding Standard - Chapter 500, Section 4(F)

The planned project will not create more than three (3) acres of impervious surface, where MDEP Flooding Standards must be met. However, the Town of Kittery code for stormwater management requires a project's stormwater management system detain, retain, or result in the infiltration of stormwater from 24-hour storms of the 2 and 25-year frequencies such that the peak flows of stormwater from the project site do not exceed the peak flows of stormwater prior to undertaking the project. As such, a runoff evaluation was performed using the methodology outlined in the USDA Soil Conservation Service's "Urban Hydrology for Small Watersheds - Technical Release #55 (TR-55)". HydroCAD computer software was utilized to perform the calculations using Portsmouth, NH rainfall data, as required by Town of Kittery codes.

Runoff curve numbers were determined for each of the watersheds by measuring the area of each hydrologic soil group within each type of land cover. The type of land cover was determined based on survey data, field reconnaissance and aerial photography. Times of concentration were determined from site topographic maps in accordance with SCS procedures.

The 24-hour rainfall values utilized in the hydrologic model were obtained from Appendix A of the New Hampshire Stormwater Manual, Volume 2: Post-Construction Best Management Practices Selection & Design (latest edition). Rainfall values for Portsmouth, NH are listed in the table below.

Storm Frequency Pre	
2-year	3.1
25-year	5.2

The following table presents the results of the peak runoff calculations at the study point for the existing and proposed conditions.

	Peak Runoff Rate Summary Table						
Analysis Point	Storm Event	Existing Conditions (cfs)	Proposed Conditions (cfs)				
CD 1	2-year	2.0	2.0				
SP-1	25-year	3.8	3.8				

The HydroCAD Data output sheets from this analysis are appended to this report (Appendix 1) along with the Stormwater Management Plans (Appendix 4). The model predicts that the peak runoff rates in the proposed condition at Study Point 1 are equal to existing condition runoff rates for the 2 and 25-year storm events with implementation of the proposed stormwater management practices.

VIII. Summary

The proposed development has been designed to manage stormwater runoff through Best Management Practices approved by MDEP. Runoff discharging from the site will be the same as existing conditions for the 2 and 25-year storm events at the chosen study point. Additionally, erosion and sedimentation controls along with associated maintenance and housekeeping procedures have been outlined to prevent unreasonable impacts on the site and to the surrounding environment.

Prepared by:

SEBAGO TECHNICS, INC.

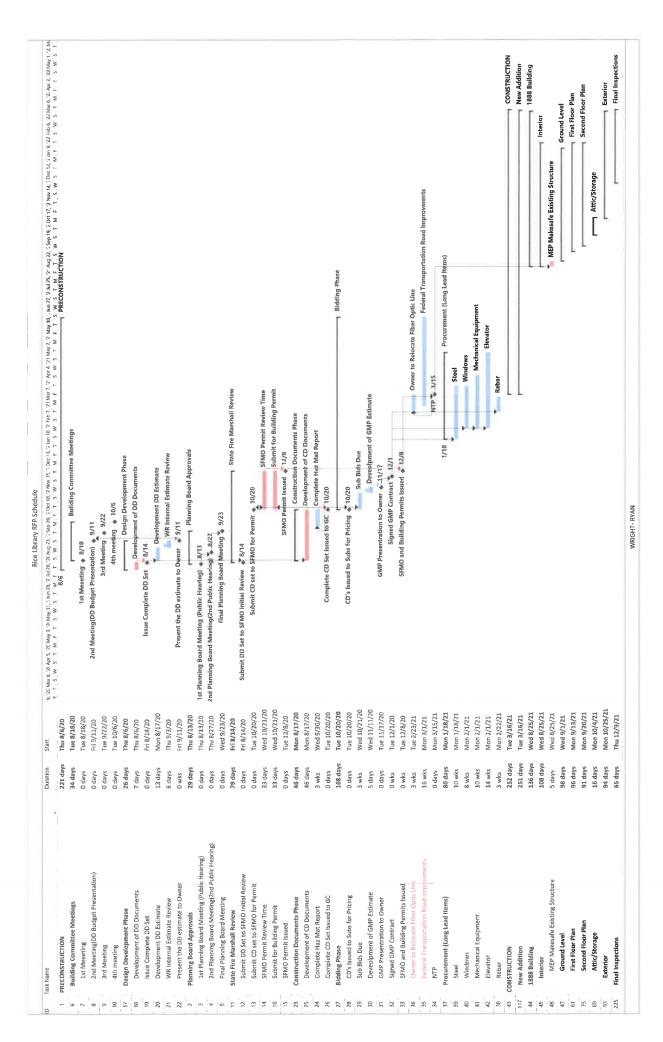
Mathew K. Orr, El Civil Engineer

МКО

Paul D. Ostrowski, P.E. Senior Project Enginee

PDO

Logistics Plan





Parking Calulations

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Total Footprint 15500.0 Total Public Space 9268.0 Public grossing factor 0.4 Staff (in FEE) 350.0 Staff (in FEE) 2.0 FEE Per Space				84	407	423
Total Footprint 15500.0 Total Public Space 9268.0 Public grossing factor 0.4 Staff (in FEE) 350.0 Staff (in FEE) 2.0 FEE Per Space					189	1040
Total Footprint 15500.0 Total Public Space 9268.0 Public grossing factor 0.4 Staff (in FEE) 350.0 Staff (in FEE) 2.0 FEE Per Space					150	147
Total Footprint 15500.0 Total Public Space 9268.0 Public grossing factor 0.4 Staff (in FEE) 350.0 Staff (in FEE) 2.0 FEE Per Space						
Total Footprint 15500.0 Public grossing factor 0.4 Staff (in FEE) 350.0 Staff (in FEE) 2.0						
Total Footprint 15500.0 Total Public Space 9268.0 2361 Public grossing factor 0.4 350.0 Sqft per Space * Staff (in FEE) 2.0 FEE Per Space 2.0 FEE Per Space	Spaces					
Total Footprint 15500.0 Total Public Space 9268.0 2361 Public grossing factor 0.4 \$50.0 Sqft per Space * Staff (in FEE) \$50.0 FEE Per Space \$2.0						
Total Public Space 9268.0 2361 Public grossing factor 0.4 2361 Staff (in FEE) 350.0 Sqft per Space * Staff (in FEE) 2.0 FEE Per Space		Total Footprint	15500.0			
Public grossing factor 0.4 350:0 Staff (in FEE) 2.0	26	Total Public Space	9268.0		3285	3622
350:0 Staff (in FEE)		Public grossing factor	0.4			
Staff (in FEE)			350:0			
Staff (in FEE)						
	3	Staff (in FEE)	**.6			
			2.0	FEE Per Space		
29	29					

3rd

2nd

1st

Room Areas by Floor

Total spaces provided

29

Range based on recent project experiece, ASCE guidelines, and survey of smilar projects a variation of 1 space per 300 - 1000 spft was found for intown library projects



STORMWATER MANAGEMENT REPORT

For

RICE PUBLIC LIBRARY KITTERY, MAINE

Prepared for

Rice Public Library 8 Wentworth Street Kittery, Maine 03904

February, 2020

Revised: September, 2020

Table of Contents

Contents

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	Existing Conditions	
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F	looding Standard - Chapter 500, Section 4(F)	3
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Appendices

Appendix 1A: Hydrologic Modeling – Existing Conditions (HydroCAD)Summary
Appendix 1B: Hydrologic Modeling – Proposed Conditions (HydroCAD) Summary

Appendix 2: Inspection, Maintenance and Housekeeping Plan

Appendix 3: Subsurface Investigations

Appendix 4: Stormwater Management Plans

STORMWATER MANAGEMENT REPORT RICE PUBLIC LIBRARY KITTERY, MAINE

I. Introduction

This Stormwater Management Plan Report has been prepared to present analyses performed to address the potential impacts associated with the project due to proposed modification in stormwater runoff characteristics and land cover changes. The stormwater management controls that are outlined in this report have been designed to suit the proposed development and to comply with applicable regulatory requirements.

II. Existing Conditions

The project site consists of developed land located at 8 Wentworth Street in downtown Kittery. The site is approximately 0.8 acres in total consisting of the existing Rice Public Library building, gravel parking on the south end of the lot and paved parking on the north end. The site is bounded by Wentworth Street to the west and Traip Avenue on the southern and eastern sides of the site. The surrounding properties located on Traip Avenue consist of residential units while the buildings located on Wentworth Street are primarily for commercial use.

Slopes on the site range from approximately 3% across the paved parking lot to 45% in the landscape area between the southwestern corner of the library and the gravel lot. The majority of the site consists of slopes of 9-10% across the gravel parking lot south of the library and the surrounding landscaped areas.

The site is tributary to a system of storm sewers which outlet into the Piscataqua River. The river is not listed in Chapter 502 of the Maine Department of Environmental Protection (MDEP) regulations on *Direct Watersheds of Lakes Most at Risk From New Development, and Urban Impaired Streams*.

The proposed development area of the site is not located in an identified flood zone per the FEMA Flood Insurance Rate Map for the Kittery Community Panel 728, revised April 14, 2017.

III. Soils

Soil characteristics were obtained from the Class D: Medium Intensity Soil Survey completed by the United States Department of Agriculture Natural Resources Conservation Service Custom Web Soil Survey. The Hydrologic Groups (HSG) of the soils are classified by Technical Release TR-55 of the Soil Conservation Service as follows:

Soil Map Symbol	Soil Name	Slope (%)	HSG
Ur	Urban Land	0-8	D

Hydrologic Soil Group boundaries are delineated on the Watershed Map. A copy of the Class D Medium Intensity Soil Survey is included as Appendix 3.

IV. Proposed Site Improvements

The proposed development will consist of an approximately 3,660 square-feet addition to the existing Rice Public Library. The existing gravel parking lot on site will be transformed into a paved parking area with a new driveway entrance. The existing paved parking lot in the northern most area of the site will be redesigned as part of the project. Other site improvements include the redesign of pedestrian walkways on site as well as various landscape features.

V. <u>Existing Conditions Model</u>

The existing conditions watershed plan consists of one subcatchment labeled 1.0S in the HydroCAD model. One location was identified as the Study Point (SP) for comparing peak runoff rates for the site.

SP1 represents the drainage structure located south of the southeasterly corner of the site within Traip Avenue. Subcatchment 1.0S contributes runoff to this study point with an overall runoff area of approximately 0.84 acres. Runoff from the site enters a catch basin (1.0P) at the southeast corner of the site and then flows to SP1 via a corrugated metal pipe. SP1 and the associated drainage area are tributary to the Piscataqua River.

VI. Proposed Conditions Model

The proposed conditions watershed area consists of the same overall area as the existing conditions plan, however, the existing conditions subcatchment has been broken into smaller subcatchments as a result of the proposed development.

Post-development subcatchment 1.1S represents the southern half of the analyzed watershed. Runoff from this subcatchment area primarily consists of roof collection and paved parking, along with landscaped area. Subcatchment 1.2S represents the northern half of the watershed which is a majority landscaped area and more paved parking. All drainage in the proposed conditions flow to the existing municipal storm sewers located within Traip Avenue, represented by SP1, via a proposed catch basin and pipe network.

VII. Stormwater Management

Basic Standard - Chapter 500, Section 4(B)

The project will not disturb more than one (1) acre of land area, where MDEP Basic Standards apply, requiring that grading or other construction activities on the site do not impede or otherwise alter drainage ways to have an unreasonable adverse impact. However, we have avoided adverse impacts by providing an Erosion & Sedimentation Control Plan, and an Inspection, Maintenance and Housekeeping Plan (Appendix 2) to be implemented during construction and post-construction stabilization of the site. These construction requirements have been developed following Best Management Practice guidelines, latest edition.

Flooding Standard - Chapter 500, Section 4(F)

The planned project will not create more than three (3) acres of impervious surface, where MDEP Flooding Standards must be met. However, the Town of Kittery code for stormwater management requires a project's stormwater management system detain, retain, or result in the infiltration of stormwater from 24-hour storms of the 2 and 25-year frequencies such that the peak flows of stormwater from the project site do not exceed the peak flows of stormwater prior to undertaking the project. As such, a runoff evaluation was performed using the methodology outlined in the USDA Soil Conservation Service's "Urban Hydrology for Small Watersheds - Technical Release #55 (TR-55)". HydroCAD computer software was utilized to perform the calculations using Portsmouth, NH rainfall data, as required by Town of Kittery codes.

Runoff curve numbers were determined for each of the watersheds by measuring the area of each hydrologic soil group within each type of land cover. The type of land cover was determined based on survey data, field reconnaissance and aerial photography. Times of concentration were determined from site topographic maps in accordance with SCS procedures.

The 24-hour rainfall values utilized in the hydrologic model were obtained from Appendix A of the New Hampshire Stormwater Manual, Volume 2: Post-Construction Best Management Practices Selection & Design (latest edition). Rainfall values for Portsmouth, NH are listed in the table below.

Storm Frequency Pre Portsmo	
2-year	3.1
25-year	5.2

The following table presents the results of the peak runoff calculations at the study point for the existing and proposed conditions.

Peak Runoff Rate Summary Table						
Analysis Point	Storm Event	Existing Conditions (cfs)	Proposed Conditions (cfs)			
CD 1	2-year	2.0	2.0			
SP-1	25-year	3.8	3.8			

The HydroCAD Data output sheets from this analysis are appended to this report (Appendix 1) along with the Stormwater Management Plans (Appendix 4). The model predicts that the peak runoff rates in the proposed condition at Study Point 1 are equal to existing condition runoff rates for the 2 and 25-year storm events with implementation of the proposed stormwater management practices.

VIII. Summary

The proposed development has been designed to manage stormwater runoff through Best Management Practices approved by MDEP. Runoff discharging from the site will be the same as existing conditions for the 2 and 25-year storm events at the chosen study point. Additionally, erosion and sedimentation controls along with associated maintenance and housekeeping procedures have been outlined to prevent unreasonable impacts on the site and to the surrounding environment.

Prepared by:

SEBAGO TECHNICS, INC.

Mathew K. Orr, El Civil Engineer

MKO

Paul D. Ostrowski, P.E.

and Donous

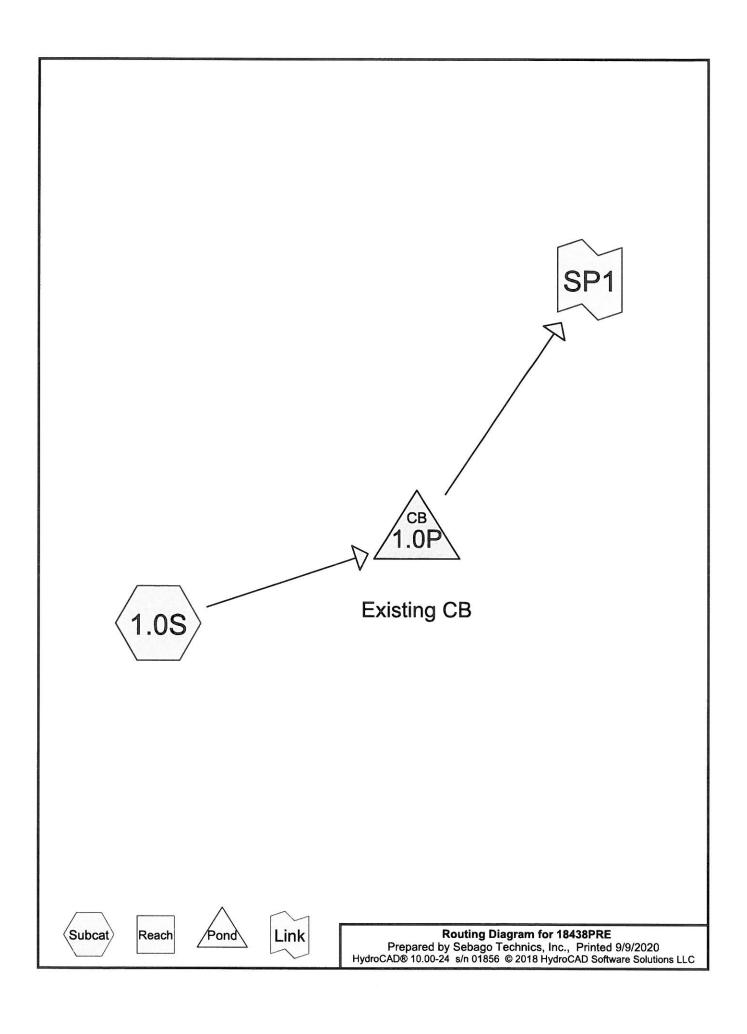
Senior Project Engineer

PDO

09/10/2020

Appendix 1A

Hydrologic Modeling Existing Conditions HydroCAD Summary



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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
16,845	80	>75% Grass cover, Good, HSG D (1.0S)
11,550	98	Existing Gravel (1.0S)
5,050	98	Existing Pavement (1.0S)
1,770	98	Existing Roof (1.0S)
1,240	98	Existing Walkways (1.0S)
36,455	90	TOTAL AREA

Type III 24-hr 2-YR Rainfall=3.10"

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Time span=0.00-50.00 hrs, dt=0.01 hrs, 5001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.0S:

Runoff Area=36,455 sf 53.79% Impervious Runoff Depth=2.08" Flow Length=242' Tc=6.0 min CN=90 Runoff=2.0 cfs 6,307 cf

Pond 1.0P: Existing CB

Peak Elev=17.04' Inflow=2.0 cfs 6,307 cf

12.0" Round Culvert n=0.025 L=38.0' S=0.0329 '/' Outflow=2.0 cfs 6,307 cf

Link SP1:

Inflow=2.0 cfs 6,307 cf

Primary=2.0 cfs 6,307 cf

Total Runoff Area = 36,455 sf Runoff Volume = 6,307 cf Average Runoff Depth = 2.08" 46.21% Pervious = 16,845 sf 53.79% Impervious = 19,610 sf

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Time span=0.00-50.00 hrs, dt=0.01 hrs, 5001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.0S:

Runoff Area=36,455 sf 53.79% Impervious Runoff Depth=4.07" Flow Length=242' Tc=6.0 min CN=90 Runoff=3.8 cfs 12,363 cf

Pond 1.0P: Existing CB

Peak Elev=18.20' Inflow=3.8 cfs 12,363 cf

12.0" Round Culvert n=0.025 L=38.0' S=0.0329 '/' Outflow=3.8 cfs 12,363 cf

Link SP1:

Inflow=3.8 cfs 12,363 cf Primary=3.8 cfs 12,363 cf

Total Runoff Area = 36,455 sf Runoff Volume = 12,363 cf Average Runoff Depth = 4.07" 46.21% Pervious = 16,845 sf 53.79% Impervious = 19,610 sf

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Summary for Subcatchment 1.0S:

Runoff

=

3.8 cfs @ 12.08 hrs, Volume=

12,363 cf, Depth= 4.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs Type III 24-hr 25-YR Rainfall=5.20"

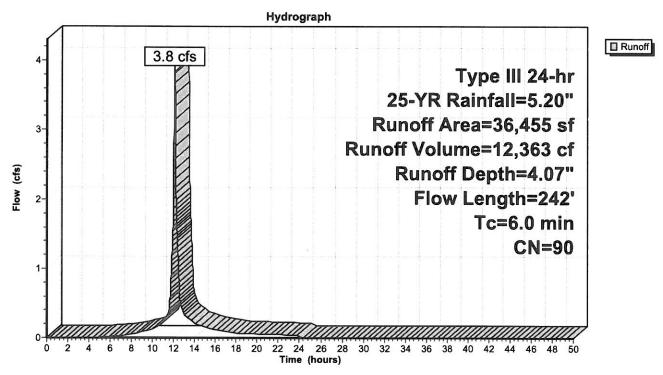
	A	rea (sf)	CN I	Description		
*		1,770	98	Existing Ro	of	
*		1,240		Existing Wa		
*		11,550		Existing Gra		
*		5,050		Existing Pa		
-		16,845	80 :	>75% Gras	s cover, Go	ood, HSG D
10,000		36,455	90 '	Weighted A	verage	
		16,845		46.21% Pei	vious Area	
		19,610		53.79% Imp	pervious Ar	ea
	Tc	Length	Slope	Velocity	Capacity	Description
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	3.4	39	0.0769	0.19		Sheet Flow, A-B
						Grass: Short n= 0.150 P2= 2.00"
	0.3	52	0.1346	2.57		Shallow Concentrated Flow, B-C
						Short Grass Pasture Kv= 7.0 fps
	0.4	92	0.0489	3.56		Shallow Concentrated Flow, C-D
						Unpaved Kv= 16.1 fps
	0.6	59	0.0508	1.58		Shallow Concentrated Flow, D-E
	4 2					Short Grass Pasture Kv= 7.0 fps
_	1.3					Direct Entry,
	6.0	242	Total			

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Subcatchment 1.0S:



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☐ Inflow ☐ Primary

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Summary for Pond 1.0P: Existing CB

Inflow Area = 36,455 sf, 53.79% Impervious, Inflow Depth = 4.07" for 25-YR event

Inflow = 3.8 cfs @ 12.08 hrs, Volume= 12,363 cf

Outflow = 3.8 cfs @ 12.08 hrs, Volume= 12,363 cf, Atten= 0%, Lag= 0.0 min

Primary = 3.8 cfs @ 12.08 hrs, Volume= 12.363 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs

