ZONING DATA

DISTRICT: HIGHWAY COMMERCE (CH)
EXISTING USE: MINI-STORAGE WAREHOUSE FACILITY (UNDER CONSTRUCTION)
PROPOSED USE: MIXED USE (RETAIL/OFFICE) RESIDENTIAL

	REQUIRED	PROVIDED
LOT AREA	30,000 S.F.	378,381 S.F.
LOT FRONTAGE	150 FT	242.38 FT
LOT WIDTH	–	–

	REQUIRED	PROPOSED
FRONT YARD	30 FT	121.3 FT
SIDE YARD	10 FT	11.0 FT
REAR YARD	30 FT	298.7 FT
HEIGHT	35 FT DWELLINGS 5 STORIES OTHERWISE	37.75 FT

	REQUIRED	PROPOSED
MAX LOT COVERAGE	(–%)	60,210 S.F. (15.9%)***
IMPERVIOUS COVERAGE		147,365 S.F. (38.9%)***

*** LOT COVERAGE AND IMPERVIOUS COVERAGE INCLUDE PHASE 1 STORAGE FACILITY AND PROPOSED STORAGE FACILITY.

TOWN OF ASHLAND PLANNING BOARD

SIGNATURES

APPROVAL DATE

ENDORSEMENT DATE

RECORD OWNER:
ASSESSOR MAP 19 LOT 67

81 WEST UNION STREET LLC
70 BARTZAK DR.
HOLLISTON, MA 01746
DEED BOOK 64487 PAGE 299
PORTION OF LOT B
BOOK 7348 PAGE 139

SHEET INDEX

PLAN REFERENCES:
1. 1892 COUNTY LAYOUT OF UNION STREET
2. PLAN No. 1411 OF 1948
3. PLAN No. 1019 OF 1963
4. PLAN No. 1078 OF 1975
5. PLAN No. 286 OF 1993

REVISIONS	
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4/23/20	REMOVE BUILDING 1
5/26/20	PLANNING BOARD AND DESIGN REVIEW COMMENTS
5/26/20	ADD TANDEM SPACES (3) AND REVISE TREE DETAIL
6/10/20	PEER REVIEW COMMENTS

PARKING SUMMARY
PROPOSED PARKING LOT DESIGN PROVIDES FOR:
(73) STANDARD PARKING SPACES: 10'–0" x 20'–0"
(4) HANDICAP SPACES: 10'–0" x 20'–0"

PROPOSED PARKING:	REQUIRED
RETAIL/OFFICE: 1 SPACE PER 180 S.F. LEASABLE FLOOR SPACE	
RESIDENTIAL UNITS: 2 SPACES PER UNIT	
GENERAL SERVICE: 1 SPACE PER 1.3 EMPLOYEES	
MIXED USE	
5 RESIDENTIAL UNITS	= 10 SPACES
5,899 SF RETAIL/OFFICE	= 33 SPACES
GENERAL SERVICE 40 EMPLOYEES	= 31 SPACES
TOTALS	74 REQUIRED SPACES 77 SPACES PROVIDED

PHASE 2 SITE PLAN

#81 WEST UNION STREET
ASHLAND, MASSACHUSETTS

PREPARED FOR:
81 WEST UNION STREET LLC
C/O WILLIAM J. RODENHISER
70 BARTZAK DRIVE
HOLLISTON, MA 01746

JUNE 13, 2019
SCALE: 1"=40'
JOB No. 18-284

GRADY CONSULTING, L.L.C.
Civil Engineers and Land Surveyors
71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585-2300 Fax (781) 585-2378

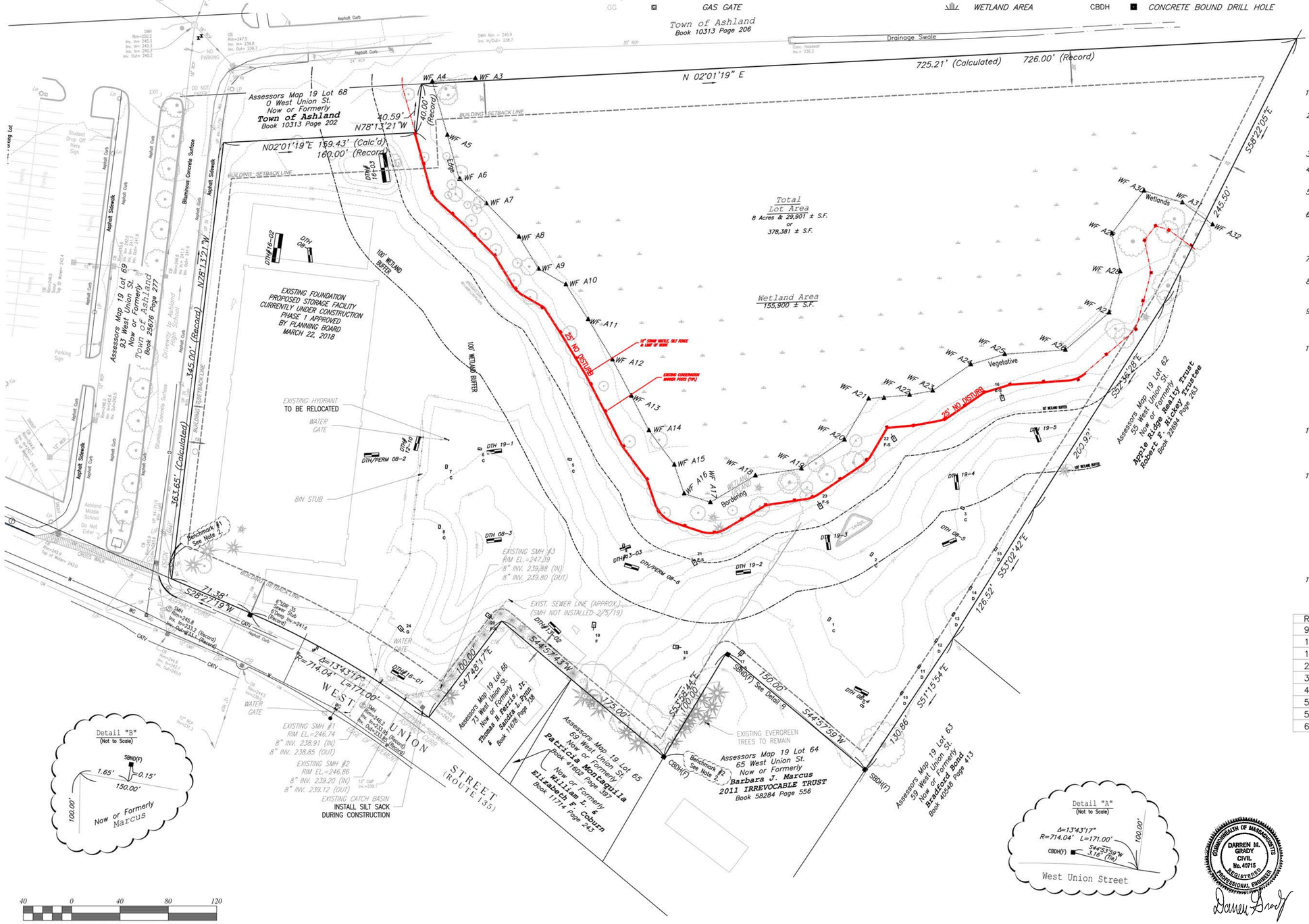
COMMONWEALTH OF MASSACHUSETTS
DARREN M. GRADY
CIVIL
No. 40715
REGISTERED PROFESSIONAL ENGINEER

Legend

Symbols and Abbreviations Shown on This Plan

132	EXISTING CONTOUR	OW	OVERHEAD WIRES	WG	WATER GATE	CMP	CORRUGATED METAL PIPE
CATV	UNDERGROUND CABLE & TELEVISION		STONE WALL	LP	LIGHT POLE	RCP	REINFORCED CONCRETE PIPE
G	UNDERGROUND GAS LINE	UP	UTILITY POLE		SIGN	WF 22	WETLAND FLAG WITH NUMBER
W	UNDERGROUND WATER LINE	CB	CATCH BASIN	Hyd.	HYDRANT	(F)	FOUND
E	UNDERGROUND ELECTRIC LINE	DMH	DRAIN MANHOLE	+139.7	SPOT GRADE	CTR. BK.	CENTER BACK
D	UNDERGROUND DRAIN LINE	SMH	SEWER MANHOLE	RET.	RETAINING	SBND	STONE BOUND NO DRILL HOLE
S	UNDERGROUND SEWER LINE	DTH/PERM	DEEP TEST HOLE WITH PERMEABILITY TEST	GC	GRANITE CURB	SBDH	STONE BOUND DRILL HOLE
		GG	GAS GATE		WETLAND AREA	CBDH	CONCRETE BOUND DRILL HOLE

Mass. State Plane Grid North



Notes

1.) RECORD OWNER IS 81 WEST UNION STREET, LLC SEE DEED BOOK 64487 PAGE 299.

2.) ELEVATIONS REFER TO NGVD OF 1929. BENCHMARK #1 : CHISELED SQUARE ON LIGHT POLE BASE. ELEVATION = 247.16. BENCHMARK #2 : TOP OF CBDH(F). ELEVATION = 259.00.

3.) SEE ASHLAND ASSESSORS MAP 19, PARCEL 67.

4.) PARCEL FALLS WITHIN THE HIGHWAY COMMERCE (HC) ZONING DISTRICT.

5.) PARCEL FALLS IN ZONE X AS SHOWN ON FIRM COMMUNITY PANEL 25017C 0513F DATED JULY 7, 2014.

6.) THE CERTIFICATIONS SHOWN HEREON ARE INTENDED TO MEETS REGISTRY OF DEEDS REQUIREMENTS AND ARE NOT A CERTIFICATION TO TITLE OR OWNERSHIP OF THE PROPERTY DEPICTED HEREON. OWNERS OF ADJOINING PROPERTIES ARE ACCORDING TO CURRENT ASSESSORS RECORDS.

7.) SEE MIDDLESEX SOUTH DISTRICT REGISTRY OF DEEDS FOR RECORD DOCUMENTS.

8.) PROPERTY LINE INFORMATION WAS COMPILED FROM VIRGINIA'S GREEN SITE PLAN DATED NOVEMBER 2008 BY SCHOFIELD BROTHERS OF NEW ENGLAND, INC.

9.) SITE IS CURRENTLY UNDER CONSTRUCTION. TOPOGRAPHIC FEATURES SHOWN WERE COMPILED FROM A FIELD SURVEY BY SCHOFIELD BROTHERS OF NEW ENGLAND ON OR BETWEEN FEBRUARY 19 & 26, 2008.

10.) WETLANDS WERE DELINEATED AND FIELD LOCATED BY SCHOFIELD BROTHERS OF NEW ENGLAND IN FEBRUARY 2008 AND APPROVED BY ASHLAND CONSERVATION COMMISSION ORDER OF RESOURCE AREA DELINEATION DATED JUNE 23, 2008. ORDER OF RESOURCE DELINEATION EXTENDED 6/23/2018 BY EXTENSION ISSUED BY THE ASHLAND CONSERVATION COMMISSION DATED 6/22/2015, SAID BEING EXTENSION RECORDED IN THE MIDDLESEX REGISTRY OF DEEDS IN BOOK 66705, PAGE 156. AN ORDER OF CONDITIONS WAS ISSUED FOR PHASE 1 ON JANUARY 12, 2017, AND AN AMENDMENT WAS ISSUED ON FEBRUARY 26, 2018.

11.) THIS TOPOGRAPHIC SURVEY WAS PREPARED TO MEET NATIONAL MAP ACCURACY STANDARDS AT A SCALE OF 1"=40' HORIZONTALLY AND A 1 FOOT CONTOUR INTERVAL VERTICALLY. ANY REPRODUCTIONS OR RESCALING MAY EFFECT THE MAP ACCURACY.

12.) LOCATION OF UNDERGROUND UTILITIES SHOWN HEREON ARE BASED ON FIELD LOCATION OF VISIBLE STRUCTURES SUCH AS CATCH BASINS, MANHOLES, WATER GATES, ETC., AND COMPILING INFORMATION FROM PLANS SUPPLIED BY VARIOUS UTILITY COMPANIES AND GOVERNMENT AGENCIES AND MEET ASCE QUALITY LEVEL C PER CI/ASCE #38-02. THE LOCATION SHOWN SHALL BE CONSIDERED APPROXIMATE. BEFORE CONSTRUCTION, THE LOCATION OF UNDERGROUND UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR. IN ACCORDANCE WITH CH. 82, SEC. 40 AS AMENDED, ALL UTILITY COMPANIES AND APPLICABLE GOVERNMENT AGENCIES MUST BE CONTACTED. CONTACT "DIG-SAFE" AT 1-888-344-7233.

13.) LEGAL STATUS OF EASEMENTS, WAYS, AND RESTRICTIONS NOT DETERMINED BY THIS SURVEY.

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PHASE 2 SITE PLAN

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ASHLAND, MASSACHUSETTS

PREPARED FOR:
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(EXISTING CONDITIONS) SHEET 2 OF 11

SOIL LOGS
(NOT TO SCALE)

DEEP TEST HOLE#08-8 (September 2008)

Depth	Soil Horizon	Soil Texture	Soil Color
0"-12"	A	Sandy Loam	10YR3/3
12"-27"	Bw	Sandy Loam	10YR5/8
27"-50"	C1	Fine Sandy Loam	5Y5/2
50"-126"	C2	Sand (medium)	10YR5/2
Mottling 42"	Weeping 80"	Standing 90"	Refusal None
E.S.H.G.W. = 42"		EL.=238.8±	NGVD Datum

DEEP TEST HOLE#12-09 (May 2012)

Depth	Soil Horizon	Soil Texture	Soil Color
0"-12"	A	Loam	10YR3/3
6"-168"	C	Loamy Sand	2.5Y5/3
Mottling None	Weeping None	Standing None	Refusal None
E.S.H.G.W. > 168"		EL.=237.5±	NGVD Datum

DEEP TEST HOLE#12-10 (May 2012)

Depth	Soil Horizon	Soil Texture	Soil Color
0"-6"	A	Loam	10YR3/3
6"-42"	B	Sandy Loam	10YR4/6
42"-186"	C	Fine Sandy Loam	2.5Y5/3
Mottling None	Weeping None	Standing None	Refusal None
E.S.H.G.W. = > 186"		EL.=235.6±	NGVD Datum

DEEP TEST HOLE#13-05 (January 2014)

Depth	Soil Horizon	Soil Texture	Soil Color
0"-17"	A	Loam	10YR3/6
17"-38"	B	Sandy Loam	10YR5/6
38"-132"	C	Sand	2.5Y5/3
Mottling None	Weeping None	Standing None	Refusal None
E.S.H.G.W. > 132"		EL.=238.4±	NGVD Datum

DEEP TEST HOLE#13-01 (January 2014)

Depth	Soil Horizon	Soil Texture	Soil Color
0"-8"	A	Loam	10YR2/2
8"-24"	B	Sandy Loam	10YR4/6
24"-54"	C1	Sandy Loam	5Y5/3
54"-102"	C2	Sand (medium)	2.5Y5/4
Mottling None	Weeping None	Standing 78"	Refusal None
E.S.H.G.W. = 78"		EL.=237.8±	NGVD Datum

MONITORING WELL #12-09 READINGS
BOTTOM DEPTH = 13.8' (EL.=237.7± NGVD)

Date	Water Depth	Elevation	Datum
May 2012	>13.8'	<237.7±	NGVD
January 2014	>13.8'	<237.7±	NGVD

MONITORING WELL #13-01 READINGS
BOTTOM DEPTH = 8.5' (EL.=235.8± NGVD)

Date	Water Depth	Elevation	Datum
January 2014	6.5'	237.8±	NGVD

MONITORING WELL #13-03 READINGS
BOTTOM DEPTH = 8.5' (EL.=235.8± NGVD)

Date	Water Depth	Elevation	Datum
January 2014	8.5'	237.2±	NGVD

MONITORING WELL #13-05 READINGS
BOTTOM DEPTH = 11.0' (EL.=238.4± NGVD)

Date	Water Depth	Elevation	Datum
January 2014	>11'	238.4±	NGVD

DEEP TEST HOLE#16-01 (NOVEMBER 2016)

