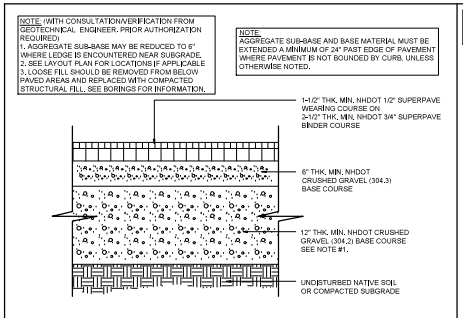
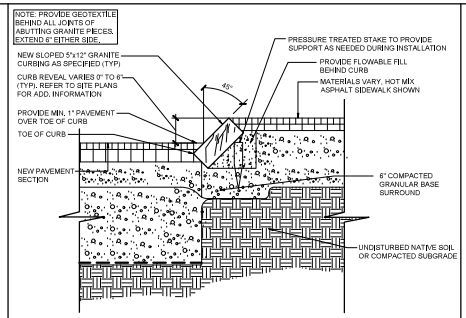


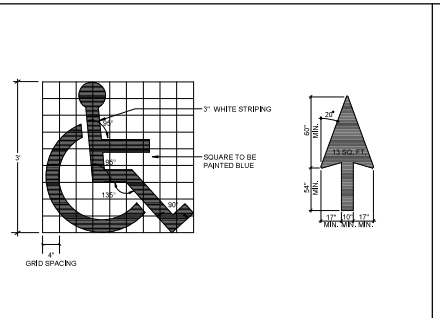
B1 NEW "FULL DEPTH" HOT MIX ASPHALT PAVEMENT SECTION

NO SCALE



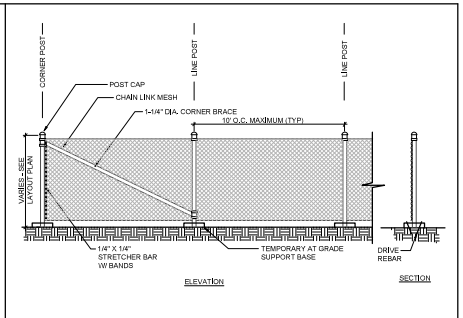
B3 NEW SLOPED GRANITE CURB

NO SCALE



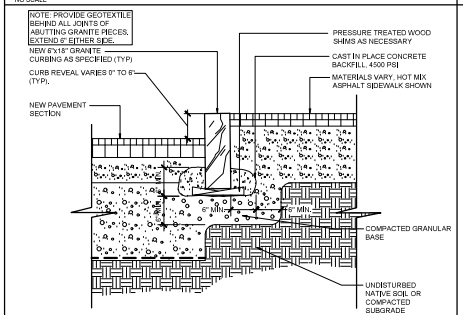
B5 NEW PAINTED PAVEMENT MARKINGS

NO SCALE



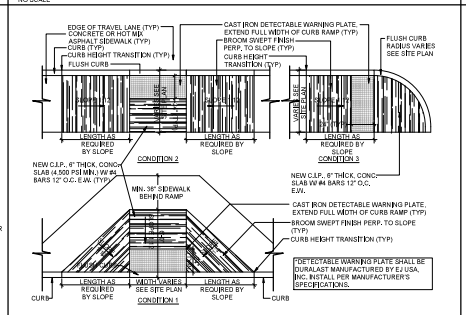
B7 TEMPORARY CHAIN LINK CONSTRUCTION FENCE

NO SCALE



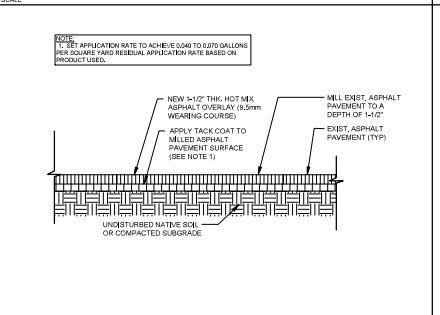
D1 NEW VERTICAL GRANITE CURB

NO SCALE



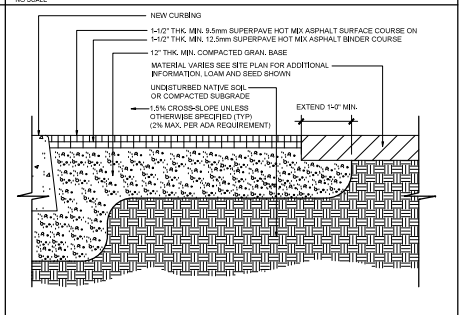
D3 NEW C.I.P. CONCRETE ADA RAMP

NO SCALE



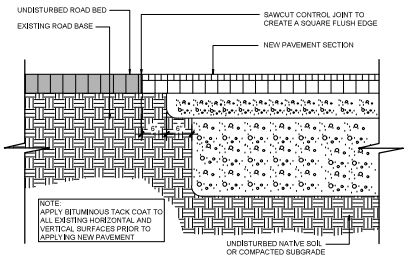
D5 NEW HOT MIX ASPHALT OVERLAY

NO SCALE



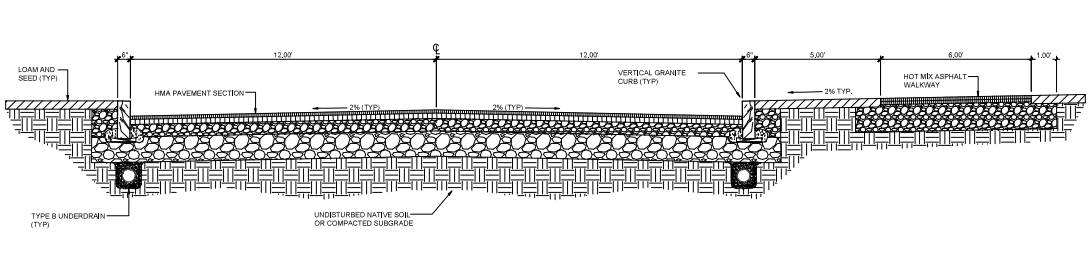
D7 NEW HOT MIX ASPHALT SIDEWALK

NO SCALE



F1 HOT MIX ASPHALT "BUTT JOINT"

NO SCALE



F3 TYPICAL ROAD SECTION

NO SCALE

Revisions		
	100% SUBMITTAL - BID DOCUMENTS	06/21/2022
		Date

ARCHITECT/ENGINEER OF RECORD

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Drawing Title: SITE DETAILS

Approved:

Project Title: LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES

Location: MANCHESTER VAMC, NH

Issue Date: 06/21/2022 | Checked: MAG | Drawn: BTH

Project Number: 608-20-101

Building Number:

Drawing Number: C501

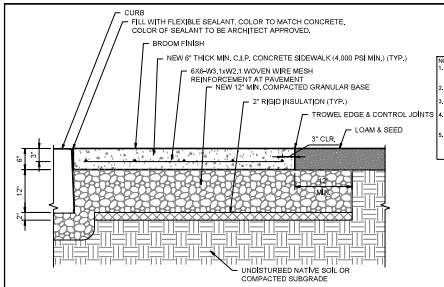
Office of Construction and Facilities Management

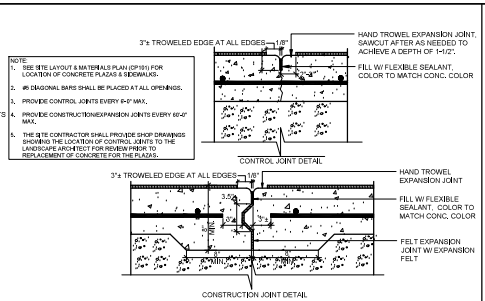
VA U.S. Department of Veterans Affairs

VA FORM 08 - 6231

BIM 360://20035 Loop Road Utility Infrastructure Upgrades/Civil/C-21, 22, & 23-Site/20035 Loop Road Utility Upgrades_Civil_C-21, 22, & 23-Site.rvt

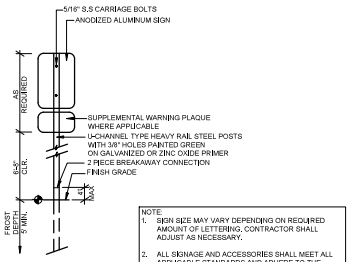
01/06/2023 12:33:02 PM

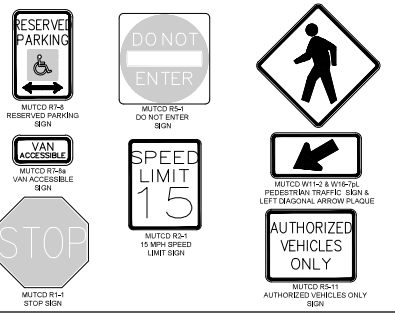




B1 NEW C.I.P. CONCRETE SIDEWALK / PLAZA

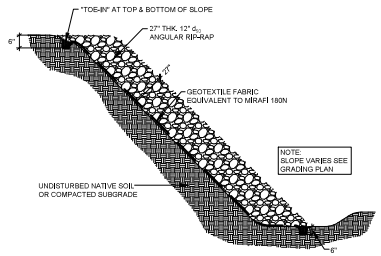
NO SCALE





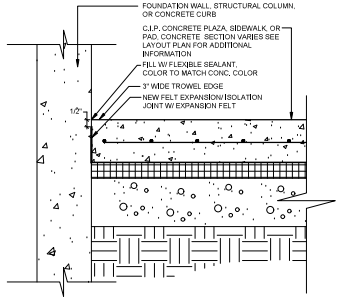
B5 NEW SIGNAGE

NO SCALE



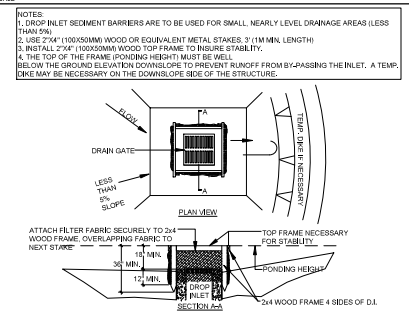
D1 NEW RIPRAP BANK STABILIZATION

NO SCALE



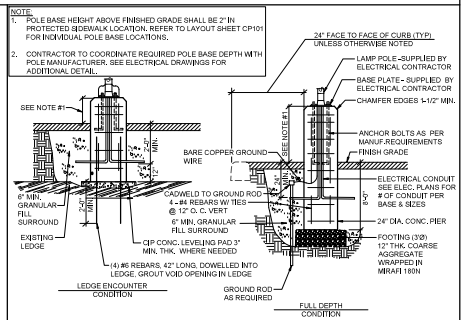
D3 NEW C.I.P. CONCRETE ISOLATION JOINT

NO SCALE



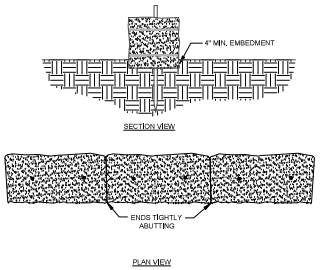
D5 TEMPORARY SILT FENCE INLET PROTECTION

NO SCALE



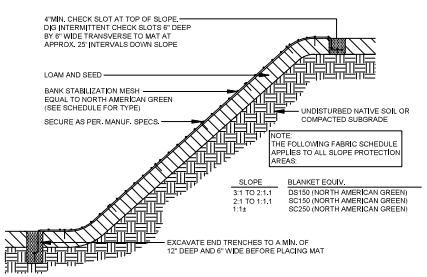
D7 NEW PRECAST CONCRETE LIGHT BASE

NO SCALE



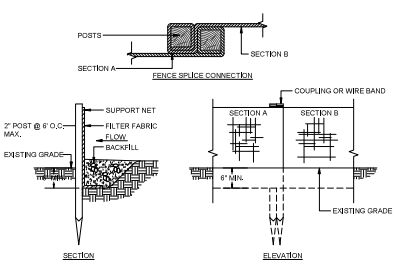
F1 TEMPORARY HAY BALE BARRIER

NO SCALE



F3 NEW BANK STABILIZATION MESH

NO SCALE



F5 TEMPORARY SILT FENCE

NO SCALE

~NOT USED~

F7

NO SCALE

Revisions		
	100% SUBMITTAL - BID DOCUMENTS	06/21/2022
		Date

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Drawing Title	SITE DETAILS
Approved:	
Project Title	LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES
Location	MANCHESTER VAMC, NH
Issue Date	06/21/2022
Checked	MAG
Drawn	BTH
Project Number	608-20-101
Building Number	
Drawing Number	C502

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

VA FORM 08 - 6231

BIM 360:D:\00258 Loop Road Utility Infrastructure Upgrades\Civil\21 22 & 23-R19d13520258 Loop Road Utility Upgrades_Civil_21_22_&_23-R19d13520258_Loop Road Utility Upgrades_Civil_21_22_&_23-R19d1.rvt
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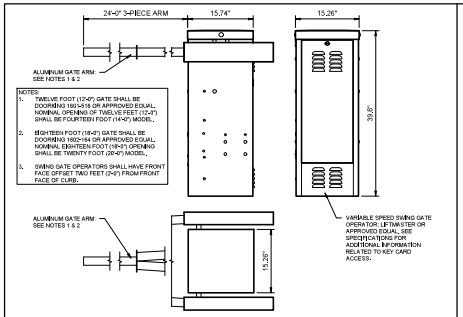
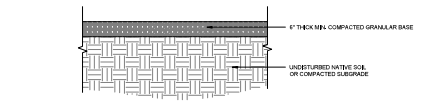


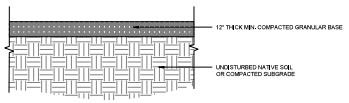
B1 SECURITY GATE DETAIL

NO SCALE



B3 CONSTRUCTION STAGING/LAYDOWN AREA

NOT TO SCALE



B5 GRAVEL AREA

NOT TO SCALE

~NOT USED~

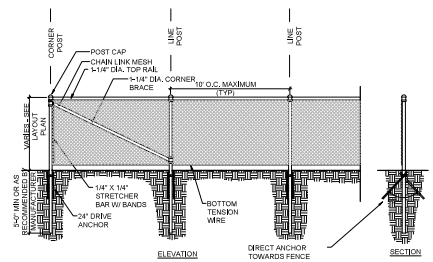
B7

NO SCALE

~NOT USED~

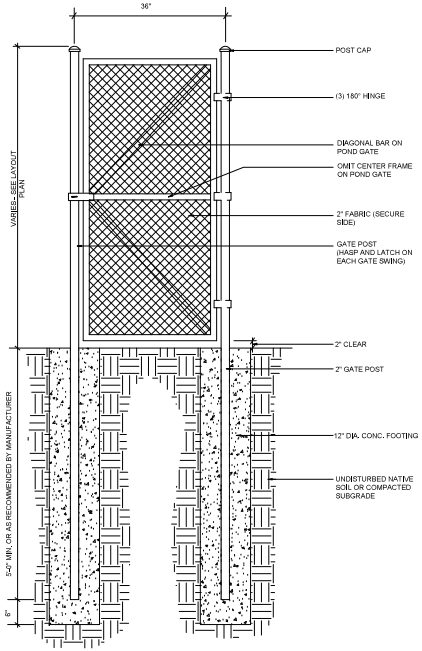
D1

NO SCALE



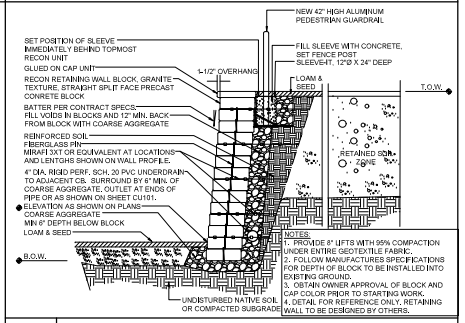
D3 NEW CHAIN LINK FENCE

NO SCALE



F5 NEW CHAIN LINK GATE

NO SCALE



D7 NEW GRAVITY BLOCK RETAINING WALL

NO SCALE

~NOT USED~

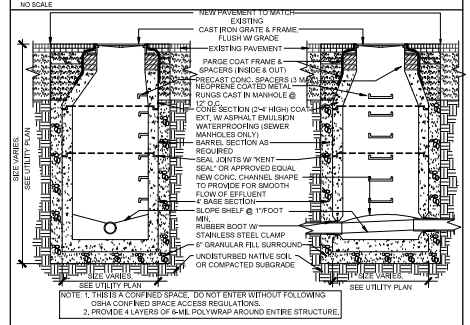
F1

NO SCALE

~NOT USED~

F3

NO SCALE



F7 NEW SANITARY SEWER / DRAIN MANHOLE

NO SCALE

Revisions		Date
	100% SUBMITTAL - BID DOCUMENTS	06/21/2022

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Drawing Title	SITE DETAILS
Approved:	
Project Title	LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES
Location	MANCHESTER VAMC, NH
Issue Date	06/21/2022
Checked	MAG
Drawn	BTH
Project Number	608-20-101
Building Number	
Drawing Number	C503

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

VA FORM 08 - 6231

BIM 360://2020/2020 Loop Road Utility Infrastructure Upgrades/20-21-22 & 23-Files/2020/20 Loop Road Utility Upgrades 20-21-22 & 23-Files.rvt
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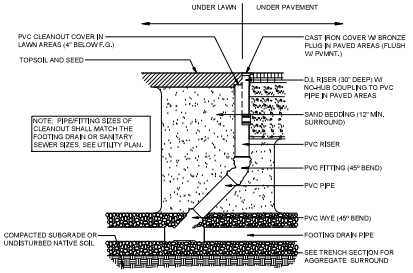
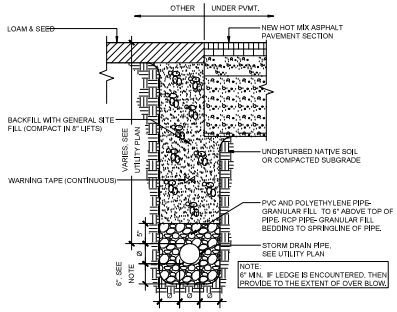


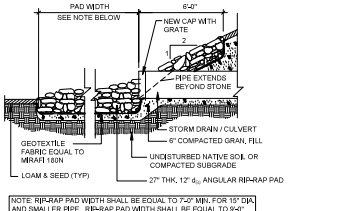
B1 NEW CLEANOUT

NO SCALE



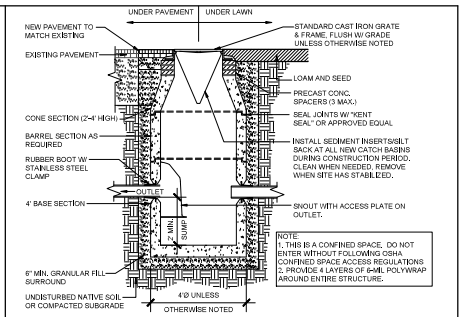
B3 NEW STORM DRAIN TRENCH

NO SCALE



B5 NEW RIP RAP INLET / OUTLET PROTECTION

NO SCALE



B7 NEW CATCH BASIN (WITH SNOUT AND TEMP. SEDIMENT TRAP)

NO SCALE

~NOT USED~

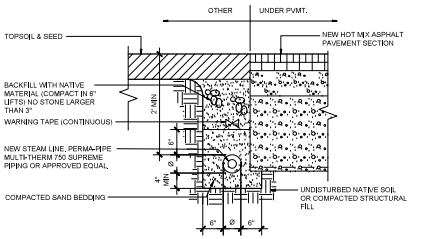
D1

NO SCALE

~NOT USED~

D3

NO SCALE



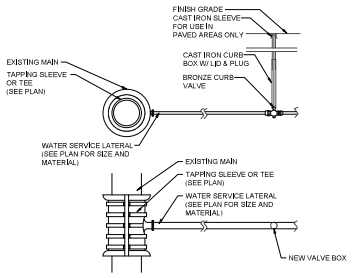
D5 NEW STEAM PIPE TRENCH

NO SCALE

~NOT USED~

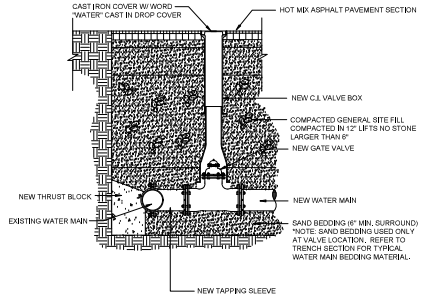
D7

NO SCALE



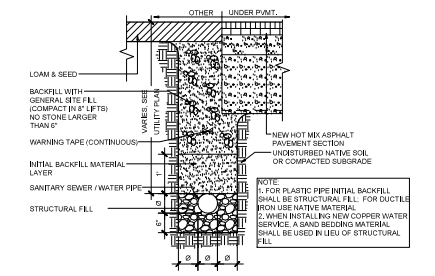
F1 NEW TAPPING SLEEVE

NO SCALE



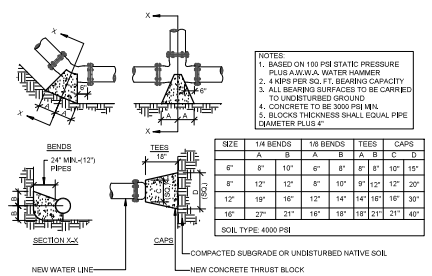
F3 NEW GATE VALVE

NO SCALE



F5 NEW SEWER / WATER TRENCH

NO SCALE



SIZE	1/4 BENDS		1/8 BENDS		TEES			CAPS	
	A	B	A	B	A	B	C	D	
6"	8"	10"	6"	8"	8"	8"	10"	15"	
8"	12"	12"	8"	10"	9"	12"	12"	20"	
12"	19"	16"	12"	14"	14"	16"	16"	30"	
16"	27"	21"	16"	18"	18"	21"	21"	40"	

SOIL TYPE: 4000 PSI

F7 NEW C.I.P. CONCRETE THRUST BLOCKS

NO SCALE

Revisions		Date
	100% SUBMITTAL - BID DOCUMENTS	06/21/2022

ARCHITECT/ENGINEER OF RECORD

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SDVOSB

STATE OF MAINE
MICHAEL A GUETHLE
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LICENSED PROFESSIONAL ENGINEER

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wbrc

Drawing Title: SITE DETAILS

Approved:

Project Title: LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES

Location: MANCHESTER VAMC, NH

Issue Date: 06/21/2022 | Checked: MAG | Drawn: BTH

Project Number: 608-20-101

Building Number:

Drawing Number: C504

Office of Construction and Facilities Management

U.S. Department of Veterans Affairs

VA FORM 08 - 6231

BIM 360:D:\2023\Loop Road Utility Infrastructure Upgrades\Civil\21_22_&_23-R19Civil2023_Loop Road Utility Upgrades_Civil_21_22_&_23-R19.rvt

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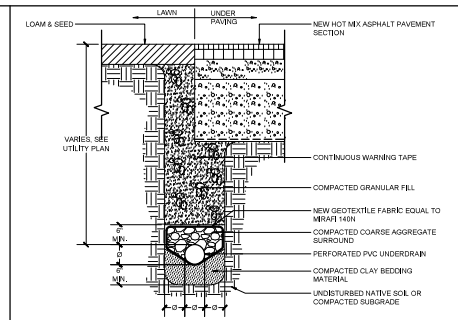
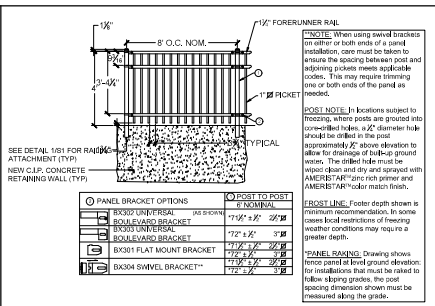




**NOTE: When using swivel brackets on either or both ends of a panel installation, care must be taken to ensure the spacing between post and adjoining pickets meets applicable codes. This may require trimming one or both ends of the panel as needed.

POST NOTE: In locations subject to freezing, where posts are grouted into core-drilled holes, a ½" diameter hole should be drilled in the post approximately ½" above elevation to allow for drainage of bolt-up ground water. The drilled hole must be wiped clean and dry and sprayed with AMERSTAR™ zinc rich primer and AMERSTAR™ color match finish.

FROST LINE: Footer depth shown is minimum recommendation. In some cases local restrictions of freezing weather conditions may require a greater depth.

*PANEL RAKING: Drawing shows fence panel at level ground elevation; for installations that must be raked to follow sloping grades, the post spacing dimension shown must be measured along the grade.

~NOT USED~

B1

NO SCALE

B3 NEW TYPE 'C' UNDERDRAIN

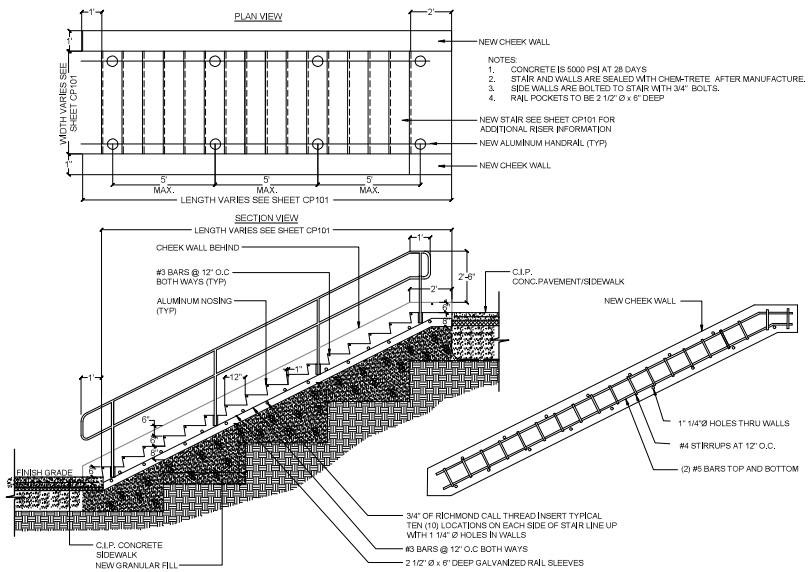
NO SCALE

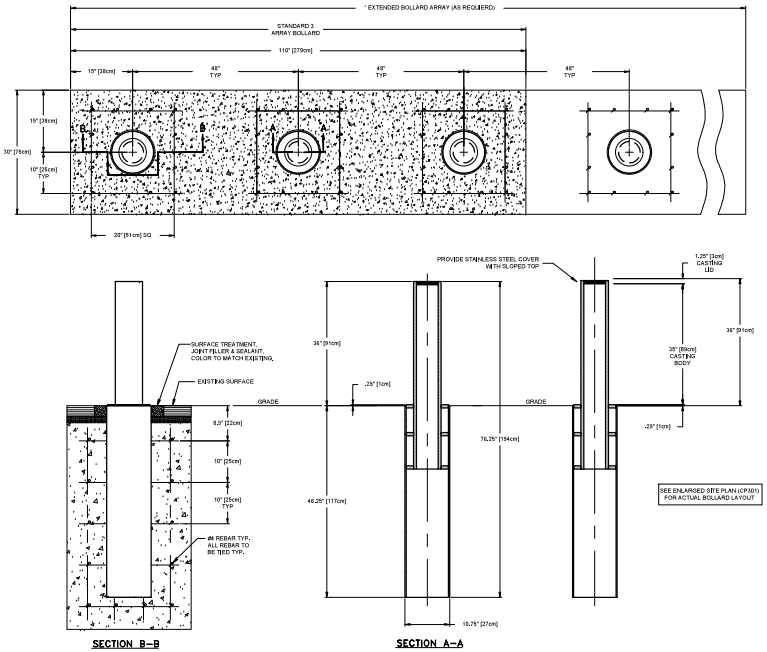
B5 NEW ALUMINUM PEDESTRIAN GUARDRAIL

NO SCALE

B7 NEW SLOPED GRANITE CURB

NO SCALE





F1 NEW PRECAST CONCRETE STAIR W/ CHEEK WALLS

NO SCALE

F5 NEW ANTI-RAM BOLLARD

NO SCALE

Revisions		Date
	100% SUBMITTAL - BID DOCUMENTS	06/21/2022

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STATE OF MAINE — MICHAEL A GUETHLE — 14284 — LICENSED PROFESSIONAL ENGINEER

CONSULTANT

wbrc

Drawing Title: SITE DETAILS

Approved:

Project Title: LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES

Location: MANCHESTER VAMC, NH

Issue Date: 06/21/2022 | Checked: MAG | Drawn: BTH

Project Number: 608-20-101

Building Number:

Drawing Number: C505

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

VA FORM 08 - 6231

BIM 360://2020/2020-Loop Road Utility Infrastructure Upgrades/Civil/21-22 & 23-R19/2020-Loop Road Utility Upgrades_Civil_21_22_& 23-R19.rvt
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~ NOT USED ~

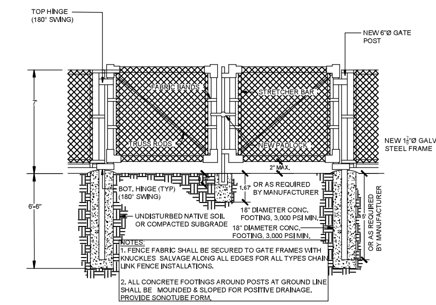
B1
NO SCALE

~ NOT USED ~

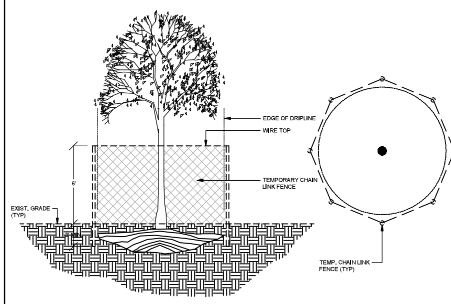
B3
NO SCALE

~ NOT USED ~

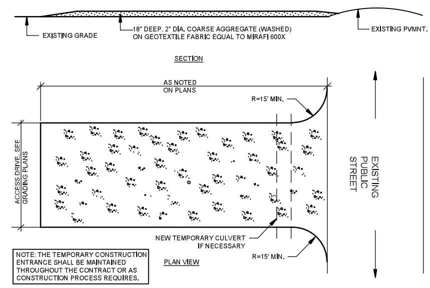
B5
NO SCALE



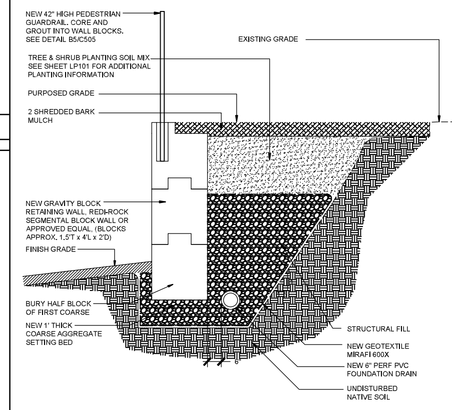
D1 NEW CHAIN LINK VEHICLE GATE
NO SCALE



D3 TEMPORARY CHAIN LINK TREE PROTECTION
NO SCALE



D5 TEMPORARY CONSTRUCTION ENTRANCE
NO SCALE



D7 NEW REDI-ROCK SEGMENTAL RETAINING WALL
NO SCALE

~ NOT USED ~

F1
NO SCALE

~ NOT USED ~

F3
NO SCALE

~ NOT USED ~

F5
NO SCALE

~ NOT USED ~

F7
NO SCALE

Revisions	Date
100% SUBMITTAL - BID DOCUMENTS	06/21/2022

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STATE OF MAINE
MICHAEL A. GUETHLE
14284
LICENSED
PROFESSIONAL ENGINEER

CONSULTANT

wbrc

Drawing Title: SITE DETAILS

Approved:

Project Title: LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES

Location: MANCHESTER VAMC, NH

Issue Date	Checked	Drawn
06/21/2022	MAG	BTH

Project Number: 608-20-101

Building Number:

Drawing Number: C506

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

VA FORM 08-6231

BIM 360://012002B Loop Road Utility Infrastructure Upgrades Div 21 22 & 23 - R19/012002B Loop Road Utility Upgrades Div 21, 22, & 23 - R19.rvt
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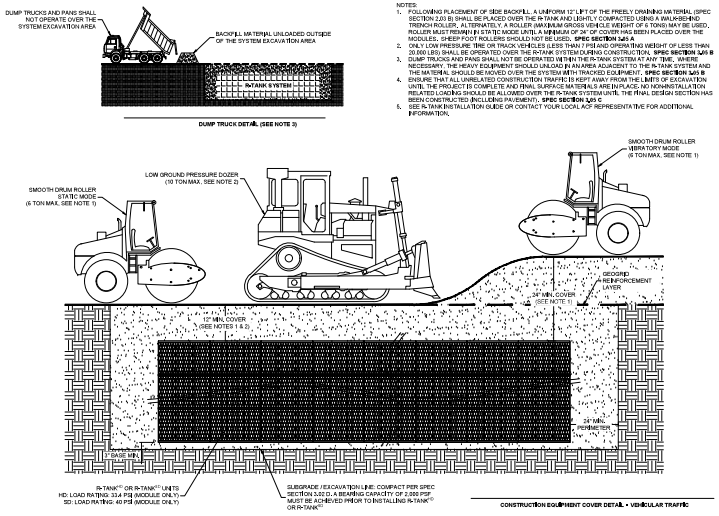
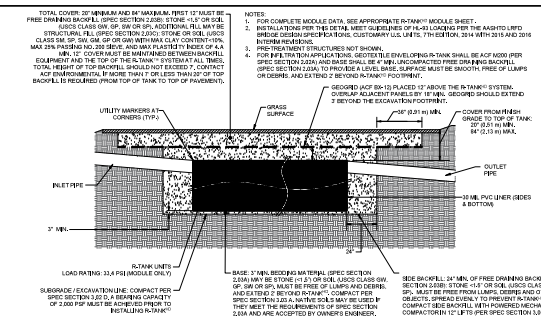


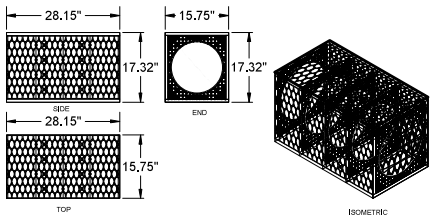
D1 R-TANK CONSTRUCTION COVER

NO SCALE



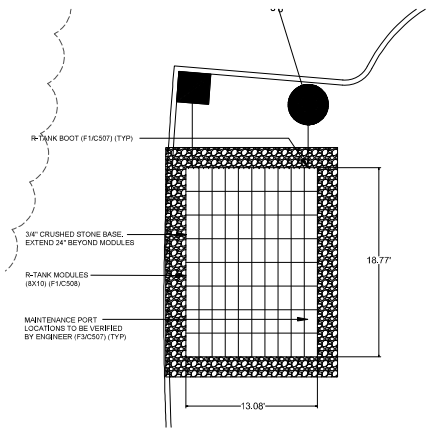
B5 R-TANK DETENTION TANK & H-20 LOADS-SECTION VIEW

NO SCALE



MODULE DATA

GEOMETRY:	**LOAD RATING:**
LENGTH = 28.15 IN. (715 MM)	33.4 PSI (MODULE ONLY)
WIDTH = 15.75 IN. (400 MM)	HS20, (WITH ACF COVER SYSTEM)
HEIGHT = 17.32 IN. (440 MM)	**MATERIAL:**
TANK VOLUME = 4.44 CF	100% RECYCLED
STORAGE VOLUME = 4.22 CF	POLYPROPYLENE
VOID INTERNAL VOLUME: 95%	**SMALL PLATES PER**
VOID SURFACE AREA: 90%	**SEGMENT/TOTAL:**
	5/5

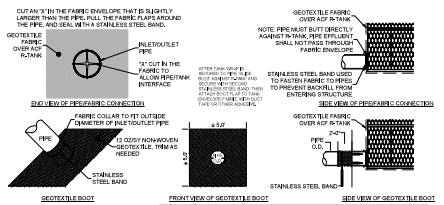


STORMWATER CONSTRUCTION OVERSIGHT NOTES

THE CONTRACTOR SHALL RETAIN THE SERVICES OF A PROFESSIONAL ENGINEER TO INSPECT THE CONSTRUCTION AND STABILIZATION OF ALL STORMWATER MANAGEMENT STRUCTURES TO BE BUILT AS PART OF THIS PROJECT, IF NECESSARY, THE INSPECTING ENGINEER WILL INTERPRET THE CONSTRUCTION PLANS FOR THE CONTRACTOR. ONCE ALL STORMWATER MANAGEMENT STRUCTURES ARE CONSTRUCTED AND STABILIZED, THE INSPECTING ENGINEER SHALL NOTIFY THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION IN WRITING WITHIN 30 DAYS TO STATE THAT THE STRUCTURES HAVE BEEN COMPLETED, ACCOMPANYING THE ENGINEER'S NOTIFICATION SHALL BE A COPY OF THE TEST RESULTS FOR ANY SOIL, FILL, AGGREGATE, OR MULCH MATERIALS USED IN THE CONSTRUCTION OF THE STORMWATER MANAGEMENT STRUCTURES AND A LOG OF THE ENGINEER'S INSPECTIONS GIVING THE DATE OF EACH INSPECTION, THE TIME OF EACH INSPECTION, AND THE ITEMS INSPECTED ON EACH VISIT.