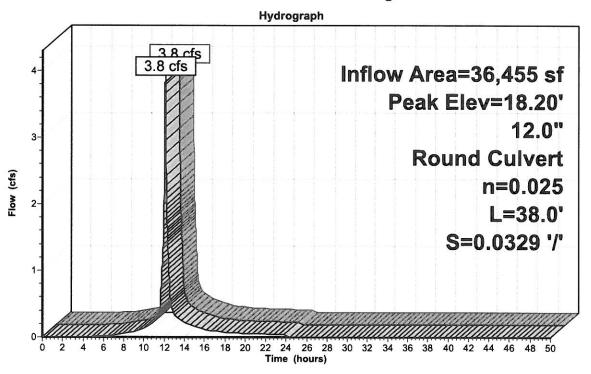
Peak Elev= 18.20' @ 12.08 hrs

Flood Elev= 18.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	16.25'	12.0" Round CMP_Round 12" L= 38.0' CMP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 16.25' / 15.00' S= 0.0329 '/' Cc= 0.900
			n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=3.8 cfs @ 12.08 hrs HW=18.19' TW=0.00' (Dynamic Tailwater) 1=CMP_Round 12" (Barrel Controls 3.8 cfs @ 4.88 fps)

Pond 1.0P: Existing CB



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Summary for Link SP1:

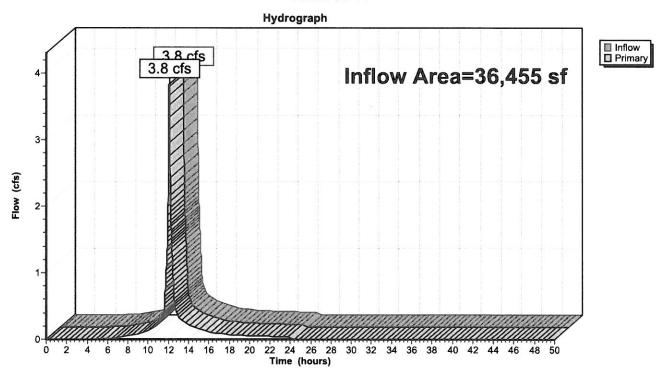
Inflow Area = 36,455 sf, 53.79% Impervious, Inflow Depth = 4.07" for 25-YR event

Inflow = 3.8 cfs @ 12.08 hrs, Volume= 12,363 cf

Primary = 3.8 cfs @ 12.08 hrs, Volume= 12,363 cf, Atten= 0%, Lag= 0.0 min

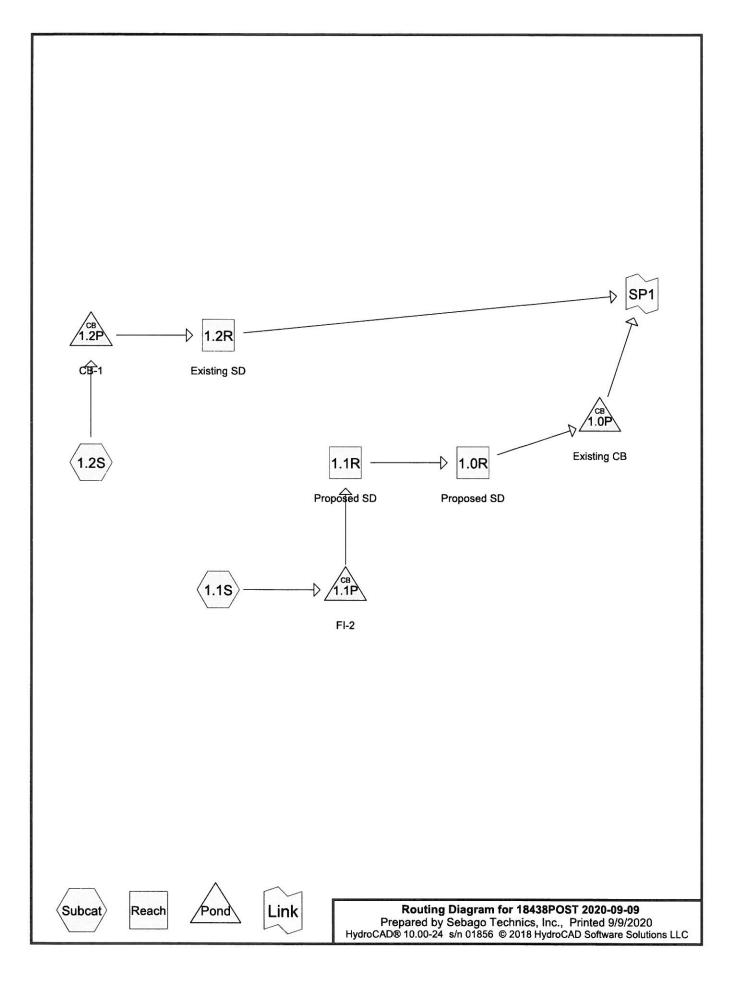
Primary outflow = Inflow, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs

Link SP1:



Appendix 1B

Hydrologic Modeling Proposed Conditions HydroCAD Summary



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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
16,120	80	>75% Grass cover, Good, HSG D (1.1S, 1.2S)
1,900	98	Existing Pavement (1.1S, 1.2S)
1,770	98	Existing Roof (1.1S)
490	98	Existing Walkways (1.1S, 1.2S)
450	98	Proposed Concrete (1.2S)
10,195	98	Proposed Pavement (1.1S, 1.2S)
325	98	Proposed Retaining Walls (1.1S)
3,680	98	Proposed Roof (1.1S)
1,525	98	Proposed Walkways (1.1S)
36,455	90	TOTAL AREA

Type III 24-hr 2-YR Rainfall=3.10"

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Time span=0.00-50.00 hrs, dt=0.01 hrs, 5001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1S:

Runoff Area=20,560 sf 64.76% Impervious Runoff Depth=2.26"

Flow Length=68' Tc=6.0 min CN=92 Runoff=1.2 cfs 3,865 cf

Subcatchment 1.2S:

Runoff Area=15,895 sf 44.16% Impervious Runoff Depth=1.91"

Flow Length=73' Tc=6.0 min CN=88 Runoff=0.8 cfs 2,526 cf

Reach 1.0R: Proposed SD

Avg. Flow Depth=0.24' Max Vel=8.22 fps Inflow=1.2 cfs 3,865 cf

12.0" Round Pipe n=0.013 L=16.0' S=0.0687 '/' Capacity=9.3 cfs Outflow=1.2 cfs 3,865 cf

Reach 1.1R: Proposed SD

Avg. Flow Depth=0.32' Max Vel=6.46 fps Inflow=1.2 cfs 3,865 cf

10.0" Round Pipe n=0.013 L=105.0' S=0.0336 '/' Capacity=4.0 cfs Outflow=1.2 cfs 3,865 cf

Reach 1.2R: Existing SD

Avg. Flow Depth=0.30' Max Vel=4.15 fps Inflow=0.8 cfs 2.526 cf

12.0" Round Pipe n=0.025 L=170.0' S=0.0521 '/' Capacity=4.2 cfs Outflow=0.8 cfs 2,526 cf

Pond 1.0P: Existing CB

Peak Elev=16.83' Inflow=1.2 cfs 3,865 cf

12.0" Round Culvert n=0.025 L=38.0' S=0.0329 '/' Outflow=1.2 cfs 3,865 cf

Pond 1.1P: FI-2

Peak Elev=22.07' Inflow=1.2 cfs 3.865 cf

10.0" Round Culvert n=0.013 L=16.0' S=0.0131 '/' Outflow=1.2 cfs 3,865 cf

Pond 1.2P: CB-1

Peak Elev=24.77' Inflow=0.8 cfs 2,526 cf

12.0" Round Culvert n=0.013 L=27.0' S=0.0126 '/' Outflow=0.8 cfs 2,526 cf

Link SP1:

Inflow=2.0 cfs 6,391 cf

Primary=2.0 cfs 6,391 cf

Total Runoff Area = 36,455 sf Runoff Volume = 6,391 cf Average Runoff Depth = 2.10"
44.22% Pervious = 16,120 sf 55.78% Impervious = 20,335 sf

Type III 24-hr 25-YR Rainfall=5.20"

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Time span=0.00-50.00 hrs, dt=0.01 hrs, 5001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1S:

Runoff Area=20,560 sf 64.76% Impervious Runoff Depth=4.28"

Flow Length=68' Tc=6.0 min CN=92 Runoff=2.2 cfs 7,341 cf

Subcatchment 1.2S:

Runoff Area=15,895 sf 44.16% Impervious Runoff Depth=3.86"

Flow Length=73' Tc=6.0 min CN=88 Runoff=1.6 cfs 5,112 cf

Reach 1.0R: Proposed SD

Avg. Flow Depth=0.33' Max Vel=9.78 fps Inflow=2.2 cfs 7,341 cf

12.0" Round Pipe n=0.013 L=16.0' S=0.0687 '/' Capacity=9.3 cfs Outflow=2.2 cfs 7,341 cf

Reach 1.1R: Proposed SD

Avg. Flow Depth=0.45' Max Vel=7.57 fps Inflow=2.2 cfs 7,341 cf

10.0" Round Pipe n=0.013 L=105.0' S=0.0336 '/' Capacity=4.0 cfs Outflow=2.2 cfs 7,341 cf

Reach 1.2R: Existing SD

Avg. Flow Depth=0.43' Max Vel=5.01 fps Inflow=1.6 cfs 5,112 cf

12.0" Round Pipe n=0.025 L=170.0' S=0.0521 '/' Capacity=4.2 cfs Outflow=1.6 cfs 5,112 cf

Pond 1.0P: Existing CB

Peak Elev=17.10' Inflow=2.2 cfs 7,341 cf

12.0" Round Culvert n=0.025 L=38.0' S=0.0329 '/' Outflow=2.2 cfs 7,341 cf

Pond 1.1P: FI-2

Peak Elev=22.58' Inflow=2.2 cfs 7,341 cf

10.0" Round Culvert n=0.013 L=16.0' S=0.0131 '/' Outflow=2.2 cfs 7,341 cf

Pond 1.2P: CB-1

Peak Elev=25.01' Inflow=1.6 cfs 5,112 cf

12.0" Round Culvert n=0.013 L=27.0' S=0.0126 '/' Outflow=1.6 cfs 5,112 cf

Link SP1:

Inflow=3.8 cfs 12,453 cf

Primary=3.8 cfs 12,453 cf

Total Runoff Area = 36,455 sf Runoff Volume = 12,453 cf Average Runoff Depth = 4.10" 44.22% Pervious = 16,120 sf 55.78% Impervious = 20,335 sf

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Summary for Subcatchment 1.1S:

Runoff

2.2 cfs @ 12.08 hrs, Volume=

7,341 cf, Depth= 4.28"

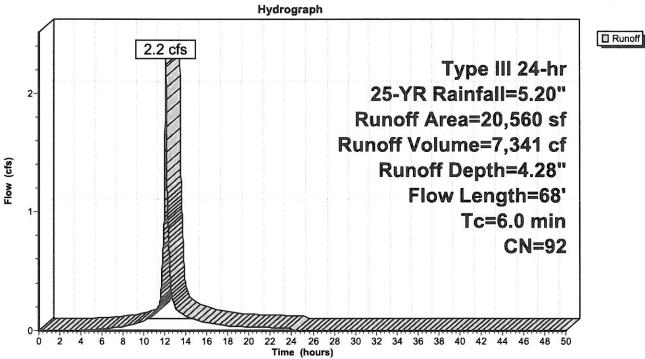
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs Type III 24-hr 25-YR Rainfall=5.20"

8 <u></u>	Д	rea (sf)	CN I	Description		
*		1,770	98 I	Existing Ro	of	
*		3,680	98 I	Proposed R	loof	
*		1,115	98 I	Existing Par	vement	
*		1,525	98 I	Proposed V	Valkways	
*		325	98 I	Proposed R	etaining W	'alls
*		4,735		Proposed P		
*		165	98 I	Existing Wa	ılkways	
		7,245	80 :	>75% Gras	s cover, Go	ood, HSG D
		20,560	92	Weighted A	verage	
		7,245	;	35.24% Per	vious Area	
		13,315	(64.76% Imp	pervious Are	ea
	Tc	Length	Slope		Capacity	Description
((min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	3.4	23	0.0278	0.11		Sheet Flow, A-B
						Grass: Short n= 0.150 P2= 2.00"
	0.0	13	0.0500	4.54		Shallow Concentrated Flow, B-C
						Paved Kv= 20.3 fps
	0.2	32	0.1128	2.35		Shallow Concentrated Flow, C-D
						Short Grass Pasture Kv= 7.0 fps
0	2.4					Direct Entry,
	6.0	68	Total			

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Subcatchment 1.1S:



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Summary for Subcatchment 1.2S:

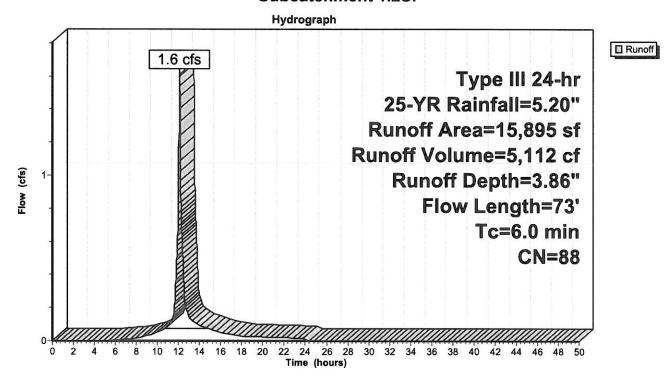
Runoff = 1.6 cfs @ 12.09 hrs, Volume=

5,112 cf, Depth= 3.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs Type III 24-hr 25-YR Rainfall=5.20"

	Α	rea (sf)	CN E	Description		
*		785	98 E	xisting Pa	vement	
*		5,460	98 F	roposed P	avement	
*		450	98 F	Proposed C	oncrete	
*		325	98 E	xisting Wa	lkways	
_		8,875	80 >	75% Gras	s cover, Go	ood, HSG D
		15,895	88 V	Veighted A	verage	
		8,875	5	5.84% Per	vious Area	
		7,020	4	4.16% Imp	ervious Are	ea
	Тс	Length	Slope	Velocity	Capacity	Description
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	2.9	34	0.0882	0.20		Sheet Flow, A-B
						Grass: Short n= 0.150 P2= 2.00"
	0.2	39	0.1410	2.63		Shallow Concentrated Flow, B-C
						Short Grass Pasture Kv= 7.0 fps
	2.9		ing a suite in			Direct Entry,
	6.0	73	Total			

Subcatchment 1.2S:



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Summary for Reach 1.0R: Proposed SD

Inflow Area = 20,560 sf, 64.76% Impervious, Inflow Depth = 4.28" for 25-YR event

Inflow = 2.2 cfs @ 12.09 hrs, Volume= 7,341 cf

Outflow = 2.2 cfs @ 12.09 hrs, Volume= 7,341 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs

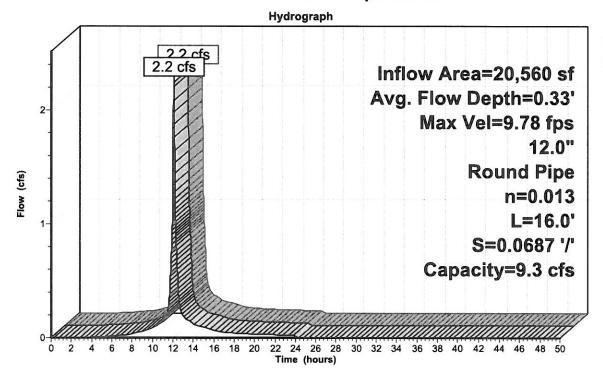
Max. Velocity= 9.78 fps, Min. Travel Time= 0.0 min Avg. Velocity = 3.20 fps, Avg. Travel Time= 0.1 min

Peak Storage= 4 cf @ 12.09 hrs Average Depth at Peak Storage= 0.33' Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 9.3 cfs

12.0" Round Pipe n= 0.013 Corrugated PE, smooth interior Length= 16.0' Slope= 0.0687 '/' Inlet Invert= 17.45', Outlet Invert= 16.35'



Reach 1.0R: Proposed SD





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Summary for Reach 1.1R: Proposed SD

Inflow Area =

20,560 sf, 64.76% Impervious, Inflow Depth = 4.28" for 25-YR event

Inflow Outflow

2.2 cfs @ 12.08 hrs, Volume= 2.2 cfs @ 12.09 hrs, Volume=

7,341 cf

7,341 cf, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs

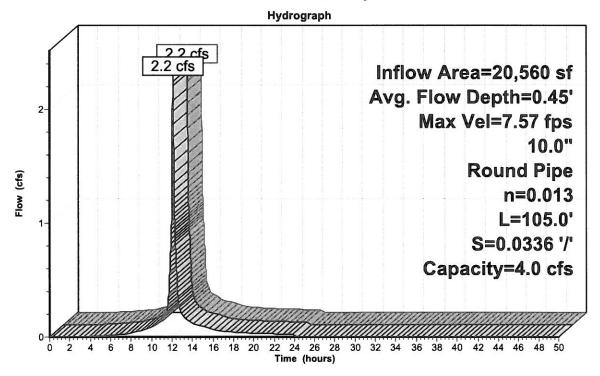
Max. Velocity= 7.57 fps, Min. Travel Time= 0.2 min Avg. Velocity = 2.55 fps, Avg. Travel Time= 0.7 min

Peak Storage= 31 cf @ 12.09 hrs Average Depth at Peak Storage= 0.45' Bank-Full Depth= 0.83' Flow Area= 0.5 sf, Capacity= 4.0 cfs

10.0" Round Pipe n= 0.013 Corrugated PE, smooth interior Length= 105.0' Slope= 0.0336 '/' Inlet Invert= 21.08', Outlet Invert= 17.55'



Reach 1.1R: Proposed SD





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■ Inflow

■ Outflow

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Summary for Reach 1.2R: Existing SD

Inflow Area = 15,895 sf, 44.16% Impervious, Inflow Depth = 3.86" for 25-YR event

Inflow = 1.6 cfs @ 12.09 hrs, Volume= 5,112 cf

Outflow = 1.6 cfs @ 12.09 hrs, Volume= 5,112 cf, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs

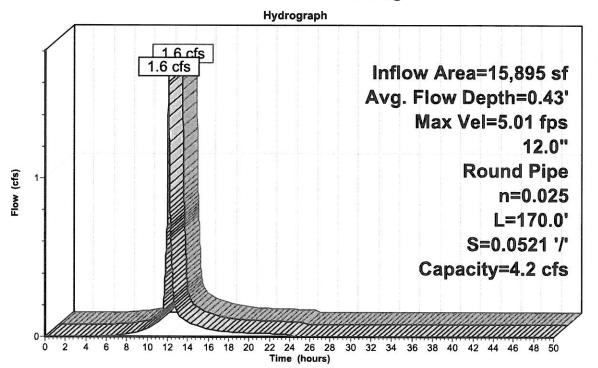
Max. Velocity= 5.01 fps, Min. Travel Time= 0.6 min Avg. Velocity = 1.67 fps, Avg. Travel Time= 1.7 min

Peak Storage= 54 cf @ 12.09 hrs Average Depth at Peak Storage= 0.43' Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.2 cfs

12.0" Round Pipe n= 0.025 Corrugated metal Length= 170.0' Slope= 0.0521 '/' Inlet Invert= 23.86', Outlet Invert= 15.00'



Reach 1.2R: Existing SD



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Summary for Pond 1.0P: Existing CB

Inflow Area = 20,560 sf, 64.76% Impervious, Inflow Depth = 4.28" for 25-YR event Inflow = 2.2 cfs @ 12.09 hrs, Volume= 7,341 cf 7,341 cf, Atten= 0%, Lag= 0.0 min

Primary = 2.2 cfs @ 12.09 hrs, Volume= 7,341 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs

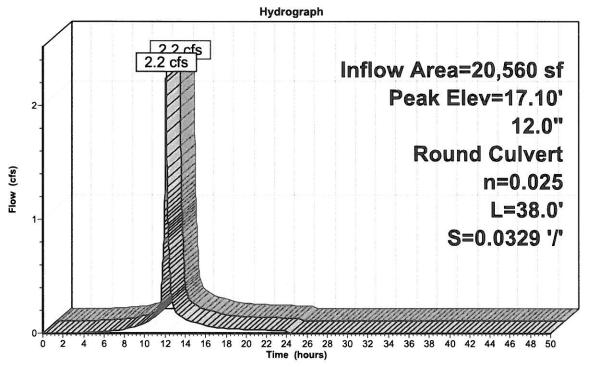
Peak Elev= 17.10' @ 12.09 hrs

Flood Elev= 18.75'

Device	Routing	Invert	Outlet Devices
#1	Primary		12.0" Round CMP_Round 12" L= 38.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 16.25' / 15.00' S= 0.0329 '/' Cc= 0.900
			n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=2.2 cfs @ 12.09 hrs HW=17.10' TW=0.00' (Dynamic Tailwater) 1=CMP_Round 12" (Inlet Controls 2.2 cfs @ 3.14 fps)

Pond 1.0P: Existing CB





Prepared by Sebago Technics, Inc.

