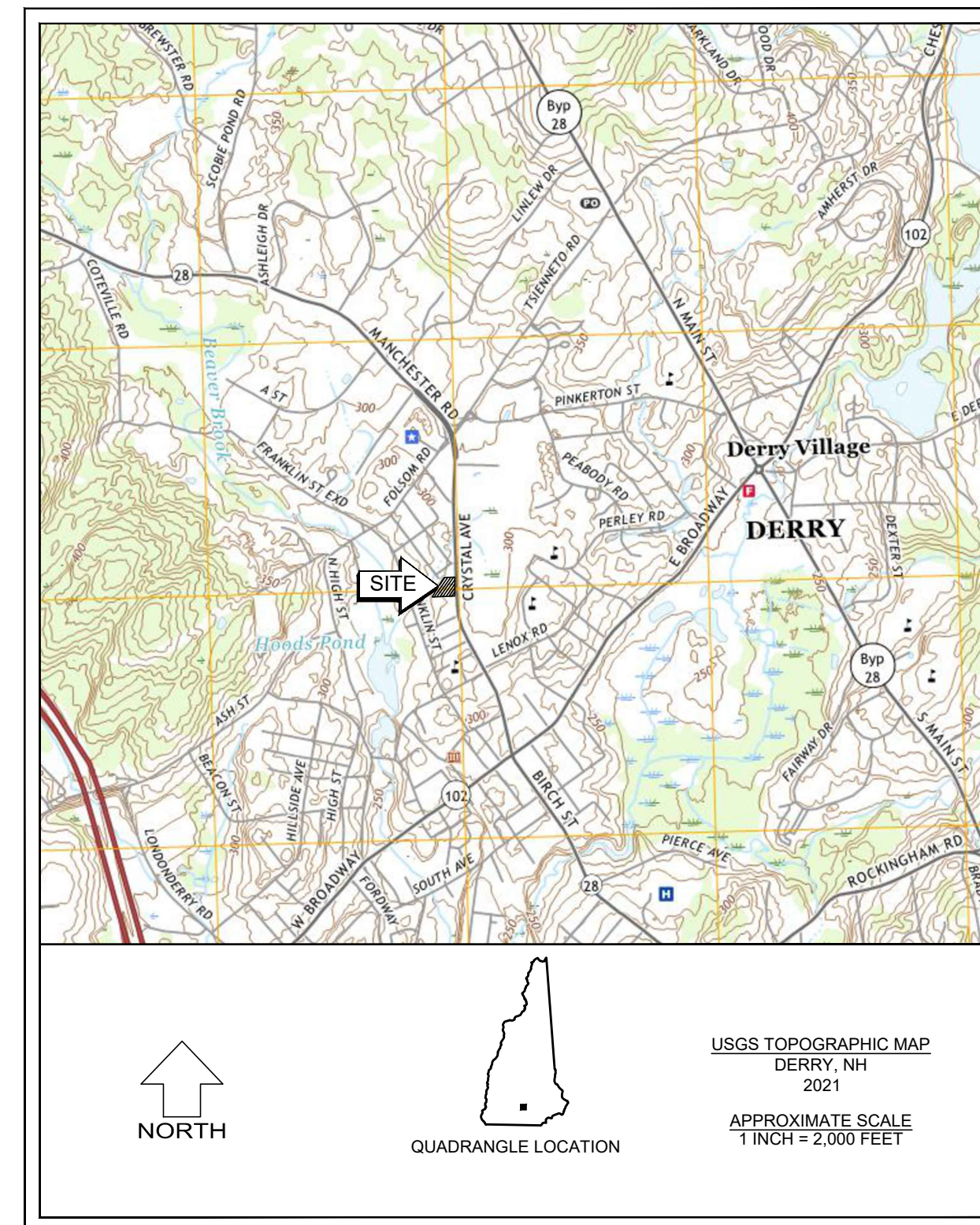


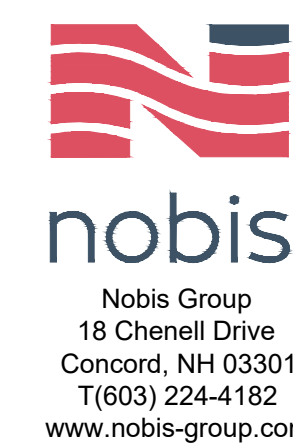
# BANGOR SAVINGS BANK

46 CRYSTAL AVE  
DERRY, NH

**SITE ENGINEER**  
NOBIS GROUP. - CONCORD, NH  
**ARCHITECT**  
TAC ARCHITECTURAL GROUP INC - BANGOR, ME  
**SURVEYOR**  
RICHARD D. BARTLETT & ASSOCIATES- CONCORD, NH  
**LANDSCAPE ARCHITECT**  
WARRENSTREET- CONCORD, NH  
**SITE LIGHTING**  
VISIBLE LIGHT - HAMPTON, NH  
**TRAFFIC ENGINEER**  
GPI - BEDFORD, NH



NOVEMBER 7, 2023  
REVISED DECEMBER 15, 2023  
REVISED JANUARY 3, 2024



Nobis Group  
18 Chenell Drive  
Concord, NH 03301  
T(603) 224-4182  
www.nobis-group.com

## SHEET INDEX

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# LEGEND

EXISTING	PROPOSED	EXISTING	PROPOSED	DESCRIPTION
---	---	⊙	⊙	SUBJECT PROPERTY LINE
---	---	⊙	⊙	OTHER PROPERTY LINE
---	---	⊙	⊙	SETBACKS
---	---	⊙	⊙	EASEMENT
⊙	⊙	⊙	⊙	STONE WALL
---	---	⊙	⊙	RETAINING WALL
---	---	⊙	⊙	EDGE OF WETLAND
---	---	⊙	⊙	STREAM / RIVER
⊙	⊙	⊙	⊙	TREE LINE
⊙	⊙	⊙	⊙	CHAIN LINK FENCE
⊙	⊙	⊙	⊙	STOCKADE FENCE
⊙	⊙	⊙	⊙	GUARDRAIL (STEEL)
⊙	⊙	⊙	⊙	GUARDRAIL (WOOD)
---	---	⊙	⊙	CENTERLINE
---	---	⊙	⊙	EDGE OF GRAVEL
---	---	⊙	⊙	EDGE OF PAVEMENT
SGC	SGC	⊙	⊙	SLOPED GRANITE CURB
VGC	VGC	⊙	⊙	VERTICAL GRANITE CURB
VCC	VCC	⊙	⊙	VERTICAL CONCRETE CURB
BCC	BCC	⊙	⊙	BITUMINOUS CONCRETE CURB
CC	CC	⊙	⊙	CONCRETE CURB
CCB	CCB	⊙	⊙	CAPE COD BERM
TD	TD	⊙	⊙	TIP DOWN
100	100	⊙	⊙	MAJOR CONTOUR
98	98	⊙	⊙	MINOR CONTOUR
D	D	⊙	⊙	DRAIN LINE
RD	RD	⊙	⊙	ROOF DRAIN
UD	UD	⊙	⊙	UNDER DRAIN
FD	FD	⊙	⊙	FOUNDATION DRAIN
>	>	⊙	⊙	SWALE FLOW DIRECTION
X	X	⊙	⊙	SILT FENCE / WATTLE
OHW	OHW	⊙	⊙	OVERHEAD UTILITY WIRE
UGE	UGE	⊙	⊙	UNDERGROUND ELECTRIC
T	T	⊙	⊙	UNDERGROUND TELECOM
S	S	⊙	⊙	SANITARY SEWER LINE
SS	SS	⊙	⊙	SANITARY SEWER SERVICE
FM	FM	⊙	⊙	SANITARY SEWER FORCE MAIN
W	W	⊙	⊙	WATER LINE
WS	WS	⊙	⊙	WATER SERVICE
G	G	⊙	⊙	GAS LINE
ST	ST	⊙	⊙	STEAM LINE
FO	FO	⊙	⊙	FIBER OPTIC LINE
---	---	⊙	⊙	ZONING BOUNDARY LINE
---	---	⊙	⊙	FLOOD ZONE LINE

## GENERAL NOTES:

- THESE DRAWINGS SHOULD BE REVIEWED IN CONJUNCTION WITH THE ACCOMPANYING DESIGN REPORT TITLED "STORMWATER MANAGEMENT REPORT FOR BANGOR SAVINGS BANK, CRYSTAL AVE, DERRY, NH DATED NOVEMBER 7, 2023 PREPARED BY NOBIS GROUP."
- EXISTING CONDITIONS, TOPOGRAPHICAL INFORMATION, NORTH ORIENTATION, NORTH ARROW, AND COORDINATE VALUES DEPICTED ON THESE DRAWINGS ARE BASED ON PLANS TITLED "LOT LINE ADJUSTMENT PLAT LANDS OF BLUEFIN HOLDINGS AND BANGOR SAVINGS BANK" DATED SEPTEMBER 2, 2022, BY RICHARD D. BARTLETT & ASSOCIATES, LLC.
- THESE DRAWINGS AND ACCOMPANYING TEXT HAVE BEEN PREPARED FOR BANGOR SAVINGS BANK, FOR REVIEW BY THE TOWN OF DERRY PLANNING BOARD, CODE ENFORCEMENT, GENERAL SERVICES, POLICE, AND FIRE DEPARTMENTS.
- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE TOWN OF DERRYS CONSTRUCTION STANDARDS AND DETAILS (LATEST EDITION), AND TOWN STANDARDS SHALL TAKE PRECEDENCE IN CASE OF ANY DETAILS OR PLANS IN CONFLICT.

## EROSION CONTROL NOTES:

CATCH BASINS: CARE SHOULD BE TAKEN TO ENSURE THAT SEDIMENTS DO NOT ENTER CATCH BASINS DURING EXCAVATION FOR PIPE TRENCHES, DITCHES AND SWALES. THE CONTRACTOR SHOULD PLACE NON-WOVEN GEOTEXTILE FABRIC FOR INLET PROTECTION OVER INLETS IN AREAS OF SOIL DISTURBANCE, WHICH ARE SUBJECT TO SEDIMENT CONTAMINATION.

PLACE INLET PROTECTION DEVICES, IN CATCH BASINS AND MAINTAIN UNTIL ALL CONSTRUCTION ACTIVITIES HAVE CEASED AND THE SURROUNDING AREAS ARE WELL VEGETATED.

SEDIMENT TRAPS AND/OR BASINS SHOULD BE USED AS NECESSARY TO CONTAIN RUNOFF UNTIL BASINS/PONDS ARE STABILIZED.

ALL SWALES AND PONDS SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF INTO THEM.

**SCHEDULE OF WORK**  
THIS WORK IS ANTICIPATED TO BEGIN IN THE SPRING 2024 WITH A FINAL COMPLETION DATE IN FALL 2024. NO WINTER EARTH DISTURBANCE IS EXPECTED FOR THIS PROJECT. SHOULD WINTER WORK BE REQUIRED, THIS PLAN AND THE ACCOMPANYING STORM WATER POLLUTION PREVENTION PLAN (SWPPP) SHALL BE MODIFIED ACCORDINGLY.

ADEQUATE MEASURES SHOULD BE TAKEN TO MINIMIZE AIR BORNE DUST PARTICLES ARISING FROM SOIL DISTURBANCE AND CONSTRUCTION.

- DISTURBANCE OF AREAS SHOULD BE MINIMIZED AND NOT EXCEED 100,000 SQUARE FEET IN AREA AT ANY ONE TIME.
- NO DISTURBED AREA SHOULD BE LEFT UNSTABILIZED FOR LONGER THAN TWO WEEKS DURING THE GROWING SEASON.
- PERMANENT EROSION CONTROL FEATURES SHOULD BE INCORPORATED INTO THE PROJECT AT THE EARLIEST PRACTICABLE TIME, AS SPECIFIED ON THE CONTRACT PLANS.
- WITHIN 14 DAYS OF COMPLETING WORK IN AN AREA, AND PRIOR TO ANTICIPATED RAIN EVENTS, APPLY HAY/STRAW MULCH AND TACKIFIER ON ALL DISTURBED SOIL AREAS. APPLICATION RATES OF 2 TONS OF STRAW OR HAY PER ACRE SHOULD BE USED TO PREVENT EROSION UNTIL VEGETATIVE COVER CAN BE ESTABLISHED. ALTERNATIVELY, APPLY WOOD CHIPS OR GROUND BARK MULCH 2 TO 4 INCHES DEEP AT A RATE OF 10 TO 20 TONS PER ACRE.
- WHEN EROSION IS LIKELY TO BE A PROBLEM, GRUBBING OPERATION SHOULD BE SCHEDULED AND PERFORMED SUCH THAT GRADING OPERATION AND PERMANENT EROSION CONTROL FEATURES CAN FOLLOW IMMEDIATELY THEREAFTER.
- AS WORK PROGRESSES, PATCH SEEDING AND MULCHING SHOULD BE DONE AS REQUIRED ON AREAS PREVIOUSLY TREATED TO MAINTAIN OR ESTABLISH PROTECTIVE COVER.
- REMOVE ACCUMULATED SEDIMENTS AND DEBRIS WHEN SEDIMENT CONTAINMENT DEVICES REACH 33% CAPACITY.

**EROSION CONTROL IMPLEMENTATION SCHEDULE**  
THE FOLLOWING GENERAL SCHEDULE IDENTIFIES THE PROPOSED SOIL EROSION AND SEDIMENT CONTROL AND STORM WATER MANAGEMENT MEASURES THAT ARE TO BE IMPLEMENTED PRIOR TO AND DURING CONSTRUCTION:

- PERFORM LIMITED GRUBBING, STRIPPING AND SITE GRADING ONLY AS NEEDED TO COMPLETE IMMEDIATE WORK GOALS.
- BLOCK STORM WATER FLOW AS NECESSARY TO INSTALL ALL STORM WATER STRUCTURES IN THE DRY.
- INSTALL PERMANENT STORM DRAIN SYSTEM.
- INSTALL TEMPORARY SOIL STABILIZATION MEASURE INCLUDING SEED, MULCH, FERTILIZER, MATTING, ETC.
- REDIRECT FLOWS INTO FINISHED STRUCTURES PRIOR TO FILL OPERATIONS.
- PLACE HUMUS AND CONDUCT PERMANENT SEEDING AND MULCHING OF ALL DISTURBED GROUND.

**TEMPORARY STABILIZATION:**  
EROSION CONTROL MEASURES SHALL BE IMPLEMENTED, AS WRITTEN HEREIN AND AS DEPICTED ON THE ACCOMPANYING PLAN, FROM THE COMMENCEMENT OF CONSTRUCTION ACTIVITY UNTIL FINAL STABILIZATION IS COMPLETE.

**TEMPORARY GRADING:** TEMPORARY GRADING DURING CONSTRUCTION SHOULD BE PERFORMED IN SUCH A MANNER TO FACILITATE MAXIMUM INFILTRATION OF STORMWATER AND MINIMIZE OR ELIMINATE STORMWATER RUNOFF FROM THE SITE.

**MULCH:** MULCHING WITH LOOSE HAY OR STRAW, AT A RATE OF 2 TONS PER ACRE, SHALL BE DONE IMMEDIATELY AFTER EACH AREA HAS BEEN FINAL GRADED. WHEN SEED FOR EROSION CONTROL IS SOWN PRIOR TO PLACING THE MULCH, THE MULCH SHOULD BE PLACED ON THE SEEDED AREAS WITHIN 48 HOURS AFTER SEEDING.

**TACKIFIER:** PLACEMENT OF SOIL TACKIFIER HAS PROVEN TO BE AN EFFECTIVE METHOD OF PREVENTING SOIL AND ADHERING MULCH IN PLACE. THE PLACEMENT OF A SOIL TACKIFIER SHOULD BE PERFORMED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS AND SHOULD BE REAPPLIED AS NECESSARY TO CONTROL AIR BORN DUST AND SOIL, AND MULCH LOSS UNTIL PERMANENT VEGETATION IS ESTABLISHED.

**ROAD CLEANING:** THE CONTRACTOR SHALL SWEEP ROADS DAILY, OR AS NEEDED TO MAINTAIN CLEAN PAVED SURFACES AT ALL CONSTRUCTION ACCESS/EGRESS POINTS.

**DUST CONTROL:** THE CONTRACTOR SHALL IMPLEMENT DUST CONTROL MEASURES AS NEEDED TO PREVENT AIRBORNE DUST PARTICLES FROM LEAVING THE SITE. DUST CONTROL MEASURES SHALL CONSIST OF USE OF A WATER TRUCK EQUIPPED WITH A SPRAY-BAR THAT DISSIPATES THE WATER EVENLY OVER THE SURFACE.

**PERMANENT STABILIZATION:** GRASS, TREES, SHRUBS AND MULCHED PLANTING BEDS WILL BE CONSTRUCTED AND MAINTAINED IN LOCATIONS AS SHOWN ON THE DRAWINGS TO STABILIZE AREAS NOT WITHIN THE PARKING LOT/BUILDING FOOTPRINT. THE CONTRACTOR WILL BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROL FOR ONE YEAR AFTER COMPLETION.

- AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
- BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
  - A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
  - A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP RAP HAS BEEN INSTALLED;
  - EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.

ALL ROADWAYS/PARKING AREAS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.

CONSTRUCTION SHALL BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

**EXCAVATION DEWATERING:**  
SHOULD EXCAVATION DEWATERING BE REQUIRED, THE CONTRACTOR MUST INSURE THAT ANY EXCAVATION DEWATERING DISCHARGES ARE NOT CONTAMINATED. NOTE: THE WATER IS CONSIDERED UNCONTAMINATED IF THERE IS NO GROUNDWATER CONTAMINATION WITHIN 1,000 FEET OF THE DISCHARGE.

THE CONTRACTOR MUST TREAT ANY UNCONTAMINATED EXCAVATION DEWATERING AS NECESSARY TO REMOVE SUSPENDED SOLIDS AND TURBIDITY DURING CONSTRUCTION. THE DISCHARGES MUST BE SAMPLED AT A LOCATION PRIOR TO MIXING WITH STORM WATER OR STREAM FLOW AT LEAST ONCE PER WEEK DURING WEEKS WHEN DISCHARGES OCCUR. THE SAMPLES MUST BE ANALYZED FOR TOTAL SUSPENDED SOLIDS (TSS) AND MUST MEET MONTHLY AVERAGE AND MAXIMUM DAILY TSS LIMITATIONS OF 50 MILLIGRAMS PER LITER (MGL), RESPECTIVELY.

## SPECIFICATIONS FOR TEMPORARY AND PERMANENT SEEDING:

GRASS SEED MIXES SHALL CONSIST OF THE MIXTURES AS DETAILED IN THE FOLLOWING TABLES, WITH 98% PURITY:

EROSION CONTROL SEED MIX		
SEED	BY % MASS	% GERMINATION (MIN.)
WINTER RYE 80 (MIN.)	80 (MIN.)	85
RED FESCUE (CREEPING)	4 (MIN.)	80
PERENNIAL RYE GRASS	3 (MIN.)	90
RED CLOVER	3 (MIN.)	90
OTHER CROP GRASS	0.5 (MAX.)	
NOXIOUS WEED SEED	0.5 (MAX.)	
INERT MATTER	1.0 (MAX.)	

PERMANENT SEED MIX		
SEED	BY % MASS	% GERMINATION (MIN.)
RED FESCUE (CREEPING)	50	85
KENTUCKY BLUE	25	85
PERENNIAL RYE GRASS	10	90
RED TOP	10	85
LANDINO CLOVER	5	85

**WINTER CONSTRUCTION NOTES:**  
ALL PROPOSED POST-DEVELOPMENT VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE ELSEWHERE. MULCH REMAINING IN THE SPRING SHALL BE REMOVED AND REPLACED AT RATE OF 2 TONS PER ACRE. THE PLACEMENT OF EROSION CONTROL BLANKETS OR MULCH AND TACKIFIER SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND.

ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.

AFTER OCTOBER 15TH, INCOMPLETE ROAD OR PARKING SURFACES SHALL BE PROTECTED WITH A MINIMUM OF 3-INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3 OR IF CONSTRUCTION IS TO CONTINUE THROUGH THE WINTER SEASON BE CLEARED OF ANY ACCUMULATED SNOW AFTER EACH STORM EVENT.



**nobis**  
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JOHN CHRIS NADEAU  
No. 9294  
LICENSED PROFESSIONAL ENGINEER  
1/3/2024

NOT ISSUED FOR CONSTRUCTION

**BANGOR SAVINGS BANK**

46 CRYSTAL AVENUE  
DERRY, NH  
TAX MAP 31 LOTS 071 & 072  
OWNER: BANGOR SAVINGS BANK  
APPLICANT: BANGOR SAVINGS BANK


	12/15/2023	TRC COMMENTS
NO.	DATE	DESCRIPTION

REVISIONS

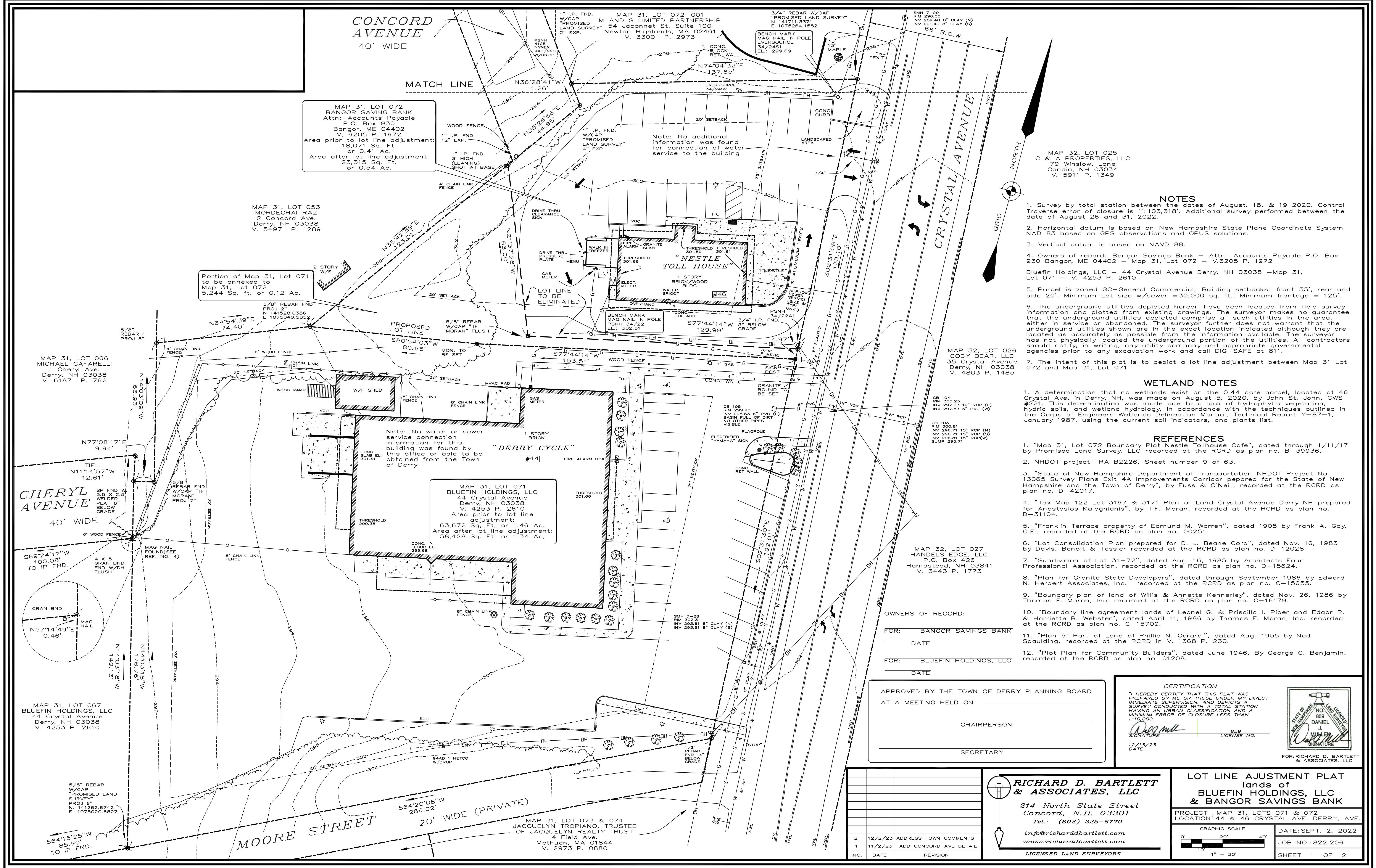
SCALE: AS NOTED

DATE:	NOVEMBER 7, 2023
NOBIS PROJECT NO.	96280.02
DRAWN BY:	MGD
CHECKED BY:	JCN
CAD DRAWING FILE:	96280.02-C-005-NOTES & LEGEND.dwg
SHEET TITLE	

**GENERAL NOTES AND LEGEND**

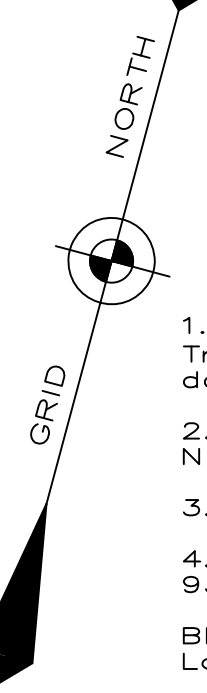
SHEET G-1





CONCORD AVENUE  
40' WIDE

CRYSTAL AVENUE



MAP 31, LOT 072  
BANGOR SAVING BANK  
Attn: Accounts Payable  
P.O. Box 930  
Bangor, ME 04402  
V. 6205 P. 1972  
Area prior to lot line adjustment:  
18,071 Sq. Ft.  
or 0.41 Ac.  
Area after lot line adjustment:  
23,315 Sq. Ft.  
or 0.54 Ac.

MAP 31, LOT 053  
MORDECHAI RAZ  
2 Concord Ave.  
Derry, NH 03038  
V. 5497 P. 1289

Portion of Map 31, Lot 071  
to be annexed to  
Map 31, Lot 072  
5,244 Sq. ft. or 0.12 Ac.

"NESTLE TOLL HOUSE"  
1 STORY BRICK/WOOD  
BLDG  
#45

"DERRY CYCLE"  
1 STORY BRICK  
BLDG  
#44

MAP 31, LOT 071  
BLUEFIN HOLDINGS, LLC  
44 Crystal Avenue  
Derry, NH 03038  
V. 4253 P. 2610  
Area prior to lot line  
adjustment:  
63,672 Sq. Ft. or 1.46 Ac.  
Area after lot line adjustment:  
58,428 Sq. Ft. or 1.34 Ac.

CHERYL AVENUE  
40' WIDE

MOORE STREET  
20' WIDE (PRIVATE)

MAP 32, LOT 025  
C & A PROPERTIES, LLC  
79 Winslow Lane  
Candia, NH 03034  
V. 5911 P. 1349

MAP 32, LOT 026  
CODY BEAR, LLC  
35 Crystal Avenue  
Derry, NH 03038  
V. 4803 P. 1485

MAP 32, LOT 027  
HANDELS EDGE, LLC  
P.O. Box 426  
Hampton, NH 03841  
V. 3443 P. 1773

MAP 31, LOT 067  
BLUEFIN HOLDINGS, LLC  
44 Crystal Avenue  
Derry, NH 03038  
V. 4253 P. 2610

MAP 31, LOT 073 & 074  
JACQUELYN TROPANO, TRUSTEE  
OF JACQUELYN REALTY TRUST  
4 Field Ave.  
Methuen, MA 01844  
V. 2973 P. 0880

- NOTES**
- Survey by total station between the dates of August, 18, & 19 2020. Control Traverse error of closure is 1:103,318'. Additional survey performed between the date of August 26 and 31, 2022.
  - Horizontal datum is based on New Hampshire State Plane Coordinate System NAD 83 based on GPS observations and OPUS solutions.
  - Vertical datum is based on NAVD 88.
  - Owners of record: Bangor Savings Bank - Attn: Accounts Payable P.O. Box 930 Bangor, ME 04402 - Map 31, Lot 072 - V.6205 P. 1972  
Bluefin Holdings, LLC - 44 Crystal Avenue Derry, NH 03038 -Map 31, Lot 071 - V. 4253 P. 2610
  - Parcel is zoned GC-General Commercial; Building setbacks: front 35', rear and side 20'. Minimum Lot size w/sewer =30,000 sq. ft.. Minimum frontage = 125'.
  - The underground utilities depicted hereon have been located from field survey information and plotted from existing drawings. The surveyor makes no guarantee that the underground utilities depicted comprise all such utilities in the area, either in service or abandoned. The surveyor further does not warrant that the underground utilities shown are in the exact location indicated although they are located as accurately as possible from the information available. The surveyor has not physically located the underground portion of the utilities. All contractors should notify, in writing, any utility company and appropriate governmental agencies prior to any excavation work and call DIG-SAFE at 811.
  - The intent of this plat is to depict a lot line adjustment between Map 31 Lot 072 and Map 31, Lot 071.

- WETLAND NOTES**
- A determination that no wetlands exist on the 0.44 acre parcel, located at 46 Crystal Ave, in Derry, NH, was made on August 5, 2020, by John St. John, CWS #221. This determination was made due to a lack of hydrophytic vegetation, hydric soils, and wetland hydrology in accordance with the techniques outlined in the Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, January 1987, using the current soil indicators, and plants list.

- REFERENCES**
- "Map 31, Lot 072 Boundary Plat Nestle Tollhouse Cafe", dated through 1/11/17 by Promised Land Survey, LLC recorded at the RCRD as plan no. B-39936.
  - NHDOT project TRA B2226, Sheet number 9 of 63.
  - "State of New Hampshire Department of Transportation NHDOT Project No. 13065 Survey Plans Exit 4A Improvements Corridor prepared for the State of New Hampshire and the Town of Derry", by Fuss & O'Neill, recorded at the RCRD as plan no. D-42017.
  - "Tax Map 122 Lot 3167 & 3171 Plan of Land Crystal Avenue Derry NH prepared for Anastasio Kalognianis", by T.F. Moran, recorded at the RCRD as plan no. D-31104.
  - "Franklin Terrace property of Edmund M. Warren", dated 1908 by Frank A. Gay, C.E., recorded at the RCRD as plan no. 00251.
  - "Lot Consolidation Plan prepared for D. J. Beane Corp", dated Nov. 16, 1983 by Davis, Benoit & Tessier recorded at the RCRD as plan no. D-12028.
  - "Subdivision of Lot 31-72", dated Aug. 16, 1985 by Architects Four Professional Association, recorded at the RCRD as plan no. D-15624.
  - "Plan for Granite State Developers", dated through September 1986 by Edward N. Herbert Associates, Inc. recorded at the RCRD as plan no. C-15655.
  - "Boundary plan of land of Willis & Annette Kennerley", dated Nov. 26, 1986 by Thomas F. Moran, Inc. recorded at the RCRD as plan no. C-16179.
  - "Boundary line agreement lands of Leonel G. & Priscilla I. Piper and Edgar R. & Harriette B. Webster", dated April 11, 1986 by Thomas F. Moran, Inc. recorded at the RCRD as plan no. C-15709.
  - "Plan of Part of Land of Phillip N. Gerardi", dated Aug. 1955 by Ned Spaulding, recorded at the RCRD in V. 1368 P. 230.
  - "Plot Plan for Community Builders", dated June 1946, By George C. Benjamin, recorded at the RCRD as plan no. 01208.

OWNERS OF RECORD:

FOR: BANGOR SAVINGS BANK  
DATE

FOR: BLUEFIN HOLDINGS, LLC  
DATE

APPROVED BY THE TOWN OF DERRY PLANNING BOARD  
AT A MEETING HELD ON \_\_\_\_\_

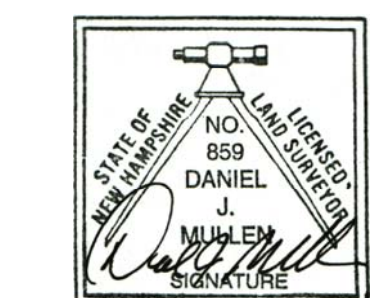
CHAIRPERSON \_\_\_\_\_

SECRETARY \_\_\_\_\_

**CERTIFICATION**

I HEREBY CERTIFY THAT THIS PLAT WAS PREPARED BY ME OR THOSE UNDER MY DIRECT IMMEDIATE SUPERVISION, AND DEPICTS A SURVEY CONDUCTED WITH A TOTAL STATION HAVING AN URBAN CLASSIFICATION AND A MINIMUM ERROR OF CLOSURE LESS THAN 1:10,000.

SIGNATURE: *Richard D. Bartlett* 889 LICENSE NO. \_\_\_\_\_  
DATE: 12/13/23



FOR: RICHARD D. BARTLETT & ASSOCIATES, LLC

NO.	DATE	REVISION
2	12/2/23	ADDRESS TOWN COMMENTS
1	11/2/23	ADD CONCORD AVE DETAIL

**RICHARD D. BARTLETT & ASSOCIATES, LLC**

214 North State Street  
Concord, N.H. 03301  
Tel.: (603) 225-6770

info@richarddbartlett.com  
www.richarddbartlett.com

LICENSED LAND SURVEYORS

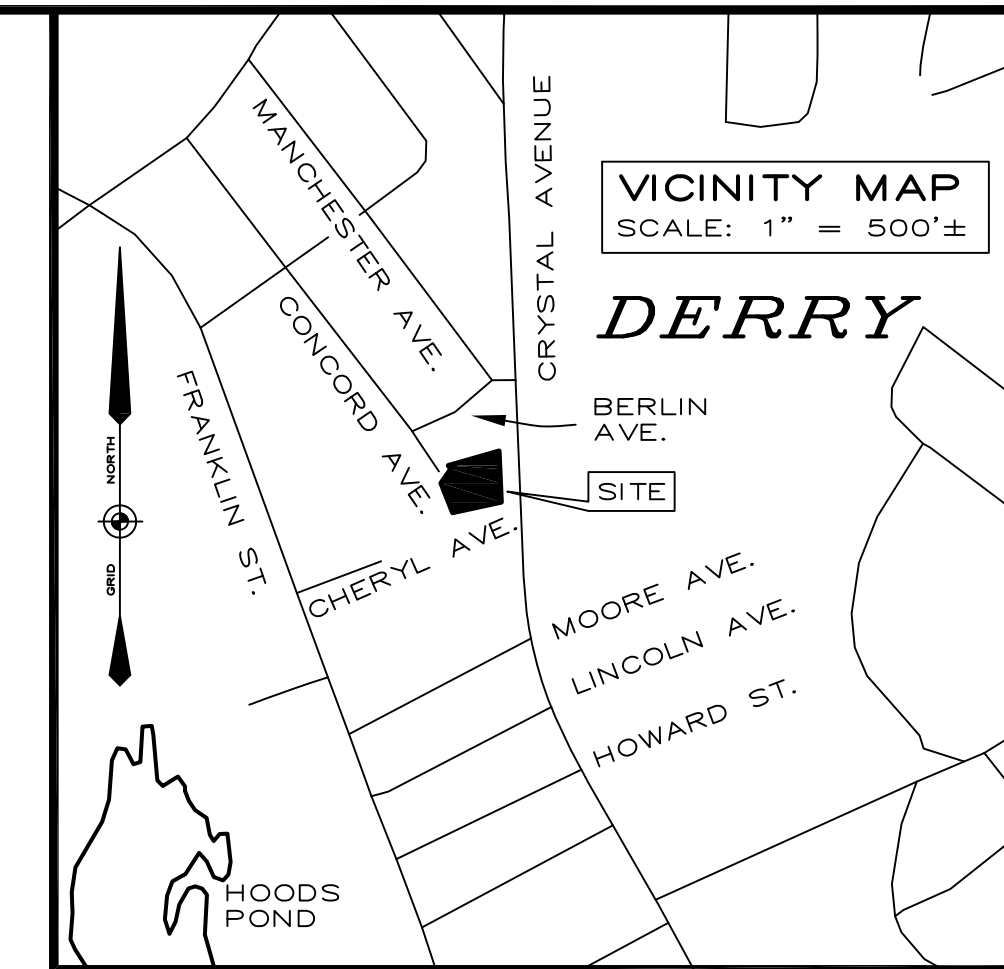
**LOT LINE AJUSTMENT PLAT**  
lands of  
**BLUEFIN HOLDINGS, LLC**  
& **BANGOR SAVING BANK**

PROJECT: MAP 31, LOTS 071 & 072  
LOCATION: 44 & 46 CRYSTAL AVE, DERRY, AVE.

GRAPHIC SCALE: 0' 20' 40'  
1" = 20'

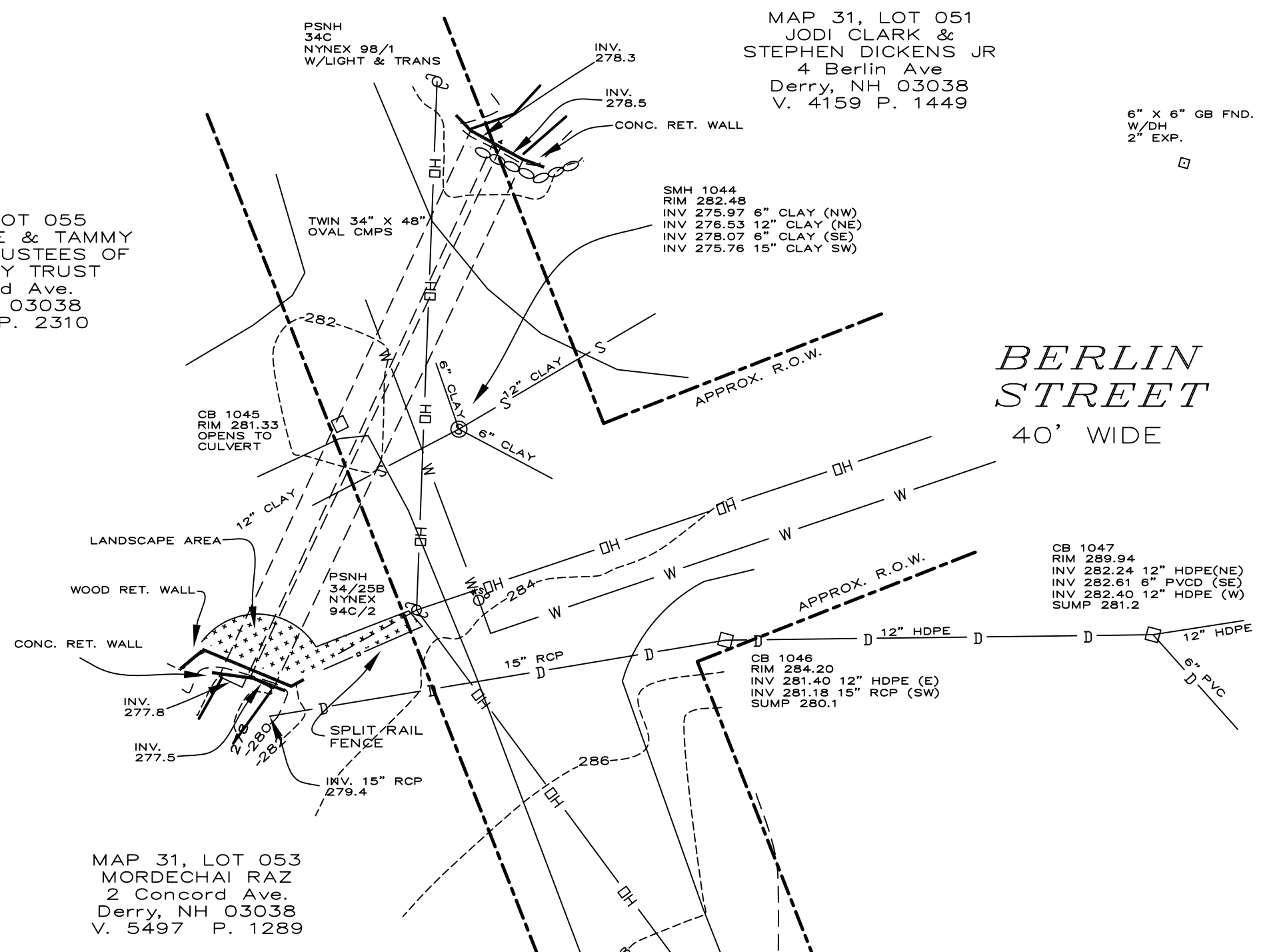
DATE: SEPT. 2, 2022  
JOB NO.: 822.206  
SHEET 1 OF 2





5' X 5' GB FND. □  
W/DH  
2" EXP.

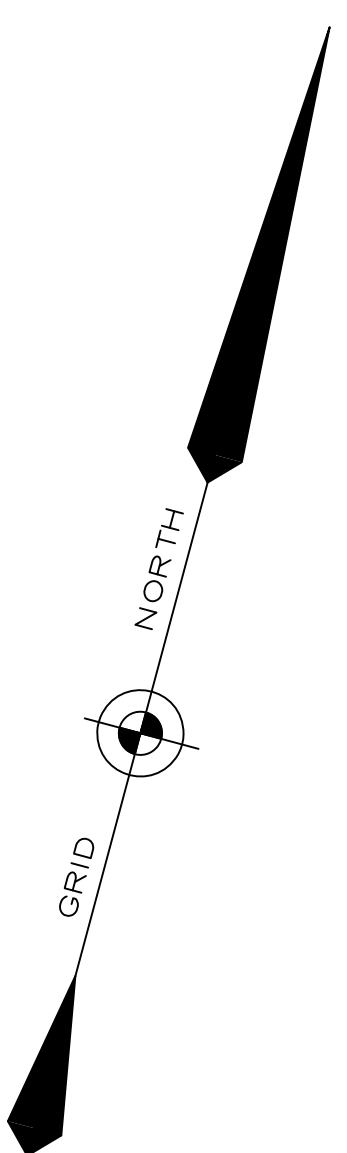
MAP 31, LOT 055  
CHARLES LAKE & TAMMY  
ROBILLARD TRUSTEES OF  
LAKE FAMILY TRUST  
6 Concord Ave.  
Derry, NH 03038  
V. 6493 P. 2310



MAP 31, LOT 051  
JODI CLARK &  
STEPHEN DICKENS JR  
4 Berlin Ave  
Derry, NH 03038  
V. 4159 P. 1449

MAP 31, LOT 053  
MORDECHAI RAZ  
2 Concord Ave.  
Derry, NH 03038  
V. 5497 P. 1289

MAP 31, LOT 072-001  
M AND S LIMITED PARTNERSHIP  
54 Jaconnet St. Suite 100  
Newton Highlands, MA 02461  
V. 3300 P. 2973

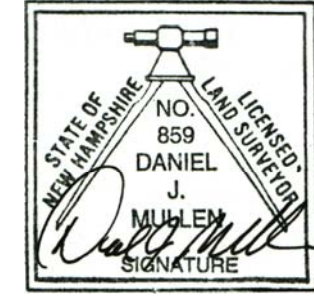


**LEGEND**

---	PROPERTY LINE	○	CONIFEROUS TREE
---	EDGE OF PAVEMENT	○	SHRUB
---	EDGE OF GRAVEL	○	DECIDUOUS TREE
---	OVERHEAD UTILITY LINES	○	ARTESIAN WELL
---	DRAINAGE LINE	○	IRON PIPE OR REBAR
---	SEWER LINE	○	GRANITE OR CONCRETE BOUND (GB OR CB)
---	GAS LINE	○	DRILL HOLE (DH)
---	TEL. LINE	○	UTILITY POLE
---	UNDERGROUND ELECT.	○	LIGHT POLE
---	DOUBLE YELLOW LINE	○	SEWER MANHOLE
---	SINGLE WHITE LINE	○	DRAIN MANHOLE
---	VERTICAL OR SLOPED GRANITE CURB	○	CATCH BASIN
---	CHAIN LINK FENCE	○	HYDRANT
---	STOCKADE FENCE	○	WATER SHUTOFF
---	EDGE OF WOODS	○	WATER VALVE
---	CONCRETE	○	IRRIGATION CONTROL VALVE
---	SIGN HC-HANDICAPPED	○	GAS SHUTOFF
---	HCV-VAN ACCESSIBLE	○	MONITORING WELL
---	NF-NO PARKING	○	

APPROVED BY THE TOWN OF DERRY PLANNING BOARD  
AT A MEETING HELD ON \_\_\_\_\_  
CHAIRPERSON \_\_\_\_\_  
SECRETARY \_\_\_\_\_

**CERTIFICATION**  
I HEREBY CERTIFY THAT THIS PLAT WAS PREPARED BY ME OR THOSE UNDER MY DIRECT IMMEDIATE SUPERVISION, AND DEPICTS A SURVEY CONDUCTED WITH A TOTAL STATION HAVING AN URBAN CLASSIFICATION AND A MINIMUM ERROR OF CLOSURE LESS THAN 1:10,000.  
SIGNATURE: *[Signature]* LICENSE NO. 859  
DATE: 12/13/23



FOR: RICHARD D. BARTLETT & ASSOCIATES, LLC

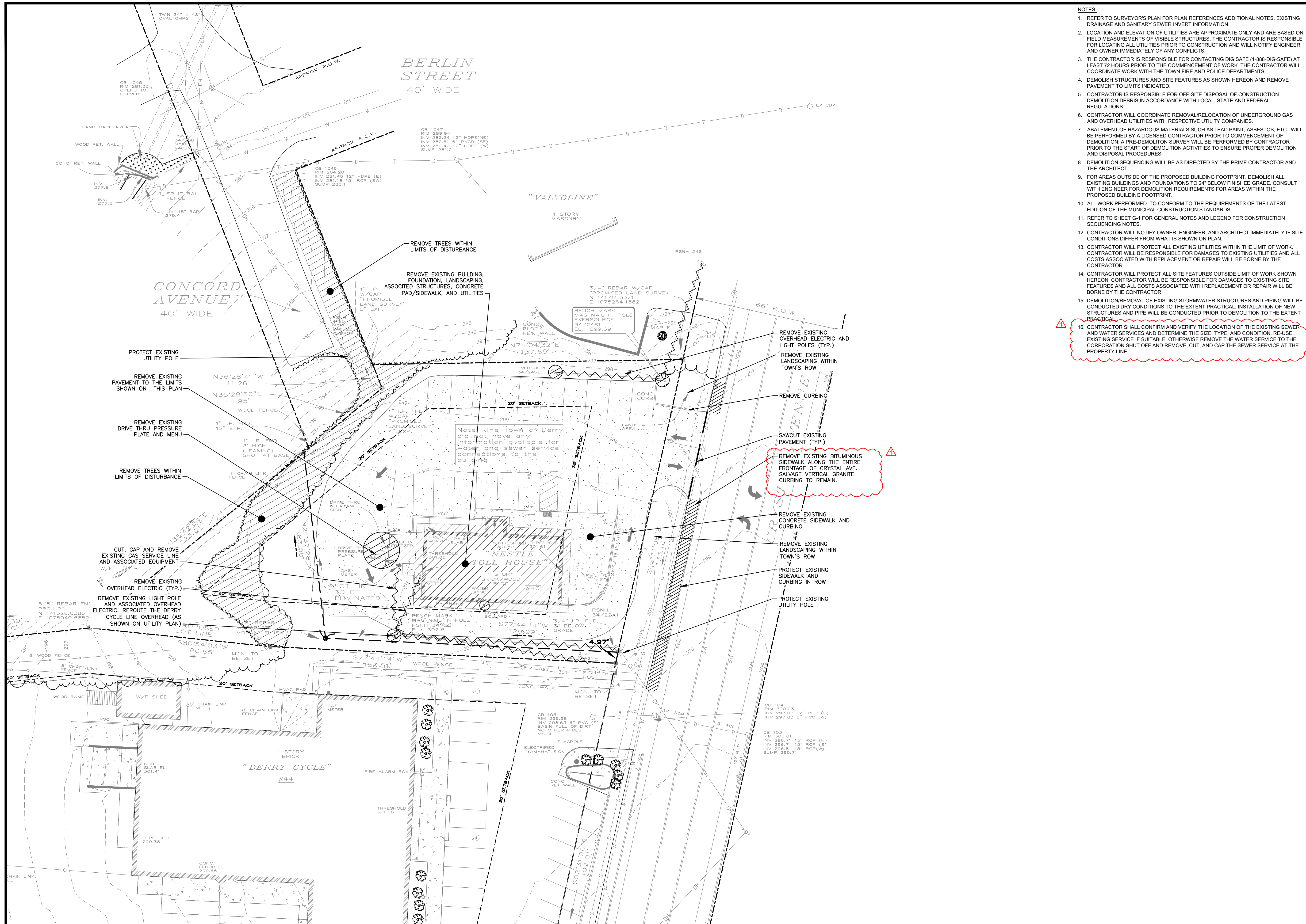
NO.	DATE	REVISION
2	12/2/23	ADDRESS TOWN COMMENTS
1	11/2/23	ADD CONCORD AVE DETAIL

**RICHARD D. BARTLETT & ASSOCIATES, LLC**  
214 North State Street  
Concord, N.H. 03301  
Tel.: (603) 225-6770  
info@richarddbartlett.com  
www.richarddbartlett.com  
LICENSED LAND SURVEYORS

**LOT LINE ADJUSTMENT PLAT**  
lands of  
**BLUEFIN HOLDINGS, LLC**  
& **BANGOR SAVINGS BANK**  
PROJECT: MAP 31, LOTS 071 & 072  
LOCATION: 44 & 46 CRYSTAL AVE., DERRY, AVE.  
GRAPHIC SCALE: 0' 20' 40'  
DATE: SEPT. 2, 2022  
JOB NO.: 822.206  
SHEET 2 OF 2

MATCH TO SHEET 1



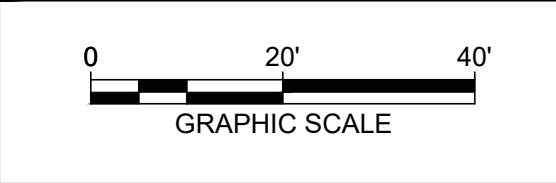


- NOTES:**
- REFER TO SURVEYOR'S PLAN FOR PLAN REFERENCES ADDITIONAL NOTES, EXISTING DRAINAGE AND SANITARY SEWER INVERT INFORMATION.
  - LOCATION AND ELEVATION OF UTILITIES ARE APPROXIMATE ONLY AND ARE BASED ON FIELD MEASUREMENTS OF VISIBLE STRUCTURES. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UTILITIES PRIOR TO CONSTRUCTION AND WILL NOTIFY ENGINEER AND OWNER IMMEDIATELY OF ANY CONFLICTS.
  - THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING DIG SAFE (1-888-DIG-SAFE) AT LEAST 72 HOURS PRIOR TO THE COMMENCEMENT OF WORK. THE CONTRACTOR WILL COORDINATE WORK WITH THE TOWN FIRE AND POLICE DEPARTMENTS.
  - DEMOLISH STRUCTURES AND SITE FEATURES AS SHOWN HEREON AND REMOVE PAVEMENT TO LIMITS INDICATED.
  - CONTRACTOR IS RESPONSIBLE FOR OFF-SITE DISPOSAL OF CONSTRUCTION DEMOLITION DEBRIS IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.
  - CONTRACTOR WILL COORDINATE REMOVAL/RELOCATION OF UNDERGROUND GAS AND OVERHEAD UTILITIES WITH RESPECTIVE UTILITY COMPANIES.
  - ABATEMENT OF HAZARDOUS MATERIALS SUCH AS LEAD PAINT, ASBESTOS, ETC., WILL BE PERFORMED BY A LICENSED CONTRACTOR PRIOR TO COMMENCEMENT OF DEMOLITION. A PRE-DEMOLITION SURVEY WILL BE PERFORMED BY CONTRACTOR PRIOR TO THE START OF DEMOLITION ACTIVITIES TO ENSURE PROPER DEMOLITION AND DISPOSAL PROCEDURES.
  - DEMOLITION SEQUENCING WILL BE AS DIRECTED BY THE PRIME CONTRACTOR AND THE ARCHITECT.
  - FOR AREAS OUTSIDE OF THE PROPOSED BUILDING FOOTPRINT, DEMOLISH ALL EXISTING BUILDINGS AND FOUNDATIONS TO 24" BELOW FINISHED GRADE. CONSULT WITH ENGINEER FOR DEMOLITION REQUIREMENTS FOR AREAS WITHIN THE PROPOSED BUILDING FOOTPRINT.
  - ALL WORK PERFORMED TO CONFORM TO THE REQUIREMENTS OF THE LATEST EDITION OF THE MUNICIPAL CONSTRUCTION STANDARDS.
  - REFER TO SHEET G-1 FOR GENERAL NOTES AND LEGEND FOR CONSTRUCTION SEQUENCING NOTES.
  - CONTRACTOR WILL NOTIFY OWNER, ENGINEER, AND ARCHITECT IMMEDIATELY IF SITE CONDITIONS DIFFER FROM WHAT IS SHOWN ON PLAN.
  - CONTRACTOR WILL PROTECT ALL EXISTING UTILITIES WITHIN THE LIMIT OF WORK. CONTRACTOR WILL BE RESPONSIBLE FOR DAMAGES TO EXISTING UTILITIES AND ALL COSTS ASSOCIATED WITH REPLACEMENT OR REPAIR WILL BE BORNE BY THE CONTRACTOR.
  - CONTRACTOR WILL PROTECT ALL SITE FEATURES OUTSIDE LIMIT OF WORK SHOWN HEREON. CONTRACTOR WILL BE RESPONSIBLE FOR DAMAGES TO EXISTING SITE FEATURES AND ALL COSTS ASSOCIATED WITH REPLACEMENT OR REPAIR WILL BE BORNE BY THE CONTRACTOR.
  - DEMOLITION/REMOVAL OF EXISTING STORMWATER STRUCTURES AND PIPING WILL BE CONDUCTED DRY CONDITIONS TO THE EXTENT PRACTICAL. INSTALLATION OF NEW STRUCTURES AND PIPE WILL BE CONDUCTED PRIOR TO DEMOLITION TO THE EXTENT PRACTICAL.
  - CONTRACTOR SHALL CONFIRM AND VERIFY THE LOCATION OF THE EXISTING SEWER AND WATER SERVICES AND DETERMINE THE SIZE, TYPE, AND CONDITION. RE-USE EXISTING SERVICE IF SUITABLE, OTHERWISE REMOVE THE WATER SERVICE TO THE CORPORATION SHUT OFF AND REMOVE, CUT, AND CAP THE SEWER SERVICE AT THE PROPERTY LINE.