F7 NEW R-TANK SYSTEM LAYOUT - 1

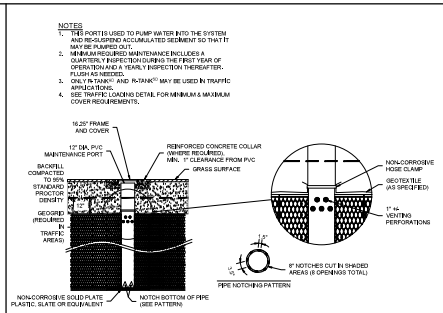
SCALE: 1"=5'



R-TANK© TYPICAL TANK INLET/OUTLET W/ GEOTEXTILE PIPE BOOT DETAIL

F1 NEW R-TANK PIPE BOOT

NO SCALE



F3 NEW R-TANK MAINTENANCE PORT

NO SCALE

F5 NEW R-TANK HD SINGLE MAINTENANCE MODULE

NO SCALE

Revisions		Date
	100% SUBMITTAL - BID DOCUMENTS	06/21/2022

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STATE OF MAINE — MICHAEL A GUETHLE — 14284 — LICENSED PROFESSIONAL ENGINEER

CONSULTANT

wbrc

Drawing Title	SITE DETAILS
Approved:	
Project Title	LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES
Location	MANCHESTER VAMC, NH
Issue Date	06/21/2022
Checked	MAG
Drawn	BTH
Project Number	608-20-101
Building Number	
Drawing Number	C507

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

VA FORM 08 - 6231

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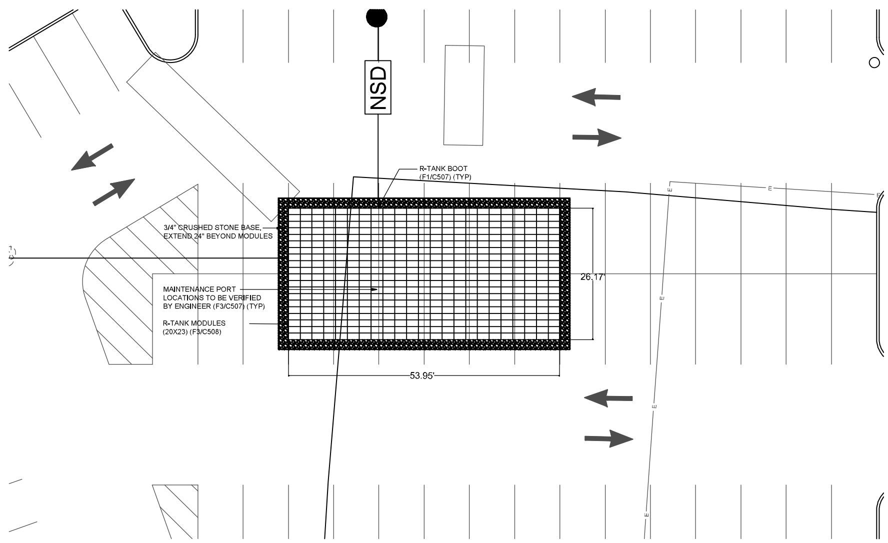
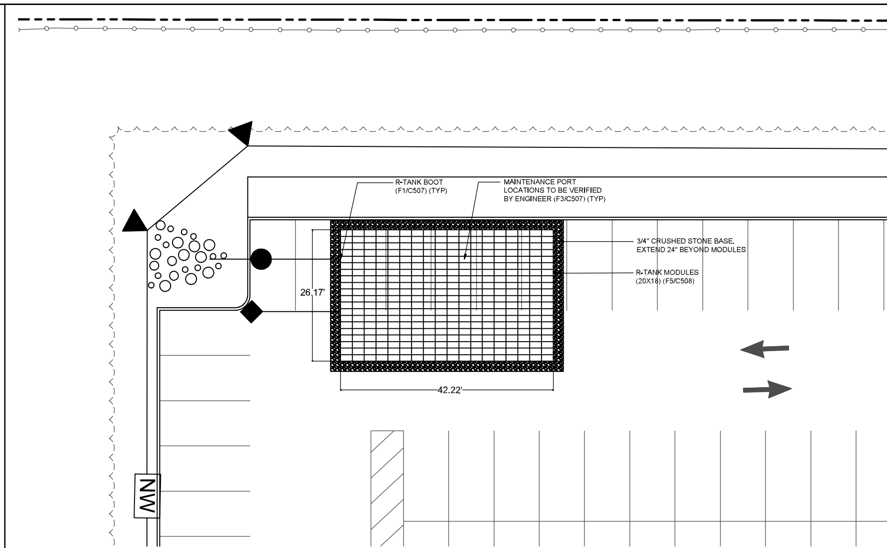


STORMWATER CONSTRUCTION OVERSIGHT NOTES

THE CONTRACTOR SHALL RETAIN THE SERVICES OF A PROFESSIONAL ENGINEER TO INSPECT THE CONSTRUCTION AND STABILIZATION OF ALL STORMWATER MANAGEMENT STRUCTURES TO BE BUILT AS PART OF THIS PROJECT. IF NECESSARY, THE INSPECTING ENGINEER WILL INTERPRET THE CONSTRUCTION PLANS FOR THE CONTRACTOR. ONCE ALL STORMWATER MANAGEMENT STRUCTURES ARE CONSTRUCTED AND STABILIZED, THE INSPECTING ENGINEER SHALL NOTIFY THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION IN WRITING WITHIN 30 DAYS TO STATE THAT THE STRUCTURES HAVE BEEN COMPLETED. ACCOMPANYING THE ENGINEER'S NOTIFICATION SHALL BE A COPY OF THE TEST RESULTS FOR ANY SOIL FILL, AGGREGATE, OR MULCH MATERIALS USED IN THE CONSTRUCTION OF THE STORMWATER MANAGEMENT STRUCTURES AND A LOG OF THE ENGINEER'S INSPECTIONS GIVING THE DATE OF EACH INSPECTION, THE TIME OF EACH INSPECTION, AND THE ITEMS INSPECTED ON EACH VISIT.

D1 NEW R-TANK SYSTEM LAYOUT - 2

SCALE: 1"=10'

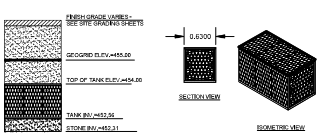


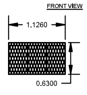
STORMWATER CONSTRUCTION OVERSIGHT NOTES

THE CONTRACTOR SHALL RETAIN THE SERVICES OF A PROFESSIONAL ENGINEER TO INSPECT THE CONSTRUCTION AND STABILIZATION OF ALL STORMWATER MANAGEMENT STRUCTURES TO BE BUILT AS PART OF THIS PROJECT. IF NECESSARY, THE INSPECTING ENGINEER WILL INTERPRET THE CONSTRUCTION PLANS FOR THE CONTRACTOR. ONCE ALL STORMWATER MANAGEMENT STRUCTURES ARE CONSTRUCTED AND STABILIZED, THE INSPECTING ENGINEER SHALL NOTIFY THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION IN WRITING WITHIN 30 DAYS TO STATE THAT THE STRUCTURES HAVE BEEN COMPLETED. ACCOMPANYING THE ENGINEER'S NOTIFICATION SHALL BE A COPY OF THE TEST RESULTS FOR ANY SOIL FILL, AGGREGATE, OR MULCH MATERIALS USED IN THE CONSTRUCTION OF THE STORMWATER MANAGEMENT STRUCTURES AND A LOG OF THE ENGINEER'S INSPECTIONS GIVING THE DATE OF EACH INSPECTION, THE TIME OF EACH INSPECTION, AND THE ITEMS INSPECTED ON EACH VISIT.

D5 NEW R-TANK SYSTEM LAYOUT - 3

SCALE: 1"=10'



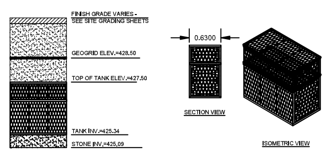


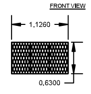
MODULE DATA

GEOMETRY:	LOAD RATING:
LENGTH = 28.15 IN.	33.4 PSI. (MODULE ONLY)
WIDTH = 15.75 IN.	HS20. (WITH ACF COVER SYSTEM)
HEIGHT = 17.32 IN.	MATERIAL:
TANK VOLUME = 4.44 CF	100% RECYCLED POLYPROPYLENE
STORAGE VOLUME = 4.22 CF	SMALL PLATES PER
VOID INTERNAL VOLUME: 95%	SEGMENT/TOTAL:
VOID SURFACE AREA: 90%	5/5

F1 NEW R-TANK "SINGLE" MODULE - 1

NO SCALE



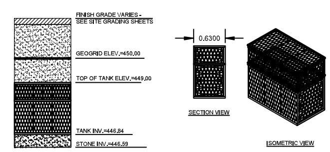


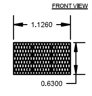
MODULE DATA

GEOMETRY:	LOAD RATING:
LENGTH = 28.15 IN.	33.4 PSI. (MODULE ONLY)
WIDTH = 15.75 IN.	HS20. (WITH ACF COVER SYSTEM)
HEIGHT = 25.98 IN.	MATERIAL:
TANK VOLUME = 6.67 CF	100% RECYCLED POLYPROPYLENE
STORAGE VOLUME = 6.33 CF	SMALL PLATES PER
VOID INTERNAL VOLUME: 95%	SEGMENT/TOTAL:
VOID SURFACE AREA: 90%	5/10

F3 NEW R-TANK "SINGLE+MINI" MODULE - 2

NO SCALE





MODULE DATA

GEOMETRY:	LOAD RATING:
LENGTH = 28.15 IN.	33.4 PSI. (MODULE ONLY)
WIDTH = 15.75 IN.	HS20. (WITH ACF COVER SYSTEM)
HEIGHT = 25.98 IN.	MATERIAL:
TANK VOLUME = 6.67 CF	100% RECYCLED POLYPROPYLENE
STORAGE VOLUME = 6.33 CF	SMALL PLATES PER
VOID INTERNAL VOLUME: 95%	SEGMENT/TOTAL:
VOID SURFACE AREA: 90%	5/10

F5 NEW R-TANK "SINGLE+MINI" MODULE - 3

NO SCALE

~NOT USED~

F7

NO SCALE

Revisions		Date
	100% SUBMITTAL - BID DOCUMENTS	06/21/2022

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STATE OF MAINE
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14284
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PROFESSIONAL ENGINEER

CONSULTANT

wbrc

Drawing Title	Project Title	Project Number
SITE DETAILS	LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES	608-20-101
Approved:	Location: MANCHESTER VAMC, NH	Building Number
	Issue Date: 06/21/2022 · Checked: MAG · Drawn: BTH	Drawing Number: C508

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

VA FORM 08-6231

BIM 360://01200208 Loop Road Utility Infrastructure Upgrades Div 21, 22, & 23 - R19/01200208 Loop Road Utility Upgrades Div 21, 22, & 23 - R19.rvt
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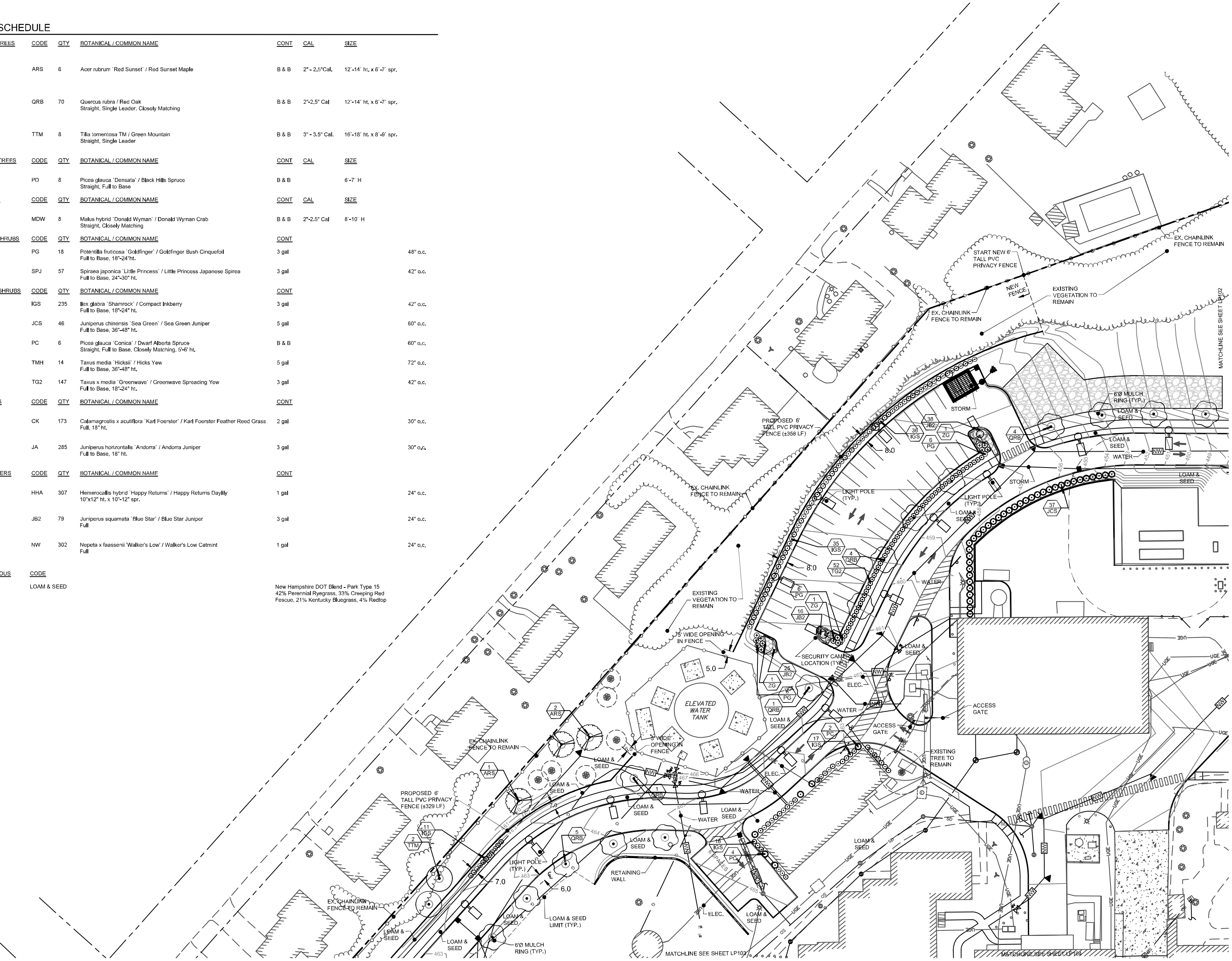
PLANT SCHEDULE

DECIDUOUS TREES	CODE	QTY	BOTANICAL / COMMON NAME	CONT	CAL	SIZE	
	ARS	6	Acer rubrum `Red Sunset` / Red Sunset Maple	B & B	2" - 2.5"Cal.	12`-14` ht. x 6`-7` spr.	
	QRB	70	Quercus rubra / Red Oak Straight, Single Leader, Closely Matching	B & B	2"-2.5" Cal	12`-14` ht. x 6`-7` spr.	
	TTM	8	Tilia tomentosa TM / Green Mountain Straight, Single Leader	B & B	3" - 3.5" Cal.	16`-18` ht. x 8`-9` spr.	
EVERGREEN TREES	**CODE**	**QTY**	**BOTANICAL / COMMON NAME**	**CONT**	**CAL**	**SIZE**	
	PD	8	Picea glauca `Densata` / Black Hills Spruce Straight, Full to Base	B & B		6`-7` H	
SMALL TREES	**CODE**	**QTY**	**BOTANICAL / COMMON NAME**	**CONT**	**CAL**	**SIZE**	
	MDW	8	Malus hybrid `Donald Wyman` / Donald Wyman Crab Straight, Closely Matching	B & B	2"-2.5" Cal	8`-10` H	
DECIDUOUS SHRUBS	**CODE**	**QTY**	**BOTANICAL / COMMON NAME**	**CONT**			
	PG	18	Potentilla fruticosa `Goldfinger` / Goldfinger Bush Cinquefoil Full to Base, 18"-24"ht.	3 gal			48" o.c.
	SPJ	57	Spiraea japonica `Little Princess` / Little Princess Japanese Spirea Full to Base, 24"-30" ht.	3 gal			42" o.c.
EVERGREEN SHRUBS	**CODE**	**QTY**	**BOTANICAL / COMMON NAME**	**CONT**			
	IGS	235	Ilex glabra `Shamrock` / Compact Inkberry Full to Base, 18"-24" ht.	3 gal			42" o.c.
	JCS	46	Juniperus chinensis `Sea Green` / Sea Green Juniper Full to Base, 36"-48" ht.	5 gal			60" o.c.
	PC	6	Picea glauca `Conica` / Dwarf Alberta Spruce Straight, Full to Base, Closely Matching, 5'-6' ht.	B & B			60" o.c.
	TMH	14	Taxus media `Hicksii` / Hicks Yew Full to Base, 36"-48" ht.	5 gal			72" o.c.
	TG2	147	Taxus x media `Greenwave` / Greenwave Spreading Yew Full to Base, 18"-24" ht.	3 gal			42" o.c.
SHRUB AREAS	**CODE**	**QTY**	**BOTANICAL / COMMON NAME**	**CONT**			
	CK	173	Calamagrostis x acutiflora `Karl Foerster` / Karl Foerster Feather Reed Grass Full, 18" ht.	2 gal			30" o.c.
	JA	285	Juniperus horizontalis `Andorra` / Andorra Juniper Full to Base, 18" ht.	3 gal			30" o.c.
GROUND COVERS	**CODE**	**QTY**	**BOTANICAL / COMMON NAME**	**CONT**			
	HHA	307	Hemerocallis hybrid `Happy Returns` / Happy Returns Daylily 10"x12" ht. x 10"-12" spr.	1 gal			24" o.c.
	JB2	79	Juniperus squamata `Blue Star` / Blue Star Juniper Full	3 gal			24" o.c.
	NW	302	Nepeta x faassenii 'Walker's Low' / Walker's Low Catmint Full	1 gal			24" o.c.
MISCELLANEAOUS	**CODE**						
	LOAM & SEED			New Hampshire DOT Blend - Park Type 15 42% Perennial Ryegrass, 33% Creeping Red Fescue, 21% Kentucky Bluegrass, 4% Redtop			



LEGEND

EXISTING
CATCH BASIN
DRAIN MANHOLE
WATER MANHOLE
FIRE HYDRANT
ELECTRICAL MANHOLE
SIGN
UTILITY POLE
SANITARY SEWER MANHOLE
FENCE
LIMITS OF WORK
PAVEMENT REMOVALS

GRAPHIC SCALE

20 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

PLANTING NOTES:

1. THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT 10 DAYS PRIOR TO DELIVERY OF PLANT MATERIAL TO SITE.
2. PLANT MATERIAL DELIVERED BUT NOT PLANTED WITHIN 6 DAYS OF DELIVERY IS TO BE HEELED IN & PROTECTED FROM DIRECT SUNLIGHT. PLANTS ARE TO BE WATERED & MULCHED WITH STRAW DURING HOLDING PERIOD.
3. SUPPLY ALL PLANT MATERIAL IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTINGS SHOWN ON THE DRAWINGS.
4. NO TREES SHALL BE PLANTED BEFORE ACCEPTANCE OF ROUGH GRADING. PLANT ROOT BALLS SHALL BEAR THE SAME RELATIONSHIP TO FINISH GRADE AS THEY DID AT THE NURSERY. DO NOT SET ROOT BALLS MORE THAN 1" ABOVE FINISH GRADE.
5. PLANT BED EDGES ARE TO BE SHARP, CLEAN & CONSISTENT WITH SURROUNDING GRADES. DO NOT MOUND MULCH BEDS.
6. PLANT PITS ARE TO BE DUG 3 TIMES THE DIAMETER OF THE ROOT BALL OF THE PLANT.
7. STAKE LOCATION OF ALL PROPOSED PLANTING FOR APPROVAL BY THE LANDSCAPE ARCHITECT PRIOR TO THE COMMENCEMENT OF PLANTING.
8. REFER TO SHEET LP101 FOR PROJECT PLANT LIST.
9. REFER TO DETAILS FOR PLANTING INFORMATION PRIOR TO COMMENCING PLANT INSTALLATION.
10. REFER TO THE PROJECT SPECIFICATIONS FOR IMPORTANT PLANTING INFORMATION PRIOR TO COMMENCING PLANT INSTALLATION.
11. COORDINATE ALL PLANTING WITH FINISH GRADING AND SEEDING. PLANTING SHOULD BE COMPLETED AFTER ROUGH GRADING AND PRIOR TO SEEDING.
12. LOCATE & VERIFY ALL EXISTING UTILITY LINES PRIOR TO PLANTING & REPORT ANY CONFLICTS TO THE ENGINEER.
13. ANY PROPOSED SUBSTITUTIONS OF PLANT SPECIES SHALL BE MADE WITH PLANTS OF EQUIVALENT OVERALL FORM, HEIGHT, BRANCHING HABIT, FLOWER, LEAF, COLOR, FRUIT, & CULTURE ONLY AS APPROVED BY THE OWNER'S REPRESENTATIVE.
14. ALL PLANT BEDS ARE TO RECEIVE 3" OF SHREDDED BARK MULCH AS NOTED ON PLAN & SPECIFIED.
15. ALL DISTURBED AREAS ARE TO BE LOAMED W/ 6" DEPTH TOPSOIL & SEEDED UNLESS SPECIFIED. ALL AREAS TO BE SEEDED SHALL RECEIVE SOIL PREPARATION AS SPECIFIED PRIOR TO SEEDING, UNLESS OTHERWISE NOTED ON PLAN.
OTHERWISE, COORDINATE WITH FINISH GRADING.
16. APPLICATION RATE SHALL BE THE SAME AS FOR THE PERMANENT MIXTURE, AS SHALL BE THE APPLICATION RATE FOR FERTILIZER, LIME & MULCH.
17. SHOULD THE CONSTRUCTION SEQUENCE BE SUCH THAT THE PERMANENT SEEDING CANNOT BE MADE AT LEAST 45 DAYS PRIOR TO THE FIRST KILLING FROST OR AS DORMANT SEEDLINGS IMMEDIATELY AFTER THE FIRST KILLING FROST, WINTER RYE SHALL BE USED AS A TEMPORARY PLANTING.
18. THE CONTRACTOR SHALL RESEED ANY AREAS WHICH HAVE NOT ESTABLISHED AN ACCEPTABLE CATCH (>80%) OF GRASS WITHIN A REASONABLE TIME (2 MOWINGS).
19. IN AREAS WHERE TREES ARE NOTED TO REMAIN, CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT DAMAGE TO TREES TO REMAIN, INCLUDING, BUT NOT LIMITED TO INSTALLATION OF TEMPORARY FENCING.

100% SUBMITTAL - BID DOCUMENTS	06/21/2022
Revisions	Date

ARCHITECT/ENGINEER OF RECORD

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170 Commerce Way, Suite 200
Portsmouth, NH 03801
PH: 603.261.2064

DAVID T. WOODWARD 153 — LANDSCAPE ARCHITECT — STATE OF NEW HAMPSHIRE

CONSULTANT

wbrc

Drawing Title: SITE PLANTING PLAN

Approved:

Project Title: LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES

Location: MANCHESTER VAMC, NH

Issue Date	Checked	Drawn
06/21/2022	MAG	BTH

Project Number: 608-20-101

Building Number:

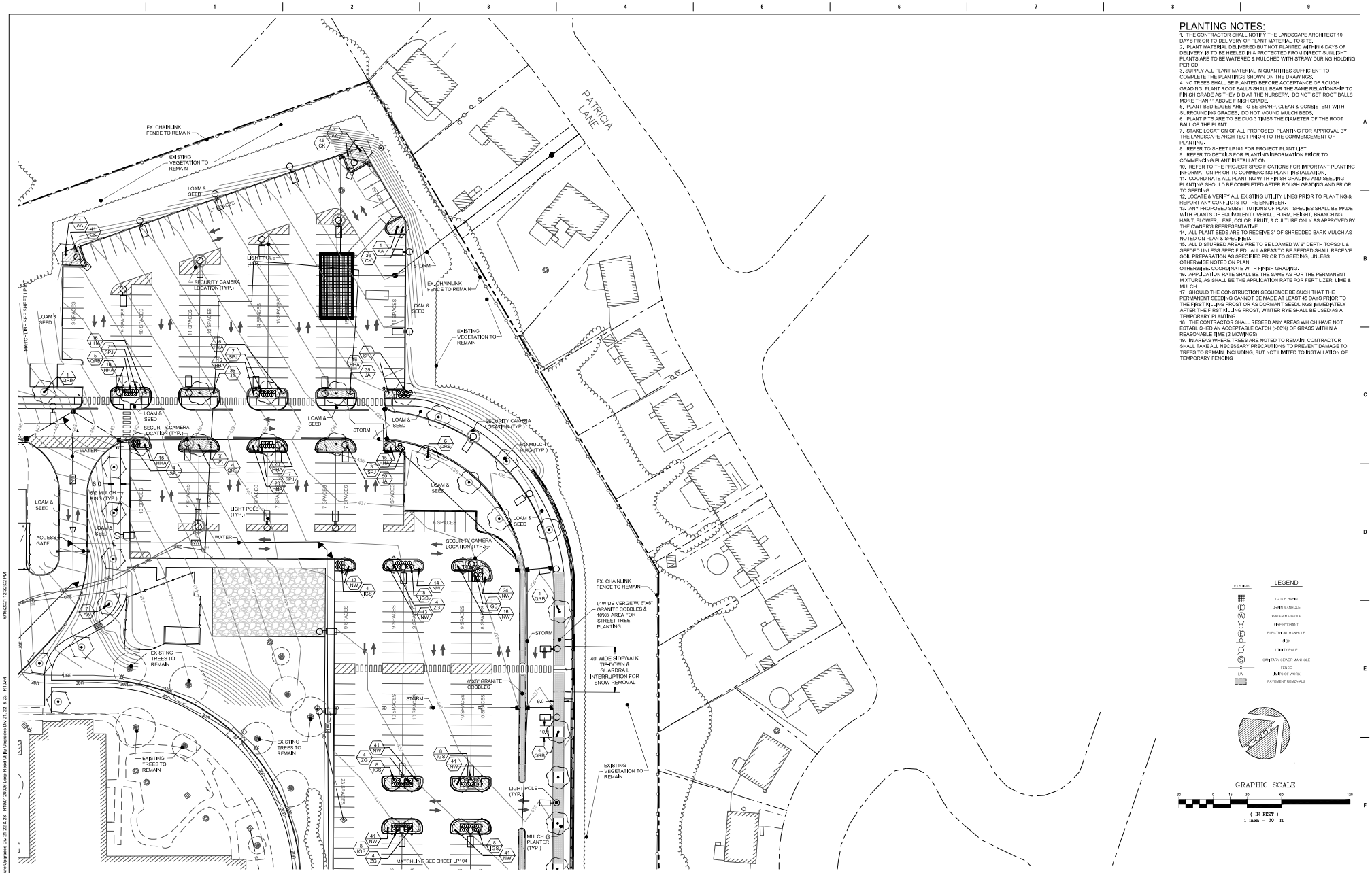
Drawing Number: LP101

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

VA FORM 08-6231

BIM 360://0120026 Loop Road Utility Infrastructure Upgrades Div 21 22 & 23 - R19/0120026 Loop Road Utility Upgrades Div 21, 22, & 23 - R19.rvt 6/15/2021 12:32:02 PM



PLANTING NOTES:

1. THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT 10 DAYS PRIOR TO DELIVERY OF PLANT MATERIAL TO SITE.
2. PLANT MATERIAL DELIVERED BUT NOT PLANTED WITHIN 6 DAYS OF DELIVERY IS TO BE HEELED IN & PROTECTED FROM DIRECT SUNLIGHT. PLANTS ARE TO BE WATERED & MULCHED WITH STRAW DURING HOLDING PERIOD.
3. SUPPLY ALL PLANT MATERIAL IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTINGS SHOWN ON THE DRAWINGS.
4. NO TREES SHALL BE PLANTED BEFORE ACCEPTANCE OF ROUGH GRADING. PLANT ROOT BALLS SHALL BEAR THE SAME RELATIONSHIP TO FINISH GRADE AS THEY DID AT THE NURSERY. DO NOT SET ROOT BALLS MORE THAN 1" ABOVE FINISH GRADE.
5. PLANT BED EDGES ARE TO BE SHARP, CLEAN & CONSISTENT WITH SURROUNDING GRADES. DO NOT MOUND MULCH BEDS.
6. PLANT PITS ARE TO BE DUG 3 TIMES THE DIAMETER OF THE ROOT BALL OF THE PLANT.
7. STAKE LOCATION OF ALL PROPOSED PLANTING FOR APPROVAL BY THE LANDSCAPE ARCHITECT PRIOR TO THE COMMENCEMENT OF PLANTING.
8. REFER TO SHEET LP101 FOR PROJECT PLANT LIST.
9. REFER TO DETAILS FOR PLANTING INFORMATION PRIOR TO COMMENCING PLANT INSTALLATION.
10. REFER TO THE PROJECT SPECIFICATIONS FOR IMPORTANT PLANTING INFORMATION PRIOR TO COMMENCING PLANT INSTALLATION.
11. COORDINATE ALL PLANTING WITH FINISH GRADING AND SEEDING. PLANTING SHOULD BE COMPLETED AFTER ROUGH GRADING AND PRIOR TO SEEDING.
12. LOCATE & VERIFY ALL EXISTING UTILITY LINES PRIOR TO PLANTING & REPORT ANY CONFLICTS TO THE ENGINEER.
13. ANY PROPOSED SUBSTITUTIONS OF PLANT SPECIES SHALL BE MADE WITH PLANTS OF EQUIVALENT OVERALL FORM, HEIGHT, BRANCHING HABIT, FLOWER, LEAF, COLOR, FRUIT, & CULTURE ONLY AS APPROVED BY THE OWNER'S REPRESENTATIVE.
14. ALL PLANT BEDS ARE TO RECEIVE 3" OF SHREDDED BARK MULCH AS NOTED ON PLAN & SPECIFIED.
15. ALL DISTURBED AREAS ARE TO BE LOAMED W/ 6" DEPTH TOPSOIL & SEEDED UNLESS SPECIFIED. ALL AREAS TO BE SEEDED SHALL RECEIVE SOIL PREPARATION AS SPECIFIED PRIOR TO SEEDING, UNLESS OTHERWISE NOTED ON PLAN.
OTHERWISE, COORDINATE WITH FINISH GRADING.
16. APPLICATION RATE SHALL BE THE SAME AS FOR THE PERMANENT MIXTURE, AS SHALL BE THE APPLICATION RATE FOR FERTILIZER, LIME & MULCH.
17. SHOULD THE CONSTRUCTION SEQUENCE BE SUCH THAT THE PERMANENT SEEDING CANNOT BE MADE AT LEAST 45 DAYS PRIOR TO THE FIRST KILLING FROST OR AS DORMANT SEEDLINGS IMMEDIATELY AFTER THE FIRST KILLING FROST, WINTER RYE SHALL BE USED AS A TEMPORARY PLANTING.
18. THE CONTRACTOR SHALL RESEED ANY AREAS WHICH HAVE NOT ESTABLISHED AN ACCEPTABLE CATCH (>80%) OF GRASS WITHIN A REASONABLE TIME (2 MOWINGS).
19. IN AREAS WHERE TREES ARE NOTED TO REMAIN, CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT DAMAGE TO TREES TO REMAIN, INCLUDING, BUT NOT LIMITED TO INSTALLATION OF TEMPORARY FENCING.

Revisions	Date
100% SUBMITTAL - BID DOCUMENTS	06/21/2022

ARCHITECT/ENGINEER OF RECORD

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SDVOSB

DAVID T. WOODWARD 153 STATE OF NEW HAMPSHIRE

CONSULTANT

wbrc

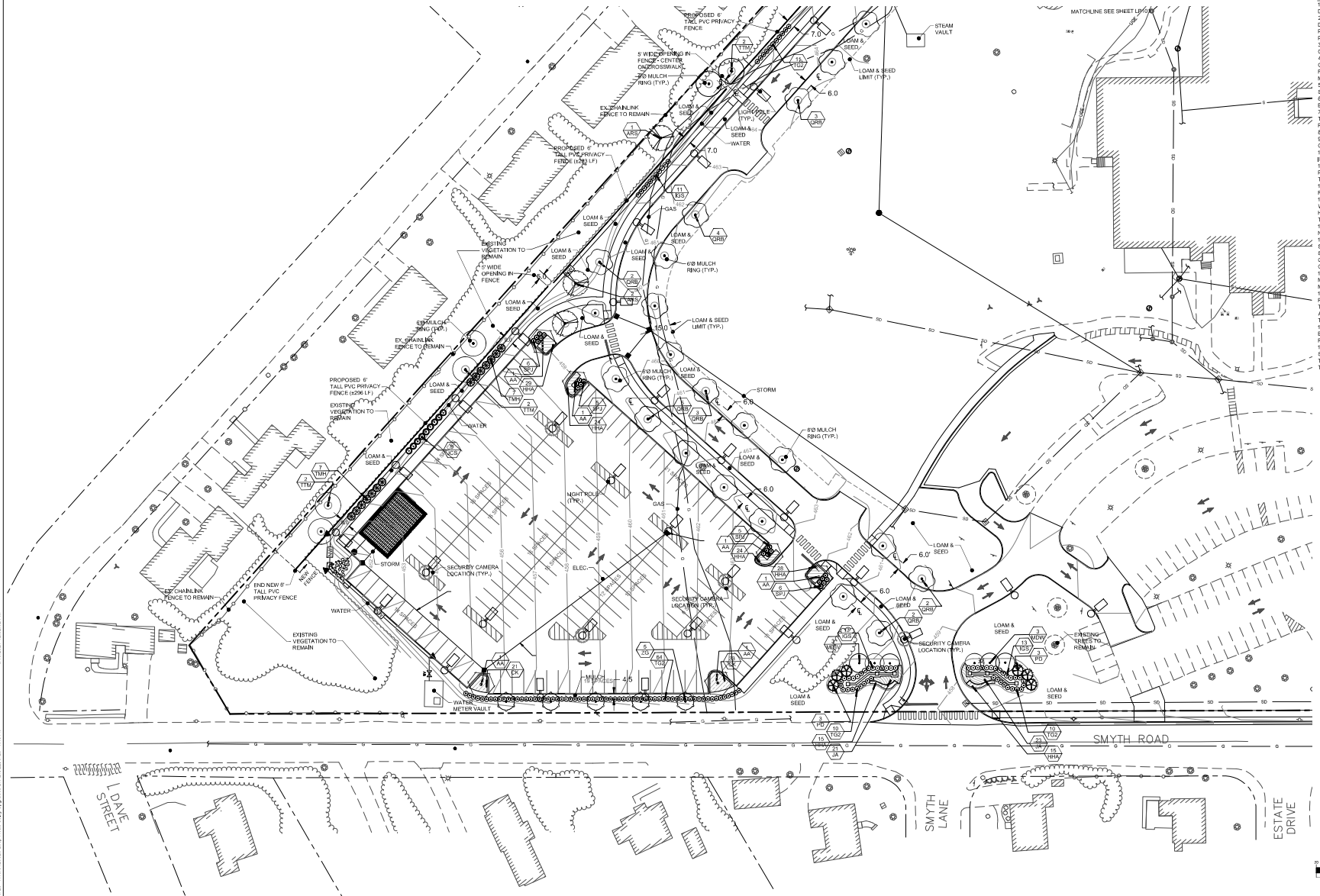
Drawing Title	SITE PLANTING PLAN
Approved:	
Project Title	LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES
Location	MANCHESTER VAMC, NH
Issue Date	06/21/2022
Checked	MAG
Drawn	BTH
Project Number	608-20-101
Building Number	
Drawing Number	LP102

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

VA FORM 08-6231

BIM 360:/07/200026 Loop Road Utility Infrastructure Upgrades (Dv 21 22 & 23--R19x01/200026 Loop Road Utility Upgrades Dv 21, 22, & 23--R19x01.rvt
6/15/2021 12:33:05 PM



PLANTING NOTES:

1. THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT 10 DAYS PRIOR TO DELIVERY OF PLANT MATERIAL TO SITE.
2. PLANT MATERIAL DELIVERED BUT NOT PLANTED WITHIN 6 DAYS OF DELIVERY IS TO BE HEELED IN & PROTECTED FROM DIRECT SUNLIGHT. PLANTS ARE TO BE WATERED & MULCHED WITH STRAW DURING HOLDING PERIOD.
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7. STAKE LOCATION OF ALL PROPOSED PLANTING FOR APPROVAL BY THE LANDSCAPE ARCHITECT PRIOR TO THE COMMENCEMENT OF PLANTING.
8. REFER TO SHEET LP101 FOR PROJECT PLANT LIST.
9. REFER TO DETAILS FOR PLANTING INFORMATION PRIOR TO COMMENCING PLANT INSTALLATION.
10. REFER TO THE PROJECT SPECIFICATIONS FOR IMPORTANT PLANTING INFORMATION PRIOR TO COMMENCING PLANT INSTALLATION.
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LEGEND

EXISTING
- CATCH BASIN
- DRAIN MANHOLE
- WATER MANHOLE
- FIRE HYDRANT
- ELECTRICAL MANHOLE
- IRON
- UTILITY POLE
- SANITARY SEWER MANHOLE
- FENCE
- LIMITS OF WORK
- PAVEMENT REMOVALS

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

Revisions	Date
100% SUBMITTAL - BID DOCUMENTS	06/21/2022

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DAVID T. WOODWARD 153 NEW HAMPSHIRE

CONSULTANT

wbrc

Drawing Title	SITE PLANTING PLAN
Approved:	
Project Title	LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES
Location	MANCHESTER VAMC, NH
Issue Date	06/21/2022
Checked	MAG
Drawn	BTH
Project Number	608-20-101
Building Number	
Drawing Number	LP103

Office of Construction and Facilities Management

U.S. Department of Veterans Affairs

VA FORM 08-6231

BIM 360:/07/20026 Loop Road Utility Infrastructure Upgrades (Div 21 22 & 23 - R19)/21/20026 Loop Road Utility Upgrades Div 21, 22, & 23 - R19.rvt
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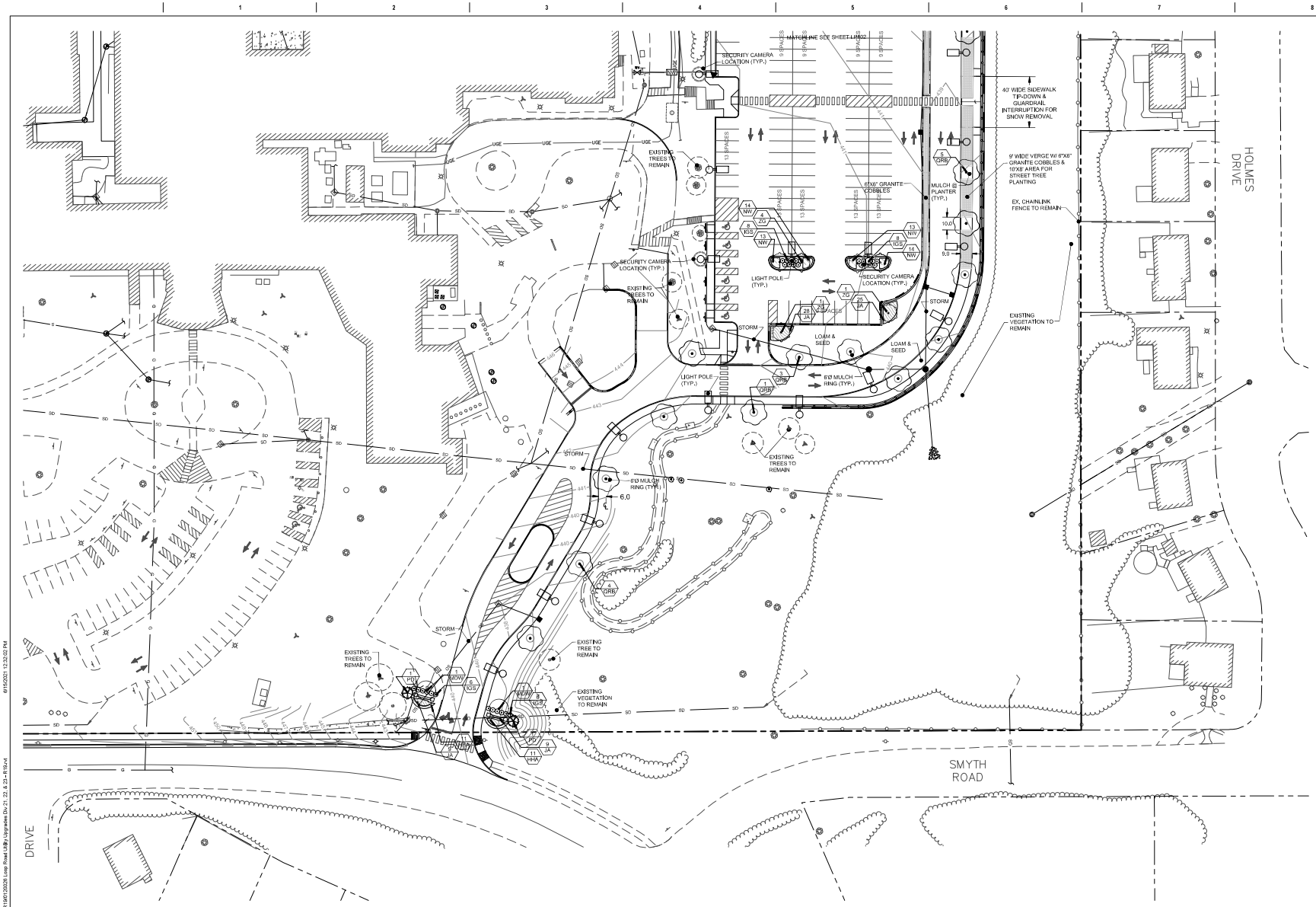

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LEGEND

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- FIRE HYDRANT
- ELECTRICAL MANHOLE
- SIGN
- UTILITY POLE
- SANITARY SEWER MANHOLE
- FENCE
- LIMITS OF WORK
- PAVEMENT REMOVALS

GRAPHIC SCALE

(IN FEET)
1 inch = 30 ft.