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Summary for Pond 1.1P: FI-2

Inflow Area = 20,560 sf, 64.76% Impervious, Inflow Depth = 4.28" for 25-YR event

Inflow = 2.2 cfs @ 12.08 hrs, Volume= 7,341 cf

Outflow = 2.2 cfs @ 12.08 hrs, Volume= 7,341 cf, Atten= 0%, Lag= 0.0 min

Primary = 2.2 cfs @ 12.08 hrs, Volume= 7,341 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs

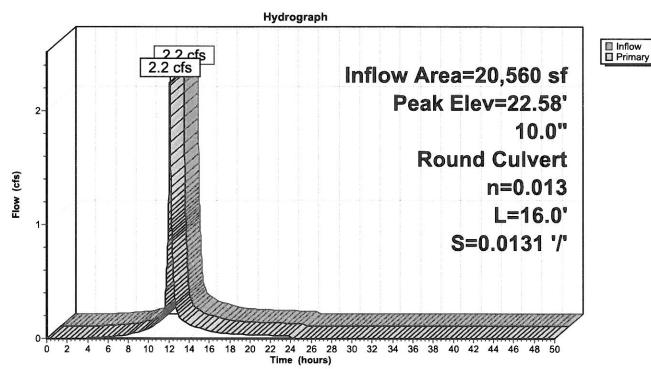
Peak Elev= 22.58' @ 12.08 hrs

Flood Elev= 32.38'

Device	Routing	Invert	Outlet Devices
#1	Primary	21.39'	10.0" Round SD-5
			L= 16.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 21.39' / 21.18' S= 0.0131 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=2.2 cfs @ 12.08 hrs HW=22.57' TW=21.52' (Dynamic Tailwater) 1=SD-5 (Barrel Controls 2.2 cfs @ 4.11 fps)

Pond 1.1P: FI-2



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Summary for Pond 1.2P: CB-1

Inflow Area = 15,895 sf, 44.16% Impervious, Inflow Depth = 3.86" for 25-YR event

Inflow = 1.6 cfs @ 12.09 hrs, Volume= 5,112 cf

Outflow = 1.6 cfs @ 12.09 hrs, Volume= 5,112 cf, Atten= 0%, Lag= 0.0 min

Primary = 1.6 cfs @ 12.09 hrs, Volume= 5,112 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs

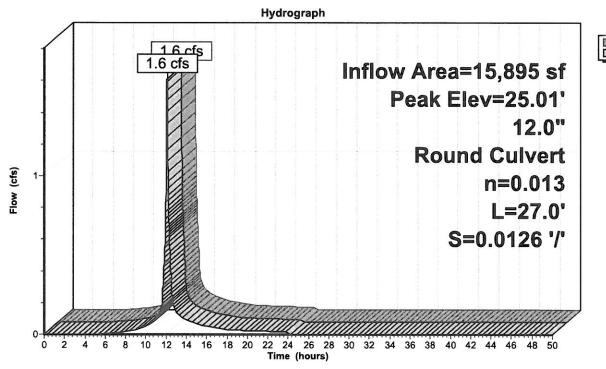
Peak Elev= 25.01' @ 12.09 hrs

Flood Elev= 28.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.30'	12.0" Round SD-1
			L= 27.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 24.30' / 23.96' S= 0.0126 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.6 cfs @ 12.09 hrs HW=25.01' TW=24.29' (Dynamic Tailwater) 1=SD-1 (Barrel Controls 1.6 cfs @ 3.80 fps)

Pond 1.2P: CB-1





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Summary for Link SP1:

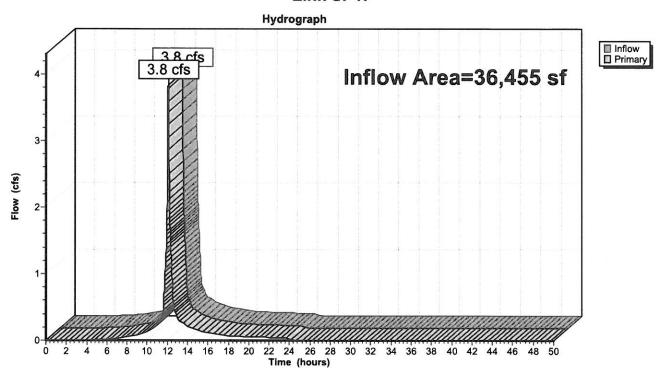
Inflow Area = 36,455 sf, 55.78% Impervious, Inflow Depth = 4.10" for 25-YR event

Inflow = 3.8 cfs @ 12.09 hrs, Volume= 12,453 cf

Primary = 3.8 cfs @ 12.09 hrs, Volume= 12,453 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs

Link SP1:



Appendix 2

Inspection, Maintenance and Housekeeping Plan



INSPECTION, MAINTENANCE, AND HOUSEKEEPING PLAN

For: Rice Public Library 8 Wentworth Street Kittery, Maine

By: Sebago Technics, Inc. 75 John Roberts Road, Suite 4A South Portland, Maine PAUL D.
OSTROWSKI
NO. 11175
NO. 1117

Introduction

The following plan outlines the anticipated inspection and maintenance procedures for the erosion and sedimentation control measures as well as stormwater management facilities for the project. This plan also outlines several housekeeping requirements that shall be followed during and after construction. These procedures shall be followed in order to ensure the intended function of the designed measures and to prevent unreasonably adverse impacts to the surrounding environment.

The procedures outlined in this Inspection, Maintenance and Housekeeping Plan are provided as an overview of the anticipated practices to be used on this site. In some instances, additional measures may be required due to unexpected conditions. For additional detail on any of the erosion and sedimentation control measures or stormwater management devices to be utilized on this project, refer to the most recently revised edition of the "Maine Erosion and Sedimentation Control BMP" manual and/or the "Stormwater Management for Maine: Best Management Practices" manual as published by the Maine Department of Environmental Protection (MDEP).

During Construction

- Inspection: During the construction process, it is the Contractor's responsibility to comply with the inspection and maintenance procedures outlined in this section. These responsibilities include inspecting disturbed and impervious areas, erosion control measures, materials storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. These areas shall be inspected at least once a week as well as before and after a storm event (0.5" of rainfall), and prior to completing permanent stabilization measures. A person with knowledge of erosion and stormwater control, including the standards and conditions in any applicable permits, shall conduct the inspections.
- 2. **Maintenance:** All measures shall be maintained in an effective operating condition until areas are permanently stabilized. If Best Management Practices (BMPs) need to be maintained or modified, additional BMPs are necessary, or other corrective action is needed, implementation must be completed within 7 calendar days and prior to any storm event (0.5" of rainfall).
- 3. Documentation: A log summarizing the inspections and any corrective action taken must be maintained on-site. The log must include the name(s) and qualifications of the person making the inspections, the date(s) of the inspections, and major observations about the operation and maintenance of erosion and sedimentation controls, material storage areas, and vehicle access

points to the site. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and locations where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the log the corrective action taken and when it was taken. The log must be made accessible to the appropriate regulatory agency upon request. The permittee shall retain a copy of the log for a period of at least three years from the completion of permanent stabilization.

4. **Specific Inspection and Maintenance Tasks:** The following is a list of erosion control and stormwater management measures and the specific inspection and maintenance tasks to be performed during construction.

A. <u>Sediment Barriers:</u>

- Hay bale barriers, silt fences, and filter berms shall be inspected immediately after each rainfall and at least daily during prolonged rainfall.
- If the fabric on a silt fence or filter barrier should decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, it shall be replaced.
- Sediment deposits should be removed after each storm event (0.5" of rainfall). They
 must be removed before deposits reach approximately one-half the height of the
 barrier.
- Filter berms shall be reshaped as needed.
- Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required should be dressed to conform to the existing grade, prepared, and seeded.

B. Riprap Materials:

 Once a riprap installation has been completed, it should require very little maintenance. It shall, however, be inspected periodically to determine if high flows have caused scour beneath the riprap or dislodged any of the stone.

C. Erosion Control Blankets:

- Inspect these reinforced areas semi-annually and after significant rainfall events for slumping, sliding, seepage, and scour. Pay close attention to unreinforced areas adjacent to the erosion control blankets, which may experience accelerated erosion.
- Review all applicable inspection and maintenance procedures recommended by the specific blanket manufacturer. These tasks shall be included in addition to the requirements of this plan.

D. <u>Stabilized Construction Entrances/Exits:</u>

- The exit shall be maintained in a condition that will prevent tracking of sediment onto public rights-of-way.
- When the control pad becomes ineffective, the stone shall be removed along with the collected soil material. The entrance should then be reconstructed.
- Areas that have received mud-tracking or sediment deposits shall be swept or

washed. Washing shall be done on an area stabilized with aggregate, which drains into an approved sediment-trapping device (not into storm drains, ditches, or waterways).

E. Temporary Seed and Mulch:

- Mulched areas should be inspected after rain events to check for rill erosion.
- If less than 90% of the soil surface is covered by mulch, additional mulch shall be applied in bare areas.
- In applications where seeding and mulch have been applied in conjunction with erosion control blankets, the blankets must be inspected after rain events for dislocation or undercutting.
- Mulch shall continue to be reapplied until 95% of the soil surface has established temporary vegetative cover.

F. Stabilized Temporary Drainage Swales:

- Sediment accumulation in the swale shall be removed once the cross section of the swale is reduced by 25%.
- The swales shall be inspected after rainfall events. Any evidence of sloughing of the side slopes or channel erosion shall be repaired and corrective action should be taken to prevent reoccurrence of the problem.
- In addition to the stabilized lining of the channel (i.e. erosion control blankets), stone check dams may be needed to further reduce channel velocity.
- 5. **Housekeeping:** The following general performance standards apply to the proposed project.
 - A. <u>Spill prevention</u>: Controls must be used to prevent pollutants from being discharged from materials on-site, including storage practices to minimize exposure of the materials to stormwater, and appropriate spill prevention, containment, and response planning and implementation.
 - B. <u>Groundwater protection</u>: During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled in areas of the site draining to an infiltration area. An "infiltration area" is any area of the site that by design or as a result of soils, topography and other relevant factors, accumulates runoff that infiltrates into the soil. Dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater may be used to isolate portions of the site for the purposes of storage and handling of these materials.
 - C. <u>Fugitive sediment and dust</u>: Actions must be taken to ensure that activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil may not be used for dust control.
 - D. <u>Debris and other materials</u>: Litter, construction debris, and chemicals exposed to stormwater must be prevented from becoming a pollutant source.
 - E. <u>Trench or foundation dewatering</u>: Trench dewatering is the removal of water from

trenches, foundations, cofferdams, ponds, and other areas within the construction area that retain water after excavation. In most cases, the collected water is heavily silted and hinders correct and safe construction practices. The collected water must be removed from the ponded area, either through gravity or pumping, and must be spread through natural wooded buffers or removed to areas that are specifically designed to collect the maximum amount of sediment possible, like a cofferdam sedimentation basin. Avoid allowing the water to flow over disturbed areas of the site. Equivalent measures may be taken if approved.

Post-Construction

- Inspection: After construction, it is the responsibility of the owner or assigned heirs to comply with the inspection and maintenance procedures outlined in this section. All measures must be maintained in effective operating condition. The owner shall inspect and maintain the BMPs, including but not limited to any parking areas, catch basins, drainage swales, detention basins and ponds, pipes and related structures, in accordance with all municipal and state inspection, cleaning and maintenance requirements of the approved post-construction stormwater management plan.
- 2. Specific Inspection and Maintenance Tasks: The following is a list of permanent erosion control and stormwater management measures and the inspection and maintenance tasks to be performed after construction. If the BMP requires maintenance, repair or replacement to function as intended by the approved post-construction stormwater management plan, the owner or operator of the BMP shall take corrective action(s) to address the deficiency or deficiencies as soon as possible after the deficiency is discovered and shall provide a record of the deficiency and corrective action(s) to the local municipality in the annual report.

A. <u>Vegetated Areas:</u>

- Inspect vegetated areas, particularly slopes and embankments, early in the growing season or after heavy rains (>0.5") to identify active or potential erosion problems.
- Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows.

B. Ditches, Swales and Other Open Channels:

- Inspect ditches, swales, level spreaders and other open stormwater channels in the spring, in the late fall, and after heavy rains to remove any obstructions to flow. Remove accumulated sediments and debris, remove woody vegetative growth that could obstruct flow, and repair any erosion of the ditch lining.
- Vegetated ditches must be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity.
- Any woody vegetation growing through riprap linings must also be removed.
 Repair any slumping side slopes as soon as practicable.
- If the ditch has a riprap lining, replace riprap in areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged.

C. Culverts:

- Inspect culverts in the spring, in the late fall, and after heavy rains (>0.5") to remove any obstructions to flow.
- Remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit.
- Inspect and repair any erosion damage at the culvert's inlet and outlet.

D. Removal of Winter Sand:

- Clear accumulations of winter sand in parking lots and along roadways at least once a year, preferably in the spring.
- Accumulations on pavement may be removed by pavement sweeping.
- Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader or other acceptable method.

E. Outlet Control Structures:

- Inspect outlet structures two times per year (preferably in spring and fall) to ensure that the outlet structures are working in their intended fashion and that they are free of debris.
- Clean structures when sediment depths reach 12 inches from invert of outlet.
- At a minimum, remove floating debris and hydrocarbons at the time of the inspection.

3. Documentation:

- A. The owner or operator of a BMP or a qualified post-construction stormwater inspector hired by that person, shall, as required by the local municipality, provide a completed and signed certification on a form provided by the local municipality, certifying that the person has inspected the BMP(s) and that they are adequately maintained and functioning as intended by the approved post-construction stormwater management plan, or that they required maintenance or repair, including the record of the deficiency and corrective action(s) taken.
- B. A log summarizing the inspections and any corrective action taken must be maintained. The log must include the name(s) and qualifications of the person making the inspections, the date(s) of the inspections, and major observations about the operation and maintenance of controls. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and locations where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the log the corrective action taken and when it was taken. The log must be made accessible to the appropriate regulatory agency upon request. A sample "Stormwater Inspection and Maintenance Form" has been included as Attachment 1 of this Inspection, Maintenance, and Housekeeping Plan.

4. Duration of Maintenance: Perform maintenance as described and required for any associated permits unless and until the system is formally accepted by a municipality or quasi-municipal district, or is placed under the jurisdiction of a legally created association that will be responsible for the maintenance of the system. If a municipality or quasi-municipal district chooses to accept a stormwater management system, or a component of a stormwater system, it must provide a letter to the MDEP stating that it assumes responsibility for the system. The letter must specify the components of the system for which the municipality or district will assume responsibility, and that the municipality or district agrees to maintain those components of the system in compliance with MDEP standards. Upon such assumption of responsibility, and approval by the MDEP, the municipality, quasi-municipal district, or association becomes a copermittee for this purpose only and must comply with all terms and conditions of the permit.

General Site

INSPECTION MAINTENANCE AND HOUSEKEEPING FORM			
General Information			
Project Name:		Inspection Date:	
Project Location:	- Angelia	Current Weather:	
		Date / Amount Last Precip:	
BMP Owner:		Company conducting inspection:	
Owner Mailing Address:		Company Mailing Address	
Owner Phone #:		Company Phone #:	
Owner Email:		Inspector Name:	
		Inspector Email:	
Site Element	Suggested Maintenance (recm'd frequency)	Observations	Inspection Notes/Recommended Action
Vegetated Areas	Inspect Slopes/Embankments for erosion (annually)		
	Replant bare areas or areas of sparse growth		
	(annually)		
Paved Surfaces	Clear accumulated winter sand (annually)		
480	Remove sediment along edges of parking and within low spots/pockets (annually)		
Ditches/Swales	Remove obstructions/debris/sediment (monthly)		
	Inspect for erosion/repair as needed (annually)		
	Remove woody vegetation (annually)		
	Mow vegetated ditches (annually)		
Catch Basins	Remove sediment/debris from sump (annually)		
Culverts	Remove sediment/debris from inlet/outlet aprons (annually)		
	Inspect inlet/outlet aprons for erosion, repair as needed (annually)		
	Inspect, repair as needed, riprap aprons for dislodged/sparse coverage (annually)		
Pipe Outlets	Remove sediment/debris from outlet aprons (annually)		
	Inspect outlet aprons for erosion, repair as needed (annually)		
	Inspect, repair as needed, riprap aprons for dislodged/sparse coverage (annually)		
Additional Notes/Observation	ons:		

Appendix 3

Subsurface Investigations



United States Department of Agriculture

NRCS

Natural Resources Conservation Service A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for York County, Maine





MAP LEGEND

Special Line Features Streams and Canals Interstate Highways Very Stony Spot Major Roads Local Roads US Routes Stony Spot Spoil Area Wet Spot Other Rails **Water Features Transportation** M 8 0 İ Soil Map Unit Polygons Area of Interest (AOI) Soil Map Unit Points Soil Map Unit Lines Closed Depression **Gravelly Spot** Special Point Features **Borrow Pit** Clay Spot **Gravel Pit** Area of Interest (AOI) Blowout Landfill 9 Soils

Aerial Photography Background

Marsh or swamp

Lava Flow

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

contrasting soils that could have been shown at a more detailed misunderstanding of the detail of mapping and accuracy of soil Enlargement of maps beyond the scale of mapping can cause line placement. The maps do not show the small areas of scale.

Please rely on the bar scale on each map sheet for map measurements. Source of Map: Natural Resources Conservation Service Coordinate System: Web Mercator (EPSG:3857) Web Soil Survey URL:

distance and area. A projection that preserves area, such as the Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required. This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: York County, Maine Survey Area Data: Version 18, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Severely Eroded Spot

Sandy Spot Saline Spot

Slide or Slip

Sinkhole

Sodic Spot

Date(s) aerial images were photographed: Dec 31, 2009—Sep 9, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
LnC	Lyman loam, 8 to 15 percent slopes, rocky	0.6	14.6%
Ur	Urban land	3.7	85.4%
Totals for Area of Interest		4.3	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An association is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

York County, Maine

LnC-Lyman loam, 8 to 15 percent slopes, rocky

Map Unit Setting

National map unit symbol: 2trq9

Elevation: 0 to 690 feet

Mean annual precipitation: 36 to 65 inches Mean annual air temperature: 36 to 52 degrees F

Frost-free period: 60 to 160 days

Farmland classification: Not prime farmland

Map Unit Composition

Lyman, rocky, and similar soils: 86 percent

Minor components: 14 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lyman, Rocky

Setting

Landform: Hills, mountains

Landform position (two-dimensional): Backslope, summit, shoulder Landform position (three-dimensional): Mountaintop, mountainbase,

mountainflank, crest, side slope

Down-slope shape: Convex Across-slope shape: Convex

Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till

derived from mica schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material

A - 1 to 3 inches: loam

E - 3 to 5 inches: fine sandy loam

Bhs - 5 to 7 inches: loam Bs1 - 7 to 11 inches: loam

Bs2 - 11 to 18 inches: channery loam

R - 18 to 28 inches: bedrock

Properties and qualities

Slope: 8 to 15 percent

Depth to restrictive feature: 11 to 24 inches to lithic bedrock Natural drainage class: Somewhat excessively drained

Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00

to 14.03 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None Frequency of ponding: None

Available water storage in profile: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: D Hydric soil rating: No

Minor Components

Tunbridge, rocky

Percent of map unit: 6 percent Landform: Hills, mountains

Landform position (two-dimensional): Backslope, summit, shoulder Landform position (three-dimensional): Mountaintop, mountainbase,

mountainflank, side slope, crest

Down-slope shape: Convex Across-slope shape: Convex

Hydric soil rating: No

Skerry, rocky

Percent of map unit: 5 percent Landform: Hills, mountains

Landform position (two-dimensional): Footslope, backslope

Landform position (three-dimensional): Mountaintop, mountainbase,

mountainflank, crest, side slope

Microfeatures of landform position: Closed depressions, closed depressions, open

depressions, open depressions Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: No

Hermon, rocky

Percent of map unit: 2 percent Landform: Mountains, hills

Landform position (two-dimensional): Summit, shoulder, backslope Landform position (three-dimensional): Mountainflank, mountaintop,

mountainbase, side slope, crest

Down-slope shape: Convex Across-slope shape: Convex

Hydric soil rating: No

Brayton, rocky

Percent of map unit: 1 percent Landform: Hills, mountains

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Mountaintop, mountainbase,

mountainflank, crest, side slope

Microfeatures of landform position: Closed depressions, closed depressions, open

depressions, open depressions Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

Ur-Urban land

Map Unit Setting

National map unit symbol: 9k6x

Elevation: 10 to 2,200 feet

Mean annual precipitation: 30 to 50 inches Mean annual air temperature: 37 to 46 degrees F

Frost-free period: 70 to 160 days

Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 90 percent

Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform position (two-dimensional): Toeslope, footslope Landform position (three-dimensional): Base slope, tread

Down-slope shape: Linear Across-slope shape: Linear

Typical profile

H1 - 0 to 6 inches: variable

Properties and qualities

Slope: 0 to 8 percent

Natural drainage class: Moderately well drained Depth to water table: About 24 to 72 inches

Available water storage in profile: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8s

Hydric soil rating: No

Minor Components

Adams

Percent of map unit: 2 percent Landform: Outwash plains

Landform position (two-dimensional): Footslope Landform position (three-dimensional): Tread

Down-slope shape: Linear Across-slope shape: Linear Hydric soil rating: No

Scantic

Percent of map unit: 2 percent Landform: Coastal plains

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Dip

Down-slope shape: Concave Across-slope shape: Concave

Hydric soil rating: Yes

Buxton

Percent of map unit: 2 percent Landform: Coastal plains

Landform position (two-dimensional): Footslope Landform position (three-dimensional): Tread

Down-slope shape: Concave Across-slope shape: Linear Hydric soil rating: No

Sulfihemists

Percent of map unit: 2 percent Landform: Salt marshes

Landform position (two-dimensional): Toeslope Landform position (three-dimensional): Talf