NOT ISSUED FOR CONSTRUCTION

**BANGOR SAVINGS BANK**  
 46 CRYSTAL AVENUE  
 DERRY, NH  
 TAX MAP 31 LOTS 071 & 072  
 OWNER: BANGOR SAVINGS BANK  
 APPLICANT: BANGOR SAVINGS BANK

NO.	DATE	DESCRIPTION
1	12/15/2023	TRC COMMENTS



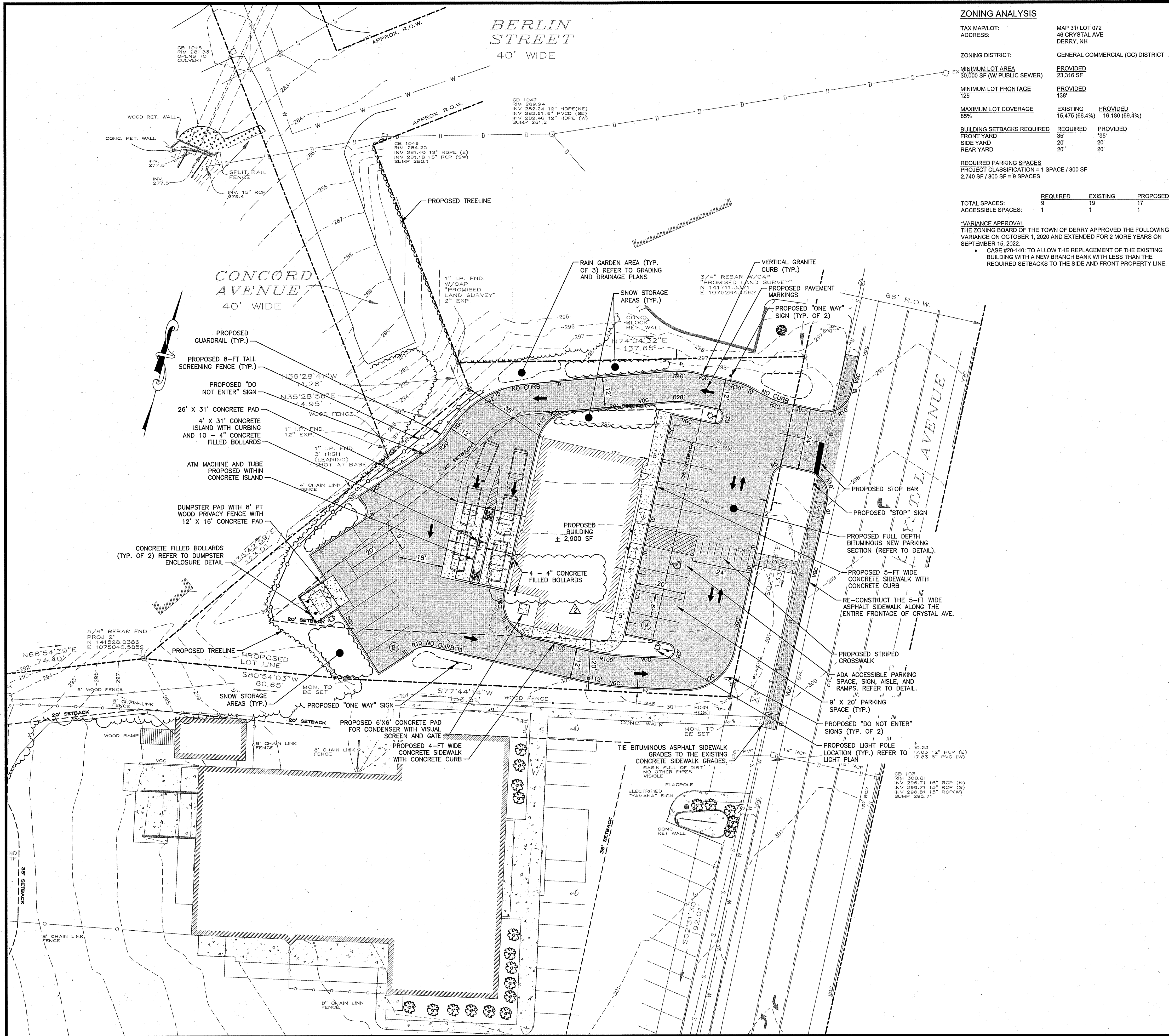
DATE:	NOVEMBER 7, 2023
NOBIS PROJECT NO.	96280.02
DRAWN BY:	MGD
CHECKED BY:	JCN
CAD DRAWING FILE:	96280.02-C-100-DEMO.dwg
SHEET TITLE	

**DEMOLITION PLAN**

SHEET  
**C-1**

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**ZONING ANALYSIS**

TAX MAP LOT:	MAP 31/ LOT 072
ADDRESS:	46 CRYSTAL AVE DERRY, NH
ZONING DISTRICT:	GENERAL COMMERCIAL (GC) DISTRICT
MINIMUM LOT AREA	PROVIDED 30,000 SF (W/ PUBLIC SEWER)
MINIMUM LOT FRONTAGE	PROVIDED 125'
MAXIMUM LOT COVERAGE	EXISTING 15,475 (68.4%)
	PROVIDED 16,190 (69.4%)
BUILDING SETBACKS REQUIRED	REQUIRED
FRONT YARD	35'
SIDE YARD	20'
REAR YARD	20'
REQUIRED PARKING SPACES	REQUIRED
PROJECT CLASSIFICATION = 1 SPACE / 300 SF	EXISTING
2,740 SF / 300 SF = 9 SPACES	PROVIDED
TOTAL SPACES:	9
ACCESSIBLE SPACES:	1

**NOTES:**

- THE PURPOSE OF THIS PLAN IS TO DEPICT THE SITE LAYOUT FOR THE PROPOSED CONSTRUCTION OF A NEW BANGOR SAVINGS BANK WITH DRIVE THRU TELLER WINDOWS AND ATM.
- ALL BUILDING AND SITE CONSTRUCTION TO COMPLY WITH THE RULES AND REGULATIONS OF THE AMERICANS WITH DISABILITY ACT (ADA) 2010 EDITION.
- DIMENSIONS SHOWN TAKE PRECEDENCE OVER SCALED DIMENSIONS. THE CONTRACTOR TO USE CAUTION WHEN SCALING REPRODUCED PLANS. IN THE EVENT OF A CONFLICT BETWEEN THIS PLAN SET AND ANY OTHER DRAWINGS AND / OR SPECIFICATIONS, THE ENGINEER WILL BE NOTIFIED BY THE CONTRACTOR.
- PROPOSED BUILDING WILL BE SERVICED BY MUNICIPAL WATER AND SEWER.
- THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING DIG SAFE (1-888-DIG-SAFE) AT LEAST 72 HOURS PRIOR TO THE COMMENCEMENT OF WORK. THE CONTRACTOR WILL COORDINATE WORK WITH THE CITY FIRE, POLICE, AND COMMUNITY DEVELOPMENT DEPARTMENTS.
- A MANDATORY PRE-CONSTRUCTION MEETING WILL NEED TO BE HELD PRIOR TO ISSUANCE OF ANY PERMITS TO DISCUSS INSPECTION FEES, CONSTRUCTION SCHEDULE, ETC.
- REFER TO CONSTRUCTION DETAIL SHEETS FOR ALL APPLICABLE SITE DETAILS.
- CONTRACTOR WILL NOTIFY ENGINEERS IMMEDIATELY IF SITE CONDITIONS DIFFER FROM WHAT IS SHOWN ON PLAN.
- REFER TO SHEET G-1 FOR GENERAL NOTES AND LEGEND.
- SNOW WILL BE STORED ONSITE IN DESIGNATED AREAS AND REMOVED OFF-SITE IF NECESSARY.

**PLAN REFERENCES:**

- EXISTING CONDITIONS, TOPOGRAPHICAL INFORMATION, NORTH ORIENTATION, NORTH ARROW, AND COORDINATE VALUES DEPICTED ON THESE DRAWINGS ARE BASED ON PLANS TITLED "LOT LINE ADJUSTMENT PLAT" DATED SEPTEMBER 2, 2022, PROVIDED TO NOBIS GROUP, BY RICHARD D. BARTLETT & ASSOCIATES.

**VARIANCE APPROVAL**  
THE ZONING BOARD OF THE TOWN OF DERRY APPROVED THE FOLLOWING VARIANCE ON OCTOBER 1, 2020 AND EXTENDED FOR 2 MORE YEARS ON SEPTEMBER 15, 2022.  
CASE #20-140: TO ALLOW THE REPLACEMENT OF THE EXISTING BUILDING WITH A NEW BRANCH BANK WITH LESS THAN THE REQUIRED SETBACKS TO THE SIDE AND FRONT PROPERTY LINE.

OWNER OF RECORD:  
*Jan Dan*  
BANGOR SAVINGS BANK  
1/10/24  
DATE

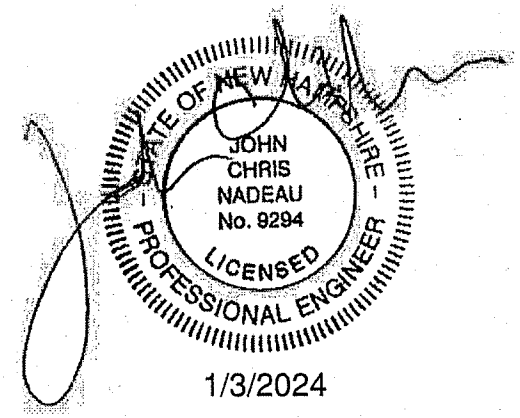
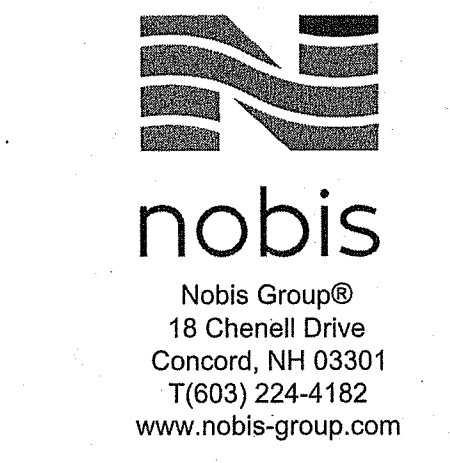
APPROVED  
BY THE DERRY CODE ENFORCEMENT  
THIS SITE PLAN IS APPROVED IN ACCORDANCE WITH THE TOWN OF DERRY DEVELOPMENT REGULATIONS  
*Ant Palmy*  
CODE ENFORCEMENT  
1/5/24  
DATE

BY THE DERRY PUBLIC WORKS  
THIS SITE PLAN IS APPROVED IN ACCORDANCE WITH THE TOWN OF DERRY DEVELOPMENT REGULATIONS  
*Wesley*  
DIRECTOR  
1/8/24  
DATE

BY THE DERRY POLICE DEPARTMENT  
THIS SITE PLAN IS APPROVED IN ACCORDANCE WITH THE TOWN OF DERRY DEVELOPMENT REGULATIONS  
*D. M. L.*  
POLICE CHIEF - Designee  
1/8/24  
DATE

BY THE DERRY FIRE DEPARTMENT  
THIS SITE PLAN IS APPROVED IN ACCORDANCE WITH THE TOWN OF DERRY DEVELOPMENT REGULATIONS  
*Paul J. Gauthier*  
FIRE CHIEF - Designee  
1/9/24  
DATE

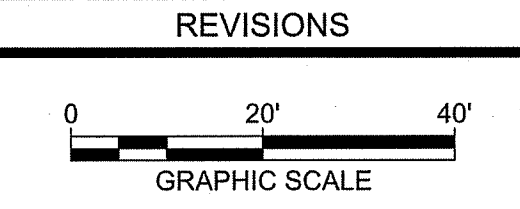
BY THE DERRY PLANNING BOARD  
THIS SITE PLAN IS APPROVED IN ACCORDANCE WITH THE TOWN OF DERRY DEVELOPMENT REGULATIONS  
CHAIRMAN  
DATE  
SECRETARY  
DATE



NOT ISSUED FOR CONSTRUCTION

BANGOR SAVINGS BANK  
46 CRYSTAL AVENUE  
DERRY, NH  
TAX MAP 31 LOTS 071 & 072  
OWNER: BANGOR SAVINGS BANK  
APPLICANT: BANGOR SAVINGS BANK

NO.	DATE	DESCRIPTION
1	1/3/2023	TRC COMMENTS
2	12/15/2023	TRC COMMENTS



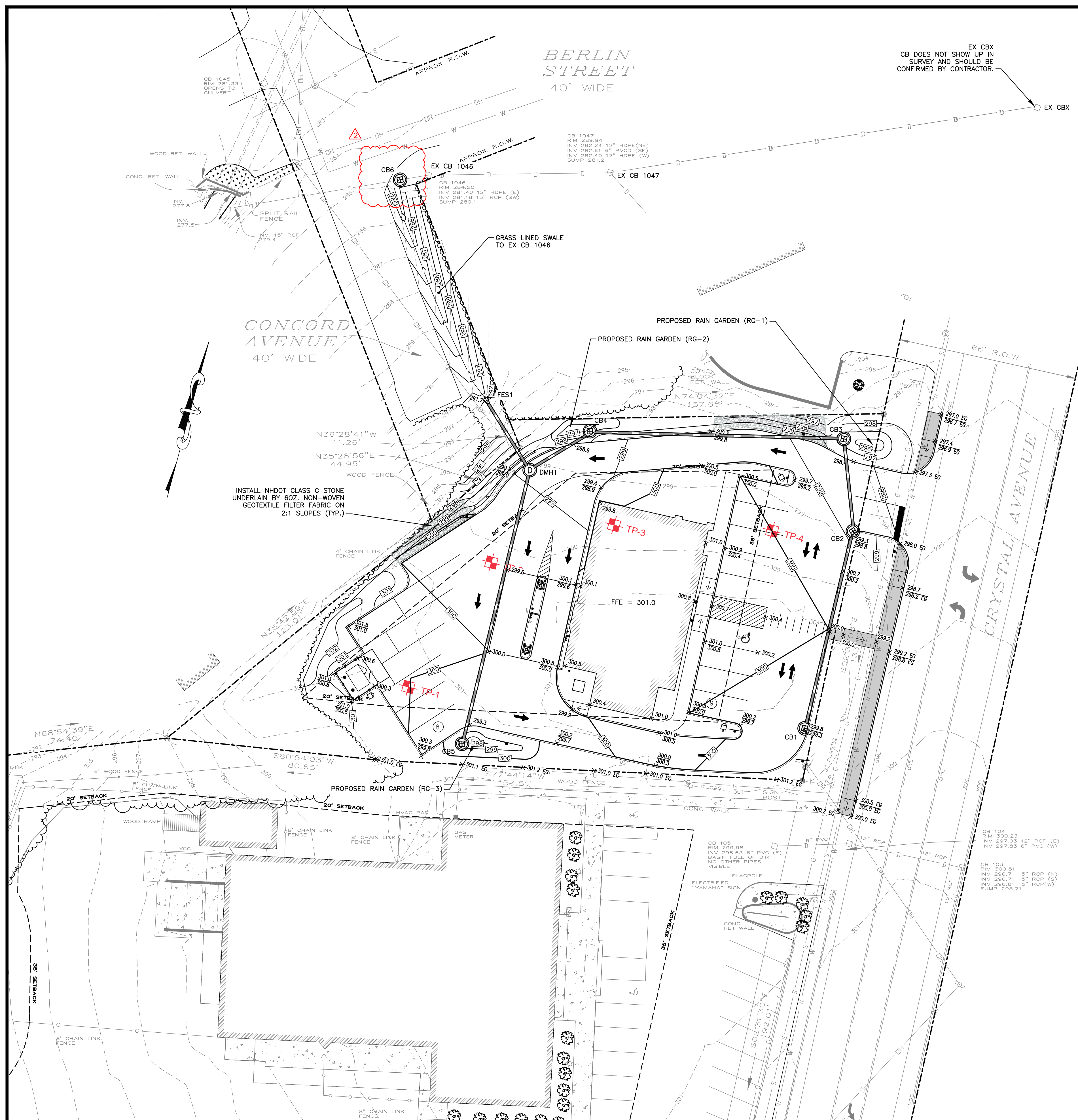
DATE:	NOVEMBER 7, 2023
NOBIS PROJECT NO.	96280.02
DRAWN BY:	MGD
CHECKED BY:	JCN
CAD DRAWING FILE:	96280.02-C-200-SITE.dwg
SHEET TITLE	

PROPOSED SITE PLAN

SHEET C-2

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- NOTES:**
- REFER TO SURVEYOR'S PLAN FOR BASE PLAN REFERENCES AND ADDITIONAL NOTES.
  - ALL ELEVATIONS SHOWN ARE IN REFERENCE TO THE SURVEY PLAN AND MUST BE VERIFIED BY THE GENERAL CONTRACTOR PRIOR TO THE START OF CONSTRUCTION.
  - CONTRACTOR WILL NOTIFY OWNER & ENGINEER IMMEDIATELY IF SITE CONDITIONS DIFFER FROM WHAT IS SHOWN ON PLAN.
  - SPOT ELEVATIONS SHOWN AT BUILDING CORNERS ARE PROPOSED GROUND ELEVATIONS.
  - FINISH WALK AND CURB ELEVATIONS WILL BE 6" ABOVE FINISH PAVEMENT.
  - ALL ELEVATIONS SHOWN ARE IN REFERENCE TO THE BENCHMARK AND MUST BE VERIFIED BY THE GENERAL CONTRACTOR AT GROUND BREAK.
  - LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES ARE APPROXIMATE ONLY AND ARE BASED ON RECORDS FROM THE UTILITY COMPANIES AND FIELD MEASUREMENTS OF VISIBLE STRUCTURES. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UTILITIES PRIOR TO CONSTRUCTION AND WILL NOTIFY ENGINEER AND OWNER IMMEDIATELY OF ANY CONFLICTS.
  - ALL WORK ON SITE, ALL UTILITY WORK AND ALL WORK WITH TOWN R.O.W. WILL BE PERFORMED IN ACCORDANCE WITH THE TOWN OF DERRY SPECIFICATIONS, LATEST EDITION.
  - THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING DIG SAFE (1-888-DIG-SAFE) AT LEAST 72 HOURS PRIOR TO THE COMMENCEMENT OF WORK. THE CONTRACTOR WILL COORDINATE WORK WITH THE CITY FIRE, POLICE, AND COMMUNITY DEVELOPMENT DEPARTMENTS.
  - ALL STORM DRAIN PIPING WITH LESS THAN 3.0 FEET OF COVER WILL BE OVERLAID WITH 2" THICK RIGID INSULATION FOR THE FULL WIDTH OF PIPE TRENCH.
  - REFER TO SHEET G-1 FOR GENERAL NOTES AND LEGEND.

**DRAINAGE SCHEDULE**

- CB1 (4" I.D. STRUCTURE)  
RIM = 299.3  
INV. OUT = 295.3  
L = 71 LF - 12" HDPE (TO CB2)  
S = 0.0071 FT/FT  
SUMP = 3-FT (292.3)
- CB2 (4" I.D. STRUCTURE)  
RIM = 298.8  
INV. IN = 294.8 (FROM CB1)  
INV. OUT = 294.7  
L = 30 LF - 12" HDPE (TO CB3)  
S = 0.04 FT/FT  
SUMP = 3-FT (291.7)
- CB3 (4" I.D. STRUCTURE)  
RIM = 297.5  
INV. IN = 293.5 (FROM CB2)  
INV. OUT = 293.4  
L = 89 LF - 12" HDPE (TO CB4)  
S = 0.0056 FT/FT  
SUMP = 3-FT (290.4)
- CB4 (4" I.D. STRUCTURE)  
RIM = 297.5  
INV. IN = 292.9 (FROM CB3)  
INV. OUT = 292.8  
L = 22 LF - 12" HDPE (TO DMH1)  
S = 0.0089 FT/FT  
SUMP = 3-FT (288.8)
- CB5 (4" I.D. STRUCTURE)  
RIM = 299.0  
INV. OUT = 295.0  
L = 100 LF - 12" HDPE (TO DMH1)  
S = 0.0197 FT/FT  
SUMP = 3-FT (292.0')
- DMH1 (4" I.D. STRUCTURE)  
RIM = 299.0  
INV. IN = 292.6 (FROM CB4)  
INV. IN = 293.0 (FROM CB5)  
INV. OUT = 292.5  
L = 29 LF - 12" HDPE (TO FES1)  
S = 0.0271 FT/FT  
SUMP = 3-FT (288.5')
- FES1  
INV. OUT = 291.7
- EX CB 1046  
RIM = 284.20  
INV. IN = 281.40 (12")  
INV. OUT = 281.18 (15")  
L = 11 LF - 15" RCP (TO CB8)  
S = 0.025 FT/FT
- CB6 (4" I.D. STRUCTURE)  
RIM = 284.5  
INV. IN = 280.9 (FROM EX CB 1046)  
INV. OUT = 280.8  
L = 56 LF - 15" RCP (TO EX OUTLET (INV. OUT = 279.4))  
S = 0.025 FT/FT  
SUMP = 3-FT (277.8)

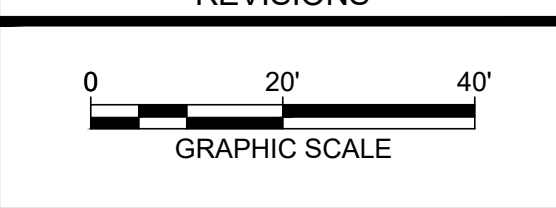
EX CBX DOES NOT SHOW UP IN SURVEY AND SHOULD BE CONFIRMED BY CONTRACTOR.



NOT ISSUED FOR CONSTRUCTION

**BANGOR SAVINGS BANK**  
46 CRYSTAL AVENUE  
DERRY, NH  
TAX MAP 31 LOTS 071 & 072  
OWNER: BANGOR SAVINGS BANK  
APPLICANT: BANGOR SAVINGS BANK

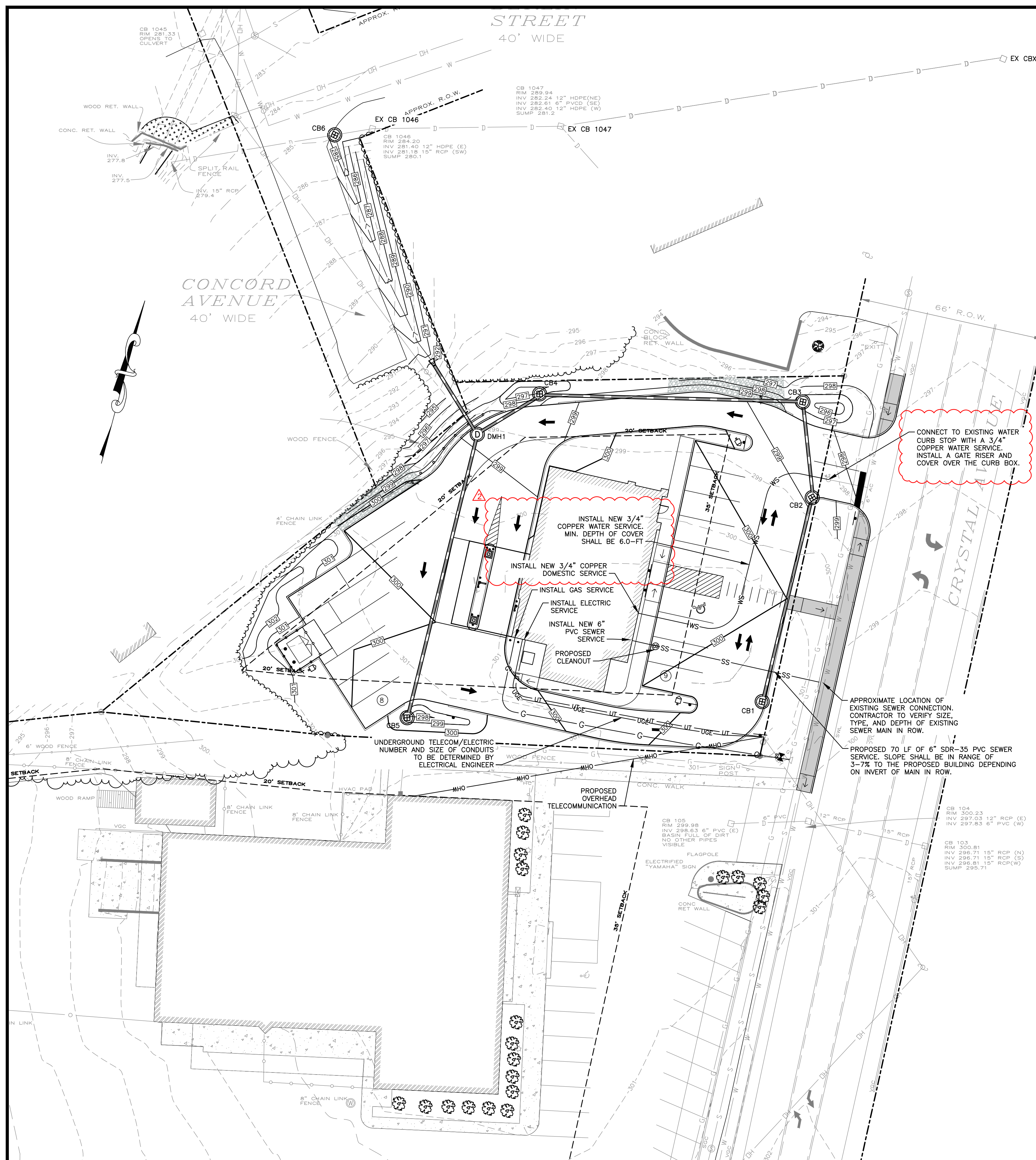
NO.	DATE	DESCRIPTION
1	1/3/2023	TRC COMMENTS
2	12/15/2023	TRC COMMENTS



DATE: NOVEMBER 7, 2023  
NOBIS PROJECT NO. 96280.02  
DRAWN BY: MGD  
CHECKED BY: JCN  
CAD DRAWING FILE: 96280.02-C-300-G&D.dwg  
SHEET TITLE

**GRADING AND DRAINAGE**  
  
SHEET  
**C-3**





- NOTES:**
- REFER TO SURVEYOR'S PLAN, FOR BASE PLAN REFERENCES AND ADDITIONAL NOTES.
  - ALL ELEVATIONS SHOWN ARE IN REFERENCE TO THE SURVEY PLAN AND MUST BE VERIFIED BY THE GENERAL CONTRACTOR PRIOR TO THE START OF CONSTRUCTION.
  - THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. CALL 1-888-DIGSAFE AT LEAST THREE BUSINESS DAYS BEFORE PERFORMING ANY CONSTRUCTION.
  - LOCATIONS AND ELEVATIONS OF UTILITIES ARE APPROXIMATE ONLY AND ARE BASED ON RECORDS FROM THE UTILITY COMPANIES AND FIELD MEASUREMENTS OF VISIBLE STRUCTURES. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UTILITIES PRIOR TO CONSTRUCTION AND WILL NOTIFY ENGINEER AND OWNER IMMEDIATELY OF ANY CONFLICTS.
  - THERE WILL BE NO PHYSICAL CONNECTION BETWEEN A PUBLIC OR PRIVATE POTABLE WATER SUPPLY SYSTEM AND A SEWER OR SEWER APPURTENANCE WHICH WOULD PERMIT THE PASSAGE OF SEWAGE OR POLLUTED WATER INTO THE POTABLE SUPPLY. NO WATER PIPE WILL PASS THROUGH OR COME IN CONTACT WITH ANY PART OF A SEWER OR SEWER MANHOLE. NO SEWER WILL BE LOCATED WITHIN THE WELL PROTECTIVE RADI ESTABLISHED IN ENH-WS 300 FOR ANY PUBLIC WATER SUPPLY WELLS OR WITHIN 100 FEET OF ANY PRIVATE WATER SUPPLY WELL. SEWERS WILL BE LOCATED AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER MAIN. A DEVIATION FROM THE SEPARATION REQUIREMENTS WILL BE ALLOWED WHERE NECESSARY TO AVOID CONFLICT WITH SUBSURFACE STRUCTURES, UTILITY CHAMBERS, AND BUILDING FOUNDATIONS, PROVIDED THAT THE SEWER IS CONSTRUCTED IN ACCORDANCE WITH THE FORCE MAIN CONSTRUCTION REQUIREMENTS SPECIFIED IN ENH-WQ 704.06. WHENEVER SEWERS MUST CROSS WATER MAINS, THE SEWER WILL BE CONSTRUCTED AS FOLLOWS:
    - VERTICAL SEPARATION OF THE SEWER AND WATER MAIN WILL BE NOT LESS THAN 18 INCHES, WITH WATER ABOVE SEWER; AND
    - SEWER PIPE JOINTS WILL BE LOCATED AT LEAST 6 FEET HORIZONTALLY FROM THE WATER MAIN.
  - THE CONTRACTOR WILL PROVIDE A MINIMUM NOTICE OF FOURTEEN (14) DAYS TO ALL CORPORATIONS, COMPANIES AND/OR LOCAL AUTHORITIES OWNING OR HAVING JURISDICTION OVER UTILITIES RUNNING TO, THROUGH OR ACROSS PROJECT AREAS PRIOR TO DEMOLITION AND/OR CONSTRUCTION ACTIVITIES.
  - THE LOCATION, SIZE, DEPTH AND SPECIFICATIONS FOR CONSTRUCTION OF PROPOSED PRIVATE UTILITY SERVICES WILL BE TO THE STANDARDS AND REQUIREMENTS OF THE RESPECTIVE UTILITY COMPANY (ELECTRIC, TELEPHONE, CABLE TELEVISION, FIRE ALARM, GAS, WATER, AND SEWER).
  - ALL CONSTRUCTION WILL CONFORM TO THE TOWN STANDARDS AND REGULATIONS, UNLESS OTHERWISE SPECIFIED. ALL CONSTRUCTION ACTIVITIES WILL CONFORM TO LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) RULES AND REGULATIONS.
  - THE CONTRACTOR IS TO VERIFY LOCATION AND DEPTH OF ALL EXISTING UTILITY STUBS PRIOR TO CONSTRUCTION AND DISCONNECT ALL EXISTING SERVICE CONNECTIONS AT THEIR RESPECTIVE MAINS IN ACCORDANCE WITH THE RESPECTIVE UTILITY COMPANY STANDARDS AND SPECIFICATIONS. ENGINEER TO BE NOTIFIED.
  - AS-BUILT PLANS WILL BE SUBMITTED TO DEPARTMENT OF PUBLIC WORKS.
  - INVERTS AND SHELVES: MANHOLES WILL HAVE A BRICK PAVED SHELF AND INVERT, CONSTRUCTED TO CONFORM TO THE SIZE OF PIPE AND FLOW AT CHANGES IN DIRECTION. THE INVERTS WILL BE LAID OUT IN CURVES OF THE LONGEST RADIUS POSSIBLE TANGENT TO THE CENTER LINE OF THE SEWER PIPES. SHELVES WILL BE CONSTRUCTED TO THE ELEVATION OF THE THROUGH CHANNEL UNDERLAYMENT OF INVERT, AND SHELF WILL CONSIST OF GRADE SS HARD BRICK MASONRY.
  - FRAMES AND COVERS: MANHOLE FRAMES AND COVERS WILL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30 INCH DIA. CLEAR OPENING. THE WORD "SEWER" WILL BE CAST INTO THE CENTER OF THE UPPER FACE OF EACH COVER WITH RAISED, 3" LETTERS.
  - WILLOW MANHOLE: IN LIEU OF A CONE SECTION, WHEN MANHOLE DEPTH IS LESS THAN 6 FEET, A REINFORCED CONCRETE SLAB COVER MAY BE USED HAVING AN ECCENTRIC ENTRANCE OPENING AND CAPABLE OF SUPPORTING 120' LOADS.
  - CONTRACTOR WILL PLACE 2" WIDE METAL WIRE IMPREGATED GREEN PLASTIC WARNING TAPE OVER ENTIRE LENGTH OF ALL GRAVITY SEWERS, SERVICES, AND FORCE MAINS.
  - ALL SANITARY STRUCTURE INTERIOR DIAMETERS (4" MIN) WILL BE DETERMINED BY THE MANUFACTURER BASED ON THE PIPE CONFIGURATIONS SHOWN ON THESE PLANS.
  - PROPOSED RIM ELEVATIONS OF SANITARY MANHOLES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH WITH FINISH GRADES. ADJUST ALL OTHER RIM ELEVATIONS OF MANHOLES, WATER GATES, GAS GATES AND OTHER UTILITIES TO FINISH GRADE.
  - ALL SANITARY SEWER SERVICE LATERALS, FOR FUTURE RESIDENTIAL CONNECTION, WILL END AT THE LIMITS OF THE R.O.W., AS SHOWN ON PLANS AND WILL BE PROVIDED WITH A TEMPORARY PLUG AND WITNESS AT END.
  - DIMENSIONS ARE SHOWN TO CENTERLINE OF PIPE OR FITTING.
  - ALL GRAVITY SEWER PIPE, MANHOLES, AND FORCE MAINS WILL BE TESTED ACCORDING TO NHDES STANDARDS OF DESIGN AND CONSTRUCTION FOR SEWAGE AND WASTEWATER TREATMENT FACILITIES, CHAPTER ENH-WQ 700, CONFORMING TO THE FOLLOWING MIN. CRITERIA:
 

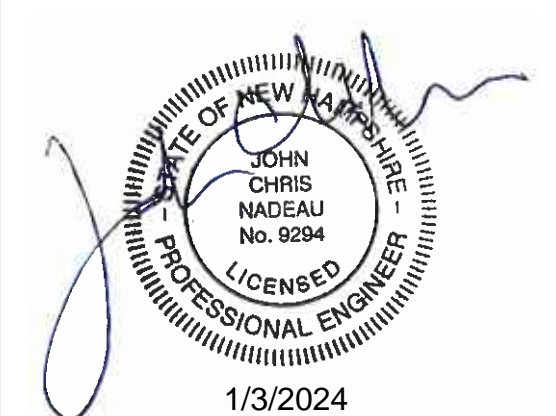
**ENH-WQ 704.06 GRAVITY SEWER PIPE TESTING:**  
GRAVITY SEWERS WILL BE TESTED FOR WATER TIGHTNESS BY USE OF LOW-PRESSURE AIR TESTS CONFORMING WITH ASTM F1417-92(2005) OR UNI-BELL PVC PIPE ASSOCIATION UNI-B-8. LINES WILL BE CLEANED AND VISUALLY INSPECTED USING A LAMP TEST AND BY INTRODUCING WATER TO DETERMINE THAT THERE IS NO STANDING WATER IN THE SEWER, AND TRUE TO LINE AND GRADE FOLLOWING INSTALLATION AND PRIOR TO USE. DEFLECTION TESTS WILL TAKE PLACE NOT LESS THAN 30 DAYS NOR MORE THAN 90 DAYS FOLLOWING INSTALLATION. THE MAXIMUM ALLOWABLE DEFLECTION OF FLEXIBLE SEWER PIPE SHALL BE 5% PERCENT OF AVERAGE INSIDE DIAMETER. A RIGID BALL OR MANDREL WITH A DIAMETER OF AT LEAST 98% OF THE AVERAGE INSIDE PIPE DIAMETER SHALL BE USED FOR TESTING PIPE DEFLECTION. THE DEFLECTION TEST SHALL BE CONDUCTED WITHOUT MECHANICAL PULLING DEVICES.

**ENH-WQ 704.09 FORCE MAIN AND PRESSURE SEWER TESTING:**  
WILL BE TESTED IN ACCORDANCE WITH SECTION 4 OF AWWA C600-05, AND AT A PRESSURE EQUAL TO THE GREATER OF 150 PERCENT OF THE DESIGN OPERATING TOTAL DYNAMIC HEAD OR AT LEAST 100 PSI.

**ENH-WQ 704.17 SEWER MANHOLES:**  
WILL BE TESTED FOR LEAKAGE USING A VACUUM TEST. TESTING WILL BE CONDUCTED PRIOR TO PLACEMENT OF SHELVES AND INVERTS
  - SEWERS WILL BE BURIED TO A MINIMUM DEPTH OF 6 FEET BELOW GRADE IN ALL ROADWAY LOCATIONS, AND TO A MINIMUM DEPTH OF 4 FEET BELOW GRADE IN ALL CROSS-COUNTRY LOCATIONS. PROVIDE TWO-INCHES OF R-10 FOAM BOARD INSULATION 2-FOOT WIDE TO BE INSTALLED 6-INCHES OVER SEWER PIPE IN AREAS WHERE DEPTH IS NOT ACHIEVED. A NHDES WAIVER IS NEEDED IF THE MINIMUM REQUIRED DEPTH CANNOT BE MET.
  - SEWER AND WATER INFRASTRUCTURE ON PRIVATE PROPERTY IS TO REMAIN PRIVATE, HOWEVER, THE TOWN RESERVES THE RIGHT TO ENTER THE PROPERTY IN ORDER TO INSPECT, REPAIR AND/OR TERMINATE INDIVIDUAL SEWER OR WATER SERVICES (AT OWNER'S EXPENSE).
  - CONTRACTOR WILL SET RIMS OF NEW SANITARY SEWER MANHOLES TO EXISTING FINISHED GRADE FOR THE WINTER SEASON. RIMS WILL BE RAISED IN THE SPRING PRIOR TO PLACEMENT OF 1" BITUMINOUS OVERLAY.
  - SERVICE LATERAL LOCATIONS SHOWN ARE APPROXIMATE AND MAY BE ADJUSTED IN THE FIELD BASED ON INPUT FROM TOWN INSPECTOR AND/OR PROJECT CLERK OF THE WORKS.
  - REFER TO SHEET G-1 FOR GENERAL NOTES AND LEGEND.
  - CONTRACTOR SHALL CONFIRM AND VERIFY THE LOCATION OF THE EXISTING SEWER AND WATER SERVICES AND DETERMINE THE SIZE, TYPE, AND CONDITION. RE-USE EXISTING SERVICE IF SUITABLE, OTHERWISE INSTALL NEW SERVICES AS SHOWN.



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**BANGOR SAVINGS BANK**

46 CRYSTAL AVENUE  
DERRY, NH  
TAX MAP 31 LOTS 071 & 072  
OWNER: BANGOR SAVINGS BANK  
APPLICANT: BANGOR SAVINGS BANK

NO.	DATE	DESCRIPTION
1	1/3/2023	TRC COMMENTS
2	12/15/2023	TRC COMMENTS

REVISIONS

NO.	DATE	DESCRIPTION



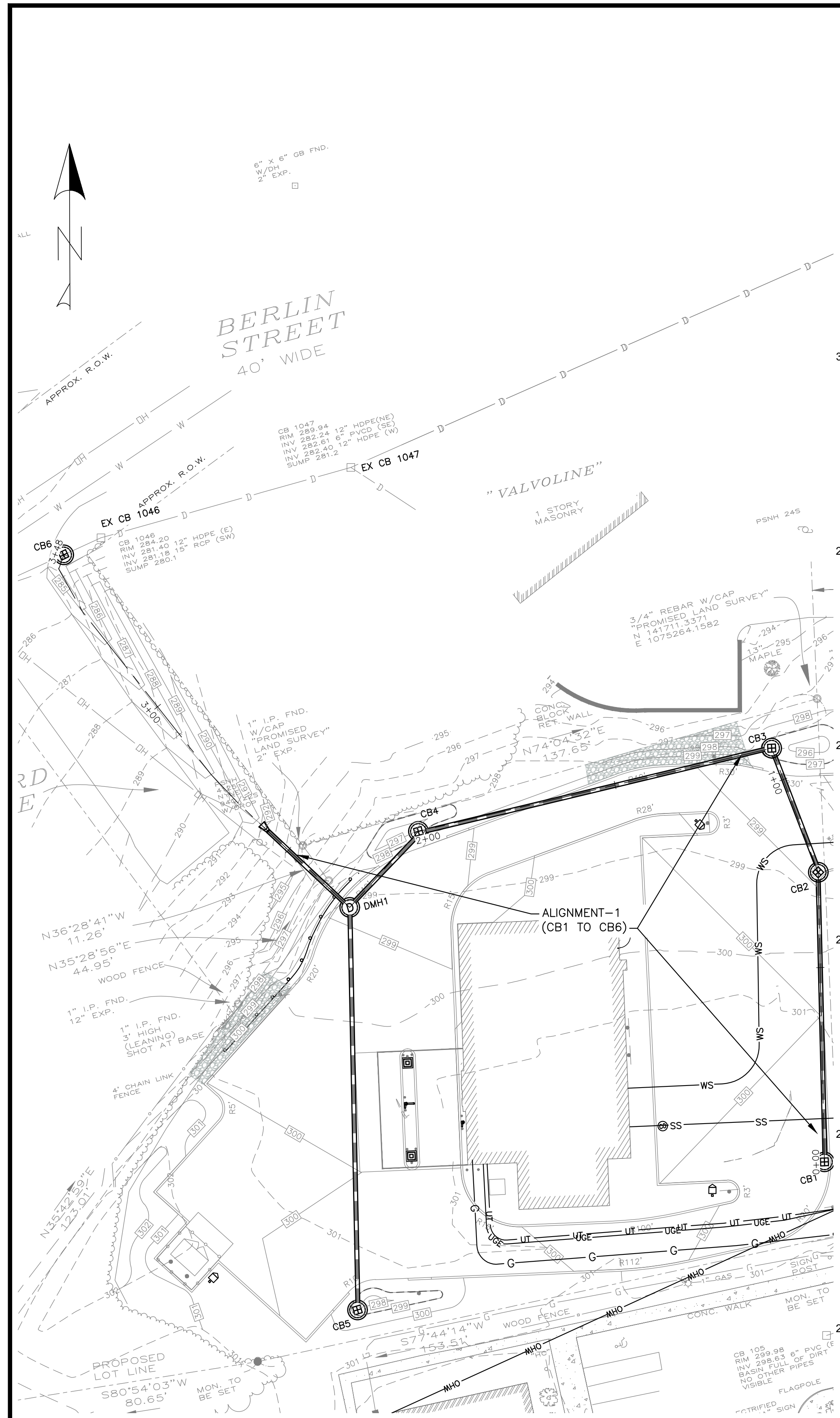
DATE:	NOVEMBER 7, 2023
NOBIS PROJECT NO.	96280.02
DRAWN BY:	MGD
CHECKED BY:	JCN
CAD DRAWING FILE:	96280.02-C-400-UTILITY.dwg
SHEET TITLE	

**UTILITY LAYOUT PLAN**

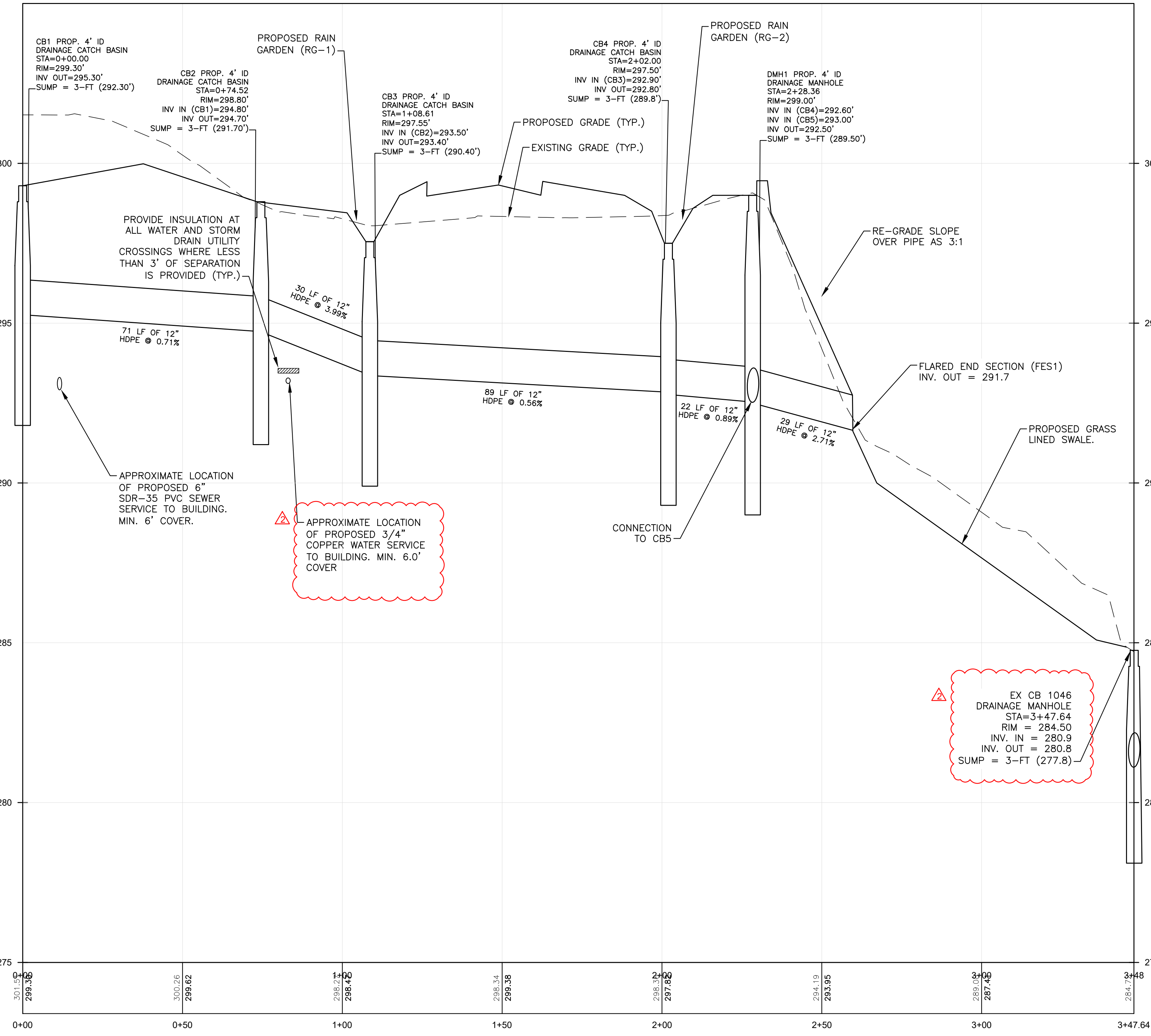
SHEET  
**C-4**



J:\96280.02 - Bangor Savings Bank Derry, NH\CAD\DWG\96280.02-C-400-UTILITY-P&P.dwg 1/17/2024 4:24 PM



PLAN VIEW:  
SCALE: 1" = 20'

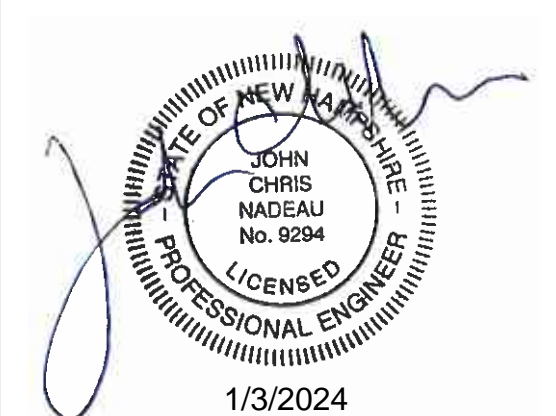


DRAINAGE PROFILE:  
ALIGNMENT-1  
CB1 TO CB6:  
HORIZ. SCALE: 1" = 20'  
VERT. SCALE: 1" = 2'

NOTES:  
1. REFER TO GRADING AND DRAINAGE PLANS FOR ADDITIONAL INFORMATION.  
2. REFER TO SHEET G-1 FOR GENERAL NOTES AND LEGEND.



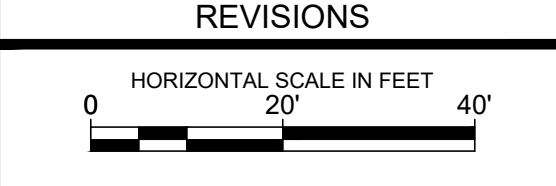
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46 CRYSTAL AVENUE  
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TAX MAP 31 LOTS 071 & 072  
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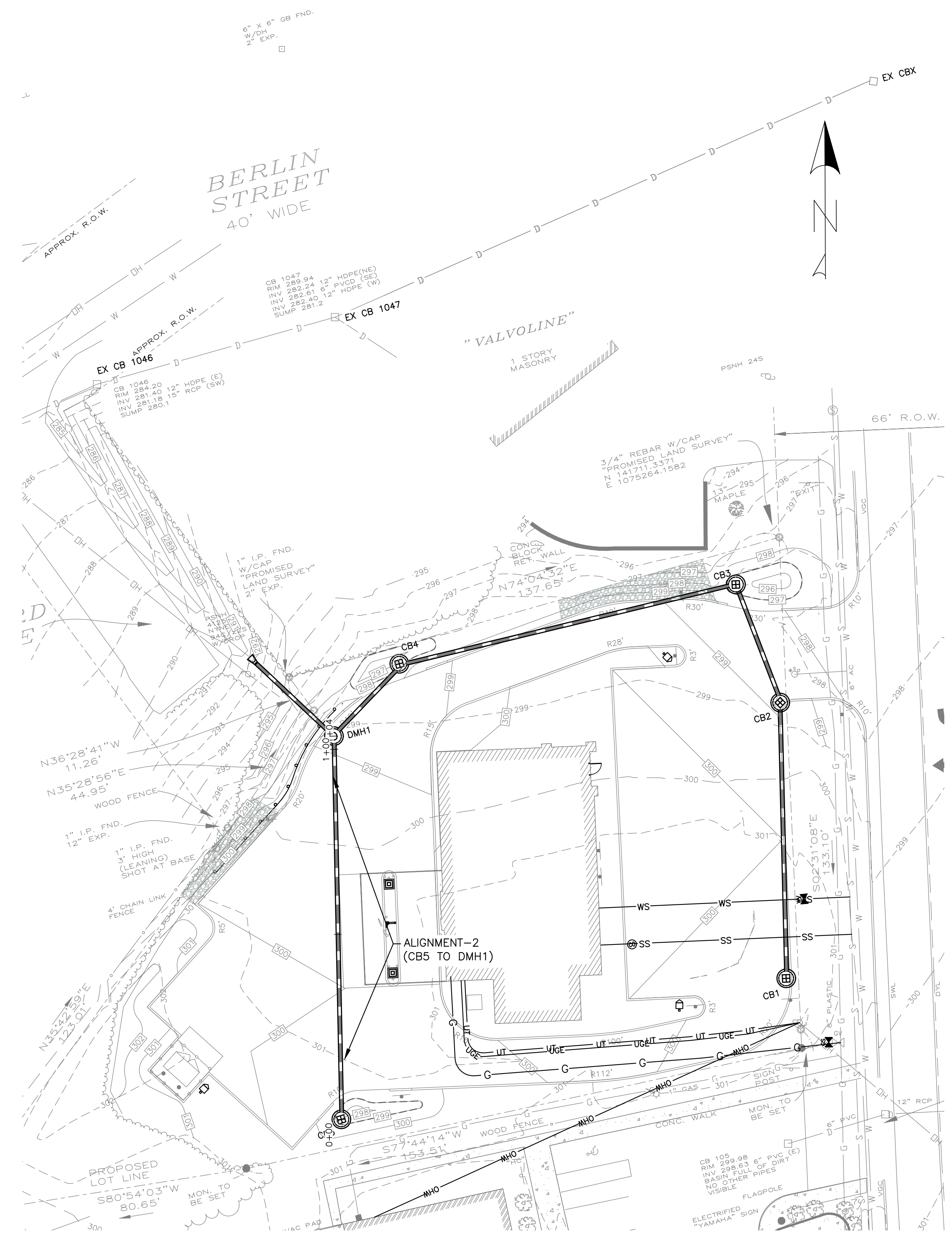
DATE:	NOVEMBER 7, 2023
NOBIS PROJECT NO.:	96280.02
DRAWN BY:	MGD
CHECKED BY:	JCN
CAD DRAWING FILE:	96280.02-C-400-UTILITY-P&P.dwg

UTILITY  
PROFILE PLAN

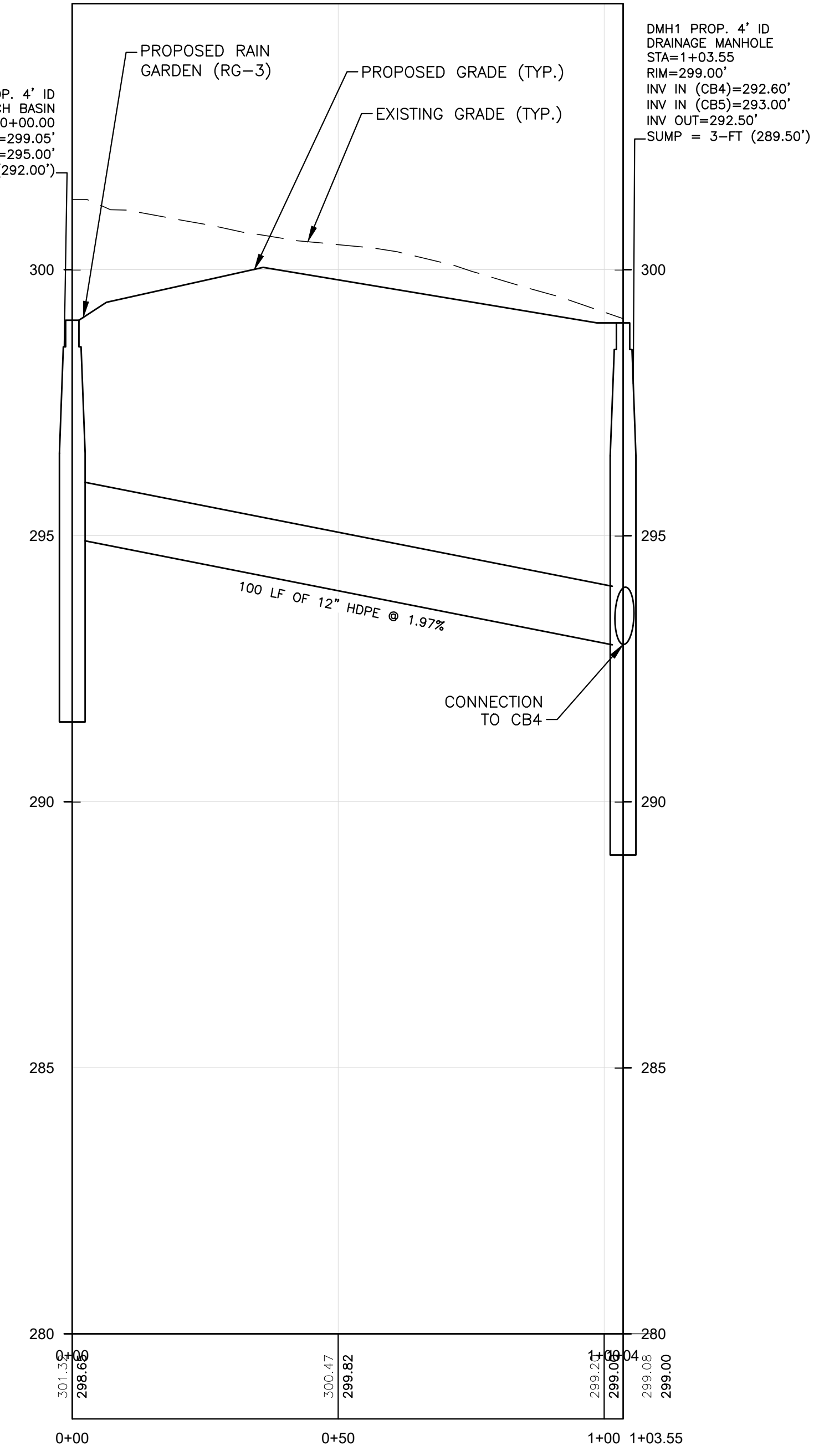
SHEET  
**C-4.1**



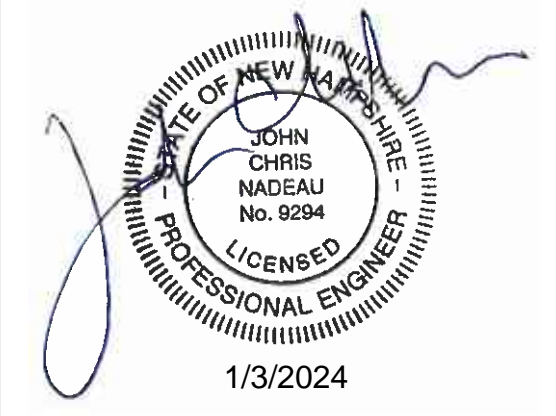
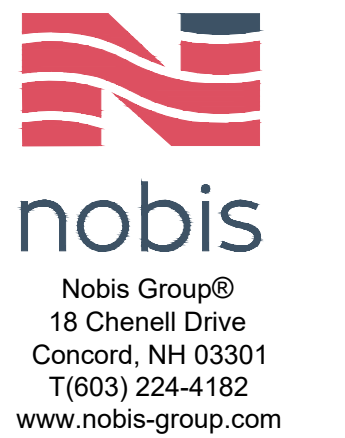
NOTES:  
 1. REFER TO GRADING AND DRAINAGE PLANS FOR ADDITIONAL INFORMATION.  
 2. REFER TO SHEET G-1 FOR GENERAL NOTES AND LEGEND.