Depth	Soil Horizon	Soil Texture	Soil Color
0"-12"	A	Sandy Loam	10YR3/2
12"-32"	Bw	Sandy Loam	10YR5/6
32"-72"	C1	Sand	2.5Y6/3
72"-120"	C2	Gravelly Loamy Sand	2.5Y5/4
Mottling NONE	Weeping NONE	Standing NONE	Refusal None
E.S.H.G.W. >10'		EL.=237.2±	NGVD Datum

DEEP TEST HOLE#16-02 (NOVEMBER 2016)

Depth	Soil Horizon	Soil Texture	Soil Color
0"-12"	A	Sandy Loam	10YR3/3
12"-36"	Bw	Sandy Loam	10YR5/6
36"-84"	C1	Sandy Loam	2.5Y5/4
84"-108"	C2	Loamy Sand	2.5Y5/4
108"-114"	C3	Coarse Loamy Sand	2.5Y5/4
Mottling 40"	Weeping NONE	Standing NONE	Refusal None
E.S.H.G.W. 40"		EL.=239.5±	NGVD Datum

DEEP TEST HOLE#16-03 (NOVEMBER 2016)

Depth	Soil Horizon	Soil Texture	Soil Color
0"-12"	A	Sandy Loam	10YR3/3
12"-36"	Bw	Sandy Loam	10YR5/6
36"-72"	C1	Sandy Loam	2.5Y5/4
72"-96"	C2	Loamy Sand	2.5Y5/4
Mottling 40"	Weeping NONE	Standing NONE	Refusal None
E.S.H.G.W. 40"		EL.=240.9±	NGVD Datum

DEEP TEST HOLE#19-01 (JULY 2019)

Depth	Soil Horizon	Soil Texture	Soil Color
0"-24"		Fill	
24"-120"	C	Loamy Sand	2.5Y5/2
Mottling NONE	Weeping NONE	Standing NONE	Refusal None
E.S.H.G.W. >120"		EL.=238.9±	NGVD Datum

DEEP TEST HOLE#19-02 (JULY 2019)

Depth	Soil Horizon	Soil Texture	Soil Color
0"-12"		Fill	
12"-138"	C	Loamy Sand	2.5Y5/2
Mottling NONE	Weeping NONE	Standing NONE	Refusal None
E.S.H.G.W. >138"		EL.=238.4±	NGVD Datum

DEEP TEST HOLE#19-03 (AUGUST 2019)

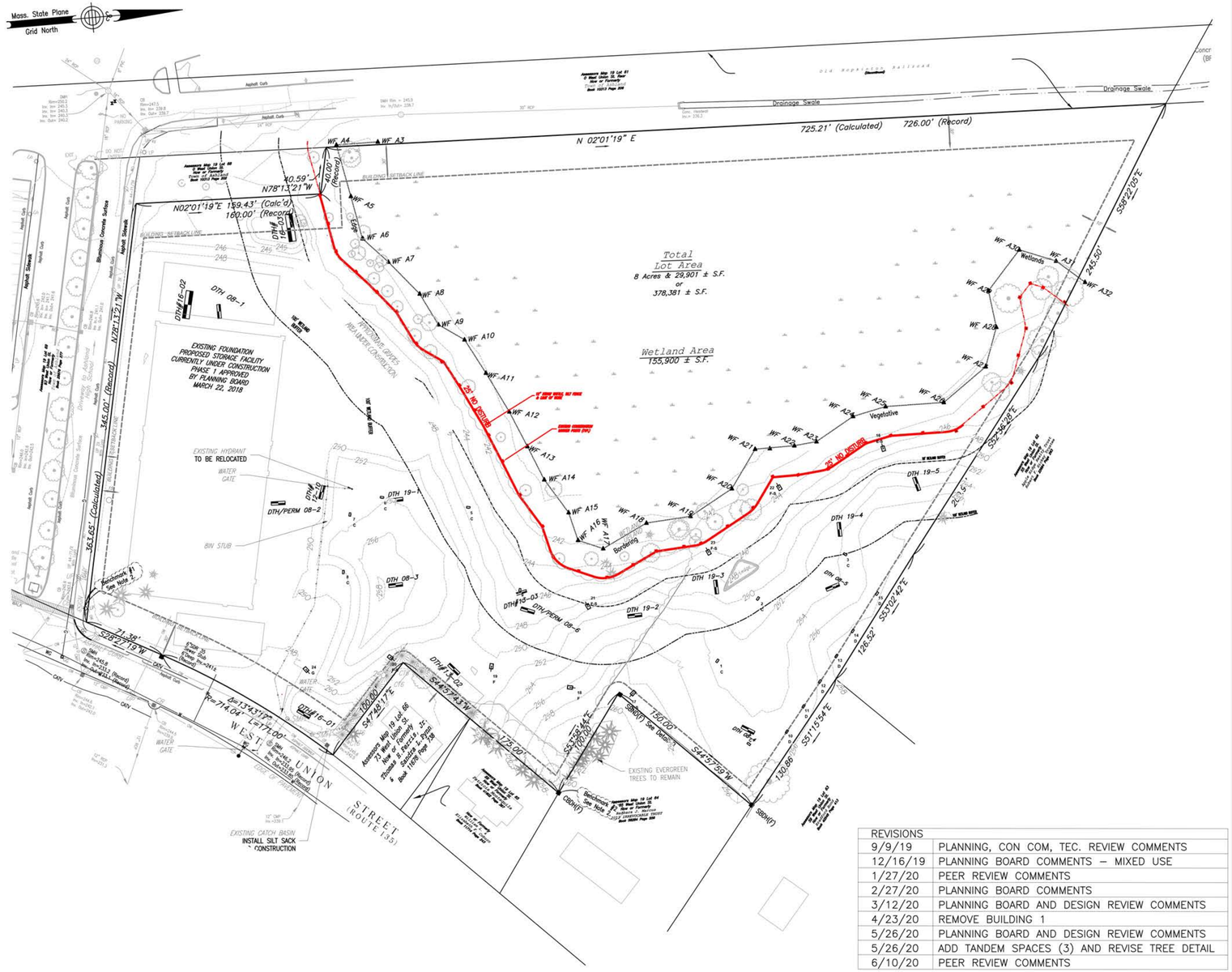
Depth	Soil Horizon	Soil Texture	Soil Color
0"-6"	A	Sandy Loam	10YR3/3
6"-32"	Bw	Sandy Loam	10YR5/6
32"-148"	C	Loamy Sand	2.5Y5/4
Mottling NONE	Weeping NONE	Standing NONE	Refusal None
E.S.H.G.W. >148"		EL.=235.8±	NGVD Datum

DEEP TEST HOLE#19-04 (AUGUST 2019)

Depth	Soil Horizon	Soil Texture	Soil Color
0"-6"	A	Sandy Loam	10YR3/3
6"-36"	Bw	Sandy Loam	10YR5/6
36"-192"	C	Loamy Sand	2.5Y5/4
Mottling NONE	Weeping NONE	Standing NONE	Refusal None
E.S.H.G.W. >192"		EL.=236.6±	NGVD Datum

DEEP TEST HOLE#19-05 (AUGUST 2019)

Depth	Soil Horizon	Soil Texture	Soil Color
0"-6"	A	Sandy Loam	10YR3/3
6"-24"	Bw	Sandy Loam	10YR5/6
24"-168"	C	Loamy Sand	2.5Y5/4
Mottling NONE	Weeping NONE	Standing NONE	Refusal None
E.S.H.G.W. >168"		EL.=239.6±	NGVD Datum



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40 0 40 80 120
Scale 1" = 40'

DARREN M. GRADY
CIVIL
No. 40715

Darren Grady

PHASE 2
SITE PLAN
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70 BARTZAK DRIVE
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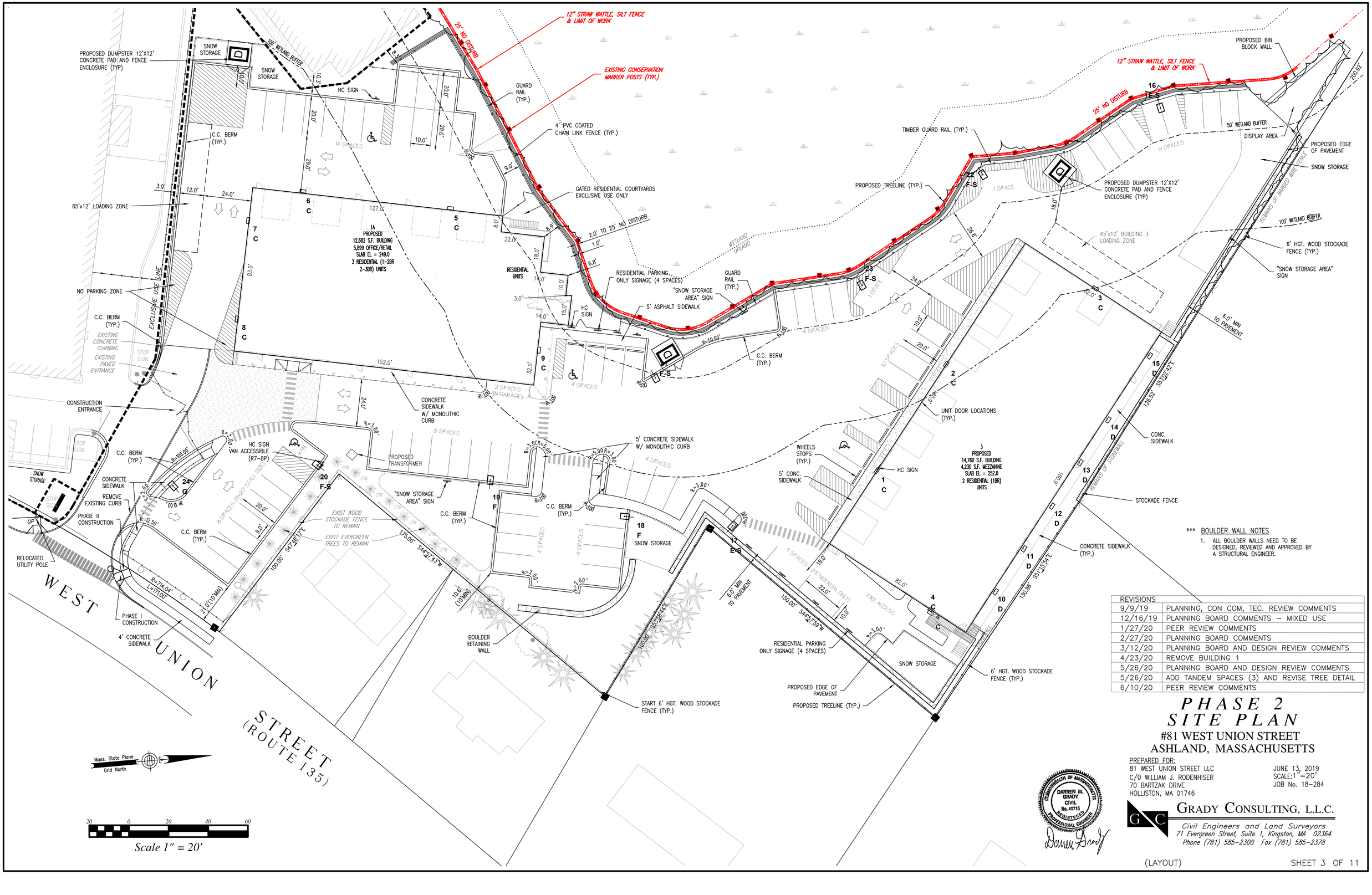
(EXISTING CONDITIONS & TEST HOLES) SHEET 2A OF 11



*** BOULDER WALL NOTES

1. ALL BOULDER WALLS NEED TO BE DESIGNED, REVIEWED AND APPROVED BY A STRUCTURAL ENGINEER.

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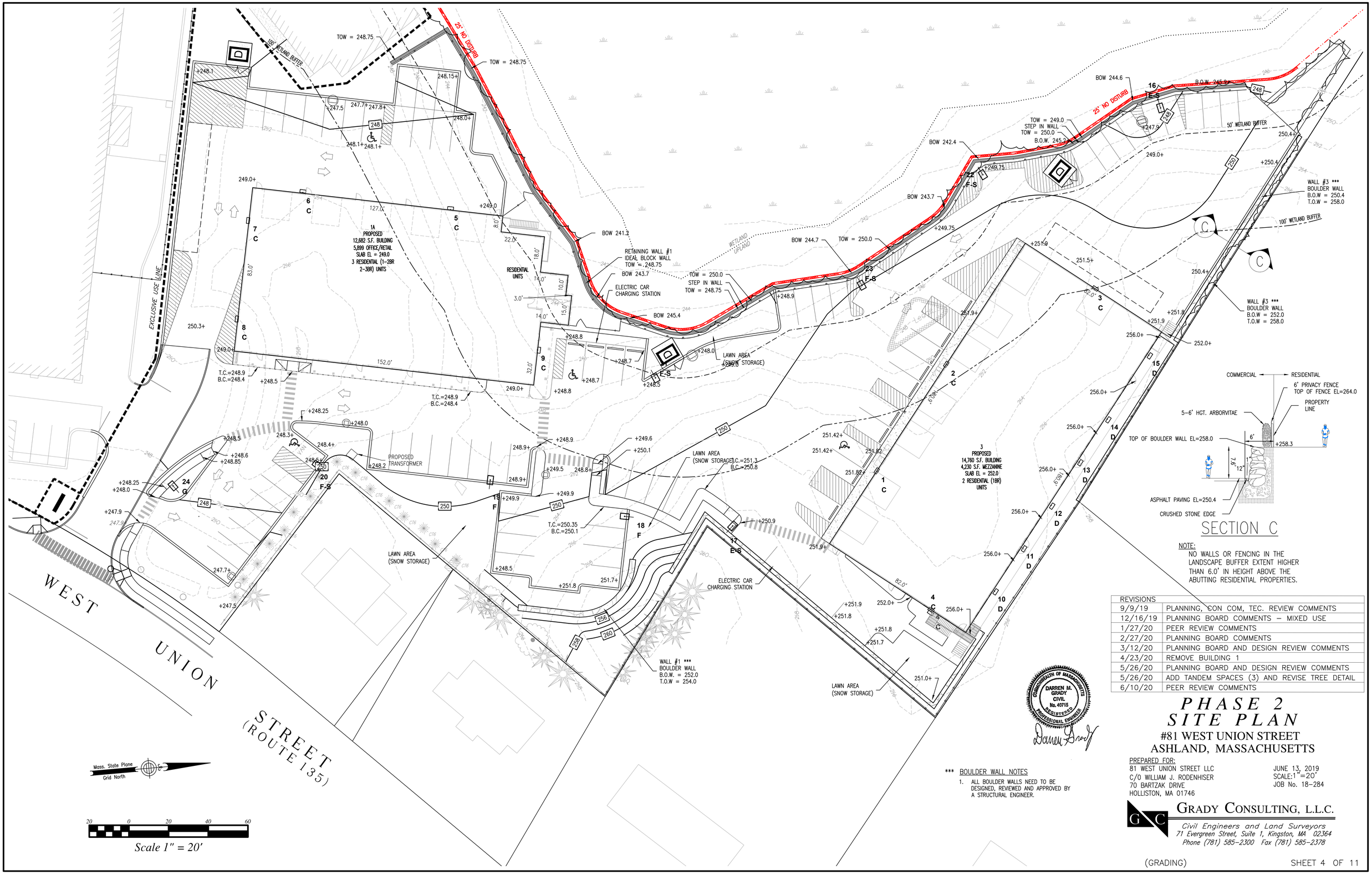
(LAYOUT)



COMMERCIAL — RESIDENTIAL

6' PRIVACY FENCE
TOP OF FENCE EL=264.0

PROPERTY LINE

5-6' HGT. ARBORVITAE

TOP OF BOULDER WALL EL=258.0

6'

+258.3

7.9'

1'

12"

ASPHALT PAVING EL=250.4

CRUSHED STONE EDGE

SECTION C

NOTE:
NO WALLS OR FENCING IN THE LANDSCAPE BUFFER EXTENT HIGHER THAN 6.0' IN HEIGHT ABOVE THE ABUTTING RESIDENTIAL PROPERTIES.