Down-slope shape: Linear Across-slope shape: Linear Hydric soil rating: Yes

Croghan

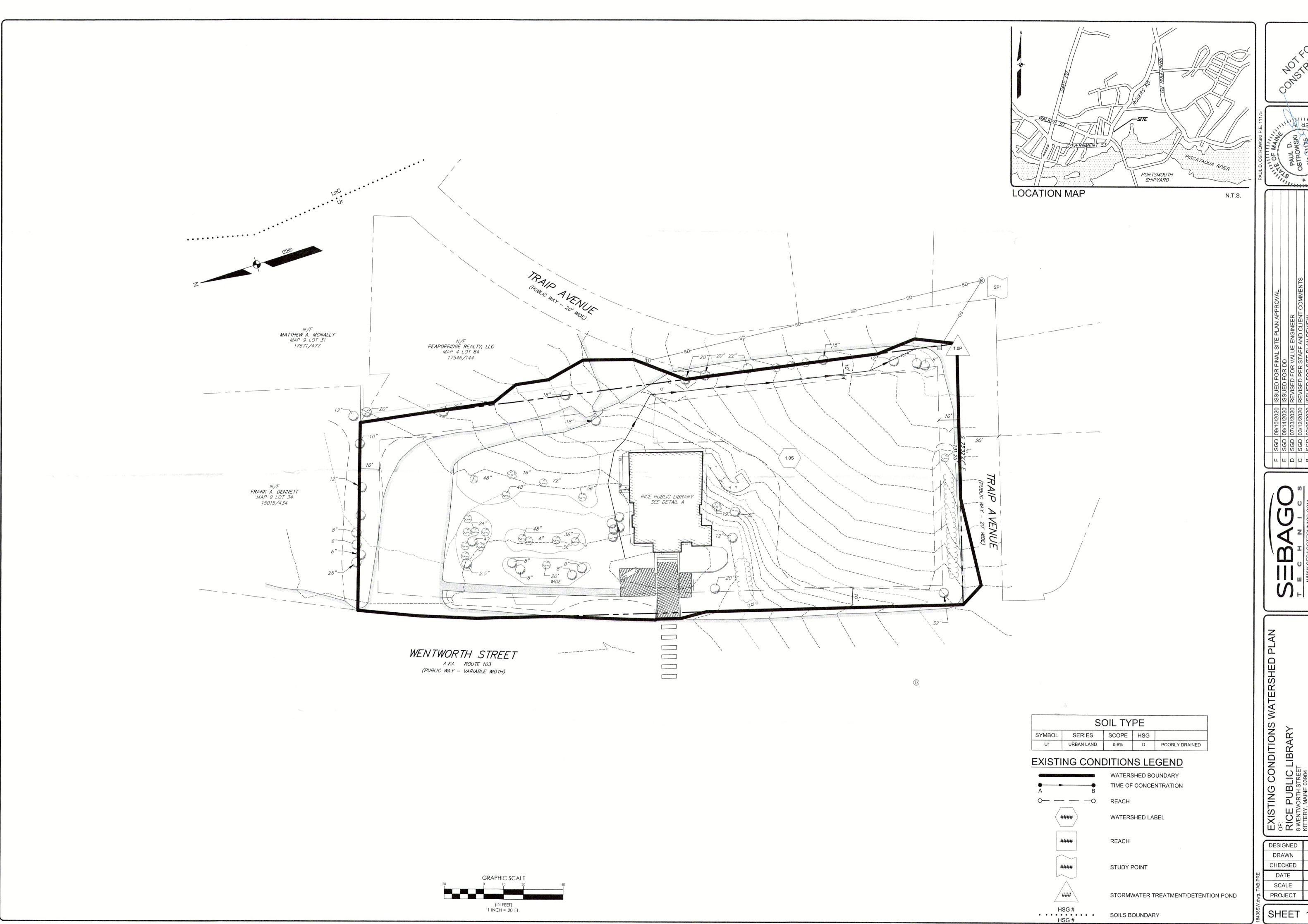
Percent of map unit: 2 percent Landform: Outwash plains

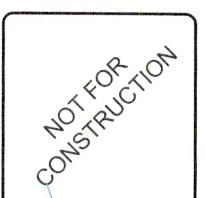
Landform position (two-dimensional): Toeslope Landform position (three-dimensional): Tread

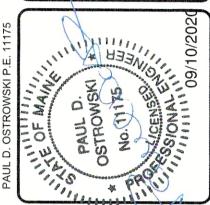
Down-slope shape: Linear Across-slope shape: Linear Hydric soil rating: No

Appendix 4

Stormwater Management Plans







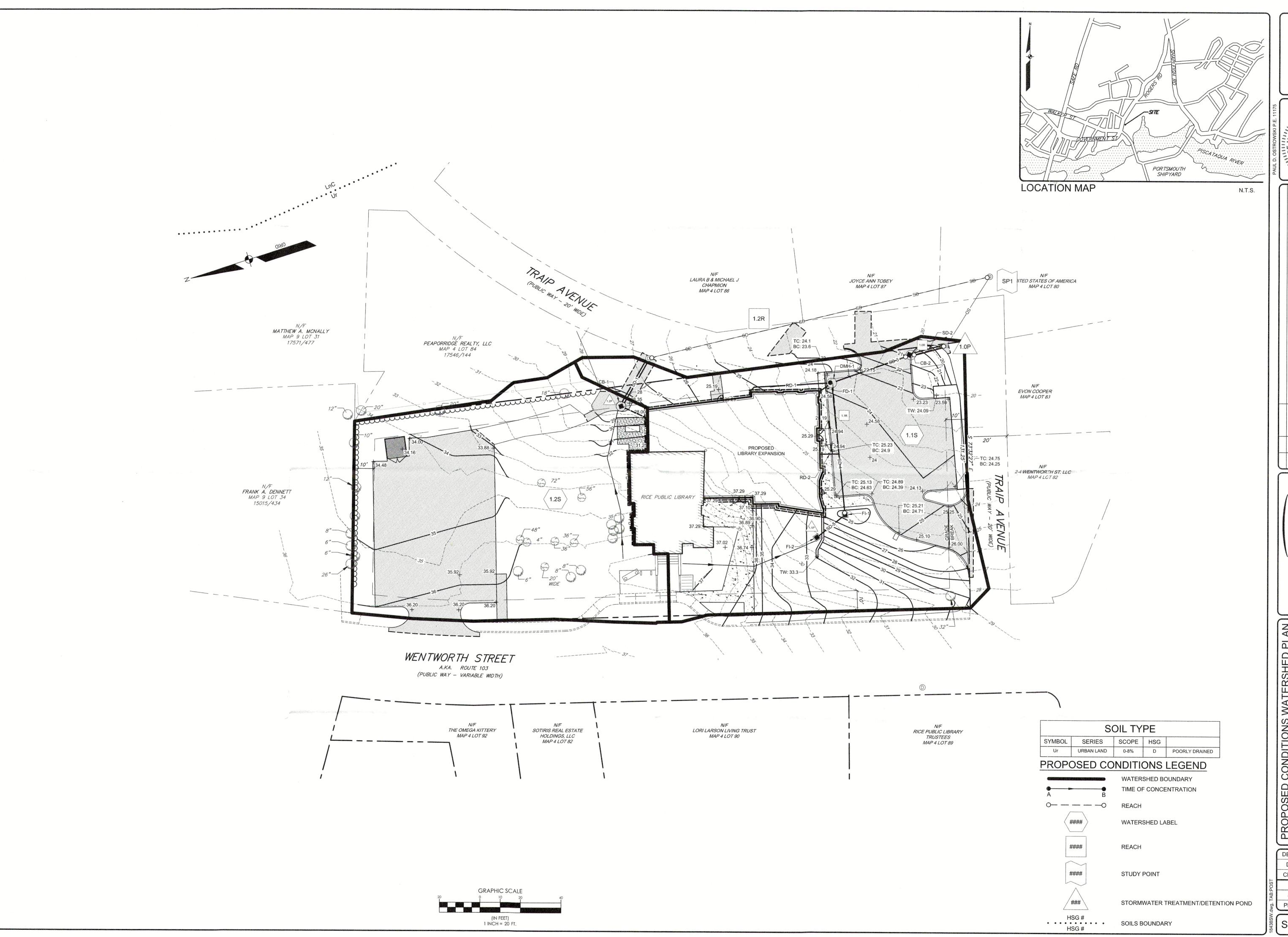
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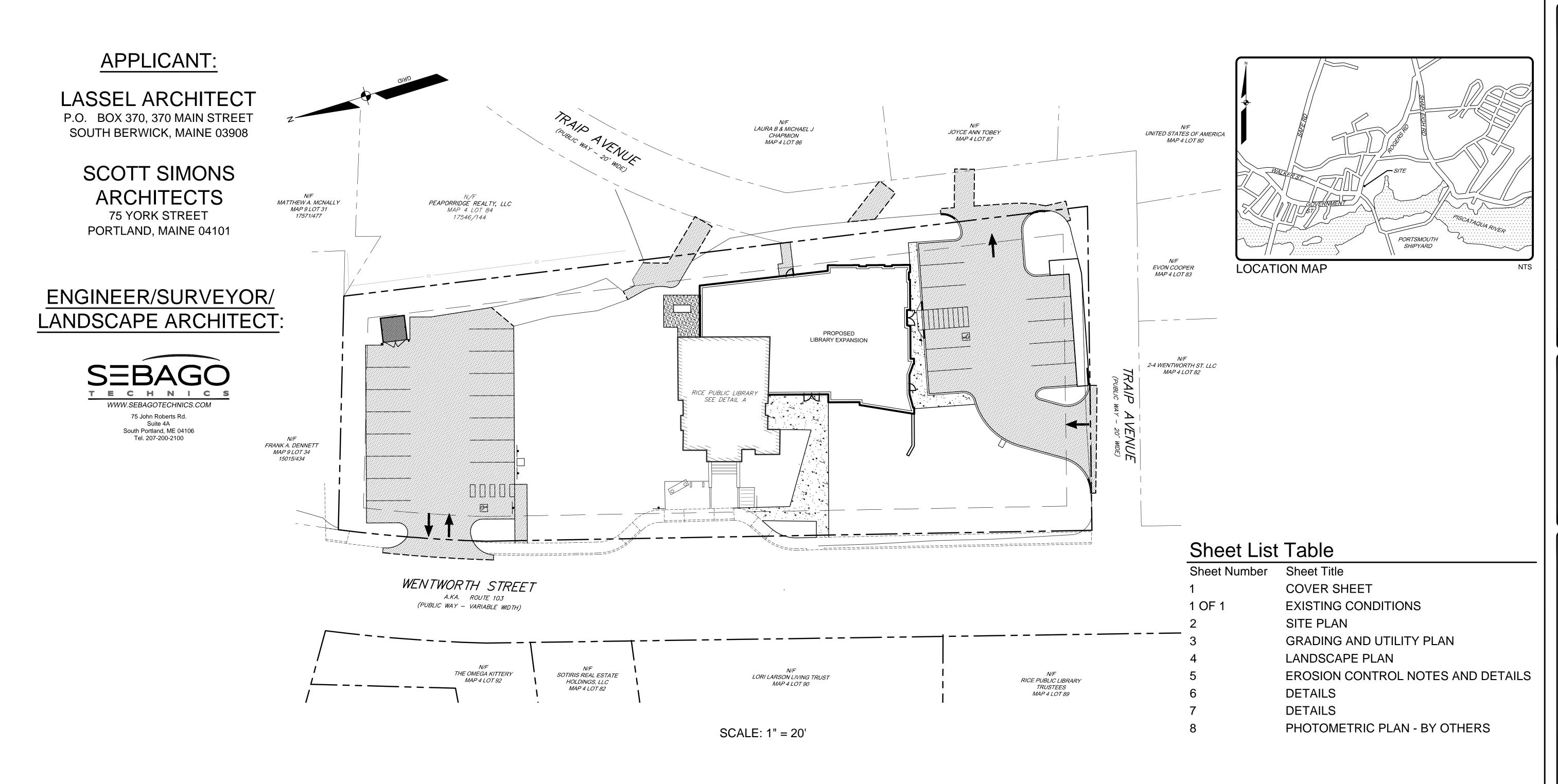
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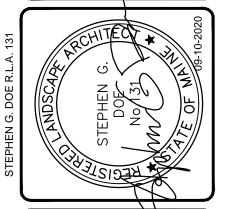
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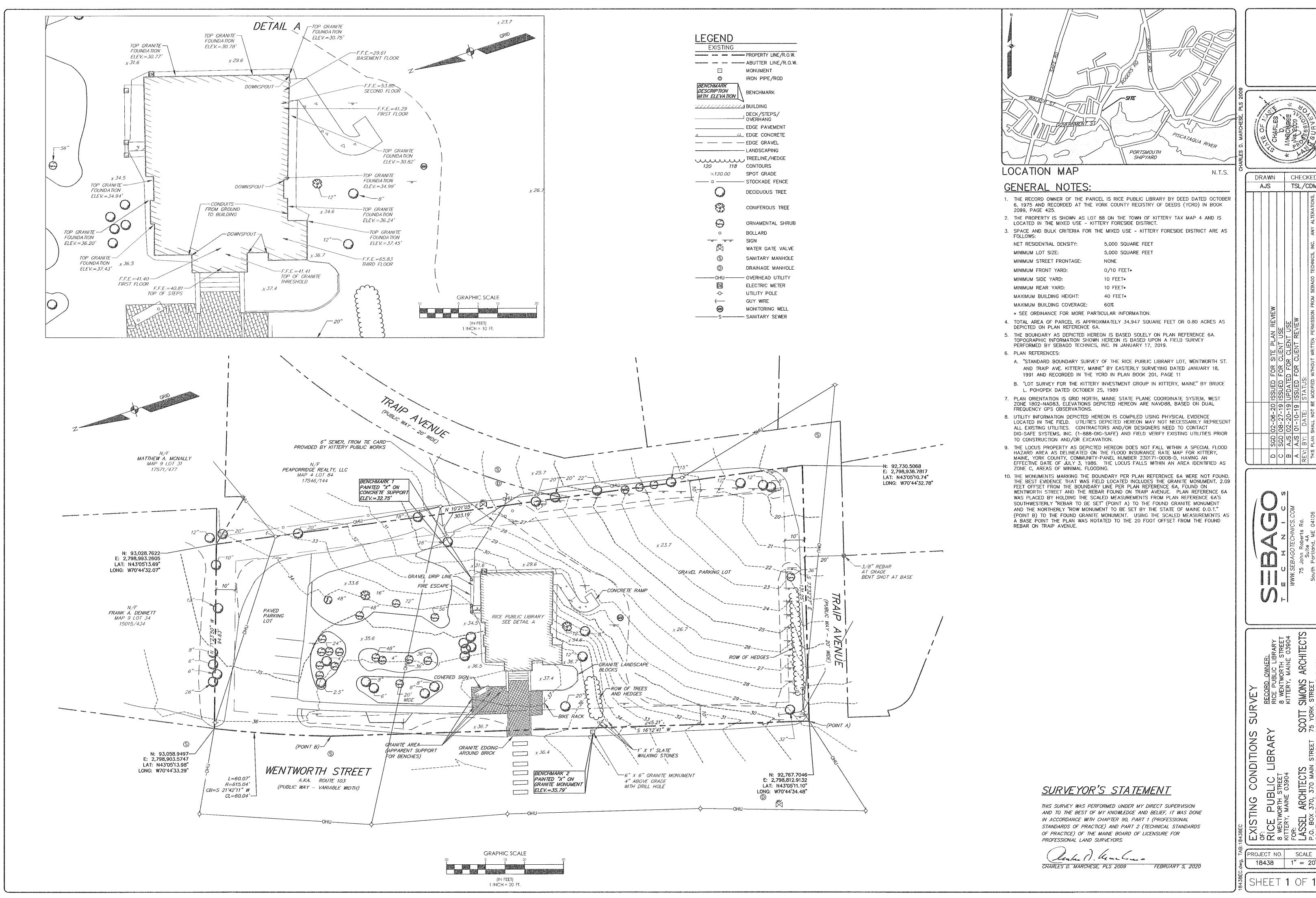
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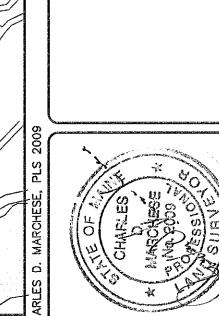


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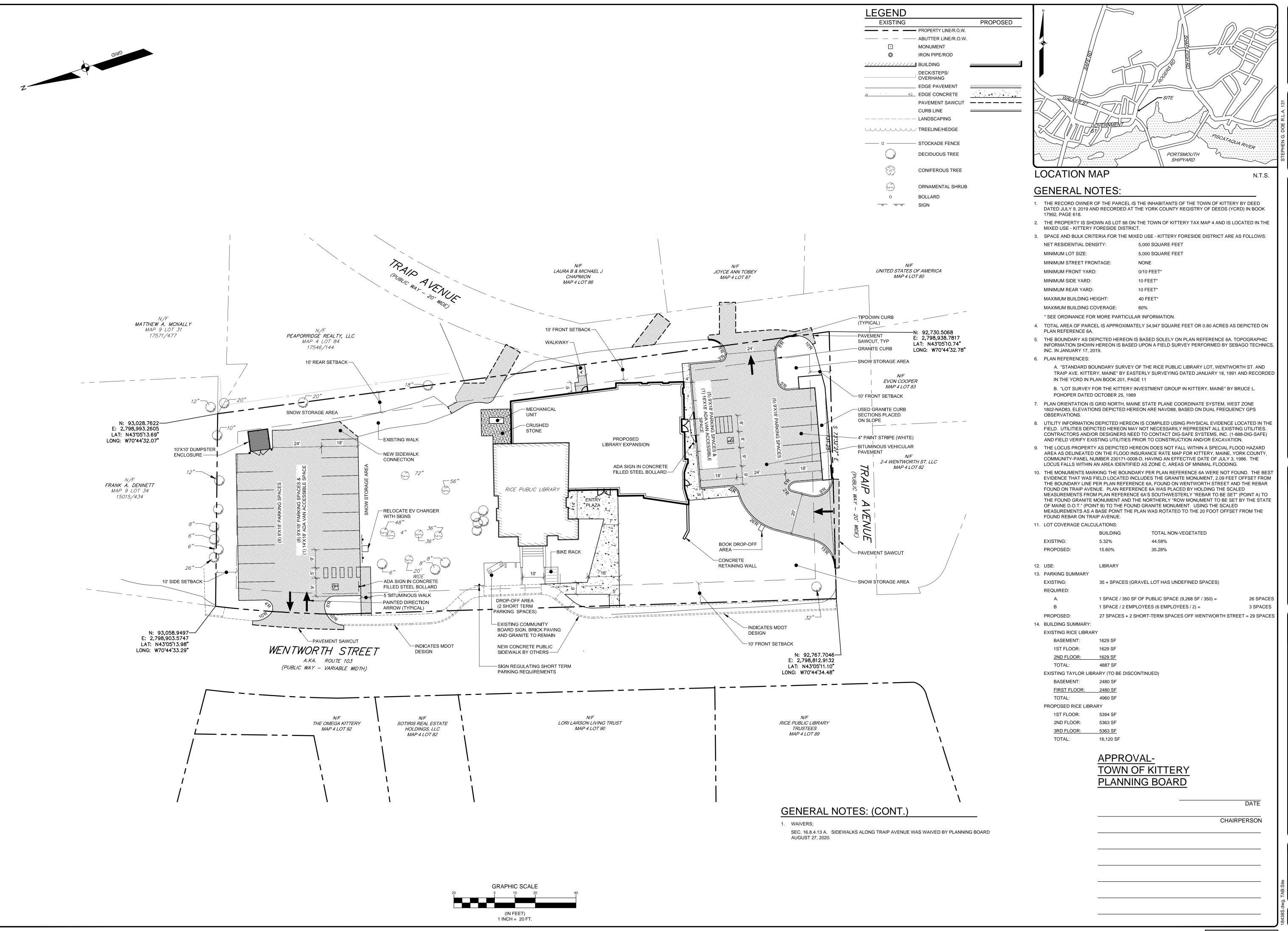
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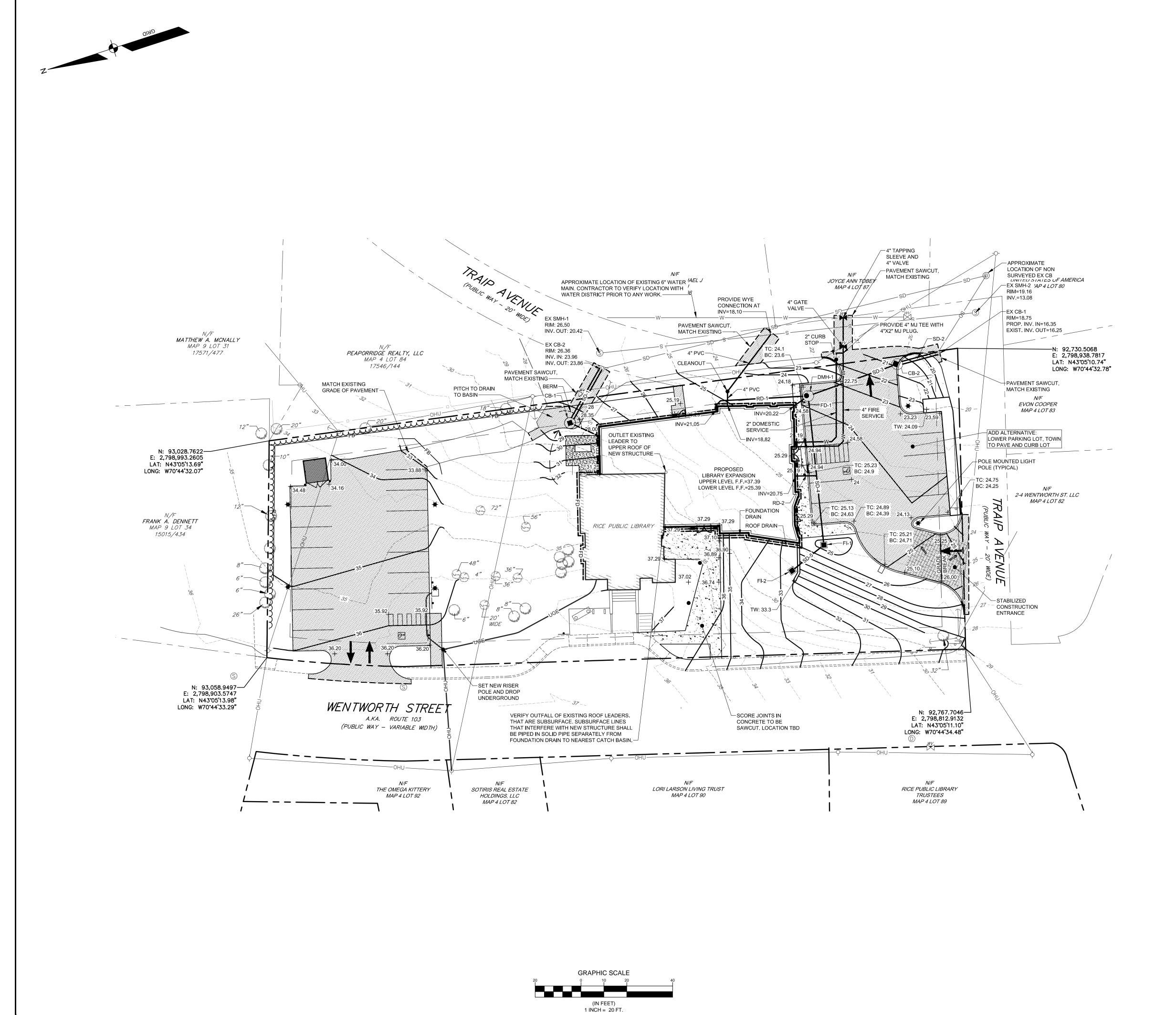
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SHEET 2 OF 8