PLAN VIEW:  
 SCALE: 1" = 20'



DRAINAGE PROFILE:  
 ALIGNMENT-2  
 CB5 TO DMH1:  
 HORIZ. SCALE: 1" = 20'  
 VERT. SCALE: 1" = 2'



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**BANGOR SAVINGS BANK**  
 46 CRYSTAL AVENUE  
 DERRY, NH  
 TAX MAP 31 LOTS 071 & 072  
 OWNER: BANGOR SAVINGS BANK  
 APPLICANT: BANGOR SAVINGS BANK

NO.	DATE	DESCRIPTION
1	12/15/2023	TRC COMMENTS

REVISIONS

NO.	DATE	DESCRIPTION
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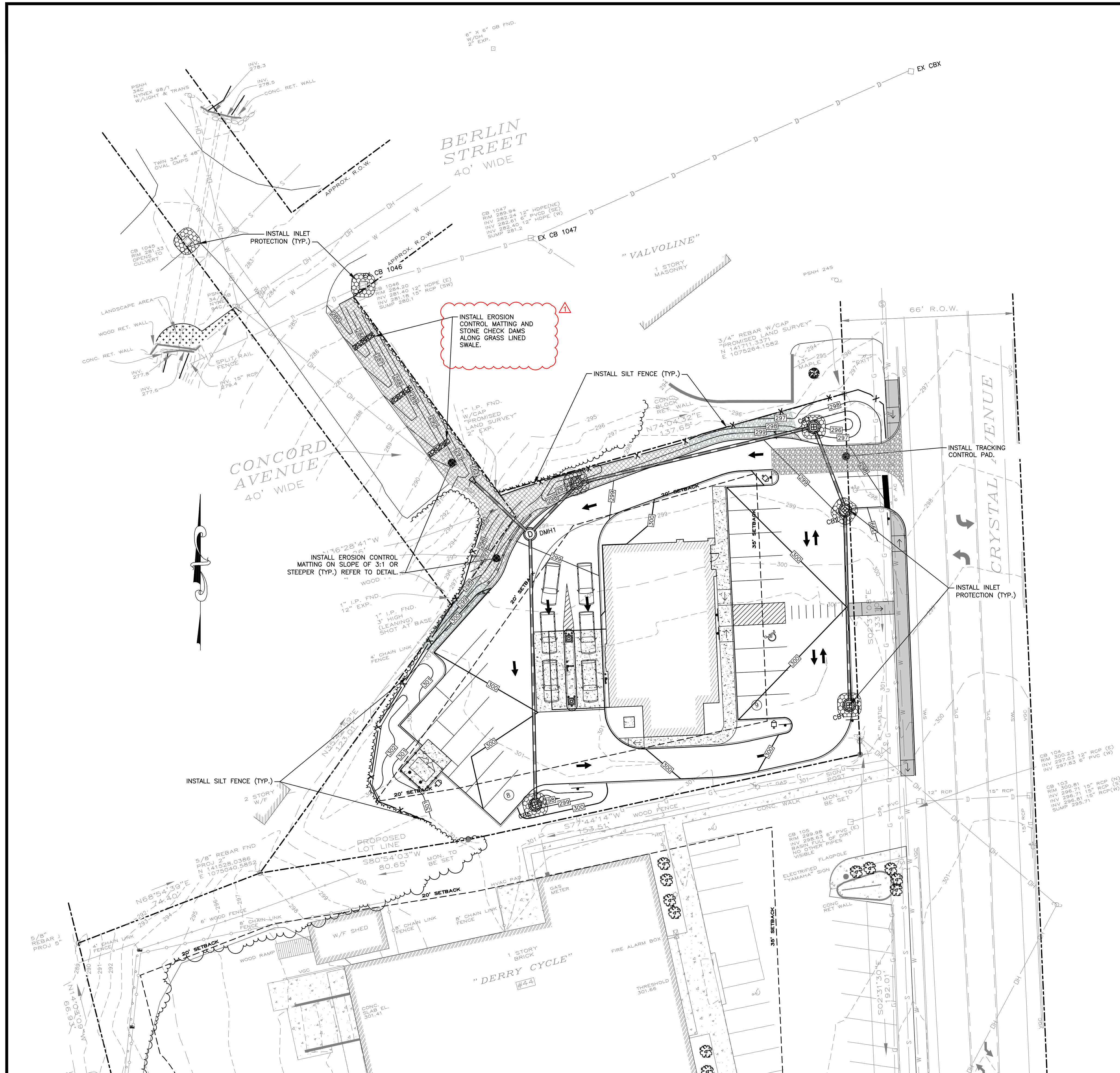
DATE:	NOVEMBER 7, 2023
NOBIS PROJECT NO.	96280.02
DRAWN BY:	MGD
CHECKED BY:	JCN
CAD DRAWING FILE:	96280.02-C-400-UTILITY-P&P.dwg

SHEET TITLE  
**UTILITY PROFILE PLAN**

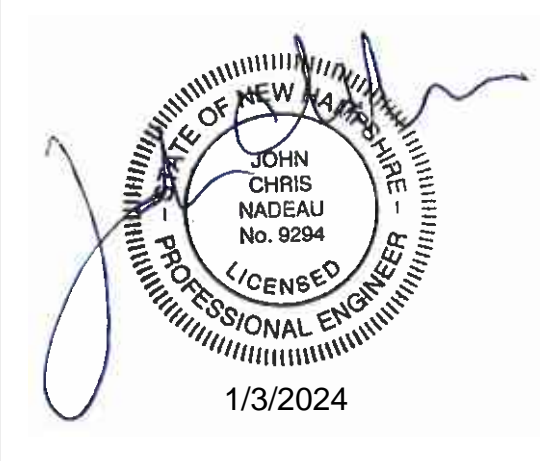
SHEET  
**C-4.2**



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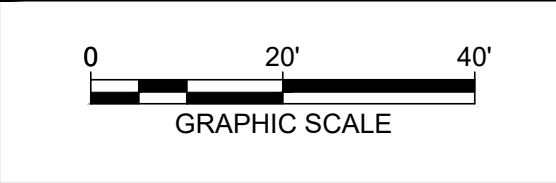
- NOTES:**
- THIS PLAN IS NOT INTENDED TO SHOW PERMANENT DRAINAGE DESIGNS AND TO BE USED FOR TEMPORARY EROSION AND SEDIMENT CONTROL ONLY.
  - CONTRACTOR TO GRADE ACTIVE EXCAVATION AREAS TO ALLOW MAXIMUM INFILTRATION OF STORMWATER AND MINIMIZE RUNOFF FROM DISTURBED AREAS.
  - DISTURBANCES OF AREAS TO BE MINIMIZED. NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED FOR LONGER THAN TWO WEEKS DURING THE GROWING SEASON. AREAS WHICH WILL NOT BE PERMANENTLY SEEDED WITHIN TWO WEEKS OF DISTURBANCE SHALL BE TEMPORARILY SEEDED AND MULCHED. ALL AREAS SHALL BE STABILIZED WITH SEED AND MULCH AND TACKIFIER WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE AND PRIOR TO THE END OF THE GROWING SEASON.
  - FOR FURTHER INFORMATION ON BEST MANAGEMENT PRACTICES SEE COMPLETE PLAN SET AND STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR THIS PROJECT PREPARED BY NOBIS ENGINEERING, INC., (DATE).
  - USE TEMPORARY EROSION AND SEDIMENT CONTROL PRODUCTS THAT EITHER DO NOT CONTAIN NETTING, OR THAT CONTAIN NETTING MANUFACTURED FROM 100% BIODEGRADABLE NON-PLASTIC MATERIALS SUCH AS JUTE, SISAL, OR COIR FIBER. DEGRADABLE, PHOTODEGRADABLE, UV-DEGRADABLE, OXO-DEGRADABLE, OR OXO-BIODEGRADABLE PLASTIC NETTING (INCLUDING POLYPROPYLENE, NYLON, POLYETHYLENE, AND POLYESTER) ARE NOT EQUIVALENT ALTERNATIVES. NETTING USED IN THESE PRODUCTS SHOULD HAVE A LOOSE-WEAVE WILDLIFE-SAFE DESIGN WITH MOVABLE JOINTS BETWEEN THE HORIZONTAL AND VERTICAL TWINES, ALLOWING THE TWINES TO MOVE INDEPENDENTLY AND THUS REDUCING THE POTENTIAL FOR WILDLIFE ENTANGLEMENT.
  - AVOID THE USE OF SILT FENCES REINFORCED WITH METAL OR PLASTIC MESH OR IF POSSIBLE RECOMMEND THE USE OF EROSION CONTROL BERMS.
  - WHEN NO LONGER REQUIRED, TEMPORARY EROSION AND SEDIMENT CONTROL PRODUCTS SHOULD BE REMOVED PROMPTLY FROM THE PROJECT SITE.
  - USE NONWOVEN COIR FABRIC WHEN A SURFACE FABRIC TREATMENT IS REQUIRED FOR EROSION CONTROL AND STABILIZATION, SUCH AS 100% BIODEGRADABLE COCONUT FIBER MAT OR EQUAL AS REVIEWED AND APPROVED BY THE PROJECT DESIGN ENGINEER.
  - USE WOVEN COIR FABRIC WHEN SITE CONDITIONS WARRANT. THE OUTER LAYER OF WOVEN COIR FABRIC SHOULD BE A HIGH STRENGTH, CONTINUOUSLY WOVEN MAT (I.E., WITHOUT SEAMS) AND MADE OF 100% COCONUT FIBER.
  - REFER TO GENERAL NOTES AND LEGEND SHEET FOR ADDITIONAL EROSION CONTROL NOTES AND CONSTRUCTION SEQUENCE.



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**BANGOR SAVINGS BANK**  
 46 CRYSTAL AVENUE  
 DERRY, NH  
 TAX MAP 31 LOTS 071 & 072  
 OWNER: BANGOR SAVINGS BANK  
 APPLICANT: BANGOR SAVINGS BANK

NO.	DATE	DESCRIPTION
1	12/15/2023	TRC COMMENTS

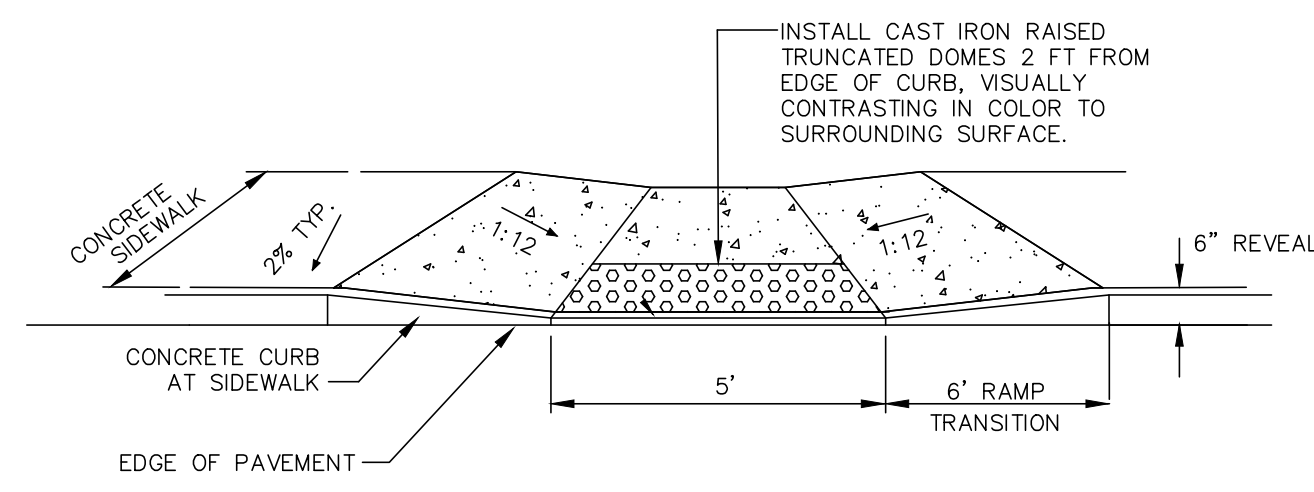


DATE:	NOVEMBER 7, 2023
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CAD DRAWING FILE:	96280.02-C-320-EROS.dwg

**EROSION CONTROL PLAN**

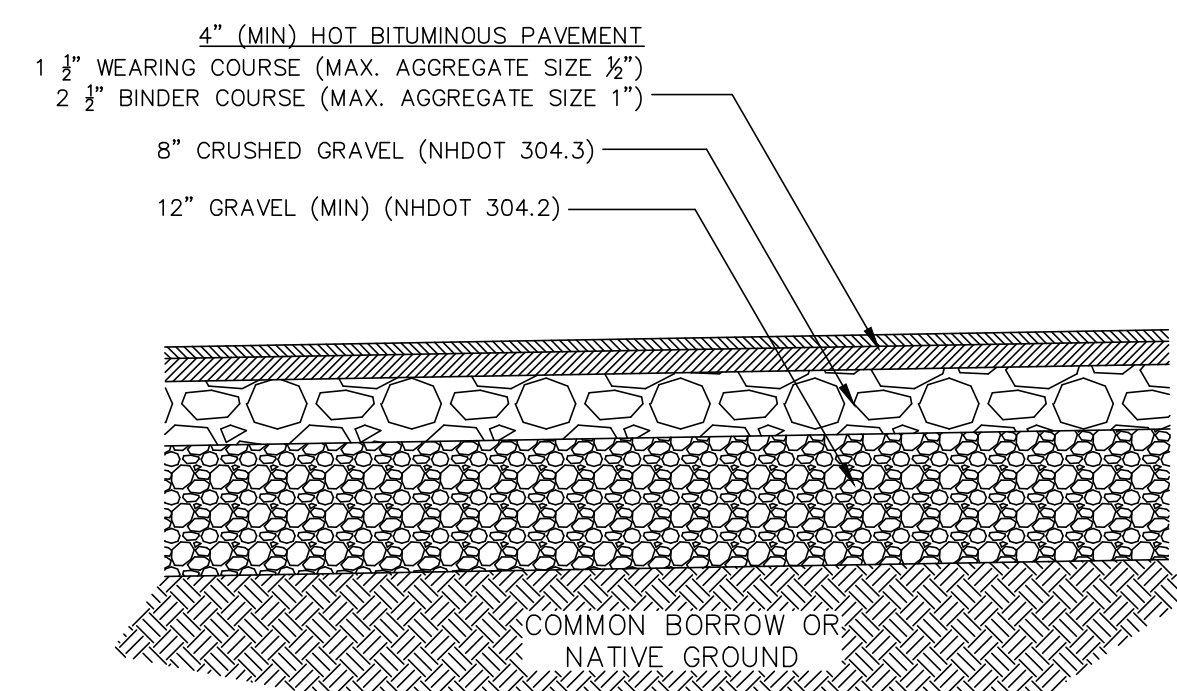
SHEET  
**C-5**



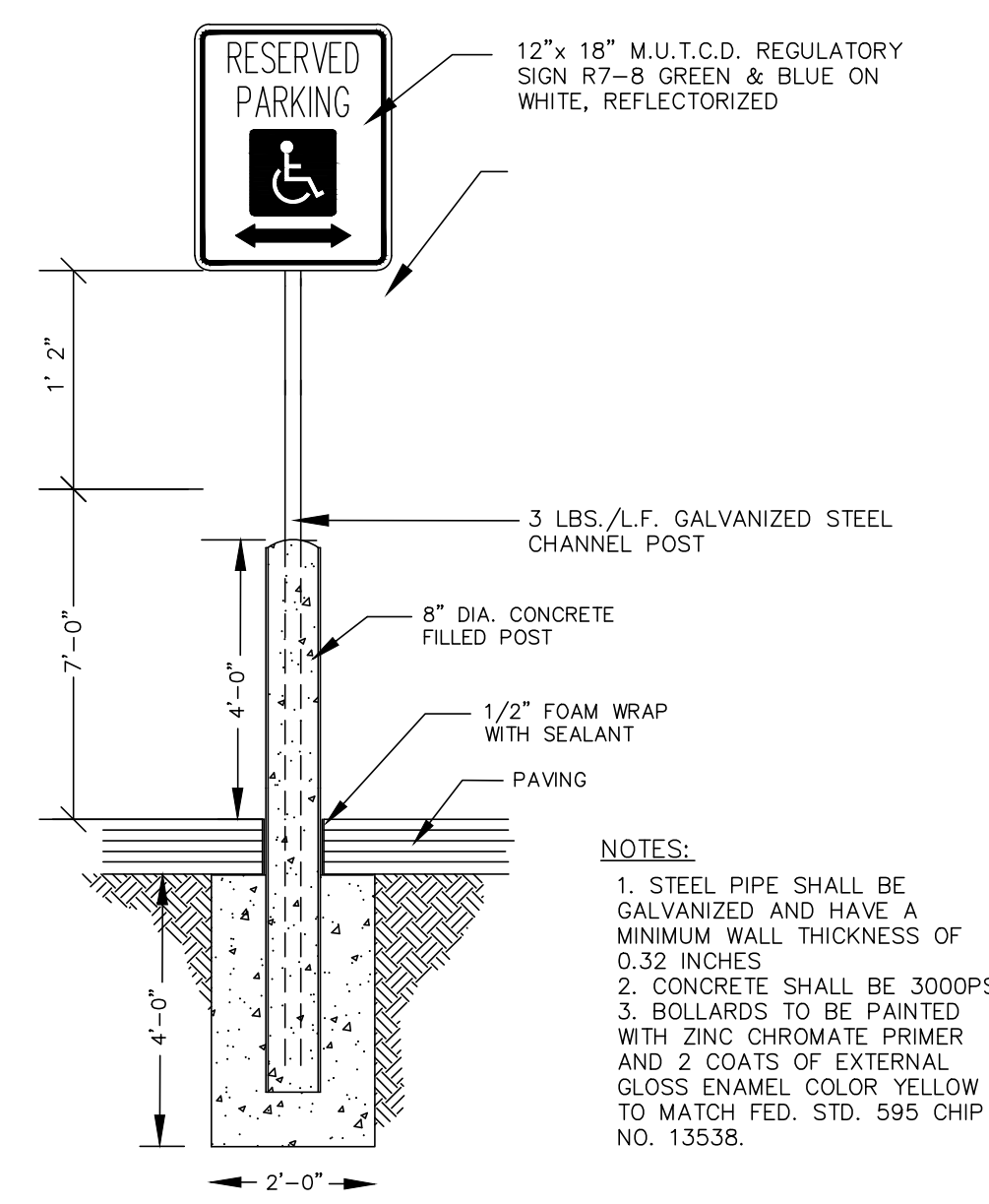


- NOTES:**
1. RAMP AND LEVEL LANDING TO BE REINFORCED CONCRETE.
  2. CONCRETE TO BE 6" THICK. CONCRETE TO BE TYPE II PORTLAND CEMENT, 4,000 PSI.
  3. CONCRETE REINFORCING TO BE WELDED WIRE FABRIC, 6"x6" W2.9XW2.9. MAINTAIN 2" CLEARANCE (TYP) BETWEEN ALL CONCRETE EDGES AND WIRE FABRIC.
  4. SUBBASE BELOW CONCRETE TO BE 8" THICK. SUBBASE MATERIAL TO BE CRUSHED GRAVEL.

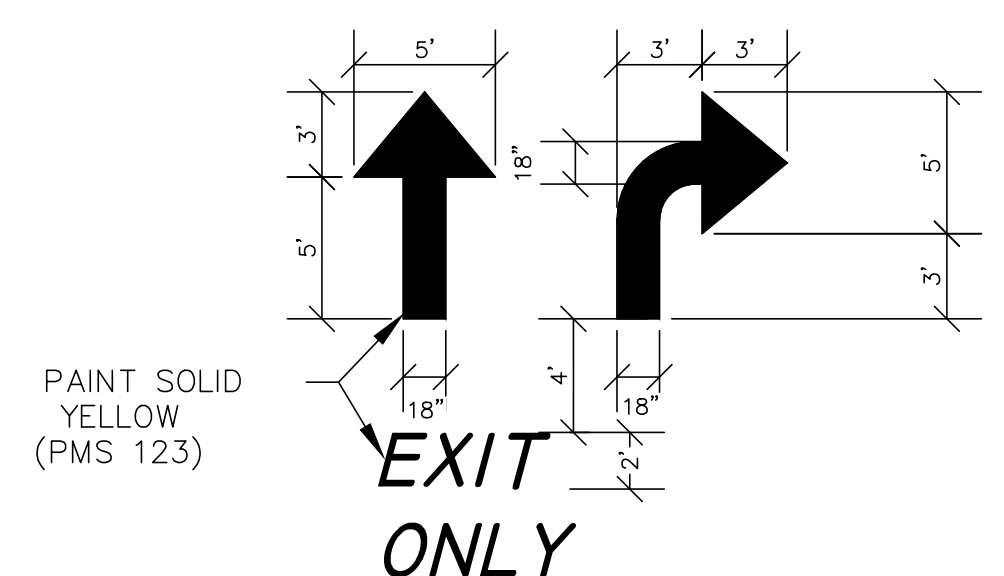
**ACCESSIBLE RAMP**  
NOT TO SCALE



**TYPICAL NEW PARKING SECTION**  
NOT TO SCALE

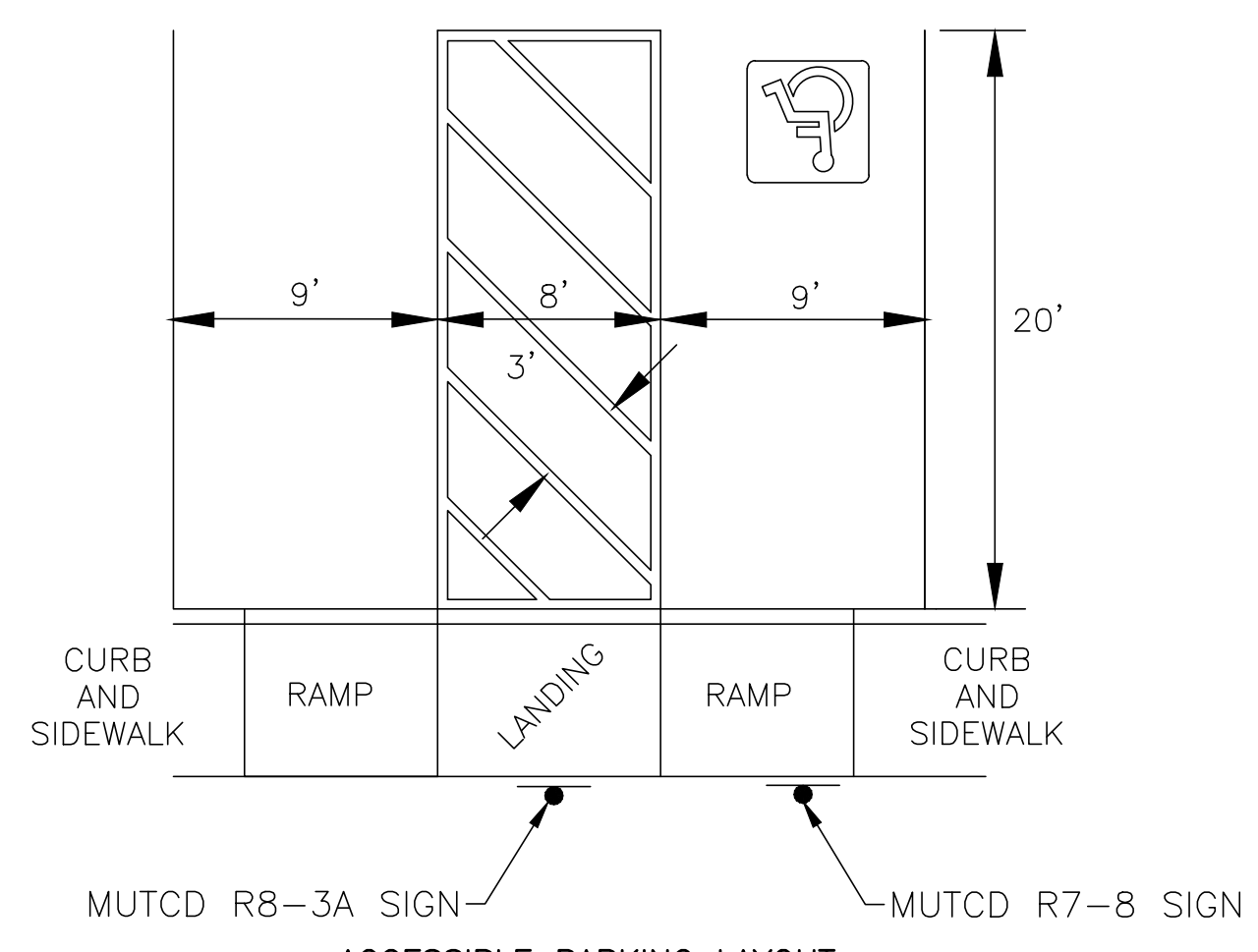


**RESERVED PARKING SIGN ON BOLLARD**  
NOT TO SCALE

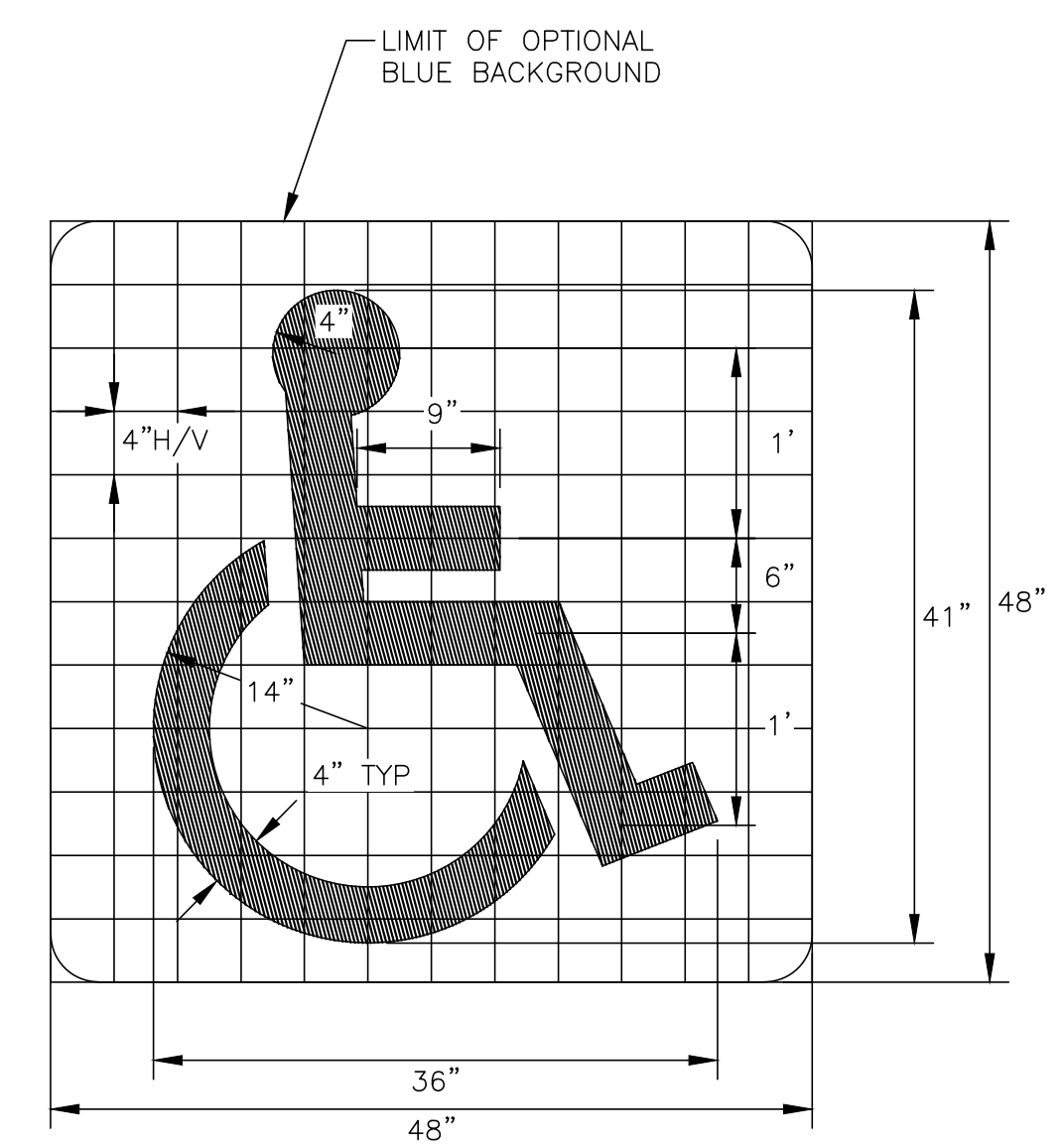


**TYPICAL PAVEMENT MARKINGS**  
NOT TO SCALE

**NOTE:** ARROWS AND WORDS CAN BE ARRANGED IN OTHER COMBINATIONS THAN THOSE ILLUSTRATED HERE TO ACHIEVE DESIRED RESULT.

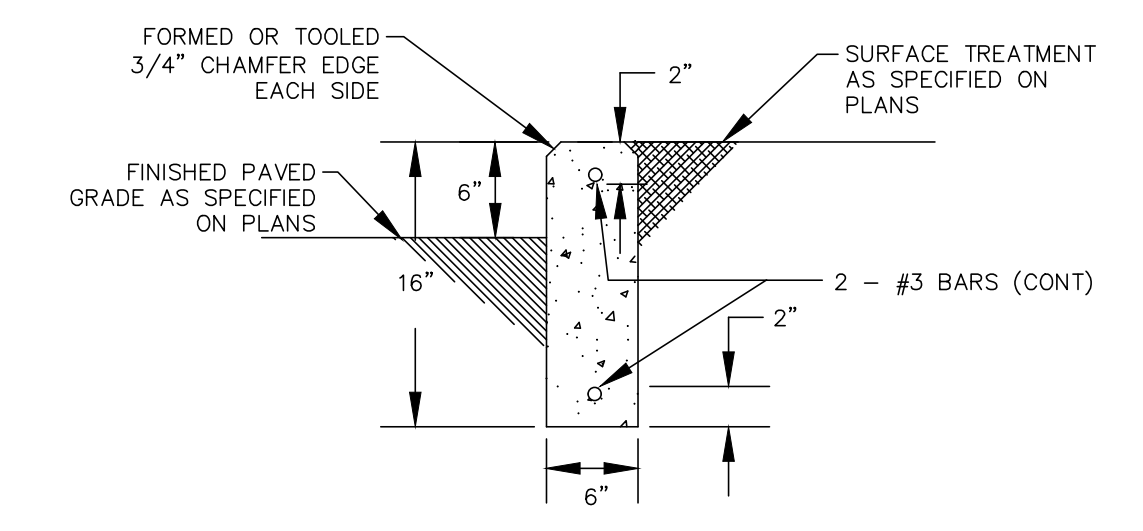


**ACCESSIBLE PARKING LAYOUT**  
**ADA PARKING SPACE LAYOUT**  
NOT TO SCALE

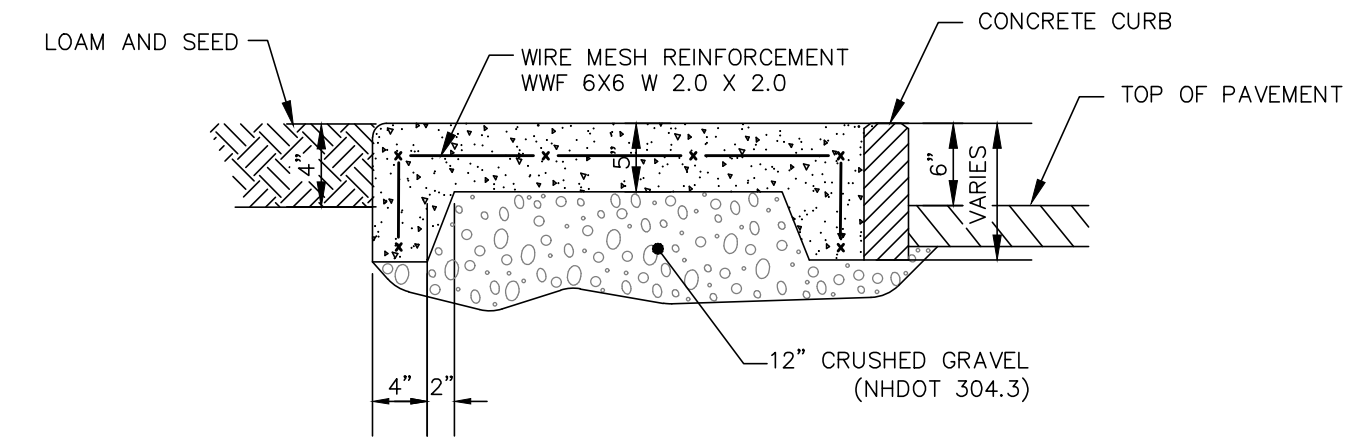


SYMBOL SHALL BE WHITE WITH AN OPTIONAL BLUE BACKGROUND

**ACCESSIBLE PARKING SPACE PAVEMENT MARKING**  
NOT TO SCALE

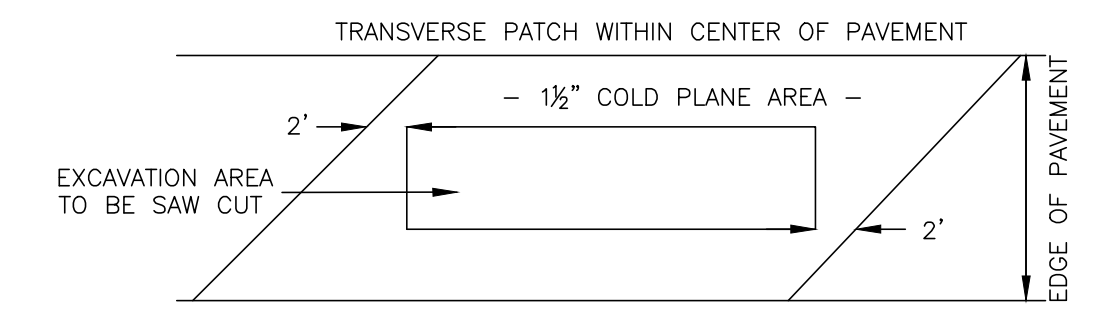
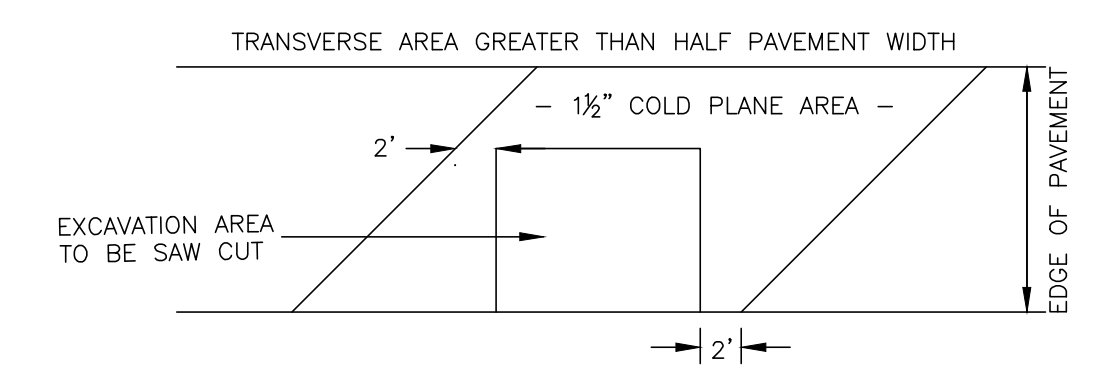
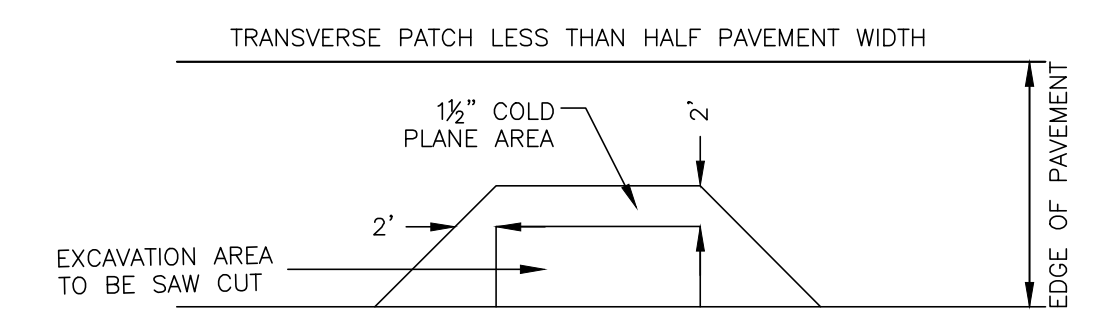


**CONCRETE CURB SECTION**  
NOT TO SCALE



- NOTES:**
1. CONCRETE PAD SHALL BE CONSTRUCTED OF PORTLAND CEMENT CONCRETE (CLASS AA, 4,000 PSI @ 28 DAYS).
  2. REINFORCING PER ASTM A-615, GRADE 60 DEFORMED BLACK BARS.
  3. PROVIDE EXPANSION JOINTS AT 20'-0" O.C.
  4. PROVIDE CONTROL JOINTS AT 5'-0" O.C.

**CONCRETE SIDEWALK CONCRETE CURB**  
NOT TO SCALE



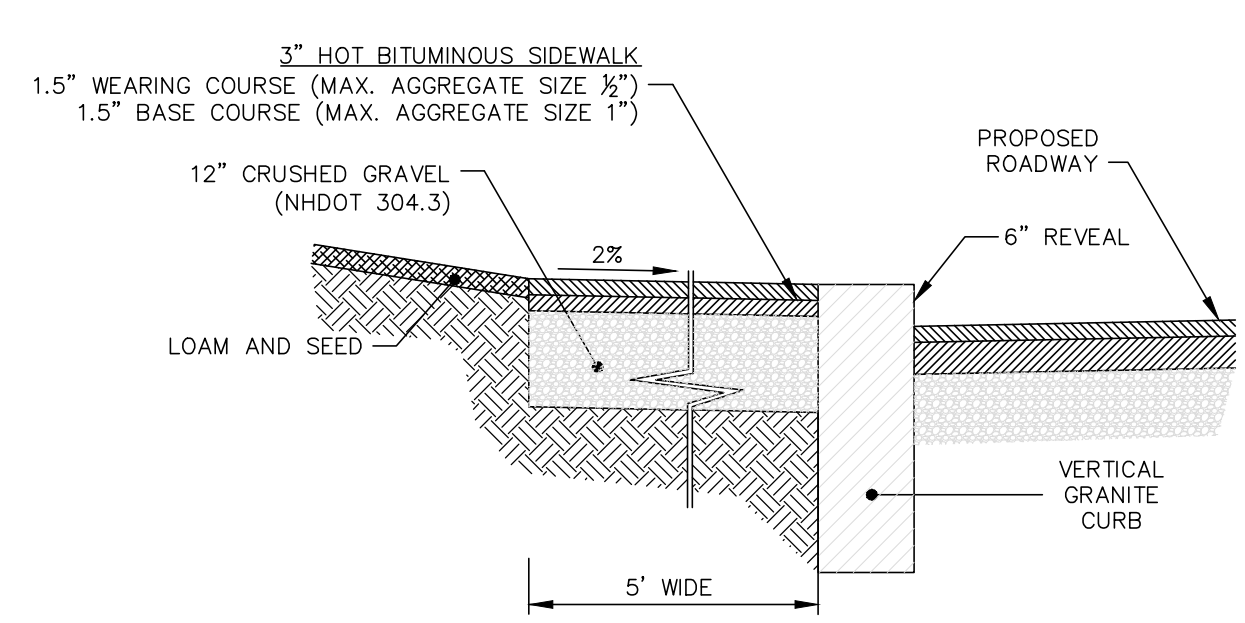
**NOTE:** WHERE LIMITS OF ADJACENT COLD PLANED AREAS ARE LESS THAN OR EQUAL TO 20', THE AREA BETWEEN SHALL BE COLD PLANED AND RESURFACED.

**SAWCUT DETAIL**  
NOT TO SCALE

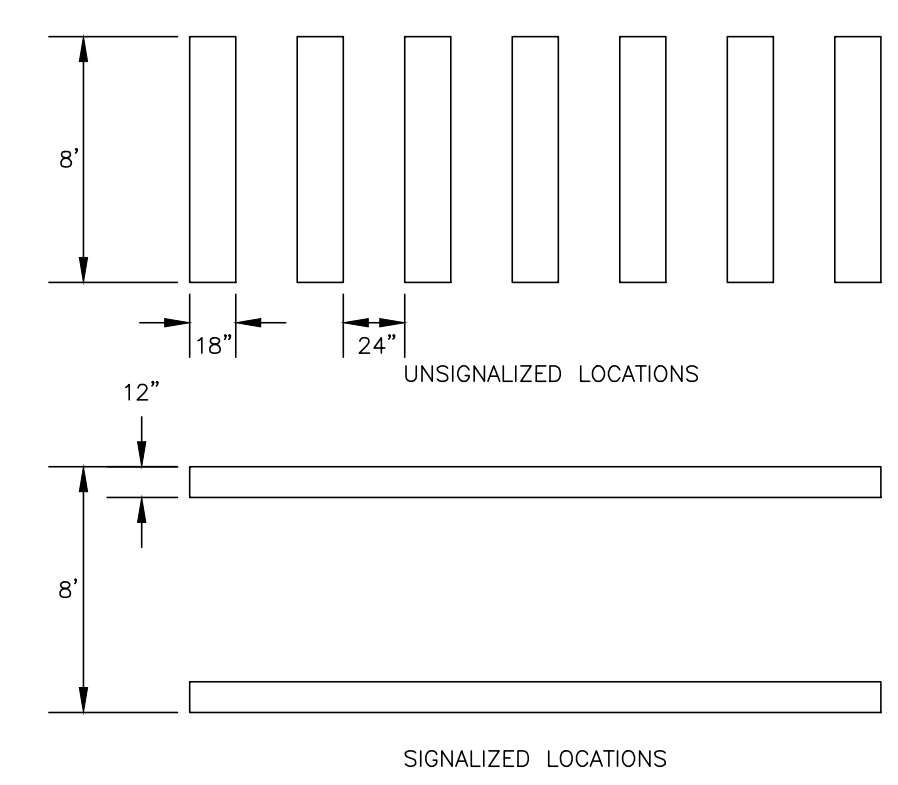
M.U.T.C.D. NUMBER	SPECIFICATION WIDTH	HEIGHT	MOUNTING HEIGHT	SIGN
R1-1	30"	30"	7'-0"	STOP
R7-8	12"	18"	7'-0"	RESERVED PARKING
R5-1	30"	30"	7'-0"	DO NOT ENTER
R6-2(R)(L)	24"	30"	7'-0"	ONE WAY
R8-3A	12"	18"	7'-0"	NO PARKING

- NOTE:**
1. MOUNTING HEIGHT IS THE CLEARANCE OF THE BOTTOM OF THE SIGN TO THE NEAREST EDGE OF PAVEMENT.
  2. ALL SIGN POSTS SHALL BE 2.5#/FT. U-CHANNEL POSTS, PAINTED GREEN AND CONFORM TO NHDOT SPECIFICATION 615.2.5.3.
  3. ALL SIGNS SHALL BE FABRICATED OF DIAMOND GRADE SHEETING.

**SIGN SUMMARY**  
NOT TO SCALE

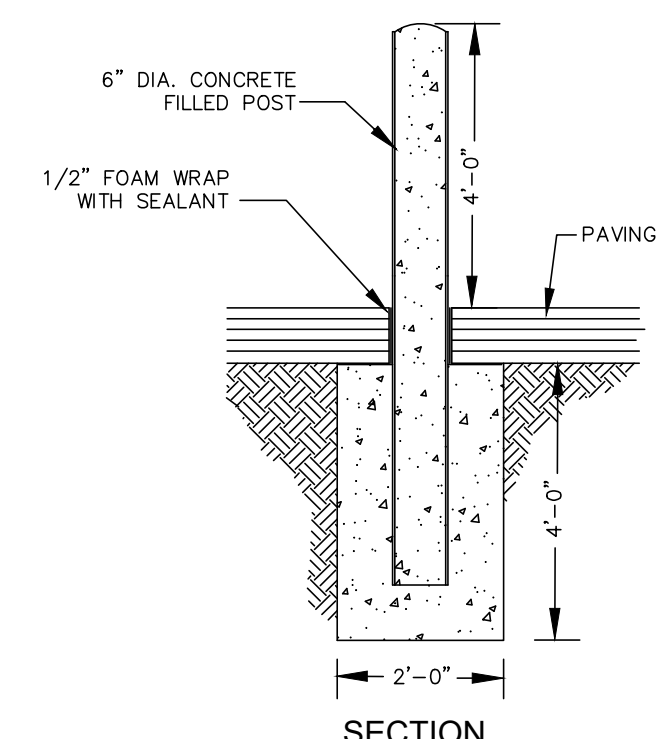


**BITUMINOUS SIDEWALK VERTICAL GRANITE CURB**  
NOT TO SCALE



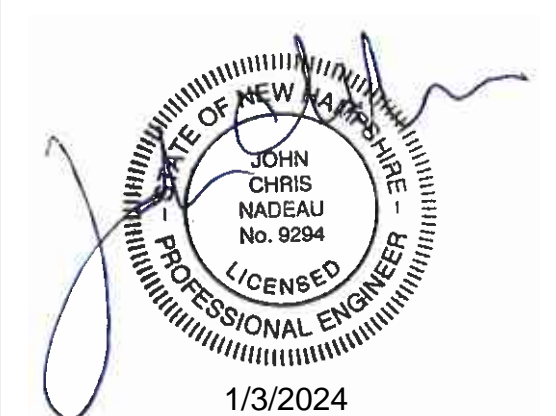
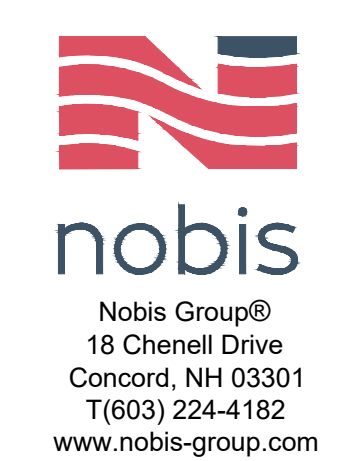
CROSSWALKS AND STOP BARS SHALL BE WHITE THERMOPLASTIC

**CROSSWALK MARKINGS**  
NOT TO SCALE



- NOTES:**
1. STEEL PIPE SHALL BE GALVANIZED AND HAVE A MINIMUM WALL THICKNESS OF 0.32 INCHES
  2. CONCRETE SHALL BE 3000PSI
  3. BOLLARDS TO BE PAINTED WITH ZINC CHROMATE PRIMER AND 2 COATS OF EXTERNAL GLOSS ENAMEL COLOR YELLOW TO MATCH FED. STD. 595 CHIP NO. 13538.

**CONCRETE FILLED BOLLARD**  
NOT TO SCALE



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**BANGOR SAVINGS BANK**

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TAX MAP 31 LOTS 071 & 072  
OWNER: BANGOR SAVINGS BANK  
APPLICANT: BANGOR SAVINGS BANK

NO.	DATE	DESCRIPTION
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REVISIONS

**SCALE:**  
AS NOTED

DATE:	NOVEMBER 7, 2023
NOBIS PROJECT NO.	96280.02
DRAWN BY:	MGD
CHECKED BY:	JCN
CAD DRAWING FILE:	96280.02-C-700-DETAILS.dwg
SHEET TITLE	

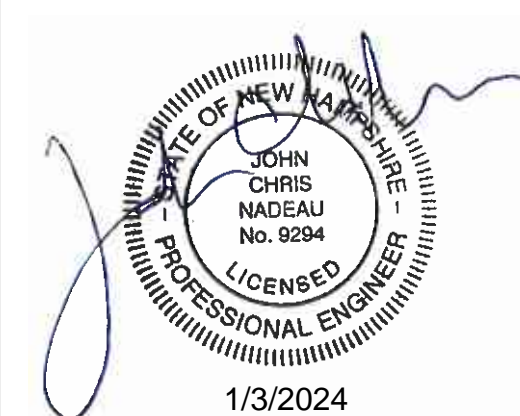
**CONSTRUCTION DETAILS**

**SHEET C-6**





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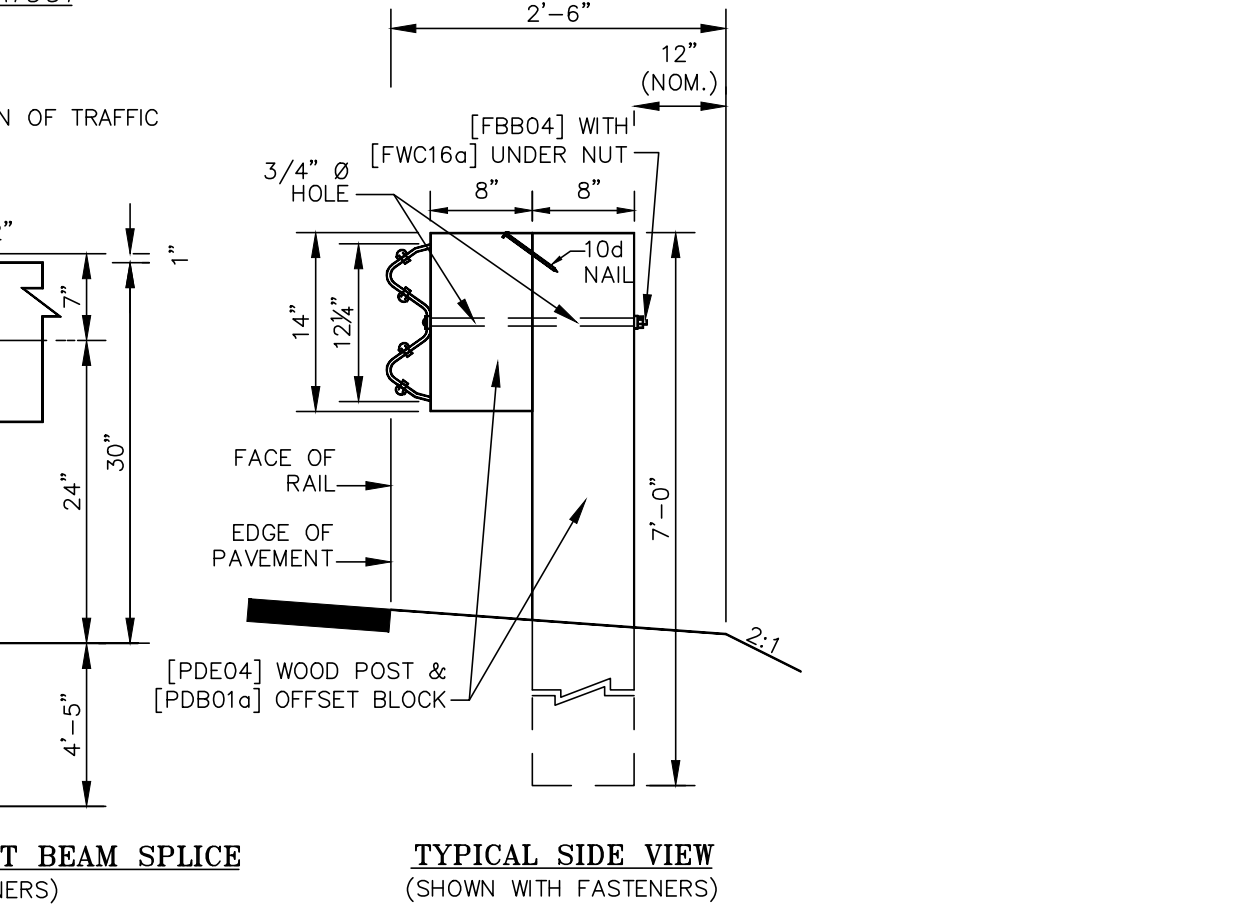
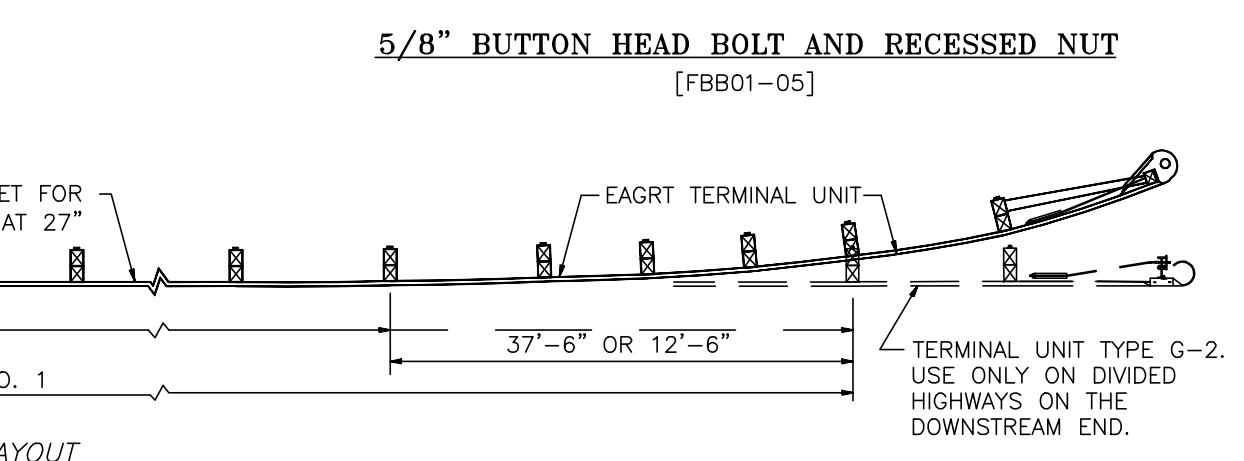
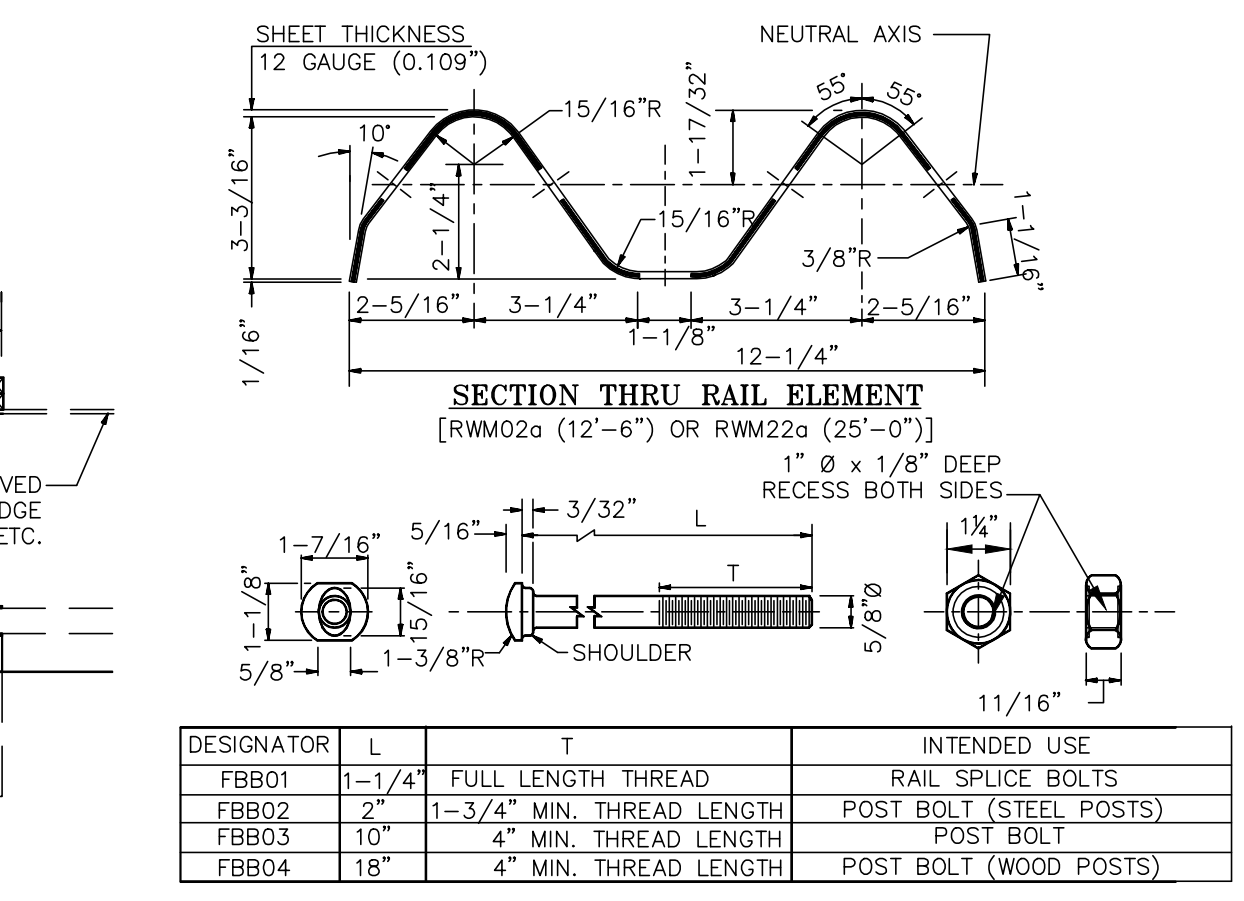
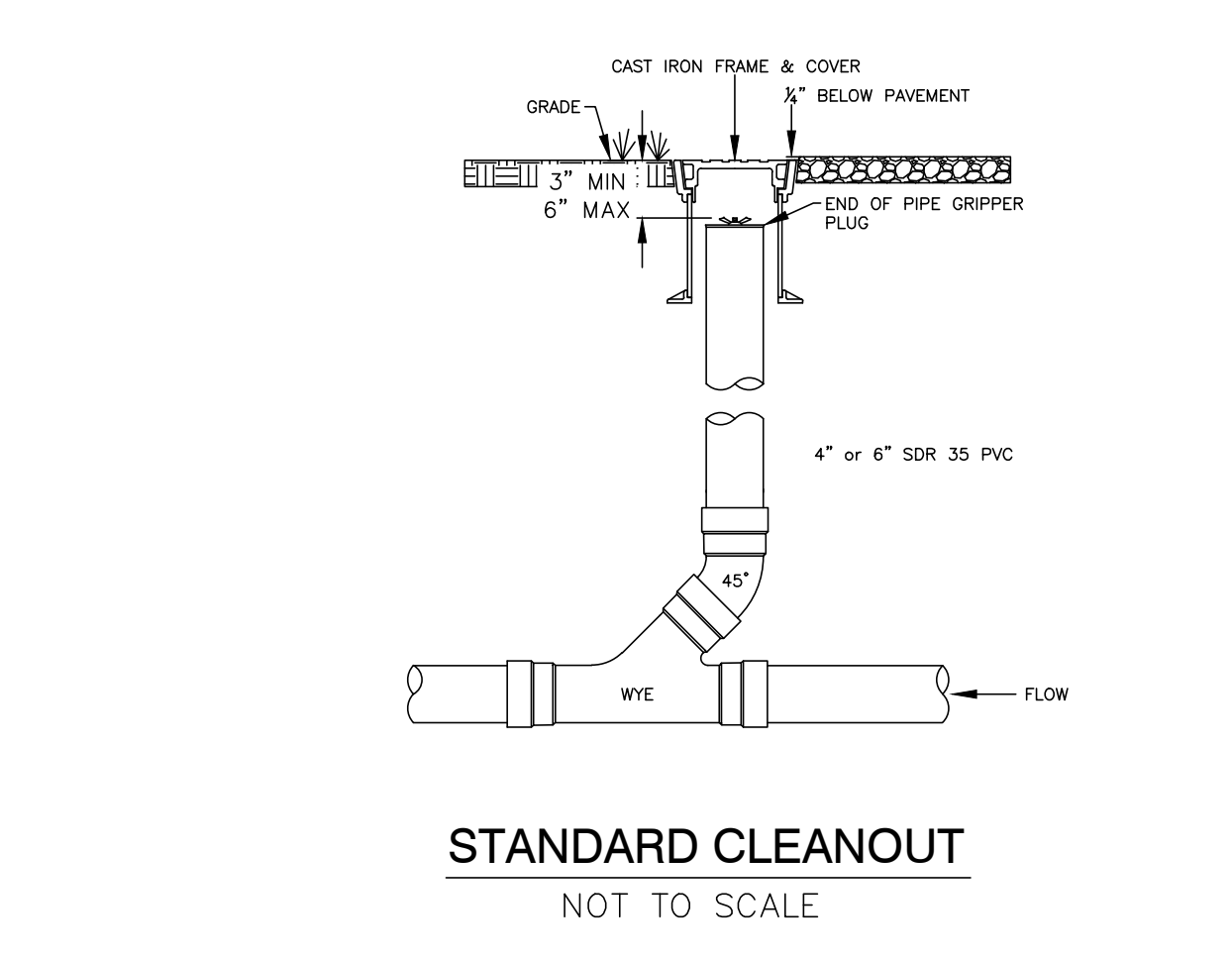
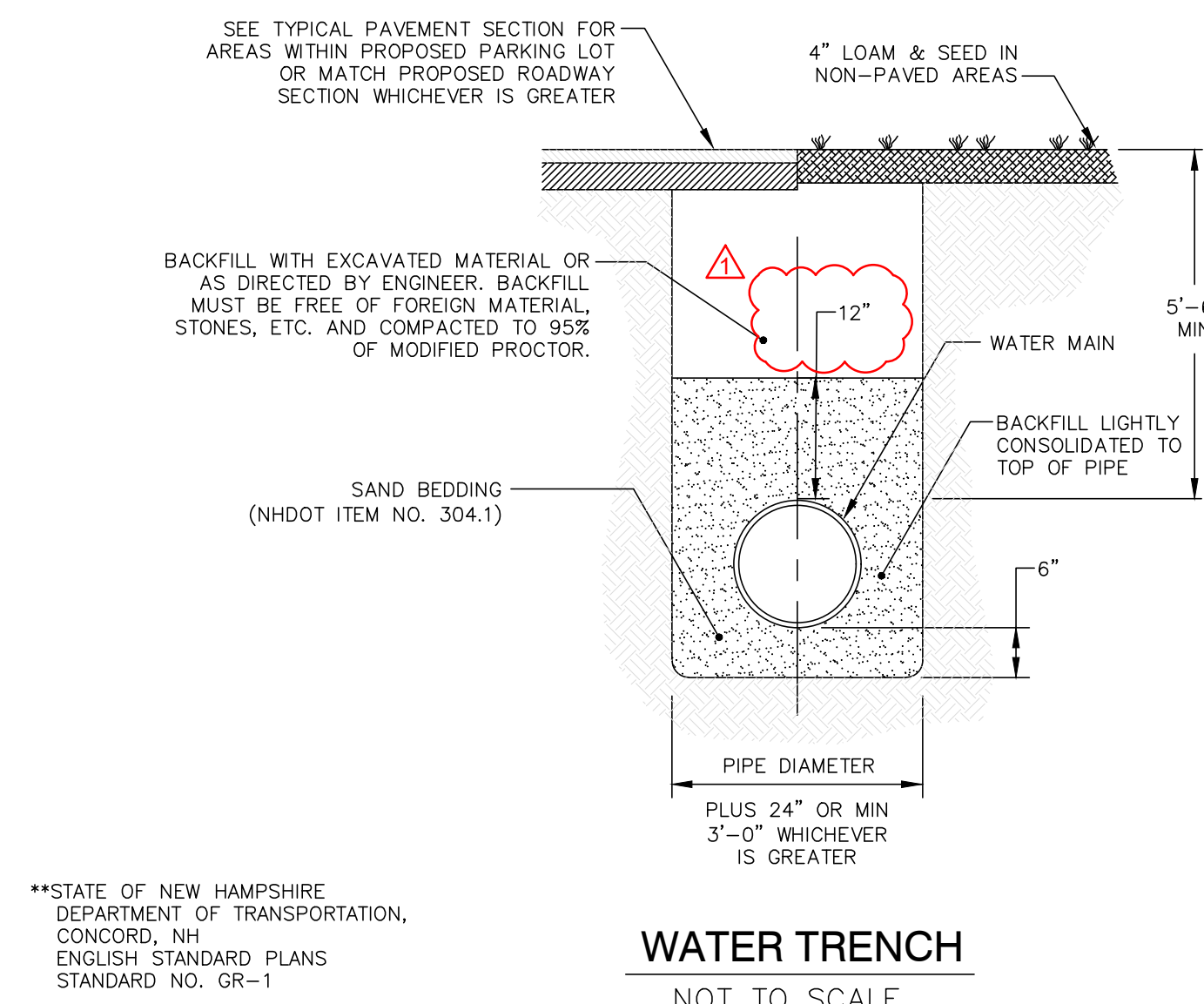
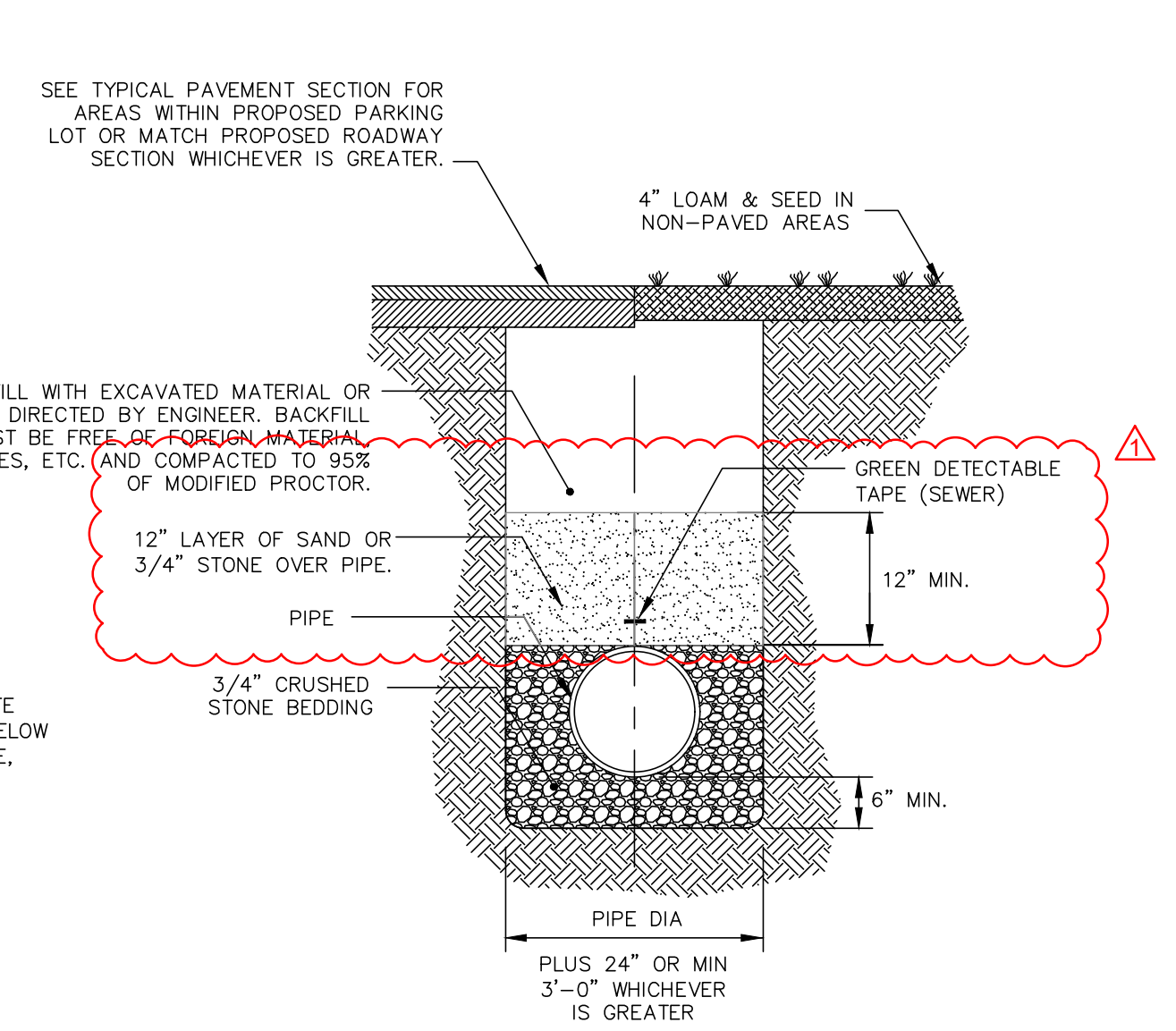
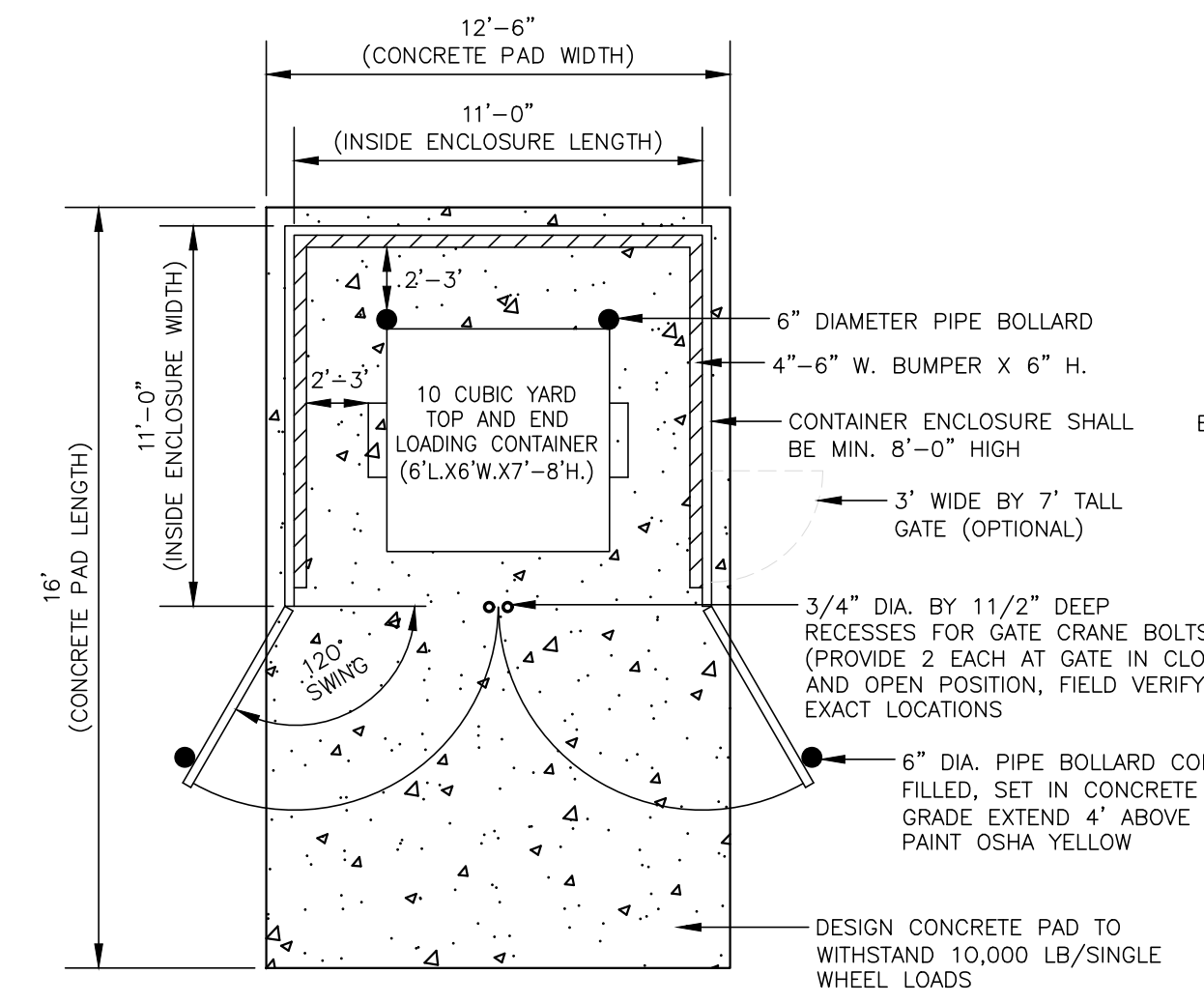
REVISIONS