Revisions	Date
100% SUBMITTAL - BID DOCUMENTS	06/21/2022

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SDVOSB

DAVID T. WOODWARD 153 NEW HAMPSHIRE

CONSULTANT

wbrc

Drawing Title	SITE PLANTING PLAN
Approved:	
Project Title	LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES
Location	MANCHESTER VAMC, NH
Issue Date	06/21/2022
Checked	MAG
Drawn	BTH
Project Number	608-20-101
Building Number	
Drawing Number	LP104

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

VA FORM 08-6231

BM:360;XR:300026:Loop Road Utility Infrastructure Upgrades (Div 21 22 & 23--R19)21300026 Loop Road Utility Upgrades (Div 21, 22, & 23--R19).rvt
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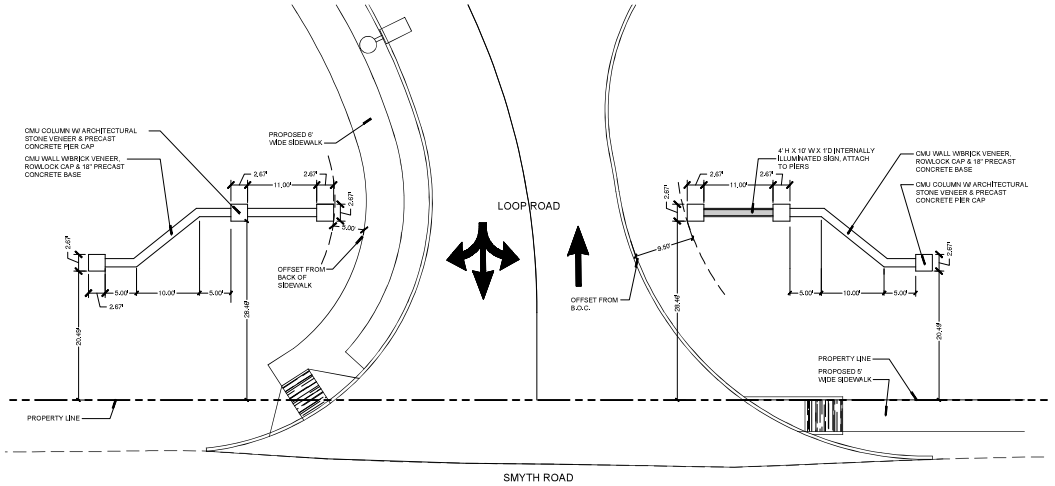
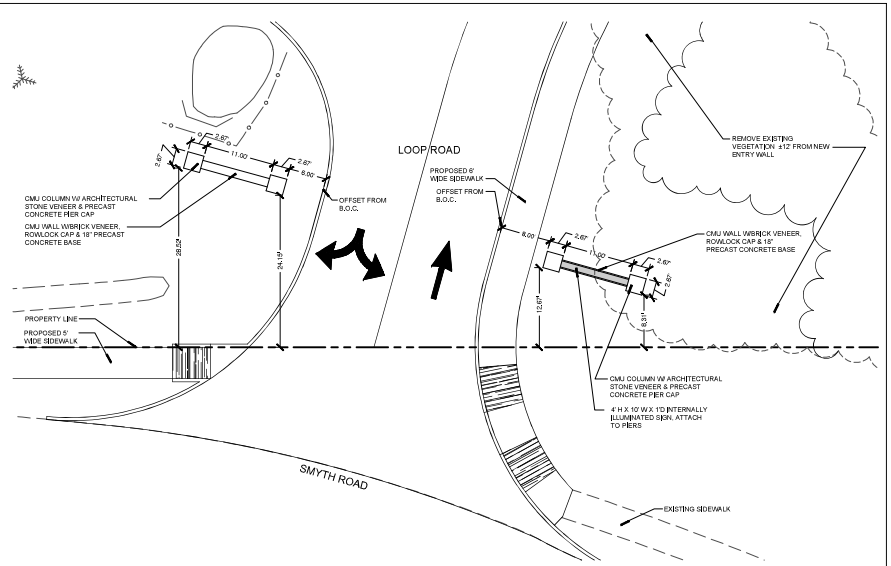


B1 PRIMARY ENTRANCE FEATURE/SIGN - PLAN

NO SCALE



B3 SECONDARY ENTRANCE FEATURE/SIGN - PLAN

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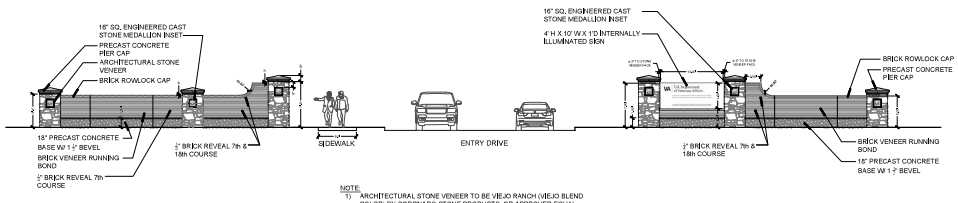
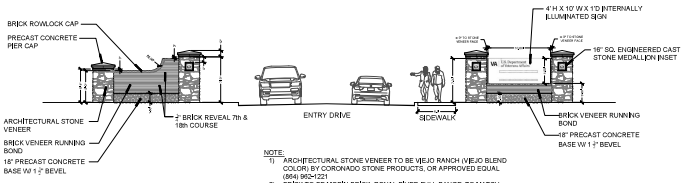


NOTE:
1) ARCHITECTURAL STONE VENEER TO BE VIEJO RANCH (VIEJO BLEND COLOR) BY CORONADO STONE PRODUCTS, OR APPROVED EQUAL (864) 963-1221
2) BRICK TO BE MORIN BRICK, ROYAL RIVER FULL RANGE, TO MATCH BUILDINGS, OR APPROVED EQUAL (207) 784-9375
3) PRECAST CONCRETE COLUMN CAP TO MATCH PRECAST CONCRETE BANDING ON BUILDINGS
4) 16" SQ. ENGINEERED CAST STONE MEDALLION BY PINEAPPLE GROVE DESIGNS, OR APPROVED EQUAL, COLOR TO MATCH PRECAST CONCRETE ON BUILDINGS. VA TO PROVIDE FINAL LINEWORK FOR LOGO (800) 777-4595

D1 PRIMARY ENTRANCE FEATURE/SIGN - ELEVATION

NO SCALE



NOTE:
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D3 SECONDARY ENTRANCE FEATURE/SIGN - ELEVATION

NO SCALE

Revisions	Date
100% SUBMITTAL - BID DOCUMENTS	06/21/2022

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PH: 603.261.2064

DAVID T. WOODWARD 153 STATE OF NEW HAMPSHIRE

CONSULTANT

wbrc

Drawing Title: HARDSCAPE DETAILS

Approved:

Project Title: LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES

Location: MANCHESTER VAMC, NH

Issue Date: 06/21/2022 | Checked: MAG | Drawn: BTH

Project Number: 608-20-101

Building Number:

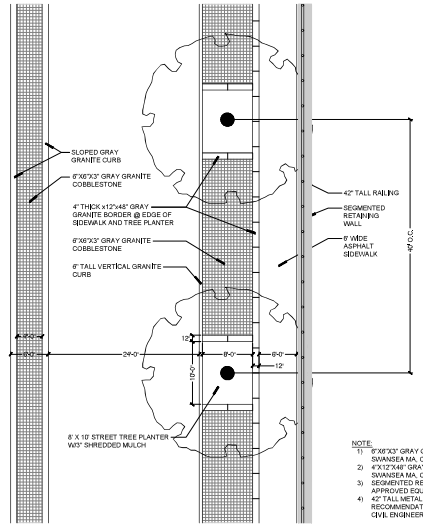
Drawing Number: LS501

Office of Construction and Facilities Management

U.S. Department of Veterans Affairs

VA FORM 08-6231

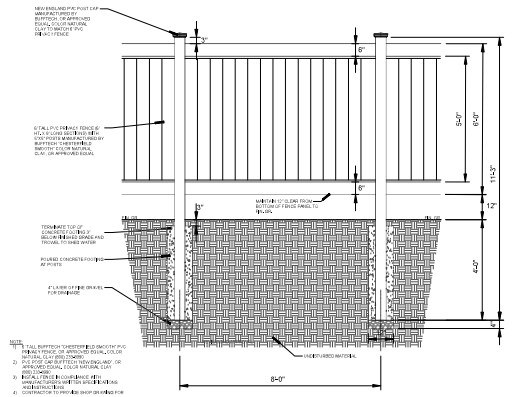
BIM 360://130026 Loop Road Utility Infrastructure Upgrades (Div 21 22 & 23--R19)/130026 Loop Road Utility Upgrades (Div 21, 22, & 23--R19).rvt
6/15/2021 12:33:03 PM



NOTE:
1) 6"X6"X3" GRAY GRANITE COBBLESTONE BY OLD WORLD COBBLE, SWANSEA MA, OR APPROVED EQUAL (877) 999-8700
2) 4"X12"X48" GRAY GRANITE BORDER PIECES BY OLD WORLD COBBLE, SWANSEA MA, OR APPROVED EQUAL (877) 999-8700
3) SEGMENTED RETAINING WALL BY RECON WALL SYSTEMS, INC., OR APPROVED EQUAL, SEE CIVIL ENGINEERING PLANS FOR DETAIL.
4) 42" TALL METAL RAILING TO BE INSTALLED PER MANUFACTURERS RECOMMENDATION, GROUT POSTS INTO PRECAST POST HOLES, SEE CIVIL ENGINEERING PLANS FOR DETAIL.

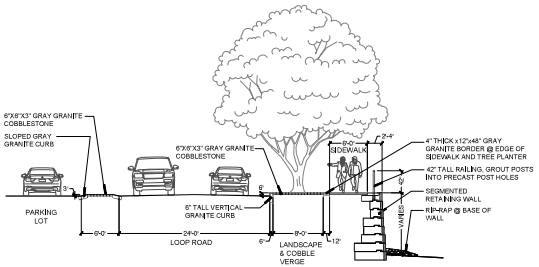
B1 PEDESTRIAN AREA (EAST SIDE LOOP ROAD) - PLAN

NO SCALE



B3 6' TALL PVC PRIVACY FENCE

NO SCALE



D1 PEDESTRIAN AREA (EAST SIDE LOOP ROAD) - SECTION

NO SCALE

~NOT USED~

D3

NO SCALE

Revisions		Date
	100% SUBMITTAL - BID DOCUMENTS	06/21/2022

ARCHITECT/ENGINEER OF RECORD

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DAVID T. WOODWARD 153 LICENSED LANDSCAPE ARCHITECT STATE OF NEW HAMPSHIRE

CONSULTANT

wbrc

Drawing Title: HARDSCAPE DETAILS

Approved:

Project Title: LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES

Location: MANCHESTER VAMC, NH

Issue Date: 06/21/2022 | Checked: MAG | Drawn: BTH

Project Number: 608-20-101

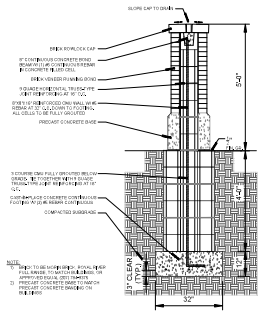
Building Number:

Drawing Number: LS502

Office of Construction and Facilities Management

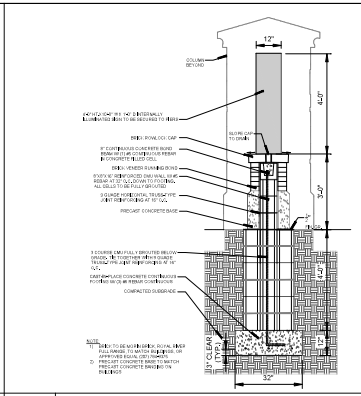
VA U.S. Department of Veterans Affairs

VA FORM 08 - 6231



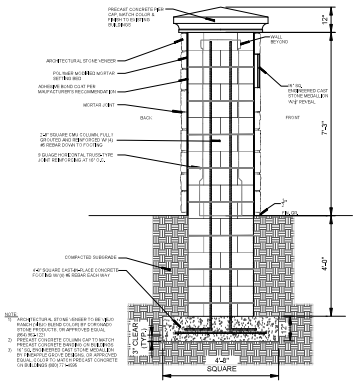
B1 ENTRANCE FEATURE WALL

NO SCALE



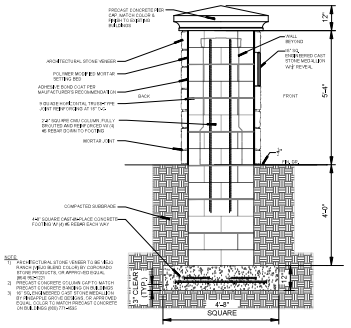
B3 ENTRANCE FEATURE WALL @ SIGN

NO SCALE



B5 TALL COLUMN @ ENTRANCE FEATURE

NO SCALE



B7 SHORT COLUMN @ ENTRANCE FEATURE

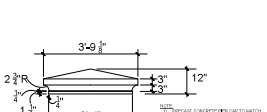
NO SCALE

STRUCTURAL CONCRETE MASONRY NOTES:

1) ALL MASONRY WORK, INCLUDING CURING, ERECTION, AND WEATHER PROTECTION SHALL CONFORM TO THE REQUIREMENTS OF TMS 402/ACI 530/ASCE 5 "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURE". TMS 602/ACI 530.1/ASCE 6 "SPECIFICATION FOR MASONRY STRUCTURES AND THE STANDARDS OF THE NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)
2) ALL CONCRETE MASONRY BLOCK WALLS SHALL BE LAID IN RUNNING BOND, U.N.O. PROVIDE FULL MORTAR COVERAGE ON ALL WEBS AND FACE SHELLS. TOOL ALL JOINTS CONCAVE. CORNER BLOCKS SHALL BE USED TO FINISH ALL 90 DEGREE CORNERS AND WALL OPENINGS. ALIGN CELLS TO MAINTAIN A CLEAR UNOBSTRUCTED VERTICAL SPACE. CELLS TO BE GROUTED SHALL BE KEPT CLEAN OF PROTRUSIONS OR MORTAR FINS.
3) CONCRETE MASONRY UNITS SHALL BE NORMAL-WEIGHT AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM C90. THE CONCRETE MASONRY UNIT SHALL HAVE A MINIMUM NET AREA COMPRESSIVE STRENGTH F'm OF 2,000 PSI AT 28 DAYS.
4) MORTAR SHALL CONFORM TO ASTM C270. TYPE M OR S MORTAR. MORTAR SHALL NOT BE USED WHERE GROUT IS SPECIFIED.
5) GROUT SHALL CONFORM TO ASTM C476. FINE GROUT, WITH A MINIMUM GROUT COMPRESSIVE STRENGTH OF 2,000 PSI AT 28 DAYS.
6) REINFORCING BARS SHALL BE NEW BILLET STEEL CONFORMING TO ASTM A615, GRADE 60. SECURELY SUPPORT ALL VERTICAL BAR REINFORCING IN CENTER OF CMU CELLS WITH VERTICAL REBAR POSITIONERS.
7) HORIZONTAL JOINT REINFORCING SHALL BE A MINIMUM #9 GAUGE TRUSS-TYPE GALVANIZED REINFORCING SPACED AT 16" O.C. CONFORMING TO ASTM A951. DISCONTINUE HORIZONTAL JOINT REINFORCING AT CONTRACTION JOINTS.
8) LAP SPLICE LENGTHS FOR REINFORCING BARS SHALL BE AS NOTED ON STRUCTURAL DRAWINGS, BUT NO LESS THAN 48 BAR DIAMETERS. LAP SPLICE HORIZONTAL JOINT REINFORCEMENT 75 DIAMETERS OF SIDE ROD OR A MINIMUM OF 1'-0".
9) ALL WALLS TO HAVE VERTICAL CONTRACTION JOINTS AT A MAXIMUM SPACING OF 25'0". WHERE CONTRACTION JOINTS PASS THROUGH BOND BEAMS, REINFORCING SHALL BE CONTINUOUS. RAKE JOINT IN BOND BEAM AND SEAL BOTH SIDES.

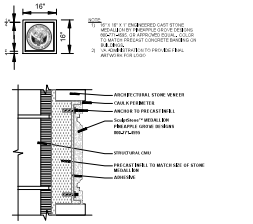
D1 STRUCTURAL CONCRETE MASONRY NOTES

NO SCALE



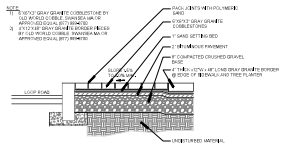
D3 COLUMN CAP @ ENTRANCE FEATURE

NO SCALE



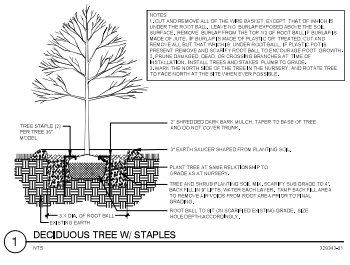
D5 CAST STONE MEDALLION @ ENTRANCE FEATURE

NO SCALE



D7 GRANITE COBBLESTONE @ EAST SIDE LOOP ROAD

NO SCALE

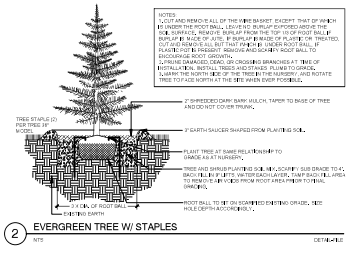


1 DECIDUOUS TREE W/ STAPLES

NTS

F1 DECIDUOUS TREE PLANTING

NO SCALE

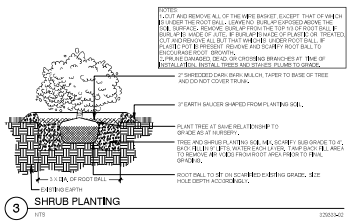


2 EVERGREEN TREE W/ STAPLES

NTS

F3 EVERGREEN TREE PLANTING

NO SCALE

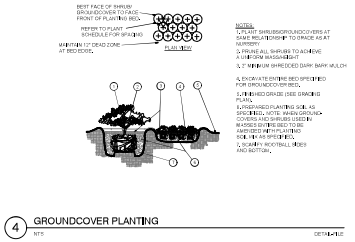


3 SHRUB PLANTING

NTS

F5 SHRUB PLANTING

NO SCALE



4 GROUNDCOVER PLANTING

NTS

F7 GROUNDCOVER PLANTING

NO SCALE

Revisions	Date
100% SUBMITTAL - BID DOCUMENTS	06/21/2022

ARCHITECT/ENGINEER OF RECORD

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SDVOSB

DAVID T. WOODWARD 153 NEW HAMPSHIRE

CONSULTANT

wbrc

Drawing Title: SITE PLANTING & HARDSCAPE DETAILS

Approved:

Project Title: LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES

Location: MANCHESTER VAMC, NH

Issue Date: 06/21/2022 | Checked: MAG | Drawn: BTH

Project Number: 608-20-101

Building Number:

Drawing Number: LS503

Office of Construction and Facilities Management

U.S. Department of Veterans Affairs

VA FORM 08-6231

BM:360,W1300026 Loop Road Utility Infrastructure Upgrades (Div 21 22 & 23--R1\W1300026 Loop Road Utility Upgrades (Div 21 22 & 23--R1.rvt

6/15/2021 12:33:03 PM

NOTE:
INFORMATION SHOWN ON THIS SHEET IS FOR REFERENCE ONLY AND IS NOT PART OF THE CONTRACT DOCUMENTS.

S.W.COLE ENGINEERING, INC. — BORING LOG B-1

CLIENT: WBRC Architects / Engineers
PROJECT: Proposed Loop Road, VAMC
LOCATION: 718 Smyth Road, Manchester, New Hampshire

BORING NO.: B-1 | SHEET: 1 of 1 | PROJECT NO.: 20-0320 | DATE START: 1/29/2021 | DATE FINISH: 1/29/2021

Drilling Information
LOCATION: See Exploration Location Plan | ELEVATION (FT): 459' +/- | TOTAL DEPTH (FT): 3.0 | LOGGED BY: Antono Santiago
DRILLING CO.: S.W. Cole Explorations, LLC | DRILLER: Sam Shaw | DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Mobile Drill B-53 | AUGER ID/OD: 2 1/4 in / 5 5/8 in | SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / N/A | HAMMER WEIGHT (lbs): 140 | CASING ID/OD: N/A /N/A | CORE BARREL: N/A
HAMMER EFFICIENCY FACTOR: | HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): No free-water observed.
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS: Water Level: At time of Drilling; At Completion of Drilling; After Drilling. D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear. Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot. WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector. S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-2	24/10	28-13-9-12			Medium dense, tan silty SAND some gravel		
			2D		2-2.4	5/3	50/5"					

Auger Refusal at 3.0 feet
Probable Bedrock or Boulder

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: B-1

BORING LOG B-2

CLIENT: WBRC Architects / Engineers | PROJECT: Proposed Loop Road, VAMC | LOCATION: 718 Smyth Road, Manchester, New Hampshire
BORING NO.: B-2 | SHEET: 1 of 1 | PROJECT NO.: 20-0320 | DATE START: 2/1/2021 | DATE FINISH: 2/1/2021
ELEVATION (FT): 462' +/- | TOTAL DEPTH (FT): 4.5 | LOGGED BY: Antono Santiago | DRILLER: Sam Shaw | Hollow Stem Auger | Track Mounted Mobile Drill B-53 | AUGER ID/OD: 2 1/4 in / 5 5/8 in | Standard Split-Spoon | HAMMER WEIGHT (lbs): 140 | HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): No free-water observed.

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-2	24/24	41-27-32-15			4 inches Topsoil		
									0.3	Medium dense to dense, tan silty SAND some gravel		
460			2D		2-3.4	17/4	13-15-50/5"					

Auger Refusal at 4.5 feet
Probable Bedrock or Boulder

BORING NO.: B-2

BORING LOG B-3

BORING NO.: B-3 | SHEET: 1 of 1 | PROJECT NO.: 20-0320 | DATE START: 2/1/2021 | DATE FINISH: 2/1/2021
ELEVATION (FT): 464' +/- | TOTAL DEPTH (FT): 1.5 | LOGGED BY: Antono Santiago
WATER LEVEL DEPTHS (ft): No free-water observed.

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-0.5	6/6	50			3 inches Topsoil		
									0.3	Brown, silty SAND some gravel		

Auger Refusal at 1.5 feet
Probable Bedrock or Boulder

BORING NO.: B-3

BORING LOG B-4

BORING NO.: B-4 | SHEET: 1 of 1 | PROJECT NO.: 20-0320 | DATE START: 2/1/2021 | DATE FINISH: 2/1/2021
ELEVATION (FT): 460' +/- | TOTAL DEPTH (FT): 10.8 | LOGGED BY: Antono Santiago
WATER LEVEL DEPTHS (ft): No free-water observed.

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-2	24/18	26-11-6-6			12 inches Topsoil		
									1.0	Medium dense, tan silty SAND some gravel		
			2D		2-4	24/10	6-6-9-12					
455	5		3D		5-7	24/20	14-18-13-12					
450	10		4D		10-10.8	10/6	31-50/4"					

Auger Refusal at 10.8 feet
Probable Bedrock or Boulder

BORING NO.: B-4

BORING LOG B-5

BORING NO.: B-5 | SHEET: 1 of 1 | PROJECT NO.: 20-0320 | DATE START: 2/1/2021 | DATE FINISH: 2/1/2021
ELEVATION (FT): 460' +/- | TOTAL DEPTH (FT): 12.0 | LOGGED BY: Antono Santiago
WATER LEVEL DEPTHS (ft): No free-water observed.

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-2	24/22	28-24-9-13			12 inches Topsoil		
									1.0	Medium dense, tan silty SAND some gravel		
			2D		2-4	24/18	12-14-20-20					
									3.0	Dense to very dense, brown gravelly silty SAND (Glacial Till)		
455	5		3D		5-7	24/22	15-30-17-11					
450	10		4D		10-12	24/24	21-27-35-48					

Bottom of Exploration at 12.0 feet.

BORING NO.: B-5

BORING LOG B-6

BORING NO.: B-6 | SHEET: 1 of 1 | PROJECT NO.: 20-0320 | DATE START: 2/1/2021 | DATE FINISH: 2/1/2021
ELEVATION (FT): 464' +/- | TOTAL DEPTH (FT): 12.0 | LOGGED BY: Antono Santiago
WATER LEVEL DEPTHS (ft): No free-water observed.

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-2	24/14	23-27-12-7			6 inches Topsoil		
									0.5	Loose, brown SAND some gravel some silt trace organics (Fill)		
			2D		2-4	24/18	5-4-4-2					
460												
	5		3D		5-7	24/20	4-3-9-13		5.0	Medium dense, tan silty SAND some gravel		
455												
	10		4D		10-12	24/6	10-15-16-18					

Bottom of Exploration at 12.0 feet.

BORING NO.: B-6

BORING LOG B-7

BORING NO.: B-7 | SHEET: 1 of 1 | PROJECT NO.: 20-0320 | DATE START: 2/1/2021 | DATE FINISH: 2/1/2021
ELEVATION (FT): 464' +/- | TOTAL DEPTH (FT): 1.5 | LOGGED BY: Antono Santiago
WATER LEVEL DEPTHS (ft): No free-water observed.

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-0.4	5/4	50/5"			6 inches Topsoil		
									0.5	Brown, silty SAND some gravel		

Auger Refusal at 1.5 feet
Probable Bedrock or Boulder

BORING NO.: B-7

BORING LOG B-8

BORING NO.: B-8 | SHEET: 1 of 1 | PROJECT NO.: 20-0320 | DATE START: 2/1/2021 | DATE FINISH: 2/1/2021
ELEVATION (FT): 461' +/- | TOTAL DEPTH (FT): 4.5 | LOGGED BY: Antono Santiago
WATER LEVEL DEPTHS (ft): No free-water observed.

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-2	24/22	15-8-7-9			6 inches Topsoil		
460									0.5	Medium dense to very dense, brown gravelly silty SAND (Glacial Till)		
			2D		2-4	24/14	15-25-25-28					

Auger Refusal at 4.5 feet
Probable Bedrock or Boulder

BORING NO.: B-8

DRAFT

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STATE OF MAINE — MICHAEL A. GUETHLE — 14284 — LICENSED PROFESSIONAL ENGINEER

CONSULTANT
wbrc

Revisions	Date
100% SUBMITTAL - BID DOCUMENTS	06/21/2022

Drawing Title: BORING LOGS
Approved:
Project Title: LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES
Location: MANCHESTER VAMC, NH
Issue Date: 06/21/2022 | Checked: MAG | Drawn: BTH
Project Number: 608-20-101
Building Number:
Drawing Number: BK601

Office of Construction and Facilities Management
VA U.S. Department of Veterans Affairs

VA FORM 08-6231

NOTE:
INFORMATION SHOWN ON THIS SHEET IS FOR REFERENCE ONLY AND IS NOT PART OF THE CONTRACT DOCUMENTS.

S.W.COLE ENGINEERING, INC. — BORING LOG — BORING NO.: B-9

CLIENT: WBRC Architects / Engineers | SHEET: 1 of 1
PROJECT: Proposed Loop Road, VAMC | PROJECT NO. 20-0320
LOCATION: 718 Smyth Road, Manchester, New Hampshire | DATE START: 2/1/2021 | DATE FINISH: 2/1/2021

Drilling Information
LOCATION: See Exploration Location Plan | ELEVATION (FT): 464' +/- | TOTAL DEPTH (FT): 8.5 | LOGGED BY: Antono Santiago
DRILLING CO.: S.W. Cole Explorations, LLC | DRILLER: Sam Shaw | DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Mobile Drill B-53 | AUGER ID/OD: 2 1/4 in / 5 5/8 in | SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / N/A | HAMMER WEIGHT (lbs): 140 | CASING ID/OD: N/A /N/A | CORE BARREL: N/A
HAMMER EFFICIENCY FACTOR: | HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): No free-water observed.
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS: Water Level: At time of Drilling; At Completion of Drilling; After Drilling. D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear. Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot. WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector. S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Depth (ft)	Pen./Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Sample Description & Classification	H_2O Depth	Remarks
			1D	0-0.3	4/4	50/4"		4 inches Topsoil		
								0.5 Probable Boulder		
								3.0 Dense, gravelly SAND some silt		
460	5		2D	5-7	24/16	36-18-17-20				

Auger Refusal at 8.5 feet
Probable Bedrock or Boulder

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: B-9

S.W.COLE ENGINEERING, INC. — BORING LOG — BORING NO.: B-10

CLIENT: WBRC Architects / Engineers | SHEET: 1 of 1
PROJECT: Proposed Loop Road, VAMC | PROJECT NO. 20-0320
LOCATION: 718 Smyth Road, Manchester, New Hampshire | DATE START: 2/8/2021 | DATE FINISH: 2/8/2021

Drilling Information
LOCATION: See Exploration Location Plan | ELEVATION (FT): 464' +/- | TOTAL DEPTH (FT): 0.5 | LOGGED BY: Antono Santiago
DRILLING CO.: S.W. Cole Explorations, LLC | DRILLER: Sam Shaw | DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Mobile Drill B-53 | AUGER ID/OD: 2 1/4 in / 5 5/8 in | SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / N/A | HAMMER WEIGHT (lbs): 140 | CASING ID/OD: N/A /N/A | CORE BARREL: N/A
HAMMER EFFICIENCY FACTOR: | HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): No free-water observed.
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS: Water Level: At time of Drilling; At Completion of Drilling; After Drilling. D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear. Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot. WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector. S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Depth (ft)	Pen./Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Sample Description & Classification	H_2O Depth	Remarks
								4 inches Asphalt Pavement		
								0.3 Concrete (Boring terminated due to possible utility conflict)		

Refusal at 0.5 feet
Concrete under pavement

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: B-10

S.W.COLE ENGINEERING, INC. — BORING LOG — BORING NO.: B-11

CLIENT: WBRC Architects / Engineers | SHEET: 1 of 1
PROJECT: Proposed Loop Road, VAMC | PROJECT NO. 20-0320
LOCATION: 718 Smyth Road, Manchester, New Hampshire | DATE START: 2/8/2021 | DATE FINISH: 2/8/2021

Drilling Information
LOCATION: See Exploration Location Plan | ELEVATION (FT): 464' +/- | TOTAL DEPTH (FT): 1.5 | LOGGED BY: Antono Santiago
DRILLING CO.: S.W. Cole Explorations, LLC | DRILLER: Sam Shaw | DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Mobile Drill B-53 | AUGER ID/OD: 2 1/4 in / 5 5/8 in | SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / N/A | HAMMER WEIGHT (lbs): 140 | CASING ID/OD: N/A /N/A | CORE BARREL: N/A
HAMMER EFFICIENCY FACTOR: | HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): No free-water observed.
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS: Water Level: At time of Drilling; At Completion of Drilling; After Drilling. D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear. Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot. WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector. S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Depth (ft)	Pen./Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Sample Description & Classification	H_2O Depth	Remarks
								3 inches Asphalt Pavement		
			1D	0.3-1.3	12/4	5-16-50/0"		0.3 Medium dense, brown gravelly SAND some silt		
								1.0 Medium dense, tan silty SAND some gravel		

Auger Refusal at 1.5 feet
Probable Bedrock or Boulder

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: B-11

S.W.COLE ENGINEERING, INC. — BORING LOG — BORING NO.: B-13

CLIENT: WBRC Architects / Engineers | SHEET: 1 of 1
PROJECT: Proposed Loop Road, VAMC | PROJECT NO. 20-0320
LOCATION: 718 Smyth Road, Manchester, New Hampshire | DATE START: 2/3/2021 | DATE FINISH: 2/3/2021

Drilling Information
LOCATION: See Exploration Location Plan | ELEVATION (FT): 459' +/- | TOTAL DEPTH (FT): 10.7 | LOGGED BY: Antono Santiago
DRILLING CO.: S.W. Cole Explorations, LLC | DRILLER: Sam Shaw | DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Mobile Drill B-53 | AUGER ID/OD: 2 1/4 in / 5 5/8 in | SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / N/A | HAMMER WEIGHT (lbs): 140 | CASING ID/OD: N/A /N/A | CORE BARREL: N/A
HAMMER EFFICIENCY FACTOR: | HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): No free-water observed.
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS: Water Level: At time of Drilling; At Completion of Drilling; After Drilling. D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear. Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot. WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector. S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Depth (ft)	Pen./Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Sample Description & Classification	H_2O Depth	Remarks
								4 inches Asphalt Pavement		
			1D	0.3-2.3	24/10	8-6-5-7		0.3 Medium dense, brown SAND some gravel some silt (Fill)		
			2D	2.3-4.3	24/6	5-5-4-5		2.0 Medium dense, gray gravelly SAND trace gravel (Fill)		
455	5		3D	5-7	24/12	6-12-22-25		5.0 Dense, tan silty SAND some gravel		
450	10		4D	10-10.7	8/6	22-50/2"				

Auger Refusal at 10.7 feet
Probable Bedrock or Boulder

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: B-13

S.W.COLE ENGINEERING, INC. — BORING LOG — BORING NO.: B-14

CLIENT: WBRC Architects / Engineers | SHEET: 1 of 1
PROJECT: Proposed Loop Road, VAMC | PROJECT NO. 20-0320
LOCATION: 718 Smyth Road, Manchester, New Hampshire | DATE START: 2/3/2021 | DATE FINISH: 2/3/2021

Drilling Information
LOCATION: See Exploration Location Plan | ELEVATION (FT): 457' +/- | TOTAL DEPTH (FT): 12.0 | LOGGED BY: Antono Santiago
DRILLING CO.: S.W. Cole Explorations, LLC | DRILLER: Sam Shaw | DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Mobile Drill B-53 | AUGER ID/OD: 2 1/4 in / 5 5/8 in | SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / N/A | HAMMER WEIGHT (lbs): 140 | CASING ID/OD: N/A /N/A | CORE BARREL: N/A
HAMMER EFFICIENCY FACTOR: | HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): No free-water observed.
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS: Water Level: At time of Drilling; At Completion of Drilling; After Drilling. D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear. Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot. WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector. S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Depth (ft)	Pen./Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Sample Description & Classification	H_2O Depth	Remarks
								2 inches Asphalt Pavement		
			1D	0.2-0.7	6/2	50		0.2 Loose to medium dense, dark brown gravelly silty SAND with organics (Fill)		
455										
			2D	3-5	24/14	8-10-6-12				
	5		3D	5-7	24/4	5-4-2-5				
450										
	10		4D	10-12	24/10	9-14-7-5		10.0 Medium dense, gray gravelly SAND some silt		
445										

Bottom of Exploration at 12.0 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: B-14

S.W.COLE ENGINEERING, INC. — BORING LOG — BORING NO.: B-15

CLIENT: WBRC Architects / Engineers | SHEET: 1 of 1
PROJECT: Proposed Loop Road, VAMC | PROJECT NO. 20-0320
LOCATION: 718 Smyth Road, Manchester, New Hampshire | DATE START: 2/8/2021 | DATE FINISH: 2/8/2021

Drilling Information
LOCATION: See Exploration Location Plan | ELEVATION (FT): 456' +/- | TOTAL DEPTH (FT): 2.0 | LOGGED BY: Antono Santiago
DRILLING CO.: S.W. Cole Explorations, LLC | DRILLER: Sam Shaw | DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Mobile Drill B-53 | AUGER ID/OD: 2 1/4 in / 5 5/8 in | SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / N/A | HAMMER WEIGHT (lbs): 140 | CASING ID/OD: N/A /N/A | CORE BARREL: N/A
HAMMER EFFICIENCY FACTOR: | HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): No free-water observed.
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS: Water Level: At time of Drilling; At Completion of Drilling; After Drilling. D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear. Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot. WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector. S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Depth (ft)	Pen./Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Sample Description & Classification	H_2O Depth	Remarks
			1D	0-0.4	5/3	50/5"		Dark brown, gravelly silty SAND (Fill)		
455										

Auger Refusal at 2.0 feet
Probable Bedrock or Boulder

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: B-15

S.W.COLE ENGINEERING, INC. — BORING LOG — BORING NO.: B-16

CLIENT: WBRC Architects / Engineers | SHEET: 1 of 1
PROJECT: Proposed Loop Road, VAMC | PROJECT NO. 20-0320
LOCATION: 718 Smyth Road, Manchester, New Hampshire | DATE START: 2/4/2021 | DATE FINISH: 2/4/2021

Drilling Information
LOCATION: See Exploration Location Plan | ELEVATION (FT): 446' +/- | TOTAL DEPTH (FT): 3.3 | LOGGED BY: Afeez Akanbi
DRILLING CO.: S.W. Cole Explorations, LLC | DRILLER: Sam Shaw | DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Mobile Drill B-53 | AUGER ID/OD: 2 1/4 in / 5 5/8 in | SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / N/A | HAMMER WEIGHT (lbs): 140 | CASING ID/OD: N/A /N/A | CORE BARREL: N/A
HAMMER EFFICIENCY FACTOR: | HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): No free water observed before refusal
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS: Water Level: At time of Drilling; At Completion of Drilling; After Drilling. D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear. Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot. WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector. S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Depth (ft)	Pen./Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Sample Description & Classification	H_2O Depth	Remarks
			1D	0-2	24/5	2-3-2-3		Surface; 4 inches topsoil		
445								0.3 Loose to very dense, brown, Silty fine SAND		
			2D	2-3.3	16/15	6-8-50/4"				