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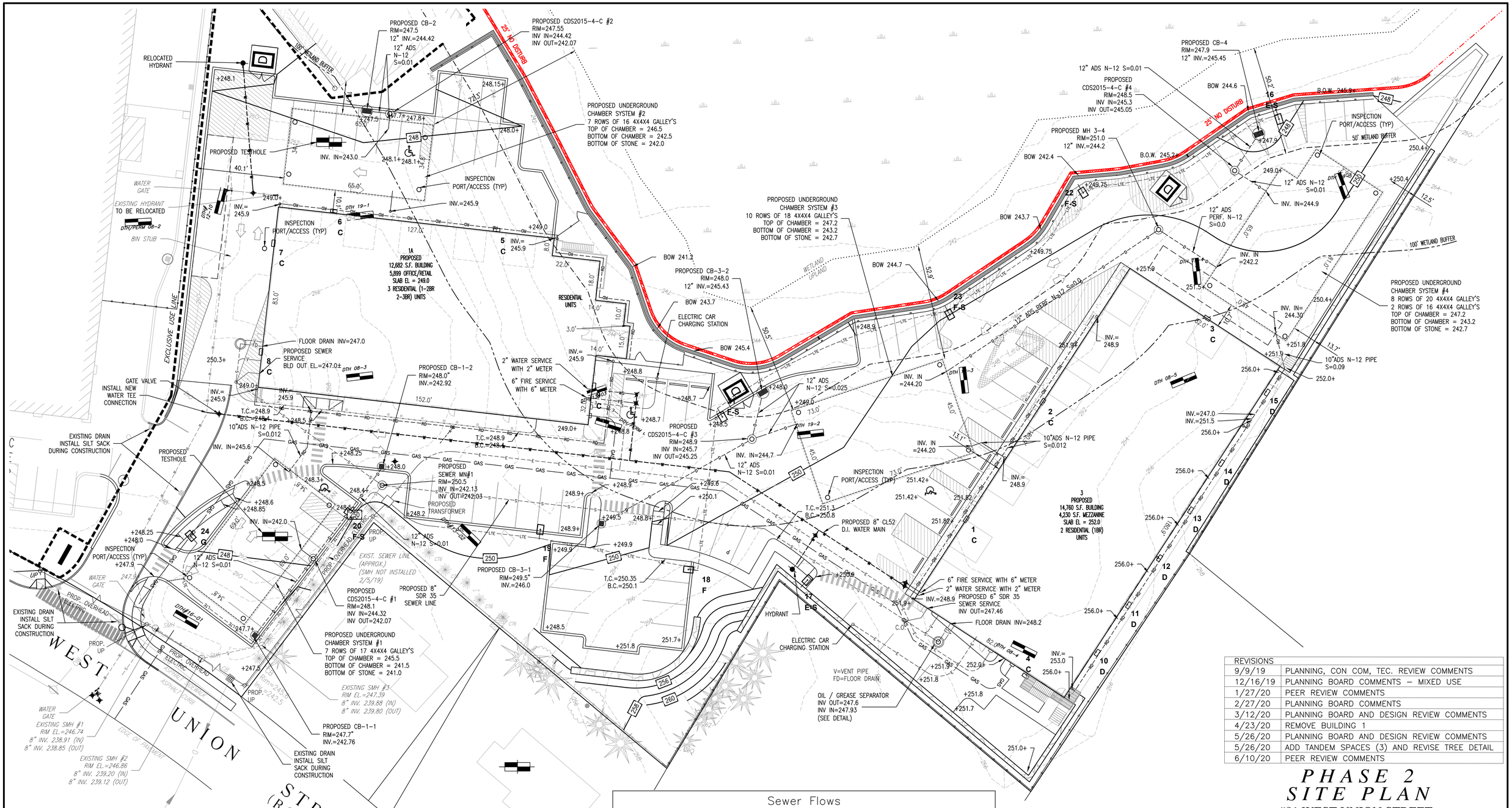

Sewer Flows				
BUILDING #	Unit Size	Units	Flow Rate	Totals (gpd)
1	4399	S.F. Office/Retail	75 gpd/1000 S.F.	330
1	3	Appartments	1 Apts x 2 BR = 1 BR x 110 GPD/BR	220
			2 Apts x 3 BR = 4 BR x 110 GPD/BR	660
3	25	Employees	15 gpd/employee	375
3	2	Appartments	2 Apts x 1 BR = 2 BR x 110 GPD/BR	220
3	2050	S.F. Office/Retail	75 gpd/1000 S.F.	154
				1959

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(UTILITIES)

PLANT SCHEDULE

DECIDUOUS TREES	QTY	BOTANICAL / COMMON NAME	CONT	CAL	SIZE
ACE RUB	6	ACER RUBRUM 'RED SUNSET' / RED SUNSET MAPLE	B & B	2" CAL.	
GLE TRI	3	GLEDITSIA TRIACANTHOS INERMIS / THORNLESS COMMON HONEYLOCUST	B & B	2" CAL.	
QUE COC	2	QUERCUS COCCINEA / SCARLET OAK	B & B	3-3.5" CAL.	

EVERGREEN TREES	QTY	BOTANICAL / COMMON NAME	CONT	CAL	SIZE
ABI CON	3	ABIES CONCOLOR / WHITE FIR	B & B		8-9' HGT.
PIC GLA	1	PICEA GLAUCA / WHITE SPRUCE	B & B		7-8' HGT.
THU GIA	81	THUJA X PLICATA 'GREEN GIANT' / GREEN GIANT ARBORVITAE	B & B		5-6' HGT.

FLOWERING TREES	QTY	BOTANICAL / COMMON NAME	CONT	CAL	SIZE
MAL SNO	2	MALUS X 'SNOWDRIFT' / SNOWDRIFT CRAB APPLE	B & B	2" CAL.	
PRU KWA	2	PRUNUS SERRULATA 'KWANZAN' / FLOWERING CHERRY	B & B	2" CAL.	

SHRUBS	QTY	BOTANICAL / COMMON NAME	SIZE	SIZE	SP
CLE ALN	7	CLETHRA ALNIFOLIA / SUMMERSWEET CLETHRA	3 GAL.	15-18" HGT.	
COR ALB	1	CORNUS ALBA 'VARIEGATA' / DWARF VARIEGATED DOGWOOD	B & B	3-4' HGT.	
HYD MA2	3	HYDRANGEA MACROPHYLLA 'ENDLESS SUMMER' TM / BAILMER HYDRANGEA	B & B	2-2.5' SPR.	
ILE GLA	8	ILEX GLABRA 'SHAMROCK' / INKBERRY	B & B	18-24" HGT.	
ILE RED	3	ILEX VERTICILLATA 'RED SPRITE' / RED SPRITE WINTERBERRY	B & B	18-24" HGT.	
RHO EJN	11	RHODODENDRON X 'P.J.M.' / PJM RHODODENDRON	B & B	24-30" HGT.	

ANNUALS/PERENNIALS	QTY	BOTANICAL / COMMON NAME	SIZE	SIZE	SP
ASR PER	30	ASSORTED PERENNIALS / TO BE SELECTED BY GC	1 GAL.		

GRASSES	QTY	BOTANICAL / COMMON NAME	SIZE	SIZE	SP
MIS MOR	2	MISCANTHUS SINENSIS 'MORNING LIGHT' / EULALIA GRASS	5 GAL.		
PEN HAM	7	PENNISETUM ALOPECUROIDES 'HAMELN' / HAMELN DWARF FOUNTAIN GRASS	3 GAL.		

Notes:
1. Calculation at grade.
2. Based on 15' AFG pole mounting and 15'/9' AFG building mnt.
3. This plan includes an object to simulate an 8' wall plus a 6' wood fence on top of it.

- DUE TO CHANGING LIGHTING ORDINANCES IT IS THE CONTRACTORS RESPONSIBILITY TO SUBMIT THE SITE PHOTOMETRICS AND LUMINAIRE SPECS TO THE LOCAL INSPECTOR BEFORE ORDERING TO ENSURE THIS PLAN COMPLIES WITH LOCAL LIGHTING ORDINACES.
- THIS LIGHTING DESIGN IS BASED ON INFORMATION SUPPLIED BY OTHERS. CHANGES IN ELECTRICAL SUPPLY, AREA GEOMETRY AND OBJECTS WITHIN THE LIGHTED AREA MAY PRODUCE ILLUMINATION VALUES DIFFERENT FROM THE PREDICTED RESULTS SHOWN ON THIS LAYOUT.
- THIS LAYOUT IS BASED ON .IES FILES THAT WERE LAB TESTED OR COMPUTER GENERATED. ACTUAL RESULTS MAY VARY.

Calculation Summary

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
SITE	Illuminance	Fc	0.41	6.5	0.0	N.A.	N.A.
PARKING AND DRIVE	Illuminance	Fc	1.52	6.5	0.0	N.A.	N.A.

Luminaire Schedule

Symbol	Qty	Label	Lumens/Lamp	Arrangement	LLF	Description
	9	C	N.A.	SINGLE	0.900	LHSWP-1-C-M-T3-D-ONE BRICK TYPE 3 1050MA LED WALL PACK
	6	D	N.A.	SINGLE	0.900	LHSWP-1-C-M-T3-L-ONE BRICK TYPE 3 525MA LED WALL PACK
	2	E-S	N.A.	SINGLE	0.900	LSMT-1-C-X-T4-F-S213-ONE BRICK TYPE 4 1400MA LED W/BACK SHLD
	2	F	N.A.	SINGLE	0.900	LSMT-1-C-M-T3-D-ONE BRICK TYPE 3 1050MA LED
	4	F-S	N.A.	SINGLE	0.900	LSMT-1-C-M-T3-D-S213-ONE BRICK TYPE 3 1050MA LED W/BACK SHLD
	1	G	N.A.	SINGLE	0.900	LSMT-1-C-M-T5W-D-ONE BRICK TYPE 5 1050MA LED

Luminaire Location Summary

LumNo	Label	Z-luminaire height	Tilt
1	C	15	0
2	C	15	0
3	C	15	0
4	C	15	0
5	C	15	0
6	C	15	0
7	C	15	0
8	C	15	0
9	C	15	0
10	D	9	0
11	D	9	0
12	D	9	0
13	D	9	0
14	D	9	0
15	D	9	0
16	E-S	15	0
17	E-S	15	0
18	F	15	0
19	F	15	0
20	F-S	15	0
21	F-S	15	0
22	F-S	15	0
23	F-S	15	0
24	G	15	0

REVISIONS	
9/9/19	PLANNING, CON COM, TEC. REVIEW COMMENTS
12/16/19	PLANNING BOARD COMMENTS – MIXED USE
1/27/20	PEER REVIEW COMMENTS
2/27/20	PLANNING BOARD COMMENTS
3/12/20	PLANNING BOARD AND DESIGN REVIEW COMMENTS
4/23/20	REMOVE BUILDING 1
5/26/20	PLANNING BOARD AND DESIGN REVIEW COMMENTS
5/26/20	ADD TANDEM SPACES (3) AND REVISE TREE DETAIL
6/10/20	PEER REVIEW COMMENTS

PHASE 2 SITE PLAN

#81 WEST UNION STREET ASHLAND, MASSACHUSETTS

PREPARED FOR:
81 WEST UNION STREET LLC
C/O WILLIAM J. RODENHISER
70 BARTZAK DRIVE
HOLLISTON, MA 01746

JUNE 13, 2019
SCALE: 1"=20'
JOB No. 18-284

GRADY CONSULTING, L.L.C.
Civil Engineers and Land Surveyors
71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585-2300 Fax (781) 585-2378

(LANDSCAPE)

CONSTRUCTION NOTES

GENERAL:

1. THE ACCURACY OF EXISTING UTILITY LOCATIONS, DIMENSIONS AND LINES IS FROM EXISTING INFORMATION OF RECORD AND IS NOT WARRANTED. CONTRACTOR TO VERIFY PRIOR TO INITIATING CONSTRUCTION.
2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL SECURE ALL NECESSARY STATE, MUNICIPAL AND OTHER UTILITY PERMITS AND VERIFY THE PROPOSED LOCATIONS OF UTILITIES WITH UTILITY COMPANIES.
3. CONTRACTOR SHALL NOTIFY "DIG SAFE" (1-800-322-4844) AT LEAST 4 DAYS PRIOR TO CONSTRUCTION.
4. UNDERGROUND UTILITIES SHALL BE INSTALLED IN ACCORDANCE WITH THE SPECIFICATIONS OF THE APPROPRIATE DEPARTMENT OR COMPANY. THE CONTRACTOR SHALL NOTIFY THE ASHLAND D.P.W. (834-5589) AT LEAST 4 DAYS PRIOR TO CONSTRUCTION OF DRAINAGE & WATER SYSTEMS.
5. SEWAGE DISPOSAL TO CONSIST OF SEWER CONNECTIONS.
6. ALL CONSTRUCTION SHALL CONFORM TO TOWN OF ASHLAND PLANNING BOARD RULES AND REGULATIONS, DPW SPECIFICATIONS, WATER, SEWER, CONSERVATION COMMISSION REGULATIONS AND ALL OTHER APPLICABLE CODES.
7. ALL STUMPS SHALL BE DISPOSED OFF SITE.
8. ALL WORK WITHIN THE TOWN RIGHT OF WAY SHALL REQUIRE A ROAD OPENING PERMIT. EXCAVATIONS SHALL BE BACKFILLED WITH FLOWABLE FILL AND INSPECTED BY THE TOWN PER THE ROAD OPENING PERMIT.
9. THE CONSTRUCTION AT THE SITE SHALL BE SECURED WITH FENCING.

WATER SYSTEM NOTES:

1. ALL MAINS SHALL BE 8" CEMENT LINED DUCTILE IRON PIPE, CLASS 52.
2. ALL WATER SERVICES SHALL BE 2" POLYETHYLENE PIPE.
3. ALL CONSTRUCTION MATERIALS AND METHODS SHALL CONFORM TO TOWN OF ASHLAND WATER DEPARTMENT REQUIREMENTS.
4. PROVIDE THRUST BLOCKS AT ALL WATER MAIN FITTINGS.
5. HYDRANTS SHALL BE THE WATEROUS PACER-WB-67 OR U.S. PIPE METROPOLITAN.

EROSION CONTROL:

1. ALL ROADWAY AREAS, CUT AND FILL AREAS, AND DISTURBED DRAINAGE EASEMENT AREAS ARE TO BE BROUGHT TO FINISHED GRADE WITH A MIN. OF 4" OF LOAM, SEEDED WITH A MIXTURE OF ANNUAL RYEGRASS AND PERENNIAL GRASSES, AND MAINTAINED UNTIL VEGETATION STABILIZES THESE AREAS.
2. MULCH OR OTHER SUITABLE EROSION PROTECTION, SHALL BE UTILIZED ON ALL EXPOSED

CONSTRUCTION SEQUENCE:

CLEAR AND GRUB ROADWAY AND EASEMENT AREAS

CONSTRUCT UNDERGROUND DETENTION BASINS

PRIOR TO ALL OTHER ACTIVITY EXCEPT TREE CLEARING AND ACCESS ROAD (SEED TO BE NRCS PERMANENT SEEDING MIX #6 OR APPROVED EQUAL)

(LIMIT USE OF HEAVY EQUIPMENT ON BASIN BOTTOMS)

BRING CUT AREAS TO SUBGRADE, INSTALL STRUCTURAL FILL BELOW BUILDING SLABS

INSPECT STORMCEPTOR/VORSENTRY UNITS AND UNDERGROUND CHAMBER SYSTEMS AFTER ALL STORMS AND AT LEAST MONTHLY DURING CONSTRUCTION AND REMOVE SEDIMENT

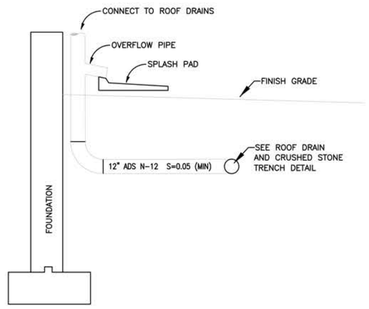
INSTALL UTILITIES (ie, DRAIN, WATER, ELECTRIC, INFILTRATION SYSTEMS etc.)