SCALE:  
 AS NOTED

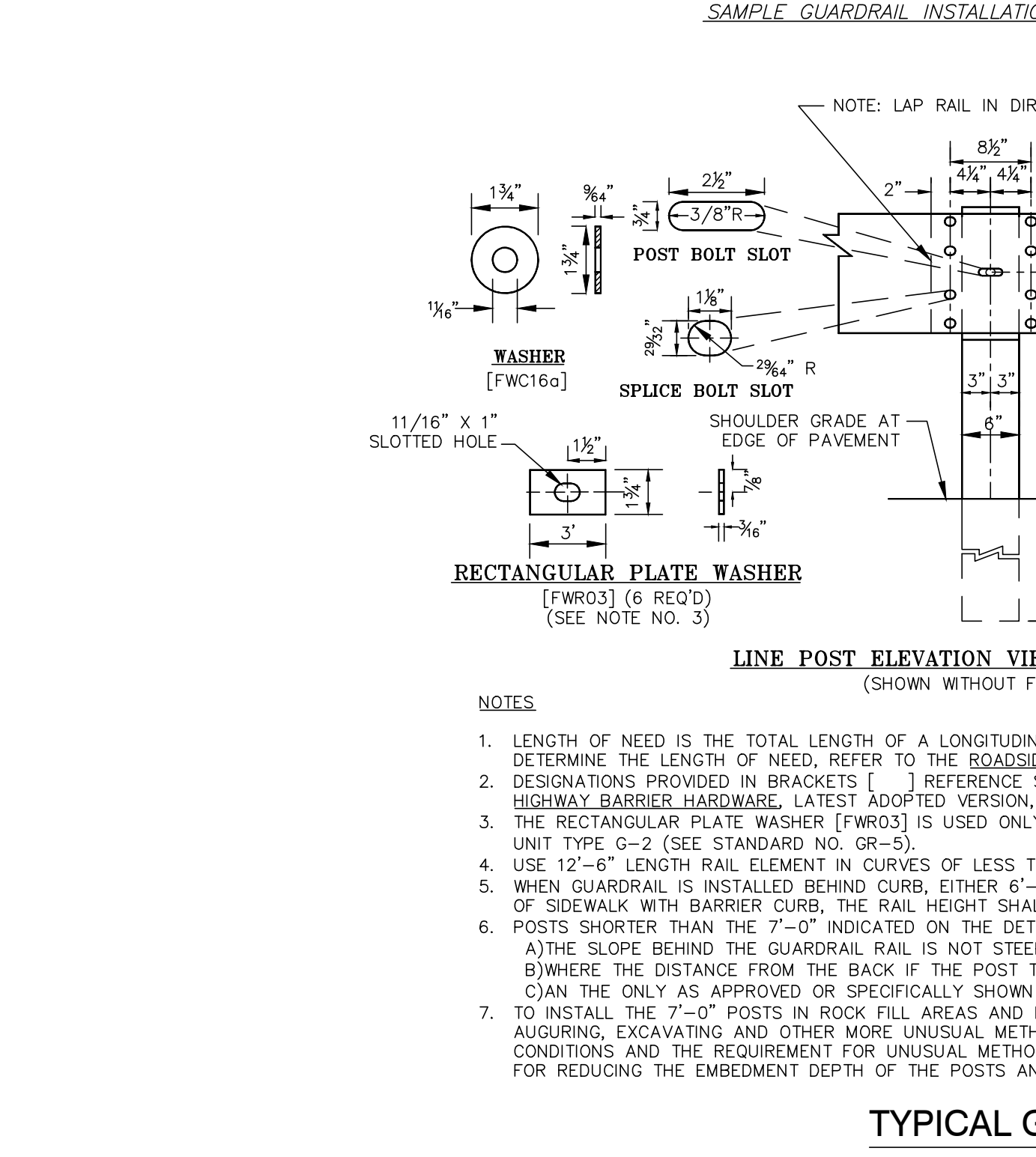
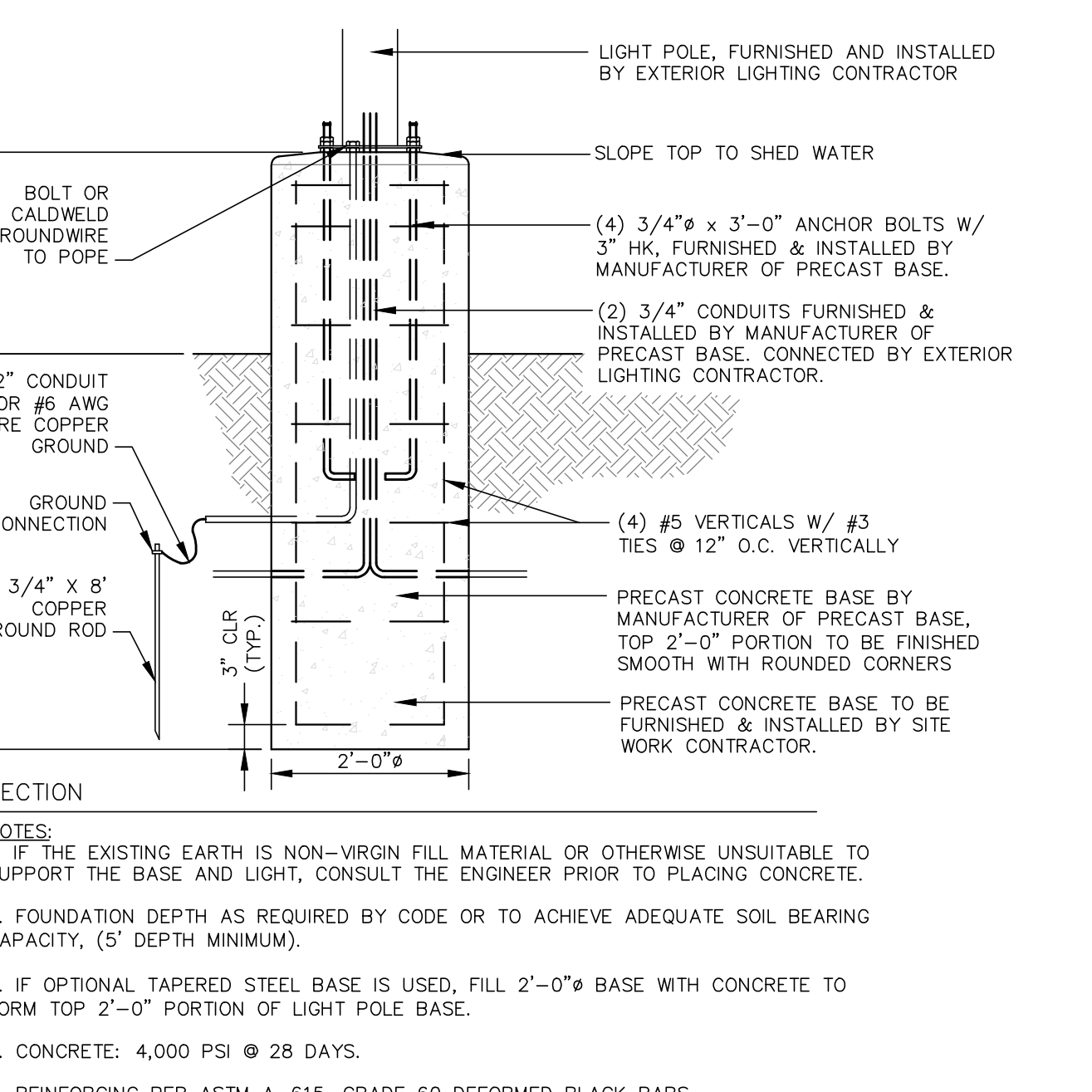
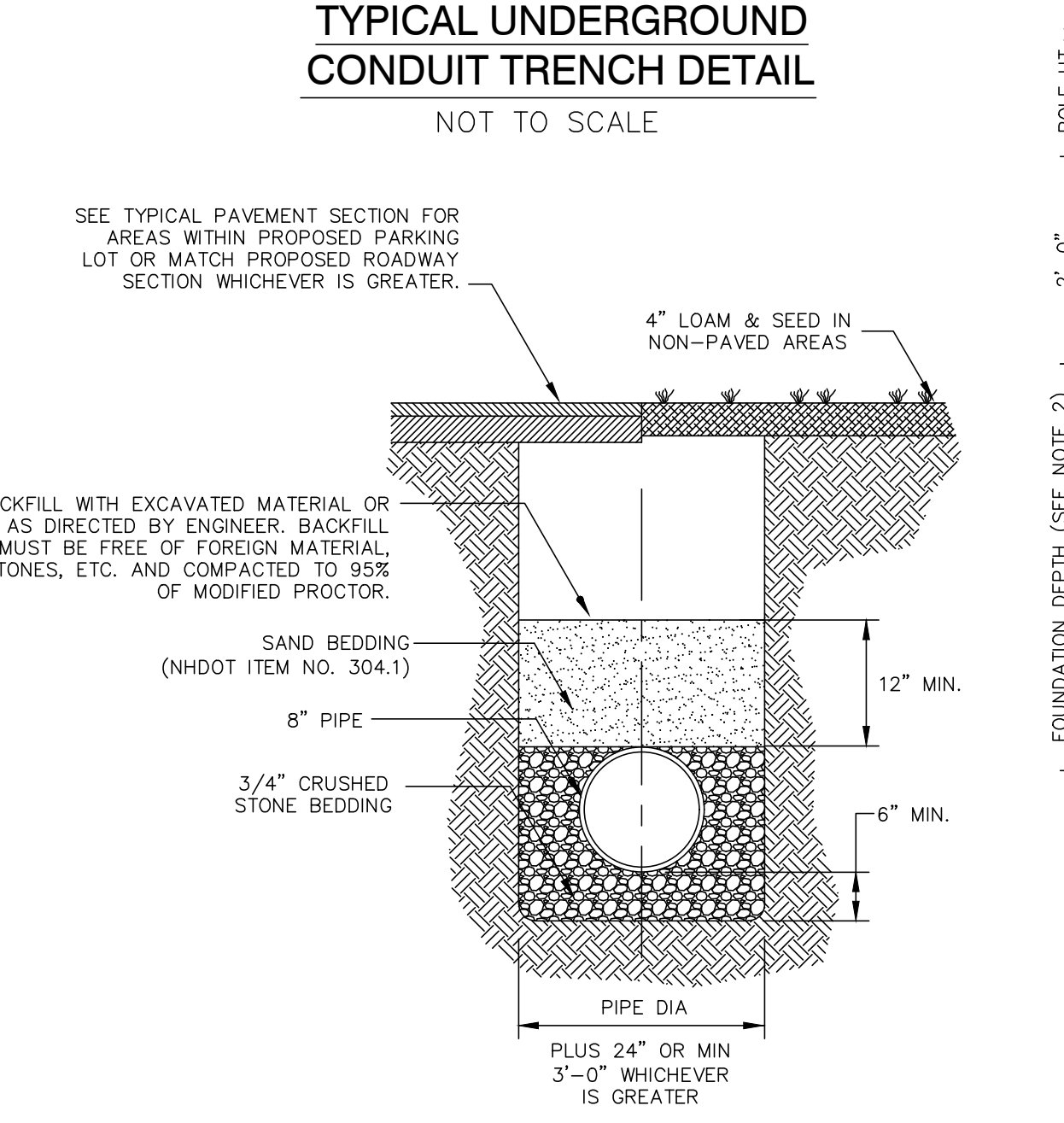
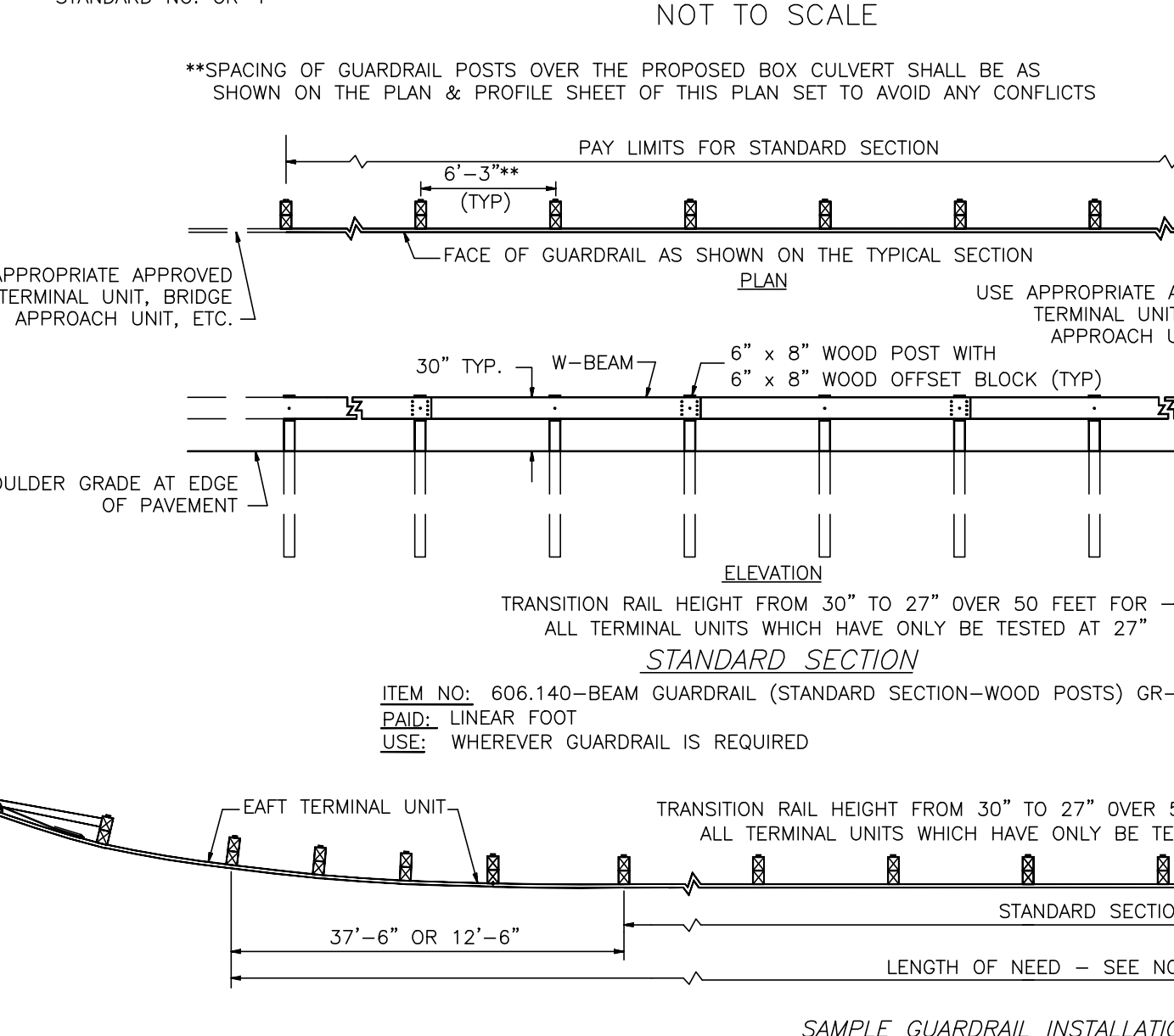
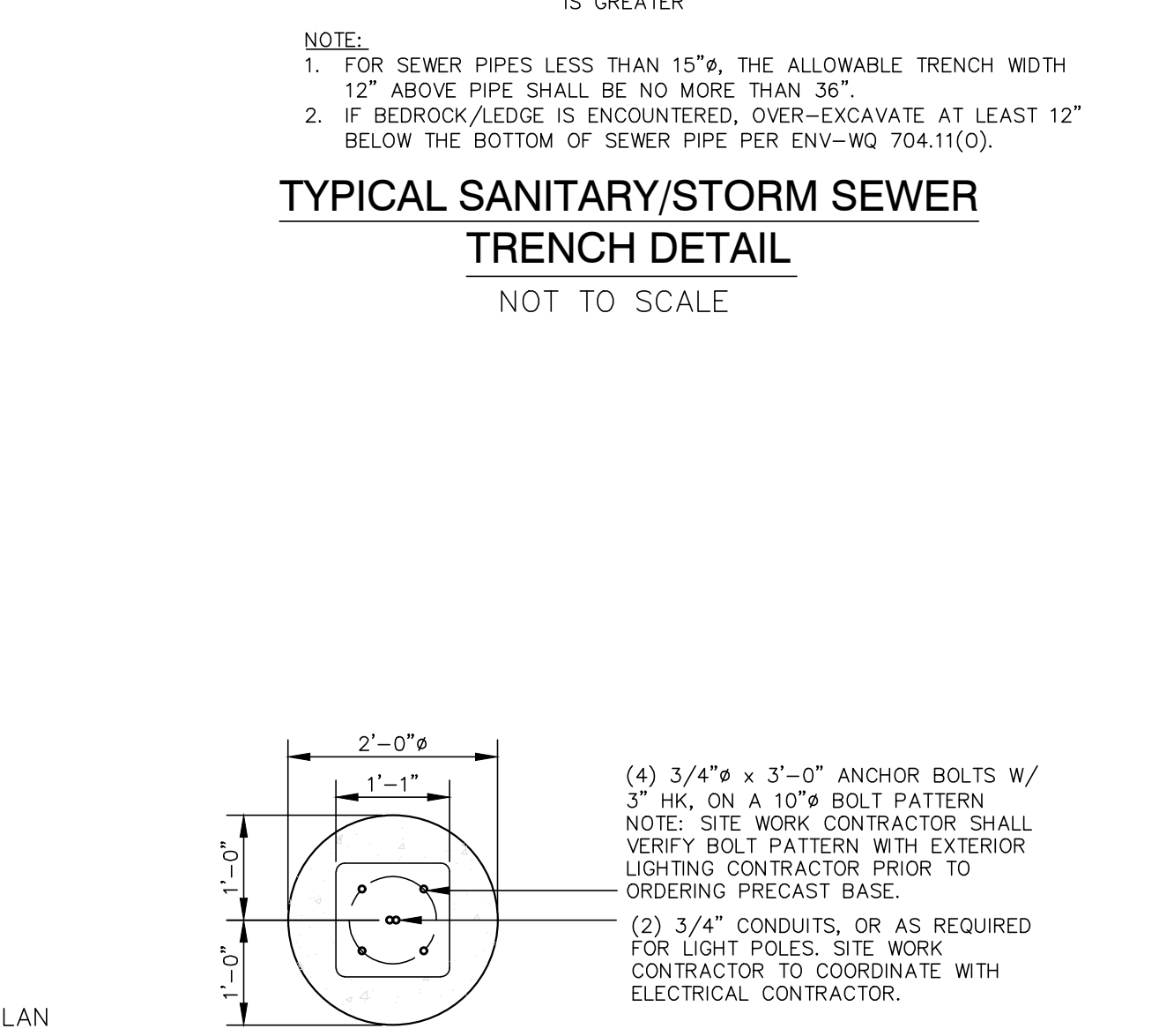
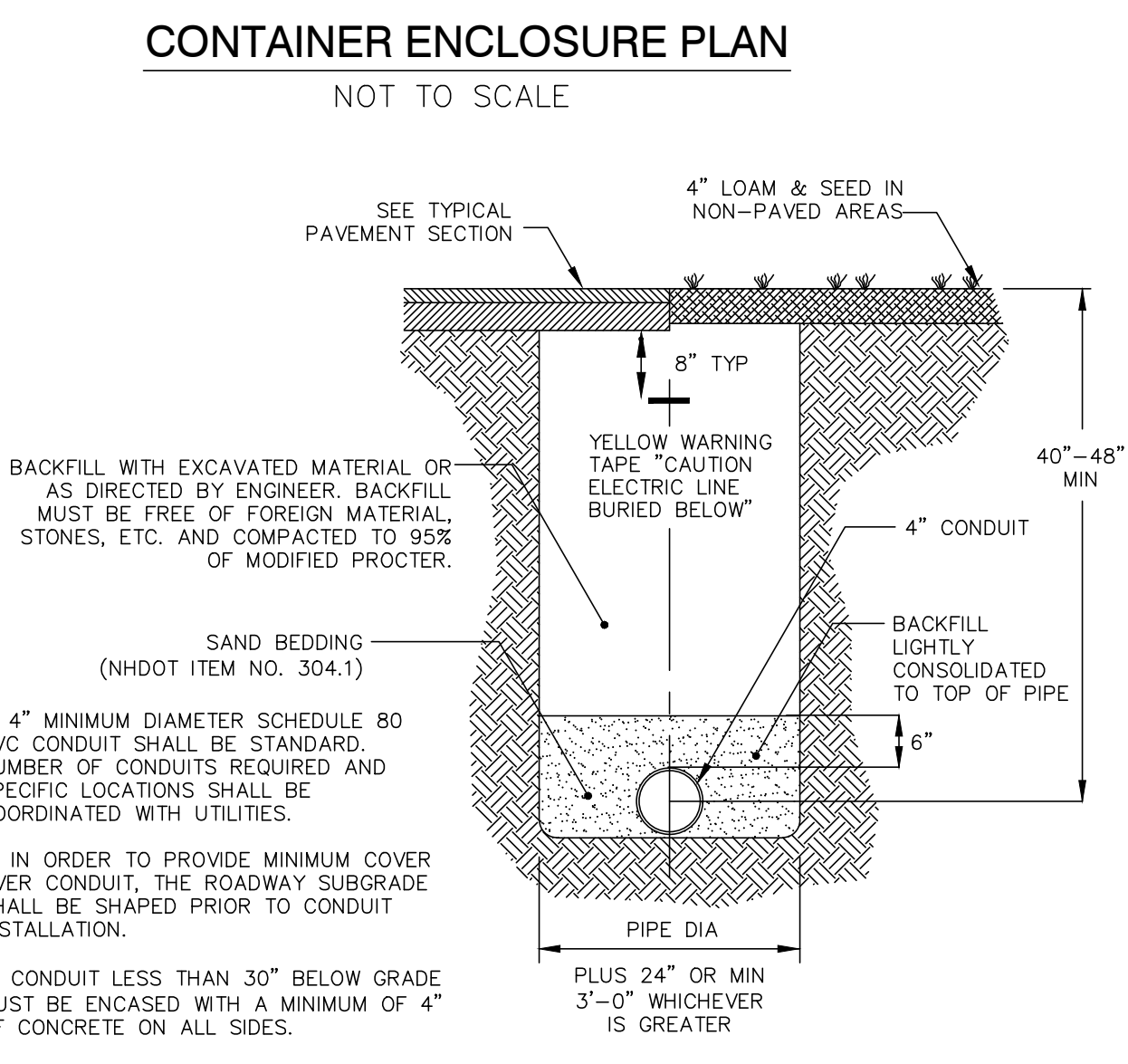
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DRAWN BY:	MGD
CHECKED BY:	JCN
CAD DRAWING FILE:	96280.02-C-700-DETAILS.dwg
SHEET TITLE	

**CONSTRUCTION DETAILS**

SHEET  
**C-7**



- NOTES
- LENGTH OF NEED IS THE TOTAL LENGTH OF A LONGITUDINAL BARRIER NEEDED TO SHIELD AN AREA OF CONCERN. TO DETERMINE THE LENGTH OF NEED, REFER TO THE ROADSIDE DESIGN GUIDE - AASHTO, LATEST ADOPTED VERSION.
  - DESIGNATIONS PROVIDED IN BRACKETS [ ] REFERENCE STANDARD ELEMENTS DETAILED IN A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE, LATEST ADOPTED VERSION, AASHTO-ACC-ARTBA JOINT COOPERATIVE COMMITTEE.
  - THE RECTANGULAR PLATE WASHER [FWR03] IS USED ONLY FOR 37'-6" OF STANDARD SECTION UPSTREAM OF A TERMINAL UNIT TYPE G-2 (SEE STANDARD NO. GR-5).
  - USE 12'-6" LENGTH RAIL ELEMENT IN CURVES OF LESS THAN 300' RAIL RADIUS.
  - WHEN GUARDRAIL IS INSTALLED BEHIND CURB, EITHER 6'-0" BEHIND SLOPE CURB ON A CURBED RAMP OR AT THE BACK OF SIDEWALK WITH BARRIER CURB, THE RAIL HEIGHT SHALL BE SET FROM THE GRADE AT THE FACE OF RAIL.
  - POSTS SHORTER THAN THE 7'-0" INDICATED ON THE DETAIL BUT NOT LESS THAN 6'-0" MAY ONLY BE USED WHEN:
    - A) THE SLOPE BEHIND THE GUARDRAIL RAIL IS NOT STEEPER THAN 4:1.
    - B) WHERE THE DISTANCE FROM THE BACK OF THE POST TO THE BREAK OF THE SLOPE IS A MINIMUM OF 2'-0". (CAN BE ONLY AS APPROVED OR SPECIFICALLY SHOWN ON THE PLANS.)
  - TO INSTALL THE 7'-0" POSTS IN ROCK FILL AREAS AND IN AREAS OF DIFFICULT SITE CONDITIONS, METHODS SUCH AS AUGURING, EXCAVATING AND OTHER MORE UNUSUAL METHODS MAY BE REQUIRED FOR INSTALLING POSTS. THOSE CONDITIONS AND THE REQUIREMENT FOR UNUSUAL METHODS OF POST INSTALLATION ARE NOT CONSIDERED JUSTIFICATION FOR REDUCING THE EMBEDMENT DEPTH OF THE POSTS AND WILL NOT BE APPROVED AS SUCH.



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NOT ISSUED FOR CONSTRUCTION

**BANGOR SAVINGS BANK**  
 46 CRYSTAL AVENUE  
 DERRY, NH  
 TAX MAP 31 LOTS 071 & 072  
 OWNER: BANGOR SAVINGS BANK  
 APPLICANT: BANGOR SAVINGS BANK

NO.	DATE	DESCRIPTION
12/15/2023	TRC	COMMENTS

REVISIONS  
 SCALE: AS NOTED

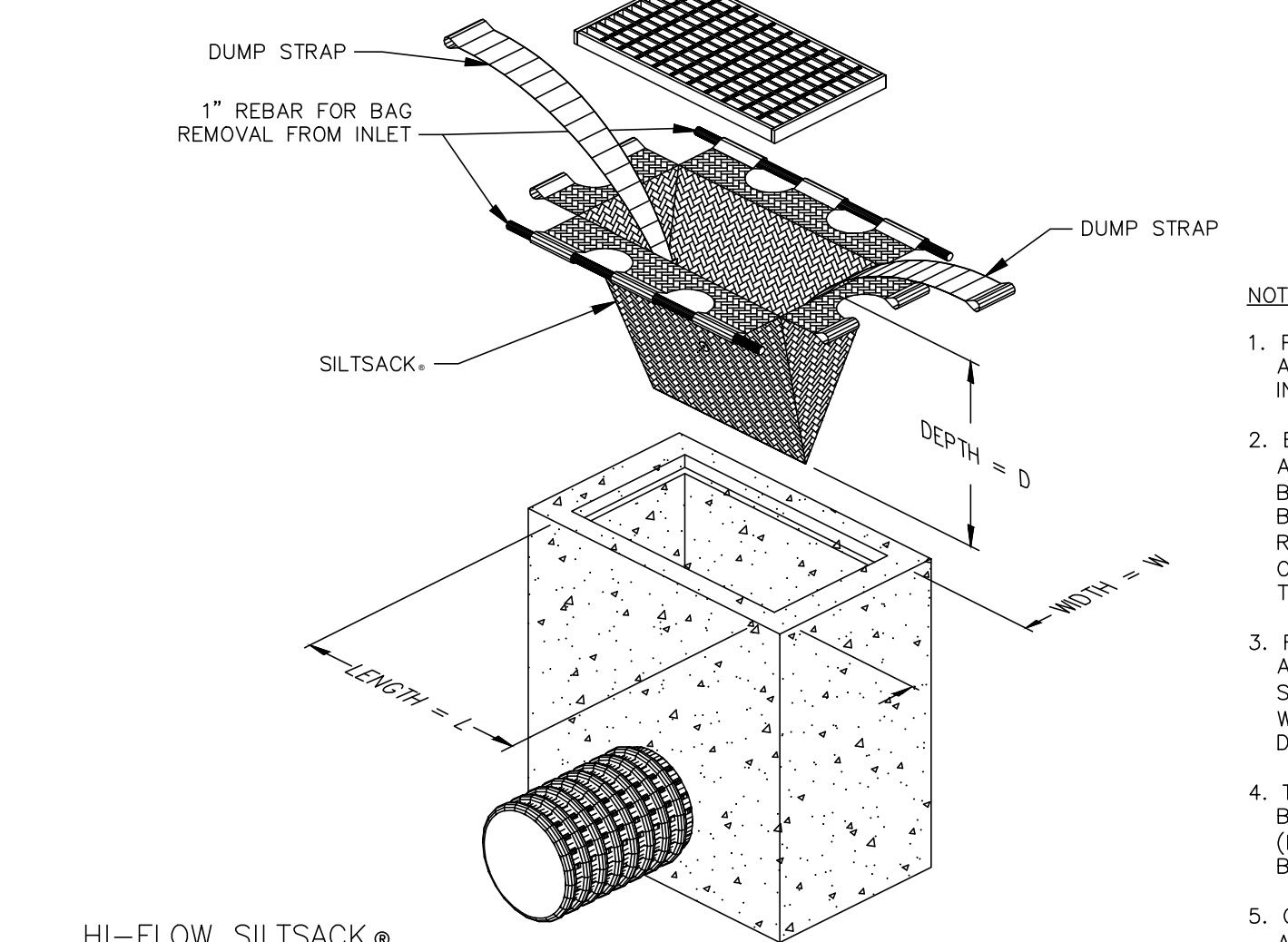
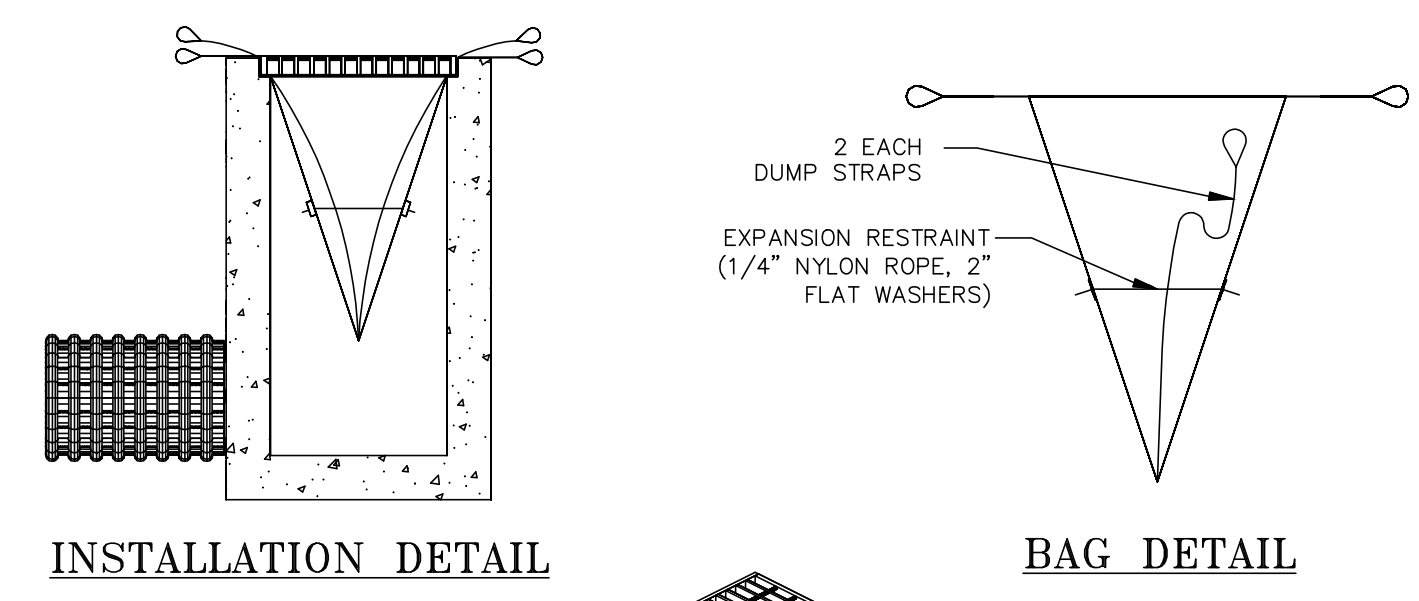
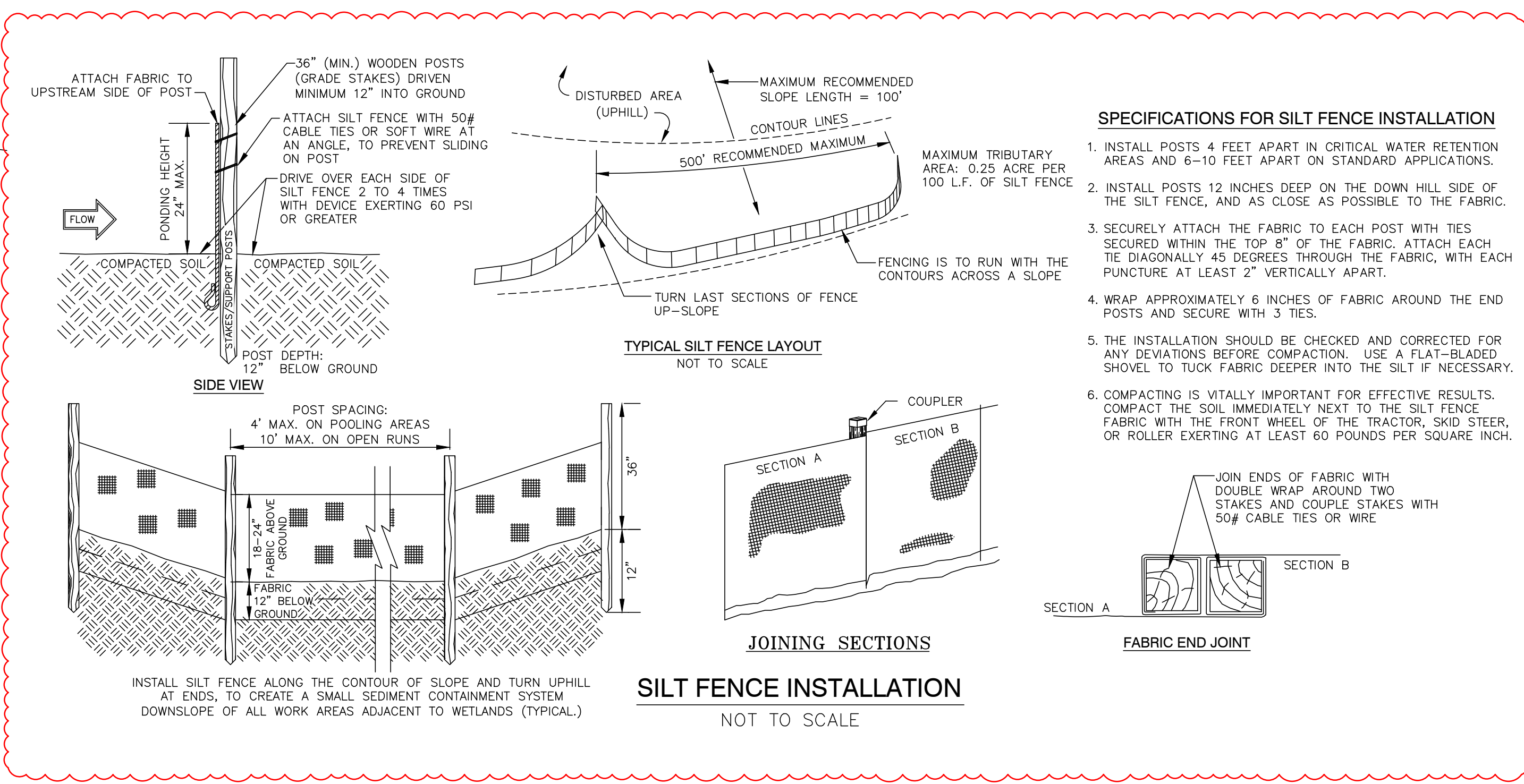
DATE:	NOVEMBER 7, 2023
NOBIS PROJECT NO.	96280.02
DRAWN BY:	MGD
CHECKED BY:	JCN
CAD DRAWING FILE:	96280.02-C-700-DETAILS.dwg
SHEET TITLE	

**CONSTRUCTION DETAILS**

SHEET  
**C-8**

**SPECIFICATIONS FOR SILT FENCE INSTALLATION**

- INSTALL POSTS 4 FEET APART IN CRITICAL WATER RETENTION AREAS AND 6-10 FEET APART ON STANDARD APPLICATIONS.
- INSTALL POSTS 12 INCHES DEEP ON THE DOWN HILL SIDE OF THE SILT FENCE, AND AS CLOSE AS POSSIBLE TO THE FABRIC.
- SECURELY ATTACH THE FABRIC TO EACH POST WITH TIES SECURED WITHIN THE TOP 8" OF THE FABRIC. ATTACH EACH TIE DIAGONALLY 45 DEGREES THROUGH THE FABRIC, WITH EACH PUNCTURE AT LEAST 2" VERTICALLY APART.
- WRAP APPROXIMATELY 6 INCHES OF FABRIC AROUND THE END POSTS AND SECURE WITH 3 TIES.
- THE INSTALLATION SHOULD BE CHECKED AND CORRECTED FOR ANY DEVIATIONS BEFORE COMPACTION. USE A FLAT-BLADED SHOVEL TO TUCK FABRIC DEEPER INTO THE SILT IF NECESSARY.
- COMPACTION IS VITALLY IMPORTANT FOR EFFECTIVE RESULTS. COMPACT THE SOIL IMMEDIATELY NEXT TO THE SILT FENCE FABRIC WITH THE FRONT WHEEL OF THE TRACTOR, SKID STEER, OR ROLLER EXERTING AT LEAST 60 POUNDS PER SQUARE INCH.

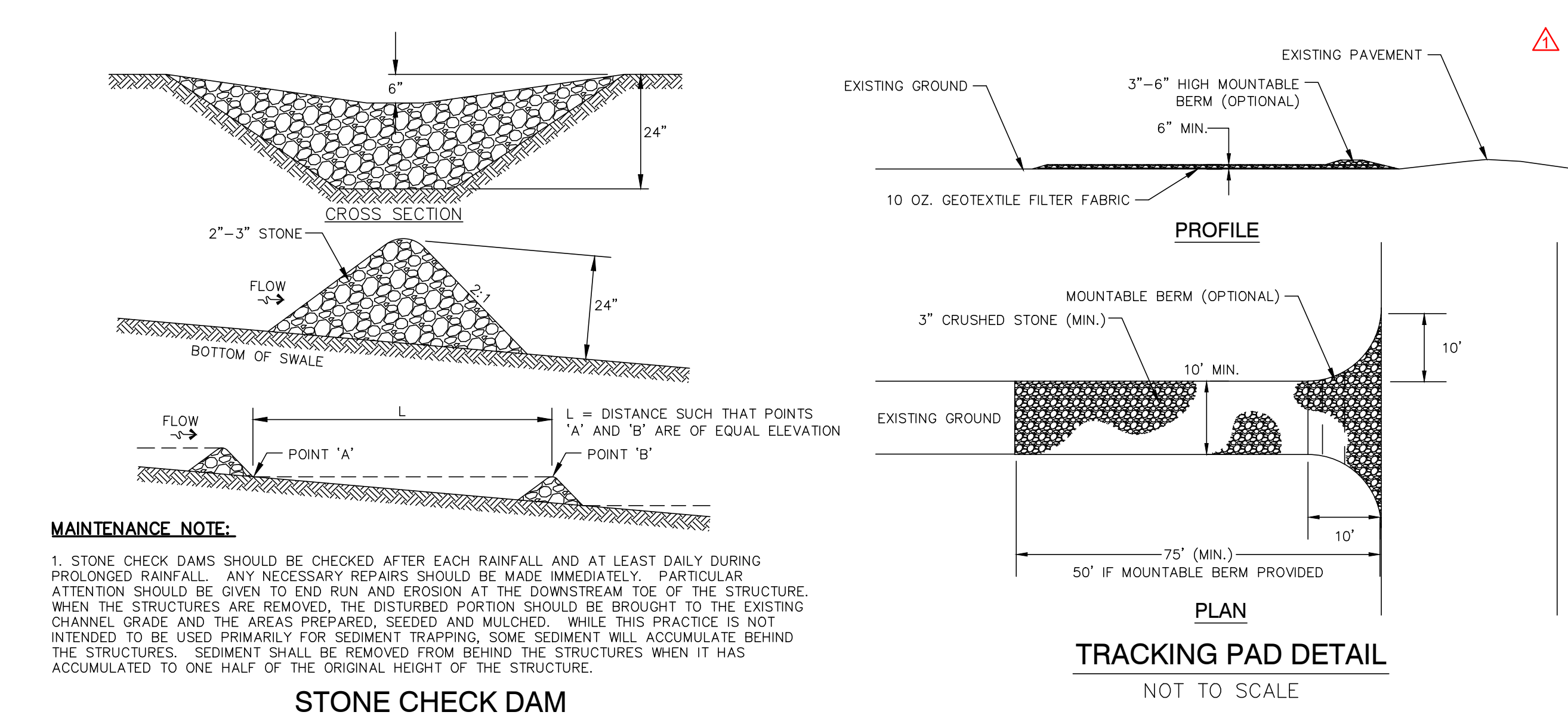


**HI-FLOW SILTSACK**®  
 SPECIFICATIONS\*

PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	265 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	135 LBS
MULLEN BURST	ASTM D-3786	420 PSF
TRAPEZOID TEAR	ASTM D-4533	45 LBS
UV RESISTANCE	ASTM D-4355	90 %
APPARENT OPENING SIZE	ASTM D-4751	20 US SEVE
FLOW RATE	ASTM D-4491	200 GAL/MIN/50 FT
PERMITTIVITY	ASTM D-4491	1.5 SEC -1

\*NOTE: HIGH-FLOW SILTSACK TO BE INSTALLED ONLY AFTER PAVEMENT IS INSTALLED. PRIOR TO PAVING, COVER INLET WITH AN IMPERMEABLE WATER TIGHT BARRIER TO KEEP STORMWATER AND SEDIMENT FROM ENTERING BASIN.

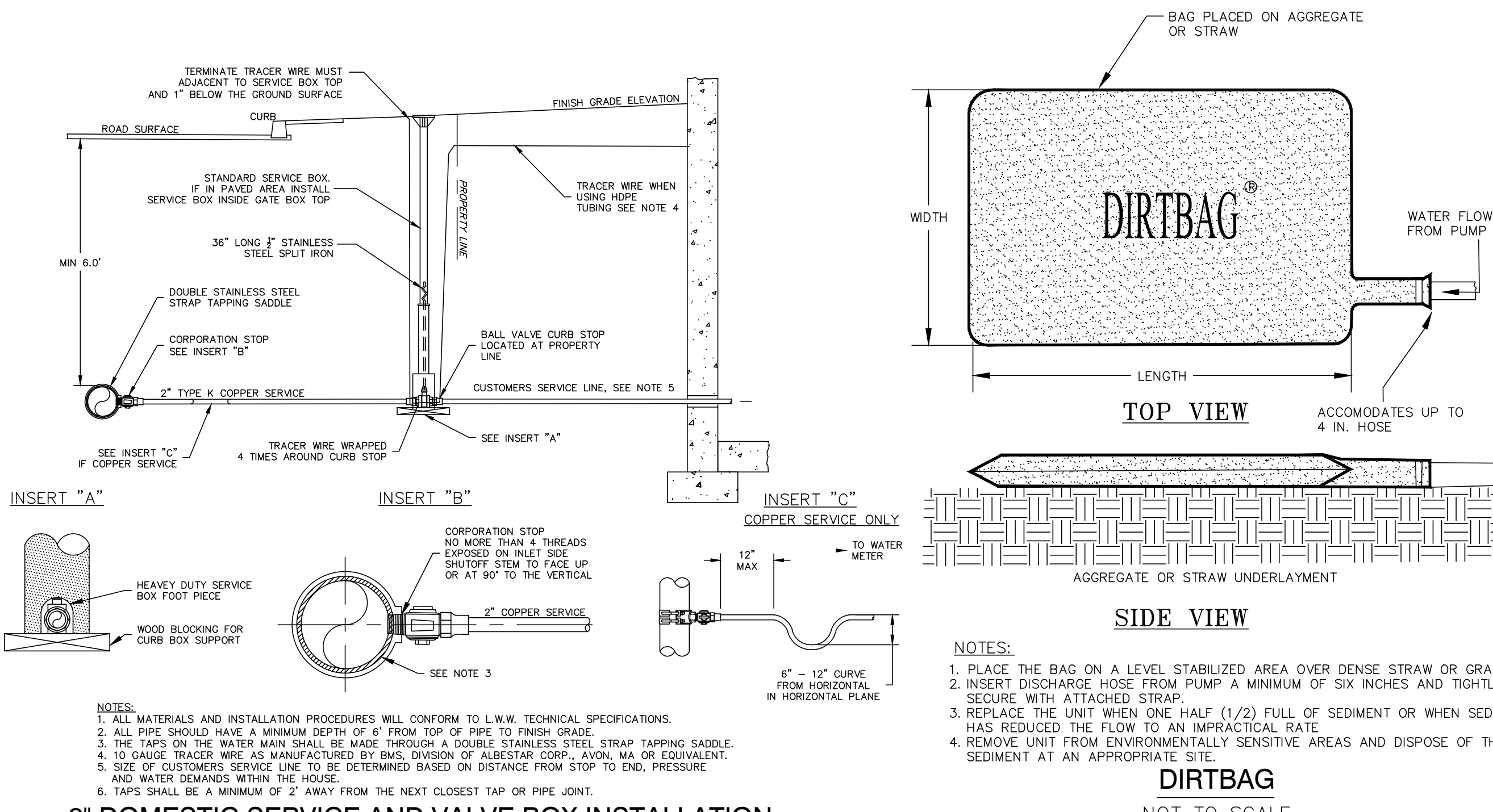
**HI-FLOW SILTSACK DETAIL**  
 NOT TO SCALE



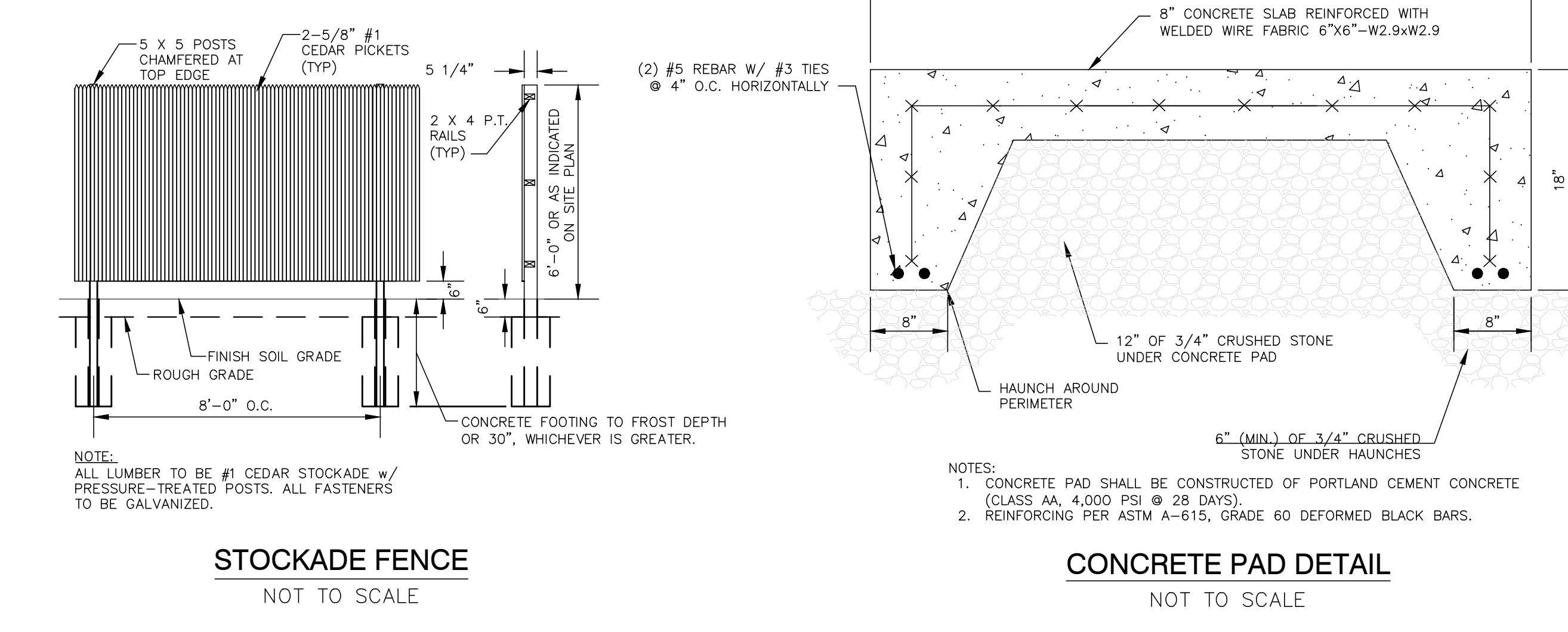
**MAINTENANCE NOTE:**

1. STONE CHECK DAMS SHOULD BE CHECKED AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY NECESSARY REPAIRS SHOULD BE MADE IMMEDIATELY. PARTICULAR ATTENTION SHOULD BE GIVEN TO END RUN AND EROSION AT THE DOWNSTREAM TOE OF THE STRUCTURE. WHEN THE STRUCTURES ARE REMOVED, THE DISTURBED PORTION SHOULD BE BROUGHT TO THE EXISTING CHANNEL GRADE AND THE AREAS PREPARED, SEEDED AND MULCHED. WHILE THIS PRACTICE IS NOT INTENDED TO BE USED PRIMARILY FOR SEDIMENT TRAPPING, SOME SEDIMENT WILL ACCUMULATE BEHIND THE STRUCTURES. SEDIMENT SHALL BE REMOVED FROM BEHIND THE STRUCTURES WHEN IT HAS ACCUMULATED TO ONE HALF OF THE ORIGINAL HEIGHT OF THE STRUCTURE.