STORM DRAIN STRUCTURE DATA					
STRUCTURE	RIM	INV. IN	INV. OUT:	DIAM.	
CB-1	28.00		24.30 (SD-1)	48"	
CB-2	21.44	17.55 (SD-3)	17.45 (SD-2)	48"	
DMH-1	23.80	20.20 (SD-4) 20.20 (RD-1) 20.20 (FD-1)	20.10 (SD-3)	48"	
FI-1	24.50	21.18 (SD-5)	21.08 (SD-4)	24"X24"	
Fl-2	32.39		21.39 (SD-5)	24"X24"	

STO	RM DF	RAIN PIPE	DATA
NAME	SIZE	LENGTH	SLOPE
FD-1	6"	5'	1.93%
RD-1	6"	36'	2.00%
RD-2	6"	9'	0.56%
SD-1	12"	25'	1.26%
SD-2	12"	16'	6.04%
SD-3	10"	37'	6.18%
SD-4	10"	62'	1.35%
SD-5	10"	16'	1.34%

EXISTING		PROPOSED
	PROPERTY LINE/R.O.W.	
	- ABUTTER LINE/R.O.W.	
⊡	MONUMENT	
0	IRON PIPE/ROD	
///////////////////////////////////////	▲ BUILDING	
	DECK/STEPS/ OVERHANG	
	_ EDGE PAVEMENT	· · · · · · · · · · · · · · · · · · ·
4	_ EDGE CONCRETE	A
	PAVEMENT SAWCUT	
	CURB LINE	
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120.00	SPOT GRADE — STOCKADE FENCE	
	- STOCKADE FENCE	
	DECIDUOUS TREE	
X	CONIFEROUS TREE	
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\bowtie	WATER GATE VALVE	×
<u>\$</u>	SANITARY MANHOLE	
s	- SANITARY SEWER	s_
D	DRAINAGE MANHOLE	
SD	- STORM DRAIN	sD
UD	UNDER DRAIN	UD
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€M)	ELECTRIC METER	
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GRADING AND UTILITY PLAN

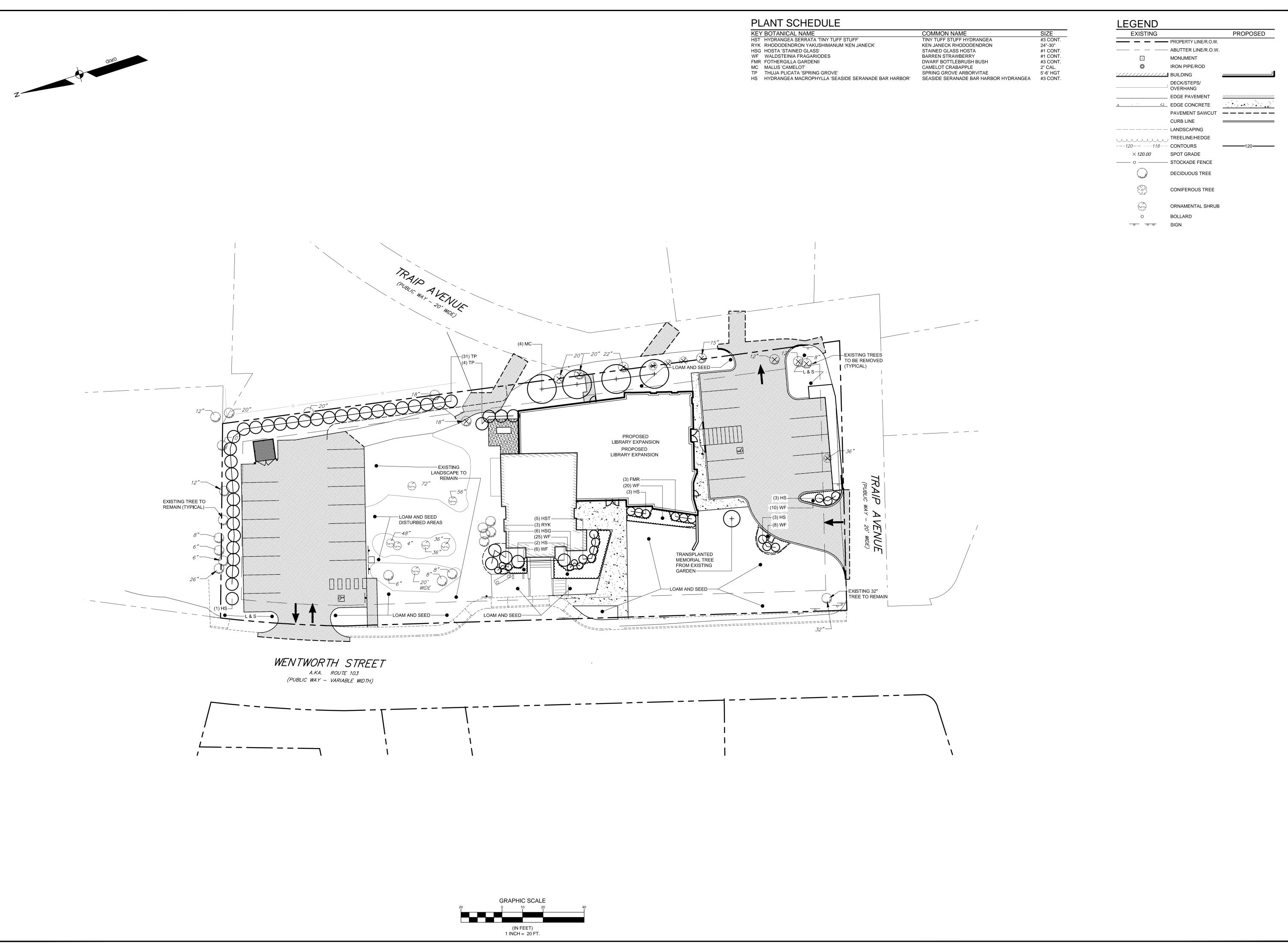
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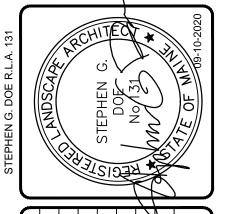
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PROJECT

EROSION CONTROL MEASURES

PRIOR TO THE BEGINNING OF ANY CONSTRUCTION, SEDIMENT BARRIERS (SILT FENCE) WILL BE STAKED/INSTALLED ACROSS THE SLOPE(S), ON THE CONTOUR AT OR JUST BELOW THE LIMITS OF CLEARING OR GRUBBING, AND/OR JUST ABOVE ANY ADJACENT PROPERTY LINE OR WATERCOURSE TO PROTECT AGAINST CONSTRUCTION RELATED EROSION. THE PLACEMENT OF SEDIMENT BARRIERS SHALL BE COMPLETED IN ACCORDANCE WITH GUIDELINES ESTABLISHED IN BEST MANAGEMENT PRACTICES AND IN ACCORDANCE WITH THIS EROSION CONTROL PLAN AND DETAILS IN THIS PLAN SET. THIS NETWORK IS TO BE MAINTAINED BY THE CONTRACTOR UNTIL ALL EXPOSED SLOPES HAVE AT LEAST 90% VIGOROUS PERENNIAL VEGETATIVE COVER TO PREVENT EROSION. TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER PERMANENT STABILIZATION IS ATTAINED.

PRIOR TO ANY CLEARING OR GRUBBING, A CONSTRUCTION ENTRANCE/EXIT SHALL BE CONSTRUCTED AT THE INTERSECTION OF THE PROPOSED ENTRANCES AND EXISTING ROADWAY TO AVOID TRACKING OF MUD, DUST AND DEBRIS FROM THE SITE.

PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL PREPARE A DETAILED SCHEDULE AND MARKED UP PLAN INDICATING AREAS AND COMPONENTS OF THE WORK AND KEY DATES SHOWING DATE OF DISTURBANCE AND COMPLETION OF THE WORK, THE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE MUNICIPAL STAFF. THREE COPIES OF THE SCHEDULE AND MARKED UP PLAN SHALL BE PROVIDED TO THE MUNICIPALITY THREE DAYS PRIOR TO THE SCHEDULED PRE-CONSTRUCTION MEETING. SPECIAL ATTENTION SHALL BE GIVEN TO THE 14 DAY LIMIT OF DISTURBANCE IN THE SCHEDULE ADDRESSING TEMPORARY AND PERMANENT VEGETATION MEASURES.

CONSTRUCTION AND POST-CONSTRUCTION PHASE

AREAS UNDERGOING ACTUAL CONSTRUCTION SHALL ONLY EXPOSE THAT AMOUNT OF MINERAL SOIL NECESSARY FOR PROGRESSIVE AND EFFICIENT CONSTRUCTION. AN AREA CONSIDERED OPEN IS ANY AREA NOT STABILIZED WITH PAVEMENT, VEGETATION, MULCHING, EROSION CONTROL MATS, RIPRAP OR GRAVEL BASE ON A ROAD, SUCH AS ACTIVE EXCAVATION AND ACTIVE GRADING. LIMIT THE EXPOSED AREA TO THOSE AREAS IN WHICH WORK IS ACTIVELY OCCURRING OR CAN BE MULCHED IN THE SAME DAY. OPEN AREAS SHALL BE ANCHORED WITH TEMPORARY EROSION CONTROL AS SHOWN ON THE DESIGN PLANS AND AS DESCRIBED WITHIN THIS EROSION CONTROL PLAN WITHIN SEVEN (7) DAYS OF DISTURBANCE. AREAS LOCATED WITHIN 100 FEET OF STREAMS SHALL BE ANCHORED WITH TEMPORARY EROSION CONTROL WITHIN SEVEN (7) DAYS. REFER TO WINTER EROSION CONTROL NOTES FOR THE TREATMENT OF OPEN AREAS AFTER OCTOBER 1ST OF THE CONSTRUCTION YEAR.

THE CONTRACTOR MUST INSTALL ANY ADDED MEASURES WHICH MAY BE NECESSARY TO CONTROL EROSION/SEDIMENTATION FROM THE SITE DEPENDENT UPON THE ACTUAL SITE AND WEATHER CONDITIONS. CONTINUATION OF EARTHWORK OPERATIONS ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED, IN ORDER TO MINIMIZE AREAS WITHOUT EROSION CONTROL PROTECTION.

HE PLACEMENT OF EROSION CONTROL MEASURES SHALL BE COMPLETED IN ACCORDANCE WITH GUIDELINES ESTABLISHED IN BEST MANAGEMENT PRACTICES AND IN ACCORDANCE WITH THE EROSION CONTROL PLAN AND DETAILS IN THE PLAN SET.

TEMPORARY MULCHING:

ALL DISTURBED AREAS SHALL BE MULCHED WITH MATERIALS SPECIFIED BELOW PRIOR TO ANY STORM EVENT. ALL DISTURBED AREAS NOT FINAL GRADED WITHIN 14 DAYS SHALL BE MULCHED. DISTURBED AREAS ADJACENT TO NATURAL RESOURCES THAT ARE NOT GRADED WITHIN SEVEN (7) DAYS SHALL BE MULCHED. ALSO, AREAS, WHICH HAVE BEEN TEMPORARILY OR PERMANENTLY SEEDED. SHALL BE MULCHED IMMEDIATELY FOLLOWING SEEDING. EROSIÓN CONTROL BLANKETS ARE RECOMMENDED TO BE USED AT THE BASE OF GRASSED WATERWAYS AND ON SLOPES GREATER THAN 33%. MULCH ANCHORING SHOULD BE USED ON SLOPES GREATER THAN 5% AFTER SEPTEMBER 15TH OF THE CONSTRUCTION YEAR (SEE WINTER EROSION CONTROL NOTES).

HAY OR STRAW: SHALL BE APPLIED AT A RATE OF 75 LBS/1,000 S.F. (1.5 TONS PER ACRE).

EROSION CONTROL MIX: SHALL BE PLACED EVENLY AND MUST PROVIDE 100% SOIL COVERAGE. EROSION CONTROL MIX SHALL BE APPLIED SUCH THAT THE THICKNESS ON SLOPES 3:1 OR LESS IS 2 INCHES PLUS 1/2 INCH PER 20 FEET OF SLOPE UP TO 100 FEET. THE THICKNESS ON SLOPES BETWEEN 3:1 AND 2:1 SHALL BE 4 INCHES PLUS 1/2 INCH PER 20 FEET OF SLOPE UP TO 100 FEET. THIS SHALL NOT BE USED ON SLOPES GREATER THAN 2:1.

EROSION CONTROL BLANKET: SHALL BE INSTALLED SUCH THAT CONTINUOUS CONTACT BETWEEN THE MAT AND THE SOIL IS OBTAINED. INSTALL BLANKETS AND STAPLE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

SOIL STOCKPILES:

STOCKPILES OF SOIL OR SUBSOIL SHALL BE MULCHED WITH HAY OR STRAW AT A RATE OF 75 LBS/1,000 S.F. (1.5 TONS PER ACRE) OR WITH A FOUR-INCH LAYER OF WOOD WASTE EROSION CONTROL MIX. THIS WILL BE DONE WITHIN 24 HOURS OF STOCKING AND RE-ESTABLISHED PRIOR TO ANY RAINFALL. ANY SOIL STOCKPILE WILL NOT BE PLACED (EVEN COVERED WITH HAY OR STRAW) WITHIN 100 FEET FROM ANY NATURAL RESOURCES. SEDIMENT BARRIERS SHALL BE INSTALLED DOWNGRADIENT OF STOCKPILES, AND STORMWATER SHALL BE PREVENTED FROM RUNNING ONTO THE STOCKPILE.

3. NATURAL RESOURCES PROTECTION:

ANY AREAS WITHIN 100 FEET FROM ANY NATURAL RESOURCES SHALL BE MULCHED USING TEMPORARY MULCHING (AS DESCRIBED IN PART 1 OF THIS SECTION) WITHIN 7 DAYS OF EXPOSURE OR PRIOR TO ANY STORM EVENT. SEDIMENT BARRIERS (AS DESCRIBED IN PART 4 OF THIS SECTION) SHALL BE PLACED BETWEEN ANY NATURAL RESOURCE AND THE DISTURBED AREA. PROJECTS CROSSING THE NATURAL RESOURCE SHALL BE PROTECTED A MINIMUM DISTANCE OF 100 FEET ON EITHER SIDE FROM THE RESOURCE.

4. SEDIMENT BARRIERS:

PRIOR TO THE BEGINNING OF ANY CONSTRUCTION, SEDIMENT BARRIERS SHALL BE STAKED ACROSS THE SLOPE(S), ON THE CONTOUR AT OR JUST BELOW THE LIMITS OF CLEARING OR GRUBBING, AND/OR JUST ABOVE ANY ADJACENT PROPERTY LINE OR WATERCOURSE TO PROTECT AGAINST CONSTRUCTION RELATED EROSION. SEDIMENT BARRIERS SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL ALL EXPOSED SLOPES HAVE AT LEAST 90% VIGOROUS PERENNIAL VEGETATIVE COVER TO PREVENT

SILT FENCE: SHALL BE INSTALLED PER THE DETAIL ON THE PLANS. THE EFFECTIVE HEIGHT OF THE FENCE SHALL NOT EXCEED 36 INCHES. IT IS RECOMMENDED THAT SILT FENCE BE REMOVED BY CUTTING THE FENCE MATERIALS AT GROUND LEVEL SO AS TO AVOID ADDITIONAL SOIL DISTURBANCE.

HAY BALES: SHALL NOT BE INSTALLED ADJACENT TO WETLAND. INSTALL PER THE DETAIL ON THE PLANS, BALES SHALL BE WIRE-BOUND OR STRING-TIED AND THESE BINDINGS MUST REMAIN PARALLEL WITH THE GROUND SURFACE DURING INSTALLATION TO PREVENT DETERIORATION OF THE BINDINGS. BALES SHALL BE INSTALLED WITHIN A MINIMUM 4 INCH DEEP TRENCH LINE WITH ENDS OF ADJACENT BALES TIGHTLY ABUTTING ONE ANOTHER.

EROSION CONTROL MIX: SHALL NOT BE USED ADJACENT TO WETLANDS. INSTALL PER THE DETAIL ON THE PLANS. THE MIX SHALL CONSIST PRIMARILY OF ORGANIC MATERIAL AND CONTAIN A WELL-GRADED MIXTURE OF PARTICLE SIZES AND MAY CONTAIN ROCKS LESS THAN 4 INCHES IN DIAMETER. THE MIX COMPOSITION SHALL MEET THE STANDARDS DESCRIBED WITHIN THE MDEP BEST MANAGEMENT PRACTICES. NO TRENCHING IS REQUIRED FOR INSTALLATION OF THIS BARRIER, EROSION CONTROL

CONTINUOUS CONTAINED BERM: SHALL BE INSTALLED PER THE DETAIL ON THE PLANS. THIS SEDIMENT BARRIER IS EROSION CONTROL MIX PLACED WITHIN A SYNTHETIC TUBULAR NETTING AND PERFORMS AS A STURDY SEDIMENT BARRIER THAT WORKS WELL ON HARD GROUND SUCH AS FROZEN CONDITIONS, TRAVELED AREAS OR PAVEMENT. NO TRENCHING IS REQUIRED FOR INSTALLATION OF THIS BARRIER.

5. TEMPORARY CHECK DAMS:

SHALL BE INSTALLED PER THE DETAIL ON THE PLANS. CHECK DAMS ARE TO BE PLACED WITHIN DITCHES/ SWALES AS SPECIFIED ON THE DESIGN PLANS IMMEDIATELY AFTER FINAL GRADING. CHECK DAMS SHALL BE 2 FEET HIGH. TEMPORARY CHECK DAMS MAY BE REMOVED ONLY AFTER THE ROADWAYS ARE PAVED AND THE VEGETATED SWALE ARE ESTABLISHED WITH AT LEAST 90% OF VIGOROUS PERENNIAL GROWTH. THE AREA BENEATH THE CHECK DAM MUST BE SEEDED AND MULCHED IMMEDIATELY

STONE CHECK DAMS: STONE DAMS SHOULD BE CONSTRUCTED OF 2 TO 3 INCH STONE AND PLACED SUCH THAT COMPLETE COVERAGE OF THE SWALE IS OBTAINED AND THAT THE CENTER OF THE DAM IS 6 INCHES LOWER THAT THE OUTER EDGES.

HAY BALE CHECK DAMS: BALES SHALL BE WIRE-BOUND OR STRING-TIED. BALES SHALL BE INSTALLED WITHIN A MINIMUM 4 INCH DEEP TRENCH LINE WITH ENDS OF ADJACENT BALES TIGHTLY ABUTTING ONE ANOTHER. HAY BALES SHALL BE PLACED SUCH THAT COMPLETE COVERAGE OF THE SWALE IS OBTAINED AND THAT THE CENTER OF THE DAM IS 6 INCHES LOWER THAT THE OUTER EDGES.

MANUFACTURED CHECK DAMS: MANUFACTURED CHECK DAMS, AS SPECIFIED IN THE DETAIL ON THE PLANS, MAY BE USED IF AUTHORIZED BY THE PROPER LOCAL, STATE OR FEDERAL REGULATING AGENCIES. THESE UNITS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURE'S RECOMMENDATIONS.

6. STORMDRAIN INLET PROTECTION:

INLET PROTECTION SHALL BE PLACED AROUND A STORMDRAIN DROP INLET OR CURB INLET PRIOR TO PERMANENT STABILIZATION OF THE IMMEDIATE AND UPSTREAM DISTURBED AREAS. THEY SHALL BE CONSTRUCTED IN A MANNER THAT WILL FACILITATE CLEAN-OUT AND DISPOSAL OF TRAPPED SEDIMENTS AND MINIMIZE INTERFERENCE WITH CONSTRUCTION ACTIVITIES. ANY RESULTANT PONDING OF WATER FROM THE PROTECTION METHOD MUST NOT CAUSE EXCESSIVE INCONVENIENCE OR DAMAGE TO ADJACENT AREAS OR STRUCTURES.