Auger Refusal at 3.3 feet
Probable Bedrock or Boulder

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: B-16

S.W.COLE ENGINEERING, INC. — BORING LOG — BORING NO.: B-17

CLIENT: WBRC Architects / Engineers | SHEET: 1 of 1
PROJECT: Proposed Loop Road, VAMC | PROJECT NO. 20-0320
LOCATION: 718 Smyth Road, Manchester, New Hampshire | DATE START: 2/4/2021 | DATE FINISH: 2/4/2021

Drilling Information
LOCATION: See Exploration Location Plan | ELEVATION (FT): 438' +/- | TOTAL DEPTH (FT): 3.5 | LOGGED BY: Afeez Akanbi
DRILLING CO.: S.W. Cole Explorations, LLC | DRILLER: Sam Shaw | DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Mobile Drill B-53 | AUGER ID/OD: 2 1/4 in / 5 5/8 in | SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / N/A | HAMMER WEIGHT (lbs): 140 | CASING ID/OD: N/A /N/A | CORE BARREL: N/A
HAMMER EFFICIENCY FACTOR: | HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): No free water observed before refusal
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS: Water Level: At time of Drilling; At Completion of Drilling; After Drilling. D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear. Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot. WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector. S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Depth (ft)	Pen./Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Sample Description & Classification	H_2O Depth	Remarks
			1D	0-1.4	17/7	6-15-50/5"		3.5 inches Topsoil		
								0.3 Very dense, brown silty fine SAND		
435										

Auger Refusal at 3.5 feet
Probable Bedrock or Boulder

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: B-17

Revisions	Date
100% SUBMITTAL - BID DOCUMENTS	06/21/2022

ARCHITECT/ENGINEER OF RECORD
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STATE OF MAINE — MICHAELA GUETHLE — 14284 — LICENSED — PROFESSIONAL ENGINEER

CONSULTANT
wbrc

Drawing Title: BORING LOGS
Approved:
Project Title: LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES
Location: MANCHESTER VAMC, NH
Issue Date: 06/21/2022 | Checked: MAG | Drawn: BTH
Project Number: 608-20-101
Building Number:
Drawing Number: BK602

Office of Construction and Facilities Management
VA U.S. Department of Veterans Affairs

VA FORM 08-6231

BIM 360://0120028 Loop Road Utility Infrastructure Upgrades Div 21, 22 & 23 - R19/0120028 Loop Road Utility Upgrades Div 21, 22, & 23 - R19.rvt
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NOTE:
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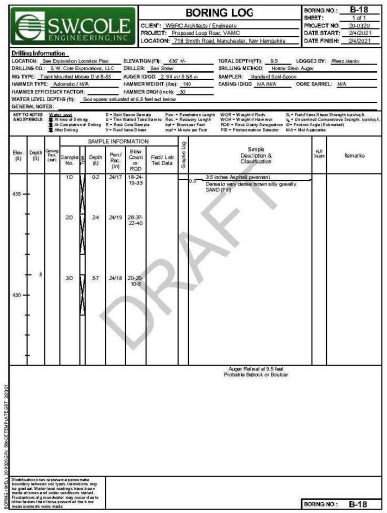

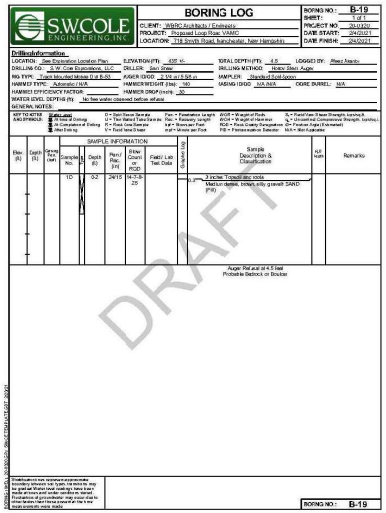

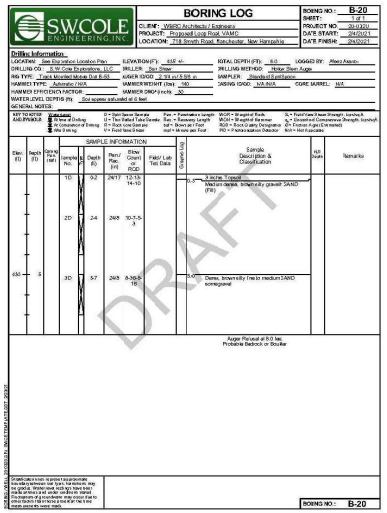

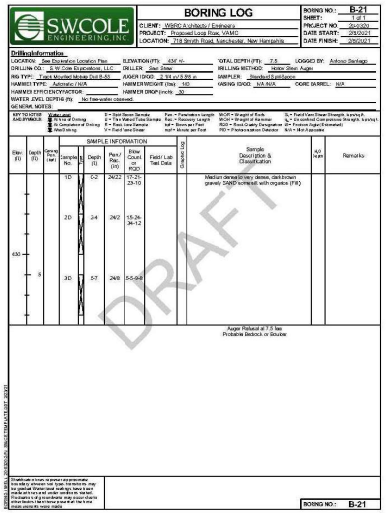

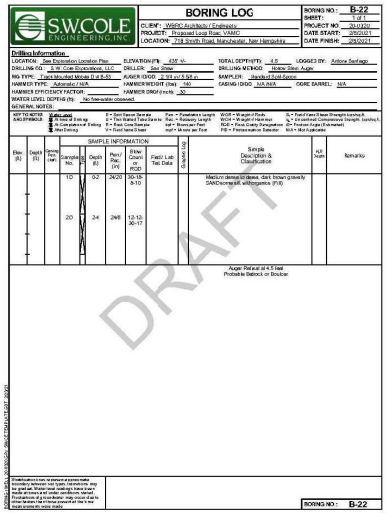

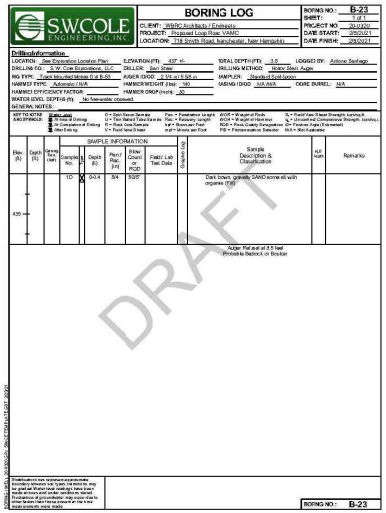

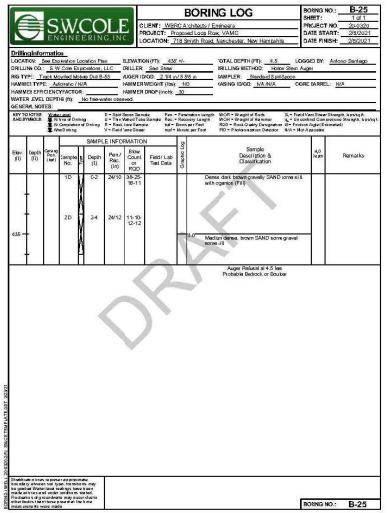

DRAFT

Revisions		Date
	100% SUBMITTAL - BID DOCUMENTS	06/21/2022

ARCHITECT/ENGINEER OF RECORD

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STATE OF MAINE
MICHAEL A GUETHLE
14284
LICENSED PROFESSIONAL ENGINEER

CONSULTANT

wbrc

Drawing Title: BORING LOGS

Approved:

Project Title: LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES

Location: MANCHESTER VAMC, NH

Issue Date: 06/21/2022 | Checked: MAG | Drawn: BTH

Project Number: 608-20-101

Building Number:

Drawing Number: BK603

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

VA FORM 08 - 8231

BK 3X0.00.00035 Loop Road Utility Infrastructure Upgrades Ch 21, 22, & 23 - R1.dgn 01/20/2021 12:33:02 PM

NOTE:
INFORMATION SHOWN ON THIS SHEET IS FOR REFERENCE ONLY AND IS NOT PART OF THE CONTRACT DOCUMENTS.

S.W.COLE ENGINEERING, INC. — BORING LOG — B-26

CLIENT: WBRC Architects / Engineers
PROJECT: Proposed Loop Road, VAMC
LOCATION: 718 Smyth Road, Manchester, New Hampshire
BORING NO.: B-26 · SHEET: 1 of 1 · PROJECT NO.: 20-0320 · DATE START: 2/5/2021 · DATE FINISH: 2/5/2021

Drilling Information
LOCATION: See Exploration Location Plan · ELEVATION (FT): 440' +/- · TOTAL DEPTH (FT): 9.5 · LOGGED BY: Antono Santiago
DRILLING CO.: S. W. Cole Explorations, LLC · DRILLER: Sen Shaw · DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Mobile Drill B-53 · AUGER ID/OD: 2 1/4 in / 5 5/8 in · SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / N/A · HAMMER WEIGHT (lbs): 140 · CASING ID/OD: N/A /N/A · CORE BARREL: N/A
HAMMER EFFICIENCY FACTOR: · HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): No free-water observed.
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS: Water Level: At time of Drilling; At Completion of Drilling; After Drilling. D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear. Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot. WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector. S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Sample No.	Depth (ft)	Pen./Rec. (in)	Blow Count or RQD	Strata Depth	Sample Description & Classification
							4 inches Asphalt Pavement
		1D	0.5-2.5	24/10	8-10-9-6	0.3	Loose to medium dense, brown SAND some gravel some silt (Fill)
		2D	2.5-4.5	24/4	6-5-5-5		
435	5	3D	5-7	24/3	5-4-2-5		

Auger Refusal at 9.5 feet.
Probable Bedrock or Boulder

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: B-26

S.W.COLE ENGINEERING, INC. — BORING LOG — B-27

CLIENT: WBRC Architects / Engineers
PROJECT: Proposed Loop Road, VAMC
LOCATION: 718 Smyth Road, Manchester, New Hampshire
BORING NO.: B-27 · SHEET: 1 of 1 · PROJECT NO.: 20-0320 · DATE START: 2/5/2021 · DATE FINISH: 2/5/2021

LOCATION: See Exploration Location Plan · ELEVATION (FT): 441' +/- · TOTAL DEPTH (FT): 4.5 · LOGGED BY: Antono Santiago
DRILLING CO.: S. W. Cole Explorations, LLC · DRILLER: Sen Shaw · DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Mobile Drill B-53 · AUGER ID/OD: 2 1/4 in / 5 5/8 in · SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / N/A · HAMMER WEIGHT (lbs): 140 · CASING ID/OD: N/A /N/A · CORE BARREL: N/A
HAMMER DROP (inch): 30 · WATER LEVEL DEPTHS (ft): No free-water observed.

Elev. (ft)	Depth (ft)	Sample No.	Depth (ft)	Pen./Rec. (in)	Blow Count or RQD	Strata Depth	Sample Description & Classification
							3 inches Asphalt Pavement
440		1D	0.3-2.3	24/8	20-15-8-8	0.3	Medium dense, brown SAND some gravel some silt (Fill)
		2D	2.3-4.3	24/10	15-20-12-23	2.0	Dense, gray gravelly SAND some silt

Auger Refusal at 4.5 feet.
Probable Bedrock or Boulder

BORING NO.: B-27

S.W.COLE ENGINEERING, INC. — BORING LOG — B-28

CLIENT: WBRC Architects / Engineers
PROJECT: Proposed Loop Road, VAMC
LOCATION: 718 Smyth Road, Manchester, New Hampshire
BORING NO.: B-28 · SHEET: 1 of 1 · PROJECT NO.: 20-0320 · DATE START: 2/5/2021 · DATE FINISH: 2/5/2021

LOCATION: See Exploration Location Plan · ELEVATION (FT): 442' +/- · TOTAL DEPTH (FT): 4.5 · LOGGED BY: Antono Santiago
DRILLING CO.: S. W. Cole Explorations, LLC · DRILLER: Sen Shaw · DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Mobile Drill B-53 · AUGER ID/OD: 2 1/4 in / 5 5/8 in · SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / N/A · HAMMER WEIGHT (lbs): 140 · CASING ID/OD: N/A /N/A · CORE BARREL: N/A
HAMMER DROP (inch): 30 · WATER LEVEL DEPTHS (ft): No free-water observed.

Elev. (ft)	Depth (ft)	Sample No.	Depth (ft)	Pen./Rec. (in)	Blow Count or RQD	Strata Depth	Sample Description & Classification
							3 inches Asphalt Pavement
		1D	0.3-2.3	24/12	20-29-22-9	0.3	Dense, brown SAND some gravel some silt (Fill)
440		2D	2.3-4.3	24/16	11-9-9-11	2.3	Medium dense, brown silty SAND some gravel

Auger Refusal at 4.5 feet.
Probable Bedrock or Boulder

BORING NO.: B-28

S.W.COLE ENGINEERING, INC. — BORING LOG — B-29

CLIENT: WBRC Architects / Engineers
PROJECT: Proposed Loop Road, VAMC
LOCATION: 718 Smyth Road, Manchester, New Hampshire
BORING NO.: B-29 · SHEET: 1 of 1 · PROJECT NO.: 20-0320 · DATE START: 2/5/2021 · DATE FINISH: 2/5/2021

LOCATION: See Exploration Location Plan · ELEVATION (FT): 442' +/- · TOTAL DEPTH (FT): 2.5 · LOGGED BY: Antono Santiago
DRILLING CO.: S. W. Cole Explorations, LLC · DRILLER: Sen Shaw · DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Mobile Drill B-53 · AUGER ID/OD: 2 1/4 in / 5 5/8 in · SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / N/A · HAMMER WEIGHT (lbs): 140 · CASING ID/OD: N/A /N/A · CORE BARREL: N/A
HAMMER DROP (inch): 30 · WATER LEVEL DEPTHS (ft): No free-water observed.

Elev. (ft)	Depth (ft)	Sample No.	Depth (ft)	Pen./Rec. (in)	Blow Count or RQD	Strata Depth	Sample Description & Classification
							4 inches Asphalt Pavement
		1D	0.3-1.6	15/8	20-14-50/3"	0.3	Dense, brown gravelly SAND some silt (Fill)
440							

Auger Refusal at 2.5 feet.
Probable Bedrock or Boulder

BORING NO.: B-29

S.W.COLE ENGINEERING, INC. — BORING LOG — B-30

CLIENT: WBRC Architects / Engineers
PROJECT: Proposed Loop Road, VAMC
LOCATION: 718 Smyth Road, Manchester, New Hampshire
BORING NO.: B-30 · SHEET: 1 of 1 · PROJECT NO.: 20-0320 · DATE START: 2/5/2021 · DATE FINISH: 2/5/2021

LOCATION: See Exploration Location Plan · ELEVATION (FT): 440' +/- · TOTAL DEPTH (FT): 8.0 · LOGGED BY: Antono Santiago
DRILLING CO.: S. W. Cole Explorations, LLC · DRILLER: Sen Shaw · DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Mobile Drill B-53 · AUGER ID/OD: 2 1/4 in / 5 5/8 in · SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / N/A · HAMMER WEIGHT (lbs): 140 · CASING ID/OD: N/A /N/A · CORE BARREL: N/A
HAMMER DROP (inch): 30 · WATER LEVEL DEPTHS (ft): No free-water observed.

Elev. (ft)	Depth (ft)	Sample No.	Depth (ft)	Pen./Rec. (in)	Blow Count or RQD	Strata Depth	Sample Description & Classification
							5 inches Asphalt Pavement
		1D	0.4-2.4	24/10	9-10-10-8	0.4	Medium dense, brown SAND some gravel some silt (Fill)
		2D	2.4-4.4	24/18	10-9-13-17	2.5	Medium dense, brown gravelly silty SAND (Glacial Till)
435	5	3D	5-7	24/20	10-9-10-9		

Auger Refusal at 8.0 feet.
Probable Bedrock or Boulder

BORING NO.: B-30

S.W.COLE ENGINEERING, INC. — BORING LOG — B-31

CLIENT: WBRC Architects / Engineers
PROJECT: Proposed Loop Road, VAMC
LOCATION: 718 Smyth Road, Manchester, New Hampshire
BORING NO.: B-31 · SHEET: 1 of 1 · PROJECT NO.: 20-0320 · DATE START: 2/5/2021 · DATE FINISH: 2/5/2021

LOCATION: See Exploration Location Plan · ELEVATION (FT): 440' +/- · TOTAL DEPTH (FT): 10.3 · LOGGED BY: Antono Santiago
DRILLING CO.: S. W. Cole Explorations, LLC · DRILLER: Sen Shaw · DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Mobile Drill B-53 · AUGER ID/OD: 2 1/4 in / 5 5/8 in · SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / N/A · HAMMER WEIGHT (lbs): 140 · CASING ID/OD: N/A /N/A · CORE BARREL: N/A
HAMMER DROP (inch): 30 · WATER LEVEL DEPTHS (ft): No free-water observed.

Elev. (ft)	Depth (ft)	Sample No.	Depth (ft)	Pen./Rec. (in)	Blow Count or RQD	Strata Depth	Sample Description & Classification
		1D	0-0.4	5/2	50/5"		4 inches Asphalt Pavement
						0.3	Probable Boulder or Nested Cobbles
						2.5	Medium dense, brown gravelly silty SAND
435	5	2D	5-7	24/18	12-12-15-19		
430	10	3D	10-10.3	4/1	50/4"		

Auger Refusal at 10.3 feet.
Probable Bedrock or Boulder

BORING NO.: B-31

S.W.COLE ENGINEERING, INC. — BORING LOG — B-32

CLIENT: WBRC Architects / Engineers
PROJECT: Proposed Loop Road, VAMC
LOCATION: 718 Smyth Road, Manchester, New Hampshire
BORING NO.: B-32 · SHEET: 1 of 1 · PROJECT NO.: 20-0320 · DATE START: 1/29/2021 · DATE FINISH: 1/29/2021

LOCATION: See Exploration Location Plan · ELEVATION (FT): 457' +/- · TOTAL DEPTH (FT): 9.0 · LOGGED BY: Antono Santiago
DRILLING CO.: S. W. Cole Explorations, LLC · DRILLER: Sen Shaw · DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Mobile Drill B-53 · AUGER ID/OD: 2 1/4 in / 5 5/8 in · SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / N/A · HAMMER WEIGHT (lbs): 140 · CASING ID/OD: N/A /N/A · CORE BARREL: N/A
HAMMER DROP (inch): 30 · WATER LEVEL DEPTHS (ft): No free-water observed.

Elev. (ft)	Depth (ft)	Sample No.	Depth (ft)	Pen./Rec. (in)	Blow Count or RQD	Strata Depth	Sample Description & Classification
		1D	0-2	24/18	6-3-4-3		12 inches Topsoil and Forest Duff
						1.0	Medium dense, tan silty SAND some gravel
455		2D	2-4	24/14	4-4-7-11		
	5	3D	5-7	24/12	11-6-14-10	5.0	Medium dense, brown gravelly silty SAND (Glacial Till)
450							

Auger Refusal at 9.0 feet.
Probable Bedrock or Boulder

BORING NO.: B-32

S.W.COLE ENGINEERING, INC. — BORING LOG — B-33

CLIENT: WBRC Architects / Engineers
PROJECT: Proposed Loop Road, VAMC
LOCATION: 718 Smyth Road, Manchester, New Hampshire
BORING NO.: B-33 · SHEET: 1 of 1 · PROJECT NO.: 20-0320 · DATE START: 2/1/2021 · DATE FINISH: 2/1/2021

LOCATION: See Exploration Location Plan · ELEVATION (FT): 461' +/- · TOTAL DEPTH (FT): 11.3 · LOGGED BY: Antono Santiago
DRILLING CO.: S. W. Cole Explorations, LLC · DRILLER: Sen Shaw · DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Mobile Drill B-53 · AUGER ID/OD: 2 1/4 in / 5 5/8 in · SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / N/A · HAMMER WEIGHT (lbs): 140 · CASING ID/OD: N/A /N/A · CORE BARREL: N/A
HAMMER DROP (inch): 30 · WATER LEVEL DEPTHS (ft): No free-water observed.

Elev. (ft)	Depth (ft)	Sample No.	Depth (ft)	Pen./Rec. (in)	Blow Count or RQD	Strata Depth	Sample Description & Classification
		1D	0-2	24/20	43-28-17-18		Dense, tan silty SAND some gravel
460							
		2D	2-4	24/24	50-31-23-21		
	5	3D	5-6.9	23/18	19-17-21-50/5"	5.0	Dense, brown gravelly silty SAND
455							
	10	4D	10-11.3	15/14	25-42-50/3"		
450							

Auger Refusal at 11.3 feet.
Probable Bedrock or Boulder

BORING NO.: B-33

Revisions	100% SUBMITTAL - BID DOCUMENTS — 06/21/2022 (Date)

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STATE OF MAINE — MICHAEL A. GUETHLE — 14284 — LICENSED PROFESSIONAL ENGINEER

CONSULTANT
wbrc

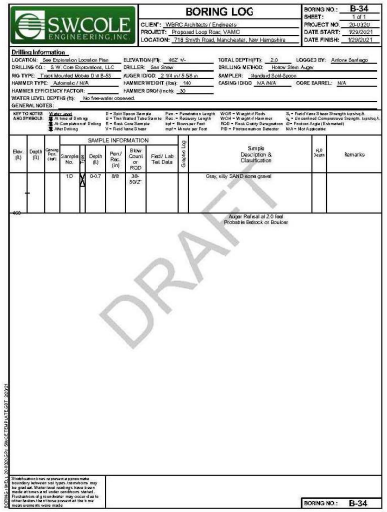
Drawing Title: BORING LOGS
Approved:
Project Title: LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES
Location: MANCHESTER VAMC, NH
Issue Date: 06/21/2022 · Checked: MAG · Drawn: BTH
Project Number: 608-20-101
Building Number:
Drawing Number: BK604

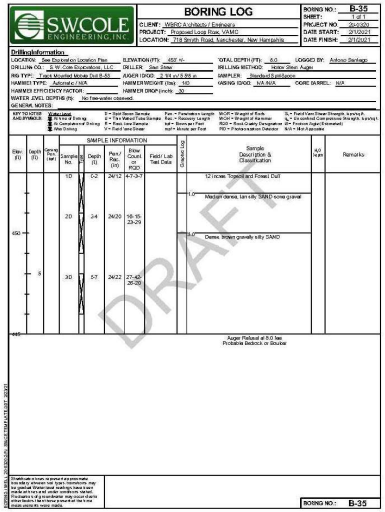
Office of Construction and Facilities Management
VA U.S. Department of Veterans Affairs

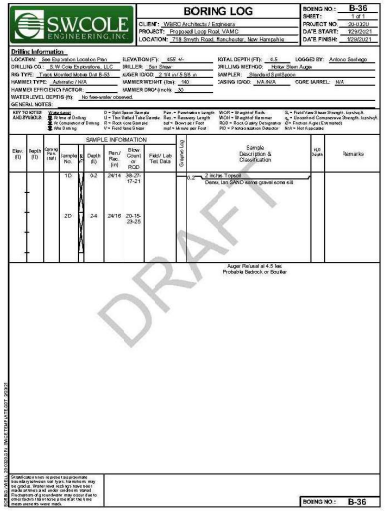
VA FORM 08-6231

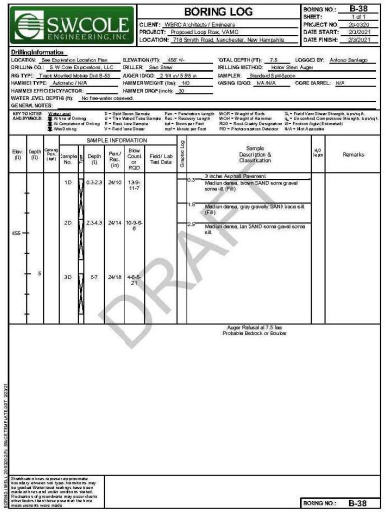
BIM 360://012002B Loop Road Utility Infrastructure Upgrades Div 21 22 & 23 - R19/012002B Loop Road Utility Infrastructure Upgrades Div 21, 22, & 23 - R19.rvt
6/15/2021 12:32:02 PM

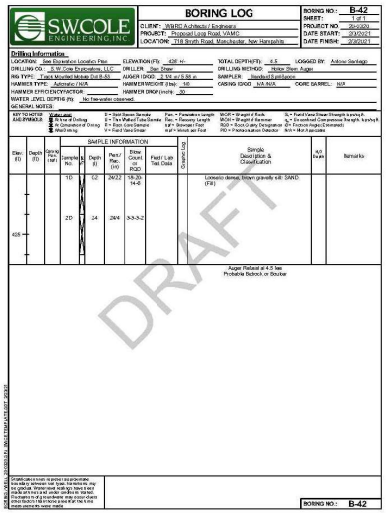
NOTE:
INFORMATION SHOWN ON THIS SHEET IS FOR REFERENCE ONLY AND IS NOT PART OF THE CONTRACT DOCUMENTS.

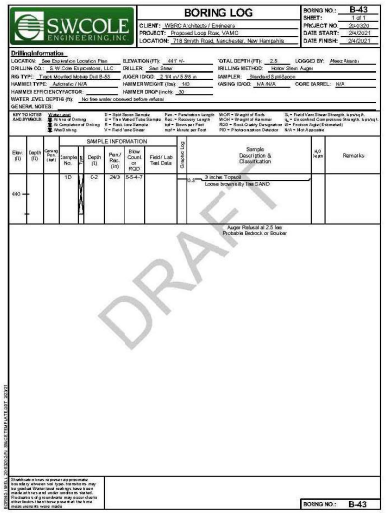












Revisions		Date
	100% SUBMITTAL - BID DOCUMENTS	06/21/2022

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STATE OF MAINE
MICHAEL A GUETHLE
14284
LICENSED PROFESSIONAL ENGINEER

CONSULTANT

wbrc

Drawing Title: BORING LOGS

Approved:

Project Title: LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES

Location: MANCHESTER VAMC, NH

Issue Date: 06/21/2022 | Checked: MAG | Drawn: BTH

Project Number: 608-20-101

Building Number:

Drawing Number: BK605

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

VA FORM 08 - 6231

BK 3X0.00.00035 Loop Road Utility Infrastructure Upgrades Ch 21 22 & 23 - R1.dgn 6/13/2021 1:23:52 PM

NOTE:
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S.W.COLE ENGINEERING, INC. — BORING LOG

CLIENT: WBRC Architects / Engineers
PROJECT: Proposed Loop Road, VAMC
LOCATION: 718 Smyth Road, Manchester, New Hampshire

BORING NO.: B-44 | SHEET: 1 of 1 | PROJECT NO. 20-0320 | DATE START: 2/3/2021 | DATE FINISH: 2/3/2021

Drilling Information
LOCATION: See Exploration Location Plan | ELEVATION (FT): 436' +/- | TOTAL DEPTH (FT): 12.0 | LOGGED BY: Antonio Santiago
DRILLING CO.: S. W. Cole Explorations, LLC | DRILLER: Sam Shaw | DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Mobile Drill B-53 | AUGER ID/OD: 2 1/4 in / 5 5/8 in | SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / N/A | HAMMER WEIGHT (lbs): 140 | CASING ID/OD: N/A /N/A | CORE BARREL: N/A
HAMMER EFFICIENCY FACTOR: | HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): No free-water observed.
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS: Water Level: At time of Drilling; At Completion of Drilling; After Drilling. D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear. Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot. WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector. S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0.3-2.3	24/14	21-43-13-10			3 inches Asphalt Pavement		
435									0.3	Medium dense to dense, gray gravelly SAND some silt (Fill)		
			2D		2.3-4.3	24/18	9-25-23-16					
	5		3D		5-7	24/3	9-5-5-6					
430												
	10		4D		10-12	24/6	WOH-1-2-5		10.0	Loose, dark brown silty SAND		
425												

Bottom of Exploration at 12.0 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: B-44

BORING / WELL 20-0320.GPJ SWCE TEMPLATE.GDT 2/23/21

S.W.COLE ENGINEERING, INC. — BORING LOG

CLIENT: WBRC Architects / Engineers
PROJECT: Proposed Loop Road, VAMC
LOCATION: 718 Smyth Road, Manchester, New Hampshire

BORING NO.: B-46 | SHEET: 1 of 1 | PROJECT NO. 20-0320 | DATE START: 2/4/2021 | DATE FINISH: 2/4/2021

Drilling Information
LOCATION: See Exploration Location Plan | ELEVATION (FT): 442' +/- | TOTAL DEPTH (FT): 7.5 | LOGGED BY: Afeez Akanbi
DRILLING CO.: S. W. Cole Explorations, LLC | DRILLER: Sam Shaw | DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Mobile Drill B-53 | AUGER ID/OD: 2 1/4 in / 5 5/8 in | SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / N/A | HAMMER WEIGHT (lbs): 140 | CASING ID/OD: N/A /N/A | CORE BARREL: N/A
HAMMER EFFICIENCY FACTOR: | HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): 6 ft Soils appear saturated at about 6 feet
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS: Water Level: At time of Drilling; At Completion of Drilling; After Drilling. D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear. Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot. WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector. S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-2	24/8	2-4-2-3			3 inches Topsoil and roots		
									0.3	Loose, brown silty fine SAND		
440			2D		2-4	24/16	5-2-2-2					
	5		3D		5-7	24/18	8-14-17-36		5.0	Medium dense, brown silty SAND some gravel	▼	
435												

Auger Refusal at 7.5 feet
Probable Bedrock or Boulder

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: B-46

BORING / WELL 20-0320.GPJ SWCE TEMPLATE.GDT 2/23/21

S.W.COLE ENGINEERING, INC. — BORING LOG

CLIENT: WBRC Architects / Engineers
PROJECT: Proposed Loop Road, VAMC
LOCATION: 718 Smyth Road, Manchester, New Hampshire

BORING NO.: B-47 | SHEET: 1 of 1 | PROJECT NO. 20-0320 | DATE START: 2/4/2021 | DATE FINISH: 2/4/2021

Drilling Information
LOCATION: See Exploration Location Plan | ELEVATION (FT): 437' +/- | TOTAL DEPTH (FT): 12.0 | LOGGED BY: Afeez Akanbi
DRILLING CO.: S. W. Cole Explorations, LLC | DRILLER: Sam Shaw | DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Mobile Drill B-53 | AUGER ID/OD: 2 1/4 in / 5 5/8 in | SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / N/A | HAMMER WEIGHT (lbs): 140 | CASING ID/OD: N/A /N/A | CORE BARREL: N/A
HAMMER EFFICIENCY FACTOR: | HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft): No free water observed
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS: Water Level: At time of Drilling; At Completion of Drilling; After Drilling. D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear. Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot. WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector. S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-2	24/14	15-14-13-10			3 inches Asphalt Pavement		
									0.3	Medium dense to loose, black/brown silty gravely SAND with wood at 10 feet (Fill)		
435			2D		2-4	24/18	7-13-9-17					
	5		3D		5-7	24/0	7-6-5-4					
430												
	10		4D		10-12	24/2	2-2-3-2					
425												

Bottom of Exploration at 12.0 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: B-47

BORING / WELL 20-0320.GPJ SWCE TEMPLATE.GDT 2/23/21

S.W.COLE ENGINEERING, INC. — BORING LOG

CLIENT: WBRC Architects / Engineers
PROJECT: Proposed Loop Road, VAMC
LOCATION: 718 Smyth Road, Manchester, New Hampshire

BORING NO.: B-48 | SHEET: 1 of 1 | PROJECT NO. 20-0320 | DATE START: 2/3/2021 | DATE FINISH: 2/3/2021

Drilling Information
LOCATION: See Exploration Location Plan | ELEVATION (FT): 475' +/- | TOTAL DEPTH (FT): 8.5 | LOGGED BY: Antonio Santiago
DRILLING CO.: S. W. Cole Explorations, LLC | DRILLER: Sam Shaw | DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Mobile Drill B-53 | AUGER ID/OD: 2 1/4 in / 5 5/8 in | SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / N/A | HAMMER WEIGHT (lbs): 140 | CASING ID/OD: N/A /N/A | CORE BARREL: N/A
HAMMER EFFICIENCY FACTOR: | HAMMER DROP (inch): 30
WATER LEVEL DEPTHS (ft):
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS: Water Level: At time of Drilling; At Completion of Drilling; After Drilling. D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear. Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot. WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector. S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-2	24/14	17-18-8-5			12 inches Topsoil		
									1.0	Medium dense, brown SAND some silt some gravel		
			2D		2-4	24/1	8-11-11-11					
470	5		3D		5-7	24/16	14-17-21-20		5.0	Dense, tan gravelly silty SAND (Glacial Till)		

Auger Refusal at 8.5 feet
Probable Bedrock or Boulder

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: B-48

BORING / WELL 20-0320.GPJ SWCE TEMPLATE.GDT 2/23/21

DRAFT

Revisions	Date
100% SUBMITTAL - BID DOCUMENTS	06/21/2022

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STATE OF MAINE — MICHAEL A. GUETHLE — 14284 — LICENSED — PROFESSIONAL ENGINEER

CONSULTANT

wbrc

Drawing Title: BORING LOGS

Approved:

Project Title: LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES

Location: MANCHESTER VAMC, NH

Issue Date: 06/21/2022 | Checked: MAG | Drawn: BTH

Project Number: 608-20-101

Building Number:

Drawing Number: BK606

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

VA FORM 08-6231

BIM 360://0120028 Loop Road Utility Infrastructure Upgrades Div 21, 22, & 23 - R19/0120028 Loop Road Utility Upgrades Div 21, 22, & 23 - R19.rvt
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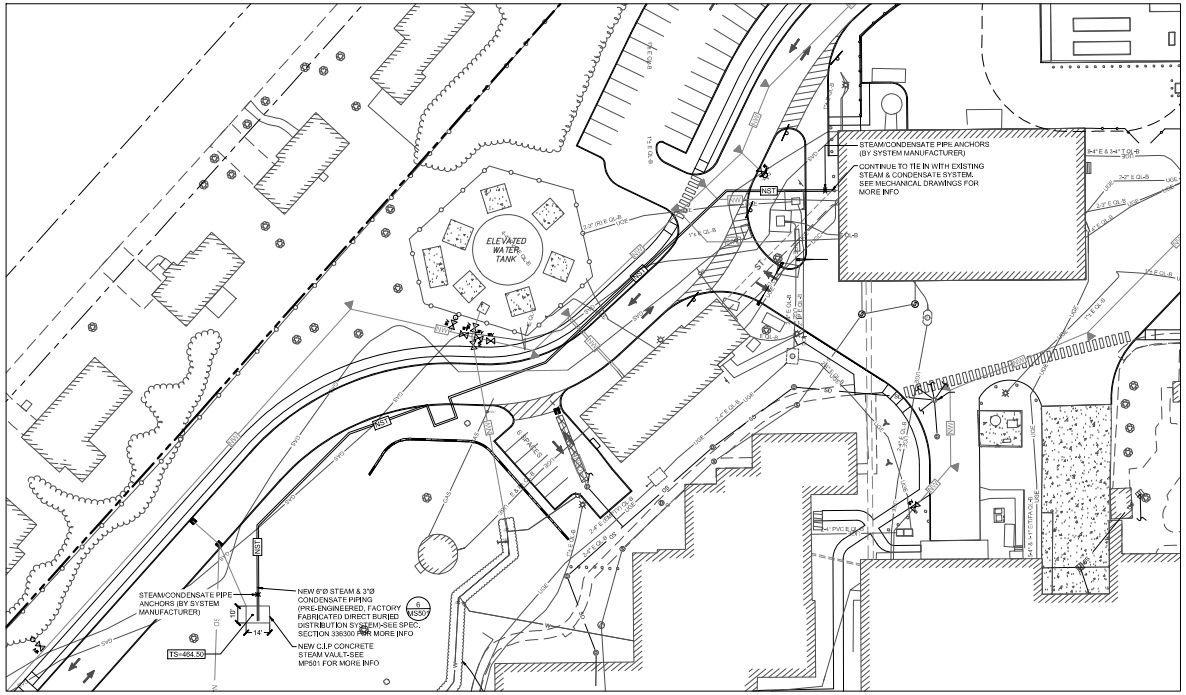
three inch = one foot; one and one half inch = one foot; one inch = one foot; three quarters inch = one foot; one half inch = one foot; three eighths inch = one foot; one quarter inch = one foot; one eighth inch = one foot

UTILITY NOTES:

1. SEE NOTES E1 THROUGH U8 ON SHEET C-001 FOR ADDITIONAL UTILITY INFORMATION.
2. SITE CONTRACTOR TO FIELD VERIFY ALL EXISTING UTILITIES PRIOR TO BEGINNING ANY PROPOSED WORK.



LEGEND

EXISTING

- CATCH BASIN
- DRAIN MANHOLE
- WATER MANHOLE
- FIRE HYDRANT
- ELECTRICAL MANHOLE
- IRON
- UTILITY POLE
- SANITARY SEWER MANHOLE
- FENCE
- LIMITS OF WORK
- PAVEMENT REMOVALS

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)

1 inch = 30 ft.