**STONE CHECK DAM**  
 NOT TO SCALE



**2" DOMESTIC SERVICE AND VALVE BOX INSTALLATION**  
 NOT TO SCALE

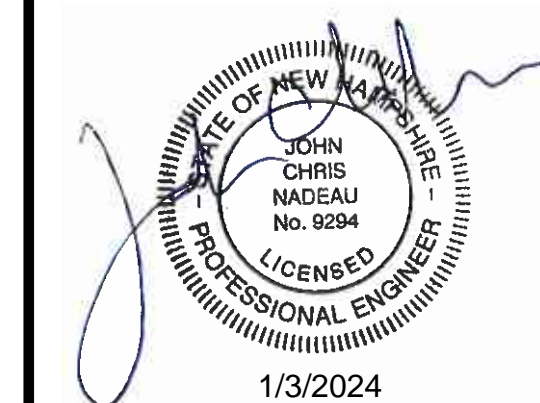






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CONSTRUCTION

**BANGOR SAVINGS  
BANK**

46 CRYSTAL AVENUE  
DERRY, NH  
TAX MAP 31 LOTS 071 & 072  
OWNER: BANGOR SAVINGS  
BANK  
APPLICANT: BANGOR  
SAVINGS BANK


△	12/15/2023	TRC COMMENTS
NO.	DATE	DESCRIPTION

REVISIONS

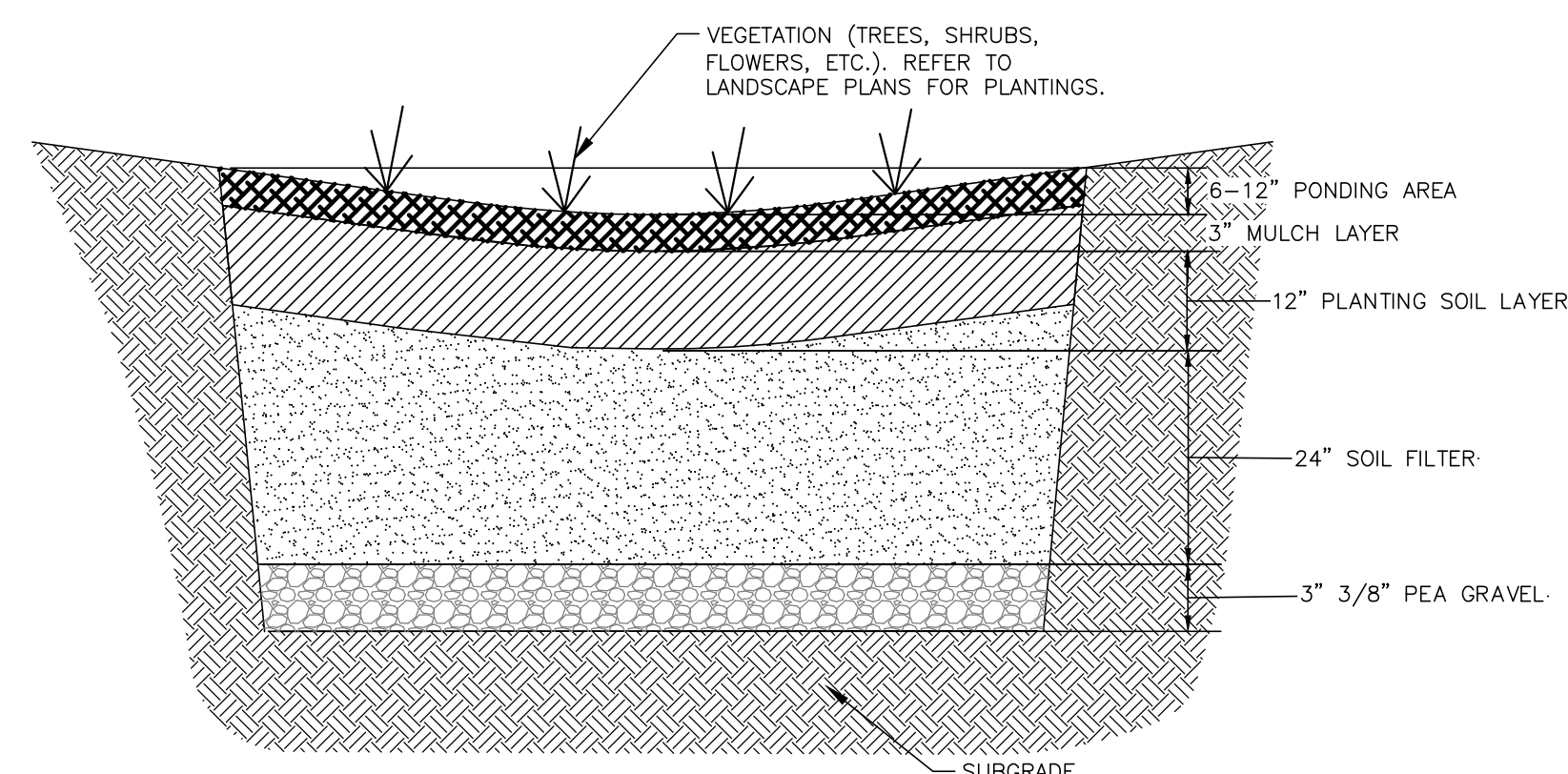
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NOBIS PROJECT NO.	96280.02
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SHEET TITLE

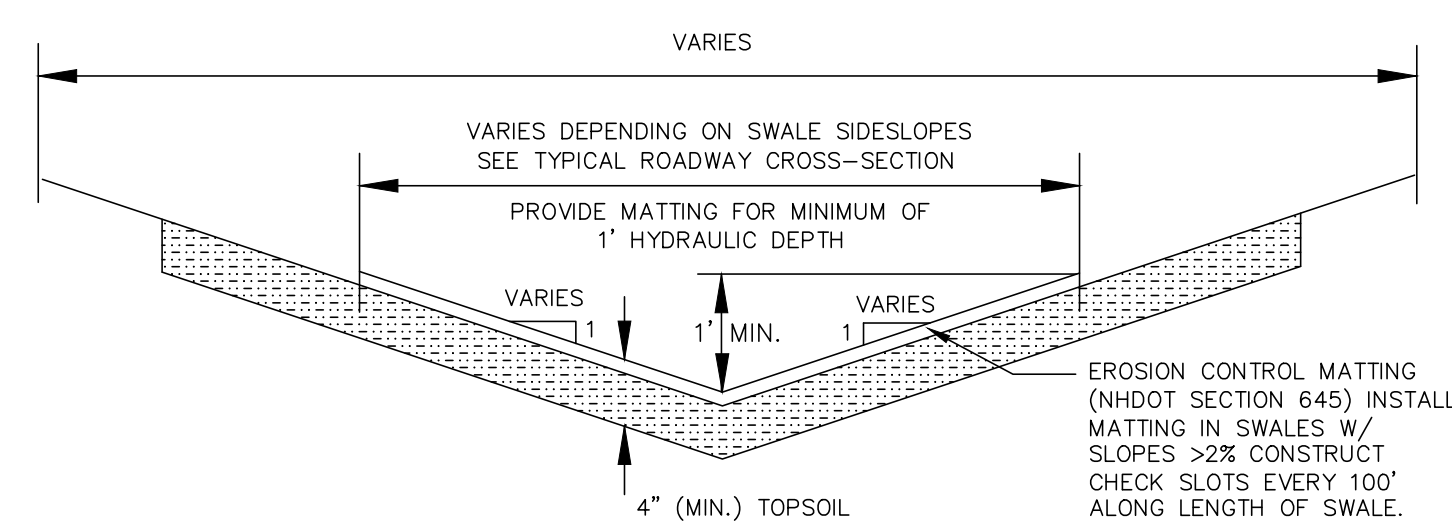
**CONSTRUCTION  
DETAILS**

SHEET  
**C-9**



SOIL FILTER SPEC. 50% TO 55% BY VOLUME SAND THAT IS CERTIFIED BY ITS PRODUCER AS MEETING THE REQUIREMENTS FOR ASTM C-33 CONCRETE SAND, 20% TO 30% BY VOLUME OF LOAMY SAND TOPSOIL WITH 15% TO 25% FINES PASSING THE NUMBER 200 SIEVE, AND 20% TO 30% BY VOLUME MODERATELY FINE SHREDDED BARK OR WOOD FIBER MULCH WITH LESS THAN 5% PASSING THE NUMBER 200 SIEVE.

**BIORETENTION DETAIL (RAIN GARDEN)**  
NOT TO SCALE



**GRASS LINED SWALE SECTION**  
NOT TO SCALE





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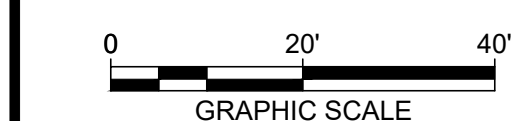
NOT ISSUED  
 FOR  
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**BANGOR SAVINGS BANK**

46 CRYSTAL AVENUE  
 DERRY, NH  
 TAX MAP 31 LOTS 071 & 072  
 OWNER: BANGOR SAVINGS BANK  
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NO.	DATE	DESCRIPTION
1	12/15/2023	TRC COMMENTS

REVISIONS



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NOBIS PROJECT NO.	96280.02
DRAWN BY:	MGD
CHECKED BY:	JCN
CAD DRAWING FILE:	96280.02-C-600-LIGHT.dwg

SHEET TITLE

**LIGHT PLAN**

SHEET  
**L-1**

**Designer**

Heidi G. Connors  
 Visible Light, Inc.  
 24 Stickney Terrace  
 Suite 6  
 Hampton, NH 03842  
**Date**  
 11/1/2023



Symbol	Label	QTY	Manufacturer	Catalog Number	Description	Lamp	Filename	Lumens per Lamp	LLF	Wattage	Distribution	Polar Plot
	<b>D</b>	6	Lithonia Lighting	LDN6 30/20 L06AR LD	6IN LDN Downlight; mounted at 12ft	LED	LDN6_30_20_L06AR_LD.ies	1771	0.9	22.52	DIRECT, SC-0=1.02, SC-90=1.03	
	<b>S4</b>	3	Lithonia Lighting	DSX0 LED P1 40K 80CRI TFTM MVOLT SPA DNAXD with SSS 16 4C DM19AS DNAXD	DSX0 LED Area Fixture; mounted at 16ft	LED	DSX0_LED_P1_40K_80CRI_TFTM.ies	4493	0.9	33.21	TYPE IV, SHORT, BUG RATING: B1 - U0 - G2	
	<b>W1</b>	4	Lithonia Lighting	WDGE1 LED P1 30K 80CRI VF MVOLT SRM DNAXD	WDGE1 LED Wallpack; mounted at 10ft	LED	WDGE1_LED_P1_30K_80CRI_VF.ies	1161	0.9	10.0002	TYPE II, VERY SHORT, BUG RATING: B0 - U0 - G0	
	<b>W3</b>	1	Lithonia Lighting	WDGE2 LED P3 30K 80CRI T3M MVOLT SRM DNAXD	WDGE2 LED Wallpack; mounted at 14ft	LED	WDGE2_LED_P3_30K_80CRI_T3M.ies	3063	0.9	32.1375	TYPE III, MEDIUM, BUG RATING: B1 - U0 - G1	
	<b>W4</b>	1	Lithonia Lighting	WDGE2 LED P3 30K 80CRI TFTM MVOLT SRM DNAXD	WDGE2 LED Wallpack; mounted at 14ft	LED	WDGE2_LED_P3_30K_80CRI_TFTM.ies	3015	0.9	32.1375	TYPE IV, SHORT, BUG RATING: B1 - U0 - G1	

**Statistics**

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Outside of Parking Lot	+	0.1 fc	1.0 fc	0.0 fc	N/A	N/A
Parking Lot	+	1.1 fc	7.9 fc	0.2 fc	39.5:1	5.5:1
Under Canopy	+	13 fc	20 fc	5 fc	4.0:1	2.6:1



I, Jonathan Halle, hereby Certify that I am the designer of this Landscape Plan and that I am a Professional Landscape Architect Licensed by the State of New Hampshire.

*Jonathan Halle*

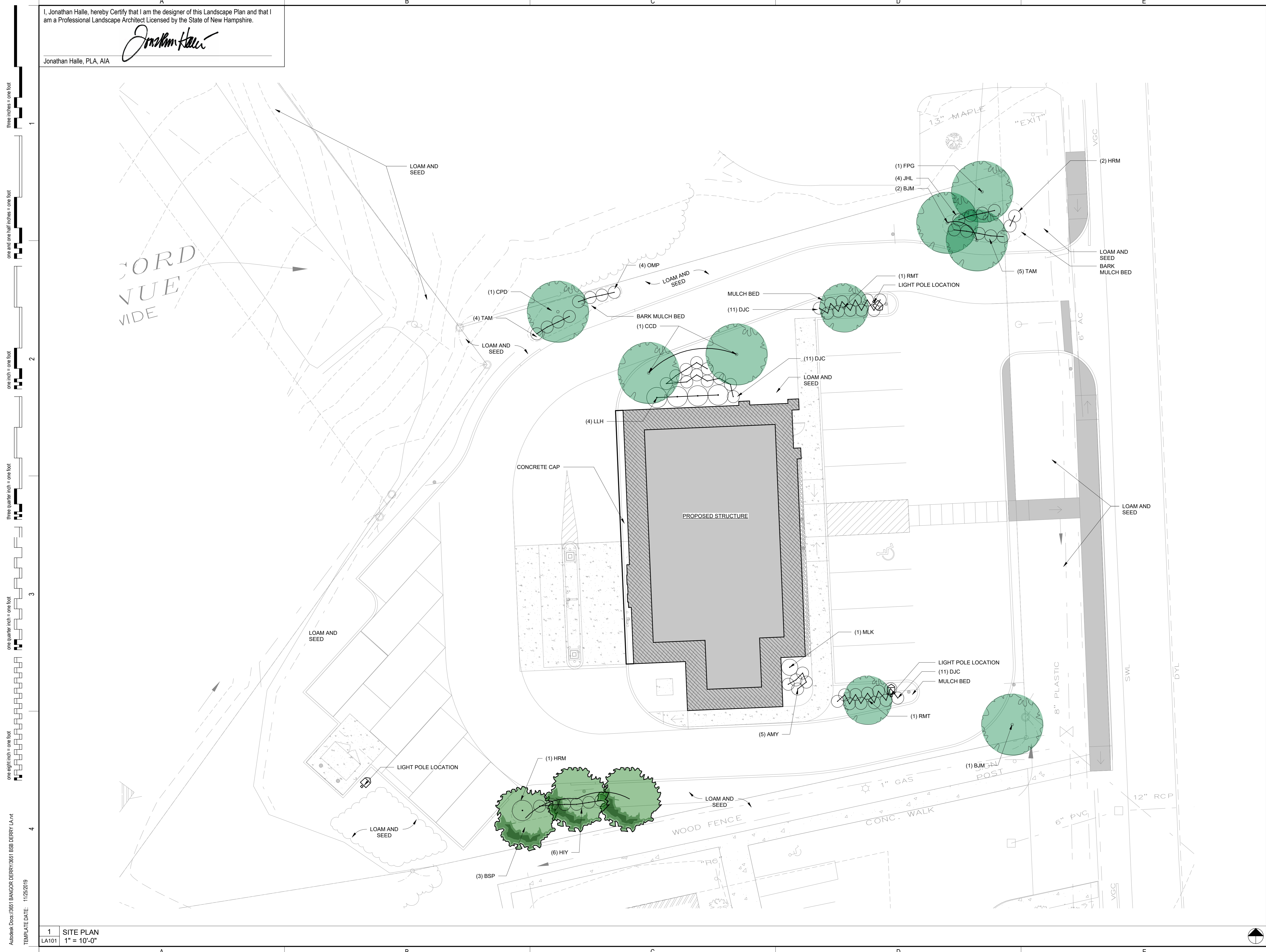
Jonathan Halle, PLA, AIA



REV.	DATE	COMMENTS

**LANDSCAPE SITE PLAN**

**LA101**



three inches = one foot  
 one and one half inches = one foot  
 one inch = one foot  
 three quarter inch = one foot  
 one quarter inch = one foot  
 one eighth inch = one foot  
 AutoDesk Docs/3651 BANGOR DERRY/3651 BSB DERRY LA101  
 TEMPLATE DATE: 11/25/2019



# Bangor Savings Bank - Planting Schedule

Trees, Shrubs, Ground Cover, Flowers, Bedding and Seeding - See Specification, General Notes and Details on the Accompanying Drawings.

USDA Plant Hardiness Zones - NH North of Laconia Zone 4 - Southern NH Zone 5 - Western Massachusetts Zone 5 - Eastern Massachusetts Zone 6

Photo	Type	Sym	Qty	Common Name	Botanical Name	Hardiness Zone	Habit of Growth		Sun Exposure	Drought Tolerant	Native	Toxicity	Installed Size	Type	Description & Notes (Height, Exposure, Bloom, Color)
							Height	Spread							
	Deciduous Large Tree	BJM	3	American Mountain Ash	Sorbus Americana	3-6	15-30'	15-25'	Full-	YES	YES	2	3"-3 1/2" cal 10-12ft	B&B	This small native tree's dark green leaves turn yellow, orange and reddish-purple in the fall. Showy white spring flowers are followed by large clusters of flame-red, berry-like fruit loved by birds. Likes acidic soil with good drainage, full sun to light shade. Grows to 10'-30'.
	Deciduous Large Tree	RMT	2	American Red Maple	Acer Rubrum "Brandywine"	4-9	40'-60'	30'-50'	Full Sun	YES	YES	2	3"-3 1/2" cal 10-12ft	B&B	Vibrant color and rich reds are synonymous with the American Red Maple Tree. The Red Maple truly earns its name, with its red flowers in early spring, red twigs of new growth, and spectacular red leaves in fall. Its dazzling fall show is further diversified with a few orange or gold shades under certain weather conditions. Even better, the American Red Maple adapts to any environment. The American Red Maple Tree is one of the most popular trees in the eastern U.S. because it adapts so well to many different environments. It is quite drought tolerant, but will grow in wet boggy areas.
	Deciduous Accent Flowering Small Tree	CPD	1	Cherokee Princess Dogwood Tree	Cornus florida 'Cherokee Princess'	5-9	15-30'	25-35'	Full-Partial Sun	YES	YES	3 to pets only	3"-3 1/2" cal 10-12ft	B&B	Prolific, large, pure white, overlapping petal-like blooms in spring, dark green foliage in the summer, reddish-purple leaves in the fall, red berries in winter make this dogwood a lovely ornamental tree for all seasons.
	Deciduous Accent Flowering Small Tree	CCD	2	Cherokee Chief Dogwood Tree	Cornus florida 'Cherokee Chief'	5-9	15-30'	15-30'	Full-Partial Sun	YES	YES	NO	3"-3 1/2" cal 10-12ft	B&B	The Cherokee Chief Dogwood is cold hardy to growing zone 5, where other dogwood varieties can't handle the cold. By being one of the first trees to bloom in spring, Cherokee Chief Dogwoods fill the landscape with fiery red blossoms while other trees are still dormant. Once their dark, green leaves fill in they act as a backdrop for the bright flowers to pop against. The colorful show doesn't stop there because the long, oval shaped leaves fill in to create a thick and attractive canopy that provides shade in the summer. When the leaves first emerge they have a burgundy to bronze tint.
	Deciduous Large Tree	FPG	1	Green Ash Tree	Fraxinus pennsylvanica	3-9	50-80'	40-50'	Full-Partial Sun	YES	YES	2	3"-3 1/2" cal 10-12ft	B&B	Green ash is a native spreading, round topped tree which grows to a height of 70 feet or more. The deciduous leaves are pinnately compound, 8 to 12 inches long, with 5 to 9 leaflets. The leaflets are oblong, lustrous green on both sides or somewhat paler beneath. The twigs are pale gray along with brown bark.
	Evergreen	BSP	3	Black Spruce	Picea mariana	1-6	30'40'	15-30'	Full Sun to Partial Sun	YES	YES	1	7-9 ft	B&B	Black spruce is a small, narrow evergreen tree with a spire-like crown. It has descending branches, with dark, bluish-green needles, and upturned ends. Lower limbs sweep the ground. It is an excellent choice for cold northern climates and tolerant of wet sites.
	Flowering Shrub	MKL	1	Miss Kim Lilac	Syringa pubescens subsp. Patula 'Miss Kim'	3-8	4-9'	5-7'	Full Sun	YES	YES	NO	5 Gal	CTN	Lilacs are such assets to their landscapes—the famed perfumes and luxurious flower clusters make them strong springtime focal points. But not every garden can fit a full-sized lilac bush. That's what makes Miss Kim an excellent cultivar. It grows only 4-9' tall. You can use these fragrant blooms for cut flower arranging, or watch hummingbirds and butterflies flock to them in the garden. In fall, the green foliage turns burgundy. Hungry deer tend not to be interested in lilacs.
	Flowering Shrub	LLH	4	Ruby Slipper Hydrangea	Hydrangea Quercifolia 'Ruby Slipper'	5-9	3-4'	3-5'	Full Sun to Part Shade	YES	YES	2	5 gal	CTN	Easily grown in organically rich, medium moisture, well-drained soils in full sun to part shade. Thrives in moist soils, and appreciates a summer mulch which helps retain soil moisture. Bloom occurs on old wood. Prune if needed immediately after flowering (little pruning is usually needed). Winter damaged stems may be pruned in early spring. Plants should be given a sheltered location and winter protection (e.g., mulch, burlap wrap) in USDA Zone 5, particularly when not fully established. Plants can lose significant numbers of flower buds or die to the ground in harsh winters.
	Evergreen Groundcover	DJC	33	Dwarf Creeping Juniper	Juniperus procumbens 'Nana'	4-9	12"	6'	Full to Partial Sun	YES	YES	3 to pets only	5 gal	CTN	Dwarf creeping juniper forms a compact mat of bluish green foliage with a feathery texture. The fine-nerved branches grow over each other, and vary in length. The scales can have a slightly purple tinge in winter. It is a very pretty spreading juniper.
	Perennial	AMY	5	Moonshine Yarrow	Achillea Moonshine	3-9	18"	24"	Full Sun	Yes	Yes	2	1 yr. potted	1 gal.	Moonshine Yarrow (Achillea Moonshine) is an outstanding perennial plant with silver-gray foliage and lemon-yellow flat-topped flowers that cover the plant all summer. This is a well-behaved variety, meaning it won't reseed and spread.
	Seed Lawns	SFL	TBD	Seeded Ornamental Fine Lawn Mix	Kentucky Bluegrass and Creeping Red Fescue Blend 11b/1,000sf	3-9	8"	NA	Full Sun-Partial Shade	YES	YES	NO	Seed Mix	—	This mixture is made up of warm and cool-season grasses that are native to the Northeast and will be a hardy, long-lasting solution to any area. Fine Grade, fertilize, seed and Hydromulch. Seed Rate: 25 lbs/1,000 sf add 10% if hydroseed. Seed Dates April 15 - June 30 and August 15 - October 15 unless approved otherwise.
	Evergreen Accent Tree	HIY	6	Hicks Yew Hedge	Taxus x media 'Hicksii'	4-7	12-20'	8-12'	Full-Partial Sun	YES	YES	2	5 GAL	CTN	Hicks Yew is a popular tree for growing into tall, narrow hedges. It has lovely, dark, evergreen needles, and it is dotted with bright red "fruits" in late summer and fall. It grows nearly straight upright and can mature up to 20 feet tall over time, making a nice, dense privacy hedge. It is also suitable for maintaining as a low hedge at 3-4' tall. It is versatile for use in many garden styles and is very easy to care for.
	Seasonal Color	HRM	3	Invincibelle™ Ruby Mountain Hydrangea	Hydrangea arborescens 'NCHA3'	3-8	3-4'	2-3'	Full Sun-Partial Shade	NO	YES	3 TO PETS ONLY	1 YR POTTED	1 gal.	Hydrangea arborescens Invincibelle Ruby is a dwarf smooth hydrangea with very strong stems. It has dark burgundy-red flower buds that open to a two-toned combination of bright ruby red and silvery pink. It is dramatic and unique and makes excellent cut flowers. It blooms on new growth and is a strong rebloomer, producing gorgeous blossoms from summer into fall and can be used as a low hedge, specimen, in a mixed border, or foundation planting.
	Evergreen Accent Tree	OMR	4	Olga Mezitt Rhododendron	Rhododendron x 'Olga Mezitt'	4-8	3'-4'	2-3'	Full-Partial Sun	NO	NO	1	5 GAL	CTN	Stunning dome-shaped trusses of wavy, vibrant pink, lightly scented flowers blanket this cold hardy, compact evergreen in spring. Shiny, green, lobed, recurved foliage turns a rich mahogany color in late fall, holding through winter. More heat and sun tolerant than other varieties. An excellent choice for borders, mass planting, or containers.
	Evergreen Low Ground Cover	JHL	4	Japanese Holly	Ilex Crenata	5-7	4'-10'	4'-10'	Full Sun - Partial Shade	YES	NO	1	3 GAL	CTN	A densely branched, low-growing conifer that gracefully spreads to form mounds of soft, scale-like, rich green foliage. An excellent conifer for use as a large scale groundcover, on banks and slopes, or as a rock garden accent. Evergreen.
	Evergreen Low Ground Cover	TAM	9	Tam Juniper	Juniperus sabina 'tamariscifolia'	4	1.5'	10'	Full Sun	YES	NO	1	5 GAL 18" 24"	CTN	A densely branched, low-growing conifer that gracefully spreads to form mounds of soft, scale-like, rich green foliage. An excellent conifer for use as a large scale groundcover, on banks and slopes, or as a rock garden accent. Evergreen.

## General Planting Notes

- The above selection of plants is provided for design intent. It is understood that the final installation and implementation of this plan is subject to plant availability, substitutions, time of year, phasing and cost. These plant selections are part of a project approval with the Jurisdictions having authority. All substitutions should be approved in writing by the Landscape Architect of Record prior to purchase and installation.
- It is understood, that the majority of nursery plants are to some degree toxic to humans and pets, whether the root, stock, bark, leaf, fruit or juice. The owner and installer should become acquainted to the potential toxicity of the ultimate selection of all nursery plants. Warrenstreet has provided common toxicity labels of plant materials selected and in no way warranties against the potential affects of any plants selected and installed.
- All planting beds shall be mulched with a minimum of 2" of shredded cedar "BLACK" bark mulch. All sod and/or seeded lawn areas to have minimum 6" topsoil blanket. All fall bulbs shall be planted in the fall, plan accordingly, retainage will be held until plantings occur. All mass planted shrubs beds and planters around building shall have minimum 18" deep topsoil blanket to compensate for the New England very sandy granular sub-grade material.
- All plant material to conform to current AAN, American Standard for Nursery Stock, ANSI Z60.1-2014. All plantings shall be warranted for (1) one year from planting date. The landscape Contractor shall be responsible for two (2) lawn mowings and weedings prior to final acceptance of installation.



**Warrenstreet**  
 Planning | Landscapes | Architecture | Interiors  
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 CONCORD, NEW HAMPSHIRE 03303  
 P. (603) 225-0640  
 WWW.WARRENSTREET.COOP

**OWNER**  
 BANGOR SAVINGS BANK  
 46 CRYSTAL AVE.  
 DERRY, NH 03038

**CONSTRUCTION MANAGER**  
 TITLE 1  
 STREET  
 CITY, STATE ZIP  
 P. ( ) F. ( )

PROJECT TITLE / ADDRESS:  
**BANGOR SAVINGS BANK**  
 46 CRYSTAL AVENUE  
 DERRY, NH 03038



SCALE: AS NOTED DWN BY: TG  
 JOB #: 3651 CHK BY: JH  
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**12/18/2023**  
**FOR CONSTRUCTION**