HAY BALE DROP INLET PROTECTION: WE DO NOT RECOMMEND THE USE OF HAY BALES AS INLET PROTECTION.

MIX BERMS SHALL NOT BE USED AT THE BOTTOM OF STEEP SLOPES (>8%) OR SLOPES WITH FLOWING WATER

CONCRETE BLOCK AND STONE INLET SEDIMENT FILTER (DROP OR CURB INLET): SHALL BE INSTALLED PER THE DETAIL ON THE PLANS. THE HEIGHT OF THE CONCRETE BLOCK BARRIER CAN VARY BUT MUST BE BETWEEN 12 AND 24 INCHES TALL. A MINIMUM OF 1 INCH CRUSHED STONE SHALL BE USED.

MANUFACTURED SEDIMENT BARRIERS AND FILTER (DROP OR CURB INLET): MANUFACTURED FILTERS, AS SPECIFIED IN THE DETAIL ON THE PLANS, MAY BE USED IF INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

7. STABILIZED CONSTRUCTION ENTRANCE/EXIT:

PRIOR TO CLEARING AND/OR GRUBBING THE SITE A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE CONSTRUCTED WHEREVER TRAFFIC WILL EXIT THE CONSTRUCTION SITE ONTO A PAVED ROADWAY IN ORDER TO MINIMIZE THE TRACKING OF SEDIMENT AND DEBRIS FROM THE CONSTRUCTION SITE ONTO PUBLIC ROADWAYS. THE ENTRANCES AND ADJACENT ROADWAY AREAS SHALL BE PERIODICALLY SWEPT TO FURTHER MINIMIZE THE TRACKING OF MUD, DUST OR DEBRIS FROM THE CONSTRUCTION AREA. THE TERM "SWEEP" IS UNDERSTOOD TO MEAN REMOVAL AND RECOVERY OF TRACKED SEDIMENT WITH A STREET SWEEPER, NOT BRUSHING THE MATERIAL INTO SWALES OR STRUCTURES WITH A MECHANICAL BROOM. STABILIZED CONSTRUCTION EXITS SHALL BE CONSTRUCTED IN AREAS SPECIFIED ON THE PLANS AND AS DETAILED ON THE PLANS. THE CONTRACTOR SHALL MAINTAIN THE STABILIZED CONSTRUCTION ENTRANCE UNTIL ALL DISTURBED AREAS ARE STABILIZED.

DUST CONTROL DURING CONSTRUCTION SHALL BE ACHIEVED BY THE USE OF A WATERING TRUCK TO PERIODICALLY SPRINKLE THE EXPOSED ROADWAY AREAS AS NECESSARY TO REDUCE DUST DURING THE DRY MONTHS, APPLYING OTHER DUST CONTROL PRODUCTS SUCH AS CALCIUM CHLORIDE OR OTHER MANUFACTURED PRODUCTS ARE ALLOWED IF AUTHORIZED BY THE PROPER LOCAL, STATE AND/OR FEDERAL REGULATING AGENCIES. HOWEVER, IT IS THE CONTRACTOR'S ULTIMATE RESPONSIBILITY TO MITIGATE DUST AND SOIL LOSS FROM THE SITE. IF OFFSITE TRACKING OCCURS, PUBLIC ROADS SHOULD BE SWEPT IMMEDIATELY AND NOT LESS THAN ONCE A WEEK AND PRIOR TO SIGNIFICANT STORM EVENTS.

TEMPORARY VEGETATION:

TEMPORARY VEGETATION SHALL BE APPLIED TO DISTURBED AREAS THAT WILL NOT RECEIVE FINAL GRADING FOR PERIODS UP TO 12 MONTHS. THIS PROCEDURE SHOULD BE USED EXTENSIVELY IN AREAS ADJACENT TO NATURAL RESOURCES. SEEDBED PREPARATION AND APPLICATION OF SEED SHALL BE CONDUCTED AS INDICATED IN THE PERMANENT VEGETATION SECTION OF THIS NARRATIVE. SPECIFIC SEEDS (FAST GROWING AND SHORT LIVING) SHALL BE SELECTED FROM THE MAINE EROSION AND SEDIMENT CONTROL BMP MANUALS FOR CONTRACTORS AND ENGINEERS, 2016 OR LATEST REVISION. ALTERNATIVE EROSION CONTROL MEASURES SHOULD BE USED IF SEEDING CAN NOT BE DONE BEFORE SEPTEMBER 15TH OF THE CONSTRUCTION YEAR.

PERMANENT VEGETATION:

REVEGETATION MEASURES SHALL COMMENCE IMMEDIATELY UPON COMPLETION OF FINAL GRADING OF AREAS TO BE LOAMED AND SEEDED. THE APPLICATION OF SEED SHALL BE CONDUCTED BETWEEN APRIL 1ST AND OCTOBER 1ST OF THE CONSTRUCTION YEAR, PLEASE REFER TO THE WINTER EROSION CONTROL NOTES FOR MORE DETAIL. REVEGETATION MEASURES SHALL CONSIST OF THE FOLLOWING:

SEEDBED PREPARATION

- A. FOUR (4) INCHES OF LOAM SHALL BE SPREAD OVER DISTURBED AREAS AND SMOOTHED TO A UNIFORM SURFACE. LOAM SHALL BE FREE OF SUBSOIL, CLAY LUMPS, STONES AND OTHER OBJECTS OVER 2 INCHES OR LARGER IN ANY DIMENSION, AND WITHOUT WEEDS, ROOTS OR OTHER OBJECTIONABLE MATERIAL.
- B. SOILS TESTS SHALL BE TAKEN AT THE TIME OF SOIL STRIPPING TO DETERMINE FERTILIZATION REQUIREMENTS. SOILS TESTS SHALL BE TAKEN PROMPTLY AS TO NOT INTERFERE WITH THE 14-DAY LIMIT ON SOIL EXPOSURE. BASED UPON TEST RESULTS, SOIL AMENDMENTS SHALL BE INCORPORATED INTO THE SOIL PRIOR TO FINAL SEEDING. IN LIEU OF SOIL TESTS, SOIL AMENDMENTS MAY BE APPLIED AS FOLLOWS:

APPLICATION RATE 10-20-20 FERTILIZER 18.4 LBS /1,000 S.F. (N-P205-K20 OR EQUAL) GROUND LIMESTONE (50% 138 LBS./1.000 S.F

CALCIUM & MAGNESIUM OXIDE)

C. WORK LIME AND FERTILIZER INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH PROPER EQUIPMENT, ROLL THE AREA TO FIRM THE SEEDBED EXCEPT ON CLAY OR SILTY SOILS OR COARSE SAND.

APPLICATION OF SEED:

A. SEEDING: SHALL BE CONDUCTED BETWEEN APRIL 1ST AND OCTOBER 1ST OF THE CONSTRUCTION YEAR. GENERALLY A SEED MIXTURE MAY BE APPLIED AS FOLLOWS: MDEP SEED MIX 2 IS DISPLAYED)

0.46 LBS/1,000 S.F. (20 LBS/ACRE) REDTOP 0.05 LBS/1,000 S.F. (2 LBS/ACRE) TALL FESCUE

NOTE: A SPECIFIC SEED MIXTURE SHOULD BE CHOSEN TO MATCH THE SOILS CONDITION OF THE SITE. VARIOUS AGENCIES CAN RECOMMEND SEED MIXTURES. MDEP RECOMMENDED SEED MIXTURES ARE IN THE EROSION AND SEDIMENT CONTROL BMP MANUAL DATED 2016 OR LATEST REVISION.

- HYDROSEEDING: SHALL BE CONDUCTED ON PREPARED AREAS WITH SLOPES LESS THAN 2:1. LIME AND FERTILIZER MAY BE APPLIED SIMULTANEOUSLY WITH THE SEED. COMMENDED SEEDING RATES MUST BE INCREASED BY 10% WHEN HYDROSEEDING.
- C. MULCHING: SHALL COMMENCE IMMEDIATELY AFTER SEED IS APPLIED. REFER TO THE TEMPORARY MULCHING SECTION OF THIS NARRATIVE FOR DETAILS.

FOLLOWING SEEDBED PREPARATION, SOD CAN BE APPLIED IN LIEU OF SEEDING IN AREAS WHERE IMMEDIATE VEGETATION IS MOST BENEFICIAL SUCH AS DITCHES, AROUND STORMWATER DROP INLETS AND AREAS OF AESTHETIC VALUE. SOD SHOULD BE LAID AT RIGHT ANGLES TO THE DIRECTION OF FLOW, STARTING AT THE LOWEST FLEVATION SOD SHOULD BE ROLLED OR TAMPED DOWN TO EVEN OUT THE JOINTS ONCE LAID DOWN WHERE FLOW IS PREVALENT THE SOD MUST BE PROPERLY ANCHORED DOWN. IRRIGATE THE SOD IMMEDIATELY AFTER INSTALLATION. IN MOST CASES, SOD CAN BE ESTABLISHED BETWEEN APRIL 1ST AND NOVEMBER 15TH OF THE CONSTRUCTION YEAR, HOWEVER, REFER TO THE WINTER EROSION CONTROL NOTES FOR ANY ACTIVITIES AFTER OCTOBER 1ST

STANDARDS FOR TIMELY STABILIZATION:

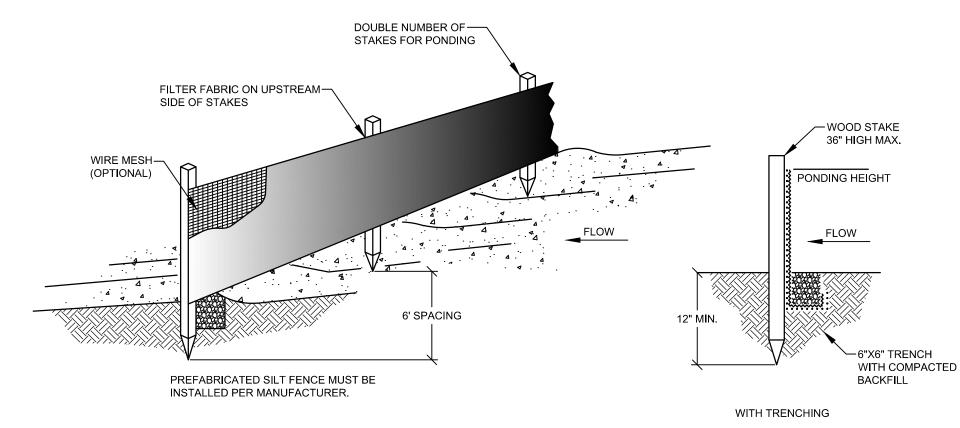
STANDARD FOR THE TIMELY STABILIZATION OF DISTURBED SLOPES -- THE CONTRACTOR WILL CONSTRUCT AND STABILIZE STONE-COVERED SLOPES BY NOVEMBER 15. THE CONTRACTOR WILL SEED AND MULCH ALL SLOPES TO BE VEGETATED BY SEPTEMBER 15. THE MDEP WILL CONSIDER ANY AREA HAVING A GRADE GREATER THAN 15% (10H:1V) TO BE A SLOPE. IF THE CONTRACTOR FAILS TO STABILIZE ANY SLOPE TO BE VEGETATED BY SEPTEMBER 15, THEN THE CONTRACTOR WILL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE SLOPE FOR LATE FALL AND WINTER.

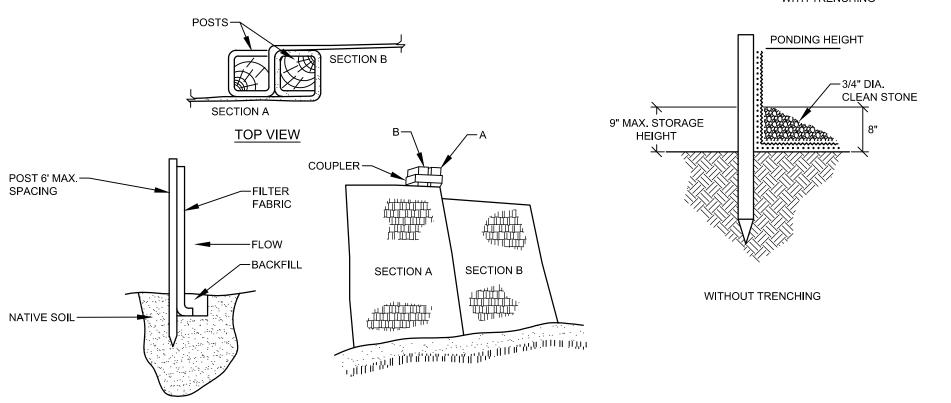
- A. STABILIZE THE SOIL WITH TEMPORARY VEGETATION AND EROSION CONTROL MATS -- BY OCTOBER 1 THE CONTRACTOR WILL SEED THE DISTURBED SLOPE WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1,000 SQUARE FEET AND APPLY EROSION CONTROL MATS OVER THE MULCHED SLOPE. THE CONTRACTOR WILL MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR COVER AT LEAST 75% OF THE DISTURBED SLOPE BY NOVEMBER 1, THEN THE APPLICANT WILL COVER THE SLOPE WITH A LAYER OF WOOD WASTE COMPOST AS DESCRIBED IN ITEM 2(C.) OF THIS STANDARD OR WITH STONE RIPRAP AS DESCRIBED IN ITEM 2(D.) OF THIS STANDARD.
- B. STABILIZE THE SLOPE WITH SOD -- THE CONTRACTOR WILL STABILIZE THE DISTURBED SLOPE WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION ICLUDES THE APPLICANT PINNING THE SOD ONTO THE SLOPE WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL. THE APPLICANT WILL NOT USE LATE-SEASON SOD INSTALLATION TO STABILIZE SLOPES HAVING A GRADE GREATER THAN 33% (3H:1V).
- C. STABILIZE THE SLOPE WITH WOOD WASTE COMPOST -- THE CONTRACTOR WILL PLACE A SIX-INCH LAYER OF WOOD WASTE COMPOST ON THE SLOPE BY NOVEMBER 15. PRIOR TO PLACING THE WOOD WASTE COMPOST, THE APPLICANT WILL REMOVE ANY SNOW ACCUMULATION ON THE DISTURBED SLOPE. THE APPLICANT WILL NOT USE
- WOOD WASTE COMPOST TO STABILIZE SLOPES HAVING GRADES GREATER THAN 50% (2H:1V) OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE. D. STABILIZE THE SLOPE WITH STONE RIPRAP -- THE CONTRACTOR WILL PLACE A LAYER OF STONE RIPRAP ON THE SLOPE BY NOVEMBER 15. THE APPLICANT WILL HIRE A GISTERED PROFESSIONAL ENGINEER TO DETERMINE THE STONE SIZE NEEDED FOR STABILITY AND TO DESIGN A FILTER LAYER FOR UNDERNEATH THE RIPRAP.

STANDARD FOR THE TIMELY STABILIZATION OF DISTURBED SOILS -- BY SEPTEMBER 15 THE CONTRACTOR WILL SEED AND MULCH ALL DISTURBED SOILS ON AREAS HAVING A SLOPE LESS THAN 15%. IF THE CONTRACTOR FAILS TO STABILIZE THESE SOILS BY THIS DATE, THEN THE CONTRACTOR WILL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE SOIL FOR LATE FALL AND WINTER.

- STABILIZE THE SOIL WITH TEMPORARY VEGETATION -- BY OCTOBER 1 THE CONTRACTOR WILL SEED THE DISTURBED SOIL WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1000 SQUARE FEET. LIGHTLY MULCH THE SEEDED SOIL WITH HAY OR STRAW AT 75 POUNDS PER 1000 SQUARE FEET. AND ANCHOR THE MULCH WITH PLASTIC NETTING. THE APPLICANT WILL MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR COVER AT LEAST 75% OF THE DISTURBED SOIL BEFORE NOVEMBER 15, THEN THE APPLICANT WILL MULCH THE AREA FOR OVER-WINTER PROTECTION AS DESCRIBED IN ITEM 3(C.) OF THIS STANDARD.
- B. STABILIZE THE SOIL WITH SOD -- THE APPLICANT WILL STABILIZE THE DISTURBED SOIL WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION NCLUDES THE APPLICANT PINNING THE SOD ONTO THE SOIL WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL.
- STABILIZE THE SOIL WITH MULCH BY NOVEMBER 15 THE APPLICANT WILL MULCH THE DISTURBED SOIL BY SPREADING HAY OR STRAW AT A RATE OF AT LEAST 150 OUNDS PER 1000 SQUARE FEET ON THE AREA SO THAT NO SOIL IS VISIBLE THROUGH THE MULCH. PRIOR TO APPLYING THE MULCH, THE APPLICANT WILL REMOVE ANY SNOW ACCUMULATION ON THE DISTURBED AREA. IMMEDIATELY AFTER APPLYING THE MULCH, THE APPLICANT WILL ANCHOR THE MULCH WITH PLASTIC NETTING TO PREVENT WIND FROM MOVING THE MULCH OFF THE DISTURBED SOIL.
- 1. MAINTENANCE MEASURES SHALL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION CYCLE. AFTER EACH RAINFALL, SNOW STORM OR PERIOD OF THAWING AND RUNOFF, AND AT LEAST EVERY SEVEN (7) DAYS, THE CONTRACTOR SHALL PERFORM A VISUAL INSPECTION OF ALL INSTALLED EROSION CONTROL MEASURES. THE CONTRACTOR SHALL PERFORM REPAIRS NO LATER THAN THE END OF THE NEXT WORKDAY. TO ALLOW CONTINUED PROPER FUNCTIONING OF THE EROSION CONTROL MEASURE. THE CONTRACTOR SHALL PROVIDE THE NECESSARY REGULATING AGENCIES WITH WRITTEN DOCUMENTATION DESCRIBING DATES OF INSPECTIONS AND NECESSARY FOLLOW-UP WORK TO MAINTAIN EROSION CONTROL MEASURES MEETING THE REQUIREMENTS OF THIS PLAN WITHIN SEVEN (7) DAYS.
- 2. FOLLOWING THE TEMPORARY AND/OR FINAL SEEDINGS, THE CONTRACTOR SHALL INSPECT THE WORK AREA SEMIMONTHLY UNTIL THE SEEDINGS HAVE BEEN ESTABLISHED. ESTABLISHED MEANS A MINIMUM OF 90% OF AREAS VEGETATED WITH VIGOROUS GROWTH. RESEEDING SHALL BE CARRIED OUT BY THE CONTRACTOR WITH FOLLOW-UP INSPECTIONS IN THE EVENT OF ANY FAILURES UNTIL VEGETATION IS ADEQUATELY ESTABLISHED.