Revisions		Date
	100% SUBMITTAL - BID DOCUMENTS	06/21/2022

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MICHAEL A GUETHLE
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CONSULTANT

wbrc

Drawing Title	SITE STEAM UTILITY PLAN AND DETAILS
Approved:	
Project Title	LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES
Location	MANCHESTER VAMC, NH
Issue Date	06/21/2022
Checked	MAG
Drawn	BTH
Project Number	608-20-101
Building Number	
Drawing Number	MS101

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

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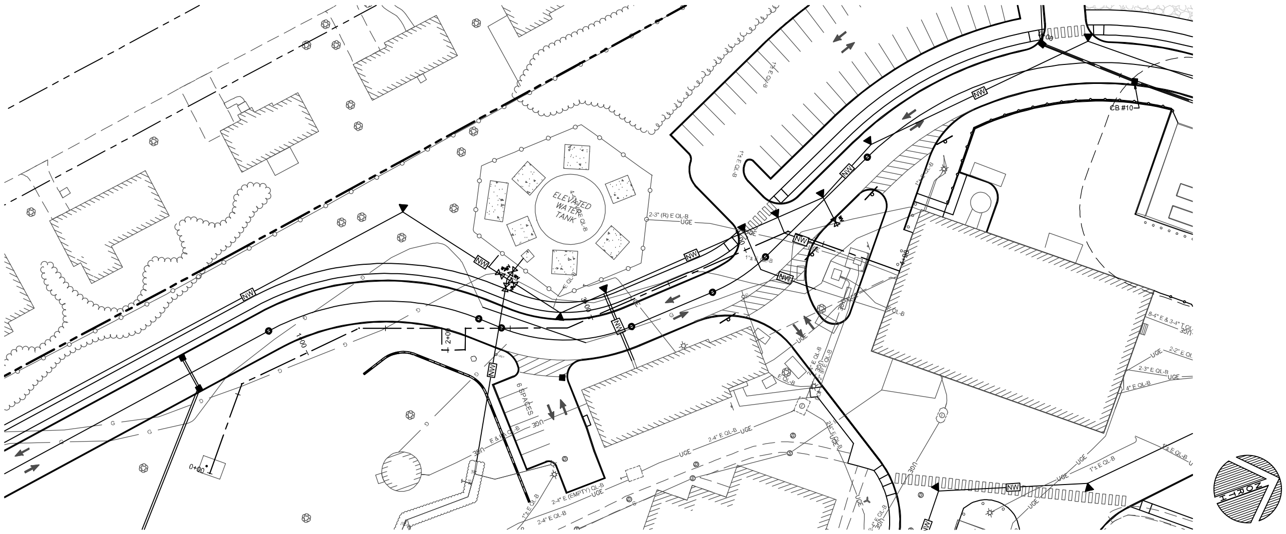
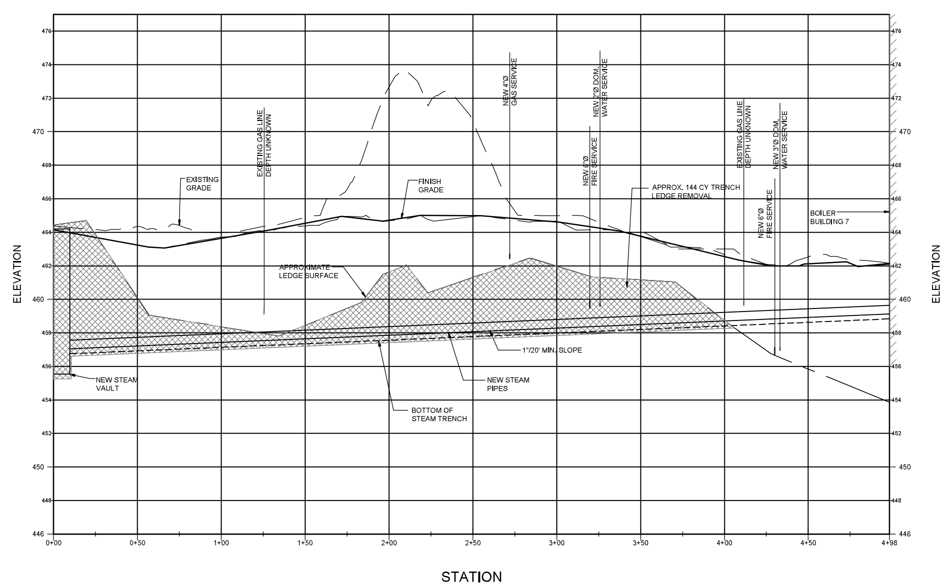


C1 PLAN VIEW-NEW STEAM UTILITY

SCALE: 1"=30'



F1 PROFILE VIEW-NEW STEAM UTILITY

SCALE: HORIZONTAL: 1"=30' VERTICAL: 1"=3'

LEGEND

EXISTING	
	CATCH BASIN
	DRAIN MANHOLE
	WATER MANHOLE
	FIRE HYDRANT
	ELECTRICAL MANHOLE
	SIGN
	UTILITY POLE
	SANITARY SEWER MANHOLE
	FENCE
	LIMITS OF WORK
	PAVEMENT REMOVALS

Revisions	Date
100% SUBMITTAL - BID DOCUMENTS	06/21/2022

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STATE OF MAINE MICHAEL A. GUETHLE 14284 LICENSED PROFESSIONAL ENGINEER

CONSULTANT

wbrc

Drawing Title: STEAM UTILITY PLAN & PROFILE

Approved:

Project Title: LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES

Location: MANCHESTER VAMC, NH

Issue Date: 06/21/2022 | Checked: MAG | Drawn: BTH

Project Number: 608-20-101

Building Number:

Drawing Number: MS301

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

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BIM 360://012020 Loop Road Utility Infrastructure Upgrades Div 21, 22, & 23 - R19/012020 Loop Road Utility Upgrades Div 21, 22, & 23 - R19.rvt

EXCAVATION NOTES:

1. SITE PREPARATION SHOULD BEGIN WITH THE CONSTRUCTION OF AN EROSION CONTROL SYSTEM TO MINIMIZE SILTATION INTO DRAINAGE-WAYS AND AREAS OUTSIDE THE CONSTRUCTION LIMITS.
2. EXTEND AND SLOPE SIDES OF EXCAVATION, OR SHORE, SHEET AND BRACE EXCAVATION, AS REQUIRED, TO ENSURE SAFETY AND STABILITY AT ALL TIMES.
3. PUMP EXCAVATION TO REMOVE SURFACE AND GROUND WATER TO PERMIT FINISHING OF EXCAVATION AND PLACEMENT OF FOUNDATIONS IN THE DRY.
4. STAGING AND SEQUENCING OF SITE PER PERMIT CONDITIONS.

FOUNDATION, BACKFILL AND DRAINAGE NOTES :

1. FOUNDATION WORK SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT SPECIFIC TO THE PROJECT SITE.
2. THE OWNER AND ARCHITECT/ENGINEER ASSUME NO RESPONSIBILITY FOR THE VALIDITY OF THE SUBSURFACE CONDITIONS DESCRIBED ON THE DRAWINGS, SPECIFICATIONS, BORING LOGS, OR TEST PITS. THIS DATA IS INCLUDED ONLY TO ASSIST THE CONTRACTOR DURING BIDDING AND SUBSEQUENT CONSTRUCTION AND REPRESENT CONDITIONS ONLY OF THOSE SPECIFIED LOCATIONS AT THE PARTICULAR TIME THEY WERE MADE.
3. PREPARE AREAS OF PROPOSED FILL AND CONSTRUCTION BY REMOVING TOPSOIL, EXISTING FILL, ORGANIC MATERIAL, AND FROZEN, WET, SOFT, LOOSE OR OTHERWISE UNSUITABLE MATERIALS. PROOFROLL THE EXPOSED SUBGRADE WITH SUITABLE EQUIPMENT AS REQUIRED.
4. ALL SUBGRADES AT FOUNDATIONEXCAVATIONS SHALL BE INSPECTED AND APPROVED BY THE DESIGNATED EARTHWORK INSPECTOR BEFORE CONCEALING WITH STRUCTURAL FILL AND BEFORE THE FOUNDATION IS FORMED AND CAST.
5. REFER TO STRUCURAL DRAWINGS AND GEOTECHNICAL REPORT FOR STRUCTURAL FILL THICKNESS, COMPACTION AND GEOTEXTILE FABRIC REQUIREMENTS UNDERNEATH FOUNDATIONS AS REQUIRED.
6. REFER TO THE GEOTECHNICAL REPORT FOR ALL EXCAVATION, BACKFILL, COMPACTION, CONSTRUCTION DEWATERING AND PERMANENT DRAINAGE REQUIREMENTS. COORDINATE INSTALLATION OF FOUNDATION DRAINS WITH STRUCTURAL ELEMENTS.
7. NO CONCRETE SLAB OR FOUNDATION SHALL BE PLACED IN WATER OR ON FROZEN GROUND. SOILS EXPOSED AT THE BASE OF EXCAVATIONS SHOULD BE ADEQUATELY PROTECTED AGAINST ANY DETRIMENTAL CHANGE IN CONDITION, SUCH AS DISTURBANCE FROM RAIN OR FROST. IF ANY FROZEN MATERIAL IS FOUND ADJACENT OR BELOW THE CONCRETE SLAB OR FOUNDATION, IT SHALL BE REMOVED AND REPLACED WITH COMPACTED STRUCTURAL FILL OR LEAN CONCRETE. SURFACE RUNOFF SHOULD BE DRAINED WAY FROM THE EXCAVATIONS AND NOT BE ALLOWED TO POND. GROUNDWATER SHOULD BE ANTICIPATED FOR EXCAVATIONS AND APPROPRIATE DEWATERING MEASURES SHALL BE EMPLOYED.
8. BACK FILLING AT FOUNDATION WALLS SHALL BE DONE SUCH THAT SYMMETRICAL LOADING BE MAINTAINED ON ALL SIDES. EXTEND AND SLOPE SIDES OF EXCAVATION TO ENSURE STABILITY AND SAFETY AT ALL TIMES.
9. ELEVATED CONCRETE SLAB, MAT FOUNDATION AND CONCRETE WALLS RETAINING EARTH SHALL BE IN PLACE AND HAVE REACHED 70% OF THEIR REQUIRED 28 DAY COMPRESSIVE STRENGTH BEFORE ANY BACKFILLING OPERATIONS BEGIN. IF THE CONTRACTOR CHOOSES TO BACKFILL WALLS PRIOR TO THE INSTALLATION OF THE ELEVATED SLAB, WALL SUPPORT BRACING SHALL BE PROVIDED AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN, MATERIAL AND LABOR OF SUCH INSTALLATION.

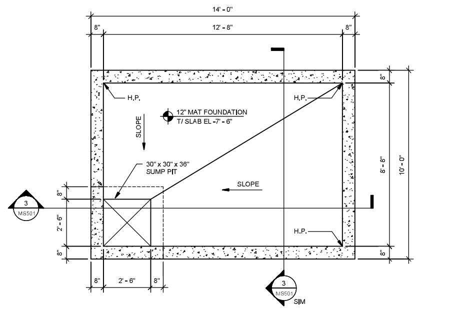
REINFORCING STEEL NOTES :

1. ALL REINFORCING BAR DETAILING AND PLACING SHALL CONFORM TO THE ACI 315, "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" AND ACI 315R "MANUAL OF ENGINEERING AND PLACING DRAWINGS FOR REINFORCED CONCRETE STRUCTURES." DO NOT BEND BARS IN THE FIELD; COMPLETE ALL BAR BENDING IN THE FABRICATORS SHOP.
2. REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60. WHERE WELDING OF DEFORMED BARS TO STRUCTURAL STEEL IS SHOWN, PROVIDE ASTM A706 GRADE 60 AND COMPLETE WELDING IN ACCORDANCE WITH AWS D1.4.
3. REINFORCING STEEL SHALL BE SUPPORTED AND SECURED AGAINST DISPLACEMENT IN ACCORDANCE WITH THE CONCRETE REINFORCING STEEL INSTITUTE'S "MANUAL OF STANDARD PRACTICE". "WET-SETTING" OR "WET-STICKING" REINFORCING INTO GREEN CONCRETE IS NOT ACCEPTABLE. SLAB BOLSTERS, HIGH CHAIRS AND STANDEES SHALL BE SPACED AT A MAXIMUM OF 48" o.c., UNLESS NOTED OTHERWISE ON PLANS.
4. REINFORCING STEEL BENDS, HOOKS AND LAP SPLICES SHALL CONFORM TO THE ACI "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318) UNLESS OTHERWISE INDICATED.
5. PROVIDE FOOTING DOWELS FOR VERTICAL WALL REINFORCEMENT. DOWELS SHALL BE THE SAME SIZE AND SPACING AS THE VERTICAL WALL REINFORCEMENT, UNLESS NOTED OTHERWISE, WITH LAP SPLICES AS INDICATED ON THE APPLICABLE SECTIONS. INSTALL DOWELS IN THE FOOTING FORMS BEFORE CONCRETE IS PLACED, SUPPORTING AND TYING THEM SECURLY IN POSITION.
6. DO NOT CUT OR DISPLACE ANY REINFORCING STEEL TO ACCOMMODATE THE INSTALLATION OF ANY EMBEDDED ITEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE ARCHITECT/ENGINEER. COORDINATE THE INSTALLATION OF EMBEDED ITEMS INTO THE CONCRETE WITH THE PLACING OF THE REINFORCING STEEL TO ENSURE THAT ALL BARS ARE IN THEIR PROPER POSITION AND ARE NOT CUT OR DISPLACED BY THE EMBEDED ITEMS.
7. USE SLEEVES TO ACCOMMODATE PIPING WHICH MUST PASS THROUGH STRUCTURAL CONCRETE. SUBMIT LAYOUT OF SLEEVES TO ARCHITECT/ENGINEER FOR APPROVAL PRIOR TO CASTING CONCRETE. ALL SLEEVES SHALL BE STEEL, CAST IRON PIPE OR PVC PIPE.
8. PROVIDE SUPPLEMENTAL REINFORCEMENT AROUND ALL OPENINGS IN CONCRETE SLABS AND WALLS, IF APPLICABLE, AS INDICATED IN THE TYPICAL DETAILS.
9. CLEARANCE OF REINFORCING BARS FROM CONCRETE SURFACES SHALL BE AS FOLLOWS:

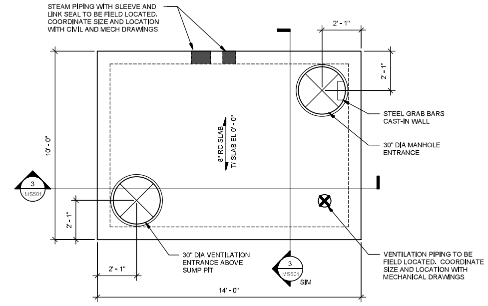
A.	UNFORMED FACE IN CONTACT WITH EARTH:	3"
B.	FORMED FACE IN CONTACT WITH EARTH:	2"
C.	FORMED FACE EXPOSED TO WEATHER:	1-1/2" FOR #5 AND SMALLER BARS
D.	INTERIOR EXPOSED FACES OF WALLS:	1"
E.	SLABS NOT EXPOSED TO EARTH OR WEATHER:	3/4"
F.	HORIZONTAL BARS FROM TOP OF WALL:	2" MAX.
G.	TIES FROM TOP OF PIER OR COLUMN:	2" MAX.

CAST-IN-PLACE CONCRETE NOTES :

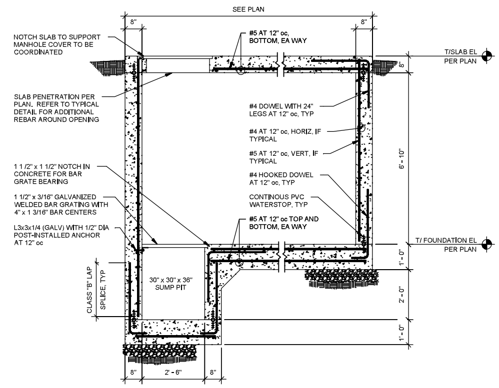
1. CONCRETE WORK SHALL COMPLY WITH THE LATEST EDITION OF ACI 301, "STANDARD SPECIFICATION FOR STRUCTURAL CONCRETE IN BUILDINGS," AND ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE," HOT AND COLD WEATHER CONCRETING SHALL BE IN ACCORDANCE WITH ACI 305R AND 306R, RESPECTIVELY.
2. ALL STRUCTURAL CONCRETE IS CONTROLLED AND SHALL BE USED, PROPORTIONED, MIXED AND PLACED UNDER THE SUPERVISION OF THE STRUCTURAL INSPECTOR AS A PART OF THE SPECIAL INSPECTIONS REQUIREMENTS FOR THE PROJECT.
3. ALL CONCRETE WORK SHALL BE PERFORMED TO ENSURE HOMOGENOUS CONCRETE THROUGHOUT THE PROJECT. CONCRETE SHALL ATTAIN THE REQUIRED STRENGTH, DURABILITY AND WEATHERING RESISTANCE WITHOUT PLANES OF WEAKNESS OR OTHER STRUCTURAL DEFECTS. CONCRETE SHALL BE FREE OF PRONOUNCED HONEYCOMBS, AIR POCKETS, VOIDS, PROJECTIONS OR OTHER DEFACEMENTS ON EXPOSED SURFACES.
4. PROPORTION CONCRETE MIX TO PROVIDE WORKABILITY AND CONSISTENCY TO PERMIT CONCRETE TO BE WORKED READILY INTO THE FORMS AND AROUND REINFORCEMENT BY THE METHODS OF PLACEMENT AND CONSILIDATION TO BE EMPLOYED, WITHOUT SEGREGATION OR EXCESSIVE BLEEDING.
5. NOTIFY THE ARCHITECT/ENGINEER AND STRUCTURAL INSPECTOR AT LEAST 48 HOURS IN ADVANCE OF PLACING CONCRETE FOR INSPECTION OF THE REINFORCING STEEL. DO NOT CAST CONCRETE UNTIL THE INSPECTION HAS BEEN MADE OR WAIVED.
6. ALL STRUCTURAL CONCRETE SHALL BE FORMED WITH APPROVED FORMWORK MATERIALS. EARTH FORMING IS NOT PERMITTED, U.N.O.
7. CONCRETE MIX DURATION TIMES SHALL BE LIMITED TO LESS THAN 90 MINUTES, WITHOUT EXCEPTION.
8. ALL SHORING SHALL REMAIN IN PLACE UNTIL CONCRETE HAS ATTAINED 70% OF ITS 28 DAY STRENGTH.
9. PROVIDE 3/4" CHAMFER AT ALL EXPOSED CORNERS OF CONCRETE UNLESS NOTED OTHERWISE.
10. SLAB THICKNESSES INDICATED ON THE STRUCTURAL DRAWINGS ARE TO BE CONSIDERED MINIMUMS, PROVIDE SUFFICIENT CONCRETE TO ACCOUNT FOR VERTICAL DEFLECTIONS, SUBGRADE FLUCTUATIONS AND TO OBTAIN THE SPECIFIED SLAB ELEVATION INDICATED.
11. FINISHING OF FORMED SURFACES : NO FINISH IS REQUIRED FOR BURIED CONCRETE SUCH FOUNDATIONS, ABOVE GROUND CONCRETE NOT EXPOSED TO PUBLIC VIEW SHALL HAVE AN "SF-2.0" SURFACE FINISH, ABOVE GROUND CONCRETE EXPOSED TO VIEW SHALL HAVE AN "SF-3.0" SURFACE FINISH, UNLESS OTHERWISE NOTED.
12. CURING OF SLABS: CURE SLABS WITH CURING COMPOUND OR MOISTURE RETENTION COVERS ..



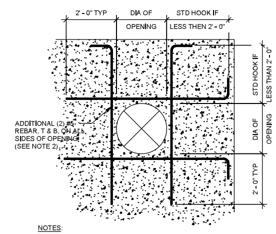
1 FOUNDATION PLAN AT STEAM VAULT
3/8" = 1'-0"



2 ELEVATED CONCRETE SLAB PLAN AT STEAM VAULT
3/8" = 1'-0"



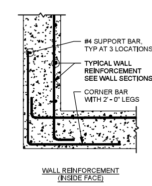
3 SECTION AT STEAM VAULT
1/2" = 1'-0"
S-101



NOTES:

1. NO DIAGONAL BARS REQUIRED FOR CIRCULAR OPENINGS.
2. NO ADDITIONAL REBAR REQUIRED FOR OPENINGS LESS THAN 12" IN DIAMETER.

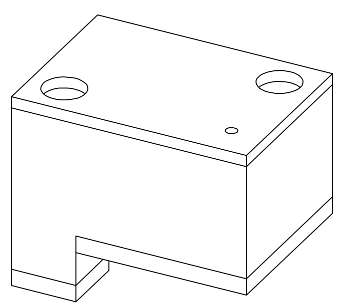
4 TYPICAL REINFORCING AT WALL OR SLAB OPENING
1/2" = 1'-0"



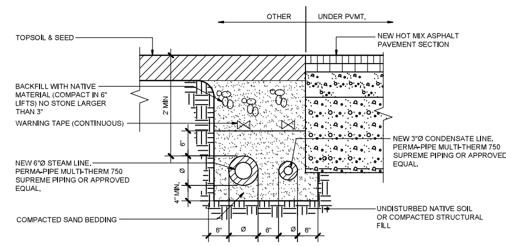
NOTES:

1. CORNER BAR TO MATCH SIZE AND SPACING OF HORZONTAL WALL REINFORCEMENT.
2. TERMINATE HORIZONTAL WALL REINFORCEMENT 2" CLEAR FROM END OF WALL.

5 TYPICAL WALL CORNER REINFORCEMENT
1/2" = 1'-0"



ISOMETRIC VIEW



NOTE:
REFER TO MANUFACTURER'S INSTALLATION MANUAL FOR ADDITIONAL INSTALLATION AND MATERIAL REQUIREMENTS.

6 NEW STEAM TRENCH
NO SCALE

STEAM VAULT PLAN NOTES:

1. REFER TO GENERAL NOTES FOR DESIGN INFORMATION AND NOTES PERTAINING TO FOUNDATIONS, CONCRETE, AND REINFORCING STEEL.
2. ELEVATIONS OF TOP OF CONCRETE VAULT SLAB AND MAT FOUNDATION AS NOTED ON PLANS.
3. STEAM VAULT MAT FOUNDATION TO PLACED ON A MINIMUM 12" COMPACTED FREE-DRAINING GRANULAR FILL MATERIA BEARING ON FIRM, UNDISTURBED NATURAL SOILS. REFER TO GEOTECHNICAL REPORT FOR SUB-BASE INFORMATION.
4. WALL AND SLAB PENETRATIONS TO BE FIELD LOCATED. CONTRACTOR TO COORDINATE SIZE AND LOCATION OF PENETRATIONS WITH CIVIL AND MECHANICAL DRAWINGS.

Revisions	Date
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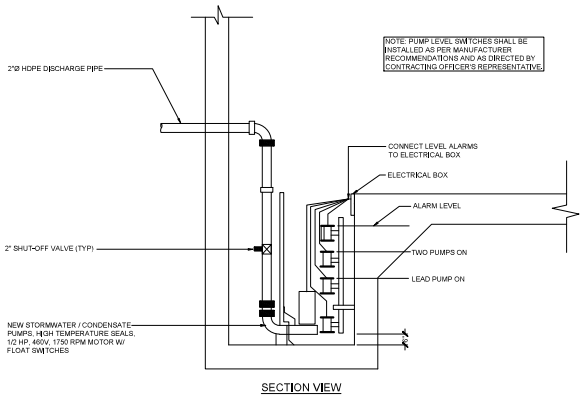
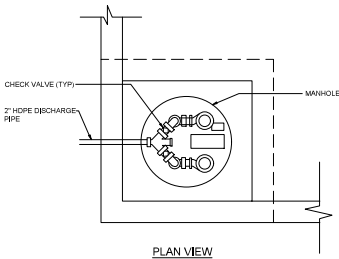
Drawing Title	SITE STEAM DETAILS
Project Title	LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES
Project Number	608-20-101
Building Number	
Approved:	
Location	MANCHESTER VAMC, NH
Issue Date	06/21/2022
Checked	MAG
Drawn	BTH
Drawing Number	MS501

Office of Construction and Facilities Management
VA U.S. Department of Veterans Affairs



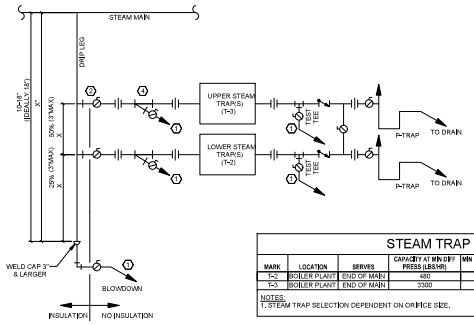
SECTION VIEW



PLAN VIEW

1 N.T.S. STORMWATER SUBMERSIBLE DUPLEX PUMP AT STEAM MANHOLE

DRIP LEG SIZING	
MAIN SIZE	DRIP SIZE (ENTIRELY SCH. 80)
4" AND UNDER	SAME AS MAIN
5" AND 6"	4"
OVER 6"	HALF AS MAIN



KEY NOTES:

1. ROTATE/POSITION ANY DISCHARGES AWAY FROM PERSONNEL, EQUIPMENT, AND INSULATION, ANGLE TOWARD THE AWAY WALL RATHER THAN STRAIGHT DOWN. QUARTER-TURN VALVE HANDLE TO BE ORIENTED FURTHER AWAY FROM DISCHARGE IN OPEN POSITION, AND HANDLE IN CLOSED POSITION SHOULD NOT BE PRESENT TRIP OR CATCH HAZARD.
2. ADD THREADOLET & PLUG EVEN IF NO UPPER TRAP ASSEMBLY TO BE LOCATED AS CLOSE TO RESPECTIVE MAIN AS POSSIBLE. NO FITTINGS ALLOWED BETWEEN ISOLATION VALVE AND DRIP.
3. ISOLATION VALVES AT EITHER END OF THE TRAP ASSEMBLY TO BE LOCATED AS CLOSE TO RESPECTIVE MAIN AS POSSIBLE. NO FITTINGS ALLOWED BETWEEN ISOLATION VALVE AND DRIP.
4. INSTALL LEGS OF STRAINERS IN HORIZONTAL POSITION. VERTICAL ACCEPTABLE IF NEEDED TO MINIMIZE CONDENSATE HOLDING. STRAINER MESH = 20 OR HIGHER.

STEAM TRAP SCHEDULE							
MARK	LOCATION	SERVES	CAPACITY AT MIN DIFF PRESS (LBS/HR)	MIN DIFF PRESS (PSI)	MIN INLET PRESS (PSI)	TRAP TYPE	REMARKS
T-2	BOILER PLANT	END OF MAIN	480	85	90	TB	
T-3	BOILER PLANT	END OF MAIN	3300	85	90	TB	

NOTES:
1. STEAM TRAP SELECTION DEPENDENT ON ORIFICE SIZE.

3 STEAM DISTRIBUTION DRIP TRAP

Revisions		Date
	100% SUBMITTAL - BID DOCUMENTS	06/21/2022

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CONSULTANT

wbrc

Drawing Title: STEAM MANHOLE PLUMBING DETAILS
Approved:
Project Title: LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES
Location: MANCHESTER VAMC, NH
Issue Date: 06/21/2022
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Drawn: BTH
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Building Number:
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Office of Construction and Facilities Management
VA U.S. Department of Veterans Affairs

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BIM 360://20035 Loop Road Utility Infrastructure Upgrades/20-21 22 & 23-FY601/20035 Loop Road Utility Upgrades 20-21 22 & 23-FY601.rvt
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PIPING LEGEND

SYMBOL	DESCRIPTION
CWS	-CONDENSER WATER SUPPLY
CWR	-CONDENSER WATER RETURN
CHWS	-CHILLED WATER SUPPLY
CWR	-CHILLED WATER RETURN
HWS	-HOT WATER SUPPLY
HWR	-HOT WATER RETURN
X	-CONDENSATE
	-PIPE CONNECTION
	-FLOW DIRECTION
	-BALL VALVE
	-CALIBRATING BALANCING VALVE
	-BUTTERFLY VALVE
	-UNION
	-STRAINER
	-CONTROL VALVE
	-PSI REG.
	-PSI REG.
	-CHECK VALVE
	-FLOW SWITCH
	-SLOPE DIRECTION (DOWN)
	-FLEX CONNECTION (DOUBLE SPHERE FOR PIPES 6" AND LARGER; SINGLE SPHERE FOR PIPES 4" AND SMALLER
	-THREE-WAY CONTROL VALVE
	-THERMOMETER
	-RELIEF VALVE
	-VALVE ON RISER
	-TEST PLUG
	-FLOW SWITCH
	PRESSURE SWITCH
	-GLOBE VALVE
	-AUTOMATIC AIR VENT
	-CALIBRATED BALANCING VALVE
	-SOLENOID VALVE (2-POSTION W/ ACTUATOR)

SYMBOL	DESCRIPTION
	-FLANGES
	-FLEXIBLE CONNECTOR
	-Y-TPE STRAINER
	PIPE HANGERS
	-PIPE ANCHORS
	-CONCENTRIC REDUCER
	-ECCENTRIC REDUCER
	-PRESSURE GAUGE
FM	-FLOW METER
M	-WATER METER
	-INLINE PUMP
	-INLINE PUMP
	-CAP
	-CONNECTION, BOTTOM
	-CONNECTION, TOP
	-ELBOW, 90°
	-ELBOW, 45°
	-ELBOW, TURNED DOWN
	-ELBOW, TURNED UP
	-TEE, OUTLET DOWN
	-TEE, OUTLET UP
R	-45° PIPE RISE (R)/DROP (D)
	-MANUAL VENT
	-MALE HOSE CONNECTION
EQUIP.	-P-TRAP
XX	-SHEET NOTE CALLOUT
	-CONNECT TO EXISTING

NOTE: SOME SYMBOLS SHOWN ON THIS LEGEND MAY NOT PERTAIN TO THIS PROJECT

CONTROLS LEGEND

SYMBOL	DESCRIPTION
A	-ALARM
	-DIGITAL INPUT TO DDC CONTROLLER
	-DIGITAL OUTPUT FROM DDC CONTROLLER
	-ANALOG INPUT TO DDC CONTROLLER
	-ANALOG OUTPUT FROM DDC CONTROLLER
	-COM INPUT TO DDC CONTROLLER
	-COM OUTPUT FROM DDC CONTROLLER
i	-HARD-WIRED INTERLOCK
	-DRY CONTACT
CS	-CURRENT SENSING STATUS SWITCH
	-STARTER
S	-DUCT SMOKE DETECTOR
	-IMMERSION TEMPERATURE TRANSMITTER W/ THERMOWELL
	-EMERGENCY PUSHBUTTON
P	-24VAC POWER
	-FLOW SWITCH
CO_2	-SPACE CARBON DIOXIDE SENSOR/TRANSMITTER
R	-REFRIGERANT SENSOR
T	-THERMOSTAT
XFM	-TRANSFORMER
DPS	-DIFF. PRESSURE SWITCH DIGITAL
	-FLOW METER
	-DUCT MOUNTED TEMPERATURE SENSOR
F	-AIR FLOW SENSOR

SYMBOL	DESCRIPTION
24VAC	-ACTUATOR W / 24VAC OR 120VAC ACTUATOR AS INDICATED
24VAC	-2-WAY VALVE W / 24VAC OR 120VAC -ACTUATOR AS INDICATED
	-SPACE TEMPERATURE SENSOR
	-SPACE RH SENSOR
	-SPACE PUSH-BUTTON OVER-RIDE SWITCH
	-INDICATES AVERAGING ELEMENT SENSOR
DPIT	-DIFF. PRESSURE INDICATING TRANSMITTER
VFD	-VARIABLE FREQUENCY DRIVE
SP	-STATIC PRESSURE SENSOR
PT	-PARTICULATE TRANSMITTER
	-MAGNEHELIC DIFFERENTIAL PRESSURE GAUGE
	-OPPOSED BLADE DAMPER
	-PARALLEL BLADE DAMPER
	-INDICATES PROBE SENSOR

MECHANICAL EQUIPMENT TAGS

SIZE — 12x6 SSR — TYPE
300 CFM — CFM
SSR - SUPPLY
SRR - RETURN

TAG — 145 45 — CFM
-AIR DISTRIBUTION DEVICE

AHU NUMBER
AHU-1 -AIR HANDLING UNIT

AHU NUMBER — EDH-1-1 — HEATER NUMBER
-ELECTRIC DUCT HEATER

TERMINAL UNIT TYPE — VTU-1-1 — AHU/OAU NUMBER, TERMINAL NUMBER
VTU - VARIABLE TERMINAL UNIT
OAV - OUTSIDE AIR VALVE

BASIC MATERIALS

LINE	DESCRIPTION
– – – – –	EXISTING TO BE REMOVED (HEAVY, DASHED LINE)
———	EXISTING TO REMAIN (THIN, HALFTONED, SOLID LINE)
———	NEW (HEAVY, SOLID LINE)

MECHANICAL DRAWING INDEX

Sheet Number	Sheet Name
M-001	MECHANICAL LEGENDS AND SYMBOLS
MP101	MECHANICAL - STEAM PIPING PLAN
MP201	MECHANICAL - STEAM PIPING STRESS ANALYSIS
M-501	MECHANICAL - DETAILS AND SCHEDULES

GENERAL NOTES

1. CONNECTION TO EQUIPMENT SHALL BE VERIFIED WITH MANUFACTURER'S CERTIFIED DRAWINGS. TRANSITIONS TO ALL EQUIPMENT SHALL BE VERIFIED AND PROVIDED FOR EQUIPMENT FURNISHED.
2. DIMENSIONS SHALL BE FIELD-VERIFIED AND COORDINATED PRIOR TO PROCUREMENT OR FABRICATION. COORDINATE THE WORK WITH OTHER TRADES INVOLVED. FIELD MODIFICATIONS SUCH AS OFFSETS IN PIPING OR DUCTWORK (INCLUDING DIVIDED DUCTWORK) NEEDED DUE TO OBSTRUCTIONS OR I NTERFERENCES SHALL BE PROVIDED AT NO ADDITIONAL COST.
3. ALL OPENINGS THROUGH BUILDING CONSTRUCTION SHALL SUIT EQUIPMENT FURNISHED.
4. ALL EQUIPMENT, PIPING, ETC., SHALL BE SUPPORTED AS DETAILED AND/OR SPECIFIED. PROVIDE ADDITIONAL SUPPORTS AS REQUIRED TO PROVIDE A VIBRATION-FREE, RIGID INSTALLATION.
5. REFER TO TYPICAL DETAILS FOR PIPING AND INSTALLATION OF EQUIPMENT.
6. ALL DUCTWORK AND PIPING IS SHOWN SCHEMATICALLY. PROVIDE ALL TRANSITIONS, TURNING VANES, ELBOWS, FITTINGS, ETC., TO ALLOW SMOOTH FLOWS.
7. SLEEVE AND SEAL ALL PIPING PENETRATIONS THROUGH BUILDING PARTITIONS.
8. MAINTAIN CLEARANCE OF A MINIMUM OF 6" BETWEEN DUCTWORK, PIPING, EQUIPMENT, ETC., AND ALL FIRE RATED AND FIRE/SMOKE RATED PARTITIONS, TO ALLOW FOR INSPECTIONS OF RATED WALLS.

1	100% SUBMITTAL - BID DOCUMENTS	06/21/2022
Revisions		Date

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Drawing Title: MECHANICAL LEGENDS AND SYMBOLS
Approved:

Project Title: LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES
Location: MANCHESTER VAMC, NH
Issue Date: 06/21/2022 | Checked: MHL | Drawn: JJA

Project Number: 608-20-101
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Drawing Number: M-001

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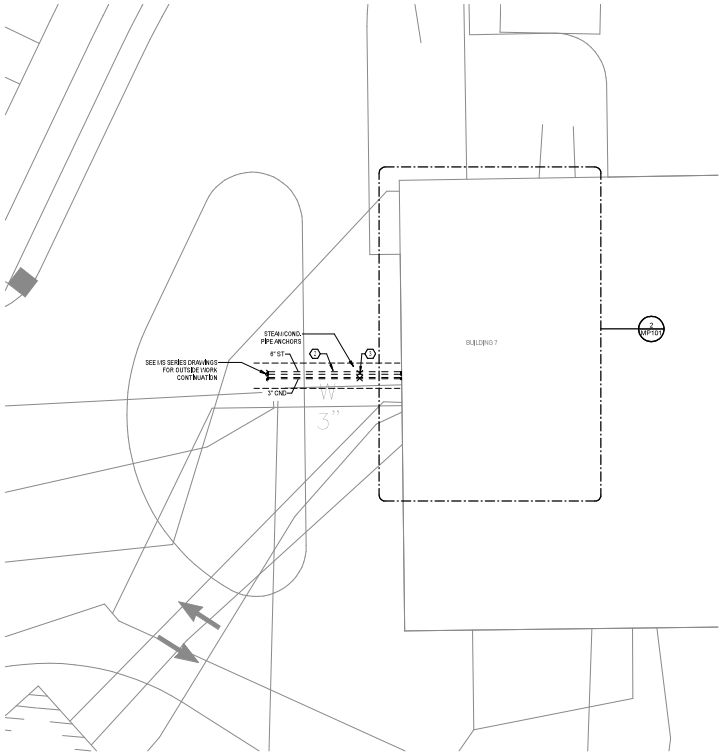
three inch = one foot · one and one half inch = one foot · one inch = one foot · three quarters inch = one foot · one half inch = one foot · three eighths inch = one foot · one quarter inch = one foot · one eighth inch = one foot

DRAWING NOTES:

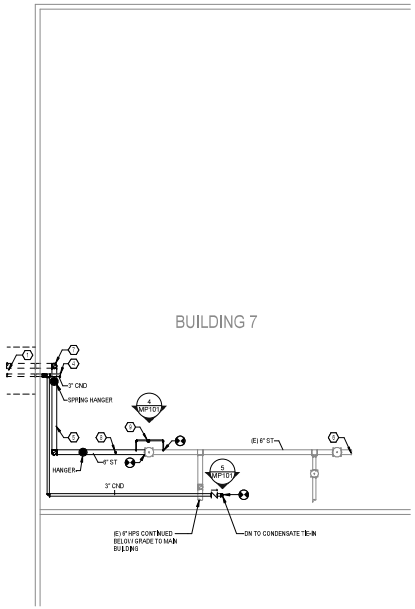
1. 90 PSIG SATURATED STEAM, 15 PSIG CONDENSATE RETURN.

CODED NOTES:

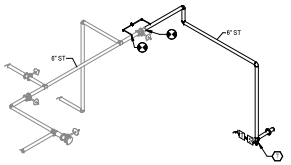
1. STEAM PIPING ROUTED THRU UNDERGROUND TRENCH, REFER TO VIEW 1 FOR CONTINUATION.
2. DIRECT BURIED MANUFACTURERD STEAM & CONDENSATE PIPING ROUTED THROUGH UNDERGROUND TRENCH. SEE SITE DRAWINGS.
3. STEAM PIPING INTO BUILDING, REFER TO VIEW 2 FOR CONTINUATION.
4. CONNECT NEW 3" STEAM CONDENSATE TO EXISTING CONDENSATE SYSTEM.
5. 6" STEAM PIPING ROUTED AT 18'-6" AFF.
6. EXISTING STEAM PIPING ROUTED TO BOILERS.
7. STEAM CONDENSATE DRIP LEG, REFER TO VIEW 3 AND DETAIL #4 ON SHEET M-501 FOR MORE INFORMATION.
8. 1" HIGH POINT NITROGEN PURGE CONNECTION VALVE AND CAP.
9. 3/4" GLOBE-VALVED WARM-AMP BYPASS.