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**PLANTING SCHEDULE**

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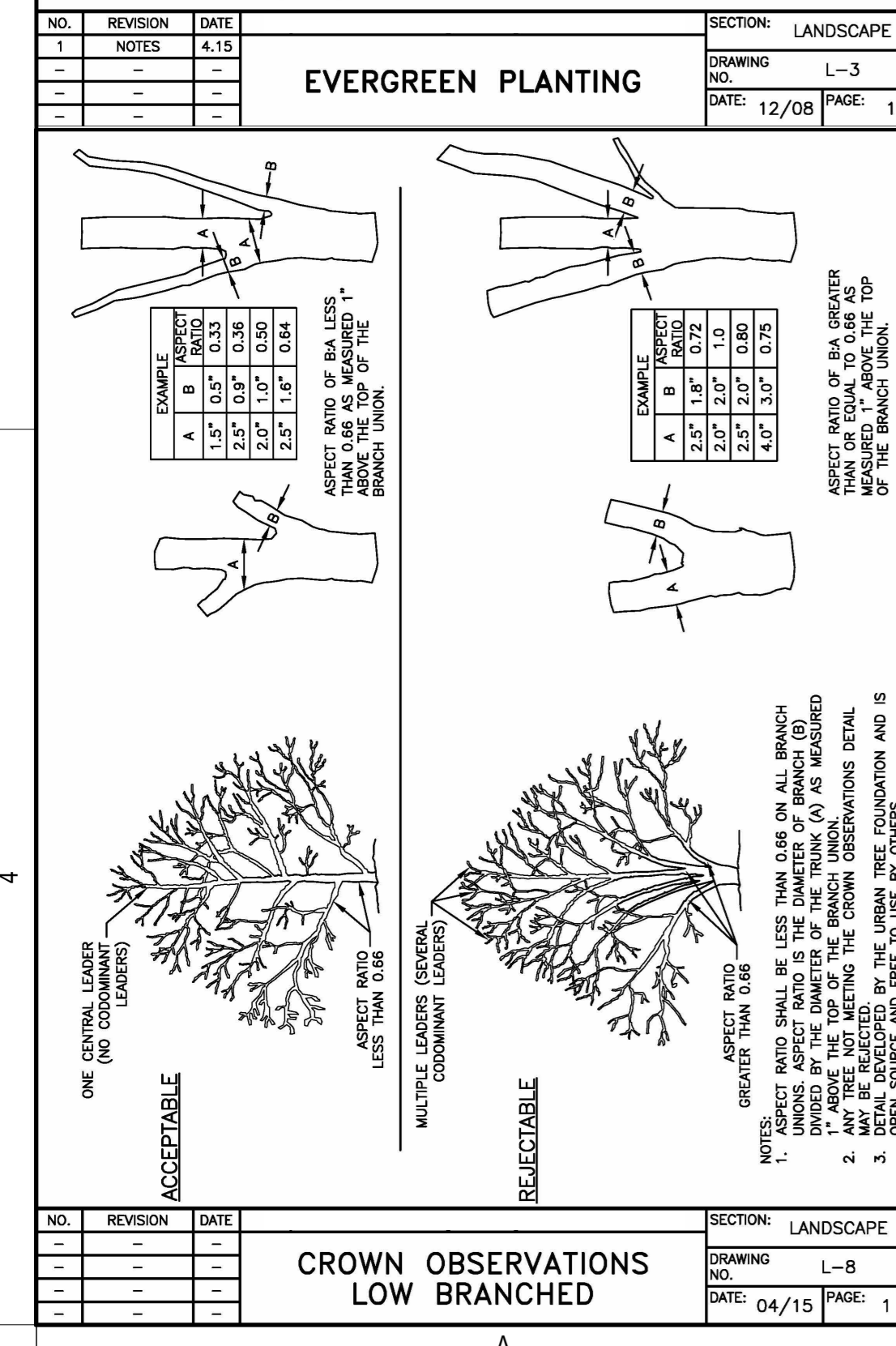
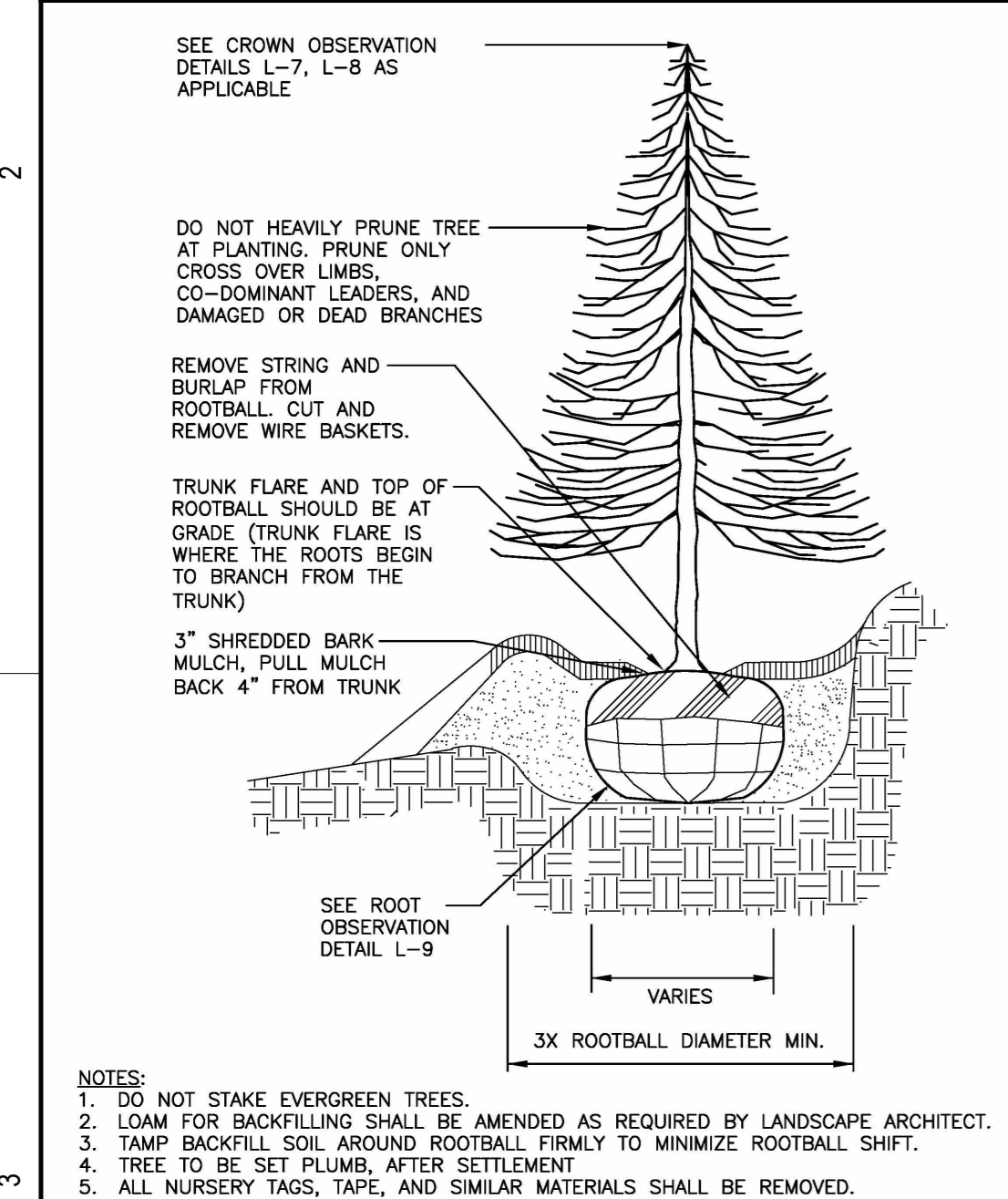
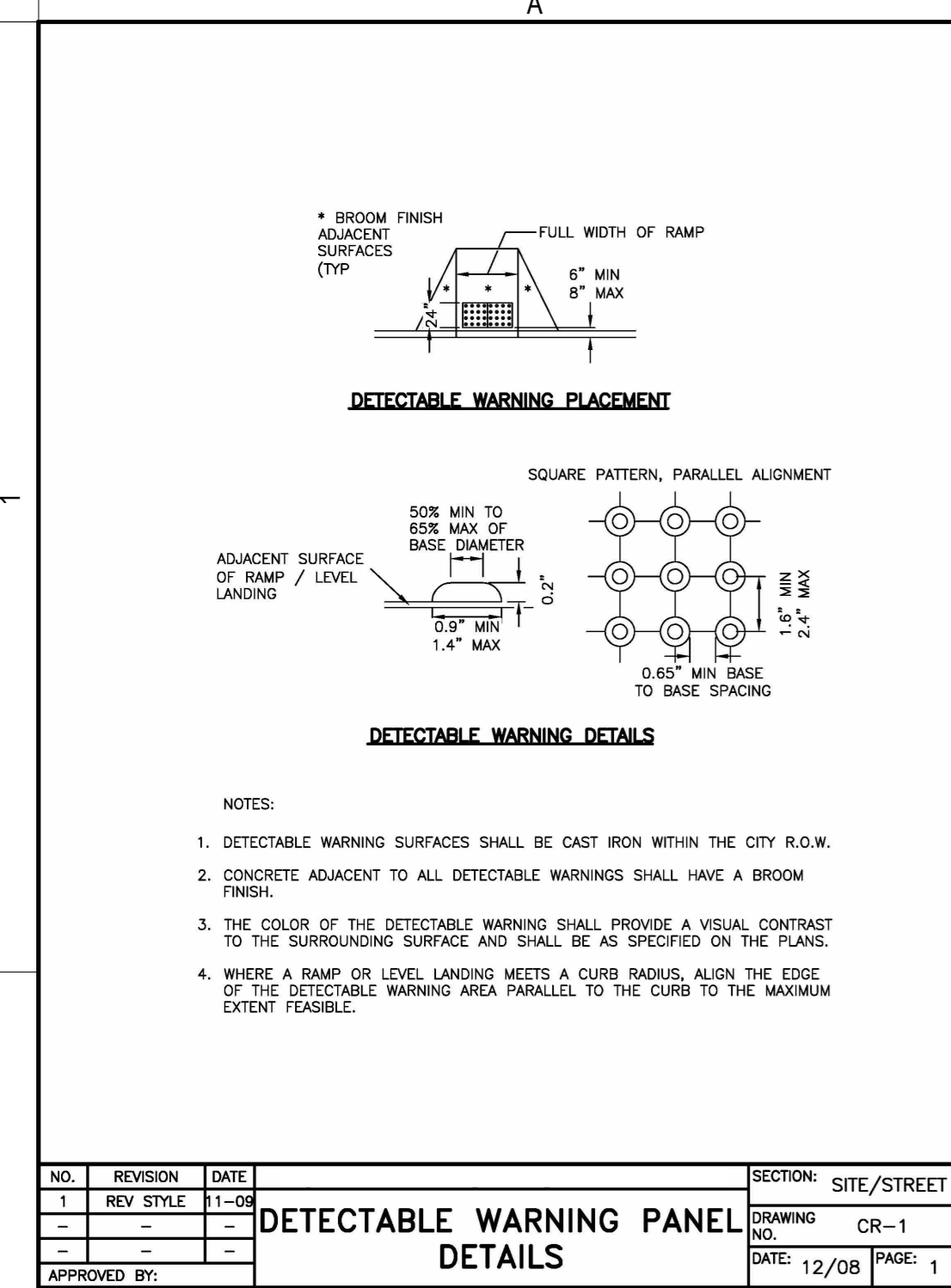
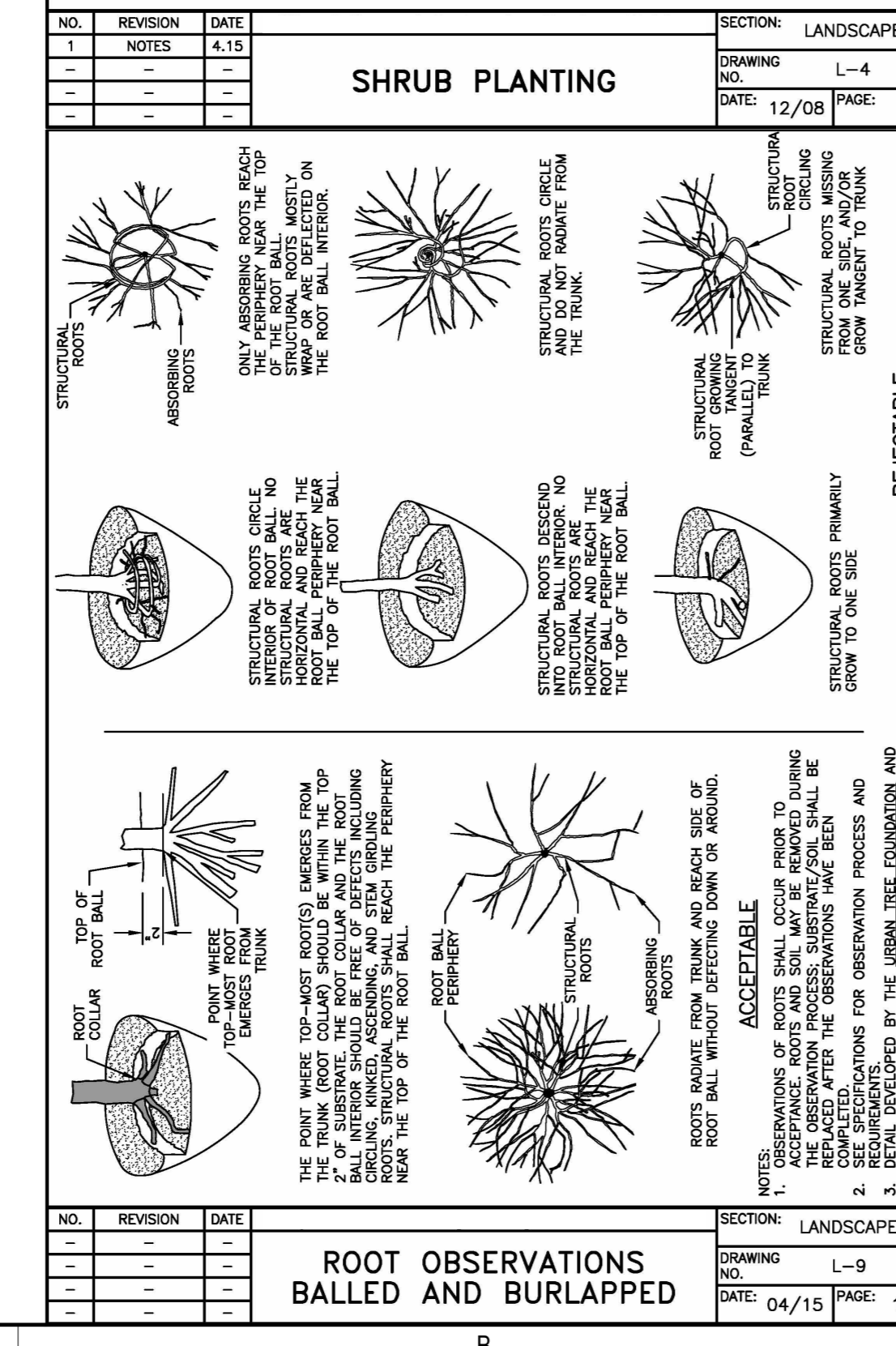
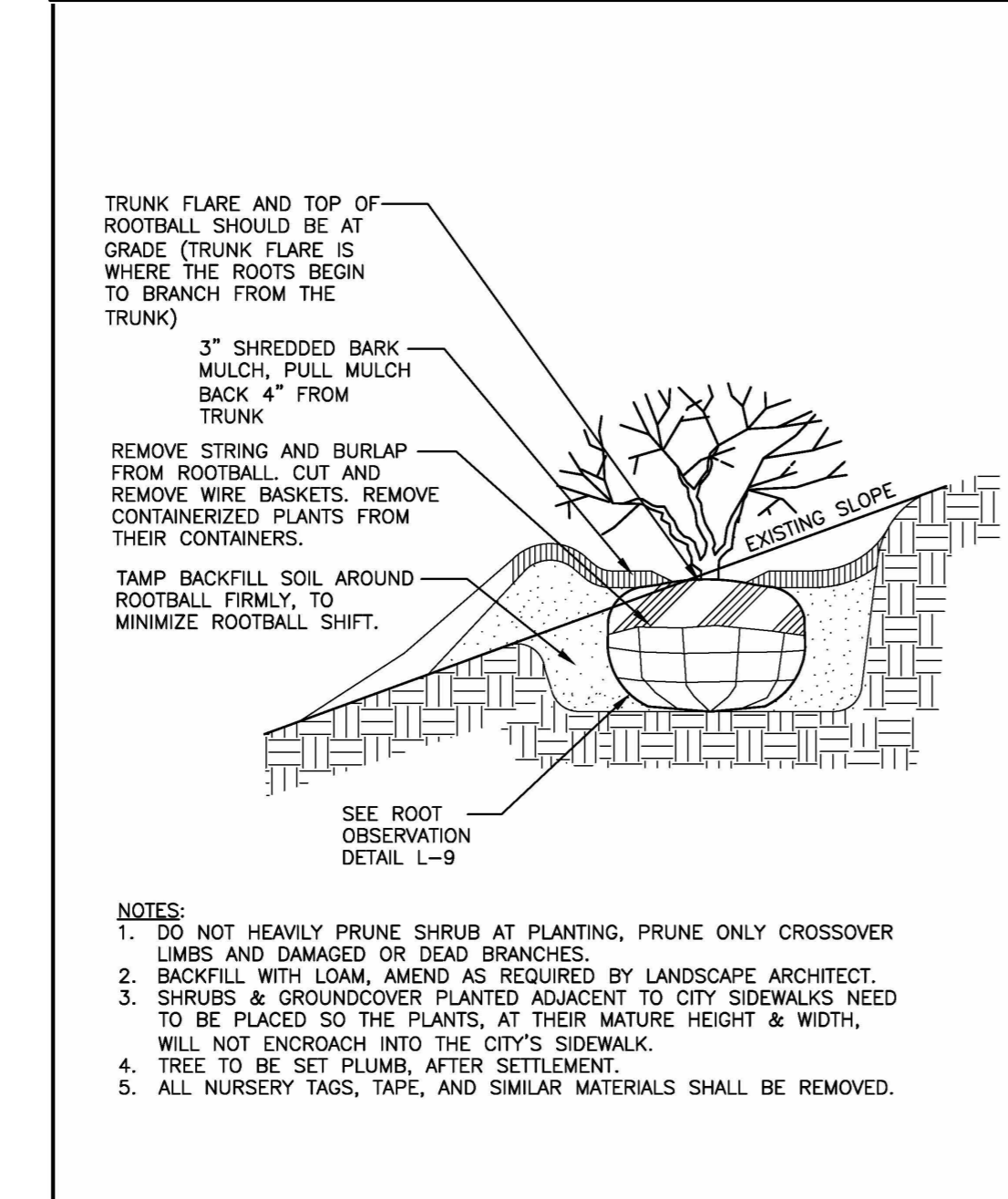
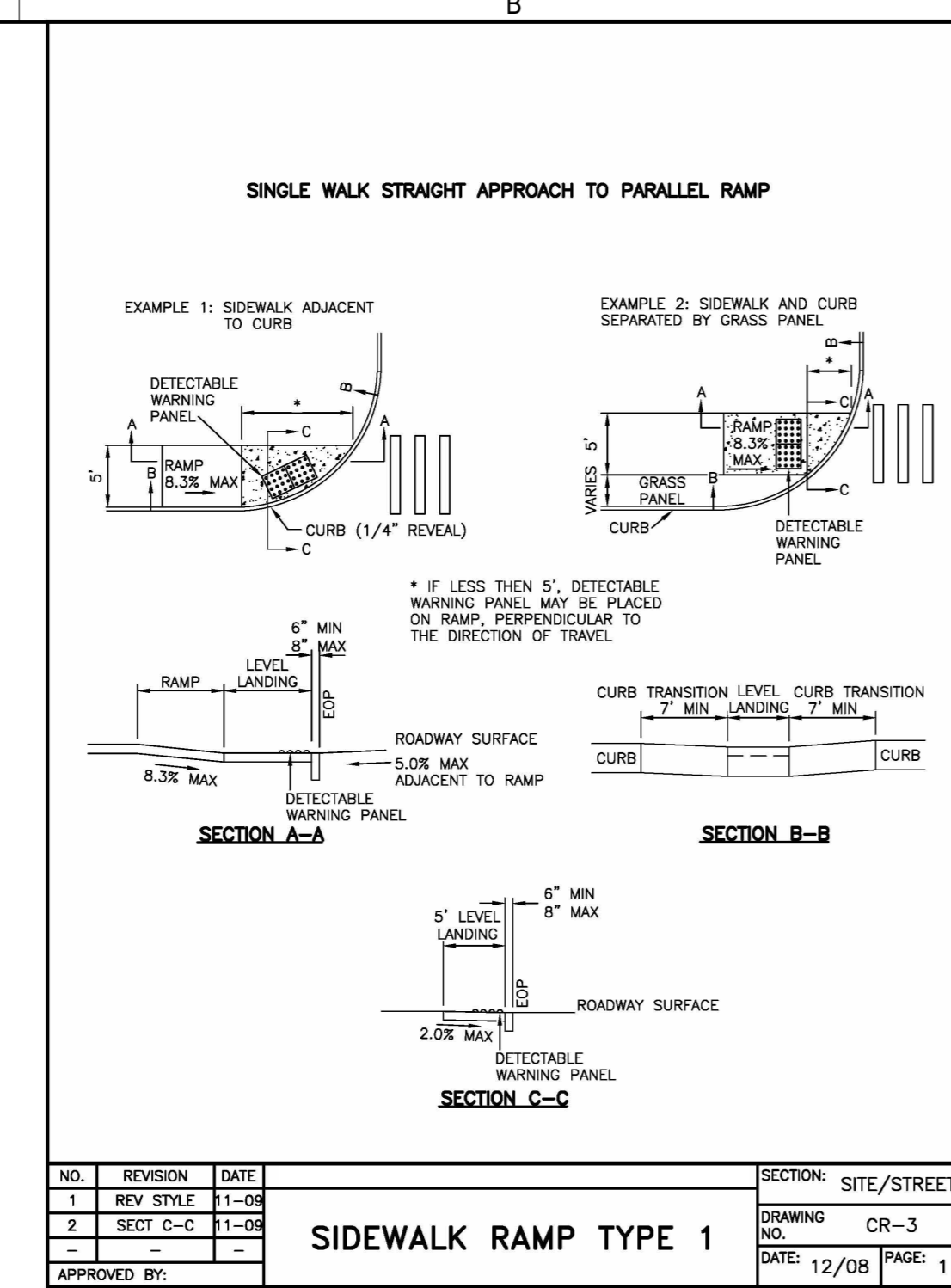
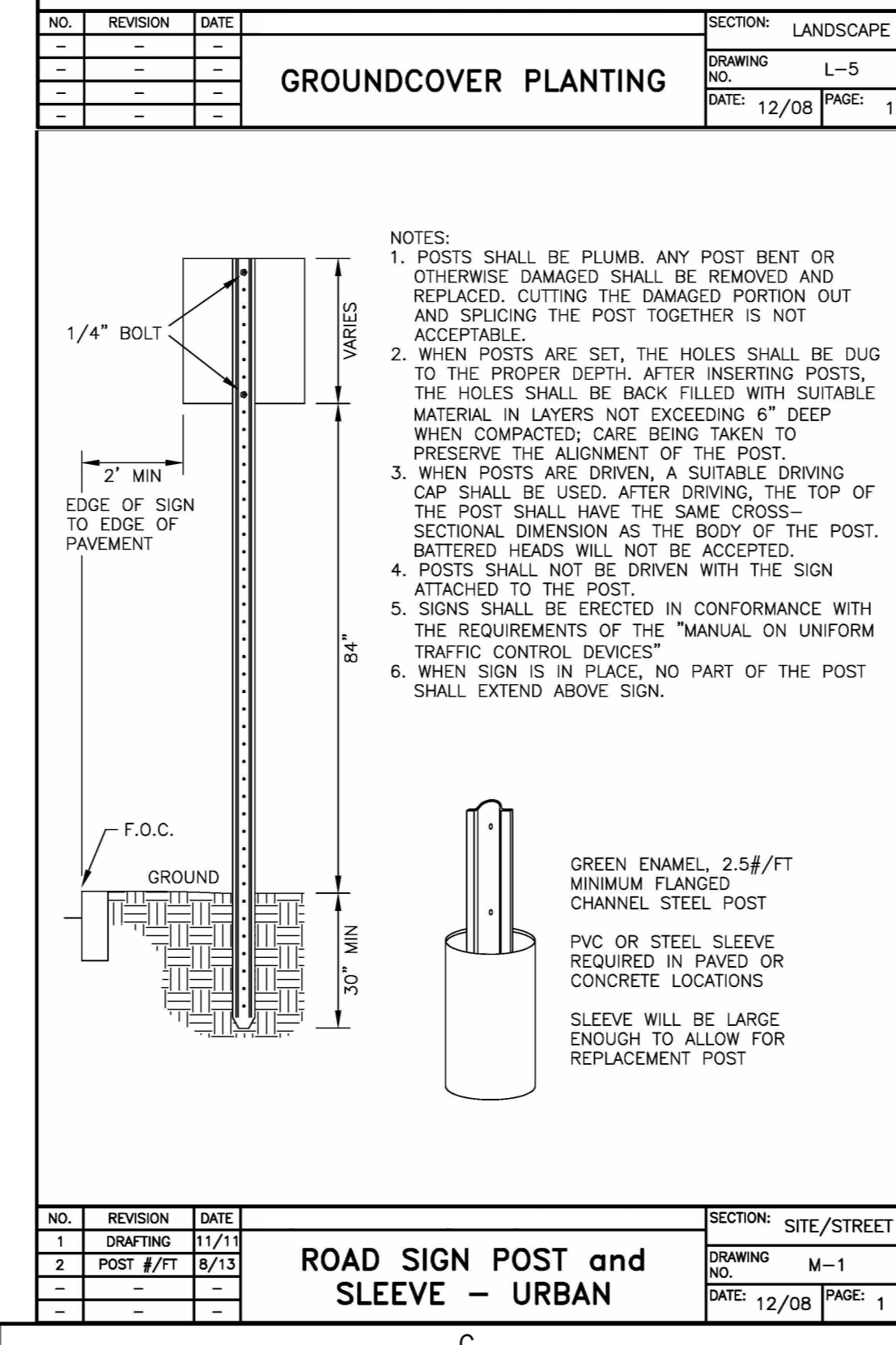
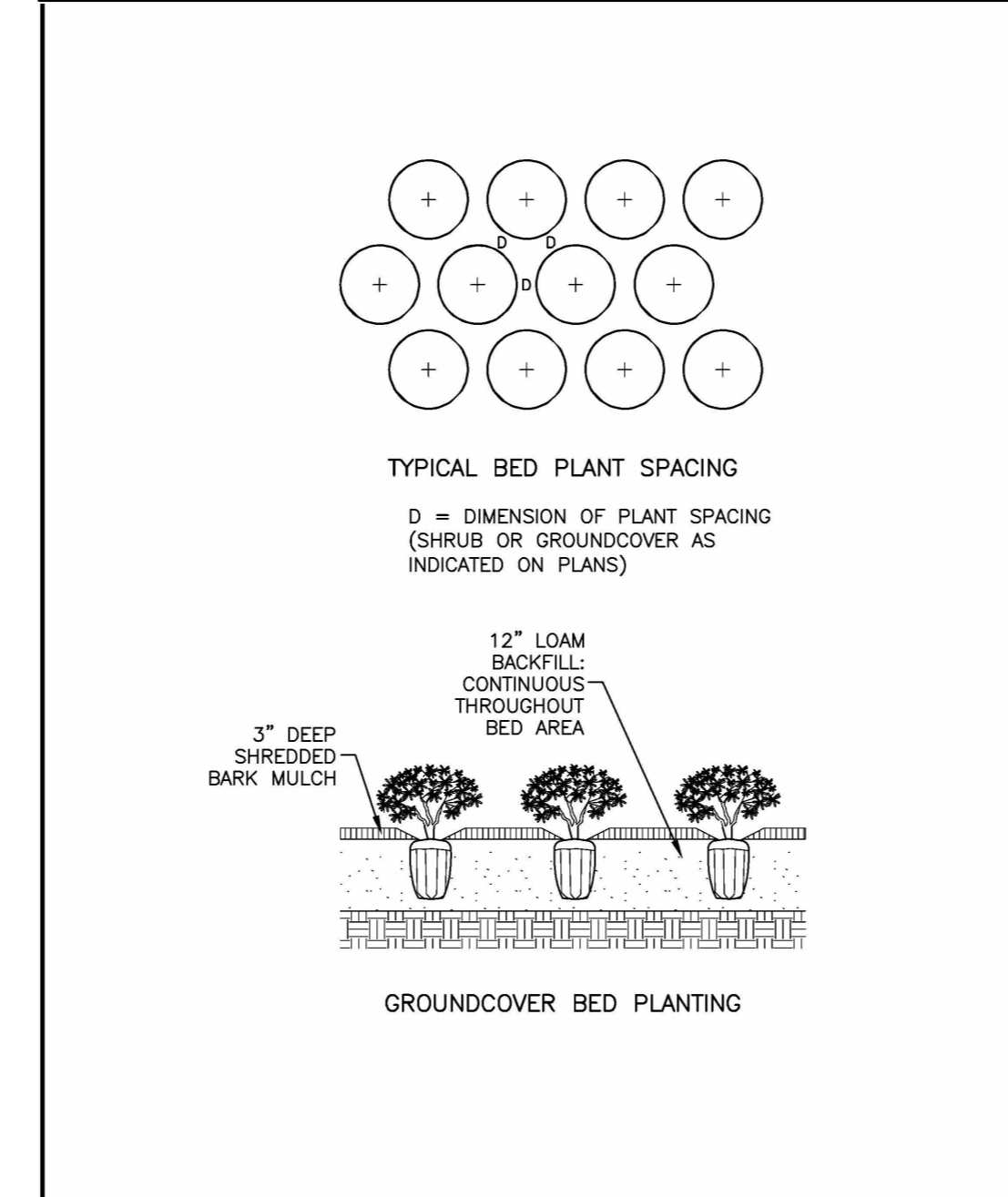
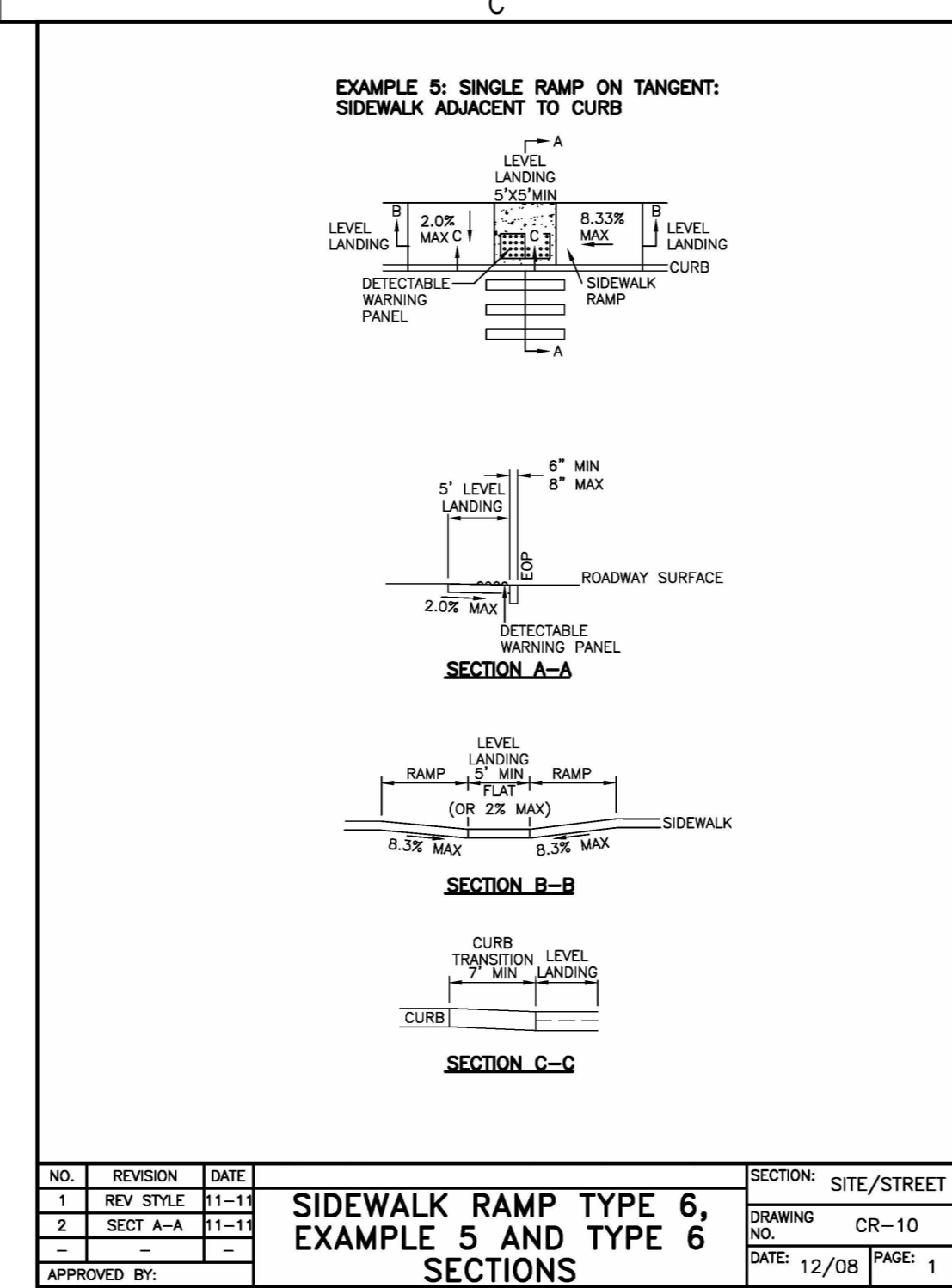
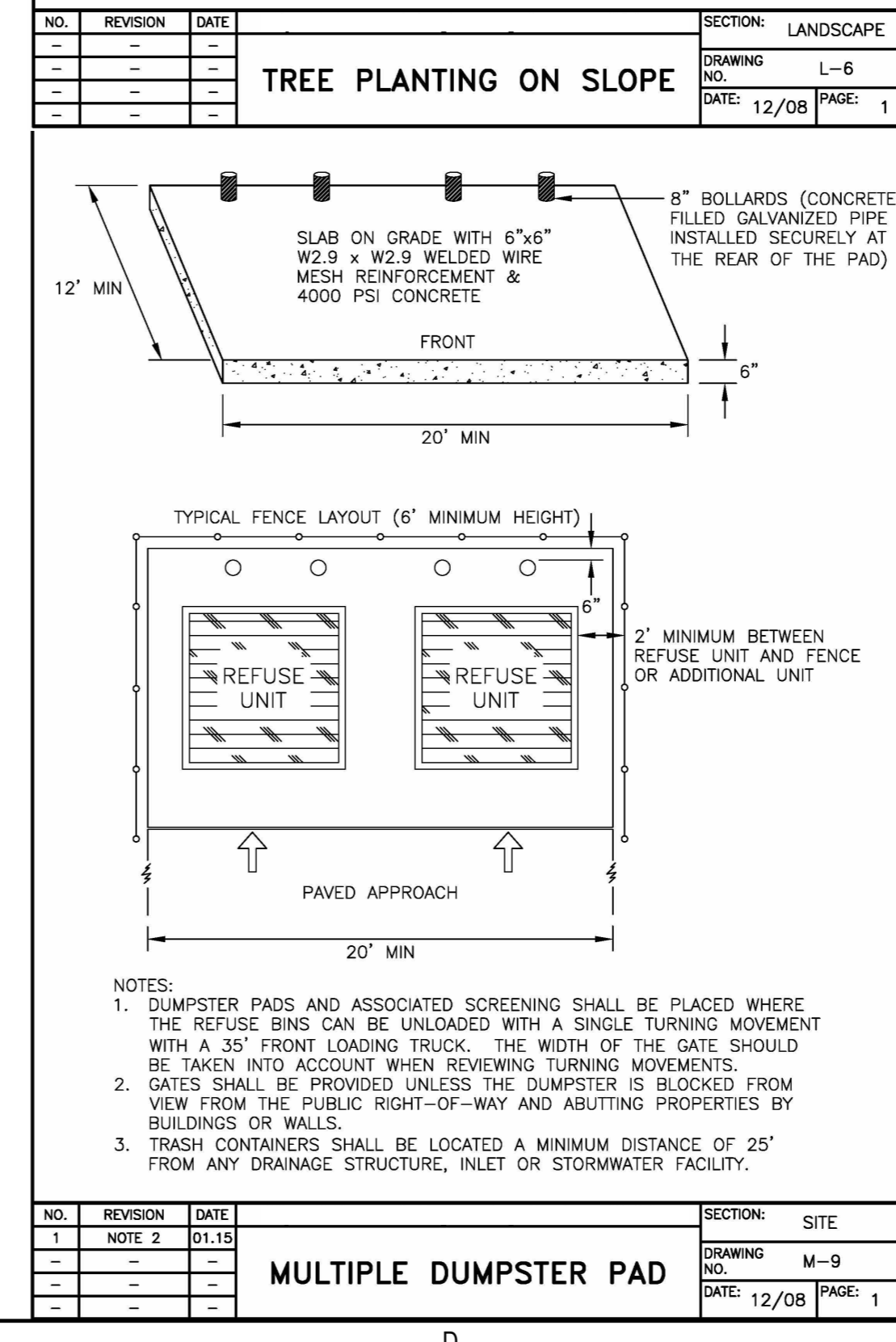
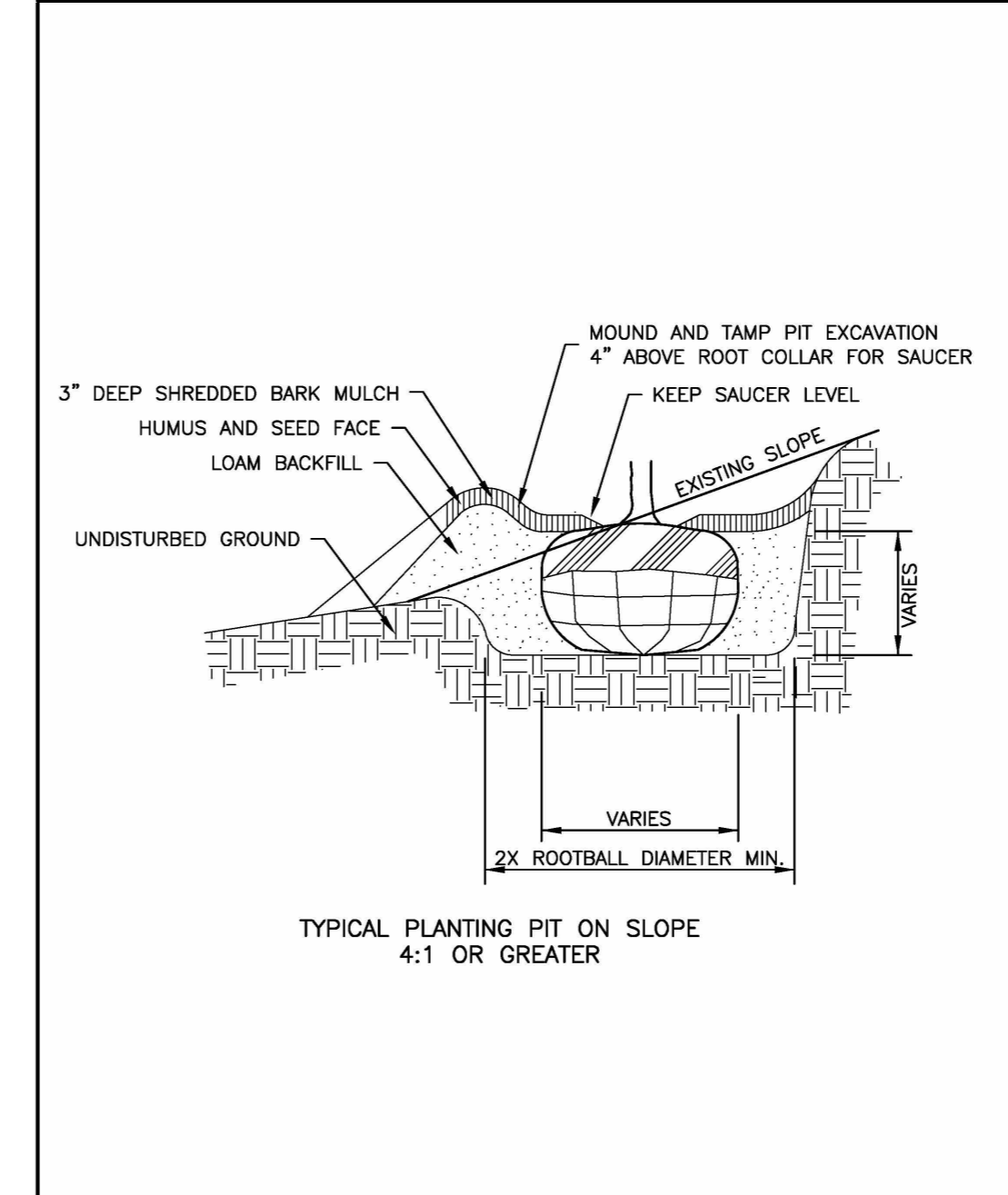
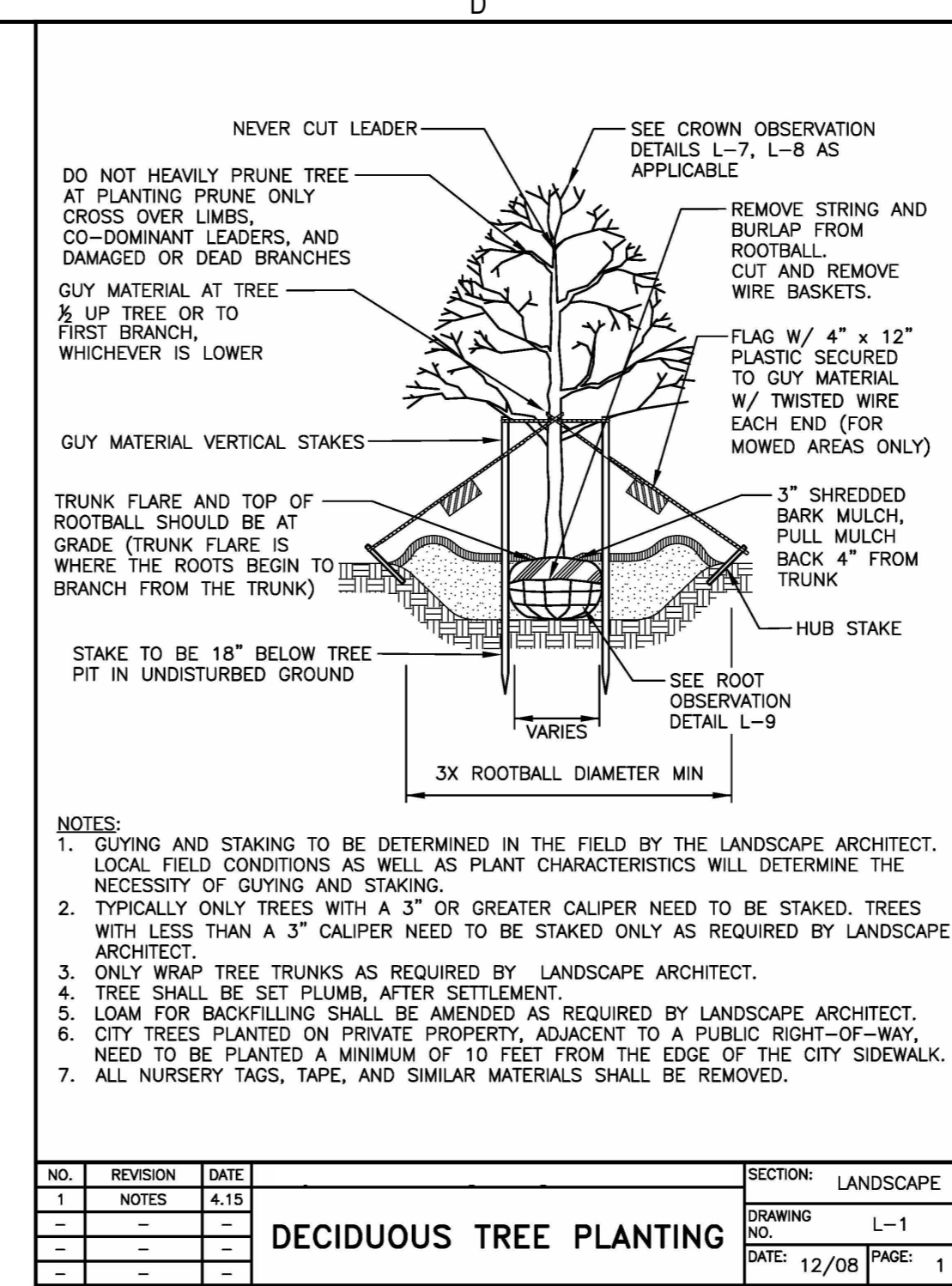
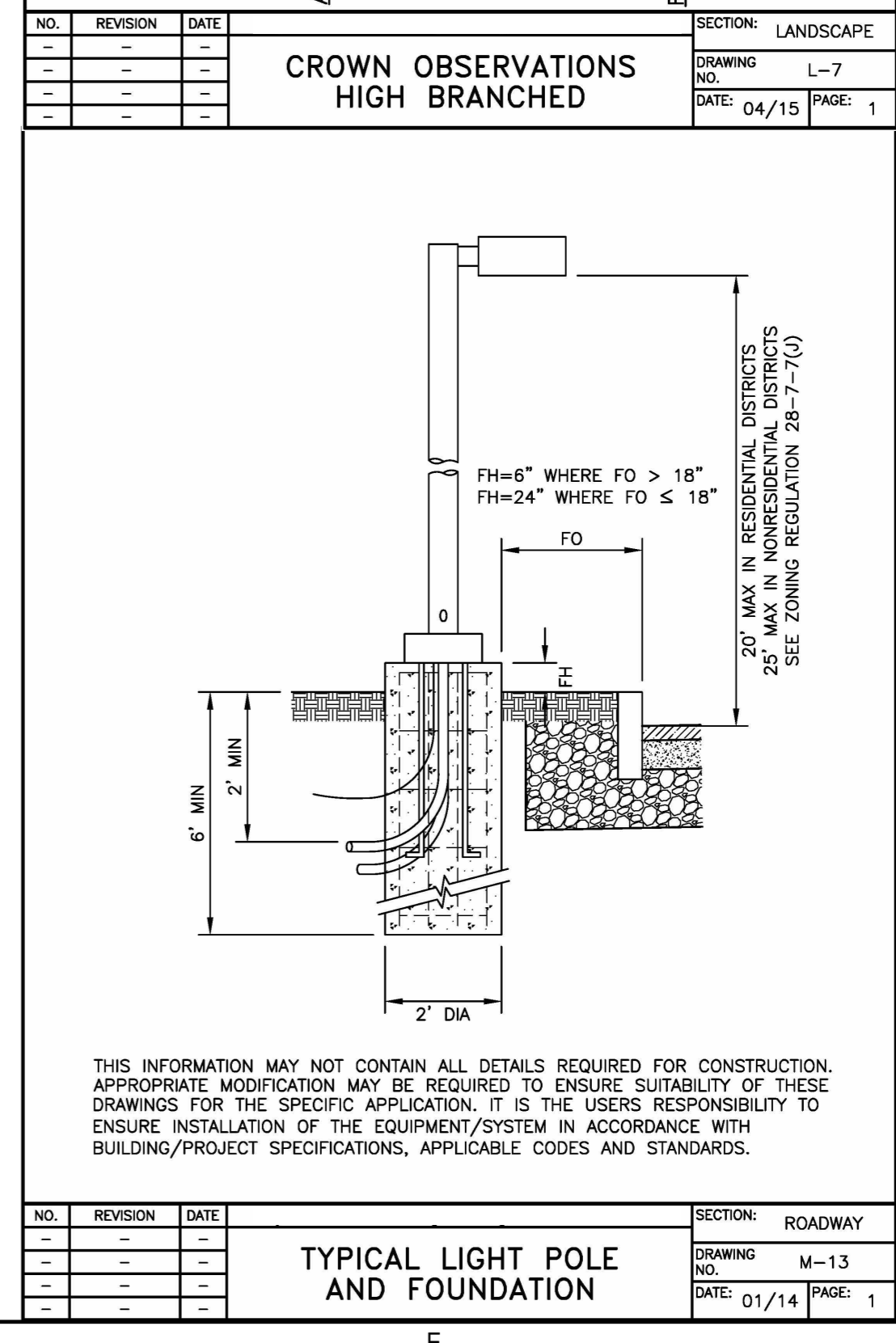
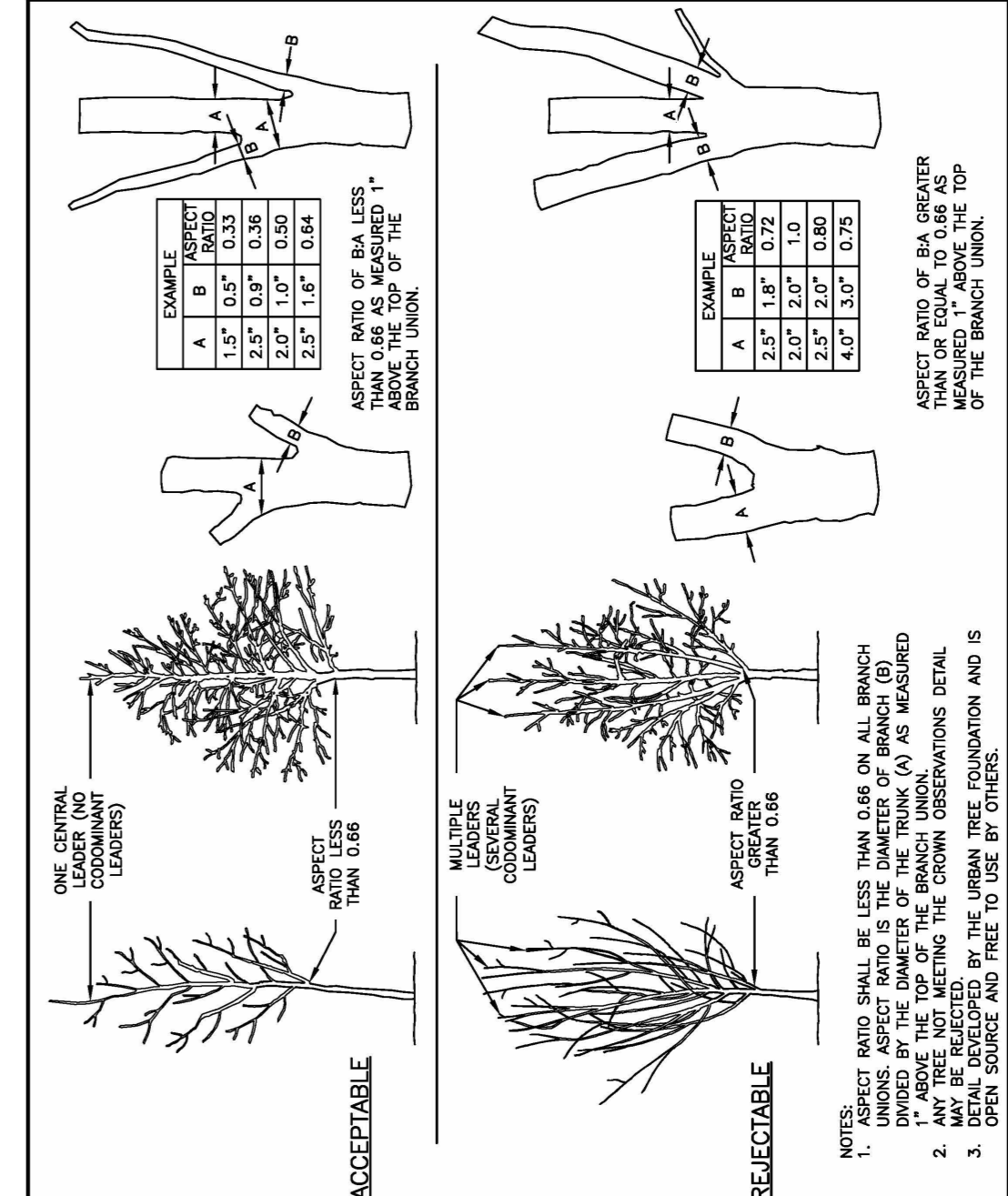
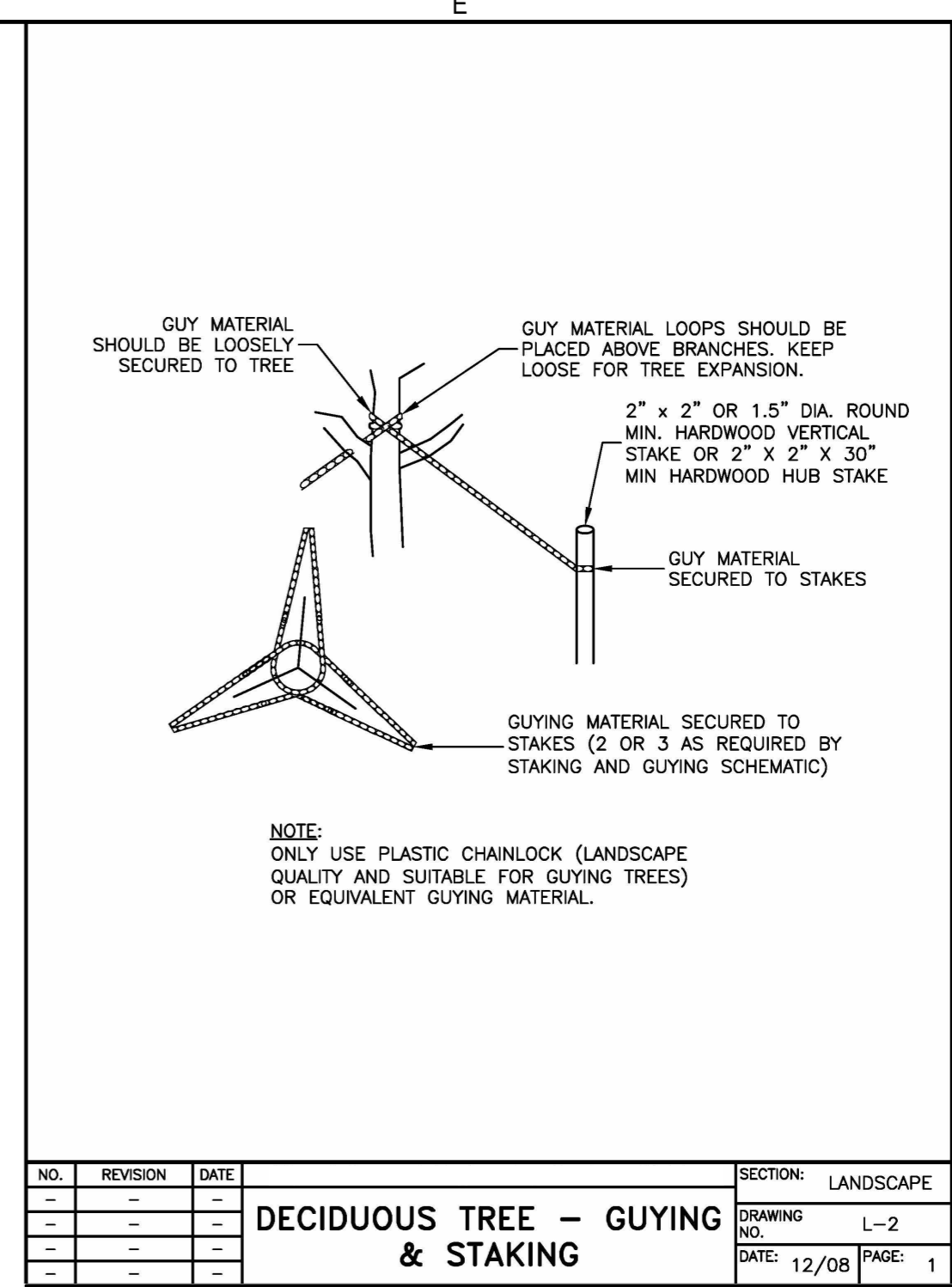
SHEET NUMBER: 2 OF 6 LANDSCAPE  
 THE DRAWING AND ITS CONTENT IS THE INTELLECTUAL PROPERTY OF WARRENSTREET ARCHITECTS INC. WITH THE SOLE INTENT TO BUILD THE PROJECT TITLED ABOVE AT ONE LOCATION NOTED HEREIN. THE USE OF THE CONTENT FOR ANY OTHER PURPOSE IS PROHIBITED AND PROTECTED UNDER COPYRIGHT LAW.  
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three inches = one foot  
 one and one half inches = one foot  
 one inch = one foot  
 one quarter inch = one foot  
 three quarter inch = one foot  
 one eighth inch = one foot  
 one eighth inch = one foot  
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one and one half inches = one foot  
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three quarter inch = one foot  
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# LANDSCAPE GENERAL SPECIFICATIONS

## SECTION 02955 - TREES, SHRUBS AND GROUND COVERS

### PART 1: GENERAL

#### 1.1 GENERAL REQUIREMENTS

- DRAWINGS AND GENERAL PROVISIONS OF CONTRACT, INCLUDING GENERAL CONDITIONS AND DIVISION I SPECIFICATION SECTIONS APPLY TO THIS SECTION.
- EXAMINE ALL OTHER SECTIONS OF THE SPECIFICATIONS FOR REQUIREMENTS WHICH AFFECT WORK OF THIS SECTION WHETHER OR NOT SUCH WORK IS SPECIFICALLY MENTIONED IN THIS SECTION. SEE DRAWINGS FOR LOCATIONS AND DETAILS.
- COORDINATE WORK WITH THAT OF ALL OTHER TRADES AFFECTING, OR AFFECTED BY WORK OF THIS SECTION. COOPERATE WITH SUCH TRADES TO ASSURE THE STEADY PROGRESS OF ALL WORK UNDER THE CONTRACT.

#### 1.2 SUMMARY

- THIS SECTION INCLUDES THE FOLLOWING:
  - FURNISHING ALL PLANTS, MATERIALS, SUPPLIES, LABOR, EQUIPMENT, AND PERFORMING ALL OPERATIONS IN CONNECTION WITH FURNISHING AND PLACEMENT OF TOPSOIL AND PLANTING MIXTURE, PLANTING OF ALL TREES, SHRUBS AND PERENNIAL GROUND COVERS, PRUNING/MULCHING/WATERING OF PLANTS, MAINTENANCE, GUARANTEE AND FINAL CLEAN-UP.
  - RELATED SECTIONS: THE FOLLOWING SECTIONS CONTAIN REQUIREMENTS THAT RELATE TO THIS SECTION: SECTION 02300 "EARTHWORK" AND SECTION 02930 "SEEDING AND SODDING" LOCAL GOVERNING AUTHORITY AND CODE REQUIREMENTS. ALL NECESSARY CONSTRUCTION PERMITS.

#### 1.3 SUBMITTALS

- SAMPLES BEFORE ANY BARK MULCH IS DELIVERED TO THE JOB SITE, SUBMIT A SAMPLE TO THE LANDSCAPE ARCHITECT FOR THEIR APPROVAL.
- MATERIAL LIST:
  - BEFORE ANY PLANTING MATERIALS ARE DELIVERED TO THE JOB SITE, SUBMIT TO THE LANDSCAPE ARCHITECT A COMPLETE LIST OF ALL PLANTS AND OTHER ITEMS PROPOSED TO BE INSTALLED.
  - INCLUDE COMPLETE DATA ON SOURCE, SIZE, AND QUALITY.
  - DEMONSTRATE COMPLETE CONFORMANCE WITH THE REQUIREMENTS OF THIS SECTION. THIS SHALL IN NO WAY BE CONSTRUED AS PERMITTING SUBSTITUTION FOR SPECIFIC ITEMS DESCRIBED IN THE PLANS OR THESE SPECIFICATIONS UNLESS THE SUBSTITUTION HAS BEEN APPROVED IN ADVANCE BY THE LANDSCAPE ARCHITECT.
- AS-BUILT DRAWINGS DURING THE COURSE OF THE INSTALLATION, CAREFULLY RECORD IN RED LINE ON A PRINT OF THE PLANTING PLANS ALL CHANGES MADE TO THE PLANTING LAYOUT DURING INSTALLATION.
- CERTIFICATES: ALL CERTIFICATES REQUIRED BY LAW SHALL ACCOMPANY SHIPMENTS. UPON COMPLETION OF THE INSTALLATION, DELIVER ALL CERTIFICATES TO THE LANDSCAPE ARCHITECT.

#### 1.4 QUALITY ASSURANCE

- INSTALLER QUALIFICATIONS: PROVIDE AT LEAST ONE PERSON WHO SHALL BE PRESENT AT ALL TIMES DURING EXECUTION OF THIS PORTION OF THE WORK AND WHO SHALL BE THOROUGHLY FAMILIAR WITH THE TYPE OF MATERIALS BEING INSTALLED AND THE BEST METHODS FOR THEIR INSTALLATION AND WHO SHALL DIRECT ALL WORK PERFORMED UNDER THIS SECTION.
- MATERIAL STANDARDS:
  - ALL PLANTS AND PLANTING MATERIAL SHALL MEET OR EXCEED THE SPECIFICATIONS OF FEDERAL, STATE, AND COUNTY LAWS REQUIRING INSPECTION FOR PLANT DISEASE AND INSECT CONTROL.
  - QUALITY AND SIZE SHALL COMPLY WITH RECOMMENDATIONS AND REQUIREMENTS OF CURRENT EDITION OF ANSI Z60.1 AMERICAN STANDARD FOR NURSERY STOCK. FOR NUMBER ONE GRADE NURSERY STOCK AS ADOPTED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
  - ALL PLANTS SHALL BE TRUE TO NAME AND ONE OF EACH BUNDLE OR LOT SHALL BE TAGGED WITH THE NAME AND SIZE OF THE PLANTS IN ACCORDANCE WITH THE STANDARDS OF PRACTICE OF THE AMERICAN ASSOCIATION OF NURSERYMEN. IN ALL CASES, BOTANICAL NAMES SHALL TAKE PRECEDENCE OVER COMMON NAMES.

#### 1.5 DELIVERY, STORAGE, HANDLING

- DELIVERY AND STORAGE:
  - DELIVER ALL ITEMS TO THE SITE IN THEIR ORIGINAL CONTAINERS WITH ALL LABELS INTACT AND LEGIBLE AT TIME OF LANDSCAPE ARCHITECT INSPECTION.
  - IMMEDIATELY REMOVE FROM THE SITE ALL PLANTS WHICH ARE NOT TRUE TO NAME AND ALL MATERIALS WHICH DO NOT COMPLY WITH THE PROVISIONS OF THIS SECTION OF THESE SPECIFICATIONS.
- ROOT PROTECTION:
  - HANDLE PLANTS AT ALL TIMES IN ACCORDANCE WITH THE BEST HORTICULTURAL PRACTICES SO THAT THE ROOTS OR BARKS ARE ADEQUATELY PROTECTED FROM THE SUN AND DRYING WINDS. NO PLANT SHALL BE BOUND WITH ROPE OR WIRE IN A MANNER THAT WOULD DAMAGE THE BALL, BREAK THE BRANCHES, OR DESTROY ITS NATURAL SHAPE.
  - HANDLING:
    - LIFT AND HANDLE PLANTS FORM THE BOTTOM OF THE BALL OR CONTAINER ONLY. PLANTS HANDLED OTHERWISE WILL BE SUBJECT TO REJECTION. PLANT NO BALLED AND BURLAPPED PLANT WHICH HAS THE BALL CRACKED OR BROKEN WILL BE ACCEPTED. NO BALLED AND BURLAPPED PLANTS USING PLASTIC/POLYESTER BURLAP WILL BE ACCEPTED. PLANT NO CONTAINERIZED OR TUBE-PAK PLANT WHOSE ROOT SYSTEM HAS SEPARATED FROM THE SOIL IN ITS CONTAINER.
    - PROTECTION DURING DELIVERY:
      - TRANSPORT PLANT MATERIAL IN CLOSED VEHICLES OR IN OPEN VEHICLES WITH THE ENTIRE LOAD PROPERLY COVERED FOR PROTECTION FROM DRYING WINDS.
      - PROTECTION AFTER DELIVERY:
        - PLANT TREES AND SHRUBS AS SOON AS POSSIBLE AFTER DELIVERY. PLANTS THAT CANNOT BE PLANTED IMMEDIATELY SHALL HAVE THEIR ROOTS KEPT MOIST AND ADEQUATELY PROTECTED UNTIL PLANTED.
        - COVER THE BALLS OF BALLED AND BURLAPPED, CONTAINERIZED, AND TUBE-PAK PLANTS WITH TOPSOIL OR AN APPROVED MULCH, AND KEEP CONSTANTLY MOIST UNTIL PLANTED.
        - STORE ALL PLANTS IN THE SHADE, OUT OF DIRECT SUNLIGHT AND DRYING WIND.
      - OWNERS REPRESENTATIVE WILL SELECT STORAGE OR HOLDING AREA AND UPON DELIVERY OF PLANTS, DESIGNATE WHERE CONTRACTOR CAN PROTECT AND MAINTAIN THESE PLANT MATERIALS UNTIL THEY ARE PLANTED.

#### 1.6 SCHEDULES

- PLANTING SEASON:
  - PLANTING OPERATIONS FOR DECIDUOUS MATERIALS SHALL TAKE PLACE DURING MARCH 15 TO JUNE 30 FOR SPRING PLANTING AND AUGUST 15TH TO OCTOBER 1 OR UNTIL GROUND FREEZES FOR ALL PLANTING. BARE ROOT DECIDUOUS MATERIALS SHALL BE LIMITED TO PLANTING BETWEEN MARCH 15 TO MAY 1.
  - PLANTING OPERATIONS FOR EVERGREEN MATERIALS SHALL BE DURING MARCH 1 THROUGH JUNE 30 FOR SPRING PLANTING AND AUGUST 1 THROUGH SEPTEMBER 15 FOR FALL PLANTING.
- INSPECTION OF PLANTS:
  - PLANTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL AT THE PLACE OF GROWTH AND UPON DELIVERY FOR CONFORMITY TO SPECIFIED QUALITY, SIZE, AND VARIETY. SUCH APPROVAL SHALL NOT IMPAIR THE RIGHT OF INSPECTION AND REJECTION UPON DELIVERY AT THE SITE OR WHILE WORK IS IN PROGRESS.
  - THE CONTRACTOR WILL INFORM THE LANDSCAPE ARCHITECT THREE BUSINESS DAYS (3) PRIOR TO THE PROPOSED ARRIVAL OF PLANT MATERIAL ON THE JOB SITE.
  - DURING THE TIME PLANT MATERIAL IS BEING INSPECTED, THE CONTRACTOR SHALL PROVIDE A COMPLETE STAKE LAYOUT AND HAVE MANPOWER AND EQUIPMENT AVAILABLE TO UNLOAD, OPEN AND HANDLE PLANT MATERIAL DURING INSPECTION.

### PART 2: MATERIALS

#### 2.1 PLANT MATERIALS

- GENERAL:
  - PLANT MATERIALS SHALL MEAN TREES AND PLANTS OF ALL DESCRIPTIONS REQUIRED TO BE FURNISHED FOR THE PROJECT, IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. ALL PLANT MATERIAL WILL BE TRUE TO NAME, WHICH SHALL CONFORM TO STANDARDIZED PLANT NAMES OF THE AMERICAN JOINT COMMITTEE ON HORTICULTURAL NOMENCLATURE, AND SHALL BE LEGIBLY TAGGED WITH THE NAME AND SIZE OF THE MATERIAL ACCORDING TO THE GENERAL NURSERY PRACTICE AS RECOMMENDED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
  - ALL PLANTS SHALL BE FIRST-CLASS REPRESENTATIVES OF THEIR NORMAL SPECIES OR VARIETIES. PLANTS SHALL BE SOUND, HEALTHY, AND VIGOROUS, WELL-BRANCHED AND DENSELY FOLIATED WHEN IN LEAF. UNLESS OTHERWISE SPECIFIED, PLANTS SHALL HAVE AVERAGE OR NORMALLY DEVELOPED BRANCH SYSTEMS AND VIGOROUS ROOT SYSTEMS. PLANTS SHALL BE FREE FROM SCALE, DISFIGURING KNOTS, SUN SCALD INJURIES, ABRASIONS OF THE BARK, OR OTHER OBJECTIONABLE BLEMISHES. WEAK PLANTS WILL NOT BE ACCEPTED. PLANTS MUST SHOW APPEARANCE OF NORMAL HEALTH AND VIGOR IN STRICT ACCORDANCE WITH THESE SPECIFICATIONS. ALL STOCK SHALL BE NURSERY GROWN.
  - PLANTS FURNISHED IN CONTAINERS SHALL HAVE THE ROOTS WELL ESTABLISHED IN THE SOIL MASS AND SHALL HAVE GROWN IN THE CONTAINER FOR AT LEAST ONE (1) GROWING SEASON. CONTAINERS SHALL BE OF A SIZE LARGE ENOUGH TO PROVIDE AN EARTH-ROOT MASS OF ADEQUATE DIAMETER AND DEPTH OF THE STEM DIAMETER AND PLANT HEIGHTS OR SPREAD, AS ESTABLISHED BY ACCEPTED NURSERY PRACTICE. PLANTS, OVER ESTABLISHED IN THE CONTAINER, AS EVIDENCED BY POT BOUND ROOT SYSTEMS, WILL NOT BE ACCEPTED. BARE ROOT MATERIAL WILL BE ACCEPTED ONLY FOR SPRING PLANTING. BARE ROOT STOCK SHALL BE HANDLED ACCORDING TO STANDARD HORTICULTURAL PRACTICE WITH SPECIAL ATTENTION BEING PAID TO PREVENTING PLANT ROOTS FROM DRYING AND PLANTS BEING APPROPRIATELY STORED.
  - PLANTS LARGER THAN THOSE SPECIFIED IN THE PLANT LIST MAY BE USED IF APPROVED BY THE LANDSCAPE ARCHITECT.
  - THE HEIGHT OF TREES, MEASURED FROM THE CROWN OF THE ROOTS TO THE TOP OF THE TOP BRANCH, AND CALIPER OF THE TRUNK SHALL BE TAKEN 6 INCHES ABOVE THE GROUND UP TO AND INCLUDING A 4 INCH CALIPER SIZE, AND 12 INCHES ABOVE THE GROUND FOR LARGER SIZES, AND SHALL NOT BE LESS THAN THE MINIMUM SPECIFIED ON THE PLANT LIST. EXCEPT WHEN A CLUMP IS DESIGNATED, THE TRUNK OF EACH TREE SHALL BE A SINGLE TRUNK GROWING FROM A SINGLE UNMUTATED CROWN OF ROOTS. NO PART OF THE TRUNK SHALL BE CONSPICUOUSLY CROOKED AS COMPARED TO NORMAL TREES OF THE SAME VARIETY. THE TRUNK SHALL BE FREE FROM SUN SCALD, FROST CRACKS OR WOUNDS RESULTING FROM ABRASIONS, FIRE, OR OTHER CAUSES. NO PRUNING WOUNDS SHALL BE PRESENT HAVING A DIAMETER OF MORE THAN TWO (2) INCHES AND SUCH WOUNDS MUST SHOW VIGOROUS BARK ON ALL EDGES. EVERGREEN TREES SHALL BE BRANCHED TO WITHIN ONE FOOT OF THE GROUND.
  - SHRUBS AND PERENNIALS SHALL COMPLY WITH THE SPECIFIED SPREAD, HEIGHT OR CONTAINER SIZE AS SPECIFIED ON THE PLANT LIST. THE MEASUREMENTS FOR HEIGHT ARE TO BE TAKEN FROM THE GROUND LEVEL TO THE AVERAGE HEIGHT OF THE TOP OF THE SHRUB AND NOT THE LONGEST BRANCH. THE THICKNESS OF EACH SHRUB SHALL CORRESPOND TO THE TRADE CLASSIFICATION "NO. 1" SINGLE STEMMED OR THIN PLANTS WILL NOT BE ACCEPTED. THE SIDE BRANCHES MUST BE GENEROUS, WELL TWIGGED, AND THE PLANT AS A WHOLE WELL-BRANCHED TO THE GROUND. THE PLANTS MUST BE IN A MOIST VIGOROUS CONDITION, FREE FROM DEAD WOOD, BRUISES OR OTHER ROOT OR BRANCH INJURIES.
  - ALL PLANT MATERIAL SHALL COMPLY WITH STATE AND FEDERAL LAWS WITH RESPECT TO INSPECTION FOR PLANT DISEASE AND INFECTION. ANY INSPECTION CERTIFICATES REQUIRED BY LAW SHALL ACCOMPANY EACH SHIPMENT, INVOICE, OR ORDER OF STOCK.
  - ALL PLANT MATERIAL IS SUBJECT TO LANDSCAPE ARCHITECT'S APPROVAL AND INSPECTION AT ANY PLACE, BEFORE DURING AND/OR AFTER PLANTING. ANY PLANT MATERIAL NOT APPROVED BY THE LANDSCAPE ARCHITECT SHALL BE IMMEDIATELY REMOVED FOR THE SITE.
  - NO PLANT MATERIAL SHALL BE ACCEPTED WITH LOOSE OR BROKEN BALLS, BROKEN CONTAINERS OR TUBE-PAKS

#### 2.3 MULCH

- BARK MULCH: ALL BARK MULCH SHALL BE SHREDDED PINE BARK AS LOCALLY OR REGIONALLY MANUFACTURED, OR AN EQUAL APPROVED IN ADVANCE BY THE LANDSCAPE ARCHITECT.

#### 2.4 PLANTING MIXTURE

- TOPSOIL: MOST TOPSOIL REQUIRED SHALL BE OBTAINED FROM ON-SITE STOCKPILED MATERIAL. SHOULD ADDITIONAL TOPSOIL BE NEEDED, IT SHALL BE IMPORTED MATERIAL FROM A LOCALLY APPROVED SOURCE. IT SHALL BE LOOSE, FRIABLE, AND SHALL CONTAIN ORDINARY AMOUNT OF HUMUS. IT SHALL CONTAIN NO LUMPS OF SOIL, ROCKS LARGER THAN 1 INCH, OR STICKS, OR ROOTS, AND OTHER DEBRIS. IT SHALL BE SUFFICIENTLY FERTILE TO SUSTAIN NORMAL, HEALTHY PLANT GROWTH AND SHALL NOT HAVE A PH VALUE HIGHER THAN 7.0 OR LOWER THAN 6.5. THE TOPSOIL SHALL BE DELIVERED IN AN UNFROZEN AND NON-MUDDY CONDITION AND MUST MEET THE APPROVAL OF THE LANDSCAPE ARCHITECT.
- PEAT: PEAT SHALL BE SPHAGNUM PEAT, SEDGE PEAT MOSS. FURNISH AIR-DRIED, FINELY SHREDDED, ORPH BETWEEN 5.5 AND 6.5, CONTAINING NO MORE THAN THIRTY-FIVE (35%) PERCENT MOISTURE BY WEIGHT.
- COMPOSTED BARK MULCH/COMPOSTED BARK MULCH SHALL BE 1/4" MINIMUM, FINE TEXTURED AND WELL COMPOSTED MULCH SUITABLE FOR USE AS A PLANTING MIX AMENDMENT. IT SHALL BE LOCALLY OR REGIONALLY MANUFACTURED, OR AN EQUAL APPROVED IN ADVANCE BY THE LANDSCAPE ARCHITECT.
- TREES/SHRUB PLANTING MIX: TOPSOIL USED AS FILL AROUND PLANTS SHALL BE MIXED WITH PEAT MOSS AT THE RATE OF THREE PARTS TOPSOIL TO ONE PART PEAT.
- PERENNIAL PLANTING MIX: PLANTING MIX: TOPSOIL USED AS FILL AROUND THESE PLANTS SHALL BE MIXED WITH PEAT MOSS AND COMPOSTED BARK MULCH AT THE RATE OF TWO PARTS TOPSOIL TO ONE PART PEAT TO ONE PART COMPOSTED BARK MULCH. THE ABOVE MIXTURE IS MIXED WITH MAG AMP (W. R. GRACE AND COMPANY, P.O. BOX 338, WEST CHICAGO, ILLINOIS) AT THE RATE OF 10 OUNCES PER CUBIC YARD OF PLANTING MIX.
- "ROOTS" - ROOT GROWTH ENHANCER: THIS PRODUCT SHALL BE A NATURAL, ORGANIC BIOSTIMULANT THAT PROMOTES ROOT GROWTH AND STRESS TOLERANCE IN PLANTS. APPLY TO ALL TREES, SHRUBS, AND PERENNIALS PER MANUFACTURER'S RECOMMENDATIONS.
- SUPERSORB C - WATER ABSORBENT GRANULES: THIS PRODUCT SHALL BE A COPOLYMER WATER ABSORBENT IN GRANULAR FORM TO BE INCORPORATED IN THE SPECIFIED PLANTING MIXES FOR BOTH TREES/SHRUBS AND PERENNIALS. ITS PURPOSE IS TO IMPROVE THE TOPSOIL'S WATER HOLDING CAPACITY.
- AGRIFORM FERTILIZER TABLETS: TREES AND SHRUBS SHALL BE FERTILIZED WITH TWO (2) FERTILIZER TABLETS PER PLANTING HOLE. TABLETS SHALL BE 21 GRAM SIZE, OF 20-10-15 ANALYSIS AS MANUFACTURED BY AGRIFORM.

### 2.5 MISCELLANEOUS MATERIALS

- WOOD STAKES: STAKES FOR TREE SUPPORT SHALL BE 2" X 2" X 80" WOOD STAKES.
- GUY WIRE: STAKES FOR GUYING SHALL BE NUMBER 12 GAUGE GALVANIZED SOFT STEEL WIRE.
- HOSE: HOSE FOR COVERING WIRE SHALL BE NEW OR USED TWO PLY RUBBER HOSE NOT LESS THAN 1/2 INCH INSIDE DIAMETER. (PLASTIC CINCH-TIES OR EQUIVALENT FASTENING DEVICE MAY BE AN ACCEPTABLE GUY WIRE AND HOSE PROTECTOR SUBSTITUTE)
- TREE PAINT: TREE PAINT SHALL BE WATERPROOF, ASPHALT BASE PAINT WITH ANTISEPTIC PROPERTIES, MANUFACTURED FOR USE ON TREE WOUNDS, R.I.W. TREE SURGEY PAINT BY TOCH BROS., NEW YORK; SHERWIN WILLIAMS PRUNING COMPOUND OR APPROVED EQUAL.
- EMULSION ANTIDECAYANT SHALL BE AN EMULSION PERMEABLE ENOUGH TO PERMIT TRANSPARATION, AND WILL BE USED TO RETARD EXCESS WATER LOSS. MIX IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- TREE WRAP: TREE WRAPPING PAPER SHALL BE WATERPROOFED CREPE TREE WRAPPING PAPER, AT LEAST 2-1/2 INCHES IN WIDTH, MADE UP OF TWO LAYERS OF CREPE KRAFT PAPER, WEIGHING NOT LESS THAN 30 POUNDS PER REAM, CEMENTED TOGETHER WITH ASPHALT.
- TWINE: WRAPPING TWINE USED IN TREE WRAPPING SHALL BE COMPOSED OF A MINIMUM OF TWO PLY JUTE MATERIAL. SYNTHETIC MATERIALS SUCH AS NYLON OR PLASTIC WILL NOT BE PERMITTED.

### PART 3: EXECUTION

#### 3.1 SURFACE CONDITIONS

- INSPECTION: PRIOR TO ALL WORK OF THIS SECTION, CAREFULLY INSPECT THE INSTALLED WORK OF ALL OTHER TRADES AND VERIFY THAT ALL SUCH WORK IS COMPLETE TO THE POINT WHERE THIS INSTALLATION WILL PROPERLY COMMENCE. DETERMINE LOCATION OF UNDERGROUND UTILITIES AND PERFORM WORK IN A MANNER WHICH WILL AVOID POSSIBLE DAMAGE TO ANY INSTALLED UTILITIES.
- LOCATION:
  - VERIFY THAT PLANTING MAY BE COMPLETED IN ACCORDANCE WITH THE ORIGINAL DESIGN AND THE REFERENCED STANDARDS. STAKE OUT LOCATIONS OF ALL PLANTS AND SECURE THE LANDSCAPE ARCHITECT APPROVAL BEFORE EXCAVATING PLANT PITS.
  - WHEN CONDITIONS DETRIMENTAL TO PLANT GROWTH ARE ENCOUNTERED, SUCH AS RUBBLE FILL, LEDGE, ADVERSE DRAINAGE CONDITIONS, OR OBSTRUCTIONS, NOTIFY THE LANDSCAPE ARCHITECT BEFORE PLANTING.
- DISCREPANCIES:
  - IN THE EVENT OF DISCREPANCY, IMMEDIATELY NOTIFY THE LANDSCAPE ARCHITECT.
  - DO NOT PROCEED WITH INSTALLATION IN AREAS OF DISCREPANCY UNTIL ALL SUCH DISCREPANCIES HAVE BEEN FULLY RESOLVED.

#### 3.2 TREE PROTECTION AND REMOVAL

- REMOVAL OF TREES:
  - TREE REMOVAL UNDER THIS CONTRACT SHALL BE ACCOMPLISHED AS REQUIRED TO ACCOMMODATE THE SCOPE OF WORK AS SPECIFIED IN THE SITE PLANS AS PREPARED BY THE ARCHITECT. THE CONTRACTOR SHALL BE AN EMLSON AS DIRECTED IN SECTION 02212 "SITE GRADING". ALL TREES AND STUMPS SHALL BE REMOVED FROM THE AREA TO BE OCCUPIED BY THE NEW PAVED AREAS, ROADS, SURFACED AREAS AND PLANTED AREAS. REMOVAL OF TREES OUTSIDE THESE AREAS SHALL ONLY BE THOSE AS NOTED, MARKED AND APPROVED BY THE LANDSCAPE ARCHITECT.
  - NO OTHER TREES MAY BE CUT EXCEPT BY PERMISSION OF THE LANDSCAPE ARCHITECT. ALL STUMPS SHALL BE REMOVED.
- PROTECTION OF TREES:
  - GENERAL: THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF TOPS, TRUNKS, AND ROOTS OF EXISTING TREES ON THE SITE THAT ARE TO REMAIN. EXISTING TREES SUBJECT TO CONSTRUCTION DAMAGE SHALL BE BOUND, FENCED OR OTHERWISE PROTECTED BEFORE ANY WORK IS STARTED, BEFORE BOXING WHEN DIRECTED. DO NOT PERMIT HEAVY EQUIPMENT OR STOCKPILES WITHIN BRANCH SPREAD. REMOVE INTERFERING BRANCHES WITHOUT INJURY TO TRUNKS AND COVER SCARS WITH TREE PAINT.
  - GRADING AROUND TREES: WHERE EXCAVATION, FILL OR GRADING IS REQUIRED WITHIN THE BRANCH SPREAD OF TREES THAT ARE TO REMAIN, THE WORK SHALL BE PERFORMED AS FOLLOWS:
    - WHEN TREE TRUNING OCCURS AROUND TREES TO REMAIN, THE TREE ROOTS SHALL NOT BE CUT BUT THE TRENCH SHALL BE UNDEMINED UNDER AND AROUND THE ROOTS BY CAREFUL HAND DIGGING AND WITHOUT INJURY TO THE ROOTS.
    - RAISING GRADES: WHEN THE EXISTING GRADE AT TREE IS BELOW THE NEW FINISHED GRADE, AND FILL NOT EXCEEDING 12 INCHES IS REQUIRED, CLEAN WASHED GRAVEL GRADED FROM 1 INCH TO 2 INCH SIZE SHALL BE PLACED DIRECTLY AROUND THE TREE TRUNK. THE GRAVEL SHALL EXTEND OUT FROM THE TRUNK ON ALL SIDES A MINIMUM OF 18 INCHES AND FINISH APPROXIMATELY 2 INCHES ABOVE THE FINISHED GRADE AT TREE. INSTALL GRAVEL BEFORE ANY EARTH FILL IS PLACED. NEW EARTH FILL SHALL NOT BE LEFT IN CONTACT WITH THE TRUNKS OF ANY TREES REQUIRING FILL.
    - TREES MARKED FOR PRESERVATION THAT ARE BURNED IN FILLS OVER 12" DEEP SHALL HAVE AN OPEN DRY WELLS OF DURABLE MASONRY WITHOUT MORTAR SITUATED AT LEAST 24" FROM THE TREE TRUNK. ALL WELLS ARE TO BE PROPERLY DRAINED. BEFORE FILLS OF OVER 12" ARE MADE UPON THE TREE ROOT AREAS, IT IS ADVISABLE TO SPREAD AT LEAST A 6" LAYER OF BROKEN STONE OR COARSE GRAVEL COVERED BY INVERTED SODS TO FACILITATE PROPER DRAINAGE AND AERATION.
    - LOWERING GRADES: EXISTING TREES IN AREAS WHERE THE NEW FINISHED GRADE IS TO BE LOWERED, SHALL HAVE REGRADING WORK DONE BY HAND TO ELEVATION AS INDICATED. ROOTS AS REQUIRED SHALL BE CUT CLEANLY 3 INCHES BELOW FINISHED GRADE AND SCARS ARE COVERED WITH TREE PAINT. TREES MARKED FOR PRESERVATION THAT ARE LOCATED MORE THAN 6' ABOVE PROPOSED GRADES SHALL STAKE AND BOUND AROUND ROUNDED MOUNDS AND BE GRADED SMOOTHLY INTO THE LOWER LEVEL. EXPOSED OR BROKEN ROOTS SHALL BE CUT CLEAN AND COVERED WITH TOPSOIL.