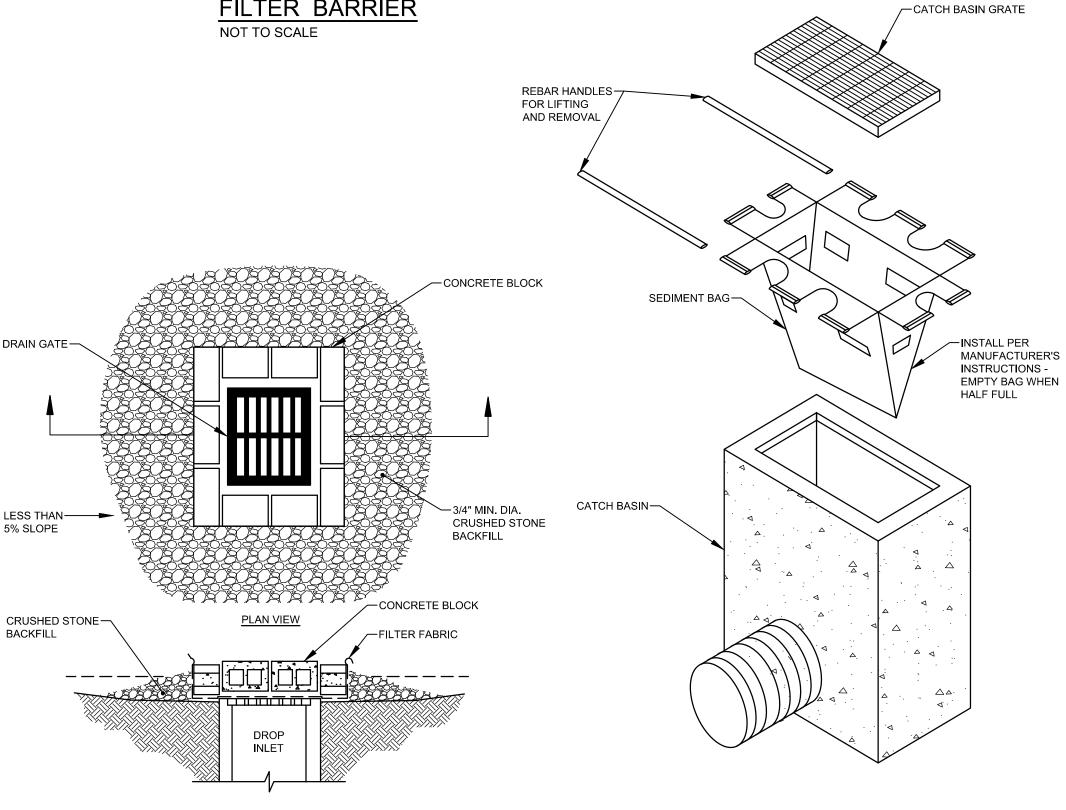
- 1. SPILL PREVENTION. CONTROLS MUST BE USED TO PREVENT POLLUTANTS FROM CONSTRUCTION AND WASTE MATERIALS STORED ON SITE TO ENTER STORMWATER, WHICH INCLUDES STORAGE PRACTICES TO MINIMIZE EXPOSURE OF THE MATERIALS TO STORMWATER. THE SITE CONTRACTOR OR OPERATOR MUST DEVELOP, AND IMPLEMENT AS NECESSARY, APPROPRIATE SPILL PREVENTION, CONTAINMENT, AND RESPONSE PLANNING MEASURES.
- GROUNDWATER PROTECTION. DURING CONSTRUCTION, LIQUID PETROLEUM PRODUCTS AND OTHER HAZARDOUS MATERIALS WITH THE POTENTIAL TO CONTAMINATE GROUNDWATER MAY NOT BE STORED OR HANDLED IN AREAS OF THE SITE DRAINING TO AN INFILTRATION AREA. AN "INFILTRATION AREA" IS ANY AREA OF THE SITE THAT BY DESIGN OR AS A RESULT OF SOILS, TOPOGRAPHY AND OTHER RELEVANT FACTORS ACCUMULATES RUNOFF THAT INFILTRATES INTO THE SOIL. DIKES, BERMS, DRAIN GATE-SUMPS, AND OTHER FORMS OF SECONDARY CONTAINMENT THAT PREVENT DISCHARGE TO GROUNDWATER MAY BE USED TO ISOLATE PORTIONS OF THE SITE FOR THE PURPOSES OF STORAGE AND HANDLING OF THESE MATERIALS. ANY PROJECT PROPOSING INFILTRATION OF STORMWATER MUST PROVIDE ADEQUATE PRE-TREATMENT OF STORMWATER PRIOR TO DISCHARGE OF STORMWATER TO THE INFILTRATION AREA, OR PROVIDE FOR TREATMENT WITHIN THE INFILTRATION AREA, IN ORDER TO PREVENT THE ACCUMULATION OF FINES, REDUCTION IN INFILTRATION RATE, AND CONSEQUENT FLOODING AND DESTABILIZATION.
- FUGITIVE SEDIMENT AND DUST. ACTIONS MUST BE TAKEN TO ENSURE THAT ACTIVITIES DO NOT RESULT IN NOTICEABLE EROSION OF SOILS OR FUGITIVE DUST MISSIONS DURING OR AFTER CONSTRUCTION. OIL MAY NOT BE USED FOR DUST CONTROL, BUT OTHER WATER ADDITIVES MAY BE CONSIDERED AS NEEDED. A STABILIZED CONSTRUCTION ENTRANCE (SCE) SHOULD BE INCLUDED TO MINIMIZE TRACKING OF MUD AND SEDIMENT. IF OFF-SITE TRACKING OCCURS, PUBLIC ROADS SHOULD BE SWEPT IMMEDIATELY AND NO LESS THAN ONCE A WEEK AND PRIOR TO SIGNIFICANT STORM EVENTS, OPERATIONS DURING DRY MONTHS, THAT EXPERIENCE FUGITIVE DUST PROBLEMS. SHOULD WET DOWN UNPAVED ACCESS ROADS ONCE A WEEK OR MORE FREQUENTLY AS NEEDED WITH A WATER ADDITIVE TO SUPPRESS FUGITIVE SEDIMENT AND DUST.
- 4. DEBRIS AND OTHER MATERIALS. MINIMIZE THE EXPOSURE OF CONSTRUCTION DEBRIS, BUILDING AND LANDSCAPING MATERIALS, TRASH, FERTILIZERS, PESTICIDES, HERBICIDES, DETERGENTS, SANITARY WASTE AND OTHER MATERIALS TO PRECIPITATION AND STORMWATER RUNOFF. THESE MATERIALS MUST BE PREVENTED FROM 5% SLOPE BECOMING A POLLUTANT SOURCE.
- 5. EXCAVATION DE-WATERING. EXCAVATION DE-WATERING IS THE REMOVAL OF WATER FROM TRENCHES, FOUNDATIONS, COFFER DAMS, PONDS, AND OTHER AREAS THIN THE CONSTRUCTION AREA THAT RETAIN WATER AFTER EXCAVATION. IN MOST CASES THE COLLECTED WATER IS HEAVILY SILTED AND HINDERS CORRECT AND SAFE CONSTRUCTION PRACTICES. THE COLLECTED WATER REMOVED FROM THE PONDED AREA, EITHER THROUGH GRAVITY OR PUMPING, MUST BE SPREAD THROUGH NATURAL WOODED BUFFERS OR REMOVED TO AREAS THAT ARE SPECIFICALLY DESIGNED TO COLLECT THE MAXIMUM AMOUNT OF SEDIMENT POSSIBLE, LIKE A COFFERDAM SEDIMENTATION BASIN. AVOID ALLOWING THE WATER TO FLOW OVER DISTURBED AREAS OF THE SITE. EQUIVALENT MEASURES MAY BE TAKEN IF APPROVED BY THE DEPARTMENT.
- AUTHORIZED NON-STORMWATER DISCHARGES. IDENTIFY AND PREVENT CONTAMINATION BY NON-STORMWATER DISCHARGES. WHERE ALLOWED NON-STORMWATER SCHARGES EXIST, THEY MUST BE IDENTIFIED AND STEPS SHOULD BE TAKEN TO ENSURE THE IMPLEMENTATION OF APPROPRIATE POLLUTION PREVENTION MEASURES FOR THE NON-STORMWATER COMPONENT(S) OF THE DISCHARGE. AUTHORIZED NON-STORMWATER DISCHARGES ARE: A. DISCHARGES FROM FIREFIGHTING ACTIVITY:
- B. FIRE HYDRANT FLUSHINGS C. VEHICLE WASHWATER IF DETERGENTS ARE NOT USED AND WASHING IS LIMITED TO THE EXTERIOR OF VEHICLES (ENGINE, UNDERCARRIAGE AND TRANSMISSION WASHING IS PROHIBITED):
- D. DUST CONTROL RUNOFF IN ACCORDANCE WITH PERMIT CONDITIONS; E. ROUTINE EXTERNAL BUILDING WASHDOWN, NOT INCLUDING SURFACE PAINT REMOVAL, THAT DOES NOT INVOLVE DETERGENTS;
- . PAVEMENT WASHWATER (WHERE SPILLS/LEAKS OF TOXIC OR HAZARDOUS MATERIALS HAVE NOT OCCURRED, UNLESS ALL SPILLED MATERIAL HAD BEEN REMOVED) IF DETERGENTS ARE NOT USED:
- G. UNCONTAMINATED AIR CONDITIONING OR COMPRESSOR CONDENSATE; H. UNCONTAMINATED GROUNDWATER OR SPRING WATER;
- I. FOUNDATION OR FOOTER DRAIN-WATER WHERE FLOWS ARE NOT CONTAMINATED; J. UNCONTAMINATED EXCAVATION DEWATERING;
- K. POTABLE WATER SOURCES INCLUDING WATERLINE FLUSHINGS; AND L. LANDSCAPE IRRIGATION.
- HORIZED NON-STORMWATER DISCHARGES. THE DEPARTMENT'S APPROVAL DOES NOT AUTHORIZE A DISCHARGE THAT IS MIXED WITH A SOURCE OF NON-STORMWATER, OTHER THAN THOSE DISCHARGES. SPECIFICALLY, THE DEPARTMENT'S APPROVAL DOES NOT AUTHORIZE DISCHARGES OF THE FOLLOWING: A. WASTEWATER FROM THE WASHOUT OR CLEAN OUT OF CONCRETE, STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS OR OTHER CONSTRUCTION
- MATERIALS: B. FUELS, OILS OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE; SOAPS, SOLVENTS, OR DETERGENTS USED IN VEHICLE AND EQUIPMENT WASHING; AND
- D. TOXIC OR HAZARDOUS SUBSTANCES FROM A SPILL OR OTHER RELEASE.





- EXCAVATE A 6"x 6" TRENCH ALONG THE LINE OF PLACEMENT FOR THE FILTER BARRIER. UNROLL A SECTION AT A TIME AND POSITION THE POSTS AGAINST THE BACK (DOWNSTREAM) WALL OF THE TRENCH. DRIVE POSTS INTO THE GROUND UNTIL APPROXIMATELY 2" OF FABRIC IS LYING ON THE TRENCH BOTTOM.
- LAY THE TOE-IN FLAP OF FABRIC ONTO THE UNDISTURBED BOTTOM OF THE TRENCH, BACKFILL THE TRENCH AND TAMP THE SOIL. TOE-IN CAN ALSO BE ACCOMPLISHED BY LAYING THE FABRIC FLAP ON UNDISTURBED GROUND AND PILING AND TAMPING FILL AT THE BASE, BUT MUST BE ACCOMPANIED BY AN INTERCEPTION DITCH.
- JOIN SECTION AS SHOWN ABOVE.
- BARRIER SHALL BE MIRAFI SILT FENCE OR EQUAL. THE FENCE SHOULD BE ANCHORED TO RESIST PULL-OUT AND BE STRETCHED TIGHTLY BETWEEN STAKES TO
- IN AREAS WHERE FLAP CANNOT BE KEYED PROPERLY (DUE TO FROZEN GROUND, BEDROCK, STONY SOILS, ROOTS NEAR A PROTECTED NATURAL RESOURCE, ETC.) THE SILT FENCE SHOULD BE ANCHORED WITH AGGREGATE,
- CRUSHED STONE, EROSION CONTROL MIX OR OTHER MATERIAL FILTER BARRIER NEEDS TO BE REMOVED WHEN THE AREA IS STABILIZED.

SECTION A-A



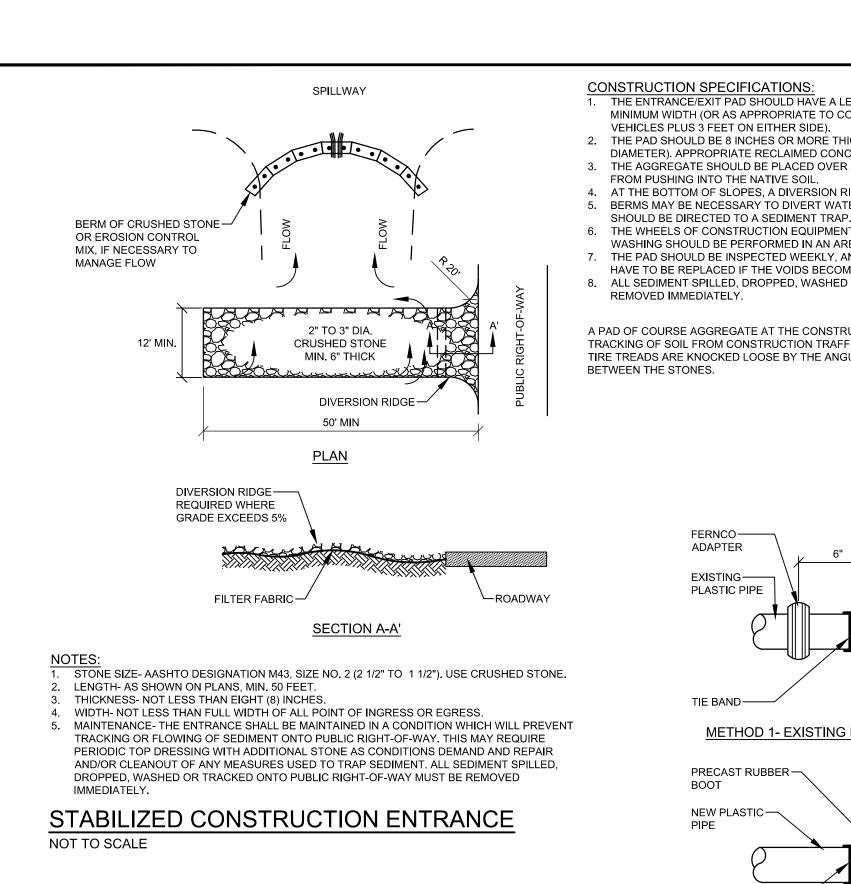
ATCH BASIN INSERTS OR FILTER SACKS MADE OF WOVEN GEOTEXTILE ARE REUSABLE. USE SHOULD OLLOW THE MANUFACTURER'S GUIDELINES. THEY ARE SUSPENDED BELOW THE GRATE AND HAVE A BUILT-IN OVERFLOW FOR LARGE STORM FLOWS. THE INSERT SHOULD BE REMOVED AND THE CATCH BASIN CLEANED AT THE END OF THE CONSTRUCTION PROJECT. CONCRETE BLOCKS PLACED ON THEIR SIDE AROUND THE INLET AND WRAPPED IN GEOTEXTILE ABRIC SHOULD BE SURROUNDED WITH CRUSHED STONE (1-2 INCH DIAMETER AND CLEAN). SAND-FILLED BAGS BUTTED TOGETHER AROUND THE PERIMETER OF A STORM DRAIN MAY BE USED IF HE BAGS ARE STAGGERED TO MAKE A STABLE BARRIER. THE BERM SHOULD HAVE A MINIMUM SILT FENCE WITH GRAVEL MAY BE PLACED AROUND THE PERIMETER OF A CATCH BASIN AND

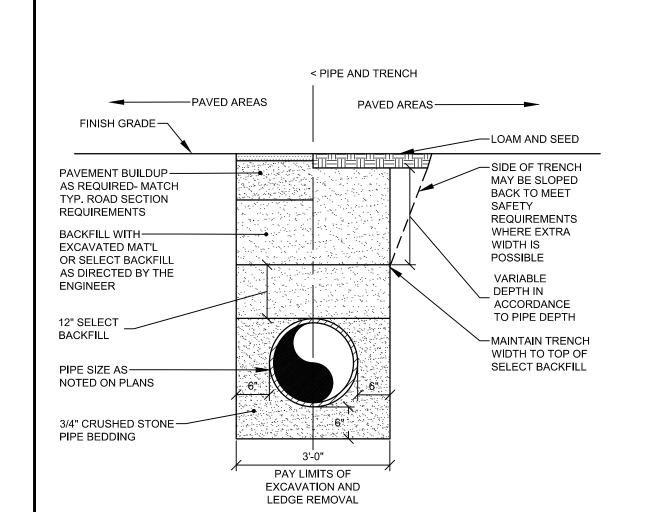
CATCH BASIN PROTECTION DETAIL (FOR PAVED AREAS)

DESIGNED

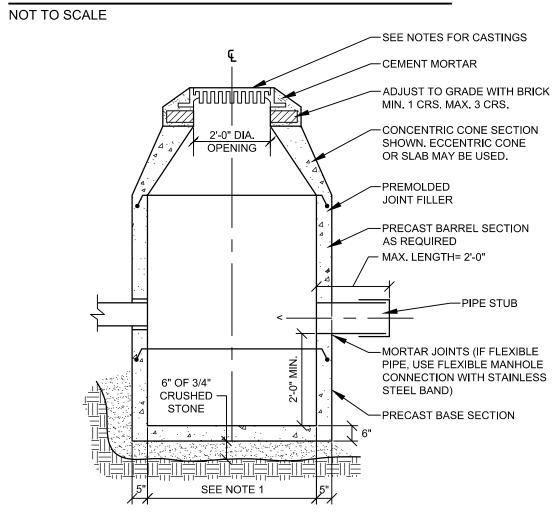
SGD DRAWN SRC SGD CHECKED DATE 07/23/2020 SCALE 1" = 20' PROJECT 18438

SHEET 5 OF 8





TRENCH SECTION WITHIN CITY R.O.W.



- 4'-0" J.D. TYPICAL, SOME STRUCTURES MAY REQUIRE LARGER J.D. PROVIDE SHOP DRAWINGS.
- DRAINAGE STRUCTURES TO BE DESIGNED FOR H-20 LOADING. PIPE SIZES AND INVERTS AS NOTED ON PLANS.
- 4. CATCH BASIN FRAME AND GRATE TO BE NEENAH FOUNDRY R-2554, OR APPROVED EQUAL.

CATCH BASIN NOT TO SCALE



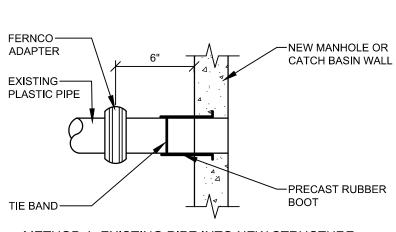
MINIMUM WIDTH (OR AS APPROPRIATE TO CONTAIN THE WHEEL BASE OF CONSTRUCTION VEHICLES PLUS 3 FEET ON EITHER SIDE).

THE PAD SHOULD BE 8 INCHES OR MORE THICK WITH ANGULAR AGGREGATE (2-3 INCH DIAMETER). APPROPRIATE RECLAIMED CONCRETE MATERIAL MAY BE USED.

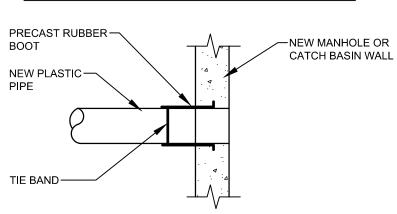
3. THE AGGREGATE SHOULD BE PLACED OVER A GEOTEXTILE FILTER TO PREVENT THE STONES FROM PUSHING INTO THE NATIVE SOIL. 4. AT THE BOTTOM OF SLOPES, A DIVERSION RIDGE SHOULD BE PROVIDED TO INTERCEPT RUNOFF. 5. BERMS MAY BE NECESSARY TO DIVERT WATER AROUND ANY EXPOSED SOIL, AND RUNOFF

THE WHEELS OF CONSTRUCTION EQUIPMENT MAY BE WASHED PRIOR TO EXITING THE SITE. WASHING SHOULD BE PERFORMED IN AN AREA THAT DRAINS TO A SEDIMENT TRAP OR BASIN. THE PAD SHOULD BE INSPECTED WEEKLY, AND BEFORE AND AFTER EACH STORM. THE PAD MAY HAVE TO BE REPLACED IF THE VOIDS BECOME FILLED WITH SEDIMENT. 8. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE

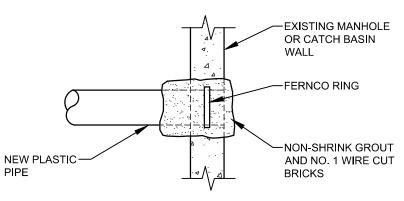
A PAD OF COURSE AGGREGATE AT THE CONSTRUCTION ENTRANCE/EXIT WILL REDUCE THE TRACKING OF SOIL FROM CONSTRUCTION TRAFFIC ONTO A PUBLIC STREET. SEDIMENTS FROM THE TIRE TREADS ARE KNOCKED LOOSE BY THE ANGULAR STONES AND ARE TRAPPED IN THE VOIDS BETWEEN THE STONES.



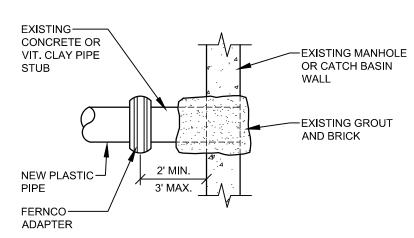
METHOD 1- EXISTING PIPE INTO NEW STRUCTURE



METHOD 2- NEW CONSTRUCTION

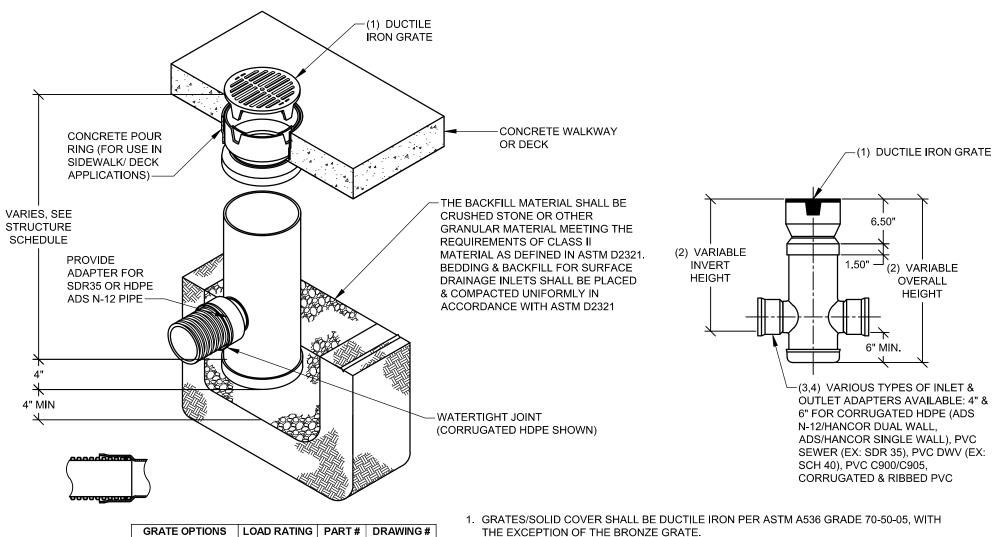


METHOD 3- NEW PIPE INTO EXISTING STRUCTURE



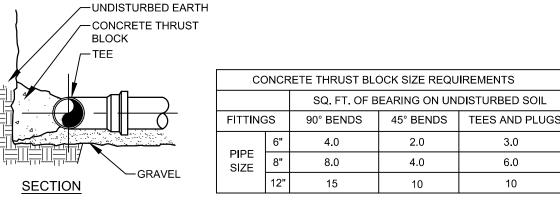
METHOD 4- NEW PIPE INTO EXISTING STUB

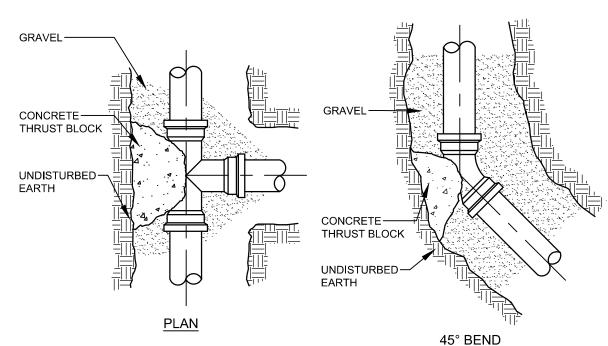
PLASTIC PIPE CONNECTIONS NOT TO SCALE



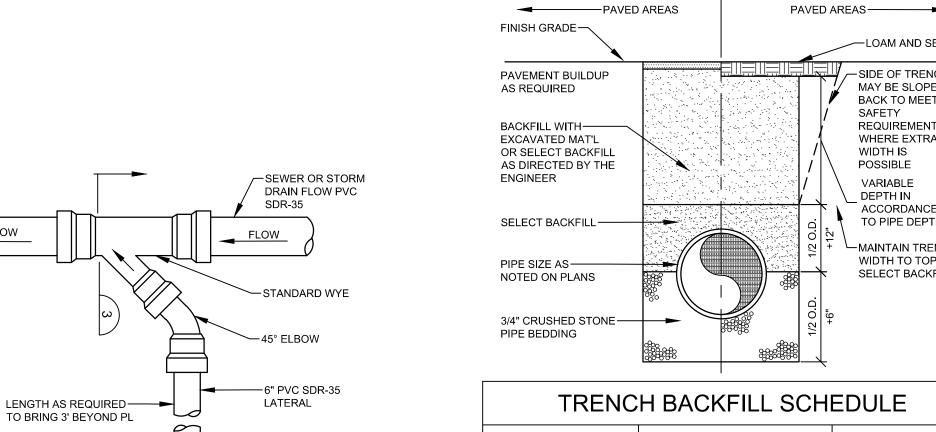
- THE EXCEPTION OF THE BRONZE GRATE. 2. CUSTOM DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTRICTIONS.
 - 3. ANDARD DRAIN BASIN HAS FIXED ADAPTER LOCATIONS OF 0° & 180°. CUSTOM DRAIN BASIN ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360°. 4. DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL) & PVC SEWER (4" - 24").