CATCH BASIN GRATES ARE TO BE SET AT BINDER GRADE

INSTALL EROSION CONTROLS ON EXPOSED SLOPES

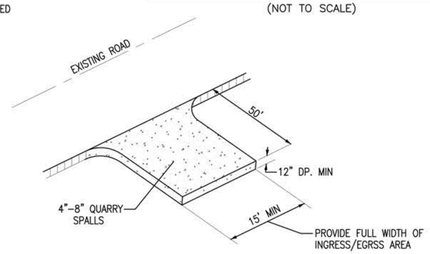
PLACE BASE COURSE OF PAVEMENT / LOAM AND SEED GRASS AREAS

UNCOVER TEMPORARY DRAINAGE SEALS / FINISH PAVING ON ROADWAY



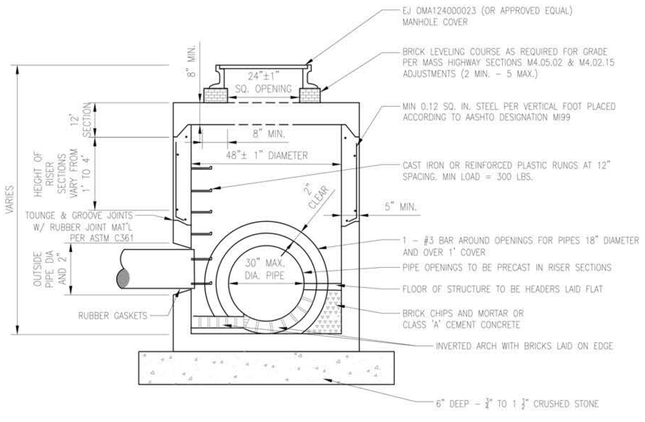
ROOF DRAIN CONNECTION DETAIL

(NOT TO SCALE)



CRUSHED STONE
CONSTRUCTION ENTRANCE

(NOT TO SCALE)



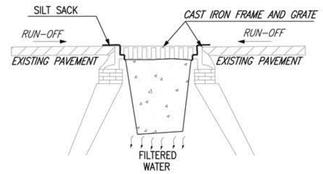
PRECAST CONCRETE MANHOLE

1/2" = 1'-0" 33491 3.01-01

NDS 20 8"ROUND GRATE (GREEN) OR APPROVED EQUAL

YARD DRAIN

NOT TO SCALE



NOTE: SILT SACKS SHALL BE INSPECTED DAILY AND SILT SHALL BE REMOVED WHEN ACCUMULATED TO ALLOW CATCH BASIN TO FUNCTION PROPERLY. REMOVE PERMANENTLY WHEN SITE STABILIZATION HAS OCCURRED.

SILT SACK

(NOT TO SCALE)

CDS 2015-4C / 1515-3C UNIT(S)

RESPONSIBILITY FOR MAINTENANCE: OWNER

NEW INSTALLATIONS

THE CONDITION OF EACH UNIT SHALL BE CHECKED AFTER EVERY RUNOFF EVENT FOR THE FIRST 30 DAYS. THE VISUAL INSPECTION SHALL ASCERTAIN THAT THE UNIT IS FUNCTIONING PROPERLY AND SHALL MEASURE THE AMOUNT OF SEDIMENT THAT HAS ACCUMULATED IN THE SUMP AND FLOATING TRASH AND DEBRIS IN THE SEPARATION CHAMBER. THIS CAN BE DONE WITH A CALIBRATED "DIP STICK" OR STADIA ROD SO THAT THE DEPTH OF DEPOSITION CAN BE TRACKED. SCHEDULES FOR INSPECTIONS AND CLEANOUT SHALL BE BASED ON STORM EVENTS AND POLLUTANT ACCUMULATION.

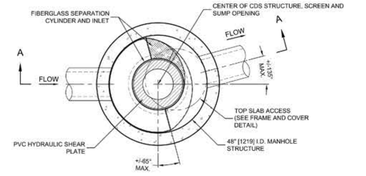
ONGOING OPERATION

DURING THE RAINFALL SEASON, THE UNIT SHALL BE INSPECTED AT LEAST ONCE EVERY 30 DAYS. THE FLOATABLES SHALL BE REMOVED AND THE SUMP CLEANED WHEN THE SUMP IS AT A DEPTH OF 2 FEET. IF FLOATABLES ACCUMULATE MORE RAPIDLY THAN THE SETTLEABLE SOLIDS, THE FLOATABLES SHALL BE REMOVED USING A VACTOR TRUCK OR DIP NET WHEN THE LAYER IS TWO FEET THICK.

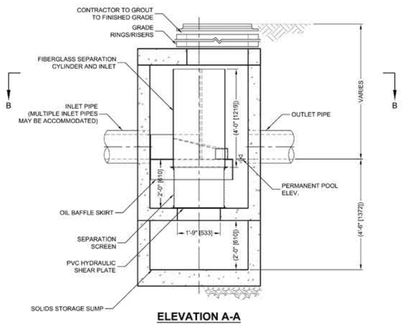
CLEANOUT OF THE UNITS SHALL BE PERFORMED NO LATER THAN MAY 1ST BECAUSE OF THE NATURE OF POLLUTANTS COLLECTED AND THE POTENTIAL FOR ODOR GENERATION FROM THE DECOMPOSITION OF MATERIAL COLLECTED AND RETAINED. THIS END OF SEASON CLEANOUT WILL ASSIST IN PREVENTING THE DISCHARGE OF PORE WATER FOR THE UNITS DURING PERIODS OF LOW RAINFALL. THE UNITS SHALL BE CLEANED AT LEAST TWICE YEARLY.

CLEANOUT AND DISPOSAL

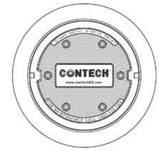
STANDARD VACTORING OPERATIONS SHALL BE EMPLOYED IN THE CLEANOUT OF THE UNITS. DISPOSAL OF MATERIAL FROM THE UNITS SHALL BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, AND FEDERAL GUIDELINES AND REGULATIONS. DISPOSAL OF THE DECANT MATERIAL TO A POTW IS RECOMMENDED. FIELD DECANTING TO THE STORM DRAINAGE SYSTEM SHALL NOT BE PERMITTED. SOLIDS CAN BE DISPOSED SIMILAR TO NORMAL PRACTICES FOR MATERIALS COLLECTED FROM CATCH BASIN CLEANING.



PLAN VIEW B-B
N.T.S.



ELEVATION A-A
N.T.S.



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

CDS2015-4-C DESIGN NOTES

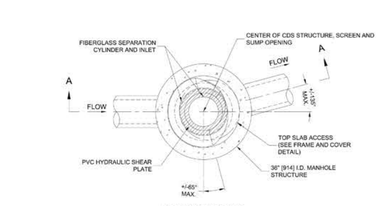
THE STANDARD CDS2015-4-C CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
4. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET HS20 (AASHTO M 306) LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
6. PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

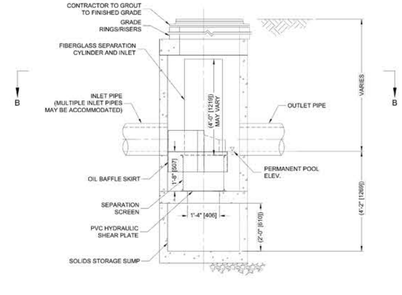
INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH ENGINEERED SOLUTIONS LLC
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

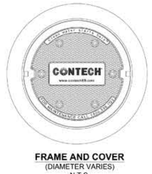
CDS2015-4-C
INLINE CDS
STANDARD DETAIL



PLAN VIEW B-B
N.T.S.



ELEVATION A-A
N.T.S.



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

CDS1515-3-C DESIGN NOTES

THE STANDARD CDS1515-3-C CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
3. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
4. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
5. STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
6. IF REQUIRED, PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.
7. CDS STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

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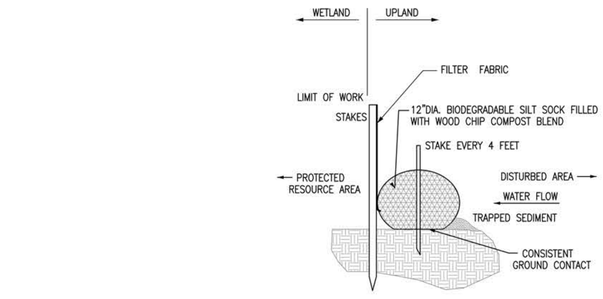
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CDS1515-3-C
ONLINE CDS
STANDARD DETAIL



SILT FENCE/SOCK DETAIL

NOT TO SCALE

REVISIONS	
9/9/19	PLANNING, CON COM, TEC. REVIEW COMMENTS
12/16/19	PLANNING BOARD COMMENTS - MIXED USE
1/27/20	PEER REVIEW COMMENTS
2/27/20	PLANNING BOARD COMMENTS
3/12/20	PLANNING BOARD AND DESIGN REVIEW COMMENTS
4/23/20	REMOVE BUILDING 1
5/26/20	PLANNING BOARD AND DESIGN REVIEW COMMENTS
5/26/20	ADD TANDEM SPACES (3) AND REVISE TREE DETAIL
6/10/20	PEER REVIEW COMMENTS

PHASE 2 SITE PLAN

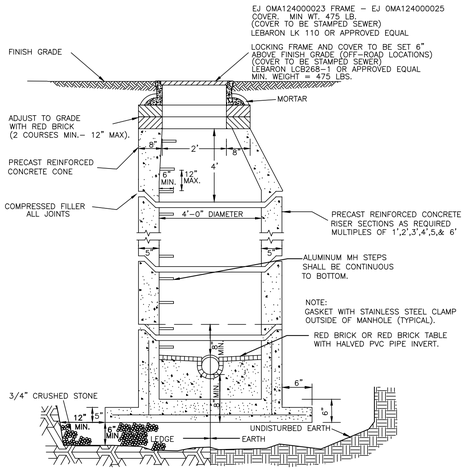
#81 WEST UNION STREET
ASHLAND, MASSACHUSETTS

PREPARED FOR:
81 WEST UNION STREET LLC
C/O WILLIAM J. RODENHISER
70 BARTZAK DRIVE
HOLLISTON, MA 01746

JUNE 13, 2019
SCALE: AS SHOWN
JOB No. 18-284

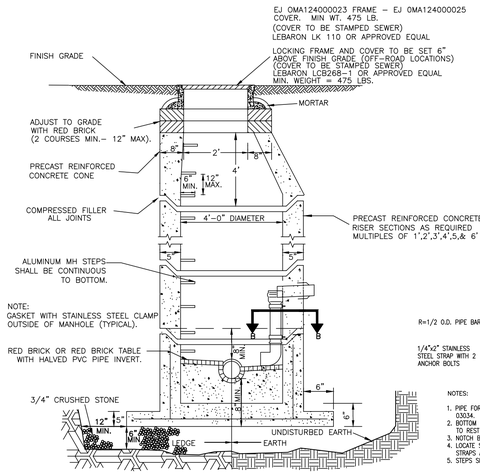
COMMONWEALTH OF MASSACHUSETTS
DARREN M. GRADY
CIVIL
No. 40715
REGISTERED
PROFESSIONAL ENGINEER

GRADY CONSULTING, L.L.C.
Civil Engineers and Land Surveyors
71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585-2300 Fax (781) 585-2378



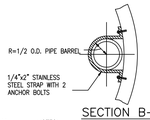
TYPICAL PRECAST CONCRETE SEWER MANHOLE

(NOT TO SCALE)



TYPICAL INTERNAL DROP SEWER MANHOLE

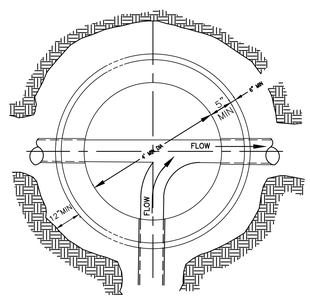
(NOT TO SCALE)



SECTION B–B

NOTES:

1. PIPE FOR INSIDE DROP SHALL BE SDR 35 PVC CONFORMING TO ASTM SPECIFICATION D3034.
2. BOTTOM BEND TO BE 90° SHORT BEND, BELL SPIGOT, OF SDR 35 PVC. SPIGOT OF BEND TO REST IN MASONRY TROUGH FROM DROP EFFLUENT TO MAIN CHANNEL.
3. NOTCH BELL OF PVC DROP TO ACCEPT D.I.P. SPIGOT AS SHOWN.
4. LOCATE STRAPS AT PIPE BELL AND ABOVE BELL OF 90° BEND AS SHOWN. ADD EXTRA STRAPS AS NECESSARY TO MAINTAIN MAXIMUM SPACING OF TEN FEET.
5. STEPS SHALL NOT CONFLICT WITH INSIDE DROP.

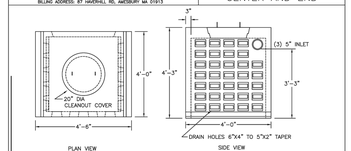


INVERT TABLE PLAN

(NOT TO SCALE)

SHEA CONCRETE PRODUCTS — New England's Premier Precaster — 800-696-7432 (SHEA) — www.sheaconcrete.com — BILLING ADDRESS: 87 HAVERHILL RD, AMESBURY MA 01913

4X4 GALLEY CENTER AND END



NOTES:

1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
2. GALLEY AVAILABLE IN BOTH END AND CENTER SECTIONS. CENTER SECTIONS HAVE LARGE OPENING IN BOTH THE BACK AND FRONT SIDES.

INDEX PRODUCT #: CGH/CGH | PREPARED FOR: | FILE NAME: GalleyX4.dwg
WEIGHT LBS: 2,430#/2,300# | DRAWN BY: ARO | DATE: 03/01/2018 | PAGE: E1.1
773 Main Street-Wilmington, MA | 153 Cranberry Hwy-Rochester, MA | 87 Haverhill Road-Amesbury, MA | 180 Old Turnpike Rd-Nottingham, NH
Specifications subject to change without notice

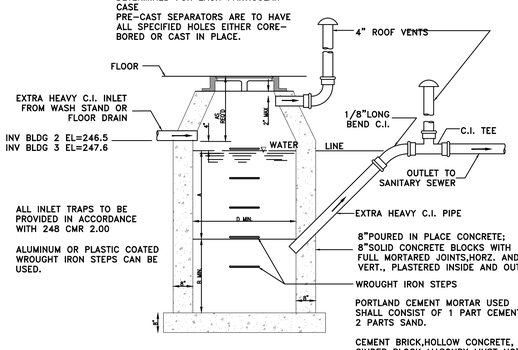
4'x4'x4' PRECAST GALLEY (H–20)

NOT TO SCALE

NOTES:

FOR INLETS LARGER THAN 10" THE DESIGN AND DIMENSIONS WILL BE DETERMINED FOR EACH PARTICULAR CASE

PRE–CAST SEPARATORS ARE TO HAVE ALL SPECIFIED HOLES EITHER CORE–BORED OR CAST IN PLACE.



ALL INLET TRAPS TO BE PROVIDED IN ACCORDANCE WITH 248 CMR 2.00

ALUMINUM OR PLASTIC COATED WROUGHT IRON STEPS CAN BE USED.

INLET	D	A	B	INLET	D	A	B
4"	3'–6"ø	3'–0"	2'–6"	8"	5'–0"ø	6'–0"	5'–0"
5"	3'–6"ø	5'–0"	4'–0"		5'–6"x 5'–6"	4'–6"	4'–0"
	3'–6"x 3'–6"	4'–0"	3'–0"		6'–0"ø	4'–0"	3'–6"
	4'–0"	3'–8"	3'–0"		6'–0"x 6'–0"	3'–0"	2'–6"
	4'–0"x 4'–0"	3'–0"	2'–6"		6'–6"ø	3'–6"	3'–0"
	4'–6"	3'–0"	2'–6"		6'–6"x 6'–6"	3'–0"	2'–6"
6"	4'–0"ø	5'–0"	4'–6"	10"	5'–6"ø	7'–6"	6'–6"
	4'–0"x 4'–0"	4'–0"	3'–6"		6'–0"x 6'–0"	5'–6"	4'–6"
	4'–6"ø	4'–0"	3'–6"				
	4'–6"x 4'–6"	3'–6"	3'–0"		6'–0"ø	6'–6"	5'–6"
	5'–0"ø	3'–6"	3'–0"		6'–6"x 6'–6"	5'–0"	4'–0"
	5'–0"x 5'–0"	3'–0"	2'–6"				

GENERAL CONSTRUCTION NOTES

BASIN TO BE LOCATED OUTSIDE OF BUILDING WHERE POSSIBLE,COVER TO HAVE A CENTER HOLE.

A TIGHT COVER MUST BE USED IF BASIN IS LOCATED INSIDE OF BUILDING.

OPENING SHALL BE NOT LESS THAN 24" DIA.