#### 3.3 PLANTING TREES, SHRUBS AND GROUND COVERS

- GENERAL:
  - PLANT NURSERY STOCK IMMEDIATELY UPON DELIVERY TO THE SITE AND APPROVAL BY THE LANDSCAPE ARCHITECT EXCEPT THAT, IF THIS IS NOT FEASIBLE, HEAL-IN ALL BALLED MATERIAL WITH DAMP SOIL AND PROTECT FROM SUN AND WIND.
  - REGULARLY WATER ALL NURSERY STOCK IN CONTAINERS AND TUBE-PAKS AND PLACE THEM IN A COOL AREA PROTECTED FROM SUN AND DRYING WINDS.
  - EXCAVATION OF PLANT HOLES:
    - TREE PITS SHALL HAVE SUBSTANTIALLY VERTICAL SIDES AND HORIZONTAL BOTTOMS. DEPTH OF PIT BE FINISH GRADE SHALL BE AT LEAST 9 INCHES (FOR TREES) AND 6 INCHES (FOR SHRUBS) GREATER THAN THE DEPTH OF THE BALL. IN NO CASE SHALL DEPTH OF TREE PITS BE LESS THAN 24 INCHES BELOW FINISHED GRADE. DIAMETER OF PITS FOR ALL TREES SHALL BE AT LEAST 9 INCHES GREATER THAN THE MAXIMUM DIAMETER OF THE TREE BALL OR ROOT SYSTEM AND FOR SHRUBS 6 INCHES.
    - PLANTING POCKETS FOR TUBE-PAK: ONE GALLON CONTAINER SHRUBS, CONTAINERIZED PERENNIAL PLANTS & 4" CALIPER TREES INTENDED FOR "NATURALIZING" FILL AND DISTURBED SLOPES, SHALL BE EXCAVATED SIMILAR AS DESCRIBED ABOVE, BUT TO A DEPTH OF 6" BELOW THE BOTTOM OF THE TUBE-PAK OR CONTAINER AND A MINIMUM OF 12" IN DIAMETER.
  - PLANTING OPERATION:
    - TREES AND SHRUBS SHALL BE SUPPLIED IN SIZES SHOWN ON THE PLANTING PLANS WITH ALL PLANTS BALLED AND BURLAPPED, CONTAINERIZED, OR IN TUBE-PAKS. DURABLE PLASTIC MULCH IS PERMITTED FOR NURSERY STOCK BUT NOT BE EXPOSED TO THE SUN, DRYING WINDS, OR WIND BURN.
    - THE SOIL IN THE BOTTOM OF THE HOLE, WHICH HAS BEEN EXCAVATED TO THE PRESCRIBED REQUIREMENTS, SHALL BE LOOSENEED TO A DEPTH OF 3 INCHES AND MIXED WITH AN EQUAL AMOUNT OF TOPSOIL. A COMPACTED MOUND OF SOIL SHALL BE FORMED IN THE CENTER OF THE HOLE TO SUPPORT THE ROOTS OF THE PLANT. THE PLANT SHALL BE PLACED ON THIS MOUND OF SOIL AND HELD IN A VERTICAL POSITION. THE PLANT SHALL BE SO SET, BY ADJUSTING THE ELEVATION OF THE MOUND, THAT AFTER SETTLEMENT THE PLANT WILL STAND AT APPROXIMATELY THE SAME DEPTH IT STOOD IN THE NURSERY OR FIELD.
    - THE PLANT HOLE SHALL BE BACKFILLED WITH TOPSOIL, PEAT AND MAG AMP MIXTURE PLACED IN LAYERS AROUND THE ROOTS. EACH LAYER SHALL BE CAREFULLY TAMPED TO FILL ALL VOIDS AND PLACED IN MANNER TO AVOID INJURY TO THE TREE OR DISTURBING THE POSITION OF THE PLANT.
    - ALL BURLAP, ROPES OR WIRES SHALL BE COMPLETELY REMOVED FROM THE ROOT BALLS. TREES WITH WIRE BASKETS SHALL HAVE THE WIRE BASKET COMPLETELY REMOVED IF PRACTICAL. REMOVAL OF BASKET WIRE SHALL BE DONE WITH BOLT CUTTER OR SIMILAR DEVICE AND NOT BEFORE THE BOTTOM HALF OF PLANT HOLE HAS BEEN BACKFILLED AND TAMPED SO AS TO PREVENT THE BALL FROM BREAKING APART OR LOOSENING DURING THIS OPERATION. UNTIE AND REMOVE ALL ROPES AROUND TRUNK.
    - WHEN APPROXIMATELY TWO-THIRDS OF THE PLANT HOLE HAS BEEN BACKFILLED, THE HOLE SHALL BE FILLED WITH WATER AND THE SOIL ALLOWED TO SETTLE AROUND THE ROOTS. AFTER THE WATER HAS BEEN ABSORBED, THE PLANT HOLE SHALL BE FILLED WITH TOPSOIL AND TAMPED LIGHTLY TO GRADE. ANY SETTLEMENT SHALL BE BROUGHT TO GRADE WITH TOPSOIL.
    - ALL PLANTS SHALL BE SET PLUMB AND STRAIGHT, AND AT SUCH A LEVEL THAT, AFTER SETTLEMENT, A NORMAL OR NATURAL RELATIONSHIP OF THE TRUNK CROWN OF THE PLANT WITH THE GROUND SURFACE WILL BE ESTABLISHED. PLANTS SHALL BE LOCATED IN THE CENTER OF THE PIT. THE SURFACE ABOUT THE PLANT SHALL BE SMOOTH AND FORMED TO A CURV-SHAPED DEPRESSION ABOUT THE STEM OR TRUNK SO AS TO HOLD WATER. ONCE THIS CURV-SHAPED DEPRESSION HAS BEEN FORMED, THEN APPLY THE "ROOTY" GRADE ENHANCER RECOMMENDATIONS TO ALL TREES, SHRUBS AND PERENNIALS PRIOR TO MULCHING. UPON COMPLETION OF THE PLANTING, ALL SURPLUS SUBSOIL AND WASTE MATERIALS SHALL BE REMOVED.
    - FOR PLANTS ON LEVEL GROUND OR SLIGHT SLOPES, THE CONTRACTOR SHALL FORM AND LEAVE A SHALLOW BASIN A LITTLE LARGER THAN THE DIAMETER OF THE PLANT AROUND EACH PLANT. AFTER PLANTING, CULTIVATE THE SOIL IN THE SHRUB BED BETWEEN TREES/SHRUB PITS, RAKE SMOOTH AND OUTLINE AS PER PLANS.
    - IN CASE OF PLANTING IN THE OPEN ON HOT DAYS, SHORTEN THE TIME BETWEEN PLANTING AND SURFACE.

#### 3.4 SEED BED PREPARATION

- SOIL BED PREPARATION: SEED BED PREPARATION SHALL PERTAIN TO THE PREPARATION OF THE SURFACE OF THE GROUND TO RECEIVE THE SEED. THE GROUND SHALL BE HAND OR MACHINE RAKED SO AS TO REMOVE ALL DEBRIS, CLODS, STONES, OR OTHER FOREIGN MATTER LARGER THAN 1 INCH TO A DEPTH OF 4 INCHES. PRIOR TO DUMPING AND SPREADING OF TOPSOIL, THE SURFACE SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 2 INCHES TO FACILITATE BONDING OF TOPSOIL TO SUB GRADE SOIL. WHERE SUB GRADES HAVE BEEN COMPACTED ARTIFICIALLY SCARIFY TO A DEPTH OF 6 INCHES. PRIOR TO SPREADING TOPSOIL, ALL SUB GRADES SHALL BE GRADED EVENLY ACCORDING TO THE CONTRACT DOCUMENTS. SUCH DEBRIS, CLODS, ROCKS, AND OTHER MATERIAL SO REMOVED SHALL BE DISPOSED OF AS PROVIDED BY THE LANDSCAPE ARCHITECT/OWNERS REPRESENTATIVE. SEED BED PREPARATION SHALL NOT COMMENCE UNTIL THE MOISTURE CONDITIONS MAKE THE GROUND AREA AND SOIL FRIABLE.
- PREPARATION OF UNDERSEEDING AREAS TO BE SEED, WHICH HAVE NOT BEEN DISTURBED BY SITE GRADING OR TOPSOIL STRIPPING OPERATIONS, SHALL BE MOVED AND RAKED PRIOR TO TILLING AND TOP SOILING OPERATIONS. TILLAGE OF THE EXISTING VEGETATION INTO THE GROUND WILL NOT BE ACCEPTED.

#### 3.5 TOPSOIL PLACEMENT

- SPREADING TOPSOIL: SHALL BE SPREAD EVENLY ON THE PREPARED AREAS TO A MINIMUM DEPTH OF 6 INCHES AFTER MACHINE COMPACTION. SPREADING SHALL NOT BE DONE WHEN THE GROUND OR TOPSOIL IS FROZEN OR EXCESSIVELY WET. AFTER SPREADING, ANY LARGE, STIFF CLODS OR HARD LUMPS SHALL BE BROKEN UP AND THE GROUND SHALL BE HAND OR MACHINE RAKED TO REMOVE ALL DEBRIS, STONES, AND FOREIGN MATTER LARGER THAN 1 INCH TO A DEPTH OF 4 INCHES.
- FINISH GRADING: GRADE THE AREAS TO FINISH GRADES FILLING AS NEEDED OR REMOVING SURPLUS DRIFT AND FLOATING AREAS TO A SMOOTH UNIFORM GRADE. ALL LAWN AREAS SHALL SLOPE TO DRAIN. WHERE NO GRADES ARE SHOWN, AREAS SHALL HAVE A SMOOTH AND CONTINUAL GRADE BETWEEN EXISTING OR FIXED CONTROLS (SUCH AS WALKS, CURBS, OR WALLS), RAKE AND LEVEL AS NECESSARY TO OBTAIN TRUE EVEN LAWN SURFACES. ALL FINISH GRADES SHALL MEET THE APPROVAL OF THE LANDSCAPE ARCHITECT BEFORE SEED IS SOWN OR SO IS PLACED.
- SEED BED PREPARATION: AFTER FINISH GRADING AND JUST BEFORE SEEDING, THE AREAS TO BE SEEDED SHALL BE LOOSENEED TO PROVIDE A ROUGH, FIRM BUT FINELY PULVERIZED SEED BED. THE INTENT IS A TEXTURE CAPABLE OF RETAINING WATER, SEED, AND FERTILIZER WHILE REMAINING STABLE AND ALLOWING SEED TIME TO GERMINATE. SEED SHALL BE APPLIED TO THE CONDITIONED SEED BED NOT MORE THAN 48 HOURS AFTER THE SEED BED HAS BEEN PREPARED.
- WATER: IF THERE HAS BEEN A TIME LAPSE BETWEEN THE PLACEMENT OF TOPSOIL AND SEEDING OPERATIONS TO ALLOW IT TO BECOME SETTLED AND COMPACTED ON THE SURFACE, THE AREA TO BE PLANTED WITH SEED SHALL BE THOROUGHLY HARROWED, WORKED TO A DEPTH OF 4 INCHES SO AS TO PROVIDE A SURFACE OF SUCH CONDITION THAT IT WILL ALLOW HAND RAKING AND APPLICATION OF FINE SEED WITH THESE OPERATIONS.
- FERTILIZER: FERTILIZER APPLICATION OF FERTILIZER WILL BE IN 2 STAGES PRIOR TO APPLICATION OF SEED. FERTILIZER SHALL BE APPLIED AT THE RATE OF 1.5 LBS/1000 S.F. FOR TURF AREAS. FERTILIZER SHALL BE APPLIED BY BROADCASTING OR DRILL METHODS. IT SHALL BE APPLIED SEPARATELY FROM THE SEED AND MIXED INTO THE SOIL TO A MINIMUM DEPTH OF 2 INCHES AND MAY BE INCORPORATED AS PART OF THE TOPSOIL PLACEMENT AND SEED BED PREPARATION OPERATIONS. SPRINKLE IMMEDIATELY AFTER INITIAL APPLICATION OF THE FERTILIZER WITH A FINE SPRAY UNTIL GROUND IS THOROUGHLY SATURATED, WITH PARTICULAR CARE TO AVOID RUNOFF ON SLOPING AREAS.
  - THE 2ND APPLICATION WILL FOLLOW THE FOLLOWING SEASON WITHIN THE SPECIFIED WARRANTY PERIOD AT A RATE DETERMINED BY SOIL TEST RESULTS FOR BOTH TURF AND NATIVE GRASS/WILDFLOWER AREAS.
  - APPLICATION OF SUPERPHOSPHATE AND GROUND LIMESTONE SHALL BE APPLIED AT RATES DETERMINED BY SOILS TEST RESULTS.
  - SEEDING: IMMEDIATELY PRIOR TO THE APPLICATION OF THE SEED, THE SOIL SHALL BE LOOSE TO A DEPTH OF AT LEAST 1 INCH AND FREE FROM ALL MATERIAL AS SPECIFIED. IF SOIL IS TOO LOOSE OR DRY FOR GOOD HANDLING, IT SHOULD BE MOISTENED AND ROLLED LIGHTLY.
  - SEEDING SHALL BE DONE WITHIN THE SPECIFIED TIME PERIODS AND AT THE FOLLOWING RATES:
    - FINE LAWN SEED SHALL BE SOWN AT A RATE OF 3.0 POUNDS PER 1000 SQUARE FEET AND SHALL BE PLANTED IN THE SPRING FROM APRIL 1ST TO MAY 30TH OR IN THE FALL FROM AUGUST 16TH TO OCTOBER 1ST.
    - NATIVE SEED MIX SHALL BE SOWN AT A RATE OF 5.0 POUNDS PER 1000 SQUARE FEET AND SHALL BE PLANTED IN THE SPRING FROM APRIL 1ST TO MAY 30TH OR IN THE FALL FROM AUGUST 16TH TO OCTOBER 1ST.
  - METHODS: SEEDING BY DRILL IS PREFERABLE. HOWEVER, HYDRAULIC SEEDING OR BROADCASTING WILL BE PERMITTED. BROADCAST SEEDING AND HYDRAULIC SEEDING SHALL NOT BE USED DURING ADVERSE WEATHER. AREAS SO SOWN WILL BE VISUALLY INSPECTED FOR UNIFORMITY OF APPLICATION. AREAS WHICH FAIL TO REVEAL AN AVERAGE OF TWO SEEDS PER SQUARE INCH WILL BE RE-SOWN AT NO ADDITIONAL EXPENSE TO THE OWNER. THE APPLIED SEED, REGARDLESS OF APPLICATION, SHALL NOT BE COVERED BY A SOIL THICKNESS NO GREATER THAN 1/2 INCH.
    - SEEDING BY DRILL: SEEDING EQUIPMENT USED FOR APPLYING GRASS SEED MUST BE DESIGNED, MODIFIED, OR EQUIPPED TO REGULATE THE APPLICATION RATE AND PLANTING DEPTH OF GRASS SEED. SEED MUST BE UNIFORMLY DISTRIBUTED IN THE DRILL HOPPER DURING THE DRILLING OPERATION. ALL GRASS ESTABLISHMENT EQUIPMENT SHALL BE OPERATED PERPENDICULAR TO THE SLOPE DRAINAGE. A DRILL SHALL BE NO WIDER THAN THE WIDTH OF THE AREA WHICH IT IS TO OPERATE. THE ROWS OF PLANTED SEEDS SHALL BE A MAXIMUM OF 8 INCHES APART AND SHALL BE AT RIGHT ANGLES TO THE FINISHED SLOPES.
    - BROADCAST SEEDING: WHEN SEED IS SOWN BY BROADCASTING, EXERCISE GREAT CARE THAT A UNIFORM DISTRIBUTION OF SEED IS OBTAINED. SEEDING SHALL BE DONE ON A STILL DAY USING A HOPPER TYPE SEEDER WITH ONE HALF OF THE SEED FOR EACH AREA BEING SOWN AT RIGHT ANGLES TO THE OTHER HALF. SEED DISTRIBUTION BY BROADCASTING SHALL BE COVERED WITH 1/4 TO 1/2 INCH OF SOIL. THE SEED MAY BE COVERED BY RAKING, DRAGGING, OR BY APPROPRIATE MECHANICAL MEANS.
    - HYDRAULIC SEEDING: WHEN HYDRAULIC SEED IS USED, SEED AND MULCH SHALL BE APPLIED IN SEPARATE AND DISTINCT OPERATIONS EXCEPT FOR THE FOLLOWING SEED PREPARATION:
      - THE CONTRACTOR MUST PROVIDE ONE POUND OF MULCH PER EACH THREE GALLONS OF WATER IN THE HYDROSEEDER AS A CUSHION AGAINST SEED DAMAGE. THE MULCH USED AS A CUSHION MAY BE PART OF THE TOTAL REQUIRED MULCH WITH THE REMAINDER APPLIED AFTER THE SEED IS METERING DURING APPLICATION.

- THE CONTRACTOR MAY APPLY MULCH AND LAWN SEED MIX HYDRAULICALLY IN A SINGLE APPLICATION, PROVIDING ONE HALF OF THE SEED HAS BEEN SOWN BY BROADCAST OR DRILL METHODS AS AN INITIAL APPLICATION AND THE RATE OF APPLICATION OF LAWN SEED MIX INCREASED BY 4 POUNDS PER 1000 SQUARE FEET.
- THE APPLICATION OF THE SEED SLURRY SHALL BE MADE WITH EQUIPMENT HAVING A BUILT IN AGITATION SYSTEM AND OPERATING CAPACITY SUFFICIENT TO AGITATE, SUSPEND AND HOMOGENEOUSLY MIX A SLURRY CONTAINING WATER, SEED, AND MULCH OF SEED. THE SLURRY SHALL BE SPRAYED OVER THE SOIL IN A UNIFORM COAT. ALL HYDRAULICALLY SEED AREAS SHALL BE HYDROMULCHED UPON COMPLETION.
- WATERING: WATERING IMMEDIATELY AFTER SEEDING OR MULCHING WITH A FINE SPRAY TO A DEPTH OF 6 INCHES. AVOID RUNOFF ON SLOPING AREAS. THE SURFACE LAYER OF THE SOIL MUST BE KEPT DAMP BY FREQUENT LIGHT WATERING DURING THE GERMINATION PERIOD AND UNTIL PLANTS ARE FIRMLY ROOTED.
- TEMPORARY PROTECTION: TEMPORARY FENCES, BARRIERS, SIGNS, ETC. AS NECESSARY TO PREVENT TRAFFIC. THEY SHALL REMAIN IN PLACE FOR AT LEAST SIX WEEKS UNLESS OTHER ARRANGEMENTS ARE MADE WITH THE LANDSCAPE ARCHITECT.
- MULCHING:
  - MULCH ALL HYDROSEEDED AREAS, DRAINAGE SWALES, SLOPES 4:1 OR STEEPER, AND ANY AREAS WHERE LIKELY HAZARD OF EROSION EXISTS. TOPSOIL OR SEED WHICH WASHES OUT FOR REASONS ATTRIBUTABLE TO THE CONTRACTOR'S ACTIVITIES OR FAILURE TO TAKE PROPER PRECAUTIONS, SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
  - ALL STRUCTURES SHALL BE PROTECTED FROM HYDRAULIC APPLICATION OF MULCH MATERIAL AND MATERIAL DEPOSITED ON FACILITIES SHALL BE REMOVED.
  - MULCH SHALL NOT BE APPLIED IN THE PRESENCE OF FREE SURFACE WATER, BUT MAY BE APPLIED ON DAMP GROUND.
  - APPLICATION OF ORGANIC MULCH
    - WET APPLICATION: ORGANIC MULCH SHALL BE MIXED WITH WATER AT A RATE OF ONE POUND MULCH (DRY WEIGHT) TO ONE GALLON OF WATER HYDRAULICALLY APPLIED AS PER MANUFACTURERS RECOMMENDATIONS AT A MINIMUM RATE OF 2000 POUNDS PER ACRE.
    - DRY APPLICATION: ORGANIC MULCH SHALL BE BROADCAST AT A MINIMUM RATE OF 2000 POUNDS PER ACRE, AND SHALL BE ROLLED LIGHTLY TO SET FIRMLY INTO THE SOIL.

#### 3.6 MULCHING

- MULCHING:
  - ALL TREES AND SHRUB BEDS WILL BE CULTIVATED FOLLOWING THE GENERAL SHAPE OF THE BEDS AS INDICATED ON THE PLANS. FORM A SAUCER AROUND THE TOP OF THE PLANTING PIT TO HELP HOLD WATER DURING WATERING AND FORM THE OUTLINE FOR MULCHING.
  - APPLY THE SHREDED BARK MULCH TO A DEPTH OF 4", EVENLY SPREAD OVER THE ENTIRE AREA OF EACH PLANTING PIT.
  - THOROUGHLY SOAK ALL MULCH AREAS. AFTER WATERING, RAKE MULCHED AREAS AND LEAVE IN A COMPLETED AND FINISHED CONDITION. THOROUGHLY SOAK ALL MULCH AREAS. AFTER WATERING, RAKE MULCHED AREAS AND LEAVE IN A COMPLETED AND FINISHED CONDITION.

#### 3.7 STAKING, GUYING, AND WRAPPING

- STAKING AND GUYING:
  - TREES: GREATER THAN 1-1/2" IN CALIPER, SHALL BE STAKED IMMEDIATELY AFTER PLANTING. GUY WIRES SHALL BE ENCASED IN HOSE TO PREVENT DIRECT CONTACT WITH BARK OF THE TREE OR IT SHALL BE PLACED AROUND THE TRUNK IN A SINGLE LOOP. WIRES SHALL BE TIGHTENED AND KEPT TAUNT BY TWISTING THE STRANDS TOGETHER OR WITH TURNBUCKLES.
  - WRAP TREES IMMEDIATELY AFTER PLANTING, BUT NOT BEFORE THE CONDITION OF THE TRUNKS HAS BEEN INSPECTED AND APPROVED. CAREFULLY WRAP THE TRUNKS OF DECIDUOUS TREES WITH TREE WRAPPING PAPER. BEGIN THE WRAPPER AT THE BASE OF THE TRUNK JUST ABOVE THE ROOTS AND BELOW THE NORMAL GROUND LINE, AND EXTEND WRAPPING UPWARD IN SPIRAL MANNER WITH AN OVERLAP OF ONE-HALF (1/2) THE WIDTH OF THE PAPER STRIP. COVER WITH SOIL THE PORTION OF THE WRAPPING BELOW THE FINISHED GRADE. THE PAPER SHALL BE HELD IN PLACE WITH APPROVED TWINE OR TAPE. THE TWINE AROUND THE TREE IN AT LEAST THREE PLACES. IN ADDITION TO THE BOTTOM OF THE TRUNK.
  - TREE GUYING AND STAKING SHALL BE AS DETAILED AS PER PROJECT PLANS AND COMPLETED IMMEDIATELY AFTER PLANTING.
- PRUNING:
  - EACH TREE SHALL BE PRUNED IN ACCORDANCE WITH STANDARD HORTICULTURAL PRACTICE TO PRESERVE NATURAL CHARACTER OF PLANT. THE OBJECTIVE IS TO PRESERVE A SHAPE AND FORM REPRESENTATIVE OF THE SPECIES. PRUNING SHALL BE DONE WITH CLEAN, SHARP TOOLS.
  - ALL DEAD WOOD, SUCKERS, BADLY BRUISED OR BROKEN BRANCHES SHALL BE REMOVED. THE TOPS OF DECIDUOUS PLANTS SHALL BE PRUNED EITHER BEFORE OR AFTER PLANTING TO BALANCE ROOT LOSS DUE TO TRANSPORTING. THIS SHALL CONSIST OF REMOVING ONE-FOURTH OF THE CROWN BY THINNING OUT AND/OR HEADING BACK THE TOPS AND TOP BRANCHES, AND SHALL BE DONE SO THAT THE PLANT RETAINS ITS NATURAL FORM. EXCEPT WHEN HEADING BACK, ALL CUTS SHALL BE MADE FLUSH WITH THE TRUNK OR BRANCH. NEVER CUT A LEAD.
  - CUTS OVER 1/2 INCH IN DIAMETER SHALL BE PAINTED WITH AN APPROVED TREE PAINT. PAINT SHALL COVER ALL EXPOSED CAMBIUM AS WELL AS OTHER EXPOSED FLUSH TISSUE. PAINT SHALL BE WATERPROOF,



**LANDSCAPE GENERAL SPECIFICATIONS, CONT.**

- B. SOD: UPON DELIVERY OF SOD TO THE WORK SITE, USE ALL MEANS NECESSARY TO PROTECT AND MAINTAIN THE SOD BEFORE, DURING AND AFTER INSTALLATION. DELIVERY OF SOD SHALL BE CAREFULLY COORDINATED SO ITS PLACEMENT CAN PROCEED DIRECTLY AFTER ITS ARRIVAL. SOD SHALL BE INSTALLED ON SITE NO MORE THAN 24 HOURS AFTER CUTTING.
- C. FERTILIZER/LIME: FERTILIZER AND LIME SHALL BE DELIVERED TO THE SITE IN THE ORIGINAL, UNOPENED CONTAINERS BEARING THE MANUFACTURER'S GUARANTEED CHEMICAL ANALYSIS, NAME, TRADE NAME, TRADEMARK, AND CONFORMANCE WITH STATE AND FEDERAL LAWS. IN LIEU OF CONTAINERS, BOTH MATERIALS MAY BE FURNISHED IN BULK AND A CERTIFICATE INDICATING THE ABOVE INFORMATION SHALL ACCOMPANY EACH DELIVERY.
- D. STORAGE: SEED, HYDROMULCH, HYDROMULCH BINDER, FERTILIZER AND LIME SHALL BE KEPT IN DRY STORAGE AREA FROM CONTAMINANTS. THEY SHALL BE UNIFORM IN COMPOSITION, DRY, UNFROZEN AND FREE FLOWING. THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO REJECT ANY MATERIAL WHICH HAS BECOME CAKED FOR OTHERWISE DAMAGED OR DOES NOT MEET SPECIFIED REQUIREMENTS.
- E. REPLACEMENTS: IN THE EVENT OF REJECTION OF THE SEED, IMMEDIATELY MAKE ALL REPLACEMENTS NECESSARY TO THE APPROVAL OF THE LANDSCAPE ARCHITECT AND AT NO ADDITIONAL COST TO THE OWNER.
- F. SCHEDULES
- G. NOTICE TO PROCEED:

**PART 2: MATERIALS**

- 2.1 TOPSOIL**
- A. TOPSOIL REQUIRED SHALL BE OBTAINED FROM ON-SITE STOCKPILED MATERIAL WHICH WILL BE PLACED BY THE SITE CONTRACTOR. SHOULD ADDITIONAL TOPSOIL BE NEEDED TO BRING LANDSCAPE AREAS UP TO GRADE, THEN IT SHALL BE FURNISHED AND PLACED BY THE SITE CONTRACTOR, WITH IMPORTED MATERIAL FROM A LOCALLY APPROVED SOURCE.
- B. TOPSOIL SHALL BE A FINE SANDY LOAM OR A SANDY LOAM AS DETERMINED BY MECHANICAL ANALYSIS AND BASED ON THE USDA CLASSIFICATION SYSTEM. IT SHALL BE OF UNIFORM COMPOSITION, WITHOUT ADMIXTURE OF SUBSOIL, LOOSE, FRIABLE, AND SHALL CONTAIN ORDINARY AMOUNT OF HUMUS. IT SHALL CONTAIN NO LUMPS OF SOIL, ROCKS LARGER THAN 1 INCH, OR STICKS, OR ROOTS, AND OTHER DEBRIS. IT SHALL BE SUFFICIENTLY FERTILE TO SUSTAIN NORMAL, HEALTHY LAWN GROWTH AND SHALL NOT HAVE A PH VALUE HIGHER THAN 7.0 OR LOWER THAN 6.5 THE TOPSOIL SHALL BE DELIVERED IN AN UNFROZEN AND NON-MUDDY CONDITION AND MUST MEET THE APPROVAL OF THE LANDSCAPE ARCHITECT.
- C. THE LOAM PLACED IN LANDSCAPE AREAS ON THE SITE MUST BE TESTED AND AMENDED AS RECOMMENDED BY SOIL TESTING FOR LAWS AND PLANTING. THE COST OF ANY AMENDMENT TO THE LOAM AND TOPSOIL SHALL BE THE LANDSCAPE CONTRACTOR'S RESPONSIBILITY. THE SITE CONTRACTOR SHALL FURNISH ADDITIONAL TOPSOIL AS REQUIRED.

- 2.2 SEED**
- A. GENERAL:
- CONTRACTOR SHALL SUBMIT CERTIFICATION TAGS FOR APPROVAL. ALL GRASS SEED SHALL BE:
    - FREE FROM NOXIOUS WEED SEEDS AND RECLEANED GRADE A RECENT CROP SEED
    - TREATED WITH APPROPRIATE FUNGICIDE
    - DELIVERED TO THE SITE IN SEALED CONTAINERS WITH DEALER GUARANTEED ANALYSIS.
- B. FINE LAWN SEED MIXTURE:
- ALL SEEDED, FINE LAWN AREAS AND INTENDED FOR THE PLAYFIELD AREAS AS DESIGNATED ON THE PLANS, SHALL BE SEEDED WITH THE MIXTURE HEREIN SPECIFIED:
 

NAME OF GRASS	PROPORTION BY WEIGHT
CLASSIC KENTUCKY BLUEGRASS	20%
KENTUCKY BLUEGRASS	20%
PERENNIAL RYEGRASS	20%
SR420 PERENNIAL RYEGRASS	15%
SHADOW E CHEWINGS FESCUE	10%
SHADEMASTER RED FESCUE	10%
SR5000 CHEWINGS FESCUE	5%
- C. NATIVE SEED MIXTURE:
- FOR ALL TURF AREAS NOT DESIGNATED ON THE PLANS FOR USE AS FINE LAWN ON THE PLAYFIELD AREAS, SHALL BE SEEDED WITH THE MIXTURE HEREIN SPECIFIED:
 

NAME OF GRASS	PROPORTION BY WEIGHT
TALL FESCUE	53%
CREeping RED FESCUE	41%
REDTOP	6%
  - ALL SEED USED SHALL MEET THE FOLLOWING MINIMUM STANDARDS:
 

PURITY	%
GERMINATION	85%

- 2.3 SOD**
- A. ALL SOD SHALL BE WELL ESTABLISHED, MOWN, LAWN GRASS. IT SHALL BE VIGOROUS, WELL ROOTED, HEALTHY TURF FREE FROM DISEASE, INSECT PESTS, WEEDS AND OTHER GRASSES, STONES AND ANY OTHER HARMFUL OR DELETERIOUS MATTER.
- B. IT SHALL HAVE BEEN GROWN FROM A SEED MIXTURE IDENTICAL TO THAT SPECIFIED FOR THE FINE LAWN SEED MIXTURE SPECIFIED ABOVE. THIS SOD IS AVAILABLE FOR GOLD STAR SOD FARMS, CANTERBURY, NH. NOT MORE THAN 5% WEED AND UNDESIRABLE GRASSES SHALL BE ALLOWED.
- C. SOD SHALL BE A MINERAL BACKED SOD GROWN IN THE NEW ENGLAND REGION. IT SHALL BE CUT IN UNIFORMLY WIDE STRIPS, 3/4" IN THICKNESS WITH CLEAN, CUT EDGES. SOD SHALL BE ROLLED OR FOLDED PRIOR TO LIFTING AND HANDLING TO PREVENT TEARING, BREAKING, DRYING AND ANY OTHER DAMAGE.

- 2.4 SOIL AMENDMENTS**
- A. FERTILIZER:
- FERTILIZER TO BE SPREAD ON AREAS TO BE SEEDED SHALL BE COMMERCIALY PREPARED AND SHALL CONTAIN THE FOLLOWING PERCENTAGES BY WEIGHT:
    - LAWN SEED AND SOD AREAS:
      - 16% NITROGEN
      - 16% PHOSPHORIC ACID
      - 16% POTASH
      - 5% ZINC
  - USE FERTILIZER PERCENTAGE FOR ESTIMATING PURPOSES ONLY. AFTER ON-SITE, STOCKPILED TOPSOIL HAS BEEN PLACED, THE CONTRACTOR SHALL SUBMIT A LABORATORY CHEMICAL ANALYSIS TO THE LANDSCAPE ARCHITECT FOR REVIEW AND DETERMINATION OF A FERTILIZER ANALYSIS AND APPLICATION RATE. THIS CHEMICAL ANALYSIS SHALL BE OBTAINED FROM A MINIMUM OF FOUR (4) RANDOM SOIL SAMPLES SELECTED AND TAKEN IN THE FIELD PER LANDSCAPE ARCHITECT'S/OWNER'S REPRESENTATIVE APPROVAL.
  - THE TOPSOIL ANALYSIS SHALL INCLUDE THE FOLLOWING CHEMICAL PARAMETERS:
 

PH	-
NITRATE	PPPM
ORGANIC MATTER	%
PHOSPHOROUS (OLSON)	PPM
POTASSIUM	PPM
SODIUM	MEQ/100G
SULFATE	PPM
CONDUCTIVITY	MMHGS/CM
  - COMMERCIAL FERTILIZER SHALL BE COMPLETE, UNIFORM IN COMPOSITION, DRY AND FREE FLOWING. THE FERTILIZER SHALL BE DELIVERED TO THE SITE IN THE ORIGINAL WATERPROOF CONTAINERS, EACH BEARING THE MANUFACTURER'S STATEMENT OF ANALYSIS.
- D. SUPERPHOSPHATE
- INCORPORATE SUPERPHOSPHATE INTO THE TOPSOIL WITH THE FIRST APPLICATION OF COMMERCIAL FERTILIZER AT THE RATE OF TWENTY POUNDS PER THOUSAND SQUARE FEET OR AT THE RATE DETERMINED FROM THE TEST RESULTS.
- E. GROUND LIMESTONE:
- INCORPORATE GROUND LIMESTONE INTO THE TOPSOIL AFTER IT HAS BEEN SPREAD AT THE RATE OF FIFTY POUNDS PER THOUSAND SQUARE FEET OR AT THE RATE DETERMINED FROM THE TEST RESULTS TO ACHIEVE A PH OF 6.0 TO 6.5.
- D. MULCH:
- WHERE A SPECIFIC TYPE OF MULCH IS REQUIRED, THE TYPE WILL BE DESCRIBED IN THE EXECUTION SECTION, WHERE MULCHING REQUIREMENTS CAN BE MET EQUALLY WELL BY ONE OF SEVERAL TYPES, THE CONTRACTOR SHALL HAVE THE OPTION OF SELECTING ONE OF THE ACCEPTABLE TYPES.
    - ORGANIC MULCH: JACKLIN ORGANIC MULCH AS MANUFACTURED BY THE VAUGHAN-JACKLIN CORPORATION, EAST 8803 SPRAGUE, SPOKANE, WASHINGTON 99213 - (TELEPHONE (509) 826-6241), OR APPROVED EQUAL.
    - VEGETATIVE MULCH: VEGETATIVE MULCH MATERIAL SHALL BE COMPOSED OF WHEAT STRAW, RYE STRAW OR BARLEY STRAW, IN THAT ORDER OF PREFERENCE AND SHALL BE FREE OF NOXIOUS WEED SEEDS, STONES, DIRT, ROOTS, STUMPS, OR OTHER FOREIGN MATERIAL.
    - CELLULOSE FIBER MULCH: WOOD CELLULOSE FIBER MULCH SHALL CONSIST OF VIRGIN WOOD FIBERS MANUFACTURED FROM WHOLE WOOD CHIPS AND SHALL BE PROCESSED IN SUCH A MANNER THAT IT WILL NOT CONTAIN ANY GROWTH OR GERMINATION INHIBITING FACTORS. THE MULCH SHALL BE DYED AN APPROPRIATED COLOR TO FACILITATE VISUAL METERING DURING APPLICATION. UPON APPLICATION, THE MATERIAL SHALL PRODUCE A MAT ABSORPTION AND PERCOLATION AND SHALL COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL. THE WOOD CELLULOSE FIBERS MUST MAINTAIN UNIFORM SUSPENSION IN WATER UNDER AGITATION.
  - TACKIFIERS MIXED WITH OR APPLIED OVER STRAW SHALL BE TERRA-TACK AR, OR APPROVED EQUAL OF NON-ASPHALTIC FORMULATION. TACKIFIERS USED TO ANCHOR VEGETATIVE OR CELLULOSE FIBER MULCH SHALL BE TERRA TACK III, OR APPROVED EQUAL OF NON-ASPHALTIC FORMULATION.
- F. WATER:
- WATER SHALL BE AVAILABLE FROM MUNICIPAL SYSTEM THROUGH CONTRACTOR.
- G. EROSION CONTROL BLANKETS:
- EROSION CONTROL FABRIC MAY BE REQUIRED AS AN ADDITIONAL MEASURE TO PREVENT EROSION ON SLOPES GREATER THAN 2:1 AND IN DRAINAGE SWALES. IF THIS MATERIAL IS NECESSARY AND AUTHORIZED WHILE WORK IS IN PROGRESS, THEN THE MATERIAL SHALL BE CURLEX' EROSION CONTROL BLANKET CONSISTING OF A DENSE MAT OF CURLED AND SEASONED ASPEN WOOD EXCELSDUR BOUND WITH A TOUGH, PHOTO-DEGRADABLE, EXTRUDED PLASTIC MESH AS MANUFACTURED BY AMERICAN EXCELSDUR CO., ARLINGTON, TEXAS OR APPROVED EQUAL.

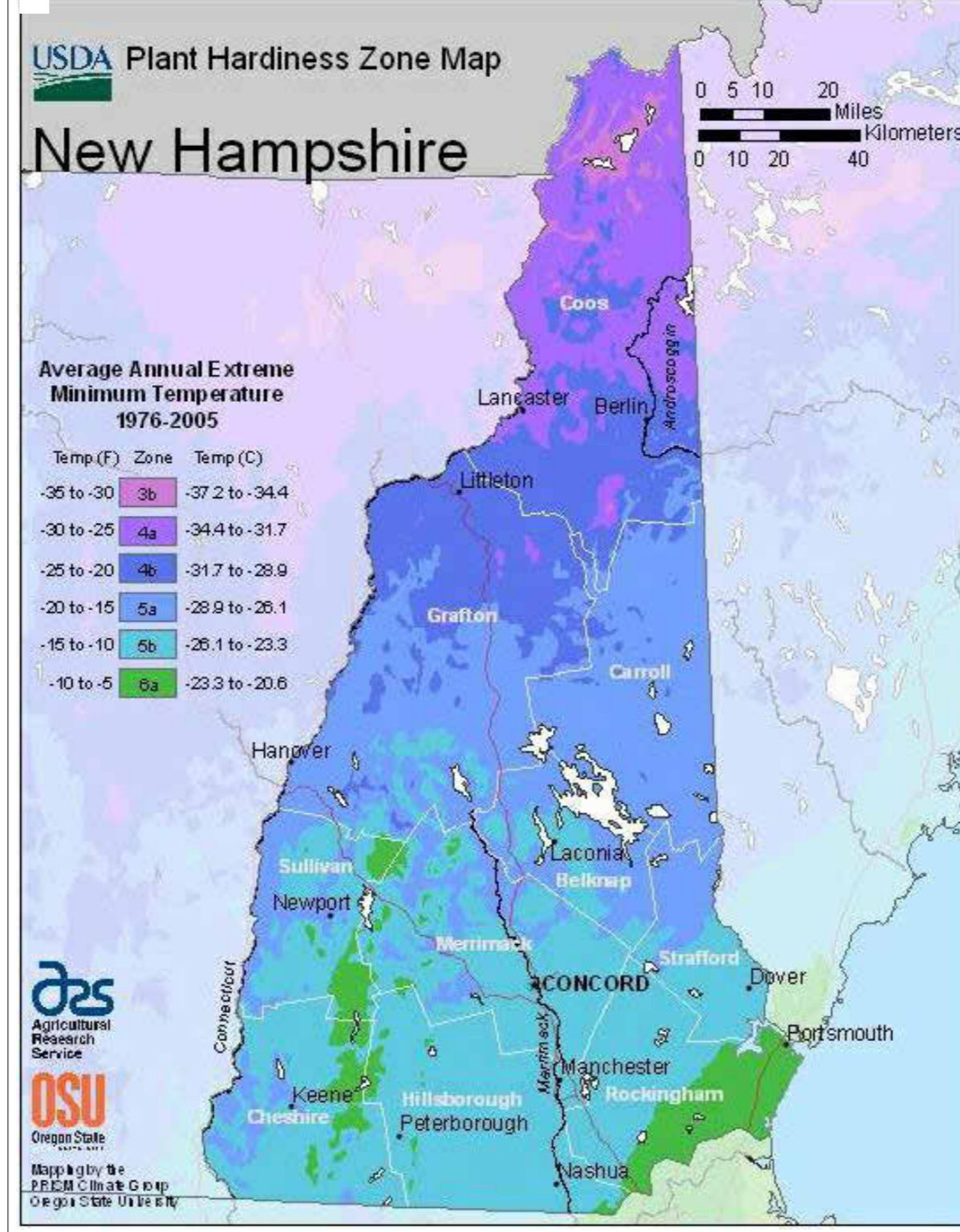
**PART 3: EXECUTION**

- 3.1 SURFACE CONDITIONS**
- A. INSPECTION:
- PRIOR TO ALL WORK OF THIS SECTION, CAREFULLY INSPECT THE INSTALLED WORK OF ALL OTHER TRADES AND VERIFY THAT ALL SUCH WORK IS COMPLETE TO THE POINT WHERE THIS INSTALLATION MAY PROPERLY COMMENCE. VERIFY THAT SEEDING MAY BE COMPLETED IN ACCORDANCE WITH THE ORIGINAL DESIGN AND THE REFERENCED STANDARDS.
  - DISCREPANCIES:
    - IN THE EVENT OF DISCREPANCY, IMMEDIATELY NOTIFY THE LANDSCAPE ARCHITECT.
    - DO NOT PROCEED WITH INSTALLATION IN AREAS OF DISCREPANCY UNTIL ALL SUCH DISCREPANCIES HAVE BEEN FULLY RESOLVED.
- 3.2 SEED BED PREPARATION**
- A. SUBGRADE PREPARATION:
- SEED BED PREPARATION SHALL PERTAIN TO THE PREPARATION OF THE SURFACE OF THE GROUND TO RECEIVE THE SEED. THE GROUND SHALL BE HAND OR MACHINE RAKED SO AS TO REMOVE ALL DEBRIS, CLODS, STONES, OR OTHER FOREIGN MATTER LARGER THAN 1 INCH, TO A DEPTH OF 4 INCHES. PRIOR TO DUMPING AND SPREADING OF TOPSOIL, THE SURFACE SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 2 INCHES TO FACILITATE BONDING OF TOPSOIL TO SUBGRADE SOIL. WHERE SUBGRADES HAVE BEEN COMPACTED ARTIFICIALLY SCARIFY TO A DEPTH OF 6 INCHES. PRIOR TO SPREADING TOPSOIL, ALL SUBGRADES SHALL BE GRADED EVENLY ACCORDING TO THE CONTRACT DOCUMENTS.
  - SUCH DEBRIS, CLODS, ROCKS, AND OTHER MATERIAL SO REMOVED SHALL BE DISPOSED OF AS APPROVED BY THE LANDSCAPE ARCHITECT/OWNER'S REPRESENTATIVE. SEED BED PREPARATION SHALL NOT COME UNTIL THE MOISTURE CONDITIONS MAKE THE GROUND AREA AND SOIL FRIABLE.
  - PREPARING UNDISTURBED AREAS:
    - AREAS TO BE SEEDED, WHICH HAVE NOT BEEN DISTURBED BY SITE GRADING OR TOPSOIL STRIPPING OPERATIONS, SHALL BE MOWED AND RAKED PRIOR TO TILLING AND TOPSOILING OPERATIONS. TILLAGE OF THE EXISTING VEGETATION INTO THE GROUND WILL NOT BE ACCEPTED.

**3.3 TOPSOIL PLACEMENT**

- A. SPREADING:
- TOPSOIL SHALL BE SPREAD EVENLY ON THE PREPARED AREAS TO A MINIMUM DEPTH OF 6 INCHES AFTER MACHINE COMPACTION. SPREADING SHALL NOT BE DONE WHEN THE GROUND OR TOPSOIL IS FROZEN OR EXCESSIVELY WET. AFTER SPREADING, ANY LARGE, STIFF CLODS OR HARD LUMPS SHALL BE BROKEN UP AND THE GROUND SHALL BE HAND OR MACHINE RAKED TO REMOVE ALL DEBRIS, STONES, AND FOREIGN MATTER LARGER THAN 1 INCH TO A DEPTH OF 4 INCHES.
- B. FINISH GRADING:
- GRADE THE AREAS TO FINISH GRADES FILLING AS NEEDED OR REMOVING SURPLUS DIRT AND FLOATING AREAS TO A SMOOTH UNIFORM GRADE. ALL LAWN AREAS SHALL SLOPE TO DRAIN. WHERE NO GRADES ARE SHOWN, AREAS SHALL HAVE A SMOOTH AND CONTINUAL GRADE BETWEEN EXISTING OR FIXED CONTROLS (SUCH AS WALKS, CURBS, OR WALLS), RAKE AND LEVEL AS NECESSARY TO OBTAIN TRUE EVEN LAWN SURFACES. ALL FINISH GRADES SHALL MEET THE APPROVAL OF THE LANDSCAPE ARCHITECT BEFORE SEED IS SOWN OR SOD IS PLACED.
- C. SEED BED PREPARATION:
- AFTER FINISH GRADING AND JUST BEFORE SEEDING, THE AREAS TO BE SEEDED SHALL BE LOOSENEED TO PROVIDE A ROUGH, FIRM BUT FINELY PULVERIZED SEED BED. THE INTENT IS A TEXTURE CAPABLE OF RETAINING WATER, SEED, AND FERTILIZER WHILE REMAINING STABLE AND ALLOWING SEED TIME TO GERMINATE. SEED SHALL BE APPLIED TO THE CONDITIONED SEED BED NOT MORE THAN 48 HOURS AFTER THE SEED BED HAS BEEN PREPARED.
  - IF THERE HAS BEEN A TIME LAPSE BETWEEN THE PLACEMENT OF TOPSOIL AND SEEDING OPERATIONS TO ALLOW IT TO BECOME SETTLED AND COMPACTED ON THE SURFACE, THE AREA TO BE PLANTED WITH SEED SHALL BE THOROUGHLY HARROWED, WORKED TO A DEPTH OF 4 INCHES SO AS TO PROVIDE A SURFACE OF SUCH CONDITION THAT IT WILL ALLOW HAND RAKING AND APPLICATION OF THE SEED IN COMPLIANCE WITH THESE SPECIFICATIONS.
- D. FERTILIZER/SOIL AMENDMENTS:
- APPLICATION OF FERTILIZER WILL BE IN 2 STAGES. TWO WEEKS PRIOR TO APPLICATION OF SEED, FERTILIZER SHALL BE APPLIED AT THE RATE OF 3 LBS/1000 S.F. FOR TURF AREAS. FERTILIZER SHALL BE APPLIED BY BROADCASTING OR DRILL METHODS. IT SHALL BE APPLIED SEPARATELY FROM THE SEED AND MIXED INTO THE SOIL TO A MINIMUM DEPTH OF 2 INCHES AND MAY BE INCORPORATED AS PART OF THE TOPSOIL PLACEMENT AND SEED BED PREPARATION OPERATIONS. SPRINKLE IMMEDIATELY AFTER INITIAL APPLICATION OF THE FERTILIZER WITH A FINE SPRAY UNTIL GROUND IS THOROUGHLY SATURATED, WITH PARTICULAR CARE TO AVOID RUNOFF ON SLOPING AREAS.
  - THE 2ND APPLICATION WILL FOLLOW THE FOLLOWING SEQUENCE WITHIN THE SPECIFIED WARRANTY PERIOD AT A RATE DETERMINED BY SOIL TEST RESULTS FOR BOTH TURF AND NATIVE GRASS/WILDFLOWER AREAS.
  - APPLICATION OF SUPERPHOSPHATE AND GROUND LIMESTONE SHALL BE APPLIED AT RATES DETERMINED BY SOILS TEST RESULTS.
- E. SEEDING:
- IMMEDIATELY PRIOR TO THE APPLICATION OF THE SEED, THE SOIL SHALL BE LOOSE TO A DEPTH OF AT LEAST 1 INCH AND FREE FROM ALL MATERIAL AS SPECIFIED. IF SOIL IS TOO LOOSE OR DRY FOR GOOD HANDLING, IT SHOULD BE MOISTENED AND ROLLED LIGHTLY.
  - SEEDING SHALL BE DONE WITHIN THE SPECIFIED TIME PERIODS AND AT THE FOLLOWING RATES:
    - FINE LAWN SEED SHALL BE SOWN AT A RATE OF 3.0 POUNDS PER 1000 SQUARE FEET AND SHALL BE PLANTED IN THE SPRING FROM APRIL LST TO MAY 30TH OR IN THE FALL FROM AUGUST 16TH TO OCTOBER 1ST.
    - NATIVE SEED MIX SHALL BE SOWN AT A RATE OF 5.0 POUNDS PER 1000 SQUARE FEET AND SHALL BE PLANTED IN THE SPRING FROM APRIL LST TO MAY 30TH OR IN THE FALL FROM AUGUST 16TH TO OCTOBER 1ST.
- F. METHODS:
- SEEDING BY DRILL IS PREFERABLE. HOWEVER, HYDRAULIC SEEDING OR BROADCASTING WILL BE PERMITTED. BROADCAST SEEDING AND HYDRAULIC SEEDING SHALL NOT BE USED DURING ADVERSE WEATHER.
  - AREAS SOWN BY HYDRAULIC OR BROADCAST METHODS WILL BE VISUALLY INSPECTED FOR UNIFORMITY OF APPLICATION. AREAS WHICH FAIL TO REVEAL AN AVERAGE OF TWO SEEDS PER SQUARE INCH WILL BE RESOWN AT NO ADDITIONAL EXPENSE TO THE OWNER.
  - THE APPLIED SEED, REGARDLESS OF APPLICATION, SHALL NOT BE COVERED BY A SOIL THICKNESS NO GREATER THAN 1/2 INCH.
  - SEEDING BY DRILL:
    - SEEDING EQUIPMENT USED FOR APPLYING GRASS SEED MUST BE DESIGNED, MODIFIED, OR EQUIPPED TO REGULATE THE APPLICATION RATE AND PLANTING DEPTH OF GRASS SEED. SEED MUST BE UNIFORMLY DISTRIBUTED IN THE DRILL HOPPER DURING THE DRILLING OPERATION. ALL GRASS ESTABLISHMENT EQUIPMENT SHALL BE OPERATED PERPENDICULAR TO THE SLOPE DRAINAGE. A DRILL SHALL BE NO WIDER THAN THE WIDTH OF THE AREA WHICH IT IS TO OPERATE. THE ROWS OF PLANTED SEEDS SHALL BE A MAXIMUM OF 6 INCHES APART AND SHALL BE AT RIGHT ANGLES TO THE FINISHED SLOPES.
  - BROADCAST SEEDING:
    - WHEN SEED IS SOWN BY BROADCASTING, EXERCISE GREAT CARE THAT A UNIFORM DISTRIBUTION OF SEED IS OBTAINED. SEEDING SHALL BE DONE ON A STILL DAY USING A HOPPER TYPE SEEDER WITH ONE HALF OF THE SEED FOR EACH AREA BEING SOWN AT RIGHT ANGLES TO THE OTHER HALF. SEED DISTRIBUTION BY BROADCASTING SHALL BE COVERED WITH 1/4 TO 1/2 INCH OF SOIL. THE SEED MAY BE COVERED BY RAKING, DRAGGING, OR BY APPROPRIATE MECHANICAL MEANS.
  - HYDRAULIC SEEDING:
    - WHEN HYDRAULIC SEED IS USED, SEED AND MULCH SHALL BE APPLIED IN SEPARATE AND DISTINCT OPERATIONS EXCEPT FOR THE FOLLOWING:
      - THE CONTRACTOR MUST PROVIDE ONE POUND OF MULCH PER EACH THREE GALLONS OF WATER IN THE HYDROSEEDER AS A CUSHION AGAINST SEED DAMAGE. THE MULCH USED AS A CUSHION MAY BE PART OF THE TOTAL REQUIRED MULCH WITH THE REMAINDER APPLIED AFTER THE SEED IS METERING DURING APPLICATION.
      - THE CONTRACTOR MAY APPLY MULCH AND LAWN SEED MIX HYDRAULICALLY IN A SINGLE APPLICATION, PROVIDING ONE HALF OF THE SEED HAS BEEN SOWN BY BROADCAST OR DRILL METHODS AS AN INITIAL APPLICATION AND THE RATE OF APPLICATION OF LAWN SEED MIX INCREASED BY 4 POUNDS PER 1000 SQUARE FEET.
      - THE APPLICATION OF THE SEED SLURRY SHALL BE MADE WITH EQUIPMENT HAVING A BUILT-IN AGITATION SYSTEM AND OPERATING CAPACITY SUFFICIENT TO AGITATE, SUSPEND AND HOMOGENEOUSLY MIX A SLURRY CONTAINING WATER, SEED, AND MULCH OF SEED. THE SLURRY SHALL BE SPRAYED OVER THE SOIL IN A UNIFORM COAT. ALL HYDRAULICALLY SEED AREAS SHALL BE HYDROMULCHED UPON COMPLETION.
- G. WATERING:
- WATERING IMMEDIATELY AFTER SEEDING OR MULCHING WITH A FINE SPRAY TO A DEPTH OF 6 INCHES. AVOID RUNOFF ON SLOPING AREAS.
  - THE SURFACE LAYER OF THE SOIL MUST BE KEPT DAMP BY FREQUENT LIGHT WATERING DURING THE GERMINATION PERIOD AND UNTIL PLANTS ARE FIRMLY ROOTED.
- H. PROTECTION:
- PROTECT ALL SEEDED AREAS BY ERECTING TEMPORARY FENCES, BARRIERS, SIGNS, ETC. AS NECESSARY TO PREVENT TRAMPLING. THEY SHALL REMAIN IN PLACE FOR AT LEAST SIX WEEKS UNLESS OTHER ARRANGEMENTS ARE MADE WITH THE LANDSCAPE ARCHITECT.
- I. MULCHING:
- GENERAL:
    - MULCH ALL HYDROSEEDED AREAS, DRAINAGE SWALES, SLOPES 4:1 OR STEEPER, AND ANY AREAS WHERE LIKELY HAZARD OF EROSION EXISTS. TOPSOIL OR SEED WHICH WASHES OUT FOR REASONS ATTRIBUTABLE TO THE CONTRACTOR'S ACTIVITIES OR FAILURE TO TAKE PROPER PRECAUTIONS, SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
    - ALL STRUCTURES SHALL BE PROTECTED FROM HYDRAULIC APPLICATION OF MULCH MATERIAL AND MATERIAL DEPOSITED ON FACILITIES SHALL BE REMOVED.
    - MULCH SHALL NOT BE APPLIED IN THE PRESENCE OF FREE SURFACE WATER, BUT MAY BE APPLIED ON DAMP GROUND.
  - APPLICATION OF ORGANIC MULCH:
    - WET APPLICATION: ORGANIC MULCH SHALL BE MIXED WITH WATER AT A RATE OF ONE POUND MULCH (DRY WEIGHT) TO ONE GALLON OF WATER HYDRAULICALLY APPLIED AS PER MANUFACTURER'S RECOMMENDATIONS AT A MINIMUM RATE OF 2000 POUNDS PER ACRE.
    - DRY APPLICATION: ORGANIC MULCH SHALL BE BROADCAST AT A MINIMUM RATE OF 2000 POUNDS PER ACRE, AND SHALL BE ROLLED LIGHTLY TO SET FIRMLY INTO THE SOIL.
  - APPLICATION OF WOOD CELLULOSE FIBER MULCH:
    - WOOD CELLULOSE FIBER MULCH SHALL BE APPLIED HYDRAULICALLY. IT SHALL BE MIXED WITH WATER AT THE RATE SPECIFIED BY THE MANUFACTURER AND SHALL BE MIXED IN STANDARD HYDRAULIC MULCHING EQUIPMENT TO FORM A HOMOGENEOUS SLURRY. THE SLURRY SHALL BE SPRAYED UNIFORMLY OVER THE SURFACE AT A MINIMUM RATE OF 1800 POUNDS PER ACRE.
  - APPLICATION OF VEGETABLE MULCH:
    - MULCH SHALL BE APPLIED IN A UNIFORM MANNER WITH A MULCH SPREADER AT A MINIMUM RATE OF 1-1/2 TONS PER ACRE WHERE REQUIRED MULCH SHALL BE ANCHORED INTO THE SEED BED BY TUCKING OR APPLICATION OF A TACKIFYING AGENT.
  - ANCHORING MULCH:
    - GENERAL: MULCH TACKIFIERS SHALL BE MIXED WITH WATER AT A RATE SPECIFIED BY THE MANUFACTURER AND SHALL BE APPLIED AT A MINIMUM RATE OF 40 POUNDS PER ACRE.
    - CURLEX' EROSION CONTROL BLANKETS:
      - GENERAL: FURNISH AND INSTALL 'CURLEX' BLANKETS TO SLOPES WHICH ARE IN THE CONTRACTOR'S OPINION HIGHLY SUSCEPTIBLE TO EROSION AND ITS OCCURRENCE CANNOT BE PREVENTED BY ANY OTHER MEANS.
      - APPLICATION: BLANKETS WILL BE APPLIED VERTICALLY TO THE SLOPE AND ATTACHED TO THE SLOPE WITH U-SHAPED METAL STAPLES, WITH LEGS 6" IN LENGTH AND 1" CROWN. SIZE, GAUGE AND NUMBER OF STAPLES WILL VARY WITH GROUND CONDITIONS, SLOPE, ETC.