NYLOPLAST 10" DRAIN BASIN





TEE & BEND DETAIL



3.0

6.0

SEWER / FOUNDATION DRAIN **SERVICE CONNECTION**

NOT TO SCALE

TEMPORARY CAP OR PLUG

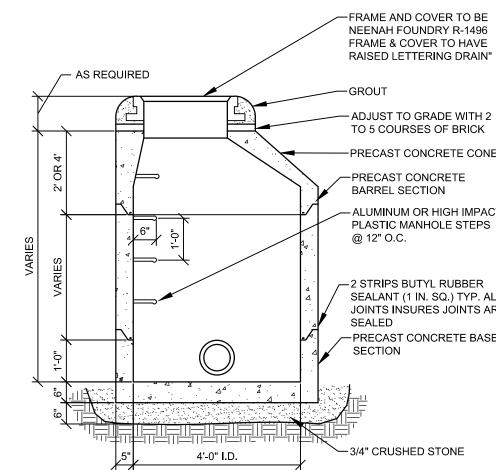
INSTALL BACKFLOW VALVE WITH RUBBER SEAL IN EACH

FOUNDATION DRAIN SERVICE.

INSTALL CHECK VALVE AT

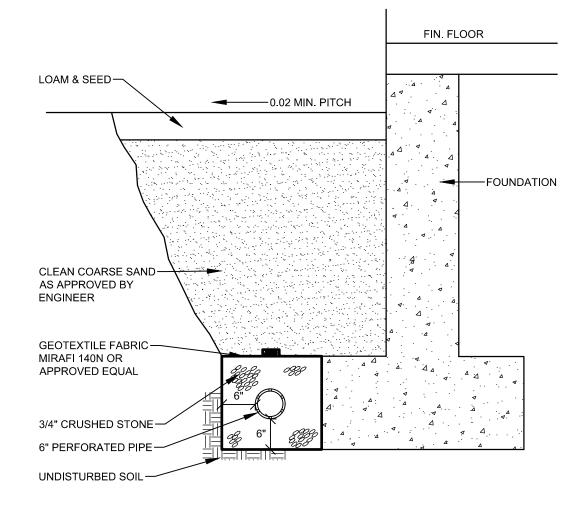
2. IF SUMP PUMP IS UTILIZED

SUMP PUMP.

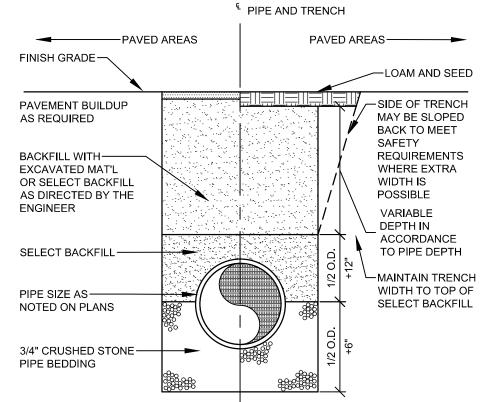


DRAINAGE STRUCTURES TO BE DESIGNED FOR H-20 LOADING. PIPE SIZES AND INVERTS AS NOTED ON PLANS.

PRECAST MANHOLE NOT TO SCALE



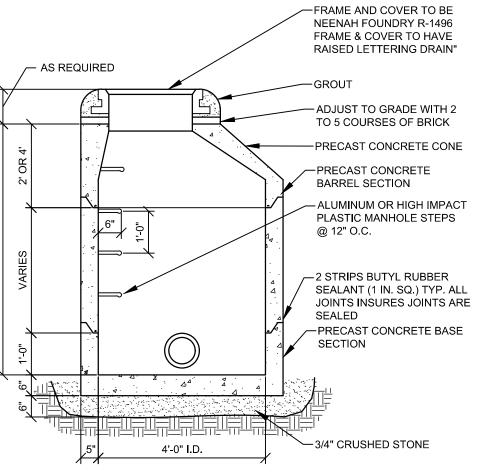
FOUNDATION DRAIN SECTION



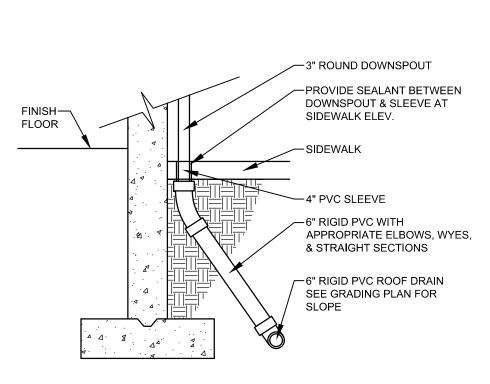
TRENC	H BACKFILL SCH	EDULE
PIPE TYPE	PIPE BEDDING MATERIAL	SELECT BACKFILL
CORRUGATED METAL DUCTILE IRON REINFORCED CONCRETE	MDOT 703.22 TYPE B UD BACKFILL	MDOT 703.22 TYPE B UD BACKFILL
PVC-SDR 35 HDPE	MDOT 703.22 TYPE C 3/4" CRUSHED STONE	MDOT 703.22 TYPE B UD BACKFILL
PERFORATED PVC-SDR 35 HDPE	MDOT 703.22 TYPE C 3/4" CRUSHED STONE	MDOT 703.22 TYPE C 3/4" CRUSHED STONE

ALL BRACING AND SHEETING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL MEET ALL STATE AND O.S.H.A. SAFETY STANDARDS.

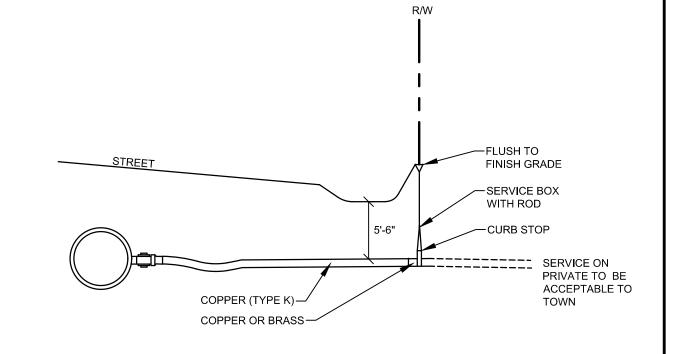
TRENCH SECTION NOT TO SCALE



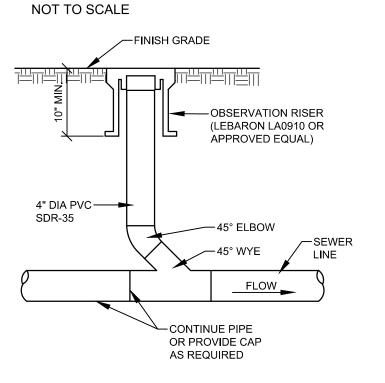
PIPE CONNECTIONS SHALL BE WATERTIGHT FLEXIBLE BOOT CONNECTORS.



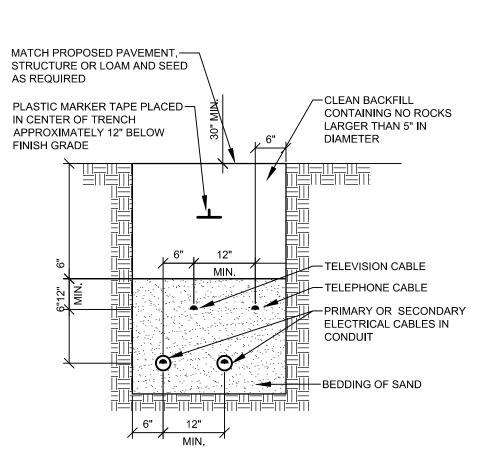
ROOF DRAIN CONNECTOR



WATER SERVICE CONNECTION



STORMTRAIN CLEANOUT NOT TO SCALE



NOTES: CABLES TO BE ENCASED IN SCHEDULE 40 PVC CONDUIT

UNDERGROUND CABLE INSTALLATION

NOT TO SCALE

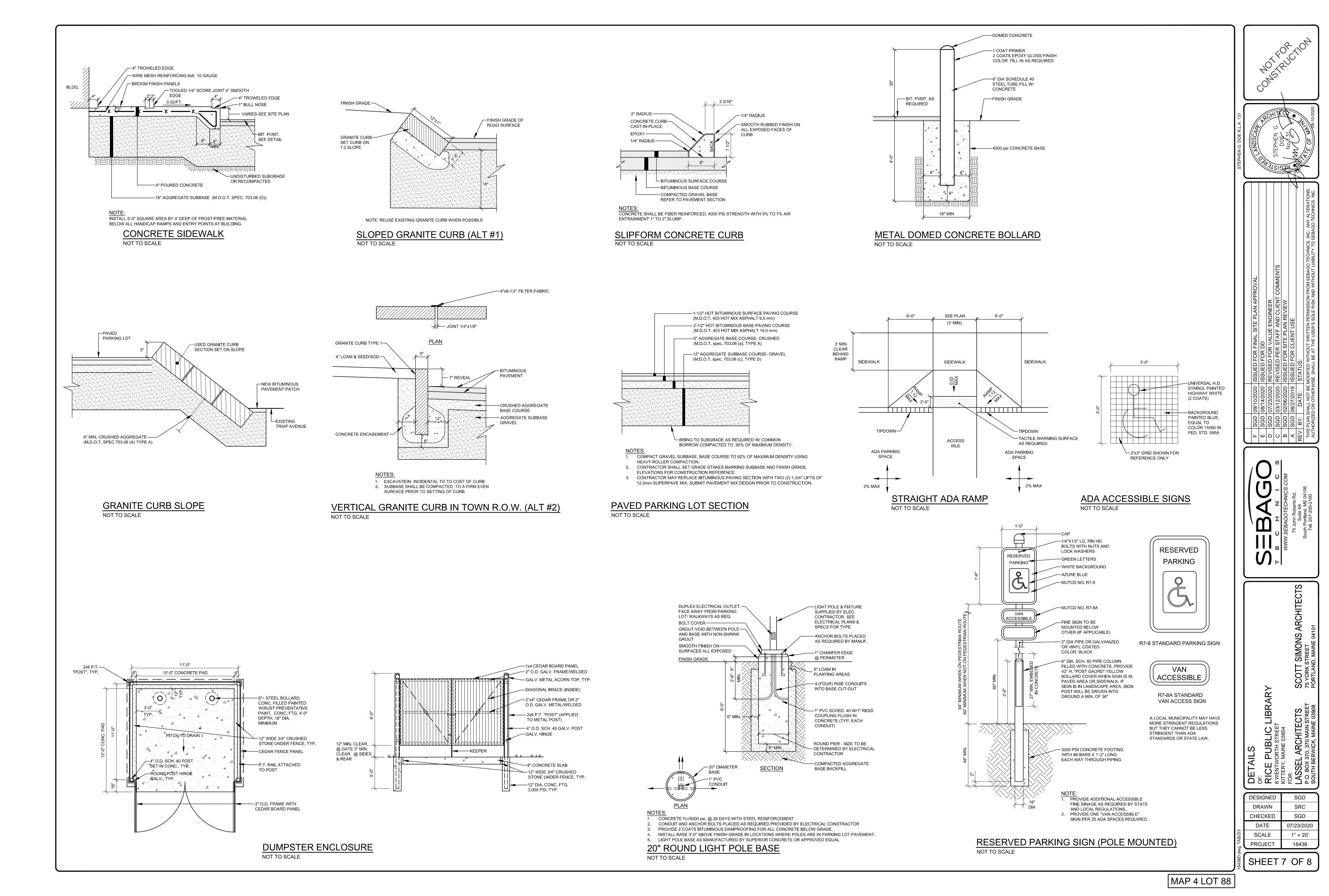


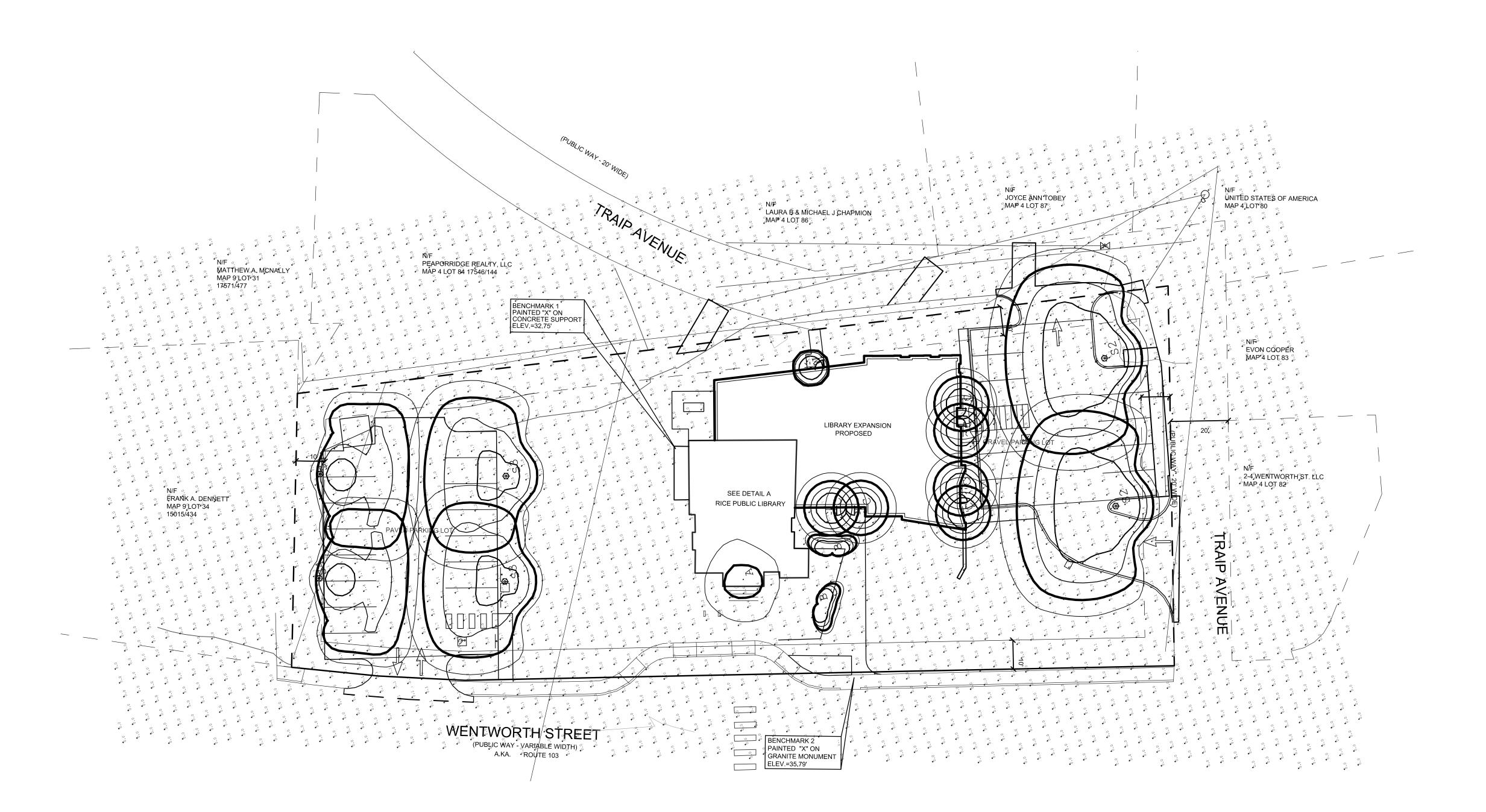
STEPHEN G. DOE R.L.A. 131	RNDSCAR	TEPHEN G.	TEX ON THE		147E OF MP. 10-2
	\prod			1	ALTERATIONS, ECHNICS. INC.

20	ISSUED FOR FINAL SITE PLAN APPROVAL
20	ISSUED FOR DD
20	20 REVISED FOR VALUE ENGINEER
20	REVISED PER STAFF AND CLIENT COMMENTS
20	ISSUED FOR SITE PLAN REVIEW
19	119 ISSUED FOR CLIENT USE
	STATUS:
BE .	'BE MODIFIED WITHOUT WRITTEN PERMISSION FROM SEBAGO TECHNICS, INC. ANY ALTERATIONS,

DESIGNED SGD DRAWN SRC SGD CHECKED DATE 07/23/2020 SCALE 1" = 20' PROJECT 18438

SHEET 6 OF 8





StatArea_1
NORTHERN REMOTE PARKING LOT
Illuminance (Fc)
Average = 1.35
Maximum = 2.9
Minimum = 0.4
Avg/Min Ratio = 3.38

StatArea_2
SOUTH PARKING LOT
Illuminance (Fc)
Average = 1.77
Maximum = 4.7
Minimum = 0.2
Avg/Min Ratio = 8.85
Max/Min Ratio = 23.50

Luminaire S	Schedule				
Symbol	Qty	Label	Arrangement	Description	[MANUFAC]
+	1	A	SINGLE	PENDENT LIGHT WITH LED BULB	Verbatim Americas
\odot	2	В	SINGLE	FLINDT 31.5 15W LED/4000K 120-277 NPA POST W/ANCHORAGE UNIT DIM 0-10V	Louis Poulsen Lighting
<u>•</u>	6	С	SINGLE	55943	BEGA Converted by LUMCat V 19.09.2014 / H.R.
\odot	2	S2	SINGLE	ICS-E02-LED-E1-T4-XX/RSS4A12S-1NX (12' POLE)	EATON - INVUE (FORMER COOPER LIGHTING)
\odot	2	S3	SINGLE	ICS-E01-LED-E1-T4-XX/ RSS4A12S-N1X (12' POLE)	EATON - INVUE (FORMER COOPER LIGHTING)
Θ	2	S4	SINGLE	ICS-E01-LED-E1-SL4-HSS-XX/RSS4A12S-N1X (12' POLE)	EATON - INVUE (FORMER COOPER LIGHTING)
	1	W	SINGLE	33580	BEGA Converted by LUMCat V 22.04.2016 / H.R.

Max/Min Ratio = 7.25

NOT FOR TION CONSTRUCTION

t			
F S	GD	09/10/2020	SGD 09/10/2020 ISSUED FOR FINAL SITE PLAN APPROVAL
В	GD	08/14/2020	SGD 08/14/2020 ISSUED FOR DD
0	GD	07/23/2020	D SGD 07/23/2020 REVISED FOR VALUE ENGINEER
S C	GD	03/12/2020	C SGD 03/12/2020 REVISED PER STAFF AND CLIENT COMMENTS
В	GD	02/06/2020	SGD 02/06/2020 ISSUED FOR SITE PLAN REVIEW
A S	GD	08/27/2019	SGD 08/27/2019 ISSUED FOR CLIENT USE
REV: BY:	3Y:	DATE: STATUS:	STATUS:
THIS P	LANS	SHALL NOT BE I	THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM SEBAGO TECHNICS, INC. ANY ALT

ò	
OTOMETRIC PLAN - BY OTHERS	N - BY OTHERS
E PUBLIC LIBRARY NIWORTH STREET SRY, MAINE 03904	X
SEL ARCHITECTS 30X 370, 370 MAIN STREET	SCOTT SIMONS ARCHITECT:

DESIGNED	BY OTHERS
DRAWN	BY OTHERS
CHECKED	BY OTHERS
DATE	09/10/2020
SCALE	1" = 20'
PROJECT	18438

SHEET 8 OF 8