THE CATCH BASIN SHALL BE SO LOCATED AND CONSTRUCTED THAT SURFACE WATER SHALL BE EXCLUDED.

INLET PIPE SHALL BE AT LEAST FOUR INCHES ABOVE NORMAL WATER LINE.

WHERE SUBJECT TO FROST OR CRUSHING CONDITIONS, OUTLET SHALL BE AT LEAST THREE FEET BELOW THE SURFACE.

THE NEW CATCH BASIN MUST BE FILLED WITH CLEAN WATER BEFORE USING, AND AFTER BEING EMPTIED FOR PERIODIC CLEANING.

ALL OIL AND GASOLINE MUST BE REMOVED BEFORE CLEANING OUT THE BASIN, AND MUST NOT BE DISCHARGED INTO THE SEWER THROUGH OTHER FIXTURES.

SPECIFICATIONS FOR COVERING SPECIAL CASES OR CONDITIONS, SHALL BE APPROVED BY THE LOCAL AUTHORITIES.

WROUGHT IRON STEPS SHALL BE SPACED ABOUT 18" APART.

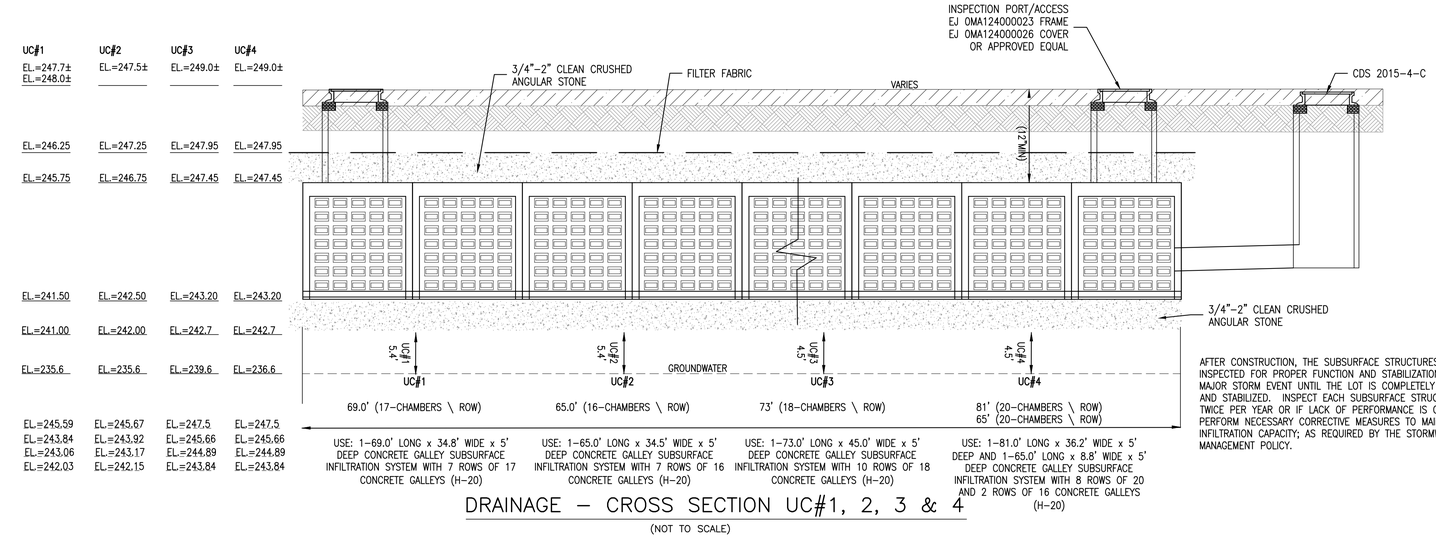
BOTH VENTS SHALL BE EXTENDED INDEPENDENTLY 18" ABOVE THE ROOF, OR AS APPROVED BY THE LOCAL AUTHORITIES

(Outlet pipe to be 45 degree angle)

CONTRACTOR SHALL VERIFY SEWER LOCATION AND ELEVATIONS PRIOR TO INSTALLATION

OIL/GREASE SEPARATOR

(NOT TO SCALE)



	UC#1	UC#2	UC#3	UC#4
	EL.=247.7± EL.=248.0±	EL.=247.5±	EL.=249.0±	EL.=249.0±
	EL.=246.25	EL.=247.25	EL.=247.95	EL.=247.95
	EL.=245.75	EL.=246.75	EL.=247.45	EL.=247.45
	EL.=241.50	EL.=242.50	EL.=243.20	EL.=243.20
	EL.=241.00	EL.=242.00	EL.=242.7	EL.=242.7
	EL.=235.6	EL.=235.6	EL.=239.6	EL.=236.6
100_YR_STORM	EL.=245.59	EL.=245.67	EL.=247.5	EL.=247.5
25_YR_STORM	EL.=243.84	EL.=243.92	EL.=245.66	EL.=245.66
10_YR_STORM	EL.=243.06	EL.=243.17	EL.=244.89	EL.=244.89
2_YR_STORM	EL.=242.03	EL.=242.15	EL.=243.84	EL.=243.84

USE: 1–69.0' LONG x 34.8' WIDE x 5' DEEP CONCRETE GALLEY SUBSURFACE INFILTRATION SYSTEM WITH 7 ROWS OF 17 CONCRETE GALLEYS (H–20)

USE: 1–65.0' LONG x 34.5' WIDE x 5' DEEP CONCRETE GALLEY SUBSURFACE INFILTRATION SYSTEM WITH 7 ROWS OF 16 CONCRETE GALLEYS (H–20)

USE: 1–73.0' LONG x 45.0' WIDE x 5' DEEP CONCRETE GALLEY SUBSURFACE INFILTRATION SYSTEM WITH 10 ROWS OF 18 CONCRETE GALLEYS (H–20)

USE: 1–81.0' LONG x 36.2' WIDE x 5' DEEP AND 1–65.0' LONG x 8.8' WIDE x 5' DEEP CONCRETE GALLEY SUBSURFACE INFILTRATION SYSTEM WITH 8 ROWS OF 20 AND 2 ROWS OF 16 CONCRETE GALLEYS (H–20)

DRAINAGE – CROSS SECTION UC#1, 2, 3 & 4

(NOT TO SCALE)

AFTER CONSTRUCTION, THE SUBSURFACE STRUCTURES SHALL BE INSPECTED FOR PROPER FUNCTION AND STABILIZATION AFTER EVERY MAJOR STORM EVENT UNTIL THE LOT IS COMPLETELY DEVELOPED AND STABILIZED. INSPECT EACH SUBSURFACE STRUCTURE AT LEAST TWICE PER YEAR OR IF LACK OF PERFORMANCE IS OBSERVED AND PERFORM NECESSARY CORRECTIVE MEASURES TO MAINTAIN INFILTRATION CAPACITY; AS REQUIRED BY THE STORMWATER MANAGEMENT POLICY.

REVISIONS	
9/9/19	PLANNING, CON COM, TEC. REVIEW COMMENTS
12/16/19	PLANNING BOARD COMMENTS – MIXED USE
1/27/20	PEER REVIEW COMMENTS
2/27/20	PLANNING BOARD COMMENTS
3/12/20	PLANNING BOARD AND DESIGN REVIEW COMMENTS
4/23/20	REMOVE BUILDING 1
5/26/20	PLANNING BOARD AND DESIGN REVIEW COMMENTS
5/26/20	ADD TANDEM SPACES (3) AND REVISE TREE DETAIL
6/10/20	PEER REVIEW COMMENTS

PHASE 2 SITE PLAN

#81 WEST UNION STREET
ASHLAND, MASSACHUSETTS

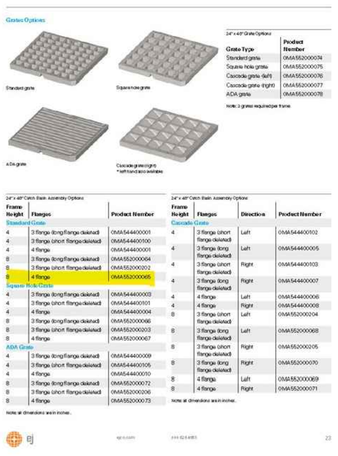
PREPARED FOR:
81 WEST UNION STREET LLC
C/O WILLIAM J. RODENHISER
70 BARTZAK DRIVE
HOLLISTON, MA 01746

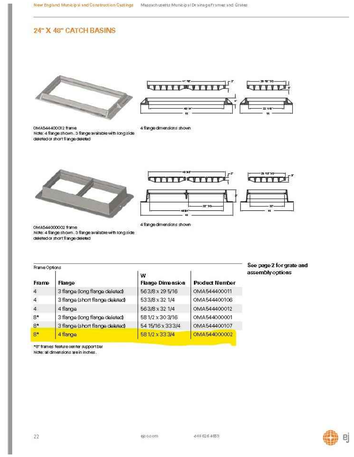
JUNE 13, 2019
SCALE: AS SHOWN
JOB No. 18–284

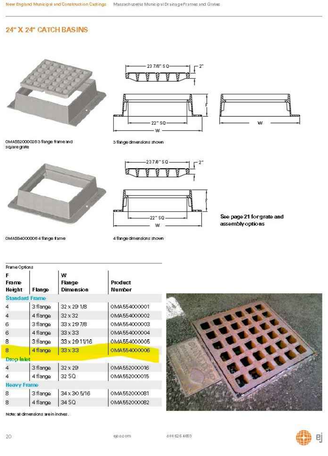
COMMONWEALTH OF MASSACHUSETTS — DARREN M. GRADY — CIVIL — No. 40715 — REGISTERED PROFESSIONAL ENGINEER

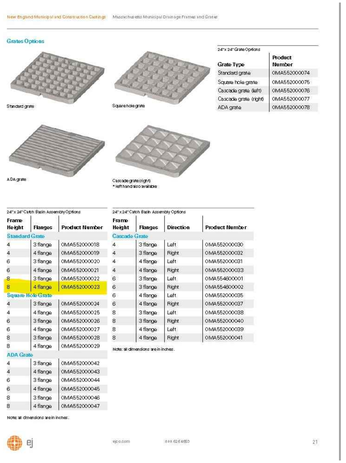
GRADY CONSULTING, L.L.C.
Civil Engineers and Land Surveyors
71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585–2300 Fax (781) 585–2378

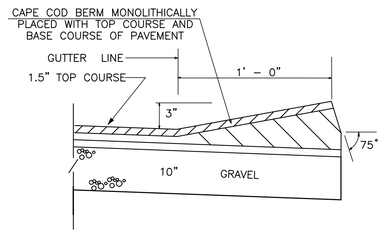
(DETAILS)





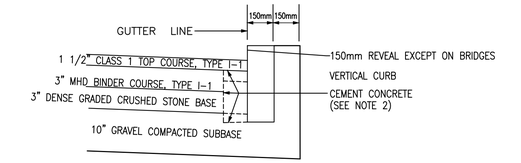






CAPE COD BERM DETAIL

(NOT TO SCALE)



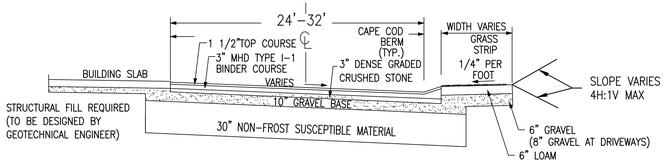
TYPE "VB" VERTICAL GRANITE AND PRECAST CONCRETE CURB

(NOT TO SCALE)

ALL MATERIALS AND CONSTRUCTION METHODOLOGY SHALL CONFORM TO THE MASSACHUSETTS HIGHWAY DEPARTMENT'S STANDARD SPECIFICATIONS.

PROCEDURE DESCRIBED HEREIN IS APPLICABLE ONLY IF CURB IS TO BE SET AFTER BASE AND\OR BINDER COURSES ARE IN PLACE OTHERWISE CEMENT CONC. WILL BE ELIMINATED AND GRAVEL BROUGHT UP TO BOTTOM OF BASE COURSE. FOR DESCRIPTION, MATERIALS AND CONSTRUCTION METHOD, SEE STANDARD SPECIFICATIONS

NOTES:
1. CUT NEAT LINE 150mm FROM CURB LINE AND REMOVE BINDER, BASE AND STONE REPLACE WITH CEMENT CONCRETE.
2. ANY DESIGNATED CEMENT CONCRETE THAT IS ACCEPTABLE TO THE DEPT. UNDER SECTION M4 OF THE STANDARD SPECIFICATIONS, ALL TEST REQUIREMENTS ARE WAIVED. BITUMINOUS CONCRETE IS NOT TO BE USED AS A SUBSTITUTE.

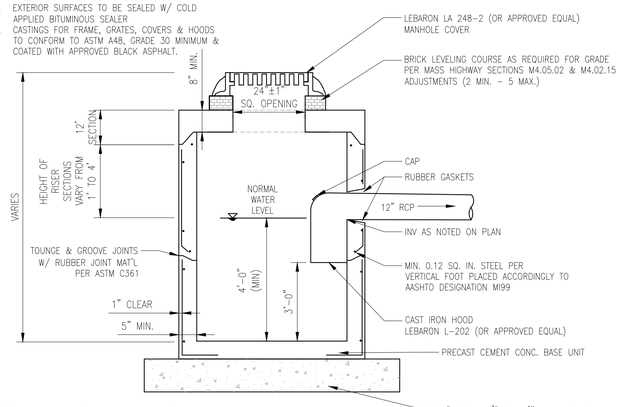


NOTE:
1. FILL BELOW THE ROADWAY SHALL BE PLACED IN LIFTS HAVING A COMPACTED THICKNESS OF 6–INCHES AND BE COMPACTED TO A MINIMUM OF 95 PERCENT OF ITS MAXIMUM MODIFIED PROCTOR DRY DENSITY.
2. PAVEMENT SHALL HAVE A DENSITY EQUAL TO OR GREATER THAN 95 PERCENT MAXIMUM DENSITY (NUCLEAR IN PLACE TEST).

DRIVEWAY SECTION

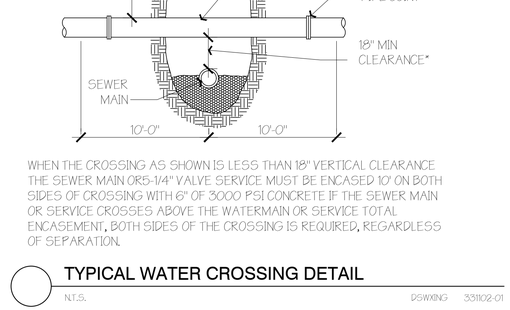
(NOT TO SCALE)

NOTES:
1. PRECAST CONCRETE UNITS TO CONFORM TO THE MASS HIGHWAY SECTION M.4.01.14
2. 4000 PSI MINIMUM COMPRESSIVE STRENGTH
3. PRECAST UNITS TO BE HS–20 LOADING
4. EXTERIOR SURFACES TO BE SEALED W/ COLD APPLIED BITUMINOUS SEALER
5. CASTINGS FOR FRAME, GRATES, COVERS & HOODS TO CONFORM TO ASTM A48, GRADE 30 MINIMUM & COATED WITH APPROVED BLACK ASPHALT.



PRECAST GASOLINE TRAP CATCH BASIN

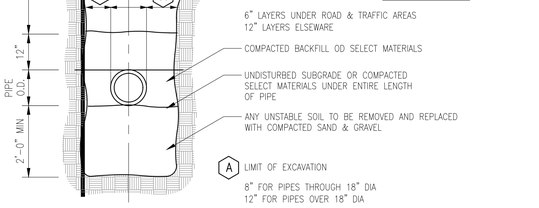
1/2" = 1'–0" 334913.02–01



WHEN THE CROSSING AS SHOWN IS LESS THAN 18" VERTICAL CLEARANCE THE SEWER MAIN OR 5–1/4" VALVE SERVICE MUST BE ENCASED 10' ON BOTH SIDES OF CROSSING WITH 6" OF 3000 PSI CONCRETE IF THE SEWER MAIN OR SERVICE CROSSES ABOVE THE WATERMAIN OR SERVICE TOTAL ENCASEMENT, BOTH SIDES OF THE CROSSING IS REQUIRED, REGARDLESS OF SEPARATION.