**USDA PLANT HARDINESS ZONE MAP**



**NH INVASIVE SPECIES WATCH LIST**

**NEW HAMPSHIRE INVASIVE SPECIES COMMITTEE - APPROVED BY THE ISC APRIL 11, 2018**

THE NH INVASIVE PLANT SPECIES WATCH LIST IS A NON-REGULATORY REFERENCE TOOL THAT SERVES TO: 1. IDENTIFY POTENTIALLY INVASIVE NON-NATIVE PLANT SPECIES BASED ON DEGREE OF INVASIVE QUALITIES (E.G., AGGRESSIVE GROWTH, RAPID REPRODUCTION, AND/OR LACK OF NATURAL HERBIVORES) AND PRESENCE (BUT NOT NECESSARILY ABUNDANCE) IN NH AND/OR NEARBY ELSEWHERE IN NEW ENGLAND 2. INFORM PREVENTION (E.G., EARLY DETECTION/RAPID RESPONSE), MONITORING, AND MANAGEMENT DECISION-MAKING FOR SPECIES THAT MAY IMPACT NHS ECOSYSTEMS OR ECONOMY 3. INCREASE AWARENESS OF INVASIVE PLANT SPECIES.

SCIENTIFIC NAME	SYNONYMS	COMMON NAME
ABUTILON THEOPHRASTI MEDK.		VELVETLEAF INDIAN-MALLOW
ACER GINNALA MAXIM.		AMUR MAPLE
AGROSTEMMA GITHAGAE L. VAR. GITHAGO	LYCHNIS GITHAGO (L.) SCOP.	COMMON CORNCOCKLE
AIRA CARYOPHYLLEA L.	ASPRIS CARYOPHYLLEA (L.) NASH	COMMON SILVER-HAIRGRASS
ALLIUM VINEALE L.		CROW GARLIC
AMORPHA FRUTICOSA L.	AMORPHA FRUTICOSA L. VAR. ANGUSTIFOLIA PURSH; A. FRUTICOSA L. VAR. OBLONGIFOLIA PALMER; A. FRUTICOSA L. VAR. TENNESSEENSIS (SHUTTLEW. EX KUNZE) PALMER	FALSE INDIGO-BUSH
ARALIA ELATA (MIQ.) SEEM.	DIMORPHANTHUS ELATUS MIQ.	JAPANESE ANGELICA-TREE
BARBAREA VULGARIS AIT. F.	BARBAREA ARCUATA (OPIZ EX J. & K. PRESL) REICHENB.; B. STRICTA, OF AUTHORS NOT ANDRZ.; B. VULGARIS VAR. ARCUATA (OPIZ EX J. & K. PRESL) FRIEIS; CAMPE BARBAREA (L.) W. WIGHT EX PIPER, C. STRICTA, OF AUTHORS NOT (ANDRZ.) W. WIGHT EX PIPER, ERYSIMUM BARBAREA L.	GARDEN YELLOW-ROCKET
BRASSICA JUNCEA (L.) CZERN.	BRASSICA JUNCEA (L.) CZERN. VAR. CRISPIFOLIA BAILEY; SINAPIS JUNCEA L.	CHINESE MUSTARD
BROMUS TECTORUM L.	SINAPIS NIGRA L.	BLACK MUSTARD
CARDAMINE IMPATIENS L.	ANISANTHA TECTORUM (L.) NEVSKI	CHEAT BROME
CENTAUREA JACEA L.	CENTAUREA DEBEAUXII GREU. & GODR. SSP. THUILLIERI DOSTAL; C. JACEA L. SSP. DECIPiens (THULL.) ČELAK; C. JACEA L. SSP. PRATENSIS ČELAK; C. PRATENSIS THULL.; C. THUILLIERI (DOSTAL) J. DUVERN. & LAMBINON; CYANUS JACEA (L.) P. GAERTN.; JACEA PRATENSIS LAM.	NARROW-LEAVED BITTER-CRESS
CENTAUREA NIGRA L.	JACEA NIGRA (L.) HILL	BROWN KNAPWEED
CHELIDONIUM MAJUS L.	CHELIDONIUM MAJUS L. VAR. LACINIATUM (P. MILL.) SYME; C. MAJUS L. VAR. PLENUM WEHRHANN	GREATER CELANDINE
CIRSIIUM PALUSTRE (L.) SCOP.	CARDIUS PALUSTRIS L.	MARSH THISTLE
CIRSIIUM VULGARE (SAV.) TEN.	CARDIUS VULGARE (SAV.) TEN.	COMMON THISTLE
CONVOLVULUS ARVENSIS L.	STROPHOCALOUS ARVENSIS (L.) SMALL	FIELD BINDWEED
CYTISUS SCOPARIUM (L.) LINK	SPARTIUM SCOPARIUM L.	SCOTCH BROOM
DIGITARIA SANGUINALIS (L.) SCOP.	PANICUM SANGUINALE L.	HAIRY CRABGRASS
EICHORNIA CRASSIPES (MART.) SOLMS-LAUBACH	EICHORNIA SPECIOSA KUNTH; PIARPOUS CRASSIPES (MART.) RAF.	COMMON WATER-HYACINTH
ELYMUS REPENS (L.) GOULD	AGROPYRON REPENS (L.) GOULD; ELYTRIGIA REPENS (L.) DESV. EX B.D. JACKSON; TRITICUM REPENS L.	CREEPIING WILD-RYE
EPILOBIUM HIRSUTUM L.		HAIRY WILLOW-HERB
EPIPACTIS HELLEBORINE (L.) CRANTZ	EPIPACTIS LATIFOLIA (L.) ALL.; SERAPIAS HELLEBORINE L.	BROAD-LEAVED HELLEBORINE
EUONYMUS EUROPAEUS L.		EUROPEAN SPINDLE-TREE
EUONYMUS FORTUNEI (TURCZ.) HAND-MAZZ	EUONYMUS FORTUNEI (TURCZ.) HAND-MAZZ VAR. RADICANS (SIEB. EX MIQ.) REHD.; E. FORTUNEI (TURCZ.) HAND-MAZZ VAR. VEGETUS (REHD.) REHD.; E. RADICANS SIEB. EX MIQ.; E. RADICANS SIEB. EX MIQ. VAR. VEGETUS REHD.	CLIMBING SPINDLE-TREE
FESTUCA FILIFORMIS POURRET	FESTUCA CAPILLATA LAM.; F. OVINA L. VAR. CAPILLATA (LAM.) ALEF.; F. TENUIFOLIA SIBTHORP	FINE-LEAVED SHEEP FESCUE
FICARIA VERNA HUDS. SSP. FERTILIS (LAWRALREE EX LAEGAARD) STACE	FICARIA VERNA HUDS. SSP. BULBIFERA A. & D. LOVE; RANUNCULUS FICARIA L. SSP. BULBIFER LAMBINON; R. FICARIA L. SSP. BULBIFERA (MARDSEN-JONES) LAWALREE, AN ILL-LEGITIMATE NAME; R. FICARIA VAR. BULBIFERA FIG-CROWFOOT	FIG-CROWFOOT
FROELICHA GRACILIS (HOOK) MAQ.	OPLOTHECA GRACILIS MOQ.	SLENDER COTTON-WEED
GALIUM MOLLUGO L.		WHORLED BEDSTRAW
GLECHOMA HEDERACEA L.	GLECHOMA HEDERACEA L. VAR. MICRANTHA MORIC.; G. HEDERACEA L. VAR. PARVIFLORA (BENTH.) HOUSE; NEPETA HEDERACEA (L.) TRÉVISAN	GILL-OVER-THE-GROUND
HYLOTELEPHIUM TELEPHIUM (L.) H. OHBA	SEDUM PURPUREUM (L.) J.A. SCHULTES; S. PURPURASCENS W.D.J. KOCH; S. TELEPHIUM L.	PURPLE ORPINE
KOCHIA SCOPARIA (L.) SCHRAD.	BASSIA SCOPARIA (L.) A.J. SCOTT; CHENOPODIUM SCOPARIUM L.; KOCHIA SCOPARIA (L.) SCHRAD. VAR. PUBESCENS FENZL; K. SCOPARIA (L.) SCHRAD. VAR. SUBVILLOSA MOQ.	SUMMER-CYRESS
LAMIUM AMPLEXICAULE L. VAR. AMPLEXICAULE		COMMON HENBIT
LAMIUM PURPUREUM L.	LAMIUM DISSECTUM WITH: L. HYBRIDIUM, OF AUTHORS NOT VILL.	RED HENBIT
LONICERA XYLOSTEUM L.		FLY HONEY-SUCKLE
LUPINUS POLYPHYLLUS LINDL. VAR. POLYPHYLLUS	LUPINUS PALLIDIPES HELLER; L. POLYPHYLLUS LINDL. VAR. ALBIFLORUS L.H. BAILEY; L. POLYPHYLLUS LINDL. VAR. PALLIDIPES (HELLER) C.P. SM.	BLUE LUPINE
LYCHNIS FLOS-CUCULI L. SSP. FLOS-CUCULI	CORONARIA FLOS-CUCULI (L.) A. BRAUN; SILENE FLOS-CUCULI (L.) CLAIRVILLE	RAGGED ROBIN LYCHNIS
LYSIMACHIA ARVENSIS (L.) U. MANNIS & A. ANDERB.	ANAGALLIS ARVENSIS L.; A. ARVENSIS L. VAR. CAERULEA (SCHREB.) GREU. & GODR.; A. CAERULEA SCHREB.	SCARLET PIMPERNEL
LYSIMACHIA VULGARIS L.		GARDEN YELLOW-LOOSESTRIPE
MISCANTHUS SINENSIS ANDERS.	MISCANTHUS SINENSIS ANDERS. VAR. GRACILIMUS A.S. HITCHC.	CHINESE SILVERGRASS
MYCELIS MURALIS (L.) DUMORT.	LACTUCA MURALIS (L.) FRESEN.	WALL-LETUCE
MYOSOTIS SCORPIOIDES L.	MYOSOTIS PALUSTRIS (L.) HILL	WATER FORGEE-ME-NOT
NASTURTIUM MICROPHYLLUM BOENN. EX REICHENB.	NASTURTIUM OFFICINALE AIT. F. VAR. MICROPHYLLUM (BOENN. EX REICHENB.) THELLUNG; RORIPPA MICROPHYLLA (BOENN. EX REICHENB.) HYL. EX A. & D. LOVE	ONE-ROWED WATER-CRESS
NASTURTIUM OFFICINALE AIT. F.	BAELMERTA NASTURTIUM-AQUATICUM (L.) HAYEK; RORIPPA NASTURTIUM AQUATICUM (L.) HAYEK; SISYMBRIUM NASTURTIUM-AQUATICUM L.	TWO-ROWED WATER-CRESS
OENANTHE JAVANICA (BLUME) DC		JAVA WATER DROPPWORT
PERSICARIA LONGISETA (BRUIJN) KITAGAWA	PERSICARIA CAESPITOSA (BLUME) NAKAI VAR. LONGISETA (BRUIJN) REED; POLYGONUM CAESPITOSUM BLUME VAR. LONGISETUM (BRUIJN) STEWARD; P. LONGISETUM BRUIJN	ORIENTAL LADY'S-THUMB SMARTWEED
PHELLODENDRON AMURENSE RUPR.	PHELLODENDRON AMURENSE RUPR. VAR. SACHALINENSE F. SCHMIDT; P. JAPONICUM MAXIM.; P. SACHALINENSE (F. SCHMIDT) SARG.	AMUR CORKTREE
POA COMPRESSA L.		FLAT-STEMMED BLUE GRASS
POA NEOMORALIS L.		WOOD BLUE GRASS
POPULUS ALBA L.	POPULUS ALBA L. VAR. BOLLEANA LAUCHE	WHITE POPLAR
RANUNCULUS REPENS L.	RANUNCULUS REPENS L. VAR. DEGENERATES SCHUR; R. REPENS L. VAR. ERECTUS DC.; R. REPENS L. VAR. GLABRATUS DC.; R. REPENS L. VAR. PLENIFLORUS FERN.; R. REPENS L. VAR. VILLOSIUS LAMOTTE	SPOT-LEAVED CROWFOOT
RAPHANUS RAPHANISTRUM L. SSP. RAPHANISTRUM		WILD RADISH
RHINANTHUS MINOR L. SSP. MINOR	RHINANTHUS CRISTA-GALLI L. IN PART; R. CRISTA-GALLI L. VAR. FALLAX (WIMMER & GRAB) DRUCE; R. STENOPHYLLUS (SCHUR) SCHINZ & THELLUNG	LITTLE YELLOW-RATTLE
RUMEX ACETOSELLA L. SSP. PYRENAICUS (POURRET EX LAPEYR.) AKEROYD	ACETOSELLA VULGARIS (KOECH) FOURR. SSP. PYRENAICA (POURRET EX LAPEYR.) J. ÅLÖE; RUMEX ACETOSELLA L. VAR. PYRENAICUS (POURRET EX LAPEYR.) TIMBAL-LAGRAVE; R. PYRENAICUS POURRET EX LAPEYR.	SHEEP DOCK
SECURIGERA VARIA (L.) LASSEN	CORONILLA VARIA L.	PURPLE CROWN-VETCH
SILPHIUM PERFOLIATUM L.		CUP-PURPLE ROSINWEED
SINAPIS ARVENSIS L.	BRASSICA ARVENSIS RABENH.; B. KABER (DC.) L.C. WHEELER; B. KABER (DC.) L.C. WHEELER VAR. PINNATIFIDA (STOKES) L.C. WHEELER	CORN CHARLOCK
SOLANUM CAROLINENSE L. VAR. CAROLINENSE		CAROLINA NIGHTSHADE
SOLANUM DULCICAMARA L.		CLIMBING NIGHTSHADE
SONCHUS ARVENSIS L.	SONCHUS ARVENSIS L. SSP. ULIGINOSUS (BIEB.) NYMAN; S. ULIGINOSUS BIEB.	FIELD SOW-THISTLE
SORBARIA SORBIFOLIA (L.) A. BRAUN	SCHIZONOTUS SORBIFOLIUS (L.) LINDL.; SPIRAEA SORBIFOLIA L.	FALSE SPIRAEA
TANACETUM VULGARE L		



**LANDSCAPE GENERAL SPECIFICATIONS**

SECTION 32 84 00 - PLANTING IRRIGATION  
PART 1 - GENERAL

1.1 SUMMARY  
A. THE INTENT IS THAT THE LANDSCAPE IRRIGATION SYSTEM SHALL BE DESIGN-BUILT AND THAT ALL LAWN AND PLANTING AREAS FOR THIS PROJECT RECEIVE FULL COVERAGE OF THE IRRIGATION SYSTEM.

B. SECTION INCLUDES:  
1. PIPES, TUBES, AND FITTINGS.  
2. MANUAL VALVES  
3. AUTOMATIC CONTROL VALVES.  
4. AUTOMATIC DRAIN VALVES.  
5. SPRINKLERS.  
6. QUICK COUPLERS.  
7. CONTROLLERS.  
8. BOXES FOR AUTOMATIC CONTROL VALVES.

1.2 ACTION SUBMITTALS  
A. PRODUCT DATA:  
1. PIPES, TUBES, AND FITTINGS.  
2. MANUAL VALVES.  
3. AUTOMATIC CONTROL VALVES.  
4. AUTOMATIC DRAIN VALVES.  
5. SPRINKLERS.  
6. QUICK COUPLERS.  
7. CONTROLLERS.  
8. BOXES FOR AUTOMATIC CONTROL VALVES.  
9. INCLUDE RATED CAPACITIES, OPERATING CHARACTERISTICS, ELECTRICAL CHARACTERISTICS, AND FURNISHED SPECIALTIES AND ACCESSORIES.  
B. WIRING DIAGRAMS: FOR POWER, SIGNAL, AND CONTROL WIRING.  
C. DELEGATED DESIGN SUBMITTAL: FOR IRRIGATION SYSTEMS ANALYSIS DATA SIGNED AND SEALED BY THE QUALIFIED PROFESSIONAL ENGINEER RESPONSIBLE FOR THIS PREPARATION.

1.3 INFORMATIONAL SUBMITTALS  
A. COORDINATION DRAWINGS: IRRIGATION SYSTEMS, DRAWN TO SCALE, ON WHICH COMPONENTS ARE INDICATED AND COORDINATED WITH EACH OTHER, USING INPUT FROM INSTALLERS OF THE ITEMS INVOLVED. ALSO INCLUDE ADJUSTMENTS NECESSARY TO AVOID PLANTINGS AND OBSTRUCTIONS, SUCH AS SIGNS AND LIGHT STANDARDS.  
B. ZONING CHART: INDICATE EACH IRRIGATION ZONE AND ITS CONTROL VALVE.  
C. CONTROLLER TIMING SCHEDULE: INDICATE TIMING SETTINGS FOR EACH AUTOMATIC CONTROLLER ZONE.  
D. FIELD QUALITY CONTROL SUBMITTALS:  
1. FIELD QUALITY CONTROL REPORTS.

1.4 CLOSEOUT SUBMITTALS  
A. OPERATION AND MAINTENANCE DATA.  
1.5 QUALITY ASSURANCE  
A. QUALIFICATIONS:  
1. INSTALLERS: ENTITY THAT EMPLOYS A CERTIFIED IRRIGATION DESIGNER - LANDSCAPE QUALIFIED BY THE IRRIGATION ASSOCIATION.  
B. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION.

PART 2 - PRODUCTS  
2.1 PERFORMANCE REQUIREMENTS  
A. IRRIGATION ZONE CONTROL: AUTOMATIC OPERATION WITH CONTROLLER AND AUTOMATIC CONTROL VALVES.  
B. LOCATION OF SPRINKLERS AND SPECIALTIES: DESIGN LOCATION IS APPROXIMATE. MAKE MINOR ADJUSTMENTS NECESSARY TO AVOID PLANTINGS AND OBSTRUCTIONS, SUCH AS SIGNS AND LIGHT STANDARDS. MAINTAIN 100 PERCENT IRRIGATION COVERAGE OF ALL LAWN AND PLANTING AREAS INDICATED.  
C. DELEGATED DESIGN: DESIGN 100 PERCENT COVERAGE IRRIGATION SYSTEM, INCLUDING COMPREHENSIVE ENGINEERING ANALYSIS BY A QUALIFIED PROFESSIONAL ENGINEER, USING PERFORMANCE REQUIREMENTS AND DESIGN CRITERIA TO BE DETERMINED BASED UPON FINAL SITE DISTURBANCE.

2.2 PIPES, TUBES, AND FITTINGS  
A. COMPLY WITH REQUIREMENTS IN "PIPING SCHEDULE" ARTICLE FOR APPLICATIONS OF PIPE, TUBE, AND FITTING MATERIALS, AND FOR JOINING METHODS FOR SPECIFIC SERVICES, SERVICE LOCATIONS, AND PIPE SIZES.  
B. PE PIPE WITH CONTROLLED ID: ASTM D2239, PE 3408 COMPOUND, SIDR 15.  
1. INSERT FITTINGS FOR PE PIPE: ASTM D2609, NYLON OR PROPYLENE PLASTIC WITH BARBED ENDS. INCLUDE BANDS OR OTHER FASTENERS.  
C. PVC PIPE: ASTM D1785, PVC 1120 COMPOUND, SCHEDULES 40 AND 80.  
1. PVC SOCKET FITTINGS: ASTM D2466, SCHEDULES 40 AND 80.  
2. PVC THREADED FITTINGS: ASTM D2464, SCHEDULE 80.  
3. PVC SOCKET UNIONS: CONSTRUCTION SIMILAR TO THAT OF MSS SP-107, EXCEPT BOTH HEADPIECE AND TAILPIECE SHALL BE PVC WITH SOCKET ENDS.  
D. PVC PIPE, PRESSURE RATED: ASTM D2241, PVC 1120 COMPOUND, SDR 26.  
1. PVC SOCKET FITTINGS: ASTM D2467, SCHEDULE 80.  
2. PVC SOCKET UNIONS: CONSTRUCTION SIMILAR TO THAT OF MSS SP-107, EXCEPT BOTH HEADPIECE AND TAILPIECE SHALL BE PVC WITH SOCKET OR THREADED ENDS.

2.3 PIPING JOINING MATERIALS  
A. PIPE-FLANGE GASKET MATERIALS: AWWA C110, RUBBER, FLAT FACE, 1/8 INCH THICK UNLESS OTHERWISE INDICATED; FULL-FACE OR RING TYPE UNLESS OTHERWISE INDICATED.  
B. METAL, PIPE-FLANGE BOLTS AND NUTS: ASME B18.2.1, CARBON STEEL, UNLESS OTHERWISE INDICATED.  
C. BRAZING FILLER METALS: AWS A5.8/A5.8M, BCUP SERIES, COPPER-PHOSPHORUS ALLOYS FOR GENERAL-DUTY BRAZING UNLESS OTHERWISE INDICATED.  
D. SOLDER FILLER METALS: ASTM B32, LEAD-FREE ALLOYS. INCLUDE WATER-FLUSHABLE FLUX IN ACCORDANCE WITH ASTM B813.  
E. SOLVENT CEMENTS FOR JOINING PVC PIPING: ASTM D2564, INCLUDE PRIMER IN ACCORDANCE WITH ASTM F566.  
F. PLASTIC, PIPE-FLANGE GASKET, BOLTS, AND NUTS: TYPE AND MATERIAL RECOMMENDED BY PIPING SYSTEM MANUFACTURER UNLESS OTHERWISE INDICATED.

2.4 MANUAL VALVES  
A. CURB VALVES:  
1. DESCRIPTION:  
A. STANDARD: AWWA C800.  
B. NPS 1 AND SMALLER PRESSURE RATING: 150 PSIG.  
C. NPS 1-1/4 TO NPS 2 PRESSURE RATING: 150 PSIG.  
D. BODY MATERIAL: BRASS OR BRONZE WITH BALL OR GROUND-KEY PLUG.  
E. END CONNECTIONS: MATCHING PIPING.  
F. STEM: WITH WIDE-TEE HEAD.  
B. CURB-VALVE CASING:  
1. STANDARD: SIMILAR TO AWWA M44 FOR CAST-IRON VALVE CASINGS.  
2. TOP SECTION: TELESCOPING, OF LENGTH REQUIRED FOR DEPTH OF BURIAL OF CURB VALVE.  
3. BARREL: APPROXIMATELY 3-INCH DIAMETER.  
4. PLUG: WITH LETTERING "WATER".  
5. BOTTOM SECTION: WITH BASE OF SIZE TO FIT OVER VALVE.  
6. BASE SUPPORT: CONCRETE COLLAR.  
C. SHUT-OFF RODS FOR CURB-VALVE CASINGS: FURNISH TWO STEEL, TEE-HANDLE SHUT-OFF ROD(S) WITH ONE POINTED END, STEM OF LENGTH TO OPERATE DEEPEST BURIED VALVE, AND SLOTTED END MATCHING CURB VALVE FOR PROJECT.  
D. BRASS BALL VALVES:  
1. DESCRIPTION:  
A. STANDARD: MSS SP-110.  
B. SWP RATING: 150 PSIG.  
C. CWP RATING: 600 PSIG.  
D. BODY DESIGN: TWO PIECE.  
E. BODY MATERIAL: FORGED BRASS.  
F. ENDS: THREADED OR SOLDER JOINT IF INDICATED.  
G. SEATS: PTFE OR TFE.  
H. STEM: BRASS.  
I. BALL: CHROME-PLATED BRASS.  
J. PORT: FULL.  
E. BRONZE BALL VALVES:  
1. DESCRIPTION:  
A. STANDARD: MSS SP-110.  
B. SWP RATING: 150 PSIG.  
C. CWP RATING: 600 PSIG.  
D. BODY DESIGN: TWO PIECE.  
E. BODY MATERIAL: BRONZE.  
F. ENDS: THREADED OR SOLDER JOINT IF INDICATED.  
G. SEATS: PTFE OR TFE.  
H. STEM: BRASS.  
I. BALL: CHROME-PLATED BRASS.  
J. PORT: FULL.  
F. IRON BALL VALVES:  
1. DESCRIPTION:  
A. STANDARD: MSS SP-72.  
B. CWP RATING: 200 PSIG.  
C. BODY DESIGN: SPLIT BODY.  
D. BODY MATERIAL: ASTM A126, GRAY IRON.  
E. ENDS: FLANGED.  
F. SEATS: PTFE OR TFE.  
G. STEM: STAINLESS STEEL.  
H. BALL: STAINLESS STEEL.  
I. PORT: FULL.  
J. PLASTIC BALL VALVES:  
1. DESCRIPTION:  
A. STANDARD: MSS SP-122.  
B. PRESSURE RATING: 150 PSIG.  
C. BODY MATERIAL: PVC.  
D. TYPE: UNION.  
E. END CONNECTIONS: SOCKET OR THREADED.  
F. PORT: FULL.

H. IRON GATE VALVES, RESILIENT SEATED:  
1. DESCRIPTION:  
A. STANDARD: AWWA C509.  
B. PRESSURE RATING: 200 PSIG MINIMUM.  
C. BODY MATERIAL: DUCTILE OR GRAY IRON WITH BRONZE TRIM.  
D. END CONNECTIONS: MECHANICAL JOINT OR PUSH-ON JOINT.  
E. INTERIOR COATINGS: COMPLY WITH AWWA C550.  
F. BODY DESIGN: NONRISING STEM.  
G. OPERATOR: STEM NUT.  
H. DISC: SOLID WEDGE WITH RESILIENT COATING.

I. IRON GATE VALVE CASINGS:  
1. STANDARD: AWWA M44 FOR CAST-IRON VALVE CASINGS.  
2. TOP SECTION: ADJUSTABLE EXTENSION OF LENGTH REQUIRED FOR DEPTH OF BURIAL OF VALVE.  
3. BARREL: APPROXIMATELY 5-INCH DIAMETER.  
4. PLUG: WITH LETTERING "WATER".  
5. BOTTOM SECTION: WITH BASE OF SIZE TO FIT OVER VALVE.  
6. BASE SUPPORT: CONCRETE COLLAR.  
J. OPERATING WRENCHES FOR IRON GATE VALVE CASINGS: FURNISH TWO STEEL, TEE-HANDLE OPERATING WRENCH(ES) WITH ONE POINTED END, STEM OF LENGTH TO OPERATE DEEPEST BURIED VALVE, AND SOCKET MATCHING VALVE OPERATING NUT FOR PROJECT.

2.5 AUTOMATIC CONTROL VALVES  
A. BRONZE, AUTOMATIC CONTROL VALVES:  
1. DESCRIPTION: CAST-BRONZE BODY, NORMALLY CLOSED, DIAPHRAGM TYPE WITH MANUAL-FLOW ADJUSTMENT, AND OPERATED BY 24 V AC SOLENOID.  
B. PLASTIC, AUTOMATIC CONTROL VALVES:  
1. DESCRIPTION: MOLDED-PLASTIC BODY, NORMALLY CLOSED, DIAPHRAGM TYPE WITH MANUAL-FLOW ADJUSTMENT, AND OPERATED BY 24 V AC SOLENOID.  
2.6 AUTOMATIC DRAIN VALVES  
A. DESCRIPTION: SPRING-LOADED-BALL TYPE OF CORROSION-RESISTANT CONSTRUCTION AND DESIGNED TO OPEN FOR DRAINAGE IF LINE PRESSURE DROPS BELOW 2-1/2 TO 3 PSIG.

2.7 SPRINKLERS  
A. GENERAL REQUIREMENTS: DESIGNED FOR UNIFORM COVERAGE OVER ENTIRE SPRAY AREA INDICATED AT AVAILABLE WATER PRESSURE.  
B. PLASTIC, EXPOSED, IMPACT-DRIVE ROTARY SPRINKLERS:  
1. DESCRIPTION:  
A. CONSTRUCTION: ABS AND CORROSION-RESISTANT METALS.  
B. MOUNTING: ABOVEGROUND, EXPOSED ON RISER.  
2. CAPACITIES AND CHARACTERISTICS:  
A. FLOW: 150 GPM.  
B. ARC: FULL OR HALF CIRCLE.  
C. RADIUS: 20 FEET.  
D. INLET: NPS 3/4.  
C. PLASTIC, POP-UP, GEAR-DRIVE ROTARY SPRINKLERS:  
1. DESCRIPTION:  
A. BODY MATERIAL: ABS.  
B. NOZZLE: ABS.  
C. RETRACTION SPRING: STAINLESS STEEL.  
D. INTERNAL PARTS: CORROSION RESISTANT.  
2. CAPACITIES AND CHARACTERISTICS:  
A. FLOW: 150 GPM.  
B. POP-UP HEIGHT: 4 INCHES ABOVEGROUND TO NOZZLE.  
C. ARC: FULL OR HALF CIRCLE.  
D. RADIUS: 20 FEET.  
E. INLET: NPS 3/4.  
D. PLASTIC, POP-UP, IMPACT-DRIVE ROTARY SPRINKLERS:  
1. DESCRIPTION:  
A. CASE: ABS.  
B. POP-UP HEIGHT: 4 INCHES ABOVEGROUND TO NOZZLE.  
C. SPRINKLER CONSTRUCTION: ABS AND OTHER CORROSION-RESISTANT METALS.  
2. CAPACITIES AND CHARACTERISTICS:  
A. NOZZLE: BRASS.  
B. FLOW: 150 GPM.  
C. ARC: FULL OR HALF CIRCLE.  
D. RADIUS: 20 FEET.  
E. INLET: NPS 3/4.  
E. PLASTIC, SURFACE SPRAY SPRINKLERS:  
1. DESCRIPTION:  
A. BODY MATERIAL AND FLANGE: ABS.  
B. PATTERN: FIXED, WITH FLOW ADJUSTMENT.  
2. CAPACITIES AND CHARACTERISTICS:  
A. NOZZLE: BRASS.  
B. FLOW: 150 GPM.  
C. ARC: FULL OR HALF CIRCLE.  
D. RADIUS: 20 FEET.  
E. INLET: NPS 3/4.  
F. PLASTIC, SURFACE, POP-UP SPRAY SPRINKLERS:  
1. DESCRIPTION:  
A. BODY MATERIAL AND FLANGE: ABS.  
B. PATTERN: FIXED, WITH FLOW ADJUSTMENT.  
2. CAPACITIES AND CHARACTERISTICS:  
A. POP-UP HEIGHT: 4 INCHES ABOVEGROUND TO NOZZLE.  
B. NOZZLE: BRASS.  
C. FLOW: 150 GPM.  
D. ARC: FULL OR HALF CIRCLE.  
E. RADIUS: 20 FEET.  
F. INLET: NPS 3/4.  
G. PLASTIC, POP-UP SPRAY SPRINKLERS:  
1. DESCRIPTION:  
A. BODY MATERIAL: ABS.  
B. NOZZLE: BRASS.  
C. RETRACTION SPRING: STAINLESS STEEL.  
D. INTERNAL PARTS: CORROSION RESISTANT.  
E. PATTERN: FIXED, WITH FLOW ADJUSTMENT.  
2. CAPACITIES AND CHARACTERISTICS:  
A. NOZZLE: BRASS.  
B. FLOW: 150 GPM.  
C. POP-UP HEIGHT: 4 INCHES ABOVEGROUND TO NOZZLE.  
D. ARC: FULL OR HALF CIRCLE.  
E. RADIUS: 20 FEET.  
H. PLASTIC SHRUB SPRINKLERS:  
1. DESCRIPTION:  
A. BODY MATERIAL: ABS OR OTHER PLASTIC.  
B. PATTERN: FIXED, WITH FLOW ADJUSTMENT.  
2. CAPACITIES AND CHARACTERISTICS:  
A. FLOW: 150 GPM.  
B. ARC: HALF CIRCLE.  
C. RADIUS: 10 FEET.  
D. MOUNTING HEIGHT: 4 INCHES ABOVEGROUND TO NOZZLE.  
E. INLET: NPS 3/4.

2.8 QUICK COUPLER FACTORY-FABRICATED, BRONZE OR BRASS, TWO-PIECE ASSEMBLY. INCLUDE COUPLER WATER-SEAL VALVE; REMOVABLE UPPER BODY WITH SPRING-LOADED OR WEIGHTED, RUBBER-COVERED CAP; HOSE SWIVEL WITH ASME B1.20.7, 3/4-11.5NH THREADS FOR GARDEN HOSE ON OUTLET; AND OPERATING KEY.  
1. LOCKING-TOP OPTION: VANDAL-RESISTANT LOCKING FEATURE. INCLUDE (2) TWO MATCHING KEYS).

2.9 CONTROLLERS  
1. DESCRIPTION:  
1. CONTROLLER STATIONS FOR AUTOMATIC CONTROL VALVES. EACH STATION IS VARIABLE FROM APPROXIMATELY 5 TO 60 MINUTES. INCLUDE SWITCH FOR MANUAL OR AUTOMATIC OPERATION OF EACH STATION.  
2. EXTERIOR CONTROL ENCLOSURES: NEMA 250, TYPE 4, WEATHERPROOF, WITH LOCKING COVER AND TWO MATCHING KEYS. INCLUDE PROVISION FOR GROUNDING.  
A. BODY MATERIAL: MOLDED PLASTIC.  
B. MOUNTING: SURFACE TYPE FOR WALL.  
3. INTERIOR CONTROL ENCLOSURES: NEMA 250, TYPE 12, DRIPPROOF, WITH LOCKING COVER AND TWO MATCHING KEYS.  
A. BODY MATERIAL: MOLDED PLASTIC.  
B. MOUNTING: SURFACE TYPE FOR WALL.  
4. CONTROL TRANSFORMER: 24 V SECONDARY, WITH PRIMARY FUSE.  
5. TIMING DEVICE: ADJUSTABLE, 24-HOUR, 14-DAY CLOCK, WITH AUTOMATIC OPERATIONS TO SKIP OPERATION ANY DAY IN TIMER PERIOD, TO OPERATE EVERY OTHER DAY, OR TO OPERATE TWO OR MORE TIMES DAILY.  
6. A MANUAL OR SEMIAUTOMATIC OPERATION: ALLOWS THIS MODE WITHOUT DISTURBING PRESET AUTOMATIC OPERATION.  
7. NICKEL-CADMIUM BATTERY AND TRICKLE CHARGER: AUTOMATICALLY POWERS TIMING DEVICE DURING POWER OUTAGES.  
8. SURGE PROTECTION: METAL-OXIDE-VARISTOR TYPE ON EACH STATION AND PRIMARY POWER.  
6. MOISTURE SENSOR: ADJUSTABLE FROM ONE TO SEVEN DAYS, TO SHUT OFF WATER LOW DURING RAIN.  
7. SMART CONTROLLERS: USE ET, TESTED IN ACCORDANCE WITH IA SWAT CLIMATOLOGICAL BASED CONTROLLERS 8TH DRAFT TESTING PROTOCOL AND COMPLIANT WITH ASHRAE 189.1.  
8. WIRING: UL 493 TYPE IUL MULTICONDUCTOR, WITH SOLID-COPPER CONDUCTORS; INSULATED CABLE; SUITABLE FOR DIRECT BURIAL.  
A. FEEDER-CIRCUIT CABLES: NO. 12 AWG MINIMUM, BETWEEN BUILDING AND CONTROLLERS.  
B. LOW-VOLTAGE, BRANCH-CIRCUIT CABLES: NO. 14 AWG MINIMUM, BETWEEN CONTROLLERS AND AUTOMATIC CONTROL VALVES; COLOR-CODED DIFFERENT FROM FEEDER-CIRCUIT CABLE JACKET COLOR, WITH JACKETS OF DIFFERENT COLORS FOR MULTIPLE-CABLE INSTALLATION IN SAME TRENCH.  
C. SPLICING MATERIALS: MANUFACTURERS PACKAGED KIT CONSISTING OF INSULATING, SPRING-TYPE CONNECTOR OR CRIMPED JOINT AND EPOXY RESIN MOISTURE SEAL, SUITABLE FOR DIRECT BURIAL.  
9. CONCRETE BASE: REINFORCED PRECAST CONCRETE NOT LESS THAN 36 BY 24 BY 4 INCHES THICK, AND 6 INCHES GREATER IN EACH DIRECTION THAN OVERALL DIMENSIONS OF CONTROLLER. INCLUDE OPENING FOR WIRING.

2.10 BOXES FOR AUTOMATIC CONTROL VALVES  
A. PLASTIC BOXES:  
1. DESCRIPTION: BOX AND COVER, WITH OPEN BOTTOM AND OPENINGS FOR PIPING, DESIGNED FOR INSTALLING FLUSH WITH GRADE.  
A. SIZE: AS REQUIRED FOR VALVES AND SERVICE.  
B. SHAPE: SQUARE.  
C. SIDEWALL MATERIAL: ABS.  
D. COVER MATERIAL: ABS.  
2. LETTERING: "IRRIGATION".  
B. DRAINAGE BACKFILL: CLEANED GRAVEL OR CRUSHED STONE, GRADED FROM 3/4 INCH MINIMUM TO 3 INCHES MAXIMUM.

PART 3 - EXECUTION  
3.1 EARTHWORK  
A. EXCAVATING, TRENCHING AND BACKFILLING ARE SPECIFIED IN SECTION 31 20 00 "EARTH MOVING".  
B. INSTALL WARNING TAPE DIRECTLY ABOVE PRESSURE PIPING, 12 INCHES BELOW FINISHED GRADES, EXCEPT 6 INCHES BELOW SUBGRADE UNDER PAVEMENT AND SLABS.  
C. DRAIN POCKETS: EXCAVATE TO SIZES INDICATED. BACKFILL WITH CLEANED GRAVEL OR CRUSHED STONE, GRADED FROM 3/4 TO 3 INCHES TO 1/2 INCHES BELOW GRADE. COVER GRAVEL OR CRUSHED STONE WITH SHEET OF ASPHALT-SATURATED FELT AND BACKFILL REMAINDER WITH EXCAVATED MATERIAL.  
D. PROVIDE MINIMUM COVER OVER TOP OF UNDERGROUND PIPING ACCORDING TO THE FOLLOWING:  
1. IRRIGATION MAIN PIPING: MINIMUM DEPTH OF 48 INCHES BELOW FINISHED GRADE, OR NOT LESS THAN 18 INCHES BELOW AVERAGE LOCAL FROST DEPTH, WHICHEVER IS DEEPER.  
2. CIRCUIT PIPING: 12 INCHES  
3. DRAIN PIPING: 12 INCHES  
4. SLEEVES: 24 INCHES

3.2 INSTALLATION OF PIPING  
A. LOCATION AND ARRANGEMENT: DRAWINGS INDICATE LOCATION AND ARRANGEMENT OF PIPING SYSTEMS. INSTALL PIPING AS INDICATED UNLESS DEVIATIONS ARE APPROVED ON COORDINATION DRAWINGS.  
B. INSTALL PIPING AT MINIMUM UNIFORM SLOPE OF 0.5 PERCENT DOWN TOWARD DRAIN VALVES.  
C. INSTALL PIPING FREE OF SAGS AND BENDS.  
D. INSTALL GROUPS OF PIPES PARALLEL, TO EACH OTHER, SPACED TO PERMIT VALVE SERVICING.  
E. INSTALL FITTINGS FOR CHANGES IN DIRECTION AND BRANCH CONNECTIONS.  
F. INSTALL UNIONS ADJACENT TO VALVES AND TO FINAL CONNECTIONS TO OTHER COMPONENTS WITH NPS 2 OR SMALLER PIPE CONNECTION.  
G. INSTALL FLANGES ADJACENT TO VALVES AND TO FINAL CONNECTIONS TO OTHER COMPONENTS WITH NPS 2-1/2 OR LARGER PIPE CONNECTION.  
H. INSTALL UNDERGROUND THERMOPLASTIC PIPING IN ACCORDANCE WITH ASTM D2774.  
I. INSTALL EXPANSION LOOPS IN CONTROL-VALVE BOXES FOR PLASTIC PIPING.  
J. LAY PIPING ON SOLID SUBBASE, UNFORMLY SLOPED WITHOUT HUMPS OR DEPRESSIONS.  
K. INSTALL DUCTILE-IRON PIPING IN ACCORDANCE WITH AWWA C900.  
L. INSTALL PVC PIPING IN DRY WEATHER WHEN TEMPERATURE IS ABOVE 40 DEG F. ALLOW JOINTS TO CURE AT LEAST 24 HOURS AT TEMPERATURES ABOVE 40 DEG F BEFORE TESTING.

3.3 JOINT CONSTRUCTION  
A. REAM ENDS OF PIPES AND TUBES AND REMOVE BURRS. BEVEL PLAIN ENDS OF STEEL PIPE.  
B. REMOVE SCALE, SLAG, DIRT, AND DEBRIS FROM INSIDE AND OUTSIDE OF PIPE AND FITTINGS BEFORE ASSEMBLY.  
C. THREADED JOINTS: TREAD PIPE WITH TREAD PIPE THREADS IN ACCORDANCE WITH ASME B1.20.1. CUT THREADS FULL AND CLEAN USING SHARP DIES. REAM THREADED PIPE ENDS TO REMOVE BURRS AND RESTORE FULL ID. JOIN PIPE FITTINGS AND VALVES AS FOLLOWS:  
1. APPLY APPROPRIATE TAPE OR THREAD COMPOUND TO EXTERNAL PIPE THREADS UNLESS DRY SEAL THREADING IS SPECIFIED.  
2. DAMAGED THREADS: DO NOT USE PIPE OR PIPE FITTINGS WITH THREADS THAT ARE CORRODED OR DAMAGED. DO NOT USE PIPE SECTIONS THAT HAVE CRACKED OR OPEN WELDS.  
D. FLANGED JOINTS: SELECT RUBBER GASKET MATERIAL OF SIZE, TYPE, AND THICKNESS FOR SERVICE APPLICATION. INSTALL GASKET CONCENTRICALLY POSITIONED. USE SUITABLE LUBRICANTS ON BOLT THREADS.  
E. DUCTILE-IRON PIPING GASKETED JOINTS: COMPLY WITH AWWA C600 AND AWWA M41.  
F. COPPER-TUBING BRAZED JOINTS: CONSTRUCT JOINTS IN ACCORDANCE WITH CDA'S "COPPER TUBE HANDBOOK," USING COPPER-PHOSPHORUS BRAZING FILLER METAL.  
G. COPPER-TUBING SOLDERED JOINTS: APPLY ASTM B813 WATER-FLUSHABLE FLUX TO TUBE END UNLESS OTHERWISE INDICATED. CONSTRUCT JOINTS IN ACCORDANCE WITH ASTM B828 OR CDA'S "COPPER TUBE HANDBOOK," USING LEAD-FREE SOLDER ALLOY (0.20 PERCENT MAXIMUM LEAD CONTENT) COMPLYING WITH ASTM B32.  
H. PE PIPING FASTENER JOINTS: JOIN WITH INSERT FITTINGS AND BANDS OR FASTENERS IN ACCORDANCE WITH PIPING MANUFACTURERS' WRITTEN INSTRUCTIONS.  
I. PVC PIPING SOLVENT-CEMENTED JOINTS: CLEAN AND DRY JOINT SURFACES, JOIN PIPE AND FITTINGS IN ACCORDANCE WITH THE FOLLOWING:  
1. COMPLY WITH ASTM F402 FOR SAFE-HANDLING PRACTICE OF CLEANERS, PRIMERS, AND SOLVENT CEMENTS.  
2. PVC PRESSURE PIPING: JOIN SCHEDULE NUMBER, ASTM D1785, PVC PIPE AND PVC SOCKET FITTINGS IN ACCORDANCE WITH ASTM D2872. JOIN OTHER-THAN-SCHEDULE-NUMBER PVC PIPE AND SOCKET FITTINGS IN ACCORDANCE WITH ASTM D2855.  
3. PVC NONPRESSURE PIPING: JOIN IN ACCORDANCE WITH ASTM D2855.

3.4 INSTALLATION OF VALVES  
A. UNDERGROUND CURB VALVES: INSTALL IN CURB-VALVE CASINGS WITH TOPS FLUSH WITH GRADE.  
B. UNDERGROUND IRON GATE VALVES, RESILIENT SEAT: COMPLY WITH AWWA C600 AND AWWA M44. INSTALL IN VALVE CASING WITH TOP FLUSH WITH GRADE.  
1. INSTALL VALVES AND PVC PIPE WITH RESTRAINED, GASKETED JOINTS.  
C. ABOVEGROUND VALVES: INSTALL AS COMPONENTS OF CONNECTED PIPING SYSTEM.  
D. THROTTLING VALVES: INSTALL IN UNDERGROUND PIPING IN BOXES FOR AUTOMATIC CONTROL VALVES.  
E. DRAIN VALVES: INSTALL IN UNDERGROUND PIPING IN BOXES FOR AUTOMATIC CONTROL VALVES.

3.5 INSTALLATION OF SPRINKLERS  
A. INSTALL SPRINKLERS AFTER HYDROSTATIC TEST IS COMPLETED.  
B. INSTALL SPRINKLERS AT MANUFACTURER'S RECOMMENDED HEIGHTS.  
C. LOCATE PART-CIRCLE SPRINKLERS TO MAINTAIN A MINIMUM DISTANCE OF 4 INCHES FROM WALLS AND 2 INCHES FROM OTHER BOUNDARIES UNLESS OTHERWISE INDICATED.

3.6 INSTALLATION OF AUTOMATIC IRRIGATION CONTROL SYSTEM  
A. SERVICE LOCATION AND IDENTIFICATION:  
1. PLACE AND SECURE ANCHORAGE DEVICES. USE SETTING DRAWINGS, TEMPLATES, DIAGRAMS, INSTRUCTIONS, AND DIRECTIONS FURNISHED WITH ITEMS TO BE EMBEDDED.  
B. EQUIPMENT MOUNTING, EXTERIOR: INSTALL EXTERIOR FREESTANDING CONTROLLERS ON PRECAST CONCRETE BASES.  
1. PLACE AND SECURE ANCHORAGE DEVICES. USE SETTING DRAWINGS, TEMPLATES, DIAGRAMS, INSTRUCTIONS, AND DIRECTIONS FURNISHED WITH ITEMS TO BE EMBEDDED.  
2. INSTALL ANCHOR BOLTS TO ELEVATIONS REQUIRED FOR PROPER ATTACHMENT TO SUPPORTED EQUIPMENT.  
B. EQUIPMENT MOUNTING, EXTERIOR: INSTALL EXTERIOR FREESTANDING CONTROLLERS ON PRECAST CONCRETE BASES.  
1. PLACE AND SECURE ANCHORAGE DEVICES. USE SETTING DRAWINGS, TEMPLATES, DIAGRAMS, INSTRUCTIONS, AND DIRECTIONS FURNISHED WITH ITEMS TO BE EMBEDDED.  
2. INSTALL ANCHOR BOLTS TO ELEVATIONS REQUIRED FOR PROPER ATTACHMENT TO SUPPORTED EQUIPMENT.  
C. PREPARE TEST AND INSPECTION REPORTS.

3.7 IDENTIFICATION  
A. IDENTIFY SYSTEM COMPONENTS. COMPLY WITH REQUIREMENTS FOR IDENTIFICATION SPECIFIED IN SECTION 22 05 53 "IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT."  
B. EQUIPMENT NAMEPLATES AND SIGNS: INSTALL ENGRAVED PLASTIC-LAMINATE EQUIPMENT NAMEPLATES AND SIGNS ON EACH AUTOMATIC CONTROLLER.  
1. TEXT: IN ADDITION TO IDENTIFYING UNIT, DISTINGUISH MULTIPLE UNITS, INFORM OPERATOR OF OPERATIONAL REQUIREMENTS, INDICATE SAFETY AND EMERGENCY PRECAUTIONS, AND WARN OF HAZARDS AND IMPROPER OPERATIONS.  
C. WARNING TAPES: ARRANGE FOR INSTALLATION OF CONTINUOUS, UNDERGROUND, DETECTABLE WARNING TAPES OVER UNDERGROUND PIPING DURING BACKFILLING OF TRENCHES. SEE SECTION 31 20 00 "EARTH MOVING" FOR WARNING TAPES.

3.8 FIELD QUALITY CONTROL  
A. PERFORM TESTS AND INSPECTIONS.  
B. TESTS AND INSPECTIONS:  
1. LEAK TEST: AFTER INSTALLATION, CHARGE SYSTEM AND TEST FOR LEAKS. REPAIR LEAKS AND RETEST UNTIL NO LEAKS EXIST.  
2. OPERATIONAL TEST: AFTER ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED, OPERATE CONTROLLERS AND AUTOMATIC CONTROL VALVES TO CONFIRM PROPER SYSTEM OPERATION.  
3. TEST AND ADJUST CONTROLS AND SAFETIES. REPLACE DAMAGED AND MALFUNCTIONING CONTROLS AND EQUIPMENT.  
4. IRRIGATION SYSTEM WILL BE CONSIDERED DEFECTIVE IF IT DOES NOT PASS TESTS AND INSPECTIONS.  
C. PREPARE TEST AND INSPECTION REPORTS.

3.9 ADJUSTING  
A. ADJUST SETTINGS OF CONTROLLERS.  
B. ADJUST AUTOMATIC CONTROL VALVES TO PROVIDE FLOW RATE AT RATED OPERATING PRESSURE REQUIRED FOR EACH SPRINKLER CIRCUIT.  
C. ADJUST SPRINKLERS AND DEVICES, EXCEPT THOSE INTENDED TO BE MOUNTED ABOVEGROUND, SO THEY WILL BE FLUSH WITH, OR NOT MORE THAN 1/2 INCH ABOVE, FINISH GRADE.

3.10 PIPING SCHEDULE  
A. INSTALL COMPONENTS HAVING PRESSURE RATING EQUAL TO OR GREATER THAN SYSTEM OPERATING PRESSURE.  
B. PIPING IN CONTROL-VALVE BOXES AND ABOVEGROUND MAY BE JOINED WITH FLANGES OR UNIONS INSTEAD OF JOINTS INDICATED.  
C. ABOVEGROUND IRRIGATION MAIN PIPING:  
1. NPS 4 AND SMALLER:  
A. GALVANIZED-STEEL PIPE AND GALVANIZED-STEEL PIPE NIPPLES; GALVANIZED, GRAY-IRON THREADED FITTINGS; AND THREADED JOINTS.  
B. TYPE 1 HARD COPPER TUBE, WROUGHT-COPPER FITTINGS, AND SOLDERED JOINTS.  
C. SCHEDULE 80, PVC PIPE, SOCKET-TYPE PVC FITTINGS; AND SOLVENT-CEMENTED JOINTS.  
D. SCHEDULE 80, PVC PIPE, SCHEDULE 80, THREADED PVC FITTINGS; AND THREADED JOINTS.  
D. UNDERGROUND IRRIGATION MAIN PIPING:  
1. NPS 4 AND SMALLER:  
A. NPS 3 AND NPS 4 DUCTILE-IRON, PUSH-ON JOINT PIPE, DUCTILE-IRON, PUSH-ON JOINT FITTINGS AND GASKETS; AND GASKETED JOINTS.  
B. TYPE 1 SOFT COPPER TUBE, WROUGHT-COPPER FITTINGS, AND BRAZED JOINTS.  
C. SCHEDULE 80, PVC PIPE AND SOCKET FITTINGS; AND SOLVENT-CEMENTED JOINTS.  
D. SCHEDULE 80, PVC PIPE, SCHEDULE 80, THREADED PVC FITTINGS; AND THREADED JOINTS.  
E. SDR 21, PVC, PRESSURE-RATED PIPE; SCHEDULE 80, PVC SOCKET FITTINGS; AND SOLVENT-CEMENTED JOINTS.  
E. CIRCUIT PIPING:  
1. NPS 2 AND SMALLER:  
A. SDR 9, PE, CONTROLLED ID PIPE; INSERT FITTINGS FOR PE PIPE, AND FASTENER JOINTS.  
B. SCHEDULE 40, PVC PIPE AND SOCKET FITTINGS; AND SOLVENT-CEMENTED JOINTS.  
C. SDR 26, PVC, PRESSURE-RATED PIPE; SCHEDULE 40, PVC SOCKET FITTINGS; AND SOLVENT-CEMENTED JOINTS.  
2. NPS 2-1/2 TO NPS 4:  
A. SDR 9, PE, CONTROLLED ID PIPE; INSERT FITTINGS FOR PE PIPE, AND Banded OR FASTENER JOINTS.  
B. DR 11, PE, CONTROLLED ID PIPE; PE SOCKET OR BUTT-FUSION FITTINGS; AND HEAT-FUSION JOINTS. NPS 3 PIPE AND FITTINGS IF NPS 2-1/2 PIPE AND FITTINGS ARE NOT AVAILABLE.  
C. SCHEDULE 40, PVC PIPE AND SOCKET FITTINGS; AND SOLVENT-CEMENTED JOINTS.  
D. SDR 26, PVC, PRESSURE-RATED PIPE; SCHEDULE 40, PVC SOCKET FITTINGS; AND SOLVENT-CEMENTED JOINTS.  
F. UNDERGROUND BRANCHES AND OFFSETS AT SPRINKLERS AND DEVICES: SCHEDULE 80, PVC PIPE, THREADED PVC FITTINGS; AND THREADED JOINTS.  
1. OPTION: PLASTIC SWING-JOINT ASSEMBLIES, WITH OFFSETS FOR FLEXIBLE JOINTS, MANUFACTURED FOR THIS APPLICATION.  
G. RISERS TO ABOVEGROUND SPRINKLERS AND SPECIALTIES:  
1. TYPE 1 HARD COPPER TUBE, WROUGHT-COPPER FITTINGS, AND SOLDERED JOINTS.  
2. SCHEDULE 80, PVC PIPE AND SOCKET FITTINGS; AND SOLVENT-CEMENTED JOINTS.  
H. DRAIN PIPING SHALL BE [ONE] OF THE FOLLOWING:  
1. SDR 9, 11.5, OR 15, PE, CONTROLLED ID PIPE; INSERT FITTINGS FOR PE PIPE, AND Banded OR FASTENER JOINTS.  
2. SCHEDULE 40, PVC PIPE AND SOCKET FITTINGS; AND SOLVENT-CEMENTED JOINTS.  
3. SDR 21, 26, OR 32.5, PVC, PRESSURE-RATED PIPE; SCHEDULE 40, PVC SOCKET FITTINGS; AND SOLVENT-CEMENTED JOINTS.

3.11 VALVE SCHEDULE  
A. UNDERGROUND, SHUTOFF-DUTY VALVES: USE THE FOLLOWING:  
1. NPS 2 AND SMALLER: CURB VALVE, CURB-VALVE CASING, AND SHUTOFF ROD.  
2. NPS 3 AND LARGER: IRON GATE VALVE, RESILIENT SEATED; IRON GATE VALVE CASING; AND OPERATING WRENCH(ES).  
B. ABOVEGROUND, SHUTOFF-DUTY VALVES:  
1. NPS 2 AND SMALLER:  
A. BRASS BALL VALVE.  
B. BRONZE GATE VALVE.  
2. NPS 2-1/2 AND LARGER:  
A. IRON BALL VALVE.  
B. IRON GATE VALVE, NRS.  
C. THROTTLING-DUTY VALVES:  
1. NPS 2 AND SMALLER:  
A. PLASTIC AUTOMATIC CONTROL VALVE.  
B. BRASS BALL VALVE.  
2. NPS 2-1/2 AND NPS 3:  
A. BRONZE GATE VALVE.  
3. PLASTIC AUTOMATIC CONTROL VALVE.  
4. IRON BALL VALVE.  
D. DRAIN VALVES:  
1. NPS 1/2 AND NPS 3/4:  
A. AUTOMATIC DRAIN VALVE.  
2. BRASS BALL VALVE.  
3. BRONZE GATE VALVE.  
2. NPS 1 TO NPS 2:  
A. BRASS BALL VALVE.  
B. BRONZE GATE VALVE.



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TITLE 2  
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CITY, STATE ZIP  
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PROJECT TITLE / ADDRESS:  
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**IRRIGATION SPECIFICATIONS**

**LA106**

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