1 MECHANICAL - STEAM SITE PLAN
MP101 1" = 10'-0"

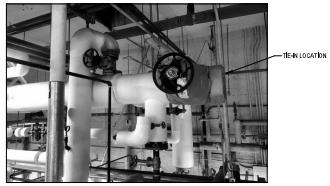


2 MECHANICAL - STEAM BUILDING TIE-IN
MP101 3/16" = 1'-0"



3 MECHANICAL - STEAM PIPING TIE-IN
MP101 N.T.S.

5 CONDENSATE PIPING TIE-IN
MP101 N.T.S.



4 STEAM PIPING TIE-IN
MP101 N.T.S.

0 4' 8' 12' 16'
3/16" = 1'-0"

0 15' 30' 60' 90'
1" = 30'

Revisions		Date
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Drawing Title: MECHANICAL - STEAM PIPING PLAN

Approved:

Project Title: LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES

Location: MANCHESTER VAMC, NH

Issue Date: 06/21/2022 | Checked: MHL | Drawn: JJA

Project Number: 608-20-101

Building Number: 7

Drawing Number: MP101

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

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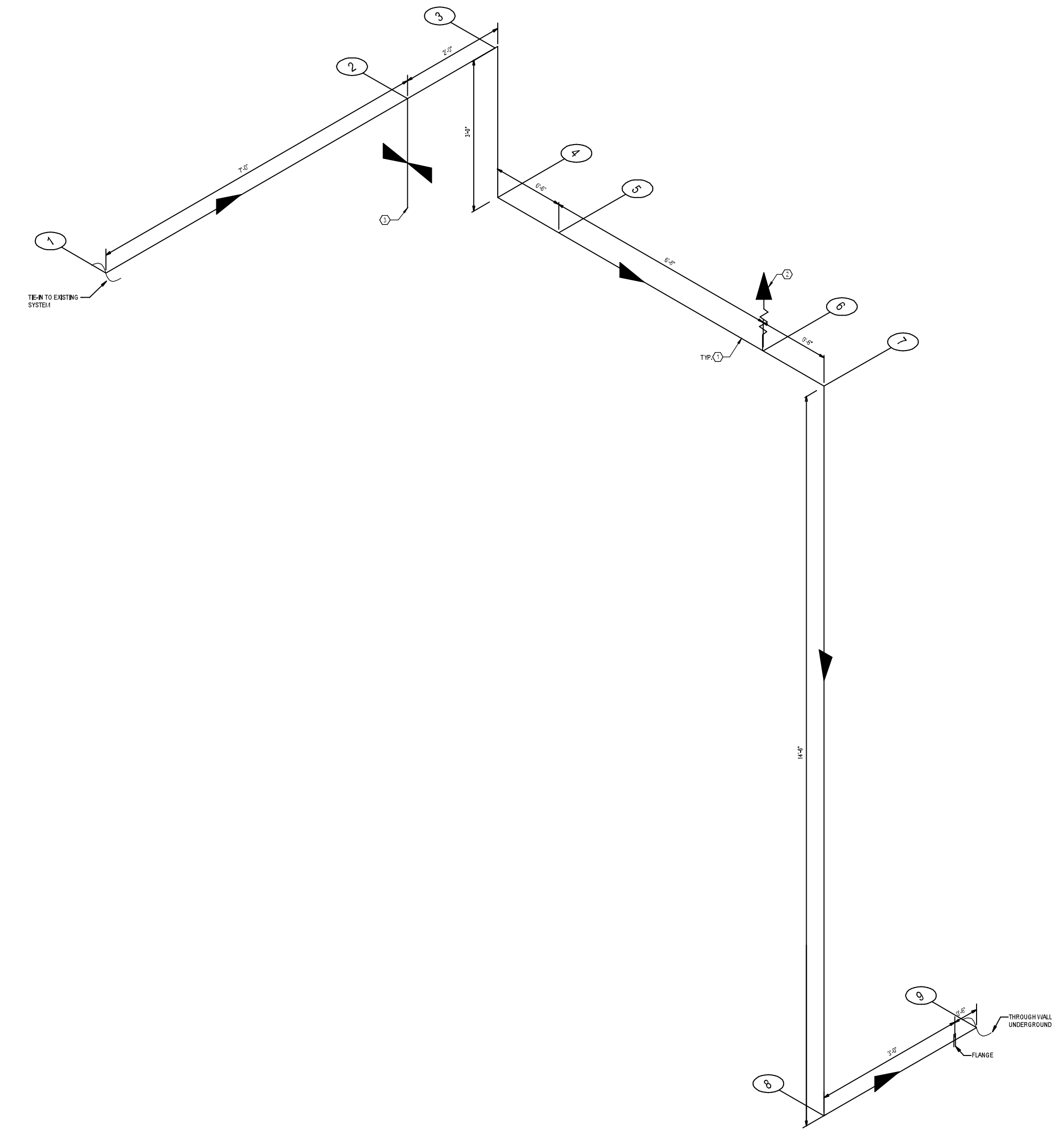
DRAWING NOTES:

1. FIELD VERIFY DIMENSIONS PRIOR TO FABRICATION.
2. WELD GAPS NOT INCLUDED IN DIMENSIONS UNLESS OTHERWISE NOTED.
3. VERIFY FASTENER LENGTHS.
4. SEE INSULATION SPEC FOR INSULATION MATERIAL AND THICKNESS REQUIREMENTS.
5. TRIM ALLOWANCE NOT INCLUDED.
6. SUGGESTED LOCATION FOR VERTICAL & GUIDE TYPE SUPPORTS.

CODED NOTES:

(1) 6" SCH 40, ASTM A106 GR B PIPE.
(2) SPRING HANGER.
(3) ROLLER HANGER.



1 PIPE STRESS ISOMETRIC
N.T.S.

CODE COMPLIANCE SCHEDULE

HIGHEST STRESSES	PSI
CODE ALLOWABLE STRESS	20000
CALCULATED ALLOWABLE STRESS	49185.1
BENDING STRESS	2553.7
TORSION STRESS	4.1
HOOP STRESS	1629.8
EXPANSION STRESS	2553.7

PIPE STRESS ANALYSIS

Key Name	HOOP STRESS (PSI)	ALLOWABLE STRESS (PSI)	BENDING STRESS (PSI)	TORSIONAL STRESS (PSI)	EXPANSION STRESS (PSI)
1-2	1629.84	49185.09	2553.67	4.06	2553.68
2-3	1629.84	49185.09	208.45	4.06	208.61
3-4	1629.84	49185.09	0	4.06	8.12
4-5	1629.84	49185.09	208.46	4.06	208.62
5-6	1629.84	49185.09	1565.05	2.57	1565.06
6-7	1629.84	49185.09	52.12	2.57	52.37
7-8	1629.84	49185.09	0	2.57	5.15
8-9	1629.84	49185.09	1099.23	2.57	1099.24

PIPING SYSTEM: STEAM
REFERENCE CODE: : ASME B31.1

1. MATERIAL SPEC : CARBON STEEL SCH 40 ASTM A106 GR B
2. MISC MATERIAL: NONE
3. WPS : DEVELOPED AND QUALIFIED BY CONTRACTOR
4. NDE REQUIREMENTS : AS REQUIRED PER ASME B31.1 TABLE 136.4
5. PWHT: AS REQUIRED PER ASME B31.1 TABLE 132 FOR P-1 MATERIAL
6. DESIGN TEMP: 370°F
7. DESIGN PRESS: 150 PSIG

Revisions		Date
1	100% SUBMITTAL - BID DOCUMENTS	06/21/2022

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Drawing Title
MECHANICAL - STEAM PIPING STRESS ANALYSIS

Approved:

Project Title
LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES

Location
MANCHESTER VAMC, NH

Issue Date	Checked	Drawn
06/21/2022	MHL	LH

Project Number
608-20-101

Building Number
7

Drawing Number
MP201

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

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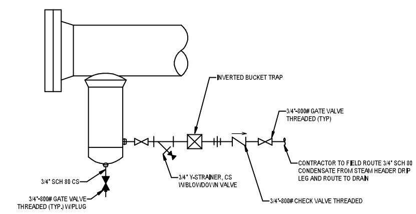
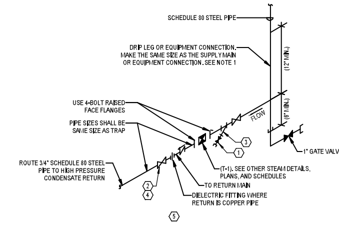


4 STEAM DRIP LEG AND TRAP ASSEMBLY
N.T.S.



NOTE:
1. ALL DRIP POINTS ON STEAM MAINS SHALL BE PROVIDED WITH A 300mm (12") MINIMUM HIGH DRIP LEG FROM BOTTOM OF STEAM MAIN TO TRAP INLET. DRIP LEG SHALL HAVE 150mm (6") SCALE POCKET BELOW TRAP INLET.

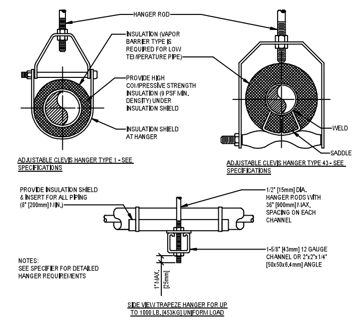
KEY NOTES:

1. ROTATE/POSITION ANY DISCHARGES AWAY FROM PERSONNEL ,EQUIPMENT, AND INSULATION. ANGLE TOWARD THE AWAY WALL RATHER THAN STRAIGHT DOWN. QUARTER-TURN VALVE HANDLE TO BE ORIENTED FURTHER AWAY FROM DISCHARGE IN OPEN POSITION, AND HANDLE IN CLOSED POSITION SHOULD NOT BE PRESENT TRIP OR CATCH HAZARD.
2. ISOLATION VALVES AT EITHER END OF THE TRAP ASSEMBLY TO BE LOCATED AS CLOSE TO RESPECTIVE MAIN AS POSSIBLE. NO FITTINGS ALLOWED BETWEEN ISOLATION VALVE AND DRIP.
3. INSTALL LEGS OF STRAINERS IN HORIZONTAL POSITION, VERTICAL ACCEPTABLE IF NEEDED TO MINIMIZE CONDENSATE HOLDING. STRAINER MESH = 20 OR HIGHER.
4. TO PREVENT EROSION OF OPPOSITE PIPE WALL, TRAP DISCHARGE TO ENTER AT 45 DEGREE ENTRY INTO CONDENSATE MAIN IN THE DIRECTION OF THE CONDENSATE FLOW. STREET 90 JUST PRIOR TO 45, TO MAXIMIZE FLEXIBILITY FOR THERMAL EXPANSION.
5. NO IRON OR BRONZE VALVES. NO GATE VALVES. QUARTER-TURN VALVES AND CHECKS 2" AND UNDER TO BE STEAM RATED, CLASS 300 OR 2000 CWP OR BETTER.

1 DRIP LEG AND STEAM TRAP ASSEMBLY DETAIL
N.T.S.

STEAM TRAP SCHEDULE

MARK	LOCATION	SERVES	CAPACITY AT MIN DIFF PRESS (LBS/HR)	MIN DIFF PRESS (PSI)	MIN INLET PRESS (PSI)	TRAP TYPE	REMARKS
T-1	BOILER PLANT	START OF MAIN	40	85	90	THERMODYNAMIC	



NOTES:
SEE SPECIFIER FOR DETAILED HANGER REQUIREMENTS

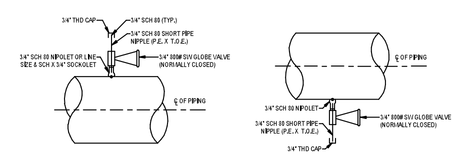
MAXIMUM PIPE/TUBING SUPPORT SPACING

NOM. SIZE	IN. [mm]	THRU 3/4 THRU [20]	1 [25]	1 1/4 [32]	1 1/2 [40]	2 [50]	2 1/2 [65]	3 [75]	4 [100]	5 [125]	6 [150]	8 [200]	10 [250]	12 [300]	14 [350]	16 [400]	18 [450]	20 [500]	24 [600]
PIPE	FT. [mm]	7 [2100]	7 [2100]	7 [2100]	9 [2700]	10 [3000]	11 [3400]	12 [3700]	14 [4100]	16 [4900]	17 [5200]	19 [5800]	22 [6700]	23 [7000]	25 [7600]	27 [8200]	28 [8500]	30 [9100]	32 [9600]
TUBING	FT. [mm]	5 FT [1500]	6 [1800]	7 [2100]	8 [2400]	8 [2400]	9 [2700]	10 [3000]	12 [3700]	13 [4000]	14 [4100]	16 [4900]	- -	- -	- -	- -	- -	- -	- -

NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE.

PIPE HANGERS

2 PIPE HANGERS
N.T.S.



HIGH POINT VENT: (NITROGEN PURGE POINT AFTER COMMISSIONING)

LOW POINT DRAIN

3 HIGH POINT VENT AND LOW POINT DRAIN ASSEMBLIES
N.T.S.

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Revisions		Date

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Drawing Title: MECHANICAL - DETAILS AND SCHEDULES

Approved:

Project Title: LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES

Location: MANCHESTER VAMC, NH

Issue Date: 06/21/2022 | Checked: MHL | Drawn: JJA

Project Number: 608-20-101

Building Number: 7

Drawing Number: M-501

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

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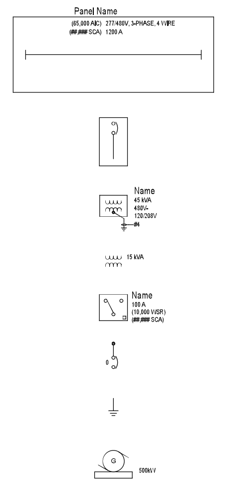
ELECTRICAL SYMBOLS - POWER/LIGHTING PLAN

ELECTRICAL ONE-LINE



SYMBOL	DESCRIPTION
	SWITCHBOARD OR DISTRIBUTION BOARD
	MAIN BREAKER PANEL
	STEP-DOWN TRANSFORMER
	UTILITY COMPANY TRANSFORMER
	AUTOMATIC TRANSFER SWITCH
	CIRCUIT BREAKER
	GROUND ELECTRODE & GROUNDING ELECTRODE CONDUCTOR
	GENERATOR

ABBR.	DESCRIPTION
T	TRANSFORMER, PLAN
	JUNCTION BOX
	PANELBOARD CABINET, SURFACE MOUNTED
1/N103	SECURITY ACCESS, PANORAMIC VIDEO CAMERA WITH LENS; ROOM NUMBER; BUILDING NUMBER

ELECTRICAL SYMBOLS - LIGHTING PLAN

ABBR.	DESCRIPTION
	LIGHT POLE, ONE LUMINAIRE
HH	HANDHOLE

ELECTRICAL ABBREVIATIONS

ABBR.	DESCRIPTION
1PH	SINGLE-PHASE
1P	SINGLE POLE
2/C	TWO-CONDUCTOR
3/C	THREE-CONDUCTOR
3PH	THREE-PHASE
4/C	FOUR-CONDUCTOR
4W	FOUR-WIRE
A/C UNIT	AIR CONDITIONING UNIT
A/E	ARCHITECT/ENGINEER
AAP	ALARM ANNUNCIATOR PANEL
AC	ALTERNATING CURRENT OR ARMORED CABLE
ACC	ACCESSIBLE
ADDL	ADDITIONAL
ADJ	ADJACENT, ADJOINING
ADO	AUTOMATIC DOOR OPENER
AF	AMPERE FRAME OR AMP FUSE
AFC	ABOVE FINISHED COUNTER, AUTOMATIC FREQUENCY CONTROL, OR AVAILABLE FAULT CURRENT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AH	AMPERE HOUR
AHJ	AUTHORITY HAVING JURISDICTION
AIC	AMPERE INTERRUPTING CAPACITY
ALT	ALTERNATE
AMB OR A	AMBIENT
AMP	AMPERE
ARCH	ARCHITECT
ASC	AMPS SHORT CIRCUIT
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AV	AUDIO VISUAL
BAT	BATTERY
BC	BARE COPPER
BD	BOARD
BFF	BELOW FINISH FLOOR
BIL	BASIC INSULATION LEVEL
BLDG	BUILDING
BPIP	BOILER PLANT INSTRUMENTATION PANEL
BRKR	BREAKER
BYP	BY PASS
C	CONDUIT
CAB	CABINET
CALC	CALCULATE
CAP	CAPACITY
CAT	CATALOG
CATV	COMMUNITY ANTENNA TELEVISION
CCR	CONTROL CONTACTOR
CCTV	CLOSED CIRCUIT TELEVISION
cd	CANDELA
CD	CONSTRUCTION DOCUMENTS
CF	CONTRACTOR FURNISHED
CF/CI	CONTRACTOR FURNISHED/CONTRACTOR INSTALLED
CF/OI	CONTRACTOR FURNISHED/OWNER INSTALLED
CFE	CONTRACTOR FURNISHED EQUIPMENT
CHW	CHILLED WATER
CHWP	CHILLED WATER PUMP
CKT	CIRCUIT
CKT BRKR	CIRCUIT BREAKER
CLF	CURRENT LIMITING FUSE
CLG	CEILING
CMU	CONCRETE MASONRY UNIT
COAX	COAX CABLE
COMM	COMMUNICATION
COMPT	COMPARTMENT
CONC	CONCRETE
CONT	CONTINUE
CONTR	CONTRACTOR
COORD	COORDINATE
CPT	CONTROL POWER TRANSFORMER
CRI	COLOR RENDERING INDEX
CT	CURRENT TRANSFORMER
CTV	CABLE TELEVISION
CU	COPPER
CU FT	CUBIC FEET
CUR	CURRENT
DB	DECIBEL OR DIRECT BURIAL
DC	DIRECT CURRENT
DCP	DIMMER CONTROL PANEL
DEG C	DEGREES CELSIUS
DEG F	DEGREES FAHRENHEIT
DEMO	DEMOLITION
DIAG	DIAGRAM
DISC	DISCONNECT
DISTR	DISTRIBUTION
DISTR PNL	DISTRIBUTION PANEL
DMR SW	DIMMER SWITCH
DN	DOWN
DPDT	DOUBLE POLE, DOUBLE THROW
DPST	DOUBLE POLE, SINGLE THROW
DRSW	DOOR SWITCH
DS	DISCONNECT SWITCH
DWG	DRAWING
EC	EMPTY CONDUIT
EG	EQUIPMENT GROUND
EL	ELEVATION
ELEC	ELECTRIC OR ELECTRICAL
ELEV	ELEVATOR
EMCP	EMERGENCY MONITORING CONTROL PANEL
EMER	EMERGENCY
EMI	ELECTROMAGNETIC INTERFERENCE
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
EPO	EMERGENCY POWER OFF
EPRF	EXPLOSION PROOF
ESMT	EASEMENT
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EXIST	EXISTING

ABBR.	DESCRIPTION
FA	FIRE ALARM
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FABL	FIRE ALARM BELL
FABX	FIRE ALARM BOX
FACP	FIRE ALARM CONTROL PANEL
FC	FOOTCANDLE
FI	FILM ILLUMINATOR
FIXT	FIXTURE
FLA	FULL LOAD AMPS
FLEX	FLEXIBLE METALLIC CONDUIT
FLT	FLOODLIGHT
FLUOR	FLUORESCENT
FLUOR FIX	FLUORESCENT FIXTURE
FOUTT	TELEPHONE FLOOR OUTLET
FP	FIRE PROTECTION
FT	FEET OR FOOT
FU SW	FUSED SWITCH
FVNR	FULL VOLTAGE NON-REVERSING
FVR	FULL VOLTAGE REVERSING
G OR GND	GROUND OR GENERATOR
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GTB	GROUND TERMINAL BOX
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER
HT	HEIGHT
HZ	HERTZ
IESNA	ILLUMINATION ENGINEERING SOCIETY OF NORTH AMERICA
IMC	INTERMEDIATE METAL CONDUIT
INCAND	INCANDESCENT
IR	INFRARED
IWH	INSTANTANEOUS WATER HEATER
J-BOX	JUNCTION BOX
kV	KILOVOLT
kVA	KILOVOLT AMPERE
kVAH	KILOVOLT AMPERE PER HOUR
kVAR	KILOVOLT AMPERE REACTIVE
kW	KILOWATT
kWH	KILOWATT HOUR
kWHM	KILOWATT HOUR METER
LED	LIGHT EMITTING DIODE
LF	LINEAR FEET (FOOT)
LM	LUMEN
LP	LIGHT POLE
LPS	LOW PRESSURE SODIUM
LRA	LOCKED ROTOR AMPS
LTCP	LOCAL TEMPERATURE CONTROL PANEL
LT	LIGHT
LTG	LIGHTING
LTG PNL	LIGHTING PANEL
LTNG	LIGHTNING
LV	LOW VOLTAGE
MATV	MASTER ANTENNA TELEVISION SYSTEM
MAX	MAXIMUM
MC	METAL-CLAD
MCA	MINIMUM CIRCUIT AMPS
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MECH	MECHANICAL
MG	MOTOR GENERATOR
MH	MANHOLE
MIN	MINIMUM
MOCP	MAXIMUM OVERCURRENT PROTECTION
MLO	MAIN LUGS ONLY
MT	MOUNT
MTD	MOUNTED
MTG	MOUNTING
MTS	MANUAL TRANSFER SWITCH
MV	MEDIUM VOLTAGE
MVA	MEGAVOLT-AMPERE
MW	MEGAWATT MICROWAVE
NA	NOT APPLICABLE
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NEUT OR N	NEUTRAL
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NS	NO SCALE
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OL	OVERLOAD
P	POLE
PA	PUBLIC ADDRESS
PB	PANELBOARD, PULL BOX, OR PUSHBUTTON
PBPU	PREFABRICATED BEDSIDE PATIENT UNIT
PCB	POLYCHLORINATED BIPHENYL
PEC	PHOTOELECTRIC CELL
PED	PEDESTAL
PEND	PENDANT
PF	POWER FACTOR
PH	PHASE
PNL	PANEL
POD	POWER OPERATED DAMPER
PT	POTENTIAL TRANSFORMER
PTRV	POWER TYPE ROOF VENTILATION
PVC	POLYVINYL CHLORIDE (PLASTIC)
PWR	POWER

ABBR.	DESCRIPTION
RCP	REFLECTED CEILING PLAN
REC	RECESSED
RECPT	RECEPTACLE
RGS	RIGID GALVANIZED STEEL
RM	ROOM
RMS	ROOT MEAN SQUARE
REQD	REQUIRED
SCC	SHORT CIRCUIT CAPACITY
SES	SERVICE ENTRANCE SECTION
SD	SMOKE DETECTOR
SF	SQUARE FOOT (FEET)
SHT	SHEET
SI	INTERNATIONAL SYSTEM OF UNITS
SPEC	SPECIFICATION
SPST	SINGLE POLE, SINGLE THROW
SURF	SURFACE
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TEL	TELEPHONE
TP	TWISTED PAIR
TPS	TWISTED PAIR SHIELDED
TTB	TELEPHONE TERMINAL BOARD
TV	TELEVISION
TYP	TYPICAL
UFD	UNDERFLOOR DUCT
UGND	UNDERGROUND
UL	UNDERWRITERS LABORATORY
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
UTIL	UTILITY
V	VOLT
VA	VOLT AMPERE
VAR	VOLT AMPERE REACTIVE
VFD	VARIABLE FREQUENCY DRIVE
VOLT	VOLTAGE
W	WATT
WH	WATER HEATER
WP	WEATHERPROOF
XFER	TRANSFER
XFMR	TRANSFORMER

SHEET LIST

SHEET	DESCRIPTION
E-001	ELECTRICAL LEGENDS
E-002	ELECTRICAL GENERAL NOTES
ED101	ELECTRICAL - SITE PLAN - DEMO
EL101	ELECTRICAL - LIGHTING SITE PLAN - NEW
ES101	ELECTRICAL - SECURITY AND POWER PLAN - NEW
E-401	PARTIAL BOILER PLANT (BLDG 7) ELECTRICAL ONE-LINE DIAGRAM
E-501	ELECTRICAL DETAILS
E-502	ELECTRICAL DETAILS
E-601	ELECTRICAL SCHEDULES
EC101	SITE PLAN LIGHTING CALCS

Revisions		Date
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CONSULTANT

Drawing Title
ELECTRICAL LEGENDS

Approved:

Project Title
LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES

Location
MANCHESTER VAMC, NH

Issue Date	Checked	Drawn
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Project Number
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Building Number

Drawing Number
E-001

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

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ELECTRICAL GENERAL NOTES

GENERAL:

1. THE DRAWINGS AND APPLICABLE SPECIFICATIONS SHALL BE CONSIDERED SUPPLEMENTARY, ONE TO THE OTHER AND ARE CONSIDERED THE "CONTRACT DOCUMENTS". ALL WORKMANSHIP, METHODS AND/OR MATERIALS DESCRIBED OR IMPLIED BY ONE AND NOT DESCRIBED OR IMPLIED BY THE OTHER SHALL BE PROVIDED, FURNISHED OR PERFORMED AS IF IT HAD APPEARED IN BOTH SECTIONS. THE TERM "CONTRACT DOCUMENTS" DESCRIBED HEREIN IS NOT LIMITED SOLELY TO THE ELECTRICAL PORTION OF THE DRAWINGS AND SPECIFICATIONS, BUT ENCOMPASSES THE DRAWINGS AND SPECIFICATIONS OF ALL DIVISIONS AS A WHOLE.
2. INCLUDE ALL COSTS FOR EXCAVATION, SAW CUTTING, DIRECTIONAL BORING, CORE DRILLING, BACKFILLING, SURFACE RESTORATION, REPAIR OF FINISHES, ETC. THAT IS REQUIRED IN ORDER TO MEET THE PROJECT REQUIREMENTS.
3. INCLUDE IN BID ALL COSTS ASSOCIATED WITH TEMPORARY ELECTRICAL SERVICE AS REQUIRED FOR USE BY ALL TRADES DURING CONSTRUCTION. REMOVE TEMPORARY POWER AT THE COMPLETION OF THE PROJECT. OBTAIN AND PAY FOR ALL REQUIRED PERMITS FOR TEMPORARY POWER. ENGINEER OF RECORD SHALL BE PROVIDED WITH ADDITIONAL COMPENSATION FROM THE CONTRACTOR WHERE SIGNED & SEALED DRAWINGS ARE REQUESTED BY THE CONTRACTOR TO THE ENGINEER OF RECORD IF REQUIRED BY THE AHJ FOR THE TEMPORARY POWER.
4. LOCATE, IDENTIFY, PROTECT AND DOCUMENT ALL UTILITY LINES LOCATED WITHIN THE PROJECT BOUNDARY.
5. INCLUDE IN BID THE TRANSPORT AND DISPOSAL OR RECYLING OF ALL WASTE MATERIALS GENERATED BY THIS PROJECT IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL RULES, REGULATIONS AND GUIDELINES APPLICABLE. COMPLY FULLY WITH NEW HAMPSHIRE STATUTES REGARDING MERCURY-CONTAINING DEVICES, AND WITH ALL DEP AND EPA APPLICABLE GUIDELINES AT THE TIME OF DISPOSAL. PROVIDE OWNER WITH WRITTEN CERTIFICATION OF ACCEPTED DISPOSAL.
6. ALL POWER CIRCUITS HAVE BEEN DESIGNED IN COMPLIANCE WITH SECTION C405.7.3 OF THE ENERGY CONSERVATION CODE, REQUIRING 2% OR LESS VOLTAGE DROP FOR FEEDERS, AND 3% OR LESS VOLTAGE DROP FOR BRANCH CIRCUITS. ELECTRICAL SYSTEM HAS BEEN DESIGNED IN ACCORDANCE WITH THE 2020 NATIONAL ELECTRICAL CODE (NFPA 70).
7. ALL BRANCH CIRCUITS SHALL BE FURNISHED WITH A DEDICATED NEUTRAL. SHARED NEUTRALS ARE NOT ALLOWED UNLESS SPECIFICALLY NOTED ON THE DRAWINGS.
8. VERIFY AND COORDINATE LOCATIONS AND EXACT ELECTRICAL REQUIREMENTS FOR ALL MECHANICAL EQUIPMENT PRIOR TO SUBMITTAL OF SHOP DRAWINGS OF ELECTRICAL ACCESSORIES, ASSOCIATED DISCONNECT SWITCHES, CIRCUIT BREAKERS, CONTROL TRANSFORMERS, ETC. REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. COORDINATE WITH APPROPRIATE TRADE'S APPROVED SHOP DRAWINGS, MANUFACTURER'S INSTRUCTIONS, AND EQUIPMENT NAMEPLATE INFORMATION, PRIOR TO ROUGH IN, AND PROVIDE ALL NECESSARY ELECTRICAL REQUIRED, UNLESS OTHERWISE NOTED.
9. ALL WORK ON THE ELECTRICAL SYSTEM REQUIRED BY THE CONTRACT DOCUMENTS SHALL BE COORDINATED WITH THE WORK OF ALL OTHER DIVISIONS/TRADES PRIOR TO COMMENCEMENT OF WORK. AVOID INTERFERENCES WITH THE PROGRESS OF OTHER DIVISIONS/TRADES.
10. LOCATIONS OF DISCONNECTS, ETC. FOR HVAC EQUIPMENT ARE DIAGRAMMATIC ON THE PLAN DRAWINGS. EXACT LOCATIONS ARE TO BE COORDINATED WITH CONTRACTOR'S COORDINATION DRAWINGS PRIOR TO ROUGHING IN TO ENSURE PROPER NEC CLEARANCES AND APPROPRIATE MOUNTING SURFACE.
11. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS. PROVIDE COMPONENTS INDICATED ON RISER DIAGRAMS WHETHER OR NOT INDICATED ON PLANS AND VICE VERSA.
12. ROUTING OF CONDUIT IS DIAGRAMMATIC AND NOT INTENDED TO SHOW REQUIRED OFFSETS AND DETAILS. COORDINATE EXACT ROUTING WITH FIELD CONDITIONS AND OTHER TRADES.
13. REFER TO MECHANICAL, CIVIL AND LANDSCAPE DRAWINGS FOR RELATED INFORMATION AND ADDITIONAL INSTALLATION REQUIREMENTS TO BE PERFORMED AS PART OF THE WORK.
14. WHERE A DISCREPANCY OR CONFLICT IS FOUND BETWEEN ONE DRAWING AND ANOTHER, OR BETWEEN A DRAWING AND APPLICABLE SPECIFICATIONS, NOTIFY THE ARCHITECT/ENGINEER IMMEDIATELY IN WRITTEN FORM. IN GENERAL, THE MOST STRINGENT REQUIREMENT SHALL GOVERN UNLESS THE DISCREPANCY CONFLICTS WITH APPLICABLE CODES OR OWNER'S DESIGN STANDARDS, WHEREIN THE CODE OR OWNER'S DESIGN STANDARDS SHALL GOVERN.
15. COORDINATE ALL PROJECT SCHEDULING AND PHASING REQUIREMENTS WITH ARCHITECT/ENGINEER AND OWNER PRIOR TO SUBMITTING BID PRICE. THIS PROJECT MAY REQUIRE PHASING SEQUENCES AND POTENTIAL PREMIUM TIME WORK AND ALL COSTS FOR SUCH SHALL BE INCLUDED IN THE BID PRICE. PROVIDE ADEQUATE WORK FORCE AND EQUIPMENT, AND INCLUDE PREMIUM TIME AS MAY BE REQUIRED IN ORDER TO ADHERE TO THE PROJECT SCHEDULE. ADDITIONALLY, ENSURE THAT LONG LEAD ITEMS DO NOT IMPACT THE PROJECT'S SCHEDULE OR PHASING.
16. ANY TEMPORARY INTERRUPTION ON POWER REQUIRED FOR THE SYSTEM TIE-IN OR SWITCHOVER FOR ANY PORTION OF THE ELECTRICAL SYSTEM SHALL BE PRE-APPROVED IN WRITING BY THE OWNER AND SCHEDULED IN ADVANCE.
17. CONDUCT WORK OPERATIONS AND DEBRIS REMOVAL IN A MANNER THAT ENSURES MINIMUM INTERFERENCE WITH NORMAL BUSINESS OPERATIONS, TRAFFIC, PARKING, ETC. ONGOING IN ADJACENT OCCUPIED SPACES OR FACILITIES. PROVIDE ALL THAT IS REQUIRED TO EFFECTIVELY PROTECT SURROUNDING OCCUPANTS, EQUIPMENT, FINISHES, FURNITURE, ETC. FROM DAMAGE OR EXCESSIVE NOISE THROUGHOUT THE DURATION OF THIS PROJECT. CONTRACTOR IS RESPONSIBLE FOR ANY LOSSES OR DAMAGE. ANY DAMAGE RESULTING FROM THE FAILURE TO ADHERE TO THIS REQUIREMENT, RESTORE DAMAGED ELEMENTS TO ORIGINAL CONDITION BY THE CONTRACTOR TO THE SATISFACTION OF THE ARCHITECT/ENGINEER AND OWNER, AT NO ADDITIONAL COSTS. REPORT OF ANY SUCH OCCURRENCE TO THE ARCHITECT/ENGINEER AND OWNER IMMEDIATELY AND AWAIT WRITTEN DIRECTION PRIOR TO PROCEEDING WITH REPAIRS.
18. THE EXCLUSIVELY DEDICATED SPACE EXTENDING FROM FLOOR TO 6' ABOVE EQUIPMENT OR STRUCTURAL CEILING, WHICHEVER DISTANCE IS LOWER, WITH A WIDTH AND DEPTH OF THE PANELBOARD OR SWITCHBOARD MUST BE CLEAR OF ALL PIPING, DUCTS, EQUIPMENT FOREIGN TO THE ELECTRICAL EQUIPMENT OR ARCHITECTURAL APPURTENANCES IN ACCORDANCE WITH NEC.
19. THE INFRASTRUCTURE FOR THE ACCESS CONTROL/ CCTV OR SECURITY ELECTRONICS SYSTEM (CONDUITS, ELECTRICAL BOXES) SHALL BE INSTALLED BY DIVISION 26. THE ACCESS CONTROL/ CCTV OR SECURITY ELECTRONICS SYSTEM CONTRACTOR SHALL PROVIDE AND INSTALL THE WIRE AND CABLE FOR THE SYSTEM AND ALL REQUIRED EQUIPMENT. INSTALLATION OF THE CONDUITS AND ELECTRICAL BOXES SHALL BE UNDER THE DIRECT SUPERVISION OF THE ACCESS CONTROL/ CCTV SYSTEM CONTRACTOR. COORDINATE EXACT LOCATIONS OF DEVICES, RACEWAY LOCATIONS, SIZES AND QUANTITY, CONDUIT STUB-UPS PRIOR TO ROUGH IN.
20. THE INFRASTRUCTURE FOR THE VOICE/DATA TELECOMMUNICATIONS SYSTEM (CONDUITS, ELECTRICAL BOXES) SHALL BE INSTALLED BY DIVISION 26. THE TELECOMMUNICATIONS CONTRACTOR SHALL PROVIDE AND INSTALL THE WIRE AND CABLE FOR THE SYSTEM AND ALL REQUIRED EQUIPMENT AND COMPONENTS. INSTALLATION OF THE CONDUITS AND ELECTRICAL BOXES SHALL BE UNDER THE DIRECT SUPERVISION OF THE TELECOMMUNICATIONS CONTRACTOR. COORDINATE EXACT LOCATIONS OF DEVICES, RACEWAY LOCATIONS, SIZES AND QUANTITY, CONDUIT STUB-UPS PRIOR TO ROUGH IN.
21. UNLESS NOTED AS EXISTING, ALL ELECTRICAL INDICATED ON THE CONTRACT DOCUMENTS SHALL BE NEW, SHALL BE U.L. LISTED, AND SHALL BEAR A U.L. LABEL. WHERE NO U.L. LABEL OR LISTING IS AVAILABLE, THE MATERIAL SHALL BE LISTED WITH AN APPROVED, NATIONALLY RECOGNIZED ELECTRICAL TESTING AGENCY.
22. PROVIDE EXPERIENCED, QUALIFIED AND RESPONSIBLE SUPERVISION FOR ALL WORK REQUIRED BY THE CONTRACT DOCUMENTS. ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER, TO THE SATISFACTION OF THE ARCHITECT/ENGINEER AND OWNER.
23. THE ELECTRICAL PORTION OF THE CONTRACT DOCUMENTS ARE COORDINATED WITH THE DESIGN BASIS EQUIPMENT SPECIFIED BY DIVISION 26 AND OTHER DIVISIONS. WHERE THE CONTRACTOR ELECTS TO SUBSTITUTE A PRODUCT IN LIEU OF PROVIDING THE DESIGN BASIS, AND SAID SUBSTITUTION IS ACCEPTED BY THE A/E AND OWNER, THE CONTRACTOR SHALL MAKE ALL CORRECTIONS TO THE ELECTRICAL SYSTEM NECESSARY IN ORDER TO ENSURE A COMPLETE AND OPERATIONAL INSTALLATION OF THE EQUIPMENT AT NO ADDITIONAL COSTS. WHERE THE CONTRACTOR'S DESIGN SUBSTITUTION RESULTS IN THE NEED FOR THE ENGINEER TO REVISE THE CONTRACT DOCUMENTS, THE ENGINEER RESERVES THE RIGHT TO REQUEST COMPENSATION FROM THE CONTRACTOR FOR SAID SERVICES.
24. MAINTAIN A CURRENT AND ACCURATE SET OF PROJECT RECORD DOCUMENTS (AS-BUILTS) AT THE SITE THROUGHOUT THE DURATION OF THE PROJECT. RECORD DRAWINGS SHALL BE UPDATED EACH DAY TO REFLECT THE ACTUAL LOCATIONS, SIZES, ROUTING, ETC. OF EACH PORTION OF THE ELECTRICAL SYSTEM AFFECTED BY THIS WORK. A FINAL SET OF RECORD DOCUMENTS SHALL BE ISSUED TO THE A/E FOR REVIEW AND THEN SUBMITTED TO THE OWNER WITHIN 30 DAYS AFTER THE DATE OF FINAL ACCEPTANCE. PROVIDE RECORD DRAWINGS OF THE ACTUAL INSTALLATION INCLUDING SINGLE LINE DIAGRAM, POWER RISER DIAGRAM OF THE BUILDING ELECTRICAL DISTRIBUTION SYSTEM, SITE PLANS AND ALL ELECTRICAL FLOOR PLANS, DETAILS, PANEL SCHEDULES, ETC.
25. OWNER FURNISHED EQUIPMENT: VERIFY AND COORDINATE ELECTRICAL ROUGH IN REQUIREMENTS FOR OWNER FURNISHED EQUIPMENT PRIOR TO ROUGH IN.