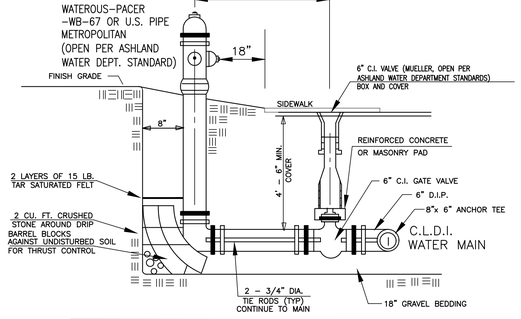
TYPICAL WATER CROSSING DETAIL

N.T.S. DSWXING 331102–01



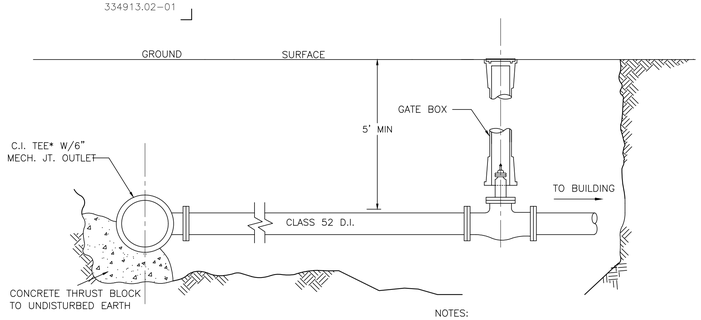
TRENCH EXCAVATION DETAIL

1/2" = 1'–0" 334913.03–01



TYPICAL HYDRANT DETAIL

(NOT TO SCALE)

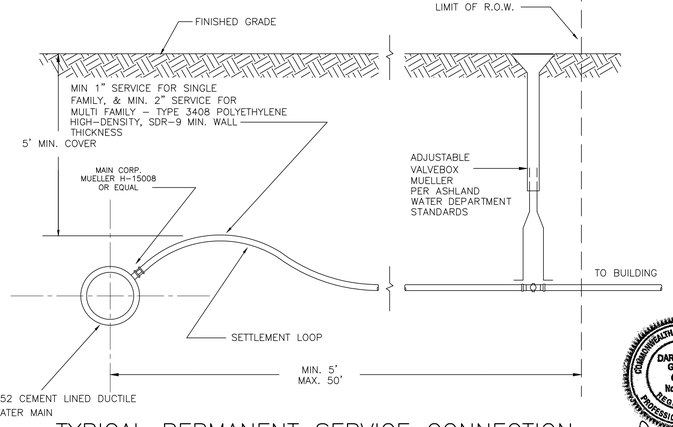


* ALL VALVES AND FITTINGS ARE TO BE MECHANICAL JOINTS
VALVE BOXES SHALL BE CAST IRON, ADJUSTABLE, SLIP AND MANUFACTURED IN NORTH AMERICA.
VALVES SHALL BE IN ACCORDANCE WITH ASHLAND WATER DEPARTMENT STANDARDS

NOTES:
SEE PLAN FOR FIRE SERVICE SIZES
FIRE SERVICE SHALL BE INSTALLED IN ACCORDANCE WITH ASHLAND WATER DEPARTMENT AND FIRE DEPARTMENT STANDARDS

FIRE SERVICE DETAIL

(CONNECTION TO PROPOSED WATER MAIN)
(NOT TO SCALE)



TYPICAL PERMANENT SERVICE CONNECTION

2" OR LESS CONNECTION TO NEW BUILDING

(NOT TO SCALE)

REVISIONS	
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12/16/19	PLANNING BOARD COMMENTS – MIXED USE
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COMMONWEALTH OF MASSACHUSETTS
DARREN M. GRADY
CIVIL
No. 40715
REGISTERED PROFESSIONAL ENGINEER

PHASE 2 SITE PLAN

#81 WEST UNION STREET
ASHLAND, MASSACHUSETTS

PREPARED FOR:
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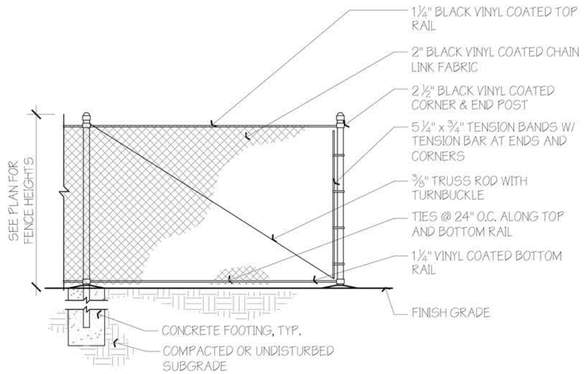
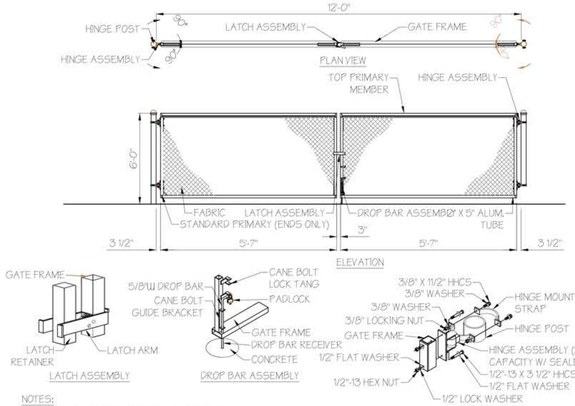
(DETAILS) SHEET 9 OF 11



CONSTRUCTION CHAIN LINK FENCE DETAIL

N.T.S. 323113.02-01



NOTES:
1. ALL FITTINGS PROVIDED FOR 4" O.D. POSTS.
2. GATE ELEVATION IS VIEWED FROM THE OUTSIDE OF THE SECURE AREA LOOKING IN.
3. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
4. DO NOT SCALE DRAWING.

CONSTRUCTION CHAIN LINK SERVICE GATE 6'

1/2" = 1'-0" 323113.07-01

23.4.6 *Access aisles*: All *accessible spaces* shall have *access aisles* that comply with the following:

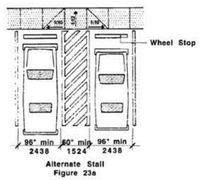
a. Parking *access aisles* shall be part of an *accessible route* to the *building* or *facility entrance* and shall comply with **521 CMR 20.00: ACCESSIBLE ROUTE**.

Exception: For temporary accessible parking, directional signage along the entire accessible route, using the international symbol of accessibility and an arrow, shall be used to direct people to the closest accessible entrance.

b. *Access aisles* adjacent to *accessible spaces* shall be five feet (5' = 1524mm) wide minimum, except adjacent to van *accessible spaces* the *access aisle* shall be a minimum of eight feet (8' = 2438mm) wide.

Exception: When temporary accessible parking is located within a field or otherwise unpaved site, when such area has not been improved in accordance with 521 CMR, the spaces shall be located on the least sloping area of the parking lot in conjunction with the temporary accessible parking spaces.

c. Two *accessible* parking spaces may share a common *access aisle*. *See* **Fig. 23a** and **23b**.



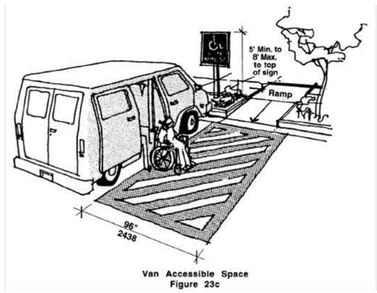
Alternate Stall
Figure 23a

d. *Access aisles* shall be *level* with surface slopes not exceeding 1:50 (2%) in all directions.
e. *Access aisles* shall be clearly marked by means of diagonal stripes.

23.4.7 Van *Accessible spaces* shall comply with the following:

a. Provide minimum vertical clearance of eight feet, two inches (8'2" = 2489mm) at the parking *space* and along at least one vehicle *access route* to such spaces from site entrance(s) and exit(s). *See* **Fig. 23c**.

: **PARKING AND PASSENGER LOADING ZONES**

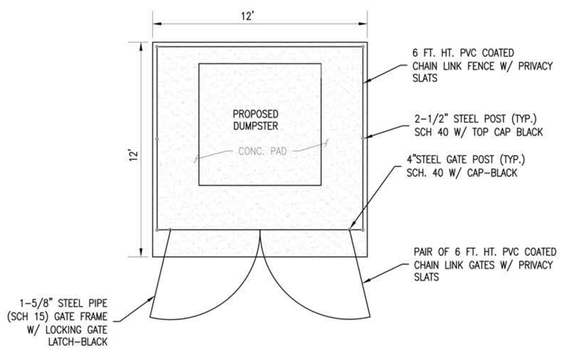


Van Accessible Space
Figure 23c

b. Each *space* shall have a sign designating it "Van Accessible" as required by **521 CMR 23.6, Signage**.
c. All such *spaces* may be grouped on one level of a parking structure.
d. Eight foot minimum (8' = 2438mm) wide *space*.
e. Provide an *access aisle* of eight feet (8' = 2438mm).

ACCESSIBILITY LOADING ZONE

(NOT TO SCALE)



DUMPSTER DETAIL

NOT TO SCALE

GravityStone® Fat Face& Fat Face - 2/3 Scored

INTRODUCTION

Part of the GravityStone family of wall systems, Fat Face and Fat Face - 2/3 Scored provide a strong, durable, and attractive retaining wall solution for a variety of site conditions. Fat Face is our original split face unit. Fat Face - 2/3 Scored is a three-piece set. Two units have a chamfered score located 2/3 along the length of the split face; the third unit an unscored split face. All three have well-defined chamfers molded into each end providing a distinctive sculptured appearance.

Both styles are one square foot blocks ideally suited for commercial, municipal and residential walls. The open-core design optimizes interlock from one course to the next with a "rock-to-rock" connection. For additional design flexibility, both Fat Face and Fat Face - 2/3 Scored can be integrated together and used in combination with the GravityStone Modular System.

COMPOSITION & PERFORMANCE

Fat Face and Fat Face - 2/3 Scored are produced under controlled factory conditions, molded from a cement-rich mixture blended with select aggregates and pure iron oxide pigments formed under extreme pressure and vibration. Both styles can create straight, concave or convex retaining walls in either a vertical or battered configuration using a unique reversible alignment plug. When used with geogrid, walls as tall as 20' and higher can be constructed.

PHYSICAL CHARACTERISTICS

Ideal's wall products meet or exceed North American industry standards, including ASTM C1372 Standard Specification for Drycast Segmental Retaining Wall Units. Strict quality control ensures consistent strength and durability.

Fat Face:	Single standard unit
Fat Face - 2/3 Scored:	2 scored units, 1 standard unit
Dimensions:	11.25"d x 8"h x 18"l
Weight:	75 lbs
Face Area:	1 sf/unit
Corner Unit:	6"d x 8"h x 15"l
Compressive Strength:	4500 psi minimum
Water Absorption:	7% maximum
Dimensional Tolerance:	+/- 1/8"
Wall Batter:	Vertical to 4.5° (3/4" per foot)

TECHNICAL INFORMATION & SERVICES

We recommend **WSB** Design software, **Ideal's** Contractor's Guide to Installing SRWs, and **NCMA's** SRWs Best Practice Guide as resources for design and technical information. We provide design consultation, including free Preliminary Engineering Design Service, specification assistance and job-site quality review.

DESIGN CONSIDERATIONS

Ideal provides general information on design and construction. In all cases, the user should exercise diligence in determining its suitability for the site. Walls 4' and higher, terraced walls, and sites with weak soils, slopes and surcharges require special consideration and construction techniques, including the use of geogrid. These conditions require the services of a qualified soils engineer and a professional contractor familiar with wall construction. Always comply with local building codes.

GENERAL CONSTRUCTION GUIDELINES

BASE: Establish a level, well-compacted, dense-graded aggregate base a minimum 8" below finished grade. Install perforated pipe as shown on the plans.

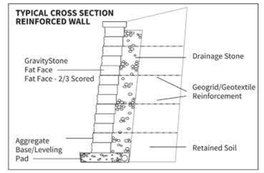
PLACEMENT OF FIRST COURSE OF BLOCKS: Block in the first course must be placed and carefully leveled front-to-back and side-to-side. For vertical walls, insert alignment plug in the forward position. For walls intended to batter, place the plug in the rear position. Fill the cores with graded stone. Place and compact dense-graded aggregate to fill the trench.

CONSTRUCTING THE WALL: Install additional courses in a running bond pattern, aligning the face of the units in a vertical position or with a 1/2" step-back as shown on the plans. Cut as needed to maintain a stagger. Insert plugs and fill cores with graded stone. Backfill and compact between and behind the units with graded stone. Repeat for each course.

REINFORCED RETAINING WALLS: When used, place geogrid as shown on the plans. Install with the design strength perpendicular to the wall. Avoid overlapping adjacent sheets. Use care not to damage grid when backfilling and compacting.

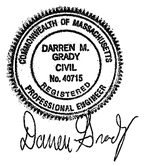
CAPPING WALL: Affix Ideal's Universal Coping™ or Ideal's natural stone coping using construction-grade adhesive. Add a 4" layer of low permeability soil, cover with topsoil and landscape per plans.

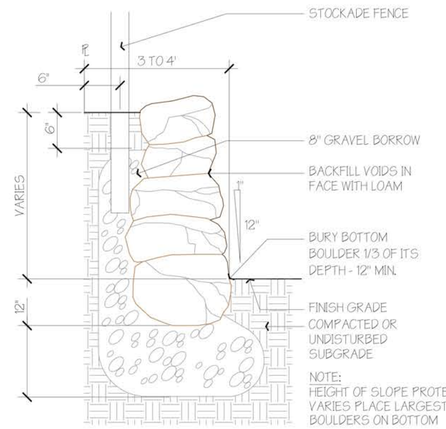
TYPICAL CROSS SECTION REINFORCED WALL



Always wear proper safety equipment when cutting or sawing concrete products.
A white deposit known as efflorescence may appear naturally on any concrete or masonry product. It does not affect the structural integrity and will dissipate over time. Efflorescence is not indicative of a flawed product. For more information, ask for our Efflorescence Advisory.