ELECTRICAL DEMOLITION NOTES

D1. THE FACILITY WILL REMAIN OCCUPIED DURING RENOVATIONS.
D2. DEVICES, LIGHT FIXTURES AND EQUIPMENT SHOWN IN DASHED LINE TYPE ARE EXISTING TO BE DEMOLISHED; DEVICES, LIGHT FIXTURES AND EQUIPMENT SHOWN IN LIGHT SOLID LINE TYPE ARE EXISTING TO REMAIN, UNLESS OTHERWISE NOTED.
D3. EXISTING EQUIPMENT, LIGHT FIXTURES, DEVICES SHOWN ARE BASED ON FIELD SURVEYS AND RECORD DRAWINGS PROVIDED BY THE OWNER, AND IS NOT NECESSARILY ALL INCLUSIVE IN EVERY AREA AS FAR AS EXISTING ELECTRICAL EQUIPMENT, LIGHT FIXTURES AND DEVICES. EXISTING CIRCUITING SHOWN IS BASED ON RECORD DRAWINGS AND THE SURVEYED PANEL DIRECTORIES, WHERE THEY WERE AVAILABLE. THE ACTUAL CONDITIONS MAY VARY. ALL EXISTING CONDITIONS MUST BE VERIFIED PRIOR TO BID. THE CONDITIONS SHOWN ARE INTENDED TO SHOW THE LOCATIONS OF EXISTING DEVICES, LIGHT FIXTURES AND EQUIPMENT, WHERE SHOWN ON THE PLAN DRAWINGS, AND IN NO WAY RELIEVES THE CONTRACTOR FROM PROVIDING ANY AND ALL COORDINATION NECESSARY TO COMPLETE THE NEW WORK. FIELD CONDITIONS SHALL GOVERN.
D4. WHERE EXISTING DEVICES ARE INDICATED TO REMAIN OR RELOCATED, LOCATED WITHIN THE SCOPE OF THIS PROJECT AND EXISTING CIRCUITING INFORMATION IS UNAVAILABLE, CONTRACTOR IS TO PROVIDE CIRCUIT TRACING TO IDENTIFY PANEL AND CIRCUIT DEVICES ARE CONNECTED TO AND PROVIDE THAT INFORMATION TO A/E PRIOR TO ROUTING CONDUITS AND WIRING FOR NEW DEVICES AND EQUIPMENT WITHIN THE SCOPE OF THIS PROJECT.
D5. PRIOR TO DEMOLITION, FIELD VERIFY CONDUIT AND WIRING WHICH SERVES AREAS OUTSIDE THE SCOPE OF WORK AND PASSES THROUGH THE AREA OF WORK. MAINTAIN CONTINUITY OF SYSTEMS.
D6. WHERE EXISTING DEVICES ARE TO REMAIN, CONTRACTOR MUST EXTEND EXISTING CIRCUITING WHERE NECESSARY TO MAINTAIN CONTINUITY OF CIRCUIT.
D7. COORDINATE WITH THE OWNER FOR DISPOSITION OF ELECTRICAL ITEMS TO BE DEMOLISHED. OWNER SHALL HAVE THE OPTION TO RETAIN REUSABLE ITEMS SUCH AS COVERPLATES, RECEPTACLES, LIGHT FIXTURES, PANELBOARDS, TRANSFORMERS, ETC. NOT BEING USED IN THE FINISHED WORK. COORDINATE WITH THE OWNER PRIOR TO START OF DEMOLITION. PROPERLY AND LEGALLY DISPOSE OF ALL EQUIPMENT AND MATERIALS BEING REMOVED.
D8. COORDINATE EXACT AREAS, WALLS, CEILINGS, ETC. TO BE DEMOLISHED WITH DEMOLITION PLANS.
D9. WHERE EXISTING DEVICES, LIGHT FIXTURES AND EQUIPMENT ARE INDICATED TO BE DEMOLISHED, REMOVE ASSOCIATED CONDUIT AND WIRING BACK TO SOURCE PANEL OR TO NEAREST JUNCTION BOX TO MAINTAIN CIRCUIT CONTINUITY OF DEVICES TO REMAIN AND EQUIPMENT TO REMAIN. WHERE PANELS ARE TO BE REMAIN, TURN BREAKER TO "OFF" POSITION AND LABEL THE CIRCUIT AS "SPARE" ON THE PANEL DIRECTORY.
D10. ALL AREAS OUTSIDE THE SCOPE OF CONSTRUCTION ARE TO REMAIN ENERGIZED. COORDINATE PHASING WITH CONSTRUCTION MANAGER AND OWNER PRIOR TO DEMOLITION WHICH MAY RESULT IN INTERRUPTION OF POWER.
D11. REFER TO DEMOLITION DRAWINGS FOR EXTENT OF AREA REQUIRING DEMOLITION AND ADDITIONAL INFORMATION ON ELECTRICAL DEMOLITION WITHIN THAT AREA. DISCONNECT ELECTRICAL SERVICE TO ALL EQUIPMENT BEING REMOVED. DEMOLITION SHALL BE PHASED AS REQUIRED BY DIVISION 1, OR DIRECTED BY THE OWNER.
D12. CONTRACTOR SHALL BE RESPONSIBLE FOR PATCHING ALL OPENINGS IN EXISTING CONSTRUCTION AFTER REMOVAL OF EQUIPMENT AND ELECTRICAL DEVICES, UNLESS OTHERWISE NOTED ON ARCHITECTURAL PLANS. REPAIRS ARE TO BE DONE TO LOGICAL EDGES OF SURFACES AFFECTED AND SHALL MATCH IMMEDIATE ADJACENT AREAS IN CONSTRUCTION, MATERIAL, FIRE RATING, FINISH AND COLOR.
D13. FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS PRIOR TO COMMENCEMENT OF WORK AND OBTAIN CLARIFICATIONS FROM ARCHITECT/ENGINEER IF NECESSARY.
D14. COORDINATE SERVICE INTERRUPTION WITH CONSTRUCTION MANAGER, OWNER, LANDLORD, AND UTILITY COMPANY, WHERE APPLICABLE, AND DO NOT INTERRUPT POWER WITHOUT WRITTEN PERMISSION. PROVIDE A MINIMUM OF TWO WEEK'S WRITTEN NOTIFICATION WHEN POWER IS DESIRED TO BE INTERRUPTED.
D15. EXERCISE EXTREME CAUTION WHEN REMOVING/ RELOCATING WIRING AND EQUIPMENT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT OTHER WIRING DEVICES, EQUIPMENT AND LIGHT FIXTURES THAT MAY BE CONNECTED TO THE SAME CIRCUIT REMAIN OPERATIONAL AND ACTIVE.
D16. INFORMATION INDICATED IN THE DEMOLITION PORTION OF THE CONTRACT DRAWINGS IS DIAGRAMMATIC IN NATURE. FIELD VERIFY ELECTRICAL CIRCUIT HOMERUNS TO ALL ELECTRICAL ITEMS SCHEDULED TO BE DEMOLISHED AND PERFORM THE WORK AS INTENDED AND DEPICTED ON THE DRAWINGS.
D17. UPDATE ALL EXISTING ELECTRICAL EQUIPMENT NAMEPLATES AND DIRECTORIES AS NECESSARY TO REFLECT FINAL AS-BUILT CONDITIONS AT THE END OF CONSTRUCTION.
D18. STORE ITEMS INDICATED TO BE RETURNED TO THE OWNER IN A DRY, CLEAN AND PROTECTED AREA. NOTIFY OWNER WHEN ITEMS ARE READY TO BE REMOVED.
D19. SCHEDULE ALL POWER INTERRUPTION WITH OWNER FOR EXACT DATE, TIME AND DURATION. PROVIDE A MINIMUM OF TWO WEEKS NOTICE PRIOR TO DISCONNECTING ANY POWER TO ANY PORTION OF THE BUILDING, AND MAKE ARRANGEMENTS TO MAINTAIN POWER TO ALL CRITICAL EQUIPMENT AS NEEDED AND REQUESTED BY THE OWNER PRIOR TO COMMENCEMENT OF WORK.
D20. THE DEMOLITION PLAN IS NOT INCLUSIVE OF ALL ELECTRICAL DEVICES WITHIN THE PROJECT AREA. IT IS INTENDED TO PROVIDE A GENERAL KNOWLEDGE OF THE EXISTING CONDITIONS WITHIN THE PROJECT AREA. ANY DISCREPANCIES OR CONDITIONS NOT SHOWN ON THE PLAN SHALL BE BROUGHT TO THE ATTENTION OF THE A/E. THE CONTRACTOR IS RESPONSIBLE FOR ALL REQUIRED ELECTRICAL DEMOLITION WHETHER INDICATED ON THE PLANS OR NOT.
D21. ALL CONDUITS SERVING OTHER SPACES THAT RUN THROUGH THE PROJECT AREA SHALL REMAIN ACTIVE DURING CONSTRUCTION SO AS NOT TO CAUSE DISRUPTION TO THESE OTHER SPACES. ENSURE THAT ALL CONDUITS, NEW OR EXISTING WITHIN THE PROJECT AREA ARE PROPERLY SUPPORTED IN ACCORDANCE WITH THE NEC. ANY EXISTING CONDUIT IS INSTALLED BELOW THE HEIGHT OF THE NEW CEILING SHALL BE RELOCATED TO ABOVE THE NEW CEILING HEIGHT.
D22. REMOVE ALL ABANDONED WIRING AND CONDUIT THAT IS WITHIN THE PROJECT AREA PRIOR TO THE END OF CONSTRUCTION, UNLESS OTHERWISE NOTED.
D23. UPDATE PANELBOARD DIRECTORIES WHICH ARE MODIFIED BY THIS PROJECT.
D24. REPAIR DISTURBED AREAS TO MATCH EXISTING CONDITIONS.

APPLICABLE CODES

1. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), INCLUDING (BUT NOT LIMITED TO):
   a. NATIONAL ELECTRICAL CODE (NEC), NFPA 70 - 2020
   b. NATIONAL FIRE ALARM CODE, NFPA 72 - 2022
   c. LIFE SAFETY CODE, NFPA 101 – 2021
   d. HEALTH CARE FACILITIES CODE, NFPA 99
2. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI), INCLUDING (BUT NOT LIMITED TO):
   a. NATIONAL ELECTRICAL SAFETY CODE, ANSI C2
3. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)
4. FEDERAL COMMUNICATION COMMISSION (FCC)
5. NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)
6. INSULATED CABLE ENGINEERS ASSOCIATION (ICEA)
7. INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)
8. NATIONAL ELECTRICAL TESTING ASSOCIATION (NETA)
9. AMERICAN SOCIETY OF TESTING AND MATERIALS (ASTM)
10. ILLUMINATION ENGINEERING SOCIETY (IES)
11. ANTI-FRICTION BEARING MANUFACTURERS ASSOCIATION (AFBMA)
12. BUILDING OFFICIALS AND CODE ADMINISTRATORS INTERNATIONAL, INC. (BOCA)
13. INTERNATIONAL CODE COUNCIL (ICC):
    a. INTERNATIONAL BUILDING CODE (IBC)
14. UNIFORM BUILDING CODE (UBC)
15. NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION INSTALLATION STANDARDS (NECA)
16. AMERICANS WITH DISABILITIES ACT (ADA)
17. APPLICABLE STATE AND LOCAL CODES, AMENDMENTS, REGULATIONS, AND PRACTICES.
18. APPLICABLE REGULATORY REQUIREMENTS AND ADVISORY PRACTICES OF APPROPRIATE
    a. AUTHORITIES HAVING JURISDICTION (AHJs).
19. APPLICABLE STANDARDS, REGULATIONS, AND PRACTICES OF THE OWNER.
20. VA ELECTRICAL DESIGN MANUAL
21. VA LIGHTING DESIGN MANUAL

WHERE THERE IS A DISCREPANCY BETWEEN ABOVE GENERAL NOTES AND SPECIFICATIONS, WHERE APPLICABLE, SPECIFICATIONS SHALL BE FOLLOWED

Revisions	Date
90% RESUBMITTAL - UPDATED PER VA COMMENTS	07/09/2021
100% SUBMITTAL - BID DOCUMENTS	06/21/2022

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Drawing Title: ELECTRICAL GENERAL NOTES

Approved:

Project Title: LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES

Location: MANCHESTER VAMC, NH

Issue Date: 06/21/2022 | Checked: JFR | Drawn: SDL

Project Number: 608-20-101

Building Number:

Drawing Number: E-002

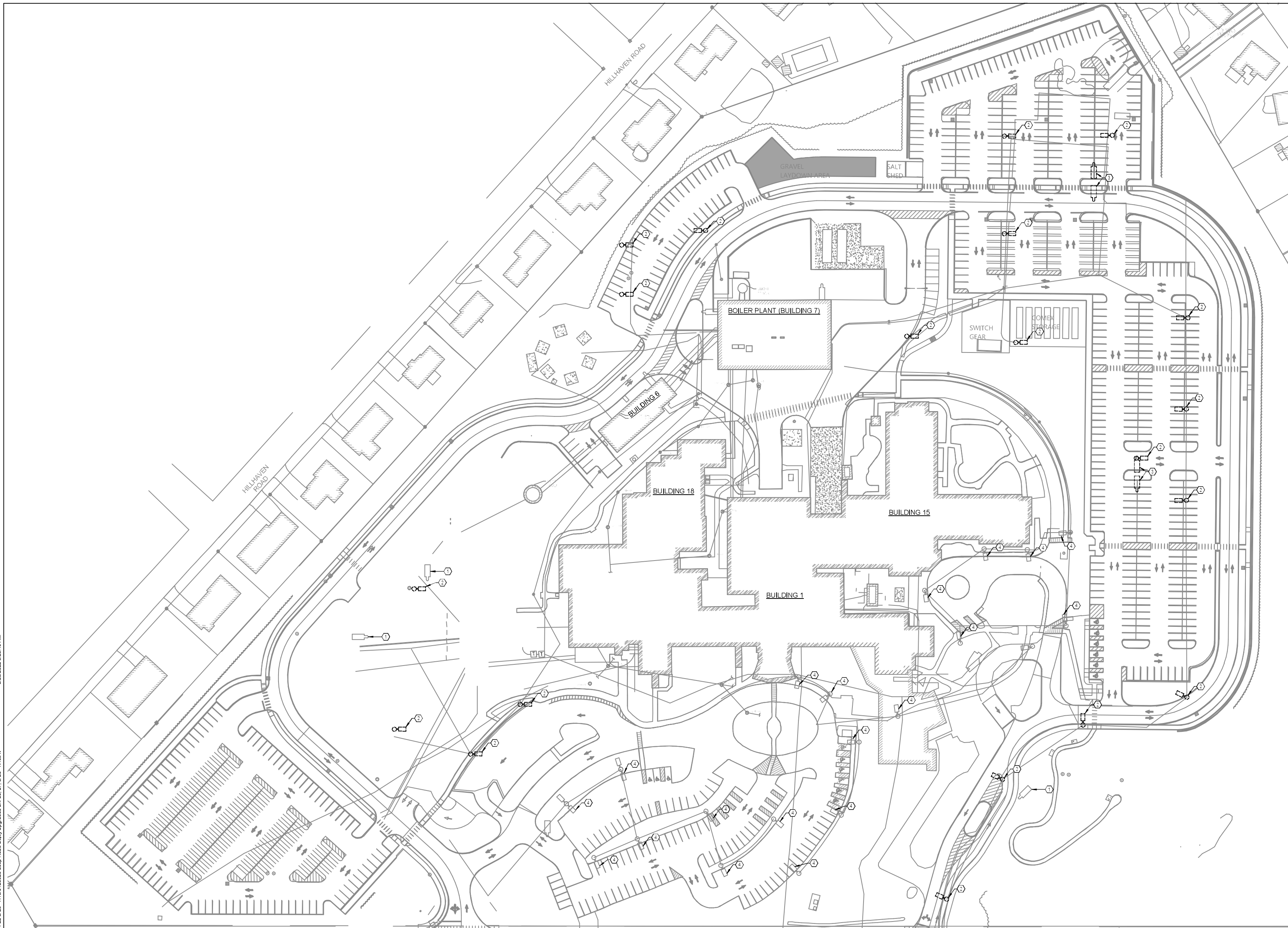
Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

VA FORM 08 - 6231

BIM 360://0120026 Loop Road Utility Infrastructure Upgrades Div 21 22 & 23 - R19/0120026 Loop Road Utility Upgrades Div 26, 27, & 28 - R19.rvt 6/20/2022 8:28:12 AM

three inch = one foot; one and one half inch = one foot; one inch = one foot; three quarters inch = one foot; one half inch = one foot; three eighths inch = one foot; one quarter inch = one foot; one eighth inch = one foot



1 ELECTRICAL - SITE PLAN - DEMO
1" = 50'-0"

0 25' 50' 100' 150'
1" = 50'

CODED NOTES:

1. EXISTING CAMERA MOUNTED ON EXISTING BUILDING, TO BE REMOVED BY OTHERS.
2. REMOVE LIGHT FIXTURE. REMOVE BRANCH CIRCUIT CONDUCTORS BACK TO SOURCE AND REMOVE CONDUITS IN GRADE UNLESS REMOVAL WOULD BE UNNECESSARILY DISRUPTIVE. VA APPROVAL IS REQUIRED PRIOR TO ABANDONING ANY CONDUITS IN PLACE. PER VA, EC TO REUSE 50% OF EXISTING TO BE DEMOLISHED LIGHT POLES. REUSED LIGHT POLES MUST BE 22'-0" TALL TO MATCH NEW SITE LIGHTING DESIGN.
3. REMOVE SECURITY CAMERA. REMOVE BRANCH CIRCUIT CONDUCTORS BACK TO SOURCE AND REMOVE CONDUITS IN GRADE UNLESS REMOVAL WOULD BE UNNECESSARILY DISRUPTIVE. VA APPROVAL IS REQUIRED PRIOR TO ABANDONING ANY CONDUITS IN PLACE.
4. EXISTING TO REMAIN LIGHT FIXTURE MAINTAIN AND PROTECT DURING CONSTRUCTION.

	100% SUBMITTAL - BID DOCUMENTS	06/21/2022
Revisions		Date

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Drawing Title: ELECTRICAL - SITE PLAN - DEMO

Approved:

Project Title: LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES

Location: MANCHESTER VAMC, NH

Issue Date	Checked	Drawn
06/21/2022	JFR	SDL

Project Number: 608-20-101

Building Number:

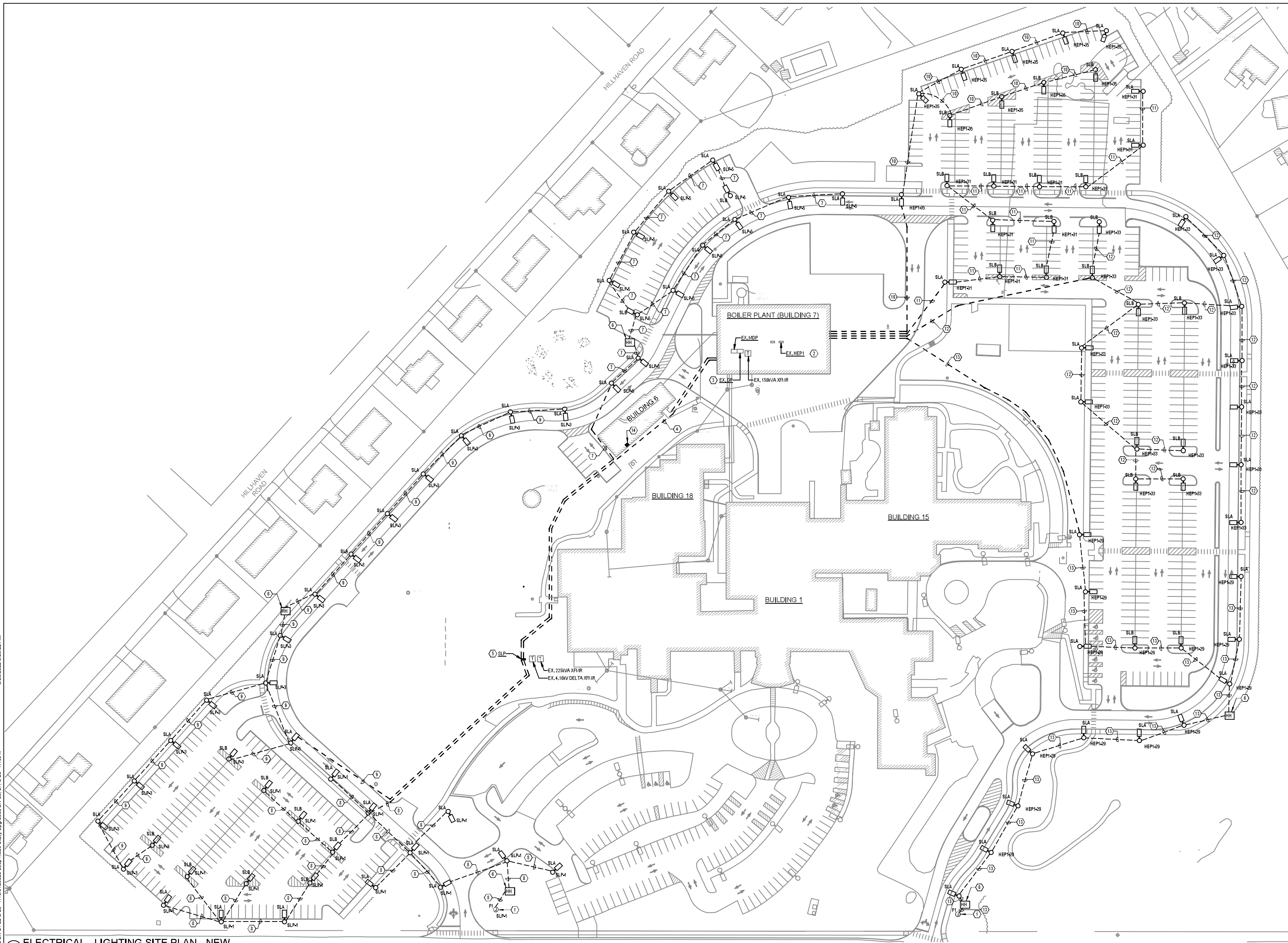
Drawing Number: ED101

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

VA FORM 08 - 6231

6/20/2022 8:28:19 AM



1 ELECTRICAL - LIGHTING SITE PLAN - NEW
1" = 50'-0"

DRAWING NOTES:

1. REFER TO E-401 FOR PARTIAL BOILER PLANT ELECTRICAL ONE-LINE DIAGRAM.
2. ALL NEW LIGHTING FIXTURES SHALL HAVE WIRELESS MESH CONTROLS WITH INTEGRAL PHOTOCELLS. FIXTURES SHALL TURN ON AT DUSK, DIM TO 30% AT MIDNIGHT AND TURN OFF WITH DAYLIGHT. SEE LIGHTING FIXTURE SCHEDULE ON SHEET E-601 FOR DETAILS.
3. PROPOSED BRANCH CIRCUIT ROUTING IS SHOWN. EC TO COORDINATE EXACT ROUTING IN THE FIELD. UNLESS OTHERWISE NOTED, CONDUITS SHALL BE DIRECT BURIED WHERE BELOW GRASSY AREAS AND SIDEWALKS, AND CONCRETE ENCASED WHERE BELOW DRIVABLE SURFACE. SEE DUCT BANK DETAILS #2 AND #3 ON SHEET E-501 FOR FURTHER REQUIREMENTS.
4. SEE SHEET EC101 FOR SITE LIGHTING PHOTOMETRIC CALCULATIONS.

CODED NOTES:

(1) MAKE ALL FINAL CONNECTIONS TO 277V FLOOD LIGHT FIXTURE.

(2) APPROXIMATE LOCATION OF EXISTING 480Y/277V PANEL 'HEP1', SQUARE D NF PANEL. PROVIDE NEW BREAKERS TO FEED NEW LIGHTING, CCTV POWER SUPPLIES AND EMERGENCY BLUE PHONES ON PLAN EAST AND NORTHEAST OF SITE TO BE FED FROM THIS PANEL. MATCH NEW BREAKERS TO EXISTING BREAKERS IN PANEL (SQUARE D EJB). REFER TO ES101 FOR CCTV POWER SUPPLY AND EMERGENCY BLUE PHONE CIRCUITING. REFER TO E-601 FOR PANEL SCHEDULE.

(3) APPROXIMATE LOCATION OF EXISTING DISTRIBUTION PANEL 'DP' TO FEED NEW SITE LIGHTING PANEL 'SLP'. PROVIDE NEW OVERHEAD CONDUIT INSIDE BOILER PLANT AND TRANSITION TO CONCRETE ENCASED UNDERGROUND PVC CONDUIT TO NEW PANEL.

(4) PROPOSED CONCRETE ENCASED CONDUIT RUN (~500') TO FROM 'DP' TO NEW SITE LIGHTING PANEL 'SLP'. PROVIDE 4#1 AWG + 1# 6 AWG GND IN 1-1/2" UNDERGROUND PVC CONDUIT (SIZED FOR VOLTAGE DROP). COORDINATE EXACT ROUTING WITH EXISTING UTILITIES.

(5) NEW SITE LIGHTING PANEL 'SLP'. NEW LIGHTING, CCTV POWER SUPPLIES AND EMERGENCY BLUE PHONES ON PLAN WEST AND SOUTHWEST OF SITE TO BE FED FROM THIS PANEL. REFER TO ES101 FOR CCTV POWER SUPPLY AND EMERGENCY BLUE PHONE CIRCUITING. REFER TO E-601 FOR PANEL SCHEDULE. REFER TO OUTDOOR PANELBOARD MOUNTING DETAIL #2 ON SHEET E-502.

(6) 2'X2' TYPICAL POLYMER CONCRETE HANDHOLE. SEE HANDHOLE INSTALLATION DETAIL #1 ON SHEET E-502.

(7) PROVIDE 2#8 AWG + 1#8 AWG GND IN 1" UNDERGROUND PVC FOR PROPOSED BRANCH CIRCUIT RUN (TOTAL CIRCUIT LENGTH~812'). CONDUCTORS ADJUSTED FOR VOLTAGE DROP.

(8) PROVIDE 2#10 AWG + 1#10 AWG GND IN 1" UNDERGROUND PVC FOR PROPOSED BRANCH CIRCUIT RUN (TOTAL CIRCUIT LENGTH~715'). CONDUCTORS ADJUSTED FOR VOLTAGE DROP.

(9) PROVIDE 2#8 AWG + 1#8 AWG GND IN 1" UNDERGROUND PVC FOR PROPOSED BRANCH CIRCUIT RUN (TOTAL CIRCUIT LENGTH~993'). CONDUCTORS ADJUSTED FOR VOLTAGE DROP.

(10) PROVIDE 2#10 AWG + 1#10 AWG GND IN 1" UNDERGROUND PVC FOR PROPOSED BRANCH CIRCUIT RUN (TOTAL CIRCUIT LENGTH~630'). CONDUCTORS ADJUSTED FOR VOLTAGE DROP.

(11) PROVIDE 2#8 AWG + 1#8 AWG GND IN 1" UNDERGROUND PVC FOR PROPOSED BRANCH CIRCUIT RUN (TOTAL CIRCUIT LENGTH~811'). CONDUCTORS ADJUSTED FOR VOLTAGE DROP.

(12) PROVIDE 2#10 AWG + 1#10 AWG GND IN 1" UNDERGROUND PVC FOR PROPOSED BRANCH CIRCUIT RUN (TOTAL CIRCUIT LENGTH~787'). CONDUCTORS ADJUSTED FOR VOLTAGE DROP.

(13) PROVIDE 2#6 AWG + 1#6 AWG GND IN 1" UNDERGROUND PVC FOR PROPOSED BRANCH CIRCUIT RUN (TOTAL CIRCUIT LENGTH~1265'). CONDUCTORS ADJUSTED FOR VOLTAGE DROP.

(14) PROVIDE WIRELESS LIGHTING AREA CONTROLLER IN EXISTING TELECOMMUNICATIONS CLOSET. BASIS OF DESIGN IS COOPER LIGHTING WAVELINX PRO. PLUG INTO NEAREST AVAILABLE 120V CONVENIENCE RECEPTACLE. PROVIDE CAT6 DATA CABLE AND TERMINATE IN NEAREST DATA RACK. PROVIDE ALL PROGRAMMING FOR EXTERIOR LIGHTING CONTROLS. SEE DRAWING NOTES ON THIS SHEET AND LIGHTING FIXTURE SCHEDULE/NOTES ON SHEET E-601 FOR FURTHER DETAILS AND REQUIREMENTS.

0 25' 50' 100' 150'
1" = 50'

	100% SUBMITTAL - BID DOCUMENTS	06/21/2022
Revisions		Date

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JOHN F. RAINE, P.E.
ME License #16679

CONSULTANT

Drawing Title: ELECTRICAL - LIGHTING SITE PLAN - NEW

Approved:

Project Title: LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES

Location: MANCHESTER VAMC, NH

Issue Date: 06/21/2022 | Checked: JFR | Drawn: SDL

Project Number: 608-20-101

Building Number:

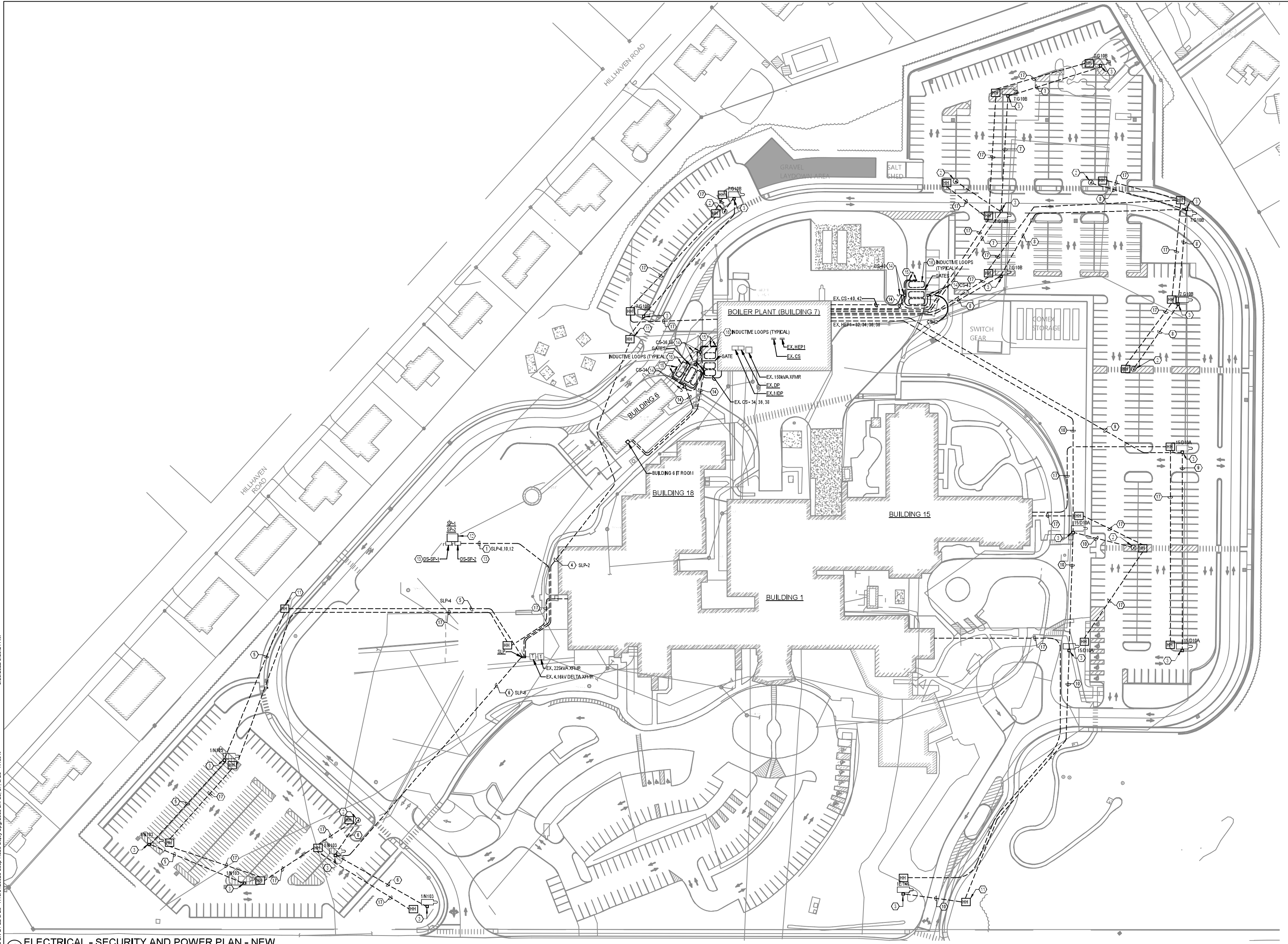
Drawing Number: EL101

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

VA FORM 08-6231

BIM 360://0120026 Loop Road Utility Infrastructure Upgrades Div 21 22 & 23 - R19/0120026 Loop Road Utility Upgrades Div 26, 27, & 28 - R19.rvt
6/20/2022 8:28:22 AM



1 ELECTRICAL - SECURITY AND POWER PLAN - NEW
1" = 50'-0"

0 25' 50' 100' 150'
1" = 50'

DRAWING NOTES:

1. REFER TO E-401 FOR PARTIAL BOILER PLANT ELECTRICAL ONE-LINE DIAGRAM.
2. PROPOSED BRANCH CIRCUIT ROUTING IS SHOWN. EC TO COORDINATE EXACT ROUTING IN THE FIELD. UNLESS OTHERWISE NOTED, CONDUITS SHALL BE DIRECT BURIED WHERE BELOW GRASSY AREAS AND SIDEWALKS, AND CONCRETE ENCASED WHERE BELOW DRIVABLE SURFACE. SEE DUCT BANK DETAILS #2 AND #3 ON SHEET E-501 FOR FURTHER REQUIREMENTS.

CODED NOTES:

1. PROVIDE 3#10 AWG + 1#10 AWG GND IN 1" UNDERGROUND PVC FOR PROPOSED BRANCH CIRCUIT RUN (~250'). CONDUCTORS ADJUSTED FOR VOLTAGE DROP.
2. EMERGENCY PHONE CONNECTION. BASIS OF DESIGN: CODE BLUE CB-1-S (POE) TO BE FED FROM NEAREST CCTV POWER SUPPLY. COORDINATE ELECTRICAL REQUIREMENTS WITH FINAL EQUIPMENT SELECTION. REFER TO E-501 DETAIL #5 FOR FURTHER INFORMATION.
3. FOR CONNECTION TO CCTV OUTDOOR AC POWER SUPPLY. BASIS OF DESIGN: ALTRONIX WAYPOINT307A. COORDINATE EXACT LOCATIONS IN THE FIELD. COORDINATE ELECTRICAL REQUIREMENTS WITH FINAL EQUIPMENT SELECTION. REFER TO E-501 DETAIL #4 FOR FURTHER INFORMATION.
4. PROVIDE 2#8 AWG + 1#8 AWG GND IN 1" UNDERGROUND PVC FOR PROPOSED BRANCH CIRCUIT RUN (~680'). CONDUCTORS ADJUSTED FOR VOLTAGE DROP.
5. PROVIDE 2#8 AWG + 1#8 AWG GND IN 1" UNDERGROUND PVC FOR PROPOSED BRANCH CIRCUIT RUN (~730'). CONDUCTORS ADJUSTED FOR VOLTAGE DROP. PROVIDE (1) 2" CONDUIT WITH (2) 2", 3 CELL INNERDUCTS, BASIS OF DESIGN: MAXCELL EDGE MXED52223.
6. PROVIDE 2#10 AWG + 1#10 AWG GND IN 1" UNDERGROUND PVC FOR PROPOSED BRANCH CIRCUIT RUN (~480'). CONDUCTORS ADJUSTED FOR VOLTAGE DROP. PROVIDE (1) 2" CONDUIT WITH (2) 2", 3 CELL INNERDUCTS, BASIS OF DESIGN: MAXCELL EDGE MXED52223.
7. PROVIDE 2#8 AWG + 1#8 AWG GND IN 1" UNDERGROUND PVC FOR PROPOSED BRANCH CIRCUIT RUN (~560'). CONDUCTORS ADJUSTED FOR VOLTAGE DROP. PROVIDE (1) 2" CONDUIT WITH (2) 2", 3 CELL INNERDUCTS, BASIS OF DESIGN: MAXCELL EDGE MXED52223.
8. PROVIDE 2#8 AWG + 1#8 AWG GND IN 1" UNDERGROUND PVC FOR PROPOSED BRANCH CIRCUIT RUN (~610'). CONDUCTORS ADJUSTED FOR VOLTAGE DROP. PROVIDE (1) 2" CONDUIT WITH (2) 2", 3 CELL INNERDUCTS, BASIS OF DESIGN: MAXCELL EDGE MXED52223.
9. PROVIDE 2#6 AWG + 1#6 AWG GND IN 1" UNDERGROUND PVC FOR PROPOSED BRANCH CIRCUIT RUN (~760'). CONDUCTORS ADJUSTED FOR VOLTAGE DROP. PROVIDE (1) 2" CONDUIT WITH (2) 2", 3 CELL INNERDUCTS, BASIS OF DESIGN: MAXCELL EDGE MXED52223.
10. PROVIDE 2#6 AWG + 1#6 AWG GND IN 1" UNDERGROUND PVC FOR PROPOSED BRANCH CIRCUIT RUN (~1100'). CONDUCTORS ADJUSTED FOR VOLTAGE DROP. PROVIDE (1) 2" CONDUIT WITH (2) 2", 3 CELL INNERDUCTS, BASIS OF DESIGN: MAXCELL EDGE MXED52223.
11. NEW ELECTRICAL HANDHOLE. REFER TO EL101 FOR SIZING AND HANDHOLE INSTALLATION DETAIL #1 ON SHEET E-502.
12. NEW CIP CONCRETE STEAM VAULT. REFER TO MECHANICAL DRAWINGS FOR FURTHER INFORMATION. ALSO REFER TO CIVIL DRAWING #PS501.
13. (2) SUMP PUMPS FOR NEW CONCRETE STEAM VAULT. BASIS OF DESIGN 480V-3Φ, 1/2HP. SEE OUTDOOR DISCONNECT MOUNTING DETAIL ON SHEET E-502, EQUIPMENT CONNECTION SCHEDULE AND DISCONNECT SCHEDULE ON SHEET E-601 FOR DETAILS.
14. GATE OPERATOR - 120V, 1PH, 4A, 0.48KW. PROVIDE 20 AMPERE LOCKABLE MOTOR RATED TOGGLE SWITCH WITH WEATHERPROOF ENCLOSURE MOUNTED TO UNISTRUT SUPPORT ADJACENT TO GATE OPERATOR AND 2#8AWG + 1#8AWG GROUND IN 1 1/4" UNDERGROUND PVC CONDUIT TO NEW DEDICATED 20/1 BRANCH CIRCUIT BREAKER INDICATED. PROVIDE (1) ONE 1" CONDUIT WITH CAT6A CABLE ROUTED TO BUILDING 6 IT ROOM FOR ACCESS CONTROLS. PROVIDE #4 COPPER BARE GROUNDING CONDUCTOR FROM GATE OPERATOR TO NEW 5/8" DIAMETER X 8'-0" COPPER CLAD GROUND ROD, TO BE DRIVEN WITHIN 3'-0" OF GATE OPERATOR. COORDINATE LOCATIONS AND WIRING WITH GATE VENDOR PRIOR TO INSTALLATION.
15. PEDESTAL WITH CARD READER TO CONTROL ENTRANCE GATE OPERATOR. (COMPONENTS FURNISHED BY GATE VENDOR, INSTALLED BY ELECTRICAL CONTRACTOR) PROVIDE (2) TWO 3/4" CONDUITS (ONE FOR POWER AND ONE FOR COMMUNICATIONS) TO GATE OPERATOR.
16. INSTALL VEHICLE INDUCTIVE LOOPS (SHADOW LOOP, INTERRUPT LOOP, EXIT LOOP), SET IN PLACE PRIOR TO CONCRETE / PAVEMENT INSTALLATION. EXTEND HOME RUN CABLE TO GATE OPERATOR (COMPONENTS FURNISHED BY GATE VENDOR, INSTALLED BY ELECTRICAL CONTRACTOR).
17. PROVIDE (1) 2" CONDUIT WITH (2) 2",3-CELL INNERDUCTS, BASIS OF DESIGN IS MAXCELL EDGE MXED52223. PROVIDE DEDICATED 4-STRAND OM4 FIBER CABLE TO EACH SECURITY CAMERA AND EMERGENCY BLUE PHONE TERMINATED IN BUILDING 6 IT ROOM. SEE DETAIL #4 ON SHEET E-501 FOR FURTHER REQUIREMENTS.

Revisions	Date
100% SUBMITTAL - BID DOCUMENTS	06/21/2022

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CONSULTANT

Drawing Title
ELECTRICAL - SECURITY AND POWER PLAN - NEW
Approved:

Project Title
LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES

Location
MANCHESTER VAMC, NH

Issue Date	Checked	Drawn
06/21/2022	JFR	SDL

Project Number
608-20-101
Building Number

Drawing Number
ES101

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

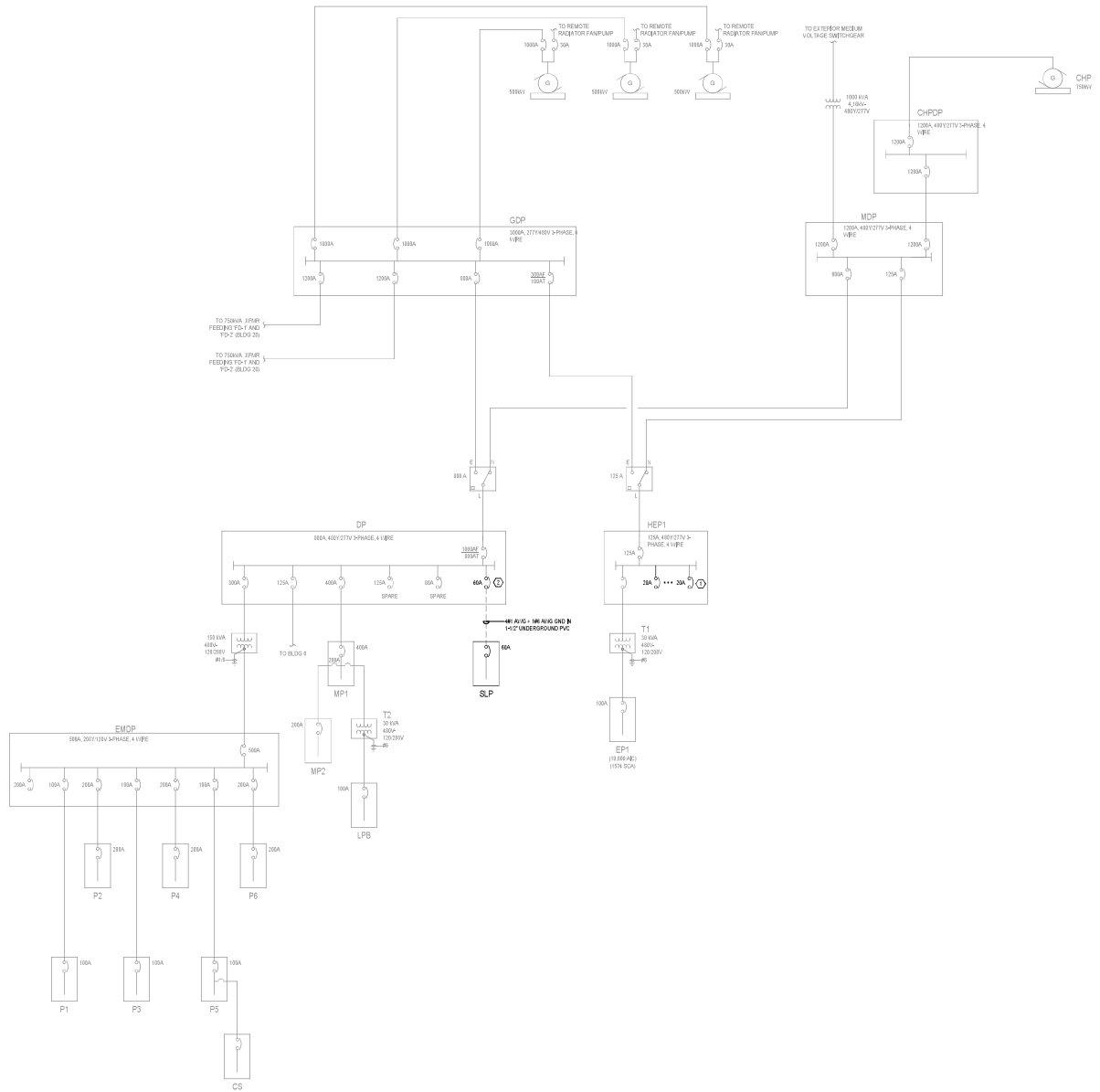
VA FORM 08 - 6231

BIM 360://012002B Loop Road Utility Infrastructure Upgrades Div 21 22 & 23 - R19/012002B Loop Road Utility Upgrades Div 26, 27, & 28 - R19.rvt
6/20/2022 8:26:24 AM

CODED NOTES:

1. EXISTING 480Y/277V PANEL HEP1 LOCATED IN BOILER PLANT (BLDG 7), PANEL IS SQUARE D NF TYPE. PROVIDE NEW 20A-1P E.B BREAKERS IN AVAILABLE SPACES TO FEED NEW SITE LIGHTING, CCTV POWER SUPLIES AND EMERGENCY BLUE PHONES. REFER TO E-401 FOR PANEL SCHEDULE. CONTRACTOR TO PROVIDE METERING OF PANEL FEEDER MAXIMUM DEMAND (MEASURE OF AVERAGE POWER DEMAND OVER A 15-MINUTE PERIOD) CONTINUOUSLY RECORDED OVER A MINIMUM 30 DAY PERIOD IN ACCORDANCE WITH NEC 220.87 (1) EXCEPTION. CONTRACTOR SHALL REPORT FINDINGS TO ENGINEER OF RECORD UPON COMPLETION OF METERING TO CONFIRM PANEL HAS SUFFICIENT CAPACITY FOR THE NEW WORK.

2. EXISTING 480Y/277V DISTRIBUTION PANEL 'DP' LOCATED IN BOILER PLANT (BLDG 7), DISTRIBUTION PANEL IS SQUARE D NF TYPE. PROVIDE NEW 60A-1P BREAKER IN AVAILABLE SPACE TO FEED NEW SITE LIGHTING PANEL 'SLP' (MATCH EXISTING BREAKER TYPE AND AIC RATING, REFER TO E1101 AND E5101 FOR NEW PANEL LOCATION. REFER TO E-401 FOR NEW PANEL SCHEDULE. CONTRACTOR TO PROVIDE METERING OF DISTRIBUTION PANEL FEEDER MAXIMUM DEMAND (MEASURE OF AVERAGE POWER DEMAND OVER A 15-MINUTE PERIOD) CONTINUOUSLY RECORDED OVER A MINIMUM 30 DAY PERIOD IN ACCORDANCE WITH NEC 220.87 (1) EXCEPTION. CONTRACTOR SHALL REPORT FINDINGS TO ENGINEER OF RECORD UPON COMPLETION OF METERING TO CONFIRM PANEL HAS SUFFICIENT CAPACITY FOR THE NEW WORK.



1 PARTIAL BOILER PLANT (BLDG 7) ELECTRICAL ONE-LINE DIAGRAM
N.T.S

Revisions		Date
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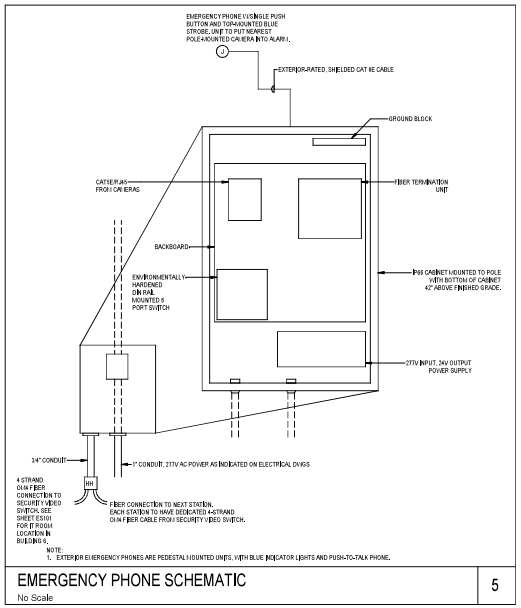
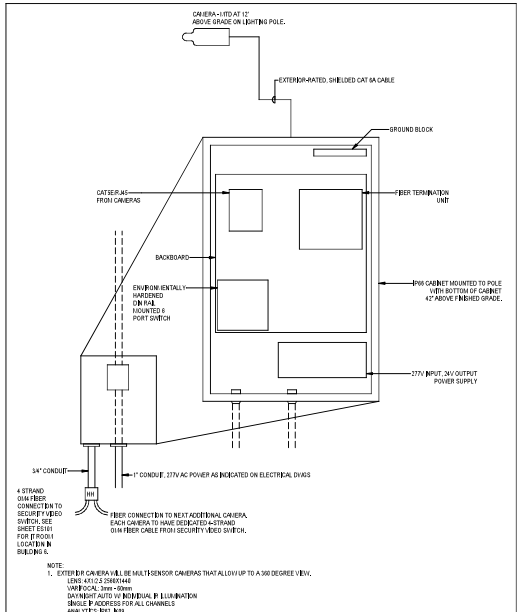
Drawing Title: PARTIAL BOILER PLANT (BLDG 7) ELECTRICAL ONE-LINE DIAGRAM	Project Title: LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES	Project Number: 608-20-101	Office of Construction and Facilities Management
Approved:	Location: MANCHESTER VAMC, NH	Building Number:	
	Issue Date: 06/21/2022 / Checked: JFR / Drawn: SDL	Drawing Number: E-401	VA U.S. Department of Veterans Affairs

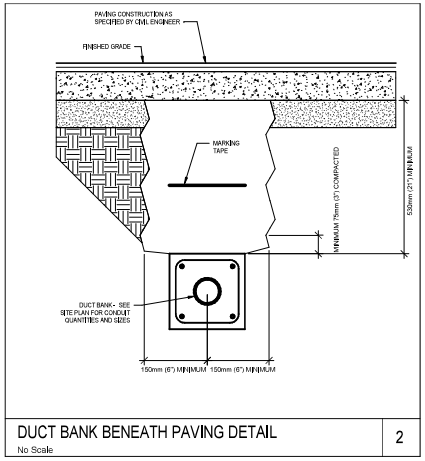
VA FORM 08 - 6231



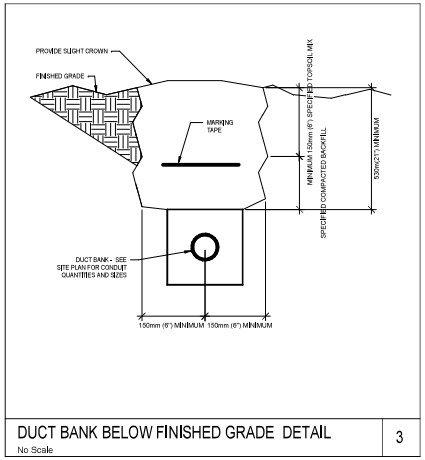
EMERGENCY PHONE SCHEMATIC — No Scale — 5



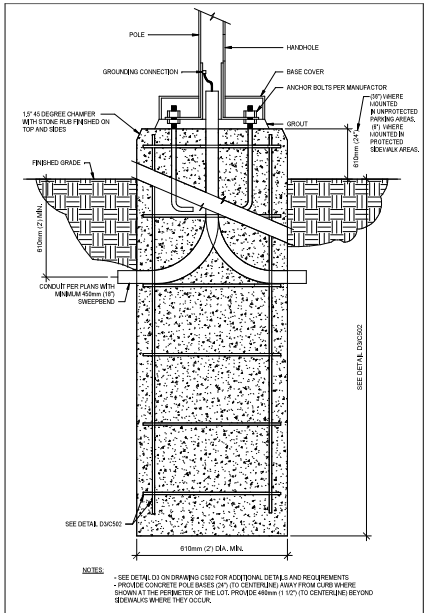
CAMERA CONNECTION SCHEMATIC — No Scale — 4



DUCT BANK BENEATH PAVING DETAIL — No Scale — 2



DUCT BANK BELOW FINISHED GRADE DETAIL — No Scale — 3



SITE LIGHTING ELEVATED POLE BASE DETAIL — No Scale — 1

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Drawing Title: ELECTRICAL DETAILS

Approved:

Project Title: LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES

Location: MANCHESTER VAMC, NH

Issue Date: 06/21/2022 | Checked: JFR | Drawn: SDL

Project Number: 608-20-101

Building Number:

Drawing Number: E-501

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

VA FORM 08 - 6231

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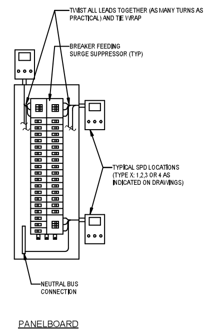
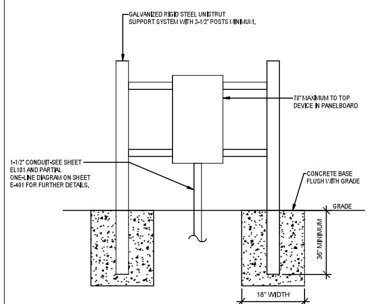
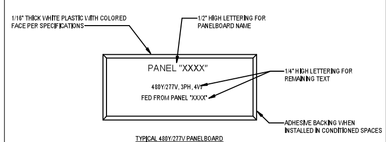


NOTE: MOUNT SPD DEVICE IN A LOCATION TO MAINTAIN ALL LEADS AS SHORT AS POSSIBLE. (18" MAX.)

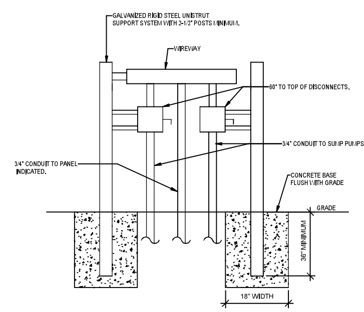
TYPICAL SPD MOUNTING DETAIL 4
No Scale



OUTDOOR PANELBOARD MOUNTING DETAIL 2
No Scale



PANELBOARD NAMEPLATE 5
No Scale



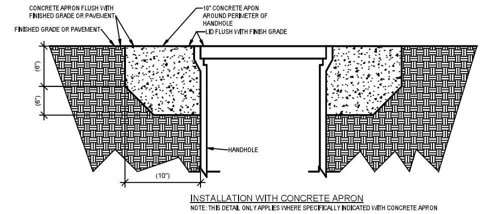
OUTDOOR DISCONNECT MOUNTING DETAIL 3
No Scale

IDENTIFICATION OF GROUNDED CONUCTORS SHALL BE PERFORMED BASED ON NEC ARTICLE 200.

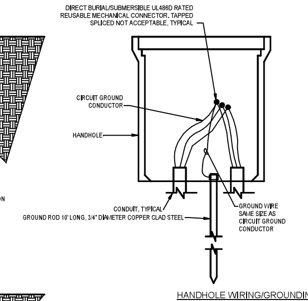
VOLTAGE 208Y/120V	
PHASE A	BLACK
PHASE B	RED
PHASE C	BLUE
NEUTRAL	WHITE
GROUND	GREEN

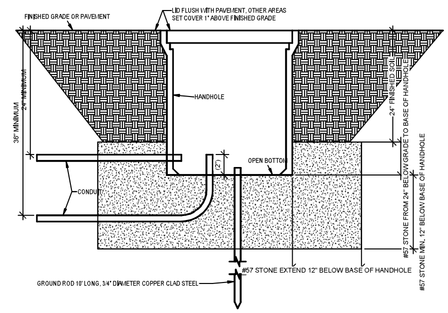
VOLTAGE 480Y/277V	
PHASE A	BROWN
PHASE B	ORANGE
PHASE C	YELLOW
NEUTRAL	GREY
GROUND	GREEN

WIRE COLOR TABLE 6
No Scale



INSTALLATION WITH CONCRETE APRON
NOTE: THIS DETAIL ONLY APPLIES WHERE SPECIFICALLY INDICATED WITH CONCRETE APRON

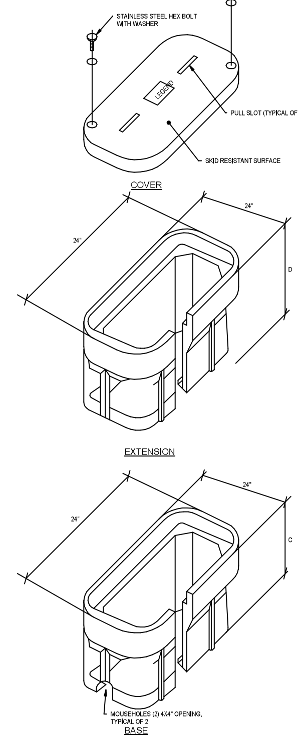




INSTALLATION

NOTE: (APPLICABLE TO HANDHOLE DETAIL ONLY)

1. BASIS OF DESIGN: QUAZITE PG STYLE OR APPROVED EQUAL
2. FIELD-CUT OPENING FOR SIDE-ENTRY CONDUITS ACCORDING TO ENCLOSURE MANUFACTURER'S WRITTEN INSTRUCTIONS. SIDE ENTRY CONDUITS ONLY ALLOWED IF CONDUIT IS MINIMUM 36" BELOW GRADE.
3. MODIFY AS REQUIRED FOR RACEWAY LAYOUTS.
4. COORDINATE DEPTH OF HANDHOLES WITH CNDITIONS IN FIELD. PROVIDE BOX EXTENSION AS REQUIRED TO MATCH DEPTHS OF DUCTS.
5. PROVIDE GROUND ROD IN EACH HANDHOLE CONTAINING GROUND CONDUITS.
6. COLOR OF ENCLOSURE, BOX AND COVER:
   LIGHT GREEN FOR APPLICATIONS IN GRASS
   LIGHT GREY FOR APPLICATIONS IN CONCRETE
   DARK GREY FOR APPLICATIONS IN MACADAM
   RED FOR APPLICATIONS IN RED BRICK PAVERS
   COORDINATE WITH ARCHITECT FOR OTHER APPLICATIONS
7. COVER LEGEND: MOLDED LETTERING AS INDICATED FOR EACH SERVICE:
   "ELECTRIC"
   "TELEPHONE"
   "COMMUNICATION"
   "SECURITY"
   "GROUND"
   "CATV"
8. MINIMUM ANSI SCTE TIER RATING, INSTALLATION IN:
   LAWN AND SIDEWALKS: 8
   PARKING LOT/DRIVEWAYS: 15
   LOADING DOCKS: 22
   AREAS SUBJECT TO HEAVY VEHICULAR TRAFFIC: 22



HANDHOLE INSTALLATION 1
No Scale

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CONSULTANT

Drawing Title: ELECTRICAL DETAILS
Approved:
Project Title: LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES
Location: MANCHESTER VAMC, NH
Issue Date: 06/21/2022 | Checked: JFR | Drawn: SDL
Project Number: 608-20-101
Building Number:
Drawing Number: E-502

Office of Construction and Facilities Management
VA U.S. Department of Veterans Affairs

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BIM 360://01202026 Loop Road Utility Infrastructure Upgrades Div 21 22 & 23 - R19/01202026 Loop Road Utility Upgrades Div 26, 27, & 28 - R19.rvt 6/20/2022 8:28:16 AM

EQUIPMENT CONNECTION SCHEDULE

TAG	IDENTIFICATION	HP	FLA / MCA	VOLT / PH / LOAD (kVA)	CB AMPS	PANEL	CKT #	FEEDER SIZE
SP-1	STEAM VAULT SUMP PUMP	1/2	1.1	480 V/3-0.9 kVA	20	SLP	8,10,12	3#10 AWG + 1#10 AWG GND IN 3/4"C
SP-2	STEAM VAULT SUMP PUMP	1/2	1.1	480 V/3-0.9 kVA	20	SLP	8,10,12	3#10 AWG + 1#10 AWG GND IN 3/4"C

DISCONNECT SCHEDULE

EQUIPMENT NAME	TYPE OF EQUIPMENT	VOLTAGE RATING	ENCLOSURE RATING	DISC. AMP/POLE	FUSE/BREAKER SIZE	STARTER SIZE	DISCONNECT NOTES
DS-SP-1	NON-FUSIBLE DISCONNECT	480V-3Φ	NEMA 4X	30A-3P	N/A	N/A	
DS-SP-2	NON-FUSIBLE DISCONNECT	480V-3Φ	NEMA 4X	30A-3P	N/A	N/A	

LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER	MODEL	VOLTAGE	VA	LAMP TYPE	FIXTURE LUMENS	FIXTURE COLOR TEMP (K)	COMMENTS
F1	EXTERIOR FLOOD FIXTURE WITH BLACK FINISH, TRUNNION MOUNT AND INTEGRAL PHOTOCONTROLS.	LSI INDUSTRIES INC	TLFL-LED-8L-UNV-DIM-40-BLK-TR-PC208-277	277 V	79 VA	LED	8000	4000K	TRUNNION MOUNTING
SLA	LED SITE LIGHTING FIXTURE WITH INTEGRAL PHOTO CELL, BLACK FINISH WITH HOUSESIDE SHIELD, AND WIRELESS MESH OUTDOOR CONTROL MODULE. TYPE 2 DISTRIBUTION TYPE.	LUMARK	NAV-SA2-B-740-U-SL2-BK-PR7/WOLC-7P-10A	277 V	85 VA	LED	11500	4000K	22'-0" CLEAR ANNODIZED ROUND ALUMINUM POLE WITH HANDHOLE/PULLBOX AND CONCRETE BASE TO 3' AFG. MOUNT FIXTURE AT 25' AFG.
SLB	LED SITE LIGHTING FIXTURE WITH INTEGRAL PHOTO CELL, BLACK FINISH, AND WIRELESS MESH OUTDOOR CONTROL MODULE. TYPE 5 WIDE SQUARE DISTRIBUTION TYPE.	LUMARK	NAV-SA2-B-740-U-5WQ-BK	277 V	85 VA	LED	12200	4000K	22'-0" CLEAR ANNODIZED ROUND ALUMINUM POLE WITH HANDHOLE/PULLBOX AND CONCRETE BASE TO 3' AFG. MOUNT FIXTURE AT 25' AFG.

LIGHT FIXTURE SCHEDULE NOTES

1. CONTRACTOR MAY SUBMIT LIGHT FIXTURES OF EQUAL OR BETTER PERFORMANCE FROM ALTERNATE VENDORS FOR REVIEW.
2. PROVIDE ALL REQUIRED HARDWARE TO MOUNT FIXTURES PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
3. IF THERE IS A DISCREPANCY BETWEEN A FIXTURE DESCRIPTION AND THE CATALOG NUMBER LISTED, THE FIXTURE DESCRIPTION SHALL DICTATE.
4. PROVIDE WIRELESS CONTROLS WHERE LIGHTS TURN ON TO 100% OUTPUT AT DUSK, DIM TO 30% OUTPUT AT MIDNIGHT AND TURN OFF AT DAWN. SEE DRAWING EL101 FOR WIRELESS AREA CONTROLLER REQUIREMENTS.

EX. PANEL: CS

Location: BUILDING 7 - BOILER PLANT
Supply From: MDP
Mounting: Surface
Enclosure: Type 1

Volts: 120/208 Wye
Phases: 3
Wires: 4

A.I.C. Rating: 10,000
Mains Type: MCB
Mains Rating: 100 A
Neutral Rating: 100.00%

GENERAL NOTES:
EXISTING SQUARE D NQ SERIES PANELBOARD.

CKT	Circuit Description	Note	Trip	Pole	A	B	C	Pole	Trip	Note	Circuit Description	CKT
1					0.00 / 0.00			2	20 A		EXISTING PARKING LOT LIGHTING	2
3	EXISTING MAIN CIRCUIT BREAKER		100 A	3		0.00 / 0.00						4
5							0.30 / 0.30	2	20 A		EXISTING PARKING LOT LIGHTING	6
7	EXISTING PARKING LOT LIGHTING		20 A	2	0.30 / 0.30							8
9						0.30 / 0.50		1	20 A		EXISTING TIME CLOCK	10
11	EXISTING PARKING LOT LIGHTING		20 A	2			0.30 / 0.54	1	20 A		EXISTING LOCK SHOP	12
13					0.30 / 0.00			1	20 A		EXISTING LOCK SHOP	14
15	EXISTING PARKING LOT LIGHTING		20 A	2		0.30 / 0.54		1	20 A		EXISTING BREAK ROOM	16
17							0.00 / 0.50	1	20 A		EXISTING EXISTING	18
19	EXISTING WALL PACK LIGHTING		20 A	1	0.50 / 1.00			2	20 A		EXISTING CONFERENCE ROOM A/C	20
21	EXISTING BREAK ROOM		20 A	1		0.54 / 1.00						22
23	EXISTING SPARE		20 A	1			0.00 / 0.30	2	20 A		EXISTING PARKING LOT LIGHTING	24
25					0.00 / 0.30							26
27	EXISTING SPARE		20 A	3		0.00 / 0.50		2	20 A		EXISTING HEAT	28
29							0.00 / 0.50					30
31					0.00 / 0.72			1	20 A		EXISTING CONVENIENCE POWER AT POLES	32
33	EXISTING SPARE		20 A	3		0.00 / 0.48		1	20 A	1	**GATE OPERATOR**	34
35							0.00 / 0.48	1	20 A	1	**GATE OPERATOR**	36
37	EXISTING BREAK ROOM		20 A	1	0.54 / 0.48			1	20 A	1	**GATE OPERATOR**	38
39	EXISTING SPARE		20 A	1		0.00 / 0.48		1	20 A	1	**GATE OPERATOR**	40
41	EXISTING SPARE		20 A	1			0.00 / 0.48	1	20 A	1	**GATE OPERATOR**	42
				Total Load:	4.4 kVA	4.6 kVA	3.7 kVA					
				Total Amps:	38 A	40 A	31 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Other	2.4 kVA	100.00%	2.4 kVA		
Spare	10.4 kVA	100.00%	10.4 kVA	Total Conn. Load:	12.8 kVA
				Total Est. Demand:	12.78 kVA
				Total Conn. Current:	35 A
				Total Est. Demand Current:	35 A

PANEL NOTES:
1. PROVIDE NEW 20A-1P CIRCUIT BREAKER IN EXISTING SPACE.

NEW PANEL: SLP

Location: EXTERIOR
Supply From: EXISTING PANEL (DP)
Mounting: Surface
Enclosure: Type 4X

Volts: 480/277 Wye
Phases: 3
Wires: 4

A.I.C. Rating: 14,000
Mains Type: MCB
Mains Rating: 60 A
Neutral Rating: 100.00%

GENERAL NOTES:
PROVIDE NEMA 4X ENCLOSURE FOR PANELBOARD.

CKT	Circuit Description	Note	Trip	Pole	A	B	C	Pole	Trip	Note	Circuit Description	CKT
1	NEW SITE LTG		20 A	1	1.52 / 0.96			1	20 A		NEW SITE CCTV/BLUE PHONES	2
3	NEW SITE LTG		20 A	1		1.45 / 1.92		1	20 A		NEW SITE CCTV/BLUE PHONES	4
5	NEW SITE LTG		20 A	1			1.11 / 0.48	1	20 A		NEW SITE CCTV/BLUE PHONES	6
7	SPARE		20 A	1	0.00 / 0.61							8
9	SPARE		20 A	1		0.00 / 0.61		3	20 A		(2) STEAM VAULT SUMP PUMPS	10
11	SPARE		20 A	1			0.00 / 0.61					12
13	SPARE		20 A	1	0.00 / 0.00			1	20 A		SPARE	14
15	SPARE		20 A	1		0.00 / 0.00		1	20 A		SPARE	16
17	SPARE		20 A	1			0.00 / 0.00	1	20 A		SPARE	18
19	SPARE		20 A	1	0.00 / 0.00			1	20 A		SPARE	20
21	SPARE		20 A	1		0.00 / 0.00		1	20 A		SPARE	22
23	SPARE		20 A	1			0.00 / 0.00	1	20 A		SPARE	24
25	SPARE		20 A	1	0.00 / 0.00							26
27	SPARE		20 A	1		0.00 / 0.00		3	30 A		SPD	28
29	SPARE		20 A	1			0.00 / 0.00					30
				Total Load:	3.1 kVA	3.9 kVA	2.2 kVA					
				Total Amps:	12 A	15 A	8 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Lighting - Exterior	4.0 kVA	100.00%	4.0 kVA		
Motor	1.8 kVA	112.50%	2.0 kVA	Total Conn. Load:	9.1 kVA
Other	0.1 kVA	100.00%	0.1 kVA	Total Est. Demand:	9.37 kVA
Power	3.4 kVA	100.00%	3.4 kVA	Total Conn. Current:	11 A
				Total Est. Demand Current:	11 A

PANEL NOTES:

EX. PANEL: HEP1

Location: BUILDING 7 - BOILER PLANT
Supply From: DP
Mounting: Surface
Enclosure: Type 1

Volts: 480/277 Wye
Phases: 3
Wires: 4

A.I.C. Rating: 65,000
Mains Type: MCB
Mains Rating: 125 A
Neutral Rating: 100.00%

GENERAL NOTES:
EXISTING SQUARE D NF PANEL. PROVIDE NEW 20A EJB BREAKERS FOR ALL NEW BRANCH CIRCUITS SHOWN IN PANEL SCHEDULE.

CKT	Circuit Description	Note	Trip	Pole	A	B	C	Pole	Trip	Note	Circuit Description	CKT
1	EXISTING		20 A	1	0.00 / 0.00							2
3	EXISTING		20 A	1		0.00 / 0.00		3	20 A		EXISTING	4
5	EXISTING		20 A	1			0.00 / 0.00					6
7					0.00 / 0.00							8
9	EXISTING		20 A	3		0.00 / 0.00		3	20 A		EXISTING	10
11							0.00 / 0.00					12
13					0.00 / 0.00							14
15	EXISTING		20 A	3		0.00 / 0.00		3	20 A		EXISTING	16
17							0.00 / 0.00					18
19					0.00 / 0.00							20
21	EXISTING		20 A	3		0.00 / 0.00		3	80 A		EXISTING EP1 VIA XFMR	22
23							0.00 / 0.00					24
25	EXISTING		20 A	1	0.00 / 0.00							26
27	EXISTING		20 A	1		0.00 / 0.00		3	60 A		EXISTING	28
29	**NEW SITE LTG**	1	20 A	1			1.35 / 0.00					30
31	**NEW SITE LTG**	1	20 A	1	0.94 / 1.44			1	20 A	1	**NEW SITE CCTV/BLUE PHONES**	32
33	**NEW SITE LTG**	1	20 A	1		1.45 / 1.44		1	20 A	1	**NEW SITE CCTV/BLUE PHONES**	34
35	**NEW SITE LTG**	1	20 A	1			0.85 / 0.96	1	20 A	1	**NEW SITE CCTV/BLUE PHONES**	36
37	SPACE	–	–	–	0.00 / 1.44			1	20 A	1	**NEW SITE CCTV/BLUE PHONES**	38
39	SPACE	–	–	–		0.00 / 0.00		–	–	–	SPACE	40
41	SPACE	–	–	–			0.00 / 0.00	–	–	–	SPACE	42
				Total Load:	3.8 kVA	2.8 kVA	3.1 kVA					
				Total Amps:	14 A	10 A	11 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Lighting - Exterior	4.5 kVA	100.00%	4.5 kVA		
Other	0.1 kVA	100.00%	0.1 kVA	Total Conn. Load:	9.7 kVA
Power	5.3 kVA	100.00%	5.3 kVA	Total Est. Demand:	9.74 kVA
				Total Conn. Current:	12 A
				Total Est. Demand Current:	12 A

PANEL NOTES:
1. PROVIDE NEW 20A-1P CIRCUIT BREAKERS IN EXISTING SPACE.

Revisions	Date
100% SUBMITTAL - BID DOCUMENTS	06/21/2022

ARCHITECT/ENGINEER OF RECORD

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CONSULTANT

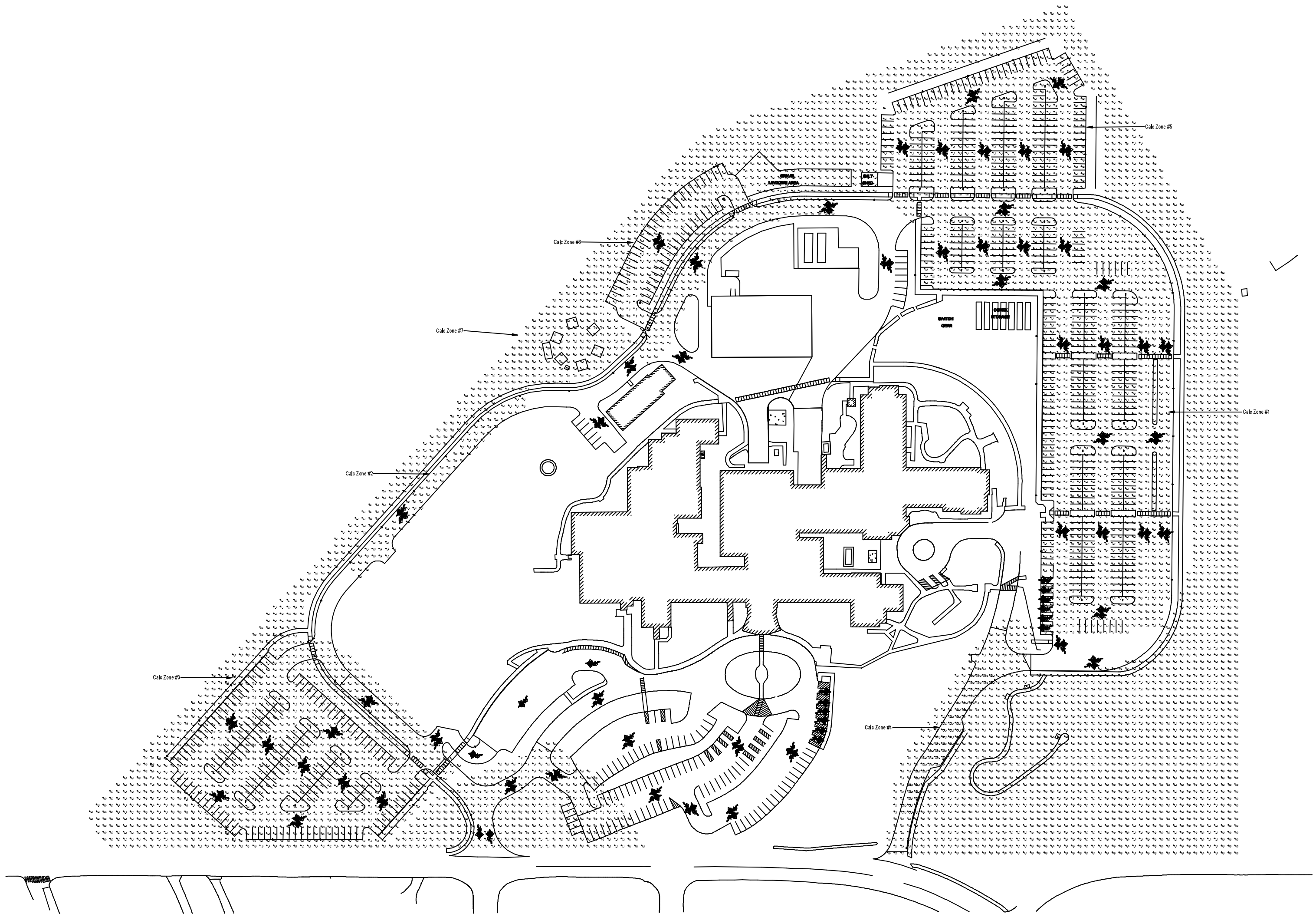
Drawing Title: ELECTRICAL SCHEDULES
Approved:
Project Title: LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES
Location: MANCHESTER VAMC, NH
Issue Date: 06/21/2022
Checked: JFR
Drawn: SDL
Project Number: 608-20-101
Building Number:
Drawing Number: E-601

Office of Construction and Facilities Management
VA U.S. Department of Veterans Affairs

VA FORM 08 - 6231

BIM 360://01200026 Loop Road Utility Infrastructure Upgrades Div 21 22 & 23 - R19/01200026 Loop Road Utility Upgrades Div 26, 27, & 28 - R19.rvt
6/20/2022 8:28:16 AM

three inch = one foot
one and one half inch = one foot
one inch = one foot
three quarters inch = one foot
one half inch = one foot
three eighths inch = one foot
one quarter inch = one foot
one eighth inch = one foot



Statistics						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Calc Zone #1	+	1.6 fc	3.8 fc	0.2 fc	19.0:1	8.0:1
Calc Zone #2	+	2.6 fc	4.4 fc	1.3 fc	3.4:1	2.0:1
Calc Zone #3	+	2.0 fc	5.0 fc	0.5 fc	10.0:1	4.0:1
Calc Zone #4	+	2.4 fc	3.9 fc	1.1 fc	3.5:1	2.2:1
Calc Zone #5	+	2.1 fc	4.9 fc	0.7 fc	7.0:1	3.0:1
Calc Zone #6	+	2.2 fc	4.5 fc	0.8 fc	5.6:1	2.8:1
Calc Zone #7	+	0.4 fc	4.6 fc	0.0 fc	N/A	N/A

1 SITE PLAN LIGHTING CALCS
N.T.S.

Revisions		Date
	100% SUBMITTAL - BID DOCUMENTS	06/21/2022

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CONSULTANT

Drawing Title
SITE PLAN LIGHTING CALCS

Approved:

Project Title
LOOP ROAD AND UTILITY INFRASTRUCTURE UPGRADES

Location
MANCHESTER VAMC, NH

Issue Date	Checked	Drawn
06/21/2022	JFR	SDL

Project Number
608-20-101

Building Number

Drawing Number
EC101

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

VA FORM 08-6231

6/20/2022 8:28:18 AM