Pavers by Ideal®
A Registered Trademark of Ideal Concrete Block Co.
Traditional & Permeable Pavers ■ Landscape Retaining Walls ■ Natural Stone
Manufactured by Ideal Concrete Block Co.
45-55 Power Rd., Westford, MA 01886 ■ 232 Lexington St., Waltham, MA 02452
(781) 894-3200 ■ Fax (978) 692-0817
info@IdealConcreteBlock.com ■ www.IdealConcreteBlock.com
FF-2500 6/18

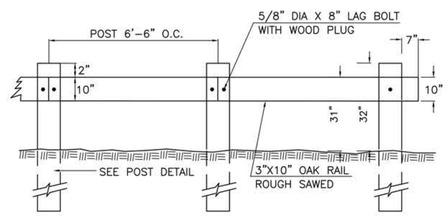




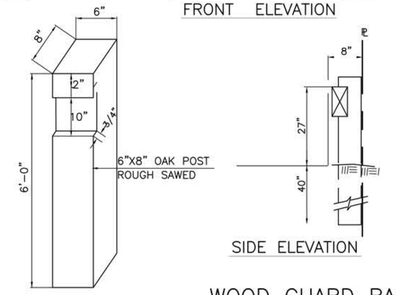
*** PROPOSED BOULDER WALL TO BE DESIGNED BY A STRUCTURAL ENGINEER

BOULDER STACKED WALL W/ FENCE

N.T.S 323509-01



FRONT ELEVATION

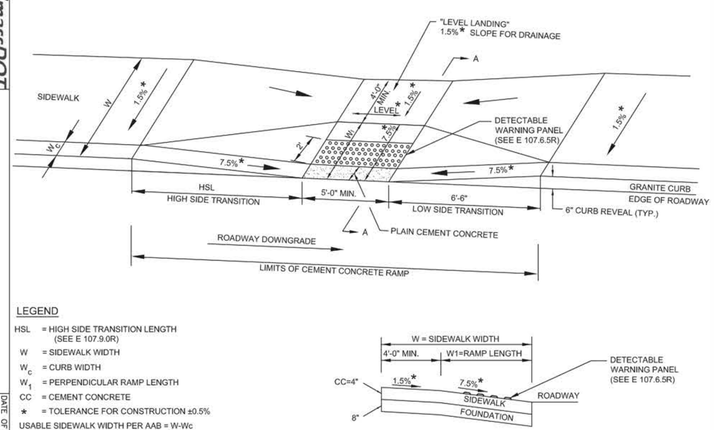


SIDE ELEVATION

WOOD POST DETAIL

WOOD GUARD RAIL

(NOT TO SCALE)



LEGEND

HSL = HIGH SIDE TRANSITION LENGTH (SEE E 107.9.0R)
W = SIDEWALK WIDTH
W_C = CURB WIDTH
W_1 = PERPENDICULAR RAMP LENGTH
CC = CEMENT CONCRETE
★ = TOLERANCE FOR CONSTRUCTION ±0.5%
USABLE SIDEWALK WIDTH PER AAB = W-Wc
RAMP LENGTH, W1 = W-4'-0" Min

SECTION A-A

massDOT CONSTRUCTION STANDARDS

WHEELCHAIR RAMPS
LESS THAN 12'-4" SIDEWALK

DATE OF ISSUE JUNE 2014
DRAWING NUMBER E 107.2.0

REVISIONS	
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12/16/19	PLANNING BOARD COMMENTS – MIXED USE
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6/10/20	PEER REVIEW COMMENTS

PHASE 2 SITE PLAN

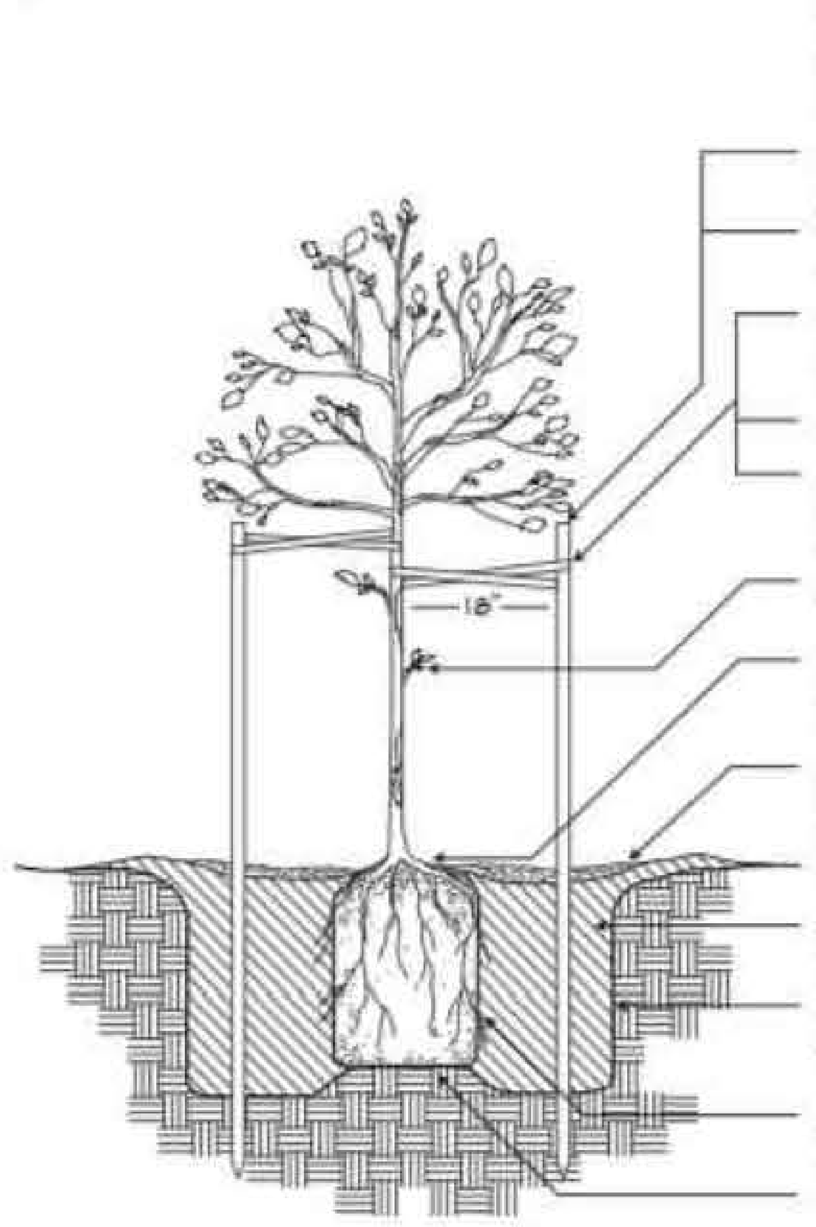
#81 WEST UNION STREET
ASHLAND, MASSACHUSETTS

PREPARED FOR:
81 WEST UNION STREET LLC
C/O WILLIAM J. RODENHISER
70 BARTZAK DRIVE
HOLLISTON, MA 01746

JUNE 13, 2019
SCALE: AS SHOWN
JOB No. 18-284

GRADY CONSULTING, L.L.C.
Civil Engineers and Land Surveyors
71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585-2300 Fax (781) 585-2378

TREE PLANTING DIAGRAM



#5 or #15 size container

Remove nursery stakes, burlap, and ties at time of planting.

Do not stake tree if tree can support itself. If it cannot (leans), then stake.

Two, 2" untreated lodgepole stakes to be used. Each stake to be placed 18" from the trunk.

Opposing flexible tree ties (one tie per stake). Secure ties to stakes. Ties to allow approximately 1.5" movement of trunk in any direction.

Cut stakes 2" above ties.

Check the ties monthly. Remove stakes and ties as soon as the tree is able to stand upright on its own, which is usually within 6 months to a year.

All side and lower branches to remain during establishment of tree.

Top of root ball is to be approximately 1.5"-2" above ground level. There should be no soil mounded on top of the root ball.

Cover soil surface around tree with a 3"-4" layer of mulch. Keep mulch 6" away from trunk of tree.

For trees in turf areas, provide a minimum 3' diameter area free of turf.

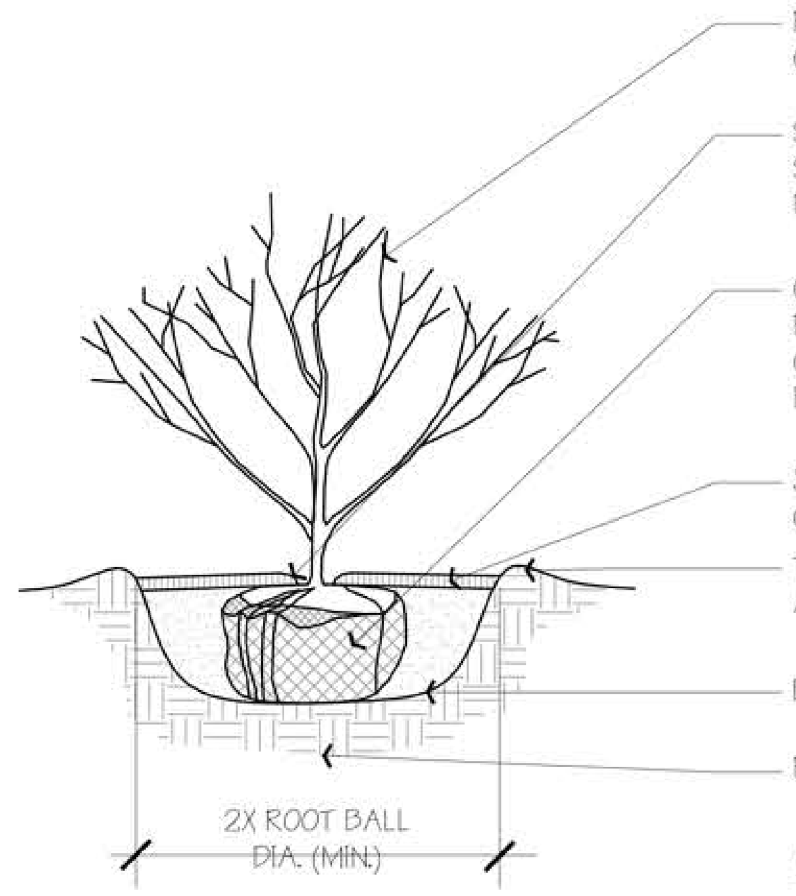
Firmly, but gently, pack soil around root ball and "water in" while soil is being added.

Hole size: 3 times wider than root ball. Fill with native soil. Add handful of worm castings. Fertilizer and ammendment to be added only as specified per soil analysis.

Loosen and extend side and bottom roots from root ball. Cut roots circulating the root ball.

Place root ball on pedestal of undisturbed native soil.

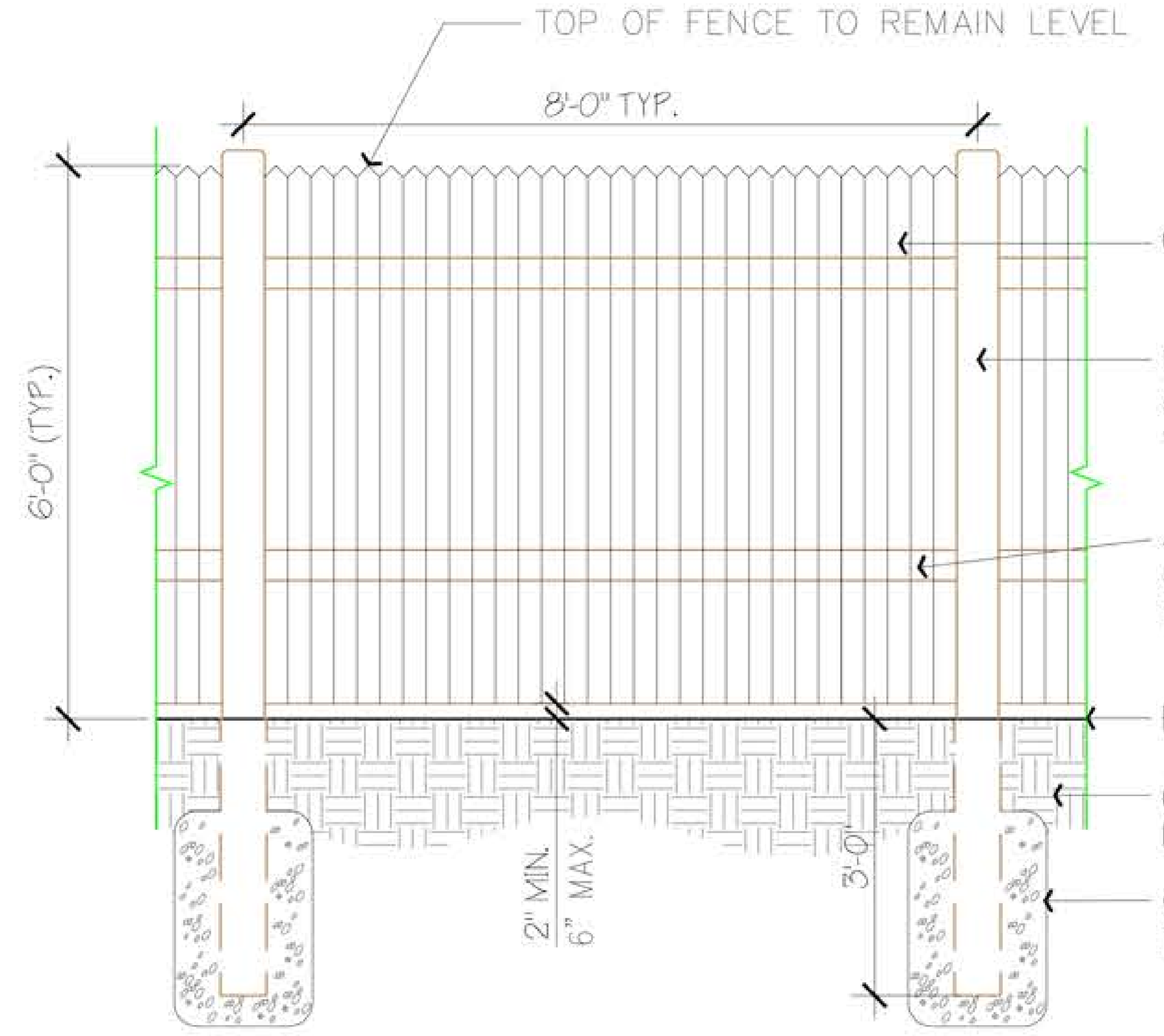
- EcoLandscape California



PLANTING STANDARD SOIL MIX:
1/3 PEAT - MANURE BLEND
1/3 HIGH ORGANIC LOAM
1/3 EXISTING SOIL

SHRUB DETAIL

1" = 1'-0" 329333.00-02



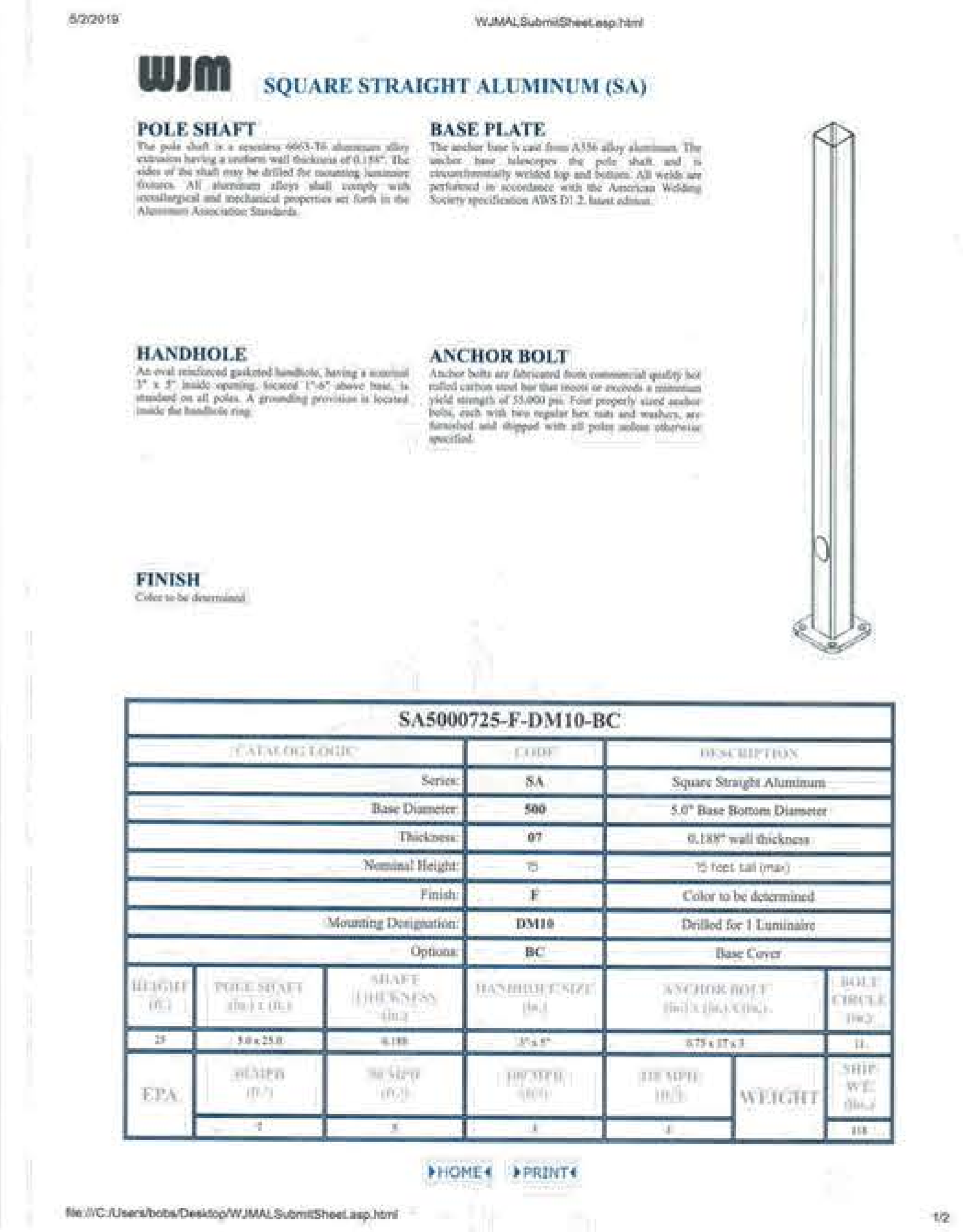
STOCKADE FENCE

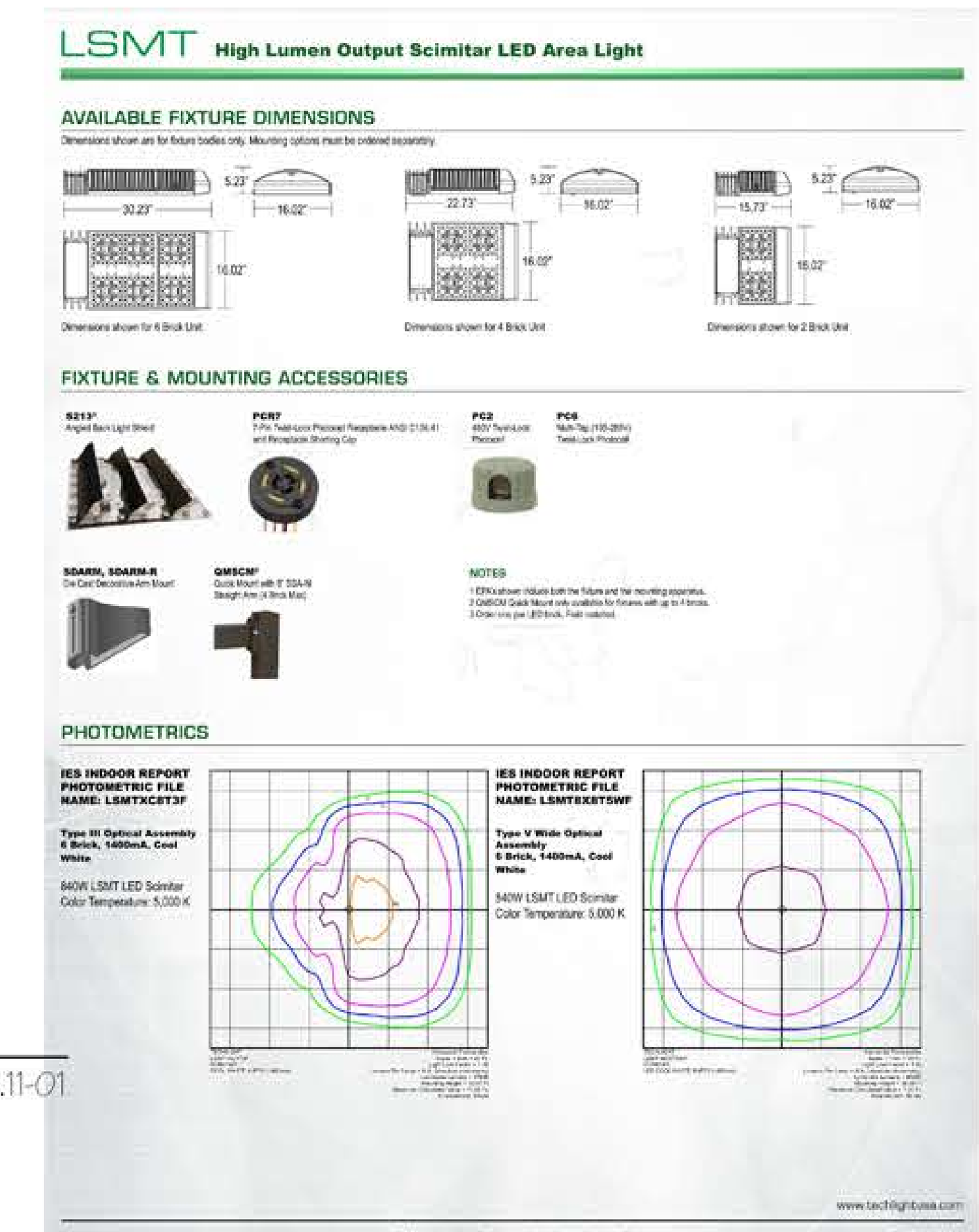
1/2" = 1'-0" 323129.11-01

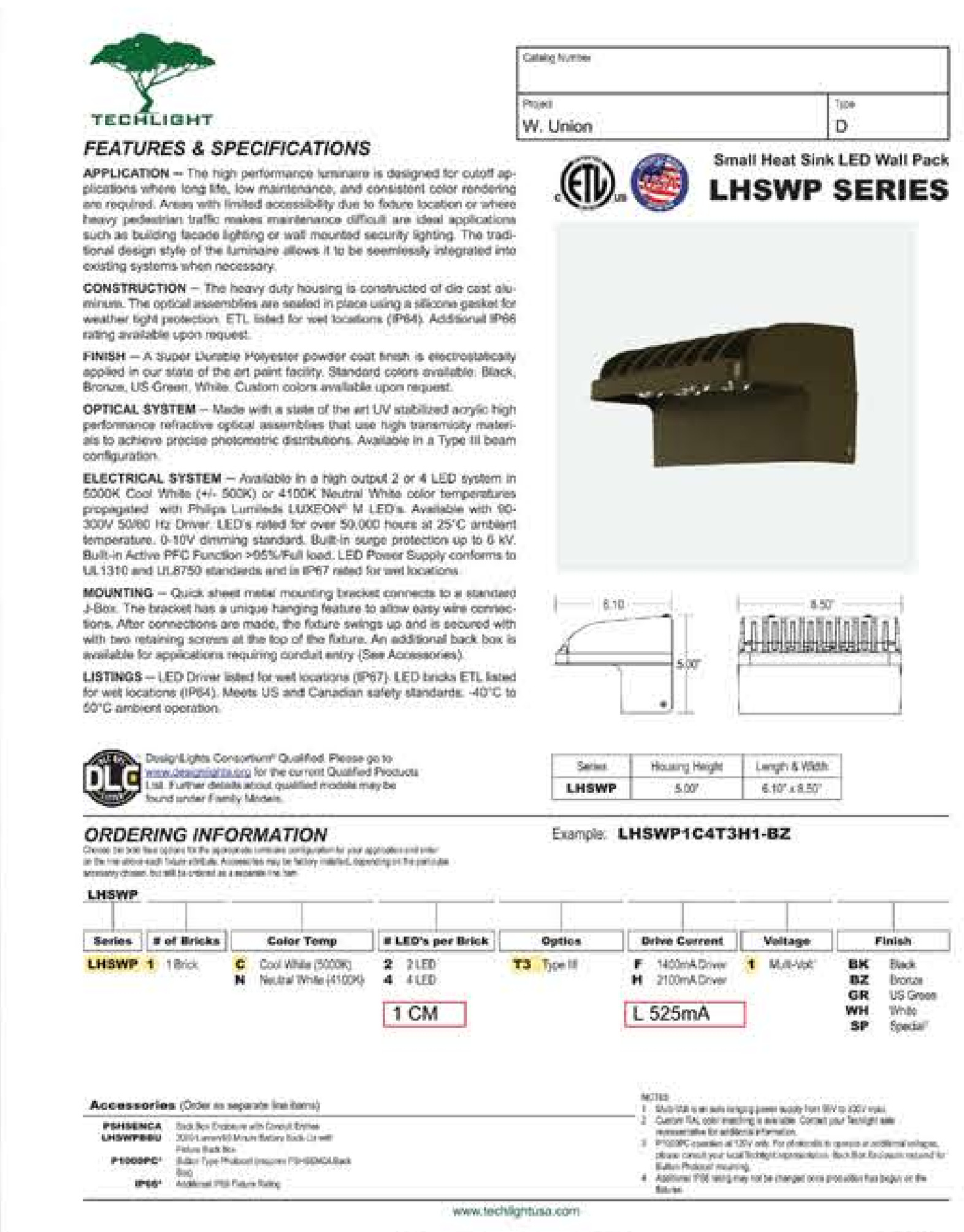
LOCATION	DEPTH	DESCRIPTION
GENERAL PLANTING BEDS	6"	1/3 PEAT - MANURE BLEND 1/3 HIGH ORGANIC LOAM 1/3 EXISTING SOIL
FLOWER BEDS	6"	SCREENED LOAM 1/3 PEAT - MANURE BLEND LIME - PELATIZED OR GROUND (50 LB. PER 100 SF.) GROUND BONE MEAL (50 LB. PER 100 SF.) 10-10-10 INORGANIC FERTILIZER (50 LB. PER 5000 SF.)
LAWNS - SOD & SEED	6"	6" SCREENED LOAM
PITS/TREE WELLS "STANDARD MIX" FOR BACKFILL	12"	SOIL MIX 'A' - 1/3 PEAT - MANURE BLEND 1/3 HIGH ORGANIC LOAM 1/3 EXISTING SOIL
PITS/TREE WELLS "LITE WEIGHT MIX"	12"	SOIL MIX 'B' - 70% LIGHT WEIGHT SHALE 20% SAND 10% COMPOST
PITS/TREE WELLS "STRUCTURAL MIX"	12"	SOIL MIX 'C' - MIX COMPOSITION TO BE SUPPLIED BY LANDSCAPE ARCHITECT.

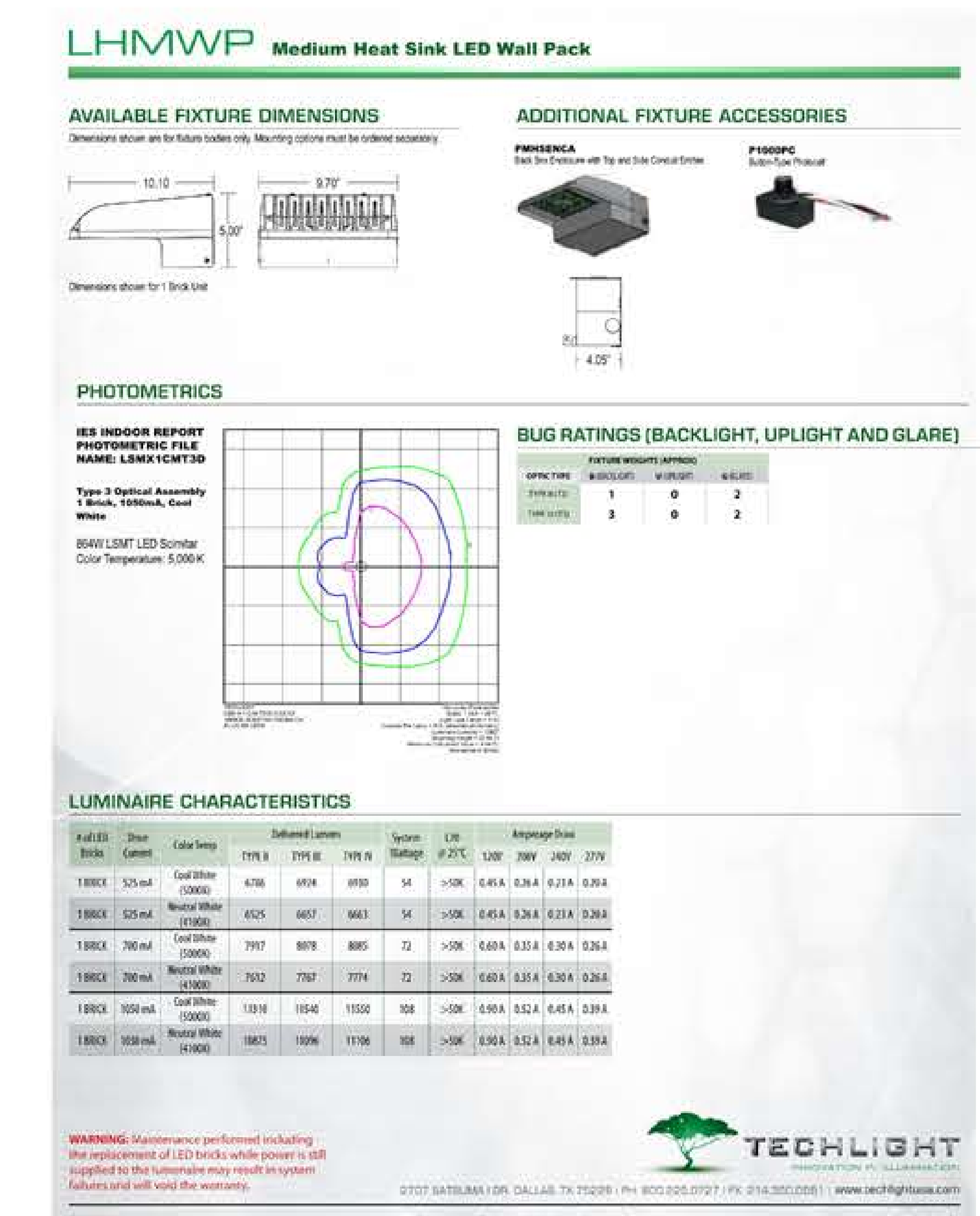
SCHEDULE OF TOPSOILS & ADDITIVES

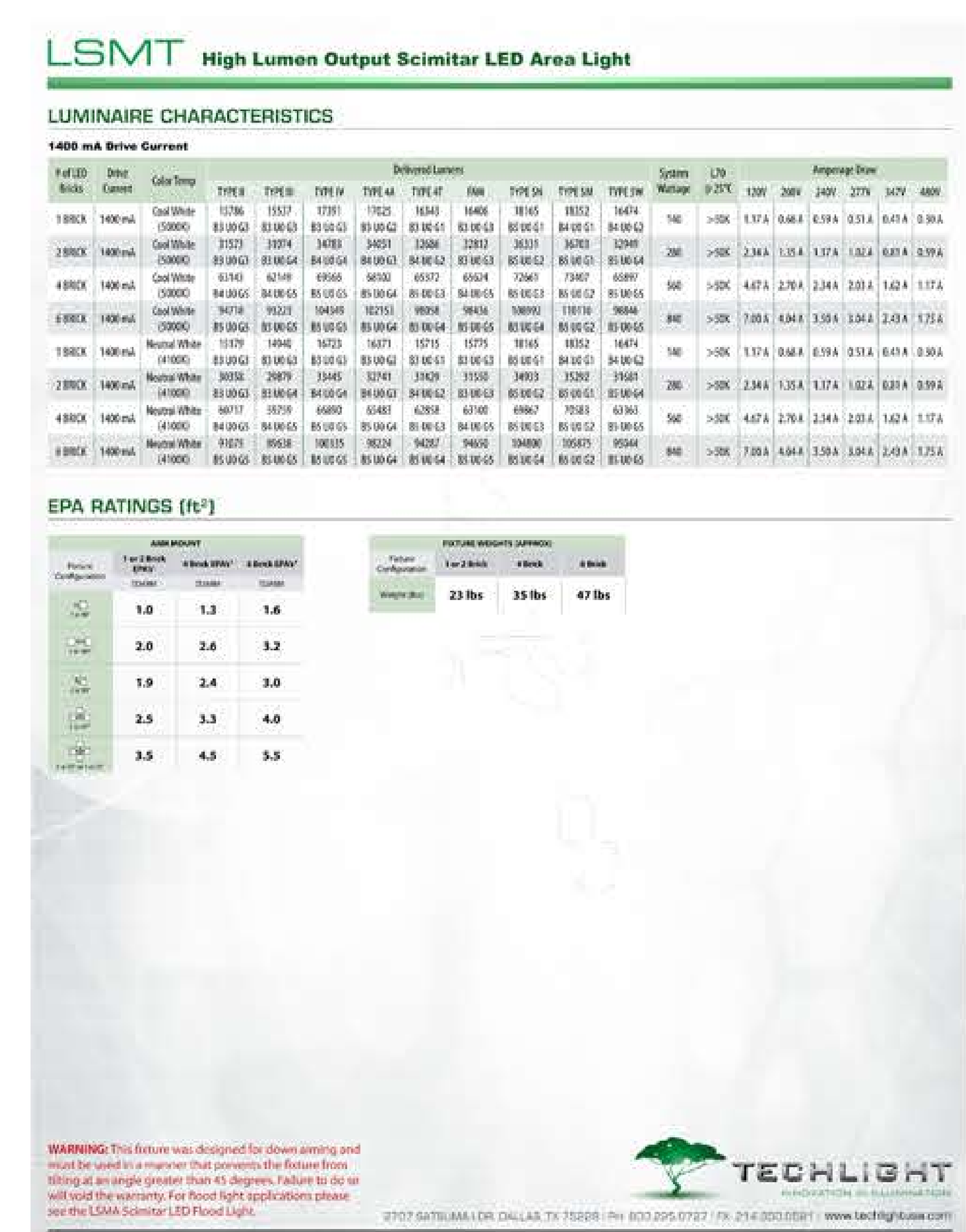
1" = 1'-0" 329301.03-01











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DARREN M. GRADY CIVIL No. 40715 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS

(DETAILS)